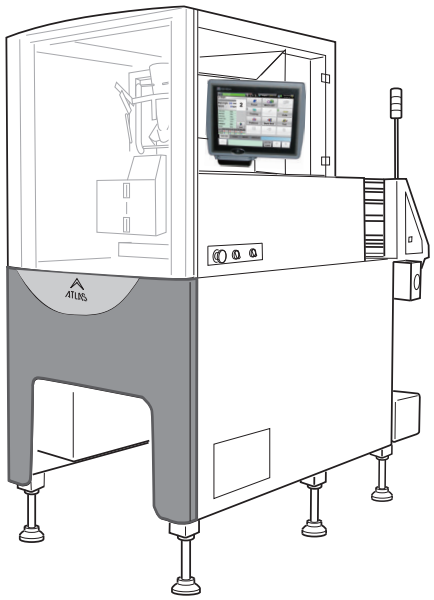
ISHIDA

VERTICAL FORM FILL SEAL PACKAGING MACHINE

ATLAS-204/234

MAINTENANCE MANUAL



WARNING

- **Do not carry out installation, operation, service, or maintenance until thoroughly understanding the contents of this manual.**
- **Keep this manual available at all times for installation, operation, service, and maintenance.**

ISHIDA CO., LTD.

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You can help improve this manual by calling attention to errors and by recommending improvements.
Please convey your comments to the nearest Ishida Company regional representative.

Thank you!

PREFACE

Purpose

This service manual is designed to help service personnel maintaining ATLAS-204/234. Start the actual maintenance after reading through this manual.

Refer to the Operation Manual about installation, detailed setting and operations of the machine.

Related Manuals

- ATLAS-204/234 Operation Manual
- ATLAS-204/234 Parts List

Graphical Labels

The following graphical labels are used in this manual:

Graphical	Label Meaning
WARNING	Indicates a potentially hazardous situation which, if not avoided, could possibly result in death or serious injuries. (The label is used to indicate a potentially hazardous situation which, if not observed, could possibly result in death or serious injuries.)
CAUTION	Indicates a potentially hazardous situation which, if not avoided, could possibly result in minor or moderate injuries or machine damage. (The label is used to indicate a potentially hazardous situation which, if not observed, could possibly result in minor injuries.)
NOTE	Indicates special cautions or important information.
TIP	Indicates helpful information.

For Safety Service

Strictly observe the following items to perform proper maintenance and prevent accidents from occurring.

- Regarding assembly and adjustment sections, precautions are mentioned for each item. Thoroughly understand them to perform proper work.
- Always keep the surroundings of the equipment organized. In particular, extreme caution is must be taken during disassembly, because serious damage may occur if the power switch is turned ON with screws left in the equipment.
- Turn OFF the power switch before starting maintenance. According to circumstances, start maintenance after removing the power supply cable from the power receptacle.

Table of Contents

GENERAL TABLE OF CONTENTS

4 Replacement and Adjustment

1 SAFETY

1 SAFETY

1.1 Summary

The information in this chapter is included to instruct persons who own, install, operate, service or inspect this equipment on warning symbols, precautions which must be observed, and explanation of warning labels attached to the machine.

WARNING

- **Before attempting to perform any operation, maintenance or inspection of this equipment, it is imperative to read and understand the instructions in this manual and to carefully observe all safety precautions and warnings contained herein.**
- **If there are any unclear points or questions concerning the information contained in this manual, please contact Ishida installation personnel or your nearest Ishida Service representative before proceeding.**

1.2 Warning Indications: Types and Definitions

The warning indications contained in this manual, as well the indications on the labels attached to the machine, are ranked into three categories according to the level of hazard involved.
It is important that these indications be fully understood and complied with.

INDICATION	EXPLANATION
DANGER	If this hazard is not avoided, death or serious injury will probably result. This indicates a clear and immediate danger, and extreme caution must be exercised to prevent a mishap.
WARNING	If this hazard is not avoided, there is a possibility of death or injury resulting.
CAUTION	If this hazard is not avoided, there is a possibility that light or moderate injury may result. It may also indicate that a possibility of damage to equipment exists.

NOTE	Used to emphasize or clarify an important point in the manual.

1.3 General Precautions to be Observed

This section describes the general safety precautions which must be observed when handling this equipment.

⚠ DANGER

- All electrical work for the installation site must be performed by licensed electrical contractors. Otherwise, electrical shock or equipment malfunction may result.
- Do not put hands through the gap at the bottom of the cover on the equipment's front. There are rotating parts inside the cover which could injure hands.
- All maintenance and inspection work involving electrical components must be performed by qualified maintenance personnel.
  Electrical shock or equipment malfunction may result if unqualified personnel are permitted to perform maintenance or inspection of electrical components.
- Before performing any maintenance or inspection work which is not specifically indicated in this manual, shut off the main power switch.
  The person performing the maintenance should lock the main power switch and keep the key in his possession while performing the work.
  Injury or electrical shock may result if the equipment is turned on by another person while maintenance work is being performed.
- Turn off the main power switch then wait at least 3 minutes before performing any maintenance or inspection work on the equipment. Residual charge may remain in the machine even after the power has been turned off.
  Also, turn off the power of any upstream/downstream units which are connected or adjacent to the equipment; otherwise there is a danger of electrical shock.

⚠ WARNING

- Persons who operate, maintain or inspect the equipment must have received appropriate training, and have attained a sufficient level of skill before they start performing such work.
- Never touch any electrical switches or buttons with wet or damp hands. Electrical shock may occur when the equipment is not properly grounded or when there is electrical leakage.
- Personnel with long hair using this equipment should tie up their hair securely and all personnel must wear a cap or hat as well as clothes and shoes suitable for the production environment. Unbound long hair or inappropriate clothing may become caught in moving parts, and injuries may result.
- Before starting operation of the equipment, make sure that all covers are securely shut and fastened. Touching the moving part during production may result injuries.
- Keep away from moving and rotating components while the equipment is in operation. They could cause injury if body parts get caught up in them.

- Before cleaning the part which is not specifically indicated in this manual, shut off the main power switch.
  The person performing the maintenance should lock the main power switch and keep the key in his possession while performing the work.
  Injury or electrical shock may result if the equipment is turned on by another person while cleaning is being performed.
- If maintenance or inspection work is to be performed with the main power switch ON, clearly indicate this situation by posting a sign in the work area. This is to prevent other personnel from accidentally starting up the equipment.
- When performing maintenance and inspection work on the upper part of the packer, use a sturdy ladder or foothold to avoid a hazardous fall.

⚠ CAUTION

- Do not run the equipment with any tools or other objects placed on top of the machine. If objects fall into moving parts, damage to the equipment may result.
- Use finger to press the operation panel of the RCU. Using a ball-point pen or other pointed object can damage the operation panel.

1.4 Special Safety Precautions

This section describes special safety precautions for this equipment which, in addition to the previously mentioned precautions, should be carefully observed.

⚠ WARNING

- Before opening the main guard and working on the parts behind it, make sure that the heater has thoroughly cooled. Otherwise the heater or its surrounding parts could cause burns when touched.

⚠ CAUTION

- Do not use the same power source for devices which may emit noise. Doing so may result in malfunction or damage.
- Do not install wiring which permits load-related power fluctuations of more than ±10%. Overload may result in malfunction or damage.
- When cleaning the equipment, be sure to rinse only the areas specifically indicated as washable. Otherwise, damage or malfunction may result.
- Do not apply insecticide or other foreign substances inside the main body, terminal boxes, motor boxes, or other enclosed packer compartments. Doing so may cause machine malfunction or damage.

1.5 Warning Labels

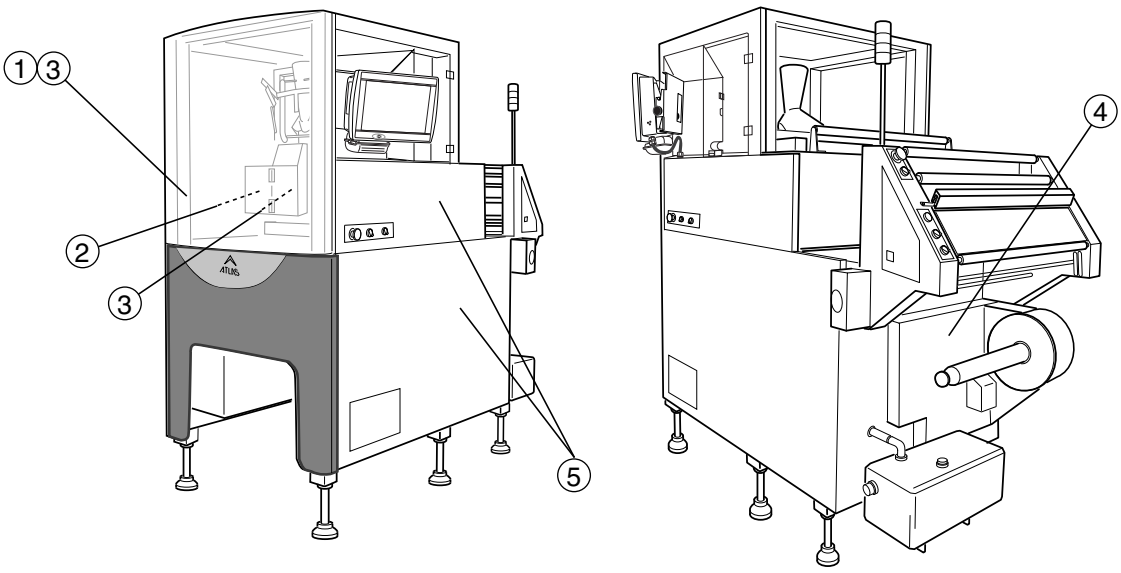
Warning labels which indicate points requiring particular caution are attached to the packer at certain locations. Please take sufficient time to familiarize yourself thoroughly with the meanings and positions of these labels.

1.5.1 Warning Label Handling

- First verify that all the warning labels are clearly legible. If the label text or graphic is difficult to read, clean or replace the label.
- Clean labels with water and neutral cleanser.
  Do not use organic solvents or gasoline.
- Labels must be replaced if they are damaged, peeled or illegible.
  For this, please contact your local Ishida Service representative.

1.5.2 Warning Label Location

The diagram below shows the location of warning labels.



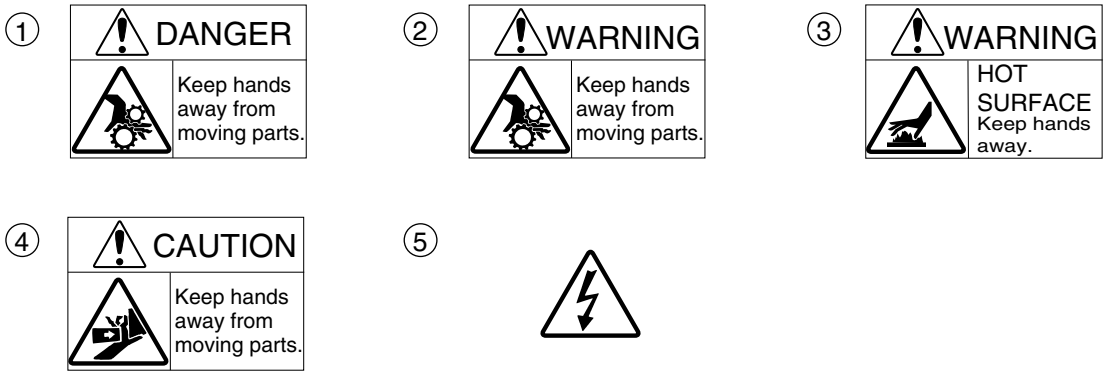


Fig. 1-1 Warning Label Location

1.6 Drive Power Shutdown and Indication

Before performing maintenance or inspection, electrical power should be shutdown to ensure the safety of personnel.
To prevent other personnel from starting operation while this work is being performed, follow the procedure described below.

- The main power switch should be shut off and locked.
- A tag clearly indicating that maintenance work is in progress should be prepared and posted on the power shutdown device.
  Lock the main power switch and attach the accident prevention tag as shown below.

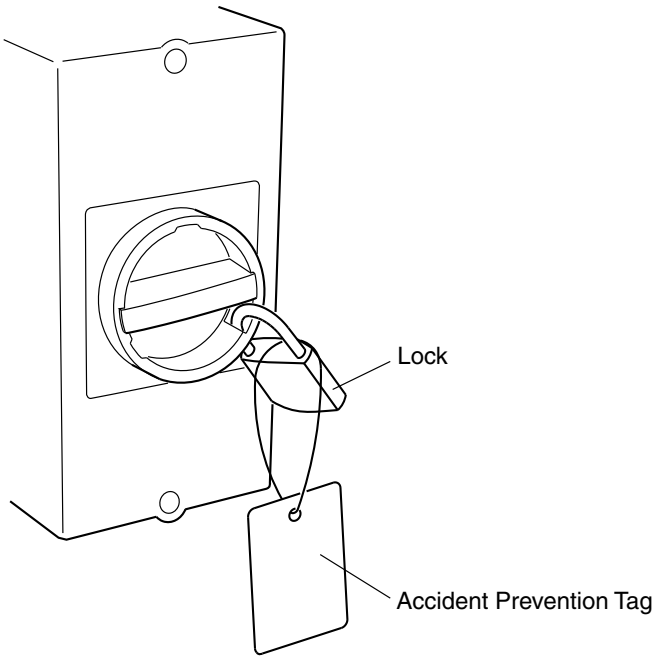


Fig. 1-2 Main Power Switch

1.7 Main Components

This section explains the main components and the functions.

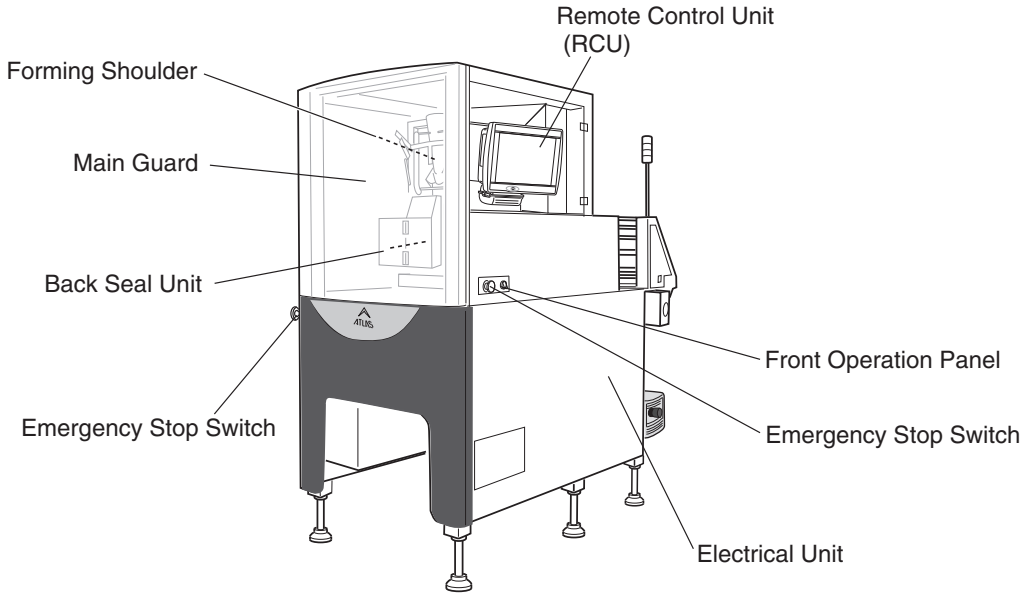


Fig. 1-3 External View (1)

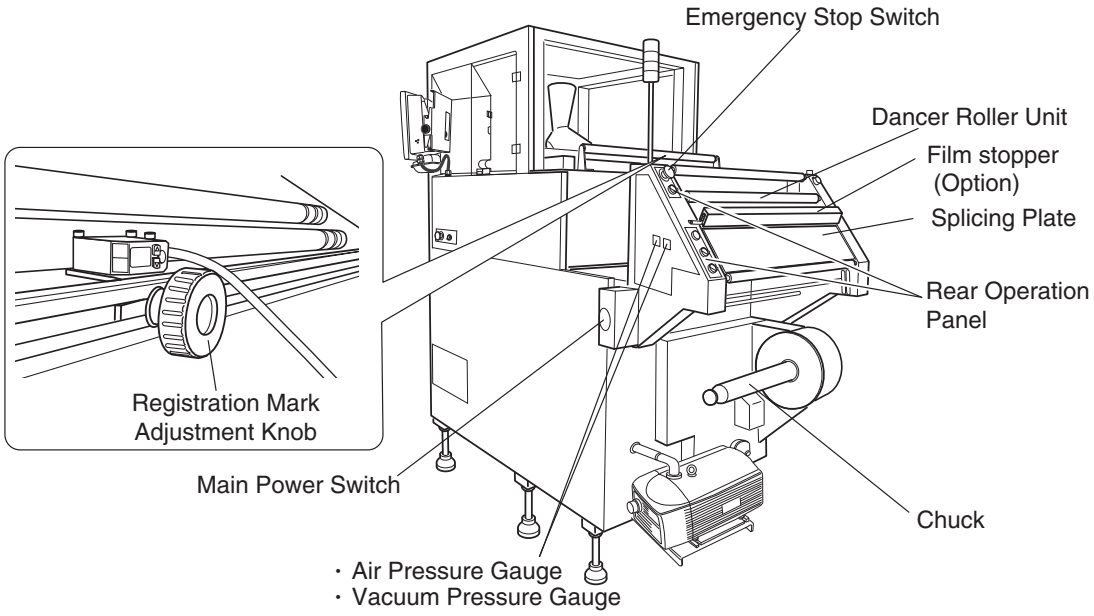


Fig. 1-4 External View (2)

Table 1-1 Explanation of Components

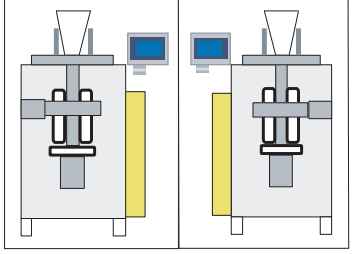
Unit	Functional Description
Emergency stop switch	Stops the equipment in an emergency.
Remote control unit (RCU)	Performs the settings and control operations necessary for operation.
Front operation panel	The emergency stop switch, Fill/Pause switch, Run/Lace switch, and knife switch are located here.
Main power switch	Supplies and shuts off the power to the equipment.
Air pressure gauge	Indicates the supply air pressure.
Rear operation panel	The restart switch, emergency stop switch, RUN/PAUSE switch, and Fill/Splice switch are located here.
Electrical unit	Houses the electrical control equipment.
Chuck	Clamps/unclamps the film reel.
Splicing plate	Retains the old film in place during film replacement.
Dancer roller unit	Absorbs the film's slack.
Printer (option)	Prints date, etc., on the film.
Registration mark adjustment knob	The registration mark sensor is integrated into this knob.
Forming shoulder	Forms the film into a tube.
Back seal unit	Seals the edges of the film-tube.
Horizontal seal unit	Seals the end of the film-tube, and cuts it.
Main guard	Transparent covering for the equipment's front

1.8 Configuration Diagram

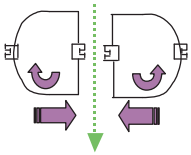
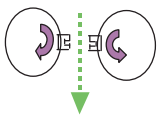
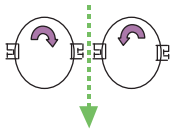
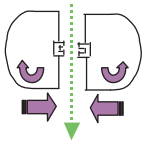
ATLAS - 2 0 4 R - C

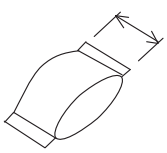
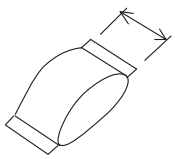
C: Compact Type

R:Right Hand Machine | L:Left Hand Machine



[Version of Electrical Unit]
1 : Version1 (M RCU)
2 : Version2 (Web RCU)
3 : Version3 (Web RCU + New AC Servo Motor & Driver)
4 : Version4 (Web RCU RV type)

Jaw Motion Type			
0	1	2	3
D Motion (Twin JAW)	Rotary Motion (with Anvil Knife) (Single JAW)	Rotary Motion (with Anvil Knife) (Twin JAW)	D Motion (Single JAW)
			

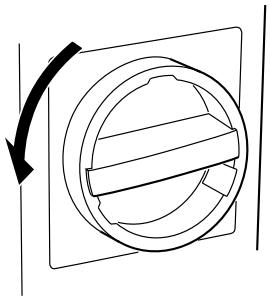
Applicable Bag Size	
1	2
3 ~ 9 inch 75 ~ 230mm	4 ~ 13 inch 75 ~ 330mm
	

2 DAILY INSPECTIONS

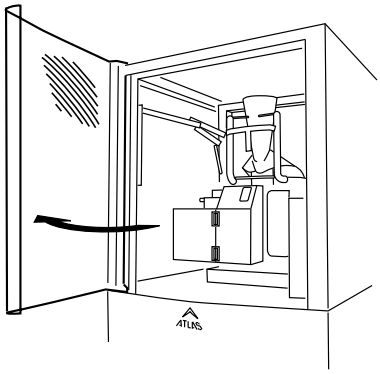
2 DAILY INSPECTIONS

2.1 End Seal Jaw Surface

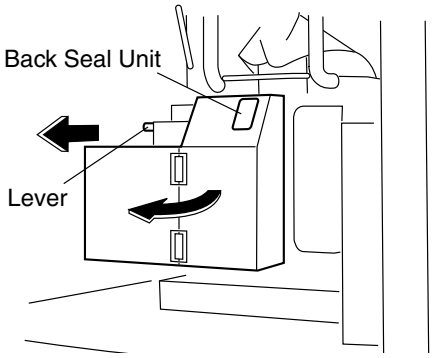
1. Turn the main power OFF.



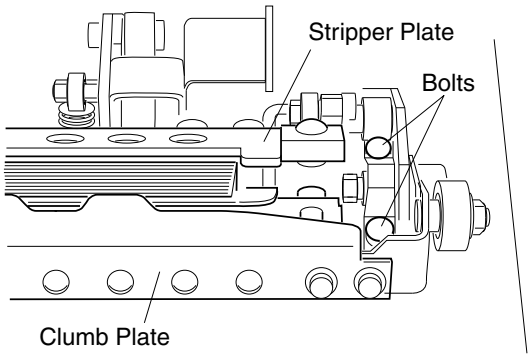
2. Open the front cover.



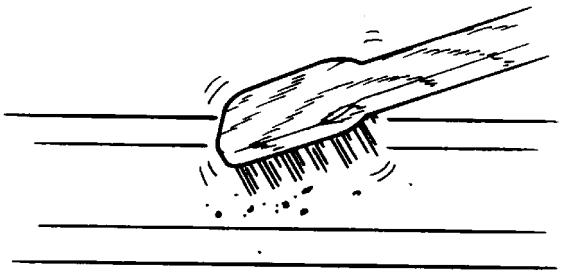
3. Pull the handle forward, and swing the back seal unit out.



4. Remove 4 bolts and remove the crumb plate and the stripper plate.
5. Make sure that no film residue or product is adhering to the surface of the jaw.



If residue or product is adhering to the surface of the jaw, use a wire brush to remove it.



CAUTION

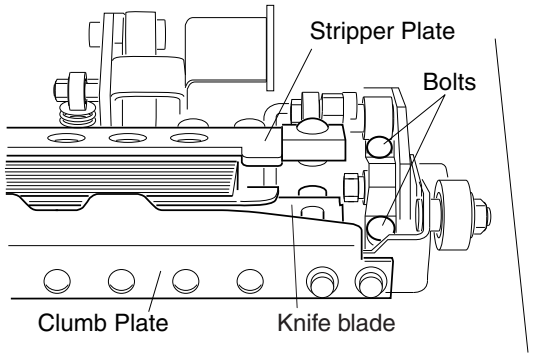
- **Do not touch the jaw with your hand. It is hot and you can get burned.**

2.2 End Seal Jaw Knife Slot

CAUTION

- **Do not touch the jaw with your hand. It is hot and you can get burned.**

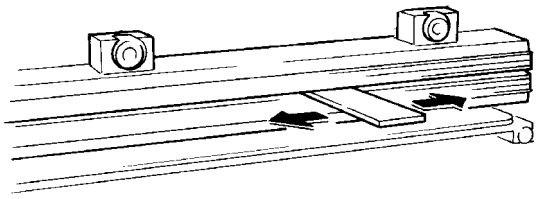
1. Proceed steps 1 to 4 of the section "2.1 End Seal Jaw Surface".
2. Remove two bolts and remove the knife blade.



WARNING

- **Be careful when removing the knife blade. It is very sharp and hot.**

3. Clean out the knife slot, both front and rear.

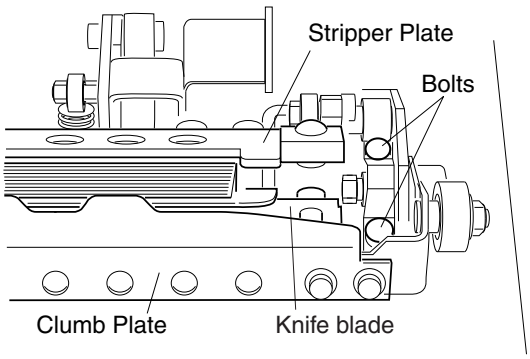


2.3 End Seal Jaw Knife Blade

CAUTION

- **After operation, the end seal jaw knife blade is extremely hot. Be careful when inspecting.**

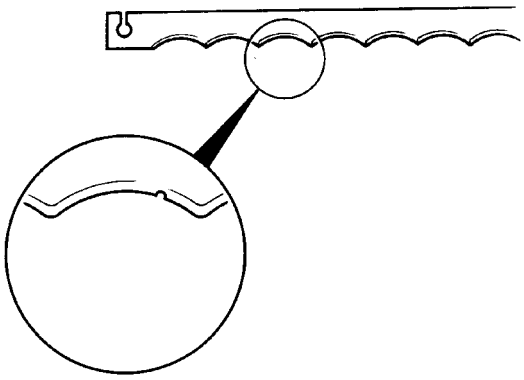
1. Proceed steps 1 to 4 of the section "2.1 End Seal Jaw Surface".
2. Remove two bolts and remove the knife blade.



WARNING

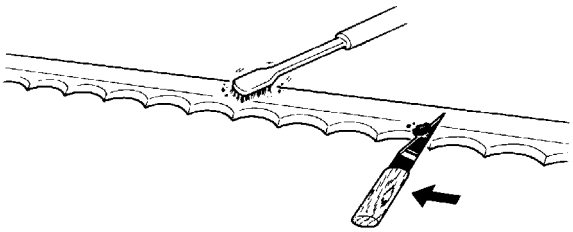
- **Be careful when removing the knife blade. It is very sharp and hot.**

3. Check the surface of the knife blade. If it is dirty, remove the grime with a brush. If strange substance is adhering to the surface, scrape it off with a knife. If the knife blade is worn or damaged, replace it with a new one.



CAUTION

- **Do not use a wire brush. The tip of the knife blade can get damaged.**



2.4 Crumb Plate

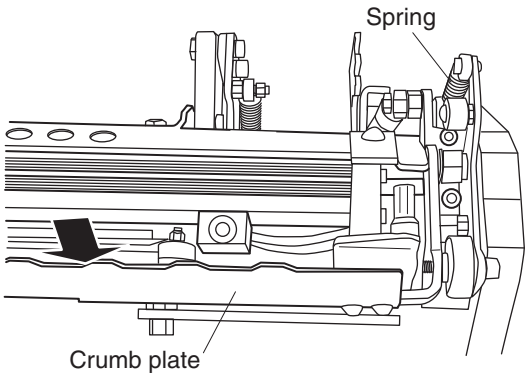
1. Proceed steps 1 to 3 of the section "2.1 End Seal Jaw Surface".
2. Compress the crumb plate and ensure the movement is free.
   If not, check for broken springs.
   If springs are broken, replace it.

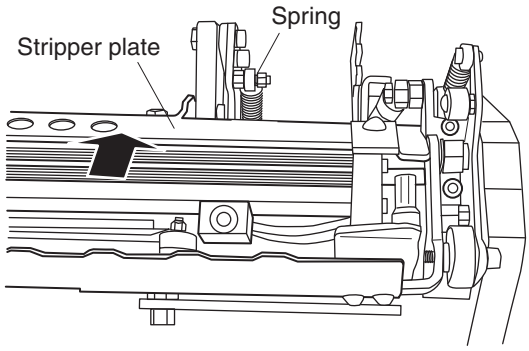
   Use following steps to replace the spring.

   (a) Loosen the fixing screws.
   (b) Replace the spring.

NOTE

- Similarly, confirm if the stripper plate moves smoothly.





2.5 Pull Belt

1. Press the [Run/Lace] key.

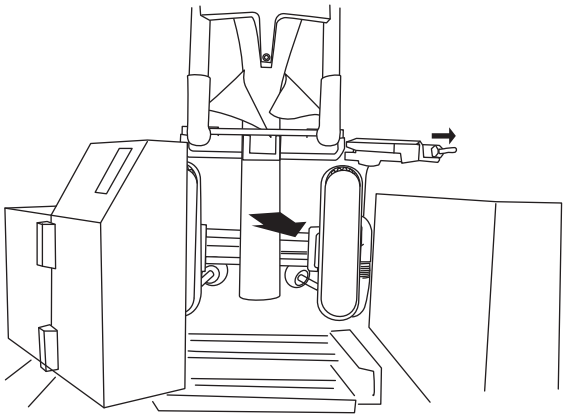
   ▶The pull-down belts move outward.

2. Turn the main power OFF.

3. Open the front cover.

4. Pull the handle forward, and swing the backseal unit out.

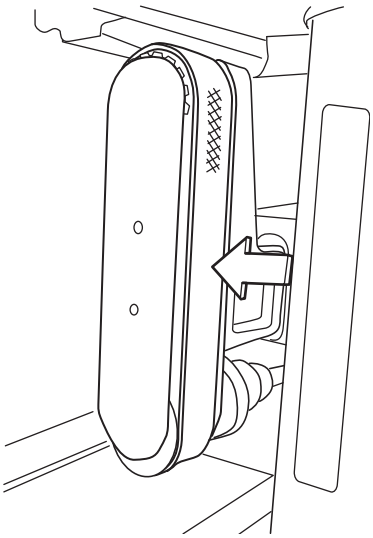
5. Move the former lever to the rear, and remove the former.



CAUTION

- **Be careful when handling the former. It is heavy.**

6. Check the surface of the pull belt. If it is dirty, remove the grime with a plastic brush or wet towel. If the belts are worn or split, replace them with new ones.
   (For details on how to replace the pull belts, see"4.3.2 Replacing the Pull Belt".)



CAUTION

- **Do not use a detergent or cleanser to clean the pull belt. This can cause the pull belt to deteriorate.**

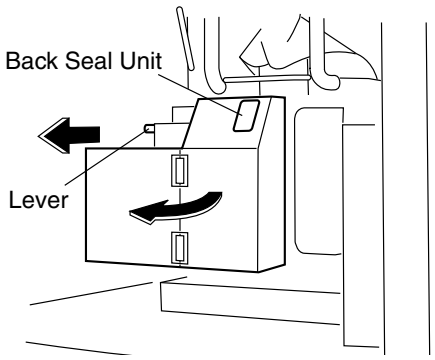
2.6 Back seal Heater Band and Heater Block

2.6.1 Back seal Heater Band

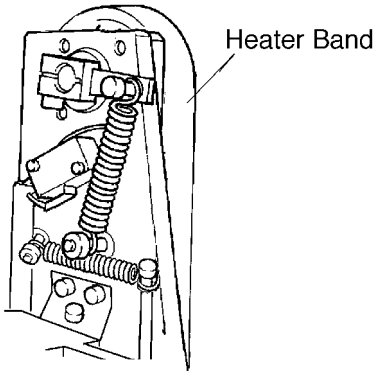
CAUTION

- **After operation, the heater band is extremely hot. Be careful when inspecting.**

1. Proceed steps 1 to 4 of the section "2.5 Pull Belt".
2. Open the back seal cover.



3. Check the surface of the heater band. If it is dirty, remove the grime with a brush. If the band is worn or damaged, replace it with a new one.
   (For details on how to replace the heater band, see "4.2.1 Replacing the Heater Band".)

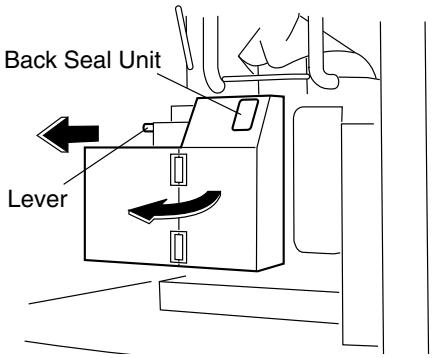


2.6.2 Back seal Heater Block

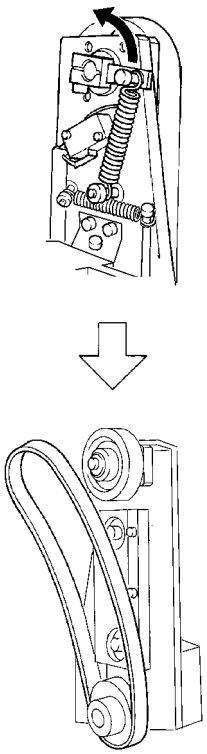
CAUTION

- **After operation, the heater block is extremely hot. Be careful when inspecting.**

1. Proceed steps 1 to 4 of the section "2.5 Pull Belt".
2. Open the back seal cover.

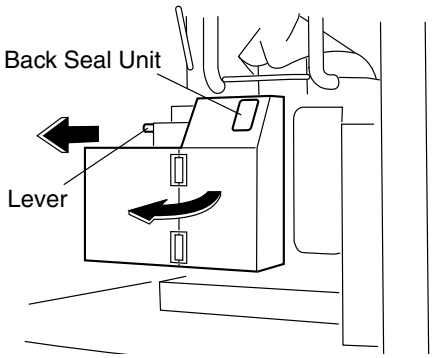


3. Lift the tension lever located on the back of the steel belt, and remove the heater belt.
4. Check the surface of the heater block. If it is dirty, scrape the grime off with a brush.

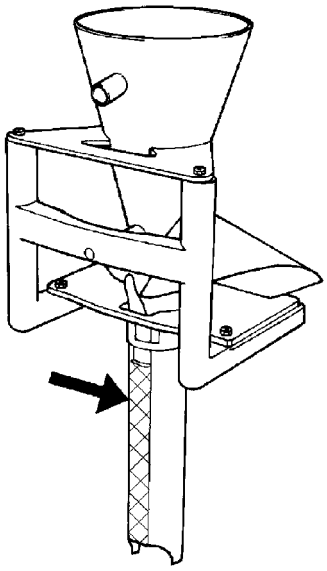


2.7 Silicon Rubber and Teflon Tape

1. Proceed steps 1 to 4 of the section "2.5 Pull Belt".
2. Open the back seal cover.



3. Check the condition of the Back Seal touching area surface.



CAUTION

- **If the silicon rubber and teflon tape are conspicuously dirty with dark grime, split or otherwise damaged, replace them with new one.**

3 PERIODIC INSPECTIONS

3 PERIODIC INSPECTIONS

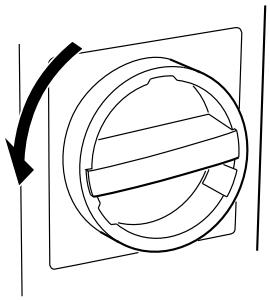
3.1 Monthly Inspections

3.1.1 Pull Belt Unit

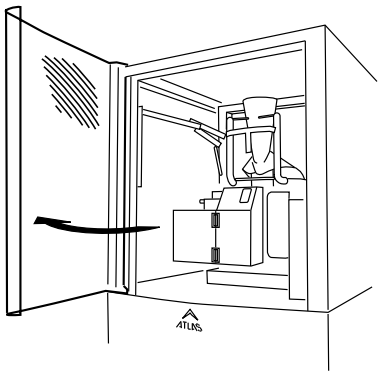
1. Press the [Run/Lace] key.

   ▶The pull-down belts move outward.

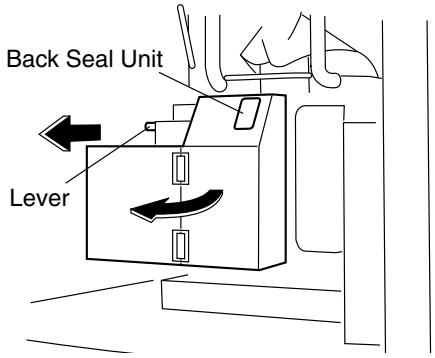
2. Turn the main power OFF.



3. Open the front cover.



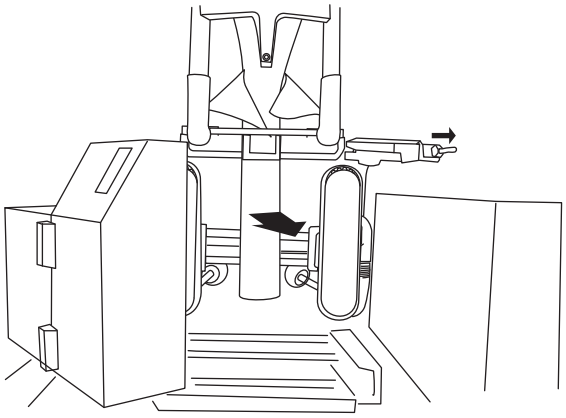
4. Pull the handle forward, and swing the back seal unit out.



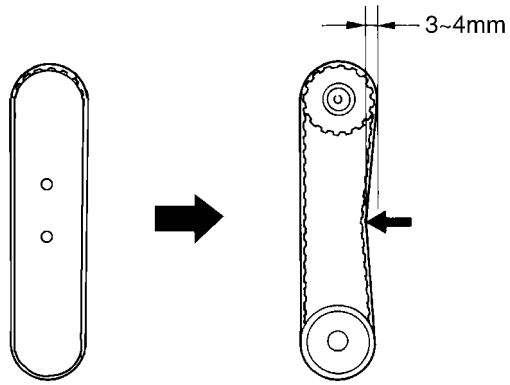
5. Remove the former, and make sure that the pull belt is free of grime, flaws, and splits.

CAUTION

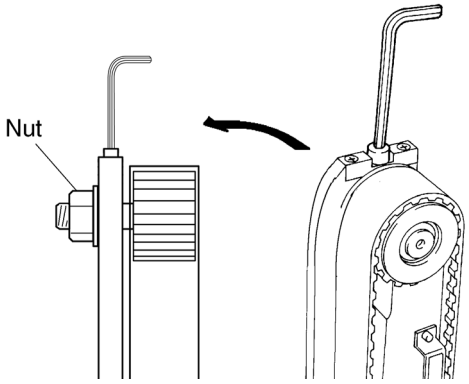
- **Be careful when handling the former. It is heavy.**



6. Press down on the center of the pull belt. Confirm that the belt deflects approximately 3 to 4 millimeters.



7. If adjustment is needed, loosen the nut at the reverse side of the pull belt unit and adjust the tension.



3.2 3-Month Inspections

3.2.1 Lubrication

CAUTION

- **Lubricate periodically.**

3.2.1.1 Jaw Unit

CAUTION

- **Make sure that the product is lubricated every three months. Use Shell Alvania.**

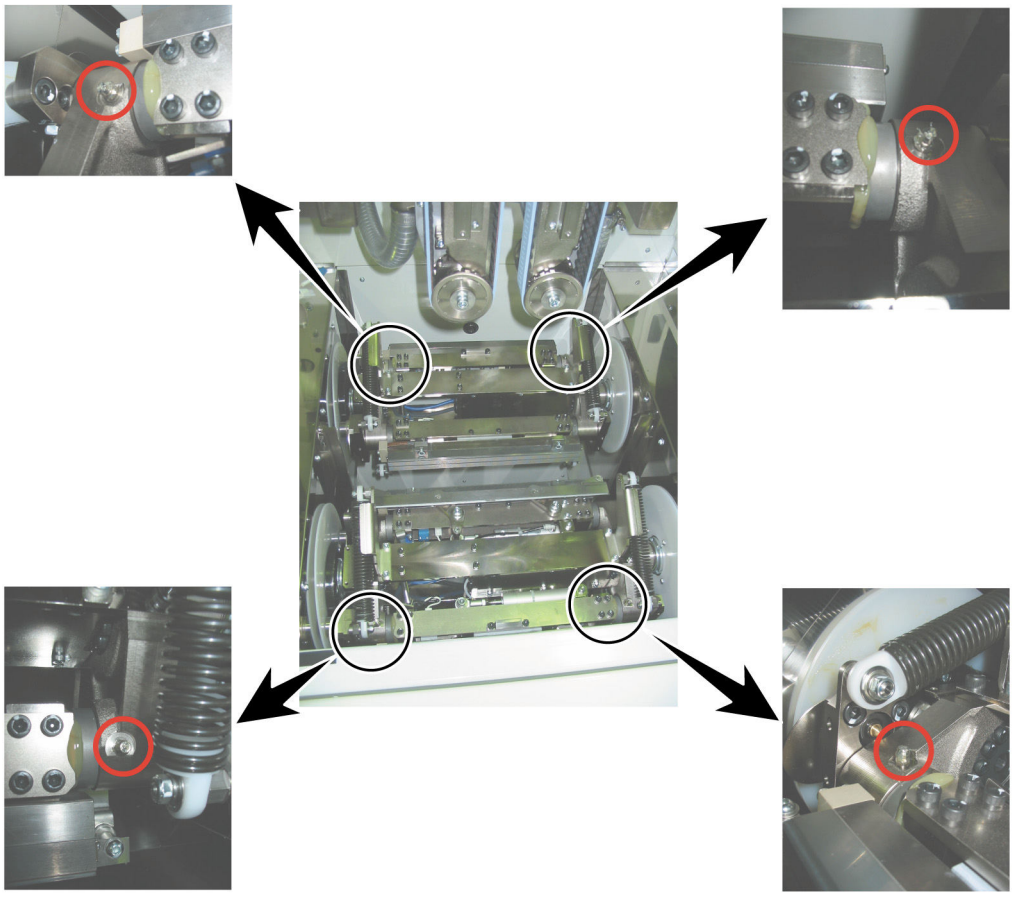


Fig. 3-1 JAW unit

1. Turn the main power OFF.

2. Open the front cover.
3. Pull the handle forward, and swing the back seal unit out.
4. Lubricate the 8 locations as follows.
   • Right and left locations at the next of the reverse of the metal plate
   • One location on the jaw arm
   • Each location for 4 jaw units (Total 8 locations)

NOTE

- Apply grease to the jaw base until the old (existing) grease begins to ooze from the clearance with the shaft.

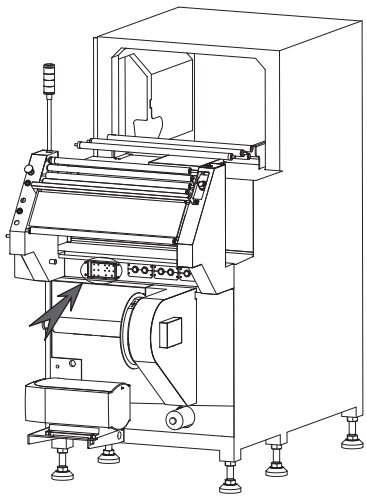
5. Using a sharp-pointed object, make sure that the grease point ball moves.

3.2.1.2 Central Lubrication (Linear Guides and Ball Screw) Gear Box

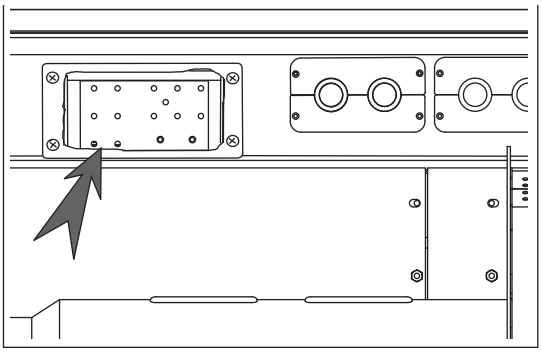
CAUTION

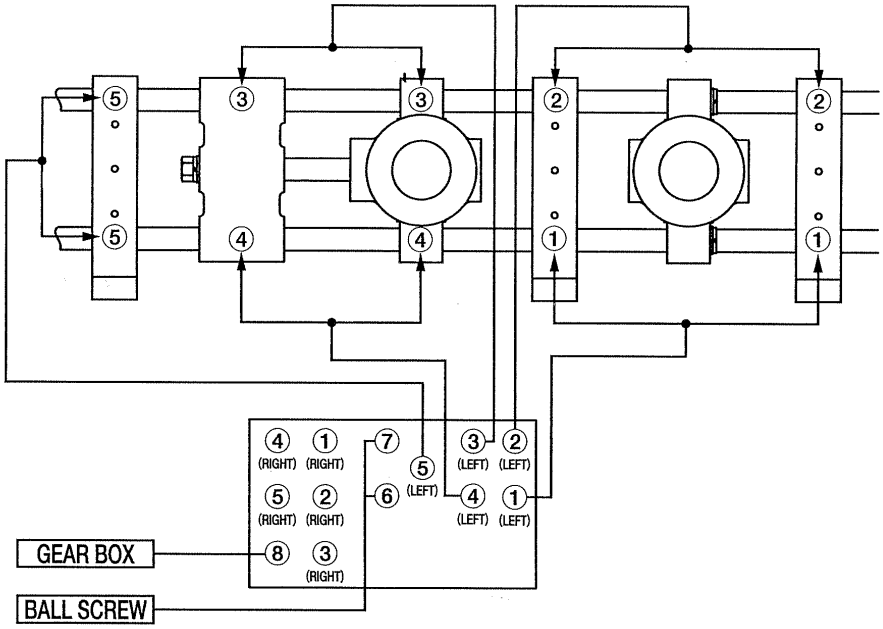
- **Make sure that the product is lubricated every three months. Use Shell Alvania.**

1. Turn the main power OFF.
2. Open the cover of the rear side.



3. Lubricate central lubrication point.
4. Grease the linear guides.

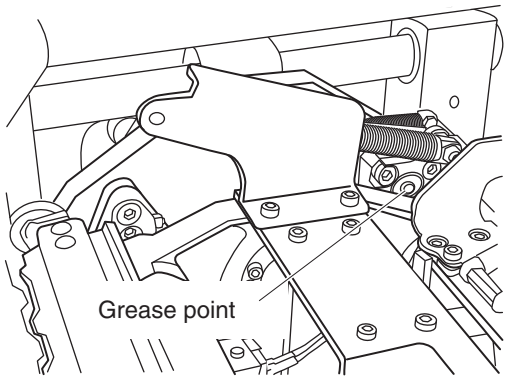




3.2.1.3 Cam Followers

This procedure describes how to lubricate the four cam followers found in the jaw area of the Atlas Bagmaker. Cam follower lubrication must be accomplished every **4,000,000 cycles** to prevent cam follower damage.

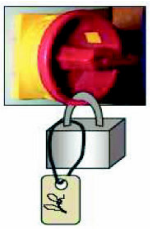
Tools Needed: Set of metric Allen wrenches and extension bar;
grease gun (96-9008-08 Hand Grease Pump) provided with Atlas Bagmaker;
use Shell Alvania Grease (64-5201-04 Grease)



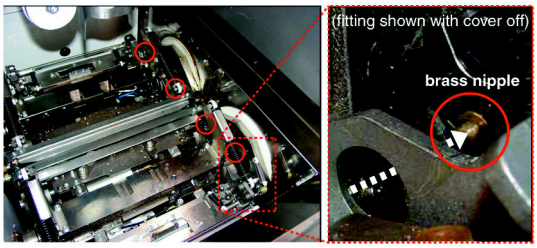
WARNING

- **Jaws of the Bagmaker may be very hot. Allow the jaws to cool before working in the jaw area.**
  Use caution when working near the knife blade.

1. Follow all Lockout / Tagout Procedures.



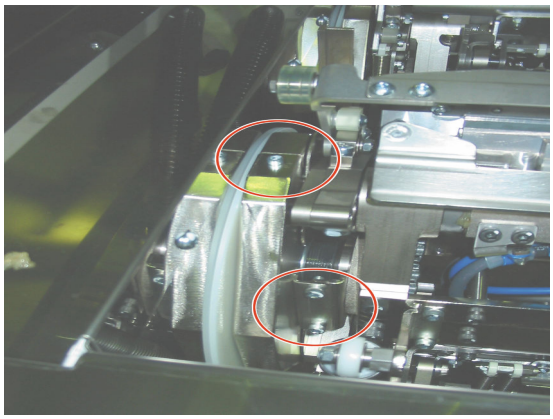
2. Open the front cover.
3. Locate the four brass cam follower lubrication nipples.



CAUTION

- **Use caution rotating jaws manually to avoid pinch points.**

4. Remove the cam follower covers (clam shell type) by removing two 3mm Allen bolts and the four 5mm Allen bolts.

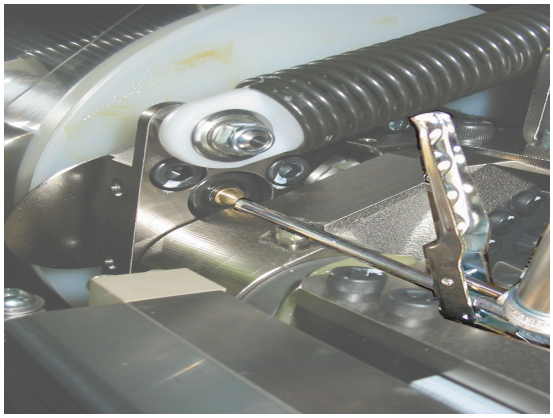


NOTE

- Rotate the jaws 180° to locate the opposite set of bolts.
  The 5mm bolts are firmly secured. Use an extension handle to loosen them.

5. After removing the Allen bolts, use your hand to remove both clam shell covers.
   Completely clean the front and real jaw clam shell covers.

6. Once the covers have been cleaned and slid into position, replace the Allen bolts.
7. Place the Ishida grease gun into position and slide the nozzle over brass nipple.
8. Pump the grease gun 5 times. **Rotate jaws 180° to lube second front nipple.**

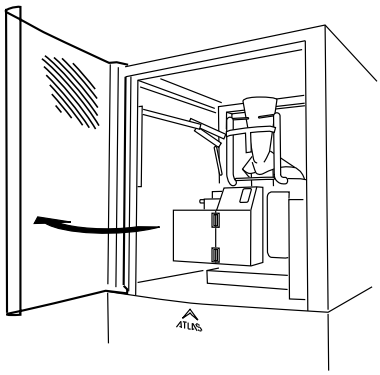


9. Repeat the procedure on the rear jaw cam followers top and bottom nipples.

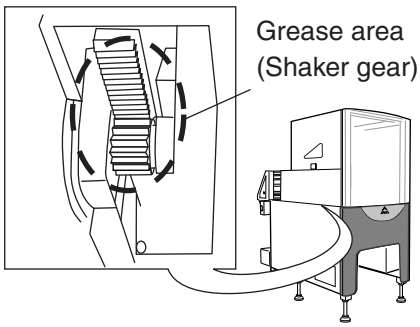
3.2.1.4 Shaker Unit Gear (Option)

1. Press the [RUN/LACE] key.

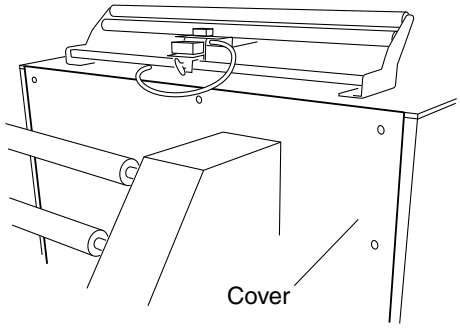
   ▶The pull-down belts move outward.
2. Turn the main power OFF.
3. Open the front cover.



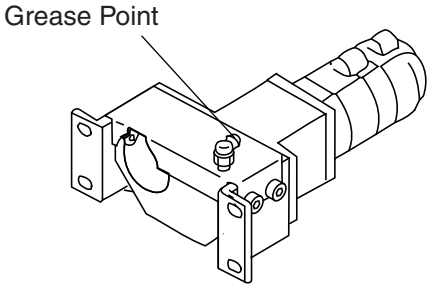
4. Grease the inner gear.



5. Open the rear upper cover by removing ten screws.



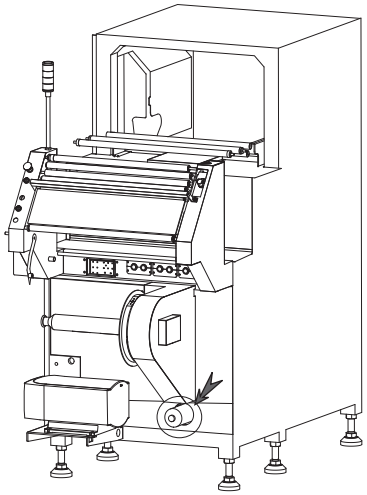
6. Grease the outer gears.



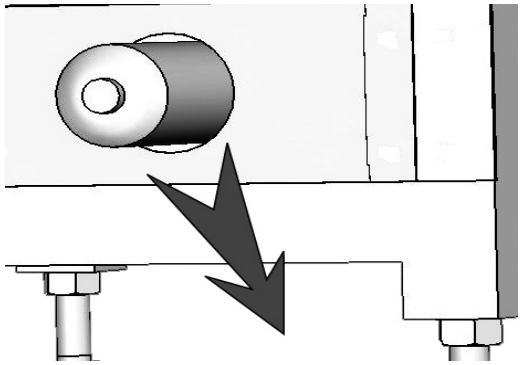
3.3 6-Month Inspections

3.3.1 Vacuum System Air Filter

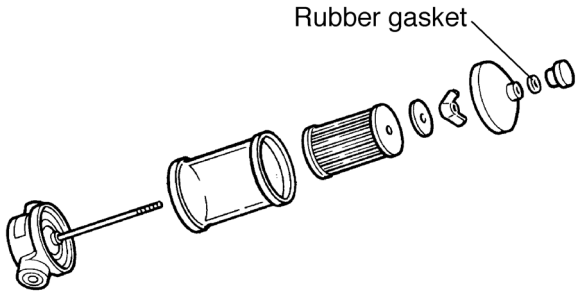
1. Turn the main power OFF.



2. Remove the air filter.
3. Using an air gun, blow out anything strange that may be adhering to the air filter.



4. Attach the air filter.
5. Attach the outer cover.



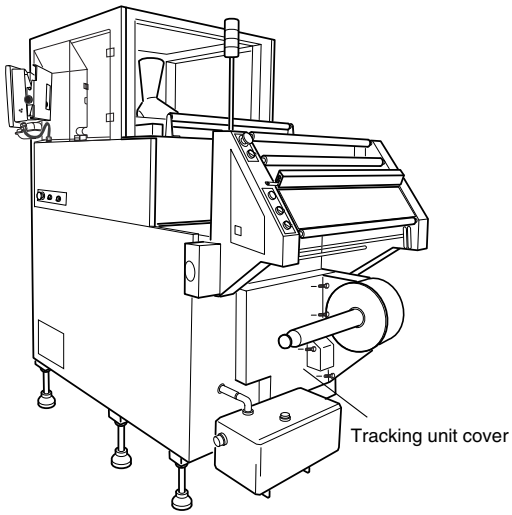
3.3.2 Lubrication

CAUTION

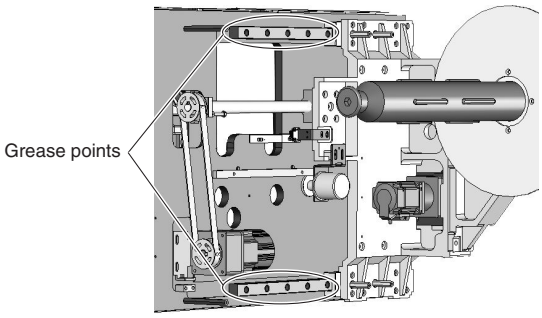
- **Lubricate periodically.**

3.3.2.1 Film Tracking Linear Guides

1. Turn the main power OFF.
2. Remove the film tracking unit cover.



3. Grease the film tracking unit linear guides.



4 REPLACEMENT AND ADJUSTMENT

4 Replacement and Adjustment

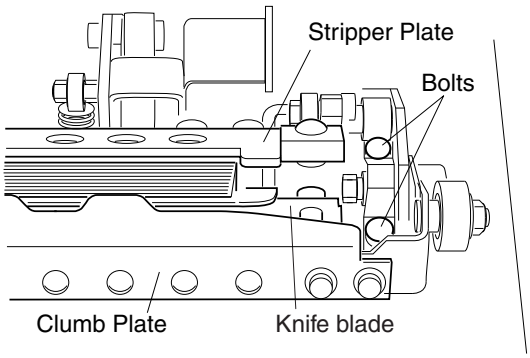
DANGER

- **Before opening the control panel cover, turn the main power OFF. Failure to do so can result in electrical shock.**

4.1 End Seal Unit

4.1.1 Replacing the Jaw Faces

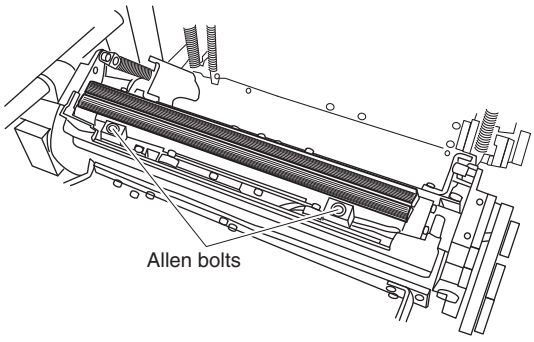
1. Turn the main power OFF.
2. Open the front cover.
3. Pull the handle forward, and swing the back seal unit out.
4. Remove 4 bolts and remove the crumb plate and the stripper plate.
5. Remove the allen bolts and remove the knife blade.



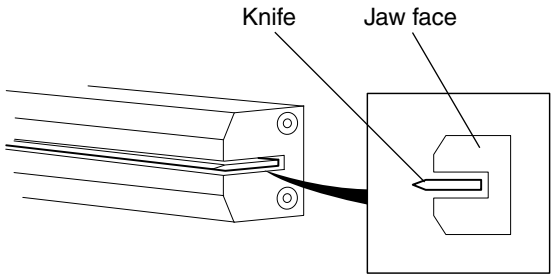
WARNING

- **Be careful when removing the knife blade. It is very sharp and hot.**

6. Replace the front and rear jaw faces with new ones.



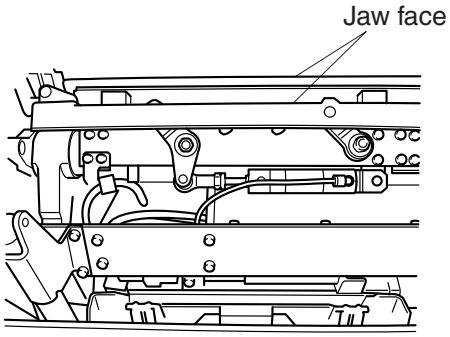
- Install the front jaw face so that the knife blade is in the middle of its knife slot.
- Install the rear jaw face temporary.



7. Make sure that the front and rear jaw faces are properly aligned.

   If the alignment is improper, adjust the position of the jaw. (For details on how to adjust the jaw, see "4.1.2 Jaw Alignment")

8. Tighten the allen bolts of the rear jaw.



4.1.2 Jaw Alignment

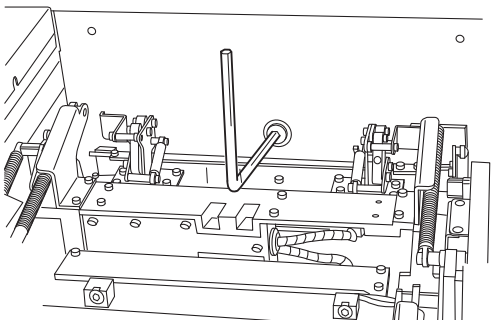
WARNING

- **It is sometimes necessary to have the main power ON when making adjustments. At such times, when the main power is ON, make sure that the motor power supply is turned OFF. If the motor power supply is left ON, the motor could start up, injuring someone. In addition, wear protective gloves when adjusting electrical equipment.**

1. Jog the jaw until the front and rear jaws engage.
2. If the following cases appear, jaw adjustment will be needed.
   a. Jaw alignment has upward or downward deviation.
   b. Jaw alignment has play.
   c. Jaw alignment has horizontal deviation.

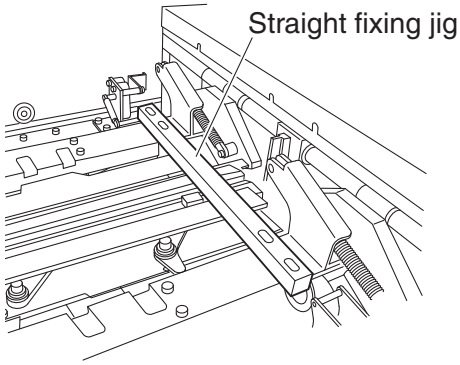
   To adjust the Jaw alignment, follow the below steps.

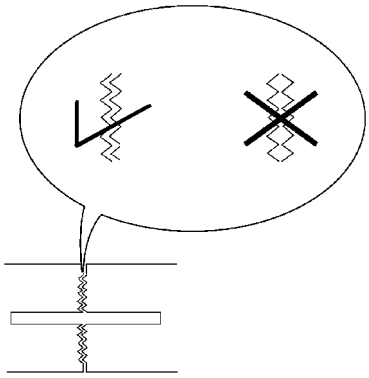
1. Turn the main power OFF.
2. Open the front cover.
3. Pull the handle forward, and swing the back seal unit out.
4. Remove 4 bolts and remove the crumb plate and the stripper plate.
5. Turn the pivot point screw to close jaw.



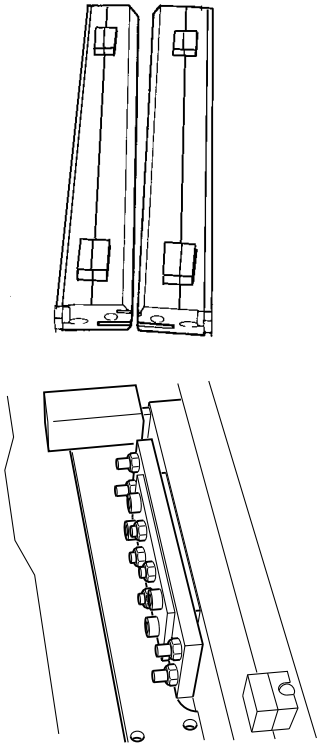
6. Adjust the front and rear jaw to match the knife.
7. Attach a straight fixing jig to keep jaw horizontal.
8. Check alignment with mirror.

   If the jaw alignment is loose, adjust as follows.

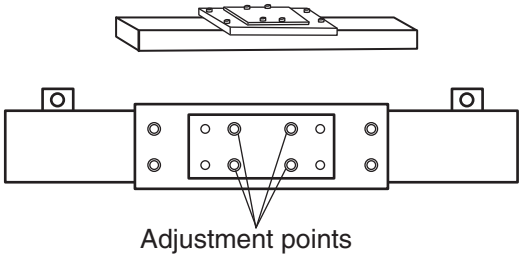




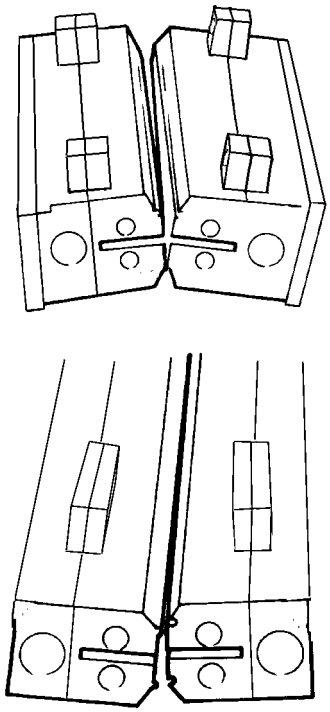
Right or Left adjustment



If the right and left are not aligned, adjust by turning adjustment screws on the metal plate attached to rear jaw.

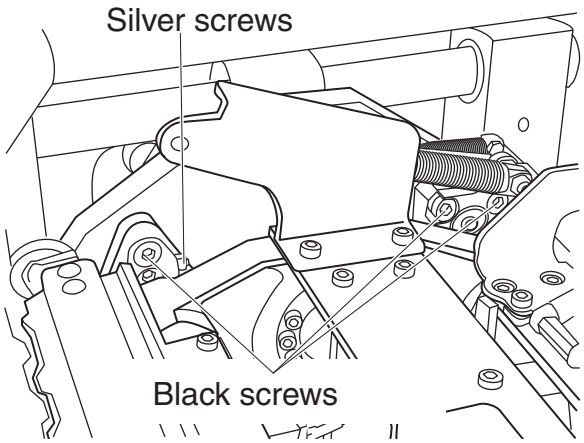


Top and Bottom adjustment



If top and bottom are not aligned, adjust the screw on the arm.

1. Loosen the 3 black screws.
2. Tighten or loosen the silver screw to adjust jaw face.



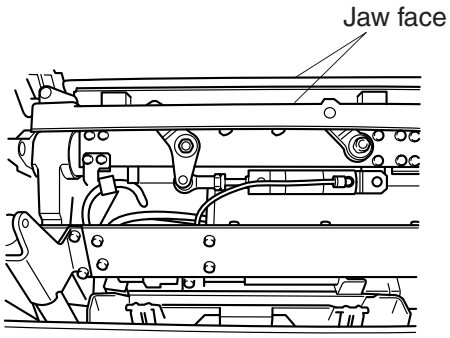
NOTE

- There are two sets of jaw, so check both of jaw alignment.

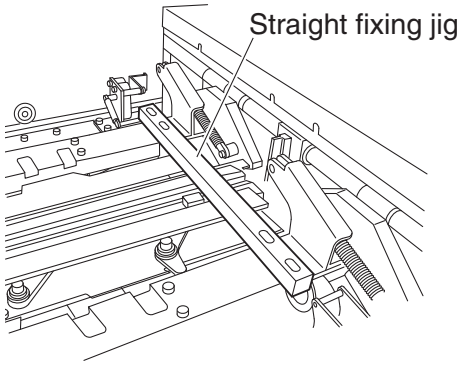
4.1.3 M2 Motor

4.1.3.1 Timing Belt of M2 Motor

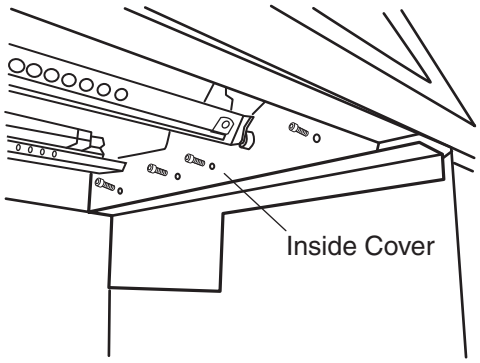
1. Proceed steps 1 to 4 of the section "4.1.1 Replacing the Jaw Faces".
2. Using your hand, rotate the jaw arm and engage the front and rear jaws.



3. Attach a straight fixing jig to the jaw arm.



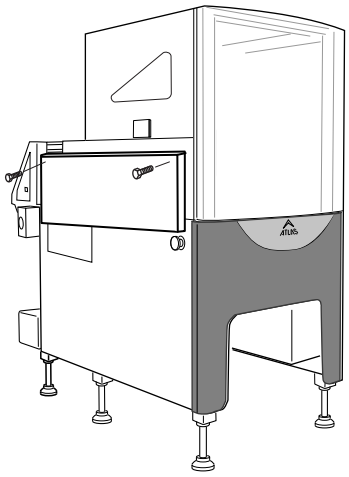
4. Remove 4 screws, remove the inside cover.



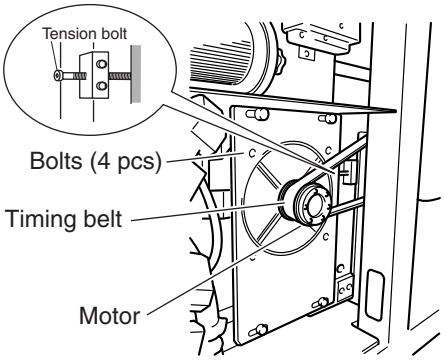
5. Remove the LEFT side cover.

CAUTION

- **Two people should remove the cover, since it is heavy.**

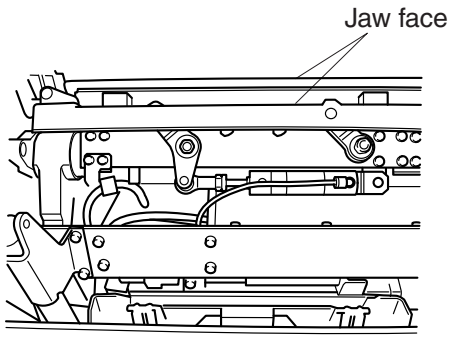


6. Loosen 4 bolts tightening the motor bracket.
7. Loosen the tension bolt.
8. Remove the timing belt.
9. Install the new timing belt.
10. Using your finger, press down on the center of the belt between pulleys. Adjust until the deflection is approximately 2 millimeters then tighten the tension bolt and tighten the motor bracket screws.
11. Attach the inside cover.

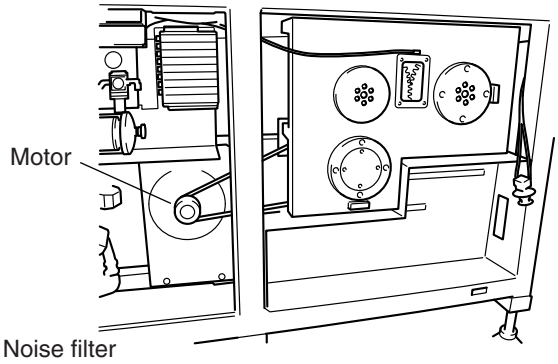


4.1.3.2 Replacing the M2 Motor

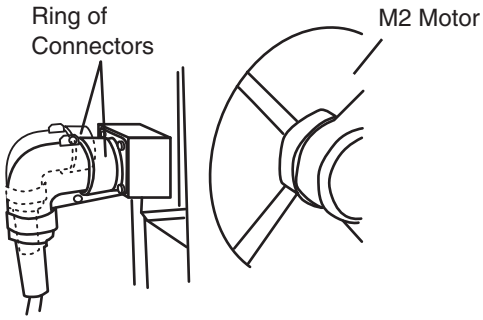
1. Proceed steps 1 to 4 of the section "4.1.1 Replacing the Jaw Faces".
2. Using your hand, rotate the jaw arm and engage the front and rear jaws.
3. Attach a straight fixing jig to the jaw arm.



4. Remove 4 screws and remove the noise filter unit so that you can access the M2 motor.



5. Loosen the ring, remove two connectors at the right of M2 motor.
6. Loosen 4 bolts tightened the motor bracket.
7. Loosen the tension bolt.
8. Remove 4 screws, remove the inside cover.
9. Remove the timing belt.
10. Loosen the mechanical lock, and remove the pulley from the M2 motor.
11. Remove the allen bolts, and remove the M2 motor.



CAUTION

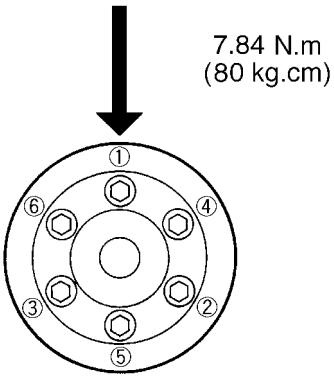
- **The motor is heavy and should be lifted by two people.**

12. Remove the motor from the motor base.
13. Attach the motor to the new motor base.

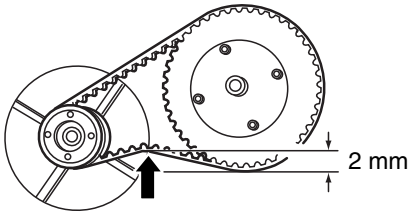
CAUTION

- **Do not cause any shock to the motor, or the motor's encoder can be damaged.**

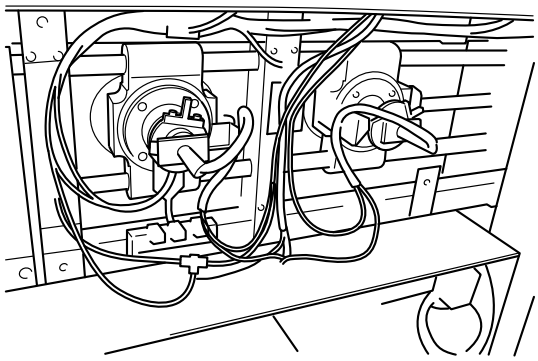
14. Attach and fasten the gear and mechanical lock to the motor shaft. Tighten the bolts for the mechanical lock at 7.84 N.m (80 kgf.cm) in a crisscross (star) pattern.
15. Install the motor with motor base.
16. Install the electrical box of the PS-0 unit.



17. Attach the timing belt.
18. Using your finger, press down on the center of the belt between gears. Adjust until the deflection is approximately 2 millimeters; then fasten the M2 motor.
19. Tighten the tension bolt.
20. Attach the inside cover.



4.1.3.3 Home Position of Jaw Rotation

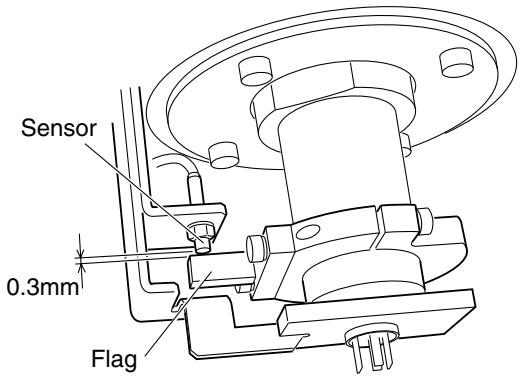


Home Position is the position where the jaw stops after the motor is turned on.
Then, either knife 1 or knife 2 comes upper side.

- When the rear sensor turned on, knife 1 comes to upper side.
- When the front sensor turned on, knife 2 comes to upper side.
- When Home position, the plate of the jaw should be angled 90 degree against the horizontal frame of main unit.

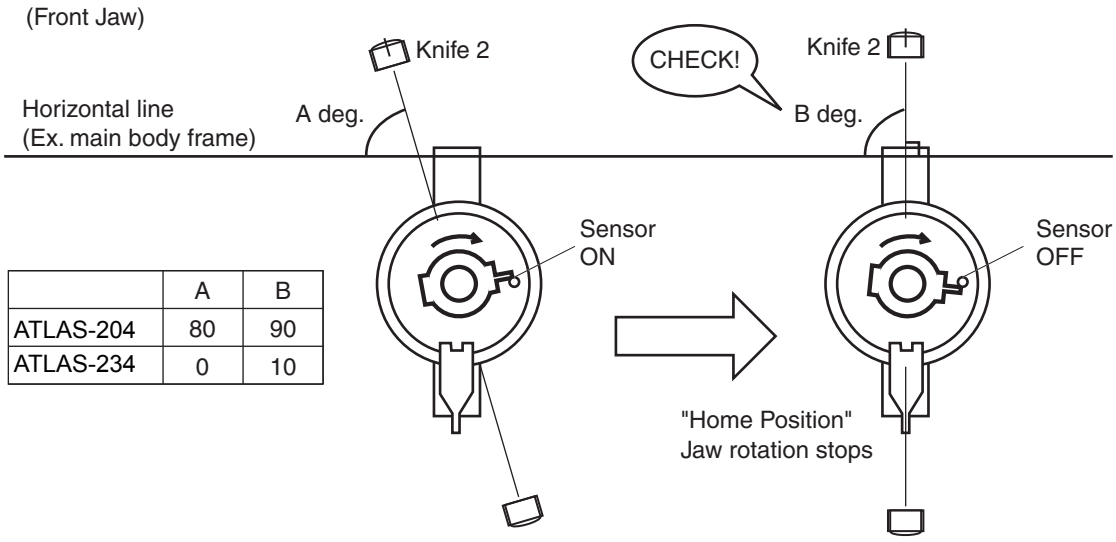
1. Turn the motor power supply OFF.
2. Turn the main power supply OFF.

3. Open the left lower cover.
4. Set gap to 0.3mm between sensor and flag.



5. Set the angle of the jaw plate to A degree against the horizontal frame of main unit when the sensor turns on.
6. Turns the motor power on.

   Jaw rotates until the sensor switches on, then the jaw stops.
7. Confirm if the angle of the jaw plate is B degree against horizontal frame.



	A	B
ATLAS-204	80	90
ATLAS-234	0	10

8. If the angle is not B degree, adjust the flag, then restart the motor power on, and confirm the angle when the jaw stops at home position.

NOTE

- Repeat the above step until the angle to be correct.

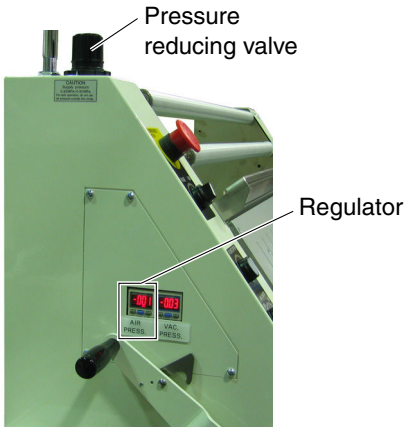
9. Adjust both of the Knife 1 and Knife 2 jaw sensor.

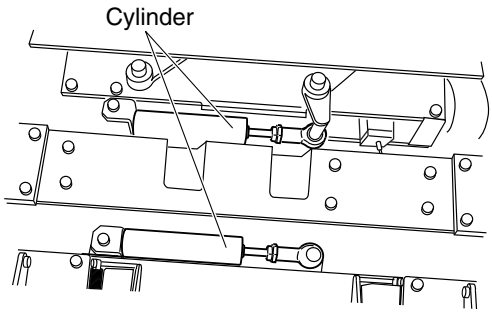
<How to adjust the flag>

1. Loosen the screws tightening the flag, and rotate the flag to appropriate angle.
2. Tighten the screws.

4.1.4 Replacing the Air Cylinder for Knife

1. Turn the main power OFF.
2. Open the front cover.
3. Pull the handle forward, and swing the back seal unit out.
4. Remove 4 bolts and remove the crumb plate and the stripper plate.
5. Pull the knob for the pressure reducing valve and adjust until the pressure is 0.0 MPa.
6. Remove the rod end ; then replace the cylinder for knife with a new one.

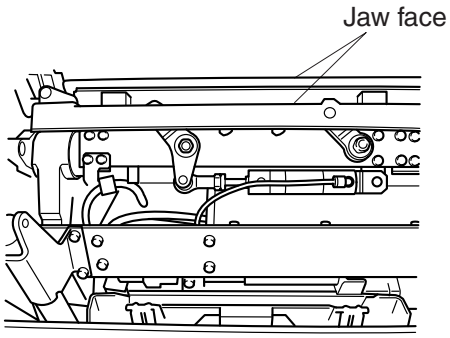




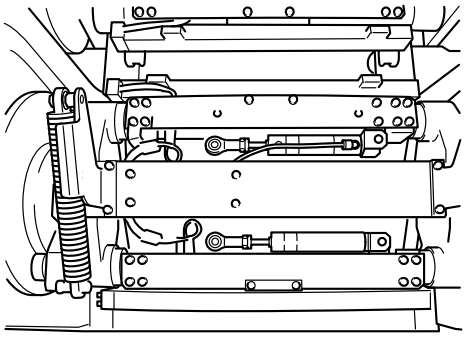
4.1.5 Jaw Heater

4.1.5.1 Replacing the Jaw Heater

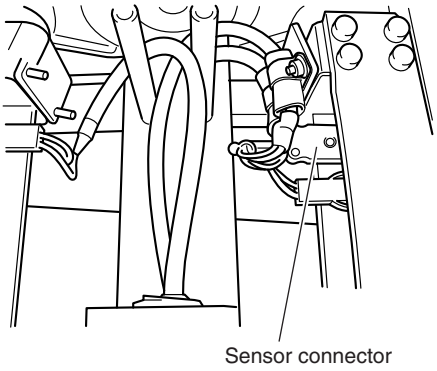
1. Turn the main power OFF.
2. Open the front cover.
3. Pull the handle forward, and swing the back seal unit out.
4. Remove 4 bolts and remove the crumb plate and the stripper plate.



5. Remove the sensor connector of the end seal heater from the plate.



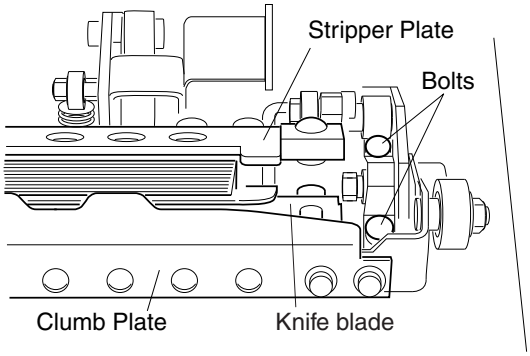
6. Disconnect the cable that runs from the terminal connector for the heater.



CAUTION

- **The thermocouple has polarity and is identified by the color of the cable (red or white).**
  If a connection is made with the wrong polarity, the temperature control can fail or unit can be damage.

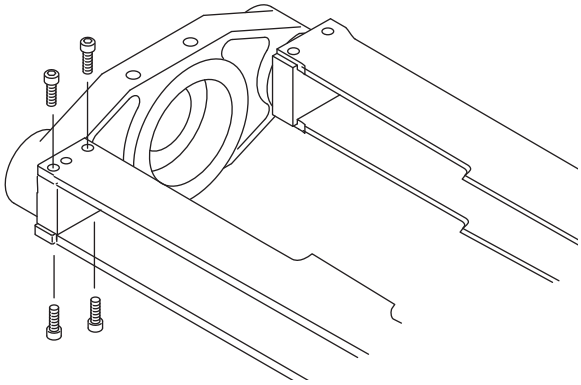
7. Remove the allen bolt and remove the knife blade.



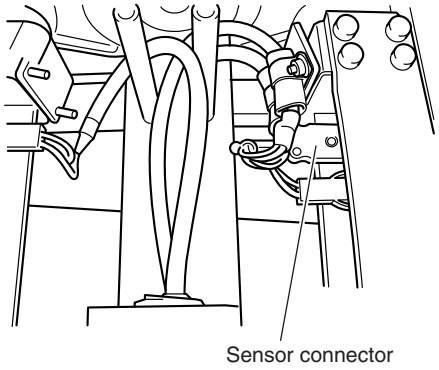
WARNING

- **Be careful when removing the knife blade. It is very sharp and hot.**

8. Remove 8 screws, remove the heater unit from the arm unit.



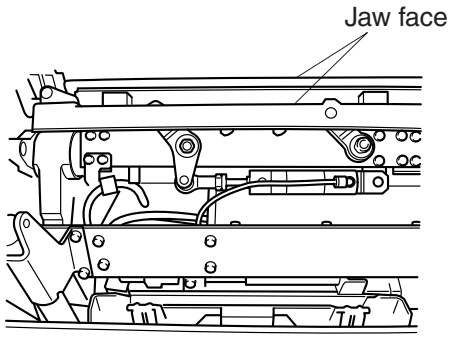
9. Remove 4 screws, remove the heater cover.
10. Remove 3 screws, remove the heater cap then pull the heater.



TIP

- In case of replacing thermocouple, remove the fixing screw then pull the thermocouple.

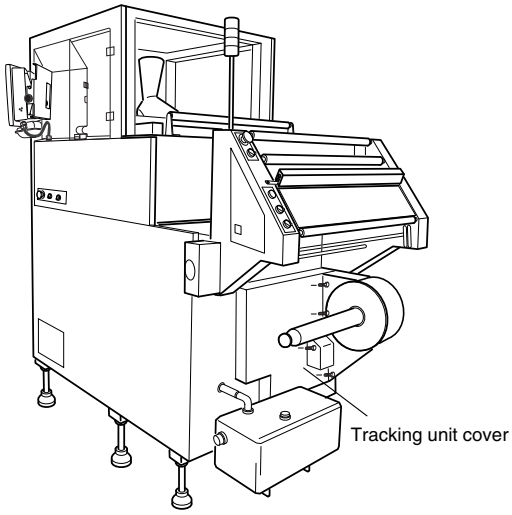
11. Attach the new heater or thermocouple.
12. Install in the reverse order of removal.
13. Check the engagement of the jaws. If the engagement is not proper, adjustment is needed. (To adjust the position of the jaws, see "4.1.2 Jaw Alignment")



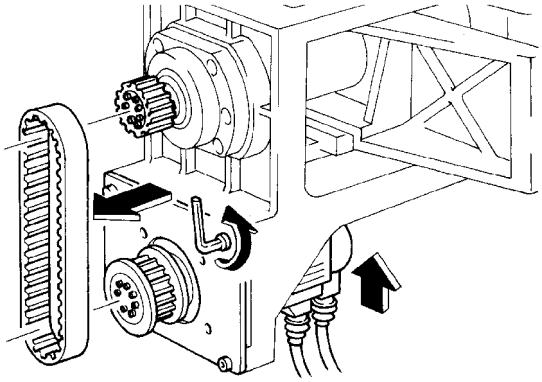
4.1.6 M3 Motor

4.1.6.1 Timing Belt of M3 Motor

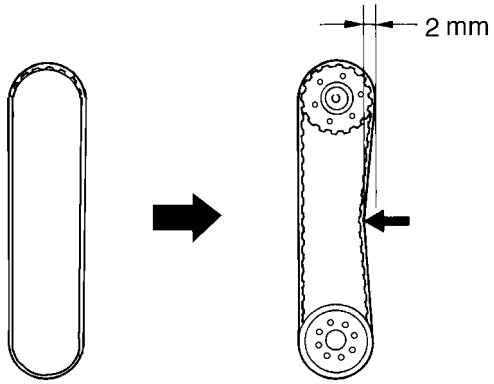
1. Turn the main power OFF.
2. Remove the tracking unit cover.
3. Move the tracking unit to the right edge. (Rotate the tracking motor by hand to move the unit.)
4. Perform the operation from the back side of the main unit.



5. Loosen the allen bolts that fasten the M3 motor.
6. Lift the M3 motor, and temporarily fasten the allen bolts.
7. Replace the belt with a new one.
8. Lift the motor down and tighten the bolt.

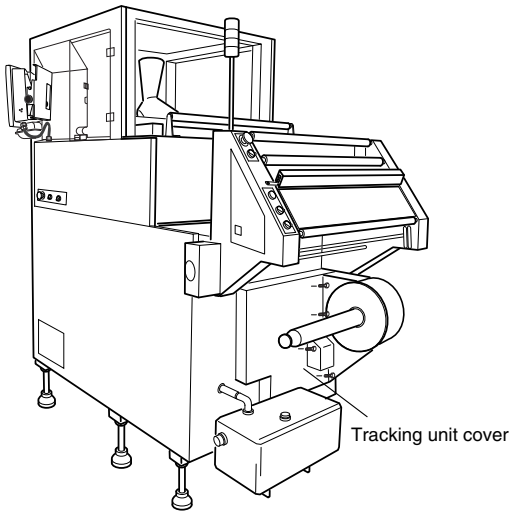


9. Using your finger, press down on the center of the belt between pulleys. Adjust until the deflection is approximately 2 millimeters; then tighten the M3 motor fixing bolts.

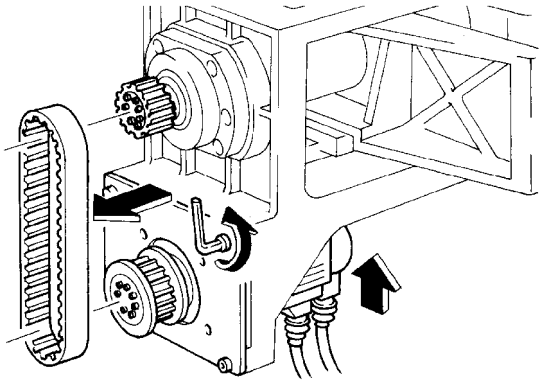


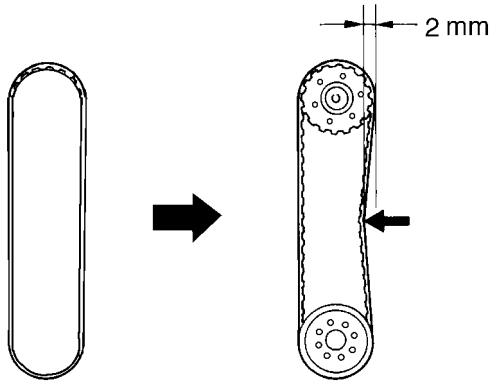
4.1.6.2 Replacing the M3 Pivot Point Motor

1. Turn the main power OFF.
2. Remove the tracking unit cover.
3. Remove the main unit lower cover on the right side.
4. Move the tracking unit to the right edge. (Rotate the tracking motor by hand to move the unit.)



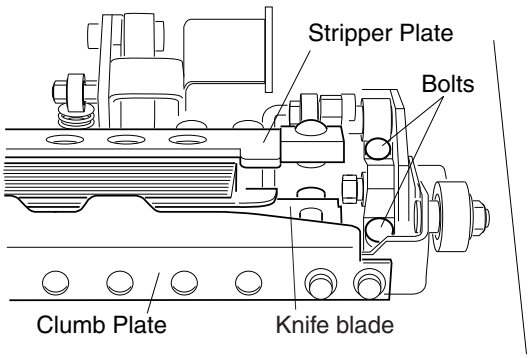
5. Loosen the allen bolts that fasten the M3 motor.
6. Lift the M3 motor, and temporarily fasten the allen bolts.
7. Remove the timing belt.
8. Remove the two cables connected to motor.
9. Remove the 4 screws, and replace the motor with a new one.
10. Move the electrical control panel with the front side of the panel centered and remove the motor through the panel for installation.
11. Temporarily fasten the motor.
12. Attach the belt.
13. Lift the motor down.
14. Using your finger, press down on the center of the belt between gears. Adjust until the deflection is approximately 2 millimeters; then tighten the M3 motor fixing bolts.





4.1.6.3 Home Position of Pivot

1. Turn the motor power supply OFF.
2. Turn the main power supply OFF.
3. Remove the main unit lower cover on the right side.
4. Open the front cover.
5. Pull the handle forward, and swing the back seal unit out.
6. Remove 4 bolts and remove the crumb plate and the stripper plate.



CAUTION

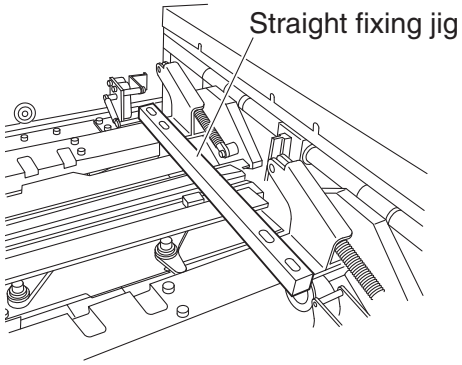
- **After operation, the jaws are extremely hot. Do not touch directly. You can get burned.**

7. Jog arms around until jaw faces mesh together and arm are perfectly horizontal.

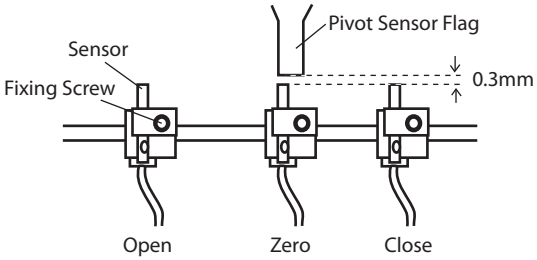
NOTE

- Arms must be perfectly horizontal.

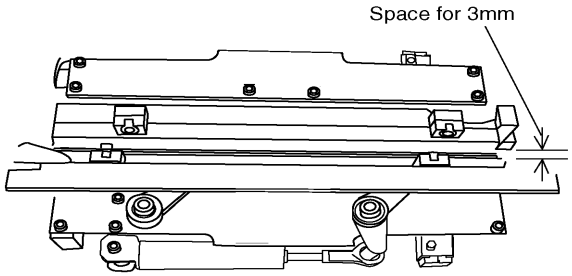
8. Attach a straight fixing jig to the jaw arm.



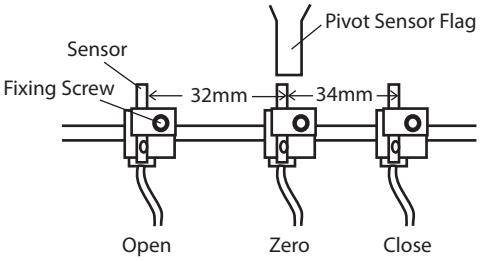
9. Set gap to 0.3mm between flag and sensor.



10. Make a space for 3mm between jaw faces.



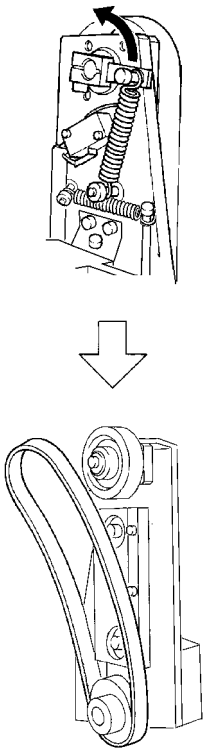
11. Adjust the middle(zero) sensor position to the right edge of the flag.
12. Remove the fixing jig.
13. Set the distance to 34mm between middle block and right(close) block.
14. Set the distance to 32mm between middle block and left(open) block.



4.2 Back Seal Unit

4.2.1 Replacing the Heater Band

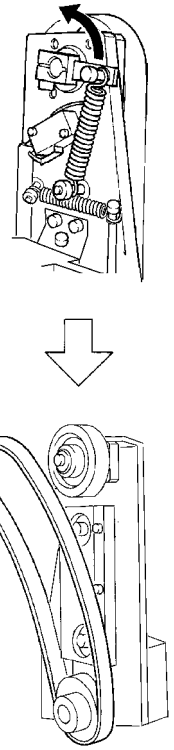
1. Turn the main power OFF.
2. Open the front cover.
3. Pull the handle forward, and swing the back seal unit out.
4. Open the back seal cover.
5. Lift the tension lever located on the side of the back seal unit.
6. Replace the heater band with a new one.



4.2.2 Back Seal Heater

4.2.2.1 Replacing the Heater Sensor

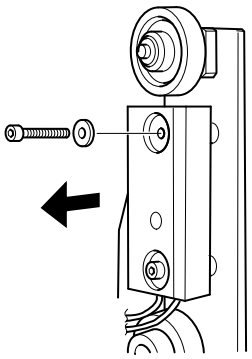
1. Turn the main power OFF.
2. Open the front cover.
3. Pull the handle forward, and swing the back seal unit out.
4. Open the back seal cover.
5. Lift the tension lever located on the back of the steel belt, and remove the heater belt.



6. Remove the heater block.

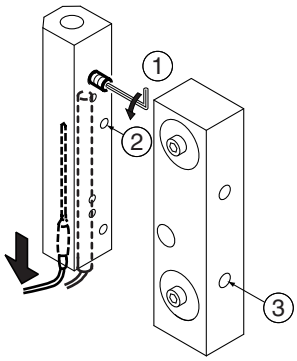
NOTE

- The lengths of the bolts that fasten the heater block are different.



7. Loosen the two allen screws ③ from the side of the heater block and remove the heater shoe.

8. Loosen the screws ① and/or ② from the side of the heater block, and pull out the heater and/or thermocouple.



CAUTION

- **If the thermal joint is sticking, making it difficult to pull out the heater, press with a rod-shaped tool from the opposite side; then pull out.**

9. Replace the heater and/or thermocouple with new ones.

10. Reinstall all parts in the reverse order of removal.

4.2.2.2 Replacing the Heat Pipe

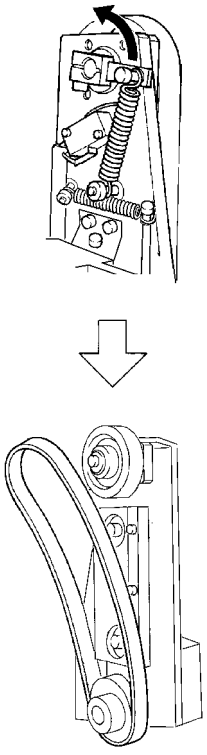
1. Turn the main power OFF.

2. Open the front cover.

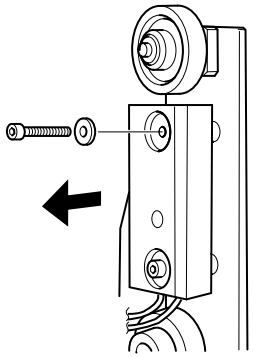
3. Pull the handle forward, and swing the back seal unit out.

4. Open the back seal cover.

5. Lift the tension lever located on the back of the steel belt, and remove the heater belt.



6. Remove the heater block.

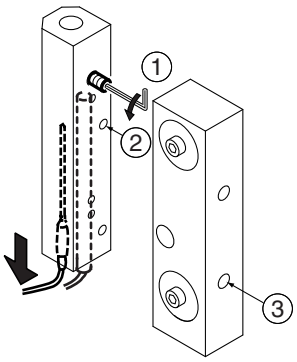


NOTE

- The lengths of the bolts that fasten the heater block are different.

7. Remove the two bolts that fasten the heater shoe to the heater block.

8. Loosen the two allen screws ③ from the side of the heater block and remove the heater shoe.



9. Loosen the screws ① and/or ② from the side of the heater block, and pull out the heater and/or thermocouple.

10. Install the new heat pipe.

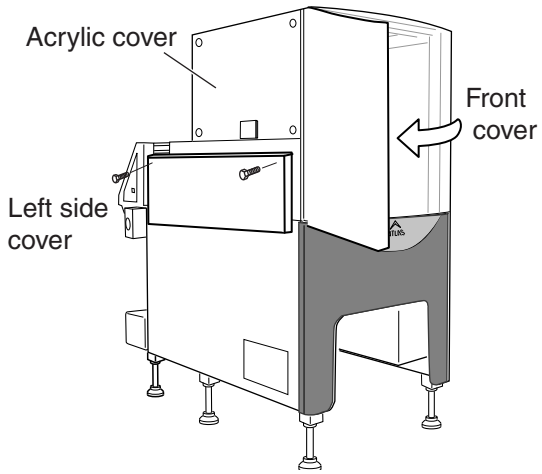
11. Reinstall all parts in the reverse order of removal.

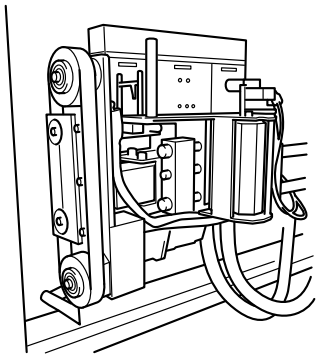
4.2.3 Replacing the Back Seal Air Cylinder

NOTE

- You must remove the back seal unit to access the back seal cylinder.

1. Turn the main power OFF.
2. Lift the pressure reducing valve knob; then turn the knob counterclockwise until the pressure is at 0.
3. Open the front cover, left upper cover and acrylic cover.
4. Pull the handle forward, and swing the back seal unit out.

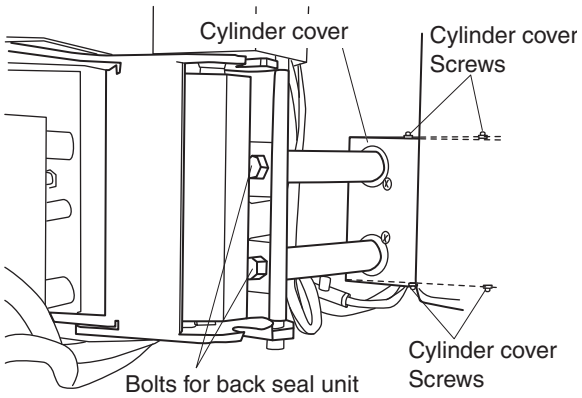




5. Remove the two bolts fixing the back seal unit, remove the back seal unit.

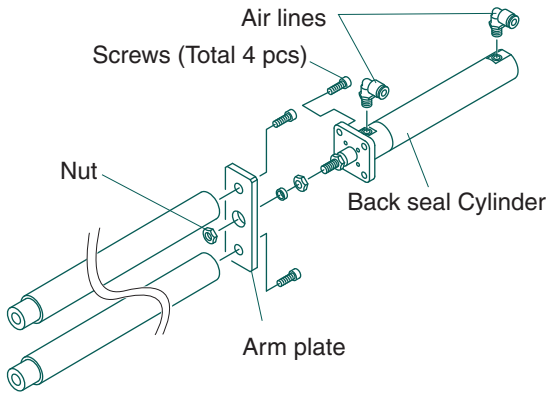
NOTE

- The back seal unit is heavy so put on the space carefully not causing any shock.
- The back seal unit removal is just to access to the back seal cylinder. Back seal unit is out of replacing items.



6. Remove each two screws on the top and bottom sides of cylinder cover and remove the cylinder cover.

7. Remove a nut fastened arm plate and remove the cylinder.
8. Remove the two air lines from the fitting.
9. Remove 4 screws and remove the cylinder from the main body.
10. Install the new air cylinder.
11. Reinstall all parts in the reverse order of removal.



4.2.4 Replacing the Back Seal Unit M5 Motor

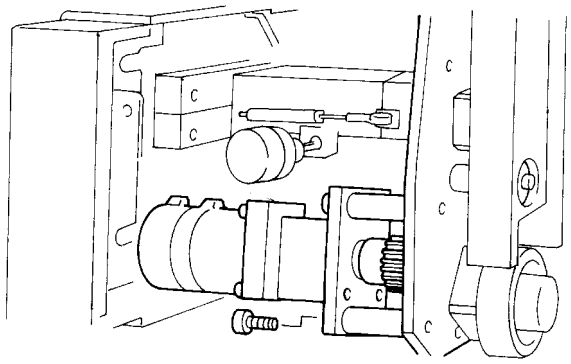
1. Turn the main power OFF.
2. Open the front cover.
3. Open the back seal unit.
4. Remove the arm cover.
5. Remove the CN sig cable from the M5 connector.

CAUTION

- **Pull the cable out straight while holding the connector. Failure to do so can damage the cable.**

6. Remove the M5 servo motor horizontally. The M5 motor is fastened by four allen bolts.

   Tool: 5-mm hex wrench

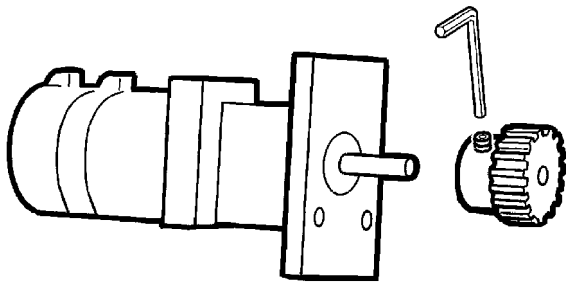


NOTE

- Removing the guard plate will make the replacement work easier.

7. Remove the gear from the M5 servo motor.

   Tool: 2.5-mm hex wrench



NOTE

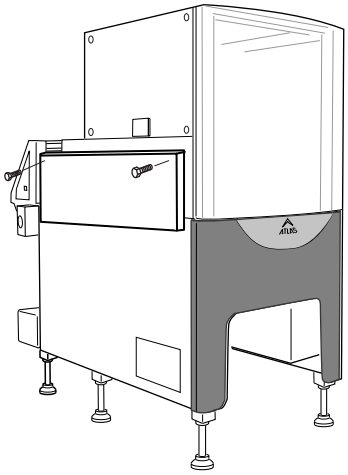
- Replace the motor only. The gears are not included.

8. Attach the original gear to the new M5 servo motor.
9. Attach the M5 servo motor to the back seal unit.
10. Reinstall all parts in the reverse order of removal.

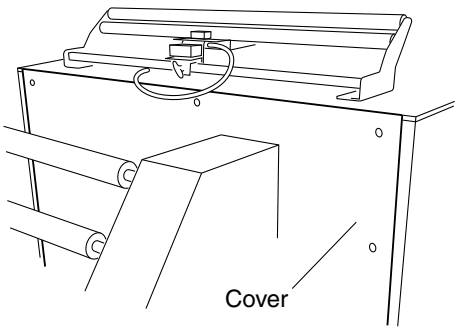
4.3 Pull Belt Unit

4.3.1 Replacing M1 Motor of the Pull Belt

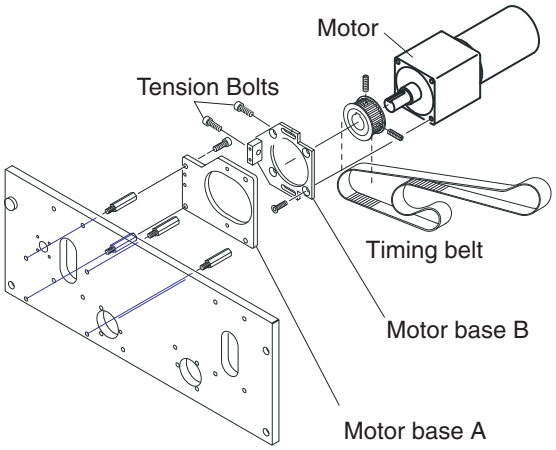
1. Turn the main power OFF.
2. Open the left side upper cover.
3. Remove the 2 back side screws fixing the left side upper cover, then remove the front side 2 screws to remove the cover.



4. Remove the ten screws, remove the rear upper cover.



5. Loosen two tension bolts.
6. Remove 2 screws and remove the motor base A from the M1 motor with motor base B.
7. Remove 4 screws, remove the M1 motor from the motor base B.
8. Remove the timing belt if necessary.



NOTE

- You cannot remove timing belt without removing the motor.

9. Reinstall all parts in the reverse order of removal.
10. Check for proper tension on pull belts.

    Deflection : 3-4mm

4.3.2 Replacing the Pull Belt

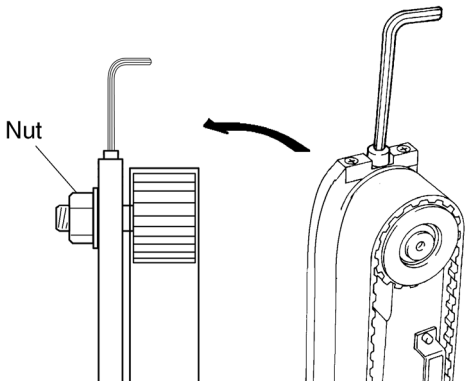
1. Press the [Run/Lace] key.

   ▶The pull-down belts move outward.
2. Turn the main power OFF.
3. Open the front cover.
4. Pull the handle forward, and swing the back seal unit out.
5. Remove the former, and make sure that the pull belt is free of grime, flaws, and splits.

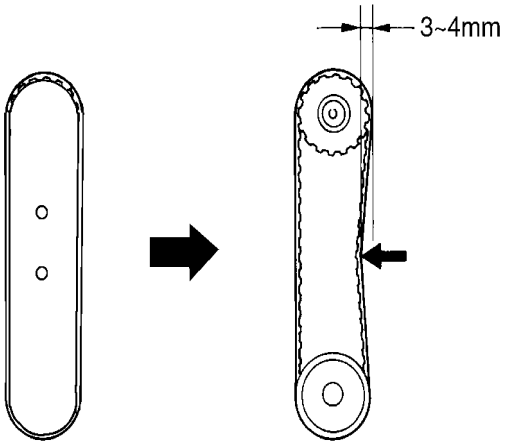
⚠ CAUTION

- **Be careful when handling the former. It is heavy.**

6. Loosen the nut at the reverse side of the pull belt unit and loosen the tension.
7. Remove the pull belt.
8. Install the new pull belt.



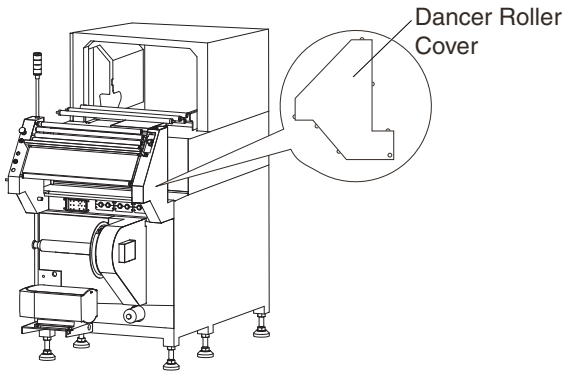
9. Press down on the center of the pull belt and adjust the tension that the belt deflects approximately 3 to 4 millimeters, then tighten the nut.



4.4 Dancer Roller

4.4.1 Replacing the Load Cell

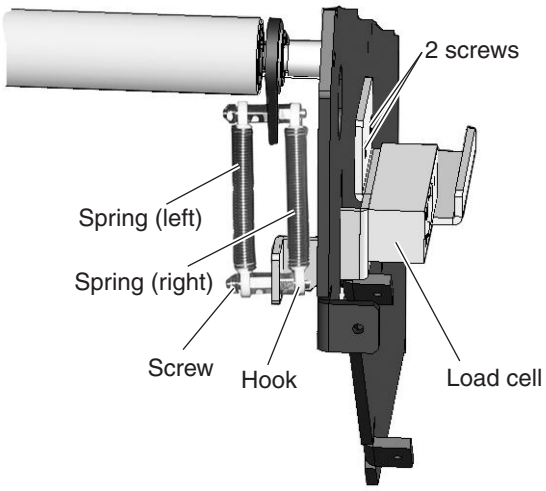
1. Turn the main power OFF.
2. Remove the main unit lower cover on the right side.
3. Move the electrical control panel to remove the load cell connector in the back.



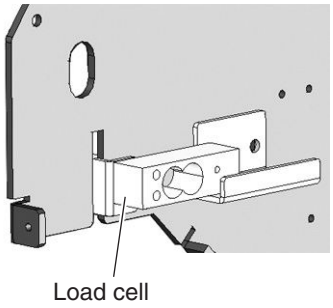
4. Remove the Dancer Roller cover on the left side.
5. Remove the dancer roller spring.

   Left: Remove the nut attaching the bottom of the spring.

   Right: Remove the 4 screws of the load cell move the load cell and detach the spring from the hook.
6. Remove the 2 bolts fixing the load cell fitting outside the frame.

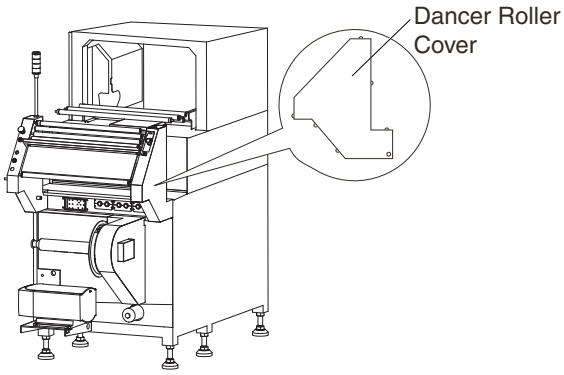


7. Remove the load cell.



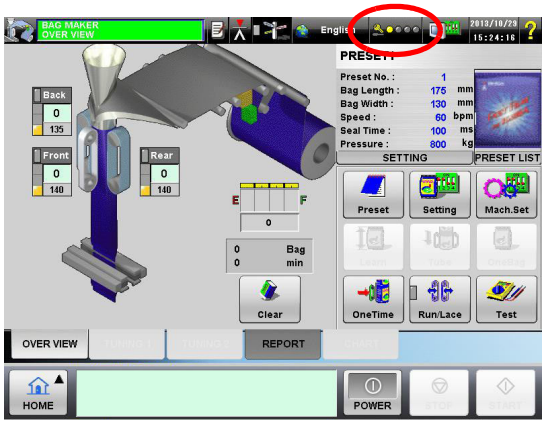
4.4.2 Dancer roller adjustment

1. Turn the main power supply ON.
2. Remove the Dancer Roller cover on the left side.



3. Press the operation level key  on a screen.

   ▶The screen to select the operation level will appear.



4. Select the Maintenance level.

   ▶The keyboard to enter the password will appear.

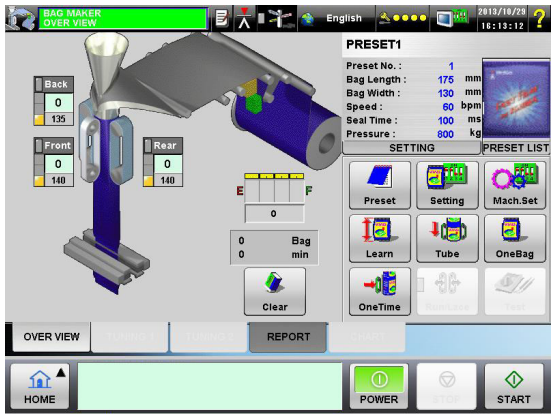
5. Enter the password for the Maintenance level.

   ▶The Operation Standby screen for the Maintenance level will appear.

6. Press the 

key.

   ▶The MACHINE SETTING screen will appear.

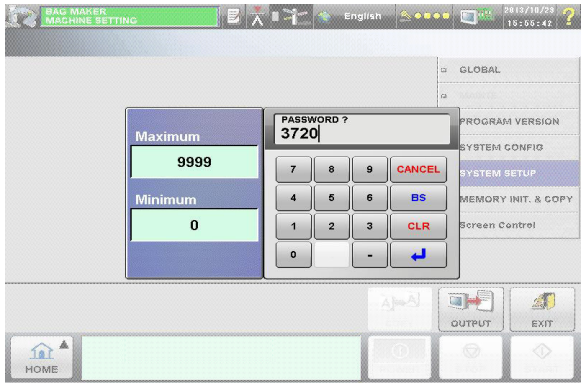


7. Press the [SYSTEM SETUP] index.

   ▶The keyboard to enter the password will appear.

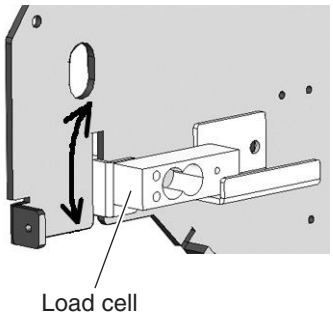
8. Enter the password "3720".

   ▶The SYSTEM SETUP screen will appear.



9. Confirm that the following values have been displayed for the load cell data on the screen:

   If dancer roller is at lower limit: 520 (±10)
   If dancer roller is at upper limit: 4000-4400



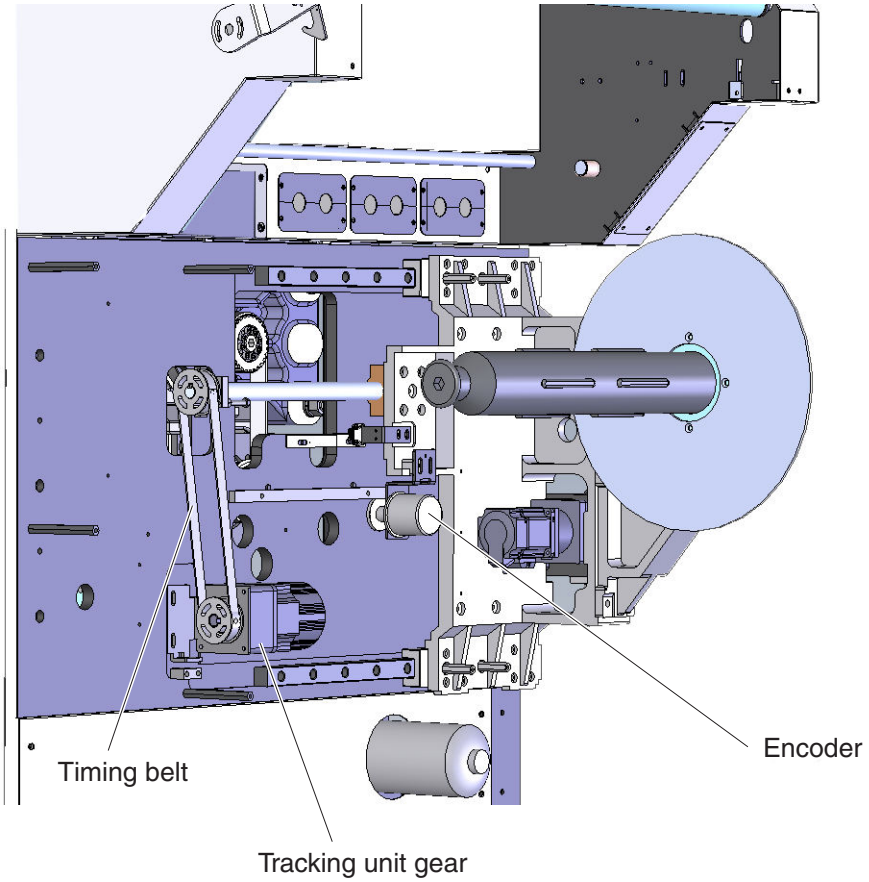
NOTE

- If the specified values are not given, change the angle of the load cell for adjustment.

10. Loosen the fixing screws, then loosen the bolts from the inside to adjust the position.

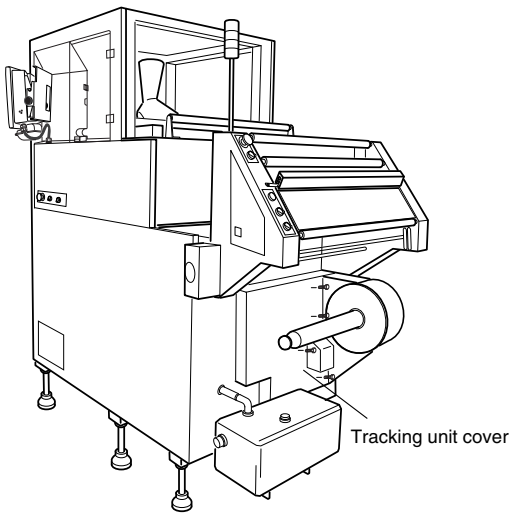
11. Attach the dancer roller cover.

4.5 Tracking Unit

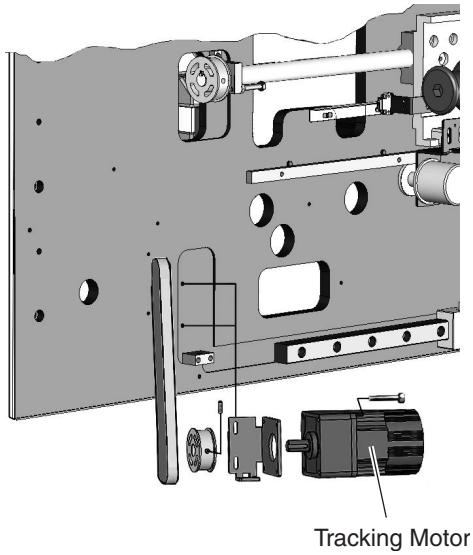


4.5.1 M7 Tracking Motor

1. Turn the main power OFF.
2. Remove the back side cover.
3. Loosen 4 bolts of the motor bracket.
4. Loosen the tension of the tracking motor.

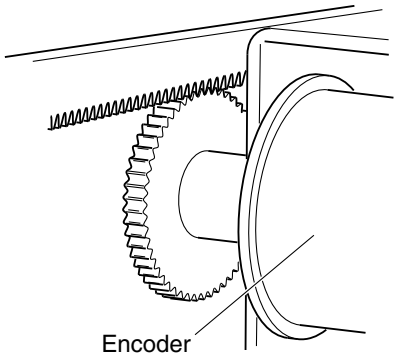


5. Remove the timing belt.
6. Remove the motor bracket by removing 4 bolts.
7. Remove the head gear from the motor.
8. Remove 4 bolts and remove M7 motor from the bracket.
9. Attach the head gear to the new motor.
10. Install the motor with attached head gear.
11. Reinstall all parts in the reverse order of removal.



4.5.2 Replacing the Encoder

1. Turn the main power OFF.
2. Remove the back side cover.
3. Remove the two screws and remove the encoder with bracket.
4. Remove the encoder gear.
5. Remove the 4 screws and remove the encoder from the bracket.



4.5.3 Tracking unit Adjustment

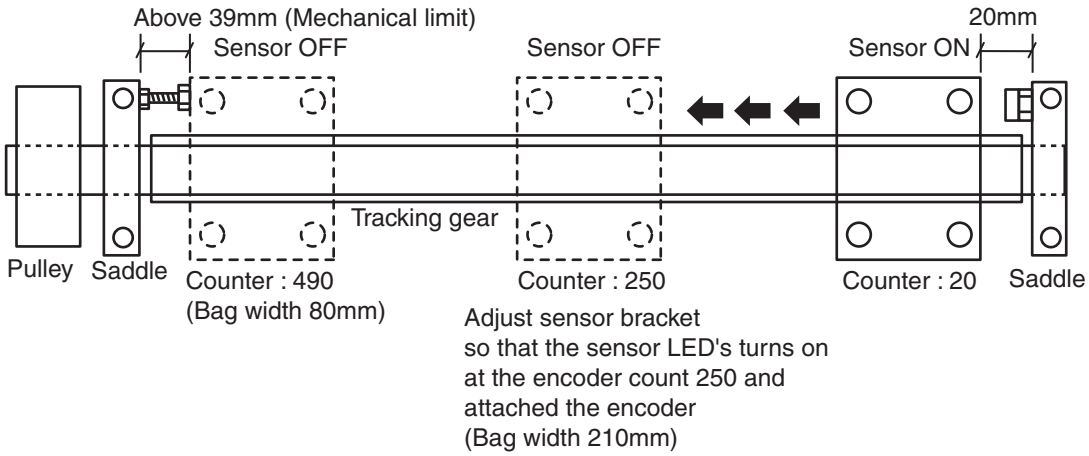
NOTE

- If you need replacement, replace the parts according to the parts list.

Tracking unit Adjustment

1. Turn the main power supply ON.
2. Remove the Tracking unit cover.

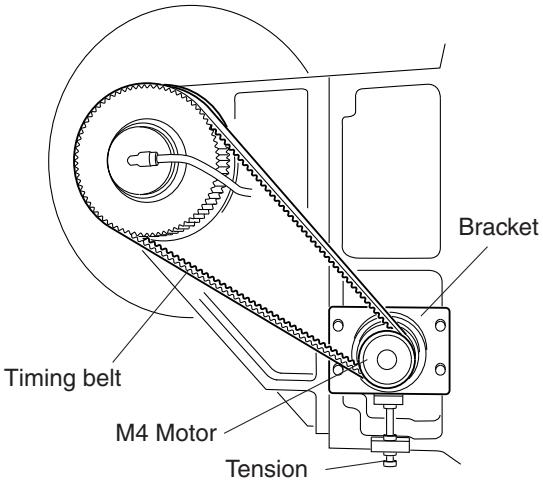
3. Switch to the remote control screen's tracking adjustment.
4. Set the encoder to count "20" at 20mm from the saddle without pulley.
5. Move the tracking unit with rotating the pulley till the encoder counts 250.
6. Adjust L plate so that the tracking sensor turns off at this position.
7. Additionally, check if the encoder counts 490 at the position of above 39mm from the saddle which is the next of pulley).



4.6 Replacing the Film Unwind Unit

4.6.1 Replacing the M4 Motor

1. Turn the main power OFF.
2. Remove the film spindle unit cover.
3. Loosen 4 bolts of the motor bracket, and loosen the tension bolt.
4. Detach the timing belt.
5. Remove 4 screws and remove the motor with bracket.
6. Remove the belt gear.
7. Remove the M4 motor from the bracket.
8. Attach the original gear to the new motor; then apply a small amount of graphite grease.



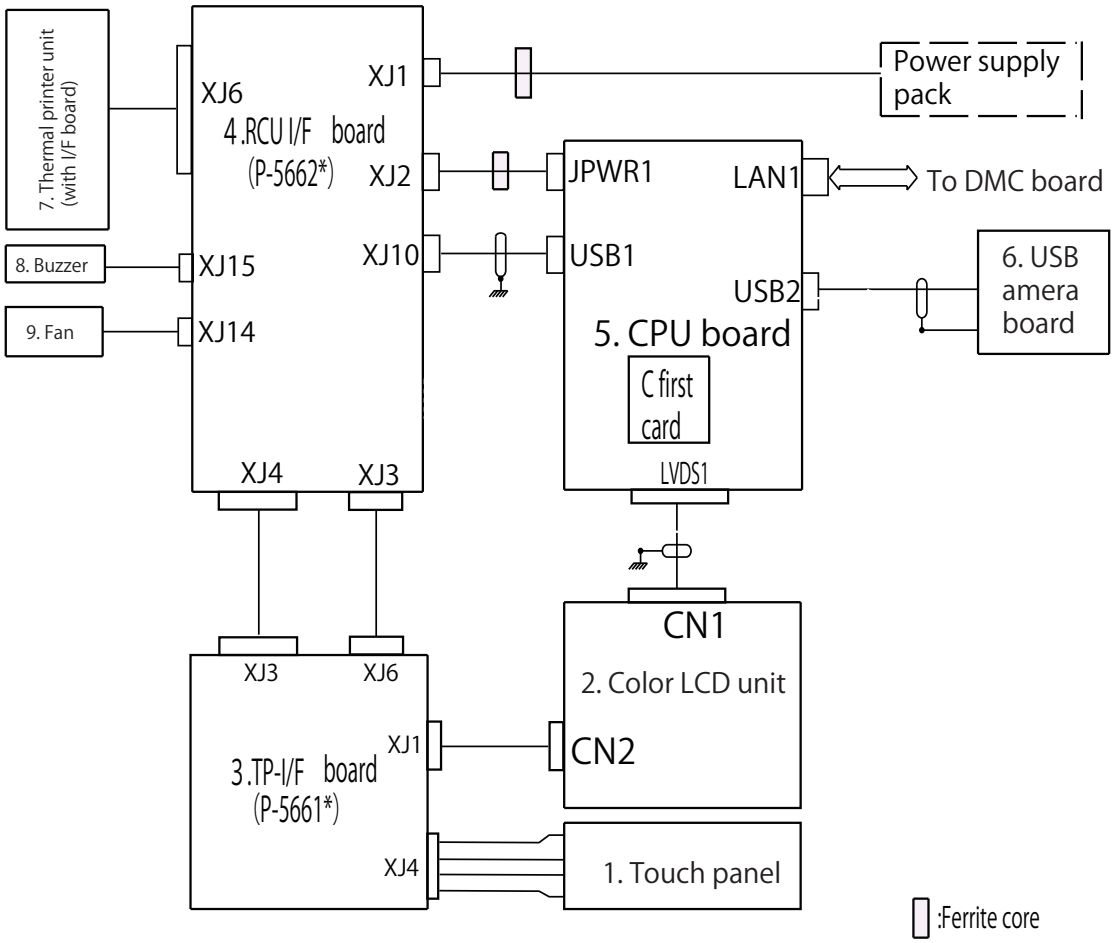
NOTE

- Replace the motor only. The gears are not included.

9. Install the new motor.
10. Reinstall all parts in the reverse order of removal.

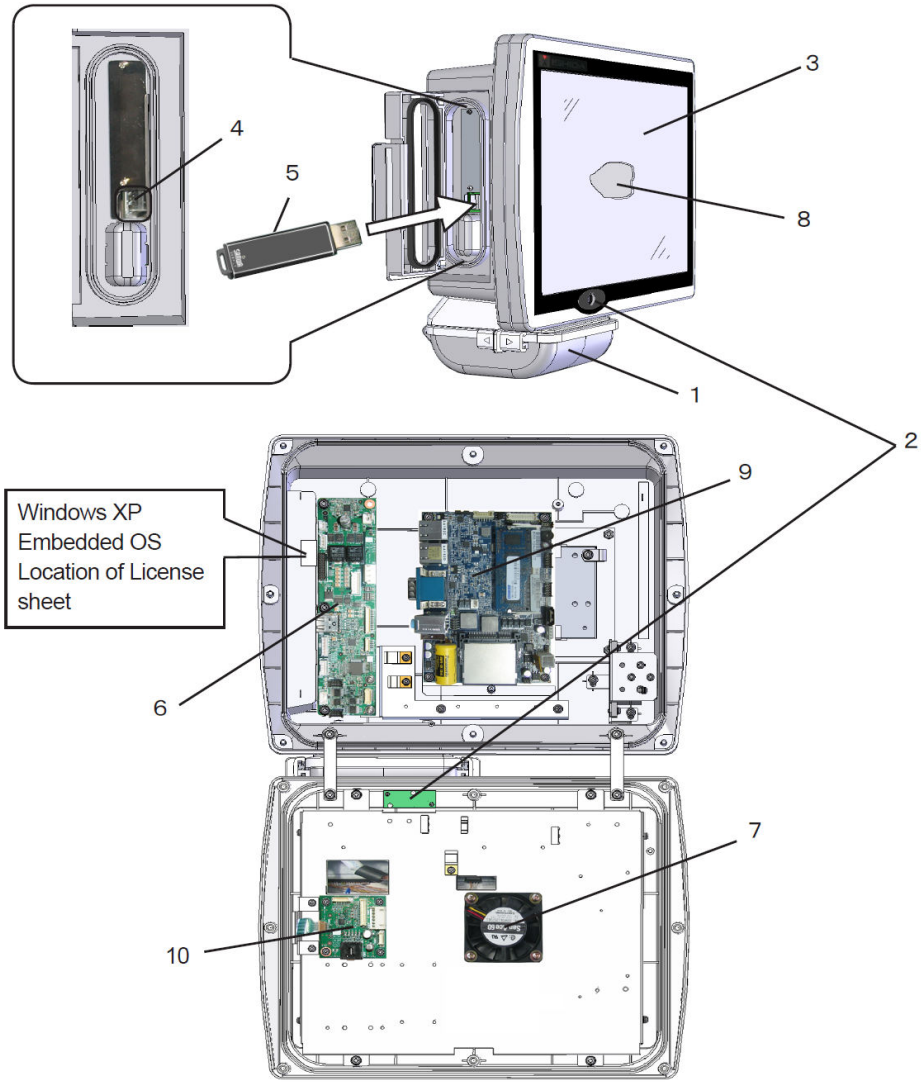
4.7 RCU Unit (option)

4.7.1 Remote Control Unit Block Diagram



Symbol	Description	Type no. / Notes	Maker
1	Touch panel	KBT-12.1C10R-FM	KB Elctron
2	Color LCD unit	AC121SA01	Mitsubishi
3	TP-I/F board (P-5661*)		
4	RCU-I/F board (P-5662*)		
5	CPU board	NPC-M0103	Omron
6	USB camera board		
7	Printer	SAM-1245-10K	SEIKO
8	Buzzer		
9	Fan		
10	USB camera switching board (P-5582*)	(option)	

4.7.2 Remote Control Unit Outline View



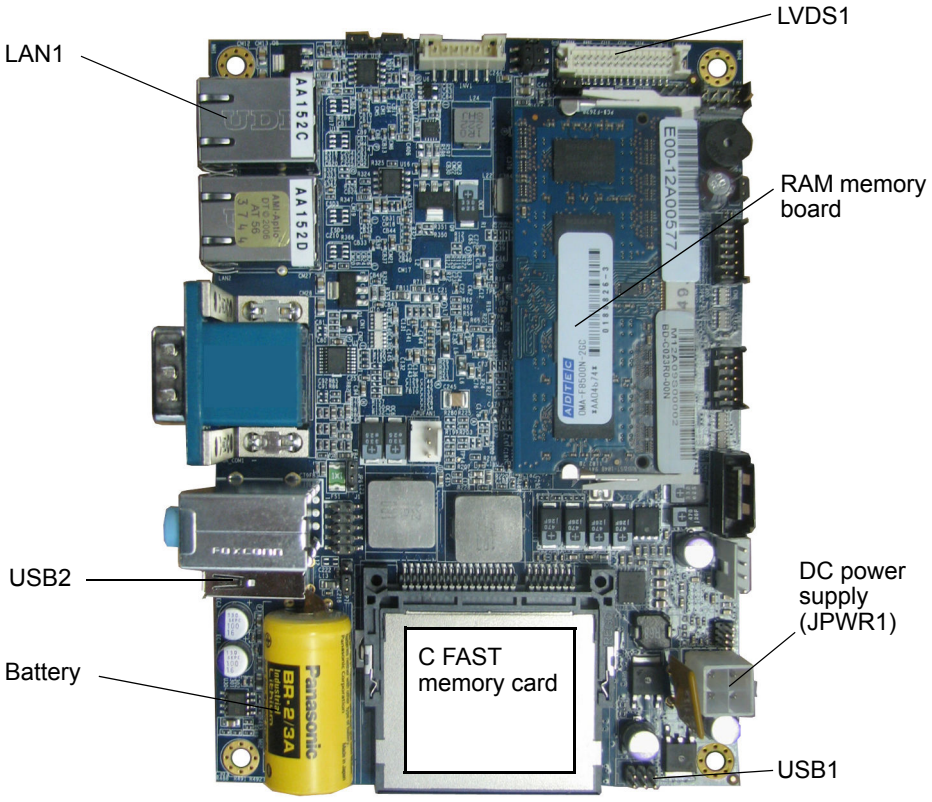
No.	Unit Description
1	Printer unit
2	USB camera
3	Touch panel
4	USB memory slot (2 slots)
5	USB memory
6	RCU I/F board（P-5662*）
7	Fan motor
8	Color LCD unit
9	CPU board (NPC-M0103) (OMRON)
10	TP-I/F board（P-5661*）

4.7.3 CPU Board (NPC-M0103)

WARNING

- **Before replacing electrical components, make sure that the main power supply and motor power supply are turned OFF. Failure to do so can result in electrical shock.**

Ourline and Connector location



Function of board

1. Input control by touch panel
2. Communication [Ethernet] with CAL [DMU board (P-5562 *)]
3. Communication [USB1 slot] with RCU I/F board (P-5562*)
4. Controls USB camera, USB camera selection board (P-5562*)

Battery

1. Battery in use: Lithium primary battery (accumulator battery) Model: BR-2/3A
2. Replacement time: 15 years (It depends on the environment.)

CAUTION

- **The battery replacement with a wrong one may cause malfunction in the board. Replace with the same type or equivalent.**
- **Discard the used battery.**

Connector classification

Connector No.		Function
LAN1	(8P)	Ethernet communication (to DMU board)
LVDS1	(30P)	LCD control
JPWR1	(4P)	DC power supply (+12 V)
USB1	(6P)	USB communication (to RCU I/Fboard)
USB2	(4P)	Control of USB camera, USBcamera switching board

Connector function in details

(1) JPWR1(DC-IN): Power supply input

Connector No.	Pin No.	Signal name	Remarks
DC-IN (JPWR1)	1	GND	
	2	GND	
	3	+12 V	
	4	+12 V	

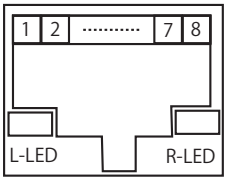
(2) USB1:USB (internal connection) interface

Connector No.	Pin No.	Signal Name	Pin No.	Signal Name
USB1 Interface (forInternal connection)	1	VCC_USB	2	GND
	3	USBON	4	GND
	5	USBOP	6	(N.C.)

(3) USB2:USB (externmal connection) interface

Connector No.	Pin No.	Signal name	Remarks
USB2 Interface (for External connection)	1	VCC_USB	
	2	USBN	
	3	USBP	
	4	GND	

(4) LAN1: LAN interface

Connector No.	Pin No.	Signal name	Remarks
LAN1 Interface 	1	MDI_OP	
	2	MDI_ON	
	3	MDI_1P	
	4	MDI_2N	
	5	MDI_2P	
	6	MDI_1N	
	7	MDI_3P	
	8	MDI_3N	

L-LED

Green : ON	100 M
Orange : ON	Giga
OFF	10 M

R-LED

Yellow : blink	Act
Yellow : ON	Link
OFF	OFF

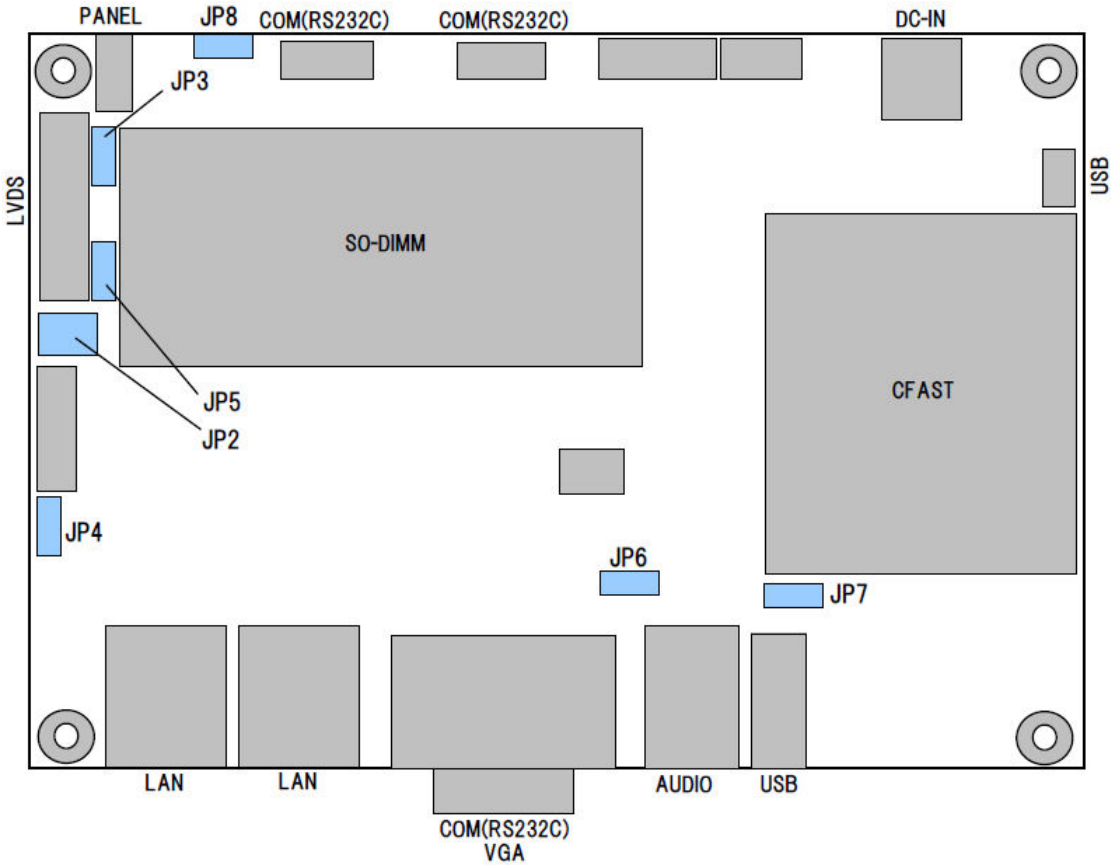
(5) LVDS1: LCD interface

Connector No.	Pin No.	Signal name	Remarks	Pin No.	Signal name	Remarks
LVDS1 LCD Interface	1	LVDS_VCC		2	LVDS_VCC	
	3	LVDS_VCC		4	LVDS_VCC	
	5	GND		6	GND	
	7	GND		8	GND	
	9	SELLVDS		10	N.C	
	11	N.C		12	N.C	
	13	GND		14	GND	
	15	GND		16	LVDS0_CLK+	
	17	LVDS0_CLK-		18	GND	
	19	LVDS0_D2+		20	LVDS0_D2-	
	21	GND		22	LVDS0_D1+	
	23	LVDS0_D1-		24	GND	
	25	LVDS0_D0+		26	LVDS0_D0-	
	27	GND		28	LVDS0_D3+	
	29	LVDS0_D3-		30	GND	

Junper Setting

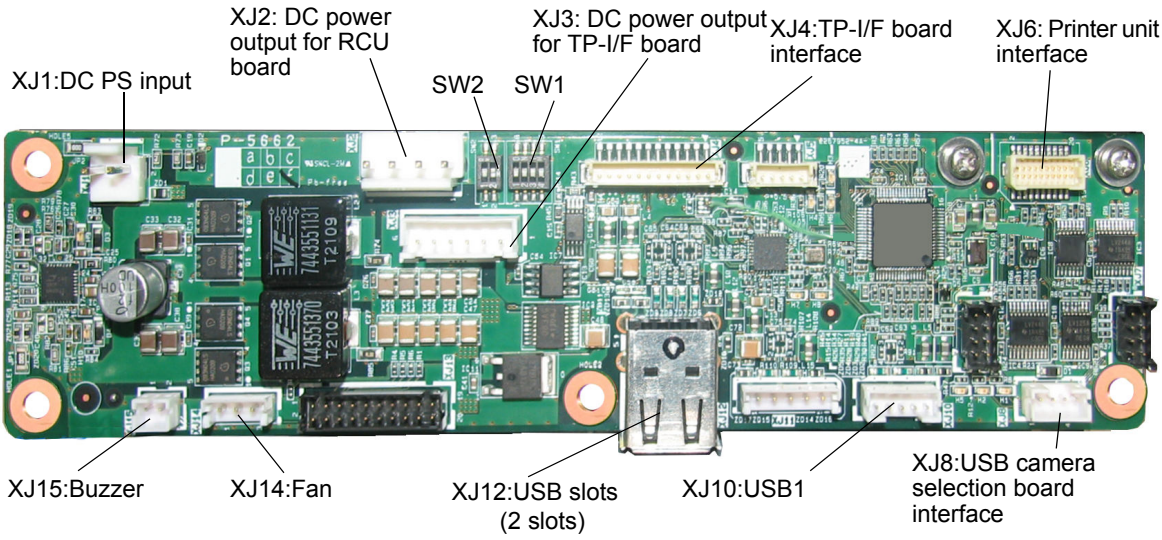
JP No.	Function	Selection	Position of jumper	Remarks
JP2	LVDS_VCC	3.3 V	* 1-3 2-4	
		5.0 V	3-5 4-6	
JP3	SELLVDS	High	1-2	Setting for pin 9 of LVDS connector The voltage level of "High" is LVDS_VCC.
		Low	2-3	
JP4	ENABKL	3.3 V	* 1-2	Pin 1 of BACKLIGHT connector. Voltage level setting of High.
		5.0 V	2-3	
JP5	LVDS0_D3+	1.8 V	* 1-2	Setting for pin 29 of LVDS connector.
		3.3 V	2-3	
JP6	Clear CMOS	Normal	* 1-2	
		Clear CMOS	2-3	
JP7	C fast PS voltage	3.3 V	* 1-2	
		5.0 V	2-3	
JP8	Power ON	Hardware Auto Power ON	* 1-2	Starts regardless the setting of Restore AC Power Loss of BIOS after power ON.
		N.C	2-3	

* : Default position



4.7.4 RCU I/F Board (P-5662*)

Appearance, Connector and DIP-SW locations



Function of board

1. TP-I/F board (P-5561*) control
2. Power supply and USB communication with CPU board
3. COmmunication with USB slots
4. Buzzer control
5. Printer control
6. Fan control

DIP-SW Setting

(1) SW1

S W 1	Function	Selection	ON/OFF	Remarks
1	Not use		* OFF	
			ON	
2	Print mode	Inverted mode	* OFF	Handstand mode at CCW
		Handstand mode	ON	
3	Delay start	0 sec	* OFF	Delay start for DACS-G
		45 sec	ON	
4	Camera selection mode	Normal	* OFF	
		Reset at switch	ON	

* : Default setting

(2) SW2

S W 2	Function	Select	O N ／ O F F	Remarks
1	Touch panel	4 wires	* O F F	
		5 wires	O N	
2	Serial output port	XJ7(DF11-8P)	O F F	
		XJ6(SHD-20P)	* O N	

* : Default setting

Connector classification

Connector No.		Function
XJ1	(2P)	Power supply pack (to main PS unit)
XJ2	(4P)	CPU board DC power(to JPWR1 on CPU board)
XJ3	(6P)	TP I/F board DC power
XJ4	(12P)	TP I/F
XJ6	(20P)	Printer I/F
XJ8	(4P)	USB camera selection signal
XJ10	(5P)	USB interface (to USB1 on CPU board)
XJ14	(3P)	Fan I/F
XJ15	(2P)	Buzzer I/F

Connector function in details

(1) XJ1: Power supply pack (to main PS unit)

Connector No.	Pin No.	Signal name	Remarks
XJ1 DC Power IN	1	DC＋24V	
	2	GND	

(2) XJ2: CPU board DC power(to JPWR1 on CPU board)

Connector No.	Pin No.	Signal name	Remarks
XJ2 DC power OUT (to JPWR1 on CPU)	1	DC＋5V	
	2	GND	
	3	DC＋12V	
	4	GND	

(3) XJ3:TP I/F board DC power

Connector No.	Pin No.	Signal name	Remarks
XJ3 DC Power Output (For TP-I/F board)	1	＋3.3V	
	2	GND	
	3	＋5V	
	4	GND	
	5	＋12V	
	6	GND	

(4) XJ4: TP-I/F

Connector No.	Pin No.	Signal name	Remarks
XJ4 TP-IF bord interface	1	+3.3V	
	2	GND	
	3	INT	
	4	CLK	
	5	MISO	
	6	MOSI	
	7	SCL	
	8	SDA	
	9	GND	
	10	VRMT	
	11	VBR	
	12	GND	

(5) XJ6: Printer I/F

Connector No.	Pin No.	Signal name	Remarks	Pin No.	Signal name	Remarks
XJ6 Printer I/F	1	N.C		2	N.C	
	3	N.C		4	N.C	
	5	N.C		6	N.C	
	7	RxD		8	TxD	
	9	GND		10	GND	
	11	GND		12	+5V	
	13	+5V		14	+5V	
	15	+5V		16	+5V	
	17	GND		18	GND	
	19	GND		20	+5V	

(6) XJ8: USB camera selection signal

Connector No.	Pin No.	Signal name	Remarks
XJ8 USB camera selection signal	1	+5V	
	2	OUT	
	3	GND	
	4	N.C	

(7) XJ10: USB interface (to USB1 on CPU board)

Connector No.	Pin No.	Signal name	Remarks
X J 1 0 USB Interface (to USB1 on CPU)	1	V B U S	
	2	G N D	
	3	D-	
	4	D＋	
	5	F G	

(8) XJ14: Fan I/F

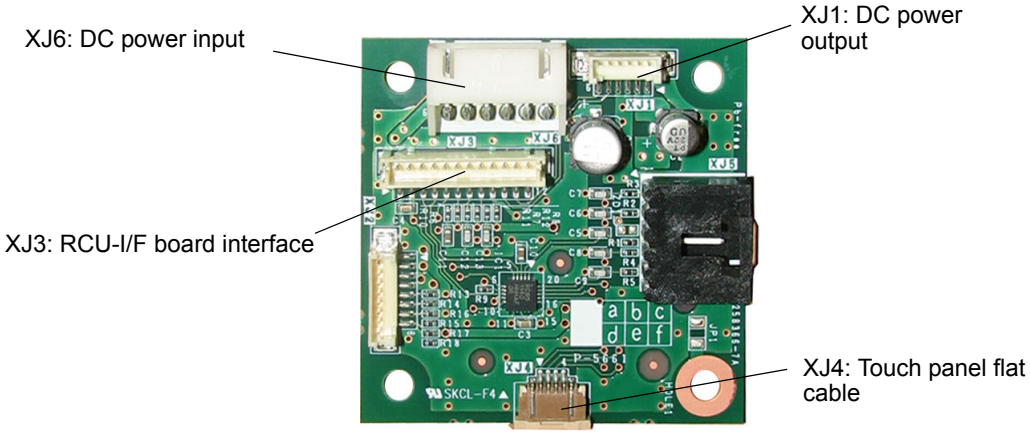
Connector No.	Pin No.	Signal name	Remarks
X J 1 4 Fan interface	1	＋1 2 V	
	2	I N(ALARM)	
	3	G N D	

(9) XJ15: Buzzer I/F

Connector No.	Pin No.	Signal name	Remarks
X J 1 5 Bu7zzer interface	1	＋5 V	
	2	O U T	

4.7.5 TP I/F board (P-5661*)

Appearance of TP-I/F board (P-5561*)

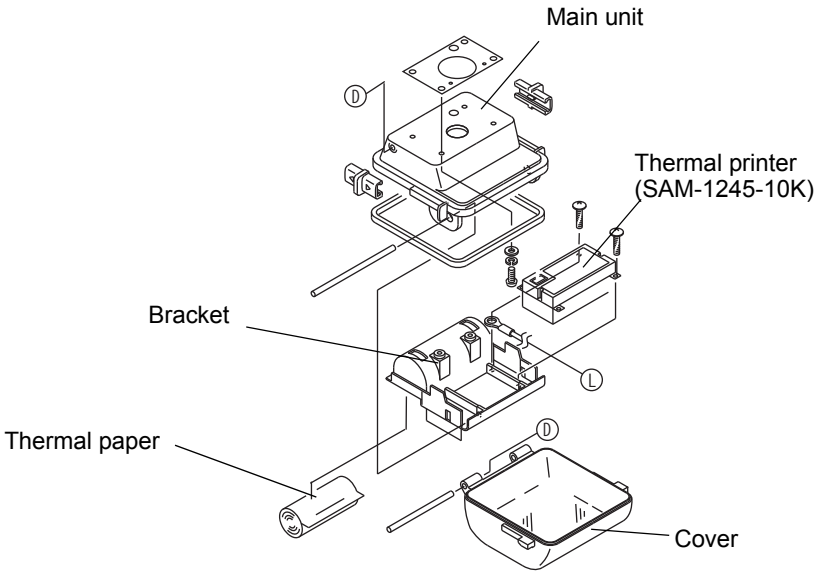


Functional description

1. Controls the signal sent from the touch panel and transmits it to CPU board via RCU/IF board.
2. Power supply to LCD unit

4.7.6 Printer Unit

Appearance of printer unit

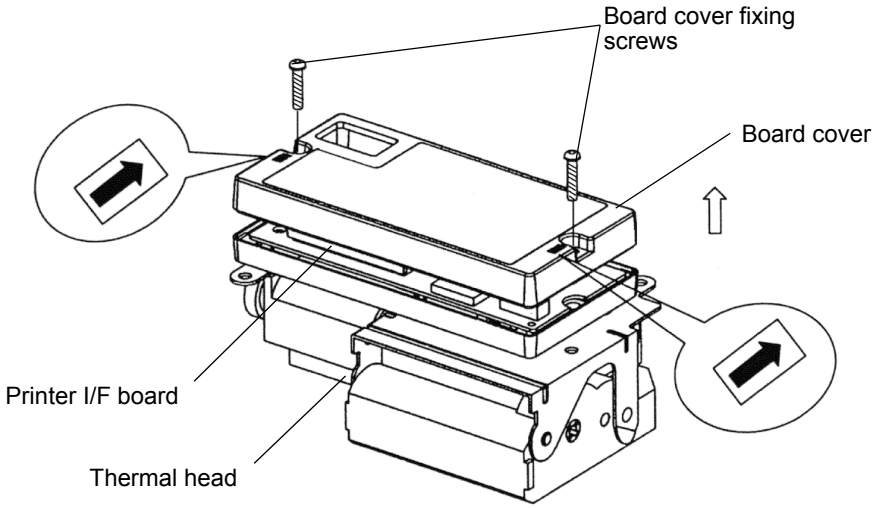


Function of unit

1. Printing statistical result totals
2. Printing presets and set values

4.7.6.1 Thermal Printer (SAM-1245-10K)

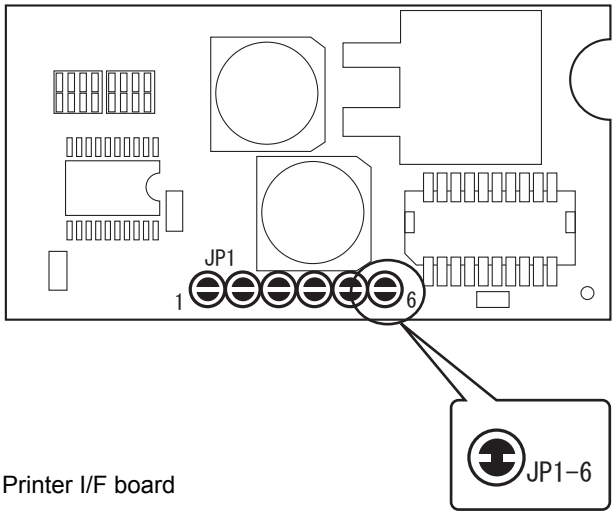
Appearance of thermal printer



Replacement of thermal printer

1. Open the door of printer main body.
2. Remove the roll paper for printing.

3. Remove two screws from the plastic bracket fixing the thermal printer and remove the bracket.
4. Reverse the bracket and remove the connector connected to the thermal printer.
5. Remove three screws fixing the thermal printer to the bracket, and remove the thermal printer.
6. Prepare a new thermal printer.
7. Remove two screws fixing the board cover, and remove the board cover.
8. Allow the function selection of the thermal printer.
9. Short-circuit the soldering jumpers for JP1-6 on the board as shown below.

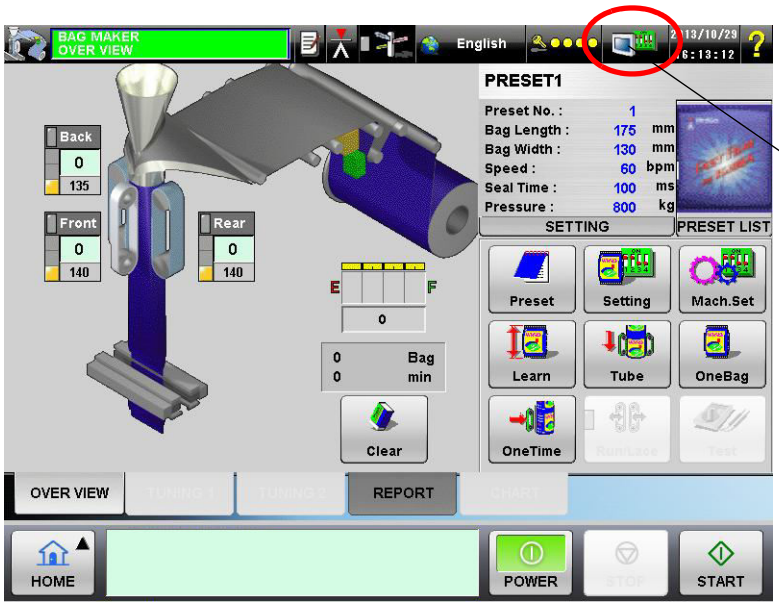


10. Attach the thermal printer in the reverse steps of the above 1 to 7.

NOTE

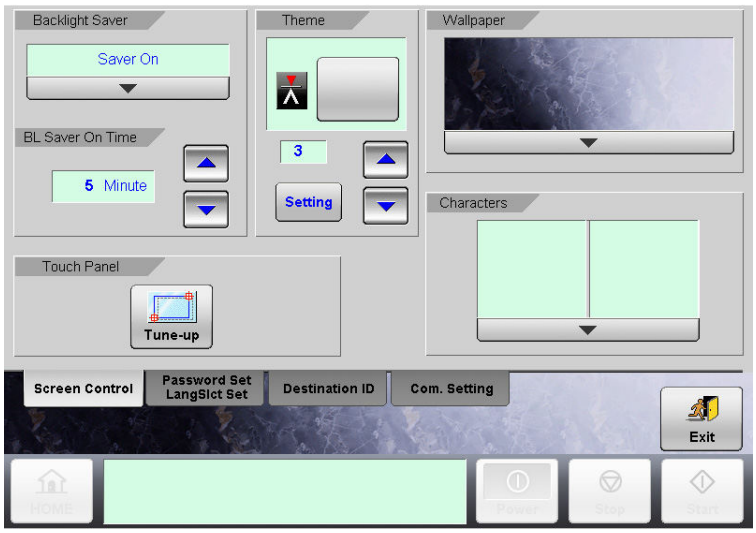
- As the soldering jumpers JP1-1 to JP1-6 of the new thermal printer are open, be sure to short ircuit the soldering jumper for JP1-6. Using the thermal printer without performing soldering jumper results in malfunction.
- The same type of thermal printer is used for the DACS-W-N model with the different location of oldering jumper. Refer to the Service Manual of the DACS-W-N model.

4.8 Control Panel Items (Maintenance Service)



[Main menu screen]

Touch  .



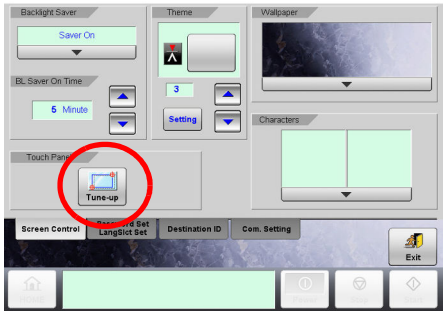
[Main Menu Screen with Control Panel Opened]

4.8.1 Display Control Menu Screens

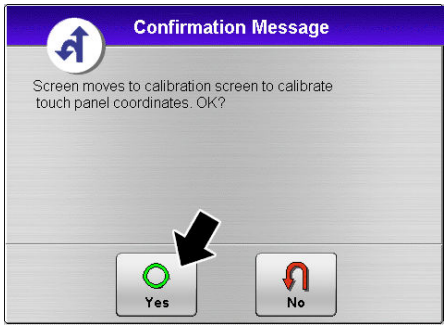
4.8.1.1 Touch Panel Coordinate Adjustment

TIP

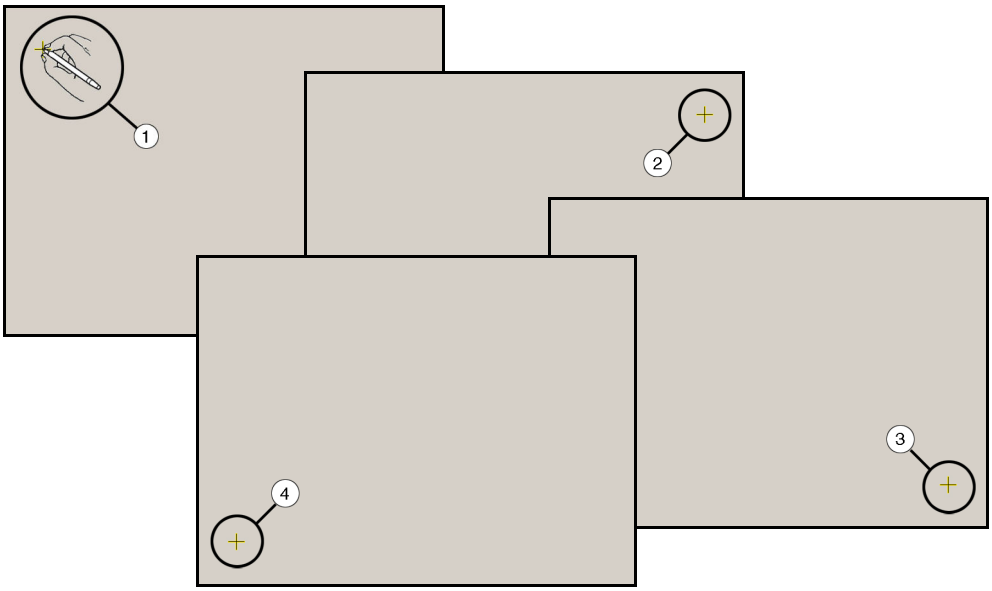
- When the other page such as "password setting" is opened right before the operation, touch the [Screen Control] menu.



1. Touch the [Tune-up] key on the [Display Control menu] screen.
2. The [Confirmation Message] appears, and touch the [Yes] key. The [Touchkit] screen appears.
3. Touch the [Cal 4 Point] key.



4. The following screens appear, and touch on the mark at each coordinate position with a ball point pen, etc.



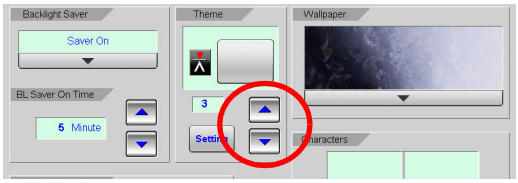
5. Touch on the coordinate position mark displayed automatically in order. After 4 points are touched, the [Confirmation Message] appears automatically.

4.8.1.2 Switching Theme Display (New Function)

Design of each key can be switched according to the theme: [1: Model R, 2: European model, 3: Model RV].

(This function is newly added to the current model.)

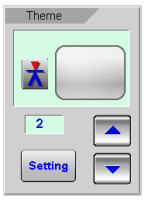
1. Touch the ▲ / ▼ key of [Theme].



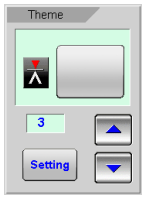
2. Switch the theme by selecting from [1: Model R, 2: European model, 3: Model RV].
3. Touch the [Setting] key.

   The display automatically restarts, with the theme switched.

1: Model R



2: European model



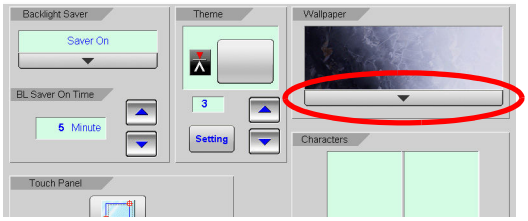
3: Model RV

4.8.1.3 Desktop Wallpaper Display (Additional Types Available)

The desktop wallpaper can be switched by selecting from several types. (Additional types are available from the current model).

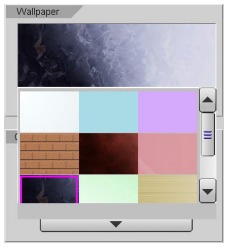
The step is as follows:

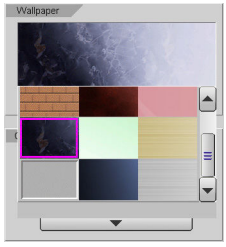
1. Touch the pop-up key of [Wallpaper].



2. Select the wallpaper by touching it on the screen. The wallpaper is automatically switched to the selected option.

Touching the [Return] key enables to check that the wallpaper for the main menu display has been switched.

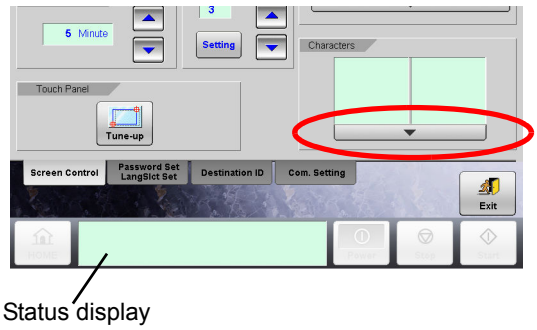




4.8.1.4 Character Display (Additional Types Available)

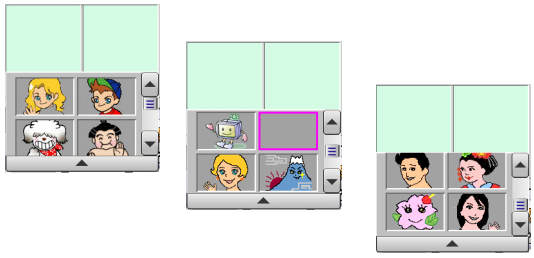
By setting the character display, condition of the machine is easy to grasp by the face look of the character.

1. Touch the pop-up key of [Character].
2. Select the character by touching it on the screen. The selected character is displayed on the [Status Display].

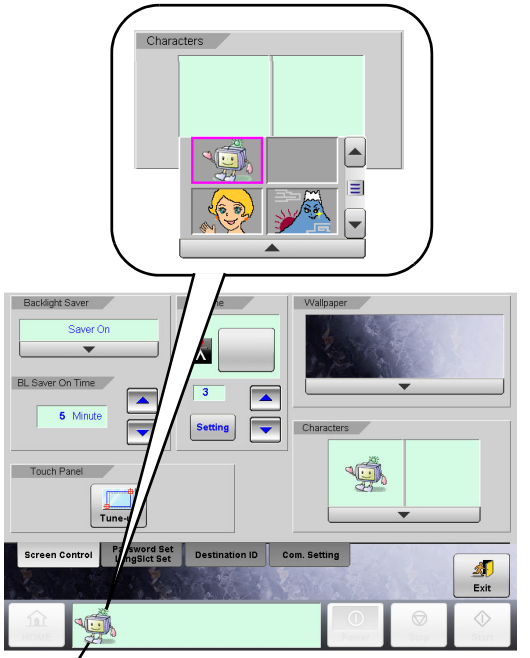


Status display

▶ The face look of the character shows the machine condition.



▶ When the machine condition is good, the character “smiles”, whereas when the machine condition has any problem, the character “cries”.



Status display

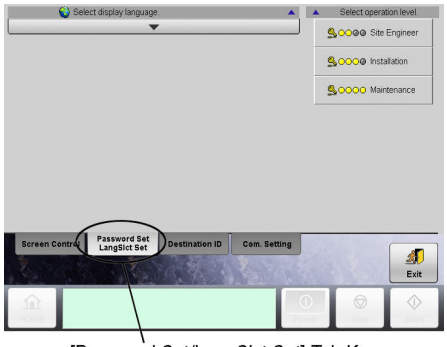
4.8.2 Password Set/Language Select Set Menu Screen

4.8.2.1 Language Select Setting

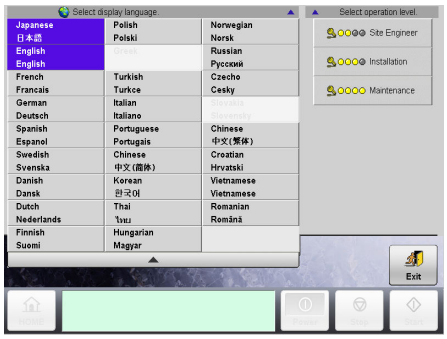
1. Touch the [Password Set/LangSlct Set] tab key. The Password Set/Language Select Set menu screen appears. Touch the [Select display language] pop-up key.
2. Select a display language.

TIP

- This model supports multiple languages as CCW-R (seven languages can be selected at the same time).



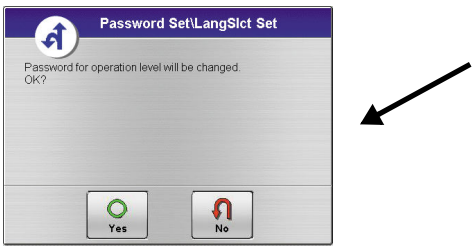
[Password Set/LangSlct Set] Tab Key

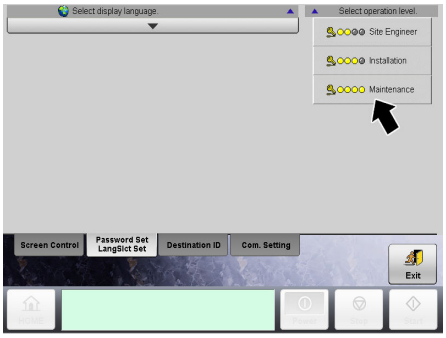


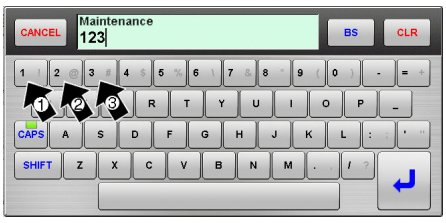
4.8.2.2 Password Setting

■ Touch the key to change the password on the [Select operation level].

[Example]





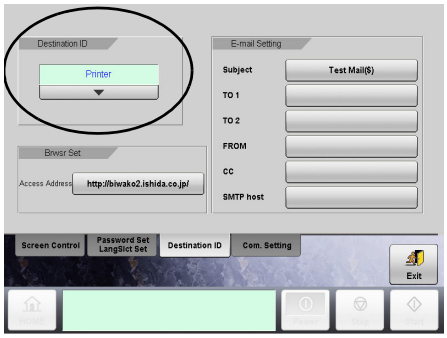


After entering password for change, touch the [Return] key.

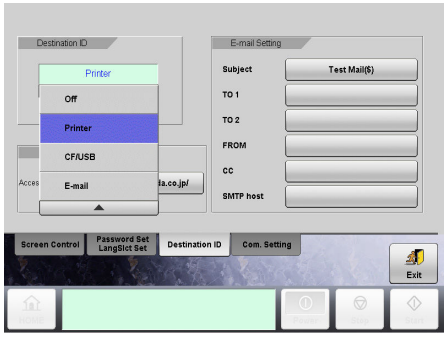
4.8.3 Destination ID Menu Screen

4.8.3.1 Destination ID

1. Touch the [Destination ID] tab key. The Destination ID menu screen appears.



2. Touch the [Destination ID] pop-up key, and select one from [Off, Printer, CF/USB or E-mail].



TIP

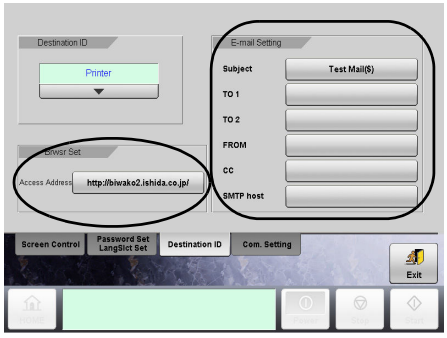
- Usually, select the [Printer].

4.8.3.2 Browser Setting

■ Set the [Access Address] accordingly.

4.8.3.3 E-mail Setting

■ Set each item of [Subject, TO 1...etc.] accordingly.



TIP

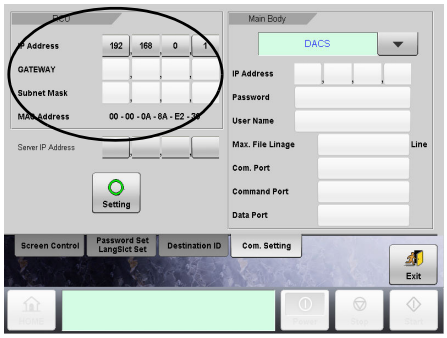
- This equipment should be connected to the network before setting.

4.8.4 Communication Set Menu Screen

■ Touch on the [Com. Setting] tab key. The [Communication Setting] menu screen appears.

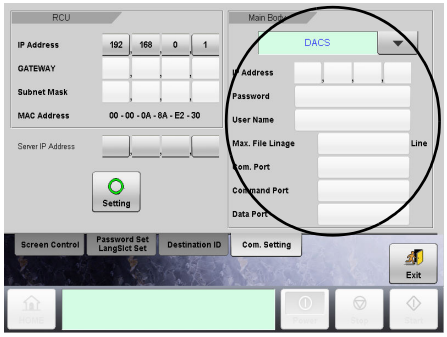
4.8.4.1 [RCU] Communication Setting

■ Set the [IP Address, GATEWAY, Subnet Mask] in RCU.



4.8.4.2 [Main Body] Communication Setting

■ Set the [IP Address, Password, User Name, etc.] in COM selected in the Main Body.

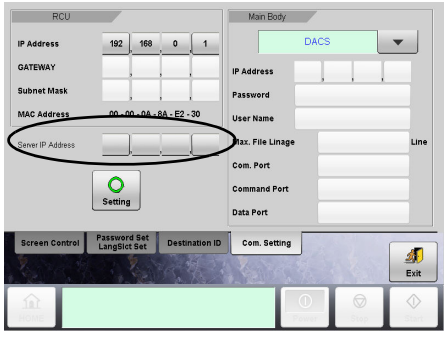


4.8.4.3 [Server IP Address] Setting

■ Set the Server IP Address.

■ When the machine is operated with i-STATION LINK2, input the same address as the RCU IP address and touch the [Setting] key.

The screen switches to the one with blue background. Be sure to wait for 30 seconds, and turn off the main power.



NOTE

- Be sure not to make an incorrect change. Otherwise, it may cause the communication failure.
- When the machine is operated with i-STATION LINK2, input the same address as the RCU IP address and touch the [Setting] key.
- When the screen switches to the one with blue background, be sure to wait for 30 seconds to turn off the main power.
- Turning off the main power at early timing may disable to switch to the correct IP address, resulting in “communication error”.

TIP

- At factory shipping, standard values are set; use them as they are.
- Change these values when interlocking with the computer after receiving the equipment.

4.9 Electrical System

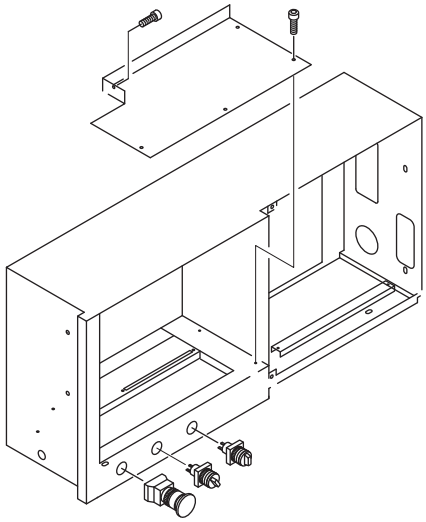
WARNING

- **Before replacing electrical components, make sure that the main power supply and motor power supply are turned OFF. Failure to do so can result in electrical shock.**

4.9.2 Relay Selector Switch Replacement

4.9.2.1 Front Switch Panel

1. Turn the main power OFF.
2. Swing the remote control unit.
3. Remove 5 screws and remove the switch plate.
4. Disconnect the cables that are connected to the switch.



NOTE

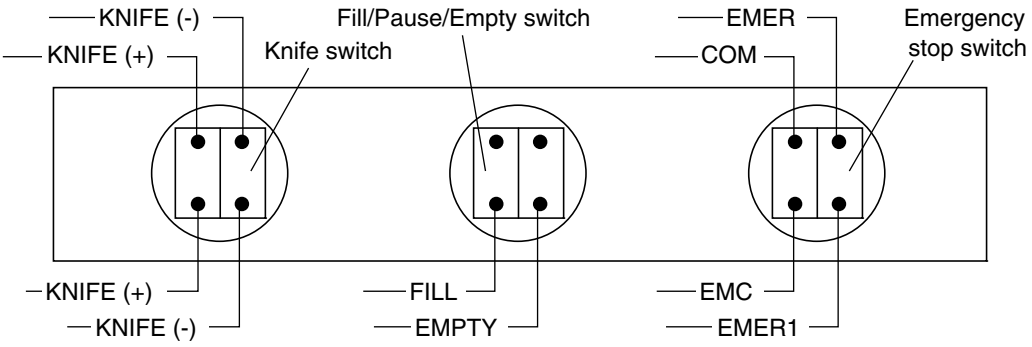
- Remove the cables in order, starting with the cable having the lowest number. (Refer to the tags attached to the cables.)
- Be sure wires are numbered.

5. Remove faulty switch.
6. Install the new switch.
7. Wire each switch.

NOTE

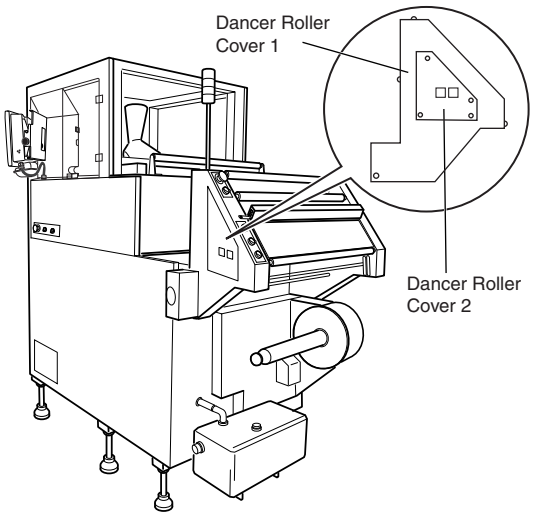
- The tags on the switch connecting cables are numbered as follows:

8. Reinstall all parts in the reverse order of removal.



4.9.2.2 Rear Switch Panel

1. Turn the main power OFF.
2. Loosen the four bolts, and remove the rear switch panel from the guide arm.
3. Disconnect the cables that are connected to the faulty switch.



NOTE

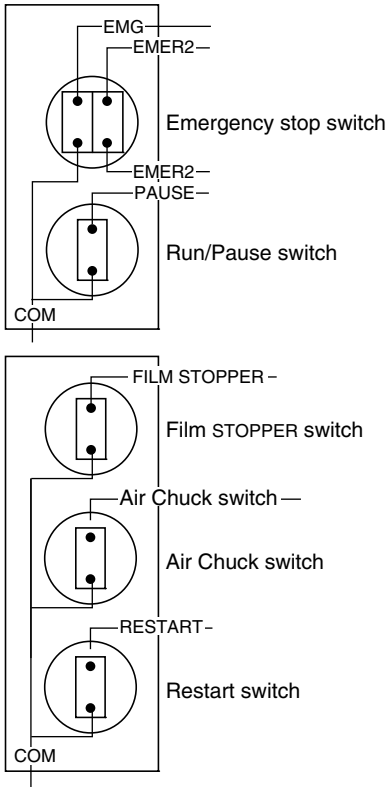
- Remove the cables in order, starting with the cable having the lowest number. (Refer to the tags attached to the cables.)
- Be sure wires are numbered.

4. Remove faulty switch.
5. Install the new switch.

NOTE

- Refer to the illustration about the tag numbers on the switch connecting cables.

6. Reinstall all parts in the reverse order of removal.



4.9.3 MCU Board

1. Turn the main power OFF.
2. Open the front cover.
3. Pull the handle forward, and swing the back seal unit out.
4. Turn the former release lever to the rear, and remove the former.

CAUTION

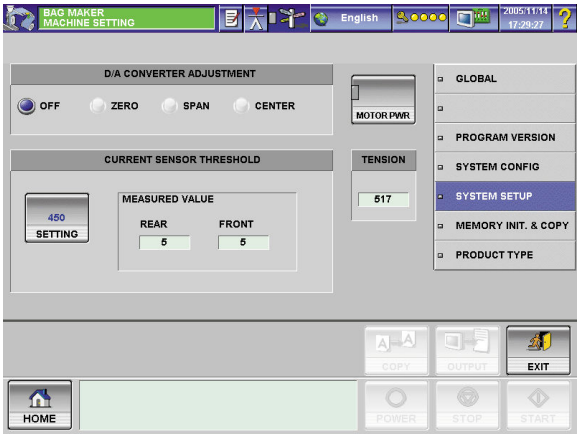
- **Be careful when handling the former. It is heavy.**

5. Remove the film roll.

NOTE

- Former and film must be removed to perform procedure!

6. Turn the main power supply ON.
7. Turn the motor power ON from Operation standby menu.
8. Enter the following password from the password screen:
   Password: 3720
   • The MACHINE SETTING screen will appear.

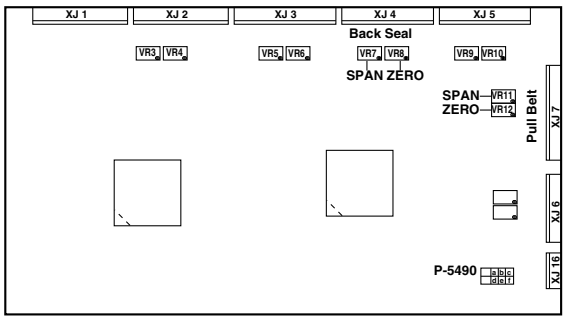


9. Press the following keys on the MACHINE SETTING screen to adjust D/A converter.
   • The left and right pull belt motor, back seal motor.
10. Press the ZERO key (ZERO adjust).
    Please check each servo driver display shows "3000". If a display shows out of "3000±2" range, please tune ZERO adjust trimmer for the servo driver on MCU Board with a small driver (Plastic point is preferable.) The display should show within "3000±2".

NOTE

- If a display does not show "3000±2" after tuning ZERO adjust trimmer, please refer to Appendix 2 and Appendix 3 and adjust the standard data. "500" in servo driver parameter Pr3.02. Then adjust ZERO / SPAN again.

MCU Board



11. Press the CENTER key.

12. Press the SPAN key (SPAN adjust).
    Please check each servo driver display shows "-3000". If a display shows out of "-3000±2" range, please turn SPAN adjust trimmer for the servo driver on MCU Board with a small driver. The display should show within "-3000±2".

13. If SPAN adjustment is performed.
    Please press the CENTER key again. Then press the ZERO key (ZERO adjust) and perform ZERO adjustment again as described in the above 11.

14. Press the STOP key after finishing each servo driver's ZERO (3000) and SPAN (-3000) adjustments.

NOTE

- If all values are within the standard range, press the EXIT key.

4.9.4 Replacing the Sensors

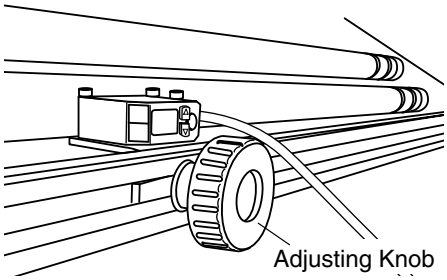
4.9.4.1 Eyemark adjustment

WARNING

- **Only authorized person can do this adjustment work.**

1. Turn the main power supply OFF.
2. The angle of the eye sensor (located at the rear of the machine) is measured when facing, and measuring upward from, the center of the sensor bar. Set the angle to the following value:

   Sensor angle: 0°



NOTE

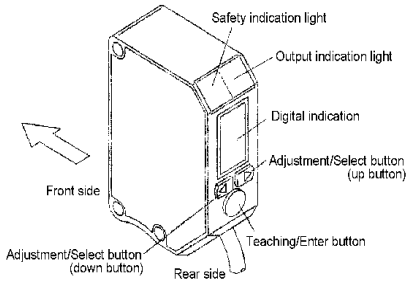
- Sensor sensitivity may need to be adjusted by slightly changing the angle of the sensor bar when the eyemark sensor amplifier, which will be mentioned later, is adjusted.

3. Turn the main power supply ON.

DANGER

- **Wear protective clothing and protective gloves to touch electrical components. Failure to do so can result in electrical shock.**

Name of Each Part



< Adjusting eyemark sensor >

WARNING

- **Exercise extreme caution when handling the eyemark sensor.**

1. Press the ▲▼ button for 2 seconds or longer in the RUN mode.
2. When the display is changed, press the ▲▼ button until the mark/color switch (CI) is displayed.
3. Press the [Teaching/Enter button].
4. Press the ▲▼ button to select the mark mode (0_I).

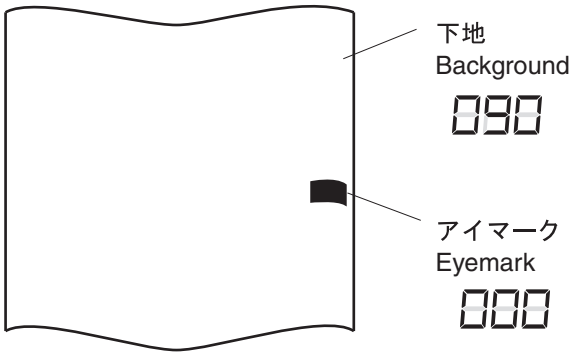
Two-point teaching in mark mode

1. Set the first point color (color for eyemark).
2. Press the [Teaching/Enter button].

   ▶"02P" is displayed in the display.

3. Set the second point color (color for film ground).
4. Press the [Teaching/enter button].

   ▶When the teaching is performed normally, it returns to the RUN mode.
   When an error occurs, "0Er" is displayed.
   Press the [Teaching/Enter button] to perform the two-point teaching.



NOTE

- For the film, the ground color is "90" or more and the eyemark color is close to "0."

Manual adjustment for threshold value

1. Press the ▲▼ button.

   ▶The threshold value is displayed, and the display blinks.

2. Press the ▲▼ button.

   ▶The threshold value is changed.

3. When proper threshold value is displayed, press the [Teaching/Enter button].

   ▶It returns to the RUN mode.

NOTE

- The standard threshold value is set to 50.

Compact Housing sensor

DM SERIES

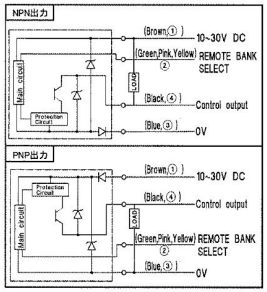
OPERATION MANUAL

- We appreciate you purchase our products. Please confirm the items to meet your need.
- Before the use, you should first throughly read this manual and operate correctly as mentioned.
- You should keep this manual at hand for proper use.

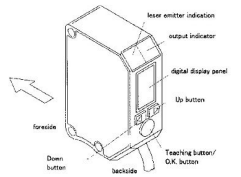
SPECIFICATION

Type	Cable type DM-18TC (N,P)	M8 Connector type DM-18TC (N,P)
Scanning range	18mm ± 2mm	
Supply voltage	DC10 ~ 30V including 10% ripple (P-P)	
Current consumption	40mA max.	
Response time	Mark mode: 0.25/0.5/1.2ms selectable Color mode: 0.8/1.6/4ms selectable	
Light source	R (634nm) / G (517nm) / B (469nm) Mark mode: 1 color (selected by teaching) Color mode: 3 color	
Indicator	Output indicator (Orange LED), Stable indicator (Green LED)	
Digital indicator	7 segment, 3 digits LED Green: Bank No. Red: Function, Status	
Control output	NPN/PNP Open collector 100mA max./ DC30V	
Operation mode	Light ON / Dark ON selectable	
Teaching	Mark mode: 2 point teach/Auto teach Color mode: 1 point teach	
Bank	8 bank	
Protection category/ material	IEC IP67 / Housing : heat-resistant ABS(antibacterial) Front cover : PMMA Button : TEEE	

INPUT/OUTPUT CIRCUIT DESIGN



PARTS OF NAME



Status Indicator

	Color mode	Mark mode
RUN mode	Indicate matching level compare to teaching color	Indicate remission
Thresh level adjust mode	Indicate thresh lebel. After teaching, thresh lebel is 80.	Indicate thresh level. After teaching, thresh lebel is 50.
Function select mode	Indicate selectable function.	

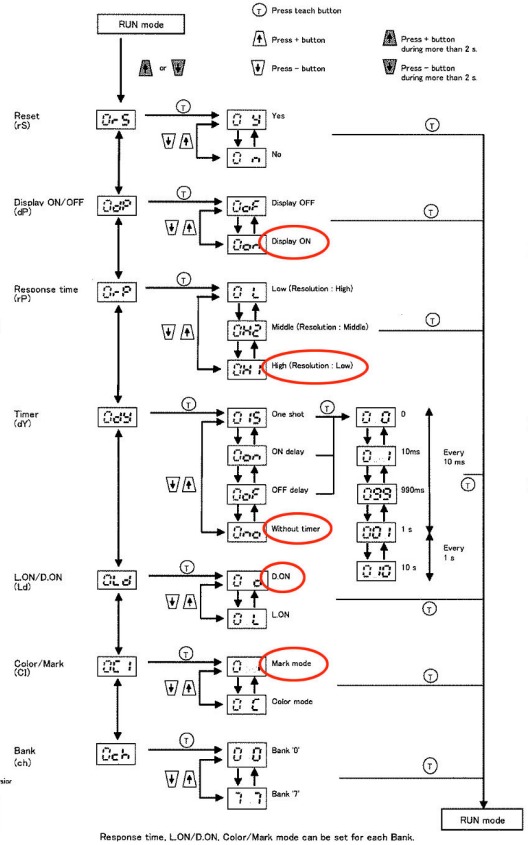
WARNINGS

For safety use

- Warm-up period (appx. 100 sec) must be secured.
- Should avoid to use sensor outside or at the place where receiver gets environmental illuminance directly.
- Gaps in indicated values and detection features might be happen due to dispersion

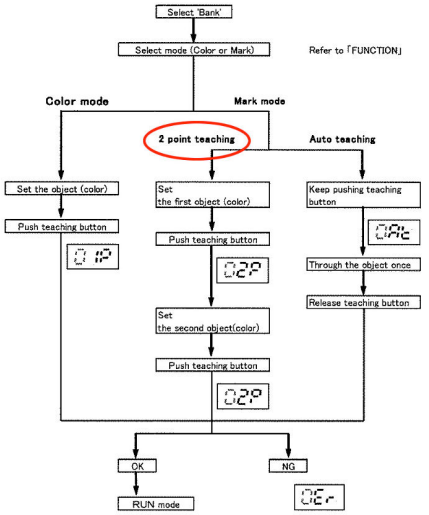
! Must not use this item as safety equipment for The purpose of human body protection.

FUNCTION



Response time, L.ON/D.ON, Color/Mark mode can be set for each Bank.

TEACHING



L. ON/D. ON

Color mode

L.ON Output is active when matched

D.ON Output is active when un-matched

Mark mode

L.ON Output is active when high remission color

D.ON Output is active when low remission color

When 2 point teach, 1st color will be ON. (L.ON/D.ON is selected automatically)

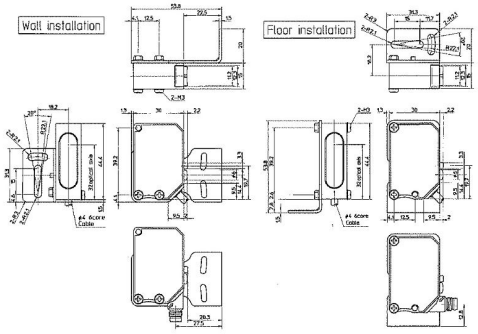
Key lock

Press both Up and Down button during more than 2 s

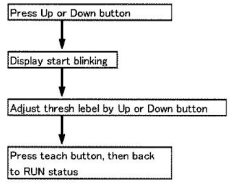
(Same procedure for unlock.)

DIMENSIONS

Unit: mm



MANUAL ADJUSTMENT OF THRESH LEVEL



If without pressing teach button buck to RUN status automatically after 10 s.

REMOTE BANK SELECT

Cable type

Bank No.	Green	Pink	Yellow
0	0	0	0
1	0	0	1
2	0	1	0
3	0	1	1
4	1	0	0
5	1	0	1
6	1	1	0
7	1	1	1

Connector type

Bank No.	No. 2 pin
0	0
1	1

Connector type can select only 1 and 2 by remoto selection.
(Function select by button is 8 banks.)

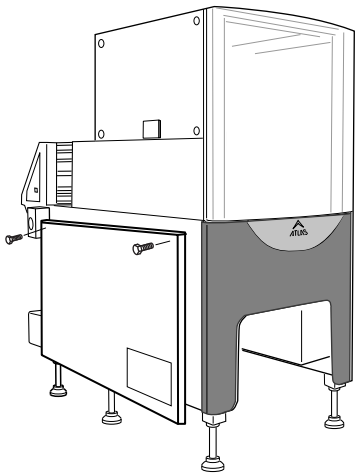
0	NPN	Open or connect to +V
	PNP	Open or connect to 0V
1	NPN	Connect to 0V
	PNP	Connect to +V

4.9.4.2 Vacuum Pressure Switch Sensor

NOTE

- The * symbol used with the serial number shown on the board represents the board version number.

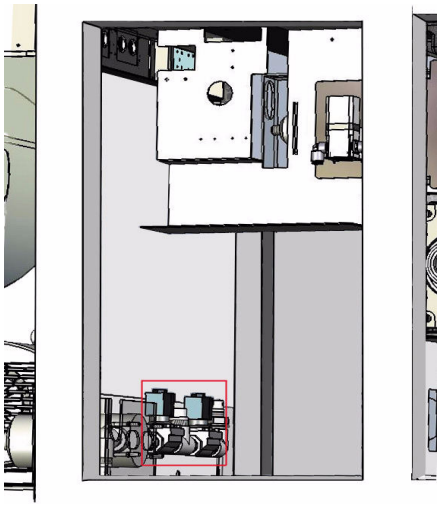
1. Turn the main power OFF.
2. Remove left lower cover.
3. Remove the XJ9 connector from the SCU2 (P-5492 *) board.



NOTE

- The connector of the vacuum pressure switch sensor cables have the following numbers:
  Connector Number (XJ9) : Color
  Pin 2 : Brown
  Pin 3 : Blue

4. Remove the vacuum pressure switch sensor.



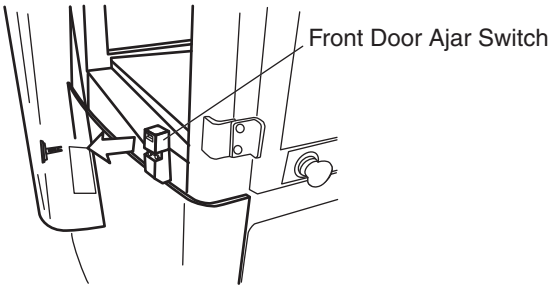
CAUTION

- **Make sure that the cable is inserted properly. If the machine is operated when the connect is substandard or the terminal is incorrect, the sensor can malfunction and / or damage can be caused.**

5. Install the vacuum pressure switch sensor.
6. Reinstall all parts in the reverse order of removal.

4.9.4.3 Front Door Ajar Switch

1. Turn the main power OFF.
2. Open the front cover.
3. Remove the front door ajar switch and bracket.
4. Loosen the screw at the bottom of the switch, and remove the cable.
5. Reattach the cable to the new switch.
6. Install the new switch into the main unit.
7. Reinstall all parts in the reverse order of removal.

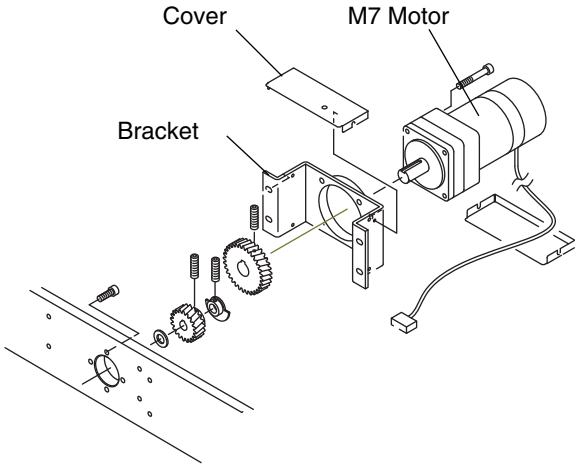


4.10 Shaker Unit (Option)

4.10.1 Replacing the M7 Motor

1. Turn the main power OFF.
2. Open the front cover.
3. Disconnect the two cables that are connected from the M7 servo driver to the M7 motor.
4. Remove the cover.
5. Loosen the allen screws, and remove the M7 motor from bracket.

   • M6 set bolt
   • Tool 5 mm hex wrench



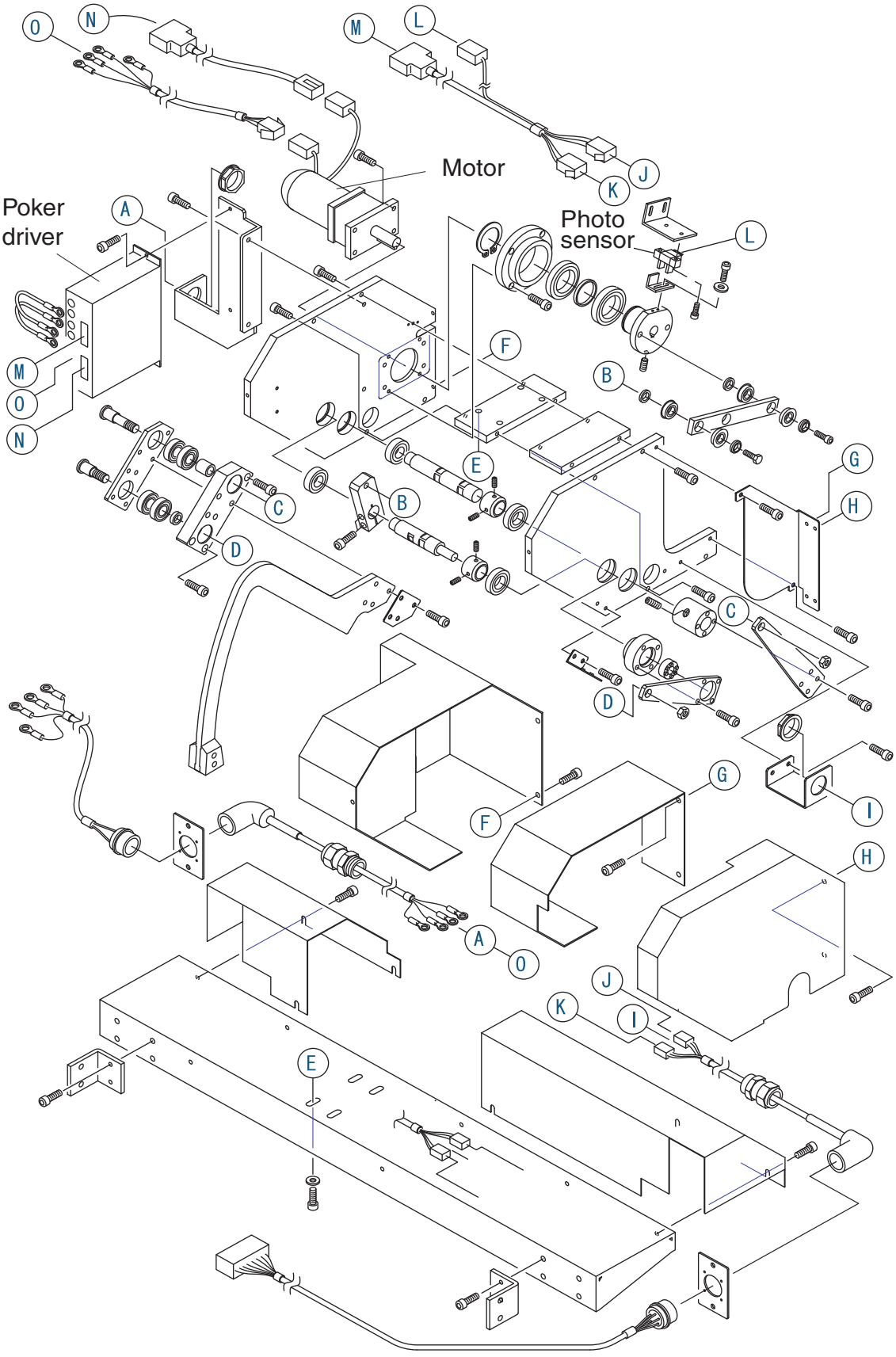
6. Attach the original gear to the new motor; then apply a small amount of graphite grease.

NOTE

- Replace the motor only. The gears are not included.

7. Install the new motor.
8. Reinstall all parts in the reverse order of removal.

4.11 Poker Unit (Option)



5 APPENDIX

5 APPENDIX

5.1 Program Installation Procedure from Web-RCU

CAUTION

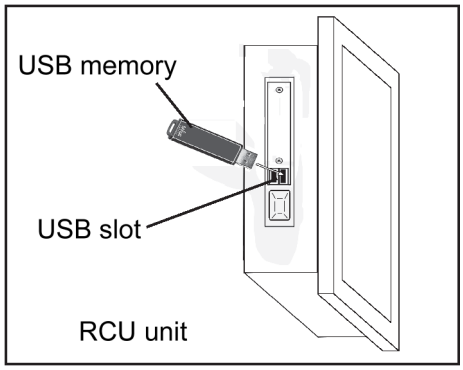
During the software installation or backup process, never turn off the power or remove the installation card.

NOTE

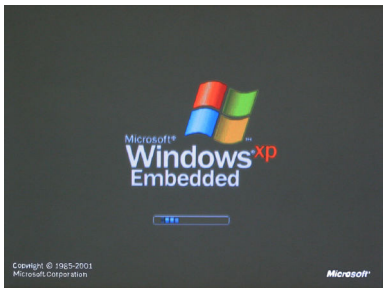
During installation or backup, the data is overwritten between the RCU and the main board. If the process is interrupted, the installation card may be broken, and the machine communication function may be disabled to restore. Wait while the screen in-process is displayed. Turn off the power or remove the installation card only after the process is completed.

5.1.1 Installation Software Start up

1. To the USB slot of RCU unit, insert a USB memory to which the installation software is written. Turn ON the main power.
2. An initial screen and the startup screen for Windows XP appear.

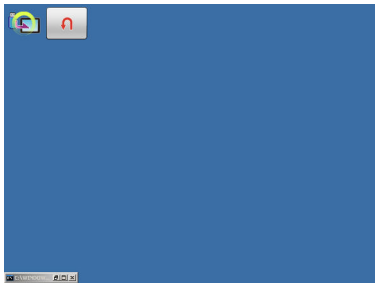


After that, the  key is displayed for five seconds. When this key is not touched, normal application starts up.



3. Touching the  key. A screen for "Install Drive Check" appears (Displayed for approximately 20 seconds at maximum).

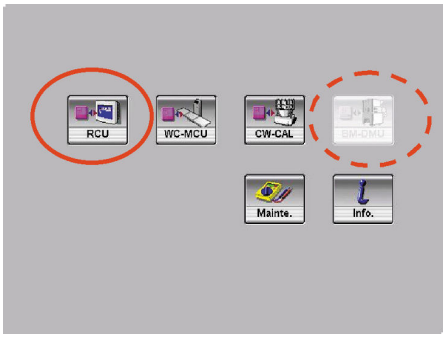
To cancel installation, touch the  key. The normal application starts up.



2. When the installation software starts up, the main menu screen shown as below appears.
   By touching these buttons on the main menu, various menus appear to enable the operations.

   In the example in the figure below, when the 

   key circled in a solid line is pressed, the main menu is switched to the menu to install or backup the RCU software. When the software to write in the installation card is not inserted, the key on the menu is faded as the area circled in a dashed line.



CAUTION

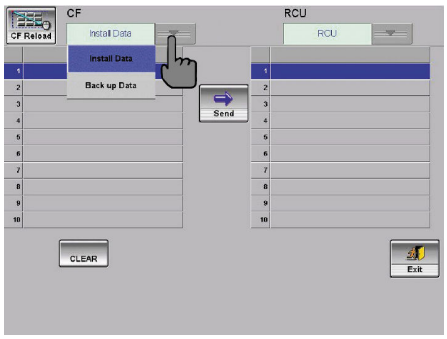
Before starting the software installation, be sure to backup the existing software to the installation card. Once the new software is written, the previous status cannot be restored without the installation card storing the previous software.

5.1.2 RCU Software Backup

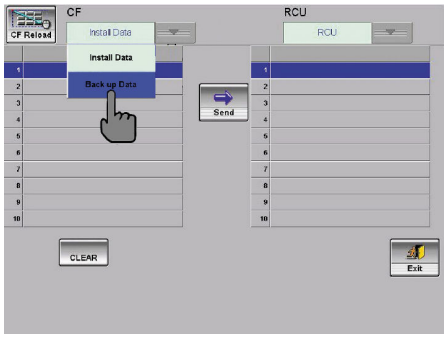
Before installing the new software, backup the written RCU software to the CF card.

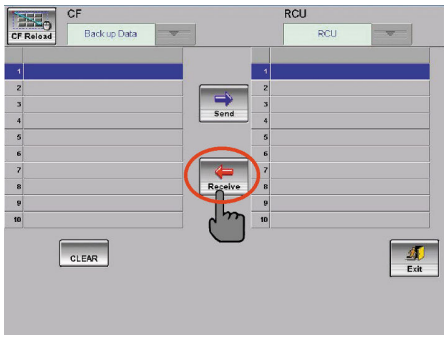
1. Press the 

key on the main menu screen.

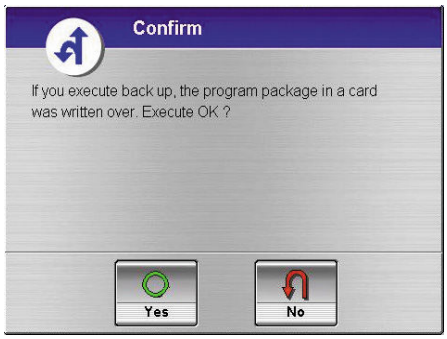


2. The installation screen appears. Press the CF drop-down key at the upper left of the screen. Select "Back up Data" from the list, and press the "Back up Data" key.

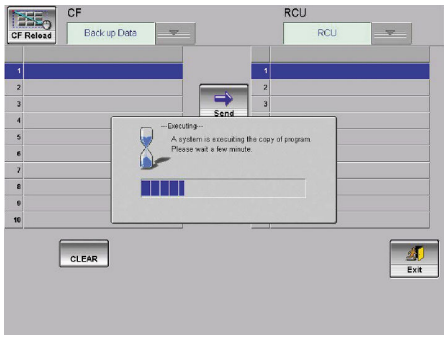




3. The Receive key as shown in the above figure appears. When the Receive key is pressed, the confirmation dialog screen appears to confirm whether or not to backup the RCU software.



4. Press the Yes key to backup.
   Press the No key to return to the previous screen.

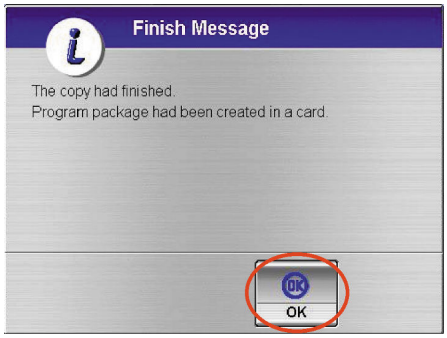


5. Press the Yes key on the confirmation screen to start the backup process. The backup process screen appears.
   The waiting time is approximately 5 minutes, depending on the software.

CAUTION

During the backup process, never turn off the power or remove the installation card.

6. When the backup process is completed, the Finish Message appears.

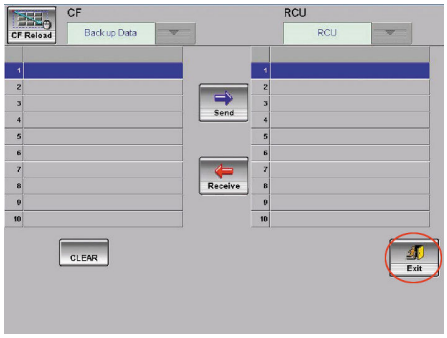


7. The RCU backup is completed. Press the 

key to return to the previous installation screen.

8. Press the 

key on the installation screen to return to the main menu screen.



5.1.3 RCU Software Installation

When the stored RCU software does not need the backup or when the backup process is completed, install the RCU software. The following two methods can be applied for the RCU software installation.

1. Install Software to Existing Model

   Install only the new software while keeping the existing parameter files for RCU.

2. Install Software Newly

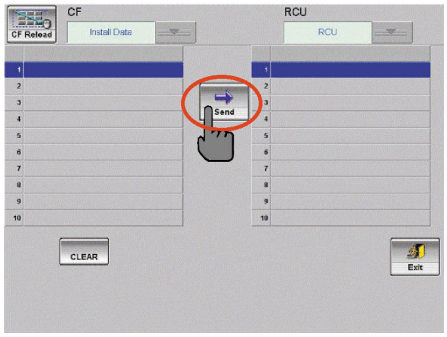
   Install the new software and the parameter file from the card when the parameter file for RCU is not existing or deleted.

Unless otherwise indicated, install the RCU software by the method "5.1.3.1. Installing Software to Existing Model" after the factory shipment.
Follow "5.1.3.1. Installing Software to Existing Model" after the existing parameter file for RCU is deleted.
The RCU parameter file includes the settings (displayed language, back light control time, etc.) made on the RCU control menu screen and the shot product images.

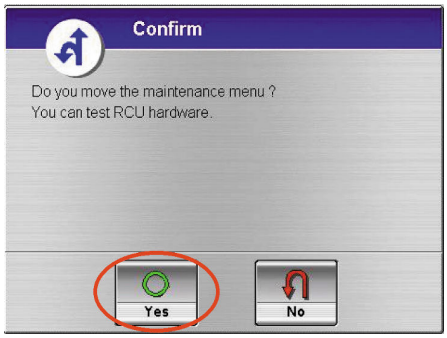
5.1.3.1 Installing Software to Existing Model

Install only the new software while keeping the existing parameter files for RCU.

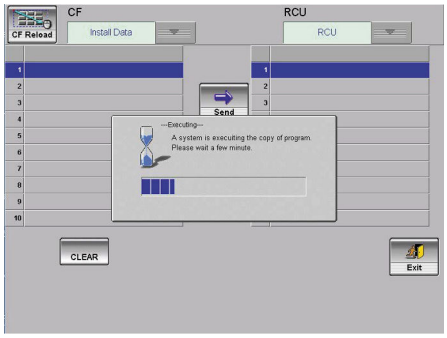
1. Press the RCU key on the main menu screen.
2. The RCU installation screen appears. Press the Send key.



3. The confirmation dialog screen appears to confirm whether or not to install the RCU software.
4. Press the Yes key to install.
   Press the No key to return to the previous screen.



5. When the Yes key is pressed on the confirmation screen, the installation process starts, and the installation process screen is displayed.
   The waiting time is approximately 5 minutes, depending on the software.

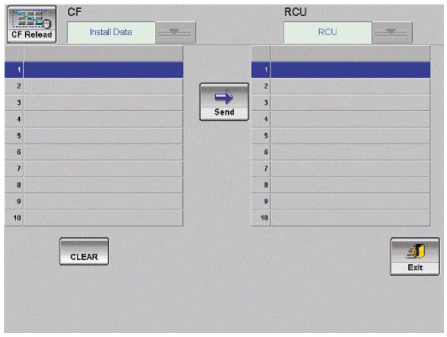


CAUTION

During the installation process, never turn off the power or remove the installation card.

6. When the backup process is completed, the Finish Message appears.
7. The RCU installation is completed. Press the OK key to return to the previous installation screen.

8. Press the Exit key on the installation screen to return to the main menu screen.
9. To reflect the result of software installation, turn off the power, remove the installation card from the slot, and turn ON the power again.



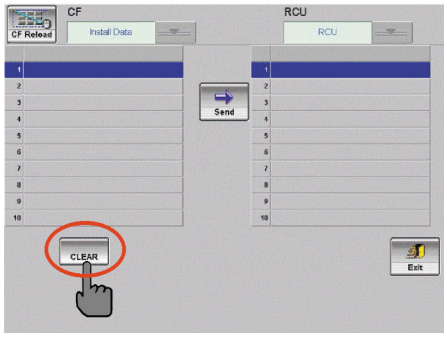
5.1.3.2 Installing Software Newly

Install the new software and the default parameter file from the installation card after the existing parameter file for RCU is deleted.

TIP

- Install the RCU software by the method "5.1.3.1. Installing Software to Existing Model" after the factory shipment unless otherwise indicated.
- Select "5.1.3.1. Installing Software to Existing Model" after deleting the existing parameter file for RCU.

1. Press the RCU key on the main menu screen.
2. The RCU installation screen appears. Press the CLEAR key.



3. The confirmation dialog screen appears to confirm whether or not to delete the RCU parameter file.
   Press the Yes key to delete the parameter file.
4. After deleting the parameter file, install the new software by referring to "5.1.3.1 Installing Software to Existing Model". When the existing parameter file is deleted, the default parameter file is automatically copied from the installation card.

ATLAS-204 Replacement procedure for RCU, BM-DMU, and the Main Software

A1. Overview

This manual describes how to replace the software for RCU, BM-DMU, and the main unit (MCU1, MCU2, SCU1, and SCU2).

When replacing the main software, the write procedure for the main software "Industrial Machinery 05-00059_write procedure for main software.doc" is necessary, in addition to this procedure manual.

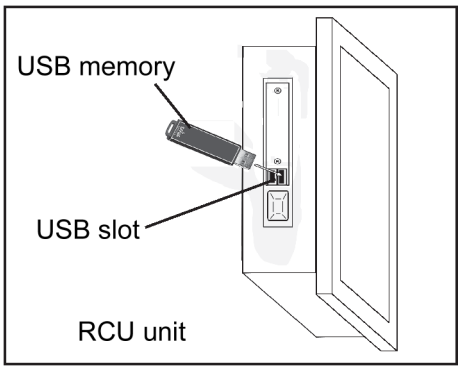
A2. USB Memory to be used and Storing File

When replacing RCU or DMU Software, the Installer Program File (W0002F) must be stored in the USB Memory, along with the file of each program.

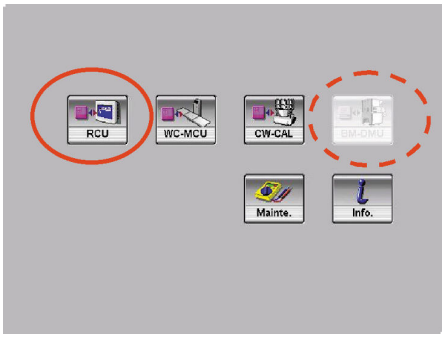
The folder for storing the program of RCU	RCU
The folder for storing the program of BM-DMU	BMDMU
The folder for storing the main unit program	BMFILE

A3. Replacement Procedure for RCU and BM-DMU Software

1. Turn off the main power before starting operation.
2. Insert the USB Memory into the slot of the ATLAS remote control.



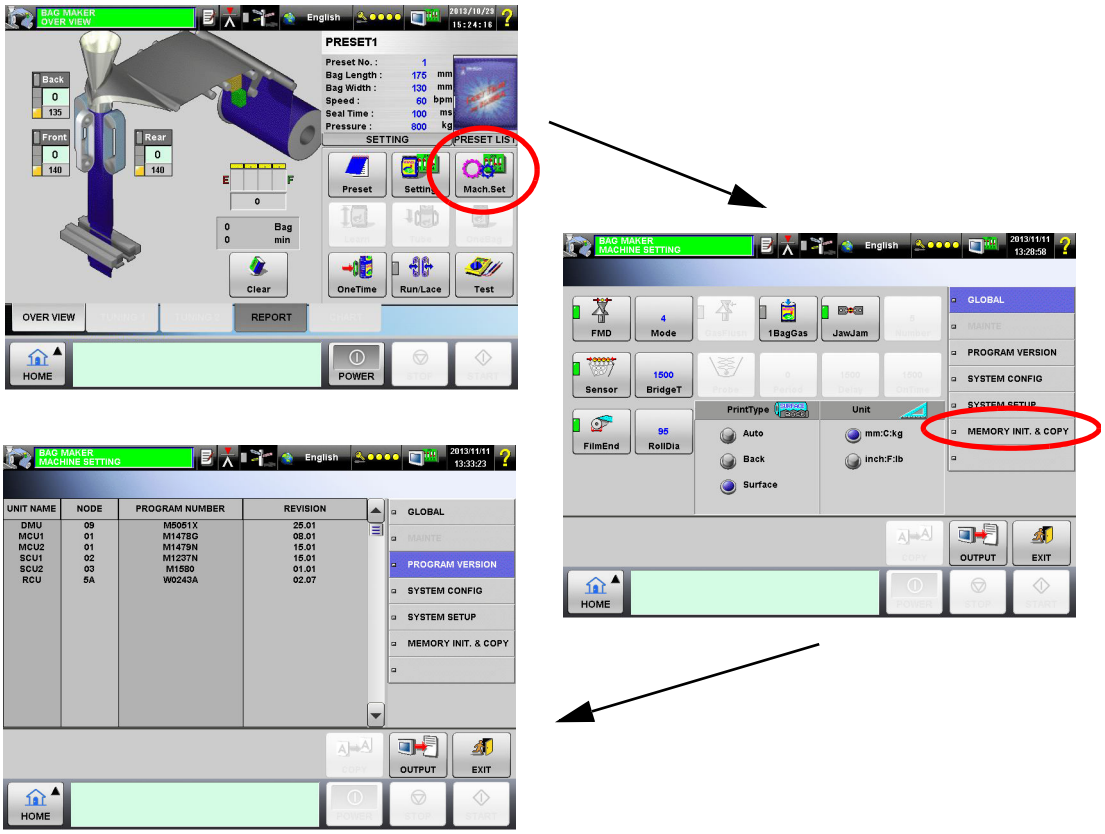
3. Turning on the main power starts the installation screen.



4. Press the [RCU] key as shown above to install the software for RCU.
5. Press the [BM-DMU] key as shown above to install the software for BM-DMU.
6. Remove the compact flash card from the slot and turn on the main power again.

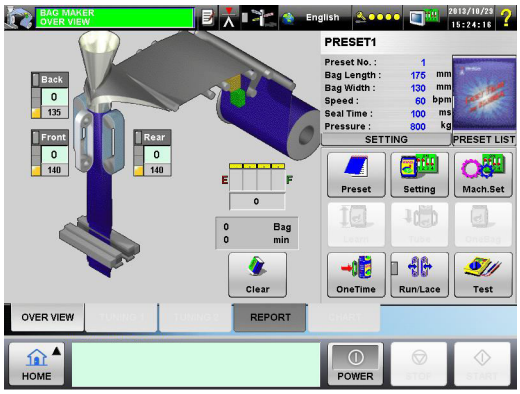
   When the remote screen is displayed, press the [Mach Set] Key on the OverView screen.

   Then press the [PROGRAM VERSION] key to confirm the program number.

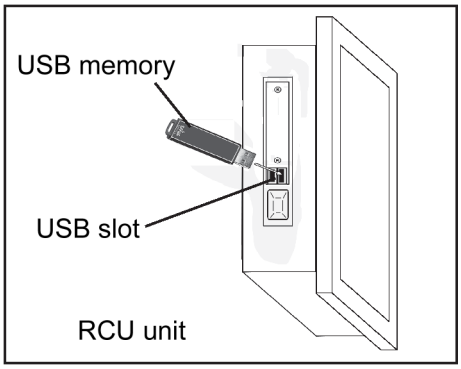


A4. Replacement Procedure for the Main Software

1. Turning on the main power before starting operation to display the operation screen of the bag maker.



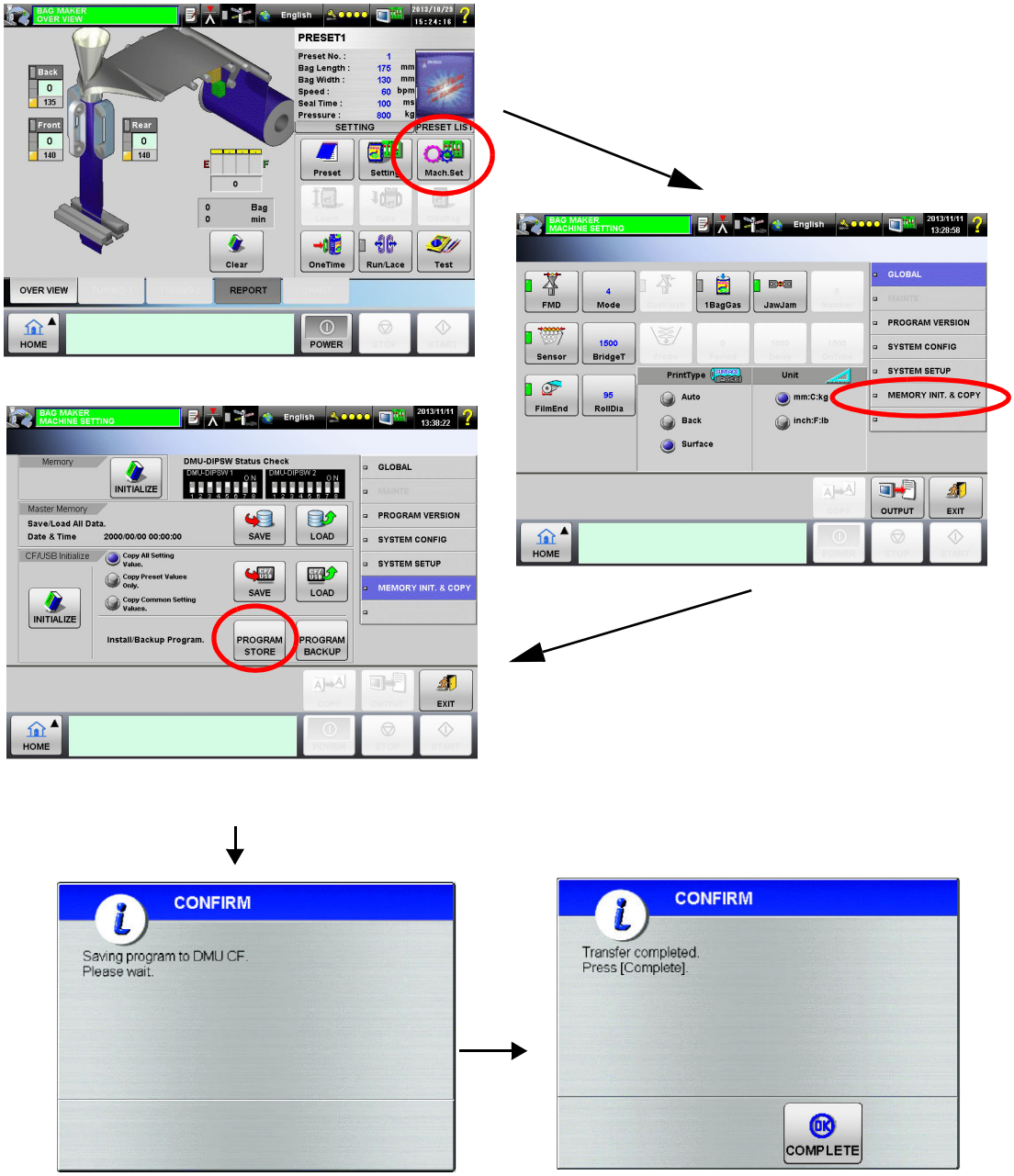
2. Insert the USB Memory into the slot of the ATLAS remote control.



3. Set the operation level to the Maintenance level.

   Press the [Mach Set] key on the OverView screen and press the [MEMORY INIT & COPY] key on the next screen.

   Then press the [PROGRAM STORE] key on the Memory Init & Copy screen.



When reansfer is completed, refer to the write procedure for the main software "Industrial Machinery 05-00059 write procedure for main software.doc" for main software writing.

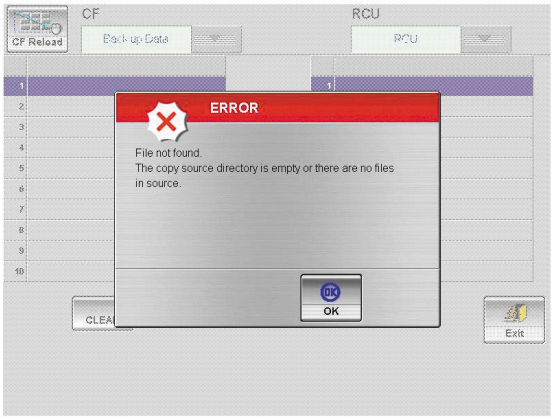
5.1.4 Errors during Installation and Backup

5.1.4.1 Error Display Screen

During the installation or the backup process for the RCU software, the error messages as shown below may appear.

- When an error occurs during the installation or the backup process for the RCU software, press the 

key to return to the previous screen and handle the error by referring to the below table.



Error during installation or backup of RCU software

Table 5-1 Countermeasures for Error during Installation or Backup

Trouble	Cause	Countermeasure
Necessary screen buttons are not displayed at the installation or backup.	1.The "program.inf" and program name are not matched. 2.The sum value of "program.inf" is incorrect. 3.The program for the installation is not included in the installation card.	Use the installation card including the correct programs.
The operation is paused after the following messages appear in the error dialog screen. - File not found. - The copy source directory is empty or there are no files in source.	1.There is no data to be correctly installed in the installation card. 2.The backup process is performed for the RCU program while the program does not exist in the RCU.	Use the installation card including the correct programs. The backup process cannot be performed without the existing program.
The operation is paused after the following messages appear in the error dialog screen. - Network connection error. - Can not connect to main board. - Reboot this Machine.	The Ethernet is not connected or improperly connected between the RCU and the main unit.	Pause the installation operation, and check if the machine starts up correctly. Without establishing the network, installation or backup of the main program cannot be performed.

Table 5-1 Countermeasures for Error during Installation or Backup (Continued)

Trouble	Cause	Countermeasure
The operation is paused after the following messages appear in the error dialog screen. - Data send error! - Reboot this Machine.	"40 PCCard access error." Since the CF card does not exist on the main board, the error occurs during the installation and backup.	Insert the CF with the appropriate program to the main board.
	"*** download name check error." or "*** download version check error." or "*** download sum check error." The program name or sum value defined in the *** program does not match "program.inf". The program with an incorrect version may be tried to be installed.	Check the installation data.
The operation is paused after the following messages appear in the error dialog screen. - Data send error! - Reboot this Machine.	"*** start address error." or "***program download error." The contents in the *** program cannot be read. The installation data may be broken, or a different program type is operated.	Check the installation data.
	"73 *** DIPSW error." The DIP switch setting is incorrect.	Check the DIP switch on the *** board.
The error messages other than those above appear in the message box.	Errors occur during the internal process.	After rechecking the installation data and no error is found, inform the recorded error message to the manufacture.

5.1.5 Maintenance level

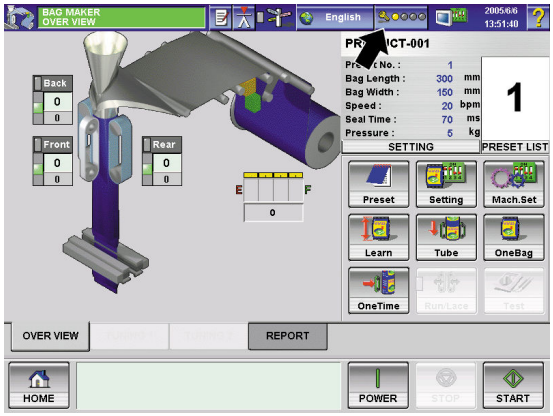
When switching the operation level to the Maintenance level, the password for the Maintenance level is required.
Follow the procedure to switch to the Maintenance level.

1. Press the operation level key  on a screen.

   ▶The screen to select the operation level will appear.

2. Select the Maintenance level.

   ▶The keyboard to enter the password will appear.



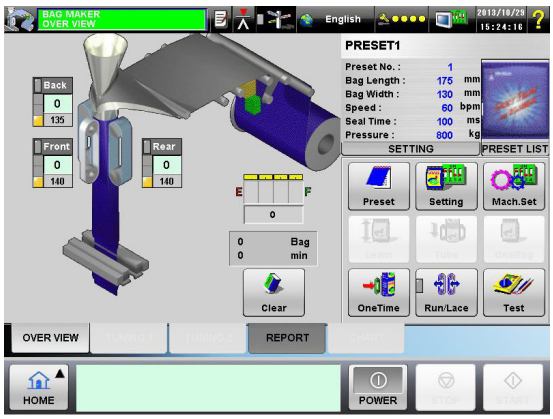
3. Enter the password for the Maintenance level.

   ▶The Operation Standby screen for the Maintenance level will appear.

4. Press the 

key.

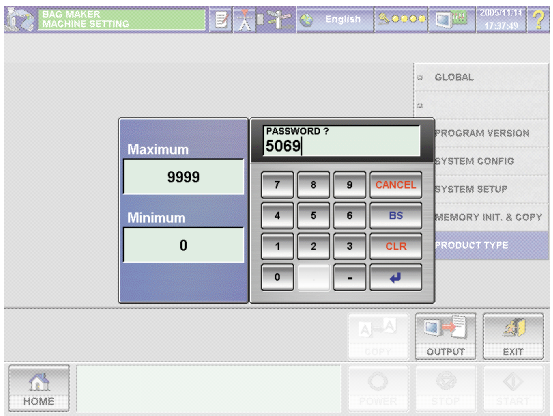
   ▶The MACHINE SETTING screen will appear.



5.1.5.1 SYSTEM CONFIG

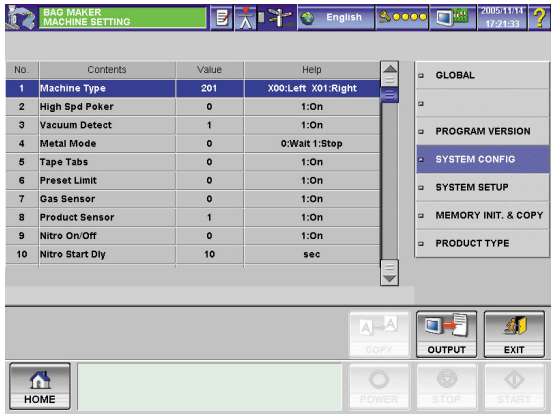
1. Press the [SYSTEM CONFIG] index.

   ▶The keyboard to enter the password will appear.



2. Enter the password "5055+(date×2)"= four figures.

   ▶The SYSTEM CONFIG screen will appear.



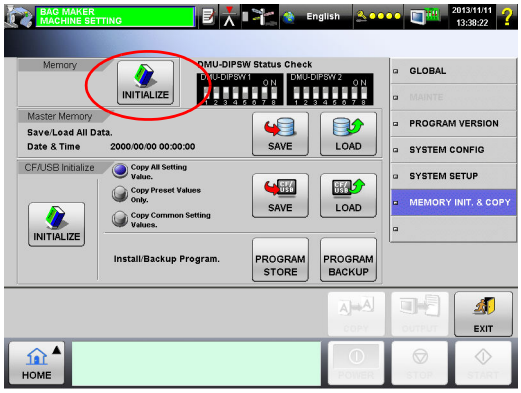
5.1.5.2 Memory Initialization

NOTE

- Before executing memory initialization, ensure to perform [Save All Setting Values] to the USB memory for backup purpose.

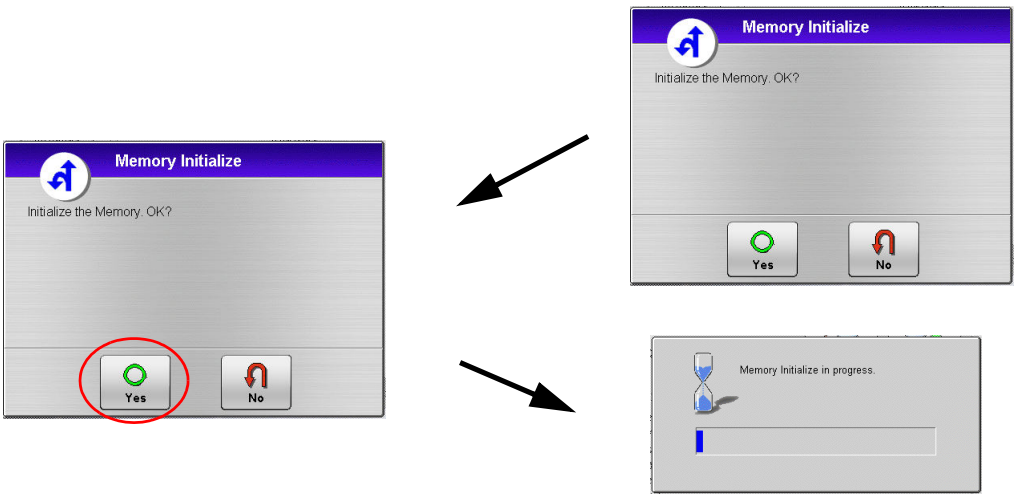
1. Press the Initialize key of [Memory].

   The confirmation screen appears.

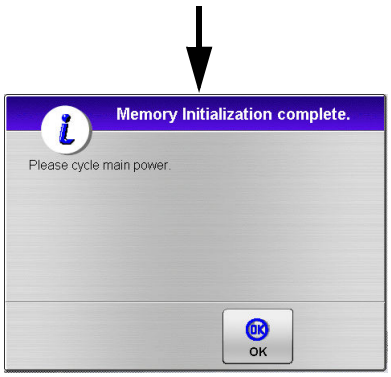


2. Press the Yes key to initialize the memory.

   To cancel restoration, touch the No key, and the screen returns to the previous screen.



3. When memory initialization completes, a message "Turn On the power again." appears.
   Touch the [OK] key, turn off the power according to the guidance, and restart the system. (Memory initialization is executed at restart.)



5.1.5.3 Master Memory

Master Memory contains the setting data according to the machine specification (all setting data), and is saved in the CF memory at factory shipping.

When the setting values as "Machine set values" or "Preset values" need to be returned to the original data after changed, Master Memory is required to be restored.

In saving the setting data in the CF memory after setting new "Machine set values" or "Preset values", save these values in Master Memory.

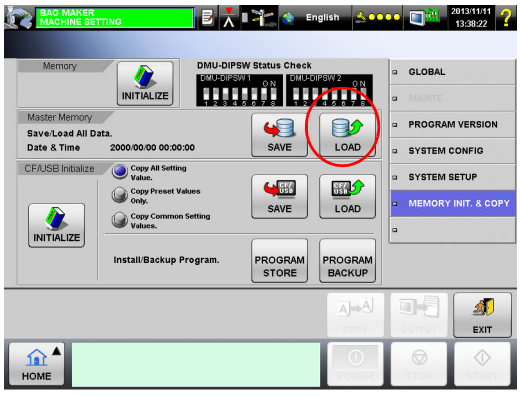
Restoration from Master Memory

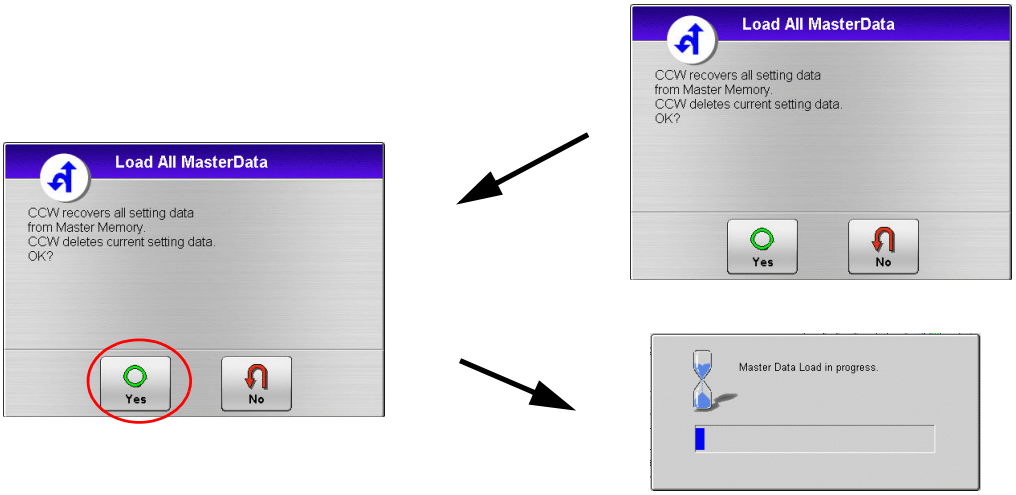
TIP

- Even when wrong setting has been made by user or memory initialization has been mistakenly performed, [Restore All Setting] in [Master Memory] enables to return the data to the setting data when [Save All Setting to Master Memory] is last executed.

1. To restore data from Master Memory, touch the [Load] key.
2. A confirmation screen appears for restoration from Master Memory. To perform restoration, touch the [Yes] key.

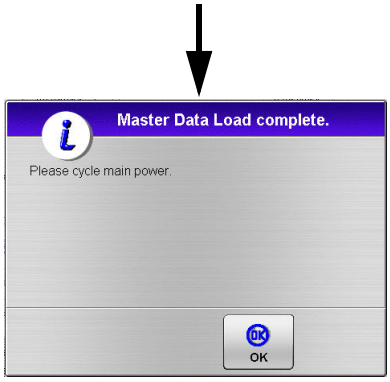
   To cancel restoration, touch the [No] key, and the screen returns to the previous screen.





3. When restoration from Master Memory completes, the [Completion] screen appears.

   When a message, "Turn on the power again." appears, turn off the power and restart the system. (Master Memory restoration is executed at restart.)

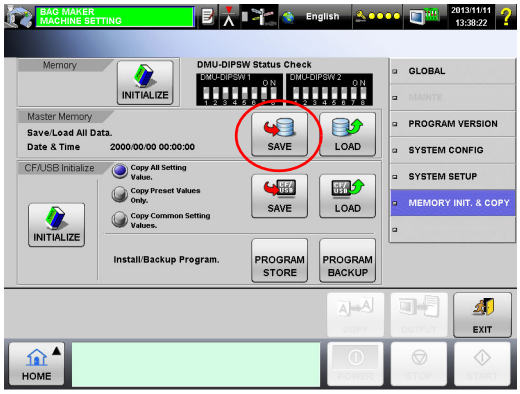


Saving data to Master Memory

NOTE

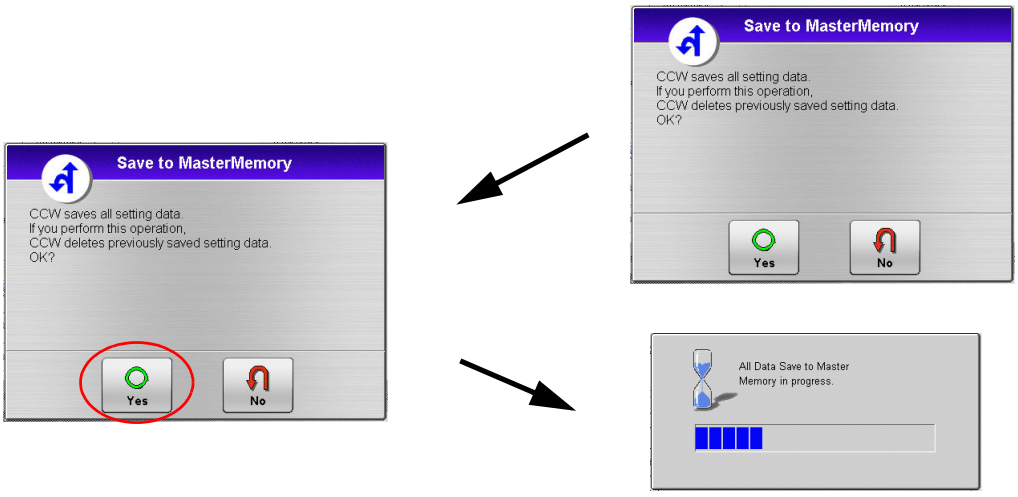
- Saving the setting data to Master Memory after performing "Machine set" or "PresetÅh will overwrites the setting data of Master Memory, which means the previous setting data is deleted.
- When "Machine set" or "Preset" is additionally changed after delivery, ensure to save Master Memory to the CF memory in DMU board by [Save Master Memory].

1. To save all the setting data to Master Memory, touch the Save key.



2. A confirmation screen appears for saving data to Master Memory. To perform saving, touch the Yes key.

   To cancel saving, touch the No key to return to the previous screen.



3. When saving to Master Memory is completed, the [Completion] screen appears.

   Touching the OK key saves all the setting value to Master Memory, and the screen returns to the previous one.

5.1.5.4 CF/USB Initialization

The CF/USB initialization function enables to save "All Setting Value", "Machine Set Value"," Preset Value" after delivery to the USB memory, and restore them from the USB memory to the CF memory in DMU board.

TIP

- After delivery, user can temporarily save "All Setting Value" into the USB memory in replacing the CF memory in DMU board. After replacement, the data can be restored to the CF memory in DMU board from the USB memory.

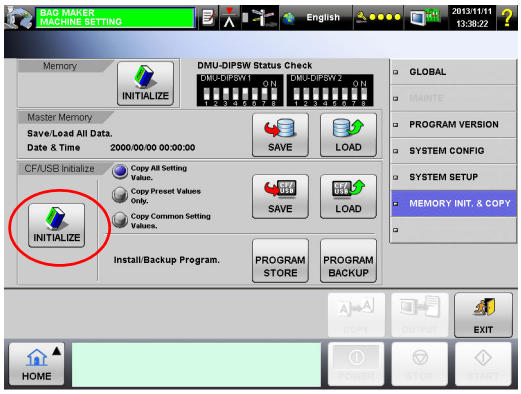
NOTE

- When the machines have same specification and the same model, "Machine Set Value" and "Preset Value" can be saved from one machine to the USB memory, restored in or copied to another machine from the USB memory.
  (When the software versions are different, this operation is not always successful.)

1. To perform USB initialization, touch the 

key.

   A confirmation screen appears for USB initialization.

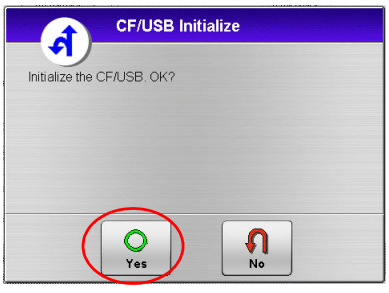


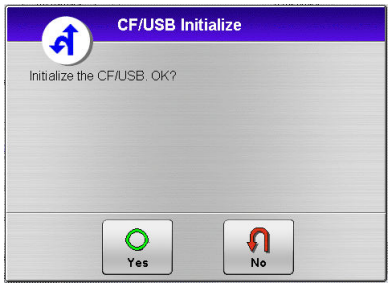
2. To perform initialization, touch the 

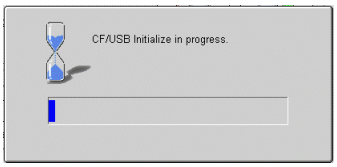
key.

   To cancel initialization, touch the 

key to return to the previous screen.

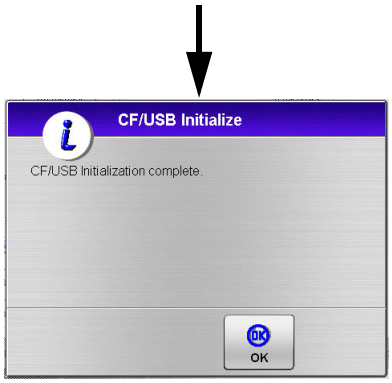




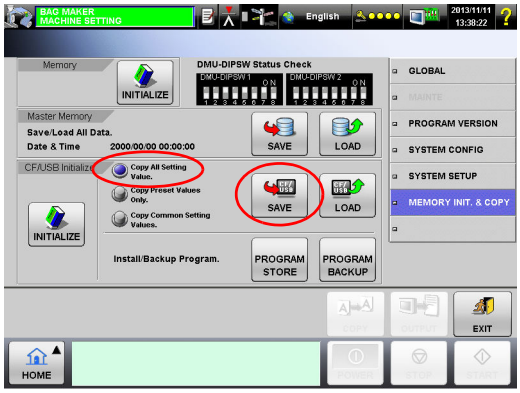


3. When the USB initialization completes, a message "Turn ON the power again." appears.

   Touch the OK key, turn off the power, and restart the system.
   (Memory initialization is executed at restart.)

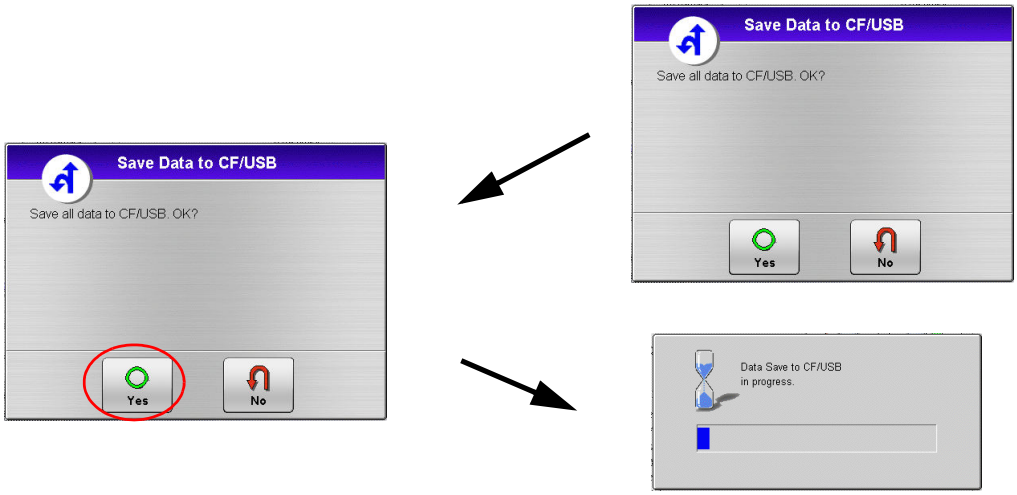


4. To save "All Setting Data" to USB memory, touch the [Copy All Setting Data] key, and touch the Save key.



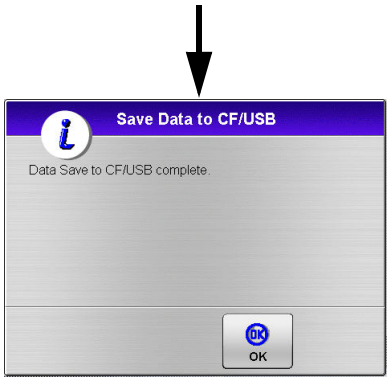
5. A confirmation screen appears for saving to the USB memory. To perform saving, touch the Yes key.

   To cancel saving, touch the No key to return to the previous screen.

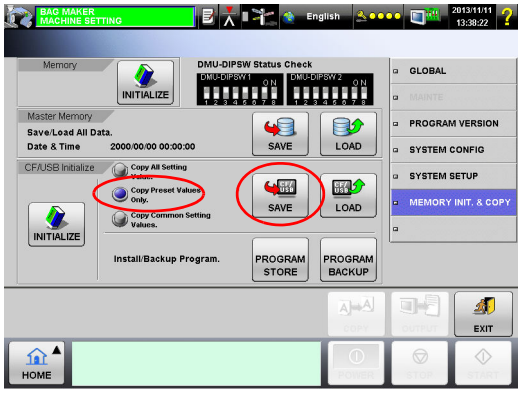


6. When saving [All Setting Value] to the USB memory completes, the [Completion] screen appears.

   Touching the OK key returns to the previous screen.

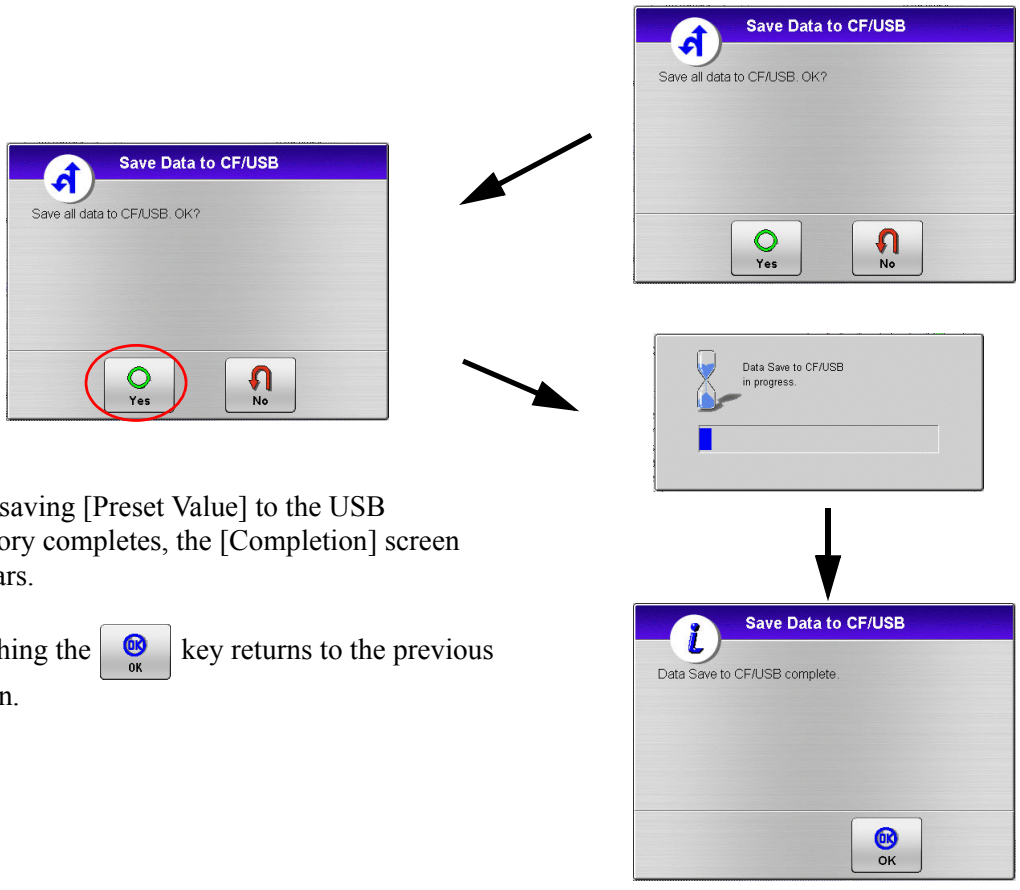


7. To save "Preset Value" to the USB memory, touch the [Copy Preset Value] key, and touch the Save key.



8. A confirmation screen appears for saving data to the USB memory. To perform saving, touch the Yes key.

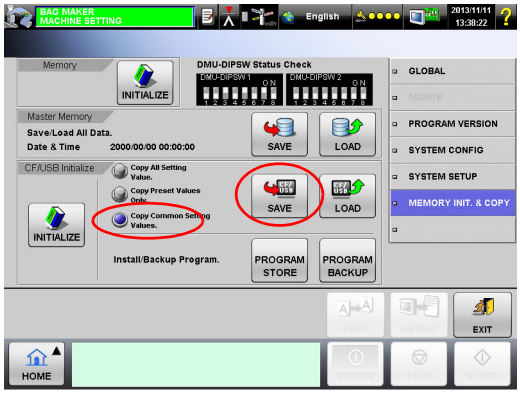
   To cancel saving, touch the No key to return to the previous screen.



9. When saving [Preset Value] to the USB memory completes, the [Completion] screen appears.

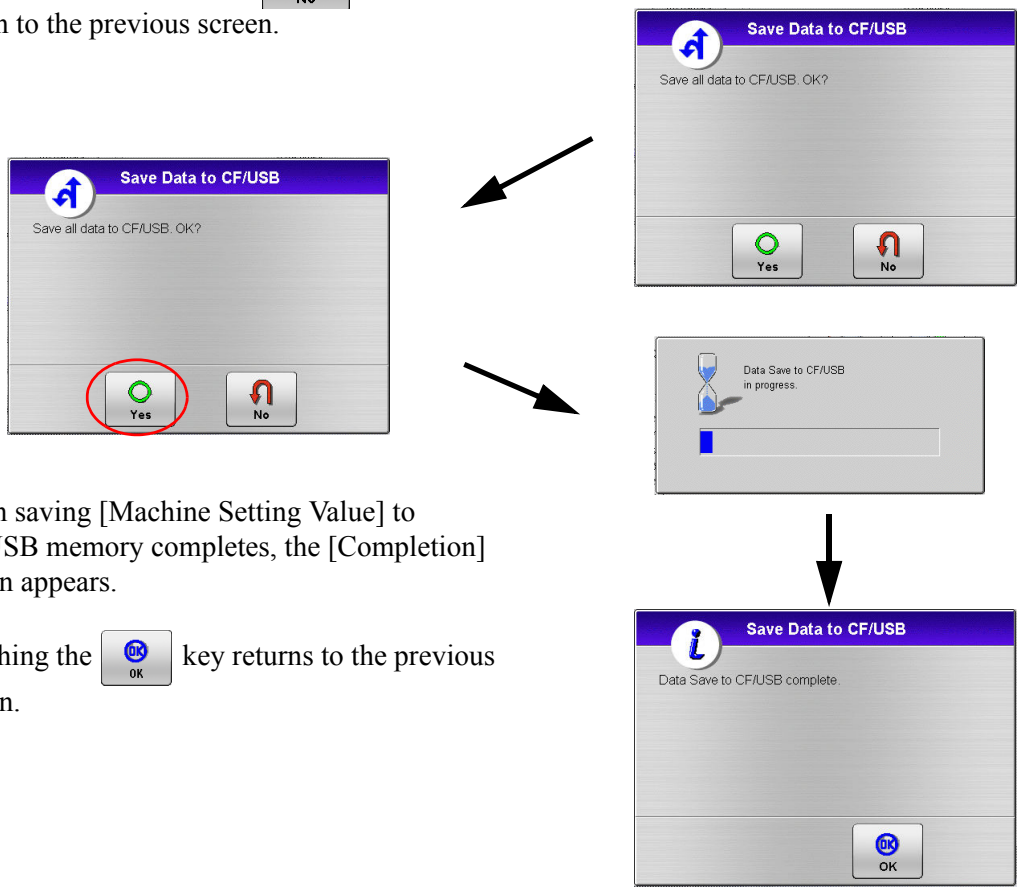
   Touching the OK key returns to the previous screen.

10. To save "Machine Setting Value" to USB memory, touch the [Copy Machine Setting Value] button, and touch the Save key.



11. A confirmation screen appears for saving data to the USB memory. To perform saving, touch the Yes key.

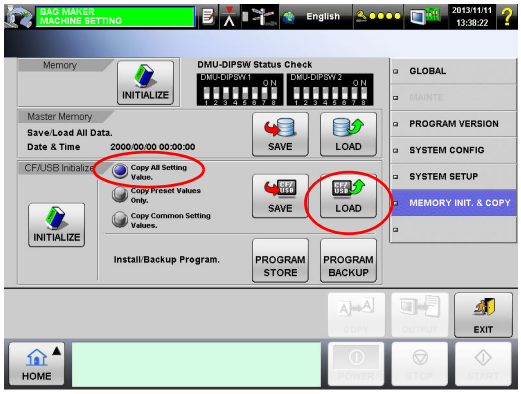
    To cancel saving, touch the No key to return to the previous screen.



12. When saving [Machine Setting Value] to the USB memory completes, the [Completion] screen appears.

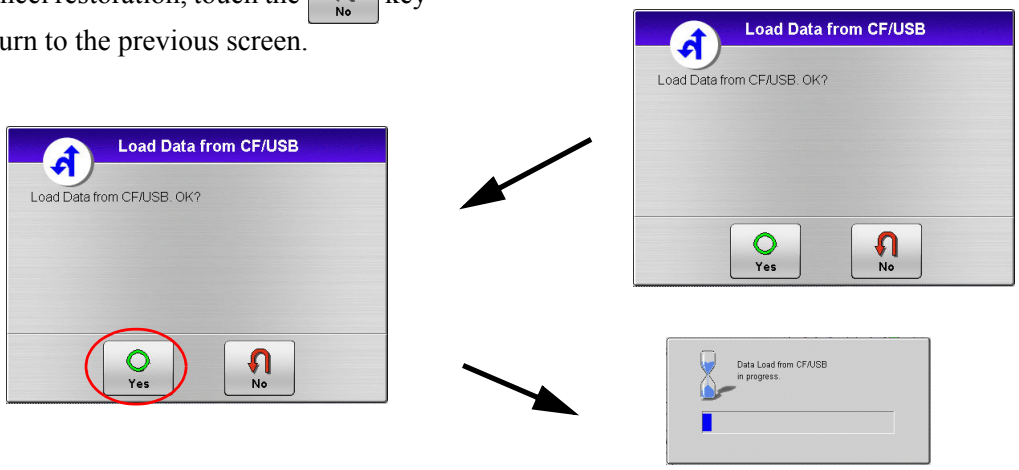
    Touching the OK key returns to the previous screen.

13. To restore "All Set Value" from the USB memory, touch the [Copy All Setting Value] button, and touch the [Load] key.



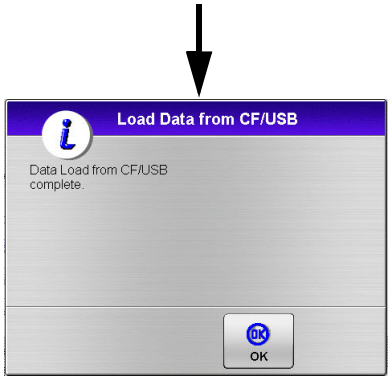
14. A confirmation screen appears for restoring the data from the USB memory. To perform restoration, touch the [Yes] key.

To cancel restoration, touch the [No] key to return to the previous screen.

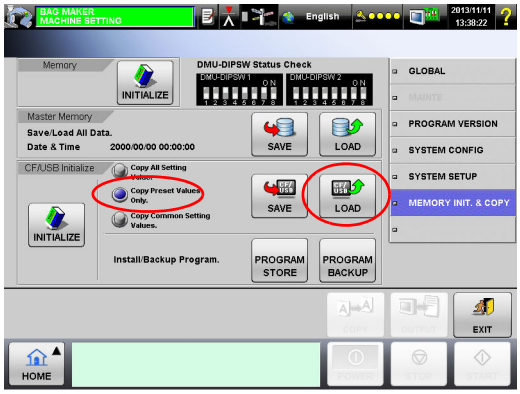


15. When restoration of "All Setting Value" from the USB memory completes, the [Completion] screen appears.

Touching the [No] key returns to the previous screen.

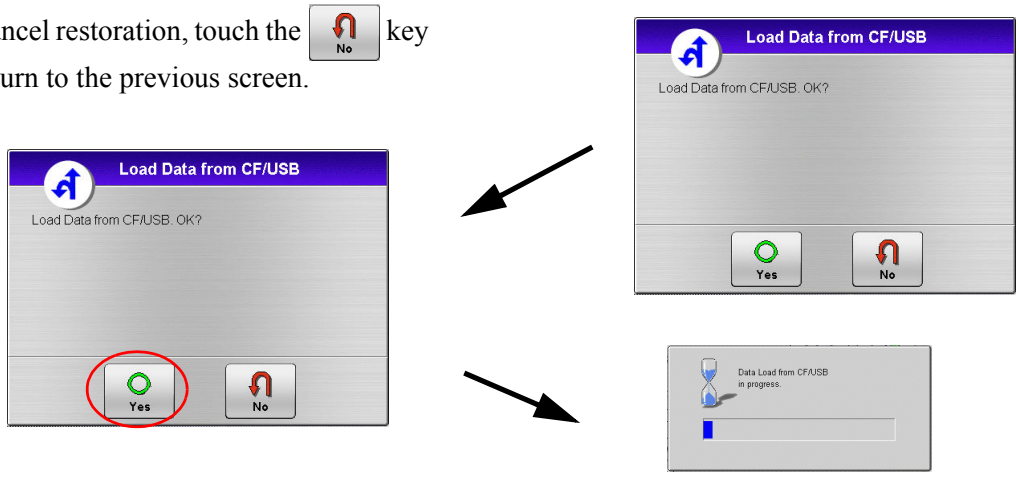


16. To restore "Preset Value" from the USB memory, touch the [Copy Preset Value] button, and touch the Load key.



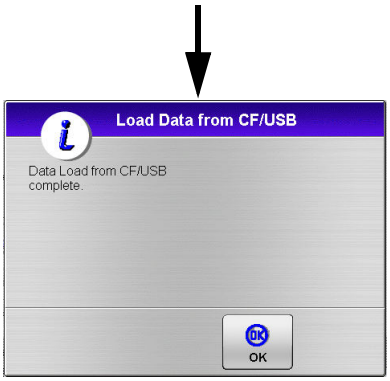
17. A confirmation screen appears for restoring the data from the USB memory. To perform restoration, touch the Yes key.

    To cancel restoration, touch the No key to return to the previous screen.

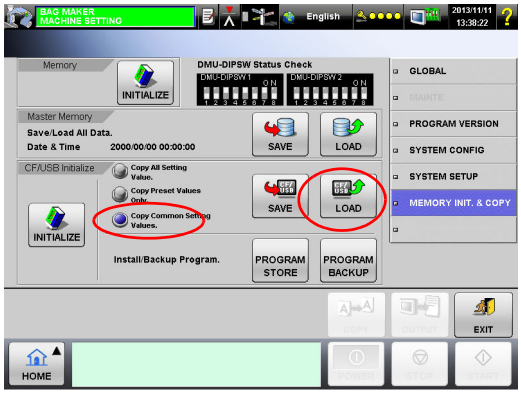


18 When restoration of "Preset Valu" from the USB memory completes, the [Completion] screen appears.

    Touching the OK key returns to the previous screen.

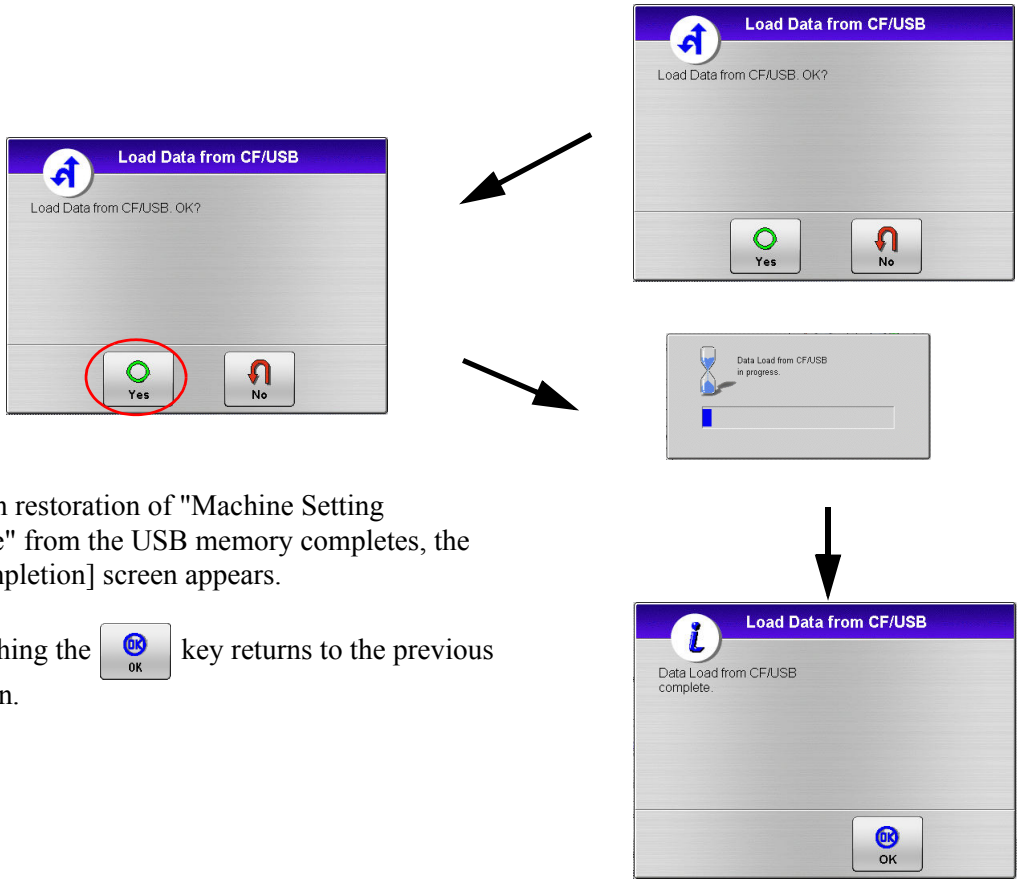


19. To restore "Machine Setting Value" from the USB memory, touch the [Copy Machine Setting Value] button, and touch the Load key.



20. A confirmation screen appears for restoring the data from the USB memory. To perform restoration, touch the Load key.

    To cancel restoration, touch the No key to return to the previous screen.



21. When restoration of "Machine Setting Value" from the USB memory completes, the [Completion] screen appears.

    Touching the OK key returns to the previous screen.

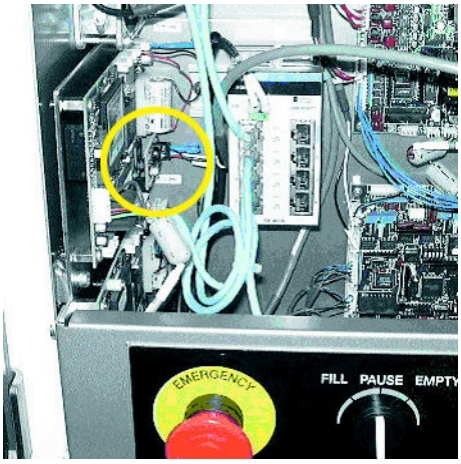
5.2 DMU Board and MCU/SCU Board Software Installation Procedure

5.2.1 INTRODUCTION

This is a procedure of software installation for ATLAS-204/234 main body which has flash memory type micro processing unit (MITSUBISHI M16C).
Referential program and boards are as below.

Programme	Board	Micro Processing Unit	Installation Connector
MCU1	P-5547*	IC20	XJ23
MCU2		IC23	XJ21
SCU1	P-5548*	IC19	XJ19
SCU2	P-5549*	IC10	XJ23

Mount communication board (P-5475*) to each installation connector and then connect the cable coming from BM-DMU board (P-5562-4, yellow circled in below) to the connector (J791) on this communication board.



⚠ WARNING

- **Do not connect the installation cable from BM-DMU board directly to installation connectors on each board without mounting the communication board (P-5475*).**

When ATLAS-204/234 is dispatched from the victory, communication board (P-5475*) is mounted on the installation connector of SCU1 (XJ19 of P-5548*). Mount the communication board to a relevant installation connector for program to be installed.
Put back the communication board (P-5475*) to the original position (XJ19 of P-5548*) after program installation is completed.

5.2.2 Main Body Software Installation

If power supply is turned on with the corresponding harness wiring and dipswitch settings on each board, software writing starts automatically.

Software writing status is displayed with LED (H12-H15) on DMU board.

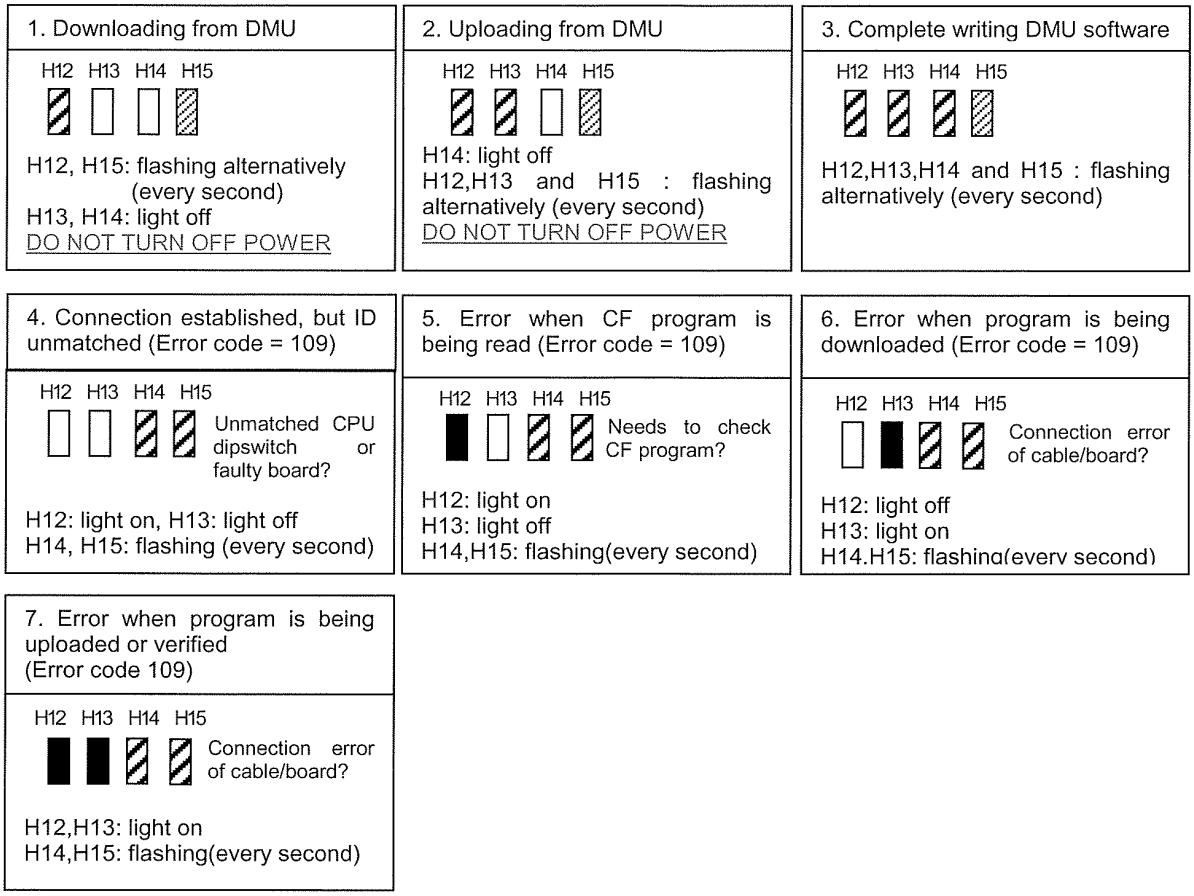
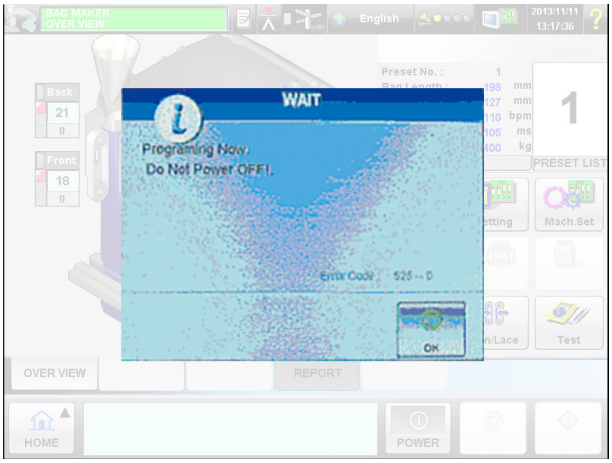


Fig. 5-1 Software writing status is displayed with LED (H12-H15) on DMU board.

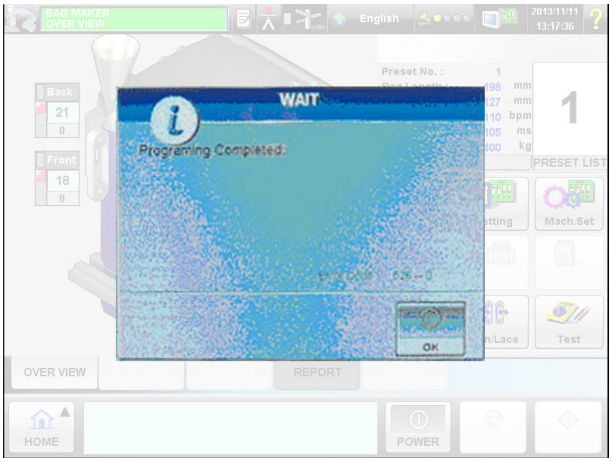
When WEB-RCU boot up is made during DMU software writing procedure, the display showing software writing process is showed up.
Press OK button at the right bottom of the message in order to turn off alarm buzzer.



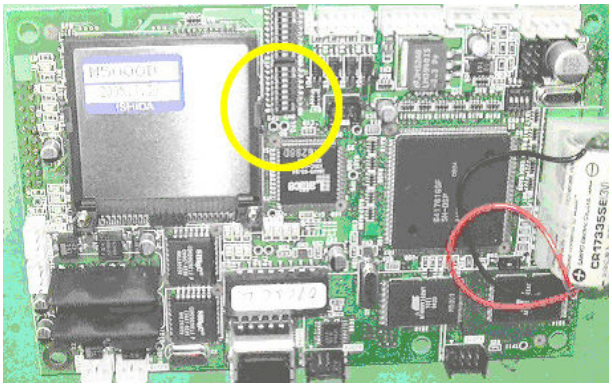
WARNING

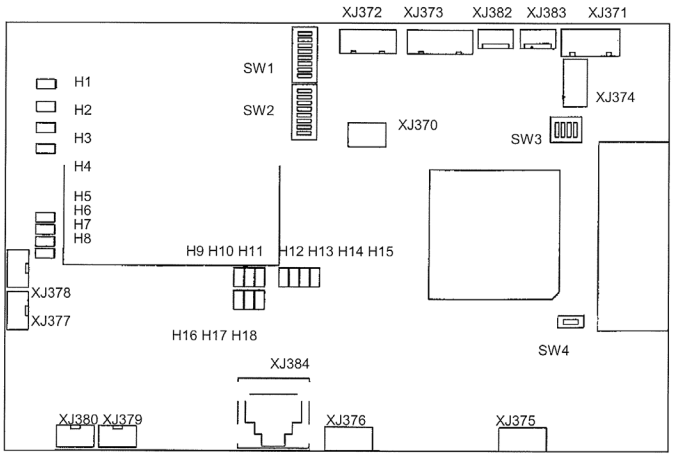
- **Do not turn OFF machine power supply when the screen above with error code 525 - 0) is displayed.**

When software writing completes, the following display appears.



5.2.3 Dip switch setting on DMU board





The dipswitch related to the main body software installation is SW2.

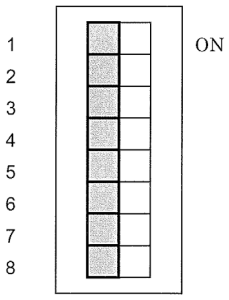
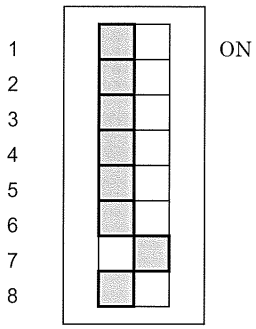
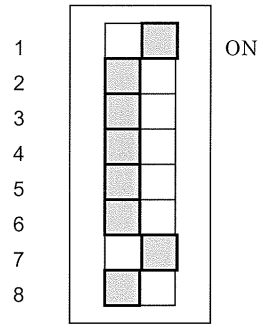


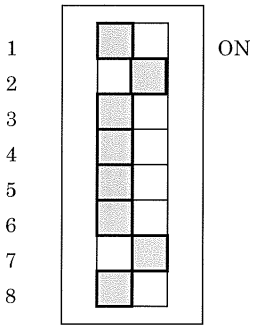
Fig. 5-2 On Ex-factory (Settings after software writing)



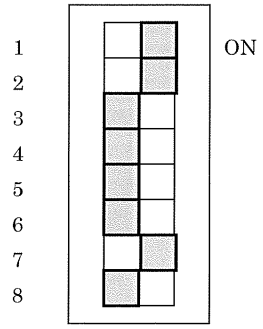
To write MCU1



To write MCU2



To write SCU1



To write SCU2

5.2.4 Setup for ATLAS

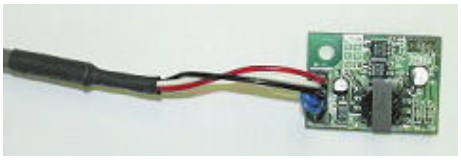
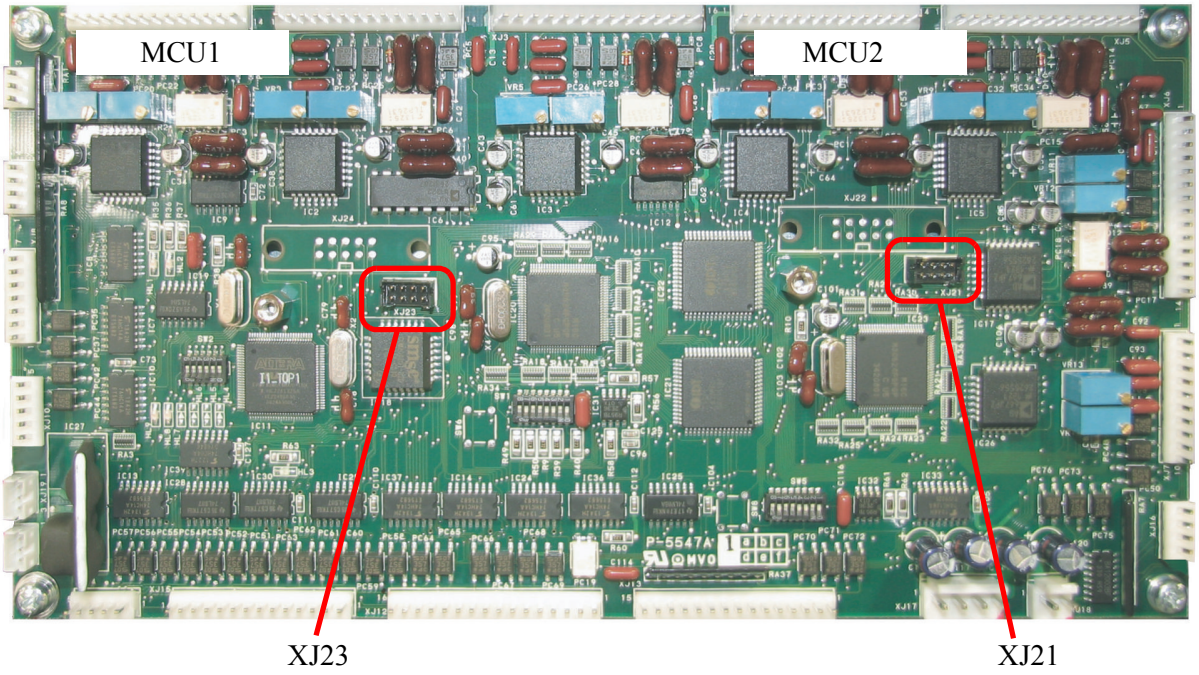
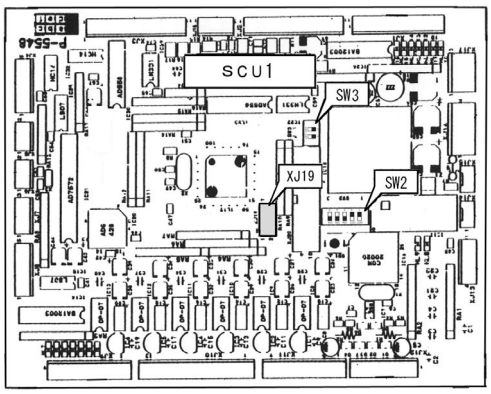


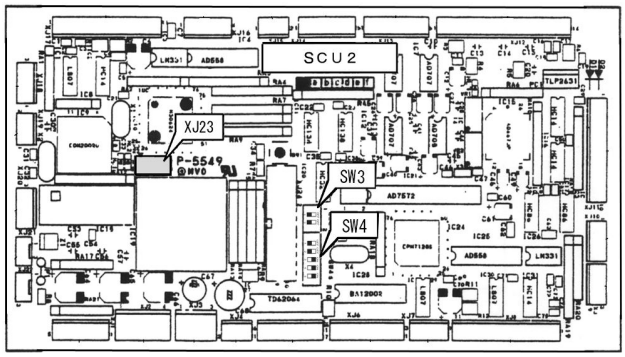
Fig. 5-3 Connection of communication board

5.2.4.1 Connection of communication board

After turning off power supply, connect the communication board with a cable (as in the photo above) to an installation connector for software to be installed.







5.2.4.2 Setting of dip switch

For software installation, setting change of dip switches is necessary. After turning off the machine power supply, set dip switches as below.

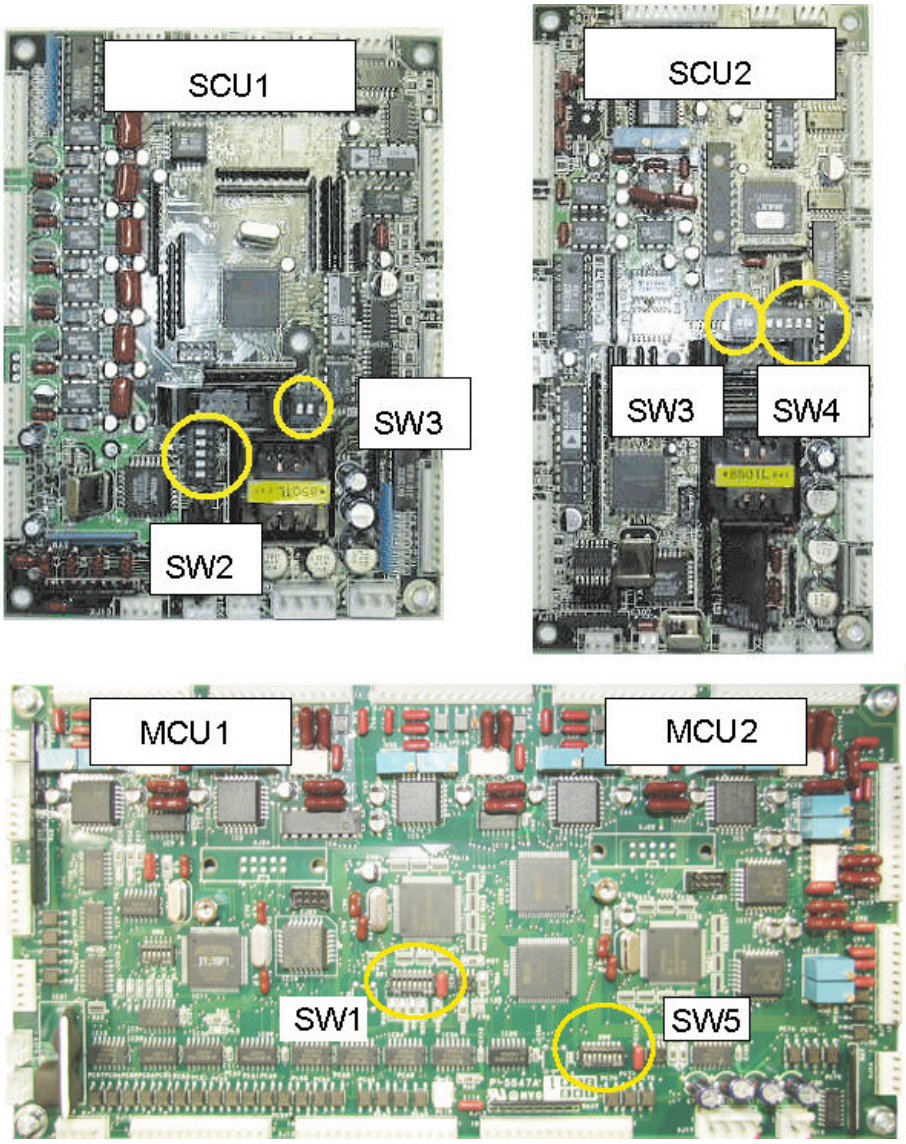


Table 5-1 Dip switch for MCU1 (P-5547*)

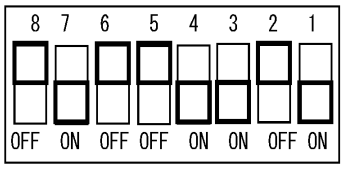
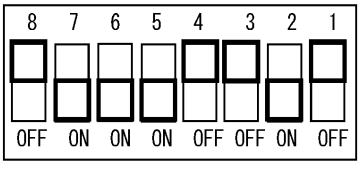
SW	On usual operation		On installation
SW1		→ ←	

Table 5-2 Dip switch for MCU2 (P-5547*)

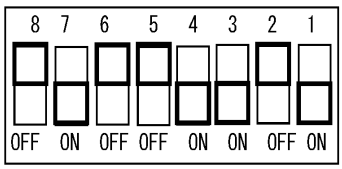
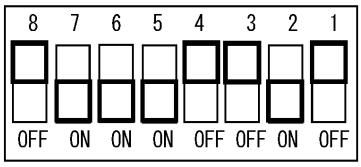
SW	On usual operation		On installation
SW5		→ ←	

Table 5-3 Dip switch for SCU1 (P-5548*)

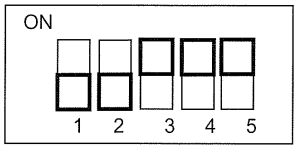
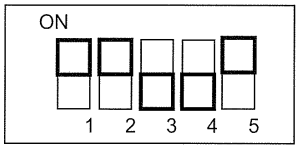
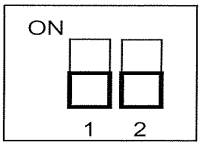
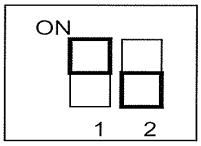
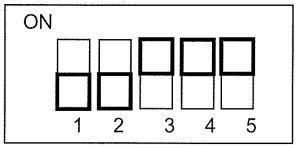
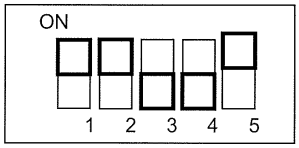
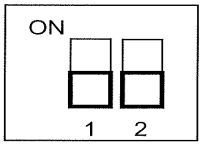
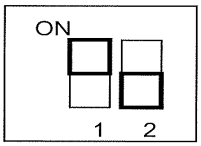
SW	On usual operation		On installation
SW2	 OFF,OFF,ON, ON, ON	→ ←	 ON, ON, OFF,OFF,ON
SW3	 OFF,OFF	→ ←	 ON, OFF

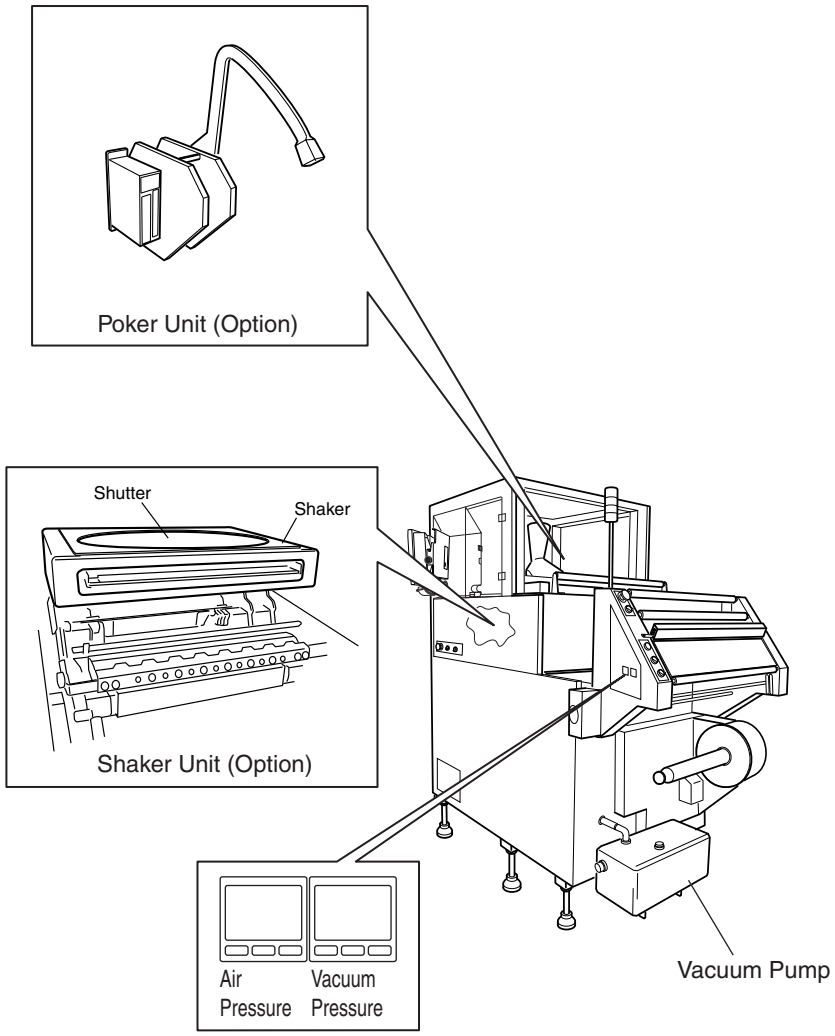
Table 5-4 Dip switch for SCU2 (P-5549*)

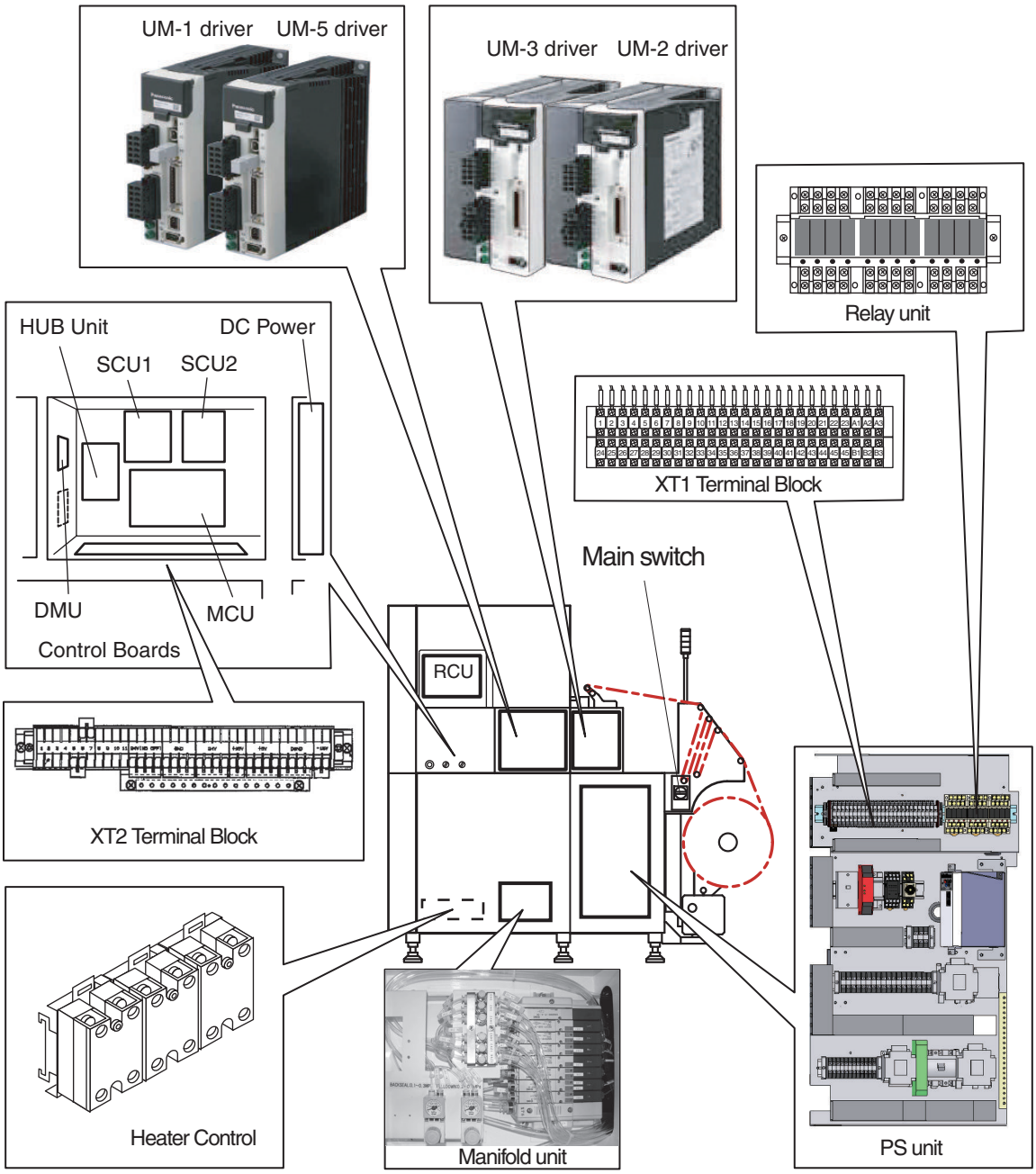
SW	On usual operation		On installation
SW4	 OFF,OFF,ON, ON, ON	→ ←	 ON, ON, OFF,OFF,ON
SW3	 OFF,OFF	→ ←	 ON, OFF

Reset of dip switches

After software installation, reset the dip switches to the original status.

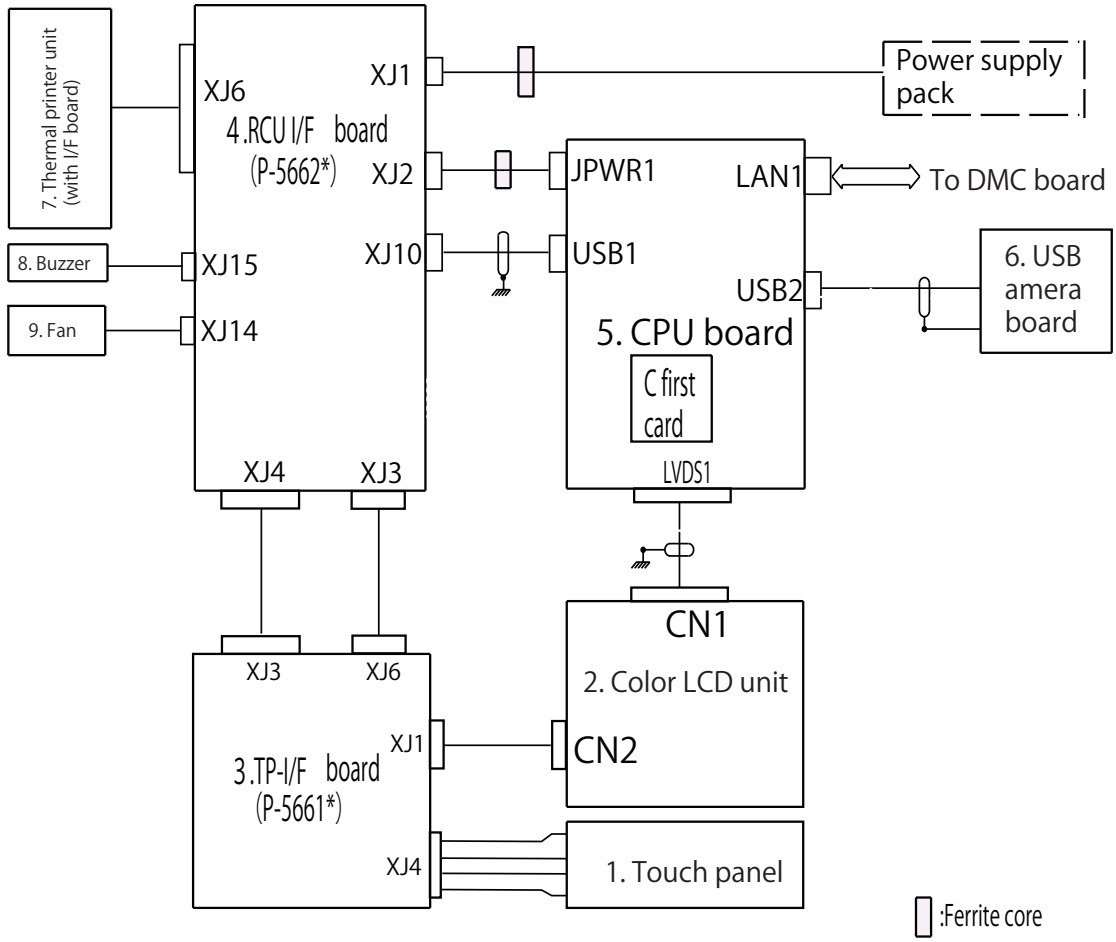
5.3 The locations of electrical boards and drivers




UM-1 driver
UM-5 driver
UM-3 driver
UM-2 driver
Relay unit
HUB Unit
DC Power
SCU1
SCU2
XT1 Terminal Block
Main switch
DMU
MCU
Control Boards
RCU
XT2 Terminal Block
Heater Control
Manifold unit
PS unit

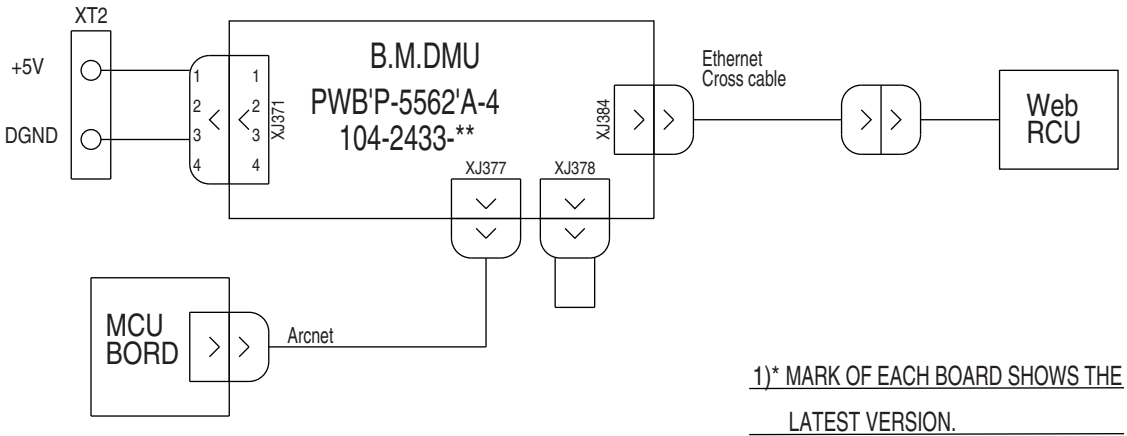
5.4 Parts of each boards

5.4.1 RCU Block diagram



Symbol	Description	Type no. / Notes	Maker
1	Touch panel	KBT-12.1C10R-FM	KB Elctron
2	Color LCD unit	AC121SA01	Mitsubishi
3	TP-I/F board (P-5661*)		
4	RCU-I/F board (P-5662*)		
5	CPU board	NPC-M0103	Omron
6	USB camera board		
7	Printer	SAM-1245-10K	SEIKO
8	Buzzer		
9	Fan		
10	USB camera switching board (P-5582*)	(option)	

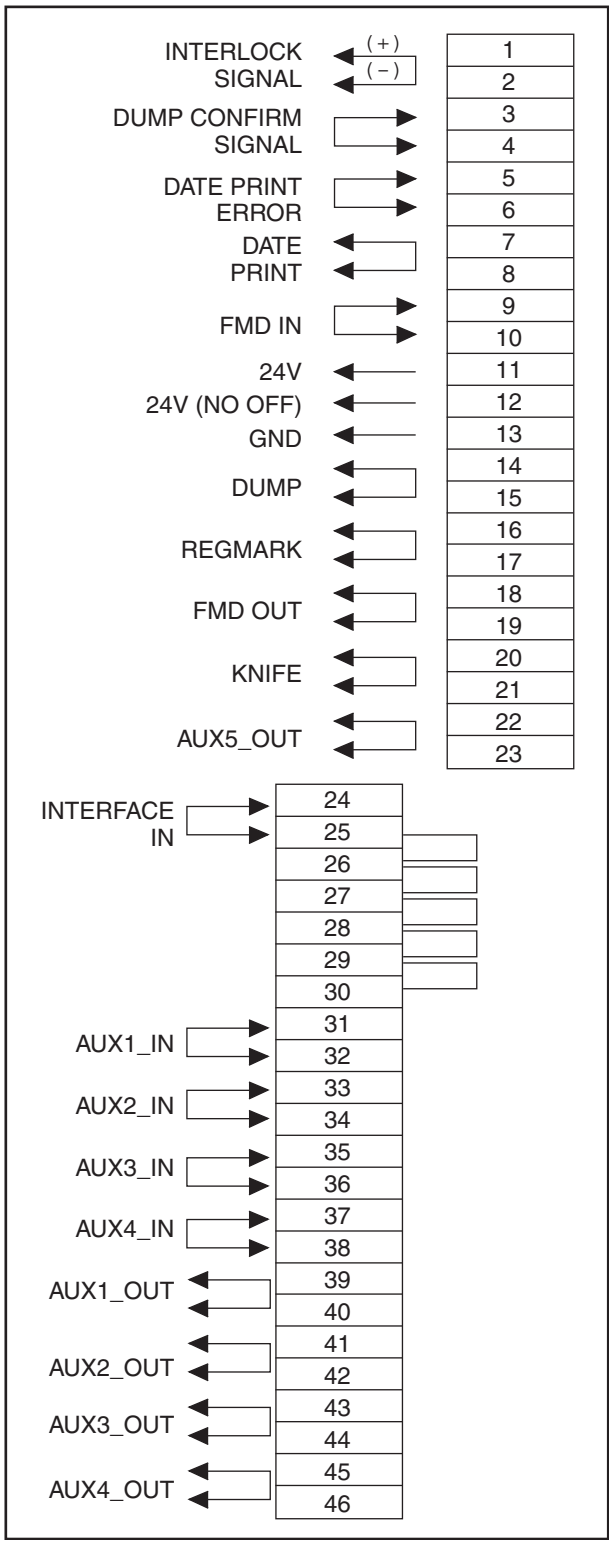
5.4.2 Block diagram



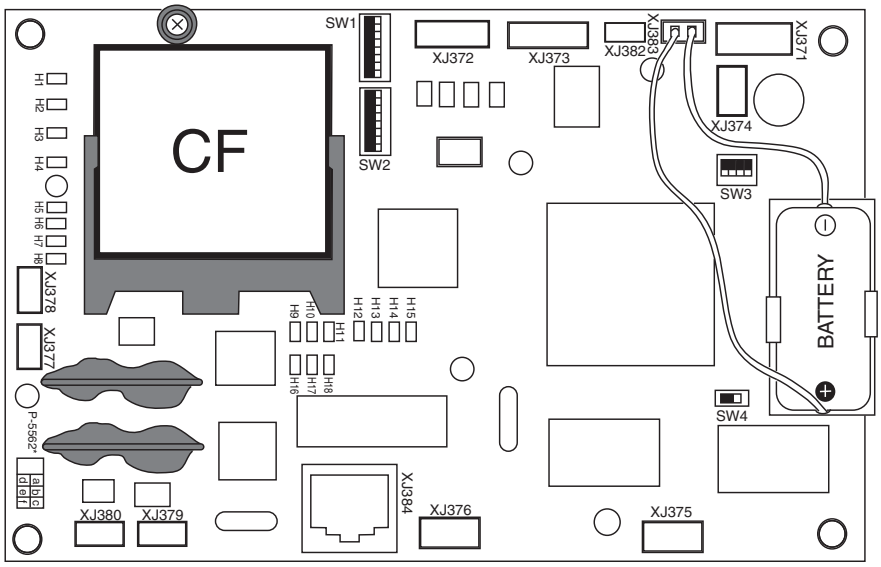
1)* MARK OF EACH BOARD SHOWS THE LATEST VERSION.

WIRING DIAGRAM:: 111-0669-01

5.4.3 Wiring of XT1 Block



5.5 DMU BOARD (P-5562*)



Function of board

1. Data processing
2. Memory of Total and Parameter

Setting board DIP switches

(1) Setting off SW3

DIP SW	Function	Default at shipment
SW3-1	ON: Boot loader mode OFF: Application execution mode	OFF
SW3-2	Fix at OFF; do not turn ON.	OFF
SW3-3	ON: Flash memory write is inhibited. OFF: Flash memory write is enabled.	OFF
SW3-4	Fix at OFF; do not turn ON.	OFF

(4) Setting SW4 (Normally OFF)

Writing flash memory	OFF: Writing prohibited (available only with RS232 mounted)
	ON: Writing available

Battery

Battery in use: Lithium battery (Storage battery) CR17335SE-H SANYO
When replacing battery, connect new battery to XJ41. If an old battery is already connected, connect new battery to XJ40. Then remove old battery from another connector.

CAUTION

If the battery is replaced with an incorrect one, it may result in a board malfunction. When replacing a battery, make sure that it is the same model or an equivalent.
Dispose of used batteries after replacement.

Connector classification

Connector No.		Item
XJ370	(6P)	JTAG for CPLD (IC8)
XJ371	(4P)	DMU power supply
XJ372	(10P)	PI input CH1
XJ373	(12P)	PO output CH1
XJ374	(8P)	JTAG for CPU
XJ375	(8P)	Serial interface CH0
XJ376	(8P)	Serial interface CH1
XJ377	(3P)	Arcnet CH1
XJ378	(3P)	Arcnet CH1
XJ379	(3P)	Arcnet CH0
XJ380	(3P)	Arcnet CH0
XJ381		Compact flash
XJ382	(2P)	Battery
XJ383	(2P)	Battery
XJ384		ETHERNET connector
XJ385	(20P)	Interface for DMU
XJ386	(10P)	Power supply for stack

Connector function in details

(1) XJ370: JTAG for CPLD (IC8)

Connector No.	Terminal No.	Signal
XJ370 JTAG for CPLD (IC8)	1	+3.3V
	2	TMS
	3	TDO
	4	TDI
	5	TCK
	6	GND

(2) XJ371: DMU power supply

Connector No.	Terminal No.	Signal
XJ371 DMU power supply	1	+5V DC
	2	+5V DC
	3	GND
	4	GND

(3) XJ372: PI input CH1

Connector No.	Terminal No.	Signal
XJ372 PI input CH1	1	+ common
	2	PINT 0
	3	PINT 1
	4	PINT 2
	5	PINT 3
	6	PINT 4
	7	PINT 5
	8	PINT 6
	9	PINT 7
	10	N.C.

(4) XJ373: PO input CH1

Connector No.	Terminal No.	Signal
XJ373 PO output CH1	1	Data 0
	2	Data 1
	3	Data 2
	4	Data 3
	5	Data 4
	6	Data 5
	7	Data 6
	8	N.C.
	9	Data 7
	10	+ 5V
	11	GND
	12	N.C.

(5) XJ374: JTAG for CPU

Connector No.	Terminal No.	Signal
XJ374 JTAG for CPU	1	TCK
	2	TRST
	3	TDO
	4	GND
	5	TMS
	6	TDI
	7	RES
	8	GND

(6) XJ375: Serial interface CH0

Connector No.	Terminal No.	Signal
XJ375 Serial interface CH0	1	+5V
	2	TXD
	3	RXD
	4	GND
	5	RTS
	6	CTS
	7	DSR
	8	DTR

(7) XJ376: Serial interface CH1

Connector No.	Terminal No.	Signal
XJ376 Serial interface CH1	1	+5V
	2	TXD
	3	RXD
	4	GND
	5	RTS
	6	CTS
	7	DSR
	8	DTR

(8) XJ377/ XJ378: Arcnet CH1

Connector No.	Terminal No.	Signal
XJ377, XJ378 Arcnet CH1	1	Signal (+)
	2	Signal (-)
	3	F.G.

(9) XJ379/XJ380: Arcnet CH0

Connector No.	Terminal No.	Signal
XJ379, XJ380 Arcnet CH0	1	Signal (+)
	2	Signal (-)
	3	F.G.

(10) XJ385: Interface for DMU

Connector No.	Terminal No.	Signal
XJ385 Interface for DMU	1	Data 0
	2	Data 1
	3	Data 2
	4	Data 3
	5	Data 4
	6	Data 5
	7	Data 6
	8	Data 7
	9	Address 0
	10	Address 1
	11	Address 2
	12	Address 3
	13	R/W direction input
	14	ENB input
	15	RESET input
	16	Interruption output
	17	Serial input signal (CH0)
	18	Serial output signal (CH0)
	19	+ 5V
	20	GND

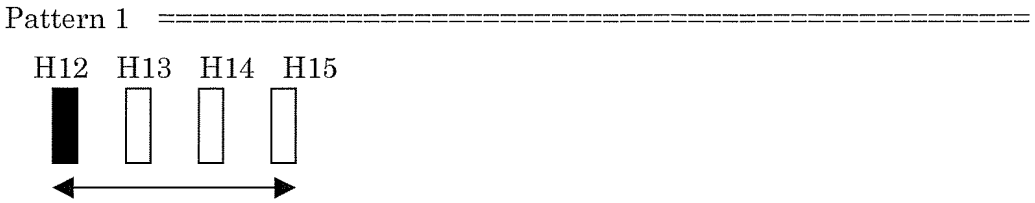
(11) XJ386: Power supply for stack

Connector No.	Terminal No.	Signal
XJ386 Power supply for stack	1	+ 5V
	2	+ 5V
	3	+ 5V
	4	+ 5V
	5	GND
	6	GND
	7	GND
	8	GND
	9	GND
	10	GND

Function of LED for monitor

LED	Functional description	LED display status
H1	PINT2	Turns off in an unconnected state.
H2	PINT3	Turns off in an unconnected state.
H3	PINT0	Turns off in an unconnected state.
H4	PINT1	Turns off in an unconnected state.
H5	Arcnet CH1 Reception signal	Lights brightly.
H6	Arcnet CH1 Transmission signal	Lights poorly.
H7	Arcnet CH0 Reception signal	Lights brightly with an instant turn off at intervals in an unconnected state.
H8	Arcnet CH0 Transmission signal	Lights poorly with an instant turn off at intervals in an unconnected state.
H12	Indicates the boot loader status by combination of 12 to 15.	(*) Flashes with normal DMU software operation.
H13		(*) Flashes with receiving operation of main boat telegram.
H14		(*) Flashes with telegram receiving of MELSE Ethernet.
H15		(*) Flashes with receiving operation of MELSEC232 telegram.
H9	ETHER data reception	Flashes.
H10	ETHER link	Lights.
H11	ETHER all double communication	Lights.
H16	ETHER link with 100MBPS	Lights.
H17	ETHER data transmission	Flashes.
H18	ETHER collision occurred	Turns off when there is no collision.

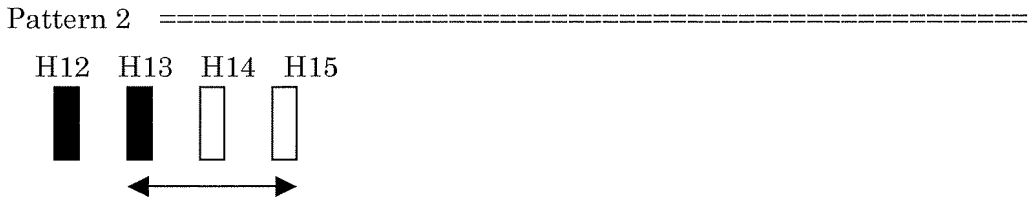
Pattern 1



H12, H13, H14, and H15 light one after another in sequence:
The bootloader starts.
When SW3-1 is ON, restarts with turning OFF SW3-1.
When SW3-1 is OFF, the flash memory has no application software and the CF card is not set. (When the CF card without INF files is set, the pattern is 5.)

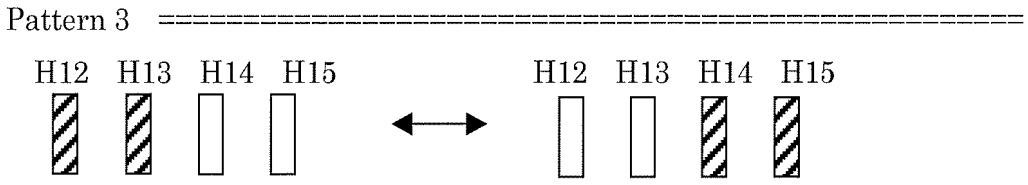
When SW3-1 is OFF and only H12 flashes as shown in pattern 4 after a few seconds, it is possible that either a DMU board for other than the packer may be installed or the board may malfunction.

Pattern 2



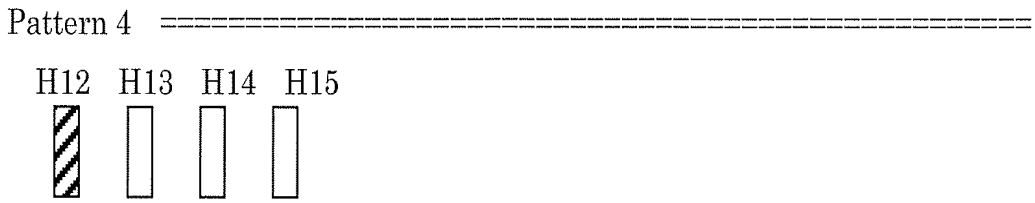
While H12 lights, H13, H14, and H15 light one after another in sequence:
In the file creation process **(Do not turn off the main power during this process.)**

Pattern 3



H12 &H13 and H14 & H15 flash alternately:
In recovering the backup file to the root **(Do not turn off the main power during this process.)**

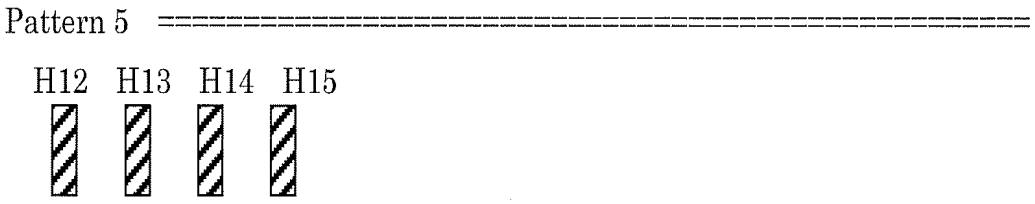
Pattern 4



Only H12 flashes:
In downloading and rewriting the DMU software **(Do not turn off the main power during this process.),**
or
in downloading the other software (after the transition from the pattern 1).

However, when this condition continues after several tens of minutes have passed, it is possible that the system was set to pattern 1 immediately after power on and transferred to this status. Turn off the main power and turn it on again, then immediately check the LED status.

Pattern 5



All of H12, H13, H14, and H15 flash together:
or
Commanding SRAM initialization (Drive Mount error: **Error code = 1019**).

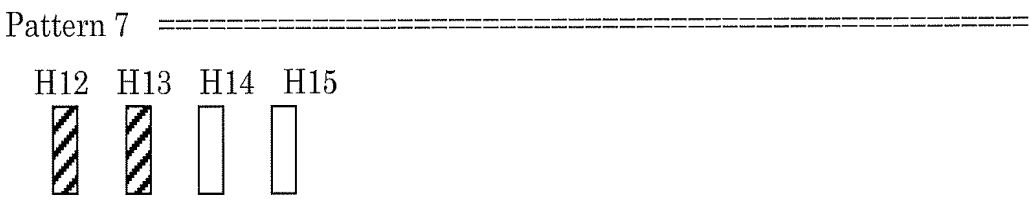
When a broken CF card or a CF card without INF file is set into the socket, the system becomes this status even SRAM operates normally. Turns off the power before turning off SW2-R, then turn on the power again with the CF card removed to confirm the status.

Pattern 6

H12, H13, and H14 flash together:
Commanding initialization of SRAM disk (Scan Disk error: **Error code = 1109**).

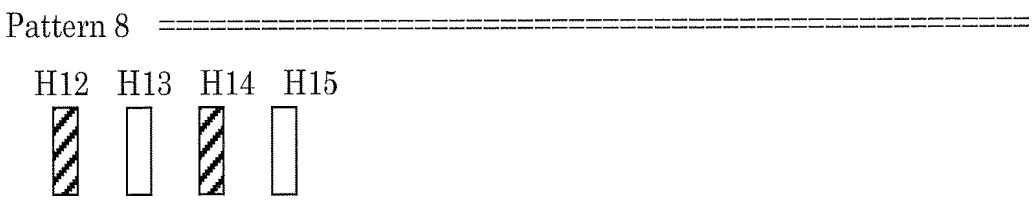
When a broken CF card or a CF card without INF file is set into the socket, the system becomes this status even SRAM operates normally. Turns off the power before turning off SW2-R, then turn on the power again with the CF card removed to confirm the status.

Pattern 7



H12 and H13 flash together:
Commanding initialization of SRAM disk (Setup file error: **Error code =1027**).

Pattern 8

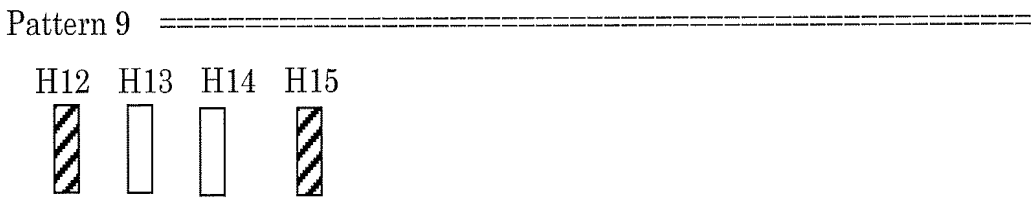


H12 and H14 flash together:
Commanding initialization of SRAM disk (Log file error: **Error code =1023**).

Turning OFF SW2-6 in the state of pattern 5 to 8 performs initialization of SRAM disk.

The error code is not set while the LED flashes. It is set when SW2-6 is OFF and after the initialization is performed.

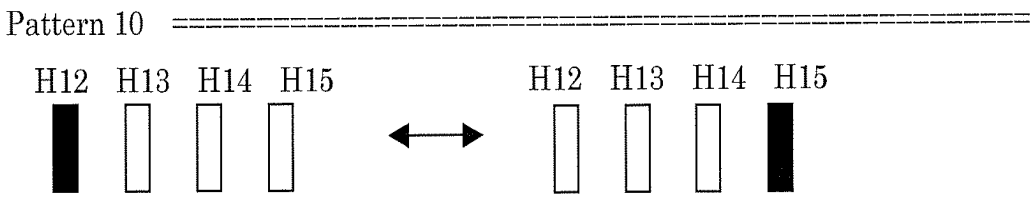
Pattern 9



H12 and H15 flash together:
Assert is generated.
Saves the file name and the number of lines that have generated in ASSERT.LOG of SRAM disk.
When the FTP connection is not possible in this state, turn on the main power again and make the FTP connection to acquire ASSERT.LOG.

ftp 192.168.0.41
user
pass
cd c:
ls
bin
get assert.log

Pattern 10

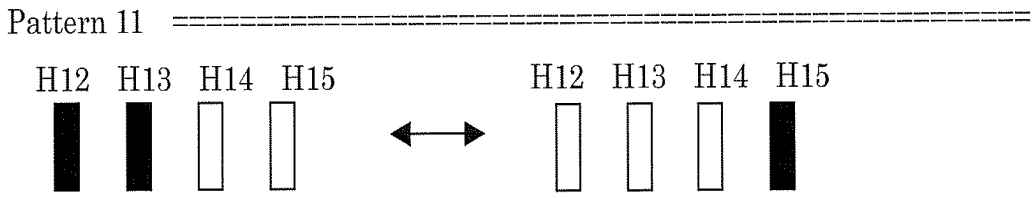


While H13 & H14 turn off, H12 & H15 light alternately (at one second cycle):
In downloading the basic software from the DMU board: (**Error code = 525**).

NOTE

- Do not turn off the main power during this process.

Pattern 11

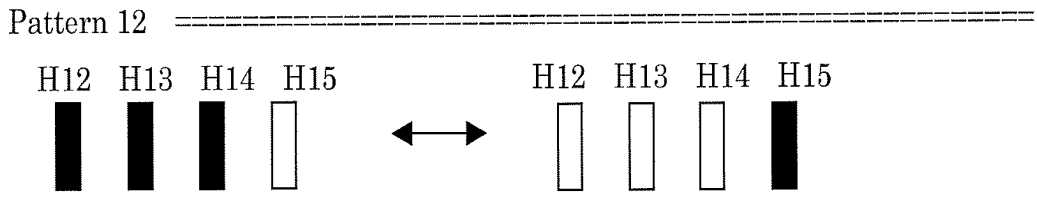


While H14 turns off, H12 & H13 and H15 light alternately (at one second cycle):
In uploading the basic software from the DMU board: (**Error code = 525**).

NOTE

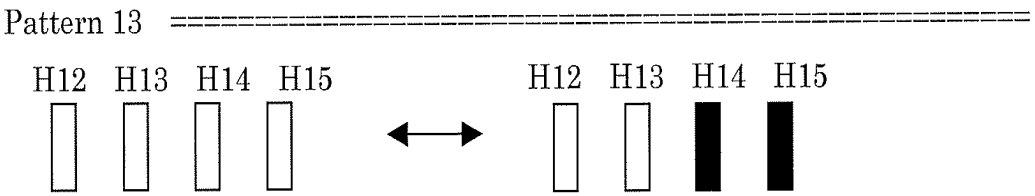
- Do not turn off the main power during this process.

Pattern 12



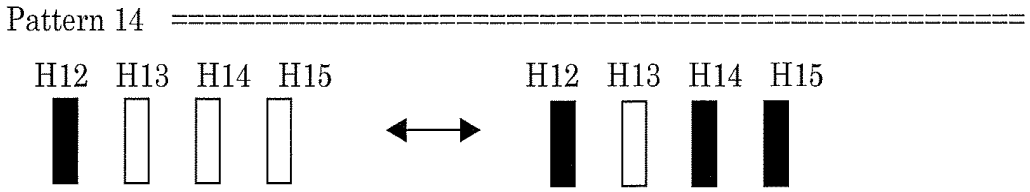
H12, H13, & H14 and H15 light alternately (at one second cycle):
Writing the basic software from the DMU board has been completed: (**Error code = 526**).

Pattern 13



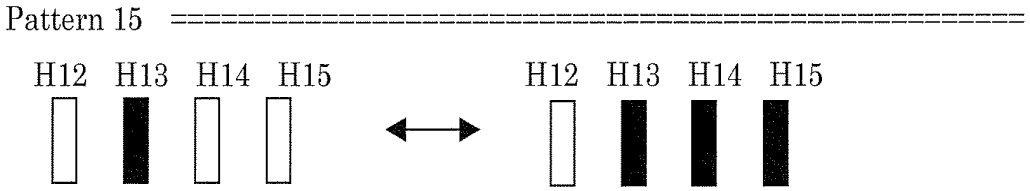
While H12 & H13 turn off, H14 and H15 flash at one second cycle:
Although writing the basic software from the DMU board has completed the connection, the IDs were not identical (**Error code = 109**).
The cause may be due to a discrepancy between the connection destination and CPU selection dip switch or a connection failure.

Pattern 14



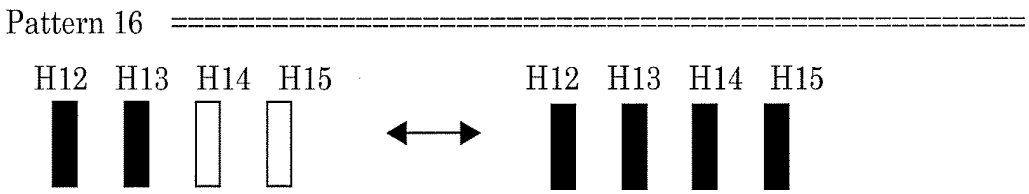
While H12 lights and H13 turns off, H14 and H15 flash at one second cycle:
In writing the basic software from DMU,an error occurs during the software reading on the CF card (**Error code = 109**).
Check the content of the CF card.

Pattern 15



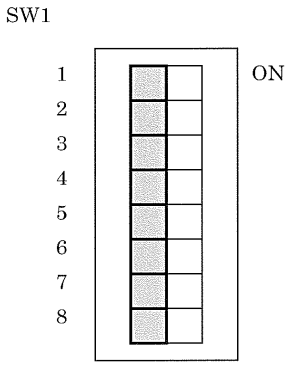
While H12 turns off and H13 lights, H14 and H15 flash at one second cycle:
In writing the basic software from the DMU board, an error occurs during the download process (**Error code = 109**).
The cause may be a poor connection of the writing cable or the board.

Pattern 16



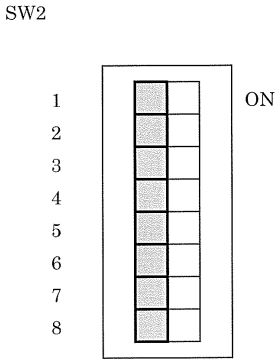
While H12 and H13 light, H14 and H15 flash at one second cycle:
In writing the basic software from the DMU board, an error occurs during the upload or verification process (**Error code = 109**).
The cause may be a poor connection of the writing cable or the board.

SW1



No.	Function	Normal
1	Reservation (F specification)	OFF
2	Reservation (model)	OFF
3	**Right machine OFF, Left machine ON**	**OFF or ON**
4	Modbus / TCP character string edian	OFF:DDE(big) / ON:OPC(little)
5	Soft stripping effective operation (specification:F)	OFF
6	Not used	OFF
7	Not used	OFF
8	Trial mode	OFF

SW2



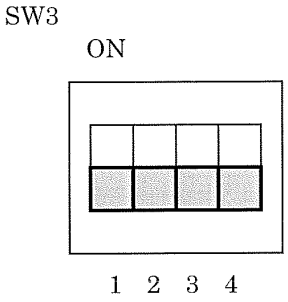
No.	Function	Normal
1	Auto-basic software writing CPU selection#1	OFF
2	Auto-basic software writing CPU selection#2	OFF
3	Auto-basic software writing CPU selection#3	**OFF or ON**
4	Not used	OFF
5	Communication monitor output permission	OFF
6	Manual initialization of SRAM, CF CARD writing permission	OFF
7	Debug	OFF
8	BIOS log message transmission	OFF (Some machines have been set to ON at the factory.)

SW2-1;OFF, SW2-2;OFF, SW2-3:OFF\xa5 \xa5 \xa5 MCU1
SW2-1;**ON**, SW2-2;OFF, SW2-3:OFF\xa5 \xa5 \xa5 MCU2
SW2-1;OFF, SW2-2;**ON**, SW2-3:OFF\xa5 \xa5 \xa5 SCU1
SW2-1;**ON**, SW2-2;**ON**, SW2-3:OFF\xa5 \xa5 \xa5 SCU2
SW2-1;OFF, SW2-2;OFF, SW2-3:**ON**\xa5 \xa5 \xa5 SCU3

When SW2-8 is ON, the transfer rate of COM #1 (XJ375) is 57600 bps. When OFF, the rate is 38400 bps. **However, when SW2-8 is OFF, SW2-7 is ON, and SW2-5 is OFF, the system is set to the auto basic software writing mode,** which establishes the connection with the main CPU at 9600 bps and writes at 19200 bps after the completion of the connection. After the connection is established, the **Error code is 109**, displaying the progress with LED of H12 to H15. (Pattern 10 to pattern 16)

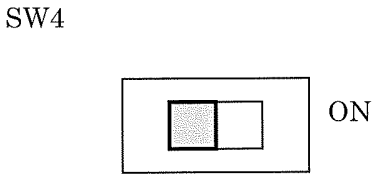
When SW2-5, SW2-7, SW2-8 are ON, the system automatically starts the scan disk of the CF card. It takes a few tens of seconds with 16 M. When the scan processing is unsuccessful including the case that the CF card is not inserted in the socket, the **Error code is 1051**. When any trouble is detected from the scan result, the **Error code is 1050**.

SW3



No.	Function	Normal
1	Starting bootloader	OFF
2	Flash writing protection	OFF
3	Starting default IP address	OFF (192.169.0.41 when it is ON)
4	Starting JTAG-ICE connection	OFF (turn ON SW1-1 as well when it is ON)

SW4



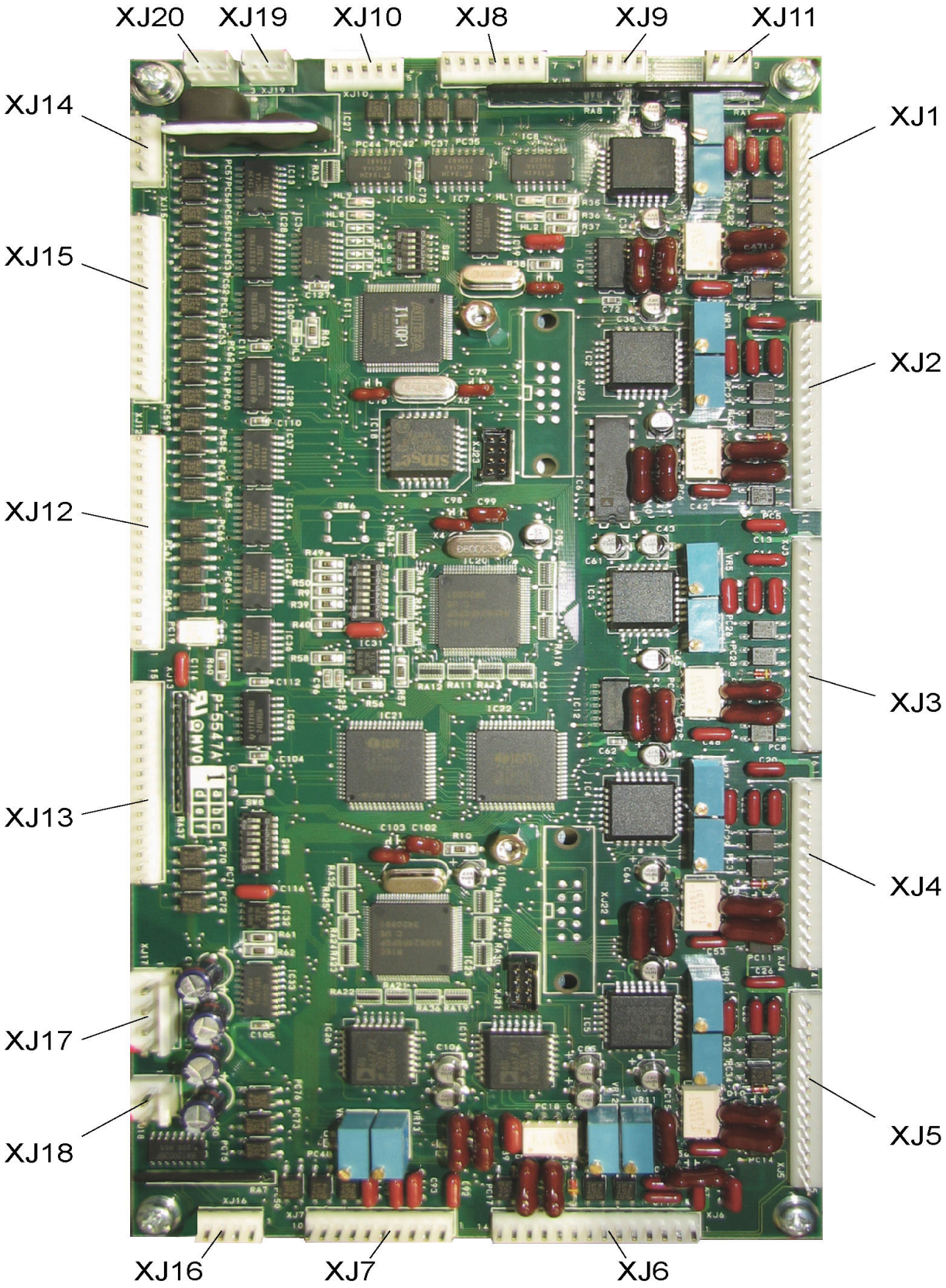
No.	Function	Normal
1	Write protection open	OFF

Connector

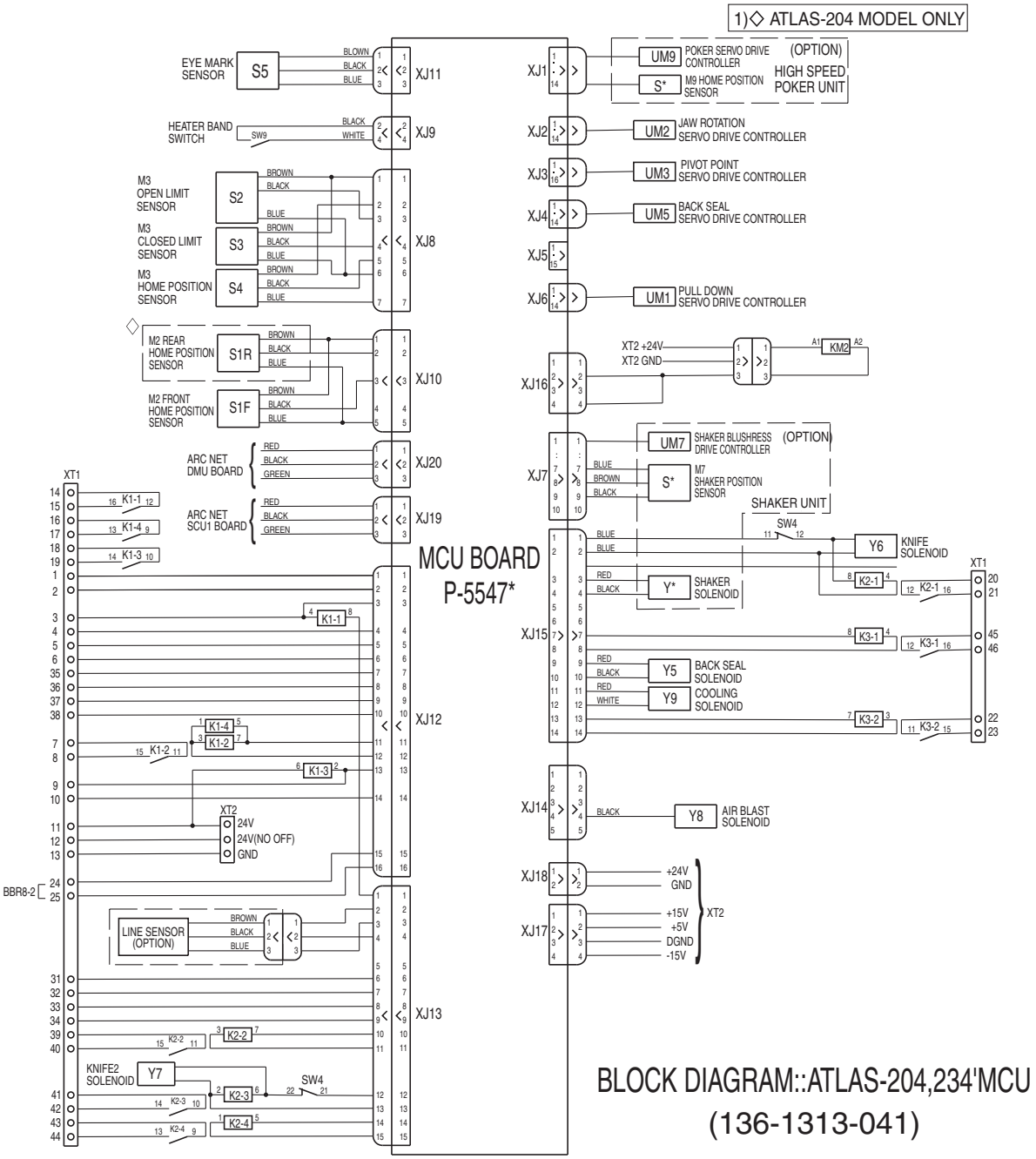
Symbol	Function
XJ370	Writing PLD
XJ372	8-IN
XJ373	8-OUT
XJ374	JTAG-ICE
XJ375	COM #1: Writing to Monitor or Main software.
XJ376	COM #2: MELSEC RS232C interface.
XJ377	ARCNET #1: Main unit (MCU, SCU1, SCU2) board communication.
XJ378	ARCNET #1: Normally terminating resistance.
XJ379	ARCNET #2: Optional board (2nd-DMU,MHIC) communication.
XJ380	ARCNET #3: Normally terminating resistance.

Symbol	Function
XJ381	CF card socket
XJ382	Battery #1
XJ383	Battery #2: Normally opened
XJ384	Ethernet
XJ385	Expansion bus

5.6 MCU board (P-5547*)

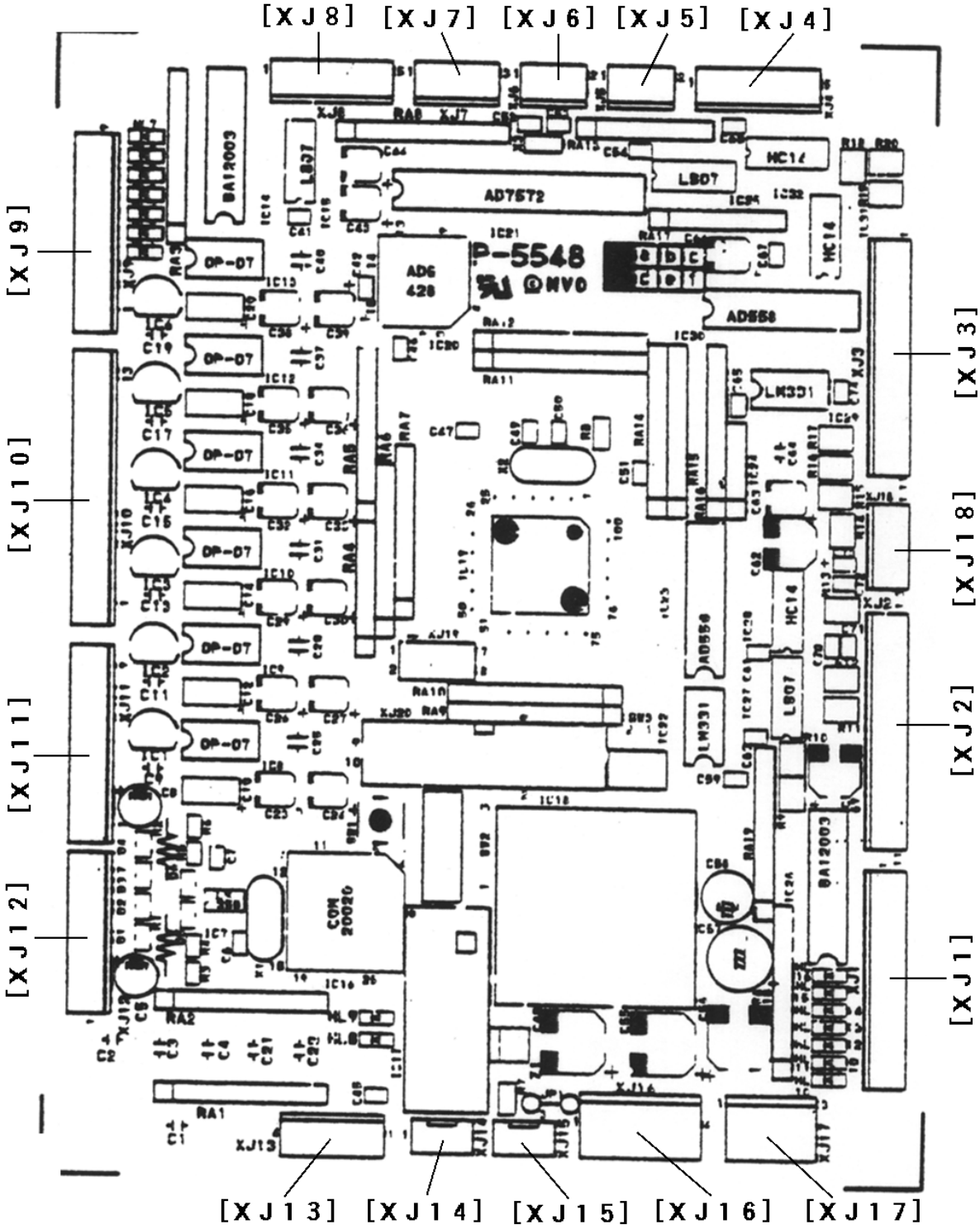


5.6.1 MCU board Block diagram

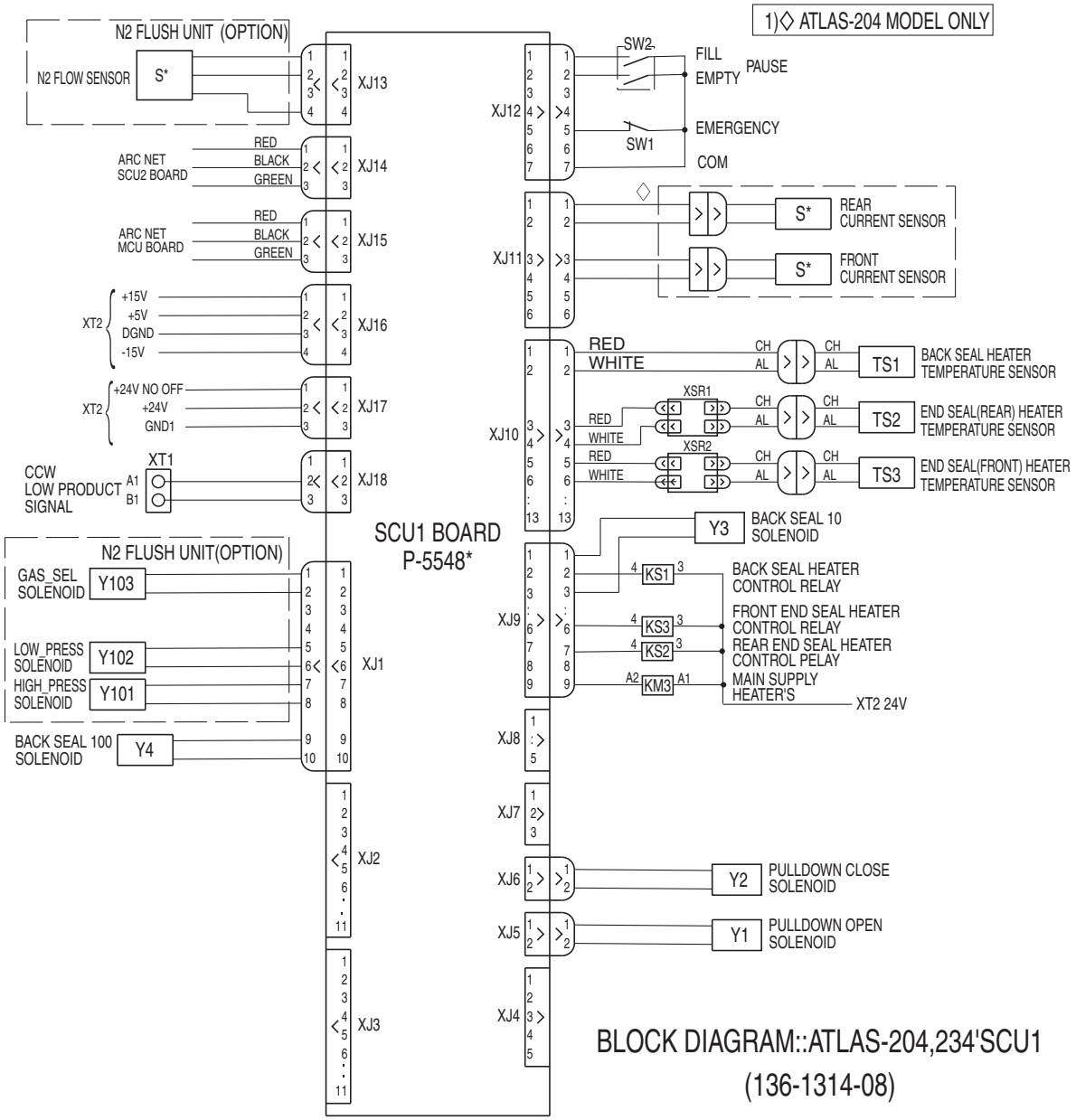


BLOCK DIAGRAM::ATLAS-204,234'MCU
(136-1313-041)

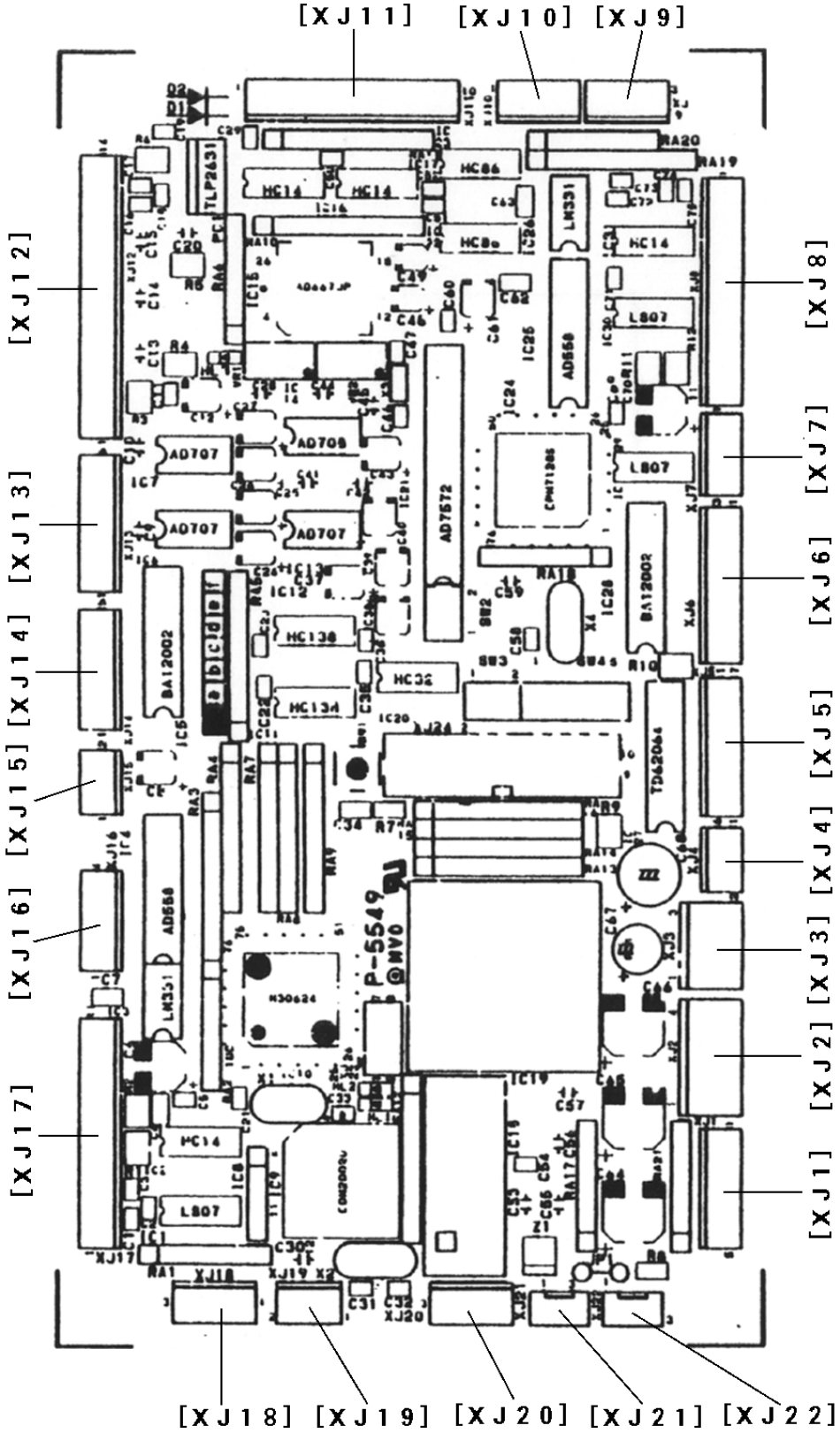
5.7 SCU1 board (P-5548*)



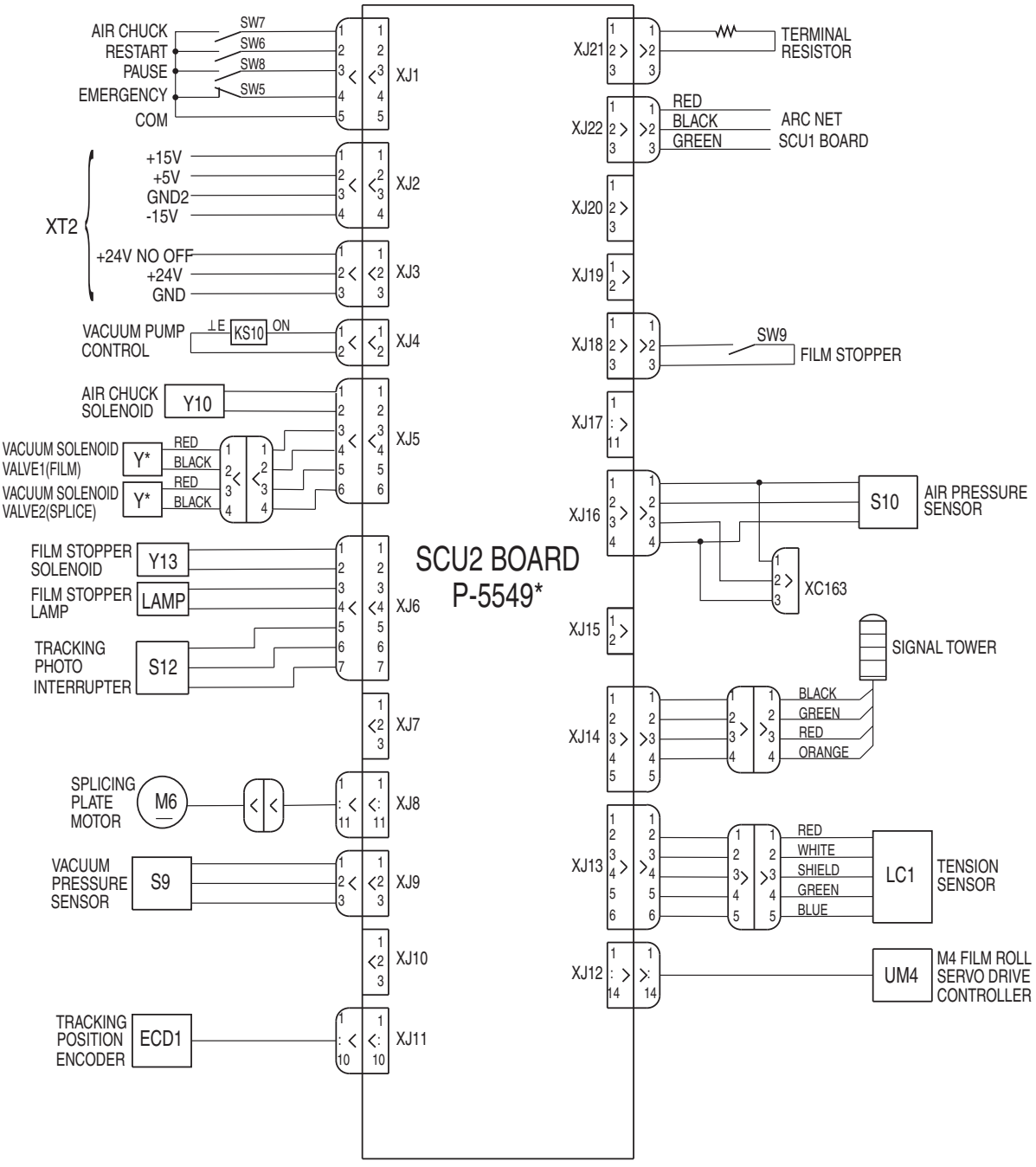
5.7.1 SCU1 board Block diagram



5.8 SCU2 board (P-5549*)

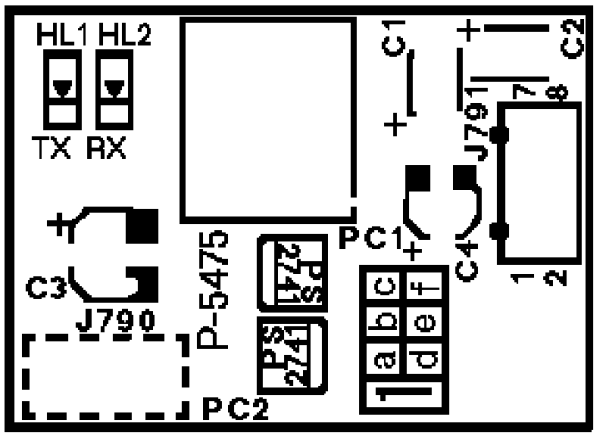


5.8.1 SCU2 board Block diagram

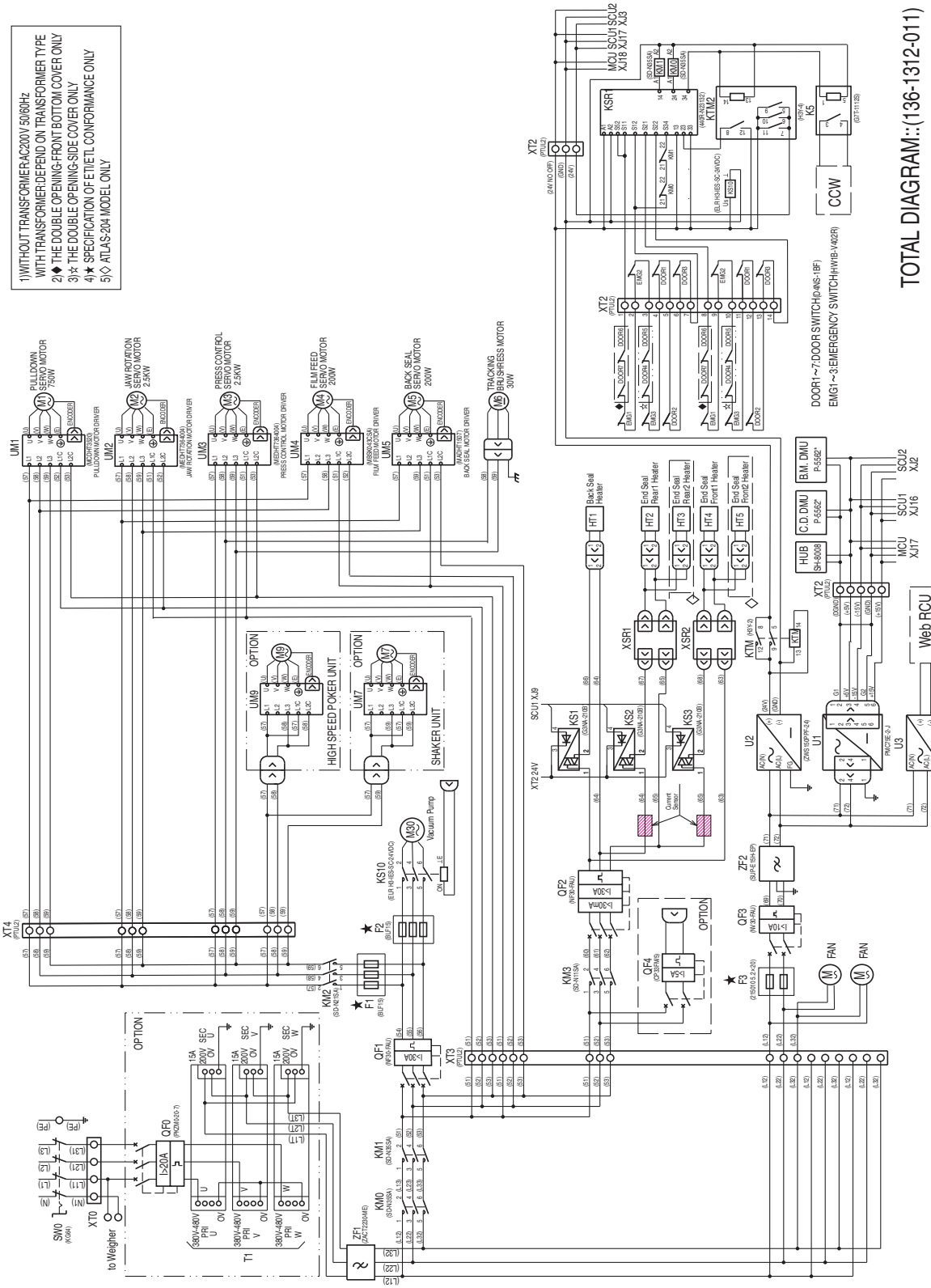


BLOCK DIAGRAM::ATLAS-204,234'SCU2
(136-1315-01)

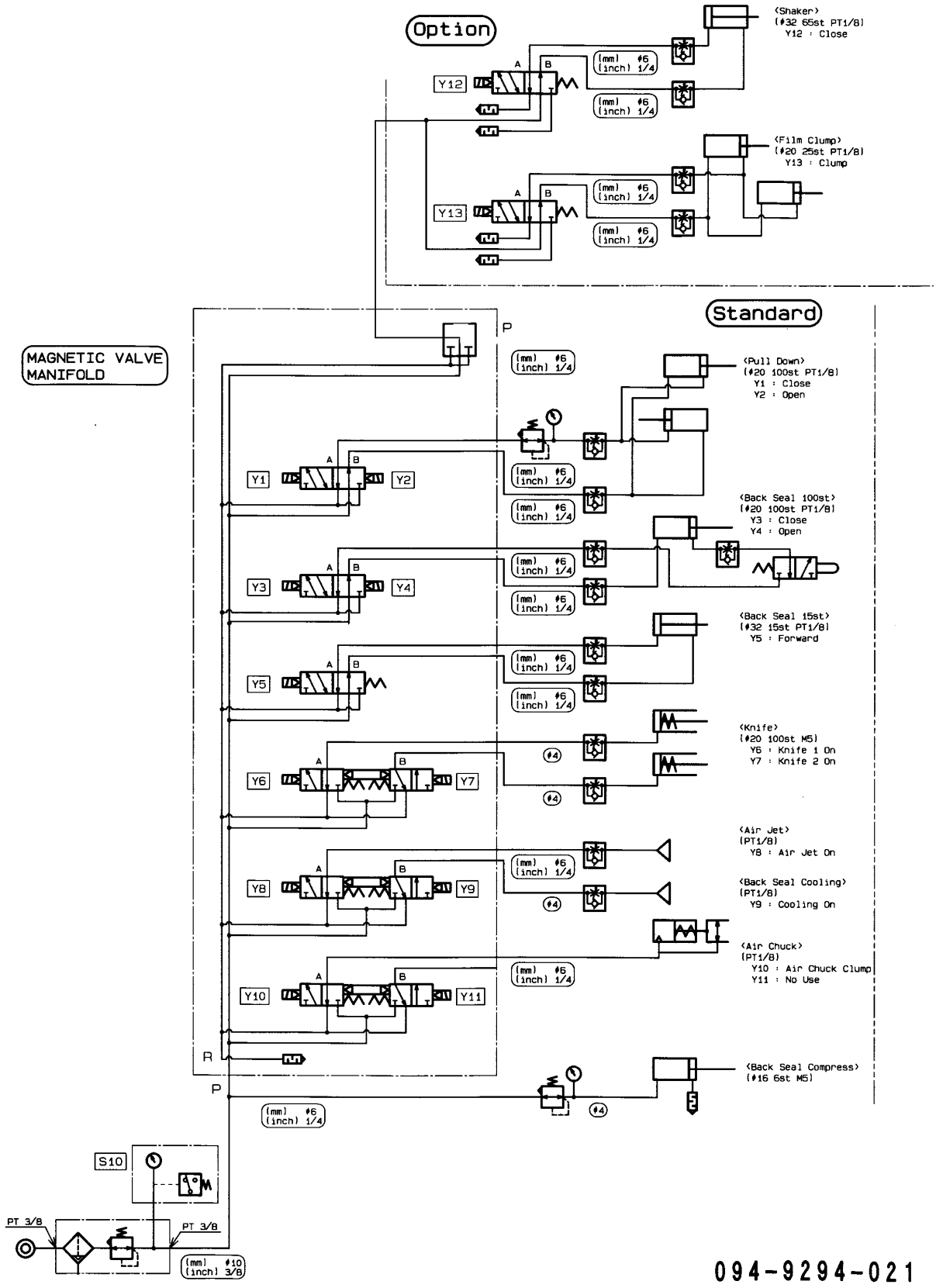
5.9 RS 232C Interface board (P-5475*)



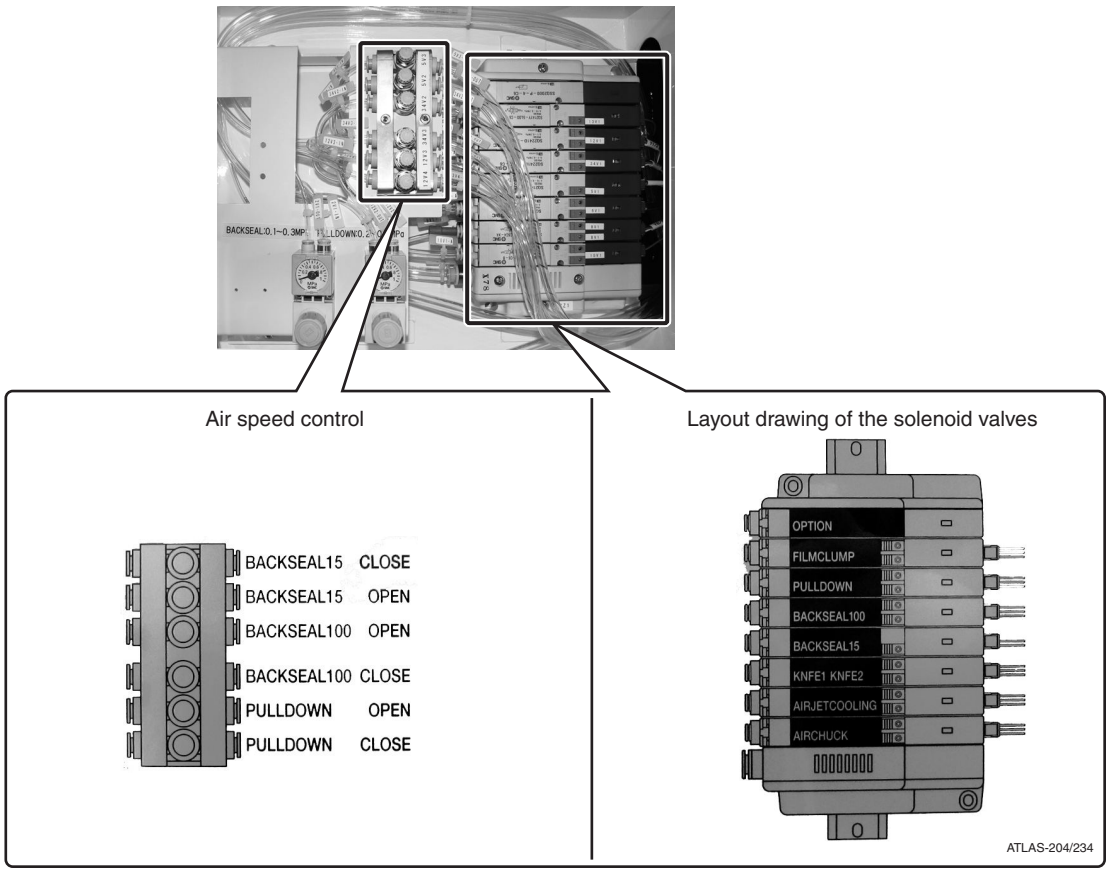
5.9.1 Total Diagram



5.9.2 Air line Diagram



5.9.3 Manifold Arrangement



5.10 Operation of the Motor Driver

- This driver have various parameters through which you can adjust/set the performance of functions. Please use these parameters so that you can operate the driver at the most appropriate condition.
- Among various functions of this driver are;
  - Monitoring functions of such as the number of reserved pulses of the deviation counter (position error), motor speed and generated torque.
  - Display of the status of the control input/output signals connected to the connector, CN I/F.
  - Display of the error factors and the record.
- There are 2 ways of operating the above functions as below;
  - Key operation and the display of the front panel or,
  - Computer display

5.10.1 AC Servo Driver

5.10.1.1 Key operation of the front panel and display

Panasonic

Operating Instructions (Overall)

AC Servo Motor & Driver
MINAS A5-series

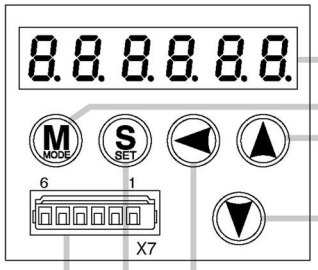
- Thank you for purchasing this Panasonic product.
- Before operating this product, please read the instructions carefully, and save this manual for future use.

2 Preparation

15. How to Use the Front Panel

Setup

Setup with the Front Panel



Display LED (6-digit)
Switch to error display screen when error occurs, and LED will flash (about 2Hz).
LED will flash slowly (about 1Hz) when warning occurs.

Mode switching button
(valid at SELECTION display)
Press this to switch 4 kinds of mode.
1) Monitor Mode
2) Parameter Set up Mode
3) EEPROM Writing Mode
4) Auxiliary Function Mode

SET Button (valid at any time)
Press this to switch SELECTION and EXECUTION display.

Press these to change display and data, select parameters and execute actions.
(Change/Selection/Execution is valid to the digit which decimal point flashes.)
Numerical value increases by pressing, ▲, decreases by pressing ▼.

Shifting of the digit for data changing to higher digit.

X7
Output connector for monitor

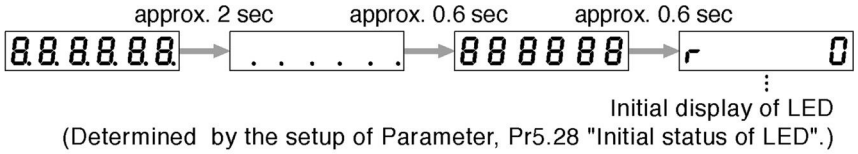
15. How to Use the Front Panel

Setup

Initial Status of the Front Panel Display (7 Segment LED)

Status

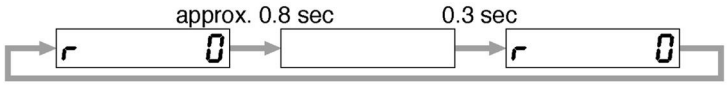
Front panel display shows the following after turning on the power of the driver.



(Determined by the setup of Parameter, Pr5.28 "Initial status of LED".)

Upon Occurrence of an Alarm

If a driver alarm is generated, the front panel display shows the following repeatedly.



Repeatedly(during continuous alarm)

Below shows possible cause of an alarm.

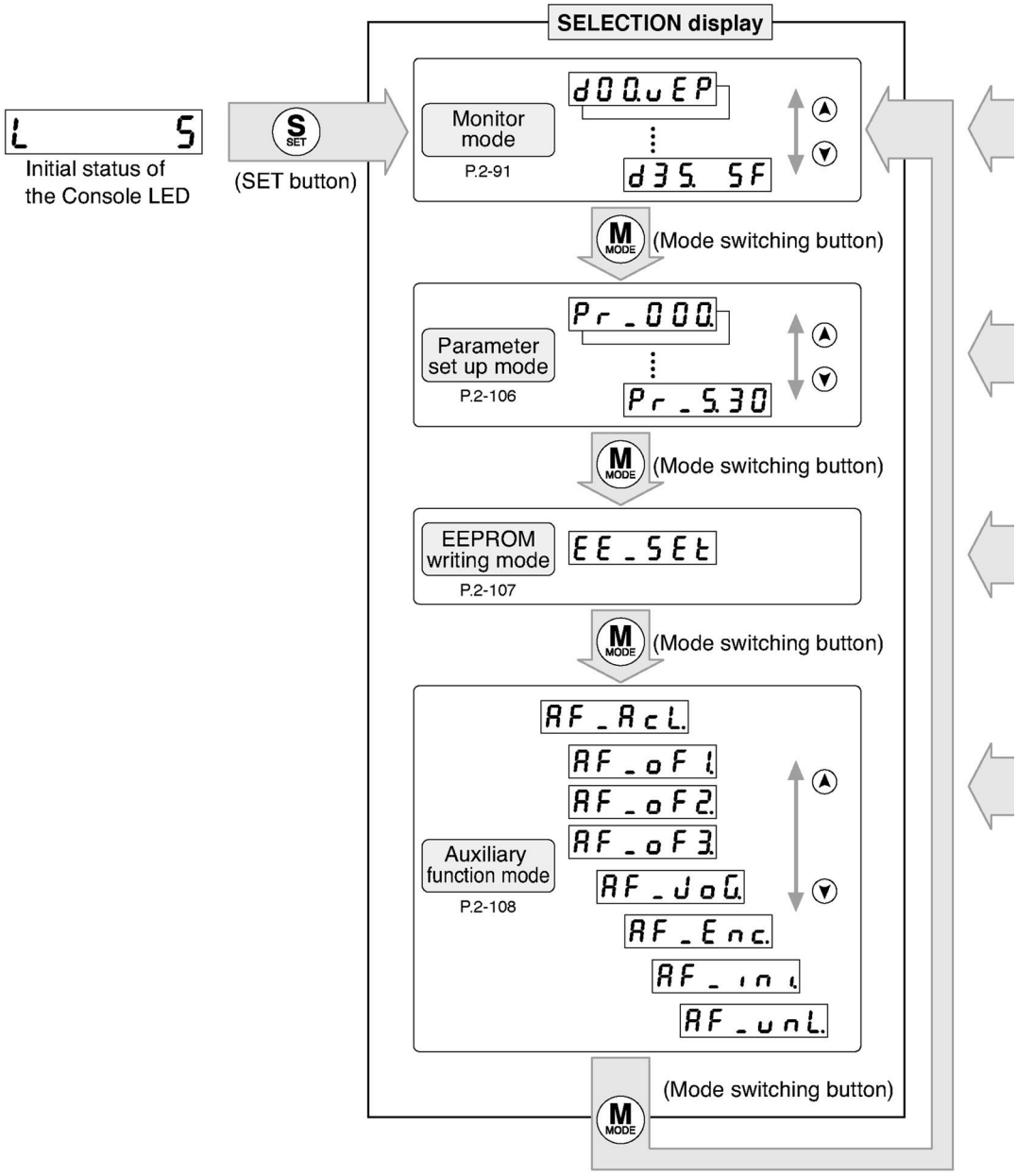
alarm No.	Alarm	Content
A0	Overload protection	Load factor is 85% or more the protection level.
A1	Over-regeneration alarm	Regenerative load factor is 85% or more the protection level.
A2	Battery alarm	Battery voltage is 3.2 V or lower.
A3	Fan alarm	Fan has stopped for 1 sec.
A4	Encoder communication alarm	The number of successive encoder communication errors exceeds the specified value.
A5	Encoder overheat alarm	The encoder detects overheat alarm.
A6	Oscillation detection alarm	Oscillation or vibration is detected.
A7	Lifetime detection alarm	The life expectancy of capacity or fan becomes shorter than the specified time.
A8	External scale error alarm	The external scale detects the alarm.
A9	External scale communication alarm	The number of successive external scale communication errors exceeds the specified value.

2 Preparation

15. How to Use the Front Panel

Structure of Each Mode

Use each button on the touch panel to select the structure and switch the mode.

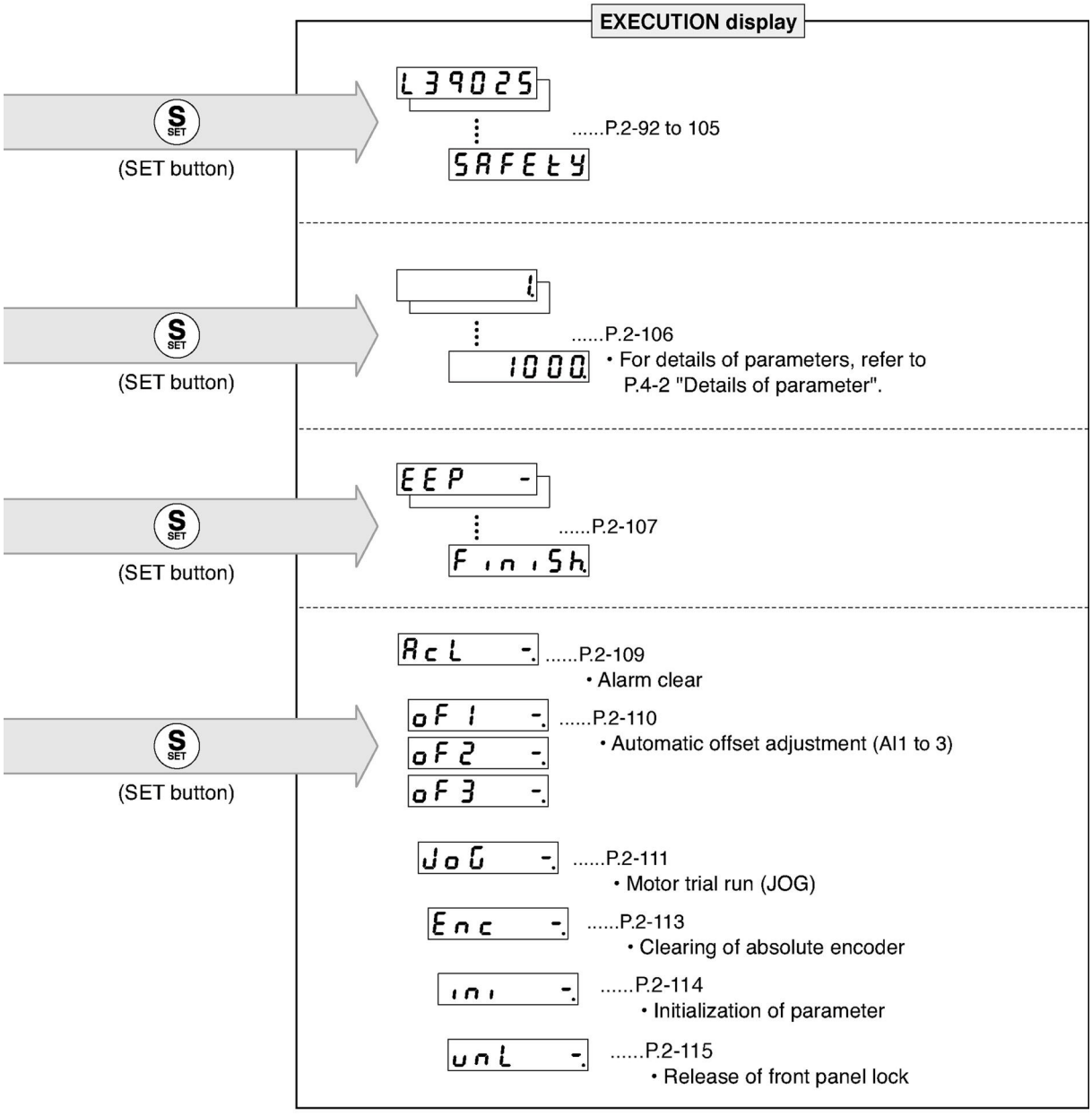


Note You can change the flashing decimal point with ◀, then shift the digit for data change "."

Caution On power-up, the monitor mode executed is displayed according to the setup of Pr5.28 LED initial status.

15. How to Use the Front Panel

Structure of Each Mode



2 Preparation

15. How to Use the Front Panel

Setup of front panel lock

Outline

To prevent operational error e.g. unintentional parameter modification, the front panel may be locked.
Once locked, operations on the panel are limited as follows:

Mode	Locked panel conditions
Monitor Mode	No limitation: all monitored data can be checked.
Parameter Set up Mode	No parameter can be changed but setting can be checked.
EEPROM Writing Mode	Cannot be run. (No display)
Auxiliary Function Mode	Cannot be run except for “Release of front panel lock”. (No display)

How to operate

• Related parameters

Parameter No.		Title	Function
Class	No.		
5	35	Setup of front panel lock	Locks the operation attempted from the front panel.

Lock and unlock can be made in one of two ways.

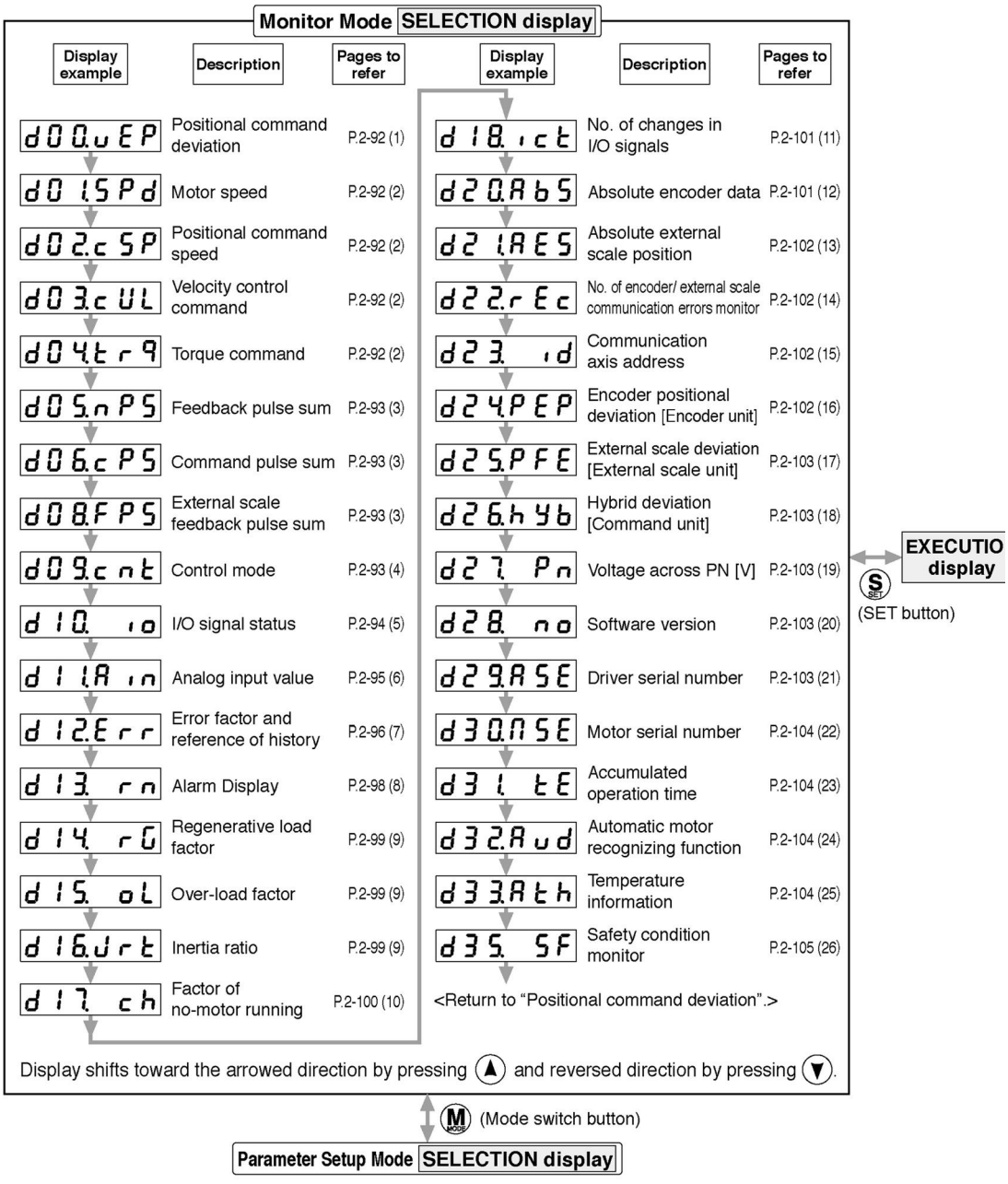
Procedure	Front panel	Setup support software PANATERM
Lock	(1) Set Pr5.35 “Front panel lock” to 1, and writ the setting to EEPROM. (2) Turn on power to the driver. (3) The front panel is locked.	
Unlock	(1) Execute the auxiliary function mode, front panel lock release function. (2) Turn on power to the driver. (3) The front panel is unlocked.	(1) Set Pr5.35 “Front panel lock” to 0, and writ the setting to EEPROM. (2) Turn on power to the driver. (3) The front panel is unlocked.

2 Preparation

15. How to Use the Front Panel

Monitor Mode (SELECTION display)

To change the monitor display setting, select the display option to be changed from " SELECTION display", and press (S) to change to " EXECUTION display". After completion of changing, press (S) to return to the selection display,



Note When you turn on the Product for the first time, display shows r 0. (at motor stall) To change this display, change the setup of Pr5.28 (Initial status of LED).

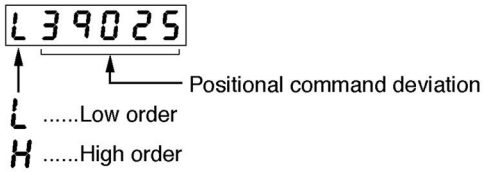
2 Preparation

15. How to Use the Front Panel

Monitor Mode (EXECUTION display)

(1) Display of positional command deviation [command unit]

Displays positional deviation of the command unit in High order or Low order.



• To switch between Low order (L) and High order (H), press ◄.

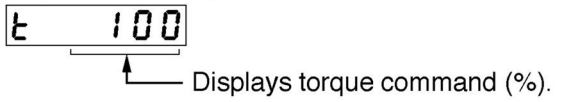
(2) Display of motor speed, positional command speed, velocity control command and torque command

• Motor speed (r/min)

• Positional command speed (r/min)

• Velocity control command (r/min)

• Torque command (%)

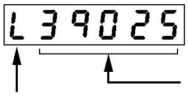


15. How to Use the Front Panel

Monitor Mode (EXECUTION display)

(3) Display of Feedback Pulse Sum, Command Pulse Sum and External Scale Feedback Pulse Sum

• Feedback Pulse Sum [Encoder feedback pulse]

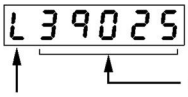


L .....Low order

H .....High order

• To switch between Low order (L) and High order (H), press ◄.

• Command Pulse Sum [Command Pulse]

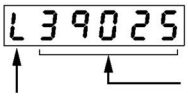


L .....Low order

H .....High order

• To switch between Low order (L) and High order (H), press ◄.

• External Scale Feedback Pulse Sum

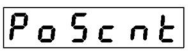


L .....Low order

H .....High order

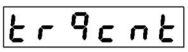
• To switch between Low order (L) and High order (H), press ◄.

(4) Display of Control Mode

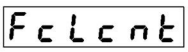


.....Position control mode

.....Velocity control mode



.....Torque control mode



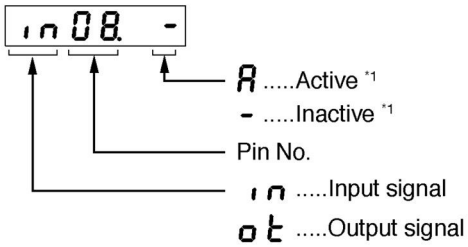
.....Full-closed control mode

15. How to Use the Front Panel

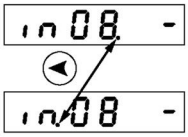
Monitor Mode (EXECUTION display)

(5) Display of I/O Signal Status

Displays the control input and output signal to be connected to connector X4.
Use this function to check if the wiring is correct or not.



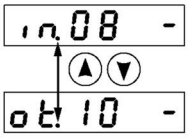
• Shift the flashing decimal point with ◀.



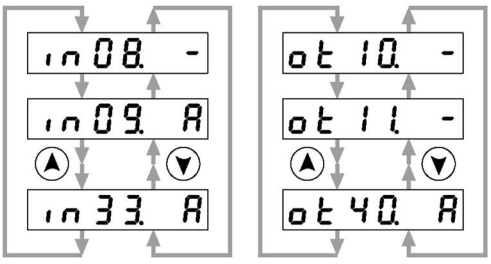
(Right side of decimal point : Pin No. selection)

(Left side of decimal point : Input/Output Pin No. selection)

• Select In or Out by pressing ▲ or ▼ button.



• Select the Pin No. to be monitored by pressing ▲▼.



(Lowest place Pin No. of output signal)

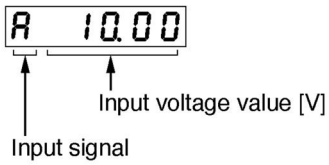
(Highest place Pin No. of input signal)

*1 When input signal Active : Input signal photocoupler is ON.
Inactive : Input signal photocoupler is OFF.
When output signal Active : Output signal transistor is ON.
Inactive : Output signal transistor is OFF.

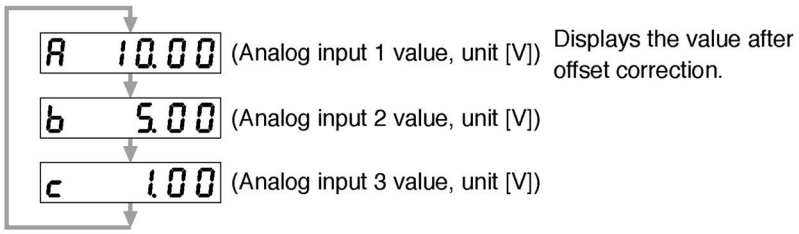
15. How to Use the Front Panel

Monitor Mode (EXECUTION display)

(6) Display of Analog Input Value



•Select the signal No. to be monitored by pressings ▲ ▼.

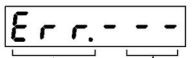


Caution Voltage exceeding ± 10V can not be displayed correctly.

15. How to Use the Front Panel

Monitor Mode (EXECUTION display)

(7) Display of Error Factor and Reference of History



Error code No. (- - - appears if no error occurs)

Err. .....Present error

E-0. .....History 0 (latest error)

E13. .....History 13 (oldest error)

- You can refer the last 14 error factors (including present one) Press ▲ ▼ to select the factor to be referred.

<List of error code No.>

Error code		Protective function	Attribute		
Main	Sub		History	Can be cleared	Immediate stop
11	0	Control power supply under- voltage protection		○	
12	0	Over-voltage protection	○	○	
13	0	Main power supply under-voltage protection (between P to N)		○	
	1	Main power supply under-voltage protection (AC interception detection)		○	
14	0	Over-current protection	○		
	1	IPM error protection	○		
15	0	Over-heat protection	○		○
16	0	Over-load protection	○	○*1	
18	0	Over-regeneration load protection	○		○
	1	Over-regeneration Tr error protection	○		
21	0	Encoder communication disconnect error protection	○		
	1	Encoder communication error protection	○		
23	0	Encoder communication data error protection	○		
24	0	Position deviation excess protection	○	○	○
	1	Velocity deviation excess protection	○	○	○
25	0	Hybrid deviation excess error protection	○		○
26	0	Over-speed protection	○	○	○
	1	2nd over-speed protection	○	○	
27	0	Command pulse input frequency error protection	○	○	○
	2	Command pulse multiplier error protection	○	○	○
28	0	Limit of pulse replay error protection	○	○	○
29	0	Deviation counter overflow protection	○	○	
30	0	Safety detection		○	
33	0	IF overlaps allocation error 1 protection	○		
	1	IF overlaps allocation error 2 protection	○		
	2	IF input function number error 1 protection	○		
	3	IF input function number error 2 protection	○		
	4	IF output function number error 1 protection	○		
	5	IF output function number error 2 protection	○		
	6	CL fitting error protection	○		
	7	INH fitting error protection	○		

15. How to Use the Front Panel

Monitor Mode (EXECUTION display)

Error code		Protective function	Attribute		
Main	Sub		History	Can be cleared	Immediate stop
34	0	Software limit protection	○	○	
36	0 to 2	EEPROM parameter error protection			
37	0 to 2	EEPROM check code error protection			
38	0	Over-travel inhibit input protection		○	
39	0	Analog input1 excess protection	○	○	○
	1	Analog input2 excess protection	○	○	○
	2	Analog input3 excess protection	○	○	○
40	0	Absolute system down error protection	○	○	
41	0	Absolute counter over error protection	○		
42	0	Absolute over-speed error protection	○	○	
43	0	Initialization failure	○		
44	0	Absolute single turn counter error protection	○		
45	0	Absolute multi-turn counter error protection	○		
47	0	Absolute status error protection	○		
48	0	Encoder Z-phase error protection	○		
49	0	Encoder CS signal error protection	○		
50	0	External scale connection error protection	○		
	1	External scale communication error protection	○		
51	0	External scale status 0 error protection	○		
	1	External scale status 1 error protection	○		
	2	External scale status 2 error protection	○		
	3	External scale status 3 error protection	○		
	4	External scale status 4 error protection	○		
	5	External scale status 5 error protection	○		
55	0	A-phase connection error protection	○		
	1	B-phase connection error protection	○		
	2	Z-phase connection error protection	○		
87	0	Compulsory alarm input protection		○	
95	0 to 4	Motor automatic recognition error protection			
Other number		Other error	○		

Note

History...The error will be stored in the error history.

Can be cleared...To cancel the error, use the alarm clear input (A-CLR).
If the alarm clear input is not effective, turn off power, remove the cause of the error and then turn on power again.

Immediate stop...Instantaneous controlled stop upon occurrence of an error.
(Setting of “Pr.5.10 Sequence at alarm” is also required.)

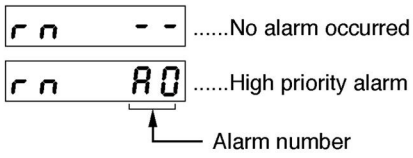
Caution

1) Certain alarms are not included in the history. For detailed information on alarms e.g. alarm numbers, refer to P.6-2.
2) When one of the errors which are listed in error history occurs, this error and history o shows the same error No.

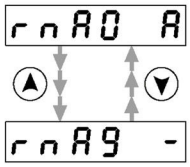
15. How to Use the Front Panel

Monitor Mode (EXECUTION display)

(8) Alarm Display



• To display the alarm occurrence condition, press ▲ or ▼ button.



alarm No.	Alarm	Content	Latched time *1
A0	Overload protection	Load factor is 85% or more the protection level.	1 to 10s or ∞
A1	Over-regeneration alarm	Regenerative load factor is 85% or more the protection level.	10s or ∞
A2	Battery alarm	Battery voltage is 3.2 V or lower.	Fixed at ∞
A3	Fan alarm	Fan has stopped for 1 sec.	1 to 10s or ∞
A4	Encoder communication alarm	The number of successive encoder communication errors exceeds the specified value.	1 to 10s or ∞
A5	Encoder overheat alarm	The encoder detects overheat alarm.	1 to 10s or ∞
A6	Oscillation detection alarm	Oscillation or vibration is detected.	1 to 10s or ∞
A7	Lifetime detection alarm	Life expectancy of capacitor or fan is short.	Fixed at ∞
A8	External scale error alarm	The external scale detects the alarm.	1 to 10s or ∞
A9	External scale communication alarm	The number of successive external scale communication errors exceeds the specified value.	1 to 10s or ∞

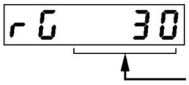
*1 Alarms can be cleared by using the alarm clear. Because the all existing alarms are kept cleared while the alarm clear input (A-CLR) is kept ON, be sure to turn it OFF during normal operation. Either 1-10s or ∞ can be selected by using user parameter.
Exception: Battery alarm is fixed at ∞ because it is latched by the encoder.
Because the end of life alarm means that the life expectancy cannot be extended, the alarm is set at ∞.

15. How to Use the Front Panel

Monitor Mode (EXECUTION display)

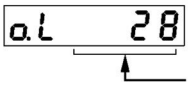
(9) Display of Regenerative Load Factor, Over-load Factor and Inertia Ratio

• Regenerative Load Factor



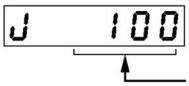
Display the ratio (%) against the alarm trigger level of regenerative protection.
This is valid when Pr0.16 (External regenerative resistor setup) is 0 or 1.

• Over-load Factor



Displays the ratio (%) against the rated load.
Refer to P.6-14, "Overload Protection Time Characteristics" of When in Trouble.

• Inertia Ratio



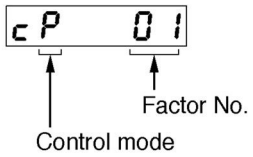
Displays the inertia ratio (%) .
Value of Pr0.04 (Inertia Ratio) will be displayed as it is.

15. How to Use the Front Panel

Monitor Mode (EXECUTION display)

10) Display of the Factor of No-Motor Running

Displays the factor of no-motor running in number.



P .....Position control t .....Torque control

S ..... Velocity control F ..... Full-closed control

• Explanation of factor No.

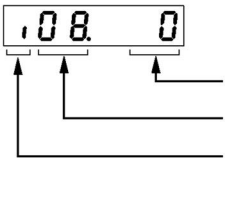
Factor No.	Factor	Related Control Mode				Content
		P	S	T	F	
flashing	Occurrence of error/alarm	○	○	○	○	An error is occurring, and an alarm is triggered.
00	No particular factor	○	○	○	○	No factor is detected for No-motor run. The motor runs in normal case.
01	Main power shutoff	○	○	○	○	The main power of the driver is not turned on.
02	No entry of SRV-ON input	○	○	○	○	The Servo-ON input (SRV-ON) is not connected to COM–.
03	Over-travel inhibition input is valid	○	○	○	○	While Pr5.04 is 0 (Run-inhibition input is valid), • Positive direction over-travel inhibition input (POT) is open and speed command is Positive direction. • Negative direction over-travel inhibition input (NOT) is open and speed command is Negative direction.
04	Torque limit setup is small	○	○	○	○	Either one of the valid torque limit setup value of Pr0.13 (1st) or Pr5.22 (2nd) is set to 5% or lower than the rating.
05	Analog torque limit input is valid.	○	○		○	While Pr5.21 is 0 (analog torque limit input accepted), • Positive direction analog torque limit input (P-ATL) is negative voltage and speed command is Positive direction. • Negative direction analog torque limit input (N-ATL) is positive voltage and speed command is Negative direction.
06	INH input is valid.	○			○	Pr5.18 is 0 (Command pulse inhibition input is valid.), and INH is open.
07	Command pulse input frequency is low.	○			○	The position command per each control cycle is 1 pulse or smaller due to, • No correct entry of command pulse • No correct connection to the input selected with Pr0.05. • No matching to input status selected with Pr0.06 pr Pr0.07.
08	CL input is valid.	○			○	While Pr5.17 is 0 (Deviation counter clear at level), the deviation counter clear input (CL) is connected to COM–.
09	ZEROSPD input is valid.		○	○		While Pr3.15 is 1 (Speed zero clamp is valid.), the speed zero clamp input (ZEROSPD) is open.
10	External speed command is small.		○			While the analog speed command is selected, the analog speed command is smaller than 0.06[V].
11	Internal speed command is 0.		○			While the internal speed command is selected, the internal speed command is set to lower than 30 [r/min]
12	Torque command is small.			○		The analog torque command input (SPR or P-ATL) is smaller than 5 [%] of the rating.
13	Speed limit is small.			○		• While Pr3.17 is 0 (speed is limited by 4th speed of internal speed), Pr3.07, (4th speed of speed setup) is set to lower than 30 [r/min]. • While Pr3.17 is 1 (speed is limited by SPR input), the analog speed limit input (SPR) is smaller than 0.06 [V].
14	Other factor	○	○	○	○	The motor runs at 20 [r/min] or lower even though the factors from 1 to 13 are cleared, (the command is small, the load is heavy, the motor lock or hitting, driver/motor fault etc.)

Note * Motor might run even though the other number than 0 is displayed.

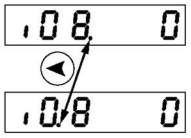
15. How to Use the Front Panel

Monitor Mode (EXECUTION display)

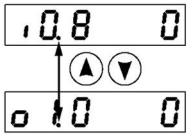
(11) Display of No. of changes in I/O signals



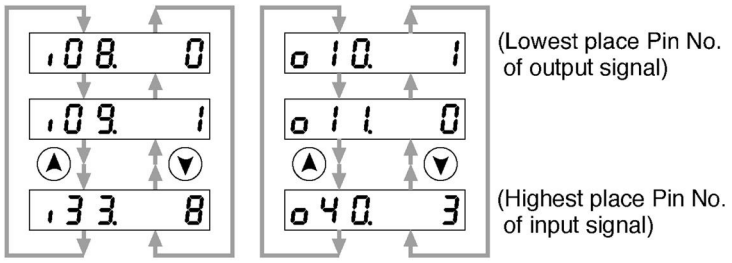
• Shift the flashing decimal point with ◀.



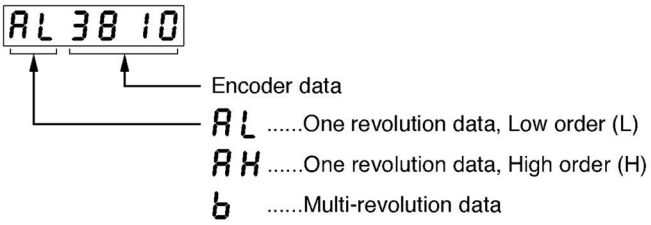
• The switch of input/output, by pressing ▲ or ▼ button.



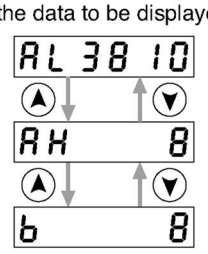
• Select the No. of pin, the number of changes on that pin should be displayed, by pressing ▲ or ▼ button.



(12) Display of absolute encoder data



• Select the data to be displayed by pressing ▲ or ▼ button.

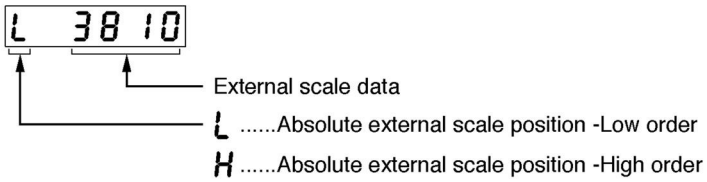


15. How to Use the Front Panel

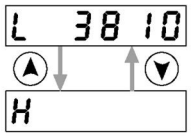
Monitor Mode (EXECUTION display)

(13) Display of absolute external scale position

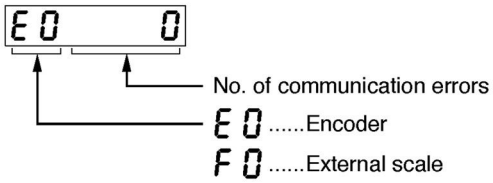
- Displays the absolute position of serial absolute scale.
- If a serial incremental scale, displays the scale position relative to the power on position which is defined as 0.



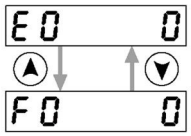
- Select encoder or external scale by pressing ▲ or ▼ button.



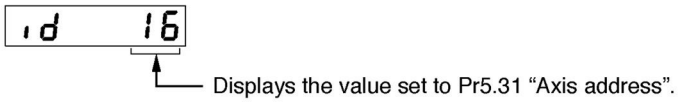
(14) Display of No. of encoder/ external scale communication errors monitor



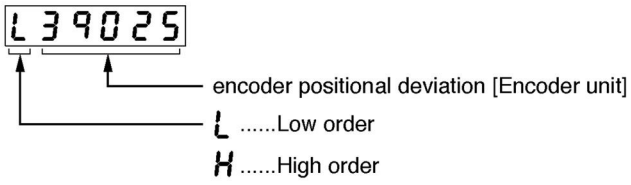
- Select encoder or external scale by pressing ▲ or ▼ button.



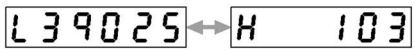
(15) Display of communication axis address



(16) Display of encoder positional deviation [Encoder unit]



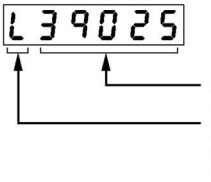
- To switch between Low order (L) and High order (H), press ◄.



15. How to Use the Front Panel

Monitor Mode (EXECUTION display)

(17) Display of External Scale Deviation [External Scale Unit]

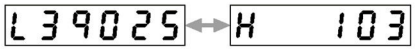


External Scale Deviation [External scale unit]

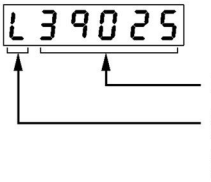
L .....Low order

H .....High order

• To switch between Low order (L) and High order (H), press ◄.



(18) Display of hybrid deviation [Command unit]

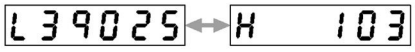


Hybrid deviation [Command unit]

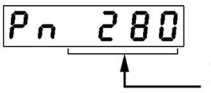
L .....Low order

H .....High order

• To switch between Low order (L) and High order (H), press ◄.

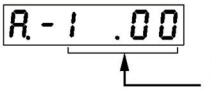


(19) Display of voltage across PN [V]



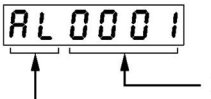
Displays the voltage across PN [V]
(only for reference not an instrument)

(20) Display of Software Version



Displays the software version of the driver.
(Example of display: Ver 1.00)

(21) Display of driver serial number

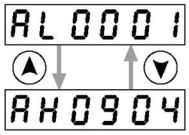


Driver serial number

AL .....Driver serial number- Low order

AH .....Driver serial number- High order

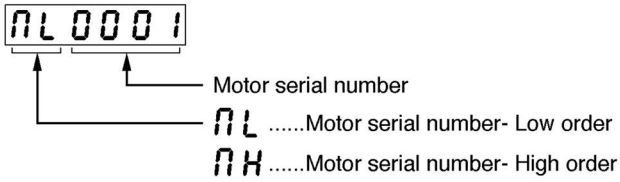
• To switch between Low order (L) and High order (H), press ▲ or ▼.
(Example of display: Serial number 09010001)



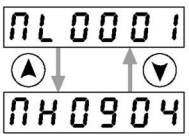
15. How to Use the Front Panel

Monitor Mode (EXECUTION display)

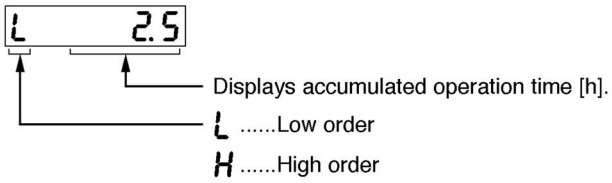
(22) Display of motor serial number



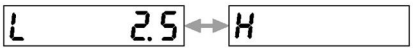
• To switch between Low order (L) and High order (H), press ▲ or ▼.
(Example of display: Serial number 09040001)



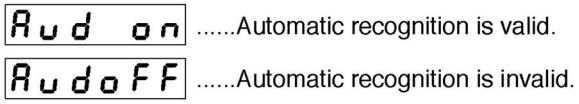
(23) Display of accumulated operation time



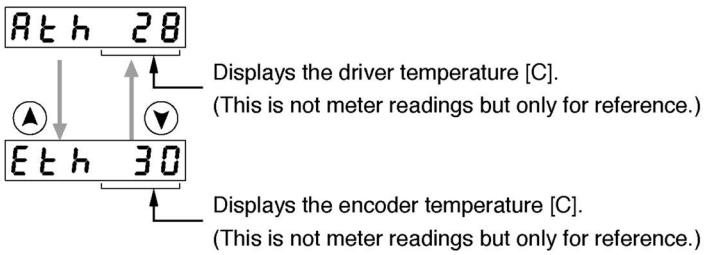
• To switch between Low order (L) and High order (H), press ◀.



(24) Automatic Motor Recognizing Function



(25) Display of temperature

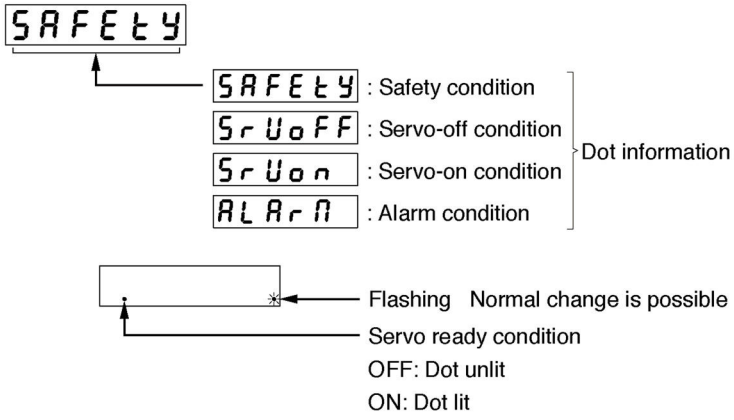


(*) Can be other values than 500 depending on the ZERO/SPAN adjustment.

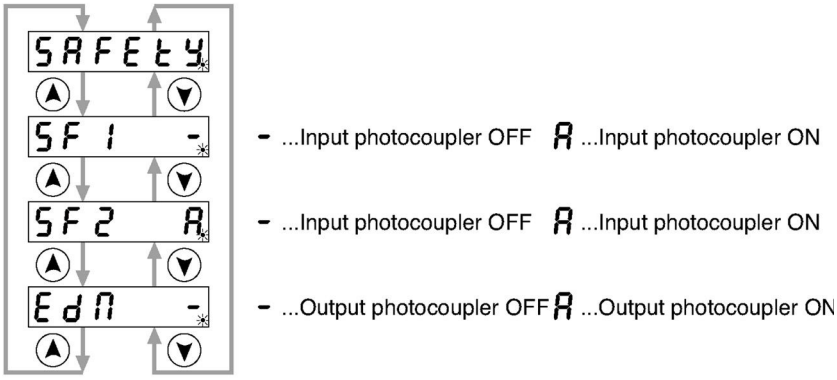
15. How to Use the Front Panel

Monitor Mode (EXECUTION display)

(26) Display of safety condition monitor



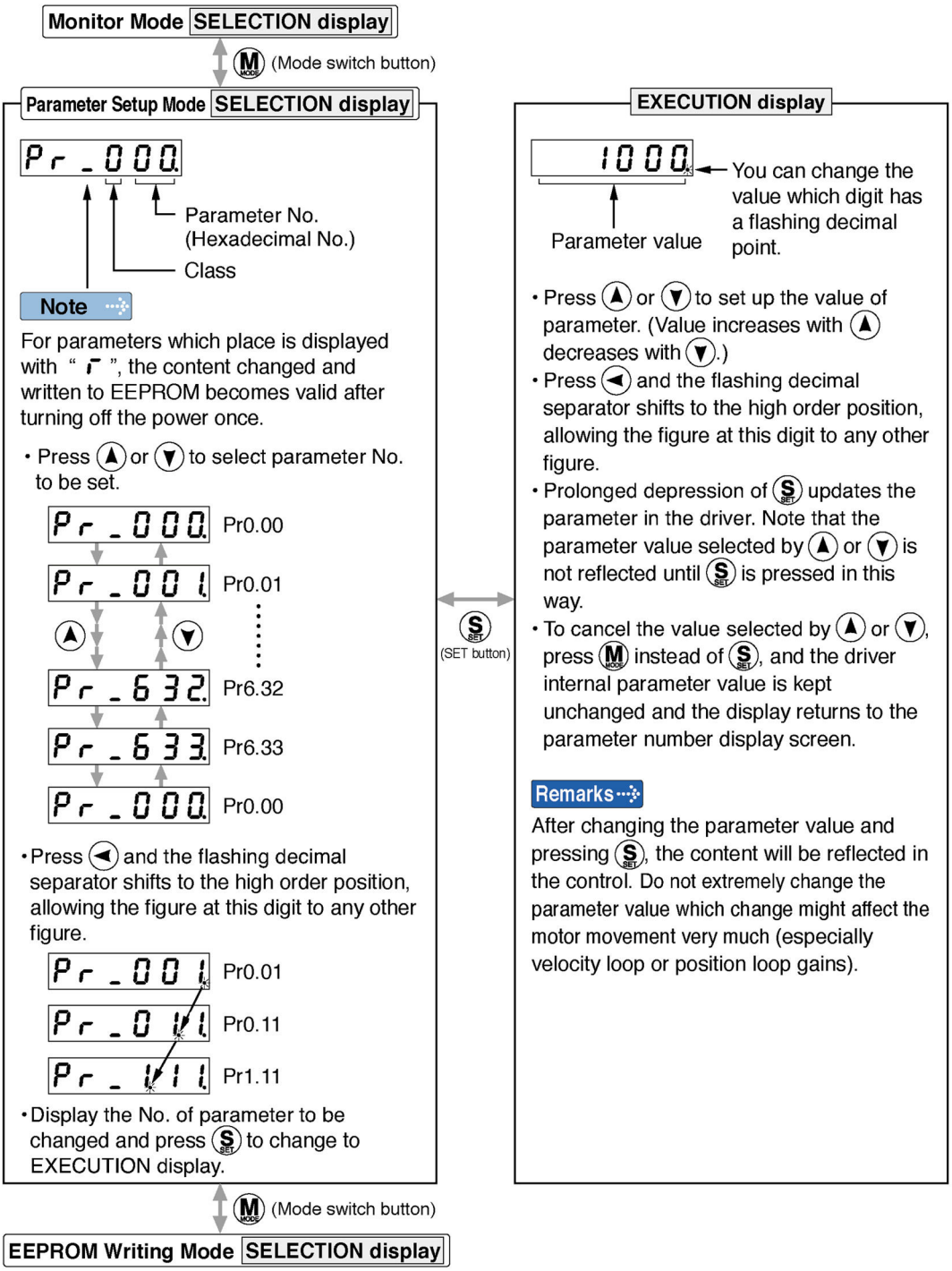
• Select desired monitor option by pressing ▲ or ▼ button.



2 Preparation

15. How to Use the Front Panel

Parameter Setup Mode



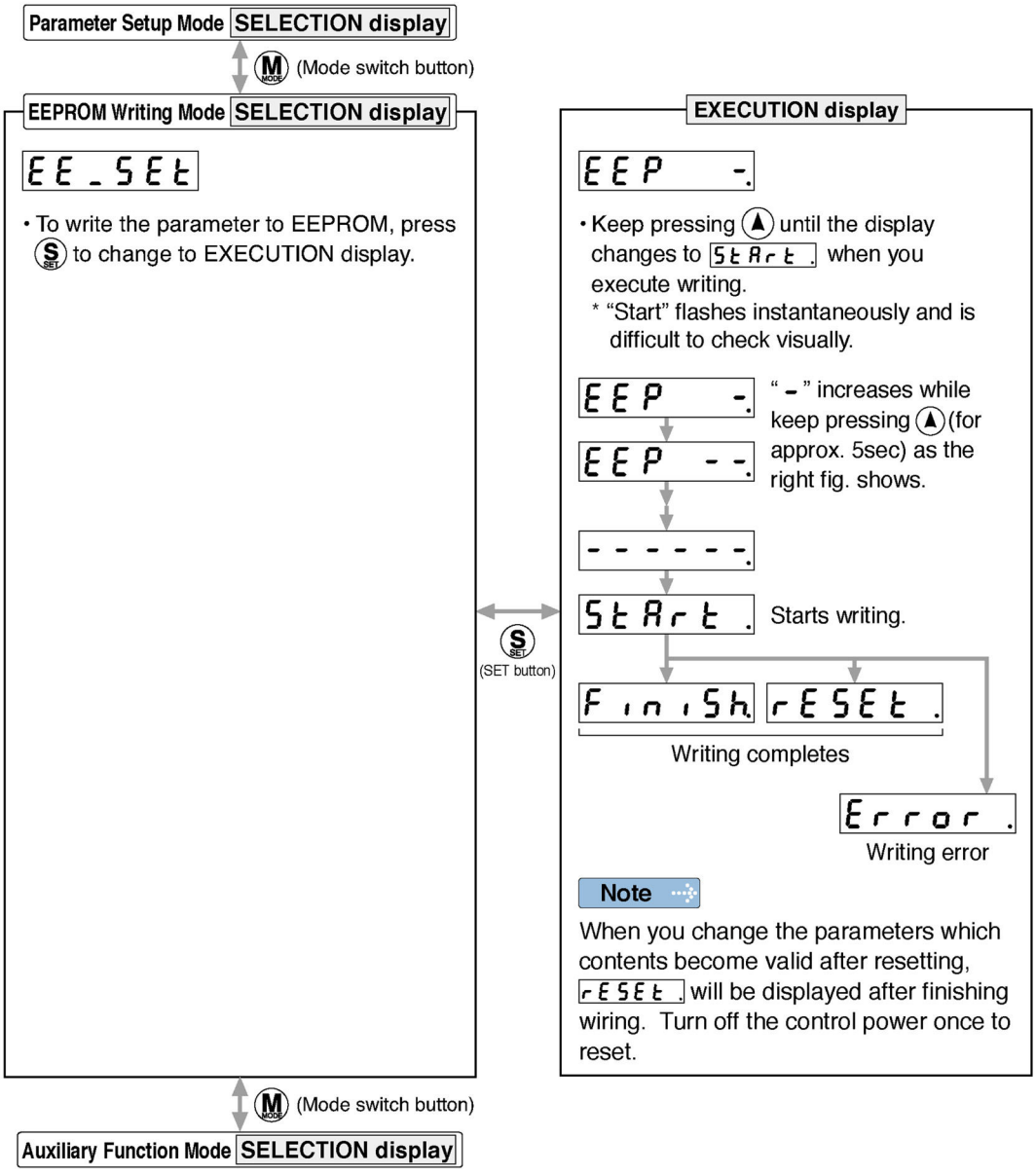
Note

- After setting up parameters, return to SELECT mode, referring to structure of each mode (P.2-88).
- Each parameter has a limit in number of places for upper-shifting.

2 Preparation

15. How to Use the Front Panel

EEPROM Writing Mode



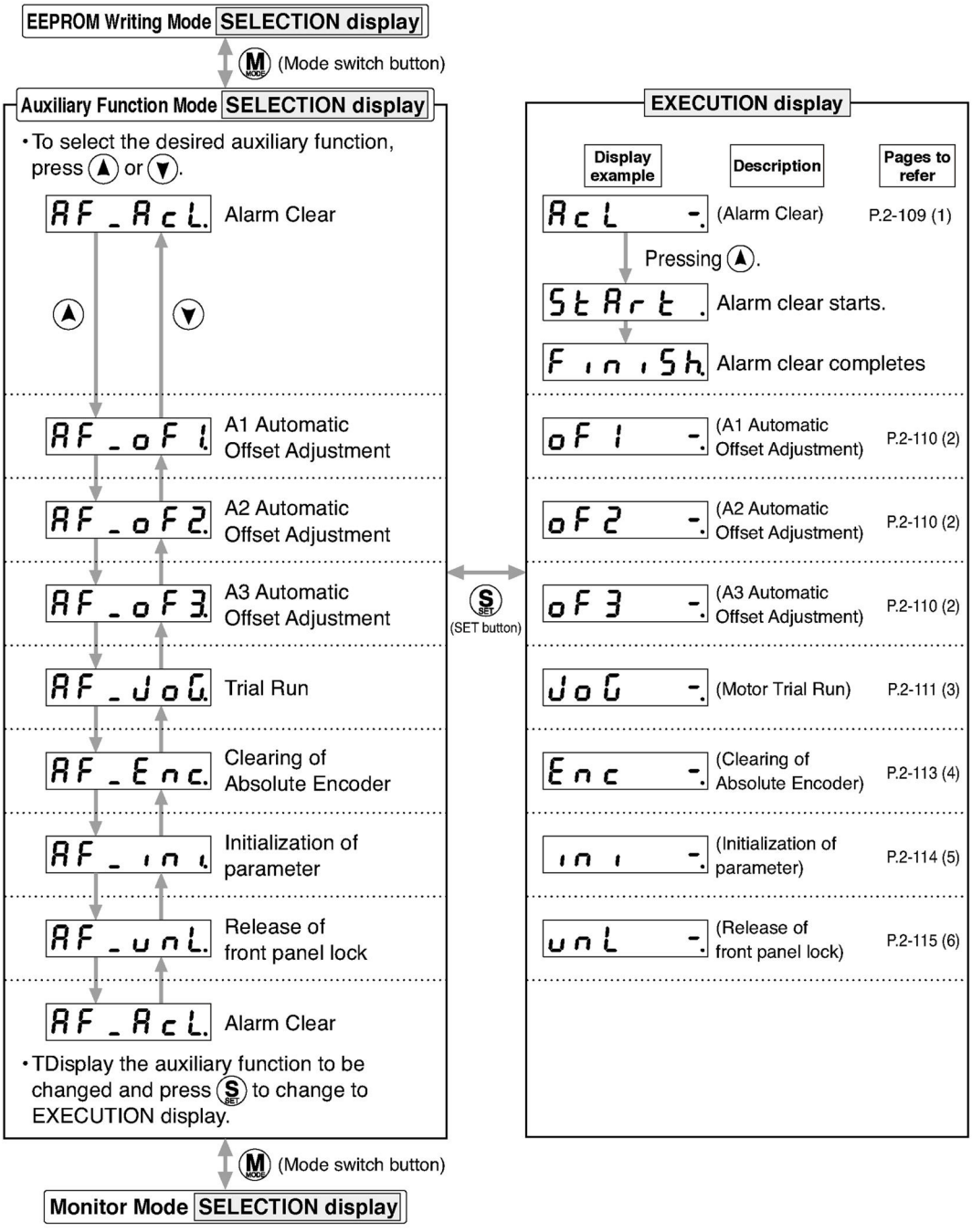
Caution

1. When writing error occurs, make writing again. If the writing error repeats many times, this might be a failure.
2. Don't turn off the power during EEPROM writing. Incorrect data might be written. If this happens, set up all of parameters again, and re-write after checking the data.
3. When the error defined by Err11.0 "Under voltage protection of control power supply" occurs, Error. is displayed indicating that no writing is made to EEPROM.

2 Preparation

15. How to Use the Front Panel

Auxiliary Function Mode (SELECTION display)



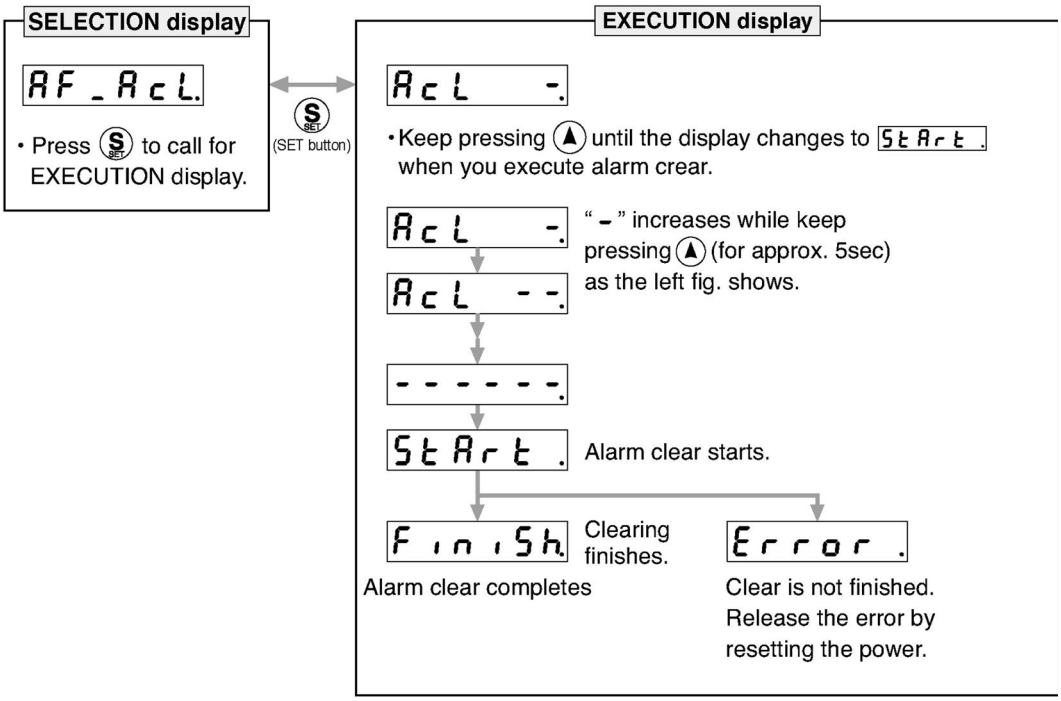
2 Preparation

15. How to Use the Front Panel

Auxiliary Function Mode (EXECUTION display)

1) Alarm Clear Screen

This function releases the current alarm status.
Certain alarms will persist. If this is the case, refer to P.6-2 “When in Trouble - Protective Function”.



Note • After alarm cleaning, return to SELECTION display, referring to structure of each mode (P.2-88).

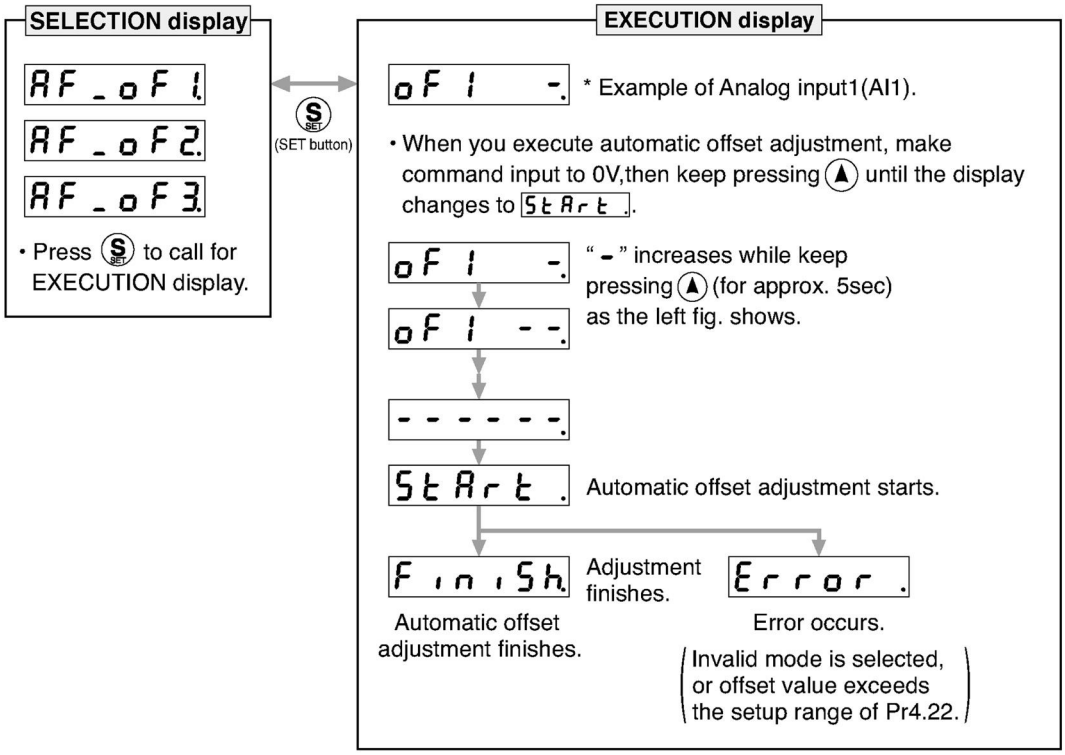
(*) Can be other values than 500 depending on the ZERO/SPAN adjustment.

15. How to Use the Front Panel

Auxiliary Function Mode (EXECUTION display)

(2) Analog inputs 1 to 3 automatic offset adjustment

This function automatically adjusts offset setting of analog input.
Analog input 1 (AI1).....Pr4.22 (Analog input 1 (AI1) offset setup)
Analog input 2 (AI2).....Pr4.25 (Analog input 2 (AI2) offset setup)
Analog input 3 (AI3).....Pr4.28 (Analog input 1 (AI3) offset setup)



Remarks • You cannot write the data only by executing automatic offset adjustment. Execute a writing to EEPROM when you need to reflect the result afterward.

Note • After completion of the automatic offset adjustment, return to SELECTION display by referring to P.2-88 "Structure of Each Mode".

15. How to Use the Front Panel

Auxiliary Function Mode (EXECUTION display)

(3) Motor trial run

You can make a trial run (JOG run) without connecting the Connector, Connector X4 to the host controller such as PLC.

Remarks

- Separate the motor from the load, detach the Connector, Connector X4 before the trial run.
- Bring the user parameter setups (especially Pr0.04 and Pr1.01 to 1.04) to defaults, to avoid oscillation or other failure.

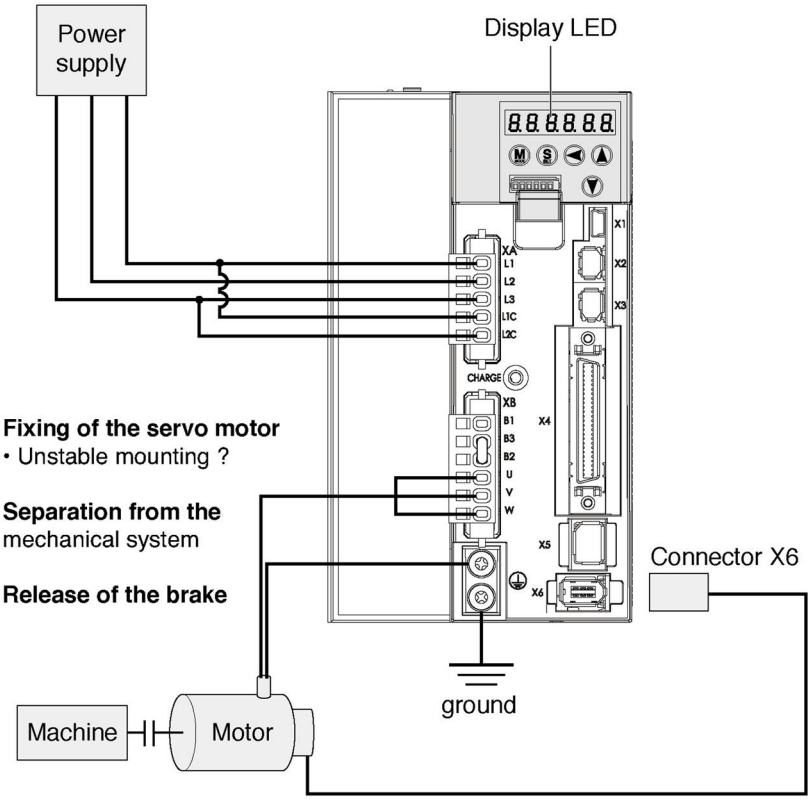
• Inspection Before Trial Run

(1) Inspection on wiring

- Miswiring ? (Especially power input and motor output)
- Short or grounded ?
- Loose connection ?

(2) Confirmation of power supply and voltage

- Rated voltage ?



(3) Fixing of the servo motor

- Unstable mounting ?

(4) Separation from the mechanical system

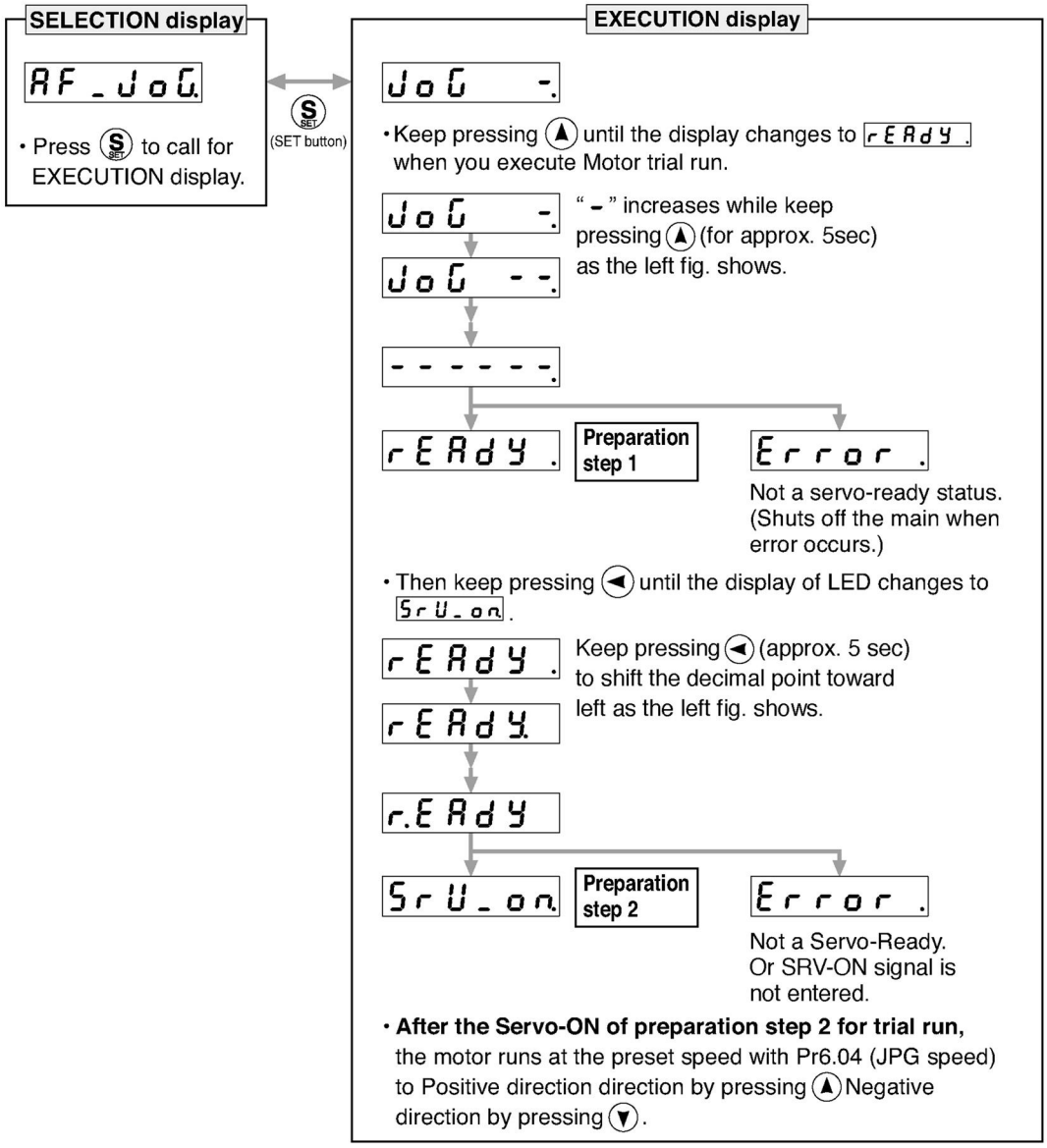
(5) Release of the brake

(6) Turn to Servo-OFF after finishing the trial run by pressing (S).

15. How to Use the Front Panel

Auxiliary Function Mode (EXECUTION display)

• Procedure for Trial Run



Caution

- Before starting the trial run, set the gain-related parameters to appropriate values to avoid problems such as oscillation. If the load is removed, be sure to set Pr0.04 “Inertia Ratio” to 0.
- During the trial run, use the velocity control mode. Various settings including parameters should assure safe and positive operation under appropriate velocity control.
- If SRV-ON becomes valid during trial run, the display changes to Error. which is normal run through external command.

Note

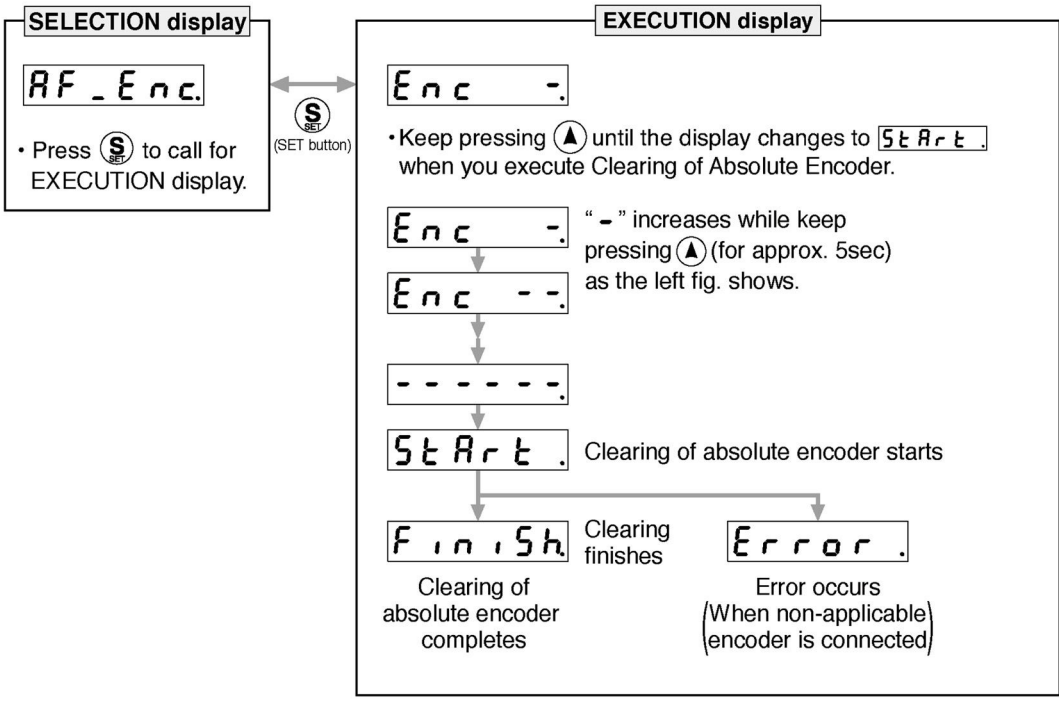
- After finished trial running, return to SELECTION display, referring to structure of each mode (P.2-88).

15. How to Use the Front Panel

Auxiliary Function Mode (EXECUTION display)

4) Clearing of Absolute Encoder

You can clear the multi-turn data of the absolute encoder.



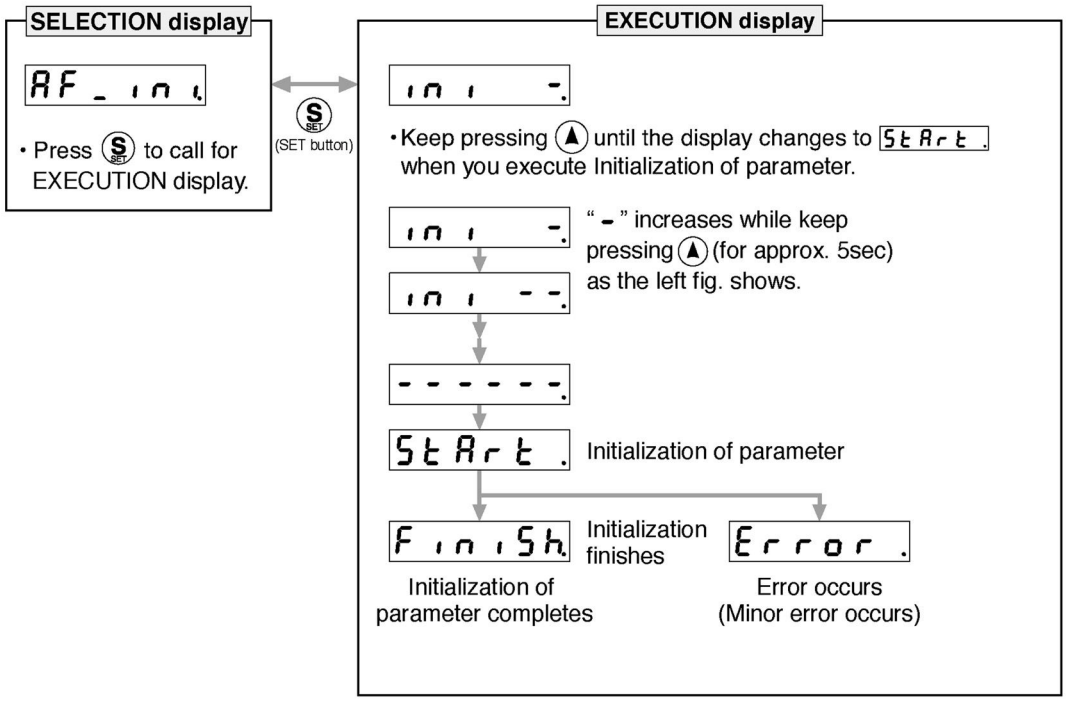
Note • After clearing of absolute encoder finishes, return to SELECTION display, referring to structure of each mode (P.2-88).

15. How to Use the Front Panel

Auxiliary Function Mode (EXECUTION display)

(5) Initialization of parameter

Initialize the parameter.



Caution • Parameter cannot be initialized when one of the following error occurs: Err11.0 "Under voltage protection of control power supply", EEPROM related errors (Err36.0, Err36.1, Err36.2, Err37.0, Err37.1 and Err37.2) - initialization will result in "Error" display.

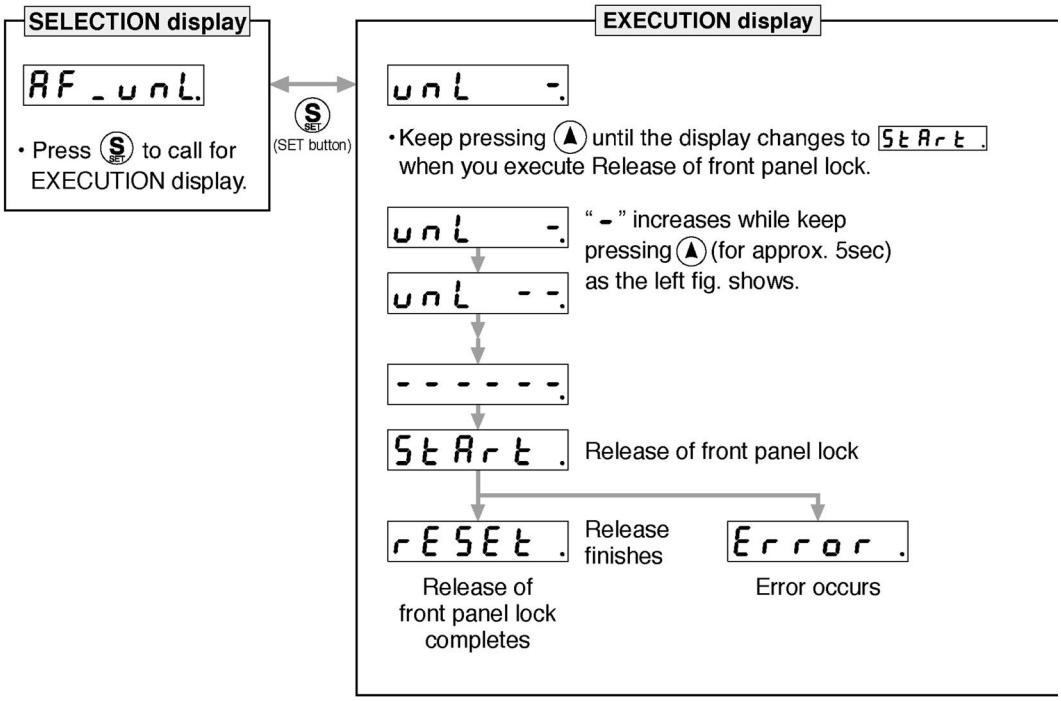
Note • After initialization of parameter finishes, return to SELECTION display, referring to structure of each mode (P.2-88).

15. How to Use the Front Panel

Auxiliary Function Mode (EXECUTION display)

(6) Release of front panel lock

Release the front panel lock setting.



Note • After release of front panel lock finishes, return to SELECTION display, referring to structure of each mode (P.2-88).

5.10.1.2 AC Servo Driver Parameter

ATLAS-204

- A parameter is designated as follows:
  Pr0.00
  Class —— Parameter No.
- Definition of symbols under “Related mode”
  P: position control, S: velocity control,
  T: torque control, F: full closed control

Parameter No. Class	No.	Title		M1 (PullDown)	M2 (Jaw Rotation)	M3 (Pivot)	M4 (Film Roll)	M5 (BackSeal)	M7 (Shaker)	M9 (Poker)
[Class 0] Basic setting	00	Rotational direction setup		1	1	1	1	1	1	1
	01	Control mode setup		1	1	5	1	1	1	1
	02	Real-time auto-gain tuning	setup	0	0	0	0	0	0	0
	03		selection of machine stiffness	12	11	11	12	12	12	12
	04	Inertia ratio		100	0	0	100	100	100	0
	05	Command pulse	input selection	0	0	0	0	0	0	0
	06		rotational direction setup	0	0	0	0	0	0	0
	07		input mode setup	1	1	1	1	1	1	1
	08	Command pulse counts per one motor revolution		10000	10000	10000	10000	10000	10000	10000
	09	1st numerator of electronic gear		0	0	0	0	0	0	0
	10	Denominator of electronic gear		10000	10000	10000	10000	10000	10000	10000
	11	Output pulse counts per one motor revolution		1000	2500	1000	2500	2500	2500	250
	12	Reversal of pulse output logic		0	0	0	0	0	0	0
	13	1st torque limit		300	300	300	300	300	300	300
	14	Position deviation excess setup		488281	6400000	6400000	488281	488281	488281	6400000
	15	Absolute encoder setup		1	1	1	1	1	1	1
	16	External regenerative resistor setup		0	0	0	3	3	3	0
	17	Load factor of external regenerative resistor selection		0	0	0	0	0	0	0
[Class 1] Gain adjustment	00	1st	gain of position loop	500	500	500	500	500	500	500
	01		gain of velocity loop	1000	1000	1000	1000	1000	1000	500
	02		time constant of velocity loop integration	500	10000	500	500	500	500	500
	03		filter of speed detection	4	4	4	4	4	4	4
	04		time constant of torque filter	50	100	50	50	50	50	100
	05	2nd	gain of position loop	500	500	500	500	500	500	500
	06		gain of velocity loop	1000	1000	1000	1000	1000	1000	500
	07		time constant of velocity loop integration	500	5000	500	500	500	500	500
	08		filter of speed detection	4	4	4	4	4	4	4
	09		time constant of torque filter	50	50	50	50	50	50	50
	10	Velocity feed forward	gain	0	0	0	0	0	0	0
	11		filter	0	0	0	0	0	0	0
	12	Torque feed forward	gain	0	0	0	0	0	0	0
	13		filter	0	0	0	0	0	0	0
	14	2nd gain setup		0	1	0	0	0	0	0
	15	Position control switching	mode	0	0	0	0	0	0	0
	16		delay time	0	0	0	0	0	0	0
	17		level	0	0	0	0	0	0	0
	18		hysteresis	0	0	0	0	0	0	0
	19	Position gain switching time		0	0	0	0	0	0	0
	20	Velocity control switching	mode	0	5	0	0	0	0	0
	21		delay time	0	0	0	0	0	0	0
	22		level	0	5	0	0	0	0	0
	23		hysteresis	0	0	0	0	0	0	0
	24	Torque control switching	mode	0	0	0	0	0	0	0
	25		delay time	0	0	0	0	0	0	0
	26		level	0	0	0	0	0	0	0
	27		hysteresis	0	0	0	0	0	0	0

Parameter No.		Title		M1 (PullDown)	M2 (Jaw Rotation)	M3 (Pivot)	M4 (Film Roll)	M5 (BackSeal)	M7 (Shaker)	M9 (Poker)
Class	No.									
[Class 2] Damping control	00	Adaptive filter mode setup		1	1	1	1	1	1	4
	01	1st notch	frequency	1000	5000	5000	5000	5000	5000	5000
	02		width selection	2	2	2	2	2	2	2
	03		depth selection	0	0	0	0	0	0	0
	04	2nd notch	frequency	1000	1500	1500	1000	1000	1000	5000
	05		width selection	2	2	2	2	2	2	2
	06		depth selection	0	0	0	0	0	0	0
	07	3rd notch	frequency	5000	562	562	5000	5000	2456	5000
	08		width selection	2	2	2	2	2	2	2
	09		depth selection	0	0	0	0	0	0	0
	10	4th notch	frequency	5000	5000	5000	5000	5000	5000	5000
	11		width selection	2	2	2	2	2	2	2
	12		depth selection	0	0	0	0	0	0	0
	13	Selection of damping filter switching		0	0	0	0	0	0	0
	14	1st damping	frequency	0	0	0	0	0	0	0
	15		filter setup	0	0	0	0	0	0	0
	16	2nd damping	frequency	0	0	0	0	0	0	0
	17		filter setup	0	0	0	0	0	0	0
	18	3rd damping	frequency	0	0	0	0	0	0	0
	19		filter setup	0	0	0	0	0	0	0
	20	4th damping	frequency	0	0	0	0	0	0	0
	21		filter setup	0	0	0	0	0	0	0
	22	Positional command	smoothing filter	2	2	2	2	2	2	2
	23		FIR filter	0	0	0	0	0	0	0
[Class 3] Velocity/ Torque/ Full-closed control	00	Speed setup, Internal/External switching		0	0	0	0	0	0	0
	01	Speed command	rotational direction selection	0	0	0	0	0	0	0
	02		input gain	500(*)	200	400	500(*)	500(*)	300	500
	03		reversal input	1	0	0	1	0	1	0
	04	Speed setup	1st	0	0	0	0	0	0	0
	05		2nd	0	0	0	0	0	0	0
	06		3rd	0	0	0	0	0	0	0
	07		4th	0	0	1200	0	0	0	0
	08		5th	0	0	0	0	0	0	0
	09		6th	0	0	0	0	0	0	0
	10		7th	0	0	0	0	0	0	0
	11		8th	0	0	0	0	0	0	0
	12	Time setup	acceleration	0	0	0	0	0	0	0
	13		deceleration	0	0	0	0	0	0	0
	14	Sigmoid acceleration/deceleration time setup		0	0	0	0	0	0	0
	15	Speed zero-clamp	function selection	1	0	0	1	1	1	1
	16		level	30	30	30	30	30	30	30
	17	Torque command	selection	0	0	0	0	0	0	0
	18		direction selection	0	0	0	0	0	0	0
	19		input gain	30	30	30	30	30	30	30
	20		input reversal	0	0	0	0	0	0	0
	21	Speed limit value	1	0	0	0	0	0	0	0
	22		2	0	0	0	0	0	0	0
	23	External scale	selection	2	2	2	2	2	2	2
	24		numerator of division	0	0	0	0	0	0	0
	25		denominator of division	10000	10000	10000	10000	10000	10000	10000
	26		reversal of direction	0	0	0	0	0	0	0
	27		Z phase disconnection detection disable	0	0	0	0	0	0	0
	28	Hybrid deviation	excess setup	122	1600	1600	122	122	122	1600
	29		clear setup	0	0	0	0	0	0	0

Parameter No.		Title		M1 (PullDown)	M2 (Jaw Rotation)	M3 (Pivot)	M4 (Film Roll)	M5 (BackSeal)	M7 (Shaker)	M9 (Poker)
Class	No.									
[Class 4] I/F monitor setting	00	Input selection	SI1 (Pin No.8)	8553090	8553090	8553090	8553090	8553090	8553090	8553090
	01		SI2 (Pin No.9)	8487297	8487297	8487297	8487297	8487297	8487297	8487297
	02		SI3 (Pin No.26)	9539850	9539850	9539850	9539850	9539850	9539850	9539850
	03		SI4 (Pin No.27)	394758	394758	394758	394758	394758	394758	394758
	04		SI5 (Pin No.28)	4108	4108	4108	4108	4108	4108	4108
	05		SI6 (Pin No.29)	197379	197379	197379	197379	197379	197379	197379
	06		SI7 (Pin No.30)	3847	3847	3847	3847	3847	3847	3847
	07		SI8 (Pin No.31)	263172	263172	263172	263172	263172	263172	263172
	08		SI9 (Pin No.32)	328965	328965	328965	328965	328965	328965	328965
	09		SI10 (Pin No.33)	3720	3720	3720	3720	3720	3720	3720
	10	Output selection	SO1 (Pin No.10, 11 Line driver output)	197379	197379	197379	197379	197379	197379	197379
	11		SO2 (Pin No.34, 35 Line driver output)	131586	131586	131586	131586	131586	131586	131586
	12		SO3 (Pin No.36, 37 Line driver output)	65793	65793	65793	65793	65793	65793	65793
	13		SO4 (Pin No.38, 39 Line driver output)	328964	328964	328964	328964	328964	328964	328964
	14		SO5 (Pin No.12 Open collector output)	460551	460551	460551	460551	460551	460551	460551
	15		SO6 (Pin No.40 Open collector output)	394758	394758	394758	394758	394758	394758	394758
	16	Analog monitor 1	type	0	0	0	0	0	0	0
	17		output gain	500	500	500	500	500	500	500
	18	Analog monitor 2	type	4	4	4	4	4	4	4
	19		output gain	33	33	33	33	33	33	33
	20	Type of digital monitor		0	0	0	0	0	0	0
	21	Analog monitor output setup		0	0	0	0	0	0	0
	22	Analog input 1 (AI1)	offset setup	0	0	0	0	0	0	0
	23		filter	0	0	0	0	0	0	0
	24		overvoltage setup	0	0	0	0	0	0	0
	25	Analog input 2 (AI2)	offset setup	0	0	0	0	0	0	0
	26		filter	0	0	0	0	0	0	0
	27		overvoltage setup	0	0	0	0	0	0	0
	28	Analog input 3 (AI3)	offset setup	0	0	0	0	0	0	0
	29		filter	0	0	0	0	0	0	0
	30		overvoltage setup	0	0	0	0	0	0	0
	31	Positioning complete (In-position)	range	1	10	10	1	1	1	10
	32		output setup	0	0	0	0	0	0	0
	33	INP hold time		0	0	0	0	0	0	0
	34	Zero-speed		50	50	50	50	50	50	50
	35	Speed coincidence range		50	50	50	50	50	50	50
	36	At-speed (Speed arrival)		1000	1000	1000	1000	1000	1000	1000
	37	Mechanical brake action	at stalling setup	0	0	0	0	0	0	0
	38		at running setup	0	0	0	0	0	0	0
	39	Mechanical brake action at running setup		30	30	30	30	30	30	30
	40	Selection of alarm output	1	0	0	0	0	0	0	0
	41		2	0	0	0	0	0	0	0
	42	2nd Positioning complete (In-position) range		10	10	10	10	10	10	10

Parameter No.		Title		M1 (PullDown)	M2 (Jaw Rotation)	M3 (Pivot)	M4 (Film Roll)	M5 (BackSeal)	M7 (Shaker)	M9 (Poker)
Class	No.									
[Class 5] Enhancing setting	00	2nd	numerator of electronic gear	0	0	0	0	0	0	0
	01	3rd	numerator of electronic gear	0	0	0	0	0	0	0
	02	4th	numerator of electronic gear	0	0	0	0	0	0	0
	03	Denominator of pulse output division		0	0	0	0	0	0	0
	04	Over-travel inhibit input setup		1	1	1	1	1	1	1
	05	Sequence at over-travel inhibit		0	0	0	0	0	0	0
	06	Sequence at Servo-Off		3	0	0	3	3	3	3
	07	Main power OFF	sequence	3	0	0	3	3	3	3
	08		LV trip selection	1	1	1	1	1	1	1
	09		detection time	70	70	70	70	70	70	70
	10	Sequence at alarm		3	0	0	3	3	3	3
	11	Torque setup for emergency stop		0	0	0	0	0	0	0
	12	Over-load level setup		0	0	0	0	0	0	0
	13	Over-speed level setup		0	0	0	0	0	0	0
	14	Motor working range setup		10	10	10	10	10	10	10
	15	I/F reading filter		0	0	0	0	0	0	0
	16	Alarm clear input setup		0	0	0	0	0	0	0
	17	Counter clear input mode		3	3	3	3	3	3	3
	18	Command pulse inhibit input	invalidation	1	1	1	1	1	1	1
	19		reading setup	4	4	4	4	4	4	4
	20	Position setup unit select		0	0	0	0	0	0	0
	21	Selection of torque limit		1	1	1	1	1	1	1
	22	2nd torque limit		300	300	300	300	300	300	300
	23	Torque limit switching setup	1	0	0	0	0	0	0	0
	24		2	0	0	0	0	0	0	0
	25	External input	positive direction torque limit	300	300	500	300	300	300	500
	26		negative direction torque limit	300	300	500	300	300	300	500
	27	Input gain of analog torque limit		30	30	30	30	30	30	30
	28	LED initial status		1	1	1	1	1	1	1
	29	RS232	baud rate setup	2	2	2	2	2	2	2
	30	RS485		2	2	2	2	2	2	2
	31	Axis address		1	1	1	1	1	1	1
	32	Command pulse input maximum setup		4000	4000	4000	4000	4000	4000	4000
	33	Pulse regenerative output limit setup		0	0	0	0	0	0	0
	34	For manufacturer's use		4	4	4	4	4	4	4
	35	Front panel lock setup		0	0	0	0	0	0	0

Parameter No.		Title		M1 (PullDown)	M2 (Jaw Rotation)	M3 (Pivot)	M4 (Film Roll)	M5 (BackSeal)	M7 (Shaker)	M9 (Poker)
Class	No.									
[Class 6] Special setting	00	Analog torque feed forward conversion gain		0	0	0	0	0	0	0
	02	Velocity deviation excess setup		0	0	0	0	0	0	0
	04	JOG trial run command speed		300	300	300	300	300	300	50
	05	Position 3rd gain	valid time	0	0	0	0	0	0	0
	06		scale factor	100	100	100	100	100	100	100
	07	Torque command additional value		0	0	0	0	0	0	0
	08	Positive direction	torque compensation value	0	0	0	0	0	0	0
	09	Negative direction		0	0	0	0	0	0	0
	10	Function expansion setup		0	0	0	0	0	0	0
	11	Current response setup		100	100	100	100	100	100	100
	13	2nd Inertia ratio		250	250	250	250	250	250	250
	14	Emergency stop time at alarm		200	200	200	200	200	200	200
	15	2nd over-speed level setup		0	0	0	0	0	0	0
	17	Front panel parameter writing selection		0	0	0	0	0	0	0
	18	Power-up wait time		0	0	0	0	0	0	0
	19	Encoder Z phase setup		0	0	0	0	0	0	0
	20	Z-phase setup of external scale		0	0	0	0	0	0	0
	21	Serial absolute external scale Z phase setup		0	0	0	0	0	0	0
	22	A, B phase external scale pulse output method selection		0	0	0	0	0	0	0
	23	Disturbance torque compensating gain		0	0	0	0	0	0	0
	24	Disturbance observer filter		53	53	53	53	53	53	53
	27	Alarm latch time selection		1	5	5	1	1	1	1
	31	Real time auto tuning	estimation speed	1	1	1	1	1	1	1
	32		custom setup	0	0	0	0	0	0	0
	34	Hybrid vibration suppression	gain	0	0	0	0	0	0	0
	35		filter	10	10	10	10	10	10	10
	37	Oscillation detection level		0	0	0	0	0	0	0
	38	Alarm mask setup		0	0	4	0	0	0	0
	39	For manufacturer's use		0	0	0	0	0	0	0

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- A parameter is designated as follows:
  Pr0.00
  Class —┘ └— Parameter No.
- Definition of symbols under “Related mode”
  P: position control, S: velocity control,
  T: torque control, F: full closed control

Parameter No.		Title		M1 (PullDown)	M2 (Jaw Rotation)	M3 (Pivot)	M4 (Film Roll)	M5 (BackSeal)	M7 (Shaker)	M9 (Poker)
Class	No.									
[Class 0] Basic setting	00	Rotational direction setup		1	1	1	1	1	1	1
	01	Control mode setup		1	1	5	1	1	1	
	02	Real-time auto-gain tuning	setup	0	0	0	0	0	0	
	03		selection of machine stiffness	12	11	11	12	12	12	12
	04	Inertia ratio		100	0	0	100	100	100	0
	05	Command pulse	input selection	0	0	0	0	0	0	0
	06		rotational direction setup	0	0	0	0	0	0	0
	07		input mode setup	1	1	1	1	1	1	1
	08	Command pulse counts per one motor revolution		10000	10000	10000	10000	10000	10000	10000
	09	1st numerator of electronic gear		0	0	0	0	0	0	0
	10	Denominator of electronic gear		10000	10000	10000	10000	10000	10000	10000
	11	Output pulse counts per one motor revolution		1000	2500	1000	2500	2500	2500	250
	12	Reversal of pulse output logic		0	0	0	0	0	0	0
	13	1st torque limit		300	300	250	300	300	300	300
	14	Position deviation excess setup		488281	6400000	6400000	488281	488281	488281	6400000
	15	Absolute encoder setup		1	1	1	1	1	1	1
	16	External regenerative resistor setup		0	1	0	3	3	3	0
	17	Load factor of external regenerative resistor selection		0	0	0	0	0	0	0
[Class 1] Gain adjustment	00	1st	gain of position loop	500	500	500	500	500	500	500
	01		gain of velocity loop	1000	1000	2000	1000	1000	1000	500
	02		time constant of velocity loop integration	500	10000	500	500	500	500	500
	03		filter of speed detection	4	4	4	4	4	4	4
	04		time constant of torque filter	50	100	50	50	50	50	100
	05	2nd	gain of position loop	500	500	500	500	500	500	500
	06		gain of velocity loop	1000	1000	1000	1000	1000	1000	500
	07		time constant of velocity loop integration	500	5000	500	500	500	500	500
	08		filter of speed detection	4	4	4	4	4	4	4
	09		time constant of torque filter	50	50	50	50	50	50	50
	10	Velocity feed forward	gain	0	0	0	0	0	0	0
	11		filter	0	0	0	0	0	0	0
	12	Torque feed forward	gain	0	0	0	0	0	0	0
	13		filter	0	0	0	0	0	0	0
	14	2nd gain setup		0	1	0	0	0	0	0
	15	Position control switching	mode	0	0	0	0	0	0	0
	16		delay time	0	0	0	0	0	0	0
	17		level	0	0	0	0	0	0	0
	18		hysteresis	0	0	0	0	0	0	0
	19	Position gain switching time		0	0	0	0	0	0	0
	20	Velocity control switching	mode	0	5	0	0	0	0	0
	21		delay time	0	0	0	0	0	0	0
	22		level	0	5	0	0	0	0	0
	23		hysteresis	0	0	0	0	0	0	0
	24	Torque control switching	mode	0	0	0	0	0	0	0
	25		delay time	0	0	0	0	0	0	0
	26		level	0	0	0	0	0	0	1
	27		hysteresis	0	0	0	0	0	0	0

Parameter No.		Title		M1 (PullDown)	M2 (Jaw Rotation)	M3 (Pivot)	M4 (Film Roll)	M5 (BackSeal)	M7 (Shaker)	M9 (Poker)
Class	No.									
[Class 2] Damping control	00	Adaptive filter mode setup		1	0	1	1	1	1	4
	01	1st notch	frequency	1000	220	580	5000	5000	5000	5000
	02		width selection	2	2	2	2	2	2	2
	03		depth selection	0	30	0	0	0	0	0
	04	2nd notch	frequency	1000	5000	1600	1000	1000	1000	5000
	05		width selection	2	2	2	2	2	2	2
	06		depth selection	0	0	0	0	0	0	0
	07	3rd notch	frequency	5000	5000	5000	5000	5000	2456	5000
	08		width selection	2	2	2	2	2	2	2
	09		depth selection	0	0	0	0	0	0	0
	10	4th notch	frequency	5000	5000	5000	5000	5000	5000	5000
	11		width selection	2	2	2	2	2	2	2
	12		depth selection	0	0	0	0	0	0	0
	13	Selection of damping filter switching		0	0	0	0	0	0	0
	14	1st damping	frequency	0	0	0	0	0	0	0
	15		filter setup	0	0	0	0	0	0	0
	16	2nd damping	frequency	0	0	0	0	0	0	0
	17		filter setup	0	0	0	0	0	0	0
	18	3rd damping	frequency	0	0	0	0	0	0	0
	19		filter setup	0	0	0	0	0	0	0
	20	4th damping	frequency	0	0	0	0	0	0	0
	21		filter setup	0	0	0	0	0	0	0
	22	Positional command	smoothing filter	2	2	2	2	2	2	2
	23		FIR filter	0	0	0	0	0	0	0
[Class 3] Velocity/ Torque/ Full-closed control	00	Speed setup, Internal/External switching		0	0	0	0	0	0	0
	01	Speed command	rotational direction selection	0	0	0	0	0	0	0
	02		input gain	500(*)	250	400	500(*)	500(*)	300	500
	03		reversal input	1	0	0	1	0	1	0
	04	Speed setup	1st	0	0	0	0	0	0	0
	05		2nd	0	0	0	0	0	0	0
	06		3rd	0	0	0	0	0	0	0
	07		4th	0	0	0	0	0	0	0
	08		5th	0	0	0	0	0	0	0
	09		6th	0	0	0	0	0	0	0
	10		7th	0	0	0	0	0	0	0
	11		8th	0	0	0	0	0	0	0
	12	Time setup	acceleration	0	0	0	0	0	0	0
	13		deceleration	0	0	0	0	0	0	0
	14	Sigmoid acceleration/deceleration time setup		0	0	0	0	0	0	0
	15	Speed zero-clamp	function selection	1	0	0	1	1	1	1
	16		level	30	30	30	30	30	30	30
	17	Torque command	selection	0	0	1	0	0	0	0
	18		direction selection	0	0	0	0	0	0	0
	19		input gain	30	30	30	30	30	30	30
	20		input reversal	0	0	1	0	0	0	0
	21	Speed limit value	1	0	0	0	0	0	0	0
	22		2	0	0	0	0	0	0	0
	23	External scale	selection	2	2	2	2	2	2	2
	24		numerator of division	0	0	0	0	0	0	0
	25		denominator of division	10000	10000	10000	10000	10000	10000	10000
	26		reversal of direction	0	0	0	0	0	0	0
	27		Z phase disconnection detection disable	0	0	0	0	0	0	0
	28	Hybrid deviation	excess setup	122	1600	1600	122	122	122	1600
	29		clear setup	0	0	0	0	0	0	0

Parameter No.		Title		M1 (PullDown)	M2 (Jaw Rotation)	M3 (Pivot)	M4 (Film Roll)	M5 (BackSeal)	M7 (Shaker)	M9 (Poker)
Class	No.									
[Class 4] I/F monitor setting	00	Input selection	SI1 (Pin No.8)	8553090	8553090	8553090	8553090	8553090	8553090	8553090
	01		SI2 (Pin No.9)	8487297	8487297	8487297	8487297	8487297	8487297	8487297
	02		SI3 (Pin No.26)	9539850	9539850	9539850	9539850	9539850	9539850	9539850
	03		SI4 (Pin No.27)	394758	394758	394758	394758	394758	394758	394758
	04		SI5 (Pin No.28)	4108	4108	4108	4108	4108	4108	4108
	05		SI6 (Pin No.29)	197379	197379	197379	197379	197379	197379	197379
	06		SI7 (Pin No.30)	3847	3847	3847	3847	3847	3847	3847
	07		SI8 (Pin No.31)	263172	263172	263172	263172	263172	263172	263172
	08		SI9 (Pin No.32)	328965	328965	328965	328965	328965	328965	328965
	09		SI10 (Pin No.33)	3720	3720	3720	3720	3720	3720	3720
	10	Output selection	SO1 (Pin No.10, 11 Line driver output)	197379	197379	197379	197379	197379	197379	197379
	11		SO2 (Pin No.34, 35 Line driver output)	131586	131586	131586	131586	131586	131586	131586
	12		SO3 (Pin No.36, 37 Line driver output)	65793	65793	65793	65793	65793	65793	65793
	13		SO4 (Pin No.38, 39 Line driver output)	328964	328964	328964	328964	328964	328964	328964
	14		SO5 (Pin No.12 Open collector output)	460551	460551	460551	460551	460551	460551	460551
	15		SO6 (Pin No.40 Open collector output)	394758	394758	394758	394758	394758	394758	394758
	16	Analog monitor 1	type	0	0	0	0	0	0	0
	17		output gain	500	500	500	500	500	500	500
	18	Analog monitor 2	type	4	4	4	4	4	4	4
	19		output gain	33	33	33	33	33	33	33
	20	Type of digital monitor		0	0	0	0	0	0	0
	21	Analog monitor output setup		0	0	0	0	0	0	0
	22	Analog input 1 (AI1)	offset setup	0	0	0	0	0	0	0
	23		filter	0	0	0	0	0	0	0
	24		overvoltage setup	0	0	0	0	0	0	0
	25	Analog input 2 (AI2)	offset setup	0	0	0	0	0	0	0
	26		filter	0	0	0	0	0	0	0
	27		overvoltage setup	0	0	0	0	0	0	0
	28	Analog input 3 (AI3)	offset setup	0	0	0	0	0	0	0
	29		filter	0	0	0	0	0	0	0
	30		overvoltage setup	0	0	0	0	0	0	0
	31	Positioning complete (In-position)	range	1	10	10	1	1	1	10
	32		output setup	0	0	0	0	0	0	0
	33	INP hold time		0	0	0	0	0	0	0
	34	Zero-speed		50	50	50	50	50	50	50
	35	Speed coincidence range		50	50	50	50	50	50	50
	36	At-speed (Speed arrival)		1000	1000	1000	1000	1000	1000	1000
	37	Mechanical brake action	at stalling setup	0	0	0	0	0	0	0
	38		at running setup	0	0	0	0	0	0	0
	39	Mechanical brake action at running setup		30	30	30	30	30	30	30
	40	Selection of alarm output	1	0	0	0	0	0	0	0
	41		2	0	0	0	0	0	0	0
	42	2nd Positioning complete (In-position) range		10	10	10	10	10	10	10

Parameter No.		Title		M1 (PullDown)	M2 (Jaw Rotation)	M3 (Pivot)	M4 (Film Roll)	M5 (BackSeal)	M7 (Shaker)	M9 (Poker)
Class	No.									
[Class 5] Enhancing setting	00	2nd		0	0	0	0	0	0	0
	01	3rd	numerator of electronic gear	0	0	0	0	0	0	0
	02	4th		0	0	0	0	0	0	0
	03	Denominator of pulse output division		0	0	0	0	0	0	0
	04	Over-travel inhibit input setup		1	1	1	1	1	1	1
	05	Sequence at over-travel inhibit		0	0	0	0	0	0	0
	06	Sequence at Servo-Off		3	0	0	3	3	3	3
	07	Main power OFF	sequence	3	0	0	3	3	3	3
	08		LV trip selection	1	1	1	1	1	1	1
	09		detection time	70	70	70	70	70	70	70
	10	Sequence at alarm		3	0	0	3	3	3	3
	11	Torque setup for emergency stop		0	0	0	0	0	0	0
	12	Over-load level setup		0	0	0	0	0	0	0
	13	Over-speed level setup		0	0	0	0	0	0	0
	14	Motor working range setup		10	10	10	10	10	10	10
	15	I/F reading filter		0	0	0	0	0	0	0
	16	Alarm clear input setup		0	0	0	0	0	0	0
	17	Counter clear input mode		3	3	3	3	3	3	3
	18	Command pulse inhibit input	invalidation	1	1	1	1	1	1	1
	19		reading setup	4	4	4	4	4	4	4
	20	Position setup unit select		0	0	0	0	0	0	0
	21	Selection of torque limit		1	1	1	1	1	1	1
	22	2nd torque limit		300	300	250	300	300	300	300
	23	Torque limit switching setup	1	0	0	0	0	0	0	0
	24		2	0	0	0	0	0	0	0
	25	External input	positive direction torque limit	300	300	250	300	300	300	500
	26		negative direction torque limit	300	300	250	300	300	300	500
	27	Input gain of analog torque limit		30	30	30	30	30	30	30
	28	LED initial status		1	1	1	1	1	1	1
	29	RS232	baud rate setup	2	2	2	2	2	2	2
	30	RS485		2	2	2	2	2	2	2
	31	Axis address		1	1	1	1	1	1	1
	32	Command pulse input maximum setup		4000	4000	4000	4000	4000	4000	4000
	33	Pulse regenerative output limit setup		0	0	0	0	0	0	0
	34	For manufacturer's use		4	4	4	4	4	4	4
	35	Front panel lock setup		0	0	0	0	0	0	0

Parameter No.		Title		M1 (PullDown)	M2 (Jaw Rotation)	M3 (Pivot)	M4 (Film Roll)	M5 (BackSeal)	M7 (Shaker)	M9 (Poker)
Class	No.									
[Class 6] Special setting	00	Analog torque feed forward conversion gain		0	0	0	0	0	0	0
	02	Velocity deviation excess setup		0	0	0	0	0	0	0
	04	JOG trial run command speed		300	300	300	300	300	300	50
	05	Position 3rd gain	valid time	0	0	0	0	0	0	0
	06		scale factor	100	100	100	100	100	100	100
	07	Torque command additional value		0	0	0	0	0	0	0
	08	Positive direction	torque compensation value	0	0	0	0	0	0	0
	09	Negative direction		0	0	0	0	0	0	0
	10	Function expansion setup		0	0	0	0	0	0	0
	11	Current response setup		100	100	100	100	100	100	100
	13	2nd Inertia ratio		250	250	250	250	250	250	250
	14	Emergency stop time at alarm		200	200	200	200	200	200	200
	15	2nd over-speed level setup		0	0	0	0	0	0	0
	17	Front panel parameter writing selection		0	0	0	0	0	0	0
	18	Power-up wait time		0	0	0	0	0	0	0
	19	Encoder Z phase setup		0	0	0	0	0	0	0
	20	Z-phase setup of external scale		0	0	0	0	0	0	0
	21	Serial absolute external scale Z phase setup		0	0	0	0	0	0	0
	22	A, B phase external scale pulse output method selection		0	0	0	0	0	0	0
	23	Disturbance torque compensating gain		0	0	0	0	0	0	0
	24	Disturbance observer filter		53	53	53	53	53	53	53
	27	Alarm latch time selection		1	5	5	1	1	1	1
	31	Real time auto tuning	estimation speed	1	1	1	1	1	1	
	32		custom setup	0	0	0	0	0	0	0
	34	Hybrid vibration suppression	gain	0	0	0	0	0	0	0
	35		filter	10	10	10	10	10	10	10
	37	Oscillation detection level		0	0	0	0	0	0	0
	38	Alarm mask setup		0	0	4	0	0	0	0
	39	For manufacturer's use		0	0	0	0	0	0	0

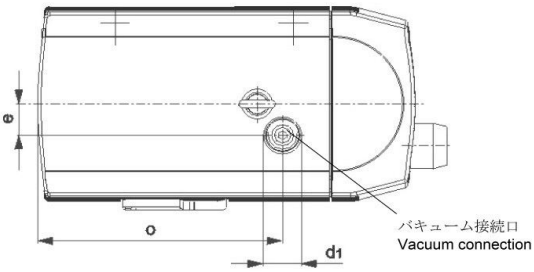
5.11 Vacuum Pump Parameter

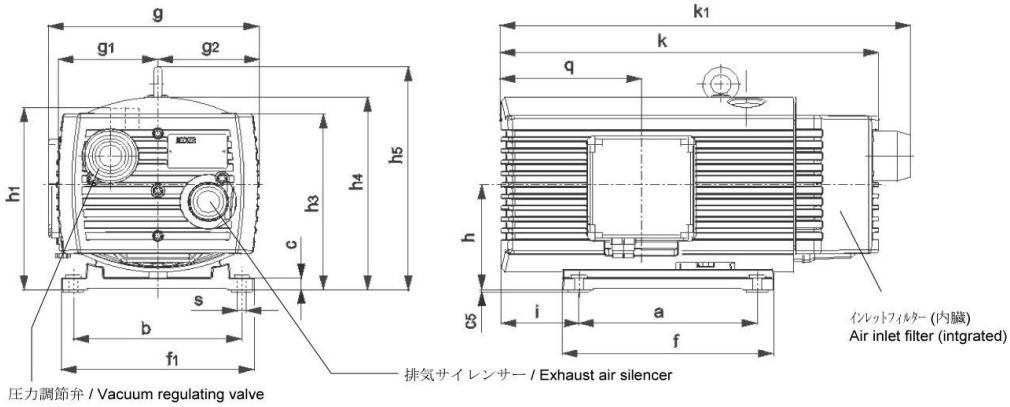
5.11.1 Vacuum Pump Parameter (Becker)

BECKER

ロータリーベーン式バキュームポンプ, ｵｲﾙﾌﾘｰ,空冷
Rotary vane vacuum pumps, oil-free, air-cooled

型式
VT 4.10
VT 4.16
VT 4.25
VT 4.40





型式 Type	吸引エアー量 Suction air rate Max .最大値 [m³/h]		到達真空度 Vacuum max. 最大値 [mbar]	ﾓｰﾀｰ容量* Motor capacity installed* [kW]		電源電圧* Motor voltage* 3 相 [V]		回転数 Speed [RPM]		運転音 Noise level [dB(A)]		重量 Weight [kg]
	50 Hz	60 Hz		50 Hz	60 Hz	50 Hz	60 Hz	50 Hz	60 Hz	50 Hz	60 Hz	
VT 4.10	10	12	150	0,37	0,45	175-260/ 300-450	202-300/ 350-520	1420	1700	60	62	16,0
VT 4.16	16	19	150	0,55	0,70	175-260/ 300-450	202-300/ 350-520	1420	1700	61	64	22,4
VT 4.25	25	30	150	0,75	0,90	190-255/ 330-440	190-290/ 330-500	1420	1700	62	67	26,0
VT 4.40	40	48	150	1,25	1,50	190-255/ 330-440	190-290/ 330-500	1420	1700	67	72	38,5

Typ Type Type Tipo	a	b	c	c5	d1	e	f	f1	g	g1	g2	h	h1	h3	h4	h5	i	k	k1	o	q	ø s
VT 4.10	160	112	15	3	G 1/2 "	35	200	142	206	90	90	107	169	176	189	195	106	387	429	257	123	7
VT 4.16	202	125	15	3	G 1/2 "	35	242	155	231	102,5	102,5	113	188	186	205	211	73	416	452	291,5	151,5	7
VT 4.25	220	190	15	3	G 3/4 "	40	260	238	260	125	125	140	226	227	250	290	96	465	505	302,5	173	7
VT 4.40	220	208	15	3	G 3/4 "	40	260	238	280	125	125	140	226	227	250	290	131	532	572	363,5	192	7

寸法単位 mm / Measures in mm　* 単相仕様はお尋ね下さい/ A.C. on request
仕様は予告無く変更することがあります。 / Right of modification reserved (17.04.03)

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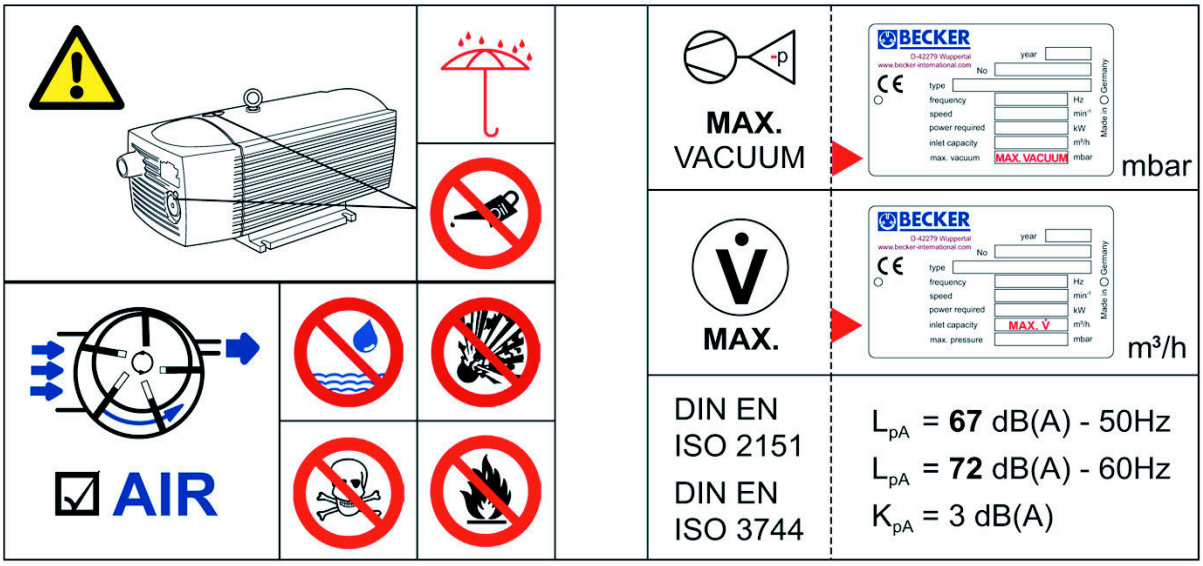
Betriebsanleitung
Operating Instructions
Instructions de service
Istruzioni d'uso
Handleiding
Instrucciones para el manejo
Manual de instruções
Naudojimosi instrukcija
Kasutusjuhend
Lietošanas instrukcija
Οδηγίες χρήσης
取扱説明書
사용설명서

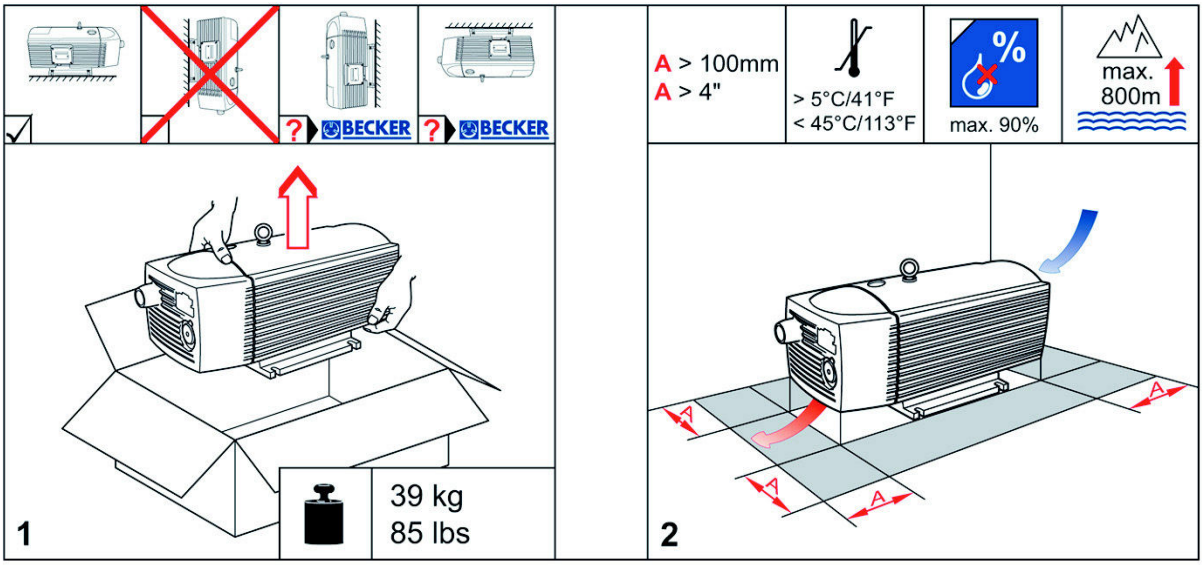
Driftsinstruks
Driftsinstruktioner
Käyttöohje
Driftsvejledning
Instrukcja obsługi
Kezelési útmutató
Návod k obsluze
Navodilo za uporabo
Návod na obsluhu
El Kitabi
Инструкция по эксплуатации
使用说明书

VT 4.40

98/37 EG
73/23 EWG

DIN EN ISO 14001:2005
DIN EN ISO 9001
001929 QM





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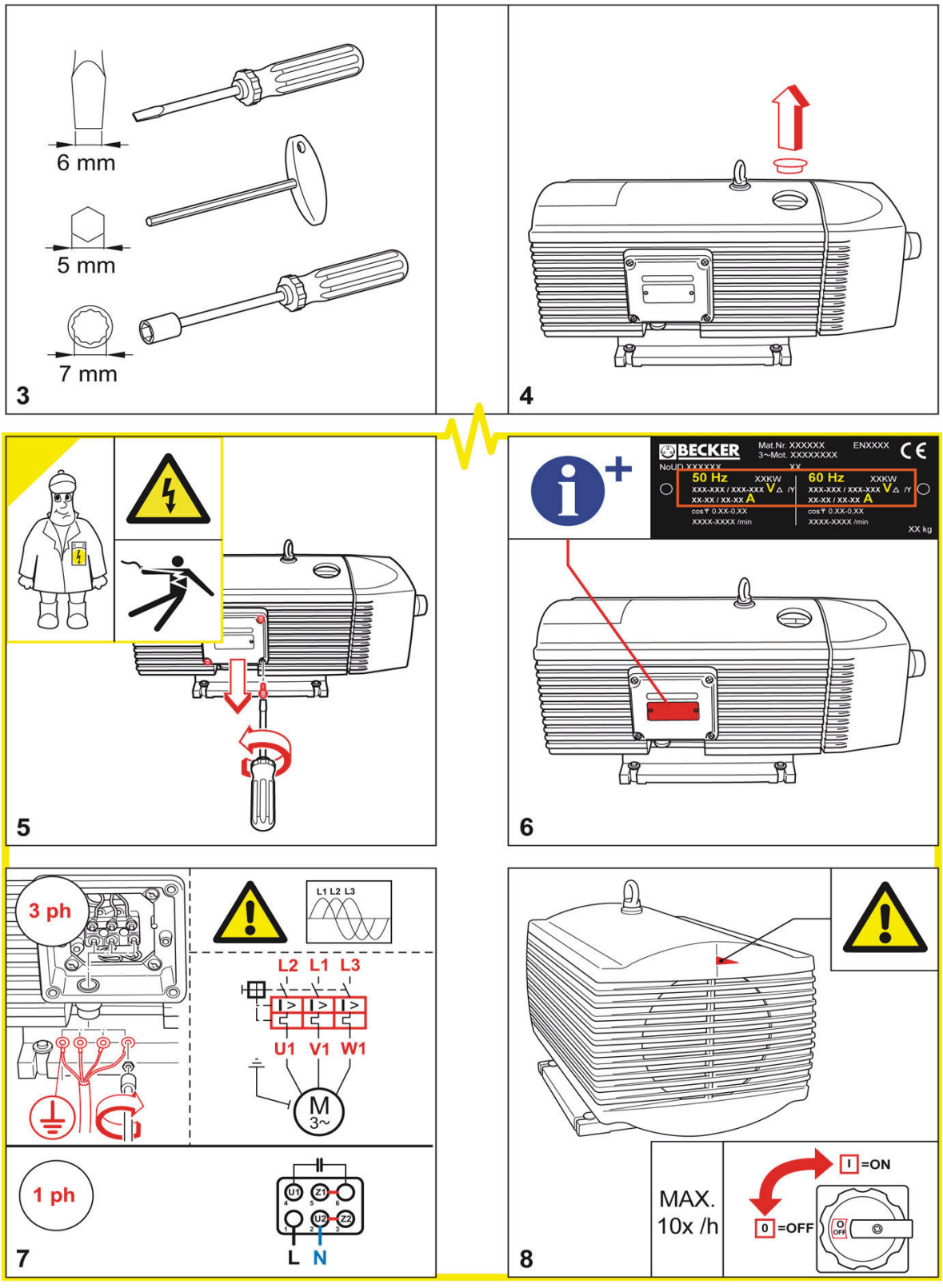

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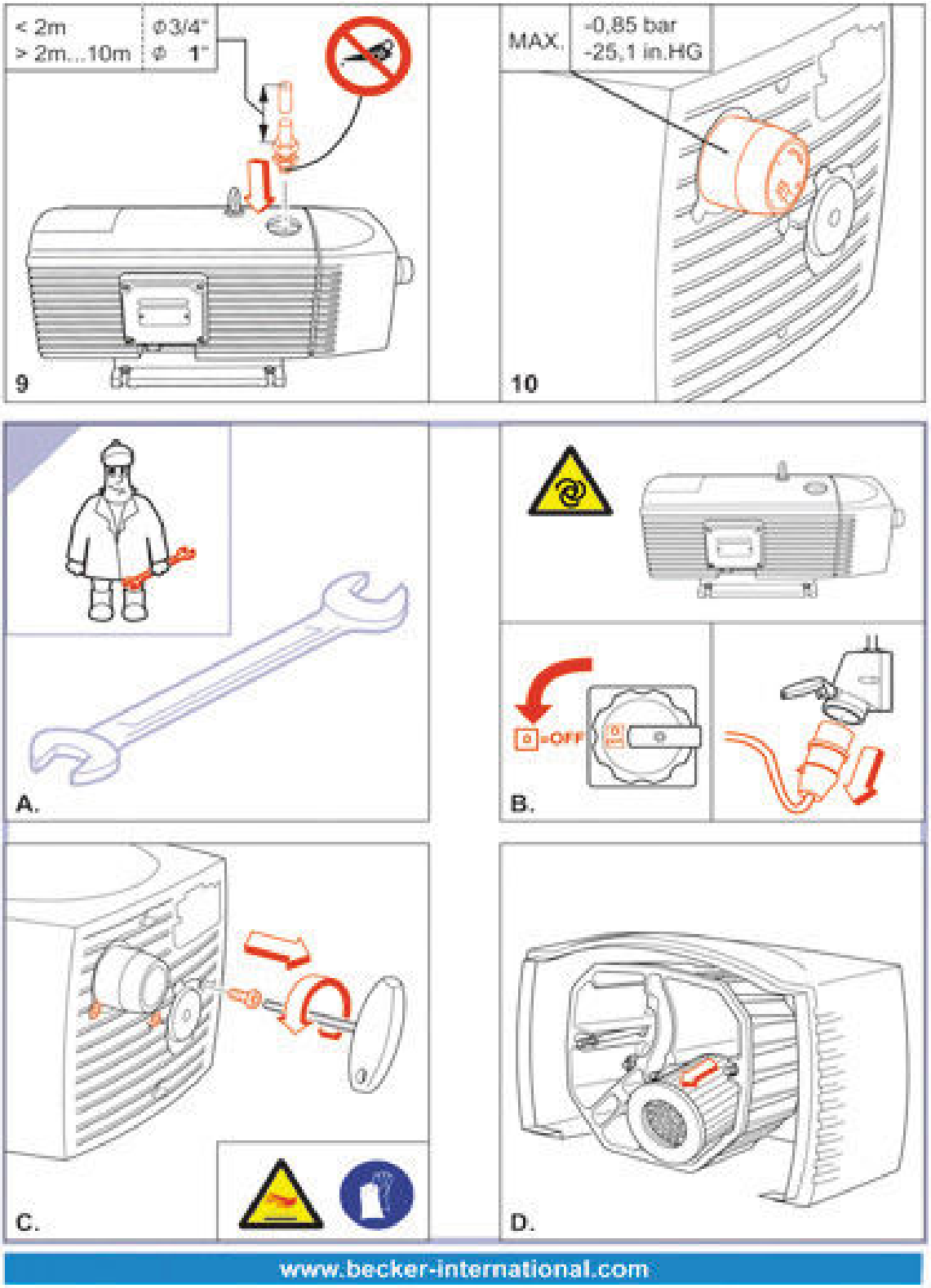
< 2m
> 2m...10m
Φ3/4"
Φ 1"
9
MAX.
-0,85 bar
-25,1 in.HG
10
A.
B.
=OFF
C.
D.
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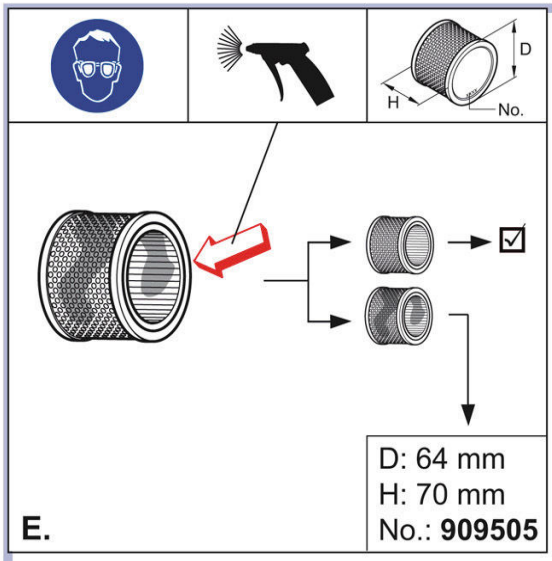

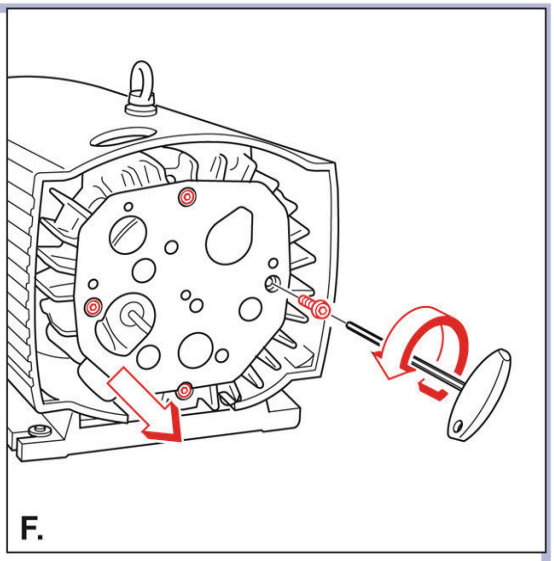

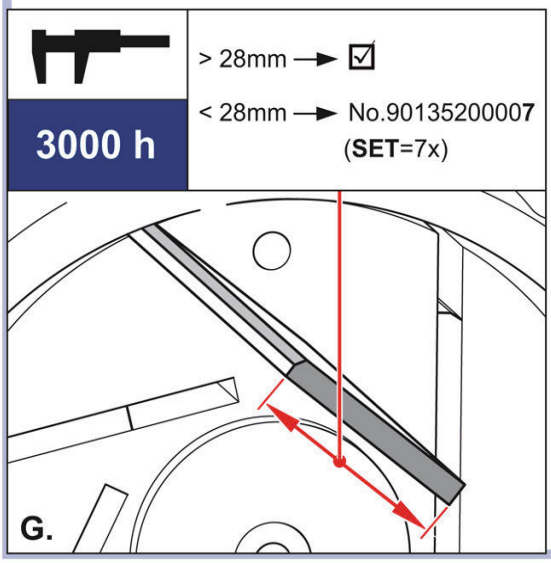

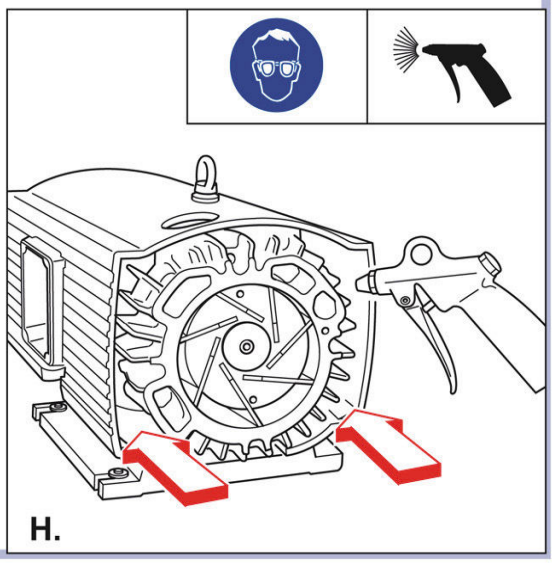

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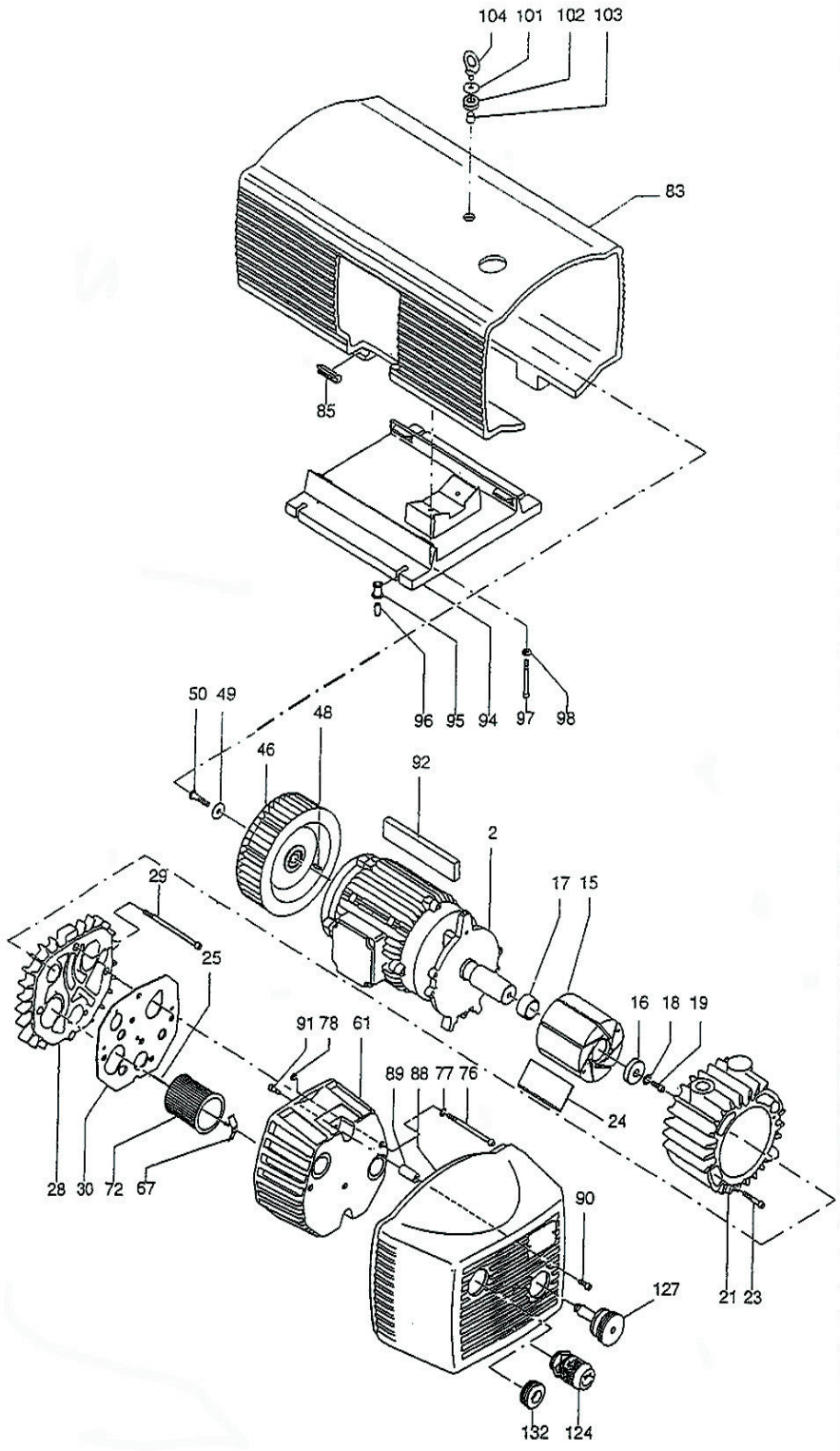


Pos	Beschreibung
15	ROTOR
16	CLAMPING DISC
17	STAR-TOLERANCE-RING
18	TOOTHED SPRING WASHER
19	SOCKET HEAD SCREW
21	PUMP BODY
23	SOCKET HEAD SCREW
24	CARBON VANES
25	LOCATING PEG
28	LID
29	SOCKET HEAD SCREW
30	GASKET
46	FAN
48	KEY
49	WASHER
50	DRIVE SHAFT
61	FILTER COVER
67	LEAF SPRING
72	FILTER CARTRIDGE
76	SOCKET HEAD SCREW
77	SEALING RING
78	O-RING
83	PROTECTING HOOD
84	ANTIVIBRATING STRIP
85	RUBBER BUFFER
88	PROTECTING HOOD
89	RUBBER BUFFER
90	SOCKET HEAD SCREW
92	EDGE PROTECTION
94	BASE
95	RUBBER BUFFER
96	SPACER BLOCK
97	SOCKET HEAD SCREW
98	WASHER
101	SOCKET HEAD SCREW
102	SPACER BLOCK
103	SPACER TUBE
104	RING SCREW
124	VACUUM REGULATING VALVE
127	BLOW-OFF VALVE
132	LOCKING SCREW

5.12 Digital Pressure Switch

This section describes the default value of the vacuum pump parameter.

NOTE

- Set the vacuum pressure in operation to 40 kPa.

Setting item		Setting value
Default setting	Setting Display Color	SoG (ON : green)
	Setting Operation Mode	HYS (Hysteresis mode)
	Setting Output Form	nC (normal close)
	Setting Response Time	640 (640ms)
	Setting Auto Preset	mAn (manual)
Setting Pressure Setting (n-1)		-10kPa

Setting pressure unit: kPa (Europe)
psi (North America)

Names and Functions of Individual Parts

Main Unit

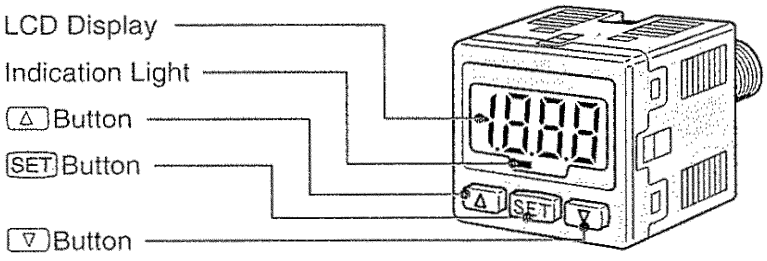
Indication Light : Displays switch operation condition.
(Green Light)

LCD Display : Displays the current status of pressure, setting mode, selected indication unit and error code. Four display modes can be selected: display always in red or green only, or changing from green to red linked to output.

△ Button : Alters the mode or increases ON/OFF set value. Press this button to change to the peak display mode.

▽ Button : Alters the mode or decreases ON/OFF set value. Press this button to change to the bottom display mode.

SET Button : Press this button to change to either mode and to set a set value.



Setting

Setting Procedures

Measurement Mode

↓

Initialize
Set output mode, response time and display color change.

↓

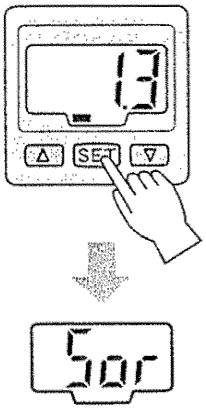
Pressure Setting
Input a set value for pressure to perform switch output.

↓

Measurement Mode
Detects pressure, displays values and performs switching.
Other functions such as zero clear can also be set if necessary.

Initialize

Press the SET button continuously for more than two seconds. The display shown at the lower right will pop up to allow setting of a display color.
In the case that the unit specification of model indication is M, the SI units will be fixed. If no symbol is supplied, see "Selecting Indication Unit".



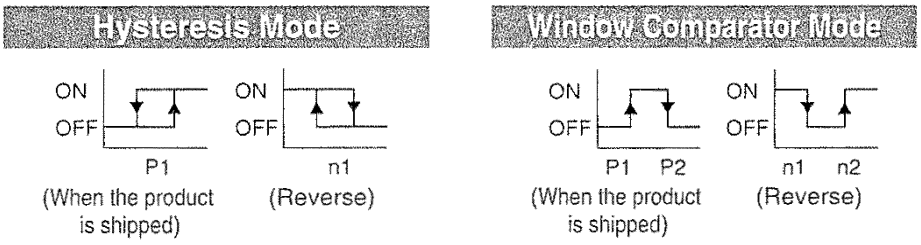
1.Display Color Setting

Select a color for the LCD display.
When changing the display color, press the △ or ▽ button to select a display color.
Sor (Red/ON) ⇔ SoG (Green/ON) ⇔ rEd (Red) ⇔ Grn (Green)
Press the SET button to set the desired display color and to move on to setting a desired operation mode.
If the mode is set to analog output, press the △ or ▽ button, to select a desired display color from
"Grn" (Green) ⇔ "rEd" (Red), then press the SET button. Setting of a desired operation mode will become available.

2.Operation Mode Setting

A desired switch operation mode can be selected.
The operation mode currently selected will be displayed. Select a desired operation mode by pressing the △ or ▽ button.

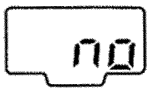
HyS ⇔ wnd
(Hysteresis) (Window Comparator)



Press the SET button to move on to setting an output mode.

Setting (continue)

3.Output Mode Setting



A desired output mode can be set freely for switch output.
The output mode currently selected will be displayed.
Press the △ or ▽ button to switch to normal output "no" or reverse output "nC".

no ⇔ nC
(Normally open) (Normally closed)

Press the SET button to move on to setting a desired response time.

4.Response Time Setting

A response time for switch output can be set as user desires.
Setting of a response time prevents chattering output.
The response time currently set will be displayed. Select a desired response time by pressing the △ or ▽ button.

2.5 ⇔ 20 ⇔ 160 ⇔ 640 ⇔ 1280

If the operating mode is set to Hysteresis, press SET button to set and move on to setting Auto Preset mode.
If the operating mode is set to Window comparator, press SET button to set and return to Measurement mode.

5.Auto Preset Setting

This function is for memory of a measurement pressure as a reference value when Auto Preset input is set. The settings currently set will be displayed. Press the △ or ▽ button to set to Auto Preset.

mAn ⇔ AUt
(Manual Setting) (Auto Preset)

Press the SET button to return to the set Measurement mode.

Selecting Indication Unit

If the unit specification of the model indication is without "M"

The indication unit can be selected freely.
Pressing the △ or ▽ button will change the unit and will automatically convert set values.
The units will change in the following order :
PA ⇔ GF ⇔ bAr ⇔ PSi ⇔ inH ⇔ mmH

For Vacuum and Low Pressure

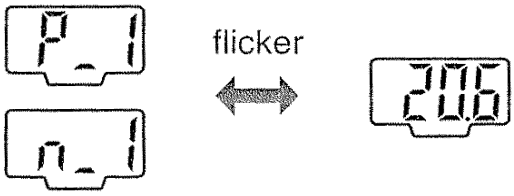
Pa ⇔ kgf/cm² ⇔ bar ⇔ psi ⇔ inchHg ⇔ mmHg

For Positive Pressure

MPa ⇔ kgf/cm² ⇔ bar ⇔ psi

Press the SET button to set and to move on to setting a display color.

If set to Manual Setting

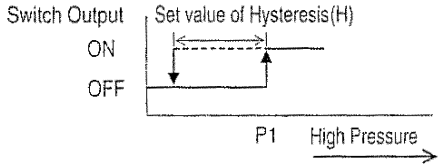


Press the SET button in the Measurement mode to display set values. "P_1" or "n_1" and the current set value will flicker alternately. Press the SET button to display the next set value. Press the △ or ▽ button to enter into the Value Change mode. (See "Value Setting")

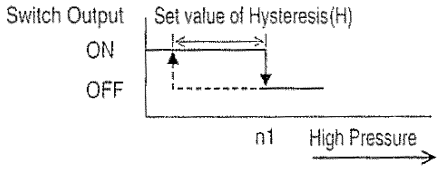
If Hysteresis mode is set

If the Hysteresis mode is set, "H" and the set value of Hysteresis will be displayed alternately after the setting for "P1" or "n1". Press the SET button to return to the normal Measurement mode. Press the △ or ▽ button to enter into the Value Change mode. (See "Value Setting")

If set to Normally Open Mode

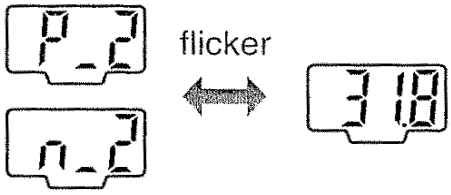


If set to Normally Closed Mode



In case Hysteresis is set at less than or equal to 2 digits, switch output may chatter if input pressure fluctuates near the set point.

If window comparator mode is set

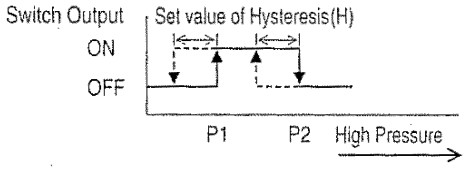


If the Window comparator mode is set, "P2" or "n2" and the current set value will be displayed alternately after the setting for "P1" or "n1". Press the [SET] button to display the next set value.
(Hysteresis : H)

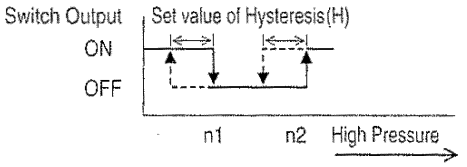
Press the [△] or [▽] button to enter into the Value Change mode. (See "Value Setting")
Next, "H" and the set value of Hysteresis will be displayed alternately. Press the [SET] button to return to the normal Measurement mode. Press the [△] or [▽] button to enter into the Value Change mode. (See "Value Setting")

If the initialize value is the Normally Open mode, "P_1" will be displayed. "n_1" will be displayed if it is Normally Closed mode. The set pressure value can be checked without holding or stopping switch output operation.

If set to Normally Open Mode



If set to Normally Closed Mode



Pressure Setting (continue)

Fine Adjustment Mode
(Fine Adjustment Function of Display Value)

Press the SET button and ▽ buttons simultaneously for longer than two seconds in the Measurement mode. "FSt" and current pressure Measurement value will be displayed. Press the △ or ▽ button to change the set value. If no operation is made for longer than two seconds or press the SET button, the pressure switch will display the current pressure Measurement value which will then flicker alternately with "FSt".
Press the SET button to display an adjusted amount (percentage), which will then flicker alternately with "FSC".
Press the SET button to return to the normal Measurement mode.

If set to Auto Preset Mode

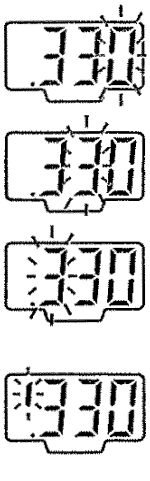
Press the SET button during the Measurement mode to ready the Auto Preset mode. "AP1" will be displayed. Setting pressure in this condition will ready the equipment. Press the △ and ▽ buttons simultaneously while "AP1" is displayed to return to the Measurement mode.

To execute Auto Preset, press the SET button and "A1L" will be displayed. Perform adsorption and desorption operations. Detection will be made and a set value will be stored in the memory automatically. Press the SET button while "A1L" is displayed to finish setting and to return to the normal Measurement mode.

Value Setting

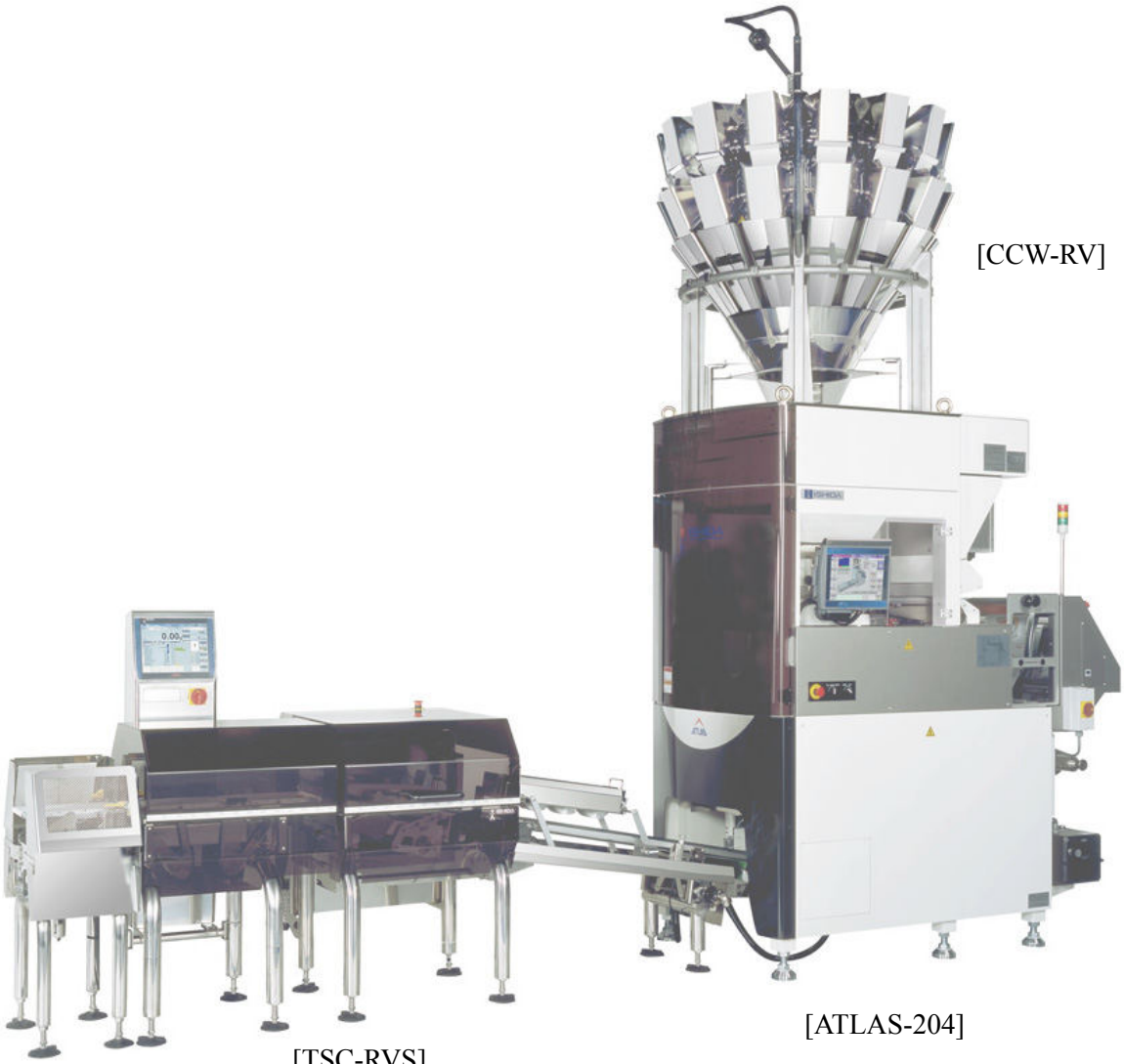
To input a value for pressure setting or other purposes:

1. Press the △ or ▽ button to enter the Set Value Change mode. The first row will flicker.
2. Press the △ or ▽ button to set a desired value. (No operation within ten seconds after the Set Value Change mode was selected results in automatic setting of the value appearing in the display window and in charging of the mode from Set Value Change mode to Set Value Indication mode.)
3. Press the SET button to make the value one digit higher flicker. (If the highest place is zero, " ˈ " or " ˌ " will flicker. " ˈ " means "+zero", " ˌ " means "–zero".) (In the case that the SET button is pressed in the highest place, the first digit will flicker.)
4. Press the SET button continuously for longer than one second to return to displaying set values.

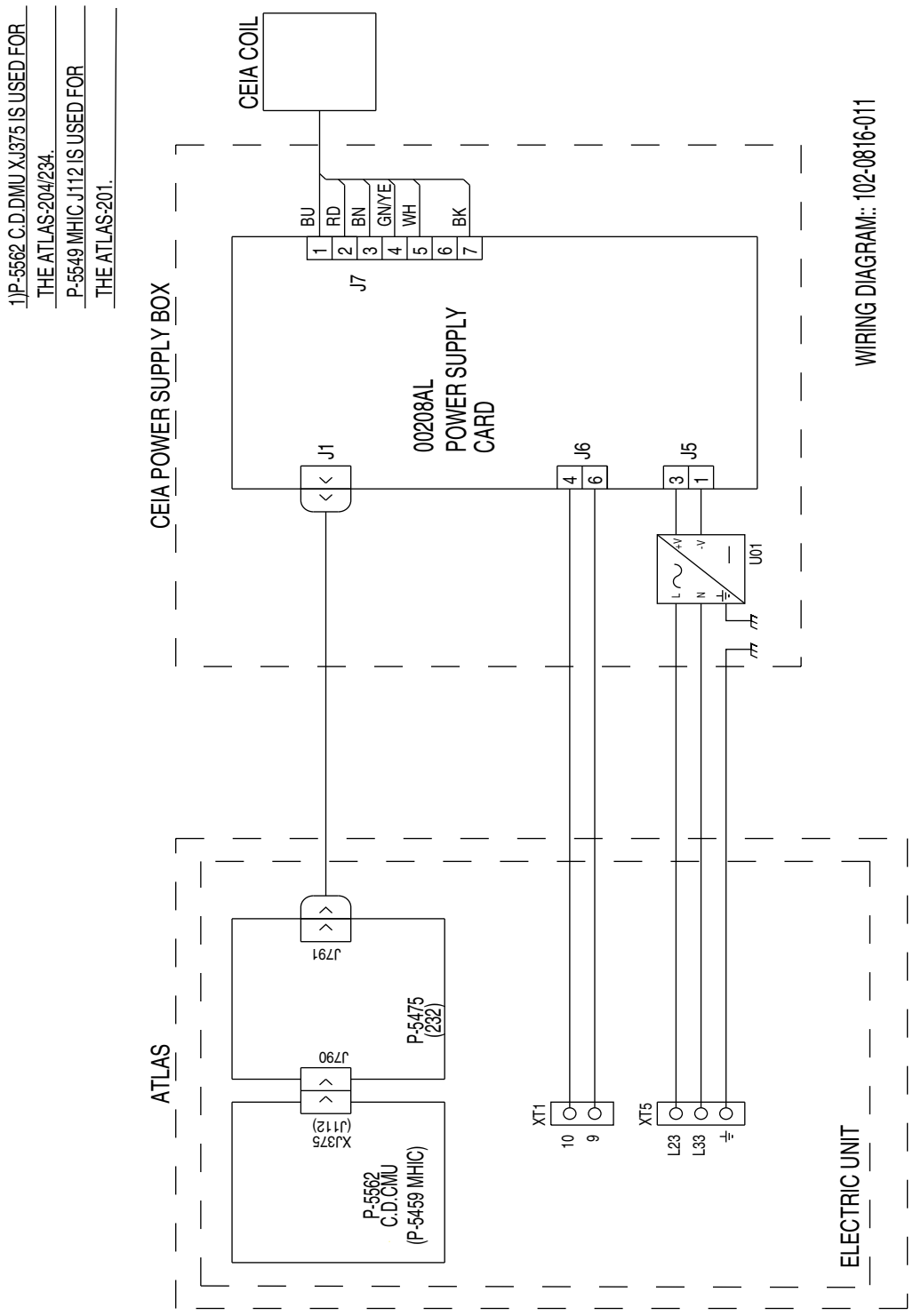


5.13 ITPS (OPTION)

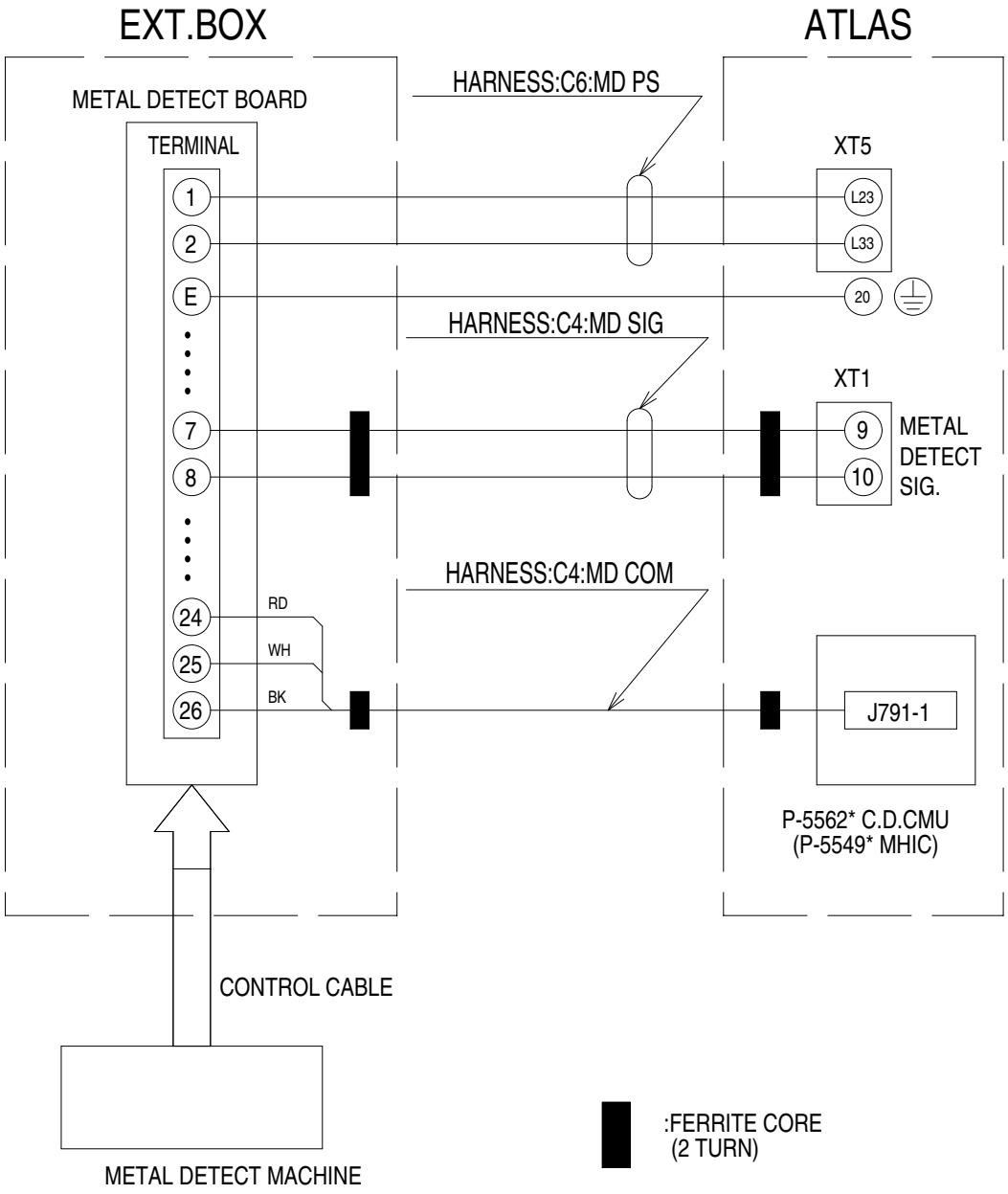
5.13.1 Block diagram



5.13.2 Block diagram

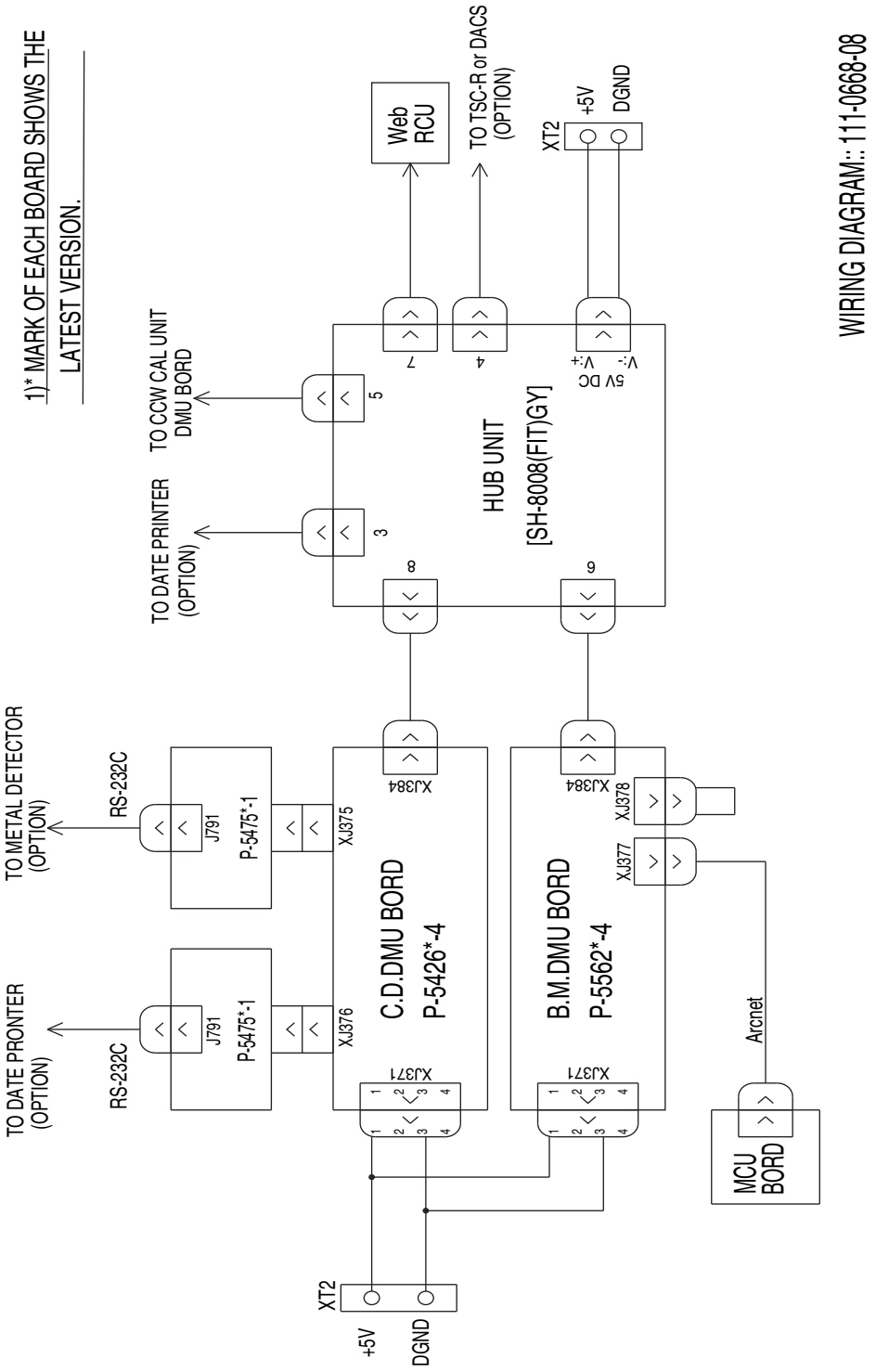


5.13.3 Metal Detect / ATLAS 204/234 integrated operation

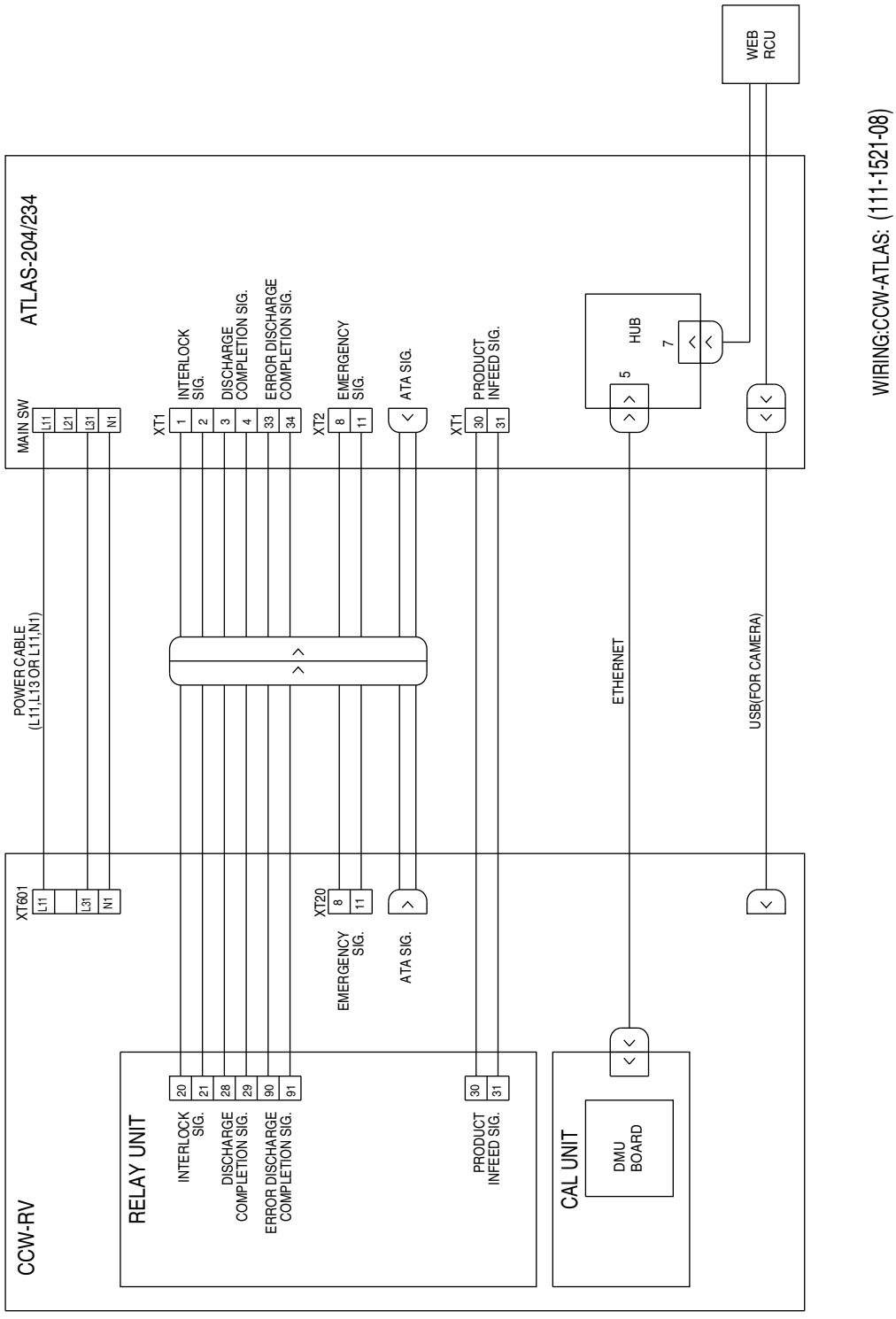


METAL DETECT/ATLAS INTEGRATED OPERATION:: 110-8666-02

5.13.4 Block diagram (option) [ITPS]



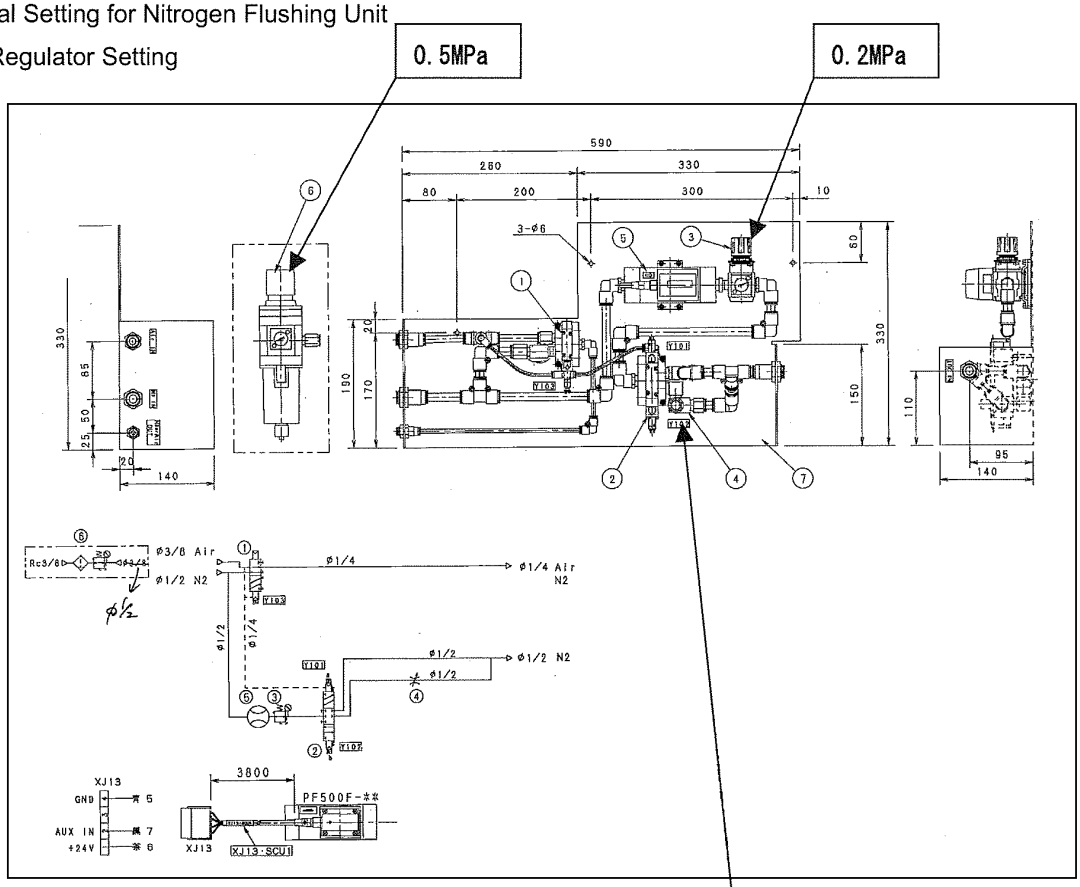
5.13.5 Block diagram : CCW-RV - ATLAS 204/234

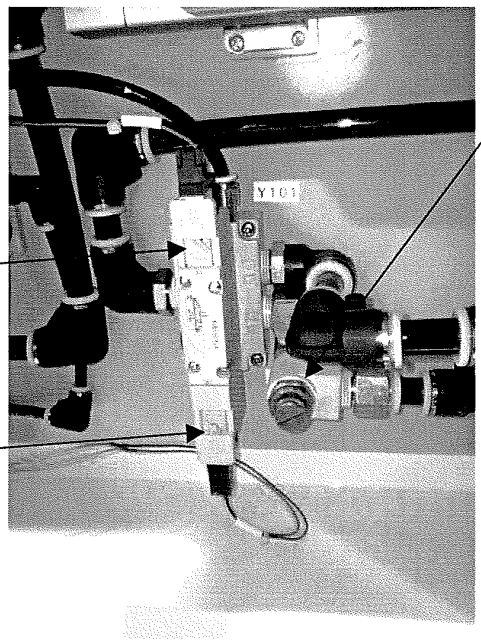


5.14 ATLAS 204/234 Nitrogen Flushing Setting (Option)

Initial Setting for Nitrogen Flushing Unit

1) Regulator Setting





Low Pressure Flow is set to 30[N liter/min] (110 [× 10^{-2}CFM]) with Speed Control.

High Pressure ON

Low Pressure ON

1)-2. Flow Meter Setting

How to set the alarm

After power is turned on, monitor is in Flow rate measurement status (Measurement mode) as fig. right. Description is given below to change the below settings in measurement mode.

P(Parameter):0, H(High):50, L(Low):20, h(Hysteresis):0

(All LEDs light up for 3 seconds for a hardware check, followed by flow range for 2 seconds, right after the power is turned on.)

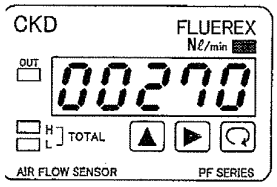


図5-5

1) Changing from the measurement mode to the write mode

   *Press the shift key ▶ for 2 seconds.

   OUT LED blinks and "P" is shown at first place of the 7segment LED from the left, and the fifth place blinks.

2) Setting the parameter

   *Press the up key ▲

   If parameter is "0", press the change key ↻

3) Shifting to the low setting

   *Press the change key ↻

   "L" is shown at the first place of 7segment LED from the left and the second place blinks.

4) Low setting

   *Press the shift key ▶ and the up key ▲ to set the low value.

   In case of LOW=20, press the shift key twice, and the up key twice.

5) Shifting to the High setting

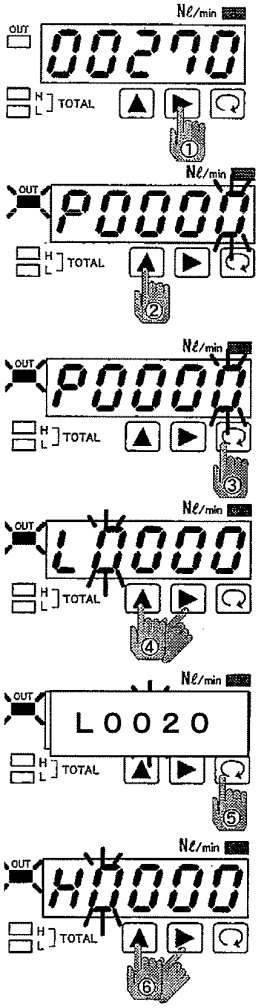
   *Press the change key ↻

   "H" is shown at the first place of 7segment LED from the left and the second place blinks.

6) High setting

   *Press the shift key ▶ and the up key ▲ to set the high value.

   In case of HIGH=50, press the shift key twice, and the up key 5 times.



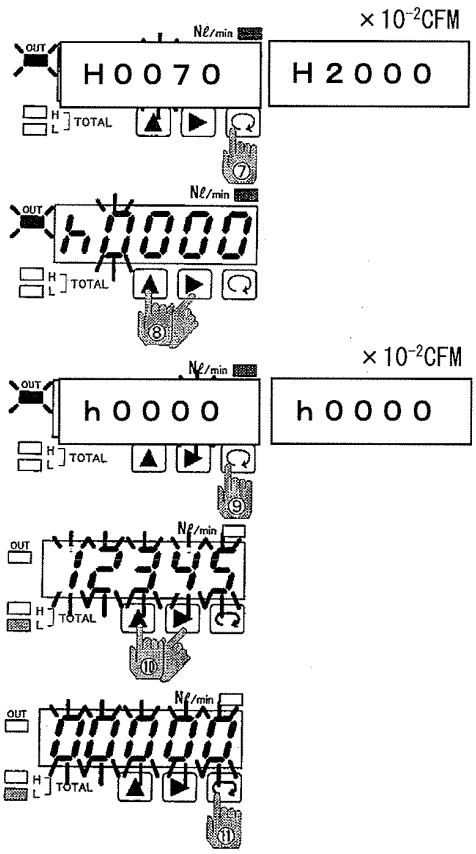
7) Shifting to the hysteresis setting
*Press the change key [↻]
"H" is shown at the first place of 7segment LED from the left and the second place blinks.

8) Hysteresis Setting
*Press the shift key [▶] and the up key [▲] to set the hysteresis value. h(hysteresis) keeps "0".

9) Shifting to the cumulative value clear mode
*Press the change key [↻]
Cumulative Flow is shown at 7segment LED and all place blink. Then, Unit display lump is "L-TOTAL".

10) Clearing the cumulative value
*Press the shift key [▶] and the up key [▲] simultaneously for 5 seconds to clear the cumulative value.
[Notes]
If you do not clear the cumulative value, go to 11)Completion process.

11) *Press the change key [↻] to complete the setting and return the measurement mode (the menu right after power on).



2) Flow Meter

Initial setting for Gas Flow Meter is as follows. Please set properly at your site.
(Measure to be used depends on used area.)

	Other area	North America
Measure	N liter/min	× 1 0 ⁻ ² C F M
P(Parameter)	0	0
L(Low)	2 0	7 1
H(High)	7 0	2 0 0 0
h(Hysteresis)	0	0
(Low Pressure Flow)	(3 0)	(1 1 0)

Conversion Formula: 1 C F M = 2 8 . 3 1 7 N liter/min

Amendment list

Version	Date	Revision number	Description
1	March 2015	0001763592011	- Added M7 shaker parameter

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