Model PL-P1a

(Machine Code: G132)

SERVICE MANUAL

6 August 2004
Subject to Change

⚠IMPORTANT SAFETY NOTICES

PREVENTION OF PHYSICAL INJURY

1. Before disassembling or assembling parts of the printer and peripherals, make sure that the printer power cord is unplugged.
2. The wall outlet should be near the printer and easily accessible.
3. If any adjustment or operation check has to be made with exterior covers off or open while the main switch is turned on, keep hands away from electrified or mechanically driven components.
4. The printer drives some of its components when it completes the warm-up period. Be careful to keep hands away from the mechanical and electrical components as the printer starts operation.
5. The inside and the metal parts of the fusing unit become extremely hot while the printer is operating. Be careful to avoid touching those components with your bare hands.

HEALTH SAFETY CONDITIONS

Toner and developer are non-toxic, but if you get either of them in your eyes by accident, it may cause temporary eye discomfort. Try to remove with eye drops or flush with water as first aid. If unsuccessful, get medical attention.

OBSERVANCE OF ELECTRICAL SAFETY STANDARDS

The printer and its peripherals must be serviced by a customer service representative who has completed the training course on those models.

SAFETY AND ECOLOGICAL NOTES FOR DISPOSAL

1. Do not incinerate toner bottles or used toner. Toner dust may ignite suddenly when exposed to an open flame.
2. Dispose of used toner, the maintenance unit which includes developer or the organic photoconductor in accordance with local regulations. (These are non-toxic supplies.)
3. Dispose of replaced parts in accordance with local regulations.

LASER SAFETY

The Center for Devices and Radiological Health (CDRH) prohibits the repair of laser-based optical units in the field. The optical housing unit can only be repaired in a factory or at a location with the requisite equipment. The laser subsystem is replaceable in the field by a qualified Customer Engineer. The laser chassis is not repairable in the field. Customer engineers are therefore directed to return all chassis and laser subsystems to the factory or service depot when replacement of the optical subsystem is required.

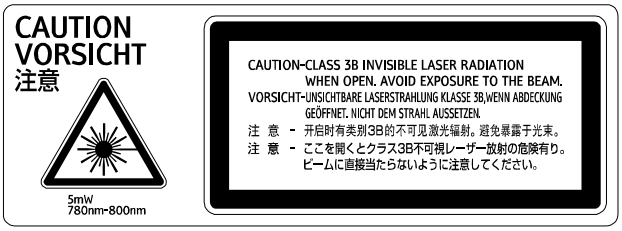
⚠WARNING

Use of controls, or adjustment, or performance of procedures other than those specified in this manual may result in hazardous radiation exposure.

⚠WARNING

WARNING: Turn off the main switch before attempting any of the procedures in the Optics Unit section. Laser beams can seriously damage your eyes.

CAUTION MARKING:



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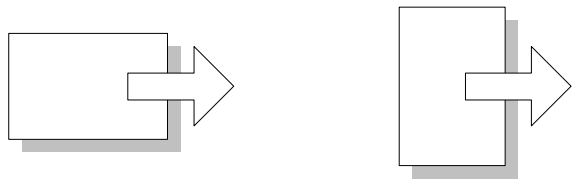
Symbols and Abbreviations

This manual uses the symbols and abbreviations shown below.

Symbol	Meaning
☛	Refer to section number
	Clip ring
	Screw
	Connector
	E ring
SEF	Short Edge Feed
LEF	Long Edge Feed



Short Edge Feed (SEF) **Long Edge Feed (LEF)**

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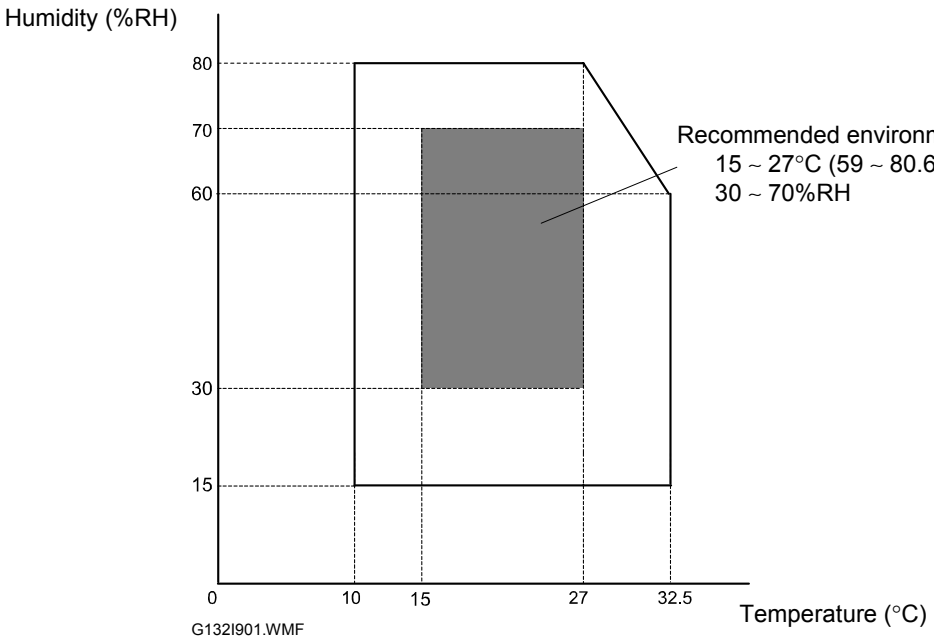
1. INSTALLATION

1.1 INSTALLATION REQUIREMENTS

1.1.1 ENVIRONMENT



1. Temperature range: 10 ~ 32.5°C (50 ~ 90.5°F)
2. Humidity range: 15 ~ 80%RH
3. Do not install the machine areas that get direct sunlight.
4. Do not install the machine areas with bad airflow.
5. Do not let the machine get temperature changes from these:
   1) Direct cool air from an air conditioner
   2) Direct heat from a heater
6. Do not install the machine areas that can get corrosive gas.
7. Install the machine at locations lower than 2,500 m (8200 ft.).
8. Install the machine on a strong, level base.
9. Do not install the machine areas that get strong vibrations.

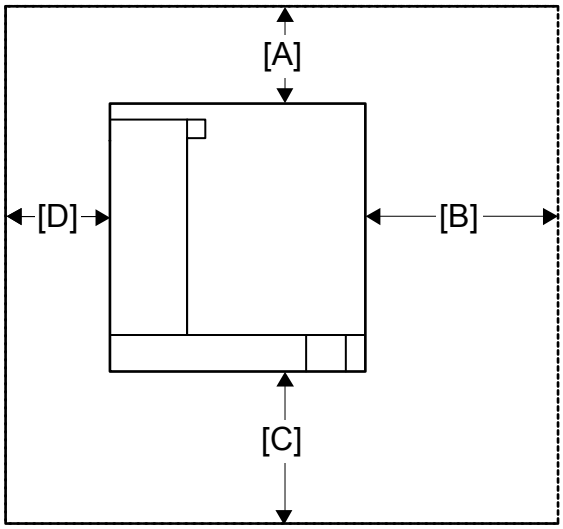
1.1.2 MACHINE LEVEL

Front to back: 1 degree or less

Left to right: 1 degree or less

1.1.3 MACHINE SPACE REQUIREMENT

Printer Only



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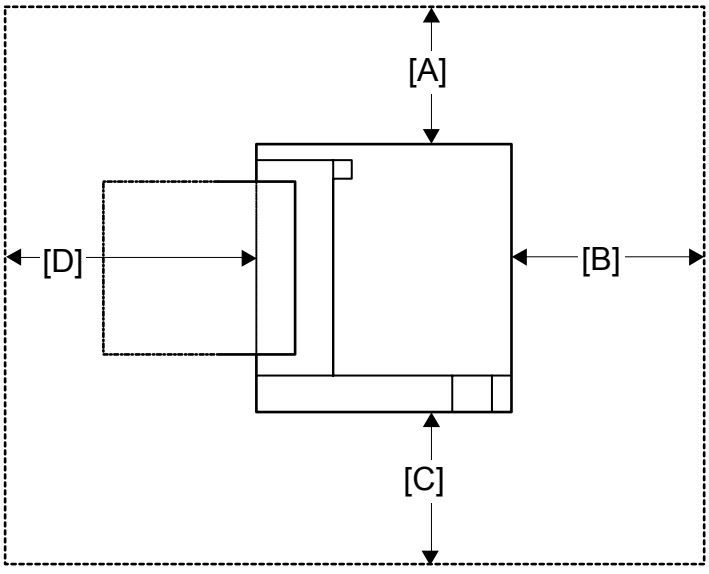
[A] (right): 200 mm (8")
[B] (front): 700 mm (28")
[C] (left): 500 mm (20")
[D] (rear): 250 mm (10")

Printer and Duplex Unit



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[A] (right): 500 mm (20")
[B] (front): 700 mm (28")
[C] (left): 500 mm (20")
[D] (rear): 700 mm (28")

NOTE: The space for maintenance work is included.

1.1.4 POWER REQUIREMENT

⚠CAUTION

1. Put the power plug tightly in the outlet.
2. Do not use extension cords.
3. Ground the machine.

1. Input voltage level: 120 V, 60 Hz, 11 A or less
   220 V ~ 240 V, 50 Hz: More than 6 A
2. Permissible voltage fluctuation: ±10 %
3. Do not put anything on the power cord.

1.2 INSTALLATION PROCEDURE

1.2.1 INSTALLING THE PRINTER

See the Operating Instructions.

1.3 MOVING THE MACHINE

Use high caution when you move the machine:

1. You need two or more persons to move the machine. The machine weighs about 31.5 kg (69 lb) without optional units.Keep the machine level at the time you move it.
3. Put the machine on a flat area. Make sure that the whole part of the base supports the weight of the machine.
4. Use the padding in the original package.
5. Remove these units before you move the machine:
   - Photoconductor unit
   - Optional paper feed unit
   - Optional duplex unit
   - Paper

   NOTE: Do not remove the waste toner bottle. Waste toner may fall from the waste toner path.
6. Protect the photoconductor unit surface with paper or cloth.
7. Clean the units and components in the printer.
8. Secure the paper tray and all exterior covers with tape.

2. PREVENTIVE MAINTENANCE

2.1 USER MAINTENANCE

Page Count

The table shows the components that require maintenance when the printer has output a certain number of pages.

Key: C: Clean, R: Replace, L: Lubricate, I: Inspect

Component	3.7KP	13.2KP	EM	Remarks
Registration roller			C	
Waste toner bottle	R			☛ NOTE 1)
OPC belt unit		R		☛ NOTE 1), 2)

NOTE: 1) The life is decided by the number of developments. The number in the table is calculated for these conditions: ① A4 SEF, ② 5% image coverage ratio, ③ two pages per job, ④ 50% color ratio.
2) The user must do this procedure after they replace the OPC belt unit: Utility menu > Clear Belt CG > Execute > Completed.

2.2 SERVICE MAINTENANCE

Necessary Setting

- You must do the PM counter initialization (Service Menu > Maintenance > Item) after you replace these units:
  - Transfer belt unit
  - Transfer roller
  - Transfer roller cleaning unit
  - Paper feed roller
  - Separator pad
- You must do “Clear Fuser” (Utility Menu > Clear Fuser) after you replace the Fusing unit.

Page Count

The table shows the components that need maintenance when the printer has output a certain number of pages.

Key: C: Clean, R: Replace, L: Lubricate, I: Inspect

PRINTER

Component	47KP	90KP	120KP	Remarks
Fusing unit	R			☛ NOTE 1)
Transfer belt cleaning unit			R	☛ NOTE 3)
Transfer roller			R	☛ NOTE 3)
Paper feed roller			R	☛ NOTE 3)
Separator pad			R	☛ NOTE 3)
Transfer belt unit			R	☛ NOTE 2), 3)

PAPER FEED UNIT

Component	47KP	90KP	120KP	Remarks
Paper feed roller		R		
Separator pad		R		

NOTE: 1) The figure is calculated for these conditions:① A4 SEF, ② 5% image coverage ratio, ③ two pages per job, ④ 50% color ratio.
2) The life is decided by the number of developmetnts. The number in the table is calculated for the conditions above.
3) These are yield parts only. But the expected yield is the same as the machine durability under the target conditions.

3. REPLACEMENT AND ADJUSTMENT

⚠CAUTION

Set the power off and disconnect the printer before you do the removal procedures.

3.1 MODEL G132 AND MODEL G108

Keep a model G108 Service Manual with you when you use this manual. This section is almost same as section 3 in the G108 Service Manual. This manual shows only removal procedures that are not the same as the G108 Service Manual. Examine the G108 Service Manual if you want to get a procedure not shown in this manual.

3.2 OPC

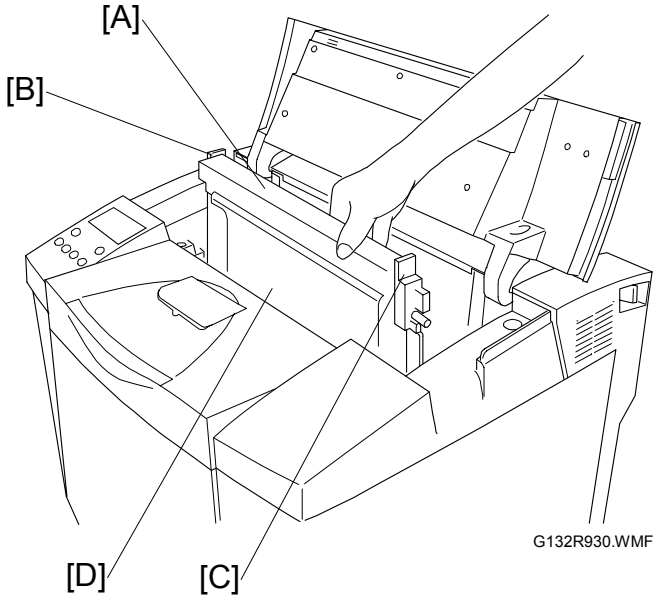
3.2.1 OPC BELT UNIT

CAUTION: Do not touch the OPC belt. Hold the grip [A] when you move the OPC belt unit.

1. Open the top cover.
2. Release the locks [B][C].
3. OPC belt unit [D]

Necessary Setting

You must do the “Clear Belt CG” procedure after you replace the OPC belt unit. (☛ 5.1.3 Utility menu > Clear Belt CG)

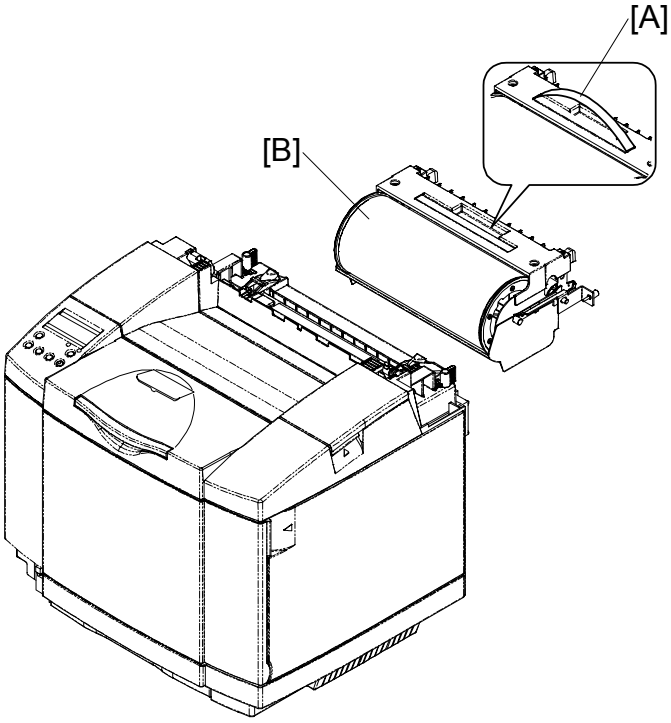


3.3 TRANSFER BELT

3.3.1 TRANSFER BELT UNIT

CAUTION: Do not touch the transfer belt. Hold the grip [A] when you move the transfer belt unit.

1. Open the rear cover.
2. Transfer belt unit (☞ x 2) [B]



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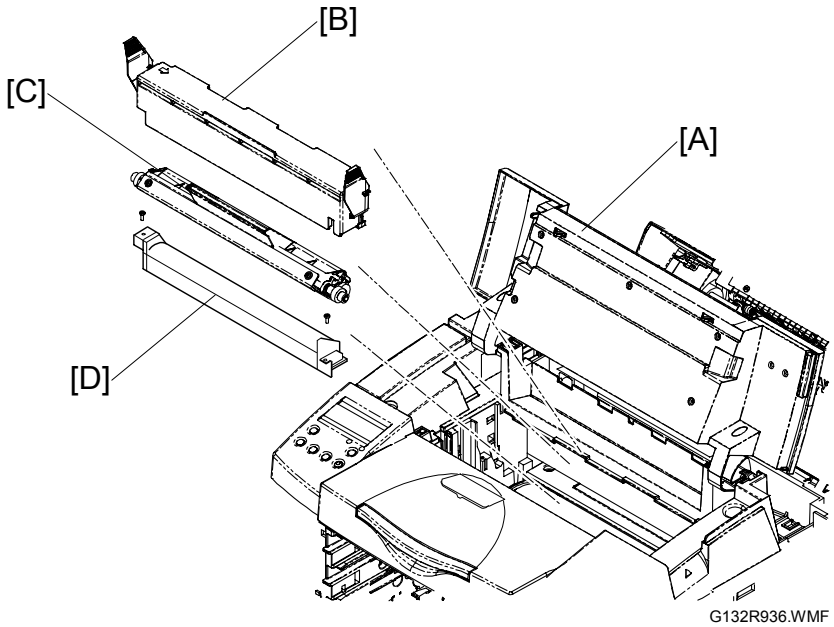
Necessary Setting

You must do the “Clear trans belt” procedure after you replace the transfer belt unit. (☛ 5.1.2 Service menu > Maintenance > Clear Trans Belt)

3.3.2 TRANSFER BELT CLEANING UNIT AND WASTE TONER DUCT



1. Open the top cover [A].
2. Cleaning unit cover [B].
3. Transfer belt-cleaning unit [C].
4. Waste toner duct [D]. (☞ x 2)

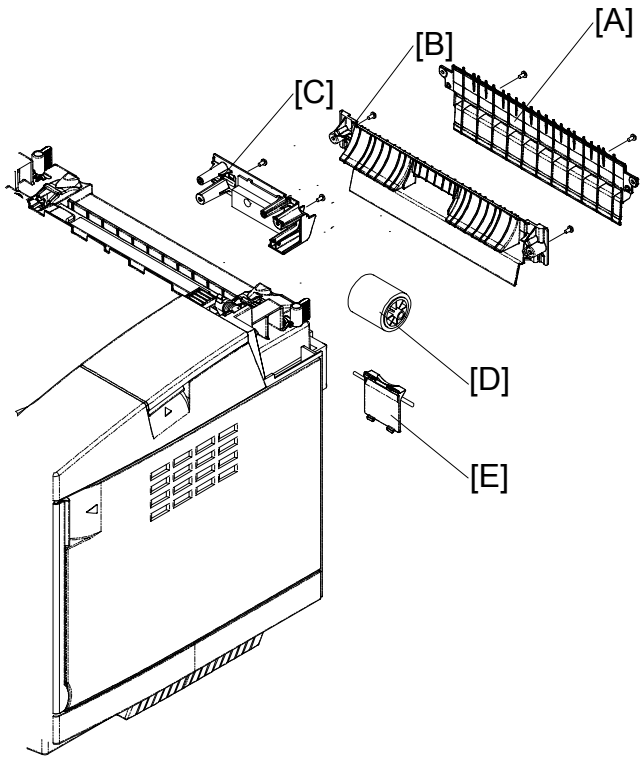
Necessary Setting

You must do the “Clear 120K Kit” procedure after you replace the transfer belt-cleaning unit. (☛5.1.2 Service menu > Maintenance > Clear 120K Kit)

3.4 PAPER FEED

3.4.1 PAPER FEED ROLLER AND SEPARATOR PAD

1. Rear cover
2. Paper guide 1 [A] (☞ x 2)
3. Paper guide 2 [B] (☞ x 2)
4. Paper sensor assembly [C] (☞ x 2)
   NOTE: You do not need to remove the connectors.
5. Paper feed roller [D]
6. Separator pad [E]



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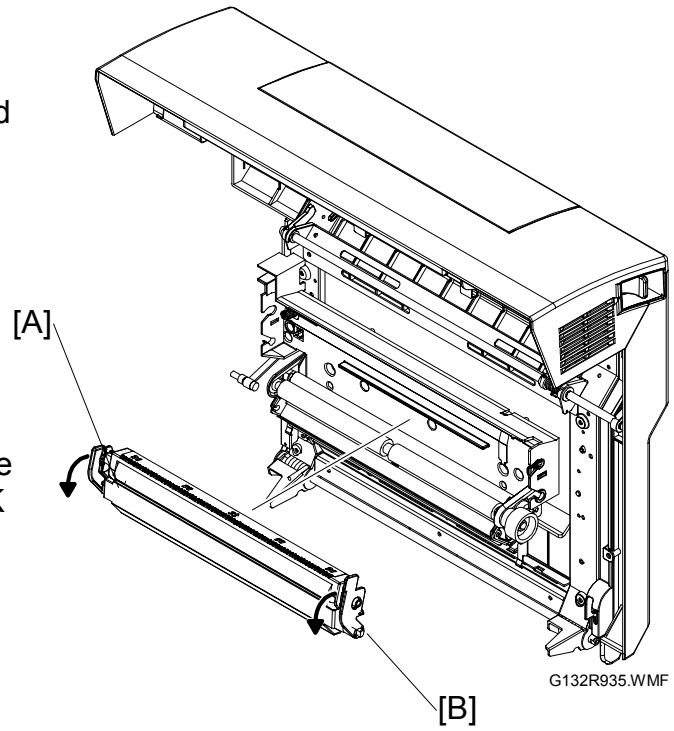
Necessary Setting

You must do the “Clear Feed-Roll1” procedure after you replace the paper feed roller and the separator pad. (☛ 5.1.2 Service menu > Maintenance > Clear Feed-Roll1)

3.5 PAPER TRANSFER AND PAPER EXIT

3.5.1 TRANSFER ROLLER UNIT

1. Open the rear cover.
2. Grasp the left and right levers [A][B]. Then pull them frontward until the upper half of the transfer roller unit comes out.
3. Transfer roller unit



Necessary Setting

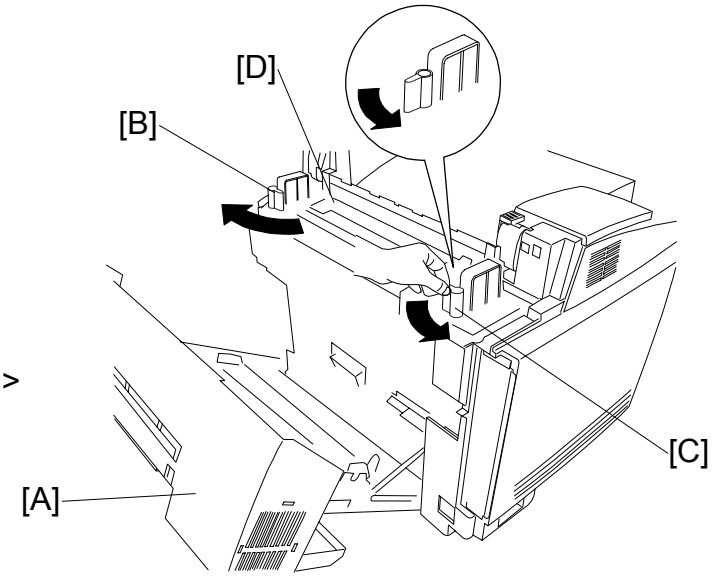
You must do the “Clear 120K Kit” procedure after you replace the transfer roller unit. (☛ 5.1.2 Service menu > Maintenance > Clear 120K Kit)

3.6 FUSING UNIT

⚠CAUTION

1. Set the machine off. Disconnect the machine before you do maintenance work.
2. Use high caution when you touch the fusing unit. The fusing unit can get very hot.
3. Do not remove or adjust the tension bolts or the hot-roller guard. Normal operation is not guaranteed if you remove or adjust these.

1. Open the rear cover [A].
2. Release the locks [B][C].
3. Fusing unit [D]



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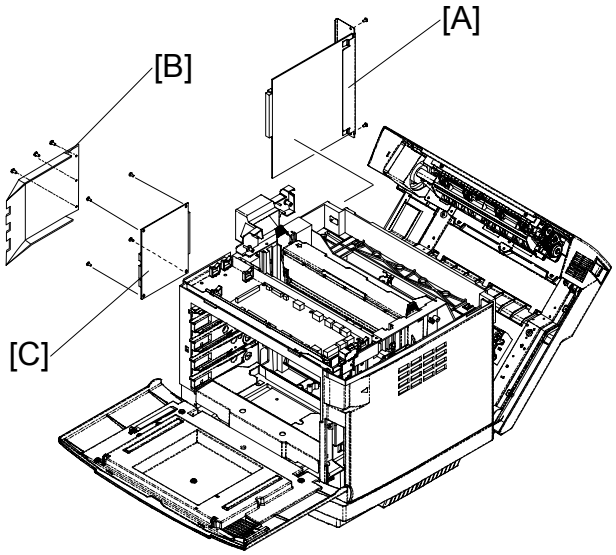
Necessary Setting

You must do the “Clear Fuser” procedure after you replace the fusing unit. (☛ 5.1.2 Utility menu > Clear Fuser)

3.7 CIRCUIT BOARD

3.7.1 BASE ENGINE CONTROL UNIT

1. Start “Service Menu”.
2. Execute “MCTL →PRC”. (☛ 5.1.2 Maintenance)
3. Execute “Information”. (☛ 5.1.2)
4. Quit “Service Menu”.
5. Set the main switch off.
6. Disconnect the printer.
7. Top cover
8. Left cover
9. BCU cover [B] (☞ x 3)
10. BCU [C] (Flat cable x 3, All ☞'s, ☞ x 4)



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Setting

Do these when you replace the BCU:

1. Start “Service Menu”.
2. Execute “PRC →MCTL”. (☛ 5.1.2 Maintenance)
3. Execute “Information”. (☛ 5.1.2)
4. Make sure that the settings do not change.

3.7.2 CONTROLLER

1. Start “Service Menu”.
2. Print “Print maintenance page” (☛ 5.1.2 Print maintenance page).
   NOTE: Record the information of the maintenance page and keep it. This printer does not have a device to keep this information.
3. Print config page (☛ 5.1.2 Test Menu > Config page).
4. Replace the controller [A] (☞ x 2) when the printer is off.
5. Set the value of config page in “Config Menu” (☛ 5.1.2 Config Menu).
6. Print config page again.
7. Make sure that the settings do not change.

3.8 REGISTRATION

3.8.1 LEADING EDGE REGISTRATION

SP “Margin Adjust: Top” (☛ 5.1.2 Engine Tune Up) adjusts the margin on the leading edge. The top margin gets wider when you set a greater value.

Default	☛ NOTE 2)
Maximum	+3.5 mm
Minimum	-3.5 mm
Step	0.5 mm

You can specify the values from -35 to +35. The margin changes by 0.7 mm when the value increases or decreases by 5 in the SP. For example: ① when you specify "+5," the margin changes by +0.7 mm; ② when you specify "-10," the margin changes by -1.4 mm.

NOTE: 1) The diagrams show examples of adjustment results. Actual results may not be the same as these examples.
2) Default depends on the adjustment in the factory.

3.8.2 SIDE-TO-SIDE REGISTRATION

SP “Margin Adjust: Left1, Left2 and Left Duplex” (☛ 5.1.2 Engine Tune Up) adjusts the margin on the left edge. The left margin gets wider when you seta greater value. Specify the value for each tray and the duplex unit:

Default	Tray 1	☛ NOTE 2)
	T2, Dup	±0.0 mm
Maximum		+3.5 mm
Minimum		-3.5 mm
Step		0.5 mm

- Margin Adjust: Left1 Tray 1 (Standard paper tray)
- Margin Adjust: Left2 Tray 2 (Optional paper feed unit)
- Margin Adjust: Left-Duplex Duplex (Optional duplex unit)

NOTE: 1) The diagrams show examples of adjustment results. Actual results may not be the same as these examples.
2) Default depends on the adjustment in the factory.

4. TROUBLESHOOTING

4.1 SERVICE CALL

4.1.1 SC TABLE

Set the main power on and off before you do these countermeasures. Do these countermeasures if the problem stays.

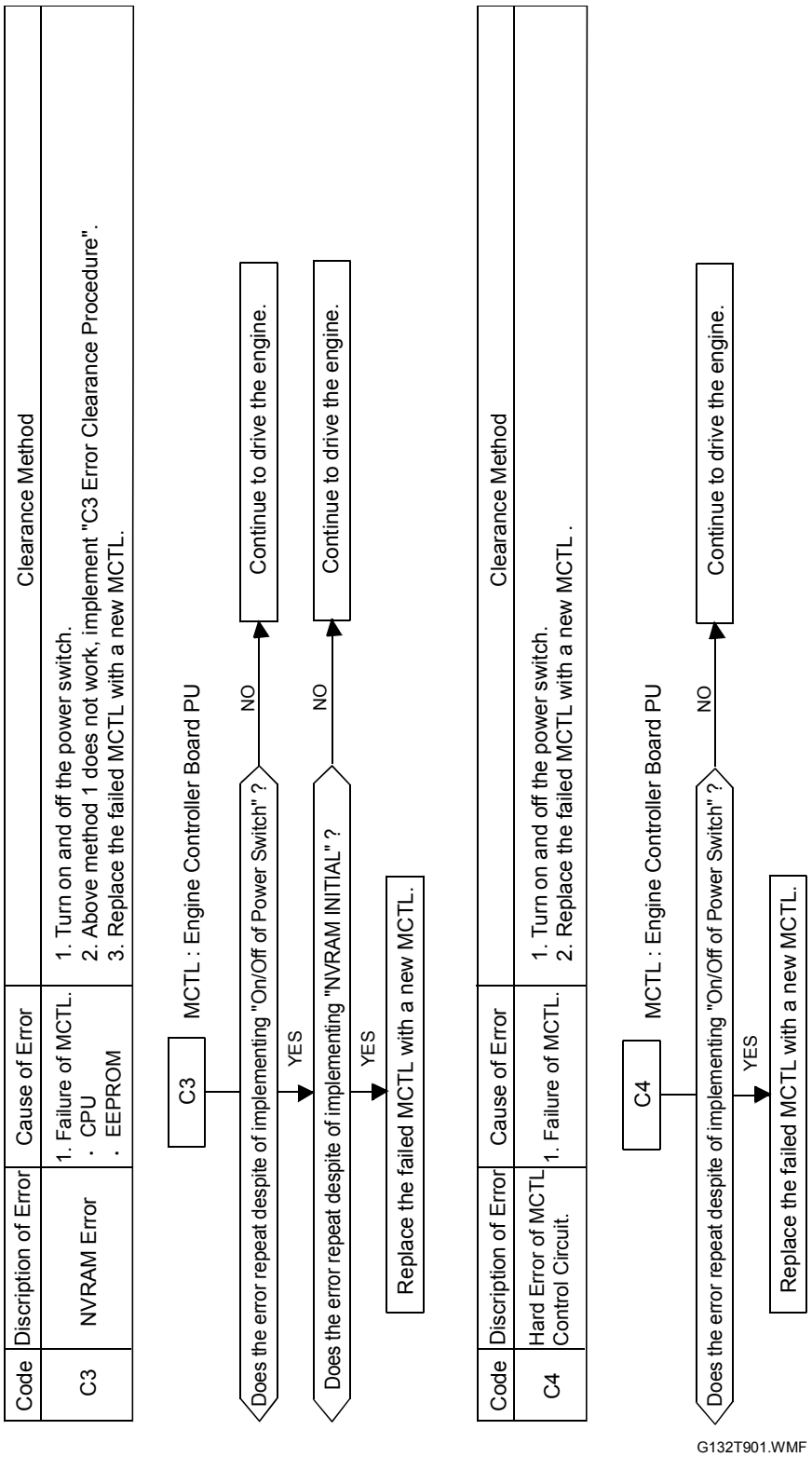
No.	Error Message	Possible Cause	Countermeasure
1	SVC 110 ERROR	Read/Write error in memory	Replace the Controller board.
2	SVC 111 ERROR	Read/Write error in memory	
3	SVC 112 ERROR	Read/Write error in memory	
4	SVC 113 ERROR	Read/Write error in memory	
5	SVC 180 ERROR	Read/Write test error in cash register at CPU interface	
6	SVC 160 ERROR	Read/Write error in DMA RAM	
7	SVC 251 ERROR	DMA circuit cut-in error	
8	SVC 25# ERROR	DMA circuit test error	
9	SVC 411 ERROR	IRQ timer 1 error	
10	SVC 412 ERROR	IRQ timer 2 error	
11	SVC 090 ERROR	Check sum error	

No.	Error Message	Possible Cause	Countermeasure
1	SVC 11 ERROR	Communication Error	Replace the Controller or MCTL board.
2	SVC 31 ERROR	Download Error (Memory Location Error)	
3	SVC 32 ERROR	Download Error (Flash ROM Erase /Light Error)	
4	SVC 33 ERROR	Download Error (Another Serious Error)	
5	SVC 41 ERROR	Pipe line Handling Error (DMA Error)	
6	SVC 42 ERROR	Pipe line Handling Error (Time-out Error)	
7	SVC 43 ERROR	Pipe line Handling Error (DMA Error)	
8	SVC 61 ERROR	Program Process Error	
9	SVC C3 ERROR	NVRAM Error	Refer to C3 ☛ Pg.4-3
10	SVC C4 ERROR	MTCL Board Error	Refer to C4 ☛ Pg.4-3
11	SVC C7 ERROR	Process Timing Error	Refer to C7 ☛ Pg.4-4
12	SVC D1 ERROR	Developer Clutch (Y) Error	Refer to D1 ☛ Pg.4-5
13	SVC D2 ERROR	Developer Clutch (M) Error	Refer to D2 ☛ Pg.4-6
14	SVC D3 ERROR	Developer Clutch © Error	Refer to D3 ☛ Pg.4-7
15	SVC D4 ERROR	Developer Clutch (K) Error	Refer to D4 ☛ Pg.4-8
16	SVC D5 ERROR	Retract Solenoid (Y) Error	Refer to D5/D8 ☛ Pg.4-9
17	SVC D6 ERROR	Retract Solenoid (M) Error	Refer to D6/D7 ☛ Pg.4-10
18	SVC D7 ERROR	Retract Solenoid © Error	
19	SVC D8 ERROR	Retract Solenoid (K) Error	Refer to D5/D8 ☛ Pg.4-9
20	SVC E1 ERROR	Developer Motor (DM) Error	Refer to E1 ☛ Pg.4-11
21	SVC E2 ERROR	Main Motor (MM) Error	Refer to E2 ☛ Pg.4-12

22	SVC E3 ERROR	Transfer Belt Error	Refer to E3 ☛ Pg.4-13
23	SVC E5 ERROR	Transfer Roller Clutch Error	Refer to E5 ☛ Pg.4-14
24	SVC E6 ERROR	Transfer Unit Cleaning Solenoid Error	Refer to E6 ☛ Pg.4-15
25	SVC E8 ERROR	Fuser Clutch Error	Refer to E8 ☛ Pg.4-16
26	SVC E9 ERROR	OPC Marker Sensor Error	Refer to E9 ☛ Pg.4-17
27	SVC EL ERROR	Erase LED Error	Refer to EL ☛ Pg.4-18
28	SVC F0 ERROR	Power supply Fan Motor	Refer to F0 ☛ Pg.4-19
29	SVC F3 ERROR	Laser Fan Error	Refer to F3 ☛ Pg.4-20
30	SVC F4 ERROR	Paper Exit Fan Error	Refer to F4 ☛ Pg.4-21
31	SVC F5 ERROR	HV Power Supply Error	Refer to F5 ☛ Pg.4-22
32	SVC F6 ERROR	LV Power Supply Error	Refer to F6 ☛ Pg.4-23
33	SVC H0 ERROR	Fuser Thermistor Error	Refer to H0 ☛ Pg.4-24
34	SVC H1 ERROR	Fuser Lamp Error	Refer to H1-4, A ☛ Pg.4-26,27
35	SVC H2 ERROR	Fuser Temperature Error (Warming-Up)	
36	SVC H3 ERROR	Fuser Temperature Error (Printing)	
37	SVC H4 ERROR	Fuser Temperature High Error	
38	SVC HA ERROR	Fuser ACOFF Error (Relay Off)	
39	SVC L1 ERROR	Beam Detector Error (BDT Error)	Refer to L1 ☛ Pg.4-27
40	SVC L2 ERROR	Scanner Motor Error	Refer to L2/LL ☛ Pg.4-28
41	SVC LL ERROR	Laser Power Error	
42	SVC N1 ERROR	Duplex Connection Error 1	Refer to N1/N2 ☛ Pg.4-29
43	SVC N2 ERROR	Duplex Connection Error 2	
44	SVC N3 ERROR	HVU Connection Error	Refer to N3 ☛ Pg.4-30
45	SVC N4 ERROR	Toner Empty Sensor Error 1	Refer to N4/N5 ☛ Pg.4-31
46	SVC N5 ERROR	Toner Empty Sensor Error 2	
47	SVC N6 ERROR	LFU Connection Error	Refer to N6 ☛ Pg.4-32
48	SVC P1 ERROR	Duplex Hardware Error 1	Refer to P1/P2 ☛ Pg.4-33
49	SVC P2 ERROR	Duplex Hardware Error 2	
50	SVC P4 ERROR	Duplex Motor Error	Refer to P4 ☛ Pg.4-34
51	SVC P5 ERROR	Duplex Solenoid Error	Refer to P5 ☛ Pg.4-35

4.1.2 COUNTERMEASURES

These charts are countermeasures for Service call.



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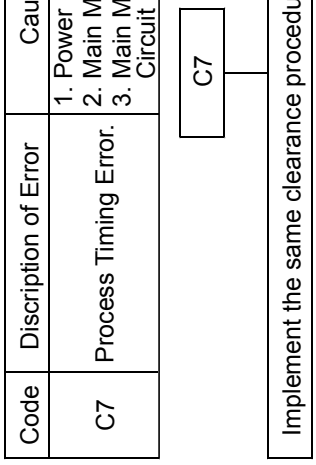
Trouble-shooting

Code	Discription of Error	Cause of Error	Clearance Method
C7	Process Timing Error.	1. Power Feeding Failure 2. Main Motor PU Failure 3. Main Motor PU Input Circuit Failure	1. Implement the same clearance procedures employed for E2 error. [Note]: MM stands for OPC Belt Drive Main Motor PU.



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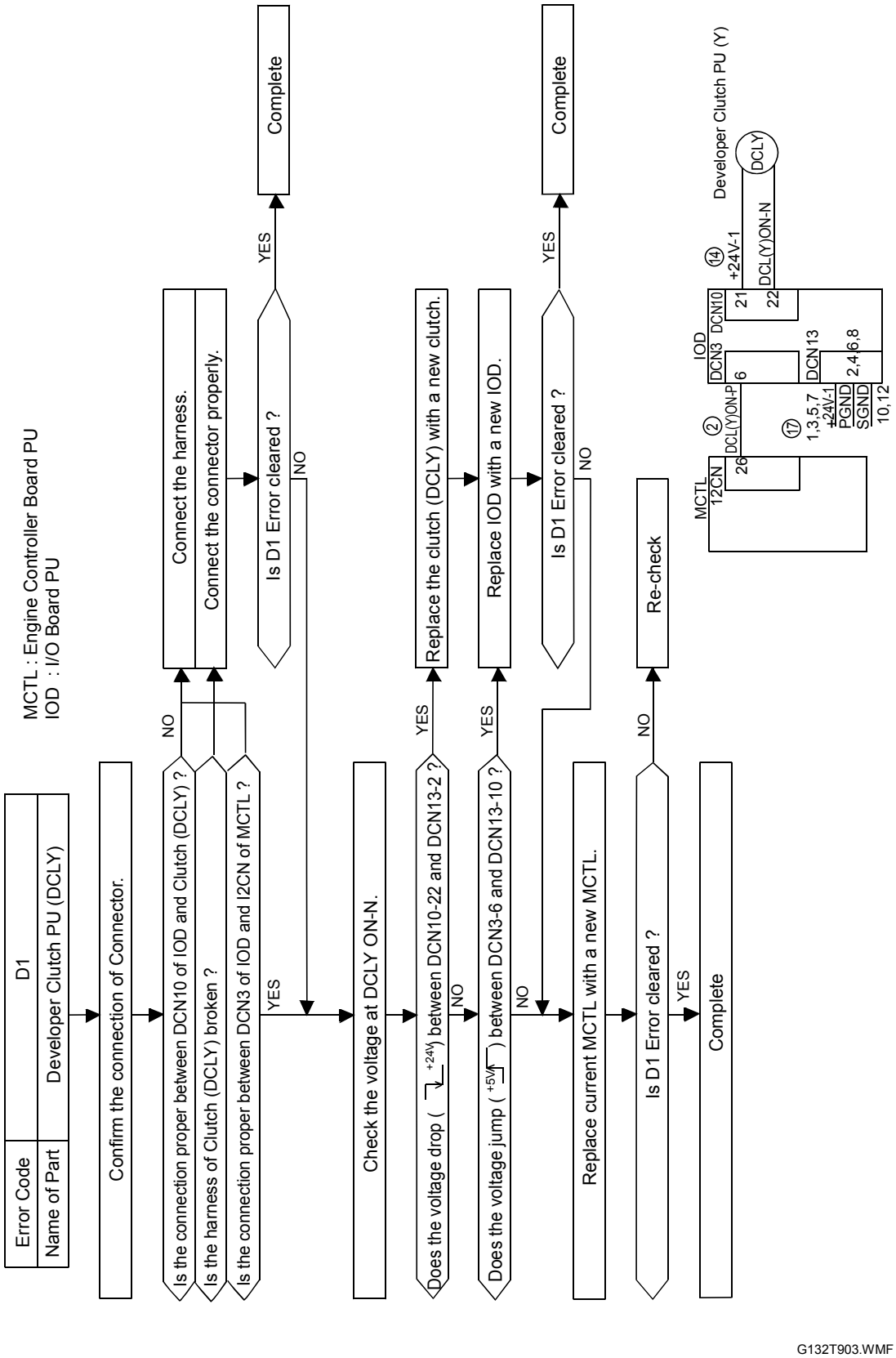

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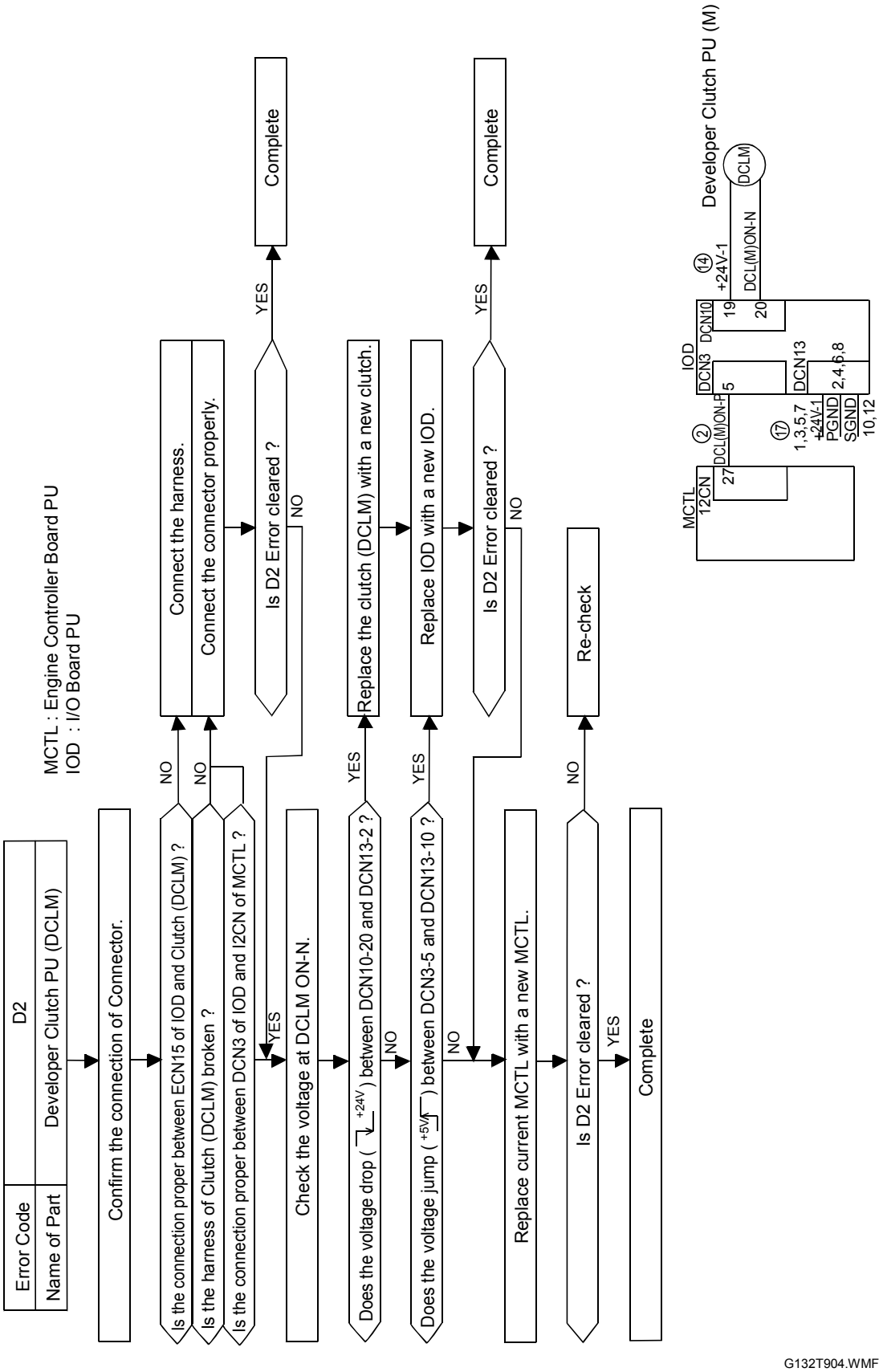
Trouble-shooting



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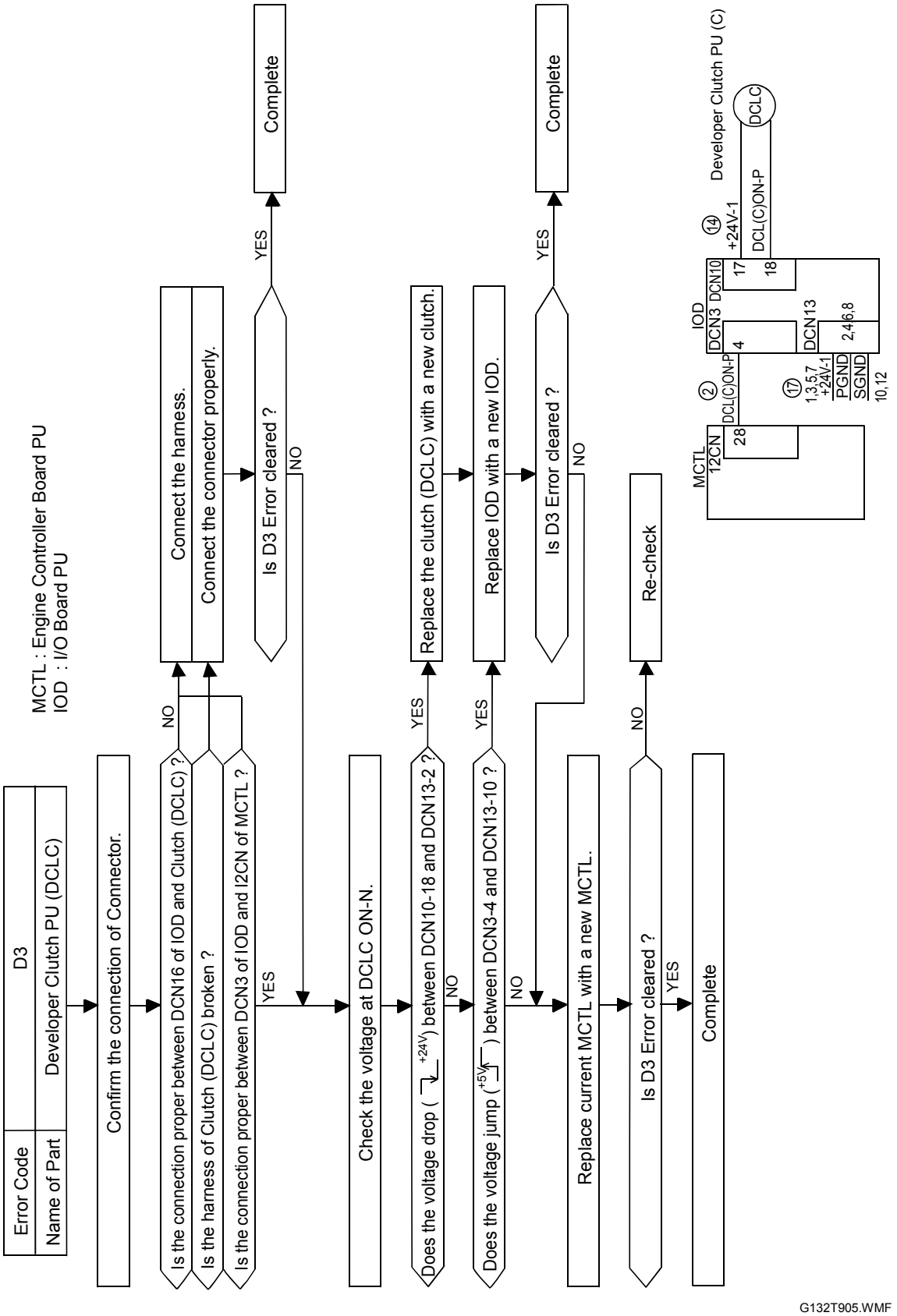

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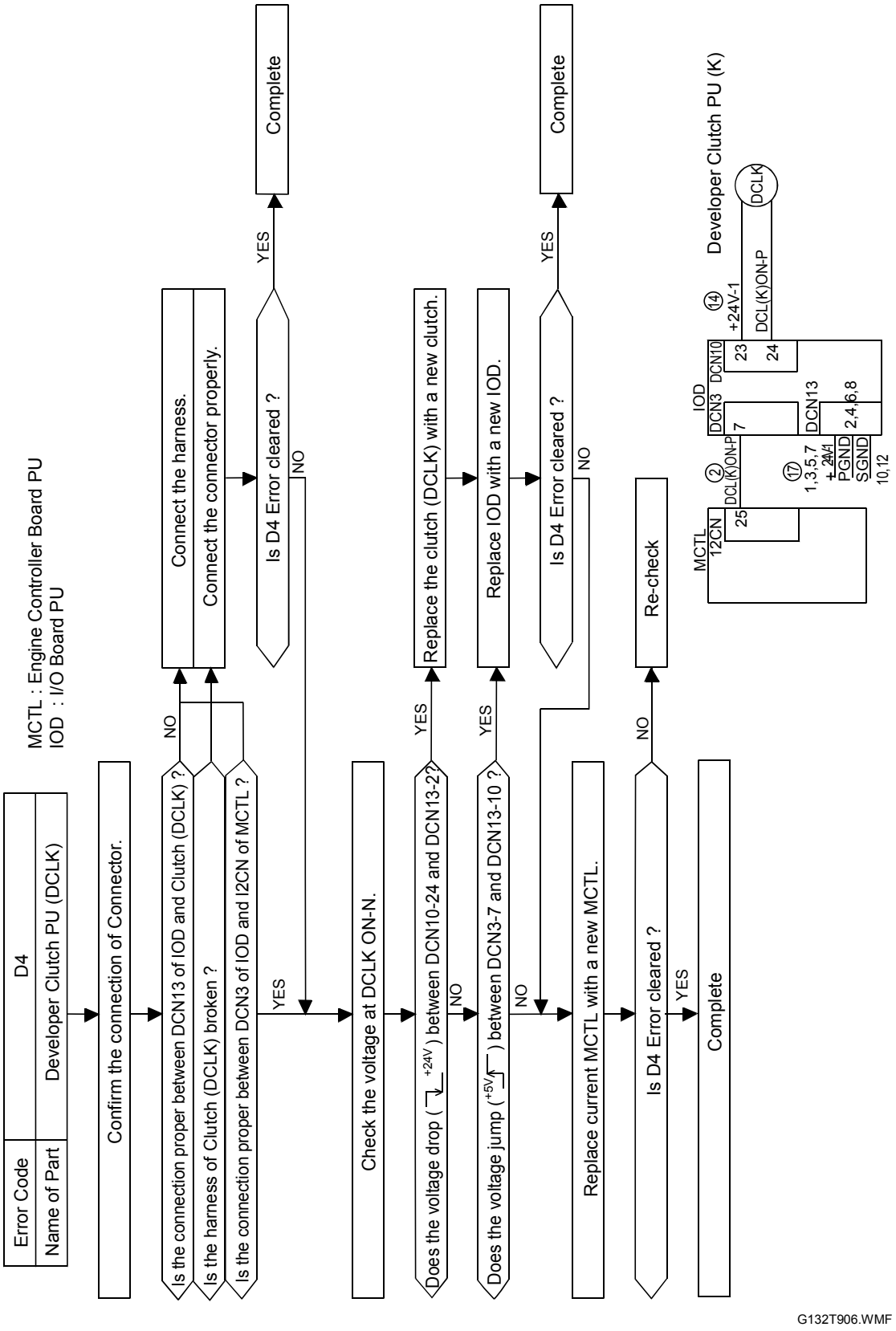
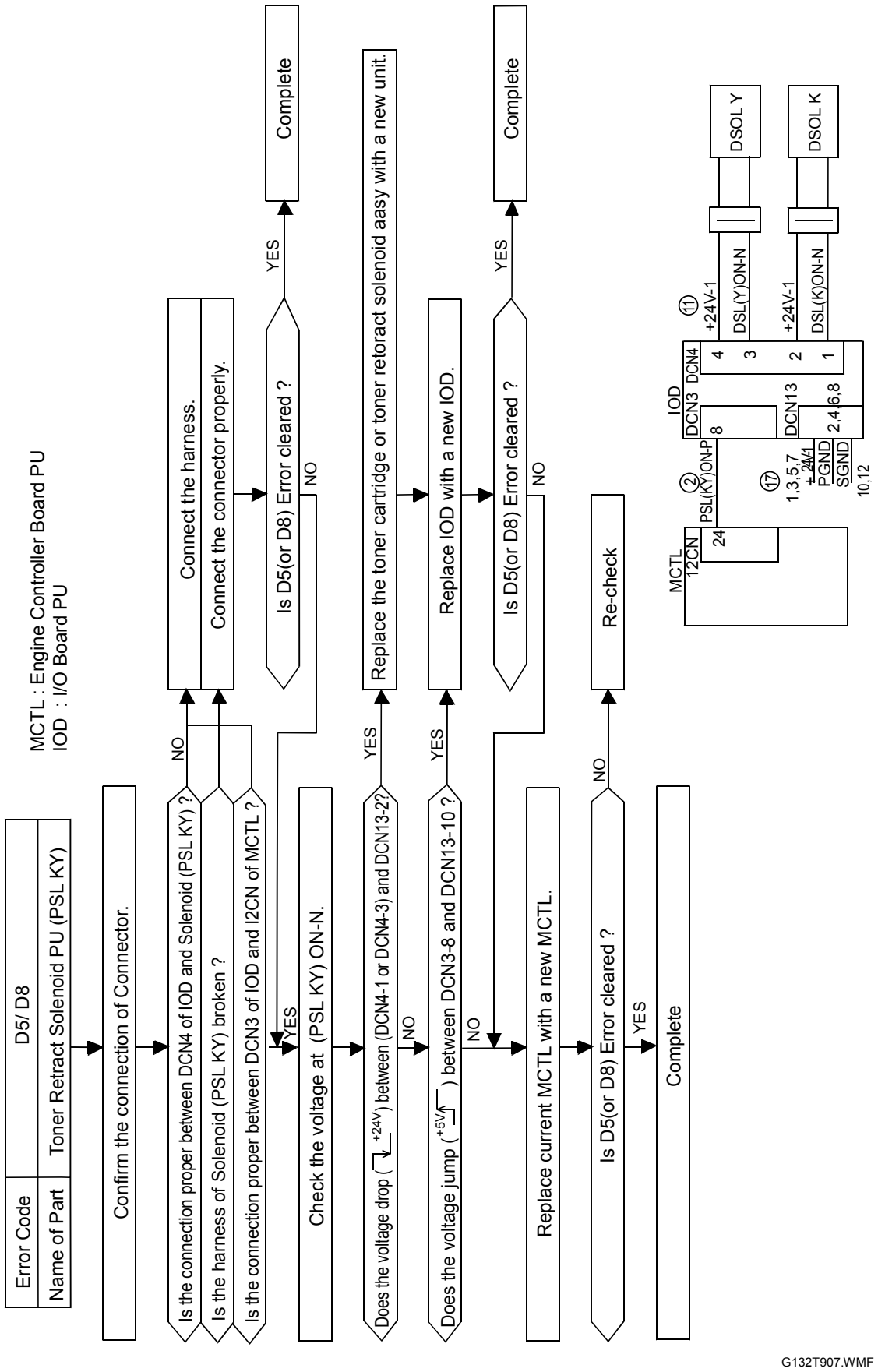
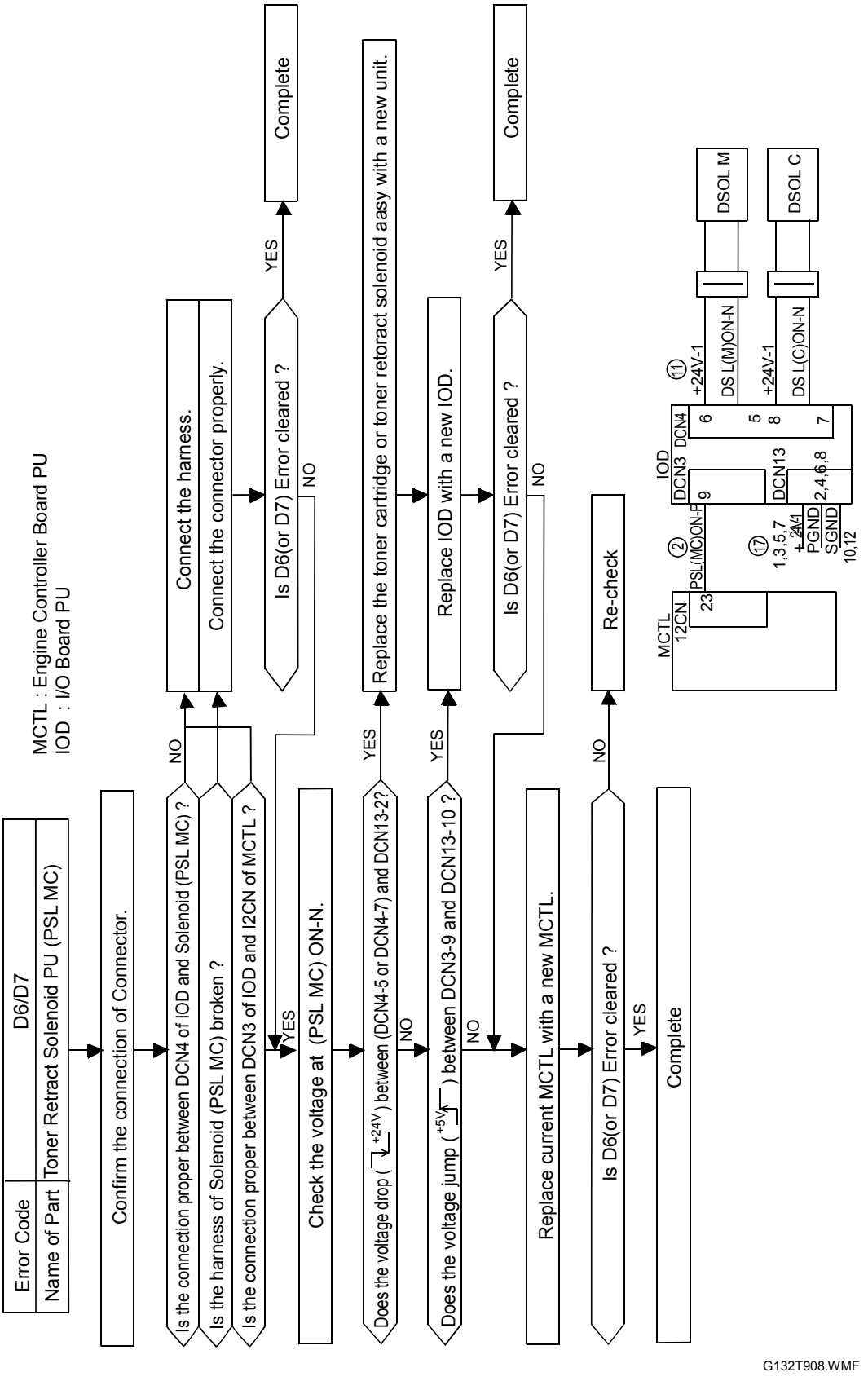
Trouble-shooting

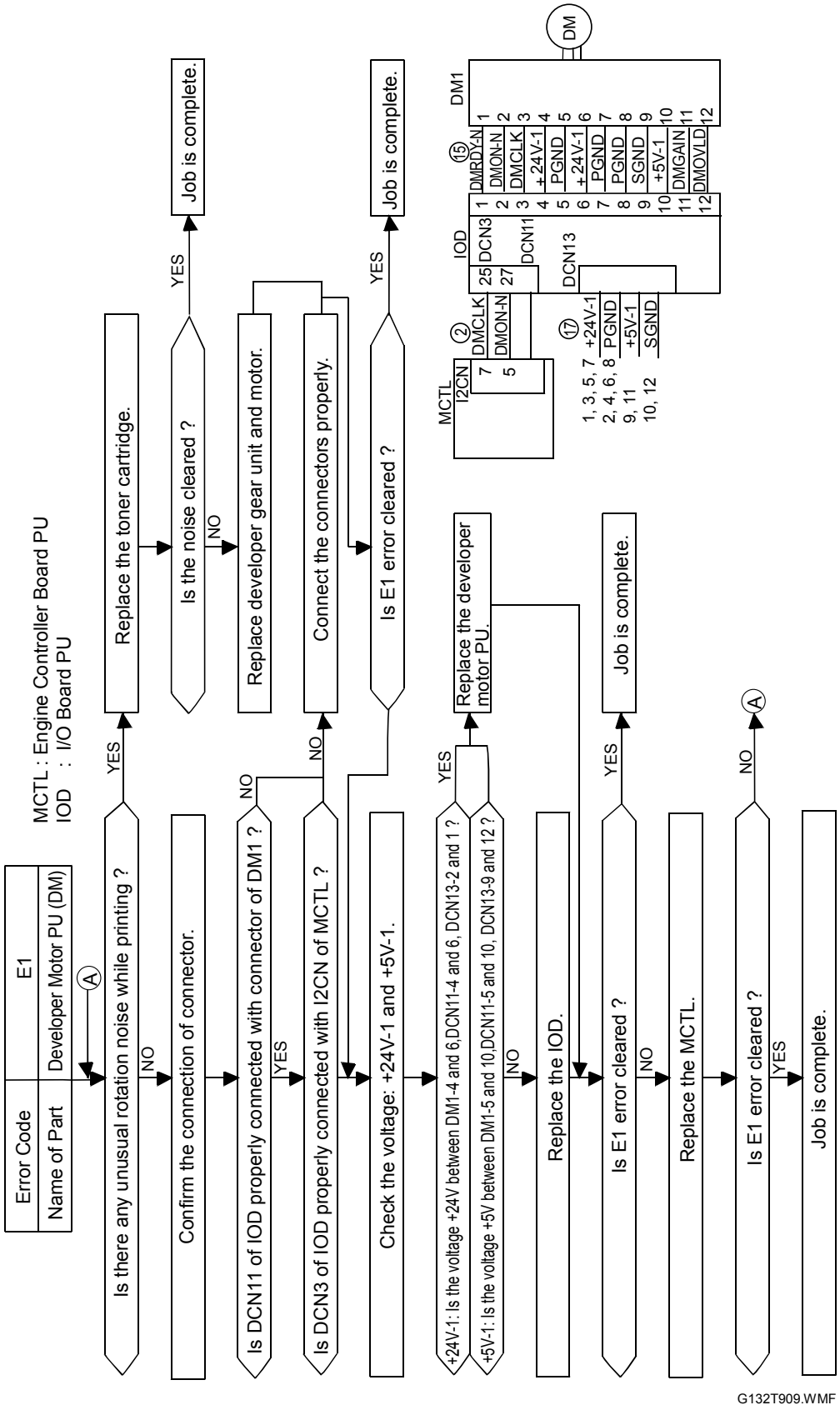


G132T906.WMF

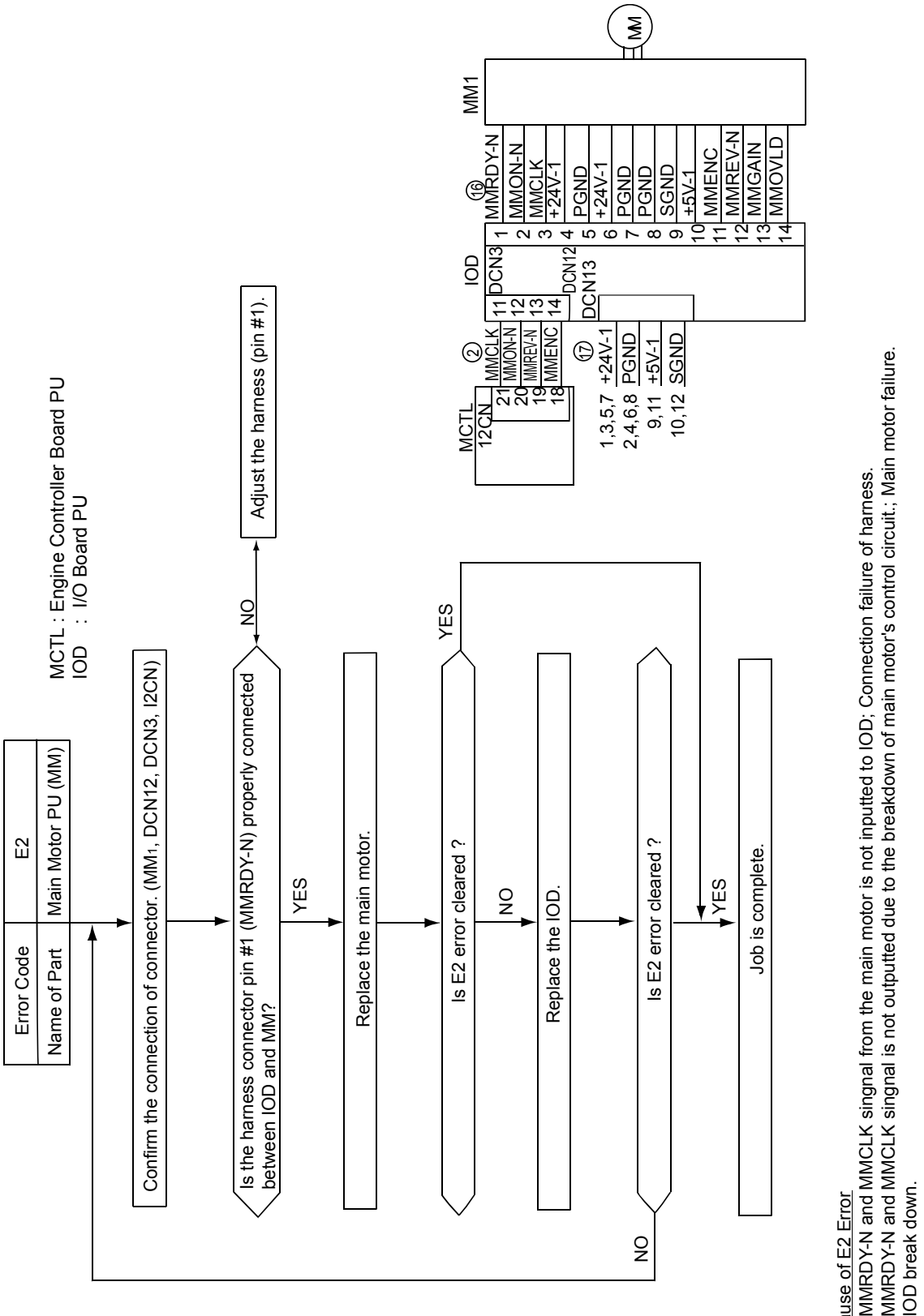


Trouble-shooting


Error Code
D6/D7
Name of Part
Toner Retract Solenoid PU (PSL MC)
MCTL : Engine Controller Board PU
IOD : I/O Board PU
Confirm the connection of Connector.
Is the connection proper between DCN4 of IOD and Solenoid (PSL MC) ?
Is the harness of Solenoid (PSL MC) broken ?
Is the connection proper between DCN3 of IOD and I2CN of MCTL ?
NO
Connect the harness.
Connect the connector properly.
YES
Is D6(or D7) Error cleared ?
NO
YES
Complete
Check the voltage at (PSL MC) ON-N.
Does the voltage drop (+24V) between (DCN4-5 or DCN4-7) and DCN13-2?
NO
YES
Replace the toner cartridge or toner retoract solenoid aasy with a new unit.
Does the voltage jump (+5V) between DCN3-9 and DCN13-10 ?
NO
YES
Replace IOD with a new IOD.
Is D6(or D7) Error cleared ?
NO
YES
Complete
Replace current MCTL with a new MCTL.
Is D6(or D7) Error cleared ?
NO
YES
Re-check
Complete
MCTL
I2CN
23
② PSL(MC)ON-P
IOD
DCN3
9
DCN4
6
⑪ +24V-1
DS L(M)ON-N
DSOL M
5
8
+24V-1
DS L(C)ON-N
DSOL C
DCN13
7
2,4,6,8
⑰ 1,3,5,7 +24V1
PGND
SGND
10,12
G132T908.WMF

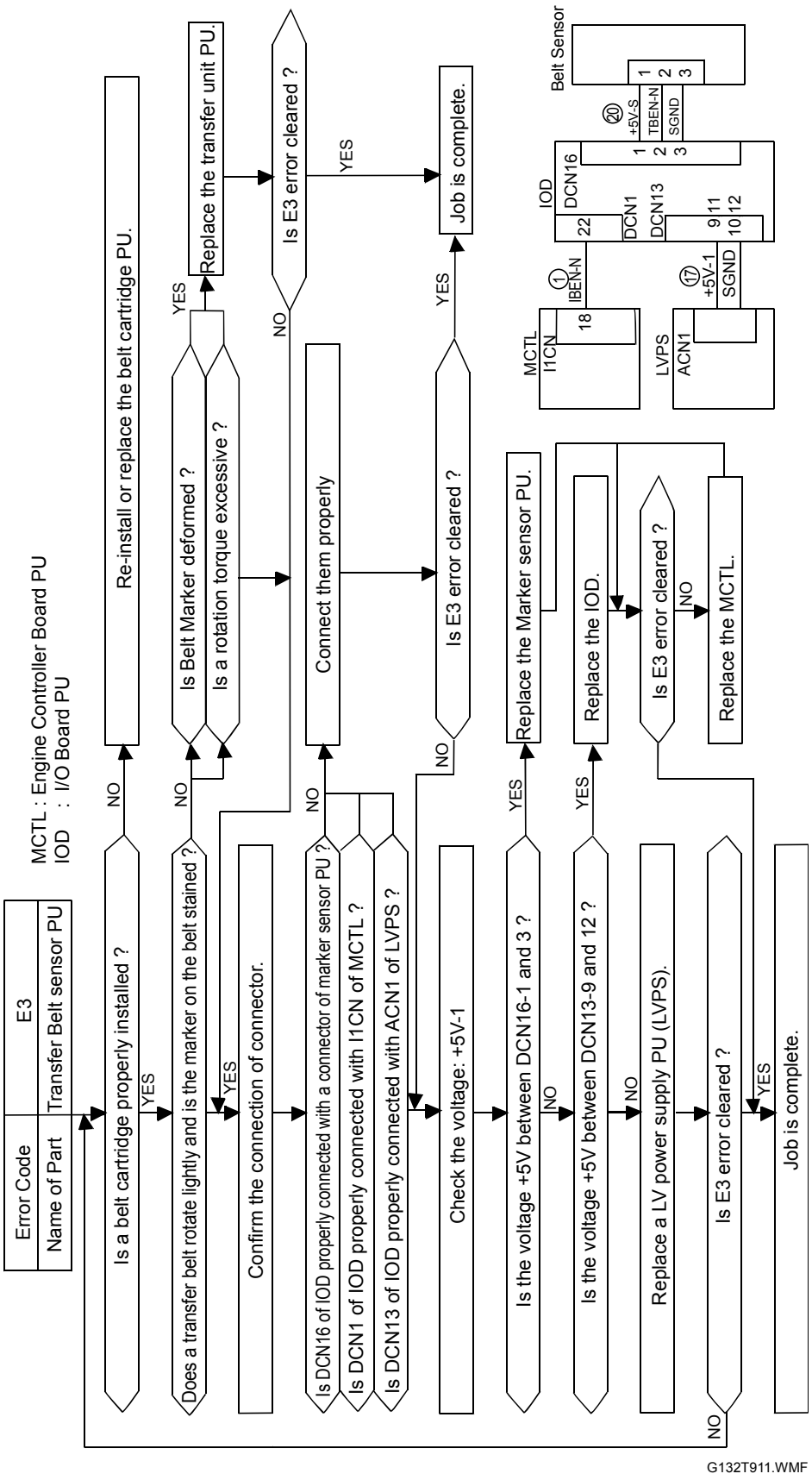


Trouble-shooting

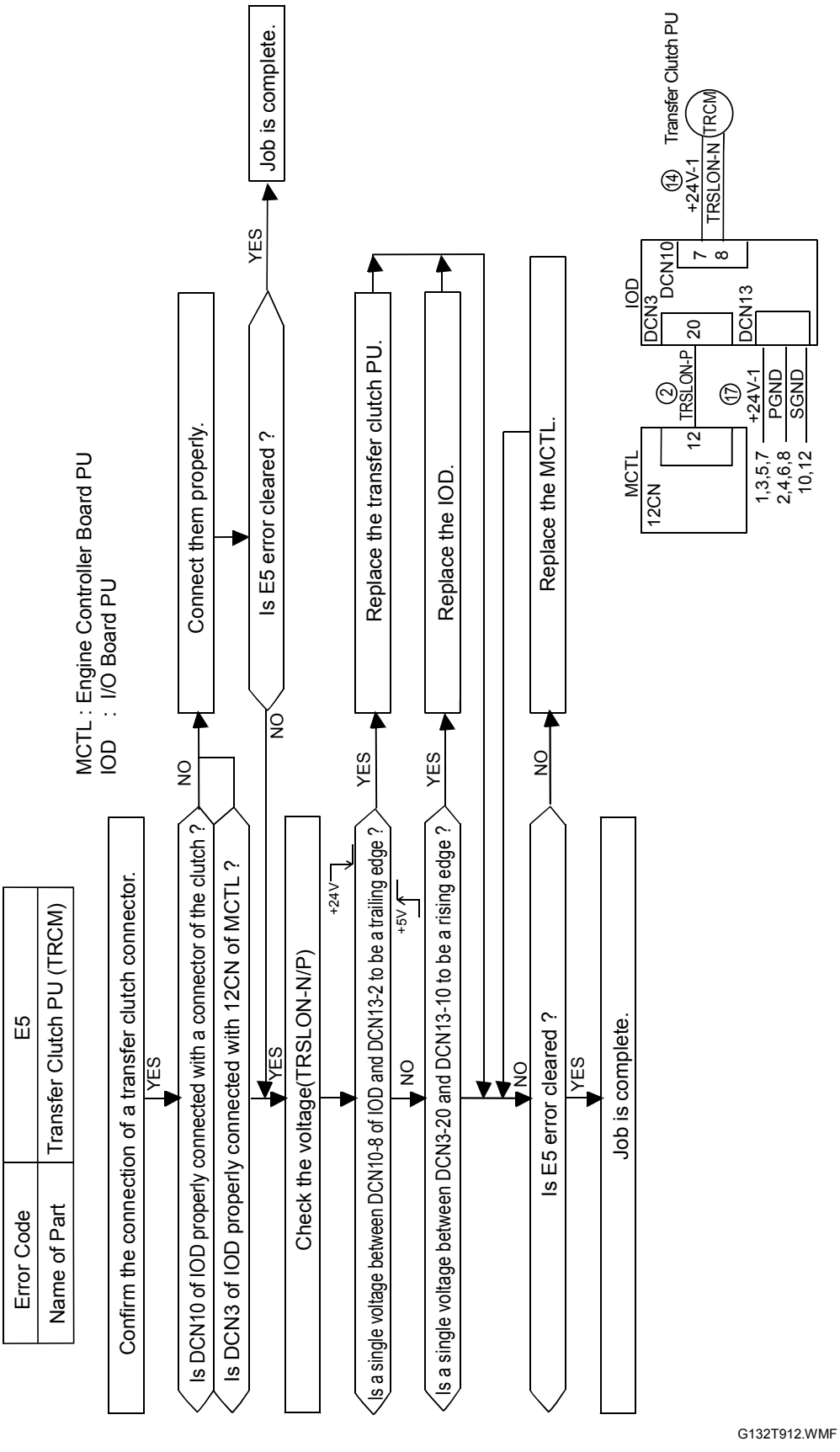


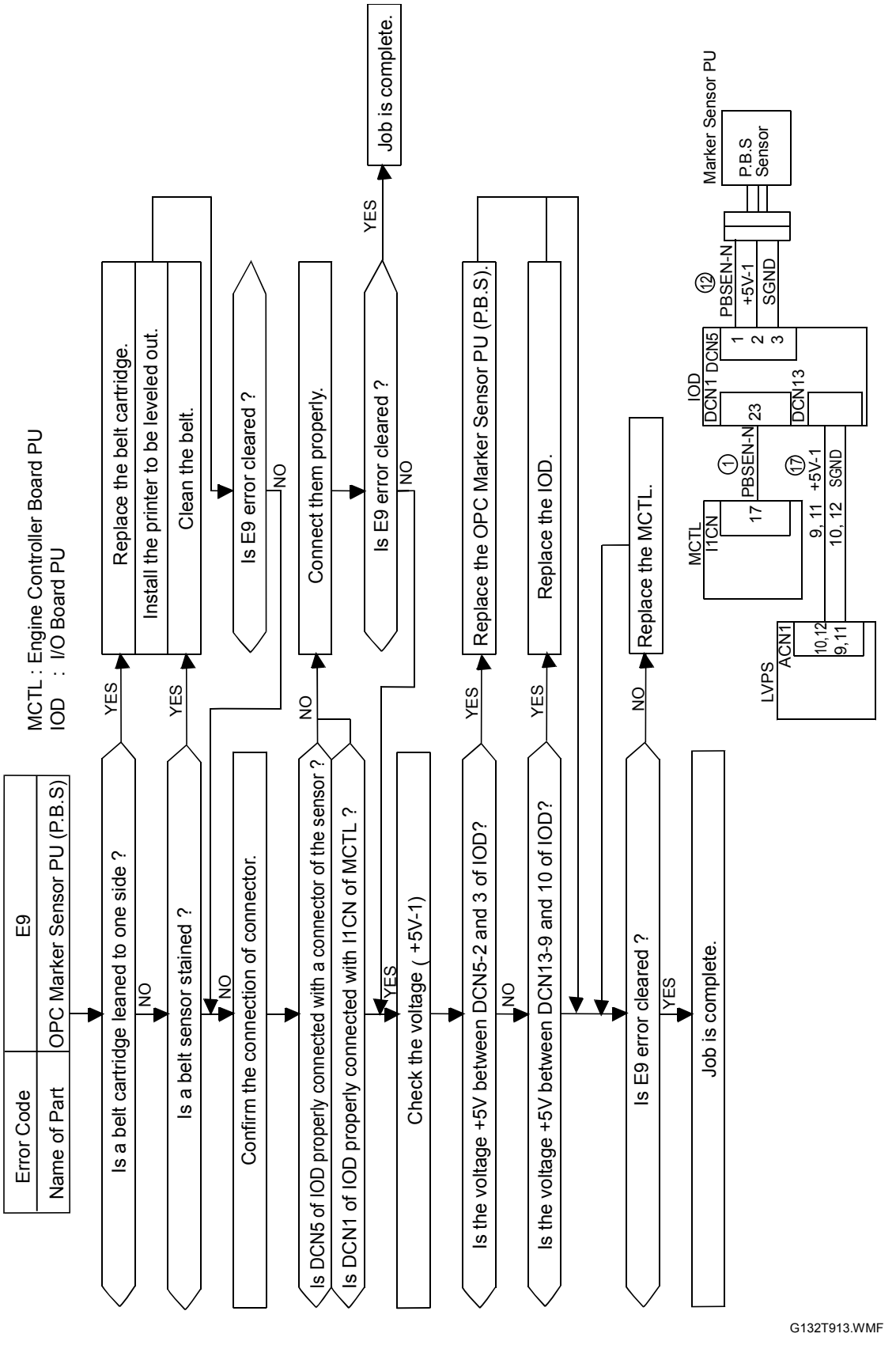
Cause of E2 Error
① MMRDY-N and MMCLK singnal from the main motor is not inputted to IOD; Connection failure of harness.
② MMRDY-N and MMCLK singnal is not outputted due to the breakdown of main motor's control circuit.; Main motor failure.
③ IOD break down.

G132T910.WMF

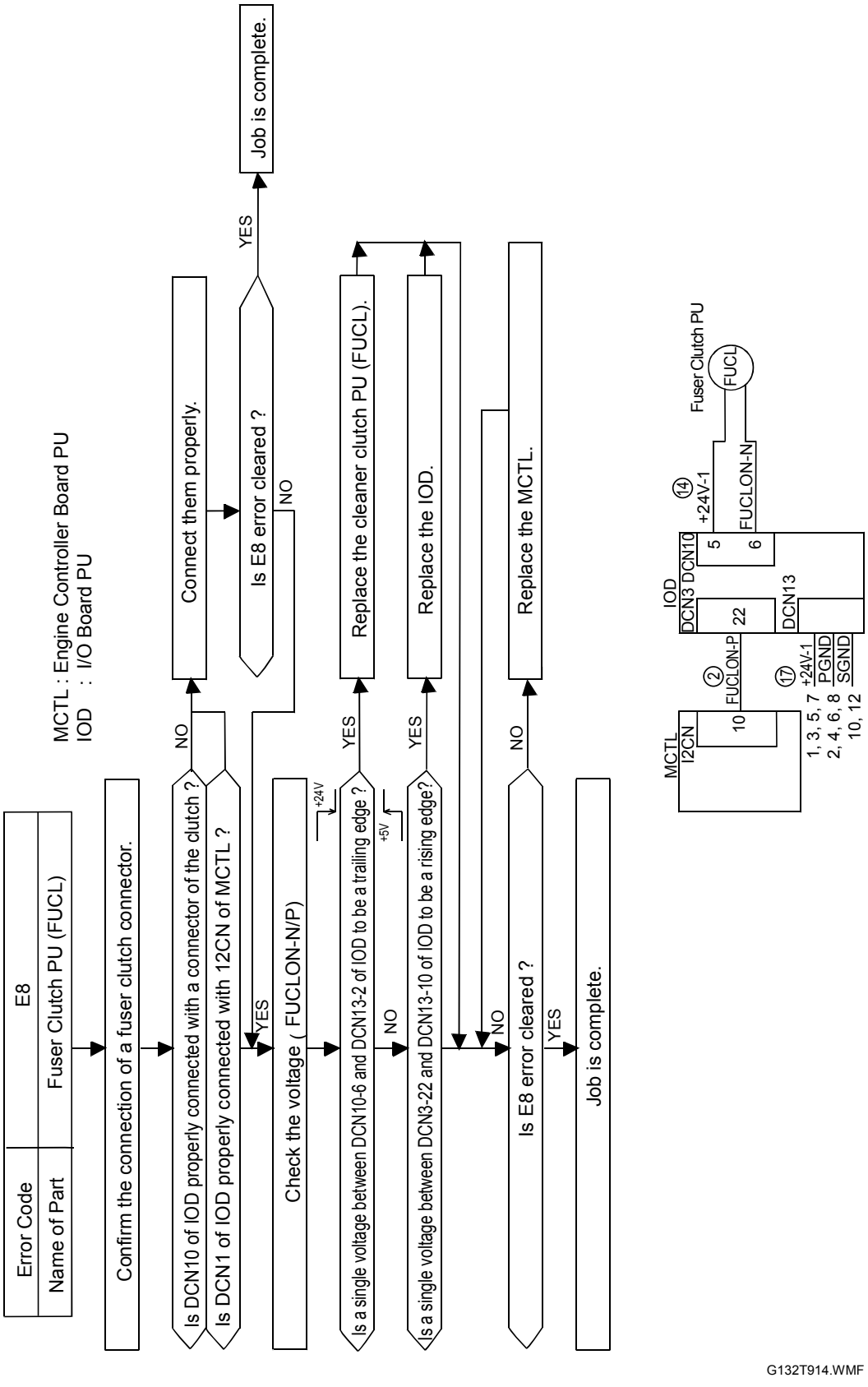


Trouble-shooting

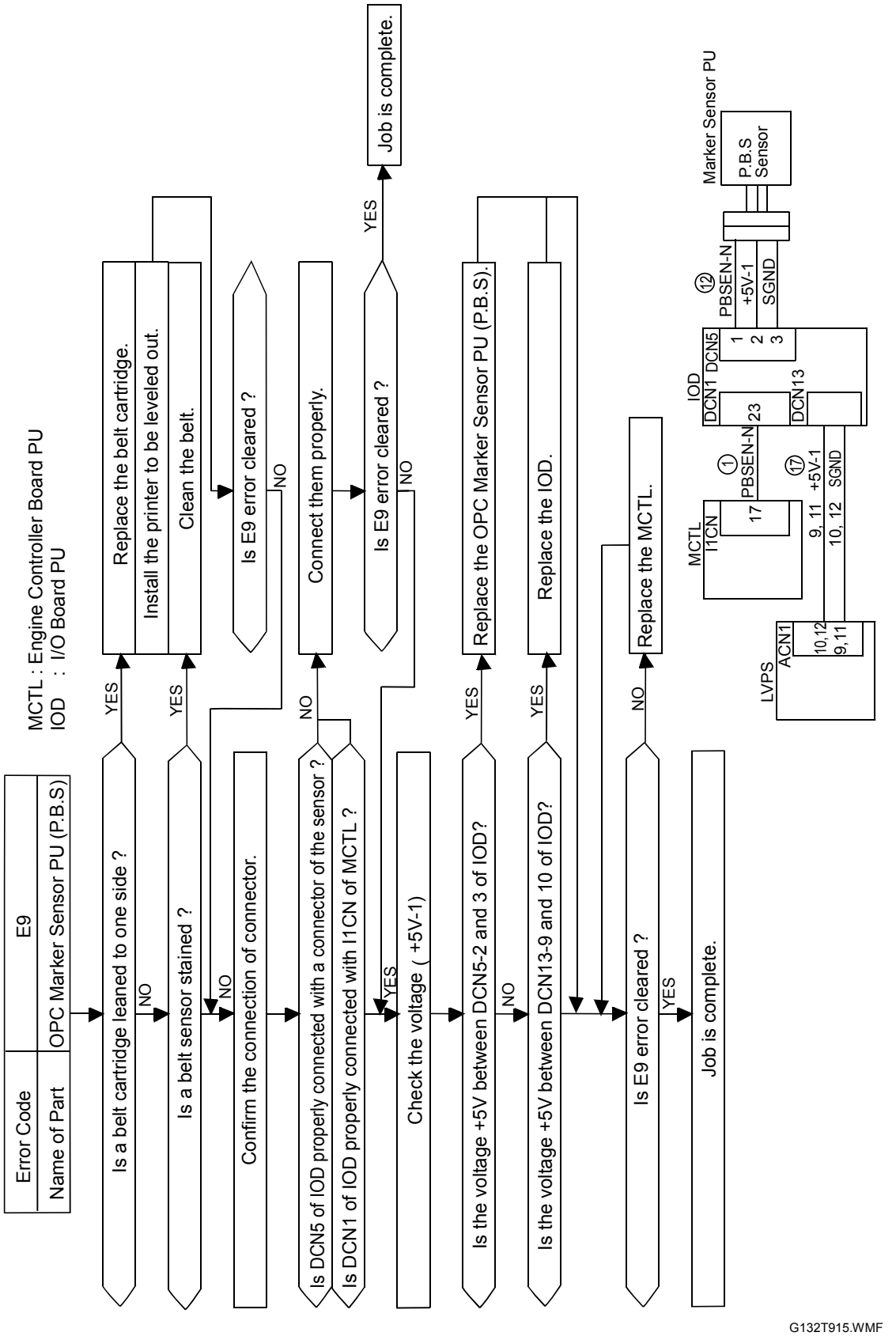

Error Code
E5
Name of Part
Transfer Clutch PU (TRCM)
MCTL : Engine Controller Board PU
IOD : I/O Board PU
Confirm the connection of a transfer clutch connector.
Is DCN10 of IOD properly connected with a connector of the clutch ?
Is DCN3 of IOD properly connected with 12CN of MCTL ?
Connect them properly.
Is E5 error cleared ?
Job is complete.
Check the voltage(TRSLON-N/P)
+24V
+5V
Is a single voltage between DCN10-8 of IOD and DCN13-2 to be a trailing edge ?
Is a single voltage between DCN3-20 and DCN13-10 to be a rising edge ?
Replace the transfer clutch PU.
Replace the IOD.
Replace the MCTL.
Is E5 error cleared ?
Job is complete.
YES
NO
MCTL
12CN
12
IOD
DCN3
20
DCN10
7
8
DCN13
② TRSLON-P
⑰ +24V-1
PGND
SGND
⑭ +24V-1
TRSLON-N
Transfer Clutch PU
TRCM
1,3,5,7
2,4,6,8
10,12
G132T912.WMF



Trouble-shooting

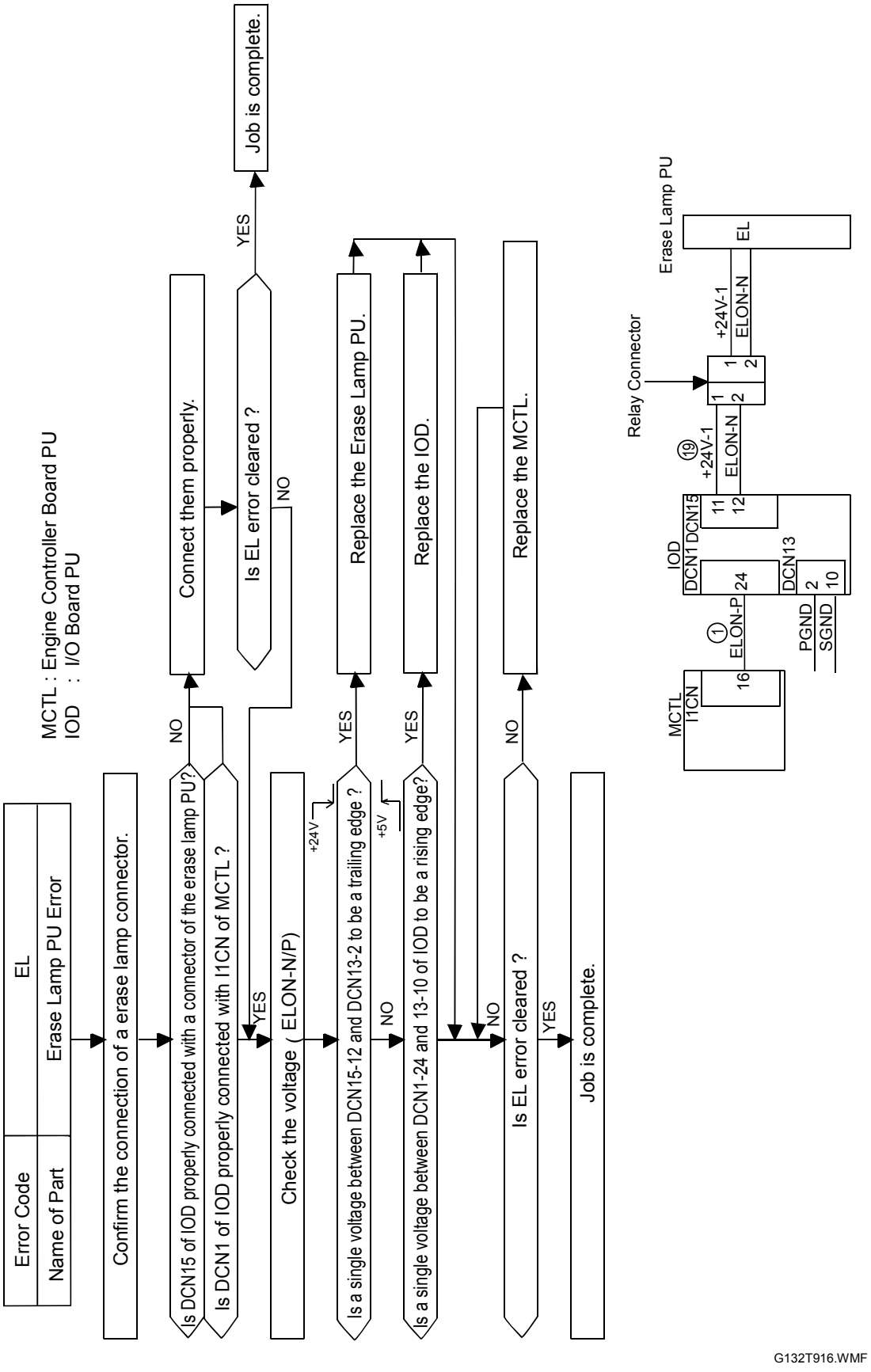


G132T914.WMF

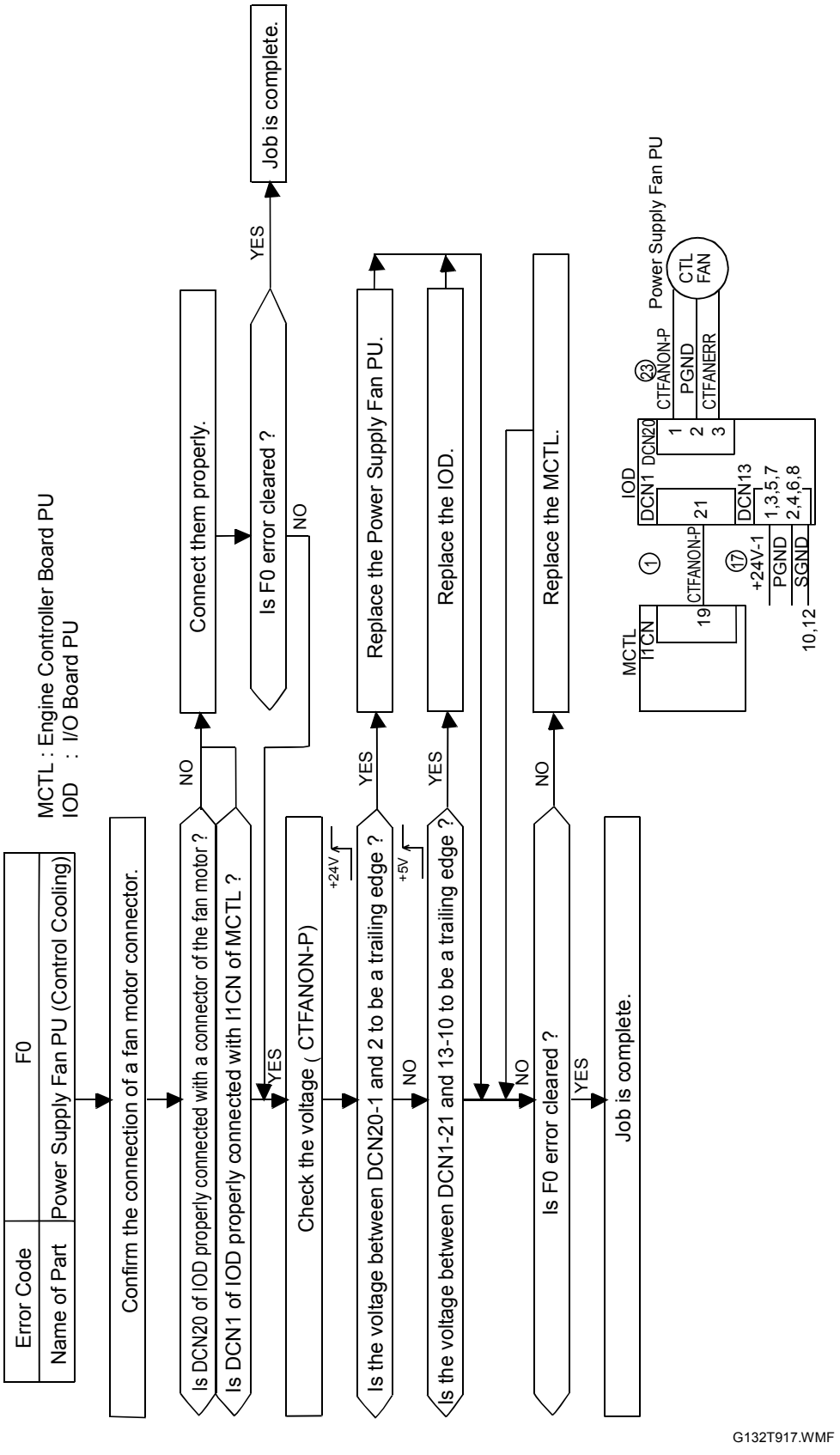


G132T915.WMF

Trouble-shooting

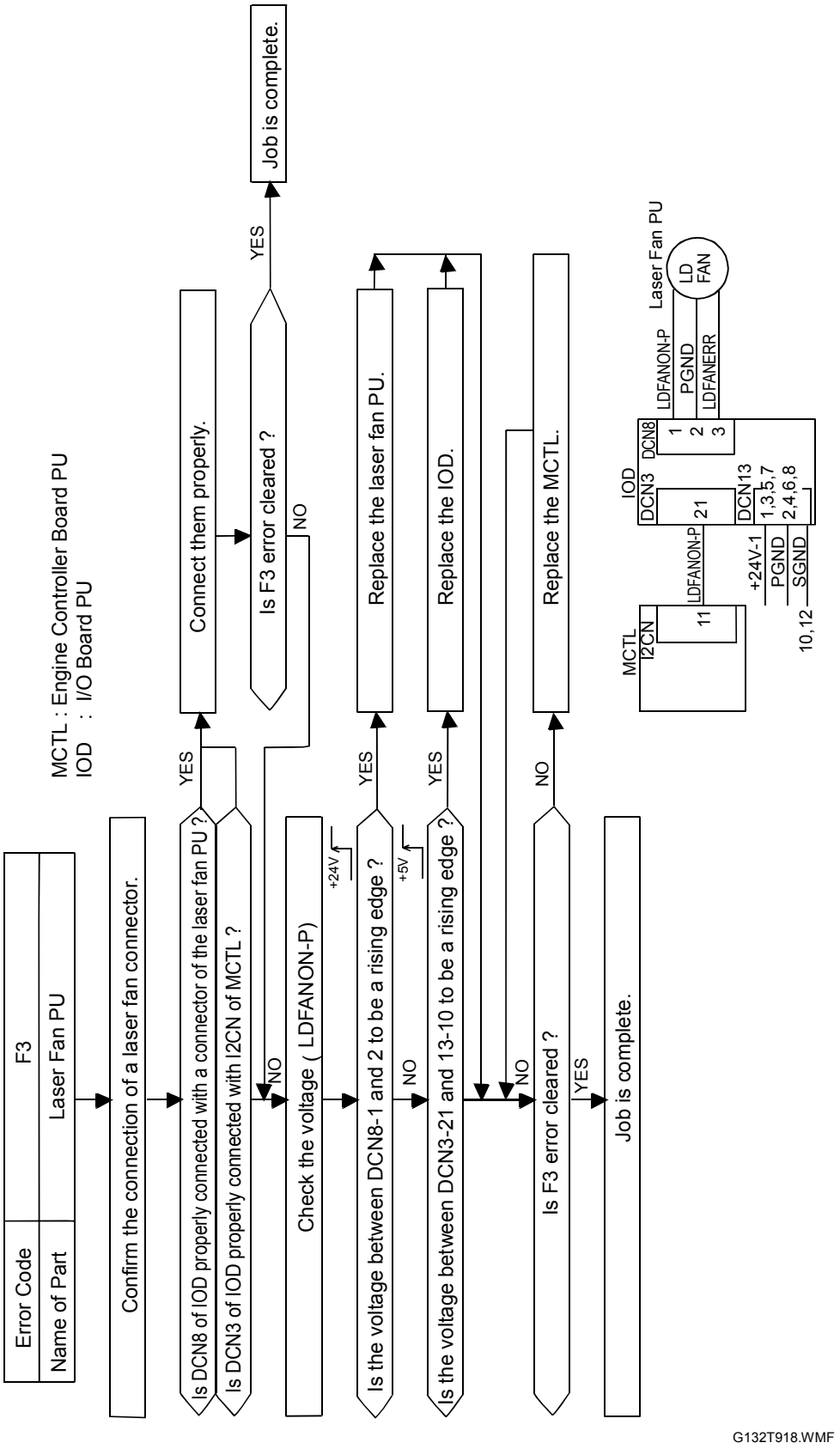


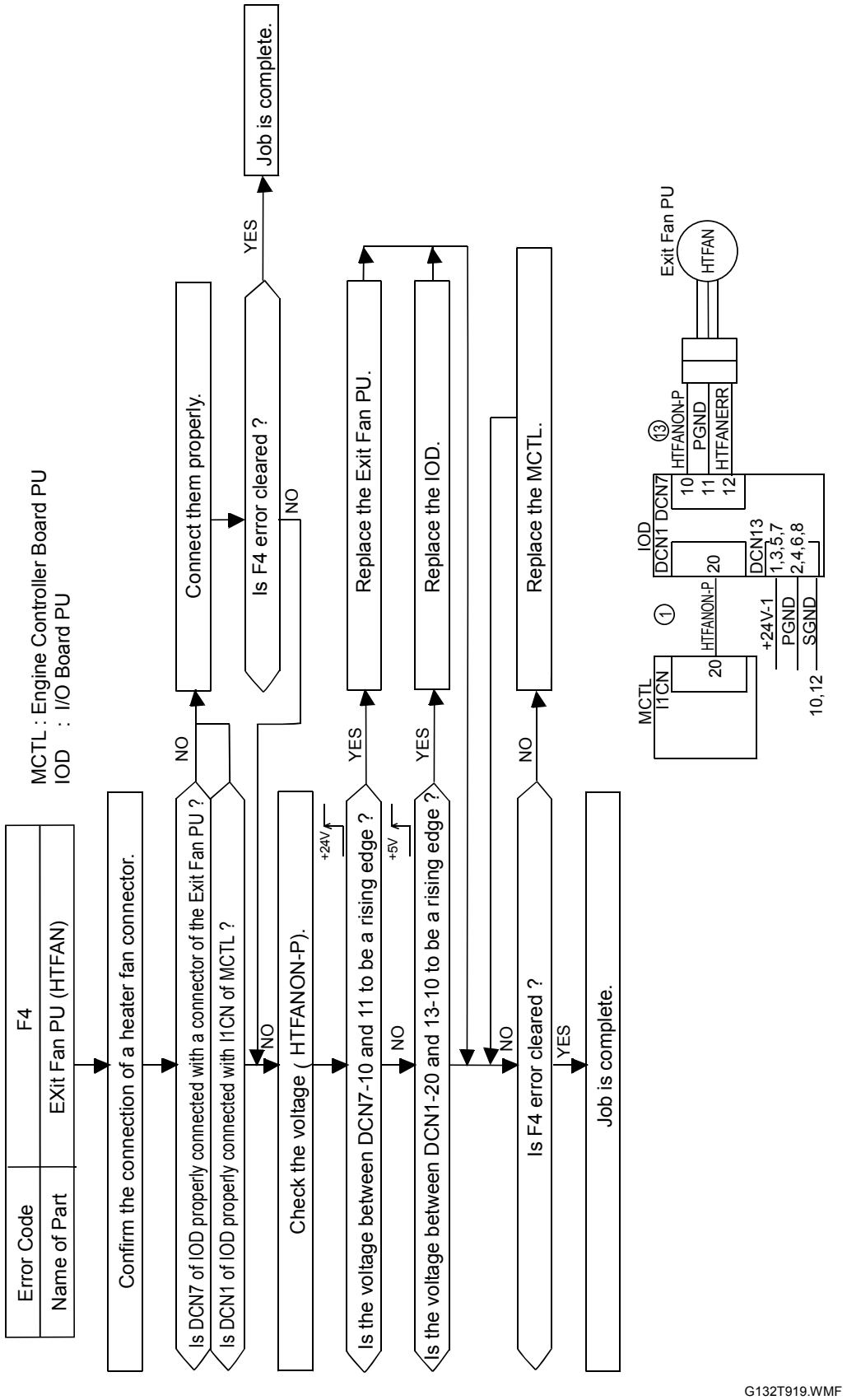
G132T916.WMF



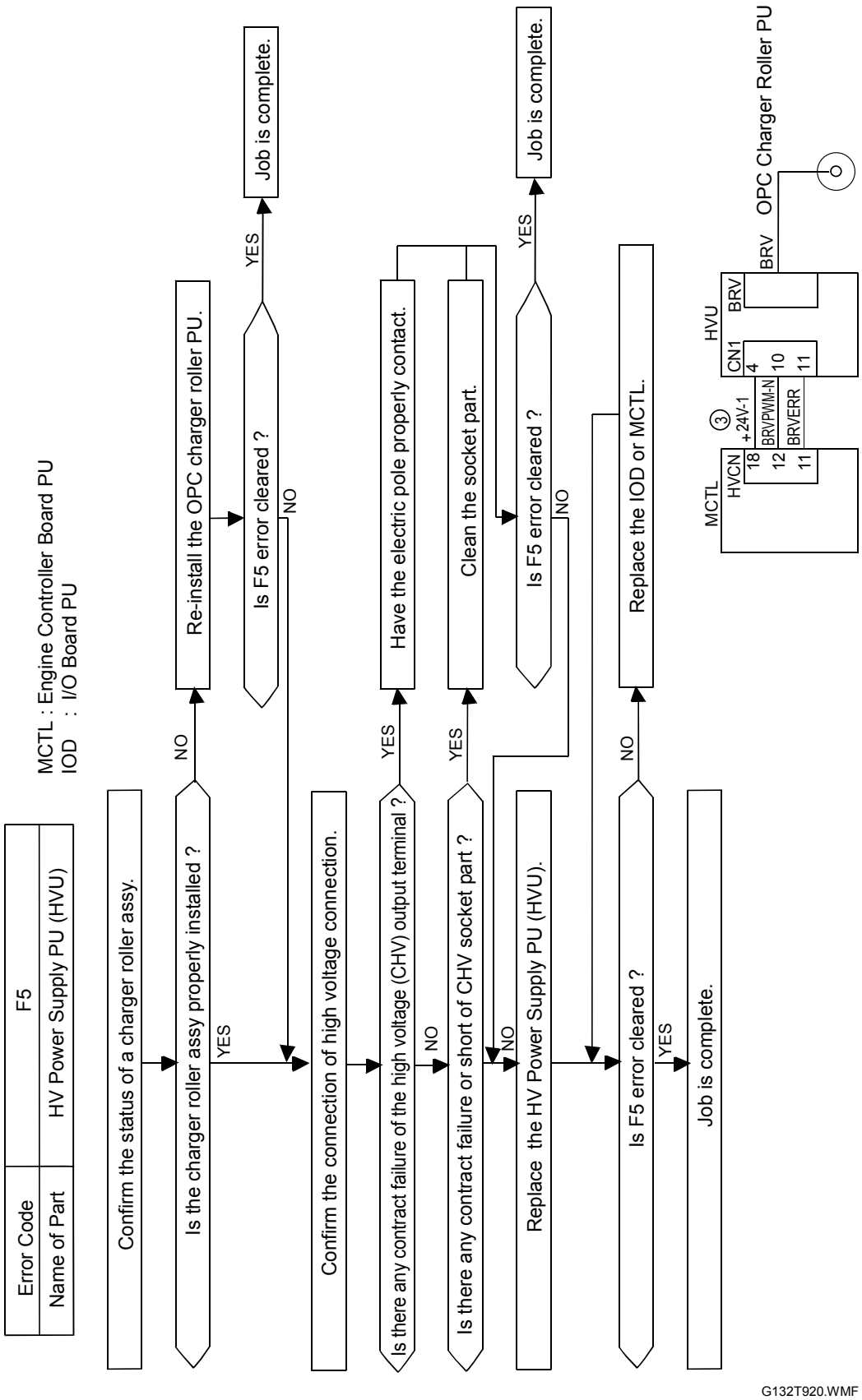
G132T917.WMF

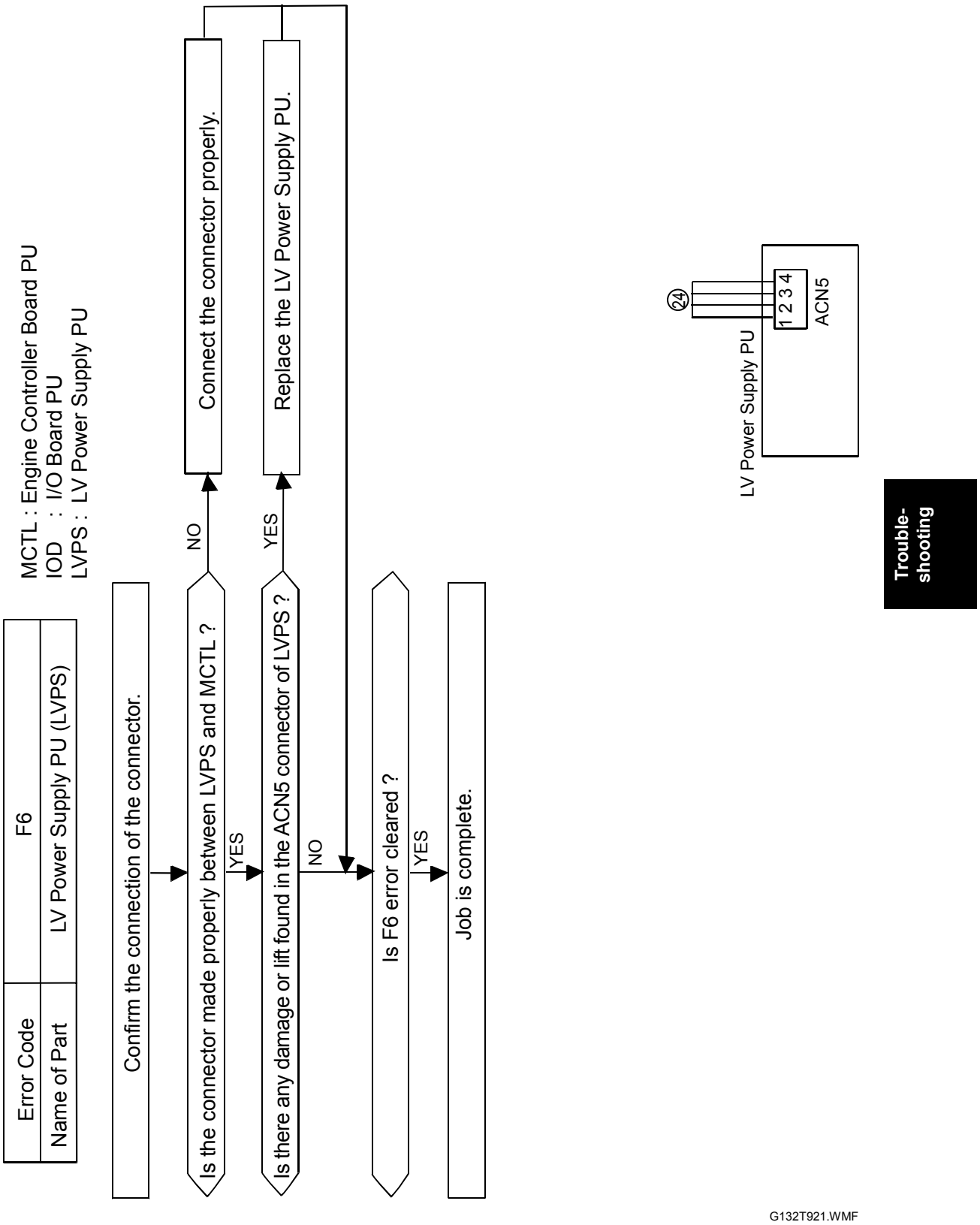
Trouble-shooting

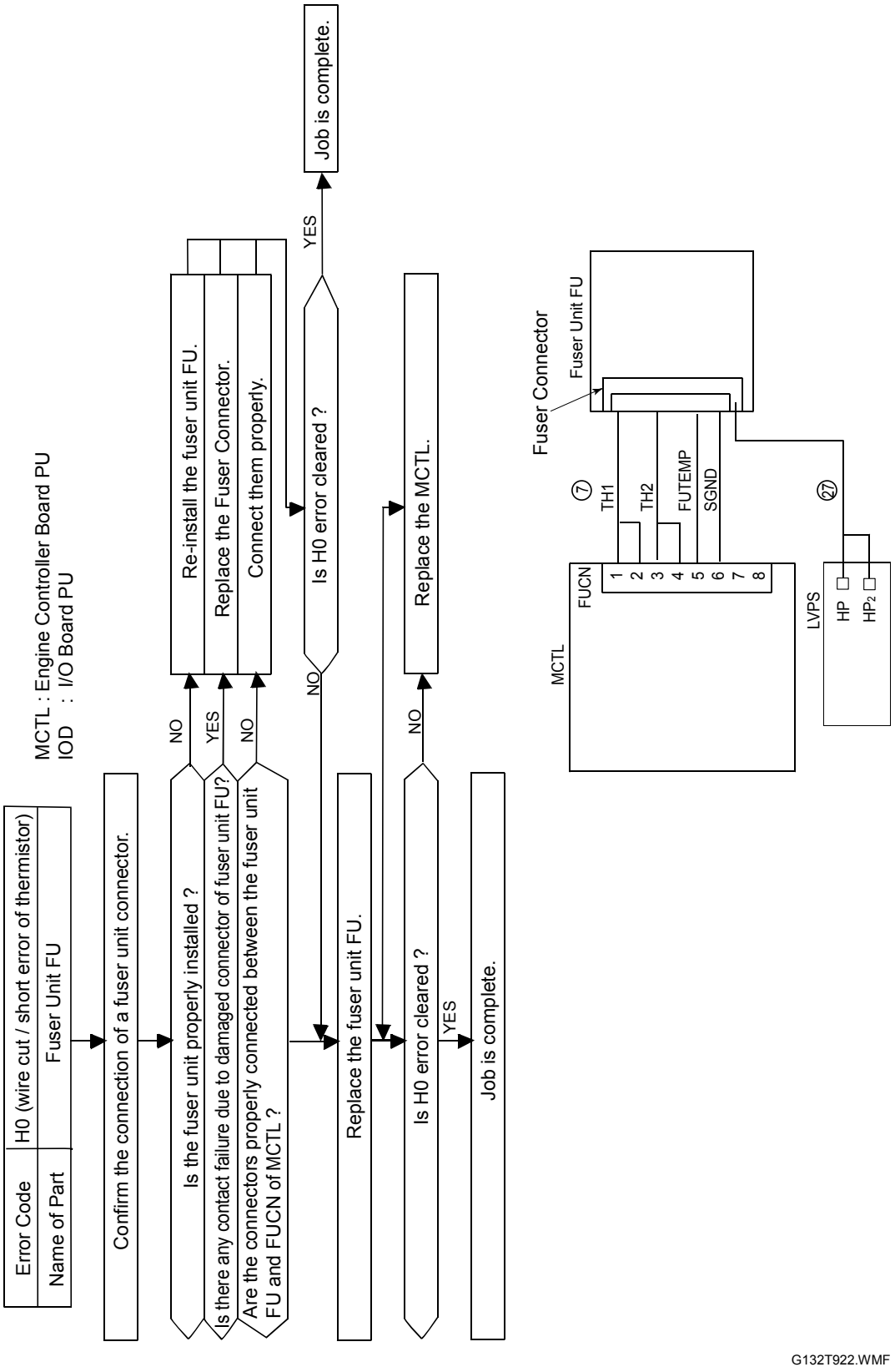

Error Code F3
Name of Part Laser Fan PU
MCTL : Engine Controller Board PU
IOD : I/O Board PU
Confirm the connection of a laser fan connector.
Is DCN8 of IOD properly connected with a connector of the laser fan PU ?
Is DCN3 of IOD properly connected with I2CN of MCTL ?
Connect them properly.
Is F3 error cleared ?
Job is complete.
Check the voltage (LDFANON-P)
+24V
+5V
Is the voltage between DCN8-1 and 2 to be a rising edge ?
Is the voltage between DCN3-21 and 13-10 to be a rising edge ?
Replace the laser fan PU.
Replace the IOD.
Replace the MCTL.
Is F3 error cleared ?
Job is complete.
YES
NO
Laser Fan PU
LD FAN
LDFANON-P
PGND
LDFANERR
IOD
DCN8
DCN3
DCN13
1,3,5,7
2,4,6,8
21
+24V-1
PGND
SGND
10,12
MCTL
I2CN
11
LDFANON-P
G132T918.WMF



Trouble-shooting


Error Code
F5
Name of Part
HV Power Supply PU (HVU)
MCTL : Engine Controller Board PU
IOD : I/O Board PU
Confirm the status of a charger roller assy.
Is the charger roller assy properly installed ?
NO
YES
Re-install the OPC charger roller PU.
Is F5 error cleared ?
YES
NO
Job is complete.
Confirm the connection of high voltage connection.
Is there any contract failure of the high voltage (CHV) output terminal ?
YES
NO
Have the electric pole properly contact.
Is there any contract failure or short of CHV socket part ?
YES
NO
Clean the socket part.
Replace the HV Power Supply PU (HVU).
Is F5 error cleared ?
YES
NO
Job is complete.
Replace the IOD or MCTL.
Is F5 error cleared ?
NO
YES
Job is complete.
MCTL
HVCN
18
12
11
③
+24V-1
BRV/PWM-N
BRVERR
HVU
CN1
4
10
11
BRV
BRV OPC Charger Roller PU
G132T920.WMF


Error Code
F6
Name of Part
LV Power Supply PU (LVPS)
MCTL : Engine Controller Board PU
IOD : I/O Board PU
LVPS : LV Power Supply PU
Confirm the connection of the connector.
Is the connector made properly between LVPS and MCTL ?
NO
YES
Connect the connector properly.
Is there any damage or lift found in the ACN5 connector of LVPS ?
YES
NO
Replace the LV Power Supply PU.
Is F6 error cleared ?
YES
Job is complete.
24
1 2 3 4
ACN5
LV Power Supply PU
G132T921.WMF



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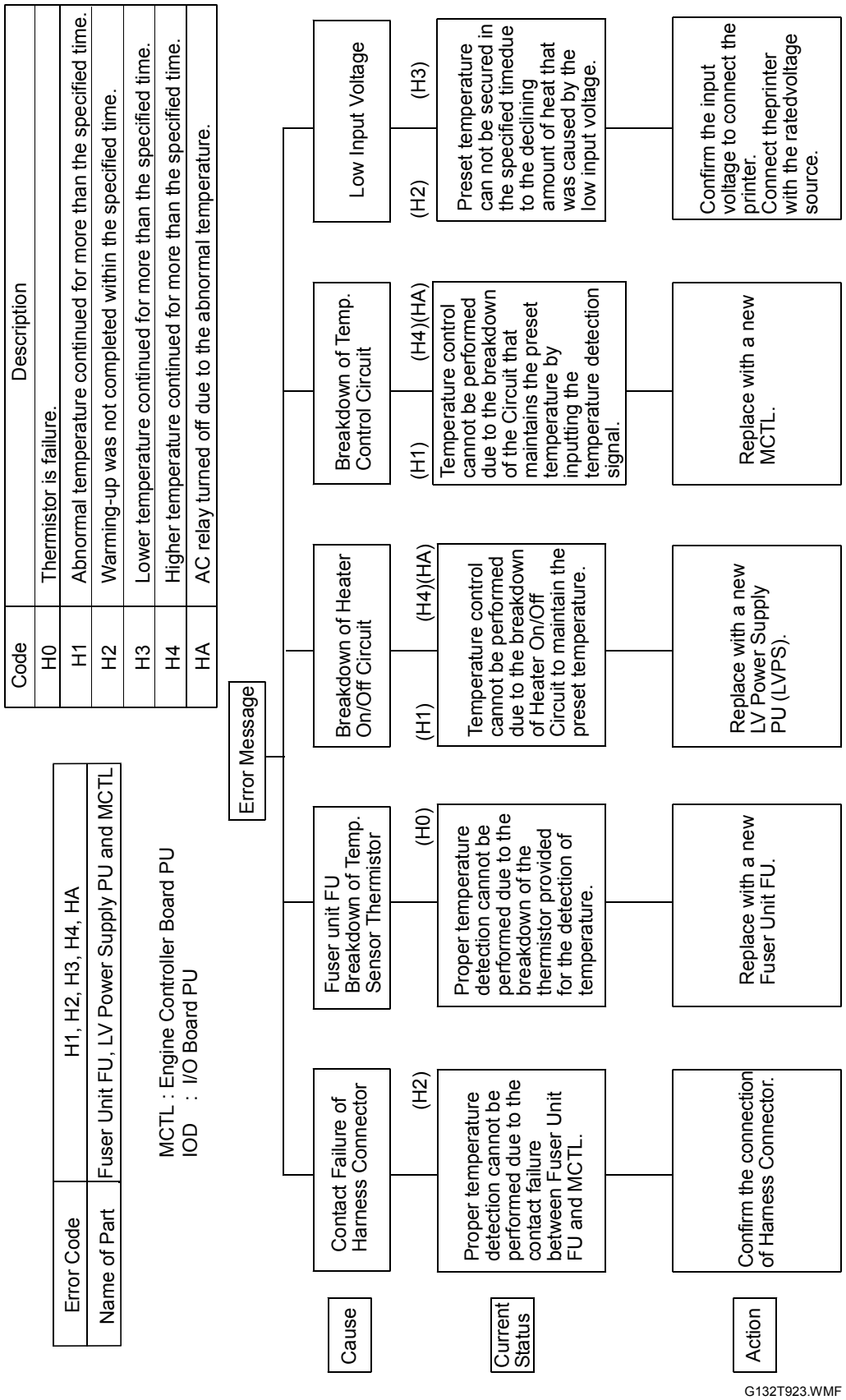
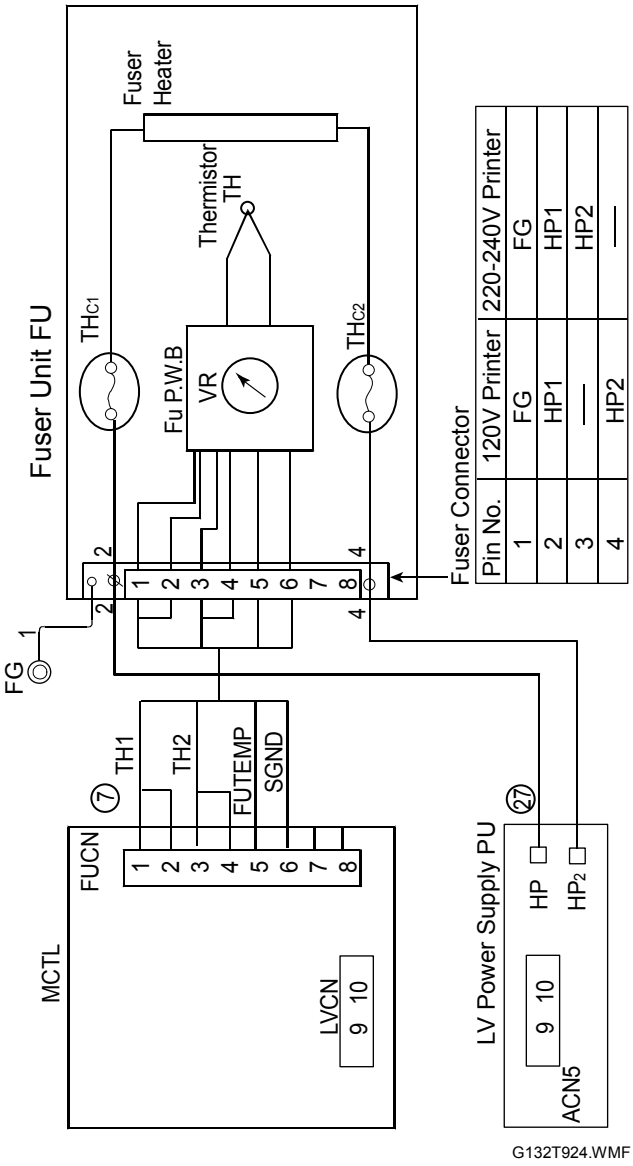
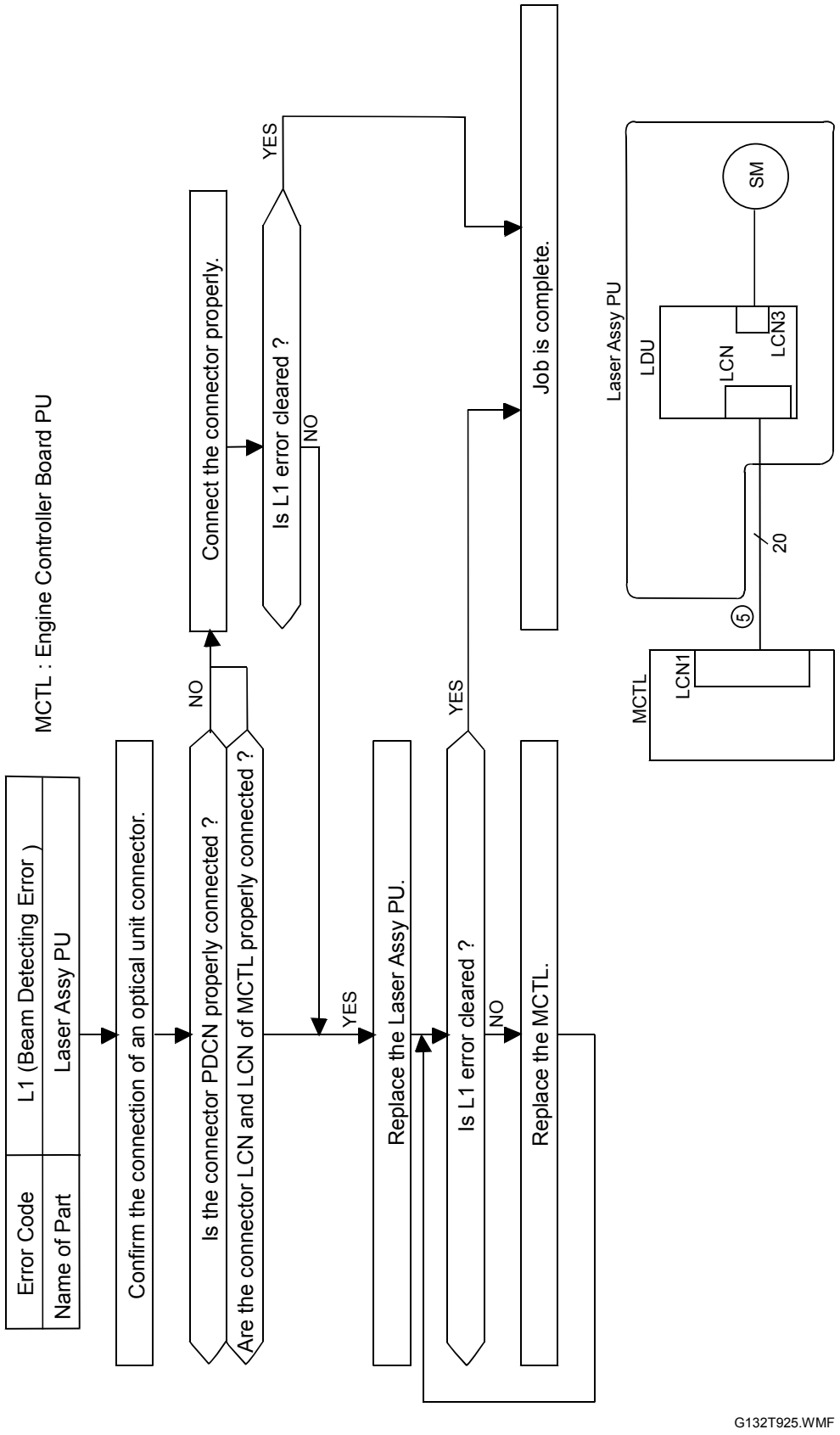


G132T923.WMF

Trouble-shooting


Fuser Heater
Thermistor TH
THc1
THc2
Fu P.W.B
VR
Fuser Unit FU
Fuser Connector
Pin No. 120V Printer 220-240V Printer
1 FG FG
2 HP1 HP1
3 — HP2
4 HP2 —
FG 1
TH1
TH2
FUTEMP
SGND
FUCN
MCTL
LVCN
9 10
HP
HP2
9 10
ACN5
LV Power Supply PU
G132T924.WMF



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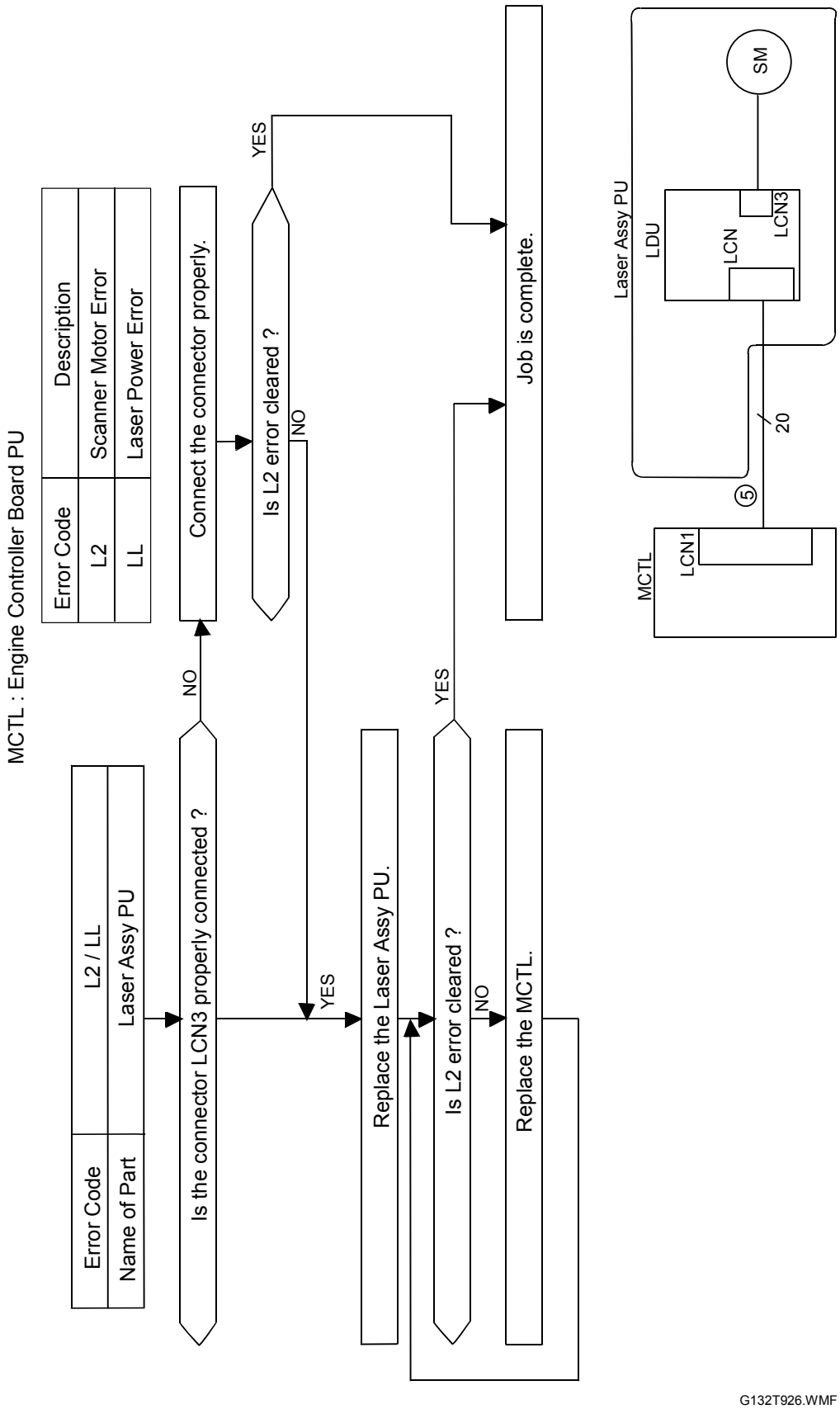
Trouble-shooting

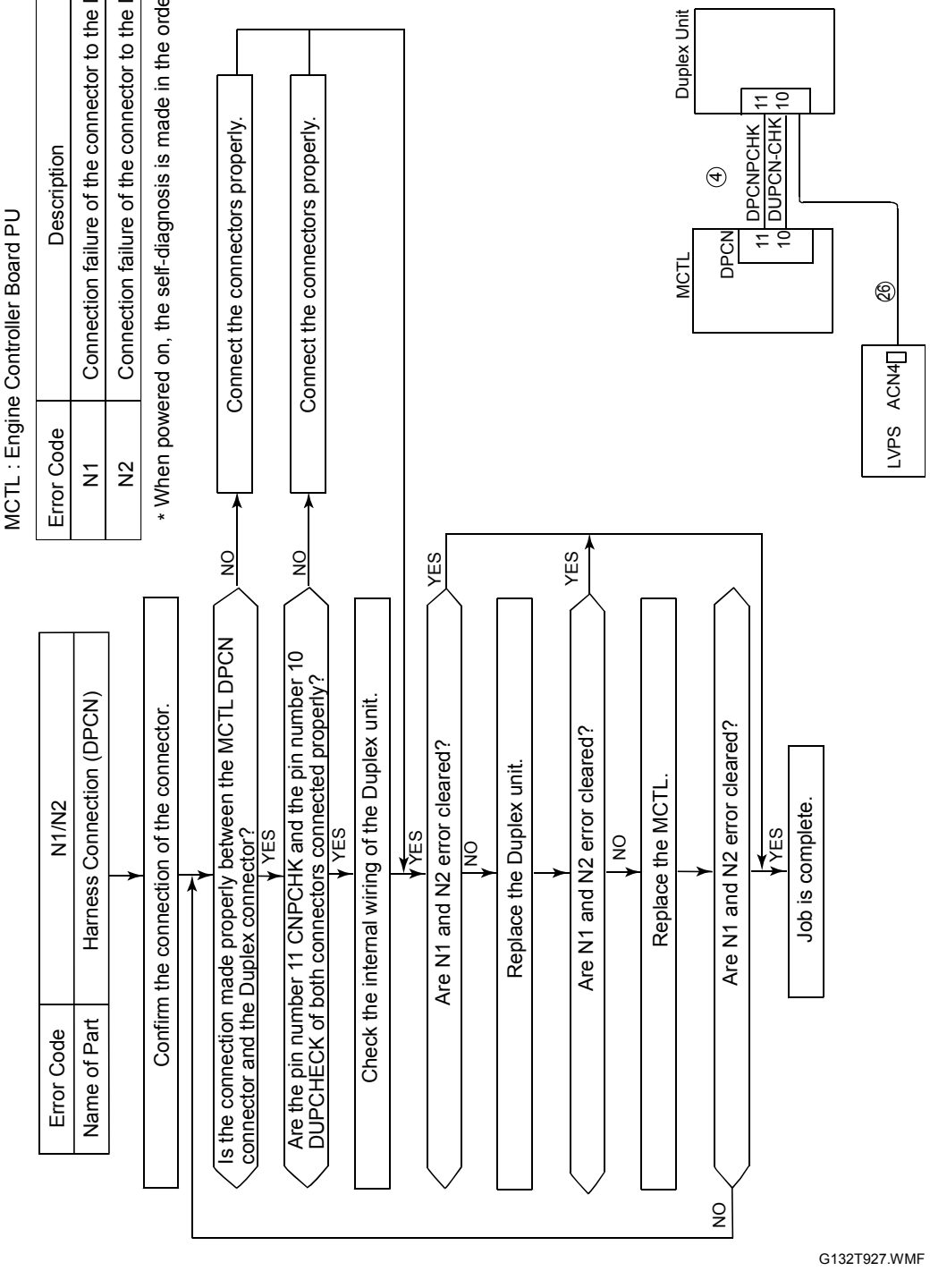

MCTL : Engine Controller Board PU
Error Code
Description
L2
Scanner Motor Error
LL
Laser Power Error
Error Code
L2 / LL
Name of Part
Laser Assy PU
Is the connector LCN3 properly connected ?
NO
Connect the connector properly.
Is L2 error cleared ?
YES
NO
YES
Job is complete.
YES
Replace the Laser Assy PU.
Is L2 error cleared ?
NO
Replace the MCTL.
Laser Assy PU
LDU
LCN
LCN3
SM
20
⑤
MCTL
LCN1
G132T926.WMF

MCTL : Engine Controller Board PU

Error Code	Description
N1	Connection failure of the connector to the Duplex unit. (pop-out or cut)
N2	Connection failure of the connector to the Duplex unit. (pop-out or cut)

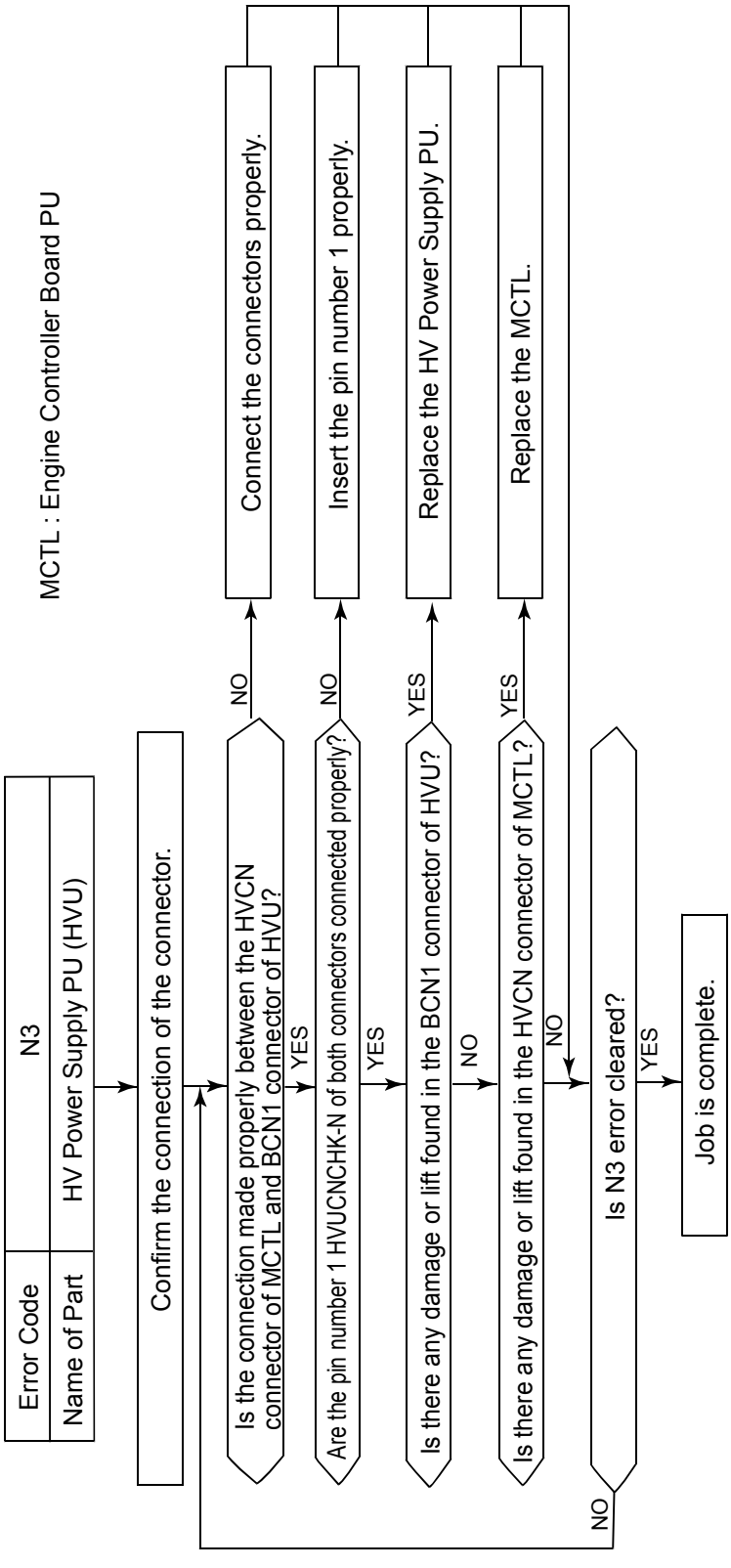
* When powered on, the self-diagnosis is made in the order of N1 and N2.

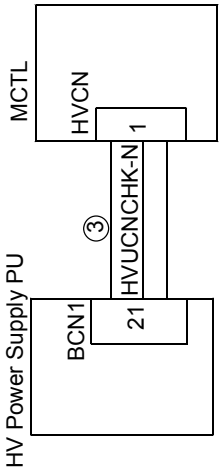
Error Code	N1/N2
Name of Part	Harness Connection (DPCN)



G132T927.WMF

Trouble-shooting





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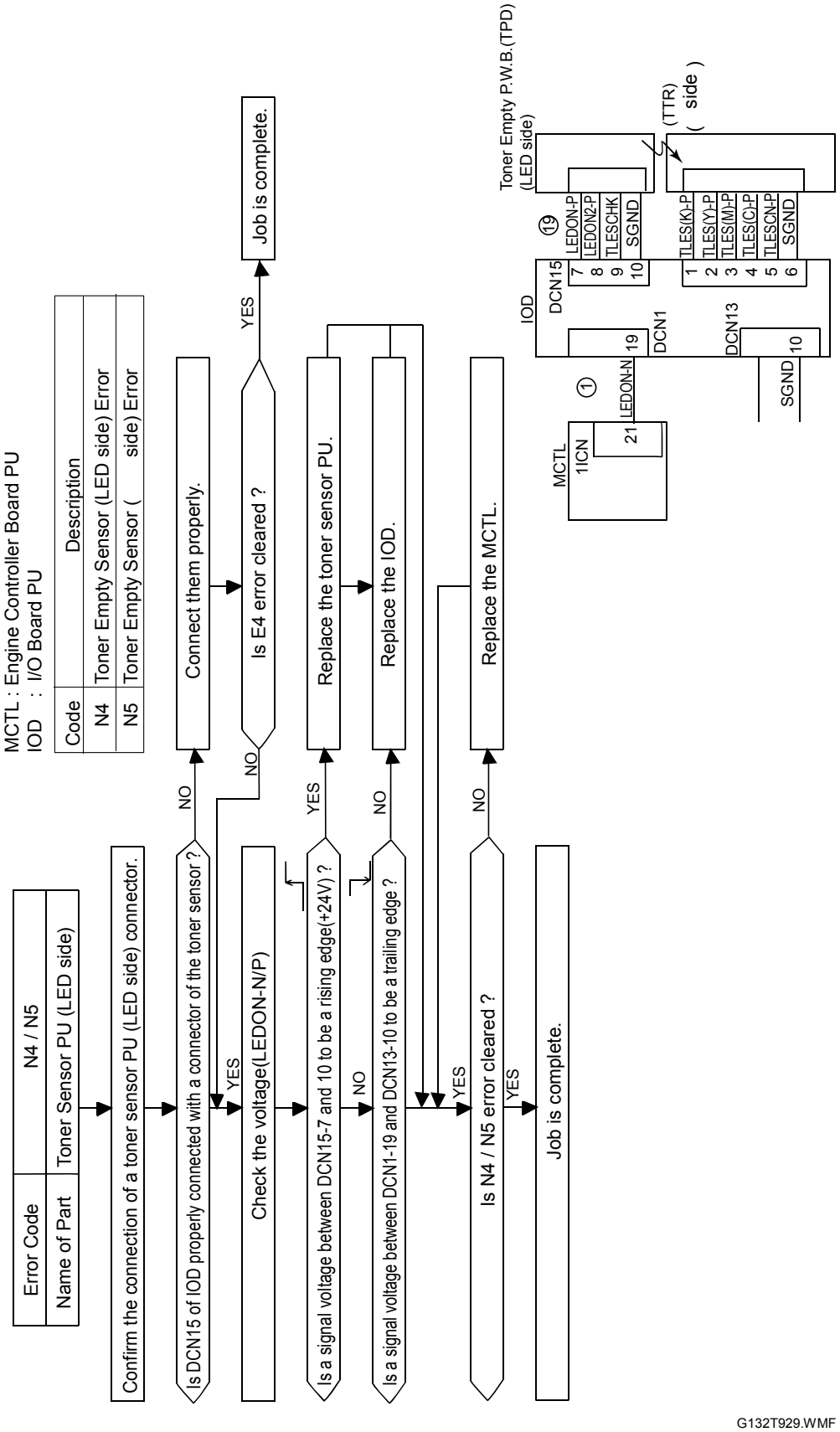
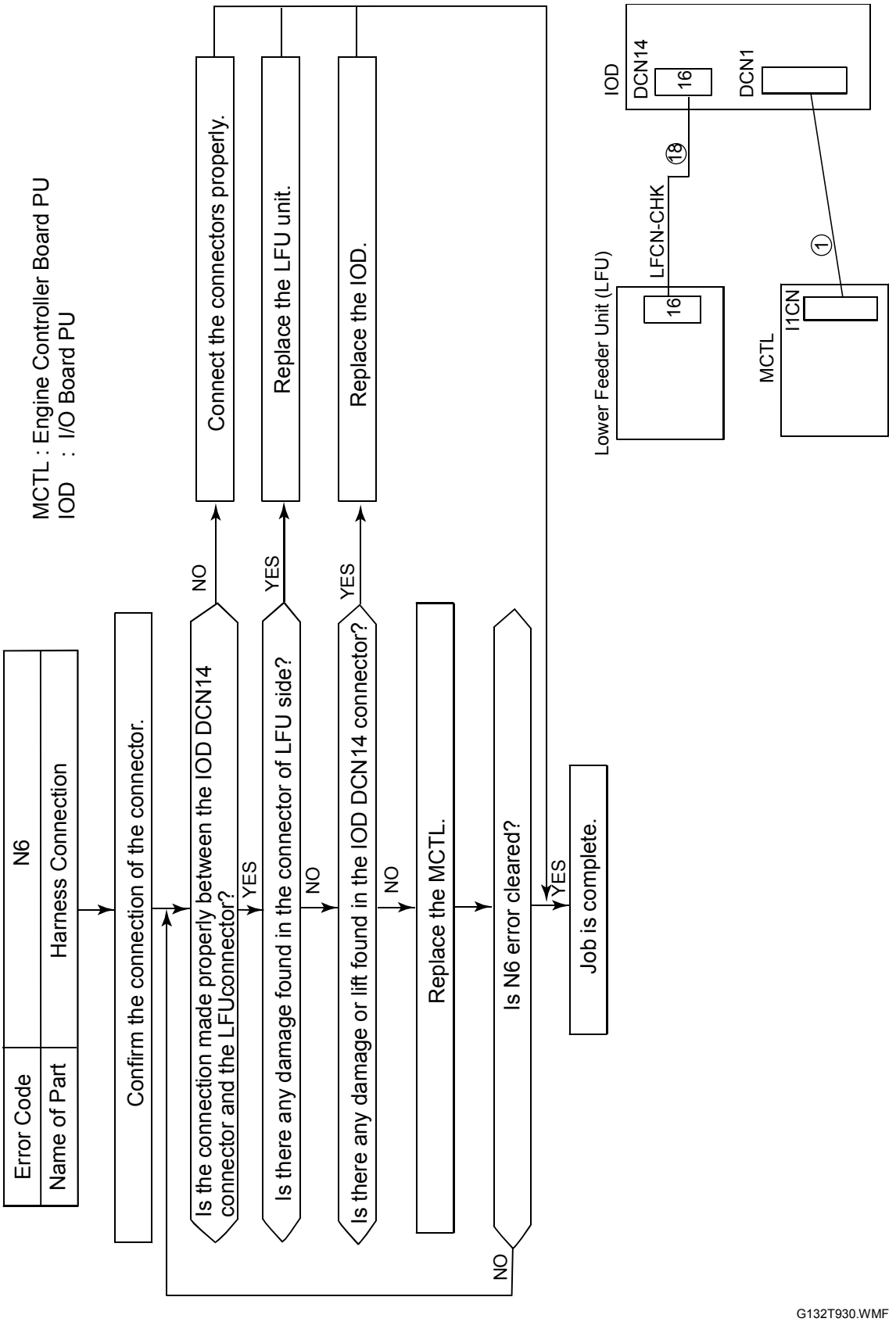
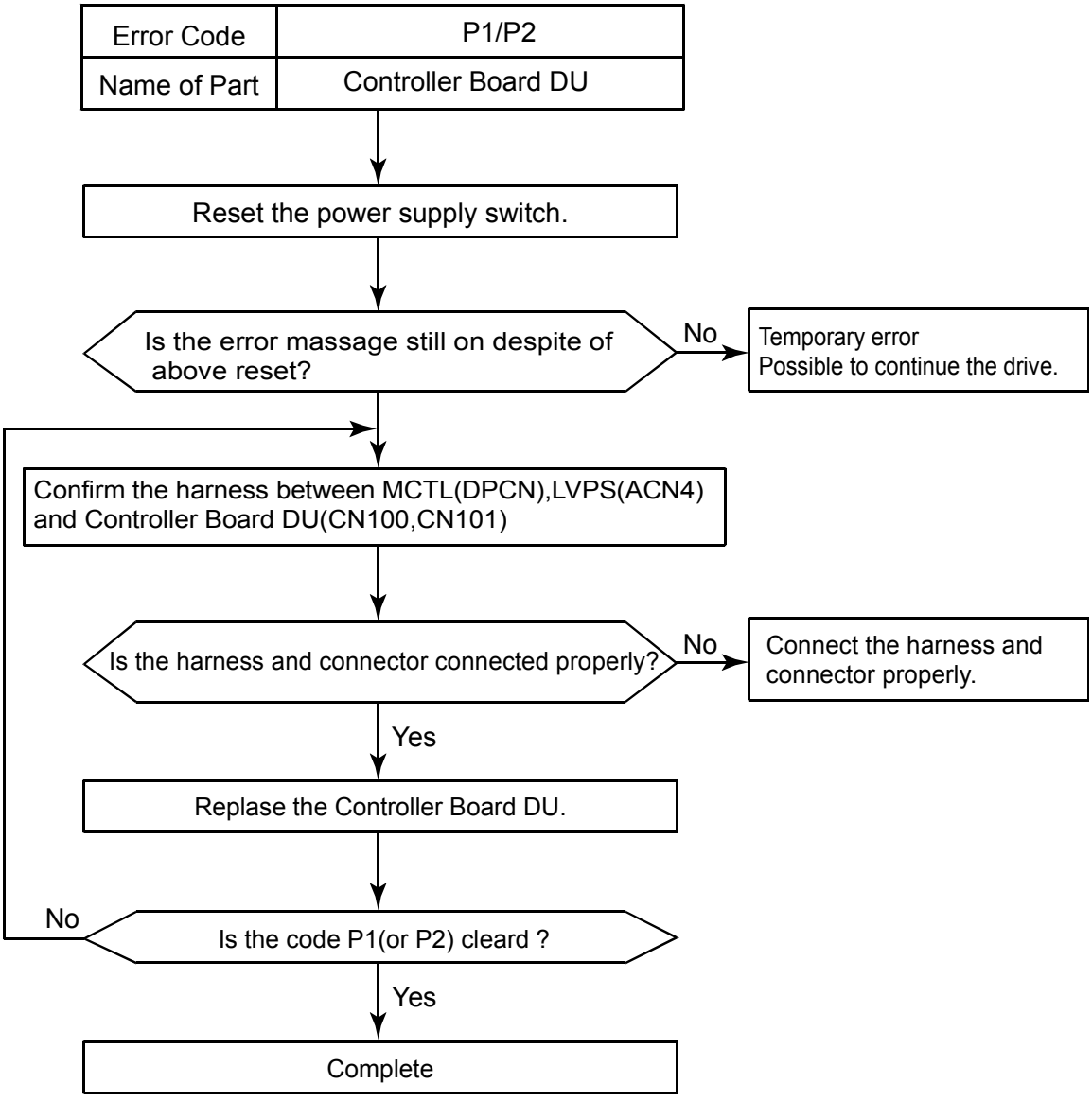


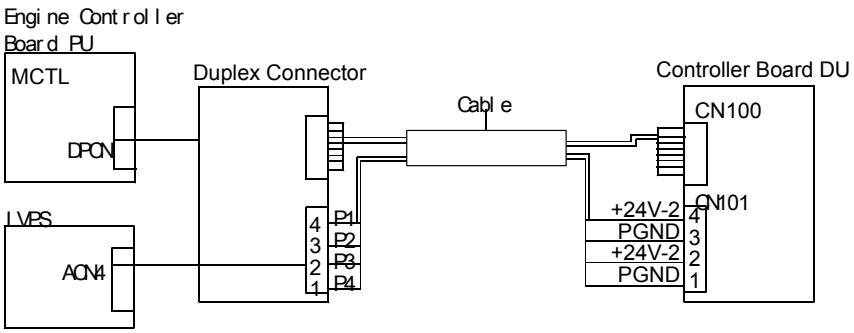
G132T929.WMF

Trouble-shooting

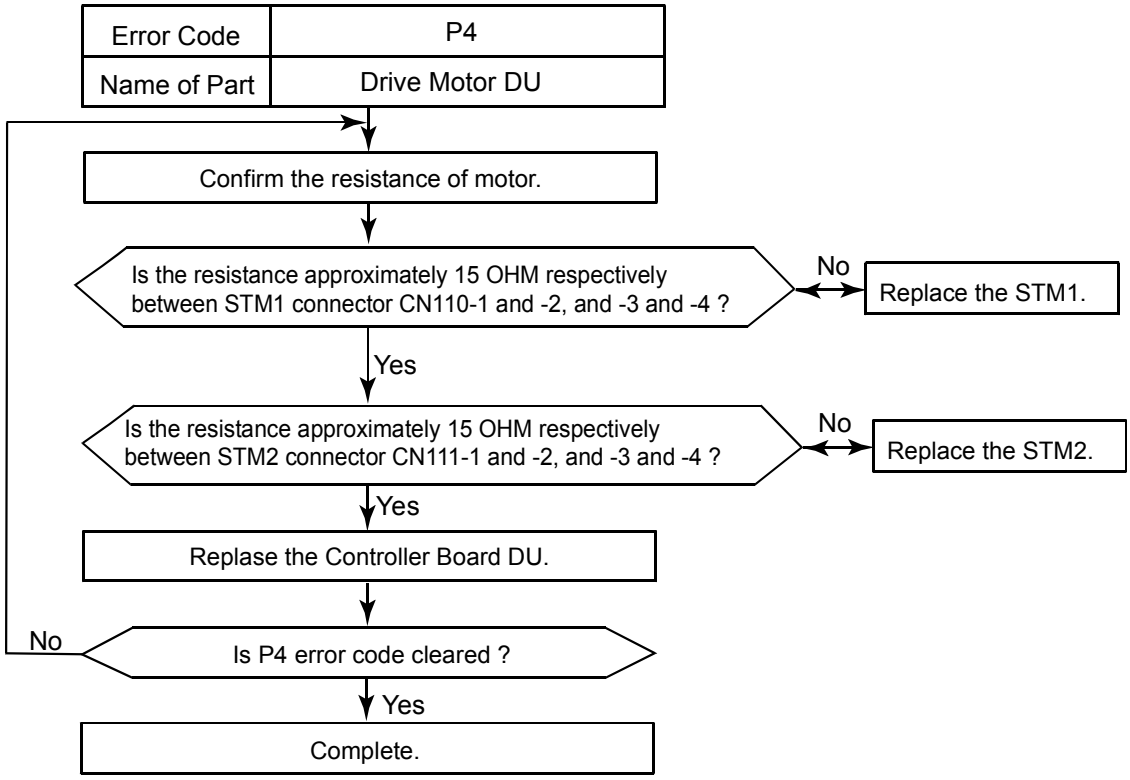

MCTL : Engine Controller Board PU
IOD : I/O Board PU
Error Code
N6
Name of Part
Harness Connection
Confirm the connection of the connector.
Is the connection made properly between the IOD DCN14 connector and the LFUconnector?
NO
YES
Connect the connectors properly.
Is there any damage found in the connector of LFU side?
YES
NO
Replace the LFU unit.
Is there any damage or lift found in the IOD DCN14 connector?
YES
NO
Replace the IOD.
Replace the MCTL.
Is N6 error cleared?
NO
YES
Job is complete.
IOD
DCN14
16
DCN1
18
LFCN-CHK
1
Lower Feeder Unit (LFU)
16
MCTL
1
1CN
G132T930.WMF

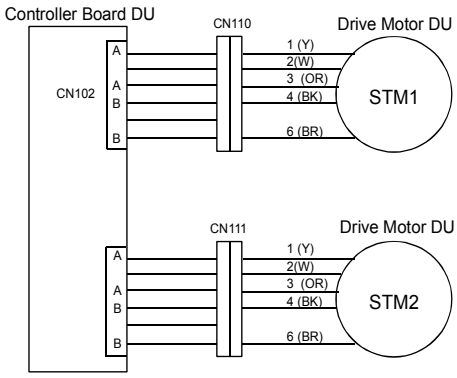
Error Code	P1/P2
Name of Part	Controller Board DU





G132T931.WMF



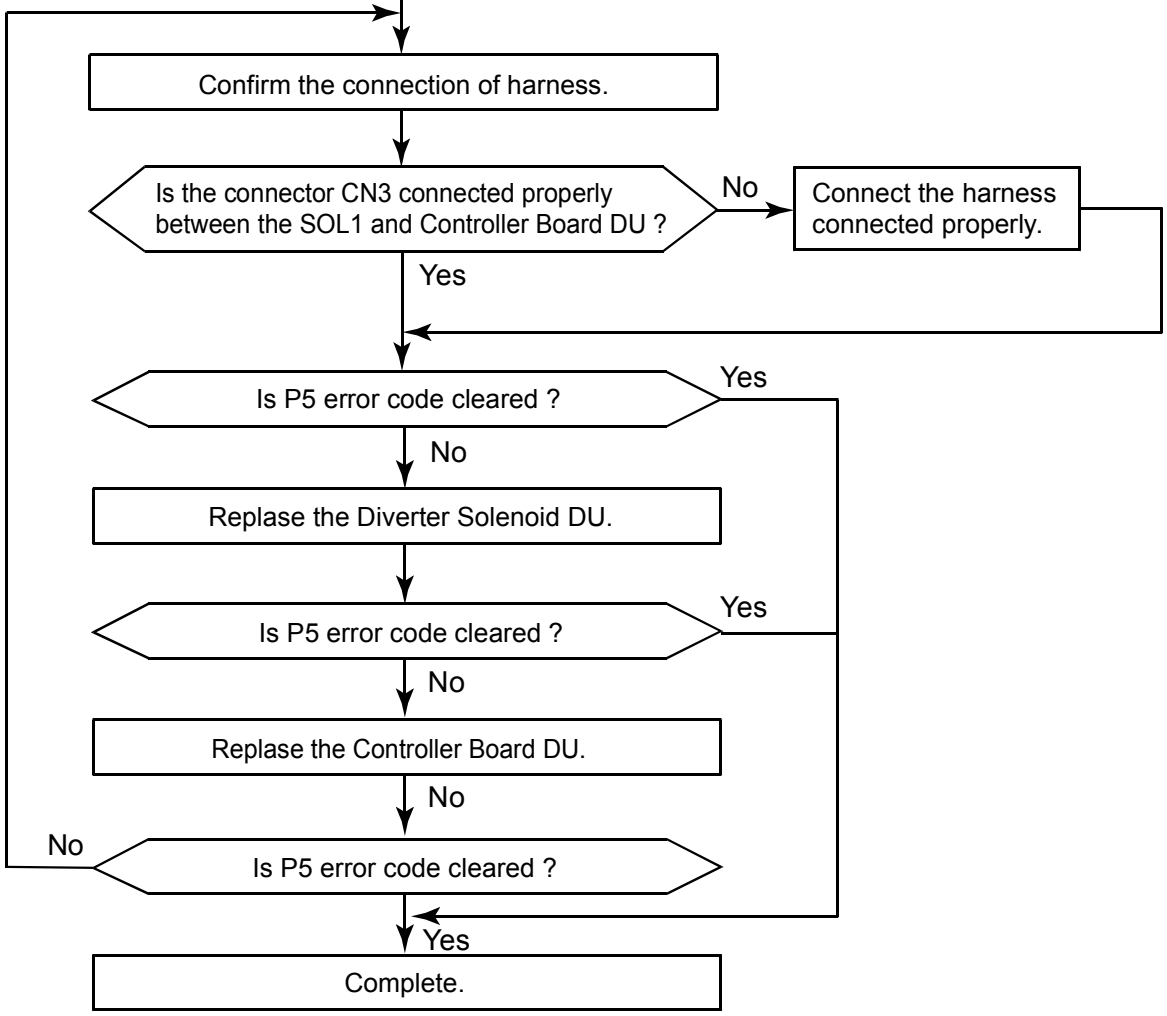


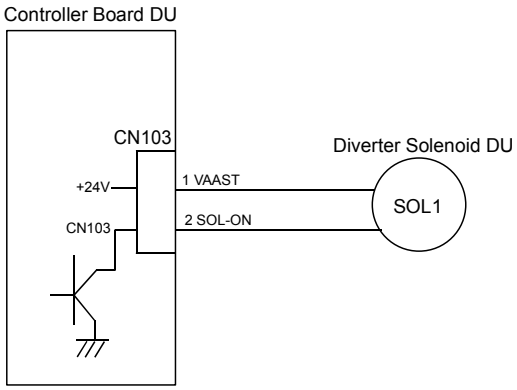
Cause of P4 error.

① Large current induced by motor fault blows Controller Board fuse F2.
② Motor drive IC fault on Controller Board DU blows fuse F2.

G132T932.WMF

Error Code	P5
Name of part	Diverter Solenoid DU (SOL1)





G132T933.WMF

4.2 IMAGE QUALITY

This section is the same as the G108 Service Manual. (☛ 4.2 in G108 SM.)

4.3 ELECTRICAL COMPONENT

4.3.1 SENSORS

Reflective Photo Sensors

Sensor	Connector	Condition	Symptom
ID	TACN	Abnormal	Image quality may deteriorate.
OPC belt	DCN5	Abnormal	• SVC E9 ERROR (☛ 4.1.1) • The message “Set Belt CG” is displayed.
Waste toner	DCN10	Abnormal	• The waste toner bottle or the waste toner is not detected. • The message “Replace WT. Pack” is displayed.
Toner end	DCN15	Abnormal	• SVC N4 ERROR (☛ 4.1.1) • SVC N5 ERROR (☛ 4.1.1)
Transfer belt	DCN16	Abnormal	• The message “Set Belt CG” is displayed.
OHP	DCN16	Abnormal	• OHP sheets are not detected. • The paper types other than OHP sheets are not detected

NOTE: Connector TACN is on the BCU. The other connectors are on the I/O device.

Photo Sensors

Sensor	Connector	Condition	Symptom
Development unit	DCN2	Interrupted	The message “Check Toner xxxxx” is displayed, where xxxxx indicates a color.
		Not interrupted	The message “Replace Toner xxxxx” is displayed, where xxxxx indicates a color.
Paper exit	DCN7	Interrupted	The paper stops in the paper exit unit and the message “JAM-B Rear” or “JAM-C Rear” is displayed.
		Not interrupted	The message “JAM-B Rear” or “JAM-C Rear” is displayed while no paper is in the path.
Registration	DCN16	Interrupted	The message “JAM-A Tray, Rear” is displayed.
		Not interrupted	The massage “JAM-B Rear” or “JAM-C Rear” is displayed.
Paper end	DCN16	Interrupted	The message “Trayx Load zzzz” is displayed while the paper is in the tray.
		Not interrupted	The message is not displayed while no paper is in the tray.
Paper size/tray	DCN19	Interrupted	The message “JAM-B Rear” or “JAM-C Rear” is displayed.
		Not interrupted	The message “Trayx Load zzzz” is displayed.

NOTE: The connectors are on the I/O device.

5. SERVICE TABLES

5.1 SERVICE PROGRAM MENU

⚠CAUTION

Make sure that the printer is not processing any data before you go into the service program menu.

5.1.1 OPERATING SERVICE PROGRAM MENU

⚠IMPORTANT

Do not let the user go into the service program menu. Normal operation is not guaranteed if the user goes into the service program mode.

Activating Service Menu

- When the printer is set off:

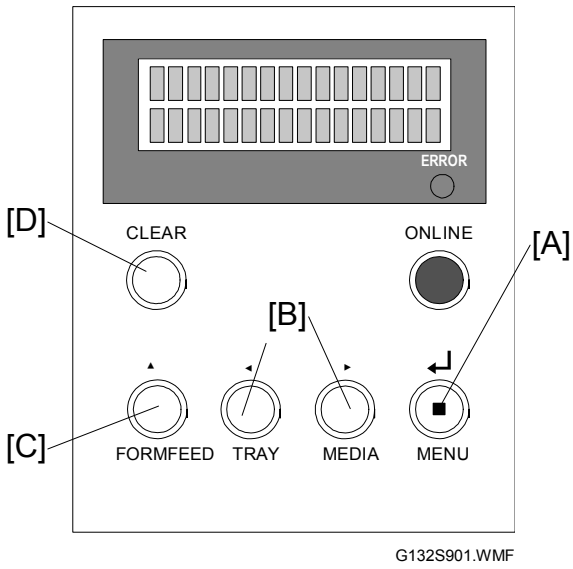
1. Press MENU key [A] and FORMFEED key [C] and hold them down.
2. Set the main power on. (Keep the two keys held down.)
3. Wait until the message "Service Menu" shows.

- When the printer is set on:

1 Press CLEAR key [D] three times holding MEDIA key down.

2 Press MENU key [A] to get “CE”.

3 Press TRAY or MEDIA key [B] to get “Service Menu”. Then press MENU key to go into the service program.



G132S901.WMF

Selecting a Service Program

1. Press TRAY or MEDIA key to get one of these menus:
   - 1. Information
   - 2. Test Print
   - 3. Maintenance
   - 4. Engine Tune Up
   - 5. Ver-Rev
   - 6. Product ID
   - 7. DataErrorSetting
2. Press MENU key.
3. Press TRAY or MEDIA key to get one of the sub menus.
4. Press MENU key.
5. Press TRAY or MEDIA key to get one of the service programs.
6. Press MENU key.
7. Press any key to go back to the main menu.

(You can go back to the previous step if you press FORMFEED key.)

Specifying a Setting

1. Press TRAY or MEDIA key to get a setting.
2. Press MENU key to keep the one you want to set.
3. Press FORMFEED key to go back to the main menu.

Exiting Service Menu

Press FORMFEED key when the message "Service Menu" shows on the LCD. This lets you go out of “Service Menu”. Then the printer goes back to the online mode.

5.1.2 SERVICE MENU FUNCTIONS

This device has menu functions as shown below.

No.	Main Menu	Sub Menu/Description
1	Service Menu	1. Information: Prints the printer's information. 2. TestPrint: Prints consecutively the test pattern to be selected. 3. Maintenance: 1) Initializes the PM counter 2) Keeps MCTL information 4. Engine Tune Up: Adjusts the engine. 5. Ver-Rev: Shows the software version in this machine. 6. Product ID: Shows the printer's name and firmware information in the printer's controller. 7. DataErrorSetting: Lets the machine skip or stop a print job when it gets incorrect data.
2	Print Maintenance Page	Prints a sheet of the paper that has printer's information, other information and the color test pattern.
3	Test menu	Prints the test pattern, menu setting and printer's information.
4	Config menu	Lets the machine receive the printing data and set the display language.
5	Utility menu	1. Clear Belt CG, Fuser or Print Info: Initialize the counter of the belt cartridge, fusing unit and total number of printing. 2. Setting Default: Initialize the contents of the panel menu, the network setting and the passwords of the Web/Hidden page. 3. Tray2 Margin / Duplex Margin: Sets the adjustment value of the tray 2 paper feeder or the duplex.
6	Toner Sense Menu	Adjusts the toner sensing function.

1-1 Information (Service Menu):

This prints a sheet of paper that shows the machine's software version. You can also see information for the total printing counter.

You can set these engine values shown below:

- Print Counter
- Unit Life
- Laser Power
- Developer Bias Voltage
- Transfer High Voltage
- Margin
- Toner Mass Amount Calibration
- Toner Mass Amount Density
- OPC Belt Bias Voltage

PRINTERCOUNTER	Printer Counter	Description
	Image total	Shows the printing image total (current and back up data). You must replace it if goes over 300000.
	Yellow	
	Magenta	
	Cyan	
	Black	
	Page total	Shows the page total.
	Duplex sheet total	Shows the duplex sheet total.

UNIT LIFE	Counter	Description
	Belt cartridge	Shows the image total. You must replace it if this number is under 0.
	Fuser unit	Shows the page total. You must replace it if this number is under 0.
	120K kit	
	Transfer belt	
	Paper feeding roller1	
	Paper feeding roller2	

Laser Power	Color	Description
	Yellow	Shows the setting value in Engine Tune Up menu.
	Magenta	
	Cyan	
	Black	

Developer Bias Voltage	Color	Description
	Yellow	Shows the setting value in Engine Tune Up menu.
	Magenta	
	Cyan	
	Black	

Transfer High Voltage	Paper Type	Description
	Plain paper	Shows the setting value in Engine Tune Up menu.
	Transparency	
	Label /Mid-Thick	
	Thick1	
	Thick2	
	Envelope	
	Duplex (plain)	
	Duplex (m-thick)	
	Duplex (thick1)	
	Duplex (thick2)	

Margin	Paper Type	Description
	Plain paper	Shows the setting value in Engine Tune Up menu.
	Transparency	
	Label /Mid-Thick	
	Thick1	
	Thick2	
	Envelope	

Sample:

```
<PRINTER INFORMATION>
CURRENT DATA          BACK UP DATA
PRINT COUNTER
Image total                    $$$$$$              $$$$$$
(Yellow )                      $$$$$$              $$$$$$
(Magenta)                      $$$$$$              $$$$$$
(Cyan   )                      $$$$$$              $$$$$$
(Black  )                      $$$$$$              $$$$$$
Page total                     $$$$$$              $$$$$$
Duplex sheet total             $$$$$$              $$$$$$
UNIT LIFE
Belt cartridge                 $$$$$$              $$$$$$
Fuser unit                     $$$$$$              $$$$$$
120K kit                       $$$$$$              $$$$$$
Transfer belt                  $$$$$$              $$$$$$
Paper feeding roller1          $$$$$$              $$$$$$
Paper feeding roller2          $$$$$$              $$$$$$
LASER POWER
Yellow                            $$                  $$
Magenta                           $$                  $$
Cyan                              $$                  $$
Black                             $$                  $$
DEVELOPER BIAS VOLTAGE
Yellow                            $$                  $$
Magenta                           $$                  $$
Cyan                              $$                  $$
Black                             $$                  $$
TRANFER HIGH VOLTAGE
Plain paper                       $$                  $$
Transparency                      $$                  $$
Label/Mid-Thick                   $$                  $$
Thick1                            $$                  $$
Thick2                            $$                  $$
Envelope                          $$                  $$
Duplex(plain)                     $$                  $$
Duplex(m-thick)                   $$                  $$
Duplex(thick1)                    $$                  $$
Duplex(thick2)                    $$                  $$
MARGIN
Top                              $$$                 $$$
Left1                            $$$                 $$$
Left2                            $$$                 $$$
Duplex left                      $$$                 $$$
TONER MASS AMOUNT CALIBRATION    $$$                 $$$
TONER MASS AMOUNT DENSITY
Yellow                            $$                  $$
Magenta                           $$                  $$
Cyan                              $$                  $$
Black                             $$                  $$
OPC BELT BIAS VOLTAGE             $$                  $$
```

1-2 Test Print (Service Menu)

This prints the color test pattern you want to set. You can select the print method in Item2 and the test pattern in Item3 as shown below.

Test Print procedure

1. Start “Service Menu”.
2. Press TRAY or MEDIA key to get “Test Print”. Then press MENU key.
3. Press Tray or MEDIA key to get “Print Method” (Item2) in sub menu. Then press MENU key.
4. Press TRAY or MEDIA key to get “Test Pattern” (Item3) in service program.
5. Press MENU key to let the machine print.
   NOTE: The machine may print to maximum prints. Press FORMFEED key to stop printing if you do not need to print to maximum prints.
6. This printer automatically goes back to “Service Menu” when the machine ends the print job.
7. Press FORMFEED key in “Service Menu” to leave “Service Menu”.

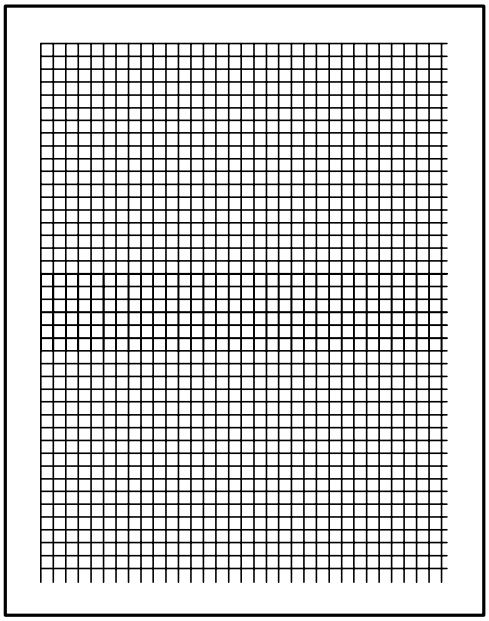
This printer goes back to “Service Menu” at these times:

- FEED key is pressed. (It may take more time for the paper to exit the machine.)
- Set sheets of paper are completely printed.

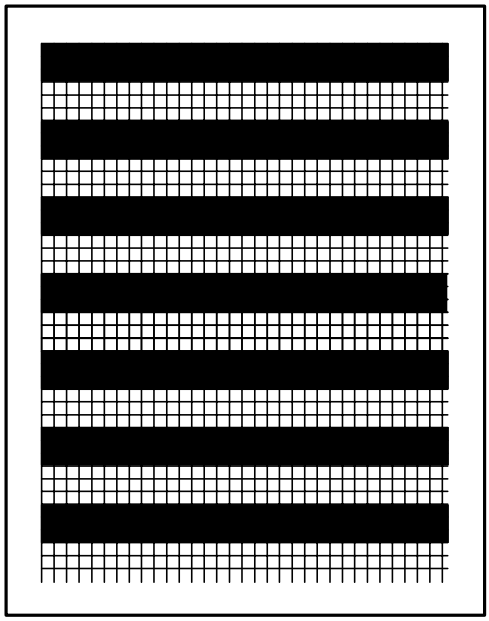
NOTE: The machine will not print if an error description shows.

No.	Item2	Description
1	Simplex	Select the Item3 after this setting. **NOTE: T**he print speed is set to the standard speed when a sheet of paper is a ledger, legal, A4 or letter size.
2	Duplex1 (optional)	
3	Duplex2 (optional)	
No.	**Item3**	**Maximum prints**
1	Stripe (YMCK)	Simple: 63 sheets
2	Grid (K)	Simple: 60 sheets
3	Grid (Y)	Simple: 60 sheets
4	Grid (M)	Simple: 60 sheets
5	Grid (C)	Simple: 60 sheets
6	Grid (Y, M)	Simple: 63 sheets
7	Grid (Y, C)	Simple: 63 sheets
8	Grid (M, C)	Simple: 63 sheets

Grid pattern



Stripe pattern



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1-3 Maintenance (Service Menu)

You must do this procedure when you replace preventive maintenance parts and MCTL.

Maintenance Procedure

1. Start the “Service Menu”.
2. Press TRAY or MEDIA key to get “Maintenance”. Then press MENU key.
3. Press TRAY or MEDIA key to get a service program (Item2). Then press MENU key.
4. Press TRAY or MEDIA key to get the “Not Execute” or “Execute”.
5. Press MENU key to start this program when you set “Execute” in step 4.
6. Press any key to go back to the “Service Menu”.

No.	Item2	Description
1	Clear Fuser	Initializes the fuser counter. It is executed when replacing the fuser unit.
2	Clear 120K Kit	Initializes the 120K kit (Transfer roller /Drum cleaner) counter. It is executed when replacing both the Transfer roller and Drum cleaner at the same time.
3	Clear Trans Belt	Initializes the Transfer belt counter. It is executed when replacing the Transfer belt.
4	Clear Feed-Roll1	Initialize the Feed-Roll counter. It is executed when replacing the Feed-Roll1 or 2. **NOTE:** Replace the separation pad at the same time when replacing the feed-roller.
5	Clear Feed-Roll2	
6	MCTL→PRC	Backup the maintenance page information of the NVRAM in the MCTL to the Flash Memory in the controller board. This needs to be executed just before replacing the MCTL. **NOTE 1)** You cannot backup more than the maintenance page information to the Flash Memory. **NOTE 2)** If this is done correctly, the value of the current data and back up data in the Information must be same.
7	PRC→MCTL	Copy the maintenance page information backed up to the Flash Memory in the controller board into the NVRAM in the MCTL. This needs to be executed just after replacing the MCTL. **NOTE:** If there is no information in Flash Rom, this cannot be executed.

1-4 Engine Tune Up (Service Menu)

This lets you adjust the engine setting. You do not normally have to adjust the engine setting. This setting is correctly adjusted in the factory. You can adjust this for different environments and paper types if necessary.

Engine Tune Up procedure

1. Start the “Service Menu”.
2. Press TRAY or MEDIA key to get “Engine Tune Up”. Then press MENU key.
3. Press TRAY or MEDIA key to get a service program (Item2). Then press MENU key.
4. Press TRAY or MEDIA key to get Item3 if the service program has Item3. Then press MENU key.
5. Press TRAY or MEDIA key to adjust the value of a service program. Then press MENU key.
6. New values and old values show on the LCD.
7. Press any key to go back to the service program (Item2) selection display.

Possible settings

[Adjustable range / **Default** / Step]: *Step* is the amount of minimum change.

Item2	Item3	Adjustment value
Laser Power	Adjusts the laser power to improve the print’s density	
	Yellow	[1 to 15 / 8 / 1/step]
	Magenta	
	Cyan	
	Black	
DBV	Adjusts the DBV (Developer Bias Voltage) to improve the print’s density.	
	Yellow	[1 to 15 / 8 / 1/step]
	Magenta	
	Cyan	
	Black	
THV	Adjusts the THV (Transfer High Voltage) to improve the transfer efficiency due to the paper type.	
	Plain Paper	[-4 to 4 / 0 / 1/step]
	Transparency	
	Label-Mid-Thick	
	Thick1	
	Thick2	
	Duplex(Plain)	
	Duplex(Thick1)	
	Duplex(Thick2)	
Margin Adjust	Top	Adjusts the margin at the leading edge. [-35 to 35 / - / 5/step] (1=0.1mm)

	Left1	Adjusts the margin at the left side when feeding from Tray 1. [-35 to 35 / - / 5/step] (1=0.1mm)
	Left2	Adjusts the margin at the left side when feeding from Tray 2. [-35 to 35 / 0 / 5/step] (1=0.1mm)
	Left-Duplex	Adjusts the margin at the left side when the duplex printing. [-35 to 35 / 0 / 5/step] (1=0.1mm)
TMA Timing	Specifies the interval of the timing for the TMA detecting the amount of the toner transferred to Transfer belt. [1 to 13 / 8 / 1/step]	
TMA Density	Adjusts the each color density to improve the print's density.	
	Yellow	[1 to 15 / 8 / 1/step] (1 is the dimmest, 15 is the darkest.)
	Magenta	
	Cyan	
	Black	
CBV	Adjusts the OPC belt bias to improve the print's density. [-4 to 4 / 0 / 1/step]	
FBV	Adjusts the Transfer belt cleaner bias to improve the transfer efficiency. [-4 to 4 / 0 / 1/step]	

1-5 Ver-Rev (Service Menu)

This shows the information of the machine's software version on the operation panel.

Operation Procedure

1. Start the "Service Menu".
2. Press TRAY or MEDIA key to get "Ver-Rev". Then press MENU key.
3. Press TRAY or MEDIA key to get a service program for these:
   - F/W: Controller firmware
   - MCTL: MCTL software
   - DPTL: DPTL software (This shows only when the duplex unit is installed.)
4. Press FORMFEED key to go back to the main menu.

1-6 Product ID (Service Menu)

This shows the printer's name and firmware information.

Operation Procedure

1. Start the "Service Menu".
2. Press TRAY or MEDIA key to get "Product ID". Then press MENU key.
3. A printer type name shows on the LCD.
4. Press FORMFEED key to go back to the main menu.

1-7 Data Error Setting (Service Menu)

This let you set the skip or stop printing when receiving the defective data.

- Skip: When a data error happens, a page or job having an error data is canceled and then the next page or job is consecutively processed.
- Stop: When a data error happens, an error message shows. At this time, data does not get processed.

Operation Procedure

1. Start the "Service Menu".
2. Press TRAY or MEDIA key to get "DataErrorSetting". Then press MENU key.
3. A current set program shows with "*" on the LCD.
4. Press TRAY or MEDIA key to set "Skip" or "Stop". Then press MENU key.
5. Press FORMFEED key to go back to the main menu.

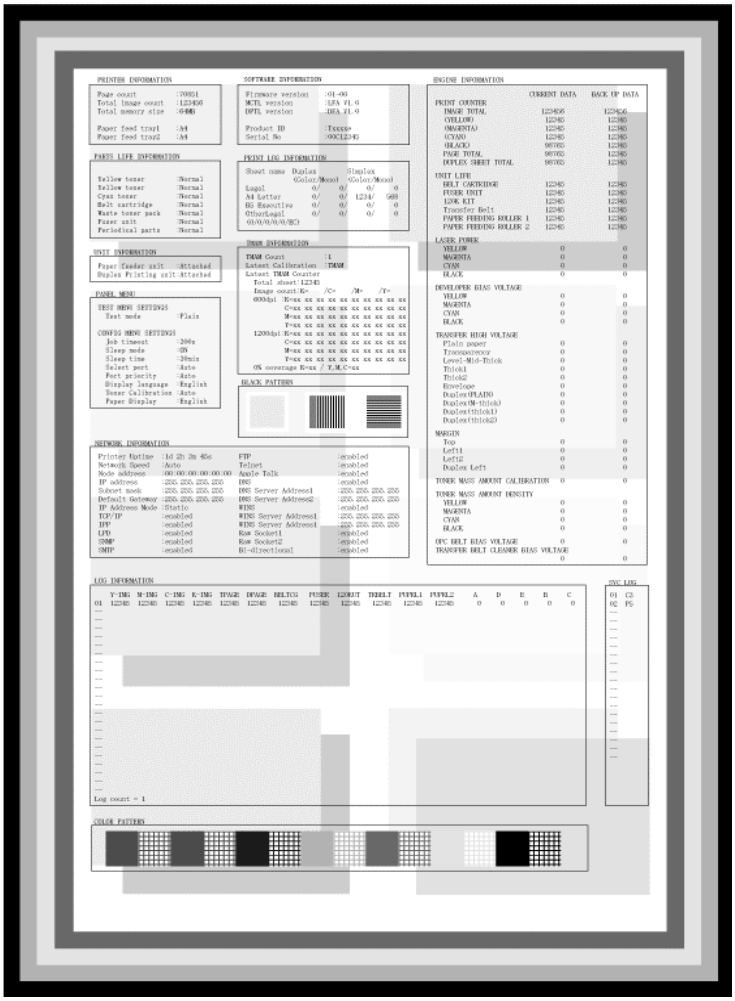
2 Print maintenance page

This prints a sheet of the paper with these things:

- Printer information
- Other information
- Color Test Pattern.

Operation procedure

1. Hold down MEDIA key for three seconds or more in the offline mode.
2. The maintenance page prints after “Wait a moment” shows.
3. The machine automatically goes back to the offline mode after you print the maintenance page.



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The followings menus are open to users. User program menu has four menus: Test Menu, Config Menu, Utility Menu and Toner Sense Menu. (For details, refer to the operation manual.)

3 Test Menu

Operation procedure

1 Press ONLINE key to enter the offline mode.

2 Press TRAY or MEDIA key to select the input tray.

3 Press MENU key to get “Test Menu”.

Menu	Sub Menu	Discription
Test Menu	Test Print	Prints the test pattern contained in the printer.
	Config Page	Prints the menu setting and information of the printer: Printer, Parts Life, Network, Software, Panel Menu, Unit information.
	Status Page	Prints the menu setting and information of the printer: Total Image, Parts Life, Printing, Calibration information.
	Test Mode	Adjusts the printing condition: PLAIN, TRANS, LABEL, THIN, MTHICK, THICK 1-2, ENV 1-2, DUPLEX.

4 Config Menu

Operation procedure

1 Press ONLINE key to enter the offline mode.

2 Press MENU key to get “Test Menu”.

3 Press TRAY or MEDIA key to get “Config Menu”.

Config menu	Timeout	Selects the reaction when receiving the printing data is interrupted during a printing job.
	Sleep Mode	Sets the Sleep Mode activated or not.
	Sleeptime	Sets the waiting time for stand by mode.
	Display	Selects the display language.
	Paper display	Selects the paper size display on LCD when a paper other than a normal size paper is set.
	Auto Feed	Selects the auto feed or fixed tray feed when the tray selection is set to automatic.
	Calibration	Sets the calibration function activated or not.

5 Utility Menu

Operation procedure

1 Press ONLINE key to enter the offline mode.

2 Hold down MENU key for three seconds to get “Utility Menu”.

Utility Menu	Clear Belt CG	Lets you initialize the replacement cycle information after you replace the belt cartridge.
	Clear Fuser	Lets you initialize the replacement cycle information after you replace the fuser unit.
	Clear Print Info	Lets you initialize the printer information.
	Setting Default	Lets you change the current setting into the default setting.
	Tray 2 Margin	Lets you adjust the margin when the optional paper feed unit is used.
	Duplex Margin	Lets you adjust the margin when the optional duplex unit is used for printing a second page.

6 Toner Sense Menu

Operation procedure

1 Press ONLINE key to enter the offline mode.

2 Hold down MENU key for three seconds to get “Utility Menu”.

3 Press TRAY or MEDIA key to get “Toner Sense Menu”.

Toner Sense Menu	Execute Sensing	Senses the toner density.
	Clear Sense Data	Initializes the data of sensing a toner data.

5.2 FIRMWARE UPDATE

5.2.1 TYPE OF FIRMWARE

The table lists the firmware program used by this machine.

Firmware	Display
Controller Firmware	RI6xxxxx.all

NOTE: "XXXXX":Version-Revision
Example:RI610000.all → Version-Revision:01-00

5.2.2 PRECAUTION

You need to prepare the followings before firmware update.

- USBSEND.exe: This is a software to send the firmware to the printer.
- PC
- USB cable

5.2.3 UPDATING PROCEDURE

1 Install the printer driver to the PC in Windows OS.
2 Copy "USBSEND.exe" and "RI6XXXXX.all" into any directory.
3 Turn the main power of the printer on.
4 Connect the printer and PC with USB cable.
5 Execute "USBSEND.exe".
6 Click "File select".
7 Select "RI6XXXXX.all" in the file names.

NOTE: Do not select another file name. If so, it may cause malfunction.

8 Make sure that this printer is in the online mode.
9 Click "Send" button in the online mode.
10 "Downloading" is displayed on the LCD and the online lamp goes on.
11 The message "Complete" appears when updating is done.
12 Make sure that the firmware is correctly updated. (☛ 5.1.2 Ver-Rev)

6. DETAILED DESCRIPTIONS

6.1 MODEL G132 AND MODEL G108

Keep a Model G108 Service Manual with you when you use this manual. This section is almost same as section 6 in the G108 Service Manual. This manual shows only things that are not the same as the G108 Service Manual. Examine the G108 Service Manual if you want to check something not shown in this manual.

NOTE: The G132 model does not support these. Examine these in the G108 Service Manual if you want more information:

- Tray Priority, Tray Locking, Manual Tray Select and Auto Continue (G108, section 6.11.3)
- Black Over Print (G108, section 6.11.4)
- Network Data Protection (G108, section 6.11.5)
- Ethernet Board (G108, section 6.12)
- USB 2.0 (G108, section 6.13)
- IEEE 802.11B (G108, section 6.14)
- Bluetooth (G108, section 6.15)

6.2 TONER END SENSOR

Near End and End

"Replace Toner x" shows when the toner is almost empty. "x" is the name of the color such as cyan and magenta. The development unit can make approximately 250 images after this message shows. The machine stops color prints jobs if one of the color development units (YMC) gets empty. At this time, the machine still prints black and white. The machine stops all print jobs when the K development unit gets empty.

NOTE: The number (250 images) is calculated under these conditions:

- ① A4/LT size
- ② two pages per job
- ③ 50% color ratio
- ④ 5% coverage.

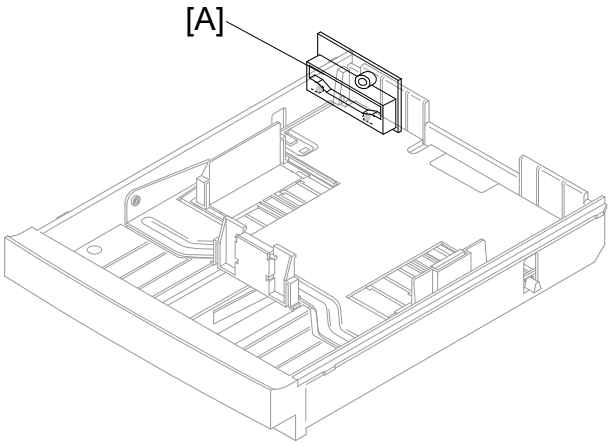
6.3 PAPER TRAY UNIT

6.3.1 OHP SENSOR

Reflective Photosensor

The OHP sensor [A] is above the rear left corner of the paper tray. The OHP sensor is a reflective photosensor. The sensor emits light and receives the reflection. The controller examines the OHP sensor signals. Then it detects an OHP sheet in the paper tray.

NOTE: The optional paper feed unit (PFU) does not have an OHP sensor. The PFU cannot feed OHP sheets.



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Configuration Page and Utilities

The Configuration Page (Test menu > Config Page) shows the user settings in *Paper Input.* The utility software programs do not reference the OHP sensor.

OHP Sensor and Printer Driver

Paper types get sensed with these components and programs:

- OHP sensor
- Printer driver on the computer

The machine does these if these are not consistent:

1. Gives priority to the OHP sensor for this condition (with one exception [☛ Step 2]):
   - The OHP sensor is not consistent with the printer driver's setting.
2. Gives priority to the printer driver for these conditions:
   - The printer driver sets glossy paper.
   - The OHP sensor detects an OHP sheet.

   NOTE: This is because the OHP sensor can incorrectly detect some types of glossy paper.
3. Sets that the paper type is *glossy* for these conditions:
   - The printer driver sets the same paper type other than OHP sheet.
   - The printer driver sets duplex printing.
   - The OHP sensor detects OHP sheets.

   NOTE: The machine gives priority to the OHP sensor (2) when the printer driver sets simplex printing.

The table shows the times when the machine prints.

OHP Sensor	Printer Driver	Processed as	Remarks
OHP	OHP	OHP	No inconsistency
OHP	Glossy	Glossy	☛ Step 2
OHP	Not OHP	• Simplex: OHP • Duplex: Glossy	☛ Step 3
Not OHP	OHP	Not OHP	☛ Step 1
Not OHP	Glossy	Glossy	No inconsistency
Not OHP	Not OHP	Not OHP	No inconsistency

6.4 CONTROLLER

6.4.1 OVERVIEW

Component	
CPU	ARM9 (170 MHz)
SDRAM x 2	Standard: 64 MB
SD card slots	None
NVRAM	Flash Memory instead of NVRAM
Printer language	GDI
Emulation	None
Hard disk	None
Network Interface	Standard: USB 1.1

6.4.2 BOARD LAYOUT

1 Crystal
2 CLOCK Buffer 1
3 CLOCK Buffer 2
4 USB Interface
5 SOC (CPU)
6 Crystal
7 Jumper Pin
8 Flash Memory
9 Engine Interface
10 SDRAM x 2

SPECIFICATIONS

1. GENERAL SPECIFICATIONS

Printing Speed:	8 ppm in Full Color mode (A4/LT SEF) 31 ppm in B/W mode (A4/LT SEF)
Printer Languages:	GDI
Resolution:	600 x 600 dpi, 1200 x 600 dpi
Resident Fonts:	N/A
Host Interfaces:	Standard: USB 1.1 Optional: N/A
Network Protocols:	N/A
First Print Speed:	B/W mode: 14 sec. or less (A4/LT, LEF, Standard Tray) Full Color mode: 19 sec. or less (A4/LT, LEF, Standard Tray)
Warm-up Time	When the main power switch is on: 45 sec. or less (Room temp. /Humidity 23°C/50%) When the printer comes out of the energy saver mode: 15 sec. or less (Room temp. /Humidity 23°C/50%)
Paper Capacity:	Standard tray: 250 sheets (82 g/m^2) Optional paper feed unit: 530 sheets (82 g/m^2) Optional LCT: 250 sheets (82 g/m^2)
Paper Size:	Standard Tray: A4, B5, Letter, EXE, HLT, Free size Optional paper feed unit: A4, Letter, EXE Optional LCT: A4, B5, Letter, EXE, HLT, Free size (☛ Supported Paper Sizes)
Paper Weight:	Standard tray: 60 ~ 210 g/m^2 (16 ~55 lb) Optional paper feed unit: 60 ~ 105 g/m^2 (16 ~28 lb) Optional LCT: 60 ~ 210 g/m^2 (16 ~55 lb)
Output Paper Capacity:	250 sheets (face down)
Memory:	Standard: 64 MB Optional: N/A
Power Source:	North America: 120 V, 60 Hz Europe/China: 220 V - 240 V, 50/60 Hz
Power Consumption:	In operation: 1300 W or less Energy saver: 15 W or less
Noise Emission	Standby: 54 dB or less Operating: 66 dB or less Energy saver: 51 dB or less

Dimensions (W x D x H)	Printer only:	480 x 420 x 382 mm
	With PFU:	480 x 470 x 535 mm
	With duplex unit:	480 x 525 x 438 mm
	With PFU and duplex unit:	480 x 525 x 590 mm

Weight:	Printer:	31.5 kg/61lb
	PFU:	5.8 kg
	Duplex unit:	5.3 kg

2. SUPPORTED PAPER SIZES

Paper size			Printer		PFU		LGL		Dup.
			NA	EU	NA	EU	NA	EU	
A3	SEF	297x420 mm	-	-	-	-	-	-	-
B4	SEF	257x364 mm	-	-	-	-	-	-	-
A4	SEF	210x297 mm	✔	✔	✔	✔	✔	✔	✱
A4	LEF	297x210 mm	-	-	-	-	-	-	-
B5	SEF	182x257 mm	S	S	-	-	S	S	✱
B5	LEF	257x182 mm	-	-	-	-	-	-	-
A5	SEF	148x210 mm	A5/HLT	A5/HLT	-	-	A5/HLT	A5/HLT	-
A5	LEF	210x148 mm	-	-	-	-	-	-	-
B6	SEF	128x182 mm	-	-	-	-	-	-	-
B6	LEF	182x128 mm	-	-	-	-	-	-	-
A6	SEF	105x148 mm	-	-	-	-	-	-	-
A6	LEF	148x105 mm	-	-	-	-	-	-	-
DLT	SEF	11x17"	-	-	-	-	-	-	-
Legal	SEF	8.5x14"	-	-	-	-	✔	✔	✱
Letter	SEF	8.5x11"	✔	✔	✔	✔	✔	✔	✱
Letter	LEF	11x8.5"	-	-	-	-	-	-	-
Half Letter	SEF	5.5x8.5"	A5/HLT	A5/HLT	-	-	A5/HLT	A5/HLT	-
Half Letter	LEF	8.5x5.5"	-	-	-	-	-	-	-
Executive	SEF	7.25x10.5"	✔	✔	✔	✔	✔	✔	✱
Executive	LEF	10.5x7.25"	-	-	-	-	-	-	-
F/GL	SEF	8x13"	S	S	-	-	S	S	-
Foolscap	SEF	8.5x13"	S	S	-	-	S	S	-
Folio	SEF	8.25x13"	S	S	-	-	S	S	-
Govt. LG	SEF	8.25x14"	S	S	-	-	S	S	-
Com 10	SEF	4.125x9.5"	S	S	-	-	S	S	-
Monarch	SEF	3.875x7.5"	-	-	-	-	-	-	-
C6	SEF	114x162 mm	-	-	-	-	-	-	-
C5	SEF	162x229 mm	S	S	-	-	S	S	-
DL Env.	SEF	110x220 mm	S	S	-	-	S	S	-
8 K	SEF	267x390 mm	-	-	-	-	-	-	-
16 K	SEF	195x267 mm	S	S	-	-	S	S	-
16 K	LEF	267x195 mm	-	-	-	-	-	-	-
Custom (Standard tray and PFU)	width	104.8-215.9 mm	✱	✱	-	-			-
	length	210-297 mm							
	width	4.13-8.5"							
	length	8.27-11.69"							
Custom (Legal tray)	width	104.8-215.9 mm					✱	✱	-
	length	210-355.6 mm							
	width	4.13-8.5"							
	length	8.27-14"							

Printer: Standard tray
PFU: Optional paper feed unit
LGL: Optional legal tray
Dup.: Optional duplex unit
NA: North America
EU: Europe
SEF: Short edge feed
LEF: Long edge feed

✔: The paper size is automatically detected.
A5/HLT: The paper size is detected according to the setting (Menu > System > Page Size).
S: The paper size is selected manually (Menu > Paper Input > Tray 1/2 Paper Size).
✱: The paper size is not detected; but the paper can be used.
-: The paper size is not usable.

Spec.

3. SOFTWARE ACCESSORIES

3.1 PRINTER DRIVERS

Operating System	Printer Language
	GDI
Windows 95	
Windows 98	✔
Windows Me	✔
Windows 2000 professional	✔
Windows 2000 Server	
Windows 2000 Advanced Server	
Microsoft Windows XP Professional	✔
Microsoft Windows XP Home Edition	
Windows Server 2003 Standard Edition	✔
Windows Server 2003 Enterprise Edition	
Windows Server 2003 Web Edition	
Windows NT Server 4.0	✔*
Windows NT Workstation 4.0 (x86 processors required)	
Mac OS 8.6 or later	
Mac OS X Classic environment	
Mac OS X	

✔ : Supported
* : Service Pack 6 or later

3.2 UTILITY SOFTWARE

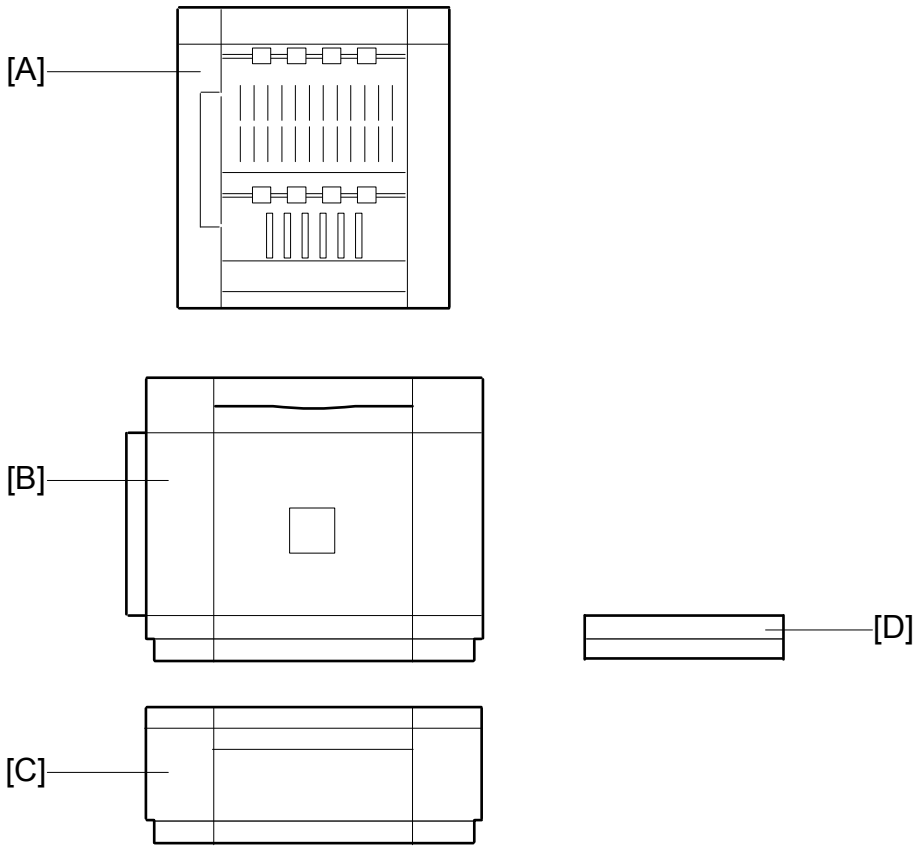
- Font Manager 2000 lets you do these:
  - Install new screen fonts.
  - Organize and manage fonts already installed on the system.

Examine the *Printer Drivers and Utilities* manual on the CD- ROM for more information about Font Manager 2000.

- USB Printing Support

  Gives USB connection to Windows 98 SE/Windows Me.

4. MACHINE CONFIGURATION



G108V901.WMF

Unit	M'Code	Diagram	Remarks
Printer	G132	[B]	
Duplex unit	G390	[A]	
Paper feed unit	G389	[C]	
Legal paper tray	G391	[D]	For North America model only

5. OPTIONAL EQUIPMENT

5.1 PAPER TRAY UNIT

Paper Size:	Letter, A4, Executive
Print Paper Weight:	60 ~ 105 g/m^2
Tray Capacity:	530 sheets
Paper Feed System:	Friction pad separation
Paper Height Detection:	Not available
Paper End Detection:	Available
Power Source:	24V dc (supplied by the printer)
Dimensions (W x D x H):	460 mm x 467 mm x 185 mm (18.1" x 18.4" x 7.3")
Weight	Approx. 6.0 kg (9 lb)

5.2 LEGAL PAPER TRAY

Paper Size:	Width: 104.8 mm ~ 215.9 mm, 4.13" ~ 8.5" Length: 210 mm ~ 355.6 mm, 8.27" ~ 14" (☛ Supported Paper Sizes)
Print Paper Weight:	60 ~ 105 g/m^2
Tray Capacity:	250 sheets

5.3 DUPLEX UNIT

Paper Size:	A4, B5, Legal, Letter, Executive
Power Source:	24V dc (supplied by the printer)
Dimensions (W x D x H):	Duplex unit only: 345 mm x 185 mm x 406.2 mm With the printer: 480 mm x 522 mm x 440 mm
Weight	Duplex unit only: Approx. 5.3 kg With the printer: Approx. 35.8 kg