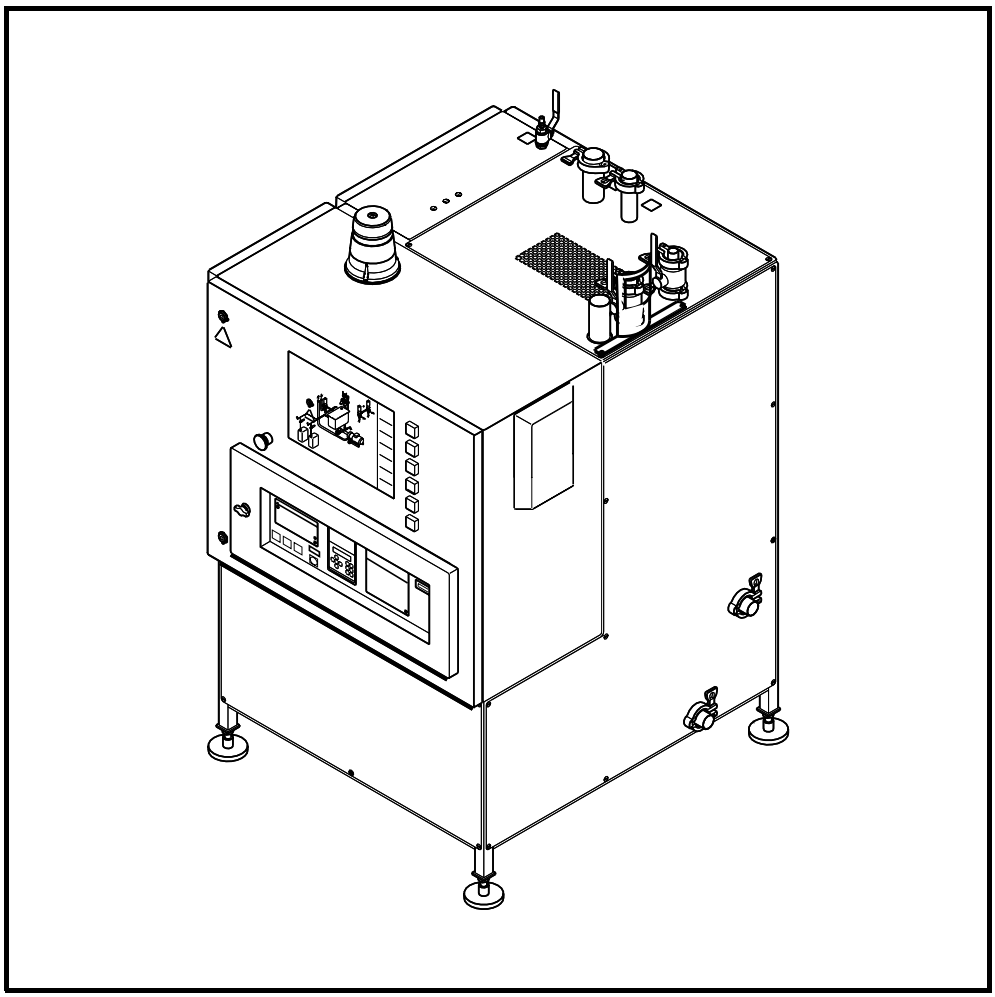
EM

Electrical Manual

SCU/4 020V



Tetra Pak

Doc No. EM-82472-0101

This document is valid for:

Series No/ Machine No Sign.

Separate Cleaning Unit SCU/4 616054-020V

ECN No.
71688

1 Introduction
(1-82473-0101)

2 Safety precautions
(2-82474-0101)

3 Electrical system description
(3-82475-0101)

4 Component location
(EM-82472-0101)

5 Circuit diagrams
(EM-82472-0101)

6 Connections diagrams
(EM-82472-0101)

7 Mains connections diagrams
(EM-82472-0101)

8 Program documents
(EM-82472-0101)

9 BE-list, CE-lists and terminals
(EM-82472-0101)

10 Optional equipment and kits
(EM-82472-0101)

11 Other information
(EM-82472-0101)

Issue 9810

Doc No. EM-82472-0101

Tetra Pak

Tetra Brik Packaging Systems

1 Introduction

To ensure maximum safety, always read the *Safety precautions* section before doing any work on the equipment or making any adjustments.

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Equipment information

Purpose

The purpose of this Tetra Pak equipment is to pack liquid food products.

Manufacturer

This Tetra Pak equipment has been manufactured by:

Tetra Brik Packaging Systems AB
Ruben Rausings gata
221 86 LUND
Sweden

or by:

Tetra Brik Packaging Systems S.p.A.
Via Delfini 1
411 00 MODENA
Italy

Service

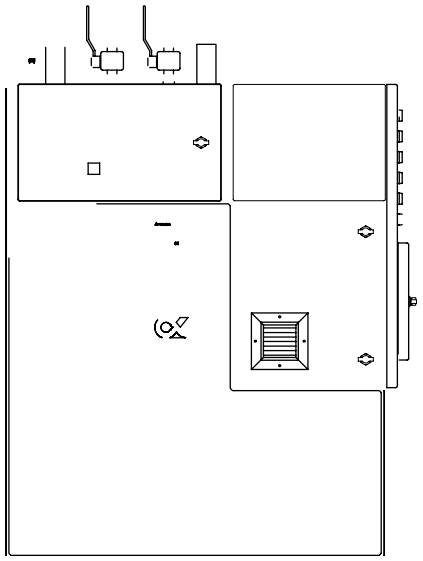
Contact the nearest Tetra Pak service station.

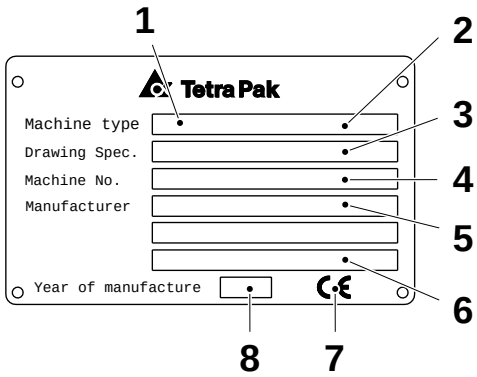
Identification

The figure shows an example of the equipment sign. The sign carries data needed when contacting Tetra Pak concerning this specific equipment.

CE marking

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





Document information

Purpose of Electrical Manual (EM)

The purpose of this Electrical Manual is to provide service technicians and electricians with all information on the electrical equipment required for service and maintenance of this Tetra Pak equipment.

It is important to:

- keep the manual for the life of the equipment,
- pass the manual on to any subsequent holder or user of the equipment.

Design modifications

The directives in this document are in accordance with the design and construction of the equipment at the time it was delivered from the Tetra Pak production plant.

Technical publications

The technical publications for this equipment are:

- Electrical Manual (EM)
- Installation Manual (IM)
- Maintenance Manual (MM)
- Operation Manual (OM)
- Spare Parts Catalogue (SPC)

Additional copies can be ordered from the nearest Tetra Pak service station. When ordering technical publications, always quote the **document number**.

How to use the EM

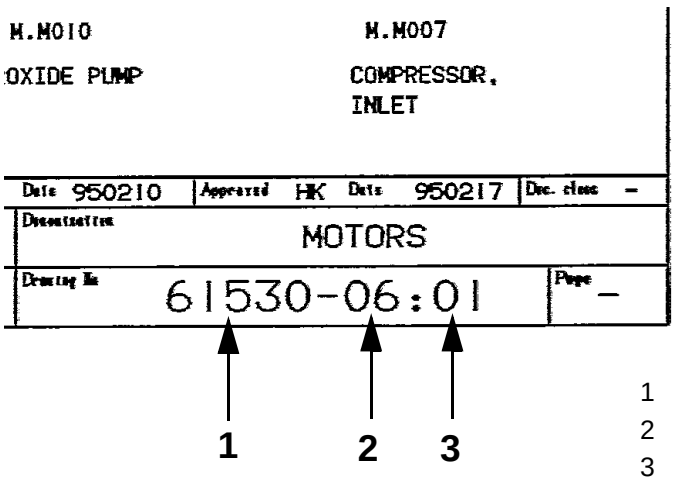
General

How to use the EM is an explanation of how to find your way through the chapters **Circuit diagrams**, **Component location**, **Connection diagrams, Mains connection diagrams** and **Program documents** in the EM.

The first page in each chapter is always a Table of Contents, listing all drawings included in the chapter.

The documents in the above-mentioned chapters are identified by:

- a main number (1)
- a sheet number (2)
- a version number (3)



1 Main number
2 Sheet number
3 Version number

The sheet number is the consecutive numbering of the sheets which belong to the main number and is used as a reference in the diagrams.

In the **Circuit diagrams**, the sheet(s):

- 5–88 are the drawings
- 89 is the earth summary
- 90 is the line summary
- 91 is the terminal summary
- 99 is the list of alteration messages

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The **Mains connection** diagram (the second 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).

Caution! Always follow local regulations regarding the dimensions of the connection cable.

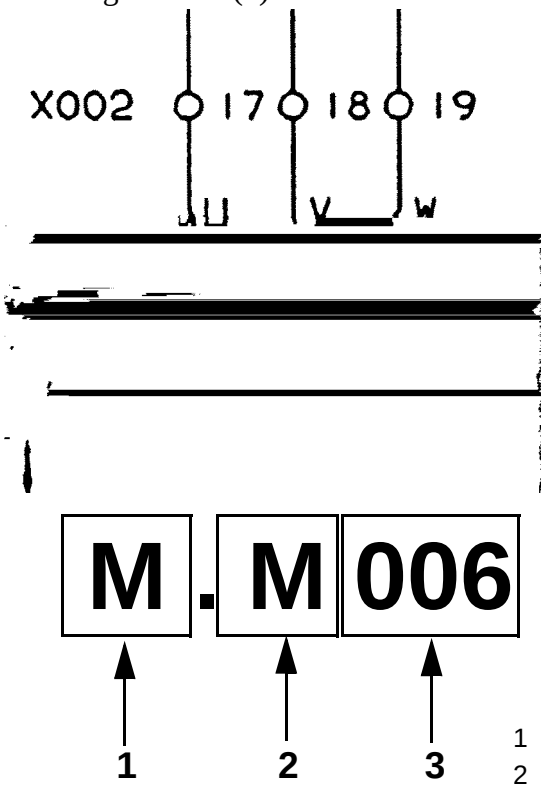
The PLC-listing in the section **Program documents** consists of a ladder diagram, a cross reference list, a variant depending document and a sequence diagram.

Enclosed are some examples of how to use the EM.

Numbering system for components

The position number is divided into three parts:

- prefix (1)
- function designation (2)
- running number (3)



1 Prefix
2 Function designation
3 Running number

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Prefix (1)

The prefix shows the location of the component. Position numbers without a prefix indicate that the component is fitted in the electrical cabinet.

- the prefix M indicates that the component is fitted on the machine, outside the electrical cabinet
- the prefix P indicates that the component is fitted on a separate control panel

(Cont'd)

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Function designation (2)

The function designation is indicated in accordance with international standards, see table below.

Designation	Signification in electrical diagram
A	Assemblies, Subassemblies
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

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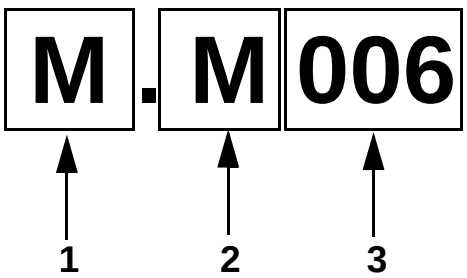
Running number (3)

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



1 Prefix
2 Function designation
3 Running number

How to trace a cable

Example: How to trace cable No. 5

a) Go to the **Connection diagrams** chapter.

b) Find cable No. 5.

c) Note the component connected to the cable (M.M004).

d) Go to the **Circuit diagrams** chapter.

e) Go to the **Position summary** (first page(s) in the **Circuit diagrams)**.

f) The sheet No. is located opposite the component No. (pos. M.M004). This tells you on which sheet in the **Circuit diagrams** the connection is shown.

g) Go to sheet 11 in the **Circuit diagrams**.

h) Find the component (M.M004).

i) If the component, as in this example, is controlled by a separate component, the sheet reference for this component (sheet 62) is found in the **Circuit diagrams**.

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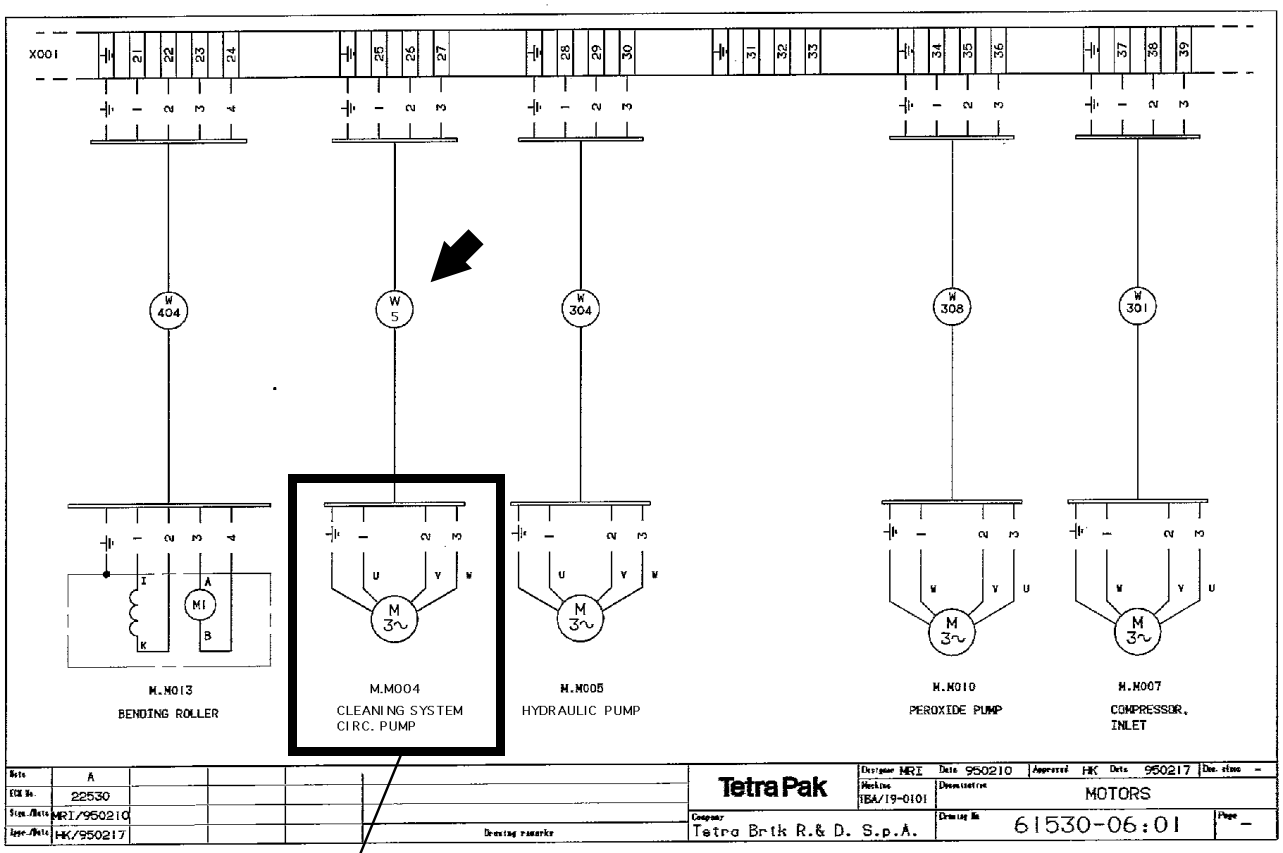
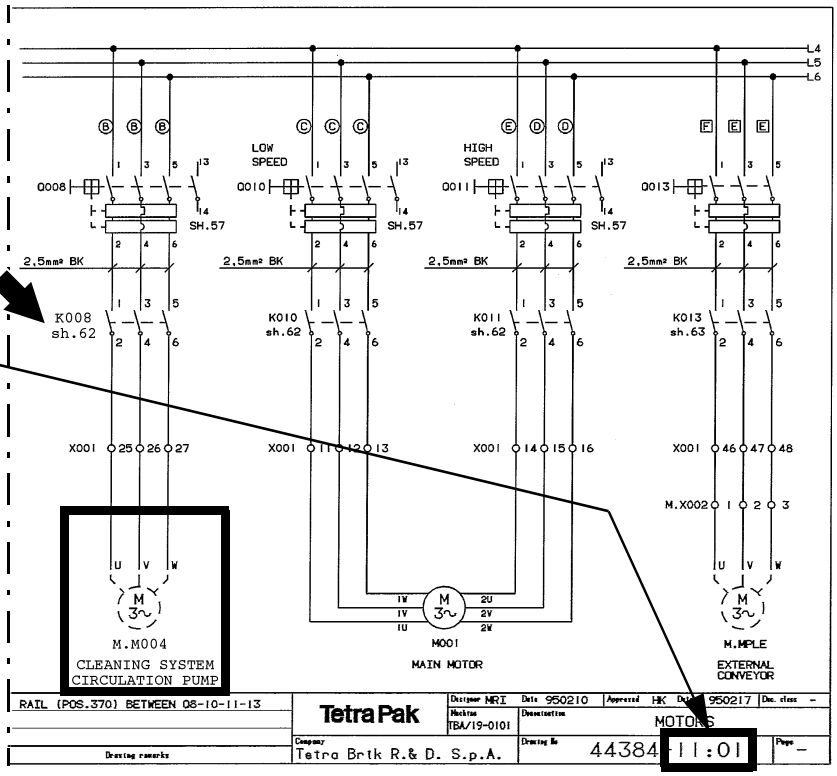


Sheet	!	Position	Sheet	!
62:01	!	K206	08:02	!
63:01	!			!
62:01	!	L001	06:02	!
62:01	!	M.L001	14:03	!
65:01	!	L002	06:02	!
63:01	!	M.L002	14:03	!
65:01	!	M.L003	15:01	!
65:01	!	L004	06:02	!
65:01	!	L005	06:02	!
64:02	!			!
65:01	!	M.MPLE	11:01	!
62:01	!	M001	11:01	!
67:01	!	M002	32:03	!
66:01	!	M003	32:03	!
66:01	!	M.M004	11:01	!
67:01	!	M.M005	10:02	!
66:01	!	M.M006	12:01	!
66:01	!	M.M007	10:02	!
66:01	!	M.M010	10:02	!
66:01	!	M.M013	12:01	!
67:01	!	M.M014	10:02	!
67:01	!	M016	10:02	!
32:03	!	M.M017	10:02	!
67:01	!	M.M018	74:01	!
08:02	!			!
08:02	!	P002	62:01	!
08:02	!	P003	72:01	!
08:02	!	P.P004	74:01	!
08:02	!	P005	06:02	!
32:03	!			!

POSITION SUMMARY



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(Cont'd)

j) Go to sheet 62 in the **Circuit diagrams**.

k) Find the controlling component. (K008)

l) The figures 11 is a reference back to sheet 11.

m) The output (Q016) is a reference to the PLC-listing in the **Program documents** chapter.

n) Go to the **Program documents** chapter to see the use in the program.

o) Go to the cross reference list at the beginning of the PLC-listing and find the output (Q016).

p) Note the rung Nos. in which the output is used (for example rung 29).

q) Go to the PLC-listing and find rung 29.

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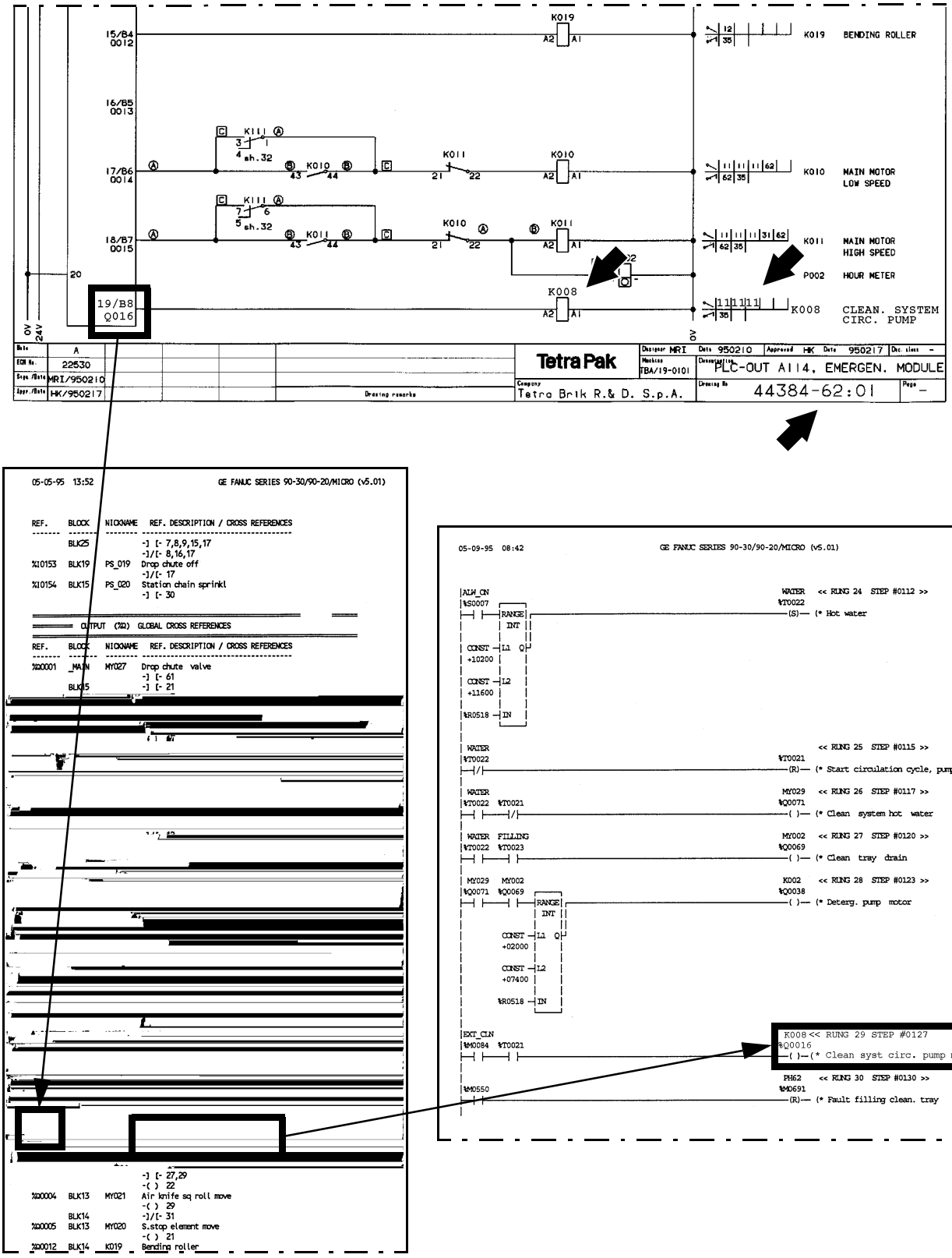

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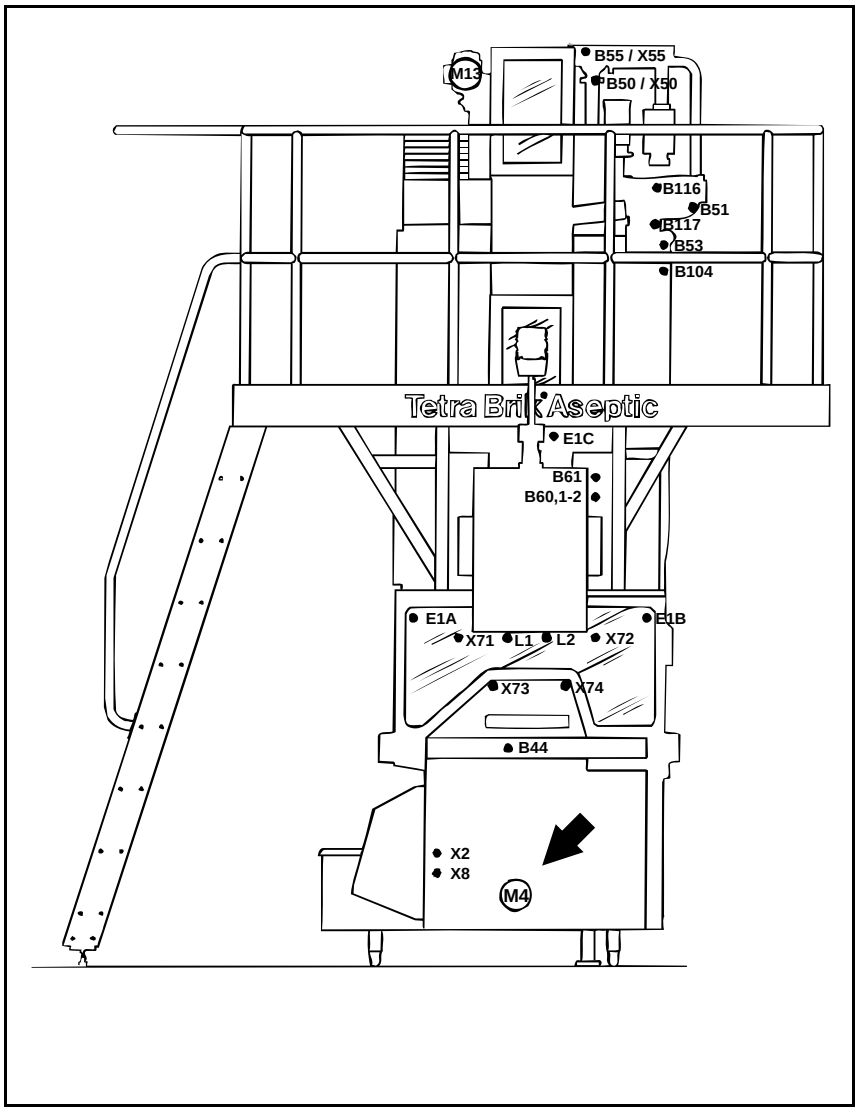
r) The prefix M indicates that the component is fitted on the machine.

s) Go to the **Component location** chapter to find the position of the component (M004).



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How to trace a component

Example: How to trace sensor M.B104

a) Go to the **Circuit diagrams** chapter.

b) Go to the **Position summary** (first page(s) in the **Circuit diagrams**).

c) The sheet No. (sh.41) is located opposite the component No. (pos M.B104). This tells you on which sheet in the **Circuit diagrams** the connection is shown.

d) Go to sheet 41 in the **Circuit diagrams**.

e) Find the component (M.B104).

f) Note the connections (X001, 463-465).

g) Go to the **Connection diagrams** chapter.

h) Find the connection (X001, 463-465).

i) The **Connection diagram** shows how the sensor is connected (in this case via a connection box).

j) The input (I033) is a reference to the PLC-listing in chapter **Program documents**.

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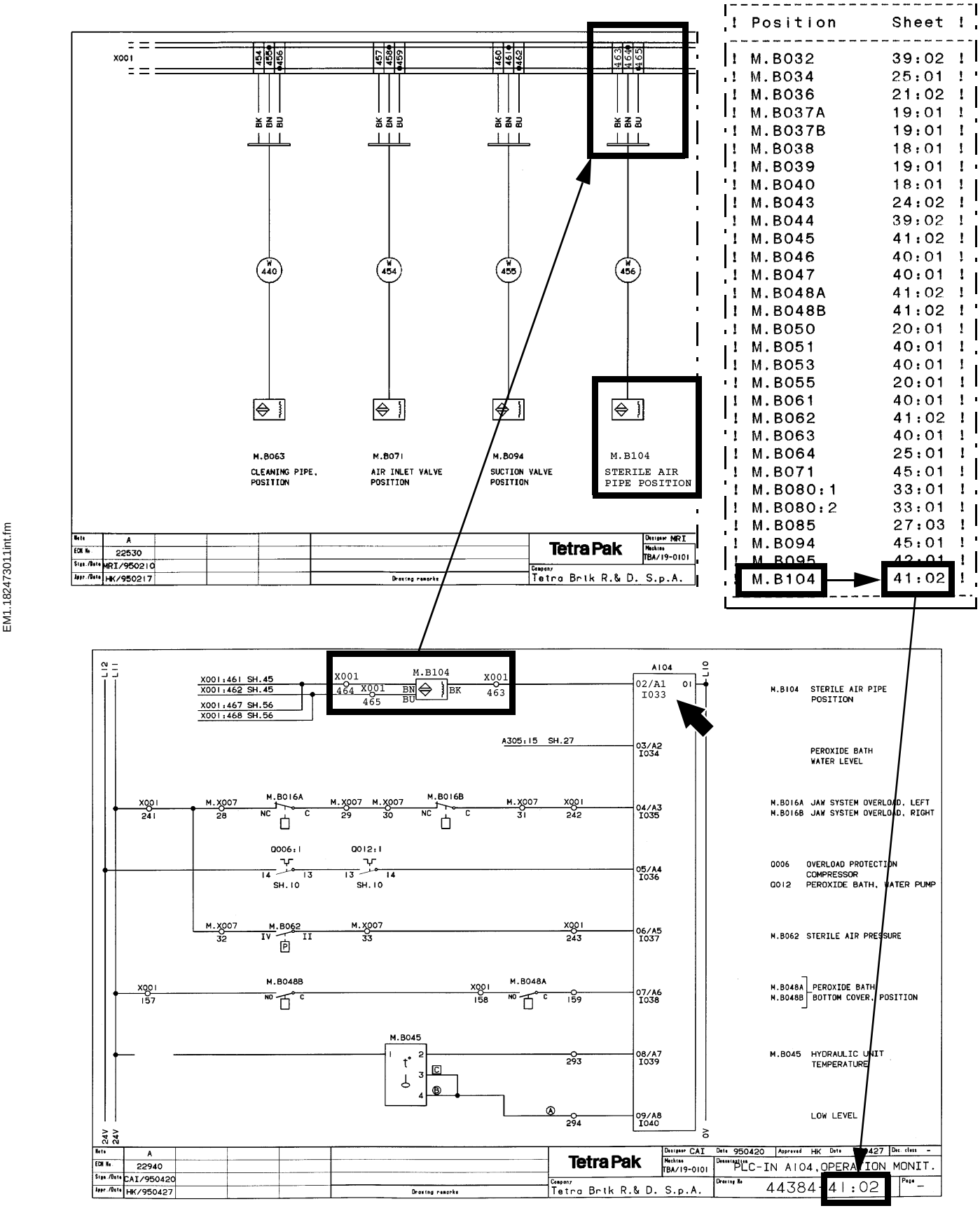

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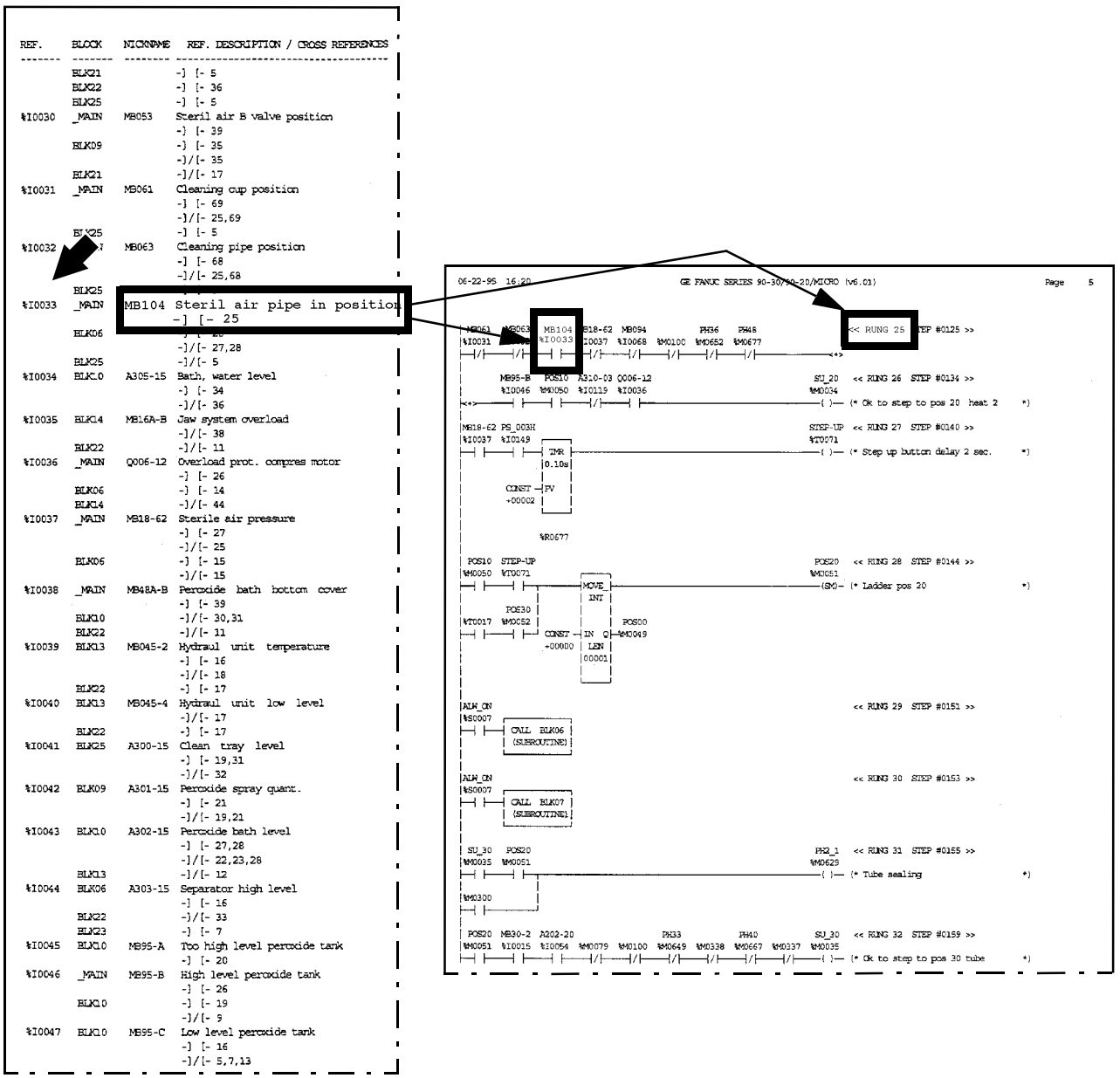
k) Go to the **Program documents** chapter to see the use in the program.

l) Go to the cross reference list at the end of the PLC-listing and find the input (I0033).

m) Note the rung Nos. of the block in which the inputs are used (for example rung 25).

n) Go to the PLC-listing and find rung 25.



Supply voltage/Line connection order

The supply voltage in the electrical cabinet is named:

- L01 - L03: Power voltage

  L10 is reserved for 0V, control voltage.

  L11 is reserved for 24V, control voltage.

  L12 is reserved for 24V, control voltage.

  L50 is reserved for 24V control voltage.

  L51 is reserved for 220V, control voltage.

  L52 is reserved for 220V, control voltage.

In the **Circuit diagrams** chapter the line connection order is shown in the **Line summary** (sheet 90).

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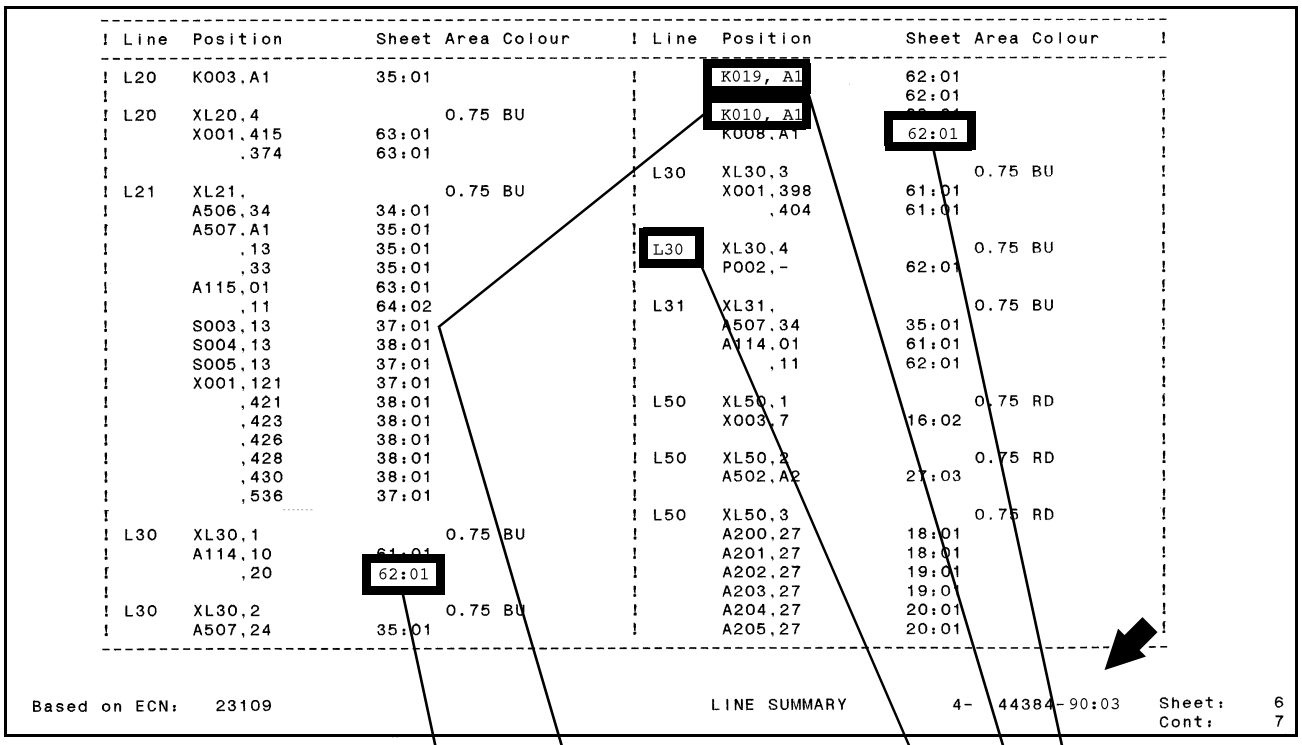

Line	Position	Sheet Area Colour	Line	Position	Sheet Area Colour
L20	K003,A1	35:01		K019, A1	62:01
					62:01
L20	XL20,4	0.75 BU		K010, A1	
	X001,415	63:01		K008,A1	62:01
	,374	63:01			
			L30	XL30,3	0.75 BU
L21	XL21,	0.75 BU		X001,398	61:01
	A506,34	34:01		,404	61:01
	A507,A1	35:01			
	,13	35:01	L30	XL30,4	0.75 BU
	,33	35:01		P002,-	62:01
	A115,01	63:01			
	,11	64:02	L31	XL31,	0.75 BU
	S003,13	37:01		A507,34	35:01
	S004,13	38:01		A114,01	61:01
	S005,13	37:01		,11	62:01
	X001,121	37:01			
	,421	38:01	L50	XL50,1	0.75 RD
	,423	38:01		X003,7	16:02
	,426	38:01			
	,428	38:01	L50	XL50,2	0.75 RD
	,430	38:01		A502,A2	27:03
	,536	37:01			
			L50	XL50,3	0.75 RD
L30	XL30,1	0.75 BU		A200,27	18:01
	A114,10	61:01		A201,27	18:01
	,20	62:01		A202,27	19:01
				A203,27	19:01
L30	XL30,2	0.75 BU		A204,27	20:01
	A507,24	35:01		A205,27	20:01

Based on ECN: 23109 LINE SUMMARY 4- 44384-90:03 Sheet: 6 Cont: 7

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How to trace a terminal

Example: Connection in connection terminal box M.X007, block 14-15

a) Go to the **Connection diagrams** chapter.

b) Find the connection box (M.X007 terminal block 14–15).

c) Note the component connected (M.Y043).

d) Go to the **Circuit diagrams** chapter.

e) Go to the **Terminal summary** (after the Circuit diagram drawings).

f) The sheet No. (sh.71) is located opposite the terminal No. (pos. M.X007, terminal block 14-15). This tells you on which sheet in the **Circuit diagrams** the connection is shown.

g) Go to sheet 71 in the **Circuit diagrams**.

h) Find the component (M.Y043).

i) Note the connections (X007, 14-15).

j) The output (%Q082) is a reference to the PLC-listing in the **Program documents** chapter.

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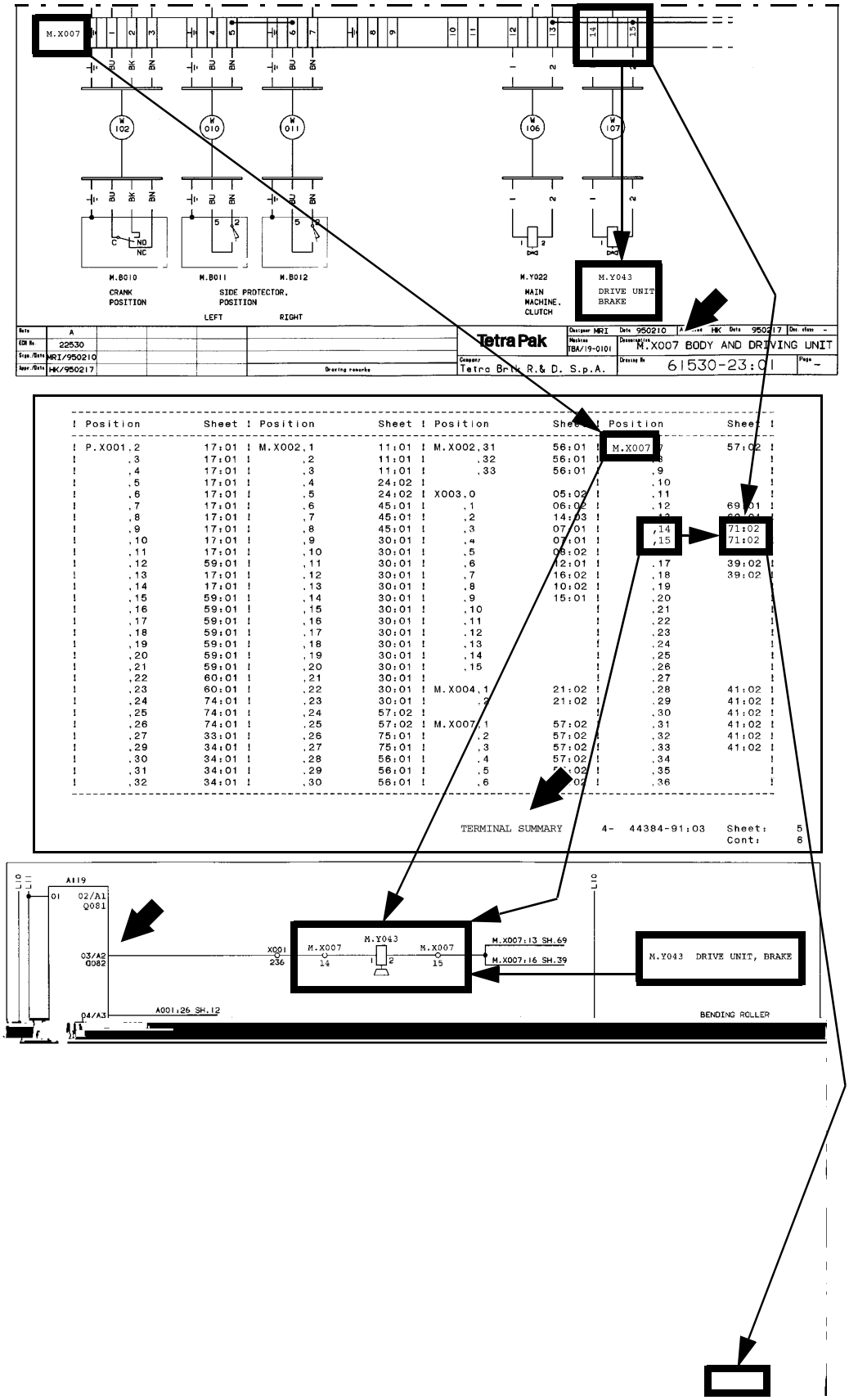

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k) The prefix M indicates that the component is fitted on the machine.

l) Go to the **Component location** chapter to find the position of the component (Y043) on the machine.

m) Go to the **Program documents** chapter to see the use in the program.

n) Go to the cross reference list at the end of the PLC-listing and find the output (%Q0082).

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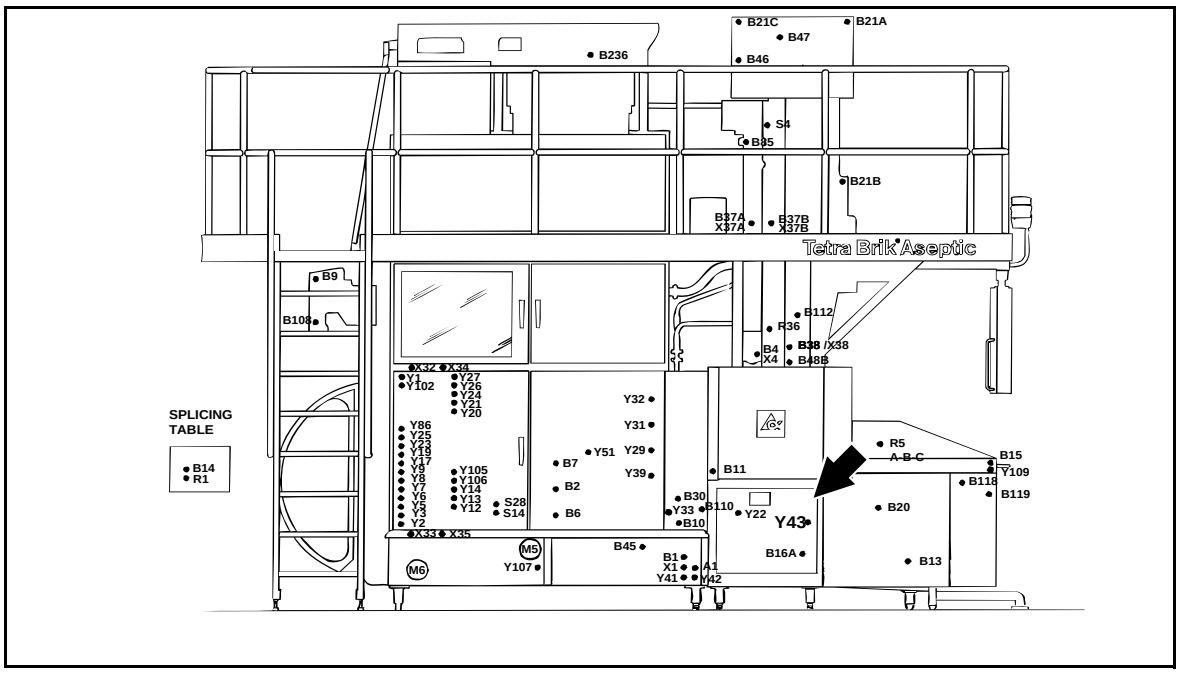

REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
			-( ) 9
%Q0075	BLK09	MY004	Spray peroxid air blowing
			-( ) 20
%Q0076	BLK13	MY039	Tube flush
			-( ) 29
%Q0077	BLK15	MY041	Pull down device
			-( ) 26
%Q0078	BLK10	MY018	Top fil valve perox. bath
			-( ) 24
			-(S) 25
%Q0082	BLK14	MY043	Drive unit brake
			-() 28
%Q0083	BLK14	A001-26	Enable bending rotter
			-(/) 31

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05-09-95  08:37                GE FANUC SERIES 90-30/90-20/MICRO (v5.01)                Page     5

%M0338                                                    %T0087   << RUNG 26  STEP #0110 >>
 ---| |---| GE_ |-------------------------------------------( )--- (* Delay brake on              *)
          | INT |
%R0049 ---|I1  Q|
          |     |
 CONST ---|I2   |
 +00008   -------

%T0006                                                    %T0006   << RUNG 27  STEP #0113 >>
 ---|/|-------------------------------------------------------( )--- (* Pulsing brake             *)

SHORTS                                X01-230
%M0082  %T0006  %M0305  %M0306  %I0132                    MY043 <<RUNG 28 STEP #0115 >>
 ---| |-----| |-----|/|-----|/|-------------------------- %Q0082
                                                          ---( )--- (* Drive unit brake         *)
%T0062
 ---| |---
```

Abbreviations and terminology

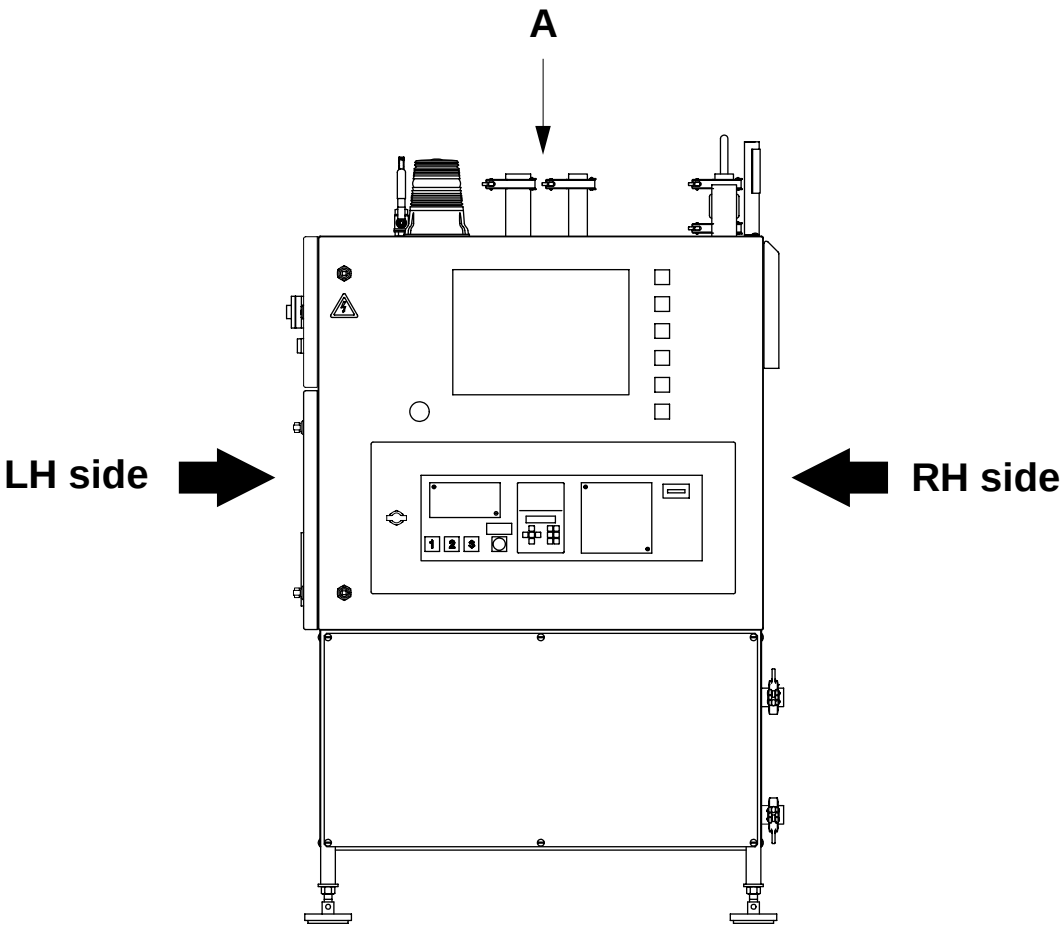
Abbreviations and terminology used in this manual.

Abbreviation	Explanation
AB	Aseptic Brik (Step Production)
AP	Aseptic Product
CIP	Cleaning In Place
CPU	Central Processing Unit
ECN	Engineering Change Notice
FF	Final Folder
HF	High Frequency
IH	Induction Heating
LRF	Level Regulated Filling
LS	Longitudinal Seal(ing)
MM	Main Motor
PLC	Programmable Logic Controller
PLE	Packaging Line Equipment (Distribution Equipment)
RP	Remspåläggare (Strip Applicator)
SA	Strip Applicator
SASP	Sales Administration Spare Parts
SS	Short Stop
SU	Splicing Unit
TB	Tetra Brik
TBA	Tetra Brik Aseptic
TMCC	Tetra Pak Multipurpose Compact Controller
TPIH	Tetra Pak Induction Heating
TS	Transversal Seal(ing)
WEAC	Work Environment Aseptic Chamber

BE-List: A highest level bill of material in the electrical design structure, but which comes under and is specified in the A-list. The BE-list presents the next lowest level electrical design level (earlier referred to as the A-list).

CE-List: A bill of material under the BE-level in electrical documentation which presents all the parts or groups included in the groups (the C-group).

Machine orientation



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2 Safety precautions

To ensure maximum safety, always read this section carefully before doing any work on the equipment or making any adjustments.

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Hazard information

General

Failure to observe information marked “DANGER!” **puts your life in danger**.

Failure to observe information marked “WARNING!” can result in **personal injury and/or serious damage to or destruction of equipment**.

Caution! Failure to observe information marked “Caution!” can result in **damage to equipment**.

Mandatory signs

 **Wear eye protection**	 **Wear hearing protection**
 **Wear head protection**	 **Wear protective gloves**
 **Disinfect hands/gloves**	

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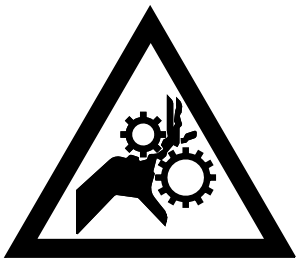
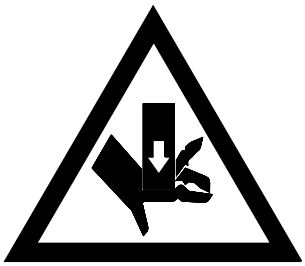
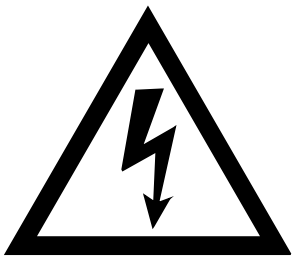
Danger and warning signs

 **Risk of entanglement!**	 **Risk of corrosion!**
 **Risk of crushing!**	 **Risk of cutting/amputation!**
 **Risk of burns!**	 **Risk of electrocution!**

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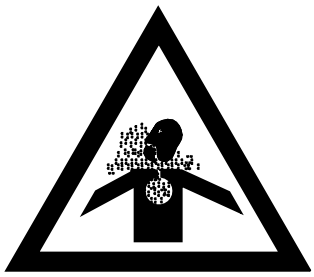
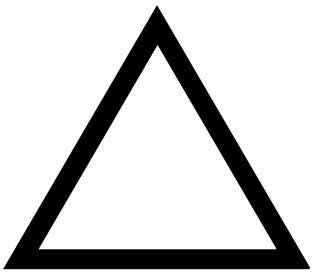
 **Risk of crushing!**	 **Risk of intoxication!**
 **Risk of falling!**	

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General safety precautions

Wear hearing protection while the equipment is running.

Hygiene

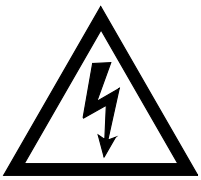
It is important to keep hands and/or gloves clean.

Disinfect hands and/or gloves before touching the packaging material, the strip(s) or any other equipment part that may come into contact with the product.

Clean the platforms, the ladder and the area around the equipment.

To avoid production faults, it is important that the packaging material and the strip(s) never touch the floor, the platform or the area around the equipment.

High voltage



Work with parts marked with this symbol must be performed by **skilled or instructed** persons **only**.

Make sure that the mains power is disconnected before starting any work on electrical equipment marked with this symbol.

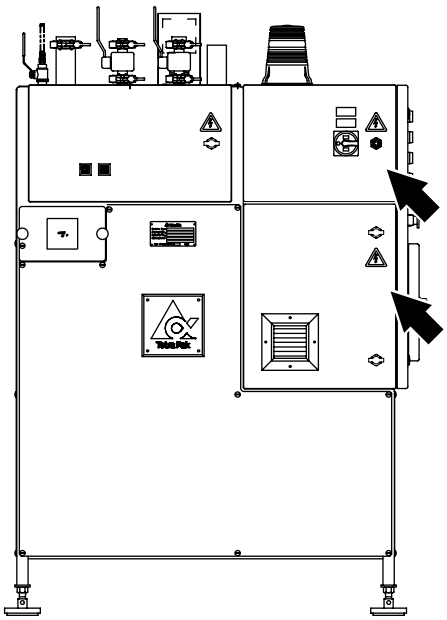
In case of accident, call for medical attention immediately.

Electrical cabinet

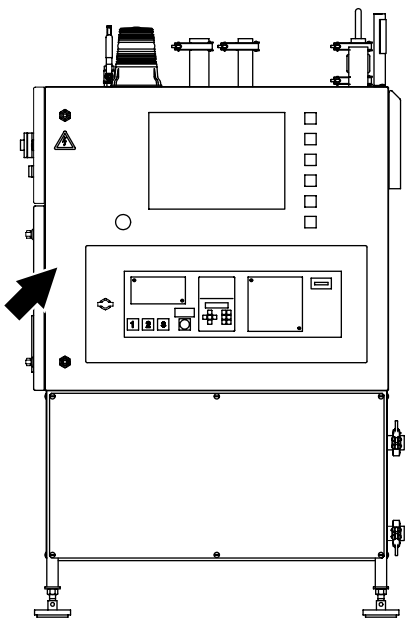
There is high voltage in the electrical cabinet (up to 400 V).

Work inside the electrical cabinet must be performed by skilled or instructed persons only.

Electrical cabinet doors locked with screws may be opened only by skilled or instructed persons.



LH side



RH side

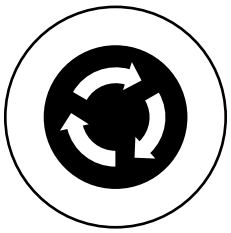
Machine safety devices

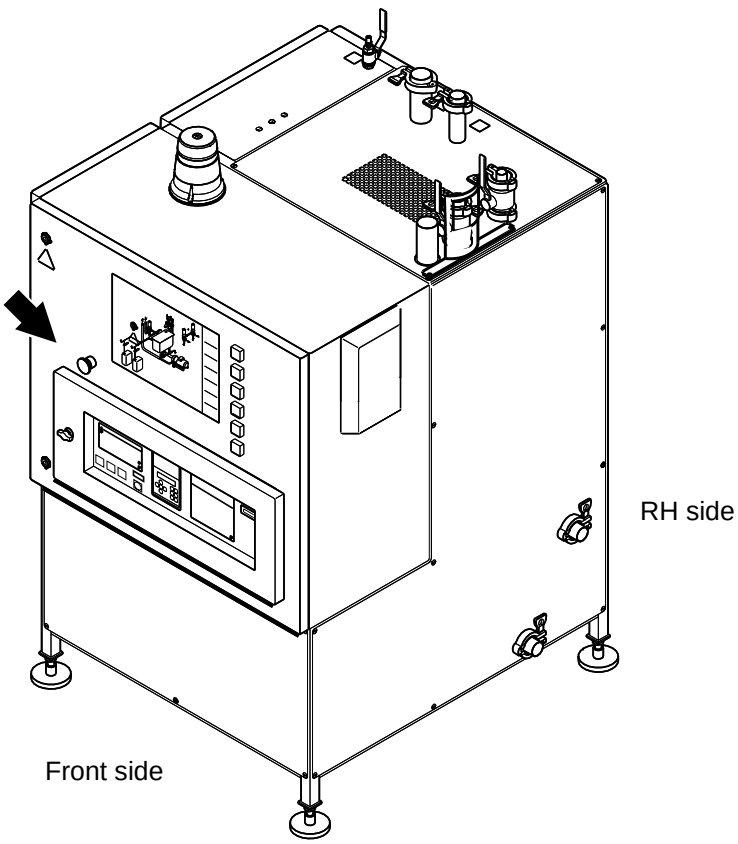
Emergency stop buttons

Learn the position of the **Emergency stop** buttons in order to stop the equipment immediately in case of danger to people or damage to the equipment.

The **Emergency stop** buttons do not switch off the power at the mains power switch.

Pushing the **Emergency stop** buttons will reset the equipment program to **Zero** position and deactivate all pneumatic cylinders.





EM1.182474011sp.fm

Doors, covers and guards

WARNING!

Make sure that all doors, covers and guards are in place and functioning.

Never remove covers or guards while the equipment is operating.

Certain doors, covers and guards are fitted with safety switches. These switches are part of the safety system and must **never** be bridged, by-passed or otherwise made non-operational.

Never stop the equipment by opening a door or cover with a safety switch.

The equipment may perform a reciprocating movement during the first few seconds after a stop. Some equipment parts may also be hot.

In case of accident, call for medical attention.

Chemical products

WARNING!

Risk of personal injury!
Certain chemical products are toxic and/or inflammable.
Carefully follow the instructions on the container label.

Follow the supplier's instructions for handling and disposal of the chemical products.

Personal protective equipment

- **Safety goggles**, TP No. 779130-102
- **Apron**, TP No. 90303-5
- **Shoes** made of PVC, PE plastic or rubber
- **Protective gloves** made of neoprene, TP No. 90303-4

Before starting work with any chemical products, make sure that:

- the showers work
- a portable, TP No. 90303-6, or wall-mounted eyewash device is available at or near each machine site
- there are additional washing facilities

General emergency procedures

If you accidentally **swallow** chemical products, drink large amounts of lukewarm water.

If you get splashes or vapour from chemical products in your **eyes**, wash your eyes thoroughly with lukewarm water for 15 minutes (keeping eyelids wide apart).

If chemical products come into contact with **skin** or **clothes**:

- rinse immediately with plenty of water
- if skin burns appear, call for medical attention immediately
- thoroughly wash clothes before wearing them again

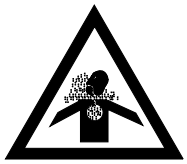
If you experience irritation or pain due to having **inhaled** chemical products vapour:

- leave the affected area and get some fresh air
- if the symptoms get worse, call for medical attention

Caustic soda

WARNING!

Risk of personal injury!
Slow corrosive action. May be harmful if inhaled. Can cause shortness of breath. Caustic soda may cause irritation or damage if it comes into contact with skin.



WARNING!

Handling of caustic soda

- Never mix caustic soda with nitric acid
- Make sure that the areas used for handling of caustic soda are well ventilated
- If caustic soda is spilt on the floor, soak it up with sand, turf dust or other suitable absorbent. Dispose of the absorbent appropriately
- Rinse the floor with water afterwards.

WARNING!

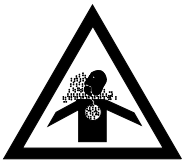
Caustic soda container

The container should be kept closed.

Nitric acid

WARNING!

Risk of personal injury!
Quick corrosive action. Very harmful if inhaled. The fumes of nitric acid can cause serious damage to the lungs. Nitric acid may cause burns if it comes into contact with skin and eyes.



WARNING!

Handling of nitric acid

- Never mix caustic soda with nitric acid
- Before starting any work with nitric acid, make sure that respiratory equipment is on hand for emergency situations
- Make sure that the areas used for handling of nitric acid are well ventilated
- If nitric acid is spilt on the floor, soak it up with sand, turf dust or other suitable absorbent. Dispose of the absorbent appropriately
- Rinse the floor with water afterwards.

WARNING!

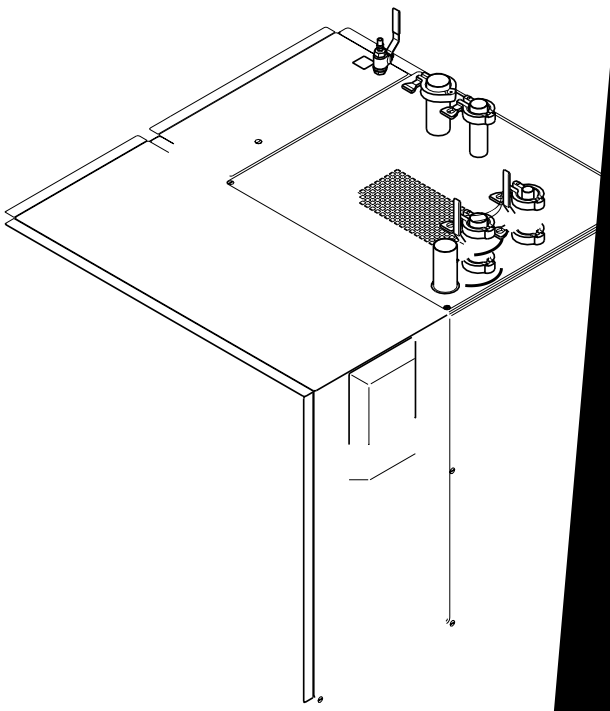
Nitric acid container

- The container should be kept closed
- To prevent damage to the lungs, it is advisable to put on a gas mask with a filter suitable for fumes produced by nitric acid before opening the container
- When moving the container ensure that the valves are closed and that the protection nuts and safety caps are securely fastened
- Follow the supplier’s instructions and the local regulations for disposing of the empty containers.

Hot parts

WARNING!

Risk of personal injury!
The steam connection (3), the outlet solution
(1) and the inlet solution connection (2) reach
temperatures above 60° C. Use a pair of pro
to prevent burns.



Equipment for lifting and moving loads

WARNING!

Make sure that the capacity of the lifting equipment is adeguate and that the equipment itself is in good working order.

If lifting tackle has to be joined to make up the necessary lenghts, make sure that the joins are secure and have the same lifting capacity as the rest of the tackle.

Always engage the safety clip on lifting hooks to prevent the tackle from slipping off.

Use ropes or poles to steady and manoeuvre loads. Do **not** use hands or feet.

Make sure that the route and the destination are free from obstacles before moving a suspended load. It must be possible to lower the load to the floor quickly and safely in an emergency.

When depositing loads, keep the lifting equipment in place until the stability of the load has been checked.

3 Electrical system description

Safety system

To reset the machine from the emergency condition, release the emergency stop buttons, push **Alarm reset** and wait for the PLC to perform a reset.

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4 Component location

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Components in the electrical cabinet. 4-3

El. cabinet, front view. . . . . .(ECN 71688) 52902-05:01

El. cabinet, left side view . . . . . (ECN 71688) 52902-06:01

Panel interface . . . . . .(ECN 71688) 52902-07:01

El. cabinet, bottom side view . . . . (ECN 71688) 52902-08:01

Delivered design . . . . . (ECN 71688) 52902-15:01

Components on the machine 4-5

Machine, left side view. . . . . .(ECN 71688) 52902-10:01

Machine, rear side view . . . . . .(ECN 71688) 52902-11:01

Components in the electrical cabinet

Comp.	Description	Drawing No.
A001	Conductivity / temperature meter	52902-05:01
A002	Multiplexer board	52902-06:01
A003	Led display	52902-06:01
A004		52902-06:01
A005	Multiplexer board power supply optocoupler	52902-05:01
A015	Display	52902-05:01
A101	PLC, digital output module	52902-05:01
A102	PLC, digital output module	52902-05:01
A110	PLC, digital input module	52902-05:01
A111	PLC, digital input module	52902-05:01
A112	PLC, digital input module	52902-05:01
F001	Fuse	52902-06:01
F002	Fuse	52902-06:01
F003	Fuse	52902-06:01
F004	Fuse	52902-06:01
G100	Power supply Ge-Fanuc	52902-05:01
H001	Warning lamp red	52902-05:01
K001	Cleaning pump contactor	52902-05:01
K002	24V DC power supply relay	52902-05:01
K003	220V AC power supply relay	52902-05:01
K004	Chemical pumps voltage reversing relay	52902-05:01
K005	Alkali pump relay	52902-05:01
K006	Acid pump relay	52902-05:01
K008	Cleaning completed to filler 1 relay	52902-05:01
K009	Cleaning completed to filler 2 relay	52902-05:01
K010	Cleaning completed to filler 3 relay	52902-05:01
K011	Overvalve filler 1 on	52902-05:01
K012	Overvalve filler 2 on	52902-05:01
K013	Overvalve filler 3 on	52902-05:01
M001	Electrical cabinet fan	52902-05:01
P001	Recorder	52902-06:01
P002	Hour meter	52902-06:01
Q001	Switch	52902-05:01
Q002	Overload relay	52902-06:01

Comp.	Description	Drawing No.
Q003	Overload protection	52902-06:01
Q003:1	Aux. contact	52902-06:01
Q005	Overload protection	52902-06:01
R001	Resistor	52902-06:01
R002	Resistor	52902-06:01
R003	Resistor	52902-06:01
S001	Emergency stop push-button	52902-05:01
S002H	Start push-button	52902-05:01
S003H	Down push-button	52902-05:01
S004H	Stand-by push-button	52902-05:01
S005H	Alarm reset push-button	52902-05:01
S006	Lamp test push-button	52902-05:01
S008	Cleaning selector switch	52902-05:01
S009	Disinfection selector switch	52902-05:01
S010H	Filler 1 push-button	52902-05:01
S011H	Filler 2 push-button	52902-05:01
S012H	Filler 3 push-button	52902-05:01
T001	Transformer	52902-06:01
V001	Rectifier	52902-06:01
X001	Terminal block	52902-05:01
X002	Terminal block	52902-05:01
X003	Terminal block	52902-06:01
X014	Wall socket	52902-05:01
X015	Terminal block	52902-05:01
X100	Terminal block	
X101	Terminal block	
XL10	Terminal block	52902-05:01
XL11	Terminal block	52902-05:01
XL12	Terminal block	52902-05:01
XL50	Terminal block	52902-05:01
XL51	Terminal block	52902-05:01
XL52	Terminal block	52902-05:01
Z001	Overvoltage protector	52902-06:01
Z002	Power line filter	52902-05:01

Components on the machine

Comp.	Description	Drawing No.
B001	Conductivity / temperature cell	52902-11:01
B002	Air pressure monitor	52902-10:01
B003	Main tank level monitor	52902-11:01
B004	Alkali tank full level monitor	52902-10:01
B005	Acid tank full level monitor	52902-10:01
B007	Alkali autoload quick connector pos. monitor	52902-10:01
B008	Acid autoload quick connector pos. monitor	52902-10:01
B009	Change overvalve filler 1 pos. monitor	
B010	Change overvalve filler 2 pos. monitor	
B011	Change overvalve filler 3 pos. monitor	
B015	Flowmeter	52902-11:01
H001S	Alkali tank autoload signal lamp	52902-10:01
H002S	Acid tank autoload signal lamp	52902-10:01
M001	Cleaning pump	52902-11:01
M002	Alkali pump	52902-10:01
M003	Acid pump	52902-10:01
S001H	Start alkali autoload push-button	
S002H	Start acid autoload push-button	
Y001	Water inlet valve	52902-10:01
Y002	Steam inlet valve	52902-10:01
Y003	Change overvalve	52902-10:01
Y004	Draining valve	52902-10:01
Y005	Change overvalve filler 1 on	52902-10:01
Y006	Change overvalve filler 2 on	52902-10:01
Y007	Change overvalve filler 3 on	52902-10:01

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5 Circuit diagrams

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7 Mains connections diagrams

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PLC program list 48400-007:01
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9 BE-list, CE-lists and terminals

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BE-list

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CE-lists

Machine . . . . . .(ECN 71688) CE-42219-020V

Electrical document . . . . . .(ECN 71688) CE-42220-020V

Electrical cabinet . . . . . .(ECN 71688) CE-42221-020V

Spare part kit . . . . . (ECN 71688) CE-558495-020V

Standard equipment . . . . . .(ECN 71688) CE-558496-020V

Terminals
CE-42220-020V

Terminal block . . . . . .(ECN 71688) 559188

Terminal block . . . . . .(ECN 71688) 559189

Distribution terminals . . . . . .(ECN 71688) 559190

Electrical cabinet glands
CE-42220-020V

Electrical cabinet glands . . . . . .(ECN 71688) 559191

Fuse panel label
CE-42220-020V

Fuse panel label. . . . . .(ECN 71688) 559192

General remark
I - SCU/4 BE-649444-0200.

ECM 71688
Release date 1998.10.19

Chg	Position	Sp	SH	Description	As	Size	Identity	DTp	Prt	Vs	Unit	Column quantity All	ECM
I	0010			MACHINE	X	A4	42219-0200				PC	1	71688
I	0020			ELECTRICAL DOCUMENT	X	A4	42220-0200				PC	1	71688
I	0030			ELECTRICAL CABINET	X	A4	42221-0200				PC	1	71688
				* ALARM MULTIPLEXER	X		68511-0100						
				* ELECTRICAL CABINET	X		926845-0200						
				* DISTRIBUTION	X								
				TERMINALS		A4	559190-0000						
				* TERMINAL BLOCK X001	X	A4	559188-0000						
				* TERMINAL BLOCK	X								
				X002, X003		A4	559189-0000						
				* ELECTRICAL CABINET	X								
				GLANDS		A4	559191-0000						
I	0040			SPARE PARTS KIT	X	A4	558495-0200				PC	1	71688
I	0050			STANDARD EQUIPMENT	X	A4	558496-0200				PC	1	71688

General remark

I - SCU/4 BE-649444-0200.
CABLES W005, W007, W011, W012, W025
ARE SUPPLIED WITH THE COMPONENT.

ECM 71688
Release date 1998.10.19

ChgP	Position	Sp	SH	Description	As	Size	Identity	DTp	Prt	Vs	Unit	Column quantity All	ECM
I	W001			CABLE OLFLEX 4x4 MM2			351150-0166				MM	3000	71688
I	W002			CABLE OLFLEX 3x0,75 MM2			351150-0403				MM	2500	71688
I	W003			CABLE OLFLEX 3x0,75 MM2			351150-0403				MM	2500	71688
I	W006			CABLE AWM BLUE 0,75MM2			351172-0102				MM	5000	71688
I	W008			CABLE OLFLEX 3x0,75 MM2			351150-0403				MM	2500	71688
I	W009			CABLE OLFLEX 3x0,75 MM2			351150-0403				MM	2500	71688
I	W015			CABLE OLFLEX 12x0,75 MM2			351150-0407				MM	2500	71688
I	W018			CABLE OLFLEX 3x0,75 MM2			351150-0403				M	15	71688
I	W019			CABLE OLFLEX 3x0,75 MM2			351150-0403				M	15	71688
I	W035			CABLE OLFLEX 3x0,75 MM2			351150-0403				M	15	71688

General remark

I - SCU/4 BE-649444-0200.
ALL DOCUMENTS ARE DISTRIBUTED IN SIZE
A4.
*
BE-LIST 649444-0200 AND CE-LIST
42220-0200 ARE TO BE DELIVERED WITH THE
BELOW MENTIONED DOCUMENTS.

ECM 71688
Release date 1998.10.19

Chg	Position	Sp	SH	Description	As	Size	Identity	DTp	Prt	Vs	Unit	Column quantity All	ECM
I	0010			ELECTRICAL EQUIPMENT	A4-		649444-0200	BOM	000	AA		x	71688
I	0020			MACHINE	A4-		42219-0200	BOM	000	AA		x	71688
I	0030			ELECTRICAL DOCUMENT	A4-		42220-0200	BOM	000	AA		x	71688
I	0040			ELECTRICAL CABINET	A4-		42221-0200	BOM	000	AA		x	71688
I	0050			SPARE PART KIT	A4-		558495-0200	BOM	000	AA		x	71688
I	0060			STANDARD EQUIPMENT	A4-		558496-0200	BOM	000	AA		x	71688
I	0100			POSITION SUMMARY	A4-		44882-0002	ELD	001	AA		x	71688
I	0105			CIRCUIT DIAGRAM	A4-		44882-0005	ELD	001	AA		x	71688
I	0110			CIRCUIT DIAGRAM	A4-		44882-0006	ELD	001	AA		x	71688
I	0115			CIRCUIT DIAGRAM	A4-		44882-0007	ELD	001	AA		x	71688
I	0120			CIRCUIT DIAGRAM	A4-		44882-0008	ELD	001	AA		x	71688
I	0125			CIRCUIT DIAGRAM	A4-		44882-0009	ELD	001	AA		x	71688
I	0130			CIRCUIT DIAGRAM	A4-		44882-0010	ELD	001	AA		x	71688
I	0135			CIRCUIT DIAGRAM	A4-		44882-0011	ELD	001	AA		x	71688
I	0140			CIRCUIT DIAGRAM	A4-		44882-0012	ELD	001	AA		x	71688
I	0145			CIRCUIT DIAGRAM	A4-		44882-0015	ELD	001	AA		x	71688
I	0150			CIRCUIT DIAGRAM	A4-		44882-0016	ELD	001	AA		x	71688

Chg	Position	Sp	SH	Description	As	Size	Identity	DTp	Prt	Vs	Unit	Column quantity All	ECM
I	0155			CIRCUIT DIAGRAM	A4-		44882-0018	ELD	001	AA		x	71688
I	0160			CIRCUIT DIAGRAM	A4-		44882-0019	ELD	001	AA		x	71688
I	0165			CIRCUIT DIAGRAM	A4-		44882-0020	ELD	001	AA		x	71688
I	0170			CIRCUIT DIAGRAM	A4-		44882-0025	ELD	001	AA		x	71688
I	0175			CIRCUIT DIAGRAM	A4-		44882-0026	ELD	001	AA		x	71688
I	0180			CIRCUIT DIAGRAM	A4-		44882-0027	ELD	001	AA		x	71688
I	0185			CIRCUIT DIAGRAM	A4-		44882-0028	ELD	001	AA		x	71688
I	0190			CIRCUIT DIAGRAM	A4-		44882-0037	ELD	001	AA		x	71688
I	0195			CIRCUIT DIAGRAM	A4-		44882-0038	ELD	001	AA		x	71688
I	0200			CIRCUIT DIAGRAM	A4-		44882-0039	ELD	001	AA		x	71688
I	0205			CIRCUIT DIAGRAM	A4-		44882-0040	ELD	001	AA		x	71688
I	0210			CIRCUIT DIAGRAM	A4-		44882-0041	ELD	001	AA		x	71688
I	0215			CIRCUIT DIAGRAM	A4-		44882-0042	ELD	001	AA		x	71688
I	0220			LINE SUMMARY	A4-		44882-0090	ELD	001	AA		x	71688
I	0225			TERMINAL SUMMARY	A4-		44882-0091	ELD	001	AA		x	71688
I	0230			CIRCUIT DIAGRAM GROUNDING	A4-		44882-0092	ELD	001	AA		x	71688
I	0235			ALTERATION MESSAGES	A4-		44882-0099	ELD	001	AA		x	71688
I	0300			MAIN FUNCTION-CROSS REF.	A4-		48400-0001	ELD	001	AA		x	71688
I	0305			MACHINE OPERATION DIAGRAM	A4-		48400-0004	ELD	001	AA		x	71688
I	0310			PLC PROGRAM LIST	A4-		48400-0005	ELD	001	AA		x	71688
I	0315			PLC PROGRAM LIST	A4-		48400-0006	ELD	001	AA		x	71688
I	0320			PLC PROGRAM LIST	A4-		48400-0007	ELD	001	AA		x	71688
I	0325			PLC PROGRAM LIST	A4-		48400-0008	ELD	001	AA		x	71688
I	0400			MOUNTING DRAWING	A4-		52902-0005	ELD	001	AA		x	71688

Chg	Position	Sp	SH	Description	As	Size	Identity	DTp	Prt	Vs	Unit	Column quantity All	ECM
I	0405			MOUNTING DRAWING	A4-		52902-0006	ELD	001	AA		x	71688
I	0410			MOUNTING DRAWING	A4-		52902-0007	ELD	001	AA		x	71688
I	0415			MOUNTING DRAWING	A4-		52902-0008	ELD	001	AA		x	71688
I	0420			MOUNTING DRAWING	A4-		52902-0010	ELD	001	AA		x	71688
I	0425			MOUNTING DRAWING	A4-		52902-0011	ELD	001	AA		x	71688
I	0430			MOUNTING DRAWING	A4-		52902-0015	ELD	001	AA		x	71688
I	0500			CONNECTION DRAWING	A4-		61930-0005	ELD	001	AA		x	71688
I	0505			CONNECTION DRAWING	A4-		61930-0006	ELD	001	AA		x	71688
I	0510			CONNECTION DRAWING	A4-		61930-0007	ELD	001	AA		x	71688
I	0515			CONNECTION DRAWING	A4-		61930-0008	ELD	001	AA		x	71688
I	0518			CONNECTION DRAWING	A4-		61930-0010	ELD	001	AA		x	71688
I	0520			CONNECTION DRAWING	A4-		61930-0011	ELD	001	AA		x	71688
I	0525			CONNECTION DRAWING	A4-		61930-0013	ELD	001	AA		x	71688
I	0530			CONNECTION DRAWING	A4-		61930-0014	ELD	001	AA		x	71688
I	0535			CONNECTION DRAWING	A4-		61930-0015	ELD	001	AA		x	71688
I	0550			TERMINAL BLOCK X001	A4-		559188-0000	DRA	000	AA		x	71688
I	0555			TERMINAL BLOCK X002, X003	A4-		559189-0000	DRA	000	AA		x	71688
I	0560			DISTRIBUTION TERMINALS	A4-		559190-0000	DRA	000	AA		x	71688
I	0565			ELECTRICAL CABINET GLANDS	A4-		559191-0000	DRA	000	AA		x	71688
I	0570			FUSE PANEL LABEL	A4-		559192-0000	DRA	000	AA		x	71688

General remark
I - SCU/4 BE-649444-0200.

ECM 71688
Release date 1998.10.19

Chg	Position	Sp	SH	Description	As	Size	Identity	DTp	Prt	Vs	Unit	Column quantity All	ECM
I	0001			ELECTRICAL CABINET	X		926845-0200				PC	1	71688
I	0020			ELECTRICAL CABINET GLANDS	X	A4	559191-0000				PC	1	71688
I	A002			ALARM MULTIPLEXER	X		68511-0100				PC	1	71688
I	X001			TERMINAL BLOCK X001	X	A4	559188-0000				PC	1	71688
I	X002,3			TERMINAL BLOCK X002, X003	X	A4	559189-0000				PC	1	71688
I	XL10			DISTRIBUTION TERMINALS	X	A4	559190-0000				PC	1	71688
I	0010			FUSE PANEL LABEL		A4	559192-0000				PC	1	71688
I	0050			ANCHOR 25,4x25,4mm ABM100-AT-MO		A4	352113-0206				PC	5	71688
I	0100			CABLE AWM YELL/GREEN 0,75MM2			351175-0102				MM	8000	71688
I	0110			CABLE AWM YELL/GREEN 1,5MM2			351175-0104				MM	6500	71688
I	0120			CABLE AWM YELL/GREEN 4MM2			351175-0106				MM	4000	71688
I	0130			CABLE AWM YELL/GREEN 6MM2			351175-0107				MM	4500	71688
I	0140			CABLE AWM BLACK 1,5MM2			351179-0104				MM	1500	71688
I	0150			CABLE AWM BLACK 2,5MM2			351179-0105				MM	1000	71688
I	0160			CABLE AWM BLACK 4MM2			351179-0106				M	14	71688
I	0170			CABLE AWM LIGHTBLUE			351173-0106				MM	1000	71688

Chg	Position	Sp	SH	Description	As	Size	Identity	DTp	Prt	Vs	Unit	Column quantity All	ECM
				4MM2									
I	0180			CABLE AWM LIGTHBLUE 1,5MM2			351173-0104				MM	2000	71688
I	0190			CABLE AWM BLUE 0,75MM2			351172-0102				M	150	71688
I	0200			CABLE AWM BLUE 1,5MM2			351172-0104				MM	5000	71688
I	0210			CABLE AWM RED 0,75MM2			351176-0102				MM	3500	71688
I	0220			CABLE AWM RED 1,5MM2			351176-0104				MM	8000	71688
I	0230			CABLE AWM ORANGE 0,75			351180-0102				MM	8000	71688
I	A001			CONDUCTIVITY METER	A1		90243-0214				PC	1	71688
I	A003			CIRCUIT BOARD	A1		927054-0000				PC	1	71688
I	A003:1			DISPLAY I t e m t e x t CLICHE’ NO. 251053.	A2		927051-0000				PC	1	71688
I	A003:2			WINDOW	A2		927052-0000				PC	1	71688
I	A003:3			SPACER	A1		927055-0000				PC	1	71688
I	A004			Soft Starter A150-A09NB-4kW I n t e r n a l c o m m e n t Not approved in TP-test	A1		90430-0045				PC	1	71688
I	A005			OPTO-RELAY DC/DC AMMS-10-1	A3		90119-0063				PC	1	71688
I	A100			CPU313, Integrated in 5-slot Baseplate	A2		90031-0070				PC	1	71688
I	A101			PLC,Digital Output Module,24VDC,16pt,+/-			90031-0059				PC	1	71688
I	A102			PLC,Digital Output Module,24VDC,16pt,+/-			90031-0059				PC	1	71688
I	A110			PLC,Digital Input Module,24VDC,16pt,+/-			90031-0057				PC	1	71688

Chg	Position	Sp	SH	Description	As	Size	Identity	DTp	Prt	Vs	Unit	Column quantity All	ECM
I	A111			PLC,Digital Input Module,24VDC,16pt,+/-			90031-0057				PC	1	71688
I	A112			PLC,Digital Input Module,24VDC,16pt,+/-			90031-0057				PC	1	71688
I	F001			FUSE 10A FERRAZ			90233-0028				PC	1	71688
I	F001:1			FUSEHOLDER FERRAZ ST10			90233-0303				PC	1	71688
I	F002			FUSE 10A FERRAZ			90233-0028				PC	1	71688
I	F002:1			FUSEHOLDER FERRAZ ST10			90233-0303				PC	1	71688
I	F003			FUSE 1P 10A K			90007-0129				PC	1	71688
I	F004			FUSE 10A FERRAZ			90233-0028				PC	1	71688
I	F004:1			FUSEHOLDER FERRAZ ST10			90233-0303				PC	1	71688
I	G100		Y	PLC, Power supply 240 VAC, High cap.			90031-0068				PC	1	71688
I	H001			WARNING LAMP RED, max 220V 40W	A3		90419-0009				PC	1	71688
I	H001:1			LIGHT BULB E14 30V	A4		90036-0061				PC	1	71688
I	H001:2			Screw MC6S M5x12 A280			312115-0327				PC	3	71688
I	H001:3			WASHER,PLAIN ROUND 5,3x10 Stainless			315105-0146				PC	3	71688
I	H001:4			NUT,HEXAGON,M6M5 Stainless			312605-0314				PC	3	71688
I	K001			CONTACTOR 7,5KW COIL 24VDC			90075-0128				PC	1	71688
I	K001:1			AUXILIARY CONTACT K&M 31 DILM.3NO;1NC	A3		90075-0155				PC	1	71688
I	K002			PLUG-IN RELAY 24VDC	A3		90119-0056				PC	1	71688
I	K002:1			BASE 11 POLE	A3		90129-0006				PC	1	71688
I	K003			PLUG-IN RELAY 24VDC	A3		90119-0056				PC	1	71688

Chg	Position	Sp	SH	Description	As	Size	Identity	DTp	Prt	Vs	Unit	Column quantity All	ECM
I	K003:1			BASE 11 POLE	A3		90129-0006				PC	1	71688
I	K004			PLUG-IN RELAY 24VDC	A3		90119-0056				PC	1	71688
I	K004:1			BASE 11 POLE	A3		90129-0006				PC	1	71688
I	K005			PLUG-IN RELAY 24VDC	A3		90119-0056				PC	1	71688
I	K005:1			BASE 11 POLE	A3		90129-0006				PC	1	71688
I	K006			PLUG-IN RELAY 24VDC	A3		90119-0056				PC	1	71688
I	K006:1			BASE 11 POLE	A3		90129-0006				PC	1	71688
I	K008			PLUG-IN RELAY 24VDC	A3		90119-0056				PC	1	71688
I	K008:1			BASE 11 POLE	A3		90129-0006				PC	1	71688
I	K009			PLUG-IN RELAY 24VDC	A3		90119-0056				PC	1	71688
I	K009:1			BASE 11 POLE	A3		90129-0006				PC	1	71688
I	K010			PLUG-IN RELAY 24VDC	A3		90119-0056				PC	1	71688
I	K010:1			BASE 11 POLE	A3		90129-0006				PC	1	71688
I	K011			OPTO-RELAY DC/DC AMMS-10-1	A3		90119-0063				PC	1	71688
I	K012			OPTO-RELAY DC/DC AMMS-10-1	A3		90119-0063				PC	1	71688
I	K013			OPTO-RELAY DC/DC AMMS-10-1	A3		90119-0063				PC	1	71688
I	M001			FAN PAPST 220V;18W			90264-0032				PC	1	71688
I	P002			HOUR COUNTER BOWER B906.10	A3		90053-0031				PC	1	71688
I	Q001			MAIN SWITCH K&M P1-25/V/SVB-SW/N/HI11			90111-0128				PC	1	71688
I	Q001:1			SIGN "MAIN SWITCH"			359241-0124				PC	1	71688
I	Q001:2			SIGN"RATINING PLATE"			359241-0353				PC	1	71688
I	Q001:3			SIGN HOLDER	A2		359240-0100				PC	2	71688

Chg	Position	Sp	SH	Description	As	Size	Identity	DTp	Prt	Vs	Unit	Column quantity All	ECM
I	Q001:4			BLANK RIVET 2,4x8mm			311520-0329				PC	4	71688
I	Q002			OVERLOAD RELAY 25-40A			90259-0031				PC	1	71688
I	Q003			OVERLOAD PROTECTION PKZM 6-10A	A2		90095-0077				PC	1	71688
I	Q003:1			AUX. CONTACT K&M NHI21-PKZM0	A3		90259-0313				PC	1	71688
I	Q005			OVERLOAD PROTECTION PKZM 0-0,63 A	A2		90095-0071				PC	1	71688
I	R001			Resistance fixed, 0,01 kOhm, 0,25 W	A4		90121-0117				PC	1	71688
I	R002			Resistance fixed, 0,01 kOhm, 0,25 W	A4		90121-0117				PC	1	71688
I	R003			Resistance fixed, 0,01 kOhm, 0,25 W	A4		90121-0117				PC	1	71688
I	S001			SWITCH,EMERGENCY STOP			90064-0124				PC	1	71688
I	S001:1			SIGN "EMERGENCY STOP"	A4		486826-0001				PC	1	71688
I	S002H			PUSH BUTTON GREEN			90064-0083				PC	1	71688
I	S002H:1			SIGN "UP"			359301-0001				PC	1	71688
I	S003H			PUSH BUTTON WHITE	Y		90064-0082				PC	1	71688
I	S003H:1			SIGN "UP"			359301-0001				PC	1	71688
I	S004H			PUSH BUTTON RED			90064-0085				PC	1	71688
I	S004H:1			SIGN "SHORT STOP"			359301-0110				PC	1	71688
I	S005H			PUSH BUTTON WHITE	Y		90064-0082				PC	1	71688
I	S005H:1			SIGN "ALARM RESET"			359301-0105				PC	1	71688
I	S006			PUSH BUTTON WHITE	Y		90064-0082				PC	1	71688
I	S006:1			SIGN "LAMPTEST"			359301-0130				PC	1	71688
I	S007			SWITCH 3 POS.EA OLTEN			90111-0121				PC	1	71688

Chg	Position	Sp	SH	Description	As	Size	Identity	DTp	Prt	Vs	Unit	Column quantity All	ECM
I	S007:1			SIGN"MACHIHINE SELECTION"			359241-0354				PC	1	71688
I	S007:2			SIGN HOLDER		A2	359240-0100				PC	1	71688
I	S007:3			BLANK RIVET 2,4x8mm			311520-0329				PC	2	71688
I	S008			SWITCH 2 POS. EA OLTEN			90111-0120				PC	1	71688
I	S008:1			SIGN "COOLING OF CIRC.WATER"			359241-0355				PC	1	71688
I	S008:2			SIGN HOLDER		A2	359240-0100				PC	1	71688
I	S008:3			BLANK RIVET 2,4x8mm			311520-0329				PC	2	71688
I	S009			KEY SWITCH 2 NO Contacts			90111-0122				PC	1	71688
I	S010H			PUSH BUTTON GREEN			90064-0083				PC	1	71688
I	S010H:1			SIGN "Selection 1"			359301-0442				PC	1	71688
I	S011H			PUSH BUTTON GREEN			90064-0083				PC	1	71688
I	S012H			PUSH BUTTON GREEN			90064-0083				PC	1	71688
I	S012H:1			SIGN "Selection 3"			359301-0443				PC	1	71688
I	SO11H:1			SIGN "Selection 2"			359301-0355				PC	1	71688
I	T001			TRANSF. 3-Ph 145VA SEC. 4A			90245-0020				PC	1	71688
I	V001			RECTIFIER 30Amp.SKD 30/04A1			90038-0025				PC	1	71688
I	X014			Wall socket Outlet		A3	90001-0033				PC	1	71688
I	X100			TERMINAL STRIP 16-POLE			90077-0106				PC	1	71688
I	X101			TERMINAL BK2 KRG 2-POLE			90195-0020				PC	1	71688
I	Z001			OVERVOLTAGE PROTECTOR	Y	A2	90082-0013				PC	1	71688
I	Z002			Power Line Filter		A3	90024-0049				PC	1	71688

General remark
I - SCU/4 BE-649444-0200.

ECM 71688
Release date 1998.10.19

Chg	Position	Sp	SH	Description	As	Size	Identity	DTp	Prt	Vs	Unit	Column quantity All	ECM
I	0100			LIGHT BULB E14 30V	A4		90036-0061				PC	1	71688
I	0110			LIGHT BULB BA9S 28V			90036-0057				PC	1	71688
I	0120			FUSE 10A FERRAZ			90233-0028				PC	3	71688
I	0130			Resistance fixed, 0,01 kOhm, 0,25 W	A4		90121-0117				PC	1	71688
I	0140			PLUG-IN RELAY 24VDC	A3		90119-0056				PC	1	71688
I	0150			OVERVOLT.PROT.PU1 230V	A3		90082-0300				PC	1	71688

General remark
I - SCU/4 BE-649444-0200.

ECM 71688
Release date 1998.10.19

Chg	Position	Sp	SH	Description	As	Size	Identity	DTp	Prt	Vs	Unit	Column quantity All	ECM
I	0010			PLC-DISKETTE	A4-		48400-0000	ELD	001	AA		x	71688

ECM 71692
Release date 1998.09.01

Chg	Position	Sp	SH	Description	As	Size	Identity	DTp	Prt	Vs	Unit	Column quantity All	ECM
I				===ASSEMBLY DRAWING===	A1	-	926845-0003	ASS	000	AA		x	71692
I				===ASSEMBLY DRAWING===	A1	-	926845-0004	ASS	000	AA		x	71692
I	010			DOOR	A1		926848-0000				PC	1	71692
I	020			CABINET	A1		1348491-0000				PC	1	71692
I	030			DOOR	A1		927184-0000				PC	1	71692
I	040			DOOR	A1		927185-0000				PC	1	71692
I	050			DOOR	A1		927186-0000				PC	1	71692
I	060			HOLDER	A1		927188-0000				PC	1	71692
I	070			HOLDER	A1		1348489-0000				PC	1	71692
I	080			HOLDER	A1		927190-0000				PC	1	71692
I	100			COVER	A2		1143171-0000				PC	1	71692
I	110			WINDOW	A2		926856-0000				PC	1	71692
I	120			REINFORCEMENT	A2		926857-0000				PC	1	71692
I	130			HOLDER	A2		927212-0000				PC	1	71692
I	140			COVER	A2		927227-0000				PC	1	71692
I	160			FRAME FOR FILTER	A3		731665-0000				PC	1	71692
I	170			CABLE DUCT	A3		927187-0000				PC	1	71692
I	190			SPACER PIPE	A4		495131-0020				PC	3	71692
I	200			SPLICE	A4		730445-0000				PC	4	71692
I	210			GASKET	A4		927069-0000				PC	1	71692
I	220			PLUG	A4		927213-0000				PC	1	71692
I	230			PLUG	A4		927214-0000				PC	1	71692
I	240			HOLDER	A4		927228-0000				PC	4	71692
I	250			SPACER	A4		927229-0000				PC	3	71692

Chg	Position	Sp	SH	Description	As	Size	Identity	DTp	Prt	Vs	Unit	Column quantity All	ECM
I	260			BOX	A2		1195356-0000				PC	1	71692
I	270			COVER	A2		1195357-0000				PC	1	71692
I	280			DISCETTE BOX 3,5"	A3		970802-0000				PC	1	71692
I	290			STRIP EMKA 1011-05 21x11mm			90143-0057				M	9	71692
I	300			TAPE Scotch VHB 4945;12,7mm I n t e r n a l c o m m e n t REPLACED BY 90144-0072 IMPROVED PARTS TO BE USED UP Not recorded			90144-0044				PC	1	71692
I	310			SIGN "FLASH SIGN" 50X50MM			90194-0016				PC	3	71692
I	320			SIGN "IDENTIF. OF WIRING"	A3		90194-0080				PC	2	71692
I	330			SIGN "DELIVERED DESIGN"	A3		90194-0133				PC	1	71692
I	340			COPPER BRAID BM 61157	A4		90203-0010				PC	1	71692
I	350			LOCK HOUSING EMKA U134			90237-0319				PC	6	71692
I	360			LOCK COMPONENT EMKA U136			90237-0320				PC	3	71692
I	370			O-RING			90237-0323				PC	3	71692
I	380			SQUARE-KEY 8mm	A4		90237-0324				PC	1	71692
I	390			LOCKING CATCH			90237-0335				PC	6	71692
I	400			LOCK HANDLE For 90237-319	A4		90237-0337				PC	3	71692
I	410			"O-RING 176X3,5"			90242-0132				PC	2	71692
I	420			HINGE RIGHT Lögstrup	A4		90248-0015				PC	4	71692

Chg	Position	Sp	SH	Description	As	Size	Identity	DTp	Prt	Vs	Unit	Column quantity All	ECM
I	425			HINGE LEFT Lögstrup	A4		90248-0016				PC	4	71692
I	430			GRILL			90264-0324				PC	2	71692
I	450			FILTER			90264-0335				PC	1	71692
I	460			DAMPER	A3		90347-0051				PC	2	71692
I	480			Screw M6S M5x12 A280			312105-0327				PC	29	71692
I	490			Screw M6S M6x12 A280			312105-0366				PC	20	71692
I	500			Screw Hex.Sock.Hd.MC6S-TT 6x10 88 FZB			312111-0364				PC	2	71692
I	510			Screw Hex.Sock.Hd.MC6S-TT 3x10 A480			312115-0224				PC	4	71692
I	520			Screw Hex.Sock.Hd.MC6S-TTS 4x6 A480			312115-0285				PC	64	71692
I	530			Screw Hex.Sock.Hd.MC6S-TT 4x10 A480			312115-0289				PC	12	71692
I	540			Screw MC6S M4x12 A280			312115-0291				PC	6	71692
I	550			Screw MC6S M4x20 A280			312115-0295				PC	3	71692
I	560			Screw MC6S M4x45 A280			312115-0304				PC	3	71692
I	570			Screw MC6S M5x16 A280			312115-0329				PC	3	71692
I	575			Screw MC6S M6x16 A280			312115-0368				PC	16	71692
I	576			Screw Pan Head MCS M4X8 RFR			312125-0287				PC	4	71692
I	577			Screw Pan Head MCS M4X16 RFR			312125-0293				PC	4	71692
I	578			Screw Pan Head MCS M6X16 RFR			312125-0368				PC	1	71692

Chg	Position	Sp	SH	Description	As	Size	Identity	DTp	Prt	Vs	Unit	Column quantity All	ECM
I	580			Screw Counters.Slot.Hd. MFS 3x12 SS			312145-0226				PC	8	71692
I	590			NUT,HEXAGON M6M 3 A2 80			312605-0310				PC	11	71692
I	600			NUT,HEXAGON,M4 RFR			312605-0312				PC	31	71692
I	610			NUT,HEXAGON,M6M5 Stainless			312605-0314				PC	13	71692
I	615			NUT,HEXAGON A280 M6M6			312605-0316				PC	18	71692
I	618			NUT,HEXAGON,M8 RFR			312605-0318				PC	2	71692
I	620			WASHER,PLAIN ROUND 3,2x6			315105-0124				PC	12	71692
I	630			WASHER,PLAIN ROUND 4,3x8 Stainless			315105-0136				PC	120	71692
I	640			WASHER,PLAIN ROUND 5,3x10 Stainless			315105-0146				PC	42	71692
I	650			WASHER,PLAIN ROUND 6,4x12 Stainless	A	4	315105-0153				PC	32	71692
I	653			WASHER,PLAIN ROUND 8,4x16 Stainless			315105-0165				PC	2	71692
I	655			WASHERS,PLAIN ROUND,CHAMFERED 6,4X22X4			315125-0153				PC	6	71692
I	660			RETAINING RINGS,RADIAL ASSEMBLY 4			315755-0106				PC	4	71692
I	670			LOCKING WASHER D=6,4/11			90062-0022				PC	2	71692
I	671			COPPER BRAID 10mm2			90203-0001				MM	200	71692

Chg	Position	Sp	SH	Description	As	Size	Identity	DTp	Prt	Vs	Unit	Column quantity All	ECM
I	672			CABLE SHOE			353101-0154				PC	2	71692
I	800			CABEL DUCT 25x60mm			90181-0044				MM	340	71692
I	810			CABLE DUCT 40x60mm			90181-0045				MM	110	71692
I	811			CABLE DUCT 40x60mm			90181-0045				MM	190	71692
I	812			CABLE DUCT 40x60mm			90181-0045				MM	350	71692
I	813			CABLE DUCT 40x60mm			90181-0045				MM	350	71692
I	814			CABLE DUCT 40x60mm			90181-0045				MM	460	71692
I	815			CABLE DUCT 40x60mm			90181-0045				MM	460	71692
I	816			CABLE DUCT 40x60mm			90181-0045				MM	670	71692
I	817			CABLE DUCT 40x60mm			90181-0045				MM	170	71692
I	818			CABLE DUCT 40x60mm			90181-0045				MM	320	71692
I	820			CABEL DUCT 60x60mm			90181-0046				MM	240	71692
I	821			CABEL DUCT 60x60mm			90181-0046				MM	360	71692
I	822			CABEL DUCT 60x60mm			90181-0046				MM	400	71692
I	823			CABEL DUCT 60x60mm			90181-0046				MM	400	71692
I	824			CABEL DUCT 60x60mm			90181-0046				MM	460	71692
I	825			CABEL DUCT 60x60mm			90181-0046				MM	750	71692
I	830			CABLE DUCT 80X80mm			90181-0055				MM	700	71692
I	850			RAIL TS35/15/1,5			353042-0003				MM	300	71692
I	851			RAIL TS35/15/1,5			353042-0003				MM	460	71692

ECM 71688
Release date 1998.10.19

Chg	Position	Sp	SH	Description	As	Size	Identity	DTp	Prt	Vs	Unit	Column quantity All	ECM
I	0001			CABLE GLAND ST 21			352103-0116				PC	1	71688
I	0002			NUT PR 28,3 (PG21)			90099-0119				PC	1	71688
I	0003			BLANK-OFF PLUG 20.4			90002-0016				PC	1	71688
I	0004			CABLE GLAND ST 13			352103-0108				PC	3	71688
I	0005			NUT PR 20,4 (PG13,5)			90099-0118				PC	3	71688
I	0006			BLANK-OFF PLUG 18.6			90002-0009				PC	1	71688
I	0007			CABLE GLAND ST 11			352103-0106				PC	3	71688
I	0008			NUT PR 18,6 (PG11)			90099-0117				PC	3	71688
I	0009			CABLE GLAND ST 9;PR15,2/PG9			352103-0101				PC	3	71688
I	0010			NUT PR 15,2 (PG9)			90099-0104				PC	3	71688

General remark

I - MANUFACTURING DATA DISCETTE IS KEPT AT
TP COPYING DEPARTMENT AND CAN BE
ORDERED UNDER NO.
*

DATA DISCETTE	551929-2
SOLDER MASK COMPONENT SIDE	551929-4
SOLDER MASK SOLDER SIDE	551929-5
LAYOUT COMPONENT SIDE	551929-8
LAYOUT SOLDER SIDE	551929-9
DRILLING & DIMENSION	551929-10

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ECM 28280 (0000.00.00)
ECM 26083 (1998.11.16)
ECM 14685 (1992.01.22)
ECM 13161 (1991.10.01)

ChgPosition	Sp	SH	Description	As	Size	Identity	DTp	Prt	Vs	Unit	Column quantity All	ECM
I 020			COMPONENT LAYOUT	A3-		57194-0001	ELD	001	AA		x	-
I 030			CIRCUIT DIAGRAM	A3-		57181-0001	ELD	001	AA		x	-
I 010			PRINTED CIRCUIT BOARD	A4		551929-0000				PC	1	-
I 040			COMPONENTS WITHOUT TP-NO	A4		565311-0001				PC	1	-

General remark
Incompl. BoM consist of Spare Parts only

ChgPosition	Sp	SH	Description	As	Size	Identity	DTp	Prt	Vs	Unit	Column quantity All	ECM
I			SPARE BATTERY CPU,PCM,2pcs			90031-0301				PC	1	-
I			FINE-WIRE FUSE 2 A Slow;5x20mm			352551-0134				PC	1	-

General remark

I - Incompl. BoM consist of Spare Parts only

ChgPosition	Sp	SH	Description	As	Size	Identity	DTp	Prt	Vs	Unit	Column quantity All	ECM
I			LIGHT BULB BA9S	28V		90036-0057				PC	1	-

ECM 71688
Release date 1998.10.19

Chg	Position	Sp	SH	Description	As	Size	Identity	DTp	Prt	Vs	Unit	Column quantity All	ECM
I	0001			RAIL TS35/15/1,5			353042-0003				MM	640	71688
I	0002			END BRACKET WEW 35/2	A3		353031-0203				PC	2	71688
I	0003			FEED TRHOUGH TERMINAL WDU 6 Beige			353021-0214				PC	6	71688
I	0004			BY PASS TERMINAL WDU 2,5 Blue			353021-0216				PC	64	71688
I	0005			EARTH TERMINAL WPE 4			353024-0205				PC	14	71688
I	0006			MARKING PLATES 5-FW 1-50			359011-0807				PC	2	71688
I	0007			MARKING PLATES 5-FW 51-100			359011-0808				PC	2	71688
I	0008			MARKING PLATES 5-GW (Earth)			359011-0819				PC	28	71688

ECM 71688
Release date 1998.10.19

Chg	Position	Sp	SH	Description	As	Size	Identity	DTp	Prt	Vs	Unit	Column quantity All	ECM
I	0001			RAIL TS35/15/1,5			353042-0003				MM	300	71688
I	0002			RAIL TS35/15/1,5			353042-0003				MM	60	71688
I	0003			RAIL BRACKET			90094-0005				PC	2	71688
I	0004			END BRACKET WEW 35/2	A3		353031-0203				PC	4	71688
I	0005			BY PASS TERMINAL WDU 2,5 Blue			353021-0216				PC	36	71688
I	0006			TERMINALS,DISCONNECTABLE,WTR 2,5+WSD 2,5	A3		353021-0127				PC	3	71688
I	0007			EARTH TERMINAL WPE 4			353024-0205				PC	5	71688
I	0008			MARKING PLATES 5-FW 1-50			359011-0807				PC	4	71688
I	0009			MARKING PLATES 5-GW (Earth)			359011-0819				PC	10	71688

ECM 71688
Release date 1998.10.19

ChgPosition	Sp	SH	Description	As	Size	Identity	DTp	Prt	Vs	Unit	Column quantity All	ECM
I 0001			RAIL TS35/15/1,5			353042-0003				MM	400	71688
I 0002			END BRACKET WEW 35/2	A3		353031-e2	MM	400	PC400	6		71688

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10 Optional equipment and kits

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11 Other information

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Tetra Pak