Technical manual

AKS 32 FP

Item code/code article: 170 000 049 A
Reference/référence: SAV MANU 018 ed 01
Date/date: 12.1998

GROUPE PHOTO ME KIS
Advanced technology

SUMMARY GENERAL

INTRODUCTION

Before using this system, be sure to read this instruction manual carefully.

Before using this system, read important warning carefully.

For the sake of safety, observe the precautions shown below in repair work.

1 - This system is used to process color negative roll film. Do not use it for other purposes.

2 - Operate your system properly according to this operation manual for safe and optimum performance.

3 - Always keep this operation manual near the system and observe all cautions and instructions as required.

4 - Follow the instructions in this operation manual and observe all caution labels. For details, refer to the "Description of Caution Labels".

5 - Install the system on a flat and stable surface, and do not expose the system to direct sunlight.

6 - The work environment conditions call for room temperature of 15°C - 30°C and relative humidity of 30% - 80%. An optional cooling unit is required to maintain the processing performance of the negative processor should room temperature exceed 30°C.

7 - The cabinet has ventilation holes to prevent a rise in temperature. Never block or cover the ventilation holes with any objects.

8 - Never insert your hand or any object into the ventilation holes of the cabinet ; otherwise, you may suffer eclectric shock.

9 - Except when indicaded in this operation manual and user maintenance manual, users are prohibited from serving this system (by disassembling, remodeling, adjusting or using parts not specified). Should you remove the cover not specified, you may be exposed to high voltage and the danger like electric shock and burning yourself.

10 - Turn off the power source before initiating any maintenance indicated in this operation manual or the user maintenance manual. Should the power not be switched off.
You may suffer electric shock.

11 - Never remove the attached caution labels.

12 - If this operation manual is missing, contact your dealer. Should caution labels peel off or become stained or otherwise damaged, replace them with new ones.

13 - To purchase an additional operation manual or caution labels, contact your dealer or our sales division as indicated on the back cover.

14 - When the waste solution is disposed of, contact an waste-article collector qualified by the national or local government according to the law requiation.

15 - Machine noise informations for order 3.GSGV,18.01.1981 : the maximum sound pressure level is 70dB (A) or less in accordance with ISO 7779.

16 - Before starting any maintenance work described in this manual, be sure to turn off the power completely. A failure to turn off the power may cause electric shocks, injury or damages to the film processor.

17 - The film processor is grounded with the 3-wired power cable, etc...
Never disconnect the grounding wire to avoid electrocution.

18 - On completion of repair work, make certain that all removed screws, pads, etc..., are attached in the proper positions.

19 - Do not use any substandard or nonstandard repair parts.

20 - Do not attempt to carry out any repair works not described in this manual.

21 - Never pull the cable to unplug the connector.

22 - After replacing or repair work, connect wire and cables carefully not to bring them into contact with burrs or sharp edges. In particular, do not bring wires and cables into contact with movable parts or driving parts.

SAFETY PRECAUTIONS

This machine has been checked in accordance with the laws pertaining to the various product safety regulations before leaving the factory.
When serving it, be sure to observe the following precautions.

1 - Do not use fuses other than those of the specified ratings.

2 - Never modify electrical circuit.

3 - Do not use unspecified replacement parts.

4 - Confirm that all screws, pads and wiring which were removed for serving have been re-installed in their original position.

5 - When disconnecting connectors, do not pull the wiring (particularly AC line wiring and high voltage parts).

6 - Do not perform any unspecified modifications.

7 - Do not run the power cord where it is likely to stepped on or crushed.

8 - Carefully clean off chemical solutions adhering to electrical units.

9 - After replacing or repair work, route wiring in such a way that it does not touch burrs or other sharp edges.

10 - Machine noise informations for order 3.GSGV,18.01.1981 : the maximum sound pressure level is 70dB (A) or less in accordance with ISO 7779.

IMPORTANT NOTICE

Because inexperienced person servicing may causes hazards to people and to the equipment, we,
KIS strongly recommends that all servicing is performed
only by our trained service engineer.

This machine must be disposed of as industrial waste.
Be sure the contact any qualified waste-article collector.

SAFETY GUIDE (Precautions on using the system)

Operation	Precaution	Label position	Remark
1. Handling chemicals	Wear safety gloves, protective glasses and masks when handling solutions. If solutions contact your eyes or skin, wash off them with water for more than 15 minutes and get medical treatment. Chemicals may cause skin irritation.	W - 3	Instruction Section 7 Installation Section 4
2. Handling the sprocket for switching the power frequency	Fingers may be clipped! The power breaker must be switched off before handling the sprocket for swicthing the power frequency.	W - 4	Service Section 6
3. Handling the chain and sprocket	Fingers or hair may be clipped! The power breaker must be switched off before handling the chain for the sprocket.	W - 2	Service Section 6
4. Handling the drying heater	Your fingers may be burnt! When handling the dryer heater, be sure to turn off the power breaker and wait more than 15 minutes before initiating operation.	W - 1	
5. Replacing the cutter blade	Your fingers may be cut! The power breaker must be switched off when changing the cutter blade.	W - 5	Maintenance Section 2 Instruction Section 18
6. Replacing a fuse	You may suffer electric shock! The power breaker must be switched off before changing a blown fuse.	C - 1	Installation Section 3
7. Connecting the input power supply cord	See installation instructions before connecting to the supply.	L - 1	Installation Section 3
8. Handling the sprocket for switching the power frequency (installation & maintenance)	Fingers may be clipped! The power breaker must be switched off before handling the sprocket for switching the power frequency	W-4	Section 6
9. Handling the chain and sprocket (installation & maintenance)	Fingers or hair may be clipped! The power breaker must be switched off before handling chain for the sprocket.	W-2	Section 6

DESCRIPTION OF SIGNAL WORDS

- Signal words indicate the levels of potential danger.
- Signal words are categorized into three levels according to the possibility and seriouness of danger.

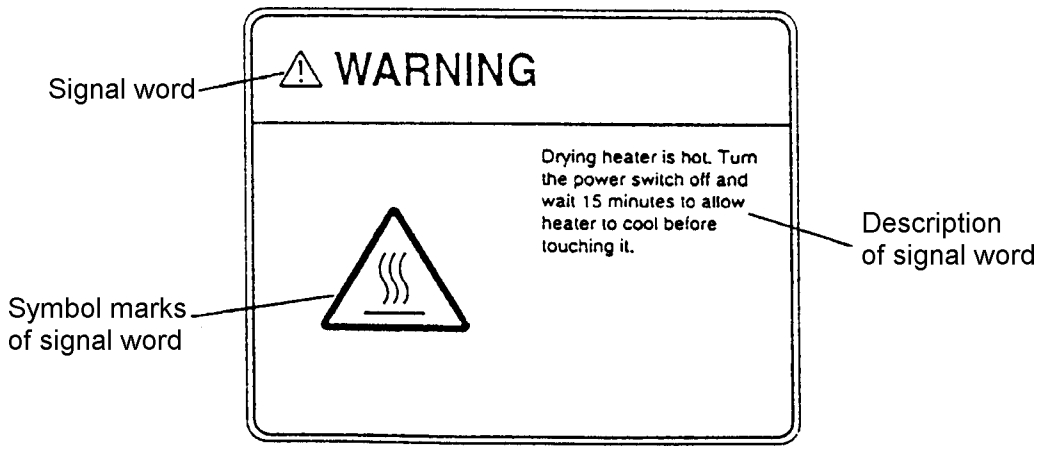
Danger : indicates a situation of immediate danger which may result in serious injury or death, if not avoided.

Warning : indicates a situation of potential danger which may result in serious injury or death, if not avoided.

Caution : indicates a situation of potential danger which may result in slight or minor injury. This term is also used for physical damage aside from personal risk and injury.

		Probability of damage	
		Damage is caused (High probality)	Damage may be caused (Low probality)
Injury (and physical damage)	Death or serious injury (Damage is serious)	Danger	Warning
	Medium or slight injury (Damage is slight)	Warning or Caution	Caution
Physical damage only		Caution	

- Example of the signal word.

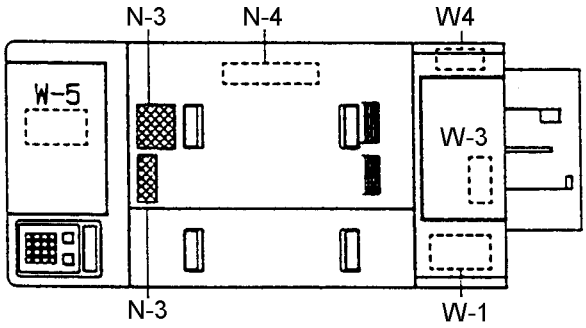


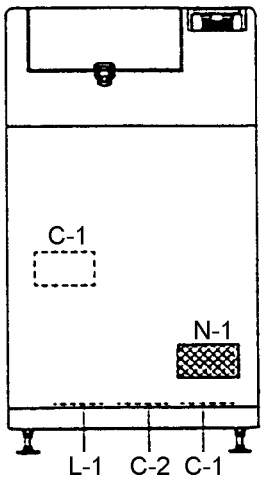
DESCRIPTION OF WARNING & CAUTION LABEL

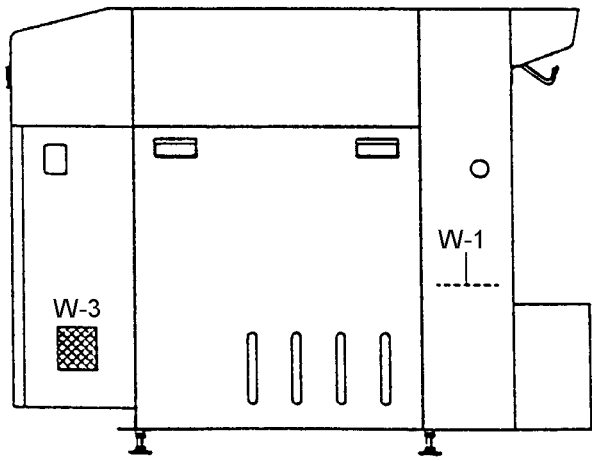
POSITION OF WARNING AND CAUTION LABELS TO BE ATTACHED

Note : ▭ Attached on the outside

▭ Attached on the inside

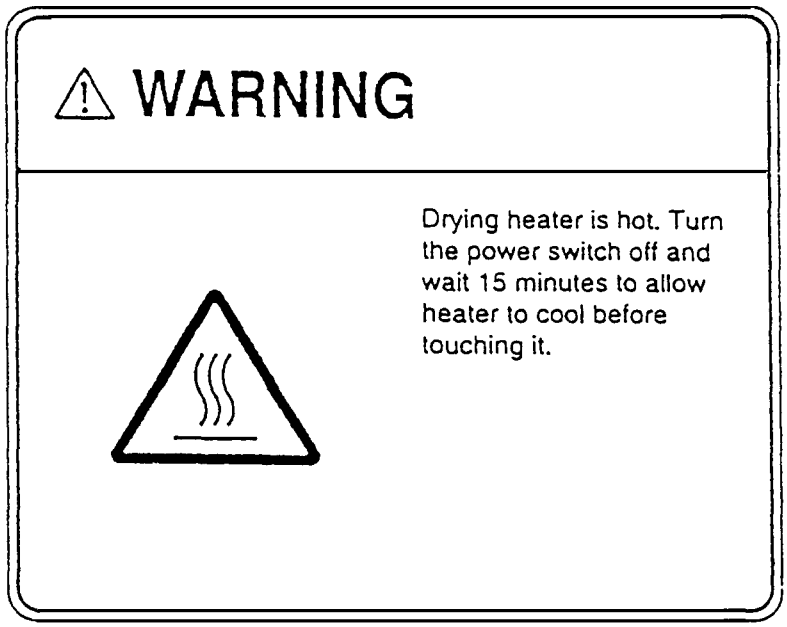
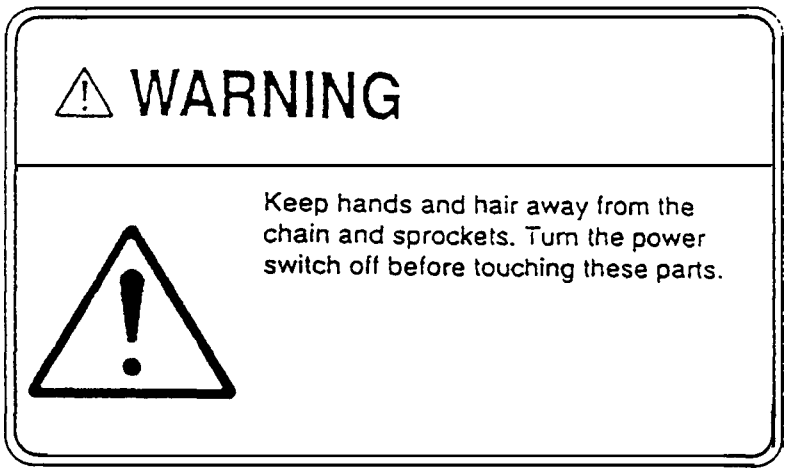


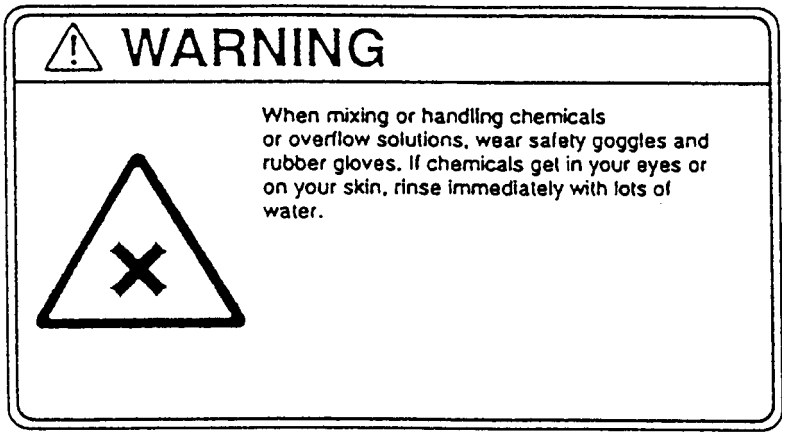
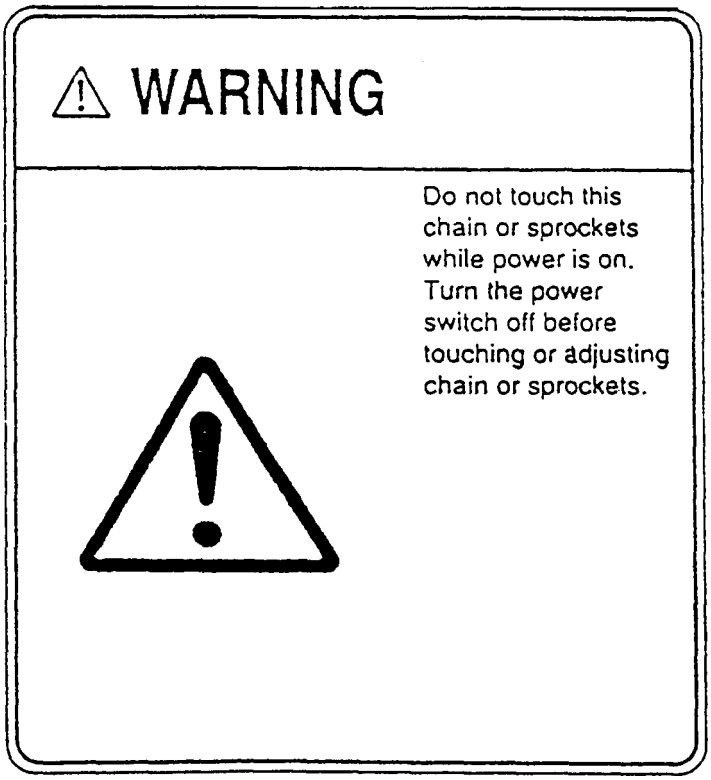


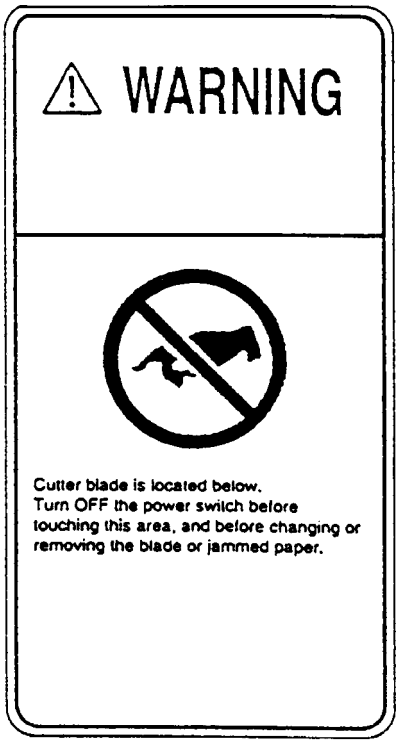
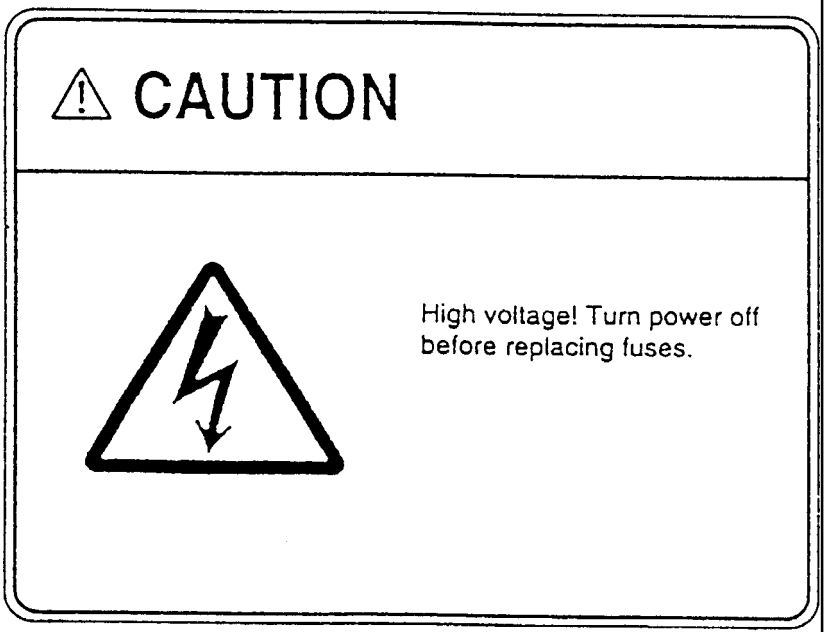
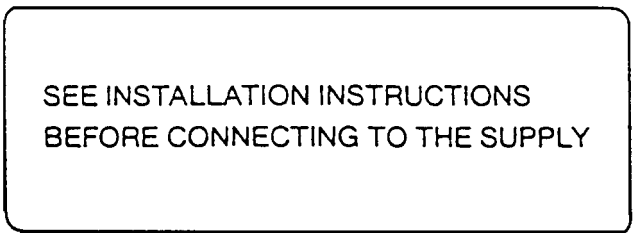


LISTING OF WARNING AND CAUTION LABELS

- Each warning or caution label should correspond to a position where it is attached.
- Order labels from the local office or sales division indicated on the back cover of this manual by referring to the part numbers.

Position	Label	Part N°
W - 1		L43-A6324
W - 2		L43-A6327

Position	Label	Part N°
W - 3		L43-A7581
W - 4		L43-A6326

Position	Label	Part N°
W - 5		L43-A6325
C - 1		L43-A6329
L - 1		L43-A6320

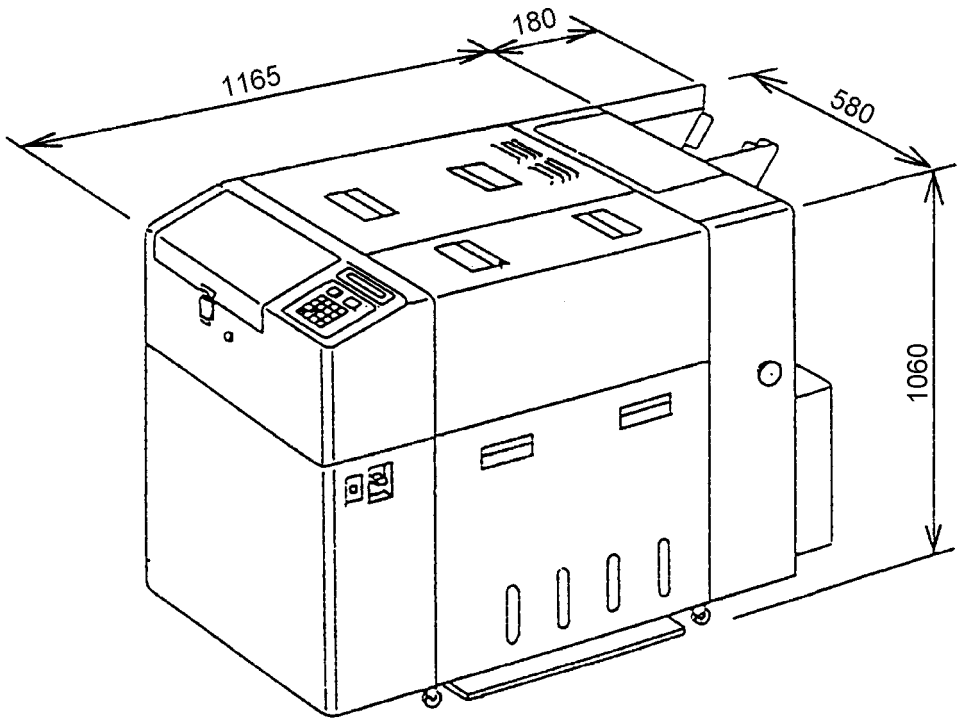
PART A

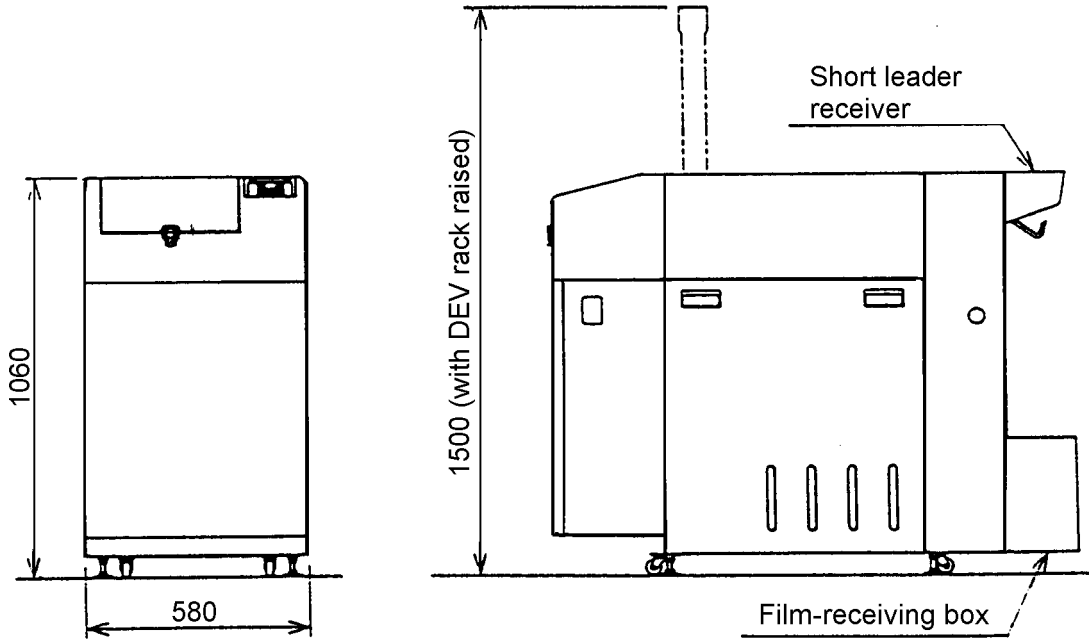
INSTALLATION

SUMMARY - PART A

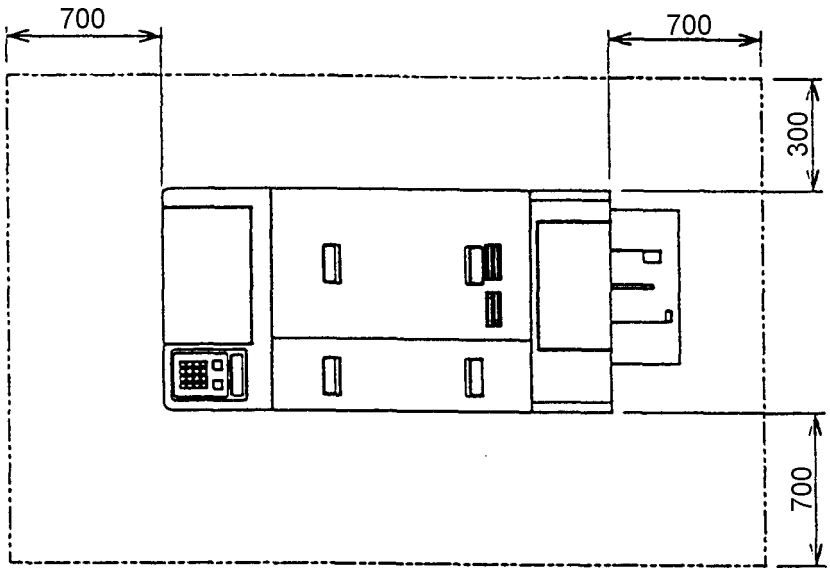
1 ITEMS TO BE CHECKED BEFORE INSTALLATION

1.1 EXTERNAL VIEW





2) Installation space (the minimum distance to the wall - unit : mm)



NOTE: the space for other equipments (paper processor, etc ...) should be also considered.

1.2 SPACE REQUIPMENTS

1) The machine weight is as follows.
Make sure that the floor is solid enough to support the weight.

Machine weight	Machine weight with solutions
170 kg	250 kg

2) A ceiling is required to be at least 1,7 m high to pull the racks out of the machine.

3) Do not install the machine in direct sunshine.
(Make use of blinds or curtains if they are necessary).

4) It is recommended to cover the floor with waterproof material because processing solutions may be spilled on it.

5) Check for any inclination or unevenness of the floor.

1.3 VENTILATION AND AIR-CONDITIONNING

1) Since the film processors discharge hot air for drying, make sure the room is well-ventilated and an air-conditioner is used in summer.

2) A heating system is recommended in winter to warm up the processing solution quickly and provide operators a pleasant environment.

3) The working environment conditions call for room temperature of 18 - 28°C and relative humidity of 30 - 80%. An optional cooling unit is required when the system is continuouly operated for 8 hours or more at the room temperature of 28°C or more.

1.4 TRANSPORTING MACHINE INSIDE INSTALLATION BUILDING

When transporting the machine trough the building doors, be sure to measure the actual door dimensions.
The corrugated carton case measures 680 mm (W) x 1240 mm (L) x 1490mm (H).
If the package proves too large for ordinary doors, unpack the processor before bringing it into the room.

1.5 INSTALLING ON A SECOND STORY (LEASING A CRANE)

- Make all the arrangements (crane arriving time & place, payment and who is responsible for each work) carefully.
- Procure sufficient manpower. Be sure to take the safety measures.
- Check the transporting route and prepare the required tools.

1.6 TRANSPORTING MACHINE TO INSTALLATION AREA

Choose the most convenient route to the installation area after thorough investigation of local traffic conditions and the neighborhood.

1.7 DISPOSAL OF WASTE SOLUTION

Secure a place to store waste solution for later disposal by authorized agent.

2. INSTALLATION

2.1 UNPACKING PRECAUTIONS

1) Although the AKS 32 FP is both shipped in single packages, the packing method differs between products for domestic and overseas markets (see fig. 2-1).

2) Before unpacking, make an investigation thoroughly about the installation place, transporting conditions and unloading place from the pallet.

3) Unpack in a large area other than the installation room.

2.2 UNPACKING PROCEDURE

Overseas model

1) Cut the 2 packing bands with knife.
(since the bands may bound, care must be taken).

2) Remove the cap (top box).

3) Remove the accessory case and cushioning materials.

4) Pull out the 6 nails holding the case to the pallet.

5) Slip the case up and off.

6) Unload the equipement from the pallet.

7) Check the list of standard accessories & spare parts and attached documents for any missing items.

2.3 PACKAGE

Package of AKS 32 FP

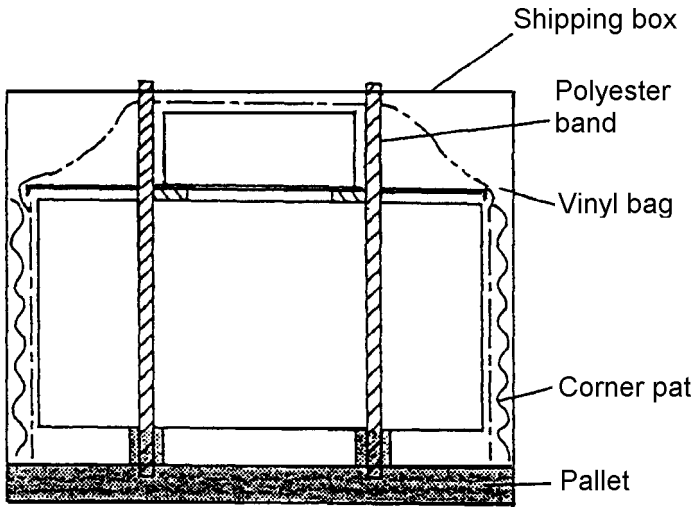
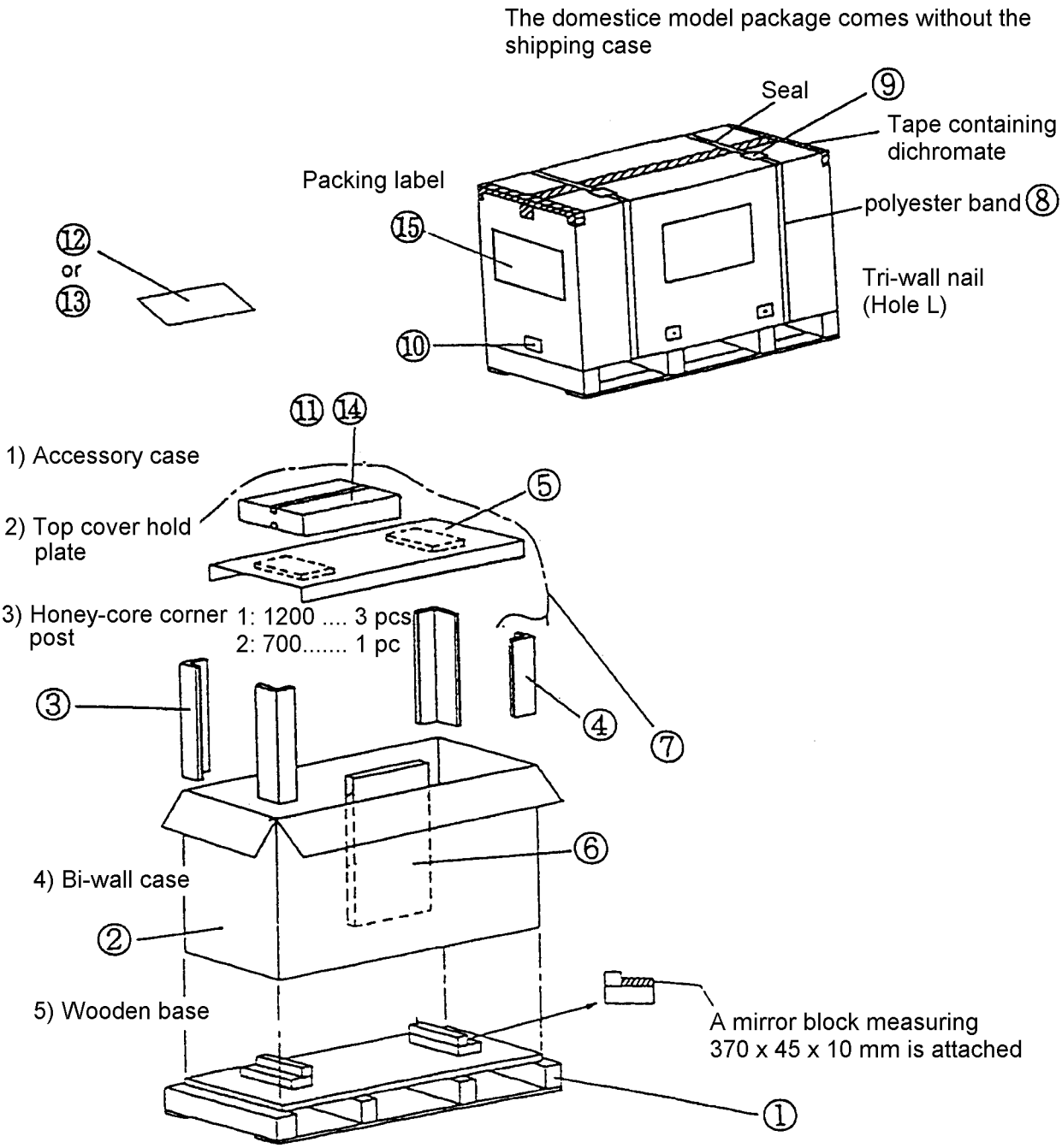


Fig. 2-1

Package Dimensions : 1240 mm (L) x 680 mm (W) x 1490 mm (H)

Weight : 230 kg



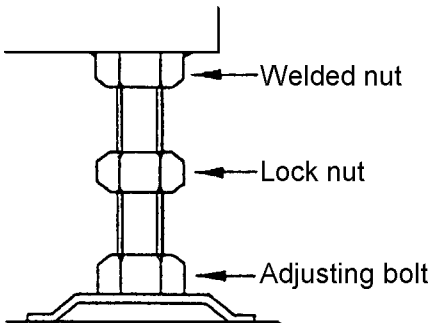
Package Dimensions : 1240 mm (L) x 680 mm (W) x 1490 mm (H)
Weight : 230kg

NOTE :

1) The code number, machine number, machine type, size and weight should be printed on the particular area of shipping case.
2) The shipping case should be sealed with the black cloth tape, and tightened with polyester bands en 2 places.
3) The package should withstand piling en 3 layers.

N°	Drawing N°	Item	Q'ty	Description		Remark
				Dimension L W H	Specification	
1		Pallet	1	1240 680 220	Wood & pol yethylene	Made by pack Mizutani
2		Body case	1	1220 660 1340	AAF	
3		Corner post 1	3	1200 100 15	Honeycomb	Bent in the center
4		Corner post 2	1	1200 100 15	Honeycomb	Bent in the center
5		Top cover hold plate	1	1180 810 23	AAF + AAF	Protecting top cover
6		Air cap	1	910 650	Air cap	For tray
7		Body cover (overseas)	1	1200 630 1300	Vinyl	Against dust
8		Band	2	19	Polyester	Trade item
9		Fastener	2	19	Polyester	Trade item
10		Cap nail	6	50L		Trade item
11		Polyester bag	1	400 280		For manuals
12		Packing list	1		A4-size copy paper	
14		One set of accessories	(1)			
15		Packing label	(1)			

2.4 INSTALLATION OF PROCESSOR



To install CFP-232T/252TII, a 19mm wrench is required to fix the 4 adjusting bolts and nuts (see fig. 2-2) an addition to standard tools.

After preparation of the electrical system (see the chapter "3. Electrical requirements and connections" and the installation guide), bring the machine into the room and install it according to the following steps.

1) Carry the processor to the installation place. Install it at least 30cm aprt from the wall.
   gsfdg

2) Lift the front (replenisher tank side) of the processor and put the tray under the processor.

2.5 LEVELING MACHINE

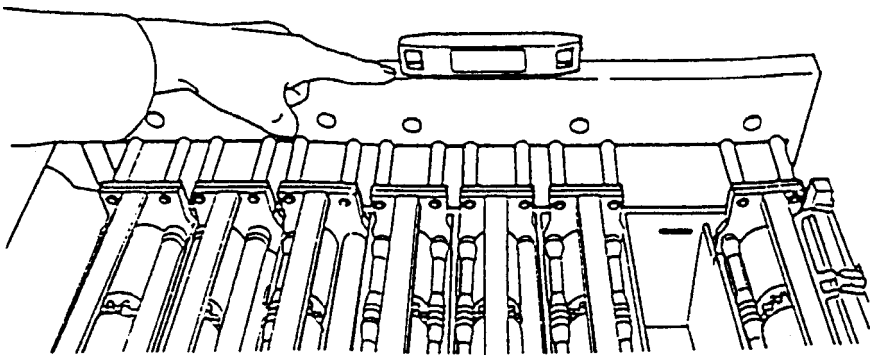
Rack leveling is required because the processor has a flexible structure (comb frames and panels are separate parts and they are just bolted together).
First, check that the machine is level at the upper frames where the rack holders are attached and then reconfirm at the racks.
The alignment of racks are very important for smooth film transport.

1) Carry the machine (equiped with caster) to the installation position and turn the leveling bolts until the casters are lifted.

2) Leveling the machine.

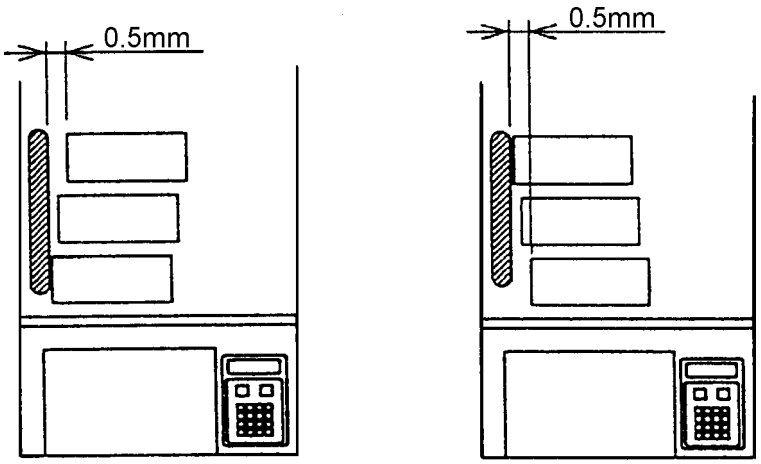
   a - Take off the top cover, and check the alignment of the racks on the upper right frame and upper left frame respectively, and then cheek the level between right and left upper frames.
   Do not check at the rack holders because they are not aligned (the diameters are differs). A spirit level longer than 300mm is recommended.
   After pouring solution into the tank, cheek the level by the spirit level again.

   Note : after the above cheeking, make sure that the cop cover can be opened and closed properly, and the crossover racks and the rack units can be easily removed and set.



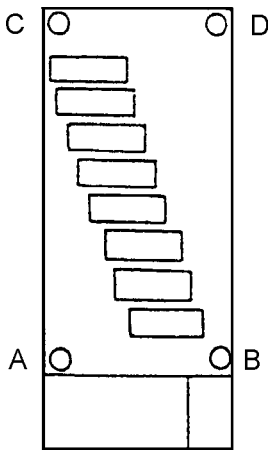
b - Set the racks in the tanks, and cheek the alignment of the racks, if the racks are not in alignment, it may cause transporting problems because the short leader touches the side plates of the next rack when crossing the racks.

Because the racks have some play (0 ~ 0,2mm) on the rack holders, put them all off to the left side (rack drive side) of the processor.
By placing a 15cm metal ruler (with flat surface) against the outer surface of the rack plates, make sure that there is not uneveness more than 0,5mm between the rack and the one two racks away from it.

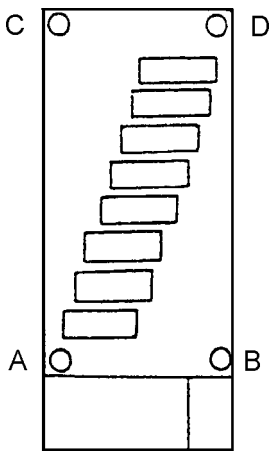


c - If the uneveness is more than 0,5mm, align the racks as shown below.
Racks tend to get out of line toward lower side.

If position B and/or C is lower, the racks are pushed toward left in the direction from N° 1 to N°8.
Raise B and/or C by turning leveling bolts.

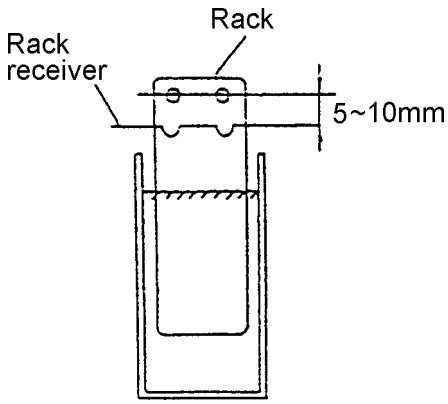


If position A and/or D is lower, the racks are pushed toward right in the direction from N°1 to N°8.
Raise A and/or D by turning leveling bolts.

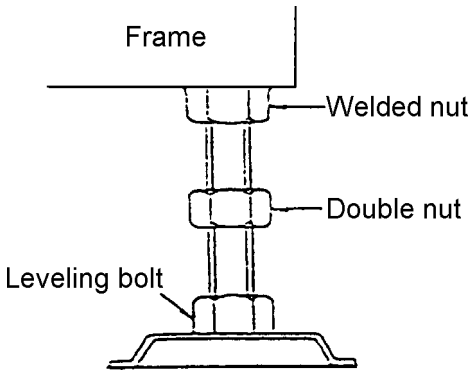


Note : dot not adjust the level by lowering the higher side with leveling bolts.
Because the dryer rack side is so heavy that the machine can be supported by the other 3 leveling bolts with the adjusted one is floated, and the machine may be slanted in a long time.
I there is no choice, turn the casters with your hand to make certain that they do not touch the floor.

d - Check that the racks are easily removed and set. Remove the rack holders and lift the rack 5-10mm up and release it to check that it falls into the racks receiver smoothly.
Check each rack from N°1 to N°8.
(Be careful to avoid contamination because this is done after the solution is poured into the tank).



e - Tighten the double nuts against the welded nuts to lock the leveling bolts.
If the double nuts are not tightened enough, the bolts become loose by vibration.



f - Request :
The machine may slant after installation.
Check that the machine is level a few weeks afterward.
Ask the customer to contact the service staff when the machine has to be reinstalled in other place.

2.6 CHECKING DIP SWITCHES ON CPU BOARD

Before the power is supplied, open the control box cover and check that the DIP switches on the CPU board are set correctly.

DIP SWITCH ON/OFF TABLE

	FUNCTION			Set position on delivery
DS2-1	Circulation pump on-demand	ON	On-demand control	ON
		OFF	When not used	
2	Frequency	ON	60Hz	OFF
		OFF	50Hz	
3	DRY temperature for 120 film	ON	Set temp. +20°C control	OFF
		OFF	Set temp. +10°C control	
4	DRY temperature control	ON	40°C control	OFF
		OFF	When not used	
5	Low guard	ON	20°C control in cold-district	OFF
		OFF	When not used	
6	Basic replenishment rate setting	ON	Basic repl. amount setting	OFF
		OFF	Repl. rate in % setting	
7	Unused			OFF
8	For debugging		(set to OFF)	OFF

DS3-1	Language setting			ON
2	Language setting			OFF
3	Language setting			OFF
4	Language setting			OFF

	Backup battery switch located on the right of DS3	ON

* Be sure to set DS2-2 according to the power frequency.

2.7 ATTACHING STANDARD ACCESSORIES

1) Attach a filter to each temperature control tank.
2) Attach the leader receiving set to the outlet of the dryer unit.
3) Attach the films receiving box below the outlet of the dryer unit.

3. ELECTRICAL REQUIREMENTS AND CONNECTIONS

3.1 POWER CONSUMPTION

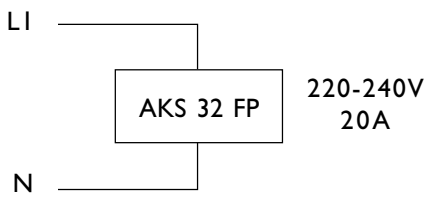
1) Power consumption per input voltage

Supply voltage	220V	230V	240V
Power consumption	3.13kW	3.40kW	3.70kW

2) Electrical capacities of xarious units

Description		Input Voltage	Power consumption (50Hz)	Q'ty
Heater	H1	240V	350W	1
Heater	H2	240V	350W	1
Heater	H3	240V	240W	1
Drying heater	H4, H5	240V	1250W	2
Circulation pump	PU2	100V	26W	1
Circulation pump	PU1.3-8	100V	15W	7
Replenishing pump	RPU1-4	100V	4.5W	4
Drive motor	M	100V	10W	1
Dryer fan	FAN2	100V	27W	1
Exhaust fan	FAN1	100V	17W	1
Cut solenoid	CUTSO	100V	24W	2
Push solenoid	PUSHSO	DC24V	12.7W	2
Lock solenoid	LOCKSO	DC24V	8W 1	
Cooling fan	FAN3	100V	8.5W 1	

3.2 CONNECTIONS AND RATED CAPACITIES



3.3 CONNECTING THE TRANSFORMER ACCORDING TO SUPPLY VOLTAGE

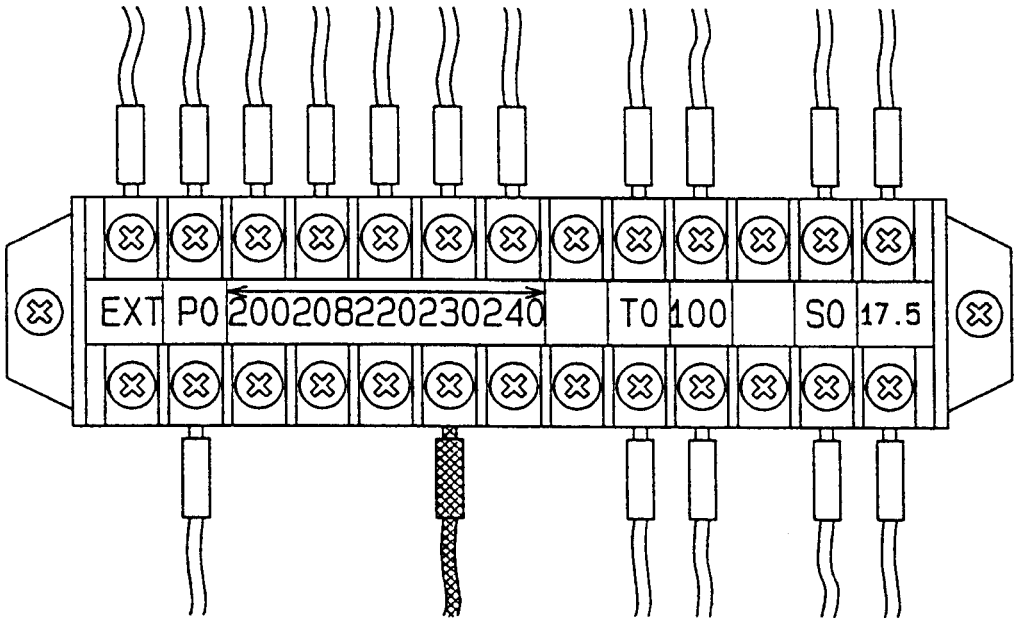
The primary voltage of the power supply is set to 230ACV when the CL-KP32TQA2 is delivered from the factory. Should the service voltage be other than AC 230V, change the setting accordingly. Available primary taps include 220, 230 and 240 ACV.

1) Read the voltage across the terminals immediatly to the line side of the circuit breaker on the distribution panel.
   Check the power frequency on the left (50/60Hz).

2) Open the control box cover.

3) Remove the control box cover and locate the power transformer on the left.

Detailed drawing of power transformer terminals



For a line viltage other than AC 230V, remove the connected cable attached to the 230V taps (hatched cord), then attached this cable to the appropriate taps.

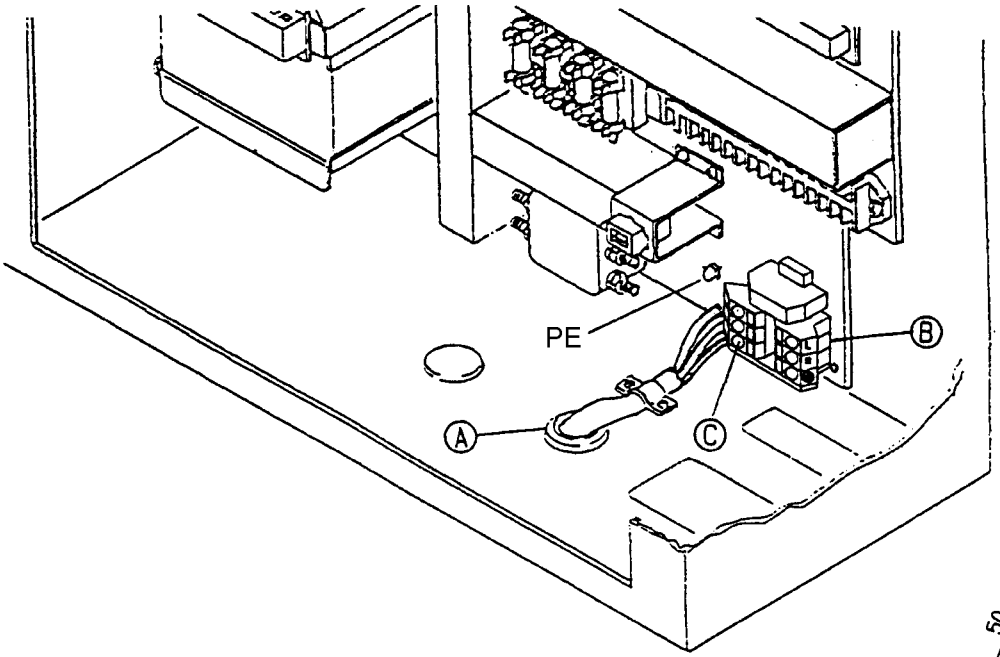
Note : Make sure that the circuit is dead when connecting the cable.

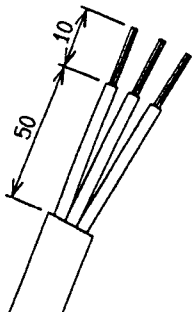
3.4 CONNECTING THE POWER SUPPLY UNIT

1) Turn off the breaker on the distribution panel is the system installation room, as well as the processor's breaker switch.

2) Insent the Cabtyre cable from the distribution panel through the power cable bushing (A) shown in the figure below, then connect into the terminal block (B).

3) Connect the grounding wire to PE (C), then connect the power cable to position L and N/L1, L3 and N (Single-phase, two-wire/3-phase, 4-wire) on the terminal block (B).





Wiring material (Single-phase)

AKS 32 FP	Cross-section (SQ = mm²)	Type	Capacity
O	2.5	H05VV-F	25A
O	4	H05VV-F	32A

Wiring material (3-phase 4-wire)

AKS 32 FP	Cross-section (SQ = mm²)	Type	Capacity
O	1.5	H05VV-F	16A
O	2.5	H05VV-F	25A

For processor Wiring sizes (Single-phase, 3-phase 4-wire)

Outer diameter (mm)	Power cable Bushing
8.5-10.5	SCL-10B
10.5-12.5	SCL-14A
12.5-14.5	SCL-14B

Note : do not fail to lengthen the length of the grounding wire than that of the power cable.

3.5 WIRING PRECAUTIONS

1) Grounding Fault Circuit Interrupter (GFCI)
   For safety's sake attach a circuit breaker (GFCI) to each feeder line to the distribution panels.

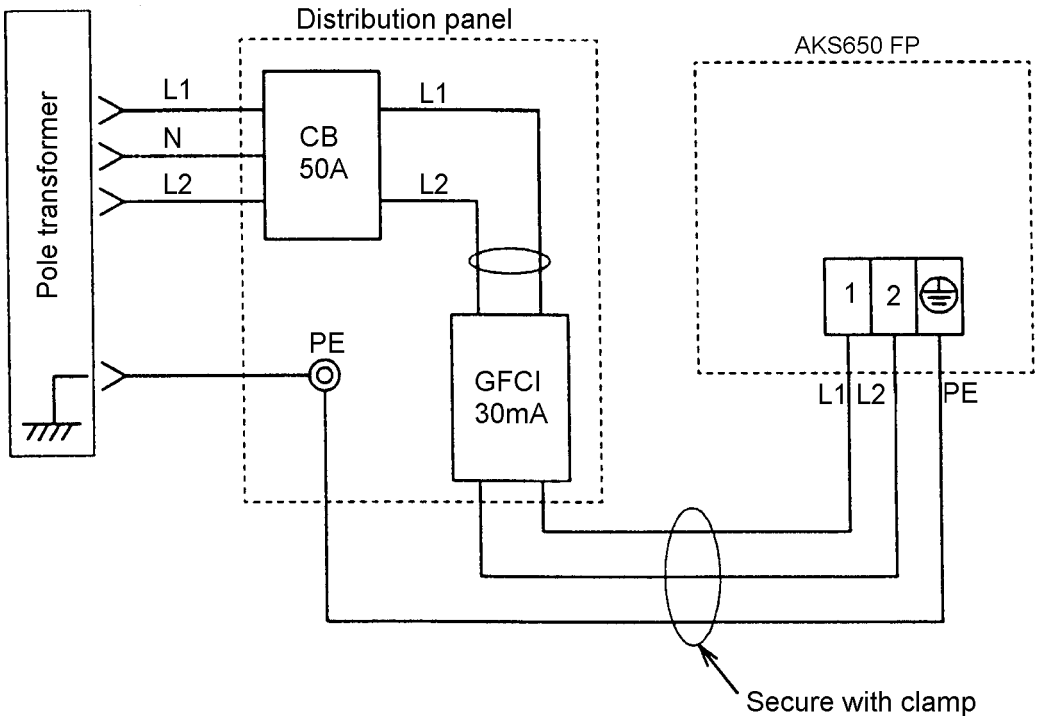
2) Grounding Line
   Be sure to use an isolated PE wire instead of a neutral PE conductor for grounding.
   If such a PE wire is not available, use an additional wire.

3) Connection of other equipment
   When equipment other than the AKS 32 FP are connected to the same distribution panel, be sure to note the following points.
   - The unbalance factor (load balancing of L1 and L2).
   - The capacity of yhe main-line breaker.
   - The need for an earth leakage breaker to protect additional equipment.

4) Leakage current detection sensitivity of each leakage breaker
   Basically, the 30mA-type earth leakage breaker should be used.
   Should a highly sensitive breaker be used in the branch circuit, however, use an eath leakage breaker with higher sensitivity.

3.6 WIRING METHOD

3.6.1 For single-phase, three-wire

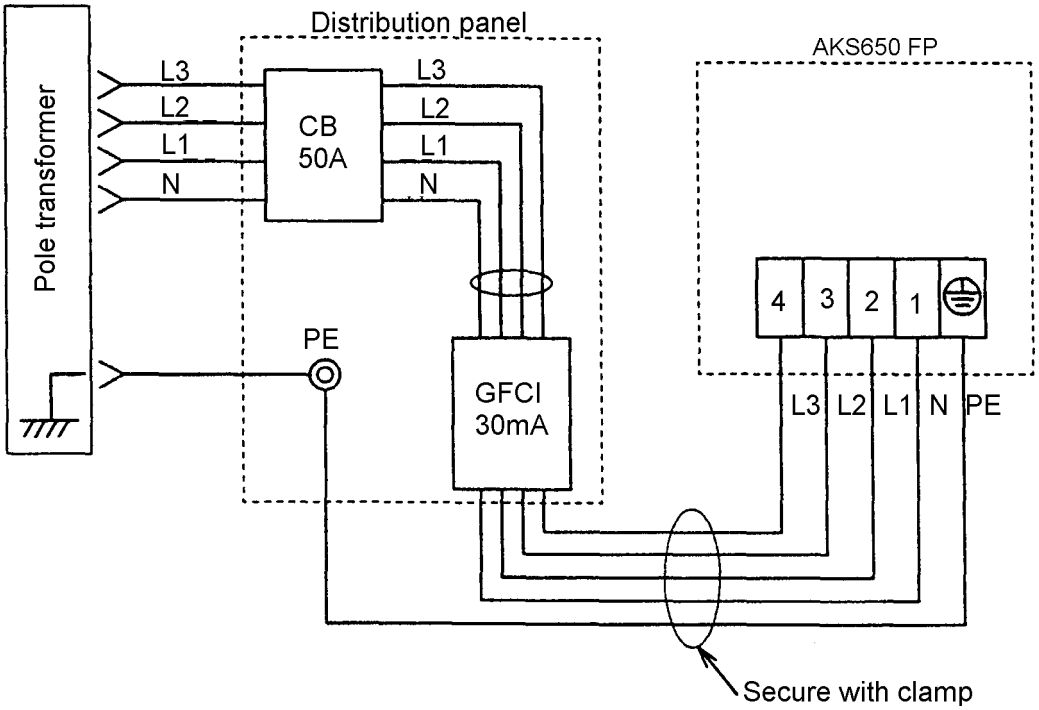


Wiring materials

CB : Circuit Breaker

CFCI : Ground fault circuit interrupter
(fault current detecting sensitivity = 30 mA).

3.6.2 For 3-phase, 4-wire Power



Wiring materials
CB : Circuit breaker
CFCI : Ground fault circuit interrupter
(fault current detecting sensitivity = 30 mA).

3.7 POWER SUPPLY UNIT

Specifications

1) The single-phase power supply of 220 to 240 ACV is standard.
   A three-phase, four-wire system can also be used by simply replacing the power supply unit.

2) The power supply unit should have a function to prevent overcurrent.

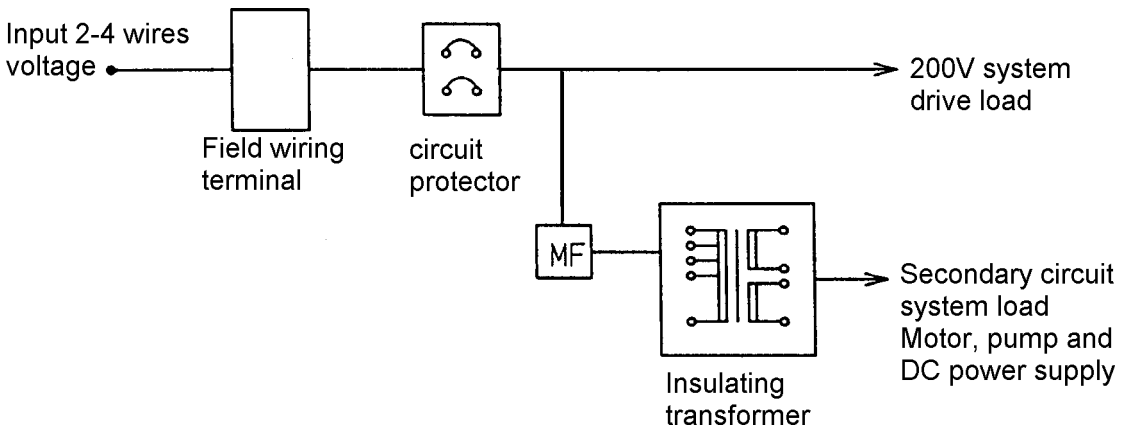
3) To stabilize the secondary voltage against input voltage of AC220 V, 230 V or 240 V select appropriate primary tap of the power transformer.

4) The maximum load balancing rate of the three-phase transformer should be 30% or less.

Types of Input Voltage

1) Single-phase 220 to 240 ACV.

2) Three-phase, four-wire 220 to 240 ACV

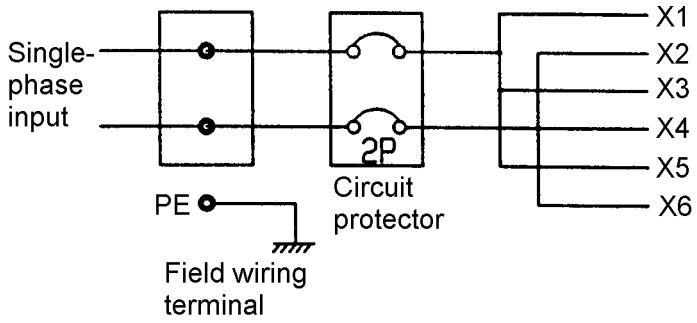


Difference in input power supply (240V supply)

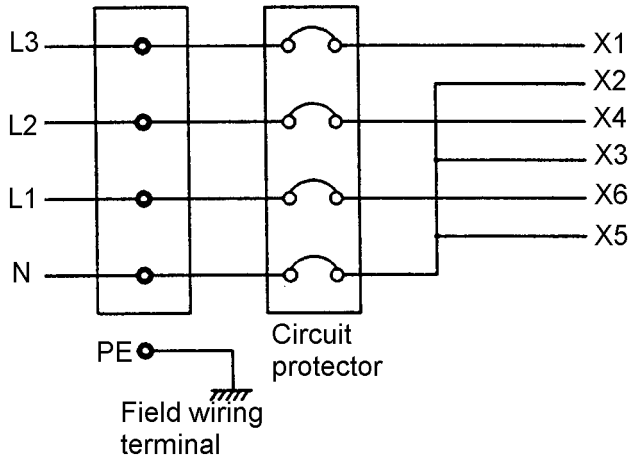
Three-phase Four-wire	L1-N section L2-N section L3-N section	1.2 kW 1.25 kW 1.25 kW
Single-phase	L-N section	3.7 kW

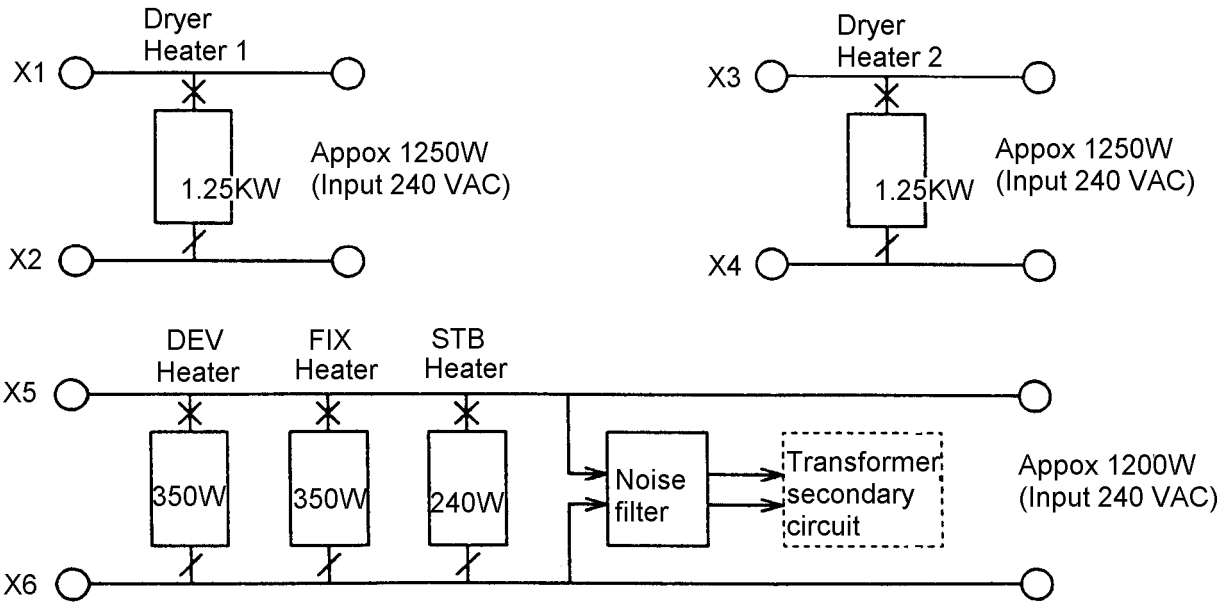
Load sharing

1) Single-phase system



2) Three-phase, four-wire system



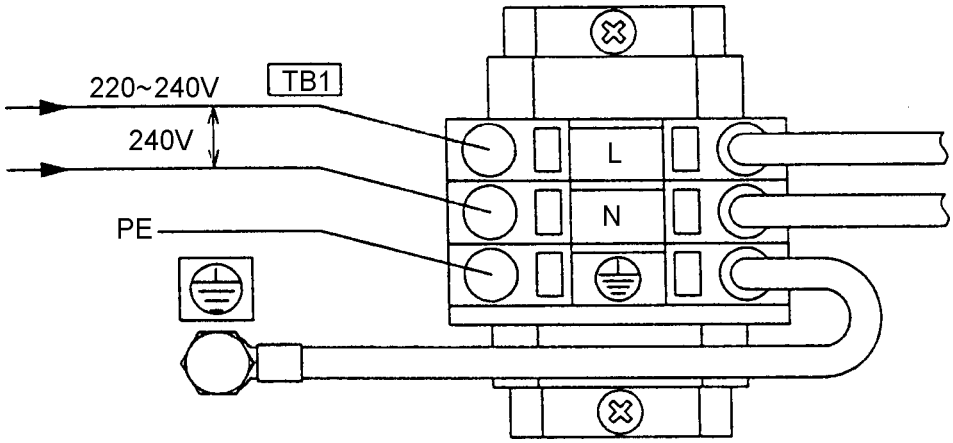


× in the figure : Relay side

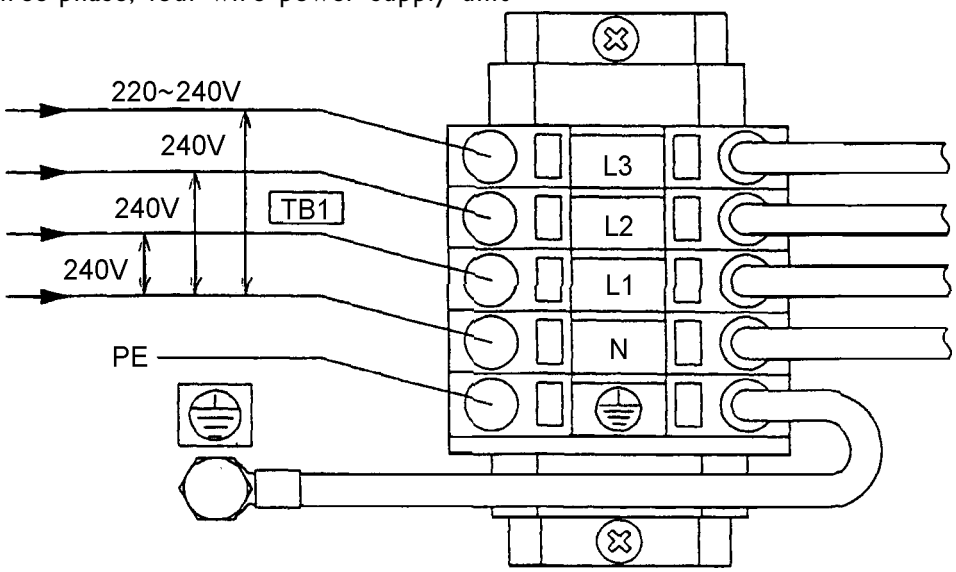
⁄ in the figure : Overheat protection switch side

Wiring of Power Supply Unit

Single-phase, two-wire power supply unit



Three-phase, four-wire power supply unit



How to replace an optional power supply unit

1) Take off the control box cover.

2) Pull out connector CN1 out.

3) Remove the two screws that secure TB1 in place.

4) Remove the grounding wire from PE.

5) Remove the two screws that secure the breaker unit in place.

6) Follow the above procedures in reverse (i.e, steps 5 to 1) to attach an optional power supply unit.

4. MIXING THE CHEMICALS

4.1 GENERAL INSTRUCTIONS FOR SAFE USE

1) Keep the contact with the chemicals to the minimum.
   Treat them carefully to avoid spillage.

2) If the chemicals contact your skin, wash off with a lot of running water and then with soap.
   If the developer is spilt on your skin, the same step should be made.

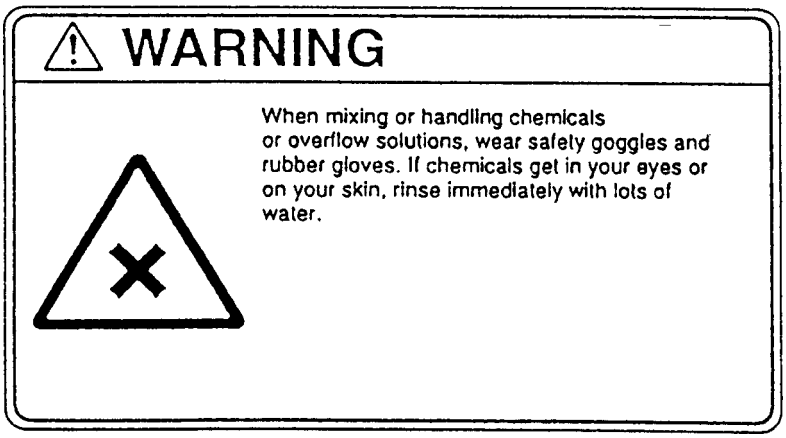
3) If the chemicals get in your eyes, wash out with lots of running water for about 15 minutes.
   If the pain remains, seek medical treatment.

4) Be sure to wash hands before eating, after handling the chemicals.
   Do not take food into chemical handling area.

5) The processing tanks for the machine must be used to keep or carry the chemicals.
   Do not use other containers, especially for food, to measure or keep the chemicals.

6) If the chemicals is drunk, drink salt water at once to spew it up.
   Seek medical treatment immediatly.

7) Keep the chemicals in a dark, cool place.
   Keep out of reach of children because of acid or alkaline components.



4.2 INSTRUCTIONS FOR MIXING CHEMICALS

1) Make sure that the drain cock is turned off firmly.

2) Handle the removed racks and crossover racks very carefully.

3) Mix all chemicals carefully according to the solution manual.
   The contamination-preventive cover must be used when mixing chemicals.
   (see the list shown below for tank capacity).

4) Use a measuring glass to measure the starter solution.

5) Put back the processing racks, crossover racks, light shield plates and rack retaining plates after mixing chemicals.

* Install the processing rack into the processing tank carefully in order to prevent contamination.

* The solution level in the filter section of the temp.control tank drops while the circulation pump for processing solution operates.
   The solution level should reach the line in the filter section of the temp.control tank.
   Operate the circulation pump and turn it off, and them check the solution level while the pump is not operating.
   Pour the chemicals into N3-2 and N4-3 tanks whose solution levels go down because their solutions are circulated into the hoses which control their next tanks.

TANK	DEV	BL	FIX-1	FIX-2	STB-1	STB-2	STB-3
CAPACITY (L)	16.7	4.4	4.2	4.6	3.2	3.4	3.8

5. SETTING BASIC REPLENISHMENT AMOUNT

5.1 SETTING BASIC REPLENISHMENT AMOUNT

The values below refers to the chemical volumes required* for processing a 135-24 exp. film or a one meter linear of film.

135 film format	DEV	BL	FIX	STB	
mL **or** 24 exp. film	23.0	5.0	33.0	40.0	
mL **or** m.film	20.9	4.5	30.0	36.4	(basic repl. amount)

* : this basics values are adjustable according to type of chemical used and the production of the machine.

Turn on DS-6 on the CPU board

1) Enter the basic replenishment setting mode.	(2 REPL PRM)	Set basic reple. amount in % 50
2) Select the chemical.	(▼)	DEV basic amount xx (35.5ml 21.75) 50
3) If the set value is not correct, change it.	(SET)	DEV basic amount 15% (35.5ml 21.75) 50 The cursor appears
4) Input the new value. (ex. 20.9 mL)	(2) (0) (9)	DEV basic amount 15% (20.9ml 21.75) 50
5) Confirm the display and lock it.	(YES)	DEV basic amount 15% (20.9ml 21.75) 50
6) Now the basic replenishment rate is set.		

5.2 SETTING PUMP (BELLOWS PUMP) REPLENISHING RATE

Measure each chemical (DEV, BL, FIX, STB) tank's bellows pump replenishing rate with the measuring glass. Input the measured rate to fix the bellows pump replenishing rate for processing 1-meter-long film.

* Turn off DS2-6 on the CPU board

1) Enter the pump replenishing rate setting mode.	2 REPL PRM ▼ x 5	Set pump replenishing rate
2) Select the pump.	▼	DEV pumping rate 90 mL/min 50
3) Operate the selected pump for 60 seconds (The buzzer sounds when the operation is finished). * Measure the bellows pump replenishing amount with the measuring glass. Do not take the first replenishing rate into account because the pump contains air. Measure 3 times and calculate the average (98 mL).	YES	DEV replenishing 60.0 sec 50 The time is counted down on the display
4) Press SET key to display the cursor.	SET	DEV pumping rate _90 mL/min 50
5) Input the average value (98mL)	0 9 8	DEV Pumping rate 98 mL/min 50
6) Confirm the display and lock it.	YES	DEV Pumping rate 98 mL/min 50 When the setting is finished, the cursor disappears
7) Now the pump replenishing rate is set.		

Pour the measured solution back into the tank

6. FUSES

N°	RATING	TYPE	SIZE	LOAD
F1	AC250V 3.15A	NORMAL	Ø5.2x20mm	DEV HEATER
F2	AC250V 3.15A	NORMAL	Ø5.2x20mm	FIX-2, STB-3 HEATER
F3	AC250V T3.15A	TIMELAG	Ø5.2x20mm	DEV-2 CIRCULATION PUMP
F4	AC250V T3.15A	TIMELAG	Ø5.2x20mm	DEV-1, BL, FIX-1, FIX-2, CIRCUL. PUMP
F5	AC250V T3.15A	TIMELAG	Ø5.2x20mm	STB-1, STB-2, STB-3 CIRCUL. PUMP
F6	AC250V T3.15A	TIMELAG	Ø5.2x20mm	DEV, BL, FIX, STB REPLENISHING PUMP
F7	AC250V T2A	TIMELAG	Ø5.2x20mm	DRYER FAN
F8	AC250V T3.15A	TIMELAG	Ø5.2x20mm	DRIVE MOTOR, CUT SOLENOID (L), (R)

7. STANDARD ACCESSORIES ACCOMPANYING DOCUMENTS AND OPTIONS

7.1 STANDARDS ACCESSORIES

Case N°	N°	Part Name	Q'ty
1 *	1	Film receiving box	1 unit
*	2	Short leader receiving box	1 set
*	3	Chemical filter set	7 sets
*	4	Crank handle	1 pc.
	5	Tray for body	1 pc.
	6	Film splicer	1 set
	7	Short leader	15 shts
	8	Splicing tape	1 pc.
	9	Control strip magazine (126)	1 pc.
	10	Bat	1 pc.
	11	Turnguide rack washing bat	1 pc.
	12	Splash guard	1 pc.
	13	Drain hose	1 pc.
	14	Tape cutter tray	1 set
	15	Wash bottle	1 pc.
	16	Tool set (with tool bag)	1 set
	17	Spare fuse set (see the following list)	1 set
	18	Spare parts (see the following list)	1set
	19	120 film magazine	1 pc.
	20	110 film attachment	2 pcs.
	21	126 film attachment	2 pcs.
	22	Ball	1set
	23	Cut	1 pc.

* Attached to the machine body

Spare parts details

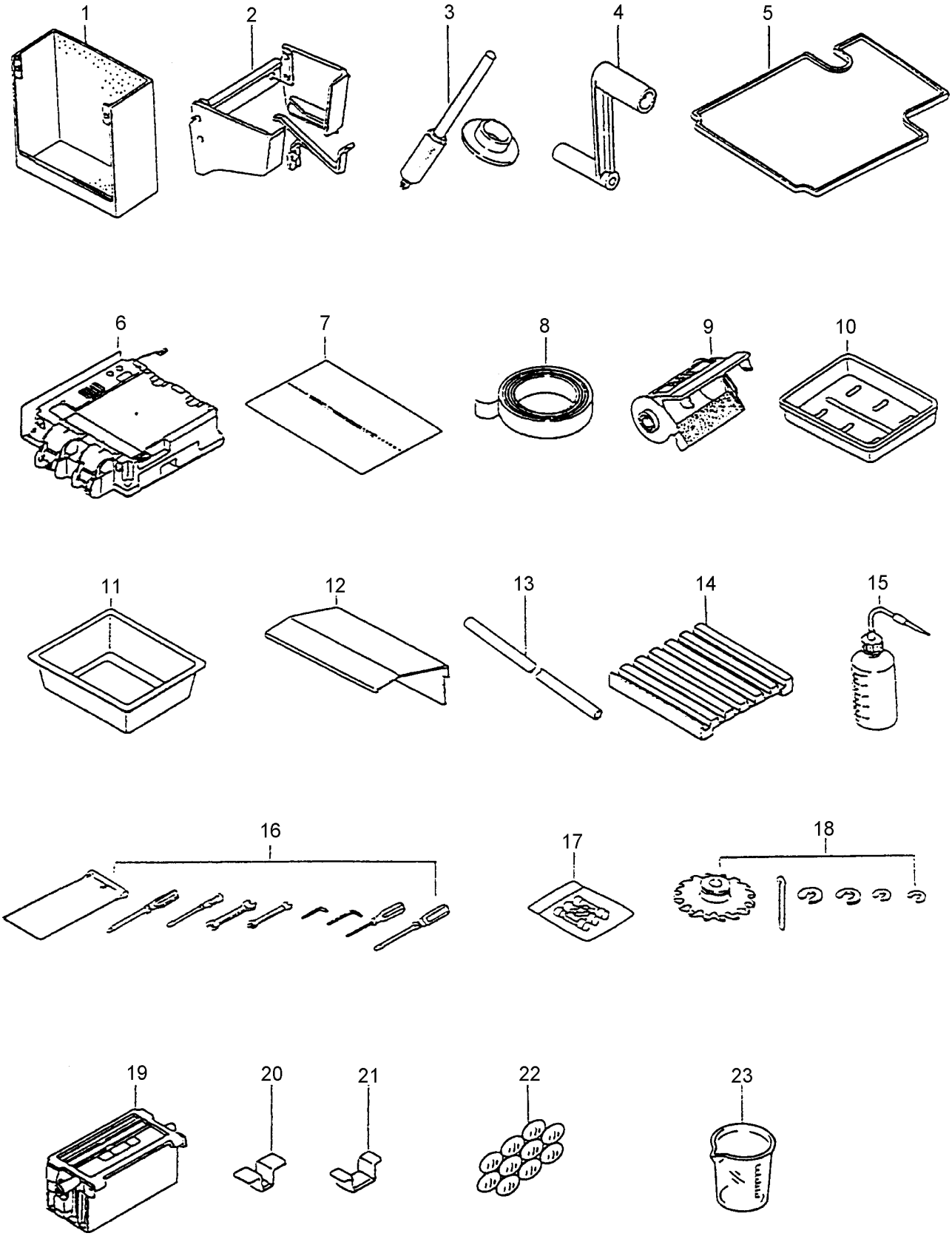
Ring Ø3 blue	43-A0483	3 pcs.
Ring Ø4 yellow	43-25022-2	3 pcs.
Ring Ø5 gray	43-05838-2	10 pcs.
Ring Ø6 white	43-85464-1	3 pcs.
Drive pocket	43-05076-1	2 pcs.
Pin	Z72022006	2 pcs.

Spare fuse set

ZLI314010	1 pc.	ZLI216315	1 pc.
ZLI314003	1 pc.	ZLI218315	1 pc.
ZLI313004	1 pc.	ZLI218002	1 pc.

Tool set

Tool gag	1 pc.
Phillips screw driver	1 pc.
Flat screw driver	1 pc.
Double-end sparner (13X10)	1 pc.
Double-end sparner (8X7)	1 pc.
Hexagon wrench 2.0	1 pc.
Hexagon wrench 3.0	1 pc.
Hexagon wrench driver 2.0	1 pc.
Tool (terminal) 210-120J	1 pc.


1
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7.2 ACCOMPANYING DOCUMENTS

N°	Name	Q'ty
1	Packing list	1 pc.
2	Manual	1 set

7.3 OPTIONS

N°	
1	110 film magazine
2	120 film magazine
3	126 film magazine
4	Cleaning unit
5	Cooling fan unit
6	Emergency dark bag
7	3-phase, 4-wire power source unit

PART B

MAINTENANCE

SUMMARY - PART B

1. DESCRIPTION OF PARTS

2. DESCRIPTION OF PRINT BOARD AND CHECK

3. ADJUSTMENT OF CPU PRINT BOARD

4. TROUBLE SHOOTING

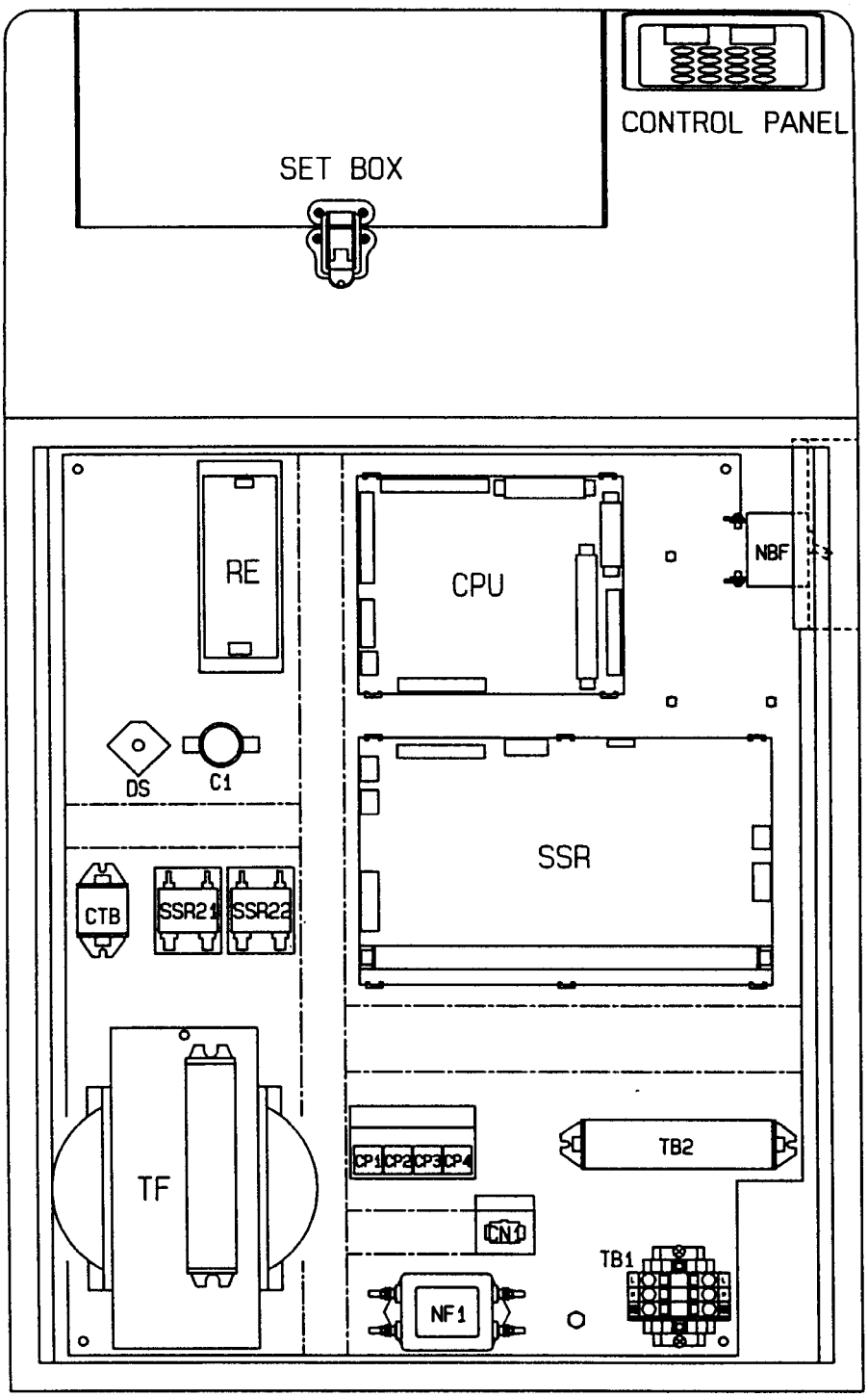
5. WHERE TO CHECK THE MECHANICALS

6. MAINTENANCE

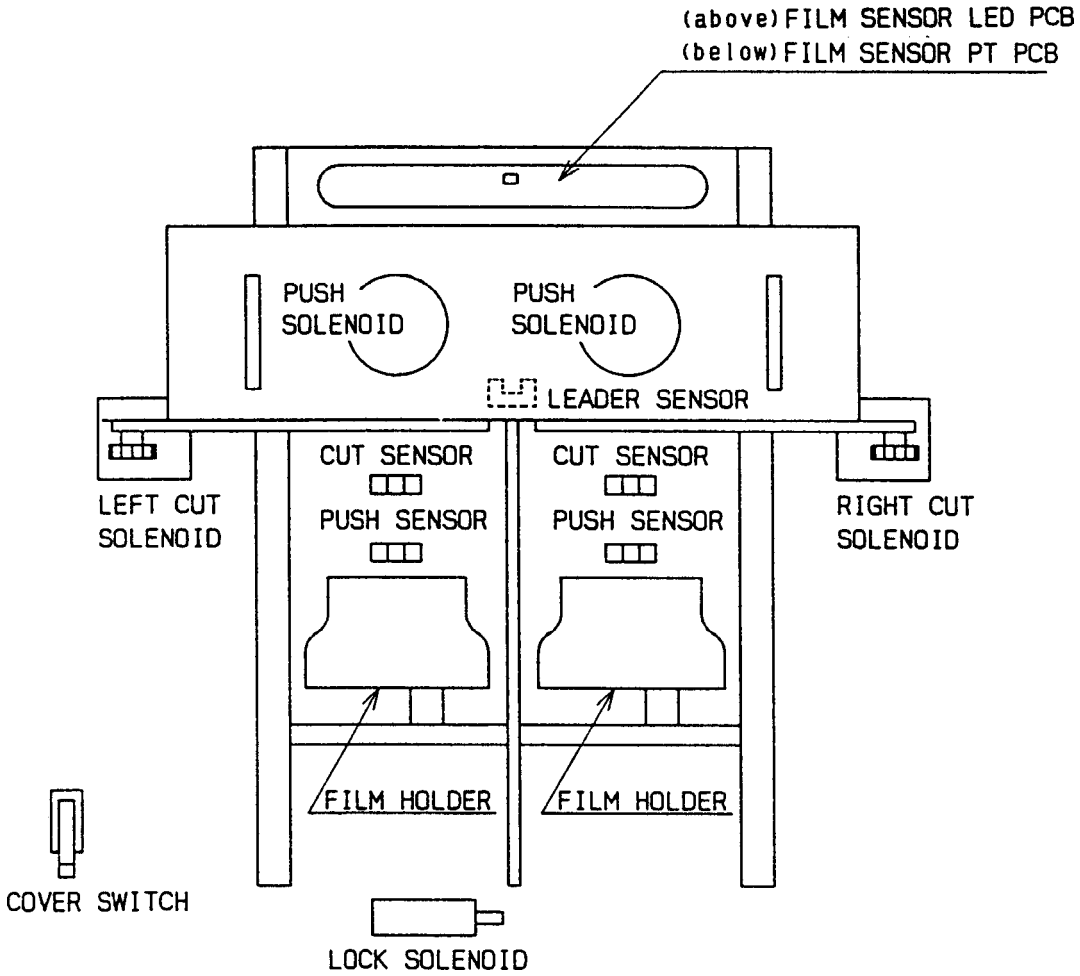
1 DESCRIPTION OF PARTS

1.1 ARRANGEMENT AND FUNCTION OF ELECTRICAL PARTS

1.1.1 Power supply control section

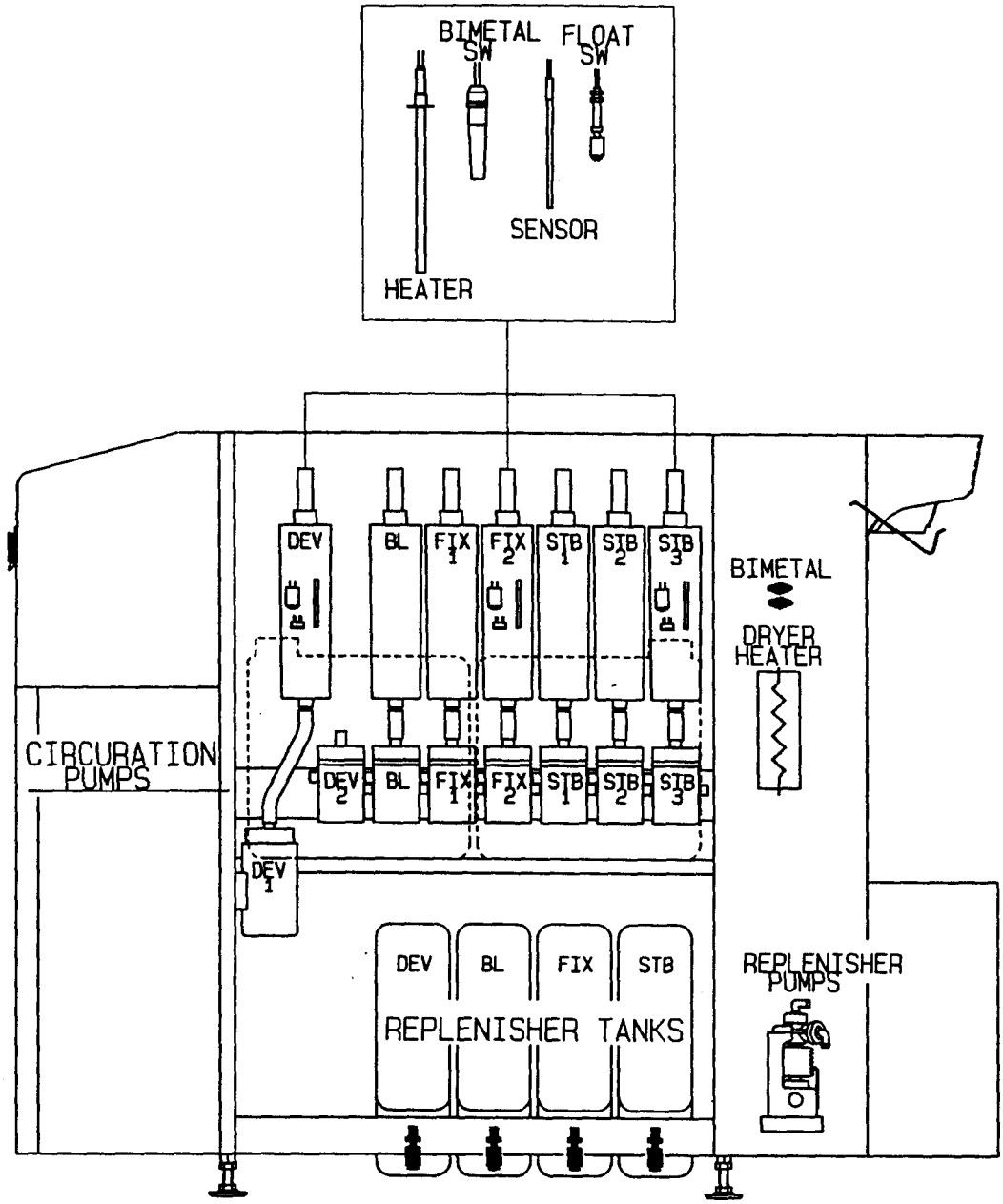


NAME	CONTENTS
CONTROL PANEL	Keyboard PCB, switches, (Operation, Drive)
CPU PCB	CPU PCB
SSR PCB	Circulation pump, Replenisher pump cut solenoid Drive motor, Drive PCB for dryer fan
RE	Power source for CPU PCB (+DC5V)
DS	Rectifier (DC+24V)
C1	Smoothing condenser (DC+24V)
NF	Noise filter (AC200V)
TB1	Connecting terminal (for input supply)
TB2	Connecting terminal (for chemical heater)
CN1	Connecting terminal (for input supply)
CTB	Repeating terminal
TF	Transformer
SSR21, 22	SSR for dryer heater
CP-1	Circuit protect for dryer heater
CP-2	Circuit protect for dryer heater
CP-3	Circuit protect for 5V DC line and exhaut fan
CP-4	Circuit protect for 24V DC line
NBF	Main breaker



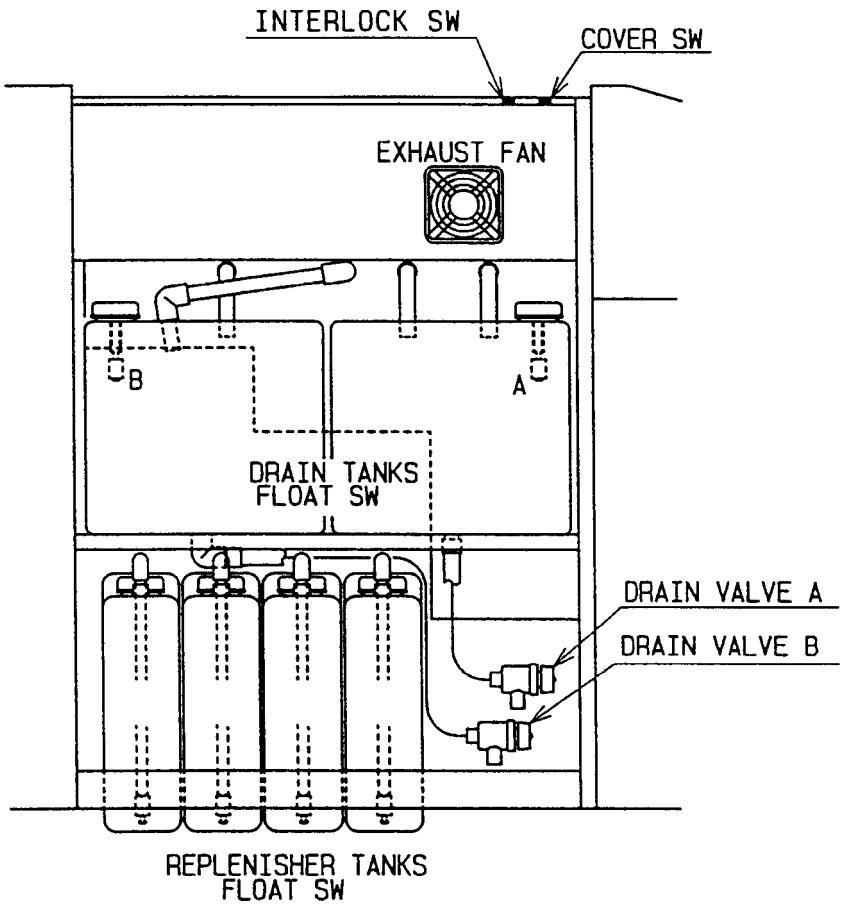
NAME	CONTENTS
Cover switch (Micro switch)	Open/Close detection of set box cover
Left & Right solenoid	Film cut solenoid
Reader-Sensor	Detects short leader
Lock-Solenoid	Lock for set box cover
Cut-Sensor	For cut solenoid
Push-Sensor	For push solenoid
Film-Sensor (Projector PCB)	For film detection
Film-Sensor (PT PCB)	For film detection

1.1.3 Right side view

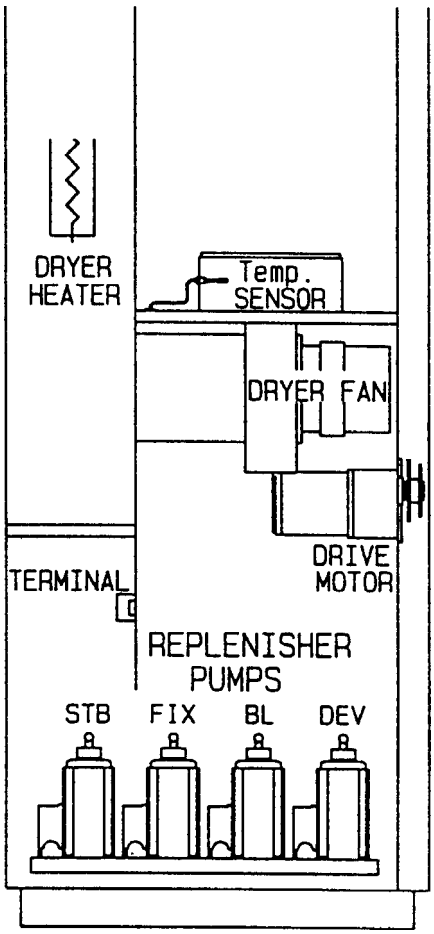


DEV	Heater	240V	350W
FIX2	Heater	240V	350W
STB3	Heater	240V	240W
DRYER	Heater	240V	1250Wx2

1.1.4 Left side view



1.1.5 Interior of dryer unit (back side view)



2. DESCRIPTION OF PRINT BOARD AND CHECK

2.1 CPU PRINT BOARD

The CPU print board contains micro computers and controls the machine.
The temperature is also controlled by the CPU board.

2.1.1 Test points (CPU print board)

CPU P. BOARD	CONTENTS	CHECK POINTS
TP 5	+5V Supply Voltage	DC 5V $^{+0,1}_{0}$ between TP5 and TP4
TP 4	5V GND	

2.1.2 LED

LED N°	CONTENTS	LED ON
LD 1	110 Film left side	When film is defected
LD 2	135 Film left side	When film is defected
LD 3	120 Film left side	When film is defected
LD 4	120 Film right side	When film is defected
LD 5	135 Film right side	When film is defected
LD 6	110 Film right side	When film is defected
LD 7	Unused	
LD 8	CPU RUN	When CPU operates properly

2.1.3 Volume

VR	CONTENTS	ADJUSTMENT
1	LCD Brightness	The brightness of indicator
2	DEV Temp. control offset	Make the display show accurate reading of the actual temperature
3	FIX2 Temp. control offset	
4	STB3 Temp. control offset	
5	DRY Temp. control offset	
6	Unused	
7	Temp control analog standard voltage	4.096V±0.001V between TP1-TP4
8	L/R 135 film detecting comparator standard voltage	3.00V±0.05V between TP2-TP4
9	L/R 135 film detecting comparator standard voltage	2.5V±0.05V between TP3-TP4

2.2 SSR PRINT BOARD

SSR print board controls signals sent from CPU at the adequate voltage to the load of each signal.

2.2.1 Table of each loard

<table>
<tr><th>LOAD</th><th>LED N°</th><th>SSR N°</th><th>FUSE N°</th><th>REMARK</th></tr>
<tr><td>DEV HEATER</td><td>LD1</td><td>SSR1</td><td>F1</td><td rowspan="3">D2W 203LD
AC200V</td></tr>
<tr><td>FIX2 HEATER</td><td>LD2</td><td>SSR2</td><td rowspan="2">F2</td></tr>
<tr><td>STB3 HEATER</td><td>LD3</td><td>SSR3</td></tr>
<tr><td>DEV CIRCULATION PUMP</td><td>LD4</td><td>SSR4</td><td rowspan="2">F3</td><td>D2W 203LD
AC100V</td></tr>
<tr><td>COOLING FAN (OPTION)</td><td>LD5</td><td>SSR5</td><td>D2W 202LD
AC100V</td></tr>
<tr><td>DEV CIRCULATION PUMP
BL, FIX1, 2 CIRCULATION PUMP</td><td>LD6</td><td>SSR6</td><td>F4</td><td rowspan="2">D2W 203LD

AC100V</td></tr>
<tr><td>STB1, 2, 3 CIRCULATION PUMP</td><td>LD7</td><td>SSR7</td><td>F5</td></tr>
<tr><td>DEV REPLENISHER PUMP</td><td>LD9</td><td>SSR9</td><td rowspan="4">F6</td><td rowspan="4">D2W 2032D
AC100V</td></tr>
<tr><td>BL REPLENISHER PUMP</td><td>LD10</td><td>SSR10</td></tr>
<tr><td>FIX REPLENISHER PUMP</td><td>LD11</td><td>SSR11</td></tr>
<tr><td>STB REPLENISHER PUMP</td><td>LD12</td><td>SSR12</td></tr>
<tr><td>DRY FAN</td><td>LD13</td><td>SSR13</td><td>F7</td><td>D2W 203LD
AC100V</td></tr>
<tr><td>DRIVE MOTOR</td><td>LD14</td><td>SSR14</td><td rowspan="3">F8</td><td>D2W 203LD
AC100V</td></tr>
<tr><td>CUT SOLENOID (LEFT)</td><td>LD15</td><td>SSR15</td><td>D2W 202LD

AC100V</td></tr>
<tr><td>CUT SOLENOID (RIGHT)</td><td>LD16</td><td>SSR16</td></tr>
<tr><td>PUSH SOLENOID (LEFT)
(SET BOX)</td><td>LD17</td><td>TR1</td><td rowspan="3">CP-4
(not included
in PCB)</td><td rowspan="3">2SD633
DC24V</td></tr>
<tr><td>PUSH SOLENOID (RIGHT)
(SET BOX)</td><td>LD18</td><td>TR2</td></tr>
<tr><td>PUSH SOLENOID (LEFT)
(SET BOX)</td><td>LD19</td><td>TR3</td></tr>
<tr><td rowspan="2">DRY HEATER</td><td rowspan="2">LD21</td><td>SSR21
SSR22</td><td>CP-1
CP-2</td><td rowspan="2">S5C-215L</td></tr>
<tr><td colspan="2">(not included in PCB)</td></tr>
</table>

3. ADJUSTMENT OF CPU PRINT BOARD

3.1 ADJUSTING THE CPU PRINT BOARD

Apply voltage testor between check pin TP5-TP4 (GND) on the CPU print board and adjust the voltage 5V +0.1/-0 by turning the volume on 5V switching regulator.

3.2 ADJUSTING TEMPERATURE

There are two steps: adjustment of the standard voltage of A/D converter and bias adjustment of sensor amplifier.

3.2.1 Standard voltage

Adjust the voltage 4.096V ±0.001V between TP1-TP4 check pin with VR7.

3.2.2 Sensor amplifier

Operate the machine and adjust the temperature by turning the following volume until the displayed temperature is in accordance with the temperature measured in the tank.

(see figure of CPU print board)

DEV	VR2
FIX2	VR3
STB3	VR4
DRYER	VR5

Note : Actual temperature should be measured near the thermistor to be measured. Take the filter out of the tank when temperature is actually measured.

3.3 ADJUSTMENT OF VOLTAGE FOR FILM DETECTING

Adjust in case the film is not detected properly.

3.3.1 Setting standard voltage

Connect the tester's minus (GND) to the check pin TP4 (GND) and the tester's plus to each check pin from TP2 throught TP3 (see the table below).

Regulate voltage to the specified value by turning the corresponding volume of each pin before inserting film.

SENSOR	CHECK PIN N°	SPECIFIED V	VR N°
110 L	TP3	2.55V ± 0.05V	VR9
135 L	TP2	3.00V ± 0.05V	VR8
120 L	TP3	2.55V ± 0.05V	VR9
110 R	TP3	2.55V ± 0.05V	VR9
135 R	TP2	3.00V ± 0.05V	VR8
120 R	TP3	2.55V ± 0.05V	VR9

3.3.2 Check after adjusting

LD4-9 should be OFF when there is no film being processed.

When each sized film is transported throught the detector at the inlet each LED should be ON or OFF or blink as the following table shows.

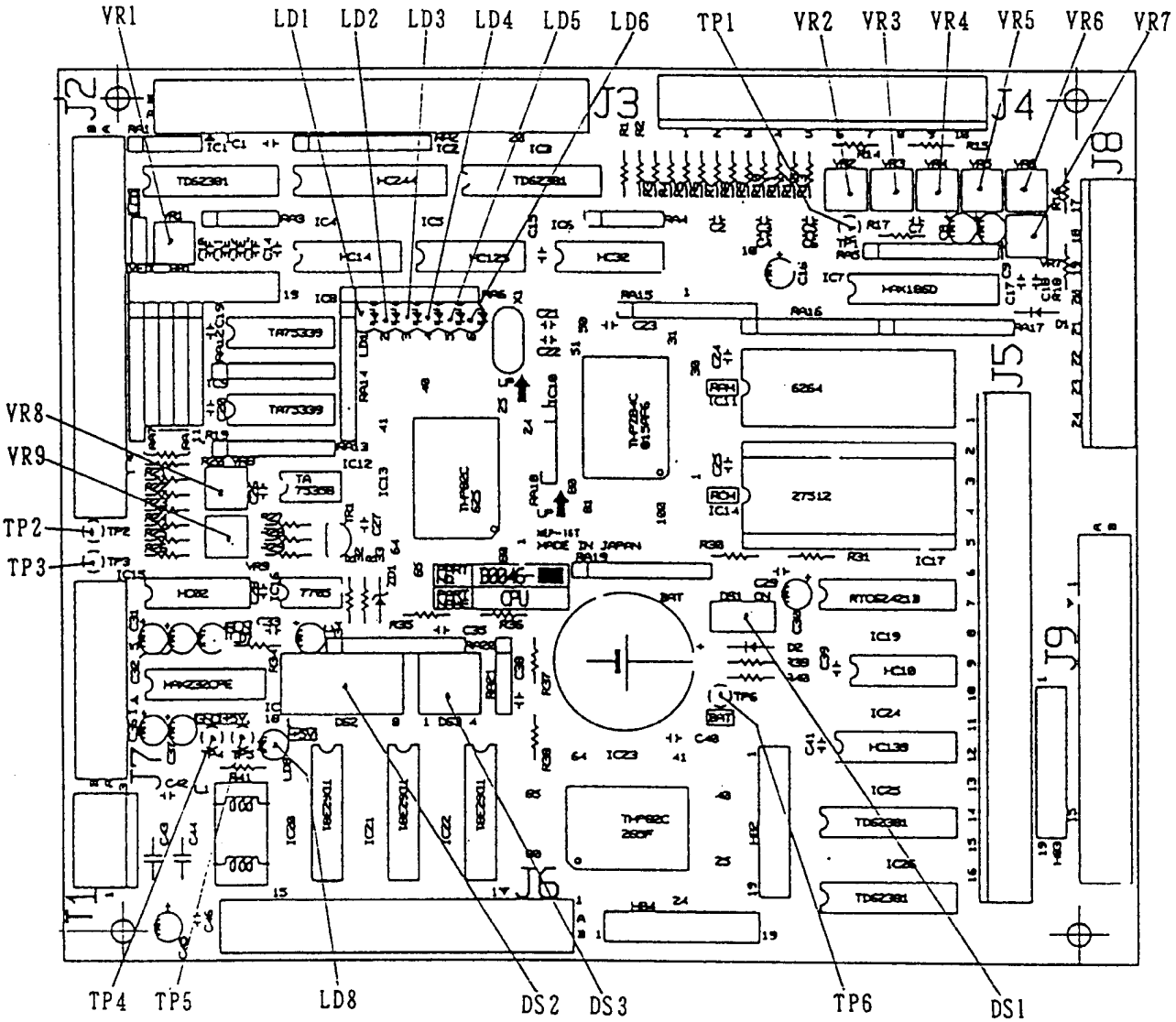
(Make sure that film spliced to the short leader properly).

LED N°	SENSOR	NO FILM	FILM IN PROCESS		
			110	135/126	120
LD1	110 L	X	O	O/O	O
LD2	135 L	X	X	Δ/O	O
LD3	120 L	X	X	X/X	O
LD6	110 R	X	O	O/O	O
LD5	135 R	X	X	Δ/O	O
LD4	120 R	X	X	X/X	O

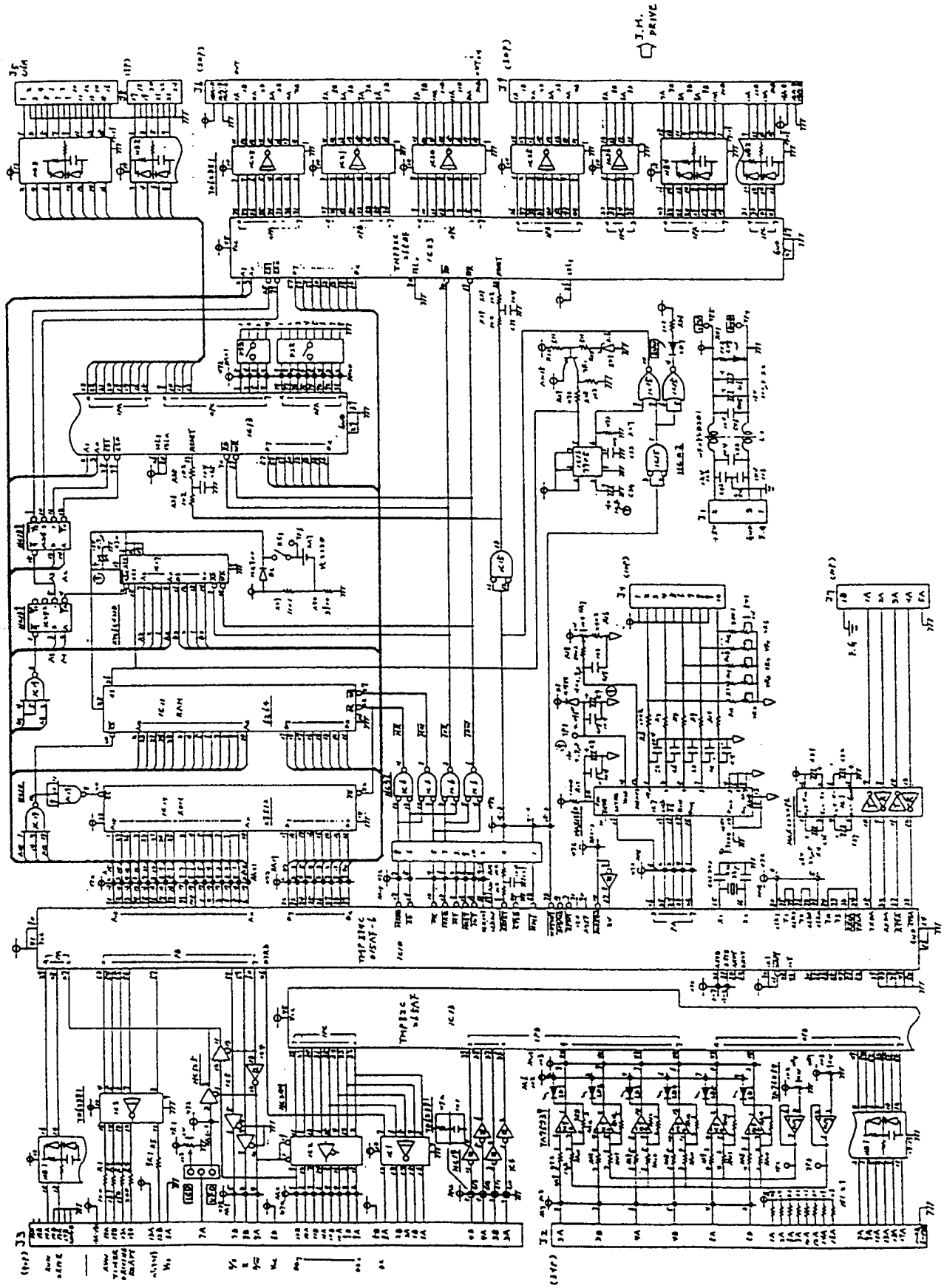
O: ON Δ: BLINK X: OFF

3.4 PRINT BOARD FIGURE & CIRCUIT DIAGRAM

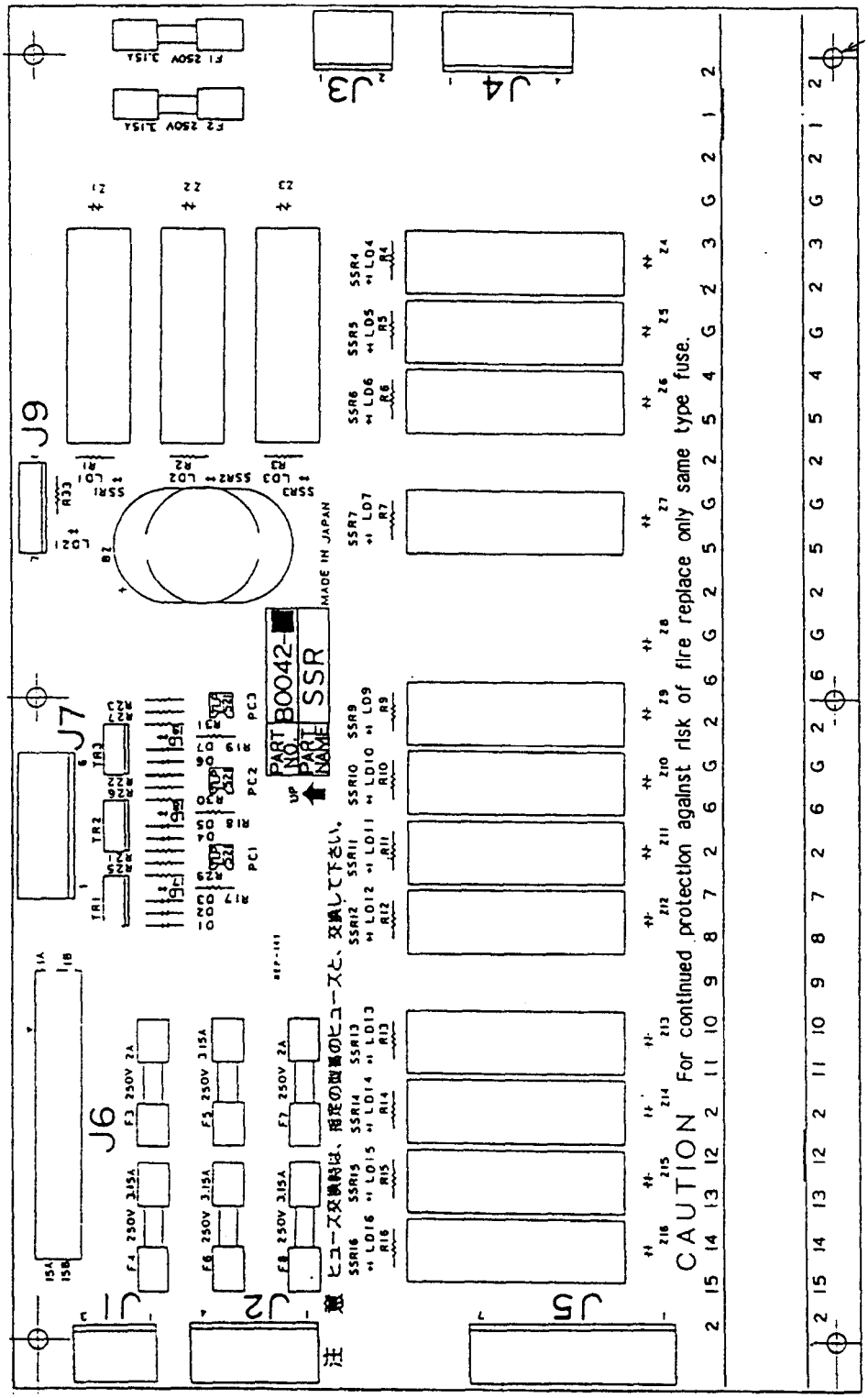
3.4.1 CPU Print board



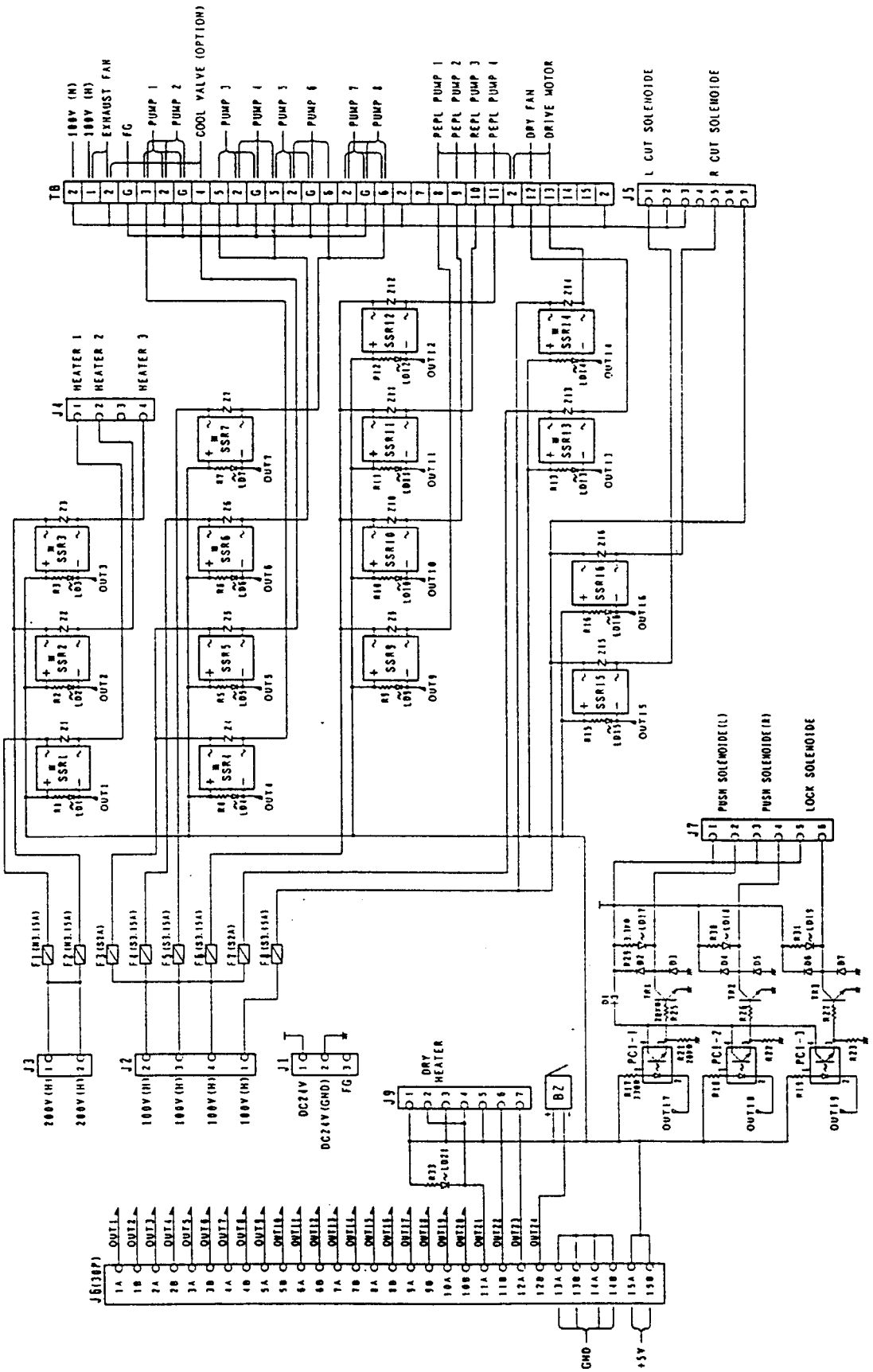
CPU BOARD CIRCUIT DIAGRAM



3.4.2 SSR Print board



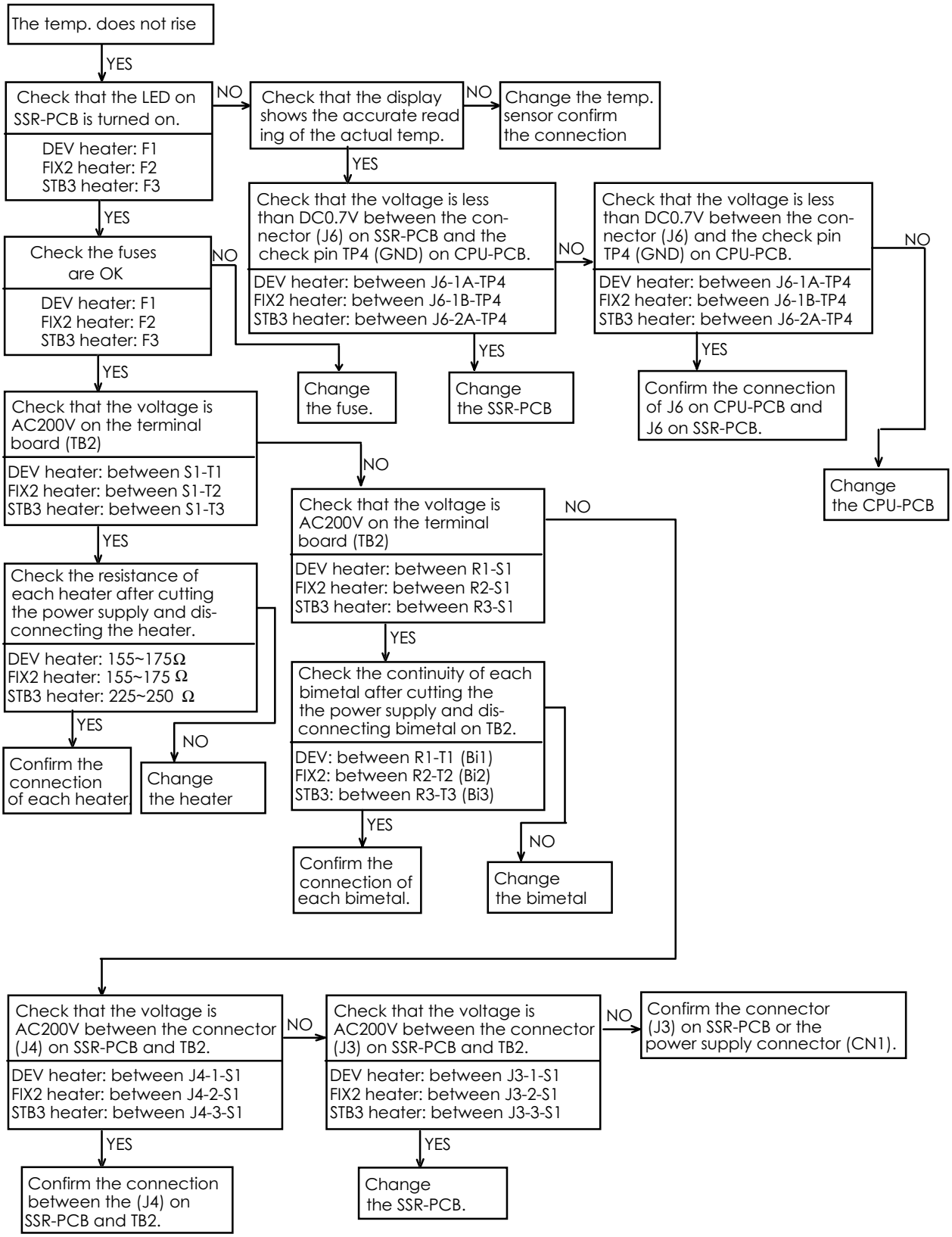
SSR BOARD CIRCUIT DIAGRAM



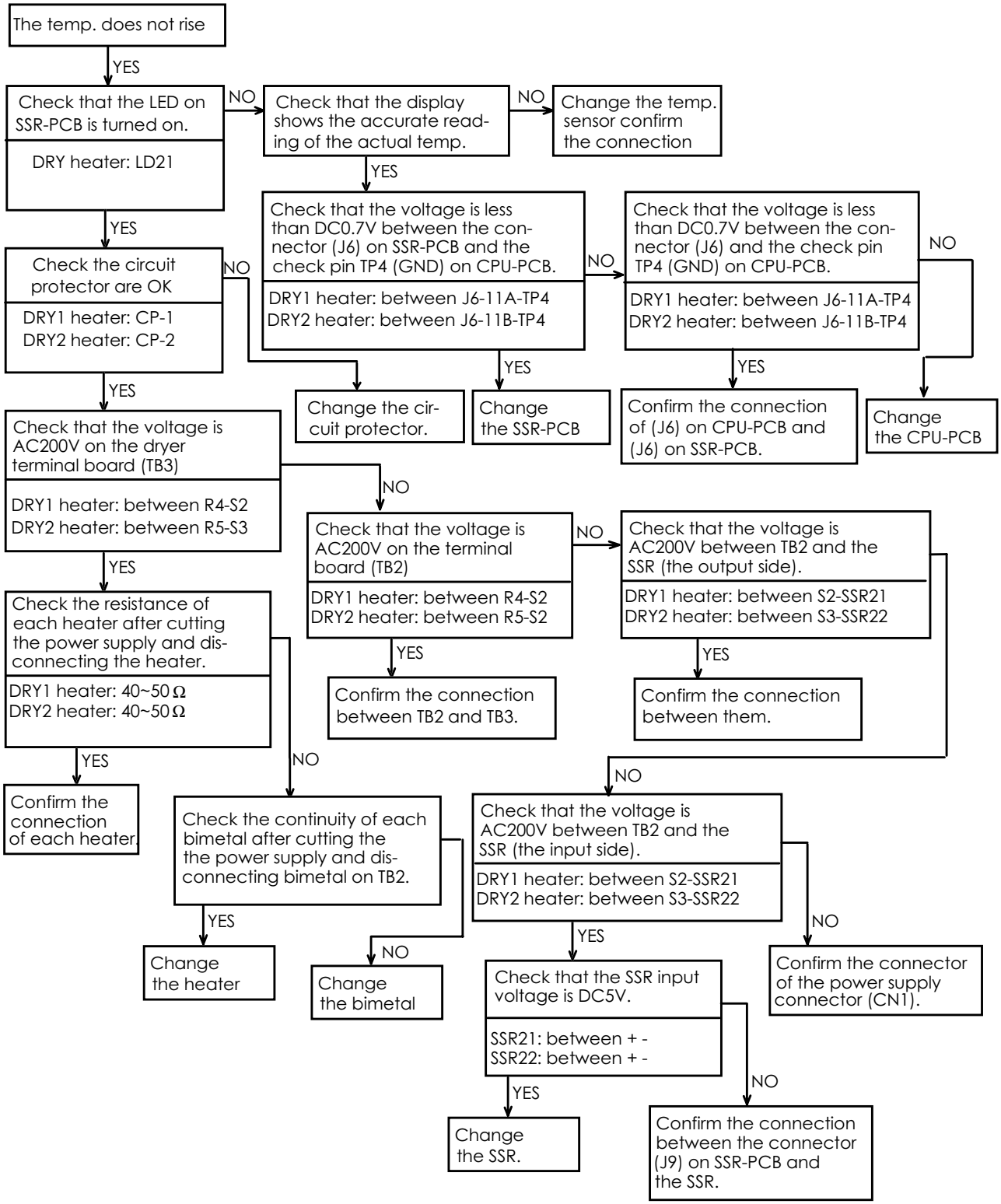
4. TROUBLE SHOOTING

4.1 TEMPERATURE CONTROL

4.1.1 The temperature does not rise

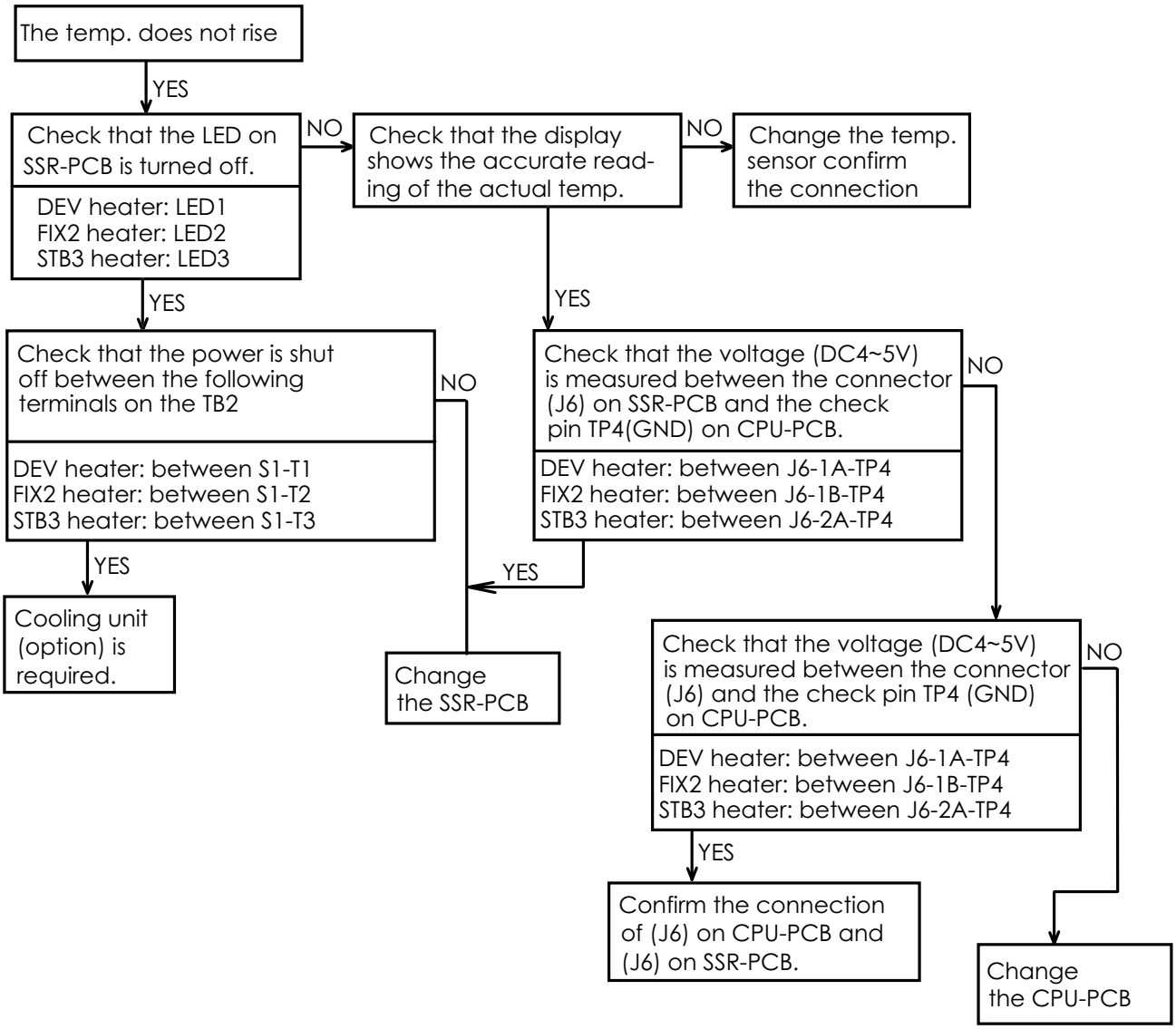


4.1.2 The dryer temperature does not rise



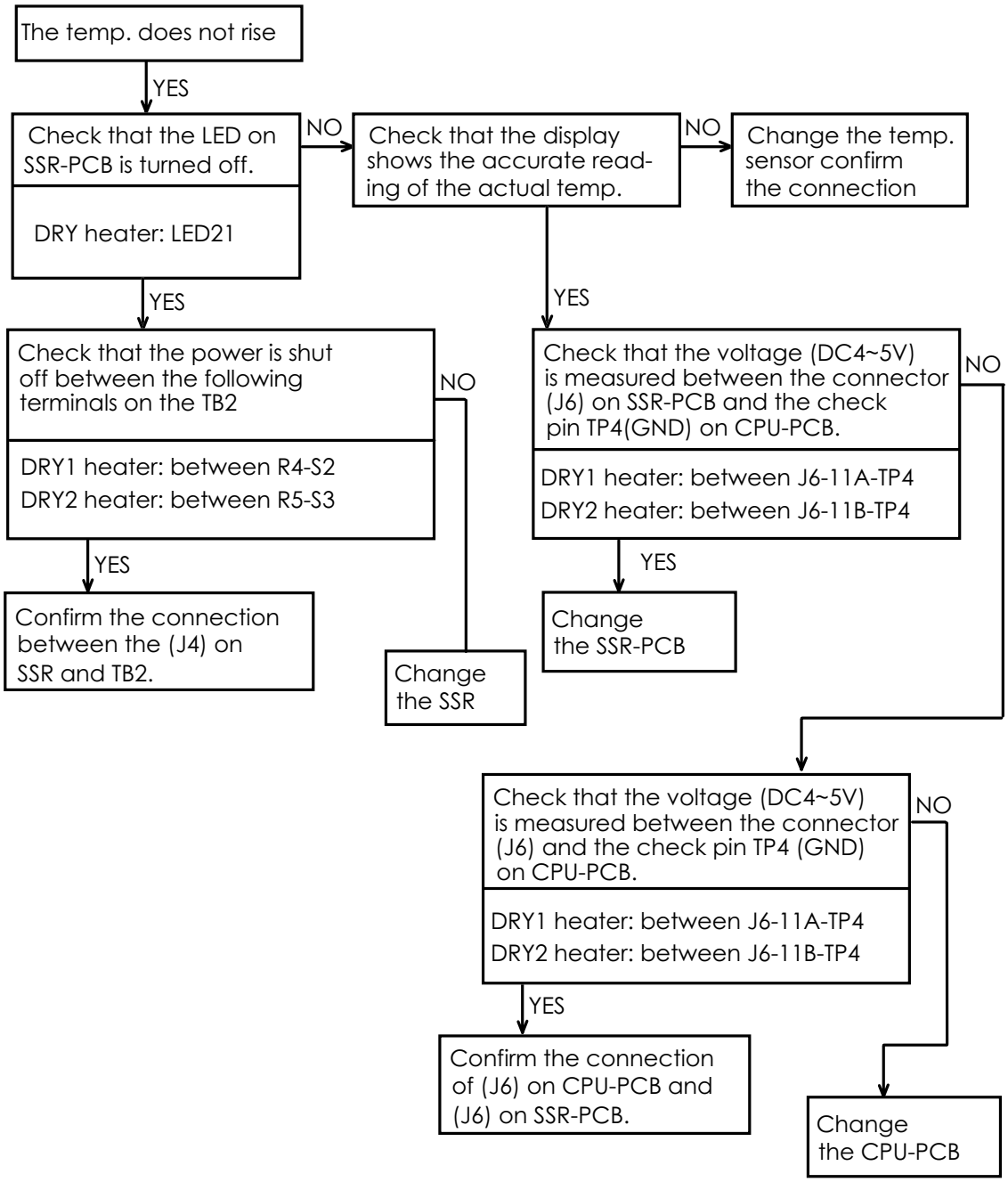
4.1.3 The temperature does not go down

(When there is nothing wrong with the liquid surface and circulation pumps).

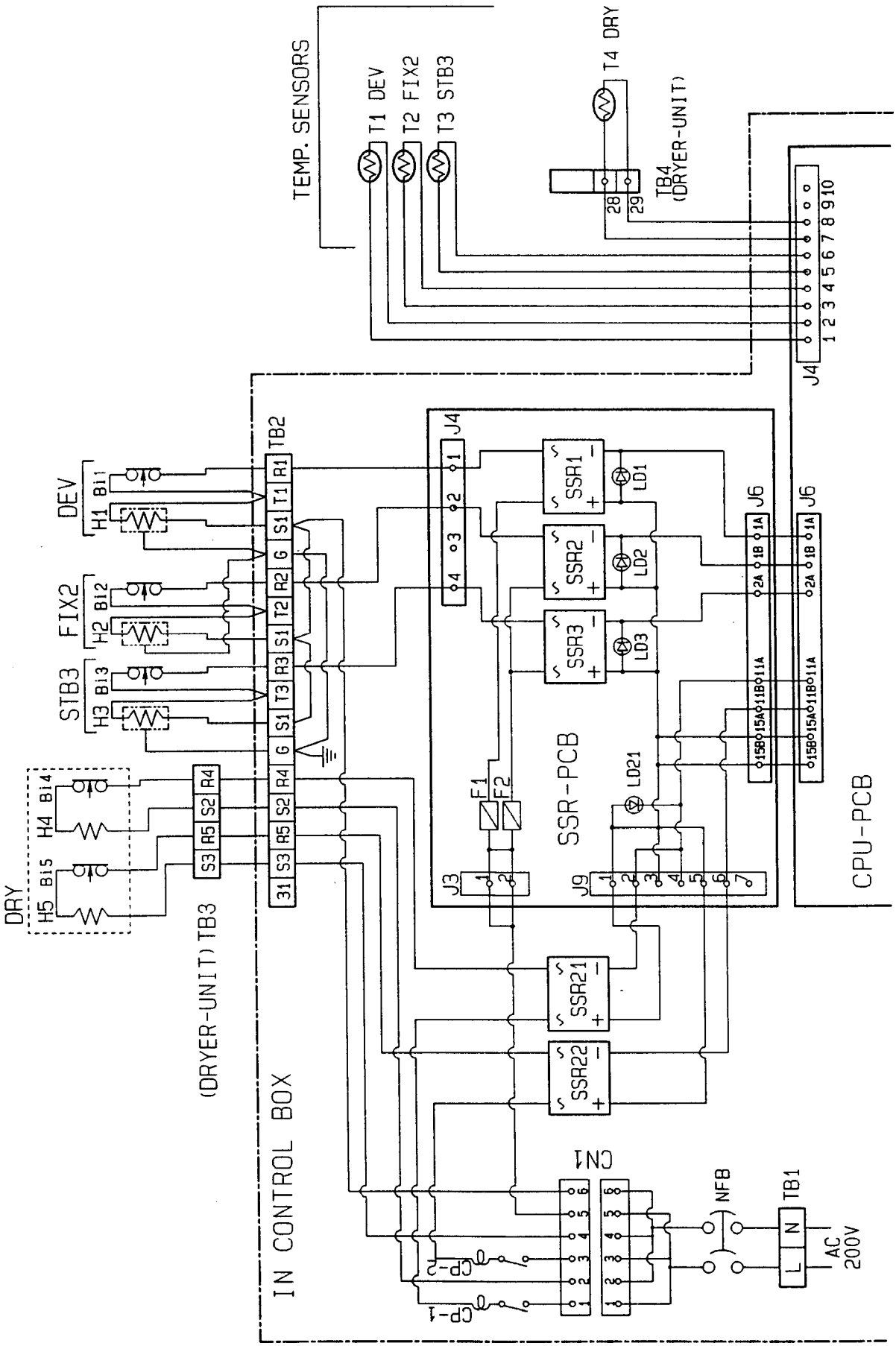


4.1.4 The dryer temperature does not rise

(When there is nothing wrong with the liquid surface and circulation pumps).

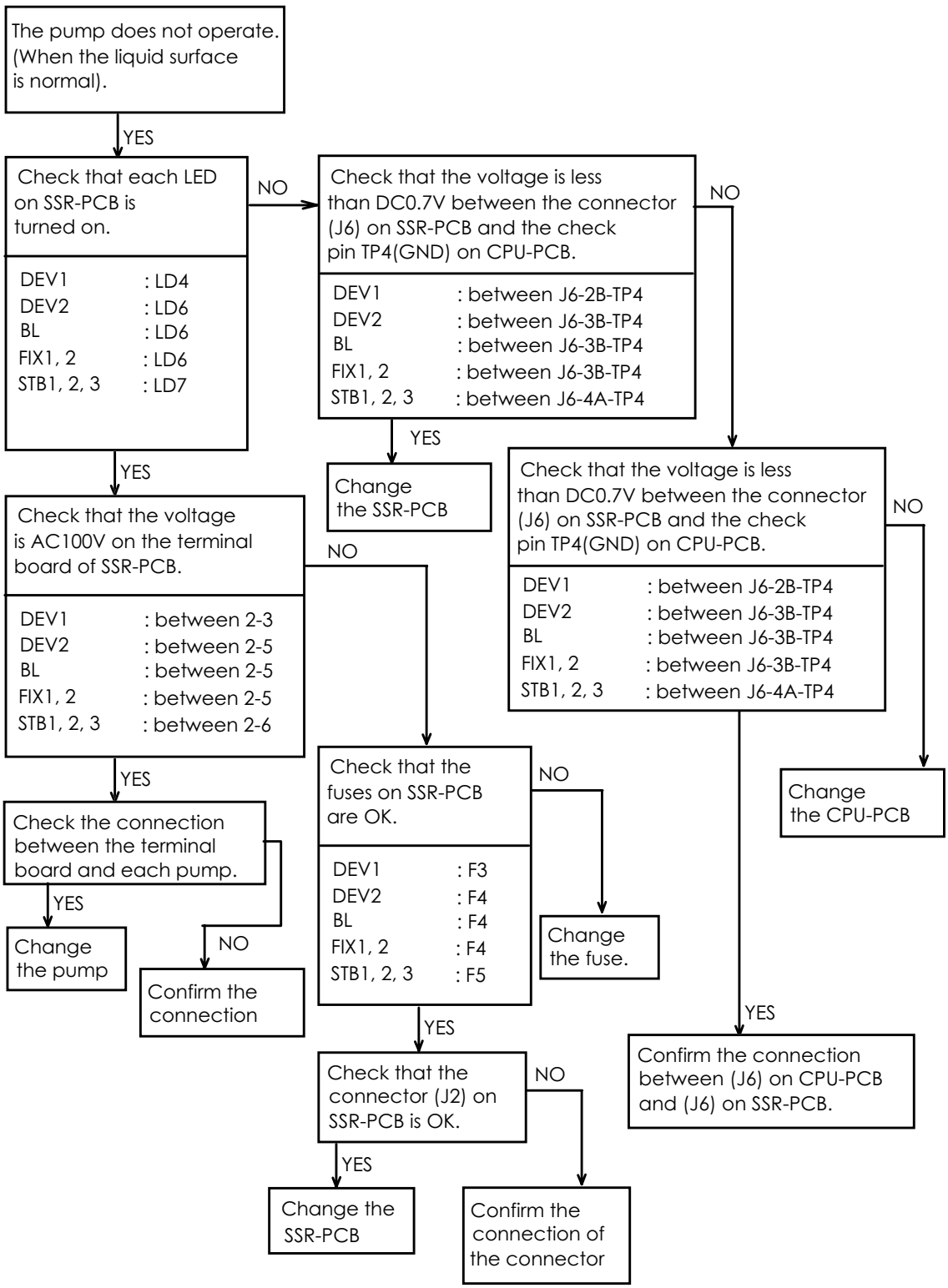


HEATER WIRING DIAGRAM

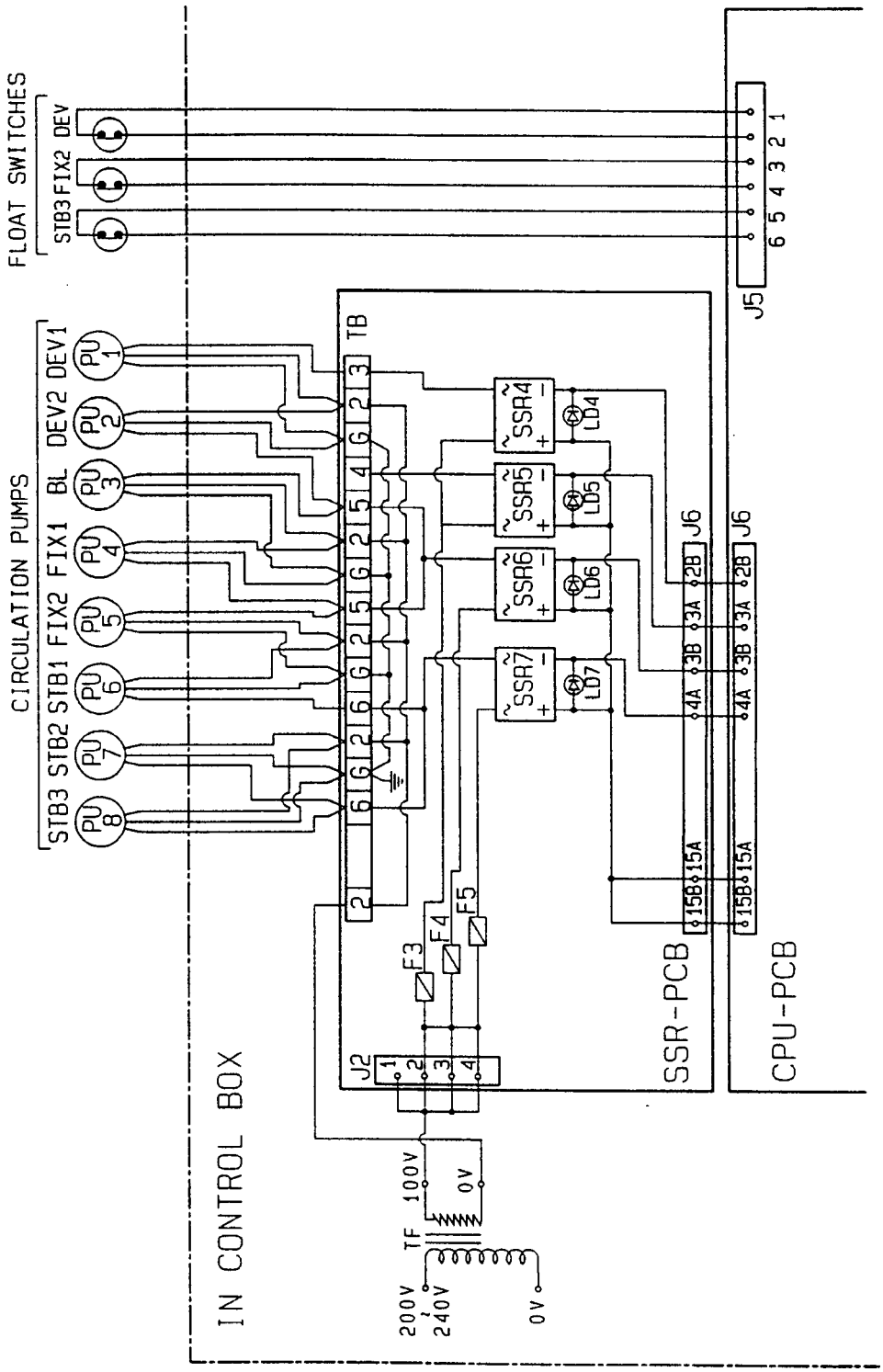


4.2 CIRCULATION PUMP DOES NOT OPERATE

Note: there is no wiring problem when they work in test mode

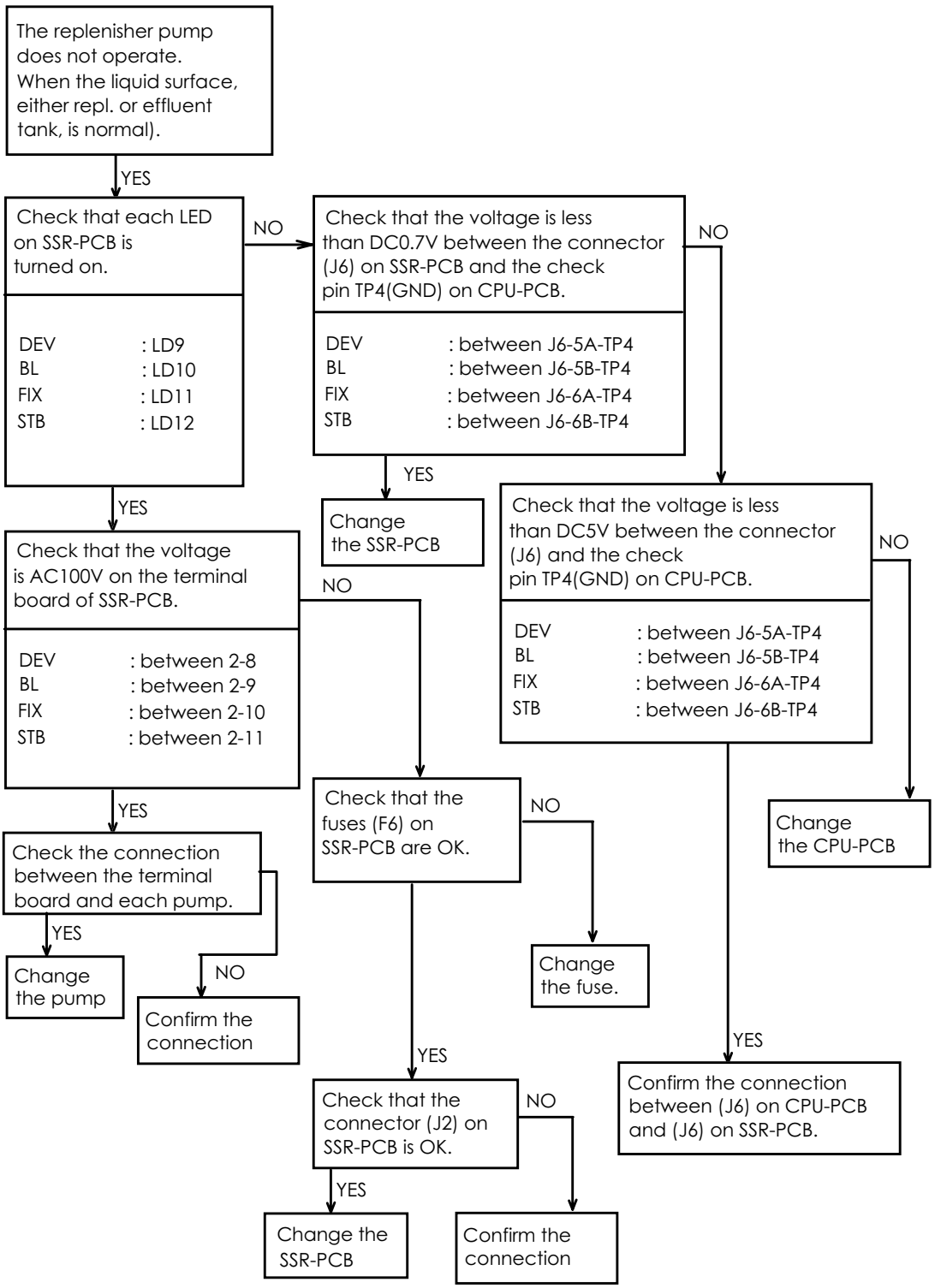


CIRCULATION PUMP WIRING DIAGRAM

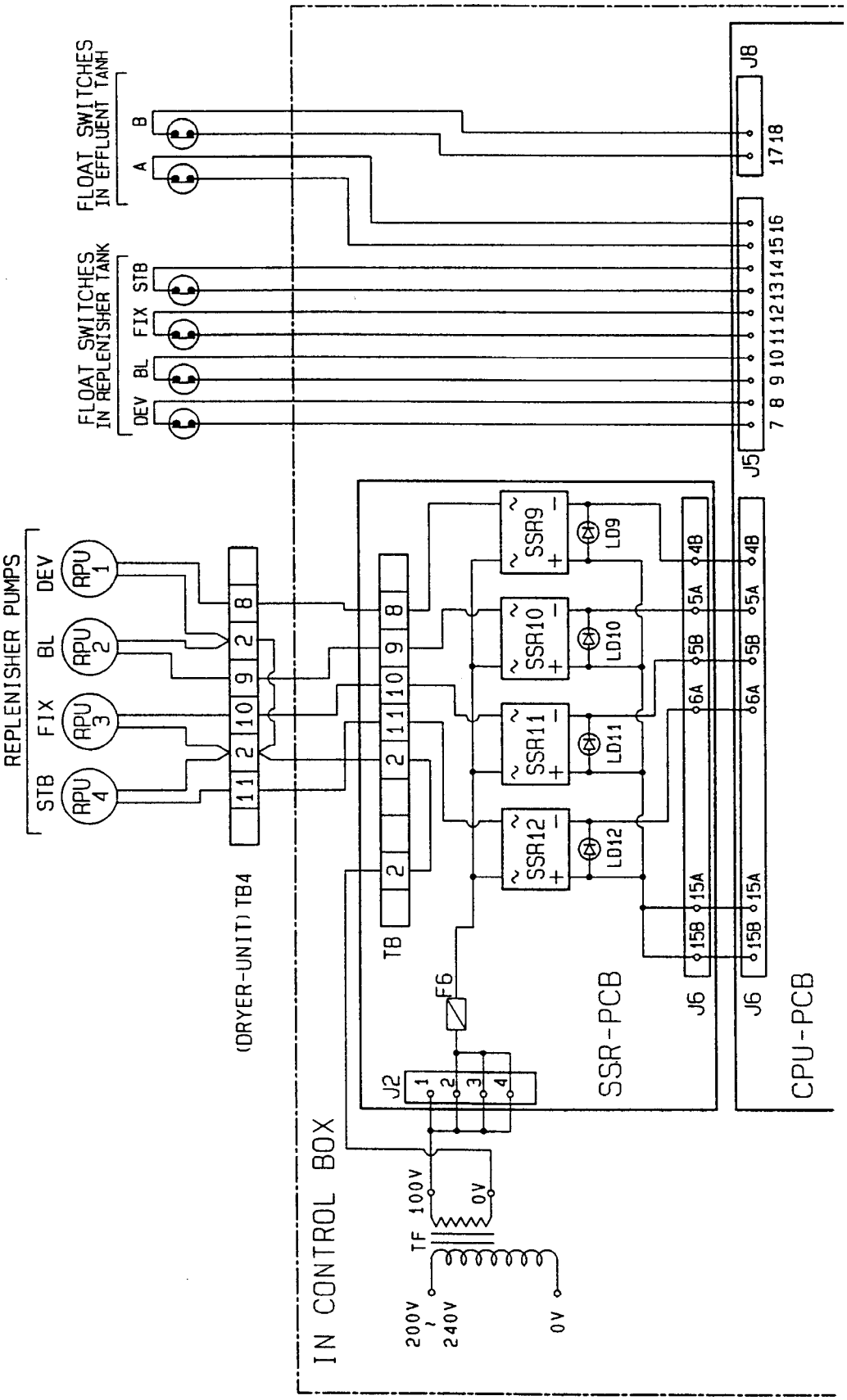


4.3 REPLENISHER PUMP DOES NOT OPERATE

Note: there is no wiring problem when they work in test mode

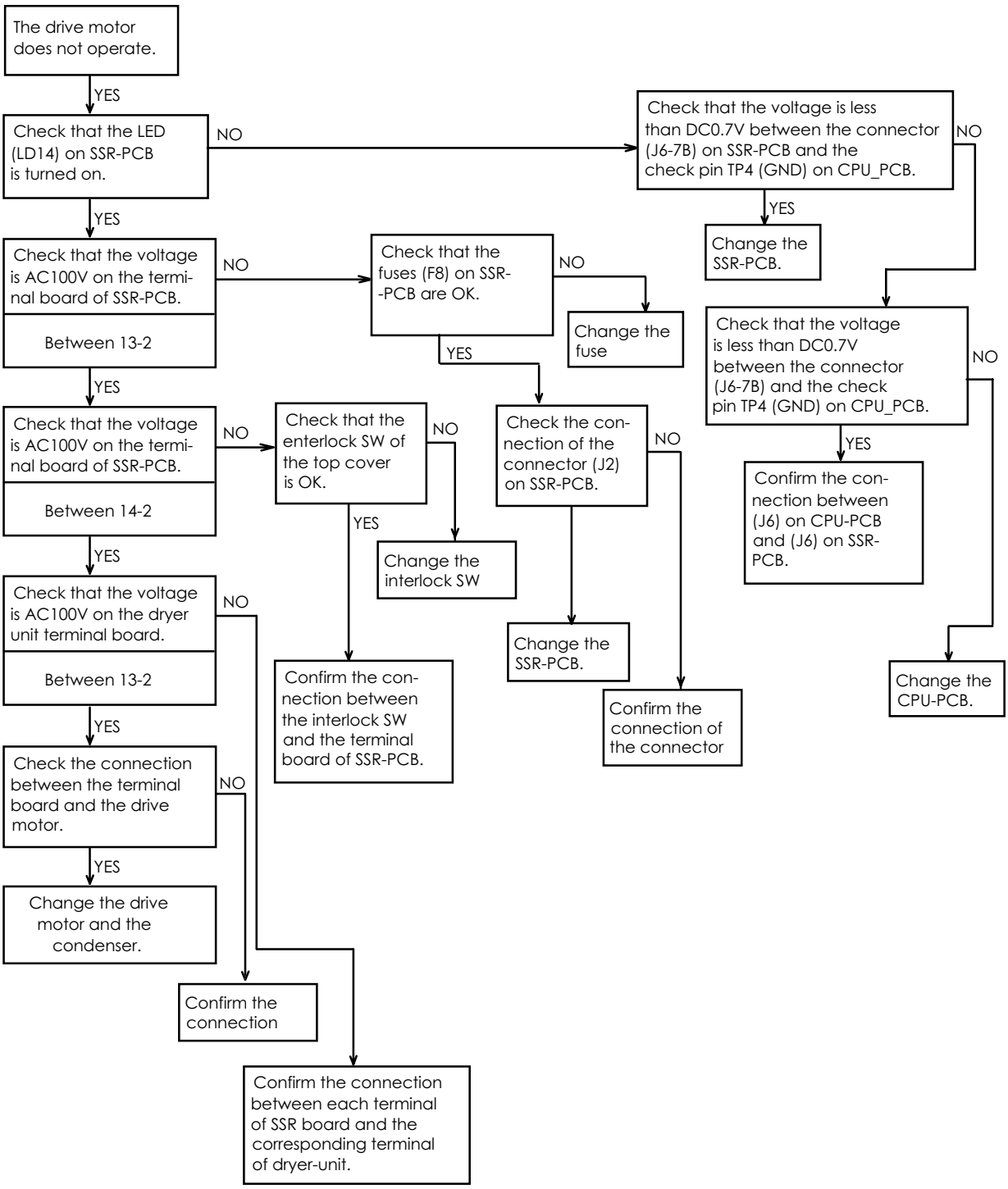


REPLENISHER PUMP WIRING DIAGRAM

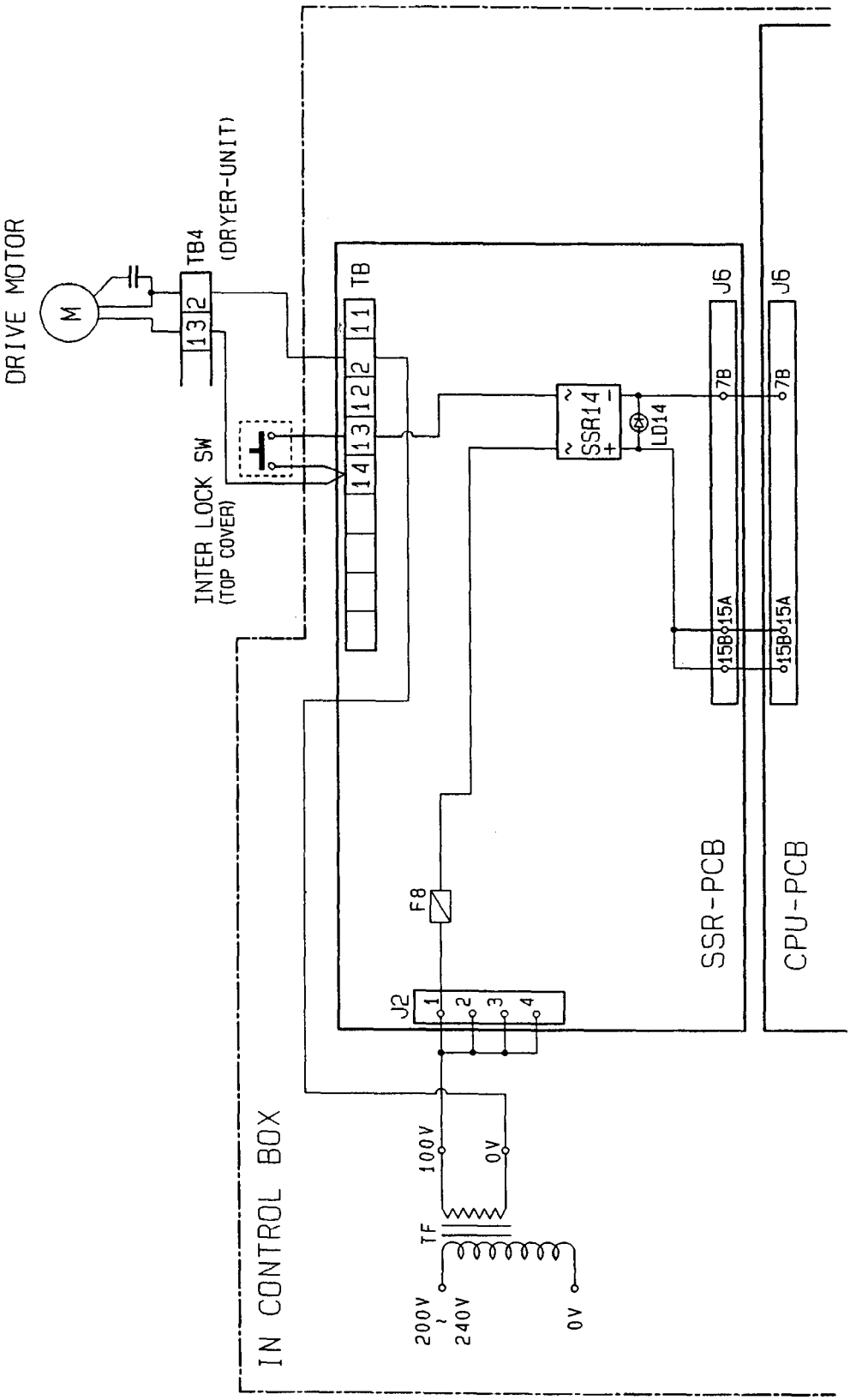


4.4 DRIVE MOTOR DOES NOT OPERATE

Note: there is no wiring problem when they work in test mode

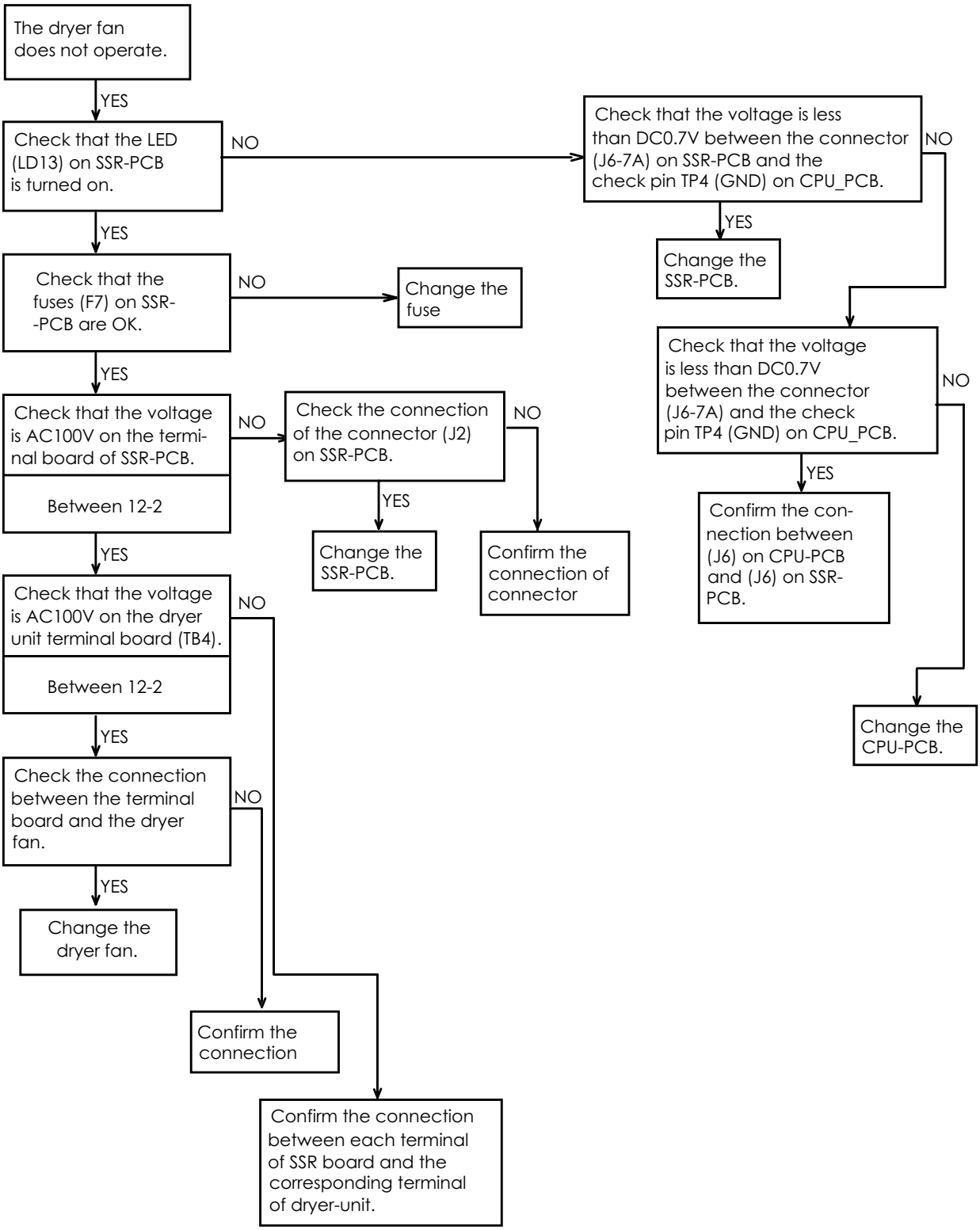


DRIVE MOTOR WIRING DIAGRAM

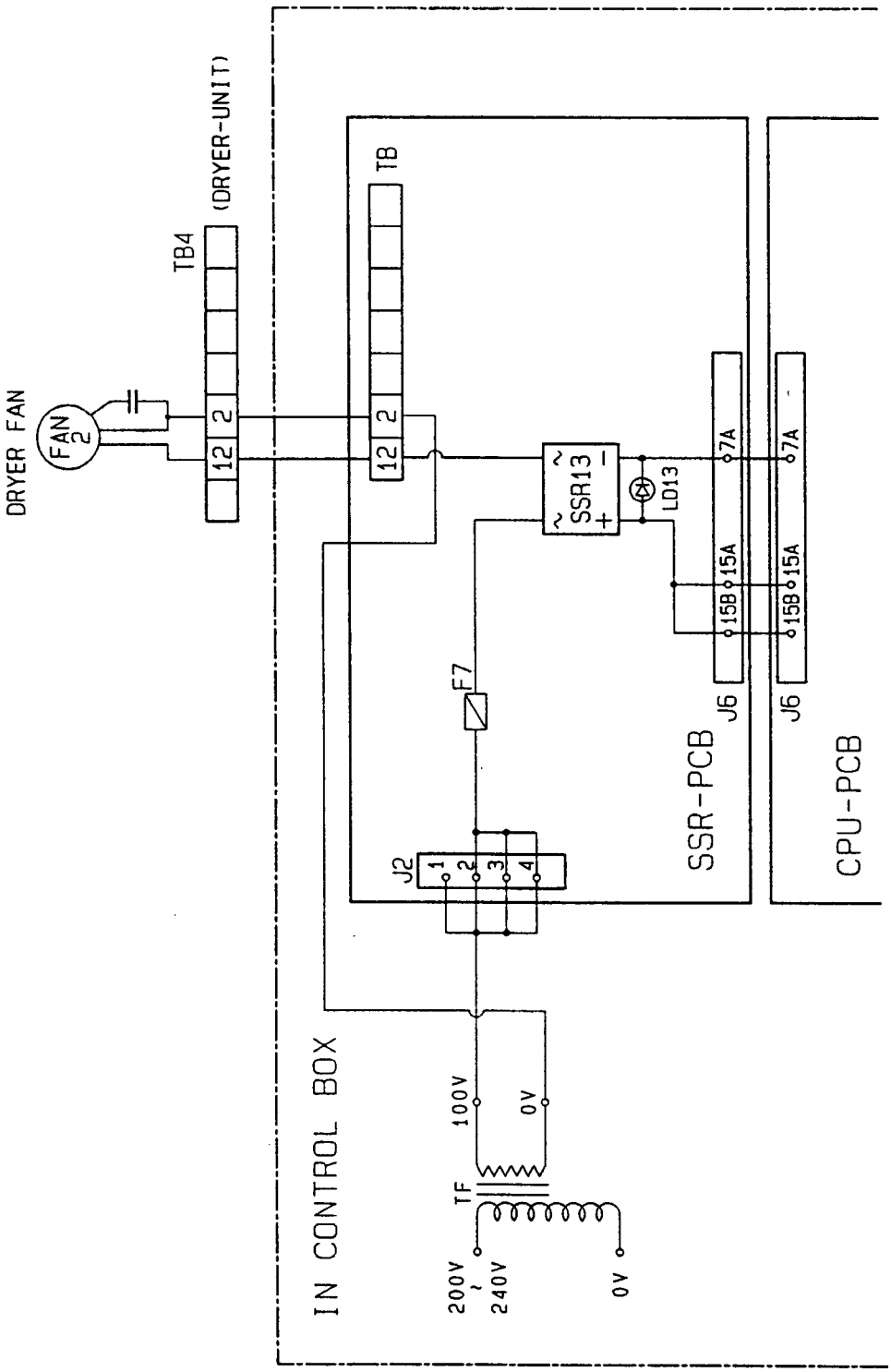


4.5 DRYER FAN DOES NOT OPERATE

Note: there is no wiring problem when they work in test mode

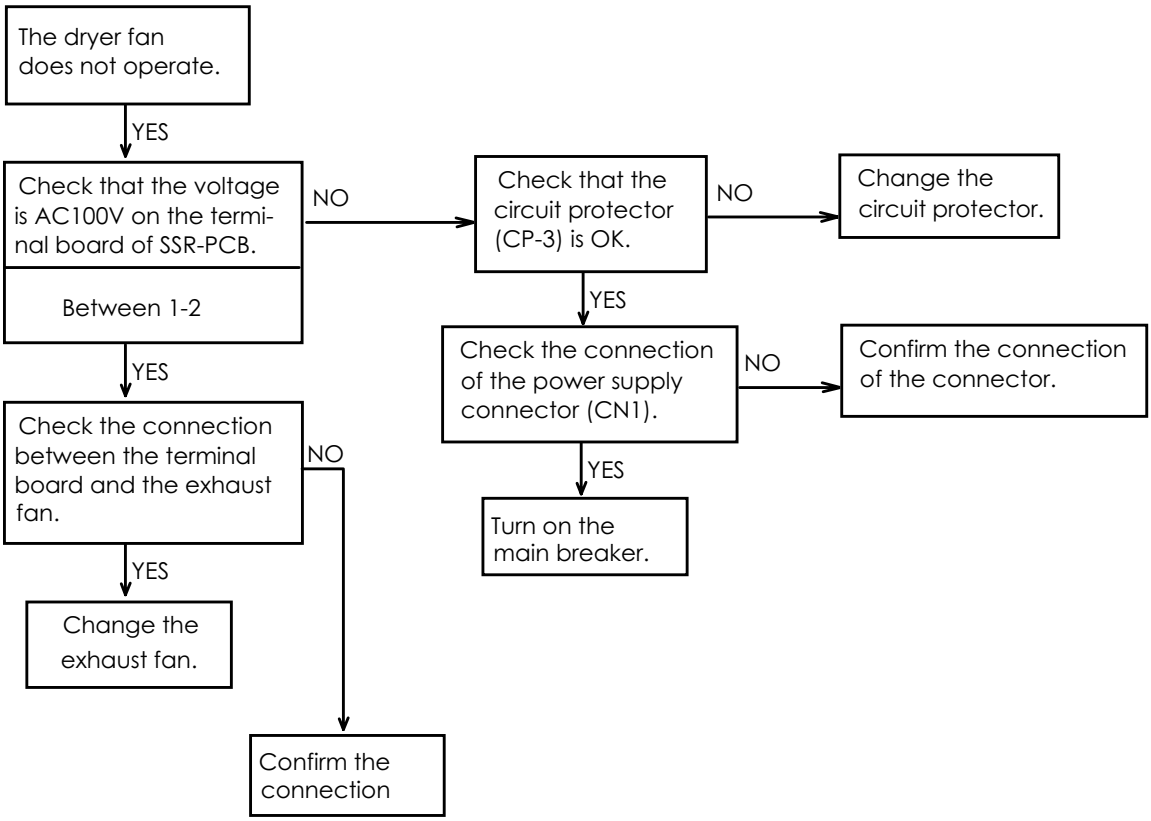


DRYER FAN WIRING DIAGRAM

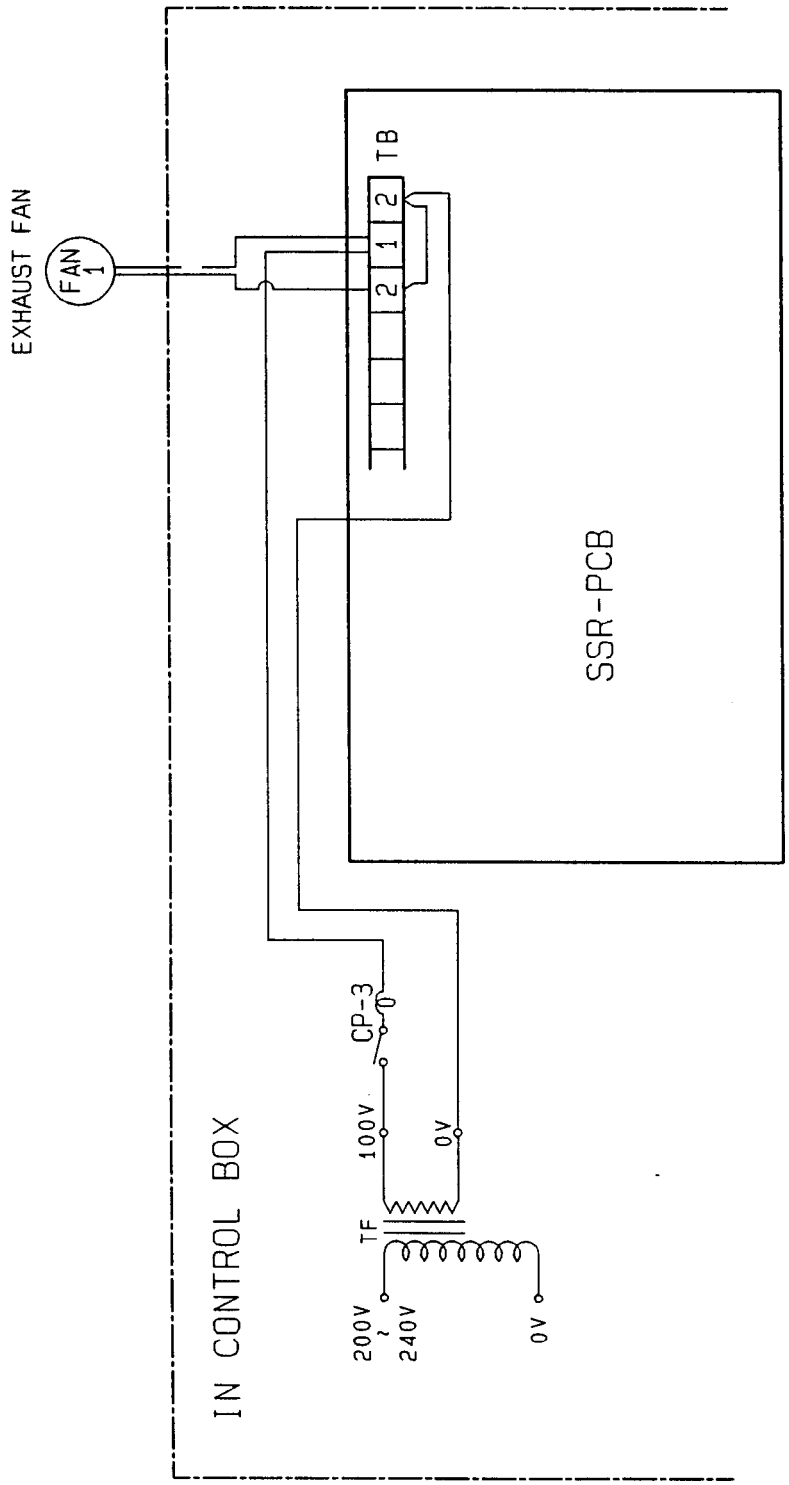


4.6 EXHAUST FAN DOES NOT OPERATE

Note: there is no wiring problem when they work in test mode

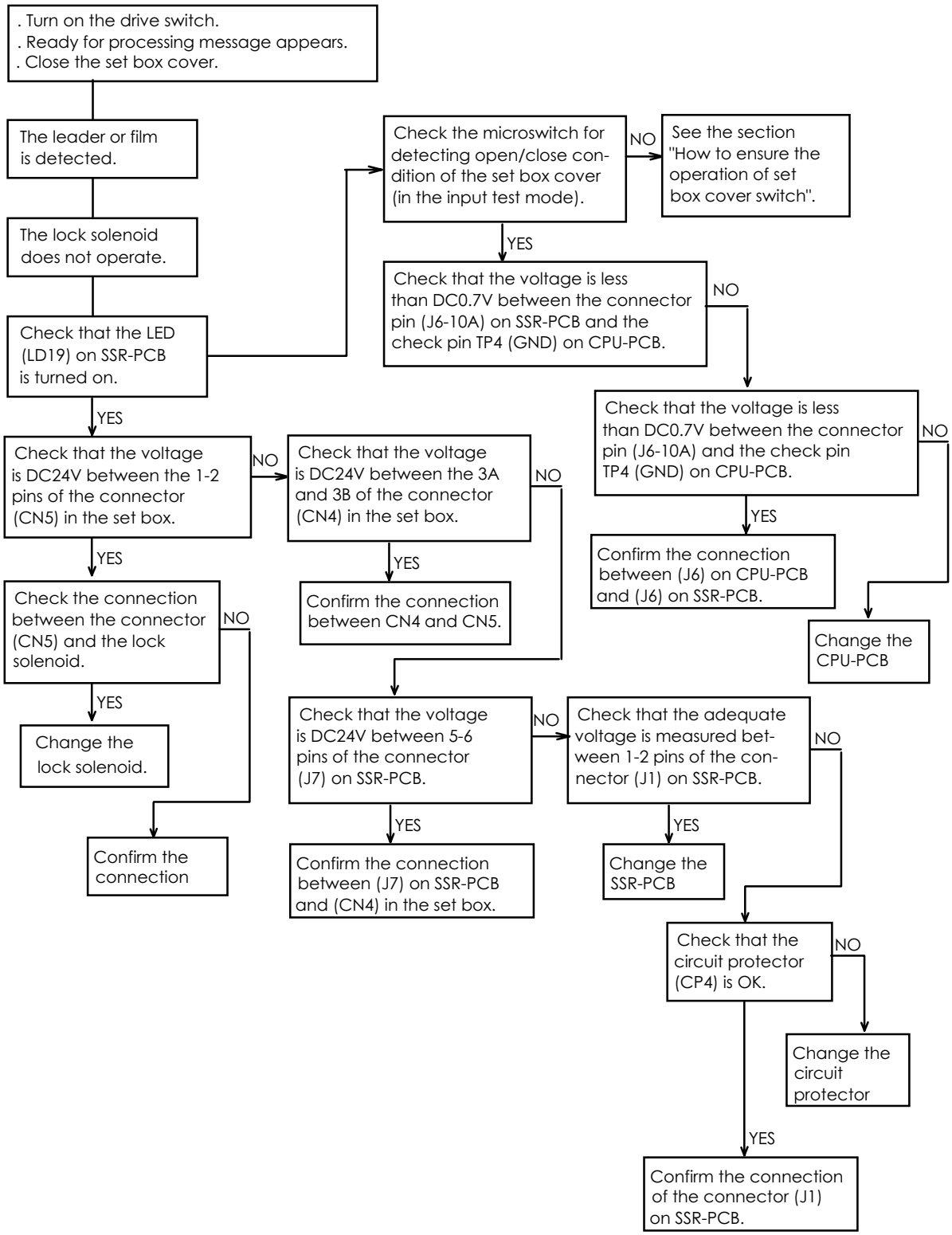


EXHAUST FAN WIRING DIAGRAM

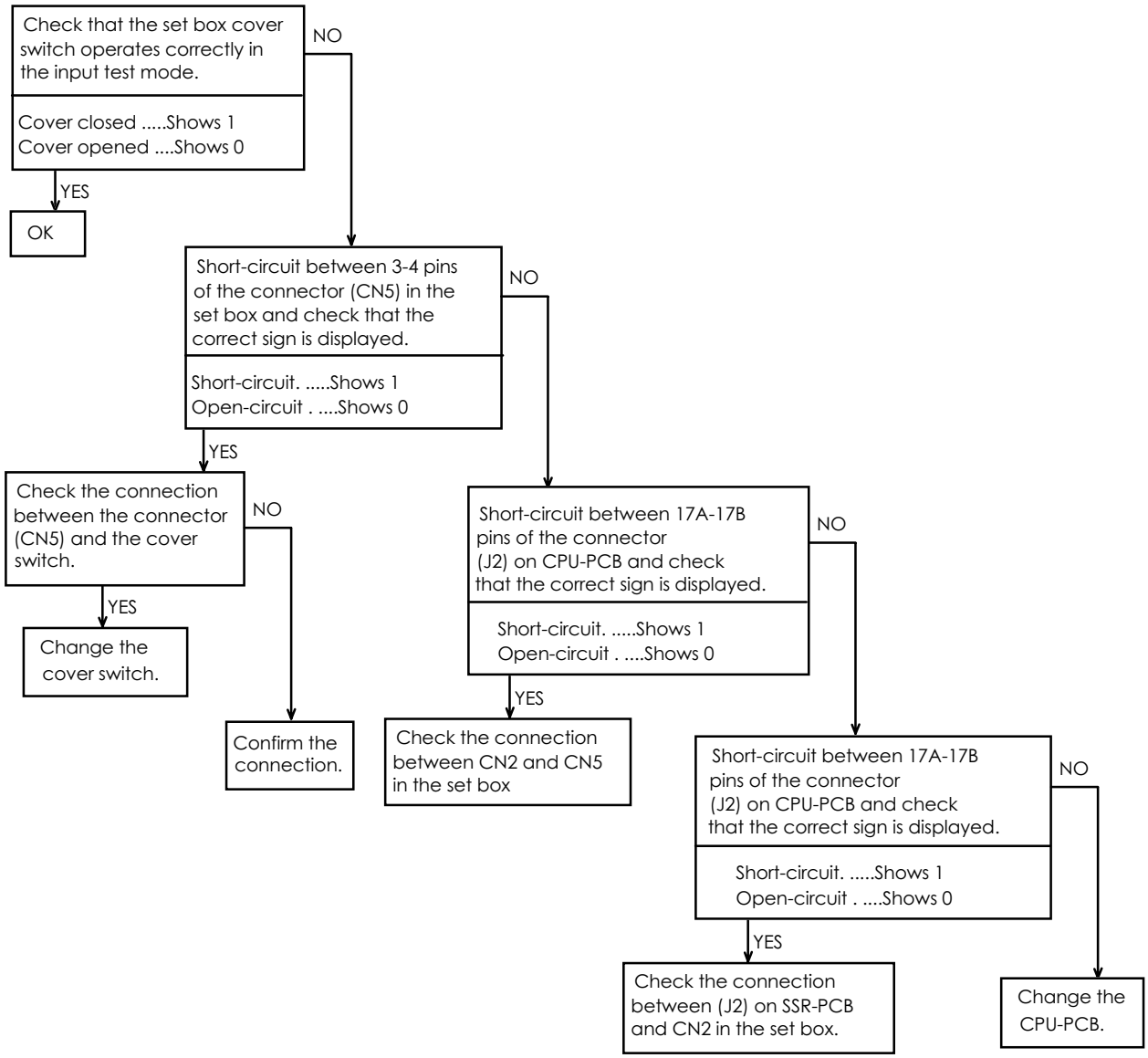


4.7 LOCK SOLENOID DOES NOT OPERATE

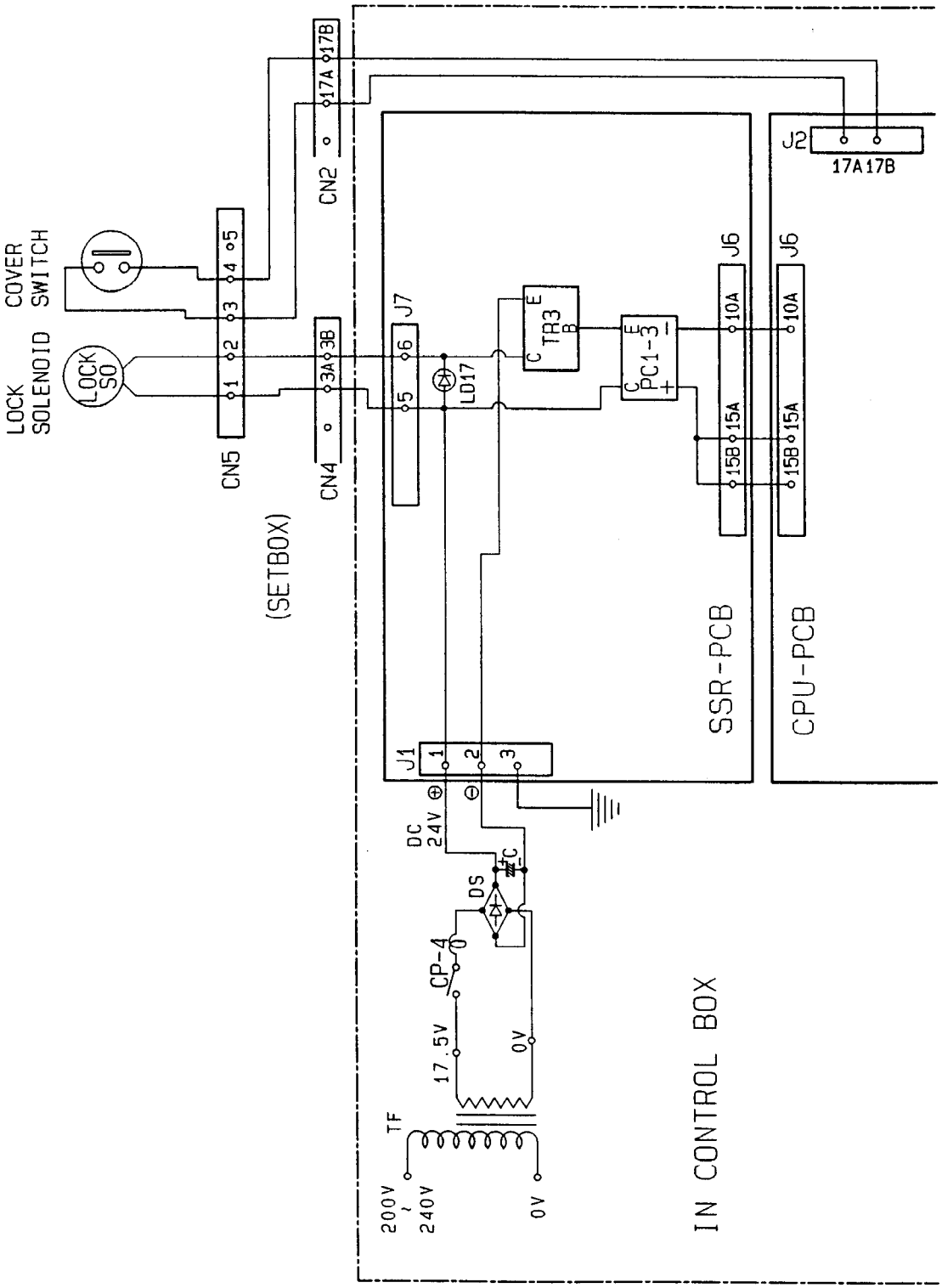
Note: there is no wiring problem when they work in test mode



* How to ensure the operation of the set box cover switch.

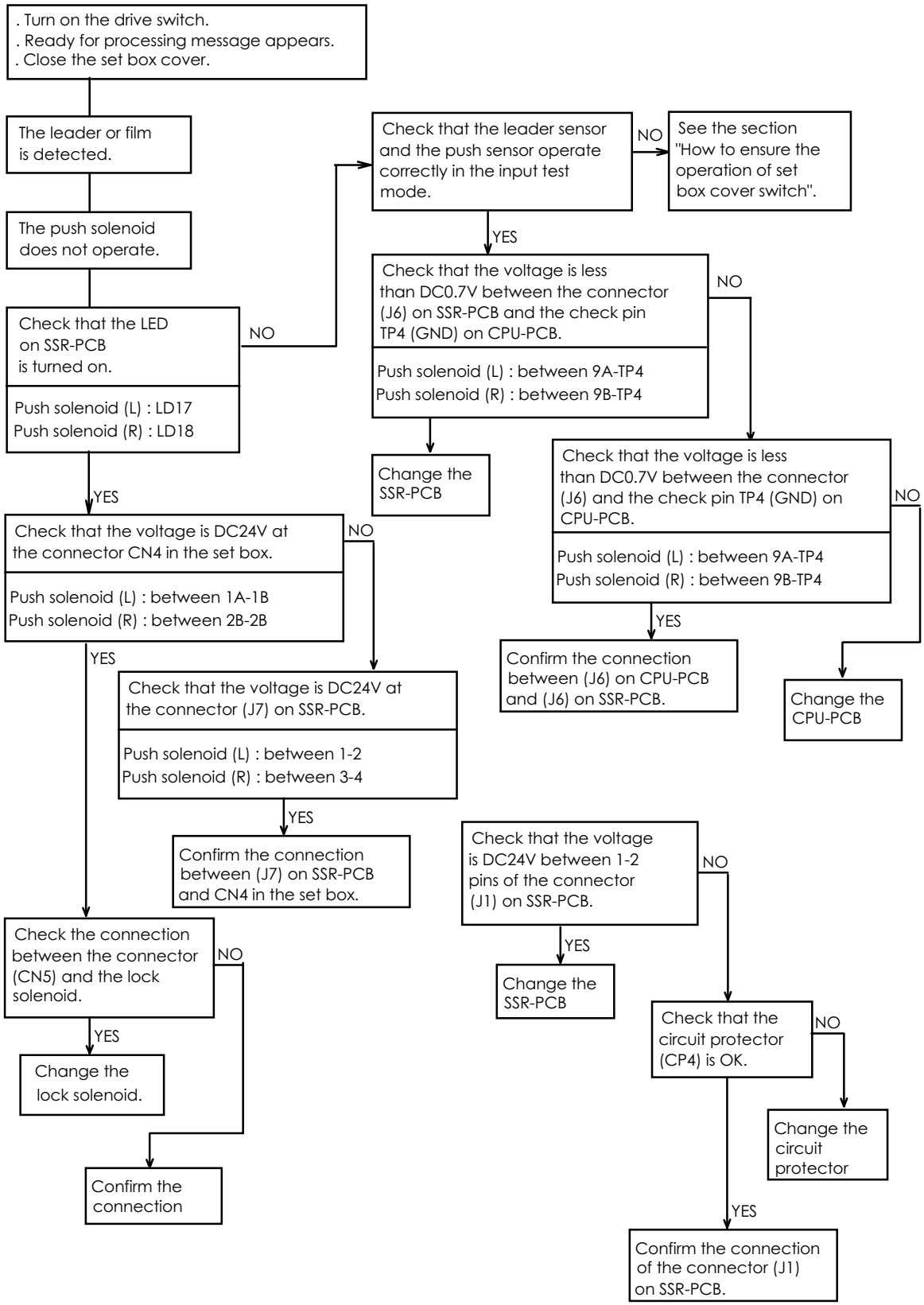


LOCK SOLENOID WIRING DIAGRAM

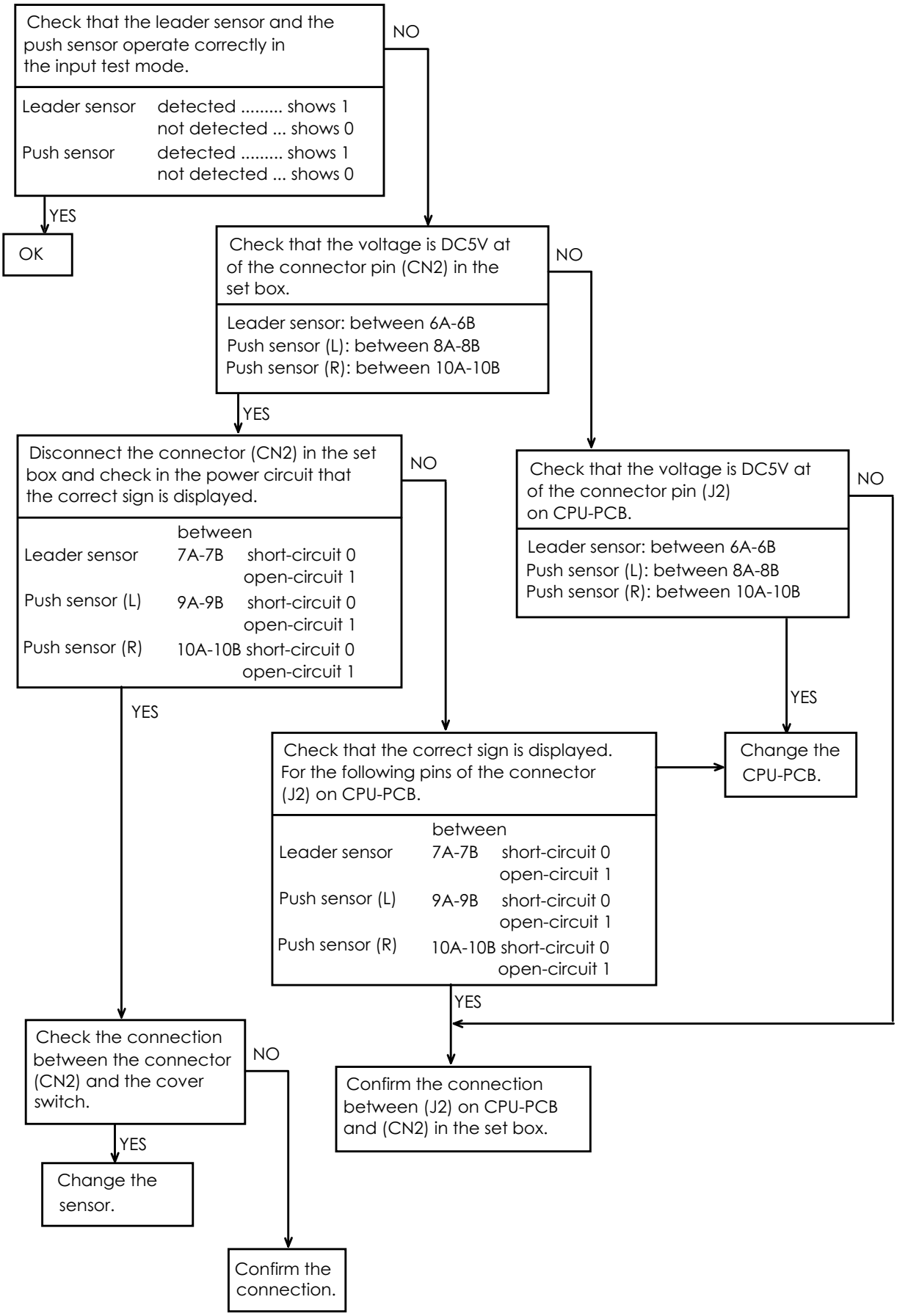


4.8 PUSH SOLENOID DOES NOT OPERATE

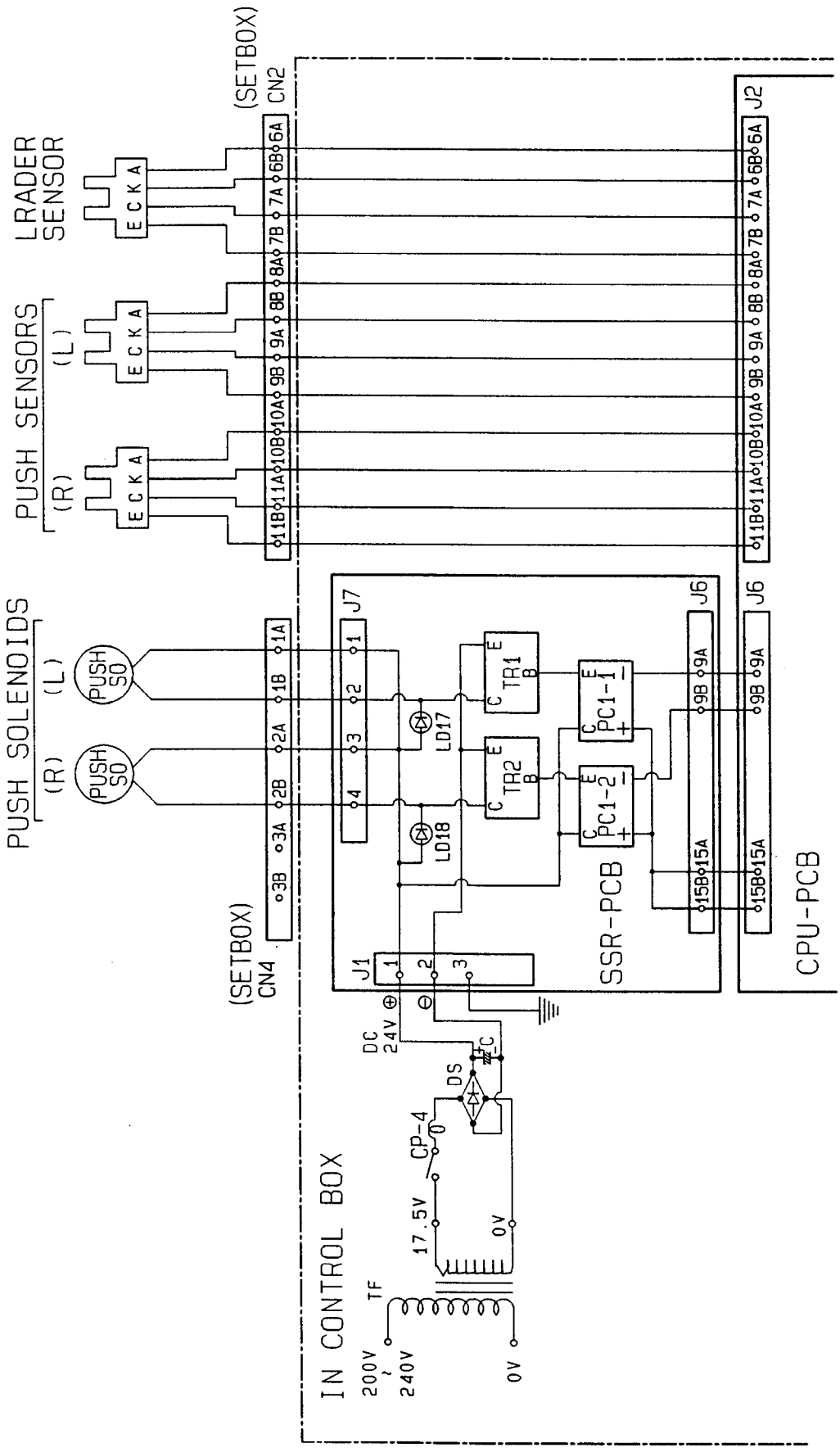
Note: there is no wiring problem when they work in test mode



* How to ensure the operation of leader sensor and push sensor.

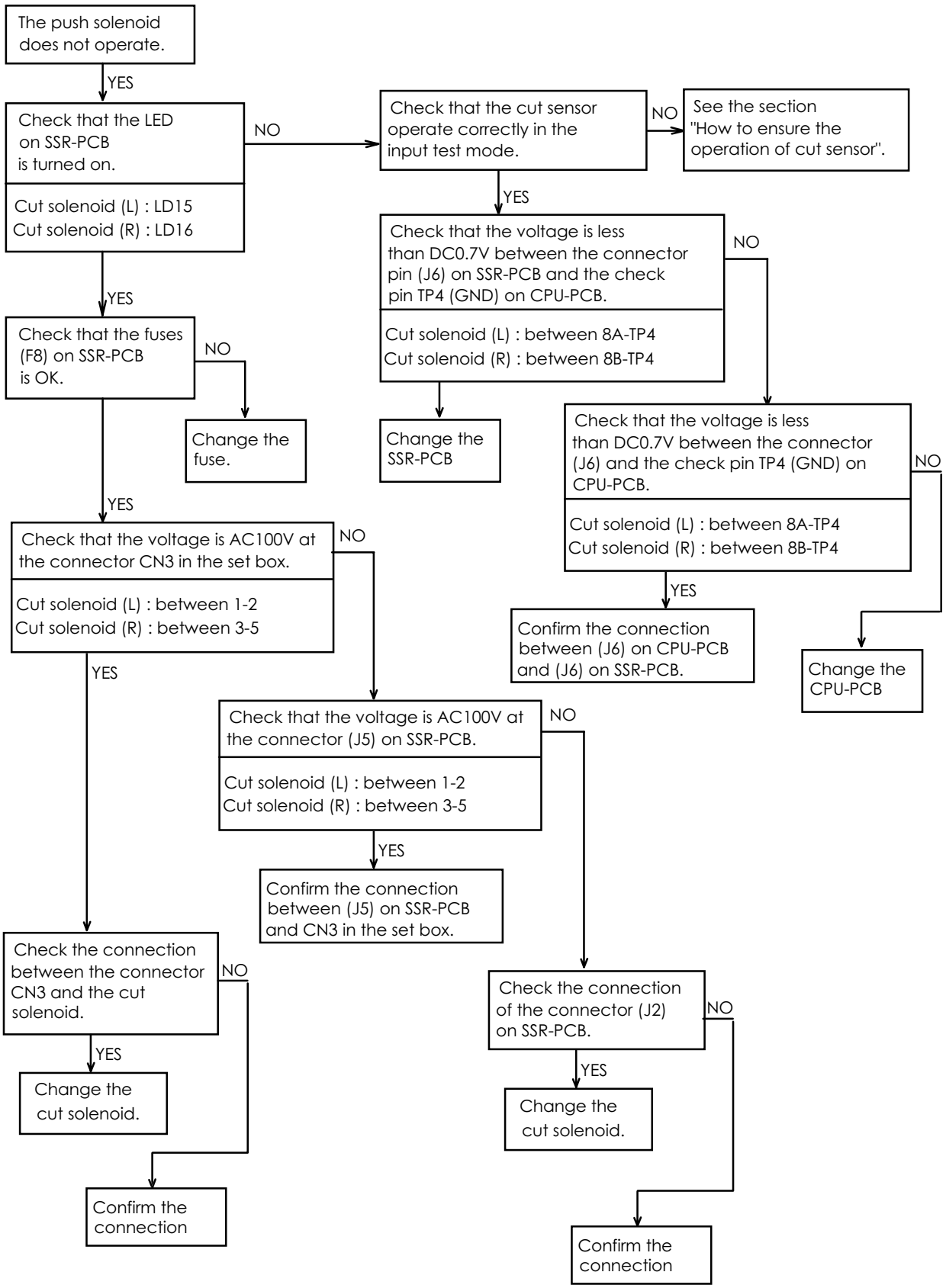


PUSH SOLENOID WIRING DIAGRAM

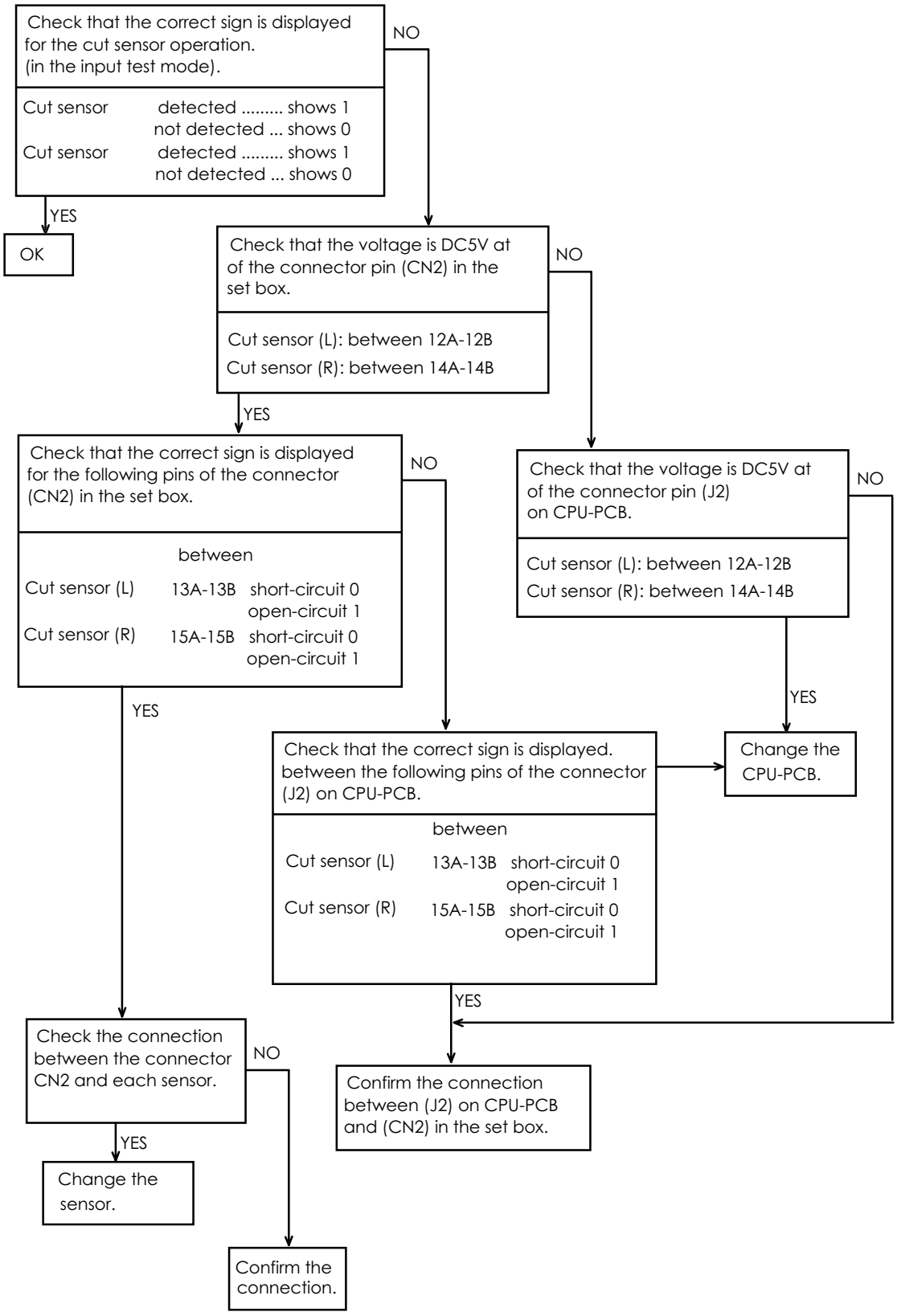


4.9 FILM CUT SOLENOID DOES NOT OPERATE

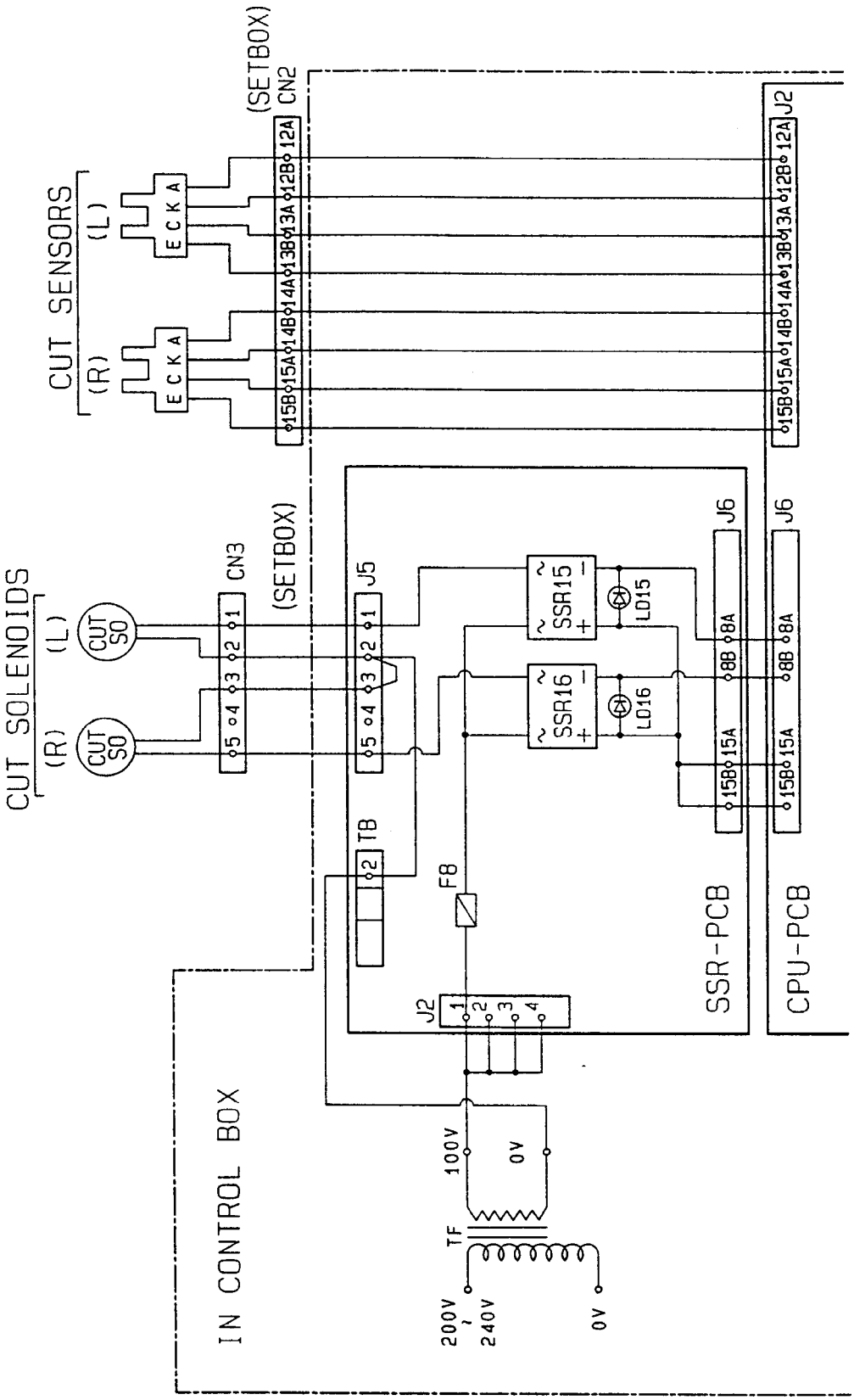
Note: there is no wiring problem when they work in test mode



* How to ensure the operation of cut sensor.



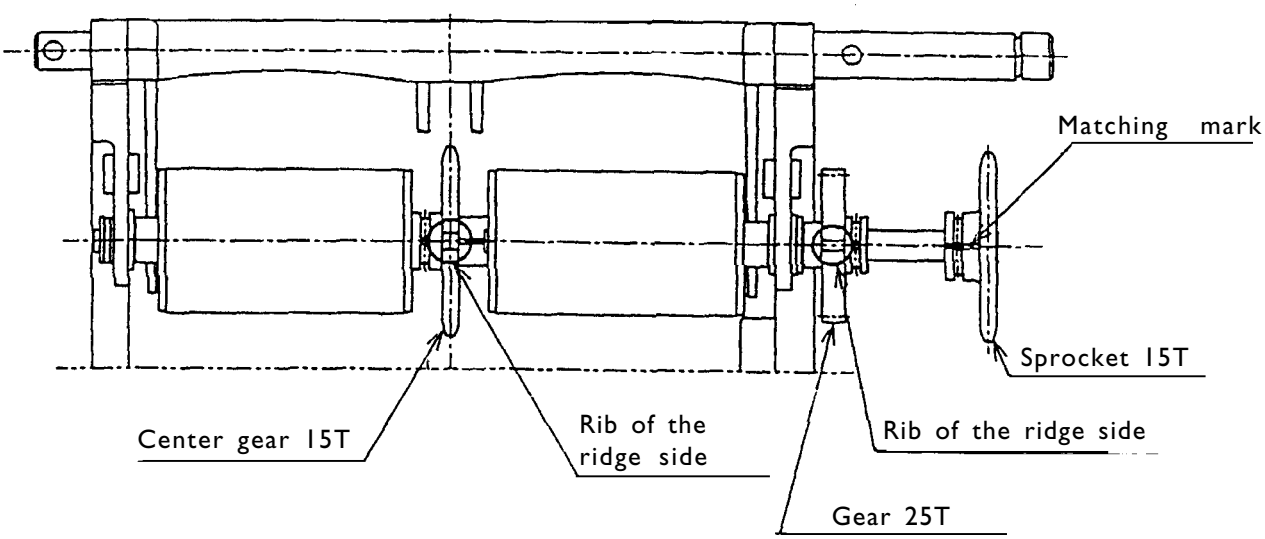
CUT SOLENOID WIRING DIAGRAM



5. WHERE TO CHECK THE MECHANICALS

5.1 PROCESSING RACK

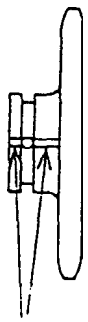
1) Assembling diagram of gears and sprocket in each processing rack.



● Precautions for gear setting (see above figure).

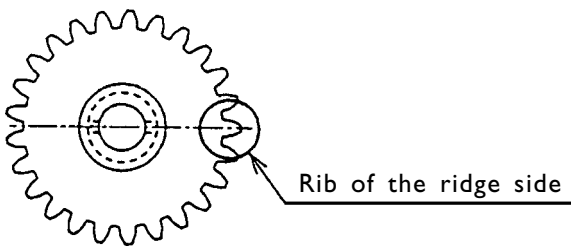
◆ Sprocket 15T (with matching mark)

* Check the matching mark position.



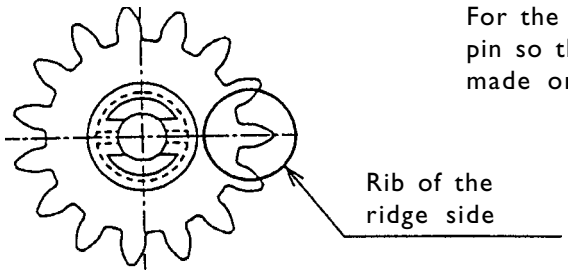
Matching mark

◆ Gear 25T



For the gear 25T, set the pin so that a rib at the ridge side is made on the matching mark line.

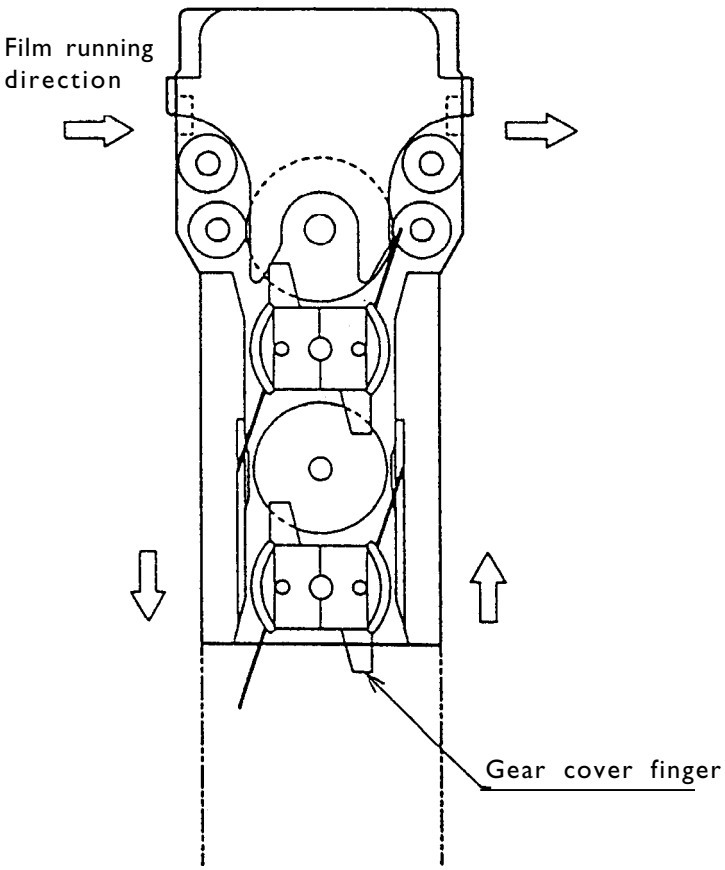
◆ Center gear 15T



For the center gear 15T, also set the pin so that a rib at the ridge side is made on the matching mark line.

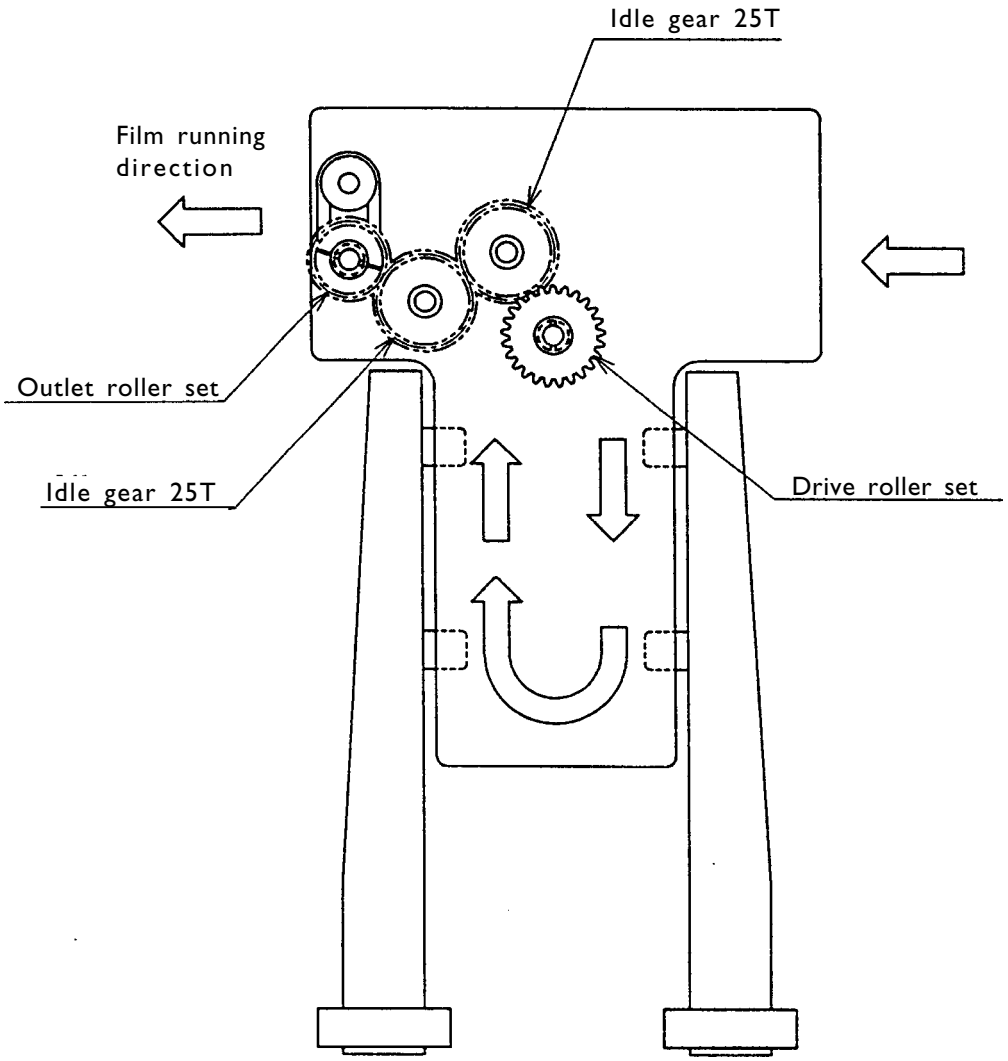
2) Precaution for gear cover mounting

Check the gear cover finger position
(see above figure).

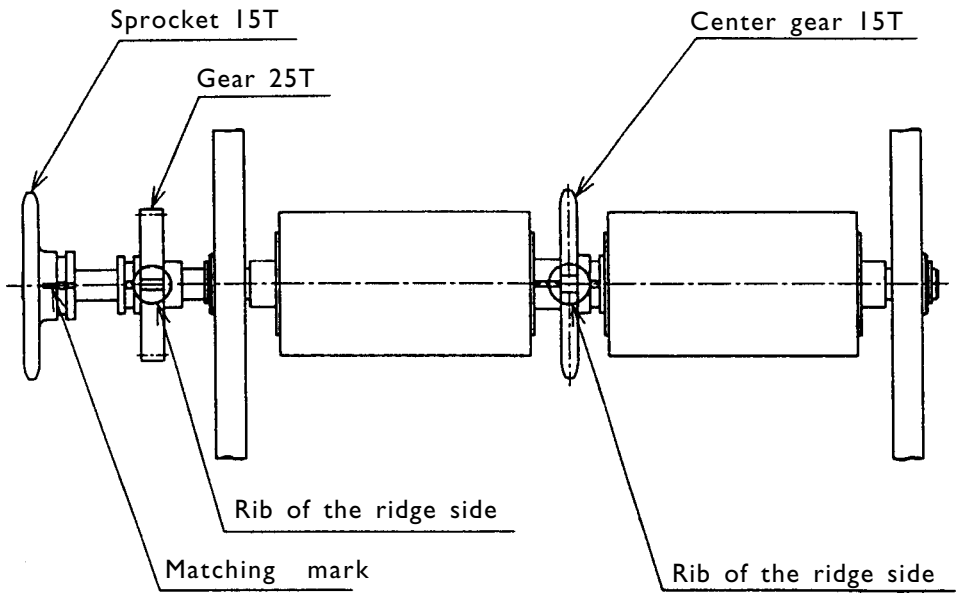


5.2 DRYER RACK

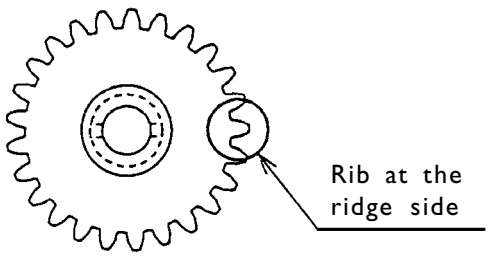
1) Dryer rack diagram



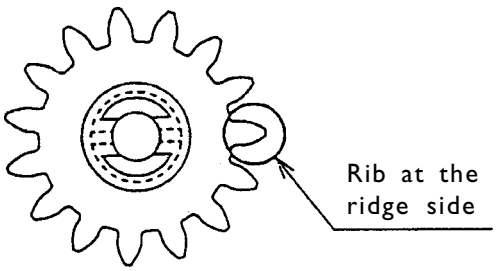
2) Assembling diagram of gears and sprocket in dryer rack.



Gear 25T



Center gear 15T



Set the pin into the place so that the ridge-side ribs of the gear 25T and the center gear 15T is aligned on the matching mark of the sprocket 15T.

6. MAINTENANCE

The regular maintenance is necessary to keep the machine in good condition.
It is important for the purpose of preventive troubles.

6.1 DAILY INSPECTION

Follow the instructions in chapter 7 PRE-OPERATION AND POST-OPERATION INSPECTIONS.

6.2 WEEKLY INSPECTION

6.2.1 Checking and cleaning of dryer air filter

Open the cover of the temperature control filter tank and take the air filter out of the dryer unit on the right side. Wash it with water and attach it after drying it completely.

6.2.2 Checking patrone holder

Open the film set box and push the patrone holder with your hand to check it moves smoothly.

6.2.3 Checking rack unit functioning

Pull up the rack unit and turn the sprocket to check it rotates smoothly (see 6.2.5).

6.2.4 Cleaning rack unit

Detach the STB-3 rack unit and wash the sponge squeeze rollers with water (see 6.2.6).

CAUTION

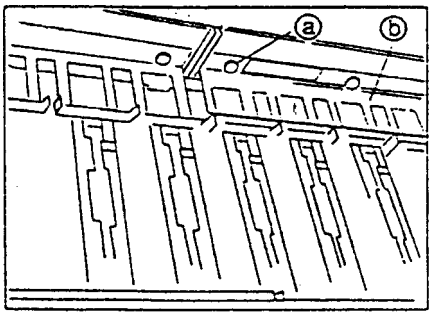
Be sure to turn off the power before checking the rack unit.

1) Turn off the power

2) Open the set box cover.

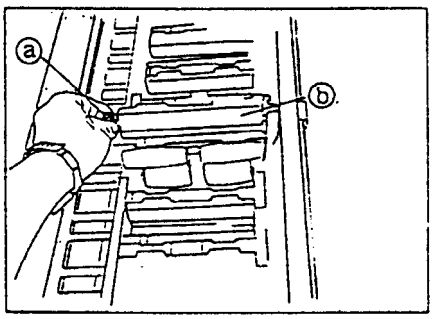
3) Remove the rack stopper.

- Loosen the screw (a) and remove the rack holder (b).



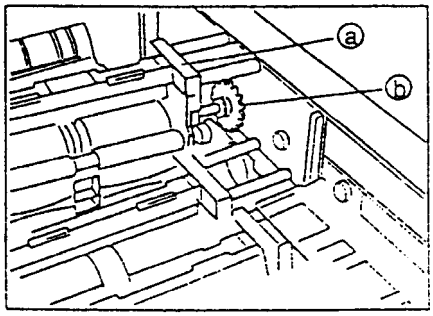
4) Detach the crossover rack unit.

- Hold the knob (a) and pull up the crossover rack unit (b).



5) Check the rack unit operation.

- Lift the rack unit (a) a little.
- Turn the driving sprocket (b) by hand to check that it rotates smoothly.



POINTS

- If the driving sprocket does not rotate smoothly, check adhesion of liquid crystals.
- If the crystals adhere too much, draw out the rack unit and clean it.
- When moving the rack, care must be taken to avoid contamination by pattering the liquid.

6.2.6 Inspection and cleaning of crossover rack and STB-3 rack unit.

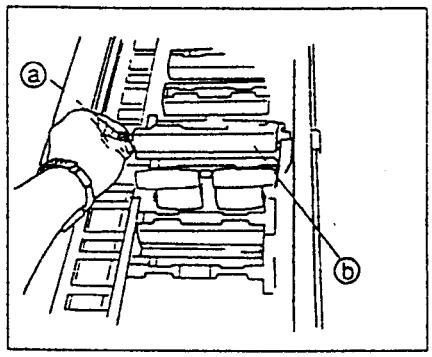
CAUTION
Be sure to turn off the power before checking the roller.

1) Turn off the power

2) Open the set box cover.

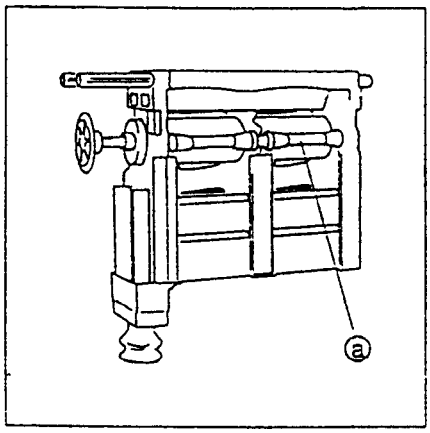
3) Remove the rack stopper.

4) Detach the crossover rack unit.
- Hold the knob (a) and move the rack unit inward to detach it.



5) Check the roller.
- Turn the roller (b) by hand to check that it rotates smoothly.

6) Detach the STB-3 rack.
- Check for crystal adhesion, and gear damage.



7) Clean the squeeze sponge roller.
- Wash the sponge roller (a) gently with water.
- Check the sponge roller surface.

POINTS
- If the squeeze roller surface is hardened or cracked, the roller cannot squeeze liquid properly.
  Contact the service engineer for help.

6.2.7 Cleaning and changing chemical filter

Check the chemical filter in the temperature control filter tank.
If it is dirty enough, clean or change it.
The clogged chemical filter causes bad air circulation and excessive temperature which result in uneveness of development, a short life of pumps or unexpected accidents.
Renew the chemical filter regularly because the alian substance in the chemical can easily stick to the film.

POINTS
The renewal frequency is as follows.
They are displayed in the pre-operation and post-operation inspection mode.

	CLEANING	REPLACEMENT
DEV	Every week	Every month
BL	Every 2 weeks	Every 2 months
FIX-1	Every 2 weeks	Every 2 months
FIX-2	Every 2 weeks	Every 2 months
STB-1	Every 2 weeks	Every 2 months
STB-2	Every 2 weeks	Every 2 months
STB-3	Every 2 weeks	Every 2 months

6.3 MONTHLY INSPECTION A

6.3.1 Cleaning processing tank

Take out each processing rack unit wash off crystalized substance sticked to the rollers, gears or usual solution level areas with a brush and warm water (30°C-40°C).

It it is hard to remove them, make use of a neutral detergent.

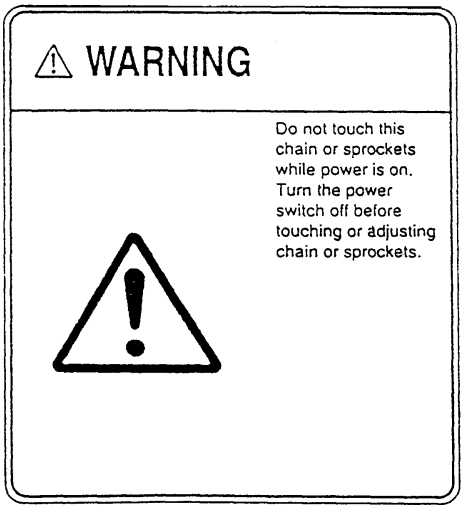
Clean the rack unit regularly because too much dirt or crystalized substances cause the scratch or contaminess of the film.

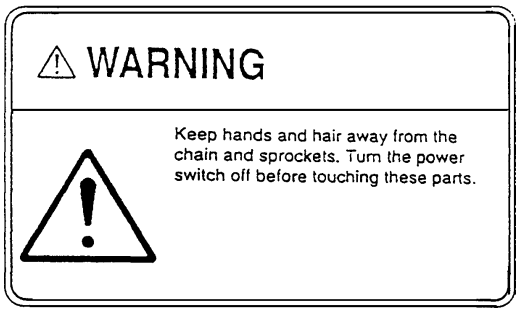
6.3.2 Tension adjustment and oiling of drive chain.

Open the front cover and the side covers of the dryer unit, push the place shown in the figure to check the tension of the chain.

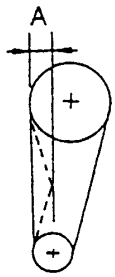
It it is too loose or too tight, adjust it.

(compare the result with the specified value).

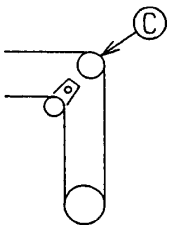




1) Push the center of the transmit chain of the motor with your finger and measure the bend (A).
(A) should be 5-10mm.
Move the drive motor fixing board up and down to adjust the tension.



2) Check the position of the tightener of the rack drive chain and adjust the tension with (C)'S position so that the left chain runs parallel to the right one.



6.3.3 Checking replenishing pump and circulation pump.

6.3.4 Checking and oiling of the movable parts (chain)

6.3.5 Changing chemical filter

The frequency of changing is displayed at pre-operation and post-operation inspections.

6.3.6 Checking processing temperature

Measure the solution temperature in the processing tank with a thermometer and compare the result with the temperature you set.

6.3.7 Cleaning the inside of the machine

Because a lot of electric components are used in the machine, the inside of the machine must be kept clean.

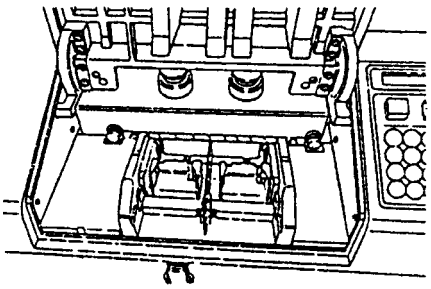
Us a lower brush to blow off the dust or any foreign substance everyweek.

6.4 MONTHLY INSPECTION B

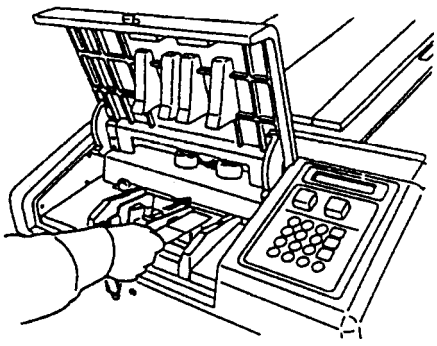
6.4.1 Cleaning loading unit drive roller

The drive rollers need to be cleaned regularly because film cannot be transported smoothly by the dirty rollers.

Use the specific cleaning leader and take the following steps.



1) Moisten the front and back of the fabric of the leader. Absorb excess water with dry cloth.
2) Open the loading box cover and insert the leader fabric into the center of the right (or left) lane (135 film passage).
3) The rollers are pressed together and the cleaning leader is pulled into them by pushing the push solenoid.
4) Clean the rollers by moving the leader fabric forward and backward.
   Care should be taken to avoid having the entire cleaning leader taken into the rollers.
5) Clean the rollers (rub them with the cleaning leader) for 5-10 minutes.
6) Release the solenoid and rollers, and pull the leader out.
7) Now the right (or left) lane is cleaned.
   When you clean the other lane, use the clean part of the leader by keeping the used part cut of the rollers.
   The cleaning steps 2) - 6) need to be repeated.



POINTS

1) If the entire cleaning leader is taken into the rollers, release the push solenoid.
2) Do not move the patrone holder during cleaning because the cutter might operate.
3) Do not clean the both lane together.
4) Turn on the drive switch after cleaning and wait for 5-10 minutes to start operation until the rollers are dried completely.
5) The frequency of cleaning depends on the environment or how many rolls of film are processed. Generally monthly cleaning is recommended.
6) Wash the used cleaning leader with soap.

6.5 SIX-MONTH INSPECTION

6.5.1 Checking the damage of rubber socket and elbow

6.5.2 Checking and cleaning of the electric components

Blow off dust with the air spray.

6.5.3 Checking the wear of bearing

6.5.4 Checking and cleaning of processing tank

Ckeck the leakage from the circulation/agitating pumps or the drain cocks.

6.5.5 Checking the leakage of replenisher tanks and replenisher pumps and their cleaning

6.5.6 Checking temperature control heater

6.5.7 Measuring the pump replenishing rate

6.6 YEARLY INSPECTION

6.6.1 Cleaning tank

1) Draw out the rack unit.	- Clean the rack unit according to the 6.2.6) cleaning rack unit (page 49)
2) Discharge the processing solution.	- Pour solution into plastic bag (5L or 10L).
3) Clean the tank.	- Clean each tank with water (dispose of the water). - Fill the tank with fresh water. - Make iddle running for approx. 10 minutes. - Discharge and dispose of the water. - Return the solution kept in plastic bag into the tank.

POINTS
- Clean the tanks with water only. Never use any detergent
- If the solution is contaminated, renew it.

6.6.2 Cleaning dryer rack

Take out the dryer rack and wipe it with soft cloth.

6.6.3 Changing dryer air filter

6.7 FUSES

N°	RATING	TYPE	SIZE	LOAD
F1	AC250V 3.15A	NORMAL	Ø5.2x20mm	DEV HEATER
F2	AC250V 3.15A	NORMAL	Ø5.2x20mm	FIX-2, STB-3 HEATER
F3	AC250V T3.15A	TIMELAG	Ø5.2x20mm	DEV-2 CIRCULATION PUMP
F4	AC250V T3.15A	TIMELAG	Ø5.2x20mm	DEV-1, BL, FIX-1, FIX-2, CIRCUL. PUMP
F5	AC250V T3.15A	TIMELAG	Ø5.2x20mm	STB-1, STB-2, STB-3 CIRCUL. PUMP
F6	AC250V T3.15A	TIMELAG	Ø5.2x20mm	DEV, BL, FIX, STB REPLENISHING PUMP
F7	AC250V T2A	TIMELAG	Ø5.2x20mm	DRYER FAN
F8	AC250V T3.15A	TIMELAG	Ø5.2x20mm	DRIVE MOTOR, CUT SOLENOID (L), (R)

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