THOMAS

brother

SERVICE MANUAL

⟨ELECTRICAL⟩

FOR

BAS-300A SERIES

BAS-304A・311A・314A・315A
326A・326LA・341A・342A

This service manual has been compiled so that it can be made into a book since electrical descriptions for the BAS-300A series are very similar.
Applicable models are BAS-304A, 311A, 314A, 315A, 326A, 326LA, 341A, and 342A.
For some of them, the electrical description is separated for the air and solenoid specifications.

CONTENTS

ELECTRICAL CHECK AND DIP SWITCH

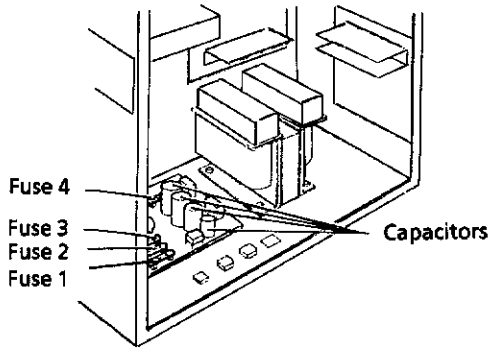
Warning

Never touch three large-sized capacitors on the power circuit board (see the illustration below). The high-voltage residual charges stay for a minimum of 1 - 2 minutes after the power is turned off.

Cautions

* During checking or repair work when the power is applied, take care not to short -circuit terminals.
* Check if the cooling fan in the control box works correctly. If it stops, electronic parts and devices may be damaged due to high temperature inside the control box. To prevent the air vents from being choked with dust, clean them at regular intervals.

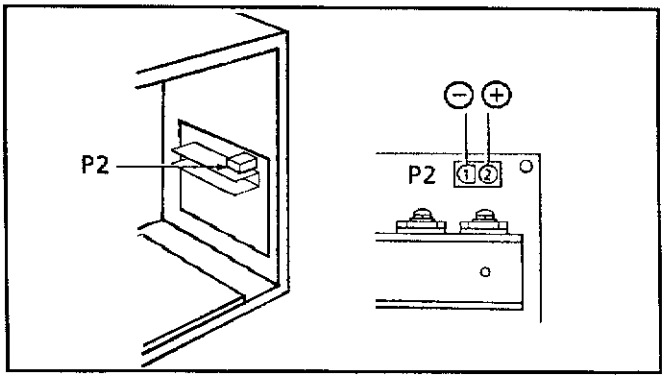
1 Fuses



NOTE: When replacing the fuses, be sure to use the specified ones listed below.

No.	Part name	Part code	Manufacturer	Problem
1	Fuse 2A (Glass tube fuse, 2A-125V)	152566-000	Fuji Tansi Company FUJI 2A	The work clamp does not operate.
2	Fuse 5A (Glass tube fuse, 5A-125V)	152565-000	Fuji Tansi Company FUJI 5A	The power lamp does not come on and no operation occurs.
3	Fuse 15A (Glass tube fuse, 15A-125V)	S02887-000	Fuji Tansi Company FUJI 15A	The feed plate and presser plate do not operate.
4	G fuse 5AFB (Quick melting type, 5A-250V)	S08030-000	Toyo Fuse Company TOYO 5A	The machine motor does not turn.

NOTE: Prior to replacing fuse No.4, be sure to check the TR array assembly.

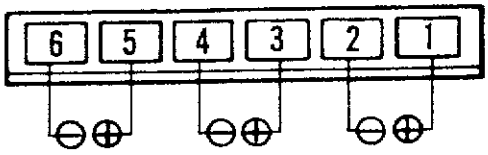


Measure the resistance between the ⊕ and ⊖ terminals.

- If 20 - 30 Ω: Replace fuse 1. The TR array assembly works correctly. (by 100Ω range)
- If 0 Ω or ∞: Replace the TR array assembly and the pulse motor drive (PMD) PCB, instead of fuse 1.

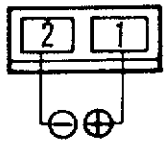
2 Voltage measurement

1. Checkng the control voltage
   Turn on power while connecting the connector P8 to the control PCB, then measure the voltages between pins 1 and 2, 3 and 4, and between 5 and 6 of connector P1.



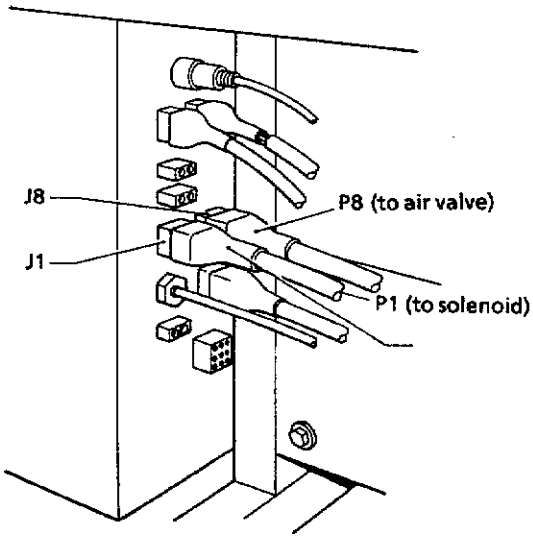
Check points of P8 on the control PCB	Acceptable value
Between pins 1 and 2	Approx. 65 Vdc
Between pins 3 and 4	Approx. 11 Vdc
Between pins 5 and 6	Approx. 25 Vdc

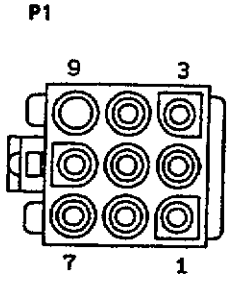
2. Checkng the + 5V source
   Turn on power while connecting the connector P7 to the control PCB, then measure the voltage between pins 1 and 2 of connector P7.



Check points of P7 on the control PCB	Acceptable value
Between pins 1 and 2	Approx. 65 Vdc

3. Checkng solenoids' voltages





(1) Turn off the power.
Remove P1 from J1, and measure each solenoid's resistance.
Resistance values are different according to the sewing machine model.

Check points	Solenoid	Value	304A 311A	326A 326LA	341A 342A
Between pins 1 and 2	Intermittent presser foot	Resistance	5Ω	12Ω	
		Voltage	12V	20V	
Between pins 3 and 4	Presser foot (only for solenoid specification)	Resistance	5Ω		
		Voltage	10V		
	Tension release	Resistance		5Ω	
		Voltage		20V	
Between pins 5 and 6	Thread trimmer	Resistance	5Ω	5Ω	10Ω
		Voltage	30V	20V	60V
Between pins 7 and 8	Thread wiper	Resistance	6Ω	11Ω	6Ω
		Voltage	30V	20V	30V

※ Resistance and voltage values are approximate.

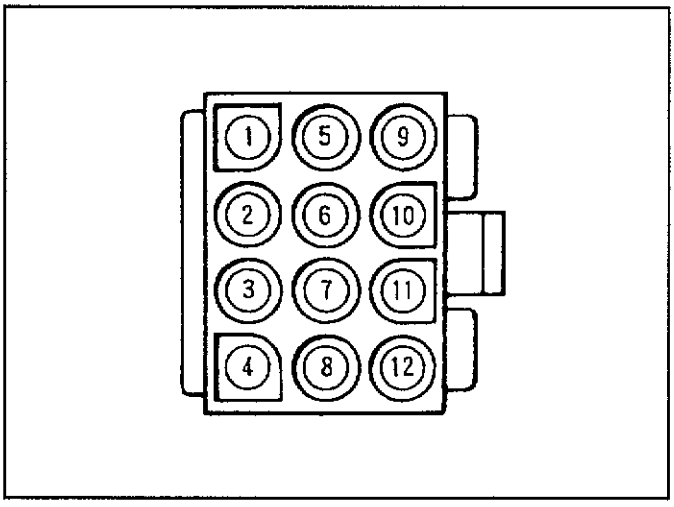
(2) Insert P1 into J1, and turn on the power.
Insert the test probe from the lead wire side, and measure the voltage.

- As for the presser foot and intermittent presser foot solenoids, measure the voltage while raising and lowering them.
- As for tension release, thread trimmer, and thread wiper solenoids, start sewing, then measure the voltage upon finishing of sewing. Since, in this case, the indicator only oscillates very briefly, the value is used as a rough measure.

Each voltage value is as in the above table.

4. Checkng air valve's voltage

NOTE: When the machine is for solenoid specification of the BAS-304A or 311A, there is no need to connect the air valves.



① Presser foot (R) valve
② Presser foot (L) valve
③ Intermittent presser valve (only for BAS-341A and 342A)
④ Inner clamp valve
⑤ Option valve 1
⑥ Option valve 2
⑦ Option valve 3
⑧ Needle cooler valve

⑩ + 24V
⑪ + 24V

NOTE: ④ to ⑧ are options.

1) Turn the power switch OFF. Disconnect connector P8 from J8, then measure the resistance of each valve.
Resistance of each valve (from ① to ⑩, ② to ⑩) should be approx. 300Ω.

2) Connect connector P8 to J8, then turn the power switch ON.
Insert the test probes into connector P8 from the lead wire side, then measure the voltages.

Check points	Acceptable value
Between pins 1 (−) and 10 (+)	0.1V - 24V
Between pins 2 (−) and 10 (+)	0.1V - 24V
Between pins 3 (−) and 10 (+)	0.1V - 24V

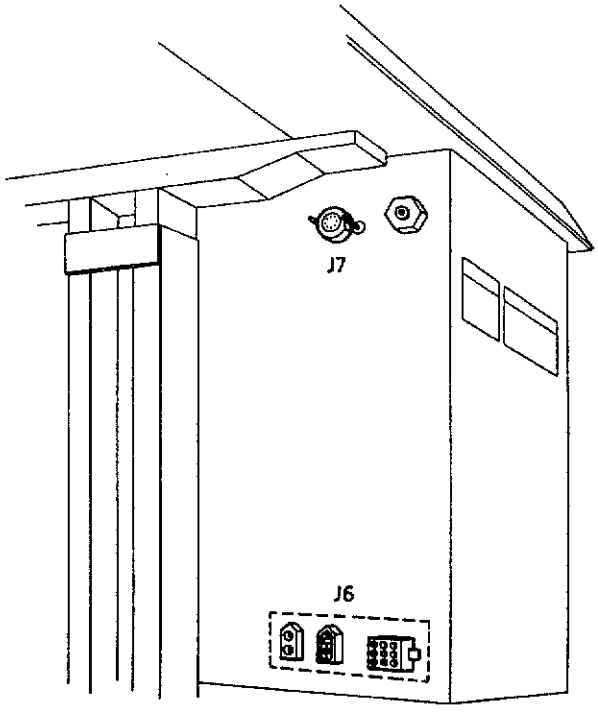
When the work clamp pedal is treadled, each reading should be max. 24V / min. 0.1V.

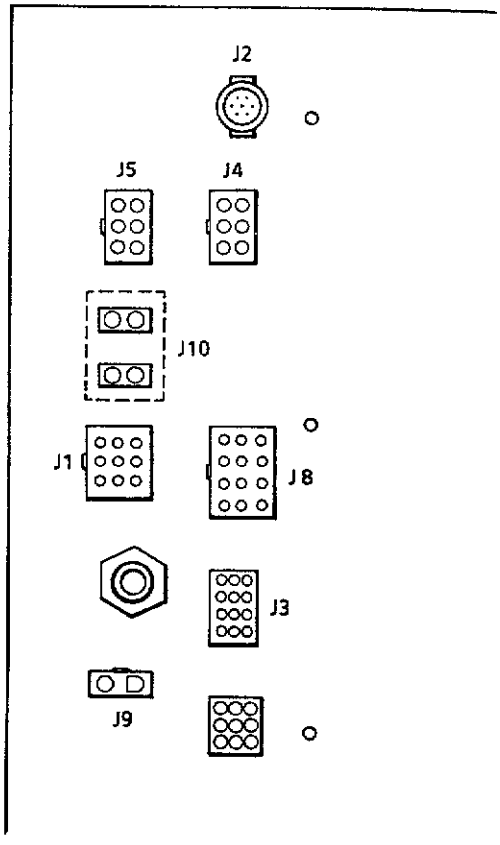
3) When the optional valve is used:

Measure the resistance between each valve and ⑪. (Refer to step 1.)

Measure the resistance between each valve (−) and ⑪ (+) when each valve operates. (Refer to step 2.)

3 Control box

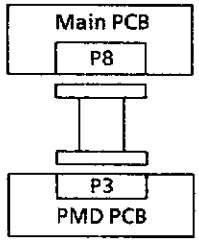
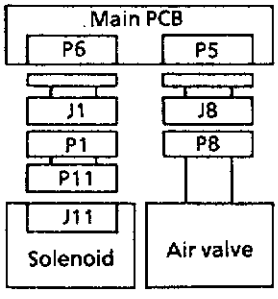
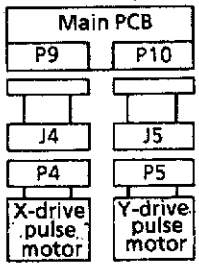
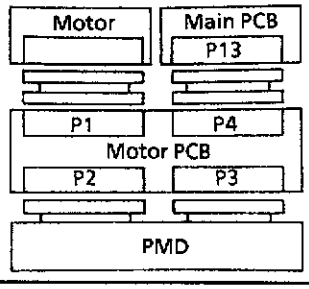
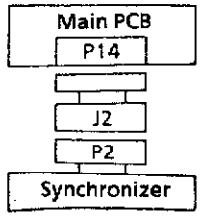


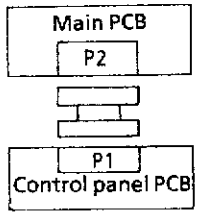
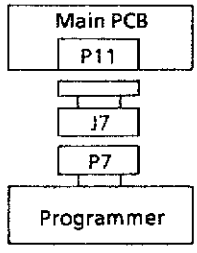
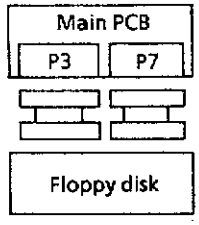
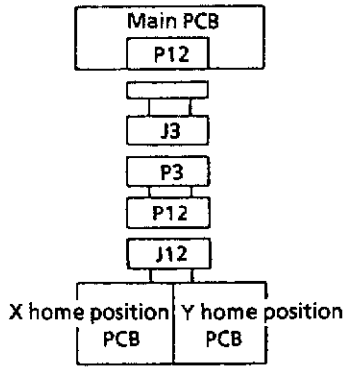
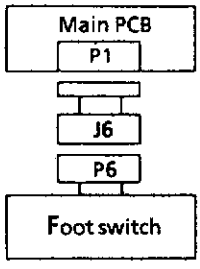


J1 : Solenoid connector
J2 : Synchronizer connector
J3 : Connector for emergency stop, zero-point sygnal and thread breakage detection
J4 : X-drive pulse motor connector
J5 : Y-drive pulse motor connector
J6 : Foot switch connector
J7 : Programming device connector
J8 : Air valve connector
J9 : Machine light connector (6V AC, 2A)
J10 : Marker light connector (5V AC, 3A)

4 Explanation of connectors

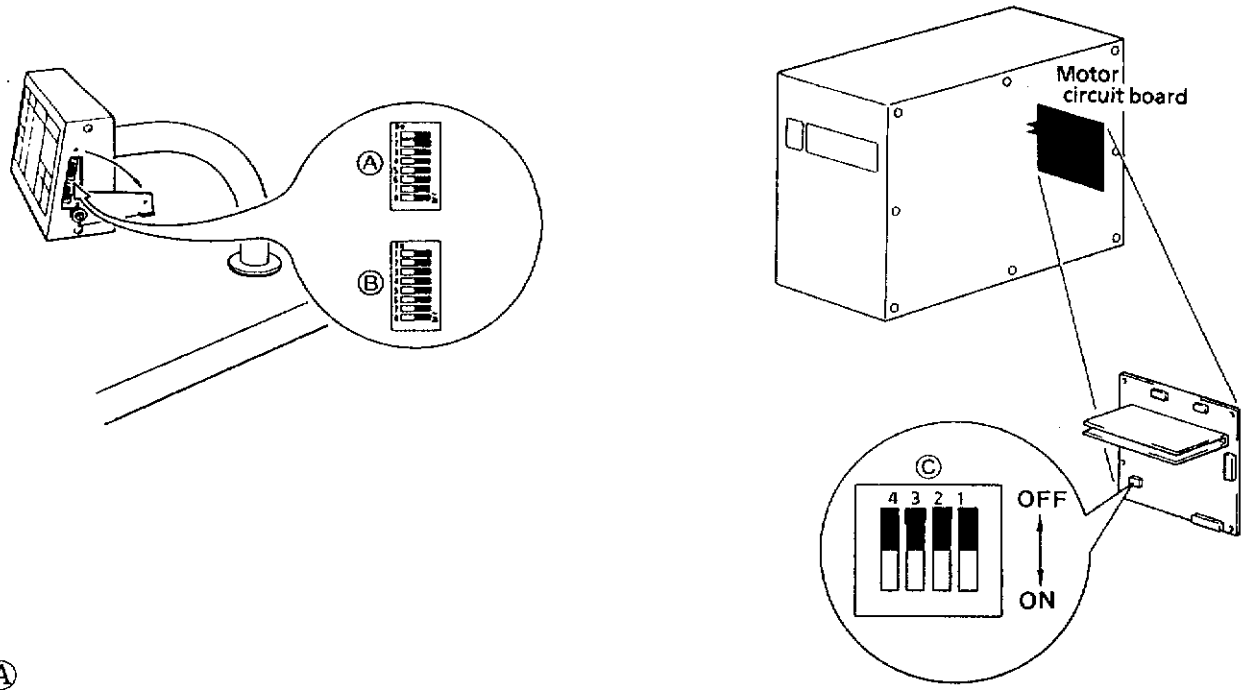
If the machine has been disassembled or adjusted during repair work, most of the machine troubles are due to connector problems including improper connection or weak contact. It is, therefore, necessary to check each connector number and pin contact for correct connection prior to proceeding to the troubleshooting procedures.
The table below lists the connector numbers and symptoms resulting from wrong connections. For detailed connector and harness arrangement, refer to "CONTROL CIRCUIT BLOCK DIAGRAM".

Connector No. and location	Drive signals and source	Symptoms resulting from wrong connection
	Control power source	• Abnormal motion • No motion • Only Pan motor operates
	Solenoid drive power source	• Faulty operation of the presser plate, presser foot, thread wiper components, main presser, thread trimming , thread release components
	Pulse motor drive power source	• Step out in X and Y axes • Unusual noises of X-drive and Y-drive pulse motors
	Start/stop control currents for the machine	• Abnormal rotation speed of the pulley • Stop operation failure • The pulley does not rotate
	+ 5V Needle stop position control, synchronization control, and rotation control signals	• The machine sews at abnormally high speed, then stops. (The EMERGENCY stop lamp lights.) • The machine does not stop with the needle at the upper position. • The pulley rotates, but the feed mechanism does not work.

Connector No. and location	Drive signals and source	Symptoms resulting from wrong connection
	+ 5V Speed control signal	• The POWER lamp does not come on. • Although the speed control dial is turned, the machine does not change the rotation speed and keeps it at 2000 spm.
	Key and switch signals Indicator control signals	• Malfunction of programming device
	Read and write signals from/to floppy disks	• The floppy disk data cannot be read. (Error No.4)
	X and Y home position signals EM switch signal LED signal	• The machine cannot detect home position. • The emergency stop function cannot be activated. • The EMERGENCY stop lamp lights and its function cannot be canceled.
	Drive signal Presser plate lifting signal	• The machine neither starts operation nor lifts the presser plate if the corresponding foot switch is depressed.

5 Dip switch settings

NOTE: Be sure to turn off the power before changing the DIP switch settings.



Ⓐ

No.	When ON	
1	Work clamp does not rise when sewing completed	
2	Right → left two-step work clamp (When No. 4 is ON)	For the BAS-304A or 311A with solenoid specification, set Ⓐ No.2, 3, and 4 to OFF.
3	Left → right two-step work clamp (When No. 4 is ON)	
4	When the switches 2, 3 and 4 are on, left and right work clamps will descend at one time, and presser foot will descend with two positions.	
5	Work clamp does not rise during split mode operation.	
6	Presser crank of inner clamping device turns to the other side (Inner clamping device is optional.)	
7	Single pedal operation possible using the starting pedal	
8	Activates thread breakage detector (Thread breakage detector is optional.)	

Ⓑ

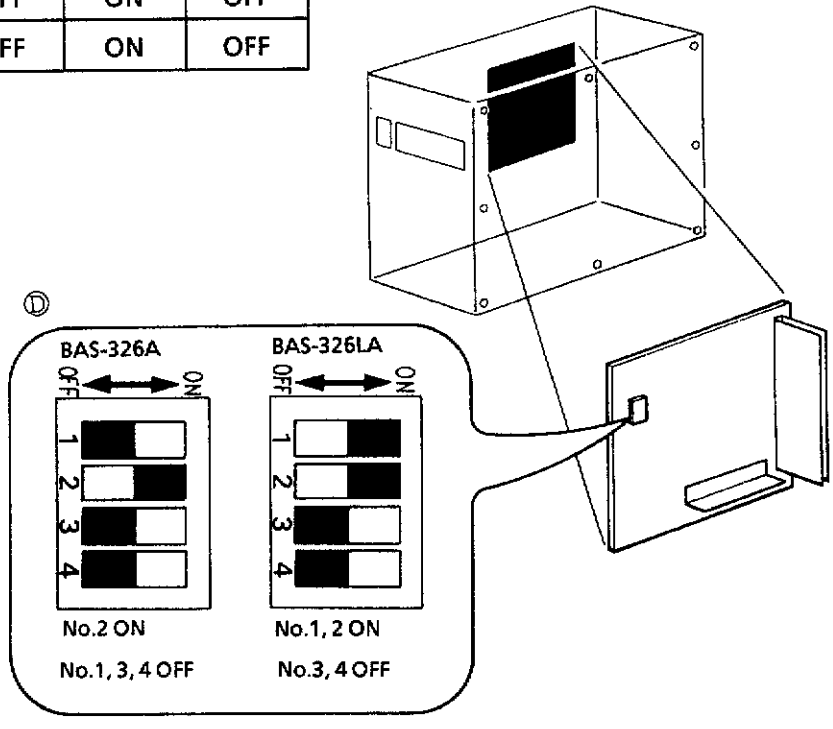
No.	When ON
1	Single split mode possible
2	8000-stitch sewing mode possible
3	Thread trimming does not function when emergency stop switch is pressed.
4	Needle cooler can be used. (Needle cooler device is optional.)
5	Thread breakage detection stitch margin setting can be set to either 8 or 14 stitches.
6	Activates fiber thread breakage detector (optional part)
7	Triplet pedal operation possible (Triplet pedal is optional.)
8	High feed speed

Ⓒ

No.	When ON
1	The first two stitches are sewn at low speed (approx. 260 spm).
2	The last two stitches are sewn at low speed (approx. 260 spm).
3	The upper shaft turns in the reverse direction after thread breakage, and the machine stops with the needle at its highest position.
4	Does not output error No.2 even if synchronizer is not connected

Ⓓ The setting of the DIP switch Ⓓ in the control box determines the machine model.
※ If the setting is not correct for the machine head, it may cause damage to a printed circuit board.

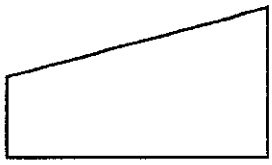
	D-1	D-2	D-3	D-4
304A	OFF	OFF	OFF	OFF
311A	ON	OFF	OFF	OFF
326A	OFF	ON	OFF	OFF
326LA	ON	ON	OFF	OFF
341A	OFF	OFF	ON	OFF
342A	ON	OFF	ON	OFF



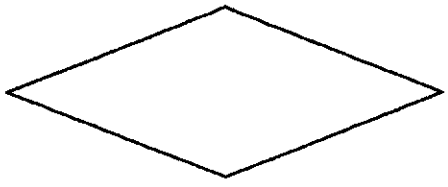
ERROR NO. LIST

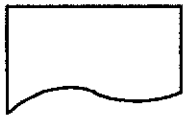
No.	Cause
1	Emergency stop switch pressed
2	Trouble with the motor or synchronizer / Motor stopped when voltage dropped
3	Over-area
4	Floppy disk not inserted, or cable not properly connected
5	Floppy disk is locked (write protected)
6	No program registered
7	Error occurred in program mode
8	Thread breakage detected
9	Protection network activated because of abnormal voltage
A	No usable pattern data on disk

TROUBLESHOOTING

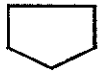
1  Indicates manual operation.

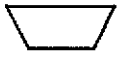
2  Indicates switch operation.

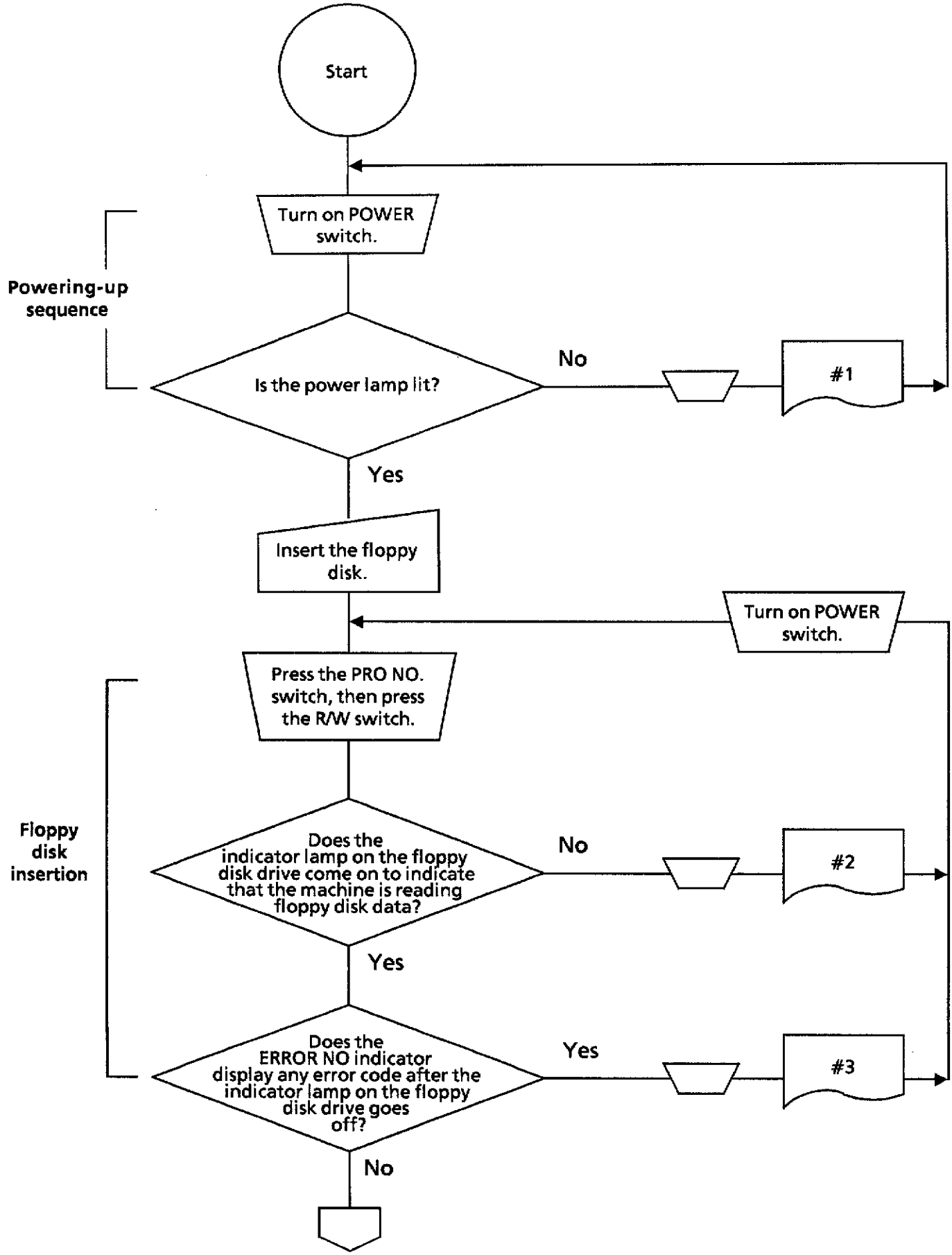
3  Selects the course of action to follow, using a yes-or-no decision-making process.

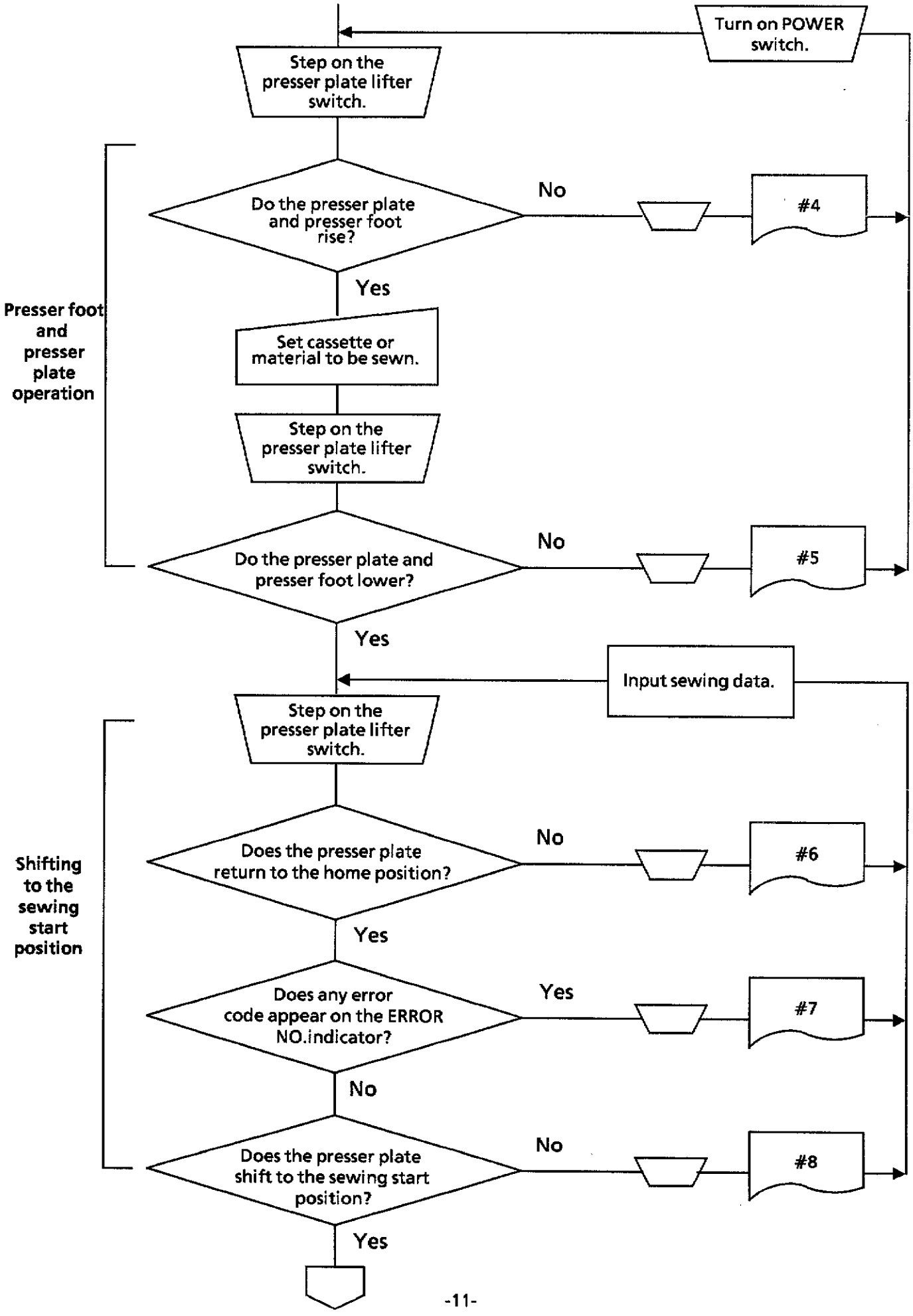
4  Indicates that the procedure to follow appears in the first column of "problem determination and solution table".

5  Indicates setting-up operation.

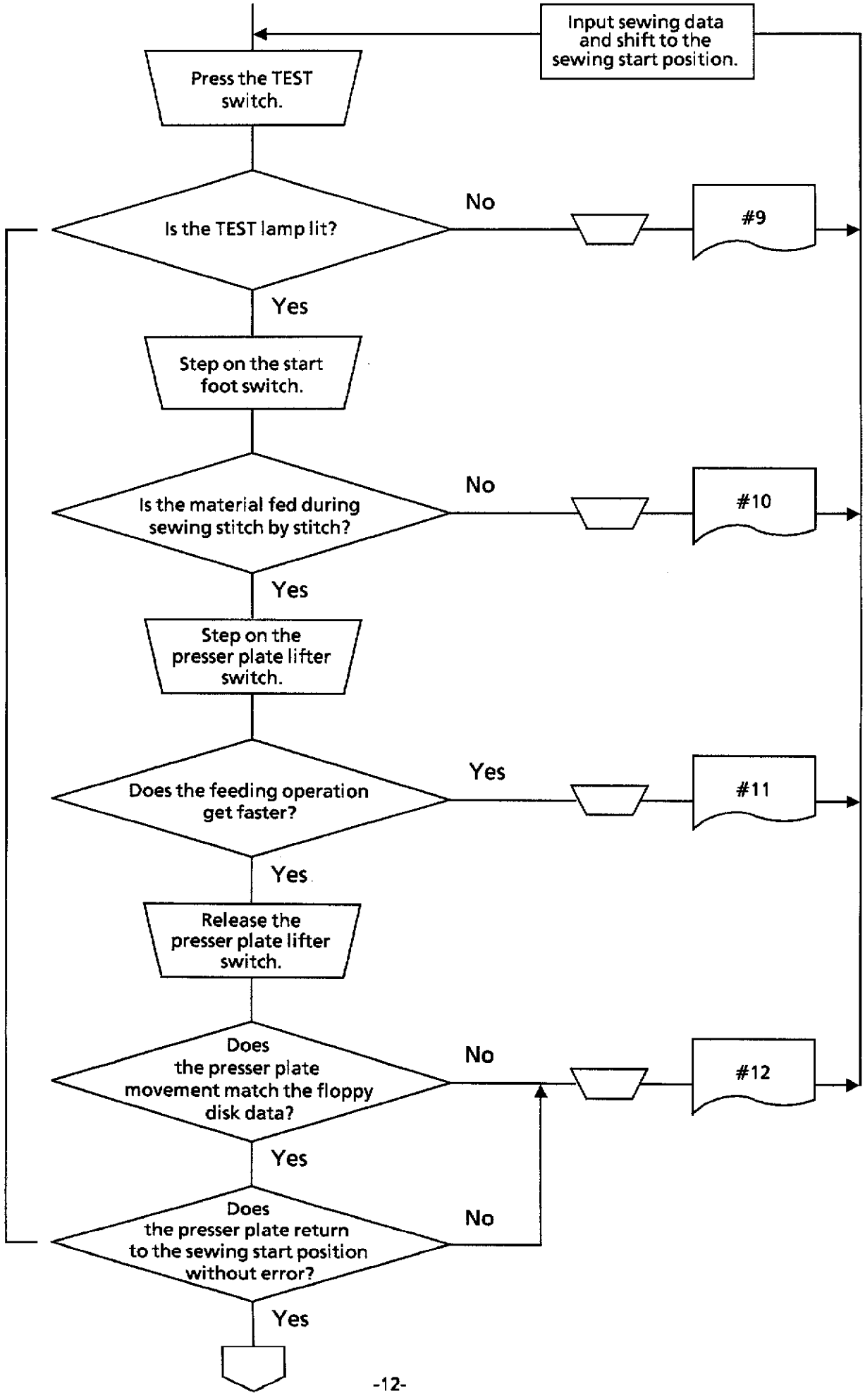
6  Indicates that the procedure to follow appears on the next page.

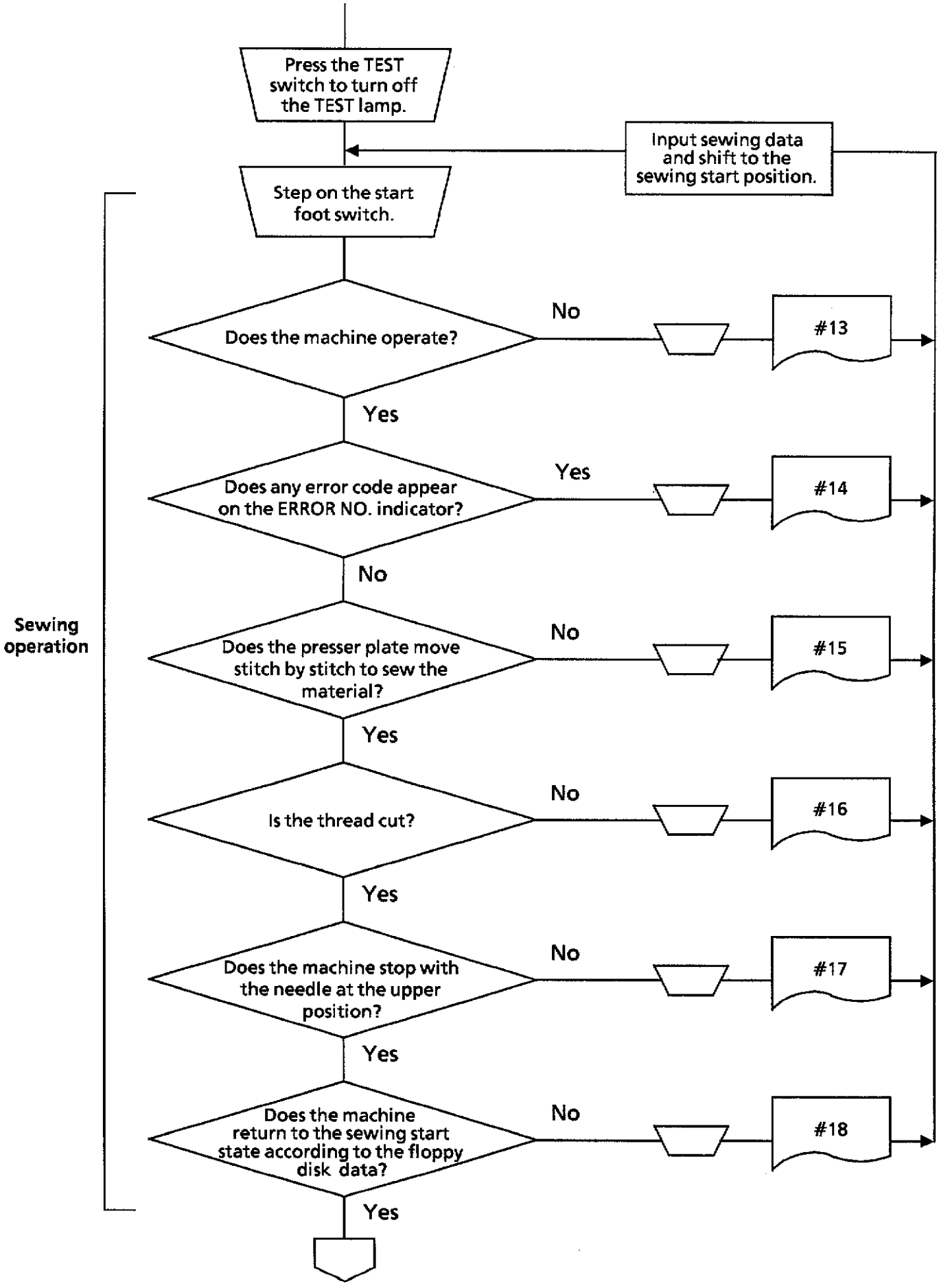
7  Indicates turning-off of the power switch.

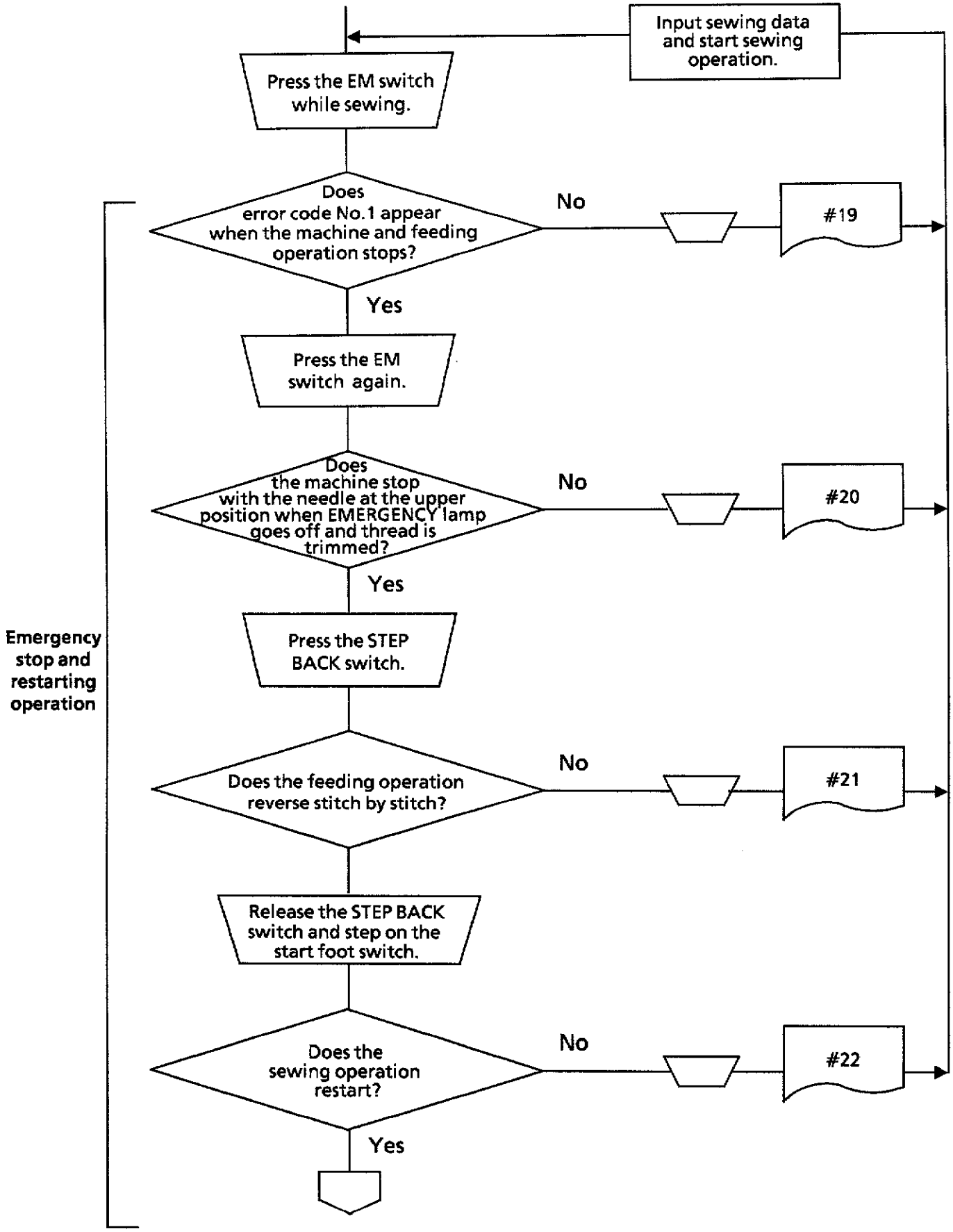

Start
Turn on POWER switch.
Powering-up sequence
Is the power lamp lit?
No
#1
Yes
Insert the floppy disk.
Turn on POWER switch.
Press the PRO NO. switch, then press the R/W switch.
Floppy disk insertion
Does the indicator lamp on the floppy disk drive come on to indicate that the machine is reading floppy disk data?
No
#2
Yes
Does the ERROR NO indicator display any error code after the indicator lamp on the floppy disk drive goes off?
Yes
#3
No

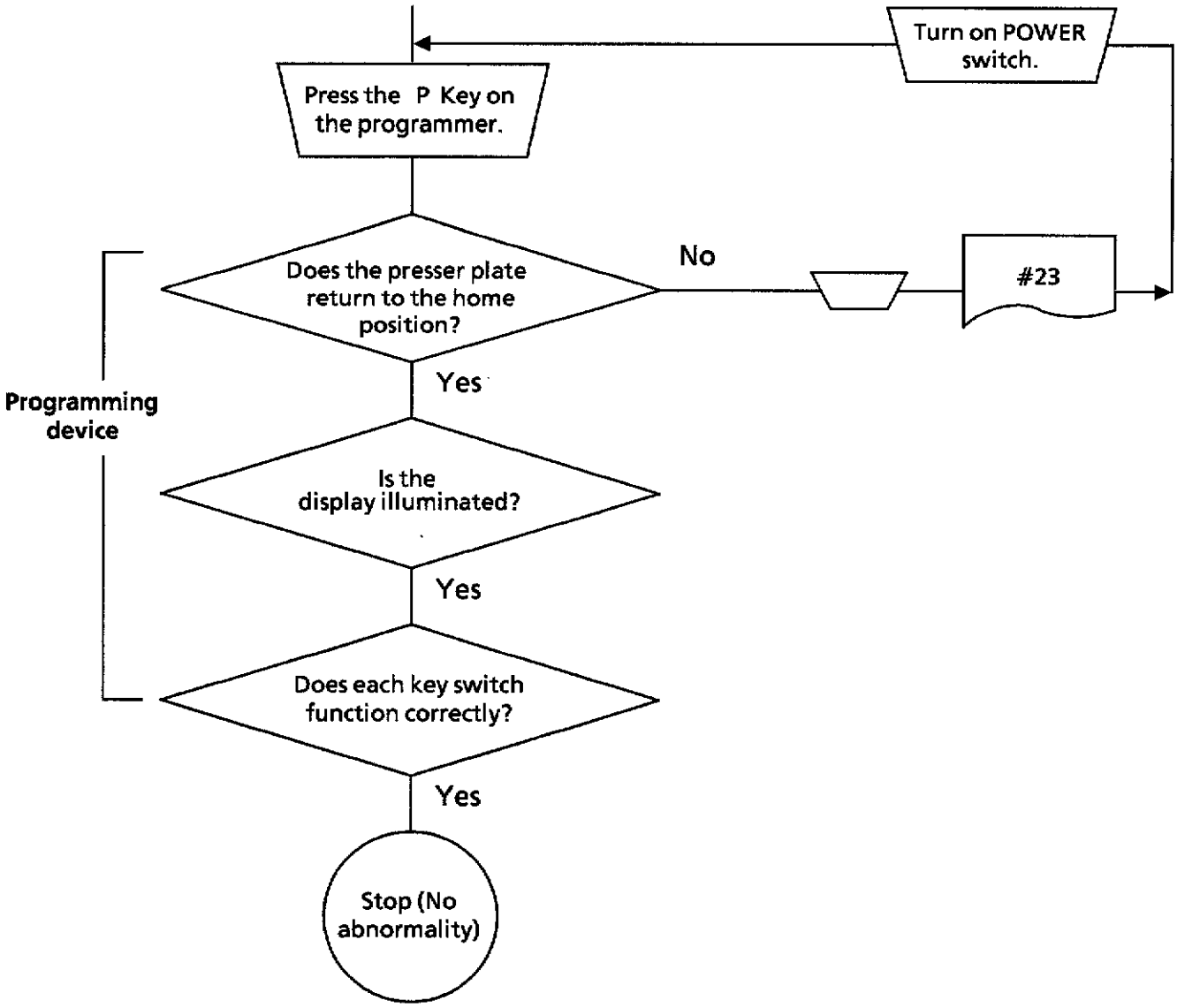

Turn on POWER switch.
Step on the presser plate lifter switch.
Do the presser plate and presser foot rise?
No
#4
Yes
Presser foot and presser plate operation
Set cassette or material to be sewn.
Step on the presser plate lifter switch.
Do the presser plate and presser foot lower?
No
#5
Yes
Input sewing data.
Step on the presser plate lifter switch.
Shifting to the sewing start position
Does the presser plate return to the home position?
No
#6
Yes
Does any error code appear on the ERROR NO.indicator?
Yes
#7
No
Does the presser plate shift to the sewing start position?
No
#8
Yes

Test


Input sewing data and shift to the sewing start position.
Press the TEST switch.
Is the TEST lamp lit?
No
#9
Yes
Step on the start foot switch.
Is the material fed during sewing stitch by stitch?
No
#10
Yes
Step on the presser plate lifter switch.
Does the feeding operation get faster?
Yes
#11
Yes
Release the presser plate lifter switch.
Does the presser plate movement match the floppy disk data?
No
#12
Yes
Does the presser plate return to the sewing start position without error?
No
Yes


Press the TEST switch to turn off the TEST lamp.
Input sewing data and shift to the sewing start position.
Step on the start foot switch.
Does the machine operate?
No
#13
Yes
Does any error code appear on the ERROR NO. indicator?
Yes
#14
No
Does the presser plate move stitch by stitch to sew the material?
No
#15
Yes
Is the thread cut?
No
#16
Yes
Does the machine stop with the needle at the upper position?
No
#17
Yes
Does the machine return to the sewing start state according to the floppy disk data?
No
#18
Yes
Sewing operation


Input sewing data and start sewing operation.
Press the EM switch while sewing.
Does error code No.1 appear when the machine and feeding operation stops?
No
#19
Yes
Press the EM switch again.
Does the machine stop with the needle at the upper position when EMERGENCY lamp goes off and thread is trimmed?
No
#20
Yes
Press the STEP BACK switch.
Does the feeding operation reverse stitch by stitch?
No
#21
Release the STEP BACK switch and step on the start foot switch.
Does the sewing operation restart?
No
#22
Yes
Emergency stop and restarting operation


Turn on POWER switch.
Press the P Key on the programmer.
Does the presser plate return to the home position?
No
#23
Yes
Programming device
Is the display illuminated?
Yes
Does each key switch function correctly?
Yes
Stop (No abnormality)

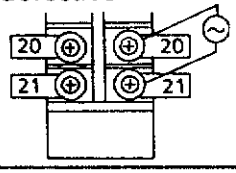
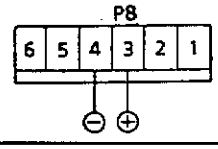
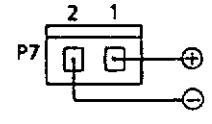
PROBLEM DETERMINATION AND SOLUTION

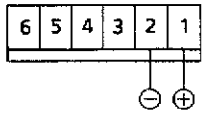
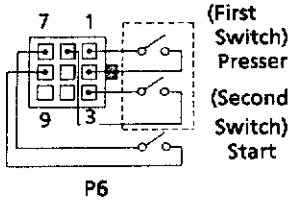
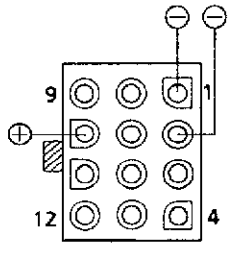
Precautions

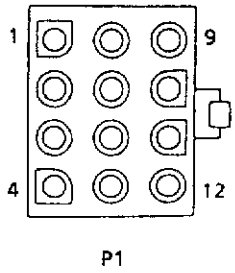
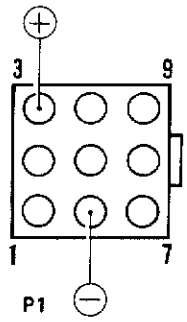
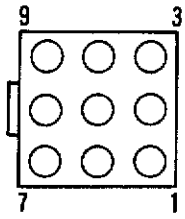
1. Be sure to turn the power switch OFF before opening the control box cover or plugging in / unplugging the power cord.
2. When replacing a fuse, be sure to use a new one having the same quality and capacity as the old one.

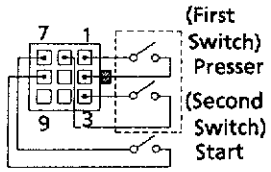
Problem determination and solution table

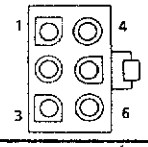
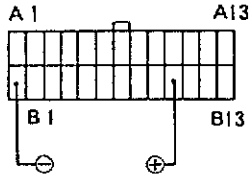
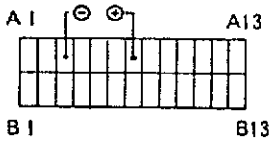
- Prior to proceeding to the following table, check that
  --- no fuse has blown
  --- each plug is correctly inserted.
- Letters marked with an asterisk (e.g. (a)*) in the CHECK / ADJUSTMENT / REPAIR column indicate that those items should be checked while the power is applied.

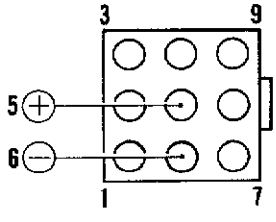
NO. IN CHAPTER 8 FLOWCHART AND ERROR STATUS	PROBABLE CAUSES	CHECK / ADJUSTMENT / REPAIR	REPLACEMENT PARTS
#1 The POWER lamp will not light when the POWER switch is turned ON.	1. Power cord defective 	(a)*Measure voltage between taps 20 and 21 on transformer in control box. Make sure that the measured voltage matches the specification.	Power cord
	2. Fuse blown	Remove fuse No.2 and check it for continuity. If there is no continuity, replace the fuse.	Glass tube fuse 5A
	3. Power PCB defective 	(a)*Unplug connector P8 of the main circuit board, turn the power ON, then measure the voltage. If it is not approx. 10 VDC, the control box is defective. NOTE: Insert a tester probe into the connector from the lead wire side.	Power PCB
	4. Main circuit board defective 	(a)*Unplug connector P7 of the main circuit board, turn the power ON, then measure the voltage on the PCB. If it is not + 5V, the control circuit board is defective.	Main circuit board
	5. Panel circuit board defective	Check the connection between the panel circuit board and connector P2 of the main circuit board.	Panel circuit board
#2 If the R/W switch is pressed, the indicator lamp on the floppy disk drive (FDD) does not light and the FDD does not read the floppy disk data.	1. Connector contact defective	Check the connections, harnesses, and pin contacts between connector P2 of the main circuit board and the panel circuit board and between connectors P3 or P7 of the main circuit board and the FDD.	
	2. Main circuit board defective	(a) Turn the power ON, and press the EM switch to check if the buzzer sounds intermittently. Then press the button again to check if the buzzer stops. If the buzzer does not operate in such a manner, the control circuit board is defective. (b) Step on the presser plate lifter switch. If the presser plate does not work normally, the control circuit board is defective.	Main circuit board

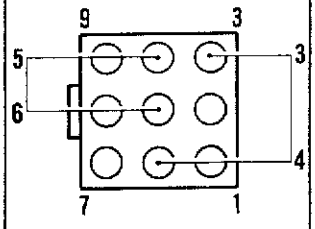
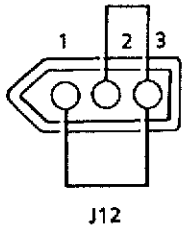
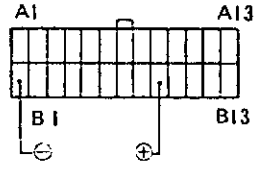
NO. IN CHAPTER 8 FLOWCHART AND ERROR STATUS	PROBABLE CAUSES	CHECK / ADJUSTMENT / REPAIR	REPLACEMENT PARTS
#2 If the R/W switch is pressed, the indicator lamp on the floppy disk drive (FDD) does not light and the FDD does not read the floppy disk data.	3. Presser plate lifter switch defective	(a) If the presser plate automatically operates just by turning the power on without any other operator action, the presser plate lifter switch is defective. (b) Unplug connector P6 of the control box and press the R/W switch. If the machine operates normally, the presser plate lifter switch is defective.	Presser plate lifter switch assembly (2-stage switch)
	4. Floppy disk drive (FDD) defective	Replace the FDD.	FDD
#3 After a few seconds after the R/W switch is pressed, an error code appears on the ERROR display.	1. Floppy disk defective	Check if error code No.4 appears on the ERROR indicator. If yes, insert other floppy disk. If the newly inserted floppy disk is normally read, the old floppy disk is defective.	Floppy disk
	2. Floppy disk drive (FDD) defective	Check if error code No.4 appears on the ERROR indicator. If yes, replace the FDD.	FDD
	3. Main PCB defective	Replace the main PCB .	Main PCB
#4 The presser plate will not rise when the presser plate lifter switch is stepped on.	1. Fuse blown	(a) Remove fuse No.3 and check it for continuity. If there is no continuity, replace the fuse.	Fuse No.2 (15A)
	2. Power PCB defective 	(a)*Turn the power ON while connector P8 of the control PCB is plugged, then measure the voltage. If it is not approx. 65 VDC, the power supply is defective.	Power PCB
	3. Presser plate lifter switch and its cable defective  P6	(a) Unplug connector P6 of the control box, then check it for continuity. If the measured value is not the following specified value, the presser plate lifter switch or its cable is defective: 0Ω or ∞Ω when the presser plate lifter switch is stepped on or released, respectively.	Presser plate lifter switch assembly or its cable
	For pneumatic specification (BAS-304A, 311A, 314A, 315A, 326A, 326LA, 341A, and 342A)		
	4. Main PCB defective  J8	(a) Refer to #2, 2(a). (b) Step on the presser plate lifter switch while pressing STEP BACK switch. If an error code appears on the ERROR indicator, the main PCB is not defective. (c)* Unplug connector P8 of the control box, turn the power ON, then measure the voltage on J8 while stepping on the start switch. If it is not approx. 24 VDC between pins 1 (-) and 10 (+), and between pins 2 (-) and 10 (+), main PCB is defective.	Main PCB

NO. IN CHAPTER 8 FLOWCHART AND ERROR STATUS	PROBABLE CAUSES	CHECK / ADJUSTMENT / REPAIR	REPLACEMENT PARTS
#4 The presser plate will not rise when the presser plate lifter switch is stepped on.	5. Air valve defective  	(a) Unplug connector P1 of the control box, then measure the resistance. If it is not approx. 400 Ω between pins 1 and 10, and between pins 2 and 10, the air valve is defective.	Air valve
	For solenoid specification (BAS-304A and 311A)		
	4. Main PCB defective  	(a) Refer to #2, 2(a). (b) Step on the presser plate lifter switch while pressing STEP BACK switch. If an error code appears on the ERROR indicator, the main PCB is not defective. (c)* Unplug connector P1 of the control box, turn on the power, then measure the voltage of J1 while stepping on the start switch. If it is not approx. 10 VDC between pins 3 (+) and 4 (-), the main circuit board is defective.	Main PCB
	5. Air valve defective  	(a) Unplug connector P1, then measure the resistance. If it is not approx. 5 ohms between pins 3 and 4, the solenoid is defective.	Air valve

NO. IN CHAPTER 8 FLOWCHART AND ERROR STATUS	PROBABLE CAUSES	CHECK / ADJUSTMENT / REPAIR	REPLACEMENT PARTS
#5 The presser plate will not lower when the presser plate lifter switch is stepped on.	1. Presser plate lifter switch defective	If the presser plate automatically lowers or rises when the power is turned OFF or ON, respectively, without any other operator action to the machine, the presser plate lifter switch is defective. If the presser plate once lowered by stepping on the presser plate lifter switch rises by releasing it, the presser plate lifter switch is defective.	Presser plate lifter switch assembly (2-stage switch)
#6 The presser plate will not return to its home position when the start foot switch is stepped on.	1. Start foot switch and its cable defective  P6	(a) If nothing shifts at all, reinsert connector P1 of the main circuit board and connectors J6 and P6 of the control box. (b) Unplug connector P6 of the control box, then check it for continuity. If the measured value is not both the following specified values, the start foot switch or its cable is defective: $\infty\Omega$ or 0Ω when the start foot switch is off or on, respectively.	Start foot switch
	2. Home position signal error	(a) If the presser plate moves in the reverse direction and its motion is erratic, the home position signal is incorrect. (b) Reinsert connector P12 of the control circuit board, connectors J3 and P3 of the control box, and connectors J12 and P12 of the machine head. (c) Press EMERGENCY STOP switch twice, then operate the feeding mechanism by hand. If the LED on the home position PCB does not flicker when the feeding mechanism approaches the home position, the home position signal is incorrect. (d) Check if the sensor (particularly, Y-home position sensor) on the home position PCB is subject to any light. If yes, protect the sensor from the light. (e) Clean X-axis home position dog.	Home position PCB
	3. Fuse blown	Remove fuse No.3, then check it for continuity. If there is no continuity, replace the fuse.	Fuse 15A

NO. IN CHAPTER 8 FLOWCHART AND ERROR STATUS	PROBABLE CAUSES	CHECK / ADJUSTMENT / REPAIR	REPLACEMENT PARTS
#6 The presser plate will not return to its home position when the start foot switch is stepped on.	4. Power PCB defective	Refer to #4, 2(a)*.	Power PCB
	5. Pulse motor or its cable defective  	Unplug connector P4 and P5 from control box, then measure the resistance. If it is not approx. 0.5 Ω between pins 1 and 2, between pins 1 and 3, between pins 4 and 5, and between pins 4 and 6, the pulse motor or its cable is defective.	Pulse motor assembly
	6. Main circuit board defective	Replace the main circuit board.	Main circuit board
#7 The presser plate shifts to its home position, then error code No.3 appears on the ERROR indicator.	1. Floppy disk defective	If error code No.3 appears, the floppy disk is overloaded with sewing programs.	
#8 The presser plate will not shift to the sewing start position.	1. Floppy disk defective	Insert another floppy disk. If the machine functions normally with the newly inserted floppy disk, the old floppy disk is defective.	Floppy disk
	2. Main circuit board defective	Replace the main circuit board.	Main circuit board
#9 The TEST lamp will not light when the TEST switch is pressed.	1. TEST switch or its cable defective  	Unplug connector P2 of the control circuit board, then check the operation panel harness connector for continuity. If the measured value is not both the following specified values, the panel circuit board is defective; Between pins B1 (-) and B10 (+): normally ∞ Ω or the moment the indicator needle swings when the TEST switch is on.	Panel circuit board
	2. Test lamp or its cable defective  	Unplug connector P2 of the control circuit board, then check continuity between pins A7 (+) and A3 (-) of the operation panel harness connector. If the tester does not indicate some value with the maximum magnified ohm range, the panel circuit board is defective.	Panel circuit board
	3. Main circuit board defective	Replace the main circuit board.	Main circuit board
#10 No feeding operation occurs during the test.		Refer to #6, Nos.1, 3, 4, 5, and 6 in the PROBABLE CAUSES column .	

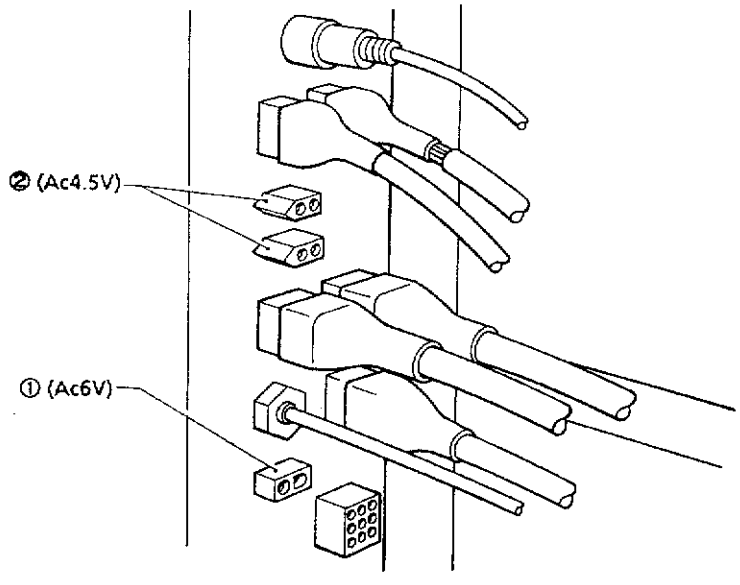
NO. IN CHAPTER 8 FLOWCHART AND ERROR STATUS	PROBABLE CAUSES	CHECK / ADJUSTMENT / REPAIR	REPLACEMENT PARTS
#11 Rapid feed can not be used during the test.	1. Presser plate lifter switch and its cable defective	Refer to #4, 3.	
#12 The machine does not operate as programmed during the test.	Feeding mechanism not adjusted.	Adjust the feeding mechanism to move smoothly by hand. Refer to #6, Nos.1, 3, 4, 5, and 6 in the PROBABLE CAUSES column .	
#13 The machine will not sew.	1. Cable defective	Check continuity between connector P13 of the main circuit board and P4 of the PMD circuit board.	
	2. Main circuit board defective	If error code No.2 does not appear on the ERROR indicator, check voltages on the main circuit board.	Main circuit board
	3. Power module short-circuited	If error code No.2 appears on the ERROR indicator and the fuse No.4 is blown, the power module is short-circuited.	PMD circuit board Fuse 5AFB
#14 The machine operates at high speed and then stops suddenly while displaying an error code.	1. Synchronizer or its cable defective	(a) Check if connector P14 of the main circuit board and connectors J2 and P2 of the control box are correctly connected. If not, correct the connections. (b) Replace the synchronizer.	Synchronizer assembly
#15 The machine operates but the presser plate does not.	Synchronizer or its cable defective	Refer to #14. NOTE: If the machine is placed in this error status, the test operation will be normally performed.	Synchronizer
#16 The thread can not be cut.	1. Synchronizer or its cable defective	Refer to #15.	Synchronizer
	2. Main circuit board defective  	(a)*While inserting the connector P1 into J1, let the machine perform thread trimming operation, and measure the voltages between pins 5 (+) and 6 (-) (for thread trimmer solenoid), and between pins 3 (+) and 4 (-) (for tension release solenoid: BAS-326A and 326LA only) from the lead wire side. If the tester does not oscillate, the main circuit board is defective.	Main circuit board

NO. IN CHAPTER 8 FLOWCHART AND ERROR STATUS	PROBABLE CAUSES	CHECK / ADJUSTMENT / REPAIR	REPLACEMENT PARTS
#16 The thread cannot be cut.	3. Thread trimming solenoid, main presser solenoid or cable defective  	Unplug connector P9, then measure the resistance. <Thread trimmer solenoid> between pins 5 and 6 Approx. 5 ohms 304A, 311A, 326A, 326LA Approx. 10 ohms 341A, 342A <Tension release solenoid> between pins 3 and 4 Approx. 5 ohms only BAS-326A, 326LA	Thread trimming solenoid assembly
#17 The machine does not stop with the needle at the upper position after thread trimming.	1. Synchronizer not adjusted properly	If the needle stop position varies at random each time the machine operation is complete, adjust the upper needle stop signal issuing timing.	
	2. Main circuit board defective		Main circuit board
#18 The machine cannot sew patterns as programmed.		Refer to #12.	
#19 The operation will not stop if the EM switch is pressed.	1. EM switch or its cable defective  J12	Unplug connector P12 from J12 of the machine head, then check it for continuity. If the resistance is not the following specified values, the EM switch assembly is defective; Between pins 1 and 3: 0 Ω or ∞ Ω when the EM switch is OFF or ON, respectively. Between pins 2 and 3: ∞ Ω or 0 Ω when the EM switch is OFF or ON, respectively.	EM switch assembly
#20 The thread cannot be cut after the emergency stop state is cancelled.		Refer to #16 and #17.	
#21 The STEP BACK switch is inoperative.	1. STEP BACK switch or its cable defective  	Unplug connector P2 of the control circuit board, then check it for continuity. If the measured value is not the following specified resistances, the panel circuit board is defective. Between pins B1 (-) and B9 (+); normally ∞ Ω the moment the indicator needle swings when the STEP BACK switch is ON.	Panel circuit board
#22 Sewing is not resumed.		Refer to #12 and #13.	

NO. IN CHAPTER 8 FLOWCHART AND ERROR STATUS	PROBABLE CAUSES	CHECK / ADJUSTMENT / REPAIR	REPLACEMENT PARTS
#23 Programming cannot be made.	1. Programmer connector or its cable defective	Reattach connectors P7 and J7, and connector P11 of the control circuit board.	
	2. Programmer defective	Replace the programmer.	Programmer
	3. Main circuit board	Replace the main circuit board.	Main circuit board

OPTIONS

Using terminals of lamp and marker light



When using the lamp, use the connector ❶ (AC6V). When using the marker light, use the connector ❷ (AC4.5V).

Lamp

※ The lamp below is an option.
(S-15404-001 ML651-01 lamp P assembly)

※ When purchasing a lamp on the market, replace the connectors of the lamp with the parts described below.

Contact pin(s)	MOLEX terminal pin (female) 1381ATL (143548-000) 2 pcs.
Connector	MOLEX 3191-02R1 (S18466-000) 1pc.

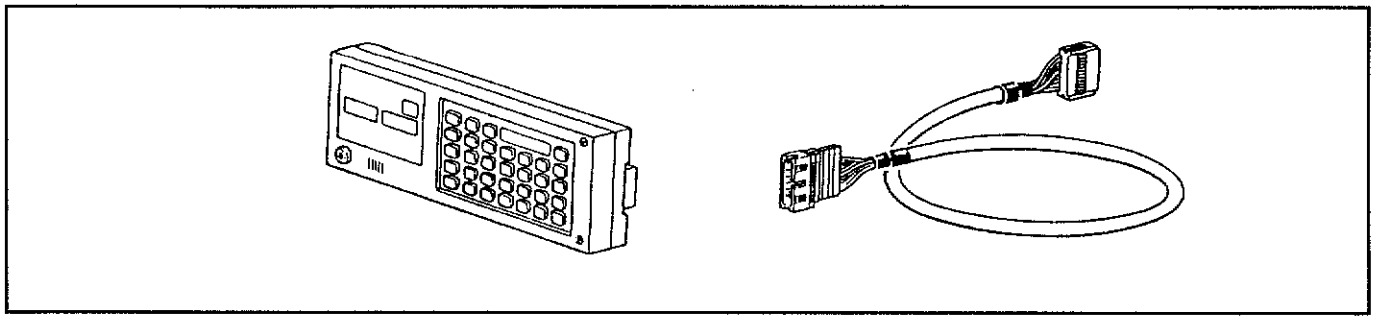
Marker light

※ When purchasing a marker light on the market, replace the connectors of the marker light with the parts desribed below.

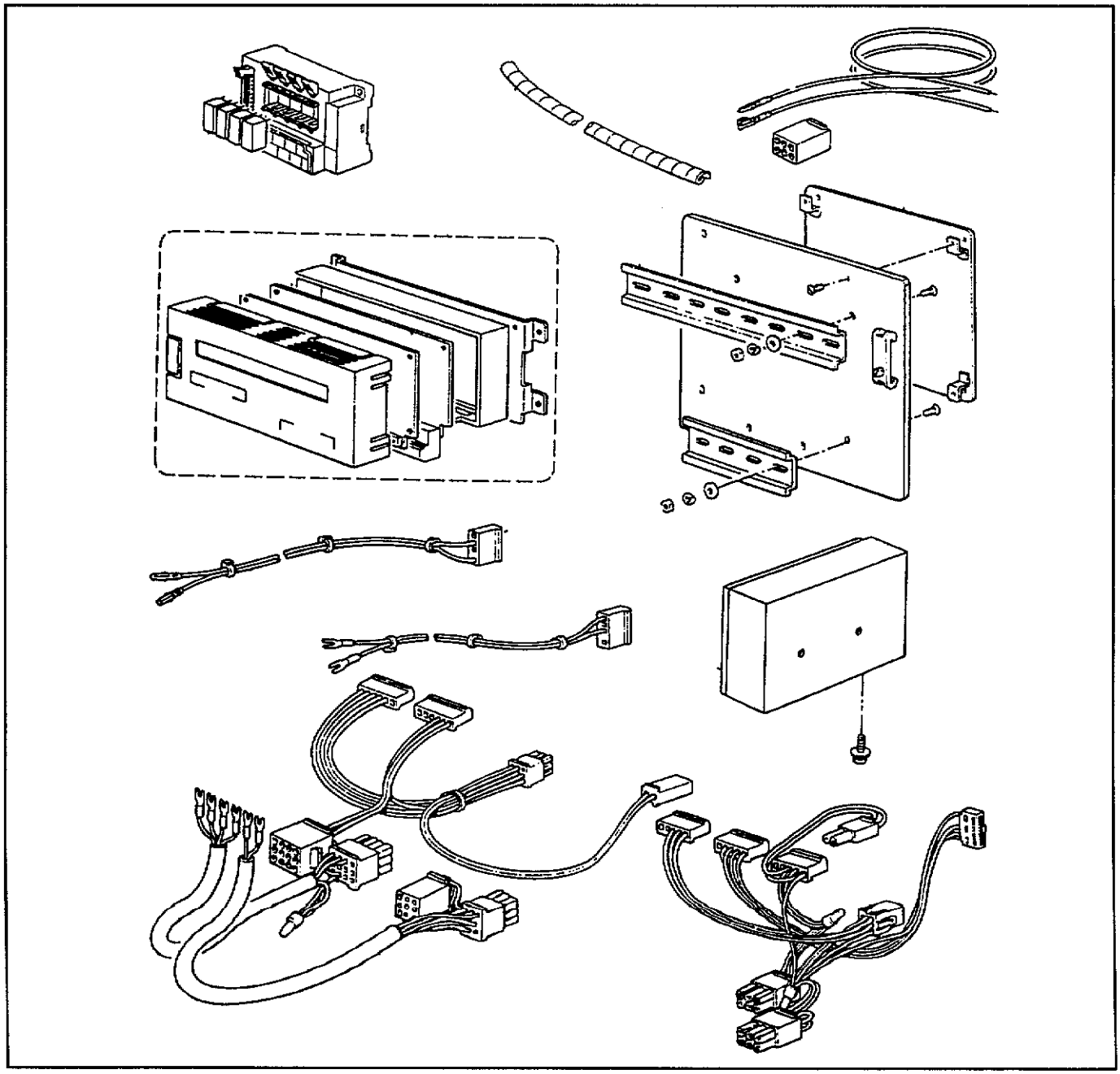
Contact pin(s)	MOLEX terminal pin (male) 1380TL (143549-000) 4pcs.
Connector(s)	MOLEX 1545P (S05008-000) 2pcs.

The PC set and the PC programmer assembly have been introduced. By attaching the sequencer, the valves and switches can be added without replacing the control P-ROM.

PC programmer assembly ····· S25157-000



PC set ····· S33257-009



CONTROL CIRCUIT BLOCK DIAGRAM