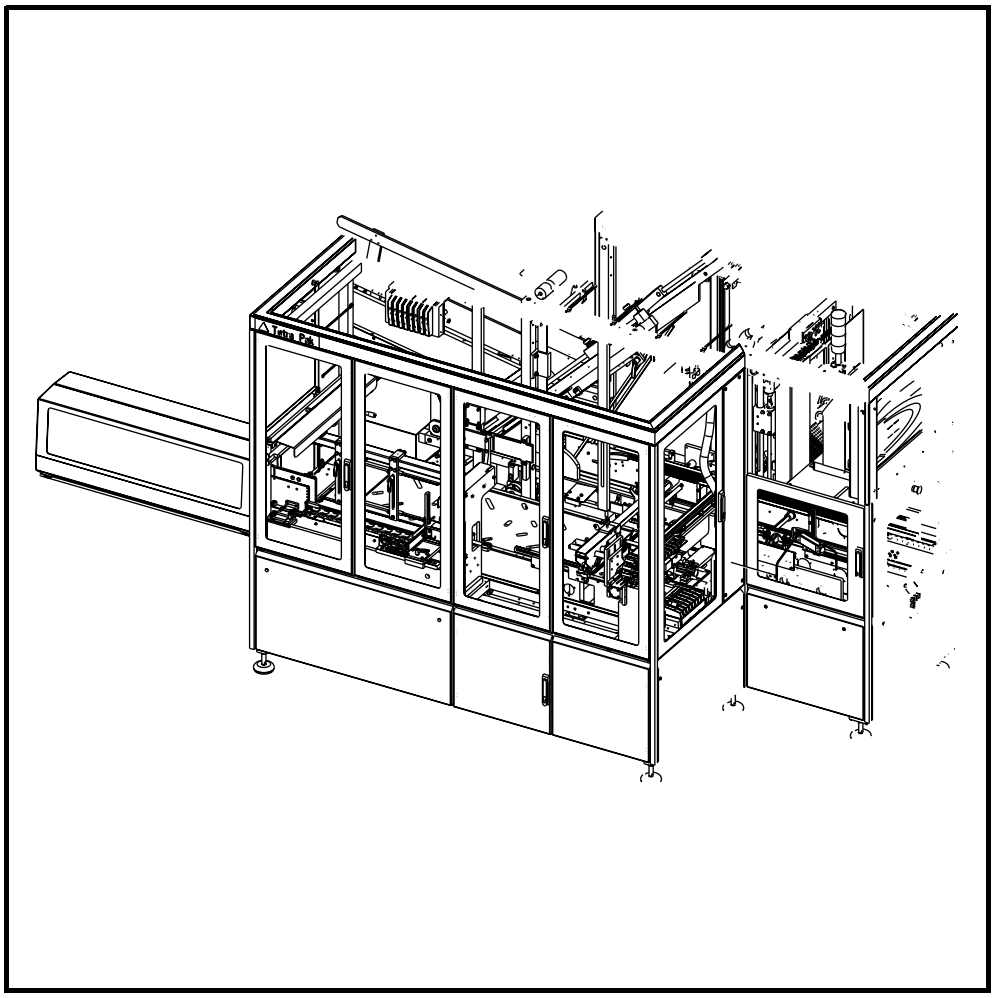
Electrical Manual

Tetra Cardboard Packer 70

670272-1100 - CSA



Tetra Pak

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This document was produced by:

Tetra Pak Carton Ambient AB
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Sweden

Additional copies can be ordered from Tetra Pak Parts or the nearest Tetra Pak office. When ordering additional copies, always provide the document number. This can be found in the machine specification document. It is also printed on the front cover and in the footer on each page of the manual.

Doc. No. EM-1381626-0105

Issue 2004-02

This manual is valid for:

Series No./ Machine No. Sign.

EM

Electrical Manual

Tetra Cardboard Packer 70
670272-1100 - CSA

i Introduction

ii Safety Precautions

1 Electrical systems description

2 Document list

3 Position summary

4 Circuit diagrams

5 Line summary

6 Cabinet terminal summary

7 Terminal strip overview

8 Cable connection list

9 Mains connection diagrams

10 Program document

11 Other information

A list of all optional equipment, optional kits, and rebuilding kits that this manual is valid for is found on the next page.

Doc. No. EM-1381626-0105

Issue 2004-02

Tetra Pak

Tetra Pak Carton Ambient AB

Valid for:

Light Barrier
2515201-0200

Discharge Support
1543556-0400

Lamp
1287186-0100

Discharge Unit
2525701-0200

Update Log for Doc. No. EM-1381626-0105

This table shows all changes made to this manual, such as kits installed and pages added or removed.

Date	Installed Kit	Added Pages (Doc. No.)	Removed Pages	Signature

Date	Installed Kit	Added Pages (Doc. No.)	Removed Pages	Signature

i Introduction

About the Introduction Chapter

This chapter contains basic information about this manual and related Tetra Pak equipment.

WARNING!
Risk of serious personal injury.
To ensure maximum safety, always read Chapter ii Safety Precautions before operating or servicing the machine or equipment.

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Manual Information

Tetra Pak recommends reading all delivered manuals carefully. Make sure that the delivered manuals are available to personnel who operate or maintain the equipment.

It is important to keep this manual for the lifetime of the equipment and to pass the manual on to any subsequent holder or user.

Tetra Pak will not be held responsible for any damage to the equipment caused by not following the instructions given in this manual.

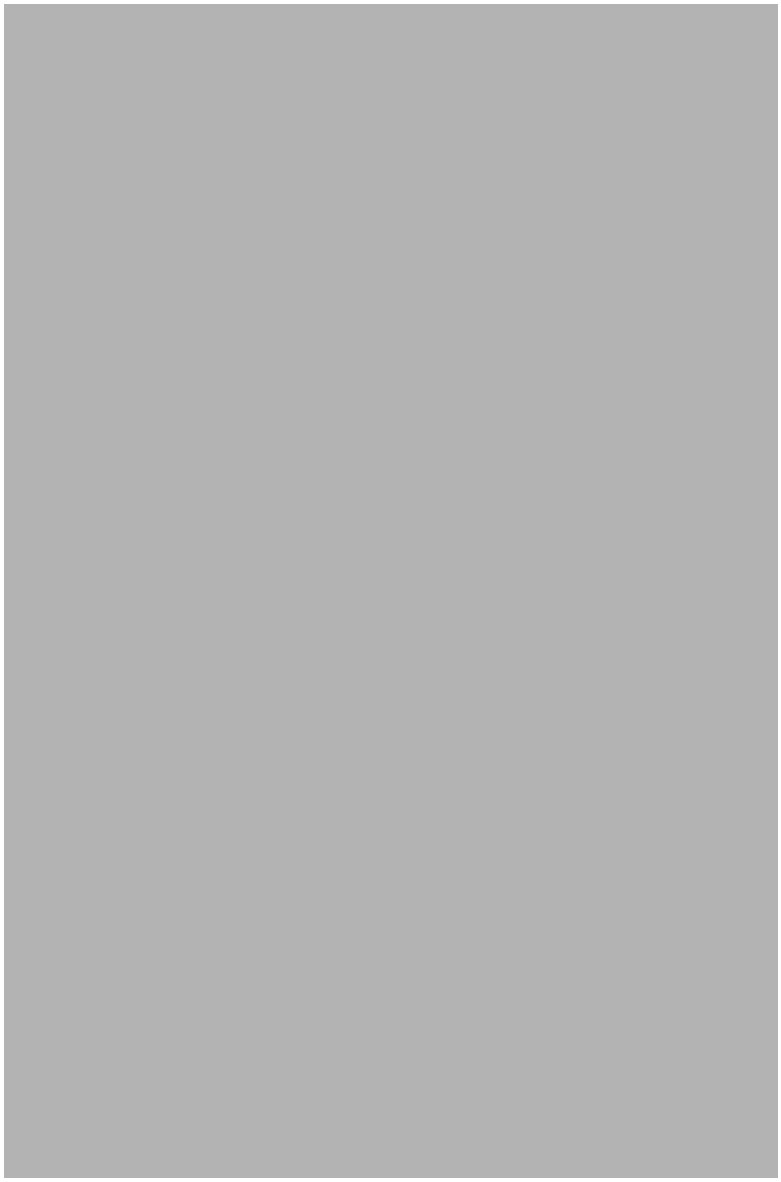
Delivered Documentation

The documents delivered with this machine or equipment include

- Conversion Manual (CM)
  This manual provides technicians with information on converting the equipment between different production modes.
- Electrical Manual (EM)
  This manual provides technicians with information about the equipment's electrical system.
- Installation Manual (IM)
  This manual provides technicians with information required to safely install the equipment.
- Maintenance Manual (MM)
  This manual provides technicians with information on maintaining the equipment.
- Operation Manual (OM)
  This manual provides the operator with information on handling and operating the equipment before, during, and after production.
- Spare Parts Catalogue (SPC)
  This manual provides the information necessary to order spare parts from Tetra Pak
- Technical Manual (TeM)
  - provides technicians with information required to safely install the equipment
  - provides technicians with information on maintaining the equipment
  - provides technicians with information about the equipment's electrical system
  - provides the information necessary to order spare parts from Tetra Pak

Page Layout

Every main page in a manual contains a header and a footer. The page header contains the section name (1) and the chapter name (2). The page footer contains the manual's document number (3), and the page number (4). See also Section Page Numbering.



1 Section name
2 Chapter name
3 Document number
4 Page number

Page Numbering

A page number has three parts:

- chapter number (1)
- consecutive page number (2) within the chapter
- total number of pages (3) in the chapter.

1 Chapter number
2 Consecutive page number
3 Total number of pages

Typographical Conventions

Controls on the operator panel, emergency stop devices, and program steps are printed in CAPITAL LETTERS

Cross-references are underlined.

Symbols

The following symbols are used in illustrations:

- A pointer arrow (1) indicates the position of an object.
- A zoom arrow (2) indicates that an object view is enlarged. The arrow points towards the enlarged view of the object.
- A rotation movement arrow (3) indicates rotational movement of an object. The arrow points in the direction of rotation.
- A straight movement arrow (4) indicates movement of an object. The arrow points in the direction of movement.

1 Pointer arrow
2 Zoom arrow
3 Rotation movement arrow
4 Straight movement arrow

Machine Introduction

Intended Use of the Machine or Equipment

The intended use of this Tetra Pak machine or equipment is to place packages approved by Tetra Pak Carton Ambient AB into units made of corrugated cardboard.

All other use is prohibited. Tetra Pak will not be held responsible for injury or damage if the machine or equipment is used for any other purpose.

Manufacturer

This Tetra Pak machine or equipment has been manufactured by

Tetra Pak Carton Ambient AB
Ruben Rausings gata
SE-221 86 Lund
Sweden

Service

If you encounter problems when operating this machine or equipment, contact the nearest Tetra Pak office.

Contact the Liaison with other inquiries, comments, or suggestions for improvement regarding the machine or equipment and its documentation.

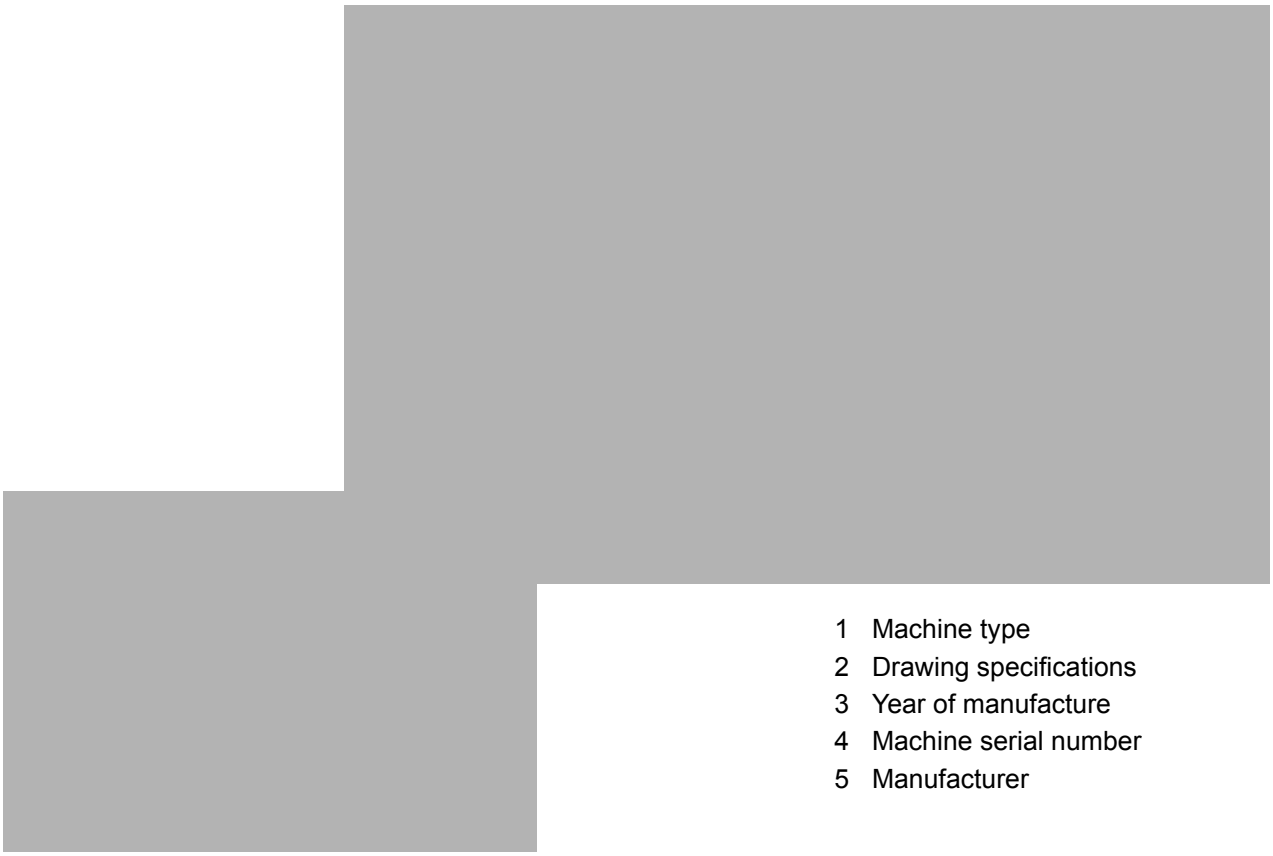
Identification

CE Classification

This equipment complies with the basic health and safety regulations of the European Economic Area (EEA).

Machine Plate

The illustration below shows an example of the machine plate and its location on the equipment. The machine plate carries data needed when contacting Tetra Pak concerning this specific equipment.



1 Machine type
2 Drawing specifications
3 Year of manufacture
4 Machine serial number
5 Manufacturer

Orientation

The illustration below shows the orientation of the equipment. This orientation information will be used throughout this manual.

A Front
B Rear
C Left-hand side
D Right-hand side
E Infeed
F Discharge

Hygiene

Avoid microbiological pollution of the packaging material:

- Always keep the doors to the filling room (area) closed. To prevent contamination via air streams, never open a window when the equipment is in production.
- Never clean the floors or the equipment in the filling room (area) when the equipment is in production.
- Compressed air used for cleaning purposes is to be used only for cleaning filters and should only be used outside of the filling room (area) or in the final folder compartment of the filling machine.
- Prepare the splicing of the packaging material as late as possible.
- Disinfect your hands before touching anything that may come into contact with the product. Use disinfectant code H. See Chapter Technical Data.
- Keep your hands and gloves clean.
- Always wear some type of hair protection (cap or hairnet) and clean clothes (preferably white).
- Do not wear a watch, ring, necklace, earrings, or any other exposed jewellery.

Machine variants

Z-infeed, RH version

Z-infeed, LH version

U-infeed, RH version

U-infeed, LH version

Abbreviations and Terminology

Abbreviation/ Terminology	Meaning	Translation
CE	Communautés Européennes / European Communities	
CPU	Central Processing Unit	
EEA	European Economic Area	
EM	Electrical Manual	
IM	Installation Manual	
I/O	Input / Output (module)	
LED	Light Emitting Diode	
LH	Left Hand	
OM	Operation Manual	
MM	Maintenance Manual	
RH	Right Hand	
SPC	Spare Parts Catalogue	
TeM	Technical Manual	
TPMS	Tetra Pak Maintenance System	
WA	Wrap Around unit	
SUMQR	Start Up Machine Quality Report	
PLMS	Packaging Line Monitoring System	
SPC200	Smart Positioning Controller	
CSA	Canadian Standards Association	

How to Use This Electrical Manual

General

The chapters following Introduction and Safety Precautions are divided as follows.

Chapter	Name	Drawing No.
1	Electrical Systems Description	
2	Document List	xxxxxxx-0001
3	Position Summary	xxxxxxx-0002
4	Circuit Diagrams	xxxxxxx-0003
5	Line Summary	xxxxxxx-0004
6	Cabinet Terminal Summary	xxxxxxx-0005
7	Terminal Strip Overview	xxxxxxx-0006
8	Cable Connection List	xxxxxxx-0007
9	Mains Connection	xxxxxxx-0008
10	Program Documents	
11	Component Location (optional)	
12	Other Information, for example - Engineering Change Description - Mounting Drawing - Bill of Materials - Fuse Panel	 xxxxxxx-0099 xxxxxxx-0009

The **Document List** is a Table of Contents for chapters 3 to 9, listing all drawings included.

In the **Circuit Diagrams**, the first pages are reserved for distribution terminals and the last pages are reserved for pre-connected cables (cables connected to spare terminals and reserved for future use).

The **Mains Connection** diagram shows how the machine should be connected to the local supply, the dimensions of the connection cable, and the connection of the matching transformer (when used).

The **Program Documents** consist of the PLC listings for this machine.

(Cont'd)

(Cont'd)

The documents and drawings in chapters 3 to 9 are identified by a drawing group number (1), a version code (2), and a page number (3).

1 Drawing number
2 Version code
3 Page number

The page number is the consecutive numbering of the pages that belong to the main number and is used as a reference in the diagrams.

Numbering System for Components

The position number has three parts: a prefix (1), a function designation (2), and a running number (3). These parts are described in detail in the sections below.

1 Prefix
2 Function designation
3 Running number

Prefix

The prefix shows the location of the component:

- +M indicates that the component is fitted on the machine, outside the electrical cabinet.
- +C indicates that the component is fitted on the electrical cabinet, on the TPOP, or on the process panel.

Note! The location +C is considered as default and is omitted on all **circuit diagram** pages.

(Cont'd)

(Cont'd)

Function Designation

The function designation is indicated in accordance with international standards. See the table below.

Designation	Signification in Electrical Diagram
A	Assemblies, Sub-assemblies
B	Transducers
C	Capacitors
D	Binary element, Delay devices, Storage devices
E	Miscellaneous
F	Protective devices
G	Generators, Power supplies
H	Signalling devices
K	Relays, Contactors
L	Inductors, Reactors
M	Motors
N	Analogue elements
P	Measuring equipment, Testing equipment
Q	Switching devices for power circuits
R	Resistors
S	Switching devices for control circuits selectors
T	Transformers
U	Modulators, Changers
V	Tubes, Semiconductors
W	Transmission paths, Waveguide aerials
X	Terminals, Plugs, Sockets
Y	Electrically operated mechanical devices
Z	Terminations, Hybrids, Filters, Equalizers, Limiters

Running Number

The electrical components are numbered in a consecutive non-logical order.

Optional Equipment

An optional equipment designation (1) indicates that the component belongs to specific optional equipment.

1 Optional equipment designation

How to Trace a Component

Example 1: How to trace sensor +M-B8405

a) Go to the **Position summary**. See the illustration on the next page.

b) On the right side of the table, find the circuit diagram reference page where the component +M-B8405 is located (page 035, column 4).

c) Go to page 035 in the **Circuit diagram**. See the illustration on the next page.

d) Find the component +M-B8405.

e) Note the connections +M-X8402 :1, :2, :3.

f) Note the cable +M-W8423.

(Cont'd)

(Cont'd)

Position summary

Circuit diagram

(Cont'd)

(Cont'd)

g) Go to the **Terminal strip overview**. See the illustration.

h) Find the connections +M-X8402 :1, :2, :3 (on the right side of the table, find the circuit diagram reference page where the connections are located).

Note! The **Terminal strip overview** shows how the sensor is connected (in this case via a connection box).

Terminal strip overview

Note! When a cable is supplied with the component, such as sensors and photocells, the pin configuration is removed from the symbol in the **Circuit diagram**. The connection information is kept separately from the cable cores.

i) The location +M indicates that the component is fitted on the machine.

j) Locate the component using the SPC, see Section How to Find Electrical Components using the Spare Parts Catalogue.

(Cont'd)

(Cont'd)

Example 2: How to trace contactor +C-K8201

a) Go to the **Position summary**. See the illustration below.

b) On the right side of the table, find the circuit diagram reference page where the component +C-K8201 is located (page 043, column 4).

c) Go to page 043 in the **Circuit diagram**. See the illustration below.

d) Find the component +C-K8201.

e) Note the contact image on the right side and find the page references for the related contacts.

Position summary

Circuit diagram

(Cont'd)

(Cont'd)

f) Go to page 006, column 2 in the **Circuit diagram**. See the illustration below.

g) Find the contacts +C-K8201.

Note! For master and slave components, such as coils and contacts, only the master is reported in the **Position summary**. The slave shows the page and column references of the master.

Circuit diagram

How to Trace a Cable

Example: How to trace cable No. +M-W8202

a) Go to the **Cable Connection list**. See the illustration on the next page.

b) On the right side of the table, find the circuit diagram reference page where the cable +M-W8202 is located (page 005, column 5).

Note! The cables are listed in alphanumerical order.

c) Go to page 005 in the **Circuit diagram**. See the illustration on the next page.

d) Find the cable +M-W8202.

Note! The spare cores are shown in the cable connection list.

(Cont'd)

(Cont'd)

Cable connection list

Circuit diagram

Supply Voltage/Line Connection Order

The supply voltage in the electrical cabinet has power voltage and control voltage designations:

- Power voltage: lines with designations **ending** with 01 to 09, for example, L03 and L803
- Control voltage: lines with designations **ending** with 10 to 99, for example, L12 and L812

The line connection order is shown in the **Line summary**.

How to Trace a Line

Example: Line connection L810 to the component +C-A8305

a) Go to the **Circuit diagram**. See the illustration on the next page.

b) Find the component +C-A8305 (input module).

c) Note which terminal of +C-A8305 is connected to the line connection L810 (pin 01).

d) Go to the **Line summary.** See the illustration on the next page.

e) Find the component terminal +C-A8305:01.

f) Note the relative upward line terminal connection order +C-XL810:7.

(Cont'd)

(Cont'd)

Circuit diagram

Line summary

How to Trace a Terminal

Example 1: Terminal in the electrical cabinet +C-X8213:3

a) Go to the **Cabinet terminal summary**. See the illustration on the next page.

b) Find the terminal +C-X8213:3.

c) On the right side of the table, find the circuit diagram reference page where the terminal +C-X8213:3 is located (page 035, column 7).

d) Go to the **Circuit diagram**. See the illustration on the next page.

(Cont'd)

(Cont'd)

Circuit diagram

Cabinet terminal summary

(Cont'd)

(Cont'd)

Example 2: Terminal outside the electrical cabinet +M-X8402:1, :2, :3

a) Go to the **Terminal strip overview**. See the illustration on the next page.

b) Find the terminal strip page where +M-X8402 is located.

c) On the right side of the table, find the circuit diagram reference page where the terminals +M-X8402:1, :2, :3 are located (page 035, column 3).

d) Go to the **Circuit diagram**. See the illustration on the next page.

e) Note the component connected +M-B8405.

f) The location +M indicates that the component is fitted on the machine.

g) Locate the component using the SPC. See Section How to Find Electrical Components using the Spare Parts Catalogue.

(Cont'd)

(Cont'd)

Terminal strip overview

Circuit diagram

How to Find Electrical Components using the Spare Parts Catalogue

One of the chapters in the Spare Parts Catalogue (SPC) is the **Electrical Parts Index**. This index is used to locate electrical parts.

a) Go to the Electrical Parts Index of the SPC and locate, for example component B8405, and the SPC page on which it can be found.

Electrical Parts Index

(Cont'd)

(Cont'd)

b) Go to the page of the SPC on which the component is located. The position number of the component is the same as the component number. That position number is found on the drawing above the list. The drawing shows where the component is located.

Spare Parts Catalogue spread

Main groups location

The machine is divided into main groups arranged in a logical order as shown in the table below. The logical order is based on how a package is moving through the machine during production.

The location of each main group is shown in the figure below.

Pos	Main group	Pos	Optional equipment
1	Regular accessories	8	Light barrier
2	Electrical equipment	9	Discharge Support
3	Infeed unit		
4	Central lubrication		
5	Magazine unit		
6	Base unit		
7	Wrap around unit		

ii Safety Precautions

Read the Safety Precautions

WARNING!
Read and follow all safety precautions before working on or near this equipment.
Read all safety precautions throughout this manual and on safety signs attached to this equipment. Failure to follow all safety precautions could result in death or serious injury.

Definitions

Energy Isolating Device. A mechanical device that physically prevents transmission or release of energy.

Power Supply Disconnector. The energy isolating device for the electrical power supply to the equipment.

Lockout. The use of a device, such as a padlock, to make sure that an energy isolating device, such as a power supply disconnector, cannot be operated.

Lockout Procedure. A procedure to put each necessary energy isolating device in its safe position to prevent the energising of the equipment, such as when a maintenance procedure should be carried out.

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Safety Messages Description

A safety message is always accompanied by a safety alert symbol and a signal word.

This is the **safety alert symbol**. It is used to alert about potential personal injury hazards. To avoid hazards, obey all safety messages that follow this symbol.

The following safety alert symbols and **signal words** are used in this manual to inform the user of hazards.

DANGER!
Danger indicates an imminently hazardous situation which, if not avoided, **will** result in **death or serious injury**.

WARNING!
Warning indicates a potentially hazardous situation which, if not avoided, **could** result in **death or serious injury**.

CAUTION!
Caution indicates a potentially hazardous situation which, if not avoided, **may** result in **minor or moderate injury.** It may also be used to alert against unsafe practices.

CAUTION!
Caution without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, **may** result in **property damage**.

Personnel Requirements

Note! Personnel includes all persons working on or near this equipment.

Only skilled or instructed persons are allowed to work with this equipment.

Skilled Person

A skilled person must have relevant education and experience to enable him or her to identify hazards, analyse risks, and avoid hazards which electricity, machinery, chemicals, other energies, and supply systems on this equipment can create.

Skilled persons must meet local regulations, such as certifications and qualifications for working with electricity, mechanical systems, and so on.

Instructed Person

An instructed person must be adequately advised or supervised by a skilled person. The skilled person enables the instructed person to identify hazards, analyse risks, and avoid hazards which electricity, machinery, chemicals, other energies, and supply systems on this equipment can create.

Safety Signs

WARNING!
Damaged or missing safety signs increase the risk of death or serious injury.
Replace all missing or damaged safety signs immediately.

There are two types of safety sign

- ISO signs are used worldwide
- ANSI signs are used in the United States only

The table shows all safety signs that are located on this equipment.

Note! The position numbers (Pos.) in the table refer to the positions in the illustration(s) in the Locations of Safety Signs section.

Pos.	ISO sign	ANSI sign
1		
	Hazardous voltage. Will shock, burn, or cause death. Follow lockout procedure before maintenance.	
2		
	Hazardous voltage with power supply disconnector switched off. Can shock, burn, or cause death. Do not touch.	
3		
	Hazardous voltage could be present with power supply disconnector switched off. Can shock, burn, or cause death. Orange conductors supplied from an external source. Follow lockout procedure before maintenance.	

Pos.	ISO sign	ANSI sign
4		
	Hazardous voltage. Can shock, burn, or cause death. Read Maintenance Manual before using this socket outlet.	
5		
	Risk of equipment damage. Do not let water into this area.	
6		
	Burn hazard. Trapped heat energy. Do not touch.	
7		
	Hot surface. Do not touch. Follow lockout procedure before maintenance.	
8		
	Trapped pneumatic energy. Moving parts could cause serious injury. Follow lockout procedure before maintenance.	

Locations of Safety Signs

Note! Make sure that each safety sign is undamaged and in its correct position after installation and maintenance. Replace all missing or damaged safety signs immediately.

The illustration shows where the safety signs are located. The position numbers refer to the table in the Safety Signs section.

Safety Devices

WARNING!
Unshielded hazards.
Never inch or run this equipment if any safety device is inoperative.

Change inoperative components of the safety system immediately.

WARNING!
Hazardous Voltage.
Activating a safety device, such as pressing an EMERGENCY STOP push-button or opening a door, does not disconnect the power supply from this equipment.

Emergency Stop

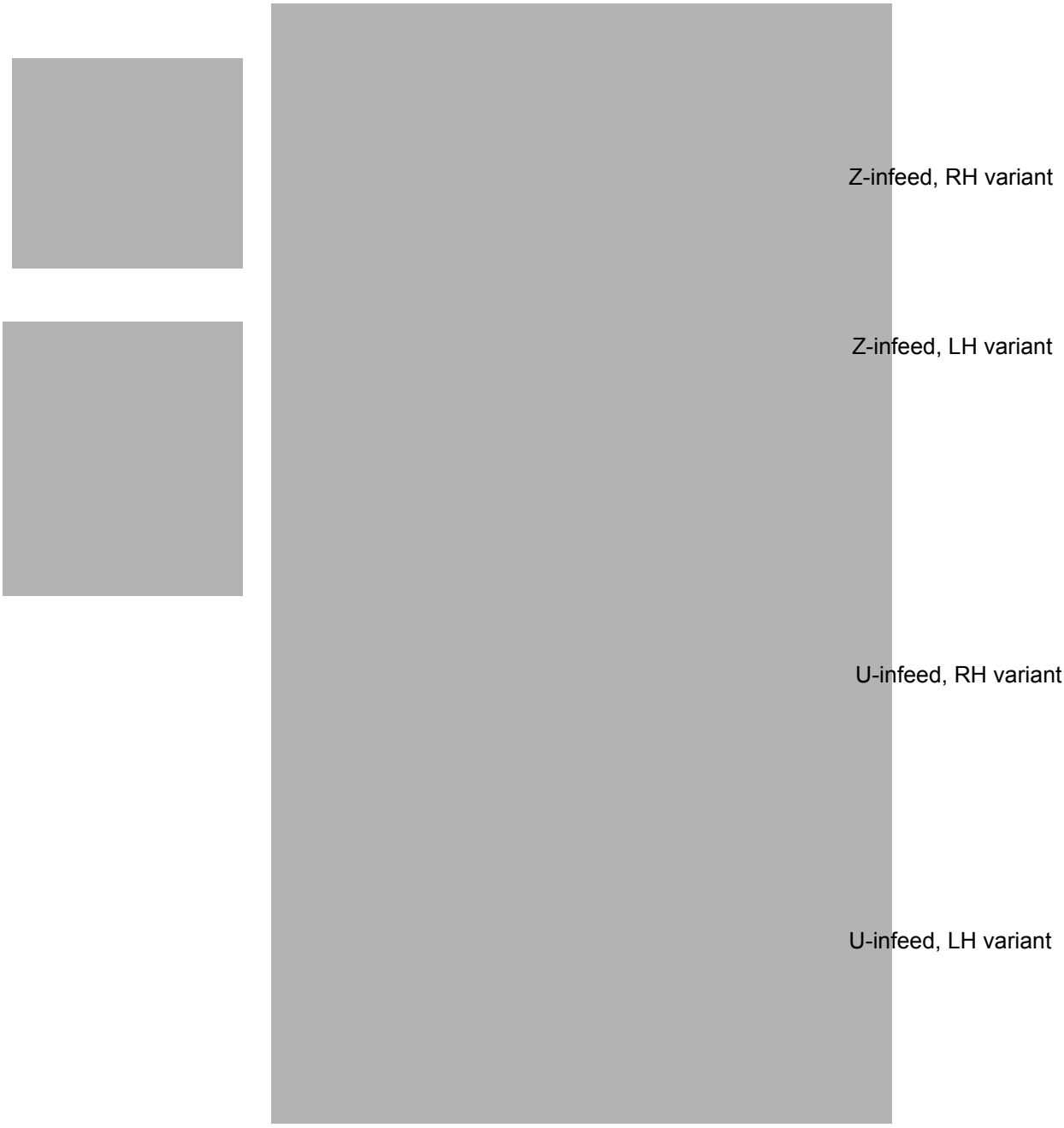
Emergency stop devices are used to stop this equipment immediately in an emergency. Learn the positions of all emergency stop devices and how to use them.

Instructions for a normal production stop are included in the Stop chapter of the Operation Manual.

EMERGENCY STOP Push-Buttons

Push one of the EMERGENCY STOP push-buttons to stop this equipment immediately.

The illustration shows an EMERGENCY STOP push-button. The location of each EMERGENCY STOP push-button is shown by an arrow.



Safeguards

WARNING!
Moving machinery.
Never defeat or bypass the interlocking devices.

All movable guards, such as doors and covers, leading to hazardous areas are fitted with interlocking devices, usually electric safety switches. These devices are part of the safety system and must never be defeated, bypassed, or otherwise made inoperative.

CAUTION!
Burn hazard.
Parts of this equipment protected by safeguards may be thermally hot after operation.

After installation and maintenance, and before this equipment is inched or run, check that all safeguards are in place and that they operate correctly.

CAUTION!
Equipment damage.
Never stop this equipment by opening a movable guard.

The location of each movable guard is shown by an arrow.

(Cont'd)

(Cont'd)

Infeed Conveyor

WARNING!

If a door is opened, the infeed conveyor will still be in motion.
The conveyor stops when the machine is stepped down to zero or when an Emergency stop button is pushed or when the machine is completely turned OFF.

To stop the conveyor, do one of the following:

- Step down to zero
- Press one of the Emergency stop buttons
- Turn the machine OFF

Infeed conveyor

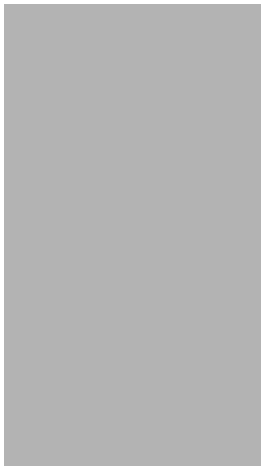
Warning Lamp

A warning lamp is a column of warning lights:

- A red light (1) indicates a hazardous condition. This is an emergency situation that requires immediate action.
- A yellow light (2) indicates an abnormal condition. This is an impending critical condition calling for action by the operator.
- A blue light (3) indicates that operator action is required.

Note! For a list of alarms, see the Operation Manual.

A warning light flashes when operator action is required. The light stops flashing and remains lit when the alarm is acknowledged. After the fault is corrected or the operator takes the appropriate action, the warning light goes off.



1 Red light
2 Yellow light
3 Blue light

Personal Protection

This section applies to all personnel at all times when this equipment is in operation.

Noise Hazard

CAUTION!
Hazardous noise.
Risk of impaired hearing.
Hearing protection is recommended whenever this equipment is in operation.

Entanglement Hazard

WARNING!
Risk of entanglement.
Do not wear jewellery or loose clothing when working on or near this equipment. Long hair may not be loose.

Electrical Cabinet

DANGER!

Hazardous voltage.
Will shock, burn, or cause death.
The power supply disconnector must be switched off and secured with a lock before maintenance inside the electrical cabinet.

Note! The key to the lock must be removed by the technician and retained in his/her possession until all work is completed.

Make sure that the electrical cabinet doors are closed after working inside the electrical cabinet. Doors with lock must be locked.

The location of each electrical cabinet is shown by an arrow.

Socket Outlet

WARNING!
Hazardous voltage.
Can shock, burn, or cause death.
Read the Maintenance Manual before using this socket outlet.

The illustrations show the socket outlet (1) and the residual current device (2). Their locations in the electrical cabinet (3) are shown by arrows.

1 Socket outlet
2 Residual current device F024
3 Electrical cabinet

Power Supply

DANGER!

Hazardous voltage and moving machinery.
The power supply disconnector must be switched off and secured with a lock before any maintenance.

Note! The key to the lock must be removed by the technician and retained in his/her possession until all work is completed.

Certain maintenance procedures may require power supply systems to be on. These exceptions are clearly stated in the Maintenance Manual.

The illustration shows the power supply disconnector. The arrow shows its location on this equipment.

Air Supply

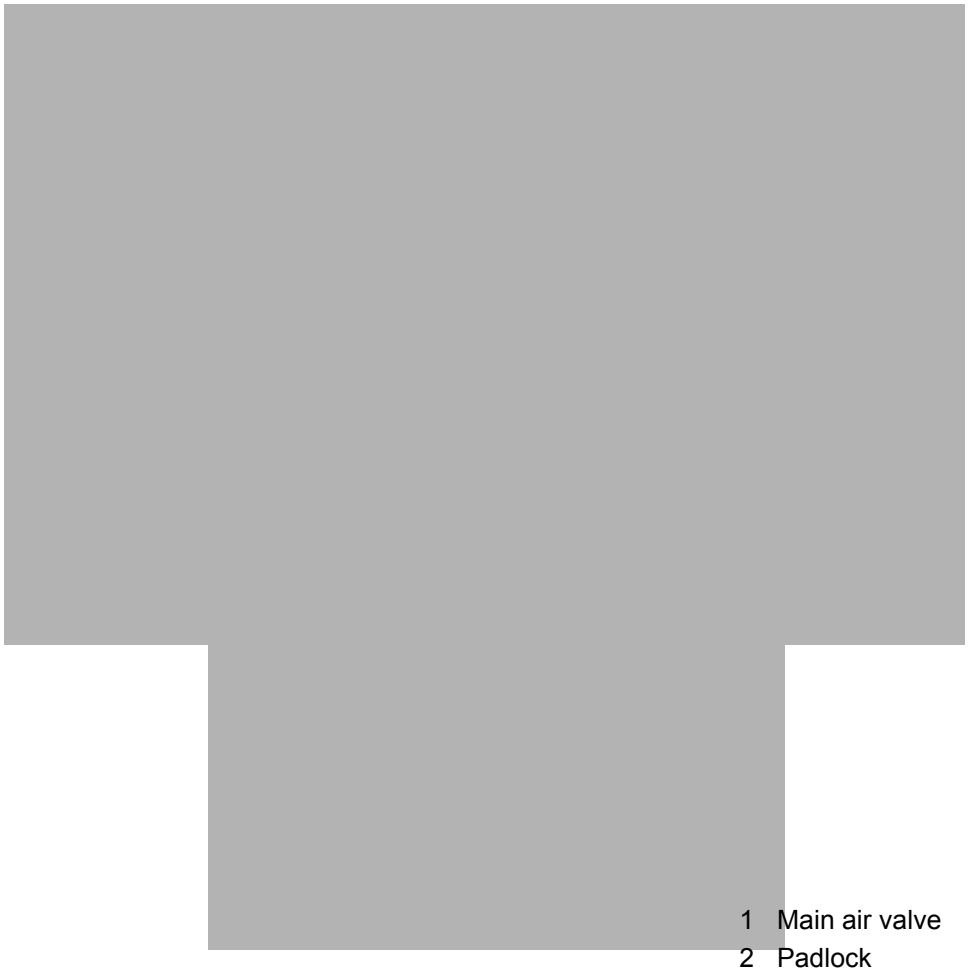
WARNING!
Compressed air and moving machinery.
Close the main air valve and secure it with a lock before any maintenance.

Note! The key to the lock must be removed by the technician and retained in his/her possession until all work is completed.

Certain maintenance procedures may require air supply systems to be on. These exceptions are clearly stated in the Maintenance Manual.

The illustrations show the main air valve (1) and the lock (2). Their locations are shown by arrows.

In the picture below the **Main air valve** (1) is turned OFF.



1 Main air valve
2 Padlock

Hotmelt Equipment

DANGER!

The voltage is 400V inside the hotmelt unit. Risk of immediate danger to life through electrical shock.

Never flush water or any other liquid towards the hotmelt unit when cleaning the machine. Failure to obey will result in danger to your life.

WARNING!

All service work on the hotmelt unit must be carried out by authorized personnel. Always wear safety glasses, protective gloves, and other protective clothing to avoid injuries caused by splashing adhesive.

Never remove any part or component until air and the electrical supply to the machine have been disconnected and the pressure of the adhesive in the system has been relieved.

Failure to relieve any remaining air or liquid (adhesive) pressure may cause serious injuries from burning when the hotmelt filter is detached or flushed.

During heating and production the unit gets hot. The hotmelt tank contains heated adhesive which can cause serious injuries. Do not touch the adhesive!

During tank drainage never touch the drain shut!

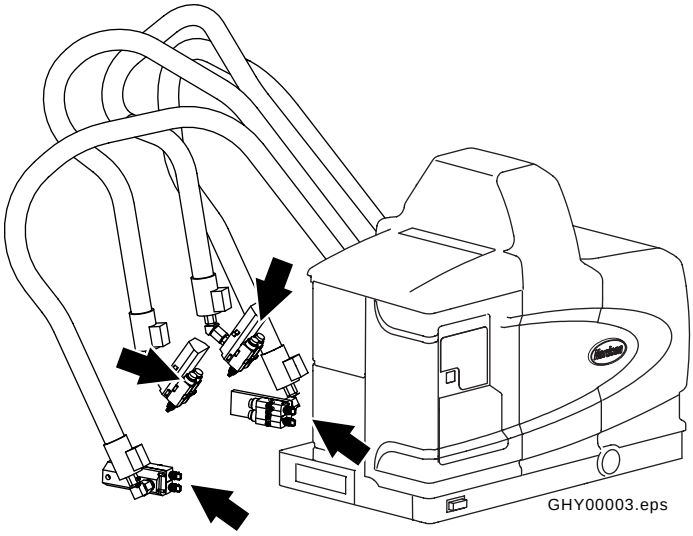
(Cont'd)

(Cont'd)

WARNING!
The hotmelt nozzles and their covers are very hot and there is risk of severe burns. Never touch the hotmelt nozzles or their covers!

Note! The section **Hotmelt equipment** in this manual only deals with what is specific for this machine.

Always refer to the documentation provided from Nordson Corporation (is included in the delivery from Tetra Pak) before doing any kind of work on the hotmelt equipment.



Infeed Brake

WARNING!
The infeed brake contains entrapped compressed air, which could cause serious injuries.

Grouping End Stop

WARNING!
The grouping end stop contains entrapped compressed air, which could cause serious injuries.

Lifting Accessories

All lifting accessories supplied by Tetra Pak, such as lifting yokes and eyebolts, must be used as intended only. Their correct use is described for each instruction requiring a lifting accessory. Lifting accessories must be stored in a safe place.

Production Mode Changes

All changes concerning packing pattern and infeed alternatives must be carried out by **skilled personnel** only.

Discharge Unit

WARNING!

In order to fulfil the safety demands associated with the CE sign, the machine must be equipped either with one of the optional kits described in the Installation manual, or with any similar equipment that also complies with Machine Directive 98/37/EC and sub directives.

Location of Discharge unit

1 Electrical systems description

Description

This chapter contains a description of the electrical system in the machine or equipment.

1.1 Safety Relay Circuit . . . . . 1 - 5

1.2 Doors and Emergency Stop . . . . . 1 - 6

1.3 Light Barrier . . . . . 1 - 7

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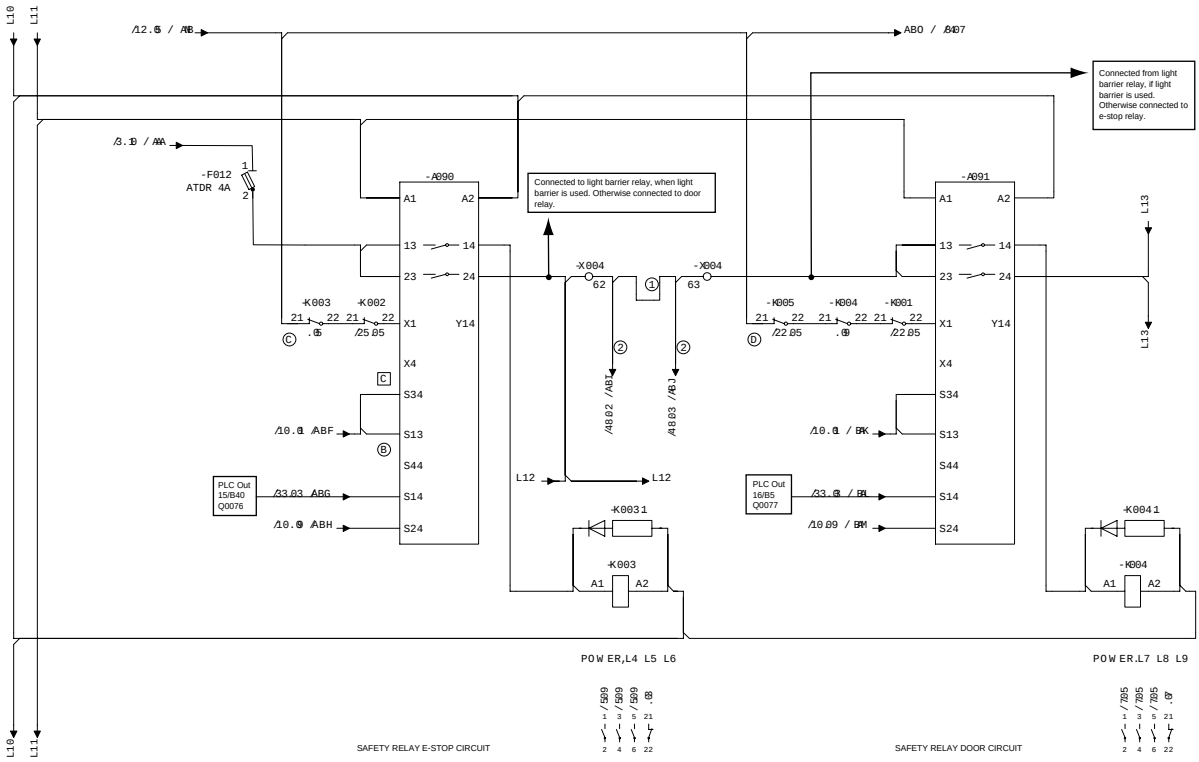
1.1 Safety Relay Circuit

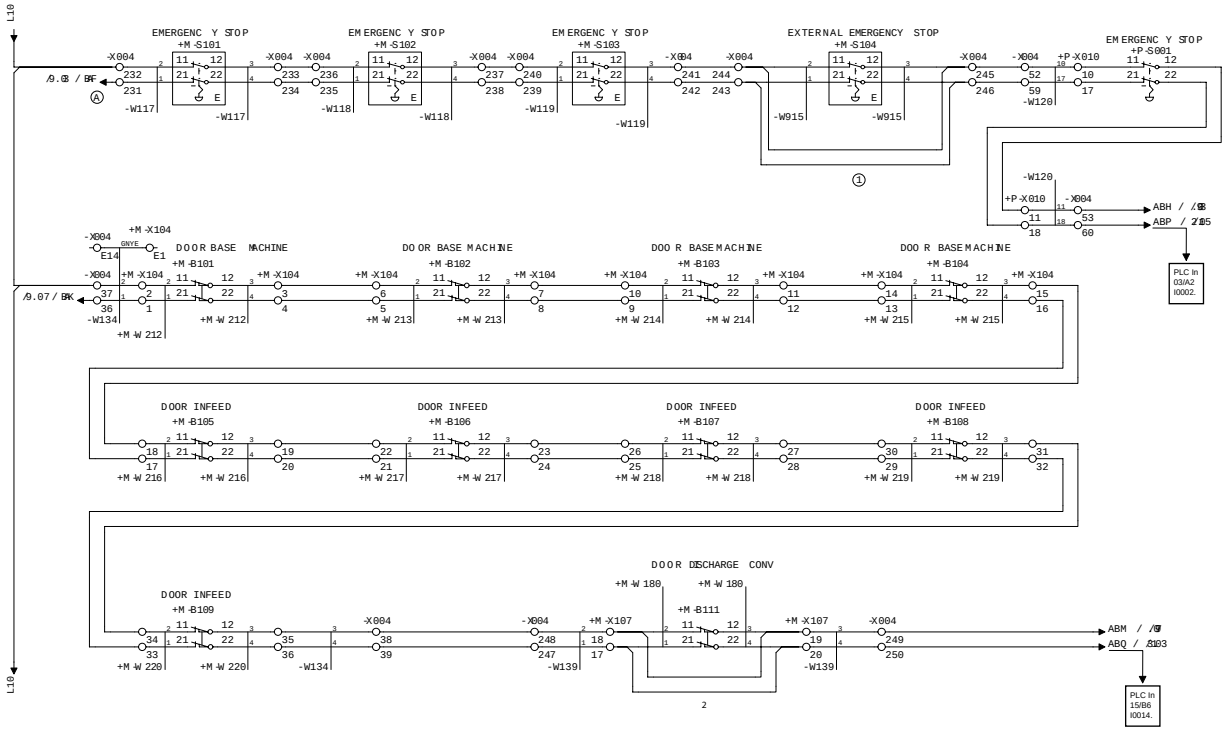
A090 Safety relay emergency circuit RT9

A091 Safety relay door circuit RT9



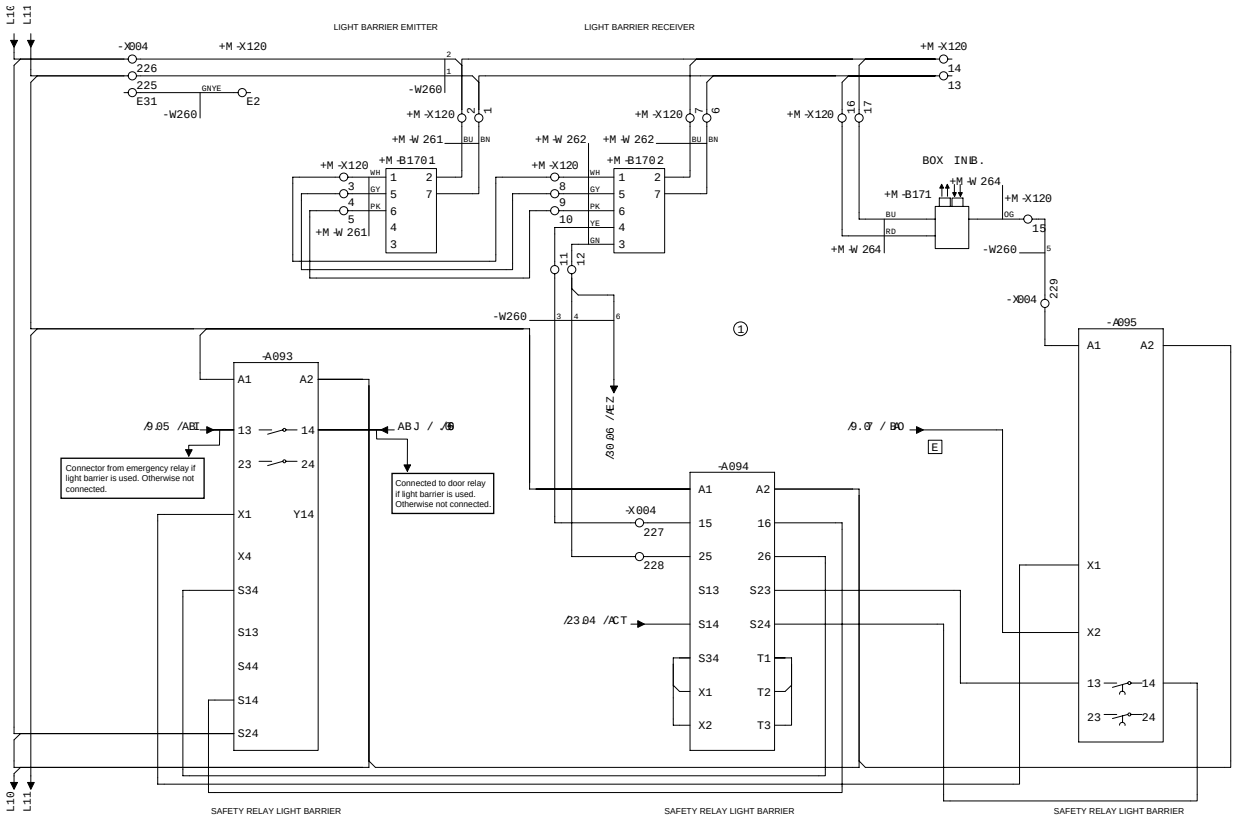
1.2 Doors and Emergency Stop

+M-S101 - +M-S103	Emergency stops on machine
+P-S0001	Emergency stop on panel
+M-B101 - +M-B111	Door guards



1.3 Light Barrier

A093	Safety relay light barrier RT9
A094	Safety timer light barrier JSHTZ AM
A095	Safety timer light barrier JSR3T B
+M-B170.1	Light barrier emitter
+M-B170.2	Light barrier receiver
+M-B171	Photocell box in light barrier



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2 Document list

Description

This chapter is a table of contents that includes the drawing specification for each electrical document valid for the equipment.

Document list . . . . . .2611715-0001 ELD 001 AD
. . . . . .2611715-0001 ELD 002 AD
. . . . . .2611715-0001 ELD 003 AD

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Documents list

Drawing No	Page type	Denomination	Version
2611715-0001:001	DOCUMENT LIST	DOCUMENT LIST	AD
2611715-0001:002	DOCUMENT LIST	DOCUMENT LIST	AD
2611715-0001:003	DOCUMENT LIST	DOCUMENT LIST	AD
2611715-0002:001	POSITION SUMMARY	POSITION SUMMARY	AD
2611715-0002:002	POSITION SUMMARY	POSITION SUMMARY	AD
2611715-0002:003	POSITION SUMMARY	POSITION SUMMARY	AD
2611715-0003:001	CIRCUIT DIAGRAM	DISTRIBUTION TERMINALS	AD
2611715-0003:002	CIRCUIT DIAGRAM	DISTRIBUTION TERMINALS	AD
2611715-0003:003	CIRCUIT DIAGRAM	MAINS	AD
2611715-0003:004	CIRCUIT DIAGRAM	MAINS	AD
2611715-0003:005	CIRCUIT DIAGRAM	POWER SUPPLIES	AD
2611715-0003:006	CIRCUIT DIAGRAM	POWER DISTRIBUTION	AD
2611715-0003:007	CIRCUIT DIAGRAM	FREQUENCY CONVERTER	AD
2611715-0003:008	CIRCUIT DIAGRAM	FREQUENCY CONVERTER	AD
2611715-0003:009	CIRCUIT DIAGRAM	FREQUENCY CONVERTER	AD
2611715-0003:010	CIRCUIT DIAGRAM	SAFETY RELAYS	AD
2611715-0003:011	CIRCUIT DIAGRAM	E-STOP. DOOR CIRCUIT	AD
2611715-0003:012	CIRCUIT DIAGRAM	ILLUMINATORS ON MACHINE	AD
2611715-0003:013	CIRCUIT DIAGRAM	INPUTS A002	AD
2611715-0003:014	CIRCUIT DIAGRAM	INPUTS A002	AD
2611715-0003:015	CIRCUIT DIAGRAM	INPUTS A003 ANGLE ENC. MAIN SHAFT	AD
2611715-0003:016	CIRCUIT DIAGRAM	INPUTS A003 ANGLE ENC.FEEDING MOTOR	AD
2611715-0003:017	CIRCUIT DIAGRAM	INPUTS A004	AD
2611715-0003:018	CIRCUIT DIAGRAM	INPUTS A004	AD
2611715-0003:019	CIRCUIT DIAGRAM	INPUTS A005	AD
2611715-0003:020	CIRCUIT DIAGRAM	INPUTS A005	AD
2611715-0003:021	CIRCUIT DIAGRAM	INPUTS A006	AD
2611715-0003:022	CIRCUIT DIAGRAM	INPUTS A006	AD
2611715-0003:023	CIRCUIT DIAGRAM	OUTPUTS A007	AD
2611715-0003:024	CIRCUIT DIAGRAM	OUTPUTS A007	AD
2611715-0003:025	CIRCUIT DIAGRAM	OUTPUTS A008	AD
2611715-0003:026	CIRCUIT DIAGRAM	OUTPUTS A008	AD
2611715-0003:027	CIRCUIT DIAGRAM	OUTPUTS A009	AD
2611715-0003:028	CIRCUIT DIAGRAM	OUTPUTS A009	AD
2611715-0003:029	CIRCUIT DIAGRAM	OUTPUTS A010	AD
2611715-0003:030	CIRCUIT DIAGRAM	OUTPUTS A010	AD
2611715-0003:031	CIRCUIT DIAGRAM	INPUTS A021	AD
2611715-0003:032	CIRCUIT DIAGRAM	INPUTS A021	AD
2611715-0003:033	CIRCUIT DIAGRAM	OUTPUTS A022	AD
2611715-0003:034	CIRCUIT DIAGRAM	OUTPUTS A022	AD
2611715-0003:035	CIRCUIT DIAGRAM	OUTPUTS A023	AD
2611715-0003:036	CIRCUIT DIAGRAM	OUTPUTS A023	AD
2611715-0003:037	CIRCUIT DIAGRAM	OUTPUTS A024	AD
2611715-0003:038	CIRCUIT DIAGRAM	OUTPUTS A024	AD
2611715-0003:039	CIRCUIT DIAGRAM	PUSH BUTTONS PANEL	AD
2611715-0003:040	CIRCUIT DIAGRAM	PUSH BUTTONS PANEL	AD

Tetra Pak
Designer PEPE
ECM No. 146767
Date 11/05/03
Machine TCBP 70-1100 CSA
Page Type DOCUMENT LIST
Denomination DOCUMENT LIST
Document No. 2611715-0001
Doc. type ELD
Version AD
Page 001
Company Tetra Pak Carton Ambient AB
Drawing remarks

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Documents list

Drawing No	Page type	Denomination	Version
2611715-0003:041	CIRCUIT DIAGRAM	MULTIPLEXOR CARD	AD
2611715-0003:042	CIRCUIT DIAGRAM	LEDS PANEL	AD
2611715-0003:043	CIRCUIT DIAGRAM	LEDS PANEL	AD
2611715-0003:044	CIRCUIT DIAGRAM	LEDS PANEL	AD
2611715-0003:045	CIRCUIT DIAGRAM	LEDS PANEL	AD
2611715-0003:046	CIRCUIT DIAGRAM	LEDS PANEL	AD
2611715-0003:047	CIRCUIT DIAGRAM	SPC 200 SERVO	AD
2611715-0003:048	CIRCUIT DIAGRAM	SERVO AXIS INTERFACE	AD
2611715-0003:049	CIRCUIT DIAGRAM	LIGHT BARRIER	AD
2611715-0003:050	CIRCUIT DIAGRAM	LINE COMMUNICATION	AD
2611715-0004:001	LINE SUMMARY	LINE SUMMARY	AD
2611715-0004:002	LINE SUMMARY	LINE SUMMARY	AD
2611715-0004:003	LINE SUMMARY	LINE SUMMARY	AD
2611715-0005:001	CABINET TERMINAL SUMMARY	CABINET TERMINAL SUMMARY	AD
2611715-0005:002	CABINET TERMINAL SUMMARY	CABINET TERMINAL SUMMARY	AD
2611715-0005:003	CABINET TERMINAL SUMMARY	CABINET TERMINAL SUMMARY	AD
2611715-0005:004	CABINET TERMINAL SUMMARY	CABINET TERMINAL SUMMARY	AD
2611715-0006:001	TERMINAL STRIP OVERVIEW	Terminal diagram: +P-X010 (E1 - E2)	AD
2611715-0006:002	TERMINAL STRIP OVERVIEW	Terminal diagram: +M-X101 (1 - 27)	AD
2611715-0006:003	TERMINAL STRIP OVERVIEW	Terminal diagram: +M-X101 (28 - E7)	AD
2611715-0006:004	TERMINAL STRIP OVERVIEW	Terminal diagram: +M-X102 (1 - 30)	AD
2611715-0006:005	TERMINAL STRIP OVERVIEW	Terminal diagram: +M-X102 (31 - E1)	AD
2611715-0006:006	TERMINAL STRIP OVERVIEW	Terminal diagram: +M-X103 (1 - 30)	AD
2611715-0006:007	TERMINAL STRIP OVERVIEW	Terminal diagram: +M-X103 (31 - 59)	AD
2611715-0006:008	TERMINAL STRIP OVERVIEW	Terminal diagram: +M-X103 (60 - E3)	AD
2611715-0006:009	TERMINAL STRIP OVERVIEW	Terminal diagram: +M-X104 (1 - 30)	AD
2611715-0006:010	TERMINAL STRIP OVERVIEW	Terminal diagram: +M-X104 (31 - E1)	AD
2611715-0006:011	TERMINAL STRIP OVERVIEW	Terminal diagram: +M-X106 (1 - E3)	AD
2611715-0006:012	TERMINAL STRIP OVERVIEW	Terminal diagram: +M-X107 (1 - 28)	AD
2611715-0006:013	TERMINAL STRIP OVERVIEW	Terminal diagram: +M-X107 (29 - 34)	AD
2611715-0006:014	TERMINAL STRIP OVERVIEW	Terminal diagram: +M-X120 (E1 - E3)	AD
2611715-0006:015	TERMINAL STRIP OVERVIEW	Terminal diagram: +M-X130 (1 - 12)	AD
2611715-0006:016	TERMINAL STRIP OVERVIEW	Terminal diagram: +M-X901 (1A - E1)	AD
2611715-0006:017	TERMINAL STRIP OVERWIEW	Terminal diagram: +M-X905 (1 - E1)	AD
2611715-0007:001	CABLE CONNECTION LIST	CABLE CONNECTION LIST	AD
2611715-0007:002	CABLE CONNECTION LIST	CABLE CONNECTION LIST	AD
2611715-0007:003	CABLE CONNECTION LIST	CABLE CONNECTION LIST	AD
2611715-0007:004	CABLE CONNECTION LIST	CABLE CONNECTION LIST	AD
2611715-0007:005	CABLE CONNECTION LIST	CABLE CONNECTION LIST	AD
2611715-0007:006	CABLE CONNECTION LIST	CABLE CONNECTION LIST	AD
2611715-0007:007	CABLE CONNECTION LIST	CABLE CONNECTION LIST	AD
2611715-0007:008	CABLE CONNECTION LIST	CABLE CONNECTION LIST	AD
2611715-0007:009	CABLE CONNECTION LIST	CABLE CONNECTION LIST	AD
2611715-0007:010	CABLE CONNECTION LIST	CABLE CONNECTION LIST	AD
2611715-0007:011	CABLE CONNECTION LIST	CABLE CONNECTION LIST	AD
2611715-0007:012	CABLE CONNECTION LIST	CABLE CONNECTION LIST	AD

Tetra Pak
Designer PEPE
ECM No. 146767
Date 11/05/03
Denomination DOCUMENT LIST
Machine TCBP 70-1100 CSA
Page Type DOCUMENT LIST
Company Tetra Pak Carton Ambient AB
Document No. 2611715-0001
Doc. type ELD
Version AD
Page 002
Drawing remarks

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Documents list

Drawing No	Page type	Denomination	Version
2611715-0007:013	CABLE CONNECTION LIST	CABLE CONNECTION LIST	AD
2611715-0008:001	MAINS CONNECTION	MAINS CONNECTION	AD
2611715-0008:002	MAINS CONNECTION	MAINS CONNECTION	AD

Tetra Pak

Designer PEPE
ECM No. 146767
Denomination DOCUMENT LIST
Date 11/05/03
Machine TCBP 70-1100 CSA
Page Type DOCUMENT LIST
Document No. 2611715-0001
Doc. type ELD
Version AD
Page 003
Company Tetra Pak Carton Ambient AB
Drawing remarks

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3 Position summary

Description

This chapter is a list of all electrical components that are shown in the electrical drawings, with page references to the drawings where they are located.

Position summary . . . . . .2611715-0002 ELD 001 AD
. . . . . .2611715-0002 ELD 002 AD
. . . . . .2611715-0002 ELD 003 AD

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1 2 3 4 5 6 7 8 9 10

Position summary of 2611715-0003

Component	Page .Col.	Opt.
+C-A002	13 .7	
+C-A003	15 .7	
+C-A004	17 .7	
+C-A005	19 .7	
+C-A006	21 .7	
+C-A007	23 .1	
+C-A008	25 .1	
+C-A009	27 .1	
+C-A010	29 .1	
+C-A021	31 .7	
+C-A022	33 .1	
+C-A023	35 .1	
+C-A024	37 .1	
+C-A060	4 .6	
+C-A061	4 .8	
+P-A071	39 .3	
+P-A072	41 .4	
+C-A082	47 .2	
+C-A083	47 .2	
+C-A084	47 .9	
+C-A085	47 .6	
+C-A090	10 .3	
+C-A091	10 .8	
+C-A093	49 .7	OPTION
+C-A094	49 .5	OPTION
+C-A095	49 .10	OPTION
+M-A185	48 .2	
+M-A186	48 .7	

Component	Page .Col.	Opt.
+M-B100	13 .4	
+M-B101	11 .2	
+M-B102	11 .4	
+M-B103	11 .6	
+M-B104	11 .8	
+M-B105	11 .2	
+M-B106	11 .4	
+M-B107	11 .6	
+M-B108	11 .8	
+M-B109	11 .2	
+M-B111	11 .6	OPTION
+M-B112.1	18 .4	
+M-B112.2	18 .5	
+M-B113	18 .4	
+M-B115	19 .5	
+M-B116	15 .2	
+M-B117	16 .2	
+M-B118	18 .4	
+M-B119	18 .4	
+M-B120	17 .5	
+M-B124	17 .5	
+M-B125.1	17 .4	
+M-B125.2	17 .5	
+M-B126.1	17 .4	
+M-B126.2	17 .5	
+M-B137	19 .5	
+M-B138	31 .4	
+M-B139	31 .4	

Component	Page .Col.	Opt.
+M-B140	20 .4	
+M-B141	20 .4	
+M-B142	20 .4	
+M-B143	20 .4	
+M-B144	20 .3	
+M-B145	31 .4	
+M-B146	21 .4	
+M-B147	17 .4	
+M-B148	21 .4	
+M-B149	21 .4	
+M-B150	21 .4	OPTION
+M-B151	21 .4	OPTION
+M-B160	31 .4	
+M-B161	19 .5	
+M-B162	48 .3	
+M-B163	48 .7	
+M-B170.1	49 .2	OPTION
+M-B170.2	49 .5	OPTION
+M-B171	49 .8	OPTION
+M-B901.1	21 .4	
+M-B901.2	21 .5	
+M-B902.1	21 .4	
+M-B902.2	21 .5	
+M-B903.1	19 .4	
+M-B903.2	19 .5	
+M-B904.1	19 .4	
+M-B904.2	19 .5	
+M-B905	20 .3	OPTION

Component	Page .Col.	Opt.
+M-B907	32 .4	OPTION
+M-B908.1	18 .4	OPTION
+M-B908.2	18 .5	OPTION
+C-D001	4 .6	
+C-D002	47 .2	
+C-F000	3 .4	
+C-F001	4 .3	
+C-F002	8 .7	
+C-F003	9 .3	
+C-F004	6 .6	
+C-F005	4 .6	
+C-F006	7 .2	
+C-F007	6 .2	
+C-F008	8 .2	
+C-F009	5 .2	
+C-F010	5 .3	
+C-F012	10 .2	
+C-F013	47 .1	
+C-G001	4 .6	
+C-G002	4 .8	
+C-G011	5 .2	
+C-G012	5 .5	
+C-G013	5 .7	
+C-G021	7 .2	
+C-G022	8 .7	
+C-G023	9 .2	
+C-G024	8 .2	
+P-H001	41 .7	

Drawing remarks

Tetra Pak	Designer PEPE	Date 11/05/03	Machine TCBP 70-1100 CSA		
	ECM No 146767	Denomination POSITION SUMMARY	Page Type POSITION SUMMARY		
	Company Tetra Pak Carton Ambient AB	Document No. 2611715-0002	Doc. type ELD	Version AD	Page 001

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1 2 3 4 5 6 7 8 9 10

Position summary of 2611715-0003

Component	Page .Col.	Opt.
+P-H001S	43 .3	
+P-H002	41 .7	
+P-H002S	43 .3	
+C-H003	41 .7	
+P-H003S	43 .3	
+P-H004S	43 .3	
+P-H005S	43 .3	
+P-H006	43 .3	
+P-H007	43 .3	
+P-H008	43 .3	
+P-H009	43 .3	
+P-H010	43 .3	
+P-H011	43 .3	
+P-H012	43 .8	
+P-H013	43 .8	
+P-H014	41 .7	
+P-H015	41 .7	
+P-H016	41 .7	
+P-H017	41 .7	
+P-H018	41 .7	
+P-H020	42 .7	
+P-H021	42 .7	
+P-H022	42 .7	
+P-H027	44 .5	
+P-H028	44 .5	
+P-H029	44 .5	
+P-H030	44 .5	
+P-H031	44 .5	

Component	Page .Col.	Opt.
+P-H032	44 .5	
+P-H033	44 .5	
+P-H034	44 .5	
+P-H035	45 .5	
+P-H036	45 .5	
+P-H037	45 .5	
+P-H038	45 .5	
+P-H039	45 .5	
+P-H040	45 .5	
+P-H041	45 .5	
+P-H042	45 .5	
+P-H043	45 .5	
+P-H044	45 .5	
+P-H045	46 .5	
+P-H046	46 .5	
+P-H047	46 .5	
+P-H048	46 .5	
+P-H049	46 .5	
+P-H050	46 .5	
+P-H051	46 .5	
+P-H052	46 .5	
+P-H053	46 .5	
+P-H054	46 .5	
+P-H055	42 .7	
+P-H056	42 .7	
+P-H057	42 .7	
+P-H058	42 .7	
+P-H059	42 .7	

Component	Page .Col.	Opt.
+P-H060	37 .4	
+P-H061	37 .4	
+M-H062	36 .5	
+M-H101	28 .5	
+M-H102	6 .2	OPTION
+M-H103	6 .3	OPTION
+C-K001	23 .5	
+C-K002	26 .5	
+C-K003	10 .5	
+C-K003.1	10 .5	
+C-K004	10 .9	
+C-K004.1	10 .9	
+C-K005	23 .5	
+C-K006	9 .7	
+C-K008	12 .7	
+C-K010	27 .5	
+C-K081	26 .5	
+C-K097	34 .5	
+C-K098	34 .5	
+C-K099	28 .5	
+C-M001	4 .4	OPTION
+M-M101	7 .5	
+M-M102	8 .9	
+M-M103	9 .5	
+M-M105	8 .4	
+M-M106	9 .7	
+M-M901	7 .8	OPTION
+C-P001	26 .5	

Component	Page .Col.	Opt.
+C-Q000	3 .1	
+C-Q006	9 .7	
+C-Q070	4 .3	
+C-Q081	7 .8	
+C-R023	9 .4	
+M-R101	6 .6	
+M-R102	48 .3	
+P-S001	11 .10	
+P-S001H	39 .4	
+C-S002	22 .3	
+P-S002H	39 .4	
+C-S003	22 .3	
+P-S003H	39 .4	
+C-S004	12 .2	
+P-S004H	39 .4	
+P-S005H	39 .4	
+P-S007H	39 .4	
+P-S008H	40 .3	
+P-S009H	40 .3	
+P-S010H	40 .3	
+P-S011H	40 .3	
+P-S012H	40 .3	
+P-S015H	40 .3	
+M-S101	11 .2	
+M-S102	11 .4	
+M-S103	11 .5	
+M-S104	11 .7	
+M-S116	31 .4	

Drawing remarks

Tetra Pak

Designer	Date	Machine
PEPE	11/05/03	TCBP 70-1100 CSA

ECM No	Denomination	Page Type
146767	POSITION SUMMARY	POSITION SUMMARY

Company	Document No.	Doc. type	Version	Page
Tetra Pak Carton Ambient AB	2611715-0002	ELD	AD	002

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1 2 3 4 5 6 7 8 9 10

Position summary of 2611715-0003

Component	Page .Col.	Opt.
+C-X 007	4 .3	
+M-Y100	38 .5	
+M-Y101	38 .5	
+M-Y102	48 .4	
+M-Y102.	48 .4	
+M-Y103	48 .9	
+M-Y103.	48 .9	
+M-Y104	24 .5	
+M-Y105.1	25 .5	
+M-Y105.2	30 .5	
+M-Y106	25 .5	
+M-Y107.1	29 .5	
+M-Y107.2	30 .5	
+M-Y108	25 .5	
+M-Y109.1	25 .5	
+M-Y109.2	25 .5	
+M-Y110	24 .5	
+M-Y111	25 .5	
+M-Y112	24 .5	
+M-Y113	25 .5	
+M-Y114	25 .5	
+M-Y115	33 .5	
+M-Y120	26 .5	
+M-Y121	26 .5	
+M-Y122	29 .5	OPTION
+M-Y123	29 .5	OPTION
+M-Y124	29 .5	OPTION
+M-Y125	29 .5	OPTION

Component	Page .Col.	Opt.
+M-Y130.1	27 .5	
+M-Y130.2	27 .5	
+M-Y131.1	27 .5	
+M-Y131.2	27 .5	
+M-Y140	29 .5	OPTION
+M-Y141	29 .5	OPTION
+M-Y142	34 .5	
+M-Y160	30 .5	
+M-Y161.1	29 .5	OPTION
+M-Y161.2	33 .5	OPTION
+M-Y162	30 .5	
+M-Y163	30 .5	
+M-Y164	24 .5	
+M-Y165	30 .5	
+M-Y166.1	33 .5	OPTION
+M-Y166.2	33 .5	OPTION
+M-Y169	26 .5	
+M-Y170	30 .5	
+M-Y173	38 .5	
+M-Y901	27 .5	
+M-Y908	26 .5	
+M-Y909	33 .5	OPTION
+M-Y950	50 .4	
+C-Z000	3 .5	
+C-Z001	7 .2	
+C-Z002	8 .7	
+C-Z003	9 .3	
+C-Z004	8 .2	

Component	Page .Col.	Opt.
+C-Z005	3 .5	
+C-Z011	7 .2	
+C-Z012	8 .6	
+C-Z013	9 .2	
+C-Z014	8 .2	

Component	Page .Col.	Opt.

Drawing remarks

Tetra Pak	Designer PEPE	Date 11/05/03	Machine TCBP 70-1100 CSA		
	ECM No 146767	Denomination POSITION SUMMARY	Page Type POSITION SUMMARY		
	Company Tetra Pak Carton Ambient AB	Document No. 2611715-0002	Doc. type ELD	Version AD	Page 003

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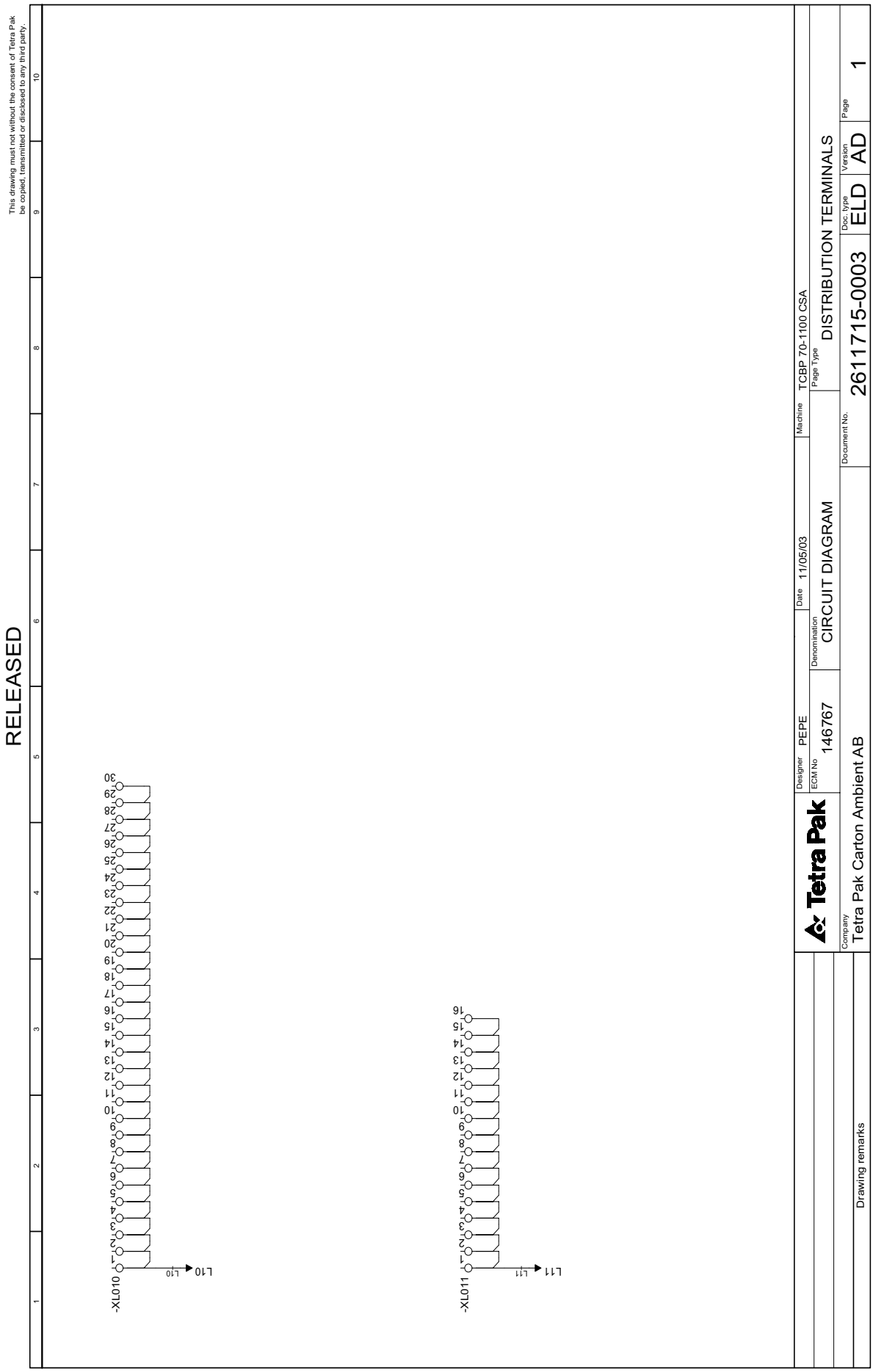
4 Circuit diagrams

Description

All component drawings, such as programmable logic controller (PLC) modules, terminals, and cables, are included in this chapter. Other chapter lists are generated from these pages.

Circuit diagrams . . . . . .2611715-0003 ELD 001 AD
. . . . . .2611715-0003 ELD 002 AD
. . . . . .2611715-0003 ELD 003 AD
. . . . . .2611715-0003 ELD 004 AD
. . . . . .2611715-0003 ELD 005 AD
. . . . . .2611715-0003 ELD 006 AD
. . . . . .2611715-0003 ELD 007 AD
. . . . . .2611715-0003 ELD 008 AD
. . . . . .2611715-0003 ELD 009 AD
. . . . . .2611715-0003 ELD 010 AD
. . . . . .2611715-0003 ELD 011 AD
. . . . . .2611715-0003 ELD 012 AD
. . . . . .2611715-0003 ELD 013 AD
. . . . . .2611715-0003 ELD 014 AD
. . . . . .2611715-0003 ELD 015 AD
. . . . . .2611715-0003 ELD 016 AD
. . . . . .2611715-0003 ELD 017 AD
. . . . . .2611715-0003 ELD 018 AD
. . . . . .2611715-0003 ELD 019 AD
. . . . . .2611715-0003 ELD 020 AD
. . . . . .2611715-0003 ELD 021 AD
. . . . . .2611715-0003 ELD 022 AD
. . . . . .2611715-0003 ELD 023 AD
. . . . . .2611715-0003 ELD 024 AD
. . . . . .2611715-0003 ELD 025 AD
. . . . . .2611715-0003 ELD 026 AD
. . . . . .2611715-0003 ELD 027 AD
. . . . . .2611715-0003 ELD 028 AD
. . . . . .2611715-0003 ELD 029 AD
. . . . . .2611715-0003 ELD 030 AD
. . . . . .2611715-0003 ELD 031 AD
. . . . . .2611715-0003 ELD 032 AD
. . . . . .2611715-0003 ELD 033 AD
. . . . . .2611715-0003 ELD 034 AD
. . . . . .2611715-0003 ELD 035 AD

. . . . . 2611715-0003 ELD 036 AD
. . . . . 2611715-0003 ELD 037 AD
. . . . . 2611715-0003 ELD 038 AD
. . . . . 2611715-0003 ELD 039 AD
. . . . . 2611715-0003 ELD 040 AD
. . . . . 2611715-0003 ELD 041 AD
. . . . . 2611715-0003 ELD 042 AD
. . . . . 2611715-0003 ELD 043 AD
. . . . . 2611715-0003 ELD 044 AD
. . . . . 2611715-0003 ELD 045 AD
. . . . . 2611715-0003 ELD 046 AD
. . . . . 2611715-0003 ELD 047 AD
. . . . . 2611715-0003 ELD 048 AD
. . . . . 2611715-0003 ELD 049 AD
. . . . . 2611715-0003 ELD 050 AD


RELEASED
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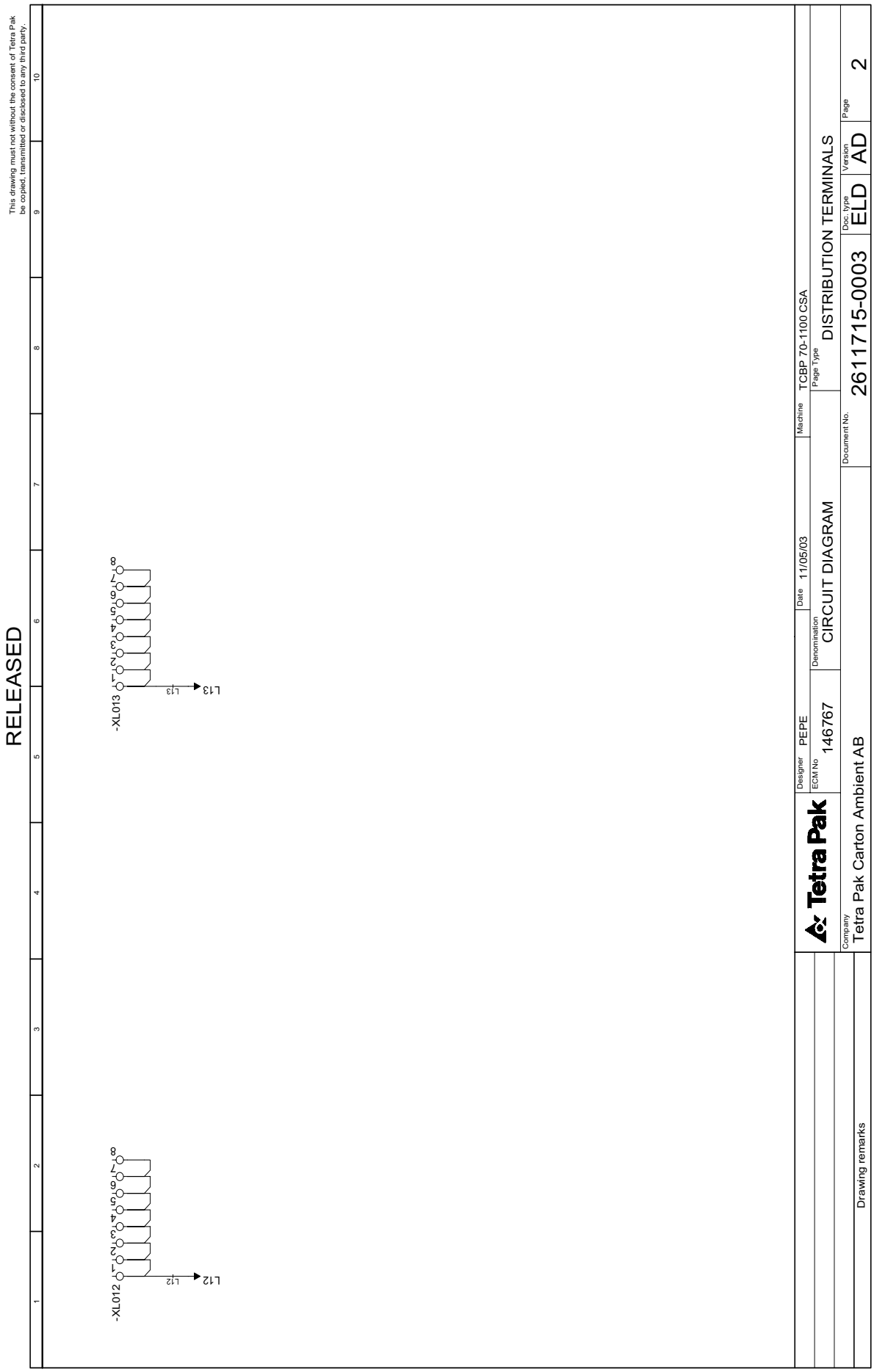
-XL010
L10
-XL011
L11
Tetra Pak
Designer PEPE
ECM No. 146767
Date 11/05/03
Denomination CIRCUIT DIAGRAM
Machine TCBP 70-1100 CSA
Page Type DISTRIBUTION TERMINALS
Document No. 2611715-0003
Doc. type ELD
Version AD
Page 1
Company Tetra Pak Carton Ambient AB
Drawing remarks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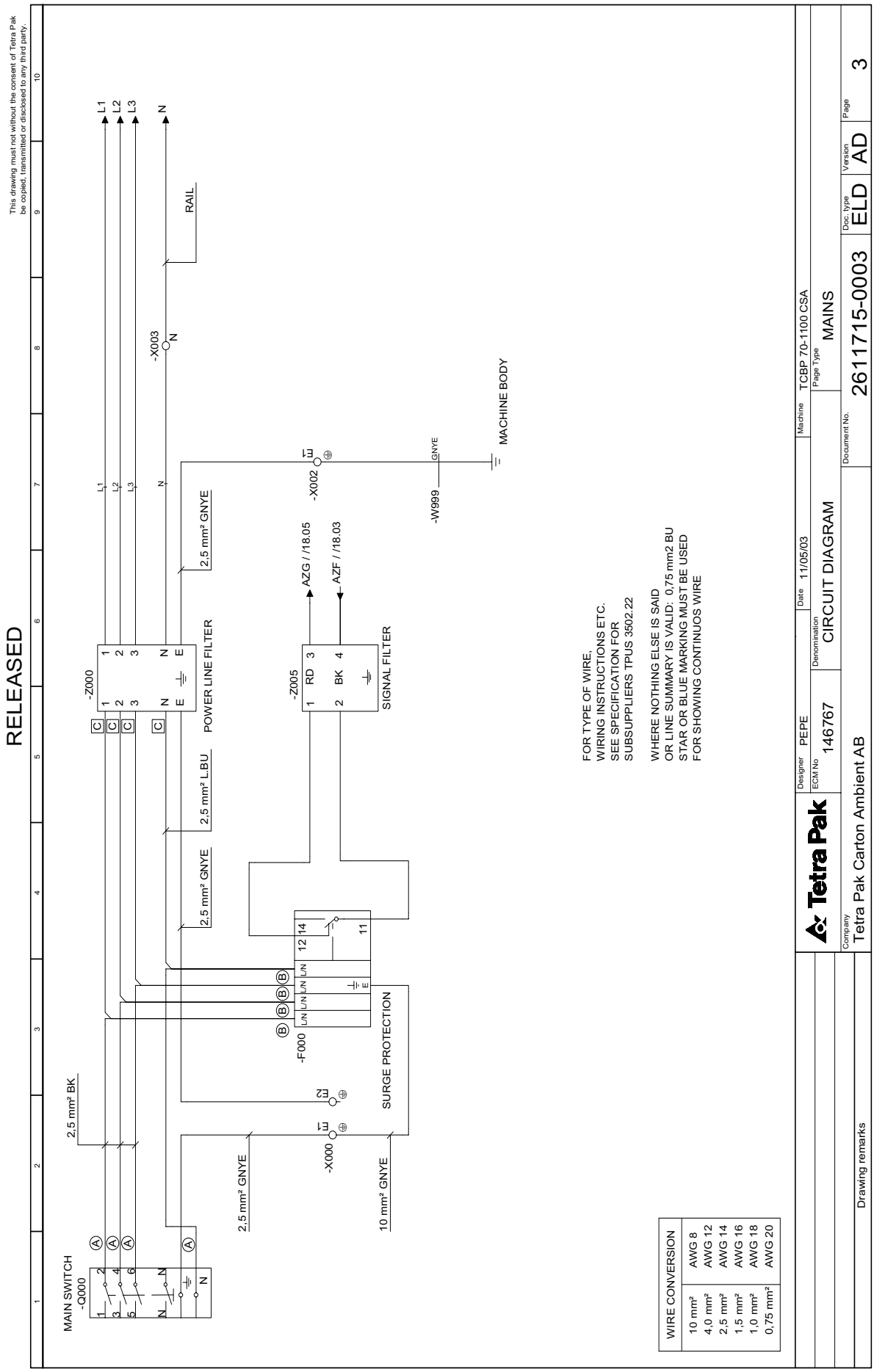
-XL012
L12
-XL013
L13
Tetra Pak
Designer PEPE
ECM No 146767
Date 11/05/03
Denomination CIRCUIT DIAGRAM
Machine TCBP 70-1100 CSA
Page Type DISTRIBUTION TERMINALS
Document No. 2611715-0003
Doc. type ELD
Version AD
Page 2
Company Tetra Pak Carton Ambient AB
Drawing remarks


RELEASED
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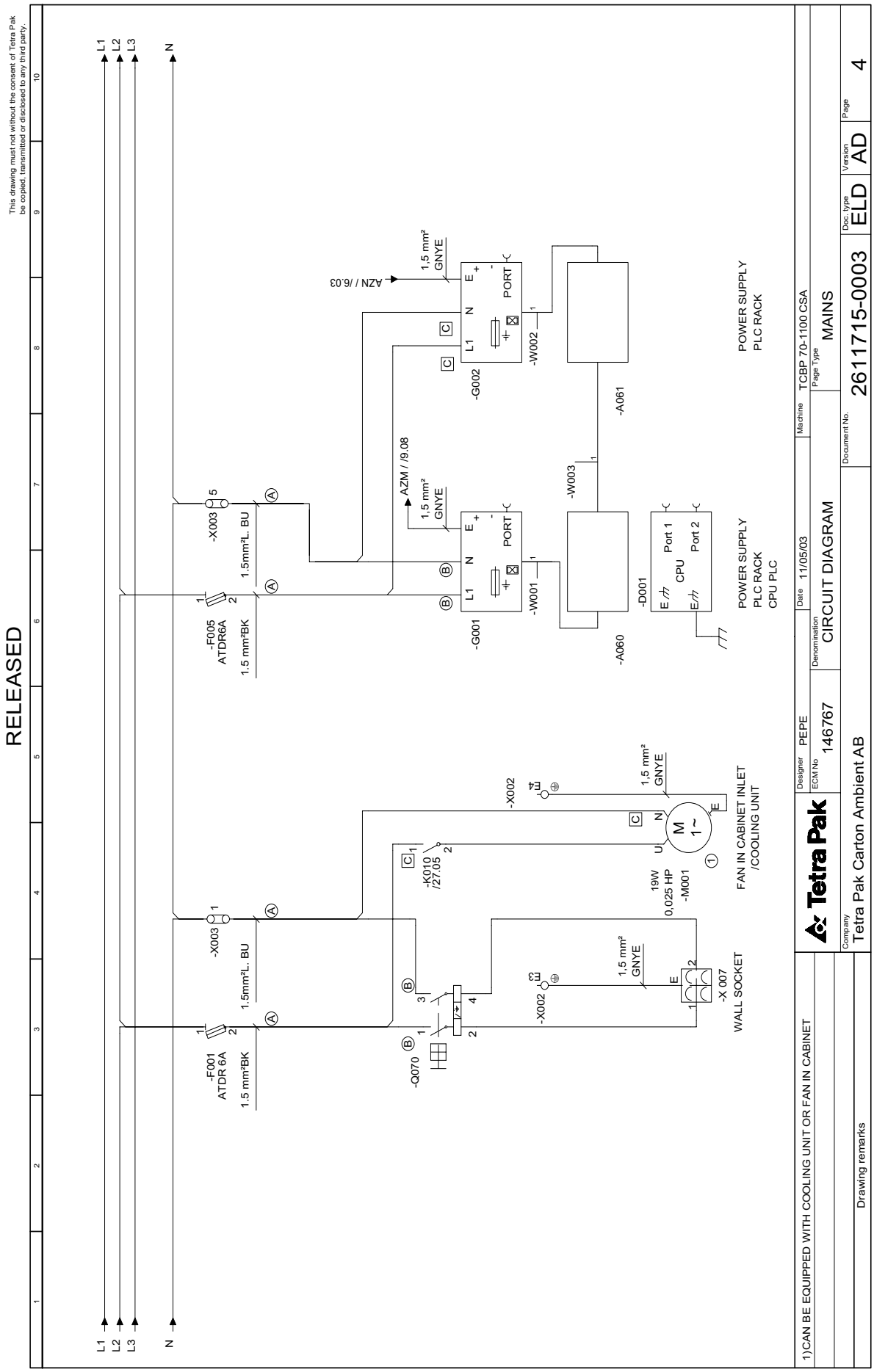
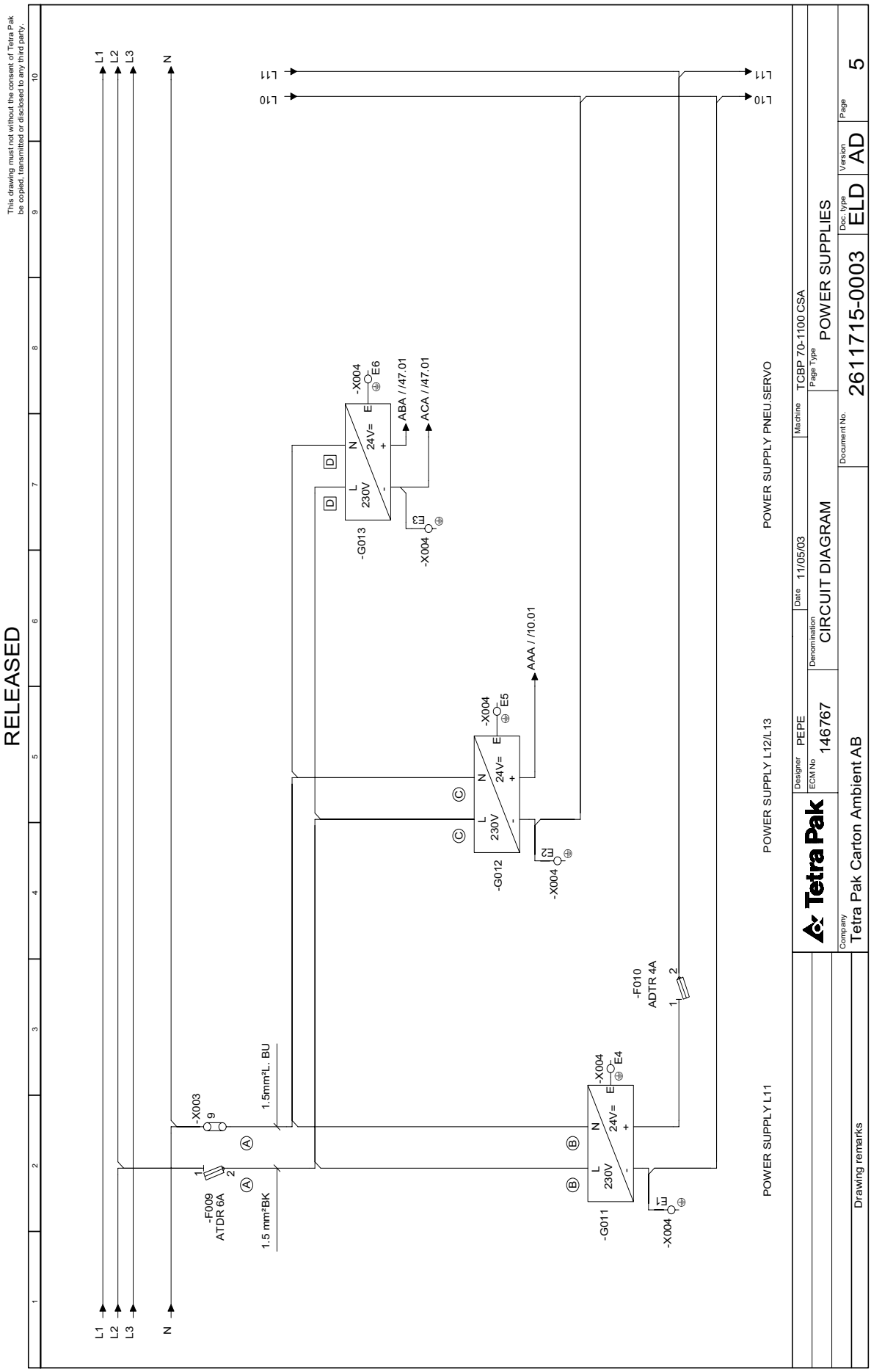
MAIN SWITCH
-Q000
2,5 mm² BK
L1
L2
L3
N
RAIL
-X003
-Z000
POWER LINE FILTER
2,5 mm² GNYE
2,5 mm² L.BU
2,5 mm² GNYE
-Z005
SIGNAL FILTER
AZG / /18.05
AZF / /18.03
-X002
-W999
GNYE
MACHINE BODY
-F000
SURGE PROTECTION
-X000
2,5 mm² GNYE
10 mm² GNYE
FOR TYPE OF WIRE,
WIRING INSTRUCTIONS ETC.
SEE SPECIFICATION FOR
SUBSUPPLIERS TPUS 3502.22
WHERE NOTHING ELSE IS SAID
OR LINE SUMMARY IS VALID: 0,75 mm2 BU
STAR OR BLUE MARKING MUST BE USED
FOR SHOWING CONTINUOS WIRE
WIRE CONVERSION
10 mm² AWG 8
4,0 mm² AWG 12
2,5 mm² AWG 14
1,5 mm² AWG 16
1,0 mm² AWG 18
0,75 mm² AWG 20
Tetra Pak
Designer PEPE
ECM No. 146767
Date 11/05/03
Denomination CIRCUIT DIAGRAM
Machine TCBP 70-1100 CSA
Page Type MAINS
Document No. 2611715-0003
Doc. type ELD
Version AD
Page 3
Company Tetra Pak Carton Ambient AB
Drawing remarks


RELEASED
This drawing must not without the consent of Tetra Pak be copied, transmitted or disclosed to any third party.
L1
L2
L3
N
-F001
ATDR 6A
1.5 mm²BK
-X003
1.5mm²L. BU
-F005
ATDR6A
1.5 mm²BK
-X003
5
-Q070
-K010
/27.05
-X002
E3
-X002
E4
1.5 mm²
GNYE
-X 007
WALL SOCKET
19W
0,025 HP
-M001
M
1~
FAN IN CABINET INLET
/COOLING UNIT
-G001
-G002
L1
N
E
PORT
AZM / /9.08
AZN / /6.03
-W001
-W002
-W003
-A060
-A061
-D001
CPU
Port 1
Port 2
POWER SUPPLY
PLC RACK
CPU PLC
POWER SUPPLY
PLC RACK
1)CAN BE EQUIPPED WITH COOLING UNIT OR FAN IN CABINET
Drawing remarks
Tetra Pak
Designer PEPE
ECM No 146767
Date 11/05/03
Denomination CIRCUIT DIAGRAM
Machine TCBP 70-1100 CSA
Page Type MAINS
Document No. 2611715-0003
Doc. type ELD
Version AD
Page 4
Company
Tetra Pak Carton Ambient AB


RELEASED
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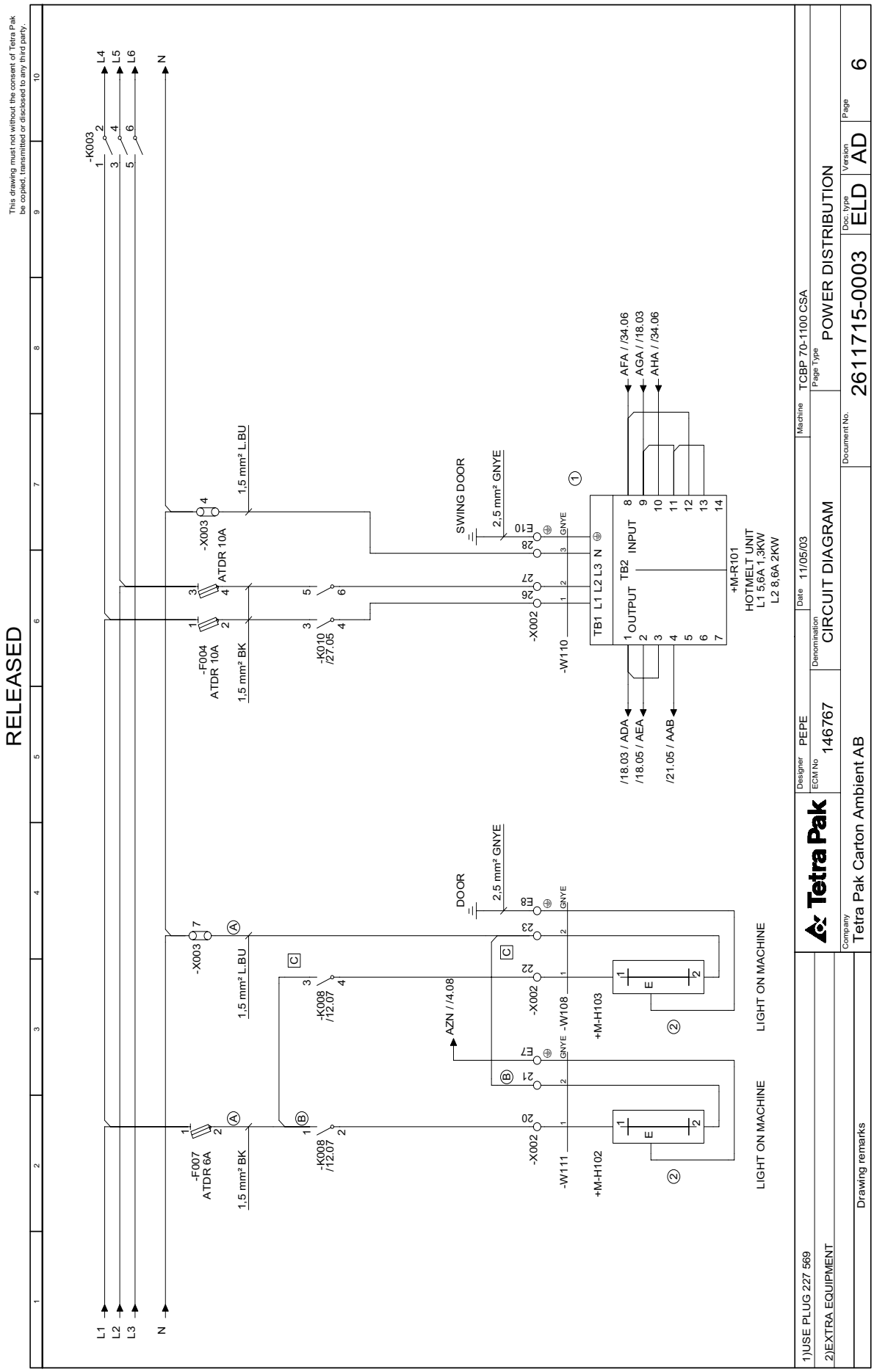
L1
L2
L3
N
L11
L10
-X003
9
-F009
ATDR 6A
1.5mm²L. BU
1.5 mm²BK
-G013
230V
24V=
-X004
E6
E3
ABA / /47.01
ACA / /47.01
-G012
E5
E2
AAA / /10.01
-G011
E4
E1
-F010
ADTR 4A
POWER SUPPLY PNEU.SERVO
POWER SUPPLY L12/L13
POWER SUPPLY L11
Tetra Pak
Designer PEPE
ECM No. 146767
Date 11/05/03
Denomination CIRCUIT DIAGRAM
Machine TCBP 70-1100 CSA
Page Type POWER SUPPLIES
Document No. 2611715-0003
Doc. type ELD
Version AD
Page 5
Company Tetra Pak Carton Ambient AB
Drawing remarks


RELEASED
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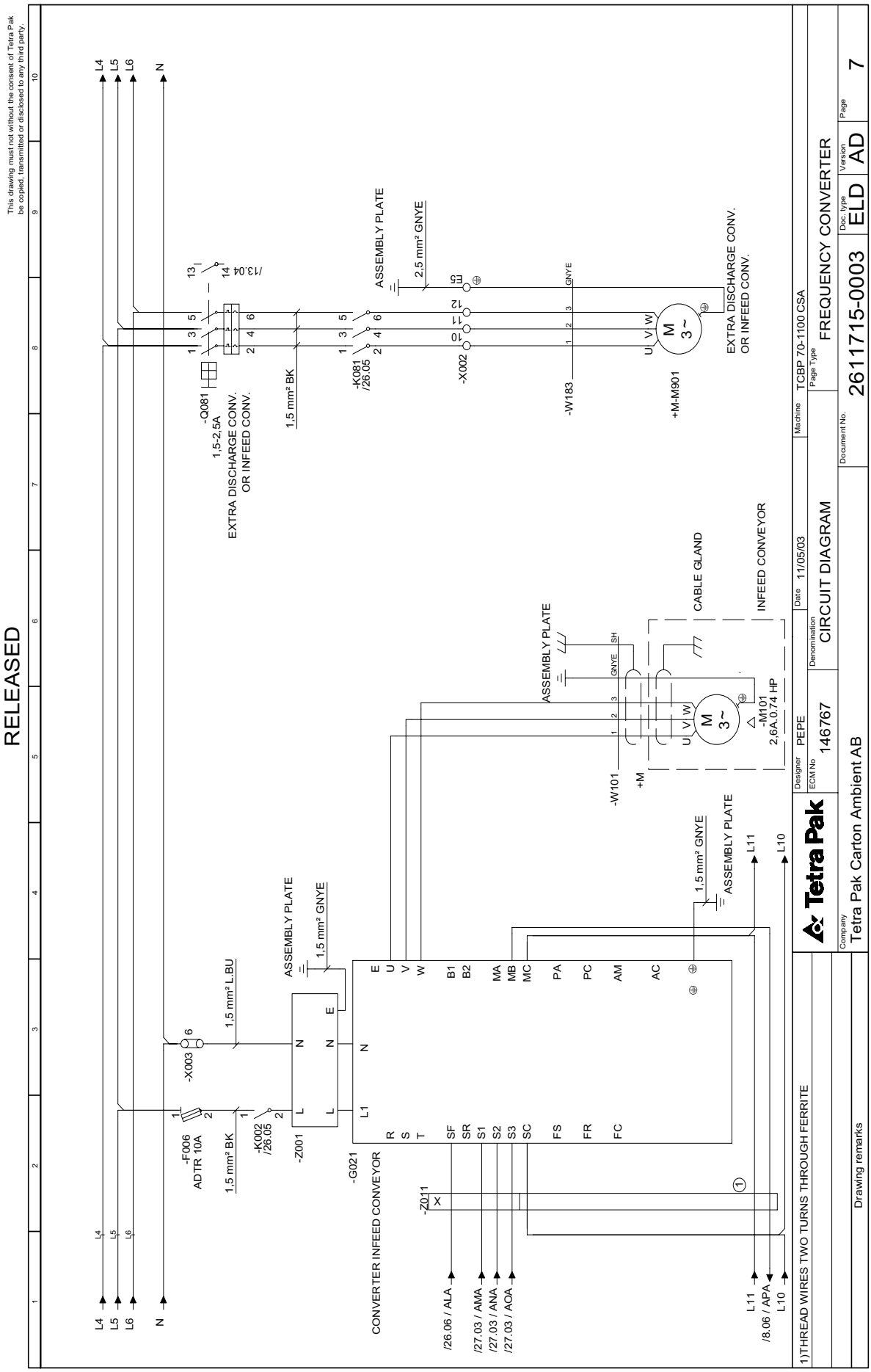
L1
L2
L3
N
L4
L5
L6
-K003
-F007
ATDR 6A
1,5 mm² BK
-X003
1,5 mm² L.BU
-K008
/12.07
-X002
-W111
+M-H102
-W108
+M-H103
AZN / /4.08
DOOR
2,5 mm² GNYE
GNYE
LIGHT ON MACHINE
-F004
ATDR 10A
-K010
/27.05
ATDR 10A
SWING DOOR
-W110
TB1 L1 L2 L3 N
OUTPUT
TB2
INPUT
+M-R101
HOTMELT UNIT
L1 5,6A 1,3KW
L2 8,6A 2KW
/18.03 / ADA
/18.05 / AEA
/21.05 / AAB
AFA / /34.06
AGA / /18.03
AHA / /34.06
1)USE PLUG 227 569
2)EXTRA EQUIPMENT
Drawing remarks
Tetra Pak
Designer PEPE
ECM No 146767
Date 11/05/03
Denomination CIRCUIT DIAGRAM
Machine TCBP 70-1100 CSA
Page Type POWER DISTRIBUTION
Document No. 2611715-0003
Doc. type ELD
Version AD
Page 6
Company Tetra Pak Carton Ambient AB


RELEASED
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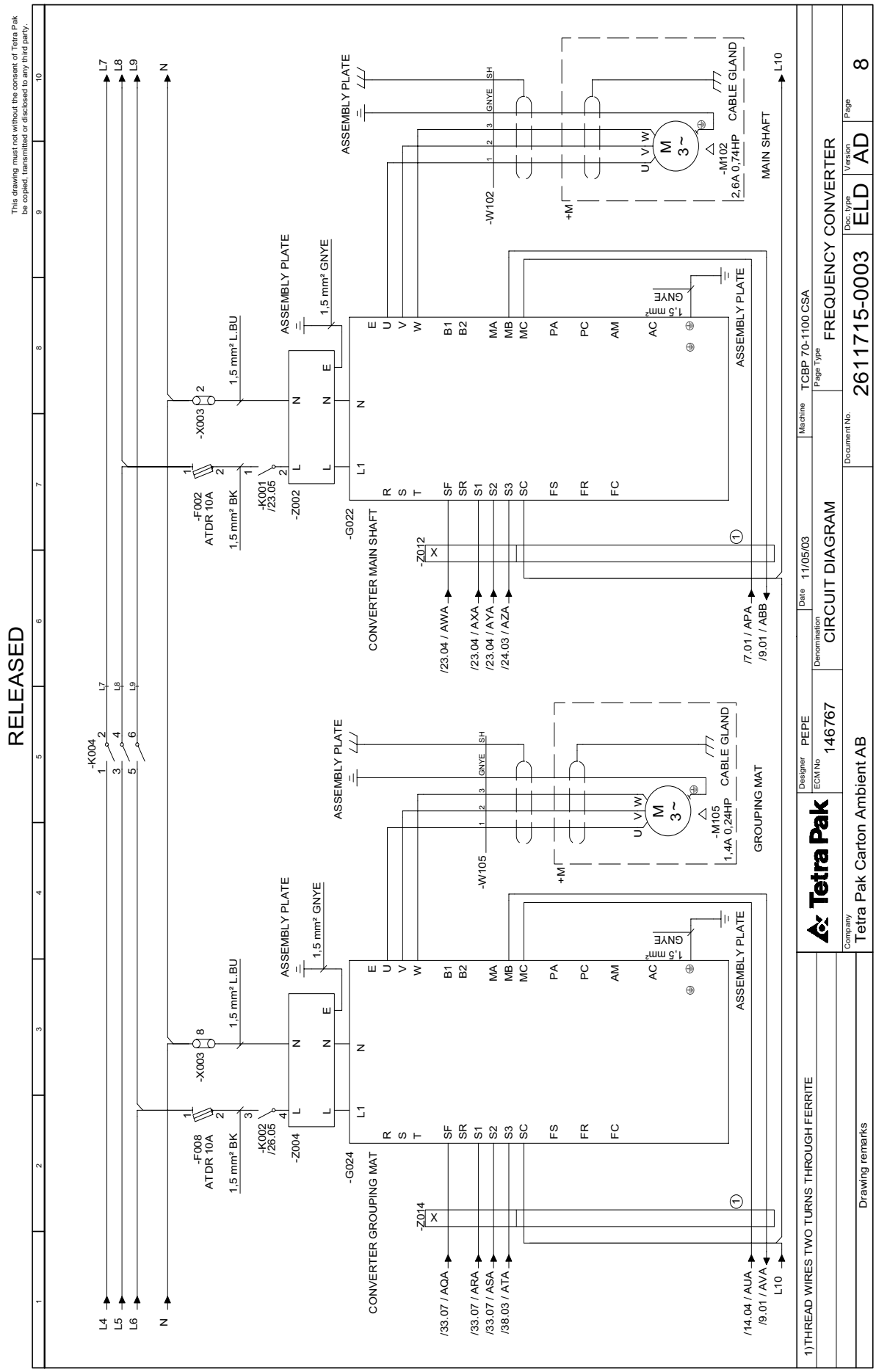
L4
L5
L6
N
-Q081
1,5-2,5A
EXTRA DISCHARGE CONV. OR INFEED CONV.
/13.04
1,5 mm² BK
-K081 /26.05
ASSEMBLY PLATE
2,5 mm² GNYE
-X002
-W183
GNYE
+M-M901
EXTRA DISCHARGE CONV. OR INFEED CONV.
-X003
1,5 mm² L.BU
-F006
ADTR 10A
-K002 /26.05
-Z001
-G021
CONVERTER INFEED CONVEYOR
-Z011
/26.06 / ALA
/27.03 / AMA
/27.03 / ANA
/27.03 / AOA
L11
/8.06 / APA
L10
1,5 mm² GNYE
-W101
+M
-M101
2,6A.0.74 HP
CABLE GLAND
INFEED CONVEYOR
1)THREAD WIRES TWO TURNS THROUGH FERRITE
Tetra Pak
Designer PEPE
ECM No. 146767
Date 11/05/03
Denomination CIRCUIT DIAGRAM
Machine TCBP 70-1100 CSA
Page Type FREQUENCY CONVERTER
Company Tetra Pak Carton Ambient AB
Document No. 2611715-0003
Doc. type ELD
Version AD
Page 7
Drawing remarks


RELEASED
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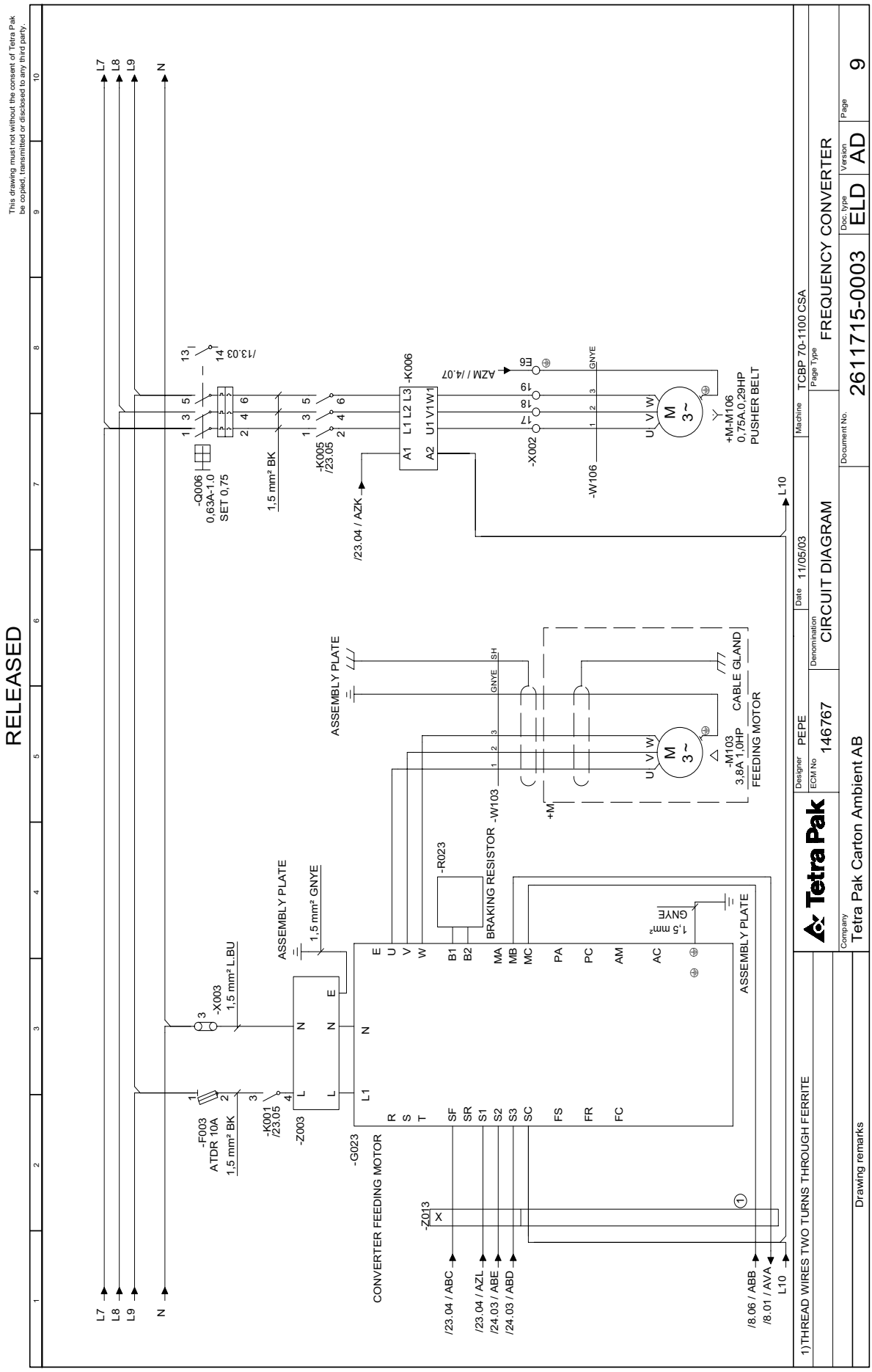
L4
L5
L6
N
L7
L8
L9
-K004
-F008
ATDR 10A
1,5 mm² BK
-K002
/26.05
-Z004
-X003
1,5 mm² L.BU
ASSEMBLY PLATE
1,5 mm² GNYE
-G024
CONVERTER GROUPING MAT
-Z014
/33.07 / AQA
/33.07 / ARA
/33.07 / ASA
/38.03 / ATA
/14.04 / AUA
/9.01 / AVA
L10
-W105
+M
-M105
1,4A 0,24HP
GROUPING MAT
CABLE GLAND
-F002
ATDR 10A
-K001
/23.05
-Z002
-G022
CONVERTER MAIN SHAFT
-Z012
/23.04 / AWA
/23.04 / AXA
/23.04 / AYA
/24.03 / AZA
/7.01 / APA
/9.01 / ABB
-W102
-M102
2,6A 0,74HP
MAIN SHAFT
1)THREAD WIRES TWO TURNS THROUGH FERRITE
Drawing remarks
Tetra Pak
Designer PEPE
ECM No 146767
Date 11/05/03
Machine TCBP 70-1100 CSA
Page Type
Denomination CIRCUIT DIAGRAM
FREQUENCY CONVERTER
Company Tetra Pak Carton Ambient AB
Document No. 2611715-0003
Doc. type ELD
Version AD
Page 8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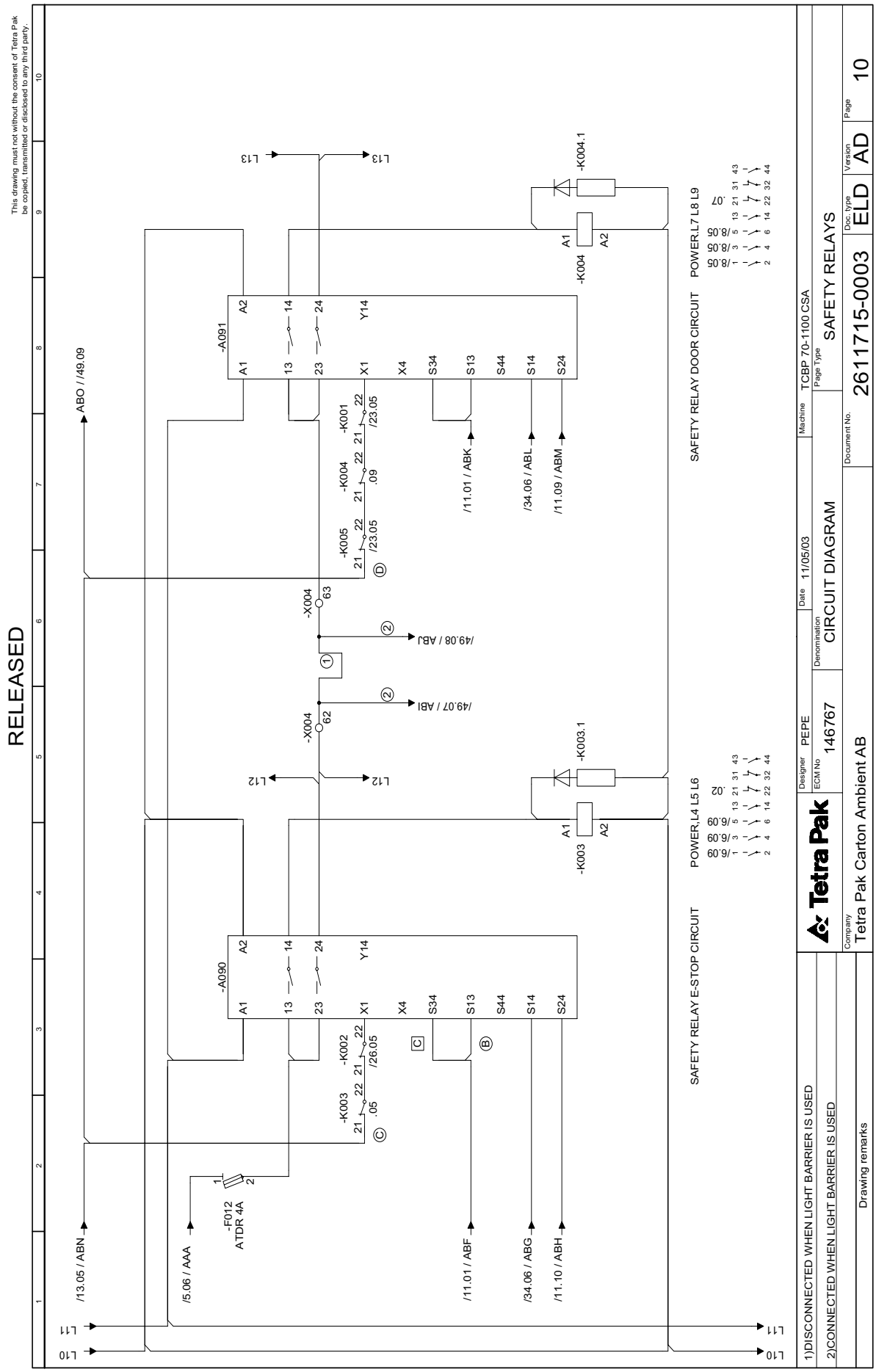
L7
L8
L9
N
-Q006
0,63A-1.0
SET 0,75
/13.03
1,5 mm² BK
-K005
/23.05
/23.04 / AZK
-K006
A1 L1 L2 L3
A2 U1 V1 W1
AZM / /4.07
-X002
-W106
GNYE
+M-M106
0,75A,0,29HP
PUSHER BELT
L10
ASSEMBLY PLATE
SH
-M103
3,8A 1,0HP
CABLE GLAND
FEEDING MOTOR
+M
-W103
BRAKING RESISTOR
-R023
-X003
1,5 mm² L.BU
-F003
ATDR 10A
1,5 mm² BK
-K001
/23.05
-Z003
1,5 mm² GNYE
-G023
CONVERTER FEEDING MOTOR
E U V W
B1 B2
MA MB MC
PA PC AM AC
R S T
SF SR S1 S2 S3 SC
FS FR FC
-Z013
/23.04 / ABC
/23.04 / AZL
/24.03 / ABE
/24.03 / ABD
/8.06 / ABB
/8.01 / AVA
1)THREAD WIRES TWO TURNS THROUGH FERRITE
Tetra Pak
Designer PEPE
ECM No. 146767
Date 11/05/03
Denomination CIRCUIT DIAGRAM
Machine TCBP 70-1100 CSA
Page Type FREQUENCY CONVERTER
Company Tetra Pak Carton Ambient AB
Document No. 2611715-0003
Doc. type ELD
Version AD
Page 9
Drawing remarks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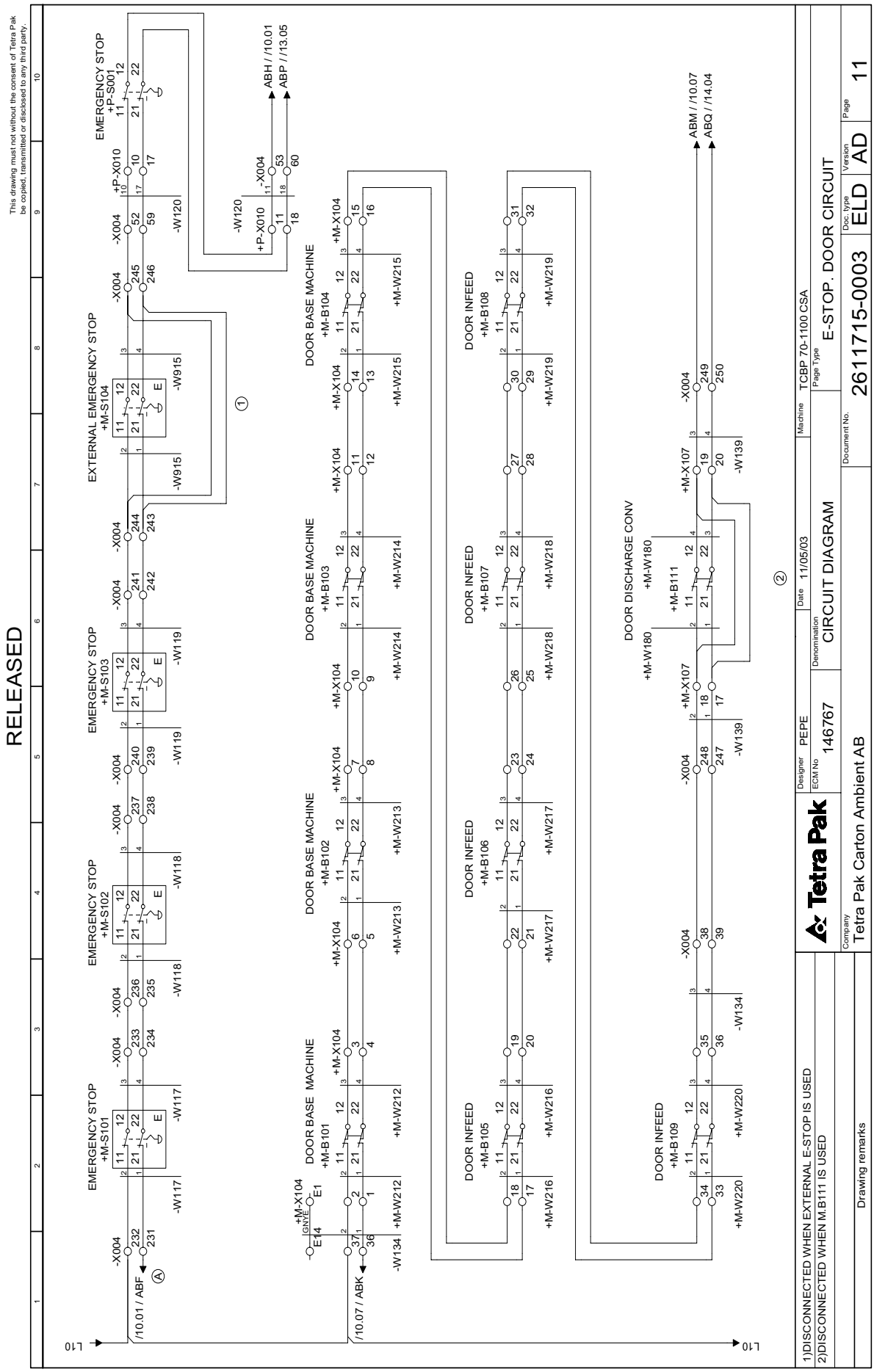
SAFETY RELAY DOOR CIRCUIT
POWER,L7 L8 L9
SAFETY RELAY E-STOP CIRCUIT
POWER,L4 L5 L6
-A091
-A090
-K004.1
-K004
-K003.1
-K003
-K001
-K002
-K005
-X004
-F012
A TDR 4A
ABO / /49.09
/13.05 / ABN
/5.06 / AAA
/11.01 / ABK
/34.06 / ABL
/11.09 / ABM
/11.01 / ABF
/34.06 / ABG
/11.10 / ABH
/49.08 / ABJ
/49.07 / ABI
L13
L12
L11
L10
1)DISCONNECTED WHEN LIGHT BARRIER IS USED
2)CONNECTED WHEN LIGHT BARRIER IS USED
Drawing remarks
Tetra Pak
Designer PEPE
ECM No 146767
Date 11/05/03
Machine TCBP 70-1100 CSA
Denomination CIRCUIT DIAGRAM
Page Type SAFETY RELAYS
Company Tetra Pak Carton Ambient AB
Document No. 2611715-0003
Doc. type ELD
Version AD
Page 10


RELEASED
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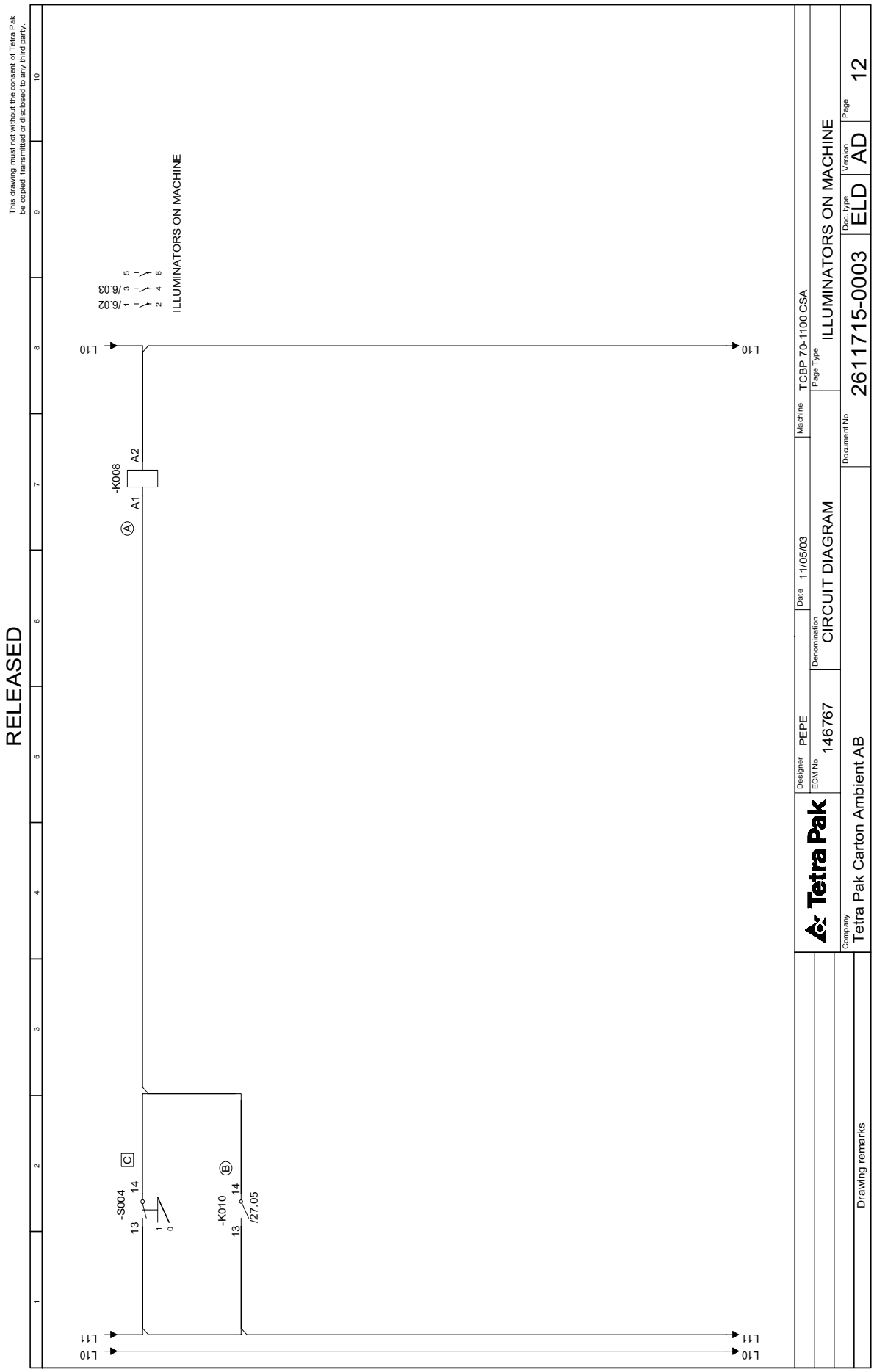
EMERGENCY STOP +M-S101
EMERGENCY STOP +M-S102
EMERGENCY STOP +M-S103
EXTERNAL EMERGENCY STOP +M-S104
EMERGENCY STOP +P-S001
DOOR BASE MACHINE +M-B101
DOOR BASE MACHINE +M-B102
DOOR BASE MACHINE +M-B103
DOOR BASE MACHINE +M-B104
DOOR INFEED +M-B105
DOOR INFEED +M-B106
DOOR INFEED +M-B107
DOOR INFEED +M-B108
DOOR INFEED +M-B109
DOOR DISCHARGE CONV +M-B111
/10.01 / ABF
/10.07 / ABK
ABH / /10.01
ABP / /13.05
ABM / /10.07
ABQ / /14.04
L10
1)DISCONNECTED WHEN EXTERNAL E-STOP IS USED
2)DISCONNECTED WHEN M.B111 IS USED
Drawing remarks
Tetra Pak
Designer PEPE
ECM No. 146767
Date 11/05/03
Machine TCBP 70-1100 CSA
Page Type
Denomination CIRCUIT DIAGRAM
E-STOP. DOOR CIRCUIT
Company Tetra Pak Carton Ambient AB
Document No. 2611715-0003
Doc. type ELD
Version AD
Page 11


RELEASED
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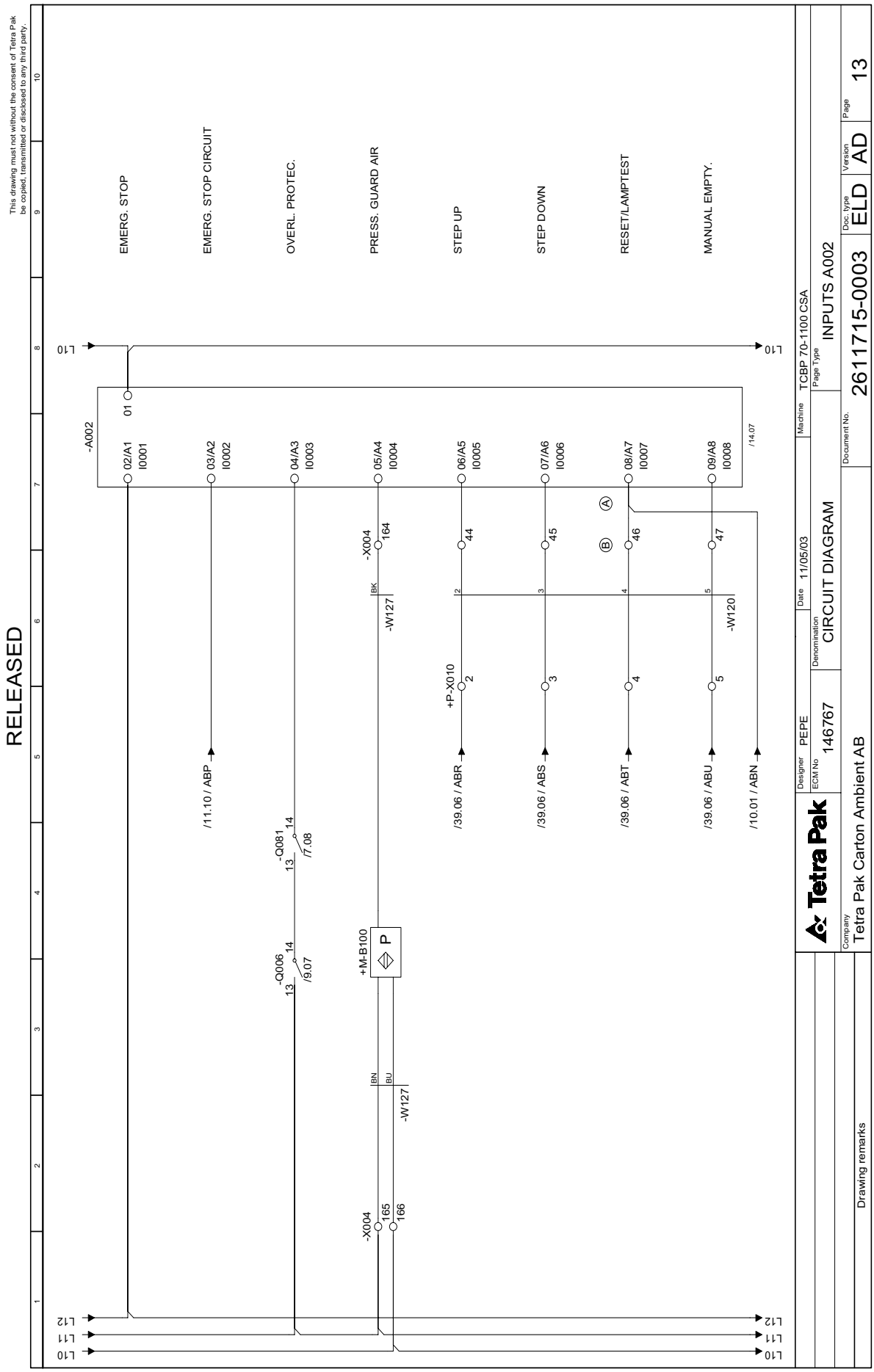
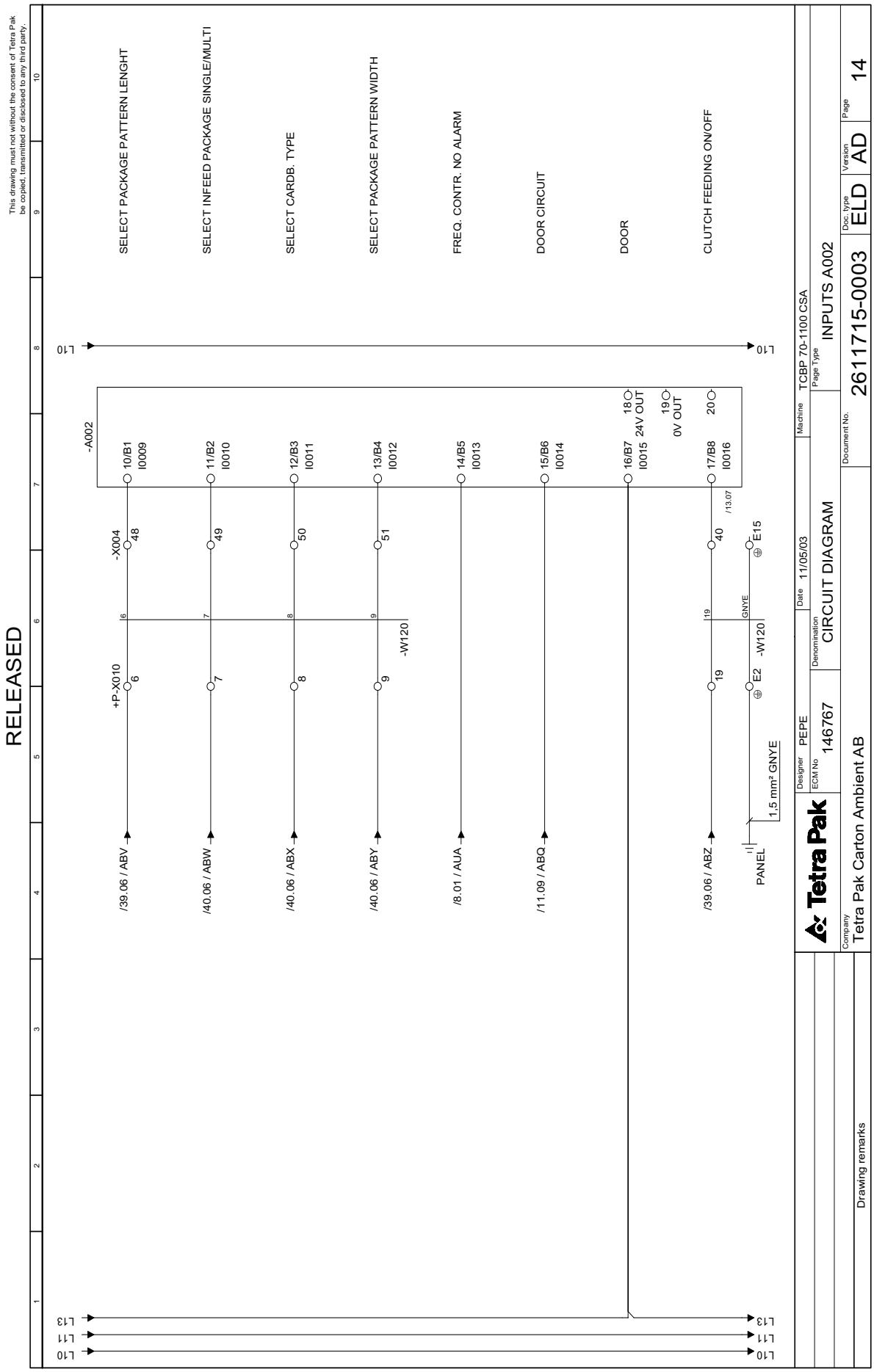
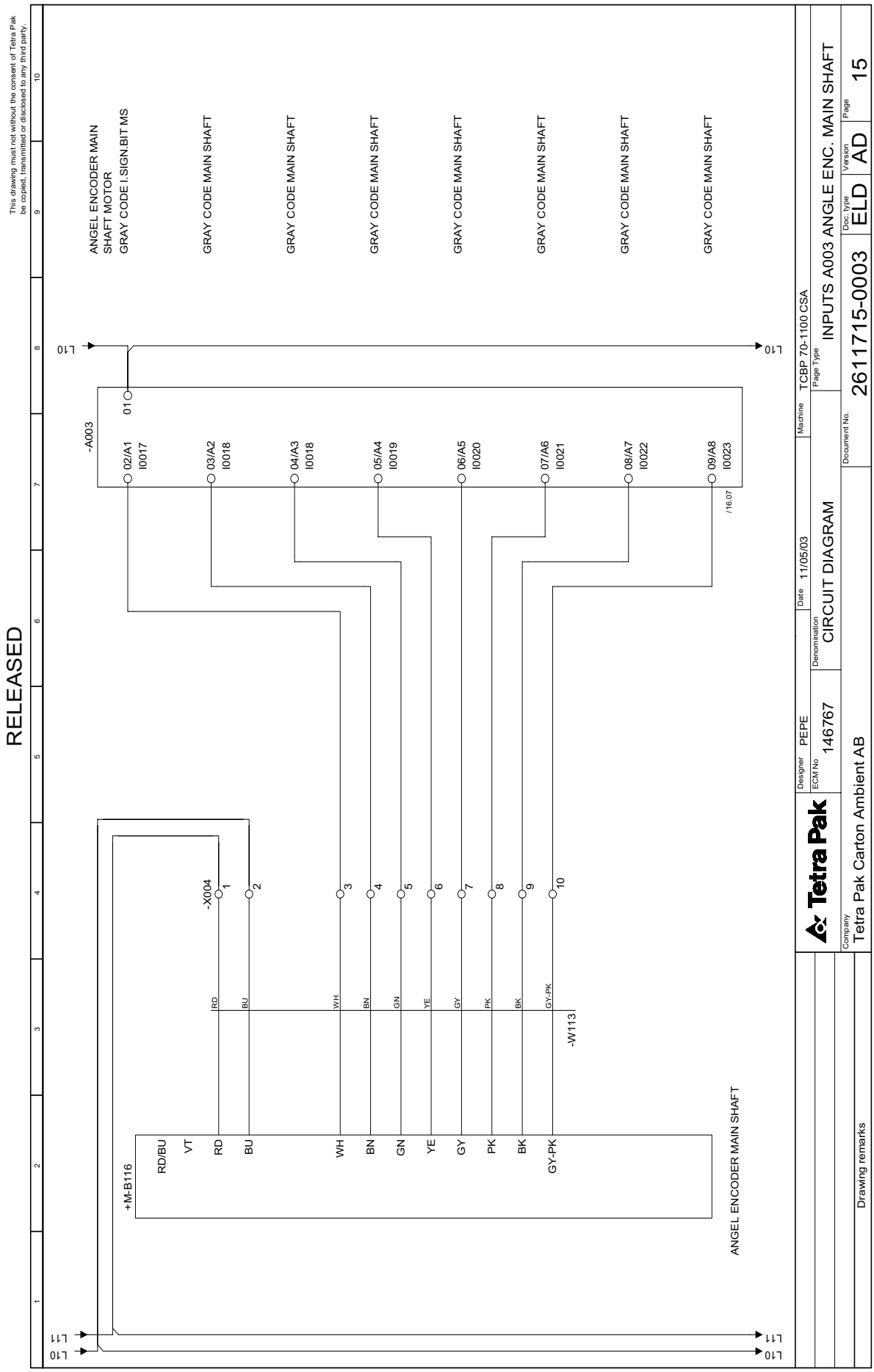
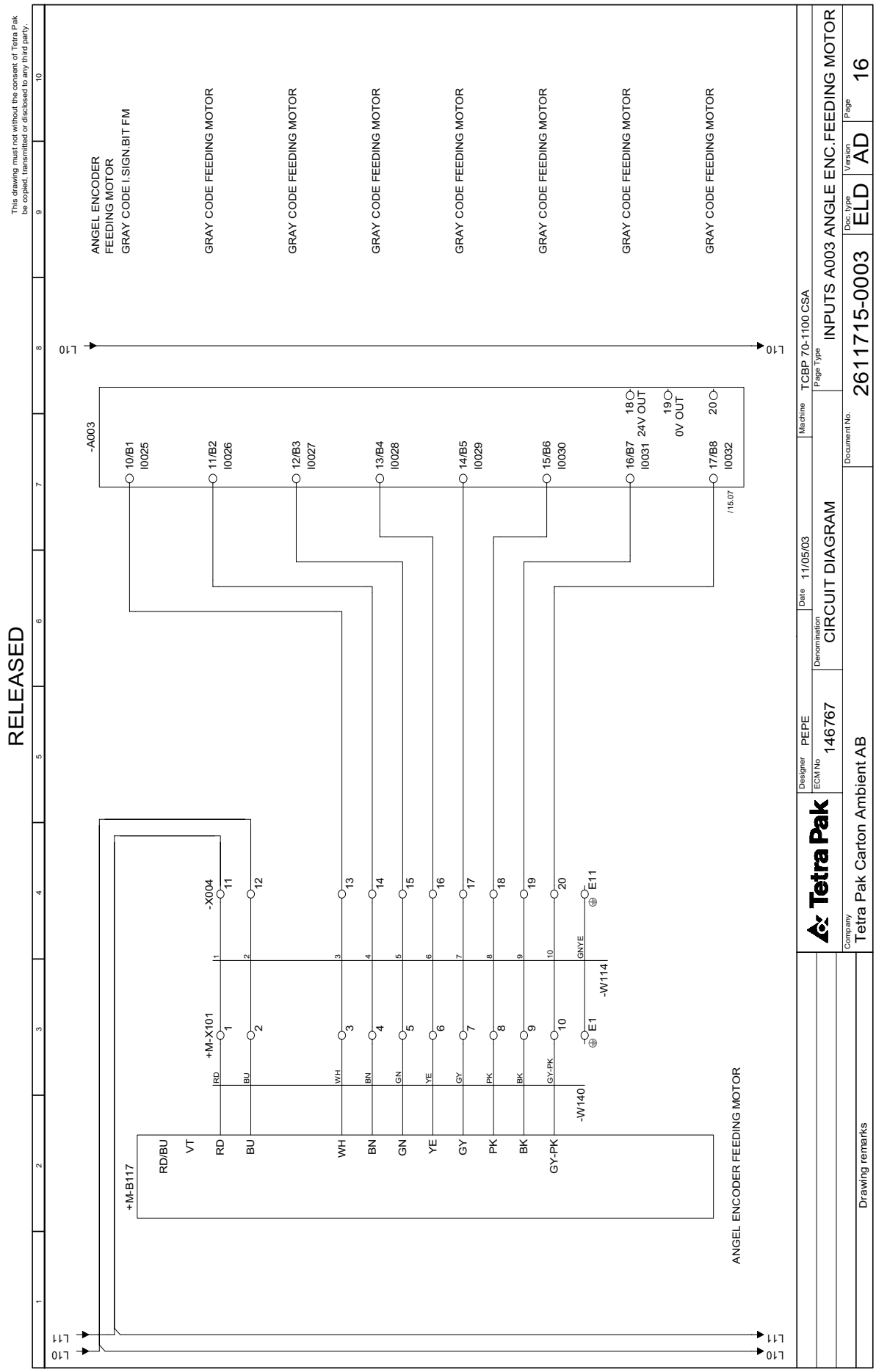
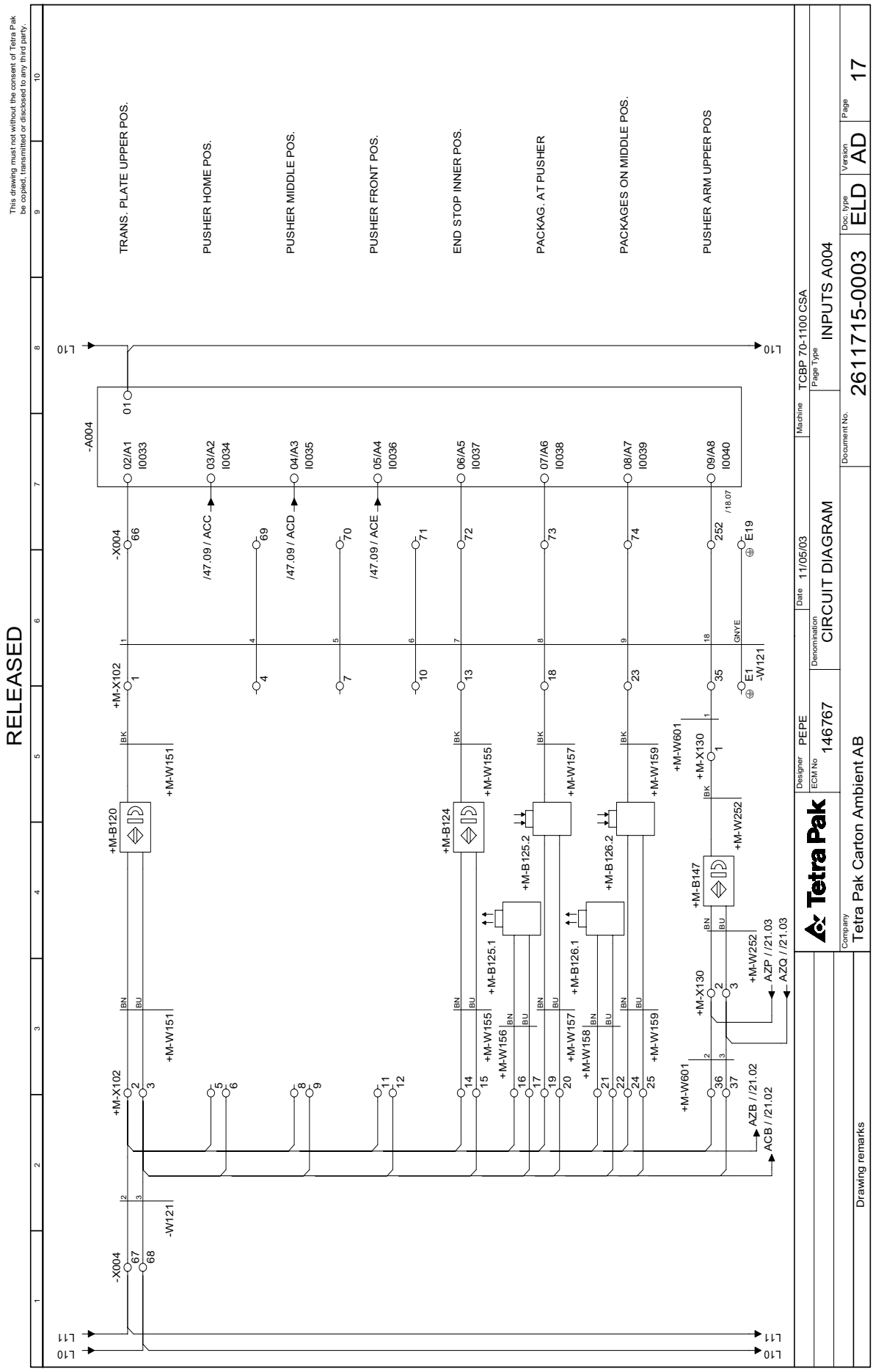
ILLUMINATORS ON MACHINE
/6.02
/6.03
L10
-K008
A2
A1
A
-S004
C
14
13
1
0
-K010
B
14
13
/27.05
L11
L10
Tetra Pak
Designer PEPE
ECM No 146767
Date 11/05/03
Machine TCBP 70-1100 CSA
Page Type
Denomination CIRCUIT DIAGRAM
ILLUMINATORS ON MACHINE
Document No. 2611715-0003
Doc. type ELD
Version AD
Page 12
Company Tetra Pak Carton Ambient AB
Drawing remarks

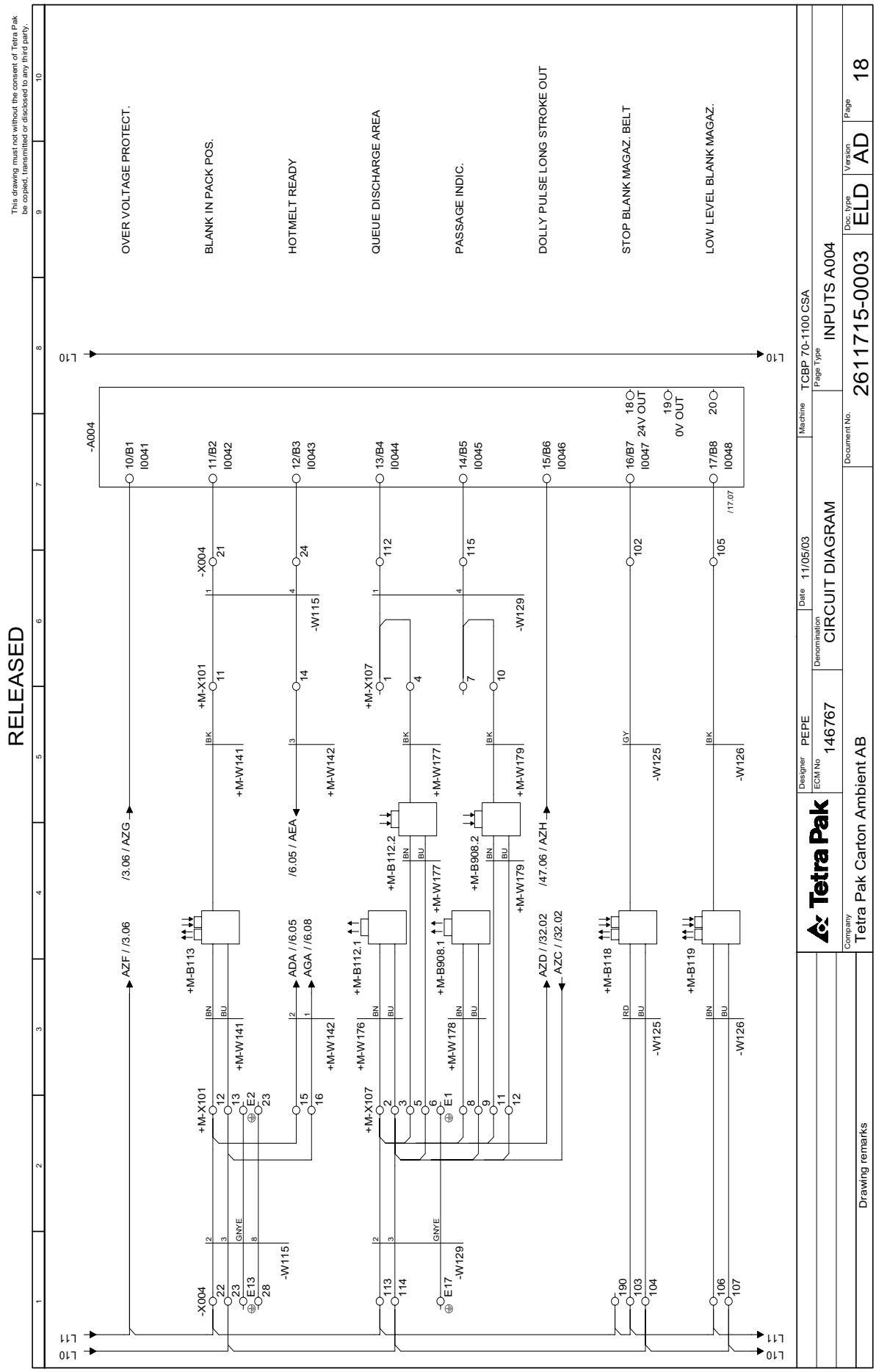

This drawing must not without the consent of Tetra Pak be copied, transmitted or disclosed to any third party.
RELEASED
EMERG. STOP
EMERG. STOP CIRCUIT
OVERL. PROTEC.
PRESS. GUARD AIR
STEP UP
STEP DOWN
RESET/LAMPTEST
MANUAL EMPTY.
L10
-A002
01
02/A1 I0001
03/A2 I0002
04/A3 I0003
05/A4 I0004
06/A5 I0005
07/A6 I0006
08/A7 I0007
09/A8 I0008
/14.07
-X004
164
44
45
46
47
BK
-W127
-W120
+P-X010
2
3
4
5
/11.10 / ABP
/39.06 / ABR
/39.06 / ABS
/39.06 / ABT
/39.06 / ABU
/10.01 / ABN
-Q081
13
14
/7.08
-Q006
/9.07
+M-B100
P
BN
BU
165
166
L12
L11
Tetra Pak
Designer PEPE
ECM No. 146767
Date 11/05/03
Denomination CIRCUIT DIAGRAM
Machine TCBP 70-1100 CSA
Page Type INPUTS A002
Document No. 2611715-0003
Doc. type ELD
Version AD
Page 13
Company Tetra Pak Carton Ambient AB
Drawing remarks

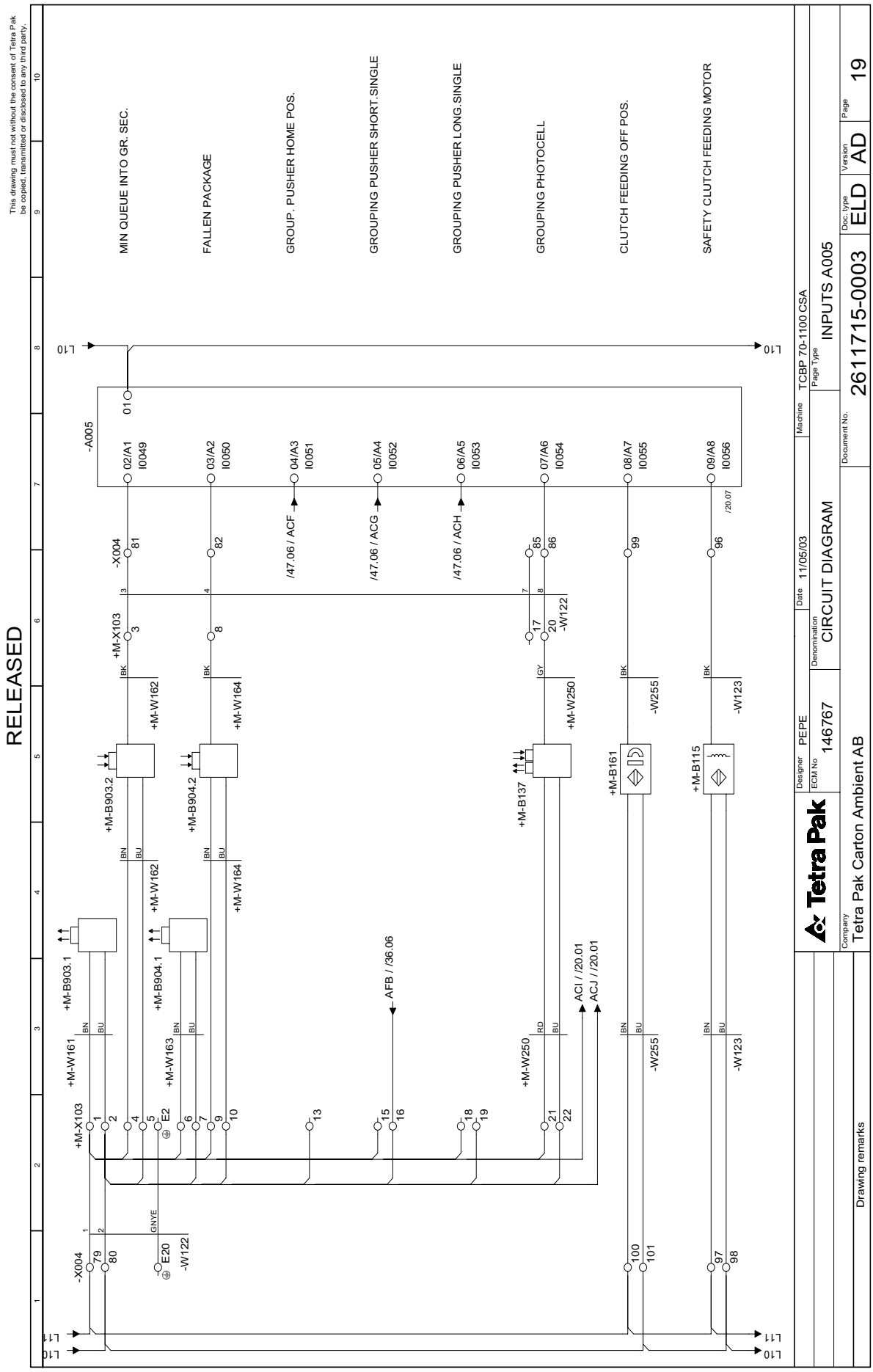

This drawing must not without the consent of Tetra Pak be copied, transmitted or disclosed to any third party.
RELEASED
SELECT PACKAGE PATTERN LENGHT
SELECT INFEED PACKAGE SINGLE/MULTI
SELECT CARDB. TYPE
SELECT PACKAGE PATTERN WIDTH
FREQ. CONTR. NO ALARM
DOOR CIRCUIT
DOOR
CLUTCH FEEDING ON/OFF
L10
-A002
10/B1 I0009
11/B2 I0010
12/B3 I0011
13/B4 I0012
14/B5 I0013
15/B6 I0014
16/B7 I0015
17/B8 I0016
18 24V OUT
19 0V OUT
20
-X004
48
49
50
51
40
/13.07
E15
+P-X010
6
7
8
9
19
E2
-W120
GNYE
1,5 mm² GNYE
PANEL
/39.06 / ABV
/40.06 / ABW
/40.06 / ABX
/40.06 / ABY
/8.01 / AUA
/11.09 / ABQ
/39.06 / ABZ
L13
L11
L10
Tetra Pak
Designer PEPE
ECM No 146767
Date 11/05/03
Denomination CIRCUIT DIAGRAM
Machine TCBP 70-1100 CSA
Page Type INPUTS A002
Document No. 2611715-0003
Doc. type ELD
Version AD
Page 14
Company Tetra Pak Carton Ambient AB
Drawing remarks

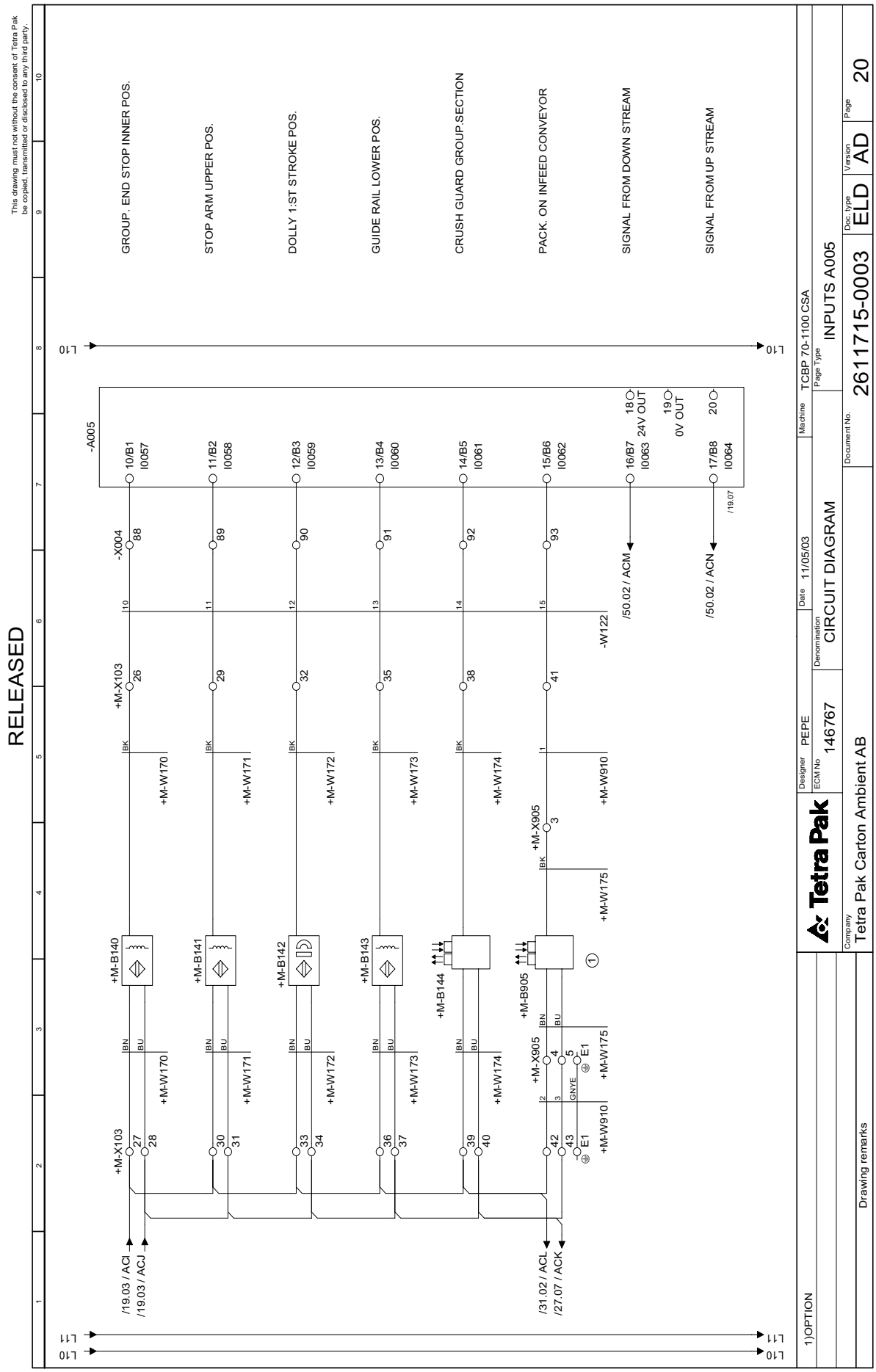

This drawing must not without the consent of Tetra Pak be copied, transmitted or disclosed to any third party.
RELEASED
ANGEL ENCODER MAIN SHAFT MOTOR
GRAY CODE I.SIGN.BIT MS
GRAY CODE MAIN SHAFT
-A003
01
02/A1 I0017
03/A2 I0018
04/A3 I0018
05/A4 I0019
06/A5 I0020
07/A6 I0021
08/A7 I0022
09/A8 I0023
/16.07
L10
L11
-X004
1
2
3
4
5
6
7
8
9
10
RD
BU
WH
BN
GN
YE
GY
PK
BK
GY-PK
-W113
+M-B116
RD/BU
VT
ANGEL ENCODER MAIN SHAFT
Tetra Pak
Designer PEPE
ECM No. 146767
Denomination CIRCUIT DIAGRAM
Date 11/05/03
Machine TCBP 70-1100 CSA
Page Type
INPUTS A003 ANGLE ENC. MAIN SHAFT
Document No. 2611715-0003
Doc. type ELD
Version AD
Page 15
Company Tetra Pak Carton Ambient AB
Drawing remarks

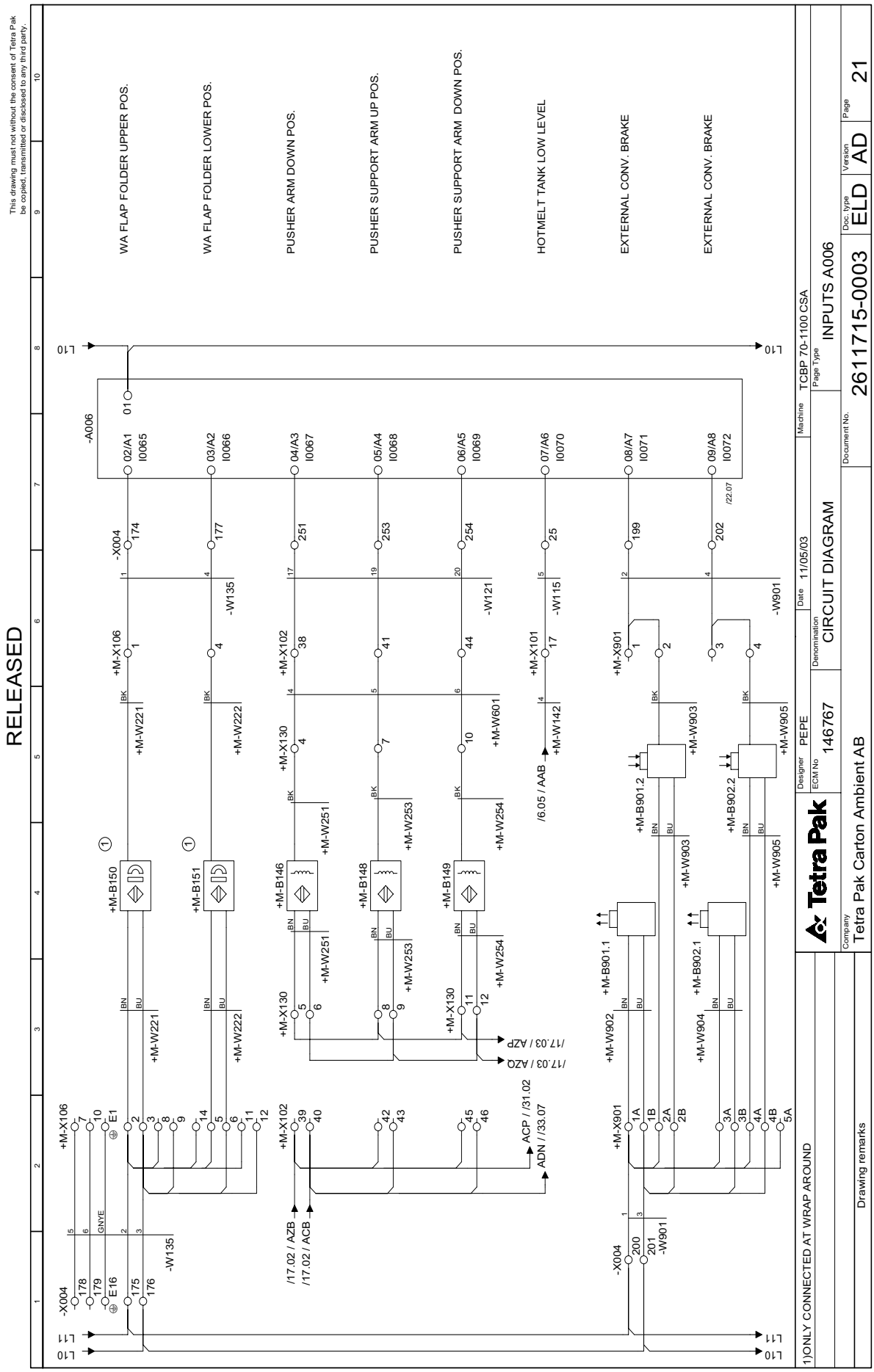

RELEASED
This drawing must not without the consent of Tetra Pak be copied, transmitted or disclosed to any third party.
ANGEL ENCODER FEEDING MOTOR GRAY CODE I.SIGN.BIT FM
GRAY CODE FEEDING MOTOR
-A003
10/B1 I0025
11/B2 I0026
12/B3 I0027
13/B4 I0028
14/B5 I0029
15/B6 I0030
16/B7 I0031
17/B8 I0032
18 24V OUT
19 0V OUT
20
/15.07
L10
L11
+M-B117
RD/BU
VT
RD
BU
WH
BN
GN
YE
GY
PK
BK
GY-PK
+M-X101
-X004
-W140
-W114
E1
E11
GNYE
ANGEL ENCODER FEEDING MOTOR
Tetra Pak
Designer PEPE
ECM No 146767
Date 11/05/03
Denomination CIRCUIT DIAGRAM
Machine TCBP 70-1100 CSA
Page Type INPUTS A003 ANGLE ENC.FEEDING MOTOR
Document No. 2611715-0003
Doc. type ELD
Version AD
Page 16
Company Tetra Pak Carton Ambient AB
Drawing remarks

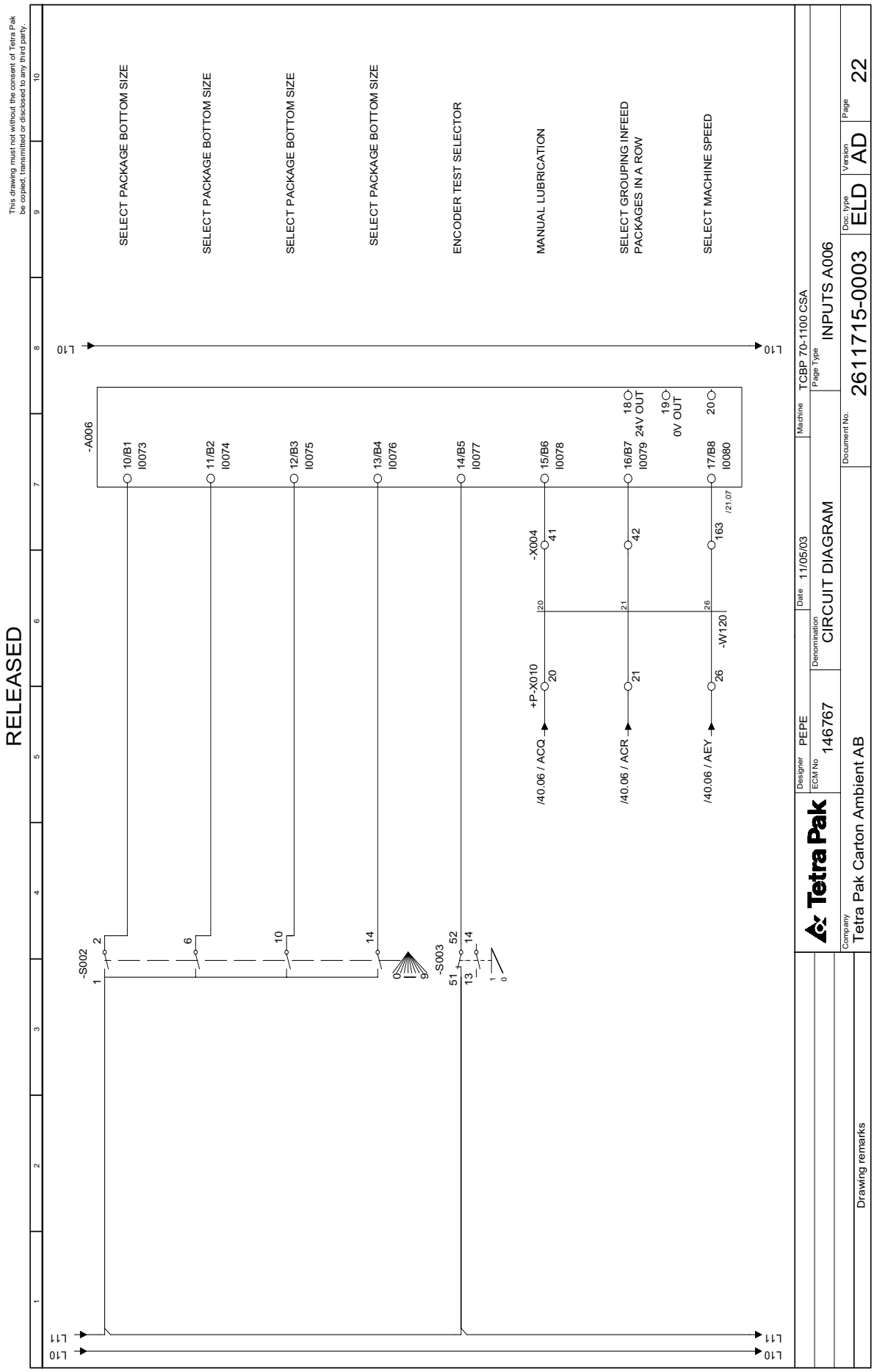

RELEASED
This drawing must not without the consent of Tetra Pak be copied, transmitted or disclosed to any third party.
TRANS. PLATE UPPER POS.
PUSHER HOME POS.
PUSHER MIDDLE POS.
PUSHER FRONT POS.
END STOP INNER POS.
PACKAG. AT PUSHER
PACKAGES ON MIDDLE POS.
PUSHER ARM UPPER POS
-A004
02/A1 I0033
03/A2 I0034
04/A3 I0035
05/A4 I0036
06/A5 I0037
07/A6 I0038
08/A7 I0039
09/A8 I0040
/47.09 / ACC
/47.09 / ACD
/47.09 / ACE
/18.07
-X004
+M-X102
+M-B120
+M-B124
+M-B125.1
+M-B125.2
+M-B126.1
+M-B126.2
+M-B147
+M-W151
+M-W155
+M-W156
+M-W157
+M-W158
+M-W159
+M-W601
+M-W252
+M-X130
-W121
E1
E19
AZB / /21.02
ACB / /21.02
AZP / /21.03
AZQ / /21.03
L10
L11
Tetra Pak
Designer PEPE
ECM No. 146767
Date 11/05/03
Denomination CIRCUIT DIAGRAM
Machine TCBP 70-1100 CSA
Page Type INPUTS A004
Document No. 2611715-0003
Doc. type ELD
Version AD
Page 17
Company Tetra Pak Carton Ambient AB
Drawing remarks

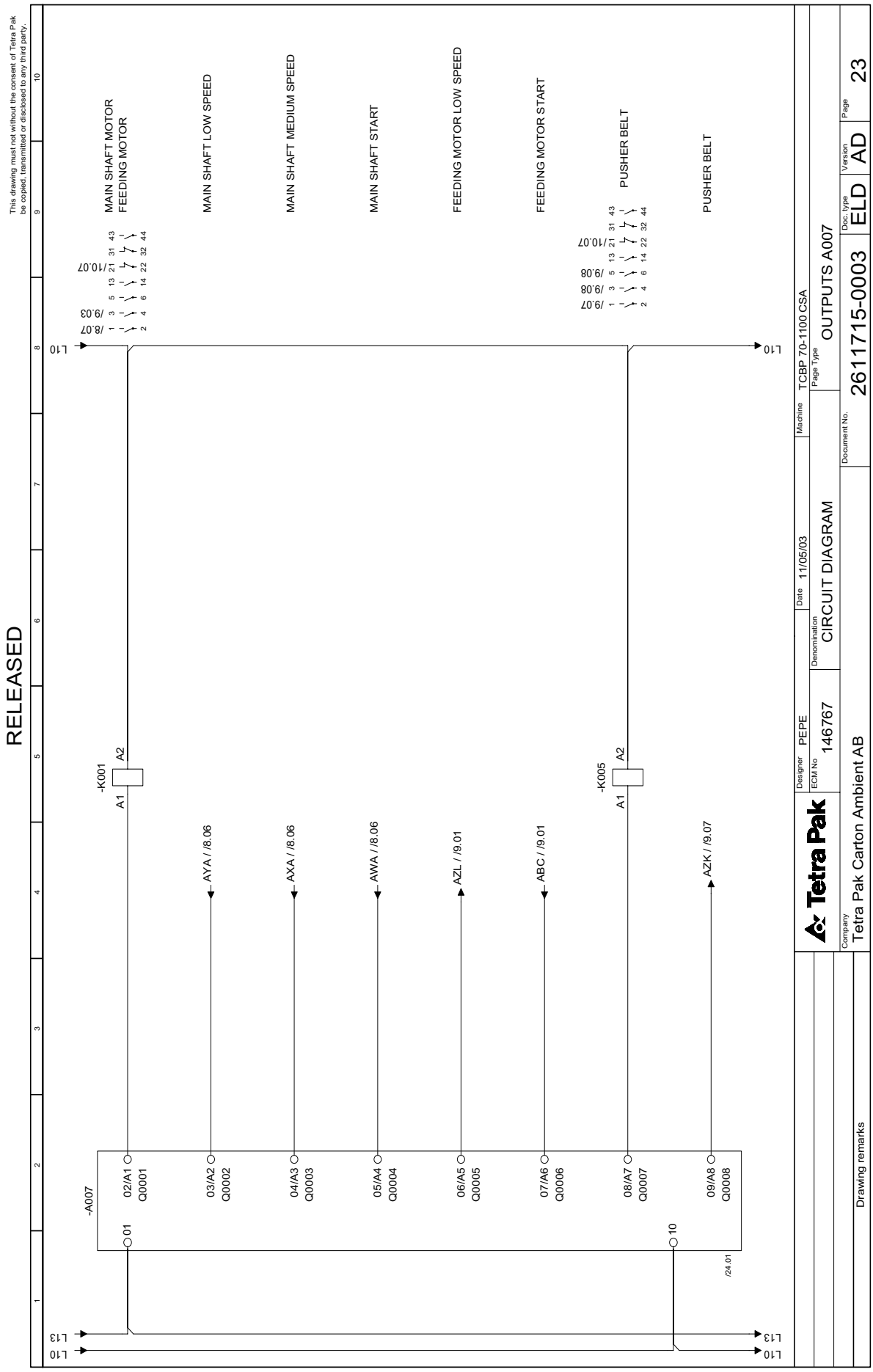

RELEASED
This drawing must not without the consent of Tetra Pak be copied, transmitted or disclosed to any third party.
OVER VOLTAGE PROTECT.
BLANK IN PACK POS.
HOTMELT READY
QUEUE DISCHARGE AREA
PASSAGE INDIC.
DOLLY PULSE LONG STROKE OUT
STOP BLANK MAGAZ. BELT
LOW LEVEL BLANK MAGAZ.
-A004
10/B1 I0041
11/B2 I0042
12/B3 I0043
13/B4 I0044
14/B5 I0045
15/B6 I0046
16/B7 I0047 24V OUT
17/B8 I0048 0V OUT
/17.07
/3.06 / AZG
/6.05 / AEA
AZF / /3.06
ADA / /6.05
AGA / /6.08
AZD / /32.02
AZC / /32.02
/47.06 / AZH
+M-B113
+M-B112.1
+M-B908.1
+M-B112.2
+M-B908.2
+M-B118
+M-B119
+M-W141
+M-W142
+M-W176
+M-W178
+M-W177
+M-W179
-W115
-W129
-W125
-W126
-X004
+M-X101
+M-X107
L10
L11
Tetra Pak
Designer PEPE
ECM No. 146767
Date 11/05/03
Machine TCBP 70-1100 CSA
Page Type INPUTS A004
Denomination CIRCUIT DIAGRAM
Document No. 2611715-0003
Doc. type ELD
Version AD
Page 18
Company Tetra Pak Carton Ambient AB
Drawing remarks

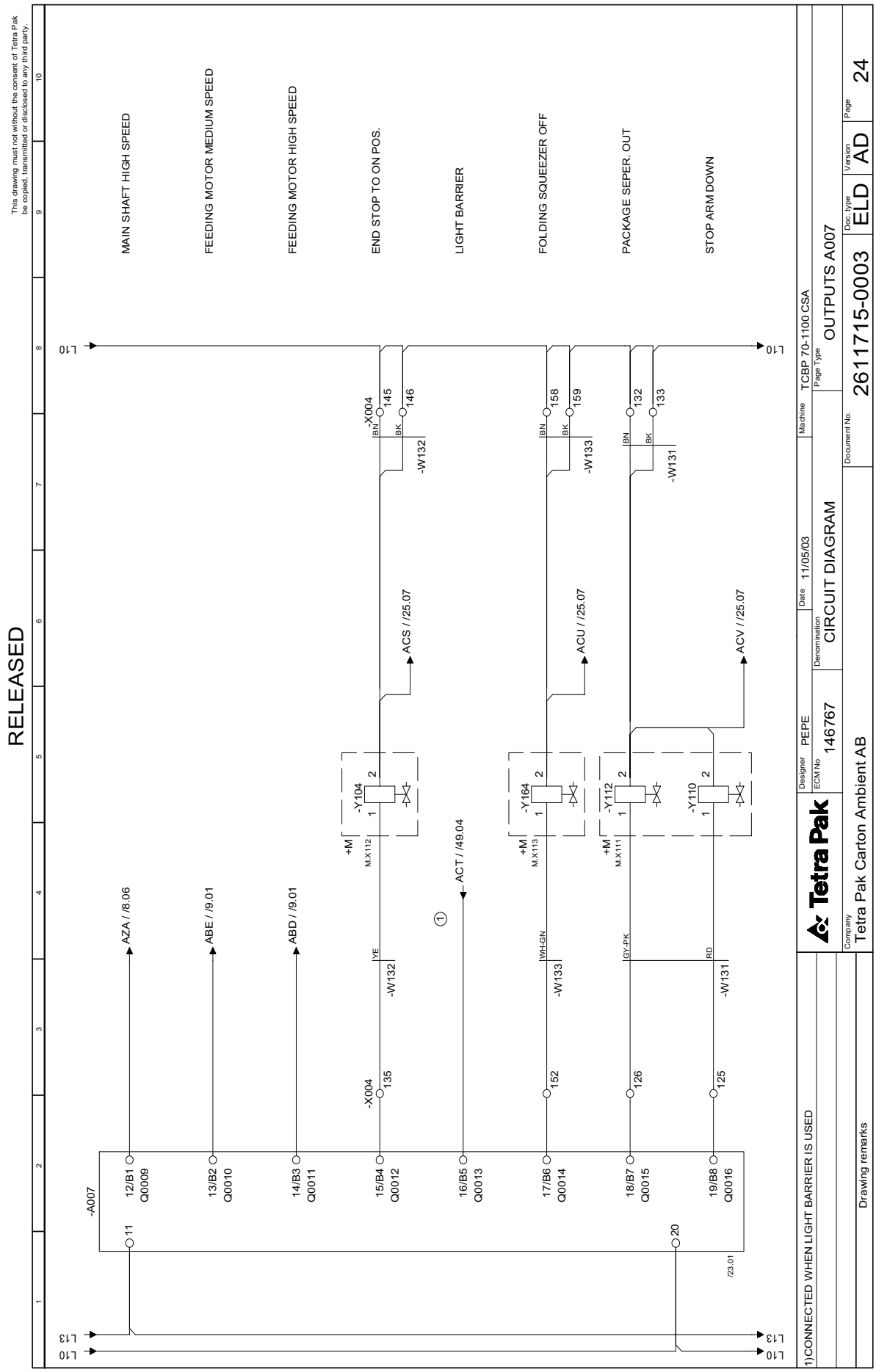

RELEASED
This drawing must not without the consent of Tetra Pak be copied, transmitted or disclosed to any third party.
MIN QUEUE INTO GR. SEC.
FALLEN PACKAGE
GROUP. PUSHER HOME POS.
GROUPING PUSHER SHORT.SINGLE
GROUPING PUSHER LONG.SINGLE
GROUPING PHOTOCELL
CLUTCH FEEDING OFF POS.
SAFETY CLUTCH FEEDING MOTOR
-A005
02/A1 I0049
03/A2 I0050
04/A3 I0051
05/A4 I0052
06/A5 I0053
07/A6 I0054
08/A7 I0055
09/A8 I0056
/47.06 / ACF
/47.06 / ACG
/47.06 / ACH
/20.07
+M-B903.2
+M-B904.2
+M-B137
+M-B161
+M-B115
+M-B903.1
+M-B904.1
+M-W162
+M-W164
+M-W250
-W255
-W123
-W122
+M-W161
+M-W163
+M-X103
-X004
AFB / /36.06
ACI / /20.01
ACJ / /20.01
Tetra Pak
Designer PEPE
ECM No. 146767
Date 11/05/03
Denomination CIRCUIT DIAGRAM
Machine TCBP 70-1100 CSA
Page Type INPUTS A005
Document No. 2611715-0003
Doc. type ELD
Version AD
Page 19
Company Tetra Pak Carton Ambient AB
Drawing remarks

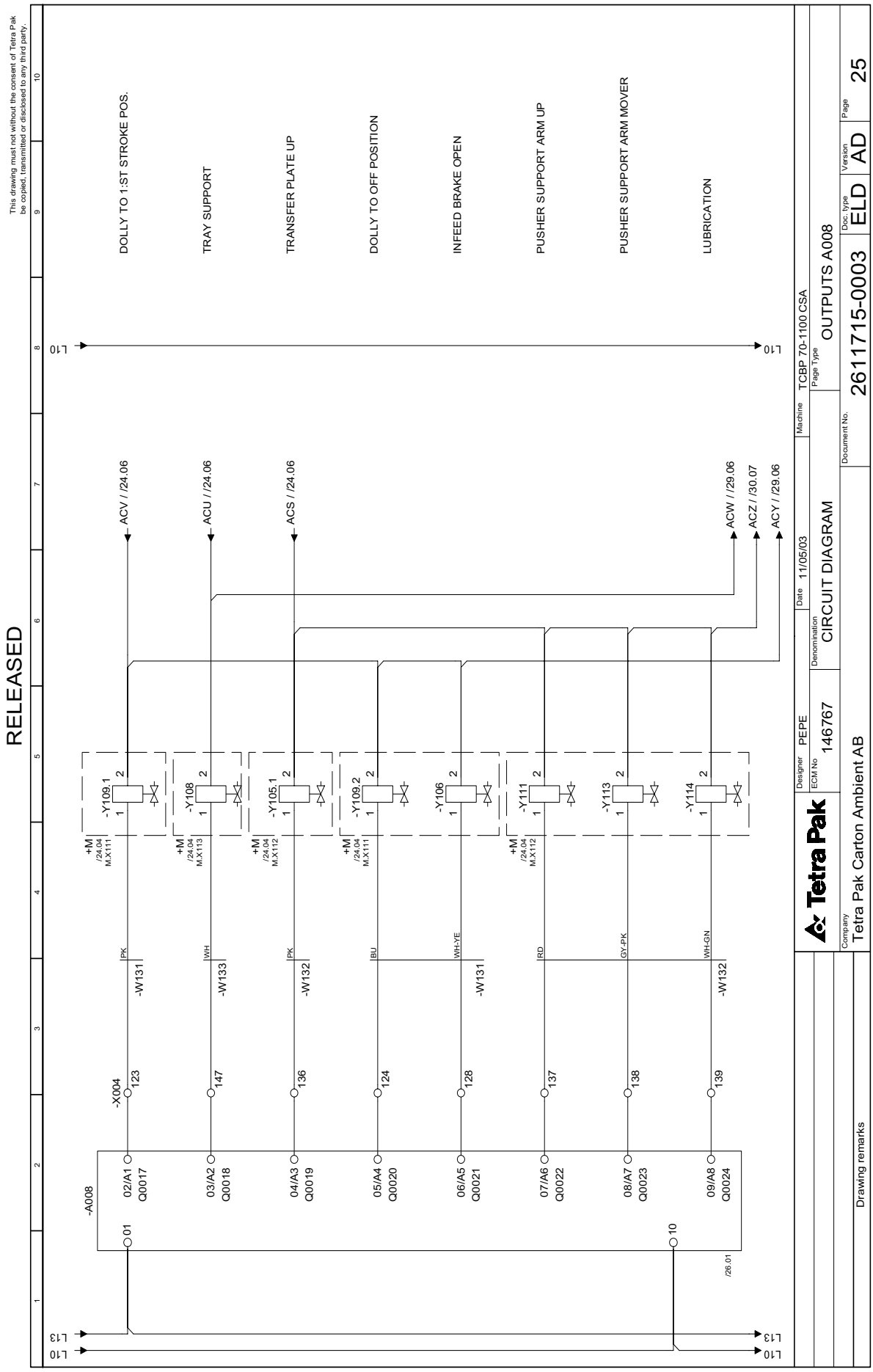

RELEASED
This drawing must not without the consent of Tetra Pak be copied, transmitted or disclosed to any third party.
GROUP. END STOP INNER POS.
STOP ARM UPPER POS.
DOLLY 1:ST STROKE POS.
GUIDE RAIL LOWER POS.
CRUSH GUARD GROUP.SECTION
PACK. ON INFEED CONVEYOR
SIGNAL FROM DOWN STREAM
SIGNAL FROM UP STREAM
-A005
10/B1 I0057
11/B2 I0058
12/B3 I0059
13/B4 I0060
14/B5 I0061
15/B6 I0062
16/B7 I0063 24V OUT
17/B8 I0064 0V OUT
/19.07
-X004
+M-X103
+M-B140
+M-B141
+M-B142
+M-B143
+M-B144
+M-B905
+M-X905
+M-W170
+M-W171
+M-W172
+M-W173
+M-W174
+M-W175
+M-W910
-W122
/50.02 / ACM
/50.02 / ACN
/19.03 / ACI
/19.03 / ACJ
/31.02 / ACL
/27.07 / ACK
L10
L11
1)OPTION
Tetra Pak
Designer PEPE
ECM No 146767
Date 11/05/03
Machine TCBP 70-1100 CSA
Page Type INPUTS A005
Denomination CIRCUIT DIAGRAM
Document No. 2611715-0003
Doc. type ELD
Version AD
Page 20
Company Tetra Pak Carton Ambient AB
Drawing remarks

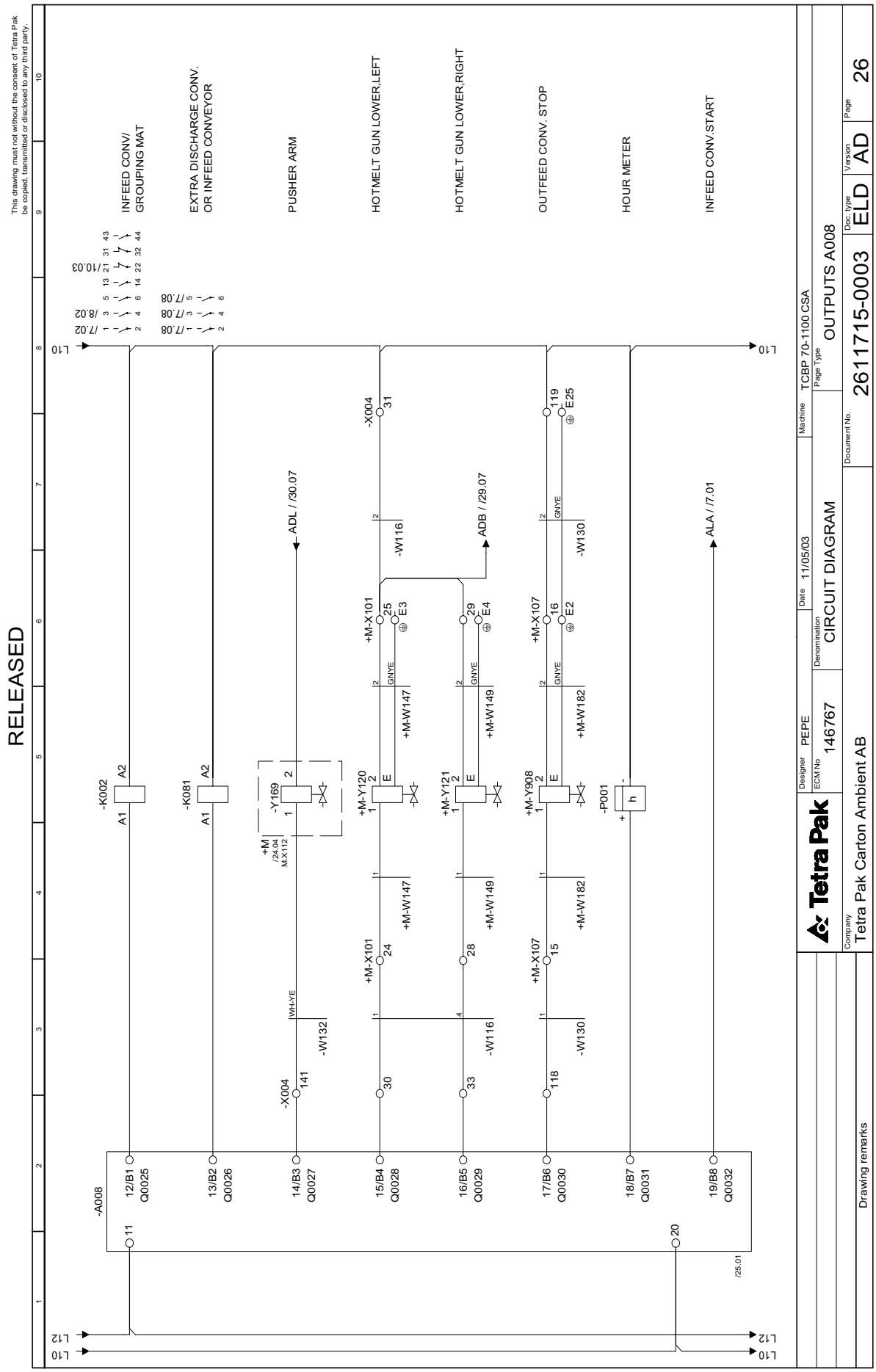

RELEASED
This drawing must not without the consent of Tetra Pak be copied, transmitted or disclosed to any third party.
WA FLAP FOLDER UPPER POS.
WA FLAP FOLDER LOWER POS.
PUSHER ARM DOWN POS.
PUSHER SUPPORT ARM UP POS.
PUSHER SUPPORT ARM DOWN POS.
HOTMELT TANK LOW LEVEL
EXTERNAL CONV. BRAKE
EXTERNAL CONV. BRAKE
-A006
-X004
+M-X106
+M-X102
+M-X130
+M-X101
+M-X901
+M-B150
+M-B151
+M-B146
+M-B148
+M-B149
+M-B901.1
+M-B901.2
+M-B902.1
+M-B902.2
+M-W221
+M-W222
+M-W251
+M-W253
+M-W254
+M-W601
+M-W142
+M-W902
+M-W903
+M-W904
+M-W905
-W135
-W121
-W115
-W901
/6.05 / AAB
/17.03 / AZP
/17.03 / AZO
ACP / /31.02
ADN / /33.07
/17.02 / AZB
/17.02 / ACB
L10
L11
1)ONLY CONNECTED AT WRAP AROUND
Drawing remarks
Tetra Pak
Company
Tetra Pak Carton Ambient AB
Designer PEPE
ECM No. 146767
Date 11/05/03
Denomination CIRCUIT DIAGRAM
Machine TCBP 70-1100 CSA
Page Type INPUTS A006
Document No. 2611715-0003
Doc. type ELD
Version AD
Page 21

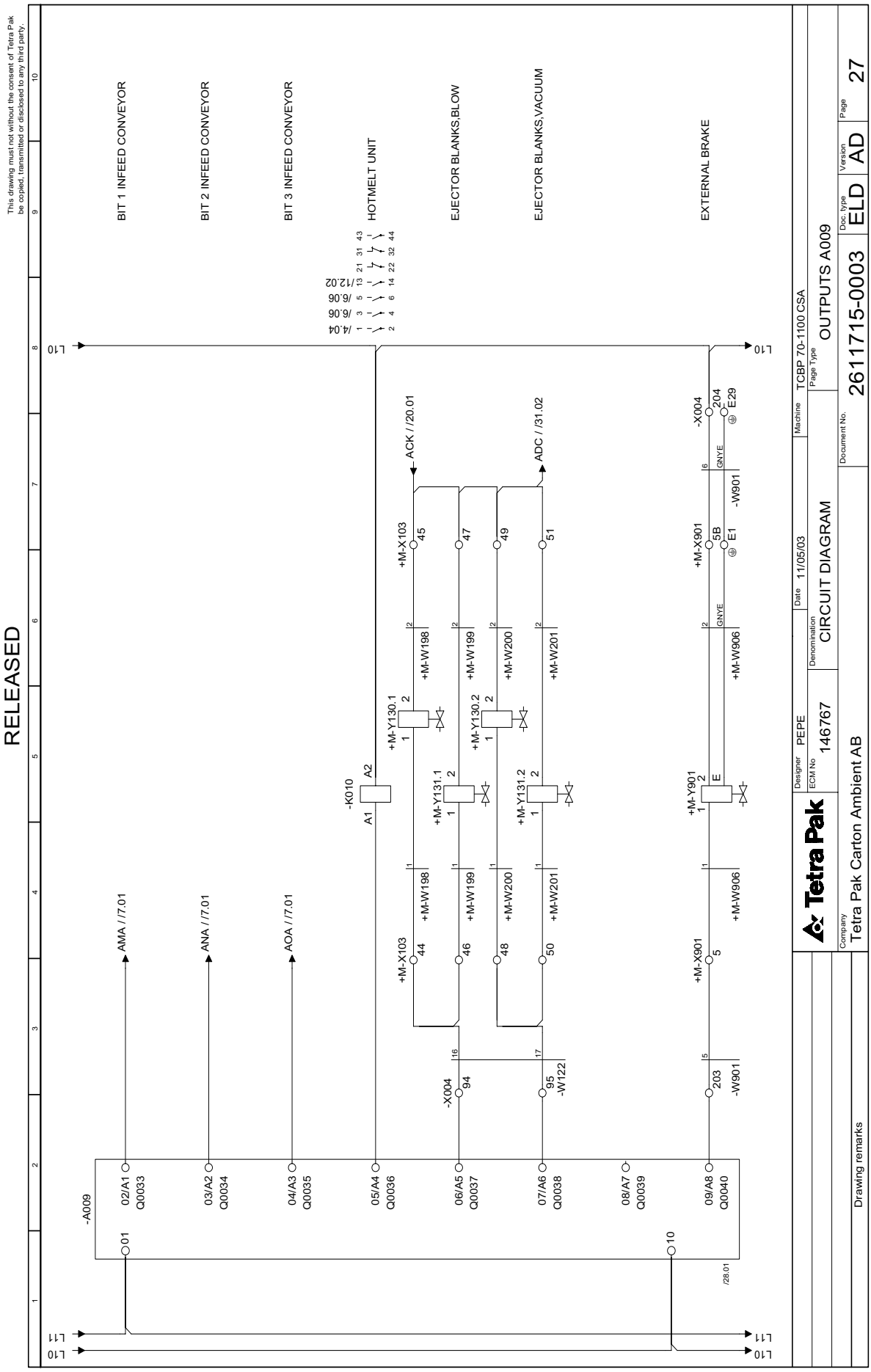

This drawing must not without the consent of Tetra Pak be copied, transmitted or disclosed to any third party.
RELEASED
SELECT PACKAGE BOTTOM SIZE
SELECT PACKAGE BOTTOM SIZE
SELECT PACKAGE BOTTOM SIZE
SELECT PACKAGE BOTTOM SIZE
ENCODER TEST SELECTOR
MANUAL LUBRICATION
SELECT GROUPING INFEED PACKAGES IN A ROW
SELECT MACHINE SPEED
L10
-A006
10/B1 I0073
11/B2 I0074
12/B3 I0075
13/B4 I0076
14/B5 I0077
15/B6 I0078
16/B7 I0079
17/B8 I0080
18 24V OUT
19 0V OUT
20
/21.07
-X004
41
42
163
20
21
26
-W120
+P-X010
20
21
26
/40.06 / ACQ
/40.06 / ACR
/40.06 / AEY
-S002
1
2
6
10
14
0
9
-S003
51
52
13
14
1
0
L11
L10
Tetra Pak
Designer PEPE
ECM No 146767
Date 11/05/03
Machine TCBP 70-1100 CSA
Page Type INPUTS A006
Denomination CIRCUIT DIAGRAM
Document No. 2611715-0003
Doc. type ELD
Version AD
Page 22
Company Tetra Pak Carton Ambient AB
Drawing remarks

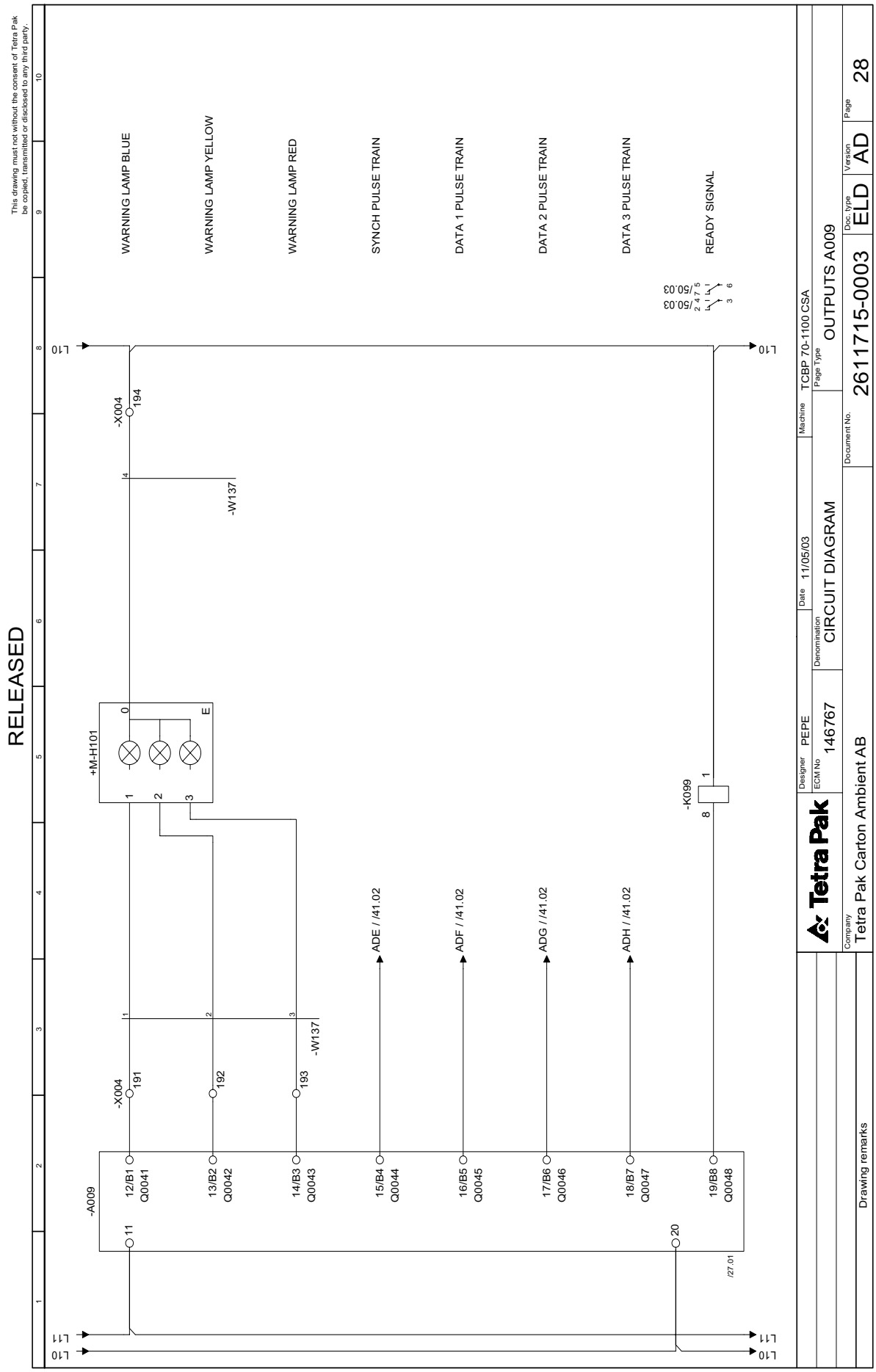

This drawing must not without the consent of Tetra Pak be copied, transmitted or disclosed to any third party.
RELEASED
MAIN SHAFT MOTOR FEEDING MOTOR
MAIN SHAFT LOW SPEED
MAIN SHAFT MEDIUM SPEED
MAIN SHAFT START
FEEDING MOTOR LOW SPEED
FEEDING MOTOR START
PUSHER BELT
PUSHER BELT
-K001
-K005
-A007
AYA / /8.06
AXA / /8.06
AWA / /8.06
AZL / /9.01
ABC / /9.01
AZK / /9.07
02/A1 Q0001
03/A2 Q0002
04/A3 Q0003
05/A4 Q0004
06/A5 Q0005
07/A6 Q0006
08/A7 Q0007
09/A8 Q0008
L10
L13
Tetra Pak
Designer PEPE
ECM No. 146767
Date 11/05/03
Denomination CIRCUIT DIAGRAM
Machine TCBP 70-1100 CSA
Page Type OUTPUTS A007
Document No. 2611715-0003
Doc. type ELD
Version AD
Page 23
Company Tetra Pak Carton Ambient AB
Drawing remarks

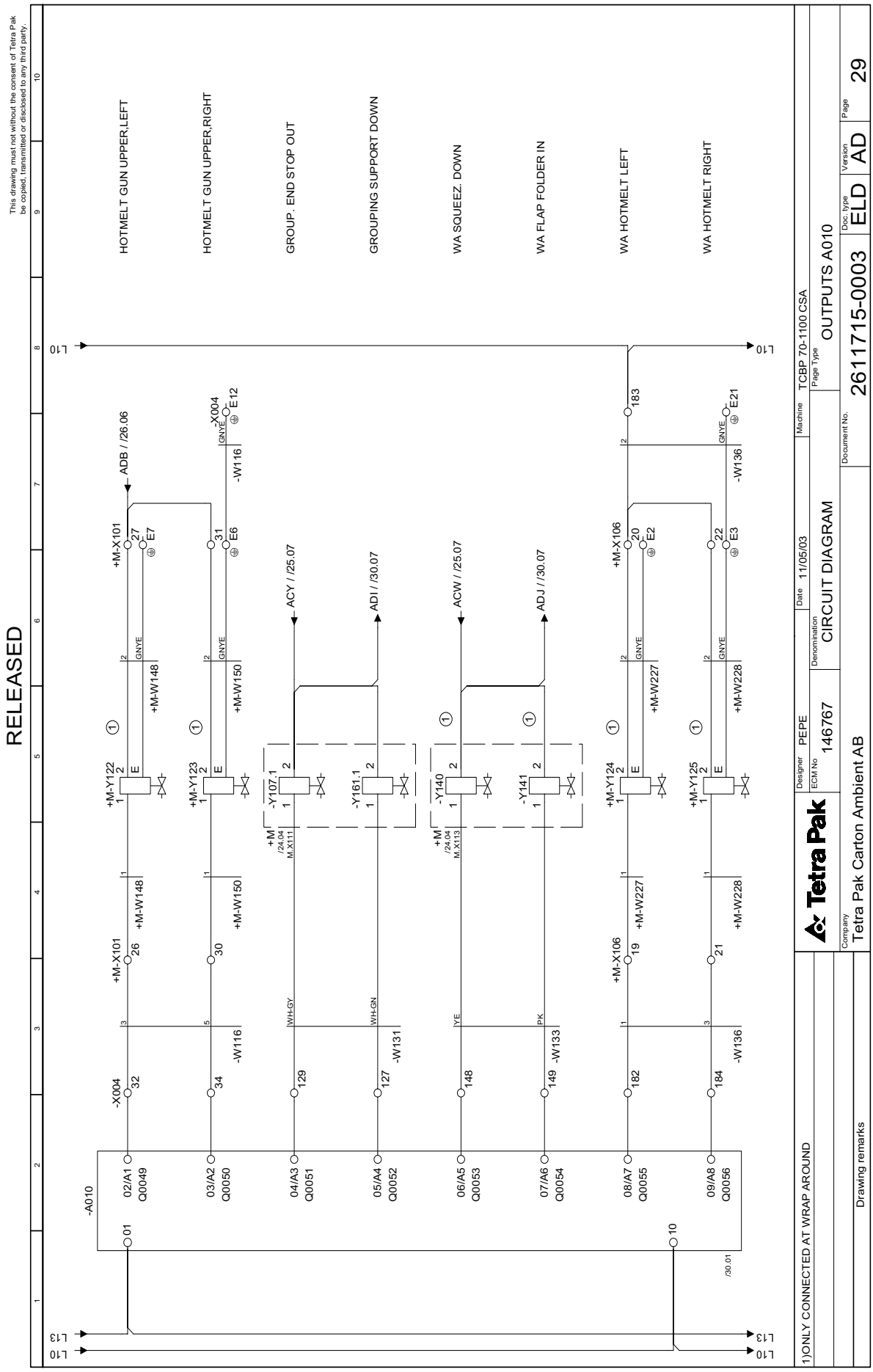

RELEASED
This drawing must not without the consent of Tetra Pak be copied, transmitted or disclosed to any third party.
MAIN SHAFT HIGH SPEED
FEEDING MOTOR MEDIUM SPEED
FEEDING MOTOR HIGH SPEED
END STOP TO ON POS.
LIGHT BARRIER
FOLDING SQUEEZER OFF
PACKAGE SEPER. OUT
STOP ARM DOWN
L10
L13
-A007
12/B1 Q0009
13/B2 Q0010
14/B3 Q0011
15/B4 Q0012
16/B5 Q0013
17/B6 Q0014
18/B7 Q0015
19/B8 Q0016
11
20
/23.01
AZA / /8.06
ABE / /9.01
ABD / /9.01
ACT / /49.04
ACS / /25.07
ACU / /25.07
ACV / /25.07
-X004
135
145
146
158
159
132
133
BN
BK
YE
WH-GN
GY-PK
RD
-W132
-W133
-W131
+M
M.X112
M.X113
M.X111
-Y104
-Y164
-Y112
-Y110
1
2
1)CONNECTED WHEN LIGHT BARRIER IS USED
Drawing remarks
Company
Tetra Pak Carton Ambient AB
Designer PEPE
ECM No 146767
Tetra Pak
Date 11/05/03
Denomination CIRCUIT DIAGRAM
Machine TCBP 70-1100 CSA
Page Type OUTPUTS A007
Document No. 2611715-0003
Doc. type ELD
Version AD
Page 24

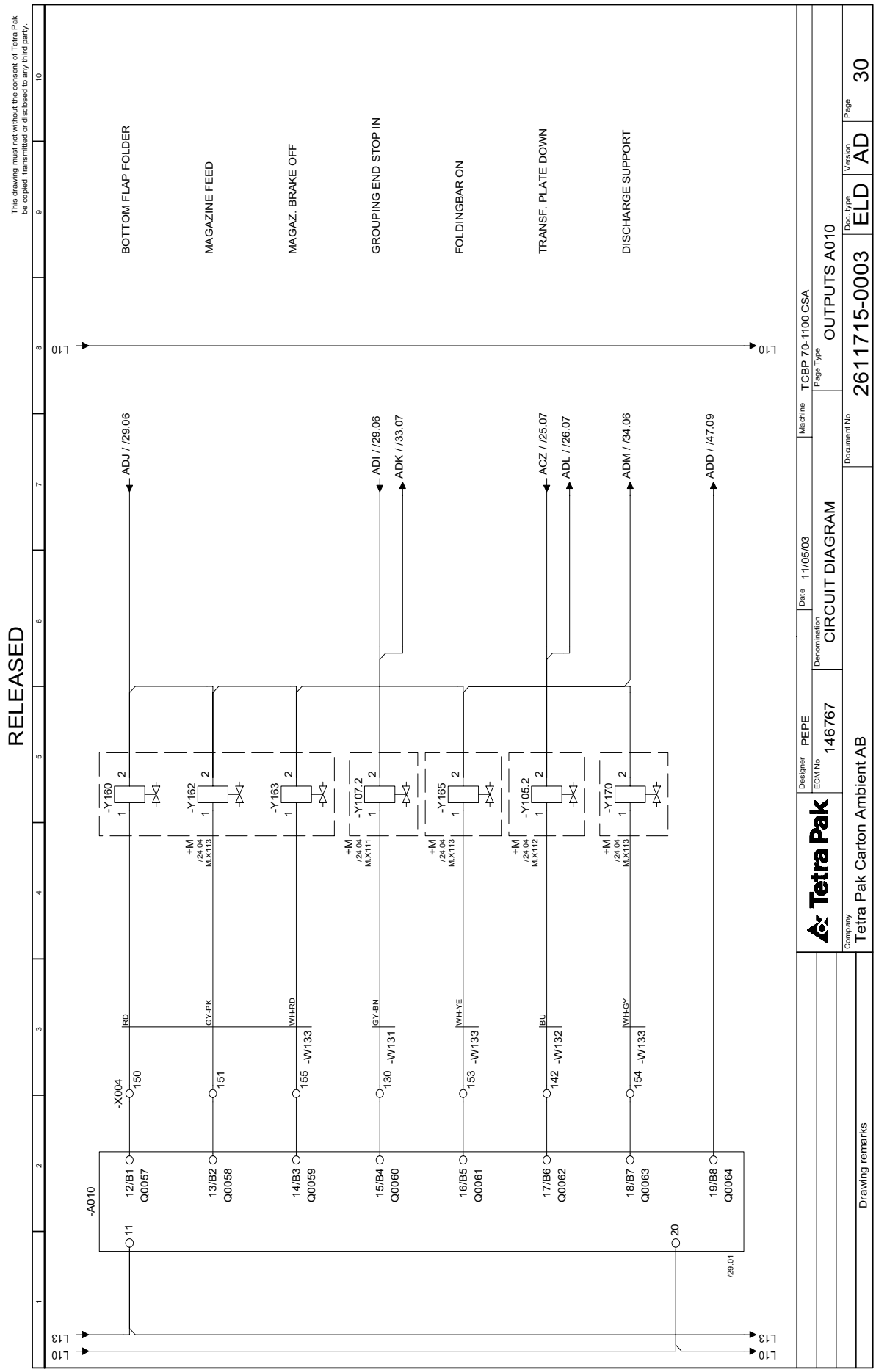

This drawing must not without the consent of Tetra Pak be copied, transmitted or disclosed to any third party.
RELEASED
DOLLY TO 1:ST STROKE POS.
TRAY SUPPORT
TRANSFER PLATE UP
DOLLY TO OFF POSITION
INFEED BRAKE OPEN
PUSHER SUPPORT ARM UP
PUSHER SUPPORT ARM MOVER
LUBRICATION
ACV / /24.06
ACU / /24.06
ACS / /24.06
ACW / /29.06
ACZ / /30.07
ACY / /29.06
-Y109.1
-Y108
-Y105.1
-Y109.2
-Y106
-Y111
-Y113
-Y114
-W131
-W133
-W132
-W131
-W132
-X004
-A008
Tetra Pak
Designer PEPE
ECM No. 146767
Date 11/05/03
Denomination CIRCUIT DIAGRAM
Machine TCBP 70-1100 CSA
Page Type OUTPUTS A008
Document No. 2611715-0003
Doc. type ELD
Version AD
Page 25
Company Tetra Pak Carton Ambient AB
Drawing remarks

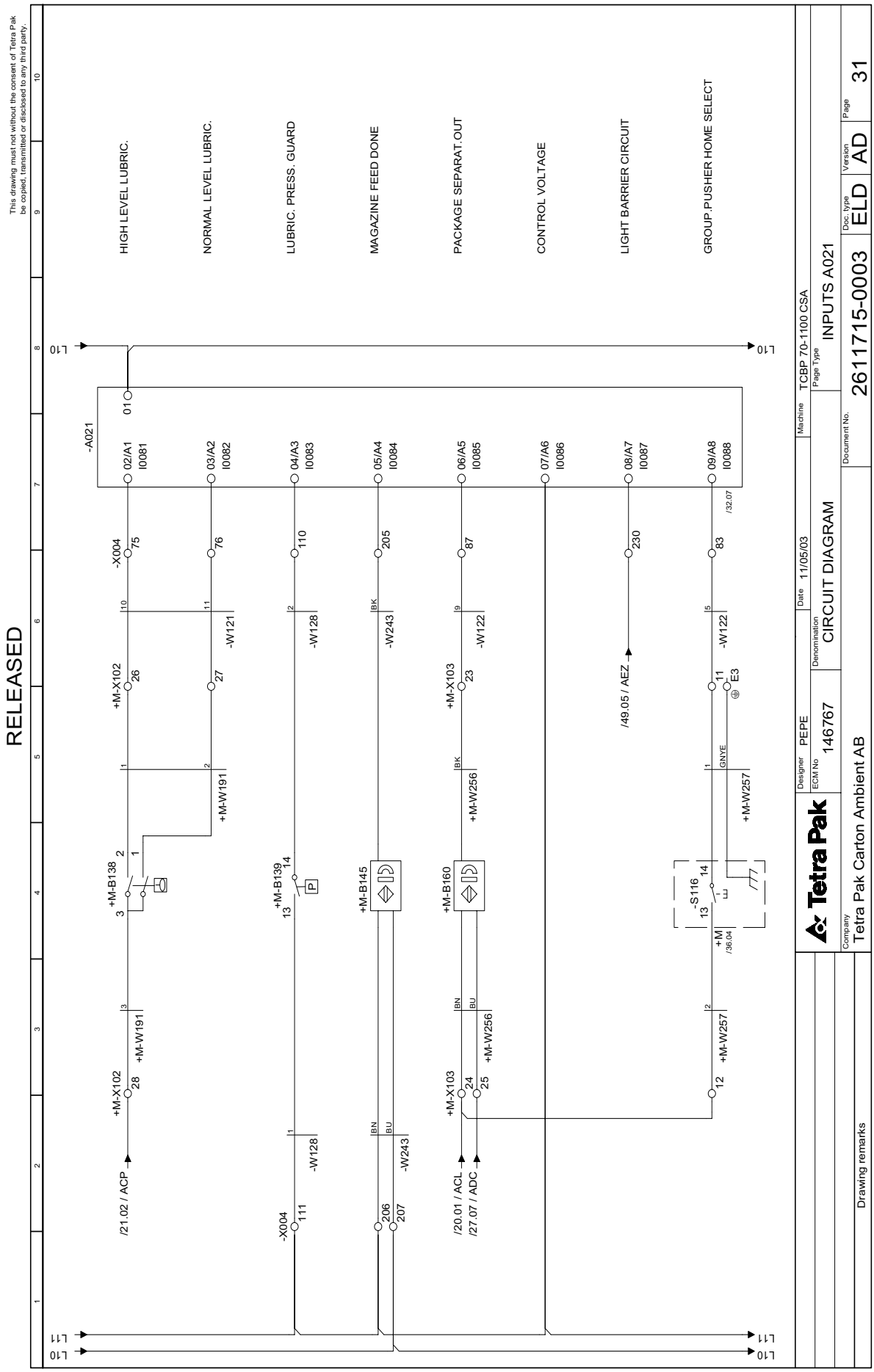

RELEASED
This drawing must not without the consent of Tetra Pak be copied, transmitted or disclosed to any third party.
INFEED CONV/ GROUPING MAT
EXTRA DISCHARGE CONV. OR INFEED CONVEYOR
PUSHER ARM
HOTMELT GUN LOWER,LEFT
HOTMELT GUN LOWER,RIGHT
OUTFEED CONV. STOP
HOUR METER
INFEED CONV.START
-K002
-K081
-Y169
+M-Y120
+M-Y121
+M-Y908
-P001
-A008
-X004
+M-X101
+M-X107
-W132
-W116
-W130
+M-W147
+M-W149
+M-W182
ADL / /30.07
ADB / /29.07
ALA / /7.01
Tetra Pak
Designer PEPE
ECM No 146767
Date 11/05/03
Denomination CIRCUIT DIAGRAM
Machine TCBP 70-1100 CSA
Page Type OUTPUTS A008
Document No. 2611715-0003
Doc. type ELD
Version AD
Page 26
Company Tetra Pak Carton Ambient AB
Drawing remarks

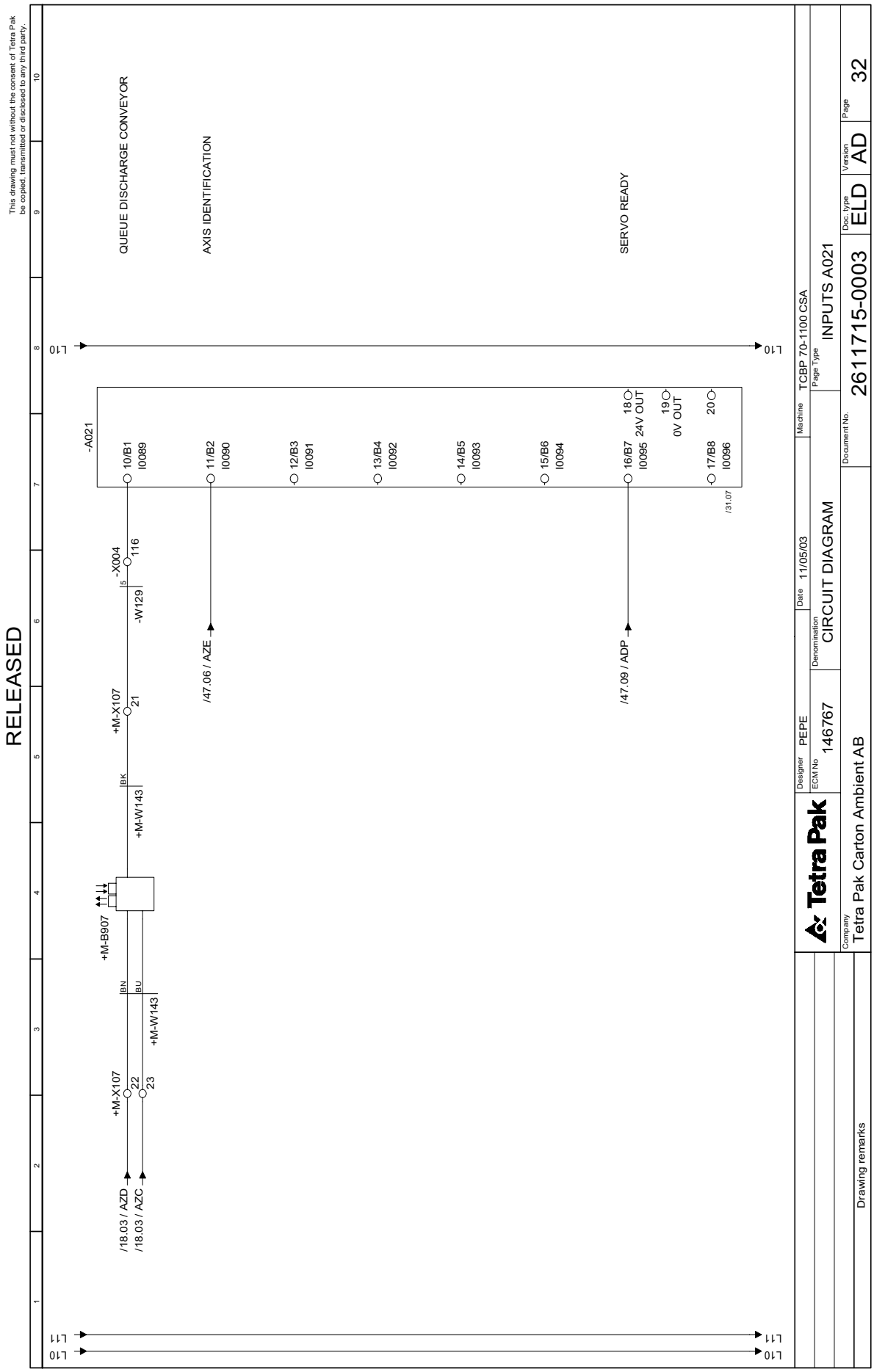

RELEASED
This drawing must not without the consent of Tetra Pak be copied, transmitted or disclosed to any third party.
BIT 1 INFEED CONVEYOR
BIT 2 INFEED CONVEYOR
BIT 3 INFEED CONVEYOR
HOTMELT UNIT
EJECTOR BLANKS,BLOW
EJECTOR BLANKS,VACUUM
EXTERNAL BRAKE
/4.04
/6.06
/6.06
/12.02
L10
L11
ACK / /20.01
ADC / /31.02
AMA / /7.01
ANA / /7.01
AOA / /7.01
-A009
02/A1 Q0033
03/A2 Q0034
04/A3 Q0035
05/A4 Q0036
06/A5 Q0037
07/A6 Q0038
08/A7 Q0039
09/A8 Q0040
/28.01
-K010
A1
A2
+M-X103
+M-X901
-X004
-W901
-W122
+M-W198
+M-W199
+M-W200
+M-W201
+M-W906
+M-Y130.1
+M-Y130.2
+M-Y131.1
+M-Y131.2
+M-Y901
GNYE
Tetra Pak
Designer PEPE
ECM No. 146767
Date 11/05/03
Denomination CIRCUIT DIAGRAM
Machine TCBP 70-1100 CSA
Page Type OUTPUTS A009
Document No. 2611715-0003
Doc. type ELD
Version AD
Page 27
Company Tetra Pak Carton Ambient AB
Drawing remarks

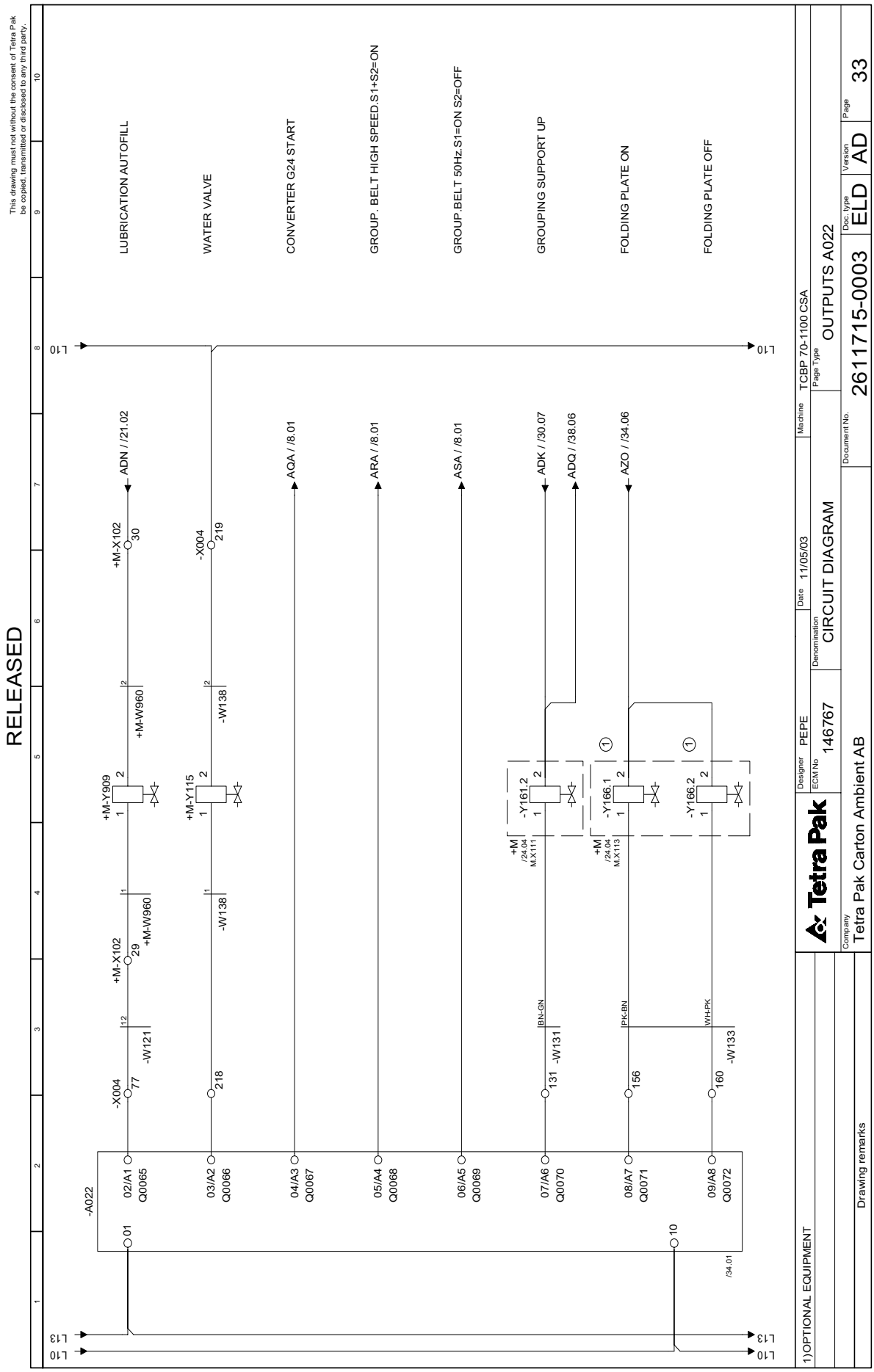

RELEASED
This drawing must not without the consent of Tetra Pak be copied, transmitted or disclosed to any third party.
WARNING LAMP BLUE
WARNING LAMP YELLOW
WARNING LAMP RED
SYNCH PULSE TRAIN
DATA 1 PULSE TRAIN
DATA 2 PULSE TRAIN
DATA 3 PULSE TRAIN
READY SIGNAL
L10
L11
-X004
194
191
192
193
-W137
+M-H101
-K099
-A009
12/B1 Q0041
13/B2 Q0042
14/B3 Q0043
15/B4 Q0044
16/B5 Q0045
17/B6 Q0046
18/B7 Q0047
19/B8 Q0048
ADE / /41.02
ADF / /41.02
ADG / /41.02
ADH / /41.02
/27.01
Tetra Pak
Designer PEPE
ECM No 146767
Date 11/05/03
Machine TCBP 70-1100 CSA
Page Type OUTPUTS A009
Denomination CIRCUIT DIAGRAM
Document No. 2611715-0003
Doc. type ELD
Version AD
Page 28
Company Tetra Pak Carton Ambient AB
Drawing remarks

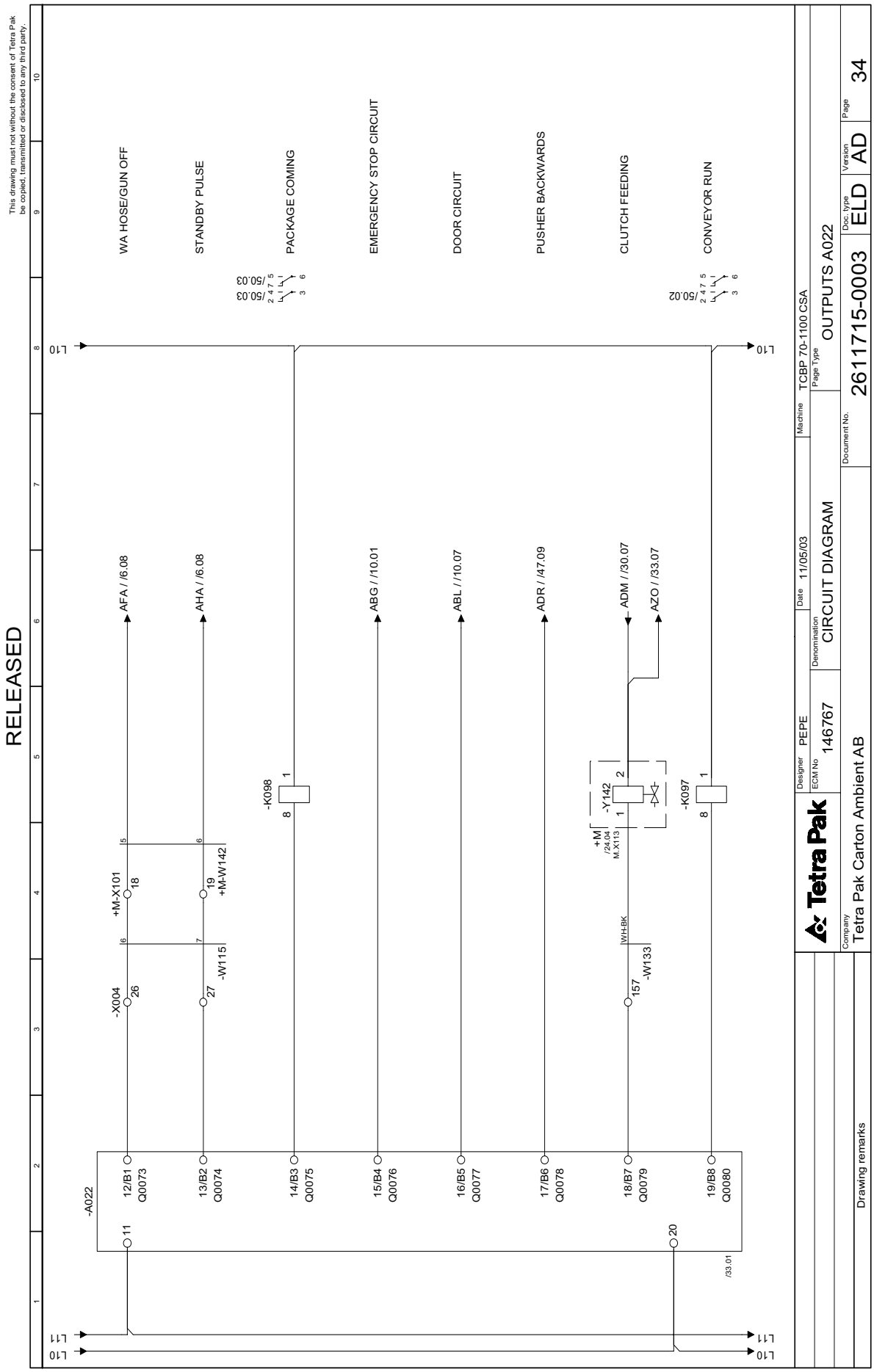

RELEASED
This drawing must not without the consent of Tetra Pak be copied, transmitted or disclosed to any third party.
HOTMELT GUN UPPER,LEFT
HOTMELT GUN UPPER,RIGHT
GROUP. END STOP OUT
GROUPING SUPPORT DOWN
WA SQUEEZ. DOWN
WA FLAP FOLDER IN
WA HOTMELT LEFT
WA HOTMELT RIGHT
ADB / /26.06
ACY / /25.07
ADI / /30.07
ACW / /25.07
ADJ / /30.07
-A010
-X004
+M-X101
+M-X106
+M-Y122
+M-Y123
+M-Y124
+M-Y125
-Y107.1
-Y161.1
-Y140
-Y141
+M-W148
+M-W150
+M-W227
+M-W228
-W116
-W131
-W133
-W136
L10
L13
1)ONLY CONNECTED AT WRAP AROUND
Drawing remarks
Designer PEPE
ECM No. 146767
Date 11/05/03
Denomination CIRCUIT DIAGRAM
Machine TCBP 70-1100 CSA
Page Type OUTPUTS A010
Document No. 2611715-0003
Doc. type ELD
Version AD
Page 29
Company Tetra Pak Carton Ambient AB
Tetra Pak

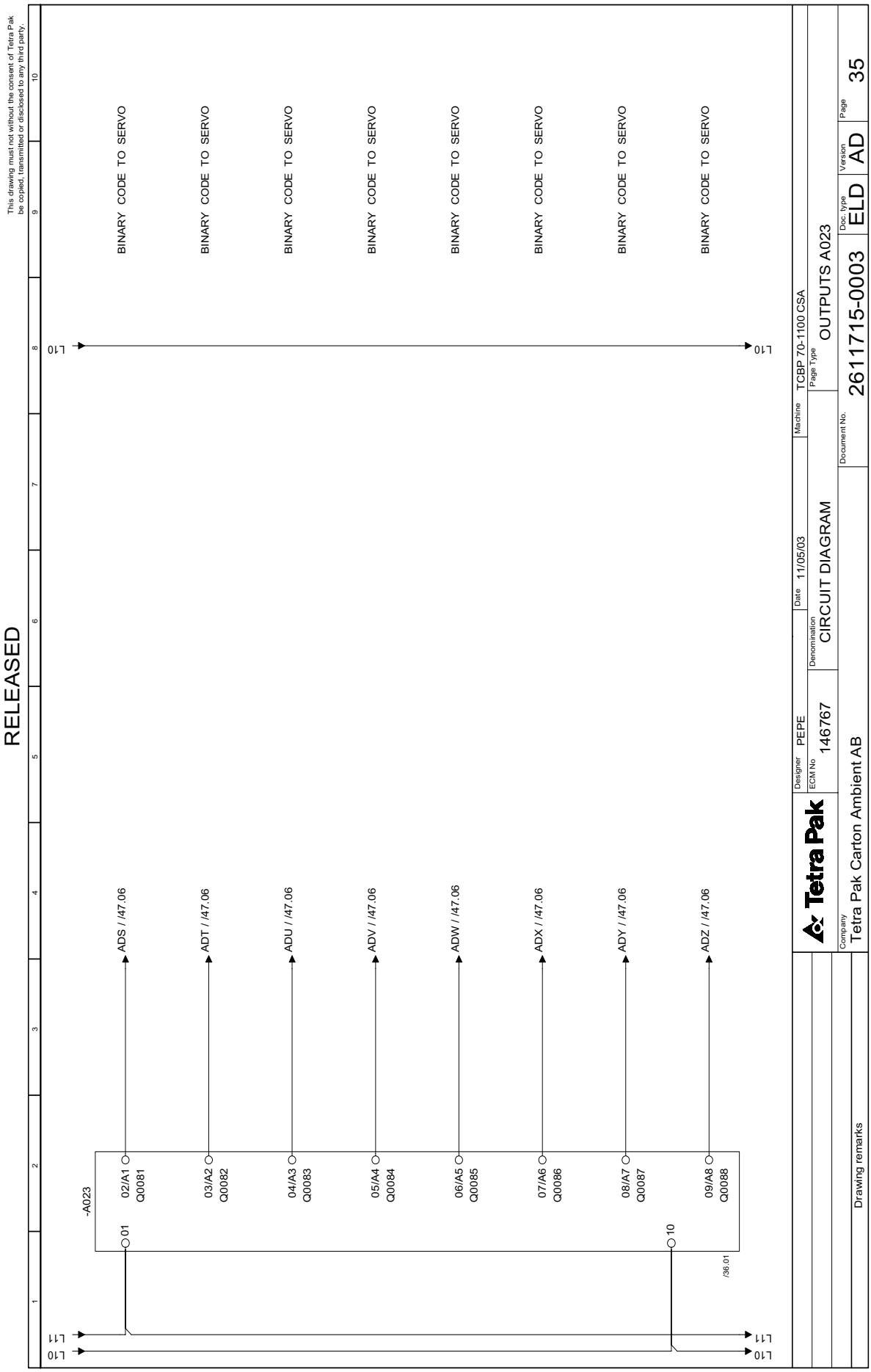

RELEASED
This drawing must not without the consent of Tetra Pak be copied, transmitted or disclosed to any third party.
BOTTOM FLAP FOLDER
MAGAZINE FEED
MAGAZ. BRAKE OFF
GROUPING END STOP IN
FOLDINGBAR ON
TRANSF. PLATE DOWN
DISCHARGE SUPPORT
L10
ADJ / /29.06
ADI / /29.06
ADK / /33.07
ACZ / /25.07
ADL / /26.07
ADM / /34.06
ADD / /47.09
-Y160
-Y162
-Y163
-Y107.2
-Y165
-Y105.2
-Y170
+M /24.04 M.X113
+M /24.04 M.X111
+M /24.04 M.X112
RD
GY-PK
WH-RD
GY-BN
WH-YE
BU
WH-GY
-X004
150
151
155
130
153
142
154
-W133
-W131
-W132
-A010
12/B1 Q0057
13/B2 Q0058
14/B3 Q0059
15/B4 Q0060
16/B5 Q0061
17/B6 Q0062
18/B7 Q0063
19/B8 Q0064
11
20
/29.01
L13
Tetra Pak
Designer PEPE
ECM No 146767
Date 11/05/03
Machine TCBP 70-1100 CSA
Denomination CIRCUIT DIAGRAM
Page Type OUTPUTS A010
Document No. 2611715-0003
Doc. type ELD
Version AD
Page 30
Company Tetra Pak Carton Ambient AB
Drawing remarks

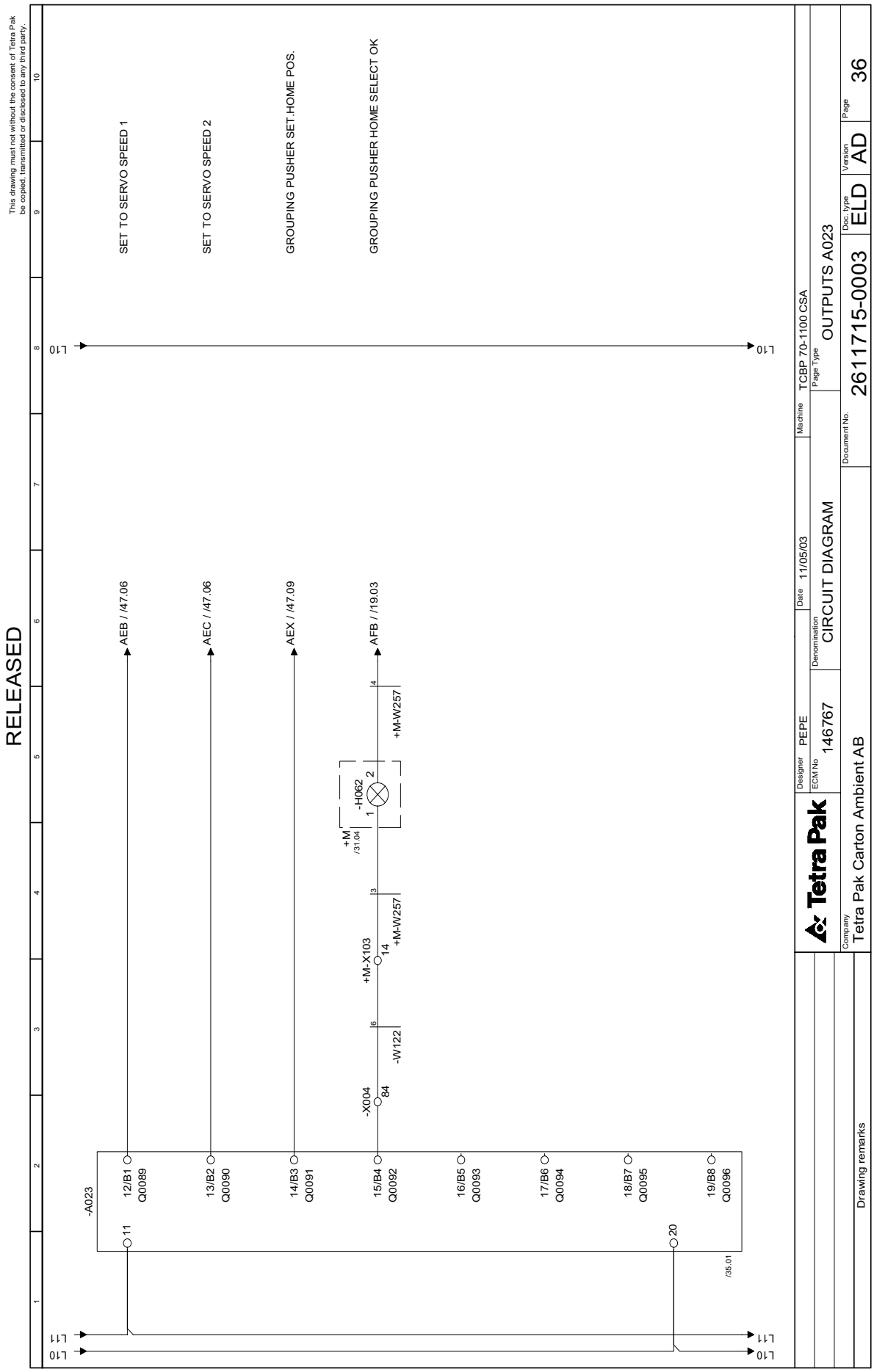

This drawing must not without the consent of Tetra Pak be copied, transmitted or disclosed to any third party.
RELEASED
HIGH LEVEL LUBRIC.
NORMAL LEVEL LUBRIC.
LUBRIC. PRESS. GUARD
MAGAZINE FEED DONE
PACKAGE SEPARAT.OUT
CONTROL VOLTAGE
LIGHT BARRIER CIRCUIT
GROUP.PUSHER HOME SELECT
-A021
02/A1 I0081
03/A2 I0082
04/A3 I0083
05/A4 I0084
06/A5 I0085
07/A6 I0086
08/A7 I0087
09/A8 I0088
/32.07
L10
L11
-X004
+M-X102
+M-X103
+M-B138
+M-B139
+M-B145
+M-B160
+M-W191
-W128
-W121
-W243
-W122
+M-W256
+M-W257
-S116
+M
/36.04
/21.02 / ACP
/20.01 / ACL
/27.07 / ADC
/49.05 / AEZ
Tetra Pak
Company
Tetra Pak Carton Ambient AB
Designer PEPE
ECM No. 146767
Date 11/05/03
Denomination CIRCUIT DIAGRAM
Machine TCBP 70-1100 CSA
Page Type INPUTS A021
Document No. 2611715-0003
Doc. type ELD
Version AD
Page 31
Drawing remarks

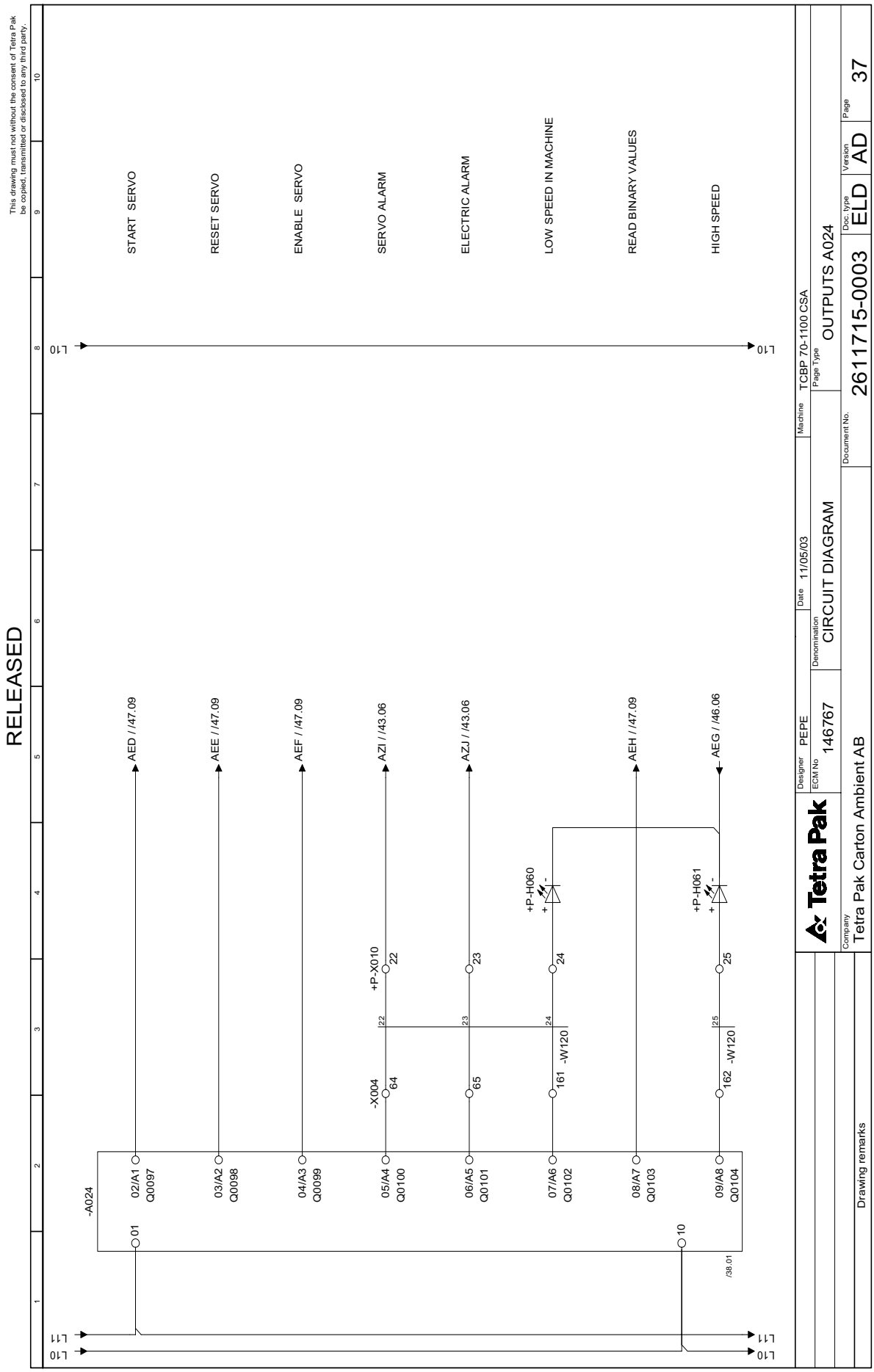

RELEASED
This drawing must not without the consent of Tetra Pak be copied, transmitted or disclosed to any third party.
QUEUE DISCHARGE CONVEYOR
AXIS IDENTIFICATION
SERVO READY
L10
L11
-A021
10/B1 I0089
11/B2 I0090
12/B3 I0091
13/B4 I0092
14/B5 I0093
15/B6 I0094
16/B7 I0095
17/B8 I0096
18 24V OUT
19 0V OUT
20
/31.07
-X004
116
-W129
/47.06 / AZE
/47.09 / ADP
+M-X107
21
BK
+M-W143
+M-B907
BN
BU
+M-W143
+M-X107
22
23
/18.03 / AZD
/18.03 / AZC
Tetra Pak
Designer PEPE
ECM No 146767
Date 11/05/03
Denomination CIRCUIT DIAGRAM
Machine TCBP 70-1100 CSA
Page Type INPUTS A021
Document No. 2611715-0003
Doc. type ELD
Version AD
Page 32
Company Tetra Pak Carton Ambient AB
Drawing remarks

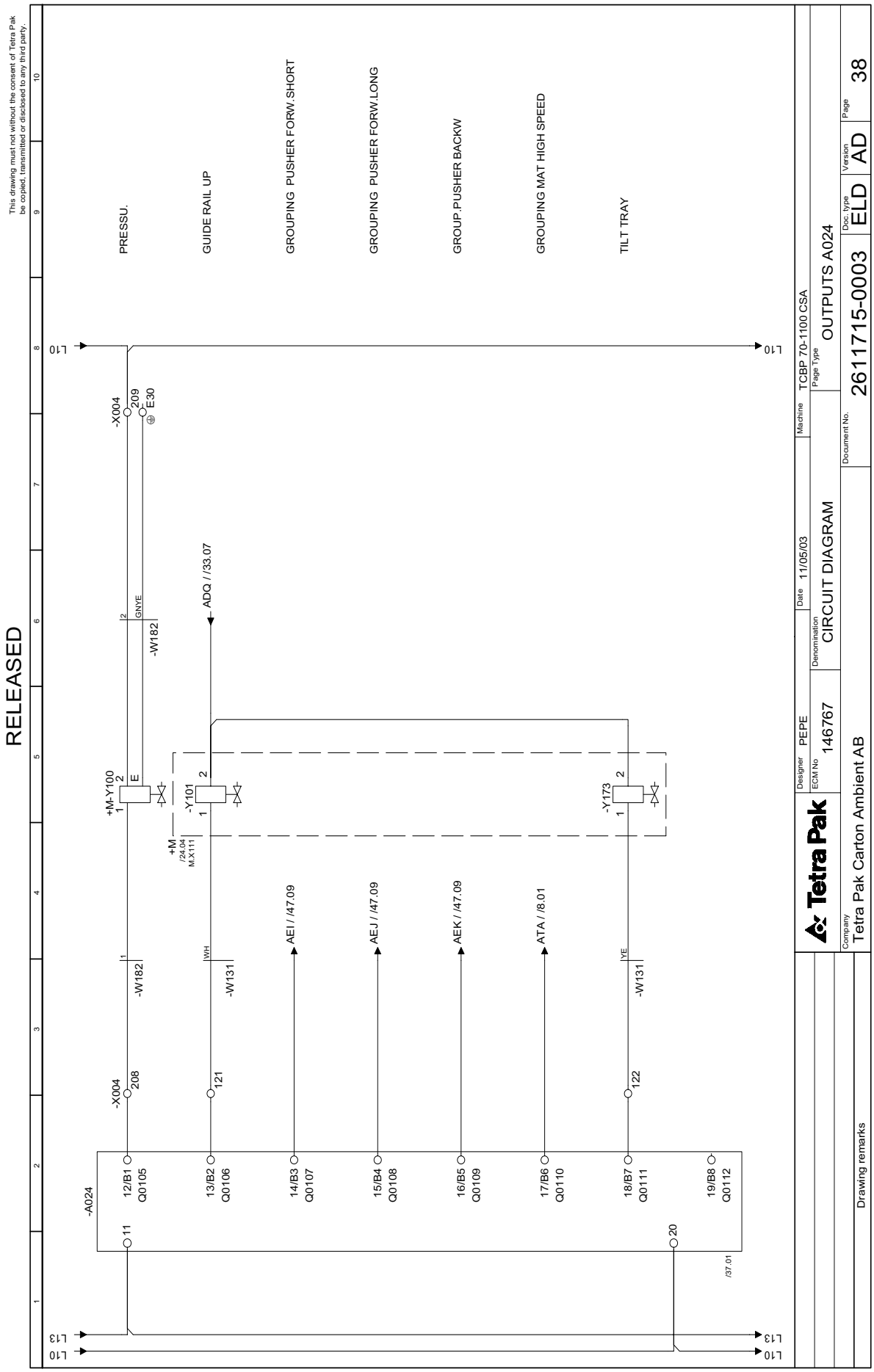

RELEASED
This drawing must not without the consent of Tetra Pak be copied, transmitted or disclosed to any third party.
LUBRICATION AUTOFILL
WATER VALVE
CONVERTER G24 START
GROUP. BELT HIGH SPEED.S1+S2=ON
GROUP.BELT 50Hz.S1=ON S2=OFF
GROUPING SUPPORT UP
FOLDING PLATE ON
FOLDING PLATE OFF
ADN / /21.02
AQA / /8.01
ARA / /8.01
ASA / /8.01
ADK / /30.07
ADQ / /38.06
AZO / /34.06
+M-X102
-X004
+M-Y909
+M-Y115
+M-W960
-W138
-W121
-W131
-W133
-Y161.2
-Y166.1
-Y166.2
+M /24.04 M-X111
+M /24.04 M-X113
BN-GN
PK-BN
WH-PK
-A022
02/A1 Q0065
03/A2 Q0066
04/A3 Q0067
05/A4 Q0068
06/A5 Q0069
07/A6 Q0070
08/A7 Q0071
09/A8 Q0072
/34.01
L10
L13
Tetra Pak
Designer PEPE
ECM No. 146767
Date 11/05/03
Denomination CIRCUIT DIAGRAM
Machine TCBP 70-1100 CSA
Page Type OUTPUTS A022
Document No. 2611715-0003
Doc. type ELD
Version AD
Page 33
Company Tetra Pak Carton Ambient AB
1)OPTIONAL EQUIPMENT
Drawing remarks

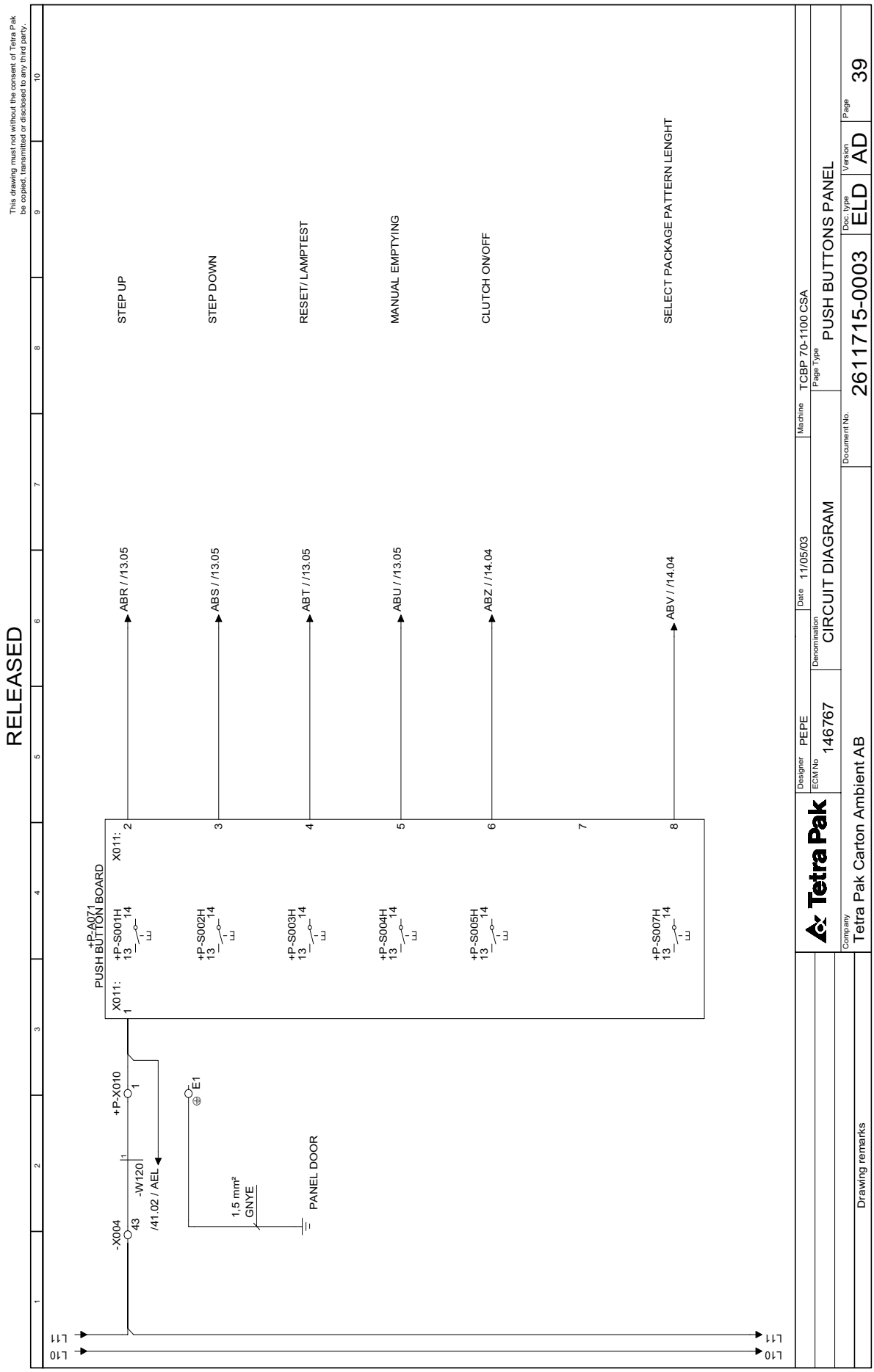

RELEASED
This drawing must not without the consent of Tetra Pak be copied, transmitted or disclosed to any third party.
WA HOSE/GUN OFF
STANDBY PULSE
PACKAGE COMING
EMERGENCY STOP CIRCUIT
DOOR CIRCUIT
PUSHER BACKWARDS
CLUTCH FEEDING
CONVEYOR RUN
/50.03
/50.02
L10
L11
AFA / /6.08
AHA / /6.08
ABG / /10.01
ABL / /10.07
ADR / /47.09
ADM / /30.07
AZO / /33.07
-K098
-K097
-Y142
+M
/24.04
M:X113
+M-X101
+M-W142
-W115
-W133
-X004
WH-BK
-A022
12/B1 Q0073
13/B2 Q0074
14/B3 Q0075
15/B4 Q0076
16/B5 Q0077
17/B6 Q0078
18/B7 Q0079
19/B8 Q0080
/33.01
Tetra Pak
Designer PEPE
ECM No 146767
Date 11/05/03
Denomination CIRCUIT DIAGRAM
Machine TCBP 70-1100 CSA
Page Type OUTPUTS A022
Document No. 2611715-0003
Doc. type ELD
Version AD
Page 34
Company Tetra Pak Carton Ambient AB
Drawing remarks

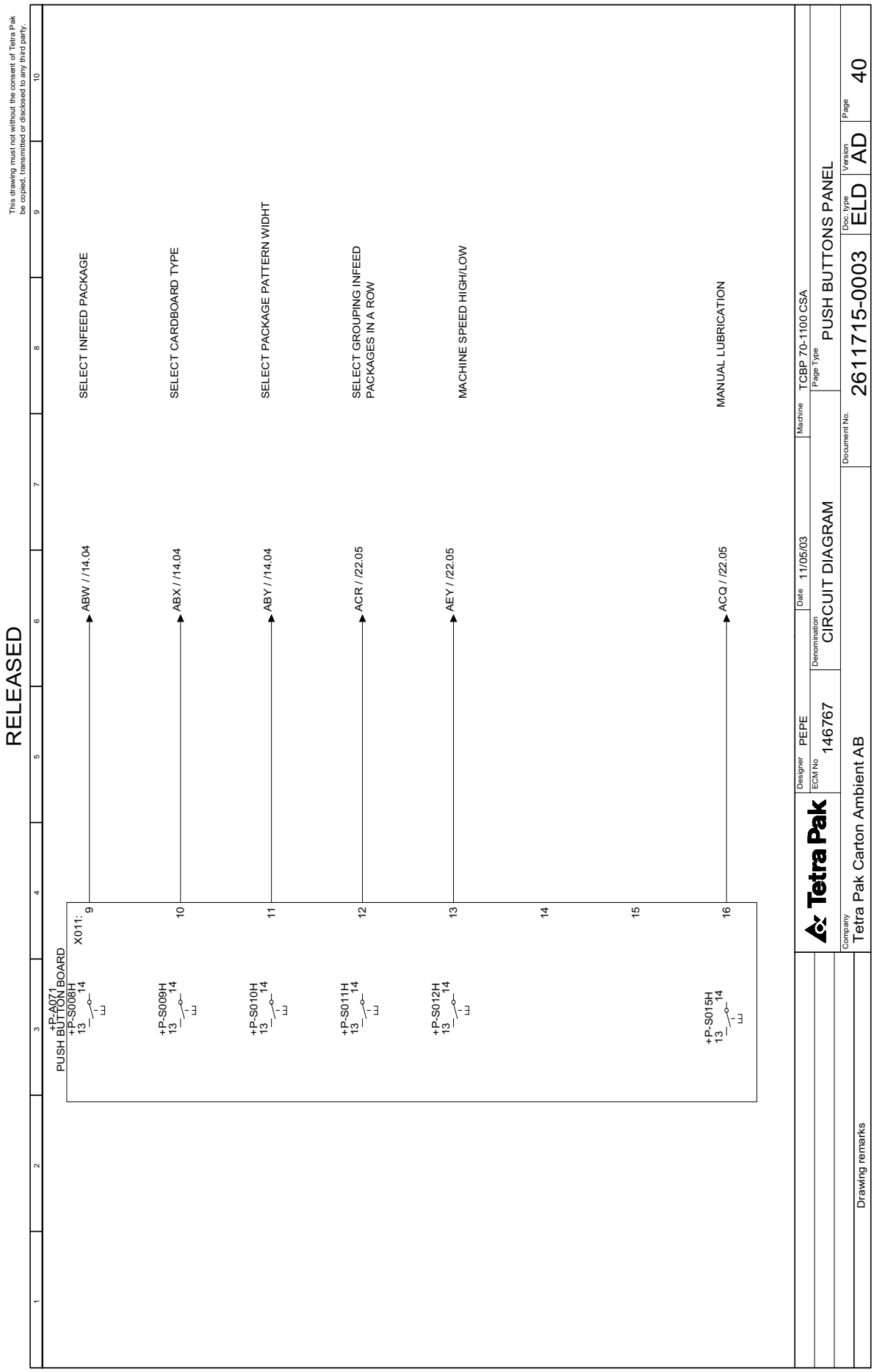

This drawing must not without the consent of Tetra Pak be copied, transmitted or disclosed to any third party.
RELEASED
BINARY CODE TO SERVO
BINARY CODE TO SERVO
BINARY CODE TO SERVO
BINARY CODE TO SERVO
BINARY CODE TO SERVO
BINARY CODE TO SERVO
BINARY CODE TO SERVO
BINARY CODE TO SERVO
L10
L10
ADS / /47.06
ADT / /47.06
ADU / /47.06
ADV / /47.06
ADW / /47.06
ADX / /47.06
ADY / /47.06
ADZ / /47.06
-A023
02/A1 Q0081
03/A2 Q0082
04/A3 Q0083
05/A4 Q0084
06/A5 Q0085
07/A6 Q0086
08/A7 Q0087
09/A8 Q0088
01
10
/36.01
L11
L10
L11
L10
Tetra Pak
Designer PEPE
ECM No. 146767
Denomination CIRCUIT DIAGRAM
Date 11/05/03
Machine TCBP 70-1100 CSA
Page Type OUTPUTS A023
Document No. 2611715-0003
Doc. type ELD
Version AD
Page 35
Company Tetra Pak Carton Ambient AB
Drawing remarks

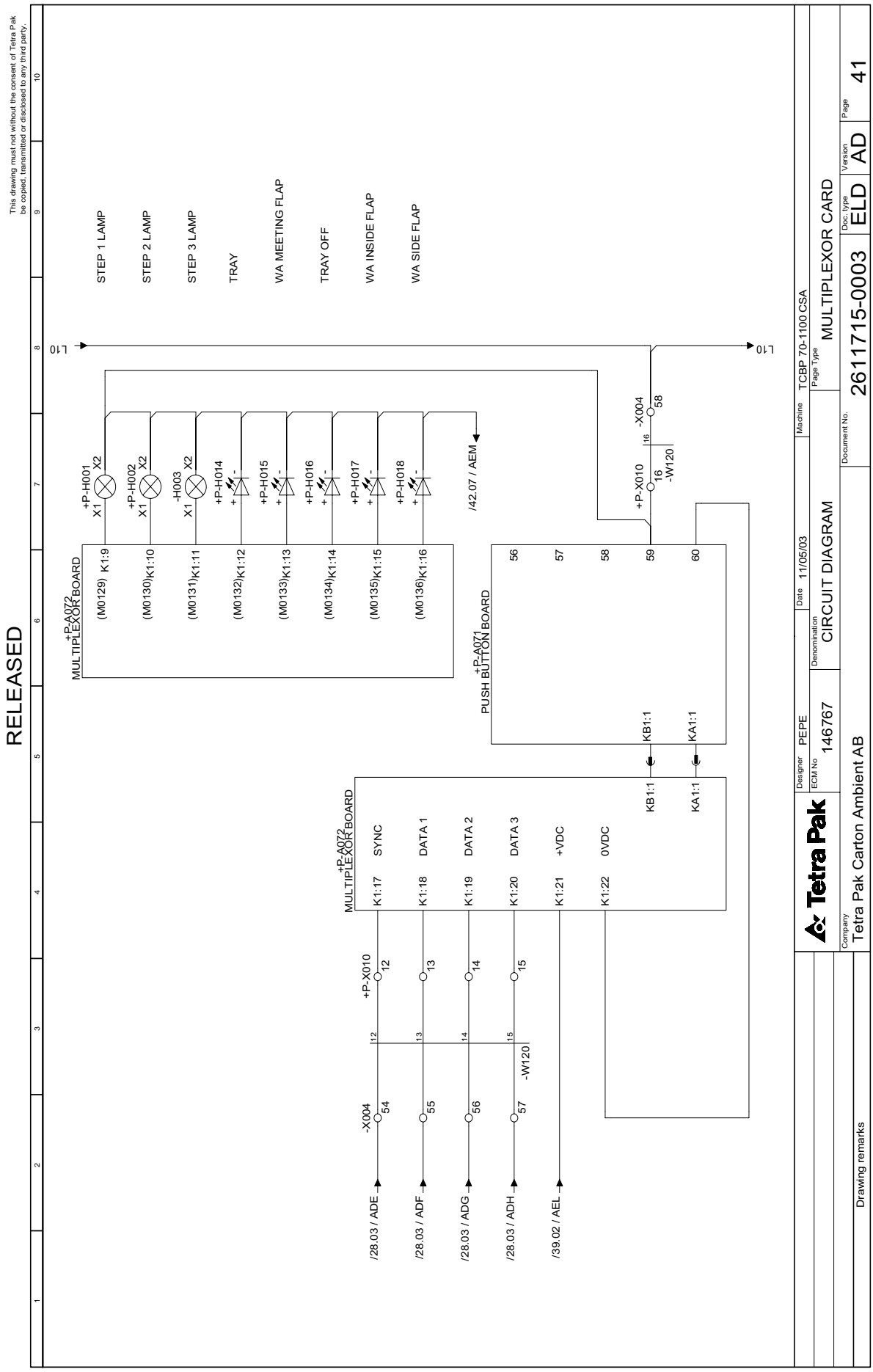

This drawing must not without the consent of Tetra Pak be copied, transmitted or disclosed to any third party.
RELEASED
SET TO SERVO SPEED 1
SET TO SERVO SPEED 2
GROUPING PUSHER SET.HOME POS.
GROUPING PUSHER HOME SELECT OK
L10
AEB / /47.06
AEC / /47.06
AEX / /47.09
AFB / /19.03
+M-W257
-H062
+M
/31.04
+M-X103
-W122
-X004
-A023
12/B1
Q0089
13/B2
Q0090
14/B3
Q0091
15/B4
Q0092
16/B5
Q0093
17/B6
Q0094
18/B7
Q0095
19/B8
Q0096
/35.01
L11
Tetra Pak
Designer PEPE
ECM No 146767
Date 11/05/03
Denomination CIRCUIT DIAGRAM
Machine TCBP 70-1100 CSA
Page Type OUTPUTS A023
Document No. 2611715-0003
Doc. type ELD
Version AD
Page 36
Company Tetra Pak Carton Ambient AB
Drawing remarks

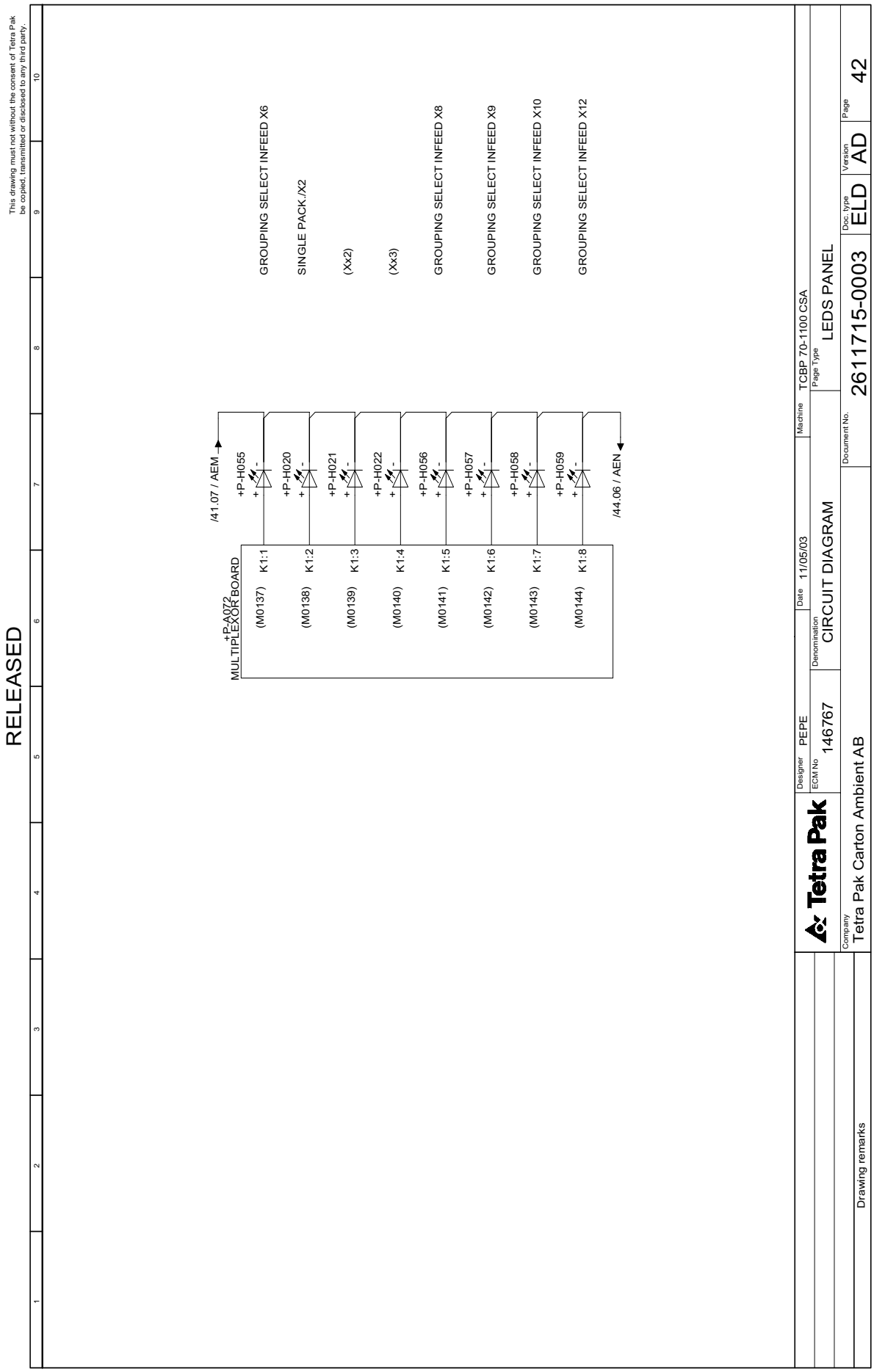

This drawing must not without the consent of Tetra Pak be copied, transmitted or disclosed to any third party.
RELEASED
START SERVO
RESET SERVO
ENABLE SERVO
SERVO ALARM
ELECTRIC ALARM
LOW SPEED IN MACHINE
READ BINARY VALUES
HIGH SPEED
L10
L11
AED / /47.09
AEE / /47.09
AEF / /47.09
AZI / /43.06
AZJ / /43.06
AEH / /47.09
AEG / /46.06
+P-H060
+P-H061
+P-X010
-X004
-W120
-A024
02/A1 Q0097
03/A2 Q0098
04/A3 Q0099
05/A4 Q0100
06/A5 Q0101
07/A6 Q0102
08/A7 Q0103
09/A8 Q0104
/38.01
Tetra Pak
Designer PEPE
ECM No. 146767
Date 11/05/03
Denomination CIRCUIT DIAGRAM
Machine TCBP 70-1100 CSA
Page Type OUTPUTS A024
Document No. 2611715-0003
Doc. type ELD
Version AD
Page 37
Company Tetra Pak Carton Ambient AB
Drawing remarks

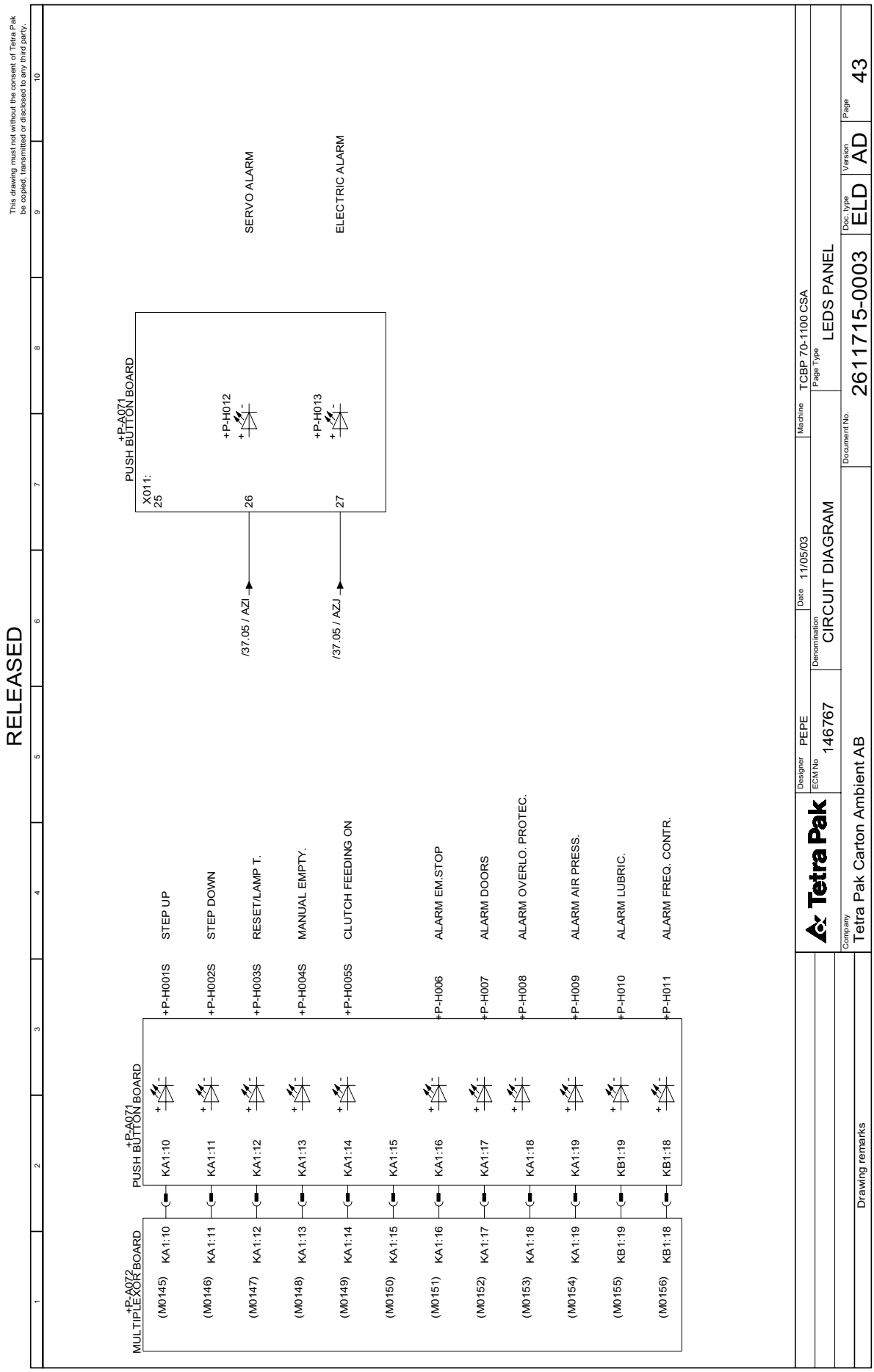

RELEASED
This drawing must not without the consent of Tetra Pak be copied, transmitted or disclosed to any third party.
PRESSU.
GUIDE RAIL UP
GROUPING PUSHER FORW.SHORT
GROUPING PUSHER FORW.LONG
GROUP.PUSHER BACKW
GROUPING MAT HIGH SPEED
TILT TRAY
L10
-X004
209
E30
ADQ / /33.07
-W182
GNYE
+M-Y100
-Y101
-Y173
+M
/24.04
M.X111
AEI / /47.09
AEJ / /47.09
AEK / /47.09
ATA / /8.01
WH
YE
-W131
208
121
122
-A024
12/B1
Q0105
13/B2
Q0106
14/B3
Q0107
15/B4
Q0108
16/B5
Q0109
17/B6
Q0110
18/B7
Q0111
19/B8
Q0112
11
20
/37.01
L13
Tetra Pak
Designer PEPE
ECM No 146767
Date 11/05/03
Denomination CIRCUIT DIAGRAM
Machine TCBP 70-1100 CSA
Page Type OUTPUTS A024
Document No. 2611715-0003
Doc. type ELD
Version AD
Page 38
Company Tetra Pak Carton Ambient AB
Drawing remarks

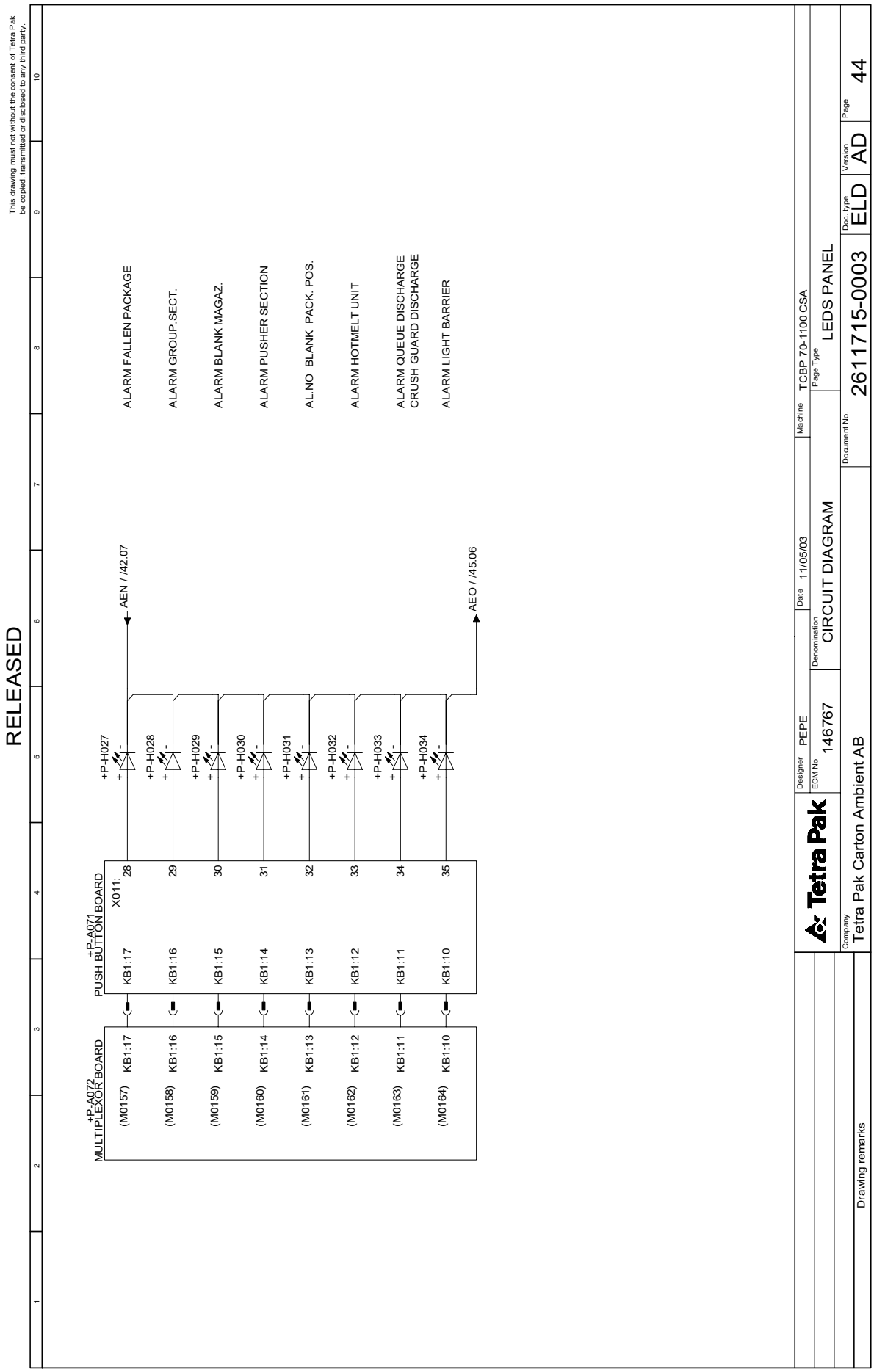

RELEASED
This drawing must not without the consent of Tetra Pak be copied, transmitted or disclosed to any third party.
STEP UP
STEP DOWN
RESET/ LAMPTEST
MANUAL EMPTYING
CLUTCH ON/OFF
SELECT PACKAGE PATTERN LENGHT
ABR / /13.05
ABS / /13.05
ABT / /13.05
ABU / /13.05
ABZ / /14.04
ABV / /14.04
+P-A071
PUSH BUTTON BOARD
X011:
+P-S001H
+P-S002H
+P-S003H
+P-S004H
+P-S005H
+P-S007H
+P-X010
-X004
-W120
/41.02 / AEL
E1
1,5 mm²
GNYE
PANEL DOOR
L10
L11
Tetra Pak
Designer PEPE
ECM No. 146767
Denomination CIRCUIT DIAGRAM
Date 11/05/03
Machine TCBP 70-1100 CSA
Page Type PUSH BUTTONS PANEL
Document No. 2611715-0003
Doc. type ELD
Version AD
Page 39
Company Tetra Pak Carton Ambient AB
Drawing remarks

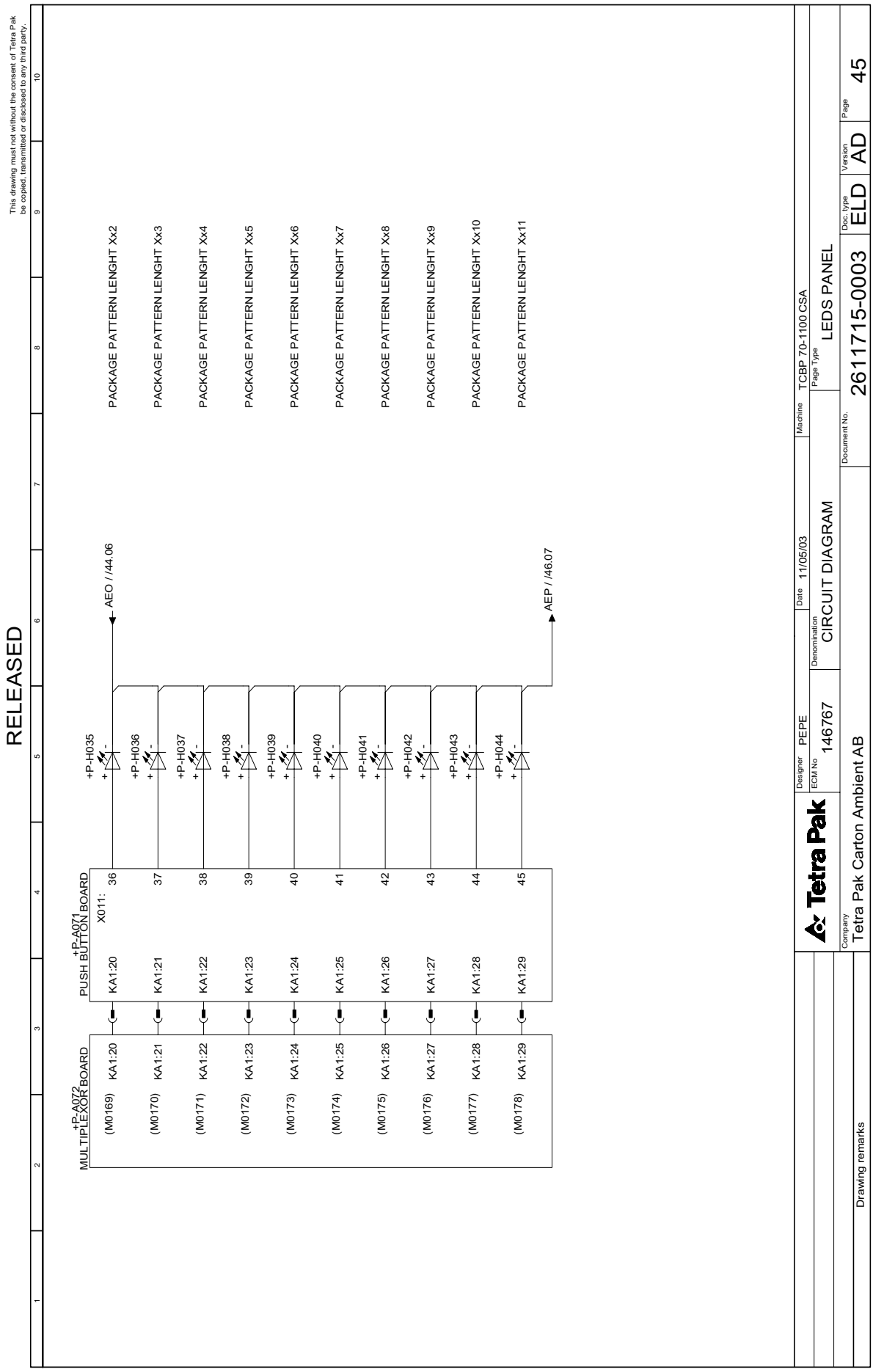

RELEASED
This drawing must not without the consent of Tetra Pak be copied, transmitted or disclosed to any third party.
+P-A071
PUSH BUTTON BOARD
X011:
+P-S008H
+P-S009H
+P-S010H
+P-S011H
+P-S012H
+P-S015H
SELECT INFEED PACKAGE
SELECT CARDBOARD TYPE
SELECT PACKAGE PATTERN WIDHT
SELECT GROUPING INFEED PACKAGES IN A ROW
MACHINE SPEED HIGH/LOW
MANUAL LUBRICATION
ABW / /14.04
ABX / /14.04
ABY / /14.04
ACR / /22.05
AEY / /22.05
ACQ / /22.05
Tetra Pak
Designer PEPE
ECM No 146767
Date 11/05/03
Machine TCBP 70-1100 CSA
Denomination CIRCUIT DIAGRAM
Page Type PUSH BUTTONS PANEL
Document No. 2611715-0003
Doc. type ELD
Version AD
Page 40
Company Tetra Pak Carton Ambient AB
Drawing remarks

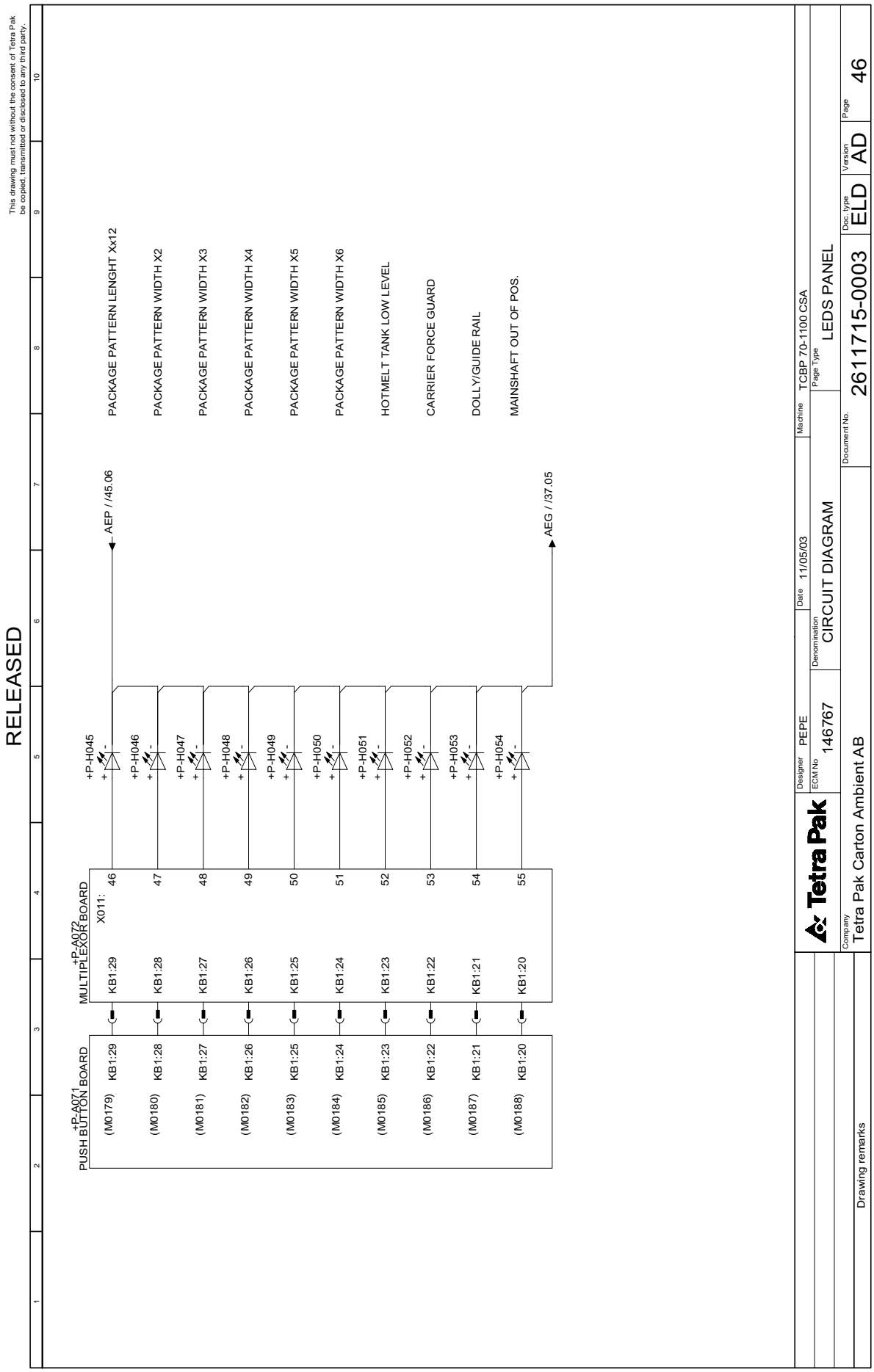

RELEASED
This drawing must not without the consent of Tetra Pak be copied, transmitted or disclosed to any third party.
STEP 1 LAMP
STEP 2 LAMP
STEP 3 LAMP
TRAY
WA MEETING FLAP
TRAY OFF
WA INSIDE FLAP
WA SIDE FLAP
L10
+P-H001
+P-H002
-H003
+P-H014
+P-H015
+P-H016
+P-H017
+P-H018
/42.07 / AEM
+P-A072
MULTIPLEXOR BOARD
+P-A071
PUSH BUTTON BOARD
-X004
+P-X010
-W120
KB1:1
KA1:1
SYNC
DATA 1
DATA 2
DATA 3
+VDC
0VDC
/28.03 / ADE
/28.03 / ADF
/28.03 / ADG
/28.03 / ADH
/39.02 / AEL
Tetra Pak
Designer PEPE
ECM No. 146767
Date 11/05/03
Denomination CIRCUIT DIAGRAM
Machine TCBP 70-1100 CSA
Page Type MULTIPLEXOR CARD
Company Tetra Pak Carton Ambient AB
Document No. 2611715-0003
Doc. type ELD
Version AD
Page 41
Drawing remarks


RELEASED
This drawing must not without the consent of Tetra Pak be copied, transmitted or disclosed to any third party.
/41.07 / AEM
+P-A072
MULTIPLEXOR BOARD
(M0137) K1:1 +P-H055
(M0138) K1:2 +P-H020
(M0139) K1:3 +P-H021
(M0140) K1:4 +P-H022
(M0141) K1:5 +P-H056
(M0142) K1:6 +P-H057
(M0143) K1:7 +P-H058
(M0144) K1:8 +P-H059
/44.06 / AEN
GROUPING SELECT INFEED X6
SINGLE PACK./X2
(Xx2)
(Xx3)
GROUPING SELECT INFEED X8
GROUPING SELECT INFEED X9
GROUPING SELECT INFEED X10
GROUPING SELECT INFEED X12
Tetra Pak
Designer PEPE
ECM No 146767
Date 11/05/03
Denomination CIRCUIT DIAGRAM
Machine TCBP 70-1100 CSA
Page Type LEDS PANEL
Document No. 2611715-0003
Doc. type ELD
Version AD
Page 42
Company Tetra Pak Carton Ambient AB
Drawing remarks


RELEASED
This drawing must not without the consent of Tetra Pak be copied, transmitted or disclosed to any third party.
+P-A071
PUSH BUTTON BOARD
X011:
25
26
27
+P-H012
+P-H013
SERVO ALARM
ELECTRIC ALARM
/37.05 / AZI
/37.05 / AZJ
+P-A071
PUSH BUTTON BOARD
+P-A072
MULTIPLEXOR BOARD
(M0145) KA1:10 +P-H001S STEP UP
(M0146) KA1:11 +P-H002S STEP DOWN
(M0147) KA1:12 +P-H003S RESET/LAMP T.
(M0148) KA1:13 +P-H004S MANUAL EMPTY.
(M0149) KA1:14 +P-H005S CLUTCH FEEDING ON
(M0150) KA1:15
(M0151) KA1:16 +P-H006 ALARM EM.STOP
(M0152) KA1:17 +P-H007 ALARM DOORS
(M0153) KA1:18 +P-H008 ALARM OVERLO. PROTEC.
(M0154) KA1:19 +P-H009 ALARM AIR PRESS.
(M0155) KB1:19 +P-H010 ALARM LUBRIC.
(M0156) KB1:18 +P-H011 ALARM FREQ. CONTR.
Tetra Pak
Designer PEPE
ECM No. 146767
Date 11/05/03
Denomination CIRCUIT DIAGRAM
Machine TCBP 70-1100 CSA
Page Type LEDS PANEL
Company Tetra Pak Carton Ambient AB
Document No. 2611715-0003
Doc. type ELD
Version AD
Page 43
Drawing remarks


RELEASED
This drawing must not without the consent of Tetra Pak be copied, transmitted or disclosed to any third party.
+P-A071
PUSH BUTTON BOARD
X011:
+P-A072
MULTIPLEXOR BOARD
(M0157) KB1:17 KB1:17 28 +P-H027
(M0158) KB1:16 KB1:16 29 +P-H028
(M0159) KB1:15 KB1:15 30 +P-H029
(M0160) KB1:14 KB1:14 31 +P-H030
(M0161) KB1:13 KB1:13 32 +P-H031
(M0162) KB1:12 KB1:12 33 +P-H032
(M0163) KB1:11 KB1:11 34 +P-H033
(M0164) KB1:10 KB1:10 35 +P-H034
AEN / /42.07
AEO / /45.06
ALARM FALLEN PACKAGE
ALARM GROUP.SECT.
ALARM BLANK MAGAZ.
ALARM PUSHER SECTION
AL.NO BLANK PACK. POS.
ALARM HOTMELT UNIT
ALARM QUEUE DISCHARGE
CRUSH GUARD DISCHARGE
ALARM LIGHT BARRIER
Tetra Pak
Designer PEPE
ECM No 146767
Date 11/05/03
Machine TCBP 70-1100 CSA
Denomination CIRCUIT DIAGRAM
Page Type LEDS PANEL
Document No. 2611715-0003
Doc. type ELD
Version AD
Page 44
Company Tetra Pak Carton Ambient AB
Drawing remarks


RELEASED
This drawing must not without the consent of Tetra Pak be copied, transmitted or disclosed to any third party.
+P-A071
PUSH BUTTON BOARD
X011:
+P-A072
MULTIPLEXOR BOARD
AEO / /44.06
AEP / /46.07
PACKAGE PATTERN LENGHT Xx2
PACKAGE PATTERN LENGHT Xx3
PACKAGE PATTERN LENGHT Xx4
PACKAGE PATTERN LENGHT Xx5
PACKAGE PATTERN LENGHT Xx6
PACKAGE PATTERN LENGHT Xx7
PACKAGE PATTERN LENGHT Xx8
PACKAGE PATTERN LENGHT Xx9
PACKAGE PATTERN LENGHT Xx10
PACKAGE PATTERN LENGHT Xx11
Tetra Pak
Designer PEPE
ECM No. 146767
Date 11/05/03
Denomination CIRCUIT DIAGRAM
Machine TCBP 70-1100 CSA
Page Type LEDS PANEL
Document No. 2611715-0003
Doc. type ELD
Version AD
Page 45
Company Tetra Pak Carton Ambient AB
Drawing remarks


RELEASED
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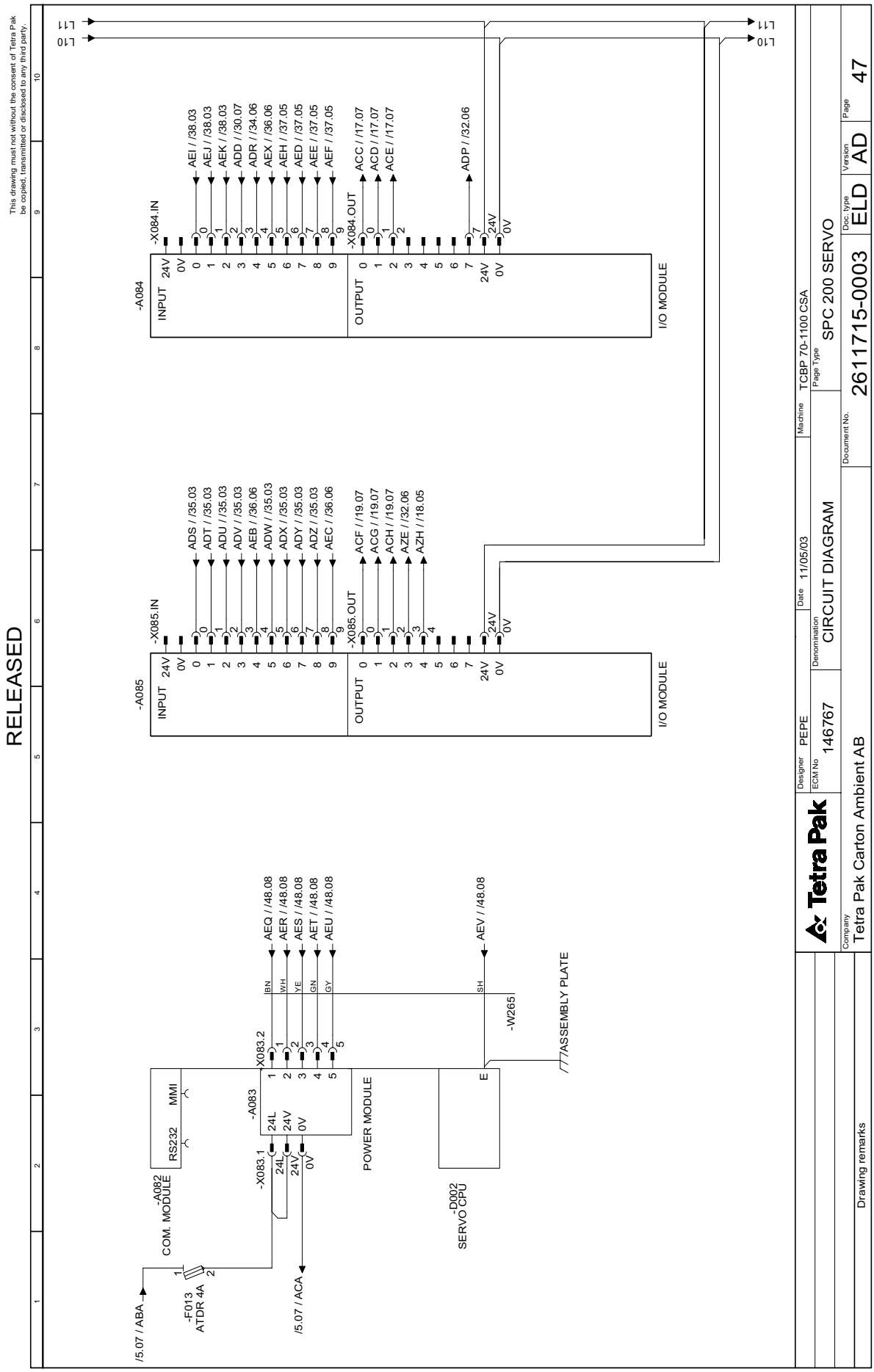
PUSH BUTTON BOARD
+P-A071
MULTIPLEXOR BOARD
+P-A072
X011:
(M0179) KB1:29 KB1:29 46 +P-H045
(M0180) KB1:28 KB1:28 47 +P-H046
(M0181) KB1:27 KB1:27 48 +P-H047
(M0182) KB1:26 KB1:26 49 +P-H048
(M0183) KB1:25 KB1:25 50 +P-H049
(M0184) KB1:24 KB1:24 51 +P-H050
(M0185) KB1:23 KB1:23 52 +P-H051
(M0186) KB1:22 KB1:22 53 +P-H052
(M0187) KB1:21 KB1:21 54 +P-H053
(M0188) KB1:20 KB1:20 55 +P-H054
AEP / /45.06
AEG / /37.05
PACKAGE PATTERN LENGHT Xx12
PACKAGE PATTERN WIDTH X2
PACKAGE PATTERN WIDTH X3
PACKAGE PATTERN WIDTH X4
PACKAGE PATTERN WIDTH X5
PACKAGE PATTERN WIDTH X6
HOTMELT TANK LOW LEVEL
CARRIER FORCE GUARD
DOLLY/GUIDE RAIL
MAINSHAFT OUT OF POS.
Tetra Pak
Designer PEPE
ECM No 146767
Date 11/05/03
Denomination CIRCUIT DIAGRAM
Machine TCBP 70-1100 CSA
Page Type LEDS PANEL
Document No. 2611715-0003
Doc. type ELD
Version AD
Page 46
Company Tetra Pak Carton Ambient AB
Drawing remarks


RELEASED
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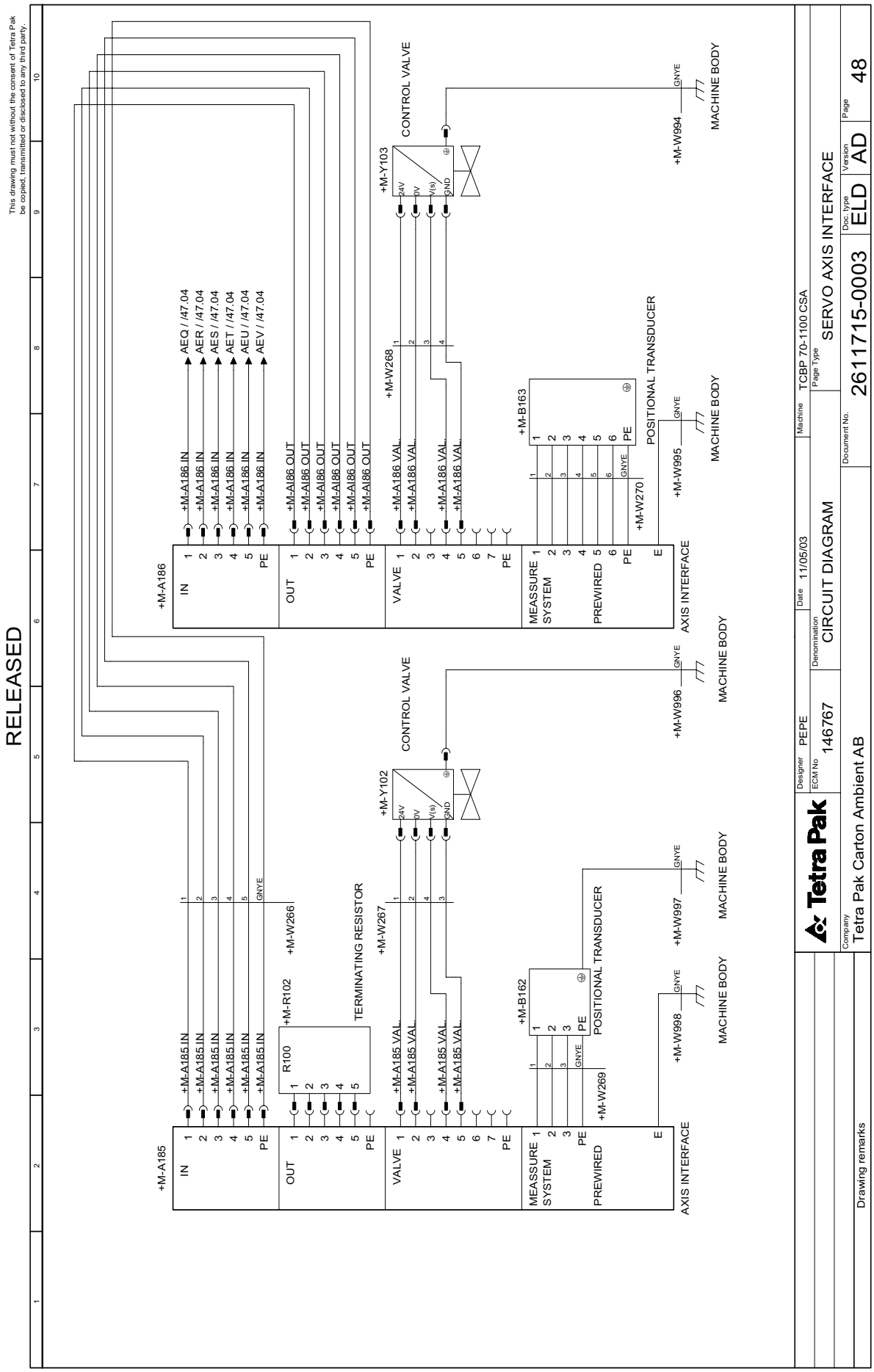
-A084
INPUT
OUTPUT
I/O MODULE
-X084.IN
-X084.OUT
AEI / /38.03
AEJ / /38.03
AEK / /38.03
ADD / /30.07
ADR / /34.06
AEX / /36.06
AEH / /37.05
AED / /37.05
AEE / /37.05
AEF / /37.05
ACC / /17.07
ACD / /17.07
ACE / /17.07
ADP / /32.06
-A085
-X085.IN
-X085.OUT
ADS / /35.03
ADT / /35.03
ADU / /35.03
ADV / /35.03
AEB / /36.06
ADW / /35.03
ADX / /35.03
ADY / /35.03
ADZ / /35.03
AEC / /36.06
ACF / /19.07
ACG / /19.07
ACH / /19.07
AZE / /32.06
AZH / /18.05
L10
L11
24V
0V
-A082
COM. MODULE
RS232
MMI
-F013
ATDR 4A
/5.07 / ABA
/5.07 / ACA
-A083
-X083.1
-X083.2
24L
POWER MODULE
AEQ / /48.08
AER / /48.08
AES / /48.08
AET / /48.08
AEU / /48.08
AEV / /48.08
BN
WH
YE
GN
GY
SH
-W265
-D002
SERVO CPU
E
ASSEMBLY PLATE
Tetra Pak
Designer PEPE
ECM No. 146767
Date 11/05/03
Denomination CIRCUIT DIAGRAM
Machine TCBP 70-1100 CSA
Page Type SPC 200 SERVO
Document No. 2611715-0003
Doc. type ELD
Version AD
Page 47
Company Tetra Pak Carton Ambient AB
Drawing remarks


RELEASED
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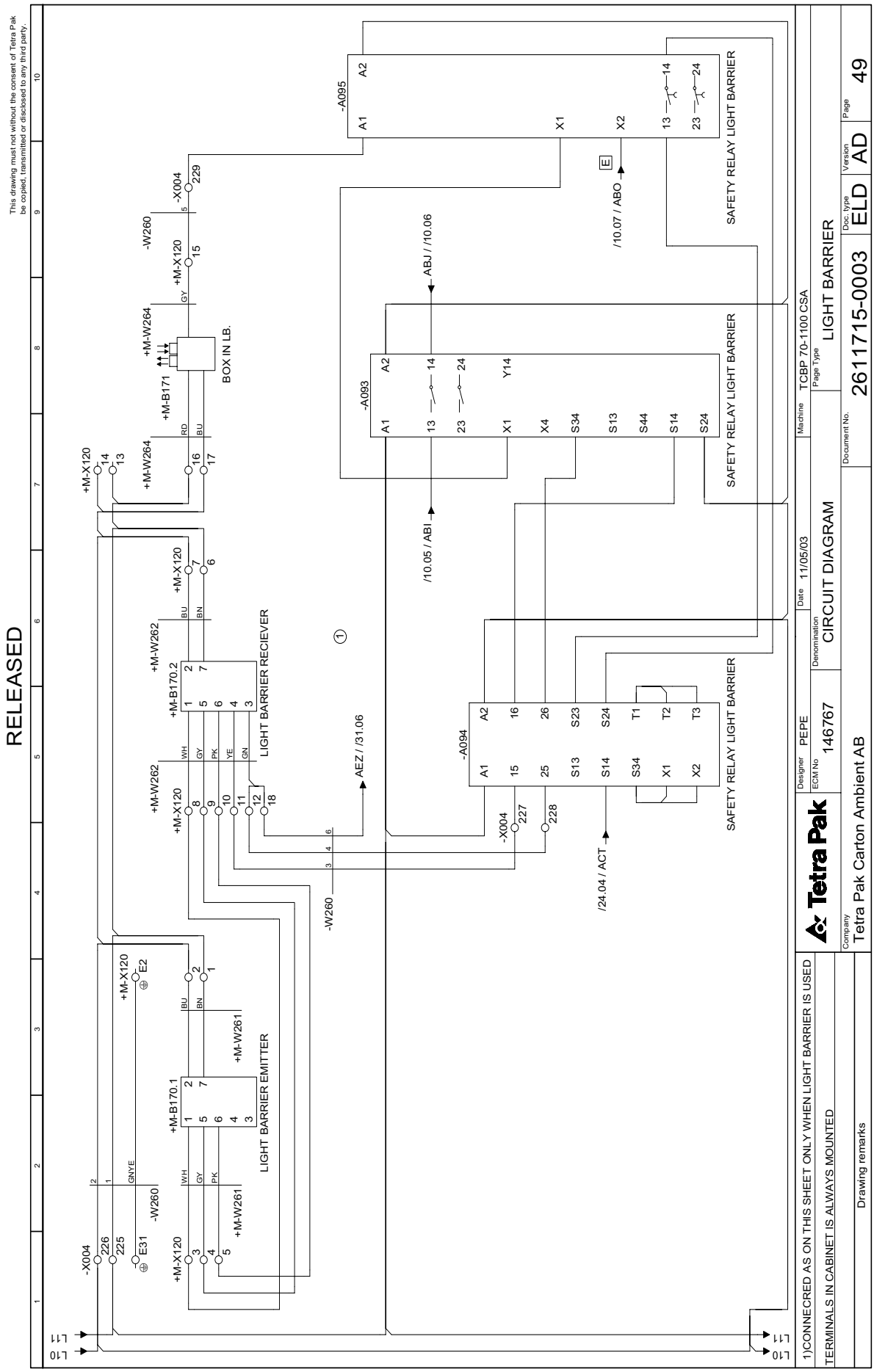
+M-A186
IN
OUT
VALVE
MEASURE SYSTEM
PREWIRED
AXIS INTERFACE
+M-A185
+M-R102
R100
TERMINATING RESISTOR
+M-W266
+M-W267
+M-W269
+M-Y102
+M-Y103
CONTROL VALVE
+M-B162
+M-B163
POSITIONAL TRANSDUCER
+M-W268
+M-W270
+M-W994
+M-W995
+M-W996
+M-W997
+M-W998
MACHINE BODY
AEQ / /47.04
AER / /47.04
AES / /47.04
AET / /47.04
AEU / /47.04
AEV / /47.04
Tetra Pak
Designer PEPE
ECM No 146767
Date 11/05/03
Machine TCBP 70-1100 CSA
Page Type
Denomination CIRCUIT DIAGRAM
SERVO AXIS INTERFACE
Company Tetra Pak Carton Ambient AB
Document No. 2611715-0003
Doc. type ELD
Version AD
Page 48
Drawing remarks


RELEASED
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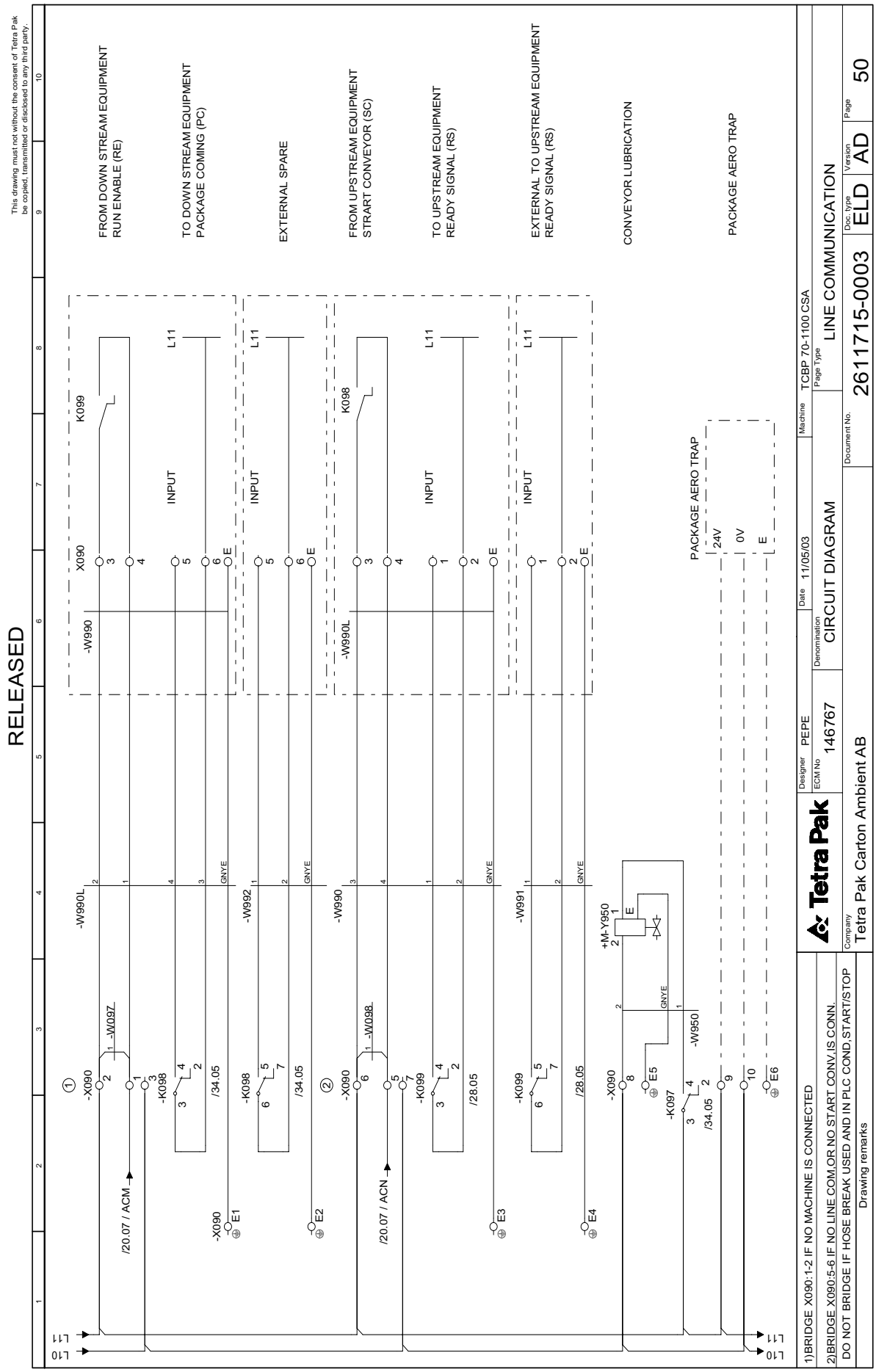
-A095
SAFETY RELAY LIGHT BARRIER
/10.07 / ABO
ABJ / /10.06
-A093
SAFETY RELAY LIGHT BARRIER
/10.05 / ABI
-A094
SAFETY RELAY LIGHT BARRIER
/24.04 / ACT
AEZ / /31.06
LIGHT BARRIER RECIEVER
LIGHT BARRIER EMITTER
BOX IN LB.
+M-B171
+M-B170.1
+M-B170.2
+M-W264
+M-W262
+M-W261
-W260
+M-X120
-X004
-W260
L10
L11
1)CONNECRED AS ON THIS SHEET ONLY WHEN LIGHT BARRIER IS USED
TERMINALS IN CABINET IS ALWAYS MOUNTED
Drawing remarks
Tetra Pak
Company
Tetra Pak Carton Ambient AB
Designer PEPE
ECM No. 146767
Date 11/05/03
Denomination CIRCUIT DIAGRAM
Machine TCBP 70-1100 CSA
Page Type LIGHT BARRIER
Document No. 2611715-0003
Doc. type ELD
Version AD
Page 49


RELEASED
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FROM DOWN STREAM EQUIPMENT RUN ENABLE (RE)
TO DOWN STREAM EQUIPMENT PACKAGE COMING (PC)
EXTERNAL SPARE
FROM UPSTREAM EQUIPMENT STRART CONVEYOR (SC)
TO UPSTREAM EQUIPMENT READY SIGNAL (RS)
EXTERNAL TO UPSTREAM EQUIPMENT READY SIGNAL (RS)
CONVEYOR LUBRICATION
PACKAGE AERO TRAP
-W990
-W990L
-W992
-W991
K099
K098
X090
INPUT
L11
L10
GNYE
/20.07 / ACM
/20.07 / ACN
/34.05
/28.05
-W097
-W098
-W950
+M-Y950
24V
0V
1)BRIDGE X090:1-2 IF NO MACHINE IS CONNECTED
2)BRIDGE X090:5-6 IF NO LINE COM.OR NO START CONV.IS CONN.
DO NOT BRIDGE IF HOSE BREAK USED AND IN PLC COND.START/STOP
Drawing remarks
Tetra Pak
Designer PEPE
ECM No 146767
Company Tetra Pak Carton Ambient AB
Date 11/05/03
Denomination CIRCUIT DIAGRAM
Machine TCBP 70-1100 CSA
Page Type LINE COMMUNICATION
Document No. 2611715-0003
Doc. type ELD
Version AD
Page 50

5 Line summary

Description

All connections inside the electrical cabinet are listed in this chapter.

Line Summary . . . . . .2611715-0004 ELD 001 AD
. . . . . .2611715-0004 ELD 002 AD
. . . . . .2611715-0004 ELD 003 AD

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1 2 3 4 5 6 7 8 9 10

Line summary of 2611715-0003

Line	From	Page.Col.	To	Page.Col.	Area/Color	Opt.
L1	+C-Z000:1	3 .5	+C-F004:1	6 .6	2,5mm² BK	
L1	+C-F004:1	6 .6	+C-F007:1	6 .2	2,5mm² BK	
L1	+C-F007:1	6 .2	+C-K003:1	6 .9	2,5mm² BK	
L2	+C-Z000:2	3 .5	+C-F001:1	4 .3	2,5mm² BK	
L2	+C-F001:1	4 .3	+C-F004:3	6 .6	2,5mm² BK	
L2	+C-F004:3	6 .6	+C-F005:1	4 .6	2,5mm² BK	
L2	+C-F005:1	4 .6	+C-F009:1	5 .2	2,5mm² BK	
L2	+C-F009:1	5 .2	+C-K003:3	6 .9	2,5mm² BK	
L3	+C-Z000:3	3 .5	+C-K003:5	6 .9	2,5mm² BK	
L4	+C-K003:2	6 .9	+C-K004:1	8 .5	2.5mm² BK	
L4	+C-K004:1	8 .5	+C-Q081:1	7 .8	2.5mm² BK	
L5	+C-K003:4	6 .9	+C-K004:3	8 .5	2.5mm² BK	
L5	+C-K004:3	8 .5	+C-Q081:3	7 .8	2.5mm² BK	
L5	+C-Q081:3	7 .8	+C-F006:1	7 .2	2.5mm² BK	
L6	+C-K003:6	6 .9	+C-K004:5	8 .5	2.5mm² BK	
L6	+C-K004:5	8 .5	+C-Q081:5	7 .8	2.5mm² BK	
L6	+C-Q081:5	7 .8	+C-F008:1	8 .2	2.5mm² BK	
L7	+C-K004:2	8 .5	+C-Q006:1	9 .7	2.5mm² BK	
L8	+C-K004:4	8 .5	+C-Q006:3	9 .7	2.5mm² BK	
L8	+C-Q006:3	9 .7	+C-F002:1	8 .7	2.5mm² BK	
L9	+C-K004:6	8 .5	+C-Q006:5	9 .7	2.5mm² BK	
L9	+C-Q006:5	9 .7	+C-F003:1	9 .3	2.5mm² BK	
L10	+C-G011:-	5 .2	+C-XL010:1	1 .1	0,75mm² BU	
L10	+C-G011:-	5 .2	+C-X004:E1	5 .2	0,75mm² BU	
L10	+C-G012:-	5 .5	+C-XL010:2	1 .1	0,75mm² BU	
L10	+C-G012:-	5 .5	+C-X004:E2	5 .4	0,75mm² BU	
L10	+C-XL010:3	1 .1	+C-A002:01	13 .8	0,75mm² BU	
L10	+C-XL010:4	1 .2	+C-A003:01	15 .8	0,75mm² BU	

Line	From	Page.Col.	To	Page.Col.	Area/Color	Opt.
L10	+C-XL010:5	1 .2	+C-A004:01	17 .8	0,75mm² BU	
L10	+C-XL010:6	1 .2	+C-A005:01	19 .8	0,75mm² BU	
L10	+C-XL010:7	1 .2	+C-A006:01	21 .8	0,75mm² BU	
L10	+C-XL010:8	1 .2	+C-A007:10	23 .1	0,75mm² BU	
L10	+C-A007:10	23 .1	+C-A007:20	24 .1	0,75mm² BU	
L10	+C-XL010:9	1 .2	+C-A008:10	25 .1	0,75mm² BU	
L10	+C-A008:10	25 .1	+C-A008:20	26 .1	0,75mm² BU	
L10	+C-XL010:10	1 .2	+C-A009:10	27 .1	0,75mm² BU	
L10	+C-A009:10	27 .1	+C-A009:20	28 .1	0,75mm² BU	
L10	+C-XL010:11	1 .2	+C-A010:10	29 .1	0,75mm² BU	
L10	+C-A010:10	29 .1	+C-A010:20	30 .1	0,75mm² BU	
L10	+C-XL010:12	1 .3	+C-A021:01	31 .8	0,75mm² BU	
L10	+C-XL010:13	1 .3	+C-A022:10	33 .1	0,75mm² BU	
L10	+C-A022:10	33 .1	+C-A022:20	34 .1	0,75mm² BU	
L10	+C-XL010:14	1 .3	+C-A023:10	35 .1	0,75mm² BU	
L10	+C-A023:10	35 .1	+C-A023:20	36 .1	0,75mm² BU	
L10	+C-XL010:15	1 .3	+C-A024:10	37 .1	0,75mm² BU	
L10	+C-A024:10	37 .1	+C-A024:20	38 .1	0,75mm² BU	
L10	+C-XL010:16	1 .3	+C-P001:-	26 .5	0,75mm² BU	
L10	+C-P001:-	26 .5	+C-X085.OUT:0V	47 .6	0,75mm² BU	
L10	+C-XL010:17	1 .3	+C-K006:A2	9 .7	0,75mm² BU	
L10	+C-K006:A2	9 .7	+C-K008:A2	12 .7	0,75mm² BU	
L10	+C-K008:A2	12 .7	+C-K010:A2	27 .5	0,75mm² BU	
L10	+C-K010:A2	27 .5	+C-K081:A2	26 .5	0,75mm² BU	
L10	+C-XL010:18	1 .3	+C-K098:1	34 .5	0,75mm² BU	
L10	+C-K098:1	34 .5	+C-K099:1	28 .5	0,75mm² BU	
L10	+C-K099:1	28 .5	+C-K097:1	34 .5	0,75mm² BU	
L10	+C-XL010:19	1 .3	+C-A090:A2	10 .3	0,75mm² BU	

Drawing remarks

Tetra Pak

Designer	Date	Machine
PEPE	11/05/03	TCBP 70-1100 CSA

ECM No	Denomination	Page Type
146767	LINE SUMMARY	LINE SUMMARY

Company	Document No.	Doc. type	Version	Page
Tetra Pak Carton Ambient AB	2611715-0004	ELD	AD	001

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1 2 3 4 5 6 7 8 9 10

Line summary of 2611715-0003

Line	From	Page.Col.	To	Page.Col.	Area/Color	Opt.
L10	+C-A090:A2	10 .3	+C-A091:A2	10 .8	0,75mm² BU	
L10	+C-XL010:20	1 .4	+C-A093:A2	49 .7	0,75mm² BU	
L10	+C-A093:A2	49 .7	+C-A093:S24	49 .7	0,75mm² BU	
L10	+C-A093:S24	49 .7	+C-A094:A2	49 .5	0,75mm² BU	
L10	+C-A094:A2	49 .5	+C-A095:A2	49 .10	0,75mm² BU	
L10	+C-A095:A2	49 .10	+C-X004:226	49 .1	0,75mm² BU	
L10	+C-XL010:21	1 .4	+C-K001:A2	23 .5	0,75mm² BU	
L10	+C-K001:A2	23 .5	+C-K002:A2	26 .5	0,75mm² BU	
L10	+C-K002:A2	26 .5	+C-K003:A2	10 .5	0,75mm² BU	
L10	+C-K003:A2	10 .5	+C-K004:A2	10 .9	0,75mm² BU	
L10	+C-K004:A2	10 .9	+C-K005:A2	23 .5	0,75mm² BU	
L10	+C-XL010:22	1 .4	+C-G021:SC	7 .2	0,75mm² BU	
L10	+C-XL010:23	1 .4	+C-G022:SC	8 .7	0,75mm² BU	
L10	+C-XL010:24	1 .4	+C-G023:SC	9 .2	0,75mm² BU	
L10	+C-XL010:25	1 .4	+C-G024:SC	8 .2	0,75mm² BU	
L10	+C-XL010:26	1 .4	+C-X004:2	15 .4	0,75mm² BU	
L10	+C-X004:2	15 .4	+C-X004:12	16 .4	0,75mm² BU	
L10	+C-X004:12	16 .4	+C-X004:23	18 .1	0,75mm² BU	
L10	+C-X004:23	18 .1	+C-X004:31	26 .8	0,75mm² BU	
L10	+C-X004:31	26 .8	+C-X004:37	11 .1	0,75mm² BU	
L10	+C-X004:37	11 .1	+C-X004:58	41 .8	0,75mm² BU	
L10	+C-X004:58	41 .8	+C-X004:68	17 .1	0,75mm² BU	
L10	+C-X004:68	17 .1	+C-X004:80	19 .1	0,75mm² BU	
L10	+C-X004:80	19 .1	+C-X004:98	19 .1	0,75mm² BU	
L10	+C-X004:98	19 .1	+C-X004:101	19 .1	0,75mm² BU	
L10	+C-X004:101	19 .1	+C-X004:104	18 .1	0,75mm² BU	
L10	+C-XL010:27	1 .4	+C-X004:107	18 .1	0,75mm² BU	
L10	+C-X004:107	18 .1	+C-X004:114	18 .1	0,75mm² BU	

Line	From	Page.Col.	To	Page.Col.	Area/Color	Opt.
L10	+C-X004:114	18 .1	+C-X004:119	26 .8	0,75mm² BU	
L10	+C-X004:119	26 .8	+C-X004:132	24 .8	0,75mm² BU	
L10	+C-X004:132	24 .8	+C-X004:133	24 .8	0,75mm² BU	
L10	+C-X004:133	24 .8	+C-X004:145	24 .8	0,75mm² BU	
L10	+C-X004:145	24 .8	+C-X004:146	24 .8	0,75mm² BU	
L10	+C-X004:146	24 .8	+C-X004:158	24 .8	0,75mm² BU	
L10	+C-X004:158	24 .8	+C-X004:159	24 .8	0,75mm² BU	
L10	+C-X004:159	24 .8	+C-X004:166	13 .2	0,75mm² BU	
L10	+C-XL010:28	1 .5	+C-X004:176	21 .1	0,75mm² BU	
L10	+C-X004:176	21 .1	+C-X004:183	29 .8	0,75mm² BU	
L10	+C-X004:183	29 .8	+C-X004:194	28 .8	0,75mm² BU	
L10	+C-X004:194	28 .8	+C-X004:201	21 .1	0,75mm² BU	
L10	+C-X004:201	21 .1	+C-X004:204	27 .8	0,75mm² BU	
L10	+C-X004:204	27 .8	+C-X004:207	31 .2	0,75mm² BU	
L10	+C-X004:207	31 .2	+C-X004:209	38 .8	0,75mm² BU	
L10	+C-X004:209	38 .8	+C-X004:219	33 .7	0,75mm² BU	
L10	+C-X004:219	33 .7	+C-X004:232	11 .1	0,75mm² BU	
L10	+C-XL010:29	1 .5	+C-X090:3	50 .3	0,75mm² BU	
L10	+C-X090:3	50 .3	+C-X090:7	50 .3	0,75mm² BU	
L10	+C-X090:7	50 .3	+C-X090:8	50 .3	0,75mm² BU	
L10	+C-X090:8	50 .3	+C-X090:10	50 .3	0,75mm² BU	
L10	+C-XL010:30	1 .5	+C-X084.OUT:0V	47 .9	0,75mm² BU	
L11	+C-XL011:1	1 .1	+C-F010:2	5 .3	0,75mm² BU	
L11	+C-XL011:2	1 .1	+C-G021:MC	7 .2	0,75mm² BU	
L11	+C-XL011:3	1 .1	+C-A009:01	27 .1	0,75mm² BU	
L11	+C-A009:01	27 .1	+C-A009:11	28 .1	0,75mm² BU	
L11	+C-XL011:4	1 .2	+C-Z005:4	3 .5	0,75mm² BU	
L11	+C-XL011:5	1 .2	+C-K010:13	12 .2	0,75mm² BU	

Drawing remarks

Tetra Pak

Designer	Date	Machine
PEPE	11/05/03	TCBP 70-1100 CSA

ECM No	Denomination	Page Type
146767	LINE SUMMARY	LINE SUMMARY

Company	Document No.	Doc. type	Version	Page
Tetra Pak Carton Ambient AB	2611715-0004	ELD	AD	002

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1 2 3 4 5 6 7 8 9 10

Line summary of 2611715-0003

Line	From	Page.Col.	To	Page.Col.	Area/Color	Opt.
L11	+C-K010:13	12 .2	+C-Q006:13	13 .3	0,75mm² BU	
L11	+C-Q006:13	13 .3	+C-X085.OUT:24V	47 .6	0,75mm² BU	
L11	+C-XL011:6	1 .2	+C-X004:1	15 .4	0,75mm² BU	
L11	+C-X004:1	15 .4	+C-X004:11	16 .4	0,75mm² BU	
L11	+C-X004:11	16 .4	+C-X004:22	18 .1	0,75mm² BU	
L11	+C-X004:22	18 .1	+C-X004:43	39 .1	0,75mm² BU	
L11	+C-X004:43	39 .1	+C-X004:67	17 .1	0,75mm² BU	
L11	+C-X004:67	17 .1	+C-X004:79	19 .1	0,75mm² BU	
L11	+C-XL011:7	1 .2	+C-X004:97	19 .1	0,75mm² BU	
L11	+C-X004:97	19 .1	+C-X004:100	19 .1	0,75mm² BU	
L11	+C-X004:100	19 .1	+C-X004:103	18 .1	0,75mm² BU	
L11	+C-X004:103	18 .1	+C-X004:106	18 .1	0,75mm² BU	
L11	+C-XL011:8	1 .2	+C-X004:111	31 .2	0,75mm² BU	
L11	+C-X004:111	31 .2	+C-X004:113	18 .1	0,75mm² BU	
L11	+C-X004:113	18 .1	+C-X004:165	13 .2	0,75mm² BU	
L11	+C-X004:165	13 .2	+C-X004:175	21 .1	0,75mm² BU	
L11	+C-X004:175	21 .1	+C-X004:190	18 .1	0,75mm² BU	
L11	+C-X004:190	18 .1	+C-X004:200	21 .1	0,75mm² BU	
L11	+C-X004:200	21 .1	+C-X004:206	31 .2	0,75mm² BU	
L11	+C-XL011:9	1 .2	+C-A022:11	34 .1	0,75mm² BU	
L11	+C-XL011:10	1 .2	+C-A024:01	37 .1	0,75mm² BU	
L11	+C-XL011:11	1 .2	+C-S004:13	12 .2	0,75mm² BU	
L11	+C-S004:13	12 .2	+C-S003:51	22 .3	0,75mm² BU	
L11	+C-S003:51	22 .3	+C-S002:1	22 .3	0,75mm² BU	
L11	+C-XL011:12	1 .3	+C-A023:01	35 .1	0,75mm² BU	
L11	+C-A023:01	35 .1	+C-A023:11	36 .1	0,75mm² BU	
L11	+C-XL011:13	1 .3	+C-A021:I0086	31 .7	0,75mm² BU	
L11	+C-XL011:14	1 .3	+C-A090:A1	10 .3	0,75mm² BU	

Line	From	Page.Col.	To	Page.Col.	Area/Color	Opt.
L11	+C-A090:A1	10 .3	+C-A091:A1	10 .8	0,75mm² BU	
L11	+C-A091:A1	10 .8	+C-X084.OUT:24V	47 .9	0,75mm² BU	
L11	+C-XL011:15	1 .3	+C-A093:A1	49 .7	0,75mm² BU	
L11	+C-A093:A1	49 .7	+C-A094:A1	49 .5	0,75mm² BU	
L11	+C-A094:A1	49 .5	+C-X004:225	49 .1	0,75mm² BU	
L11	+C-XL011:16	1 .3	+C-X090:2	50 .3	0,75mm² BU	
L11	+C-X090:2	50 .3	+C-X090:6	50 .3	0,75mm² BU	
L11	+C-X090:6	50 .3	+C-X090:9	50 .3	0,75mm² BU	
L11	+C-X090:9	50 .3	+C-K097:3	50 .2	0,75mm² BU	
L12	+C-XL012:1	2 .1	+C-A090:24	10 .3	0,75mm² BU	
L12	+C-XL012:2	2 .1	+C-X004:62	10 .5	0,75mm² BU	
L12	+C-XL012:3	2 .1	+C-A002:I0001	13 .7	0,75mm² BU	
L12	+C-XL012:4	2 .2	+C-A008:11	26 .1	0,75mm² BU	
L13	+C-XL013:1	2 .6	+C-A091:24	10 .8	0,75mm² BU	
L13	+C-XL013:2	2 .6	+C-A022:01	33 .1	0,75mm² BU	
L13	+C-XL013:3	2 .6	+C-A007:01	23 .1	0,75mm² BU	
L13	+C-A007:01	23 .1	+C-A007:11	24 .1	0,75mm² BU	
L13	+C-XL013:4	2 .6	+C-A008:01	25 .1	0,75mm² BU	
L13	+C-XL013:5	2 .6	+C-A010:01	29 .1	0,75mm² BU	
L13	+C-A010:01	29 .1	+C-A010:11	30 .1	0,75mm² BU	
L13	+C-XL013:6	2 .6	+C-A002:I0015	14 .7	0,75mm² BU	
L13	+C-XL013:7	2 .6	+C-A024:11	38 .1	0,75mm² BU	
N	+C-Z000:N	3 .5	+C-X003:N	3 .8	2,5mm² L.BU	

Drawing remarks

Tetra Pak	Designer PEPE	Date 11/05/03	Machine TCBP 70-1100 CSA		
	ECM No 146767	Denomination LINE SUMMARY	Page Type LINE SUMMARY		
	Company Tetra Pak Carton Ambient AB	Document No. 2611715-0004	Doc. type ELD	Version AD	Page 003

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6 Cabinet terminal summary

Description

All terminals inside the electrical cabinet are listed in this chapter. The field *Opt.* specifies if the terminal is reserved for an option.

Cabinet terminal summary . . . . . .2611715-0005 ELD 001 AD
. . . . . .2611715-0005 ELD 002 AD
. . . . . .2611715-0005 ELD 003 AD
. . . . . .2611715-0005 ELD 004 AD

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1 2 3 4 5 6 7 8 9 10

Cabinet terminal summary of 2611715-0003

Terminal	Page .Col.	Opt.
+C-X000:E1	3 .2	
+C-X000:E2	3 .2	
+C-X002:1		
+C-X002:2		
+C-X002:3		
+C-X002:4		
+C-X002:5		
+C-X002:6		
+C-X002:7		
+C-X002:8		
+C-X002:9		
+C-X002:10	7 .8	
+C-X002:11	7 .8	
+C-X002:12	7 .8	
+C-X002:13		
+C-X002:14		
+C-X002:15		
+C-X002:16		
+C-X002:17	9 .7	
+C-X002:18	9 .8	
+C-X002:19	9 .8	
+C-X002:20	6 .2	
+C-X002:21	6 .3	
+C-X002:22	6 .3	
+C-X002:23	6 .4	
+C-X002:24		
+C-X002:25		
+C-X002:26	6 .6	

Terminal	Page .Col.	Opt.
+C-X002:27	6 .6	
+C-X002:28	6 .6	
+C-X002:29		
+C-X002:E1	3 .7	
+C-X002:E2		
+C-X002:E3	4 .3	
+C-X002:E4	4 .5	
+C-X002:E5	7 .8	
+C-X002:E6	9 .8	
+C-X002:E7	6 .3	
+C-X002:E8	6 .4	
+C-X002:E9		
+C-X002:E10	6 .7	
+C-X003:1	4 .4	
+C-X003:2	8 .8	
+C-X003:3	9 .3	
+C-X003:4	6 .7	
+C-X003:5	4 .7	
+C-X003:6	7 .3	
+C-X003:7	6 .4	
+C-X003:8	8 .3	
+C-X003:9	5 .2	
+C-X003:N	3 .8	
+C-X004:1	15 .4	
+C-X004:2	15 .4	
+C-X004:3	15 .4	
+C-X004:4	15 .4	
+C-X004:5	15 .4	

Terminal	Page .Col.	Opt.
+C-X004:6	15 .4	
+C-X004:7	15 .4	
+C-X004:8	15 .4	
+C-X004:9	15 .4	
+C-X004:10	15 .4	
+C-X004:11	16 .4	
+C-X004:12	16 .4	
+C-X004:13	16 .4	
+C-X004:14	16 .4	
+C-X004:15	16 .4	
+C-X004:16	16 .4	
+C-X004:17	16 .4	
+C-X004:18	16 .4	
+C-X004:19	16 .4	
+C-X004:20	16 .4	
+C-X004:21	18 .6	
+C-X004:22	18 .1	
+C-X004:23	18 .1	
+C-X004:24	18 .6	
+C-X004:25	21 .7	
+C-X004:26	34 .3	
+C-X004:27	34 .3	
+C-X004:28	18 .1	
+C-X004:29		
+C-X004:30	26 .3	
+C-X004:31	26 .8	
+C-X004:32	29 .3	
+C-X004:33	26 .3	

Terminal	Page .Col.	Opt.
+C-X004:34	29 .3	
+C-X004:35		
+C-X004:36	11 .1	
+C-X004:37	11 .1	
+C-X004:38	11 .4	
+C-X004:39	11 .4	
+C-X004:40	14 .7	
+C-X004:41	22 .7	
+C-X004:42	22 .7	
+C-X004:43	39 .1	
+C-X004:44	13 .7	
+C-X004:45	13 .7	
+C-X004:46	13 .7	
+C-X004:47	13 .7	
+C-X004:48	14 .7	
+C-X004:49	14 .7	
+C-X004:50	14 .7	
+C-X004:51	14 .7	
+C-X004:52	11 .9	
+C-X004:53	11 .9	
+C-X004:54	41 .2	
+C-X004:55	41 .2	
+C-X004:56	41 .2	
+C-X004:57	41 .2	
+C-X004:58	41 .8	
+C-X004:59	11 .9	
+C-X004:60	11 .9	
+C-X004:61		

Drawing remarks

Tetra Pak	Designer PEPE	Date 11/05/03	Machine TCBP 70-1100 CSA		
	ECM No 146767	Denomination CABINET TERMINAL SUMMARY	Page Type CABINET TERMINAL SUMMARY		
Company Tetra Pak Carton Ambient AB		Document No. 2611715-0005	Doc. type ELD	Version AD	Page 001

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1 2 3 4 5 6 7 8 9 10

Cabinet terminal summary of 2611715-0003

Terminal	Page .Col.	Opt.
+C-X004:62	10 .5	
+C-X004:63	10 .6	
+C-X004:64	37 .3	
+C-X004:65	37 .3	
+C-X004:66	17 .7	
+C-X004:67	17 .1	
+C-X004:68	17 .1	
+C-X004:69	17 .7	
+C-X004:70	17 .7	
+C-X004:71	17 .7	
+C-X004:72	17 .7	
+C-X004:73	17 .7	
+C-X004:74	17 .7	
+C-X004:75	31 .6	
+C-X004:76	31 .6	
+C-X004:77	33 .3	
+C-X004:78		
+C-X004:79	19 .1	
+C-X004:80	19 .1	
+C-X004:81	19 .6	
+C-X004:82	19 .6	
+C-X004:83	31 .6	
+C-X004:84	36 .2	
+C-X004:85	19 .6	
+C-X004:86	19 .6	
+C-X004:87	31 .6	
+C-X004:88	20 .7	
+C-X004:89	20 .7	

Terminal	Page .Col.	Opt.
+C-X004:90	20 .7	
+C-X004:91	20 .7	
+C-X004:92	20 .7	
+C-X004:93	20 .7	
+C-X004:94	27 .3	
+C-X004:95	27 .3	
+C-X004:96	19 .6	
+C-X004:97	19 .1	
+C-X004:98	19 .1	
+C-X004:99	19 .6	
+C-X004:100	19 .1	
+C-X004:101	19 .1	
+C-X004:102	18 .6	
+C-X004:103	18 .1	
+C-X004:104	18 .1	
+C-X004:105	18 .6	
+C-X004:106	18 .1	
+C-X004:107	18 .1	
+C-X004:108		
+C-X004:109		
+C-X004:110	31 .6	
+C-X004:111	31 .2	
+C-X004:112	18 .6	
+C-X004:113	18 .1	
+C-X004:114	18 .1	
+C-X004:115	18 .6	
+C-X004:116	32 .6	
+C-X004:117		

Terminal	Page .Col.	Opt.
+C-X004:118	26 .3	
+C-X004:119	26 .8	
+C-X004:120		
+C-X004:121	38 .3	
+C-X004:122	38 .3	
+C-X004:123	25 .3	
+C-X004:124	25 .3	
+C-X004:125	24 .3	
+C-X004:126	24 .3	
+C-X004:127	29 .3	
+C-X004:128	25 .3	
+C-X004:129	29 .3	
+C-X004:130	30 .3	
+C-X004:131	33 .3	
+C-X004:132	24 .8	
+C-X004:133	24 .8	
+C-X004:134		
+C-X004:135	24 .3	
+C-X004:136	25 .3	
+C-X004:137	25 .3	
+C-X004:138	25 .3	
+C-X004:139	25 .3	
+C-X004:140		
+C-X004:141	26 .3	
+C-X004:142	30 .3	
+C-X004:143		
+C-X004:144		
+C-X004:145	24 .8	

Terminal	Page .Col.	Opt.
+C-X004:146	24 .8	
+C-X004:147	25 .3	
+C-X004:148	29 .3	
+C-X004:149	29 .3	
+C-X004:150	30 .3	
+C-X004:151	30 .3	
+C-X004:152	24 .3	
+C-X004:153	30 .3	
+C-X004:154	30 .3	
+C-X004:155	30 .3	
+C-X004:156	33 .3	
+C-X004:157	34 .3	
+C-X004:158	24 .8	
+C-X004:159	24 .8	
+C-X004:160	33 .3	
+C-X004:161	37 .3	
+C-X004:162	37 .3	
+C-X004:163	22 .7	
+C-X004:164	13 .7	
+C-X004:165	13 .2	
+C-X004:166	13 .2	
+C-X004:167		
+C-X004:168		
+C-X004:169		
+C-X004:170		
+C-X004:171		
+C-X004:172		
+C-X004:173		

Drawing remarks

Tetra Pak

Designer	Date	Machine
PEPE	11/05/03	TCBP 70-1100 CSA

ECM No	Denomination	Page Type
146767	CABINET TERMINAL SUMMARY	CABINET TERMINAL SUMMARY

Company	Document No.	Doc. type	Version	Page
Tetra Pak Carton Ambient AB	2611715-0005	ELD	AD	002

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1 2 3 4 5 6 7 8 9 10

Cabinet terminal summary of 2611715-0003

Terminal	Page .Col.	Opt.
+C-X004:174	21 .7	
+C-X004:175	21 .1	
+C-X004:176	21 .1	
+C-X004:177	21 .7	
+C-X004:178	21 .1	
+C-X004:179	21 .1	
+C-X004:180		
+C-X004:181		
+C-X004:182	29 .3	
+C-X004:183	29 .8	
+C-X004:184	29 .3	
+C-X004:185		
+C-X004:186		
+C-X004:187		
+C-X004:188		
+C-X004:189		
+C-X004:190	18 .1	
+C-X004:191	28 .3	
+C-X004:192	28 .3	
+C-X004:193	28 .3	
+C-X004:194	28 .8	
+C-X004:195		
+C-X004:196		
+C-X004:197		
+C-X004:198		
+C-X004:199	21 .7	
+C-X004:200	21 .1	
+C-X004:201	21 .1	

Terminal	Page .Col.	Opt.
+C-X004:202	21 .7	
+C-X004:203	27 .3	
+C-X004:204	27 .8	
+C-X004:205	31 .6	
+C-X004:206	31 .2	
+C-X004:207	31 .2	
+C-X004:208	38 .3	
+C-X004:209	38 .8	
+C-X004:210		
+C-X004:211		
+C-X004:212		
+C-X004:213		
+C-X004:214		
+C-X004:215		
+C-X004:216		
+C-X004:217		
+C-X004:218	33 .3	
+C-X004:219	33 .7	
+C-X004:220		
+C-X004:221		
+C-X004:222		
+C-X004:223		
+C-X004:224		
+C-X004:225	49 .1	
+C-X004:226	49 .1	
+C-X004:227	49 .4	
+C-X004:228	49 .4	
+C-X004:229	49 .9	

Terminal	Page .Col.	Opt.
+C-X004:230	31 .6	
+C-X004:231	11 .1	
+C-X004:232	11 .1	
+C-X004:233	11 .3	
+C-X004:234	11 .3	
+C-X004:235	11 .3	
+C-X004:236	11 .3	
+C-X004:237	11 .5	
+C-X004:238	11 .5	
+C-X004:239	11 .5	
+C-X004:240	11 .5	
+C-X004:241	11 .6	
+C-X004:242	11 .6	
+C-X004:243	11 .7	
+C-X004:244	11 .7	
+C-X004:245	11 .8	
+C-X004:246	11 .8	
+C-X004:247	11 .5	
+C-X004:248	11 .5	
+C-X004:249	11 .8	
+C-X004:250	11 .8	
+C-X004:251	21 .7	
+C-X004:252	17 .7	
+C-X004:253	21 .7	
+C-X004:254	21 .7	
+C-X004:255		
+C-X004:256		
+C-X004:257		

Terminal	Page .Col.	Opt.
+C-X004:258		
+C-X004:259		
+C-X004:260		
+C-X004:261		
+C-X004:262		
+C-X004:263		
+C-X004:264		
+C-X004:265		
+C-X004:266		
+C-X004:267		
+C-X004:268		
+C-X004:269		
+C-X004:270		
+C-X004:271		
+C-X004:E1	5 .2	
+C-X004:E2	5 .4	
+C-X004:E3	5 .7	
+C-X004:E4	5 .3	
+C-X004:E5	5 .5	
+C-X004:E6	5 .8	
+C-X004:E7		
+C-X004:E8		
+C-X004:E9		
+C-X004:E10		
+C-X004:E11	16 .4	
+C-X004:E12	29 .8	
+C-X004:E13	18 .1	
+C-X004:E14	11 .1	

Drawing remarks

Tetra Pak	Designer PEPE	Date 11/05/03	Machine TCBP 70-1100 CSA		
	ECM No 146767	Denomination CABINET TERMINAL SUMMARY	Page Type CABINET TERMINAL SUMMARY		
	Company Tetra Pak Carton Ambient AB	Document No. 2611715-0005	Doc. type ELD	Version AD	Page 003

RELEASED

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1 2 3 4 5 6 7 8 9 10

Cabinet terminal summary of 2611715-0003

Terminal	Page .Col.	Opt.
+C-X004:E15	14 .7	
+C-X004:E16	21 .1	
+C-X004:E17	18 .1	
+C-X004:E18		
+C-X004:E19	17 .7	
+C-X004:E20	19 .1	
+C-X004:E21	29 .8	
+C-X004:E22		
+C-X004:E23		
+C-X004:E24		
+C-X004:E25	26 .8	
+C-X004:E26		
+C-X004:E27		
+C-X004:E28		
+C-X004:E29	27 .8	
+C-X004:E30	38 .8	
+C-X004:E31	49 .1	
+C-X004:E32		
+C-X004:E33		
+C-X083.1:0V	47 .2	
+C-X083.1:24L	47 .2	
+C-X083.1:24V	47 .2	
+C-X083.2:1	47 .3	
+C-X083.2:2	47 .3	
+C-X083.2:3	47 .3	
+C-X083.2:4	47 .3	
+C-X083.2:5	47 .3	
+C-X084.IN:0	47 .9	

Terminal	Page .Col.	Opt.
+C-X084.IN:0V		
+C-X084.IN:1	47 .9	
+C-X084.IN:2	47 .9	
+C-X084.IN:3	47 .9	
+C-X084.IN:4	47 .9	
+C-X084.IN:5	47 .9	
+C-X084.IN:6	47 .9	
+C-X084.IN:7	47 .9	
+C-X084.IN:8	47 .9	
+C-X084.IN:9	47 .9	
+C-X084.IN:24V		
+C-X084.OUT:0	47 .9	
+C-X084.OUT:0V	47 .9	
+C-X084.OUT:1	47 .9	
+C-X084.OUT:2	47 .9	
+C-X084.OUT:3		
+C-X084.OUT:4		
+C-X084.OUT:5		
+C-X084.OUT:6		
+C-X084.OUT:7	47 .9	
+C-X084.OUT:24V	47 .9	
+C-X085.IN:0	47 .6	
+C-X085.IN:0V		
+C-X085.IN:1	47 .6	
+C-X085.IN:2	47 .6	
+C-X085.IN:3	47 .6	
+C-X085.IN:4	47 .6	
+C-X085.IN:5	47 .6	

Terminal	Page .Col.	Opt.
+C-X085.IN:6	47 .6	
+C-X085.IN:7	47 .6	
+C-X085.IN:8	47 .6	
+C-X085.IN:9	47 .6	
+C-X085.IN:24V		
+C-X085.OUT:0	47 .6	
+C-X085.OUT:0V	47 .6	
+C-X085.OUT:1	47 .6	
+C-X085.OUT:2	47 .6	
+C-X085.OUT:3	47 .6	
+C-X085.OUT:4	47 .6	
+C-X085.OUT:5		
+C-X085.OUT:6		
+C-X085.OUT:7		
+C-X085.OUT:24V	47 .6	
+C-X090:1	50 .3	
+C-X090:2	50 .3	
+C-X090:3	50 .3	
+C-X090:4		
+C-X090:5	50 .3	
+C-X090:6	50 .3	
+C-X090:7	50 .3	
+C-X090:8	50 .3	
+C-X090:9	50 .3	
+C-X090:10	50 .3	
+C-X090:E1	50 .2	
+C-X090:E2	50 .2	
+C-X090:E3	50 .2	

Terminal	Page .Col.	Opt.
+C-X090:E4	50 .2	
+C-X090:E5	50 .3	
+C-X090:E6	50 .3	

Drawing remarks

Tetra Pak	Designer PEPE	Date 11/05/03	Machine TCBP 70-1100 CSA		
	ECM No 146767	Denomination CABINET TERMINAL SUMMARY	Page Type CABINET TERMINAL SUMMARY		
	Company Tetra Pak Carton Ambient AB	Document No. 2611715-0005	Doc. type ELD	Version AD	Page 004

7 Terminal strip overview

Description

All terminals used in the equipment except for those in the electrical cabinet are listed in this chapter.

Terminal strip overview . . . . . .2611715-0006 ELD 001 AD
. . . . . .2611715-0006 ELD 002 AD
. . . . . .2611715-0006 ELD 003 AD
. . . . . .2611715-0006 ELD 004 AD
. . . . . .2611715-0006 ELD 005 AD
. . . . . .2611715-0006 ELD 006 AD
. . . . . .2611715-0006 ELD 007 AD
. . . . . .2611715-0006 ELD 008 AD
. . . . . .2611715-0006 ELD 009 AD
. . . . . .2611715-0006 ELD 010 AD
. . . . . .2611715-0006 ELD 011 AD
. . . . . .2611715-0006 ELD 012 AD
. . . . . .2611715-0006 ELD 013 AD
. . . . . .2611715-0006 ELD 014 AD
. . . . . .2611715-0006 ELD 015 AD
. . . . . .2611715-0006 ELD 016 AD
. . . . . .2611715-0006 ELD 017 AD

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1 2 3 4 5 6 7 8 9 10

Terminal strip of 2611715-0003
+P-X010

From	Cable	Internal Jumper	Terminal	External Jumper	Cable	To	Page.Col.	Option	Function text
			E1			+C-J268:	39 .3		PANEL DOOR
+C-X004:43	-W120 :1		1			+P-A071:1	39 .3		PUSH BUTTON BOARD
+C-X004:44	-W120 :2		2			+P-A071:2	13 .6		PUSH BUTTON BOARD
+C-X004:45	-W120 :3		3			+P-A071:3	13 .6		PUSH BUTTON BOARD
+C-X004:46	-W120 :4		4			+P-A071:4	13 .6		PUSH BUTTON BOARD
+C-X004:47	-W120 :5		5			+P-A071:5	13 .6		PUSH BUTTON BOARD
+C-X004:48	-W120 :6		6			+P-A071:8	14 .6		PUSH BUTTON BOARD
+C-X004:49	-W120 :7		7			+P-A071:9	14 .6		PUSH BUTTON BOARD
+C-X004:50	-W120 :8		8			+P-A071:10	14 .6		PUSH BUTTON BOARD
+C-X004:51	-W120 :9		9			+P-A071:11	14 .6		PUSH BUTTON BOARD
+C-X004:52	-W120 :10		10			+P-S001:11	11 .9		EMERGENCY STOP
+C-X004:53	-W120 :11		11			+P-S001:12	11 .9		EMERGENCY STOP
+C-X004:54	-W120 :12		12			+P-A072:K1:17	41 .3		MULTIPLEXOR BOARD
+C-X004:55	-W120 :13		13			+P-A072:K1:18	41 .3		MULTIPLEXOR BOARD
+C-X004:56	-W120 :14		14			+P-A072:K1:19	41 .3		MULTIPLEXOR BOARD
+C-X004:57	-W120 :15		15			+P-A072:K1:20	41 .3		MULTIPLEXOR BOARD
+C-X004:58	-W120 :16		16			+P-A071:59	41 .7		PUSH BUTTON BOARD
+C-X004:59	-W120 :17		17			+P-S001:21	11 .9		EMERGENCY STOP
+C-X004:60	-W120 :18		18			+P-S001:22	11 .9		EMERGENCY STOP
+C-X004:40	-W120 :19		19			+P-A071:6	14 .6		PUSH BUTTON BOARD
+C-X004:41	-W120 :20		20			+P-A071:16	22 .6		PUSH BUTTON BOARD
+C-X004:42	-W120 :21		21			+P-A071:12	22 .6		PUSH BUTTON BOARD
+C-X004:64	-W120 :22		22			+P-A071:26	37 .3		PUSH BUTTON BOARD
+C-X004:65	-W120 :23		23			+P-A071:27	37 .3		PUSH BUTTON BOARD
+C-X004:161	-W120 :24		24			+P-H060:+	37 .3		LOW SPEED IN MACHINE
+C-X004:162	-W120 :25		25			+P-H061:+	37 .3		HIGH SPEED
+C-X004:163	-W120 :26		26			+P-A071:13	22 .6		PUSH BUTTON BOARD
+C-X004:E15	-W120 :GNYE		E2			+C-J292:	14 .6		PANEL

Drawing remarks

Tetra Pak	Designer PEPE	Date 11/05/03	Machine TCBP 70-1100 CSA		
	ECM No 146767	Denomination TERMINAL STRIP OVERVIEW	Page Type Terminal diagram: +P-X010 (E1 - E2)		
	Company Tetra Pak Carton Ambient AB	Document No. 2611715-0006	Doc. type ELD	Version AD	Page 001

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1 2 3 4 5 6 7 8 9 10

Terminal strip of 2611715-0003
+M-X101

From	Cable	Internal Jumper	Terminal	External Jumper	Cable	To	Page.Col.	Option	Function text
+C-X004:11	-W114 :1		1		-W140 :RD	+M-B117:RD	16 .3		ANGEL ENCODER FEEDING MOTOR
+C-X004:12	-W114 :2		2		-W140 :BU	+M-B117:BU	16 .3		ANGEL ENCODER FEEDING MOTOR
+C-X004:13	-W114 :3		3		-W140 :WH	+M-B117:WH	16 .3		ANGEL ENCODER FEEDING MOTOR
+C-X004:14	-W114 :4		4		-W140 :BN	+M-B117:BN	16 .3		ANGEL ENCODER FEEDING MOTOR
+C-X004:15	-W114 :5		5		-W140 :GN	+M-B117:GN	16 .3		ANGEL ENCODER FEEDING MOTOR
+C-X004:16	-W114 :6		6		-W140 :YE	+M-B117:YE	16 .3		ANGEL ENCODER FEEDING MOTOR
+C-X004:17	-W114 :7		7		-W140 :GY	+M-B117:GY	16 .3		ANGEL ENCODER FEEDING MOTOR
+C-X004:18	-W114 :8		8		-W140 :PK	+M-B117:PK	16 .3		ANGEL ENCODER FEEDING MOTOR
+C-X004:19	-W114 :9		9		-W140 :BK	+M-B117:BK	16 .3		ANGEL ENCODER FEEDING MOTOR
+C-X004:20	-W114 :10		10		-W140 :GY-PK	+M-B117:GY-PK	16 .3		ANGEL ENCODER FEEDING MOTOR
+C-X004:E11	-W114 :GNYE		E1				16 .3		
+C-X004:21	-W115 :1		11		-W141 :BK	+M-B113:	18 .6		BLANK IN PACK POS.
+C-X004:22	-W115 :2		12		-W141 :BN	+M-B113:	18 .2		BLANK IN PACK POS.
+C-X004:23	-W115 :3		13		-W141 :BU	+M-B113:	18 .2		BLANK IN PACK POS.
+C-X004:24	-W115 :4		14		-W142 :3	+M-R101:2	18 .6		HOTMELT UNIT
			15		-W142 :2	+M-R101:1	18 .2		HOTMELT UNIT
			16		-W142 :1	+M-R101:9	18 .2		HOTMELT UNIT
+C-X004:25	-W115 :5		17		-W142 :4	+M-R101:4	21 .6		HOTMELT UNIT
+C-X004:26	-W115 :6		18		-W142 :5	+M-R101:8	34 .4		HOTMELT UNIT
+C-X004:E13	-W115 :GNYE		E2				18 .2		
+C-X004:27	-W115 :7		19		-W142 :6	+M-R101:10	34 .4		HOTMELT UNIT
			20						
			21						
			22						
+C-X004:28	-W115 :8		23				18 .2		
+C-X004:30	-W116 :1		24		-W147 :1	+M-Y120:1	26 .3		HOTMELTGUN LOWER LEFT
+C-X004:31	-W116 :2		25		-W147 :2	+M-Y120:2	26 .6		HOTMELTGUN LOWER LEFT
			E3		-W147 :GNYE	+M-Y120:E	26 .6		HOTMELTGUN LOWER LEFT
+C-X004:32	-W116 :3		26		-W148 :1	+M-Y122:1	29 .3		HOTMELTGUN UPPER LEFT
			27		-W148 :2	+M-Y122:2	29 .7		HOTMELTGUN UPPER LEFT

Drawing remarks

Tetra Pak

Designer: PEPE	Date: 11/05/03	Machine: TCBP 70-1100 CSA	
ECM No: 146767	Denomination: TERMINAL STRIP OVERVIEW	Page Type: Terminal diagram: +M-X101 (1 - 27)	
Company: Tetra Pak Carton Ambient AB	Document No.: 2611715-0006	Doc. type: ELD	Version: AD / Page: 002

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1 2 3 4 5 6 7 8 9 10

Terminal strip of 2611715-0003
+M-X101

From	Cable	Internal Jumper	Terminal	External Jumper	Cable	To	Page.Col.	Option	Function text
+C-X004:33	-W116 :4		28		-W149 :1	+M-Y121:1	26 .3		HOTMELTGUN LOWER RIGHT
			E4		-W149 :GNYE	+M-Y121:E	26 .6		HOTMELTGUN LOWER RIGHT
			29		-W149 :2	+M-Y121:2	26 .6		HOTMELTGUN LOWER RIGHT
+C-X004:34	-W116 :5		30		-W150 :1	+M-Y123:1	29 .3		HOTMELT UPPER GUN RIGHT
+C-X004:E12	-W116 :GNYE		E6		-W150 :GNYE	+M-Y123:E	29 .7		HOTMELT UPPER GUN RIGHT
			31		-W150 :2	+M-Y123:2	29 .7		HOTMELT UPPER GUN RIGHT
			E7		-W148 :GNYE	+M-Y122:E	29 .7		HOTMELTGUN UPPER LEFT

Drawing remarks

Tetra Pak

Designer PEPE	Date 11/05/03	Machine TCBP 70-1100 CSA	
ECM No 146767	Denomination TERMINAL STRIP OVERVIEW	Page Type Terminal diagram: +M-X101 (28 - E7)	
Company Tetra Pak Carton Ambient AB	Document No. 2611715-0006	Doc. type ELD	Version AD / Page 003

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Terminal strip of 2611715-0003
+M-X102

From	Cable	Internal Jumper	Terminal	External Jumper	Cable	To	Page.Col.	Option	Function text
			31						
			32						
			33						
			34						
+C-X004:252	-W121:18		35		-W601:1	+M-X130:1	17.6		
			36		-W601:2	+M-X130:2	17.3		
			37		-W601:3	+M-X130:3	17.3		
+C-X004:251	-W121:17		38		-W601:4	+M-X130:4	21.6		
			39				21.2		
			40				21.2		
+C-X004:253	-W121:19		41		-W601:5	+M-X130:7	21.6		
			42				21.2		
			43				21.2		
+C-X004:254	-W121:20		44		-W601:6	+M-X130:10	21.6		
			45				21.2		
			46				21.2		
+C-X004:E19	-W121:GNYE		E1				17.6		

Tetra Pak

Designer PEPE
ECM No. 146767
Date 11/05/03
Machine TCBP 70-1100 CSA
Page Type
Denomination TERMINAL STRIP OVERVIEW
Terminal diagram: +M-X102 (31 - E1)
Company Tetra Pak Carton Ambient AB
Document No. 2611715-0006
Doc. type ELD
Version AD
Page 005
Drawing remarks

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1 2 3 4 5 6 7 8 9 10

Terminal strip of 2611715-0003
+M-X103

From	Cable	Internal Jumper	Terminal	External Jumper	Cable	To	Page.Col.	Option	Function text
+C-X004:79	-W122 :1		1		-W161 :BN	+M-B903.1:	19 .2		MIN QUEUE INTO GR. SEC.
+C-X004:80	-W122 :2		2		-W161 :BU	+M-B903.1:	19 .2		MIN QUEUE INTO GR. SEC.
+C-X004:81	-W122 :3		3		-W162 :BK	+M-B903.2:	19 .6		MIN QUEUE INTO GR. SEC.
			4		-W162 :BN	+M-B903.2:	19 .2		MIN QUEUE INTO GR. SEC.
			5		-W162 :BU	+M-B903.2:	19 .2		MIN QUEUE INTO GR. SEC.
			6		-W163 :BN	+M-B904.1:	19 .2		FALLEN PACKAGE
			7		-W163 :BU	+M-B904.1:	19 .2		FALLEN PACKAGE
+C-X004:82	-W122 :4		8		-W164 :BK	+M-B904.2:	19 .6		FALLEN PACKAGE
			9		-W164 :BN	+M-B904.2:	19 .2		FALLEN PACKAGE
			10		-W164 :BU	+M-B904.2:	19 .2		FALLEN PACKAGE
+C-X004:83	-W122 :5		11		-W257 :1	+M-S116:14	31 .6		GROUP.PUSHER HOME SELECT
			12		-W257 :2	+M-S116:13	31 .3		GROUP.PUSHER HOME SELECT
			13				19 .2		
+C-X004:84	-W122 :6		14		-W257 :3	+M-H062:1	36 .3		GROUPING PUSHER HOME SELECT OK
			15				19 .2		
			16		-W257 :4	+M-H062:2	19 .2		GROUPING PUSHER HOME SELECT OK
+C-X004:85	-W122 :7		17				19 .6		
			18				19 .2		
			19				19 .2		
+C-X004:86	-W122 :8		20		-W250 :GY	+M-B137:	19 .6		GROUPING PHOTOCELL
			21		-W250 :RD	+M-B137:	19 .2		GROUPING PHOTOCELL
			22		-W250 :BU	+M-B137:	19 .2		GROUPING PHOTOCELL
+C-X004:87	-W122 :9		23		-W256 :BK	+M-B160:	31 .6		PACKAGE SEPARAT. OUT
			24		-W256 :BN	+M-B160:	31 .3		PACKAGE SEPARAT. OUT
			25		-W256 :BU	+M-B160:	31 .3		PACKAGE SEPARAT. OUT
+C-X004:88	-W122 :10		26		-W170 :BK	+M-B140:	20 .6		GROUP. END STOP INNER POS.
			27		-W170 :BN	+M-B140:	20 .2		GROUP. END STOP INNER POS.
			28		-W170 :BU	+M-B140:	20 .2		GROUP. END STOP INNER POS.
+C-X004:89	-W122 :11		29		-W171 :BK	+M-B141:	20 .6		STOP ARM UPPER POS.
			30		-W171 :BN	+M-B141:	20 .2		STOP ARM UPPER POS.

Drawing remarks

Tetra Pak

Designer PEPE	Date 11/05/03	Machine TCBP 70-1100 CSA	
ECM No 146767	Denomination TERMINAL STRIP OVERVIEW	Page Type Terminal diagram: +M-X103 (1 - 30)	
Company Tetra Pak Carton Ambient AB	Document No. 2611715-0006	Doc. type ELD	Version AD	Page 006

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1 2 3 4 5 6 7 8 9 10

Terminal strip of 2611715-0003
+M-X103

From	Cable	Internal Jumper	Terminal	External Jumper	Cable	To	Page.Col.	Option	Function text
			31		-W171 :BU	+M-B141:	20 .2		STOP ARM UPPER POS.
			E1		-W910 :GNYE	+M-X905:E1	20 .2		
+C-X004:90	-W122 :12		32		-W172 :BK	+M-B142:	20 .6		DOLLY 1ST STROKE POS.
			33		-W172 :BN	+M-B142:	20 .2		DOLLY 1ST STROKE POS.
			34		-W172 :BU	+M-B142:	20 .2		DOLLY 1ST STROKE POS.
+C-X004:91	-W122 :13		35		-W173 :BK	+M-B143:	20 .6		GUIDE RAIL LOWER POS.
			36		-W173 :BN	+M-B143:	20 .2		GUIDE RAIL LOWER POS.
			37		-W173 :BU	+M-B143:	20 .2		GUIDE RAIL LOWER POS.
+C-X004:92	-W122 :14		38		-W174 :BK	+M-B144:	20 .6		CRUSH GUARD GROUP.SECTION
			39		-W174 :BN	+M-B144:	20 .2		CRUSH GUARD GROUP.SECTION
			40		-W174 :BU	+M-B144:	20 .2		CRUSH GUARD GROUP.SECTION
+C-X004:93	-W122 :15		41		-W910 :1	+M-X905:3	20 .6		
			42		-W910 :2	+M-X905:4	20 .2		
			43		-W910 :3	+M-X905:5	20 .2		
+C-X004:94	-W122 :16		44		-W198 :1	+M-Y130.1:1	27 .3		EJECTOR BLANKS BLOW
			45		-W198 :2	+M-Y130.1:2	27 .7		EJECTOR BLANKS BLOW
			46		-W199 :1	+M-Y131.1:1	27 .3		EJECTOR BLANKS BLOW
			47		-W199 :2	+M-Y131.1:2	27 .7		EJECTOR BLANKS BLOW
+C-X004:95	-W122 :17		48		-W200 :1	+M-Y130.2:1	27 .3		EJCTOR BLANKS.VACUUM
			49		-W200 :2	+M-Y130.2:2	27 .7		EJCTOR BLANKS.VACUUM
			50		-W201 :1	+M-Y131.2:1	27 .3		EJCTOR BLANKS.VACUUM
			51		-W201 :2	+M-Y131.2:2	27 .7		EJCTOR BLANKS.VACUUM
			52						
			53						
			54						
			55						
			56						
			57						
			58						
			59						

Drawing remarks

Tetra Pak	Designer PEPE	Date 11/05/03	Machine TCBP 70-1100 CSA		
	ECM No 146767	Denomination TERMINAL STRIP OVERVIEW	Page Type Terminal diagram: +M-X103 (31 - 59)		
	Company Tetra Pak Carton Ambient AB	Document No. 2611715-0006	Doc. type ELD	Version AD	Page 007

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Terminal strip of 2611715-0003

+M-X103

From	Cable	Internal Jumper	Terminal	External Jumper	Cable	To	Page.Col.	Option	Function text
			60						
+C-X004:E20	-W122:GNYE		E2				19 .2		
			E3		-W257:GNYE	+C-J289:	31 .6		

Tetra Pak

Designer PEPE | Date 11/05/03 | Machine TCBP 70-1100 CSA

ECM No 146767 | Denomination TERMINAL STRIP OVERVIEW | Page Type Terminal diagram: +M-X103 (60 - E3)

Company Tetra Pak Carton Ambient AB | Document No. 2611715-0006 | Doc. type ELD | Version AD | Page 008

Drawing remarks

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1 2 3 4 5 6 7 8 9 10

Terminal strip of 2611715-0003
+M-X104

From	Cable	Internal Jumper	Terminal	External Jumper	Cable	To	Page.Col.	Option	Function text
+C-X004:36	-W134 :1		1		-W212 :1	+M-B101:21	11 .2		DOOR BASE MACHINE
+C-X004:37	-W134 :2		2		-W212 :2	+M-B101:11	11 .2		DOOR BASE MACHINE
			3		-W212 :3	+M-B101:12	11 .3		DOOR BASE MACHINE
			4		-W212 :4	+M-B101:22	11 .3		DOOR BASE MACHINE
			5		-W213 :1	+M-B102:21	11 .4		DOOR BASE MACHINE
			6		-W213 :2	+M-B102:11	11 .4		DOOR BASE MACHINE
			7		-W213 :3	+M-B102:12	11 .5		DOOR BASE MACHINE
			8		-W213 :4	+M-B102:22	11 .5		DOOR BASE MACHINE
			9		-W214 :1	+M-B103:21	11 .6		DOOR BASE MACHINE
			10		-W214 :2	+M-B103:11	11 .6		DOOR BASE MACHINE
			11		-W214 :3	+M-B103:12	11 .7		DOOR BASE MACHINE
			12		-W214 :4	+M-B103:22	11 .7		DOOR BASE MACHINE
			13		-W215 :1	+M-B104:21	11 .8		DOOR BASE MACHINE
			14		-W215 :2	+M-B104:11	11 .8		DOOR BASE MACHINE
			15		-W215 :3	+M-B104:12	11 .9		DOOR BASE MACHINE
			16		-W215 :4	+M-B104:22	11 .9		DOOR BASE MACHINE
			17		-W216 :1	+M-B105:21	11 .2		DOOR INFEED
			18		-W216 :2	+M-B105:11	11 .2		DOOR INFEED
			19		-W216 :3	+M-B105:12	11 .3		DOOR INFEED
			20		-W216 :4	+M-B105:22	11 .3		DOOR INFEED
			21		-W217 :1	+M-B106:21	11 .4		DOOR INFEED
			22		-W217 :2	+M-B106:11	11 .4		DOOR INFEED
			23		-W217 :3	+M-B106:12	11 .5		DOOR INFEED
			24		-W217 :4	+M-B106:22	11 .5		DOOR INFEED
			25		-W218 :1	+M-B107:21	11 .6		DOOR INFEED
			26		-W218 :2	+M-B107:11	11 .6		DOOR INFEED
			27		-W218 :3	+M-B107:12	11 .7		DOOR INFEED
			28		-W218 :4	+M-B107:22	11 .7		DOOR INFEED
			29		-W219 :1	+M-B108:21	11 .8		DOOR INFEED
			30		-W219 :2	+M-B108:11	11 .8		DOOR INFEED

Drawing remarks

Tetra Pak

Designer PEPE	Date 11/05/03	Machine TCBP 70-1100 CSA	
ECM No 146767	Denomination TERMINAL STRIP OVERVIEW	Page Type Terminal diagram: +M-X104 (1 - 30)	
Company Tetra Pak Carton Ambient AB	Document No. 2611715-0006	Doc. type ELD	Version AD / Page 009

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Terminal strip of 2611715-0003

+M-X104

From	Cable	Internal Jumper	Terminal	External Jumper	Cable	To	Page.Col.	Option	Function text
			31		-W219:3	+M-B108:12	11.9		DOOR INFEED
			32		-W219:4	+M-B108:22	11.9		DOOR INFEED
			33		-W220:1	+M-B109:21	11.2		DOOR INFEED
			34		-W220:2	+M-B109:11	11.2		DOOR INFEED
+C-X004:38	-W134:3		35		-W220:3	+M-B109:12	11.3		DOOR INFEED
+C-X004:39	-W134:4		36		-W220:4	+M-B109:22	11.3		DOOR INFEED
+C-X004:E14	-W134:GNYE		E1				11.2		

Tetra Pak

Designer PEPE | Date 11/05/03 | Machine TCBP 70-1100 CSA

ECM No 146767 | Denomination TERMINAL STRIP OVERVIEW | Page Type Terminal diagram: +M-X104 (31 - E1)

Company Tetra Pak Carton Ambient AB | Document No. 2611715-0006 | Doc. type ELD | Version AD | Page 010

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Date

Machine TCBP 70-1100 CSA

ECM No.

Denomination

Terminal diagram: +M-X106 (1 - E3)

Company
Tetra Pak Carton Ambient AB

Doc. type
2611715-0006

Page
011

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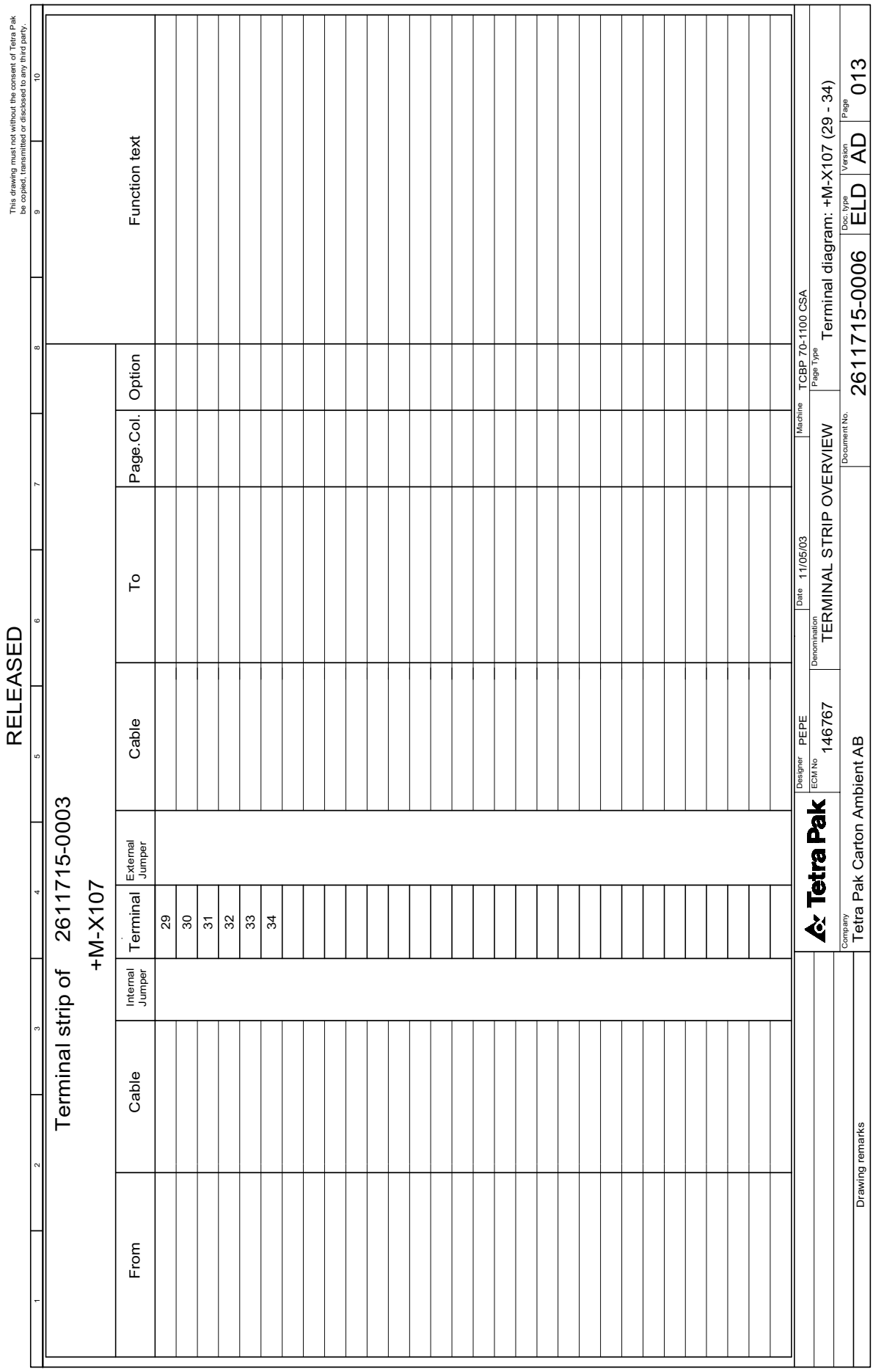
Terminal strip of 2611715-0003
+M-X107

From	Cable	Internal Jumper	Terminal	External Jumper	Cable	To	Page.Col.	Option	Function text
+C-X004:112	-W129 :1		1				18 .6		
+C-X004:113	-W129 :2		2		-W176 :BN	+M-B112.1:	18 .2		QUEUE DISCHARGE AREA
+C-X004:114	-W129 :3		3		-W176 :BU	+M-B112.1:	18 .2		QUEUE DISCHARGE AREA
			4		-W177 :BK	+M-B112.2:	18 .6		QUEUE DISCHARGE AREA
			5		-W177 :BN	+M-B112.2:	18 .2		QUEUE DISCHARGE AREA
			6		-W177 :BU	+M-B112.2:	18 .2		QUEUE DISCHARGE AREA
+C-X004:115	-W129 :4		7				18 .6		
			8		-W178 :BN	+M-B908.1:	18 .2		PASSAGE INDIC.
			9		-W178 :BU	+M-B908.1:	18 .2		PASSAGE INDIC.
			10		-W179 :BK	+M-B908.2:	18 .6		PASSAGE INDIC.
			11		-W179 :BN	+M-B908.2:	18 .2		PASSAGE INDIC.
			12		-W179 :BU	+M-B908.2:	18 .2		PASSAGE INDIC.
+C-X004:E17	-W129 :GNYE		E1				18 .2		
			13						
			14						
+C-X004:118	-W130 :1		15		-W182 :1	+M-Y908:1	26 .3		OUTFEED CONV.STOP
+C-X004:119	-W130 :2		16		-W182 :2	+M-Y908:2	26 .6		OUTFEED CONV.STOP
+C-X004:E25	-W130 :GNYE		E2		-W182 :GNYE	+M-Y908:E	26 .6		OUTFEED CONV.STOP
+C-X004:247	-W139 :1		17		-W180 :1	+M-B111:21	11 .6		DOOR DISCHARGE CONV
+C-X004:248	-W139 :2		18		-W180 :2	+M-B111:11	11 .6		DOOR DISCHARGE CONV
+C-X004:249	-W139 :3		19		-W180 :4	+M-B111:12	11 .7		DOOR DISCHARGE CONV
+C-X004:250	-W139 :4		20		-W180 :3	+M-B111:22	11 .7		DOOR DISCHARGE CONV
+C-X004:116	-W129 :5		21		-W143 :BK	+M-B907:	32 .5		QUEUE DISCHARGE CONVEYOR
			22		-W143 :BN	+M-B907:	32 .3		QUEUE DISCHARGE CONVEYOR
			23		-W143 :BU	+M-B907:	32 .3		QUEUE DISCHARGE CONVEYOR
			24						
			25						
			26						
			27						
			28						

Drawing remarks

Tetra Pak

Designer PEPE	Date 11/05/03	Machine TCBP 70-1100 CSA	
ECM No 146767	Denomination TERMINAL STRIP OVERVIEW	Page Type Terminal diagram: +M-X107 (1 - 28)	
Company Tetra Pak Carton Ambient AB	Document No. 2611715-0006	Doc. type ELD	Version AD	Page 012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Terminal strip of 2611715-0003
+M-X107
From
Cable
Internal Jumper
Terminal
External Jumper
Cable
To
Page.Col.
Option
Function text
29
30
31
32
33
34
Tetra Pak
Designer PEPE
ECM No. 146767
Date 11/05/03
Denomination TERMINAL STRIP OVERVIEW
Machine TCBP 70-1100 CSA
Page Type Terminal diagram: +M-X107 (29 - 34)
Company Tetra Pak Carton Ambient AB
Document No. 2611715-0006
Doc. type ELD
Version AD
Page 013
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Terminal strip of 2611715-0003

+M-X120

From	Cable	Internal Jumper	Terminal	External Jumper	Cable	To	Page.Col.	Option	Function text
			E1						
+C-X004:225	-W260:1		1		-W261:BN	+M-B170.1:7	49 .3		LIGHT BARRIER EMITTER
+C-X004:226	-W260:2		2		-W261:BU	+M-B170.1:2	49 .3		LIGHT BARRIER EMITTER
			3		-W261:WH	+M-B170.1:1	49 .1		LIGHT BARRIER EMITTER
			4		-W261:GY	+M-B170.1:5	49 .1		LIGHT BARRIER EMITTER
			5		-W261:PK	+M-B170.1:6	49 .1		LIGHT BARRIER EMITTER
			6		-W262:BN	+M-B170.2:7	49 .6		LIGHT BARRIER RECIEVER
			7		-W262:BU	+M-B170.2:2	49 .6		LIGHT BARRIER RECIEVER
			8		-W262:WH	+M-B170.2:1	49 .5		LIGHT BARRIER RECIEVER
			9		-W262:GY	+M-B170.2:5	49 .5		LIGHT BARRIER RECIEVER
			10		-W262:PK	+M-B170.2:6	49 .5		LIGHT BARRIER RECIEVER
+C-X004:227	-W260:3		11		-W262:YE	+M-B170.2:4	49 .5		LIGHT BARRIER RECIEVER
+C-X004:228	-W260:4		12				49 .5		
			13				49 .7		
			14				49 .7		
+C-X004:229	-W260:5		15		-W264:GY	+M-B171:	49 .9		BOX IN LB.
			16		-W264:RD	+M-B171:	49 .7		BOX IN LB.
			17		-W264:BU	+M-B171:	49 .7		BOX IN LB.
+C-X004:E31	-W260:GNYE		E2				49 .3		
+C-X004:230	-W260:6		18		-W262:GN	+M-B170.2:3	49 .5		LIGHT BARRIER RECIEVER
			19						
			20						
			21						
			22						
			E3						

Tetra Pak

Designer PEPE | Date 11/05/03 | Machine TCBP 70-1100 CSA

ECM No 146767 | Denomination TERMINAL STRIP OVERVIEW | Page Type Terminal diagram: +M-X120 (E1 - E3)

Company Tetra Pak Carton Ambient AB | Document No. 2611715-0006 | Doc. type ELD | Version AD | Page 014

Drawing remarks

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1 2 3 4 5 6 7 8 9 10

Terminal strip of 2611715-0003
+M-X130

From	Cable	Internal Jumper	Terminal	External Jumper	Cable	To	Page.Col.	Option	Function text
+M-X102:35	-W601 :1		1		-W252 :BK	+M-B147:	17 .5		PUSHER ARM UPPER POS.
+M-X102:36	-W601 :2		2		-W252 :BN	+M-B147:	17 .3		PUSHER ARM UPPER POS.
+M-X102:37	-W601 :3		3		-W252 :BU	+M-B147:	17 .3		PUSHER ARM UPPER POS.
+M-X102:38	-W601 :4		4		-W251 :BK	+M-B146:	21 .5		PUSHER ARM DOWN POS.
			5		-W251 :BN	+M-B146:	21 .3		PUSHER ARM DOWN POS.
			6		-W251 :BU	+M-B146:	21 .3		PUSHER ARM DOWN POS.
+M-X102:41	-W601 :5		7		-W253 :BK	+M-B148:	21 .5		PUSHER SUPPORT ARM UP POS.
			8		-W253 :BN	+M-B148:	21 .3		PUSHER SUPPORT ARM UP POS.
			9		-W253 :BU	+M-B148:	21 .3		PUSHER SUPPORT ARM UP POS.
+M-X102:44	-W601 :6		10		-W254 :BK	+M-B149:	21 .5		PUSHER SUPPORT ARM DOWN POS.
			11		-W254 :BN	+M-B149:	21 .3		PUSHER SUPPORT ARM DOWN POS.
			12		-W254 :BU	+M-B149:	21 .3		PUSHER SUPPORT ARM DOWN POS.

Drawing remarks

Tetra Pak

Designer	Date	Machine
PEPE	11/05/03	TCBP 70-1100 CSA

ECM No	Denomination	Page Type
146767	TERMINAL STRIP OVERVIEW	Terminal diagram: +M-X130 (1 - 12)

Company	Document No.	Doc. type	Version	Page
Tetra Pak Carton Ambient AB	2611715-0006	ELD	AD	015

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1 2 3 4 5 6 7 8 9 10

Terminal strip of 2611715-0003
+M-X901

From	Cable	Internal Jumper	Terminal	External Jumper	Cable	To	Page.Col.	Option	Function text
+C-X004:200	-W901 :1		1A		-W902 :BN	+M-B901.1:	21 .2		EXTERNAL CONV. BRAKE
+C-X004:199	-W901 :2		1				21 .6		
+C-X004:201	-W901 :3		1B		-W902 :BU	+M-B901.1:	21 .2		EXTERNAL CONV. BRAKE
			2A		-W903 :BN	+M-B901.2:	21 .2		EXTERNAL CONV. BRAKE
			2		-W903 :BK	+M-B901.2:	21 .6		EXTERNAL CONV. BRAKE
			2B		-W903 :BU	+M-B901.2:	21 .2		EXTERNAL CONV. BRAKE
			3A		-W904 :BN	+M-B902.1:	21 .2		EXTERNAL CONV. BRAKE
+C-X004:202	-W901 :4		3				21 .6		
			3B		-W904 :BU	+M-B902.1:	21 .2		EXTERNAL CONV. BRAKE
			4A		-W905 :BN	+M-B902.2:	21 .2		EXTERNAL CONV. BRAKE
			4		-W905 :BK	+M-B902.2:	21 .6		EXTERNAL CONV. BRAKE
			4B		-W905 :BU	+M-B902.2:	21 .2		EXTERNAL CONV. BRAKE
			5A				21 .2		
+C-X004:203	-W901 :5		5		-W906 :1	+M-Y901:1	27 .3		EXTERNAL BRAKE
+C-X004:204	-W901 :6		5B		-W906 :2	+M-Y901:2	27 .7		EXTERNAL BRAKE
+C-X004:E29	-W901 :GNYE		E1		-W906 :GNYE	+M-Y901:E	27 .7		EXTERNAL BRAKE

Drawing remarks

Tetra Pak

Designer PEPE	Date 11/05/03	Machine TCBP 70-1100 CSA	
ECM No 146767	Denomination TERMINAL STRIP OVERVIEW	Page Type Terminal diagram: +M-X901 (1A - E1)	
Company Tetra Pak Carton Ambient AB	Document No. 2611715-0006	Doc. type ELD	Version AD	Page 016

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1 2 3 4 5 6 7 8 9 10

Terminal strip of 2611715-0003
+M-X905

From	Cable	Internal Jumper	Terminal	External Jumper	Cable	To	Page.Col.	Option	Function text
			1						
			2						
+M-X103:41	-W910 :1		3		-W175 :BK	+M-B905:	20 .4		PACK. ON INFEED CONVEYOR
+M-X103:42	-W910 :2		4		-W175 :BN	+M-B905:	20 .3		PACK. ON INFEED CONVEYOR
+M-X103:43	-W910 :3		5		-W175 :BU	+M-B905:	20 .3		PACK. ON INFEED CONVEYOR
+M-X103:E1	-W910 :GNYE		E1				20 .3		

Drawing remarks

Tetra Pak	Designer PEPE	Date 11/05/03	Machine TCBP 70-1100 CSA		
	ECM No 146767	Denomination TERMINAL STRIP OVERWIEW	Page Type Terminal diagram: +M-X905 (1 - E1)		
	Company Tetra Pak Carton Ambient AB	Document No. 2611715-0006	Doc. type ELD	Version AD	Page 017

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8 Cable connection list

Description

All cable connections used in the equipment are listed in this chapter.

Cable connection list . . . . . .2611715-0007 ELD 001 AD
. . . . . .2611715-0007 ELD 002 AD
. . . . . .2611715-0007 ELD 003 AD
. . . . . .2611715-0007 ELD 004 AD
. . . . . .2611715-0007 ELD 005 AD
. . . . . .2611715-0007 ELD 006 AD
. . . . . .2611715-0007 ELD 007 AD
. . . . . .2611715-0007 ELD 008 AD
. . . . . .2611715-0007 ELD 009 AD
. . . . . .2611715-0007 ELD 010 AD
. . . . . .2611715-0007 ELD 011 AD
. . . . . .2611715-0007 ELD 012 AD
. . . . . .2611715-0007 ELD 013 AD

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1 2 3 4 5 6 7 8 9 10

Cable Connection List of 2611715-0003

Cable	Core	From	To	Page.Col.	Option
	RD-BU				
+C-W114	1	+M-X101:1	+C-X004:11	16 .4	
+C-W114	2	+M-X101:2	+C-X004:12	16 .4	
+C-W114	3	+M-X101:3	+C-X004:13	16 .4	
+C-W114	4	+M-X101:4	+C-X004:14	16 .4	
+C-W114	5	+M-X101:5	+C-X004:15	16 .4	
+C-W114	6	+M-X101:6	+C-X004:16	16 .4	
+C-W114	7	+M-X101:7	+C-X004:17	16 .4	
+C-W114	8	+M-X101:8	+C-X004:18	16 .4	
+C-W114	9	+M-X101:9	+C-X004:19	16 .4	
+C-W114	10	+M-X101:10	+C-X004:20	16 .4	
	11				
+C-W114	GNYE	+M-X101:E1	+C-X004:E11	16 .4	
+C-W115	1	+C-X004:21	+M-X101:11	18 .6	
+C-W115	2	+C-X004:22	+M-X101:12	18 .2	
+C-W115	3	+C-X004:23	+M-X101:13	18 .2	
+C-W115	4	+C-X004:24	+M-X101:14	18 .6	
+C-W115	5	+C-X004:25	+M-X101:17	21 .7	
+C-W115	6	+C-X004:26	+M-X101:18	34 .4	
+C-W115	7	+C-X004:27	+M-X101:19	34 .4	
+C-W115	8	+C-X004:28	+M-X101:23	18 .2	
	9				
	10				
	11				
+C-W115	GNYE	+C-X004:E13	+M-X101:E2	18 .2	
+C-W116	1	+C-X004:30	+M-X101:24	26 .3	
+C-W116	2	+C-X004:31	+M-X101:25	26 .8	

Cable	Core	From	To	Page.Col.	Option
+C-W116	3	+C-X004:32	+M-X101:26	29 .3	
+C-W116	4	+C-X004:33	+M-X101:28	26 .3	
+C-W116	5	+C-X004:34	+M-X101:30	29 .3	
	6				
+C-W116	GNYE	+C-X004:E12	+M-X101:E6	29 .8	
+C-W117	1	+C-X004:231	+M-S101:21	11 .2	
+C-W117	2	+C-X004:232	+M-S101:11	11 .2	
+C-W117	3	+C-X004:233	+M-S101:12	11 .3	
+C-W117	4	+C-X004:234	+M-S101:22	11 .3	
	GNYE				
+C-W118	1	+C-X004:235	+M-S102:21	11 .4	
+C-W118	2	+C-X004:236	+M-S102:11	11 .4	
+C-W118	3	+C-X004:237	+M-S102:12	11 .5	
+C-W118	4	+C-X004:238	+M-S102:22	11 .5	
	GNYE				
+C-W119	1	+C-X004:239	+M-S103:21	11 .5	
+C-W119	2	+C-X004:240	+M-S103:11	11 .5	
+C-W119	3	+C-X004:241	+M-S103:12	11 .6	
+C-W119	4	+C-X004:242	+M-S103:22	11 .6	
	GNYE				
+C-W120	1	+C-X004:43	+P-X010:1	39 .3	
+C-W120	2	+C-X004:44	+P-X010:2	13 .7	
+C-W120	3	+C-X004:45	+P-X010:3	13 .7	
+C-W120	4	+C-X004:46	+P-X010:4	13 .7	
+C-W120	5	+C-X004:47	+P-X010:5	13 .7	
+C-W120	6	+C-X004:48	+P-X010:6	14 .7	
+C-W120	7	+C-X004:49	+P-X010:7	14 .7	

Drawing remarks

Tetra Pak

Designer PEPE	Date 11/05/03	Machine TCBP 70-1100 CSA	
ECM No 146767	Denomination CABLE CONNECTION LIST	Page Type CABLE CONNECTION LIST	
Company Tetra Pak Carton Ambient AB	Document No. 2611715-0007	Doc. type ELD	Version AD	Page 002

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1 2 3 4 5 6 7 8 9 10

Cable Connection List of 2611715-0003

Cable	Core	From	To	Page.Col.	Option
+C-W120	8	+C-X004:50	+P-X010:8	14 .7	
+C-W120	9	+C-X004:51	+P-X010:9	14 .7	
+C-W120	10	+C-X004:52	+P-X010:10	11 .9	
+C-W120	11	+C-X004:53	+P-X010:11	11 .9	
+C-W120	12	+C-X004:54	+P-X010:12	41 .3	
+C-W120	13	+C-X004:55	+P-X010:13	41 .3	
+C-W120	14	+C-X004:56	+P-X010:14	41 .3	
+C-W120	15	+C-X004:57	+P-X010:15	41 .3	
+C-W120	16	+C-X004:58	+P-X010:16	41 .8	
+C-W120	17	+C-X004:59	+P-X010:17	11 .9	
+C-W120	18	+C-X004:60	+P-X010:18	11 .9	
+C-W120	19	+C-X004:40	+P-X010:19	14 .7	
+C-W120	20	+C-X004:41	+P-X010:20	22 .7	
+C-W120	21	+C-X004:42	+P-X010:21	22 .7	
+C-W120	22	+C-X004:64	+P-X010:22	37 .3	
+C-W120	23	+C-X004:65	+P-X010:23	37 .3	
+C-W120	24	+C-X004:161	+P-X010:24	37 .3	
+C-W120	25	+C-X004:162	+P-X010:25	37 .3	
+C-W120	26	+C-X004:163	+P-X010:26	22 .7	
	27				
	28				
	29				
	30				
	31				
	32				
	33				
+C-W120	GNYE	+C-X004:E15	+P-X010:E2	14 .7	

Cable	Core	From	To	Page.Col.	Option
+C-W121	1	+C-X004:66	+M-X102:1	17 .7	
+C-W121	2	+C-X004:67	+M-X102:2	17 .3	
+C-W121	3	+C-X004:68	+M-X102:3	17 .3	
+C-W121	4	+C-X004:69	+M-X102:4	17 .7	
+C-W121	5	+C-X004:70	+M-X102:7	17 .7	
+C-W121	6	+C-X004:71	+M-X102:10	17 .7	
+C-W121	7	+C-X004:72	+M-X102:13	17 .7	
+C-W121	8	+C-X004:73	+M-X102:18	17 .7	
+C-W121	9	+C-X004:74	+M-X102:23	17 .7	
+C-W121	10	+C-X004:75	+M-X102:26	31 .6	
+C-W121	11	+C-X004:76	+M-X102:27	31 .6	
+C-W121	12	+C-X004:77	+M-X102:29	33 .3	
	13				
	14				
	15				
	16				
+C-W121	17	+C-X004:251	+M-X102:38	21 .7	
+C-W121	18	+C-X004:252	+M-X102:35	17 .7	
+C-W121	19	+C-X004:253	+M-X102:41	21 .7	
+C-W121	20	+C-X004:254	+M-X102:44	21 .7	
	21				
	22				
	23				
	24				
+C-W121	GNYE	+C-X004:E19	+M-X102:E1	17 .7	
+C-W122	1	+C-X004:79	+M-X103:1	19 .2	
+C-W122	2	+C-X004:80	+M-X103:2	19 .2	

Drawing remarks

Tetra Pak	Designer PEPE	Date 11/05/03	Machine TCBP 70-1100 CSA		
	ECM No 146767	Denomination CABLE CONNECTION LIST	Page Type CABLE CONNECTION LIST		
	Company Tetra Pak Carton Ambient AB	Document No. 2611715-0007	Doc. type ELD	Version AD	Page 003

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1 2 3 4 5 6 7 8 9 10

Cable Connection List of 2611715-0003

Cable	Core	From	To	Page.Col.	Option
+C-W122	3	+C-X004:81	+M-X103:3	19 .6	
+C-W122	4	+C-X004:82	+M-X103:8	19 .6	
+C-W122	5	+C-X004:83	+M-X103:11	31 .6	
+C-W122	6	+C-X004:84	+M-X103:14	36 .3	
+C-W122	7	+C-X004:85	+M-X103:17	19 .6	
+C-W122	8	+C-X004:86	+M-X103:20	19 .6	
+C-W122	9	+C-X004:87	+M-X103:23	31 .6	
+C-W122	10	+C-X004:88	+M-X103:26	20 .7	
+C-W122	11	+C-X004:89	+M-X103:29	20 .7	
+C-W122	12	+C-X004:90	+M-X103:32	20 .7	
+C-W122	13	+C-X004:91	+M-X103:35	20 .7	
+C-W122	14	+C-X004:92	+M-X103:38	20 .7	
+C-W122	15	+C-X004:93	+M-X103:41	20 .7	
+C-W122	16	+C-X004:94	+M-X103:44	27 .3	
+C-W122	17	+C-X004:95	+M-X103:48	27 .3	
+C-W122	GNYE	+C-X004:E20	+M-X103:E2	19 .2	
+C-W123	BN	+C-X004:97	+M-B115:	19 .5	
+C-W123	BU	+C-X004:98	+M-B115:	19 .5	
+C-W123	BK	+C-X004:96	+M-B115:	19 .6	
+C-W125	RD	+C-X004:103	+M-B118:	18 .4	
+C-W125	BU	+C-X004:104	+M-B118:	18 .4	
+C-W125	GY	+C-X004:102	+M-B118:	18 .6	
	OG				
+C-W126	BN	+C-X004:106	+M-B119:	18 .4	
+C-W126	BU	+C-X004:107	+M-B119:	18 .4	
+C-W126	BK	+C-X004:105	+M-B119:	18 .6	
+C-W127	BN	+C-X004:165	+M-B100:	13 .4	

Cable	Core	From	To	Page.Col.	Option
+C-W127	BU	+C-X004:166	+M-B100:	13 .4	
+C-W127	BK	+C-X004:164	+M-B100:	13 .7	
+C-W128	1	+C-X004:111	+M-B139:13	31 .4	
+C-W128	2	+C-X004:110	+M-B139:14	31 .6	
	GNYE				
+C-W129	1	+C-X004:112	+M-X107:1	18 .6	
+C-W129	2	+C-X004:113	+M-X107:2	18 .2	
+C-W129	3	+C-X004:114	+M-X107:3	18 .2	
+C-W129	4	+C-X004:115	+M-X107:7	18 .6	
+C-W129	5	+C-X004:116	+M-X107:21	32 .6	
	6				
+C-W129	GNYE	+C-X004:E17	+M-X107:E1	18 .2	
+C-W130	1	+C-X004:118	+M-X107:15	26 .3	
+C-W130	2	+C-X004:119	+M-X107:16	26 .8	
+C-W130	GNYE	+C-X004:E25	+M-X107:E2	26 .8	
+C-W131	WH	+C-X004:121	+M-Y101:1	38 .5	
	GN				
+C-W131	YE	+C-X004:122	+M-Y173:1	38 .5	
	GY				
+C-W131	PK	+C-X004:123	+M-Y109.1:1	25 .5	
+C-W131	BU	+C-X004:124	+M-Y109.2:1	25 .5	
+C-W131	RD	+C-X004:125	+M-Y110:1	24 .5	
	VT				
+C-W131	GY-PK	+C-X004:126	+M-Y112:1	24 .5	
	RD-BU				
+C-W131	WH-GN	+C-X004:127	+M-Y161.1:1	29 .5	
+C-W131	BN-GN	+C-X004:131	+M-Y161.2:1	33 .5	

Drawing remarks

Tetra Pak

Designer	Date	Machine
PEPE	11/05/03	TCBP 70-1100 CSA

ECM No	Denomination	Page Type
146767	CABLE CONNECTION LIST	CABLE CONNECTION LIST

Company	Document No.	Doc. type	Version	Page
Tetra Pak Carton Ambient AB	2611715-0007	ELD	AD	004

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Machine TCBP 70-1100 CSA

Date

Denomination

CABLE CONNECTION LIST

ECM No.

Doc. type

Page 005

2611715-0007

Company
Tetra Pak Carton Ambient AB

Drawing remarks

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1 2 3 4 5 6 7 8 9 10

Cable Connection List of 2611715-0003

Cable	Core	From	To	Page.Col.	Option
+C-W133	WH-GY	+C-X004:154	+M-Y170:1	30 .5	
	GY-BN				
+C-W133	WH-PK	+C-X004:160	+M-Y166.2:1	33 .5	
+C-W133	PK-BN	+C-X004:156	+M-Y166.1:1	33 .5	
	WH-BU				
	BN-BU				
+C-W133	WH-RD	+C-X004:155	+M-Y163:1	30 .5	
	BN-RD				
+C-W133	WH-BK	+C-X004:157	+M-Y142:1	34 .5	
	BN-BK				
+C-W133	BN	+C-X004:158	+M-Y164:2	24 .8	
+C-W133	BK	+C-X004:159	+M-Y164:2	24 .8	
+C-W134	1	+C-X004:36	+M-X104:1	11 .2	
+C-W134	2	+C-X004:37	+M-X104:2	11 .2	
+C-W134	3	+C-X004:38	+M-X104:35	11 .4	
+C-W134	4	+C-X004:39	+M-X104:36	11 .4	
+C-W134	GNYE	+C-X004:E14	+M-X104:E1	11 .2	
+C-W135	1	+C-X004:174	+M-X106:1	21 .7	
+C-W135	2	+C-X004:175	+M-X106:2	21 .2	
+C-W135	3	+C-X004:176	+M-X106:3	21 .2	
+C-W135	4	+C-X004:177	+M-X106:4	21 .7	
+C-W135	5	+C-X004:178	+M-X106:7	21 .2	
+C-W135	6	+C-X004:179	+M-X106:10	21 .2	
	7				
	8				
	9				
	10				

Cable	Core	From	To	Page.Col.	Option
	11				
+C-W135	GNYE	+C-X004:E16	+M-X106:E1	21 .2	
+C-W136	1	+C-X004:182	+M-X106:19	29 .3	
+C-W136	2	+C-X004:183	+M-X106:20	29 .8	
+C-W136	3	+C-X004:184	+M-X106:21	29 .3	
	4				
+C-W136	GNYE	+C-X004:E21	+M-X106:E3	29 .8	
+C-W137	1	+C-X004:191	+M-H101:1	28 .5	
+C-W137	2	+C-X004:192	+M-H101:2	28 .5	
+C-W137	3	+C-X004:193	+M-H101:3	28 .5	
+C-W137	4	+C-X004:194	+M-H101:0	28 .8	
	GNYE				
+C-W138	1	+C-X004:218	+M-Y115:1	33 .5	
+C-W138	2	+C-X004:219	+M-Y115:2	33 .7	
	GNYE				
+C-W139	1	+C-X004:247	+M-X107:17	11 .6	
+C-W139	2	+C-X004:248	+M-X107:18	11 .6	
+C-W139	3	+C-X004:249	+M-X107:19	11 .8	
+C-W139	4	+C-X004:250	+M-X107:20	11 .8	
	GNYE				
+C-W140	RD	+M-X101:1	+M-B117:RD	16 .3	
+C-W140	BU	+M-X101:2	+M-B117:BU	16 .3	
+C-W140	WH	+M-X101:3	+M-B117:WH	16 .3	
+C-W140	BN	+M-X101:4	+M-B117:BN	16 .3	
+C-W140	GN	+M-X101:5	+M-B117:GN	16 .3	
+C-W140	YE	+M-X101:6	+M-B117:YE	16 .3	
+C-W140	GY	+M-X101:7	+M-B117:GY	16 .3	

Drawing remarks

Tetra Pak

Designer	Date	Machine
PEPE	11/05/03	TCBP 70-1100 CSA

ECM No	Denomination	Page Type
146767	CABLE CONNECTION LIST	CABLE CONNECTION LIST

Company	Document No.	Doc. type	Version	Page
Tetra Pak Carton Ambient AB	2611715-0007	ELD	AD	006

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1 2 3 4 5 6 7 8 9 10

Cable Connection List of 2611715-0003

Cable	Core	From	To	Page.Col.	Option
+C-W140	PK	+M-X101:8	+M-B117:PK	16 .3	
+C-W140	BK	+M-X101:9	+M-B117:BK	16 .3	
+C-W140	GY-PK	+M-X101:10	+M-B117:GY-PK	16 .3	
	VT				
	RD-BU				
+M-W141	BN	+M-X101:12	+M-B113:	18 .4	
+M-W141	BU	+M-X101:13	+M-B113:	18 .4	
+M-W141	BK	+M-X101:11	+M-B113:	18 .6	
+M-W142	1	+M-X101:16	+M-R101:9	18 .6	
+M-W142	2	+M-X101:15	+M-R101:1	18 .6	
+M-W142	3	+M-X101:14	+M-R101:2	6 .6	
+M-W142	4	+M-X101:17	+M-R101:4	6 .6	
+M-W142	5	+M-X101:18	+M-R101:8	34 .6	
+M-W142	6	+M-X101:19	+M-R101:10	34 .6	
	GNYE				
+M-W143	BN	+M-X107:22	+M-B907:	32 .4	OPTION
+M-W143	BU	+M-X107:23	+M-B907:	32 .4	OPTION
+M-W143	BK	+M-X107:21	+M-B907:	32 .5	OPTION
+M-W147	1	+M-X101:24	+M-Y120:1	26 .5	
+M-W147	2	+M-X101:25	+M-Y120:2	26 .6	
+M-W147	GNYE	+M-X101:E3	+M-Y120:E	26 .6	
+M-W148	1	+M-X101:26	+M-Y122:1	29 .5	OPTION
+M-W148	2	+M-X101:27	+M-Y122:2	29 .7	OPTION
+M-W148	GNYE	+M-X101:E7	+M-Y122:E	29 .7	OPTION
+M-W149	1	+M-X101:28	+M-Y121:1	26 .5	
+M-W149	2	+M-X101:29	+M-Y121:2	26 .6	
+M-W149	GNYE	+M-X101:E4	+M-Y121:E	26 .6	

Cable	Core	From	To	Page.Col.	Option
+M-W150	1	+M-X101:30	+M-Y123:1	29 .5	OPTION
+M-W150	2	+M-X101:31	+M-Y123:2	29 .7	OPTION
+M-W150	GNYE	+M-X101:E6	+M-Y123:E	29 .7	OPTION
+M-W151	BN	+M-X102:2	+M-B120:	17 .5	
+M-W151	BU	+M-X102:3	+M-B120:	17 .5	
+M-W151	BK	+M-X102:1	+M-B120:	17 .6	
+M-W155	BN	+M-X102:14	+M-B124:	17 .5	
+M-W155	BU	+M-X102:15	+M-B124:	17 .5	
+M-W155	BK	+M-X102:13	+M-B124:	17 .6	
+M-W156	BN	+M-X102:16	+M-B125.1:	17 .4	
+M-W156	BU	+M-X102:17	+M-B125.1:	17 .4	
+M-W157	BN	+M-X102:19	+M-B125.2:	17 .5	
+M-W157	BU	+M-X102:20	+M-B125.2:	17 .5	
+M-W157	BK	+M-X102:18	+M-B125.2:	17 .6	
+M-W158	BN	+M-X102:21	+M-B126.1:	17 .4	
+M-W158	BU	+M-X102:22	+M-B126.1:	17 .4	
+M-W159	BN	+M-X102:24	+M-B126.2:	17 .5	
+M-W159	BU	+M-X102:25	+M-B126.2:	17 .5	
+M-W159	BK	+M-X102:23	+M-B126.2:	17 .6	
+M-W161	BN	+M-X103:1	+M-B903.1:	19 .4	
+M-W161	BU	+M-X103:2	+M-B903.1:	19 .4	
+M-W162	BN	+M-X103:4	+M-B903.2:	19 .5	
+M-W162	BU	+M-X103:5	+M-B903.2:	19 .5	
+M-W162	BK	+M-X103:3	+M-B903.2:	19 .6	
+M-W163	BN	+M-X103:6	+M-B904.1:	19 .4	
+M-W163	BU	+M-X103:7	+M-B904.1:	19 .4	
+M-W164	BN	+M-X103:9	+M-B904.2:	19 .5	

Drawing remarks

Tetra Pak

Designer	Date	Machine
PEPE	11/05/03	TCBP 70-1100 CSA

ECM No	Denomination	Page Type
146767	CABLE CONNECTION LIST	CABLE CONNECTION LIST

Company	Document No.	Doc. type	Version	Page
Tetra Pak Carton Ambient AB	2611715-0007	ELD	AD	007

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1 2 3 4 5 6 7 8 9 10

Cable Connection List of 2611715-0003

Cable	Core	From	To	Page.Col.	Option
+M-W164	BU	+M-X103:10	+M-B904.2:	19 .5	
+M-W164	BK	+M-X103:8	+M-B904.2:	19 .6	
+M-W170	BN	+M-X103:27	+M-B140:	20 .4	
+M-W170	BU	+M-X103:28	+M-B140:	20 .4	
+M-W170	BK	+M-X103:26	+M-B140:	20 .6	
+M-W171	BN	+M-X103:30	+M-B141:	20 .4	
+M-W171	BU	+M-X103:31	+M-B141:	20 .4	
+M-W171	BK	+M-X103:29	+M-B141:	20 .6	
+M-W172	BN	+M-X103:33	+M-B142:	20 .4	
+M-W172	BU	+M-X103:34	+M-B142:	20 .4	
+M-W172	BK	+M-X103:32	+M-B142:	20 .6	
+M-W173	BN	+M-X103:36	+M-B143:	20 .4	
+M-W173	BU	+M-X103:37	+M-B143:	20 .4	
+M-W173	BK	+M-X103:35	+M-B143:	20 .6	
+M-W174	BN	+M-X103:39	+M-B144:	20 .3	
+M-W174	BU	+M-X103:40	+M-B144:	20 .3	
+M-W174	BK	+M-X103:38	+M-B144:	20 .6	
+M-W175	BN	+M-X905:4	+M-B905:	20 .3	OPTION
+M-W175	BU	+M-X905:5	+M-B905:	20 .3	OPTION
+M-W175	BK	+M-X905:3	+M-B905:	20 .4	OPTION
+M-W176	BN	+M-X107:2	+M-B112.1:	18 .4	
+M-W176	BU	+M-X107:3	+M-B112.1:	18 .4	
+M-W177	BN	+M-X107:5	+M-B112.2:	18 .5	
+M-W177	BU	+M-X107:6	+M-B112.2:	18 .5	
+M-W177	BK	+M-X107:4	+M-B112.2:	18 .6	
+M-W178	BN	+M-X107:8	+M-B908.1:	18 .4	OPTION
+M-W178	BU	+M-X107:9	+M-B908.1:	18 .4	OPTION

Cable	Core	From	To	Page.Col.	Option
+M-W179	BN	+M-X107:11	+M-B908.2:	18 .5	OPTION
+M-W179	BU	+M-X107:12	+M-B908.2:	18 .5	OPTION
+M-W179	BK	+M-X107:10	+M-B908.2:	18 .6	OPTION
+M-W180	1	+M-X107:17	+M-B111:21	11 .6	
+M-W180	2	+M-X107:18	+M-B111:11	11 .6	
+M-W180	3	+M-X107:20	+M-B111:22	11 .7	
+M-W180	4	+M-X107:19	+M-B111:12	11 .7	
	GNYE				
+C-W182	1	+C-X004:208	+M-Y100:1	38 .5	
+C-W182	2	+C-X004:209	+M-Y100:2	38 .8	
+C-W182	GNYE	+C-X004:E30	+M-Y100:E	38 .8	
+M-W182	1	+M-X107:15	+M-Y908:1	26 .5	
+M-W182	2	+M-X107:16	+M-Y908:2	26 .6	
+M-W182	GNYE	+M-X107:E2	+M-Y908:E	26 .6	
+C-W183	1	+C-X002:10	+M-M901:U	7 .8	OPTION
+C-W183	2	+C-X002:11	+M-M901:V	7 .8	OPTION
+C-W183	3	+C-X002:12	+M-M901:W	7 .8	OPTION
+C-W183	GNYE	+C-X002:E5	+M-M901:⏚	7 .8	OPTION
+M-W191	1	+M-X102:26	+M-B138:2	31 .6	
+M-W191	2	+M-X102:27	+M-B138:1	31 .6	
+M-W191	3	+M-X102:28	+M-B138:3	31 .4	
	GNYE				
+M-W198	1	+M-X103:44	+M-Y130.1:1	27 .5	
+M-W198	2	+M-X103:45	+M-Y130.1:2	27 .7	
	GNYE				
+M-W199	1	+M-X103:46	+M-Y131.1:1	27 .5	
+M-W199	2	+M-X103:47	+M-Y131.1:2	27 .7	

Drawing remarks

Tetra Pak

Designer	Date	Machine
PEPE	11/05/03	TCBP 70-1100 CSA

ECM No	Denomination	Page Type
146767	CABLE CONNECTION LIST	CABLE CONNECTION LIST

Company	Document No.	Doc. type	Version	Page
Tetra Pak Carton Ambient AB	2611715-0007	ELD	AD	008

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Tetra P

ECM No.

Denomination

Date

Machine TCBP 70-1100 CSA

CABLE CONNECTION LIST

Company
Tetra Pak Carton Ambient AB

Doc. type

2611715-0007

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009

Drawing remarks

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1 2 3 4 5 6 7 8 9 10

Cable Connection List of 2611715-0003

Cable	Core	From	To	Page.Col.	Option
+M-W221	BK	+M-X106:1	+M-B150:	21 .6	OPTION
+M-W222	BN	+M-X106:5	+M-B151:	21 .4	OPTION
+M-W222	BU	+M-X106:6	+M-B151:	21 .4	OPTION
+M-W222	BK	+M-X106:4	+M-B151:	21 .6	OPTION
+M-W227	1	+M-X106:19	+M-Y124:1	29 .5	OPTION
+M-W227	2	+M-X106:20	+M-Y124:2	29 .7	OPTION
+M-W227	GNYE	+M-X106:E2	+M-Y124:E	29 .7	OPTION
+M-W228	1	+M-X106:21	+M-Y125:1	29 .5	OPTION
+M-W228	2	+M-X106:22	+M-Y125:2	29 .7	OPTION
+M-W228	GNYE	+M-X106:E3	+M-Y125:E	29 .7	OPTION
+C-W243	BN	+C-X004:206	+M-B145:	31 .4	
+C-W243	BU	+C-X004:207	+M-B145:	31 .4	
+C-W243	BK	+C-X004:205	+M-B145:	31 .6	
+M-W250	RD	+M-X103:21	+M-B137:	19 .5	
+M-W250	BU	+M-X103:22	+M-B137:	19 .5	
+M-W250	GY	+M-X103:20	+M-B137:	19 .6	
	OG				
+M-W251	BN	+M-X130:5	+M-B146:	21 .4	
+M-W251	BU	+M-X130:6	+M-B146:	21 .4	
+M-W251	BK	+M-X130:4	+M-B146:	21 .5	
+M-W252	BN	+M-X130:2	+M-B147:	17 .4	
+M-W252	BU	+M-X130:3	+M-B147:	17 .4	
+M-W252	BK	+M-X130:1	+M-B147:	17 .5	
+M-W253	BN	+M-X130:8	+M-B148:	21 .4	
+M-W253	BU	+M-X130:9	+M-B148:	21 .4	
+M-W253	BK	+M-X130:7	+M-B148:	21 .5	
+M-W254	BN	+M-X130:11	+M-B149:	21 .4	

Cable	Core	From	To	Page.Col.	Option
+M-W254	BU	+M-X130:12	+M-B149:	21 .4	
+M-W254	BK	+M-X130:10	+M-B149:	21 .5	
+C-W255	BN	+C-X004:100	+M-B161:	19 .5	
+C-W255	BU	+C-X004:101	+M-B161:	19 .5	
+C-W255	BK	+C-X004:99	+M-B161:	19 .6	
+M-W256	BN	+M-X103:24	+M-B160:	31 .4	
+M-W256	BU	+M-X103:25	+M-B160:	31 .4	
+M-W256	BK	+M-X103:23	+M-B160:	31 .6	
+M-W257	1	+M-X103:11	+M-S116:14	31 .6	
+M-W257	2	+M-X103:12	+M-S116:13	31 .4	
+M-W257	3	+M-X103:14	+M-H062:1	36 .5	
+M-W257	4	+M-X103:16	+M-H062:2	36 .2	
+M-W257	GNYE	+M-X103:E3	+C-J289:	31 .6	
+C-W260	1	+C-X004:225	+M-X120:1	49 .1	OPTION
+C-W260	2	+C-X004:226	+M-X120:2	49 .1	OPTION
+C-W260	3	+C-X004:227	+M-X120:11	49 .5	OPTION
+C-W260	4	+C-X004:228	+M-X120:12	49 .5	OPTION
+C-W260	5	+C-X004:229	+M-X120:15	49 .9	OPTION
+C-W260	6	+C-X004:230	+M-X120:18	31 .5	OPTION
+C-W260	GNYE	+C-X004:E31	+M-X120:E2	49 .3	OPTION
+M-W261	WH	+M-X120:3	+M-B170.1:1	49 .2	OPTION
+M-W261	BN	+M-X120:1	+M-B170.1:7	49 .3	OPTION
	GN				
	YE				
+M-W261	GY	+M-X120:4	+M-B170.1:5	49 .2	OPTION
+M-W261	PK	+M-X120:5	+M-B170.1:6	49 .2	OPTION
+M-W261	BU	+M-X120:2	+M-B170.1:2	49 .3	OPTION

Drawing remarks

Tetra Pak

Designer	Date	Machine
PEPE	11/05/03	TCBP 70-1100 CSA

ECM No	Denomination	Page Type
146767	CABLE CONNECTION LIST	CABLE CONNECTION LIST

Company	Document No.	Doc. type	Version	Page
Tetra Pak Carton Ambient AB	2611715-0007	ELD	AD	010

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1 2 3 4 5 6 7 8 9 10

Cable Connection List of 2611715-0003

Cable	Core	From	To	Page.Col.	Option
	RD				
+M-W262	WH	+M-X120:8	+M-B170.2:1	49 .5	OPTION
+M-W262	BN	+M-X120:6	+M-B170.2:7	49 .6	OPTION
+M-W262	GN	+M-X120:18	+M-B170.2:3	49 .5	OPTION
+M-W262	YE	+M-X120:11	+M-B170.2:4	49 .5	OPTION
+M-W262	GY	+M-X120:9	+M-B170.2:5	49 .5	OPTION
+M-W262	PK	+M-X120:10	+M-B170.2:6	49 .5	OPTION
+M-W262	BU	+M-X120:7	+M-B170.2:2	49 .6	OPTION
	RD				
+M-W264	RD	+M-X120:16	+M-B171:	49 .8	OPTION
+M-W264	BU	+M-X120:17	+M-B171:	49 .8	OPTION
+M-W264	GY	+M-X120:15	+M-B171:	49 .9	OPTION
	OG				
+C-W265	BN	+C-X083.2:1	+C-J265:+M-A186 IN	48 .3	
+C-W265	WH	+C-X083.2:2	+C-J265:+M-A186 IN	48 .3	
+C-W265	YE	+C-X083.2:3	+C-J265:+M-A186 IN	48 .3	
+C-W265	GN	+C-X083.2:4	+C-J265:+M-A186 IN	48 .3	
+C-W265	GY	+C-X083.2:5	+C-J265:+M-A186 IN	48 .3	
	SH				
+C-W265	SH	+C-D002:E	+C-J265:+M-A186 IN	48 .2	
+M-W266	1	+M-J266.1:+M-A185 IN	+M-J266.2:+M-AI86 OUT	48 .3	
+M-W266	2	+M-J266.1:+M-A185 IN	+M-J266.2:+M-AI86 OUT	48 .3	
+M-W266	3	+M-J266.1:+M-A185 IN	+M-J266.2:+M-AI86 OUT	48 .3	
+M-W266	4	+M-J266.1:+M-A185 IN	+M-J266.2:+M-AI86 OUT	48 .3	
+M-W266	5	+M-J266.1:+M-A185 IN	+M-J266.2:+M-AI86 OUT	48 .3	
+M-W266	GNYE	+M-J266.1:+M-A185 IN	+M-J266.2:+M-AI86 OUT	48 .3	
+M-W267	1	+M-J267.1:+M-A185 VAL.	+M-Y102.:	48 .4	

Cable	Core	From	To	Page.Col.	Option
+M-W267	2	+M-J267.1:+M-A185 VAL.	+M-Y102.:	48 .4	
+M-W267	3	+M-J267.1:+M-A185 VAL.	+M-Y102.:	48 .4	
+M-W267	4	+M-J267.1:+M-A185 VAL.	+M-Y102.:	48 .4	
	GNYE				
+M-W268	1	+M-J268.1:+M-A186 VAL.	+M-Y103.:	48 .9	
+M-W268	2	+M-J268.1:+M-A186 VAL.	+M-Y103.:	48 .9	
+M-W268	3	+M-J268.1:+M-A186 VAL.	+M-Y103.:	48 .9	
+M-W268	4	+M-J268.1:+M-A186 VAL.	+M-Y103.:	48 .9	
	GNYE				
+M-W269	1	+M-A185:1	+M-B162:1	48 .3	
+M-W269	2	+M-A185:2	+M-B162:2	48 .3	
+M-W269	3	+M-A185:3	+M-B162:3	48 .3	
+M-W269	GNYE	+M-A185:PE	+M-B162:PE	48 .3	
	GNYE				
+M-W270	1	+M-A186:1	+M-B163:1	48 .7	
+M-W270	2	+M-A186:2	+M-B163:2	48 .7	
+M-W270	3	+M-A186:3	+M-B163:3	48 .7	
+M-W270	4	+M-A186:4	+M-B163:4	48 .7	
+M-W270	5	+M-A186:5	+M-B163:5	48 .7	
+M-W270	6	+M-A186:6	+M-B163:6	48 .7	
+M-W270	GNYE	+M-A186:PE	+M-B163:PE	48 .7	
+M-W601	1	+M-X102:35	+M-X130:1	17 .6	
+M-W601	2	+M-X102:36	+M-X130:2	17 .3	
+M-W601	3	+M-X102:37	+M-X130:3	17 .3	
+M-W601	4	+M-X102:38	+M-X130:4	21 .6	
+M-W601	5	+M-X102:41	+M-X130:7	21 .6	
+M-W601	6	+M-X102:44	+M-X130:10	21 .6	

Drawing remarks

Tetra Pak	Designer PEPE	Date 11/05/03	Machine TCBP 70-1100 CSA		
	ECM No 146767	Denomination CABLE CONNECTION LIST	Page Type CABLE CONNECTION LIST		
	Company Tetra Pak Carton Ambient AB	Document No. 2611715-0007	Doc. type ELD	Version AD	Page 011

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1 2 3 4 5 6 7 8 9 10

Cable Connection List of 2611715-0003

Cable	Core	From	To	Page.Col.	Option
	GNYE				
+C-W901	1	+C-X004:200	+M-X901:1A	21 .2	
+C-W901	2	+C-X004:199	+M-X901:1	21 .7	
+C-W901	3	+C-X004:201	+M-X901:1B	21 .2	
+C-W901	4	+C-X004:202	+M-X901:3	21 .7	
+C-W901	5	+C-X004:203	+M-X901:5	27 .3	
+C-W901	6	+C-X004:204	+M-X901:5B	27 .8	
+C-W901	GNYE	+C-X004:E29	+M-X901:E1	27 .8	
+M-W902	BN	+M-X901:1A	+M-B901.1:	21 .4	
+M-W902	BU	+M-X901:1B	+M-B901.1:	21 .4	
+M-W903	BN	+M-X901:2A	+M-B901.2:	21 .5	
+M-W903	BU	+M-X901:2B	+M-B901.2:	21 .5	
+M-W903	BK	+M-X901:2	+M-B901.2:	21 .6	
+M-W904	BN	+M-X901:3A	+M-B902.1:	21 .4	
+M-W904	BU	+M-X901:3B	+M-B902.1:	21 .4	
+M-W905	BN	+M-X901:4A	+M-B902.2:	21 .5	
+M-W905	BU	+M-X901:4B	+M-B902.2:	21 .5	
+M-W905	BK	+M-X901:4	+M-B902.2:	21 .6	
+M-W906	1	+M-X901:5	+M-Y901:1	27 .5	
+M-W906	2	+M-X901:5B	+M-Y901:2	27 .7	
+M-W906	GNYE	+M-X901:E1	+M-Y901:E	27 .7	
+M-W910	1	+M-X103:41	+M-X905:3	20 .6	
+M-W910	2	+M-X103:42	+M-X905:4	20 .3	
+M-W910	3	+M-X103:43	+M-X905:5	20 .3	
+M-W910	GNYE	+M-X103:E1	+M-X905:E1	20 .3	
+C-W915	1	+C-X004:243	+M-S104:21	11 .7	
+C-W915	2	+C-X004:244	+M-S104:11	11 .7	

Cable	Core	From	To	Page.Col.	Option
+C-W915	3	+C-X004:245	+M-S104:12	11 .8	
+C-W915	4	+C-X004:246	+M-S104:22	11 .8	
	GNYE				
+C-W950	1	+C-K097:4	+M-Y950:1	50 .2	
+C-W950	2	+C-X090:8	+M-Y950:2	50 .4	
+C-W950	GNYE	+C-X090:E5	+M-Y950:E	50 .4	
+M-W960	1	+M-X102:29	+M-Y909:1	33 .5	
+M-W960	2	+M-X102:30	+M-Y909:2	33 .7	
	GNYE				
+C-W990	1	+C-K099:4	+ U.STR.-X090:1	50 .6	
+C-W990	2	+C-K099:3	+ U.STR.-X090:2	50 .6	
+C-W990	3	+C-X090:6	+ U.STR.-X090:3	50 .6	
+C-W990	4	+C-X090:5	+ U.STR.-X090:4	50 .6	
+C-W990	GNYE	+C-X090:E3	+ U.STR.-X090:E	50 .6	
+C-W990L	1	+C-X090:1	+D.STR.L-X090:4	50 .6	
+C-W990L	2	+C-X090:2	+D.STR.L-X090:3	50 .6	
+C-W990L	3	+C-K098:3	+D.STR.L-X090:6	50 .6	
+C-W990L	4	+C-K098:4	+D.STR.L-X090:5	50 .6	
+C-W990L	GNYE	+C-X090:E1	+D.STR.L-X090:E	50 .6	
+C-W991	1	+C-K099:5	+U.STR.-X090:1	50 .6	
+C-W991	2	+C-K099:6	+U.STR.-X090:2	50 .3	
	3				
	4				
+C-W991	GNYE	+C-X090:E4	+U.STR.-X090:E	50 .6	
+C-W992	1	+C-K098:5	+E.SPA.-X090:5	50 .6	
+C-W992	2	+C-K098:6	+E.SPA.-X090:6	50 .6	
	3				

Drawing remarks

Tetra Pak

Designer	Date	Machine
PEPE	11/05/03	TCBP 70-1100 CSA

ECM No	Denomination	Page Type
146767	CABLE CONNECTION LIST	CABLE CONNECTION LIST

Company	Document No.	Doc. type	Version	Page
Tetra Pak Carton Ambient AB	2611715-0007	ELD	AD	012

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1 2 3 4 5 6 7 8 9 10

Cable Connection List of 2611715-0003

Cable	Core	From	To	Page.Col.	Option
	4				
+C-W992	GNYE	+C-X090:E2	+E.SPA.-X090:E	50 .6	
+M-W994	GNYE	+C-J068:	+C-J119:	48 .10	
+M-W995	GNYE	+M-A186:E	+M-J075:	48 .7	
+M-W996	GNYE	+C-J063:	+C-J118:	48 .5	
+M-W997	GNYE	+M-B162:⏚	+C-J117:	48 .3	
+M-W998	GNYE	+M-A185:E	+M-J074:	48 .2	
+C-W999	GNYE	+C-X002:E1	+C-J290:	3 .7	

Cable	Core	From	To	Page.Col.	Option

Drawing remarks

Tetra Pak	Designer PEPE	Date 11/05/03	Machine TCBP 70-1100 CSA		
	ECM No 146767	Denomination CABLE CONNECTION LIST	Page Type CABLE CONNECTION LIST		
	Company Tetra Pak Carton Ambient AB	Document No. 2611715-0007	Doc. type ELD	Version AD	Page 013

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9 Mains connection diagrams

Description

The drawings that show the connection from the mains power to the electrical cabinet are included in this chapter.

Mains connection diagrams . . . . . .2611715-0008 ELD 001 AD
. . . . . .2611715-0008 ELD 002 AD

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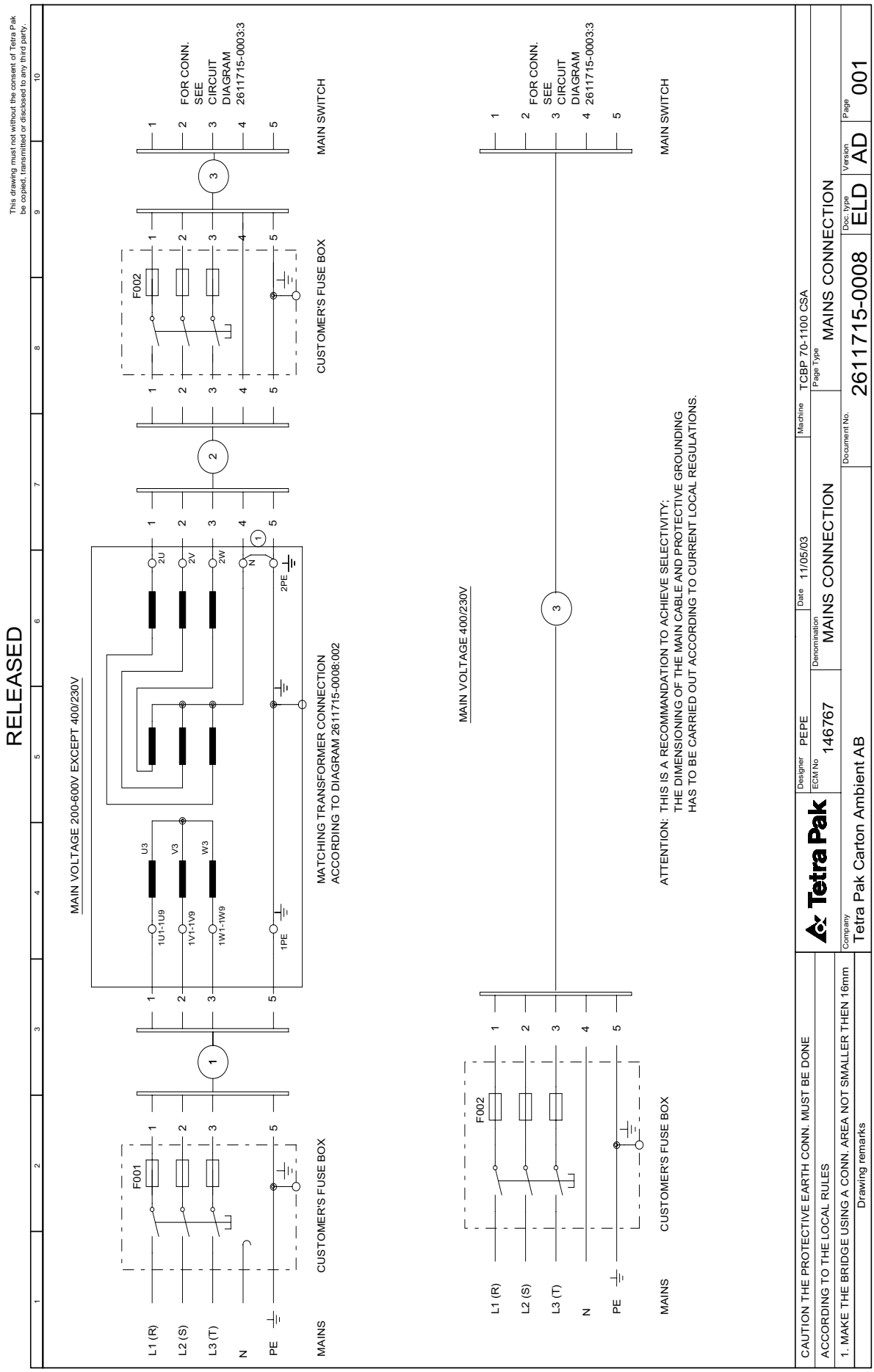
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RELEASED
MAIN VOLTAGE 200-600V EXCEPT 400/230V
MAIN VOLTAGE 400/230V
L1 (R)
L2 (S)
L3 (T)
N
PE
MAINS
F001
F002
CUSTOMER'S FUSE BOX
U3
V3
W3
1U1-1U9
1V1-1V9
1W1-1W9
1PE
2U
2V
2W
2PE
MATCHING TRANSFORMER CONNECTION
ACCORDING TO DIAGRAM 2611715-0008:002
FOR CONN.
SEE
CIRCUIT
DIAGRAM
2611715-0003:3
MAIN SWITCH
ATTENTION: THIS IS A RECOMMANDATION TO ACHIEVE SELECTIVITY;
THE DIMENSIONING OF THE MAIN CABLE AND PROTECTIVE GROUNDING
HAS TO BE CARRIED OUT ACCORDING TO CURRENT LOCAL REGULATIONS.
CAUTION THE PROTECTIVE EARTH CONN. MUST BE DONE
ACCORDING TO THE LOCAL RULES
1. MAKE THE BRIDGE USING A CONN. AREA NOT SMALLER THEN 16mm
Drawing remarks
Tetra Pak
Designer PEPE
ECM No. 146767
Date 11/05/03
Denomination MAINS CONNECTION
Machine TCBP 70-1100 CSA
Page Type MAINS CONNECTION
Document No. 2611715-0008
Doc. type ELD
Version AD
Page 001
Company Tetra Pak Carton Ambient AB

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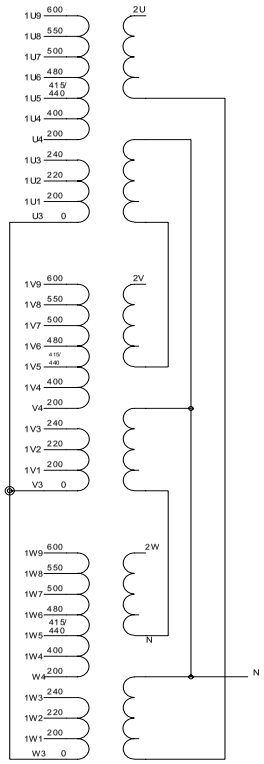
MAIN VOLTAGE	FUSES (SLOW) (1) F001	AREA TO CU CABLES NO. 1	2	3	FUSES (SLOW) (1) F002	CONNECTIONS ON MATCHING TRANSFORMER			
V	A	mm 2	mm 2	mm 2	A	MAINS		TAP	CONNECT
600/347 3x600	25	3x4/4	4x4/4	4x2,5/2,5	16	PHASE PHASE PHASE N GROUND	L1 L2 L3 N PE	1U9 1V9 1W9 N	1U3 - U4 1V3 - V4 1W3 - W4
550/318 3x550	25	3x4/4	4x4/4	4x2,5/2,5	16	PHASE PHASE PHASE N GROUND	L1 L2 L3 N PE	1U8 1V8 1W8 N	1U3 - U4 1V3 - V4 1W3 - W4
500/289 3x500	25	3x4/4	4x4/4	4x2,5/2,5	16	PHASE PHASE PHASE N GROUND	L1 L2 L3 N PE	1U7 1V7 1W7 N	1U3 - U4 1V3 - V4 1W3 - W4
480/277 3x480	25	3x4/4	4x4/4	4x2,5/2,5	16	PHASE PHASE PHASE N GROUND	L1 L2 L3 N PE	1U6 1V6 1W6 N	1U3 - U4 1V3 - V4 1W3 - W4
440/254 3x440	25	3x4/4	4x4/4	4x2,5/2,5	16	PHASE PHASE PHASE N GROUND	L1 L2 L3 N PE	1U5 1V5 1W5 N	1U2 - U4 1V2 - V4 1W2 - W4
415/240 3x415	32	3x4/4	4x4/4	4x2,5/2,5	16	PHASE PHASE PHASE N GROUND	L1 L2 L3 N PE	1U5 1V5 1W5 N	1U1 - U4 1V1 - V4 1W1 - W4
3x400 [3x380]				4x2,5/2,5	16				
240/140 3x240	63	3x10/10	4x4/4	4x2,5/2,5	16	PHASE PHASE PHASE N GROUND	L1 L2 L3 N PE	1U3 1V3 1W3 N	U3 - U4 1U3-1U6 V3 - V4 1V3-1V6 W3 - W4 1W3-1W6
220/127 3x220	63	3x10/10	4x4/4	4x2,5/2,5	16	PHASE PHASE PHASE N GROUND	L1 L2 L3 N PE	1U2 1V2 1W2 N	U3 - U4 1U2-1U5 V3 - V4 1V2-1V5 W3 - W4 1W2-1W5
200/115 3x200	63	3x10/10	4x4/4	4x2,5/2,5	16	PHASE PHASE PHASE N GROUND	L1 L2 L3 N PE	1U1 1V1 1W1 N	U3 - U4 1U1-1U4 V3 - V4 1V1-1V4 W3 - W4 1W1-1W4

MATCHING TRANSFORMER
90245-0022

Y/Z II-WIRED



1. RECOMMENDED MAIN FUSE TO ACHIEVE SELECTIVITY

Drawing remarks

Tetra Pak

Designer	Date	Machine
PEPE	11/05/03	TCBP 70-1100 CSA

ECM No	Denomination	Page Type
146767	MAINS CONNECTION	MAINS CONNECTION

Company	Document No.	Doc. type	Version	Page
Tetra Pak Carton Ambient AB	2611715-0008	ELD	AD	002

10 Program document

Description

The complete program for each programmable system used in the machine or equipment, such as a programmable logic controller, is included in this chapter.

Ladder diagram . . . . . **A45489-0001 ELD 000 AA**
Cross reference list . . . . . **A45489-0001 ELD 000 AA**
Configuration . . . . . **A45489-0001 ELD 000 AA**
PLMS register . . . . . **A45489-0002 ELD 000 AA**

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03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page     1
                                           Tetra Cardboard Packer 70 Multi 1100
                                        45489-0001 ELD 000 AA 040223 OHO ECM:162315

|[  START OF LD  PROGRAM A454891  ]       (* Tetra Cardb. Packer 70 MULT 1100 *)
|
|[     VARIABLE DECLARATIONS      ]
|
|[       BLOCK DECLARATIONS       ]

                +-------+
        SUBR  1 |PATTER0|       LANG: LD  (* Bottom size select 0             *)
                +-------+

                +-------+
        SUBR  2 |PATTER1|       LANG: LD  (* Bottom size select 1             *)
                +-------+

                +-------+
        SUBR  3 |PATTER2|       LANG: LD  (* Bottom size select 2             *)
                +-------+

                +-------+
        SUBR  4 |PATTER3|       LANG: LD  (* Bottom size select 3             *)
                +-------+

                +-------+
        SUBR  5 |PATTER4|       LANG: LD  (* Bottom size select 4             *)
                +-------+

                +-------+
        SUBR  6 |PATTER5|       LANG: LD  (* Bottom size select 5             *)
                +-------+

                +-------+
        SUBR  7 |PATTER6|       LANG: LD  (* Bottom size select 6             *)
                +-------+

                +-------+
        SUBR  8 |PATTER7|       LANG: LD  (* Bottom size select 7             *)
                +-------+

                +-------+
        SUBR  9 |PATTER8|       LANG: LD  (* Bottom size select 8             *)
                +-------+

                +-------+
        SUBR 10 |PATTER9|       LANG: LD  (* Bottom size select 9             *)
                +-------+

                +-------+
        SUBR 11 |GENERAL|       LANG: LD  (* General adaption                 *)
                +-------+

                +-------+
        SUBR 12 |SELECTI|       LANG: LD  (* Selection of adaptions           *)
                +-------+

                +-------+
        SUBR 13 |MULTIPX|       LANG: LD  (* Multiplex display                *)
                +-------+

                +-------+
        SUBR 14 | PLMS  |       LANG: LD  (* PLMS                             *)
                +-------+

                +-------+
        SUBR 16 |SWITCH |       LANG: LD  (* Size selector switch pos         *)
                +-------+

                +-------+
        SUBR 15 | EMPTY |       LANG: LD  (* Manual empty                     *)
                +-------+

                +-------+
        SUBR 18 |  REG  |       LANG: LD  (* Registers for pneumatic servo    *)
                +-------+

                +-------+
 .001 INTR 0001 |1T0001 |       LANG: LD  (* Main and Feeding drive           *)
                +-------+

|[     START OF PROGRAM LOGIC     ]
|

Program: A454891                          C:\LM90\VISN\P1000\A454891                          Block: _MAIN
```

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                                     Tetra Cardboard Packer 70 Multi 1100
                                 45489-0001 ELD 000 AA 040223 OHO ECM:162315

| (*************************************************************************)
| (* TETRA CARDBOARD PACKER 70 MULTI 1100                                 *)
| (*                                                                      *)
| (* 45489-0001 ELD 0000 AA  040223 OHO  ECM:162315                       *)
| (*                                                                      *)
| (*                                                                      *)
| (* Rung  21  START/STOP SEQUENCE                                        *)
| (* Rung  55  SETTING ENCODER                                            *)
| (* Rung  64  HOTMELT                                                    *)
| (* Rung 100  PRESSURIZING, HOUR METER                                   *)
| (* Rung 103  INFEED CONVEYORS                                           *)
| (* Rung 116  EXTERNAL CONVEYORS                                         *)
| (* Rung 122  INFEED BRAKE, GROUPING END STOP, PACKAGE SEPERATOR         *)
| (* Rung 162  GROUPING PUSHER, TILT TRAY, GUIDE RAIL                    *)
| (* Rung 188  GROUPING SUPPORT                                           *)
| (* Rung 232  GROUPING STROKE BIT SEQUENCER                              *)
| (* Rung 236  DOLLY PUSHER, GROUPING BELT, STOP ARM                      *)
| (* Rung 301  PUSHER END STOP, PUSHER, PUSHER BELT, TRANSFER PLATE       *)
| (* Rung 383  BLANK FEEDING                                              *)
| (* Rung 401  WRAP AROUND                                                *)
| (* Rung 436  CALL MANUAL EMPTYING, SUBROUTINE                           *)
| (* Rung 438  INCHING FEEDING MOTOR                                      *)
| (* Rung 443  OUTFEED STOP, PASSAGE INDICATION                           *)
| (* Rung 452  COMMUNICATION WITH OTHER EQUIPMENT                         *)
| (* Rung 455  EXTERNAL BRAKE                                             *)
| (* Rung 460  LUBRICATION, AUTOFILL                                      *)
| (* Rung 472  WATER VALVE                                                *)
| (* Rung 474  ALARM                                                      *)
| (* Rung 654  DISCHARGE SUPPORT                                          *)
| (* Rung 657  FOLDING PLATE                                              *)
| (* Rung 664  BOX PUSHER RESET SEQUENCE 1 AT EM/DOOR                     *)
| (* Rung 671  SERVO UNIT RESET SEQUENCE                                  *)
| (* Rung 685  BOX PUSHER RESET SEQUENCE 2 OTHER ALARMS                   *)
| (* Rung 698  FEEDING CHAIN RELEASE CLUTCH                               *)
| (* Rung 704  HIGH OR LOW SPEED SELECTION                                *)
| (* Rung 715  GROUPING PUSHER HOME POS SET                               *)
| (* Rung 718  START LUBRICATION INFEED CONVEYOR                          *)
| (* Rung 720  SERVO AXIS IDENTIFICATION                                 *)
| (* Rung 724  CALL PLMS, SUBROUTINE                                      *)
| (* >>>>
```

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| (*************************************************************************)
| (*   SUBROUTINE CALLS                                                    *)
| (* ---------------------------------------------------------            *)
| (* Every BOTTOM SIZE subroutine has its own settings for                *)
| (* * grouping belt                                                      *)
| (* * pusher mat                                                         *)
| (* * pattern length                                                     *)
| (* * guide rail up/down                                                 *)
| (* * infeed choice                                                      *)
| (* * grouping pusher delays                                             *)
| (* * pusher width                                                       *)
| (* * pusher delays                                                      *)
| (* * cardboard choice                                                   *)
| (* * infeed conv. speed                                                 *)
| (* * infeed times grouping                                              *)
| (* * infeed times pusher                                                *)
| (* * grouping support                                                   *)
| (* * small volume choice                                                *)
| (* * refill run time                                                    *)
| (* * dolly support times                                                *)
| (* * hotmelt dot positions and lengths                                  *)
| (* * grouping and pusher speed                                          *)
| (*                                                                      *)
| (* Rung   6  MACHINE ADAPTION, BOTTOM SIZE 0                            *)
| (* Rung   7  MACHINE ADAPTION, BOTTOM SIZE 1                            *)
| (* Rung   8  MACHINE ADAPTION, BOTTOM SIZE 2                            *)
| (* Rung   9  MACHINE ADAPTION, BOTTOM SIZE 3                            *)
| (* Rung  10  MACHINE ADAPTION, BOTTOM SIZE 4                            *)
| (* Rung  11  MACHINE ADAPTION, BOTTOM SIZE 5                            *)
| (* Rung  12  MACHINE ADAPTION, BOTTOM SIZE 6                            *)
| (* Rung  13  MACHINE ADAPTION, BOTTOM SIZE 7                            *)
| (* Rung  14  MACHINE ADAPTION, BOTTOM SIZE 8                            *)
| (* Rung  15  MACHINE ADAPTION, BOTTOM SIZE 9                            *)
| (* Rung  16  GENERAL ADAPTION                                           *)
| (*             * INFEED CONVEYOR SINGLE/UNIT                            *)
| (*             * EXTERNAL CONVEYOR CONTROL TYPE                         *)
| (*             * EXTERNAL CONVEYOR TYPE                                 *)
| (*             * INFEED CONVEYOR CONTROL TYPE                           *)
| (*             * WATER VALVE CHOICE                                     *)
| (*             * WRAP AROUND UNIT CHOICE                                *)
| (*             * LUBRICATION AUTOFILL CHOICE                            *)
| (*             * LIGHTBARRIER CHOICE                                    *)
| (*                                                                      *)
| (* Rung  17  SELECTIONS                                                 *)
| (* Rung  18  MULTIPLEX                                                  *)
| (* Rung  19  SWITCH                                                     *)
| (* Rung  20  REG                                                        *)
| (*             * MANUAL SPEED SELECTION FOR GROUPING PUSHER             *)
| (*             * MANUAL SPEED SELECTION FOR PUSHER                      *)
| (*             * SEND SPEED VALUES TO SERVO UNIT                        *)
| (* Rung 436  MANUAL EMPTY                                               *)
| (* Rung 724  PLMS                                                       *)
| (*                                                                      *)
| (* Interupt  T0001 FAST SCAN (runs every 1 ms as an interupt)           *)
| (*             * MAIN SHAFT MOTOR SEQUENCE                              *)
| (*             * FEEDING MOTOR SEQUENCE                                 *)
| (*************************************************************************)
|
|               Bottom                                                    << RUNG 6  STEP #0003 >>
|Bottom         size
|size 0         select
|               0
|%M0880  +-------------+
+--] [---+ CALL PATTER0+
|        | (SUBROUTINE)|
|        +-------------+
|
|               Bottom                                                    << RUNG 7  STEP #0005 >>
|Bottom         size
|size 1         select
|               1
|%M0881  +-------------+
+--] [---+ CALL PATTER1+
|        | (SUBROUTINE)|
|        +-------------+
|
|               Bottom                                                    << RUNG 8  STEP #0007 >>
|Bottom         size
|size 2         select
|               2
|%M0882  +-------------+
+--] [---+ CALL PATTER2+
|        | (SUBROUTINE)|
|        +-------------+
|
|               Bottom                                                    << RUNG 9  STEP #0009 >>
|Bottom         size
|size 3         select
|               3
|%M0883  +-------------+
+--] [---+ CALL PATTER3+
|        | (SUBROUTINE)|
|        +-------------+
|

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```

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|              Bottom                                                  << RUNG 10  STEP #0011 >>
|Bottom        size
|size 4        select
|              4
|%M0884  +-------------+
+--] [---+ CALL PATTER4+
|        | (SUBROUTINE)|
|        +-------------+
|
|              Bottom                                                  << RUNG 11  STEP #0013 >>
|Bottom        size
|size 5        select
|              5
|%M0885  +-------------+
+--] [---+ CALL PATTER5+
|        | (SUBROUTINE)|
|        +-------------+
|
|              Bottom                                                  << RUNG 12  STEP #0015 >>
|Bottom        size
|size 6        select
|              6
|%M0886  +-------------+
+--] [---+ CALL PATTER6+
|        | (SUBROUTINE)|
|        +-------------+
|
|              Bottom                                                  << RUNG 13  STEP #0017 >>
|Bottom        size
|size 7        select
|              7
|%M0887  +-------------+
+--] [---+ CALL PATTER7+
|        | (SUBROUTINE)|
|        +-------------+
|
|              Bottom                                                  << RUNG 14  STEP #0019 >>
|Bottom        size
|size 8        select
|              8
|%M0888  +-------------+
+--] [---+ CALL PATTER8+
|        | (SUBROUTINE)|
|        +-------------+
|
|              Bottom                                                  << RUNG 15  STEP #0021 >>
|Bottom        size
|size 9        select
|              9
|%M0889  +-------------+
+--] [---+ CALL PATTER9+
|        | (SUBROUTINE)|
|        +-------------+
|
|              General                                                 << RUNG 16  STEP #0023 >>
|              adaptio
|ALW_ON        n
|%S0007  +-------------+
+--] [---+ CALL GENERAL+
|        | (SUBROUTINE)|
|        +-------------+
|
|              Selecti                                                 << RUNG 17  STEP #0025 >>
|              on of
|              adaptio
|ALW_ON        ns
|%S0007  +-------------+
+--] [---+ CALL SELECTI+
|        | (SUBROUTINE)|
|        +-------------+
|
|              Multipl                                                 << RUNG 18  STEP #0027 >>
|              ex
|ALW_ON        display
|%S0007  +-------------+
+--] [---+ CALL MULTIPX+
|        | (SUBROUTINE)|
|        +-------------+
|
|              Size se                                                 << RUNG 19  STEP #0029 >>
|              lector
|              switch
|ALW_ON        pos
|%S0007  +-------------+
+--] [---+ CALL SWITCH +
|        | (SUBROUTINE)|
|        +-------------+
|

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```

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|               Registe                                                   << RUNG 20  STEP #0031 >>
|               rs for
|               pneumat
|ALW_ON         ic serv
|%S0007  +-------------+
+--] [---+ CALL   REG  +
|        | (SUBROUTINE)|
|        +-------------+
|
```

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| (*************************************************************************)
| (*                                                                       *)
| (* START / STOP SEQUENCE                                                 *)
| (*                                                                       *)
| (*************************************************************************)
|
|Pulse                                                                        << RUNG 22  STEP #0034 >>
|end
|multipl
|.train  Flash
|         FLASH                                                   FLASH
|%T0006  %M0003                                                  %M0003
+--] [-----]/[--+-------------------------------------------------------( )--  (* Flash                          *)
|         0022  |                                                            Cross reference for FLASH
|Pulse          |                                                            -] [- 22,23,45,50,53,54,479,486,492,495,501,505,
|end            |                                                                 514,519,524,532,544,551,561,564,567,571,603,
|multipl        |                                                                 607,611,618,643,644,645,646,712
|.train  Flash  |                                                            -]/[- 22,551
|         FLASH |
|%T0006  %M0003 |
+--]/[-----] [--+
|         0022
|
|Flash                                                                        << RUNG 23  STEP #0040 >>
| FLASH
|%M0003                                                          %T0005
+--] [-----------------------------------------------------------------(^)--  (* Pulse flash                    *)
| 0022                                                                       Cross reference for %T0005
|                                                                                  NONE
|
|Step up                                                                      << RUNG 24  STEP #0042 >>
| S01H
|%I0005                                                          %T0003
+--] [-----------------------------------------------------------------(^)--  (* Pulse step up push button      *)
|                                                                            Cross reference for %T0003
|                                                                            -] [- 25,252
|                                                                            -]/[- 113
|
|Pulse                                                                        << RUNG 25  STEP #0044 >>
|step up Ready
|push    to step         Step
|button  up      Step 3  down
|                STEP_3   S02H
|%T0003  %M0004  %M0103  %I0006                                  %T0001
+--] [-----] [-----]/[-----]/[-----------------------------------------( )--  (* Pulse step up                  *)
| 0024    0031    0048                                                       Cross reference for %T0001
|                                                                            -] [- 28,32,34,41,48
|
|Step                                                                         << RUNG 26  STEP #0049 >>
|down
| S02H
|%I0006                                                          %T0002
+--] [-----------------------------------------------------------------(^)--  (* Pulse step down               *)
|                                                                            Cross reference for %T0002
|                                                                            -] [- 29
|                                                                            -]/[- 41,48
|
|        Press.                                                               << RUNG 27  STEP #0051 >>
|Step    guard
|down    air     Step 2
| S02H    B100   STEP_2
|%I0006  %I0004  %M0102  +-----+                                  %M0007
+--] [-----]/[-----]/[---+ TMR +-----------------------------------------( )--  (* Delay step down               *)
|                 0042   |0.10s|                                             Cross reference for %M0007
|                        |     |                                             -]/[- 34
|                 CONST -+PV   |
|                 +00020 |     |
|                        +-----+
|
|                        Delay
|                        step
|                        down
|
|                        %R0028
|
|Pulse                                                                        << RUNG 28  STEP #0056 >>
|step up
|                                                                STEP_0
|%T0001                                                          %M0100
+--] [-----------------------------------------------------------------(S)--  (* Step 0                        *)
| 0025                                                                       Cross reference for STEP_0
|                                                                            -] [- 33,36,53,54,69,308,477,479,484,486,490,492,
|                                                                                 493,495,501,505,514,517,519,524,530,532,540,
|                                                                                 544,546,549,551,561,564,567,571,601,603,605,
|                                                                                 607,609,611,618,643,644,645,646,651,652,713,
|                                                                                 714
|                                                                            -]/[- 53,56
|                                                                            -(R)  29
|

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|Pulse                                                                          << RUNG 29  STEP #0058 >>
|step
|down    Step 1
|        STEP_1                                                      STEP_0
|%T0002  %M0101                                                      %M0100
+--] [-----]/[-----------------------------------------------------------(R)--  (* Step 0                          *)
| 0026    0034                                                                  Cross reference for STEP_0
|                                                                               -] [- 33,36,53,54,69,308,477,479,484,486,490,492,
|                                                                                     493,495,501,505,514,517,519,524,530,532,540,
|                                                                                     544,546,549,551,561,564,567,571,601,603,605,
|                                                                                     607,609,611,618,643,644,645,646,651,652,713,
|                                                                                     714
|                                                                               -]/[- 53,56
|                                                                               -(S)  28
|
|                                       Alarm o Sum ala                         << RUNG 30  STEP #0061 >>
|        Emerg.s                        verload rm, cru
|Emerg.  top     Overl.  Alarm   Alarm   protece sh in p Alarm
|stop    circuit protec. em.stop doors   ction   usher   servo
|  L12
|%I0001  %I0002  %I0003  %M0049  %M0050  %M0051  %M0081  %M0061
+--] [-----] [-----] [-----]/[-----]/[-----]/[-----]/[-----]/[---------------<+>
|                         0478    0485    0494    0589    0566
|
|        Alarm s Alarm s                                                        << RUNG 31  STEP #0070 >>
|        afety r afety r
|        elay A0 elay A0
|        90 Emst 91 door
|
|        %M0084  %M0085                                                      %M0004
+<+>-------]/[-----]/[--+-----------------------------------------------( )--  (* Ready to step up                 *)
|         0475    0480  |                                                     Cross reference for %M0004
|                       |                                                     -] [- 25,41,46,54
|Step 1                 |
|STEP_1                 |
|%M0101                 |
+--]/[------------------+
| 0034
|
|Pulse                                                                          << RUNG 32  STEP #0075 >>
|step up Step 1  Step 3
|        STEP_1  STEP_3
|%T0001  %M0101  %M0103                                                      %M0110
+--] [--+--] [-----]/[-----------------------------------------------------( )--  (* Bypass hotmelt only in step 1    *)
| 0025  | 0034    0048                                                            Cross reference for %M0110
|Bypass |                                                                       -] [- 32,37
|hotmelt|
|only in|
|step 1 |
|       |
|%M0110 |
+--] [--+
| 0032
|
|        No                                                                     << RUNG 33  STEP #0080 >>
|        yellow  No red
|        alarms  alarms
|Step 0  on      on
|STEP_0
|%M0100  %M0096  %M0098                                                      %M0111
+--] [-----] [-----] [-----------------------------------------------------( )--  (* Ready for step 1                 *)
| 0029    0636    0641                                                          Cross reference for %M0111
|                                                                               -] [- 34,54
|
|                               ME.                                             << RUNG 34  STEP #0084 >>
|        Ready   Delay           Pulse
|Pulse   for     step            empty.
|step up step 1  down            finish.
|                        FST_SCN                                             STEP_1
|%T0001  %M0111  %M0007  %S0001  %T0043                                      %M0101
+--] [-----] [--+--]/[--+--]/[-----]/[-------------------------------------( )--  (* Step 1                           *)
| 0025    0033  | 0027  |                                                       Cross reference for STEP_1
|               |       |                                                       -] [- 32,34,35,36,45,46,54,65,68,104,134,140,165,
|ME.Puls No red |       |                                                             172,173,174,184,185,186,187,230,231,237,244,
|e step  alarms |       |                                                             246,248,258,264,267,268,272,290,292,306,307,
|up      on     |Step 2 |                                                             309,323,337,338,349,351,363,364,371,372,396,
|               |STEP_2 |                                                             400,424,427,439,441,442,446,459,475,480,507,
|%T0040  %M0098 |%M0102 |                                                             509,511,515,520,521,555,559,564,565,567,569,
+--] [-----] [--+--] [--+                                                             591,594,597,599,662,663,672,682,687,688
|         0641  | 0042                                                          -]/[- 29,31,54,233,253,256,333,534,563,661,700
|               |
|Step 1         |
|STEP_1         |
|%M0101         |
+--] [----------+
| 0034
|
|Step 1                                                                         << RUNG 35  STEP #0096 >>
|STEP_1
|%M0101                                                                      %T0018
+--] [-------------------------------------------------------------------(^)--  (* Pulse, Step1+ *)
| 0034                                                                          Cross reference for %T0018
|                                                                               -] [- 687,688
|

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|Step up Step 0  Step 2                                                          << RUNG 36  STEP #0098 >>
| H01S   STEP_0  STEP_2                                                  H001
|%M0145  %M0100  %M0102                                                 %M0129
+--] [-----] [--+--]/[-------------------------------------------------------( )--  (* Step 1 lamp                      *)
| 0054    0029  | 0042                                                          Cross reference for H001
|               |                                                                        NONE
|Step 1         |
|STEP_1         |
|%M0101         |
+--] [----------+
| 0034
|
|        Bypass                                                                  << RUNG 37  STEP #0103 >>
|        hotmelt
|        only in Lamp
|Step up step 1  test
| S01H           L_TEST
|%I0005  %M0110  %M0006          +-----+                                 %M0300
+--] [-----] [-----] [--+--------+OFDT +---------------------------------( )--  (* Bypass hotmelt                    *)
|         0032    0647  |        |0.10s|                                        Cross reference for %M0300
|                       |        |     |                                        -] [- 46,51
|Servo                  |        |     |
|axis                   |        |     |
|ident                  |        |     |
|                       |        |     |
|%M1170                 |        |     |
+--] [-----------------+ CONST -+PV   |
| 0723                    +00010 |     |
|                                +-----+
|                                Bypass
|                                hotmelt
|                                in
|                                step 1
|
|                                %R0001
|
|        Synch.          Synch   WA      WA done         Group.                  << RUNG 38  STEP #0109 >>
|Main    stop    Feeding stop    squeeze - ok to Pusher  pusher
|shaft   main    motor   feeding down    step    home    home
|start   shaft   start   motor   memory  down    pos.    pos.
|G22-SF          G23-SF                          B121    B132
|%Q0004  %M0785  %Q0006  %M0777  %M1214  %M3243  %I0034  %I0051          %M3241
+--]/[-----] [-----]/[-----] [--+--] [-----] [--+--] [-----] [-------------( )--  (* Machine components in synch *)
|                             | 0424    0430  |                                 Cross reference for %M3241
|                             |        Synch. |                                 -] [- 39,529,539
|                             |        stop   |                                 -]/[- 40
|                             |        main   |
|                             |TRAY    shaft  |
|                             |               |
|                             |%M0855  %M0785 |
|                             +--] [-----] [--+
|
|Machine Group.                                                                  << RUNG 39  STEP #0122 >>
|compone pusher
|nts in  home
|synch   pos.
|         B132
|%M3241  %I0051                                                         %M3244
+--] [-----] [-------------------------------------------------------------( )--  (* Machine in synch &grouping home *)
| 0038                                                                           Cross reference for %M3244
|                                                                                -]/[- 41
|
|        Machine                                                                 << RUNG 40  STEP #0125 >>
|        compone
|        nts in
|Step 2  synch
|STEP_2
|%M0102  %M3241  +-----+                                                 %M3242
+--] [-----]/[---+ TMR +-------------------------------------------------( )--  (* Synch not found, allow step down *)
| 0042    0038   |0.10s|                                                         Cross reference for %M3242
|                |     |                                                         -] [- 529,539
|         CONST -+PV   |                                                         -]/[- 41
|         +00055 |     |
|                +-----+
|                Timer,
|                max
|                time to
|                synch
|
|                %R3464
|
```

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|                                     Alarm   Alarm   Alarm   Alarm           << RUNG 41  STEP #0129 >>
|        Ready   Pulse          Ready  air     Dolly + frequen groupin
|Pulse   for     step           to step pressur guide   cy      g
|step up step 2  down           up     e       rail    control section
|
|%T0001  %M0112  %T0002         %M0004 %M0052  %M0047  %M0054  %M0056
+--] [-----] [--+--]/[--+-------+--] [-----]/[-----]/[-----]/[-----]/[-------<+>
| 0025    0047  | 0026  |       | 0031    0500    0523    0512    0531
|               |       |       |
|Step 2         |Step 3 |       |
|STEP_2         |STEP_3 |       |
|%M0102         |%M0103 |       |
+--] [----------+--] [--+       |
| 0042          | 0048          |
|               |Machine Synch n|
|               |in sync ot foun|
|               |h &grou d, allo|
|               |ping ho w step |
|               |               |
|               |%M3244  %M3242 |
|               +--]/[-----]/[--+
|                 0039    0040
|
|                Very    Alarm,          ME.                                << RUNG 42  STEP #0144 >>
|        Alarm   low     check   No red Pulse
|        not     level   safety  alarms empty.
|        synched blanks  clutch  on     finish.
|                                                                  STEP_2
|        %M0066  %M0080  %M0083  %M0098 %T0043                     %M0102
+<+>-------]/[-----]/[-----]/[-----] [-----]/[----------------------------( )--  (* Step 2                          *)
|         0616    0539    0610    0641                                        Cross reference for STEP_2
|                                                                             -] [- 34,40,41,43,44,45,48,50,51,54,98,99,101,111,
|                                                                                  125,133,134,150,151,156,158,165,172,183,187,
|                                                                                  243,244,252,255,267,268,285,302,303,304,313,
|                                                                                  316,317,318,330,333,337,338,339,343,347,358,
|                                                                                  367,369,373,375,376,379,381,384,385,388,406,
|                                                                                  407,409,410,412,417,426,429,449,457,498,520,
|                                                                                  521,533,537,545,558,562,575,577,579,583,585,
|                                                                                  587,614,619,620,621,622,623,624,625,626,690,
|                                                                                  691,692,693,694,695,696,697,701
|                                                                             -]/[- 27,36,54,133,238,439,441,442,459,638,643,
|                                                                                  702,706,716,717
|
|Step 2                                                                       << RUNG 43  STEP #0151 >>
|STEP_2
|%M0102                                                            %T0016
+--] [-----------------------------------------------------------------(^)--  (* Pulse, Step2+ *)
| 0042                                                                        Cross reference for %T0016
|                                                                             -] [- 231,261,307,309,328,329,344,345,378,432,690
|                                                                             -]/[- 306,308,430
|
|Step 2                                                                       << RUNG 44  STEP #0153 >>
|STEP_2
|%M0102                                                            %T0017
+--] [-----------------------------------------------------------------(v)--  (* Pulse, Step2- *)
| 0042                                                                        Cross reference for %T0017
|                                                                             -] [- 343,665,686,687
|
|        Ready                                                                << RUNG 45  STEP #0155 >>
|        for
|Step 1  step 2  Flash   Step 3
|STEP_1           FLASH  STEP_3                                     H002
|%M0101  %M0112  %M0003  %M0103                                    %M0130
+--] [-----] [-----] [--+--]/[-------------------------------------------( )--  (* Step 2 lamp                     *)
| 0034    0047    0022  | 0048                                                Cross reference for H002
|                       |                                                              NONE
|Step 2                 |
|STEP_2                 |
|%M0102                 |
+--] [------------------+
| 0042
|
|                       Alarm           No                                    << RUNG 46  STEP #0161 >>
|Ready                  air     Alarm   yellow  No red  No
|to step         Hotmelt pressur group.  alarms  alarms  yellow  No red
|up      Step 1  ready   e       sect.   on      on      leds on leds on
|        STEP_1                  H028
|%M0004  %M0101  %I0043  %M0052  %M0158  %M0096  %M0098  %M0097  %M0099
+--] [-----] [--+--] [--+--]/[-----]/[-----] [-----] [-----] [-----] [-------<+>
| 0031    0034  |       | 0500    0532    0636    0641    0640    0642
|               |       |
|               |Bypass |
|               |hotmelt|
|               |       |
|               |%M0300 |
|               +--] [--+
|                 0037
|
```

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|               No mat.                                                          << RUNG 47  STEP #0173 >>
|        No      betw.   Servo
|        blanks  inf and Rst,
|        present pattern Active
|
|        %M1149  %M0910  %M3180                                        %M0112
+<+>-------]/[-----]/[-----]/[-----------------------------------------( )--  (* Ready for step 2                 *)
|         0534           0672                                                   Cross reference for %M0112
|                                                                               -] [- 41,45,54,643
|
|                                                 Infeed  Very lo               << RUNG 48  STEP #0178 >>
|        Ready   Pulse                   Servo    fault,  w lev.
|Pulse   for     step            Hotmelt axis     Step do blanks-
|step up step 3  down    Step 2  ready   ident    wn to s Stdown
|                        STEP_2                                        STEP_3
|%T0001  %M0113  %T0002  %M0102  %I0043  %M1170  %M3177  %M3178        %M0103
+--] [-----] [--+--]/[-----] [--+--] [--+--]/[-----]/[-----]/[-------------( )--  (* Step 3                         *)
| 0025    0052  | 0026    0042  |       | 0723    0528    0538                  Cross reference for STEP_3
|               |               |       |                                       -] [- 41,48,49,50,102,111,117,125,145,151,176,178,
|Step 3         |               |Step 3 |                                             189,190,191,296,312,313,326,339,348,379,445,
|STEP_3         |               |STEP_3 |                                             453,454,466,471,473,510,515,526,527,581,597,
|%M0103         |               |%M0103 |                                             599,615,628
+--] [----------+               +--]/[--+                                       -]/[- 25,32,45,48,54,113,148,309,345,381,397,723
| 0048                           | 0048  |
|                                |       |
|                                |Alarm  |
|                                |hotmelt|
|                                |unit   |
|                                | H032  |
|                                |%M0162 |
|                                +--] [--+
|                                  0564
|
|Step 3                                                                         << RUNG 49  STEP #0191 >>
|STEP_3
|%M0103                                                                %T0019
+--] [-----------------------------------------------------------------(^)--  (* Pulse, Step3+ *)
| 0048                                                                          Cross reference for %T0019
|                                                                               -] [- 329
|
|        Ready                                                                  << RUNG 50  STEP #0193 >>
|        for
|Step 2  step 3  Flash
|STEP_2           FLASH                                                 H003
|%M0102  %M0113  %M0003                                                %M0131
+--] [-----] [-----] [--+-----------------------------------------------( )--  (* Step 3 lamp                     *)
| 0042    0052    0022  |                                                     Cross reference for H003
|                       |                                                              NONE
|Step 3                 |
|STEP_3                 |
|%M0103                 |
+--] [------------------+
| 0048
|
|Synch.          Reached         No                              Crash        << RUNG 51  STEP #0198 >>
|stop            synch.  Press.  yellow          No      Pusher  in
|main            stop    guard   alarms  Hotmelt blanks  reset,  dischar
|shaft   Step 2  pos.    air     on      ready   present Active  area
|        STEP_2           B100
|%M0785  %M0102  %M0273  %I0004  %M0096  %I0043  %M1149  %M3166  %M0075
+--] [--+--] [-----] [-----] [-----] [--+--] [--+--]/[-----]/[-----]/[-------<+>
|       | 0042    0347            0636  |       | 0534    0687    0558
|ME.    |                               |       |
|Start  |                               |       |
|Main   |                               |Bypass |
|shaft  |                               |hotmelt|
|       |                               |       |
|%M0611 |                               |%M0300 |
+--] [--+                               +--] [--+
|                                         0037
|
|        Transfe Sum                                                            << RUNG 52  STEP #0211 >>
|        r plate alarm,  Alarm
|        up (2 l jam in  fallen
|        ed flas pusher  package
|
|        %M3232  %M0282  %M0055                                        %M0113
+<+>-------]/[-----]/[-----]/[-----------------------------------------( )--  (* Ready for step 3                 *)
|         0545    0600    0518                                                   Cross reference for %M0113
|                                                                               -] [- 48,50,54
|

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|Step 0                                                                                  << RUNG 53  STEP #0216 >>
|STEP_0                                                                     H02S
|%M0100                                                                    %M0146
+--]/[------------------+-----------------------------------------------( )--  (* Step down                          *)
| 0029                  |                                                       Cross reference for H02S
|                       |                                                                 NONE
|No PP                  |
|length                 |
|choosen Flash   Step 0 |
|         FLASH  STEP_0 |
|%M1051  %M0003  %M0100 |
+--] [--+--] [-----] [--+
|       | 0022    0029
|       |
|No PP  |
|width  |
|choosen|
|       |
|%M1053 |
+--] [--+
|       |
|No tray|
|or WA  |
|flap   |
|choosen|
|       |
|%M1054 |
+--] [--+
|       |
|No X*  |
|choosen|
|       |
|%M1055 |
+--] [--+
|
|        Ready                   Ready                                             << RUNG 54  STEP #0225 >>
|        for                     to step
|Step 0  step 1  Step 1  Flash   up
|STEP_0          STEP_1   FLASH                                             H01S
|%M0100  %M0111  %M0101  %M0003  %M0004                                    %M0145
+--] [-----] [-----]/[--+--] [-----] [--+--------------------------------( )--  (* Step up                            *)
| 0029    0033    0034  | 0022    0031  |                                       Cross reference for H01S
|                       |               |                                       -] [- 36
|        Ready          |               |
|        for            |               |
|Step 1  step 2  Step 2 |               |
|STEP_1          STEP_2 |               |
|%M0101  %M0112  %M0102 |               |
+--] [-----] [-----]/[--+               |
| 0034    0047    0042  |               |
|                       |               |
|        Ready          |               |
|        for            |               |
|Step 2  step 3  Step 3 |               |
|STEP_2          STEP_3 |               |
|%M0102  %M0113  %M0103 |               |
+--] [-----] [-----]/[--+               |
| 0042    0052    0048                  |
|                                       |
|No PP                                  |
|length                                 |
|choosen Flash   Step 0                 |
|         FLASH  STEP_0                 |
|%M1051  %M0003  %M0100                 |
+--] [--+--] [-----] [------------------+
|       | 0022    0029
|       |
|No PP  |
|width  |
|choosen|
|       |
|%M1053 |
+--] [--+
|       |
|No tray|
|or WA  |
|flap   |
|choosen|
|       |
|%M1054 |
+--] [--+
|       |
|No X*  |
|choosen|
|       |
|%M1055 |
+--] [--+
|
| (*************************************************************************)
| (* SETTING ENCODER                                                       *)
| (*************************************************************************)
|

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```

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|Reset/                 Reset                                                << RUNG 56  STEP #0247 >>
|Lamp    Step           setting
|test    down    Step 0  encoder
| S03H    S02H   STEP_0
|%I0007  %I0006  %M0100  %T0150                                  %M3107
+--] [-----] [--+--]/[-----]/[-----------------------------------------( )--  (* Setting encoder                  *)
|               | 0029    0057                                               Cross reference for %M3107
|               |                                                            -] [- 56,57,643,644,645,646
|Setting        |                                                            -]/[- 57
|encoder        |
|               |
|%M3107         |
+--] [----------+
| 0056
|
|Setting                                                                     << RUNG 57  STEP #0253 >>
|encoder
|
|%M3107  +-----+                                                  %T0150
+--] [---+ONDTR+-----------------------------------------------------------(^)--  (* Reset setting encoder            *)
| 0056   |0.10s|                                                            Cross reference for %T0150
|        |     |                                                            -]/[- 56
|Setting |     |
|encoder |     |
|        |     |
|%M3107  |     |
+--]/[---+R    |
| 0056   |     |
|        |     |
| CONST -+PV   |
| +05000 |     |
|        +-----+
|        Timer
|        reset
|        encoder
|        test
|
|        %R3154
|
|Encoder                                                                     << RUNG 58  STEP #0257 >>
|test
|selecto
|r
| S003
|%I0077  +-----+                                                  %M3108
+--] [---+ EQ_ |+-----------------------------------------------------------( )--  (* 0 pos angle encoder feeding      *)
|        | INT ||                                                            Cross reference for %M3108
|        |     ||                                                            -] [- 644
| CONST -+I1  Q++
| +00255 |     |
|        |     |
|Angle   |     |
|encoder |     |
|value   |     |
|Feed.m. |     |
|        |     |
|%R0401 -+I2   |
|        +-----+
|
|Encoder                                                                     << RUNG 59  STEP #0260 >>
|test
|selecto
|r
| S003
|%I0077  +-----+                                                  %M3109
+--] [---+RANGE|+-----------------------------------------------------------( )--  (* -5 pos angle encoder feeding     *)
|        | INT ||                                                            Cross reference for %M3109
|        |     ||                                                            -] [- 643
| CONST -+L1  Q++
| +00251 |     |
|        |     |
| CONST -+L2   |
| +00254 |     |
|        |     |
|Angle   |     |
|encoder |     |
|value   |     |
|Feed.m. |     |
|        |     |
|%R0401 -+IN   |
|        +-----+
|

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|Encoder                                                                << RUNG 60  STEP #0263 >>
|test
|selecto
|r
| S003
|%I0077  +-----+                                          %M3110
+--] [---+RANGE|+-------------------------------------------------------( )--  (* +5 pos angle encoder feeding     *)
|        | INT ||                                                              Cross reference for %M3110
|        |     ||                                                              -] [- 645
| CONST -+L1  Q++
| +00000 |     |
|        |     |
| CONST -+L2   |
| +00004 |     |
|        |     |
|Angle   |     |
|encoder |     |
|value   |     |
|Feed.m. |     |
|        |     |
|%R0401 -+IN   |
|        +-----+
|
|Encoder                                                                << RUNG 61  STEP #0266 >>
|test
|selecto
|r
| S003
|%I0077  +-----+                                          %M3111
+--]/[---+ EQ_ |+-------------------------------------------------------( )--  (* 0 pos angle encoder main         *)
|        | INT ||                                                              Cross reference for %M3111
|        |     ||                                                              -] [- 644
| CONST -+I1  Q++
| +00000 |     |
|        |     |
|Angle   |     |
|encoder |     |
|value   |     |
|Main m. |     |
|        |     |
|%R0404 -+I2   |
|        +-----+
|
|Encoder                                                                << RUNG 62  STEP #0269 >>
|test
|selecto
|r
| S003
|%I0077  +-----+                                          %M3112
+--]/[---+RANGE|+-------------------------------------------------------( )--  (* -5 pos angle encoder main        *)
|        | INT ||                                                              Cross reference for %M3112
|        |     ||                                                              -] [- 643
| CONST -+L1  Q++
| +00251 |     |
|        |     |
| CONST -+L2   |
| +00255 |     |
|        |     |
|Angle   |     |
|encoder |     |
|value   |     |
|Main m. |     |
|        |     |
|%R0404 -+IN   |
|        +-----+
|
|Encoder                                                                << RUNG 63  STEP #0272 >>
|test
|selecto
|r
| S003
|%I0077  +-----+                                          %M3113
+--]/[---+RANGE|+-------------------------------------------------------( )--  (* +5 pos angle encoder main        *)
|        | INT ||                                                              Cross reference for %M3113
|        |     ||                                                              -] [- 645
| CONST -+L1  Q++
| +00001 |     |
|        |     |
| CONST -+L2   |
| +00005 |     |
|        |     |
|Angle   |     |
|encoder |     |
|value   |     |
|Main m. |     |
|        |     |
|%R0404 -+IN   |
|        +-----+
|

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```

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| (*************************************************************************)
| (*                                                                       *)
| (* HOTMEMELT                                                             *)
| (*                                                                       *)
| (*************************************************************************)
|
|Step 1                                                                        << RUNG 65  STEP #0276 >>
|STEP_1
|%M0101                                                            %T0067
+--] [-------------------------------------------------------------------(^)--  (* Pulse step1 *)
| 0034                                                                         Cross reference for %T0067
|                                                                              -] [- 67
|
|WA unit WA                                                                    << RUNG 66  STEP #0278 >>
|install inside
|ed      flap
|         H017
|%M1007  %M0135                                                    %T0066
+--] [--+--] [--+-------------------------------------------------------(^)--  (* Change cardb. *)
|       |      |                                                              Cross reference for %T0066
|       |WA side|                                                             -] [- 67
|       |flap   |
|       | H018  |
|       |%M0136 |
|       +--] [--+
|
|        ME.                                                                   << RUNG 67  STEP #0283 >>
|Change  Reset
|cardb.  program
|
|%T0066  %M0618  +-----+                                           %M1156
+--] [--+--]/[---+OFDT +-----------------------------------------------( )--  (* Inter rupt K010 *)
| 0066  |        |0.10s|                                                      Cross reference for %M1156
|       |        |     |                                                      -] [- 69
|Pulse  |        |     |
|step1  |        |     |
|       |        |     |
|%T0067 |        |     |
+--] [--+ CONST -+PV   |
| 0065    +00020 |     |
|                +-----+
|                Timer
|                inter
|                rupt
|                K010
|
|                %R3114
|
|Step 1                                                                        << RUNG 68  STEP #0288 >>
|STEP_1
|%M0101  +-----+                                                   %M3239
+--] [---+OFDT +-------------------------------------------------------( )--  Cross reference for %M3239
| 0034   |0.10s|                                                              -] [- 69
|        |     |
| CONST -+PV   |
| +00100 |     |
|        +-----+
|
|        %R3461
|
|        Step 0                                                                << RUNG 69  STEP #0291 >>
|        STEP_0                                                     K010
|%M3239  %M0100                                                    %Q0036
+--] [-----] [--+-----------------------------------------------------( )--  (* Hotmelt unit                    *)
| 0068    0029  |                                                              Cross reference for K010
|               |                                                                        NONE
|ME.            |WA unit WA
|Reset          |install inside  WA side
|program        |ed      flap    flap
|               |         H017    H018                                     WA-GUNS
|%M0618         |%M1007  %M0135  %M0136                                    %Q0073
+--] [----------+--] [-----]/[-----]/[--+-----------------------------------( )--  (* WA hose/gun off *)
|               |                     |                                          Cross reference for WA-GUNS
|               |WA unit              |                                                  NONE
|               |install              |
|               |ed                   |
|               |                     |
|               |%M1007               |
|               +--]/[-----------------+
|               |
|               |Inter
|               |rupt
|               |K010
|               |                                                   STBY
|               |%M1156                                            %Q0074
|               +--] [-----------------------------------------------( )--  (* Standby by signal *)
|                 0067                                                         Cross reference for STBY
|                                                                                  NONE
|
```

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|               1:st    Synch                                                   << RUNG 70  STEP #0307 >>
|        Feeding lower   stop
|Width   motor   hotmelt feeding
|2x      start   done    motor
|        G23-SF
|%M0896  %Q0006  %M0790  %M0777  +-----+                                %M0780
+--] [-----] [-----]/[-----]/[---+ GE_ |+--------------------------------( )--  (* Hotmelt 1:st dot, lower          *)
|                0077            | INT ||                                      Cross reference for %M0780
|                                |     ||                                      -] [- 76
|                        Feed    |     ||
|                        chain   |     ||
|                        move in |     ||
|                        MM      |     ||
|                                |     ||
|                        %R0405 --+I1  Q++
|                                |     |
|                        1:st    |     |
|                        hotmelt |     |
|                        start,  |     |
|                        lower   |     |
|                                |     |
|                        %R0501 --+I2   |
|                                +-----+
|
|               1:st    Synch   High                                            << RUNG 71  STEP #0313 >>
|        Feeding lower   stop    speed
|Width   motor   hotmelt feeding in
|2x      start   done    motor   machine
|        G23-SF
|%M0896  %Q0006  %M0790  %M0777  %M1285  +-----+                        %M1287
+--] [-----] [-----]/[-----]/[-----] [---+ GE_ |+-------------------------( )--  (* Hotmelt 1:dot low H/S            *)
|                0077             0711   | INT ||                                Cross reference for %M1287
|                                        |     ||                                -] [- 76
|                                Feed    |     ||
|                                chain   |     ||
|                                move in |     ||
|                                MM      |     ||
|                                        |     ||
|                                %R0405 --+I1  Q++
|                                        |     |
|                                1:st    |     |
|                                hotmelt |     |
|                                start,  |     |
|                                lower   |     |
|                                        |     |
|                                %R0540 --+I2   |
|                                       +-----+
|
|               1:st    Synch                                                   << RUNG 72  STEP #0320 >>
|        Feeding lower   stop
|Width   motor   hotmelt feeding
|3x      start   done    motor
|        G23-SF
|%M0897  %Q0006  %M0790  %M0777  +-----+                                %M0800
+--] [-----] [-----]/[-----]/[---+ GE_ |+--------------------------------( )--  (* Hotmelt 1:st dot,lower           *)
|                0077            | INT ||                                      Cross reference for %M0800
|                                |     ||                                      -] [- 76
|                        Feed    |     ||
|                        chain   |     ||
|                        move in |     ||
|                        MM      |     ||
|                                |     ||
|                        %R0405 --+I1  Q++
|                                |     |
|                        1:st    |     |
|                        hotmelt |     |
|                        start,  |     |
|                        lower   |     |
|                                |     |
|                        %R0505 --+I2   |
|                                +-----+
|
```

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|               1:st    Synch                                                   << RUNG 73  STEP #0326 >>
|        Feeding lower   stop
|Width   motor   hotmelt feeding
|4x      start   done    motor
|        G23-SF
|%M0898  %Q0006  %M0790  %M0777  +-----+                                %M0804
+--] [-----] [-----]/[-----]/[---+ GE_ |+--------------------------------( )--  (* Hotmelt 1:st dot,lower          *)
|                0077           | INT ||                                      Cross reference for %M0804
|                               |     ||                                      -] [- 76
|                       Feed    |     ||
|                       chain   |     ||
|                       move in |     ||
|                       MM      |     ||
|                               |     ||
|                       %R0405 -+I1  Q++
|                               |     |
|                       1:st    |     |
|                       hotmelt |     |
|                       start,  |     |
|                       lower   |     |
|                               |     |
|                       %R0509 -+I2   |
|                               +-----+
|
|               1:st    Synch                                                   << RUNG 74  STEP #0332 >>
|        Feeding lower   stop
|Width   motor   hotmelt feeding
|5x      start   done    motor
|        G23-SF
|%M0899  %Q0006  %M0790  %M0777  +-----+                                %M0806
+--] [-----] [-----]/[-----]/[---+ GE_ |+--------------------------------( )--  (* Hotmelt 1:st dot,lower          *)
|                0077           | INT ||                                      Cross reference for %M0806
|                               |     ||                                      -] [- 76
|                       Feed    |     ||
|                       chain   |     ||
|                       move in |     ||
|                       MM      |     ||
|                               |     ||
|                       %R0405 -+I1  Q++
|                               |     |
|                       1:st    |     |
|                       hotmelt |     |
|                       start,  |     |
|                       lower   |     |
|                               |     |
|                       %R0515 -+I2   |
|                               +-----+
|
|               1:st    Synch                                                   << RUNG 75  STEP #0338 >>
|        Feeding lower   stop
|Width   motor   hotmelt feeding
|6x      start   done    motor
|        G23-SF
|%M0900  %Q0006  %M0790  %M0777  +-----+                                %M0810
+--] [-----] [-----]/[-----]/[---+ GE_ |+--------------------------------( )--  (* Hotmelt 1:st dot,lower          *)
|                0077           | INT ||                                      Cross reference for %M0810
|                               |     ||                                      -] [- 76
|                       Feed    |     ||
|                       chain   |     ||
|                       move in |     ||
|                       MM      |     ||
|                               |     ||
|                       %R0405 -+I1  Q++
|                               |     |
|                       1:st    |     |
|                       hotmelt |     |
|                       start,  |     |
|                       lower   |     |
|                               |     |
|                       %R0517 -+I2   |
|                               +-----+
|

Program: A454891                         C:\LM90\VISN\P1000\A454891                                  Block: _MAIN
```

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                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

|Hotmelt High                                                                  << RUNG 76  STEP #0344 >>
|1:st    speed
|dot,    in
|lower   machine
|
|%M0800  %M1285                                                  %M0799
+--] [--+--]/[--+-------------------------------------------------------( )--  (* 1:st lower hotmelt *)
| 0072  | 0711  |                                                             Cross reference for %M0799
|Hotmelt|       |                                                             -] [- 77,98
|1:st   |       |
|dot,   |       |
|lower  |       |
|       |       |
|%M0780 |       |
+--] [--+       |
| 0070  |       |
|Hotmelt|       |
|1:st   |       |
|dot,   |       |
|lower  |       |
|       |       |
|%M0810 |       |
+--] [--+       |
| 0075  |       |
|Hotmelt|       |
|1:st   |       |
|dot,   |       |
|lower  |       |
|       |       |
|%M0804 |       |
+--] [--+       |
| 0073  |       |
|Hotmelt|       |
|1:st   |       |
|dot,   |       |
|lower  |       |
|       |       |
|%M0806 |       |
+--] [--+       |
| 0074          |
|        High   |
|Hotmelt speed  |
|1:dot   in     |
|low H/S machine|
|               |
|%M1287  %M1285 |
+--] [-----] [--+
| 0071    0711
|
|        Synch                                                                 << RUNG 77  STEP #0354 >>
|1:st    stop
|lower   feeding
|hotmelt motor
|
|%M0799  %M0777  +-----+                                         %M0790
+--] [--+--]/[---+ TMR +-------------------------------------------------( )--  (* 1:st lower hotmelt done          *)
| 0076  |        |0.01s|                                                      Cross reference for %M0790
|1:st   |        |     |                                                      -] [- 77
|lower  |Length  |     |                                                      -]/[- 70,71,72,73,74,75,78,79,98
|hotmelt|of 1:st |     |
|done   |lower   |     |
|       |hotmelt |     |
|%M0790 |        |     |
+--] [--+%R0522 -+PV   |
| 0077           |     |
|                +-----+
|                1:st
|                lower
|                hotmelt
|                lenght
|
|                %R0139
|
```

```
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|               1:st    Synch                                                   << RUNG 78  STEP #0359 >>
|        Feeding lower   stop
|Width   motor   hotmelt feeding
|2x      start   done    motor
|        G23-SF
|%M0896  %Q0006  %M0790  %M0777  +-----+                                %M0781
+--] [-----] [-----]/[-----]/[---+ GE_ |+--------------------------------( )--  (* Hotmelt 1:st dot, upper          *)
|                0077           | INT ||                                      Cross reference for %M0781
|                               |     ||                                      -] [- 84
|                       Feed    |     ||
|                       chain   |     ||
|                       move in |     ||
|                       MM      |     ||
|                               |     ||
|                       %R0405 -+I1  Q++
|                               |     |
|                       1:st    |     |
|                       hotmelt |     |
|                       start,  |     |
|                       upper   |     |
|                               |     |
|                       %R0502 -+I2   |
|                               +-----+
|
|               1:st    Synch   High                                            << RUNG 79  STEP #0365 >>
|        Feeding lower   stop    speed
|Width   motor   hotmelt feeding in
|2x      start   done    motor   machine
|        G23-SF
|%M0896  %Q0006  %M0790  %M0777  %M1285  +-----+                        %M1288
+--] [-----] [-----]/[-----]/[-----] [---+ GE_ |+-------------------------( )--  (* Hotmelt 1:dot upp H/S            *)
|                0077            0711   | INT ||                                Cross reference for %M1288
|                                       |     ||                                -] [- 84
|                               Feed    |     ||
|                               chain   |     ||
|                               move in |     ||
|                               MM      |     ||
|                                       |     ||
|                               %R0405 -+I1  Q++
|                                       |     |
|                               1:st    |     |
|                               hotmelt |     |
|                               start,  |     |
|                               upper   |     |
|                                       |     |
|                               %R0541 -+I2   |
|                                       +-----+
|
|               1:st    Synch                                                   << RUNG 80  STEP #0372 >>
|        Feeding upper   stop
|Width   motor   hotmelt feeding
|3x      start   done    motor
|        G23-SF
|%M0897  %Q0006  %M0792  %M0777  +-----+                                %M0801
+--] [-----] [-----]/[-----]/[---+ GE_ |+--------------------------------( )--  (* Hotmelt 1:st dot, upper          *)
|                0085           | INT ||                                      Cross reference for %M0801
|                               |     ||                                      -] [- 84
|                       Feed    |     ||
|                       chain   |     ||
|                       move in |     ||
|                       MM      |     ||
|                               |     ||
|                       %R0405 -+I1  Q++
|                               |     |
|                       1:st    |     |
|                       hotmelt |     |
|                       start,  |     |
|                       upper   |     |
|                               |     |
|                       %R0506 -+I2   |
|                               +-----+
|
```

```
Program: A454891                          C:\LM90\VISN\P1000\A454891                                Block: _MAIN
```

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|               1:st    Synch                                                   << RUNG 81  STEP #0378 >>
|        Feeding upper   stop
|Width   motor   hotmelt feeding
|4x      start   done    motor
|        G23-SF
|%M0898  %Q0006  %M0792  %M0777  +-----+                                %M0805
+--] [-----] [-----]/[-----]/[---+ GE_ |+--------------------------------( )--  (* Hotmelt 1:st dot, upper          *)
|                0085           | INT ||                                       Cross reference for %M0805
|                               |     ||                                       -] [- 84
|                       Feed    |     ||
|                       chain   |     ||
|                       move in |     ||
|                       MM      |     ||
|                               |     ||
|                       %R0405 -+I1  Q++
|                               |     |
|                       1:st    |     |
|                       hotmelt |     |
|                       start,  |     |
|                       upper   |     |
|                               |     |
|                       %R0510 -+I2   |
|                               +-----+
|
|               1:st    Synch                                                   << RUNG 82  STEP #0384 >>
|        Feeding upper   stop
|Width   motor   hotmelt feeding
|5x      start   done    motor
|        G23-SF
|%M0899  %Q0006  %M0792  %M0777  +-----+                                %M0807
+--] [-----] [-----]/[-----]/[---+ GE_ |+--------------------------------( )--  (* Hotmelt 1:st dot, upper          *)
|                0085           | INT ||                                       Cross reference for %M0807
|                               |     ||                                       -] [- 84
|                       Feed    |     ||
|                       chain   |     ||
|                       move in |     ||
|                       MM      |     ||
|                               |     ||
|                       %R0405 -+I1  Q++
|                               |     |
|                       1:st    |     |
|                       hotmelt |     |
|                       start,  |     |
|                       upper   |     |
|                               |     |
|                       %R0516 -+I2   |
|                               +-----+
|
|               1:st    Synch                                                   << RUNG 83  STEP #0390 >>
|        Feeding upper   stop
|Width   motor   hotmelt feeding
|6x      start   done    motor
|        G23-SF
|%M0900  %Q0006  %M0792  %M0777  +-----+                                %M0811
+--] [-----] [-----]/[-----]/[---+ GE_ |+--------------------------------( )--  (* Hotmelt 1:st dot, upper          *)
|                0085           | INT ||                                       Cross reference for %M0811
|                               |     ||                                       -] [- 84
|                       Feed    |     ||
|                       chain   |     ||
|                       move in |     ||
|                       MM      |     ||
|                               |     ||
|                       %R0405 -+I1  Q++
|                               |     |
|                       1:st    |     |
|                       hotmelt |     |
|                       start,  |     |
|                       upper   |     |
|                               |     |
|                       %R0518 -+I2   |
|                               +-----+
|
```

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|Hotmelt High                                                                   << RUNG 84  STEP #0396 >>
|1:st    speed
|dot,    in
|upper   machine
|
|%M0781  %M1285                                                   %M0814
+--] [--+--]/[--+-------------------------------------------------------( )--  (* 1:st upper hotmelt *)
| 0078  | 0711  |                                                             Cross reference for %M0814
|Hotmelt|       |                                                             -] [- 85,99
|1:st   |       |
|dot,   |       |
|upper  |       |
|       |       |
|%M0801 |       |
+--] [--+       |
| 0080  |       |
|Hotmelt|       |
|1:st   |       |
|dot,   |       |
|upper  |       |
|       |       |
|%M0805 |       |
+--] [--+       |
| 0081  |       |
|Hotmelt|       |
|1:st   |       |
|dot,   |       |
|upper  |       |
|       |       |
|%M0807 |       |
+--] [--+       |
| 0082  |       |
|Hotmelt|       |
|1:st   |       |
|dot,   |       |
|upper  |       |
|       |       |
|%M0811 |       |
+--] [--+       |
| 0083          |
|        High   |
|Hotmelt speed  |
|1:dot   in     |
|upp H/S machine|
|               |
|%M1288  %M1285 |
+--] [-----] [--+
| 0079    0711
|
|        Synch                                                                  << RUNG 85  STEP #0406 >>
|1:st    stop
|upper   feeding
|hotmelt motor
|
|%M0814  %M0777  +-----+                                          %M0792
+--] [--+--]/[---+ TMR +-------------------------------------------------( )--  (* 1:st upper hotmelt done          *)
| 0084  |        |0.01s|                                                       Cross reference for %M0792
|1:st   |        |     |                                                       -] [- 85
|upper  |Length  |     |                                                       -]/[- 80,81,82,83,99
|hotmelt|of 1:st |     |
|done   |upper   |     |
|       |hotmelt |     |
|%M0792 |        |     |
+--] [--+%R0523 -+PV   |
| 0085           |     |
|                +-----+
|                1:st
|                upper
|                hotmelt
|                done
|
|                %R0132
|
```

```
Program: A454891                          C:\LM90\VISN\P1000\A454891                                Block: _MAIN
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                                Page    21
                                           Tetra Cardboard Packer 70 Multi 1100
                                      45489-0001 ELD 000 AA 040223 OHO ECM:162315

|               2:nd    Synch   High                                          << RUNG 86  STEP #0411 >>
|        Feeding lower   stop    speed
|Width   motor   hotmelt feeding in
|2x      start   done    motor   machine
|        G23-SF
|%M0896  %Q0006  %M0791  %M0777  %M1285  +-----+                        %M0782
+--] [-----] [-----]/[-----]/[-----]/[---+ GE_ |+-------------------------( )--  (* Hotmelt 2:nd dot, lower          *)
|                0091            0711   | INT ||                                Cross reference for %M0782
|                                       |     ||                                -] [- 90
|                               Feed    |     ||
|                               chain   |     ||
|                               move in |     ||
|                               MM      |     ||
|                                       |     ||
|                               %R0405 -+I1  Q++
|                                       |     |
|                               2:nd    |     |
|                               hotmelt |     |
|                               start,  |     |
|                               lower   |     |
|                                       |     |
|                               %R0503 -+I2   |
|                                       +-----+
|
|               2:nd    Synch   High                                          << RUNG 87  STEP #0418 >>
|        Feeding lower   stop    speed
|Width   motor   hotmelt feeding in
|2x      start   done    motor   machine
|        G23-SF
|%M0896  %Q0006  %M0791  %M0777  %M1285  +-----+                        %M1289
+--] [-----] [-----]/[-----]/[-----] [---+ GE_ |+-------------------------( )--  (* Hotmelt 2:dot low H/S            *)
|                0091            0711   | INT ||                                Cross reference for %M1289
|                                       |     ||                                -] [- 90
|                               Feed    |     ||
|                               chain   |     ||
|                               move in |     ||
|                               MM      |     ||
|                                       |     ||
|                               %R0405 -+I1  Q++
|                                       |     |
|                               2:st    |     |
|                               hotmelt |     |
|                               start,  |     |
|                               lower   |     |
|                                       |     |
|                               %R0542 -+I2   |
|                                       +-----+
|
|               2:nd    Synch   High                                          << RUNG 88  STEP #0425 >>
|        Feeding lower   stop    speed
|Width   motor   hotmelt feeding in
|3x      start   done    motor   machine
|        G23-SF
|%M0897  %Q0006  %M0791  %M0777  %M1285  +-----+                        %M0802
+--] [--+--] [-----]/[-----]/[-----]/[---+ GE_ |+-------------------------( )--  (* Hotmelt 2:nd dot,lower          *)
|       |         0091            0711   | INT ||                                Cross reference for %M0802
|       |                                |     ||                                -] [- 90
|       |                        Feed    |     ||
|Width  |                        chain   |     ||
|5x     |                        move in |     ||
|       |                        MM      |     ||
|%M0899 |                                |     ||
+--] [--+                        %R0405 -+I1  Q++
|                                        |     |
|                                2:nd    |     |
|                                hotmelt |     |
|                                start,  |     |
|                                lower   |     |
|                                        |     |
|                                %R0507 -+I2   |
|                                        +-----+
|
```

```
Program: A454891                          C:\LM90\VISN\P1000\A454891                                Block: _MAIN
```

```
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                                           Tetra Cardboard Packer 70 Multi 1100
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|               2:nd    Synch   High                                          << RUNG 89  STEP #0433 >>
|        Feeding lower   stop    speed
|Width   motor   hotmelt feeding in
|4x      start   done    motor   machine
|        G23-SF
|%M0898  %Q0006  %M0791  %M0777  %M1285  +-----+                        %M0812
+--] [--+--] [-----]/[-----]/[-----]/[---+ GE_ |+-------------------------( )--  (* Hotmelt 2:nd dot,lower          *)
|       |         0091            0711   | INT ||                                Cross reference for %M0812
|       |                                |     ||                                -] [- 90
|       |                        Feed    |     ||
|Width  |                        chain   |     ||
|6x     |                        move in |     ||
|       |                        MM      |     ||
|%M0900 |                                |     ||
+--] [--+                        %R0405 -+I1  Q++
|                                        |     |
|                                2:nd    |     |
|                                hotmelt |     |
|                                start,  |     |
|                                lower   |     |
|                                        |     |
|                                %R0511 -+I2   |
|                                        +-----+
|
|Hotmelt High                                                              << RUNG 90  STEP #0441 >>
|2:nd    speed
|dot,    in
|lower   machine
|
|%M0782  %M1285                                                     %M0815
+--] [--+--]/[--+-------------------------------------------------------( )--  (* 2:nd lower hotmelt *)
| 0086  | 0711  |                                                          Cross reference for %M0815
|Hotmelt|       |                                                          -] [- 91,98
|2:nd   |       |                                                          -]/[- 402
|dot,   |       |
|lower  |       |
|       |       |
|%M0802 |       |
+--] [--+       |
| 0088  |       |
|Hotmelt|       |
|2:nd   |       |
|dot,   |       |
|lower  |       |
|       |       |
|%M0812 |       |
+--] [--+       |
| 0089          |
|        High   |
|Hotmelt speed  |
|2:dot   in     |
|low H/S machine|
|               |
|%M1289  %M1285 |
+--] [-----] [--+
| 0087    0711
|
|        Synch                                                             << RUNG 91  STEP #0449 >>
|2:nd    stop
|lower   feeding
|hotmelt motor
|
|%M0815  %M0777  +-----+                                            %M0791
+--] [--+--]/[---+ TMR +-----------------------------------------------( )--  (* 2:nd lower hotmelt done          *)
| 0090  |        |0.01s|                                                    Cross reference for %M0791
|2:nd   |        |     |                                                    -] [- 91
|lower  |Length  |     |                                                    -]/[- 86,87,88,89,98
|hotmelt|of 2:nd |     |
|done   |lower   |     |
|       |hotmelt |     |
|%M0791 |        |     |
+--] [--+%R0524 -+PV   |
| 0091           |     |
|                +-----+
|                2:nd
|                lower
|                hotmelt
|                lenght
|
|                %R0142
|

Program: A454891                          C:\LM90\VISN\P1000\A454891                                Block: _MAIN
```

```
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|               2:nd    Synch                                                   << RUNG 92  STEP #0454 >>
|        Feeding upper   stop
|Width   motor   hotmelt feeding
|2x      start   done    motor
|        G23-SF
|%M0896  %Q0006  %M0793  %M0777  +-----+                                %M0783
+--] [-----] [-----]/[-----]/[---+ GE_ |+--------------------------------( )--  (* Hotmelt 2:nd dot, upper          *)
|                0097            | INT ||                                      Cross reference for %M0783
|                                |     ||                                      -] [- 96
|                        Feed    |     ||
|                        chain   |     ||
|                        move in |     ||
|                        MM      |     ||
|                                |     ||
|                        %R0405 --+I1  Q++
|                                |     |
|                        2:nd    |     |
|                        hotmelt |     |
|                        start,  |     |
|                        upper   |     |
|                                |     |
|                        %R0504 --+I2   |
|                                +-----+
|
|               2:nd    Synch   High                                            << RUNG 93  STEP #0460 >>
|        Feeding upper   stop    speed
|Width   motor   hotmelt feeding in
|2x      start   done    motor   machine
|        G23-SF
|%M0896  %Q0006  %M0793  %M0777  %M1285  +-----+                        %M1290
+--] [-----] [-----]/[-----]/[-----] [---+ GE_ |+-------------------------( )--  (* Hotmelt 2:dot upp H/S            *)
|                0097             0711   | INT ||                                Cross reference for %M1290
|                                        |     ||                                -] [- 96
|                                Feed    |     ||
|                                chain   |     ||
|                                move in |     ||
|                                MM      |     ||
|                                        |     ||
|                                %R0405 --+I1  Q++
|                                        |     |
|                                2:st    |     |
|                                hotmelt |     |
|                                start,  |     |
|                                upper   |     |
|                                        |     |
|                                %R0543 --+I2   |
|                                       +-----+
|
|               2:nd    Synch                                                   << RUNG 94  STEP #0467 >>
|        Feeding upper   stop
|Width   motor   hotmelt feeding
|3x      start   done    motor
|        G23-SF
|%M0897  %Q0006  %M0793  %M0777  +-----+                                %M0803
+--] [--+--] [-----]/[-----]/[---+ GE_ |+--------------------------------( )--  (* Hotmelt 2:nd dot, upper          *)
|       |         0097            | INT ||                                      Cross reference for %M0803
|       |                         |     ||                                      -] [- 96
|       |                Feed    |     ||
|Width  |                chain   |     ||
|5x     |                move in |     ||
|       |                MM      |     ||
|%M0899 |                        |     ||
+--] [--+                %R0405 --+I1  Q++
|                                |     |
|                        2:nd    |     |
|                        hotmelt |     |
|                        start,  |     |
|                        upper   |     |
|                                |     |
|                        %R0508 --+I2   |
|                                +-----+
|
```

```
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                                           Tetra Cardboard Packer 70 Multi 1100
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|               2:nd    Synch                                                   << RUNG 95  STEP #0474 >>
|        Feeding upper   stop
|Width   motor   hotmelt feeding
|4x      start   done    motor
|        G23-SF
|%M0898  %Q0006  %M0793  %M0777  +-----+                              %M0813
+--] [--+--] [-----]/[-----]/[---+ GE_ |+--------------------------------( )--  (* Hotmelt 2:nd dot, upper          *)
|       |         0097           | INT ||                                      Cross reference for %M0813
|       |                        |     ||                                      -] [- 96
|       |                Feed    |     ||
|Width  |                chain   |     ||
|6x     |                move in |     ||
|       |                MM      |     ||
|%M0900 |                        |     ||
+--] [--+                %R0405 -+I1  Q++
|                                |     |
|                        2:nd    |     |
|                        hotmelt |     |
|                        start,  |     |
|                        upper   |     |
|                                |     |
|                        %R0512 -+I2   |
|                                +-----+
|
|Hotmelt High                                                                << RUNG 96  STEP #0481 >>
|2:nd    speed
|dot,    in
|upper   machine
|
|%M0783  %M1285                                                       %M0816
+--] [--+--]/[--+-------------------------------------------------------( )--  (* 2:nd upper hotmelt *)
| 0092  | 0711  |                                                            Cross reference for %M0816
|Hotmelt|       |                                                            -] [- 97,99
|2:nd   |       |
|dot,   |       |
|upper  |       |
|       |       |
|%M0803 |       |
+--] [--+       |
| 0094  |       |
|Hotmelt|       |
|2:nd   |       |
|dot,   |       |
|upper  |       |
|       |       |
|%M0813 |       |
+--] [--+       |
| 0095          |
|        High   |
|Hotmelt speed  |
|2:dot   in     |
|upp H/S machine|
|               |
|%M1290  %M1285 |
+--] [-----] [--+
| 0093    0711
|
|        Synch                                                               << RUNG 97  STEP #0489 >>
|2:nd    stop
|upper   feeding
|hotmelt motor
|
|%M0816  %M0777  +-----+                                              %M0793
+--] [--+--]/[---+ TMR +-----------------------------------------------( )--  (* 2:nd upper hotmelt done          *)
| 0096  |        |0.01s|                                                      Cross reference for %M0793
|2:nd   |        |     |                                                      -] [- 97
|upper  |Length  |     |                                                      -]/[- 92,93,94,95,99
|hotmelt|of 2:nd |     |
|done   |upper   |     |
|       |hotmelt |     |
|%M0793 |        |     |
+--] [--+%R0525 -+PV   |
| 0097           |     |
|                +-----+
|                1:st
|                upper
|                hotmelt
|                lenght
|
|                %R0148
|
```

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|                               Blank          1:st                            << RUNG 98  STEP #0494 >>
|Feeding                        in      1:st    lower
|motor           Hotmelt Allow  group.  lower   hotmelt
|start   Step 2  ready   to wrap pos.    hotmelt done
|G23-SF  STEP_2                                                   Y120
|%Q0006  %M0102  %I0043  %M3133  %M0260  %M0799  %M0790          %Q0028
+--] [-----] [-----] [-----] [-----] [--+--] [-----]/[--+------------------( )--  (* Hotmelt gun lower, left          *)
|         0042           0427    0390  | 0076    0077  |                        Cross reference for Y120
|                                      |        2:nd   |                                 NONE
|                                      |2:nd    lower  |
|                                      |lower   hotmelt|
|                                      |hotmelt done   |
|                                      |               |                 Y121
|                                      |%M0815  %M0791 |                %Q0029
|                                      +--] [-----]/[--+------------------( )--  (* Hotmelt gun lower, right         *)
|                                        0090    0091                           Cross reference for Y121
|                                                                                       NONE
|
|                               Blank          1:st    Card                    << RUNG 99  STEP #0507 >>
|Feeding                        in      1:st    upper   board
|motor           Hotmelt Allow  group.  upper   hotmelt in WA
|start   Step 2  ready   to wrap pos.    hotmelt done    station
|G23-SF  STEP_2                                                   Y122
|%Q0006  %M0102  %I0043  %M3133  %M0260  %M0814  %M0792  %M0450  %Q0049
+--] [-----] [-----] [-----] [-----] [--+--] [-----]/[--+--] [--+----------( )--  (* Hotmelt gun upper, left          *)
|         0042           0427    0390  | 0084    0085  | 0404  |                Cross reference for Y122
|                                      |        2:nd   |       |                         NONE
|                                      |2:nd    upper  |       |
|                                      |upper   hotmelt|       |
|                                      |hotmelt done   |       |
|                                      |               |       |         Y123
|                                      |%M0816  %M0793 |       |        %Q0050
|                                      +--] [-----]/[--+       +----------( )--  (* Hotmelt gun upper, right         *)
|                                        0096    0097                           Cross reference for Y123
|                                                                                       NONE
|
```

```
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| (*************************************************************************)
| (*                                                                       *)
| (* PRESSURIZING, HOUR METER                                              *)
| (*                                                                       *)
| (*************************************************************************)
|
|Step 2                                                                        << RUNG 101  STEP #0522 >>
|STEP_2                                                            Y100
|%M0102                                                           %Q0105
+--] [-------------------------------------------------------------------( )--  (* Pressu.                          *)
| 0042                                                                         Cross reference for Y100
|                                                                              -] [- 496
|                                                                              -]/[- 497
|
|        De                                                                    << RUNG 102  STEP #0524 >>
|        prod.
|        time
|Step 3  stop
|STEP_3                                                            P001
|%M0103  %G0011                                                   %Q0031
+--] [-----]/[-----------------------------------------------------------( )--  (* Hour meter                        *)
| 0048                                                                         Cross reference for P001
|                                                                                       NONE
|
```

```
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| (*************************************************************************)
| (*                                                                       *)
| (* INFEED CONVEYORS                                                      *)
| (*                                                                       *)
| (*************************************************************************)
|
|        Emerg.  Overl.  Alarm                                                << RUNG 104  STEP #0528 >>
|Step 1  stop    protec. em.stop
|STEP_1    L12
|%M0101  %I0001  %I0003  %M0049                                     %M3150
+--] [-----] [-----] [-----]/[-----------------------------------------( )--  (* Allow infeed conv start          *)
| 0034                    0478                                                Cross reference for %M3150
|                                                                             -] [- 105
|
|Allow                                                                        << RUNG 105  STEP #0533 >>
|infeed
|conv
|start
|
|%M3150  +-----+                                                     %M0993
+--] [---+ TMR +-------------------------------------------------------( )--  (* Delay start freq conv. *)
| 0104   |0.10s|                                                             Cross reference for %M0993
|        |     |                                                             -] [- 111
| CONST -+PV   |
| +00020 |     |
|        +-----+
|
|        %R0713
|
|0 =                                                                          << RUNG 106  STEP #0536 >>
|Single
|1 =
|Unit
|
|%M1008  +-----+
+--]/[---+MOVE_+-
|        | INT |
|        |     |
|Single  |     |
|convey. |     | Speed
|speed   |     | BIT 1
|        |     |
|%R0450 -+IN  Q+-%G0193
|        | LEN |
|        |00001|
|        |     |
|        +-----+
|
|0 =                                                                          << RUNG 107  STEP #0538 >>
|Single
|1 =
|Unit
|
|%M1008  +-----+
+--] [---+MOVE_+-
|        | INT |
|        |     |
|Unit    |     |
|convey. |     | Speed
|speed   |     | BIT 1
|        |     |
|%R0451 -+IN  Q+-%G0193
|        | LEN |
|        |00001|
|        |     |
|        +-----+
|
|        Infeed                                                               << RUNG 108  STEP #0540 >>
|Speed   conv.
|BIT 1   start
|        G21-SF                                                      G21-S1
|%G0193  %Q0032                                                      %Q0033
+--] [-----] [-------------------------------------------------------( )--  (* Bit 1 infeed conveyor            *)
|         0111                                                                Cross reference for G21-S1
|                                                                                      NONE
|
|        Infeed                                                               << RUNG 109  STEP #0543 >>
|Speed   conv.
|Bit 2   start
|        G21-SF                                                      G21-S2
|%G0194  %Q0032                                                      %Q0034
+--] [-----] [-------------------------------------------------------( )--  (* Bit 2 infeed conveyor            *)
|         0111                                                                Cross reference for G21-S2
|                                                                                      NONE
|
|        Infeed                                                               << RUNG 110  STEP #0546 >>
|Speed   conv.
|BIT 3   start
|        G21-SF                                                      G21-S3
|%G0195  %Q0032                                                      %Q0035
+--] [-----] [-------------------------------------------------------( )--  (* Bit 3 infeed conveyor            *)
|         0111                                                                Cross reference for G21-S3
|                                                                                      NONE
|

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```

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|                Delay   Stop in         ME.                                      << RUNG 111  STEP #0549 >>
|                start   feed co Stop    Last
|                freq    nv. (no infeed  Gr.push
|Step 3           conv.   t ready conv.   done
|STEP_3                                                          G21-SF
|%M0103           %M0993  %M0283  %M0284  %M0605                  %Q0032
+--] [----------+--] [-----]/[-----]/[-----]/[-----------------------------( )--  (* Infeed conv. start               *)
| 0048          | 0105    0112    0115                                          Cross reference for G21-SF
|               |                                                               -] [- 108,109,110,111,141,719
|Infeed         |                                                               -]/[- 142
|conv.          |
|start   Step 2 |
|G21-SF  STEP_2 |
|%Q0032  %M0102 |
+--] [-----] [--+
| 0111    0042
|
|Alarm                    New pat         Pack on Group.  Line                  << RUNG 112  STEP #0558 >>
|not     Memory  2:nd     tern in         groupbe endstop com is
|ready   pusher  pusher   group.  Infeed  lt      inner   not
|downstr stroke  stroke   pos.    ready   step2-> pos.    used
|                                          B126M   B140
|%M0189  %M0244  %M0418  %M0214  %M0231  %M1191  %I0057  %M1168          %M0283
+--] [--+--] [-----] [-----] [-----] [-----] [-----] [-----] [-------------( )--  (* Stop infeed conv. (not ready) *)
| 0552  | 0351            0174    0270    0303                                  Cross reference for %M0283
|Very   |                                                                       -]/[- 111,117
|low    |
|level  |
|blanks |
|       |
|%M0080 |
+--] [--+
| 0539  |
|De     |
|prod.  |
|time   |
|stop   |
|       |
|%G0011 |
+--] [--+
|
|Pack.   Minimum Line    Pulse                                                << RUNG 113  STEP #0569 >>
|on      queue   com is  step up
|infeed  infeed  not     push
|conv.   brake   used    button
| B905
|%I0062  %M0310  %M1168  %T0003  +-----+                                      %M0285
+--]/[-----]/[--+--] [--+--]/[---+ TMR +-----------------------------------( )--  (* Stop infeed conv. (timed out) *)
|         0123  |       | 0024   |0.10s|                                      Cross reference for %M0285
|               |       |        |     |                                      -] [- 115
|               |Signal |        |     |
|               |from up|        |     |
|               |stream.|        |     |
|               |X090-5 |        |     |
|               |%I0064 |        |     |
|               +--]/[--+ CONST -+PV   |
|                       | +00200 |     |
|                       |        +-----+
|                       |        Stop
|                       |        single
|Step 3                 |        inf.
|STEP_3                 |        conv.
|%M0103                 |
+--]/[-----------------+        %R0121
| 0048
|
|Alarm                                                                        << RUNG 114  STEP #0578 >>
|fallen
|package
|
|%M0055                                                                       %M0286
+--] [--+-------------------------------------------------------------------( )--  (* Stop infeed conv. (fallen pack.) *)
| 0518  |                                                                     Cross reference for %M0286
|       |                                                                     -] [- 115
|Alarm  |                                                                     -]/[- 117
|fallen |
|package|
| H027  |
|%M0157 |
+--] [--+
| 0519
|
```

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|Stop in Auto                                                                    << RUNG 115  STEP #0581 >>
|feed co control
|nv. (ti infeed  Manual
|med out conv    empty.
|
|%M0285  %M1031  %M0600                                          %M0284
+--] [-----] [--+--]/[-----------------------------------------------( )--  (* Stop infeed conv.                *)
| 0113         |                                                            Cross reference for %M0284
|Stop in       |                                                            -]/[- 111
|feed co       |
|nv. (fa       |
|llen pa       |
|              |
|%M0286        |
+--] [----------+
| 0114
|
| (*************************************************************************)
| (* EXTERNAL CONVEYORS                                                    *)
| (*************************************************************************)
|
|Line    Stop in Stop in Minimum         Extern  Extern                          << RUNG 117  STEP #0587 >>
|com is  feed co feed co queue   B905    conv    conv co
|not     nv. (no nv. (fa infeed  hold    infeed/ ntrolle
|used    t ready llen pa brake   time    dischar d by TC
|
|%M1168  %M0283  %M0286  %M0310  %M1174  %M1162  %M1163                  %M1164
+--] [-----]/[-----]/[--+--]/[--+--] [--+--]/[-----] [---------------------( )--  (* Extern infeed conv choosen       *)
|         0112    0114  | 0123  | 0118  |                                     Cross reference for %M1164
|                       |       |       |                                     -] [- 121
|                       |B905   |       |
|                       |hold   |       |
|                       |time   |       |
|                       |       |       |
|                       |%M1174 |       |
|                       +--] [--+       |
|                         0118          |
|Line                                   |
|com is  Signal                         |
|not     from up                        |
|used    stream.                        |
|        X090-5                         |
|%M1168  %I0064                         |
+--]/[-----] [--------------------------+
|                                       |
|Auto    Stop in                        |
|control feed co                        |
|infeed  nv. (no                        |
|conv    t ready Step 3                 |
|                STEP_3                 |
|%M1031  %M0283  %M0103                 |
+--]/[-----]/[-----] [------------------+
|         0112    0048
|
|Pack.                                                                           << RUNG 118  STEP #0604 >>
|on
|infeed
|conv.
| B905
|%I0062  +-----+                                                  %M1174
+--] [---+OFDT +-------------------------------------------------------( )--  (* B905 hold time                   *)
|        |0.10s|                                                            Cross reference for %M1174
|        |     |                                                            -] [- 117
| CONST -+PV   |
| +00100 |     |
|        +-----+
|
|        Timer
|        B905 on
|        hold
|
|        %R3301
|
|        Extern  Extern                                                          << RUNG 119  STEP #0607 >>
|Feeding conv    conv co
|motor   infeed/ ntrolle
|start   dischar d by TC
|G23-SF
|%Q0006  %M1162  %M1163                                          %M1165
+--] [--+--] [-----] [-----------------------------------------------( )--  (* Extern dischr conv choosen       *)
|       |                                                                    Cross reference for %M1165
|Exter  |                                                                    -] [- 121
|dischar|
|conv   |
|runing |
|       |
|%M1169 |
+--] [--+
| 0120
|

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|Feeding                                                                    << RUNG 120  STEP #0612 >>
|motor
|start
|G23-SF
|%Q0006  +-----+                                                  %M1169
+--] [---+OFDT +-----------------------------------------------------( )--  (* Exter dischar conv runing        *)
|        |0.10s|                                                            Cross reference for %M1169
|        |     |                                                            -] [- 119
| CONST -+PV   |
| +00900 |     |
|        +-----+
|
|        Timer
|        extern
|        conv
|
|        %R3296
|
|Extern                                                                     << RUNG 121  STEP #0615 >>
|infeed
|conv
|choosen
|                                                                  K081
|%M1164                                                           %Q0026
+--] [--+-------------------------------------------------------------( )--  (* Extra conv infeed/dischar        *)
| 0117  |                                                                   Cross reference for K081
|Extern |                                                                            NONE
|dischr |
|conv   |
|choosen|
|       |
|%M1165 |
+--] [--+
| 0119
|
```

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```

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| (*************************************************************************)
| (*                                                                       *)
| (* INFEED BRAKE, GROUPING END STOP,                                      *)
| (* PACKAGE SEPARATOR                                                     *)
| (*                                                                       *)
| (*************************************************************************)
|
|Min                                                                          << RUNG 123  STEP #0619 >>
|queue           Alarm   Alarm
|into            fallen  fallen
|gr.sec.         package package
| B903                    H027
|%I0049          %M0055  %M0157  +-----+                                %M0310
+--] [--+-------+--]/[-----]/[---+ TMR +-----------------------------------( )--  (* Minimum queue infeed brake       *)
|       |       | 0518    0519   |0.10s|                                        Cross reference for %M0310
|ME.    |       |                |     |                                        -] [- 123,125,134
|Bypass |       |                |     |                                        -]/[- 113,117
|of min.|       |                |     |
|queue  |       |                |     |
|       |       |                |     |
|%M0602 |       |                |     |
+--] [--+       |         CONST -+PV   |
|               |         +00010 |     |
|Minimum Delay  |                +-----+
|queue   off    |                Min.q.
|infeed  infeed |                into
|brake   brake  |                belt
|               |                brake
|%M0310  %M0201 |
+--] [-----]/[--+                %R0094
| 0123    0124
|
|Min                                                                          << RUNG 124  STEP #0628 >>
|queue
|into
|gr.sec.
| B903
|%I0049  +-----+                                                        %M0201
+--]/[---+ TMR +-------------------------------------------------------( )--  (* Delay off infeed brake          *)
|        |0.01s|                                                               Cross reference for %M0201
|        |     |                                                               -]/[- 123
| CONST -+PV   |
| +00010 |     |
|        +-----+
|        Delay
|        off
|        min.q.
|        beltbr.
|
|        %R0091
|
|Minimum                                                                      << RUNG 125  STEP #0631 >>
|queue
|infeed
|brake   Step 3  Step 2
|        STEP_3  STEP_2
|%M0310  %M0103  %M0102                                                 %M0202
+--] [-----] [--+--] [-----------------------------------------------------( )--  (* Startup ready                   *)
| 0123    0048  | 0042                                                        Cross reference for %M0202
|               |                                                             -] [- 125,126
|Startup        |
|ready          |
|               |
|%M0202         |
+--] [----------+
| 0125
|
|Infeed                                                                       << RUNG 126  STEP #0636 >>
|brake   Startup
|open    ready
| Y106
|%Q0021  %M0202          +-----+                                        %M0203
+--] [-----] [--+--------+ TMR +-----------------------------------------( )--  (* Long infeed ready               *)
| 0152    0125  |        |0.10s|                                                 Cross reference for %M0203
|               |        |     |                                                 -] [- 126,133
|        Long   |        |     |                                                 -]/[- 133
|Manual  infeed |        |     |
|empty.  ready  |        |     |
|               |        |     |
|%M0600  %M0203 |        |     |
+--]/[-----] [--+ CONST -+PV   |
|         0126    +00007 |     |
|                        +-----+
|
|                        Long
|                        infeed
|                        time
|
|                        %R0043
|
```

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|6 pack                                                                << RUNG 127  STEP #0643 >>
|in a
|row
| H055
|%M0137  +-----+
+--] [---+MOVE_+-
|        | INT |
|        |     |
|        |     | Infeed
|        |     | time
|6 packs |     | group.
|in row  |     | pusher
|        |     |
|%R0452 -+IN  Q+-%R0459
|        | LEN |
|        |00001|
|        |     |
|        +-----+
|
|8 pack                                                                << RUNG 128  STEP #0645 >>
|in a
|row
| H056
|%M0141  +-----+
+--] [---+MOVE_+-
|        | INT |
|        |     |
|        |     | Infeed
|        |     | time
|8 packs |     | group.
|in row  |     | pusher
|        |     |
|%R0453 -+IN  Q+-%R0459
|        | LEN |
|        |00001|
|        |     |
|        +-----+
|
|9 pack                                                                << RUNG 129  STEP #0647 >>
|in a
|row
| H057
|%M0142  +-----+
+--] [---+MOVE_+-
|        | INT |
|        |     |
|        |     | Infeed
|        |     | time
|9 packs |     | group.
|in row  |     | pusher
|        |     |
|%R0454 -+IN  Q+-%R0459
|        | LEN |
|        |00001|
|        |     |
|        +-----+
|
|10 pack                                                               << RUNG 130  STEP #0649 >>
|in a
|row
| H058
|%M0143  +-----+
+--] [---+MOVE_+-
|        | INT |
|        |     |
|        |     | Infeed
|10      |     | time
|packs   |     | group.
|in row  |     | pusher
|        |     |
|%R0455 -+IN  Q+-%R0459
|        | LEN |
|        |00001|
|        |     |
|        +-----+
|
|12 pack                                                               << RUNG 131  STEP #0651 >>
|in a
|row
| H059
|%M0144  +-----+
+--] [---+MOVE_+-
|        | INT |
|        |     |
|        |     | Infeed
|12      |     | time
|packs   |     | group.
|in row  |     | pusher
|        |     |
|%R0456 -+IN  Q+-%R0459
|        | LEN |
|        |00001|
|        |     |
|        +-----+

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```

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|Crush                                                                                << RUNG 132  STEP #0653 >>
|guard,
|group.
|section
| B144
|%I0061          +-----+                                          %M1027
+--] [--+--------+OFDT +-------------------------------------------------( )--  (* Off delay                        *)
|       |        |.001s|                                                         Cross reference for %M1027
|ME.    |        |     |                                                         -] [- 133
|Infeed |        |     |
|brake  |        |     |
|empty  |        |     |
|       |        |     |
|%M0603 |        |     |
+--] [--+ CONST -+PV   |
|         +00000 |     |
|                +-----+
|
|                Off
|                delay
|
|                %R1051
|
|Long    Infeed                                                                       << RUNG 133  STEP #0657 >>
|infeed  brake           Off
|ready   open    Step 2  delay
|         Y106   STEP_2
|%M0203  %Q0021  %M0102  %M1027  +-----+                          %M0205
+--] [-----] [-----] [-----] [---+ONDTR+-----------------------------------( )--  (* Short infeed time ready          *)
| 0126    0152    0042    0132   |0.01s|                                         Cross reference for %M0205
|                                |     |                                         -] [- 134
|Long                            |     |
|infeed                          |     |
|ready                           |     |
|                                |     |
|%M0203                          |     |
+--]/[--+-------------------------+R    |
| 0126  |                        |     |
|       |                        |     |
|Infeed |                Infeed  |     |
|brake  |                time    |     |
|open   |                group.  |     |
| Y106  |                pusher  |     |
|%Q0021 |                        |     |
+--]/[--+                %R0459 -+PV   |
| 0152  |                        |     |
|       |                        +-----+
|       |
|       |                        Short
|Step 2 |                        infeed
|STEP_2 |                        time
|%M0102 |
+--]/[--+                        %R0046
| 0042
|
|Short   Minimum         Mem sho         Pattern Crush                            << RUNG 134  STEP #0666 >>
|infeed  queue   Alarm   rt str  Reset   ready   guard,
|time    infeed  fallen  gr.push pusher  reset   group.
|ready   brake   package done    strokes counter section Step 2
|                                         B144   STEP_2
|%M0205  %M0310  %M0055  %M0212  %M0248  %M0217  %I0061  %M0102          %M0204
+--] [-----] [-----]/[--+--]/[--+--]/[-----]/[--+--] [--+--] [-------------( )--  (* Short infeed ready               *)
| 0133    0123    0518  | 0164  | 0233    0175  |       | 0042                    Cross reference for %M0204
|        Crush          |Cond.  |               |       |                         -] [- 134,157,159,163
|Short   guard          |long   |               |       |                         -]/[- 147,151,153
|infeed  group.         |stroke |               |       |
|ready   pusher         |gr.push|               |Step 1 |
|                       |       |               |STEP_1 |
|%M0204  %M0079         |%M0209 |               |%M0101 |
+--] [-----]/[----------+--] [--+               +--] [--+
| 0134    0526            0140                    0034
|
```

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|Package 2:nd    Single                                                          << RUNG 135  STEP #0682 >>
|pattern pusher  pack/
|X*2     stroke  (X*1)
| H035
|%M0169  %M0418  %M0901                                          %M0218
+--] [-----] [--+--] [-------------------------------------------------( )--  (* Condition long stroke *)
|               |                                                             Cross reference for %M0218
|Package 3:rd   |                                                             -] [- 137
|pattern pusher |
|X*3     stroke |
| H036          |
|%M0170  %M0419 |
+--] [-----] [--+
|               |
|Package 4:th   |
|pattern pusher |
|X*4     stroke |
| H037          |
|%M0171  %M0420 |
+--] [-----] [--+
|               |
|Package 5:th   |
|pattern pusher |
|X*5     stroke |
| H038          |
|%M0172  %M0421 |
+--] [-----] [--+
|               |
|Package 6:th   |
|pattern pusher |
|X*6     stroke |
| H039          |
|%M0173  %M0422 |
+--] [-----] [--+
|               |
|Package 7:th   |
|pattern pusher |
|X*7     stroke |
| H040          |
|%M0174  %M0423 |
+--] [-----] [--+
|               |
|Package 8:th   |
|pattern pusher |
|X*8     stroke |
| H041          |
|%M0175  %M0424 |
+--] [-----] [--+
|               |
|Package 9:th   |
|pattern pusher |
|X*9     stroke |
| H042          |
|%M0176  %M0425 |
+--] [-----] [--+
|
|Package 10:th   Single                                                         << RUNG 136  STEP #0707 >>
|pattern pusher  pack/
|X*10    stroke  (X*1)
| H043
|%M0177  %M0426  %M0901                                          %M0219
+--] [-----] [--+--] [-------------------------------------------------( )--  (* Condition long stroke *)
|               |                                                             Cross reference for %M0219
|Package 11:th  |                                                             -] [- 137
|pattern pusher |
|X*11    stroke |
| H044          |
|%M0178  %M0427 |
+--] [-----] [--+
|               |
|Package 12:th  |
|pattern pusher |
|X*12    stroke |
| H045          |
|%M0179  %M0428 |
+--] [-----] [--+
|
|Conditi                                                                        << RUNG 137  STEP #0717 >>
|on long
|stroke
|
|%M0218                                                          %M0206
+--] [--+-----------------------------------------------------------------(M)--  (* Cond. long stroke gr.push        *)
| 0135  |                                                                     Cross reference for %M0206
|       |                                                                     -] [- 140
|Conditi|
|on long|
|stroke |
|       |
|%M0219 |
+--] [--+
| 0136
|

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|Package 1:st                                                                  << RUNG 138  STEP #0720 >>
|pattern pusher
|X*2     stroke  (X*2)
| H035
|%M0169  %M0417  %M0902                                          %M0207
+--] [-----] [--+--] [-----------------------------------------------------( )--  (* Cond. long stroke (X*2)          *)
|              |                                                                 Cross reference for %M0207
|Package 2:nd   |                                                                -] [- 140
|pattern pusher |
|X*4     stroke |
| H037          |
|%M0171  %M0418 |
+--] [-----] [--+
|              |
|Package 3:rd   |
|pattern pusher |
|X*6     stroke |
| H039          |
|%M0173  %M0419 |
+--] [-----] [--+
|              |
|Package 4:th   |
|pattern pusher |
|X*8     stroke |
| H041          |
|%M0175  %M0420 |
+--] [-----] [--+
|              |
|Package 5:th   |
|pattern pusher |
|X*10    stroke |
| H043          |
|%M0177  %M0421 |
+--] [-----] [--+
|              |
|Package 6:th   |
|pattern pusher |
|X*12    stroke |
| H045          |
|%M0179  %M0422 |
+--] [-----] [--+
|
|Package 1:st                                                                  << RUNG 139  STEP #0739 >>
|pattern pusher
|X*3     stroke  (X*3)
| H036
|%M0170  %M0417  %M0903                                          %M0208
+--] [-----] [--+--] [-----------------------------------------------------( )--  (* Cond. long stroke (X*3)          *)
|              |                                                                 Cross reference for %M0208
|Package 2:nd   |                                                                -] [- 140
|pattern pusher |
|X*6     stroke |
| H039          |
|%M0173  %M0418 |
+--] [-----] [--+
|              |
|Package 3:rd   |
|pattern pusher |
|X*9     stroke |
| H042          |
|%M0176  %M0419 |
+--] [-----] [--+
|              |
|Package 4:th   |
|pattern pusher |
|X*12    stroke |
| H045          |
|%M0179  %M0420 |
+--] [-----] [--+
|
```

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|Cond.                                                                          << RUNG 140  STEP #0752 >>
|long
|stroke
|gr.push                Step 1
|                       STEP_1
|%M0206                 %M0101                                    %M0209
+--] [--+--------------+--] [-----------------------------------------( )--  (* Cond. long stroke gr.push        *)
| 0137  |              | 0034                                                Cross reference for %M0209
|Cond.  |              |                                                     -] [- 134,140,178,183,184,185,243
|long   |              |                                                     -]/[- 177,234,242
|stroke |              |
|(X*2)  |              |
|       |              |
|%M0207 |              |
+--] [--+              |
| 0138  |              |
|Cond.  |              |
|long   |              |
|stroke |              |
|(X*3)  |              |
|       |              |
|%M0208 |              |
+--] [--+              |
| 0139                 |
|Cond.   Pattern       |
|long    ready   Reset |
|stroke  reset   pusher |
|gr.push counter strokes|
|                      |
|%M0209  %M0217  %M0248 |
+--] [-----]/[-----]/[--+
| 0140    0175    0233
|
|Infeed  Delay                                                                  << RUNG 141  STEP #0761 >>
|conv.   open
|start   brake
|G21-SF
|%Q0032  %M0220  +-----+                                   %M0220
+--] [-----]/[---+ TMR +-------------------------------------------(S)--  (* Delay open brake *)
| 0111    0142   |0.10s|                                                    Cross reference for %M0220
|                |     |                                                    -] [- 151,526
|         CONST -+PV   |                                                    -]/[- 141
|         +00020 |     |                                                    -(R)  142
|                +-----+
|
|                Delay
|                open
|                brake
|
|                %R0325
|
|Infeed                                                                         << RUNG 142  STEP #0765 >>
|conv.
|start
|G21-SF
|%Q0032                                                    %M0220
+--]/[-----------------------------------------------------------------(R)--  (* Delay open brake *)
| 0111                                                                        Cross reference for %M0220
|                                                                             -] [- 151,526
|                                                                             -]/[- 141
|                                                                             -(S)  141
|
|Been in Delay                                                                  << RUNG 143  STEP #0767 >>
|step 3, open at
|not low start
|.than 2 up
|
|%M0107  %M1030  +-----+                                   %M1030
+--] [-----]/[---+ TMR +-------------------------------------------(S)--  (* Delay open at start up           *)
| 0379    0144   |0.10s|                                                    Cross reference for %M1030
|                |     |                                                    -] [- 151
|         CONST -+PV   |                                                    -]/[- 143,153
|         +00010 |     |                                                    -(R)  144
|                +-----+
|                Delay
|                brake
|                open at
|                start
|
|                %R1057
|
|Been in                                                                        << RUNG 144  STEP #0771 >>
|step 3,
|not low
|.than 2
|
|%M0107                                                    %M1030
+--]/[-----------------------------------------------------------------(R)--  (* Delay open at start up           *)
| 0379                                                                        Cross reference for %M1030
|                                                                             -] [- 151
|                                                                             -]/[- 143,153
|                                                                             -(S)  143
|

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|Step 3                                                                          << RUNG 145  STEP #0773 >>
|STEP_3
|%M0103  +-----+                                                   %M1102
+--] [---+ GT_ |+-------------------------------------------------------(S)--  (* Tried / Trying to feed in        *)
| 0048   | INT ||                                                              Cross reference for %M1102
|        |     ||                                                              -] [- 147,153
|Counted |     ||                                                              -]/[- 151
|infeed  |     ||                                                              -(R)  146
|faults. |     ||
|        |     ||
|%R1011 -+I1  Q++
|        |     |
| CONST -+I2   |
| +00000 +-----+
|
|Group.  Group                                                                   << RUNG 146  STEP #0776 >>
|pusher  pusher
|home    forw
|pos.    short
| B132   Y102-1
|%I0051  %Q0107          +-----+                                   %M1102
+--] [--+--] [--+--------+ EQ_ |+----------------------------------------(R)--  (* Tried / Trying to feed in        *)
|       | 0177  |        | INT ||                                              Cross reference for %M1102
|       |Group  |        |     ||                                              -] [- 147,153
|       |pusher |        |     ||                                              -]/[- 151
|       |forw   |Counted |     ||                                              -(S)  145
|       |long   |infeed  |     ||
|       |Y102-2 |faults. |     ||
|       |%Q0108 |        |     ||
|       +--] [--+%R1011 -+I1  Q++
|         0178           |     |
|                        |     |
|                 CONST -+I2   |
|                 +00000 +-----+
|
|Tried /                                                                         << RUNG 147  STEP #0782 >>
|Trying  Short
|to feed infeed
|in      ready
|
|%M1102  %M0204  +-----+                                           %M1103
+--] [-----]/[---+ TMR +-------------------------------------------------( )--  (* New try to open infeed brake     *)
| 0146    0134   |0.10s|                                                        Cross reference for %M1103
|                |     |                                                        -] [- 151
|         CONST -+PV   |
|         +00010 |     |
|                +-----+
|                New try
|                to infe
|                ed open
|                brake
|
|                %R1107
|
|        Crush                                                                   << RUNG 148  STEP #0786 >>
|Infeed  guard,
|brake   group.
|open    section Step 3
| Y106    B144   STEP_3
|%Q0021  %I0061  %M0103  +-----+                                   %M1112
+--] [-----] [--+--]/[---+ TMR +-----------------------------------------( )--  (* Infeed brake on in step 2        *)
| 0152          | 0048   |0.10s|                                              Cross reference for %M1112
|Infeed         |        |     |                                              -] [- 148
|brake          |        |     |                                              -]/[- 151
|on in          |        |     |
|step 2         |        |     |
|               |        |     |
|%M1112         |        |     |
+--] [----------+ CONST -+PV   |
| 0148            +00020 |     |
|                        +-----+
|                        Infeed
|                        brake
|                        on in
|                        step 2
|
|                        %R1128
|
```

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|Groupin                                                                                  << RUNG 149  STEP #0792 >>
|g suppo
|rt on (
|1=on)
|
|%M1160  +-----+
+--] [---+ ADD_+-
|        | INT |
|        |     |
|Delay g |     | Delay i
|rouping |     | nf brak
|support |     | e open,
|down    |     | group s
|        |     |
|%R1162 -+I1  Q+-%R3459
|        |     |
| CONST -+I2   |
| +00010 +-----+
|
|Group.                                                                                   << RUNG 150  STEP #0794 >>
|pusher
|home
|pos.    Step 2
| B132   STEP_2
|%I0051  %M0102  +-----+                                                  %M0251
+--] [-----] [---+ TMR +-----------------------------------------------( )--  (* Delay infeed brake open          *)
|         0042   |0.01s|                                                        Cross reference for %M0251
|                |     |                                                        -] [- 151
|        Delay i |     |
|        nf brak |     |
|        e open, |     |
|        group s |     |
|                |     |
|        %R3459 -+PV   |
|                |     |
|                +-----+
|                Delay
|                infeed
|                brake
|                open
|
|                %R0722
|
|                                Groupin Group.  Delay   Tried / Infeed          << RUNG 151  STEP #0798 >>
|Delay   Short                   g suppo pusher  open at Trying  brake
|open    infeed                  rt on ( home    start   to feed on in
|brake   ready   Step 3          1=on)   pos.    up      in      step 2
|                STEP_3                   B132
|%M0220  %M0204  %M0103          %M1160  %I0051  %M1030  %M1102  %M1112
+--] [-----]/[--+--] [----------+--]/[-----] [--+--] [--+--]/[--+--]/[-------<+>
| 0142    0134  | 0048         |              | 0144  | 0146  | 0148
|               |              |Groupin Delay  |       |New try|
|               |Infeed        |g suppo infeed |       |to open|
|               |brake         |rt on ( brake  |       |infeed |
|               |open    Step 2 |1=on)   open   |       |brake  |
|               | Y106   STEP_2 |               |       |       |
|               |%Q0021  %M0102 |%M1160  %M0251 |       |%M1103 |
|               +--] [-----] [--+--] [-----] [--+       +--] [--+
|                 0152    0042           0150           0147
|
|                ME.                                                                      << RUNG 152  STEP #0817 >>
|        Alarm   Infeed
|        fallen  brake
|        package empty
|                                                                          Y106
|        %M0055  %M0603                                                   %Q0021
+<+>-------]/[-----]/[-----------------------------------------------( )--  (* Infeed brake open               *)
|         0518                                                                Cross reference for Y106
|                                                                             -] [- 126,133,148,151,515
|                                                                             -]/[- 133,160,163,164,178
|

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|                        Group.  Been in         ME.                            << RUNG 153  STEP #0821 >>
|Short                   pusher  step 3,         Infeed
|infeed                  home    not low Emerg.  brake
|ready                   pos.    .than 2 stop    empty
|                         B132            L12
|%M0204                  %I0051  %M0107  %I0001  %M0603                 %M1138
+--]/[-----------------+--] [-----] [-----] [-----]/[--------------------( )--  (* Gr end stop out                  *)
| 0134                 |        0379                                            Cross reference for %M1138
|Been in Delay         |                                                        -] [- 154
|step 3, open at Short |                                                        -]/[- 157
|not low start   infeed |
|.than 2 up      ready  |
|                       |
|%M0107  %M1030  %M0204 |
+--] [-----]/[--+--]/[--+
| 0379    0144  | 0134
|Tried /        |
|Trying         |
|to feed        |
|in             |
|               |
|%M1102         |
+--] [----------+
| 0146
|
|Gr end                                                                          << RUNG 154  STEP #0832 >>
|stop
|out
|
|%M1138                                                                  %M1140
+--] [-----------------------------------------------------------------(S)--  (* Gr end stop out                  *)
| 0153                                                                           Cross reference for %M1140
|                                                                                -] [- 156
|                                                                                -]/[- 158
|                                                                                -(R)  155
|
|Gr end                                                                          << RUNG 155  STEP #0834 >>
|stop in
|
|%M1139                                                                  %M1140
+--] [-----------------------------------------------------------------(R)--  (* Gr end stop out                  *)
| 0157                                                                           Cross reference for %M1140
|                                                                                -] [- 156
|                                                                                -]/[- 158
|                                                                                -(S)  154
|
|                        Group.                                                  << RUNG 156  STEP #0836 >>
|Gr end          Servo   pusher
|stop            axis    home
|out     Step 2  ident   pos.
|        STEP_2           B132                                           Y107-1
|%M1140  %M0102  %M1170  %I0051  +-----+                                 %Q0051
+--] [-----] [-----]/[-----] [---+ TMR +-----------------------------------( )--  (* Group. end stop out              *)
| 0155    0042    0723           |0.10s|                                         Cross reference for Y107-1
|                                |     |                                         -] [- 238
|                         CONST --+PV   |
|                         +00003 |     |
|                                +-----+
|
|                                Group
|                                endstop
|                                out
|
|                                %R1101
|
|                Been in                                                         << RUNG 157  STEP #0842 >>
|Short   Gr end  step 3,
|infeed  stop    not low Emerg.
|ready   out     .than 2 stop
|                          L12
|%M0204  %M1138  %M0107  %I0001                                          %M1139
+--] [-----]/[--+--] [-----] [-------------------------------------------( )--  (* Gr end stop in                   *)
| 0134    0153  | 0379                                                           Cross reference for %M1139
|Group.         |                                                                -] [- 155
|pusher         |
|home           |
|pos.           |
| B132          |
|%I0051         |
+--]/[----------+
|               |
|ME.            |
|Infeed         |
|brake          |
|empty          |
|               |
|%M0603         |
+--] [----------+
|
```

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|Gr end                                                                          << RUNG 158  STEP #0849 >>
|stop
|out     Step 2
|        STEP_2                                                     Y107-2
|%M1140  %M0102                                                     %Q0060
+--]/[-----] [--+-------------------------------------------------------( )--  (* Grouping end stop in             *)
| 0155    0042  |                                                              Cross reference for Y107-2
|               |                                                                        NONE
|Servo          |
|axis           |
|ident          |
|               |
|%M1170         |
+--] [----------+
| 0723
|
|Short                                                                           << RUNG 159  STEP #0853 >>
|infeed
|ready
|
|%M0204  +-----+                                                    %M0210
+--] [---+ TMR +-------------------------------------------------------( )--  (* Delay off pack. seper.           *)
| 0134   |0.01s|                                                              Cross reference for %M0210
|        |     |                                                              -] [- 160
| CONST -+PV   |
| +00000 |     |
|        +-----+
|        Delay
|        off
|        pack.
|        seper.
|
|        %R0537
|
|Group.  Delay   Crush   Alarm                                                   << RUNG 160  STEP #0856 >>
|endstop off     guard,  groupin Infeed
|inner   pack.   group.  g       brake
|pos.    seper.  section section open
| B140            B144            Y106
|%I0057  %M0210  %I0061  %M0056  %Q0021                             %M1130
+--] [-----] [--+--]/[--+--]/[-----]/[-------------------------------------( )--  (* Pack sep out *)
|         0159  |       | 0531    0152                                         Cross reference for %M1130
|               |       |                                                      -] [- 161,176
|               |Package|
|               |seper. |
|               |out    |
|               | Y112  |
|               |%Q0015 |
|               +--] [--+
|                 0161
|
|Pack                                                                            << RUNG 161  STEP #0864 >>
|sep out
|                                                                   Y112
|%M1130                                                             %Q0015
+--] [-----------------------------------------------------------------( )--  (* Package seper. out              *)
| 0160                                                                         Cross reference for Y112
|                                                                              -] [- 160
|                                                                              -]/[- 526
|
| (*************************************************************************)
| (*  p                                                                    *)
| (*                                                                       *)
| (* GROUPING PUSHER, GUIDE RAIL, TILT TRAY                                *)
| (*                                                                       *)
| (*************************************************************************)
|
|        Group.                                                                  << RUNG 163  STEP #0867 >>
|Infeed  endstop Short
|brake   inner   infeed
|open    pos.    ready
| Y106    B140
|%Q0021  %I0057  %M0204                                             %M0211
+--]/[-----] [-----] [-----------------------------------------------------( )--  (* Gr.push short stroke ready      *)
| 0152            0134                                                         Cross reference for %M0211
|                                                                              -] [- 176,178
|
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|Gr. pus Group.                                                                   << RUNG 164  STEP #0871 >>
|her for pusher
|ward sh short,
|ort hol single
|         B133
|%M0215  %I0052                                                  %M0212
+--] [-----] [--+-------------------------------------------------------( )--  (* Mem short str gr.push done       *)
| 0165          |                                                                Cross reference for %M0212
|Mem sho Group. |                                                                -] [- 164,234
|rt str  pusher |                                                                -]/[- 134,176
|gr.push home   |
|done    pos.   |
|         B132  |
|%M0212  %I0051 |
+--] [--+--]/[--+
| 0164  |       |
|       |       |
|       |Infeed |
|       |brake  |
|       |open   |
|       | Y106  |
|       |%Q0021 |
|       +--]/[--+
|         0152
|
|        Group                                                                    << RUNG 165  STEP #0879 >>
|        pusher
|        forw
|Step 2  short   Step 1
|STEP_2  Y102-1  STEP_1
|%M0102  %Q0107  %M0101                                          %M0215
+--] [-----] [--+--] [-------------------------------------------------------( )--  (* Gr. pusher forward short hold *)
| 0042    0177  | 0034                                                          Cross reference for %M0215
|Gr. pus Group. |                                                                -] [- 164,165
|her for pusher |
|ward sh short, |
|ort hol single |
|         B133  |
|%M0215  %I0052 |
+--] [-----]/[--+
| 0165
|
|Single                                                                           << RUNG 166  STEP #0886 >>
|pack/
|(X*1)
|
|%M0901  +-----+
+--] [---+MOVE_+-
|        | BIT |
|        |     |
|Guide   |     |
|rail up |     | Guide
|/down   |     | rail
|(Up=0)  |     | down
|        |     |
|%R0445 -+IN  Q+-%M1003
|        | LEN |
|        |00001|
|        |     |
|        +-----+
|
|Single                                                                           << RUNG 167  STEP #0888 >>
|pack/
|(X*1)
|
|%M0901  +-----+
+--]/[---+MOVE_+-
|        | BIT |
|        |     |
|        |     | Guide
|        |     | rail
|        |     | down
|        |     |
| CONST -+IN  Q+-%M1003
|   0000 | LEN |
|        |00001|
|        |     |
|        +-----+
|
```

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|Dolly r                                                                                << RUNG 168  STEP #0890 >>
|eached
|1:st st
|roke po
|
|%M3137  +-----+                                                   %M0226
+--] [---+ TMR +-----------------------------------------------------------( )--  (* Delay pusher on *)
| 0237   |0.10s|                                                                     Cross reference for %M0226
|        |     |                                                                     -] [- 169
| CONST -+PV   |
| +00005 |     |
|        +-----+
|        Timer
|        delay
|        pusher
|        on
|
|        %R1174
|
|        Guide                                                                        << RUNG 169  STEP #0893 >>
|1:st    rail    Guide                          Single
|pusher  lower   rail                           pack/
|stroke  pos.    down                           (X*1)
|         B143
|%M0417  %I0060  %M1003                         %M0901                  %M1142
+--] [-----]/[-----]/[--------------------------+--] [---------------------( )--  (* Cond. group. pusher start        *)
|                                               |                                   Cross reference for %M1142
|                       Stop    Guide   New pat|                                   -] [- 171
|2:nd    Delay   Stop    arm     rail    tern in|
|pusher  pusher  arm     upper   lower   group. |
|stroke  on      down    pos.    pos.    pos.   |
|                 Y110    B141    B143           |
|%M0418  %M0226  %Q0016  %I0058  %I0060  %M0214 |
+--] [--+--] [--+--] [-----]/[--+--] [-----]/[--+
|       | 0168  | 0272          |         0174
|       |       |               |
|       |Guide  |               |
|       |rail   |               |
|       |down   |               |
|       |       |               |
|       |%M1003 |               |
|       +--] [--+               |
|               |               |
|1:st    2:nd   |               |
|pusher  pusher |               |
|stroke  stroke |               |
|               |               |
|%M0417  %M0418 |               |
+--]/[-----]/[--+               |
|                               |
|                Dolly r        |
|Guide   Single  eached  1:st   |
|rail    pack/   1:st st pusher |
|down    (X*1)   roke po stroke |
|                               |
|%M1003  %M0901  %M3137  %M0417 |
+--] [-----] [-----] [-----] [--+
|                 0237
|
|        Guide   Cond.                                                                << RUNG 170  STEP #0915 >>
|1:st    rail    group.                  Single
|pusher  lower   pusher                  pack/
|stroke  pos.    start                   (X*1)
|         B143
|%M0417  %I0060  %M0213                  %M0901                  %M1143
+--] [-----] [-----]/[------------------+--]/[-----------------------------( )--  (* Cond. group. pusher start        *)
|                 0171                  |                                           Cross reference for %M1143
|                Stop    Guide   New pat|                                           -] [- 171
|1:st    Stop    arm     rail    tern in|
|pusher  arm     upper   lower   group. |
|stroke  down    pos.    pos.    pos.   |
|         Y110    B141    B143          |
|%M0417  %Q0016  %I0058  %I0060  %M0214 |
+--]/[-----] [-----]/[-----] [-----]/[--+
|         0272                   0174
|
|Cond.                                                                                << RUNG 171  STEP #0926 >>
|group.
|pusher
|start
|
|%M1142                                                            %M0213
+--] [--+-------------------------------------------------------------------( )--  (* Cond. group. pusher start        *)
| 0169  |                                                                           Cross reference for %M0213
|Cond.  |                                                                           -] [- 176
|group. |                                                                           -]/[- 170
|pusher |
|start  |
|       |
|%M1143 |
+--] [--+
| 0170
|

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|        Group                                                                    << RUNG 172  STEP #0929 >>
|        pusher
|        forw
|Step 2  long    Step 1
|STEP_2  Y102-2  STEP_1
|%M0102  %Q0108  %M0101                                          %M0216
+--] [-----] [--+--] [-----------------------------------------------------( )--  (* Gr. pusher forw. long hold *)
| 0042    0178  | 0034                                                          Cross reference for %M0216
|Gr. pus Group. |                                                               -] [- 172,173
|her for pusher |
|w. long home   |
|hold    pos.   |
|         B132  |
|%M0216  %I0051 |
+--] [-----]/[--+
| 0172
|
|Gr. pus Group.                                                                 << RUNG 173  STEP #0936 >>
|her for pusher          Groupin
|w. long long,           g belt
|hold    single  Step 1  running
|         B134   STEP_1
|%M0216  %I0053  %M0101  %M1016          +-----+                         %T0061
+--] [-----] [-----] [--+--]/[--+-------+ TMR +---------------------------(^)--  (* Delay pusher off *)
| 0172            0034  | 0296  |        |0.10s|                                Cross reference for %T0061
|                       |       |        |     |                                -] [- 174,175
|                       |       |Group   |     |
|                       |Small  |pusher  |     |
|                       |volumes|back    |     |
|                       |       |delay   |     |
|                       |%M0870 |        |     |
|                       +--]/[--+%R0447 --+PV   |
|                                        |     |
|                                        +-----+
|
|                                        Delay
|                                        pusher
|                                        off
|
|                                        %R0996
|
|Delay                                                                          << RUNG 174  STEP #0944 >>
|pusher
|off             Step 1
|                STEP_1
|%T0061          %M0101                                          %M0214
+--] [----------+--] [-----------------------------------------------------( )--  (* New pattern in group. pos.       *)
| 0173          | 0034                                                          Cross reference for %M0214
|New pat        |                                                               -] [- 112,174,187,252,255,256,258,272,290,292,298,
|tern in Group. |                                                                    300
|group.  area   |                                                               -]/[- 169,170,177,178,250
|pos.    empty  |
|               |
|%M0214  %M0223 |
+--] [-----]/[--+
| 0174    0258
|
|Delay                                                                          << RUNG 175  STEP #0950 >>
|pusher
|off
|
|%T0061                                                          %M0217
+--] [----------+-------------------------------------------------------------( )--  (* Pattern ready reset counter      *)
| 0173          |                                                               Cross reference for %M0217
|Pattern Group. |                                                               -] [- 175,234
|ready   pusher |                                                               -]/[- 134,140
|reset   home   |
|counter pos.   |
|         B132  |
|%M0217  %I0051 |
+--] [-----]/[--+
| 0175
|
|Gr.push Cond.   Mem sho                 ME.                                    << RUNG 176  STEP #0955 >>
|short   group.  rt str                  Infeed  Package
|stroke  pusher  gr.push Pack            brake   separat
|ready   start   done    sep out Step 3  empty   out
|                                STEP_3           B160
|%M0211  %M0213  %M0212  %M1130  %M0103  %M0603  %I0085
+--] [--+--] [--+--]/[--+--] [-----] [--+--]/[-----] [------------------------<+>
| 0163  | 0171  | 0164  | 0160    0048  |
|       |Group  |       |Group   Been in|
|       |pusher |       |pusher  step 3,|
|       |forw   |       |forw    not low|
|       |short  |       |short   .than 2|
|       |Y102-1 |       |Y102-1         |
|       |%Q0107 |       |%Q0107  %M0107 |
|       +--] [--+       +--] [-----] [--+
|         0177            0177    0379
|
```

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|        New pat         Stop    Dolly r         Group   Cond.                    << RUNG 177  STEP #0969 >>
|        tern in Stop    arm     eached          pusher  long
|        group.  arm     upper   1:st st         forw    stroke  Axis
|        pos.    down    pos.    roke po         long    gr.push ident
|                 Y110    B141                    Y102-2                  Y102-1
|        %M0214  %Q0016  %I0058  %M3137          %Q0108  %M0209  %I0090  %Q0107
+<+>----+--]/[-----] [-----]/[--+--] [--+-------+--]/[-----]/[-----]/[-----( )--  (* Group pusher forw short          *)
|       | 0174    0272          | 0237  |       | 0178    0140                    Cross reference for Y102-1
|       |                       |       |       |                                 -] [- 146,165,176,177,180,189,190,191,195,196,197,
|       |                       |1:st   |       |                                       198,199,200,201,202,203,204,205,206,207,208,
|       |                       |pusher |       |                                       225,525
|       |                       |stroke |       |                                 -]/[- 178,179,187,227,238
|       |                       |       |       |
|       |                       |%M0417 |       |
|       |                       +--]/[--+       |
|       |                       |       |       |
|       |                       |Group  |       |
|       |                       |pusher |       |
|       |                       |forw   |       |
|       |                       |short  |       |
|       |                       |Y102-1 |       |
|       |                       |%Q0107 |       |
|       |                       +--] [--+       |
|       |                       | 0177          |
|       |                       |               |
|       |                       |(X*2)   (X*3)  |
|       |                       |               |
|       |                       |%M0902  %M0903 |
|       |                       +--]/[-----]/[--+
|       |                                       |
|       |1:st    Single                         |
|       |pusher  pack/                          |
|       |stroke  (X*1)                          |
|       |                                       |
|       |%M0417  %M0901                         |
|       +--] [-----] [--------------------------+
|
|Group           Cond.           New pat                                  << RUNG 178  STEP #0988 >>
|pusher  Infeed  long    Group   tern in Package
|forw    brake   stroke  pusher  group.  separat         Axis
|short   open    gr.push backw   pos.    out     Step 3  ident
|Y102-1   Y106           Y102-3           B160   STEP_3                  Y102-2
|%Q0107  %Q0021  %M0209  %Q0109  %M0214  %I0085  %M0103  %I0090          %Q0108
+--]/[-----]/[-----] [--+--]/[--+--]/[-----] [--+--] [--+--]/[-------------( )--  (* Group pusher forw long           *)
| 0177    0152    0140  | 0179  | 0174          | 0048  |                         Cross reference for Y102-2
|                       |Gr.push|               |Group  |                         -] [- 146,172,178,180,189,190,191,210,211,212,213,
|                       |short  |               |pusher |                               214,215,216,217,218,219,220,221,222,223,225,
|                       |stroke |               |forw   |                               525
|                       |ready  |               |long   |                         -]/[- 177,179,227
|                       |       |               |Y102-2 |
|                       |%M0211 |               |%Q0108 |
|                       +--] [--+               +--] [--+
|                         0163                    0178  |
|        ME.                                            |
|ME.     Last                                           |
|Last    Gr.push                                        |
|Gr.push done    Step 3                                 |
|                STEP_3                                 |
|%M0604  %M0605  %M0103                                 |
+--] [-----]/[-----] [---------------------------------+
|                 0048
|
|Group   Group   Been in                                                   << RUNG 179  STEP #1005 >>
|pusher  pusher  step 3,
|forw    forw    not low Axis
|short   long    .than 2 ident
|Y102-1  Y102-2                                                   Y102-3
|%Q0107  %Q0108  %M0107  %I0090                                   %Q0109
+--]/[-----]/[-----] [-----]/[----------------------------------------------( )--  (* Group pusher backw                *)
| 0177    0178    0379                                                            Cross reference for Y102-3
|                                                                                 -] [- 525
|                                                                                 -]/[- 178,189,190,191
|
|Group                                                                     << RUNG 180  STEP #1010 >>
|pusher
|forw
|short
|Y102-1                                                            Y173
|%Q0107                                                           %Q0111
+--] [--+-------------------------------------------------------------------( )--  (* Tillt tray                        *)
| 0177  |                                                                         Cross reference for Y173
|Group  |                                                                                  NONE
|pusher |
|forw   |
|long   |
|Y102-2 |
|%Q0108 |
+--] [--+
| 0178
|

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|ALW_ON                                                                    << RUNG 181  STEP #1013 >>
|%S0007  +-----+
+--] [---+MOVE_+-
|        | BIT |
|        |     |
|Slow sp |     | Slow sp
|eed fir |     | eed fir
|st stro |     | st stro
|ke (0-3 |     | ke, bit
|        |     |
|%R0470 -+IN  Q+-%M1276
|        | LEN |
|        |00002|
|        |     |
|        +-----+
|
|ALW_ON                                                                    << RUNG 182  STEP #1015 >>
|%S0007  +-----+
+--] [---+MOVE_+-
|        | BIT |
|        |     |
|Slow sp |     | Slow sp
|eed lon |     | eed lon
|g strok |     | g strok
|e (0-3) |     | e, bit
|        |     |
|%R0471 -+IN  Q+-%M1278
|        | LEN |
|        |00002|
|        |     |
|        +-----+
|
|Group.  Slow sp                                                           << RUNG 183  STEP #1017 >>
|pusher  eed fir 1:st
|home    st stro pusher
|pos.    ke, bit stroke  Step 2
| B132                   STEP_2
|%I0051  %M1276  %M0417  %M0102                                  %M1271
+--] [--+--] [--+--] [--+--] [-----------------------------------------( )--  (* Gr. pusher - low speed stroke *)
|       |       |       | 0042                                             Cross reference for %M1271
|       |Slow sp|       |                                                            NONE
|       |eed fir|       |
|       |st stro|       |
|       |ke, bit|       |
|       |       |       |
|       |%M1277 |       |
|       +--] [--+       |
|       |               |
|       |Slow sp Cond.  |
|       |eed lon long   |
|       |g strok stroke |
|       |e, bit  gr.push|
|       |               |
|       |%M1278  %M0209 |
|       +--] [--+--] [--+
|       |       | 0140  |
|       |Slow sp|       |
|       |eed lon|       |
|       |g strok|       |
|       |e, bit |       |
|       |       |       |
|       |%M1279 |       |
|       +--] [--+       |
|       |               |
|       |Manual         |
|       |empty.         |
|       |               |
|       |%M0600         |
|       +--] [----------+
|
|Group.          Slow sp                                                   << RUNG 184  STEP #1029 >>
|pusher  1:st    eed fir
|home    pusher  st stro Manual
|pos.    stroke  ke, bit empty.  Step 1
| B132                           STEP_1
|%I0051  %M0417  %M1276  %M0600  %M0101                          %Q0089
+--] [--+--] [-----] [--+--]/[-----] [-------------------------------------( )--  (* Servo, grouping slow speedbit 1 *)
|       |               |         0034                                     Cross reference for %Q0089
|       |Cond.   Slow sp|                                                  -] [- 189,191
|       |long    eed lon|                                                  -]/[- 190
|       |stroke  g strok|
|       |gr.push e, bit |
|       |               |
|       |%M0209  %M1278 |
|       +--] [-----] [--+
|         0140
|
```

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|Group.          Slow sp                                                    << RUNG 185  STEP #1039 >>
|pusher  1:st    eed fir
|home    pusher  st stro
|pos.    stroke  ke, bit Step 1
| B132                   STEP_1
|%I0051  %M0417  %M1277  %M0101                                   %Q0090
+--] [--+--] [-----] [--+--] [--------------------------------------------( )--  (* Servo, grouping slow speedbit 2 *)
|       |              | 0034                                                  Cross reference for %Q0090
|       |Cond.   Slow sp|                                                      -] [- 190,191
|       |long    eed lon|                                                      -]/[- 189
|       |stroke  g strok|
|       |gr.push e, bit |
|       |               |
|       |%M0209  %M1279 |
|       +--] [-----] [--+
|       | 0140          |
|       |               |
|       |Manual         |
|       |empty.         |
|       |               |
|       |%M0600         |
|       +--] [----------+
|
|        Stop                                                                << RUNG 186  STEP #1049 >>
|        arm             Servo
|Guide   upper           axis
|rail up pos.    Step 1  ident
|         B141   STEP_1                                            Y101
|%M0250  %I0058  %M0101  %M1170                                   %Q0106
+--] [-----] [-----] [-----]/[--------------------------------------------( )--  (* Guide rail up                    *)
| 0187            0034    0723                                                 Cross reference for Y101
|                                                                              -] [- 187
|                                                                              -]/[- 520
|
|        Group.                                   ME.                        << RUNG 187  STEP #1054 >>
|1:st    pusher                  Guide            Infeed
|pusher  home                    rail             brake
|stroke  pos.            Step 1  down    (X*2)    (X*3)   empty
|         B132           STEP_1
|%M0417  %I0051          %M0101  %M1003  %M0902  %M0903  %M0603          %M0250
+--] [--+--] [----------+--] [-----]/[-----]/[-----]/[--+--]/[-------------( )--  (* Guide rail up                    *)
|       |              | 0034                          |                        Cross reference for %M0250
|Group. |              |                               |                        -] [- 186,187,272
|pusher |              |                               |
|home   |Guide         |                               |
|pos.   |rail up Step 2 |                              |
| B132  | Y101   STEP_2 |                              |
|%I0051 |%Q0106  %M0102 |                              |
+--]/[--+--] [-----] [--+                              |
|         0186    0042                                 |
|New pat Group.  Group                                 |
|tern in pusher  pusher                                |
|group.  long,   forw                                  |
|pos.    single  short                                 |
|         B134   Y102-1                                |
|%M0214  %I0053  %Q0107                                |
+--] [-----]/[--+--]/[--+--------------------------------+
| 0174          | 0177  |
|               |       |
|               |Guide  |
|               |rail up|
|               |       |
|               |%M0250 |
|               +--] [--+
|                 0187
|
```

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| (*************************************************************************)
| (* GROUPING SUPPORT                                                      *)
| (* The grouping support supports the packages at the top when grouping.   *)
| (* The time that grouping support shall stay down (during strokes)        *)
| (* differs depending on the speed and length of the stroke f.ex.:         *)
| (* - Short stroke (normal speed 2-15 and slow speed 1-3)                 *)
| (* - Long stroke (normal speed 2-15 and slow speed 1-3)                  *)
| (* and there fore different delays, for support up, are used in "auto mode" *)
| (*************************************************************************)
|
|Group   Servo,  Servo,                                                    << RUNG 189  STEP #1074 >>
|pusher  groupin groupin
|forw    g slow  g slow
|short   speedbi speedbi Step 3
|Y102-1                  STEP_3
|%Q0107  %Q0089  %Q0090  %M0103                                   %M3163
+--] [--+--] [-----]/[--+--] [-----------------------------------------( )--  (* Grouping slow speed 1 *)
| 0177  | 0184    0185  | 0048                                            Cross reference for %M3163
|Group  |               |                                                 -] [- 189,192,196,212
|pusher |               |
|forw   |               |
|long   |               |
|Y102-2 |               |
|%Q0108 |               |
+--] [--+               |
| 0178                  |
|                       |
|Groupin Group          |
|g slow  pusher         |
|speed 1 backw          |
|        Y102-3         |
|%M3163  %Q0109         |
+--] [-----]/[----------+
| 0189    0179
|
|Group   Servo,  Servo,                                                    << RUNG 190  STEP #1083 >>
|pusher  groupin groupin
|forw    g slow  g slow
|short   speedbi speedbi Step 3
|Y102-1                  STEP_3
|%Q0107  %Q0089  %Q0090  %M0103                                   %M3164
+--] [--+--]/[-----] [--+--] [-----------------------------------------( )--  (* Grouping slow speed 2 *)
| 0177  | 0184    0185  | 0048                                            Cross reference for %M3164
|Group  |               |                                                 -] [- 190,192,197,216
|pusher |               |
|forw   |               |
|long   |               |
|Y102-2 |               |
|%Q0108 |               |
+--] [--+               |
| 0178                  |
|                       |
|Groupin Group          |
|g slow  pusher         |
|speed 2 backw          |
|        Y102-3         |
|%M3164  %Q0109         |
+--] [-----]/[----------+
| 0190    0179
|
|Group   Servo,  Servo,                                                    << RUNG 191  STEP #1092 >>
|pusher  groupin groupin
|forw    g slow  g slow
|short   speedbi speedbi Step 3
|Y102-1                  STEP_3
|%Q0107  %Q0089  %Q0090  %M0103                                   %M3165
+--] [--+--] [-----] [--+--] [-----------------------------------------( )--  (* Grouping slow speed 3 *)
| 0177  | 0184    0185  | 0048                                            Cross reference for %M3165
|Group  |               |                                                 -] [- 191,192,198,219
|pusher |               |
|forw   |               |
|long   |               |
|Y102-2 |               |
|%Q0108 |               |
+--] [--+               |
| 0178                  |
|                       |
|Groupin Group          |
|g slow  pusher         |
|speed 3 backw          |
|        Y102-3         |
|%M3165  %Q0109         |
+--] [-----]/[----------+
| 0191    0179
|

Program: A454891                         C:\LM90\VISN\P1000\A454891                                   Block: _MAIN
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|Groupin                                                                          << RUNG 192  STEP #1101 >>
|g slow
|speed 1
|
|%M3163                                                          %M3155
+--] [--+-------------------------------------------------------------( )--  (* Grouping slow speed stroke *)
| 0189  |                                                                      Cross reference for %M3155
|       |                                                                      -] [- 196,197,198,212,216,219
|Groupin|                                                                      -]/[- 195,196,197,198,199,200,201,202,203,204,205,
|g slow |                                                                            206,207,208,210,211,212,213,214,215,216,217,
|speed 2|                                                                            218,219,220,221,222,223
|       |
|%M3164 |
+--] [--+
| 0190  |
|       |
|Groupin|
|g slow |
|speed 3|
|       |
|%M3165 |
+--] [--+
| 0191
|
|ALW_ON                                                                           << RUNG 193  STEP #1105 >>
|%S0007  +-----+                                                 %M1261
+--] [---+ EQ_ |+-------------------------------------------------------( )--  (* Grouping support up delay AUTO *)
|        | INT ||                                                              Cross reference for %M1261
|        |     ||                                                              -] [- 195,196,197,198,199,200,201,202,203,204,205,
|Groupin |     ||                                                                    206,207,208,210,211,212,213,214,215,216,217,
|g suppo |     ||                                                                    218,219,220,221,222,223
|rt up d |     ||                                                              -]/[- 224
|elay CH |     ||
|        |     ||
|%R1161 -+I1  Q++
|        |     |
| CONST -+I2   |
| +00001 +-----+
|
| (*************************************************************************)
| (* Short stroke delays                                                   *)
| (*************************************************************************)
|
|Group                                 Groupin Groupin                          << RUNG 195  STEP #1109 >>
|pusher  Binery  Binery  Binery  Binery  g slow  g suppo
|forw    code to code to code to code to speed   rt up d
|short   servo   servo   servo   servo   stroke  elay AU
|Y102-1   BIT1Y   BIT2Y   BIT3Y   BIT4Y
|%Q0107  %Q0085  %Q0086  %Q0087  %Q0088  %M3155  %M1261  +-----+
+--] [-----]/[-----] [-----]/[-----]/[-----]/[-----] [---+MOVE_+-
| 0177                                  0192    0193   | INT |
|                                                      |     |
|                                                      |     | Groupin
|                                                      |     | g suppo
|                                                      |     | rt up d
|                                                      |     | elay ti
|                                                      |     |
|                                                CONST -+IN  Q+-%R3460
|                                                +00060 | LEN |
|                                                       |00001|
|                                                       |     |
|                                                       +-----+
|
|Group                                 Groupin Groupin                          << RUNG 196  STEP #1117 >>
|pusher  Binery  Binery  Binery  Binery  g slow  g suppo
|forw    code to code to code to code to speed   rt up d
|short   servo   servo   servo   servo   stroke  elay AU
|Y102-1   BIT1Y   BIT2Y   BIT3Y   BIT4Y
|%Q0107  %Q0085  %Q0086  %Q0087  %Q0088  %M3155  %M1261  +-----+
+--] [--+--] [-----] [-----]/[-----]/[-----]/[--+--] [---+MOVE_+-
| 0177  |                               0192  | 0193   | INT |
|       |        Groupin                      |        |     |
|       |Groupin g slow                       |        |     | Groupin
|       |g slow  speed                        |        |     | g suppo
|       |speed 1 stroke                       |        |     | rt up d
|       |                                     |        |     | elay ti
|       |%M3163  %M3155                       |        |     |
|       +--] [-----] [-------------------------+ CONST -+IN  Q+-%R3460
|         0189    0192                        +00040 | LEN |
|                                                       |00001|
|                                                       |     |
|                                                       +-----+
|
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|Group                                  Groupin Groupin                          << RUNG 197  STEP #1129 >>
|pusher  Binery  Binery  Binery  Binery  g slow  g suppo
|forw    code to code to code to code to speed   rt up d
|short   servo   servo   servo   servo   stroke  elay AU
|Y102-1   BIT1Y   BIT2Y   BIT3Y   BIT4Y
|%Q0107  %Q0085  %Q0086  %Q0087  %Q0088  %M3155  %M1261  +-----+
+--] [--+--]/[-----]/[-----] [-----]/[-----]/[--+--] [---+MOVE_+-
| 0177  |                                 0192  | 0193   | INT |
|       |        Groupin                        |        |     |
|       |Groupin g slow                         |        |     | Groupin
|       |g slow  speed                          |        |     | g suppo
|       |speed 2 stroke                         |        |     | rt up d
|       |                                       |        |     | elay ti
|       |%M3164  %M3155                         |        |     |
|       +--] [-----] [--------------------------+ CONST -+IN  Q+-%R3460
|         0190    0192                            +00030 | LEN |
|                                                         |00001|
|                                                         |     |
|                                                         +-----+
|
|Group                                  Groupin Groupin                          << RUNG 198  STEP #1141 >>
|pusher  Binery  Binery  Binery  Binery  g slow  g suppo
|forw    code to code to code to code to speed   rt up d
|short   servo   servo   servo   servo   stroke  elay AU
|Y102-1   BIT1Y   BIT2Y   BIT3Y   BIT4Y
|%Q0107  %Q0085  %Q0086  %Q0087  %Q0088  %M3155  %M1261  +-----+
+--] [--+--] [-----]/[-----] [-----]/[-----]/[--+--] [---+MOVE_+-
| 0177  |                                 0192  | 0193   | INT |
|       |        Groupin                        |        |     |
|       |Groupin g slow                         |        |     | Groupin
|       |g slow  speed                          |        |     | g suppo
|       |speed 3 stroke                         |        |     | rt up d
|       |                                       |        |     | elay ti
|       |%M3165  %M3155                         |        |     |
|       +--] [-----] [--------------------------+ CONST -+IN  Q+-%R3460
|         0191    0192                            +00020 | LEN |
|                                                         |00001|
|                                                         |     |
|                                                         +-----+
|
|Group                                  Groupin Groupin                          << RUNG 199  STEP #1153 >>
|pusher  Binery  Binery  Binery  Binery  g slow  g suppo
|forw    code to code to code to code to speed   rt up d
|short   servo   servo   servo   servo   stroke  elay AU
|Y102-1   BIT1Y   BIT2Y   BIT3Y   BIT4Y
|%Q0107  %Q0085  %Q0086  %Q0087  %Q0088  %M3155  %M1261  +-----+
+--] [-----]/[-----] [-----] [-----]/[-----]/[-----] [---+MOVE_+-
| 0177                                    0192    0193   | INT |
|                                                        |     |
|                                                        |     | Groupin
|                                                        |     | g suppo
|                                                        |     | rt up d
|                                                        |     | elay ti
|                                                        |     |
|                                                 CONST -+IN  Q+-%R3460
|                                                 +00015 | LEN |
|                                                        |00001|
|                                                        |     |
|                                                        +-----+
|
|Group                                  Groupin Groupin                          << RUNG 200  STEP #1161 >>
|pusher  Binery  Binery  Binery  Binery  g slow  g suppo
|forw    code to code to code to code to speed   rt up d
|short   servo   servo   servo   servo   stroke  elay AU
|Y102-1   BIT1Y   BIT2Y   BIT3Y   BIT4Y
|%Q0107  %Q0085  %Q0086  %Q0087  %Q0088  %M3155  %M1261  +-----+
+--] [-----] [-----] [-----] [-----]/[-----]/[-----] [---+MOVE_+-
| 0177                                    0192    0193   | INT |
|                                                        |     |
|                                                        |     | Groupin
|                                                        |     | g suppo
|                                                        |     | rt up d
|                                                        |     | elay ti
|                                                        |     |
|                                                 CONST -+IN  Q+-%R3460
|                                                 +00012 | LEN |
|                                                        |00001|
|                                                        |     |
|                                                        +-----+
|
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|Group                                 Groupin Groupin                        << RUNG 201  STEP #1169 >>
|pusher  Binery  Binery  Binery  Binery  g slow  g suppo
|forw    code to code to code to code to speed   rt up d
|short   servo   servo   servo   servo   stroke  elay AU
|Y102-1   BIT1Y   BIT2Y   BIT3Y   BIT4Y
|%Q0107  %Q0085  %Q0086  %Q0087  %Q0088  %M3155  %M1261  +-----+
+--] [-----]/[-----]/[-----]/[-----] [-----]/[-----] [---+MOVE_+-
| 0177                                  0192    0193   | INT |
|                                                      |     |
|                                                      |     | Groupin
|                                                      |     | g suppo
|                                                      |     | rt up d
|                                                      |     | elay ti
|                                                      |     |
|                                               CONST -+IN  Q+-%R3460
|                                               +00010 | LEN |
|                                                      |00001|
|                                                      |     |
|                                                      +-----+
|
|Group                                 Groupin Groupin                        << RUNG 202  STEP #1177 >>
|pusher  Binery  Binery  Binery  Binery  g slow  g suppo
|forw    code to code to code to code to speed   rt up d
|short   servo   servo   servo   servo   stroke  elay AU
|Y102-1   BIT1Y   BIT2Y   BIT3Y   BIT4Y
|%Q0107  %Q0085  %Q0086  %Q0087  %Q0088  %M3155  %M1261  +-----+
+--] [-----] [-----]/[-----]/[-----] [-----]/[-----] [---+MOVE_+-
| 0177                                  0192    0193   | INT |
|                                                      |     |
|                                                      |     | Groupin
|                                                      |     | g suppo
|                                                      |     | rt up d
|                                                      |     | elay ti
|                                                      |     |
|                                               CONST -+IN  Q+-%R3460
|                                               +00009 | LEN |
|                                                      |00001|
|                                                      |     |
|                                                      +-----+
|
|Group                                 Groupin Groupin                        << RUNG 203  STEP #1185 >>
|pusher  Binery  Binery  Binery  Binery  g slow  g suppo
|forw    code to code to code to code to speed   rt up d
|short   servo   servo   servo   servo   stroke  elay AU
|Y102-1   BIT1Y   BIT2Y   BIT3Y   BIT4Y
|%Q0107  %Q0085  %Q0086  %Q0087  %Q0088  %M3155  %M1261  +-----+
+--] [-----]/[-----] [-----]/[-----] [-----]/[-----] [---+MOVE_+-
| 0177                                  0192    0193   | INT |
|                                                      |     |
|                                                      |     | Groupin
|                                                      |     | g suppo
|                                                      |     | rt up d
|                                                      |     | elay ti
|                                                      |     |
|                                               CONST -+IN  Q+-%R3460
|                                               +00008 | LEN |
|                                                      |00001|
|                                                      |     |
|                                                      +-----+
|
|Group                                 Groupin Groupin                        << RUNG 204  STEP #1193 >>
|pusher  Binery  Binery  Binery  Binery  g slow  g suppo
|forw    code to code to code to code to speed   rt up d
|short   servo   servo   servo   servo   stroke  elay AU
|Y102-1   BIT1Y   BIT2Y   BIT3Y   BIT4Y
|%Q0107  %Q0085  %Q0086  %Q0087  %Q0088  %M3155  %M1261  +-----+
+--] [-----] [-----] [-----]/[-----] [-----]/[-----] [---+MOVE_+-
| 0177                                  0192    0193   | INT |
|                                                      |     |
|                                                      |     | Groupin
|                                                      |     | g suppo
|                                                      |     | rt up d
|                                                      |     | elay ti
|                                                      |     |
|                                               CONST -+IN  Q+-%R3460
|                                               +00007 | LEN |
|                                                      |00001|
|                                                      |     |
|                                                      +-----+
|

Program: A454891                          C:\LM90\VISN\P1000\A454891                          Block: _MAIN
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|Group                                  Groupin Groupin                          << RUNG 205  STEP #1201 >>
|pusher  Binery  Binery  Binery  Binery  g slow  g suppo
|forw    code to code to code to code to speed   rt up d
|short   servo   servo   servo   servo   stroke  elay AU
|Y102-1   BIT1Y   BIT2Y   BIT3Y   BIT4Y
|%Q0107  %Q0085  %Q0086  %Q0087  %Q0088  %M3155  %M1261  +-----+
+--] [-----]/[-----]/[-----] [-----] [-----]/[-----] [---+MOVE_+-
| 0177                                   0192    0193   | INT |
|                                                       |     |
|                                                       |     | Groupin
|                                                       |     | g suppo
|                                                       |     | rt up d
|                                                       |     | elay ti
|                                                       |     |
|                                                CONST -+IN  Q+-%R3460
|                                                +00006 | LEN |
|                                                       |00001|
|                                                       |     |
|                                                       +-----+
|
|Group                                  Groupin Groupin                          << RUNG 206  STEP #1209 >>
|pusher  Binery  Binery  Binery  Binery  g slow  g suppo
|forw    code to code to code to code to speed   rt up d
|short   servo   servo   servo   servo   stroke  elay AU
|Y102-1   BIT1Y   BIT2Y   BIT3Y   BIT4Y
|%Q0107  %Q0085  %Q0086  %Q0087  %Q0088  %M3155  %M1261  +-----+
+--] [-----] [-----]/[-----] [-----] [-----]/[-----] [---+MOVE_+-
| 0177                                   0192    0193   | INT |
|                                                       |     |
|                                                       |     | Groupin
|                                                       |     | g suppo
|                                                       |     | rt up d
|                                                       |     | elay ti
|                                                       |     |
|                                                CONST -+IN  Q+-%R3460
|                                                +00005 | LEN |
|                                                       |00001|
|                                                       |     |
|                                                       +-----+
|
|Group                                  Groupin Groupin                          << RUNG 207  STEP #1217 >>
|pusher  Binery  Binery  Binery  Binery  g slow  g suppo
|forw    code to code to code to code to speed   rt up d
|short   servo   servo   servo   servo   stroke  elay AU
|Y102-1   BIT1Y   BIT2Y   BIT3Y   BIT4Y
|%Q0107  %Q0085  %Q0086  %Q0087  %Q0088  %M3155  %M1261  +-----+
+--] [-----]/[-----] [-----] [-----] [-----]/[-----] [---+MOVE_+-
| 0177                                   0192    0193   | INT |
|                                                       |     |
|                                                       |     | Groupin
|                                                       |     | g suppo
|                                                       |     | rt up d
|                                                       |     | elay ti
|                                                       |     |
|                                                CONST -+IN  Q+-%R3460
|                                                +00004 | LEN |
|                                                       |00001|
|                                                       |     |
|                                                       +-----+
|
|Group                                  Groupin Groupin                          << RUNG 208  STEP #1225 >>
|pusher  Binery  Binery  Binery  Binery  g slow  g suppo
|forw    code to code to code to code to speed   rt up d
|short   servo   servo   servo   servo   stroke  elay AU
|Y102-1   BIT1Y   BIT2Y   BIT3Y   BIT4Y
|%Q0107  %Q0085  %Q0086  %Q0087  %Q0088  %M3155  %M1261  +-----+
+--] [-----] [-----] [-----] [-----] [-----]/[-----] [---+MOVE_+-
| 0177                                   0192    0193   | INT |
|                                                       |     |
|                                                       |     | Groupin
|                                                       |     | g suppo
|                                                       |     | rt up d
|                                                       |     | elay ti
|                                                       |     |
|                                                CONST -+IN  Q+-%R3460
|                                                +00003 | LEN |
|                                                       |00001|
|                                                       |     |
|                                                       +-----+
|
| (*************************************************************************)
| (* Long stroke delays                                                    *)
| (*************************************************************************)
|
```

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|Group                                 Groupin Groupin                        << RUNG 210  STEP #1234 >>
|pusher  Binery  Binery  Binery  Binery  g slow  g suppo
|forw    code to code to code to code to speed   rt up d
|long    servo   servo   servo   servo   stroke  elay AU
|Y102-2   BIT1Y   BIT2Y   BIT3Y   BIT4Y
|%Q0108  %Q0085  %Q0086  %Q0087  %Q0088  %M3155  %M1261  +-----+
+--] [-----]/[-----] [-----]/[-----]/[-----]/[-----] [---+MOVE_+-
| 0178                                  0192    0193   | INT |
|                                                      |     |
|                                                      |     | Groupin
|                                                      |     | g suppo
|                                                      |     | rt up d
|                                                      |     | elay ti
|                                                      |     |
|                                               CONST -+IN  Q+-%R3460
|                                               +00080 | LEN |
|                                                      |00001|
|                                                      |     |
|                                                      +-----+
|
|Group                                 Groupin Groupin                        << RUNG 211  STEP #1242 >>
|pusher  Binery  Binery  Binery  Binery  g slow  g suppo
|forw    code to code to code to code to speed   rt up d
|long    servo   servo   servo   servo   stroke  elay AU
|Y102-2   BIT1Y   BIT2Y   BIT3Y   BIT4Y
|%Q0108  %Q0085  %Q0086  %Q0087  %Q0088  %M3155  %M1261  +-----+
+--] [-----] [-----] [-----]/[-----]/[-----]/[-----] [---+MOVE_+-
| 0178                                  0192    0193   | INT |
|                                                      |     |
|                                                      |     | Groupin
|                                                      |     | g suppo
|                                                      |     | rt up d
|                                                      |     | elay ti
|                                                      |     |
|                                               CONST -+IN  Q+-%R3460
|                                               +00060 | LEN |
|                                                      |00001|
|                                                      |     |
|                                                      +-----+
|
|Group                                 Groupin Groupin                        << RUNG 212  STEP #1250 >>
|pusher  Binery  Binery  Binery  Binery  g slow  g suppo
|forw    code to code to code to code to speed   rt up d
|long    servo   servo   servo   servo   stroke  elay AU
|Y102-2   BIT1Y   BIT2Y   BIT3Y   BIT4Y
|%Q0108  %Q0085  %Q0086  %Q0087  %Q0088  %M3155  %M1261  +-----+
+--] [--+--]/[-----]/[-----] [-----]/[-----]/[--+--] [---+MOVE_+-
| 0178  |                               0192  | 0193   | INT |
|       |        Groupin                      |        |     |
|       |Groupin g slow                       |        |     | Groupin
|       |g slow  speed                        |        |     | g suppo
|       |speed 1 stroke                       |        |     | rt up d
|       |                                     |        |     | elay ti
|       |%M3163  %M3155                       |        |     |
|       +--] [-----] [-------------------------+ CONST -+IN  Q+-%R3460
|         0189    0192                          +00040 | LEN |
|                                                      |00001|
|                                                      |     |
|                                                      +-----+
|
|Group                                 Groupin Groupin                        << RUNG 213  STEP #1262 >>
|pusher  Binery  Binery  Binery  Binery  g slow  g suppo
|forw    code to code to code to code to speed   rt up d
|long    servo   servo   servo   servo   stroke  elay AU
|Y102-2   BIT1Y   BIT2Y   BIT3Y   BIT4Y
|%Q0108  %Q0085  %Q0086  %Q0087  %Q0088  %M3155  %M1261  +-----+
+--] [-----] [-----]/[-----] [-----]/[-----]/[-----] [---+MOVE_+-
| 0178                                  0192    0193   | INT |
|                                                      |     |
|                                                      |     | Groupin
|                                                      |     | g suppo
|                                                      |     | rt up d
|                                                      |     | elay ti
|                                                      |     |
|                                               CONST -+IN  Q+-%R3460
|                                               +00030 | LEN |
|                                                      |00001|
|                                                      |     |
|                                                      +-----+
|

Program: A454891                          C:\LM90\VISN\P1000\A454891                          Block: _MAIN
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|Group                                  Groupin Groupin                          << RUNG 214  STEP #1270 >>
|pusher  Binery  Binery  Binery  Binery  g slow  g suppo
|forw    code to code to code to code to speed   rt up d
|long    servo   servo   servo   servo   stroke  elay AU
|Y102-2   BIT1Y   BIT2Y   BIT3Y   BIT4Y
|%Q0108  %Q0085  %Q0086  %Q0087  %Q0088  %M3155  %M1261  +-----+
+--] [-----]/[-----] [-----] [-----]/[-----]/[-----] [---+MOVE_+-
| 0178                                   0192    0193   | INT |
|                                                       |     |
|                                                       |     | Groupin
|                                                       |     | g suppo
|                                                       |     | rt up d
|                                                       |     | elay ti
|                                                       |     |
|                                                CONST -+IN  Q+-%R3460
|                                                +00025 | LEN |
|                                                       |00001|
|                                                       |     |
|                                                       +-----+
|
|Group                                  Groupin Groupin                          << RUNG 215  STEP #1278 >>
|pusher  Binery  Binery  Binery  Binery  g slow  g suppo
|forw    code to code to code to code to speed   rt up d
|long    servo   servo   servo   servo   stroke  elay AU
|Y102-2   BIT1Y   BIT2Y   BIT3Y   BIT4Y
|%Q0108  %Q0085  %Q0086  %Q0087  %Q0088  %M3155  %M1261  +-----+
+--] [-----] [-----] [-----] [-----]/[-----]/[-----] [---+MOVE_+-
| 0178                                   0192    0193   | INT |
|                                                       |     |
|                                                       |     | Groupin
|                                                       |     | g suppo
|                                                       |     | rt up d
|                                                       |     | elay ti
|                                                       |     |
|                                                CONST -+IN  Q+-%R3460
|                                                +00020 | LEN |
|                                                       |00001|
|                                                       |     |
|                                                       +-----+
|
|Group                                  Groupin Groupin                          << RUNG 216  STEP #1286 >>
|pusher  Binery  Binery  Binery  Binery  g slow  g suppo
|forw    code to code to code to code to speed   rt up d
|long    servo   servo   servo   servo   stroke  elay AU
|Y102-2   BIT1Y   BIT2Y   BIT3Y   BIT4Y
|%Q0108  %Q0085  %Q0086  %Q0087  %Q0088  %M3155  %M1261  +-----+
+--] [--+--]/[-----]/[-----]/[-----] [-----]/[--+--] [---+MOVE_+-
| 0178  |                                0192  | 0193   | INT |
|       |        Groupin                       |        |     |
|       |Groupin g slow                        |        |     | Groupin
|       |g slow  speed                         |        |     | g suppo
|       |speed 2 stroke                        |        |     | rt up d
|       |                                      |        |     | elay ti
|       |%M3164  %M3155                        |        |     |
|       +--] [-----] [-------------------------+ CONST -+IN  Q+-%R3460
|         0190    0192                           +00018 | LEN |
|                                                       |00001|
|                                                       |     |
|                                                       +-----+
|
|Group                                  Groupin Groupin                          << RUNG 217  STEP #1298 >>
|pusher  Binery  Binery  Binery  Binery  g slow  g suppo
|forw    code to code to code to code to speed   rt up d
|long    servo   servo   servo   servo   stroke  elay AU
|Y102-2   BIT1Y   BIT2Y   BIT3Y   BIT4Y
|%Q0108  %Q0085  %Q0086  %Q0087  %Q0088  %M3155  %M1261  +-----+
+--] [-----] [-----]/[-----]/[-----] [-----]/[-----] [---+MOVE_+-
| 0178                                   0192    0193   | INT |
|                                                       |     |
|                                                       |     | Groupin
|                                                       |     | g suppo
|                                                       |     | rt up d
|                                                       |     | elay ti
|                                                       |     |
|                                                CONST -+IN  Q+-%R3460
|                                                +00017 | LEN |
|                                                       |00001|
|                                                       |     |
|                                                       +-----+
|
```

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|Group                                 Groupin Groupin                          << RUNG 218  STEP #1306 >>
|pusher  Binery  Binery  Binery  Binery  g slow  g suppo
|forw    code to code to code to code to speed   rt up d
|long    servo   servo   servo   servo   stroke  elay AU
|Y102-2   BIT1Y   BIT2Y   BIT3Y   BIT4Y
|%Q0108  %Q0085  %Q0086  %Q0087  %Q0088  %M3155  %M1261  +-----+
+--] [-----]/[-----] [-----]/[-----] [-----]/[-----] [---+MOVE_+-
| 0178                                  0192    0193   | INT |
|                                                      |     |
|                                                      |     | Groupin
|                                                      |     | g suppo
|                                                      |     | rt up d
|                                                      |     | elay ti
|                                                      |     |
|                                               CONST -+IN  Q+-%R3460
|                                               +00016 | LEN |
|                                                      |00001|
|                                                      |     |
|                                                      +-----+
|
|Group                                 Groupin Groupin                          << RUNG 219  STEP #1314 >>
|pusher  Binery  Binery  Binery  Binery  g slow  g suppo
|forw    code to code to code to code to speed   rt up d
|long    servo   servo   servo   servo   stroke  elay AU
|Y102-2   BIT1Y   BIT2Y   BIT3Y   BIT4Y
|%Q0108  %Q0085  %Q0086  %Q0087  %Q0088  %M3155  %M1261  +-----+
+--] [--+--] [-----] [-----]/[-----] [-----]/[--+--] [---+MOVE_+-
| 0178  |                               0192  | 0193   | INT |
|       |        Groupin                      |        |     |
|       |Groupin g slow                       |        |     | Groupin
|       |g slow  speed                        |        |     | g suppo
|       |speed 3 stroke                       |        |     | rt up d
|       |                                     |        |     | elay ti
|       |%M3165  %M3155                       |        |     |
|       +--] [-----] [--------------------------+ CONST -+IN  Q+-%R3460
|         0191    0192                          +00016 | LEN |
|                                                      |00001|
|                                                      |     |
|                                                      +-----+
|
|Group                                 Groupin Groupin                          << RUNG 220  STEP #1326 >>
|pusher  Binery  Binery  Binery  Binery  g slow  g suppo
|forw    code to code to code to code to speed   rt up d
|long    servo   servo   servo   servo   stroke  elay AU
|Y102-2   BIT1Y   BIT2Y   BIT3Y   BIT4Y
|%Q0108  %Q0085  %Q0086  %Q0087  %Q0088  %M3155  %M1261  +-----+
+--] [-----]/[-----]/[-----] [-----] [-----]/[-----] [---+MOVE_+-
| 0178                                  0192    0193   | INT |
|                                                      |     |
|                                                      |     | Groupin
|                                                      |     | g suppo
|                                                      |     | rt up d
|                                                      |     | elay ti
|                                                      |     |
|                                               CONST -+IN  Q+-%R3460
|                                               +00012 | LEN |
|                                                      |00001|
|                                                      |     |
|                                                      +-----+
|
|Group                                 Groupin Groupin                          << RUNG 221  STEP #1334 >>
|pusher  Binery  Binery  Binery  Binery  g slow  g suppo
|forw    code to code to code to code to speed   rt up d
|long    servo   servo   servo   servo   stroke  elay AU
|Y102-2   BIT1Y   BIT2Y   BIT3Y   BIT4Y
|%Q0108  %Q0085  %Q0086  %Q0087  %Q0088  %M3155  %M1261  +-----+
+--] [-----] [-----]/[-----] [-----] [-----]/[-----] [---+MOVE_+-
| 0178                                  0192    0193   | INT |
|                                                      |     |
|                                                      |     | Groupin
|                                                      |     | g suppo
|                                                      |     | rt up d
|                                                      |     | elay ti
|                                                      |     |
|                                               CONST -+IN  Q+-%R3460
|                                               +00011 | LEN |
|                                                      |00001|
|                                                      |     |
|                                                      +-----+
|
```

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|Group                                  Groupin Groupin                        << RUNG 222  STEP #1342 >>
|pusher  Binery  Binery  Binery  Binery g slow  g suppo
|forw    code to code to code to code to speed   rt up d
|long    servo   servo   servo   servo   stroke  elay AU
|Y102-2   BIT1Y   BIT2Y   BIT3Y   BIT4Y
|%Q0108  %Q0085  %Q0086  %Q0087  %Q0088 %M3155  %M1261  +-----+
+--] [-----]/[-----] [-----] [-----] [-----]/[-----] [---+MOVE_+-
| 0178                                 0192    0193   | INT |
|                                                     |     |
|                                                     |     | Groupin
|                                                     |     | g suppo
|                                                     |     | rt up d
|                                                     |     | elay ti
|                                                     |     |
|                                              CONST -+IN  Q+-%R3460
|                                              +00009 | LEN |
|                                                     |00001|
|                                                     |     |
|                                                     +-----+
|
|Group                                  Groupin Groupin                        << RUNG 223  STEP #1350 >>
|pusher  Binery  Binery  Binery  Binery g slow  g suppo
|forw    code to code to code to code to speed   rt up d
|long    servo   servo   servo   servo   stroke  elay AU
|Y102-2   BIT1Y   BIT2Y   BIT3Y   BIT4Y
|%Q0108  %Q0085  %Q0086  %Q0087  %Q0088 %M3155  %M1261  +-----+
+--] [-----] [-----] [-----] [-----] [-----]/[-----] [---+MOVE_+-
| 0178                                 0192    0193   | INT |
|                                                     |     |
|                                                     |     | Groupin
|                                                     |     | g suppo
|                                                     |     | rt up d
|                                                     |     | elay ti
|                                                     |     |
|                                              CONST -+IN  Q+-%R3460
|                                              +00008 | LEN |
|                                                     |00001|
|                                                     |     |
|                                                     +-----+
|
|Groupin                                                                       << RUNG 224  STEP #1358 >>
|g suppo
|rt up d
|elay AU
|
|%M1261  +-----+
+--]/[---+MOVE_+-
| 0193   | INT |
|        |     |
|Groupin |     | Groupin
|g suppo |     | g suppo
|rt up d |     | rt up d
|elay CH |     | elay ti
|        |     |
|%R1161 -+IN  Q+-%R3460
|        | LEN |
|        |00001|
|        |     |
|        +-----+
|
|Group                                                                         << RUNG 225  STEP #1360 >>
|pusher
|forw
|short
|Y102-1
|%Q0107          +-----+
+--] [--+--------+ TMR +-----------------------------------------------------<+>
| 0177  |        |0.01s|
|Group  |        |     |
|pusher |Groupin |     |
|forw   |g suppo |     |
|long   |rt up d |     |
|Y102-2 |elay ti |     |
|%Q0108 |        |     |
+--] [--+%R3460 -+PV   |
| 0178           |     |
|                +-----+
|                Delay
|                groupin
|                g
|                support
|
|                %R0731
|
```

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|                                                                    %M0252   << RUNG 226  STEP #1364 >>
+<+>----+-------------------------------------------------------------------( )--  (* Delay grouping support up        *)
|       |                                                                           Cross reference for %M0252
|Group. |                                                                           -] [- 231
|pusher |
|short, |
|single |
| B133  |
|%I0052 |
+--] [--+
|       |
|Group. |
|pusher |
|long,  |
|single |
| B134  |
|%I0053 |
+--] [--+
|
|Group   Group   Group.                                                     << RUNG 227  STEP #1368 >>
|pusher  pusher  pusher
|forw    forw    home
|short   long    pos.
|Y102-1  Y102-2   B132
|%Q0107  %Q0108  %I0051  +-----+                                     %M1101
+--]/[-----]/[-----] [---+ TMR +-------------------------------------------( )--  (* Group support down delay         *)
| 0177    0178           |0.01s|                                                  Cross reference for %M1101
|                        |     |                                                  -] [- 230
|                Delay g |     |
|                rouping |     |
|                support |     |
|                down    |     |
|                        |     |
|                %R1162 -+PV   |
|                        |     |
|                        +-----+
|                        Group
|                        support
|                        down
|                        delay
|
|                        %R1104
|
|Single                                                                     << RUNG 228  STEP #1373 >>
|pack/
|(X*1)
| H020
|%M0138  +-----+
+--] [---+MOVE_+-
|        | BIT |
|        |     |
|Groupin |     | Groupin
|g       |     | g suppo
|support |     | rt on (
|active  |     | 1=on)
|        |     |
|%R0467 -+IN  Q+-%M1160
|        | LEN |
|        |00001|
|        |     |
|        +-----+
|
|Single                                                                     << RUNG 229  STEP #1375 >>
|pack/
|(X*1)
| H020
|%M0138  +-----+
+--]/[---+MOVE_+-
|        | BIT |
|        |     |
|        |     | Groupin
|        |     | g suppo
|        |     | rt on (
|        |     | 1=on)
|        |     |
| CONST -+IN  Q+-%M1160
|   0000 | LEN |
|        |00001|
|        |     |
|        +-----+
|
|Group   Groupin                                                            << RUNG 230  STEP #1377 >>
|support g suppo
|down    rt on (
|delay   1=on)   Step 1
|                STEP_1                                              Y161-1
|%M1101  %M1160  %M0101                                              %Q0052
+--] [-----] [-----] [-----------------------------------------------------( )--  (* Grouping support down            *)
| 0227            0034                                                              Cross reference for Y161-1
|                                                                                   -]/[- 231
|
```

```
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```

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|Delay g                                                                          << RUNG 231  STEP #1381 >>
|rouping
|support
|up              Step 1
|                STEP_1                                          Y161-2
|%M0252          %M0101                                          %Q0070
+--] [----------+--] [-----------------------------------------------( )--  (* Grouping support upp            *)
| 0226          | 0034                                                      Cross reference for Y161-2
|        Group. |                                                           -] [- 231
|        pusher |
|Pulse,  home   |
|Step2+  pos.   |
|         B132  |
|%T0016  %I0051 |
+--] [-----]/[--+
| 0043          |
|Groupin Groupin|
|g       g      |
|support support|
|upp     down   |
|Y161-2  Y161-1 |
|%Q0070  %Q0052 |
+--] [-----]/[--+
| 0231    0230  |
|Groupin        |
|g suppo        |
|rt on (        |
|1=on)          |
|               |
|%M1160         |
+--]/[----------+
|
| (*************************************************************************)
| (* GROUPING STROKE BIT SEQUENCER                                         *)
| (*************************************************************************)
|
|Step 1                                                                           << RUNG 233  STEP #1392 >>
|STEP_1
|%M0101                                                          %M0248
+--]/[--+-------------------------------------------------------------( )--  (* Reset pusher strokes            *)
| 0034  |                                                                   Cross reference for %M0248
|ME.    |                                                                   -] [- 234
|Pulse  |                                                                   -]/[- 134,140
|empty. |
|finish.|
|       |
|%T0043 |
+--] [--+
|
|Mem sho Cond.                                                                    << RUNG 234  STEP #1395 >>
|rt str  long
|gr.push stroke
|done    gr.push
|
|%M0212  %M0209          +-----+
+--] [-----]/[-----------+ BIT_+-
| 0164    0140           | SEQ |
|Pattern                 |     |
|ready                   |     |
|reset                   |     |
|counter                 |     |
|                        |     |
|%M0217                  |     |
+--] [--+----------------+R    |
| 0175  |                | LEN |
|       |                |00013|
|Reset  |                |     |
|pusher |                |     |
|strokes|                |     |
|       |                |     |
|%M0248 |                |     |
+--] [--+       +--------+DIR  |
| 0233          |        |     |
|               |        |     |
|ALW_ON         |        |     |
|%S0007         |        |     |
+--] [----------+ CONST -+STEP |
|                +00000 |     |
|                       |     |
|               1:st    |     |
|               pusher  |     |
|               stroke  |     |
|                       |     |
|               %M0417 -+ST   |
|                       |     |
|                       +-----+
|                       Number
|                       of
|                       pusher
|                       stroke
|
|                       %R0310
|

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|ALW_ON                                                                   << RUNG 235  STEP #1401 >>
|%S0007  +-----+
+--] [---+MOVE_+-
|        | BIT |
|        |     |
|Choise  |     |
|small   |     |
|volum   |     | Small
|func.   |     | volumes
|        |     |
|%R0469 -+IN  Q+-%M0870
|        | LEN |
|        |00001|
|        |     |
|        +-----+
|
```

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| (*************************************************************************)
| (*                                                                       *)
| (* DOLLY PUSHER, GROUPING BELT, STOP ARM                                 *)
| (*                                                                       *)
| (*************************************************************************)
|
|Dolly                                                                          << RUNG 237  STEP #1404 >>
|1:st
|stroke
|pos.                    Step 1
| B142                   STEP_1
|%I0059                  %M0101                                        %M3137
+--] [------------------+--] [-----------------------------------------( )--  (* Dolly reached 1:st stroke pos *)
|                       | 0034                                                  Cross reference for %M3137
|Dolly r Group.         |                                                       -] [- 168,169,177,237
|eached  pusher         |                                                       -]/[- 238
|1:st st long,   Axis   |
|roke po single  ident  |
|         B134          |
|%M3137  %I0053  %I0090 |
+--] [-----]/[-----]/[--+
| 0237
|
|                                Group   Dolly r                                << RUNG 238  STEP #1411 >>
|1:st                            pusher  eached
|pusher                          forw    1:st st
|stroke                          short   roke po
|                                Y102-1
|%M0417                          %Q0107  %M3137                          %M0221
+--] [--------------------------+--]/[--+--]/[---------------------------( )--  (* Dolly to 1:st stroke pos.        *)
|                                | 0177  | 0237                                  Cross reference for %M0221
|                       Group. |       |                                        -] [- 238,250
|Guide   Single  2:nd    end    |Single |
|rail    pack/   pusher  stop   |pack/  |
|down    (X*1)   stroke  out    |(X*1)  |
|                        Y107-1 |       |
|%M1003  %M0901  %M0418  %Q0051 |%M0901 |
+--]/[-----] [-----] [--+--] [--+--] [--+
|                       | 0156  |
|                       |       |
|                       |Step 2 |
|                       |STEP_2 |
|                       |%M0102 |
|                       +--]/[--+
|                         0042  |
|Dolly                          |
|to 1:st                        |
|stroke                         |
|pos.                           |
|                               |
|%M0221                         |
+--] [--------------------------+
| 0238
|
|        Group.                                                                 << RUNG 239  STEP #1425 >>
|1:st    endstop
|pusher  inner
|stroke  pos.
|         B140
|%M0417  %I0057  +-----+
+--] [-----]/[---+MOVE_+-
|                | INT |
|                |     |
|                |     | Dolly
|        Dolly   |     | puls
|        puls 1a |     | short
|        stroke  |     | stroke
|                |     |
|        %R1261 -+IN  Q+-%R1260
|                | LEN |
|                |00001|
|                |     |
|                +-----+
|
|        Group.                                                                 << RUNG 240  STEP #1428 >>
|2:nd    endstop
|pusher  inner
|stroke  pos.
|         B140
|%M0418  %I0057  +-----+
+--] [-----]/[---+MOVE_+-
|                | INT |
|                |     |
|                |     | Dolly
|        Dolly   |     | puls
|        puls 2a |     | short
|        stroke  |     | stroke
|                |     |
|        %R1262 -+IN  Q+-%R1260
|                | LEN |
|                |00001|
|                |     |
|                +-----+
|

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|        Group.                                                          << RUNG 241  STEP #1431 >>
|3:rd    endstop
|pusher  inner
|stroke  pos.
|         B140
|%M0419  %I0057  +-----+
+--] [-----]/[---+MOVE_+-
|                | INT |
|                |     |
|                |     | Dolly
|        Dolly   |     | puls
|        puls 3a |     | short
|        stroke  |     | stroke
|                |     |
|        %R1263 -+IN  Q+-%R1260
|                | LEN |
|                |00001|
|                |     |
|                +-----+
|
|        Group.  Cond.                                                   << RUNG 242  STEP #1434 >>
|4:th    endstop long
|pusher  inner   stroke
|stroke  pos.    gr.push
|         B140
|%M0420  %I0057  %M0209  +-----+
+--] [-----]/[-----]/[---+MOVE_+-
|                 0140   | INT |
|                        |     |
|                Dolly   |     | Dolly
|                puls    |     | puls
|                4-12    |     | short
|                stroke  |     | stroke
|                        |     |
|                %R1264 -+IN  Q+-%R1260
|                        | LEN |
|                        |00001|
|                        |     |
|                        +-----+
|
|        Cond.                                                           << RUNG 243  STEP #1438 >>
|        long
|        stroke
|Step 2  gr.push
|STEP_2
|%M0102  %M0209                                                %M1161
+--] [-----] [--+-------------------------------------------------------( )--  (* Dolly puls long stroke           *)
| 0042    0140  |                                                              Cross reference for %M1161
|Dolly   Group. |                                                              -] [- 243,248,250
|puls    pusher |                                                              -]/[- 246,250
|long    home   |
|stroke  pos.   |
|         B132  |
|%M1161  %I0051 |
+--] [-----]/[--+
| 0243
|
|Dolly p                                                                 << RUNG 244  STEP #1444 >>
|ulse, S
|hort/Lo
|ng stro Step 2  Step 1
|        STEP_2  STEP_1
|%I0046  %M0102  %M0101                                        %M3201
+--] [-----] [--+--] [-----------------------------------------------( )--  (* Dolly pulse hold *)
|         0042  | 0034                                                         Cross reference for %M3201
|        Group. |                                                              -] [- 244,245
|Dolly   endstop|
|pulse   inner  |
|hold    pos.   |
|         B140  |
|%M3201  %I0057 |
+--] [-----] [--+
| 0244
|
|Dolly                                                                   << RUNG 245  STEP #1451 >>
|pulse
|hold
|
|%M3201                                                        %T0100
+--] [-----------------------------------------------------------------(^)--  (* Pulse dolly *)
| 0244                                                                         Cross reference for %T0100
|                                                                              -] [- 246,248
|

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|        Dolly                                                                  << RUNG 246  STEP #1453 >>
|        puls
|Pulse   long
|dolly   stroke  Step 1
|                STEP_1
|%T0100  %M1161  %M0101                                          %M3105
+--] [-----]/[--+--] [-----------------------------------------------------( )--  (* Short stroke, dolly counterhold *)
| 0245    0243  | 0034                                                          Cross reference for %M3105
|Short s        |                                                               -] [- 246,247,250
|troke,  Dolly  |
|dolly c pulse  |
|ounterh hold   |
|               |
|%M3105  %M3209 |
+--] [-----]/[--+
| 0246    0247
|
|Short s                                                                        << RUNG 247  STEP #1460 >>
|troke,
|dolly c
|ounterh
|
|%M3105  +-----+                                                 %M3209
+--] [---+ TMR +-------------------------------------------------------------( )--  (* Dolly pulse hold *)
| 0246   |.001s|                                                                Cross reference for %M3209
|        |     |                                                               -]/[- 246
|Dolly   |     |
|puls    |     |
|short   |     |
|stroke  |     |
|        |     |
|%R1260 -+PV   |
|        |     |
|        +-----+
|        Timer d
|        olly co
|        unterho
|        ld shor
|
|        %R3351
|
|        Dolly                                                                  << RUNG 248  STEP #1463 >>
|        puls
|Pulse   long
|dolly   stroke  Step 1
|                STEP_1
|%T0100  %M1161  %M0101                                          %M3106
+--] [-----] [--+--] [-----------------------------------------------------( )--  (* Long stroke, dolly counterhold *)
| 0245    0243  | 0034                                                          Cross reference for %M3106
|Long st Dolly  |                                                               -] [- 248,249,250
|roke, d long   |
|olly co stroke |
|unterho hold   |
|               |
|%M3106  %M3210 |
+--] [-----]/[--+
| 0248    0249
|
|Long st                                                                        << RUNG 249  STEP #1470 >>
|roke, d
|olly co
|unterho
|
|%M3106  +-----+                                                 %M3210
+--] [---+ TMR +-------------------------------------------------------------( )--  (* Dolly long stroke hold *)
| 0248   |.001s|                                                                Cross reference for %M3210
|        |     |                                                               -]/[- 248
|Dolly   |     |
|puls    |     |
|long    |     |
|stroke  |     |
|        |     |
|%R1265 -+PV   |
|        |     |
|        +-----+
|        Delay
|        dolly
|        puls
|        long st
|
|        %R3275
|
```

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|Dolly   New pat         Been in Dolly                                          << RUNG 250  STEP #1473 >>
|to 1:st tern in         step 3, to off
|stroke  group.          not low positio
|pos.    pos.            .than 2 n
|                                Y109-2                                 Y109-1
|%M0221  %M0214          %M0107  %Q0020                                %Q0017
+--] [--+--]/[--+-------+--] [-----]/[-------------------------------------( )--  (* Dolly to 1:st stroke pos.        *)
| 0238  | 0174  |       | 0379    0254                                          Cross reference for Y109-1
|       |       |       |                                                       -] [- 253,521
|       |Group. |       |
|       |area   |       |
|       |empty  |       |
|       |       |       |
|       |%M0223 |       |
|       +--] [--+       |
|         0258          |
|Short s Dolly   Guide  |
|troke,  puls    rail   |
|dolly c long    lower  |
|ounterh stroke  pos.   |
|                 B143  |
|%M3105  %M1161  %I0060 |
+--] [-----]/[--+--] [--+
| 0246    0243  |
|Long st Dolly  |
|roke, d puls   |
|olly co long   |
|unterho stroke |
|               |
|%M3106  %M1161 |
+--] [-----] [--+
| 0248    0243
|
|Group.                                                                         << RUNG 251  STEP #1487 >>
|pusher
|long,
|single
| B134
|%I0053                                                                 %T0058
+--] [-----------------------------------------------------------------(v)--  (* Pulse down B134 *)
|                                                                               Cross reference for %T0058
|                                                                               -] [- 252
|
|Pulse                                                                          << RUNG 252  STEP #1489 >>
|down
|B134
|
|%T0058                                                                 %M0720
+--] [------------------+-------------------------------------------------(S)--  (* Dolly to off pos.                *)
| 0251                 |                                                        Cross reference for %M0720
|New pat         Pulse  |                                                       -] [- 254
|tern in         step up|                                                       -(R)  253
|group.          push   |
|pos.    Step 2  button |
|        STEP_2         |
|%M0214  %M0102  %T0003 |
+--] [-----] [-----] [--+
| 0174    0042    0024  |
|                       |
|Servo                  |
|axis                   |
|ident                  |
|                       |
|%M1170                 |
+--] [------------------+
| 0723
|
|Dolly                                                                          << RUNG 253  STEP #1496 >>
|to off  Servo
|positio axis
|n       ident
|Y109-2
|%Q0020  %M1170                                                         %M0720
+--] [--+--]/[----------------------------------------------------------(R)--  (* Dolly to off pos.                *)
| 0254  | 0723                                                                  Cross reference for %M0720
|       |                                                                       -] [- 254
|Step 1 |                                                                       -(S)  252
|STEP_1 |
|%M0101 |
+--]/[--+
| 0034  |
|Dolly  |
|to 1:st|
|stroke |
|pos.   |
|Y109-1 |
|%Q0017 |
+--] [--+
| 0250
|

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|Dolly                                                                                  << RUNG 254  STEP #1501 >>
|to off
|pos.
|                                                                          Y109-2
|%M0720  +-----+                                                          %Q0020
+--] [---+OFDT +-----------------------------------------------------------( )--  (* Dolly to off position            *)
| 0253   |0.10s|                                                                    Cross reference for Y109-2
|        |     |                                                                    -] [- 253
| CONST -+PV   |                                                                    -]/[- 250
| +00001 |     |
|        +-----+
|        Dolly
|        to off
|        positio
|        n
|
|        %R0662
|
|                New pat                                                            << RUNG 255  STEP #1504 >>
|Groupin         tern in
|g photo         group.
|cell    Step 2  pos.
| B137   STEP_2
|%I0054  %M0102  %M0214  +-----+                                          %M0222
+--] [-----] [-----] [---+ TMR +-----------------------------------------(S)--  (* Stop arm locked up *)
|         0042    0174   |0.10s|                                                   Cross reference for %M0222
|                        |     |                                                   -] [- 256
|                 CONST -+PV   |                                                   -]/[- 257
|                 +00005 |     |                                                   -(R)  256
|                        +-----+
|
|                        Timer
|                        stoparm
|                        set
|
|                        %R3117
|
|        New pat Stop                                                              << RUNG 256  STEP #1509 >>
|Groupin tern in arm
|g photo group.  locked
|cell    pos.    up
| B137
|%I0054  %M0214  %M0222          +-----+                                  %M0222
+--]/[-----] [-----] [--+--------+ TMR +----------------------------------(R)--  (* Stop arm locked up *)
|         0174    0255  |        |0.01s|                                          Cross reference for %M0222
|                       |        |     |                                          -] [- 256
|Step 1                 |        |     |                                          -]/[- 257
|STEP_1                 |        |     |                                          -(S)  255
|%M0101                 |        |     |
+--]/[------------------+ CONST -+PV   |
| 0034                   +00010 |     |
|                               +-----+
|
|                               Group.
|                               belt
|                               empty
|
|                               %R0202
|
|Stop                                                                              << RUNG 257  STEP #1515 >>
|arm
|locked
|up
|
|%M0222                                                                   %T0073
+--]/[-----------------------------------------------------------------(^)--  (* Stop arm down *)
| 0256                                                                             Cross reference for %T0073
|                                                                                  -] [- 258
|
```

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|Stop                                                                    << RUNG 258  STEP #1517 >>
|arm
|down            Step 1
|                STEP_1
|%T0073          %M0101                                        %M0223
+--] [----------+--] [-----------------------------------------------( )--  (* Group. area empty                *)
| 0257          | 0034                                                     Cross reference for %M0223
|        Dolly  |                                                          -] [- 250,258
|Group.  1:st   |                                                          -]/[- 174
|area    stroke |
|empty   pos.   |
|         B142  |
|%M0223  %I0059 |
+--] [--+--]/[--+
| 0258  |       |
|       |New pat|
|       |tern in|
|       |group. |
|       |pos.   |
|       |       |
|       |%M0214 |
|       +--] [--+
|         0174  |
|ME.            |
|Long           |
|mat            |
|empty          |
|               |
|%M0607         |
+--] [----------+
|               |
|ME             |
|Brake          |
|running        |
|mat            |
|               |
|%M0627         |
+--] [----------+
|
|Pusher                                                                  << RUNG 259  STEP #1527 >>
|middle
|pos.
| B122
|%I0035                                                        %T0202
+--] [--------------------------------------------------------------(^)--  (* Puls B122                        *)
|                                                                          Cross reference for %T0202
|                                                                          -] [- 260
|
|Puls                                                                    << RUNG 260  STEP #1529 >>
|B122
|
|%T0202  +-----+                                                %M1272
+--] [---+OFDT +-----------------------------------------------------( )--  (* Pulse, B122+ *)
| 0259   |0.01s|                                                          Cross reference for %M1272
|        |     |                                                          -] [- 265,355
| CONST -+PV   |
| +00003 |     |
|        +-----+
|
|        Delat
|        B122
|        puls
|
|        %R3260
|
|Pusher  Pusher                                                          << RUNG 261  STEP #1532 >>
|forward front   Door
|s       pos.    circuit
|Y103-1   B123
|%Q0064  %I0036  %I0014                                        %M1184
+--] [-----]/[--+--]/[--+-----------------------------------------------( )--  (* Infeed reset after door          *)
| 0340          |       |                                                  Cross reference for %M1184
|               |       |                                                  -] [- 261
|               |Pulse, |
|               |Step2+ |
|               |       |
|               |%T0016 |
|               +--] [--+
|                 0043  |
|Infeed                 |
|reset   Pusher         |
|after   home           |
|door    pos.           |
|         B121          |
|%M1184  %I0034         |
+--] [-----]/[----------+
| 0261
|
```

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|Pusher                                                                          << RUNG 262  STEP #1541 >>
|home
|pos.
| B121
|%I0034                                                          %T0049
+--]/[-----------------------------------------------------------------(^)--  (* Pulse, B121- *)
|                                                                               Cross reference for %T0049
|                                                                               -] [- 263
|
|                Infeed                                                         << RUNG 263  STEP #1543 >>
|Pusher          has
|forward Pulse,  been
|s       B121-   reset
|Y103-1
|%Q0064  %T0049  %M3200                                          %T0091
+--] [-----] [-----]/[-------------------------------------------------(^)--  (* Puls reset infeed                *)
| 0340    0262    0264                                                          Cross reference for %T0091
|                                                                               -] [- 264,294
|                                                                               -]/[- 267
|
|Puls                                                                            << RUNG 264  STEP #1547 >>
|reset
|infeed          Step 1
|                STEP_1
|%T0091          %M0101                                          %M3200
+--] [----------+--] [-------------------------------------------------( )--  (* Infeed has been reset *)
| 0263          | 0034                                                          Cross reference for %M3200
|Infeed         |                                                               -] [- 264,265
|has     Pusher |                                                               -]/[- 263
|been    home   |
|reset   pos.   |
|         B121  |
|%M3200  %I0034 |
+--] [-----]/[--+
| 0264
|
|                Infeed                                                         << RUNG 265  STEP #1553 >>
|Pusher          has
|forward Pulse,  been
|s       B122+   reset
|Y103-1
|%Q0064  %M1272  %M3200                                          %T0092
+--] [-----] [-----] [-------------------------------------------------(^)--  (* Puls start infeed                *)
| 0340    0260    0264                                                          Cross reference for %T0092
|                                                                               -] [- 267
|
|Pusher                                                                          << RUNG 266  STEP #1557 >>
|home
|pos.
| B121
|%I0034                                                          %M3154
+--] [--+----------------------------------------------------------------( )--  (* Ready for infeed *)
|       |                                                                       Cross reference for %M3154
|Delay  |                                                                       -] [- 267
|pusher |
|off    |
|       |
|%M0249 |
+--] [--+
| 0349
|
|Pack on                                                 B125                    << RUNG 267  STEP #1560 >>
|groupbe                 Groupin Ready                   covered
|lt                      g belt  for                     during
|step2->                 running infeed  Step 2  Step 1  push
| B126M                                  STEP_2  STEP_1
|%M1191                  %M1016  %M3154  %M0102  %M0101  %M3235          %M0230
+--] [------------------+--]/[-----] [--+--] [--+--] [-----]/[-------------( )--  (* Ready for infeed to pusher       *)
| 0303                  | 0296    0266  | 0042  | 0034    0592                    Cross reference for %M0230
|ME.             Pack on|               |       |                                 -] [- 267,268,295,300,309,312
|Gruop           groupbe|Puls           |       |                                 -]/[- 300,591
|section Small   lt     |start          |       |
|empty   volumes step2->|infeed         |       |
|                 B126M |               |       |
|%M0606  %M0870  %M1191 |%T0092         |       |
+--] [-----] [-----]/[--+--] [----------+       |
|                 0303    0265                  |
|Ready f                                        |
|or infe Puls                                   |
|ed to p reset                                  |
|usher   infeed                                 |
|                                               |
|%M0230  %T0091                                 |
+--] [-----]/[--------------------------------+
| 0267    0263
|

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|Ready f B125M :                                                                    << RUNG 268  STEP #1576 >>
|or infe Pack at         ME. All
|ed to p pusher  Small   mat
|usher   step2-> volumes empty   Step 1  Step 2
|         B125M                  STEP_1  STEP_2
|%M0230  %M1190  %M0870  %M0612  %M0101  %M0102                          %M0234
+--] [--+--] [--+--]/[-----]/[--+--] [--+--] [----------+-----------------( )--  (* Pack.at photo cell               *)
| 0267  | 0302  |               | 0034  | 0042          |                       Cross reference for %M0234
|       |       |        ME.    |       |               |                       -] [- 268,269,279,285,290,291,307,325
|       |Pack.at|        Long   |       |Alarm   ME.    |                       -]/[- 281,300
|       |photo  |Small   mat    |       |pusher  Alarm  |
|       |cell   |volumes empty  |       |section diplay |
|       |       |               |       |               |
|       |%M0234 |%M0870  %M0607 |       |%M0063  %M0614 |
|       +--] [--+--] [-----]/[--+       +--]/[--+--]/[--+
|         0268                          | 0602  |       |
|                                       |Endstop|       |
|                                       |not out|       |
|                                       |at push|Infeed |
|                                       |er jam |ready  |
|                                       |       |       |
|                                       |%M3160 |%M0231 |
|                                       +--] [--+--] [--+
|                                         0599    0270
|
|                End sto                 Infeed                                     << RUNG 269  STEP #1596 >>
|Pack.at Groupin p inner                 time to Refill
|photo   g belt  pos Ste Pusher  Photoce end     run
|cell    running p2->    belt    ll free stop    time
|                 B124M   K006
|%M0234  %M1016  %M1192  %Q0008  %M0725  %M0235  %M0724          +-----+ %M0229
+--] [--+--]/[--+--] [--+--] [--+--]/[--+--] [--+--]/[--+--]/[--+--------+ TMR +---( )--  (* Infeed ready memory *)
| 0268  | 0296  | 0304  | 0313  | 0289  | 0285  | 0291  |        |0.01s|          Cross reference for %M0229
|       |       |       |ME.    |       |       |ME.    |        |     |          -] [- 270,594
|       |       |       |Long   |ME.    |       |Long   |        |     |
|       |Small  |       |mat    |Bypass |       |mat    |Runtime |     |
|       |volumes|       |empty  |of B126|       |empty  |endstop |     |
|       |       |       |       |       |       |       |in      |     |
|       |%M0870 |       |%M0607 |%M0608 |       |%M0607 |        |     |
|       +--]/[--+       +--] [--+--] [--+       +--] [--+%R0468 -+PV   |
|       |                       |       |       |       |        |     |
|       |                       |       |       |       |        +-----+
|       |                       |       |       |       |
|       |                       |Small  |       |Infeed |
|       |                       |volumes|       |ready  |        Infeed
|       |                       |       |       |       |        ready
|       |                       |%M0870 |       |%M0231 |
|       |                       +--]/[--+       +--] [--+        %R0205
|       |                               |         0270
|       |                               |
|       |Infeed                         |
|       |ready                          |
|       |                               |
|       |%M0231                         |
|       +--] [-------------------------+
|         0270
|
|        B125M :                                                                    << RUNG 270  STEP #1616 >>
|Infeed  Pack at
|ready   pusher
|memory  step2->
|         B125M
|%M0229  %M1190                                                          %M0231
+--] [-----]/[-----------------------------------------------------------( )--  (* Infeed ready *)
| 0269    0302                                                                    Cross reference for %M0231
|                                                                                 -] [- 112,268,269,285,325,327,329,337,597
|                                                                                 -]/[- 299,309,312
|
|Groupin                                                                           << RUNG 271  STEP #1619 >>
|g belt
|running
|
|%M1016  +-----+                                                          %M3208
+--]/[---+ TMR +-----------------------------------------------------------( )--  (* Grouping mat stopped completely *)
| 0296   |0.01s|                                                                  Cross reference for %M3208
|        |     |                                                                  -] [- 272
| CONST -+PV   |
| +00015 |     |
|        +-----+
|        Delay,
|        groupin
|        g mat s
|        top tim
|
|        %R3399
|

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|New pat Group.  Groupin                                                    << RUNG 272  STEP #1622 >>
|tern in pusher  g mat s
|group.  long,   topped
|pos.    single  complet         Step 1
|         B134                   STEP_1                                 Y110
|%M0214  %I0053  %M3208          %M0101                                %Q0016
+--] [-----]/[--+--] [--+-------+--] [-----------------------------------(/)--  (* Stop arm down                    *)
| 0174          | 0271  |       | 0034                                        Cross reference for Y110
|               |       |       |                                             -] [- 169,170,177
|               |Stop   |       |                                             -]/[- 272
|               |arm    |       |
|               |down   |       |
|               | Y110  |       |
|               |%Q0016 |       |
|               +--]/[--+       |
|                 0272          |
|Guide                          |
|rail    Guide                  |
|lower   rail                   |
|pos.    down    (X*2)   (X*3)  |
| B143                          |
|%I0060  %M1003  %M0902  %M0903 |
+--]/[-----]/[-----]/[-----]/[--+
|                               |
|Guide                          |
|rail up                        |
|                               |
|%M0250                         |
+--] [---------------------------+
| 0187                          |
|ME.                            |
|Gruop                          |
|section                        |
|empty                          |
|                               |
|%M0606                         |
+--] [---------------------------+
|
|Package                                                                    << RUNG 273  STEP #1636 >>
|pattern
|width
|2*X
| H046
|%M0180  +-----+                 +-----+
+--] [---+MOVE_+-----------------+MOVE_+-
|        | INT |                 | INT |
|        |     |                 |     |
|Runtime |     |         Run     |     | Run
|feed to |     |         time    |     | time
|endstop |     | Infeed  pattern |     | pattern
|x2      |     | time    fill x2 |     | fill
|        |     |                 |     |
|%R0460 -+IN  Q+-%R0474  %R1152 -+IN  Q+-%R1150
|        | LEN |                 | LEN |
|        |00001|                 |00001|
|        |     |                 |     |
|        +-----+                 +-----+
|
|Package                                                                    << RUNG 274  STEP #1639 >>
|pattern
|width
|3*X
| H047
|%M0181  +-----+                 +-----+
+--] [---+MOVE_+-----------------+MOVE_+-
|        | INT |                 | INT |
|        |     |                 |     |
|Runtime |     |         Run     |     | Run
|feed to |     |         time    |     | time
|endstop |     | Infeed  pattern |     | pattern
|x3      |     | time    fill x3 |     | fill
|        |     |                 |     |
|%R0461 -+IN  Q+-%R0474  %R1153 -+IN  Q+-%R1150
|        | LEN |                 | LEN |
|        |00001|                 |00001|
|        |     |                 |     |
|        +-----+                 +-----+
|

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|Package                                                                                << RUNG 275  STEP #1642 >>
|pattern
|width
|4*X
| H048
|%M0182  +-----+                 +-----+
+--] [---+MOVE_+-----------------+MOVE_+-
|        | INT |                 | INT |
|        |     |                 |     |
|Runtime |     |         Run     |     | Run
|feed to |     |         time    |     | time
|endstop |     | Infeed  pattern |     | pattern
|x4      |     | time    fill x4 |     | fill
|        |     |                 |     |
|%R0462 -+IN  Q+-%R0474  %R1154 -+IN  Q+-%R1150
|        | LEN |                 | LEN |
|        |00001|                 |00001|
|        |     |                 |     |
|        +-----+                 +-----+
|
|Package                                                                                << RUNG 276  STEP #1645 >>
|pattern
|width
|5*X
| H049
|%M0183  +-----+                 +-----+
+--] [---+MOVE_+-----------------+MOVE_+-
|        | INT |                 | INT |
|        |     |                 |     |
|Runtime |     |         Run     |     | Run
|feed to |     |         time    |     | time
|endstop |     | Infeed  pattern |     | pattern
|x5      |     | time    fill x5 |     | fill
|        |     |                 |     |
|%R0463 -+IN  Q+-%R0474  %R1155 -+IN  Q+-%R1150
|        | LEN |                 | LEN |
|        |00001|                 |00001|
|        |     |                 |     |
|        +-----+                 +-----+
|
|Package                                                                                << RUNG 277  STEP #1648 >>
|pattern
|width
|6*X
| H050
|%M0184  +-----+                 +-----+
+--] [---+MOVE_+-----------------+MOVE_+-
|        | INT |                 | INT |
|        |     |                 |     |
|Runtime |     |         Run     |     | Run
|feed to |     |         time    |     | time
|endstop |     | Infeed  pattern |     | pattern
|x6      |     | time    fill x6 |     | fill
|        |     |                 |     |
|%R0464 -+IN  Q+-%R0474  %R1156 -+IN  Q+-%R1150
|        | LEN |                 | LEN |
|        |00001|                 |00001|
|        |     |                 |     |
|        +-----+                 +-----+
|
|Groupin                                                                                << RUNG 278  STEP #1651 >>
|g belt
|running
|
|%M1016  +-----+                                                   %M3230
+--] [---+OFDT +-----------------------------------------------------------( )--  (* Grouping mat offdelay filtered *)
| 0296   |0.10s|                                                                     Cross reference for %M3230
|        |     |                                                                     -] [- 279,281
| CONST -+PV   |
| +00001 |     |
|        +-----+
|        OFDT fi
|        ltertim
|        e group
|        ingmat
|
|        %R3438
|
|Groupin                                                                                << RUNG 279  STEP #1654 >>
|g mat o Pack.at
|ffdelay photo
|filtere cell
|
|%M3230  %M0234                                                    %M3228
+--] [-----] [-------------------------------------------------------------(^)--  (* Check accelration completion *)
| 0278    0268                                                                      Cross reference for %M3228
|                                                                                   -] [- 280,282
|
```

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|Check a                                                                          << RUNG 280  STEP #1657 >>
|ccelrat
|ion com
|pletion
|
|%M3228  +-----+
+--] [---+MOVE_+-
| 0279   | INT |
|        |     |
|Timer,a |     | Time-gr
|ccelera |     | ouping
|tion ti |     | mat sta
|me to B |     | rt to B
|        |     |
|%R3432 -+IN  Q+-%R3435
|        | LEN |
|        |00001|
|        |     |
|        +-----+
|
|Groupin                                                                          << RUNG 281  STEP #1659 >>
|g mat o Pack.at
|ffdelay photo
|filtere cell
|
|%M3230  %M0234  +-----+
+--] [-----]/[---+ TMR +-
| 0278    0268   |.001s|
|                |     |
|         CONST -+PV   |
|         +32000 |     |
|                +-----+
|                Timer,a
|                ccelera
|                tion ti
|                me to B
|
|                %R3432
|
|Check a                                                                          << RUNG 282  STEP #1662 >>
|ccelrat
|ion com
|pletion
|
|%M3228  +-----+                                                   %M3229
+--] [---+ LT_ |                                        +-------------------(S)--  (* Acc incomplete, add inf time *)
| 0279   | INT |                                        |                        Cross reference for %M3229
|        |     |                                        |                        -] [- 284
|Time-gr |     |                                        |                        -(R)  283
|ouping  |     |                                        |
|mat sta |     |                                        |
|rt to B |     |                                        |
|        |     |         +-----+                 +-----+|
|%R3435 -+I1  Q+---------+ SUB_+-----------------+ DIV_++
|        |     |         | INT |                 | INT |
|        |     |         |     |                 |     |
|        |     |         |     | Remaini Remaini |     | Extra
|        |     |         |     | ng acce ng acce |     | infeed
|        |     |         |     | leratio leratio |     | time
|        |     |         |     | n time  n time  |     | needed
|        |     |         |     |                 |     |
| CONST -+I2   |  CONST -+I1  Q+-%R3436  %R3436 -+I1  Q+-%R3437
| +00405 +-----+  +00405 |     |                 |     |
|                         |     |                 |     |
|                Time-gr  |     |                 |     |
|                ouping   |     |                 |     |
|                mat sta  |     |                 |     |
|                rt to B  |     |                 |     |
|                         |     |                 |     |
|                %R3435 -+I2   |          CONST -+I2   |
|                         +-----+          +00020 +-----+
|
|Pls                                                                              << RUNG 283  STEP #1667 >>
|start
|push
|sup.arm
|
|%T0033                                                            %M3229
+--] [-----------------------------------------------------------------(R)--  (* Acc incomplete, add inf time *)
| 0316                                                                           Cross reference for %M3229
|                                                                                -] [- 284
|                                                                                -(S)  282
|

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|Acc inc                                                                                   << RUNG 284  STEP #1669 >>
|omplete
|, add i
|nf time
|
|%M3229  +-----+
+--] [---+ ADD_+-
| 0283   | INT |
|        |     |
|Infeed  |     | Infeed
|time    |     | time
|        |     |
|%R0474 -+I1  Q+-%R0474
|        |     |
|Extra   |     |
|infeed  |     |
|time    |     |
|needed  |     |
|        |     |
|%R3437 -+I2   |
|        +-----+
|
|Pack.at Groupin         Pack.at                                                           << RUNG 285  STEP #1671 >>
|photo   g belt  Pusher  photo
|cell    running belt    cell    Step 2
|                 K006           STEP_2
|%M0234  %M1016  %Q0008  %M0234  %M0102          +-----+                 %M0235
+--] [--+--] [--+--] [-----] [--+--] [--+--------+ TMR +-------------------( )--  (* Infeed time to end stop          *)
| 0268  | 0296  | 0313    0268  | 0042  |        |0.01s|                         Cross reference for %M0235
|       |       |               |Endstop|        |     |                         -] [- 269,285,287,288,290,300
|       |ME.    |               |not out|        |     |                         -]/[- 295,305,309,312
|       |Bypass |               |at push|        |     |
|       |of B126|               |er jam |Infeed  |     |
|       |       |               |       |time    |     |
|       |%M0608 |               |%M3160 |        |     |
|       +--] [--+               +--] [--+%R0474 -+PV   |
|       |                       | 0599  |        |     |
|       |Infeed                 |       |        +-----+
|       |time to                |       |
|       |end                    |Infeed |        Infeed
|       |stop                   |ready  |        time to
|       |                       |       |        endstop
|       |%M0235                 |%M0231 |
|       +--] [------------------+--] [--+        %R0716
|         0285                    0270
|
|ALW_ON                                                                                    << RUNG 286  STEP #1684 >>
|%S0007  +-----+
+--] [---+MOVE_+-
|        | BIT |
|        |     |
|Endstop |     | Choice-
|out unt |     | endstop
|il push |     | out til
|er home |     | l B121
|        |     |
|%R0473 -+IN  Q+-%M3231
|        | LEN |
|        |00001|
|        |     |
|        +-----+
|
|Infeed  Choice-                                                                           << RUNG 287  STEP #1686 >>
|time to endstop Pusher
|end     out til home
|stop    l B121  pos.
|                B121
|%M0235  %M3231  %I0034                                          %M0238
+--] [--+--] [-----] [--+-------------------------------------------------( )--  (* Endstop out untill pusher home *)
| 0285  |              |                                                          Cross reference for %M0238
|       |Choice-       |                                                          -]/[- 288,309
|       |endstop       |
|       |out til       |
|       |l B121        |
|       |              |
|       |%M3231        |
|       +--]/[----------+
|

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|Infeed  Endstop Choice-                                                    << RUNG 288  STEP #1692 >>
|time to out unt endstop
|end     ill pus out til
|stop    her hom l B121
|
|%M0235  %M0238  %M3231  +-----+                                   %M0241
+--] [-----]/[-----] [---+ TMR +-----------------------------------------( )--  (* Stop pushermat till pusher home *)
| 0285    0287           |0.10s|                                             Cross reference for %M0241
|                        |     |                                             -]/[- 312
|                 CONST -+PV   |
|                 +00005 |     |
|                        +-----+
|                        Timer,
|                        Delay p
|                        usher m
|                        at stop
|
|                        %R3441
|
|Pack on                                                                    << RUNG 289  STEP #1697 >>
|groupbe
|lt
|step2->
| B126M
|%M1191  +-----+                                                   %M0725
+--]/[---+ TMR +-------------------------------------------------------( )--  (* Photocell free                    *)
| 0303   |0.10s|                                                            Cross reference for %M0725
|        |     |                                                            -] [- 290,297
| CONST -+PV   |                                                            -]/[- 269,297
| +00003 |     |
|        +-----+
|        B126
|        photo-
|        cell
|        free
|
|        %R0993
|
|New pat                                ME                                  << RUNG 290  STEP #1700 >>
|tern in         Pack.at                Brake
|group.  Photoce photo           Small   running
|pos.    ll free cell    Step 1  volumes mat
|                        STEP_1
|%M0214  %M0725  %M0234  %M0101  %M0870  %M0627                    %M0723
+--] [--+--] [--+--] [--+--] [-----] [-----]/[-----------------------------( )--  (* New pattern to refill            *)
| 0174  | 0289  | 0268  | 0034                                            Cross reference for %M0723
|       |Infeed |       |                                                 -] [- 290,291,293
|       |time to|       |                                                 -]/[- 295
|       |end    |       |
|       |stop   |       |
|       |       |       |
|       |%M0235 |       |
|       +--] [--+       |
|         0285          |
|New                    |
|pattern Refill         |
|to      run            |
|refill  time           |
|                       |
|%M0723  %M0724         |
+--] [-----] [----------+
| 0290    0291
|
|Pack on         New                                                        << RUNG 291  STEP #1712 >>
|groupbe Pack.at pattern
|lt      photo   to
|step2-> cell    refill
| B126M
|%M1191  %M0234  %M0723  +-----+                                   %M0724
+--]/[-----] [-----] [---+OFDT +-----------------------------------------( )--  (* Refill run time                  *)
| 0303    0268    0290   |0.01s|                                             Cross reference for %M0724
|                        |     |                                             -] [- 290,295,296,297,305,309
|                Run     |     |                                             -]/[- 269,297,299,300,312
|                time    |     |
|                pattern |     |
|                fill    |     |
|                        |     |
|                %R1150 -+PV   |
|                        |     |
|                        +-----+
|
|                        Refill
|                        run
|                        time
|
|                        %R0987
|
```

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|New pat                ME.                                                   << RUNG 292  STEP #1717 >>
|tern in                Long
|group.                 mat
|pos.            Step 1  empty
|                STEP_1
|%M0214          %M0101  %M0607                                  %M0232
+--] [----------+--] [-----]/[-----------------------------------------( )--  (* Group mat occup.                 *)
| 0174          | 0034                                                       Cross reference for %M0232
|        Pack on|                                                            -] [- 292
|Group   groupbe|                                                            -]/[- 295,299
|mat     lt     |
|occup.  step2->|
|         B126M |
|%M0232  %M1191 |
+--] [-----]/[--+
| 0292    0303
|
|        New                                                                 << RUNG 293  STEP #1724 >>
|Groupin pattern ME. Run
|g belt  to      group.
|running refill  mat
|
|%M1016  %M0723  %M0616  +-----+                                  %M1109
+--] [--+--] [--+--]/[---+ TMR +-----------------------------------------( )--  (* Group belt stop pack waiting     *)
| 0296  | 0290  |        |0.10s|                                             Cross reference for %M1109
|       |B125M :|        |     |                                             -]/[- 296
|       |Pack at|        |     |
|       |pusher |        |     |
|       |step2->|        |     |
|       | B125M |        |     |
|       |%M1190 |        |     |
|       +--]/[--+ CONST -+PV   |
|       | 0302  | +00070 |     |
|       |Pack on|        +-----+
|       |groupbe|        Pusher
|       |lt     |        stop
|       |step2->|        pack
|       | B126M |        waiting
|       |%M1191 |
|       +--]/[--+        %R1110
|         0303
|
|Puls                                                                        << RUNG 294  STEP #1732 >>
|reset
|infeed
|
|%T0091                                                           %M1275
+--] [----------+-------------------------------------------------------( )--  (* ME.Start grouping mat            *)
| 0263          |                                                            Cross reference for %M1275
|ME.Star        |                                                            -] [- 294,295
|t       Pusher |
|groupin home   |
|g mat   pos.   |
|         B121  |
|%M1275  %I0034 |
+--] [-----]/[--+
| 0294
|
```

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|Ready f New     Infeed                                                                  << RUNG 295  STEP #1737 >>
|or infe pattern time to Pusher  ME.            Groupin
|ed to p to      end     home    Reset          g belt
|usher   refill  stop    pos.    pusher         running
|                         B121
|%M0230  %M0723  %M0235  %I0034  %M0610         %M1016
+--] [-----]/[--+--]/[--+--] [--+--]/[--+-------+--] [--+--------------------<+>
| 0267    0290  | 0285  |       |       |       | 0296  |
|Pack on        |       |ME.Star|       |       |Stop   |
|groupbe        |       |t      |Refill |       |arm    |
|lt      Manual |       |groupin|run    |       |upper  |
|step2-> empty. |       |g mat  |time   |       |pos.   |
| B126M         |       |       |       |       | B141  |
|%M1191  %M0600 |       |%M1275 |%M0724 |       |%I0058 |
+--]/[-----]/[--+       +--] [--+--] [--+       +--] [--+
| 0303                    0294  | 0291          |       |
|Packag.         Stop           |               |       |
|on              arm            |               |Group  |
|group.  Small   upper          |               |mat    |
|belt    volumes pos.           |               |occup. |
| B126            B141          |               |       |
|%I0039  %M0870  %I0058         |               |%M0232 |
+--]/[-----]/[-----] [----------+               +--]/[--+
|                               |               | 0292
|                               |               |
|Refill  ME.                    |               |
|run     Bypass                 |               |
|time    of B126                |               |
|                               |               |
|%M0724  %M0608                 |               |
+--] [--+--]/[--+---------------+               |
| 0291  |       |                               |
|       |       |                               |
|       |Start  |                               |
|       |group  |                               |
|       |.mat   |                               |
|       |       |                               |
|       |%M0624 |                               |
|       +--] [--+                               |
|                                               |
|        Infeed                 Pack on         |
|        time to                groupbe Pusher  |
|Manual  end     Small   Pusher lt      home    |
|empty.  stop    volumes belt   step2-> pos.    |
|                         K006    B126M   B121  |
|%M0600  %M0235  %M0870  %Q0008  %M1191  %I0034 |
+--] [-----]/[-----] [-----] [-----]/[-----] [--+
|         0285            0313    0303
|
|        Group b Stop    Stop gr                                                  << RUNG 296  STEP #1770 >>
|        elt sto group-, oupbelt
|        p pack  pusher  stoparm
|        waiting belt    up      Step 3
|                                STEP_3
|        %M1109  %M0233  %M1147  %M0103                                  %M1016
+<+>-------]/[-----]/[--+--]/[--+--] [-----------------+-----------------( )--  (* Grouping belt running *)
|         0293    0299  | 0300  | 0048                |                        Cross reference for %M1016
|                       |ME.    |Been in Pack on      |                        -] [- 278,285,293,295,297,309
|                       |Gruop  |step 3, groupbe      |                        -]/[- 173,267,269,271
|                       |section|not low lt           |
|                       |empty  |.than 2 step2->      |
|                       |       |       B126M         |
|                       |%M0606 |%M0107  %M1191       |
|                       +--] [--+--] [--+--] [--+-------+
|                                0379  | 0303  |       |
|                                      |B125M :|       |
|                                      |Pack at|       |
|                                      |pusher |       |
|                                      |step2->|       |
|                                      | B125M |       |
|                                      |%M1190 |       |
|                                      +--] [--+       |
|                                      | 0302          |
|                                      |               |
|                                      |        Refill |
|                                      |Small   run    |
|                                      |volumes time   |
|                                      |               |
|                                      |%M0870  %M0724 |
|                                      +--] [-----] [--+
|                                      |         0291  |
|                                      |        Packag.|
|                                      |        on     |
|                                      |Small   group. |
|                                      |volumes belt   |
|                                      |         B126  |
|                                      |%M0870  %I0039 |
|                                      +--]/[-----]/[--+
|

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|Groupin                                                                          << RUNG 297  STEP #1790 >>
|g belt
|running
|                                                                        G24-SF
|%M1016                                                                  %Q0067
+--] [--+-----------------------------------------------------------------( )--  (* Converter G24 start              *)
| 0296  |                                                                        Cross reference for G24-SF
|       |                Belt    High                                            -] [- 510
|       |Refill          speed   speed
|       |run     Small   0=low   in
|       |time    volumes 1= high machine
|       |                                                                G24-S1
|       |%M0724  %M0870  %M1005  %M1285                                  %Q0068
|       +--] [-----] [--+--] [-----]/[-------------------------------------( )--  (* Group. Belt High speed.S1+S2=ON  *)
|       | 0291          |         0711                                           Cross reference for G24-S1
|       |               |                                                                 NONE
|       |Photoce Small  |
|       |ll free volumes|
|       |               |
|       |%M0725  %M0870 |
|       +--] [-----]/[--+
|       | 0289
|       |High
|       |speed
|       |in
|       |machine
|       |                                                                G24-S2
|       |%M1285                                                          %Q0069
|       +--]/[--------------------------------------------------------------( )--  (* Group. Belt 50Hz. S1=ON S2=OFF   *)
|       | 0711                                                                   Cross reference for G24-S2
|       |High    Belt                                                                    NONE
|       |speed   speed
|       |in      0=low
|       |machine 1= high
|       |                                                                S24-S3
|       |%M1285  %M1005                                                  %Q0110
|       +--] [-----] [------------------+---------------------------------( )--  (* Grouping mat                     *)
|       | 0711                          |                                        Cross reference for S24-S3
|       |High    Belt                   |                                                 NONE
|       |speed   speed   Refill         |
|       |in      0=low   run     Small  |
|       |machine 1= high time    volumes|
|       |                               |
|       |%M1285  %M1005  %M0724  %M0870 |
|       +--] [-----]/[--+--]/[-----] [--+
|       | 0711          | 0291          |
|       |High           |               |
|       |speed          |               |
|       |in             |Photoce Small  |
|       |machine        |ll free volumes|
|       |               |               |
|       |%M1285         |%M0725  %M0870 |
|       +--]/[----------+--]/[-----]/[--+
|         0711            0289
|
|New pat                                                                          << RUNG 298  STEP #1823 >>
|tern in
|group.
|pos.
|
|%M0214                                                                  %M1105
+--] [----------+-------------------------------------------------------( )--  (* Pattern in group pos             *)
| 0174          |                                                                Cross reference for %M1105
|Pattern Stop   |                                                                -] [- 298,299,300
|in      arm    |
|group   upper  |
|pos     pos.   |
|         B141  |
|%M1105  %I0058 |
+--] [-----]/[--+
| 0298
|
```

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|                Pack on                Been in                                << RUNG 299  STEP #1828 >>
|        Group   groupbe Refill  ME.     step 3, ME. Run
|Infeed  mat     lt      run     Bypass  not low group.
|ready   occup.  step2-> time    of B126 .than 2 mat
|                 B126M
|%M0231  %M0232  %M1191  %M0724  %M0608  %M0107  %M0616  +-----+         %M0233
+--]/[-----]/[-----]/[--+--]/[--+--]/[-----] [-----]/[---+ TMR +-----------( )--  (* Stop group-,pusher belt          *)
| 0270    0292    0303  | 0291  |         0379           |0.10s|                  Cross reference for %M0233
|                       |Pattern|                        |     |                  -]/[- 296
|                       |in     |                        |     |
|                       |group  |                        |     |
|                       |pos    |                        |     |
|                       |       |                        |     |
|                       |%M1105 |                        |     |
|                       +--] [--+                 CONST --+PV   |
|                         0298                    +00020 |     |
|                                                        +-----+
|
|                                                        Stop
|                                                        pusher
|                                                        belt
|
|                                                        %R0070
|
|Ready f Infeed  New pat Stop    Pack on                        Been in          << RUNG 300  STEP #1839 >>
|or infe time to tern in arm     groupbe Refill  Pack.at        step 3,
|ed to p end     group.  upper   lt      run     photo   Manual  not low
|usher   stop    pos.    pos.    step2-> time    cell    empty.  .than 2
|                         B141    B126M
|%M0230  %M0235  %M0214  %I0058  %M1191  %M0724  %M0234  %M0600  %M0107  %M1147
+--] [-----] [--+--] [-----]/[-----]/[--+--]/[--+--]/[--+--]/[--+--]/[-----] [--+--( )--  (* Stop groupbelt stoparm up *)
| 0267    0285  | 0174            0303  | 0291  | 0268  |         0379  |         Cross reference for %M1147
|Ready f        |                       |Pattern|Infeed |               |         -]/[- 296
|or infe        |                       |in     |time to|               |
|ed to p        |                       |group  |end    |               |
|usher          |                       |pos    |stop   |               |
|               |                       |       |       |               |
|%M0230         |                       |%M1105 |%M0235 |               |
+--]/[----------+                       +--] [--+--] [--+               |
| 0267                                    0298    0285                  |
|ME.                                                                    |
|Long                                                                   |
|mat                                                                    |
|empty                                                                  |
|                                                                       |
|%M0607                                                                 |
+--] [----------------------------------------------------------------+
|
```

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| (*************************************************************************)
| (*                                                                       *)
| (* PUSHER ENDSTOP, PUSHER, PUSHER BELT, TRANSFER PLATE                   *)
| (*                                                                       *)
| (*************************************************************************)
|
|Packag.                                                                          << RUNG 302  STEP #1856 >>
|at
|pusher  Step 2
| B125   STEP_2                                                   B125M
|%I0038  %M0102                                                  %M1190
+--] [-----] [-------------------------------------------------------------( )--  (*  B125M :Pack at pusher step2-> *)
|         0042                                                                    Cross reference for B125M
|                                                                                 -] [- 268,296,313,591,594
|                                                                                 -]/[- 270,293,307,318,338,592
|
|Packag.                                                                          << RUNG 303  STEP #1859 >>
|on
|group.
|belt    Step 2
| B126   STEP_2                                                   B126M
|%I0039  %M0102                                                  %M1191
+--] [-----] [-------------------------------------------------------------( )--  (* Pack on groupbelt step2-> *)
|         0042                                                                    Cross reference for B126M
|                                                                                 -] [- 112,267,296,312,313
|                                                                                 -]/[- 267,289,291,292,293,295,299,300,307,510
|
|End                                                                              << RUNG 304  STEP #1862 >>
|stop
|inner
|pos.    Step 2
| B124   STEP_2                                                   B124M
|%I0037  %M0102                                                  %M1192
+--] [-----] [-------------------------------------------------------------( )--  (* End stop inner pos Step2-> *)
|         0042                                                                    Cross reference for B124M
|                                                                                 -] [- 269,306,337,345,594
|                                                                                 -]/[- 312
|
|Refill                                                                           << RUNG 305  STEP #1865 >>
|run
|time
|
|%M0724          +-----+                                          %M0246
+--] [--+--------+OFDT +-----------------------------------------------( )--  (* Delay off *)
| 0291  |        |0.01s|                                                         Cross reference for %M0246
|Infeed |        |     |                                                                  NONE
|time to|        |     |
|end    |        |     |
|stop   |        |     |
|       |        |     |
|%M0235 |        |     |
+--]/[--+ CONST -+PV   |
| 0285    +00005 |     |
|                +-----+
|
|                Delay
|                off
|
|                %R1005
|
|Alarm                                                                            << RUNG 306  STEP #1869 >>
|reset           Manual  Pulse,
|pusher  Step 1  empty.  Step2+
|        STEP_1
|%M1239  %M0101  %M0600  %T0016                                   %M1236
+--] [-----] [--+--]/[-----]/[-----------------------------------------( )--  (* Pusher belt start em/door        *)
| 0319    0034  |         0043                                                  Cross reference for %M1236
|Pusher  End sto|                                                               -] [- 306
|belt    p inner|                                                               -]/[- 312
|start   pos Ste|
|em/door p2->   |
|         B124M |
|%M1236  %M1192 |
+--] [-----] [--+
| 0306    0304
|
|                Pack on B125M :                                                  << RUNG 307  STEP #1877 >>
|        Pack.at groupbe Pack at         Alarm
|Pulse,  photo   lt      pusher  Small   pusher
|Step2+  cell    step2-> step2-> volumes section Step 1
|                 B126M   B125M                  STEP_1
|%T0016  %M0234  %M1191  %M1190  %M0870  %M3159  %M0101           %M3158
+--] [-----] [-----]/[-----]/[--+--]/[-----]/[-----] [---------------------( )--  (* Endstop not out *)
| 0043    0268    0303    0302  |         0308    0034                           Cross reference for %M3158
|                               |                                                -] [- 307,325
|        Pusher                 |                                                -]/[- 325,326
|Endstop forward                |
|not out s                      |
|        Y103-1                 |
|%M3158  %Q0064                 |
+--] [-----]/[------------------+
| 0307    0340
|

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|Alarm                                                                                << RUNG 308  STEP #1888 >>
|pusher
|section         Step 0
|                STEP_0
|%M0063          %M0100                                                  %M3159
+--] [--+-------+--] [-----------------------------------------------------( )--  (* Alarm pusher section *)
| 0602  |       | 0029                                                            Cross reference for %M3159
|       |       |                                                                 -] [- 308
|ME.    |       |                                                                 -]/[- 307
|Alarm  |       |
|diplay |       |
|       |       |
|%M0614 |       |
+--] [--+       |
|               |
|Alarm          |
|pusher  Pulse, |
|section Step2+ |
|               |
|%M3159  %T0016 |
+--] [-----]/[--+
| 0308    0043
|
|Ready f         Endstop                                                          << RUNG 309  STEP #1895 >>
|or infe Groupin out unt                        Alarm
|ed to p g belt  ill pus                        reset   Infeed
|usher   running her hom                 Step 1  pusher  ready
|                                        STEP_1
|%M0230  %M1016  %M0238                  %M0101  %M1239  %M0231          %M3176
+--] [--+--] [--+--]/[--+---------------+--] [--+--]/[--+--]/[-------------( )--  (* Endstop to on pos *)
| 0267  | 0296  | 0287  |               | 0034  | 0319  | 0270                    Cross reference for %M3176
|       |       |       |               |       |       |                         -] [- 309,310
|       |Endstop|Refill |               |       |       |
|       |to on  |run    |               |       |Manual |
|       |pos    |time   |               |       |empty. |
|       |       |       |               |       |       |
|       |%M3176 |%M0724 |               |       |%M0600 |
|       +--] [--+--] [--+               |       +--] [--+
|       | 0309  | 0291                  |
|       |       |       Packag.         |
|       |       |       on              |
|       |Pulse, |Manual  group.  Small  |
|       |Step2+ |empty.  belt    volumes|
|       |       |         B126          |
|       |%T0016 |%M0600  %I0039  %M0870 |
|       +--] [--+--]/[-----]/[--+--] [--+
|       | 0043  |               |       |
|       |       |               |       |
|       |       |       ME.     |       |
|       |       |Manual  Reset  |       |
|       |       |empty.  pusher |       |
|       |       |               |       |
|       |       |%M0600  %M0610 |       |
|       |       +--] [-----]/[--+       |
|       |                               |
|       |        Packag. Infeed         |
|       |        on      time to        |
|       |        group.  end            |
|       |Step 3  belt    stop           |
|       |STEP_3   B126                  |
|       |%M0103  %I0039  %M0235         |
|       +--]/[-----]/[-----]/[----------+
|         0048            0285
|
|                Endstop Pusher                                                   << RUNG 310  STEP #1920 >>
|Endstop Servo   not out reset,
|to on   axis    at push Endstop
|pos     ident   er jam  in
|                                                                        Y104
|%M3176  %M1170  %M3160  %M3171  +-----+                                %Q0012
+--] [-----]/[-----]/[-----]/[----+OFDT +-----------------------------------( )--  (* End stop to on pos.              *)
| 0309    0723    0599    0693   |0.01s|                                         Cross reference for Y104
|                                |     |                                         -]/[- 312,318,694
|                        CONST -+PV   |
|                        +00010 |     |
|                               +-----+
|
|                               End
|                               stop to
|                               on pos
|
|                               %R0707
|
```

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|Pusher                                                                                  << RUNG 311  STEP #1926 >>
|forward
|s
|Y103-1
|%Q0064                                                                  %M3193
+--]/[----------+-------------------------------------------------------( )--  (* Allow K6 when pusher not forward *)
| 0340          |                                                                 Cross reference for %M3193
|               |                                                                 -] [- 311,313
|Pusher  Pusher |
|forward middle |
|s       pos.   |
|Y103-1   B122  |
|%Q0064  %I0035 |
+--] [-----] [--+
| 0340          |
|Allow K        |
|6 when  Pusher |
|pusher  home   |
|not for pos.   |
|         B121  |
|%M3193  %I0034 |
+--] [-----]/[--+
| 0311
|
|Ready f End sto Infeed                          Jam at  Pusher                  << RUNG 312  STEP #1934 >>
|or infe p inner time to                 Alarm   infeed  belt
|ed to p pos Ste end                     pusher  to      start
|usher   p2->    stop                    section pusher  em/door
|         B124M
|%M0230  %M1192  %M0235                  %M0063  %M0082  %M1236
+--] [--+--]/[--+--]/[------------------+--]/[-----]/[-----]/[---------------<+>
| 0267  | 0304  | 0285                  | 0602    0595    0306
|       |       |Pack on Stop pu        |
|       |       |groupbe shermat Refill |
|       |Infeed |lt      till pu run    |
|       |ready  |step2-> sher ho time   |
|       |       | B126M                 |
|       |%M0231 |%M1191  %M0241  %M0724 |
|       +--]/[--+--] [--+--]/[--+--]/[--+
|         0270  | 0303  | 0288  | 0291  |
|               |       |       |       |
|               |Small  |       |       |
|               |volumes|       |       |
|               |       |       |       |
|               |%M0870 |       |       |
|               +--]/[--+       |       |
|               |               |       |
|               |        Ready f|       |
|               |        or infe|       |
|               |Manual  ed to p|       |
|               |empty.  usher  |       |
|               |               |       |
|               |%M0600  %M0230 |       |
|               +--] [-----] [--+       |
|                         0267          |
|        End sto                        |
|End     p inner                        |
|stop to pos Ste                        |
|on pos. p2->    Step 3                 |
| Y104    B124M  STEP_3                 |
|%Q0012  %M1192  %M0103                 |
+--]/[-----]/[-----] [------------------+
| 0310    0304    0048
|
```

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|                       Run            ME.                                    << RUNG 313  STEP #1956 >>
|                       pushblt        Long
|                       0=don't        mat
|        Step 3         1=run          empty   Step 2
|        STEP_3                                STEP_2                  K006
|        %M0103         %M1017         %M0607  %M0102                  %Q0008
+<+>----+--] [----------+--] [----------+--]/[-----] [---------------------( )--  (* Pusher belt                     *)
|       | 0048         |             |         0042                            Cross reference for K006
|       |Been in Pack on|Run     Allow K|                                       -] [- 269,285,295
|       |step 3, groupbe|pushblt 6 when |
|       |not low lt     |0=don't pusher |
|       |.than 2 step2->|1=run   not for|
|       |         B126M |               |
|       |%M0107  %M1191 |%M1017  %M3193 |
|       +--] [--+--] [--+--]/[-----] [--+
|         0379  | 0303  |         0311
|               |B125M :|
|               |Pack at|
|               |pusher |
|               |step2->|
|               | B125M |
|               |%M1190 |
|               +--] [--+
|                 0302  |
|                       |
|Pusher                 |
|forward                |
|s       Step 2         |
|Y103-1  STEP_2         |
|%Q0064  %M0102         |
+--] [-----] [----------+
| 0340    0042
|
|        End                                                              << RUNG 314  STEP #1975 >>
|        stop
|Bottom  inner
|size 0  pos.
|         B124
|%M0880  %I0037  +-----+                                          %M0240
+--] [--+--] [---+ TMR +-------------------------------------------------( )--  (* End stop in inner pos.           *)
|       |        |0.01s|                                                        Cross reference for %M0240
|       |        |     |                                                        -] [- 337
|Bottom |        |     |
|size 1 |        |     |
|       |        |     |
|%M0881 |        |     |
+--] [--+ CONST -+PV   |
|         +00000 |     |
|                +-----+
|
|                Delay
|                endstop
|
|                %R0220
|
|                End                                                      << RUNG 315  STEP #1980 >>
|                stop
|Bottom  Bottom  inner
|size 0  size 1  pos.
|                 B124
|%M0880  %M0881  %I0037                                           %M0239
+--]/[-----]/[-----] [-------------------------------------------------( )--  (* End stop in inner pos.           *)
|                                                                           Cross reference for %M0239
|                                                                           -] [- 337
|
|        Pusher                                                             << RUNG 316  STEP #1984 >>
|        forward
|Step 2  s
|STEP_2  Y103-1
|%M0102  %Q0064                                                   %T0033
+--] [-----] [-----------------------------------------------------------(^)--  (* Pls start push sup.arm           *)
| 0042    0340                                                              Cross reference for %T0033
|                                                                           -] [- 283,318
|
|                Pusher                                                     << RUNG 317  STEP #1987 >>
|        Pusher  support
|        support arm
|Step 2  arm up  down
|STEP_2   Y111    B149
|%M0102  %Q0022  %I0069                                           %T0034
+--] [-----]/[-----] [-----------------------------------------------------(^)--  (* Pls, start pusher support arm *)
| 0042    0332                                                              Cross reference for %T0034
|                                                                           -] [- 318
|
```

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|Pls     B125M :                                                                << RUNG 318  STEP #1991 >>
|start   Pack at ME.     End
|push    pusher  Reset   stop to
|sup.arm step2-> pusher  on pos.
|         B125M           Y104                                        Y113
|%T0033  %M1190  %M0610  %Q0012                                      %Q0023
+--] [--+--]/[-----]/[--+--]/[-----------------------------------------( )--  (* Pusher support arm mover         *)
| 0316  | 0302          | 0310                                                Cross reference for Y113
|Pls, st|               |                                                     -] [- 318
|art pus|               |
|her sup|               |
|port ar|               |
|       |               |
|%T0034 |               |
+--] [--+               |
| 0317                  |
|Pusher                 |
|support Pusher         |
|arm     middle         |
|mover   pos.    Step 2 |
| Y113    B122   STEP_2 |
|%Q0023  %I0035  %M0102 |
+--] [-----]/[-----] [--+
| 0318            0042
|
|Em/Door                                                                      << RUNG 319  STEP #2001 >>
|,
|Pusher
|forward
|
|%T0046                                                                     %M1239
+--] [------------------+-------------------------------------------------( )--  (* Alarm reset pusher               *)
| 0665                  |                                                     Cross reference for %M1239
|                       |                                                     -] [- 306,319,320,321,323,346,670
|Alarm   Pusher         |                                                     -]/[- 309,363
|reset   home           |
|pusher  pos.           |
|         B121          |
|%M1239  %I0034         |
+--] [--+--]/[----------+
| 0319  |               |
|       |Pusher         |
|       |support        |
|       |arm upp Manual |
|       |er pos. empty. |
|       | B148          |
|       |%I0068  %M0600 |
|       +--]/[-----] [--+
|
|        Pusher                                                               << RUNG 320  STEP #2010 >>
|Alarm   arm
|reset   upper
|pusher  pos
|         B147
|%M1239  %I0040                                                             %M1207
+--] [-----]/[--+-------------------------------------------------------( )--  (* Alarm reset pusher arm           *)
| 0319          |                                                             Cross reference for %M1207
|Alarm          |                                                             -] [- 320
|reset   Pusher |
|pusher  home   |
|arm     pos.   |
|         B121  |
|%M1207  %I0034 |
+--] [-----]/[--+
| 0320
|
|        Pusher  Em/Door                                                      << RUNG 321  STEP #2016 >>
|Alarm   arm     , Pushe
|reset   upper   r home
|pusher  pos     pos loc
|         B147
|%M1239  %I0040  %M1188                                                     %M1208
+--] [-----]/[-----]/[------------------------------------------------------( )--  (* Pusher to home pos reset         *)
| 0319            0670                                                        Cross reference for %M1208
|                                                                             -]/[- 343
|
|Pusher  Delay                                                                << RUNG 322  STEP #2020 >>
|front   pusher
|pos.    off
| B123
|%I0036  %M0249                                                             %M1209
+--] [-----] [--+-------------------------------------------------------( )--  (* L/S Pusher arm up when homing *)
|         0349  |                                                             Cross reference for %M1209
|L/S Pus        |                                                             -] [- 322,323
|her arm Pusher |
|up when home   |
|homing  pos.   |
|         B121  |
|%M1209  %I0034 |
+--] [-----]/[--+
| 0322
|

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|               High                                                          << RUNG 323  STEP #2026 >>
|Pusher  Delay   speed
|front   pusher  in
|pos.    off     machine Step 1
| B123                   STEP_1
|%I0036  %M0249  %M1285  %M0101                                   %M1211
+--] [-----] [-----] [--+--] [-----------------------------------------( )--  (* Pusher arm up                    *)
|         0349    0711  | 0034                                              Cross reference for %M1211
|L/S Pus High           |                                                   -] [- 323,324
|her arm speed          |
|up when in             |
|homing  machine        |
|                       |
|%M1209  %M1285         |
+--] [--+--]/[--+-------+
| 0322  | 0711  |       |
|       |       |       |
|       |Alarm  |       |
|       |reset  |       |
|       |pusher |       |
|       |       |       |
|       |%M1239 |       |
|       +--] [--+       |
|         0319          |
|                       |
|        Pusher         |
|Pusher  home           |
|arm up  pos.           |
|         B121          |
|%M1211  %I0034         |
+--] [-----]/[--+-------+
| 0323          |
|               |
|Servo          |
|axis           |
|ident          |
|               |
|%M1170         |
+--] [----------+
| 0723
|
|Pusher                                                                       << RUNG 324  STEP #2040 >>
|arm up
|                                                                  Y169
|%M1211                                                           %Q0027
+--] [--+-------------------------------------------------------------( )--  (* Pusher arm up *)
| 0323  |                                                                   Cross reference for Y169
|Pusher |                                                                   -] [- 585,695
|reset, |                                                                   -]/[- 583
|Pusher |
|arm up |
|       |
|%M3172 |
+--] [--+
| 0694
|
|        End                                                                  << RUNG 325  STEP #2043 >>
|Pack.at stop    Packag.         Pusher
|photo   inner   at      Endstop home
|cell    pos.    pusher  not out pos.
|         B124    B125            B121
|%M0234  %I0037  %I0038  %M3158  %I0034                           %T0055
+--] [-----] [-----]/[-----]/[--+--] [-------------------------------------(^)--  (* Endstop inner pos puls           *)
| 0268                    0307  |                                           Cross reference for %T0055
|                               |                                           -] [- 330
|Infeed  Endstop                |
|ready   not out                |
|                               |
|%M0231  %M3158                 |
+--] [-----] [------------------+
| 0270    0307
|
|End                     Endstop                                              << RUNG 326  STEP #2052 >>
|stop    Packag.         not out
|inner   at      Endstop at push
|pos.    pusher  not out er jam  Step 3
| B124    B125                   STEP_3
|%I0037  %I0038  %M3158  %M3160  %M0103                           %T0056
+--] [-----]/[-----]/[-----] [-----] [-------------------------------------(^)--  (* Support arm down after pusherjam *)
|                 0307    0599    0048                                      Cross reference for %T0056
|                                                                           -] [- 330
|
|        Pusher                                                               << RUNG 327  STEP #2058 >>
|Infeed  home
|ready   pos.
|         B121
|%M0231  %I0034                                                   %T0060
+--] [-----] [-------------------------------------------------------------(^)--  (* Puls, pusher home & infeed ready *)
| 0270                                                                      Cross reference for %T0060
|                                                                           -] [- 330
|

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|        Em/door                                                                << RUNG 328  STEP #2061 >>
|        , Pushe
|Pulse,  r forwa
|Step2+  rd lock
|
|%T0016  %M1187                                                   %T0057
+--] [-----] [-----------------------------------------------------------(^)--  (* Support arm down after door/em *)
| 0043    0669                                                                  Cross reference for %T0057
|                                                                               -] [- 330
|
|Pulse,  Infeed                                                                 << RUNG 329  STEP #2064 >>
|Step2+  ready
|
|%T0016  %M0231                                                   %T0059
+--] [--+--] [----------------------------------------------------------(^)--  (* Arm down if infeed ready *)
| 0043  | 0270                                                                  Cross reference for %T0059
|       |                                                                       -] [- 330
|Pulse, |
|Step3+ |
|       |
|%T0019 |
+--] [--+
| 0049
|
|Endstop                                                                        << RUNG 330  STEP #2068 >>
|inner           Pusher
|pos             reset,
|puls    Step 2  Active
|        STEP_2
|%T0055  %M0102  %M3166                                           %M1213
+--] [--+--] [-----]/[--+-------------------------------------------------( )--  (* Pusher support arm  down         *)
| 0325  | 0042    0687  |                                                       Cross reference for %M1213
|Support|               |                                                       -] [- 330,332
|arm dow|               |
|n after|               |
|pusherj|               |
|       |               |
|%T0056 |               |
+--] [--+               |
| 0326  |               |
|Support|               |
|arm dow|               |
|n after|               |
|door/em|               |
|       |               |
|%T0057 |               |
+--] [--+               |
| 0328  |               |
|Arm    |               |
|down if|               |
|infeed |               |
|ready  |               |
|       |               |
|%T0059 |               |
+--] [--+               |
| 0329  |               |
|Puls, p|               |
|usher h|               |
|ome & i|               |
|nfeed r|               |
|       |               |
|%T0060 |               |
+--] [--+               |
| 0327                  |
|Pusher                 |
|support Pusher         |
|arm     support        |
|down    arm upp Step 2 |
|                STEP_2 |
|%M1213  %M1407  %M0102 |
+--] [-----]/[-----] [--+
| 0330    0331    0042
|
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|Pusher                                                                    << RUNG 331  STEP #2080 >>
|front
|pos.
| B123
|%I0036                                                      %M1407
+--] [------------------+-------------------------------------------( )--  (* Pusher support arm upp           *)
|                    |                                                     Cross reference for %M1407
|                Pusher |                                                  -]/[- 330
|Pusher  Pusher  support|
|forward middle  up at m|
|s       pos.    id sens|
|Y103-1   B122          |
|%Q0064  %I0035  %M1032 |
+--] [-----] [-----] [--+
| 0340                 |
|Em/door               |
|, Pushe Pusher        |
|r forwa front         |
|rd lock pos.          |
|         B123         |
|%M1187  %I0036        |
+--] [--+--] [--+-------+
| 0669  |       |
|       |       |
|       |Pusher |
|       |backwar|
|       |ds     |
|       |Y103-2 |
|       |%Q0078 |
|       +--] [--+
|         0343
|
|Pusher          Pusher                                                    << RUNG 332  STEP #2091 >>
|support Servo   reset,
|arm     axis    Pusher
|down    ident   support
|                                                             Y111
|%M1213  %M1170  %M3173                                      %Q0022
+--] [-----]/[-----]/[-----------------------------------------------(/)--  (* Pusher support arm up *)
| 0330    0723    0695                                                     Cross reference for Y111
|                                                                          -] [- 587,696
|                                                                          -]/[- 317
|
|        Pusher                                                            << RUNG 333  STEP #2095 >>
|        front
|Step 2  pos.
|STEP_2   B123
|%M0102  %I0036  +-----+                                     %M1218
+--] [-----] [--->UPCTR+-------------------------------------------( )--  (* No pusher start allowed          *)
| 0042           |     |                                                  Cross reference for %M1218
|                |     |                                                  -]/[- 339
|Feeding         |     |
|motor           |     |
|start           |     |
|G23-SF          |     |
|%Q0006          |     |
+--] [--+--------+R    |
|       |        |     |
|Step 1 |        |     |
|STEP_1 |        |     |
|%M0101 |        |     |
+--]/[--+ CONST -+PV   |
| 0034    +00001 |     |
|                +-----+
|
|                Counter
|                pusher
|                stroke
|
|                %R3198
|
|Crash                                                                     << RUNG 334  STEP #2101 >>
|pusher
|forw
|
|%M1221                                                      %M1176
+--] [----------+-----------------------------------------------------( )--  (* Memory crash in pusher *)
| 0575          |                                                          Cross reference for %M1176
|Memory         |                                                          -] [- 334
|crash   Pusher |
|in      home   |
|pusher  pos.   |
|         B121  |
|%M1176  %I0034 |
+--] [-----]/[--+
| 0334
|

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|ALW_ON                                                                                   << RUNG 335  STEP #2106 >>
|%S0007  +-----+                                                        %M3211
+--] [---+RANGE|+-------------------------------------------------------(/)--  (* Range, L/S Allow pusher stroke *)
|        | INT ||                                                                        Cross reference for %M3211
|        |     ||                                                                        -] [- 339
| CONST -+L1  Q++
| +00010 |     |
|        |     |
| CONST -+L2   |
| +00130 |     |
|        |     |
|Angle   |     |
|encoder |     |
|value   |     |
|Main m. |     |
|        |     |
|%R0404 -+IN   |
|        +-----+
|
|Press.                                                                                   << RUNG 336  STEP #2109 >>
|guard
|air
| B100
|%I0004  +-----+                                                        %M3220
+--] [---+ TMR +-------------------------------------------------------( )--  (* Airpress ok - pusher can start *)
|        |0.10s|                                                                         Cross reference for %M3220
|        |     |                                                                         -] [- 340
| CONST -+PV   |
| +00030 |     |
|        +-----+
|        Timer,
|        push
|        start
|        delay
|
|        %R3417
|
|Been in                 End sto Blank   End     Transf.                                  << RUNG 337  STEP #2112 >>
|step 3,                 p inner in      stop in plate   Alarm   Transf.
|not low Infeed          pos Ste group.  inner   upper   pusher  plate
|.than 2 ready           p2->    pos.    pos.    pos.    section up
|                         B124M                   B120           Y105-1
|%M0107  %M0231          %M1192  %M0260  %M0240  %I0033  %M0063  %Q0019
+--] [-----] [----------+--] [--+--] [--+--] [--+--]/[-----]/[--+--]/[-------<+>
| 0379    0270          | 0304  | 0390  | 0314  |         0602  | 0363
|                Em/door|       |       |End    |               |
|        Press.  , Pushe|       |       |stop in|Pusher         |
|        guard   r forwa|       |       |inner  |forward        |
|Step 2  air     rd lock|       |       |pos.   |s              |
|STEP_2   B100          |       |       |       |Y103-1         |
|%M0102  %I0004  %M1187 |       |       |%M0239 |%Q0064         |
+--] [-----] [-----] [--+       |       +--] [--+--] [----------+
| 0042            0669          |         0315    0340
|                               |
|        Pusher                 |
|        forward                |
|Step 1  s                      |
|STEP_1  Y103-1                 |
|%M0101  %Q0064                 |
+--] [-----] [------------------+
| 0034    0340
|
|                        B125M : Pusher                  Pusher                   << RUNG 338  STEP #2132 >>
|        ME.             Pack at support Memory  ME. All arm
|        Reset           pusher  arm     pusher  mat     down
|        pusher  Step 2  step2-> down    stroke  empty   pos
|                STEP_2   B125M   B149                    B146
|        %M0610  %M0102  %M1190  %I0069  %M0244  %M0612  %I0067
+<+>-------]/[--+--] [-----]/[-----] [--+--]/[--+--]/[--+--] [---------------<+>
|               | 0042    0302          | 0351  |       |
|               |                       |       |       |
|               |        Pusher         |       |Pusher |
|               |        forward        |       |forward|
|               |Step 1  s              |       |s      |
|               |STEP_1  Y103-1         |       |Y103-1 |
|               |%M0101  %Q0064         |       |%Q0064 |
|               +--] [-----] [----------+       +--] [--+
|                 0034    0340                    0340
|
```

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|        Range,          No             Pusher                                   << RUNG 339  STEP #2147 >>
|        L/S All         pusher         reset,  Pusher         Em/Door
|        ow push         start          Pusher  reset,         , Reset
|        er stro         allowed Step 2 back    Active  Step 3 servo
|                                STEP_2                  STEP_3
|        %M3211          %M1218 %M0102 %M3174  %M3166  %M0103 %M1185
+<+>----+--] [--+-------+--]/[--+--] [--+--]/[-----]/[--+--] [--+--]/[-------<+>
|       | 0335  |       | 0333  | 0042  | 0696    0687  | 0048  | 0666
|       |High   |       |       |       |               |Em/door|
|       |speed  |       |       |Pusher |               |, Pushe|
|       |in     |       |       |forward|               |r forwa|
|       |machine|       |       |s      |               |rd lock|
|       |       |       |       |Y103-1 |               |       |
|       |%M1285 |       |       |%Q0064 |               |%M1187 |
|       +--] [--+       |       +--] [--+               +--] [--+
|         0711          |         0340                  | 0669  |
|        Pusher         |                               |       |
|Pusher  arm            |                               |Pusher |
|forward down           |                               |forward|
|s       pos     Step 3 |                               |s      |
|Y103-1   B146   STEP_3 |                               |Y103-1 |
|%Q0064  %I0067  %M0103 |                               |%Q0064 |
+--] [-----] [-----] [--+                               +--] [--+
| 0340            0048                                    0340
|
|        Airpres                                                          << RUNG 340  STEP #2167 >>
|        s ok -
|        pusher  Axis
|        can sta ident
|                                                                  Y103-1
|        %M3220  %I0090                                            %Q0064
+<+>-------] [-----]/[-------------------------------------------------( )--  (* Pusher forwards                 *)
|         0336                                                              Cross reference for Y103-1
|                                                                           -] [- 261,263,265,311,313,316,331,337,338,339,342,
|                                                                                 349,358,575,581,591,665
|                                                                           -]/[- 307,311,343,344,345,579,599,670
|
|Pusher                                                                    << RUNG 341  STEP #2171 >>
|backwar
|ds
|Y103-2
|%Q0078                                                            %M1408
+--] [-----------------------------------------------------------------(SM)-  (* Pusher back locked               *)
| 0343                                                                      Cross reference for %M1408
|                                                                           -] [- 343
|                                                                           -(RM) 342
|
|Pusher                                                                    << RUNG 342  STEP #2173 >>
|forward
|s
|Y103-1
|%Q0064                                                            %M1408
+--] [-----------------------------------------------------------------(RM)-  (* Pusher back locked               *)
| 0340                                                                      Cross reference for %M1408
|                                                                           -] [- 343
|                                                                           -(SM) 341
|
|        Check   Pusher  Pusher                                            << RUNG 343  STEP #2175 >>
|Pusher  blank   to home arm
|backwar in pos  pos     upper          Axis
|ds      WA      reset   pos     Step 2 ident
|                         B147   STEP_2                            Y103-2
|%M1212  %M1273  %M1208  %I0040  %M0102  %I0090                    %Q0078
+--] [-----] [-----]/[--+--] [--+--] [--+--]/[----------------------------( )--  (* Pusher backwards                *)
| 0345    0344    0321  |       | 0042  |                                   Cross reference for Y103-2
|                       |       |       |                                   -] [- 331,341,343,354,355,577,686
|Pusher  Pusher         |Pusher |       |                                   -]/[- 579
|backwar forward        |backwar|Pulse, |
|ds      s              |ds     |Step2- |
|Y103-2  Y103-1         |Y103-2 |       |
|%Q0078  %Q0064         |%Q0078 |%T0017 |
+--] [--+--]/[----------+--] [--+--] [--+
| 0343  | 0340            0343    0044  |
|       |                               |
|Pusher |                               |
|back   |                               |
|locked |                               |
|       |                               |
|%M1408 |                               |
+--] [--+                               |
| 0342                                  |
|Pusher                                 |
|reset,                                 |
|Pusher                                 |
|back                                   |
|                                       |
|%M3174                                 |
+--] [-----------------------------------+
| 0696
|
```

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|Delay                                                                          << RUNG 344  STEP #2191 >>
|pusher
|off
|
|%M0249                                                          %M1273
+--] [----------+-------------------------------------------------------( )--  (* Check blank in pos WA            *)
| 0349          |                                                               Cross reference for %M1273
|Check          |                                                               -] [- 343,344
|blank   Pusher |
|in pos  forward|
|WA      s      |
|        Y103-1 |
|%M1273  %Q0064 |
+--] [--+--]/[--+
| 0344  | 0340
|       |
|Pulse, |
|Step2+ |
|       |
|%T0016 |
+--] [--+
| 0043
|
|        Pusher  Pusher  Pusher                                                 << RUNG 345  STEP #2197 >>
|Delay   arm     support backw
|pusher  upper   arm upp low
|off     pos     er pos. speed
|         B147    B148
|%M0249  %I0040  %I0068  %M1167                                  %M1212
+--] [--+--] [-----] [--+--] [--+-----------------------------------------( )--  (* Pusher backwards                 *)
| 0349  |              | 0346  |                                               Cross reference for %M1212
|       |End sto       |       |                                               -] [- 343,345
|       |p inner       |       |
|Pulse, |pos Ste       |       |
|Step2+ |p2->    Step 3 |       |
|       | B124M  STEP_3 |       |
|%T0016 |%M1192  %M0103 |       |
+--] [--+--] [-----]/[--+       |
| 0043    0304    0048          |
|                               |
|Pusher  Pusher                 |
|backwar forward                |
|ds      s                      |
|        Y103-1                 |
|%M1212  %Q0064                 |
+--] [-----]/[------------------+
| 0345    0340
|
|Pusher  Low                                                                    << RUNG 346  STEP #2210 >>
|arm     speed
|upper   in
|pos     machine
| B147
|%I0040  %M1284                                                  %M1167
+--] [-----] [--+-------------------------------------------------------( )--  (* Pusher backw low speed           *)
|         0710  |                                                               Cross reference for %M1167
|High    Em/door|                                                               -] [- 345
|speed   , Pushe|
|in      r forwa|
|machine rd lock|
|               |
|%M1285  %M1187 |
+--] [-----]/[--+
| 0711    0669  |
|               |
|Alarm          |
|reset          |
|pusher         |
|               |
|%M1239         |
+--] [----------+
| 0319
|
|Synch                                                                          << RUNG 347  STEP #2217 >>
|stop
|feeding
|motor
|
|%M0777                                                          %M0273
+--] [------------------+-----------------------------------------------( )--  (* Reached synch. stop pos.         *)
|                       |                                                       Cross reference for %M0273
|Reached                |                                                       -] [- 51,347,348,444
|synch.  Feeding        |                                                       -]/[- 363
|stop    motor          |
|pos.    start   Step 2 |
|        G23-SF  STEP_2 |
|%M0273  %Q0006  %M0102 |
+--] [-----]/[-----] [--+
| 0347           0042
|

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|Reached Blank                                                                    << RUNG 348  STEP #2223 >>
|synch.  in                      No
|stop    pack.   Manual          blanks
|pos.    pos.    empty.  Step 3  present
|         B113           STEP_3
|%M0273  %I0042  %M0600  %M0103  %M1149  +-----+                        %M0245
+--] [--+--]/[-----]/[--+--] [-----]/[---+ TMR +-------------------------( )--  (* New blank to gr pos              *)
| 0347  |               | 0048    0534   |0.10s|                                Cross reference for %M0245
|       |ME.            |                |     |                                -] [- 351,548
|       |Start          |                |     |
|       |Main    Manual |                |     |
|       |shaft   empty. |                |     |
|       |               |                |     |
|       |%M0611  %M0600 |                |     |
|       +--] [-----] [--+         CONST --+PV   |
|                                 +00025 |     |
|                                        +-----+
|                                        No
|                                        blank
|                                        in
|                                        grp.pos
|
|                                        %R0055
|
|Alarm   Pusher          Servo                                                    << RUNG 349  STEP #2234 >>
|pusher  forward         axis
|section s       Step 1  ident
|        Y103-1  STEP_1
|%M0063  %Q0064  %M0101  %M1170  +-----+                                %M0249
+--] [-----] [--+--] [--+--]/[---+ TMR +-----------------------------------( )--  (* Delay pusher off                *)
| 0602    0340  | 0034  | 0723   |0.01s|                                        Cross reference for %M0249
|               |       |        |     |                                        -] [- 266,322,323,344,345,349,350,351,371,392,402
|Pusher         |       |        |     |
|front          |       |        |     |
|pos.           |       |        |     |
| B123          |       |        |     |
|%I0036         |       |        |     |
+--] [----------+       | CONST --+PV   |
|                        | +00000 |     |
|               Reset  |        +-----+
|Delay   Pusher  Delay  |        Delay
|pusher  home    Pusher |        off
|off     pos.    off    |        pusher
|         B121          |        stroke
|%M0249  %I0034  %M0253 |
+--] [-----]/[-----]/[--+        %R0109
| 0349            0350
|
|Delay   Alarm                                                                    << RUNG 350  STEP #2245 >>
|pusher  pusher
|off     section
|
|%M0249  %M0063                                                         %M0253
+--] [-----] [-----------------------------------------------------------( )--  (* Reset Delay Pusher off           *)
| 0349    0602                                                                  Cross reference for %M0253
|                                                                               -]/[- 349
|
|        Transf.                                                                << RUNG 351  STEP #2248 >>
|Delay   plate
|pusher  upper
|off     pos.    Step 1
|         B120   STEP_1
|%M0249  %I0033  %M0101                                                 %M0244
+--] [-----]/[--+--] [-----------------------------------------------------( )--  (* Memory pusher stroke             *)
| 0349          | 0034                                                          Cross reference for %M0244
|New            |                                                               -] [- 112,351,355,372,433,445
|blank          |                                                               -]/[- 338
|to gr          |
|pos            |
|               |
|%M0245         |
+--] [----------+
| 0348          |
|               |
|Memory  Tray   |
|pusher  support|
|stroke  on     |
|               |
|%M0244  %M1131 |
+--] [-----]/[--+
| 0351    0365
|

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|ALW_ON                                                                                   << RUNG 352  STEP #2256 >>
|%S0007  +-----+
+--] [---+MOVE_+-
|        | BIT |
|        |     |
|        |     | Transfp
|        |     | late up
|        |     | when
|        |     | B123-
|        |     |
|%R0472 --+IN  Q+-%M3251
|        | LEN |
|        |00002|
|        |     |
|        +-----+
|
|Pusher                                                                                   << RUNG 353  STEP #2258 >>
|front
|pos.
| B123
|%I0036                                                                  %T0075
+--] [-----------------------------------------------------------------(v)--  (* Pulse, B123- *)
|                                                                                         Cross reference for %T0075
|                                                                                         -] [- 354
|
|Pusher                                                                                   << RUNG 354  STEP #2260 >>
|backwar Pulse,
|ds      B123-
|Y103-2
|%Q0078  %T0075                                                          %M0236
+--] [-----] [--+-------------------------------------------------------( )--  (* H/S Transfer plate up *)
| 0343    0353  |                                                                         Cross reference for %M0236
|H/S            |                                                                         -] [- 354,355
|Transfe Pusher |
|r plate home   |
|up      pos.   |
|         B121  |
|%M0236  %I0034 |
+--] [-----]/[--+
| 0354
|
|                                          Pusher                                         << RUNG 355  STEP #2266 >>
|Memory  Pusher                            arm
|pusher  backwar Pulse,                    down
|stroke  ds      B122+                     pos
|        Y103-2                             B146
|%M0244  %Q0078  %M1272                    %I0067                  %M0237
+--] [--+--] [--+--] [--+-----------------+--]/[--+-----------------( )--  (* Transfer plate up *)
| 0351  | 0343  | 0260  |                 |       |                         Cross reference for %M0237
|       |       |       |                 |       |                         -] [- 355,363
|       |       |Pusher |                 |       |
|       |       |home   |                 |       |
|       |       |pos.   |                 |       |
|       |       | B121  |                 |       |
|       |       |%I0034 |                 |       |
|       |       +--] [--+                 |       |
|       |                                 |       |
|       |Transfp H/S     High    Package  |       |
|       |late up Transfe speed   pattern Package|       |
|       |when    r plate in      width   pattern|       |
|       |B123-   up      machine 2*X     X*2    |       |
|       |                         H046    H035  |       |
|       |%M3251  %M0236  %M1285  %M0180  %M0169 |       |
|       +--] [-----] [--+--] [--+--] [-----] [--+       |
|       |        0354  | 0711  |                 |       |
|       |Transfp        |       |Package        |       |
|       |late up Memory |       |pattern Package|       |
|       |when pu pusher |       |width   pattern|       |
|       |shplate stroke |       |2*X     X*3    |       |
|       |               |       | H046    H036  |       |
|       |%M3252  %M0244 |       |%M0180  %M0170 |       |
|       +--] [-----] [--+       +--] [-----] [--+       |
|                 0351          |               |       |
|                               |Package        |       |
|                               |pattern Package|       |
|                               |width   pattern|       |
|                               |3*X     X*2    |       |
|                               | H047    H035  |       |
|                               |%M0181  %M0169 |       |
|                               +--] [-----] [--+       |
|                                                       |
|Transfe Memory                                         |
|r plate pusher                                         |
|up      stroke                                         |
|                                                       |
|%M0237  %M0244                                         |
+--] [-----] [-------------------------------------------+
| 0355    0351
|
| (*************************************************************************)
| (* Prevent transferplate up during pusher forward.                       *)
| (* Allow transferplate up when passing pusher middle pos                 *)
| (* sensor on the way back                                                *)
| (*************************************************************************)

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|Pusher                                                                          << RUNG 357  STEP #2294 >>
|front
|pos.
| B123
|%I0036                                                          %T0048
+--] [-----------------------------------------------------------------(^)--  (* Pulse, B123 *)
|                                                                               Cross reference for %T0048
|                                                                               -]/[- 358
|
|Pusher  Pusher                                                                  << RUNG 358  STEP #2296 >>
|forward front
|s       pos.            Step 2
|Y103-1   B123           STEP_2
|%Q0064  %I0036          %M0102                                  %M3162
+--] [-----]/[----------+--] [-------------------------------------------( )--  (* Prevent TP up - pusher moving *)
| 0340                  | 0042                                                  Cross reference for %M3162
|Prevent                |                                                       -] [- 358
|TP up -         Pusher |                                                       -]/[- 363
|pusher  Pulse,  home   |
|moving  B123    pos.   |
|                 B121  |
|%M3162  %T0048  %I0034 |
+--] [-----]/[-----]/[--+
| 0358    0357
|
| (*************************************************************************)
| (* This delay controlls how long the transferplate shall stay up           *)
| (* and support the tray while the folding plate folds the upper crease     *)
| (* of the tray. Only for the machines without the tray holder.             *)
| (*************************************************************************)
|
|Folding                                                                         << RUNG 360  STEP #2305 >>
|plate
|on
|Y166-1
|%Q0071  +-----+                                                  %M0247
+--] [---+ TMR +-----------------------------------------------------------( )--  (* Folding plate on delayed *)
| 0662   |0.10s|                                                                 Cross reference for %M0247
|        |     |                                                                 -]/[- 363
| CONST -+PV   |
| +00003 |     |
|        +-----+
|
|        %R3333
|
| (*************************************************************************)
| (* If mainshaft is moving in this encoder area transferplate MUST          *)
| (* go up or the mainshaft driven sideflap folder close to                  *)
| (* transferplate will crash in transferplate.                              *)
| (*************************************************************************)
|
|Main                                                                            << RUNG 362  STEP #2309 >>
|shaft
|start
|G22-SF
|%Q0004  +-----+                                                  %M3197
+--] [---+RANGE|+-----------------------------------------------------------( )--  (* Mainshaft folder in t.plate area *)
|        | INT ||                                                                Cross reference for %M3197
|        |     ||                                                                -] [- 363
| CONST -+L1  Q++
| +00005 |     |
|        |     |
| CONST -+L2   |
| +00042 |     |
|        |     |
|Angle   |     |
|encoder |     |
|value   |     |
|Main m. |     |
|        |     |
|%R0404 -+IN   |
|        +-----+
|
```

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|               Prevent                Pusher                                    << RUNG 363  STEP #2312 >>
|Transfe Alarm   TP up -         Servo   reset,
|r plate reset   pusher          axis    Transf
|up      pusher  moving  Step 1  ident   plate d
|                        STEP_1                                        Y105-1
|%M0237  %M1239  %M3162  %M0101  %M1170  %M3170                        %Q0019
+--] [-----]/[--+--]/[--+--] [-----]/[-----]/[-----------------------------( )--  (* Transf. plate up                 *)
| 0355    0319  | 0358  | 0034    0723    0692                                  Cross reference for Y105-1
|               |       |                                                       -] [- 545
|Folding        |       |                                                       -]/[- 337,364
|bar on         |       |
| Y165          |       |
|%Q0061         |       |
+--] [----------+       |
| 0373          |       |
|Blank          |       |
|in             |       |
|group.         |       |
|pos.           |       |
|               |       |
|%M0260         |       |
+--]/[----------+       |
| 0390          |       |
|Folding        |       |
|plate          |       |
|on             |       |
|delayed        |       |
|        ALW_OFF|       |
|%M0247  %S0008 |       |
+--]/[-----] [--+       |
| 0360          |       |
|Search         |       |
|synch   Pusher |       |
|positio home   |       |
|n       pos.   |       |
|         B121  |       |
|%M0280  %I0034 |       |
+--] [-----] [--+       |
| 0378                  |
|                       |
|Feeding                |
|motor                  |
|start                  |
|G23-SF                 |
|%Q0006                 |
+--] [------------------+
|                       |
|Reached                |
|synch.                 |
|stop                   |
|pos.                   |
|                       |
|%M0273                 |
+--]/[------------------+
| 0347                  |
|Mainsha                |
|ft fold                |
|er in t                |
|.plate                 |
|                       |
|%M3197                 |
+--] [------------------+
| 0362
|
|Transf.                                                                    << RUNG 364  STEP #2330 >>
|plate
|up      Step 1
|Y105-1  STEP_1                                                        Y105-2
|%Q0019  %M0101                                                        %Q0062
+--]/[-----] [-------------------------------------------------------------( )--  (* Transf.plate down                *)
| 0363    0034                                                                  Cross reference for Y105-2
|                                                                               -] [- 693
|
|ALW_ON                                                                     << RUNG 365  STEP #2333 >>
|%S0007  +-----+                                                       %M1131
+--] [---+RANGE|+-------------------------------------------------------------( )--  (* Tray support on                  *)
|        | INT ||                                                                 Cross reference for %M1131
|        |     ||                                                                 -] [- 367
| CONST -+L1  Q++                                                                 -]/[- 351
| +00250 |     |
|        |     |
| CONST -+L2   |
| +00450 |     |
|        |     |
|Feed    |     |
|chain   |     |
|move in |     |
|MM      |     |
|        |     |
|%R0405 -+IN   |
|        +-----+
|

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|Synch.                                                                          << RUNG 366  STEP #2336 >>
|stop
|main
|shaft
|
|%M0785                                                          %T0068
+--] [-----------------------------------------------------------------(^)--  (* Tray support reset *)
|                                                                              Cross reference for %T0068
|                                                                              -]/[- 367
|
|        Blank   Encoder                                                       << RUNG 367  STEP #2338 >>
|Tray    in      test
|support group.  selecto
|on      pos.    r       Step 2
|                 S003   STEP_2                                   Y108
|%M1131  %M0260  %I0077  %M0102                                  %Q0018
+--] [-----] [--+--] [-----] [-----------------------------------------( )--  (* Tray support                    *)
| 0365    0390  |         0042                                               Cross reference for Y108
|               |                                                            -] [- 367
|        Tray   |
|Tray    support|
|support reset  |
| Y108          |
|%Q0018  %T0068 |
+--] [-----]/[--+
| 0367    0366
|
|ALW_ON                                                                        << RUNG 368  STEP #2346 >>
|%S0007  +-----+                                                 %M1153
+--] [---+RANGE|+-------------------------------------------------------( )--  (* Folding squeezer *)
|        | INT ||                                                             Cross reference for %M1153
|        |     ||                                                             -] [- 369
| CONST -+L1  Q++
| +00050 |     |
|        |     |
| CONST -+L2   |
| +00500 |     |
|        |     |
|Feed    |     |
|chain   |     |
|move in |     |
|MM      |     |
|        |     |
|%R0405 -+IN   |
|        +-----+
|
|Folding                                                                       << RUNG 369  STEP #2349 >>
|squeeze
|r       Step 2
|        STEP_2                                                  Y164
|%M1153  %M0102                                                  %Q0014
+--] [-----] [----------------------------------------------------------( )--  (* Folding squeezer off *)
| 0368    0042                                                               Cross reference for Y164
|                                                                                     NONE
|
|Synch                                                                         << RUNG 370  STEP #2352 >>
|stop
|feeding
|motor
|
|%M0777                                                          %T0053
+--] [-----------------------------------------------------------------(^)--  (* Folding bar off *)
|                                                                              Cross reference for %T0053
|                                                                                     NONE
|
|Delay                                                                         << RUNG 371  STEP #2354 >>
|pusher
|off             Step 1
|                STEP_1
|%M0249          %M0101                                          %M1226
+--] [----------+--] [-------------------------------------------------( )--  (* Start cond folding bar          *)
| 0349          | 0034                                                         Cross reference for %M1226
|Start          |                                                              -] [- 371,372
|cond    Folding|
|folding bar on |
|bar     range  |
|               |
|%M1226  %M1227 |
+--] [-----]/[--+
| 0371    0374
|
```

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|Start   Transf.                                                                   << RUNG 372  STEP #2360 >>
|cond    plate   Memory
|folding upper   pusher
|bar     pos.    stroke  Step 1
|         B120           STEP_1
|%M1226  %I0033  %M0244  %M0101                                   %M1230
+--] [-----] [-----] [--+--] [-----------------------------------------( )--  (* Folding bar after em/door        *)
| 0371            0351  | 0034                                                Cross reference for %M1230
|Folding                |                                                     -] [- 372,373
|bar     Folding        |
|after   bar on         |
|em/door range          |
|                       |
|%M1230  %M1227         |
+--] [-----] [----------+
| 0372    0374
|
|        Folding Transf. Pusher                                                    << RUNG 373  STEP #2368 >>
|        bar     plate   reset,
|        after   upper   Folding Axis
|Step 2  em/door pos.    bar off ident
|STEP_2           B120                                             Y165
|%M0102  %M1230  %I0033  %M3168  %I0090                           %Q0061
+--] [-----] [-----] [-----]/[-----]/[-------------------------------------( )--  (* Folding bar on                   *)
| 0042    0372            0690                                                Cross reference for Y165
|                                                                             -] [- 363
|                                                                             -]/[- 691
|
|ALW_ON                                                                            << RUNG 374  STEP #2374 >>
|%S0007  +-----+                                                  %M1227
+--] [---+RANGE|+-------------------------------------------------------( )--  (* Folding bar on range             *)
|        | INT ||                                                            Cross reference for %M1227
|        |     ||                                                            -] [- 372
| CONST -+L1  Q++                                                            -]/[- 371
| +00007 |     |
|        |     |
| CONST -+L2   |
| +00250 |     |
|        |     |
|Feed    |     |
|chain   |     |
|move in |     |
|MM      |     |
|        |     |
|%R0405 -+IN   |
|        +-----+
|
|        High                                                                      << RUNG 375  STEP #2377 >>
|        speed
|        in
|Step 2  machine
|STEP_2
|%M0102  %M1285  +-----+                                          %M1296
+--] [-----] [---+RANGE|+-----------------------------------------------( )--  (* Start bottom flapp H/S           *)
| 0042    0711   | INT ||                                                    Cross reference for %M1296
|                |     ||                                                    -] [- 377
|         CONST -+L1  Q++
|         +00008 |     |
|                |     |
|         CONST -+L2   |
|         +00030 |     |
|                |     |
|        Angle   |     |
|        encoder |     |
|        value   |     |
|        Main m. |     |
|                |     |
|        %R0404 -+IN   |
|                +-----+
|
|        High                                                                      << RUNG 376  STEP #2381 >>
|        speed
|        in
|Step 2  machine
|STEP_2
|%M0102  %M1285  +-----+                                          %M1297
+--] [-----]/[---+RANGE|+-----------------------------------------------( )--  (* Start bottom flapp L/S           *)
| 0042    0711   | INT ||                                                    Cross reference for %M1297
|                |     ||                                                    -] [- 377
|         CONST -+L1  Q++
|         +00008 |     |
|                |     |
|         CONST -+L2   |
|         +00060 |     |
|                |     |
|        Angle   |     |
|        encoder |     |
|        value   |     |
|        Main m. |     |
|                |     |
|        %R0404 -+IN   |
|                +-----+
|

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|Start   Pusher                                                                << RUNG 377  STEP #2385 >>
|bottom  reset,
|flapp H Bottom
|/S      flap of
|                                                                   Y160
|%M1296  %M3169                                                    %Q0057
+--] [--+--]/[-------------------------------------------------------------( )--  (* Bottom flap folder              *)
| 0375  | 0691                                                                   Cross reference for Y160
|Start  |                                                                        -]/[- 692
|bottom |
|flapp L|
|/S     |
|       |
|%M1297 |
+--] [--+
| 0376
|
|Pulse,                                                                        << RUNG 378  STEP #2389 >>
|Step2+
|
|%T0016                                                            %M0280
+--] [----------+-------------------------------------------------------------( )--  (* Search synch position *)
| 0043          |                                                                      Cross reference for %M0280
|Search  Synch. |                                                                      -] [- 363,378,432,612
|synch   stop   |                                                                      -]/[- 420
|positio main   |
|n       shaft  |
|                |
|%M0280  %M0785 |
+--] [--+--]/[--+
| 0378  |       |
|       |Synch  |
|       |stop   |
|       |feeding|
|       |motor  |
|       |       |
|       |%M0777 |
|       +--]/[--+
|
|Step 3                                                                        << RUNG 379  STEP #2396 >>
|STEP_3
|%M0103                                                            %M0107
+--] [----------+-------------------------------------------------------------( )--  (* Been in step 3,not low.than 2    *)
| 0048          |                                                                      Cross reference for %M0107
|Been in        |                                                                      -] [- 143,153,157,176,179,250,296,299,300,313,337,
|step 3,        |                                                                            379,552
|not low        |                                                                      -]/[- 144,533
|.than 2 Step 2 |
|        STEP_2 |
|%M0107  %M0102 |
+--] [-----] [--+
| 0379    0042
|
|Main                                                                          << RUNG 380  STEP #2401 >>
|shaft
|start
|G22-SF
|%Q0004                                                            %T0082
+--] [-----------------------------------------------------------------(^)--  (* Pulse, main shaft start *)
|                                                                              Cross reference for %T0082
|                                                                              -] [- 628
|                                                                              -]/[- 417,420
|
|        Synch                                                                 << RUNG 381  STEP #2403 >>
|Stop    stop                    Press.  Feeding
|feeding feeding                 guard   motor
|motor   motor   Step 2  Step 3  air     start
|                STEP_2  STEP_3   B100   G23-SF
|%M0778  %M0777  %M0102  %M0103  %I0004  %Q0006  +-----+         +-----+ %M0270
+--] [-----]/[-----] [-----]/[-----] [-----]/[---+ TMR +---------+OFDT +---( )--  (* Cond. s.speed feeding motor      *)
|                 0042    0048                   |0.10s|         |0.10s|          Cross reference for %M0270
|                                                |     |         |     |                   NONE
|                                        CONST --+PV   |  CONST --+PV   |
|                                        +00010 |     |  +00001 |     |
|                                                +-----+         +-----+
|                                                Cond.           Delay
|                                                slow            off
|                                                speed           slow
|                                                feed.m.         speed
|
|                                                %R0211          %R0214
|
```

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|Feeding                                                                    << RUNG 382  STEP #2412 >>
|motor
|start
|G23-SF
|%Q0006  +-----+                                                  %Q0013
+--] [---+OFDT +-----------------------------------------------------( )--  (* Light barrier                      *)
|        |0.10s|                                                            Cross reference for %Q0013
|        |     |                                                                      NONE
| CONST -+PV   |
| +00007 |     |
|        +-----+
|
|        %R3132
|
```

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| (*************************************************************************)
| (* BLANK FEEDING                                                         *)
| (*                                                                       *)
| (*************************************************************************)
|
|Stop    Very                                                                  << RUNG 384  STEP #2416 >>
|blank   low
|magaz.  level
|motor   blanks  Step 2
| B118           STEP_2
|%I0047  %M0080  %M0102  +-----+                                   %M1025
+--]/[-----] [-----] [---+ TMR +-----------------------------------------( )--  (* Stop Blank feed                    *)
|         0539    0042   |0.10s|                                                Cross reference for %M1025
|                        |     |                                                -]/[- 385
|                 CONST -+PV   |
|                 +00015 |     |
|                        +-----+
|
|                        Stop
|                        blank
|                        feed
|
|                        %R1043
|
|Stop                                                                          << RUNG 385  STEP #2421 >>
|blank           Stop
|magaz.  Magazin Blank
|motor   e feed  feed    Step 2
| B118    Y162           STEP_2
|%I0047  %Q0058  %M1025  %M0102  +-----+                           %M0267
+--]/[-----]/[-----]/[-----] [---+ TMR +---------------------------------( )--  (* Delay magz. feed *)
|         0388    0384    0042   |0.10s|                                       Cross reference for %M0267
|                                |     |                                       -] [- 388,389
|                         CONST -+PV   |
|                         +00020 |     |
|                                +-----+
|                                Delay
|                                off,
|                                magaz.
|                                photoc.
|
|                                %R0169
|
|Magazin                                                                       << RUNG 386  STEP #2427 >>
|e feed
|done
| B145
|%I0084  +-----+                                                   %M0266
+--] [---+ TMR +-------------------------------------------------------( )--  (* Stop magaz. feed *)
|        |0.10s|                                                               Cross reference for %M0266
|        |     |                                                               -] [- 387
| CONST -+PV   |                                                               -]/[- 388,389
| +00002 |     |
|        +-----+
|
|        Stop
|        blank
|        magaz.
|
|        %R0163
|
|Stop                                                                          << RUNG 387  STEP #2430 >>
|magaz.
|feed
|
|%M0266  +-----+                                                   %M0265
+--] [---+OFDT +-------------------------------------------------------( )--  (* Delay brake off *)
| 0386   |0.01s|                                                               Cross reference for %M0265
|        |     |                                                               -]/[- 388,389
| CONST -+PV   |
| +00050 |     |
|        +-----+
|        Start
|        blank
|        magaz.
|        motor
|
|        %R0313
|
```

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|Delay   Stop    Delay                                                          << RUNG 388  STEP #2433 >>
|magz.   magaz.  brake
|feed    feed    off     Step 2
|                        STEP_2                                     Y162
|%M0267  %M0266  %M0265  %M0102  +-----+                            %Q0058
+--] [--+--]/[-----]/[-----] [---+ TMR +-----------------------------( )--  (* Magazine feed                    *)
| 0385  | 0386    0387    0042   |0.10s|                                     Cross reference for Y162
|       |                        |     |                                     -] [- 388,389
|Magazin|                        |     |                                     -]/[- 385
|e feed |                        |     |
| Y162  |                        |     |
|%Q0058 |                        |     |
+--] [--+                 CONST -+PV   |
| 0388                    +00005 |     |
|                                +-----+
|
|                                Magazin
|                                e feed
|
|                                %R1040
|
|Delay   Stop    Delay                                                          << RUNG 389  STEP #2440 >>
|magz.   magaz.  brake
|feed    feed    off
|                                                                      Y163
|%M0267  %M0266  %M0265                                               %Q0059
+--] [--+--]/[-----]/[-------------------------------------------------( )--  (* Magaz. brake off *)
| 0385  | 0386    0387                                                        Cross reference for Y163
|       |                                                                            NONE
|Magazin|
|e feed |
| Y162  |
|%Q0058 |
+--] [--+
| 0388
|
|Blank   Synch   Blank                                                          << RUNG 390  STEP #2445 >>
|in      stop    remov.
|pack.   feeding fr.pack
|pos.    motor   .pos.
| B113
|%I0042  %M0777  %M0264                                               %M0260
+--] [-----] [--+--]/[-------------------------------------------------( )--  (* Blank in group. pos.            *)
|             | 0391                                                          Cross reference for %M0260
|Blank        |                                                               -] [- 98,99,337,367,390,391,392,404
|in      Stop |                                                               -]/[- 363
|group.  feeding|
|pos.    motor |
|             |
|%M0260  %M0778 |
+--] [-----]/[--+
| 0390
|
|Blank   Synch   Blank                                                          << RUNG 391  STEP #2452 >>
|in      stop    in
|group.  feeding pack.
|pos.    motor   pos.
|                 B113
|%M0260  %M0777  %I0042                                               %M0264
+--] [-----] [-----]/[-------------------------------------------------( )--  (* Blank remov. fr.pack.pos.       *)
| 0390                                                                        Cross reference for %M0264
|                                                                             -]/[- 390,392
|
|Blank           Blank                                                          << RUNG 392  STEP #2456 >>
|in      Delay   remov.  Stop
|group.  pusher  fr.pack feeding
|pos.    off     .pos.   motor
|
|%M0260  %M0249  %M0264  %M0778                                       %M0259
+--] [-----] [--+--]/[-----]/[-----------------------------------------( )--  (* Hot melt *)
| 0390    0349  | 0391                                                        Cross reference for %M0259
|               |                                                             -] [- 392
|Hot            |
|melt           |
|               |
|%M0259         |
+--] [----------+
| 0392
|
```

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|Low                                                                    << RUNG 393  STEP #2462 >>
|speed
|in
|machine
|
|%M1284  +-----+                                              %M3194
+--] [---+RANGE|+-----------------------------------------------( )--  (* L/S Ejector blanks *)
| 0710   | INT ||                                                      Cross reference for %M3194
|        |     ||                                                      -] [- 395
| CONST -+L1  Q++
| +00092 |     |
|        |     |
| CONST -+L2   |
| +00235 |     |
|        |     |
|Angle   |     |
|encoder |     |
|value   |     |
|Main m. |     |
|        |     |
|%R0404 -+IN   |
|        +-----+
|
|High                                                                   << RUNG 394  STEP #2465 >>
|speed
|in
|machine
|
|%M1285  +-----+                                              %M3195
+--] [---+RANGE|+-----------------------------------------------( )--  (* H/S Ejector blanks *)
| 0711   | INT ||                                                      Cross reference for %M3195
|        |     ||                                                      -] [- 395
| CONST -+L1  Q++
| +00075 |     |
|        |     |
| CONST -+L2   |
| +00235 |     |
|        |     |
|Angle   |     |
|encoder |     |
|value   |     |
|Main m. |     |
|        |     |
|%R0404 -+IN   |
|        +-----+
|
|L/S                                                                    << RUNG 395  STEP #2468 >>
|Ejector
|blanks
|
|%M3194                                                       %M0788
+--] [--+-------------------------------------------------------( )--  (* Ejector blanks                    *)
| 0393  |                                                             Cross reference for %M0788
|       |                                                             -] [- 396
|H/S    |                                                             -]/[- 398,400
|Ejector|
|blanks |
|       |
|%M3195 |
+--] [--+
| 0394
|
|                              Stop                                   << RUNG 396  STEP #2471 >>
|                              vacuum
|        Ejector Manual        after
|Step 1  blanks  empty.        empty.
|STEP_1                                                        Y130B
|%M0101  %M0788  %M0600        %M0268                          %Q0038
+--] [-----] [--+--]/[----------+--]/[-------------------------------( )--  (* Ejector blanks, vacuum           *)
| 0034    0395  |              | 0397                                  Cross reference for Y130B
|               |              |                                                    NONE
|               |Manual  ME.   |
|               |empty.  Vacuum |
|               |              |
|               |%M0600  %M0613 |
|               +--] [-----] [--+
|
|ME.                                                                    << RUNG 397  STEP #2480 >>
|Pulse
|empty.
|finish.
|
|%T0043                                                       %M0268
+--] [----------+-----------------------------------------------( )--  (* Stop vacuum after empty.         *)
|               |                                                       Cross reference for %M0268
|Stop           |                                                       -] [- 397
|vacuum         |                                                       -]/[- 396,549
|after          |
|empty.  Step 3 |
|        STEP_3 |
|%M0268  %M0103 |
+--] [-----]/[--+
| 0397    0048
|

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|Ejector                                                                          << RUNG 398  STEP #2485 >>
|blanks
|
|%M0788  +-----+                                                   %M0262
+--]/[---+ TMR +-----------------------------------------------------------( )--  (* Reset ejector blanks            *)
| 0395   |0.10s|                                                                  Cross reference for %M0262
|        |     |                                                                  -]/[- 400
| CONST -+PV   |
| +00005 |     |
|        +-----+
|        Reset
|        ejector
|        blanks
|        blow
|
|        %R0040
|
|Emerg.s                                                                          << RUNG 399  STEP #2488 >>
|top
|circuit
|
|%I0002  +-----+                                                   %M0263
+--] [---+ TMR +-----------------------------------------------------------( )--  (* Blow after cover closed         *)
|        |0.10s|                                                                  Cross reference for %M0263
|        |     |                                                                  -]/[- 400
| CONST -+PV   |
| +00020 |     |
|        +-----+
|        Blow
|        after
|        cover
|        closed
|
|        %R0106
|
|        Reset                                                                    << RUNG 400  STEP #2491 >>
|Ejector ejector
|blanks  blanks          Step 1
|                        STEP_1                                     Y130A
|%M0788  %M0262          %M0101                                    %Q0037
+--]/[-----]/[----------+--] [---------------------------------------------( )--  (* Ejector blanks, blow           *)
| 0395    0398          | 0034                                                    Cross reference for Y130A
|Synch.          Blow   |                                                                  NONE
|stop    Emerg.s after  |
|main    top     cover  |
|shaft   circuit closed |
|                       |
|%M0785  %I0002  %M0263 |
+--] [-----] [-----]/[--+
|                 0399
|
```

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| (*************************************************************************)
| (* WRAP AROUND                                                           *)
| (*                                                                       *)
| (*************************************************************************)
|
|Delay                                                                      << RUNG 402  STEP #2500 >>
|pusher
|off
|
|%M0249                                                          %M0456
+--] [----------+-------------------------------------------------------( )--  (* Pusher done                      *)
| 0349          |                                                            Cross reference for %M0456
|               |                                                            -] [- 402,404
|        2:nd   |
|Pusher  lower  |
|done    hotmelt|
|               |
|%M0456  %M0815 |
+--] [-----]/[--+
| 0402    0090
|
|ALW_ON                                                                     << RUNG 403  STEP #2505 >>
|%S0007  +-----+                                                 %M1283
+--] [---+RANGE|+-------------------------------------------------------( )--  (* Reset blanck in WA station       *)
|        | INT ||                                                            Cross reference for %M1283
|        |     ||                                                            -]/[- 404
| CONST -+L1  Q++
| +00505 |     |
|        |     |
| CONST -+L2   |
| +00510 |     |
|        |     |
|Feed    |     |
|chain   |     |
|move in |     |
|MM      |     |
|        |     |
|%R0405 -+IN   |
|        +-----+
|
|Blank           Synch                                                      << RUNG 404  STEP #2508 >>
|in              stop
|group.  Pusher  feeding
|pos.    done    motor   TRAY
|
|%M0260  %M0456  %M0777  %M0855                                  %M0450
+--] [-----] [-----]/[--+--]/[-----------------------------------------( )--  (* Card board in WA station         *)
| 0390    0402          |                                                    Cross reference for %M0450
|Card    Reset          |                                                    -] [- 99,404,412
|board   blanck         |                                                    -]/[- 433
|in WA   in WA          |
|station station        |
|                       |
|%M0450  %M1283         |
+--] [-----]/[----------+
| 0404    0403
|
|Feeding                                                                    << RUNG 405  STEP #2516 >>
|motor
|start
|G23-SF
|%Q0006  +-----+                                                 %M3227
+--] [---+OFDT +-------------------------------------------------------( )--  (* Extended, feeding motor running *)
|        |0.10s|                                                            Cross reference for %M3227
|        |     |                                                            -] [- 406,407,409,410
| CONST -+PV   |
| +00005 |     |
|        +-----+
|        Timer,
|        WA guns
|        max hot
|        melt ti
|
|        %R3429
|

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|High            Extende                                                          << RUNG 406  STEP #2519 >>
|speed           d, feed
|in              ing mot
|machine WAIF    or runn Step 2
|                        STEP_2
|%M1285  %M0858  %M3227  %M0102  +-----+                                %M3221
+--]/[-----] [-----] [-----] [---+ GE_ |+-----------------------------------( )--  (* WAIF hotmelt dot start LS *)
| 0711            0405    0042   | INT ||                                        Cross reference for %M3221
|                                |     ||                                        -] [- 408,412
|                        Feed    |     ||
|                        chain   |     ||
|                        move in |     ||
|                        MM      |     ||
|                                |     ||
|                        %R0405 -+I1  Q++
|                                |     |
|                        WAIF ho |     |
|                        tmelt d |     |
|                        ot star |     |
|                        t LS    |     |
|                                |     |
|                        %R0513 -+I2   |
|                                +-----+
|
|High            Extende                                                          << RUNG 407  STEP #2525 >>
|speed           d, feed
|in              ing mot
|machine WAIF    or runn Step 2
|                        STEP_2
|%M1285  %M0858  %M3227  %M0102  +-----+                                %M3222
+--] [-----] [-----] [-----] [---+ GE_ |+-----------------------------------( )--  (* WAIF hotmelt dot start HS *)
| 0711            0405    0042   | INT ||                                        Cross reference for %M3222
|                                |     ||                                        -] [- 408,412
|                        Feed    |     ||
|                        chain   |     ||
|                        move in |     ||
|                        MM      |     ||
|                                |     ||
|                        %R0405 -+I1  Q++
|                                |     |
|                        WAIF ho |     |
|                        tmelt d |     |
|                        ot star |     |
|                        t HS    |     |
|                                |     |
|                        %R0520 -+I2   |
|                                +-----+
|
|WAIF ho                                                                          << RUNG 408  STEP #2531 >>
|tmelt d
|ot star
|t LS
|
|%M3221          +-----+                                                  %M3223
+--] [--+--------+ TMR +-------------------------------------------------( )--  (* WAIF hotmelt dot done *)
| 0406  |        |0.01s|                                                          Cross reference for %M3223
|WAIF ho|        |     |                                                          -]/[- 412
|tmelt d|Length  |     |
|ot star|of WAIF |     |
|t HS   |hotmelt |     |
|       |dot     |     |
|%M3222 |        |     |
+--] [--+%R0526 -+PV   |
| 0407           |     |
|                +-----+
|                Timer,
|                WAIF ho
|                tmelt d
|                ot leng
|
|                %R3423
|
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|High            Extende                                                          << RUNG 409  STEP #2535 >>
|speed           d, feed
|in              ing mot
|machine WASF    or runn Step 2
|                        STEP_2
|%M1285  %M0859  %M3227  %M0102  +-----+                                %M3224
+--]/[-----] [-----] [-----] [---+ GE_ |+-----------------------------------( )--  (* WASF hotmelt dot start LS *)
| 0711            0405    0042   | INT ||                                        Cross reference for %M3224
|                                |     ||                                        -] [- 411,412
|                        Feed    |     ||
|                        chain   |     ||
|                        move in |     ||
|                        MM      |     ||
|                                |     ||
|                        %R0405 -+I1  Q++
|                                |     |
|                        WASF ho |     |
|                        tmelt d |     |
|                        ot star |     |
|                        t LS    |     |
|                                |     |
|                        %R0514 -+I2   |
|                                +-----+
|
|High            Extende                                                          << RUNG 410  STEP #2541 >>
|speed           d, feed
|in              ing mot
|machine WASF    or runn Step 2
|                        STEP_2
|%M1285  %M0859  %M3227  %M0102  +-----+                                %M3225
+--] [-----] [-----] [-----] [---+ GE_ |+-----------------------------------(M)--  (* WASF hotmelt dot start HS        *)
| 0711            0405    0042   | INT ||                                        Cross reference for %M3225
|                                |     ||                                        -] [- 411,412
|                        Feed    |     ||
|                        chain   |     ||
|                        move in |     ||
|                        MM      |     ||
|                                |     ||
|                        %R0405 -+I1  Q++
|                                |     |
|                        WASF ho |     |
|                        tmelt d |     |
|                        ot star |     |
|                        t HS    |     |
|                                |     |
|                        %R0521 -+I2   |
|                                +-----+
|
|WASF ho                                                                          << RUNG 411  STEP #2547 >>
|tmelt d
|ot star
|t LS
|
|%M3224          +-----+                                                  %M3226
+--] [--+--------+ TMR +-------------------------------------------------( )--  (* WASF hotmelt dot done *)
| 0409  |        |0.01s|                                                          Cross reference for %M3226
|WASF ho|        |     |                                                          -]/[- 412
|tmelt d|Length  |     |
|ot star|of WASF |     |
|t HS   |hotmelt |     |
|       |dot     |     |
|%M3225 |        |     |
+--] [--+%R0527 -+PV   |
| 0410           |     |
|                +-----+
|                Timer,
|                WASF ho
|                tmelt d
|                ot lent
|
|                %R3426
|
```

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|Card    WAIF ho WAIF                                                                << RUNG 412  STEP #2551 >>
|board   tmelt d hotmelt
|in WA   ot star dot             Hotmelt
|station t LS    done    Step 2  ready   WAIF    TRAY OF
|                        STEP_2                                          Y124
|%M0450  %M3221  %M3223  %M0102  %I0043  %M0858  %M0857                 %Q0055
+--] [--+--] [--+--]/[--+--] [-----] [--+--] [--+--]/[--+-----------------( )--  (* WA hotmelt left                  *)
| 0404  | 0406  | 0408  | 0042          |       |       |                        Cross reference for Y124
|       |WAIF ho|       |               |       |       |                        -] [- 412
|WA     |tmelt d|       |               |       |       |
|hotmelt|ot star|       |               |       |       |
|left   |t HS   |       |               |WASF   |       |
| Y124  |       |       |               |       |       |                Y125
|%Q0055 |%M3222 |       |               |%M0859 |       |                %Q0056
+--] [--+--] [--+       |               +--] [--+       +-----------------( )--  (* WA hotmelt right                 *)
| 0412  | 0407          |                                                        Cross reference for Y125
|       |WASF ho WASF   |                                                                 NONE
|       |tmelt d hotmelt|
|       |ot star dot    |
|       |t LS    done   |
|       |               |
|       |%M3224  %M3226 |
|       +--] [--+--]/[--+
|       | 0409  | 0411
|       |WASF ho|
|       |tmelt d|
|       |ot star|
|       |t HS   |
|       |       |
|       |%M3225 |
|       +--] [--+
|         0410
|
|High                                                                           << RUNG 413  STEP #2569 >>
|speed
|in
|machine
|
|%M1285  +-----+                                                        %M3120
+--]/[---+RANGE|+-------------------------------------------------------(^)--  (* Puls,LS flap fold WAMF,WAIF,TOF *)
| 0711   | INT ||                                                               Cross reference for %M3120
|        |     ||                                                               -] [- 417
| CONST -+L1  Q++
| +00480 |     |
|        |     |
| CONST -+L2   |
| +00500 |     |
|        |     |
|Feed    |     |
|chain   |     |
|move in |     |
|MM      |     |
|        |     |
|%R0405 -+IN   |
|        +-----+
|
|High                                                                           << RUNG 414  STEP #2572 >>
|speed
|in
|machine
|
|%M1285  +-----+                                                        %M3121
+--] [---+RANGE|+-------------------------------------------------------(^)--  (* Puls,HS flap fold WAMF,WAIF,TOF *)
| 0711   | INT ||                                                               Cross reference for %M3121
|        |     ||                                                               -] [- 417
| CONST -+L1  Q++
| +00410 |     |
|        |     |
| CONST -+L2   |
| +00480 |     |
|        |     |
|Feed    |     |
|chain   |     |
|move in |     |
|MM      |     |
|        |     |
|%R0405 -+IN   |
|        +-----+
|

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|High                                                                          << RUNG 415  STEP #2575 >>
|speed   WA
|in      squeez.
|machine down
|         Y140
|%M1285  %Q0053  +-----+                                          %M3213
+--]/[-----] [---+ TMR +-------------------------------------------------( )--  (* L/S WA squeeze down delayed *)
| 0711    0429   |.001s|                                                        Cross reference for %M3213
|                |     |                                                        -]/[- 417
|         CONST -+PV   |
|         +00070 |     |
|                +-----+
|                Timer,
|                L/S WAI
|                F flap
|                folder
|
|                %R3405
|
|High                                                                          << RUNG 416  STEP #2579 >>
|speed   WA
|in      squeez.
|machine down
|         Y140
|%M1285  %Q0053  +-----+                                          %M3214
+--] [-----] [---+ TMR +-------------------------------------------------( )--  (* H/S WA squeeze down delayed *)
| 0711    0429   |.001s|                                                        Cross reference for %M3214
|                |     |                                                        -]/[- 417
|         CONST -+PV   |
|         +00095 |     |
|                +-----+
|                Timer,
|                H/S WAI
|                F flap
|                folder
|
|                %R3408
|
|Puls,LS L/S WA  H/S WA  Pulse,  Pulse,                                        << RUNG 417  STEP #2583 >>
|flap fo squeeze squeeze feeding main
|ld WAMF down    down    motor   shaft
|,WAIF,T delayed delayed start   start   Step 2
|                                        STEP_2
|%M3120  %M3213  %M3214  %M3135  %T0082  %M0102                           %M3122
+--] [--+--]/[-----]/[-----]/[-----]/[-----] [-----------------------------( )--  (* WA flap fold down WAMF,WAIF,TOF *)
| 0413  | 0415    0416    0431    0380    0042                                   Cross reference for %M3122
|Puls,HS|                                                                      -] [- 417,420
|flap fo|
|ld WAMF|
|,WAIF,T|
|       |
|%M3121 |
+--] [--+
| 0414  |
|WA flap|
|fold do|
|wn WAMF|
|,WAIF,T|
|       |
|%M3122 |
+--] [--+
| 0417
|
|WA                                                                            << RUNG 418  STEP #2592 >>
|squeez.
|down
| Y140
|%Q0053  +-----+                                                  %T0256
+--] [---+ TMR +-----------------------------------------------------------(^)--  (* Pulse, WA flap folder down WASF *)
| 0429   |0.01s|                                                                Cross reference for %T0256
|        |     |                                                                -] [- 420
| CONST -+PV   |
| +00025 |     |
|        +-----+
|        Timer,
|        WASF
|        arm in
|        delay
|
|        %R3420
|
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|WA                                                                                << RUNG 419  STEP #2595 >>
|meeting
|flap
| H015
|%M0133                                                              %M3130
+--] [--+-------------------------------------------------------------( )--  (* WAMF, WAIF or TRAY OF *)
|       |                                                                        Cross reference for %M3130
|Tray OF|                                                                        -] [- 420
| H016  |                                                                        -]/[- 420
|%M0134 |
+--] [--+
|       |
|WA     |
|inside |
|flap   |
| H017  |
|%M0135 |
+--] [--+
|
|               WA flap         Pulse,  Pulse,                                   << RUNG 420  STEP #2599 >>
|        WAMF,   fold do         feeding main
|Allow   WAIF or wn WAMF         motor   shaft
|to wrap TRAY OF ,WAIF,T         start   start   Tray
|                                                 H014                   Y141
|%M3133  %M3130  %M3122          %M3135  %T0082  %M0132                 %Q0054
+--] [--+--] [-----] [----------+--]/[-----]/[-----]/[---------------------( )--  (* WA flap folder down *)
| 0427  | 0419    0417          | 0431    0380                                   Cross reference for Y141
|       |        Pulse,  Search |                                                -] [- 420
|       |WAMF,   WA flap synch  |
|       |WAIF or folder  positio|
|       |TRAY OF down WA n      |
|       |                       |
|       |%M3130  %T0256  %M0280 |
|       +--]/[-----] [-----]/[--+
|         0419    0418    0378  |
|                Pulse,         |
|WA flap WAMF,   main    WA     |
|folder  WAIF or shaft   inside |
|down    TRAY OF start   flap   |
| Y141                    H017  |
|%Q0054  %M3130  %T0082  %M0135 |
+--] [--+--] [--+--]/[-----]/[--+
| 0420  | 0419  | 0380         |
|       |       |WA flap       |
|       |       |fold do WA    |
|       |       |wn WAMF inside |
|       |       |,WAIF,T flap  |
|       |       |        H017  |
|       |       |%M3122  %M0135 |
|       |       +--] [-----] [--+
|       |         0417         |
|       |        Pulse,        |
|       |WAMF,   main          |
|       |WAIF or shaft         |
|       |TRAY OF start         |
|       |                      |
|       |%M3130  %T0082        |
|       +--]/[-----]/[----------+
|         0419    0380
|
|High                                                                              << RUNG 421  STEP #2624 >>
|speed
|in
|machine
|
|%M1285  +-----+                                                     %M1294
+--] [---+RANGE|+-----------------------------------------------------( )--  (* Wa down high speed               *)
| 0711   | INT ||                                                                Cross reference for %M1294
|        |     ||                                                                -] [- 423
| CONST -+L1  Q++
| +00455 |     |
|        |     |
| CONST -+L2   |
| +00505 |     |
|        |     |
|Feed    |     |
|chain   |     |
|move in |     |
|MM      |     |
|        |     |
|%R0405 -+IN   |
|        +-----+
|
```

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|High                                                                    << RUNG 422  STEP #2627 >>
|speed
|in
|machine
|
|%M1285  +-----+                                          %M1295
+--]/[---+RANGE|+-------------------------------------------------------( )--  (* Wa down low speed                *)
| 0711   | INT ||                                                              Cross reference for %M1295
|        |     ||                                                              -] [- 423
| CONST -+L1  Q++
| +00500 |     |
|        |     |
| CONST -+L2   |
| +00505 |     |
|        |     |
|Feed    |     |
|chain   |     |
|move in |     |
|MM      |     |
|        |     |
|%R0405 -+IN   |
|        +-----+
|
|Wa down                                                                 << RUNG 423  STEP #2630 >>
|high
|speed
|
|%M1294                                                   %M3132
+--] [--+-----------------------------------------------------------------( )--  (* WA squeeze down START *)
| 0421  |                                                                     Cross reference for %M3132
|       |                                                                     -] [- 424,432
|Wa down|
|low    |
|speed  |
|       |
|%M1295 |
+--] [--+
| 0422
|
|WA                                                                      << RUNG 424  STEP #2633 >>
|squeeze
|down
|START                  Step 1
|                       STEP_1
|%M3132                 %M0101                                    %M1214
+--] [------------------+--] [---------------------------------------------( )--  (* WA squeeze down memory *)
| 0423                 | 0034                                                 Cross reference for %M1214
|WA      WA up - WA up  |                                                      -] [- 38,424,429
|squeeze synch s before |
|down    tart in feeding|
|memory  WA area start  |
|                       |
|%M1214  %M3149  %M3238 |
+--] [-----]/[-----]/[--+
| 0424    0432    0428
|
|ALW_ON                                                                  << RUNG 425  STEP #2640 >>
|%S0007  +-----+                                          %M3148
+--] [---+RANGE|+-------------------------------------------------------( )--  (* Range check machine pos          *)
|        | INT ||                                                              Cross reference for %M3148
|        |     ||                                                              -] [- 427
| CONST -+L1  Q++
| +00010 |     |
|        |     |
| CONST -+L2   |
| +00100 |     |
|        |     |
|Feed    |     |
|chain   |     |
|move in |     |
|MM      |     |
|        |     |
|%R0405 -+IN   |
|        +-----+
|
|Pulse,  Synch                                                           << RUNG 426  STEP #2643 >>
|feeding stop
|motor   feeding
|start   motor   Step 2
|                STEP_2
|%M3135  %M0777  %M0102                                   %M3134
+--] [-----] [-----] [-----------------------------------------------------( )--  (* Reset allow to wrap *)
| 0431           0042                                                         Cross reference for %M3134
|                                                                             -]/[- 427
|
```

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|        Blank   Range                                                    << RUNG 427  STEP #2647 >>
|Feeding in      check
|motor   pack.   machine
|start   pos.    pos     Step 1
|G23-SF   B113           STEP_1
|%Q0006  %I0042  %M3148  %M0101                                  %M3133
+--] [-----] [-----] [--+--] [-----------------------------------------( )--  (* Allow to wrap                    *)
|                0425  | 0034                                              Cross reference for %M3133
|               WA up -|                                                   -] [- 98,99,420,427,429
|        Reset   synch s|
|Allow   allow   tart in|
|to wrap to wrap WA area|
|                       |
|%M3133  %M3134  %M3149 |
+--] [-----]/[-----]/[--+
| 0427    0426    0432
|
|Main                                                                     << RUNG 428  STEP #2656 >>
|shaft
|start
|G22-SF
|%Q0004  +-----+                                                  %M3238
+--] [---+RANGE|+-------------------------------------------------------( )--  (* WA up before feeding start *)
|        | INT ||                                                          Cross reference for %M3238
|        |     ||                                                          -]/[- 424,429
| CONST -+L1  Q++
| +00005 |     |
|        |     |
| CONST -+L2   |
| +00020 |     |
|        |     |
|Angle   |     |
|encoder |     |
|value   |     |
|Main m. |     |
|        |     |
|%R0404 -+IN   |
|        +-----+
|
|WA                                                                       << RUNG 429  STEP #2659 >>
|squeeze
|down    Allow
|memory  to wrap         Tray    Step 2
|                         H014   STEP_2                            Y140
|%M1214  %M3133          %M0132  %M0102                           %Q0053
+--] [-----] [----------+--]/[-----] [-------------------------------------( )--  (* WA squeez. down                 *)
| 0424    0427          |         0042                                      Cross reference for Y140
|        WA up   WA up -|                                                   -] [- 415,416,418,429,430,433
|WA      before  synch s|
|squeez. feeding tart in|
|down    start   WA area|
| Y140                  |
|%Q0053  %M3238  %M3149 |
+--] [-----]/[-----]/[--+
| 0429    0428    0432
|
|WA                                                                       << RUNG 430  STEP #2668 >>
|squeez.
|down
| Y140
|%Q0053                 +-----+                                   %M3243
+--] [----------+-------+ TMR +-----------------------------------------( )--  (* WA done - ok to step down *)
| 0429          |        |0.10s|                                           Cross reference for %M3243
|WA done        |        |     |                                           -] [- 38,430
|- ok to        |        |     |
|step    Pulse, |        |     |
|down    Step2+ |        |     |
|               |        |     |
|%M3243  %T0016 |        |     |
+--] [-----]/[--+ CONST -+PV   |
| 0430    0043    +00011 |     |
|                        +-----+
|                        WA
|                        minimum
|                        glue
|                        time
|
|                        %R3467
|
|Feeding                                                                  << RUNG 431  STEP #2674 >>
|motor
|start
|G23-SF
|%Q0006                                                           %M3135
+--] [-----------------------------------------------------------------(^)--  (* Pulse, feeding motor start *)
|                                                                          Cross reference for %M3135
|                                                                          -] [- 426,432
|                                                                          -]/[- 417,420
|

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|Search  Pulse,  WA                                                          << RUNG 432  STEP #2676 >>
|synch   feeding squeeze
|positio motor   down
|n       start   START
|
|%M0280  %M3135  %M3132          +-----+                                %M3149
+--] [--+--] [-----] [--+--------+OFDT +-----------------------------------( )--  (* WA up - synch start in WA area *)
| 0378  | 0431    0423  |        |0.10s|                                        Cross reference for %M3149
|       |        Synch  |        |     |                                        -]/[- 424,427,429
|       |        stop   |        |     |
|       |Pulse,  feeding|        |     |
|       |Step2+  motor  |        |     |
|       |               |        |     |
|       |%T0016  %M0777 |        |     |
|       +--] [-----] [--+ CONST -+PV   |
|         0043           +00005 |     |
|                                +-----+
|
|                                Delay
|                                WA up
|
|                                %R3166
|
|        Card                                                                << RUNG 433  STEP #2685 >>
|Memory  board
|pusher  in WA
|stroke  station TRAY
|
|%M0244  %M0450  %M0855                                                 %M0453
+--] [-----]/[--+--]/[-------------------------------------------------------(S)--  (* WA squeez. started               *)
| 0351    0404  |                                                               Cross reference for %M0453
|               |                                                               -] [- 434
|WA             |                                                               -(R)  435
|squeez.        |
|down           |
| Y140          |
|%Q0053         |
+--] [----------+
| 0429
|
|        WA flap Pusher                                                      << RUNG 434  STEP #2690 >>
|WA      folder  arm
|squeez. upper   down
|started pos.    pos
|         B150    B146
|%M0453  %I0065  %I0067                                                 %M0454
+--] [--+--] [--+--] [-------------------------------------------------------( )--  (* WA ready next cardb.             *)
| 0433  |       |                                                               Cross reference for %M0454
|       |       |                                                                         NONE
|       |WAIF   |
|       |       |
|       |%M0858 |
|       +--] [--+
|               |
|TRAY           |
|               |
|%M0855         |
+--] [----------+
|
|Synch                                                                       << RUNG 435  STEP #2697 >>
|stop
|feeding
|motor
|
|%M0777                                                                 %M0453
+--]/[-----------------------------------------------------------------------(R)--  (* WA squeez. started               *)
|                                                                               Cross reference for %M0453
|                                                                               -] [- 434
|                                                                               -(S)  433
|
```

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| (*************************************************************************)
| (*                                                                       *)
| (* MANUAL EMPTYING                                                       *)
| (* SUBROUTINE                                                            *)
| (*                                                                       *)
| (*************************************************************************)
|
|               Manual                                                          << RUNG 437  STEP #2700 >>
|ALW_ON         empty
|%S0007  +-------------+
+--] [---+ CALL  EMPTY +
|        | (SUBROUTINE)|
|        +-------------+
|
```

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| (*************************************************************************)
| (* INCHING FEEDING MOTOR                                                  *)
| (*                                                                       *)
| (*************************************************************************)
|
|Manual                                                                          << RUNG 439  STEP #2703 >>
|empty.  Step 1  Step 2
| S04H   STEP_1  STEP_2
|%I0008  %M0101  %M0102  +-----+                                   %T0074
+--] [-----] [-----]/[---+ TMR +-----------------------------------------(^)--  (* Inching pulse *)
|         0034    0042   |0.10s|                                              Cross reference for %T0074
|                        |     |                                              -] [- 440
|                 CONST -+PV   |
|                 +00020 |     |
|                        +-----+
|
|                        Timer
|                        inching
|                        pulse
|
|                        %R3111
|
|                Blank                                                           << RUNG 440  STEP #2708 >>
|        Feeding in
|Inching motor   pack.
|pulse   start   pos.
|        G23-SF   B113
|%T0074  %Q0006  %I0042                                            %M0592
+--] [-----]/[-----]/[-------------------------------------------------------( )--  (* Enable inching conv.              *)
| 0439                                                                           Cross reference for %M0592
|                                                                                -] [- 441,442
|
|Enable                                                                          << RUNG 441  STEP #2712 >>
|inching
|conv.   Step 1  Step 2
|        STEP_1  STEP_2
|%M0592  %M0101  %M0102                                            %M0591
+--] [--+--] [-----]/[-------------------------------------------------------( )--  (* Inching conv. on                  *)
| 0440  | 0034    0042                                                           Cross reference for %M0591
|       |                                                                        -] [- 441
|Inching|
|conv.  |
|on     |
|       |
|%M0591 |
+--] [--+
| 0441
|
|Enable                          Emerg.s                                         << RUNG 442  STEP #2717 >>
|inching                         top
|conv.           Step 1  Step 2  circuit
|                STEP_1  STEP_2
|%M0592          %M0101  %M0102  %I0002                            %M0590
+--] [----------+--] [-----]/[-----] [-------------------------------------( )--  (* Start inching conv.               *)
| 0440          | 0034    0042                                                   Cross reference for %M0590
|        Synch  |                                                                -] [- 442
|Start   stop   |
|inching feeding|
|conv.   motor  |
|               |
|%M0590  %M0777 |
+--] [-----] [--+
| 0442
|

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| (*************************************************************************)
| (*                                                                       *)
| (* OUTFEED STOP, PASSAGE INDICATION                                      *)
| (*                                                                       *)
| (*************************************************************************)
|
|Reached                                                                      << RUNG 444  STEP #2726 >>
|synch.
|stop
|pos.
|
|%M0273                                                          %T0030
+--] [-------------------------------------------------------------------(^)--  (* Pulse f.motor synch. pos.        *)
| 0347                                                                        Cross reference for %T0030
|                                                                             -]/[- 445
|
|        Pulse                                                                << RUNG 445  STEP #2728 >>
|Memory  f.motor
|pusher  synch.
|stroke  pos.    Step 3
|                STEP_3
|%M0244  %T0030  %M0103                                          %M3199
+--] [--+--]/[-----] [-----------------------------------------------------( )--  (* Outf.conv. stop,feeding out box *)
| 0351  | 0444    0048                                                        Cross reference for %M3199
|Outf.co|                                                                    -] [- 445,446
|nv. sto|
|p,feedi|
|ng out |
|       |
|%M3199 |
+--] [--+
| 0445
|
|Outf.co                                                                      << RUNG 446  STEP #2733 >>
|nv. sto
|p,feedi
|ng out
|                                                                 Y908
|%M3199                                                          %Q0030
+--] [----------+-----------------------------------------------------------( )--  (* Outfeed conv. stop               *)
| 0445          |                                                            Cross reference for Y908
|Alarm          |                                                            -]/[- 447
|queue          |
|downstr        |
|eam     Step 1 |
|        STEP_1 |
|%M0199  %M0101 |
+--] [--+--] [--+
| 0553  | 0034
|Crash  |
|in     |
|dischar|
|area   |
|       |
|%M0075 |
+--] [--+
| 0558
|
|Outfeed                                                                      << RUNG 447  STEP #2739 >>
|conv.
|stop
| Y908
|%Q0030  +-----+                                                 %M0620
+--]/[---+ TMR +-----------------------------------------------------------( )--  (* Outf. conv. stop is open *)
| 0446   |0.10s|                                                            Cross reference for %M0620
|        |     |                                                            -] [- 451
| CONST -+PV   |
| +00003 |     |
|        +-----+
|
|        Stop
|        outfeed
|
|        %R0136
|
|Passage                                                                      << RUNG 448  STEP #2742 >>
|indic.
|(extra
|equip.)
| B908
|%I0045  +-----+                                                 %M3250
+--] [---+OFDT +-----------------------------------------------------------( )--  (* B908 - outfeed stop max time *)
|        |0.10s|                                                            Cross reference for %M3250
|        |     |                                                            -] [- 449
| CONST -+PV   |
| +00025 |     |
|        +-----+
|        OFDT, M
|        ax time
|        stop ou
|        tfeed
|
|        %R3476
|

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|Passage         B908 -                                                          << RUNG 449  STEP #2745 >>
|indic.          outfeed
|(extra          stop ma
|equip.)         x time  Step 2
| B908                   STEP_2
|%I0045          %M3250  %M0102                                   %M3249
+--] [----------+--] [-----] [-------------------------------------------( )--  (* Stop TCBP disch. - passing box *)
|               | 0448    0042                                                  Cross reference for %M3249
|Stop TC Pulse d|                                                               -] [- 449,451
|BP disc own, Bo|
|h. - pa x passe|
|ssing b d outfe|
|               |
|%M3249  %M3248 |
+--] [-----]/[--+
| 0449    0450
|
|Crush                                                                          << RUNG 450  STEP #2752 >>
|in
|dischar
|area
| B112
|%I0044                                                            %M3248
+--] [-----------------------------------------------------------------(v)--  (* Pulse down, Box passed outfeed *)
|                                                                               Cross reference for %M3248
|                                                                               -]/[- 449
|
|Stop TC                                                                        << RUNG 451  STEP #2754 >>
|BP disc
|h. - pa
|ssing b
|
|%M3249                                                            %M0621
+--] [--+-------------------------------------------------------------( )--  (* Stop outfeed from TCBP *)
| 0449  |                                                                       Cross reference for %M0621
|Outf.  |                                                                                 NONE
|conv.  |
|stop is|
|open   |
|       |
|%M0620 |
+--] [--+
| 0447
|

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| (*************************************************************************)
| (*                                                                       *)
| (* COMMUNICATION WITH OTHER EQUIPMENT                                    *)
| (*                                                                       *)
| (*************************************************************************)
|
|        No                                                                    << RUNG 453  STEP #2758 >>
|        yellow  No
|        alarms  yellow  Manual
|Step 3  on      leds on empty.
|STEP_3                                                          K099
|%M0103  %M0096  %M0097  %M0600                                  %Q0048
+--] [-----] [-----] [-----]/[-----------------------------------------( )--  (* Ready signal                      *)
| 0048    0636    0640                                                       Cross reference for K099
|                                                                                     NONE
|
|        Crush                                                                 << RUNG 454  STEP #2763 >>
|        in
|        dischar
|Step 3  area
|STEP_3   B112                                                   K098
|%M0103  %I0044  +-----+                                         %Q0075
+--] [-----] [---+OFDT +-------------------------------------------------( )--  (* Package coming                   *)
| 0048           |0.10s|                                                      Cross reference for K098
|                |     |                                                                 NONE
|         CONST -+PV   |
|         +00150 |     |
|                +-----+
|
|                Timer
|                package
|                coming
|
|                %R3150
|
```

```
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| (*************************************************************************)
| (*                                                                       *)
| (* EXTERNAL BRAKE                                                        *)
| (*                                                                       *)
| (*************************************************************************)
|
|Extern.                                                                        << RUNG 456  STEP #2768 >>
|conv.
|brake
| B902
|%I0072  +-----+                                                   %M0012
+--] [---+ TMR +-----------------------------------------------------( )--  (* Extern. brake queue to DE        *)
|        |0.10s|                                                            Cross reference for %M0012
|        |     |                                                            -] [- 459
| CONST -+PV   |
| +00015 |     |
|        +-----+
|        Extern.
|        brake
|        queue
|        to DE
|
|        %R0016
|
|Extern.                                                                        << RUNG 457  STEP #2771 >>
|conv.
|brake   Step 2
| B901   STEP_2
|%I0071  %M0102  +-----+                                           %M0010
+--] [-----] [---+ TMR +--------------------------------------------( )--  (* Extern. brake queue length       *)
|         0042   |0.10s|                                                    Cross reference for %M0010
|                |     |                                                    -] [- 459
|         CONST -+PV   |                                                    -]/[- 458
|         +00007 |     |
|                +-----+
|                Extern.
|                brake
|                queue
|                length
|
|                %R0010
|
|Extern.                                                                        << RUNG 458  STEP #2775 >>
|brake
|queue
|length
|
|%M0010  +-----+                                                   %M0011
+--]/[---+ TMR +-----------------------------------------------------( )--  (* Extern. brake space betw.q.      *)
| 0457   |0.10s|                                                            Cross reference for %M0011
|        |     |                                                            -]/[- 459
| CONST -+PV   |
| +00008 |     |
|        +-----+
|        Extern.
|        brake
|        space
|        betw.q.
|
|        %R0013
|
```

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|Extern.                                                                    << RUNG 459  STEP #2778 >>
|brake
|queue
|to DE
|                                                                  Y901
|%M0012                                                           %Q0040
+--] [----------+-------------------------------------------------------( )--  (* External brake                    *)
| 0456          |                                                             Cross reference for Y901
|               |                                                                      NONE
|Step 1  Step 2 |
|STEP_1  STEP_2 |
|%M0101  %M0102 |
+--] [-----]/[--+
| 0034    0042  |
|Extern.        |
|brake          |
|queue          |
|length         |
|               |
|%M0010         |
+--] [----------+
| 0457          |
|Extern.        |
|brake          |
|space          |
|betw.q.        |
|               |
|%M0011         |
+--]/[----------+
| 0458          |
|               |
|Manual         |
|empty.         |
|               |
|%M0600         |
+--] [----------+
|
```

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| (*************************************************************************)
| (*                                                                       *)
| (* LUBRICATION, AUTOFILL                                                 *)
| (*                                                                       *)
| (*************************************************************************)
|
|        Numb of                                                              << RUNG 461  STEP #2787 >>
|Normal  lubric
|level   at low
|lubric  level
|B138-2
|%I0082  %M0027                                                  %M0029
+--] [--+--]/[-------------------------------------------------------------( )--  (* Memory lubri cant *)
|       | 0468                                                                Cross reference for %M0029
|       |                                                                     -] [- 461,462
|Memory |
|lubri  |
|cant   |
|       |
|%M0029 |
+--] [--+
| 0461
|
|        Press.  Memory                                                       << RUNG 462  STEP #2791 >>
|Lubric. guard   lubri
|interv. air     cant
|         B100                                                    Y114
|%M0013  %I0004  %M0029                                          %Q0024
+--] [-----] [-----] [--+-------------------------------------------------( )--  (* Lubrication                    *)
| 0466            0461  |                                                     Cross reference for Y114
|                       |                                                     -] [- 462,467
|Manuel          Press. |
|lubrica Lubric. guard  |
|tion    time    air    |
| S015H           B100  |
|%I0078  %M0014  %I0004 |
+--] [--+--]/[-----] [--+
|       | 0467
|       |
|Lubrica|
|tion   |
| Y114  |
|%Q0024 |
+--] [--+
| 0462
|
|High    Fault                                                                << RUNG 463  STEP #2800 >>
|speed   lubric.
|in      press.
|machine low
|
|%M1285  %M0015  +-----+
+--] [-----]/[---+MOVE_+-
| 0711    0469   | INT |
|                |     |
|                |     | Lubrica
|                |     | tion
|                |     | time
|                |     | value
|                |     |
|         CONST -+IN  Q+-%R1400
|         +00120 | LEN |
|                |00001|
|                |     |
|                +-----+
|
|Low     Fault                                                                << RUNG 464  STEP #2803 >>
|speed   lubric.
|in      press.
|machine low
|
|%M1284  %M0015  +-----+
+--] [-----]/[---+MOVE_+-
| 0710    0469   | INT |
|                |     |
|                |     | Lubrica
|                |     | tion
|                |     | time
|                |     | value
|                |     |
|         CONST -+IN  Q+-%R1400
|         +00240 | LEN |
|                |00001|
|                |     |
|                +-----+
|
```

```
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|        Fault                                                                << RUNG 465  STEP #2806 >>
|Pulse   lubric.
|alarm   press.
|reset   low
|
|%T0004  %M0015  +-----+
+--] [-----] [---+MOVE_+-
| 0648    0469   | INT |
|                |     |
|        Lubrica |     |
|        tion    |     | Lubric.
|        time    |     | interv.
|        value   |     | LUB-INT
|                |     |
|        %R1400 -+IN  Q+-%R0223
|                | LEN |
|                |00001|
|                |     |
|                +-----+
|
|Step 3                                                                       << RUNG 466  STEP #2809 >>
|STEP_3   T_MIN
|%M0103  %S0006  +-----+                                          %M0013
+--] [-----] [--->UPCTR+-------------------------------------------------( )--  (* Lubric.interv.                    *)
| 0048           |     |                                                      Cross reference for %M0013
|                |     |                                                      -] [- 462,469
|Lubric.         |     |
|time            |     |
|                |     |
|%M0014          |     |
+--] [-----------+R    |
| 0467           |     |
|                |     |
|        Lubrica |     |
|        tion    |     |
|        time    |     |
|        value   |     |
|                |     |
|        %R1400 -+PV   |
|                |     |
|                +-----+
|
|                Lubric.
|                interv.
|                LUB-INT
|
|                %R0223
|
|Lubrica                                                                      << RUNG 467  STEP #2814 >>
|tion
| Y114
|%Q0024  +-----+                                                  %M0014
+--] [---+ TMR +-----------------------------------------------------------( )--  (* Lubric.time                       *)
| 0462   |0.10s|                                                              Cross reference for %M0014
|        |     |                                                              -] [- 466
| CONST -+PV   |                                                              -]/[- 462
| +00100 |     |
|        +-----+
|
|        Lubric.
|        time
|        LUB-TME
|
|        %R0226
|
|Normal                                                                       << RUNG 468  STEP #2817 >>
|level
|lubric
|B138-2
|%I0082  +-----+                                                  %M0027
+--]/[---+ TMR +-----------------------------------------------------------( )--  (* Numb of lubric at low level      *)
|        |0.10s|                                                              Cross reference for %M0027
|        |     |                                                              -] [- 502
| CONST -+PV   |                                                              -]/[- 461
| +00050 |     |
|        +-----+
|        Nmbr of
|        lubric
|        at low
|        level
|
|        %R0247
|
```

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|        Press.  Lubric. Pulse                                                   << RUNG 469  STEP #2820 >>
|Lubric. guard   press.  alarm
|interv. air     guard   reset
|         B100    B139
|%M0013  %I0004  %I0083  %T0004  +-----+                                %M0015
+--] [-----] [-----]/[--+--]/[---+ TMR +-----------------------------------( )--  (* Fault  lubric. press.  low       *)
| 0466                 | 0648   |0.10s|                                         Cross reference for %M0015
|Fault                 |        |     |                                         -] [- 465,469,502,503
|lubric.               |        |     |                                         -]/[- 463,464,504
|press.                |        |     |
|low                   |        |     |
|                      |        |     |
|%M0015                |        |     |
+--] [------------------+ CONST -+PV   |
| 0469                  +00080 |     |
|                              +-----+
|                              Fault
|                              lubric.
|                              press.
|                              low
|
|                              %R0229
|
|Lubric.                                                                         << RUNG 470  STEP #2827 >>
|press.
|guard
| B139
|%I0083                  +-----+                                        %M0016
+--] [----------+--------+ TMR +-------------------------------------------( )--  (* Fault  lubric. press.  high      *)
|               |        |0.10s|                                                 Cross reference for %M0016
|Fault          |        |     |                                                 -] [- 470,502,503
|lubric. Pulse  |        |     |                                                 -]/[- 504
|press.  alarm  |        |     |
|high    reset  |        |     |
|               |        |     |
|%M0016  %T0004 |        |     |
+--] [-----]/[--+ CONST -+PV   |
| 0470    0648    +00200 |     |
|                        +-----+
|                        Fault
|                        lubric.
|                        press.
|                        high
|
|                        %R0232
|
|        Lubrica                                                                 << RUNG 471  STEP #2833 >>
|Normal  tion
|level   Autofil
|lubric  l       Step 3
|B138-2          STEP_3                                          Y909
|%I0082  %M1001  %M0103                                         %Q0065
+--]/[-----] [--+--] [-----------------------------------------------------( )--  (* Lubrication autofill             *)
|               | 0048                                                           Cross reference for Y909
|Lubrica        |                                                                -] [- 471
|tion    High   |
|autofil level  |
|l       lubric |
| Y909   B138-1 |
|%Q0065  %I0081 |
+--] [-----]/[--+
| 0471
|
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| (*************************************************************************)
| (* WATER VALVE                                                            *)
| (*                                                                       *)
| (*************************************************************************)
|
|        Water                                                                << RUNG 473  STEP #2841 >>
|Step 3  valve
|STEP_3                                                            Y115
|%M0103  %M1004  +-----+                                           %Q0066
+--] [-----] [---+RANGE|+-------------------------------------------( )--  (* Water valve *)
| 0048           | INT ||                                                    Cross reference for Y115
|                |     ||                                                              NONE
|         CONST -+L1  Q++
|         +00100 |     |
|                |     |
|         CONST -+L2   |
|         +00350 |     |
|                |     |
|        Feed    |     |
|        chain   |     |
|        move in |     |
|        MM      |     |
|                |     |
|        %R0405 -+IN   |
|                +-----+
|
```

```
Program: A454891                          C:\LM90\VISN\P1000\A454891                          Block: _MAIN
```

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| (*************************************************************************)
| (*                                                                       *)
| (* ALARM                                                                 *)
| (*                                                                       *)
| (*************************************************************************)
|
|Emerg.s                                                                      << RUNG 475  STEP #2846 >>
|top     Emerg.
|circuit stop    Step 1
|          L12   STEP_1
|%I0002  %I0001  %M0101  +-----+                                   %M0084
+--]/[-----] [--+--] [---+ TMR +-----------------------------------------( )--  (* Alarm safety relay A090 Emstop *)
|              | 0034   |0.10s|                                              Cross reference for %M0084
|Alarm s        |        |     |                                              -] [- 475,477,479
|afety r        |        |     |                                              -]/[- 31,641,642
|elay A0        |        |     |
|90 Emst        |        |     |
|               |        |     |
|%M0084         |        |     |
+--] [----------+ CONST -+PV   |
| 0475            +00020 |     |
|                        +-----+
|
|                        Delay
|                        A090
|                        alarm
|
|                        %R3402
|
|        Emerg.s                                                              << RUNG 476  STEP #2852 >>
|Emerg.  top
|stop    circuit
|  L12
|%I0001  %I0002                                                    %M3152
+--]/[-----] [-------------------------------------------------------------( )--  (* Resetcondition for L12 *)
|                                                                             Cross reference for %M3152
|                                                                             -] [- 477
|
|Emerg.s         Pulse                                                        << RUNG 477  STEP #2855 >>
|top     Alarm   alarm
|circuit em.stop reset   Step 0
|         H006           STEP_0
|%I0002  %M0151  %T0004  %M0100                                    %M0049
+--]/[--+--]/[--+--]/[-----] [-------------------------------------------(S)--  (* Alarm em.stop                    *)
|       | 0479  | 0648    0029                                               Cross reference for %M0049
|       |       |                                                            -] [- 479
|Emerg. |       |                                                            -]/[- 30,104,479,641,645
|stop   |       |                                                            -(R)  478
|  L12  |       |
|%I0001 |       |
+--]/[--+       |
|       |       |
|Alarm s|       |
|afety r|       |
|elay A0|       |
|90 Emst|       |
|       |       |
|%M0084 |       |
+--] [--+       |
| 0475          |
|               |
|Resetco        |
|ndition Alarm  |
|for L12 em.stop|
|         H006  |
|%M3152  %M0151 |
+--] [-----] [--+
| 0476    0479
|
|Pulse                                                                        << RUNG 478  STEP #2865 >>
|alarm
|reset
|
|%T0004                                                            %M0049
+--] [----------+-------------------------------------------------------(R)--  (* Alarm em.stop                    *)
| 0648          |                                                            Cross reference for %M0049
|               |                                                            -] [- 479
|        Emerg.s|                                                            -]/[- 30,104,479,641,645
|Emerg.  top    |                                                            -(S)  477
|stop    circuit|
|  L12          |
|%I0001  %I0002 |
+--] [-----] [--+
|
```

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|Emerg.  Alarm                                                          << RUNG 479  STEP #2870 >>
|stop    em.stop Step 0
|  L12           STEP_0                                   H006
|%I0001  %M0049  %M0100                                  %M0151
+--]/[--+--]/[--+--] [-----------------------------------------------( )--  (* Alarm em.stop                    *)
|       | 0478  | 0029                                                     Cross reference for H006
|       |       |                                                          -] [- 477
|Emerg.s|       |                                                          -]/[- 477,642
|top    |       |
|circuit|       |
|       |       |
|%I0002 |       |
+--]/[--+       |
|       |       |
|Alarm s|       |
|afety r|       |
|elay A0|       |
|90 Emst|       |
|       |       |
|%M0084 |       |
+--] [--+       |
| 0475          |
|               |
|Alarm          |
|em.stop Flash  |
|         FLASH |
|%M0049  %M0003 |
+--] [-----] [--+
| 0478    0022
|
|Emerg.                                                                 << RUNG 480  STEP #2879 >>
|stop    Door    Step 1
|  L12     L13   STEP_1
|%I0001  %I0015  %M0101  +-----+                                  %M0085
+--]/[--+--] [--+--] [---+ TMR +-------------------------------------( )--  (* Alarm safety relay A091 doors *)
|       |       | 0034   |0.10s|                                          Cross reference for %M0085
|       |       |        |     |                                          -] [- 480,484,486
|Door   |       |        |     |                                          -]/[- 31,641,642
|circuit|       |        |     |
|       |       |        |     |
|%I0014 |       |        |     |
+--]/[--+       | CONST -+PV   |
|               | +00020 |     |
|Alarm s        |        +-----+
|afety r        |
|elay A0        |        Delay
|91 door        |        A091
|               |        alarm
|%M0085         |
+--] [----------+        %R3326
| 0480
|
|Emerg.                                                                 << RUNG 481  STEP #2886 >>
|stop
|  L12
|%I0001  +-----+                                                  %M1141
+--] [---+ TMR +-----------------------------------------------------( )--  (* L12 delay                       *)
|        |0.10s|                                                            Cross reference for %M1141
|        |     |                                                            -] [- 482
| CONST -+PV   |
| +00010 |     |
|        +-----+
|
|        %R3184
|
|        Emerg.s                                                        << RUNG 482  STEP #2889 >>
|L12     top
|delay   circuit Door
|                 L13
|%M1141  %I0002  %I0015                                           %M0086
+--] [-----] [-----]/[--+-----------------------------------------------( )--  (* Alarm doors                     *)
| 0481                 |                                                    Cross reference for %M0086
|                      |                                                    -] [- 482,483,484,486
|Door                  |
|circuit               |
|                      |
|%I0014                |
+--]/[----------------+
|                      |
|Alarm                 |
|light                 |
|barrier               |
|                      |
|%M1298                |
+--] [----------------+
| 0568                 |
|                      |
|        Pulse         |
|Alarm   alarm         |
|doors   reset   Door  |
|                  L13 |
|%M0086  %T0004  %I0015 |
+--] [-----]/[-----]/[--+
| 0482    0648

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|               Light                                                    << RUNG 483  STEP #2899 >>
|Alarm   Door    barrier
|doors   circuit e       Door
|                          L13
|%M0086  %I0014  %I0087  %I0015                                  %M3151
+--] [-----] [--+--] [--+--]/[-----------------------------------------( )--  (* Doors, reset condition *)
| 0482          |       |                                                   Cross reference for %M3151
|               |Lightba|                                                   -] [- 484,569
|               |rrier  |
|               |install|
|               |ed     |
|               |       |
|               |%M1002 |
|               +--]/[--+
|
|Alarm s                                                                 << RUNG 484  STEP #2906 >>
|afety r         Pulse
|elay A0 Alarm   alarm
|91 door doors   reset   Step 0
|         H007           STEP_0
|%M0085  %M0152  %T0004  %M0100                                  %M0050
+--] [--+--]/[--+--]/[-----] [-----------------------------------------(S)--  (* Alarm doors                        *)
| 0480  | 0486  | 0648    0029                                            Cross reference for %M0050
|       |       |                                                         -] [- 486
|Alarm  |       |                                                         -]/[- 30,486,633,641
|doors  |       |                                                         -(R)  485
|       |       |
|%M0086 |       |
+--] [--+       |
| 0482          |
|Doors,         |
|reset          |
|conditi Alarm  |
|on      doors  |
|         H007  |
|%M3151  %M0152 |
+--] [-----] [--+
| 0483    0486
|
|Pulse                                                                   << RUNG 485  STEP #2915 >>
|alarm
|reset
|
|%T0004                                                          %M0050
+--] [----------+-----------------------------------------------------(R)--  (* Alarm doors                        *)
| 0648          |                                                         Cross reference for %M0050
|               |                                                         -] [- 486
|        Door   |                                                         -]/[- 30,486,633,641
|Door    circuit|                                                         -(S)  484
|  L13          |
|%I0015  %I0014 |
+--] [-----] [--+
|
|Alarm s                                                                 << RUNG 486  STEP #2920 >>
|afety r
|elay A0 Alarm
|91 door doors   Step 0
|                STEP_0                                           H007
|%M0085  %M0050  %M0100                                          %M0152
+--] [--+--]/[--+--] [-------------------------------------------------( )--  (* Alarm doors                        *)
| 0480  | 0485  | 0029                                                    Cross reference for H007
|       |       |                                                         -] [- 484
|Alarm  |       |                                                         -]/[- 484,637,642
|doors  |       |
|       |       |
|%M0086 |       |
+--] [--+       |
| 0482          |
|               |
|Alarm          |
|doors   Flash  |
|         FLASH |
|%M0050  %M0003 |
+--] [-----] [--+
| 0485    0022
|
```

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|        Mainsha                                                                << RUNG 487  STEP #2928 >>
|        ft/
|        feeding
|Door    motor
|  L13    K001
|%I0015  %Q0001          +-----+                                   %M0087
+--]/[-----] [--+--------+ TMR +-------------------------------------------(S)--  (* Check K002                        *)
|         0651  |        |0.10s|                                                   Cross reference for %M0087
|        Infeed |        |     |                                                   -] [- 489
|        conv/  |        |     |                                                   -(R)  488
|Emerg.  groupin|        |     |
|stop    g mat  |        |     |
|  L12    K002  |        |     |
|%I0001  %Q0025 |        |     |
+--]/[-----] [--+ CONST -+PV   |
|         0652    +00002 |     |
|                        +-----+
|
|                        Check
|                        K002
|
|                        %R0181
|
|Pulse                                                                          << RUNG 488  STEP #2935 >>
|alarm
|reset
|
|%T0004                                                            %M0087
+--] [-------------------------------------------------------------------(R)--  (* Check K002                        *)
| 0648                                                                            Cross reference for %M0087
|                                                                                 -] [- 489
|                                                                                 -(S)  487
|
|Over                                                                           << RUNG 489  STEP #2937 >>
|voltage
|protekt
| F000
|%I0041                                                            %M0068
+--]/[--+-----------------------------------------------------------------( )--  (* Alarm EL.equip                    *)
|       |                                                                         Cross reference for %M0068
|OVR_PRE|                                                                         -] [- 490,492
|%S0011 |
+--] [--+
|       |
|PLC_BAT|
|%S0014 |
+--] [--+
|       |
|Check  |
|K002   |
|       |
|%M0087 |
+--] [--+
| 0488
|
|Alarm   Electri Pulse                                                          << RUNG 490  STEP #2942 >>
|EL.equi cal     alarm
|p       alarm   reset   Step 0
|         H013           STEP_0
|%M0068  %Q0101  %T0004  %M0100                                    %M1281
+--] [-----]/[-----]/[-----] [--------------------------------------------(S)--  (* Alarm EL.equip                    *)
| 0489    0492    0648    0029                                                    Cross reference for %M1281
|                                                                                 -] [- 492
|                                                                                 -]/[- 492,635
|                                                                                 -(R)  491
|
|Pulse                                                                          << RUNG 491  STEP #2947 >>
|alarm
|reset
|
|%T0004                                                            %M1281
+--] [-------------------------------------------------------------------(R)--  (* Alarm EL.equip                    *)
| 0648                                                                            Cross reference for %M1281
|                                                                                 -] [- 492
|                                                                                 -]/[- 492,635
|                                                                                 -(S)  490
|

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```

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|Alarm   Alarm                                                                << RUNG 492  STEP #2949 >>
|EL.equi EL.equi
|p       p       Step 0
|                STEP_0                                          H013
|%M0068  %M1281  %M0100                                         %Q0101
+--] [-----]/[--+--] [-----------------------------------------------( )--  (* Electrical alarm                 *)
| 0489    0491  | 0029                                                     Cross reference for H013
|               |                                                          -]/[- 490,639
|Alarm          |
|EL.equi        |
|p       Flash  |
|         FLASH |
|%M1281  %M0003 |
+--] [-----] [--+
| 0491    0022  |
|               |
|Lamp           |
|test           |
|L_TEST         |
|%M0006         |
+--] [----------+
| 0647
|
|        Alarm   Pulse                                                      << RUNG 493  STEP #2957 >>
|Overl.  overlo. alarm
|protec. protec. reset   Step 0
|         H008           STEP_0
|%I0003  %M0153  %T0004  %M0100                                 %M0051
+--]/[-----]/[-----]/[-----] [-------------------------------------(S)--  (* Alarm overload protecection      *)
|         0495    0648    0029                                             Cross reference for %M0051
|                                                                          -] [- 495
|                                                                          -]/[- 30,495,633
|                                                                          -(R)  494
|
|Pulse                                                                     << RUNG 494  STEP #2962 >>
|alarm
|reset
|
|%T0004                                                         %M0051
+--] [-----------------------------------------------------------(R)--  (* Alarm overload protecection      *)
| 0648                                                                     Cross reference for %M0051
|                                                                          -] [- 495
|                                                                          -]/[- 30,495,633
|                                                                          -(S)  493
|
|        Alarm o                                                           << RUNG 495  STEP #2964 >>
|        verload
|Overl.  protece
|protec. ction   Step 0
|                STEP_0                                          H008
|%I0003  %M0051  %M0100                                         %M0153
+--]/[-----]/[--+--] [-----------------------------------------------( )--  (* Alarm overlo.protec.             *)
|         0494  | 0029                                                     Cross reference for H008
|Alarm o        |                                                          -]/[- 493,637
|verload        |
|protece        |
|ction   Flash  |
|         FLASH |
|%M0051  %M0003 |
+--] [-----] [--+
| 0494    0022
|
|Pressu.                                                                   << RUNG 496  STEP #2971 >>
| Y100
|%Q0105  +-----+                                                 %M0070
+--] [---+ TMR +-----------------------------------------------------( )--  (* Check air press.                 *)
| 0101   |0.10s|                                                           Cross reference for %M0070
|        |     |                                                           -] [- 498,511
| CONST -+PV   |
| +00050 |     |
|        +-----+
|        Check
|        air
|        press.
|        step 2
|
|        %R0031
|
```

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|               Press.                                                    << RUNG 497  STEP #2974 >>
|               guard
|Pressu.        air
| Y100           B100
|%Q0105         %I0004  +-----+                                  %M0072
+--]/[----------+--] [---+ TMR +-----------------------------------------( )--  (* Check no air press.              *)
| 0101          |        |0.10s|                                            Cross reference for %M0072
|               |        |     |                                            -] [- 497,499,501
|Check   Pulse  |        |     |                                            -]/[- 641,642
|no air  alarm  |        |     |
|press.  reset  |        |     |
|               |        |     |
|%M0072  %T0004 |        |     |
+--] [-----]/[--+ CONST -+PV   |
| 0497    0648    +00007 |     |
|                        +-----+
|                        Timer
|                        superv
|                        air
|                        press
|
|                        %R3329
|
|        Check   Press.                                                   << RUNG 498  STEP #2981 >>
|        air     guard
|Step 2  press.  air
|STEP_2           B100
|%M0102  %M0070  %I0004  +-----+                                  %M0071
+--] [-----] [--+--]/[---+ TMR +-----------------------------------------( )--  (* Superv. air press.               *)
| 0042    0496  |        |0.10s|                                            Cross reference for %M0071
|               |        |     |                                            -] [- 498,499,501
|Superv. Pulse  |        |     |
|air     alarm  |        |     |
|press.  reset  |        |     |
|               |        |     |
|%M0071  %T0004 |        |     |
+--] [-----]/[--+ CONST -+PV   |
| 0498    0648    +00007 |     |
|                        +-----+
|
|                        Check
|                        no air
|                        press.
|
|                        %R0037
|
|Superv. Alarm   Pulse                                                    << RUNG 499  STEP #2989 >>
|air     air     alarm
|press.  press.  reset
|         H009
|%M0071  %M0154  %T0004                                           %M0052
+--] [--+--]/[-----]/[-------------------------------------------------(S)--  (* Alarm air pressure               *)
| 0498  | 0501    0648                                                      Cross reference for %M0052
|       |                                                                   -] [- 501
|Check  |                                                                   -]/[- 41,46,501,633,641
|no air |                                                                   -(R)  500
|press. |
|       |
|%M0072 |
+--] [--+
| 0497
|
|Pulse                                                                    << RUNG 500  STEP #2994 >>
|alarm
|reset
|
|%T0004                                                           %M0052
+--] [-----------------------------------------------------------------(R)--  (* Alarm air pressure               *)
| 0648                                                                      Cross reference for %M0052
|                                                                           -] [- 501
|                                                                           -]/[- 41,46,501,633,641
|                                                                           -(S)  499
|
```

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|        Alarm                                                                  << RUNG 501  STEP #2996 >>
|Superv. air
|air     pressur
|press.  e       Step 0
|                STEP_0                                          H009
|%M0071  %M0052  %M0100                                         %M0154
+--] [--+--]/[--+--] [-----------------------------------------------( )--  (* Alarm air press.                 *)
| 0498  | 0500  | 0029                                                      Cross reference for H009
|       |       |                                                           -]/[- 499,637,642
|Check  |       |
|no air |       |
|press. |       |
|       |       |
|%M0072 |       |
+--] [--+       |
| 0497          |
|Alarm          |
|air            |
|pressur        |
|e       Flash  |
|         FLASH |
|%M0052  %M0003 |
+--] [-----] [--+
| 0500    0022
|
|        Numb of                                                                << RUNG 502  STEP #3004 >>
|Normal  lubric
|level   at low
|lubric  level
|B138-2
|%I0082  %M0027                                                 %M0069
+--]/[--+--] [-------------------------------------------------------( )--  (* Alarm lubr *)
|       | 0468                                                              Cross reference for %M0069
|Fault  |                                                                   -] [- 503,505
|lubric.|                                                                   -]/[- 504,634
|press. |
|low    |
|       |
|%M0015 |
+--] [--+
| 0469  |
|Fault  |
|lubric.|
|press. |
|high   |
|       |
|%M0016 |
+--] [--+
| 0470
|
|        Alarm                                                                  << RUNG 503  STEP #3009 >>
|Alarm   lubrica
|lubr    tion
|         H010
|%M0069  %M0155                                                 %M0053
+--] [--+--]/[-----------------------------------------------------(SM)-  (* Alarm lubrication                 *)
| 0502  | 0505                                                              Cross reference for %M0053
|Fault  |                                                                   -] [- 505
|lubric.|                                                                   -]/[- 505,629,633
|press. |                                                                   -(RM) 504
|low    |
|       |
|%M0015 |
+--] [--+
| 0469  |
|Fault  |
|lubric.|
|press. |
|high   |
|       |
|%M0016 |
+--] [--+
| 0470
|
|Pulse                                                                          << RUNG 504  STEP #3014 >>
|alarm
|reset
|
|%T0004                                                         %M0053
+--] [------------------+-----------------------------------------(RM)-  (* Alarm lubrication                 *)
| 0648                  |                                                   Cross reference for %M0053
|        Fault   Fault  |                                                   -] [- 505
|        lubric. lubric.|                                                   -]/[- 505,629,633
|Alarm   press.  press. |                                                   -(SM) 503
|lubr    low     high   |
|                       |
|%M0069  %M0015  %M0016 |
+--]/[-----]/[-----]/[--+
| 0502    0469    0470
|
```

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|Alarm                                                                          << RUNG 505  STEP #3020 >>
|lubrica
|tion    Flash   Step 0
|         FLASH  STEP_0                                                 H010
|%M0053  %M0003  %M0100                                               %M0155
+--] [-----] [--+--] [-----------------------------------------------( )--  (* Alarm lubrication                *)
| 0504    0022  | 0029                                                      Cross reference for H010
|               |                                                           -]/[- 503,631,638
|Alarm          |
|lubrica Alarm  |
|tion    lubr   |
|               |
|%M0053  %M0069 |
+--]/[-----] [--+
| 0504    0502
|
|Synch.                                                                         << RUNG 506  STEP #3027 >>
|stop
|main
|shaft
|
|%M0785                                                               %T0031
+--] [-------------------------------------------------------------(^)--  (* Pulse synch stop main            *)
|                                                                             Cross reference for %T0031
|                                                                             -]/[- 507
|
|        Pulse                                                                << RUNG 507  STEP #3029 >>
|Main    synch
|shaft   stop
|start   main    Step 1
|G22-SF          STEP_1
|%Q0004  %T0031  %M0101  +-----+                                      %M0193
+--] [-----]/[--+--] [---+ TMR +-----------------------------------------( )--  (* Converter alarm main motor       *)
|         0506  | 0034   |0.10s|                                             Cross reference for %M0193
|Convert        |        |     |                                             -] [- 507,511,513
|er alar Pulse  |        |     |
|m main  alarm  |        |     |
|motor   reset  |        |     |
|               |        |     |
|%M0193  %T0004 |        |     |
+--] [-----]/[--+ CONST -+PV   |
| 0507    0648    +00150 |     |
|                        +-----+
|                        Conv.
|                        alarm
|                        main
|                        motor
|
|                        %R0241
|
|Synch                                                                          << RUNG 508  STEP #3037 >>
|stop
|feeding
|motor
|
|%M0777                                                               %T0032
+--] [-------------------------------------------------------------(^)--  (* Pulse synch stop feeding         *)
|                                                                             Cross reference for %T0032
|                                                                             -]/[- 509
|
|        Pulse                                                                << RUNG 509  STEP #3039 >>
|Feeding synch
|motor   stop
|start   feeding Step 1
|G23-SF          STEP_1
|%Q0006  %T0032  %M0101  +-----+                                      %M0198
+--] [-----]/[--+--] [---+ TMR +-----------------------------------------( )--  (* Converter alarm feed motor       *)
|         0508  | 0034   |0.10s|                                             Cross reference for %M0198
|Convert        |        |     |                                             -] [- 509,511,513
|er alar Pulse  |        |     |
|m feed  alarm  |        |     |
|motor   reset  |        |     |
|               |        |     |
|%M0198  %T0004 |        |     |
+--] [-----]/[--+ CONST -+PV   |
| 0509    0648    +00100 |     |
|                        +-----+
|                        Conv.
|                        alarm
|                        feed
|                        motor
|
|                        %R0238
|
```

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|               Pack on                                                    << RUNG 510  STEP #3047 >>
|        Convert groupbe
|        er G24  lt      Manual
|Step 3  start   step2-> empty.
|STEP_3  G24-SF   B126M
|%M0103  %Q0067  %M1191  %M0600  +-----+                                %M0192
+--] [-----] [-----]/[--+--]/[---+ TMR +-----------------------------------( )--  (* Converter alarm grouping belt    *)
| 0048    0297    0303  |        |0.10s|                                        Cross reference for %M0192
|Convert               |        |     |                                        -] [- 510,511,513
|er alar Pulse          |        |     |
|m group alarm          |        |     |
|ing bel reset          |        |     |
|                       |        |     |
|%M0192  %T0004         |        |     |
+--] [-----]/[----------+ CONST -+PV   |
| 0510    0648            +00100 |     |
|                               +-----+
|
|                               Conv.
|                               alarm
|                               mat
|
|                               %R0244
|
|Freq.                                                                     << RUNG 511  STEP #3056 >>
|contr.  Check   Alarm   Pulse
|no      air     freq.   alarm
|alarm   press.  contr.  reset   Step 1
|                 H011           STEP_1
|%I0013  %M0070  %M0156  %T0004  %M0101                                   %M0054
+--]/[-----] [--+--] [-----]/[-----] [-------------------------------------(S)--  (* Alarm frequency control          *)
|         0496  | 0514    0648    0034                                         Cross reference for %M0054
|Convert        |                                                              -] [- 514
|er alar        |                                                              -]/[- 41,514,633
|m feed         |                                                              -(R)  512
|motor          |
|               |
|%M0198         |
+--] [----------+
| 0509          |
|Convert        |
|er alar        |
|m main         |
|motor          |
|               |
|%M0193         |
+--] [----------+
| 0507          |
|Convert        |
|er alar        |
|m group        |
|ing bel        |
|               |
|%M0192         |
+--] [----------+
| 0510
|
|Pulse                                                                     << RUNG 512  STEP #3065 >>
|alarm
|reset
|
|%T0004                                                                   %M0054
+--] [-----------------------------------------------------------------(R)--  (* Alarm frequency control          *)
| 0648                                                                         Cross reference for %M0054
|                                                                              -] [- 514
|                                                                              -]/[- 41,514,633
|                                                                              -(S)  511
|
|Convert                                                                   << RUNG 513  STEP #3067 >>
|er alar
|m feed
|motor
|
|%M0198                                                                   %M0271
+--] [--+--------------------------------------------------------------( )--  (* Convert alarm *)
| 0509  |                                                                      Cross reference for %M0271
|Convert|                                                                      -] [- 514
|er alar|                                                                      -]/[- 631
|m main |
|motor  |
|       |
|%M0193 |
+--] [--+
| 0507  |
|Convert|
|er alar|
|m group|
|ing bel|
|       |
|%M0192 |
+--] [--+
| 0510
|

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|Freq.   Alarm                                                                    << RUNG 514  STEP #3071 >>
|contr.  frequen
|no      cy
|alarm   control Step 0
|                STEP_0                                                 H011
|%I0013  %M0054  %M0100                                                %M0156
+--]/[--+--]/[--+--] [-----------------------------------------------------( )--  (* Alarm freq. contr.              *)
|       | 0512  | 0029                                                            Cross reference for H011
|       |       |                                                                 -] [- 511
|Convert|       |                                                                 -]/[- 637
|alarm  |       |
|       |       |
|%M0271 |       |
+--] [--+       |
| 0513          |
|Alarm          |
|frequen        |
|cy             |
|control Flash  |
|         FLASH |
|%M0054  %M0003 |
+--] [-----] [--+
| 0512    0022
|
|        Crush                                                                    << RUNG 515  STEP #3079 >>
|        guard,          Infeed
|        group.  Fallen  brake
|Step 3  section package open
|STEP_3   B144    B904    Y106
|%M0103  %I0061  %I0050  %Q0021          +-----+                          %M0196
+--] [-----]/[-----] [-----] [--+-------+ TMR +---------------------------( )--  (* Package jam at infeed *)
| 0048                    0152  |        |0.10s|                                 Cross reference for %M0196
|                               |        |     |                                 -] [- 515,517,519
|        Package Pulse          |        |     |
|        jam at  alarm          |        |     |
|Step 1  infeed  reset          |        |     |
|STEP_1                         |        |     |
|%M0101  %M0196  %T0004         |        |     |
+--] [-----] [-----]/[----------+ CONST -+PV   |
| 0034    0515    0648           +00028 |     |
|                                       +-----+
|
|                                       %R1192
|
|Min                                                                              << RUNG 516  STEP #3089 >>
|queue           Single
|into    Fallen  pack/
|gr.sec. package (X*1)
| B903    B904
|%I0049  %I0050  %M0901  +-----+                                          %M0076
+--] [-----]/[-----] [---+ TMR +-------------------------------------------( )--  (* Fallen package                  *)
|                        |0.01s|                                                 Cross reference for %M0076
|                        |     |                                                 -] [- 517,519
|                 CONST -+PV   |
|                 +00020 |     |
|                        +-----+
|
|                        Fallen
|                        package
|
|                        %R0103
|
|        Alarm   Pulse                                                            << RUNG 517  STEP #3094 >>
|Fallen  fallen  alarm
|package package reset   Step 0
|         H027           STEP_0
|%M0076  %M0157  %T0004  %M0100                                           %M0055
+--] [--+--]/[-----]/[-----] [---------------------------------------------(S)--  (* Alarm fallen package            *)
| 0516  | 0519    0648    0029                                                    Cross reference for %M0055
|       |                                                                         -] [- 114,519
|Package|                                                                         -]/[- 52,123,134,152,519,633
|jam at |                                                                         -(R)  518
|infeed |
|       |
|%M0196 |
+--] [--+
| 0515
|
|Pulse                                                                            << RUNG 518  STEP #3100 >>
|alarm
|reset
|
|%T0004                                                                   %M0055
+--] [-------------------------------------------------------------------(R)--  (* Alarm fallen package            *)
| 0648                                                                            Cross reference for %M0055
|                                                                                 -] [- 114,519
|                                                                                 -]/[- 52,123,134,152,519,633
|                                                                                 -(S)  517
|

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|        Alarm                                                                   << RUNG 519  STEP #3102 >>
|Fallen  fallen
|package package Step 0
|                STEP_0                                                 H027
|%M0076  %M0055  %M0100                                                %M0157
+--] [--+--]/[--+--] [-----------------------------------------------------( )--  (* Alarm fallen package             *)
| 0516  | 0518  | 0029                                                          Cross reference for H027
|       |       |                                                               -] [- 114
|Package|       |                                                               -]/[- 123,517,637
|jam at |       |
|infeed |       |
|       |       |
|%M0196 |       |
+--] [--+       |
| 0515          |
|               |
|Alarm          |
|fallen         |
|package Flash  |
|         FLASH |
|%M0055  %M0003 |
+--] [-----] [--+
| 0518    0022
|
|                Guide                                                          << RUNG 520  STEP #3110 >>
|        Press.  rail
|        guard   lower           Guide
|Step 2  air     pos.            rail up
|STEP_2   B100    B143            Y101
|%M0102  %I0004  %I0060          %Q0106  +-----+                        %M0195
+--] [-----] [-----]/[----------+--]/[---+ TMR +-------------------------( )--  (* ME guide rail limit              *)
| 0042                          | 0186   |0.10s|                                Cross reference for %M0195
|        ME      Guide          |        |     |                                -] [- 520,522,524
|        guide   rail    Pulse  |        |     |
|        rail    lower   alarm  |        |     |
|Step 1  limit   pos.    reset  |        |     |
|STEP_1           B143          |        |     |
|%M0101  %M0195  %I0060  %T0004 |        |     |
+--] [-----] [-----]/[-----]/[--+ CONST --+PV   |
| 0034    0520            0648    +00030 |     |
|                                        +-----+
|                                        Timer
|                                        guide
|                                        rail
|                                        alarm
|
|                                        %R3138
|
|                Dolly           Dolly                                          << RUNG 521  STEP #3121 >>
|        Press.  1:st            to 1:st
|        guard   stroke          stroke
|Step 2  air     pos.            pos.
|STEP_2   B100    B142           Y109-1
|%M0102  %I0004  %I0059          %Q0017  +-----+                        %M0197
+--] [-----] [-----]/[----------+--] [---+ TMR +-------------------------( )--  (* ME dolly limit                   *)
| 0042                          | 0250   |0.10s|                                Cross reference for %M0197
|                Dolly          |        |     |                                -] [- 521,522,524
|        ME      1:st    Pulse  |        |     |
|        dolly   stroke  alarm  |        |     |
|Step 1  limit   pos.    reset  |        |     |
|STEP_1           B142          |        |     |
|%M0101  %M0197  %I0059  %T0004 |        |     |
+--] [-----] [-----]/[-----]/[--+ CONST --+PV   |
| 0034    0521            0648    +00030 |     |
|                                        +-----+
|
|                                        Timer
|                                        dolly
|                                        alarm
|
|                                        %R3141
|
|ME      Guide                                                                  << RUNG 522  STEP #3132 >>
|guide   rail    Dolly/
|rail    lower   Guide
|limit   pos.    rail
|         B143    H053
|%M0195  %I0060  %M0187                                                %M0047
+--] [-----]/[--+--]/[-----------------------------------------------------(S)--  (* Alarm Dolly + guide rail *)
| 0520          | 0524                                                          Cross reference for %M0047
|        Dolly  |                                                               -] [- 524
|ME      1:st   |                                                               -]/[- 41,524,635
|dolly   stroke |                                                               -(R)  523
|limit   pos.   |
|         B142  |
|%M0197  %I0059 |
+--] [-----]/[--+
| 0521
|
```

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|Pulse                                                                          << RUNG 523  STEP #3139 >>
|alarm
|reset
|
|%T0004                                                          %M0047
+--] [-------------------------------------------------------------(R)--  (* Alarm Dolly + guide rail *)
| 0648                                                                      Cross reference for %M0047
|                                                                           -] [- 524
|                                                                           -]/[- 41,524,635
|                                                                           -(S)  522
|
|        Alarm                                                              << RUNG 524  STEP #3141 >>
|ME      Dolly +
|dolly   guide
|limit   rail    Step 0
|                STEP_0                                           H053
|%M0197  %M0047  %M0100                                          %M0187
+--] [--+--]/[--+--] [-----------------------------------------------( )--  (* Dolly/Guide rail                 *)
| 0521  | 0523  | 0029                                                      Cross reference for H053
|ME     |       |                                                           -]/[- 522,639
|guide  |       |
|rail   |       |
|limit  |       |
|       |       |
|%M0195 |       |
+--] [--+       |
| 0520          |
|Alarm          |
|Dolly +        |
|guide          |
|rail    Flash  |
|         FLASH |
|%M0047  %M0003 |
+--] [-----] [--+
| 0523    0022
|
|Group   Group.                                                             << RUNG 525  STEP #3149 >>
|pusher  pusher  Press.
|forw    short,  guard
|short   single  air
|Y102-1   B133    B100
|%Q0107  %I0052  %I0004          +-----+                         %M0074
+--] [-----]/[--+--] [--+--------+ TMR +-----------------------------(M)--  (* Crush in group. pusher           *)
| 0177          |       |        |0.10s|                                   Cross reference for %M0074
|Group   Group. |       |        |     |                                   -] [- 525,530,532,665,687
|pusher  pusher |       |        |     |
|forw    long,  |       |        |     |
|long    single |       |        |     |
|Y102-2   B134  |       |        |     |
|%Q0108  %I0053 |       |        |     |
+--] [-----]/[--+       | CONST -+PV   |
| 0178          |       | +00035 |     |
|        Group. |       |        +-----+
|Group   pusher |       |        Crush
|pusher  home   |       |        guard
|backw   pos.   |       |        group.
|Y102-3   B132  |       |        pusher
|%Q0109  %I0051 |       |
+--] [-----]/[--+       |        %R0064
| 0179                  |
|Crush                  |
|in      Pulse          |
|group.  alarm          |
|pusher  reset          |
|                       |
|%M0074  %T0004         |
+--] [-----]/[----------+
| 0525    0648
|
|Group.  Crush                          Count                               << RUNG 526  STEP #3163 >>
|endstop guard,  Package Delay          pls
|inner   group.  seper.  open           tried
|pos.    section out     brake   Step 3  infeed
| B140    B144    Y112           STEP_3
|%I0057  %I0061  %Q0015  %M0220  %M0103  %T0063  +-----+                 %M0079
+--] [-----] [-----]/[-----] [-----] [--+--]/[---+ TMR +-------------------( )--  (* Crush guard group. pusher        *)
|                0161    0142    0048  | 0527   |0.10s|                        Cross reference for %M0079
|Infeed                                |        |     |                        -] [- 527,532
|fault,                                |        |     |                        -]/[- 134
|Step do                               |        |     |
|wn to s                               |        |     |
|                                      |        |     |
|%M3177                                |        |     |
+--] [-----------------------------------+ CONST -+PV   |
| 0528                                   +00015 |     |
|                                               +-----+
|                                               Crush
|                                               guard
|                                               group.
|                                               pusher
|
|                                               %R0067
|

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|Crush   Infeed                                                                  << RUNG 527  STEP #3172 >>
|guard   fault,
|group.  Step do
|pusher  wn to s Step 3
|                STEP_3
|%M0079  %M3177  %M0103                                          %T0063
+--] [-----]/[-----] [-----------------------------------------------------(^)--  (* Count pls tried infeed           *)
| 0526    0528    0048                                                           Cross reference for %T0063
|                                                                                -] [- 528
|                                                                                -]/[- 526
|
|Count                                                                           << RUNG 528  STEP #3176 >>
|pls
|tried
|infeed
|
|%T0063          +-----+                                                 %M3177
+--] [----------->UPCTR+-----------------------------------------------------( )--  (* Infeed fault, Step down to step2 *)
| 0527           |     |                                                          Cross reference for %M3177
|                |     |                                                          -] [- 526,529
|Pulse           |     |                                                          -]/[- 48,527
|alarm           |     |
|reset           |     |
|                |     |
|%T0004          |     |
+--] [--+--------+R    |
| 0648  |        |     |
|Group. |        |     |
|pusher |        |     |
|short, |        |     |
|single |        |     |
| B133  |        |     |
|%I0052 |        |     |
+--] [--+ CONST -+PV   |
|       | +00003 |     |
|Group. |        +-----+
|pusher |
|long,  |        Counted
|single |        infeed
| B134  |        faults.
|%I0053 |
+--] [--+        %R1011
|
|Infeed  Machine                                                                 << RUNG 529  STEP #3182 >>
|fault,  compone
|Step do nts in
|wn to s synch
|
|%M3177  %M3241                                                  %M1013
+--] [--+--] [--+-------------------------------------------------------------( )--  (* Infeed fault *)
| 0528  | 0038  |                                                                Cross reference for %M1013
|       |Synch n|                                                                -] [- 530,532
|       |ot foun|
|       |d, allo|
|       |w step |
|       |       |
|       |%M3242 |
|       +--] [--+
|         0040
|
|Crush                                                                           << RUNG 530  STEP #3187 >>
|in      Alarm   Pulse
|group.  group.  alarm
|pusher  sect.   reset   Step 0
|         H028           STEP_0
|%M0074  %M0158  %T0004  %M0100                                  %M0056
+--] [--+--]/[-----]/[-----] [-------------------------------------------(S)--  (* Alarm grouping section           *)
| 0525  | 0532    0648    0029                                                   Cross reference for %M0056
|       |                                                                        -] [- 532
|Infeed |                                                                        -]/[- 41,160,532,633
|fault  |                                                                        -(R)  531
|       |
|%M1013 |
+--] [--+
| 0529
|
|Pulse                                                                           << RUNG 531  STEP #3193 >>
|alarm
|reset
|
|%T0004                                                          %M0056
+--] [-------------------------------------------------------------------(R)--  (* Alarm grouping section           *)
| 0648                                                                           Cross reference for %M0056
|                                                                                -] [- 532
|                                                                                -]/[- 41,160,532,633
|                                                                                -(S)  530
|
```

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|Crush          Alarm                                                          << RUNG 532  STEP #3195 >>
|in             groupin
|group.         g
|pusher         section Step 0
|                      STEP_0                                     H028
|%M0074         %M0056  %M0100                                    %M0158
+--] [---------+--]/[--+--] [-----------------------------------------( )--  (* Alarm group. sect.              *)
| 0525         | 0531  | 0029                                              Cross reference for H028
|Crush         |       |                                                   -]/[- 46,530,637
|guard         |       |
|group.  Infeed |       |
|pusher  fault  |       |
|               |       |
|%M0079  %M1013 |       |
+--] [-----] [--+       |
| 0526    0529          |
|Alarm                  |
|groupin                |
|g                      |
|section Flash          |
|         FLASH         |
|%M0056  %M0003         |
+--] [-----] [----------+
| 0531    0022
|
|Stop                   Been in                                             << RUNG 533  STEP #3205 >>
|blank   Low            step 3,
|magaz.  level          not low
|motor   blanks  Step 2  .than 2
| B118           STEP_2
|%I0047  %M0078  %M0102  %M0107         +-----+                       %M1149
+--]/[-----] [-----] [--+--]/[--+-------+ TMR +---------------------------(S)--  (* No blanks present *)
|         0535    0042  | 0379  |       |0.10s|                                Cross reference for %M1149
|                       |Very   |       |     |                                -] [- 538,542
|                       |low    |       |     |                                -]/[- 47,51,348,541,633
|                       |level  |       |     |                                -(R)  534
|                       |blanks |       |     |
|                       |       |       |     |
|                       |%M0088 |       |     |
|                       +--] [--+ CONST -+PV  |
|                       | 0536  | +00020 |     |
|                       |Very   |       +-----+
|                       |low    |       Timer
|                       |level  |       no
|                       |blanks |       blanks
|                       |       |       present
|                       |%M0089 |
|                       +--] [--+       %R1198
|                         0537
|
|Pulse                                                                      << RUNG 534  STEP #3214 >>
|alarm
|reset
|
|%T0004                                                                     %M1149
+--] [--+-------------------------------------------------------------(R)--  (* No blanks present *)
| 0648  |                                                                   Cross reference for %M1149
|       |                                                                   -] [- 538,542
|Step 1 |                                                                   -]/[- 47,51,348,541,633
|STEP_1 |                                                                   -(S)  533
|%M0101 |
+--]/[--+
| 0034
|
|Low                                                                        << RUNG 535  STEP #3217 >>
|level
|blank
|magaz.
| B119
|%I0048  +-----+                                                            %M0078
+--]/[---+ TMR +-----------------------------------------------------------( )--  (* Low level blanks                *)
|        |0.10s|                                                            Cross reference for %M0078
|        |     |                                                            -] [- 533,536,540,544,634
| CONST -+PV   |                                                            -]/[- 536
| +00040 |     |
|        +-----+
|
|        Low
|        level
|        blanks
|
|        %R0184
|
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|Low     Alarm   Reset/                                                    << RUNG 540  STEP #3240 >>
|level   blank   Lamp
|blanks  magaz.  test    Step 0
|         H029    S03H   STEP_0
|%M0078  %M0159  %I0007  %M0100                                   %M0057
+--] [--+--]/[--+--]/[-----] [-----------------------------------------(S)--  (* Alarm blank magazine            *)
| 0535  | 0544  |         0029                                              Cross reference for %M0057
|Very   |Pulse  |                                                           -] [- 544
|low    |v. low |                                                           -]/[- 544,629,634
|level  |level  |                                                           -(R)  541
|blanks |blanks |
|       |       |
|%M0080 |%T0015 |
+--] [--+--] [--+
| 0539  | 0543  |
|       |       |
|       |Empty  |
|       |magazin|
|       |e      |
|       |       |
|       |%T0071 |
|       +--] [--+
|         0542
|
|Pulse                                                                      << RUNG 541  STEP #3249 >>
|alarm
|reset
|
|%T0004                                                           %M0057
+--] [----------+-------------------------------------------------------(R)--  (* Alarm blank magazine            *)
| 0648          |                                                           Cross reference for %M0057
|Low            |                                                           -] [- 544
|level   No     |                                                           -]/[- 544,629,634
|blank   blanks |                                                           -(S)  540
|magaz.  present|
| B119          |
|%I0048  %M1149 |
+--] [-----]/[--+
|         0534
|
|No      Alarm                                                              << RUNG 542  STEP #3254 >>
|blanks  blank
|present magaz.
|         H029
|%M1149  %M0159                                                   %T0071
+--] [-----] [--------------------------------------------------------------(^)--  (* Empty magazine *)
| 0534    0544                                                              Cross reference for %T0071
|                                                                           -] [- 540
|
|Very                                                                       << RUNG 543  STEP #3257 >>
|low     Alarm
|level   blank
|blanks  magaz.
|         H029
|%M0080  %M0159                                                   %T0015
+--] [-----] [--------------------------------------------------------------(^)--  (* Pulse v. low level blanks        *)
| 0539    0544                                                              Cross reference for %T0015
|                                                                           -] [- 540
|
|        Alarm                                                              << RUNG 544  STEP #3260 >>
|Low     blank
|level   magazin
|blanks  e       Step 0
|                STEP_0                                            H029
|%M0078  %M0057  %M0100                                           %M0159
+--] [--+--]/[--+--] [-----------------------------------------------------( )--  (* Alarm blank magaz.               *)
| 0535  | 0541  | 0029                                                      Cross reference for H029
|Very   |       |                                                           -] [- 542,543
|low    |       |                                                           -]/[- 540,631,638
|level  |       |
|blanks |       |
|       |       |
|%M0080 |       |
+--] [--+       |
| 0539          |
|Alarm          |
|blank          |
|magazin        |
|e       Flash  |
|         FLASH |
|%M0057  %M0003 |
+--] [-----] [--+
| 0541    0022
|

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|               Transf.                                                    << RUNG 545  STEP #3268 >>
|        Transf. plate
|        plate   upper
|Step 2  up      pos.    Step 2
|STEP_2  Y105-1   B120   STEP_2
|%M0102  %Q0019  %I0033  %M0102  +-----+                              %M3232
+--] [-----] [--+--]/[-----] [---+ TMR +-----------------------------------( )--  (* Transfer plate up (2 led flash) *)
| 0042    0363  |         0042   |0.10s|                                        Cross reference for %M3232
|Transfe        |                |     |                                        -] [- 545,546,551,603
|r plate Pulse  |                |     |                                        -]/[- 52
|up (2 l alarm  |                |     |
|ed flas reset  |                |     |
|               |                |     |
|%M3232  %T0004 |                |     |
+--] [-----]/[--+         CONST -+PV   |
| 0545    0648            +00030 |     |
|                               +-----+
|                               Timer,
|                               Alarm t
|                               ransfer
|                               plate u
|
|                               %R3444
|
|Transfe         Al. no                                                    << RUNG 546  STEP #3277 >>
|r plate Pulse   blank
|up (2 l alarm   pack.
|ed flas reset   pos.    Step 0
|                 H031   STEP_0
|%M3232  %T0004  %M0161  %M0100                                       %M3233
+--] [-----]/[-----]/[-----] [-------------------------------------------(S)--  (* Alarm transf plate (2 led flash) *)
| 0545    0648    0551    0029                                                 Cross reference for %M3233
|                                                                              -] [- 551,603
|                                                                              -]/[- 551,603,635
|                                                                              -(R)  547
|
|Pulse                                                                         << RUNG 547  STEP #3282 >>
|alarm
|reset
|
|%T0004                                                                   %M3233
+--] [-----------------------------------------------------------------(R)--  (* Alarm transf plate (2 led flash) *)
| 0648                                                                         Cross reference for %M3233
|                                                                              -] [- 551,603
|                                                                              -]/[- 551,603,635
|                                                                              -(S)  546
|
|New                                                                           << RUNG 548  STEP #3284 >>
|blank
|to gr
|pos
|
|%M0245                  +-----+                                          %M0077
+--] [------------------->UPCTR+-------------------------------------------( )--  (* No blank in pack pos.            *)
| 0348                   |     |                                                 Cross reference for %M0077
|Blank                   |     |                                                 -] [- 548,549,551
|in                      |     |
|pack.                   |     |
|pos.                    |     |
| B113                   |     |
|%I0042                  |     |
+--] [----------+--------+R    |
|               |        |     |
|No      Alarm n|        |     |
|blank   o blank|        |     |
|in pack in pack|        |     |
|pos.    pos.   |        |     |
|               |        |     |
|%M0077  %M0058 |        |     |
+--] [-----]/[--+ CONST -+PV   |
| 0548    0550  | +00003 |     |
|ME.            |        +-----+
|Pulse          |        No
|empty.         |        blank
|finish.        |        in pack
|               |        pos.
|%T0043         |
+--] [----------+        %R0322
|
|No                      Stop                                              << RUNG 549  STEP #3292 >>
|blank   Pulse           vacuum
|in pack alarm           after
|pos.    reset   Step 0  empty.
|                STEP_0
|%M0077  %T0004  %M0100  %M0268                                       %M0058
+--] [-----]/[-----] [-----]/[-------------------------------------------(S)--  (* Alarm no blank in pack pos.      *)
| 0548    0648    0029    0397                                                 Cross reference for %M0058
|                                                                              -] [- 551
|                                                                              -]/[- 548,551,634
|                                                                              -(R)  550
|

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|Pulse                                                                          << RUNG 550  STEP #3297 >>
|alarm
|reset
|
|%T0004                                                          %M0058
+--] [-----------------------------------------------------------------(R)--  (* Alarm no blank in pack pos.      *)
| 0648                                                                        Cross reference for %M0058
|                                                                             -] [- 551
|                                                                             -]/[- 548,551,634
|                                                                             -(S)  549
|
|No      Alarm n                                                              << RUNG 551  STEP #3299 >>
|blank   o blank
|in pack in pack
|pos.    pos.    Step 0
|                STEP_0                                           H031
|%M0077  %M0058  %M0100                                          %M0161
+--] [-----]/[--+--] [-----------------------------------------------------( )--  (* Al. no blank pack. pos.          *)
| 0548    0550  | 0029                                                        Cross reference for H031
|Alarm n        |                                                             -]/[- 546,638
|o blank        |
|in pack        |
|pos.    Flash  |
|         FLASH |
|%M0058  %M0003 |
+--] [-----] [--+
| 0550    0022  |
|Transfe Alarm t|
|r plate ransf p|
|up (2 l late (2|
|ed flas led fla|
|               |
|%M3232  %M3233 |
+--] [-----]/[--+
| 0545    0547  |
|Alarm t        |
|ransf p        |
|late (2        |
|led fla Flash  |
|         FLASH |
|%M3233  %M0003 |
+--] [-----]/[--+
| 0547    0022
|
|Signal  Been in                                                                << RUNG 552  STEP #3312 >>
|from    step 3,
|down    not low
|stream. .than 2
|X090-1
|%I0063  %M0107  +-----+                                         %M0189
+--]/[-----] [---+ TMR +-----------------------------------------------------( )--  (* Alarm not ready downstr          *)
|         0379   |0.10s|                                                      Cross reference for %M0189
|                |     |                                                      -] [- 112,554
|         CONST -+PV   |
|         +00025 |     |
|                +-----+
|                Delay
|                not
|                ready
|                downstr
|
|                %R3160
|
|Queue                                                                          << RUNG 553  STEP #3316 >>
|downstr
|eam
| B907
|%I0089  +-----+                                                 %M0199
+--] [---+ TMR +-------------------------------------------------------------( )--  (* Alarm queue downstream *)
|        |0.10s|                                                              Cross reference for %M0199
|        |     |                                                              -] [- 446,554
| CONST -+PV   |
| +00030 |     |
|        +-----+
|
|        Delay
|        queue
|        dischar
|
|        %R3284
|
```

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|Alarm                                                                          << RUNG 554  STEP #3319 >>
|queue
|downstr
|eam
|
|%M0199                                                          %M0048
+--] [--+-------------------------------------------------------------( )--  (* Alarm queue down stream          *)
| 0553  |                                                                    Cross reference for %M0048
|Alarm  |                                                                    -] [- 555,561
|not    |                                                                    -]/[- 556,632,640
|ready  |
|downstr|
|       |
|%M0189 |
+--] [--+
| 0552
|
|Alarm                                                                          << RUNG 555  STEP #3322 >>
|queue   Alarm   Pulse
|down    discharalarm
|stream  area    reset   Step 1
|         H033           STEP_1
|%M0048  %M0163  %T0004  %M0101                                  %M1280
+--] [-----]/[-----]/[-----] [-------------------------------------------(S)--  (* ME queue down streame           *)
| 0554    0561    0648    0034                                               Cross reference for %M1280
|                                                                            -] [- 561
|                                                                            -]/[- 561,630,636
|                                                                            -(R)  556
|
|Alarm                                                                          << RUNG 556  STEP #3327 >>
|queue
|down
|stream
|
|%M0048                                                          %M1280
+--]/[--+-------------------------------------------------------------(R)--  (* ME queue down streame           *)
| 0554  |                                                                    Cross reference for %M1280
|       |                                                                    -] [- 561
|Pulse  |                                                                    -]/[- 561,630,636
|alarm  |                                                                    -(S)  555
|reset  |
|       |
|%T0004 |
+--] [--+
| 0648
|
|Passage                                                                        << RUNG 557  STEP #3330 >>
|indic.
|(extra
|equip.)
| B908
|%I0045                                                          %M3247
+--] [----------------------------------------------------------------(v)--  (* Pls down B908, Restart timer *)
|                                                                            Cross reference for %M3247
|                                                                            -]/[- 558
|
|        Crush   Pls dow                                                     << RUNG 558  STEP #3332 >>
|        in      n B908,
|        dischar Restart
|Step 2  area    timer
|STEP_2   B112
|%M0102  %I0044  %M3247          +-----+                          %M0075
+--] [-----] [-----]/[--+--------+ TMR +-----------------------------------( )--  (* Crash in dischar area           *)
| 0042            0557  |        |0.10s|                                     Cross reference for %M0075
|Crash                  |        |     |                                     -] [- 446,558,559,561,632
|in      Pulse          |        |     |                                     -]/[- 51,638
|dischar alarm          |        |     |
|area    reset          |        |     |
|                       |        |     |
|%M0075  %T0004         |        |     |
+--] [-----]/[----------+ CONST -+PV   |
| 0558    0648            +00030 |     |
|                               +-----+
|
|                               Queue
|                               outfeed
|                               conv.
|
|                               %R0118
|
```

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|Crash                                                                                << RUNG 559  STEP #3340 >>
|in      Alarm   Pulse
|dischar dischar alarm
|area    area    reset   Step 1
|         H033           STEP_1
|%M0075  %M0163  %T0004  %M0101                                   %M0059
+--] [--+--]/[--+--]/[-----] [-----------------------------------------(S)--  (* Alarm crash in discharge area    *)
| 0558  | 0561  | 0648    0034                                                Cross reference for %M0059
|       |Crush  |                                                             -] [- 561
|       |in     |                                                             -]/[- 561,635
|       |dischar|                                                             -(R)  560
|       |area   |
|       | B112  |
|       |%I0044 |
|       +--]/[--+
|
|Pulse                                                                          << RUNG 560  STEP #3347 >>
|alarm
|reset
|
|%T0004                                                           %M0059
+--] [-------------------------------------------------------------(R)--  (* Alarm crash in discharge area    *)
| 0648                                                                        Cross reference for %M0059
|                                                                             -] [- 561
|                                                                             -]/[- 561,635
|                                                                             -(S)  559
|
|Crash   Alarm c                                                                << RUNG 561  STEP #3349 >>
|in      rash in
|dischar dischar
|area    ge area Step 0
|                STEP_0                                            H033
|%M0075  %M0059  %M0100                                           %M0163
+--] [-----]/[--+--] [-----------------------------------------------( )--  (* Alarm dischar area               *)
| 0558    0560  | 0029                                                        Cross reference for H033
|Alarm c        |                                                             -]/[- 555,559,632,638,640
|rash in        |
|dischar        |
|ge area Flash  |
|         FLASH |
|%M0059  %M0003 |
+--] [-----] [--+
| 0560    0022  |
|Alarm   ME     |
|queue   queue  |
|down    down   |
|stream  streame|
|               |
|%M0048  %M1280 |
+--] [-----]/[--+
| 0554    0556  |
|ME             |
|queue          |
|down           |
|streame Flash  |
|         FLASH |
|%M1280  %M0003 |
+--] [-----] [--+
| 0556    0022
|
|                Alarm   Pulse                                                  << RUNG 562  STEP #3362 >>
|Hotmelt         hotmelt alarm
|ready   Step 2  unit    reset
|        STEP_2   H032
|%I0043  %M0102  %M0162  %T0004                                   %M0060
+--]/[-----] [-----]/[-----]/[-----------------------------------------(S)--  (* Alarm hotmelt unit               *)
|         0042    0564    0648                                                Cross reference for %M0060
|                                                                             -] [- 564
|                                                                             -]/[- 564,634
|                                                                             -(R)  563
|
|Pulse                                                                          << RUNG 563  STEP #3367 >>
|alarm
|reset
|
|%T0004                                                           %M0060
+--] [--+----------------------------------------------------------------(R)--  (* Alarm hotmelt unit               *)
| 0648  |                                                                     Cross reference for %M0060
|       |                                                                     -] [- 564
|Step 1 |                                                                     -]/[- 564,634
|STEP_1 |                                                                     -(S)  562
|%M0101 |
+--]/[--+
| 0034
|
```

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|        Alarm                                                                    << RUNG 564  STEP #3370 >>
|Hotmelt hotmelt
|ready   unit    Step 1  Step 0
|                STEP_1  STEP_0                                     H032
|%I0043  %M0060  %M0101  %M0100                                    %M0162
+--]/[-----]/[-----] [--+--] [-----------------------------------------( )--  (* Alarm hotmelt unit               *)
|         0563    0034  | 0029                                              Cross reference for H032
|                       |                                                   -] [- 48
|Alarm                  |                                                   -]/[- 562,638
|hotmelt                |
|unit    Flash          |
|         FLASH         |
|%M0060  %M0003         |
+--] [-----] [----------+
| 0563    0022
|
|                Pulse           Em/Door                                    << RUNG 565  STEP #3378 >>
|Servo   Alarm   alarm           , Reset
|ready   servo   reset   Step 1  servo
|         H012           STEP_1
|%I0095  %Q0100  %T0004  %M0101  %M1185  +-----+                        %M0061
+--]/[--+--]/[--+--]/[-----] [-----]/[---+ TMR +-------------------------(S)--  (* Alarm servo                      *)
|       | 0567  | 0648    0034    0666   |0.10s|                                Cross reference for %M0061
|       |       |                        |     |                                -] [- 567,687
|       |Servo  |                        |     |                                -]/[- 30,567,635
|       |Rst,   |                        |     |                                -(R)  566
|       |Active |                        |     |
|       |       |                        |     |
|       |%M3180 |                        |     |
|       +--]/[--+                 CONST -+PV   |
|         0672                    +00002 |     |
|                                        +-----+
|
|                                        Servo
|                                        alarm
|                                        delay
|
|                                        %R3387
|
|Pulse                                                                      << RUNG 566  STEP #3387 >>
|alarm
|reset
|
|%T0004                                                                    %M0061
+--] [--+-------------------------------------------------------------------(R)--  (* Alarm servo                      *)
| 0648  |                                                                          Cross reference for %M0061
|       |                                                                          -] [- 567,687
|Axis   |                                                                          -]/[- 30,567,635
|ident  |                                                                          -(S)  565
|       |
|%I0090 |
+--] [--+
|
|                        Em/Door                                            << RUNG 567  STEP #3390 >>
|Servo   Alarm           , Reset
|ready   servo   Step 1  servo   Step 0
|                STEP_1          STEP_0                                     H012
|%I0095  %M0061  %M0101  %M1185  %M0100                                    %Q0100
+--]/[-----]/[--+--] [-----]/[--+--] [-------------------------------------( )--  (* Alarm servo                      *)
|         0566  | 0034    0666  | 0029                                            Cross reference for H012
|               |               |                                                 -]/[- 565,639
|Alarm          |               |
|servo   Flash  |               |
|         FLASH |               |
|%M0061  %M0003 |               |
+--] [-----] [--+               |
| 0566    0022                  |
|                               |
|Lamp                           |
|test                           |
|L_TEST                         |
|%M0006                         |
+--] [-------------------------+
| 0647                          |
|                               |
|Servo                          |
|axis                           |
|ident                          |
|                               |
|%M1170                         |
+--] [-------------------------+
| 0723
|
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|               Lightba                                                    << RUNG 568  STEP #3401 >>
|Light          rrier
|barrier        install
|e       Door   ed
|          L13
|%I0087  %I0015  %M1002                                          %M1298
+--]/[-----]/[--+--] [-----------------------------------------------( )--  (* Alarm light barrier             *)
|             |                                                            Cross reference for %M1298
|Alarm   Pulse  |                                                          -] [- 482,568,569,571
|light   alarm  |
|barrier reset  |
|               |
|%M1298  %T0004 |
+--] [-----]/[--+
| 0568    0648
|
|        Alarm                                                             << RUNG 569  STEP #3408 >>
|Alarm   light   Pulse
|light   barrier alarm
|barrier e       reset   Step 1
|         H034           STEP_1
|%M1298  %M0164  %T0004  %M0101                                  %M0062
+--] [-----]/[--+--]/[-----] [-------------------------------------------(S)--  (* Alarm light barriere            *)
| 0568    0571  | 0648    0034                                             Cross reference for %M0062
|Doors,  Alarm  |                                                          -] [- 571
|reset   light  |                                                          -]/[- 571,634
|conditi barrier|                                                          -(R)  570
|on      e      |
|         H034  |
|%M3151  %M0164 |
+--] [-----] [--+
| 0483    0571
|
|Pulse                                                                     << RUNG 570  STEP #3416 >>
|alarm
|reset
|
|%T0004                                                          %M0062
+--] [----------+-----------------------------------------------------(R)--  (* Alarm light barriere            *)
| 0648          |                                                          Cross reference for %M0062
|               |                                                          -] [- 571
|Light          |                                                          -]/[- 571,634
|barrier        |                                                          -(S)  569
|e       Door   |
|          L13  |
|%I0087  %I0015 |
+--] [-----] [--+
|               |
|Lightba        |
|rrier          |
|install        |
|ed             |
|               |
|%M1002         |
+--]/[----------+
|
|                Alarm   Lightba                                           << RUNG 571  STEP #3422 >>
|Alarm           light   rrier
|light           barrier install
|barrier Door    e       ed      Step 0
|          L13                   STEP_0                           H034
|%M1298  %I0015  %M0062  %M1002  %M0100                          %M0164
+--] [-----]/[-----]/[--+--] [-----] [-------------------------------------( )--  (* Alarm light barriere            *)
| 0568            0570  |         0029                                     Cross reference for H034
|Alarm                  |                                                  -] [- 569
|light                  |                                                  -]/[- 569,638
|barrier                |
|e       Flash          |
|         FLASH         |
|%M0062  %M0003         |
+--] [-----] [----------+
| 0570    0022
|
| (*************************************************************************)
| (* Checks if pusher crashes when pushing in packages                     *)
| (*************************************************************************)
|

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|ALW_ON                                                                                   << RUNG 573  STEP #3432 >>
|%S0007  +-----+
+--] [---+ LE_ |
|        | INT |
|        |     |
|Pusher  |     |
|speed   |     |
|value   |     |
|        |     |         +-----+
|%R1213 -+I1  Q+---------+MOVE_+-
|        |     |         | INT |
|        |     |         |     |
|        |     |         |     | Timer
|        |     |         |     | time
|        |     |         |     | out
|        |     |         |     | pusher
|        |     |         |     |
| CONST -+I2   |  CONST -+IN  Q+-%R3304
| +00006 +-----+  +00055 | LEN |
|                         |00001|
|                         |     |
|                         +-----+
|
|ALW_ON                                                                                   << RUNG 574  STEP #3435 >>
|%S0007  +-----+
+--] [---+ GE_ |
|        | INT |
|        |     |
|Pusher  |     |
|speed   |     |
|value   |     |
|        |     |         +-----+
|%R1213 -+I1  Q+---------+MOVE_+-
|        |     |         | INT |
|        |     |         |     |
|        |     |         |     | Timer
|        |     |         |     | time
|        |     |         |     | out
|        |     |         |     | pusher
|        |     |         |     |
| CONST -+I2   |  CONST -+IN  Q+-%R3304
| +00007 +-----+  +00020 | LEN |
|                         |00001|
|                         |     |
|                         +-----+
|
|        Press.  Pusher  Pusher                                                           << RUNG 575  STEP #3438 >>
|        guard   forward front   Axis
|Step 2  air     s       pos.    ident
|STEP_2   B100   Y103-1   B123
|%M0102  %I0004  %Q0064  %I0036  %I0090  +-----+                        %M1221
+--] [-----] [-----] [-----]/[--+--]/[---+ TMR +---------------------------( )--  (* Crash pusher forw                *)
| 0042           0340          |        |0.10s|                                 Cross reference for %M1221
|                              |        |     |                                 -] [- 334,575,589
|Crash   Pulse                 |Timer   |     |
|pusher  alarm                 |time    |     |
|forw    reset                 |out     |     |
|                              |pusher  |     |
|%M1221  %T0004                |        |     |
+--] [-----]/[------------------+%R3304 -+PV   |
| 0575    0648                           |     |
|                                        +-----+
|
|                                        %R3204
|
| (*************************************************************************)
| (* Checks if pusher crashes when moving home                             *)
| (*************************************************************************)
|
|        Press.  Pusher  Pusher                                                           << RUNG 577  STEP #3449 >>
|        guard   backwar home    Axis
|Step 2  air     ds      pos.    ident
|STEP_2   B100   Y103-2   B121
|%M0102  %I0004  %Q0078  %I0034  %I0090  +-----+                        %M1229
+--] [-----] [-----] [-----]/[--+--]/[---+ TMR +---------------------------( )--  (* Crash in pusher backw            *)
| 0042           0343          |        |0.10s|                                 Cross reference for %M1229
|Crash                         |        |     |                                 -] [- 577,589
|in      Pulse                 |        |     |
|pusher  alarm                 |        |     |
|backw   reset                 |        |     |
|                              |        |     |
|%M1229  %T0004                |        |     |
+--] [-----]/[------------------+ CONST -+PV   |
| 0577    0648                   +00030 |     |
|                                        +-----+
|                                        Timer
|                                        crash i
|                                        pusher
|                                        back
|
|                                        %R3207
|

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```

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| (*************************************************************************)
| (* Checks if servo does not recieve any run command                      *)
| (* when home position is not set                                          *)
| (* (happens after downloading servo program)                              *)
| (*************************************************************************)
|
|        Press.  Pusher  Pusher  Pusher                                          << RUNG 579  STEP #3460 >>
|        guard   forward backwar home    Axis
|Step 2  air     s       ds      pos.    ident
|STEP_2   B100   Y103-1  Y103-2   B121
|%M0102  %I0004  %Q0064  %Q0078  %I0034  %I0090  +-----+                 %M3161
+--] [-----] [-----]/[-----]/[-----]/[--+--]/[---+ TMR +-------------------( )--  (* Alarm no servo cmd. *)
| 0042           0340    0343          |        |0.10s|                          Cross reference for %M3161
|Alarm                                 |        |     |                          -] [- 579,589
|no      Pulse                         |        |     |
|servo   alarm                         |        |     |
|cmd.    reset                         |        |     |
|                                      |        |     |
|%M3161  %T0004                        |        |     |
+--] [-----]/[-------------------------+ CONST -+PV   |
| 0579    0648                           +00050 |     |
|                                               +-----+
|
|                                               %R3336
|
| (*************************************************************************)
| (* Check that pusher arm is in down position when pushing in packs        *)
| (*************************************************************************)
|
|                                Pusher                                           << RUNG 581  STEP #3472 >>
|        Press.  Pusher  Pusher  arm
|        guard   forward home    down    Axis
|Step 3  air     s       pos.    pos     ident
|STEP_3   B100   Y103-1   B121    B146
|%M0103  %I0004  %Q0064  %I0034  %I0067  %I0090  +-----+                 %M1166
+--] [-----] [-----] [-----]/[-----]/[--+--]/[---+ TMR +-------------------( )--  (* Crash in push arm  forw          *)
| 0048           0340                  |        |0.10s|                          Cross reference for %M1166
|Crash                                 |        |     |                          -] [- 581,589
|in push Pulse                         |        |     |
|arm     alarm                         |        |     |
|forw    reset                         |        |     |
|                                      |        |     |
|%M1166  %T0004                        |        |     |
+--] [-----]/[-------------------------+ CONST -+PV   |
| 0581    0648                           +00010 |     |
|                                               +-----+
|                                               Timer
|                                               crash
|                                               pusher
|                                               arm
|
|                                               %R3293
|
| (*************************************************************************)
| (* Checks that pusher arm reaches its lower position when home            *)
| (*************************************************************************)
|
|                        Pusher                                                   << RUNG 583  STEP #3484 >>
|        Press.          arm
|        guard   Pusher  down    Axis
|Step 2  air     arm up  pos     ident
|STEP_2   B100    Y169    B146
|%M0102  %I0004  %Q0027  %I0067  %I0090  +-----+                         %M1175
+--] [-----] [-----]/[-----]/[--+--]/[---+ TMR +---------------------------( )--  (* Crash pusher arm down           *)
| 0042           0324          |        |0.10s|                                  Cross reference for %M1175
|Crash                         |        |     |                                  -] [- 583,589
|pusher  Pulse                 |        |     |
|arm     alarm                 |        |     |
|down    reset                 |        |     |
|                              |        |     |
|%M1175  %T0004                |        |     |
+--] [-----]/[-----------------+ CONST -+PV   |
| 0583    0648                   +00040 |     |
|                                       +-----+
|                                       Timer
|                                       crash
|                                       pusher
|                                       back
|
|                                       %R3314
|
| (*************************************************************************)
| (* Checks that the pusher arm does not get stuck when moving to upper pos.  *)
| (*************************************************************************)
|
```

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|                       Pusher                                                    << RUNG 585  STEP #3495 >>
|        Press.         arm
|        guard   Pusher  upper
|Step 2  air     arm up  pos
|STEP_2   B100    Y169    B147
|%M0102  %I0004  %Q0027  %I0040          +-----+                        %M1223
+--] [-----] [-----] [-----]/[--+--------+ TMR +-------------------------( )--  (* Crash, Pusher arm up *)
| 0042            0324          |        |0.10s|                                Cross reference for %M1223
|                               |        |     |                                -] [- 585,589
|Crash,  Pulse                  |        |     |
|Pusher  alarm                  |        |     |
|arm up  reset                  |        |     |
|                               |        |     |
|%M1223  %T0004                 |        |     |
+--] [-----]/[------------------+ CONST -+PV   |
| 0585    0648                    +00040 |     |
|                                        +-----+
|                                        Timeout
|                                        crash
|                                        in push
|                                        arm
|
|                                        %R3254
|
| (*************************************************************************)
| (* Checks that pusher support arm dont get stuck in lower position         *)
| (*************************************************************************)
|
|                       Pusher                                                    << RUNG 587  STEP #3505 >>
|        Press.  Pusher  support
|        guard   support arm upp
|Step 2  air     arm up  er pos.
|STEP_2   B100    Y111    B148
|%M0102  %I0004  %Q0022  %I0068          +-----+                        %M1219
+--] [-----] [-----] [-----]/[--+--------+ TMR +-------------------------( )--  (* Alarm, Pusher supp. arm up *)
| 0042            0332          |        |0.10s|                                Cross reference for %M1219
|Alarm,                         |        |     |                                -] [- 587,589
|Pusher  Pulse                  |        |     |
|supp.   alarm                  |        |     |
|arm up  reset                  |        |     |
|                               |        |     |
|%M1219  %T0004                 |        |     |
+--] [-----]/[------------------+ CONST -+PV   |
| 0587    0648                    +00030 |     |
|                                        +-----+
|                                        Timeout
|                                        crash
|                                        support
|                                        arm
|
|                                        %R3263
|
| (*************************************************************************)
| (* Pusher step down alarms - steps down to step 1                          *)
| (*************************************************************************)
|
```

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|Crash                                                                          << RUNG 589  STEP #3515 >>
|pusher
|forw
|
|%M1221                                                          %M0081
+--] [--+-------------------------------------------------------------( )--  (* Sum alarm, crush in pusher *)
| 0575  |                                                                    Cross reference for %M0081
|Crash  |                                                                    -] [- 601,603,687
|in     |                                                                    -]/[- 30
|pusher |
|backw  |
|       |
|%M1229 |
+--] [--+
| 0577  |
|Alarm  |
|no     |
|servo  |
|cmd.   |
|       |
|%M3161 |
+--] [--+
| 0579  |
|Crash  |
|in push|
|arm    |
|forw   |
|       |
|%M1166 |
+--] [--+
| 0581  |
|Crash  |
|pusher |
|arm    |
|down   |
|       |
|%M1175 |
+--] [--+
| 0583  |
|       |
|Crash, |
|Pusher |
|arm up |
|       |
|%M1223 |
+--] [--+
| 0585  |
|Alarm, |
|Pusher |
|supp.  |
|arm up |
|       |
|%M1219 |
+--] [--+
| 0587
|
| (*************************************************************************)
| (* Check that B125 does not get affected while pushing in.                 *)
| (* If it does it will affect the infeed time to endstop                    *)
| (* Does not step down machine.                                             *)
| (*************************************************************************)
|
|Ready f B125M :                                                                << RUNG 591  STEP #3524 >>
|or infe Pack at Pusher
|ed to p pusher  forward
|usher   step2-> s       Step 1
|         B125M  Y103-1  STEP_1
|%M0230  %M1190  %Q0064  %M0101                                  %M3235
+--]/[-----] [-----] [-----] [-----------------------------------------(SM)-  (* B125 covered during push *)
| 0267    0302    0340    0034                                               Cross reference for %M3235
|                                                                            -] [- 600
|                                                                            -]/[- 267
|                                                                            -(RM) 592
|
|B125M :                                                                        << RUNG 592  STEP #3529 >>
|Pack at Pulse
|pusher  alarm
|step2-> reset
| B125M
|%M1190  %T0004                                                  %M3235
+--]/[--+--] [--+-------------------------------------------------------(RM)-  (* B125 covered during push *)
| 0302  | 0648  |                                                            Cross reference for %M3235
|       |       |                                                            -] [- 600
|       |Alarm  |                                                            -]/[- 267
|       |pusher |                                                            -(SM) 591
|       |section|
|       |       |
|       |%M0063 |
|       +--]/[--+
|         0602
|
```

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| (*************************************************************************)
| (* Check that package pattern has passed B125 entirely at infeed to pusher. *)
| (* Does not step down machine.                                            *)
| (*************************************************************************)
|
|        End sto B125M :                                                      << RUNG 594  STEP #3535 >>
|Infeed  p inner Pack at
|ready   pos Ste pusher
|memory  p2->    step2-> Step 1
|         B124M   B125M  STEP_1
|%M0229  %M1192  %M1190  %M0101  +-----+                                %M0082
+--] [-----] [-----] [-----] [---+ TMR +-----------------------------------(SM)-  (* Jam at infeed to pusher *)
| 0269    0304    0302    0034   |0.10s|                                         Cross reference for %M0082
|                                |     |                                         -] [- 599,600
|                         CONST -+PV   |                                         -]/[- 312
|                         +00015 |     |                                         -(RM) 595
|                                +-----+
|
|                                Crush
|                                guard
|                                pusher
|
|                                %R0719
|
|Packag. Pulse                                                                << RUNG 595  STEP #3541 >>
|at      alarm
|pusher  reset
| B125
|%I0038  %T0004                                                         %M0082
+--]/[--+--] [--+-------------------------------------------------------(RM)-  (* Jam at infeed to pusher *)
|       | 0648  |                                                               Cross reference for %M0082
|       |       |                                                               -] [- 599,600
|       |Alarm  |                                                               -]/[- 312
|       |pusher |                                                               -(SM) 594
|       |section|
|       |       |
|       |%M0063 |
|       +--]/[--+
|         0602
|
| (*************************************************************************)
| (* Checks that the pusher support arm gets down in correct position         *)
| (* in front of package pattern and does not get stuck on top of packages.   *)
| (* Does not step down machine.                                            *)
| (*************************************************************************)
|
|                        Pusher                                               << RUNG 597  STEP #3547 >>
|        Press.          support Pusher
|        guard   Infeed  arm     home
|Step 3  air     ready   down    pos.    Step 1
|STEP_3   B100            B149    B121   STEP_1
|%M0103  %I0004  %M0231  %I0069  %I0034  %M0101  +-----+                %M3179
+--] [-----] [-----] [--+--]/[-----] [-----] [---+ TMR +-------------------( )--  (* Crash push supp. arm infeed *)
| 0048            0270  |                 0034   |0.10s|                         Cross reference for %M3179
|Crash p                |                        |     |                         -] [- 597,599,600
|ush sup Pulse          |                        |     |
|p. arm  alarm          |                        |     |
|infeed  reset          |                        |     |
|                       |                        |     |
|%M3179  %T0004         |                        |     |
+--] [-----]/[----------+                 CONST -+PV   |
| 0597    0648                            +00030 |     |
|                                                +-----+
|
|                                                %R3363
|
| (*************************************************************************)
| (* Prevents endstop from going out after pusher jams                        *)
| (*************************************************************************)
|
|        Jam at                                                               << RUNG 599  STEP #3559 >>
|        infeed
|        to
|Step 3  pusher  Step 1
|STEP_3          STEP_1
|%M0103  %M0082  %M0101                                                 %M3160
+--] [--+--] [--+--] [-------------------------------------------------------( )--  (* Endstop not out at pusher jam *)
| 0048  | 0595  | 0034                                                          Cross reference for %M3160
|       |Crash p|                                                               -] [- 268,285,326,599
|       |ush sup|                                                               -]/[- 310
|       |p. arm |
|       |infeed |
|       |       |
|       |%M3179 |
|       +--] [--+
|         0597  |
|Endstop        |
|not out Pusher |
|at push forward|
|er jam  s      |
|        Y103-1 |
|%M3160  %Q0064 |
+--] [-----]/[--+
| 0599    0340

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|Jam at                                                                          << RUNG 600  STEP #3568 >>
|infeed
|to
|pusher
|
|%M0082                                                          %M0282
+--] [--+-------------------------------------------------------------( )--  (* Sum alarm, jam in pusher *)
| 0595  |                                                                     Cross reference for %M0282
|Crash p|                                                                     -] [- 601,603
|ush sup|                                                                     -]/[- 52
|p. arm |
|infeed |
|       |
|%M3179 |
+--] [--+
| 0597  |
|B125   |
|covered|
|during |
|push   |
|       |
|%M3235 |
+--] [--+
| 0592
|
|Sum ala                                                                         << RUNG 601  STEP #3572 >>
|rm, cru         Alarm   Pulse
|sh in p         pusher  alarm
|usher   Step 0  section reset
|        STEP_0   H030
|%M0081  %M0100  %M0160  %T0004                                  %M0063
+--] [--+--] [-----]/[-----]/[-----------------------------------------(S)--  (* Alarm pusher section             *)
| 0589  | 0029    0603    0648                                               Cross reference for %M0063
|Sum    |                                                                    -] [- 308,349,350,603
|alarm, |                                                                    -]/[- 268,312,337,592,595,603,634
|jam in |                                                                    -(R)  602
|pusher |
|       |
|%M0282 |
+--] [--+
| 0600
|
|Pulse                                                                           << RUNG 602  STEP #3578 >>
|alarm
|reset
|
|%T0004                                                          %M0063
+--] [-------------------------------------------------------------------(R)--  (* Alarm pusher section             *)
| 0648                                                                        Cross reference for %M0063
|                                                                             -] [- 308,349,350,603
|                                                                             -]/[- 268,312,337,592,595,603,634
|                                                                             -(S)  601
|

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|Sum ala                                                                          << RUNG 603  STEP #3580 >>
|rm, cru Alarm
|sh in p pusher
|usher   section         Step 0
|                        STEP_0                                          H030
|%M0081  %M0063          %M0100                                         %M0160
+--] [--+--]/[----------+--] [-----------------------------------------( )--  (* Alarm pusher section            *)
| 0589  | 0602          | 0029                                                Cross reference for H030
|Sum    |               |                                                     -]/[- 601,638
|alarm, |               |
|jam in |               |
|pusher |               |
|       |               |
|%M0282 |               |
+--] [--+               |
| 0600                  |
|                       |
|Alarm                  |
|pusher                 |
|section         Flash  |
|                 FLASH |
|%M0063          %M0003 |
+--] [----------+--] [--+
| 0602          | 0022  |
|               |       |
|ME.     ME.    |       |
|Reset   Alarm  |       |
|pusher  diplay |       |
|               |       |
|%M0610  %M0614 |       |
+--] [-----] [--+       |
|                       |
|Transfe Alarm t        |
|r plate ransf p        |
|up (2 l late (2        |
|ed flas led fla        |
|                       |
|%M3232  %M3233         |
+--] [-----]/[--+-------+
| 0545    0547  |
|Alarm t        |
|ransf p        |
|late (2        |
|led fla Flash  |
|         FLASH |
|%M3233  %M0003 |
+--] [-----] [--+
| 0547    0022
|
|Hotmelt                                                                          << RUNG 604  STEP #3597 >>
|tank
|levle
|
|%I0070  +-----+                                                         %M1177
+--] [---+ TMR +-----------------------------------------------------------( )--  (* Hotmelt tank low levle           *)
|        |0.10s|                                                                  Cross reference for %M1177
|        |     |                                                                  -] [- 605,607
| CONST -+PV   |
| +00010 |     |
|        +-----+
|        Timer
|        glue
|        levle
|        low
|
|        %R3317
|
|Hotmelt         Hotmelt                                                          << RUNG 605  STEP #3600 >>
|tank            tank    Pulse
|low             low     alarm
|levle   Step 0  level   reset
|        STEP_0   H051
|%M1177  %M0100  %M0185  %T0004                                          %M1178
+--] [-----] [-----]/[-----]/[-----------------------------------------(S)--  (* Alarm hotmelt tank low lev       *)
| 0604    0029    0607    0648                                                    Cross reference for %M1178
|                                                                                 -] [- 607
|                                                                                 -]/[- 607,629
|                                                                                 -(R)  606
|
|Pulse                                                                            << RUNG 606  STEP #3605 >>
|alarm
|reset
|
|%T0004                                                                  %M1178
+--] [--+-----------------------------------------------------------------(R)--  (* Alarm hotmelt tank low lev       *)
| 0648  |                                                                         Cross reference for %M1178
|       |                                                                         -] [- 607
|Hotmelt|                                                                         -]/[- 607,629
|tank   |                                                                         -(S)  605
|levle  |
|       |
|%I0070 |
+--]/[--+
|

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|Hotmelt Alarm                                                                    << RUNG 607  STEP #3608 >>
|tank    hotmelt
|low     tank
|levle   low lev Step 0
|                STEP_0                                                 H051
|%M1177  %M1178  %M0100                                                %M0185
+--] [-----]/[--+--] [-----------------------------------------------------( )--  (* Hotmelt tank low level           *)
| 0604    0606  | 0029                                                          Cross reference for H051
|Alarm          |                                                               -]/[- 605,631
|hotmelt        |
|tank           |
|low lev Flash  |
|         FLASH |
|%M1178  %M0003 |
+--] [-----] [--+
| 0606    0022
|
|Safety                                                                           << RUNG 608  STEP #3615 >>
|clutch
|Feeding
|motor
| B115
|%I0056  +-----+                                                        %M0383
+--]/[---+ TMR +-------------------------------------------------------( )--  (* Delayed check safety clutch *)
|        |0.01s|                                                                Cross reference for %M0383
|        |     |                                                                -] [- 609,611
| CONST -+PV   |
| +00001 |     |
|        +-----+
|        Timer
|        delay
|        safety
|        clutch
|
|        %R3135
|
|Delayed                                                                          << RUNG 609  STEP #3618 >>
|check           Carrier Pulse
|safety          force   alarm
|clutch  Step 0  guard   reset
|        STEP_0   H052
|%M0383  %M0100  %M0186  %T0004                                         %M0083
+--] [-----] [-----]/[-----]/[---------------------------------------------(SM)-  (* Alarm, check safety clutch *)
| 0608    0029    0611    0648                                                  Cross reference for %M0083
|                                                                               -] [- 611
|                                                                               -]/[- 42,611,635
|                                                                               -(RM) 610
|
|Pulse                                                                            << RUNG 610  STEP #3623 >>
|alarm
|reset
|
|%T0004                                                                 %M0083
+--] [-------------------------------------------------------------------(RM)-  (* Alarm, check safety clutch *)
| 0648                                                                          Cross reference for %M0083
|                                                                               -] [- 611
|                                                                               -]/[- 42,611,635
|                                                                               -(SM) 609
|
|Delayed Alarm,                                                                   << RUNG 611  STEP #3625 >>
|check   check
|safety  safety
|clutch  clutch  Step 0
|                STEP_0                                                 H052
|%M0383  %M0083  %M0100                                                %M0186
+--] [-----]/[--+--] [-----------------------------------------------------( )--  (* Carrier force guard             *)
| 0608    0610  | 0029                                                          Cross reference for H052
|Alarm,         |                                                               -]/[- 609,639
|check          |
|safety         |
|clutch  Flash  |
|         FLASH |
|%M0083  %M0003 |
+--] [-----] [--+
| 0610    0022
|
|        Search                                                                   << RUNG 612  STEP #3632 >>
|Main    synch
|shaft   positio
|start   n
|G22-SF
|%Q0004  %M0280  +-----+                                                %M0064
+--]/[-----] [---+ TMR +-----------------------------------------------------( )--  (* Main shaft stand still          *)
|         0378   |0.10s|                                                          Cross reference for %M0064
|                |     |                                                          -] [- 614
|         CONST -+PV   |
|         +00030 |     |
|                +-----+
|                Timer
|                mainsha
|                ft
|                alarm
|
|                %R3144

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|Main                                                                    << RUNG 613  STEP #3636 >>
|shaft
|start
|G22-SF
|%Q0004  +-----+                                          %T0250
+--]/[---+ TMR +-----------------------------------------------------(^)--  (* Main stop puls                  *)
|        |0.10s|                                                            Cross reference for %T0250
|        |     |                                                            -] [- 615
| CONST -+PV   |
| +00010 |     |
|        +-----+
|
|        Timer
|        sync
|        puls
|
|        %R3163
|
|        Main    Synch.                                                  << RUNG 614  STEP #3639 >>
|        shaft   stop    Start
|        stand   main    feeding
|Step 2  still   shaft   em/door
|STEP_2
|%M0102  %M0064  %M0785  %M1225                           %M0065
+--] [-----] [-----]/[-----]/[-------------------------------------------(S)--  (* Alarm not synched reseted       *)
| 0042    0612                                                               Cross reference for %M0065
|                                                                            -] [- 618
|                                                                            -]/[- 616,635
|                                                                            -(R)  617
|
|        Mainsha         ME.                                             << RUNG 615  STEP #3644 >>
|        ft      Main    Stop
|        encoder stop    Main
|Step 3  ok      puls    Shaft
|STEP_3
|%M0103  %M3147  %T0250  %M0617                           %M0066
+--] [-----]/[-----] [-----]/[-------------------------------------------(S)--  (* Alarm not synched               *)
| 0048    0627    0613                                                       Cross reference for %M0066
|                                                                            -] [- 618
|                                                                            -]/[- 42,634
|                                                                            -(R)  616
|
|        Alarm                                                           << RUNG 616  STEP #3649 >>
|Pulse   not
|alarm   synched
|reset   reseted
|
|%T0004  %M0065                                           %M0066
+--] [-----]/[-----------------------------------------------------------(R)--  (* Alarm not synched               *)
| 0648    0614                                                               Cross reference for %M0066
|                                                                            -] [- 618
|                                                                            -]/[- 42,634
|                                                                            -(S)  615
|
|Pulse                                                                   << RUNG 617  STEP #3652 >>
|alarm
|reset
|
|%T0004                                                   %M0065
+--] [-------------------------------------------------------------------(R)--  (* Alarm not synched reseted       *)
| 0648                                                                       Cross reference for %M0065
|                                                                            -] [- 618
|                                                                            -]/[- 616,635
|                                                                            -(S)  614
|
|Alarm                                                                   << RUNG 618  STEP #3654 >>
|not
|synched Flash   Step 0
|         FLASH  STEP_0                                    H054
|%M0066  %M0003  %M0100                                   %M0188
+--] [--+--] [-----] [-----------------------------------------------------( )--  (* Main shaft out of pos           *)
| 0616  | 0022    0029                                                       Cross reference for H054
|Alarm  |                                                                    -]/[- 637
|not    |
|synched|
|reseted|
|       |
|%M0065 |
+--] [--+
| 0617
|
|Gray                                                                    << RUNG 619  STEP #3659 >>
|code
|l.sign.
|bit Ms  Step 2
|        STEP_2
|%I0017  %M0102                                           %M3138
+--] [-----] [-----------------------------------------------------------(S)--  (* Bit 1 check main                *)
|         0042                                                               Cross reference for %M3138
|                                                                            -] [- 627
|                                                                            -(R)  628
|

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```

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|Gray                                                                    << RUNG 620  STEP #3662 >>
|code
|Main
|shaft   Step 2
|        STEP_2
|%I0018  %M0102                                          %M3139
+--] [-----] [-------------------------------------------------------(S)--  (* Bit 2 check main                *)
|         0042                                                           Cross reference for %M3139
|                                                                        -] [- 627
|                                                                        -(R)  628
|
|Gray                                                                    << RUNG 621  STEP #3665 >>
|code
|Main
|shaft   Step 2
|        STEP_2
|%I0019  %M0102                                          %M3140
+--] [-----] [-------------------------------------------------------(S)--  (* Bit 3 check main                *)
|         0042                                                           Cross reference for %M3140
|                                                                        -] [- 627
|                                                                        -(R)  628
|
|Gray                                                                    << RUNG 622  STEP #3668 >>
|code
|Main
|shaft   Step 2
|        STEP_2
|%I0020  %M0102                                          %M3141
+--] [-----] [-------------------------------------------------------(S)--  (* Bit 4 check main                *)
|         0042                                                           Cross reference for %M3141
|                                                                        -] [- 627
|                                                                        -(R)  628
|
|Gray                                                                    << RUNG 623  STEP #3671 >>
|code
|Main
|shaft   Step 2
|        STEP_2
|%I0021  %M0102                                          %M3142
+--] [-----] [-------------------------------------------------------(S)--  (* Bit 5 check main                *)
|         0042                                                           Cross reference for %M3142
|                                                                        -] [- 627
|                                                                        -(R)  628
|
|Gray                                                                    << RUNG 624  STEP #3674 >>
|code
|Main
|shaft   Step 2
|        STEP_2
|%I0022  %M0102                                          %M3143
+--] [-----] [-------------------------------------------------------(S)--  (* Bit 6 check main                *)
|         0042                                                           Cross reference for %M3143
|                                                                        -] [- 627
|                                                                        -(R)  628
|
|Gray                                                                    << RUNG 625  STEP #3677 >>
|code
|Main
|shaft   Step 2
|        STEP_2
|%I0023  %M0102                                          %M3144
+--] [-----] [-------------------------------------------------------(S)--  (* Bit 7 check main                *)
|         0042                                                           Cross reference for %M3144
|                                                                        -] [- 627
|                                                                        -(R)  628
|
|Gray                                                                    << RUNG 626  STEP #3680 >>
|code
|Main
|shaft   Step 2
|        STEP_2
|%I0024  %M0102                                          %M3145
+--] [-----] [-------------------------------------------------------(S)--  (* Bit 8 check main                *)
|         0042                                                           Cross reference for %M3145
|                                                                        -] [- 627
|                                                                        -(R)  628
|
|Bit 1   Bit 2   Bit 3   Bit 4   Bit 5   Bit 6   Bit 7   Bit 8           << RUNG 627  STEP #3683 >>
|check   check   check   check   check   check   check   check
|main    main    main    main    main    main    main    main
|
|%M3138  %M3139  %M3140  %M3141  %M3142  %M3143  %M3144  %M3145   %M3147
+--] [-----] [-----] [-----] [-----] [-----] [-----] [-----] [-------------( )--  (* Mainshaft encoder ok          *)
| 0619    0620    0621    0622    0623    0624    0625    0626             Cross reference for %M3147
|                                                                        -]/[- 615
|

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|        Pulse,                                                          << RUNG 628  STEP #3692 >>
|        main
|        shaft
|Step 3  start
|STEP_3
|%M0103  %T0082                                          %M3138
+--] [-----] [--+-------------------------------------------------------(R)--  (* Bit 1 check main                 *)
| 0048    0380  |                                                              Cross reference for %M3138
|               |                                                              -] [- 627
|               |                                          %M3139              -(S)  619
|               +-------------------------------------------------------(R)--  (* Bit 2 check main                 *)
|               |                                                              Cross reference for %M3139
|               |                                          %M3140              -] [- 627
|               +-------------------------------------------------------(R)--  -(S)  620
|               |                                                              (* Bit 3 check main                 *)
|               |                                          %M3141              Cross reference for %M3140
|               +-------------------------------------------------------(R)--  -] [- 627
|               |                                                              -(S)  621
|               |                                          %M3142              (* Bit 4 check main                 *)
|               +-------------------------------------------------------(R)--  Cross reference for %M3141
|               |                                                              -] [- 627
|               |                                          %M3143              -(S)  622
|               +-------------------------------------------------------(R)--  (* Bit 5 check main                 *)
|               |                                                              Cross reference for %M3142
|               |                                          %M3144              -] [- 627
|               +-------------------------------------------------------(R)--  -(S)  623
|               |                                                              (* Bit 6 check main                 *)
|               |                                          %M3145              Cross reference for %M3143
|               +-------------------------------------------------------(R)--  -] [- 627
|                                                                              -(S)  624
|                                                                              (* Bit 7 check main                 *)
|                                                                              Cross reference for %M3144
|                                                                              -] [- 627
|                                                                              -(S)  625
|                                                                              (* Bit 8 check main                 *)
|                                                                              Cross reference for %M3145
|                                                                              -] [- 627
|                                                                              -(S)  626
|
|        Alarm   Alarm                                                   << RUNG 629  STEP #3702 >>
|Alarm   blank   hotmelt
|lubrica magazin tank
|tion    e       low lev
|
|%M0053  %M0057  %M1178                                  %M0094
+--]/[--+--]/[--+--]/[-------------------------------------------------( )--  (* No blue alarms on                 *)
| 0504  | 0541  | 0606                                                         Cross reference for %M0094
|       |Very   |                                                              -] [- 630,643,644,645
|Normal |low    |                                                              -]/[- 645,646
|level  |level  |
|lubric |blanks |
|B138-2 |       |
|%I0082 |%M0080 |
+--] [--+--] [--+
|         0539
|
|        ME                                                              << RUNG 630  STEP #3709 >>
|No blue queue
|alarms  down
|on      streame
|
|%M0094  %M1280                                          %M0090
+--] [-----]/[----------------------------------------------------------( )--  (* No blue alarms on                 *)
| 0629    0556                                                                 Cross reference for %M0090
|                                                                              -] [- 643
|                                                                              -]/[- 643,644
|
|                        Hotmelt                                         << RUNG 631  STEP #3712 >>
|Alarm           Alarm   tank
|lubrica Convert blank   low
|tion    alarm   magaz.  level
| H010            H029    H051
|%M0155  %M0271  %M0159  %M0185                          %M0095
+--]/[--+--]/[-----]/[--+--]/[-----------------------------------------( )--  (* No blue leds on                   *)
| 0505  | 0513    0544  | 0607                                                 Cross reference for %M0095
|       |Very           |                                                      -] [- 632
|Normal |low            |                                                      -]/[- 643
|level  |level          |
|lubric |blanks         |
|B138-2 |               |
|%I0082 |%M0080         |
+--] [--+--] [----------+
|         0539
|
```

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|        Alarm                                                                          << RUNG 632  STEP #3720 >>
|No blue dischar
|leds on area
|         H033
|%M0095  %M0163                                                        %M0091
+--] [--+--]/[--+-------------------------------------------------------( )--  (* No blue leds on *)
| 0631  | 0561  |                                                                    Cross reference for %M0091
|       |Alarm  |                                                                    -]/[- 643
|       |queue  |
|       |down   |
|       |stream |
|       |       |
|       |%M0048 |
|       +--]/[--+
|       | 0554  |
|       |Crash  |
|       |in     |
|       |dischar|
|       |area   |
|       |       |
|       |%M0075 |
|       +--] [--+
|         0558
|
|        Alarm o Alarm          Alarm          Alarm                                  << RUNG 633  STEP #3726 >>
|        verload air     Alarm   frequen Alarm   groupin No
|Alarm   protece pressur lubrica cy      fallen  g      blanks
|doors   ction   e       tion    control package section present
|
|%M0050  %M0051  %M0052  %M0053  %M0054  %M0055  %M0056  %M1149
+--]/[-----]/[-----]/[--+--]/[--+--]/[-----]/[-----]/[-----]/[---------------<+>
| 0485    0494    0500  | 0504  | 0512    0518    0531    0534
|                       |       |
|                       |Normal |
|                       |level  |
|                       |lubric |
|                       |B138-2 |
|                       |%I0082 |
|                       +--]/[--+
|
|        Alarm           Alarm n                       Alarm                          << RUNG 634  STEP #3737 >>
|        blank           o blank Alarm   Alarm          light   Alarm
|        magazin         in pack hotmelt pusher  Alarm   barrier not
|        e               pos.    unit    section lubr    e       synched
|
|        %M0057          %M0058  %M0060  %M0063  %M0069  %M0062  %M0066
+<+>----+--]/[----------+--]/[-----]/[-----]/[--+--]/[--+--]/[-----]/[-------<+>
|       | 0541          | 0550    0563    0602  | 0502  | 0570    0616
|       |        Very   |                       |       |
|       |Low     low    |                       |Normal |
|       |level   level  |                       |level  |
|       |blanks  blanks |                       |lubric |
|       |               |                       |B138-2 |
|       |%M0078  %M0080 |                       |%I0082 |
|       +--] [-----]/[--+                       +--]/[--+
|         0535    0539
|
|        Alarm,  Alarm   Alarm c         Alarm           Alarm t                    << RUNG 635  STEP #3752 >>
|        check   not     rash in Alarm   Dolly +         ransf p
|        safety  synched dischar EL.equi guide   Alarm   late (2
|        clutch  reseted ge area p       rail    servo   led fla
|
|        %M0083  %M0065  %M0059  %M1281  %M0047  %M0061  %M3233          %M0092
+<+>-------]/[-----]/[-----]/[-----]/[-----]/[-----]/[-----]/[-------------( )--  (* No yellow alarms on *)
|         0610    0617    0560    0491    0523    0566    0547                     Cross reference for %M0092
|                                                                                  -] [- 636,643
|
|No      ME                                                                        << RUNG 636  STEP #3761 >>
|yellow  queue
|alarms  down
|on      streame
|
|%M0092  %M1280                                                        %M0096
+--] [-----]/[-------------------------------------------------------------( )--  (* No yellow alarms on              *)
| 0635    0556                                                                     Cross reference for %M0096
|                                                                                  -] [- 33,46,51,453,644,645
|                                                                                  -]/[- 644,645,646
|
|                                          Main                                    << RUNG 637  STEP #3764 >>
|        Alarm   Alarm   Alarm   Alarm   Alarm   shaft
|Alarm   overlo. air     freq.   fallen  group.  out of
|doors   protec. press.  contr.  package sect.   pos
| H007    H008    H009    H011    H027    H028    H054
|%M0152  %M0153  %M0154  %M0156  %M0157  %M0158  %M0188
+--]/[-----]/[-----]/[-----]/[-----]/[-----]/[-----]/[-----------------------<+>
| 0486    0495    0501    0514    0519    0532    0618
|
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|                      Al. no                          Alarm                    << RUNG 638  STEP #3772 >>
|        Alarm   Alarm  blank   Alarm   Alarm   Alarm   light
|        blank   pusher pack.   hotmelt lubrica dischar barrier
|        magaz.  section pos.   unit    tion    area    e
|         H029    H030   H031    H032    H010    H033    H034
|        %M0159  %M0160 %M0161  %M0162  %M0155  %M0163  %M0164
+<+>----+--]/[--+--]/[-----]/[--+--]/[--+--]/[--+--]/[--+--]/[---------------<+>
|       | 0544  | 0603    0551  | 0564  | 0505  | 0561  | 0571
|       |Very   |               |       |       |Crash  |
|       |low    |               |       |Normal |in     |
|       |level  |               |       |level  |dischar|
|       |blanks |               |Step 2 |lubric |area   |
|       |       |               |STEP_2 |B138-2 |       |
|       |%M0080 |               |%M0102 |%I0082 |%M0075 |
|       +--]/[--+               +--]/[--+--]/[--+--]/[--+
|         0539                    0042            0558
|
|        Electri Dolly/         Carrier                                   << RUNG 639  STEP #3789 >>
|        cal     Guide   Alarm  force
|        alarm   rail    servo  guard
|         H013    H053    H012    H052
|        %Q0101  %M0187  %Q0100  %M0186                          %M0093
+<+>-------]/[-----]/[-----]/[-----]/[-----------------------------------( )--  (* No yellow leds on                *)
|         0492    0524    0567    0611                                        Cross reference for %M0093
|                                                                             -] [- 640,643
|
|No      Alarm                                                                << RUNG 640  STEP #3795 >>
|yellow  dischar
|leds on area
|         H033
|%M0093  %M0163                                                  %M0097
+--] [--+--]/[--+-------------------------------------------------------( )--  (* No yellow leds on                *)
| 0639  | 0561  |                                                             Cross reference for %M0097
|       |Alarm  |                                                             -] [- 46,453
|       |queue  |                                                             -]/[- 644
|       |down   |
|       |stream |
|       |       |
|       |%M0048 |
|       +--]/[--+
|         0554
|
|                Alarm                                                        << RUNG 641  STEP #3800 >>
|                air
|Alarm   Alarm   pressur Alarm
|em.stop doors   e       em.stop
|
|%M0049  %M0050  %M0052  %M0049                                  %M0098
+--]/[--+--]/[--+--]/[--+--]/[---------------------------------------------( )--  (* No red alarms on                *)
| 0478  | 0485  | 0500  | 0478                                                Cross reference for %M0098
|Alarm s|Alarm s|       |                                                     -] [- 33,34,42,46,643,644,645
|afety r|afety r|Check  |                                                     -]/[- 645,646
|elay A0|elay A0|no air |
|90 Emst|91 door|press. |
|       |       |       |
|%M0084 |%M0085 |%M0072 |
+--]/[--+--]/[--+--]/[--+
| 0475    0480    0497
|
|                Alarm                                                        << RUNG 642  STEP #3810 >>
|Alarm   Alarm   air     Alarm
|em.stop doors   press.  em.stop
| H006    H007    H009    H006
|%M0151  %M0152  %M0154  %M0151                                  %M0099
+--]/[--+--]/[--+--]/[--+--]/[---------------------------------------------( )--  (* No red leds on                  *)
| 0479  | 0486  | 0501  | 0479                                                Cross reference for %M0099
|Alarm s|Alarm s|       |                                                     -] [- 46,643,644
|afety r|afety r|Check  |                                                     -]/[- 645
|elay A0|elay A0|no air |
|90 Emst|91 door|press. |
|       |       |       |
|%M0084 |%M0085 |%M0072 |
+--]/[--+--]/[--+--]/[--+
| 0475    0480    0497
|
```

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|                       No                                                    << RUNG 643  STEP #3820 >>
|No blue                yellow  No      No red
|alarms                 alarms  yellow  alarms  No red
|on              Flash  on      leds on on      leds on Step 0
|                 FLASH                                  STEP_0          H101_1
|%M0090          %M0003  %M0092  %M0093  %M0098  %M0099  %M0100          %Q0041
+--]/[----------+--] [--+--] [-----] [-----] [-----] [-----] [--+----------( )--  (* Warning lamp, blue               *)
| 0630          | 0022  | 0635    0639    0641    0642    0029  |                  Cross reference for H101_1
|               |       |                                       |                           NONE
|        Ready  |       |                                       |
|        for    |       |                                       |
|Step 2  step 2 |       |                                       |
|STEP_2         |       |                                       |
|%M0102  %M0112 |       |                                       |
+--]/[-----] [--+       |                                       |
| 0042    0047          |                                       |
|                       |                                       |
|        No blue No blue|                                       |
|No blue alarms  alarms |                                       |
|leds on on      on     |                                       |
|                       |                                       |
|%M0091  %M0094  %M0090 |                                       |
+--]/[--+--] [-----] [--+                                       |
| 0632  | 0629    0630                                          |
|       |                                                       |
|No blue|                                                       |
|leds on|                                                       |
|       |                                                       |
|%M0095 |                                                       |
+--]/[--+                                                       |
| 0631                                                          |
|-5 pos                                                         |
|angle                                                          |
|encoder Setting                                                |
|feeding encoder                                                |
|                                                               |
|%M3109  %M3107                                                 |
+--] [--+--] [-------------------------------------------------+
| 0059  | 0056                                                  |
|-5 pos |                                                       |
|angle  |                                                       |
|encoder|                                                       |
|main   |                                                       |
|       |                                                       |
|%M3112 |                                                       |
+--] [--+                                                       |
| 0062                                                          |
|                                                               |
|        Warning                                                |
|Lamp    lamp,                                                  |
|test    yellow                                                 |
|L_TEST  H101_2                                                 |
|%M0006  %Q0042                                                 |
+--] [-----] [-------------------------------------------------+
| 0647    0644
|
```

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|No                                                                                   << RUNG 644  STEP #3843 >>
|yellow                 No red
|alarms                 alarms  No red
|on              Flash  on      leds on Step 0
|                 FLASH                 STEP_0                        H101_2
|%M0096          %M0003  %M0098  %M0099  %M0100                       %Q0042
+--]/[----------+--] [--+--] [-----] [-----] [--+-------------------------( )--  (* Warning lamp, yellow            *)
| 0636          | 0022  | 0641    0642    0029  |                               Cross reference for H101_2
|               |       |                       |                               -] [- 643
|No      No blue|       |                       |
|yellow  alarms |       |                       |
|leds on on     |       |                       |
|               |       |                       |
|%M0097  %M0090 |       |                       |
+--]/[-----]/[--+       |                       |
| 0640    0630          |                       |
|        No             |                       |
|No      yellow  No blue|                       |
|yellow  alarms  alarms |                       |
|leds on on      on     |                       |
|                       |                       |
|%M0097  %M0096  %M0094 |                       |
+--]/[-----] [-----] [--+                       |
| 0640    0636    0629                          |
|                                               |
|        Warning                                |
|Lamp    lamp,                                  |
|test    red                                    |
|L_TEST  H101_3                                 |
|%M0006  %Q0043                                 |
+--] [-----] [--------------------------------+
| 0647    0645                                  |
|0 pos                                          |
|angle                                          |
|encoder Setting                                |
|feeding encoder                                |
|                                               |
|%M3108  %M3107                                 |
+--] [--+--] [--------------------------------+
| 0058  | 0056
|0 pos  |
|angle  |
|encoder|
|main   |
|       |
|%M3111 |
+--] [--+
| 0061
|
```

```
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|No red                                                                          << RUNG 645  STEP #3863 >>
|alarms
|on              Flash          Step 0
|                 FLASH         STEP_0                                 H101_3
|%M0098          %M0003         %M0100                                 %Q0043
+--]/[----------+--] [----------+--] [--+----------------------------------( )--  (* Warning lamp, red                *)
| 0641          | 0022          | 0029  |                                        Cross reference for H101_3
|               |               |       |                                        -] [- 644
|        No blue|               |       |
|No red  alarms |               |       |
|leds on on     |               |       |
|               |               |       |
|%M0099  %M0094 |               |       |
+--]/[--+--]/[--+               |       |
| 0642  | 0629  |               |       |
|       |No     |               |       |
|       |yellow |               |       |
|       |alarms |               |       |
|       |on     |               |       |
|       |       |               |       |
|       |%M0096 |               |       |
|       +--]/[--+               |       |
|         0636                  |       |
|                No             |       |
|        No red  yellow  No blue|       |
|No red  alarms  alarms  alarms |       |
|leds on on      on      on     |       |
|                               |       |
|%M0099  %M0098  %M0096  %M0094 |       |
+--]/[-----] [--+--] [--+--] [--+       |
| 0642    0641  | 0636  | 0629          |
|               |       |               |
|               |Alarm  |               |
|               |em.stop|               |
|               |       |               |
|               |%M0049 |               |
|               +--]/[--+               |
|                 0478                  |
|+5 pos                                 |
|angle                                  |
|encoder Setting                        |
|feeding encoder                        |
|                                       |
|%M3110  %M3107                         |
+--] [--+--] [--------------------------+
| 0060  | 0056                          |
|+5 pos |                               |
|angle  |                               |
|encoder|                               |
|main   |                               |
|       |                               |
|%M3113 |                               |
+--] [--+                               |
| 0063                                  |
|                                       |
|Lamp                                   |
|test                                   |
|L_TEST                                 |
|%M0006                                 |
+--] [-----------------------------------+
| 0647
|
```

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|No blue                                                                          << RUNG 646  STEP #3884 >>
|alarms
|on              Flash   Step 0
|                 FLASH  STEP_0                                        H03S
|%M0094          %M0003  %M0100                                       %M0147
+--]/[--+-------+--] [-----] [--+-----------------------------------( )--  (* Reset/ Lampt.                    *)
| 0629  |       | 0022    0029  |                                          Cross reference for H03S
|No     |       |               |                                                    NONE
|yellow |       |               |
|alarms |       |               |
|on     |       |               |
|       |       |               |
|%M0096 |       |               |
+--]/[--+       |               |
| 0636  |       |               |
|       |       |               |
|No red |       |               |
|alarms |       |               |
|on     |       |               |
|       |       |               |
|%M0098 |       |               |
+--]/[--+       |               |
| 0641          |               |
|               |               |
|ME.     ME.    |               |
|Reset   Alarm  |               |
|pusher  diplay |               |
|               |               |
|%M0610  %M0614 |               |
+--] [-----] [--+               |
|               |               |
|Servo          |               |
|axis           |               |
|ident          |               |
|               |               |
|%M1170         |               |
+--] [----------+               |
| 0723                          |
|                               |
|Setting                        |
|encoder                        |
|                               |
|%M3107                         |
+--] [-------------------------+
| 0056
|
|Reset/                                                                           << RUNG 647  STEP #3895 >>
|Lamp
|test    Step up
| S03H    S01H                                                         L_TEST
|%I0007  %I0005  +-----+                                              %M0006
+--] [-----]/[---+ TMR +-----------------------------------------------( )--  (* Lamp test                       *)
|                |0.10s|                                                      Cross reference for L_TEST
|                |     |                                                      -] [- 37,492,567,643,644,645,713,714,717
|         CONST -+PV   |
|         +00020 |     |
|                +-----+
|
|                Lamp
|                test
|
|                %R0007
|
|Reset/                                                                           << RUNG 648  STEP #3899 >>
|Lamp
|test
| S03H
|%I0007                                                               %T0004
+--] [-----------------------------------------------------------------(^)--  (* Pulse alarm reset                 *)
|                                                                                 Cross reference for %T0004
|                                                                                 -] [- 465,478,485,488,491,494,500,504,512,518,523,
|                                                                                       528,531,534,541,547,550,556,560,563,566,570,
|                                                                                       592,595,602,606,610,616,617,667,688
|                                                                                 -]/[- 469,470,477,482,484,490,493,497,498,499,507,
|                                                                                       509,510,511,515,517,520,521,525,530,545,546,
|                                                                                       549,555,558,559,562,565,568,569,575,577,579,
|                                                                                       581,583,585,587,597,601,605,609,689,723
|
|Emerg.s                                                                          << RUNG 649  STEP #3901 >>
|top
|circuit
|
|%I0002                                                               %Q0076
+--] [-----------------------------------------------------------------( )--  (* Emergency stop circuit            *)
|                                                                                 Cross reference for %Q0076
|                                                                                           NONE
|
|Door                                                                             << RUNG 650  STEP #3903 >>
|circuit
|
|%I0014                                                               %Q0077
+--] [-----------------------------------------------------------------( )--  (* Door circuit                      *)
|                                                                                 Cross reference for %Q0077
|                                                                                 -] [- 653

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```

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|               Emerg.s                                                    << RUNG 651  STEP #3905 >>
|        Door    top
|Step 0  circuit circuit Door
|STEP_0                    L13                                   K001
|%M0100  %I0014  %I0002  %I0015                                 %Q0001
+--] [-----] [-----] [-----] [-----------------------------------------( )--  (* Mainshaft/feeding motor          *)
| 0029                                                                     Cross reference for K001
|                                                                          -] [- 487
|
|        Emerg.s                                                           << RUNG 652  STEP #3910 >>
|        top     Emerg.
|Step 0  circuit stop
|STEP_0            L12                                   K002
|%M0100  %I0002  %I0001                                         %Q0025
+--] [-----] [-----] [-------------------------------------------------( )--  (* Infeed conv/grouping mat         *)
| 0029                                                                     Cross reference for K002
|                                                                          -] [- 487
|
|Door                                                                      << RUNG 653  STEP #3914 >>
|circuit Door
|          L13                                                   K005
|%Q0077  %I0015                                                 %Q0007
+--] [-----] [-----------------------------------------------------------( )--  (* Pusher belt                      *)
| 0650                                                                     Cross reference for K005
|                                                                                    NONE
|
| (*************************************************************************)
| (* DISCHARGE SUPPORT                                                     *)
| (*                                                                       *)
| (*************************************************************************)
|
|        Crush                                                             << RUNG 655  STEP #3918 >>
|Feeding in
|motor   dischar
|start   area
|G23-SF   B112
|%Q0006  %I0044  +-----+                                        %M1235
+--] [-----]/[---+ TMR +-------------------------------------------------( )--  (* Disharge support                 *)
|                |0.10s|                                                   Cross reference for %M1235
|                |     |                                                   -] [- 656
|        Delay d |     |
|        ischarg |     |
|        e suppo |     |
|        rt out  |     |
|                |     |
|        %R1163 -+PV   |
|                |     |
|                +-----+
|
|                Delay
|                dischar
|                on
|
|                %R3213
|
|        High                                                              << RUNG 656  STEP #3922 >>
|Disharg speed
|e       in
|support machine
|                                                                Y170
|%M1235  %M1285  +-----+                                        %Q0063
+--] [-----] [---+OFDT +-------------------------------------------------( )--  (* Discharge support                *)
| 0655    0711   |.001s|                                                   Cross reference for Y170
|                |     |                                                            NONE
|        Delay d |     |
|        ischarg |     |
|        e suppo |     |
|        rt in   |     |
|                |     |
|        %R1164 -+PV   |
|                |     |
|                +-----+
|
|                Delay
|                dischar
|                off
|
|                %R3216
|
| (*************************************************************************)
| (* FOLDING PLATE                                                         *)
| (*************************************************************************)
|

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```

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|High                                                                          << RUNG 658  STEP #3927 >>
|speed
|in
|machine
|
|%M1285  +-----+                                                  %M1409
+--] [---+RANGE|+-----------------------------------------------------------( )--  (* Folding plate H/S                *)
| 0711   | INT ||                                                                  Cross reference for %M1409
|        |     ||                                                                  -] [- 661
| CONST -+L1  Q++
| +00135 |     |
|        |     |
| CONST -+L2   |
| +00145 |     |
|        |     |
|Angle   |     |
|encoder |     |
|value   |     |
|Main m. |     |
|        |     |
|%R0404 -+IN   |
|        +-----+
|
|Low                                                                           << RUNG 659  STEP #3930 >>
|speed
|in
|machine
|
|%M1284  +-----+                                                  %M1412
+--] [---+RANGE|+-----------------------------------------------------------( )--  (* Folding plate L/S                *)
| 0710   | INT ||                                                                  Cross reference for %M1412
|        |     ||                                                                  -] [- 661
| CONST -+L1  Q++
| +00137 |     |
|        |     |
| CONST -+L2   |
| +00147 |     |
|        |     |
|Angle   |     |
|encoder |     |
|value   |     |
|Main m. |     |
|        |     |
|%R0404 -+IN   |
|        +-----+
|
| (*************************************************************************)
| (* M1409, M1412 controlls the  movement of the folding plate at production. *)
| (* "NOT STEP1" part of the rung is to trigger the folding plate if the      *)
| (* PLC is stopped with tray in position and in synch.                      *)
| (*************************************************************************)
|
|Folding                 Feeding                                               << RUNG 661  STEP #3934 >>
|plate H                 motor
|/S                      start
|                        G23-SF
|%M1409                  %Q0006                                   %M1410
+--] [--+---------------+--]/[-------------------------------------------( )--  (* Folding plate on                 *)
| 0658  |               |                                                        Cross reference for %M1410
|       |               |                                                        -] [- 661,662
|Folding|               |
|plate L|               |
|/S     |               |
|       |               |
|%M1412 |               |
+--] [--+               |
| 0659                  |
|H/S     Blank          |
|synch   in             |
|stop    pack.          |
|main    pos.    Step 1 |
|         B113   STEP_1 |
|%M1248  %I0042  %M0101 |
+--] [--+--] [-----]/[--+
|       |         0034  |
|L/S    |               |
|synch  |               |
|stop   |               |
|main   |               |
|       |               |
|%M1249 |               |
+--] [--+               |
|                       |
|Folding                |
|plate                  |
|on                     |
|                       |
|%M1410                 |
+--] [------------------+
| 0661
|
```

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|Folding                                                                    << RUNG 662  STEP #3944 >>
|plate
|on      Step 1
|        STEP_1                                                   Y166-1
|%M1410  %M0101                                                   %Q0071
+--] [-----] [-------------------------------------------------------------( )--  (* Folding plate on                  *)
| 0661    0034                                                                    Cross reference for Y166-1
|                                                                                 -] [- 360
|                                                                                 -]/[- 663
|
|        Folding                                                            << RUNG 663  STEP #3947 >>
|        plate
|Step 1  on
|STEP_1  Y166-1                                                   Y166-2
|%M0101  %Q0071                                                   %Q0072
+--] [-----]/[-------------------------------------------------------------( )--  (* Folding plate off                 *)
| 0034    0662                                                                    Cross reference for Y166-2
|                                                                                          NONE
|
| (*************************************************************************)
| (* BOX PUSHER RESET SEQUENCE 1                                           *)
| (*                                                                       *)
| (* While pusher is moving forward and:                                   *)
| (* - door open                                                           *)
| (* - light barrier trips                                                 *)
| (* - emergency stop                                                      *)
| (* - grouping crash                                                      *)
| (*                                                                       *)
| (* When stepping up to:                                                  *)
| (* STEP 2 - Pusher continues the stroke and feeds packages in tray       *)
| (* STEP 3 - Production continues                                         *)
| (*************************************************************************)
|
|Emerg.s         Pusher          Pusher                                    << RUNG 665  STEP #3951 >>
|top             home    Pulse,  forward
|circuit         pos.    Step2-  s
|                 B121           Y103-1
|%I0002          %I0034  %T0017  %Q0064                          %T0046
+--]/[--+-------+--]/[-----] [-----] [-----------------------------------(^)--  (* Em/Door, Pusher forward *)
|       |       |         0044    0340                                           Cross reference for %T0046
|       |       |                                                                -] [- 319,666
|Door   |       |
|circuit|       |
|       |       |
|%I0014 |       |
+--]/[--+       |
|               |
|        Lightba|
|Light   rrier  |
|barrier install|
|e       ed     |
|               |
|%I0087  %M1002 |
+--]/[-----] [--+
|               |
|Crush          |
|in      Pusher |
|group.  reset, |
|pusher  Active |
|               |
|%M0074  %M3166 |
+--] [-----]/[--+
| 0525    0687
|
|Em/Door         Em/Door                                                   << RUNG 666  STEP #3963 >>
|,               , Pushe
|Pusher          r home
|forward         pos loc
|
|%T0046          %M1188                                           %M1185
+--] [----------+--]/[-----------------------------------------------------( )--  (* Em/Door, Reset servo *)
| 0665          | 0670                                                            Cross reference for %M1185
|        Em/Door|                                                                 -] [- 666,667,668,673
|Em/Door , Servo|                                                                 -]/[- 339,565,567,687
|, Reset reset  |
|servo   done   |
|               |
|%M1185  %M1186 |
+--] [-----]/[--+
| 0666    0668
|
|Em/Door Servo   Pulse                                                      << RUNG 667  STEP #3969 >>
|, Reset Rst,    alarm
|servo   Active  reset
|
|%M1185  %M3180  %T0004                                           %T0077
+--] [-----]/[-----] [----------------------------------------------------(^)--  (* Em/door, Pulse reset servo *)
| 0666    0672    0648                                                            Cross reference for %T0077
|                                                                                 -] [- 672
|

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```

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|        Servo                                                                << RUNG 668  STEP #3973 >>
|Em/Door Rst,
|, Reset Servo
|servo   Ready
|
|%M1185  %M3188                                                  %M1186
+--] [-----] [--+-------------------------------------------------------( )--  (* Em/Door, Servo reset done *)
| 0666    0681  |                                                            Cross reference for %M1186
|Em/Door Em/door|                                                            -] [- 668,669
|, Servo , Pushe|                                                            -]/[- 666,687
|reset   r forwa|
|done    rd lock|
|               |
|%M1186  %M1187 |
+--] [-----]/[--+
| 0668    0669
|
|Em/Door                                                                     << RUNG 669  STEP #3979 >>
|, Servo Pusher
|reset   front
|done    pos.
|         B123
|%M1186  %I0036                                                  %M1187
+--] [-----]/[--+-------------------------------------------------------( )--  (* Em/door, Pusher forward locked *)
| 0668          |                                                            Cross reference for %M1187
|Em/door        |                                                            -] [- 328,331,337,339,669
|, Pushe Pusher |                                                            -]/[- 346,668
|r forwa home   |
|rd lock pos.   |
|         B121  |
|%M1187  %I0034 |
+--] [-----]/[--+
| 0669
|
|Pusher  Alarm                                                               << RUNG 670  STEP #3985 >>
|home    reset
|pos.    pusher
| B121
|%I0034  %M1239                                                  %M1188
+--] [-----] [--+-------------------------------------------------------(M)--  (* Em/Door, Pusher home pos locked *)
|         0319  |                                                            Cross reference for %M1188
|Em/Door        |                                                            -] [- 670
|, Pushe Pusher |                                                            -]/[- 321,666
|r home  forward|
|pos loc s      |
|        Y103-1 |
|%M1188  %Q0064 |
+--] [-----]/[--+
| 0670    0340
|
| (*************************************************************************)
| (* Servo reset sequence                                                  *)
| (* ********************                                                  *)
| (* 1. Full reset sequence                                                *)
| (*    * Resets variables from servo (e.g. B121, B122)                    *)
| (*    * Position execution stops (servo will start from the spot         *)
| (*      it was when you resetted the alarm)                              *)
| (* - "Servo Enable" = 0      (Servo ready goes low and then)             *)
| (* - "Servo Enable" = 1      (high = new "start position" is set.)       *)
| (* - "Servo Stop" = 0        (Servo positioning cycle stops)             *)
| (* - "Servo Start/Reset" = 1 (Program marker for servo jumps to Main)     *)
| (* - "Servo Start/Reset" = 0                                             *)
| (* - "Servo Stop" = 1        (Servo positioning cycle restarts)          *)
| (* - "Servo Start/Reset" = 1 (Program execution starts again)            *)
| (* - "Servo Start/Reset" = 0                                             *)
| (*************************************************************************)
|
|Pusher                  Servo                                               << RUNG 672  STEP #3992 >>
|reset,  Servo           Rst,
|Pulse r Rst,            Servo
|eset se Active  Step 1  Ready
|                STEP_1
|%T0078  %M3180  %M0101  %M3188                                  %M3180
+--] [--+--]/[--+--] [-----]/[-----------------------------------------( )--  (* Servo Rst, Active *)
| 0689  | 0672  | 0034    0681                                             Cross reference for %M3180
|Em/door|       |                                                          -] [- 672,673,674,675,676,677,678,679,681,689
|, Pulse|       |                                                          -]/[- 47,565,667,672,688
|reset  |       |
|servo  |       |
|       |       |
|%T0077 |       |
+--] [--+       |
| 0667          |
|               |
|Servo          |
|Rst,           |
|Active         |
|               |
|%M3180         |
+--] [----------+
| 0672
|

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|        Pusher  Servo R                                                          << RUNG 673  STEP #3999 >>
|Servo   reset,  st, Ser Servo
|Rst,    reset   v stop= Rst,
|Active  servo   0 Enabl Active
|
|%M3180  %M3167  %M3182  %M3180                                   %M3181
+--] [--+--] [--+--]/[-----] [-----------------------------------------------( )--  (* Servo Rst, Servo Enable=0 *)
| 0672  | 0688  | 0674    0672                                                    Cross reference for %M3181
|       |       |                                                                 -] [- 673,674,682
|       |Em/Door|                                                                 -]/[- 684
|       |, Reset|
|       |servo  |
|       |       |
|       |%M1185 |
|       +--] [--+
|         0666  |
|Servo R Servo R|
|st, Ser st, Ser|
|vo Enab v stop=|
|le=0    0 Enabl|
|               |
|%M3181  %M3182 |
+--] [-----]/[--+
| 0673    0674
|
|Servo R         STOP se START/R                                                  << RUNG 674  STEP #4009 >>
|st, Ser         rvo pro ESET se Servo
|vo Enab Enable  gram (w rvo pro Rst,
|le=0    servo   hen 0)  gram ex Active
|
|%M3181  %Q0099  %Q0097  %Q0098  %M3180  +-----+                          %M3182
+--] [-----]/[-----] [-----]/[--+--] [---+ TMR +---------------------------( )--  (* Servo Rst, Serv stop=0 Enable=1 *)
| 0673    0684    0682    0683  | 0672   |0.10s|                                 Cross reference for %M3182
|Servo R                        |        |     |                                 -] [- 674,675
|st, Ser                        |        |     |                                 -]/[- 673,682
|v stop=                        |        |     |
|0 Enabl                        |        |     |
|                               |        |     |
|%M3182                         |        |     |
+--] [--------------------------+ CONST -+PV   |
| 0674                            +00001 |     |
|                                        +-----+
|
|                                        Delay,
|                                        servo
|                                        stop=0
|
|                                        %R3390
|
|Servo R         STOP se START/R                                                  << RUNG 675  STEP #4017 >>
|st, Ser         rvo pro ESET se Servo
|v stop= Enable  gram (w rvo pro Rst,
|0 Enabl servo   hen 0)  gram ex Active
|
|%M3182  %Q0099  %Q0097  %Q0098  %M3180  +-----+                          %M3183
+--] [-----] [-----]/[-----]/[--+--] [---+ TMR +---------------------------( )--  (* Servo Rst,Servo Start/Reset=1 *)
| 0674    0684    0682    0683  | 0672   |0.10s|                                 Cross reference for %M3183
|Servo R                        |        |     |                                 -] [- 675,676,683
|st,Serv                        |        |     |
|o Start                        |        |     |
|/Reset=                        |        |     |
|                               |        |     |
|%M3183                         |        |     |
+--] [--------------------------+ CONST -+PV   |
| 0675                            +00001 |     |
|                                        +-----+
|                                        Delay1,
|                                        Servo
|                                        Start/
|                                        Rst = 1
|
|                                        %R3366
|
```

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|Servo R STOP se START/R                                                          << RUNG 676  STEP #4025 >>
|st,Serv rvo pro ESET se Servo
|o Start gram (w rvo pro Rst,
|/Reset= hen 0)  gram ex Active
|
|%M3183  %Q0097  %Q0098  %M3180  +-----+                                 %M3184
+--] [-----]/[-----] [--+--] [---+ TMR +----------------------------------( )--  (* Servo Rst, Servo Start/Reset=0 *)
| 0675    0682    0683  | 0672   |0.10s|                                        Cross reference for %M3184
|Servo R                |        |     |                                        -] [- 676,677
|st, Ser                |        |     |                                        -]/[- 683
|vo Star                |        |     |
|t/Reset                |        |     |
|                       |        |     |
|%M3184                 |        |     |
+--] [------------------+ CONST -+PV   |
| 0676                    +00001 |     |
|                               +-----+
|                               Delay1,
|                               Servo
|                               Start/
|                               Rst=0
|
|                               %R3369
|
|Servo R STOP se START/R                                                          << RUNG 677  STEP #4032 >>
|st, Ser rvo pro ESET se Servo
|vo Star gram (w rvo pro Rst,
|t/Reset hen 0)  gram ex Active
|
|%M3184  %Q0097  %Q0098  %M3180  +-----+                                 %M3185
+--] [-----]/[-----]/[--+--] [---+ TMR +----------------------------------( )--  (* Servo Rst, Servo stop=1 *)
| 0676    0682    0683  | 0672   |0.10s|                                        Cross reference for %M3185
|Servo                  |        |     |                                        -] [- 677,678,682
|Rst,                   |        |     |
|Servo                  |        |     |
|stop=1                 |        |     |
|                       |        |     |
|%M3185                 |        |     |
+--] [------------------+ CONST -+PV   |
| 0677                    +00001 |     |
|                               +-----+
|
|                               Delay,
|                               Servo
|                               Stop=1
|
|                               %R3372
|
|Servo   STOP se START/R                                                          << RUNG 678  STEP #4039 >>
|Rst,    rvo pro ESET se Servo
|Servo   gram (w rvo pro Rst,
|stop=1  hen 0)  gram ex Active
|
|%M3185  %Q0097  %Q0098  %M3180  +-----+                                 %M3186
+--] [-----] [-----]/[--+--] [---+ TMR +----------------------------------( )--  (* Servo Rst, Servo Start/Reset=1 *)
| 0677    0682    0683  | 0672   |0.10s|                                        Cross reference for %M3186
|Servo R                |        |     |                                        -] [- 678,679,683
|st, Ser                |        |     |
|vo Star                |        |     |
|t/Reset                |        |     |
|                       |        |     |
|%M3186                 |        |     |
+--] [------------------+ CONST -+PV   |
| 0678                    +00001 |     |
|                               +-----+
|                               Delay2,
|                               Servo
|                               Start/
|                               Rst=1
|
|                               %R3375
|
```

```
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|Servo R STOP se START/R                                                          << RUNG 679  STEP #4046 >>
|st, Ser rvo pro ESET se Servo
|vo Star gram (w rvo pro Rst,
|t/Reset hen 0)  gram ex Active
|
|%M3186  %Q0097  %Q0098  %M3180  +-----+                                %M3187
+--] [-----] [-----] [--+--] [---+ TMR +----------------------------------( )--  (* Servo Rst, Servo Start/Reset=0 *)
| 0678    0682    0683  | 0672   |0.10s|                                        Cross reference for %M3187
|Servo R                |        |     |                                        -] [- 679,680,681
|st, Ser                |        |     |                                        -]/[- 683
|vo Star                |        |     |
|t/Reset                |        |     |
|                       |        |     |
|%M3187                 |        |     |
+--] [------------------+ CONST -+PV   |
| 0679                    +00001 |     |
|                                +-----+
|                                Delay2,
|                                Servo
|                                Start/
|                                Rst=0
|
|                                %R3378
|
|Servo R                                                                          << RUNG 680  STEP #4053 >>
|st, Ser
|vo Star Servo
|t/Reset ready
|
|%M3187  %I0095  +-----+                                                %M3196
+--] [-----]/[---+ TMR +-------------------------------------------------( )--  (* Servo Rst, Error cant be reset *)
| 0679           |0.10s|                                                        Cross reference for %M3196
|                |     |                                                        -] [- 681
|         CONST -+PV   |
|         +00100 |     |
|                +-----+
|                Servo R
|                st, Max
|                time be
|                fore re
|
|                %R3393
|
|Servo R STOP se START/R                                                          << RUNG 681  STEP #4057 >>
|st, Ser rvo pro ESET se         Servo
|vo Star gram (w rvo pro Servo   Rst,
|t/Reset hen 0)  gram ex ready   Active
|
|%M3187  %Q0097  %Q0098  %I0095  %M3180                                 %M3188
+--] [--+--] [-----]/[-----] [--+--] [-----------------------------------( )--  (* Servo Rst, Servo Ready *)
| 0679  | 0682    0683         | 0672                                          Cross reference for %M3188
|       |Servo R               |                                               -] [- 668,681
|       |st, Err               |                                               -]/[- 672
|       |or cant               |
|       |be rese               |
|       |                      |
|       |%M3196                |
|       +--] [------------------+
|         0680                 |
|Servo                         |
|Rst,                          |
|Servo                         |
|Ready                         |
|                              |
|%M3188                        |
+--] [---------------------------+
| 0681
|
|                Servo R                                                          << RUNG 682  STEP #4066 >>
|                st, Ser
|        Enable  v stop=
|Step 1  servo   0 Enabl
|STEP_1
|%M0101  %Q0099  %M3182                                                 %Q0097
+--] [--+--] [--+--]/[--+-------------------------------------------------( )--  (* STOP servo program (when 0) *)
| 0034  | 0684  | 0674  |                                                       Cross reference for %Q0097
|       |Servo R|Servo  |                                                       -] [- 674,678,679,681
|       |st, Ser|Rst,   |                                                       -]/[- 675,676,677
|       |vo Enab|Servo  |
|       |le=0   |stop=1 |
|       |       |       |
|       |%M3181 |%M3185 |
|       +--] [--+--] [--+
|         0673    0677
|
```

```
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```

```
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|Servo R Servo R                                                                << RUNG 683  STEP #4074 >>
|st,Serv st, Ser
|o Start vo Star
|/Reset= t/Reset
|
|%M3183  %M3184                                                   %Q0098
+--] [-----]/[--+-------------------------------------------------------( )--  (* START/RESET servo program exec   *)
| 0675    0676  |                                                             Cross reference for %Q0098
|Servo R Servo R|                                                             -] [- 676,679
|st, Ser st, Ser|                                                             -]/[- 674,675,677,678,681
|vo Star vo Star|
|t/Reset t/Reset|
|               |
|%M3186  %M3187 |
+--] [-----]/[--+
| 0678    0679
|
|        Servo R                                                                << RUNG 684  STEP #4080 >>
|Control st, Ser
|e       vo Enab
|volage  le=0
|  L11
|%I0086  %M3181                                                   %Q0099
+--] [-----]/[-------------------------------------------------------( )--  (* Enable servo                     *)
|         0673                                                                Cross reference for %Q0099
|                                                                             -] [- 675,682
|                                                                             -]/[- 674
|
| (*************************************************************************)
| (* BOX PUSHER RESET SEQUENCE 2:                                          *)
| (* - Door open, Em stop or light barrier at pusher back movement         *)
| (* - Pusher crash M81                                                    *)
| (* - Servo alarm                                                         *)
| (* - Crash grouping pusher (if reset sequence 1 is not started)          *)
| (* - Step up from below step1                                            *)
| (*                                                                       *)
| (* When stepping up to:                                                  *)
| (* Step 2 - Machine parts moves out of the way and box pusher goes home. *)
| (* Step 3 - Production continues.                                        *)
| (*************************************************************************)
|
|Emerg.s         Pusher          Pusher                                       << RUNG 686  STEP #4084 >>
|top             home    Pulse,  backwar
|circuit         pos.    Step2-  ds
|                 B121           Y103-2
|%I0002          %I0034  %T0017  %Q0078                          %T0047
+--]/[--+-------+--]/[-----] [-----] [-----------------------------------(^)--  (* Em/Door pusher backwards *)
|       |       |         0044    0343                                         Cross reference for %T0047
|       |       |                                                              -] [- 687
|Door   |       |
|circuit|       |
|       |       |
|%I0014 |       |
+--]/[--+       |
|               |
|        Lightba|
|Light   rrier  |
|barrier install|
|e       ed     |
|               |
|%I0087  %M1002 |
+--]/[-----] [--+
|
```

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|Sum ala                                                                                   << RUNG 687  STEP #4093 >>
|rm, cru
|sh in p
|usher                          Step 1
|                               STEP_1
|%M0081                         %M0101                                  %M3166
+--] [--+----------------------+--] [-----------------------------------( )--  (* Pusher reset, Active *)
| 0589  |                      | 0034                                          Cross reference for %M3166
|       |                      |                                               -] [- 687,688,690,691,692,693,694,695,696,697
|Alarm  |                      |                                               -]/[- 51,330,339,665
|servo  |                      |
|       |                      |
|%M0061 |                      |
+--] [--+                      |
| 0566                         |
|Crush          Em/Door        |
|in      Em/Door , Servo       |
|group.  , Reset reset   Pulse, |
|pusher  servo   done    Step2- |
|                              |
|%M0074  %M1185  %M1186  %T0017 |
+--] [-----]/[-----]/[-----] [--+
| 0525    0666    0668    0044  |
|Em/Door                       |
|pusher                        |
|backwar                       |
|ds                            |
|                              |
|%T0047                        |
+--] [---------------------------+
| 0686                         |
|                              |
|Pulse,                        |
|Step1+                        |
|                              |
|%T0018                        |
+--] [---------------------------+
| 0035                         |
|                              |
|Pusher  Pusher                |
|reset,  reset,                |
|Active  Done                  |
|                              |
|%M3166  %M3175                |
+--] [-----]/[------------------+
| 0687    0697
|
|Pusher  Servo   Pulse   Pusher                                                            << RUNG 688  STEP #4107 >>
|reset,  Rst,    alarm   reset,
|Active  Active  reset   Active  Step 1
|                                STEP_1
|%M3166  %M3180  %T0004  %M3166  %M0101                                  %M3167
+--] [-----]/[--+--] [--+--] [-----] [-----------------------------------( )--  (* Pusher reset, reset servo *)
| 0687    0672  | 0648  | 0687    0034                                        Cross reference for %M3167
|               |       |                                                       -] [- 673,688,689,690
|               |Pulse, |
|               |Step1+ |
|               |       |
|               |%T0018 |
|               +--] [--+
|                 0035  |
|Pusher  Pusher         |
|reset,  reset,         |
|reset   Folding        |
|servo   bar off        |
|                       |
|%M3167  %M3168         |
+--] [-----]/[----------+
| 0688    0690
|
|Pusher                                                                                    << RUNG 689  STEP #4118 >>
|reset,  Pulse
|reset   alarm
|servo   reset
|
|%M3167  %T0004                                                          %T0078
+--] [--+--]/[--+-------------------------------------------------------(^)--  (* Pusher reset, Pulse reset servo *)
| 0688  | 0648  |                                                               Cross reference for %T0078
|       |       |                                                               -] [- 672
|       |Servo  |
|       |Rst,   |
|       |Active |
|       |       |
|       |%M3180 |
|       +--] [--+
|         0672
|

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|Pusher                                                                                   << RUNG 690  STEP #4123 >>
|reset,          Pusher
|reset   Pulse,  reset,
|servo   Step2+  Active  Step 2
|                        STEP_2
|%M3167  %T0016  %M3166  %M0102                                          %M3168
+--] [-----] [--+--] [-----] [-------------------------------------------( )--  (* Pusher reset, Folding bar off *)
| 0688    0043  | 0687    0042                                                  Cross reference for %M3168
|Pusher         |                                                                -] [- 690,691
|reset,         |                                                                -]/[- 373,688
|Folding        |
|bar off        |
|               |
|%M3168         |
+--] [----------+
| 0690
|
|Pusher                                                                                   << RUNG 691  STEP #4129 >>
|reset,          Pusher
|Folding Folding reset,
|bar off bar on  Active  Step 2
|         Y165           STEP_2
|%M3168  %Q0061  %M3166  %M0102                                          %M3169
+--] [-----]/[--+--] [-----] [-------------------------------------------( )--  (* Pusher reset, Bottom flap off *)
| 0690    0373  | 0687    0042                                                  Cross reference for %M3169
|Pusher         |                                                                -] [- 691,692
|reset,         |                                                                -]/[- 377
|Bottom         |
|flap of        |
|               |
|%M3169         |
+--] [----------+
| 0691
|
|Pusher                                                                                   << RUNG 692  STEP #4135 >>
|reset,  Bottom  Pusher
|Bottom  flap    reset,
|flap of folder  Active  Step 2
|         Y160           STEP_2
|%M3169  %Q0057  %M3166  %M0102  +-----+                                 %M3170
+--] [-----]/[--+--] [-----] [---+ TMR +----------------------------------( )--  (* Pusher reset, Transf plate down *)
| 0691    0377  | 0687    0042   |0.10s|                                         Cross reference for %M3170
|Pusher         |                |     |                                         -] [- 692,693
|reset,         |                |     |                                         -]/[- 363
|Transf         |                |     |
|plate d        |                |     |
|               |                |     |
|%M3170         |                |     |
+--] [----------+         CONST --+PV   |
| 0692                    +00003 |     |
|                                +-----+
|                                Delay,
|                                PushRst
|                                transfp
|                                late do
|
|                                %R3360
|
|Pusher  Transf.                                                                          << RUNG 693  STEP #4142 >>
|reset,  plate   Transf. Pusher
|Transf  upper   plate   reset,
|plate d pos.    down    Active  Step 2
|         B120   Y105-2          STEP_2
|%M3170  %I0033  %Q0062  %M3166  %M0102                                  %M3171
+--] [-----]/[-----] [--+--] [-----] [-------------------------------------( )--  (* Pusher reset, Endstop in *)
| 0692            0364  | 0687    0042                                          Cross reference for %M3171
|Pusher                 |                                                        -] [- 693,694
|reset,                 |                                                        -]/[- 310
|Endstop                |
|in                     |
|                       |
|%M3171                 |
+--] [------------------+
| 0693
|
|Pusher  End                                                                              << RUNG 694  STEP #4149 >>
|reset,  stop    End     Pusher
|Endstop inner   stop to reset,
|in      pos.    on pos. Active  Step 2
|         B124    Y104           STEP_2
|%M3171  %I0037  %Q0012  %M3166  %M0102                                  %M3172
+--] [-----] [-----]/[--+--] [-----] [-------------------------------------( )--  (* Pusher reset, Pusher arm up *)
| 0693            0310  | 0687    0042                                          Cross reference for %M3172
|Pusher                 |                                                        -] [- 324,694,695
|reset,                 |
|Pusher                 |
|arm up                 |
|                       |
|%M3172                 |
+--] [------------------+
| 0694
|

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|Pusher  Pusher                                                                          << RUNG 695  STEP #4156 >>
|reset,  arm            Pusher
|Pusher  upper   Pusher  reset,
|arm up  pos     arm up  Active  Step 2
|         B147    Y169           STEP_2
|%M3172  %I0040  %Q0027  %M3166  %M0102                                  %M3173
+--] [-----] [-----] [--+--] [-----] [-----------------------------------( )--  (* Pusher reset, Pusher support up *)
| 0694           0324  | 0687    0042                                         Cross reference for %M3173
|Pusher                |                                                      -] [- 695,696
|reset,                |                                                      -]/[- 332
|Pusher                |
|support               |
|                      |
|%M3173                |
+--] [------------------+
| 0695
|
|Pusher  Pusher                                                                          << RUNG 696  STEP #4163 >>
|reset,  support Pusher  Pusher
|Pusher  arm upp support reset,
|support er pos. arm up  Active  Step 2
|         B148    Y111           STEP_2
|%M3173  %I0068  %Q0022  %M3166  %M0102                                  %M3174
+--] [-----] [-----] [--+--] [-----] [-----------------------------------( )--  (* Pusher reset, Pusher back *)
| 0695           0332  | 0687    0042                                         Cross reference for %M3174
|Pusher                |                                                      -] [- 343,696,697
|reset,                |                                                      -]/[- 339
|Pusher                |
|back                  |
|                      |
|%M3174                |
+--] [------------------+
| 0696
|
|Pusher                                                                                  << RUNG 697  STEP #4170 >>
|reset,  Pusher  Pusher
|Pusher  home    reset,
|back    pos.    Active  Step 2
|         B121           STEP_2
|%M3174  %I0034  %M3166  %M0102                                          %M3175
+--] [-----] [--+--] [-----] [-------------------------------------------( )--  (* Pusher reset, Done *)
| 0696          | 0687    0042                                                 Cross reference for %M3175
|               |                                                              -] [- 697
|Pusher         |                                                              -]/[- 687
|reset,         |
|Done           |
|               |
|%M3175         |
+--] [----------+
| 0697
|
| (*************************************************************************)
| (* FEEDING CHAIN RELEASE CLUTCH                                          *)
| (* For packing pattern adjustment                                        *)
| (*************************************************************************)
|
|Clutch                                                                                  << RUNG 699  STEP #4177 >>
|feeding
|on/off
| S05H
|%I0016                                                                  %T0201
+--] [-------------------------------------------------------------------(^)--  (* Clutch feeding on/off puls       *)
|                                                                                        Cross reference for %T0201
|                                                                                        -] [- 700,701
|
|        Clutch                                                                          << RUNG 700  STEP #4179 >>
|        feeding Clutch
|        on/off  feeding
|Step 1  puls    off pos
|STEP_1           B161
|%M0101  %T0201  %I0055                                                  %M1265
+--]/[-----] [-----] [--------------------------------------------------(S)--  (* ME.  clutch feeding              *)
| 0034    0699                                                                           Cross reference for %M1265
|                                                                                        -] [- 702
|                                                                                        -(R)  701
|
|Clutch                                                                                  << RUNG 701  STEP #4183 >>
|feeding Clutch
|on/off  feeding
|puls    off pos
|         B161
|%T0201  %I0055                                                          %M1265
+--] [-----]/[--+-------------------------------------------------------(R)--  (* ME.  clutch feeding              *)
| 0699          |                                                                        Cross reference for %M1265
|               |                                                                        -] [- 702
|Step 2         |                                                                        -(S)  700
|STEP_2         |
|%M0102         |
+--] [----------+
| 0042
|

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|ME.                                                                          << RUNG 702  STEP #4187 >>
|clutch
|feeding Step 2
|        STEP_2                                                   Y142
|%M1265  %M0102                                                  %Q0079
+--] [-----]/[-----------------------------------------------------------( )--  (* Clutch feeding                    *)
| 0701    0042                                                                Cross reference for Y142
|                                                                             -] [- 703
|
|Clutch                                                                       << RUNG 703  STEP #4190 >>
|feeding
| Y142                                                            H005
|%Q0079                                                          %M0149
+--] [-----------------------------------------------------------------( )--  (* Clutch feeding on                 *)
| 0702                                                                        Cross reference for H005
|                                                                                       NONE
|
| (*************************************************************************)
| (* HIGH OR LOW SPEED SELECTION                                           *)
| (*************************************************************************)
|
|Bottom                                                                       << RUNG 705  STEP #4193 >>
|size 3  (X*2)   (X*3)
|
|%M0883  %M0902  %M0903                                          %M1286
+--] [--+--]/[-----]/[-------------------------------------------------( )--  (* High speed allowed                *)
|       |                                                                    Cross reference for %M1286
|Bottom |                                                                    -] [- 709,711
|size 4 |                                                                    -]/[- 710
|       |
|%M0884 |
+--] [--+
|       |
|Bottom |
|size 5 |
|       |
|%M0885 |
+--] [--+
|       |
|Bottom |
|size 7 |
|       |
|%M0887 |
+--] [--+
|       |
|Bottom |
|size 8 |
|       |
|%M0888 |
+--] [--+
|
|        Select                                                               << RUNG 706  STEP #4201 >>
|        speed   Push    Cynch
|        in      button  speed
|Step 2  machine delay   on
|STEP_2   S12H
|%M0102  %I0080  %M1014  %M1180                                  %T0203
+--]/[-----] [-----] [-----]/[--+-------------------------------------(^)--  (* puls select speed machine         *)
| 0042                          |                                            Cross reference for %T0203
|                               |                                            -] [- 710
|Cynch                          |                                            -]/[- 710
|speed                          |
|puls on                        |
|                               |
|%T0204                         |
+--] [---------------------------+
| 0707                          |
|Cynch                          |
|speed                          |
|puls                           |
|off                            |
|                               |
|%T0205                         |
+--] [---------------------------+
| 0708
|
|        High                                                                 << RUNG 707  STEP #4208 >>
|Cynch   speed
|speed   in
|on      machine
|
|%M1180  %M1285                                                  %T0204
+--] [-----] [-----------------------------------------------------------(^)--  (* Cynch speed puls on              *)
|         0711                                                                Cross reference for %T0204
|                                                                             -] [- 706
|
|Cynch   High                                                                 << RUNG 708  STEP #4211 >>
|speed   speed
|on      locked
|
|%M1180  %M1182                                                  %T0205
+--]/[-----] [-----------------------------------------------------------(^)--  (* Cynch speed puls off             *)
|         0709                                                                Cross reference for %T0205
|                                                                             -] [- 706

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|High                                                                    << RUNG 709  STEP #4214 >>
|speed          High
|in             speed
|machine        allowed
|
|%M1285         %M1286                                        %M1182
+--] [----------+--] [-----------------------------------------------( )--  (* High speed locked                *)
| 0711          | 0705                                                      Cross reference for %M1182
|        Select |                                                           -] [- 708,709
|High    speed  |
|speed   in     |
|locked  machine|
|         S12H  |
|%M1182  %I0080 |
+--] [-----]/[--+
| 0709
|
|puls    Low                                                             << RUNG 710  STEP #4220 >>
|select  speed
|speed   in
|machine machine
|
|%T0203  %M1284                                                %M1284
+--] [-----]/[--+-------------------------------------------------------(M)--  (* Low speed in machine             *)
| 0706    0710  |                                                           Cross reference for %M1284
|puls    Low    |                                                           -] [- 346,393,464,659,710,713
|select  speed  |                                                           -]/[- 710,711
|speed   in     |
|machine machine|
|               |
|%T0203  %M1284 |
+--]/[--+--] [--+
| 0706  | 0710  |
|       |       |
|       |High   |
|       |speed  |
|       |allowed|
|       |       |
|       |%M1286 |
|       +--]/[--+
|         0705
|
|Low                                                                     << RUNG 711  STEP #4228 >>
|speed   High
|in      speed
|machine allowed
|
|%M1284  %M1286                                                %M1285
+--]/[-----] [----------------------------------------------------------(M)--  (* High speed in machine            *)
| 0710    0705                                                              Cross reference for %M1285
|                                                                           -] [- 71,76,79,84,87,90,93,96,297,323,339,346,355,
|                                                                                 375,394,407,410,414,416,421,463,656,658,707,
|                                                                                 709,714
|                                                                           -]/[- 76,84,86,88,89,90,96,297,323,376,406,409,
|                                                                                 413,415,422
|
|Cynch                                                                   << RUNG 712  STEP #4231 >>
|speed
|on      Flash
|         FLASH
|%M1180  %M0003                                                %M3240
+--] [-----] [----------------------------------------------------------( )--  (* Synch speed active *)
|         0022                                                              Cross reference for %M3240
|                                                                           -]/[- 713
|
|Low                                                                     << RUNG 713  STEP #4234 >>
|speed   Synch
|in      speed
|machine active  Step 0
|                STEP_0                                         H061
|%M1284  %M3240  %M0100                                        %Q0102
+--] [-----]/[--+--] [-----------------------------------------------(M)--  (* Low speed in machine             *)
| 0710    0712  | 0029                                                      Cross reference for H061
|               |                                                                   NONE
|Lamp           |
|test           |
|L_TEST         |
|%M0006         |
+--] [----------+
| 0647
|

Program: A454891                    C:\LM90\VISN\P1000\A454891                    Block: _MAIN
```

```
03-22-04  11:46                    GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                    Page   171
                                     Tetra Cardboard Packer 70 Multi 1100
                                 45489-0001 ELD 000 AA 040223 OHO ECM:162315

|High                                                                    << RUNG 714  STEP #4239 >>
|speed
|in
|machine Step 0
|        STEP_0                                                  H060
|%M1285  %M0100                                                 %Q0104
+--] [--+--] [-------------------------------------------------------(M)--  (* High speed in machine            *)
| 0711  | 0029                                                          Cross reference for H060
|       |                                                                         NONE
|Lamp   |
|test   |
|L_TEST |
|%M0006 |
+--] [--+
| 0647
|
| (*************************************************************************)
| (* GROUPING PUSHER HOME POSITION SET                                     *)
| (*************************************************************************)
|
|        Group                                                           << RUNG 716  STEP #4244 >>
|        pusher  Push
|        home    button
|Step 2  select  delay
|STEP_2   S016
|%M0102  %I0088  %M1014                                         %Q0091
+--]/[-----] [-----] [-----------------------------------------------( )--  (* Group pusher set pos home        *)
| 0042                                                                   Cross reference for %Q0091
|                                                                        -] [- 717
|
|        Group                                                           << RUNG 717  STEP #4248 >>
|        pusher
|        set pos
|Step 2  home
|STEP_2                                                          H062
|%M0102  %Q0091                                                 %Q0092
+--]/[-----] [--+----------------------------------------------------(M)--  (* Group pusher set pos home ok     *)
| 0042    0716  |                                                       Cross reference for H062
|               |                                                                 NONE
|Lamp           |
|test           |
|L_TEST         |
|%M0006         |
+--] [----------+
| 0647
|
| (*************************************************************************)
| (* START LUBRICATION INFEED CONVEYOR                                     *)
| (*************************************************************************)
|
|Infeed                                                                  << RUNG 719  STEP #4253 >>
|conv.
|start
|G21-SF                                                          K091
|%Q0032                                                         %Q0080
+--] [----------------------------------------------------------------( )--  (* Start coveyor lubric             *)
| 0111                                                                   Cross reference for K091
|                                                                                 NONE
|
| (*************************************************************************)
| (* SERVO AXIS IDENTIFICATION                                             *)
| (*************************************************************************)
|
|Axis                                                                    << RUNG 721  STEP #4256 >>
|ident
|
|%I0090                                                         %T0044
+--] [-----------------------------------------------------------------(^)--  (* Servo axis ident puls            *)
|                                                                        Cross reference for %T0044
|                                                                        -] [- 723
|
|Axis                                                                    << RUNG 722  STEP #4258 >>
|ident
|
|%I0090                                                         %M1171
+--]/[----------------------------------------------------------------( )--  (* ME. axis ident                   *)
|                                                                        Cross reference for %M1171
|                                                                        -]/[- 723
|
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                                Page   172
                                           Tetra Cardboard Packer 70 Multi 1100
                                        45489-0001 ELD 000 AA 040223 OHO ECM:162315

|Servo                                                                          << RUNG 723  STEP #4260 >>
|axis
|ident   Servo
|puls    ready   Step 3
|                STEP_3
|%T0044  %I0095  %M0103                                          %M1170
+--] [-----] [-----]/[--+-------------------------------------------------( )--  (* Servo axis ident                 *)
| 0721            0048  |                                                      Cross reference for %M1170
|                       |                                                      -] [- 37,158,252,323,567,646,723
|Servo   ME.     Pulse  |                                                      -]/[- 48,156,186,253,310,332,349,363
|axis    axis    alarm  |
|ident   ident   reset  |
|                       |
|%M1170  %M1171  %T0004 |
+--] [-----]/[-----]/[--+
| 0723    0722    0648
|
| (*************************************************************************)
| (* CALL PLMS SUBROUTINE                                                  *)
| (*************************************************************************)
|
|ALW_ON         PLMS                                                            << RUNG 725  STEP #4269 >>
|%S0007  +-------------+
+--] [---+ CALL  PLMS  +
|        | (SUBROUTINE)|
|        +-------------+
|
|[      END OF PROGRAM LOGIC      ]
|
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   173
                                           Tetra Cardboard Packer 70 Multi 1100
                                        45489-0001 ELD 000 AA 040223 OHO ECM:162315

|[  START LD SUBROUTINE  PATTER0  ]
|
|[     VARIABLE DECLARATIONS      ]
|
|[   START OF SUBROUTINE LOGIC    ]
|
```

```
03-22-04  11:46                    GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                    Page   174
                                     Tetra Cardboard Packer 70 Multi 1100
                                 45489-0001 ELD 000 AA 040223 OHO ECM:162315

| (*************************************************************************)
| (*                                                                       *)
| (* MACHINE ADAPTION, BOTTOM SIZE 0                                       *)
| (* FOR ADJUSTMENT SEE MM CHAPTER 6 SET                                   *)
| (*                                                                       *)
| (*************************************************************************)
|
| (*************************************************************************)
| (*                                                                       *)
| (* 1 MOVE BIT                                                            *)
| (*                                                                       *)
| (* Grouping belt pattern fill speed choice                               *)
| (*                                                                       *)
| (* Const =0  Not high speed                                              *)
| (* Const =1  High speed                                                  *)
| (* --------------------------------------------------------------------- *)
| (* 2 MOVE BIT                                                            *)
| (*                                                                       *)
| (* Pusher mat short blue mat                                             *)
| (*                                                                       *)
| (* Const =0 Pusher mat NOT running during pusher phase ( Tetra Prisma )  *)
| (* Const =1 Pusher mat running during pusher phase                      *)
| (* --------------------------------------------------------------------- *)
| (* 3 MOVE BIT                                                            *)
| (*                                                                       *)
| (* Pusher support plate up att middle position or end position sensor    *)
| (*                                                                       *)
| (* Const = 0 Pusher support plate up at pusher end position sensor       *)
| (* Const = 1 Pusher support plate up at pusher middle position sensor    *)
| (* --------------------------------------------------------------------- *)
| (*************************************************************************)
|
|Bottom                                                                   << RUNG 5  STEP #0003 >>
|size 0
|
|%M0880  +-----+                +-----+                +-----+
+--] [---+MOVE_+----------------+MOVE_+----------------+MOVE_+-
|        | BIT |                | BIT |                | BIT |
|        |     |                |     |                |     |
|        |     | Belt           |     | Run            |     | Pusher
|        |     | speed          |     | pushblt        |     | support
|        |     | 0=low          |     | 0=don't        |     | up at m
|        |     | 1= high        |     | 1=run          |     | id sens
|        |     |                |     |                |     |
| CONST -+IN  Q+-%M1005   CONST -+IN  Q+-%M1017   CONST -+IN  Q+-%M1032
|   0000 | LEN |            0000 | LEN |            0000 | LEN |
|        |00001|                |00001|                |00001|
|        |     |                |     |                |     |
|        +-----+                +-----+                +-----+
|
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   175
                                           Tetra Cardboard Packer 70 Multi 1100
                                        45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   176
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   177
                                           Tetra Cardboard Packer 70 Multi 1100
                                        45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   178
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                                Page   179
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

|        High                                                                   << RUNG 14  STEP #0030 >>
|        speed
|        in
|        machine
|
|        %M1285  +-----+
+<+>-------] [---+BLKMV+-
|                | INT |
|                |     |
|                |     | 1:st
|                |     | hotmelt
|                |     | start,
|                |     | lower
|                |     |
|         CONST -+IN1 Q+-%R0540
|         +00217 |     |
|                |     |
|         CONST -+IN2  |
|         +00217 |     |
|                |     |
|         CONST -+IN3  |
|         +00315 |     |
|                |     |
|         CONST -+IN4  |
|         +00315 |     |
|                |     |
|         CONST -+IN5  |
|         +00000 |     |
|                |     |
|         CONST -+IN6  |
|         +00000 |     |
|                |     |
|         CONST -+IN7  |
|         +00000 +-----+
|
```

```
Program: A454891                    C:\LM90\VISN\P1000\A454891                    Block: PATTER0(SUBR 01)
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   180
                                           Tetra Cardboard Packer 70 Multi 1100
                                        45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   181
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   182
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   183
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

|        High                                                                   << RUNG 21  STEP #0050 >>
|        speed
|        in
|        machine
|
|        %M1285  +-----+
+<+>-------] [---+BLKMV+-
|                | INT |
|                |     |
|                |     | 1:st
|                |     | hotmelt
|                |     | start,
|                |     | lower
|                |     |
|         CONST -+IN1 Q+-%R0540
|         +00190 |     |
|                |     |
|         CONST -+IN2  |
|         +00190 |     |
|                |     |
|         CONST -+IN3  |
|         +00300 |     |
|                |     |
|         CONST -+IN4  |
|         +00300 |     |
|                |     |
|         CONST -+IN5  |
|         +00000 |     |
|                |     |
|         CONST -+IN6  |
|         +00000 |     |
|                |     |
|         CONST -+IN7  |
|         +00000 +-----+
|
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   184
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   185
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   186
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   187
                                           Tetra Cardboard Packer 70 Multi 1100
                                        45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   188
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

|[  START LD SUBROUTINE  PATTER1  ]
|
|[     VARIABLE DECLARATIONS      ]
|
|[   START OF SUBROUTINE LOGIC    ]
|
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   189
                                           Tetra Cardboard Packer 70 Multi 1100
                                        45489-0001 ELD 000 AA 040223 OHO ECM:162315

| (*****************************************************************************)
| (*                                                                           *)
| (* MACHINE ADAPTION, BOTTOM SIZE 1                                           *)
| (* FOR ADJUSTMENT SEE MM CHAPTER 6 SET                                       *)
| (*****************************************************************************)
|
| (*****************************************************************************)
| (*                                                                           *)
| (* 1 MOVE BIT                                                                *)
| (*                                                                           *)
| (* Grouping belt pattern fill speed choice                                   *)
| (*                                                                           *)
| (* Const =0  Not high speed                                                  *)
| (* Const =1  High speed                                                      *)
| (* ------------------------------------------------------------------------- *)
| (* 2 MOVE BIT                                                                *)
| (*                                                                           *)
| (* Pusher mat short blue mat                                                 *)
| (*                                                                           *)
| (* Const =0 Pusher mat NOT running during pusher phase ( Tetra Prisma )      *)
| (* Const =1 Pusher mat running during pusher phase                          *)
| (* ------------------------------------------------------------------------- *)
| (* 3 MOVE BIT                                                                *)
| (*                                                                           *)
| (* Pusher support plate up att middle position or end position sensor        *)
| (*                                                                           *)
| (* Const = 0 Pusher support plate up at pusher end position sensor           *)
| (* Const = 1 Pusher support plate up at pusher middle position sensor        *)
| (* ------------------------------------------------------------------------- *)
| (*****************************************************************************)
|
|Bottom                                                                                   << RUNG 5  STEP #0003 >>
|size 1
|
|%M0881  +-----+                 +-----+                 +-----+
+--] [---+MOVE_+-----------------+MOVE_+-----------------+MOVE_+-
|        | BIT |                 | BIT |                 | BIT |
|        |     |                 |     |                 |     |
|        |     | Belt            |     | Run             |     | Pusher
|        |     | speed           |     | pushblt         |     | support
|        |     | 0=low           |     | 0=don't         |     | up at m
|        |     | 1= high         |     | 1=run           |     | id sens
|        |     |                 |     |                 |     |
| CONST -+IN  Q+-%M1005   CONST -+IN  Q+-%M1017   CONST -+IN  Q+-%M1032
|   0001 | LEN |            0000 | LEN |            0000 | LEN |
|        |00001|                 |00001|                 |00001|
|        |     |                 |     |                 |     |
|        +-----+                 +-----+                 +-----+
|
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   190
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   191
                                           Tetra Cardboard Packer 70 Multi 1100
                                        45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   192
                                           Tetra Cardboard Packer 70 Multi 1100
                                        45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   193
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   194
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

|        High                                                                    << RUNG 14  STEP #0030 >>
|        speed
|        in
|        machine
|
|        %M1285  +-----+
+<+>-------] [---+BLKMV+-
|                | INT |
|                |     |
|                |     | 1:st
|                |     | hotmelt
|                |     | start,
|                |     | lower
|                |     |
|         CONST -+IN1 Q+-%R0540
|         +00217 |     |
|                |     |
|         CONST -+IN2  |
|         +00217 |     |
|                |     |
|         CONST -+IN3  |
|         +00315 |     |
|                |     |
|         CONST -+IN4  |
|         +00315 |     |
|                |     |
|         CONST -+IN5  |
|         +00000 |     |
|                |     |
|         CONST -+IN6  |
|         +00000 |     |
|                |     |
|         CONST -+IN7  |
|         +00000 +-----+
|
```

```
Program: A454891                    C:\LM90\VISN\P1000\A454891                    Block: PATTER1(SUBR 02)
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   195
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   196
                                           Tetra Cardboard Packer 70 Multi 1100
                                        45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   197
                                           Tetra Cardboard Packer 70 Multi 1100
                                        45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   198
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

|        High                                                                    << RUNG 21  STEP #0050 >>
|        speed
|        in
|        machine
|
|        %M1285  +-----+
+<+>-------] [---+BLKMV+-
|                | INT |
|                |     |
|                |     | 1:st
|                |     | hotmelt
|                |     | start,
|                |     | lower
|                |     |
|         CONST -+IN1 Q+-%R0540
|         +00190 |     |
|                |     |
|         CONST -+IN2  |
|         +00190 |     |
|                |     |
|         CONST -+IN3  |
|         +00300 |     |
|                |     |
|         CONST -+IN4  |
|         +00300 |     |
|                |     |
|         CONST -+IN5  |
|         +00000 |     |
|                |     |
|         CONST -+IN6  |
|         +00000 |     |
|                |     |
|         CONST -+IN7  |
|         +00000 +-----+
|
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   199
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   200
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   201
                                           Tetra Cardboard Packer 70 Multi 1100
                                        45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   202
                                           Tetra Cardboard Packer 70 Multi 1100
                                        45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   203
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

|[  START LD SUBROUTINE  PATTER2  ]
|
|[     VARIABLE DECLARATIONS      ]
|
|[   START OF SUBROUTINE LOGIC    ]
|
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   204
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| (*****************************************************************************)
| (*                                                                           *)
| (* MACHINE ADAPTION, BOTTOM SIZE 2                                           *)
| (* FOR ADJUSTMENT SEE MM CHAPTER 6 SET                                       *)
| (*****************************************************************************)
|
| (*****************************************************************************)
| (*                                                                           *)
| (* 1 MOVE BIT                                                                *)
| (*                                                                           *)
| (* Grouping belt pattern fill speed choice                                   *)
| (*                                                                           *)
| (* Const =0  Not high speed                                                  *)
| (* Const =1  High speed                                                      *)
| (* ------------------------------------------------------------------------- *)
| (* 2 MOVE BIT                                                                *)
| (*                                                                           *)
| (* Pusher mat short blue mat                                                 *)
| (*                                                                           *)
| (* Const =0 Pusher mat NOT running during pusher phase ( Tetra Prisma )      *)
| (* Const =1 Pusher mat running during pusher phase                          *)
| (* ------------------------------------------------------------------------- *)
| (* 3 MOVE BIT                                                                *)
| (*                                                                           *)
| (* Pusher support plate up att middle position or end position sensor       *)
| (*                                                                           *)
| (* Const = 0 Pusher support plate up at pusher end position sensor           *)
| (* Const = 1 Pusher support plate up at pusher middle position sensor        *)
| (* ------------------------------------------------------------------------- *)
| (*****************************************************************************)
|
|Bottom                                                                                  << RUNG 5  STEP #0003 >>
|size 2
|
|%M0882  +-----+                 +-----+                 +-----+
+--] [---+MOVE_+-----------------+MOVE_+-----------------+MOVE_+-
|        | BIT |                 | BIT |                 | BIT |
|        |     |                 |     |                 |     |
|        |     | Belt            |     | Run             |     | Pusher
|        |     | speed           |     | pushblt         |     | support
|        |     | 0=low           |     | 0=don't         |     | up at m
|        |     | 1= high         |     | 1=run           |     | id sens
|        |     |                 |     |                 |     |
| CONST -+IN  Q+-%M1005   CONST -+IN  Q+-%M1017   CONST -+IN  Q+-%M1032
|   0001 | LEN |            0000 | LEN |            0000 | LEN |
|        |00001|                 |00001|                 |00001|
|        |     |                 |     |                 |     |
|        +-----+                 +-----+                 +-----+
|
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   205
                                           Tetra Cardboard Packer 70 Multi 1100
                                        45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   206
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   207
                                            Tetra Cardboard Packer 70 Multi 1100
                                        45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   208
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                                Page   209
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

|        High                                                                   << RUNG 14  STEP #0030 >>
|        speed
|        in
|        machine
|
|        %M1285  +-----+
+<+>-------] [---+BLKMV+-
|                | INT |
|                |     |
|                |     | 1:st
|                |     | hotmelt
|                |     | start,
|                |     | lower
|                |     |
|         CONST -+IN1 Q+-%R0540
|         +00217 |     |
|                |     |
|         CONST -+IN2  |
|         +00217 |     |
|                |     |
|         CONST -+IN3  |
|         +00315 |     |
|                |     |
|         CONST -+IN4  |
|         +00315 |     |
|                |     |
|         CONST -+IN5  |
|         +00000 |     |
|                |     |
|         CONST -+IN6  |
|         +00000 |     |
|                |     |
|         CONST -+IN7  |
|         +00000 +-----+
|
```

```
Program: A454891                    C:\LM90\VISN\P1000\A454891                    Block: PATTER2(SUBR 03)
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   210
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   211
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   212
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   213
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

|        High                                                                   << RUNG 21  STEP #0050 >>
|        speed
|        in
|        machine
|
|        %M1285  +-----+
+<+>-------] [---+BLKMV+-
|                | INT |
|                |     |
|                |     | 1:st
|                |     | hotmelt
|                |     | start,
|                |     | lower
|                |     |
|         CONST -+IN1 Q+-%R0540
|         +00190 |     |
|                |     |
|         CONST -+IN2  |
|         +00190 |     |
|                |     |
|         CONST -+IN3  |
|         +00300 |     |
|                |     |
|         CONST -+IN4  |
|         +00300 |     |
|                |     |
|         CONST -+IN5  |
|         +00000 |     |
|                |     |
|         CONST -+IN6  |
|         +00000 |     |
|                |     |
|         CONST -+IN7  |
|         +00000 +-----+
|
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   214
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   215
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   216
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                    GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                    Page   217
                                     Tetra Cardboard Packer 70 Multi 1100
                                 45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   218
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

|[  START LD SUBROUTINE  PATTER3  ]
|
|[     VARIABLE DECLARATIONS      ]
|
|[   START OF SUBROUTINE LOGIC    ]
|
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   219
                                           Tetra Cardboard Packer 70 Multi 1100
                                        45489-0001 ELD 000 AA 040223 OHO ECM:162315

| (*****************************************************************************)
| (*                                                                           *)
| (* MACHINE ADAPTION, BOTTOM SIZE 3                                           *)
| (* FOR ADJUSTMENT SEE MM CHAPTER 6 SET                                       *)
| (*****************************************************************************)
|
| (*****************************************************************************)
| (*                                                                           *)
| (* 1 MOVE BIT                                                                *)
| (*                                                                           *)
| (* Grouping belt pattern fill speed choice                                   *)
| (*                                                                           *)
| (* Const =0  Not high speed                                                  *)
| (* Const =1  High speed                                                      *)
| (* ------------------------------------------------------------------------- *)
| (* 2 MOVE BIT                                                                *)
| (*                                                                           *)
| (* Pusher mat short blue mat                                                 *)
| (*                                                                           *)
| (* Const =0 Pusher mat NOT running during pusher phase ( Tetra Prisma )      *)
| (* Const =1 Pusher mat running during pusher phase                          *)
| (* ------------------------------------------------------------------------- *)
| (* 3 MOVE BIT                                                                *)
| (*                                                                           *)
| (* Pusher support plate up att middle position or end position sensor        *)
| (*                                                                           *)
| (* Const = 0 Pusher support plate up at pusher end position sensor           *)
| (* Const = 1 Pusher support plate up at pusher middle position sensor        *)
| (* ------------------------------------------------------------------------- *)
| (*****************************************************************************)
|
|Bottom                                                                                   << RUNG 5  STEP #0003 >>
|size 3
|
|%M0883  +-----+                 +-----+                 +-----+
+--] [---+MOVE_+-----------------+MOVE_+-----------------+MOVE_+-
|        | BIT |                 | BIT |                 | BIT |
|        |     |                 |     |                 |     |
|        |     | Belt            |     | Run             |     | Pusher
|        |     | speed           |     | pushblt         |     | support
|        |     | 0=low           |     | 0=don't         |     | up at m
|        |     | 1= high         |     | 1=run           |     | id sens
|        |     |                 |     |                 |     |
| CONST -+IN  Q+-%M1005   CONST -+IN  Q+-%M1017   CONST -+IN  Q+-%M1032
|   0001 | LEN |            0001 | LEN |            0001 | LEN |
|        |00001|                 |00001|                 |00001|
|        |     |                 |     |                 |     |
|        +-----+                 +-----+                 +-----+
|
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   220
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                    GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                    Page   221
                                     Tetra Cardboard Packer 70 Multi 1100
                                 45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                    GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                    Page   222
                                     Tetra Cardboard Packer 70 Multi 1100
                                  45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   223
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   224
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

|        High                                                                    << RUNG 14  STEP #0030 >>
|        speed
|        in
|        machine
|
|        %M1285  +-----+
+<+>-------] [---+BLKMV+-
|                | INT |
|                |     |
|                |     | 1:st
|                |     | hotmelt
|                |     | start,
|                |     | lower
|                |     |
|         CONST -+IN1 Q+-%R0540
|         +00217 |     |
|                |     |
|         CONST -+IN2  |
|         +00217 |     |
|                |     |
|         CONST -+IN3  |
|         +00315 |     |
|                |     |
|         CONST -+IN4  |
|         +00315 |     |
|                |     |
|         CONST -+IN5  |
|         +00000 |     |
|                |     |
|         CONST -+IN6  |
|         +00000 |     |
|                |     |
|         CONST -+IN7  |
|         +00000 +-----+
|
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   225
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   226
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   227
                                           Tetra Cardboard Packer 70 Multi 1100
                                        45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   228
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

|        High                                                                   << RUNG 21  STEP #0050 >>
|        speed
|        in
|        machine
|
|        %M1285  +-----+
+<+>-------] [---+BLKMV+-
|                | INT |
|                |     |
|                |     | 1:st
|                |     | hotmelt
|                |     | start,
|                |     | lower
|                |     |
|         CONST -+IN1 Q+-%R0540
|         +00217 |     |
|                |     |
|         CONST -+IN2  |
|         +00217 |     |
|                |     |
|         CONST -+IN3  |
|         +00315 |     |
|                |     |
|         CONST -+IN4  |
|         +00315 |     |
|                |     |
|         CONST -+IN5  |
|         +00000 |     |
|                |     |
|         CONST -+IN6  |
|         +00000 |     |
|                |     |
|         CONST -+IN7  |
|         +00000 +-----+
|
```

```
Program: A454891                    C:\LM90\VISN\P1000\A454891                    Block: PATTER3(SUBR 04)
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   229
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   230
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   231
                                           Tetra Cardboard Packer 70 Multi 1100
                                        45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   232
                                           Tetra Cardboard Packer 70 Multi 1100
                                        45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   233
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

|[  START LD SUBROUTINE  PATTER4  ]
|
|[     VARIABLE DECLARATIONS      ]
|
|[   START OF SUBROUTINE LOGIC    ]
|
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   234
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| (*****************************************************************************)
| (*                                                                           *)
| (* MACHINE ADAPTION, BOTTOM SIZE 4                                           *)
| (* FOR ADJUSTMENT SEE MM CHAPTER 6 SET                                       *)
| (*****************************************************************************)
|
| (*****************************************************************************)
| (*                                                                           *)
| (* 1 MOVE BIT                                                                *)
| (*                                                                           *)
| (* Grouping belt pattern fill speed choice                                   *)
| (*                                                                           *)
| (* Const =0  Not high speed                                                  *)
| (* Const =1  High speed                                                      *)
| (* ------------------------------------------------------------------------- *)
| (* 2 MOVE BIT                                                                *)
| (*                                                                           *)
| (* Pusher mat short blue mat                                                 *)
| (*                                                                           *)
| (* Const =0 Pusher mat NOT running during pusher phase ( Tetra Prisma )      *)
| (* Const =1 Pusher mat running during pusher phase                          *)
| (* ------------------------------------------------------------------------- *)
| (* 3 MOVE BIT                                                                *)
| (*                                                                           *)
| (* Pusher support plate up att middle position or end position sensor       *)
| (*                                                                           *)
| (* Const = 0 Pusher support plate up at pusher end position sensor           *)
| (* Const = 1 Pusher support plate up at pusher middle position sensor        *)
| (* ------------------------------------------------------------------------- *)
| (*****************************************************************************)
|
|Bottom                                                                                  << RUNG 5  STEP #0003 >>
|size 4
|
|%M0884  +-----+                 +-----+                 +-----+
+--] [---+MOVE_+-----------------+MOVE_+-----------------+MOVE_+-
|        | BIT |                 | BIT |                 | BIT |
|        |     |                 |     |                 |     |
|        |     | Belt            |     | Run             |     | Pusher
|        |     | speed           |     | pushblt         |     | support
|        |     | 0=low           |     | 0=don't         |     | up at m
|        |     | 1= high         |     | 1=run           |     | id sens
|        |     |                 |     |                 |     |
| CONST -+IN  Q+-%M1005   CONST -+IN  Q+-%M1017   CONST -+IN  Q+-%M1032
|   0001 | LEN |            0000 | LEN |            0000 | LEN |
|        |00001|                 |00001|                 |00001|
|        |     |                 |     |                 |     |
|        +-----+                 +-----+                 +-----+
|
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   235
                                           Tetra Cardboard Packer 70 Multi 1100
                                        45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

10 Program document

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   237
                                           Tetra Cardboard Packer 70 Multi 1100
                                        45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   238
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                                Page   239
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

|        High                                                                   << RUNG 14  STEP #0030 >>
|        speed
|        in
|        machine
|
|        %M1285  +-----+
+<+>-------] [---+BLKMV+-
|                | INT |
|                |     |
|                |     | 1:st
|                |     | hotmelt
|                |     | start,
|                |     | lower
|                |     |
|         CONST -+IN1 Q+-%R0540
|         +00217 |     |
|                |     |
|         CONST -+IN2  |
|         +00217 |     |
|                |     |
|         CONST -+IN3  |
|         +00315 |     |
|                |     |
|         CONST -+IN4  |
|         +00315 |     |
|                |     |
|         CONST -+IN5  |
|         +00000 |     |
|                |     |
|         CONST -+IN6  |
|         +00000 |     |
|                |     |
|         CONST -+IN7  |
|         +00000 +-----+
|
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   240
                                           Tetra Cardboard Packer 70 Multi 1100
                                        45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   241
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   242
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   243
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

|        High                                                                   << RUNG 21  STEP #0050 >>
|        speed
|        in
|        machine
|
|        %M1285  +-----+
+<+>-------] [---+BLKMV+-
|                | INT |
|                |     |
|                |     | 1:st
|                |     | hotmelt
|                |     | start,
|                |     | lower
|                |     |
|         CONST -+IN1 Q+-%R0540
|         +00200 |     |
|                |     |
|         CONST -+IN2  |
|         +00200 |     |
|                |     |
|         CONST -+IN3  |
|         +00305 |     |
|                |     |
|         CONST -+IN4  |
|         +00305 |     |
|                |     |
|         CONST -+IN5  |
|         +00000 |     |
|                |     |
|         CONST -+IN6  |
|         +00000 |     |
|                |     |
|         CONST -+IN7  |
|         +00000 +-----+
|
```

```
Program: A454891                    C:\LM90\VISN\P1000\A454891                    Block: PATTER4(SUBR 05)
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   244
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   245
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   246
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   247
                                           Tetra Cardboard Packer 70 Multi 1100
                                        45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   248
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

|[  START LD SUBROUTINE  PATTER5  ]
|
|[     VARIABLE DECLARATIONS      ]
|
|[   START OF SUBROUTINE LOGIC    ]
|
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   249
                                           Tetra Cardboard Packer 70 Multi 1100
                                        45489-0001 ELD 000 AA 040223 OHO ECM:162315

| (*****************************************************************************)
| (*                                                                           *)
| (* MACHINE ADAPTION, BOTTOM SIZE 5                                           *)
| (* FOR ADJUSTMENT SEE MM CHAPTER 6 SET                                       *)
| (*****************************************************************************)
|
| (*****************************************************************************)
| (*                                                                           *)
| (* 1 MOVE BIT                                                                *)
| (*                                                                           *)
| (* Grouping belt pattern fill speed choice                                   *)
| (*                                                                           *)
| (* Const =0  Not high speed                                                  *)
| (* Const =1  High speed                                                      *)
| (* ------------------------------------------------------------------------- *)
| (* 2 MOVE BIT                                                                *)
| (*                                                                           *)
| (* Pusher mat short blue mat                                                 *)
| (*                                                                           *)
| (* Const =0 Pusher mat NOT running during pusher phase ( Tetra Prisma )      *)
| (* Const =1 Pusher mat running during pusher phase                          *)
| (* ------------------------------------------------------------------------- *)
| (* 3 MOVE BIT                                                                *)
| (*                                                                           *)
| (* Pusher support plate up att middle position or end position sensor        *)
| (*                                                                           *)
| (* Const = 0 Pusher support plate up at pusher end position sensor           *)
| (* Const = 1 Pusher support plate up at pusher middle position sensor        *)
| (* ------------------------------------------------------------------------- *)
| (*****************************************************************************)
|
|Bottom                                                                                   << RUNG 5  STEP #0003 >>
|size 5
|
|%M0885  +-----+                 +-----+                 +-----+
+--] [---+MOVE_+-----------------+MOVE_+-----------------+MOVE_+-
|        | BIT |                 | BIT |                 | BIT |
|        |     |                 |     |                 |     |
|        |     | Belt            |     | Run             |     | Pusher
|        |     | speed           |     | pushblt         |     | support
|        |     | 0=low           |     | 0=don't         |     | up at m
|        |     | 1= high         |     | 1=run           |     | id sens
|        |     |                 |     |                 |     |
| CONST -+IN  Q+-%M1005   CONST -+IN  Q+-%M1017   CONST -+IN  Q+-%M1032
|   0001 | LEN |            0000 | LEN |            0000 | LEN |
|        |00001|                 |00001|                 |00001|
|        |     |                 |     |                 |     |
|        +-----+                 +-----+                 +-----+
|
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   250
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   251
                                           Tetra Cardboard Packer 70 Multi 1100
                                        45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   252
                                           Tetra Cardboard Packer 70 Multi 1100
                                        45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   253
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   254
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

|        High                                                                   << RUNG 14  STEP #0030 >>
|        speed
|        in
|        machine
|
|        %M1285  +-----+
+<+>-------] [---+BLKMV+-
|                | INT |
|                |     |
|                |     | 1:st
|                |     | hotmelt
|                |     | start,
|                |     | lower
|                |     |
|         CONST -+IN1 Q+-%R0540
|         +00217 |     |
|                |     |
|         CONST -+IN2  |
|         +00217 |     |
|                |     |
|         CONST -+IN3  |
|         +00310 |     |
|                |     |
|         CONST -+IN4  |
|         +00310 |     |
|                |     |
|         CONST -+IN5  |
|         +00000 |     |
|                |     |
|         CONST -+IN6  |
|         +00000 |     |
|                |     |
|         CONST -+IN7  |
|         +00000 +-----+
|
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   255
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   256
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   257
                                           Tetra Cardboard Packer 70 Multi 1100
                                        45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   258
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

|        High                                                                   << RUNG 21  STEP #0050 >>
|        speed
|        in
|        machine
|
|        %M1285  +-----+
+<+>-------] [---+BLKMV+-
|                | INT |
|                |     |
|                |     | 1:st
|                |     | hotmelt
|                |     | start,
|                |     | lower
|                |     |
|         CONST -+IN1 Q+-%R0540
|         +00190 |     |
|                |     |
|         CONST -+IN2  |
|         +00190 |     |
|                |     |
|         CONST -+IN3  |
|         +00300 |     |
|                |     |
|         CONST -+IN4  |
|         +00300 |     |
|                |     |
|         CONST -+IN5  |
|         +00000 |     |
|                |     |
|         CONST -+IN6  |
|         +00000 |     |
|                |     |
|         CONST -+IN7  |
|         +00000 +-----+
|
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   259
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   260
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   261
                                           Tetra Cardboard Packer 70 Multi 1100
                                        45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   262
                                           Tetra Cardboard Packer 70 Multi 1100
                                        45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   263
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

|[  START LD SUBROUTINE  PATTER6  ]
|
|[     VARIABLE DECLARATIONS      ]
|
|[   START OF SUBROUTINE LOGIC    ]
|
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   264
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| (*****************************************************************************)
| (*                                                                           *)
| (* MACHINE ADAPTION, BOTTOM SIZE 6                                           *)
| (* FOR ADJUSTMENT SEE MM CHAPTER 6 SET                                       *)
| (*****************************************************************************)
|
| (*****************************************************************************)
| (*                                                                           *)
| (* 1 MOVE BIT                                                                *)
| (*                                                                           *)
| (* Grouping belt pattern fill speed choice                                   *)
| (*                                                                           *)
| (* Const =0  Not high speed                                                  *)
| (* Const =1  High speed                                                      *)
| (* ------------------------------------------------------------------------- *)
| (* 2 MOVE BIT                                                                *)
| (*                                                                           *)
| (* Pusher mat short blue mat                                                 *)
| (*                                                                           *)
| (* Const =0 Pusher mat NOT running during pusher phase ( Tetra Prisma )      *)
| (* Const =1 Pusher mat running during pusher phase                          *)
| (* ------------------------------------------------------------------------- *)
| (* 3 MOVE BIT                                                                *)
| (*                                                                           *)
| (* Pusher support plate up att middle position or end position sensor       *)
| (*                                                                           *)
| (* Const = 0 Pusher support plate up at pusher end position sensor           *)
| (* Const = 1 Pusher support plate up at pusher middle position sensor        *)
| (* ------------------------------------------------------------------------- *)
| (*****************************************************************************)
|
|Bottom                                                                                  << RUNG 5  STEP #0003 >>
|size 6
|
|%M0886  +-----+                 +-----+                 +-----+
+--] [---+MOVE_+-----------------+MOVE_+-----------------+MOVE_+-
|        | BIT |                 | BIT |                 | BIT |
|        |     |                 |     |                 |     |
|        |     | Belt            |     | Run             |     | Pusher
|        |     | speed           |     | pushblt         |     | support
|        |     | 0=low           |     | 0=don't         |     | up at m
|        |     | 1= high         |     | 1=run           |     | id sens
|        |     |                 |     |                 |     |
| CONST -+IN  Q+-%M1005   CONST -+IN  Q+-%M1017   CONST -+IN  Q+-%M1032
|   0001 | LEN |            0000 | LEN |            0000 | LEN |
|        |00001|                 |00001|                 |00001|
|        |     |                 |     |                 |     |
|        +-----+                 +-----+                 +-----+
|
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   265
                                           Tetra Cardboard Packer 70 Multi 1100
                                        45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   266
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   267
                                           Tetra Cardboard Packer 70 Multi 1100
                                        45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   268
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                                Page   269
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

|        High                                                                   << RUNG 14  STEP #0030 >>
|        speed
|        in
|        machine
|
|        %M1285  +-----+
+<+>-------] [---+BLKMV+-
|                | INT |
|                |     |
|                |     | 1:st
|                |     | hotmelt
|                |     | start,
|                |     | lower
|                |     |
|         CONST -+IN1 Q+-%R0540
|         +00217 |     |
|                |     |
|         CONST -+IN2  |
|         +00217 |     |
|                |     |
|         CONST -+IN3  |
|         +00315 |     |
|                |     |
|         CONST -+IN4  |
|         +00315 |     |
|                |     |
|         CONST -+IN5  |
|         +00000 |     |
|                |     |
|         CONST -+IN6  |
|         +00000 |     |
|                |     |
|         CONST -+IN7  |
|         +00000 +-----+
|
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   270
                                           Tetra Cardboard Packer 70 Multi 1100
                                        45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   271
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   272
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   273
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

|        High                                                                   << RUNG 21  STEP #0050 >>
|        speed
|        in
|        machine
|
|        %M1285  +-----+
+<+>-------] [---+BLKMV+-
|                | INT |
|                |     |
|                |     | 1:st
|                |     | hotmelt
|                |     | start,
|                |     | lower
|                |     |
|         CONST -+IN1 Q+-%R0540
|         +00190 |     |
|                |     |
|         CONST -+IN2  |
|         +00190 |     |
|                |     |
|         CONST -+IN3  |
|         +00300 |     |
|                |     |
|         CONST -+IN4  |
|         +00300 |     |
|                |     |
|         CONST -+IN5  |
|         +00000 |     |
|                |     |
|         CONST -+IN6  |
|         +00000 |     |
|                |     |
|         CONST -+IN7  |
|         +00000 +-----+
|
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   274
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   275
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   276
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   277
                                           Tetra Cardboard Packer 70 Multi 1100
                                        45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   278
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

|[  START LD SUBROUTINE  PATTER7  ]
|
|[     VARIABLE DECLARATIONS      ]
|
|[   START OF SUBROUTINE LOGIC    ]
|
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   279
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| (*****************************************************************************)
| (*                                                                           *)
| (* MACHINE ADAPTION, BOTTOM SIZE 7                                           *)
| (* FOR ADJUSTMENT SEE MM CHAPTER 6 SET                                       *)
| (*                                                                           *)
| (*****************************************************************************)
|
| (*****************************************************************************)
| (*                                                                           *)
| (* 1 MOVE BIT                                                                *)
| (*                                                                           *)
| (* Grouping belt pattern fill speed choice                                   *)
| (*                                                                           *)
| (* Const =0  Not high speed                                                  *)
| (* Const =1  High speed                                                      *)
| (* ------------------------------------------------------------------------- *)
| (* 2 MOVE BIT                                                                *)
| (*                                                                           *)
| (* Pusher mat short blue mat                                                 *)
| (*                                                                           *)
| (* Const =0 Pusher mat NOT running during pusher phase ( Tetra Prisma )      *)
| (* Const =1 Pusher mat running during pusher phase                          *)
| (* ------------------------------------------------------------------------- *)
| (* 3 MOVE BIT                                                                *)
| (*                                                                           *)
| (* Pusher support plate up att middle position or end position sensor        *)
| (*                                                                           *)
| (* Const = 0 Pusher support plate up at pusher end position sensor           *)
| (* Const = 1 Pusher support plate up at pusher middle position sensor        *)
| (* ------------------------------------------------------------------------- *)
| (*****************************************************************************)
|
|Bottom                                                                                   << RUNG 5  STEP #0003 >>
|size 7
|
|%M0887  +-----+                 +-----+                 +-----+
+--] [---+MOVE_+-----------------+MOVE_+-----------------+MOVE_+-
|        | BIT |                 | BIT |                 | BIT |
|        |     |                 |     |                 |     |
|        |     | Belt            |     | Run             |     | Pusher
|        |     | speed           |     | pushblt         |     | support
|        |     | 0=low           |     | 0=don't         |     | up at m
|        |     | 1= high         |     | 1=run           |     | id sens
|        |     |                 |     |                 |     |
| CONST -+IN  Q+-%M1005   CONST -+IN  Q+-%M1017   CONST -+IN  Q+-%M1032
|   0001 | LEN |            0001 | LEN |            0000 | LEN |
|        |00001|                 |00001|                 |00001|
|        |     |                 |     |                 |     |
|        +-----+                 +-----+                 +-----+
|
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   280
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                    GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                    Page   281
                                     Tetra Cardboard Packer 70 Multi 1100
                                 45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                    GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                    Page   282
                                     Tetra Cardboard Packer 70 Multi 1100
                                  45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   283
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   284
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

|        High                                                                   << RUNG 14  STEP #0030 >>
|        speed
|        in
|        machine
|
|        %M1285  +-----+
+<+>-------] [---+BLKMV+-
|                | INT |
|                |     |
|                |     | 1:st
|                |     | hotmelt
|                |     | start,
|                |     | lower
|                |     |
|         CONST -+IN1 Q+-%R0540
|         +00180 |     |
|                |     |
|         CONST -+IN2  |
|         +00180 |     |
|                |     |
|         CONST -+IN3  |
|         +00310 |     |
|                |     |
|         CONST -+IN4  |
|         +00310 |     |
|                |     |
|         CONST -+IN5  |
|         +00000 |     |
|                |     |
|         CONST -+IN6  |
|         +00000 |     |
|                |     |
|         CONST -+IN7  |
|         +00000 +-----+
|
```

```
Program: A454891                        C:\LM90\VISN\P1000\A454891                        Block: PATTER7(SUBR 08)
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   285
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   286
                                           Tetra Cardboard Packer 70 Multi 1100
                                        45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   287
                                           Tetra Cardboard Packer 70 Multi 1100
                                        45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   288
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

|        High                                                                   << RUNG 21  STEP #0050 >>
|        speed
|        in
|        machine
|
|        %M1285  +-----+
+<+>-------] [---+BLKMV+-
|                | INT |
|                |     |
|                |     | 1:st
|                |     | hotmelt
|                |     | start,
|                |     | lower
|                |     |
|         CONST -+IN1 Q+-%R0540
|         +00180 |     |
|                |     |
|         CONST -+IN2  |
|         +00185 |     |
|                |     |
|         CONST -+IN3  |
|         +00320 |     |
|                |     |
|         CONST -+IN4  |
|         +00329 |     |
|                |     |
|         CONST -+IN5  |
|         +00000 |     |
|                |     |
|         CONST -+IN6  |
|         +00000 |     |
|                |     |
|         CONST -+IN7  |
|         +00000 +-----+
|
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   289
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   290
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   291
                                           Tetra Cardboard Packer 70 Multi 1100
                                        45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   292
                                           Tetra Cardboard Packer 70 Multi 1100
                                        45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   293
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

|[  START LD SUBROUTINE  PATTER8  ]
|
|[     VARIABLE DECLARATIONS      ]
|
|[   START OF SUBROUTINE LOGIC    ]
|
```

```
03-22-04  11:46                    GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                    Page   294
                                     Tetra Cardboard Packer 70 Multi 1100
                                 45489-0001 ELD 000 AA 040223 OHO ECM:162315

| (*************************************************************************)
| (*                                                                       *)
| (* MACHINE ADAPTION, BOTTOM SIZE 8                                       *)
| (* FOR ADJUSTMENT SEE MM CHAPTER 6 SET                                   *)
| (*                                                                       *)
| (*************************************************************************)
|
| (*************************************************************************)
| (*                                                                       *)
| (* 1 MOVE BIT                                                            *)
| (*                                                                       *)
| (* Grouping belt pattern fill speed choice                               *)
| (*                                                                       *)
| (* Const =0  Not high speed                                              *)
| (* Const =1  High speed                                                  *)
| (* --------------------------------------------------------------------- *)
| (* 2 MOVE BIT                                                            *)
| (*                                                                       *)
| (* Pusher mat short blue mat                                             *)
| (*                                                                       *)
| (* Const =0 Pusher mat NOT running during pusher phase ( Tetra Prisma )  *)
| (* Const =1 Pusher mat running during pusher phase                      *)
| (* --------------------------------------------------------------------- *)
| (* 3 MOVE BIT                                                            *)
| (*                                                                       *)
| (* Pusher support plate up att middle position or end position sensor    *)
| (*                                                                       *)
| (* Const = 0 Pusher support plate up at pusher end position sensor       *)
| (* Const = 1 Pusher support plate up at pusher middle position sensor    *)
| (* --------------------------------------------------------------------- *)
| (*************************************************************************)
|
|Bottom                                                                   << RUNG 5  STEP #0003 >>
|size 8
|
|%M0888  +-----+                +-----+                +-----+
+--] [---+MOVE_+----------------+MOVE_+----------------+MOVE_+-
|        | BIT |                | BIT |                | BIT |
|        |     |                |     |                |     |
|        |     | Belt           |     | Run            |     | Pusher
|        |     | speed          |     | pushblt        |     | support
|        |     | 0=low          |     | 0=don't        |     | up at m
|        |     | 1= high        |     | 1=run          |     | id sens
|        |     |                |     |                |     |
| CONST -+IN  Q+-%M1005   CONST -+IN  Q+-%M1017   CONST -+IN  Q+-%M1032
|   0001 | LEN |            0000 | LEN |            0000 | LEN |
|        |00001|                |00001|                |00001|
|        |     |                |     |                |     |
|        +-----+                +-----+                +-----+
|
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   295
                                           Tetra Cardboard Packer 70 Multi 1100
                                        45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   296
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   297
                                           Tetra Cardboard Packer 70 Multi 1100
                                        45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   298
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   299
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

|        High                                                                   << RUNG 14  STEP #0030 >>
|        speed
|        in
|        machine
|
|        %M1285  +-----+
+<+>-------] [---+BLKMV+-
|                | INT |
|                |     |
|                |     | 1:st
|                |     | hotmelt
|                |     | start,
|                |     | lower
|                |     |
|         CONST -+IN1 Q+-%R0540
|         +00175 |     |
|                |     |
|         CONST -+IN2  |
|         +00175 |     |
|                |     |
|         CONST -+IN3  |
|         +00320 |     |
|                |     |
|         CONST -+IN4  |
|         +00320 |     |
|                |     |
|         CONST -+IN5  |
|         +00000 |     |
|                |     |
|         CONST -+IN6  |
|         +00000 |     |
|                |     |
|         CONST -+IN7  |
|         +00000 +-----+
|
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   300
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   301
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   302
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   303
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

|        High                                                                   << RUNG 21  STEP #0050 >>
|        speed
|        in
|        machine
|
|        %M1285  +-----+
+<+>-------] [---+BLKMV+-
|                | INT |
|                |     |
|                |     | 1:st
|                |     | hotmelt
|                |     | start,
|                |     | lower
|                |     |
|         CONST -+IN1 Q+-%R0540
|         +00155 |     |
|                |     |
|         CONST -+IN2  |
|         +00155 |     |
|                |     |
|         CONST -+IN3  |
|         +00310 |     |
|                |     |
|         CONST -+IN4  |
|         +00310 |     |
|                |     |
|         CONST -+IN5  |
|         +00000 |     |
|                |     |
|         CONST -+IN6  |
|         +00000 |     |
|                |     |
|         CONST -+IN7  |
|         +00000 +-----+
|
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   304
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   305
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   306
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   307
                                           Tetra Cardboard Packer 70 Multi 1100
                                        45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   308
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

|[  START LD SUBROUTINE  PATTER9  ]
|
|[     VARIABLE DECLARATIONS      ]
|
|[   START OF SUBROUTINE LOGIC    ]
|
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   309
                                           Tetra Cardboard Packer 70 Multi 1100
                                        45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   310
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                    GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                    Page   311
                                     Tetra Cardboard Packer 70 Multi 1100
                                 45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   312
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   313
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   314
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

|        High                                                                   << RUNG 14  STEP #0030 >>
|        speed
|        in
|        machine
|
|        %M1285  +-----+
+<+>-------] [---+BLKMV+-
|                | INT |
|                |     |
|                |     | 1:st
|                |     | hotmelt
|                |     | start,
|                |     | lower
|                |     |
|         CONST -+IN1 Q+-%R0540
|         +00217 |     |
|                |     |
|         CONST -+IN2  |
|         +00217 |     |
|                |     |
|         CONST -+IN3  |
|         +00315 |     |
|                |     |
|         CONST -+IN4  |
|         +00315 |     |
|                |     |
|         CONST -+IN5  |
|         +00000 |     |
|                |     |
|         CONST -+IN6  |
|         +00000 |     |
|                |     |
|         CONST -+IN7  |
|         +00000 +-----+
|
```

```
Program: A454891                    C:\LM90\VISN\P1000\A454891                    Block: PATTER9(SUBR 10)
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   315
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   316
                                           Tetra Cardboard Packer 70 Multi 1100
                                        45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   317
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   318
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

|        High                                                                    << RUNG 21  STEP #0050 >>
|        speed
|        in
|        machine
|
|        %M1285  +-----+
+<+>-------] [---+BLKMV+-
|                | INT |
|                |     |
|                |     | 1:st
|                |     | hotmelt
|                |     | start,
|                |     | lower
|                |     |
|         CONST -+IN1 Q+-%R0540
|         +00190 |     |
|                |     |
|         CONST -+IN2  |
|         +00190 |     |
|                |     |
|         CONST -+IN3  |
|         +00300 |     |
|                |     |
|         CONST -+IN4  |
|         +00300 |     |
|                |     |
|         CONST -+IN5  |
|         +00000 |     |
|                |     |
|         CONST -+IN6  |
|         +00000 |     |
|                |     |
|         CONST -+IN7  |
|         +00000 +-----+
|
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   319
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   320
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   321
                                           Tetra Cardboard Packer 70 Multi 1100
                                        45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   322
                                           Tetra Cardboard Packer 70 Multi 1100
                                        45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   323
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

|[  START LD SUBROUTINE  GENERAL  ]
|
|[     VARIABLE DECLARATIONS      ]
|
|[   START OF SUBROUTINE LOGIC    ]
|
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   324
                                           Tetra Cardboard Packer 70 Multi 1100
                                        45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   325
                                           Tetra Cardboard Packer 70 Multi 1100
                                        45489-0001 ELD 000 AA 040223 OHO ECM:162315

| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   326
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

|[  START LD SUBROUTINE  SELECTI  ]
|
|[     VARIABLE DECLARATIONS      ]
|
|[   START OF SUBROUTINE LOGIC    ]
|
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   327
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| (*************************************************************************)
| (*                                                                       *)
| (* PATTERN LENGTH VALUE COLLECT                                          *)
| (* NOT TO BE CHANGED                                                     *)
| (*************************************************************************)
|
|Step 2                                                                          << RUNG 4  STEP #0002 >>
|STEP_2
|%M0102  +-----+                 +-----+                 +-----+
+--]/[---+MOVE_+-----------------+MOVE_+-----------------+MOVE_+-
|        | BIT |                 | BIT |                 | BIT |
|        |     |                 |     |                 |     |
|        |     | Cond.           |     | Cond.           |     | Cond.
|        |     | for pp          |     | for pp          |     | for pp
|        |     | length          |     | length          |     | length
|        |     | A               |     | B               |     | C
|        |     |                 |     |                 |     |
|%R0431 -+IN  Q+-%M0929  %R0432 -+IN  Q+-%M0930  %R0433 -+IN  Q+-%M0931
|        | LEN |                 | LEN |                 | LEN |
|        |00001|                 |00001|                 |00001|
|        |     |                 |     |                 |     |
|        +-----+                 +-----+                 +-----+
|
|Step 2                                                                          << RUNG 5  STEP #0006 >>
|STEP_2
|%M0102  +-----+                 +-----+                 +-----+
+--]/[---+MOVE_+-----------------+MOVE_+-----------------+MOVE_+-
|        | BIT |                 | BIT |                 | BIT |
|        |     |                 |     |                 |     |
|        |     | Cond.           |     | Cond.           |     | Cond.
|        |     | for pp          |     | for pp          |     | for pp
|        |     | length          |     | length          |     | length
|        |     | D               |     | E               |     | F
|        |     |                 |     |                 |     |
|%R0434 -+IN  Q+-%M0932  %R0435 -+IN  Q+-%M0933  %R0436 -+IN  Q+-%M0934
|        | LEN |                 | LEN |                 | LEN |
|        |00001|                 |00001|                 |00001|
|        |     |                 |     |                 |     |
|        +-----+                 +-----+                 +-----+
|
|Step 2                                                                          << RUNG 6  STEP #0010 >>
|STEP_2
|%M0102  +-----+                 +-----+                 +-----+
+--]/[---+MOVE_+-----------------+MOVE_+-----------------+MOVE_+-
|        | BIT |                 | BIT |                 | BIT |
|        |     |                 |     |                 |     |
|        |     | Cond.           |     | Cond.           |     | Cond.
|        |     | for pp          |     | for pp          |     | for pp
|        |     | length          |     | length          |     | length
|        |     | G               |     | H               |     | K
|        |     |                 |     |                 |     |
|%R0437 -+IN  Q+-%M0935  %R0438 -+IN  Q+-%M0936  %R0439 -+IN  Q+-%M0937
|        | LEN |                 | LEN |                 | LEN |
|        |00001|                 |00001|                 |00001|
|        |     |                 |     |                 |     |
|        +-----+                 +-----+                 +-----+
|
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                                Page   328
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

| (*************************************************************************)
| (*                                                                       *)
| (* DISPLAY INFEED SELECTION (SINGLE/ MULTI (X*1)/ MULTI (X*2)/ MULTI (X*3)  *)
| (* )                                                                     *)
| (*                                                                       *)
| (*************************************************************************)
|
|Select                                                                        << RUNG 8  STEP #0015 >>
|package
|pattern
|length
| S07H
|%I0009          +-----+                                          %M1014
+--] [--+--------+ TMR +-------------------------------------------------( )--  (* Push button delay                *)
|       |        |0.10s|                                                        Cross reference for %M1014
|       |        |     |                                                        -] [- 14,35,68,90,112
|Select |        |     |
|infeed |        |     |
|package|        |     |
| S08H  |        |     |
|%I0010 |        |     |
+--] [--+ CONST -+PV   |
|       | +00010 |     |
|       |        +-----+
|Select |
|cardbo.|        Push
|type   |        butt
| S09H  |        delay
|%I0011 |
+--] [--+        %R1014
|       |
|Select |
|package|
|pattern|
|width  |
| S10H  |
|%I0012 |
+--] [--+
|       |
|Select |
|group  |
|infeed |
| S11H  |
|%I0079 |
+--] [--+
|       |
|Select |
|speed  |
|in     |
|machine|
| S12H  |
|%I0080 |
+--] [--+
|       |
|Group  |
|pusher |
|home   |
|select |
| S016  |
|%I0088 |
+--] [--+
|
|Step 2                                                                        << RUNG 9  STEP #0024 >>
|STEP_2
|%M0102  +-----+
+--]/[---+MOVE_+-
|        | INT |
|        |     |
|        |     | Cond.
|Infeed  |     | for
|selecti |     | single
|on      |     | infeed
|        |     |
|%R0446 -+IN  Q+-%M0945
|        | LEN |
|        |00001|
|        |     |
|        +-----+
|
```

```
03-22-04  11:46                    GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                    Page   329
                                     Tetra Cardboard Packer 70 Multi 1100
                                 45489-0001 ELD 000 AA 040223 OHO ECM:162315

|0 =                                                                          << RUNG 10  STEP #0026 >>
|Single
|1 =
|Unit
|
|%M1008  +-----+
+--]/[---+ AND_+-
|        | WORD|
|        |     |
|Cond.   |     | Cond.
|for     |     | for
|single  |     | single
|infeed  |     | infeed
|        |     |
|%M0945 -+I1  Q+-%M0945
|        |     |
| CONST -+I2   |
|   0002 +-----+
|
|        Cond.                                                              << RUNG 11  STEP #0028 >>
|        for X*3
|(X*2)   infeed
|
|%M0902  %M0948                                                  %M0904
+--] [-----]/[--+-------------------------------------------------------( )--  (* Select single/ (X*1)            *)
| 0016         |                                                            Cross reference for %M0904
|              |                                                            -] [- 17
|(X*3)         |
|              |
|%M0903        |
+--] [----------+
| 0015
|
|        Cond.                                                              << RUNG 12  STEP #0032 >>
|        for X*1
|(X*3)   infeed
|
|%M0903  %M0946                                                  %M0905
+--] [-----]/[--+-------------------------------------------------------( )--  (* Select(X*2)                      *)
| 0015         |                                                            Cross reference for %M0905
|              |                                                            -] [- 16
|Single        |
|pack/         |
|(X*1)         |
|              |
|%M0901        |
+--] [----------+
| 0017
|
|Single  Cond.                                                              << RUNG 13  STEP #0036 >>
|pack/   for X*2
|(X*1)   infeed
|
|%M0901  %M0947                                                  %M0906
+--] [-----]/[--+-------------------------------------------------------( )--  (* Select(X*3)                      *)
| 0017         |                                                            Cross reference for %M0906
|              |                                                            -] [- 15
|(X*2)         |
|              |
|%M0902        |
+--] [----------+
| 0016
|
|Select                 Push                                                << RUNG 14  STEP #0040 >>
|infeed                 button
|package Step 2  Step 0  delay
| S08H   STEP_2  STEP_0
|%I0010  %M0102  %M0100  %M1014                                  %T0024
+--] [-----]/[-----] [-----] [-----------------------------------------(^)--  (* Pulse select infeed pack.        *)
|                      0008                                                 Cross reference for %T0024
|                                                                           -] [- 15,16,17
|                                                                           -]/[- 15,16,17
|
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   330
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

|Pulse                                                                                  << RUNG 15  STEP #0045 >>
|select                  Cond.
|infeed  Select(         for X*3
|pack.   X*3)            infeed
|
|%T0024  %M0906          %M0948                                          %M0903
+--] [-----] [--+-------+--] [-----------------------------------------------(M)--  (* (X*3)                          *)
| 0014    0013  |       |                                                          Cross reference for %M0903
|        Pulse  |       |                                                          -] [- 11,12,15,21,62,63,64
|        select |       |                                                          -]/[- 18,23
|        infeed |       |
|(X*3)   pack.  |       |
|               |       |
|%M0903  %T0024 |       |
+--] [-----]/[--+       |
| 0015    0014          |
|No                     |
|infeed  Cond.   Cond.  |
|type    for X*1 for X*2|
|choosen infeed  infeed |
|                       |
|%M0818  %M0946  %M0947 |
+--] [-----]/[-----]/[--+
| 0018
|
|Pulse                                                                                  << RUNG 16  STEP #0056 >>
|select          Cond.
|infeed  Select( for X*2
|pack.   X*2)    infeed
|
|%T0024  %M0905  %M0947                                                  %M0902
+--] [-----] [--+--] [-------------------------------------------------------(M)--  (* (X*2)                          *)
| 0014    0012  |                                                                  Cross reference for %M0902
|        Pulse  |                                                                  -] [- 11,13,16,20,62,64
|        select |                                                                  -]/[- 18,23
|        infeed |
|(X*2)   pack.  |
|               |
|%M0902  %T0024 |
+--] [-----]/[--+
| 0016    0014  |
|No             |
|infeed  Cond.  |
|type    for X*1|
|choosen infeed |
|               |
|%M0818  %M0946 |
+--] [-----]/[--+
| 0018
|
|Pulse                                                                                  << RUNG 17  STEP #0066 >>
|select  Select  Cond.
|infeed  single/ for X*1
|pack.   (X*1)   infeed
|
|%T0024  %M0904  %M0946                                                  %M0901
+--] [-----] [--+--] [-------------------------------------------------------(M)--  (* Single pack/ (X*1)               *)
| 0014    0011  |                                                                  Cross reference for %M0901
|        Pulse  |                                                                  -] [- 12,13,17,19
|Single  select |                                                                  -]/[- 18,23
|pack/   infeed |
|(X*1)   pack.  |
|               |
|%M0901  %T0024 |
+--] [-----]/[--+
| 0017    0014  |
|No             |
|infeed         |
|type           |
|choosen        |
|               |
|%M0818         |
+--] [----------+
| 0018
|
|Single                                                                                 << RUNG 18  STEP #0074 >>
|pack/
|(X*1)   (X*2)   (X*3)   Step 2
|                        STEP_2
|%M0901  %M0902  %M0903  %M0102                                          %M0818
+--]/[-----]/[-----]/[-----]/[-----------------------------------------------( )--  (* No infeed type choosen           *)
| 0017    0016    0015                                                             Cross reference for %M0818
|                                                                                  -] [- 15,16,17
|
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                                Page   331
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

|No mat.                                                                                << RUNG 19  STEP #0079 >>
|betw.          Single
|inf and        pack/          No X*
|pattern         (X*1)   Step 0  choosen
|                        STEP_0                                          H020
|%M0910          %M0901  %M0100  %M1055                                 %M0138
+--]/[----------+--] [-----] [-----]/[--+-----------------------------------( )--  (* Single pack/ (X*1)                *)
| 0065          | 0017            0023  |                                        Cross reference for H020
|No mat.        |                       |                                                  NONE
|betw.          |                       |
|inf and        |                       |
|pattern Flash  |                       |
|         FLASH |                       |
|%M0910  %M0003 |                       |
+--] [-----] [--+                       |
| 0065                                  |
|                                       |
|No X*                                  |
|choosen Flash   Step 0                 |
|         FLASH  STEP_0                 |
|%M1055  %M0003  %M0100                 |
+--] [-----] [-----] [------------------+
| 0023
|
|No mat.                                                                                << RUNG 20  STEP #0091 >>
|betw.
|inf and
|pattern         (X*2)   Step 0
|                        STEP_0                                          H021
|%M0910          %M0902  %M0100                                         %M0139
+--]/[----------+--] [-----] [-------------------------------------------( )--  (* (X*2)                            *)
| 0065          | 0016                                                           Cross reference for H021
|No mat.        |                                                                          NONE
|betw.          |
|inf and        |
|pattern Flash  |
|         FLASH |
|%M0910  %M0003 |
+--] [-----] [--+
| 0065
|
|No mat.                                                                                << RUNG 21  STEP #0098 >>
|betw.
|inf and
|pattern         (X*3)   Step 0
|                        STEP_0                                          H022
|%M0910          %M0903  %M0100                                         %M0140
+--]/[----------+--] [-----] [-------------------------------------------(M)--  (* (X*3)                            *)
| 0065          | 0015                                                           Cross reference for H022
|No mat.        |                                                                          NONE
|betw.          |
|inf and        |
|pattern Flash  |
|         FLASH |
|%M0910  %M0003 |
+--] [-----] [--+
| 0065
|
| (*************************************************************************)
| (*                                                                       *)
| (* NO INFEED PATTERN CHOOSEN                                             *)
| (*                                                                       *)
| (*************************************************************************)
|
|Single                                                                                 << RUNG 23  STEP #0106 >>
|pack/
|(X*1)   (X*2)   (X*3)
|
|%M0901  %M0902  %M0903                                                 %M1055
+--]/[-----]/[-----]/[-----------------------------------------------------( )--  (* No X* choosen                      *)
| 0017    0016    0015                                                           Cross reference for %M1055
|                                                                                  -] [- 19
|                                                                                  -]/[- 19
|

Program: A454891                         C:\LM90\VISN\P1000\A454891                                   Block: SELECTI(SUBR 12)
```

```
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                                           Tetra Cardboard Packer 70 Multi 1100
                                        45489-0001 ELD 000 AA 040223 OHO ECM:162315

| (*************************************************************************)
| (*                                                                       *)
| (* PACKAGE PATTERN LENGTH SELECTION                                      *)
| (*                                                                       *)
| (*************************************************************************)
|
| >>>>
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                                Page   333
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

|Package Cond.   Cond.   Cond.   Cond.   Cond.   Cond.   Cond.                    << RUNG 27  STEP #0128 >>
|pattern for pp  for pp  for pp  for pp  for pp  for pp  for pp
|length  length  length  length  length  length  length  length
|D       E       F       G       H       K       A       B
|
|%M0914  %M0933  %M0934  %M0935  %M0936  %M0937  %M0929  %M0930          %M0822
+--] [-----]/[--+--]/[--+--]/[--+--]/[--+--]/[--+--]/[--+--]/[--+----------( )--  (* Select pp length C               *)
| 0043          |       |       |       |       |       |       |                  Cross reference for %M0822
|Package        |       |       |       |       |       |       |                  -] [- 44
|pattern        |       |       |       |       |       |       |
|length         |       |       |       |       |       |       |
|E              |       |       |       |       |       |       |
|               |       |       |       |       |       |       |
|%M0915         |       |       |       |       |       |       |
+--] [----------+       |       |       |       |       |       |
| 0042                  |       |       |       |       |       |
|Package                |       |       |       |       |       |
|pattern                |       |       |       |       |       |
|length                 |       |       |       |       |       |
|F                      |       |       |       |       |       |
|                       |       |       |       |       |       |
|%M0916                 |       |       |       |       |       |
+--] [------------------+       |       |       |       |       |
| 0041                          |       |       |       |       |
|Package                        |       |       |       |       |
|pattern                        |       |       |       |       |
|length                         |       |       |       |       |
|G                              |       |       |       |       |
|                               |       |       |       |       |
|%M0917                         |       |       |       |       |
+--] [--------------------------+       |       |       |       |
| 0040                                  |       |       |       |
|Package                                |       |       |       |
|pattern                                |       |       |       |
|length                                 |       |       |       |
|H                                      |       |       |       |
|                                       |       |       |       |
|%M0918                                 |       |       |       |
+--] [-----------------------------------+       |       |       |
| 0039                                          |       |       |
|Package                                        |       |       |
|pattern                                        |       |       |
|length                                         |       |       |
|K                                              |       |       |
|                                               |       |       |
|%M0919                                         |       |       |
+--] [----------------------------------------------+       |       |
| 0037                                                      |       |
|Package                                                    |       |
|pattern                                                    |       |
|length                                                     |       |
|A                                                          |       |
|                                                           |       |
|%M0911                                                     |       |
+--] [-------------------------------------------------------+       |
| 0046                                                                |
|Package                                                              |
|pattern                                                              |
|length                                                               |
|B                                                                    |
|                                                                     |
|%M0912                                                               |
+--] [---------------------------------------------------------------+
| 0045
|
```

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                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

|Package Cond.   Cond.   Cond.   Cond.   Cond.   Cond.   Cond.                    << RUNG 28  STEP #0144 >>
|pattern for pp  for pp  for pp  for pp  for pp  for pp  for pp
|length  length  length  length  length  length  length  length
|E       F       G       H       K       A       B       C
|
|%M0915  %M0934  %M0935  %M0936  %M0937  %M0929  %M0930  %M0931          %M0823
+--] [-----]/[--+--]/[--+--]/[--+--]/[--+--]/[--+--]/[--+--]/[--+----------( )--  (* Select pp length D               *)
| 0042          |       |       |       |       |       |       |                  Cross reference for %M0823
|Package        |       |       |       |       |       |       |                  -] [- 43
|pattern        |       |       |       |       |       |       |
|length         |       |       |       |       |       |       |
|F              |       |       |       |       |       |       |
|               |       |       |       |       |       |       |
|%M0916         |       |       |       |       |       |       |
+--] [----------+       |       |       |       |       |       |
| 0041                  |       |       |       |       |       |
|Package                |       |       |       |       |       |
|pattern                |       |       |       |       |       |
|length                 |       |       |       |       |       |
|G                      |       |       |       |       |       |
|                       |       |       |       |       |       |
|%M0917                 |       |       |       |       |       |
+--] [------------------+       |       |       |       |       |
| 0040                          |       |       |       |       |
|Package                        |       |       |       |       |
|pattern                        |       |       |       |       |
|length                         |       |       |       |       |
|H                              |       |       |       |       |
|                               |       |       |       |       |
|%M0918                         |       |       |       |       |
+--] [--------------------------+       |       |       |       |
| 0039                                  |       |       |       |
|Package                                |       |       |       |
|pattern                                |       |       |       |
|length                                 |       |       |       |
|K                                      |       |       |       |
|                                       |       |       |       |
|%M0919                                 |       |       |       |
+--] [-----------------------------------+       |       |       |
| 0037                                          |       |       |
|Package                                        |       |       |
|pattern                                        |       |       |
|length                                         |       |       |
|A                                              |       |       |
|                                               |       |       |
|%M0911                                         |       |       |
+--] [-------------------------------------------+       |       |
| 0046                                                  |       |
|Package                                                |       |
|pattern                                                |       |
|length                                                 |       |
|B                                                      |       |
|                                                       |       |
|%M0912                                                 |       |
+--] [-----------------------------------------------------+       |
| 0045                                                            |
|Package                                                          |
|pattern                                                          |
|length                                                           |
|C                                                                |
|                                                                 |
|%M0913                                                           |
+--] [---------------------------------------------------------------+
| 0044
|
```

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|Package Cond.   Cond.   Cond.   Cond.   Cond.   Cond.   Cond.                    << RUNG 29  STEP #0160 >>
|pattern for pp  for pp  for pp  for pp  for pp  for pp  for pp
|length  length  length  length  length  length  length  length
|F       G       H       K       A       B       C       D
|
|%M0916  %M0935  %M0936  %M0937  %M0929  %M0930  %M0931  %M0932          %M0824
+--] [-----]/[--+--]/[--+--]/[--+--]/[--+--]/[--+--]/[--+--]/[--+----------( )--  (* Select pp length E               *)
| 0041          |       |       |       |       |       |       |                  Cross reference for %M0824
|Package        |       |       |       |       |       |       |                  -] [- 42
|pattern        |       |       |       |       |       |       |
|length         |       |       |       |       |       |       |
|G              |       |       |       |       |       |       |
|               |       |       |       |       |       |       |
|%M0917         |       |       |       |       |       |       |
+--] [----------+       |       |       |       |       |       |
| 0040                  |       |       |       |       |       |
|Package                |       |       |       |       |       |
|pattern                |       |       |       |       |       |
|length                 |       |       |       |       |       |
|H                      |       |       |       |       |       |
|                       |       |       |       |       |       |
|%M0918                 |       |       |       |       |       |
+--] [------------------+       |       |       |       |       |
| 0039                          |       |       |       |       |
|Package                        |       |       |       |       |
|pattern                        |       |       |       |       |
|length                         |       |       |       |       |
|K                              |       |       |       |       |
|                               |       |       |       |       |
|%M0919                         |       |       |       |       |
+--] [--------------------------+       |       |       |       |
| 0037                                  |       |       |       |
|Package                                |       |       |       |
|pattern                                |       |       |       |
|length                                 |       |       |       |
|A                                      |       |       |       |
|                                       |       |       |       |
|%M0911                                 |       |       |       |
+--] [-----------------------------------+       |       |       |
| 0046                                          |       |       |
|Package                                        |       |       |
|pattern                                        |       |       |
|length                                         |       |       |
|B                                              |       |       |
|                                               |       |       |
|%M0912                                         |       |       |
+--] [----------------------------------------------+       |       |
| 0045                                                      |       |
|Package                                                    |       |
|pattern                                                    |       |
|length                                                     |       |
|C                                                          |       |
|                                                           |       |
|%M0913                                                     |       |
+--] [-------------------------------------------------------+       |
| 0044                                                                |
|Package                                                              |
|pattern                                                              |
|length                                                               |
|D                                                                    |
|                                                                     |
|%M0914                                                               |
+--] [---------------------------------------------------------------+
| 0043
|
```

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|Package Cond.   Cond.   Cond.   Cond.   Cond.   Cond.   Cond.                    << RUNG 30  STEP #0176 >>
|pattern for pp  for pp  for pp  for pp  for pp  for pp  for pp
|length  length  length  length  length  length  length  length
|G       H       K       A       B       C       D       E
|
|%M0917  %M0936  %M0937  %M0929  %M0930  %M0931  %M0932  %M0933          %M0825
+--] [-----]/[--+--]/[--+--]/[--+--]/[--+--]/[--+--]/[--+--]/[--+----------( )--  (* Select pp length F              *)
| 0040          |       |       |       |       |       |       |                  Cross reference for %M0825
|Package        |       |       |       |       |       |       |                  -] [- 41
|pattern        |       |       |       |       |       |       |
|length         |       |       |       |       |       |       |
|H              |       |       |       |       |       |       |
|               |       |       |       |       |       |       |
|%M0918         |       |       |       |       |       |       |
+--] [----------+       |       |       |       |       |       |
| 0039                  |       |       |       |       |       |
|Package                |       |       |       |       |       |
|pattern                |       |       |       |       |       |
|length                 |       |       |       |       |       |
|K                      |       |       |       |       |       |
|                       |       |       |       |       |       |
|%M0919                 |       |       |       |       |       |
+--] [------------------+       |       |       |       |       |
| 0037                          |       |       |       |       |
|Package                        |       |       |       |       |
|pattern                        |       |       |       |       |
|length                         |       |       |       |       |
|A                              |       |       |       |       |
|                               |       |       |       |       |
|%M0911                         |       |       |       |       |
+--] [--------------------------+       |       |       |       |
| 0046                                  |       |       |       |
|Package                                |       |       |       |
|pattern                                |       |       |       |
|length                                 |       |       |       |
|B                                      |       |       |       |
|                                       |       |       |       |
|%M0912                                 |       |       |       |
+--] [-----------------------------------+       |       |       |
| 0045                                          |       |       |
|Package                                        |       |       |
|pattern                                        |       |       |
|length                                         |       |       |
|C                                              |       |       |
|                                               |       |       |
|%M0913                                         |       |       |
+--] [-------------------------------------------+       |       |
| 0044                                                  |       |
|Package                                                |       |
|pattern                                                |       |
|length                                                 |       |
|D                                                      |       |
|                                                       |       |
|%M0914                                                 |       |
+--] [-----------------------------------------------------+       |
| 0043                                                            |
|Package                                                          |
|pattern                                                          |
|length                                                           |
|E                                                                |
|                                                                 |
|%M0915                                                           |
+--] [---------------------------------------------------------------+
| 0042
|
```

```
Program: A454891                        C:\LM90\VISN\P1000\A454891                        Block: SELECTI(SUBR 12)
```

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|Package Cond.   Cond.   Cond.   Cond.   Cond.   Cond.   Cond.                    << RUNG 31  STEP #0192 >>
|pattern for pp  for pp  for pp  for pp  for pp  for pp  for pp
|length  length  length  length  length  length  length  length
|H       K       A       B       C       D       E       F
|
|%M0918  %M0937  %M0929  %M0930  %M0931  %M0932  %M0933  %M0934          %M0826
+--] [-----]/[--+--]/[--+--]/[--+--]/[--+--]/[--+--]/[--+--]/[--+----------( )--  (* Select pp length G               *)
| 0039          |       |       |       |       |       |       |                  Cross reference for %M0826
|Package        |       |       |       |       |       |       |                  -] [- 40
|pattern        |       |       |       |       |       |       |
|length         |       |       |       |       |       |       |
|K              |       |       |       |       |       |       |
|               |       |       |       |       |       |       |
|%M0919         |       |       |       |       |       |       |
+--] [----------+       |       |       |       |       |       |
| 0037                  |       |       |       |       |       |
|Package                |       |       |       |       |       |
|pattern                |       |       |       |       |       |
|length                 |       |       |       |       |       |
|A                      |       |       |       |       |       |
|                       |       |       |       |       |       |
|%M0911                 |       |       |       |       |       |
+--] [------------------+       |       |       |       |       |
| 0046                          |       |       |       |       |
|Package                        |       |       |       |       |
|pattern                        |       |       |       |       |
|length                         |       |       |       |       |
|B                              |       |       |       |       |
|                               |       |       |       |       |
|%M0912                         |       |       |       |       |
+--] [--------------------------+       |       |       |       |
| 0045                                  |       |       |       |
|Package                                |       |       |       |
|pattern                                |       |       |       |
|length                                 |       |       |       |
|C                                      |       |       |       |
|                                       |       |       |       |
|%M0913                                 |       |       |       |
+--] [-----------------------------------+       |       |       |
| 0044                                          |       |       |
|Package                                        |       |       |
|pattern                                        |       |       |
|length                                         |       |       |
|D                                              |       |       |
|                                               |       |       |
|%M0914                                         |       |       |
+--] [----------------------------------------------+       |       |
| 0043                                                      |       |
|Package                                                    |       |
|pattern                                                    |       |
|length                                                     |       |
|E                                                          |       |
|                                                           |       |
|%M0915                                                     |       |
+--] [-------------------------------------------------------+       |
| 0042                                                                |
|Package                                                              |
|pattern                                                              |
|length                                                               |
|F                                                                    |
|                                                                     |
|%M0916                                                               |
+--] [---------------------------------------------------------------+
| 0041
|
```

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|Package Cond.   Cond.   Cond.   Cond.   Cond.   Cond.   Cond.                    << RUNG 32  STEP #0208 >>
|pattern for pp  for pp  for pp  for pp  for pp  for pp  for pp
|length  length  length  length  length  length  length  length
|K       A       B       C       D       E       F       G
|
|%M0919  %M0929  %M0930  %M0931  %M0932  %M0933  %M0934  %M0935          %M0827
+--] [-----]/[--+--]/[--+--]/[--+--]/[--+--]/[--+--]/[--+--]/[--+----------( )--  (* Select pp length H               *)
| 0037          |       |       |       |       |       |       |                  Cross reference for %M0827
|Package        |       |       |       |       |       |       |                  -] [- 38
|pattern        |       |       |       |       |       |       |
|length         |       |       |       |       |       |       |
|A              |       |       |       |       |       |       |
|               |       |       |       |       |       |       |
|%M0911         |       |       |       |       |       |       |
+--] [----------+       |       |       |       |       |       |
| 0046                  |       |       |       |       |       |
|Package                |       |       |       |       |       |
|pattern                |       |       |       |       |       |
|length                 |       |       |       |       |       |
|B                      |       |       |       |       |       |
|                       |       |       |       |       |       |
|%M0912                 |       |       |       |       |       |
+--] [------------------+       |       |       |       |       |
| 0045                          |       |       |       |       |
|Package                        |       |       |       |       |
|pattern                        |       |       |       |       |
|length                         |       |       |       |       |
|C                              |       |       |       |       |
|                               |       |       |       |       |
|%M0913                         |       |       |       |       |
+--] [--------------------------+       |       |       |       |
| 0044                                  |       |       |       |
|Package                                |       |       |       |
|pattern                                |       |       |       |
|length                                 |       |       |       |
|D                                      |       |       |       |
|                                       |       |       |       |
|%M0914                                 |       |       |       |
+--] [-----------------------------------+       |       |       |
| 0043                                          |       |       |
|Package                                        |       |       |
|pattern                                        |       |       |
|length                                         |       |       |
|E                                              |       |       |
|                                               |       |       |
|%M0915                                         |       |       |
+--] [-------------------------------------------+       |       |
| 0042                                                  |       |
|Package                                                |       |
|pattern                                                |       |
|length                                                 |       |
|F                                                      |       |
|                                                       |       |
|%M0916                                                 |       |
+--] [-----------------------------------------------------+       |
| 0041                                                            |
|Package                                                          |
|pattern                                                          |
|length                                                           |
|G                                                                |
|                                                                 |
|%M0917                                                           |
+--] [---------------------------------------------------------------+
| 0040
|
```

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|Package Cond.   Cond.   Cond.   Cond.   Cond.   Cond.   Cond.                    << RUNG 33  STEP #0224 >>
|pattern for pp  for pp  for pp  for pp  for pp  for pp  for pp
|length  length  length  length  length  length  length  length
|A       B       C       D       E       F       G       H
|
|%M0911  %M0930  %M0931  %M0932  %M0933  %M0934  %M0935  %M0936          %M0828
+--] [-----]/[--+--]/[--+--]/[--+--]/[--+--]/[--+--]/[--+--]/[--+----------( )--  (* Select pp length K               *)
| 0046          |       |       |       |       |       |       |                  Cross reference for %M0828
|Package        |       |       |       |       |       |       |                  -] [- 36
|pattern        |       |       |       |       |       |       |
|length         |       |       |       |       |       |       |
|B              |       |       |       |       |       |       |
|               |       |       |       |       |       |       |
|%M0912         |       |       |       |       |       |       |
+--] [----------+       |       |       |       |       |       |
| 0045                  |       |       |       |       |       |
|Package                |       |       |       |       |       |
|pattern                |       |       |       |       |       |
|length                 |       |       |       |       |       |
|C                      |       |       |       |       |       |
|                       |       |       |       |       |       |
|%M0913                 |       |       |       |       |       |
+--] [------------------+       |       |       |       |       |
| 0044                          |       |       |       |       |
|Package                        |       |       |       |       |
|pattern                        |       |       |       |       |
|length                         |       |       |       |       |
|D                              |       |       |       |       |
|                               |       |       |       |       |
|%M0914                         |       |       |       |       |
+--] [--------------------------+       |       |       |       |
| 0043                                  |       |       |       |
|Package                                |       |       |       |
|pattern                                |       |       |       |
|length                                 |       |       |       |
|E                                      |       |       |       |
|                                       |       |       |       |
|%M0915                                 |       |       |       |
+--] [-----------------------------------+       |       |       |
| 0042                                          |       |       |
|Package                                        |       |       |
|pattern                                        |       |       |
|length                                         |       |       |
|F                                              |       |       |
|                                               |       |       |
|%M0916                                         |       |       |
+--] [----------------------------------------------+       |       |
| 0041                                                      |       |
|Package                                                    |       |
|pattern                                                    |       |
|length                                                     |       |
|G                                                          |       |
|                                                           |       |
|%M0917                                                     |       |
+--] [-------------------------------------------------------+       |
| 0040                                                                |
|Package                                                              |
|pattern                                                              |
|length                                                               |
|H                                                                    |
|                                                                     |
|%M0918                                                               |
+--] [---------------------------------------------------------------+
| 0039
|
```

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|Package Cond.   Cond.   Cond.   Cond.   Cond.   Cond.   Cond.                    << RUNG 34  STEP #0240 >>
|pattern for pp  for pp  for pp  for pp  for pp  for pp  for pp
|length  length  length  length  length  length  length  length
|B       C       D       E       F       G       H       K
|
|%M0912  %M0931  %M0932  %M0933  %M0934  %M0935  %M0936  %M0937          %M0829
+--] [-----]/[--+--]/[--+--]/[--+--]/[--+--]/[--+--]/[--+--]/[--+----------( )--  (* Select pp length A               *)
| 0045          |       |       |       |       |       |                 Cross reference for %M0829
|Package        |       |       |       |       |       |                 -] [- 46
|pattern        |       |       |       |       |       |
|length         |       |       |       |       |       |
|C              |       |       |       |       |       |
|               |       |       |       |       |       |
|%M0913         |       |       |       |       |       |
+--] [----------+       |       |       |       |       |
| 0044                  |       |       |       |       |
|Package                |       |       |       |       |
|pattern                |       |       |       |       |
|length                 |       |       |       |       |
|D                      |       |       |       |       |
|                       |       |       |       |       |
|%M0914                 |       |       |       |       |
+--] [------------------+       |       |       |       |
| 0043                          |       |       |       |
|Package                        |       |       |       |
|pattern                        |       |       |       |
|length                         |       |       |       |
|E                              |       |       |       |
|                               |       |       |       |
|%M0915                         |       |       |       |
+--] [--------------------------+       |       |       |
| 0042                                  |       |       |
|Package                                |       |       |
|pattern                                |       |       |
|length                                 |       |       |
|F                                      |       |       |
|                                       |       |       |
|%M0916                                 |       |       |
+--] [-----------------------------------+       |       |
| 0041                                          |       |
|Package                                        |       |
|pattern                                        |       |
|length                                         |       |
|G                                              |       |
|                                               |       |
|%M0917                                         |       |
+--] [-------------------------------------------+       |
| 0040                                                  |
|Package                                                |
|pattern                                                |
|length                                                 |
|H                                                      |
|                                                       |
|%M0918                                                 |
+--] [-------------------------------------------------------+
| 0039                                                          |
|Package                                                        |
|pattern                                                        |
|length                                                         |
|K                                                              |
|                                                               |
|%M0919                                                         |
+--] [---------------------------------------------------------------+
| 0037
|
|Select                                                                   << RUNG 35  STEP #0256 >>
|package                 Push
|pattern                 button
|length  Step 2  Step 0  delay
| S07H   STEP_2  STEP_0
|%I0009  %M0102  %M0100  %M1014                                   %T0025
+--] [-----]/[-----] [-----] [---------------------------------------------(^)--  (* Pulse select package pattern     *)
|                       0008                                                      Cross reference for %T0025
|                                                                                 -] [- 36,38,40,41,42,43,44,45,46
|                                                                                 -]/[- 36,38,40,41,42,43,44,45,46
|
```

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|Pulse   Select                                                                    << RUNG 36  STEP #0261 >>
|select  pp
|package length
|pattern K
|
|%T0025  %M0828
+--] [-----] [--+-------------------------------------------------------+----<+>
| 0035    0033  |                                                       |
|Package Pulse  |                                                       |
|pattern select |                                                       |
|length  package|                                                       |
|K       pattern|                                                       |
|               |                                                       |
|%M0919  %T0025 |                                                       |
+--] [-----]/[--+                                                       |
| 0037    0035                                                          |
|No      Cond.   Cond.   Cond.   Cond.   Cond.   Cond.   Cond.   Cond.  |
|package for pp  for pp  for pp  for pp  for pp  for pp  for pp  for pp |
|pattern length  length  length  length  length  length  length  length |
|choosen A       B       C       D       E       F       G       H      |
|                                                                       |
|%M0817  %M0929  %M0930  %M0931  %M0932  %M0933  %M0934  %M0935  %M0936 |
+--] [-----]/[-----]/[-----]/[-----]/[-----]/[-----]/[-----]/[-----]/[--+
| 0048
|
|        Cond.                                                                     << RUNG 37  STEP #0277 >>
|        for pp
|        length  Bottom
|        K       size 0
|
|        %M0937  %M0880                                                  %M0919
+<+>-------] [-----]/[-------------------------------------------------------(M)--  (* Package pattern length K         *)
|                                                                                   Cross reference for %M0919
|                                                                                   -] [- 26,27,28,29,30,31,32,34,36,57,63
|                                                                                   -]/[- 47,61
|
|Pulse   Select                                                   Cond.            << RUNG 38  STEP #0281 >>
|select  pp                                                       for pp
|package length                                                   length
|pattern H                                                        H
|
|%T0025  %M0827                                                   %M0936
+--] [-----] [--+-----------------------------------------------+--] [-------<+>
| 0035    0032  |                                               |
|Package Pulse  |                                               |
|pattern select |                                               |
|length  package|                                               |
|H       pattern|                                               |
|               |                                               |
|%M0918  %T0025 |                                               |
+--] [-----]/[--+                                               |
| 0039    0035                                                  |
|No      Cond.   Cond.   Cond.   Cond.   Cond.   Cond.   Cond.  |
|package for pp  for pp  for pp  for pp  for pp  for pp  for pp |
|pattern length  length  length  length  length  length  length |
|choosen A       B       C       D       E       F       G      |
|                                                               |
|%M0817  %M0929  %M0930  %M0931  %M0932  %M0933  %M0934  %M0935 |
+--] [-----]/[-----]/[-----]/[-----]/[-----]/[-----]/[-----]/[--+
| 0048
|
|        Bottom                                                                    << RUNG 39  STEP #0297 >>
|        size 0
|
|        %M0880                                                          %M0918
+<+>-------]/[----------------------------------------------------------------(M)--  (* Package pattern length H         *)
|                                                                                   Cross reference for %M0918
|                                                                                   -] [- 26,27,28,29,30,31,33,34,38,56,62
|                                                                                   -]/[- 47,61
|
|Pulse   Select                                           Cond.                    << RUNG 40  STEP #0300 >>
|select  pp                                               for pp
|package length                                           length  Bottom
|pattern G                                                G       size 0
|
|%T0025  %M0826                                           %M0935  %M0880  %M0917
+--] [-----] [--+-------------------------------------+--] [-----]/[-----(M)--  (* Package pattern length G         *)
| 0035    0031  |                                     |                         Cross reference for %M0917
|Package Pulse  |                                     |                         -] [- 26,27,28,29,30,32,33,34,40,55,63
|pattern select |                                     |                         -]/[- 47,61
|length  package|                                     |
|G       pattern|                                     |
|               |                                     |
|%M0917  %T0025 |                                     |
+--] [-----]/[--+                                     |
| 0040    0035                                        |
|No      Cond.   Cond.   Cond.   Cond.   Cond.   Cond.  |
|package for pp  for pp  for pp  for pp  for pp  for pp |
|pattern length  length  length  length  length  length |
|choosen A       B       C       D       E       F      |
|                                                       |
|%M0817  %M0929  %M0930  %M0931  %M0932  %M0933  %M0934 |
+--] [-----]/[-----]/[-----]/[-----]/[-----]/[-----]/[--+
| 0048

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|Pulse   Select                                Cond.                          << RUNG 41  STEP #0316 >>
|select  pp                                    for pp
|package length                                length
|pattern F                                     F
|
|%T0025  %M0825                                %M0934                  %M0916
+--] [-----] [--+-----------------------------+--] [---------------------(M)--  (* Package pattern length F         *)
| 0035    0030  |                             |                                Cross reference for %M0916
|Package Pulse  |                             |                                -] [- 26,27,28,29,31,32,33,34,41,54,59,62
|pattern select |                             |                                -]/[- 47,61
|length  package|                             |
|F       pattern|                             |
|               |                             |
|%M0916  %T0025 |                             |
+--] [-----]/[--+                             |
| 0041    0035                                |
|No      Cond.   Cond.   Cond.   Cond.   Cond.  |
|package for pp  for pp  for pp  for pp  for pp |
|pattern length  length  length  length  length |
|choosen A       B       C       D       E      |
|                                               |
|%M0817  %M0929  %M0930  %M0931  %M0932  %M0933 |
+--] [-----]/[-----]/[-----]/[-----]/[-----]/[--+
| 0048
|
|Pulse   Select                          Cond.                                << RUNG 42  STEP #0330 >>
|select  pp                              for pp
|package length                          length
|pattern E                               E
|
|%T0025  %M0824                          %M0933                  %M0915
+--] [-----] [--+----------------------+--] [-----------------------------(M)--  (* Package pattern length E         *)
| 0035    0029  |                      |                                       Cross reference for %M0915
|Package Pulse  |                      |                                       -] [- 26,27,28,30,31,32,33,34,42,53,58,64
|pattern select |                      |                                       -]/[- 47,61
|length  package|                      |
|E       pattern|                      |
|               |                      |
|%M0915  %T0025 |                      |
+--] [-----]/[--+                      |
| 0042    0035                         |
|No      Cond.   Cond.   Cond.   Cond.  |
|package for pp  for pp  for pp  for pp |
|pattern length  length  length  length |
|choosen A       B       C       D      |
|                                       |
|%M0817  %M0929  %M0930  %M0931  %M0932 |
+--] [-----]/[-----]/[-----]/[-----]/[--+
| 0048
|
|Pulse   Select                  Cond.                                       << RUNG 43  STEP #0343 >>
|select  pp                      for pp
|package length                  length
|pattern D                       D
|
|%T0025  %M0823                  %M0932                  %M0914
+--] [-----] [--+---------------+--] [-------------------------------------(M)--  (* Package pattern length D         *)
| 0035    0028  |               |                                                 Cross reference for %M0914
|Package Pulse  |               |                                                 -] [- 26,27,29,30,31,32,33,34,43,52,57,62,64
|pattern select |               |                                                 -]/[- 47,61
|length  package|               |
|D       pattern|               |
|               |               |
|%M0914  %T0025 |               |
+--] [-----]/[--+               |
| 0043    0035                  |
|No      Cond.   Cond.   Cond.  |
|package for pp  for pp  for pp |
|pattern length  length  length |
|choosen A       B       C      |
|                               |
|%M0817  %M0929  %M0930  %M0931 |
+--] [-----]/[-----]/[-----]/[--+
| 0048
|

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|Pulse   Select          Cond.                                                    << RUNG 44  STEP #0355 >>
|select  pp              for pp
|package length          length
|pattern C               C
|
|%T0025  %M0822          %M0931                                        %M0913
+--] [-----] [--+-------+--] [-----------------------------------------(M)--  (* Package pattern length C         *)
| 0035    0027  |       |                                                      Cross reference for %M0913
|Package Pulse  |       |                                                      -] [- 26,28,29,30,31,32,33,34,44,51,56,63,64
|pattern select |       |                                                      -]/[- 47,61
|length  package|       |
|C       pattern|       |
|               |       |
|%M0913  %T0025 |       |
+--] [-----]/[--+       |
| 0044    0035          |
|No      Cond.   Cond.  |
|package for pp  for pp |
|pattern length  length |
|choosen A       B      |
|                       |
|%M0817  %M0929  %M0930 |
+--] [-----]/[-----]/[--+
| 0048
|
|Pulse   Select  Cond.                                                            << RUNG 45  STEP #0366 >>
|select  pp      for pp
|package length  length
|pattern B       B
|
|%T0025  %M0821  %M0930                                                %M0912
+--] [-----] [--+--] [-------------------------------------------------(M)--  (* Package pattern length B         *)
| 0035    0026  |                                                              Cross reference for %M0912
|Package Pulse  |                                                              -] [- 27,28,29,30,31,32,33,34,45,50,55,62,64
|pattern select |                                                              -]/[- 47,61
|length  package|
|B       pattern|
|               |
|%M0912  %T0025 |
+--] [-----]/[--+
| 0045    0035  |
|No      Cond.  |
|package for pp |
|pattern length |
|choosen A      |
|               |
|%M0817  %M0929 |
+--] [-----]/[--+
| 0048
|
|Pulse   Select  Cond.                                                            << RUNG 46  STEP #0376 >>
|select  pp      for pp
|package length  length
|pattern A       A
|
|%T0025  %M0829  %M0929                                                %M0911
+--] [-----] [--+--] [-------------------------------------------------(M)--  (* Package pattern length A         *)
| 0035    0034  |                                                              Cross reference for %M0911
|Package Pulse  |                                                              -] [- 26,27,28,29,30,31,32,33,46,49,54,63,64
|pattern select |                                                              -]/[- 47,61
|length  package|
|A       pattern|
|               |
|%M0911  %T0025 |
+--] [-----]/[--+
| 0046    0035  |
|No             |
|package        |
|pattern        |
|choosen        |
|               |
|%M0817         |
+--] [----------+
| 0048
|
|Package Package Package Package Package Package Package Package Package          << RUNG 47  STEP #0384 >>
|pattern pattern pattern pattern pattern pattern pattern pattern pattern
|length  length  length  length  length  length  length  length  length
|A       B       C       D       E       F       G       H       K
|
|%M0911  %M0912  %M0913  %M0914  %M0915  %M0916  %M0917  %M0918  %M0919
+--]/[-----]/[-----]/[-----]/[-----]/[-----]/[-----]/[-----]/[-----]/[-------<+>
| 0046    0045    0044    0043    0042    0041    0040    0039    0037
|
|        Step 2                                                                   << RUNG 48  STEP #0394 >>
|        STEP_2
|        %M0102                                                        %M0817
+<+>-------]/[-----------------------------------------------------------(M)--  (* No package pattern choosen       *)
|                                                                                Cross reference for %M0817
|                                                                                -] [- 36,38,40,41,42,43,44,45,46
|
```

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|Package                                                                                  << RUNG 49  STEP #0397 >>
|pattern                 No PP
|length  Bottom          length
|A       size 0  Step 0  choosen
|                STEP_0                                                   H035
|%M0911  %M0880  %M0100  %M1051                                          %M0169
+--] [-----]/[-----] [-----]/[--+-----------------------------------------( )--  (* Package pattern X*2              *)
| 0046                    0061  |                                                Cross reference for H035
|                               |                                                          NONE
|No PP                          |
|length                         |
|choosen Flash   Step 0         |
|         FLASH  STEP_0         |
|%M1051  %M0003  %M0100         |
+--] [-----] [-----] [----------+
| 0061
|
|Package                                                                                  << RUNG 50  STEP #0406 >>
|pattern
|length  Bottom
|B       size 0  Step 0
|                STEP_0                                                   H036
|%M0912  %M0880  %M0100                                                  %M0170
+--] [-----]/[-----] [-----------------------------------------------------( )--  (* Package pattern X*3              *)
| 0045                                                                            Cross reference for H036
|                                                                                          NONE
|
|Package                                                                                  << RUNG 51  STEP #0410 >>
|pattern
|length  Bottom
|C       size 0  Step 0
|                STEP_0                                                   H037
|%M0913  %M0880  %M0100                                                  %M0171
+--] [-----]/[-----] [-----------------------------------------------------( )--  (* Package pattern X*4              *)
| 0044                                                                            Cross reference for H037
|                                                                                          NONE
|
|Package                                                                                  << RUNG 52  STEP #0414 >>
|pattern
|length  Bottom
|D       size 0  Step 0
|                STEP_0                                                   H038
|%M0914  %M0880  %M0100                                                  %M0172
+--] [-----]/[-----] [-----------------------------------------------------( )--  (* Package pattern X*5              *)
| 0043                                                                            Cross reference for H038
|                                                                                          NONE
|
|Package                                                                                  << RUNG 53  STEP #0418 >>
|pattern
|length  Bottom
|E       size 0  Step 0
|                STEP_0                                                   H039
|%M0915  %M0880  %M0100                                                  %M0173
+--] [-----]/[-----] [-----------------------------------------------------( )--  (* Package pattern X*6              *)
| 0042                                                                            Cross reference for H039
|                                                                                          NONE
|
|Package                                                                                  << RUNG 54  STEP #0422 >>
|pattern
|length  Bottom
|F       size 0  Step 0
|                STEP_0                                                   H040
|%M0916  %M0880  %M0100                                                  %M0174
+--] [-----]/[--+--] [-----------------------------------------------------( )--  (* Package pattern X*7              *)
| 0041          |                                                                 Cross reference for H040
|Package        |                                                                          NONE
|pattern        |
|length  Bottom |
|A       size 0 |
|               |
|%M0911  %M0880 |
+--] [-----] [--+
| 0046
|
|Package                                                                                  << RUNG 55  STEP #0429 >>
|pattern
|length  Bottom
|G       size 0  Step 0
|                STEP_0                                                   H041
|%M0917  %M0880  %M0100                                                  %M0175
+--] [-----]/[--+--] [-----------------------------------------------------( )--  (* Package pattern X*8              *)
| 0040          |                                                                 Cross reference for H041
|Package        |                                                                          NONE
|pattern        |
|length  Bottom |
|B       size 0 |
|               |
|%M0912  %M0880 |
+--] [-----] [--+
| 0045
|

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|Package                                                                          << RUNG 56  STEP #0436 >>
|pattern
|length  Bottom
|H       size 0  Step 0
|                STEP_0                                                 H042
|%M0918  %M0880  %M0100                                               %M0176
+--] [-----]/[--+--] [-----------------------------------------------------( )--  (* Package pattern X*9              *)
| 0039          |                                                                 Cross reference for H042
|Package        |                                                                           NONE
|pattern        |
|length  Bottom |
|C       size 0 |
|               |
|%M0913  %M0880 |
+--] [-----] [--+
| 0044
|
|Package                                                                          << RUNG 57  STEP #0443 >>
|pattern
|length  Bottom
|K       size 0  Step 0
|                STEP_0                                                 H043
|%M0919  %M0880  %M0100                                               %M0177
+--] [-----]/[--+--] [-----------------------------------------------------( )--  (* Package pattern X*10             *)
| 0037          |                                                                 Cross reference for H043
|Package        |                                                                           NONE
|pattern        |
|length  Bottom |
|D       size 0 |
|               |
|%M0914  %M0880 |
+--] [-----] [--+
| 0043
|
|Package                                                                          << RUNG 58  STEP #0450 >>
|pattern
|length  Bottom
|E       size 0  Step 0
|                STEP_0                                                 H044
|%M0915  %M0880  %M0100                                               %M0178
+--] [-----] [-----] [----------------------------------------------------( )--  (* Package pattern X*11             *)
| 0042                                                                            Cross reference for H044
|                                                                                           NONE
|
|Package                                                                          << RUNG 59  STEP #0454 >>
|pattern
|length  Bottom
|F       size 0  Step 0
|                STEP_0                                                 H045
|%M0916  %M0880  %M0100                                               %M0179
+--] [-----] [-----] [----------------------------------------------------( )--  (* Package pattern X*12             *)
| 0041                                                                            Cross reference for H045
|                                                                                           NONE
|
```

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| >>>>
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|                Package                                                   << RUNG 64  STEP #0491 >>
|                pattern
|Bottom          length
|size 0  (X*2)   C
|
|%M0880  %M0902  %M0913                                          %M0909
+--] [-----] [-----] [--+-------------------------------------------------( )--  (* No mat betw inf and patt         *)
|         0016    0044  |                                                       Cross reference for %M0909
|                Package|                                                       -] [- 65
|                pattern|
|Bottom          length |
|size 0  (X*3)   B      |
|                       |
|%M0880  %M0903  %M0912 |
+--] [-----] [--+--] [--+
|         0015  | 0045  |
|               |Package|
|               |pattern|
|               |length |
|               |D      |
|               |       |
|               |%M0914 |
|               +--] [--+
|                 0043  |
|                Package|
|                pattern|
|Bottom          length |
|size 0  (X*2)   A      |
|                       |
|%M0880  %M0902  %M0911 |
+--] [--+--] [--+--] [--+
|       | 0016  | 0046  |
|       |       |Package|
|       |       |pattern|
|       |       |length |
|       |(X*3)  |E      |
|       |       |       |
|       |%M0903 |%M0915 |
|       +--] [--+--] [--+
|         0015    0042
|
|No mat                                                                    << RUNG 65  STEP #0509 >>
|betw
|inf and
|patt
|
|%M0907                                                          %M0910
+--] [--+-------------------------------------------------------------( )--  (* No mat. betw. inf and pattern    *)
| 0062  |                                                                  Cross reference for %M0910
|No mat |                                                                  -] [- 19,20,21
|betw   |                                                                  -]/[- 19,20,21
|inf and|
|patt   |
|       |
|%M0908 |
+--] [--+
| 0063  |
|No mat |
|betw   |
|inf and|
|patt   |
|       |
|%M0909 |
+--] [--+
| 0064
|
```

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| (*************************************************************************)
| (*                                                                       *)
| (* PACKAGE PATTERN, WIDTH SELECTION                                      *)
| (*                                                                       *)
| (*************************************************************************)
|
|Step 2                                                                        << RUNG 67  STEP #0514 >>
|STEP_2
|%M0102  +-----+
+--]/[---+MOVE_+-
|        | INT |
|        |     |
|        |     | Cond.
|Package |     | narrow
|width   |     | pusher
|select  |     | 2*X
|        |     |
|%R0448 -+IN  Q+-%M0961
|        | LEN |
|        |00001|
|        |     |
|        +-----+
|
|Select                                                                        << RUNG 68  STEP #0516 >>
|package                 Push
|pattern                 button
|width   Step 2  Step 0  delay
| S10H   STEP_2  STEP_0
|%I0012  %M0102  %M0100  %M1014                                   %T0029
+--] [-----]/[-----] [-----] [-----------------------------------------(^)--  (* Pulse select pusher width        *)
|                        0008                                                  Cross reference for %T0029
|                                                                              -] [- 74,75,76,77,78
|                                                                              -]/[- 74,75,76,77,78
|
|        Cond.   Cond.   Cond.                                                 << RUNG 69  STEP #0521 >>
|        wide    wide    wide
|Width   pusher  pusher  pusher
|3x      4*X     5*x     6*x
|
|%M0897  %M0963  %M0964  %M0965                                   %M0840
+--] [-----]/[--+--]/[--+--]/[--+-----------------------------------------( )--  (* Select 2x                        *)
| 0077          |       |       |                                              Cross reference for %M0840
|               |       |       |                                              -] [- 78
|Width          |       |       |
|4x             |       |       |
|               |       |       |
|%M0898         |       |       |
+--] [----------+       |       |
| 0076                  |       |
|                       |       |
|Width                  |       |
|5x                     |       |
|                       |       |
|%M0899                 |       |
+--] [-----------------+       |
| 0075                          |
|                               |
|Width                          |
|6x                             |
|                               |
|%M0900                         |
+--] [-------------------------+
| 0074
|
|        Cond.   Cond.   Cond.                                                 << RUNG 70  STEP #0529 >>
|        wide    wide    narrow
|Width   pusher  pusher  pusher
|4x      5*x     6*x     2*X
|
|%M0898  %M0964  %M0965  %M0961                                   %M0841
+--] [-----]/[--+--]/[--+--]/[--+-----------------------------------------( )--  (* Select 3x                        *)
| 0076          |       |       |                                              Cross reference for %M0841
|               |       |       |                                              -] [- 77
|Width          |       |       |
|5x             |       |       |
|               |       |       |
|%M0899         |       |       |
+--] [----------+       |       |
| 0075                  |       |
|                       |       |
|Width                  |       |
|6x                     |       |
|                       |       |
|%M0900                 |       |
+--] [-----------------+       |
| 0074                          |
|                               |
|Width                          |
|2x                             |
|                               |
|%M0896                         |
+--] [-------------------------+
| 0078
|
```

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|        Cond.   Cond.   Cond.                                                << RUNG 71  STEP #0537 >>
|        wide    narrow  wide
|Width   pusher  pusher  pusher
|5x      6*x     2*X     3*X
|
|%M0899  %M0965  %M0961  %M0962                                      %M0842
+--] [-----]/[--+--]/[--+--]/[--+----------------------------------------( )--  (* Select 4x                        *)
| 0075          |       |       |                                              Cross reference for %M0842
|               |       |       |                                              -] [- 76
|Width          |       |       |
|6x             |       |       |
|               |       |       |
|%M0900         |       |       |
+--] [----------+       |       |
| 0074                  |       |
|                       |       |
|Width                  |       |
|2x                     |       |
|                       |       |
|%M0896                 |       |
+--] [------------------+       |
| 0078                          |
|                               |
|Width                          |
|3x                             |
|                               |
|%M0897                         |
+--] [---------------------------+
| 0077
|
|        Cond.   Cond.   Cond.                                                << RUNG 72  STEP #0545 >>
|        narrow  wide    wide
|Width   pusher  pusher  pusher
|6x      2*X     3*X     4*X
|
|%M0900  %M0961  %M0962  %M0963                                      %M0843
+--] [-----]/[--+--]/[--+--]/[--+----------------------------------------( )--  (* Select 5x                        *)
| 0074          |       |       |                                              Cross reference for %M0843
|               |       |       |                                              -] [- 75
|Width          |       |       |
|2x             |       |       |
|               |       |       |
|%M0896         |       |       |
+--] [----------+       |       |
| 0078                  |       |
|                       |       |
|Width                  |       |
|3x                     |       |
|                       |       |
|%M0897                 |       |
+--] [------------------+       |
| 0077                          |
|                               |
|Width                          |
|4x                             |
|                               |
|%M0898                         |
+--] [---------------------------+
| 0076
|
|        Cond.   Cond.   Cond.                                                << RUNG 73  STEP #0553 >>
|        wide    wide    wide
|Width   pusher  pusher  pusher
|2x      3*X     4*X     5*x
|
|%M0896  %M0962  %M0963  %M0964                                      %M0844
+--] [-----]/[--+--]/[--+--]/[--+----------------------------------------( )--  (* Select 6x                        *)
| 0078          |       |       |                                              Cross reference for %M0844
|               |       |       |                                              -] [- 74
|Width          |       |       |
|3x             |       |       |
|               |       |       |
|%M0897         |       |       |
+--] [----------+       |       |
| 0077                  |       |
|                       |       |
|Width                  |       |
|4x                     |       |
|                       |       |
|%M0898                 |       |
+--] [------------------+       |
| 0076                          |
|                               |
|Width                          |
|5x                             |
|                               |
|%M0899                         |
+--] [---------------------------+
| 0075
|

Program: A454891                         C:\LM90\VISN\P1000\A454891                                Block: SELECTI(SUBR 12)
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|Pulse                                  Cond.                                    << RUNG 74  STEP #0561 >>
|select                                 wide
|pusher  Select                         pusher
|width   6x                             6*x
|
|%T0029  %M0844                         %M0965                          %M0900
+--] [-----] [--+-----------------------+--] [-----------------------------(M)--  (* Width 6x                          *)
| 0068    0073  |                      |                                        Cross reference for %M0900
|        Pulse  |                      |                                        -] [- 69,70,71,72,74,84
|        select |                      |                                        -]/[- 79,86
|Width   pusher |                      |
|6x      width  |                      |
|               |                      |
|%M0900  %T0029 |                      |
+--] [-----]/[--+                      |
| 0074    0068                         |
|No      Cond.   Cond.   Cond.   Cond.  |
|pusher  narrow  wide    wide    wide   |
|width   pusher  pusher  pusher  pusher |
|choosen 2*X     3*X     4*X     5*x    |
|                                       |
|%M0819  %M0961  %M0962  %M0963  %M0964 |
+--] [-----]/[-----]/[-----]/[-----]/[--+
| 0079
|
|Pulse                          Cond.                                        << RUNG 75  STEP #0574 >>
|select                         wide
|pusher  Select                 pusher
|width   5x                     5*x
|
|%T0029  %M0843                 %M0964                          %M0899
+--] [-----] [--+---------------+--] [-------------------------------------(M)--  (* Width 5x                          *)
| 0068    0072  |               |                                                Cross reference for %M0899
|        Pulse  |               |                                                -] [- 69,70,71,73,75,83
|        select |               |                                                -]/[- 79,86
|Width   pusher |               |
|5x      width  |               |
|               |               |
|%M0899  %T0029 |               |
+--] [-----]/[--+               |
| 0075    0068                  |
|No      Cond.   Cond.   Cond.  |
|pusher  narrow  wide    wide   |
|width   pusher  pusher  pusher |
|choosen 2*X     3*X     4*X    |
|                               |
|%M0819  %M0961  %M0962  %M0963 |
+--] [-----]/[-----]/[-----]/[--+
| 0079
|
|Pulse                  Cond.                                                << RUNG 76  STEP #0586 >>
|select                 wide
|pusher  Select         pusher
|width   4x             4*X
|
|%T0029  %M0842         %M0963                                  %M0898
+--] [-----] [--+-------+--] [---------------------------------------------(M)--  (* Width 4x                          *)
| 0068    0071  |       |                                                        Cross reference for %M0898
|        Pulse  |       |                                                        -] [- 69,70,72,73,76,82
|        select |       |                                                        -]/[- 79,86
|Width   pusher |       |
|4x      width  |       |
|               |       |
|%M0898  %T0029 |       |
+--] [-----]/[--+       |
| 0076    0068          |
|No      Cond.   Cond.  |
|pusher  narrow  wide   |
|width   pusher  pusher |
|choosen 2*X     3*X    |
|                       |
|%M0819  %M0961  %M0962 |
+--] [-----]/[-----]/[--+
| 0079
|
```

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|Pulse           Cond.                                                    << RUNG 77  STEP #0597 >>
|select          wide
|pusher  Select  pusher
|width   3x      3*X
|
|%T0029  %M0841  %M0962                                          %M0897
+--] [-----] [--+--] [-------------------------------------------------(M)--  (* Width 3x                          *)
| 0068    0070  |                                                           Cross reference for %M0897
|        Pulse  |                                                           -] [- 69,71,72,73,77,81
|        select |                                                           -]/[- 79,86
|Width   pusher |
|3x      width  |
|               |
|%M0897  %T0029 |
+--] [-----]/[--+
| 0077    0068  |
|No      Cond.  |
|pusher  narrow |
|width   pusher |
|choosen 2*X    |
|               |
|%M0819  %M0961 |
+--] [-----]/[--+
| 0079
|
|Pulse           Cond.                                                    << RUNG 78  STEP #0607 >>
|select          narrow
|pusher  Select  pusher
|width   2x      2*X
|
|%T0029  %M0840  %M0961                                          %M0896
+--] [-----] [--+--] [-------------------------------------------------(M)--  (* Width 2x                          *)
| 0068    0069  |                                                           Cross reference for %M0896
|        Pulse  |                                                           -] [- 70,71,72,73,78,80
|        select |                                                           -]/[- 79,86
|Width   pusher |
|2x      width  |
|               |
|%M0896  %T0029 |
+--] [-----]/[--+
| 0078    0068  |
|No             |
|pusher         |
|width          |
|choosen        |
|               |
|%M0819         |
+--] [----------+
| 0079
|
|Width   Width   Width   Width   Width                                    << RUNG 79  STEP #0615 >>
|2x      3x      4x      5x      6x      Step 2
|                                        STEP_2
|%M0896  %M0897  %M0898  %M0899  %M0900  %M0102                  %M0819
+--]/[-----]/[-----]/[-----]/[-----]/[-----]/[-----------------------------( )--  (* No pusher width choosen           *)
| 0078    0077    0076    0075    0074                                      Cross reference for %M0819
|                                                                           -] [- 74,75,76,77,78
|
|                        No PP                                              << RUNG 80  STEP #0622 >>
|Width   Bottom          width
|2x      size 0  Step 0  choosen
|                STEP_0                                           H046
|%M0896  %M0880  %M0100  %M1053                                   %M0180
+--] [-----]/[-----] [-----]/[--+-----------------------------------------( )--  (* Package pattern width 2*X         *)
| 0078                    0086  |                                           Cross reference for H046
|                               |                                                     NONE
|No PP                          |
|width                          |
|choosen Step 0  Flash          |
|        STEP_0   FLASH         |
|%M1053  %M0100  %M0003         |
+--] [-----] [-----] [----------+
| 0086
|
|Width                                                                    << RUNG 81  STEP #0631 >>
|3x      Step 0
|        STEP_0                                                   H047
|%M0897  %M0100                                                   %M0181
+--] [-----] [-------------------------------------------------------------( )--  (* Package pattern width 3*X         *)
| 0077                                                                      Cross reference for H047
|                                                                                     NONE
|
|Width                                                                    << RUNG 82  STEP #0634 >>
|4x      Step 0
|        STEP_0                                                   H048
|%M0898  %M0100                                                   %M0182
+--] [-----] [-------------------------------------------------------------( )--  (* Package pattern width 4*X         *)
| 0076                                                                      Cross reference for H048
|                                                                                     NONE
|
```

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|Width                                                                                << RUNG 83  STEP #0637 >>
|5x      Step 0
|        STEP_0                                                     H049
|%M0899  %M0100                                                    %M0183
+--] [-----] [-----------------------------------------------------------( )--  (* Package pattern width 5*X        *)
| 0075                                                                          Cross reference for H049
|                                                                                        NONE
|
|Width                                                                                << RUNG 84  STEP #0640 >>
|6x      Step 0
|        STEP_0                                                     H050
|%M0900  %M0100                                                    %M0184
+--] [-----] [-----------------------------------------------------------( )--  (* Package pattern width 6*X        *)
| 0074                                                                          Cross reference for H050
|                                                                                        NONE
|
| (*************************************************************************)
| (*                                                                       *)
| (* NO PP WIDTH CHOOSEN, FLASH                                            *)
| (*                                                                       *)
| (*************************************************************************)
|
|Width   Width   Width   Width   Width                                                << RUNG 86  STEP #0644 >>
|2x      3x      4x      5x      6x
|
|%M0896  %M0897  %M0898  %M0899  %M0900                                   %M1053
+--]/[-----]/[-----]/[-----]/[-----]/[-------------------------------------( )--  (* No PP width choosen              *)
| 0078    0077    0076    0075    0074                                          Cross reference for %M1053
|                                                                               -] [- 80
|                                                                               -]/[- 80
|
```

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| (*************************************************************************)
| (* CARDBOARD SELECTION                                                    *)
| (*                                                                       *)
| (*************************************************************************)
|
|Step 2                                                                        << RUNG 88  STEP #0651 >>
|STEP_2
|%M0102  +-----+
+--]/[---+MOVE_+-
|        | INT |
|        |     |
|Cardb.  |     | Cond.
|choice  |     | for
|select  |     | Tray
|        |     |
|%R0449 -+IN  Q+-%M0977
|        | LEN |
|        |00001|
|        |     |
|        +-----+
|
|WA unit                                                                       << RUNG 89  STEP #0653 >>
|install
|ed
|
|%M1007  +-----+
+--]/[---+ AND_+-
|        | WORD|
|        |     |
|Cond.   |     | Cond.
|for     |     | for
|Tray    |     | Tray
|        |     |
|%M0977 -+I1  Q+-%M0977
|        |     |
| CONST -+I2   |
|   0001 +-----+
|
|Select                  Push                                                  << RUNG 90  STEP #0655 >>
|cardbo.                 button
|type    Step 2  Step 0  delay
| S09H   STEP_2  STEP_0
|%I0011  %M0102  %M0100  %M1014                                  %T0028
+--] [-----]/[-----] [-----] [-----------------------------------------(^)--  (* Pulse select tray type           *)
|                        0008                                                  Cross reference for %T0028
|                                                                              -] [- 96,97,98,99,100
|                                                                              -]/[- 96,97,98,99,100
|
|                Cond.   Cond.                                                 << RUNG 91  STEP #0660 >>
|        Cond.   for WA  for WA
|        for     inside  side
|WAMF    Tray OF flap    flap
|
|%M0856  %M0981  %M0978  %M0980                                  %M0850
+--] [-----]/[--+--]/[--+--]/[--+-----------------------------------------( )--  (* Select TRAY                      *)
| 0099          |       |       |                                              Cross reference for %M0850
|               |       |       |                                              -] [- 100
|TRAY OF        |       |       |
|               |       |       |
|%M0857         |       |       |
+--] [----------+       |       |
| 0098                  |       |
|                       |       |
|WAIF                   |       |
|                       |       |
|%M0858                 |       |
+--] [------------------+       |
| 0097                          |
|                               |
|WASF                           |
|                               |
|%M0859                         |
+--] [-------------------------+
| 0096
|
```

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|        Cond.   Cond.                                                          << RUNG 92  STEP #0668 >>
|        for WA  for WA  Cond.
|        inside  side    for
|TRAY OF flap    flap    Tray
|
|%M0857  %M0978  %M0980  %M0977                                      %M0851
+--] [-----]/[--+--]/[--+--]/[--+-----------------------------------------( )--  (* Select WAMF                        *)
| 0098         |       |       |                                               Cross reference for %M0851
|              |       |       |                                               -] [- 99
|WAIF          |       |       |
|              |       |       |
|%M0858        |       |       |
+--] [----------+       |       |
| 0097                 |       |
|                      |       |
|WASF                  |       |
|                      |       |
|%M0859                |       |
+--] [------------------+       |
| 0096                         |
|                              |
|TRAY                          |
|                              |
|%M0855                        |
+--] [--------------------------+
| 0100
|
|        Cond.           Cond.                                                  << RUNG 93  STEP #0676 >>
|        for WA  Cond.   for WA
|        side    for     meeting
|WAIF    flap    Tray    flap
|
|%M0858  %M0980  %M0977  %M0979                                      %M0852
+--] [-----]/[--+--]/[--+--]/[--+-----------------------------------------( )--  (* Select TRAY OF                    *)
| 0097         |       |       |                                               Cross reference for %M0852
|              |       |       |                                               -] [- 98
|WASF          |       |       |
|              |       |       |
|%M0859        |       |       |
+--] [----------+       |       |
| 0096                 |       |
|                      |       |
|TRAY                  |       |
|                      |       |
|%M0855                |       |
+--] [------------------+       |
| 0100                         |
|                              |
|WAMF                          |
|                              |
|%M0856                        |
+--] [--------------------------+
| 0099
|
|                Cond.                                                          << RUNG 94  STEP #0684 >>
|        Cond.   for WA  Cond.
|        for     meeting for
|WASF    Tray    flap    Tray OF
|
|%M0859  %M0977  %M0979  %M0981                                      %M0853
+--] [-----]/[--+--]/[--+--]/[--+-----------------------------------------( )--  (* Select WAIF                        *)
| 0096         |       |       |                                               Cross reference for %M0853
|              |       |       |                                               -] [- 97
|TRAY          |       |       |
|              |       |       |
|%M0855        |       |       |
+--] [----------+       |       |
| 0100                 |       |
|                      |       |
|WAMF                  |       |
|                      |       |
|%M0856                |       |
+--] [------------------+       |
| 0099                         |
|                              |
|TRAY OF                       |
|                              |
|%M0857                        |
+--] [--------------------------+
| 0098
|
```

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|        Cond.           Cond.                                                << RUNG 95  STEP #0692 >>
|        for WA  Cond.   for WA
|        meeting for     inside
|TRAY    flap    Tray OF flap
|
|%M0855  %M0979  %M0981  %M0978                                   %M0854
+--] [-----]/[--+--]/[--+--]/[--+-----------------------------------------( )--  (* Select WASF                        *)
| 0100          |       |       |                                              Cross reference for %M0854
|               |       |       |                                              -] [- 96
|WAMF           |       |       |
|               |       |       |
|%M0856         |       |       |
+--] [----------+       |       |
| 0099                  |       |
|                       |       |
|TRAY OF                |       |
|                       |       |
|%M0857                 |       |
+--] [------------------+       |
| 0098                          |
|                               |
|WAIF                           |
|                               |
|%M0858                         |
+--] [-------------------------+
| 0097
|
|Pulse                                  Cond.                                << RUNG 96  STEP #0700 >>
|select                                 for WA
|tray    Select                         side
|type    WASF                           flap
|
|%T0028  %M0854                         %M0980                          %M0859
+--] [-----] [--+-----------------------+--] [-----------------------------(M)--  (* WASF                            *)
| 0090    0095  |                       |                                      Cross reference for %M0859
|        Pulse  |                       |                                      -] [- 91,92,93,94,96,102,108
|        select |                       |                                      -]/[- 103,110
|        tray   |                       |
|WASF    type   |                       |
|               |                       |
|%M0859  %T0028 |                       |
+--] [-----]/[--+                       |
| 0096    0090                          |
|                Cond.           Cond.  |
|No tray Cond.   for WA  Cond.   for WA |
|type    for     meeting for     inside |
|choosen Tray    flap    Tray OF flap   |
|                                       |
|%M0820  %M0977  %M0979  %M0981  %M0978 |
+--] [-----]/[-----]/[-----]/[-----]/[--+
| 0103
|
|Pulse                           Cond.                                      << RUNG 97  STEP #0713 >>
|select                          for WA
|tray    Select                  inside
|type    WAIF                    flap
|
|%T0028  %M0853                  %M0978                                %M0858
+--] [-----] [--+---------------+--] [-------------------------------------(M)--  (* WAIF                             *)
| 0090    0094  |               |                                              Cross reference for %M0858
|        Pulse  |               |                                              -] [- 91,92,93,95,97,102,107
|        select |               |                                              -]/[- 103,110
|        tray   |               |
|WAIF    type   |               |
|               |               |
|%M0858  %T0028 |               |
+--] [-----]/[--+               |
| 0097    0090                  |
|                Cond.           |
|No tray Cond.   for WA  Cond.   |
|type    for     meeting for     |
|choosen Tray    flap    Tray OF|
|                               |
|%M0820  %M0977  %M0979  %M0981 |
+--] [-----]/[-----]/[-----]/[--+
| 0103
|
```

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|Pulse                                                                                  << RUNG 98  STEP #0725 >>
|select                 Cond.
|tray    Select         for
|type    TRAY OF        Tray OF
|
|%T0028  %M0852         %M0981                                          %M0857
+--] [-----] [--+-------+--] [-----------------------------------------(M)--  (* TRAY OF                          *)
| 0090    0093  |       |                                                       Cross reference for %M0857
|        Pulse  |       |                                                       -] [- 91,92,94,95,98,101,106
|        select |       |                                                       -]/[- 103,110
|        tray   |       |
|TRAY OF type   |       |
|               |       |
|%M0857  %T0028 |       |
+--] [-----]/[--+       |
| 0098    0090          |
|                Cond.  |
|No tray Cond.   for WA |
|type    for     meeting|
|choosen Tray    flap   |
|                       |
|%M0820  %M0977  %M0979 |
+--] [-----]/[-----]/[--+
| 0103
|
|Pulse           Cond.                                                                  << RUNG 99  STEP #0736 >>
|select          for WA
|tray    Select  meeting
|type    WAMF    flap
|
|%T0028  %M0851  %M0979                                          %M0856
+--] [-----] [--+--] [-------------------------------------------------(M)--  (* WAMF                            *)
| 0090    0092  |                                                             Cross reference for %M0856
|        Pulse  |                                                             -] [- 91,93,94,95,99,102,105
|        select |                                                             -]/[- 103,110
|        tray   |
|WAMF    type   |
|               |
|%M0856  %T0028 |
+--] [-----]/[--+
| 0099    0090  |
|               |
|No tray Cond.  |
|type    for    |
|choosen Tray   |
|               |
|%M0820  %M0977 |
+--] [-----]/[--+
| 0103
|
|Pulse                                                                                  << RUNG 100  STEP #0746 >>
|select          Cond.
|tray    Select  for
|type    TRAY    Tray
|
|%T0028  %M0850  %M0977                                          %M0855
+--] [-----] [--+--] [-------------------------------------------------(M)--  (* TRAY                              *)
| 0090    0091  |                                                             Cross reference for %M0855
|        Pulse  |                                                             -] [- 92,93,94,95,100,101,104
|        select |                                                             -]/[- 103,110
|        tray   |
|TRAY    type   |
|               |
|%M0855  %T0028 |
+--] [-----]/[--+
| 0100    0090  |
|               |
|No tray        |
|type           |
|choosen        |
|               |
|%M0820         |
+--] [----------+
| 0103
|
|TRAY                                                                                   << RUNG 101  STEP #0754 >>
|
|%M0855                                                          %M0860
+--] [--+-------------------------------------------------------------( )--  (* Tray, Tray OF                     *)
| 0100  |                                                                     Cross reference for %M0860
|       |                                                                               NONE
|TRAY OF|
|       |
|%M0857 |
+--] [--+
| 0098
|

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                                            Tetra Cardboard Packer 70 Multi 1100
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|WAMF                                                                          << RUNG 102  STEP #0757 >>
|
|%M0856                                                          %M0861
+--] [--+-------------------------------------------------------------( )--  (* Wrap Around                      *)
| 0099  |                                                                    Cross reference for %M0861
|       |                                                                              NONE
|WAIF   |
|       |
|%M0858 |
+--] [--+
| 0097  |
|       |
|WASF   |
|       |
|%M0859 |
+--] [--+
| 0096
|
|TRAY    WAMF    TRAY OF WAIF    WASF    Step 2                               << RUNG 103  STEP #0761 >>
|                                        STEP_2
|%M0855  %M0856  %M0857  %M0858  %M0859  %M0102                         %M0820
+--]/[-----]/[-----]/[-----]/[-----]/[-----------------------------( )--  (* No tray type choosen             *)
| 0100    0099    0098    0097    0096                                     Cross reference for %M0820
|                                                                          -] [- 96,97,98,99,100
|
|        No tray                                                           << RUNG 104  STEP #0768 >>
|        or WA
|        flap
|TRAY    choosen Step 0
|                STEP_0                                                     H014
|%M0855  %M1054  %M0100                                                   %M0132
+--] [-----]/[--+--] [-----------------------------------------------------( )--  (* Tray                            *)
| 0100    0110  |                                                          Cross reference for H014
|No tray        |                                                                  NONE
|or WA          |
|flap           |
|choosen Flash  |
|         FLASH |
|%M1054  %M0003 |
+--] [-----] [--+
| 0110
|
|WAMF    Step 0                                                            << RUNG 105  STEP #0775 >>
|        STEP_0                                                             H015
|%M0856  %M0100                                                           %M0133
+--] [-----] [-------------------------------------------------------------( )--  (* WA meeting flap                 *)
| 0099                                                                     Cross reference for H015
|                                                                                  NONE
|
|TRAY OF Step 0                                                            << RUNG 106  STEP #0778 >>
|        STEP_0                                                             H016
|%M0857  %M0100                                                           %M0134
+--] [-----] [-------------------------------------------------------------( )--  (* Tray OF                         *)
| 0098                                                                     Cross reference for H016
|                                                                                  NONE
|
|WAIF    Step 0                                                            << RUNG 107  STEP #0781 >>
|        STEP_0                                                             H017
|%M0858  %M0100                                                           %M0135
+--] [-----] [-------------------------------------------------------------( )--  (* WA inside flap                  *)
| 0097                                                                     Cross reference for H017
|                                                                                  NONE
|
|WASF    Step 0                                                            << RUNG 108  STEP #0784 >>
|        STEP_0                                                             H018
|%M0859  %M0100                                                           %M0136
+--] [-----] [-------------------------------------------------------------( )--  (* WA side flap                    *)
| 0096                                                                     Cross reference for H018
|                                                                                  NONE
|
| (*****************************************************************************)
| (*                                                                           *)
| (* NO TRAY OR WA CHOOSEN, FLASH                                              *)
| (*                                                                           *)
| (*****************************************************************************)
|
|TRAY    WAMF    TRAY OF WAIF    WASF                                      << RUNG 110  STEP #0788 >>
|
|%M0855  %M0856  %M0857  %M0858  %M0859                                   %M1054
+--]/[-----]/[-----]/[-----]/[-----]/[-------------------------------------( )--  (* No tray or WA flap choosen       *)
| 0100    0099    0098    0097    0096                                     Cross reference for %M1054
|                                                                          -] [- 104
|                                                                          -]/[- 104
|
| (*****************************************************************************)
| (* SELECT NUMBER OF PACKAGES IN A ROW IN PREGROUPING                         *)
| (*****************************************************************************)
|

Program: A454891                    C:\LM90\VISN\P1000\A454891                    Block: SELECTI(SUBR 12)
```

```
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|Select          Push                                                    << RUNG 112  STEP #0795 >>
|group           button
|infeed  Step 2  delay
| S11H   STEP_2
|%I0079  %M0102  %M1014                                   %T0200
+--] [-----]/[-----] [-------------------------------------------------(^)--  (* Puls select group  infeed        *)
|                 0008                                                     Cross reference for %T0200
|                                                                          -] [- 118
|
|6                                                                         << RUNG 113  STEP #0799 >>
|package
|in row          Step 0
|                STEP_0                                    H055
|%M1401          %M0100                                   %M0137
+--] [----------+--] [-------------------------------------------------(M)--  (* 6 pack in a row                  *)
|              |                                                           Cross reference for H055
|6 pack  Select |                                                          -] [- 113
|in a    group  |
|row     infeed |
| H055    S11H  |
|%M0137  %I0079 |
+--] [-----]/[--+
| 0113
|
|8                                                                         << RUNG 114  STEP #0805 >>
|package
|in row          Step 0
|                STEP_0                                    H056
|%M1402          %M0100                                   %M0141
+--] [----------+--] [-------------------------------------------------(M)--  (* 8 pack in a row                  *)
|              |                                                           Cross reference for H056
|8 pack  Select |                                                          -] [- 114
|in a    group  |
|row     infeed |
| H056    S11H  |
|%M0141  %I0079 |
+--] [-----]/[--+
| 0114
|
|9                                                                         << RUNG 115  STEP #0811 >>
|package
|in row          Step 0
|                STEP_0                                    H057
|%M1403          %M0100                                   %M0142
+--] [----------+--] [-------------------------------------------------(M)--  (* 9 pack in a row                  *)
|              |                                                           Cross reference for H057
|9 pack  Select |                                                          -] [- 115
|in a    group  |
|row     infeed |
| H057    S11H  |
|%M0142  %I0079 |
+--] [-----]/[--+
| 0115
|
|10                                                                        << RUNG 116  STEP #0817 >>
|package
|in row          Step 0
|                STEP_0                                    H058
|%M1404          %M0100                                   %M0143
+--] [----------+--] [-------------------------------------------------(M)--  (* 10 pack in a row                 *)
|              |                                                           Cross reference for H058
|10 pack Select |                                                          -] [- 116
|in a    group  |
|row     infeed |
| H058    S11H  |
|%M0143  %I0079 |
+--] [-----]/[--+
| 0116
|
|12                                                                        << RUNG 117  STEP #0823 >>
|package
|in row          Step 0
|                STEP_0                                    H059
|%M1405          %M0100                                   %M0144
+--] [----------+--] [-------------------------------------------------(M)--  (* 12 pack in a row                 *)
|              |                                                           Cross reference for H059
|12 pack Select |                                                          -] [- 117
|in a    group  |
|row     infeed |
| H059    S11H  |
|%M0144  %I0079 |
+--] [-----]/[--+
| 0117
|

Program: A454891                    C:\LM90\VISN\P1000\A454891                    Block: SELECTI(SUBR 12)
```

```
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|Puls                                                                                   << RUNG 118  STEP #0829 >>
|select
|group
|infeed
|
|%T0200  +-----+
+--] [---+ BIT_+-
| 0112   | SEQ |
|        |     |
|ALW_OFF |     |
|%S0008  |     |
+--] [---+R    |
|        | LEN |
|        |00005|
|        |     |
|ALW_ON  |     |
|%S0007  |     |
+--] [---+DIR  |
|        |     |
|6       |     |
|package |     |
|in row  |     |
|        |     |
|%M1401 -+STEP |
|        |     |
|6       |     |
|package |     |
|in row  |     |
|        |     |
|%M1401 -+ST   |
|        |     |
|        +-----+
|
|        %R3287
|
|[    END OF SUBROUTINE LOGIC     ]
|
```

```
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|[  START LD SUBROUTINE  MULTIPX  ]
|
|[     VARIABLE DECLARATIONS      ]
|
|[   START OF SUBROUTINE LOGIC    ]
|
```

```
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| (*************************************************************************)
| (*                                                                       *)
| (* MULTIPLEX BOARD                                                       *)
| (*                                                                       *)
| (*************************************************************************)
|
|FST_SCN                                                                          << RUNG 4  STEP #0002 >>
|%S0001  +-----+                                                     %M0121
+--] [---+MOVE_+-----------------------------------------------------------(R)--  (* Synch. multi plex train          *)
|        | INT |                                                                  Cross reference for %M0121
|        |     |                                                                  -] [- 6,16
|        |     | Length                                                           -]/[- 5
|        |     | synch                                                            -( )  5
|        |     | pulse
|        |     | train
|        |     |
| CONST -+IN  Q+-%R0334
| +00012 | LEN |
|        |00001|
|        |     |
|        +-----+
|
|Synch.                                                                           << RUNG 5  STEP #0005 >>
|multi
|plex
|train
|
|%M0121                                                              %M0121
+--]/[-------------------------------------------------------------------( )--  (* Synch. multi plex train          *)
| 0004                                                                            Cross reference for %M0121
|                                                                                 -] [- 6,16
|                                                                                 -]/[- 5
|                                                                                 -(R)  4
|
|Synch.                                                                           << RUNG 6  STEP #0007 >>
|multi
|plex
|train
|
|%M0121  +-----+                                                     %M0122
+--] [--->UPCTR+-----------------------------------------------------------( )--  (* End of multi plex train          *)
| 0004   |     |                                                                  Cross reference for %M0122
|End of  |     |                                                                  -] [- 6,7
|multi   |     |
|plex    |     |
|train   |     |
|        |     |
|%M0122  |     |
+--] [---+R    |
| 0006   |     |
|        |     |
| CONST -+PV   |
| +00032 |     |
|        +-----+
|        Length
|        synch
|        pulse
|        train
|
|        %R0334
|
|End of                                                                           << RUNG 7  STEP #0011 >>
|multi
|plex
|train
|
|%M0122                                                              %T0006
+--] [-------------------------------------------------------------------(^)--  (* Pulse end multipl.train          *)
| 0006                                                                            Cross reference for %T0006
|                                                                                 -] [- 8,9,10,12,13,14
|
|Pulse                                                                            << RUNG 8  STEP #0013 >>
|end
|multipl
|.train
|
|%T0006  +-----+
+--] [---+MOVE_+-
| 0007   | WORD|
|        |     |
|        |     | Copy of
|Step 1  |     | data
|lamp    |     | word 1
| H001   |     |
|%M0129 -+IN  Q+-%R0701
|        | LEN |
|        |00001|
|        |     |
|        +-----+
|
```

```
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|Pulse                                                                    << RUNG 9  STEP #0015 >>
|end
|multipl
|.train
|
|%T0006  +-----+
+--] [---+MOVE_+-
| 0007   | WORD|
|        |     |
|        |     | Copy of
|        |     | data
|Step up |     | word 2
| H01S   |     |
|%M0145 -+IN  Q+-%R0703
|        | LEN |
|        |00002|
|        |     |
|        +-----+
|
|Pulse                                                                    << RUNG 10  STEP #0017 >>
|end
|multipl
|.train
|
|%T0006  +-----+
+--] [---+MOVE_+-
| 0007   | WORD|
|        |     |
|Package |     | Copy of
|pattern |     | data
|X*2     |     | word 3
| H035   |     |
|%M0169 -+IN  Q+-%R0705
|        | LEN |
|        |00002|
|        |     |
|        +-----+
|
|Lamp                                                                     << RUNG 11  STEP #0019 >>
|test
|L_TEST
|%M0006  +-----+
+--] [---+MOVE_+-
|        | WORD|
|        |     |
|        |     | Copy of
|        |     | data
|        |     | word 1
|        |     |
| CONST -+IN  Q+-%R0701
|   FFFF | LEN |
|        |00006|
|        |     |
|        +-----+
|
|Pulse                                                                    << RUNG 12  STEP #0021 >>
|end
|multipl
|.train
|
|%T0006  +-----+
+--] [---+ SHL_|
| 0007   | WORD|
|        |     |
|Copy of |     |
|data    |     |
|word 1  |     |
|        |     |
|%R0701 -+IN B2+-
|        | LEN |
|        |00002|
|        |     |
|        |     | Copy of
|        |     | data
|        |     | word 1
|        |     |
| CONST -+N   Q+-%R0701
| +00011 |     |
|        |     |
|ALW_OFF |     |
|%S0008  |     |
+--] [---+B1   |
|        +-----+
|
```

```
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|Pulse                                                                    << RUNG 13  STEP #0024 >>
|end
|multipl
|.train
|
|%T0006  +-----+
+--] [---+ SHL_|
| 0007   | WORD|
|        |     |
|Copy of |     |
|data    |     |
|word 2  |     |
|        |     |
|%R0703 -+IN B2+-
|        | LEN |
|        |00002|
|        |     |
|        |     | Copy of
|        |     | data
|        |     | word 2
|        |     |
| CONST -+N   Q+-%R0703
| +00011 |     |
|        |     |
|ALW_OFF |     |
|%S0008  |     |
+--] [---+B1   |
|        +-----+
|
|Pulse                                                                    << RUNG 14  STEP #0027 >>
|end
|multipl
|.train
|
|%T0006  +-----+
+--] [---+ SHL_|
| 0007   | WORD|
|        |     |
|Copy of |     |
|data    |     |
|word 3  |     |
|        |     |
|%R0705 -+IN B2+-
|        | LEN |
|        |00002|
|        |     |
|        |     | Copy of
|        |     | data
|        |     | word 3
|        |     |
| CONST -+N   Q+-%R0705
| +00011 |     |
|        |     |
|ALW_OFF |     |
|%S0008  |     |
+--] [---+B1   |
|        +-----+
|
|ALW_ON                                                                   << RUNG 15  STEP #0030 >>
|%S0007  +-----+                                                  %M0120
+--] [---+ LE_ |+-------------------------------------------------------( )--  (* Cond. send synch. train          *)
|        | INT ||                                                            Cross reference for %M0120
|        |     ||                                                            -] [- 16,17,18,19
|Length  |     ||
|synch   |     ||
|pulse   |     ||
|train   |     ||
|        |     ||
|%R0334 -+I1  Q++
|        |     |
| CONST -+I2   |
| +00010 +-----+
|
|Cond.   Synch.                                                           << RUNG 16  STEP #0033 >>
|send    multi
|synch.  plex
|train   train
|                                                                  SYNCH
|%M0120  %M0121                                                   %Q0044
+--] [-----] [-------------------------------------------------------( )--  (* Synch pulse train               *)
| 0015    0004                                                              Cross reference for SYNCH
|                                                                                    NONE
|
```

```
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|Cond.                                                                                << RUNG 17  STEP #0036 >>
|send
|synch.
|train
|                                                                   DATA_1
|%M0120  +-----+                                                    %Q0045
+--] [---+ SHL_|+-----------------------------------------------------------( )--  (* Data 1, pulse train              *)
| 0015   | WORD||                                                                   Cross reference for DATA_1
|        |     ||                                                                            NONE
|Copy of |     ||
|data    |     ||
|word 1  |     ||
|        |     ||
|%R0701 -+IN B2++
|        | LEN |
|        |00002|
|        |     |
|        |     | Copy of
|        |     | data
|        |     | word 1
|        |     |
| CONST -+N   Q+-%R0701
| +00001 |     |
|        |     |
|ALW_OFF |     |
|%S0008  |     |
+--] [---+B1   |
|        +-----+
|
|Cond.                                                                                << RUNG 18  STEP #0040 >>
|send
|synch.
|train
|                                                                   DATA_2
|%M0120  +-----+                                                    %Q0046
+--] [---+ SHL_|+-----------------------------------------------------------( )--  (* Data 2, pulse train              *)
| 0015   | WORD||                                                                   Cross reference for DATA_2
|        |     ||                                                                            NONE
|Copy of |     ||
|data    |     ||
|word 2  |     ||
|        |     ||
|%R0703 -+IN B2++
|        | LEN |
|        |00002|
|        |     |
|        |     | Copy of
|        |     | data
|        |     | word 2
|        |     |
| CONST -+N   Q+-%R0703
| +00001 |     |
|        |     |
|ALW_OFF |     |
|%S0008  |     |
+--] [---+B1   |
|        +-----+
|
|Cond.                                                                                << RUNG 19  STEP #0044 >>
|send
|synch.
|train
|                                                                   DATA_3
|%M0120  +-----+                                                    %Q0047
+--] [---+ SHL_|+-----------------------------------------------------------( )--  (* Data 3, pulse train              *)
| 0015   | WORD||                                                                   Cross reference for DATA_3
|        |     ||                                                                            NONE
|Copy of |     ||
|data    |     ||
|word 3  |     ||
|        |     ||
|%R0705 -+IN B2++
|        | LEN |
|        |00002|
|        |     |
|        |     | Copy of
|        |     | data
|        |     | word 3
|        |     |
| CONST -+N   Q+-%R0705
| +00001 |     |
|        |     |
|ALW_OFF |     |
|%S0008  |     |
+--] [---+B1   |
|        +-----+
|
|[    END OF SUBROUTINE LOGIC     ]
|

Program: A454891                          C:\LM90\VISN\P1000\A454891                                Block: MULTIPX(SUBR 13)
```

```
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|[  START LD SUBROUTINE   PLMS    ]
|
|[     VARIABLE DECLARATIONS      ]
|
|[   START OF SUBROUTINE LOGIC    ]
|
| >>>>
```

```
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|Brake                                                                                   << RUNG 9  STEP #0024 >>
|enable
|signal  Step 0
|        STEP_0
|%G0033  %M0100  +-----+                                                  %G0003
+--]/[-----] [---+ BIT_|+-------------------------------------------------(M)--  (* DE ext. enable signal            *)
| 0008           |TEST_||                                                        Cross reference for %G0003
|                | WORD||                                                        -] [- 20,22,23,25,26,28,29,31,32,34,35,47,49,52,
|                |     ||                                                              54,56,58,61,63,65,67,69,71,73,75,77,79,83,
|        Miscel- |     ||                                                              85,87,89,91,93,95,97,99,101,103,105,106,111,
|        laneous |     ||                                                              113,115,116,120,122,124,126,128,154,156,157,
|        signals |     ||                                                              164,165,166,167,168,169,170,171,172,173,174,
|                |     ||                                                              175,176,177,178,179,180,181,182,183,184,185,
|        %R0924 -+IN  Q++                                                              186,187,188,189,190,191,192,193,194,195,196,
|                | LEN |                                                              197
|                |00001|                                                        -]/[- 12,128,158,198
|                |     |
|         CONST -+BIT  |
|          00001 +-----+
|
| >>>>
```

```
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|                                                                      %G0011   << RUNG 16  STEP #0054 >>
+<+>----+-------------------------------------------------------------(M)--  (* De prod. time stop              *)
|       |                                                                      Cross reference for %G0011
|Manual |                                                                      -] [- 128
|empty. |                                                                      -]/[- 20
|       |
|%M0600 |
+--] [--+
|
| >>>>
```

```
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|        DE ext.                                                                   << RUNG 22  STEP #0078 >>
|        enable
|(X*2)   signal
| H021
|%M0139  %G0003  +-----+
+--] [--+--] [---+ BIT_+-
|       | 0009   | SET_|
|       |        | WORD|
|       |        |     |
|       |Miscel- |     |
|(X*3)  |laneous |     |
| H022  |signals |     |
|%M0140 |        |     |
+--] [--+%R0924 -+IN   |
|                | LEN |
|                |00001|
|                |     |
|         CONST -+BIT  |
|          00003 +-----+
|
|                DE ext.                                                           << RUNG 23  STEP #0082 >>
|                enable
|(X*2)   (X*3)   signal
| H021    H022
|%M0139  %M0140  %G0003  +-----+
+--]/[-----]/[-----] [---+ BIT_+-
|                 0009   | CLR_|
|                        | WORD|
|                        |     |
|                Miscel- |     |
|                laneous |     |
|                signals |     |
|                        |     |
|                %R0924 -+IN   |
|                        | LEN |
|                        |00001|
|                        |     |
|                 CONST -+BIT  |
|                  00003 +-----+
|
| >>>>
```

```
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|High                                                                          << RUNG 28  STEP #0098 >>
|speed   DE ext.
|in      enable
|machine signal
|
|%M1285  %G0003  +-----+
+--] [-----] [---+ BIT_+-
|         0009   | SET_|
|                | WORD|
|                |     |
|        Miscel- |     |
|        laneous |     |
|        signals |     |
|                |     |
|        %R0924 -+IN   |
|                | LEN |
|                |00001|
|                |     |
|         CONST -+BIT  |
|          00005 +-----+
|
|High                                                                          << RUNG 29  STEP #0101 >>
|speed   DE ext.
|in      enable
|machine signal
|
|%M1285  %G0003  +-----+
+--]/[-----] [---+ BIT_+-
|         0009   | CLR_|
|                | WORD|
|                |     |
|        Miscel- |     |
|        laneous |     |
|        signals |     |
|                |     |
|        %R0924 -+IN   |
|                | LEN |
|                |00001|
|                |     |
|         CONST -+BIT  |
|          00005 +-----+
|
| >>>>
```

```
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                                     Tetra Cardboard Packer 70 Multi 1100
                                 45489-0001 ELD 000 AA 040223 OHO ECM:162315

|Fault                                                                          << RUNG 34  STEP #0112 >>
|lubric. DE ext.
|press.  enable
|low     signal
|
|%M0015  %G0003  +-----+
+--] [--+--] [---+ BIT_+-
|       | 0009   | SET_|
|Fault  |        | WORD|
|lubric.|        |     |
|press. |Miscel- |     |
|high   |laneous |     |
|       |signals |     |
|%M0016 |        |     |
+--] [--+%R0924 -+IN   |
|                | LEN |
|                |00001|
|                |     |
|         CONST -+BIT  |
|          00007 +-----+
|
|Fault   Fault                                                                  << RUNG 35  STEP #0116 >>
|lubric. lubric. DE ext.
|press.  press.  enable
|low     high    signal
|
|%M0015  %M0016  %G0003  +-----+
+--]/[-----]/[-----] [---+ BIT_+-
|                 0009   | CLR_|
|                        | WORD|
|                        |     |
|                Miscel- |     |
|                laneous |     |
|                signals |     |
|                        |     |
|                %R0924 -+IN   |
|                        | LEN |
|                        |00001|
|                        |     |
|                 CONST -+BIT  |
|                  00007 +-----+
|
| >>>>
```

```
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|Step 1  Step 3                                                          << RUNG 40  STEP #0126 >>
|STEP_1  STEP_3
|%M0101  %M0103  +-----+
+--] [-----]/[---+ BIT_+-
|                | SET_|
|                | WORD|
|                |     |
|        Miscel- |     |
|        laneous |     |
|        signals |     |
|                |     |
|        %R0924 -+IN   |
|                | LEN |
|                |00001|
|                |     |
|         CONST -+BIT  |
|          00009 +-----+
|
|Step 1                                                                  << RUNG 41  STEP #0129 >>
|STEP_1
|%M0101          +-----+
+--]/[--+--------+ BIT_+-
|       |        | CLR_|
|       |        | WORD|
|       |        |     |
|       |Miscel- |     |
|Step 3 |laneous |     |
|STEP_3 |signals |     |
|%M0103 |        |     |
+--] [--+%R0924 -+IN   |
|                | LEN |
|                |00001|
|                |     |
|         CONST -+BIT  |
|          00009 +-----+
|
| >>>>
```

```
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|DE ext.                                                                                << RUNG 47  STEP #0139 >>
|enable
|signal
|
|%G0003  +-----+                                                        %G0001
+--] [---+ EQ_ |                                                  +----------(M)--  (* No PLMS Alarm                    *)
| 0009   | INT |                                                  |                 Cross reference for %G0001
|        |     |                                                  |                 -] [- 49,52,54,56,58,61,63,65,67,69,71,73,75,77,
|Down    |     |                                                  |                      79,83,85,87,89,91,93,95,97,99,101,103,105,
|time    |     |                                                  |                      106,111,113,115,116,120,122,124,126
|signals |     |                                                  |
|        |     |         +-----+                                  |
|%R0922 -+I1  Q+---------+ EQ_ |                                  |
|        |     |         | INT |                                  |
|        |     |         |     |                                  |
|        |     | Down    |     |                                  |
|        |     | time    |     |                                  |
|        |     | signals |     |                                  |
|        |     |         |     |         +-----+                  |
| CONST -+I2   | %R0923 -+I1  Q+---------+ LT_ |                  |
| +00000 +-----+         |     |         | INT |                  |
|                        |     |         |     |                  |
|                        |     | Miscel- |     |                  |
|                        |     | laneous |     |                  |
|                        |     | signals |     |                  |
|                        |     |         |     |         +-----+|
|                CONST -+I2   | %R0924 -+I1  Q+---------+ EQ_ ||
|                +00000 +-----+         |     |         | INT ||
|                                       |     |         |     ||
|                                       |     | Miscel- |     ||
|                                       |     | laneous |     ||
|                                       |     | signals |     ||
|                                       |     |         |     ||
|                              CONST -+I2   | %R0925 -+I1  Q++
|                              +01024 +-----+         |     |
|                                                     |     |
|                                          CONST -+I2   |
|                                          +00000 +-----+
|
| >>>>
```

```
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|        Alarm s                                                                    << RUNG 52  STEP #0158 >>
|        afety r         DE ext.
|DE prod elay A0 No PLMS enable
|time    91 door Alarm   signal
|
|%G0004  %M0085  %G0001  %G0003  +-----+
+--] [--+--] [-----] [-----] [---+MOVE_+-
| 0020  |         0047    0009   | WORD|
|       |                        |     |
|Memory |                        |     |
|door   |                        |     | Down
|alarm  |                        |     | time
|       |                        |     | signals
|%G0012 |                        |     |
+--] [--+                CONST -+IN  Q+-%R0922
| 0051                     0002 | LEN |
|                                |00001|
|                                |     |
|                                +-----+
|
| >>>>
```

```
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|Alarm,  Safety  Alarm                                                          << RUNG 60  STEP #0184 >>
|check   clutch  frequen
|safety  Feeding cy
|clutch  motor   control
|         B115
|%M0083  %I0056  %M0054                                          %G0013
+--] [--+--]/[-----] [-----------------------------------------------------(M)--  (* Memory safety clutch             *)
|       |                                                                       Cross reference for %G0013
|Memory |                                                                       -] [- 60,61
|safety |
|clutch |
|       |
|%G0013 |
+--] [--+
| 0060
|
|        Safety  Alarm,                                                         << RUNG 61  STEP #0189 >>
|        clutch  check          DE ext.
|DE prod Feeding safety  No PLMS enable
|time    motor   clutch  Alarm   signal
|         B115
|%G0004  %I0056  %M0083  %G0001  %G0003  +-----+
+--] [-----]/[--+--] [--+--] [-----] [---+MOVE_+-
| 0020          |       | 0047    0009   | WORD|
|               |       |                |     |
|               |Memory |                |     |
|               |safety |                |     | Down
|               |clutch |                |     | time
|               |       |                |     | signals
|               |%G0013 |                |     |
|               +--] [--+         CONST -+IN  Q+-%R0922
|                 0060              0020 | LEN |
|                                        |00001|
|                                        |     |
|                                        +-----+
|
| >>>>
```

```
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|        Freq.                                                                          << RUNG 67  STEP #0210 >>
|        contr.          DE ext.
|DE prod no      No PLMS enable
|time    alarm   Alarm   signal
|
|%G0004  %I0013  %G0001  %G0003  +-----+
+--] [-----]/[-----] [-----] [---+MOVE_+-
| 0020           0047    0009   | WORD|
|                               |     |
|                               |     | Down
|                               |     | time
|                               |     | signals
|                               |     |
|                        CONST -+IN  Q+-%R0922
|                          0100 | LEN |
|                               |00001|
|                               |     |
|                               +-----+
|
| >>>>
```

```
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|        Alarm          DE ext.                                                    << RUNG 75  STEP #0234 >>
|DE prod hotmelt No PLMS enable
|time    unit    Alarm   signal
|
|%G0004  %M0060  %G0001  %G0003  +-----+
+--] [-----] [-----] [-----] [---+MOVE_+-
| 0020           0047    0009   | WORD|
|                               |     |
|                               |     | Down
|                               |     | time
|                               |     | signals
|                               |     |
|                         CONST -+IN  Q+-%R0922
|                           1000 | LEN |
|                               |00001|
|                               |     |
|                               +-----+
|
| >>>>
```

```
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|        Convert                No                                                << RUNG 83  STEP #0256 >>
|        er alar         DE ext. event
|DE prod m main  No PLMS enable  in
|time    motor   Alarm   signal  %R922
|
|%G0004  %M0193  %G0001  %G0003  %G0022  +-----+
+--] [-----] [-----] [-----] [-----] [---+MOVE_+-
| 0020           0047    0009    0081   | WORD|
|                                       |     |
|                                       |     | Down
|                                       |     | time
|                                       |     | signals
|                                       |     |
|                                CONST -+IN  Q+-%R0923
|                                  0001 | LEN |
|                                       |00001|
|                                       |     |
|                                       +-----+
|
| >>>>
```

```
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|                                No                                                  << RUNG 91  STEP #0284 >>
|        Alarm           DE ext. event
|DE prod not     No PLMS enable  in
|time    synched Alarm   signal  %R922
|
|%G0004  %M0066  %G0001  %G0003  %G0022  +-----+
+--] [-----] [-----] [-----] [-----] [---+MOVE_+-
| 0020            0047    0009    0081   | WORD|
|                                        |     |
|                                        |     | Down
|                                        |     | time
|                                        |     | signals
|                                        |     |
|                                CONST -+IN  Q+-%R0923
|                                  0010 | LEN |
|                                       |00001|
|                                       |     |
|                                       +-----+
|
| >>>>
```

```
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|                            No                                          << RUNG 99  STEP #0312 >>
|                       DE ext. event
|DE prod         No PLMS enable  in
|time            Alarm   signal  %R922
|        ALW_OFF
|%G0004  %S0008  %G0001  %G0003  %G0022  +-----+
+--] [-----] [-----] [-----] [-----] [---+MOVE_+-
| 0020           0047    0009    0081   | WORD|
|                                       |     |
|                                       |     | Down
|                                       |     | time
|                                       |     | signals
|                                       |     |
|                                CONST -+IN  Q+-%R0923
|                                  0800 | LEN |
|                                       |00001|
|                                       |     |
|                                       +-----+
|
| >>>>
```

```
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|        Memory                 No                                                << RUNG 106  STEP #0341 >>
|        crash           DE ext. event
|DE prod dischar No PLMS enable  in
|time    ge      Alarm   signal  %R922
|
|%G0004  %G0045  %G0001  %G0003  %G0022  +-----+
+--]/[-----] [-----] [-----] [-----] [---+MOVE_+-
| 0020    0105    0047    0009    0081   | WORD|
|                                        |     |
|                                        |     | Down
|                                        |     | time
|                                        |     | signals
|                                        |     |
|                                CONST -+IN  Q+-%R0923
|                                  4000 | LEN |
|                                       |00001|
|                                       |     |
|                                       +-----+
|
| (*************************************************************************)
| (* IDLE TIME                                                             *)
| (*************************************************************************)
|
| (*************************************************************************)
| (* No events memory for register %R923                                   *)
| (*************************************************************************)
|
|ALW_ON                                                                      << RUNG 109  STEP #0349 >>
|%S0007  +-----+                                                   %G0023
+--] [---+ EQ_ |+-------------------------------------------------------(M)--  (* No event in %R923                *)
|        | INT ||                                                             Cross reference for %G0023
|        |     ||                                                             -] [- 105,111,113,115,116,119,120,122,124,126
|Down    |     ||
|time    |     ||
|signals |     ||
|        |     ||
|%R0923 -+I1  Q++
|        |     |
| CONST -+I2   |
| +00000 +-----+
|
| >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
| >> Supervision of air pressure. Event code 9470                          >>
| >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
|
|                                       No      No                           << RUNG 111  STEP #0353 >>
|        Superv.                 DE ext. event   event
|DE prod air             No PLMS enable  in      in
|time    press.          Alarm   signal  %R922   %R923
|
|%G0004  %M0071          %G0001  %G0003  %G0022  %G0023  +-----+
+--] [--+--] [----------+--] [-----] [-----] [-----] [---+ OR_ +-
| 0020  |               | 0047    0009    0081    0109   | WORD|
|       |Alarm          |                                |     |
|       |air     Check  |                                |     |
|       |pressur no air |                        Miscel- |     | Miscel-
|       |e       press. |                        laneous |     | laneous
|       |                |                        signals |     | signals
|       |%M0052  %M0072 |                                |     |
|       +--] [-----]/[--+                        %R0924 -+I1  Q+-%R0924
|                                                        |     |
|                                                 CONST -+I2   |
|                                                   0400 +-----+
|
| >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
| >> No blanks in magazine. Event code 9471                                >>
| >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
|
|        Very lo                 No      No                                  << RUNG 113  STEP #0365 >>
|        w lev.          DE ext. event   event
|DE prod blanks- No PLMS enable  in      in
|time    Stdown  Alarm   signal  %R922   %R923
|
|%G0004  %M3178  %G0001  %G0003  %G0022  %G0023  +-----+
+--] [-----] [-----] [-----] [-----] [-----] [---+ OR_ +-
| 0020            0047    0009    0081    0109   | WORD|
|                                                |     |
|                                        Miscel- |     | Miscel-
|                                        laneous |     | laneous
|                                        signals |     | signals
|                                                |     |
|                                        %R0924 -+I1  Q+-%R0924
|                                                |     |
|                                         CONST -+I2   |
|                                           0800 +-----+
|
| >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
| >> Queue outfeed. Event code 9472                                        >>
| >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
|

Program: A454891                          C:\LM90\VISN\P1000\A454891                          Block: PLMS(SUBR 14)
```

```
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|        Alarm                  No      No                                        << RUNG 115  STEP #0373 >>
|        queue           DE ext. event   event
|DE prod down    No PLMS enable  in      in
|time    stream  Alarm   signal  %R922   %R923
|
|%G0004  %M0048  %G0001  %G0003  %G0022  %G0023                          %G0044
+--] [--+--] [-----] [-----] [-----] [-----] [----------------------------(M)--  (* Memory queue outfeed             *)
| 0020  |         0047    0009    0081    0109                                  Cross reference for %G0044
|       |                                                                       -] [- 115,116
|Memory |                                                                       -]/[- 20
|queue  |
|outfeed|
|       |
|%G0044 |
+--] [--+
| 0115
|
|                               No      No                                        << RUNG 116  STEP #0381 >>
|        Memory          DE ext. event   event
|DE prod queue   No PLMS enable  in      in
|time    outfeed Alarm   signal  %R922   %R923
|
|%G0004  %G0044  %G0001  %G0003  %G0022  %G0023  +-----+
+--]/[-----] [-----] [-----] [-----] [-----] [---+ OR_ +-
| 0020    0115    0047    0009    0081    0109   | WORD|
|                                                |     |
|                                        Miscel- |     | Miscel-
|                                        laneous |     | laneous
|                                        signals |     | signals
|                                                |     |
|                                        %R0924 -+I1  Q+-%R0924
|                                                |     |
|                                         CONST -+I2   |
|                                           1000 +-----+
|
| >>>>
```

```
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|                              No      No                                    << RUNG 122  STEP #0404 >>
|                       DE ext. event   event
|DE prod         No PLMS enable  in      in
|time            Alarm   signal  %R922   %R923
|        ALW_OFF
|%G0004  %S0008  %G0001  %G0003  %G0022  %G0023  %G0024  +-----+
+--] [-----] [-----] [-----] [-----] [-----] [-----] [---+ OR_ +-
| 0020            0047    0009    0081    0109           | WORD|
|                                                        |     |
|                                              Miscel- |     | Miscel-
|                                              laneous |     | laneous
|                                              signals |     | signals
|                                                        |     |
|                                              %R0925 -+I1  Q+-%R0925
|                                                        |     |
|                                               CONST -+I2   |
|                                                 0040 +-----+
|
| >>>>
```

```
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|        Not                                                                << RUNG 128  STEP #0431 >>
|DE ext. step
|enable  down
|signal  alarm
|
|%G0003  %G0006          +-----+                                   %G0004
+--] [--+--] [--+--------+ BIT_+-------------------------------------------(RM)-  (* DE prod time                    *)
| 0009  | 0018  |        | CLR_|                                                  Cross reference for %G0004
|       |       |        | WORD|                                                  -] [- 12,49,51,52,54,56,58,61,63,65,67,69,71,73,
|       |       |        |     |                                                        75,77,79,83,85,87,89,91,93,95,97,99,101,103,
|       |       |Miscel- |     |                                                        105,111,113,115,119,122,124,126
|       |Step 3 |laneous |     |                                                  -]/[- 11,106,116
|       |STEP_3 |signals |     |                                                  -(SM) 20
|       |%M0103 |        |     |
|       +--]/[--+%R0924 -+IN   |
|       |       |        | LEN |
|       |De     |        |00001|
|       |prod.  |        |     |
|       |time   |        |     |
|       |stop   |        |     |
|       |       |        |     |
|       |%G0011 |        |     |
|       +--] [--+ CONST -+BIT  |
|         0016  |  00002 +-----+
|               |
|DE ext.        |
|enable         |
|signal         |
|               |
|%G0003         |
+--]/[----------+
| 0009
|
| (*************************************************************************)
| (*                                                                       *)
| (* PACKAGE COUNTING                                                      *)
| (*                                                                       *)
| (*************************************************************************)
|
| >>>>
```

```
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|Package                                                                << RUNG 134  STEP #0446 >>
|pattern
|X*4
| H037
|%M0171  +-----+
+--] [---+MOVE_+-
|        | INT |
|        |     |
|        |     | LSW, se
|        |     | lected
|        |     | nr of g
|        |     | roup st
|        |     |
| CONST -+IN  Q+-%R1256
| +00004 | LEN |
|        |00001|
|        |     |
|        +-----+
|
|Package                                                                << RUNG 135  STEP #0448 >>
|pattern
|X*5
| H038
|%M0172  +-----+
+--] [---+MOVE_+-
|        | INT |
|        |     |
|        |     | LSW, se
|        |     | lected
|        |     | nr of g
|        |     | roup st
|        |     |
| CONST -+IN  Q+-%R1256
| +00005 | LEN |
|        |00001|
|        |     |
|        +-----+
|
|Package                                                                << RUNG 136  STEP #0450 >>
|pattern
|X*6
| H039
|%M0173  +-----+
+--] [---+MOVE_+-
|        | INT |
|        |     |
|        |     | LSW, se
|        |     | lected
|        |     | nr of g
|        |     | roup st
|        |     |
| CONST -+IN  Q+-%R1256
| +00006 | LEN |
|        |00001|
|        |     |
|        +-----+
|
|Package                                                                << RUNG 137  STEP #0452 >>
|pattern
|X*7
| H040
|%M0174  +-----+
+--] [---+MOVE_+-
|        | INT |
|        |     |
|        |     | LSW, se
|        |     | lected
|        |     | nr of g
|        |     | roup st
|        |     |
| CONST -+IN  Q+-%R1256
| +00007 | LEN |
|        |00001|
|        |     |
|        +-----+
|
|Package                                                                << RUNG 138  STEP #0454 >>
|pattern
|X*8
| H041
|%M0175  +-----+
+--] [---+MOVE_+-
|        | INT |
|        |     |
|        |     | LSW, se
|        |     | lected
|        |     | nr of g
|        |     | roup st
|        |     |
| CONST -+IN  Q+-%R1256
| +00008 | LEN |
|        |00001|
|        |     |
|        +-----+

Program: A454891                   C:\LM90\VISN\P1000\A454891                   Block: PLMS(SUBR 14)
```

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|Package                                                                   << RUNG 139  STEP #0456 >>
|pattern
|X*9
| H042
|%M0176  +-----+
+--] [---+MOVE_+-
|        | INT |
|        |     |
|        |     | LSW, se
|        |     | lected
|        |     | nr of g
|        |     | roup st
|        |     |
| CONST -+IN  Q+-%R1256
| +00009 | LEN |
|        |00001|
|        |     |
|        +-----+
|
|Package                                                                   << RUNG 140  STEP #0458 >>
|pattern
|X*10
| H043
|%M0177  +-----+
+--] [---+MOVE_+-
|        | INT |
|        |     |
|        |     | LSW, se
|        |     | lected
|        |     | nr of g
|        |     | roup st
|        |     |
| CONST -+IN  Q+-%R1256
| +00010 | LEN |
|        |00001|
|        |     |
|        +-----+
|
|Package                                                                   << RUNG 141  STEP #0460 >>
|pattern
|X*11
| H044
|%M0178  +-----+
+--] [---+MOVE_+-
|        | INT |
|        |     |
|        |     | LSW, se
|        |     | lected
|        |     | nr of g
|        |     | roup st
|        |     |
| CONST -+IN  Q+-%R1256
| +00011 | LEN |
|        |00001|
|        |     |
|        +-----+
|
|Package                                                                   << RUNG 142  STEP #0462 >>
|pattern
|X*12
| H045
|%M0179  +-----+
+--] [---+MOVE_+-
|        | INT |
|        |     |
|        |     | LSW, se
|        |     | lected
|        |     | nr of g
|        |     | roup st
|        |     |
| CONST -+IN  Q+-%R1256
| +00012 | LEN |
|        |00001|
|        |     |
|        +-----+
|
|ALW_ON                                                                    << RUNG 143  STEP #0464 >>
|%S0007  +-----+
+--] [---+MOVE_+-
|        | INT |
|        |     |
|        |     | MSW, se
|        |     | lected
|        |     | nr of g
|        |     | roup st
|        |     |
| CONST -+IN  Q+-%R1257
| +00000 | LEN |
|        |00001|
|        |     |
|        +-----+
|

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```

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| >>>>
```

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|12                                                                                  << RUNG 149  STEP #0475 >>
|package
|in row
|
|%M1405  +-----+
+--] [---+MOVE_+-
|        | INT |
|        |     |
|        |     | LSW, Nr
|        |     | of pack
|        |     | s in ro
|        |     | w group
|        |     |
| CONST -+IN  Q+-%R1205
| +00012 | LEN |
|        |00001|
|        |     |
|        +-----+
|
|ALW_ON                                                                              << RUNG 150  STEP #0477 >>
|%S0007  +-----+
+--] [---+MOVE_+-
|        | INT |
|        |     |
|        |     | MSW, Nr
|        |     | of pack
|        |     | s in ro
|        |     | w group
|        |     |
| CONST -+IN  Q+-%R1206
| +00000 | LEN |
|        |00001|
|        |     |
|        +-----+
|
| >>>>
```

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|Group.                                                                                << RUNG 155  STEP #0490 >>
|pusher
|short,
|single
| B133                                                                   B133+
|%I0052                                                                 %G0100
+--] [-----------------------------------------------------------------(^)--  (* Pulse, Group pusher short stroke *)
|                                                                                     Cross reference for B133+
|                                                                                     -] [- 156
|
|Pulse,                                                                               << RUNG 156  STEP #0492 >>
|Group p                DE ext.
|usher s Manual         enable
|hort st empty.  Step 2 signal
| B133+          STEP_2
|%G0100  %M0600  %M0102  %G0003  +-----+
+--] [--+--] [-----] [-----] [---+ ADD_+-
| 0155  |                 0009   | DINT|
|Pulse, |                        |     |
|Group p|               Spare    |     | Spare
|usher l|               for      |     | for
|ong str|               package  |     | package
| B134+ |               in       |     | in
|%G0101 |                        |     |
+--] [--+               %R0926 -+I1  Q+-%R0926
| 0153                           |     |
|                                |     |
|                       LSW, Nr  |     |
|                       of pack  |     |
|                       s in ro  |     |
|                       w group  |     |
|                                |     |
|                       %R1205 -+I2   |
|                               +-----+
|
|DE ext.                                                                               << RUNG 157  STEP #0498 >>
|enable
|signal
|
|%G0003  +-----+
+--] [---+MOVE_+-
| 0009   | WORD|
|        |     |
|Spare   |     | Spare
|for     |     | for
|package |     | package
|in      |     | in
|        |     |
|%R0926 -+IN  Q+-%R0920
|        | LEN |
|        |00001|
|        |     |
|        +-----+
|
|DE ext.                                                                               << RUNG 158  STEP #0500 >>
|enable
|signal
|
|%G0003  +-----+
+--]/[---+MOVE_+-
| 0009   | WORD|
|        |     |
|Spare   |     | Spare
|for     |     | for
|package |     | package
|in      |     | in
|        |     |
|%R0920 -+IN  Q+-%R0926
|        | LEN |
|        |00001|
|        |     |
|        +-----+
|
|ALW_ON                                                                                << RUNG 159  STEP #0502 >>
|%S0007  +-----+                                                         %G0051
+--] [---+ BIT_|+-----------------------------------------------------(^)--  (* Pulse DE enable on               *)
|        |TEST_||                                                                     Cross reference for %G0051
|        | WORD||                                                                     -] [- 160,161,200,201
|        |     ||
|Miscel- |     ||
|laneous |     ||
|signals |     ||
|        |     ||
|%R0924 -+IN  Q++
|        | LEN |
|        |00001|
|        |     |
| CONST -+BIT  |
|  00001 +-----+
|

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```

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|Pulse                                                                                   << RUNG 160  STEP #0505 >>
|DE
|enable
|on
|
|%G0051  +-----+
+--] [---+MOVE_+-
| 0159   | INT |
|        |     |
|        |     | Spare
|        |     | for
|        |     | package
|        |     | in
|        |     |
| CONST -+IN  Q+-%R0920
| +00000 | LEN |
|        |00001|
|        |     |
|        +-----+
|
|Pulse                                                                                   << RUNG 161  STEP #0507 >>
|DE
|enable
|on
|
|%G0051  +-----+
+--] [---+MOVE_+-
| 0159   | INT |
|        |     |
|        |     | Spare
|        |     | for
|        |     | package
|        |     | in
|        |     |
| CONST -+IN  Q+-%R0926
| +00000 | LEN |
|        |00001|
|        |     |
|        +-----+
|
| >>>>
```

```
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|        Package                                                                    << RUNG 166  STEP #0528 >>
|Pulse   pattern Package DE ext.
|pusher  width   pattern enable
|front   2*X     X*4     signal  Step 2
| B123+   H046    H037           STEP_2
|%T0255  %M0180  %M0171  %G0003  %M0102  +-----+
+--] [--+--] [-----] [--+--] [-----] [---+ ADD_+-
| 0163  |               | 0009           | DINT|
|       |Package        |                |     |
|       |pattern Package|        Spare   |     | Spare
|       |width   pattern|        for     |     | for
|       |4*X     X*2    |        package |     | package
|       | H048    H035  |        out     |     | out
|       |%M0182  %M0169 |                |     |
|       +--] [-----] [--+        %R0928 -+I1  Q+-%R0928
|                                        |     |
|                                 CONST -+I2   |
|                           +0000000008 +-----+
|
|        Package                                                                    << RUNG 167  STEP #0538 >>
|Pulse   pattern Package DE ext.
|pusher  width   pattern enable
|front   3*X     X*3     signal  Step 2
| B123+   H047    H036           STEP_2
|%T0255  %M0181  %M0170  %G0003  %M0102  +-----+
+--] [-----] [-----] [-----] [-----] [---+ ADD_+-
| 0163                    0009           | DINT|
|                                        |     |
|                                Spare   |     | Spare
|                                for     |     | for
|                                package |     | package
|                                out     |     | out
|                                        |     |
|                                %R0928 -+I1  Q+-%R0928
|                                        |     |
|                                 CONST -+I2   |
|                           +0000000009 +-----+
|
|        Package                                                                    << RUNG 168  STEP #0544 >>
|Pulse   pattern Package DE ext.
|pusher  width   pattern enable
|front   2*X     X*5     signal  Step 2
| B123+   H046    H038           STEP_2
|%T0255  %M0180  %M0172  %G0003  %M0102  +-----+
+--] [--+--] [-----] [--+--] [-----] [---+ ADD_+-
| 0163  |               | 0009           | DINT|
|       |Package        |                |     |
|       |pattern Package|        Spare   |     | Spare
|       |width   pattern|        for     |     | for
|       |5*X     X*2    |        package |     | package
|       | H049    H035  |        out     |     | out
|       |%M0183  %M0169 |                |     |
|       +--] [-----] [--+        %R0928 -+I1  Q+-%R0928
|                                        |     |
|                                 CONST -+I2   |
|                           +0000000010 +-----+
|
|        Package                                                                    << RUNG 169  STEP #0554 >>
|Pulse   pattern Package DE ext.
|pusher  width   pattern enable
|front   2*X     X*6     signal  Step 2
| B123+   H046    H039           STEP_2
|%T0255  %M0180  %M0173  %G0003  %M0102  +-----+
+--] [--+--] [-----] [--+--] [-----] [---+ ADD_+-
| 0163  |               | 0009           | DINT|
|       |Package        |                |     |
|       |pattern Package|        Spare   |     | Spare
|       |width   pattern|        for     |     | for
|       |3*X     X*4    |        package |     | package
|       | H047    H037  |        out     |     | out
|       |%M0181  %M0171 |                |     |
|       +--] [-----] [--+        %R0928 -+I1  Q+-%R0928
|       |               |                |     |
|       |Package        |                |     |
|       |pattern Package|                |     |
|       |width   pattern|                |     |
|       |4*X     X*3    |                |     |
|       | H048    H036  |                |     |
|       |%M0182  %M0170 |                |     |
|       +--] [-----] [--+         CONST -+I2   |
|       |               |    +0000000012 +-----+
|       |Package        |
|       |pattern Package|
|       |width   pattern|
|       |6*X     X*2    |
|       | H050    H035  |
|       |%M0184  %M0169 |
|       +--] [-----] [--+
|
```

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|        Package                                                                   << RUNG 170  STEP #0570 >>
|Pulse   pattern Package DE ext.
|pusher  width   pattern enable
|front   2*X     X*7     signal  Step 2
| B123+   H046    H040           STEP_2
|%T0255  %M0180  %M0174  %G0003  %M0102  +-----+
+--] [-----] [-----] [-----] [-----] [---+ ADD_+-
| 0163                   0009           | DINT|
|                                       |     |
|                               Spare   |     | Spare
|                               for     |     | for
|                               package |     | package
|                               out     |     | out
|                                       |     |
|                               %R0928 --+I1  Q+-%R0928
|                                       |     |
|                                CONST --+I2   |
|                           +0000000014 +-----+
|
|        Package                                                                   << RUNG 171  STEP #0576 >>
|Pulse   pattern Package DE ext.
|pusher  width   pattern enable
|front   3*X     X*5     signal  Step 2
| B123+   H047    H038           STEP_2
|%T0255  %M0181  %M0172  %G0003  %M0102  +-----+
+--] [--+--] [-----] [--+--] [-----] [---+ ADD_+-
| 0163  |               | 0009           | DINT|
|       |Package        |                |     |
|       |pattern Package|        Spare   |     | Spare
|       |width   pattern|        for     |     | for
|       |5*X     X*3    |        package |     | package
|       | H049    H036  |        out     |     | out
|       |%M0183  %M0170 |                |     |
|       +--] [-----] [--+        %R0928 --+I1  Q+-%R0928
|                                       |     |
|                                CONST --+I2   |
|                           +0000000015 +-----+
|
|        Package                                                                   << RUNG 172  STEP #0586 >>
|Pulse   pattern Package DE ext.
|pusher  width   pattern enable
|front   2*X     X*8     signal  Step 2
| B123+   H046    H041           STEP_2
|%T0255  %M0180  %M0175  %G0003  %M0102  +-----+
+--] [--+--] [-----] [--+--] [-----] [---+ ADD_+-
| 0163  |               | 0009           | DINT|
|       |Package        |                |     |
|       |pattern Package|        Spare   |     | Spare
|       |width   pattern|        for     |     | for
|       |4*X     X*4    |        package |     | package
|       | H048    H037  |        out     |     | out
|       |%M0182  %M0171 |                |     |
|       +--] [-----] [--+        %R0928 --+I1  Q+-%R0928
|                                       |     |
|                                CONST --+I2   |
|                           +0000000016 +-----+
|
|        Package                                                                   << RUNG 173  STEP #0596 >>
|Pulse   pattern Package DE ext.
|pusher  width   pattern enable
|front   2*X     X*9     signal  Step 2
| B123+   H046    H042           STEP_2
|%T0255  %M0180  %M0176  %G0003  %M0102  +-----+
+--] [--+--] [-----] [--+--] [-----] [---+ ADD_+-
| 0163  |               | 0009           | DINT|
|       |Package        |                |     |
|       |pattern Package|        Spare   |     | Spare
|       |width   pattern|        for     |     | for
|       |3*X     X*6    |        package |     | package
|       | H047    H039  |        out     |     | out
|       |%M0181  %M0173 |                |     |
|       +--] [-----] [--+        %R0928 --+I1  Q+-%R0928
|       |               |                |     |
|       |Package        |                |     |
|       |pattern Package|                |     |
|       |width   pattern|                |     |
|       |6*X     X*3    |                |     |
|       | H050    H036  |                |     |
|       |%M0184  %M0170 |                |     |
|       +--] [-----] [--+         CONST --+I2   |
|                           +0000000018 +-----+
|
```

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|        Package                                                                    << RUNG 174  STEP #0609 >>
|Pulse   pattern Package DE ext.
|pusher  width   pattern enable
|front   2*X     X*10    signal  Step 2
| B123+   H046    H043           STEP_2
|%T0255  %M0180  %M0177  %G0003  %M0102  +-----+
+--] [--+--] [-----] [--+--] [-----] [---+ ADD_+-
| 0163  |               | 0009           | DINT|
|       |Package        |                |     |
|       |pattern Package|        Spare   |     | Spare
|       |width   pattern|        for     |     | for
|       |4*X     X*5    |        package |     | package
|       | H048    H038  |        out     |     | out
|       |%M0182  %M0172 |                |     |
|       +--] [-----] [--+        %R0928 -+I1  Q+-%R0928
|       |               |                |     |
|       |Package        |                |     |
|       |pattern Package|                |     |
|       |width   pattern|                |     |
|       |5*X     X*4    |                |     |
|       | H049    H037  |                |     |
|       |%M0183  %M0171 |                |     |
|       +--] [-----] [--+         CONST -+I2   |
|                          +0000000020 +-----+
|
|        Package                                                                    << RUNG 175  STEP #0622 >>
|Pulse   pattern Package DE ext.
|pusher  width   pattern enable
|front   3*X     X*7     signal  Step 2
| B123+   H047    H040           STEP_2
|%T0255  %M0181  %M0174  %G0003  %M0102  +-----+
+--] [-----] [-----] [-----] [-----] [---+ ADD_+-
| 0163                   0009           | DINT|
|                                       |     |
|                               Spare   |     | Spare
|                               for     |     | for
|                               package |     | package
|                               out     |     | out
|                                       |     |
|                               %R0928 -+I1  Q+-%R0928
|                                       |     |
|                                CONST -+I2   |
|                          +0000000021 +-----+
|
|        Package                                                                    << RUNG 176  STEP #0628 >>
|Pulse   pattern Package DE ext.
|pusher  width   pattern enable
|front   2*X     X*11    signal  Step 2
| B123+   H046    H044           STEP_2
|%T0255  %M0180  %M0178  %G0003  %M0102  +-----+
+--] [-----] [-----] [-----] [-----] [---+ ADD_+-
| 0163                   0009           | DINT|
|                                       |     |
|                               Spare   |     | Spare
|                               for     |     | for
|                               package |     | package
|                               out     |     | out
|                                       |     |
|                               %R0928 -+I1  Q+-%R0928
|                                       |     |
|                                CONST -+I2   |
|                          +0000000022 +-----+
|
|        Package                                                                    << RUNG 177  STEP #0634 >>
|Pulse   pattern Package DE ext.
|pusher  width   pattern enable
|front   2*X     X*12    signal  Step 2
| B123+   H046    H045           STEP_2
|%T0255  %M0180  %M0179  %G0003  %M0102  +-----+
+--] [--+--] [-----] [--+--] [-----] [---+ ADD_+-
| 0163  |               | 0009           | DINT|
|       |Package        |                |     |
|       |pattern Package|        Spare   |     | Spare
|       |width   pattern|        for     |     | for
|       |3*X     X*8    |        package |     | package
|       | H047    H041  |        out     |     | out
|       |%M0181  %M0175 |                |     |
|       +--] [-----] [--+        %R0928 -+I1  Q+-%R0928
|       |               |                |     |
|       |Package        |                |     |
|       |pattern Package|                |     |
|       |width   pattern|                |     |
|       |4*X     X*6    |                |     |
|       | H048    H039  |                |     |
|       |%M0182  %M0173 |                |     |
|       +--] [-----] [--+         CONST -+I2   |
|       |               |    +0000000024 +-----+
|       |Package        |
|       |pattern Package|
|       |width   pattern|
|       |6*X     X*4    |
|       | H050    H037  |
|       |%M0184  %M0171 |
|       +--] [-----] [--+

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|        Package                                                                   << RUNG 178  STEP #0650 >>
|Pulse   pattern Package DE ext.
|pusher  width   pattern enable
|front   5*X     X*5     signal  Step 2
| B123+   H049    H038           STEP_2
|%T0255  %M0183  %M0172  %G0003  %M0102  +-----+
+--] [-----] [-----] [-----] [-----] [---+ ADD_+-
| 0163                   0009           | DINT|
|                                       |     |
|                               Spare   |     | Spare
|                               for     |     | for
|                               package |     | package
|                               out     |     | out
|                                       |     |
|                               %R0928 -+I1  Q+-%R0928
|                                       |     |
|                                CONST -+I2   |
|                           +0000000025 +-----+
|
|        Package                                                                   << RUNG 179  STEP #0656 >>
|Pulse   pattern Package DE ext.
|pusher  width   pattern enable
|front   3*X     X*9     signal  Step 2
| B123+   H047    H042           STEP_2
|%T0255  %M0181  %M0176  %G0003  %M0102  +-----+
+--] [-----] [-----] [-----] [-----] [---+ ADD_+-
| 0163                   0009           | DINT|
|                                       |     |
|                               Spare   |     | Spare
|                               for     |     | for
|                               package |     | package
|                               out     |     | out
|                                       |     |
|                               %R0928 -+I1  Q+-%R0928
|                                       |     |
|                                CONST -+I2   |
|                           +0000000027 +-----+
|
|        Package                                                                   << RUNG 180  STEP #0662 >>
|Pulse   pattern Package DE ext.
|pusher  width   pattern enable
|front   4*X     X*7     signal  Step 2
| B123+   H048    H040           STEP_2
|%T0255  %M0182  %M0174  %G0003  %M0102  +-----+
+--] [-----] [-----] [-----] [-----] [---+ ADD_+-
| 0163                   0009           | DINT|
|                                       |     |
|                               Spare   |     | Spare
|                               for     |     | for
|                               package |     | package
|                               out     |     | out
|                                       |     |
|                               %R0928 -+I1  Q+-%R0928
|                                       |     |
|                                CONST -+I2   |
|                           +0000000028 +-----+
|
|        Package                                                                   << RUNG 181  STEP #0668 >>
|Pulse   pattern Package DE ext.
|pusher  width   pattern enable
|front   3*X     X*10    signal  Step 2
| B123+   H047    H043           STEP_2
|%T0255  %M0181  %M0177  %G0003  %M0102  +-----+
+--] [--+--] [-----] [--+--] [-----] [---+ ADD_+-
| 0163  |              | 0009           | DINT|
|       |Package       |                |     |
|       |pattern Package|       Spare   |     | Spare
|       |width   pattern|       for     |     | for
|       |5*X     X*6    |       package |     | package
|       | H049    H039  |       out     |     | out
|       |%M0183  %M0173 |                |     |
|       +--] [-----] [--+       %R0928 -+I1  Q+-%R0928
|       |               |                |     |
|       |Package       |                |     |
|       |pattern Package|                |     |
|       |width   pattern|                |     |
|       |6*X     X*5    |                |     |
|       | H050    H038  |                |     |
|       |%M0184  %M0172 |                |     |
|       +--] [-----] [--+        CONST -+I2   |
|                           +0000000030 +-----+
|
```

```
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|        Package                                                                    << RUNG 182  STEP #0681 >>
|Pulse   pattern Package DE ext.
|pusher  width   pattern enable
|front   4*X     X*8     signal  Step 2
| B123+   H048    H041           STEP_2
|%T0255  %M0182  %M0175  %G0003  %M0102  +-----+
+--] [-----] [-----] [-----] [-----] [---+ ADD_+-
| 0163                   0009           | DINT|
|                                       |     |
|                               Spare   |     | Spare
|                               for     |     | for
|                               package |     | package
|                               out     |     | out
|                                       |     |
|                               %R0928 -+I1  Q+-%R0928
|                                       |     |
|                                CONST -+I2   |
|                           +0000000032 +-----+
|
|        Package                                                                    << RUNG 183  STEP #0687 >>
|Pulse   pattern Package DE ext.
|pusher  width   pattern enable
|front   3*X     X*11    signal  Step 2
| B123+   H047    H044           STEP_2
|%T0255  %M0181  %M0178  %G0003  %M0102  +-----+
+--] [-----] [-----] [-----] [-----] [---+ ADD_+-
| 0163                   0009           | DINT|
|                                       |     |
|                               Spare   |     | Spare
|                               for     |     | for
|                               package |     | package
|                               out     |     | out
|                                       |     |
|                               %R0928 -+I1  Q+-%R0928
|                                       |     |
|                                CONST -+I2   |
|                           +0000000033 +-----+
|
|        Package                                                                    << RUNG 184  STEP #0693 >>
|Pulse   pattern Package DE ext.
|pusher  width   pattern enable
|front   5*X     X*7     signal  Step 2
| B123+   H049    H040           STEP_2
|%T0255  %M0183  %M0174  %G0003  %M0102  +-----+
+--] [-----] [-----] [-----] [-----] [---+ ADD_+-
| 0163                   0009           | DINT|
|                                       |     |
|                               Spare   |     | Spare
|                               for     |     | for
|                               package |     | package
|                               out     |     | out
|                                       |     |
|                               %R0928 -+I1  Q+-%R0928
|                                       |     |
|                                CONST -+I2   |
|                           +0000000035 +-----+
|
|        Package                                                                    << RUNG 185  STEP #0699 >>
|Pulse   pattern Package DE ext.
|pusher  width   pattern enable
|front   3*X     X*12    signal  Step 2
| B123+   H047    H045           STEP_2
|%T0255  %M0181  %M0179  %G0003  %M0102  +-----+
+--] [--+--] [-----] [--+--] [-----] [---+ ADD_+-
| 0163  |              | 0009           | DINT|
|       |Package       |                |     |
|       |pattern Package|        Spare   |     | Spare
|       |width   pattern|        for     |     | for
|       |4*X     X*9    |        package |     | package
|       | H048    H042  |        out     |     | out
|       |%M0182  %M0176 |                |     |
|       +--] [-----] [--+        %R0928 -+I1  Q+-%R0928
|       |               |                |     |
|       |Package       |                |     |
|       |pattern Package|                |     |
|       |width   pattern|                |     |
|       |6*X     X*6    |                |     |
|       | H050    H039  |                |     |
|       |%M0184  %M0173 |                |     |
|       +--] [-----] [--+         CONST -+I2   |
|                           +0000000036 +-----+
|
```

```
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|        Package                                                                    << RUNG 186  STEP #0712 >>
|Pulse   pattern Package DE ext.
|pusher  width   pattern enable
|front   4*X     X*10    signal  Step 2
| B123+   H048    H043           STEP_2
|%T0255  %M0182  %M0177  %G0003  %M0102  +-----+
+--] [--+--] [-----] [--+--] [-----] [---+ ADD_+-
| 0163  |               | 0009           | DINT|
|       |Package        |                |     |
|       |pattern Package|        Spare   |     | Spare
|       |width   pattern|        for     |     | for
|       |5*X     X*8    |        package |     | package
|       | H049    H041  |        out     |     | out
|       |%M0183  %M0175 |                |     |
|       +--] [-----] [--+        %R0928 --+I1  Q+-%R0928
|                                        |     |
|                                 CONST -+I2   |
|                            +0000000040 +-----+
|
|        Package                                                                    << RUNG 187  STEP #0722 >>
|Pulse   pattern Package DE ext.
|pusher  width   pattern enable
|front   6*X     X*7     signal  Step 2
| B123+   H050    H040           STEP_2
|%T0255  %M0184  %M0174  %G0003  %M0102  +-----+
+--] [-----] [-----] [-----] [-----] [---+ ADD_+-
| 0163                   0009           | DINT|
|                                        |     |
|                                Spare   |     | Spare
|                                for     |     | for
|                                package |     | package
|                                out     |     | out
|                                        |     |
|                                %R0928 --+I1  Q+-%R0928
|                                        |     |
|                                 CONST -+I2   |
|                            +0000000042 +-----+
|
|        Package                                                                    << RUNG 188  STEP #0728 >>
|Pulse   pattern Package DE ext.
|pusher  width   pattern enable
|front   4*X     X*11    signal  Step 2
| B123+   H048    H044           STEP_2
|%T0255  %M0182  %M0178  %G0003  %M0102  +-----+
+--] [-----] [-----] [-----] [-----] [---+ ADD_+-
| 0163                   0009           | DINT|
|                                        |     |
|                                Spare   |     | Spare
|                                for     |     | for
|                                package |     | package
|                                out     |     | out
|                                        |     |
|                                %R0928 --+I1  Q+-%R0928
|                                        |     |
|                                 CONST -+I2   |
|                            +0000000044 +-----+
|
|        Package                                                                    << RUNG 189  STEP #0734 >>
|Pulse   pattern Package DE ext.
|pusher  width   pattern enable
|front   5*X     X*9     signal  Step 2
| B123+   H049    H042           STEP_2
|%T0255  %M0183  %M0176  %G0003  %M0102  +-----+
+--] [-----] [-----] [-----] [-----] [---+ ADD_+-
| 0163                   0009           | DINT|
|                                        |     |
|                                Spare   |     | Spare
|                                for     |     | for
|                                package |     | package
|                                out     |     | out
|                                        |     |
|                                %R0928 --+I1  Q+-%R0928
|                                        |     |
|                                 CONST -+I2   |
|                            +0000000045 +-----+
|
|        Package                                                                    << RUNG 190  STEP #0740 >>
|Pulse   pattern Package DE ext.
|pusher  width   pattern enable
|front   4*X     X*12    signal  Step 2
| B123+   H048    H045           STEP_2
|%T0255  %M0182  %M0179  %G0003  %M0102  +-----+
+--] [--+--] [-----] [--+--] [-----] [---+ ADD_+-
| 0163  |               | 0009           | DINT|
|       |Package        |                |     |
|       |pattern Package|        Spare   |     | Spare
|       |width   pattern|        for     |     | for
|       |6*X     X*8    |        package |     | package
|       | H050    H041  |        out     |     | out
|       |%M0184  %M0175 |                |     |
|       +--] [-----] [--+        %R0928 --+I1  Q+-%R0928
|                                        |     |
|                                 CONST -+I2   |
|                            +0000000048 +-----+

Program: A454891                         C:\LM90\VISN\P1000\A454891                          Block: PLMS(SUBR 14)
```

```
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|        Package                                                                    << RUNG 191  STEP #0750 >>
|Pulse   pattern Package DE ext.
|pusher  width   pattern enable
|front   5*X     X*10    signal  Step 2
| B123+   H049    H043           STEP_2
|%T0255  %M0183  %M0177  %G0003  %M0102  +-----+
+--] [-----] [-----] [-----] [-----] [---+ ADD_+-
| 0163                   0009           | DINT|
|                                       |     |
|                               Spare   |     | Spare
|                               for     |     | for
|                               package |     | package
|                               out     |     | out
|                                       |     |
|                               %R0928 -+I1  Q+-%R0928
|                                       |     |
|                                CONST -+I2   |
|                           +0000000050 +-----+
|
|        Package                                                                    << RUNG 192  STEP #0756 >>
|Pulse   pattern Package DE ext.
|pusher  width   pattern enable
|front   6*X     X*9     signal  Step 2
| B123+   H050    H042           STEP_2
|%T0255  %M0184  %M0176  %G0003  %M0102  +-----+
+--] [-----] [-----] [-----] [-----] [---+ ADD_+-
| 0163                   0009           | DINT|
|                                       |     |
|                               Spare   |     | Spare
|                               for     |     | for
|                               package |     | package
|                               out     |     | out
|                                       |     |
|                               %R0928 -+I1  Q+-%R0928
|                                       |     |
|                                CONST -+I2   |
|                           +0000000054 +-----+
|
|        Package                                                                    << RUNG 193  STEP #0762 >>
|Pulse   pattern Package DE ext.
|pusher  width   pattern enable
|front   5*X     X*11    signal  Step 2
| B123+   H049    H044           STEP_2
|%T0255  %M0183  %M0178  %G0003  %M0102  +-----+
+--] [-----] [-----] [-----] [-----] [---+ ADD_+-
| 0163                   0009           | DINT|
|                                       |     |
|                               Spare   |     | Spare
|                               for     |     | for
|                               package |     | package
|                               out     |     | out
|                                       |     |
|                               %R0928 -+I1  Q+-%R0928
|                                       |     |
|                                CONST -+I2   |
|                           +0000000055 +-----+
|
|        Package                                                                    << RUNG 194  STEP #0768 >>
|Pulse   pattern Package DE ext.
|pusher  width   pattern enable
|front   5*X     X*12    signal  Step 2
| B123+   H049    H045           STEP_2
|%T0255  %M0183  %M0179  %G0003  %M0102  +-----+
+--] [--+--] [-----] [--+--] [-----] [---+ ADD_+-
| 0163  |              | 0009           | DINT|
|       |Package       |                |     |
|       |pattern Package|        Spare   |     | Spare
|       |width   pattern|        for     |     | for
|       |6*X     X*10   |        package |     | package
|       | H050    H043  |        out     |     | out
|       |%M0184  %M0177 |                |     |
|       +--] [-----] [--+        %R0928 -+I1  Q+-%R0928
|                                       |     |
|                                CONST -+I2   |
|                           +0000000060 +-----+
|
|        Package                                                                    << RUNG 195  STEP #0778 >>
|Pulse   pattern Package DE ext.
|pusher  width   pattern enable
|front   6*X     X*11    signal  Step 2
| B123+   H050    H044           STEP_2
|%T0255  %M0184  %M0178  %G0003  %M0102  +-----+
+--] [-----] [-----] [-----] [-----] [---+ ADD_+-
| 0163                   0009           | DINT|
|                                       |     |
|                               Spare   |     | Spare
|                               for     |     | for
|                               package |     | package
|                               out     |     | out
|                                       |     |
|                               %R0928 -+I1  Q+-%R0928
|                                       |     |
|                                CONST -+I2   |
|                           +0000000066 +-----+

Program: A454891                          C:\LM90\VISN\P1000\A454891                          Block: PLMS(SUBR 14)
```

```
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|        Package                                                                   << RUNG 196  STEP #0784 >>
|Pulse   pattern Package DE ext.
|pusher  width   pattern enable
|front   6*X     X*12    signal  Step 2
| B123+   H050    H045           STEP_2
|%T0255  %M0184  %M0179  %G0003  %M0102  +-----+
+--] [-----] [-----] [-----] [-----] [---+ ADD_+-
| 0163                   0009           | DINT|
|                                       |     |
|                                Spare  |     | Spare
|                                for    |     | for
|                                package |     | package
|                                out    |     | out
|                                       |     |
|                                %R0928 -+I1  Q+-%R0928
|                                       |     |
|                                 CONST -+I2  |
|                            +0000000072 +-----+
|
|DE ext.                                                                           << RUNG 197  STEP #0790 >>
|enable
|signal
|
|%G0003  +-----+
+--] [---+MOVE_+-
| 0009   | WORD|
|        |     |
|Spare   |     | Spare
|for     |     | for
|package |     | package
|out     |     | out
|        |     |
|%R0928 -+IN  Q+-%R0921
|        | LEN |
|        |00001|
|        |     |
|        +-----+
|
|DE ext.                                                                           << RUNG 198  STEP #0792 >>
|enable
|signal
|
|%G0003  +-----+
+--]/[---+MOVE_+-
| 0009   | WORD|
|        |     |
|Spare   |     | Spare
|for     |     | for
|package |     | package
|out     |     | out
|        |     |
|%R0921 -+IN  Q+-%R0928
|        | LEN |
|        |00001|
|        |     |
|        +-----+
|
| >>>>
```

```
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|Pulse                                                                                  << RUNG 201  STEP #0797 >>
|DE
|enable
|on
|
|%G0051  +-----+
+--] [---+MOVE_+-
| 0159   | INT |
|        |     |
|        |     | Spare
|        |     | for
|        |     | package
|        |     | out
|        |     |
| CONST -+IN  Q+-%R0928
| +00000 | LEN |
|        |00001|
|        |     |
|        +-----+
|
|[    END OF SUBROUTINE LOGIC     ]
|
```

```
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|[  START LD SUBROUTINE  SWITCH   ]
|
|[     VARIABLE DECLARATIONS      ]
|
|[   START OF SUBROUTINE LOGIC    ]
|
```

```
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| >>>>
```

```
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                                 45489-0001 ELD 000 AA 040223 OHO ECM:162315

|ALW_ON                                                                << RUNG 9  STEP #0020 >>
|%S0007  +-----+                                                %M0883
+--] [---+ EQ_ |+-------------------------------------------------------( )--  (* Bottom size 3                    *)
|        | INT ||                                                      Cross reference for %M0883
|        |     ||                                                                NONE
|Bottom  |     ||
|size    |     ||
|choice  |     ||
|        |     ||
|%R0530 -+I1  Q++
|        |     |
| CONST -+I2   |
| +00003 +-----+
|
|ALW_ON                                                                << RUNG 10  STEP #0023 >>
|%S0007  +-----+                                                %M0884
+--] [---+ EQ_ |+-------------------------------------------------------( )--  (* Bottom size 4                    *)
|        | INT ||                                                      Cross reference for %M0884
|        |     ||                                                                NONE
|Bottom  |     ||
|size    |     ||
|choice  |     ||
|        |     ||
|%R0530 -+I1  Q++
|        |     |
| CONST -+I2   |
| +00004 +-----+
|
|ALW_ON                                                                << RUNG 11  STEP #0026 >>
|%S0007  +-----+                                                %M0885
+--] [---+ EQ_ |+-------------------------------------------------------( )--  (* Bottom size 5                    *)
|        | INT ||                                                      Cross reference for %M0885
|        |     ||                                                                NONE
|Bottom  |     ||
|size    |     ||
|choice  |     ||
|        |     ||
|%R0530 -+I1  Q++
|        |     |
| CONST -+I2   |
| +00005 +-----+
|
|ALW_ON                                                                << RUNG 12  STEP #0029 >>
|%S0007  +-----+                                                %M0886
+--] [---+ EQ_ |+-------------------------------------------------------( )--  (* Bottom size 6                    *)
|        | INT ||                                                      Cross reference for %M0886
|        |     ||                                                                NONE
|Bottom  |     ||
|size    |     ||
|choice  |     ||
|        |     ||
|%R0530 -+I1  Q++
|        |     |
| CONST -+I2   |
| +00006 +-----+
|
|ALW_ON                                                                << RUNG 13  STEP #0032 >>
|%S0007  +-----+                                                %M0887
+--] [---+ EQ_ |+-------------------------------------------------------( )--  (* Bottom size 7                    *)
|        | INT ||                                                      Cross reference for %M0887
|        |     ||                                                                NONE
|Bottom  |     ||
|size    |     ||
|choice  |     ||
|        |     ||
|%R0530 -+I1  Q++
|        |     |
| CONST -+I2   |
| +00007 +-----+
|
|ALW_ON                                                                << RUNG 14  STEP #0035 >>
|%S0007  +-----+                                                %M0888
+--] [---+ EQ_ |+-------------------------------------------------------( )--  (* Bottom size 8                    *)
|        | INT ||                                                      Cross reference for %M0888
|        |     ||                                                                NONE
|Bottom  |     ||
|size    |     ||
|choice  |     ||
|        |     ||
|%R0530 -+I1  Q++
|        |     |
| CONST -+I2   |
| +00008 +-----+
|

Program: A454891                   C:\LM90\VISN\P1000\A454891                   Block: SWITCH(SUBR 16)
```

```
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|ALW_ON                                                                          << RUNG 15  STEP #0038 >>
|%S0007  +-----+                                                   %M0889
+--] [---+ EQ_ |+-------------------------------------------------------( )--  (* Bottom size 9                    *)
|        | INT ||                                                              Cross reference for %M0889
|        |     ||                                                                       NONE
|Bottom  |     ||
|size    |     ||
|choice  |     ||
|        |     ||
|%R0530 -+I1  Q++
|        |     |
| CONST -+I2   |
| +00009 +-----+
|
|[    END OF SUBROUTINE LOGIC     ]
|
```

```
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|[  START LD SUBROUTINE   EMPTY   ]
|
|[     VARIABLE DECLARATIONS      ]
|
|[   START OF SUBROUTINE LOGIC    ]
|
```

```
Program: A454891                    C:\LM90\VISN\P1000\A454891                    Block: EMPTY(SUBR 15)
```

```
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| (*************************************************************************)
| (*                                                                       *)
| (* MANUAL EMPTY                                                          *)
| (*                                                                       *)
| (*************************************************************************)
|
|ME.                                                                          << RUNG 4  STEP #0002 >>
|Pulse
|empty.
|finish.
|
|%T0043                                                          %T0040
+--] [-------------------------------------------------------------(^)--  (* ME.Pulse step up                 *)
| 0007                                                                      Cross reference for %T0040
|                                                                                    NONE
|
|        Stop                                                               << RUNG 5  STEP #0004 >>
|Manual  main
|empty.  shaft
|
|%M0600  %M0786                                                   %T0041
+--] [-----] [-----------------------------------------------------(^)--  (* ME.Pulse vacuum stop             *)
| 0008                                                                      Cross reference for %T0041
|                                                                           -]/[- 21,27
|
|        ME.                                                                << RUNG 6  STEP #0007 >>
|        Pick    Pulse
|Manual  one     alarm
|empty.  blank   reset
|
|%M0600  %M0609  %T0004                                           %T0042
+--] [-----] [--+--]/[--+-------------------------------------------(^)--  (* ME.Pulse vacuum start            *)
| 0008    0017  |       |                                                   Cross reference for %T0042
|               |Alarm  |                                                   -] [- 21
|               |not    |
|               |ready  |
|               |downstr|
|               |       |
|               |%M0189 |
|               +--] [--+
|
|        ME.     Synch                                                      << RUNG 7  STEP #0013 >>
|        Stop    stop
|Manual  Main    feeding
|empty.  Shaft   motor
|
|%M0600  %M0617  %M0777          +-----+                          %T0043
+--] [-----] [-----] [--+--------+ TMR +----------------------------------(^)--  (* ME. Pulse empty. finish.       *)
| 0008    0025          |        |0.10s|                                     Cross reference for %T0043
|                       |        |     |                                     -] [- 4,26
|        Reset/         |        |     |                                     -]/[- 8
|        Lamp           |        |     |
|Step up test           |        |     |
| S01H    S03H          |        |     |
|%I0005  %I0007         |        |     |
+--] [-----] [----------+ CONST -+PV   |
|                         +00050 |     |
|                                +-----+
|
|                                Manual
|                                empty
|                                finish
|
|                                %R0085
|
|        No                      ME.     Pack on                            << RUNG 8  STEP #0021 >>
|        yellow  No              Infeed  groupbe
|Manual  alarms  yellow          conv.   lt
|empty.  on      leds on Step 3  empty   step2->
| S04H                   STEP_3           B126M
|%I0008  %M0096  %M0097  %M0103  %M0601  %M1191          +-----+         %M0600
+--] [-----] [-----] [-----] [-----] [-----]/[--+--------+ TMR +----------( )--  (* Manual empty.                 *)
|                                0009          |        |0.10s|                 Cross reference for %M0600
|ME.                                           |        |     |                 -] [- 5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,
|Pulse                                         |        |     |                       21,23,24,25,27,28,29,32,33,35
|empty.          Manual                        |        |     |
|finish. Step 1  empty.                        |        |     |
|        STEP_1                                |        |     |
|%T0043  %M0101  %M0600                        |        |     |
+--]/[-----] [-----] [--------------------------+ CONST -+PV   |
| 0007            0008                           +00010 |     |
|                                                        +-----+
|
|                                                        Manual
|                                                        empty.
|
|                                                        %R0073
|
```

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|Min            Group.                                                          << RUNG 9  STEP #0033 >>
|queue   Infeed pusher
|into    conv.  home
|gr.sec. start  pos.
| B903   G21-SF  B132
|%I0049  %Q0032  %I0051          +-----+                                %M0601
+--]/[-----] [--+--] [--+--------+ TMR +-----------------------------------( )--  (* ME. Infeed conv. empty          *)
|              |       |        |0.10s|                                         Cross reference for %M0601
|              |       |        |     |                                         -] [- 8,9
|        Infeed |       |        |     |
|        conv.  |       |        |     |
|Step 3  start  |       |        |     |
|STEP_3  G21-SF |       |        |     |
|%M0103  %Q0032 |       |        |     |
+--] [-----]/[--+       | CONST --+PV   |
|                       | +00060 |     |
|ME.                    |        +-----+
|Infeed                 |
|conv.   Manual         |        Infeed
|empty   empty.         |        conv.
|                       |        empty
|%M0601  %M0600         |
+--] [-----] [----------+        %R0076
| 0009    0008
|
|Crush                                                                          << RUNG 10  STEP #0044 >>
|guard,
|group.  Manual
|section empty.
| B144
|%I0061  %M0600                                                          %M0602
+--] [--+--] [-------------------------------------------------------------( )--  (* ME. Bypass of min. queue         *)
|       | 0008                                                                   Cross reference for %M0602
|       |                                                                        -] [- 10,11
|1:st   |                                                                        -]/[- 14
|pusher |
|stroke |
|       |
|%M0417 |
+--]/[--+
|       |
|ME.    |
|Bypass |
|of min.|
|queue  |
|       |
|%M0602 |
+--] [--+
| 0010
|
|Crush           Mem sho ME.                                                    << RUNG 11  STEP #0049 >>
|guard,  Infeed  rt str  Bypass
|group.  brake   gr.push of min. Manual
|section open    done    queue   empty.
| B144    Y106
|%I0061  %Q0021  %M0212  %M0602  %M0600  +-----+                        %M0603
+--]/[-----] [-----]/[-----] [--+--] [---+ TMR +---------------------------( )--  (* ME. Infeed brake empty          *)
|                         0010  | 0008   |0.10s|                                 Cross reference for %M0603
|ME.                            |        |     |                                 -] [- 11,12
|Infeed                         |        |     |
|brake                          |        |     |
|empty                          |        |     |
|                               |        |     |
|%M0603                         |        |     |
+--] [-------------------------+ CONST --+PV   |
| 0011                          | +00060 |     |
|ME.                            |        +-----+
|Gruop                          |
|section                        |        Infeed
|empty                          |        brake
|                               |        empty
|%M0606                         |
+--] [-------------------------+        %R0079
| 0014
|
|New pat ME.     Group.  Stop                                                   << RUNG 12  STEP #0058 >>
|tern in Infeed  endstop arm     Stop    Delay
|group.  brake   inner   upper   arm     pusher  Manual
|pos.    empty   pos.    pos.    down    on      empty.
|                 B140    B141    Y110
|%M0214  %M0603  %I0057  %I0058  %Q0016  %M0226  %M0600                  %M0604
+--]/[-----] [-----] [-----]/[-----] [-----] [--+--] [--------------------( )--  (* ME. Last Gr.push                 *)
|         0011                                  | 0008                           Cross reference for %M0604
|                                               |                                -] [- 12,13
|ME.                                            |
|Last                                           |
|Gr.push                                        |
|                                               |
|%M0604                                         |
+--] [---------------------------------------+
| 0012
|

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|ME.     Delay                                                                    << RUNG 13  STEP #0067 >>
|Last    pusher  Manual
|Gr.push off     empty.
|
|%M0604  %T0061  %M0600                                              %M0605
+--] [-----] [--+--] [-----------------------------------------------------( )--  (* ME. Last Gr.push done            *)
| 0012          | 0008                                                            Cross reference for %M0605
|ME.            |                                                                 -] [- 13,14
|Last           |
|Gr.push        |
|done           |
|               |
|%M0605         |
+--] [----------+
| 0013          |
|               |
|ME1            |
|GR.Push        |
|done           |
|               |
|%M0622         |
+--] [----------+
| 0028          |
|               |
|ME2            |
|GR.push        |
|done           |
|               |
|%M0625         |
+--] [----------+
| 0031
|
|ME.                                                                             << RUNG 14  STEP #0074 >>
|Bypass
|of min.         Manual
|queue           empty.
|
|%M0602          %M0600                                              %M0606
+--]/[----------+--] [-----------------------------------------------------( )--  (* ME. Gruop section empty          *)
| 0010          | 0008                                                            Cross reference for %M0606
|ME.     Group. |                                                                 -] [- 11,14,15,16,18,19,24
|Last    pusher |
|Gr.push home   |
|done    pos.   |
|         B132  |
|%M0605  %I0051 |
+--] [-----] [--+
| 0013          |
|ME.            |
|Gruop          |
|section        |
|empty          |
|               |
|%M0606         |
+--] [----------+
| 0014
|
|ME.     B125M : Pack on                                                         << RUNG 15  STEP #0081 >>
|Gruop   Pack at groupbe Groupin Groupin Pusher
|section pusher  lt      g photo g belt  home    Infeed  Manual
|empty   step2-> step2-> cell    running pos.    ready   empty.
|         B125M   B126M   B137            B121
|%M0606  %M1190  %M1191  %I0054  %M1016  %I0034  %M0231  %M0600  +-----+ %M0607
+--] [-----]/[-----]/[-----]/[-----] [-----] [-----]/[--+--] [---+ TMR +---( )--  (* ME. Long mat empty              *)
| 0014                                                 | 0008   |0.10s|          Cross reference for %M0607
|ME.                                                   |        |     |          -] [- 15,20
|Long                                                  |        |     |          -]/[- 24
|mat                                                   |        |     |
|empty                                                 |        |     |
|                                                      |        |     |
|%M0607                                                |        |     |
+--] [----------------------------------------------------+ CONST -+PV   |
| 0015                                                   +00040 |     |
|                                                               +-----+
|
|                                                               No more
|                                                               packs
|
|                                                               %R0082
|
```

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|ME.     Pack on                                                                << RUNG 16  STEP #0092 >>
|Gruop   groupbe
|section lt      Manual
|empty   step2-> empty.
|         B126M
|%M0606  %M1191  %M0600                                          %M0608
+--] [-----]/[--+--] [-----------------------------------------------------( )--  (* ME. Bypass of B126               *)
| 0014          | 0008                                                           Cross reference for %M0608
|               |                                                                -] [- 16,30
|ME.            |
|Bypass         |
|of B126        |
|               |
|%M0608         |
+--] [----------+
| 0016
|
|                        Alarm           Blank                                  << RUNG 17  STEP #0097 >>
|        ME.     Pulse   not             in
|        Reset   alarm   ready   Manual  pack.
|Step 3  pusher  reset   downstr empty.  pos.
|STEP_3                                   B113
|%M0103  %M0610  %T0004  %M0189  %M0600  %I0042                   %M0609
+--] [-----] [-----] [-----]/[--+--] [-----]/[----------------------------( )--  (* ME. Pick one blank               *)
|         0018                  | 0008                                         Cross reference for %M0609
|ME.                            |                                                -] [- 6,17,19
|Pick                           |
|one                            |
|blank                          |
|                               |
|%M0609                         |
+--] [---------------------------+
| 0017
|
|Infeed                          ME.                                            << RUNG 18  STEP #0105 >>
|time to Pusher                  Gruop   ME.
|end     forward         Small   section Alarm   Manual
|stop    s       Step 2  volumes empty   diplay  empty.
|        Y103-1  STEP_2
|%M0235  %Q0064  %M0102  %M0870  %M0606  %M0614  %M0600           %M0610
+--] [-----]/[-----] [--+--] [--+--] [--+--]/[--+--] [--------------------( )--  (* ME. Reset pusher                 *)
|                     |       | 0014  | 0022  | 0008                           Cross reference for %M0610
|                     |       |Pack on|       |                                -] [- 17,18,22
|                     |       |groupbe|       |
|                     |       |lt     |       |
|                     |       |step2->|       |
|                     |       | B126M |       |
|                     |       |%M1191 |       |
|                     |       +--] [--+       |
|                     |               |       |
|                     |Small          |       |
|                     |volumes        |       |
|                     |               |       |
|                     |%M0870         |       |
|                     +--]/[----------+       |
|                                             |
|ME.     Pulse                                |
|Reset   alarm                                |
|pusher  reset                                |
|                                             |
|%M0610  %T0004                               |
+--] [--+--]/[--+-----------------------------+
| 0018  |       |                             |
|       |       |                             |
|       |Step 3 |                             |
|       |STEP_3 |                             |
|       |%M0103 |                             |
|       +--]/[--+                             |
|                                             |
|        Alarm                                |
|ME.     not                                  |
|Reset   ready                                |
|pusher  downstr                              |
|                                             |
|%M0610  %M0189                               |
+--] [-----] [-----------------------------------+
| 0018
|
|ME.     Blank                                                                  << RUNG 19  STEP #0125 >>
|Pick    in
|one     pack.           Manual
|blank   pos.            empty.
|         B113
|%M0609  %I0042          %M0600                                  %M0611
+--] [-----]/[----------+--] [---------------------------------------------( )--  (* ME. Start Main shaft            *)
| 0017                  | 0008                                                   Cross reference for %M0611
|ME.             ME.    |                                                                  NONE
|Gruop   ME. All Stop   |
|section mat     Main   |
|empty   empty   Shaft  |
|                       |
|%M0606  %M0612  %M0617 |
+--] [-----] [-----]/[--+
| 0014    0020    0025

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|ME.            Infeed                                                          << RUNG 20  STEP #0133 >>
|Long    Pack.at time to         Pusher
|mat     photo   end     Infeed  home    Manual
|empty   cell    stop    ready   pos.    empty.
|                                B121
|%M0607  %M0234  %M0235  %M0231  %I0034  %M0600                        %M0612
+--] [-----]/[-----]/[-----]/[-----] [--+--] [----------------------------( )--  (* ME. All mat empty                *)
| 0015                                 | 0008                                  Cross reference for %M0612
|                                      |                                       -] [- 19,20,25
|ME. All                               |
|mat                                   |
|empty                                 |
|                                      |
|%M0612                                |
+--] [-----------------------------------+
| 0020
|
|ME.Puls                                                                       << RUNG 21  STEP #0141 >>
|e
|vacuum          Manual
|start           empty.
|
|%T0042          %M0600                                                %M0613
+--] [----------+--] [-----------------------------------------------------( )--  (* ME. Vacuum                       *)
| 0006          | 0008                                                          Cross reference for %M0613
|        ME.Puls|                                                               -] [- 21
|        e      |
|ME.     vacuum |
|Vacuum  stop   |
|               |
|%M0613  %T0041 |
+--] [-----]/[--+
| 0021    0005
|
|ME.                                                                           << RUNG 22  STEP #0147 >>
|Reset   Infeed
|pusher  ready   Step 3
|                STEP_3
|%M0610  %M0231  %M0103                                                %M0614
+--] [-----] [--+--] [-----------------------------------------------------( )--  (* ME. Alarm diplay                 *)
| 0018          |                                                               Cross reference for %M0614
|               |                                                               -] [- 22
|ME.     Pusher |                                                               -]/[- 18
|Alarm   forward|
|diplay  s      |
|        Y103-1 |
|%M0614  %Q0064 |
+--] [-----]/[--+
| 0022
|
|Delay                                                                         << RUNG 23  STEP #0154 >>
|pusher          Manual
|off             empty.
|
|%M0249          %M0600                                                %M0615
+--] [----------+--] [-----------------------------------------------------( )--  (* ME. Blank in chain               *)
|               | 0008                                                          Cross reference for %M0615
|ME.     Blank  |                                                               -] [- 23,27
|Blank   in     |
|in      pack.  |
|chain   pos.   |
|         B113  |
|%M0615  %I0042 |
+--] [-----] [--+
| 0023
|
|        ME.     ME.                                                           << RUNG 24  STEP #0160 >>
|        Gruop   Long
|Manual  section mat
|empty.  empty   empty
|
|%M0600  %M0606  %M0607                                                %M0616
+--] [-----] [-----]/[-----------------------------------------------------( )--  (* ME. Run group. mat               *)
| 0008    0014    0015                                                          Cross reference for %M0616
|                                                                                        NONE
|
|ME. All         ME.                                                           << RUNG 25  STEP #0164 >>
|mat     Ejector Package Manual
|empty   blanks  in tray empty.
|
|%M0612  %M0788  %M0619  %M0600                                        %M0617
+--] [-----] [-----]/[--+--] [---------------------------------------------( )--  (* ME. Stop Main Shaft              *)
| 0020            0027  | 0008                                                  Cross reference for %M0617
|ME.                    |                                                       -] [- 7,25
|Stop                   |                                                       -]/[- 19
|Main                   |
|Shaft                  |
|                       |
|%M0617                 |
+--] [------------------+
| 0025
|

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|ME.                                                                                << RUNG 26  STEP #0170 >>
|Pulse
|empty.
|finish.
|
|%T0043  +-----+                                                   %M0618
+--] [---+OFDT +-------------------------------------------------------( )--  (* ME. Reset program                *)
| 0007   |0.10s|                                                                  Cross reference for %M0618
|        |     |                                                                            NONE
| CONST -+PV   |
| +00030 |     |
|        +-----+
|
|        Spare
|
|        %R0088
|
|ME.                                                                                << RUNG 27  STEP #0173 >>
|Blank
|in              Manual
|chain           empty.
|
|%M0615          %M0600                                            %M0619
+--] [----------+--] [-----------------------------------------------( )--  (* ME. Package in tray              *)
| 0023          | 0008                                                             Cross reference for %M0619
|        ME.Puls|                                                                  -] [- 27
|ME.     e      |                                                                  -]/[- 25
|Package vacuum |
|in tray stop   |
|               |
|%M0619  %T0041 |
+--] [-----]/[--+
| 0027    0005
|
|        Group.  Crush   Group                                                      << RUNG 28  STEP #0179 >>
|        pusher  guard,  pusher
|Manual  home    group.  forw
|empty.  pos.    section short
|         B132    B144   Y102-1
|%M0600  %I0051  %I0061  %Q0107  +-----+                           %M0622
+--] [-----] [-----] [-----] [---+ TMR +-----------------------------------( )--  (* ME1 GR.Push done                *)
| 0008                           |0.10s|                                          Cross reference for %M0622
|                                |     |                                          -] [- 13
|                        CONST -+PV   |
|                        +00100 |     |
|                                +-----+
|
|                                %R3175
|
|        Group.                                                                     << RUNG 29  STEP #0185 >>
|        pusher
|Manual  long,   Manual
|empty.  single  empty.
|         B134
|%M0600  %I0053  %M0600                                            %M0623
+--] [-----] [--+--] [-----------------------------------------------( )--  (* GR.Push ready                    *)
| 0008          | 0008                                                             Cross reference for %M0623
|        Crush  |                                                                  -] [- 29,31
|        guard, |
|GR.Push group. |
|ready   section|
|         B144  |
|%M0623  %I0061 |
+--] [-----]/[--+
| 0029
|
|Pack on                                                                            << RUNG 30  STEP #0192 >>
|groupbe         ME.
|lt              Bypass
|step2->         of B126
| B126M
|%M1191          %M0608                                            %M0624
+--]/[----------+--] [-----------------------------------------------( )--  (* Start group .mat                 *)
|               | 0016                                                             Cross reference for %M0624
|               |                                                                            NONE
|        Refill |
|Small   run    |
|volumes time   |
|               |
|%M0870  %M0724 |
+--] [-----] [--+
|
```

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|        Crush                                                                    << RUNG 31  STEP #0198 >>
|        guard,  Infeed
|GR.Push group.  brake
|ready   section open
|         B144    Y106
|%M0623  %I0061  %Q0021  +-----+                                   %M0625
+--] [-----]/[-----] [---+ TMR +-----------------------------------------( )--  (* ME2 GR.push done                 *)
| 0029                   |0.10s|                                                Cross reference for %M0625
|                        |     |                                                -] [- 13
|                 CONST -+PV   |
|                 +00040 |     |
|                        +-----+
|
|                        %R3178
|
|B125M :                                                                          << RUNG 32  STEP #0203 >>
|Pack at
|pusher          Manual
|step2->         empty.
| B125M
|%M1190          %M0600                                            %M0626
+--] [----------+--] [-----------------------------------------------( )--  (* ME, not small volume *)
|              | 0008                                                           Cross reference for %M0626
|              |                                                                -] [- 32
|ME, not Pusher |
|small   front  |
|volume  pos.   |
|         B123  |
|%M0626  %I0036 |
+--] [-----]/[--+
| 0032
|
|        New pat                 Packag.                                          << RUNG 33  STEP #0209 >>
|        tern in Groupin Refill  on      Groupin
|Manual  group.  g belt  run     group.  g photo
|empty.  pos.    running time    belt    cell
|                                 B126    B137
|%M0600  %M0214  %M1016  %M0724  %I0039  %I0054
+--] [-----] [-----] [-----] [-----]/[-----]/[-------------------------------<+>
| 0008
|
|                Pusher                                                           << RUNG 34  STEP #0216 >>
|        Step 3  belt
|        STEP_3   K006
|        %M0103  %Q0008  +-----+                                   %M0627
+<+>-------] [-----]/[---+ TMR +-----------------------------------------( )--  (* ME Brake running mat *)
|                        |0.10s|                                                Cross reference for %M0627
|                        |     |                                                          NONE
|                 CONST -+PV   |
|                 +00050 |     |
|                        +-----+
|
|                        %R3354
|
|Manual                                                                           << RUNG 35  STEP #0221 >>
|empty.  Step 0
|        STEP_0                                                     H04S
|%M0600  %M0100                                                    %M0148
+--] [-----] [-------------------------------------------------------------( )--  (* Manual empty.                   *)
| 0008                                                                           Cross reference for H04S
|                                                                                          NONE
|
|[    END OF SUBROUTINE LOGIC     ]
|
```

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|[  START LD SUBROUTINE    REG    ]
|
|[     VARIABLE DECLARATIONS      ]
|
|[   START OF SUBROUTINE LOGIC    ]
|
| (*************************************************************************)
| (* THIS SUBROUTINE SELECTS SPEED ACCORDING TO THE NR. OF GROUPING STROKES   *)
| (* AND SENDS THE SPEED VALUES TO THE PNEUMATIC SERVO.                       *)
| (*************************************************************************)
|
| (*************************************************************************)
| (* SELECT GROUPING SPEED CORRESPONDNING TO NR. OF STROKES AT PREGROUPING    *)
| (*************************************************************************)
|
|Package Single                                                          << RUNG 5  STEP #0003 >>
|pattern pack/
|X*2     (X*1)
| H035    H020
|%M0169  %M0138  +-----+
+--] [-----] [---+MOVE_+-
|                | INT |
|                |     |
|        Servo   |     | Group
|        speed   |     | pusher
|        groupin |     | speed
|        g X*2   |     | value
|                |     |
|        %R0547 -+IN  Q+-%R1212
|                | LEN |
|                |00001|
|                |     |
|                +-----+
|
|Package Single                                                          << RUNG 6  STEP #0006 >>
|pattern pack/
|X*3     (X*1)
| H036    H020
|%M0170  %M0138  +-----+
+--] [-----] [---+MOVE_+-
|                | INT |
|                |     |
|        Servo   |     | Group
|        speed   |     | pusher
|        groupin |     | speed
|        g X*3   |     | value
|                |     |
|        %R0548 -+IN  Q+-%R1212
|                | LEN |
|                |00001|
|                |     |
|                +-----+
|
|Package Single                                                          << RUNG 7  STEP #0009 >>
|pattern pack/
|X*4     (X*1)
| H037    H020
|%M0171  %M0138  +-----+
+--] [-----] [---+MOVE_+-
|                | INT |
|                |     |
|        Servo   |     | Group
|        speed   |     | pusher
|        groupin |     | speed
|        g X*4   |     | value
|                |     |
|        %R0549 -+IN  Q+-%R1212
|                | LEN |
|                |00001|
|                |     |
|                +-----+
|
|Package Single                                                          << RUNG 8  STEP #0012 >>
|pattern pack/
|X*5     (X*1)
| H038    H020
|%M0172  %M0138  +-----+
+--] [-----] [---+MOVE_+-
|                | INT |
|                |     |
|        Servo   |     | Group
|        speed   |     | pusher
|        groupin |     | speed
|        g X*5   |     | value
|                |     |
|        %R0550 -+IN  Q+-%R1212
|                | LEN |
|                |00001|
|                |     |
|                +-----+
|

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```

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|Package Single                                                          << RUNG 9  STEP #0015 >>
|pattern pack/
|X*6     (X*1)
| H039    H020
|%M0173  %M0138  +-----+
+--] [-----] [---+MOVE_+-
|                | INT |
|                |     |
|        Servo   |     | Group
|        speed   |     | pusher
|        groupin |     | speed
|        g X*6   |     | value
|                |     |
|        %R0551 -+IN  Q+-%R1212
|                | LEN |
|                |00001|
|                |     |
|                +-----+
|
|Package Single                                                          << RUNG 10  STEP #0018 >>
|pattern pack/
|X*7     (X*1)
| H040    H020
|%M0174  %M0138  +-----+
+--] [-----] [---+MOVE_+-
|                | INT |
|                |     |
|        Servo   |     | Group
|        speed   |     | pusher
|        groupin |     | speed
|        g X*7   |     | value
|                |     |
|        %R0552 -+IN  Q+-%R1212
|                | LEN |
|                |00001|
|                |     |
|                +-----+
|
|Package Single                                                          << RUNG 11  STEP #0021 >>
|pattern pack/
|X*8     (X*1)
| H041    H020
|%M0175  %M0138  +-----+
+--] [-----] [---+MOVE_+-
|                | INT |
|                |     |
|        Servo   |     | Group
|        speed   |     | pusher
|        groupin |     | speed
|        g X*8   |     | value
|                |     |
|        %R0553 -+IN  Q+-%R1212
|                | LEN |
|                |00001|
|                |     |
|                +-----+
|
|Package Single                                                          << RUNG 12  STEP #0024 >>
|pattern pack/
|X*9     (X*1)
| H042    H020
|%M0176  %M0138  +-----+
+--] [-----] [---+MOVE_+-
|                | INT |
|                |     |
|        Servo   |     | Group
|        speed   |     | pusher
|        groupin |     | speed
|        g X*9   |     | value
|                |     |
|        %R0554 -+IN  Q+-%R1212
|                | LEN |
|                |00001|
|                |     |
|                +-----+
|
|Package Single                                                          << RUNG 13  STEP #0027 >>
|pattern pack/
|X*10    (X*1)
| H043    H020
|%M0177  %M0138  +-----+
+--] [-----] [---+MOVE_+-
|                | INT |
|                |     |
|        Servo   |     | Group
|        speed   |     | pusher
|        groupin |     | speed
|        g X*10  |     | value
|                |     |
|        %R0555 -+IN  Q+-%R1212
|                | LEN |
|                |00001|
|                |     |
|                +-----+

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|Package Single                                                                   << RUNG 14  STEP #0030 >>
|pattern pack/
|X*11    (X*1)
| H044    H020
|%M0178  %M0138  +-----+
+--] [-----] [---+MOVE_+-
|                | INT |
|                |     |
|        Servo   |     | Group
|        speed   |     | pusher
|        groupin |     | speed
|        g X*11  |     | value
|                |     |
|        %R0556 -+IN  Q+-%R1212
|                | LEN |
|                |00001|
|                |     |
|                +-----+
|
|Package Single                                                                   << RUNG 15  STEP #0033 >>
|pattern pack/
|X*12    (X*1)
| H045    H020
|%M0179  %M0138  +-----+
+--] [-----] [---+MOVE_+-
|                | INT |
|                |     |
|        Servo   |     | Group
|        speed   |     | pusher
|        groupin |     | speed
|        g X*12  |     | value
|                |     |
|        %R0557 -+IN  Q+-%R1212
|                | LEN |
|                |00001|
|                |     |
|                +-----+
|
|(X*2)                                                                            << RUNG 16  STEP #0036 >>
| H021
|%M0139  +-----+
+--] [---+MOVE_+-
|        | INT |
|        |     |
|Servo s |     | Group
|peed gr |     | pusher
|ouping  |     | speed
|(X*2) m |     | value
|        |     |
|%R0558 -+IN  Q+-%R1212
|        | LEN |
|        |00001|
|        |     |
|        +-----+
|
|(X*3)                                                                            << RUNG 17  STEP #0038 >>
| H022
|%M0140  +-----+
+--] [---+MOVE_+-
|        | INT |
|        |     |
|Servo s |     | Group
|peed gr |     | pusher
|ouping  |     | speed
|(X*3) m |     | value
|        |     |
|%R0559 -+IN  Q+-%R1212
|        | LEN |
|        |00001|
|        |     |
|        +-----+
|
| (*************************************************************************)
| (* CHECK IF GROUPING SPEED VALUE IS LOWER THAN MINIMUM ALLOWED (2)          *)
| (* AND CORRECT TO MIN IF NEEDED                                             *)
| (*************************************************************************)
|
|ALW_ON                                                                           << RUNG 19  STEP #0041 >>
|%S0007  +-----+                                                     %M3204
+--] [---+ LT_ |+-------------------------------------------------------( )--  (* Grouping - speed value to low *)
|        | INT ||                                                              Cross reference for %M3204
|        |     ||                                                              -] [- 20
|Group   |     ||
|pusher  |     ||
|speed   |     ||
|value   |     ||
|        |     ||
|%R1212 -+I1  Q++
|        |     |
| CONST -+I2   |
| +00002 +-----+
|
```

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|Groupin                                                                  << RUNG 20  STEP #0044 >>
|g - spe
|ed valu
|e to lo
|
|%M3204  +-----+
+--] [---+MOVE_+-
| 0019   | INT |
|        |     |
|        |     | Group
|        |     | pusher
|        |     | speed
|        |     | value
|        |     |
| CONST -+IN  Q+-%R1212
| +00002 | LEN |
|        |00001|
|        |     |
|        +-----+
|
| (*************************************************************************)
| (* CHECK IF GROUPING SPEED VALUE IS GREATER THAN MAXIMUM ALLOWED (15)       *)
| (* AND CORRECT TO MAX IF NEEDED                                             *)
| (*************************************************************************)
|
|ALW_ON                                                                   << RUNG 22  STEP #0047 >>
|%S0007  +-----+                                                %M3205
+--] [---+ GT_ |+-------------------------------------------------------( )--  (* Grouping - speed value too high *)
|        | INT ||                                                            Cross reference for %M3205
|        |     ||                                                            -] [- 23
|Group   |     ||
|pusher  |     ||
|speed   |     ||
|value   |     ||
|        |     ||
|%R1212 -+I1  Q++
|        |     |
| CONST -+I2   |
| +00015 +-----+
|
|Groupin                                                                  << RUNG 23  STEP #0050 >>
|g - spe
|ed valu
|e too h
|
|%M3205  +-----+
+--] [---+MOVE_+-
| 0022   | INT |
|        |     |
|        |     | Group
|        |     | pusher
|        |     | speed
|        |     | value
|        |     |
| CONST -+IN  Q+-%R1212
| +00015 | LEN |
|        |00001|
|        |     |
|        +-----+
|
| (*************************************************************************)
| (* SELECT PUSHER SPEED CORRESPONDNING TO NR. OF STROKES AT PREGROUPING      *)
| (*************************************************************************)
|
|Package                                                                  << RUNG 25  STEP #0053 >>
|pattern
|X*2
| H035
|%M0169  +-----+
+--] [---+MOVE_+-
|        | INT |
|        |     |
|Servo   |     |
|speed   |     | Pusher
|pusher  |     | speed
|X*2     |     | value
|        |     |
|%R0561 -+IN  Q+-%R1213
|        | LEN |
|        |00001|
|        |     |
|        +-----+
|
```

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|Package                                                                << RUNG 26  STEP #0055 >>
|pattern
|X*3
| H036
|%M0170  +-----+
+--] [---+MOVE_+-
|        | INT |
|        |     |
|Servo   |     |
|speed   |     | Pusher
|pusher  |     | speed
|X*3     |     | value
|        |     |
|%R0562 -+IN  Q+-%R1213
|        | LEN |
|        |00001|
|        |     |
|        +-----+
|
|Package                                                                << RUNG 27  STEP #0057 >>
|pattern
|X*4
| H037
|%M0171  +-----+
+--] [---+MOVE_+-
|        | INT |
|        |     |
|Servo   |     |
|speed   |     | Pusher
|pusher  |     | speed
|X*4     |     | value
|        |     |
|%R0563 -+IN  Q+-%R1213
|        | LEN |
|        |00001|
|        |     |
|        +-----+
|
|Package                                                                << RUNG 28  STEP #0059 >>
|pattern
|X*5
| H038
|%M0172  +-----+
+--] [---+MOVE_+-
|        | INT |
|        |     |
|Servo   |     |
|speed   |     | Pusher
|pusher  |     | speed
|X*5     |     | value
|        |     |
|%R0564 -+IN  Q+-%R1213
|        | LEN |
|        |00001|
|        |     |
|        +-----+
|
|Package                                                                << RUNG 29  STEP #0061 >>
|pattern
|X*6
| H039
|%M0173  +-----+
+--] [---+MOVE_+-
|        | INT |
|        |     |
|Servo   |     |
|speed   |     | Pusher
|pusher  |     | speed
|X*6     |     | value
|        |     |
|%R0565 -+IN  Q+-%R1213
|        | LEN |
|        |00001|
|        |     |
|        +-----+
|
|Package                                                                << RUNG 30  STEP #0063 >>
|pattern
|X*7
| H040
|%M0174  +-----+
+--] [---+MOVE_+-
|        | INT |
|        |     |
|Servo   |     |
|speed   |     | Pusher
|pusher  |     | speed
|X*7     |     | value
|        |     |
|%R0566 -+IN  Q+-%R1213
|        | LEN |
|        |00001|
|        |     |
|        +-----+

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|Package                                                                << RUNG 31  STEP #0065 >>
|pattern
|X*8
| H041
|%M0175  +-----+
+--] [---+MOVE_+-
|        | INT |
|        |     |
|Servo   |     |
|speed   |     | Pusher
|pusher  |     | speed
|X*8     |     | value
|        |     |
|%R0567 -+IN  Q+-%R1213
|        | LEN |
|        |00001|
|        |     |
|        +-----+
|
|Package                                                                << RUNG 32  STEP #0067 >>
|pattern
|X*9
| H042
|%M0176  +-----+
+--] [---+MOVE_+-
|        | INT |
|        |     |
|Servo   |     |
|speed   |     | Pusher
|pusher  |     | speed
|X*9     |     | value
|        |     |
|%R0568 -+IN  Q+-%R1213
|        | LEN |
|        |00001|
|        |     |
|        +-----+
|
|Package                                                                << RUNG 33  STEP #0069 >>
|pattern
|X*10
| H043
|%M0177  +-----+
+--] [---+MOVE_+-
|        | INT |
|        |     |
|Servo   |     |
|speed   |     | Pusher
|pusher  |     | speed
|X*10    |     | value
|        |     |
|%R0569 -+IN  Q+-%R1213
|        | LEN |
|        |00001|
|        |     |
|        +-----+
|
|Package                                                                << RUNG 34  STEP #0071 >>
|pattern
|X*11
| H044
|%M0178  +-----+
+--] [---+MOVE_+-
|        | INT |
|        |     |
|Servo   |     |
|speed   |     | Pusher
|pusher  |     | speed
|X*11    |     | value
|        |     |
|%R0570 -+IN  Q+-%R1213
|        | LEN |
|        |00001|
|        |     |
|        +-----+
|
|Package                                                                << RUNG 35  STEP #0073 >>
|pattern
|X*12
| H045
|%M0179  +-----+
+--] [---+MOVE_+-
|        | INT |
|        |     |
|Servo   |     |
|speed   |     | Pusher
|pusher  |     | speed
|X*12    |     | value
|        |     |
|%R0571 -+IN  Q+-%R1213
|        | LEN |
|        |00001|
|        |     |
|        +-----+

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| (*************************************************************************)
| (* CHECK IF PUSHER SPEED VALUE IS LOWER THAN MINIMUM ALLOWED (2)          *)
| (* AND CORRECT TO MIN IF NEEDED                                            *)
| (*************************************************************************)
|
|ALW_ON                                                                      << RUNG 37  STEP #0076 >>
|%S0007  +-----+                                                   %M3206
+--] [---+ LT_ |+-------------------------------------------------------( )--  (* Pusher - speed value too low *)
|        | INT ||                                                            Cross reference for %M3206
|        |     ||                                                            -] [- 38
|Pusher  |     ||
|speed   |     ||
|value   |     ||
|        |     ||
|%R1213 -+I1  Q++
|        |     |
| CONST -+I2   |
| +00002 +-----+
|
|Pusher                                                                      << RUNG 38  STEP #0079 >>
|- speed
|value
|too low
|
|%M3206  +-----+
+--] [---+MOVE_+-
| 0037   | INT |
|        |     |
|        |     | Pusher
|        |     | speed
|        |     | value
|        |     |
| CONST -+IN  Q+-%R1213
| +00002 | LEN |
|        |00001|
|        |     |
|        +-----+
|
| (*************************************************************************)
| (* CHECK IF PUSHER SPEED VALUE IS HIGHER THAN MAXIMUM ALLOWED (15)         *)
| (* AND CORRECT TO MAX IF NEEDED                                            *)
| (*************************************************************************)
|
|ALW_ON                                                                      << RUNG 40  STEP #0082 >>
|%S0007  +-----+                                                   %M3207
+--] [---+ GT_ |+-------------------------------------------------------( )--  (* Pusher - speed value too high *)
|        | INT ||                                                            Cross reference for %M3207
|        |     ||                                                            -] [- 41
|Pusher  |     ||
|speed   |     ||
|value   |     ||
|        |     ||
|%R1213 -+I1  Q++
|        |     |
| CONST -+I2   |
| +00015 +-----+
|
|Pusher                                                                      << RUNG 41  STEP #0085 >>
|- speed
|value t
|oo high
|
|%M3207  +-----+
+--] [---+MOVE_+-
| 0040   | INT |
|        |     |
|        |     | Pusher
|        |     | speed
|        |     | value
|        |     |
| CONST -+IN  Q+-%R1213
| +00015 | LEN |
|        |00001|
|        |     |
|        +-----+
|
| (*************************************************************************)
| (* DECODE GROUPING SPEED REGISTER TO BINARY CODE FOR SERVO                 *)
| (*************************************************************************)
|

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|ALW_ON                                                                                  << RUNG 43  STEP #0088 >>
|%S0007  +-----+
+--] [---+ARRAY+-
|        |MOVE_|
|        | BIT |
|Group   |     |
|pusher  |     | Binery
|speed   |     | code to
|value   |     | servo
|        |     |  BIT1Y
|%R1212 -+SR DS+-%Q0085
|        | LEN |
|        |00004|
|        |     |
| CONST -+SNX  |
|  00001 |     |
|        |     |
| CONST -+DNX  |
|  00001 |     |
|        |     |
| CONST -+N    |
|  00004 +-----+
|
| (*************************************************************************)
| (* DECODE PUSHER SPEED REGISTER TO BINARY CODE FOR SERVO                 *)
| (*************************************************************************)
|
|ALW_ON                                                                                  << RUNG 45  STEP #0091 >>
|%S0007  +-----+
+--] [---+ARRAY+-
|        |MOVE_|
|        | BIT |
|        |     |
|Pusher  |     | Binery
|speed   |     | code to
|value   |     | servo
|        |     |  BIT1X
|%R1213 -+SR DS+-%Q0081
|        | LEN |
|        |00004|
|        |     |
| CONST -+SNX  |
|  00001 |     |
|        |     |
| CONST -+DNX  |
|  00001 |     |
|        |     |
| CONST -+N    |
|  00004 +-----+
|
| (*************************************************************************)
| (* SEND BINARY SPEED VALUES TO SERVO FOR GROUPING AND PUSHER             *)
| (*************************************************************************)
|
|START/R                                                                                 << RUNG 47  STEP #0094 >>
|ESET se
|rvo pro
|gram ex
|
|%Q0098                                                          %M1270
+--] [-----------------------------------------------------------------(^)--  (* Puls sending value servo         *)
|                                                                             Cross reference for %M1270
|                                                                             -] [- 48
|
|Puls                                                                                    << RUNG 48  STEP #0096 >>
|sending
|value
|servo
|
|%M1270          +-----+                                          %Q0103
+--] [--+--------+OFDT +-------------------------------------------------( )--  (* Sending value to servo           *)
| 0047  |        |0.10s|                                                        Cross reference for %Q0103
|       |        |     |                                                                  NONE
|Pulse, |        |     |
|Step2+ |        |     |
|       |        |     |
|%T0016 |        |     |
+--] [--+ CONST -+PV   |
|         +00005 |     |
|                +-----+
|
|                %R3248
|
|[    END OF SUBROUTINE LOGIC     ]
|
```

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|[  START LD SUBROUTINE  1T0001   ]
|
|[     VARIABLE DECLARATIONS      ]
|
|[   START OF SUBROUTINE LOGIC    ]
|
|ALW_ON                                                                  << RUNG 3  STEP #0001 >>
|%S0007  +-----+
+--] [---+DO_IO+-
|        |     |
|Gray    |     |
|code    |     |
|l.sign. |     |
|bit Ms  |     |
|        |     |
|%I0017 -+ST   |
|        |     |
|Gray    |     |
|code    |     |
|Feeding |     |
|motor   |     |
|        |     |
|%I0032 -+END  |
|        |     |
| CONST -+ALT  |
|   0003 +-----+
|
|ALW_ON                                                                  << RUNG 4  STEP #0003 >>
|%S0007  +-----+
+--] [---+DO_IO+-
|        |     |
|Mainsha |     |
|ft/     |     |
|feeding |     |
|motor   |     |
| K001   |     |
|%Q0001 -+ST   |
|        |     |
|Stop    |     |
|arm     |     |
|down    |     |
| Y110   |     |
|%Q0016 -+END  |
|        |     |
| CONST -+ALT  |
|   0007 +-----+
|
| (*************************************************************************)
| (* ENCODER COUNTING FEEDING MOTOR                                        *)
| (*************************************************************************)
|
|Gray                                                                    << RUNG 6  STEP #0006 >>
|code
|Feeding
|motor
|
|%I0032                                                        %M0768
+--] [-------------------------------------------------------------------( )--  (* Bit 8 a.e. Feeding motor         *)
|                                                                        Cross reference for %M0768
|                                                                        -] [- 7
|                                                                        -]/[- 7
|
|Bit 8   Gray                                                            << RUNG 7  STEP #0008 >>
|a.e.    code
|Feeding Feeding
|motor   motor
|
|%M0768  %I0031                                                %M0767
+--] [-----]/[--+-----------------------------------------------------------( )--  (* Bit 7 a.e. Feeding motor         *)
| 0006          |                                                        Cross reference for %M0767
|Bit 8   Gray   |                                                        -] [- 8
|a.e.    code   |                                                        -]/[- 8
|Feeding Feeding|
|motor   motor  |
|               |
|%M0768  %I0031 |
+--]/[-----] [--+
| 0006
|
```

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|Bit 7   Gray                                                          << RUNG 8  STEP #0014 >>
|a.e.    code
|Feeding Feeding
|motor   motor
|
|%M0767  %I0030                                          %M0766
+--] [-----]/[--+-------------------------------------------------------( )--  (* Bit 6 a.e. Feeding motor         *)
| 0007          |                                                              Cross reference for %M0766
|Bit 7   Gray   |                                                              -] [- 9
|a.e.    code   |                                                              -]/[- 9
|Feeding Feeding|
|motor   motor  |
|               |
|%M0767  %I0030 |
+--]/[-----] [--+
| 0007
|
|Bit 6   Gray                                                          << RUNG 9  STEP #0020 >>
|a.e.    code
|Feeding Feeding
|motor   motor
|
|%M0766  %I0029                                          %M0765
+--] [-----]/[--+-------------------------------------------------------( )--  (* Bit 5 a.e. Feeding motor         *)
| 0008          |                                                              Cross reference for %M0765
|Bit 6   Gray   |                                                              -] [- 10
|a.e.    code   |                                                              -]/[- 10
|Feeding Feeding|
|motor   motor  |
|               |
|%M0766  %I0029 |
+--]/[-----] [--+
| 0008
|
|Bit 5   Gray                                                          << RUNG 10  STEP #0026 >>
|a.e.    code
|Feeding Feeding
|motor   motor
|
|%M0765  %I0028                                          %M0764
+--] [-----]/[--+-------------------------------------------------------( )--  (* Bit 4 a.e. Feeding motor         *)
| 0009          |                                                              Cross reference for %M0764
|Bit 5   Gray   |                                                              -] [- 11
|a.e.    code   |                                                              -]/[- 11
|Feeding Feeding|
|motor   motor  |
|               |
|%M0765  %I0028 |
+--]/[-----] [--+
| 0009
|
|Bit 4   Gray                                                          << RUNG 11  STEP #0032 >>
|a.e.    code
|Feeding Feeding
|motor   motor
|
|%M0764  %I0027                                          %M0763
+--] [-----]/[--+-------------------------------------------------------( )--  (* Bit 3 a.e. Feeding motor         *)
| 0010          |                                                              Cross reference for %M0763
|Bit 4   Gray   |                                                              -] [- 12
|a.e.    code   |                                                              -]/[- 12
|Feeding Feeding|
|motor   motor  |
|               |
|%M0764  %I0027 |
+--]/[-----] [--+
| 0010
|
|Bit 3   Gray                                                          << RUNG 12  STEP #0038 >>
|a.e.    code
|Feeding Feeding
|motor   motor
|
|%M0763  %I0026                                          %M0762
+--] [-----]/[--+-------------------------------------------------------( )--  (* Bit 2 a.e. Feeding motor         *)
| 0011          |                                                              Cross reference for %M0762
|Bit 3   Gray   |                                                              -] [- 13
|a.e.    code   |                                                              -]/[- 13
|Feeding Feeding|
|motor   motor  |
|               |
|%M0763  %I0026 |
+--]/[-----] [--+
| 0011
|

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```

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|Bit 2   Gray                                                                   << RUNG 13  STEP #0044 >>
|a.e.    code
|Feeding l.sign.
|motor   bit Fm
|
|%M0762  %I0025                                                   %M0761
+--] [-----]/[--+-------------------------------------------------------( )--  (* Bit 1 a.e. Feeding motor         *)
| 0012          |                                                               Cross reference for %M0761
|Bit 2   Gray   |                                                               FBIO  14
|a.e.    code   |
|Feeding l.sign.|
|motor   bit Fm |
|               |
|%M0762  %I0025 |
+--]/[-----] [--+
| 0012
|
|ALW_ON                                                                         << RUNG 14  STEP #0050 >>
|%S0007  +-----+                 +-----+
+--] [---+ AND_+-----------------+ MUL_+-
|        | WORD|                 | INT |
|        |     |                 |     |
|Bit 1   |     | Angle   Angle   |     | Feed
|a.e.    |     | encoder encoder |     | chain
|Feeding |     | value   value   |     | move in
|motor   |     | Feed.m. Feed.m. |     | MM
|        |     |                 |     |
|%M0761 -+I1  Q+-%R0401  %R0401 -+I1  Q+-%R0405
|        |     |                 |     |
| CONST -+I2   |          CONST -+I2   |
|   00FF +-----+          +00002 +-----+
|
| (*************************************************************************)
| (* ENCODER COUNTING MAIN SHAFT                                           *)
| (*************************************************************************)
|
|Gray                                                                           << RUNG 16  STEP #0054 >>
|code
|Main
|shaft
|
|%I0024                                                           %M0776
+--] [----------------------------------------------------------------( )--  (* Bit 8 a.e. Main shaft            *)
|                                                                               Cross reference for %M0776
|                                                                               -] [- 17
|                                                                               -]/[- 17
|
|Bit 8   Gray                                                                   << RUNG 17  STEP #0056 >>
|a.e.    code
|Main    Main
|shaft   shaft
|
|%M0776  %I0023                                                   %M0775
+--] [-----]/[--+-------------------------------------------------------( )--  (* Bit 7 a.e. Main shaft            *)
| 0016          |                                                               Cross reference for %M0775
|Bit 8   Gray   |                                                               -] [- 18
|a.e.    code   |                                                               -]/[- 18
|Main    Main   |
|shaft   shaft  |
|               |
|%M0776  %I0023 |
+--]/[-----] [--+
| 0016
|
|Bit 7   Gray                                                                   << RUNG 18  STEP #0062 >>
|a.e.    code
|Main    Main
|shaft   shaft
|
|%M0775  %I0022                                                   %M0774
+--] [-----]/[--+-------------------------------------------------------( )--  (* Bit 6 a.e. Main shaft            *)
| 0017          |                                                               Cross reference for %M0774
|Bit 7   Gray   |                                                               -] [- 19
|a.e.    code   |                                                               -]/[- 19
|Main    Main   |
|shaft   shaft  |
|               |
|%M0775  %I0022 |
+--]/[-----] [--+
| 0017
|
```

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|Bit 6   Gray                                                          << RUNG 19  STEP #0068 >>
|a.e.    code
|Main    Main
|shaft   shaft
|
|%M0774  %I0021                                          %M0773
+--] [-----]/[--+-------------------------------------------------------( )--  (* Bit 5 a.e. Main shaft           *)
| 0018         |                                                               Cross reference for %M0773
|Bit 6   Gray   |                                                              -] [- 20
|a.e.    code   |                                                              -]/[- 20
|Main    Main   |
|shaft   shaft  |
|               |
|%M0774  %I0021 |
+--]/[-----] [--+
| 0018
|
|Bit 5   Gray                                                          << RUNG 20  STEP #0074 >>
|a.e.    code
|Main    Main
|shaft   shaft
|
|%M0773  %I0020                                          %M0772
+--] [-----]/[--+-------------------------------------------------------( )--  (* Bit 4 a.e. Main shaft           *)
| 0019         |                                                               Cross reference for %M0772
|Bit 5   Gray   |                                                              -] [- 21
|a.e.    code   |                                                              -]/[- 21
|Main    Main   |
|shaft   shaft  |
|               |
|%M0773  %I0020 |
+--]/[-----] [--+
| 0019
|
|Bit 4   Gray                                                          << RUNG 21  STEP #0080 >>
|a.e.    code
|Main    Main
|shaft   shaft
|
|%M0772  %I0019                                          %M0771
+--] [-----]/[--+-------------------------------------------------------( )--  (* Bit 3 a.e. Main shaft           *)
| 0020         |                                                               Cross reference for %M0771
|Bit 4   Gray   |                                                              -] [- 22
|a.e.    code   |                                                              -]/[- 22
|Main    Main   |
|shaft   shaft  |
|               |
|%M0772  %I0019 |
+--]/[-----] [--+
| 0020
|
|Bit 3   Gray                                                          << RUNG 22  STEP #0086 >>
|a.e.    code
|Main    Main
|shaft   shaft
|
|%M0771  %I0018                                          %M0770
+--] [-----]/[--+-------------------------------------------------------( )--  (* Bit 2 a.e. Main shaft           *)
| 0021         |                                                               Cross reference for %M0770
|Bit 3   Gray   |                                                              -] [- 23
|a.e.    code   |                                                              -]/[- 23
|Main    Main   |
|shaft   shaft  |
|               |
|%M0771  %I0018 |
+--]/[-----] [--+
| 0021
|
|Bit 2   Gray                                                          << RUNG 23  STEP #0092 >>
|a.e.    code
|Main    l.sign.
|shaft   bit Ms
|
|%M0770  %I0017                                          %M0769
+--] [-----]/[--+-------------------------------------------------------( )--  (* Bit 1 a.e. Main shaft           *)
| 0022         |                                                               Cross reference for %M0769
|Bit 2   Gray   |                                                              FBIO  24
|a.e.    code   |
|Main    l.sign.|
|shaft   bit Ms |
|               |
|%M0770  %I0017 |
+--]/[-----] [--+
| 0022
|

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|ALW_ON                                                                                  << RUNG 24  STEP #0098 >>
|%S0007  +-----+
+--] [---+ AND_+-
|        | WORD|
|        |     |
|Bit 1   |     | Angle
|a.e.    |     | encoder
|Main    |     | value
|shaft   |     | Main m.
|        |     |
|%M0769 -+I1  Q+-%R0404
|        |     |
| CONST -+I2   |
|   00FF +-----+
|
| (*************************************************************************)
| (* * CHECK IF SYNCH IS NEEDED IF MACHINE IS STOPPED                      *)
| (* * START RANGE FEEDING MOTOR AFTER EM/DOOR STOP                        *)
| (* * START RANGE MAIN SHAFT AFTER EM/DOOR STOP                           *)
| (*************************************************************************)
|
|ALW_ON                                                                                  << RUNG 26  STEP #0101 >>
|%S0007  +-----+                                                      %M1181
+--] [---+RANGE|+-------------------------------------------------------( )--  (* Range, Synch needed main motor *)
|        | INT ||                                                              Cross reference for %M1181
|        |     ||                                                              -] [- 27
| CONST -+L1  Q++
| +00002 |     |
|        |     |
| CONST -+L2   |
| +00250 |     |
|        |     |
|Angle   |     |
|encoder |     |
|value   |     |
|Main m. |     |
|        |     |
|%R0404 -+IN   |
|        +-----+
|
|        Range,                                                                          << RUNG 27  STEP #0104 >>
|        Synch n
|Emerg.  eeded m
|stop    ain mot
|  L12
|%I0001  %M1181                                                       %M1180
+--]/[--+--] [----------+-------------------------------------------( )--  (* Cynch speed on                    *)
|       | 0026          |                                                     Cross reference for %M1180
|       |               |                                                     -] [- 27
|Door   |               |
|  L13  |               |
|%I0015 |               |
+--]/[--+               |
|       |               |
|Step 2 |               |
|STEP_2 |               |
|%M0102 |               |
+--]/[--+               |
|                       |
|        Range,         |
|Cynch   Synch n        |
|speed   eeded m        |
|on      ain mot Step 3 |
|                STEP_3 |
|%M1180  %M1181  %M0103 |
+--] [-----] [-----]/[--+
| 0027    0026
|
|ALW_ON                                                                                  << RUNG 28  STEP #0113 >>
|%S0007  +-----+                                                      %M1224
+--] [---+RANGE|+-------------------------------------------------------( )--  (* Feeding not stop pos             *)
|        | INT ||                                                              Cross reference for %M1224
|        |     ||                                                              -] [- 30
| CONST -+L1  Q++
| +00180 |     |
|        |     |
| CONST -+L2   |
| +00251 |     |
|        |     |
|Angle   |     |
|encoder |     |
|value   |     |
|Feed.m. |     |
|        |     |
|%R0401 -+IN   |
|        +-----+
|

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|ALW_ON                                                                          << RUNG 29  STEP #0116 >>
|%S0007  +-----+                                                   %M1228
+--] [---+RANGE|+-----------------------------------------------------------(/)--  (* Check feeding pos                *)
|        | INT ||                                                                 Cross reference for %M1228
|        |     ||                                                                 -]/[- 30
| CONST -+L1  Q++
| +00251 |     |
|        |     |
| CONST -+L2   |
| +00002 |     |
|        |     |
|Angle   |     |
|encoder |     |
|value   |     |
|Feed.m. |     |
|        |     |
|%R0401 -+IN   |
|        +-----+
|
|        Feeding                                                                 << RUNG 30  STEP #0119 >>
|        not
|Emerg.  stop
|stop    pos
|  L12
|%I0001  %M1224                                                    %M1225
+--]/[--+--] [----------+-----------------------------------------------( )--  (* Start feeding em/door            *)
|       | 0028          |                                                        Cross reference for %M1225
|       |               |                                                        -] [- 30,31,78
|Door   |               |                                                        -]/[- 32,82
|  L13  |               |
|%I0015 |               |
+--]/[--+               |
|       |               |
|Step 2 |               |
|STEP_2 |               |
|%M0102 |               |
+--]/[--+               |
|                       |
|Start   Check          |
|feeding feeding        |
|em/door pos     Step 3 |
|                STEP_3 |
|%M1225  %M1228  %M0103 |
+--] [-----]/[-----]/[--+
| 0030    0029
|
|Start                                                                           << RUNG 31  STEP #0128 >>
|feeding
|em/door
|
|%M1225  +-----+
+--] [---+MOVE_+-
| 0030   | INT |
|        |     |
|        |     | H/S
|        |     | Stop
|        |     | feeding
|        |     | motor
|        |     |
| CONST -+IN  Q+-%R3193
| +00248 | LEN |
|        |00001|
|        |     |
|        +-----+
|
|Start                                                                           << RUNG 32  STEP #0130 >>
|feeding
|em/door
|
|%M1225  +-----+
+--]/[---+MOVE_+-
| 0030   | INT |
|        |     |
|        |     | H/S
|        |     | Stop
|        |     | feeding
|        |     | motor
|        |     |
| CONST -+IN  Q+-%R3193
| +00210 | LEN |
|        |00001|
|        |     |
|        +-----+
|

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|High                                                                          << RUNG 33  STEP #0132 >>
|speed
|in
|machine
|
|%M1285  +-----+                                                   %M1231
+--] [---+RANGE|+-----------------------------------------------------------( )--  (* H/S Main not in stop pos *)
|        | INT ||                                                                  Cross reference for %M1231
|        |     ||                                                                  -] [- 35
| CONST -+L1  Q++
| +00150 |     |
|        |     |
| CONST -+L2   |
| +00255 |     |
|        |     |
|Angle   |     |
|encoder |     |
|value   |     |
|Main m. |     |
|        |     |
|%R0404 -+IN   |
|        +-----+
|
|ALW_ON                                                                        << RUNG 34  STEP #0135 >>
|%S0007  +-----+                                                   %M1233
+--] [---+RANGE|+-----------------------------------------------------------(/)--  (* Check main motor position *)
|        | INT ||                                                                  Cross reference for %M1233
|        |     ||                                                                  -]/[- 35
| CONST -+L1  Q++
| +00253 |     |
|        |     |
| CONST -+L2   |
| +00005 |     |
|        |     |
|Angle   |     |
|encoder |     |
|value   |     |
|Main m. |     |
|        |     |
|%R0404 -+IN   |
|        +-----+
|
|        H/S Mai                                                               << RUNG 35  STEP #0138 >>
|        n not i
|Emerg.  n stop
|stop    pos             Step 1
|  L12                   STEP_1
|%I0001  %M1231          %M0101                                    %M1232
+--]/[--+--] [----------+--] [-------------------------------------------( )--  (* Start main em/door               *)
|       | 0033          |                                                         Cross reference for %M1232
|       |               |                                                         -] [- 35,36,71
|Door   |               |                                                         -]/[- 37,72
|  L13  |               |
|%I0015 |               |
+--]/[--+               |
|       |               |
|Step 2 |               |
|STEP_2 |               |
|%M0102 |               |
+--]/[--+               |
|                       |
|        Check m        |
|Start   ain mot        |
|main em or posi        |
|/door   tion    Step 3 |
|                STEP_3 |
|%M1232  %M1233  %M0103 |
+--] [-----]/[-----]/[--+
| 0035    0034
|
|Start                                                                         << RUNG 36  STEP #0148 >>
|main em
|/door
|
|%M1232  +-----+
+--] [---+MOVE_+-
| 0035   | INT |
|        |     |
| CONST -+IN  Q+-%R3197
| +00253 | LEN |
|        |00001|
|        |     |
|        +-----+
|
```

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|Start                                                                    << RUNG 37  STEP #0150 >>
|main em
|/door
|
|%M1232  +-----+
+--]/[---+MOVE_+-
| 0035   | INT |
|        |     |
| CONST -+IN  Q+-%R3197
| +00232 | LEN |
|        |00001|
|        |     |
|        +-----+
|
| (*************************************************************************)
| (* SYNCH STOP RANGE FEEDING MOTOR                                        *)
| (*************************************************************************)
|
|High                                                                     << RUNG 39  STEP #0153 >>
|speed
|in
|machine
|
|%M1285  +-----+                                                 %M1240
+--] [---+RANGE|+-------------------------------------------------------(/)--  (* H/S synch stop feeding           *)
|        | INT ||                                                            Cross reference for %M1240
|        |     ||                                                            -] [- 41
| CONST -+L1  Q++
| +00004 |     |
|        |     |
| CONST -+L2   |
| +00250 |     |
|        |     |
|Angle   |     |
|encoder |     |
|value   |     |
|Feed.m. |     |
|        |     |
|%R0401 -+IN   |
|        +-----+
|
|High                                                                     << RUNG 40  STEP #0156 >>
|speed
|in
|machine
|
|%M1285  +-----+                                                 %M1241
+--]/[---+RANGE|+-------------------------------------------------------(/)--  (* L/S synch stop feeding           *)
|        | INT ||                                                            Cross reference for %M1241
|        |     ||                                                            -] [- 41
| CONST -+L1  Q++
| +00002 |     |
|        |     |
| CONST -+L2   |
| +00251 |     |
|        |     |
|Angle   |     |
|encoder |     |
|value   |     |
|Feed.m. |     |
|        |     |
|%R0401 -+IN   |
|        +-----+
|
|H/S     High                                                             << RUNG 41  STEP #0159 >>
|synch   speed
|stop    in
|feeding machine
|
|%M1240  %M1285                                                  %M0777
+--] [-----] [--+-------------------------------------------------------( )--  (* Synch stop feeding motor         *)
| 0039         |                                                            Cross reference for %M0777
|L/S     High  |                                                            -] [- 80
|synch   speed |                                                            -]/[- 78
|stop    in    |
|feeding machine|
|              |
|%M1241  %M1285 |
+--] [-----]/[--+
| 0040
|
| (*************************************************************************)
| (* STOP RANGE FEEDING MOTOR                                              *)
| (*************************************************************************)
|
```

```
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|High                                                                  << RUNG 43  STEP #0166 >>
|speed
|in
|machine
|
|%M1285  +-----+                                          %M1242
+--] [---+RANGE|+-------------------------------------------------------( )--  (* H/S stop feeding motor          *)
|        | INT ||                                                              Cross reference for %M1242
|        |     ||                                                              -] [- 45
|H/S     |     ||
|Stop    |     ||
|feeding |     ||
|motor   |     ||
|        |     ||
|%R3193 -+L1  Q++
|        |     |
| CONST -+L2   |
| +00255 |     |
|        |     |
|Angle   |     |
|encoder |     |
|value   |     |
|Feed.m. |     |
|        |     |
|%R0401 -+IN   |
|        +-----+
|
|High                                                                  << RUNG 44  STEP #0169 >>
|speed
|in
|machine
|
|%M1285  +-----+                                          %M1243
+--]/[---+RANGE|+-------------------------------------------------------( )--  (* L/S stop feeding motor          *)
|        | INT ||                                                              Cross reference for %M1243
|        |     ||                                                              -] [- 45
| CONST -+L1  Q++
| +00252 |     |
|        |     |
| CONST -+L2   |
| +00255 |     |
|        |     |
|Angle   |     |
|encoder |     |
|value   |     |
|Feed.m. |     |
|        |     |
|%R0401 -+IN   |
|        +-----+
|
|H/S                                                                   << RUNG 45  STEP #0172 >>
|stop
|feeding
|motor
|
|%M1242                                                   %M0778
+--] [--+-----------------------------------------------------------------( )--  (* Stop feeding motor              *)
| 0043  |                                                                     Cross reference for %M0778
|L/S    |                                                                     -]/[- 78
|stop   |
|feeding|
|motor  |
|       |
|%M1243 |
+--] [--+
| 0044
|
| (*************************************************************************)
| (* START RANGE FEEDING MOTOR                                             *)
| (*************************************************************************)
|
|High                                                                  << RUNG 47  STEP #0176 >>
|speed
|in
|machine
|
|%M1285  +-----+                                          %M1252
+--] [---+RANGE|+-------------------------------------------------------( )--  (* H/S start feeding motor         *)
|        | INT ||                                                              Cross reference for %M1252
|        |     ||                                                              -] [- 49
| CONST -+L1  Q++
| +00011 |     |
|        |     |
| CONST -+L2   |
| +00050 |     |
|        |     |
|Angle   |     |
|encoder |     |
|value   |     |
|Main m. |     |
|        |     |
|%R0404 -+IN   |
|        +-----+
|

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|High                                                                   << RUNG 48  STEP #0179 >>
|speed
|in
|machine
|
|%M1285  +-----+                                          %M1253
+--]/[---+RANGE|+-------------------------------------------------------( )--  (* L/S start feeding motor          *)
|        | INT ||                                                              Cross reference for %M1253
|        |     ||                                                              -] [- 49
| CONST -+L1  Q++
| +00011 |     |
|        |     |
| CONST -+L2   |
| +00035 |     |
|        |     |
|Angle   |     |
|encoder |     |
|value   |     |
|Main m. |     |
|        |     |
|%R0404 -+IN   |
|        +-----+
|
|H/S                                                                    << RUNG 49  STEP #0182 >>
|start
|feeding
|motor
|
|%M1252                                                   %M0787
+--] [--+-----------------------------------------------------------------( )--  (* Start feeding motor              *)
| 0047  |                                                                     Cross reference for %M0787
|L/S    |                                                                     -] [- 78,79
|start  |
|feeding|
|motor  |
|       |
|%M1253 |
+--] [--+
| 0048
|
| (*************************************************************************)
| (* LOW SPEED RANGE FEEDING MOTOR                                         *)
| (*************************************************************************)
|
|High                                                                   << RUNG 51  STEP #0186 >>
|speed
|in
|machine
|
|%M1285  +-----+                                          %M1244
+--] [---+RANGE|+-------------------------------------------------------( )--  (* H/S low speed feeding motor      *)
|        | INT ||                                                              Cross reference for %M1244
|        |     ||                                                              -] [- 53
| CONST -+L1  Q++
| +00220 |     |
|        |     |
| CONST -+L2   |
| +00255 |     |
|        |     |
|Angle   |     |
|encoder |     |
|value   |     |
|Feed.m. |     |
|        |     |
|%R0401 -+IN   |
|        +-----+
|
|High                                                                   << RUNG 52  STEP #0189 >>
|speed
|in
|machine
|
|%M1285  +-----+                                          %M1245
+--]/[---+RANGE|+-------------------------------------------------------( )--  (* L/S low speed feeding motor      *)
|        | INT ||                                                              Cross reference for %M1245
|        |     ||                                                              -] [- 53
| CONST -+L1  Q++
| +00214 |     |
|        |     |
| CONST -+L2   |
| +00254 |     |
|        |     |
|Angle   |     |
|encoder |     |
|value   |     |
|Feed.m. |     |
|        |     |
|%R0401 -+IN   |
|        +-----+
|

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```

```
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|H/S low                                                                << RUNG 53  STEP #0192 >>
|speed
|feeding
|motor
|
|%M1244                                                     %M0779
+--] [--+-------------------------------------------------------------( )--  (* Slow speed feeding motor         *)
| 0051  |                                                                   Cross reference for %M0779
|L/S low|                                                                   -]/[- 80,82
|speed  |
|feeding|
|motor  |
|       |
|%M1245 |
+--] [--+
| 0052
|
| (*************************************************************************)
| (* SLOW SPEED RANGE MAIN SHAFT                                           *)
| (*************************************************************************)
|
|High                                                                   << RUNG 55  STEP #0196 >>
|speed
|in
|machine
|
|%M1285  +-----+                                            %M1246
+--] [---+RANGE|+-----------------------------------------------------( )--  (* H/S low speed main   shaft       *)
|        | INT ||                                                          Cross reference for %M1246
|        |     ||                                                          -] [- 57
| CONST -+L1  Q++
| +00220 |     |
|        |     |
| CONST -+L2   |
| +00255 |     |
|        |     |
|Angle   |     |
|encoder |     |
|value   |     |
|Main m. |     |
|        |     |
|%R0404 -+IN   |
|        +-----+
|
|High                                                                   << RUNG 56  STEP #0199 >>
|speed
|in
|machine
|
|%M1285  +-----+                                            %M1247
+--]/[---+RANGE|+-----------------------------------------------------( )--  (* L/S low speed main   shaft       *)
|        | INT ||                                                          Cross reference for %M1247
|        |     ||                                                          -] [- 57
| CONST -+L1  Q++
| +00235 |     |
|        |     |
| CONST -+L2   |
| +00255 |     |
|        |     |
|Angle   |     |
|encoder |     |
|value   |     |
|Main m. |     |
|        |     |
|%R0404 -+IN   |
|        +-----+
|
|H/S low                                                                << RUNG 57  STEP #0202 >>
|speed
|main
|shaft
|
|%M1246                                                     %M0784
+--] [--+-------------------------------------------------------------( )--  (* Slow speed main shaft            *)
| 0055  |                                                                   Cross reference for %M0784
|L/S low|                                                                   -]/[- 70
|speed  |
|main   |
|shaft  |
|       |
|%M1247 |
+--] [--+
| 0056
|
| (*************************************************************************)
| (* SYNCH STOP RANGE MAIN SHAFT                                           *)
| (*************************************************************************)
|
```

```
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|High                                                                    << RUNG 59  STEP #0206 >>
|speed
|in
|machine
|
|%M1285  +-----+                                          %M1248
+--] [---+RANGE|+-------------------------------------------------------(/)--  (* H/S synch stop main              *)
|        | INT ||                                                              Cross reference for %M1248
|        |     ||                                                              -] [- 61
| CONST -+L1  Q++
| +00005 |     |
|        |     |
| CONST -+L2   |
| +00241 |     |
|        |     |
|Angle   |     |
|encoder |     |
|value   |     |
|Main m. |     |
|        |     |
|%R0404 -+IN   |
|        +-----+
|
|High                                                                    << RUNG 60  STEP #0209 >>
|speed
|in
|machine
|
|%M1285  +-----+                                          %M1249
+--]/[---+RANGE|+-------------------------------------------------------(/)--  (* L/S synch stop main              *)
|        | INT ||                                                              Cross reference for %M1249
|        |     ||                                                              -] [- 61
| CONST -+L1  Q++
| +00004 |     |
|        |     |
| CONST -+L2   |
| +00252 |     |
|        |     |
|Angle   |     |
|encoder |     |
|value   |     |
|Main m. |     |
|        |     |
|%R0404 -+IN   |
|        +-----+
|
|H/S     High                                                            << RUNG 61  STEP #0212 >>
|synch   speed
|stop    in
|main    machine
|
|%M1248  %M1285                                           %M0785
+--] [-----] [--+-------------------------------------------------------( )--  (* Synch. stop main shaft           *)
| 0059         |                                                              Cross reference for %M0785
|L/S     High   |                                                             -] [- 68,70
|synch   speed  |                                                             -]/[- 69
|stop    in     |
|main    machine|
|               |
|%M1249  %M1285 |
+--] [-----]/[--+
| 0060
|
| (*************************************************************************)
| (* STOP RANGE MAIN SHAFT                                                 *)
| (*************************************************************************)
|
|High                                                                    << RUNG 63  STEP #0219 >>
|speed
|in
|machine
|
|%M1285  +-----+                                          %M1250
+--] [---+RANGE|+-------------------------------------------------------( )--  (* H/S stop main shaft              *)
|        | INT ||                                                              Cross reference for %M1250
|        |     ||                                                              -] [- 65
|%R3197 -+L1  Q++
|        |     |
| CONST -+L2   |
| +00255 |     |
|        |     |
|Angle   |     |
|encoder |     |
|value   |     |
|Main m. |     |
|        |     |
|%R0404 -+IN   |
|        +-----+
|

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```

```
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|High                                                                    << RUNG 64  STEP #0222 >>
|speed
|in
|machine
|
|%M1285  +-----+                                              %M1251
+--]/[---+RANGE|+-----------------------------------------------------( )--  (* L/S stop main shaft              *)
|        | INT ||                                                          Cross reference for %M1251
|        |     ||                                                          -] [- 65
| CONST -+L1  Q++
| +00253 |     |
|        |     |
| CONST -+L2   |
| +00255 |     |
|        |     |
|Angle   |     |
|encoder |     |
|value   |     |
|Main m. |     |
|        |     |
|%R0404 -+IN   |
|        +-----+
|
|H/S                                                                     << RUNG 65  STEP #0225 >>
|stop
|main
|shaft
|
|%M1250                                                       %M0786
+--] [--+-------------------------------------------------------------( )--  (* Stop main shaft                  *)
| 0063  |                                                                 Cross reference for %M0786
|L/S    |                                                                 -]/[- 69
|stop   |
|main   |
|shaft  |
|       |
|%M1251 |
+--] [--+
| 0064
|
| (*************************************************************************)
| (* MAIN SHAFT CONTROL                                                    *)
| (*************************************************************************)
|
|        Stop    Alarm n Crash   Alarm   Very                             << RUNG 67  STEP #0229 >>
|Memory  outfeed o blank in      queue   low
|pusher  from    in pack dischar down    level
|stroke  TCBP    pos.    area    stream  blanks
|
|%M0244  %M0621  %M0058  %M0075  %M0048  %M0080                  %M0278
+--] [--+--]/[-----]/[-----]/[-----]/[-----]/[-----------------------------( )--  (* Allow main shaft start           *)
|       |                                                                 Cross reference for %M0278
|Transf.|                                                                 -] [- 68
|plate  |
|upper  |
|pos.   |
| B120  |
|%I0033 |
+--] [--+
|
|Synch.  Transf. Allow   Crush                                           << RUNG 68  STEP #0237 >>
|stop    plate   main    in
|main    upper   shaft   dischar
|shaft   pos.    start   area    Step 3
|         B120            B112   STEP_3
|%M0785  %I0033  %M0278  %I0044  %M0103                          %M3236
+--] [-----] [-----] [--+--]/[--+--] [-------------------------------------( )--  (* Trigger main shaft start *)
| 0061           0067  |       |                                          Cross reference for %M3236
|                      |       |                                          -] [- 69
|                      |ALW_OFF|
|                      |%S0008 |
|                      +--]/[--+
|
```

```
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|Trigger                                        ME.                                << RUNG 69  STEP #0245 >>
|main                                           Stop    Pusher
|shaft                                          Main    reset,
|start                                 Step 2   Shaft   Active
|                                      STEP_2                          G22-SF
|%M3236                                %M0102  %M0617  %M3166          %Q0004
+--] [---------------------------------+--] [-----]/[-----]/[-------------( )--  (* Main shaft start                 *)
| 0068                                 |                                        Cross reference for G22-SF
|Search  Synch.          Transf.       |                                        -] [- 69,70,72,75,76,78
|synch   stop    Stop    plate   Press. |
|positio main    main    upper   guard  |
|n       shaft   shaft   pos.    air    |
|                         B120    B100  |
|%M0280  %M0785  %M0786  %I0033  %I0004 |
+--] [-----]/[-----]/[--+--] [-----] [--+
|         0061    0065  |              |
|                       |Reached       |
|                       |synch.  Memory |
|                       |stop    pusher |
|                       |pos.    stroke |
|                       |              |
|                       |%M0273  %M0244 |
|                       +--] [-----]/[--+
|                                      |
|Main    Stop                          |
|shaft   main                          |
|start   shaft                         |
|G22-SF                                |
|%Q0004  %M0786                        |
+--] [-----]/[-------------------------+
| 0069    0065
|
|High            Slow                                                          << RUNG 70  STEP #0263 >>
|speed   Main    speed
|in      shaft   main
|machine start   shaft
|        G22-SF                                                        G22-S1
|%M1285  %Q0004  %M0784                                                %Q0003
+--]/[-----] [--+--]/[--+-----------------------------------------------( )--  (* Main shaft medium speed          *)
|         0069  | 0057  |                                                      Cross reference for G22-S1
|               |Synch. |                                                      -] [- 73,74
|               |stop   |
|               |main   |
|               |shaft  |
|               |       |
|               |%M0785 |
|               +--] [--+
|                 0061
|
|Range1,                                                                       << RUNG 71  STEP #0269 >>
|slow sp
|eed mai
|n shaft
|G22S2_1                                                               G22-S2
|%M1151                                                                %Q0002
+--] [--+-------+-------------------------------------------------------( )--  (* Main shaft low speed             *)
| 0073  |       |                                                              Cross reference for G22-S2
|Range2,|       |                                                                       NONE
|slow sp|       |
|eed mai|       |
|n shaft|       |
|G22S2_2|       |
|%M1152 |       |
+--] [--+       |
| 0074          |
|        High   |
|Start   speed  |
|main em in     |
|/door   machine|
|               |
|%M1232  %M1285 |
+--] [-----] [--+
| 0035
|
|High                    H/S sep H/S pul                                       << RUNG 72  STEP #0275 >>
|speed   Main    Start   arate b l down
|in      shaft   main em lanks i blanks
|machine start   /door   n slow  slow
|        G22-SF                                                        G22-S3
|%M1285  %Q0004  %M1232  %M3212  %M3216                                %Q0009
+--] [-----] [-----]/[-----]/[-----]/[-------------------------------------( )--  (* Main shaft high speed            *)
|         0069    0035    0075    0076                                         Cross reference for G22-S3
|                                                                                       NONE
|
```

```
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|Main                                                                    << RUNG 73  STEP #0281 >>
|shaft
|medium
|speed
|G22-S1                                                      G22S2_1
|%Q0003  +-----+                                             %M1151
+--] [---+RANGE|+-----------------------------------------------------( )--  (* Range1, slow speed main shaft    *)
| 0070   | INT ||                                                           Cross reference for G22S2_1
|        |     ||                                                           -] [- 71
| CONST -+L1  Q++
| +00116 |     |
|        |     |
| CONST -+L2   |
| +00135 |     |
|        |     |
|Angle   |     |
|encoder |     |
|value   |     |
|Main m. |     |
|        |     |
|%R0404 -+IN   |
|        +-----+
|
|Main                                                                    << RUNG 74  STEP #0284 >>
|shaft
|medium
|speed
|G22-S1                                                      G22S2_2
|%Q0003  +-----+                                             %M1152
+--] [---+RANGE|+-----------------------------------------------------( )--  (* Range2, slow speed main shaft    *)
| 0070   | INT ||                                                           Cross reference for G22S2_2
|        |     ||                                                           -] [- 71
| CONST -+L1  Q++
| +00176 |     |
|        |     |
| CONST -+L2   |
| +00193 |     |
|        |     |
|Angle   |     |
|encoder |     |
|value   |     |
|Main m. |     |
|        |     |
|%R0404 -+IN   |
|        +-----+
|
|Main                                                                    << RUNG 75  STEP #0287 >>
|shaft
|start
|G22-SF
|%Q0004  +-----+                                             %M3212
+--] [---+RANGE|+-----------------------------------------------------( )--  (* H/S separate blanks in slow sp. *)
| 0069   | INT ||                                                           Cross reference for %M3212
|        |     ||                                                           -]/[- 72
| CONST -+L1  Q++
| +00116 |     |
|        |     |
| CONST -+L2   |
| +00116 |     |
|        |     |
|Angle   |     |
|encoder |     |
|value   |     |
|Main m. |     |
|        |     |
|%R0404 -+IN   |
|        +-----+
|
|Main                                                                    << RUNG 76  STEP #0290 >>
|shaft
|start
|G22-SF
|%Q0004  +-----+                                             %M3216
+--] [---+RANGE|+-----------------------------------------------------( )--  (* H/S pull down blanks slow *)
| 0069   | INT ||                                                           Cross reference for %M3216
|        |     ||                                                           -]/[- 72
| CONST -+L1  Q++
| +00145 |     |
|        |     |
| CONST -+L2   |
| +00180 |     |
|        |     |
|Angle   |     |
|encoder |     |
|value   |     |
|Main m. |     |
|        |     |
|%R0404 -+IN   |
|        +-----+
|
| (*************************************************************************)
| (* FEEDING MOTOR CONTROL                                                 *)
| (*************************************************************************)
|

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```

```
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|       Reached                                                                    << RUNG 78  STEP #0294 >>
|Main    synch.  Start                          Pusher
|shaft   stop    feeding                         reset,
|start   pos.    motor                   Step 2  Active
|G22-SF                                  STEP_2                          G23-SF
|%Q0004  %M0273  %M0787                  %M0102  %M3166                  %Q0006
+--] [-----] [-----] [--+---------------+--] [--+--]/[---------------------( )--  (* Feeding motor start              *)
| 0069            0049  |               |       |                                Cross reference for G23-SF
|                       |               |       |                                -] [- 78,80,81,82
|Feeding Stop           |               |       |
|motor   feeding        |               |       |
|start   motor          |               |       |
|G23-SF                 |               |       |
|%Q0006  %M0778         |               |       |
+--] [-----]/[----------+               |       |
| 0078    0045          |               |       |
|Cond.   Been in        |               |       |
|s.speed step 3,        |               |       |
|feeding not low        |               |       |
|motor   .than 2        |               |       |
|                       |               |       |
|%M0270  %M0107         |               |       |
+--] [-----]/[----------+               |       |
|                                        |       |
|Search  Synch           Transf.         |       |
|synch   stop    Stop    plate   Press. |       |
|positio feeding feeding upper   guard   |       |
|n       motor   motor   pos.    air    |       |
|                         B120    B100   |       |
|%M0280  %M0777  %M0778  %I0033  %I0004 |       |
+--] [-----]/[-----]/[-----] [-----] [--+       |
|         0041    0045                           |
|        Synch                                   |
|Feeding stop            Inching                 |
|motor   feeding         conv.                   |
|start   motor   Step 2  on                      |
|G23-SF          STEP_2                          |
|%Q0006  %M0777  %M0102  %M0591                  |
+--] [-----]/[-----]/[-----] [------------------+
| 0078    0041                                   |
|                                                |
|Start                                           |
|inching                                         |
|conv.                                           |
|                                                |
|%M0590                                          |
+--] [----------------------------------------+
|                                                |
|Search                  Transf.                 |
|synch   Start   Stop    plate   Press.         |
|positio feeding feeding upper   guard          |
|n       em/door motor   pos.    air            |
|                         B120    B100   ALW_OFF|
|%M0280  %M1225  %M0778  %I0033  %I0004  %S0008 |
+--] [-----] [-----]/[-----] [-----] [-----] [--+
|         0030    0045
|
|        Start                                                                     << RUNG 79  STEP #0325 >>
|Pulse,  feeding
|Step2+  motor
|
|%T0016  %M0787                                                   %M0279
+--] [--+--] [-------------------------------------------------------------( )--  (* Slow speed home search           *)
|       | 0049                                                                     Cross reference for %M0279
|Slow   |                                                                          -] [- 79
|speed  |                                                                          -]/[- 80
|home   |
|search |
|       |
|%M0279 |
+--] [--+
| 0079
|
|High            Slow    Slow                                                      << RUNG 80  STEP #0329 >>
|speed   Feeding speed   speed
|in      motor   feeding home
|machine start   motor   search
|        G23-SF                                                   G23-S1
|%M1285  %Q0006  %M0779  %M0279                                   %Q0005
+--]/[-----] [--+--]/[--+--]/[-----------------------------------------------( )--  (* Feeding motor low speed          *)
|         0078  | 0053  | 0079                                                     Cross reference for G23-S1
|               |Synch  |                                                                   NONE
|               |stop   |
|               |feeding|
|               |motor  |
|               |       |
|               |%M0777 |
|               +--] [--+
|                 0041
|
```

```
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|        High    Feeding                                                    << RUNG 81  STEP #0336 >>
|Feeding speed   motor
|motor   in      high
|start   machine speed
|G23-SF          G23-S3                                          G23-S2
|%Q0006  %M1285  %Q0011                                          %Q0010
+--] [-----] [-----]/[-------------------------------------------------( )--  (* Feeding motor medium speed       *)
| 0078            0082                                                      Cross reference for G23-S2
|                                                                                     NONE
|
|        High    Slow                                                       << RUNG 82  STEP #0340 >>
|Feeding speed   speed   Start
|motor   in      feeding feeding
|start   machine motor   em/door
|G23-SF                                                          G23-S3
|%Q0006  %M1285  %M0779  %M1225                                  %Q0011
+--] [-----] [-----]/[-----]/[-----------------------------------------( )--  (* Feeding motor high speed         *)
| 0078            0053    0030                                              Cross reference for G23-S3
|                                                                           -]/[- 81
|
|[    END OF SUBROUTINE LOGIC     ]
|
```

```
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```

```
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================================================================================
==========  GLOBAL  (%G)  GLOBAL CROSS REFERENCES
================================================================================
REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  -------- -------------------------------------
%G0001   PLMS               No PLMS Alarm
                            -] [- 49,52,54,56,58,61,63,65,67,69,71,73,75,77,79,83,85,87,89,91,93,95,97,99,101,103,105,106,111,113,
                                  115,116,120,122,124,126
                            -(M)  47
%G0002   PLMS               Manual step down
                            -] [- 118,120
                            -(SM) 119
                            -(RM) 118
%G0003   PLMS               DE ext. enable signal
                            -] [- 20,22,23,25,26,28,29,31,32,34,35,47,49,52,54,56,58,61,63,65,67,69,71,73,75,77,79,83,85,87,89,91,93,
                                  95,97,99,101,103,105,106,111,113,115,116,120,122,124,126,128,154,156,157,164,165,166,167,168,169,
                                  170,171,172,173,174,175,176,177,178,179,180,181,182,183,184,185,186,187,188,189,190,191,192,193,
                                  194,195,196,197
                            -]/[- 12,128,158,198
                            -(M)  9
%G0004   PLMS               DE prod time
                            -] [- 12,49,51,52,54,56,58,61,63,65,67,69,71,73,75,77,79,83,85,87,89,91,93,95,97,99,101,103,105,111,113,
                                  115,119,122,124,126
                            -]/[- 11,106,116
                            -(SM) 20
                            -(RM) 128
%G0005   PLMS               Ready for prod.
                            -] [- 12
                            -(M)  11
%G0006   PLMS               Not step down alarm
                            -] [- 128
                            -]/[- 20
                            -(M)  18
%G0011   _MAIN              De prod. time stop
                            -] [- 112
                            -]/[- 102
         PLMS               -] [- 128
                            -]/[- 20
                            -(M)  16
%G0012   PLMS               Memory door alarm
                            -] [- 51,52,54
                            -(M)  51
%G0013   PLMS               Memory safety clutch
                            -] [- 60,61
                            -(M)  60
%G0022   PLMS               No event in %R922
                            -] [- 83,85,87,89,91,93,95,97,99,101,103,105,106,111,113,115,116,119,120,122,124,126
                            -(M)  81
%G0023   PLMS               No event in %R923
                            -] [- 105,111,113,115,116,119,120,122,124,126
                            -(M)  109
%G0024   PLMS               -] [- 122,124,126
%G0033   PLMS               Brake enable signal
                            -]/[- 9
                            -(M)  8
%G0044   PLMS               Memory queue outfeed
                            -] [- 115,116
                            -]/[- 20
                            -(M)  115
%G0045   PLMS               Memory crash discharge
                            -] [- 105,106
                            -]/[- 20
                            -(M)  105
%G0051   PLMS               Pulse DE enable on
                            -] [- 160,161,200,201
                            -(^)  159
%G0100   PLMS     B133+     Pulse, Group pusher short stroke
                            -] [- 156
                            -(^)  155
%G0101   PLMS     B134+     Pulse, Group pusher long stroke
                            -] [- 154,156
                            -(^)  153
%G0112   PLMS               Pulse, pusher endstop motion
                            -] [- 20
                            -]/[- 8,15
                            -(^)  4
%G0113   PLMS               Pulse, infeed brake open
                            -] [- 20
                            -]/[- 8,15
                            -(^)  5
%G0114   PLMS               Pulse, Group/pusher forward
                            -] [- 20
                            -]/[- 8,15
                            -(^)  6
%G0115   PLMS               Pulse, grouping mat start
                            -] [- 20
                            -]/[- 8,15
                            -(^)  7
%G0193   _MAIN              Speed BIT 1
                            -] [- 108
                            FBIO  106,107
%G0194   _MAIN              Speed Bit 2
                            -] [- 109
%G0195   _MAIN              Speed BIT 3

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REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  -------- ------------------------------------
                           -] [- 110

==============================================================================
==========  INPUT  (%I)  GLOBAL CROSS REFERENCES
==============================================================================
REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  -------- ------------------------------------
%I0001   _MAIN    L12        Emerg. stop
                            -] [- 30,104,153,157,475,478,481,652
                            -]/[- 476,477,479,480,487
         PLMS               -] [- 51
         1T0001             -]/[- 27,30,35
%I0002   _MAIN              Emerg.stop circuit
                            -] [- 30,399,400,442,476,478,482,649,651,652
                            -]/[- 475,477,479,665,686
%I0003   _MAIN              Overl. protec.
                            -] [- 30,104
                            -]/[- 493,495
%I0004   _MAIN    B100       Press. guard air
                            -] [- 51,336,337,381,462,469,497,520,521,525,575,577,579,581,583,585,587,597
                            -]/[- 27,498
         1T0001             -] [- 69,78
%I0005   _MAIN    S01H       Step up
                            -] [- 24,37
                            -]/[- 647
         EMPTY              -] [- 7
%I0006   _MAIN    S02H       Step down
                            -] [- 26,27,56
                            -]/[- 25
%I0007   _MAIN    S03H       Reset/ Lamp test
                            -] [- 56,647,648
                            -]/[- 540
         EMPTY              -] [- 7
%I0008   _MAIN    S04H       Manual empty.
                            -] [- 439
         EMPTY              -] [- 8
%I0009   SELECTI  S07H       Select package pattern length
                            -] [- 8,35
%I0010   SELECTI  S08H       Select infeed package
                            -] [- 8,14
%I0011   SELECTI  S09H       Select cardbo. type
                            -] [- 8,90
%I0012   SELECTI  S10H       Select package pattern width
                            -] [- 8,68
%I0013   _MAIN              Freq. contr. no alarm
                            -]/[- 511,514
         PLMS               -]/[- 67
%I0014   _MAIN              Door circuit
                            -] [- 483,485,650,651
                            -]/[- 261,480,482,665,686
         PLMS               -]/[- 51
%I0015   _MAIN    L13        Door
                            -] [- 480,485,570,651,653
                            -]/[- 482,483,487,568,571
         1T0001             -]/[- 27,30,35
%I0016   _MAIN    S05H       Clutch feeding on/off
                            -] [- 699
%I0017   _MAIN              Gray code l.sign.bit Ms
                            -] [- 619
         1T0001             -] [- 23
                            -]/[- 23
                            FBIO  3
%I0018   _MAIN              Gray code Main shaft
                            -] [- 620
         1T0001             -] [- 22
                            -]/[- 22
%I0019   _MAIN              Gray code Main shaft
                            -] [- 621
         1T0001             -] [- 21
                            -]/[- 21
%I0020   _MAIN              Gray code Main shaft
                            -] [- 622
         1T0001             -] [- 20
                            -]/[- 20
%I0021   _MAIN              Gray code Main shaft
                            -] [- 623
         1T0001             -] [- 19
                            -]/[- 19
%I0022   _MAIN              Gray code Main shaft
                            -] [- 624
         1T0001             -] [- 18
                            -]/[- 18
%I0023   _MAIN              Gray code Main shaft
                            -] [- 625
         1T0001             -] [- 17
                            -]/[- 17
%I0024   _MAIN              Gray code Main shaft
                            -] [- 626
         1T0001             -] [- 16
%I0025   1T0001             Gray code l.sign.bit Fm
                            -] [- 13
                            -]/[- 13

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REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  -------- -------------------------------------
%I0026   1T0001            Gray code Feeding motor
                           -] [- 12
                           -]/[- 12
%I0027   1T0001            Gray code Feeding motor
                           -] [- 11
                           -]/[- 11
%I0028   1T0001            Gray code Feeding motor
                           -] [- 10
                           -]/[- 10
%I0029   1T0001            Gray code Feeding motor
                           -] [- 9
                           -]/[- 9
%I0030   1T0001            Gray code Feeding motor
                           -] [- 8
                           -]/[- 8
%I0031   1T0001            Gray code Feeding motor
                           -] [- 7
                           -]/[- 7
%I0032   1T0001            Gray code Feeding motor
                           -] [- 6
                           FBIO  3
%I0033   _MAIN    B120     Transf. plate upper pos.
                           -] [- 372,373
                           -]/[- 337,351,545,693
         1T0001            -] [- 67,68,69,78
%I0034   _MAIN    B121     Pusher home pos.
                           -] [- 38,266,287,295,325,327,355,363,597,670,697
                           -]/[- 261,262,264,294,311,319,320,322,323,334,349,354,358,577,579,581,665,669,686
         EMPTY             -] [- 15,20
%I0035   _MAIN    B122     Pusher middle pos.
                           -] [- 259,311,331
                           -]/[- 318
%I0036   _MAIN    B123     Pusher front pos.
                           -] [- 322,323,331,333,349,353,357
                           -]/[- 261,358,575,669
         PLMS              -] [- 163
         EMPTY             -]/[- 32
%I0037   _MAIN    B124     End stop inner pos.
                           -] [- 304,314,315,325,326,694
%I0038   _MAIN    B125     Packag. at pusher
                           -] [- 302
                           -]/[- 325,326,595
%I0039   _MAIN    B126     Packag. on group. belt
                           -] [- 303
                           -]/[- 295,296,309
         EMPTY             -]/[- 33
%I0040   _MAIN    B147     Pusher arm upper pos
                           -] [- 343,345,346,695
                           -]/[- 320,321,585
%I0041   _MAIN    F000     Over voltage protekt
                           -]/[- 489
%I0042   _MAIN    B113     Blank in pack. pos.
                           -] [- 390,427,548,661
                           -]/[- 348,391,440
         EMPTY             -] [- 23
                           -]/[- 17,19
%I0043   _MAIN             Hotmelt ready
                           -] [- 46,48,51,98,99,412
                           -]/[- 562,564
%I0044   _MAIN    B112     Crush in dischar area
                           -] [- 450,454,558
                           -]/[- 559,655
         1T0001            -]/[- 68
%I0045   _MAIN    B908     Passage indic. (extra equip.)
                           -] [- 448,449,557
%I0046   _MAIN             Dolly pulse, Short/Long stroke
                           -] [- 244
%I0047   _MAIN    B118     Stop blank magaz. motor
                           -]/[- 384,385,533,537
%I0048   _MAIN    B119     Low level blank magaz.
                           -] [- 541
                           -]/[- 535,537
%I0049   _MAIN    B903     Min queue into gr.sec.
                           -] [- 123,516
                           -]/[- 124
         EMPTY             -]/[- 9
%I0050   _MAIN    B904     Fallen package
                           -] [- 515
                           -]/[- 516
%I0051   _MAIN    B132     Group. pusher home pos.
                           -] [- 38,39,146,150,151,153,156,183,184,185,187,227
                           -]/[- 157,164,172,175,187,231,243,525
         EMPTY             -] [- 9,14,28
%I0052   _MAIN    B133     Group. pusher short, single
                           -] [- 164,226,528
                           -]/[- 165,525
         PLMS              -] [- 155
%I0053   _MAIN    B134     Group. pusher long, single
                           -] [- 173,226,251,528
                           -]/[- 187,237,272,525
         PLMS              -] [- 153
         EMPTY             -] [- 29

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REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  --------  ------------------------------------
%I0054   _MAIN    B137      Grouping photo cell
                            -] [- 255
                            -]/[- 256
         EMPTY              -]/[- 15,33
%I0055   _MAIN    B161      Clutch feeding off pos
                            -] [- 700
                            -]/[- 701
%I0056   _MAIN    B115      Safety clutch Feeding motor
                            -]/[- 608
         PLMS               -]/[- 60,61
%I0057   _MAIN    B140      Group. endstop inner pos.
                            -] [- 112,160,163,244,526
                            -]/[- 239,240,241,242
         EMPTY              -] [- 12
%I0058   _MAIN    B141      Stop arm upper pos.
                            -] [- 186,295
                            -]/[- 169,170,177,298,300
         EMPTY              -]/[- 12
%I0059   _MAIN    B142      Dolly 1:st stroke pos.
                            -] [- 237
                            -]/[- 258,521,522
%I0060   _MAIN    B143      Guide rail lower pos.
                            -] [- 169,170,250
                            -]/[- 169,272,520,522
%I0061   _MAIN    B144      Crush guard,group. section
                            -] [- 132,134,148,526
                            -]/[- 160,515
         EMPTY              -] [- 10,28
                            -]/[- 11,29,31
%I0062   _MAIN    B905      Pack. on infeed conv.
                            -] [- 118
                            -]/[- 113
%I0063   _MAIN    X090-1    Signal from down stream.
                            -]/[- 552
%I0064   _MAIN    X090-5    Signal from up stream.
                            -] [- 117
                            -]/[- 113
%I0065   _MAIN    B150      WA flap folder upper pos.
                            -] [- 434
%I0067   _MAIN    B146      Pusher arm down pos
                            -] [- 338,339,434
                            -]/[- 355,581,583
%I0068   _MAIN    B148      Pusher support arm upper pos.
                            -] [- 345,696
                            -]/[- 319,587
%I0069   _MAIN    B149      Pusher support arm down
                            -] [- 317,338
                            -]/[- 597
%I0070   _MAIN              Hotmelt tank levle
                            -] [- 604
                            -]/[- 606
%I0071   _MAIN    B901      Extern. conv. brake
                            -] [- 457
%I0072   _MAIN    B902      Extern. conv. brake
                            -] [- 456
%I0073   SWITCH   S002      Bottom size selector
                            FBIO  4,5
%I0077   _MAIN    S003      Encoder test selector
                            -] [- 58,59,60,367
                            -]/[- 61,62,63
%I0078   _MAIN    S015H     Manuel lubrication
                            -] [- 462
%I0079   SELECTI  S11H      Select group infeed
                            -] [- 8,112
                            -]/[- 113,114,115,116,117
%I0080   _MAIN    S12H      Select speed in machine
                            -] [- 706
                            -]/[- 709
         SELECTI            -] [- 8
%I0081   _MAIN    B138-1    High level lubric
                            -]/[- 471
%I0082   _MAIN    B138-2    Normal level lubric
                            -] [- 461,629,631
                            -]/[- 468,471,502,633,634,638
%I0083   _MAIN    B139      Lubric.press. guard
                            -] [- 470
                            -]/[- 469
%I0084   _MAIN    B145      Magazine feed done
                            -] [- 386
%I0085   _MAIN    B160      Package separat out
                            -] [- 176,178
%I0086   _MAIN    L11       Controle volage
                            -] [- 684
%I0087   _MAIN              Light barriere
                            -] [- 483,570
                            -]/[- 568,665,686
%I0088   _MAIN    S016      Group pusher home select
                            -] [- 716
         SELECTI            -] [- 8
%I0089   _MAIN    B907      Queue downstream
                            -] [- 553
%I0090   _MAIN              Axis ident

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REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  -------- -------------------------------------
                           -] [- 566,721
                           -]/[- 177,178,179,237,340,343,373,575,577,579,581,583,722
%I0095   _MAIN              Servo ready
                           -] [- 681,723
                           -]/[- 565,567,680

==============================================================================
==========  OUTPUT  (%Q)  GLOBAL CROSS REFERENCES
==============================================================================
REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  -------- -------------------------------------
%Q0001   _MAIN    K001       Mainshaft/feeding motor
                            -] [- 487
                            -( )  651
         1T0001             FBIO  4
%Q0002   1T0001   G22-S2     Main shaft low speed
                            -( )  71
%Q0003   1T0001   G22-S1     Main shaft medium speed
                            -] [- 73,74
                            -( )  70
%Q0004   _MAIN    G22-SF     Main shaft start
                            -] [- 362,380,428,507
                            -]/[- 38,612,613
         1T0001             -] [- 69,70,72,75,76,78
                            -( )  69
%Q0005   1T0001   G23-S1     Feeding motor low speed
                            -( )  80
%Q0006   _MAIN    G23-SF     Feeding motor start
                            -] [- 70,71,72,73,74,75,78,79,80,81,82,83,86,87,88,89,92,93,94,95,98,99,119,120,333,363,382,405,427,431,
                                  509,536,655
                            -]/[- 38,347,381,440,661
         1T0001             -] [- 78,80,81,82
                            -( )  78
%Q0007   _MAIN    K005       Pusher belt
                            -( )  653
%Q0008   _MAIN    K006       Pusher belt
                            -] [- 269,285,295
                            -( )  313
         EMPTY              -]/[- 34
%Q0009   1T0001   G22-S3     Main shaft high speed
                            -( )  72
%Q0010   1T0001   G23-S2     Feeding motor medium speed
                            -( )  81
%Q0011   1T0001   G23-S3     Feeding motor high speed
                            -]/[- 81
                            -( )  82
%Q0012   _MAIN    Y104       End stop to on pos.
                            -]/[- 312,318,694
                            -( )  310
         PLMS               -] [- 4
                            -]/[- 4
%Q0013   _MAIN               Light barrier
                            -( )  382
%Q0014   _MAIN    Y164       Folding squeezer off
                            -( )  369
%Q0015   _MAIN    Y112       Package seper. out
                            -] [- 160
                            -]/[- 526
                            -( )  161
%Q0016   _MAIN    Y110       Stop arm down
                            -] [- 169,170,177
                            -]/[- 272
                            -(/)  272
         EMPTY              -] [- 12
         1T0001             FBIO  4
%Q0017   _MAIN    Y109-1     Dolly to 1:st stroke pos.
                            -] [- 253,521
                            -( )  250
%Q0018   _MAIN    Y108       Tray support
                            -] [- 367
                            -( )  367
%Q0019   _MAIN    Y105-1     Transf. plate up
                            -] [- 545
                            -]/[- 337,364
                            -( )  363
%Q0020   _MAIN    Y109-2     Dolly to off position
                            -] [- 253
                            -]/[- 250
                            -( )  254
%Q0021   _MAIN    Y106       Infeed brake open
                            -] [- 126,133,148,151,515
                            -]/[- 133,160,163,164,178
                            -( )  152
         PLMS               -] [- 5
         EMPTY              -] [- 11,31
%Q0022   _MAIN    Y111       Pusher support arm up
                            -] [- 587,696
                            -]/[- 317
                            -(/)  332
%Q0023   _MAIN    Y113       Pusher support arm mover
                            -] [- 318
                            -( )  318

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REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  -------- -----------------------------------
%Q0024   _MAIN    Y114     Lubrication
                           -] [- 462,467
                           -( )  462
%Q0025   _MAIN    K002     Infeed conv/grouping mat
                           -] [- 487
                           -( )  652
%Q0026   _MAIN    K081     Extra conv infeed/dischar
                           -( )  121
%Q0027   _MAIN    Y169     Pusher arm up
                           -] [- 585,695
                           -]/[- 583
                           -( )  324
%Q0028   _MAIN    Y120     Hotmelt gun lower, left
                           -( )  98
%Q0029   _MAIN    Y121     Hotmelt gun lower, right
                           -( )  98
%Q0030   _MAIN    Y908     Outfeed conv. stop
                           -]/[- 447
                           -( )  446
%Q0031   _MAIN    P001     Hour meter
                           -( )  102
%Q0032   _MAIN    G21-SF   Infeed conv. start
                           -] [- 108,109,110,111,141,719
                           -]/[- 142
                           -( )  111
         EMPTY             -] [- 9
                           -]/[- 9
%Q0033   _MAIN    G21-S1   Bit 1 infeed conveyor
                           -( )  108
%Q0034   _MAIN    G21-S2   Bit 2 infeed conveyor
                           -( )  109
%Q0035   _MAIN    G21-S3   Bit 3 infeed conveyor
                           -( )  110
%Q0036   _MAIN    K010     Hotmelt unit
                           -( )  69
%Q0037   _MAIN    Y130A    Ejector blanks, blow
                           -( )  400
%Q0038   _MAIN    Y130B    Ejector blanks, vacuum
                           -( )  396
%Q0040   _MAIN    Y901     External brake
                           -( )  459
%Q0041   _MAIN    H101_1   Warning lamp, blue
                           -( )  643
%Q0042   _MAIN    H101_2   Warning lamp, yellow
                           -] [- 643
                           -( )  644
%Q0043   _MAIN    H101_3   Warning lamp, red
                           -] [- 644
                           -( )  645
%Q0044   MULTIPX  SYNCH    Synch pulse train
                           -( )  16
%Q0045   MULTIPX  DATA_1   Data 1, pulse train
                           -( )  17
%Q0046   MULTIPX  DATA_2   Data 2, pulse train
                           -( )  18
%Q0047   MULTIPX  DATA_3   Data 3, pulse train
                           -( )  19
%Q0048   _MAIN    K099     Ready signal
                           -( )  453
%Q0049   _MAIN    Y122     Hotmelt gun upper, left
                           -( )  99
%Q0050   _MAIN    Y123     Hotmelt gun upper, right
                           -( )  99
%Q0051   _MAIN    Y107-1   Group. end stop out
                           -] [- 238
                           -( )  156
%Q0052   _MAIN    Y161-1   Grouping support down
                           -]/[- 231
                           -( )  230
%Q0053   _MAIN    Y140     WA squeez. down
                           -] [- 415,416,418,429,430,433
                           -( )  429
%Q0054   _MAIN    Y141     WA flap folder down
                           -] [- 420
                           -( )  420
%Q0055   _MAIN    Y124     WA hotmelt left
                           -] [- 412
                           -( )  412
%Q0056   _MAIN    Y125     WA hotmelt right
                           -( )  412
%Q0057   _MAIN    Y160     Bottom flap folder
                           -]/[- 692
                           -( )  377
%Q0058   _MAIN    Y162     Magazine feed
                           -] [- 388,389
                           -]/[- 385
                           -( )  388
%Q0059   _MAIN    Y163     Magaz. brake off
                           -( )  389
%Q0060   _MAIN    Y107-2   Grouping end stop in
                           -( )  158
%Q0061   _MAIN    Y165     Folding bar on

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REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  -------- -------------------------------------
                           -] [- 363
                           -]/[- 691
                           -( )  373
%Q0062   _MAIN    Y105-2   Transf.plate down
                           -] [- 693
                           -( )  364
%Q0063   _MAIN    Y170     Discharge support
                           -( )  656
%Q0064   _MAIN    Y103-1   Pusher forwards
                           -] [- 261,263,265,311,313,316,331,337,338,339,342,349,358,575,581,591,665
                           -]/[- 307,311,343,344,345,579,599,670
                           -( )  340
         PLMS              -] [- 6
         EMPTY             -]/[- 18,22
%Q0065   _MAIN    Y909     Lubrication autofill
                           -] [- 471
                           -( )  471
%Q0066   _MAIN    Y115     Water valve
                           -( )  473
%Q0067   _MAIN    G24-SF   Converter G24 start
                           -] [- 510
                           -( )  297
%Q0068   _MAIN    G24-S1   Group. Belt High speed.S1+S2=ON
                           -( )  297
%Q0069   _MAIN    G24-S2   Group. Belt 50Hz. S1=ON S2=OFF
                           -( )  297
%Q0070   _MAIN    Y161-2   Grouping support upp
                           -] [- 231
                           -( )  231
%Q0071   _MAIN    Y166-1   Folding plate on
                           -] [- 360
                           -]/[- 663
                           -( )  662
%Q0072   _MAIN    Y166-2   Folding plate off
                           -( )  663
%Q0073   _MAIN    WA-GUNS  WA hose/gun off
                           -( )  69
%Q0074   _MAIN    STBY     Standby by signal
                           -( )  69
%Q0075   _MAIN    K098     Package coming
                           -( )  454
%Q0076   _MAIN             Emergency stop circuit
                           -( )  649
%Q0077   _MAIN             Door circuit
                           -] [- 653
                           -( )  650
%Q0078   _MAIN    Y103-2   Pusher backwards
                           -] [- 331,341,343,354,355,577,686
                           -]/[- 579
                           -( )  343
%Q0079   _MAIN    Y142     Clutch feeding
                           -] [- 703
                           -( )  702
%Q0080   _MAIN    K091     Start coveyor lubric
                           -( )  719
%Q0081   REG      BIT1X    Binery code to servo
                           FBIO  45
%Q0085   _MAIN    BIT1Y    Binery code to servo
                           -] [- 196,198,200,202,204,206,208,211,213,215,217,219,221,223
                           -]/[- 195,197,199,201,203,205,207,210,212,214,216,218,220,222
         REG               FBIO  43
%Q0086   _MAIN    BIT2Y    Binery code to servo
                           -] [- 195,196,199,200,203,204,207,208,210,211,214,215,218,219,222,223
                           -]/[- 197,198,201,202,205,206,212,213,216,217,220,221
%Q0087   _MAIN    BIT3Y    Binery code to servo
                           -] [- 197,198,199,200,205,206,207,208,212,213,214,215,220,221,222,223
                           -]/[- 195,196,201,202,203,204,210,211,216,217,218,219
%Q0088   _MAIN    BIT4Y    Binery code to servo
                           -] [- 201,202,203,204,205,206,207,208,216,217,218,219,220,221,222,223
                           -]/[- 195,196,197,198,199,200,210,211,212,213,214,215
%Q0089   _MAIN             Servo, grouping slow speedbit 1
                           -] [- 189,191
                           -]/[- 190
                           -( )  184
%Q0090   _MAIN             Servo, grouping slow speedbit 2
                           -] [- 190,191
                           -]/[- 189
                           -( )  185
%Q0091   _MAIN             Group pusher set pos home
                           -] [- 717
                           -( )  716
%Q0092   _MAIN    H062     Group pusher set pos home ok
                           -(M)  717
%Q0097   _MAIN             STOP servo program (when 0)
                           -] [- 674,678,679,681
                           -]/[- 675,676,677
                           -( )  682
%Q0098   _MAIN             START/RESET servo program exec
                           -] [- 676,679
                           -]/[- 674,675,677,678,681
                           -( )  683
         REG               -] [- 47

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REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  -------- ------------------------------------
%Q0099   _MAIN             Enable servo
                           -] [- 675,682
                           -]/[- 674
                           -( )  684
%Q0100   _MAIN    H012     Alarm servo
                           -]/[- 565,639
                           -( )  567
%Q0101   _MAIN    H013     Electrical alarm
                           -]/[- 490,639
                           -( )  492
%Q0102   _MAIN    H061     Low speed in machine
                           -(M)  713
%Q0103   REG               Sending value to servo
                           -( )  48
%Q0104   _MAIN    H060     High speed in machine
                           -(M)  714
%Q0105   _MAIN    Y100     Pressu.
                           -] [- 496
                           -]/[- 497
                           -( )  101
%Q0106   _MAIN    Y101     Guide rail up
                           -] [- 187
                           -]/[- 520
                           -( )  186
%Q0107   _MAIN    Y102-1   Group pusher forw short
                           -] [- 146,165,176,177,180,189,190,191,195,196,197,198,199,200,201,202,203,204,205,206,207,208,225,525
                           -]/[- 178,179,187,227,238
                           -( )  177
         PLMS              -] [- 6
         EMPTY             -] [- 28
%Q0108   _MAIN    Y102-2   Group pusher forw long
                           -] [- 146,172,178,180,189,190,191,210,211,212,213,214,215,216,217,218,219,220,221,222,223,225,525
                           -]/[- 177,179,227
                           -( )  178
         PLMS              -] [- 6
%Q0109   _MAIN    Y102-3   Group pusher backw
                           -] [- 525
                           -]/[- 178,189,190,191
                           -( )  179
%Q0110   _MAIN    S24-S3   Grouping mat
                           -( )  297
%Q0111   _MAIN    Y173     Tillt tray
                           -( )  180

==============================================================================
==========  INTERNAL  (%M)  GLOBAL CROSS REFERENCES
==============================================================================
REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  -------- ------------------------------------
%M0003   _MAIN    FLASH    Flash
                           -] [- 22,23,45,50,53,54,479,486,492,495,501,505,514,519,524,532,544,551,561,564,567,571,603,607,611,618,
                                 643,644,645,646,712
                           -]/[- 22,551
                           -( )  22
         SELECTI           -] [- 19,20,21,49,80,104
%M0004   _MAIN             Ready to step up
                           -] [- 25,41,46,54
                           -( )  31
%M0006   _MAIN    L_TEST   Lamp test
                           -] [- 37,492,567,643,644,645,713,714,717
                           -( )  647
         MULTIPX           -] [- 11
%M0007   _MAIN             Delay step down
                           -]/[- 34
                           -( )  27
%M0010   _MAIN             Extern. brake queue length
                           -] [- 459
                           -]/[- 458
                           -( )  457
%M0011   _MAIN             Extern. brake space betw.q.
                           -]/[- 459
                           -( )  458
%M0012   _MAIN             Extern. brake queue to DE
                           -] [- 459
                           -( )  456
%M0013   _MAIN             Lubric.interv.
                           -] [- 462,469
                           -( )  466
%M0014   _MAIN             Lubric.time
                           -] [- 466
                           -]/[- 462
                           -( )  467
%M0015   _MAIN             Fault  lubric. press.  low
                           -] [- 465,469,502,503
                           -]/[- 463,464,504
                           -( )  469
         PLMS              -] [- 34
                           -]/[- 35
%M0016   _MAIN             Fault  lubric. press.  high
                           -] [- 470,502,503
                           -]/[- 504
                           -( )  470

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REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  -------- -------------------------------------
         PLMS              -] [- 34
                           -]/[- 35
%M0027   _MAIN             Numb of lubric at low level
                           -] [- 502
                           -]/[- 461
                           -( )  468
%M0029   _MAIN             Memory lubri cant
                           -] [- 461,462
                           -( )  461
%M0047   _MAIN             Alarm Dolly + guide rail
                           -] [- 524
                           -]/[- 41,524,635
                           -(S)  522
                           -(R)  523
%M0048   _MAIN             Alarm queue down stream
                           -] [- 555,561
                           -]/[- 556,632,640
                           -( )  554
         PLMS              -] [- 115
         1T0001            -]/[- 67
%M0049   _MAIN             Alarm em.stop
                           -] [- 479
                           -]/[- 30,104,479,641,645
                           -(S)  477
                           -(R)  478
         PLMS              -] [- 49
%M0050   _MAIN             Alarm doors
                           -] [- 486
                           -]/[- 30,486,633,641
                           -(S)  484
                           -(R)  485
%M0051   _MAIN             Alarm overload protecection
                           -] [- 495
                           -]/[- 30,495,633
                           -(S)  493
                           -(R)  494
         PLMS              -] [- 56
%M0052   _MAIN             Alarm air pressure
                           -] [- 501
                           -]/[- 41,46,501,633,641
                           -(S)  499
                           -(R)  500
         PLMS              -] [- 111
%M0053   _MAIN             Alarm lubrication
                           -] [- 505
                           -]/[- 505,629,633
                           -(SM) 503
                           -(RM) 504
%M0054   _MAIN             Alarm frequency control
                           -] [- 514
                           -]/[- 41,514,633
                           -(S)  511
                           -(R)  512
         PLMS              -] [- 60
%M0055   _MAIN             Alarm fallen package
                           -] [- 114,519
                           -]/[- 52,123,134,152,519,633
                           -(S)  517
                           -(R)  518
         PLMS              -] [- 18,71
%M0056   _MAIN             Alarm grouping section
                           -] [- 532
                           -]/[- 41,160,532,633
                           -(S)  530
                           -(R)  531
%M0057   _MAIN             Alarm blank magazine
                           -] [- 544
                           -]/[- 544,629,634
                           -(S)  540
                           -(R)  541
%M0058   _MAIN             Alarm no blank in pack pos.
                           -] [- 551
                           -]/[- 548,551,634
                           -(S)  549
                           -(R)  550
         PLMS              -] [- 18,73
         1T0001            -]/[- 67
%M0059   _MAIN             Alarm crash in discharge area
                           -] [- 561
                           -]/[- 561,635
                           -(S)  559
                           -(R)  560
%M0060   _MAIN             Alarm hotmelt unit
                           -] [- 564
                           -]/[- 564,634
                           -(S)  562
                           -(R)  563
         PLMS              -] [- 75
%M0061   _MAIN             Alarm servo
                           -] [- 567,687
                           -]/[- 30,567,635
                           -(S)  565

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REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  -------- -----------------------------------
                           -(R)  566
         PLMS              -] [- 101
%M0062   _MAIN             Alarm light barriere
                           -] [- 571
                           -]/[- 571,634
                           -(S)  569
                           -(R)  570
         PLMS              -] [- 103
%M0063   _MAIN             Alarm pusher section
                           -] [- 308,349,350,603
                           -]/[- 268,312,337,592,595,603,634
                           -(S)  601
                           -(R)  602
%M0064   _MAIN             Main shaft stand still
                           -] [- 614
                           -( )  612
%M0065   _MAIN             Alarm not synched reseted
                           -] [- 618
                           -]/[- 616,635
                           -(S)  614
                           -(R)  617
%M0066   _MAIN             Alarm not synched
                           -] [- 618
                           -]/[- 42,634
                           -(S)  615
                           -(R)  616
         PLMS              -] [- 91
%M0068   _MAIN             Alarm EL.equip
                           -] [- 490,492
                           -( )  489
         PLMS              -] [- 31
                           -]/[- 32
%M0069   _MAIN             Alarm lubr
                           -] [- 503,505
                           -]/[- 504,634
                           -( )  502
%M0070   _MAIN             Check air press.
                           -] [- 498,511
                           -( )  496
%M0071   _MAIN             Superv. air press.
                           -] [- 498,499,501
                           -( )  498
         PLMS              -] [- 111
%M0072   _MAIN             Check no air press.
                           -] [- 497,499,501
                           -]/[- 641,642
                           -( )  497
         PLMS              -] [- 58
                           -]/[- 111
%M0074   _MAIN             Crush in group. pusher
                           -] [- 525,530,532,665,687
                           -(M)  525
         PLMS              -] [- 63
%M0075   _MAIN             Crash in dischar area
                           -] [- 446,558,559,561,632
                           -]/[- 51,638
                           -( )  558
         PLMS              -] [- 105
         1T0001            -]/[- 67
%M0076   _MAIN             Fallen package
                           -] [- 517,519
                           -( )  516
%M0077   _MAIN             No blank in pack pos.
                           -] [- 548,549,551
                           -( )  548
%M0078   _MAIN             Low level blanks
                           -] [- 533,536,540,544,634
                           -]/[- 536
                           -( )  535
%M0079   _MAIN             Crush guard group. pusher
                           -] [- 527,532
                           -]/[- 134
                           -( )  526
%M0080   _MAIN             Very low level blanks
                           -] [- 112,384,540,543,544,629,631
                           -]/[- 42,634,638
                           -( )  539
         1T0001            -]/[- 67
%M0081   _MAIN             Sum alarm, crush in pusher
                           -] [- 601,603,687
                           -]/[- 30
                           -( )  589
         PLMS              -] [- 77
%M0082   _MAIN             Jam at infeed to pusher
                           -] [- 599,600
                           -]/[- 312
                           -(SM) 594
                           -(RM) 595
%M0083   _MAIN             Alarm, check safety clutch
                           -] [- 611
                           -]/[- 42,611,635
                           -(SM) 609

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REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  -------- -------------------------------------
                           -(RM) 610
         PLMS               -] [- 60,61
%M0084   _MAIN              Alarm safety relay A090 Emstop
                            -] [- 475,477,479
                            -]/[- 31,641,642
                            -( )  475
%M0085   _MAIN              Alarm safety relay A091 doors
                            -] [- 480,484,486
                            -]/[- 31,641,642
                            -( )  480
         PLMS               -] [- 52
%M0086   _MAIN              Alarm doors
                            -] [- 482,483,484,486
                            -( )  482
         PLMS               -] [- 54
%M0087   _MAIN              Check K002
                            -] [- 489
                            -(S)  487
                            -(R)  488
         PLMS               -] [- 69
%M0088   _MAIN              Very low level blanks
                            -] [- 533,538
                            -( )  536
%M0089   _MAIN              Very low level blanks
                            -] [- 533,537,538
                            -( )  537
%M0090   _MAIN              No blue alarms on
                            -] [- 643
                            -]/[- 643,644
                            -( )  630
%M0091   _MAIN              No blue leds on
                            -]/[- 643
                            -( )  632
%M0092   _MAIN              No yellow alarms on
                            -] [- 636,643
                            -( )  635
%M0093   _MAIN              No yellow leds on
                            -] [- 640,643
                            -( )  639
%M0094   _MAIN              No blue alarms on
                            -] [- 630,643,644,645
                            -]/[- 645,646
                            -( )  629
%M0095   _MAIN              No blue leds on
                            -] [- 632
                            -]/[- 643
                            -( )  631
%M0096   _MAIN              No yellow alarms on
                            -] [- 33,46,51,453,644,645
                            -]/[- 644,645,646
                            -( )  636
         PLMS               -] [- 11
         EMPTY              -] [- 8
%M0097   _MAIN              No yellow leds on
                            -] [- 46,453
                            -]/[- 644
                            -( )  640
         PLMS               -] [- 11
         EMPTY              -] [- 8
%M0098   _MAIN              No red alarms on
                            -] [- 33,34,42,46,643,644,645
                            -]/[- 645,646
                            -( )  641
         PLMS               -] [- 11
%M0099   _MAIN              No red leds on
                            -] [- 46,643,644
                            -]/[- 645
                            -( )  642
         PLMS               -] [- 11
%M0100   _MAIN    STEP_0    Step 0
                            -] [- 33,36,53,54,69,308,477,479,484,486,490,492,493,495,501,505,514,517,519,524,530,532,540,544,546,549,
                                  551,561,564,567,571,601,603,605,607,609,611,618,643,644,645,646,651,652,713,714
                            -]/[- 53,56
                            -(S)  28
                            -(R)  29
         SELECTI            -] [- 14,19,20,21,35,49,50,51,52,53,54,55,56,57,58,59,68,80,81,82,83,84,90,104,105,106,107,108,113,114,
                                  115,116,117
         PLMS               -] [- 9
         SWITCH             -] [- 4
         EMPTY              -] [- 35
%M0101   _MAIN    STEP_1    Step 1
                            -] [- 32,34,35,36,45,46,54,65,68,104,134,140,165,172,173,174,184,185,186,187,230,231,237,244,246,248,258,
                                  264,267,268,272,290,292,306,307,309,323,337,338,349,351,363,364,371,372,396,400,424,427,439,441,
                                  442,446,459,475,480,507,509,511,515,520,521,555,559,564,565,567,569,591,594,597,599,662,663,672,
                                  682,687,688
                            -]/[- 29,31,54,233,253,256,333,534,563,661,700
                            -( )  34
         PLMS               -] [- 38,40
                            -]/[- 37,41
         EMPTY              -] [- 8
         1T0001             -] [- 35
%M0102   _MAIN    STEP_2    Step 2

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REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  -------- -----------------------------------
                           -] [- 34,40,41,43,44,45,48,50,51,54,98,99,101,111,125,133,134,150,151,156,158,165,172,183,187,243,244,
                                 252,255,267,268,285,302,303,304,313,316,317,318,330,333,337,338,339,343,347,358,367,369,373,375,
                                 376,379,381,384,385,388,406,407,409,410,412,417,426,429,449,457,498,520,521,533,537,545,558,562,
                                 575,577,579,583,585,587,614,619,620,621,622,623,624,625,626,690,691,692,693,694,695,696,697,701
                           -]/[- 27,36,54,133,238,439,441,442,459,638,643,702,706,716,717
                           -( )  42
         PATTER0           -]/[- 7
         PATTER1           -]/[- 7
         PATTER2           -]/[- 7
         PATTER3           -]/[- 7
         PATTER4           -]/[- 7
         PATTER5           -]/[- 7
         PATTER6           -]/[- 7
         PATTER7           -]/[- 7
         PATTER8           -]/[- 7
         PATTER9           -]/[- 7
         SELECTI           -]/[- 4,5,6,9,14,18,35,48,67,68,79,88,90,103,112
         PLMS              -] [- 154,156,164,165,166,167,168,169,170,171,172,173,174,175,176,177,178,179,180,181,182,183,184,185,
                                 186,187,188,189,190,191,192,193,194,195,196
         SWITCH            -]/[- 4
         EMPTY             -] [- 18
         1T0001            -] [- 69,78
                           -]/[- 27,30,35,78
%M0103   _MAIN    STEP_3   Step 3
                           -] [- 41,48,49,50,102,111,117,125,145,151,176,178,189,190,191,296,312,313,326,339,348,379,445,453,454,
                                 466,471,473,510,515,526,527,581,597,599,615,628
                           -]/[- 25,32,45,48,54,113,148,309,345,381,397,723
                           -( )  48
         PLMS              -] [- 11,20,41,43
                           -]/[- 40,44,128
         EMPTY             -] [- 8,9,17,22,34
                           -]/[- 18
         1T0001            -] [- 68
                           -]/[- 27,30,35
%M0107   _MAIN             Been in step 3,not low.than 2
                           -] [- 143,153,157,176,179,250,296,299,300,313,337,379,552
                           -]/[- 144,533
                           -( )  379
         1T0001            -]/[- 78
%M0110   _MAIN             Bypass hotmelt only in step 1
                           -] [- 32,37
                           -( )  32
%M0111   _MAIN             Ready for step 1
                           -] [- 34,54
                           -( )  33
%M0112   _MAIN             Ready for step 2
                           -] [- 41,45,54,643
                           -( )  47
%M0113   _MAIN             Ready for step 3
                           -] [- 48,50,54
                           -( )  52
%M0120   MULTIPX           Cond. send synch. train
                           -] [- 16,17,18,19
                           -( )  15
%M0121   MULTIPX           Synch. multi plex train
                           -] [- 6,16
                           -]/[- 5
                           -( )  5
                           -(R)  4
%M0122   MULTIPX           End of multi plex train
                           -] [- 6,7
                           -( )  6
%M0129   _MAIN    H001     Step 1 lamp
                           -( )  36
         MULTIPX           FBIO  8
%M0130   _MAIN    H002     Step 2 lamp
                           -( )  45
%M0131   _MAIN    H003     Step 3 lamp
                           -( )  50
%M0132   _MAIN    H014     Tray
                           -]/[- 420,429
         SELECTI           -( )  104
%M0133   _MAIN    H015     WA meeting flap
                           -] [- 419
         SELECTI           -( )  105
         PLMS              -] [- 25
                           -]/[- 26
%M0134   _MAIN    H016     Tray OF
                           -] [- 419
         SELECTI           -( )  106
%M0135   _MAIN    H017     WA inside flap
                           -] [- 66,419,420
                           -]/[- 69,420
         SELECTI           -( )  107
         PLMS              -] [- 25
                           -]/[- 26
%M0136   _MAIN    H018     WA side flap
                           -] [- 66
                           -]/[- 69
         SELECTI           -( )  108
         PLMS              -] [- 25
                           -]/[- 26

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REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  -------- -------------------------------------
%M0137   _MAIN    H055     6 pack in a row
                           -] [- 127
         SELECTI           -] [- 113
                           -(M)  113
%M0138   _MAIN    H020     Single pack/ (X*1)
                           -] [- 228
                           -]/[- 229
         SELECTI           -( )  19
         REG               -] [- 5,6,7,8,9,10,11,12,13,14,15
%M0139   SELECTI  H021     (X*2)
                           -( )  20
         PLMS              -] [- 22
                           -]/[- 23
         REG               -] [- 16
%M0140   SELECTI  H022     (X*3)
                           -(M)  21
         PLMS              -] [- 22
                           -]/[- 23
         REG               -] [- 17
%M0141   _MAIN    H056     8 pack in a row
                           -] [- 128
         SELECTI           -] [- 114
                           -(M)  114
%M0142   _MAIN    H057     9 pack in a row
                           -] [- 129
         SELECTI           -] [- 115
                           -(M)  115
%M0143   _MAIN    H058     10 pack in a row
                           -] [- 130
         SELECTI           -] [- 116
                           -(M)  116
%M0144   _MAIN    H059     12 pack in a row
                           -] [- 131
         SELECTI           -] [- 117
                           -(M)  117
%M0145   _MAIN    H01S     Step up
                           -] [- 36
                           -( )  54
         MULTIPX           FBIO  9
%M0146   _MAIN    H02S     Step down
                           -( )  53
%M0147   _MAIN    H03S     Reset/ Lampt.
                           -( )  646
%M0148   EMPTY    H04S     Manual empty.
                           -( )  35
%M0149   _MAIN    H005     Clutch feeding on
                           -( )  703
%M0151   _MAIN    H006     Alarm em.stop
                           -] [- 477
                           -]/[- 477,642
                           -( )  479
%M0152   _MAIN    H007     Alarm doors
                           -] [- 484
                           -]/[- 484,637,642
                           -( )  486
%M0153   _MAIN    H008     Alarm overlo.protec.
                           -]/[- 493,637
                           -( )  495
%M0154   _MAIN    H009     Alarm air press.
                           -]/[- 499,637,642
                           -( )  501
%M0155   _MAIN    H010     Alarm lubrication
                           -]/[- 503,631,638
                           -( )  505
%M0156   _MAIN    H011     Alarm freq. contr.
                           -] [- 511
                           -]/[- 637
                           -( )  514
%M0157   _MAIN    H027     Alarm fallen package
                           -] [- 114
                           -]/[- 123,517,637
                           -( )  519
%M0158   _MAIN    H028     Alarm group. sect.
                           -]/[- 46,530,637
                           -( )  532
%M0159   _MAIN    H029     Alarm blank magaz.
                           -] [- 542,543
                           -]/[- 540,631,638
                           -( )  544
%M0160   _MAIN    H030     Alarm pusher section
                           -]/[- 601,638
                           -( )  603
%M0161   _MAIN    H031     Al. no blank pack. pos.
                           -]/[- 546,638
                           -( )  551
%M0162   _MAIN    H032     Alarm hotmelt unit
                           -] [- 48
                           -]/[- 562,638
                           -( )  564
%M0163   _MAIN    H033     Alarm dischar area
                           -]/[- 555,559,632,638,640
                           -( )  561

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REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  -------- ------------------------------------
%M0164   _MAIN    H034     Alarm light barriere
                           -] [- 569
                           -]/[- 569,638
                           -( )  571
%M0169   _MAIN    H035     Package pattern X*2
                           -] [- 135,138,355
         SELECTI           -( )  49
         MULTIPX           FBIO  10
         PLMS              -] [- 132,164,165,166,168,169
         REG               -] [- 5,25
%M0170   _MAIN    H036     Package pattern X*3
                           -] [- 135,139,355
         SELECTI           -( )  50
         PLMS              -] [- 133,165,167,169,171,173
         REG               -] [- 6,26
%M0171   _MAIN    H037     Package pattern X*4
                           -] [- 135,138
         SELECTI           -( )  51
         PLMS              -] [- 134,166,169,172,174,177
         REG               -] [- 7,27
%M0172   _MAIN    H038     Package pattern X*5
                           -] [- 135
         SELECTI           -( )  52
         PLMS              -] [- 135,168,171,174,178,181
         REG               -] [- 8,28
%M0173   _MAIN    H039     Package pattern X*6
                           -] [- 135,138,139
         SELECTI           -( )  53
         PLMS              -] [- 136,169,173,177,181,185
         REG               -] [- 9,29
%M0174   _MAIN    H040     Package pattern X*7
                           -] [- 135
         SELECTI           -( )  54
         PLMS              -] [- 137,170,175,180,184,187
         REG               -] [- 10,30
%M0175   _MAIN    H041     Package pattern X*8
                           -] [- 135,138
         SELECTI           -( )  55
         PLMS              -] [- 138,172,177,182,186,190
         REG               -] [- 11,31
%M0176   _MAIN    H042     Package pattern X*9
                           -] [- 135,139
         SELECTI           -( )  56
         PLMS              -] [- 139,173,179,185,189,192
         REG               -] [- 12,32
%M0177   _MAIN    H043     Package pattern X*10
                           -] [- 136,138
         SELECTI           -( )  57
         PLMS              -] [- 140,174,181,186,191,194
         REG               -] [- 13,33
%M0178   _MAIN    H044     Package pattern X*11
                           -] [- 136
         SELECTI           -( )  58
         PLMS              -] [- 141,176,183,188,193,195
         REG               -] [- 14,34
%M0179   _MAIN    H045     Package pattern X*12
                           -] [- 136,138,139
         SELECTI           -( )  59
         PLMS              -] [- 142,177,185,190,194,196
         REG               -] [- 15,35
%M0180   _MAIN    H046     Package pattern width 2*X
                           -] [- 273,355
         SELECTI           -( )  80
         PLMS              -] [- 164,165,166,168,169,170,172,173,174,176,177
%M0181   _MAIN    H047     Package pattern width 3*X
                           -] [- 274,355
         SELECTI           -( )  81
         PLMS              -] [- 165,167,169,171,173,175,177,179,181,183,185
%M0182   _MAIN    H048     Package pattern width 4*X
                           -] [- 275
         SELECTI           -( )  82
         PLMS              -] [- 166,169,172,174,177,180,182,185,186,188,190
%M0183   _MAIN    H049     Package pattern width 5*X
                           -] [- 276
         SELECTI           -( )  83
         PLMS              -] [- 168,171,174,178,181,184,186,189,191,193,194
%M0184   _MAIN    H050     Package pattern width 6*X
                           -] [- 277
         SELECTI           -( )  84
         PLMS              -] [- 169,173,177,181,185,187,190,192,194,195,196
%M0185   _MAIN    H051     Hotmelt tank low level
                           -]/[- 605,631
                           -( )  607
%M0186   _MAIN    H052     Carrier force guard
                           -]/[- 609,639
                           -( )  611
%M0187   _MAIN    H053     Dolly/Guide rail
                           -]/[- 522,639
                           -( )  524
%M0188   _MAIN    H054     Main shaft out of pos
                           -]/[- 637
                           -( )  618

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-------  -------  -------- -------------------------------------
%M0189   _MAIN             Alarm not ready downstr
                           -] [- 112,554
                           -( )  552
         EMPTY             -] [- 6,18
                           -]/[- 17
%M0192   _MAIN             Converter alarm grouping belt
                           -] [- 510,511,513
                           -( )  510
         PLMS              -] [- 85
%M0193   _MAIN             Converter alarm main motor
                           -] [- 507,511,513
                           -( )  507
         PLMS              -] [- 83
%M0195   _MAIN             ME guide rail limit
                           -] [- 520,522,524
                           -( )  520
         PLMS              -] [- 93
%M0196   _MAIN             Package jam at infeed
                           -] [- 515,517,519
                           -( )  515
%M0197   _MAIN             ME dolly limit
                           -] [- 521,522,524
                           -( )  521
         PLMS              -] [- 89
%M0198   _MAIN             Converter alarm feed motor
                           -] [- 509,511,513
                           -( )  509
         PLMS              -] [- 87
%M0199   _MAIN             Alarm queue downstream
                           -] [- 446,554
                           -( )  553
%M0201   _MAIN             Delay off infeed brake
                           -]/[- 123
                           -( )  124
%M0202   _MAIN             Startup ready
                           -] [- 125,126
                           -( )  125
%M0203   _MAIN             Long infeed ready
                           -] [- 126,133
                           -]/[- 133
                           -( )  126
%M0204   _MAIN             Short infeed ready
                           -] [- 134,157,159,163
                           -]/[- 147,151,153
                           -( )  134
%M0205   _MAIN             Short infeed time ready
                           -] [- 134
                           -( )  133
%M0206   _MAIN             Cond. long stroke gr.push
                           -] [- 140
                           -(M)  137
%M0207   _MAIN             Cond. long stroke (X*2)
                           -] [- 140
                           -( )  138
%M0208   _MAIN             Cond. long stroke (X*3)
                           -] [- 140
                           -( )  139
%M0209   _MAIN             Cond. long stroke gr.push
                           -] [- 134,140,178,183,184,185,243
                           -]/[- 177,234,242
                           -( )  140
%M0210   _MAIN             Delay off pack. seper.
                           -] [- 160
                           -( )  159
%M0211   _MAIN             Gr.push short stroke ready
                           -] [- 176,178
                           -( )  163
%M0212   _MAIN             Mem short str gr.push done
                           -] [- 164,234
                           -]/[- 134,176
                           -( )  164
         EMPTY             -]/[- 11
%M0213   _MAIN             Cond. group. pusher start
                           -] [- 176
                           -]/[- 170
                           -( )  171
%M0214   _MAIN             New pattern in group. pos.
                           -] [- 112,174,187,252,255,256,258,272,290,292,298,300
                           -]/[- 169,170,177,178,250
                           -( )  174
         EMPTY             -] [- 33
                           -]/[- 12
%M0215   _MAIN             Gr. pusher forward short hold
                           -] [- 164,165
                           -( )  165
%M0216   _MAIN             Gr. pusher forw. long hold
                           -] [- 172,173
                           -( )  172
%M0217   _MAIN             Pattern ready reset counter
                           -] [- 175,234
                           -]/[- 134,140
                           -( )  175

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REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  -------- -----------------------------------
%M0218   _MAIN              Condition long stroke
                            -] [- 137
                            -( )  135
%M0219   _MAIN              Condition long stroke
                            -] [- 137
                            -( )  136
%M0220   _MAIN              Delay open brake
                            -] [- 151,526
                            -]/[- 141
                            -(S)  141
                            -(R)  142
%M0221   _MAIN              Dolly to 1:st stroke pos.
                            -] [- 238,250
                            -( )  238
%M0222   _MAIN              Stop arm locked up
                            -] [- 256
                            -]/[- 257
                            -(S)  255
                            -(R)  256
%M0223   _MAIN              Group. area empty
                            -] [- 250,258
                            -]/[- 174
                            -( )  258
%M0226   _MAIN              Delay pusher on
                            -] [- 169
                            -( )  168
         EMPTY              -] [- 12
%M0229   _MAIN              Infeed ready memory
                            -] [- 270,594
                            -( )  269
%M0230   _MAIN              Ready for infeed to pusher
                            -] [- 267,268,295,300,309,312
                            -]/[- 300,591
                            -( )  267
%M0231   _MAIN              Infeed ready
                            -] [- 112,268,269,285,325,327,329,337,597
                            -]/[- 299,309,312
                            -( )  270
         EMPTY              -] [- 22
                            -]/[- 15,20
%M0232   _MAIN              Group mat occup.
                            -] [- 292
                            -]/[- 295,299
                            -( )  292
%M0233   _MAIN              Stop group-,pusher belt
                            -]/[- 296
                            -( )  299
%M0234   _MAIN              Pack.at photo cell
                            -] [- 268,269,279,285,290,291,307,325
                            -]/[- 281,300
                            -( )  268
         EMPTY              -]/[- 20
%M0235   _MAIN              Infeed time to end stop
                            -] [- 269,285,287,288,290,300
                            -]/[- 295,305,309,312
                            -( )  285
         EMPTY              -] [- 18
                            -]/[- 20
%M0236   _MAIN              H/S Transfer plate up
                            -] [- 354,355
                            -( )  354
%M0237   _MAIN              Transfer plate up
                            -] [- 355,363
                            -( )  355
%M0238   _MAIN              Endstop out untill pusher home
                            -]/[- 288,309
                            -( )  287
%M0239   _MAIN              End stop in inner pos.
                            -] [- 337
                            -( )  315
%M0240   _MAIN              End stop in inner pos.
                            -] [- 337
                            -( )  314
%M0241   _MAIN              Stop pushermat till pusher home
                            -]/[- 312
                            -( )  288
%M0244   _MAIN              Memory pusher stroke
                            -] [- 112,351,355,372,433,445
                            -]/[- 338
                            -( )  351
         1T0001             -] [- 67
                            -]/[- 69
%M0245   _MAIN              New blank to gr pos
                            -] [- 351,548
                            -( )  348
%M0246   _MAIN              Delay off
                            -( )  305
%M0247   _MAIN              Folding plate on delayed
                            -]/[- 363
                            -( )  360
%M0248   _MAIN              Reset pusher strokes
                            -] [- 234

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REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  -------- -------------------------------------
                           -]/[- 134,140
                           -( )  233
%M0249   _MAIN             Delay pusher off
                           -] [- 266,322,323,344,345,349,350,351,371,392,402
                           -( )  349
         EMPTY             -] [- 23
%M0250   _MAIN             Guide rail up
                           -] [- 186,187,272
                           -( )  187
%M0251   _MAIN             Delay infeed brake open
                           -] [- 151
                           -( )  150
%M0252   _MAIN             Delay grouping support up
                           -] [- 231
                           -( )  226
%M0253   _MAIN             Reset Delay Pusher off
                           -]/[- 349
                           -( )  350
%M0259   _MAIN             Hot melt
                           -] [- 392
                           -( )  392
%M0260   _MAIN             Blank in group. pos.
                           -] [- 98,99,337,367,390,391,392,404
                           -]/[- 363
                           -( )  390
%M0262   _MAIN             Reset ejector blanks
                           -]/[- 400
                           -( )  398
%M0263   _MAIN             Blow after cover closed
                           -]/[- 400
                           -( )  399
%M0264   _MAIN             Blank remov. fr.pack.pos.
                           -]/[- 390,392
                           -( )  391
%M0265   _MAIN             Delay brake off
                           -]/[- 388,389
                           -( )  387
%M0266   _MAIN             Stop magaz. feed
                           -] [- 387
                           -]/[- 388,389
                           -( )  386
%M0267   _MAIN             Delay magz. feed
                           -] [- 388,389
                           -( )  385
%M0268   _MAIN             Stop vacuum after empty.
                           -] [- 397
                           -]/[- 396,549
                           -( )  397
%M0270   _MAIN             Cond. s.speed feeding motor
                           -( )  381
         1T0001            -] [- 78
%M0271   _MAIN             Convert alarm
                           -] [- 514
                           -]/[- 631
                           -( )  513
%M0273   _MAIN             Reached synch. stop pos.
                           -] [- 51,347,348,444
                           -]/[- 363
                           -( )  347
         1T0001            -] [- 69,78
%M0278   1T0001            Allow main shaft start
                           -] [- 68
                           -( )  67
%M0279   1T0001            Slow speed home search
                           -] [- 79
                           -]/[- 80
                           -( )  79
%M0280   _MAIN             Search synch position
                           -] [- 363,378,432,612
                           -]/[- 420
                           -( )  378
         1T0001            -] [- 69,78
%M0282   _MAIN             Sum alarm, jam in pusher
                           -] [- 601,603
                           -]/[- 52
                           -( )  600
         PLMS              -] [- 18,79
%M0283   _MAIN             Stop infeed conv. (not ready)
                           -]/[- 111,117
                           -( )  112
%M0284   _MAIN             Stop infeed conv.
                           -]/[- 111
                           -( )  115
%M0285   _MAIN             Stop infeed conv. (timed out)
                           -] [- 115
                           -( )  113
%M0286   _MAIN             Stop infeed conv. (fallen pack.)
                           -] [- 115
                           -]/[- 117
                           -( )  114
%M0300   _MAIN             Bypass hotmelt
                           -] [- 46,51

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REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  --------  ------------------------------------
                            -( )  37
%M0310   _MAIN              Minimum queue infeed brake
                            -] [- 123,125,134
                            -]/[- 113,117
                            -( )  123
%M0383   _MAIN              Delayed check safety clutch
                            -] [- 609,611
                            -( )  608
%M0417   _MAIN              1:st pusher stroke
                            -] [- 138,139,169,170,177,183,184,185,187,238,239
                            -]/[- 169,170,177
                            FBIO  234
         EMPTY              -]/[- 10
%M0418   _MAIN              2:nd pusher stroke
                            -] [- 112,135,138,139,169,238,240
                            -]/[- 169
%M0419   _MAIN              3:rd pusher stroke
                            -] [- 135,138,139,241
%M0420   _MAIN              4:th pusher stroke
                            -] [- 135,138,139,242
%M0421   _MAIN              5:th pusher stroke
                            -] [- 135,138
%M0422   _MAIN              6:th pusher stroke
                            -] [- 135,138
%M0423   _MAIN              7:th pusher stroke
                            -] [- 135
%M0424   _MAIN              8:th pusher stroke
                            -] [- 135
%M0425   _MAIN              9:th pusher stroke
                            -] [- 135
%M0426   _MAIN              10:th pusher stroke
                            -] [- 136
%M0427   _MAIN              11:th pusher stroke
                            -] [- 136
%M0428   _MAIN              12:th pusher stroke
                            -] [- 136
%M0450   _MAIN              Card board in WA station
                            -] [- 99,404,412
                            -]/[- 433
                            -( )  404
%M0453   _MAIN              WA squeez. started
                            -] [- 434
                            -(S)  433
                            -(R)  435
%M0454   _MAIN              WA ready next cardb.
                            -( )  434
%M0456   _MAIN              Pusher done
                            -] [- 402,404
                            -( )  402
%M0590   _MAIN              Start inching conv.
                            -] [- 442
                            -( )  442
         1T0001             -] [- 78
%M0591   _MAIN              Inching conv. on
                            -] [- 441
                            -( )  441
         1T0001             -] [- 78
%M0592   _MAIN              Enable inching conv.
                            -] [- 441,442
                            -( )  440
%M0600   _MAIN              Manual empty.
                            -] [- 183,185,295,309,312,319,348,396,459
                            -]/[- 115,126,184,295,300,306,309,348,396,453,510
         PLMS               -] [- 16,156
                            -]/[- 154
         EMPTY              -] [- 5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,23,24,25,27,28,29,32,33,35
                            -( )  8
%M0601   EMPTY              ME. Infeed conv. empty
                            -] [- 8,9
                            -( )  9
%M0602   _MAIN              ME. Bypass of min. queue
                            -] [- 123
         EMPTY              -] [- 10,11
                            -]/[- 14
                            -( )  10
%M0603   _MAIN              ME. Infeed brake empty
                            -] [- 132,157
                            -]/[- 152,153,176,187
         EMPTY              -] [- 11,12
                            -( )  11
%M0604   _MAIN              ME. Last Gr.push
                            -] [- 178
         EMPTY              -] [- 12,13
                            -( )  12
%M0605   _MAIN              ME. Last Gr.push done
                            -]/[- 111,178
         EMPTY              -] [- 13,14
                            -( )  13
%M0606   _MAIN              ME. Gruop section empty
                            -] [- 267,272,296
         EMPTY              -] [- 11,14,15,16,18,19,24
                            -( )  14

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-------  -------  -------- -------------------------------------
%M0607   _MAIN             ME. Long mat empty
                           -] [- 258,269,300
                           -]/[- 268,292,313
         EMPTY             -] [- 15,20
                           -]/[- 24
                           -( )  15
%M0608   _MAIN             ME. Bypass of B126
                           -] [- 269,285
                           -]/[- 295,299
         EMPTY             -] [- 16,30
                           -( )  16
%M0609   EMPTY             ME. Pick one blank
                           -] [- 6,17,19
                           -( )  17
%M0610   _MAIN             ME. Reset pusher
                           -] [- 603,646
                           -]/[- 295,309,318,338
         EMPTY             -] [- 17,18,22
                           -( )  18
%M0611   _MAIN             ME. Start Main shaft
                           -] [- 51,348
         EMPTY             -( )  19
%M0612   _MAIN             ME. All mat empty
                           -]/[- 268,338
         EMPTY             -] [- 19,20,25
                           -( )  20
%M0613   _MAIN             ME. Vacuum
                           -] [- 396
         EMPTY             -] [- 21
                           -( )  21
%M0614   _MAIN             ME. Alarm diplay
                           -] [- 308,603,646
                           -]/[- 268
         EMPTY             -] [- 22
                           -]/[- 18
                           -( )  22
%M0615   EMPTY             ME. Blank in chain
                           -] [- 23,27
                           -( )  23
%M0616   _MAIN             ME. Run group. mat
                           -]/[- 293,299
         EMPTY             -( )  24
%M0617   _MAIN             ME. Stop Main Shaft
                           -]/[- 615
         EMPTY             -] [- 7,25
                           -]/[- 19
                           -( )  25
         1T0001            -]/[- 69
%M0618   _MAIN             ME. Reset program
                           -] [- 69
                           -]/[- 67
         EMPTY             -( )  26
%M0619   EMPTY             ME. Package in tray
                           -] [- 27
                           -]/[- 25
                           -( )  27
%M0620   _MAIN             Outf. conv. stop is open
                           -] [- 451
                           -( )  447
%M0621   _MAIN             Stop outfeed from TCBP
                           -( )  451
         1T0001            -]/[- 67
%M0622   EMPTY             ME1 GR.Push done
                           -] [- 13
                           -( )  28
%M0623   EMPTY             GR.Push ready
                           -] [- 29,31
                           -( )  29
%M0624   _MAIN             Start group .mat
                           -] [- 295
         EMPTY             -( )  30
%M0625   EMPTY             ME2 GR.push done
                           -] [- 13
                           -( )  31
%M0626   EMPTY             ME, not small volume
                           -] [- 32
                           -( )  32
%M0627   _MAIN             ME Brake running mat
                           -] [- 258
                           -]/[- 290
         EMPTY             -( )  34
%M0720   _MAIN             Dolly to off pos.
                           -] [- 254
                           -(S)  252
                           -(R)  253
%M0723   _MAIN             New pattern to refill
                           -] [- 290,291,293
                           -]/[- 295
                           -( )  290
%M0724   _MAIN             Refill run time
                           -] [- 290,295,296,297,305,309
                           -]/[- 269,297,299,300,312

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REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  -------- -------------------------------------
                           -( )  291
         EMPTY             -] [- 30,33
%M0725   _MAIN             Photocell free
                           -] [- 290,297
                           -]/[- 269,297
                           -( )  289
%M0761   1T0001            Bit 1 a.e. Feeding motor
                           -( )  13
                           FBIO  14
%M0762   1T0001            Bit 2 a.e. Feeding motor
                           -] [- 13
                           -]/[- 13
                           -( )  12
%M0763   1T0001            Bit 3 a.e. Feeding motor
                           -] [- 12
                           -]/[- 12
                           -( )  11
%M0764   1T0001            Bit 4 a.e. Feeding motor
                           -] [- 11
                           -]/[- 11
                           -( )  10
%M0765   1T0001            Bit 5 a.e. Feeding motor
                           -] [- 10
                           -]/[- 10
                           -( )  9
%M0766   1T0001            Bit 6 a.e. Feeding motor
                           -] [- 9
                           -]/[- 9
                           -( )  8
%M0767   1T0001            Bit 7 a.e. Feeding motor
                           -] [- 8
                           -]/[- 8
                           -( )  7
%M0768   1T0001            Bit 8 a.e. Feeding motor
                           -] [- 7
                           -]/[- 7
                           -( )  6
%M0769   1T0001            Bit 1 a.e. Main shaft
                           -( )  23
                           FBIO  24
%M0770   1T0001            Bit 2 a.e. Main shaft
                           -] [- 23
                           -]/[- 23
                           -( )  22
%M0771   1T0001            Bit 3 a.e. Main shaft
                           -] [- 22
                           -]/[- 22
                           -( )  21
%M0772   1T0001            Bit 4 a.e. Main shaft
                           -] [- 21
                           -]/[- 21
                           -( )  20
%M0773   1T0001            Bit 5 a.e. Main shaft
                           -] [- 20
                           -]/[- 20
                           -( )  19
%M0774   1T0001            Bit 6 a.e. Main shaft
                           -] [- 19
                           -]/[- 19
                           -( )  18
%M0775   1T0001            Bit 7 a.e. Main shaft
                           -] [- 18
                           -]/[- 18
                           -( )  17
%M0776   1T0001            Bit 8 a.e. Main shaft
                           -] [- 17
                           -]/[- 17
                           -( )  16
%M0777   _MAIN             Synch stop feeding motor
                           -] [- 38,347,370,390,391,426,432,442,508
                           -]/[- 70,71,72,73,74,75,77,78,79,80,81,82,83,85,86,87,88,89,91,92,93,94,95,97,378,381,404,435
         EMPTY             -] [- 7
         1T0001            -] [- 80
                           -]/[- 78
                           -( )  41
%M0778   _MAIN             Stop feeding motor
                           -] [- 381
                           -]/[- 390,392
         1T0001            -]/[- 78
                           -( )  45
%M0779   1T0001            Slow speed feeding motor
                           -]/[- 80,82
                           -( )  53
%M0780   _MAIN             Hotmelt 1:st dot, lower
                           -] [- 76
                           -( )  70
%M0781   _MAIN             Hotmelt 1:st dot, upper
                           -] [- 84
                           -( )  78
%M0782   _MAIN             Hotmelt 2:nd dot, lower
                           -] [- 90
                           -( )  86

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REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  -------- -------------------------------------
%M0783   _MAIN             Hotmelt 2:nd dot, upper
                           -] [- 96
                           -( )  92
%M0784   1T0001            Slow speed main shaft
                           -]/[- 70
                           -( )  57
%M0785   _MAIN             Synch. stop main shaft
                           -] [- 38,51,366,400,506
                           -]/[- 378,614
         1T0001            -] [- 68,70
                           -]/[- 69
                           -( )  61
%M0786   EMPTY             Stop main shaft
                           -] [- 5
         1T0001            -]/[- 69
                           -( )  65
%M0787   1T0001            Start feeding motor
                           -] [- 78,79
                           -( )  49
%M0788   _MAIN             Ejector blanks
                           -] [- 396
                           -]/[- 398,400
                           -( )  395
         EMPTY             -] [- 25
%M0790   _MAIN             1:st lower hotmelt done
                           -] [- 77
                           -]/[- 70,71,72,73,74,75,78,79,98
                           -( )  77
%M0791   _MAIN             2:nd lower hotmelt done
                           -] [- 91
                           -]/[- 86,87,88,89,98
                           -( )  91
%M0792   _MAIN             1:st upper hotmelt done
                           -] [- 85
                           -]/[- 80,81,82,83,99
                           -( )  85
%M0793   _MAIN             2:nd upper hotmelt done
                           -] [- 97
                           -]/[- 92,93,94,95,99
                           -( )  97
%M0799   _MAIN             1:st lower hotmelt
                           -] [- 77,98
                           -( )  76
%M0800   _MAIN             Hotmelt 1:st dot,lower
                           -] [- 76
                           -( )  72
%M0801   _MAIN             Hotmelt 1:st dot, upper
                           -] [- 84
                           -( )  80
%M0802   _MAIN             Hotmelt 2:nd dot,lower
                           -] [- 90
                           -( )  88
%M0803   _MAIN             Hotmelt 2:nd dot, upper
                           -] [- 96
                           -( )  94
%M0804   _MAIN             Hotmelt 1:st dot,lower
                           -] [- 76
                           -( )  73
%M0805   _MAIN             Hotmelt 1:st dot, upper
                           -] [- 84
                           -( )  81
%M0806   _MAIN             Hotmelt 1:st dot,lower
                           -] [- 76
                           -( )  74
%M0807   _MAIN             Hotmelt 1:st dot, upper
                           -] [- 84
                           -( )  82
%M0810   _MAIN             Hotmelt 1:st dot,lower
                           -] [- 76
                           -( )  75
%M0811   _MAIN             Hotmelt 1:st dot, upper
                           -] [- 84
                           -( )  83
%M0812   _MAIN             Hotmelt 2:nd dot,lower
                           -] [- 90
                           -( )  89
%M0813   _MAIN             Hotmelt 2:nd dot, upper
                           -] [- 96
                           -( )  95
%M0814   _MAIN             1:st upper hotmelt
                           -] [- 85,99
                           -( )  84
%M0815   _MAIN             2:nd lower hotmelt
                           -] [- 91,98
                           -]/[- 402
                           -( )  90
%M0816   _MAIN             2:nd upper hotmelt
                           -] [- 97,99
                           -( )  96
%M0817   SELECTI           No package pattern choosen
                           -] [- 36,38,40,41,42,43,44,45,46
                           -(M)  48

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REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  -------- -------------------------------------
%M0818   SELECTI           No infeed type choosen
                           -] [- 15,16,17
                           -( )  18
%M0819   SELECTI           No pusher width choosen
                           -] [- 74,75,76,77,78
                           -( )  79
%M0820   SELECTI           No tray type choosen
                           -] [- 96,97,98,99,100
                           -( )  103
%M0821   SELECTI           Select pp length B
                           -] [- 45
                           -( )  26
%M0822   SELECTI           Select pp length C
                           -] [- 44
                           -( )  27
%M0823   SELECTI           Select pp length D
                           -] [- 43
                           -( )  28
%M0824   SELECTI           Select pp length E
                           -] [- 42
                           -( )  29
%M0825   SELECTI           Select pp length F
                           -] [- 41
                           -( )  30
%M0826   SELECTI           Select pp length G
                           -] [- 40
                           -( )  31
%M0827   SELECTI           Select pp length H
                           -] [- 38
                           -( )  32
%M0828   SELECTI           Select pp length K
                           -] [- 36
                           -( )  33
%M0829   SELECTI           Select pp length A
                           -] [- 46
                           -( )  34
%M0840   SELECTI           Select 2x
                           -] [- 78
                           -( )  69
%M0841   SELECTI           Select 3x
                           -] [- 77
                           -( )  70
%M0842   SELECTI           Select 4x
                           -] [- 76
                           -( )  71
%M0843   SELECTI           Select 5x
                           -] [- 75
                           -( )  72
%M0844   SELECTI           Select 6x
                           -] [- 74
                           -( )  73
%M0850   SELECTI           Select TRAY
                           -] [- 100
                           -( )  91
%M0851   SELECTI           Select WAMF
                           -] [- 99
                           -( )  92
%M0852   SELECTI           Select TRAY OF
                           -] [- 98
                           -( )  93
%M0853   SELECTI           Select WAIF
                           -] [- 97
                           -( )  94
%M0854   SELECTI           Select WASF
                           -] [- 96
                           -( )  95
%M0855   _MAIN             TRAY
                           -] [- 38,434
                           -]/[- 404,433
         SELECTI           -] [- 92,93,94,95,100,101,104
                           -]/[- 103,110
                           -(M)  100
%M0856   SELECTI           WAMF
                           -] [- 91,93,94,95,99,102,105
                           -]/[- 103,110
                           -(M)  99
%M0857   _MAIN             TRAY OF
                           -]/[- 412
         SELECTI           -] [- 91,92,94,95,98,101,106
                           -]/[- 103,110
                           -(M)  98
%M0858   _MAIN             WAIF
                           -] [- 406,407,412,434
         SELECTI           -] [- 91,92,93,95,97,102,107
                           -]/[- 103,110
                           -(M)  97
%M0859   _MAIN             WASF
                           -] [- 409,410,412
         SELECTI           -] [- 91,92,93,94,96,102,108
                           -]/[- 103,110
                           -(M)  96
%M0860   PATTER0           Tray, Tray OF

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REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  -------- -------------------------------------
                           -] [- 13,16,18
         PATTER1           -] [- 13,16,18
         PATTER2           -] [- 13,16,18
         PATTER3           -] [- 13,16,18
         PATTER4           -] [- 13,16,18
         PATTER5           -] [- 13,16,18
         PATTER6           -] [- 13,16,18
         PATTER7           -] [- 13,16,18
         PATTER8           -] [- 13,16,18
         PATTER9           -] [- 13,16,18
         SELECTI           -( )  101
%M0861   PATTER0           Wrap Around
                           -] [- 20,23,25
         PATTER1           -] [- 20,23,25
         PATTER2           -] [- 20,23,25
         PATTER3           -] [- 20,23,25
         PATTER4           -] [- 20,23,25
         PATTER5           -] [- 20,23,25
         PATTER6           -] [- 20,23,25
         PATTER7           -] [- 20,23,25
         PATTER8           -] [- 20,23,25
         PATTER9           -] [- 20,23,25
         SELECTI           -( )  102
%M0870   _MAIN             Small volumes
                           -] [- 267,268,290,295,296,297,309
                           -]/[- 173,268,269,295,296,297,307,312
                           FBIO  235
         EMPTY             -] [- 18,30
                           -]/[- 18
%M0880   _MAIN             Bottom size 0
                           -] [- 6,314
                           -]/[- 315
         PATTER0           -] [- 5,7,9,13,16,18,20,23,25
         SELECTI           -] [- 54,55,56,57,58,59,64
                           -]/[- 37,39,40,49,50,51,52,53,54,55,56,57,62,63,80
         SWITCH            -( )  6
%M0881   _MAIN             Bottom size 1
                           -] [- 7,314
                           -]/[- 315
         PATTER1           -] [- 5,7,9,13,16,18,20,23,25
         SWITCH            -( )  7
%M0882   _MAIN             Bottom size 2
                           -] [- 8
         PATTER2           -] [- 5,7,9,13,16,18,20,23,25
         SWITCH            -( )  8
%M0883   _MAIN             Bottom size 3
                           -] [- 9,705
         PATTER3           -] [- 5,7,9,13,16,18,20,23,25
         SWITCH            -( )  9
%M0884   _MAIN             Bottom size 4
                           -] [- 10,705
         PATTER4           -] [- 5,7,9,13,16,18,20,23,25
         SWITCH            -( )  10
%M0885   _MAIN             Bottom size 5
                           -] [- 11,705
         PATTER5           -] [- 5,7,9,13,16,18,20,23,25
         SWITCH            -( )  11
%M0886   _MAIN             Bottom size 6
                           -] [- 12
         PATTER6           -] [- 5,7,9,13,16,18,20,23,25
         SWITCH            -( )  12
%M0887   _MAIN             Bottom size 7
                           -] [- 13,705
         PATTER7           -] [- 5,7,9,13,16,18,20,23,25
         SWITCH            -( )  13
%M0888   _MAIN             Bottom size 8
                           -] [- 14,705
         PATTER8           -] [- 5,7,9,13,16,18,20,23,25
         SWITCH            -( )  14
%M0889   _MAIN             Bottom size 9
                           -] [- 15
         PATTER9           -] [- 5,7,9,13,16,18,20,23,25
         SWITCH            -( )  15
%M0896   _MAIN             Width 2x
                           -] [- 70,71,78,79,86,87,92,93
         SELECTI           -] [- 70,71,72,73,78,80
                           -]/[- 79,86
                           -(M)  78
%M0897   _MAIN             Width 3x
                           -] [- 72,80,88,94
         SELECTI           -] [- 69,71,72,73,77,81
                           -]/[- 79,86
                           -(M)  77
%M0898   _MAIN             Width 4x
                           -] [- 73,81,89,95
         SELECTI           -] [- 69,70,72,73,76,82
                           -]/[- 79,86
                           -(M)  76
%M0899   _MAIN             Width 5x
                           -] [- 74,82,88,94
         SELECTI           -] [- 69,70,71,73,75,83
                           -]/[- 79,86

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REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  -------- -----------------------------------
                           -(M)  75
%M0900   _MAIN             Width 6x
                           -] [- 75,83,89,95
         SELECTI           -] [- 69,70,71,72,74,84
                           -]/[- 79,86
                           -(M)  74
%M0901   _MAIN             Single pack/ (X*1)
                           -] [- 135,136,166,169,177,238,516
                           -]/[- 167,170
         SELECTI           -] [- 12,13,17,19
                           -]/[- 18,23
                           -(M)  17
%M0902   _MAIN             (X*2)
                           -] [- 138
                           -]/[- 177,187,272,705
         SELECTI           -] [- 11,13,16,20,62,64
                           -]/[- 18,23
                           -(M)  16
%M0903   _MAIN             (X*3)
                           -] [- 139
                           -]/[- 177,187,272,705
         SELECTI           -] [- 11,12,15,21,62,63,64
                           -]/[- 18,23
                           -(M)  15
%M0904   SELECTI           Select single/ (X*1)
                           -] [- 17
                           -( )  11
%M0905   SELECTI           Select(X*2)
                           -] [- 16
                           -( )  12
%M0906   SELECTI           Select(X*3)
                           -] [- 15
                           -( )  13
%M0907   SELECTI           No mat betw inf and patt
                           -] [- 65
                           -( )  62
%M0908   SELECTI           No mat betw inf and patt
                           -] [- 65
                           -( )  63
%M0909   SELECTI           No mat betw inf and patt
                           -] [- 65
                           -( )  64
%M0910   _MAIN             No mat. betw. inf and pattern
                           -]/[- 47
         SELECTI           -] [- 19,20,21
                           -]/[- 19,20,21
                           -( )  65
%M0911   SELECTI           Package pattern length A
                           -] [- 26,27,28,29,30,31,32,33,46,49,54,63,64
                           -]/[- 47,61
                           -(M)  46
%M0912   SELECTI           Package pattern length B
                           -] [- 27,28,29,30,31,32,33,34,45,50,55,62,64
                           -]/[- 47,61
                           -(M)  45
%M0913   SELECTI           Package pattern length C
                           -] [- 26,28,29,30,31,32,33,34,44,51,56,63,64
                           -]/[- 47,61
                           -(M)  44
%M0914   SELECTI           Package pattern length D
                           -] [- 26,27,29,30,31,32,33,34,43,52,57,62,64
                           -]/[- 47,61
                           -(M)  43
%M0915   SELECTI           Package pattern length E
                           -] [- 26,27,28,30,31,32,33,34,42,53,58,64
                           -]/[- 47,61
                           -(M)  42
%M0916   SELECTI           Package pattern length F
                           -] [- 26,27,28,29,31,32,33,34,41,54,59,62
                           -]/[- 47,61
                           -(M)  41
%M0917   SELECTI           Package pattern length G
                           -] [- 26,27,28,29,30,32,33,34,40,55,63
                           -]/[- 47,61
                           -(M)  40
%M0918   SELECTI           Package pattern length H
                           -] [- 26,27,28,29,30,31,33,34,38,56,62
                           -]/[- 47,61
                           -(M)  39
%M0919   SELECTI           Package pattern length K
                           -] [- 26,27,28,29,30,31,32,34,36,57,63
                           -]/[- 47,61
                           -(M)  37
%M0929   SELECTI           Cond. for pp length A
                           -] [- 46
                           -]/[- 26,27,28,29,30,31,32,36,38,40,41,42,43,44,45
                           FBIO  4
%M0930   SELECTI           Cond. for pp length B
                           -] [- 45
                           -]/[- 27,28,29,30,31,32,33,36,38,40,41,42,43,44
                           FBIO  4
%M0931   SELECTI           Cond. for pp length C

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-------  -------  -------- -------------------------------------
                           -] [- 44
                           -]/[- 28,29,30,31,32,33,34,36,38,40,41,42,43
                           FBIO  4
%M0932   SELECTI            Cond. for pp length D
                           -] [- 43
                           -]/[- 26,29,30,31,32,33,34,36,38,40,41,42
                           FBIO  5
%M0933   SELECTI            Cond. for pp length E
                           -] [- 42
                           -]/[- 26,27,30,31,32,33,34,36,38,40,41
                           FBIO  5
%M0934   SELECTI            Cond. for pp length F
                           -] [- 41
                           -]/[- 26,27,28,31,32,33,34,36,38,40
                           FBIO  5
%M0935   SELECTI            Cond. for pp length G
                           -] [- 40
                           -]/[- 26,27,28,29,32,33,34,36,38
                           FBIO  6
%M0936   SELECTI            Cond. for pp length H
                           -] [- 38
                           -]/[- 26,27,28,29,30,33,34,36
                           FBIO  6
%M0937   SELECTI            Cond. for pp length K
                           -] [- 37
                           -]/[- 26,27,28,29,30,31,34
                           FBIO  6
%M0945   SELECTI            Cond. for single infeed
                           FBIO  9,10
%M0946   SELECTI            Cond. for X*1 infeed
                           -] [- 17
                           -]/[- 12,15,16
%M0947   SELECTI            Cond. for X*2 infeed
                           -] [- 16
                           -]/[- 13,15
%M0948   SELECTI            Cond. for X*3 infeed
                           -] [- 15
                           -]/[- 11
%M0961   SELECTI            Cond. narrow pusher 2*X
                           -] [- 78
                           -]/[- 70,71,72,74,75,76,77
                           FBIO  67
%M0962   SELECTI            Cond. wide pusher 3*X
                           -] [- 77
                           -]/[- 71,72,73,74,75,76
%M0963   SELECTI            Cond. wide pusher 4*X
                           -] [- 76
                           -]/[- 69,72,73,74,75
%M0964   SELECTI            Cond. wide pusher 5*x
                           -] [- 75
                           -]/[- 69,70,73,74
%M0965   SELECTI            Cond. wide pusher 6*x
                           -] [- 74
                           -]/[- 69,70,71
%M0977   SELECTI            Cond. for Tray
                           -] [- 100
                           -]/[- 92,93,94,96,97,98,99
                           FBIO  88,89
%M0978   SELECTI            Cond. for WA inside flap
                           -] [- 97
                           -]/[- 91,92,95,96
%M0979   SELECTI            Cond. for WA meeting flap
                           -] [- 99
                           -]/[- 93,94,95,96,97,98
%M0980   SELECTI            Cond. for WA side flap
                           -] [- 96
                           -]/[- 91,92,93
%M0981   SELECTI            Cond. for Tray OF
                           -] [- 98
                           -]/[- 91,94,95,96,97
%M0993   _MAIN              Delay start freq conv.
                           -] [- 111
                           -( )  105
%M1001   _MAIN              Lubrication Autofill
                           -] [- 471
         GENERAL            FBIO  10
%M1002   _MAIN              Lightbarrier installed
                           -] [- 568,571,665,686
                           -]/[- 483,570
         GENERAL            FBIO  10
%M1003   _MAIN              Guide rail down
                           -] [- 169
                           -]/[- 169,187,238,272
                           FBIO  166,167
%M1004   _MAIN              Water valve
                           -] [- 473
         GENERAL            FBIO  8
%M1005   _MAIN              Belt speed 0=low 1= high
                           -] [- 297
                           -]/[- 297
         PATTER0            FBIO  5
         PATTER1            FBIO  5

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-------  -------  -------- ------------------------------------
         PATTER2           FBIO  5
         PATTER3           FBIO  5
         PATTER4           FBIO  5
         PATTER5           FBIO  5
         PATTER6           FBIO  5
         PATTER7           FBIO  5
         PATTER8           FBIO  5
         PATTER9           FBIO  5
%M1007   _MAIN             WA unit installed
                           -] [- 66,69
                           -]/[- 69
         GENERAL           FBIO  8
         SELECTI           -]/[- 89
%M1008   _MAIN             0 = Single 1 =  Unit
                           -] [- 107
                           -]/[- 106
         GENERAL           FBIO  5
         SELECTI           -]/[- 10
%M1013   _MAIN             Infeed fault
                           -] [- 530,532
                           -( )  529
%M1014   _MAIN             Push button delay
                           -] [- 706,716
         SELECTI           -] [- 14,35,68,90,112
                           -( )  8
%M1016   _MAIN             Grouping belt running
                           -] [- 278,285,293,295,297,309
                           -]/[- 173,267,269,271
                           -( )  296
         PLMS              -] [- 7
         EMPTY             -] [- 15,33
%M1017   _MAIN             Run pushblt 0=don't 1=run
                           -] [- 313
                           -]/[- 313
         PATTER0           FBIO  5
         PATTER1           FBIO  5
         PATTER2           FBIO  5
         PATTER3           FBIO  5
         PATTER4           FBIO  5
         PATTER5           FBIO  5
         PATTER6           FBIO  5
         PATTER7           FBIO  5
         PATTER8           FBIO  5
         PATTER9           FBIO  5
%M1025   _MAIN             Stop Blank feed
                           -]/[- 385
                           -( )  384
%M1027   _MAIN             Off delay
                           -] [- 133
                           -( )  132
%M1030   _MAIN             Delay open at start up
                           -] [- 151
                           -]/[- 143,153
                           -(S)  143
                           -(R)  144
%M1031   _MAIN             Auto control infeed conv
                           -] [- 115
                           -]/[- 117
         GENERAL           FBIO  6
%M1032   _MAIN             Pusher support up at mid sensor
                           -] [- 331
         PATTER0           FBIO  5
         PATTER1           FBIO  5
         PATTER2           FBIO  5
         PATTER3           FBIO  5
         PATTER4           FBIO  5
         PATTER5           FBIO  5
         PATTER6           FBIO  5
         PATTER7           FBIO  5
         PATTER8           FBIO  5
         PATTER9           FBIO  5
%M1051   _MAIN             No PP length choosen
                           -] [- 53,54
         SELECTI           -] [- 49
                           -]/[- 49
                           -( )  61
%M1053   _MAIN             No PP width choosen
                           -] [- 53,54
         SELECTI           -] [- 80
                           -]/[- 80
                           -( )  86
%M1054   _MAIN             No tray or WA flap choosen
                           -] [- 53,54
         SELECTI           -] [- 104
                           -]/[- 104
                           -( )  110
%M1055   _MAIN             No X* choosen
                           -] [- 53,54
         SELECTI           -] [- 19
                           -]/[- 19
                           -( )  23
%M1101   _MAIN             Group support down delay

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-------  -------  -------- -------------------------------------
                           -] [- 230
                           -( )  227
%M1102   _MAIN             Tried / Trying to feed in
                           -] [- 147,153
                           -]/[- 151
                           -(S)  145
                           -(R)  146
%M1103   _MAIN             New try to open infeed brake
                           -] [- 151
                           -( )  147
%M1105   _MAIN             Pattern in group pos
                           -] [- 298,299,300
                           -( )  298
%M1109   _MAIN             Group belt stop pack waiting
                           -]/[- 296
                           -( )  293
%M1112   _MAIN             Infeed brake on in step 2
                           -] [- 148
                           -]/[- 151
                           -( )  148
%M1130   _MAIN             Pack sep out
                           -] [- 161,176
                           -( )  160
%M1131   _MAIN             Tray support on
                           -] [- 367
                           -]/[- 351
                           -( )  365
%M1138   _MAIN             Gr end stop out
                           -] [- 154
                           -]/[- 157
                           -( )  153
%M1139   _MAIN             Gr end stop in
                           -] [- 155
                           -( )  157
%M1140   _MAIN             Gr end stop out
                           -] [- 156
                           -]/[- 158
                           -(S)  154
                           -(R)  155
%M1141   _MAIN             L12 delay
                           -] [- 482
                           -( )  481
%M1142   _MAIN             Cond. group. pusher start
                           -] [- 171
                           -( )  169
%M1143   _MAIN             Cond. group. pusher start
                           -] [- 171
                           -( )  170
%M1147   _MAIN             Stop groupbelt stoparm up
                           -]/[- 296
                           -( )  300
%M1149   _MAIN             No blanks present
                           -] [- 538,542
                           -]/[- 47,51,348,541,633
                           -(S)  533
                           -(R)  534
%M1151   1T0001   G22S2_1  Range1, slow speed main shaft
                           -] [- 71
                           -( )  73
%M1152   1T0001   G22S2_2  Range2, slow speed main shaft
                           -] [- 71
                           -( )  74
%M1153   _MAIN             Folding squeezer
                           -] [- 369
                           -( )  368
%M1156   _MAIN             Inter rupt K010
                           -] [- 69
                           -( )  67
%M1160   _MAIN             Grouping support on (1=on)
                           -] [- 149,151,230
                           -]/[- 151,231
                           FBIO  228,229
%M1161   _MAIN             Dolly puls long stroke
                           -] [- 243,248,250
                           -]/[- 246,250
                           -( )  243
%M1162   _MAIN             Extern conv infeed/dischar
                           -] [- 119
                           -]/[- 117
         GENERAL           FBIO  6
%M1163   _MAIN             Extern conv controlled by TCBP
                           -] [- 117,119
         GENERAL           FBIO  5
%M1164   _MAIN             Extern infeed conv choosen
                           -] [- 121
                           -( )  117
%M1165   _MAIN             Extern dischr conv choosen
                           -] [- 121
                           -( )  119
%M1166   _MAIN             Crash in push arm  forw
                           -] [- 581,589
                           -( )  581

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-------  -------  -------- -----------------------------------
%M1167   _MAIN              Pusher backw low speed
                            -] [- 345
                            -( )  346
%M1168   _MAIN              Line com is not used
                            -] [- 112,113,117
                            -]/[- 117
         GENERAL            FBIO  6
%M1169   _MAIN              Exter dischar conv runing
                            -] [- 119
                            -( )  120
%M1170   _MAIN              Servo axis ident
                            -] [- 37,158,252,323,567,646,723
                            -]/[- 48,156,186,253,310,332,349,363
                            -( )  723
%M1171   _MAIN              ME. axis ident
                            -]/[- 723
                            -( )  722
%M1174   _MAIN              B905 hold time
                            -] [- 117
                            -( )  118
%M1175   _MAIN              Crash pusher arm down
                            -] [- 583,589
                            -( )  583
%M1176   _MAIN              Memory crash in pusher
                            -] [- 334
                            -( )  334
%M1177   _MAIN              Hotmelt tank low levle
                            -] [- 605,607
                            -( )  604
%M1178   _MAIN              Alarm hotmelt tank low lev
                            -] [- 607
                            -]/[- 607,629
                            -(S)  605
                            -(R)  606
%M1180   _MAIN              Cynch speed on
                            -] [- 707,712
                            -]/[- 706,708
         1T0001             -] [- 27
                            -( )  27
%M1181   1T0001             Range, Synch needed main motor
                            -] [- 27
                            -( )  26
%M1182   _MAIN              High speed locked
                            -] [- 708,709
                            -( )  709
%M1184   _MAIN              Infeed reset after door
                            -] [- 261
                            -( )  261
%M1185   _MAIN              Em/Door, Reset servo
                            -] [- 666,667,668,673
                            -]/[- 339,565,567,687
                            -( )  666
%M1186   _MAIN              Em/Door, Servo reset done
                            -] [- 668,669
                            -]/[- 666,687
                            -( )  668
%M1187   _MAIN              Em/door, Pusher forward locked
                            -] [- 328,331,337,339,669
                            -]/[- 346,668
                            -( )  669
%M1188   _MAIN              Em/Door, Pusher home pos locked
                            -] [- 670
                            -]/[- 321,666
                            -(M)  670
%M1190   _MAIN    B125M     B125M :Pack at pusher step2->
                            -] [- 268,296,313,591,594
                            -]/[- 270,293,307,318,338,592
                            -( )  302
         EMPTY              -] [- 32
                            -]/[- 15
%M1191   _MAIN    B126M     Pack on groupbelt step2->
                            -] [- 112,267,296,312,313
                            -]/[- 267,289,291,292,293,295,299,300,307,510
                            -( )  303
         EMPTY              -] [- 18
                            -]/[- 8,15,16,30
%M1192   _MAIN    B124M     End stop inner pos Step2->
                            -] [- 269,306,337,345,594
                            -]/[- 312
                            -( )  304
         PLMS               -] [- 4
                            -]/[- 4
%M1207   _MAIN              Alarm reset pusher arm
                            -] [- 320
                            -( )  320
%M1208   _MAIN              Pusher to home pos reset
                            -]/[- 343
                            -( )  321
%M1209   _MAIN              L/S Pusher arm up when homing
                            -] [- 322,323
                            -( )  322
%M1211   _MAIN              Pusher arm up

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-------  -------  -------- -------------------------------------
                           -] [- 323,324
                           -( )  323
%M1212   _MAIN              Pusher backwards
                           -] [- 343,345
                           -( )  345
%M1213   _MAIN              Pusher support arm  down
                           -] [- 330,332
                           -( )  330
%M1214   _MAIN              WA squeeze down memory
                           -] [- 38,424,429
                           -( )  424
%M1218   _MAIN              No pusher start allowed
                           -]/[- 339
                           -( )  333
%M1219   _MAIN              Alarm, Pusher supp. arm up
                           -] [- 587,589
                           -( )  587
%M1221   _MAIN              Crash pusher forw
                           -] [- 334,575,589
                           -( )  575
%M1223   _MAIN              Crash, Pusher arm up
                           -] [- 585,589
                           -( )  585
%M1224   1T0001             Feeding not stop pos
                           -] [- 30
                           -( )  28
%M1225   _MAIN              Start feeding em/door
                           -]/[- 614
         1T0001             -] [- 30,31,78
                           -]/[- 32,82
                           -( )  30
%M1226   _MAIN              Start cond folding bar
                           -] [- 371,372
                           -( )  371
%M1227   _MAIN              Folding bar on range
                           -] [- 372
                           -]/[- 371
                           -( )  374
%M1228   1T0001             Check feeding pos
                           -]/[- 30
                           -(/)  29
%M1229   _MAIN              Crash in pusher backw
                           -] [- 577,589
                           -( )  577
%M1230   _MAIN              Folding bar after em/door
                           -] [- 372,373
                           -( )  372
%M1231   1T0001             H/S Main not in stop pos
                           -] [- 35
                           -( )  33
%M1232   1T0001             Start main em/door
                           -] [- 35,36,71
                           -]/[- 37,72
                           -( )  35
%M1233   1T0001             Check main motor position
                           -]/[- 35
                           -(/)  34
%M1235   _MAIN              Disharge support
                           -] [- 656
                           -( )  655
%M1236   _MAIN              Pusher belt start em/door
                           -] [- 306
                           -]/[- 312
                           -( )  306
%M1239   _MAIN              Alarm reset pusher
                           -] [- 306,319,320,321,323,346,670
                           -]/[- 309,363
                           -( )  319
%M1240   1T0001             H/S synch stop feeding
                           -] [- 41
                           -(/)  39
%M1241   1T0001             L/S synch stop feeding
                           -] [- 41
                           -(/)  40
%M1242   1T0001             H/S stop feeding motor
                           -] [- 45
                           -( )  43
%M1243   1T0001             L/S stop feeding motor
                           -] [- 45
                           -( )  44
%M1244   1T0001             H/S low speed feeding motor
                           -] [- 53
                           -( )  51
%M1245   1T0001             L/S low speed feeding motor
                           -] [- 53
                           -( )  52
%M1246   1T0001             H/S low speed main   shaft
                           -] [- 57
                           -( )  55
%M1247   1T0001             L/S low speed main   shaft
                           -] [- 57
                           -( )  56

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-------  -------  -------- ------------------------------------
%M1248   _MAIN             H/S synch stop main
                           -] [- 661
         1T0001            -] [- 61
                           -(/)  59
%M1249   _MAIN             L/S synch stop main
                           -] [- 661
         1T0001            -] [- 61
                           -(/)  60
%M1250   1T0001            H/S stop main shaft
                           -] [- 65
                           -( )  63
%M1251   1T0001            L/S stop main shaft
                           -] [- 65
                           -( )  64
%M1252   1T0001            H/S start feeding motor
                           -] [- 49
                           -( )  47
%M1253   1T0001            L/S start feeding motor
                           -] [- 49
                           -( )  48
%M1261   _MAIN             Grouping support up delay AUTO
                           -] [- 195,196,197,198,199,200,201,202,203,204,205,206,207,208,210,211,212,213,214,215,216,217,218,219,
                                 220,221,222,223
                           -]/[- 224
                           -( )  193
%M1265   _MAIN             ME.  clutch feeding
                           -] [- 702
                           -(S)  700
                           -(R)  701
%M1270   REG               Puls sending value servo
                           -] [- 48
                           -(^)  47
%M1271   _MAIN             Gr. pusher - low speed stroke
                           -( )  183
%M1272   _MAIN             Pulse, B122+
                           -] [- 265,355
                           -( )  260
%M1273   _MAIN             Check blank in pos WA
                           -] [- 343,344
                           -( )  344
%M1275   _MAIN             ME.Start grouping mat
                           -] [- 294,295
                           -( )  294
%M1276   _MAIN             Slow speed first stroke, bit 1
                           -] [- 183,184
                           FBIO  181
%M1277   _MAIN             Slow speed first stroke, bit 2
                           -] [- 183,185
%M1278   _MAIN             Slow speed long stroke, bit 1
                           -] [- 183,184
                           FBIO  182
%M1279   _MAIN             Slow speed long stroke, bit 2
                           -] [- 183,185
%M1280   _MAIN             ME queue down streame
                           -] [- 561
                           -]/[- 561,630,636
                           -(S)  555
                           -(R)  556
%M1281   _MAIN             Alarm EL.equip
                           -] [- 492
                           -]/[- 492,635
                           -(S)  490
                           -(R)  491
%M1283   _MAIN             Reset blanck in WA station
                           -]/[- 404
                           -( )  403
%M1284   _MAIN             Low speed in machine
                           -] [- 346,393,464,659,710,713
                           -]/[- 710,711
                           -(M)  710
%M1285   _MAIN             High speed in machine
                           -] [- 71,76,79,84,87,90,93,96,297,323,339,346,355,375,394,407,410,414,416,421,463,656,658,707,709,714
                           -]/[- 76,84,86,88,89,90,96,297,323,376,406,409,413,415,422
                           -(M)  711
         PATTER0           -] [- 14,18,21,25
                           -]/[- 16,23
         PATTER1           -] [- 14,18,21,25
                           -]/[- 16,23
         PATTER2           -] [- 14,18,21,25
                           -]/[- 16,23
         PATTER3           -] [- 14,18,21,25
                           -]/[- 16,23
         PATTER4           -] [- 14,18,21,25
                           -]/[- 16,23
         PATTER5           -] [- 14,18,21,25
                           -]/[- 16,23
         PATTER6           -] [- 14,18,21,25
                           -]/[- 16,23
         PATTER7           -] [- 14,18,21,25
                           -]/[- 16,23
         PATTER8           -] [- 14,18,21,25
                           -]/[- 16,23

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-------  -------  -------- -------------------------------------
         PATTER9           -] [- 14,18,21,25
                           -]/[- 16,23
         PLMS              -] [- 28
                           -]/[- 29
         1T0001            -] [- 33,39,41,43,47,51,55,59,61,63,71,72,81,82
                           -]/[- 40,41,44,48,52,56,60,61,64,70,80
%M1286   _MAIN             High speed allowed
                           -] [- 709,711
                           -]/[- 710
                           -( )  705
%M1287   _MAIN             Hotmelt 1:dot low H/S
                           -] [- 76
                           -( )  71
%M1288   _MAIN             Hotmelt 1:dot upp H/S
                           -] [- 84
                           -( )  79
%M1289   _MAIN             Hotmelt 2:dot low H/S
                           -] [- 90
                           -( )  87
%M1290   _MAIN             Hotmelt 2:dot upp H/S
                           -] [- 96
                           -( )  93
%M1294   _MAIN             Wa down high speed
                           -] [- 423
                           -( )  421
%M1295   _MAIN             Wa down low speed
                           -] [- 423
                           -( )  422
%M1296   _MAIN             Start bottom flapp H/S
                           -] [- 377
                           -( )  375
%M1297   _MAIN             Start bottom flapp L/S
                           -] [- 377
                           -( )  376
%M1298   _MAIN             Alarm light barrier
                           -] [- 482,568,569,571
                           -( )  568
%M1401   SELECTI           6 package in row
                           -] [- 113
                           FBIO  118
         PLMS              -] [- 145
%M1402   SELECTI           8 package in row
                           -] [- 114
         PLMS              -] [- 146
%M1403   SELECTI           9 package in row
                           -] [- 115
         PLMS              -] [- 147
%M1404   SELECTI           10 package in row
                           -] [- 116
         PLMS              -] [- 148
%M1405   SELECTI           12 package in row
                           -] [- 117
         PLMS              -] [- 149
%M1407   _MAIN             Pusher support arm upp
                           -]/[- 330
                           -( )  331
%M1408   _MAIN             Pusher back locked
                           -] [- 343
                           -(SM) 341
                           -(RM) 342
%M1409   _MAIN             Folding plate H/S
                           -] [- 661
                           -( )  658
%M1410   _MAIN             Folding plate on
                           -] [- 661,662
                           -( )  661
%M1412   _MAIN             Folding plate L/S
                           -] [- 661
                           -( )  659
%M3105   _MAIN             Short stroke, dolly counterhold
                           -] [- 246,247,250
                           -( )  246
%M3106   _MAIN             Long stroke, dolly counterhold
                           -] [- 248,249,250
                           -( )  248
%M3107   _MAIN             Setting encoder
                           -] [- 56,57,643,644,645,646
                           -]/[- 57
                           -( )  56
%M3108   _MAIN             0 pos angle encoder feeding
                           -] [- 644
                           -( )  58
%M3109   _MAIN             -5 pos angle encoder feeding
                           -] [- 643
                           -( )  59
%M3110   _MAIN             +5 pos angle encoder feeding
                           -] [- 645
                           -( )  60
%M3111   _MAIN             0 pos angle encoder main
                           -] [- 644
                           -( )  61
%M3112   _MAIN             -5 pos angle encoder main

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                           -] [- 643
                           -( )  62
%M3113   _MAIN             +5 pos angle encoder main
                           -] [- 645
                           -( )  63
%M3120   _MAIN             Puls,LS flap fold WAMF,WAIF,TOF
                           -] [- 417
                           -(^)  413
%M3121   _MAIN             Puls,HS flap fold WAMF,WAIF,TOF
                           -] [- 417
                           -(^)  414
%M3122   _MAIN             WA flap fold down WAMF,WAIF,TOF
                           -] [- 417,420
                           -( )  417
%M3130   _MAIN             WAMF, WAIF or TRAY OF
                           -] [- 420
                           -]/[- 420
                           -( )  419
%M3132   _MAIN             WA squeeze down START
                           -] [- 424,432
                           -( )  423
%M3133   _MAIN             Allow to wrap
                           -] [- 98,99,420,427,429
                           -( )  427
%M3134   _MAIN             Reset allow to wrap
                           -]/[- 427
                           -( )  426
%M3135   _MAIN             Pulse, feeding motor start
                           -] [- 426,432
                           -]/[- 417,420
                           -(^)  431
%M3137   _MAIN             Dolly reached 1:st stroke pos
                           -] [- 168,169,177,237
                           -]/[- 238
                           -( )  237
%M3138   _MAIN             Bit 1 check main
                           -] [- 627
                           -(S)  619
                           -(R)  628
%M3139   _MAIN             Bit 2 check main
                           -] [- 627
                           -(S)  620
                           -(R)  628
%M3140   _MAIN             Bit 3 check main
                           -] [- 627
                           -(S)  621
                           -(R)  628
%M3141   _MAIN             Bit 4 check main
                           -] [- 627
                           -(S)  622
                           -(R)  628
%M3142   _MAIN             Bit 5 check main
                           -] [- 627
                           -(S)  623
                           -(R)  628
%M3143   _MAIN             Bit 6 check main
                           -] [- 627
                           -(S)  624
                           -(R)  628
%M3144   _MAIN             Bit 7 check main
                           -] [- 627
                           -(S)  625
                           -(R)  628
%M3145   _MAIN             Bit 8 check main
                           -] [- 627
                           -(S)  626
                           -(R)  628
%M3147   _MAIN             Mainshaft encoder ok
                           -]/[- 615
                           -( )  627
%M3148   _MAIN             Range check machine pos
                           -] [- 427
                           -( )  425
%M3149   _MAIN             WA up - synch start in WA area
                           -]/[- 424,427,429
                           -( )  432
%M3150   _MAIN             Allow infeed conv start
                           -] [- 105
                           -( )  104
%M3151   _MAIN             Doors, reset condition
                           -] [- 484,569
                           -( )  483
%M3152   _MAIN             Resetcondition for L12
                           -] [- 477
                           -( )  476
%M3154   _MAIN             Ready for infeed
                           -] [- 267
                           -( )  266
%M3155   _MAIN             Grouping slow speed stroke
                           -] [- 196,197,198,212,216,219
                           -]/[- 195,196,197,198,199,200,201,202,203,204,205,206,207,208,210,211,212,213,214,215,216,217,218,219,
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                           -( )  192
%M3158   _MAIN             Endstop not out
                           -] [- 307,325
                           -]/[- 325,326
                           -( )  307
%M3159   _MAIN             Alarm pusher section
                           -] [- 308
                           -]/[- 307
                           -( )  308
%M3160   _MAIN             Endstop not out at pusher jam
                           -] [- 268,285,326,599
                           -]/[- 310
                           -( )  599
%M3161   _MAIN             Alarm no servo cmd.
                           -] [- 579,589
                           -( )  579
%M3162   _MAIN             Prevent TP up - pusher moving
                           -] [- 358
                           -]/[- 363
                           -( )  358
%M3163   _MAIN             Grouping slow speed 1
                           -] [- 189,192,196,212
                           -( )  189
%M3164   _MAIN             Grouping slow speed 2
                           -] [- 190,192,197,216
                           -( )  190
%M3165   _MAIN             Grouping slow speed 3
                           -] [- 191,192,198,219
                           -( )  191
%M3166   _MAIN             Pusher reset, Active
                           -] [- 687,688,690,691,692,693,694,695,696,697
                           -]/[- 51,330,339,665
                           -( )  687
         1T0001            -]/[- 69,78
%M3167   _MAIN             Pusher reset, reset servo
                           -] [- 673,688,689,690
                           -( )  688
%M3168   _MAIN             Pusher reset, Folding bar off
                           -] [- 690,691
                           -]/[- 373,688
                           -( )  690
%M3169   _MAIN             Pusher reset, Bottom flap off
                           -] [- 691,692
                           -]/[- 377
                           -( )  691
%M3170   _MAIN             Pusher reset, Transf plate down
                           -] [- 692,693
                           -]/[- 363
                           -( )  692
%M3171   _MAIN             Pusher reset, Endstop in
                           -] [- 693,694
                           -]/[- 310
                           -( )  693
%M3172   _MAIN             Pusher reset, Pusher arm up
                           -] [- 324,694,695
                           -( )  694
%M3173   _MAIN             Pusher reset, Pusher support up
                           -] [- 695,696
                           -]/[- 332
                           -( )  695
%M3174   _MAIN             Pusher reset, Pusher back
                           -] [- 343,696,697
                           -]/[- 339
                           -( )  696
%M3175   _MAIN             Pusher reset, Done
                           -] [- 697
                           -]/[- 687
                           -( )  697
%M3176   _MAIN             Endstop to on pos
                           -] [- 309,310
                           -( )  309
%M3177   _MAIN             Infeed fault, Step down to step2
                           -] [- 526,529
                           -]/[- 48,527
                           -( )  528
         PLMS              -] [- 65
%M3178   _MAIN             Very low lev. blanks-Stdown to 2
                           -] [- 539
                           -]/[- 48
                           -( )  538
         PLMS              -] [- 113
%M3179   _MAIN             Crash push supp. arm infeed
                           -] [- 597,599,600
                           -( )  597
%M3180   _MAIN             Servo Rst, Active
                           -] [- 672,673,674,675,676,677,678,679,681,689
                           -]/[- 47,565,667,672,688
                           -( )  672
%M3181   _MAIN             Servo Rst, Servo Enable=0
                           -] [- 673,674,682
                           -]/[- 684
                           -( )  673

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REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  -------- -----------------------------------
%M3182   _MAIN              Servo Rst, Serv stop=0 Enable=1
                            -] [- 674,675
                            -]/[- 673,682
                            -( )  674
%M3183   _MAIN              Servo Rst,Servo Start/Reset=1
                            -] [- 675,676,683
                            -( )  675
%M3184   _MAIN              Servo Rst, Servo Start/Reset=0
                            -] [- 676,677
                            -]/[- 683
                            -( )  676
%M3185   _MAIN              Servo Rst, Servo stop=1
                            -] [- 677,678,682
                            -( )  677
%M3186   _MAIN              Servo Rst, Servo Start/Reset=1
                            -] [- 678,679,683
                            -( )  678
%M3187   _MAIN              Servo Rst, Servo Start/Reset=0
                            -] [- 679,680,681
                            -]/[- 683
                            -( )  679
%M3188   _MAIN              Servo Rst, Servo Ready
                            -] [- 668,681
                            -]/[- 672
                            -( )  681
%M3193   _MAIN              Allow K6 when pusher not forward
                            -] [- 311,313
                            -( )  311
%M3194   _MAIN              L/S Ejector blanks
                            -] [- 395
                            -( )  393
%M3195   _MAIN              H/S Ejector blanks
                            -] [- 395
                            -( )  394
%M3196   _MAIN              Servo Rst, Error cant be reset
                            -] [- 681
                            -( )  680
%M3197   _MAIN              Mainshaft folder in t.plate area
                            -] [- 363
                            -( )  362
%M3199   _MAIN              Outf.conv. stop,feeding out box
                            -] [- 445,446
                            -( )  445
%M3200   _MAIN              Infeed has been reset
                            -] [- 264,265
                            -]/[- 263
                            -( )  264
%M3201   _MAIN              Dolly pulse hold
                            -] [- 244,245
                            -( )  244
%M3204   REG                Grouping - speed value to low
                            -] [- 20
                            -( )  19
%M3205   REG                Grouping - speed value too high
                            -] [- 23
                            -( )  22
%M3206   REG                Pusher - speed value too low
                            -] [- 38
                            -( )  37
%M3207   REG                Pusher - speed value too high
                            -] [- 41
                            -( )  40
%M3208   _MAIN              Grouping mat stopped completely
                            -] [- 272
                            -( )  271
%M3209   _MAIN              Dolly pulse hold
                            -]/[- 246
                            -( )  247
%M3210   _MAIN              Dolly long stroke hold
                            -]/[- 248
                            -( )  249
%M3211   _MAIN              Range, L/S Allow pusher stroke
                            -] [- 339
                            -(/)  335
%M3212   1T0001             H/S separate blanks in slow sp.
                            -]/[- 72
                            -( )  75
%M3213   _MAIN              L/S WA squeeze down delayed
                            -]/[- 417
                            -( )  415
%M3214   _MAIN              H/S WA squeeze down delayed
                            -]/[- 417
                            -( )  416
%M3216   1T0001             H/S pull down blanks slow
                            -]/[- 72
                            -( )  76
%M3220   _MAIN              Airpress ok - pusher can start
                            -] [- 340
                            -( )  336
%M3221   _MAIN              WAIF hotmelt dot start LS
                            -] [- 408,412
                            -( )  406

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REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  -------- -------------------------------------
%M3222   _MAIN             WAIF hotmelt dot start HS
                           -] [- 408,412
                           -( )  407
%M3223   _MAIN             WAIF hotmelt dot done
                           -]/[- 412
                           -( )  408
%M3224   _MAIN             WASF hotmelt dot start LS
                           -] [- 411,412
                           -( )  409
%M3225   _MAIN             WASF hotmelt dot start HS
                           -] [- 411,412
                           -(M)  410
%M3226   _MAIN             WASF hotmelt dot done
                           -]/[- 412
                           -( )  411
%M3227   _MAIN             Extended, feeding motor running
                           -] [- 406,407,409,410
                           -( )  405
%M3228   _MAIN             Check accelration completion
                           -] [- 280,282
                           -(^)  279
%M3229   _MAIN             Acc incomplete, add inf time
                           -] [- 284
                           -(S)  282
                           -(R)  283
%M3230   _MAIN             Grouping mat offdelay filtered
                           -] [- 279,281
                           -( )  278
%M3231   _MAIN             Choice-endstop out till B121
                           -] [- 287,288
                           -]/[- 287
                           FBIO  286
%M3232   _MAIN             Transfer plate up (2 led flash)
                           -] [- 545,546,551,603
                           -]/[- 52
                           -( )  545
%M3233   _MAIN             Alarm transf plate (2 led flash)
                           -] [- 551,603
                           -]/[- 551,603,635
                           -(S)  546
                           -(R)  547
%M3235   _MAIN             B125 covered during push
                           -] [- 600
                           -]/[- 267
                           -(SM) 591
                           -(RM) 592
%M3236   1T0001            Trigger main shaft start
                           -] [- 69
                           -( )  68
%M3238   _MAIN             WA up before feeding start
                           -]/[- 424,429
                           -( )  428
%M3239   _MAIN             -] [- 69
                           -( )  68
%M3240   _MAIN             Synch speed active
                           -]/[- 713
                           -( )  712
%M3241   _MAIN             Machine components in synch
                           -] [- 39,529,539
                           -]/[- 40
                           -( )  38
%M3242   _MAIN             Synch not found, allow step down
                           -] [- 529,539
                           -]/[- 41
                           -( )  40
%M3243   _MAIN             WA done - ok to step down
                           -] [- 38,430
                           -( )  430
%M3244   _MAIN             Machine in synch &grouping home
                           -]/[- 41
                           -( )  39
%M3247   _MAIN             Pls down B908, Restart timer
                           -]/[- 558
                           -(v)  557
%M3248   _MAIN             Pulse down, Box passed outfeed
                           -]/[- 449
                           -(v)  450
%M3249   _MAIN             Stop TCBP disch. - passing box
                           -] [- 449,451
                           -( )  449
%M3250   _MAIN             B908 - outfeed stop max time
                           -] [- 449
                           -( )  448
%M3251   _MAIN             Transfplate up when B123-
                           -] [- 355
                           FBIO  352
%M3252   _MAIN             Transfplate up when pushplate up
                           -] [- 355

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================================================================================
==========  TEMPORARY  (%T)  GLOBAL CROSS REFERENCES
================================================================================
REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  -------- -------------------------------------
%T0001   _MAIN             Pulse step up
                           -] [- 28,32,34,41,48
                           -( )  25
%T0002   _MAIN             Pulse step down
                           -] [- 29
                           -]/[- 41,48
                           -(^)  26
         PLMS              -] [- 119
%T0003   _MAIN             Pulse step up push button
                           -] [- 25,252
                           -]/[- 113
                           -(^)  24
         PLMS              -] [- 118
%T0004   _MAIN             Pulse alarm reset
                           -] [- 465,478,485,488,491,494,500,504,512,518,523,528,531,534,541,547,550,556,560,563,566,570,592,595,
                                 602,606,610,616,617,667,688
                           -]/[- 469,470,477,482,484,490,493,497,498,499,507,509,510,511,515,517,520,521,525,530,545,546,549,555,
                                 558,559,562,565,568,569,575,577,579,581,583,585,587,597,601,605,609,689,723
                           -(^)  648
         EMPTY             -] [- 17
                           -]/[- 6,18
%T0005   _MAIN             Pulse flash
                           -(^)  23
%T0006   _MAIN             Pulse end multipl.train
                           -] [- 22
                           -]/[- 22
         MULTIPX           -] [- 8,9,10,12,13,14
                           -(^)  7
%T0015   _MAIN             Pulse v. low level blanks
                           -] [- 540
                           -(^)  543
%T0016   _MAIN             Pulse, Step2+
                           -] [- 231,261,307,309,328,329,344,345,378,432,690
                           -]/[- 306,308,430
                           -(^)  43
         REG               -] [- 48
         1T0001            -] [- 79
%T0017   _MAIN             Pulse, Step2-
                           -] [- 343,665,686,687
                           -(v)  44
%T0018   _MAIN             Pulse, Step1+
                           -] [- 687,688
                           -(^)  35
%T0019   _MAIN             Pulse, Step3+
                           -] [- 329
                           -(^)  49
%T0024   SELECTI           Pulse select infeed pack.
                           -] [- 15,16,17
                           -]/[- 15,16,17
                           -(^)  14
%T0025   SELECTI           Pulse select package pattern
                           -] [- 36,38,40,41,42,43,44,45,46
                           -]/[- 36,38,40,41,42,43,44,45,46
                           -(^)  35
%T0028   SELECTI           Pulse select tray type
                           -] [- 96,97,98,99,100
                           -]/[- 96,97,98,99,100
                           -(^)  90
%T0029   SELECTI           Pulse select pusher width
                           -] [- 74,75,76,77,78
                           -]/[- 74,75,76,77,78
                           -(^)  68
%T0030   _MAIN             Pulse f.motor synch. pos.
                           -]/[- 445
                           -(^)  444
%T0031   _MAIN             Pulse synch stop main
                           -]/[- 507
                           -(^)  506
%T0032   _MAIN             Pulse synch stop feeding
                           -]/[- 509
                           -(^)  508
%T0033   _MAIN             Pls start push sup.arm
                           -] [- 283,318
                           -(^)  316
         PLMS              -] [- 20
                           -]/[- 8,15
%T0034   _MAIN             Pls, start pusher support arm
                           -] [- 318
                           -(^)  317
%T0040   _MAIN             ME.Pulse step up
                           -] [- 34
         EMPTY             -(^)  4
%T0041   EMPTY             ME.Pulse vacuum stop
                           -]/[- 21,27
                           -(^)  5
%T0042   EMPTY             ME.Pulse vacuum start
                           -] [- 21
                           -(^)  6
%T0043   _MAIN             ME. Pulse empty. finish.

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REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  -------- -------------------------------------
                           -] [- 233,397,548
                           -]/[- 34,42
         EMPTY             -] [- 4,26
                           -]/[- 8
                           -(^)  7
%T0044   _MAIN             Servo axis ident puls
                           -] [- 723
                           -(^)  721
%T0046   _MAIN             Em/Door, Pusher forward
                           -] [- 319,666
                           -(^)  665
%T0047   _MAIN             Em/Door pusher backwards
                           -] [- 687
                           -(^)  686
%T0048   _MAIN             Pulse, B123
                           -]/[- 358
                           -(^)  357
%T0049   _MAIN             Pulse, B121-
                           -] [- 263
                           -(^)  262
%T0053   _MAIN             Folding bar off
                           -(^)  370
%T0055   _MAIN             Endstop inner pos puls
                           -] [- 330
                           -(^)  325
%T0056   _MAIN             Support arm down after pusherjam
                           -] [- 330
                           -(^)  326
%T0057   _MAIN             Support arm down after door/em
                           -] [- 330
                           -(^)  328
%T0058   _MAIN             Pulse down B134
                           -] [- 252
                           -(v)  251
%T0059   _MAIN             Arm down if infeed ready
                           -] [- 330
                           -(^)  329
%T0060   _MAIN             Puls, pusher home & infeed ready
                           -] [- 330
                           -(^)  327
%T0061   _MAIN             Delay pusher off
                           -] [- 174,175
                           -(^)  173
         EMPTY             -] [- 13
%T0063   _MAIN             Count pls tried infeed
                           -] [- 528
                           -]/[- 526
                           -(^)  527
%T0066   _MAIN             Change cardb.
                           -] [- 67
                           -(^)  66
%T0067   _MAIN             Pulse step1
                           -] [- 67
                           -(^)  65
%T0068   _MAIN             Tray support reset
                           -]/[- 367
                           -(^)  366
%T0071   _MAIN             Empty magazine
                           -] [- 540
                           -(^)  542
%T0073   _MAIN             Stop arm down
                           -] [- 258
                           -(^)  257
%T0074   _MAIN             Inching pulse
                           -] [- 440
                           -(^)  439
%T0075   _MAIN             Pulse, B123-
                           -] [- 354
                           -(v)  353
%T0077   _MAIN             Em/door, Pulse reset servo
                           -] [- 672
                           -(^)  667
%T0078   _MAIN             Pusher reset, Pulse reset servo
                           -] [- 672
                           -(^)  689
%T0080   SWITCH            Change of bottom size
                           -] [- 5
                           -( )  4
%T0082   _MAIN             Pulse, main shaft start
                           -] [- 628
                           -]/[- 417,420
                           -(^)  380
         PLMS              -] [- 20
                           -]/[- 8,15
%T0091   _MAIN             Puls reset infeed
                           -] [- 264,294
                           -]/[- 267
                           -(^)  263
%T0092   _MAIN             Puls start infeed
                           -] [- 267
                           -(^)  265
%T0100   _MAIN             Pulse dolly

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REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  -------- -------------------------------------
                           -] [- 246,248
                           -(^)  245
%T0150   _MAIN             Reset setting encoder
                           -]/[- 56
                           -(^)  57
%T0200   SELECTI           Puls select group  infeed
                           -] [- 118
                           -(^)  112
%T0201   _MAIN             Clutch feeding on/off puls
                           -] [- 700,701
                           -(^)  699
%T0202   _MAIN             Puls B122
                           -] [- 260
                           -(^)  259
%T0203   _MAIN             puls select speed machine
                           -] [- 710
                           -]/[- 710
                           -(^)  706
%T0204   _MAIN             Cynch speed puls on
                           -] [- 706
                           -(^)  707
%T0205   _MAIN             Cynch speed puls off
                           -] [- 706
                           -(^)  708
%T0250   _MAIN             Main stop puls
                           -] [- 615
                           -(^)  613
%T0255   PLMS     B123+    Pulse pusher front
                           -] [- 164,165,166,167,168,169,170,171,172,173,174,175,176,177,178,179,180,181,182,183,184,185,186,187,
                                 188,189,190,191,192,193,194,195,196
                           -(^)  163
%T0256   _MAIN             Pulse, WA flap folder down WASF
                           -] [- 420
                           -(^)  418

==============================================================================
==========  REGISTER  (%R)  GLOBAL CROSS REFERENCES
==============================================================================
REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  -------- -------------------------------------
%R0001   _MAIN             Bypass hotmelt in  step 1
                           FBIO  37
%R0007   _MAIN             Lamp test
                           FBIO  647
%R0010   _MAIN             Extern. brake queue length
                           FBIO  457
%R0013   _MAIN             Extern. brake space betw.q.
                           FBIO  458
%R0016   _MAIN             Extern. brake queue to DE
                           FBIO  456
%R0028   _MAIN             Delay step down
                           FBIO  27
%R0031   _MAIN             Check air press. step 2
                           FBIO  496
%R0037   _MAIN             Check no air press.
                           FBIO  498
%R0040   _MAIN             Reset ejector blanks blow
                           FBIO  398
%R0043   _MAIN             Long infeed time
                           FBIO  126
%R0046   _MAIN             Short infeed time
                           FBIO  133
%R0055   _MAIN             No blank in grp.pos
                           FBIO  348
%R0064   _MAIN             Crush guard group. pusher
                           FBIO  525
%R0067   _MAIN             Crush guard group. pusher
                           FBIO  526
%R0070   _MAIN             Stop pusher belt
                           FBIO  299
%R0073   EMPTY             Manual empty.
                           FBIO  8
%R0076   EMPTY             Infeed conv. empty
                           FBIO  9
%R0079   EMPTY             Infeed brake empty
                           FBIO  11
%R0082   EMPTY             No more packs
                           FBIO  15
%R0085   EMPTY             Manual empty finish
                           FBIO  7
%R0088   EMPTY             Spare
                           FBIO  26
%R0091   _MAIN             Delay off min.q. beltbr.
                           FBIO  124
%R0094   _MAIN             Min.q. into belt brake
                           FBIO  123
%R0103   _MAIN             Fallen package
                           FBIO  516
%R0106   _MAIN             Blow after cover closed
                           FBIO  399
%R0109   _MAIN             Delay off pusher stroke
                           FBIO  349

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REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  -------- -------------------------------------
%R0118   _MAIN             Queue outfeed conv.
                           FBIO  558
%R0121   _MAIN             Stop single inf. conv.
                           FBIO  113
%R0132   _MAIN             1:st upper hotmelt done
                           FBIO  85
%R0136   _MAIN             Stop outfeed
                           FBIO  447
%R0139   _MAIN             1:st lower hotmelt lenght
                           FBIO  77
%R0142   _MAIN             2:nd lower hotmelt lenght
                           FBIO  91
%R0148   _MAIN             1:st upper hotmelt lenght
                           FBIO  97
%R0163   _MAIN             Stop blank magaz.
                           FBIO  386
%R0169   _MAIN             Delay off, magaz. photoc.
                           FBIO  385
%R0181   _MAIN             Check K002
                           FBIO  487
%R0184   _MAIN             Low level blanks
                           FBIO  535
%R0187   _MAIN             Very low level blanks
                           FBIO  537
%R0202   _MAIN             Group. belt empty
                           FBIO  256
%R0205   _MAIN             Infeed ready
                           FBIO  269
%R0211   _MAIN             Cond. slow speed feed.m.
                           FBIO  381
%R0214   _MAIN             Delay off slow speed
                           FBIO  381
%R0220   _MAIN             Delay endstop
                           FBIO  314
%R0223   _MAIN             Lubric.interv.LUB-INT
                           FBIO  465,466
%R0226   _MAIN             Lubric.time    LUB-TME
                           FBIO  467
%R0229   _MAIN             Fault   lubric.press.  low
                           FBIO  469
%R0232   _MAIN             Fault   lubric.press.  high
                           FBIO  470
%R0238   _MAIN             Conv. alarm feed motor
                           FBIO  509
%R0241   _MAIN             Conv. alarm main motor
                           FBIO  507
%R0244   _MAIN             Conv. alarm mat
                           FBIO  510
%R0247   _MAIN             Nmbr of lubric at low level
                           FBIO  468
%R0310   _MAIN             Number of pusher stroke
                           FBIO  234
%R0313   _MAIN             Start blank magaz. motor
                           FBIO  387
%R0322   _MAIN             No blank in pack pos.
                           FBIO  548
%R0325   _MAIN             Delay open brake
                           FBIO  141
%R0334   MULTIPX           Length synch pulse train
                           FBIO  4,6,15
%R0340   _MAIN             Very low level blanks
                           FBIO  536
%R0401   _MAIN             Angle encoder value Feed.m.
                           FBIO  58,59,60
         1T0001            FBIO  14,28,29,39,40,43,44,51,52
%R0404   _MAIN             Angle encoder value Main m.
                           FBIO  61,62,63,335,362,375,376,393,394,428,658,659
         1T0001            FBIO  24,26,33,34,47,48,55,56,59,60,63,64,73,74,75,76
%R0405   _MAIN             Feed chain move in MM
                           FBIO  70,71,72,73,74,75,78,79,80,81,82,83,86,87,88,89,92,93,94,95,365,368,374,403,406,407,409,410,413,
                                 414,421,422,425,473
         1T0001            FBIO  14
%R0431   PATTER0           FBIO  7
         PATTER1           FBIO  7
         PATTER2           FBIO  7
         PATTER3           FBIO  7
         PATTER4           FBIO  7
         PATTER5           FBIO  7
         PATTER6           FBIO  7
         PATTER7           FBIO  7
         PATTER8           FBIO  7
         PATTER9           FBIO  7
         SELECTI           FBIO  4
%R0432   SELECTI           FBIO  4
%R0433   SELECTI           FBIO  4
%R0434   SELECTI           FBIO  5
%R0435   SELECTI           FBIO  5
%R0436   SELECTI           FBIO  5
%R0437   SELECTI           FBIO  6
%R0438   PATTER0           FBIO  7
         PATTER1           FBIO  7
         PATTER2           FBIO  7

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REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  -------- ------------------------------------
         PATTER3           FBIO  7
         PATTER4           FBIO  7
         PATTER5           FBIO  7
         PATTER6           FBIO  7
         PATTER7           FBIO  7
         PATTER8           FBIO  7
         PATTER9           FBIO  7
         SELECTI           FBIO  6
%R0439   SELECTI           FBIO  6
%R0445   _MAIN             Guide rail up/down (Up=0)
                           FBIO  166
         PATTER0           FBIO  7
         PATTER1           FBIO  7
         PATTER2           FBIO  7
         PATTER3           FBIO  7
         PATTER4           FBIO  7
         PATTER5           FBIO  7
         PATTER6           FBIO  7
         PATTER7           FBIO  7
         PATTER8           FBIO  7
         PATTER9           FBIO  7
%R0446   SELECTI           Infeed selection
                           FBIO  9
%R0447   _MAIN             Group pusher back  delay
                           FBIO  173
%R0448   SELECTI           Package width select
                           FBIO  67
%R0449   SELECTI           Cardb. choice select
                           FBIO  88
%R0450   _MAIN             Single convey. speed
                           FBIO  106
%R0451   _MAIN             Unit convey. speed
                           FBIO  107
%R0452   _MAIN             6 packs in row
                           FBIO  127
         PATTER0           FBIO  9
         PATTER1           FBIO  9
         PATTER2           FBIO  9
         PATTER3           FBIO  9
         PATTER4           FBIO  9
         PATTER5           FBIO  9
         PATTER6           FBIO  9
         PATTER7           FBIO  9
         PATTER8           FBIO  9
         PATTER9           FBIO  9
%R0453   _MAIN             8 packs in row
                           FBIO  128
%R0454   _MAIN             9 packs in row
                           FBIO  129
%R0455   _MAIN             10 packs in row
                           FBIO  130
%R0456   _MAIN             12 packs in row
                           FBIO  131
%R0459   _MAIN             Infeed time group. pusher
                           FBIO  127,128,129,130,131,133
%R0460   _MAIN             Runtime feed to endstop x2
                           FBIO  273
         PATTER0           FBIO  9
         PATTER1           FBIO  9
         PATTER2           FBIO  9
         PATTER3           FBIO  9
         PATTER4           FBIO  9
         PATTER5           FBIO  9
         PATTER6           FBIO  9
         PATTER7           FBIO  9
         PATTER8           FBIO  9
         PATTER9           FBIO  9
%R0461   _MAIN             Runtime feed to endstop x3
                           FBIO  274
%R0462   _MAIN             Runtime feed to endstop x4
                           FBIO  275
%R0463   _MAIN             Runtime feed to endstop x5
                           FBIO  276
%R0464   _MAIN             Runtime feed to endstop x6
                           FBIO  277
%R0467   _MAIN             Grouping support active
                           FBIO  228
         PATTER0           FBIO  9
         PATTER1           FBIO  9
         PATTER2           FBIO  9
         PATTER3           FBIO  9
         PATTER4           FBIO  9
         PATTER5           FBIO  9
         PATTER6           FBIO  9
         PATTER7           FBIO  9
         PATTER8           FBIO  9
         PATTER9           FBIO  9
%R0468   _MAIN             Runtime endstop in
                           FBIO  269
%R0469   _MAIN             Choise small volum func.
                           FBIO  235
%R0470   _MAIN             Slow speed first stroke (0-3)

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-------  -------  -------- -------------------------------------
                           FBIO  181
%R0471   _MAIN             Slow speed long stroke (0-3)
                           FBIO  182
%R0472   _MAIN             FBIO  352
%R0473   _MAIN             Endstop out until pusher home
                           FBIO  286
%R0474   _MAIN             Infeed time
                           FBIO  273,274,275,276,277,284,285
%R0501   _MAIN             1:st hotmelt start, lower
                           FBIO  70
         PATTER0           FBIO  13,20
         PATTER1           FBIO  13,20
         PATTER2           FBIO  13,20
         PATTER3           FBIO  13,20
         PATTER4           FBIO  13,20
         PATTER5           FBIO  13,20
         PATTER6           FBIO  13,20
         PATTER7           FBIO  13,20
         PATTER8           FBIO  13,20
         PATTER9           FBIO  13,20
%R0502   _MAIN             1:st hotmelt start, upper
                           FBIO  78
%R0503   _MAIN             2:nd hotmelt start, lower
                           FBIO  86
%R0504   _MAIN             2:nd hotmelt start, upper
                           FBIO  92
%R0505   _MAIN             1:st hotmelt start, lower
                           FBIO  72
%R0506   _MAIN             1:st hotmelt start, upper
                           FBIO  80
%R0507   _MAIN             2:nd hotmelt start, lower
                           FBIO  88
%R0508   _MAIN             2:nd hotmelt start, upper
                           FBIO  94
         PATTER0           FBIO  13,20
         PATTER1           FBIO  13,20
         PATTER2           FBIO  13,20
         PATTER3           FBIO  13,20
         PATTER4           FBIO  13,20
         PATTER5           FBIO  13,20
         PATTER6           FBIO  13,20
         PATTER7           FBIO  13,20
         PATTER8           FBIO  13,20
         PATTER9           FBIO  13,20
%R0509   _MAIN             1:st hotmelt start, lower
                           FBIO  73
%R0510   _MAIN             1:st hotmelt start, upper
                           FBIO  81
%R0511   _MAIN             2:nd hotmelt start, lower
                           FBIO  89
%R0512   _MAIN             2:nd hotmelt start, upper
                           FBIO  95
%R0513   _MAIN             WAIF hotmelt dot start LS
                           FBIO  406
%R0514   _MAIN             WASF hotmelt dot start LS
                           FBIO  409
%R0515   _MAIN             1:st hotmelt start, lower
                           FBIO  74
         PATTER0           FBIO  13,20
         PATTER1           FBIO  13,20
         PATTER2           FBIO  13,20
         PATTER3           FBIO  13,20
         PATTER4           FBIO  13,20
         PATTER5           FBIO  13,20
         PATTER6           FBIO  13,20
         PATTER7           FBIO  13,20
         PATTER8           FBIO  13,20
         PATTER9           FBIO  13,20
%R0516   _MAIN             1:st hotmelt start, upper
                           FBIO  82
%R0517   _MAIN             1:st hotmelt start, lower
                           FBIO  75
%R0518   _MAIN             1:st hotmelt start, upper
                           FBIO  83
%R0520   _MAIN             WAIF hotmelt dot start HS
                           FBIO  407
%R0521   _MAIN             WASF hotmelt dot start HS
                           FBIO  410
%R0522   _MAIN             Length of 1:st lower hotmelt
                           FBIO  77
         PATTER0           FBIO  16,18,23,25
         PATTER1           FBIO  16,18,23,25
         PATTER2           FBIO  16,18,23,25
         PATTER3           FBIO  16,18,23,25
         PATTER4           FBIO  16,18,23,25
         PATTER5           FBIO  16,18,23,25
         PATTER6           FBIO  16,18,23,25
         PATTER7           FBIO  16,18,23,25
         PATTER8           FBIO  16,18,23,25
         PATTER9           FBIO  16,18,23,25
%R0523   _MAIN             Length of 1:st upper hotmelt
                           FBIO  85

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-------  -------  -------- ------------------------------------
%R0524   _MAIN             Length of 2:nd lower hotmelt
                           FBIO  91
%R0525   _MAIN             Length of 2:nd upper hotmelt
                           FBIO  97
%R0526   _MAIN             Length of WAIF hotmelt dot
                           FBIO  408
%R0527   _MAIN             Length of WASF hotmelt dot
                           FBIO  411
%R0530   SWITCH            Bottom size choice
                           FBIO  5,6,7,8,9,10,11,12,13,14,15
%R0535   SWITCH            Bottom size choice
                           FBIO  5
%R0537   _MAIN             Delay off pack. seper.
                           FBIO  159
%R0540   _MAIN             1:st hotmelt start,lower
                           FBIO  71
         PATTER0           FBIO  14,21
         PATTER1           FBIO  14,21
         PATTER2           FBIO  14,21
         PATTER3           FBIO  14,21
         PATTER4           FBIO  14,21
         PATTER5           FBIO  14,21
         PATTER6           FBIO  14,21
         PATTER7           FBIO  14,21
         PATTER8           FBIO  14,21
         PATTER9           FBIO  14,21
%R0541   _MAIN             1:st hotmelt start,upper
                           FBIO  79
%R0542   _MAIN             2:st hotmelt start,lower
                           FBIO  87
%R0543   _MAIN             2:st hotmelt start,upper
                           FBIO  93
%R0547   PATTER0           Servo speed grouping X*2
                           FBIO  27
         PATTER1           FBIO  27
         PATTER2           FBIO  27
         PATTER3           FBIO  27
         PATTER4           FBIO  27
         PATTER5           FBIO  27
         PATTER6           FBIO  27
         PATTER7           FBIO  27
         PATTER8           FBIO  27
         PATTER9           FBIO  27
         REG               FBIO  5
%R0548   REG               Servo speed grouping X*3
                           FBIO  6
%R0549   REG               Servo speed grouping X*4
                           FBIO  7
%R0550   REG               Servo speed grouping X*5
                           FBIO  8
%R0551   REG               Servo speed grouping X*6
                           FBIO  9
%R0552   REG               Servo speed grouping X*7
                           FBIO  10
%R0553   REG               Servo speed grouping X*8
                           FBIO  11
%R0554   PATTER0           Servo speed grouping X*9
                           FBIO  27
         PATTER1           FBIO  27
         PATTER2           FBIO  27
         PATTER3           FBIO  27
         PATTER4           FBIO  27
         PATTER5           FBIO  27
         PATTER6           FBIO  27
         PATTER7           FBIO  27
         PATTER8           FBIO  27
         PATTER9           FBIO  27
         REG               FBIO  12
%R0555   REG               Servo speed grouping X*10
                           FBIO  13
%R0556   REG               Servo speed grouping X*11
                           FBIO  14
%R0557   REG               Servo speed grouping X*12
                           FBIO  15
%R0558   REG               Servo speed grouping (X*2) multi
                           FBIO  16
%R0559   REG               Servo speed grouping (X*3) multi
                           FBIO  17
%R0561   PATTER0           Servo speed pusher X*2
                           FBIO  29
         PATTER1           FBIO  29
         PATTER2           FBIO  29
         PATTER3           FBIO  29
         PATTER4           FBIO  29
         PATTER5           FBIO  29
         PATTER6           FBIO  29
         PATTER7           FBIO  29
         PATTER8           FBIO  29
         PATTER9           FBIO  29
         REG               FBIO  25
%R0562   REG               Servo speed pusher X*3
                           FBIO  26

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REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  -------- -------------------------------------
%R0563   REG               Servo speed pusher X*4
                           FBIO  27
%R0564   REG               Servo speed pusher X*5
                           FBIO  28
%R0565   REG               Servo speed pusher X*6
                           FBIO  29
%R0566   REG               Servo speed pusher X*7
                           FBIO  30
%R0567   REG               Servo speed pusher X*8
                           FBIO  31
%R0568   PATTER0           Servo speed pusher X*9
                           FBIO  29
         PATTER1           FBIO  29
         PATTER2           FBIO  29
         PATTER3           FBIO  29
         PATTER4           FBIO  29
         PATTER5           FBIO  29
         PATTER6           FBIO  29
         PATTER7           FBIO  29
         PATTER8           FBIO  29
         PATTER9           FBIO  29
         REG               FBIO  32
%R0569   REG               Servo speed pusher X*10
                           FBIO  33
%R0570   REG               Servo speed pusher X*11
                           FBIO  34
%R0571   REG               Servo speed pusher X*12
                           FBIO  35
%R0662   _MAIN             Dolly to off position
                           FBIO  254
%R0701   MULTIPX           Copy of data word 1
                           FBIO  8,11,12,17
%R0703   MULTIPX           Copy of data word 2
                           FBIO  9,13,18
%R0705   MULTIPX           Copy of data word 3
                           FBIO  10,14,19
%R0707   _MAIN             End stop to on pos
                           FBIO  310
%R0713   _MAIN             FBIO  105
%R0716   _MAIN             Infeed time to endstop
                           FBIO  285
%R0719   _MAIN             Crush guard pusher
                           FBIO  594
%R0722   _MAIN             Delay infeed brake open
                           FBIO  150
%R0731   _MAIN             Delay grouping support
                           FBIO  225
%R0920   PLMS              Spare for package in
                           FBIO  157,158,160
%R0921   PLMS              Spare for package out
                           FBIO  197,198,200
%R0922   PLMS              Down time signals
                           FBIO  12,47,49,52,54,56,58,61,63,65,67,69,71,73,75,77,79,81
%R0923   PLMS              Down time signals
                           FBIO  12,47,83,85,87,89,91,93,95,97,99,101,103,106,109
%R0924   PLMS              Miscel-laneous signals
                           FBIO  9,13,20,22,23,25,26,28,29,31,32,34,35,37,38,40,41,43,44,47,111,113,116,120,128,159
%R0925   PLMS              Miscel-laneous signals
                           FBIO  13,47,122,124,126
%R0926   PLMS              Spare for package in
                           FBIO  154,156,157,158,161
%R0928   PLMS              Spare for package out
                           FBIO  164,165,166,167,168,169,170,171,172,173,174,175,176,177,178,179,180,181,182,183,184,185,186,187,
                                 188,189,190,191,192,193,194,195,196,197,198,201
%R0931   PLMS              Delay prod time stop
                           FBIO  15
%R0987   _MAIN             Refill run time
                           FBIO  291
%R0993   _MAIN             B126 photo- cell free
                           FBIO  289
%R0996   _MAIN             Delay pusher off
                           FBIO  173
%R1005   _MAIN             Delay off
                           FBIO  305
%R1011   _MAIN             Counted infeed faults.
                           FBIO  145,146,528
%R1014   SELECTI           Push butt delay
                           FBIO  8
%R1023   PLMS              LSW, Nr of packs group. pattern
                           FBIO  152,154
%R1024   PLMS              MSW, Nr of packs group. pattern
                           FBIO  152
%R1040   _MAIN             Magazine feed
                           FBIO  388
%R1043   _MAIN             Stop blank feed
                           FBIO  384
%R1051   _MAIN             Off delay
                           FBIO  132
%R1057   _MAIN             Delay brake open at start
                           FBIO  143
%R1101   _MAIN             Group endstop out
                           FBIO  156

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REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  -------- ------------------------------------
%R1104   _MAIN             Group support down delay
                           FBIO  227
%R1107   _MAIN             New try to infeed open brake
                           FBIO  147
%R1110   _MAIN             Pusher stop pack waiting
                           FBIO  293
%R1128   _MAIN             Infeed brake on in step 2
                           FBIO  148
%R1150   _MAIN             Run time pattern fill
                           FBIO  273,274,275,276,277,291
%R1151   PATTER0           FBIO  11
         PATTER1           FBIO  11
         PATTER2           FBIO  11
         PATTER3           FBIO  11
         PATTER4           FBIO  11
         PATTER5           FBIO  11
         PATTER6           FBIO  11
         PATTER7           FBIO  11
         PATTER8           FBIO  11
         PATTER9           FBIO  11
%R1152   _MAIN             Run time pattern fill x2
                           FBIO  273
%R1153   _MAIN             Run time pattern fill x3
                           FBIO  274
%R1154   _MAIN             Run time pattern fill x4
                           FBIO  275
%R1155   _MAIN             Run time pattern fill x5
                           FBIO  276
%R1156   _MAIN             Run time pattern fill x6
                           FBIO  277
%R1158   PATTER0           Min cycle time feedm.
                           FBIO  11
         PATTER1           FBIO  11
         PATTER2           FBIO  11
         PATTER3           FBIO  11
         PATTER4           FBIO  11
         PATTER5           FBIO  11
         PATTER6           FBIO  11
         PATTER7           FBIO  11
         PATTER8           FBIO  11
         PATTER9           FBIO  11
%R1161   _MAIN             Grouping support up delay CHOICE
                           FBIO  193,224
%R1162   _MAIN             Delay grouping support down
                           FBIO  149,227
%R1163   _MAIN             Delay discharge support out
                           FBIO  655
%R1164   _MAIN             Delay discharge support in
                           FBIO  656
%R1165   SWITCH            Bottom size value
                           FBIO  4,5
%R1168   SWITCH            FBIO  4
%R1174   _MAIN             Timer delay pusher on
                           FBIO  168
%R1192   _MAIN             FBIO  515
%R1198   _MAIN             Timer no blanks present
                           FBIO  533
%R1205   PLMS              LSW, Nr of packs in row grouping
                           FBIO  145,146,147,148,149,152,156
%R1206   PLMS              MSW, Nr of packs in row grouping
                           FBIO  150
%R1212   REG               Group  pusher speed value
                           FBIO  5,6,7,8,9,10,11,12,13,14,15,16,17,19,20,22,23,43
%R1213   _MAIN             Pusher speed value
                           FBIO  573,574
         REG               FBIO  25,26,27,28,29,30,31,32,33,34,35,37,38,40,41,45
%R1256   PLMS              LSW, selected nr of group stroke
                           FBIO  132,133,134,135,136,137,138,139,140,141,142,152
%R1257   PLMS              MSW, selected nr of group stroke
                           FBIO  143
%R1260   _MAIN             Dolly puls short stroke
                           FBIO  239,240,241,242,247
%R1261   _MAIN             Dolly puls 1a stroke
                           FBIO  239
         PATTER0           FBIO  11
         PATTER1           FBIO  11
         PATTER2           FBIO  11
         PATTER3           FBIO  11
         PATTER4           FBIO  11
         PATTER5           FBIO  11
         PATTER6           FBIO  11
         PATTER7           FBIO  11
         PATTER8           FBIO  11
         PATTER9           FBIO  11
%R1262   _MAIN             Dolly puls 2a stroke
                           FBIO  240
%R1263   _MAIN             Dolly puls 3a stroke
                           FBIO  241
%R1264   _MAIN             Dolly puls 4-12 stroke
                           FBIO  242
%R1265   _MAIN             Dolly puls long stroke
                           FBIO  249

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-------  -------  -------- -------------------------------------
%R1400   _MAIN             Lubrication time value
                           FBIO  463,464,465,466
%R3111   _MAIN             Timer inching pulse
                           FBIO  439
%R3114   _MAIN             Timer inter rupt K010
                           FBIO  67
%R3117   _MAIN             Timer stoparm set
                           FBIO  255
%R3132   _MAIN             FBIO  382
%R3135   _MAIN             Timer delay safety clutch
                           FBIO  608
%R3138   _MAIN             Timer guide rail alarm
                           FBIO  520
%R3141   _MAIN             Timer dolly alarm
                           FBIO  521
%R3144   _MAIN             Timer mainshaft alarm
                           FBIO  612
%R3147   PLMS              Timer brake enable signal
                           FBIO  8
%R3150   _MAIN             Timer package coming
                           FBIO  454
%R3154   _MAIN             Timer reset encoder test
                           FBIO  57
%R3160   _MAIN             Delay not ready downstr
                           FBIO  552
%R3163   _MAIN             Timer sync puls
                           FBIO  613
%R3166   _MAIN             Delay WA up
                           FBIO  432
%R3175   EMPTY             FBIO  28
%R3178   EMPTY             FBIO  31
%R3184   _MAIN             FBIO  481
%R3193   1T0001            H/S Stop feeding motor
                           FBIO  31,32,43
%R3197   1T0001            FBIO  36,37,63
%R3198   _MAIN             Counter pusher stroke
                           FBIO  333
%R3204   _MAIN             FBIO  575
%R3207   _MAIN             Timer crash i pusher back
                           FBIO  577
%R3213   _MAIN             Delay dischar on
                           FBIO  655
%R3216   _MAIN             Delay dischar off
                           FBIO  656
%R3248   REG               FBIO  48
%R3254   _MAIN             Timeout crash in push arm
                           FBIO  585
%R3260   _MAIN             Delat B122 puls
                           FBIO  260
%R3263   _MAIN             Timeout crash support arm
                           FBIO  587
%R3275   _MAIN             Delay dolly puls long st
                           FBIO  249
%R3284   _MAIN             Delay queue dischar
                           FBIO  553
%R3287   SELECTI           FBIO  118
%R3293   _MAIN             Timer crash pusher arm
                           FBIO  581
%R3296   _MAIN             Timer extern conv
                           FBIO  120
%R3301   _MAIN             Timer B905 on hold
                           FBIO  118
%R3304   _MAIN             Timer time out pusher
                           FBIO  573,574,575
%R3314   _MAIN             Timer crash pusher back
                           FBIO  583
%R3317   _MAIN             Timer glue levle low
                           FBIO  604
%R3326   _MAIN             Delay A091 alarm
                           FBIO  480
%R3329   _MAIN             Timer superv air press
                           FBIO  497
%R3333   _MAIN             FBIO  360
%R3336   _MAIN             FBIO  579
%R3351   _MAIN             Timer dolly counterhold short
                           FBIO  247
%R3354   EMPTY             FBIO  34
%R3360   _MAIN             Delay, PushRst transfplate down
                           FBIO  692
%R3363   _MAIN             FBIO  597
%R3366   _MAIN             Delay1, Servo Start/Rst = 1
                           FBIO  675
%R3369   _MAIN             Delay1, Servo Start/Rst=0
                           FBIO  676
%R3372   _MAIN             Delay, Servo Stop=1
                           FBIO  677
%R3375   _MAIN             Delay2, Servo Start/Rst=1
                           FBIO  678
%R3378   _MAIN             Delay2, Servo Start/Rst=0
                           FBIO  679
%R3387   _MAIN             Servo alarm delay
                           FBIO  565

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-------  -------  -------- ------------------------------------
%R3390   _MAIN             Delay, servo stop=0
                           FBIO  674
%R3393   _MAIN             Servo Rst, Max time before ready
                           FBIO  680
%R3399   _MAIN             Delay, grouping mat stop time
                           FBIO  271
%R3402   _MAIN             Delay A090 alarm
                           FBIO  475
%R3405   _MAIN             Timer, L/S WAIF flap folder back
                           FBIO  415
%R3408   _MAIN             Timer, H/S WAIF flap folder back
                           FBIO  416
%R3417   _MAIN             Timer, push start delay
                           FBIO  336
%R3420   _MAIN             Timer, WASF arm in delay
                           FBIO  418
%R3423   _MAIN             Timer, WAIF hotmelt dot length
                           FBIO  408
%R3426   _MAIN             Timer, WASF hotmelt dot lenth
                           FBIO  411
%R3429   _MAIN             Timer, WA guns max hotmelt time
                           FBIO  405
%R3432   _MAIN             Timer,acceleration time to B125
                           FBIO  280,281
%R3435   _MAIN             Time-grouping mat start to B125
                           FBIO  280,282
%R3436   _MAIN             Remaining acceleration time
                           FBIO  282
%R3437   _MAIN             Extra infeed time needed
                           FBIO  282,284
%R3438   _MAIN             OFDT filtertime groupingmat
                           FBIO  278
%R3441   _MAIN             Timer, Delay pusher mat stop
                           FBIO  288
%R3444   _MAIN             Timer, Alarm transfer plate up
                           FBIO  545
%R3459   _MAIN             Delay inf brake open,group supp.
                           FBIO  149,150
%R3460   _MAIN             Grouping support up delay time
                           FBIO  195,196,197,198,199,200,201,202,203,204,205,206,207,208,210,211,212,213,214,215,216,217,218,219,
                                 220,221,222,223,224,225
%R3461   _MAIN             FBIO  68
%R3464   _MAIN             Timer, max time to synch
                           FBIO  40
%R3467   _MAIN             WA minimum glue time
                           FBIO  430
%R3476   _MAIN             OFDT, Max time stop outfeed
                           FBIO  448

==============================================================================
==========  SYSTEM REFERENCE  (%S)  GLOBAL CROSS REFERENCES
==============================================================================
REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  -------- ------------------------------------
%S0001   _MAIN    FST_SCN  -]/[- 34
         MULTIPX  FST_SCN  -] [- 4
%S0006   _MAIN    T_MIN    -] [- 466
%S0007   _MAIN    ALW_ON   -] [- 16,17,18,19,20,181,182,193,234,235,286,335,352,365,368,374,403,425,437,573,574,725
         PATTER0  ALW_ON   -] [- 11,27,29
         PATTER1  ALW_ON   -] [- 11,27,29
         PATTER2  ALW_ON   -] [- 11,27,29
         PATTER3  ALW_ON   -] [- 11,27,29
         PATTER4  ALW_ON   -] [- 11,27,29
         PATTER5  ALW_ON   -] [- 11,27,29
         PATTER6  ALW_ON   -] [- 11,27,29
         PATTER7  ALW_ON   -] [- 11,27,29
         PATTER8  ALW_ON   -] [- 11,27,29
         PATTER9  ALW_ON   -] [- 11,27,29
         GENERAL  ALW_ON   -] [- 5,8,10
         SELECTI  ALW_ON   -] [- 118
         MULTIPX  ALW_ON   -] [- 15
         PLMS     ALW_ON   -] [- 81,109,143,150,152,159
         SWITCH   ALW_ON   -] [- 6,7,8,9,10,11,12,13,14,15
         REG      ALW_ON   -] [- 19,22,37,40,43,45
         1T0001   ALW_ON   -] [- 3,4,14,24,26,28,29,34
%S0008   _MAIN    ALW_OFF  -] [- 363
         SELECTI  ALW_OFF  -] [- 118
         MULTIPX  ALW_OFF  -] [- 12,13,14,17,18,19
         PLMS     ALW_OFF  -] [- 95,97,99,122,124,126
         1T0001   ALW_OFF  -] [- 78
                           -]/[- 68
%S0011   _MAIN    OVR_PRE  -] [- 489
%S0014   _MAIN    PLC_BAT  -] [- 489

==============================================================================
==========  IDENTIFIER NAME GLOBAL CROSS REFERENCES
==============================================================================
IDENTIFIER   BLOCK    REF. DESCRIPTION / CROSS REFERENCES
----------   -------  ----------------------------------
PATTER0      _MAIN    Bottom size select 0
                      CALL  6
PATTER1      _MAIN    Bottom size select 1

Program: A454891                        C:\LM90\VISN\P1000\A454891                                Global Cross Reference Tables
```

```
03-22-04  11:46                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                          Page   482
                                           Tetra Cardboard Packer 70 Multi 1100
                                       45489-0001 ELD 000 AA 040223 OHO ECM:162315

IDENTIFIER   BLOCK    REF. DESCRIPTION / CROSS REFERENCES
----------   -------  ----------------------------------
                      CALL  7
PATTER2      _MAIN    Bottom size select 2
                      CALL  8
PATTER3      _MAIN    Bottom size select 3
                      CALL  9
PATTER4      _MAIN    Bottom size select 4
                      CALL  10
PATTER5      _MAIN    Bottom size select 5
                      CALL  11
PATTER6      _MAIN    Bottom size select 6
                      CALL  12
PATTER7      _MAIN    Bottom size select 7
                      CALL  13
PATTER8      _MAIN    Bottom size select 8
                      CALL  14
PATTER9      _MAIN    Bottom size select 9
                      CALL  15
GENERAL      _MAIN    General adaption
                      CALL  16
SELECTI      _MAIN    Selection of adaptions
                      CALL  17
MULTIPX      _MAIN    Multiplex display
                      CALL  18
PLMS         _MAIN    PLMS
                      CALL  725
EMPTY        _MAIN    Manual empty
                      CALL  437
SWITCH       _MAIN    Size selector switch pos
                      CALL  19
REG          _MAIN    Registers for pneumatic servo
                      CALL  20
```

***** L O G I C T A B L E O F C O N T E N T S *****

_MAIN	1
Logic	1
PATTER0	173
Logic	173
PATTER1	188
Logic	188
PATTER2	203
Logic	203
PATTER3	218
Logic	218
PATTER4	233
Logic	233
PATTER5	248
Logic	248
PATTER6	263
Logic	263
PATTER7	278
Logic	278
PATTER8	293
Logic	293
PATTER9	308
Logic	308
GENERAL	323
Logic	323
SELECTI	326
Logic	326
MULTIPX	360
Logic	360
PLMS	365
Logic	365
SWITCH	399
Logic	399
EMPTY	403
Logic	403
REG	411
Logic	411
1T0001	419
Logic	419
Global Cross Reference Tables	436

Tetra Pak Carton Ambient AB

Specification of registers for PLMS

Down time signals

Register: 922

Bit(PLC)	Description	Tag number	Stop *	Bit(PLC) Hex	Bit(value)	Stop code TPOP
1	Emergency stop		DT	1	1	9410
2	Door supervision system		DT	2	2	9411
3	Door open		DT	4	4	9412
4	Motor protection		DT	8	8	9413
5	Check no air pressure		DT	10	16	9414
6	Saftey clutch		DT	20	32	9415
7	Crush in grouping pusher		DT	40	64	9416
8	Package jam at grouping pusher		DT	80	128	9417
9	Frequency converter		DT	100	256	9418
10	Frequency converter supervision system		DT	200	512	9419
11	Fallen package		DT	400	1024	9420
12	No blank in pack position		DT	800	2048	9421
13	Hotmelt temperature		DT	1000	4096	9422
14	Crush in pusher		DT	2000	8192	9423
15	Package jam at pusher		DT	4000	16384	9424
16			DT	8000	32768	9425

Down time signals

Register: 923

Bit(PLC)	Description	Tag number	Stop *	Bit(PLC) Hex	Bit(value)	Stop code TPOP
1	Frequency drive main shaft motor		DT	1	1	9426
2	Frequency drive belt motor		DT	2	2	9427
3	Frequency drive feeding motor		DT	4	4	9428
4	Dolly limit		DT	8	8	9429
5	Mainshaft out of pos		DT	10	16	9430
6	Guiderail limit		DT	20	32	9431
7			DT	40	64	9432
8			DT	80	128	9433
9			DT	100	256	9434
10	Equipment stop 4		DT	200	512	9435
11	Equipment stop 5		DT	400	1024	9436
12	Equipment stop 6		DT	800	2048	9437
13	Servo alarm		DT	1000	4096	9438
14	Lightbarrier alarm		DT	2000	8192	9439
15	Crash in discharge area		DT	4000	16384	9440
16	Never used			8000	32768	

* IS - Information signal
DT - Down time
IT - Idle time
AT-Ancillary time

Tetra Pak Carton Ambient AB

Specification of registers for PLMS

Miscellaneous signals

Register: 924

Bit(PLC)	Description	Tag number	Stop *	Bit(PLC) Hex	Bit(value)	Stop code TPOP
1	DE External enable signal		IS	1	1	9450
2	DE Production time		IS	2	2	9451
3	Multipacks selected		IS	4	4	9452
4	Wrap Around selected		IS	8	8	9453
5	High speed selected		IS	10	16	9454
6	Electrical alarm		IS	20	32	9455
7	Lubrication fault		IS	40	64	9456
8	Ladder step OFF		IS	80	128	9457
9	Ladder step PREPARATION		IS	100	256	9458
10	Ladder step PRODUCTION		IS	200	512	9459
11	Supervision of air pressure		IT	400	1024	9470
12	No blanks in magazine		IT	800	2048	9471
13	Queue outfeed		IT	1000	4096	9472
14	Manual step down		IT	2000	8192	9473
15			IT	4000	16384	9474
16			IT	8000	32768	9475

Miscellaneous signals

Register: 925

Bit(PLC)	Description	Tag number	Stop *	Bit(PLC) Hex	Bit(value)	Stop code TPOP
1			IT	1	1	9476
2			IT	2	2	9477
3			IT	4	4	9478
4			IT	8	8	9479
5			IT	10	16	9480
6			IT	20	32	9481
7	TCBP idle stop 1		IT	40	64	9482
8	TCBP idle stop 2		IT	80	128	9483
9	TCBP idle stop 3		IT	100	256	9484
10			AT	200	512	
11			AT	400	1024	
12			AT	800	2048	
13			AT	1000	4096	
14			AT	2000	8192	
15			AT	4000	16384	
16	Never used			8000	32768	

* IS - Information signal
DT - Down time
IT - Idle time
AT-Ancillary time

ECM:162316 040223 OHO TETRA CARDBOARD PACKER 70-1100 45489-0002 ELD000AA
Page: 2 / 2

11 Other information

Description

This chapter is used for Engineering Change Descriptions, Bills of Material, fuse panel labels, and so on.

Engineering Change Description . . . . . .2611715-0099 ELD 001 AD
. . . . . .2611715-0099 ELD 002 AD
. . . . . .2611715-0099 ELD 003 AD

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Tetra Pak

EC Description

Document No.	Alteration
	FOR CHANGES ON LISTS,SEE ECM:108346.MAIN NUMBER CHANGED FROM:2572070 TO 2611715.2003-05-15 VERSION CHANGED TO AB. 2003-10-07 VERSION CHANGED TO AC. 2003-11-05 VERSION CHANGED TO AD. ALL OTHER DRAWINGS HAVE UPDATED DATAS ON THE FRAME OTHER CHANGES ON DRAWINGS:
2611715-0001	DOCUMENT LIST:CHANGED ACCORDING TO NEW DRAWING SYSTEM
2611715-0002	POSITION SUMMARY:CHANGED ACCORDING TO UPDATED CIRCUIT DIAGRAM
2611715-0003:3	ADDED LINE FILTER, LINE FILTER AND TERMINAL X000. CHANGED FROM 2,5 TO 10MM ON EARTH CONDUCTOR.
2611715-0003:4	ADDED NEW PAGE AND MOVED OUTLET,FAN/COOLING UNIT AND PLC POWER CIRCUIT FROM PAGE 5 TO 4
2611715-0003:5	ADDED TWO POWER SUPPLY:GO12,G013 AND ONE FUSE:F009
2611715-0003:6	NEW TYPE OF HOTMELT UNIT: PRO BLUE
2611715-0003:7	ADDED ONE MOTOR GROUP:EXTRA DISCHARGE OR INFEED CONVEYOR
2611715-0003:10	DENOMINATION CHANGES: A053 TO A090. A054 TO A091.NEW FUSE ADDED:F012
2611715-0003:13	NEW TYPE OF PRESSURE GUARD,THREE WIRES INSTEAD OF TWO WIRES EARLIER.AUXILLARY MOTOR PROTECTOR CONTACT Q081 ADDED IN SERIES WITH EXISTING Q006
2611715-0003:14	INPUT I0016 ADDED:CLUTCH FEEDING ON/OFF
2611715-0003:17	M.B121. M.B122. MB.123. REMOVED NEW SERVO SYSTEM USED INSTEAD. NEW J.BOX +M-X130 ON PUSHER AND A FLEX.CABLE (+M-W601) BETWEEN +M-X102 AND +M-X130 INSERTED
2611715-0003:19	M.B132. M.B133. M.B134. REMOVED NEW SERVO SYSTEM USED INSTEAD. CABLE WIRES IN CABLE -W122 REVISED
2611715-0003:21	NEW SENSORS: M.B146. PUSHER ARM DOWN POS. M.B148. PUSHER SUPPORT ARM UP POS. M.B149. PUSHER SUPPORT ARM DOWN POS.INPUT I0070 ADDED: HOTMELT TANK LOW LEVEL. NEW J.BOX +M-X130 ON PUSHER AND A FLEX.CABLE (+M-W601) BETWEEN +M-X102 AND +M-X130 INSERTED

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Company TETRA PAK CARTON AMBIENT AB

Issued by/Date : JOSG 2003-11-05 ECM 146767

Engineering Change Description

Identity	Document type	Version	Page
2611715-0099	ELD	AD	1(3)

Tetra Pak EC Description

2611715-0003:22	S003 CONTACT CHANGED FROM NO TO NC CONNECTIONS 51, 52. INPUT I0078 ADDED: MANUAL LUBRICATION.INPUT I0079 ADDED: SELECT GROUPING INFEED PACKAGES IN A ROW.INPUT I0080 ADDED: SELECT MACHINE SPEED.
2611715-0003:24	M.Y100 AND M.Y101 MOVED TO PAGE 38. M.Y102 MOVED TO PAGE 48.NEW TARGET FOR Q0009: MAIN SHAFT HIGH SPEED. Q0010 FEEDING MOTOR MEDIUM SPEED. Q0011 FEEDING MOTOR HIGH SPEED.
2611715-0003:26	OUTPUT ADDED:Q0026 K081 EXTRA DISCHARGE OR INFEED CONVEYOR
2611715-0003:30	OUTPUT ADDED:Q0062 M.Y105.2 TRANSFER PLATE DOWN.Q0063 M.Y170 DAMPER CONVEYOR
2611715-0003:31	INPUT ADDED:I0085 M.B160 PACKAGE SEPARATOR OUT.I0086 CONTROL VOLTAGE.I0088 M.S116 GROUPING PUSHER SELECT POS.
2611715-0003:32	INPUT ADDED: I0089 M.B906 QUEUE DISCHARGE CONVEYOR. I0090:AXIS IDENTIFICATION.I0095:SERVO READY
2611715-0003:33	OUTPUT ADDED:Q0071 AND Q0072 Y166.1 AND Y166.2
2611715-0003:34	ADDED OUTPUT: Q0078 PUSHER BACKWARDS. Q0079 M.Y 142 CLUTCH FEEDING. Q0080: CONVEYOR RUN.
2611715-0003:35	NEW PAGE: NEW OUTPUT MODULE A023.
2611715-0003:36	NEW PAGE: NEW OUTPUT MODULE A023.
2611715-0003:37	NEW PAGE: NEW OUTPUT MODULE A024.
2611715-0003:38	NEW PAGE: NEW OUTPUT MODULE A024.
2611715-0003:39	NEW PAGE:NEW PUSH BUTTON S005H CLUTCH ON/OFF
2611715-0003:40	NEW PAGE: NEW PUSH BUTTONS: S011H: SELECT GROUPING INFEED PACKAGES IN A ROW. S012H: MACHINE SPEED HIGH/LOW. SO15H: MANUAL LUBRICATION.
2611715-0003:41	NEW PAGE: MULTIPLEXOR BOARD.
2611715-0003:42	ALARM LEDS ADDED: H055: GROUPING SELECT INFEED X6. H056: GROUPING SELECT INFEED X8. H057: GROUPING SELECT INFEED X9. H058: GROUPING SELECT INFEED X10. H059: GROUPING SELECT INFEED X12.
2611715-0003:43	LED ADDED:H005S:CLUTCH FEEDING ON

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Engineering Change Description

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2611715-0099	ELD	AD	2(3)

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Tetra Pak

EC Description

2611715-0003:44	ALARM LED ADDED.H034 ALARM LIGHT BARRIER
2611715-0003:46	ALARM LED ADDED.H052 HOTMELT TANK LOW LEVEL
2611715-0003:47	NEW PAGE: SERVO SYSTEM INSIDE CABINET. NEW SYMBOL FOR FESTO I/O-MODULES -A084, -A085 INSERTED
2611715-0003:48	NEW PAGE:SERVO SYSTEM ON MACHINE
2611715-0003:49	ADDED WIRE: PART 6 IN CABLE W260. CHANGED PART IN CABLE W264, ORANGE CHANGED TO GREY. TERMINAL 18 IN J.BOX +M-X120 INSERTED
2611715-0003:50	NEW VALVE ADDED M.Y950: WATER VALVE.PACKAGE AERO TRAP ADDED.
2611715-0004	LINE SUMMARY:CHANGED ACCORDING TO UPDATED CIRCUIT DIAGRAM
2611715-0005	CABINET TERMINAL SUMMARY: CHANGED ACCORDING TO UPDATED CIRCUIT DIAGRAM
2611715-0006	TERMINAL STRIP OVERVIEW:NEW TYPE OF DOCUMENT: CHANGED ACCORDING TO UPDATED CIRCUIT DIAGRAM
2611715-0006:4-5	CORRECTION OF CABLE WIRES IN TERMINAL BOX +M-X102.
2611715-0007	CABLE CONNECTION LIST: NEW TYPE OF DOCUMENT: CHANGED ACCORDING TO UPDATED CIRCUIT DIAGRAM
2611715-0008	MAINS CONNECTION:UPDATED CONNECTIONS.UPDATED FUSE AND WIRE SIZES

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Engineering Change Description

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2611715-0099	ELD	AD	3(3)

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