SILVER MASTER PLATEMAKER

CP-150V

SERVICE MANUAL

DAINIPPON SCREEN MFG. CO., LTD.

CONTENTS

1. INTRODUCTION

This manual is intended to be used for after-sale service on the CP-150V. For operation of the machine and other details, refer to CP-150V Operation Manual, Technical Guide and other related documents.
Bear in mind that the specifications are subject to change without notice.
For parts ordering or consulation, refer to CP-150V Parts List and let us know the following information.

- model (CP-150V)
- serial number
- reference numbers and descriptions of parts
- required quantities
- date of delivery

2. SPECIFICATIONS AND PROCESS CHART

° Master paper width:	254 mm (10"), 279 mm (11"), 305 mm (12") 310 mm ($12^1/_4$")
° Master paper feed length:	370 mm - 480 mm (digital increment)
° Max. output size:	310 mm x 430 mm (white paper exposure: 310 mm x 480 mm)
° Original mounting method:	Sponge compression frame with a positioning base sheet provided.
° Processor capacity:	Developing tank ..... 6 ℓ Stabilizing tank .... 6 ℓ
° Replenisher bottle capacity:	Developer, stabilizer ... each 2 ℓ constant liquid level maintaining system
° Temperature control:	250 W panel heater with thermo-switch for the developing tank.
° Dryer:	600 W heater with thermo-control
° Lens:	f 210 mm, fixed diaphragm
° Magnification:	From 95% to 105%
° Exposure control:	0 to 99.9 sec (digital increment)
° Light source:	Four halogen lamps, 100 V, 300 W
° Light for positioning the original:	100 V 100 W tungsten lamp
° Independent switches:	Vacuum fan switch, Dryer switch
° Paper seam detection:	Alarm buzzer
° Focal plane paper holder:	Vacuum back

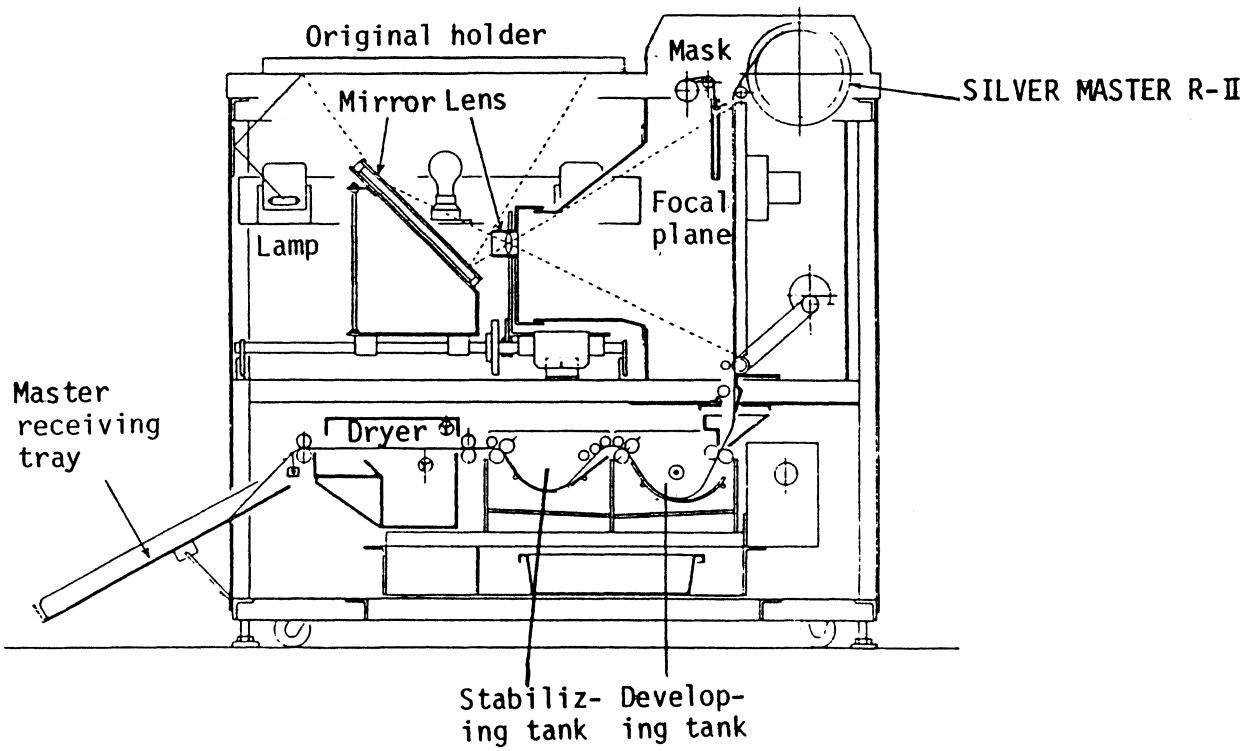
° Processing rate: Process time per plate (A3)
Initial process: 143 to 173 sec
Cyclic process: 42 to 48 sec

° Machine dimensions: 1200 (W) x 760 (D) x 1160 (H) mm

° Weight: 210 kg

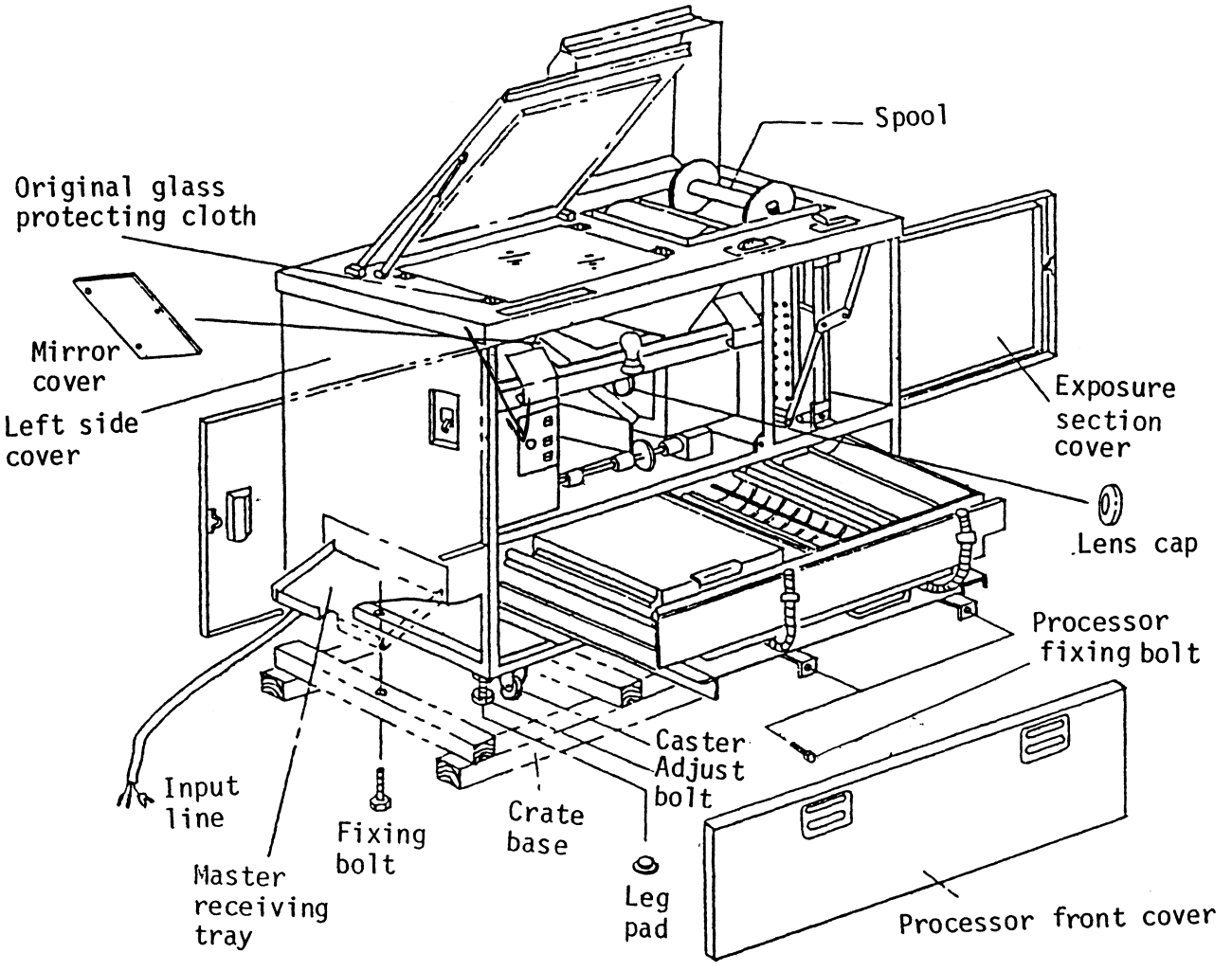
° Electricity: Single-phase 100 VAC, 2.5 kW, 50 or 60 Hz

Process Chart



3. INSTALLATION

Fig.1



Packing List

No.	Description	Qty
1	Main Unit	1
2	Replenisher Bottle	2
3	Spool Rims and Shaft	1 set
4	Leg Pad	4
5	Master Receiving Tray	1
6	Master Guide	1

No.	Description	Qty
7	Vat	1
8	Funnel	1
9	Measuring Cup	1
10	Operation Manual Technical Guide Drain Disposal Manual	1 each
11	Wall-stuck Instruction sheet	1
12	Test Chart, Sample	1 each
13	Tools	1 set
14	Glass Fuse, 3 A	4
15	Glass Fuse, 5 A	4
16	Glass Fuse, 10 A	4
17	Spring Belt	4
18	Cutter Blade	10
19	Blower Brush	1
20	Metal Polishing Compound	1
21	Retouching Paint & Brush	1 set

Conditions for Installation

(1) Avoid a place where the machine may be exposed to direct sunlight.

(2) The service voltage should be kept within 100 V ± 10%. The ampacity of the power supply should be 25 A or more.

(3) Leave at least 10 cm space behind the main unit.

Unpacking

(1) Remove the crate except the crate base.

(2) The crate base is fixed to the main unit with two fixing bolts. Open the processor cover and loosen the two fixing bolts on the bottom right and left sides of the main unit to remove the crate base from the main unit.

Installation

(1) Move the main unit to the installation site and put the leg pad under each of the four adjust bolts. The main unit can be easily moved since casters are provided on its bottom.

(2) Open the original holder cover and remove the protection cloths from under the original holder glass.

(3) Place a level on the original holder glass and adjust the adjust bolts to level the main unit. Using the adjust bolts, raise the unit until the four casters are free, or off the floor.

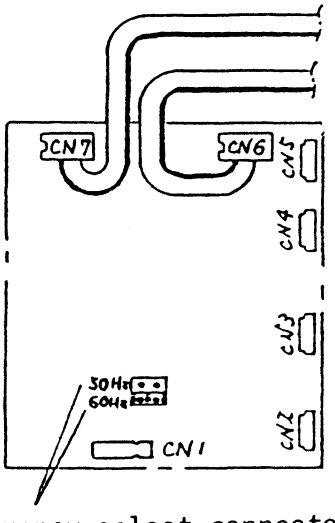
(4) Remove the two processor fixing bolts.

(5) Remove the mirror cover and lens cap. Special care should be taken not to leave any fingerprint on the mirror or lens surface.

(6) Open the exposure section cover to attach the cutter blade (NT).

(7) Connect the frequency select connector to the 50 or 60 Hz terminal, depending on the local service power frequency. (Refer to Fig.2.) (After opening the left side cover, connect the frequency select connector to the 50 or 60 Hz terminal on the control PCB at the switchboard.)

Fig.2



Frequency select connector

(8) Attach the master receiving tray to the main unit.

(9) After drawing out the processor, remove and clean the development and stabilization conveyor units. At first, if the conveyor rollers do not rotate smoothly, rotate them by hand.

(10) Attach the master guide and drain vat.

(11) The lens assembly is held in the 100% position by the two collars on both sides of the bearing to prevent the lens assembly from moving in transit. Loosen and shift the collars for changing the magnification. (Refer to Fig.3.)

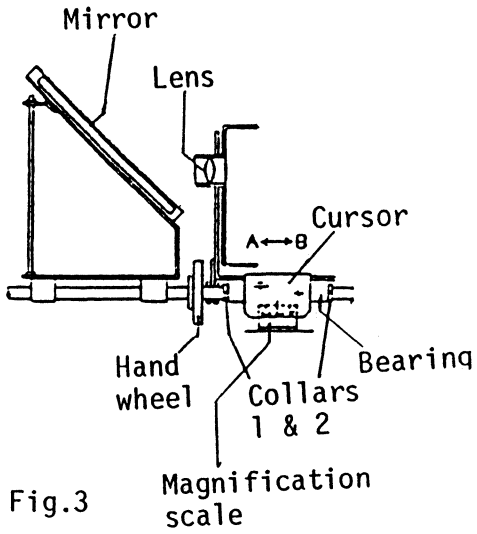


Fig.3

Mixing Processing Solutions

(1) Prepare developing and stabilizing solutions according to the Operation Manual, and pour them into the respective tanks and replenisher bottles.

(2) Load the replenisher bottles filled with replenishers on the respective units.

Connecting the Power Supply

(1) Turn off the POWER (camera) switch on the sub-control-panel.

(2) After checking the power supply (single-phase, 100 VAC), connect the input line cord. (Power requirements: single-phase, 100 VAC, 25 kW, 50 or 60 Hz)

(3) Be sure to ground the green wire of the input line.

Inspection and Adjustment

(1) Turn on the POWER switch and make the following checks and adjustments according to the Operation Manual:

° Adjusting the sound level of the buzzer

° Confirming that the four lamps (light source) are turned on with the LAMP switch on.

° Confirming that the master paper is dried satisfactorily with the DRYER switch on.

° Checking a series of operations: exposure, feeding, cutting, development, stabilization, drying and output.

° Test exposure of the test chart

(2) Developer temperature control:

The developer temperature should be between 28°C and 31°C when the heater pilot lamp goes out. If not so, adjust the developer temperature with the thermo-dial on the processor.

4. INSPECTION AND ADJUSTMENT OF OPTICAL SYSTEM

The focusing and sizing system is well adjusted before shipment. However, if it fails, make an inspection and an adjustment with the following procedure.

[Procedures]

1. Checking and Correcting Image Squareness ——— Adjustment by the mirror angle
2. Checking and Adjusting the Focus ——— Adjustment by horizontal movement of the mirror
3. Checking and Adjusting the Magnification ——— Adjustment by horizontal movement of the lens assembly

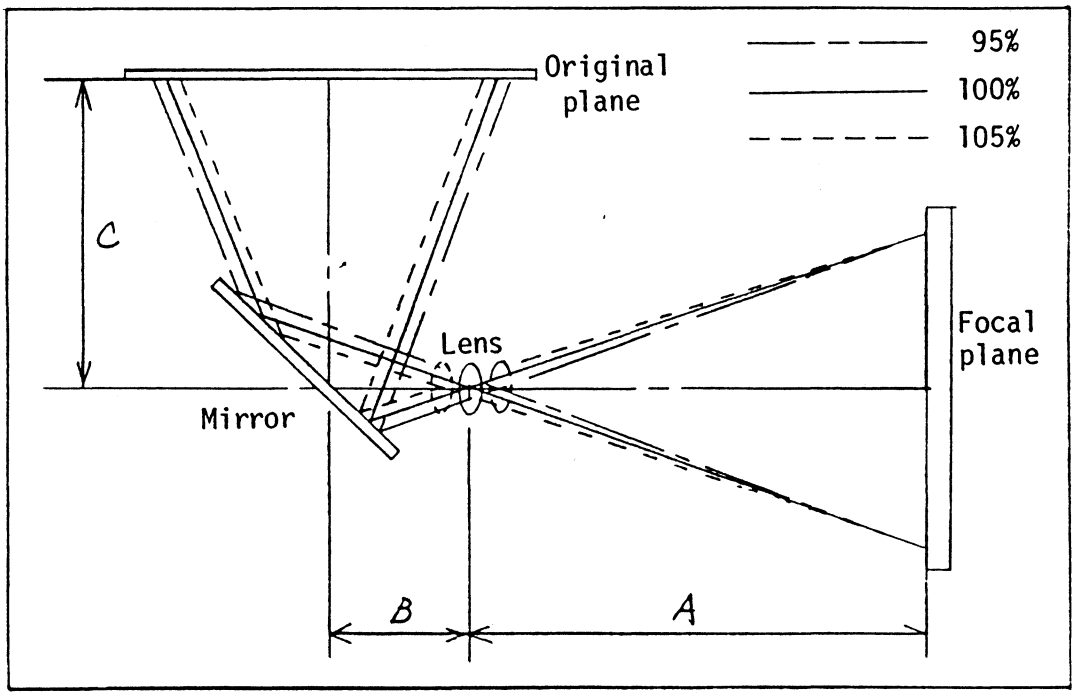


Fig.4

Theoretical positional relationship among the original, lens and focal plane should be as follows:

$$\begin{array}{ccc} A & \text{———} & B + C \\ \| & & \| \\ f(1+m) & \text{———} & f(1+\frac{1}{m}) \end{array}$$

f : focal distance of the lens

m : magnification

(ex.) f = 260 mm m = 100%

$$A = 260(1 + 1) = 520 \text{ mm}$$

$$B + C = 260(1 + \frac{1}{1}) = 520 \text{ mm}$$

(NB) Actually, although the original plane should be moved, the required resolution is achieved within the depth of focus around 100% or so.

(ex.) f = 260 mm m = 95%

$$A = 260(1 + 0.95) = 507 \text{ mm}$$

$$B + C = 260(1 + \frac{1}{0.95}) \fallingdotseq 533 \text{ mm}$$

(ex.) f = 260 mm m = 105%

$$A = 260(1 + 1.05) = 533 \text{ mm}$$

$$B + C = 260(1 + \frac{1}{1.05}) \fallingdotseq 507 \text{ mm}$$

4.1. Compensation of Image Squareness—— Adjustment by change of the mirror angle

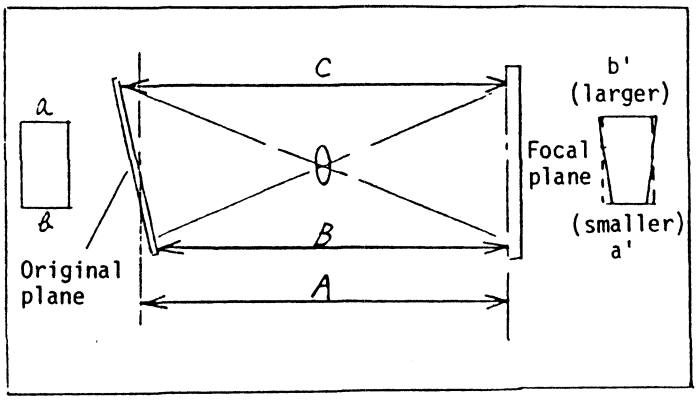


Fig.5

In order to make an exposure of a square or rectangular original exactly, the original plane, lens plane and focal plane must be parallel to one another. As shown in Fig.5, if the original plane is not parallel to the other planes (B < C), the produced image's lower side (a') is smaller and its upper side (b') is larger. We call that "Image Squareness is out".

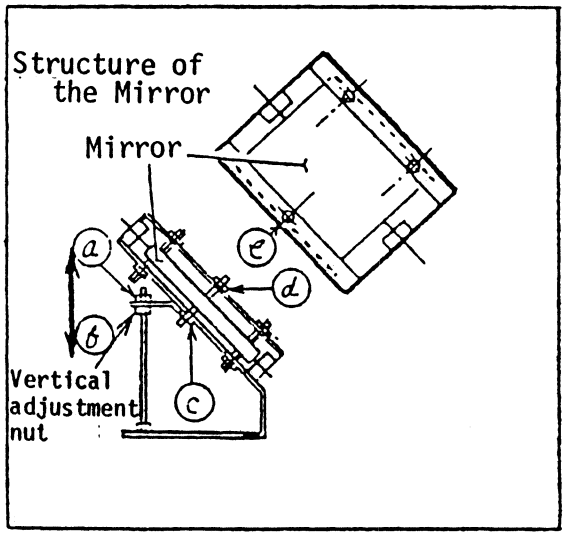


Fig.6

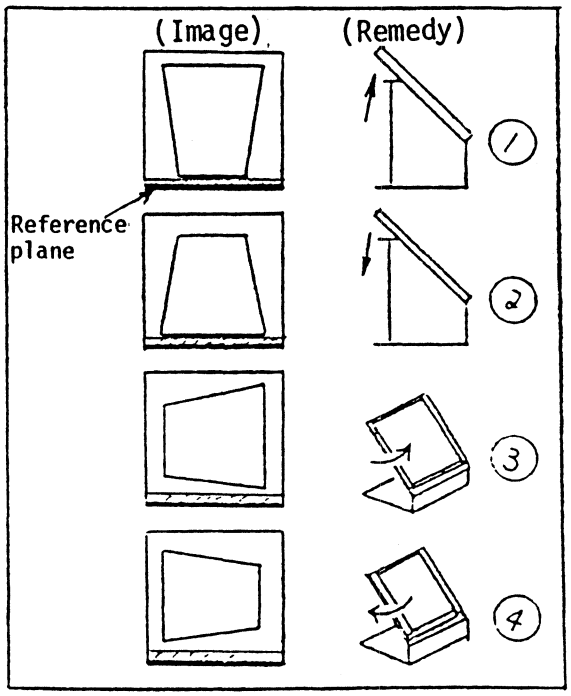


Fig. 7

In the CP-150V, a mirror is provided between the lens and the focal plane. If an image unsquareness occurs, correct it by adjusting the mirror.

[Checking for image squareness]

(1) Use an original suitable for measurement of the image squareness (square or rectangular chart) and make an exposure.

(2) Measure the four sides of the image (exposure); the difference in dimension between opposite sides should be 0.5 mm or less.

(ex.) Standard dimension with regard to the DS chart

95% —— 237.5 mm
100% —— 250 mm
105% —— 262.5 mm

[Procedure of correcting the image unsquareness] Refer to Figs. 6 and 7.

(1) If the upper side of the exposed image is larger and its lower side is smaller:

Loosen vertical adjustment nut (a) and tighten (b).

(2) If the upper side is smaller and the lower side is larger:

Loosen vertical adjustment nut (b) and tighten (a).

(3) If the right side is larger and the left side is smaller:

Loosen bolt (d) in part (e) and tighten bolt (c).

(4) If the left side is larger and the right side is smaller:

Loosen bolt (c) in part (e) and tighten bolt (d).

4.2. Adjustment of the Focus —— Adjustment by horizontal movement of the mirror

[Focus check]

(1) Make an exposure of the test chart (resolution chart). If 8 lines/mm or higher resolution is obtained, the image is regarded as satisfactory. (As for 95% and 105%, 7.1 lines/mm or more should be obtained.)

(2) If the required resolution is not obtained, make an adjustment following the procedure below.

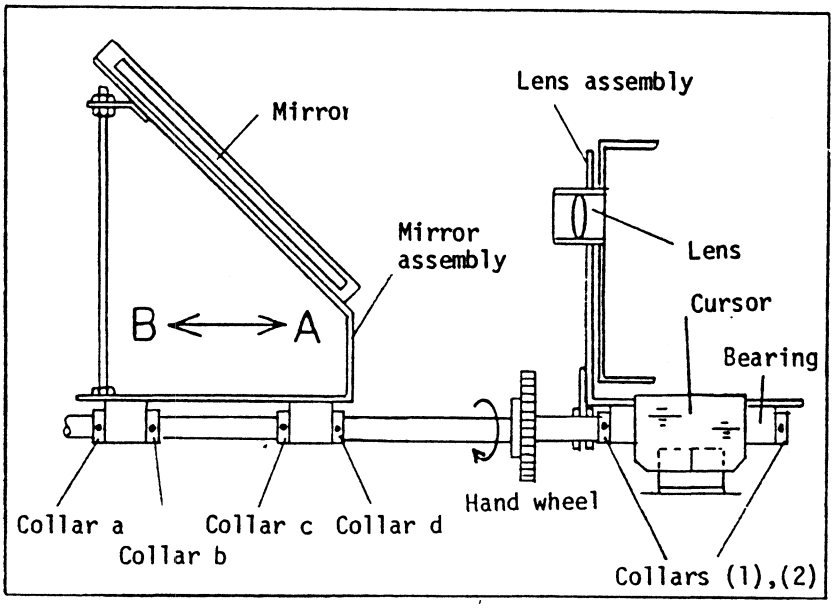
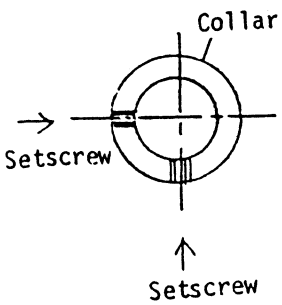


Fig.8

[Adjusting procedure]

NB) When moving the mirror assembly horizontally, be sure to fit collars (1) and (2) to both ends of the lens assembly bearing.

(1) Loosen the setscrews (M4 hexagon socket set-screws) for collars (b) and (d). (Each collar uses two setscrews.)



(2) When the hand wheel is turned in the direction of arrow, the mirror moves in direction A. Move it bit by bit and make exposures

of the test chart.
If the later exposures are unsharper than the exposures first made, return the mirror assembly to the original position (position of collars (a) and (c)).

(3) Fix collars (b) and (d) in their original position. Then, loosen collars (a) and (c) and turn the handwheel in the direction opposite to the arrow so that the mirror assembly moves in direction B. Move it bit by bit and make exposures of the test chart until the best focus position is attained.

(4) If the best focus position is found in steps (2) and (3), lock collars (a), (b), (c) and (d) taking care not to apply unreasonable force on the mirror assembly.

(5) Measure the size of the image of interest; if it is different from the original size, make a correction in accordance with the procedure stated in 4.3. "Scale Calibration."

(6) Loosen collars (1) and (2) fixed to both ends of the bearing on the lens assembly.
Check the focus at 95% and 105%.

4.3. Scal Calibration ———— Adjustment by horizontal movement of the lens assembly

[Scale check]

(1) Load a sample suitable for checking the scale.

(2) Move the lens assembly by turning the hand wheel until the cursor aligns with the 100% division of the magnification scale.

(3) Compare the output image size with the original image size.

(ex.) Standard dimension with regard to the DS chart

		(allowable error range)
95%	237.5 mm	±1.0 mm
100%	250.0 mm	±0.5 mm
105%	262.5 mm	±1.0 mm

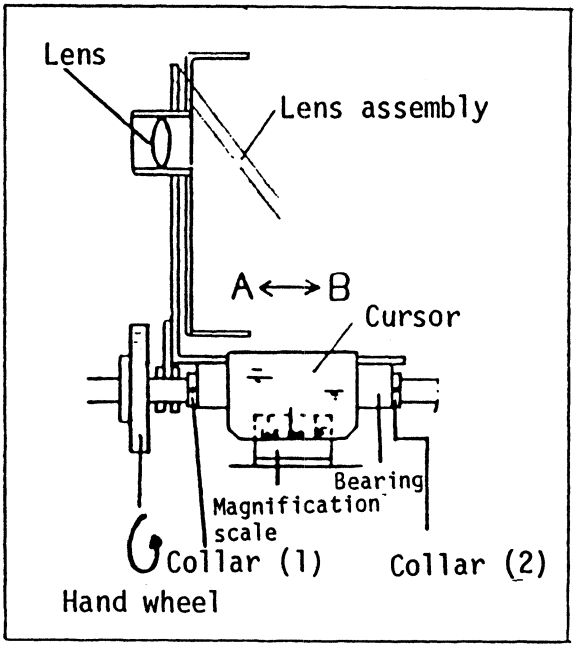


Fig.9

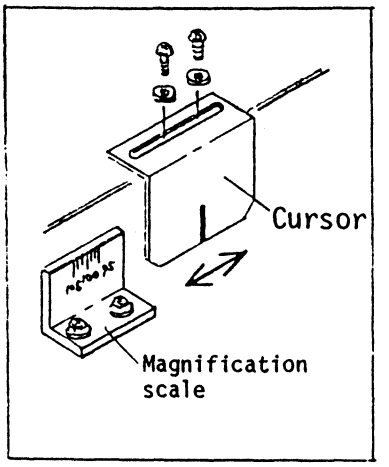


Fig.10

[Adjusting procedure] ———————— See Figs.9 and 10.

NB) When adjusting or changing the focus, be sure to loosen collars (1) and (2).

a. The output image size is larger than the original one.

Turn the hand wheel to move the lens assembly bit by bit toward the 95% division of the magnification scale (direction B), and make an exposure at each position. If the image size is within the allowable range, loosen the screws retaining the cursor, and set the cursor to the 100% division of the magnification scale and lock it.

b. The output image size is smaller than the original one.

Turn the hand wheel to move the lens assembly bit by bit toward the 105% division of the magnification scale (direction A), and make an exposure at each position.
In the same manner as above, set the cursor to the 100% division of the magnification scale and lock it.

Then, check the output image size at 95% and 105% with a similar procedure.

5. ORIGINAL HOLDER

5.1. Replacement of the Original Positioning Sheet

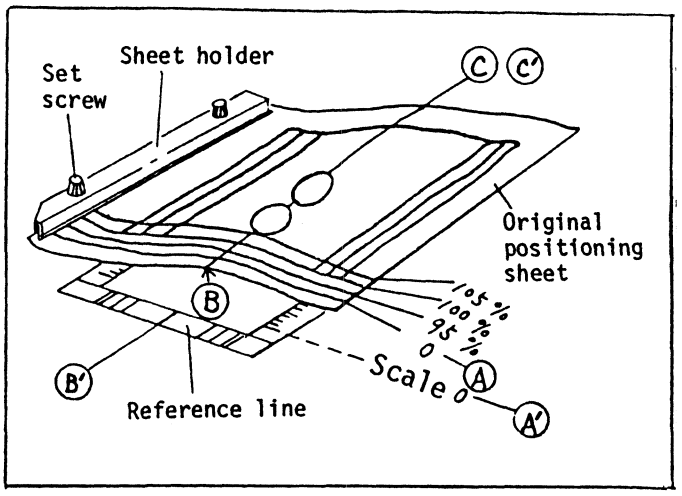
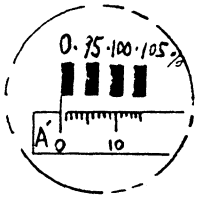


Fig.11

(1) Loosen the sheet set screws and remove the sheet.

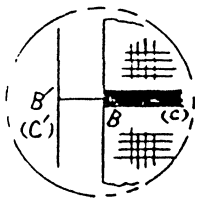
(2) Put the end of a new sheet under the sheet holder and determine its position with the procedure below.

(3) For longitudinal alignment, put the sheet so that the left end of the original positioning sheet baseline "0" (A) aligns with the "0" division of the scale (A') on the original holder glass frame.



baseline

(4) For cross alignment, let (B)-(C) of the sheet coincide with reference line (B')-(C') of the scale on the original holder glass frame.



5.2. Adjustment of Original Contact Pressure

If the original is not in good pressure contact condition under the original cover, the output image may be distorted.
Make an adjustment with the following procedure.

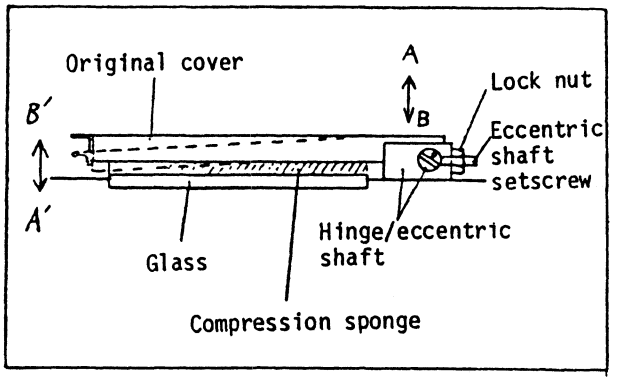


Fig.12

(1) Loosen the lock nut for the original cover hinge.

(2) Loosen the eccentric shaft setscrew.

(3) Rotate the right and left eccentric shafts, and the hinge side of the original cover will move up and down.

(4) When the hinge side is moved upward (direction A), the opposite side will go down (direction A'); when it is moved downward (direction B), the opposite side will move upward (direction B').

(5) Find a proper position by adjusting the right and left eccentric shafts, and tighten the eccentric shaft setscrews and then lock them with the lock nuts.

[Checking procedure]

(1) Cut four strips of about 30 mm length from master paper, or another paper.

(2) Put the strips in the four corners of the original holder glass and close the original cover.

(3) Check the contact pressure by pulling the strips.

6. LIGHT SOURCE

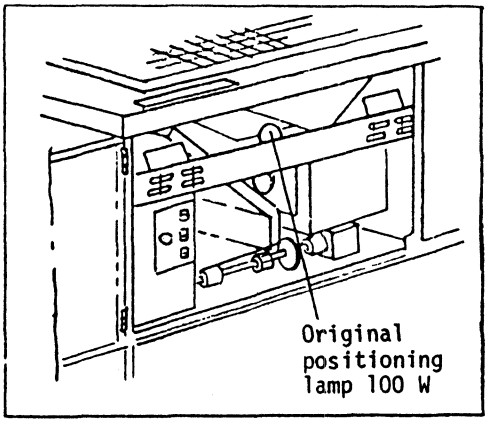


Fig.13

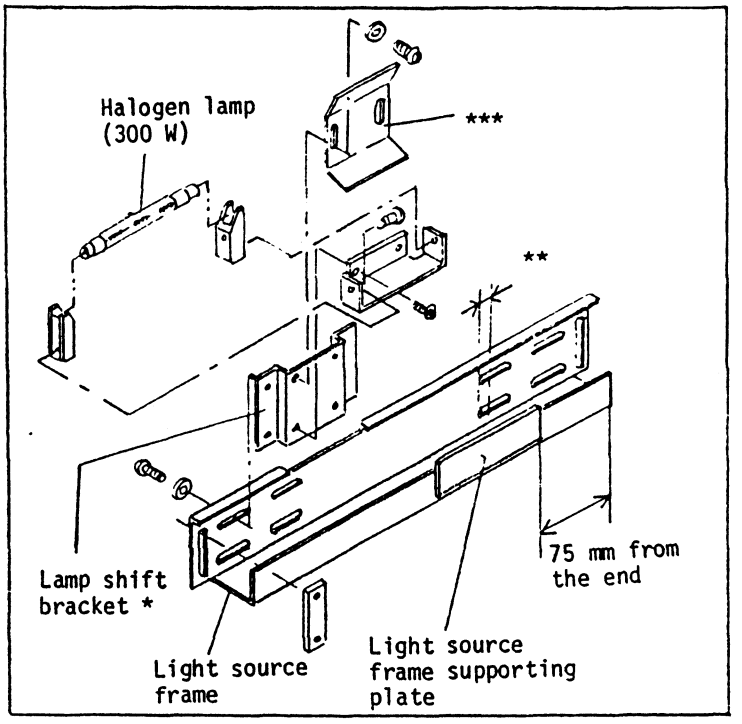


Fig.14

[Structure of the light source] ——— See Figs.13 and 14.

(1) Four lamps (two on the operation side and two on the non-operation side) are provided as a light source for exposure.

Halogen lamps 100 VAC, 300 W

(2) To help position the original, a lamp located on the operation side is lit only when the original cover is opened.

Tungsten lamp 100 VAC, 100 W

(3) To provide a uniform distribution of illuminance, the light source is installed as shown in Fig.14 before shipment. (distribution: 80% or more)

(3)-1 Installation of the lamp shift bracket

° Set the lamp shift bracket (on both operation and non-operation sides) to the center of the left long holes of the light source frame. (Fig.14 *)

° Set the lamp shift bracket (on both operation and non-operation sides) to 10 mm point from the inner side of the light source frame right long holes. (Fig.14 **)

(3)-2 Installation of the light source frame supporting plate

° Install the supporting plate to 75 mm point from the right end of the light source frame on both operation and non-operation sides.

(3)-3 Install the reflector by setting it to the highest position in the long holes. (Fig.14 ***)

(4) If the distribution of illuminance is not uniform, refer to the following:

(4)-1 When the lamp shift bracket is set to the center position, the central area will be brighter. When it is set to the outer side, the circumferential area will be brighter.

(4)-2 When the reflector is set to the lower position, the central area will be brighter.

(4)-3 Stains or scratches in the reflector, mirror, lens or original holder glass may affect the print density.

7. LENS ASSEMBLY

[Replacement of the shutter solenoid]

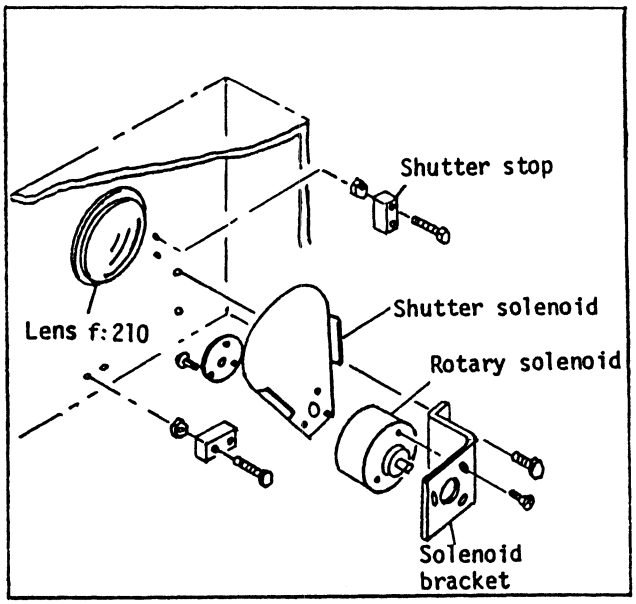


Fig.15

(1) The shutter solenoid can be dismounted by removing the solenoid fitting bracket and two fitting bolts (M4) from the focal plane side.

(2) Separate the solenoid from the shutter blade and replace them with new ones. Then, put the new parts together and install the assembly in place.

* If the shutter does not open smoothly though it can be opened with the aid of your hand at start-up (the torque is insufficient), change the shutter blade position so that the coil spring of the rotary solenoid can be loosened.
  Be careful not to loosen it too much; otherwise the shutter may fail to close.

8. MIRROR

[Replacement of the mirror]

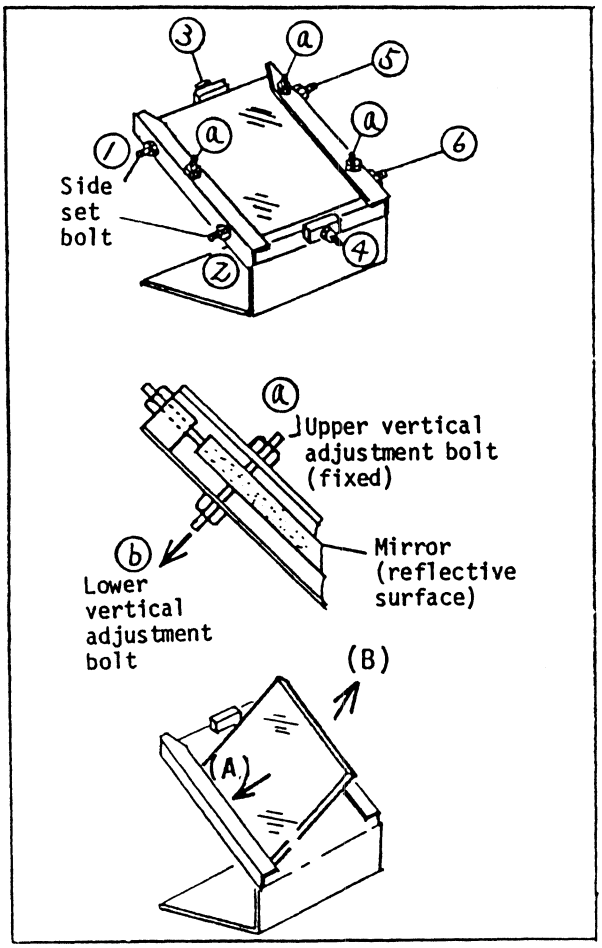


Fig.16

The mirror is secured with six side set bolts, three upper vertical adjustment bolts and three lower vertical adjustment bolts.

[Removal of the mirror]

(1) Open the lens assembly cover.

(2) Cap the lens to protect it.

(3) Loosen side set bolts (1), (2) and (3) completely.

(4) Loosen three lower vertical adjustment bolts (b).

* Since the three upper vertical adjustment bolts (a) are used as a base for positioning the mirror, do not loosen them.

(5) Move the mirror toward you (A), and raise its opposite side (B) and pull it out.

[Installation of the mirror]

* When installing a new mirror, be careful not to scratch or stain it.

(1) Reverse the removal procedure.

(2) Put the mirror in place and let side bolts (4), (5) and (6) touch it. Lightly tighten three lower vertical adjustment bolts (b) evenly.

(3) Tighten the side set bolts lightly and lock them.

(4) Check the output image for deviation according to "4-1 Correction of Image Deviation."

9. EXPOSURE SECTION (FOCAL PLANE)

9.1. Adjustment of the Shading Mask

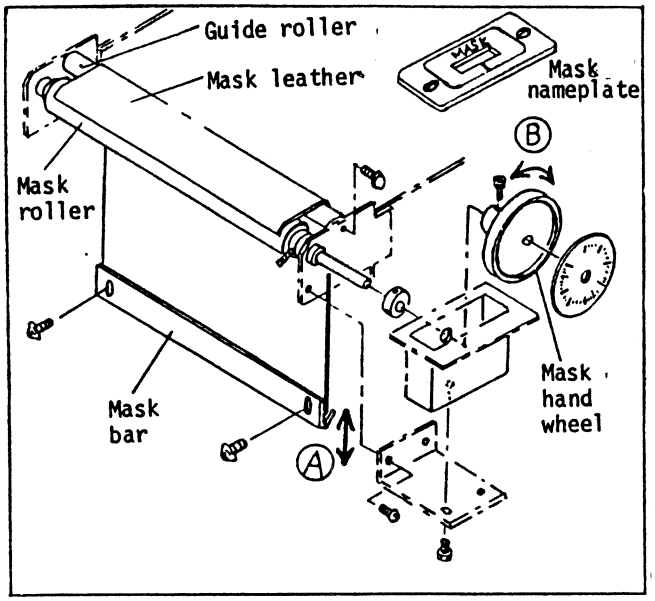


Fig.17

(1) The mask angle can be adjusted by using the long hole of the mask bar. (Fig.17 (A))

(2) To adjust the mask position, make an exposure with the mask in desired position and read the mask position.

1) Remove the mask nameplate.

* For convenience in later replacement, mark the position of the nameplate.

2) Loosen the mask hand wheel set screw. While holding the mask roller by hand, turn the mask hand wheel and lock it with set screw. (Fig.17 (B))

3) Replace the mask nameplate after the adjustment is over.

9.2. Paper Feed Length Detecting Mechanism

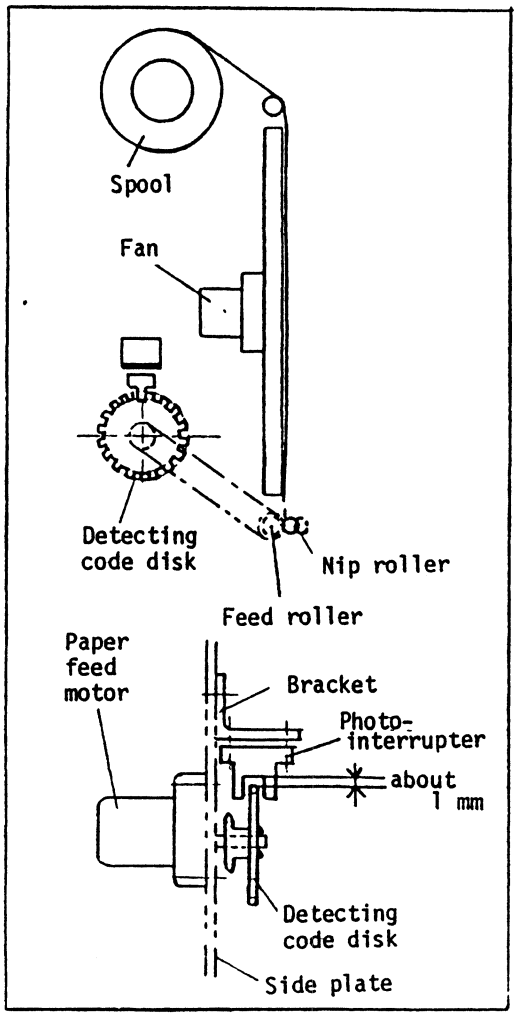


Fig.18

(1) The paper feed length can be set to the digital switches on the main control panel.

(2) As the paper feed motor is run, simultaneously the detecting code disk and the feed roller at the shaft end rotate.
Notches of the detecting code disk are transformed into pulse through the light passing through the photo-interrupter.

(3) The pulse generated in above step (2) is counted by the control PCB. The paper feed motor is stopped when the master feed length set in step (1) is attained.

One rotation of the feed roller corresponds to 60 mm (60 notches or one rotation of the disk).

[The cause of misdetection of the paper feed length]

(1) The photo-interrupter faulty —— Replace it.
Usually, the actual paper feed length tends to be longer than the set one.

(2) The detecting code disk rubs against the photo-interrupter as it rotates, because it is out of shape.

(3) The detecting code disk out of place ——
The disk should be in alignment with the center line of the photo-interrupter and about 1 mm off it. Refer to Fig.18.

(4) The detecting block is exposed to light. ———

The actual feed length becomes longer.

The master paper feed length can be increased by 1 mm, 2 mm, 3 mm or 4 mm using the DIP switches on the control PCB. However, take care not to turn on two switches at a time. Otherwise, the machine will fail.

10. PROCESSOR/DRYER UNIT

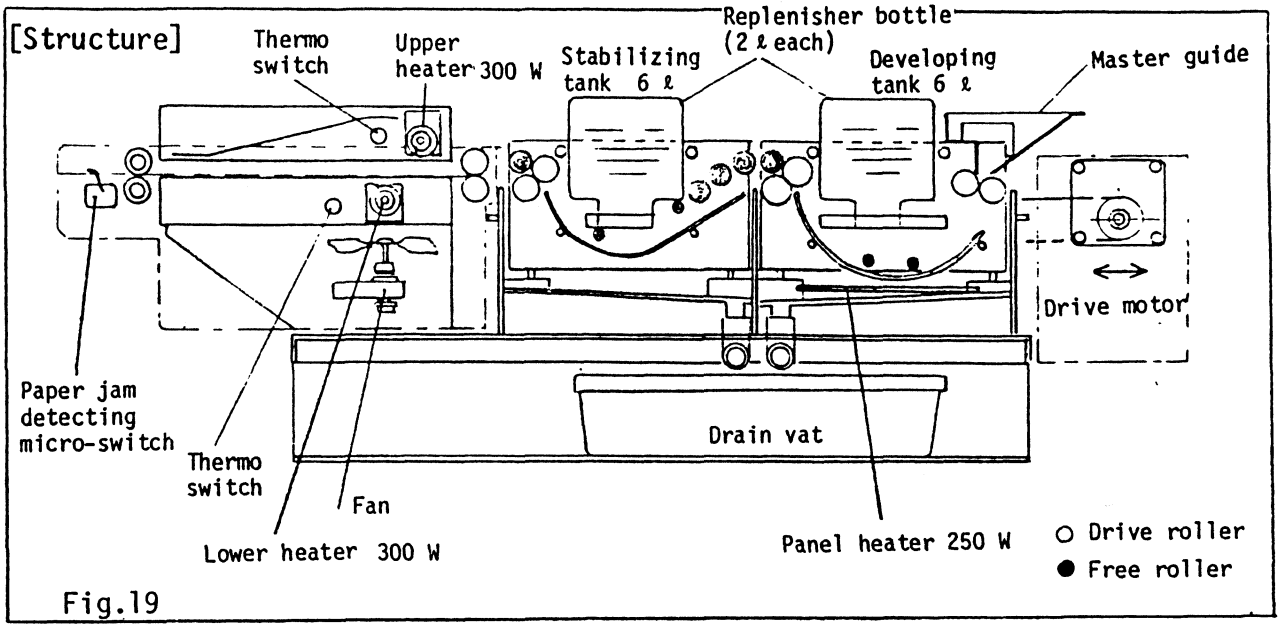


Fig.19

10.1. Adjustment of Processor/Dryer Unit

(1) Adjust the driving chain tension by using the long holes of the drive motor mount.

(2) If the driving roller sprocket doesn't engage with the driving chain, make an adjustment with the following procedure.

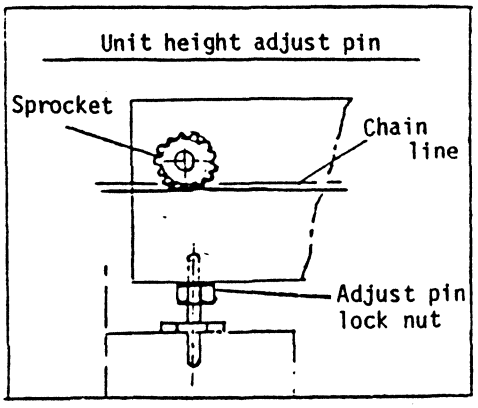


Fig.20

1) Check to see if there is any backlash between the unit height adjust pins and the unit receiver blocks. If so, adjust the four blocks with the adjust pins to eliminate torsion.

2) If there is no backlash on the adjust pins but the chain does not engage with the sprocket, draw out the unit and loosen the lock nuts for the unit height adjust pins and adjust the four pins uniformly.

10.2. Scratched Masters

If the master is scratched by the processor/dryer unit, make an inspection and an adjustment as follows:

(1) Make sure that the free rollers rotate smoothly. (See Fig.19.)

(2) If a free roller surface is dirty, polish it with the supplied polishing compound.

(3) Dust off the inner side of the master guide, especially its surface to be in contact with the master emulsion surface.

(4) Check the upper guide plate (aluminum perforated plate) of the dryer (master emulsion side) for a warp or foreign matter.

> If a master is scratched, first find at which step the scraching has occurred, and then take the appropriate measures for each case.

10.3. Wrinkled Masters

If the master is wrinkled by the processor/dryer unit, make an inspection and an adjustment as follows:

(1) Check the master guide outlet for a warp ..... Unevenness in opening at the center and each end of the master guide.

(2) Check if the master guide is in place and parallel to the roller. Adjust its position with guide holders.

(3) Check the finger at the outlet (squeegee roller) of the developing tank for misalignment with the roller and for any uneven surface.

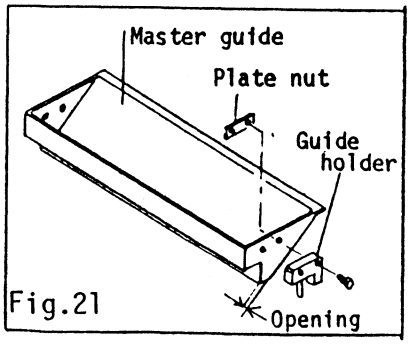


Fig.21

(4) Check the finger at the outlet (squeegee roller) of the stabilizing tank for misalignment with the roller and for any uneven surface.

(5) The free rollers don't rotate smoothly.

(6) The cutter won't cut well.

(7) Check if the dryer inlet roller is at the same level as the stabilizing tank outlet roller? If not, make an adjustment by using the long holes of the dryer mount.

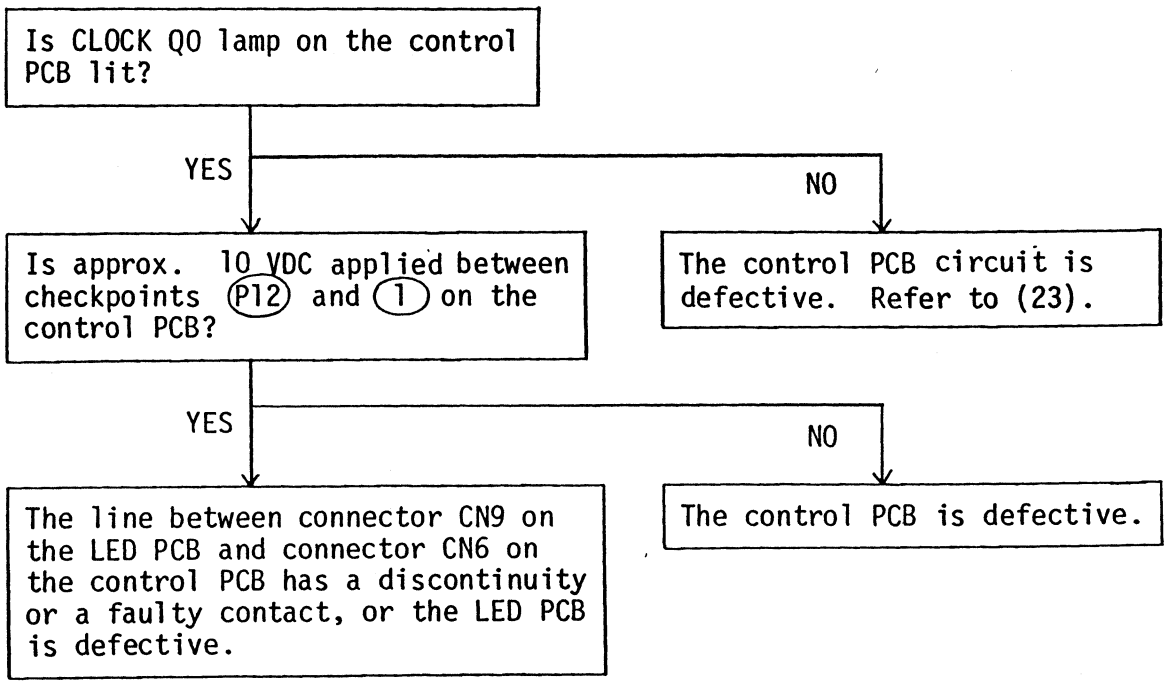
When a master is wrinkled, first find at which step the wrinkle has occurred, and then take the appropriate measures for each case.

ELECTRIC TROUBLE SHOOTING

CONTENTS

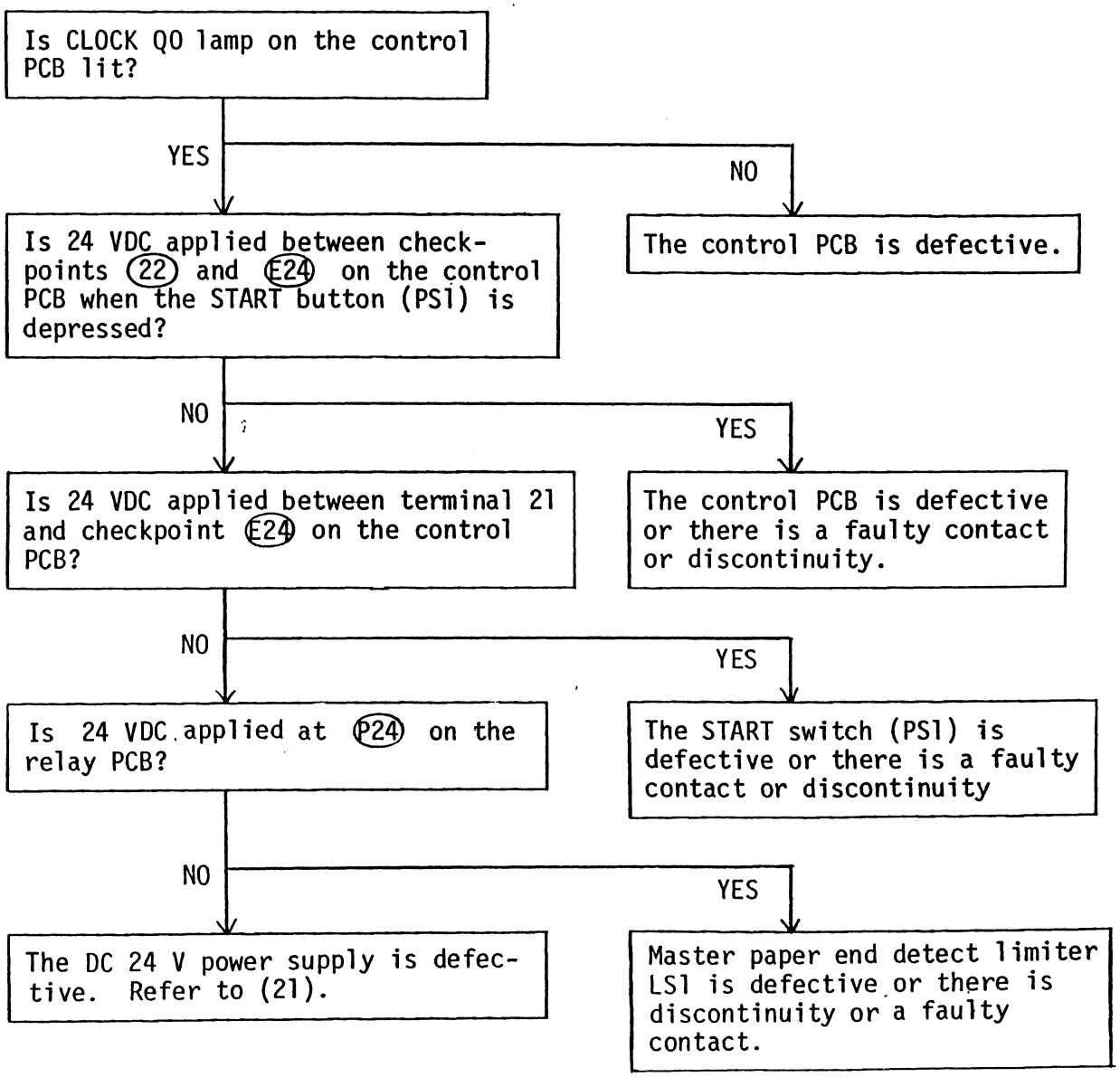
(1) The START lamp (green) won't be lit.

CHECK: 1) whether the POWER switch (NFB) is on,
2) whether the FAN switch (TS3) is at AUTO,
3) whether the master paper is not exhausted
(If so, the master paper end pilot lamp should be on and the buzzer should sound.)
4) whether the master paper is not jammed.
(If so, the buzzer should sound.)



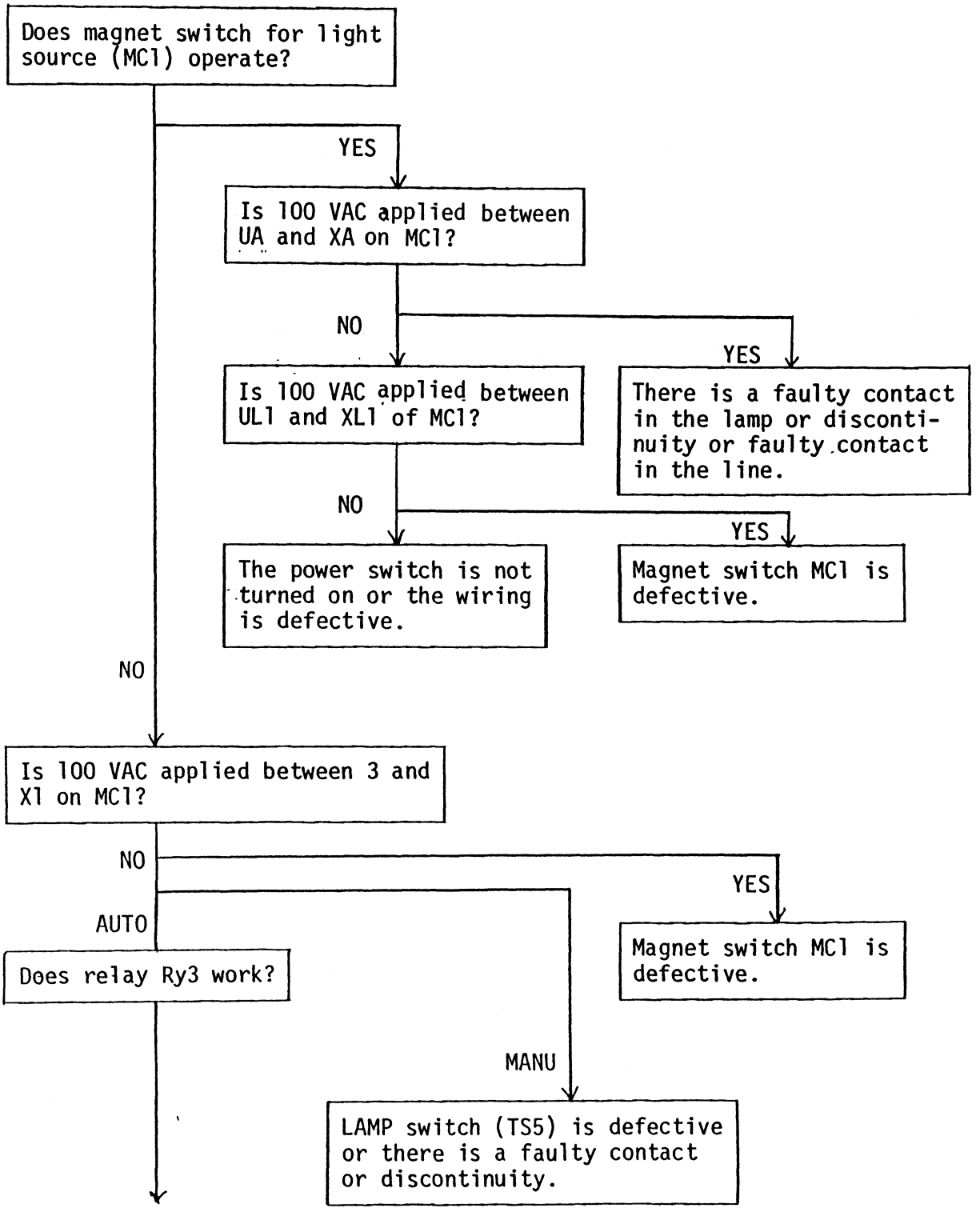
(2) The machine won't start when the START switch (PS1) is depressed.

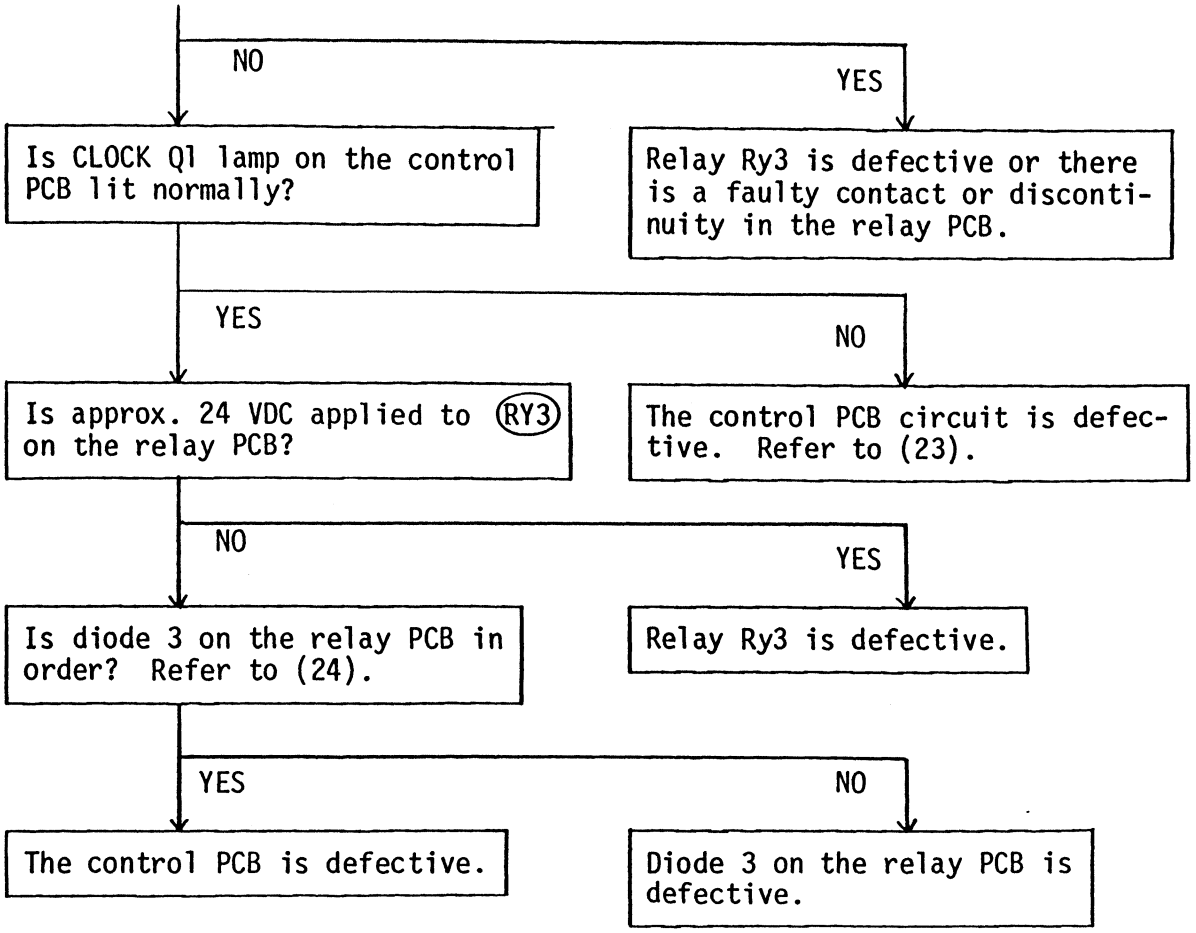
CHECK: 1) whether the START lamp (green) is lit
(If not, refer to (1).)
2) whether the master paper feed length setting digital switches are set between 300 - 499 mm.



(3) No exposure is made. (The light source won't be lit.)

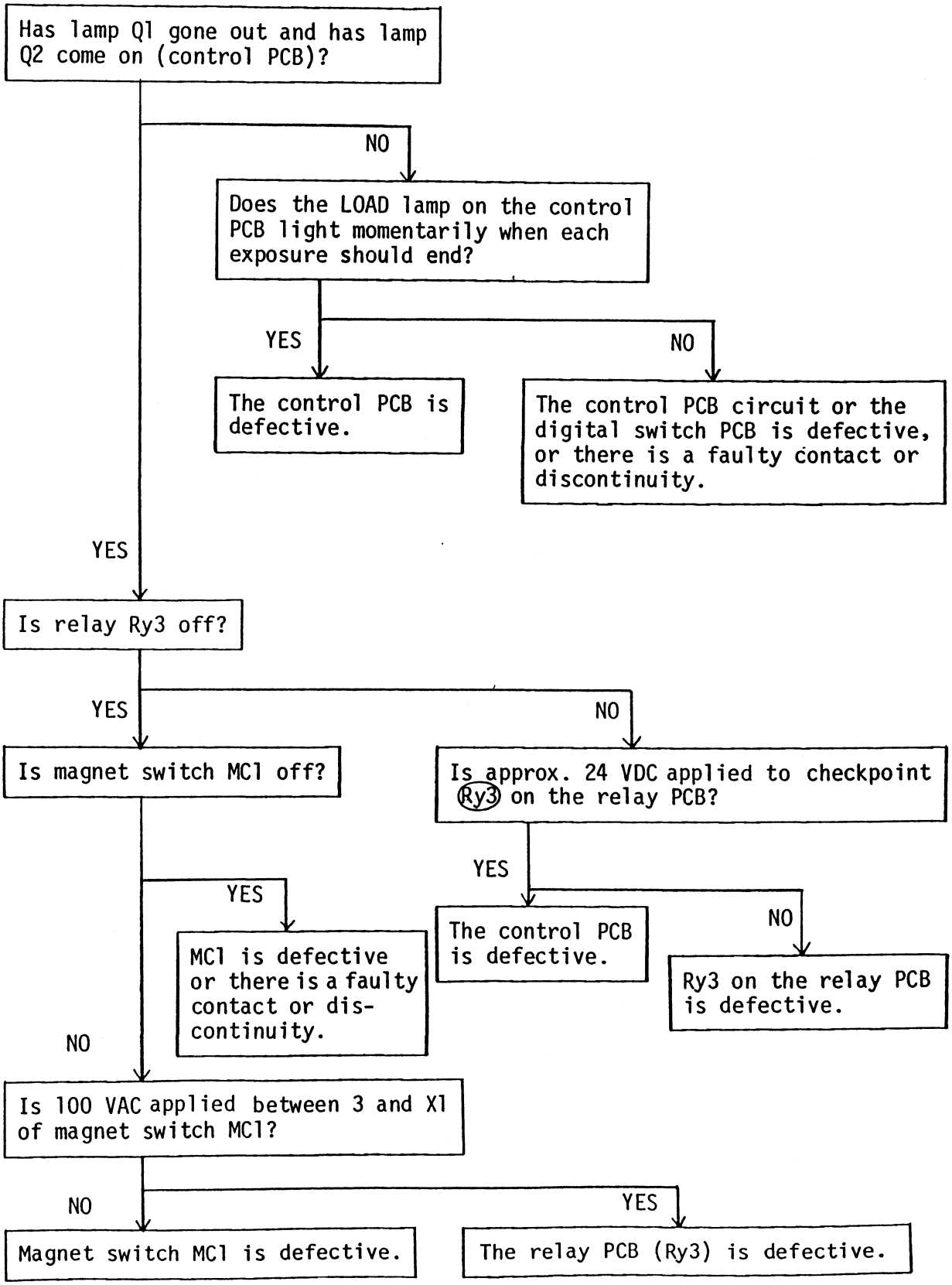
CHECK: whether the light source lamp has not burnt out.




NO
YES
Is CLOCK Q1 lamp on the control PCB lit normally?
Relay Ry3 is defective or there is a faulty contact or discontinuity in the relay PCB.
YES
NO
Is approx. 24 VDC applied to (RY3) on the relay PCB?
The control PCB circuit is defective. Refer to (23).
NO
YES
Is diode 3 on the relay PCB in order? Refer to (24).
Relay Ry3 is defective.
YES
NO
The control PCB is defective.
Diode 3 on the relay PCB is defective.

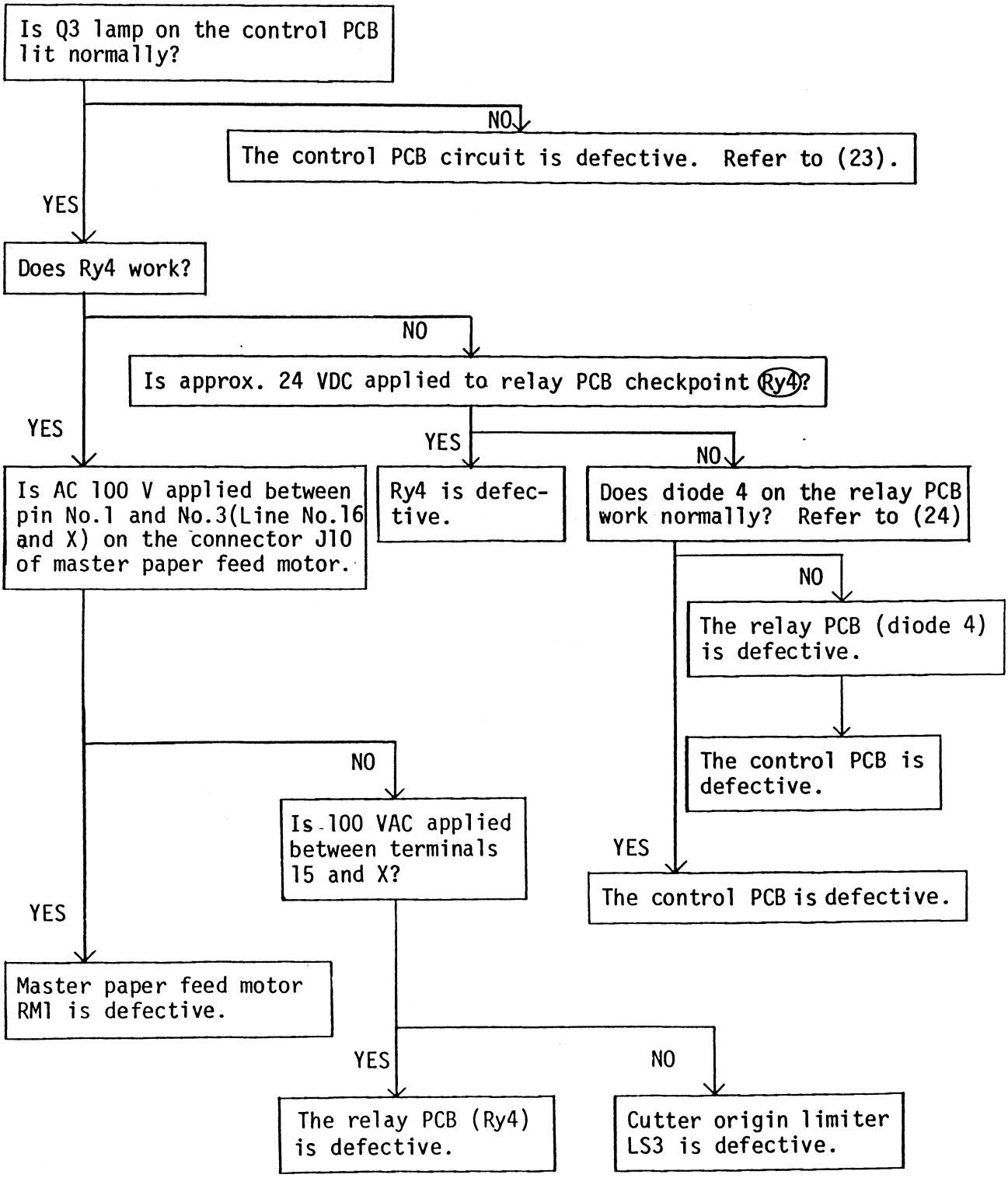
(4) Exposure will not be ended.

CHECK: whether LAMP switch TS5 is not at MANU.



(5) Master paper will not be fed.

CHECK: 1) whether the ROLLER handle is locked
2) whether the cutter is at the origin (cutter origin limiter LS3 is on).



(6) Master paper feed length is not constant or the paper feeding will not end.

CHECK: 1) whether the flat cable between the control PCB and digital switch PCB (CN7 - CN8) is connected normally,

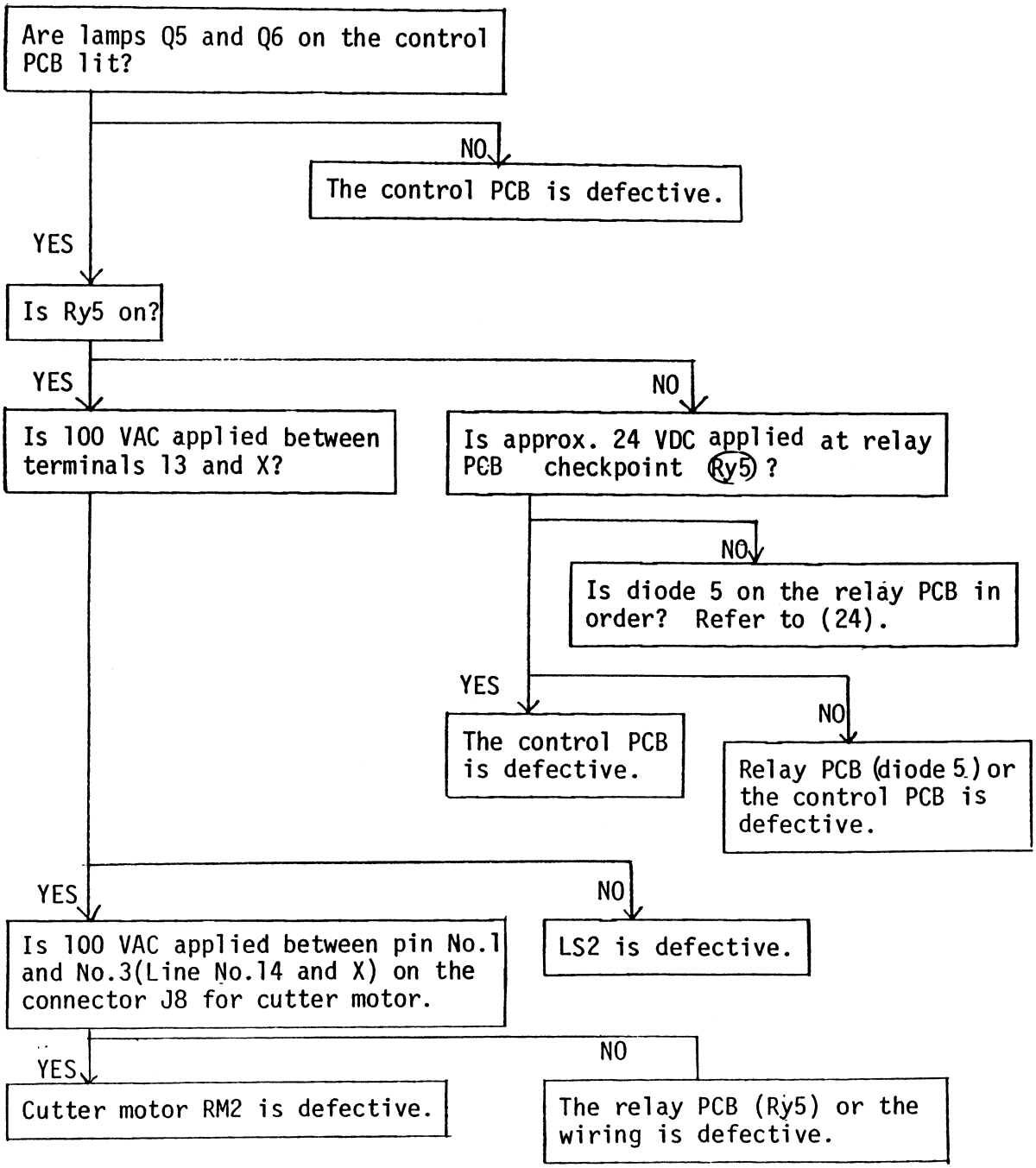
2) whether the wiring between the control PCB and photo-interrupter PCB (CN3 - J34) is normal.

3) whether the photo-interrupter is exposed to light from outside or the light source, and

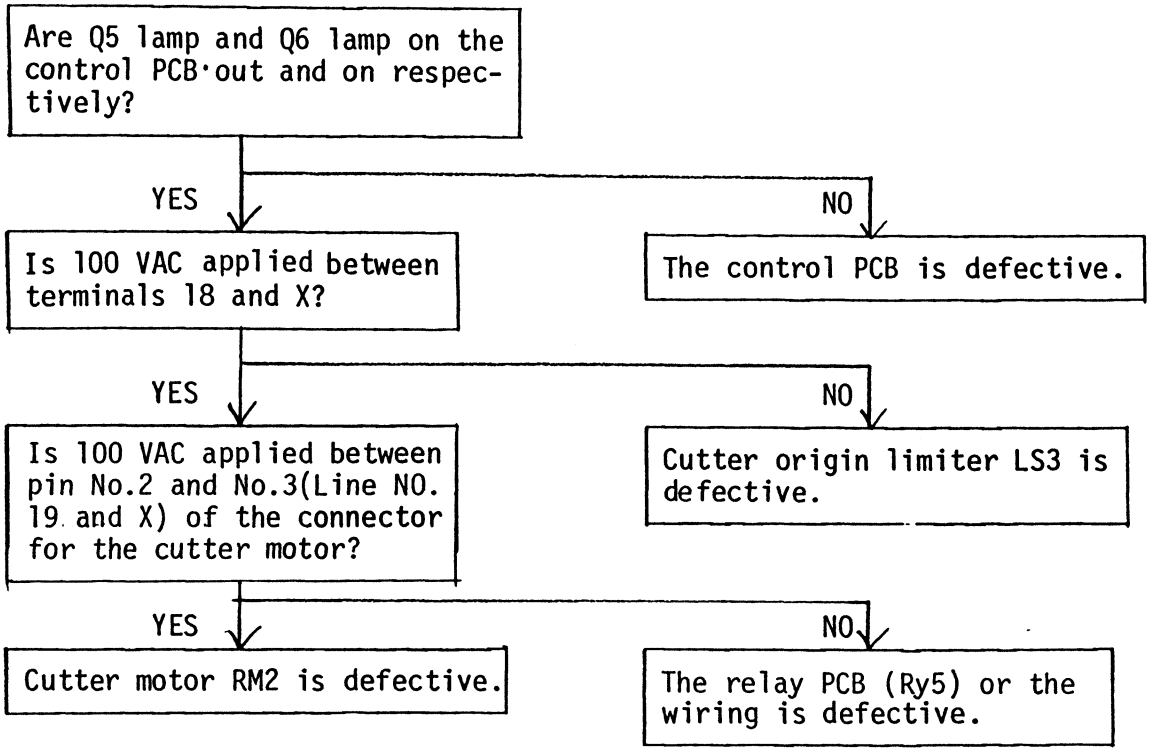
4) whether the master paper feed detecting disk and photo-interrupter are installed normally or the disk rotates without deflection.

When no defect is found as a result of the above checks, the photo-interrupter or control PCB is defective.

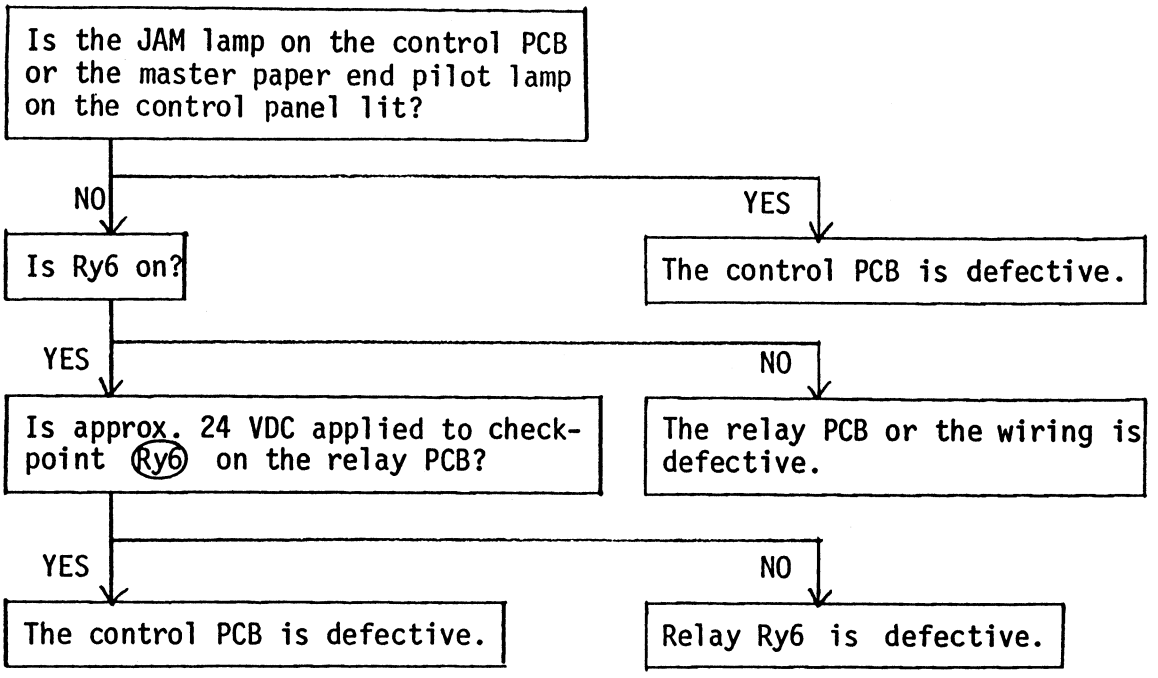
(7) Cutting will not be performed.



(8) The cutter will not return to the original position though it cuts.

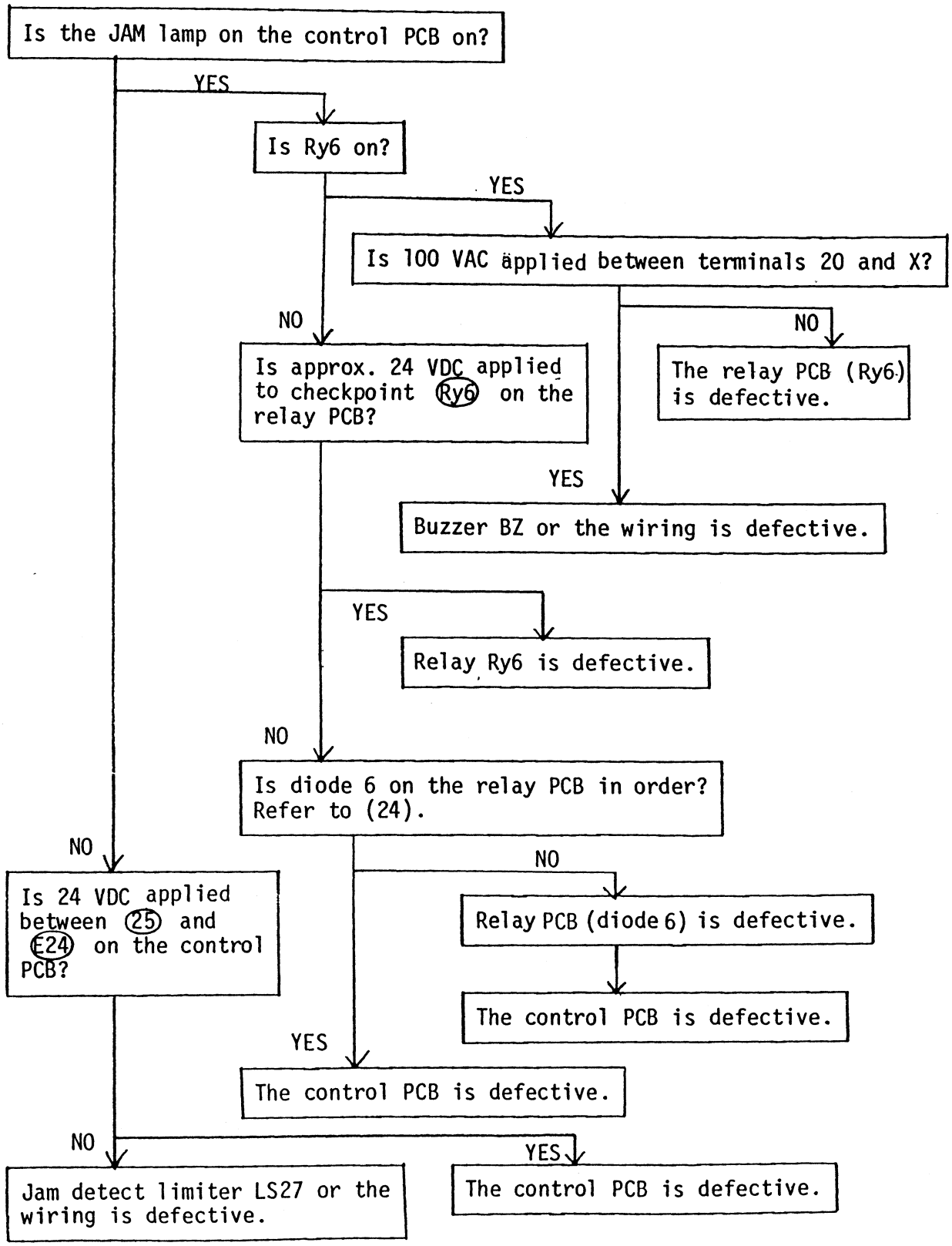


(9) The buzzer sounds when the machine is running normally.



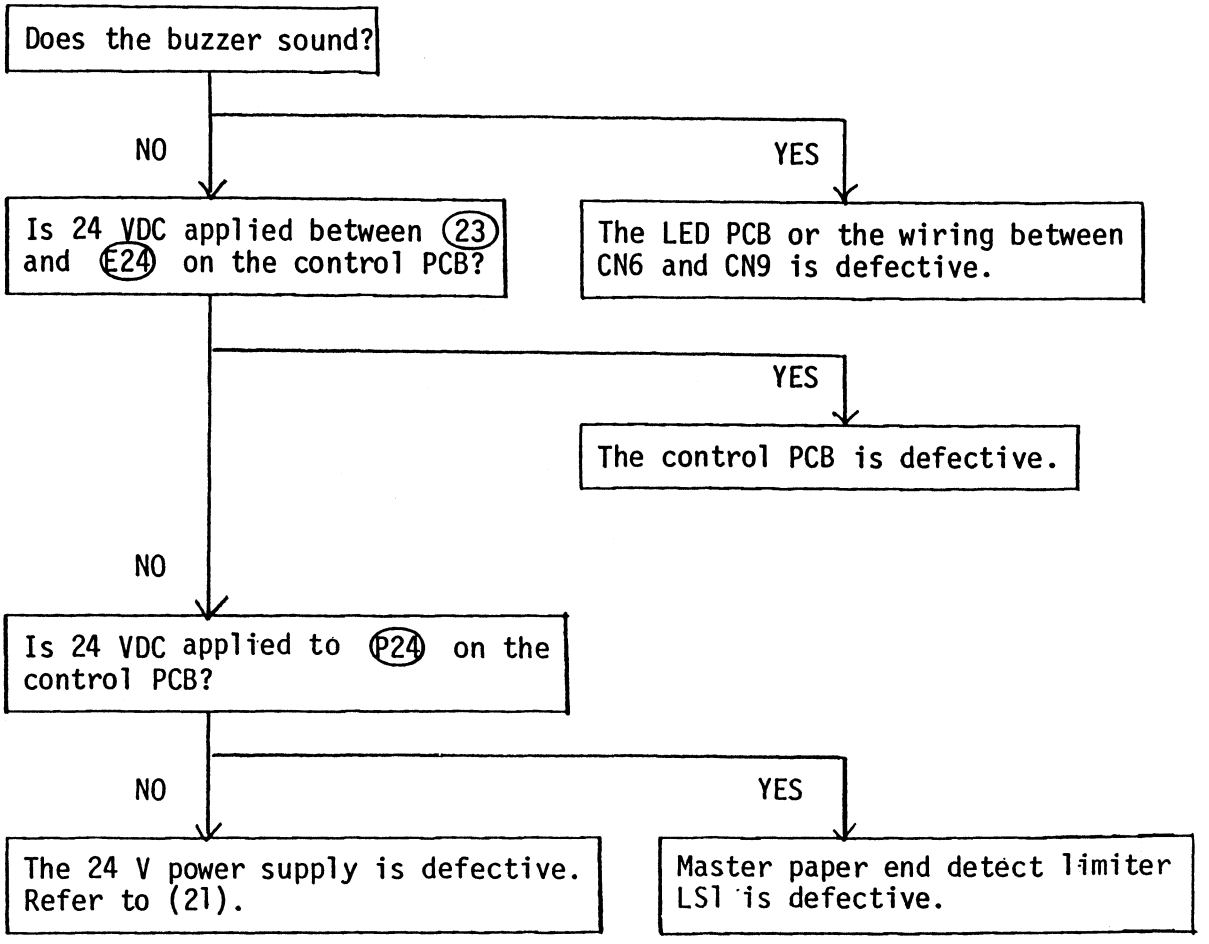
(10) The buzzer will not sound when a jam is detected.

CHECK: 1) whether jam detect limiter LS27 has not been held on
2) whether the variable resistor for the buzzer is not set to 0



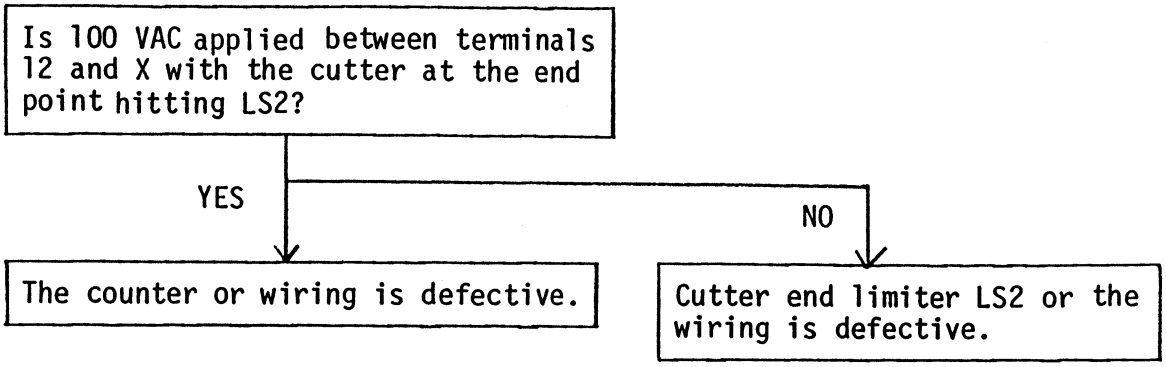
(11) The exhaustion of master paper will not be indicated.

CHECK: whether paper end detect limiter LS1 is off

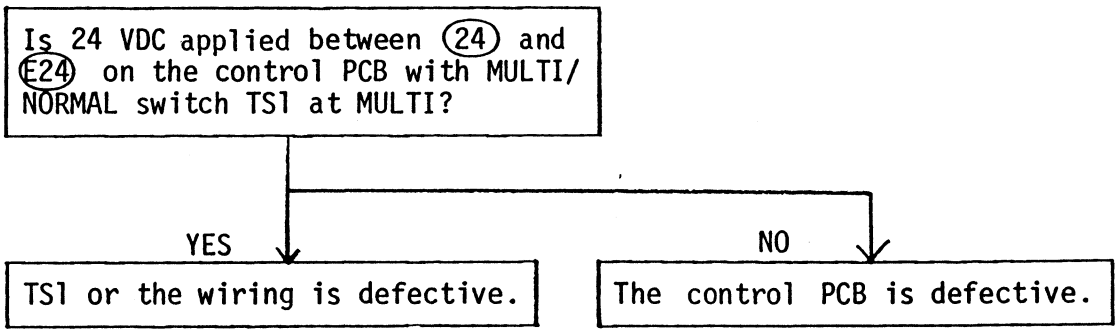


(12) Number of exposed masters will not be counted. (The counter will not run.)

CHECK: whether cutter end limiter LS2 is surely on



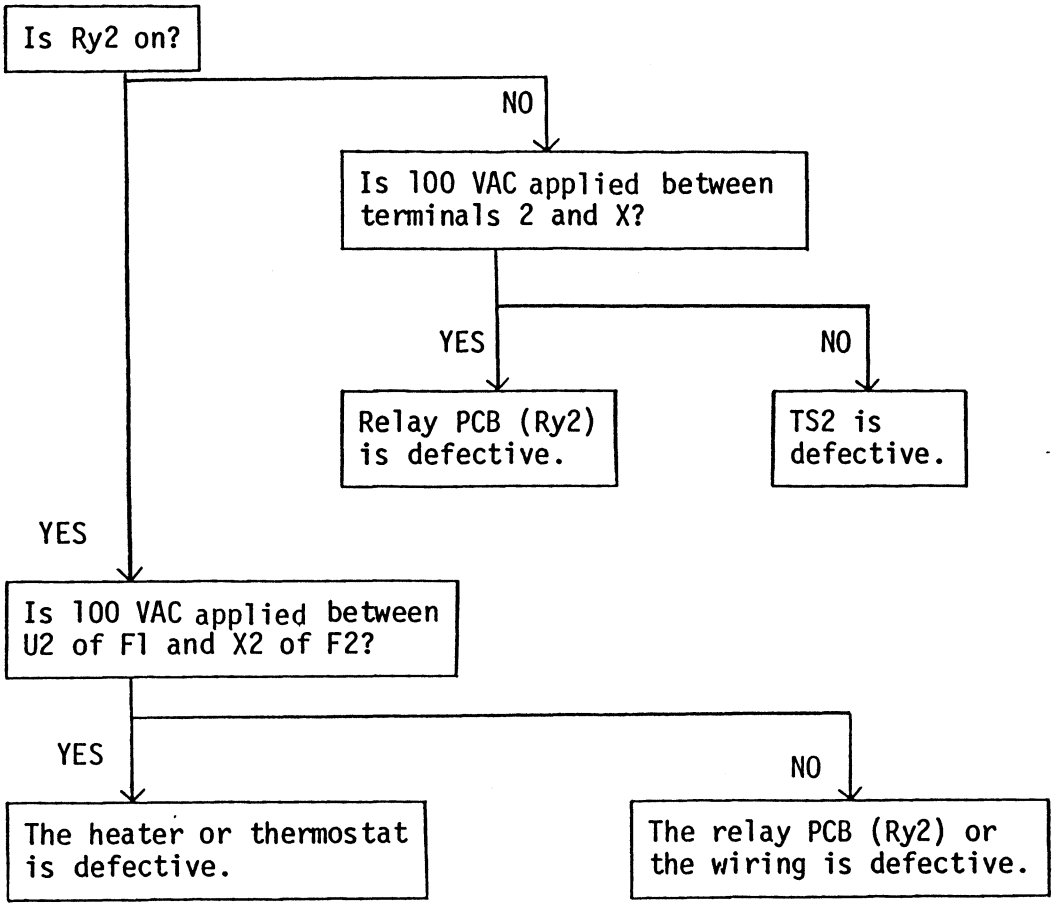
(13) Multiple exposure will not be made normally.



(14) Paper will not be dried well.

(14)-1 A part related to the finned heater has a problem.

CHECK: 1) whether DRYER switch TS2 is on
2) whether dryer fuses F1 and F2 (10 A) are not blown

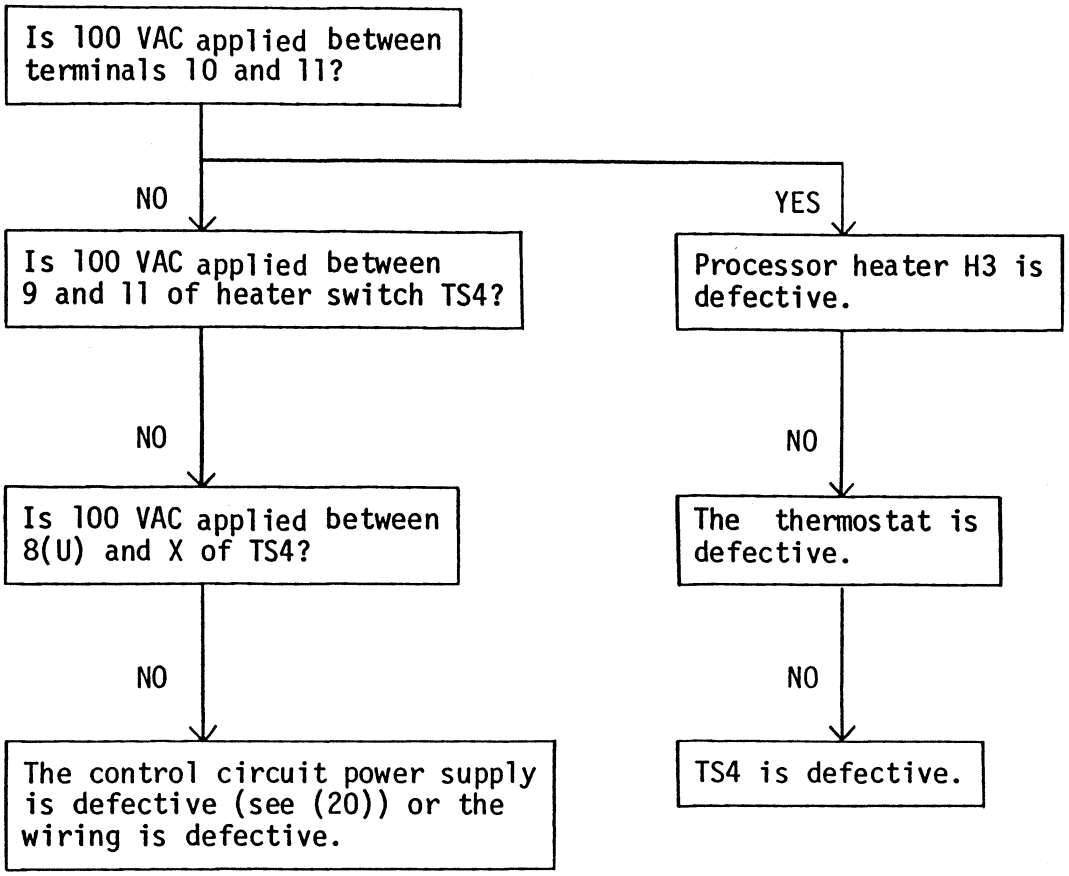


(14)-2 A part related to the fan has a problem.

Dryer fan(FM2 or FM3) or the wiring is defective.

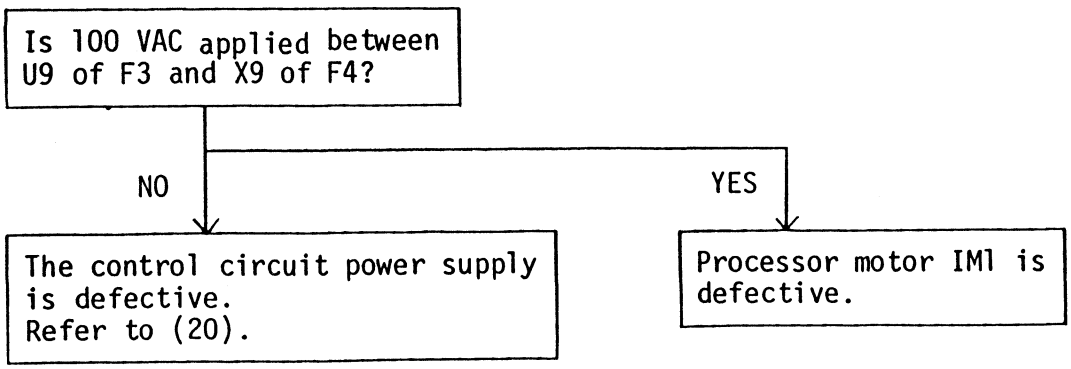
(15) The developer temperature won't rise.

CHECK: 1) whether HEATER switch TS4 is at AUTO
2) whether processor heater H3 is surely plugged in

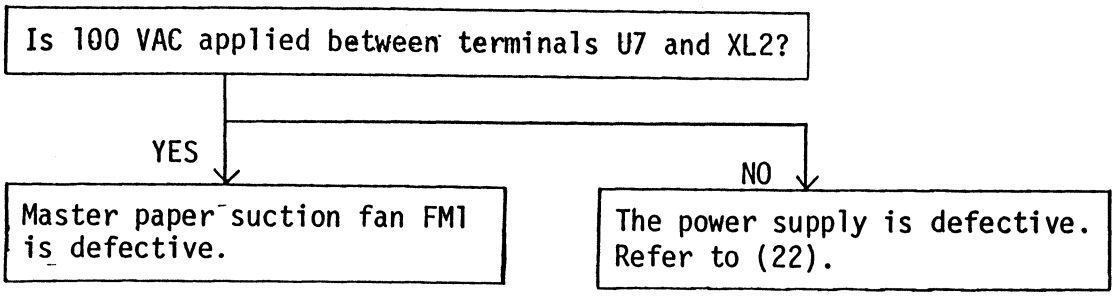


(16) The processor motor won't run.

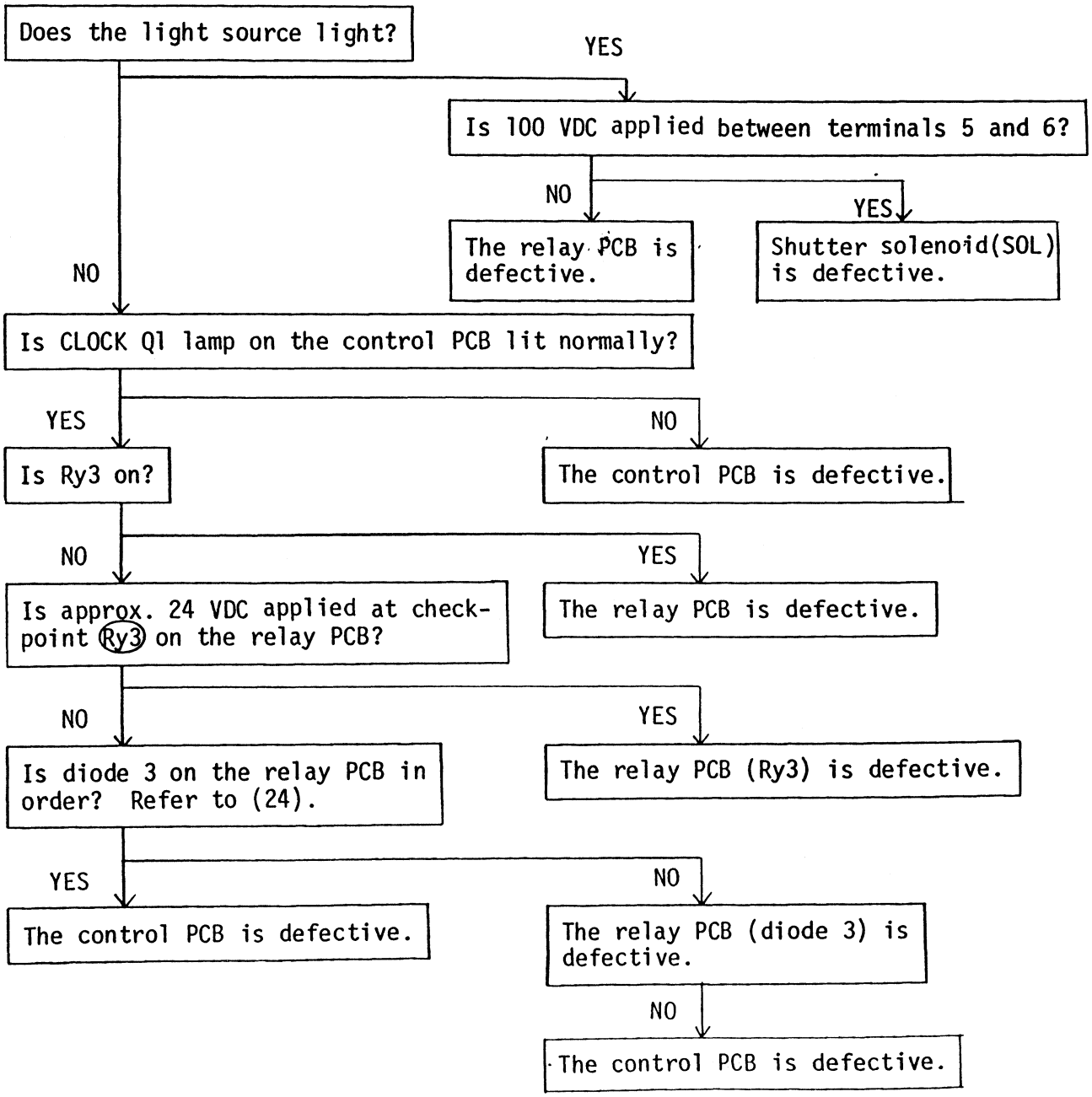
CHECK: whether fuses F3 and F4 (3 A) are not blown



(17) Master paper suction fan will not work.

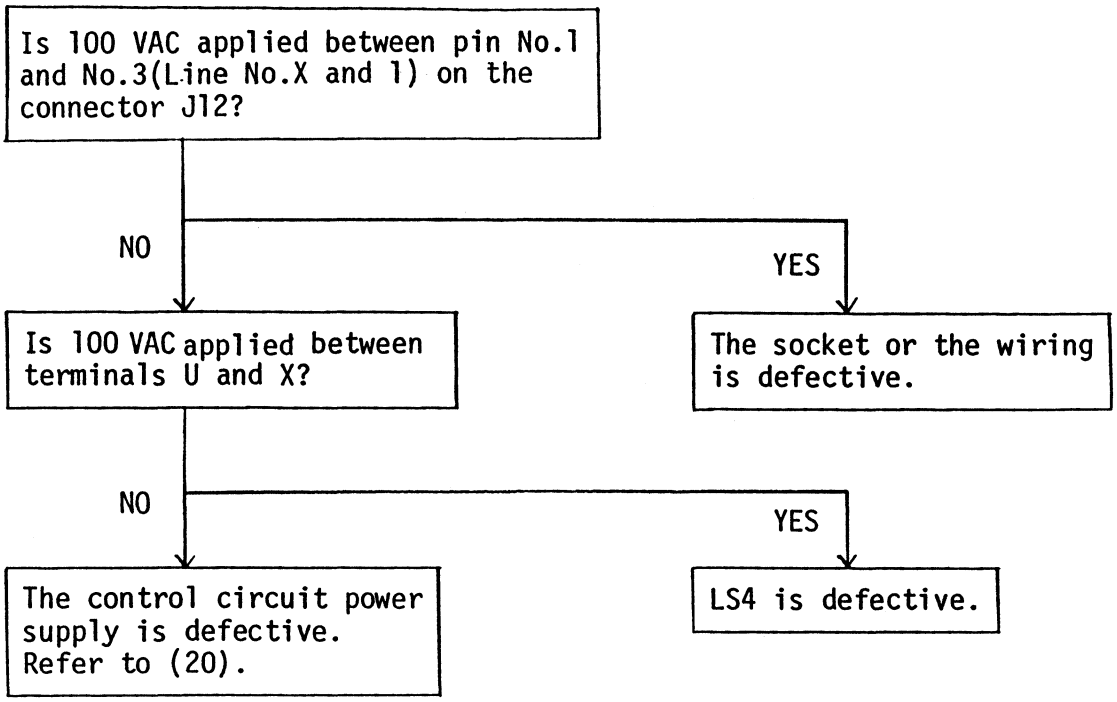


(18) The shutter won't open.



(19) The original positioning lamp won't light.

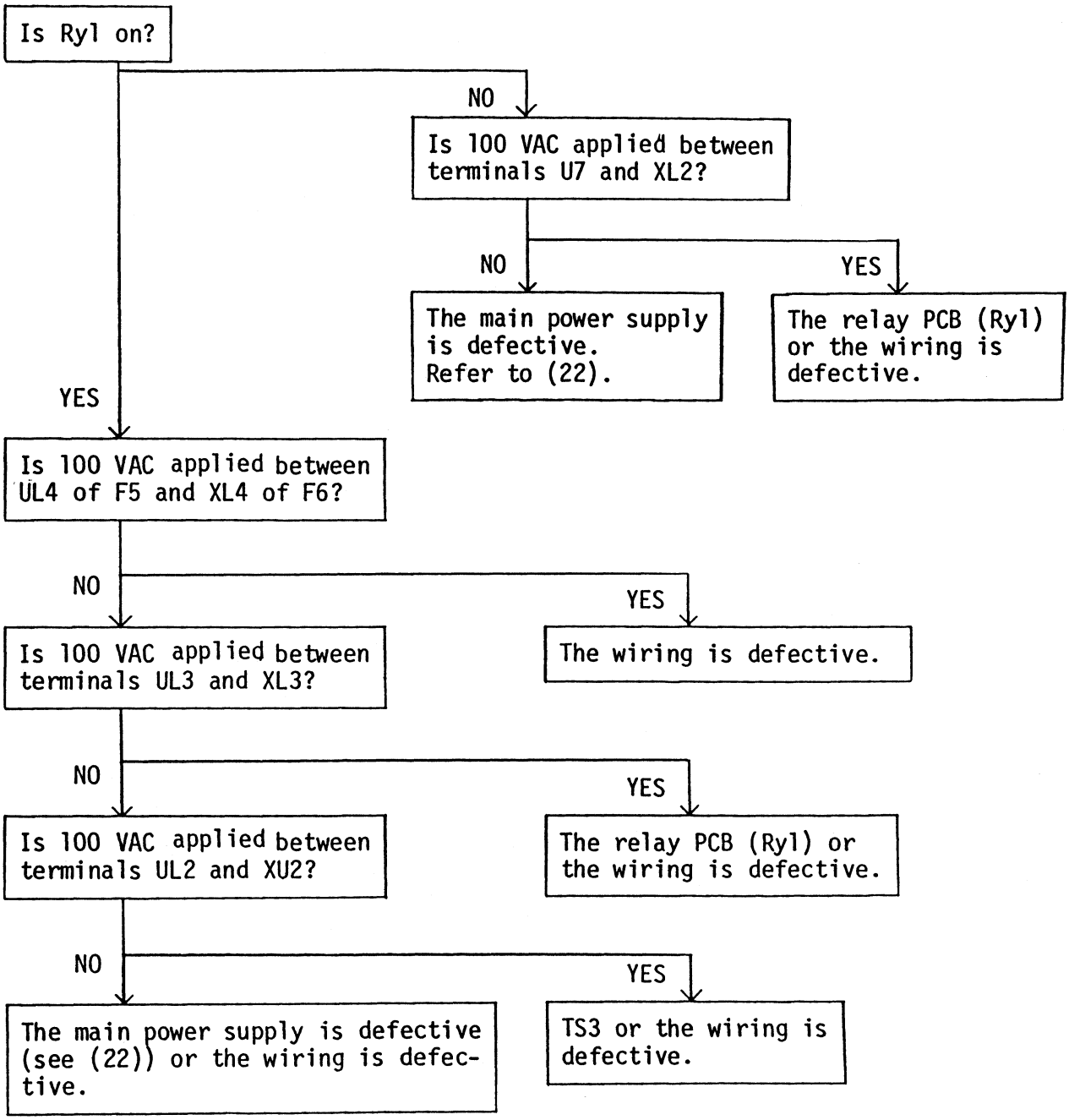
CHECK: 1) whether lamp L5 hasn't burnt out
2) whether lamp L5 is securely plugged in
3) whether original positioning limiter LS4 is surely off



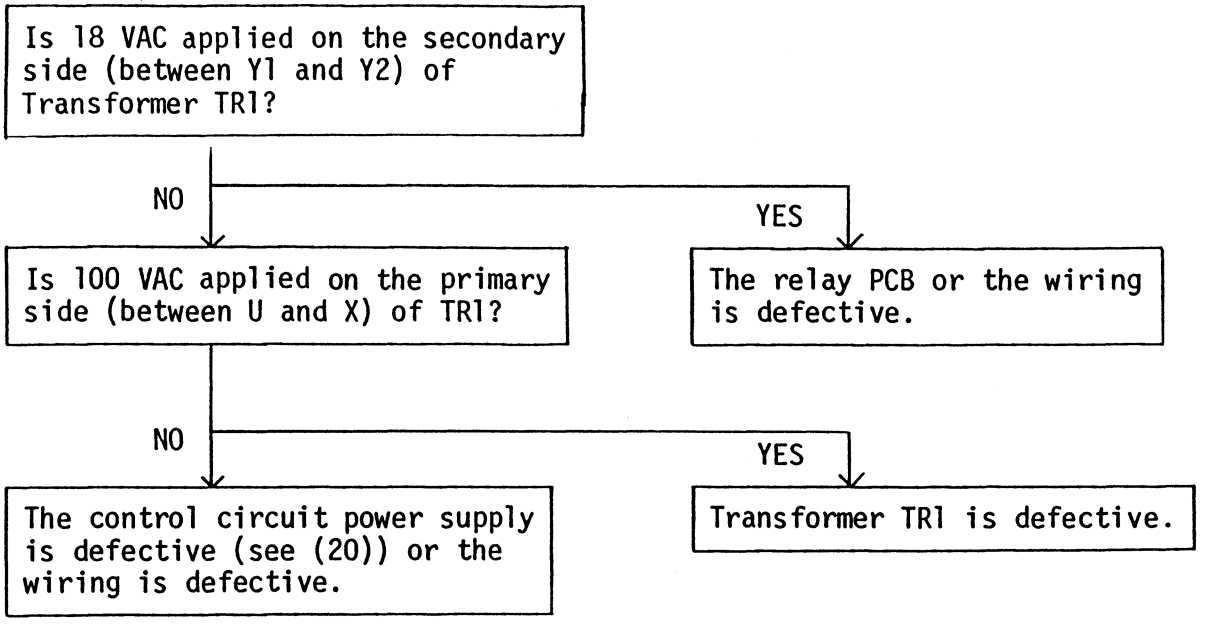
(20) The control circuit power supply is defective.

CHECK: 1) whether FAN switch TS3 is at AUTO

2) whether control circuit fuses F5 and F6 (10 A) are not blown

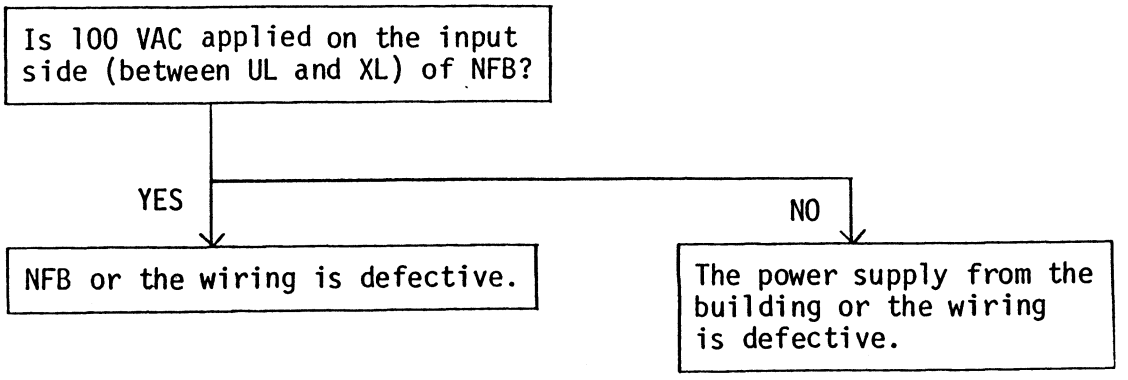


(21) The 24 V power supply is defective.

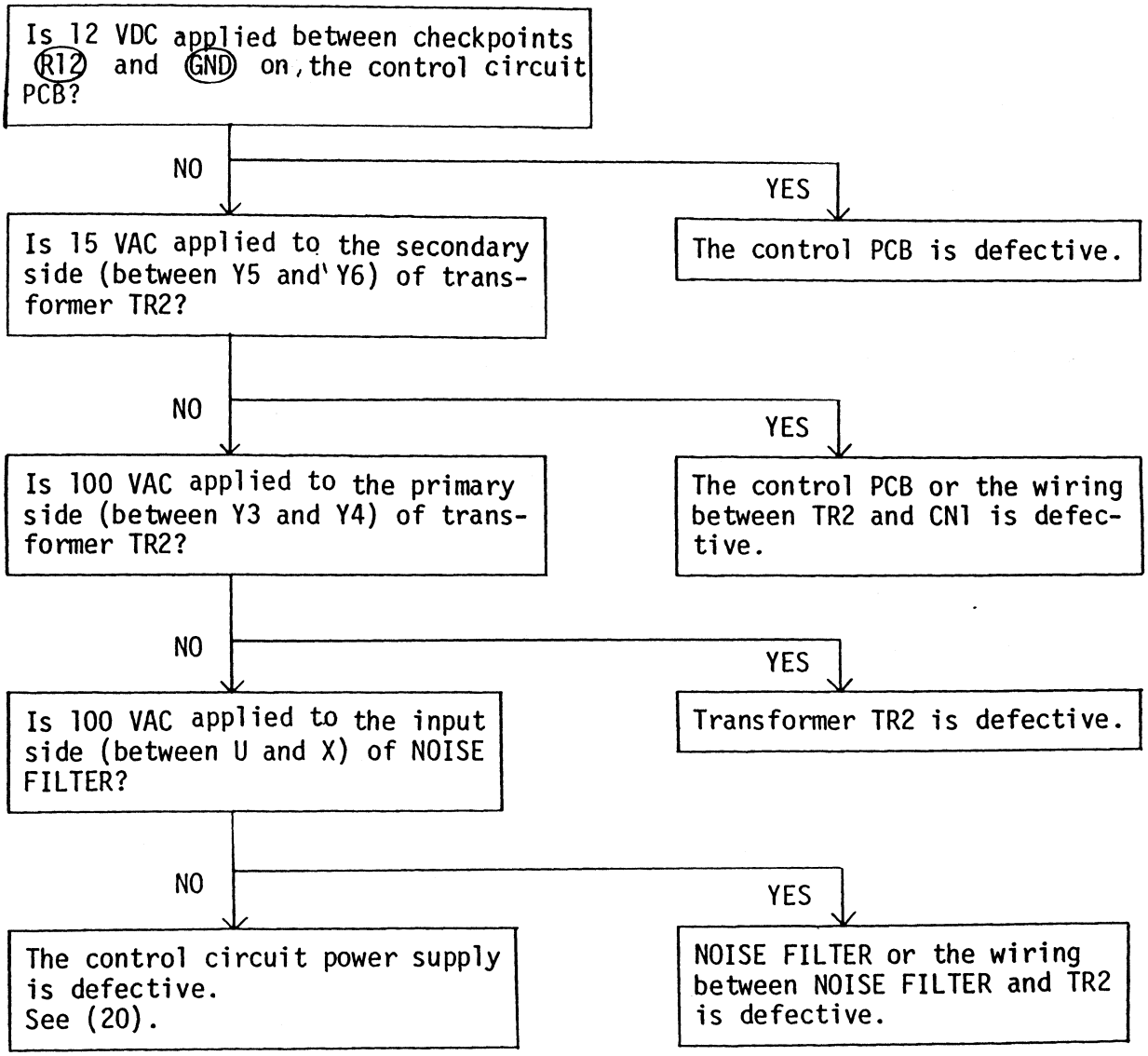


(22) The main power supply is defective.

CHECK: whether POWER switch (NFB) is on.



(23) The control circuit PCB is defective.



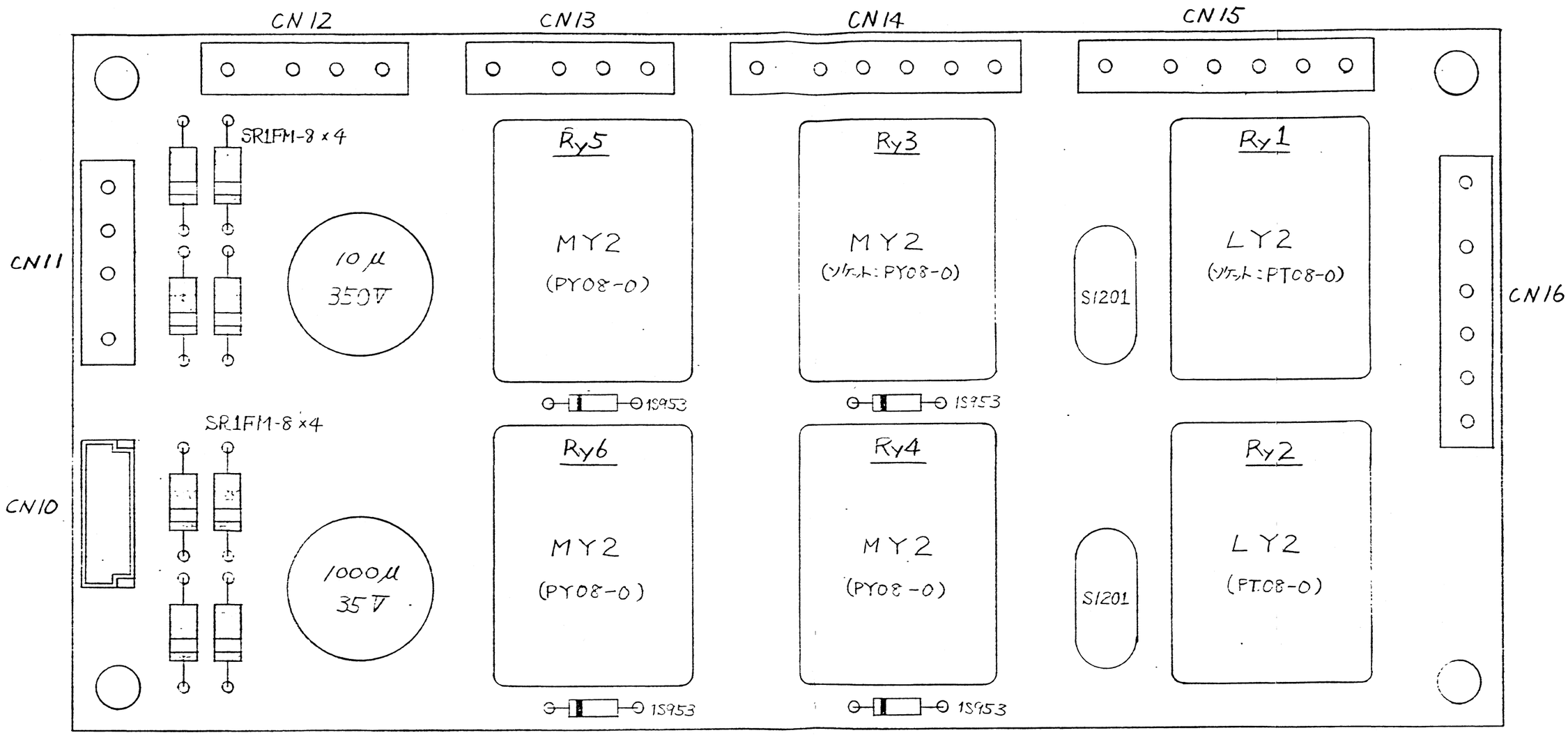
(24) Procedure of checking the relay PCB diodes

1) Turn off the main power.

2) Remove the relay corresponding to the diode number.
E.g.) diode 3 ——→ relay 3

3) To check the diode, proceed as follows:
Set the tester to kΩ range. When the plus side of the tester is connected to that of the diode and the minus side of the tester to that of the diode respectively, the needle of the tester should deflect. When the connection is reversed, the needle should hardly deflect.

DWG NO. HCR 41430



Manufacturer	Description	Cat. No.	Qty
立石	by-power relay	LY2 AC100V	2
立石	mini-power relay	MY2 DC 24V	4
三菱	diode	SR1FM-8	8
NEC	diode	1S953	4
松下	electrolytic capacitor	ECEA1VS102, 1000μ 35V	1
松下	electorlytic capacitor	ECEA350G10 10μ. 350V	1
AMP	connector	171264-1 4P	3
AMP	connector	171265-1 6P	3
AMP	tuning fork connector	171304-2 5P	1
岡谷	spark killer	S1201	2

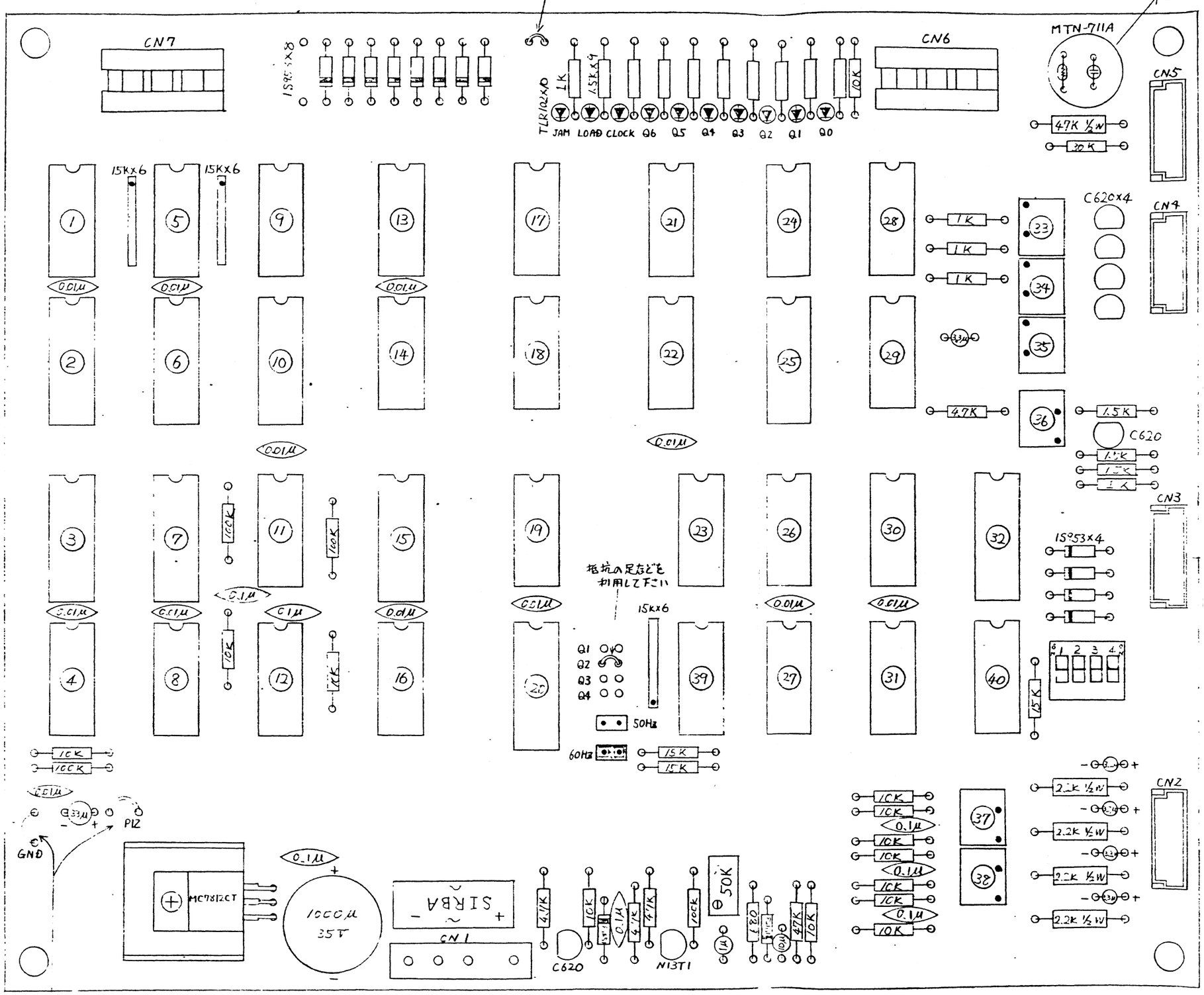
Manufacturer	Description	Cat. No.	Qty
立石	socket	PT08-0	2
立石	socket	PY08-0	4
立石	relay retainer	PYC-P	6

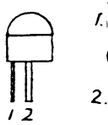
SYM	REVISION	DATE	APPROVED
3			
2			
1			

DESIGN	M. INAZUKA	TITLE	RELAY PCB DIAGRAM
DRAWING			
CHECKED			
APPROVED			
DATE	'82.7.20		
MODEL	CP-141-B4	DWG NO.	HCR41430

DWG NO HCR 31426

抵抗の足などを利用して下さい





IC NO.	社名	型番	IC NO.	社名	型番
①⑨⑫㉑㉛	東芝	TC4061BP	⑮	東芝	TC4015BP
②⑥⑩	東芝	TC4510BP	⑭㉔㊵	東芝	TC4093BP
③	東芝	TC4028BP	⑰㉙㉘㉙	NEC	μPA53C
④㉒	東芝	TC4025BP	⑲	東芝	TC4072BP
⑤	東芝	TC4068BP	㉖	東芝	TC4518BP
⑦	東芝	TC4520BP	㉕㊷	東芝	TC4017BP
⑧⑱	東芝	TC4081BP	㉗	東芝	TC4002BP
⑪⑬	東芝	TC4001BP	㉖㉙	東芝	TC4073BP
⑭㉓	東芝	TC4071BP	㉜～㉝	シャープ	PC-827

Manufacturer	Description	Cat. No.	Qty
三菱	Transistor	C-620	6
東芝	Lignt emitting diode	TLR102	10
NEC	PUT	N13T1	1
NEC	Diode	1S953	14
立石	DIP switch	A6MS-4	1
	Resistance array	RM型15KΩ6素子	3
モトローラ	Regulator	MC7812CT	1
新電具	Rectifier stack	SIRBA 10	1
ベックマン	Trimmer	50KΩ 68W	1
松下	Electrolytic capacitor	ECEA1VSN 1000μ 35V	1
	Tantalum capacitor	1μ 25V	1
	Tantalum capacitor	10μ 16V	1
	Tantalum capacitor	33μ 16V	1
	Tantalum capacitor	3.3μ 50V	5
	Ceramic capacitor	0.01μ (103)	12
	Ceramic capacitor	0.1μ (104)	7
	Resistor	2.2KΩ ½W	4
	Resistor	47KΩ ½W	1
	Resistor	680Ω ¼W	1
	Resistor	1KΩ ¼W	5
	Resistor	1.5KΩ ¼W	12
	Resistor	4.7KΩ ¼W	4
	Resistor	10KΩ ¼W	13
	Resistor	15KΩ ¼W	3
	Resistor	30KΩ ½W	1
	Resistor	47KΩ ¼W	1
	Resistor	100KΩ ¼W	4
モリリカ	Photo-coupler	MTN-711A	1
エルコ	Head connector	0062610237 01852	2
エルコ	Receptacle connector	0082610242008 70	1
AMP	Connector	171264-1 4P	1
AMP	Connector	171304-2 5P	4
ケル	IC socket	ICC-03-016-G	2
HCB52087	Radiator		1
HCB32760	Control PCB		1

※チェック端子は抵抗の足などを利用して下さい.

SYM	REVISION	DATE	APPROVED
1			
2			
3			

DESIGN	M. INAZUKA
DRAWING	
CHECKED	
APPROVED	
DATE	'82.7.8
MODEL	CP-141-B4

TITLE: CONTROL PCB DIAGRAM

DWG NO HCR31426

T: 100mS

Photo-interrupter

Counter load circuit

(Exposure)

Multi

Q0 feed length check
Q1 exposure
Q2 exposure → feed delay
Q3 feed
Q4 feed → cut delay
Q5 cutter forward
Q6 cutter back
Q7 cutter origin

Master paper detection

Jam detection

Power reset

Start / Master paper detection / Multiple exposure

①⑨⑫⑬㉛	TC4069BP	⑮	TC4015BP
②⑥⑩	TC4510BP	⑯㉖㊵	TC4093BP
③	TC4028BP	⑰㉔㉙㉚	μPA53C
④㉒	TC4025BP	⑲	TC4072BP
⑤	TC4068BP	⑳	TC4518BP
⑦	TC4520BP	㉜㉜	TC4011BP
⑧㉘	TC4081BP	㉑	TC4002BP
⑪⑱	TC4001BP	㉗㊴	TC4013BP
⑭㉓	TC4011BP	㉝ ~ ㊳	PC627

NB) 1. The diodes are IS953.
2. The resistances are 1/4 W unless otherwise specified.

SYM	REVISION	DATE	APPROVED
⚠			
⚠			
⚠	(14-6)→(27-11), (14-4)→(25-6)	'82.10.14	松川

DESIGN	松川	TITLE	SCHEMATIC DIAGRAM
DRAWING			
CHECKED			
APPROVED			
DATE	'82.7.20		
MODEL	CP-141-B4	D W G NO.	HCS 31459

DWG NO. HCW 31313

°Refer to schematic diagrams HCS31458 and HCS31459.

NB) The cross-section of conductors is 0.75 mm² unless otherwise specified. The areas enclosed with dotted line are equipped in machines for export (TR3, LS5. LS6, processor earth).

NFB	FB32-30	TM1~2	TU-30S	F1~2	1CA	SOL	60-L-95-100-EC90
BZ	EA-4211	TM3~22	TU-15	F3-4	3A	RM1	RH8P20 8H90
Ry1~2	LY-2 AC100V	TR1	HCR40742	F5~6	5A	RM2	RH8P20 8H12.5
Ry3~6	MY-2 DC24V	TR2	HCR41078	CO	MCH-4X	FM2	P325-9
MC1	LK2-E	C1	10μ	NF	ZGB22R5-01	FM3	315-1, 6100 CW
PS1	DLB-2141-11W0	C2	8μ	FM1	FM8S55	LS1,7	V4-14-J
TS1~5	M-2022J-K2W	C3	1.2μ	IM1	P540A	LS2.3	BZ-2RW82-T4-J
FH	F-7111-6P			FAN	N4506	LS4~6	BZ-2RQ18-T4-J (LS5.6 Bカバー付) (LS5,6 provided with cover)

Control Panel (BOTTOM VIEW)

LED PCB (HCB32591)

Digital switch PCB (HCB42593)

Photo-interrupter PCB (HCB49233)

PS1 — START

TS1 MULTI1 — NORMAL

TS2 — DRIER

CO — COUNTER

Power switch Board

Control PCB (HCB32760)

Relay PCB (HCB42766) RELAY BOARD

Sub control panel (BOTTOM VIEW)

NOISE FILTER

Main Unit

Original positioning lamp

Ventilating fan

safety circuit U6

Master paper suction fan

Cutter motor

Master paper moter

LS1 Master paper detection

LS2 Cutter end point

LS3 Cutter origin

LS6 safety U6 circuit

Shutter

LAMPS FOR EXP.

Dryer

Processor

Processor liquid

Sensor

Processor motor

Plug socket 1071

LS7 Jam detection

BUZZER

* U - 8: shortcircuit

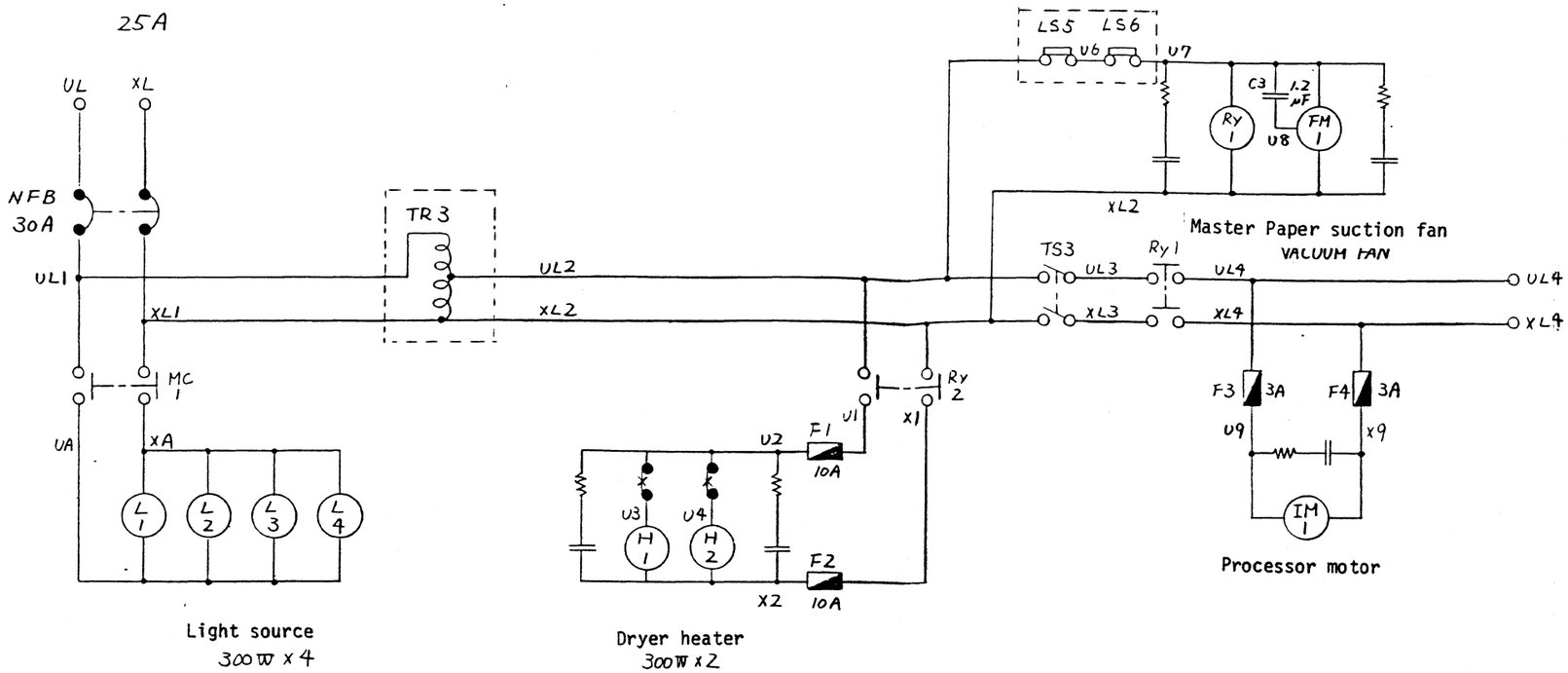
J17: Connect 3 & 4 to H1, 5 & 6 to H2, and connect 3-x CR-1 between Pin No. 1 and 2, 3 and 4, 5 and 6 respectively.

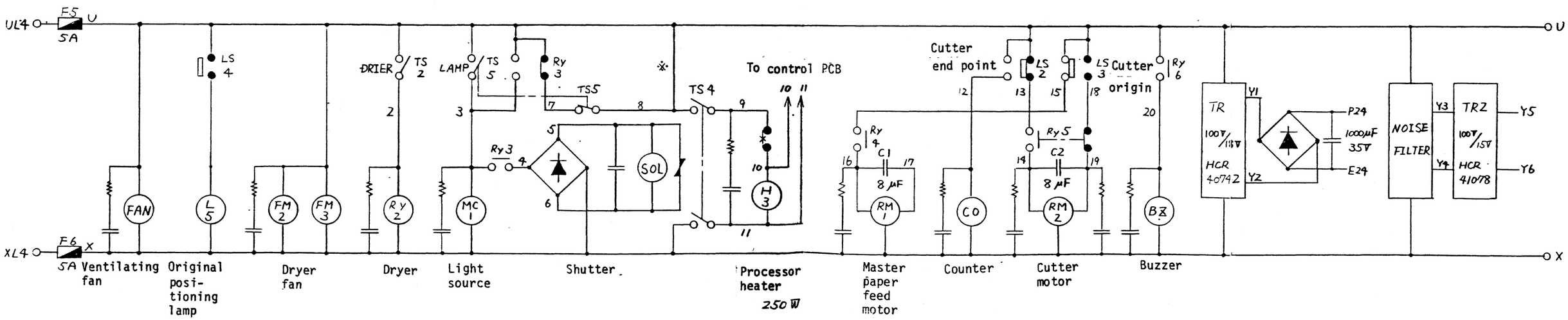
SYM	REVISION	DATE	APPROVED

DESIGN	M. INAZUKA	TITLE	SCHEMATIC DIAGRAM
DRAWING			
CHECKED			
APPROVED			
DATE	82.10.25		
MODEL	CP-141-B4	DWG NO.	HCW 31313

(HCS31458 HCS31459)

1φ 100V
25A





NFB	FB32-30	C1	10μF	FM1	FM 8555
BZ	EA-4211	C2	8μF	IM1	P340A
Ry1~2	LY-2 AC100V	C3	1.2μF	FAN	N4506
Ry3~6	MY-2 DC24V	F1~2	10A	SOL	60-L-95-100-DC90
MC1	LK2-E	F3~4	3A	RM1	RH8P20 8H90
TS2~5	M-2022J-k2W	F5~6	5A	RM2	RH8P20 8H12.5
TR1	HCR 40742	CO	MCH-4X	FM2	P325-9
TR2	HCR41078	NF	3GB22R5-01	FM3	315-1, 6100CW

The areas enclosed with dotted line are equipped in machines for export.

For Ry3 - Ry6 coils, refer to schematic diagram(HCS31459)

* When 500 W lamps are used as light sources (L1 - L4), disconnect U - 8 shortcircuit and arrange so that the processor heater (H3) is off with the lamps on.

SYM	REVISION	DATE	APPROVED
⚠			
⚠			
⚠			

DESIGN	松川	TITLE	SCHEMATIC DIAGRAM
DRAWING			
CHECKED	Y.KIMURA		
APPROVED			
DATE	'82.7.20		
MODEL	CP-141-B4	D WG NO.	HCS 31458