

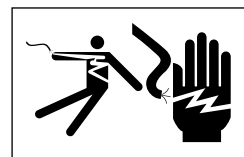
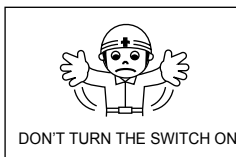
Section 9.2

Troubleshooting for Electronics

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9.2 Troubleshooting for Electronics

⚠ WARNING



- When accessing wiring or devices in the control panel, turn OFF the power switch (circuit breaker CB1) and also disconnect the main power supply of the distribution panel.
- If the machine is equipped with a group-control inverter, turn OFF the inverter power. (Otherwise, the MSI primary side remains electrically charged.)

1. You can get almost all of information required for operation and maintenance from the function panel.
2. If an error occurs or the machine stops, the signal indicator comes on or flashes, signalling operator intervention is required.
3. This section first describes the indications of the signal indicator and function panel in the normal state, then provides troubleshooting procedures to be taken if an error occurs.

9.2.1 Normal State

[1] Immediately after Power ON

Signal indicator — The white signal lamp stays on.
Function panel — No indication

- Brake — ON (Terminals 107 – 101 = 24 VDC)
- Motor — OFF
- Electromagnetic switches — All OFF

[2] In Running

Signal indicator — No signal lamp comes on.
Function panel — No indication

- Brake — OFF (Terminals 107 – 101 = 0 V)
- Motor — ON
- Electromagnetic switch
 - MSL — ON
 - MSF — ON
 - MSY — ON

[3] On Halt

Signal indicator — One or more signal lamps stay on or flash.
Function panel — Displays the error source making the machine stop.

- Brake — ON (Terminals 107 – 101 = 24 VDC)
- Motor — OFF
- Electromagnetic switches — All OFF

NOTE: The signal indicator has 4 or 6 signal lamps. One or more signal lamps come on or flash depending upon the error source.

9.2.2 Abnormal State (Troubleshooting)

If an electric error occurs, troubleshoot it according to the following procedures:

<p>1. Check the function panel to see the displayed message and the detailed description & recovery action.</p>	→	<p>According to the displayed recovery action to be taken, you can solve almost all of problems. The examples of troubleshooting from the function panel are shown in [1].</p>
<p>2. Check the LEDs on the control board in each of the main control box, let-off motion, function panel, EDP unit, and electrical take-up motion.</p>	→	<p>You can judge malfunctioning of the control board according to the LED status. Details are explained in [2].</p>
<p>3. Observe the phenomenon in the machine.</p>	→	<p>Items [3] and [4] describe the recovery actions to be taken if a function panel failure or solenoid valve error occurs.</p>

[1] Troubleshooting from the Function Panel

Trouble examples when the machine is in operation (48 V POWER UNIT FAILURE).

(1) Message screen (Option)

ERROR < 48 V POWER UNIT FAILURE >

(2) Detailed message screen (Touching the ERROR shows the following message on the screen.)

WHERE	MAIN		<input type="button" value="CONFIRM"/>
WHEN	19:28	123456pick	
< 48 VDC FAILURE >			
The error detector for the 48 VDC power supply operates.			
(Recovery Action)			
1) Check pin Nos. [3] and [6] of connector [CN3] in the power supply unit [DCPS2] and pin Nos. [1] and [5] of connector [CN10] on the IO1 board.			
2) Replace fuse [F1] on the power supply unit [DCPS2] if it has been blown.			
3) If the same error recurs,			
▪ Check the weft insertion valve.			
▪ Check the wiring for any short circuit.			
▪ Replace the IO1 or IO2 board.			
▪ Replace the LH1, LH2 or LH3 board.			

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[2] Malfunction of Control Board

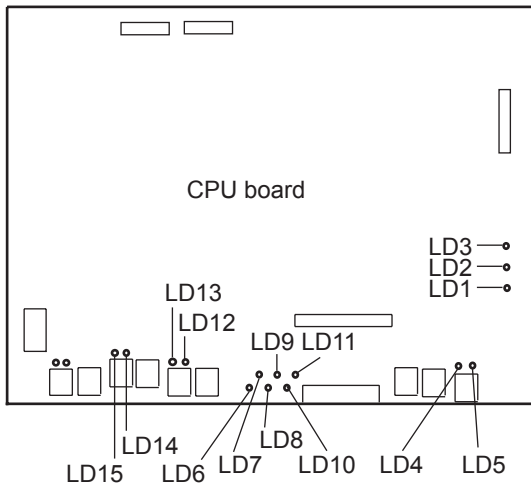
The functioning status of the control boards for the main control box, function panel, let-off motion, EDP unit and electric take-up motion can be checked by respective LEDs. The table below lists the checked LEDs and their status when the control boards are normal.

If each checker LED is not in the status shown below, take necessary actions by referring to [2.1] Control Board Troubleshooting or [2.2] Communication Loop Troubleshooting.

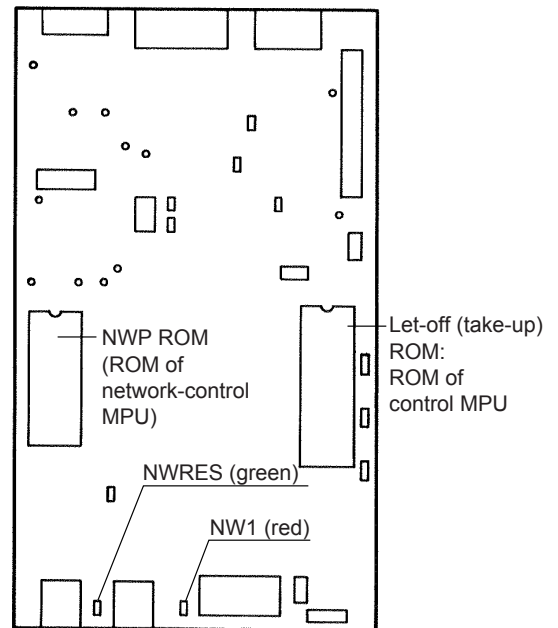
■ LED status when control boards are normal

Unit	Printed circuit board	Checker LED		LED status and function when the control boards are normal	
Main control box	CPU board	LD1	Red	Off	To check communication with the function panel
		LD2	Yellow	Blinking	
		LD3	Green	Blinking	
		LD4	Red	Blinking (at intervals of 1.5 seconds)	To check communication with the let-off motion
		LD5	Green	On	To check communication microprocessor operation
		LD6	Red	Off	To check control microprocessor operation
		LD7	Green	Off	
		LD8	Yellow	On	
		LD9	Yellow	On	
		LD10	Yellow	On	
		LD11	Green	On	To check communication with the LH control box (Ch0)
		LD12	Green	On	
		LD13	Red	Off	To check communication with the LH control box (Ch1)
		LD14	Green	On	
		LD15	Red	Off	
Function panel	Panel control board	LED1	Green	On	To check control board operation
Let-off motion	Let-off control board	D129	Red	Off	To check control microprocessor operation
		D900	Green	On	To check communication microprocessor operation
		NW1	Red	Blinking (at intervals of 1.5 seconds)	To check communication with main control box
LH control box	LH1 control board LH2 control board LH3 control board	LED1	Yellow	On	To check communication with main control box
		LED2	Red	Off	
		LED3	Green	Off	
EDP control box	EC1 control board EC2 control board	LED1	Yellow	On	To check communication with main control box
		LED2	Red	Off	
		LED3	Green	Off	

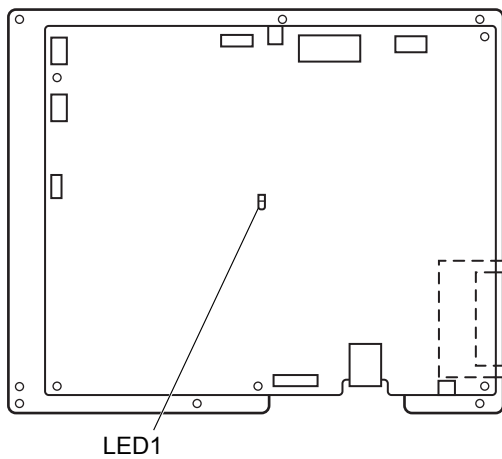
Main control box (CPU board)



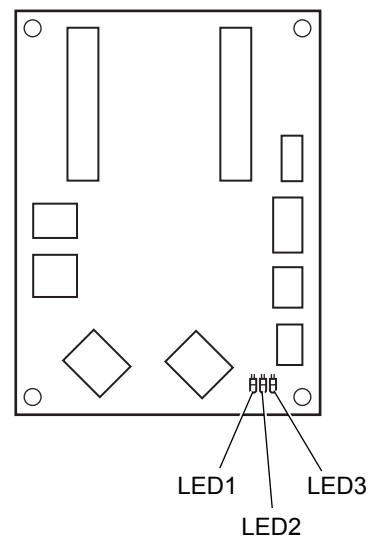
In the let-off motion or take-up motion



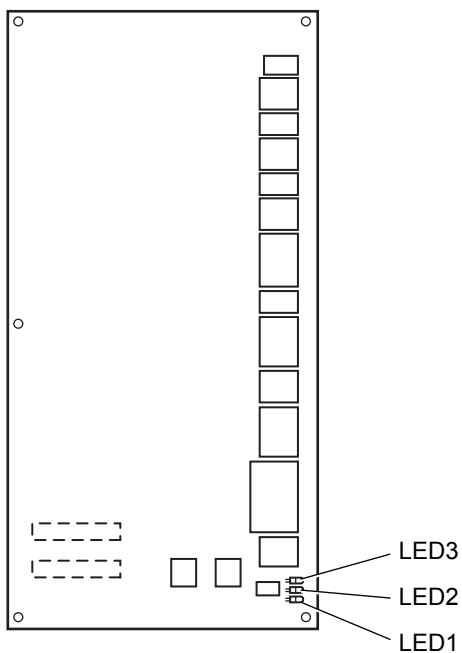
In the function panel



In the EDP unit



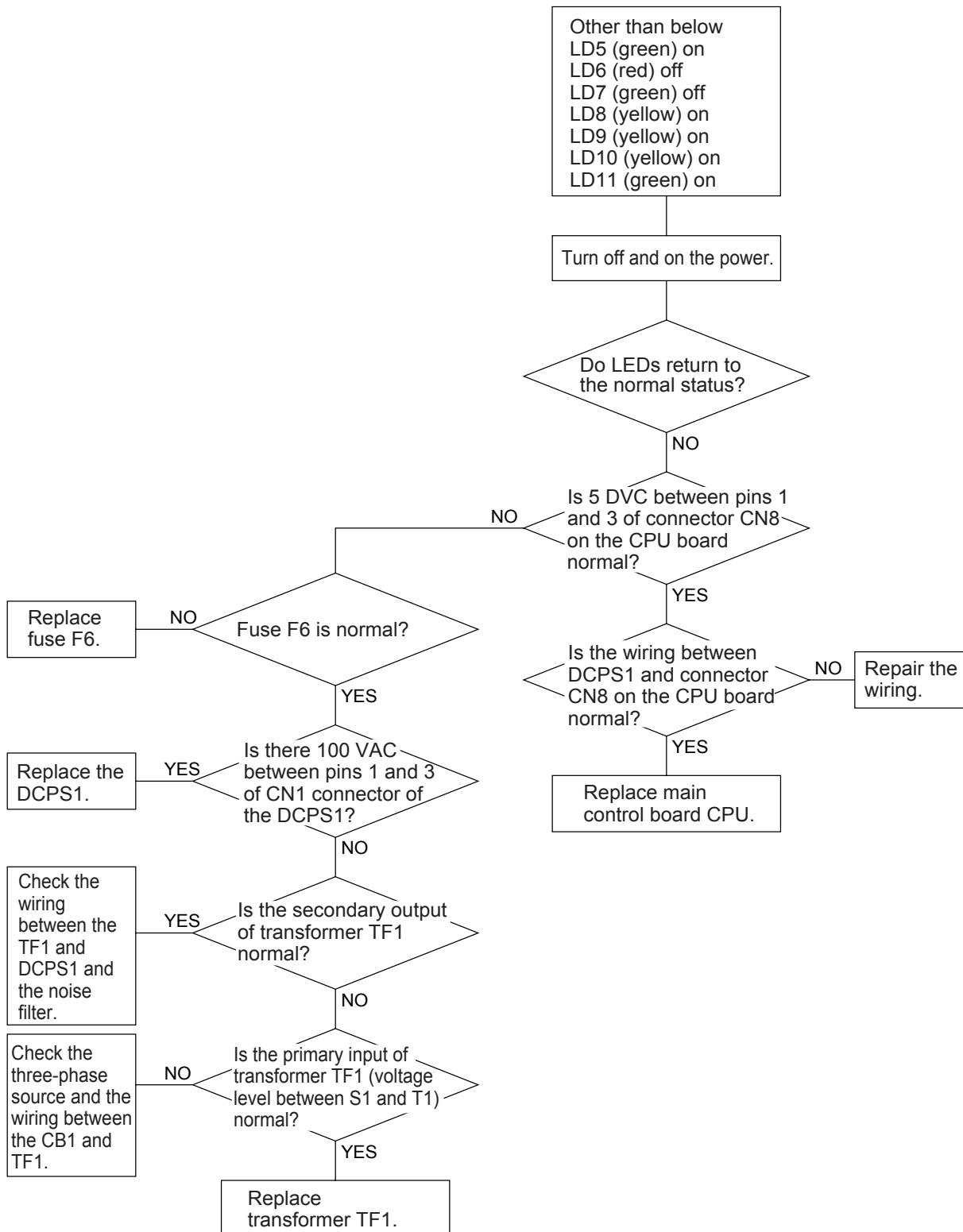
LH control box



[2.1] Control Board Troubleshooting

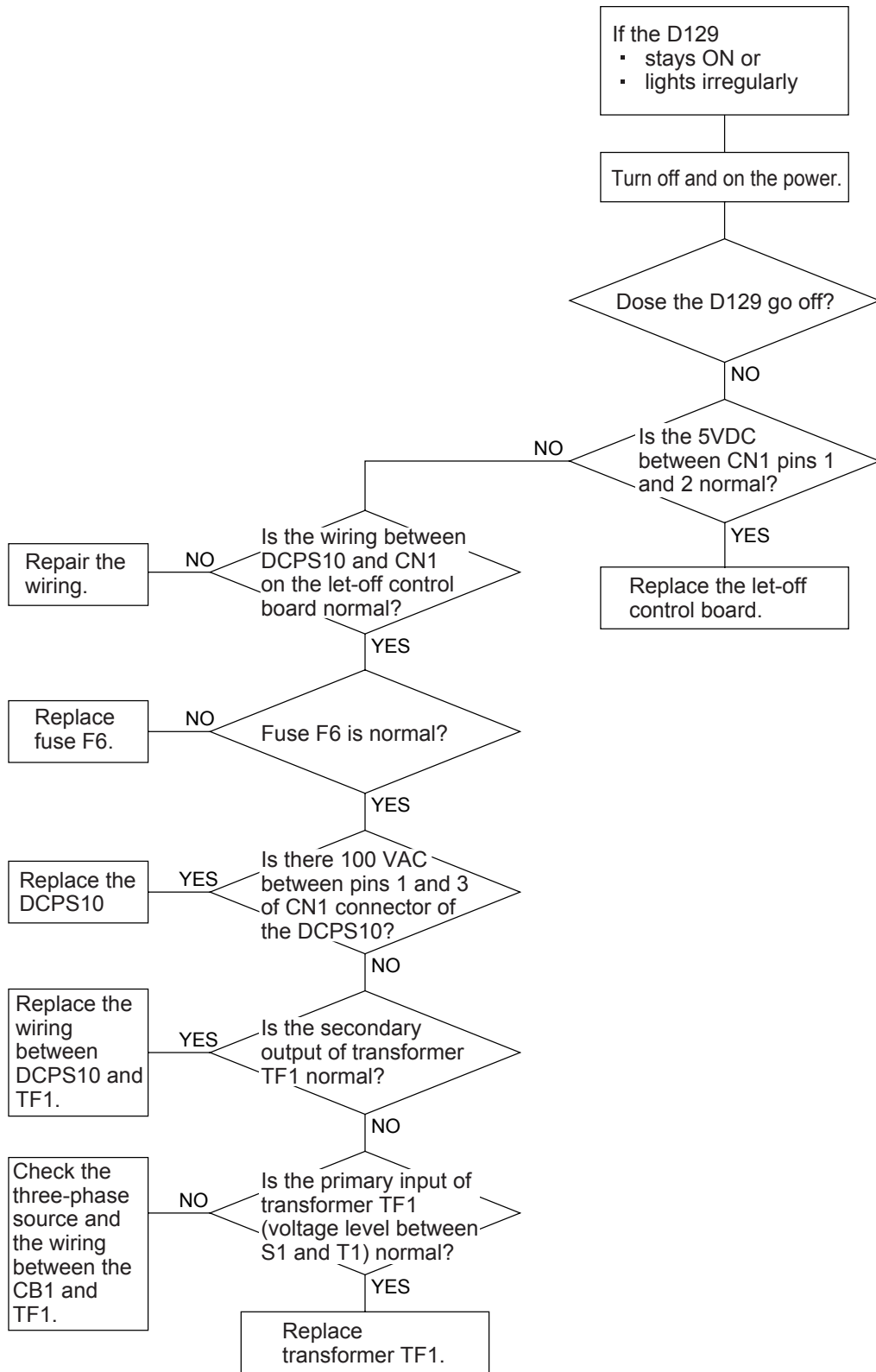
(1) Main control box

When LD5 and LD8 to LD11 on the CP0 board are not on while LD6 and LD7 are not off, follow the flow-chart given below.



(2) Let-off motion

If the D129 (red) on the let-off control board is not OFF, follow the flowchart given below.

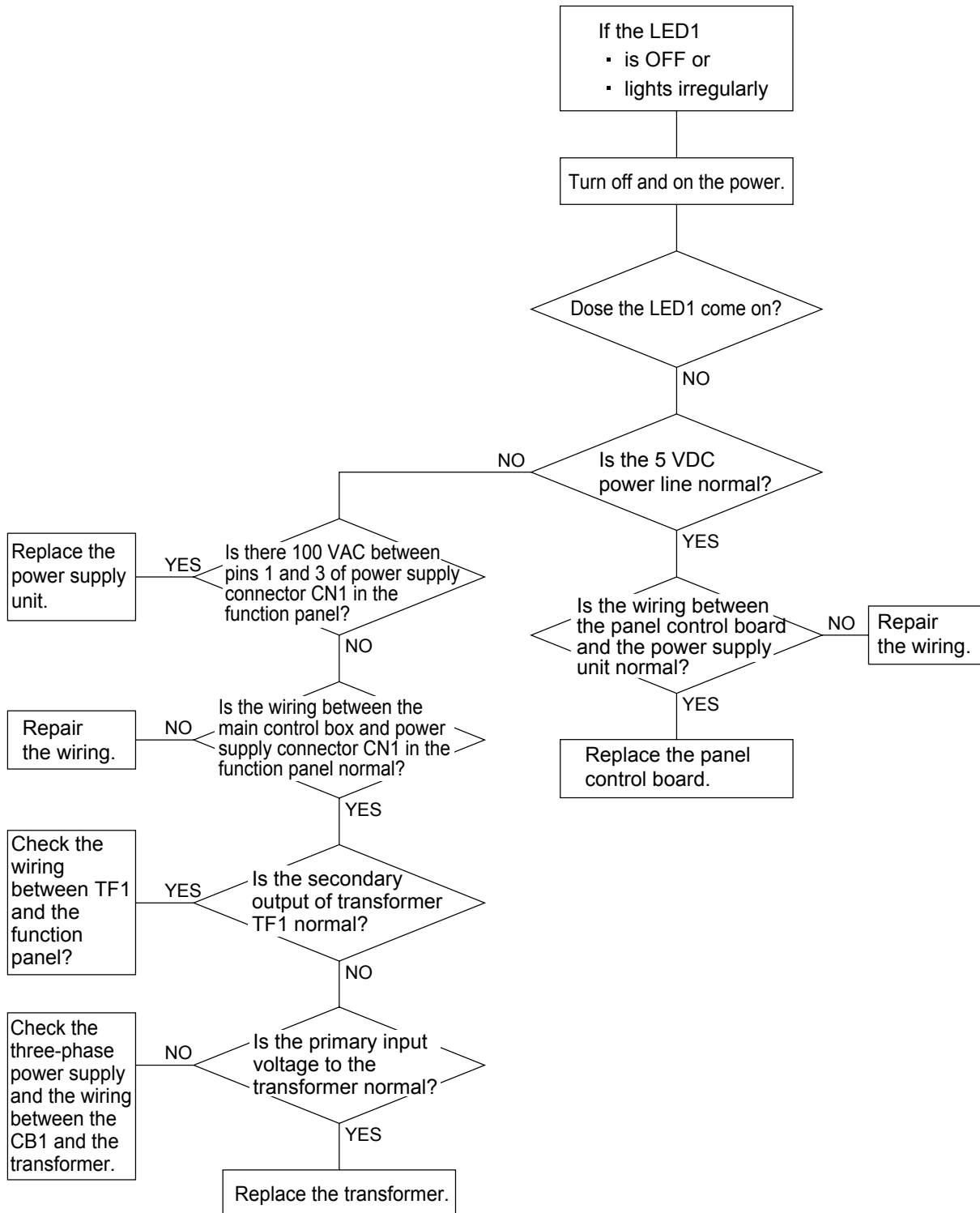


Attention: When removing the ROM from the main control board A in the replacement work of the board, always use the dedicated ROM pull-out tool. It is recommended to use the jig also when installing the ROM onto a new board for making that job easier.

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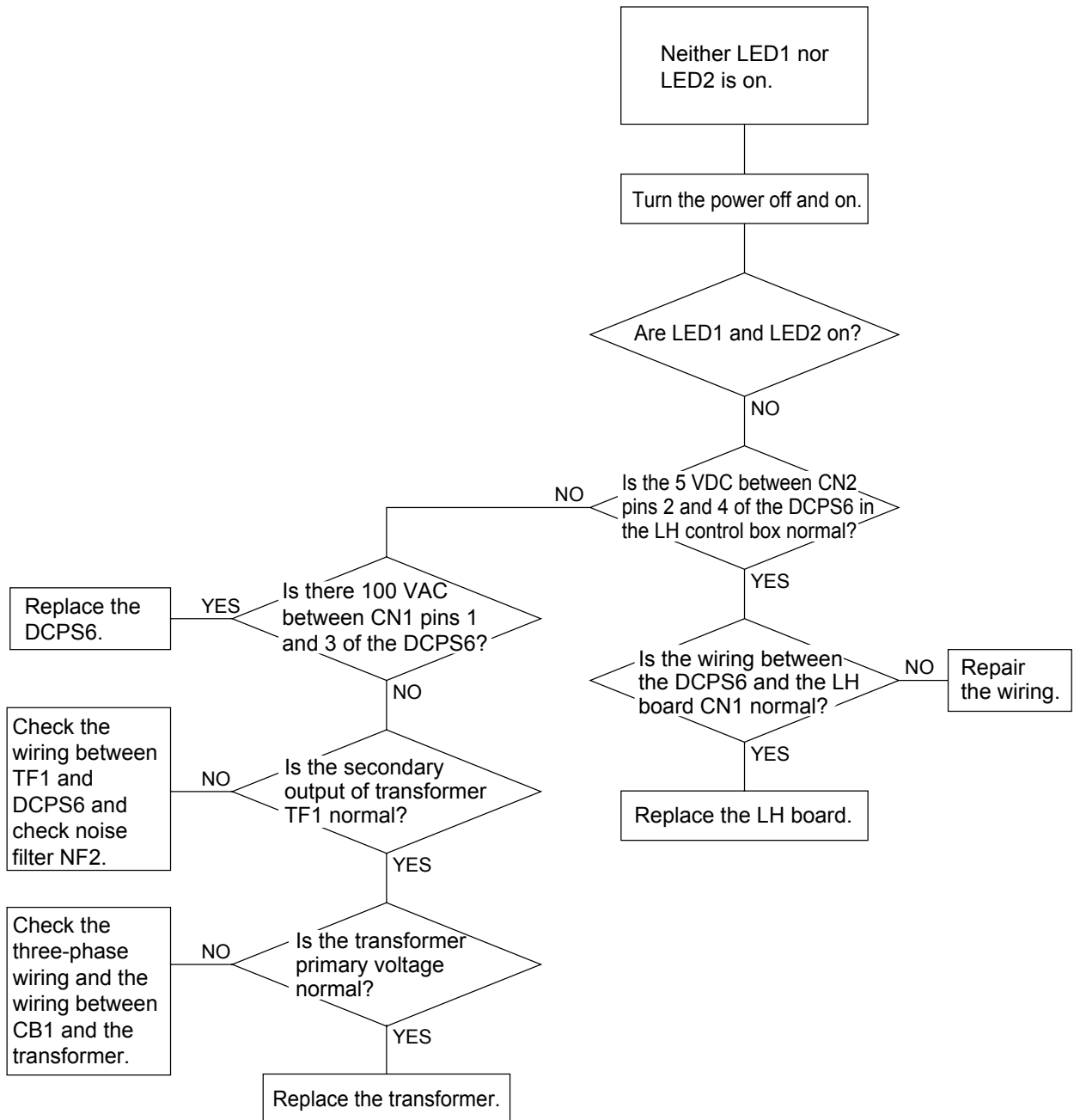
(3) Function panel

If the LED1 (green) on the panel control board is not ON, follow the flowchart given below.



(4) LH control box

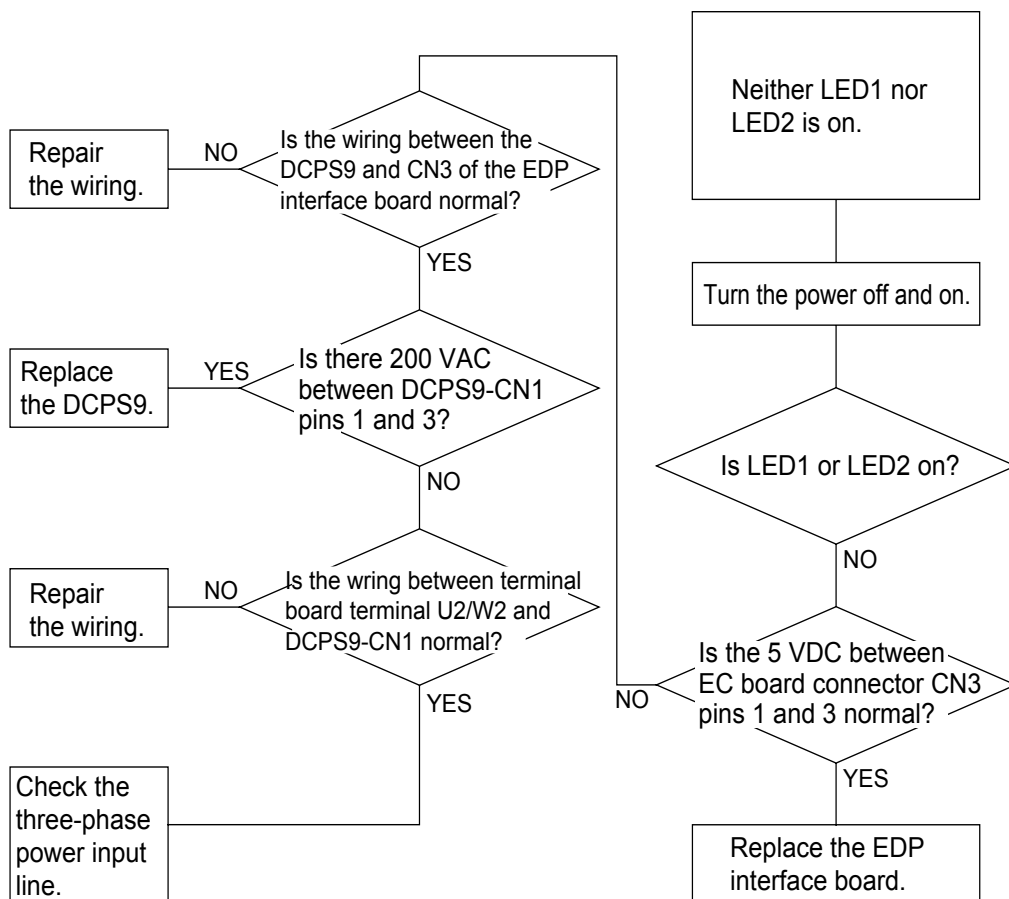
Follow the flowchart given below if both of LED1 (yellow) and LED2 (red) on the LH1 (LH2 or LH3) board are off.



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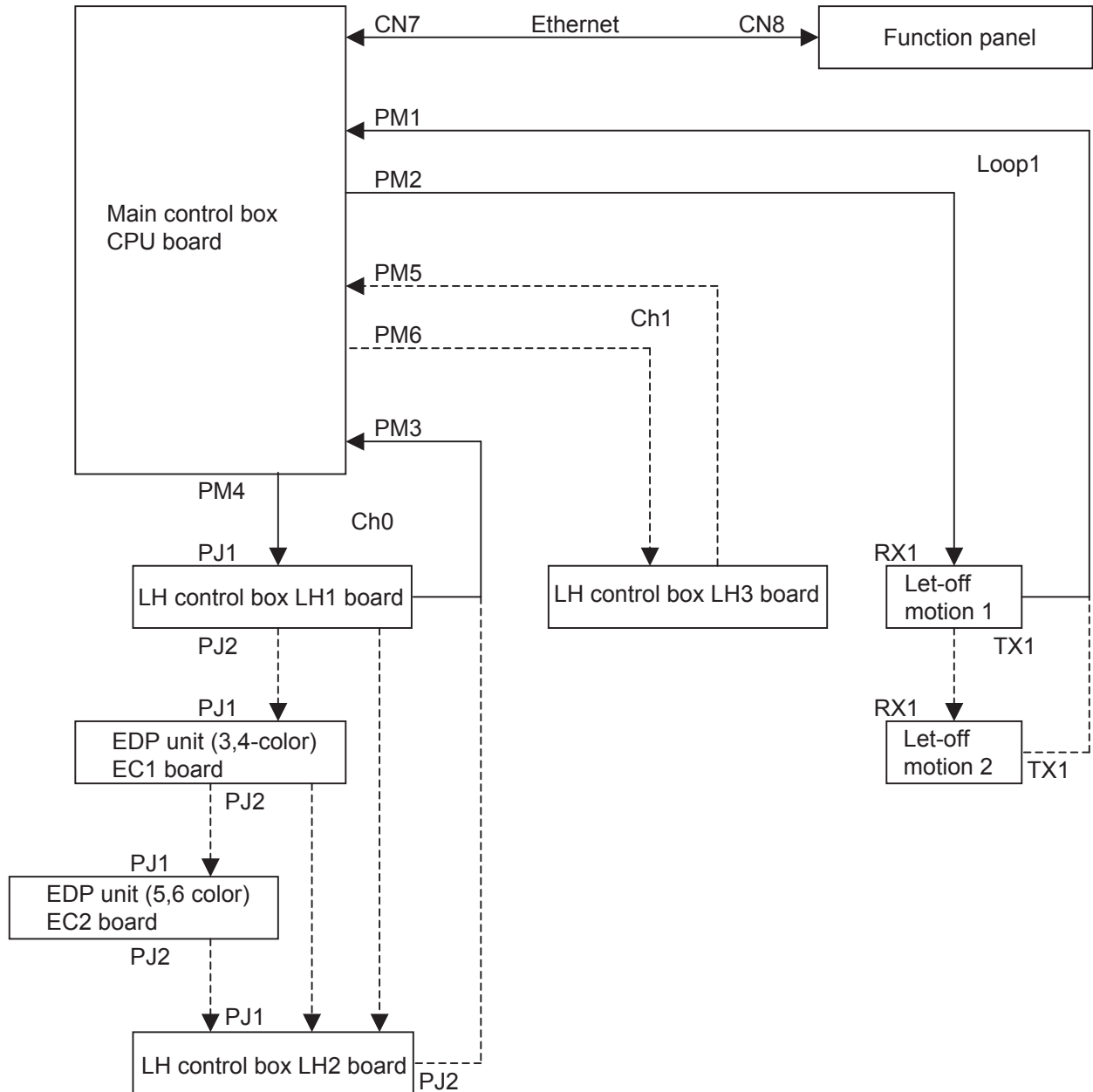
(5) EDP unit

If both LED1 (yellow) and LED2 (red) on the EDP interface board (EC) are not on, follow the flowchart given below.



[2.2] Communication Loop Troubleshooting

■ Communication loop configuration



NOTES:

- Each arrow in the communication loop diagram shows the data flow (Send a receive).
- Communication through the Ethernet is both-way.

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■ Communication loop troubleshooting

- (1) Ethernet communication
(Main control box - Function panel)

Unit	Printer circuit board	Checker LED			Communication status (trouble phenomenon)	Corrective action
		LD1 Red	LD2 Yellow	LD3 Green		
Main control box	CPU board	Off	Blinking	On	Normal	—
LED status (*: On or blinking)		On	*	*	Communication collision (simultaneous data transmission from multiple units)	<ul style="list-style-type: none"> • Replace the CPU board or function panel control board. • Check the external unit if it is connected to the Ethernet.
		*	On	Blinking	Receiving error (Receiving fails at the CPU board. (Sending possible.))	<ul style="list-style-type: none"> • Check the connection of the communication cable. • Replace the function panel control board.
		*	Blinking	On	Transmission error (Sending from the CPU board fails.)	<ul style="list-style-type: none"> • Replace the CPU board.
		*	On	On	Sending-receiving error (Both sending from and receiving fail at the CPU board.)	<ul style="list-style-type: none"> • Replace the CPU board, check the communication cable and/or replace the function panel control board.
		Off	Off	Off	Sending-receiving error (CPU board malfunction)	<ul style="list-style-type: none"> • Check the CPU board power supply (5 VDC). • Replace the CPU board.

- (2) Ch0/Ch1 Communication loop
(Ch0: Main control box - LH control box - EDP unit)
(Ch1: Main control box - LH control box)

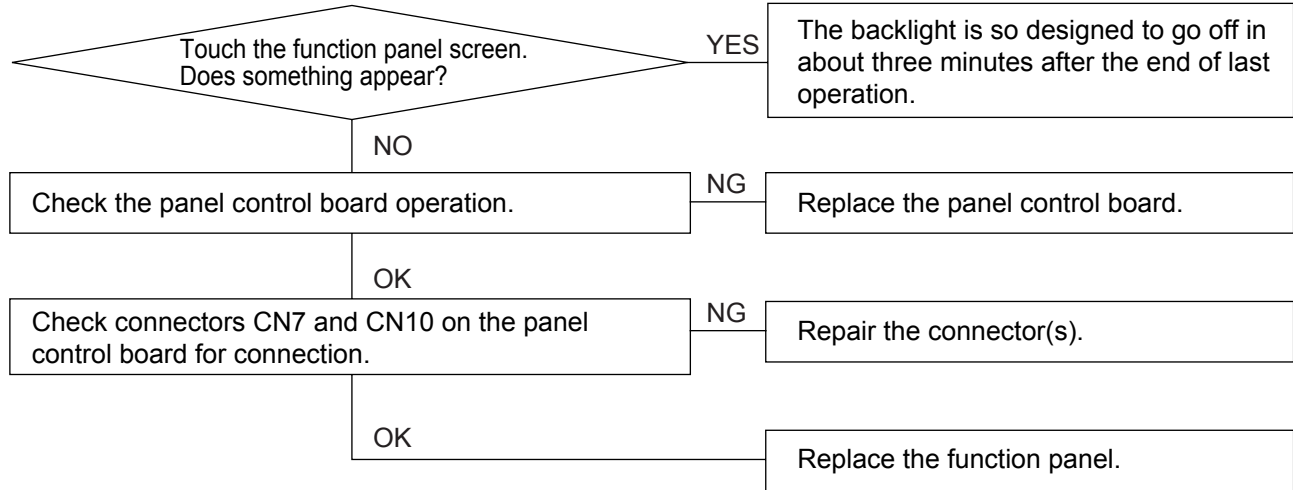
Unit	Printed circuit board	Checker LED		Communication status (trouble phenomenon)	Corrective action
		LD12 Green	LD13 Red		
Main control box	CPU board	LED1 Yellow	LED2 Red	Communication status (trouble phenomenon)	Corrective action
LH control box	LH board	LED1 Yellow	LED2 Red		
EDP unit	EC board	LED1 Yellow	LED2 Red		
LED status (*: On or blinking)		On	Off	Normal	—
		On	On	Receiving data abnormality (Communication is normal but data is abnormal.)	Check the communication cable on the receiving side of this unit (for any fold or bend).
		Off	Off	Receiving error (board operation abnormality)	Replace the printed circuit board where LEDs are off.
		Off	On	Receiving error (Receiving fails at the printed circuit board having LEDs not on.)	<ul style="list-style-type: none"> • Check the boards upstream and this board. • If LEDs are off on multiple consecutive boards, check from the one most upstream. • If LEDs are off on all boards, check connection of the communication cable between the main control box and the LH control box or replace the CPU board.

(3) Loop 1 communication loop
(Main control box CPU board - let-off motion)

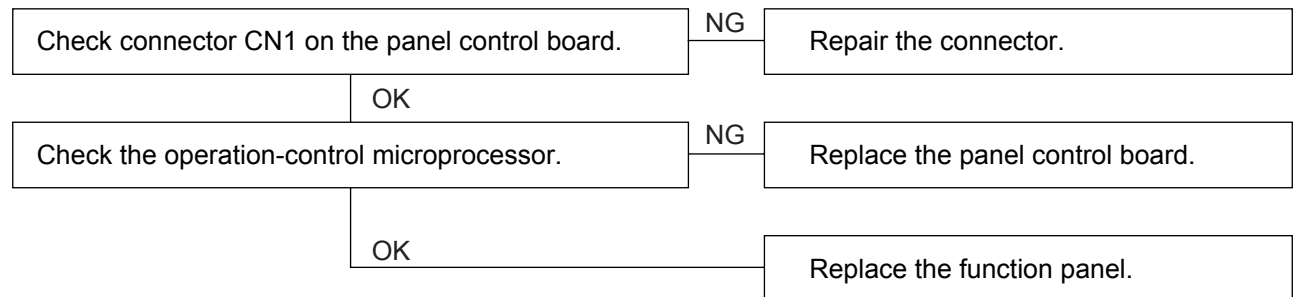
Unit	Printed circuit board	Checker LED		Communication status (trouble phenomenon)	Corrective action
Main control box	CPU board	LD5 Green	LD4 Red		
Let-off motion	LH board	D900 Green	NW1 Red		
LED status (*: On or blinking)		On	Blinking (at intervals of 1.5 seconds)	Normal	—
		Off	*	Communication failure (communication microprocessor malfunction)	Replace the corresponding control board or communication microprocessor ROM.
		On	Off	Communication failure (communication or control microprocessor malfunction)	Replace the corresponding control board. (Since LD4 starts to blink upon lapse of 45 seconds after power on, its off status can be checked only within 45 seconds after power on.)
		On	On	Receiving error (Receiving fails at the board where the LEDs are off.)	<ul style="list-style-type: none"> • Check connection of the communication cable on the receiving side of this board. • Check the boards in this unit and units upstream.

[3] Function Panel Failure

(1) Nothing is displayed on the function panel.

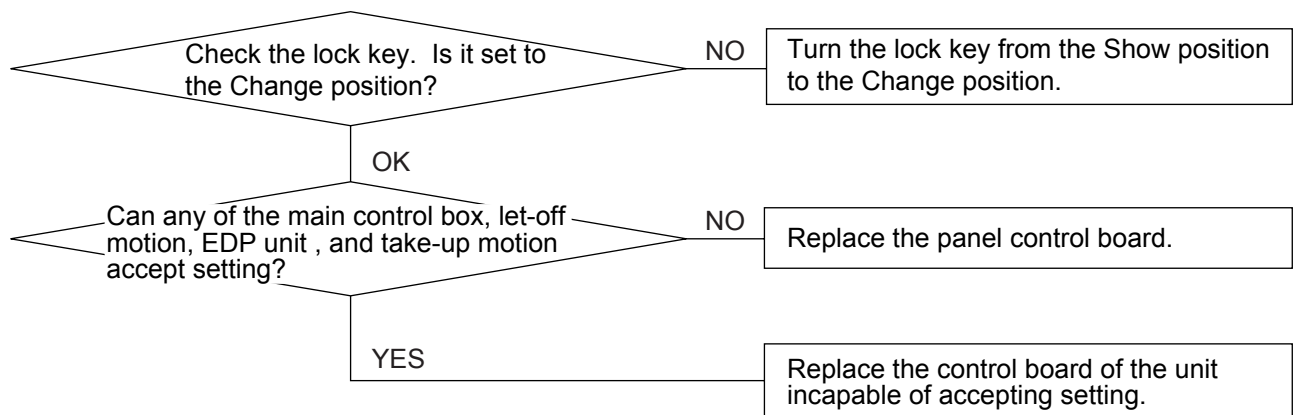


(2) The switches or buttons on the function panel are inoperative.

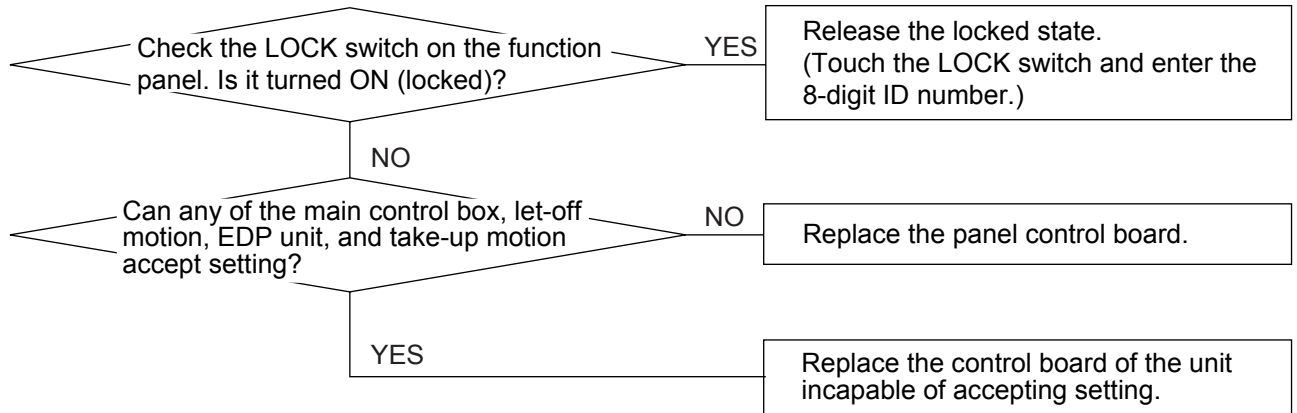


(3) No setting is accepted. (Note that the EDP cannot accept any setting while the machine is in operation.)

(3)-1 If the machine is equipped with an optional lock key:

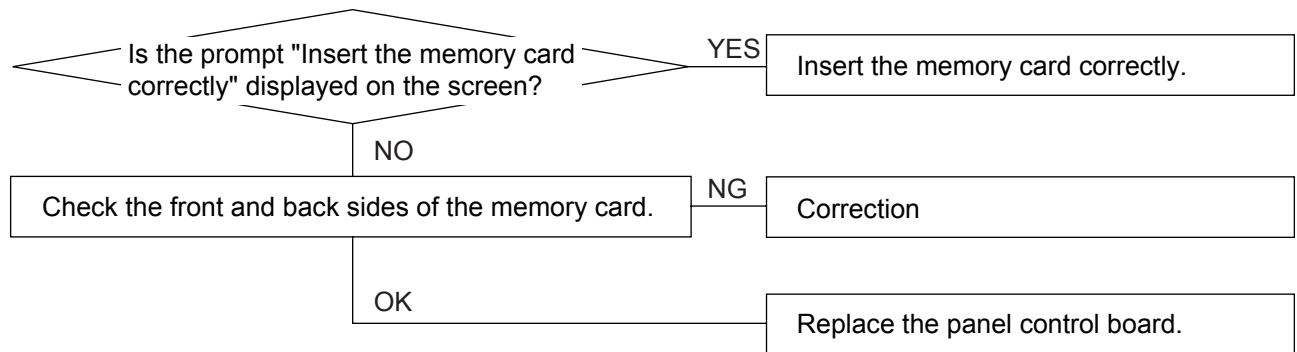


(3)-2 If the machine is not equipped with an optional lock key:

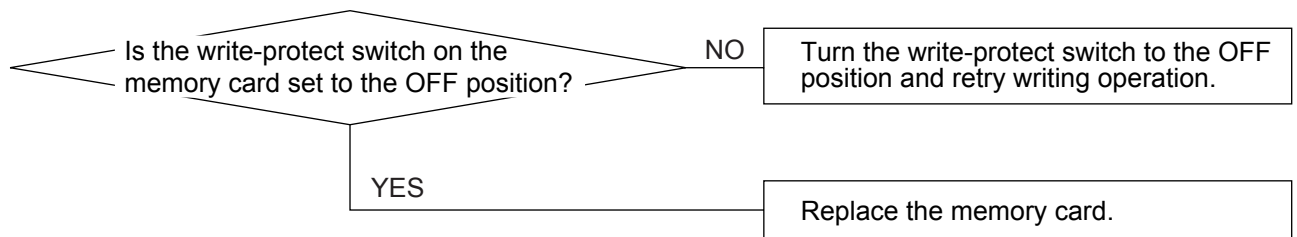


(4) Memory card

(4)-1 The memory card cannot be used.

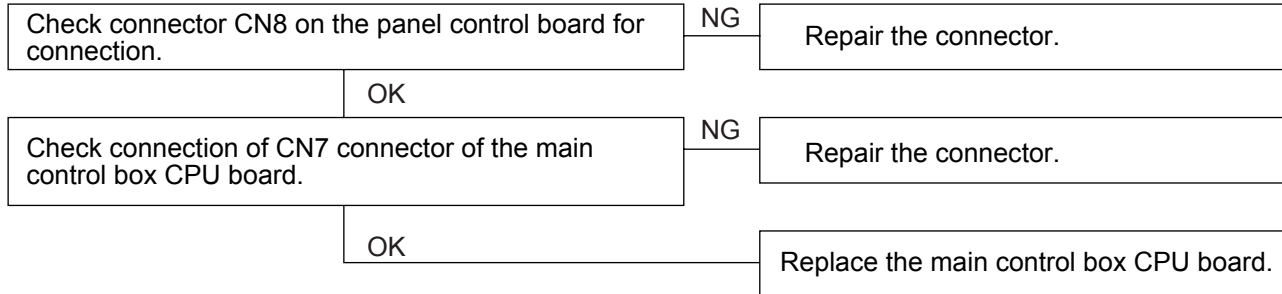


(4)-2 Data cannot be written into the memory card although it can be read from it.

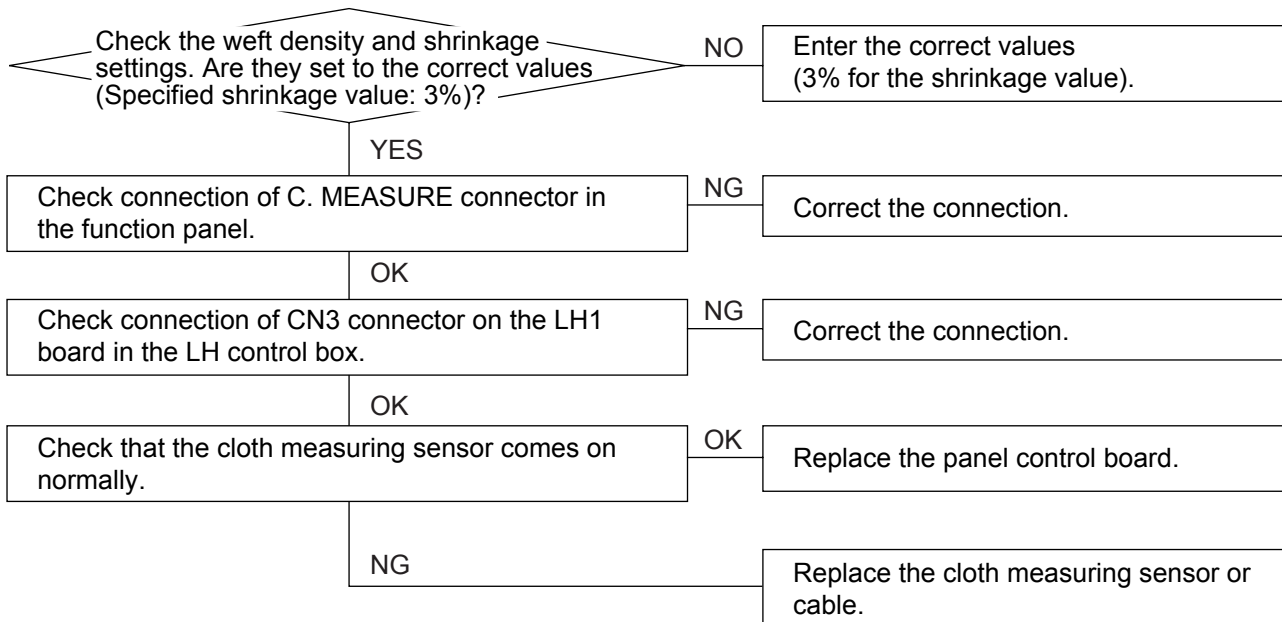


[4] Abnormal Value Monitored by the Counter on the Function Panel

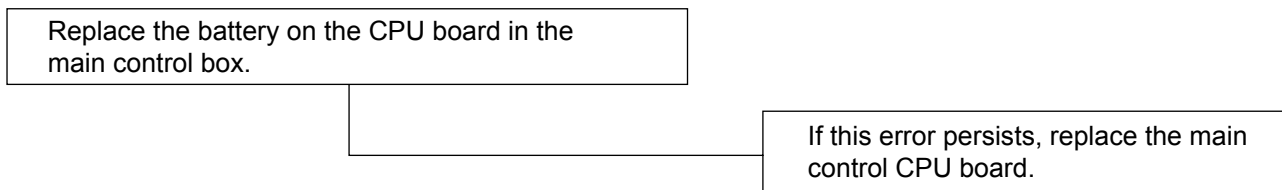
(1) The number of picks is not counted. (Pick count failure)



(2) Cloth length is not measured.

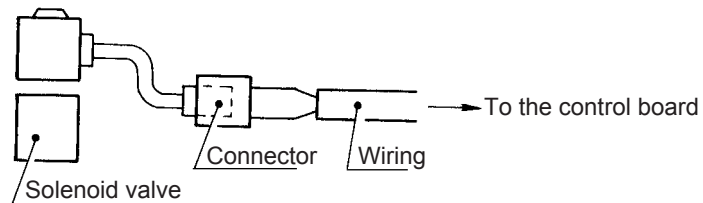
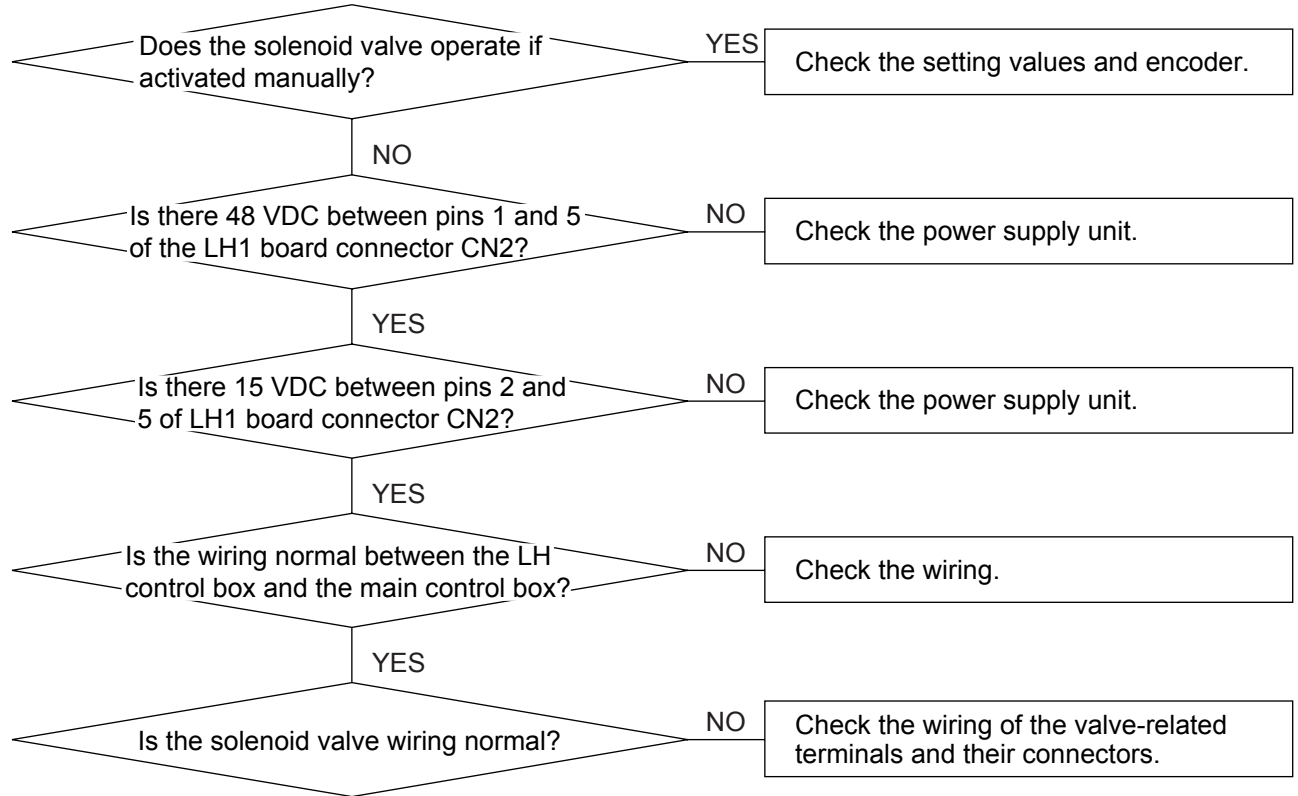


(3) Monitor values and counter values are erased.



[5] The Solenoid Valve or the LH Weft Cutter does not Operate Normally

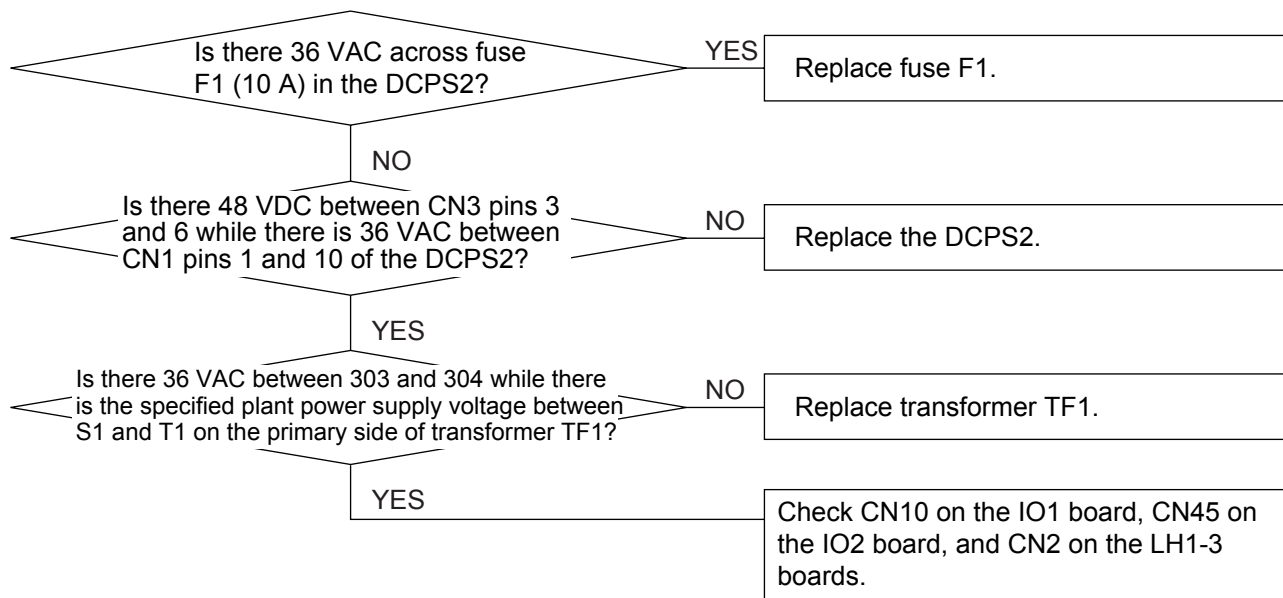
(1) Check by manual operation



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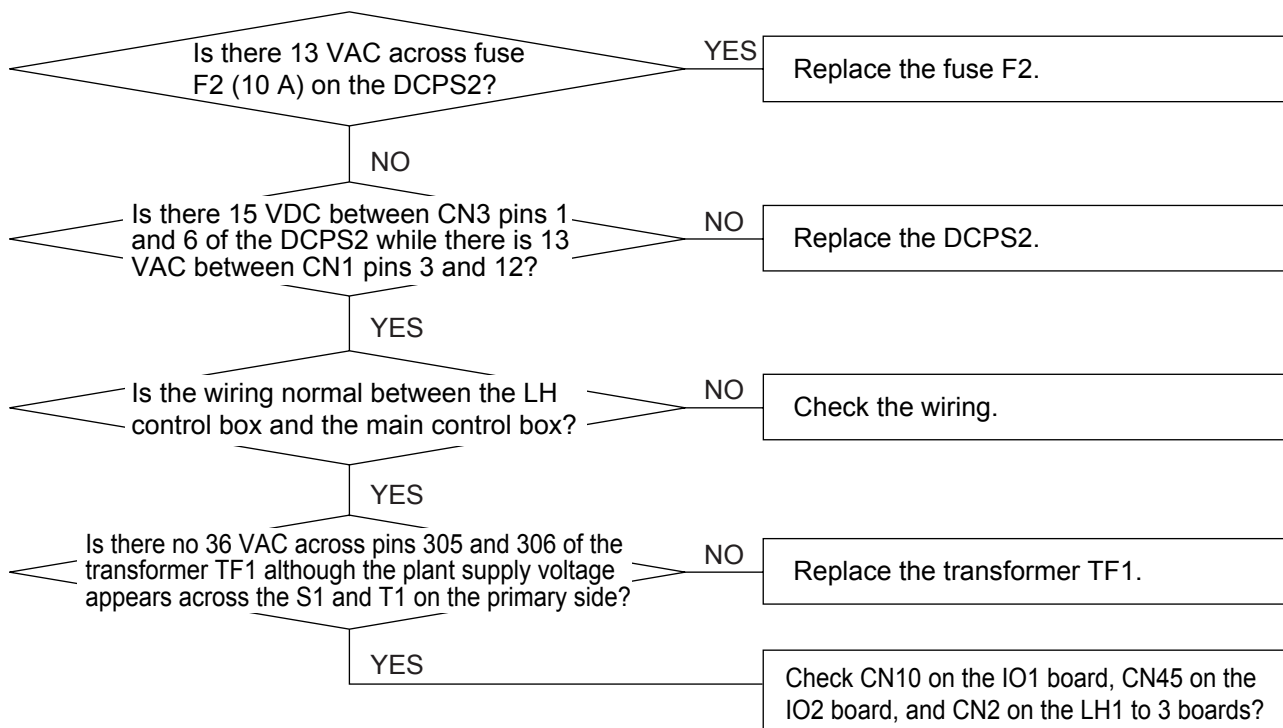
(2) Power supply unit check

(2)-1 If 48 VDC does not exist between CN2 pins 1 and 5 of the LH1 control board:

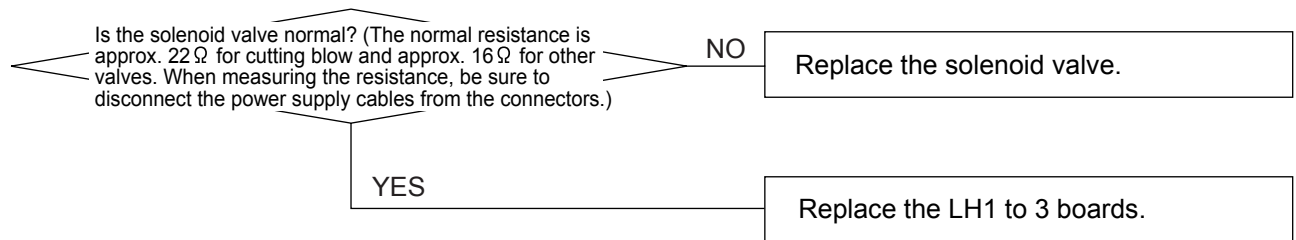


NOTE: See Overall check related to solenoid valve on the next page.

(2) -2 When 15 VDC does not exist between CN2 pins 2 and 5 of the LH1 board:



(3) Checking the solenoid valve and its relatives



(4) Others

- a) Be sure to check the operation of the error detectors (such as warp detectors) periodically (once a month).
- b) Be sure to check that switches in the control boxes or on the machines are secured with screws periodically (once a month).
- c) Do not keep the control box doors open or do not operate the machine with the doors being open. Otherwise, fly or fleece may come into the control boxes or the control boards may come off from their connectors, resulting in troubles.

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[6] Troubleshooting from Error Messages

(1) Main Control

Error code	Phenomenon	Error message	Check the following:	Do the following:	Comments
M-0024	The machine will not run.	LIGHT BARRIER INTERRUPTED (SAFETY DEVICE ON)	Is the board normal? Are the light axes of the light emitter and receiver aligned with each other? Light receiver (RH) normal? Light emitter (LH) normal?	Replace the IO1 board. Align. Replace. Replace.	
E-0028	The machine will not run.	EMERGENCY STOP BUTTON PRESSED	Is the board normal? Check the wiring for discontinuity. When released, is the emergency switch conducting between its pins?	Replace the IO1 board. Replace. Replace the emergency switch.	The emergency switch is normally closed.
M-0105	The machine will not run.	HANDLE COVER NOT INSTALLED	Limit switch installed in correct position? Wiring of the limit switch correct? Limit switch works normally? Is the board normal? Check the wiring for discontinuity.	Fix. Fix. Replace. Replace the IO1 board. Replace.	Wire NO and COM.
M-0207	The machine will not run.	BRAKE VOLTAGE FAILURE	Is the brake power (DCPS2) supplied? Brake resistance normal? Is the board normal?	Replace the DCPS2. Replace the brake. Replace the IO1 board.	Normal resistance: approx. 6Ω
M-0209	The machine will not run.	140 VDC FAILURE	140V power source normal? Is the board normal?	Replace the DCPS2. Replace the IO1 board.	140 V: Measure the voltage between CN2 pins 4 and 6 of the DCPS2.
M-0210	The machine will not run.	24V1 POWER FAILURE	24-V power supply normal? Is the board normal?	Replace the DCPS2. Replace the IO1 board.	24 V: Measure the voltage between CN2 pins 1 and 6 of the DCPS2.
M-0211	The machine will not run.	24V2 POWER FAILURE	24-V power supply normal? Is the board normal?	Replace the DCPS4. Replace the IO1 board.	24V: Measure the voltage between CN2 pins 4 and 2 of the DCPS4.
M-0212	The machine will not run.	24V4 POWER FAILURE	24-V power supply normal? Is the board normal?	Replace the DCPS2. Replace the IO1 board.	24 V: Measure the voltage between CN2 pins 1 and 6 of the DCPS2.
M-0213	The machine will not run.	48 VDC FAILURE	48V power source normal? Is the board normal?	Replace the DCPS2. Replace IO1 board.	48 V: Measure the voltage between CN3 pins 3 and 6 of the DCPS2.
M-0214	The machine will not run.	15V POWER FAILURE	15-V power supply normal? Is the board normal?	Replace the DCPS2. Replace the IO1 board.	15V: Measure the voltage between CN2 pins 1 and 6 of the DCPS2.

9.2 Troubleshooting for Electronics

Error code	Phenomenon	Error message	Check the following:	Do the following:	Comments
M-0215	The machine will not run.	P15 VDC FAILURE	15V power source normal? Is the board normal?	Replace the DCPS10. Replace the let-off control board or take-up control board.	15 V: Measure the voltage between CN2 pins 4 and 3 of the DCPS10.
M-0216	The machine will not run.	M15VDC FAILURE	Is -15 V power source normal? Is the board normal?	Replace the DCPS10. Replace the let-off control board or take-up control board.	-15 V: Measure the voltage between CN2 pins 1 and 3 of the DCPS10.
M-0217	The machine will not run.	12-V POWER FAILURE	12-V power supply normal? Is the board normal?	Replace the DCPS3. Replace the IO1 board.	12 V: Measure the voltage between CN2 pins 4 and 2 of the DCPS3.
M-0218	The machine will not run.	5-V POWER FAILURE	Is the board normal?	Replace the CPU board.	Change from 12 V to 5 V on the CPU board.
M-0220	The machine will not run.	MAIN MOTOR OVERHEAT	Any abnormal noise from the motor? Is the thermal switch closed (cold)? Is the board normal?	Replace the bearing. Replace the thermal switch. Replace the IO1 board.	Normally closed between pins 10 and 12.
M-0221	The machine will not run.	ENCODER Z-PHASE ERROR	12-V power supply normal? Does the LED on the encoder come on? Is the board normal?	Replace the DCPS3. Replace the encoder. Replace the IO1 board and the CPU board in this order.	12 V: Measure the voltage between CN2 pins 4 and 2 of the DCPS3. The LED comes on once per encoder rotation.
M-0222	The machine will not run.	ENCODER, A- OR B-PHASE ERROR	12-V power supply normal? Is the encoder normal? Does the magnet contactor operate normally? Are the control boards A and B normal? Group-control inverter tripped?	Replace the DCPS3. Replace the encoder. Replace the magnet contactor. Replace the IO1 board and the CPU board in this order. Reset the inverter.	12 V: Measure the voltage between CN2 pins 4 and 2 of the DCPS3. In reverse rotation: MSI, MSR and MSY are on. Controls up to three machines concurrently.
M-0117	Automatic lubrication failure	OILING FAILED (PRESSURE IS LOW)	Air bubbles in grease? Pressure sensor normal? Is the pump discharging grease? Is the lubrication motor running? Is the distributing valve clogged?	Bleed air from grease. Replace the pressure sensor and IO1 board in this order. Clean the pump. (Replace it if necessary.) Replace the IO1 board and the lubrication motor in this order. Clean the valve. (Replace it if necessary.)	
M-0118	Automatic lubrication failure	OILING FAILED (PRESSURE IS HIGH)	Is the grease type correct? Is the pressure sensor normal? Is the board normal?	Use correct grease. Replace the pressure sensor. Replace the IO1 board.	Refer to Section M.3.1.

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Error code	Phenomenon	Error message	Check the following:	Do the following:	Comments
M-0304	The machine will not start full automatic operation.	NO INPUT FROM ENCODER Z-PHASE (IN OPERATION)	Is the machine provided with the SCI? Is the encoder normal? Does the magnet contactor operate normally? Is the board normal?	Replace the magnet contactor (small) in the SCI box. Replace the encoder. Replace the magnet contactor. Replace the IO1 board and the CPU board in this order.	Chattering at the contact The internal LED comes on when the Z-phase is detected.
M-0302	Sensor abnormality	WF1 FAILURE	Any abnormal reed vibration? Nearly discontinuous feeler cable? Is the feeler sensitivity adjusted properly? Is the weft arrival timing too early? Is the board normal? Too much fly or fleece?	Use a reed vibration control device. Replace the feeler. Turn the VR clockwise (to decrease the sensitivity). Adjust the pressure and arrival timing. Replace the IO1 board and the CPU board in this order. Adjust the air jet pressure.	Weft arrival timing > 190° The feeler board is installed on the IO1 board.
M-0305	Abnormal machine stop	REVERSE-REV. PULSE FROM ENCODER (IN OPERATION)	Is the encoder normal? Are the control boards normal? Are heald frames well balanced?	Replace the encoder. Replace the IO1 board and the CPU board in this order. Insert a balance frame.	
M-0306	Abnormal machine stop	ENCODER FWD-REV. PULSE COUNT ERROR (IN OPERATION)	Is the encoder normal? Are the control boards normal?	Replace the encoder. Replace the IO1 board and the CPU board in this order.	
M-0402	Abnormal machine stop	MAIN CONTRL: WATCHDOG RESET	Is the control board normal?	Replace the CPU board.	Clearing the RAM may recover from this error state.
M-1000	Abnormal machine stop	EMERGENCY STOP SIGNAL FROM LET-OFF	Are the control boards normal. Is any other message related to let-off motion displayed? Check the wiring for discontinuity.	Replace the CPU board and the let-off control board in this order. Fix the problem indicated by any other message. Replace the wiring.	Check the settings carefully after replacing the let-off control board. Also check the connectors for any defective contact.
M-1400	Abnormal machine stop	EMERGENCY STOP SIGNAL FROM TAKE-UP	Is any other message related to the take-up motion displayed? Are the control boards normal? Check the wiring for discontinuity.	Fix the error indicated by any other message. Replace the CPU board and the take-up control board in this order. Replace the wiring.	Check the settings carefully after replacing the take-up control board. Also check the connectors for any defective contact.
M-1502	Abnormal machine stop	TAPO: INOPERABLE (NO MISSED WEFT)	Has the nip roller come down? Are the control boards normal? Is the weft detection LS normal?	Check the valves and cylinders for any abnormal operation. Replace the IO1 board and the CPU board in this order. Replace the weft detection LS.	

9.2 Troubleshooting for Electronics

Error code	Phenomenon	Error message	Check the following:	Do the following:	Comments
M-1503	Abnormal machine stop	TAPO: PROCESSING FAILURE (TOO SHORT MISSED WEFT)	Is the missed weft length set on the function panel correct? Are the control boards normal?	Correct the setting. Replace the IO1 board and the CPU board in this order.	
M-1504	Abnormal machine stop	TAPO: PROCESSING FAILURE (TOO LONG MISSED WEFT)	Does the nip roller rotate smoothly? Is the missed weft length set on the function panel correct? Is the weft material elastic or slippery? Are the control boards normal?	Remove fly or fleece from the nip roller. Correct the setting. Change the setting of the automatic operation mode. Replace the IO1 board and the CPU board in this order.	
M-1700	Abnormal machine stop	MAIN CONTROL: EMERGENCY STOP SIGNAL INPUT FROM SCI	Is any other error message related to the SCI displayed? Are the control boards normal? Check the wiring for discontinuity.	Fix the error indicated by any other message. Replace the IO1 board and the CPU board in this order. Replace the wiring.	Also check the connectors for any defective contact.
M-1704	Abnormal machine stop	SCI: OVERCURRENT	Is the motor torque boost set too high? Is the hall-effect element (current sensor) normal? Is the control board normal? Are heald frames balanced well?	Decrease the set value. Replace the hall-effect element. Replace the SCI board. Insert a balance frame.	
M-1705	Abnormal machine stop	SCI: OVERVOLTAGE	Is the main motor speed uneven? Is the control board normal?	Insert a balance frame. Replace the SCI board.	Introduce a higher-capacity SCI.
M-1707	Abnormal machine stop	SCI: MAIN MOTOR RPM ERROR	Is the MS in the SCI on? Is the control board normal?	Replace the MS (small) with an MS (large). Replace the SCI board.	
M-1801	Abnormal machine stop	ELECTRONIC DOBBY: ABNORMAL SIGNALING FROM PROXIMITY SWITCH	Are the control boards normal? Is the proximity switch normal? Is the proximity switch installed in the correct position?	Replace the IO2 board and the CPU board in this order. Replace the proximity switch. Install the proximity switch in the correct position.	
M-1806 M-1825	Abnormal machine stop	ELECTRONIC DOBBY: OPEN CIRCUIT IN SOLENOID NO. **	Is the magnet module normal? Is the control board normal? Check the wiring for discontinuity.	Replace the magnet module. Replace the IO2 board. Replace the wiring.	Carefully check the connector on the dobbie side.
No error code	False pick (WF1)		Any abnormal reed vibration? Is the set pulse count for WF1 correct? Is the feeler cable nearly disconnected? Is WF1 set to off? Are control boards normal? Too much fly or fleece?	Use a reed vibration control device. Increase the set pulse count for WF1. Replace the feeler. Set WF1 to on. Replace the IO1 board and the CPU board in this order. Turn the VR clockwise (to decrease the sensitivity).	The feeler board is installed on the IO1 board.

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Error code	Phenomenon	Error message	Check the following:	Do the following:	Comments
No error code	False pick (WF2)		<p>Check the feeler cable for discontinuity.</p> <p>Is the feeler lens fouled with fly or fleece?</p> <p>Is the feeler lens scratched?</p> <p>Is the feeler sensitivity adjusted properly?</p> <p>Does the weft fly in front of the lens?</p> <p>Does the yarn detection LED blink?</p>	<p>Replace the feeler.</p> <p>Clean the lens.</p> <p>Replace WF2.</p> <p>Turn the VR counterclockwise (to increase the sensitivity).</p> <p>Make adjustment so that the yarn fly in front of the lens.</p> <p>Replace the IO1 board and the CPU board in this order.</p>	The feeler board is mounted on the IO1 board.
	False pick (trimmed selvage)		<p>Is the touch bar painted too thick?</p> <p>Are the sensor functions deactivated in the TEST mode?</p> <p>Is the control board normal?</p> <p>Check the wiring for discontinuity.</p>	<p>File the paint off.</p> <p>Activate the sensor functions.</p> <p>Replace the IO1 board.</p> <p>Replace the wiring.</p>	
	False pick (warp)		<p>Are sensor functions deactivated in the TEST mode?</p> <p>Is the dropper bar normal?</p> <p>Is the dropper box normal?</p> <p>Are control boards normal.</p> <p>Check the wiring for discontinuity.</p>	<p>Activate the sensor functions.</p> <p>Replace the dropper bar.</p> <p>Replace the dropper box.</p> <p>Replace the wart stopper, the IO1 board and the CPU board in this order.</p> <p>Replace the wiring.</p>	
M-0219	False pick (warp)	WARP STOP CONNECTOR DISCONNECTED	<p>Is the dropper box normal?</p> <p>Is the warp stop connector disconnected?</p> <p>Is the terminal on the warp stop board loosened?</p> <p>Check the wiring for discontinuity.</p>	<p>Replace the dropper box.</p> <p>Connect the connector securely.</p> <p>Retighten the terminal.</p> <p>Replace the wiring.</p>	Check the resistors in the dropper box.
	False pick (leno selvage)		<p>Are the stop motion feelers installed in place?</p> <p>Are feeler functions deactivated in the TEST mode?</p> <p>Is the control board normal?</p> <p>Check the wiring for discontinuity.</p>	<p>Fix the stop motion feelers correctly.</p> <p>Activate the feeler functions.</p> <p>Replace the IO1 board.</p> <p>Replace the wiring.</p>	
	Pattern disorder Pattern disorder (dobby)		<p>Does the main motor overrun when stopped?</p> <p>Is the magnet gap adjusted properly?</p> <p>Is the magnet module normal?</p> <p>Is the control board normal?</p> <p>Check the wiring for discontinuity.</p>	<p>Adjust the main motor brake clearance.</p> <p>Adjust the gap.</p> <p>Replace the magnet module.</p> <p>Replace the IO2 board.</p> <p>Replace the wiring.</p>	<p>Adjustment is necessary if the main motor stops near 0°</p> <p>Carefully check the connector on the doobby side.</p>

9.2 Troubleshooting for Electronics

Error code	Phenomenon	Error message	Check the following:	Do the following:	Comments
M-0303	Sensor abnormality	WF2 FAILURE	<p>Any reed vibration?</p> <p>Is the feeler cable nearly discontinuous?</p> <p>Is the feeler sensitivity adjusted properly?</p> <p>Are the control boards normal?</p> <p>Too much fly or fleece?</p>	<p>Use a reed vibration control device.</p> <p>Replace WF2.</p> <p>Turn the VR clockwise (to decrease the sensitivity).</p> <p>Replace the IO1 board and the CPU board in this order.</p> <p>Adjust the air jet pressure.</p>	The feeler board is mounted on the IO1 board.
M-0307 M-0319	Balloon sensor abnormality	BALLOON SENSOR FAILURE EXCESSIVE BALLOON SENSOR PULSES (COLOR *) INSUFFICIENT BALLOON SENSOR PULSES (COLOR *)	<p>Is the balloon sensor normal?</p> <p>Is the balloon sensor installed correctly?</p> <p>Are the balloon sensor lens and reflector fouled?</p> <p>Are control boards normal?</p>	<p>Replace the balloon sensor.</p> <p>Fix the balloon sensor in the correct position.</p> <p>Clean the lens and reflector.</p> <p>Replace the EI, LH1 (EC), IO1 and CPU boards in this order.</p>	EC control board for colors 3 to 6
M-0103	Initialized data	MAIN CONTROL: SETTING VALES INITIALIZED	<p>Is the battery voltage normal?</p> <p>Is the brake switch kept pressed?</p>	<p>Replace the battery.</p> <p>Replace the SW board.</p>	<p>Specified battery voltage: 3.6 V</p> <p>The switch is normally opened.</p>
M-0301	Incorrect stop position	LACK OF BRAKE TORQUE	<p>Is the 24-V power supplied?</p> <p>Is the 140-V power supplied?</p> <p>Is the brake normal?</p> <p>Is the brake clearance normal?</p> <p>Is the control board normal?</p>	<p>Replace the DCPS2.</p> <p>Replace the DCPS2.</p> <p>Replace the brake.</p> <p>Adjust the clearance.</p> <p>Replace the IO1 board.</p>	<p>24 V: Measure the voltage between CN4 pins 1 and 6.</p> <p>140 V: Measure the voltage between CN4 pins 4 and 6.</p> <p>Standard clearance: 0.3 mm</p>
M-0000	False stop (warp)	WARP STOP	<p>Is the dropper bar normal?</p> <p>Is the dropper box normal?</p> <p>Are there any loosened or crossing warp yarns?</p> <p>Are the control boards normal?</p> <p>Is the wiring damaged?</p>	<p>Replace the dropper bar.</p> <p>Replace the dropper box.</p> <p>Eliminate any loosening or crossing.</p> <p>Replace in the order of the warp detector, the IO1 board and the CPU board.</p> <p>Replace the wiring.</p>	
M-0001	False stop (leno selvage)	SELVAGE STOP, RIGHT-HAND	<p>Is the control board normal?</p> <p>Is the wiring damaged?</p>	<p>Replace the IO1 board.</p> <p>Replace the wiring.</p>	
M-0002 M-0003	False stop	FULL-LENO SELVAGE STOP, RIGHT-HAND FULL-LENO SELVAGE STOP, LEFT-HAND	<p>Are the stop motion sensors installed correctly?</p> <p>Is the pin stopper installed properly?</p> <p>Is the control board normal?</p> <p>Are insulating spacers installed?</p> <p>Is the wiring damaged?</p>	<p>Fix them correctly.</p> <p>Install it properly.</p> <p>Replace the IO1 (LH1) board.</p> <p>Install insulating spacers correctly.</p> <p>Replace the wiring.</p>	L1 board for full-leno selvage stop left-hand.

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Error code	Phenomenon	Error message	Check the following:	Do the following:	Comments
M-0004 M-0009	False pick (WF1)	WEFT STOP BY WF1 (COLOR*)	<p>Is the leveling bar applied?</p> <p>Check the feeler cable for discontinuity.</p> <p>Is the feeler lens covered with fly or fleece?</p> <p>Is the feeler lens scratched?</p> <p>Is the feeler sensitivity adjusted properly?</p> <p>Does the weft fly in front of the lens?</p> <p>Does the weft detection LED blink?</p>	<p>Decrease the set WF1 detection pulses.</p> <p>Replace WF1.</p> <p>Clean the lens.</p> <p>Replace WF1.</p> <p>Turn the VR counterclockwise (to increase the sensitivity).</p> <p>Adjust the feeler position until the weft fly in front of it.</p> <p>Replace the IO1 board and the CPU board in this order.</p>	The feeler board is mounted on the IO1 board.
M-0010 M-0015	False stop (WF2)	WEFT STOP BY WF2 (COLOR*)	<p>Any abnormal reed vibration?</p> <p>Is the set value of WF2 pulse correct?</p> <p>Is the feeler cable nearly disconnected (defective contact or discontinuity)?</p> <p>Are the control boards normal?</p> <p>Too much fly or fleece?</p>	<p>Use a reed vibration control device.</p> <p>Increase the set value of WF2 pulse count.</p> <p>Replace WF2.</p> <p>Replace the IO1 board and the CPU board in this order.</p> <p>Turn the VR clockwise (to decrease the sensitivity).</p>	The feeler board is mounted on the IO1 board.

(2) EDP

Error code	Phenomenon	Error message	Check the following:	Do the following:	Comments
E-0003	Abnormal machine stop	EDP: INVERTER OVERCURRENT	Any fly or fleece got into the drum? Does the winding arm rotate smoothly? Any problems with the control boards EI and EC?	Remove fly. Replace the bearing in the motor. Replace the EI board and the LH1 (EC) board in this order.	EC board for colors 3 to 6.
M-0009	Abnormal machine stop	EDP: DRUM MOTOR OVERHEAT	Amplifier gain too high? Temperature switch in the motor normal? Does the winding arm rotate smoothly? Any problems with the control board EI?	Decrease the amplifier gain. Replace the motor. Replace the bearing in the motor. Replace the EI board.	
E-0010	Abnormal machine stop	EDP: DRUM MOTOR REVOLUTION ERROR	Proximity switch in the motor normal? Any problems with the control board EI?	Replace the proximity switch. Replace the EI board.	Manually turn the arm to see if the LED comes on.
E-0013	Abnormal machine stop	EDP: NO ENCODER A-PHASE SIGNAL FROM MAIN CONTROL	Encoder normal? Any problems with the control boards B, EC, and EI?	Replace the encoder. Replace the IO1 board, LH1 (EC) board and the EI board in this order.	EC board for colors 3 to 6
E-0006	The machine will not run.	EDP: INVERTER LOW VOLTAGE	200 VAC supplied to the EDP? Any problems with the control board EI?	Check the magnet contactor and transformer box. Replace the EI board.	Be sure to check for all of three phase lines.
E-0007	The machine will not run.	EDP: INVERTER DEFECTIVE	Transformer normal? Does the magnet contactor operate normally? Any problems with the control boards EI and EC?	Replace the transformer. Replace the magnet contactor. Replace the IO1 board and the LH1 (EC) board in this order.	EC board for colors 3 to 6

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(3) Let-off Motion

Error code	Phenomenon	Error message	Check the following:	Do the following:	Comments
L-0001	Abnormal machine stop	TOO HIGH WARP TENSION	Encoder normal? Servomotor normal? Load cell normal? Any problems with the let-off control board and board B. Any mechanism jerky? Warp-related set data correct? Power source normal?	Replace. Replace. Replace. Replace the let-off control board, servo amplifier, and control board B in this order. Make the mechanical adjustment. Correct the setting. Replace the DCPS10.	Tension roller and its related parts Weft density and beam dia. ±15 VDC
L-0002	Abnormal machine stop	TOO LOW WARP TENSION	Encoder normal? Servomotor normal? Load cell normal? Any problems with the let-off control board and board B. Warp-related set data correct? Power source normal?	Replace. Replace. Replace. Replace the let-off control board, servo amplifier, and control board B in this order. Correct the setting. Replace the DCPS10.	Weft density and beam dia. ±15 VDC
L-0003	Abnormal machine stop	LET-OFF: NO ENCODER SIGNAL (AFTER OPERATION START)	Encoder normal? Does the magnet contactor operate normally? Machine rotation direction correct? Any problems with the control board B and let-off control board?	Replace. Replace. Replace the control board IO1 and let-off control board in this order. Correct the wiring.	Check the rotation direction both in inching and automatic operation.
L-0006	Abnormal machine stop	LET-OFF: SERVO AMPLIFIER ERROR	Any problems with the let-off control board? Any other messages relating to the servo amplifier? Power source normal? Power supply cable normal?	Replace the let-off control board and servo amplifier in this order. Fix problems indicated by other messages. Replace the DCPS10. Replace the power supply cable.	Be careful with instantaneous power failure of the 5 VDC source. Be careful with contact failure of the 5 VDC power line.
L-000C	Abnormal machine stop	LET-OFF: SERVO MOTOR OVERHEAT (SOFTWARE-DETECTED)	Servo amplifier normal? Servomotor normal? Warp beam mechanically locked? Does the warp beam rotate smoothly? Resolver cable normal?	Replace. Replace. Check the easing motion for any jerky mechanism. Clear the RAM, set correct data, and press the Tension Restore switch to restore the preset tension. Replace.	
L-000D	Abnormal machine stop	LET-OFF: SERVO AMP., SPEED CONTROL AMP. SATURATED	Servo amplifier normal? Servomotor normal? Warp beam mechanically locked? Resolver cable normal?	Replace. Replace. Check the easing motion for any jerky mechanism. Replace.	

9.2 Troubleshooting for Electronics

Error code	Phenomenon	Error message	Check the following:	Do the following:	Comments
L-000E	Abnormal machine stop	LET-OFF: SERVO AMP. OVERCURRENT (SOFTWARE - DETECTED)	Servo amplifier normal? Servomotor normal? Warp beam mechanically locked?	Replace. Replace. Check the easing motion for any jerky mechanism.	
L-0018	Abnormal machine stop	LET-OFF: DROPPED MAIN AC POWER SUPPLY VOLTAGE TO SERVO AMP.	200 VAC supplied? Servo amplifier normal? Serious voltage drop at the start of let-off operation?	Check the circuit breaker of the transformer box. Replace. Replace the power cable with higher capacity one.	Except for 200/220V versions
L-001F	Abnormal machine stop	LET-OFF: ABNORMAL ENCODER SIGNAL PHASE	Encoder normal? Any problems with the control board B and let-off control board? Heald frames well balanced?	Replace. Replace the control board IO1 and let-off control board in this order. Insert a balance frame.	Check also the backlash When the brake is released, the machine runs in the reverse rotation.
L-0020	Abnormal machine stop	LET-OFF: SERVOCOUNTER OVERFLOW	Servomotor normal? Warp beam mechanically locked? Does the warp beam rotate smoothly? Resolver cable normal? Any problems with the let-off control board?	Replace. Check the easing motion for any jerky mechanism. Clear the RAM, set correct data, and press the Tension Restore switch to restore the preset tension. Replace. Replace the let-off control board and servo amplifier.	
L-0005	The machine will not run.	LOAD CELL ERROR	Load cell normal? Any problems with the let-off control board? Power source normal?	Replace. Replace. Replace the DCPS1.	±15 VDC
L-0015	The machine will not run.	LET-OFF: RESOLVER CABLE BROKEN	Servo amplifier normal? Servomotor normal? Resolver cable normal? Power source normal?	Replace. Replace. Replace. Replace the DCPS1.	
L-0046	The machine will not run.	WARP TENSION CALIBRATION NECESSARY	Any problems with the let-off control board? After carrying out let-off tension calibration, any data entry before powering off?	Replace. Enter any let-off related data.	
L-0021	Initialized data	LET-OFF: SETTING VALUES INITIALIZED	Data backup battery voltage normal? Any problems with the let-off control board?	Replace the battery. Replace.	Specified voltage: 3.6V
L-001E	Manual driving fails.	LET-OFF: COMMAND NOT EXECUTABLE	Any problems with the let-off control board and panel control board? Optical fiber loop normal? During let-off operation, have you attempted to command any other operation?	Replace the let-off control board and panel control board in this order. Replace defective optical fibers. No machine error.	

