MODEL L1A/L1B

(Machine Code: H911/H912)

SERVICE MANUAL

10 October, 2002
Subject to change

PRECAUTIONS

To avoid personal injury or damage to the machine during servicing, please read through the following manual carefully.

SAFETY PRECAUTIONS

1. Safety Precautions
   There are some electric or machinery parts with safety related properties. Replacement parts may not operate safely if they differ from the original parts. Parts that allow higher voltages that the original should not used. Replacement parts should be used according to the specifications.
2. Be careful not to omit any switches, covers or safety devices when reinstalling or assembling the product after repair.
3. Replacing Precautions
   Never change or add parts to this machine. Doing so will terminate the guarantee for the machine.
4. Overheated or damaged parts or cords must be replaced according to the specifications for the machine.

⚠CAUTION

Pay close attention to the safety notes on this mark.

You must use parts described in specifications. Otherwise any hazard such as an electric shock or a fire could occur.

DANGER - INVISIBLE LASER RADIATION WHEN OPEN. AVOID DIRECT EXPOSURE TO BEAM.

DANGER - RADIATIONS INVISIBLES DU LASER EN CAS D'OUVERTURE. EVITER TOUTE EXPOSITION DIRECTE AU FAISCEAU.

VORSICHT - UNSICHTBARE LASERSTRAHLUNG, WENN ABDECKUNG GEÜÖFFNET. NICHT DEM STRAHL AUSSETZEN.

ATTENZIONE - RADIAZONE LASER INVISIBILE IN CASO DI APERTURA. EVITARE L'ESPOSIZIONE AL FASCIO.

PRECAUCIÓN - RADIACIÓN LASER INVISIBLE CUANDO SE ABRE. EVITAR EXPONERSE AL RAYO.

PERIGO - RADIAÇÃO LASER INVISÍVEL AO ABRIR. EVITE EXPOSIÇÃO DIRECTA AO FEIXE.

GEVAAR - ONZICHTBARE LASERSTRALEN BIJ GEOPENDE KLEP. DEZE KLEP NIET OPENEN.

ADVARSEL - USYNLIG LASERSTRÅLNING VED ÅBNING. UNDGÅ UDSAETTELSE FOR STRÅLNING.

ADVARSEL - USYNLIG LASERSTRÅLNING NÅR DEKSEL ÅPNES. UNNGÅ EKSPONERING FOR STRÅLEN.

VARNING - OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD. STRÅLEN ÄR FARLIG.

VARO! - NÄKYMÄTÖN AVATTAESSA OLET ALTTIINA LASERSÄTEILYLLE ÄLÄ KATSO SÄTEESEEN.

注 意 - 严禁揭开此盖, 以免激光泄露灼伤

주 의 - 이 덮개를 열면 레이저광에 노출될 수 있으므로 주의하십시오.

CAUTION.WMF

PRECAUTIONS ON DISASSEMBLY AND REASSEMBLY

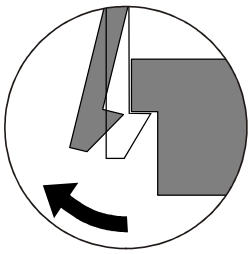
Precautions should be taken when replacing parts. Before replacing any parts, please check all cables. All cables must be replaced to their original position on the machine.

Please use the following procedure before disassembling or replacing parts.

1. Pull out paper cassette, printer cartridge installed.
2. Be careful not to scratch the surface of developing unit or to expose it to light.
3. Turn the power switch off.
4. Remove the power plug and printer cable from the printer.
5. Use original parts only when replacing parts.
6. Do not force open plastic material components.
7. Be careful that small parts such as screws do not fall into the printer.
8. Before disassembling or reassembling, note where each component sits in the machine.
9. If you need to turn the machine during replacement, toner or paper particles may contaminate the LSU window. Protect the LSU window with clean paper.

Releasing Plastic Latches

Many of parts are held in place with plastic latches.
The latches break easily; release them carefully.
To remove such parts, press the hook end of the latch away from the part to which it is latched.



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ESD PRECAUTIONS

Certain semiconductor devices can be easily damaged by static electricity. Such components are commonly called “Electrostatically Sensitive (ES) Devices”, or ESDs.

Examples of typical ESDs are: integrated circuits, some field effect transistors, and semiconductor “chip” components.

The techniques outlined below should be followed to reduce the chance that components will be damaged by static electricity.

⚠CAUTION
Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

1. Prior to handling any semiconductor component or semiconductor equipped assembly, remove any electrostatic charge from your body by grounding yourself. Alternatively, use a commercially available wrist strap device; which should be removed for safety reasons prior to applying power to the unit.
2. After removing an electrical assembly equipped with ESDs, place the assembly on a conductive surface, such as aluminum, copper foil, or conductive foam, to prevent electrostatic charge buildup.
3. Use only a grounded tip soldering iron to solder or de-solder ESDs.
4. Use only an “antistatic” solder removal device. Some solder removal devices not classified as “antistatic” can generate electrical charges that may damage ESDs.
5. Do not use Freon propelled chemicals. When sprayed, these can generate electrical charges that may damage ESDs.
6. Do not remove a replacement ESD from its protective packaging prior to installing it. Most replacement ESDs come packaged with all leads shorted together by conductive foam, aluminum foil, or a comparable conductive material.
7. Immediately before removing the protective shorting material from the leads of a replacement ESD, touch the protective material to the chassis or circuit assembly into which the device will be installed.
8. Maintain continuous electrical contact between the ESD and the assembly into which it will be installed, until the unit is completely plugged or soldered into the circuit.
9. Minimize unnecessary movement to unpackaged replacement ESDs. Normal motions, such as the brushing together of clothing fabric or lifting one’s foot from a carpeted floor, can generate static electricity that may damage an ESD.

TABLE OF CONTENTS

1. INSTALLATION

Refer to the operating instructions for details.

2. PREVENTATIVE MAINTENANCE

The outline below is a recommended guideline for maintenance.

Environmental conditions and actual use will vary these factors. The cycle period given below is for reference only.

	Component	Cleaning Cycle	Replacement Cycle	Done By
Scanner	ADF Rubber Plate	As Needed	10,000 Pages	User
	White Roller	As Needed	--	User
	Exposure Glass	As Needed	--	User
Printer	Paper Feed Roller		50,000 Pages	Service
	Transfer Roller		30,000 Pages	Service
	Fusing Unit		50,000 Pages	Service

3. DISASSEMBLY AND REASSEMBLY

3.1 GENERAL PRECAUTIONS ON DISASSEMBLY

Extreme caution should be used when disassembling and reassembling components. As the cables in this machine are located very close to moving parts, proper routing a must.

After components have been removed, any cables that have been displaced during the procedure must be restored as close as possible to their original positions. Before removing any component from the machine, note any cable routings that may be affected.

This section describes procedures on how to disassemble/re-assemble parts for this machine. However, some components are not available as service parts. In this case, it is recommended that you replace the entire unit.

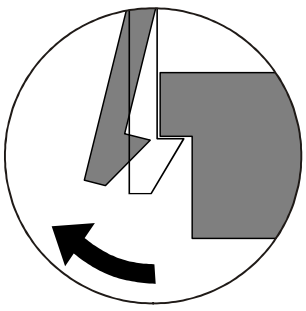
Before servicing the machine:

1. Verify that documents are not stored in memory.
2. Remove the toner cartridge before you disassemble parts.
3. Unplug the power cord.
4. Work on flat and clean surface.
5. Replace with authorized components only.
6. Do not force plastic material components.
7. Make sure all components are returned their original position.

3.1.1 RELEASING PLASTIC LATCHES

Many of the parts are held in place with plastic latches. The latches break easily; release them carefully.

To remove such parts, press the hook end of the latch away from the part to which it is latched.



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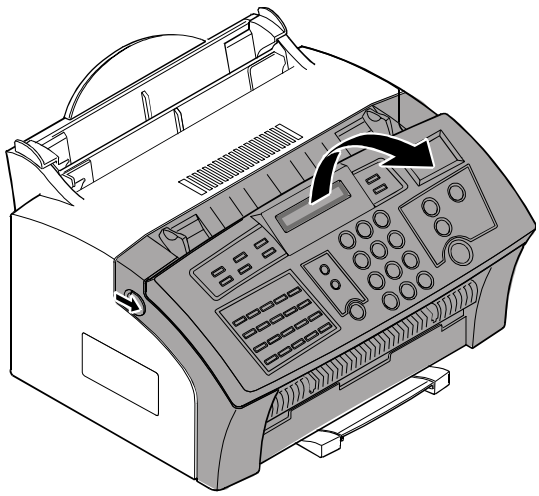
3.2 OPE COVER (ALSO KNOWN AS OP-PORT)

1. Pull the cover release button on both sides of the machine, and open the front cover.



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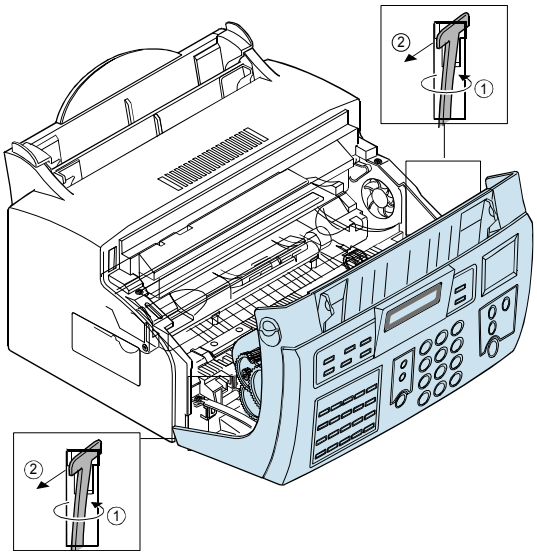
2. Remove the two stoppers holding the front cover unit and unplug one connector and one wire.



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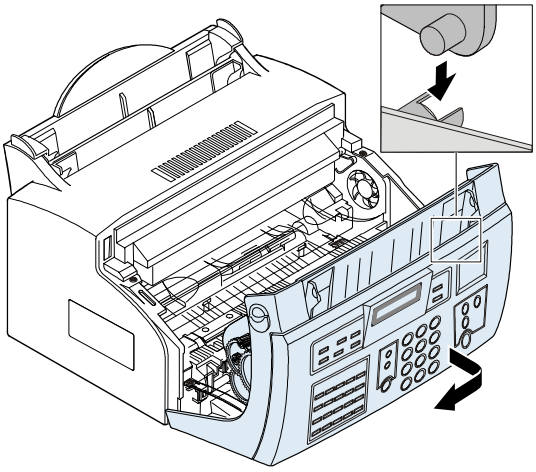
3. Pull the bottom left end of the cover downward to unlatch the front cover unit and remove the cover from the main frame.



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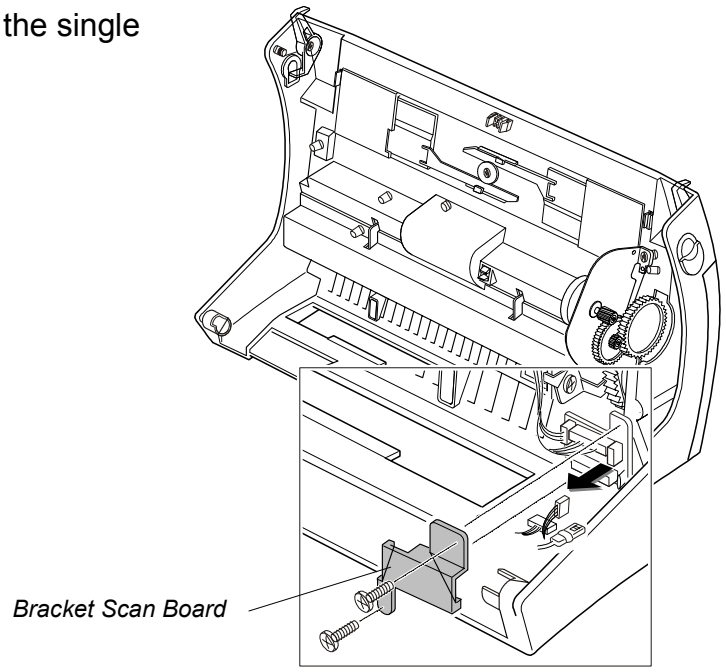
4. Remove both screws securing the bracket scan board. Remove the bracket scan board.
5. Unplug both connectors and the single wire from the scan board.



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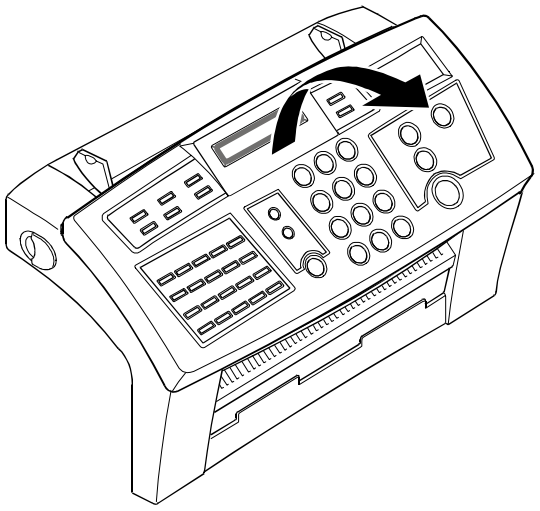
6. Lift the OPE cover.



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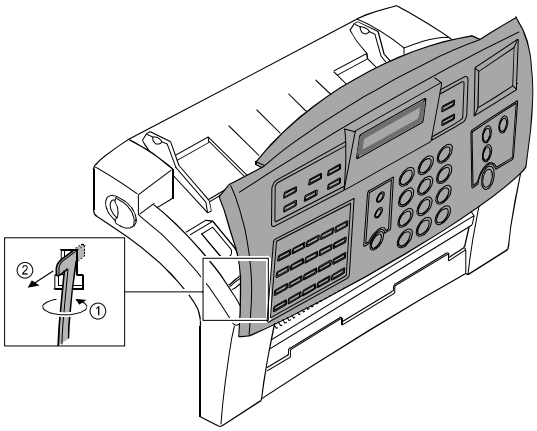
7. Remove the stopper holding the OPE cover.



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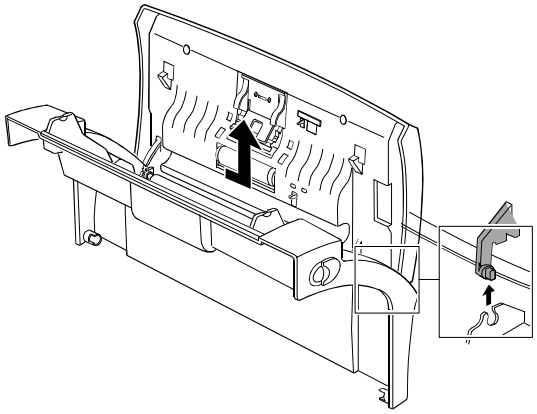
8. Unlatch the bottom ends, then remove the OPE cover.



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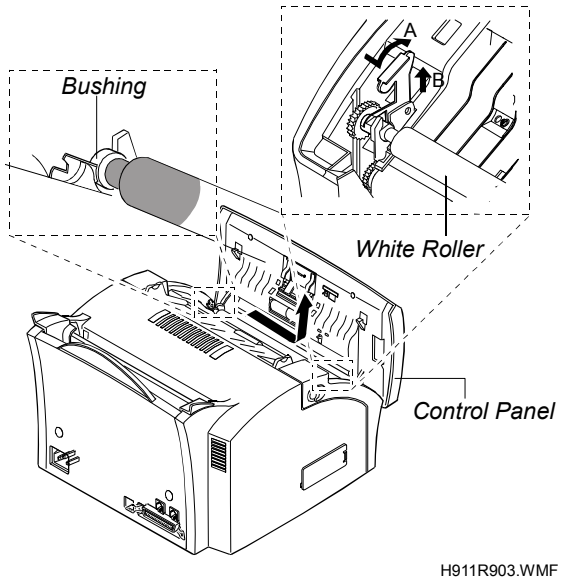
3.3 WHITE ROLLER

1. Open the OPE cover. (☛ 3.2)
2. Push the bushing on the end of the roller slightly inward, and then rotate it until it reaches the slot.
   Then lift, the roller out.

NOTE: Check the roller for any dirt. If dirty, wipe it with soft cloth dampened with water. If the roller is heavily worn, replace it with a new one.



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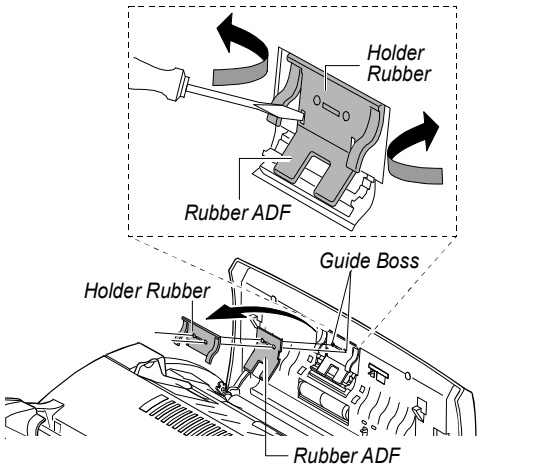
3.4 ADF RUBBER PLATE

1. Open the OPE cover. (☛ 3.2)
2. Insert a flat blade screwdriver and pin set into the slot as shown and release the latches. Take out the Holder Rubber, Sheet ADF and the Rubber ADF.



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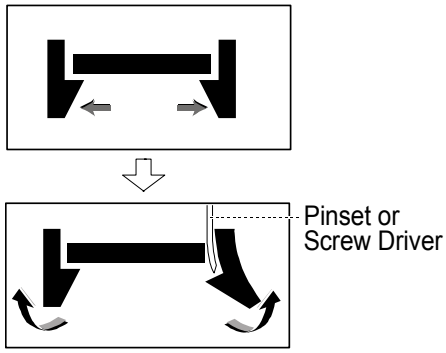
⚠CAUTION

Do not force open any plastic material components.



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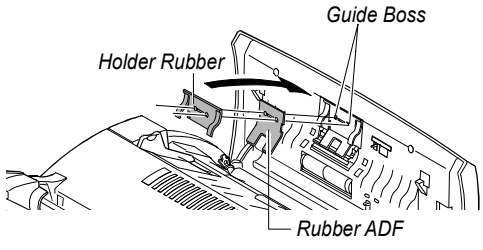
NOTE: When reassembling the unit, be sure that the Rubber ADF and Holder Rubber fit into the guide boss. The Holder Rubber latches fit into the corresponding hole. Push firmly until it clicks into place.



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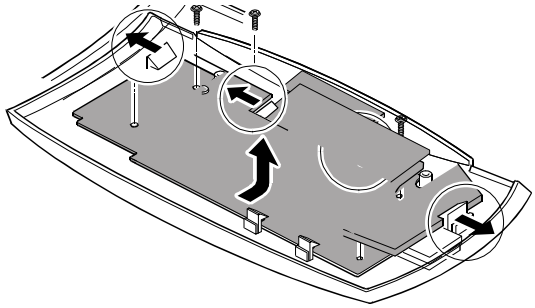
3. Clean the surface of the rubber pad with IPA (Isopropyl Alcohol). Allow it to dry. Check the rubber wear. If the rubber wear only reaches 1/2 its original thickness, replace it with a new one.

3.5 OPE BOARD

1. Before removing the OPE board, you should remove:
   – OPE cover (☛ 3.2)
2. Remove the four screws securing the OPE board.
3. Release both latches securing the LCD as well the two of four latches securing the board.
4. Remove the OPE Board.



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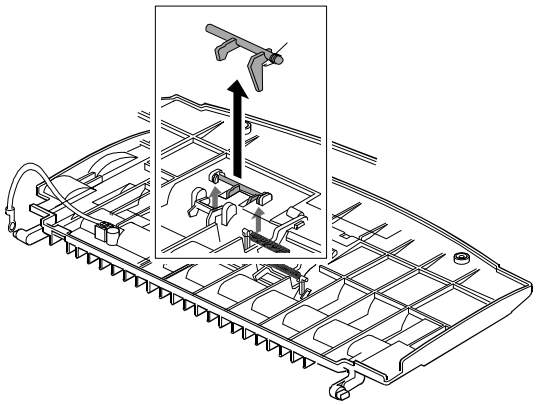
3.6 LEVER SENSOR DOC. (ALSO KNOWN AS S1 SENSOR)

1. Unlatch the Lever Sensor Doc from the scan upper frame and take it out.



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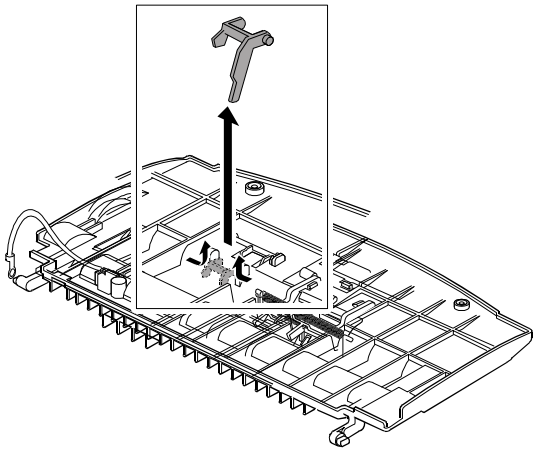
3.7 LEVER SENSOR SCAN (ALSO KNOWN AS S2 SENSOR)

1. Push both sides of Lever Sensor Scan inward.
2. Unlatch and take out the Lever Sensor Scan from the scan upper frame.



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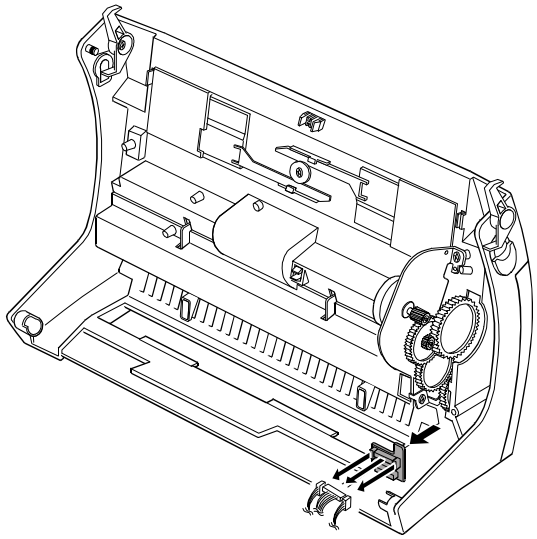
3.8 SCAN BOARD

1. Before removing the Scan Board, you should remove:
   – Bracket Scan Board (see section 3.2)
2. Unplug all connectors from the scan board and remove the board.



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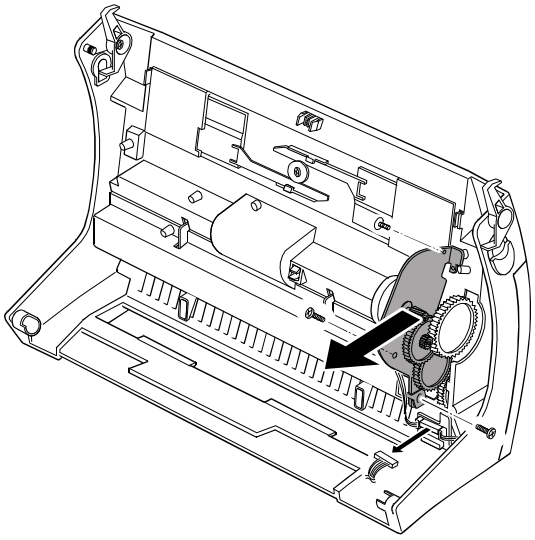
3.9 SCAN MOTOR (ALSO KNOWN AS TX MOTOR)

1. Before disassembling the Scan Motor, you should remove:
   – OPE cover (☛ 3.2)
   – Bracket Scan Board (☛ 3.2)
2. Unplug the single connector from the scan board.
3. Remove all three screws.
4. Remove the Motor Ass'y from the main frame.



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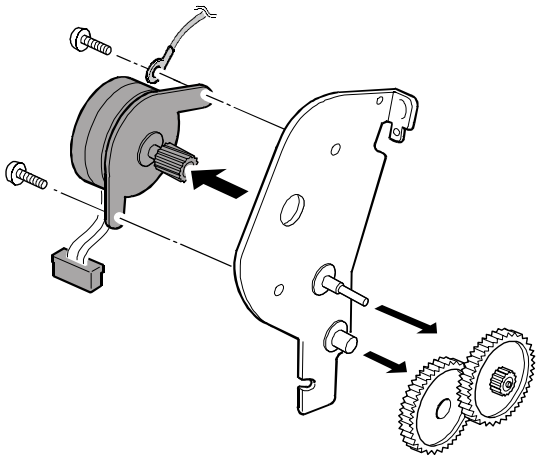
5. Take out the gear from the Motor Ass'y.
6. Remove both screws and remove the motor.



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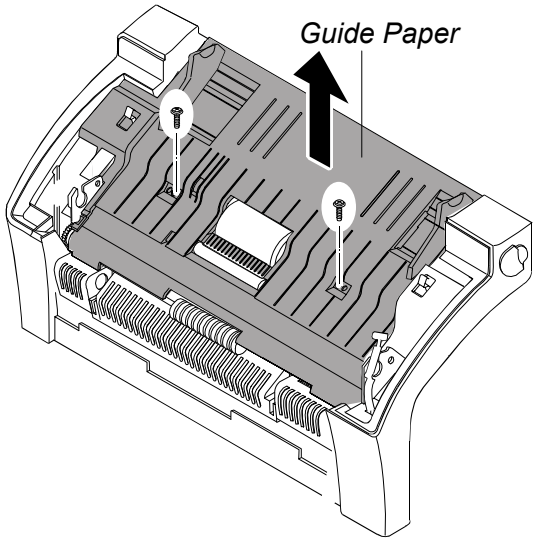
3.10 ADF ROLLER

1. Before removing the ADF Roller, you should remove:
   – OPE cover (☛ 3.2)
2. Remove both screws securing the guide paper and remove the guide paper.



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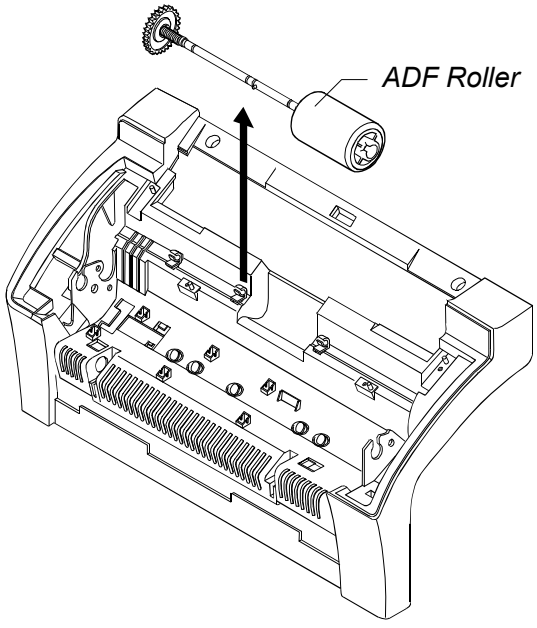
3. Remove the ADF Roller from the scan front frame.



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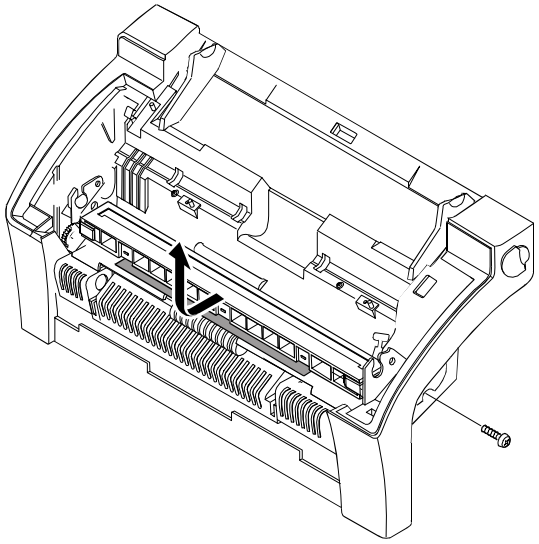
3.11 CIS

1. Remove the single screw.
2. Push the CIS as shown.



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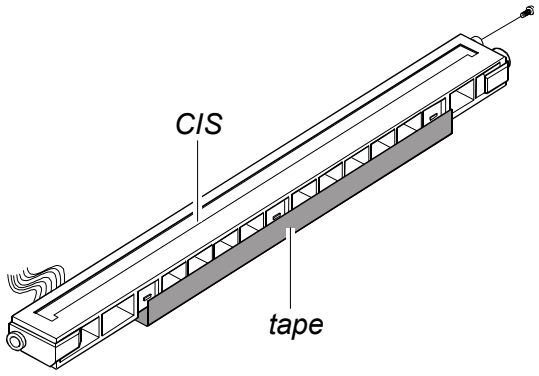
3. Separate the CIS from CIS Ass'y.



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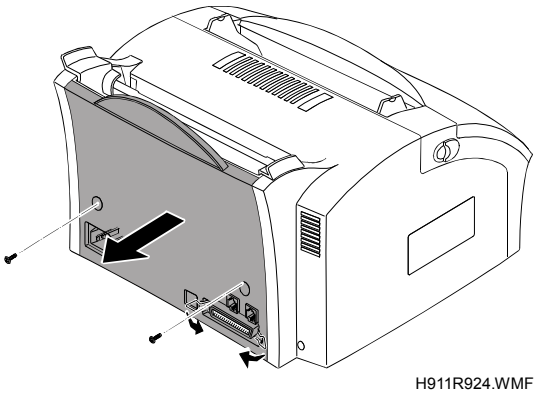
3.12 REAR COVER

1. Remove both screws.
2. Push the metal clip on the parallel port down and remove the rear cover from the main frame.



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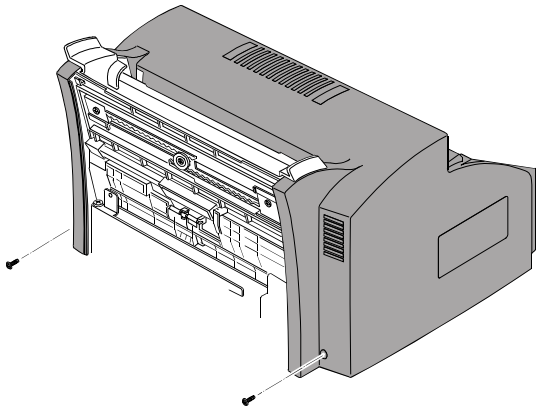
3.13 TOP COVER

1. Before removing the top cover, you should remove:
   – OPE cover (☛ 3.2)
   – Rear cover (☛ 3.12)
2. Remove both screws securing the top cover from the backside of the machine.



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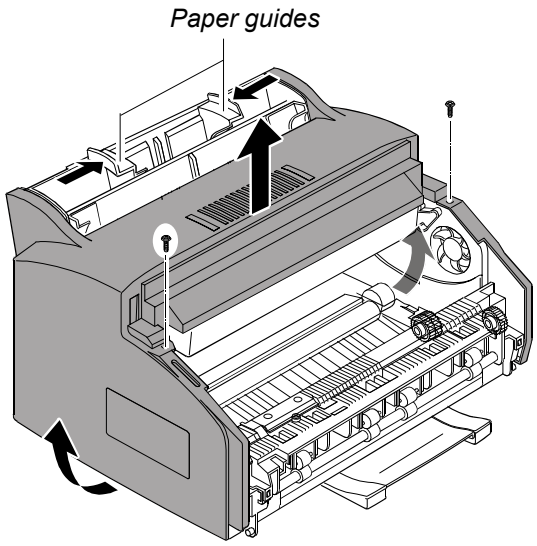
3. Remove both screws and slide both the left and right paper guides fully inward.
4. Spread the bottom of the top cover and lift the cover to remove.



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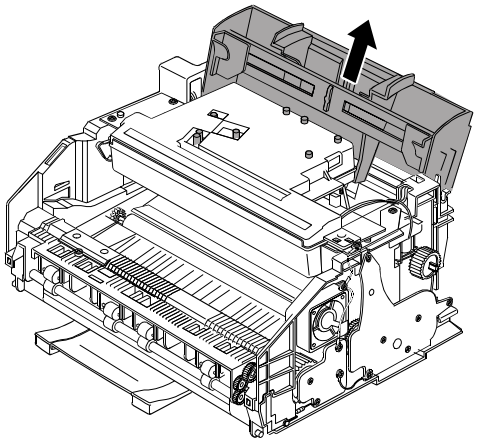
3.14 PAPER TRAY

1. Before removing the Paper Tray, you should remove:
   – OPE cover (☛ 3.2)
   – Rear cover (☛ 3.12)
   – Top cover (☛ 3.13)
2. Remove the tray from the main frame.



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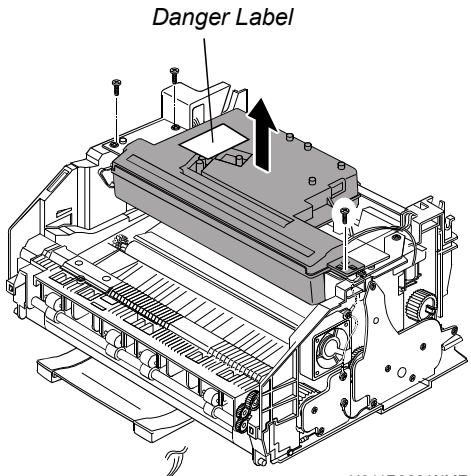
3.15 LSU (ALSO KNOWN AS LASER UNIT)

1. Before removing the LSU, you should remove:
   – OPE cover (☛ 3.2)
   – Rear cover (☛ 3.12)
   – Top cover (☛ 3.13)
2. Remove the three screws securing the LSU.



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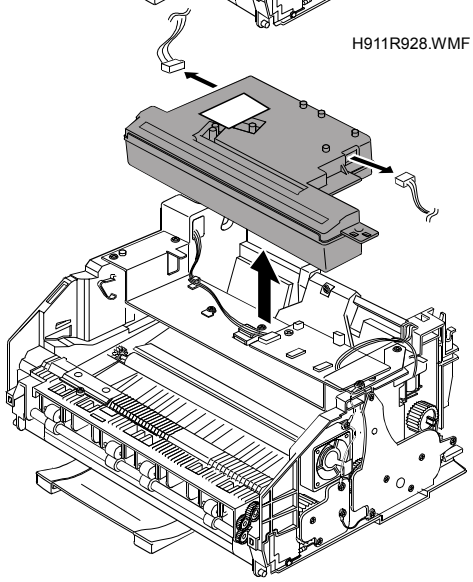
3. Unplug both connectors from the LSU and remove the LSU.



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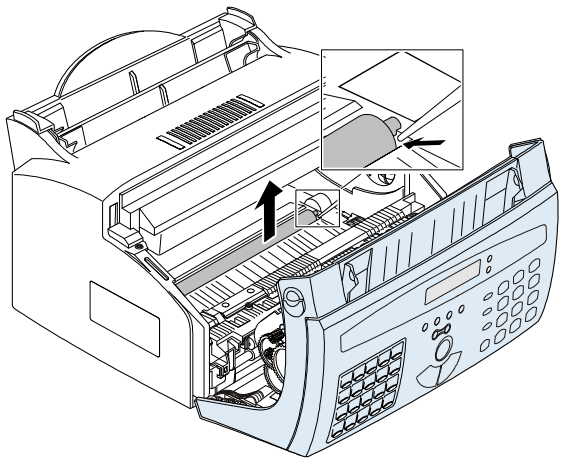
3.16 TRANSFER ROLLER

1. Pull the cover release button on both sides of the machine, and open the front cover.
2. Lift the transfer Roller using a suitable tool (Screw Driver) and take out the Roller.



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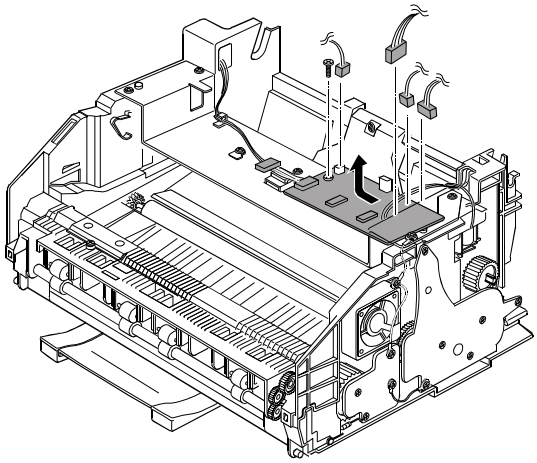
3.17 ENGINE BOARD

1. Before removing the Engine board, you should remove:
   – OPE cover (☛ 3.2)
   – Rear cover (☛ 3.12)
   – Top cover (☛ 3.13)
   – LSU (☛ 3.15)
2. Unplug the five connectors and remove the single screw from the engine board.
3. Remove the board.



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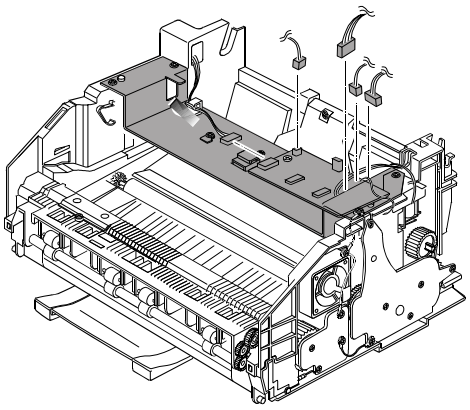
3.18 PICKUP ROLLER ASS'Y

1. Before removing the pickup Roller Ass'y, you should remove:
   – OPE cover (☛ 3.2)
   – Rear cover (☛ 3.12)
   – Top cover (☛ 3.13)
   – LSU (☛ 3.15)
2. Unplug all connectors from the engine board.



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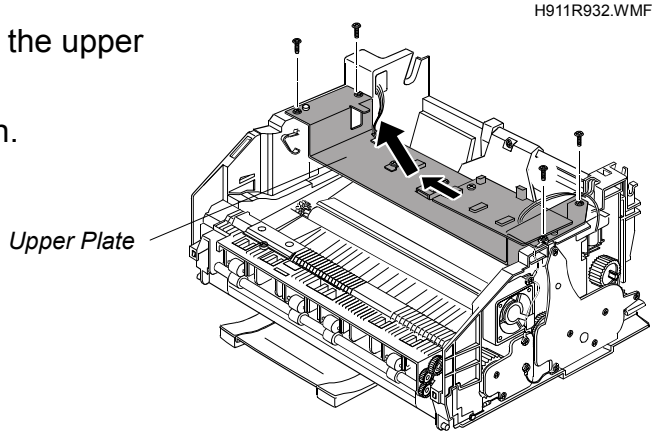
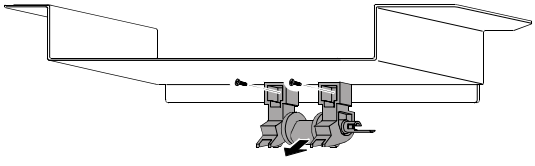
3. Remove the four screws securing the upper plate.
4. Remove the upper plate as shown.

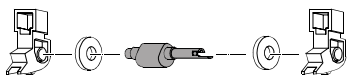


H911R934.WMF

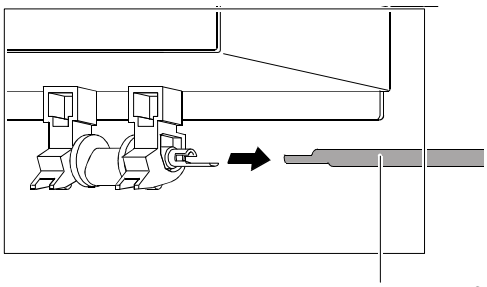
5. Remove both screws. And remove the roller from the plate.

NOTE: When reassembling the pickup roller, make sure that the right end of the pickup roller fits into pickup gear shaft.





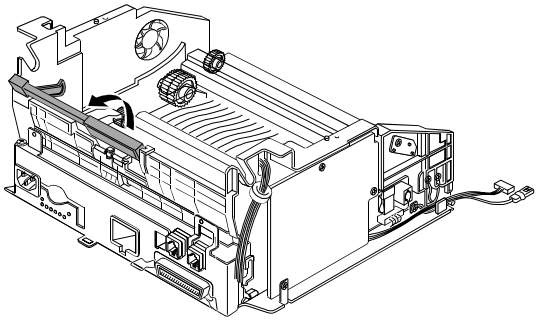
H911R933.WMF



H911R935.WMF

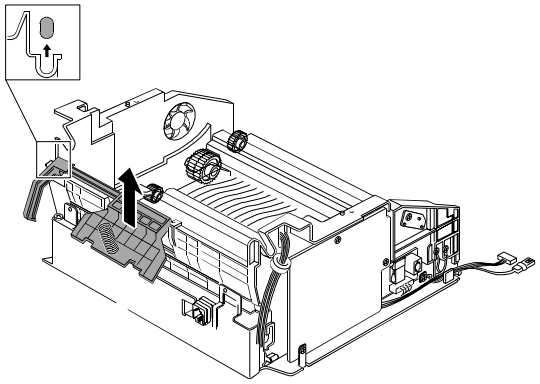
3.19 KNOCKUP ASS'Y

1. Before removing the knockup Ass'y, you should remove:
   – OPE cover (☛ 3.2)
   – Rear cover (☛ 3.12)
   – Top cover (☛ 3.13)
   – LSU (☛ 3.15)
   – Upper Plate (☛ 3.18)
2. Pull the Knockup Ass'y fully backward.



H911R936.WMF

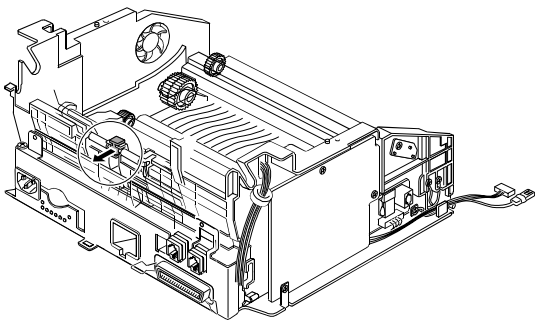
3. Remove the Knockup Ass'y from the main frame.



H911R937.WMF

3.20 CAP-PAD

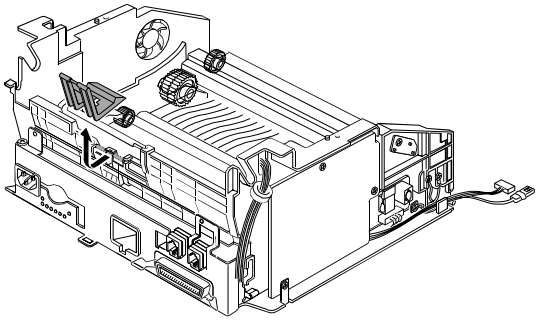
1. Before removing the Cap-pad, you should remove:
   – OPE cover (☛ 3.2)
   – Rear cover (☛ 3.12)
   – Top cover (☛ 3.13)
   – LSU (☛ 3.15)
   – Upper Plate (☛ 3.18)
   – Knock-up Ass'y (☛ 3.19)
2. Remove the cap-pad from the main frame.



H911R938.WMF

3.21 HOLDER-PAD

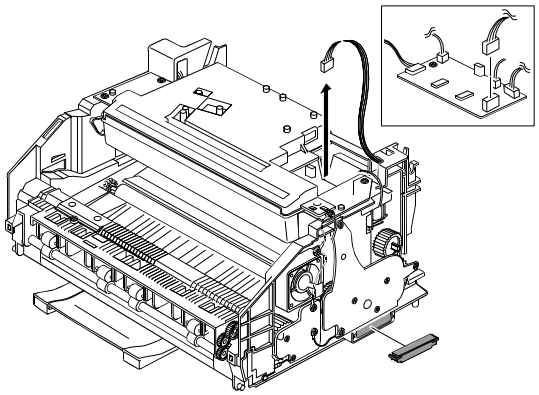
1. Before removing the holder-pad, you should remove:
   – OPE cover (☛ 3.2)
   – Rear cover (☛ 3.12)
   – Top cover (☛ 3.13)
   – LSU (☛ 3.15)
   – Upper Plate (☛ 3.18)
   – Knock-up Ass'y (☛ 3.19)
   – Cap-Pad (☛ 3.20)
2. Remove the holder-pad from the main frame.



H911R939.WMF

3.22 MAIN MOTOR ASS'Y

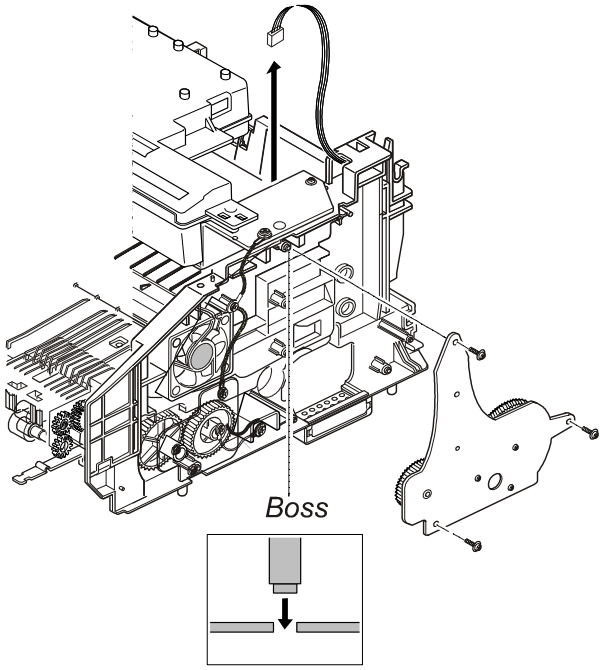
1. Before removing the Main Motor Ass'y, you should remove:
   – OPE cover (☛ 3.2)
   – Rear cover (☛ 3.12)
   – Top cover (☛ 3.13)
2. Unplug the single connector from the engine board, and remove the plastic cover from the main frame as shown.



H911R940.WMF

3. Remove three screws securing the Motor Ass'y, then remove the Motor Ass'y.

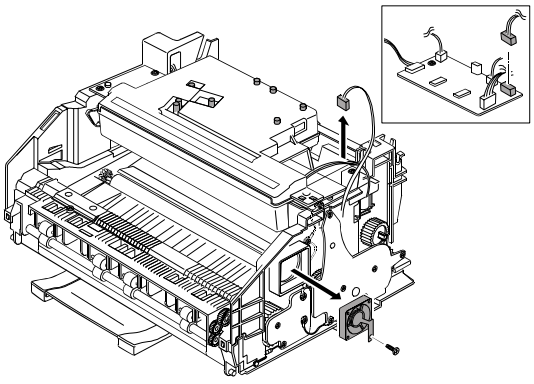
NOTE: When reassembling the Motor Ass'y, make sure that the boss (shown in the figure) fits into the corresponding screw holes on the Motor Ass'y. This will allow the screws to be fastened properly.



H911R941.WMF

3.23 COOLING FAN

1. Before removing the fan, you should remove:
   – OPE cover (☛ 3.2)
   – Rear cover (☛ 3.12)
   – Top cover (☛ 3.13)
   – Main Motor Ass'y (☛ 3.22)
2. Unplug the single connector from the engine board and remove the fan.

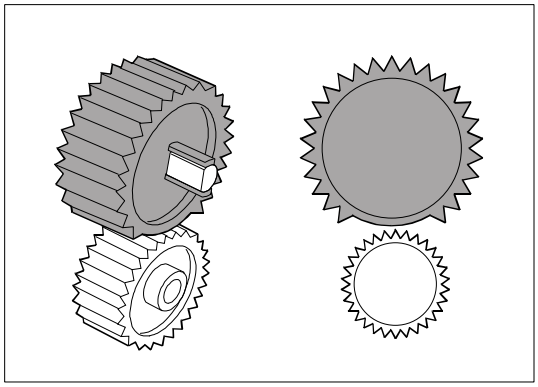


H911R942.WMF

3.24 GEAR PICKUP ASS'Y

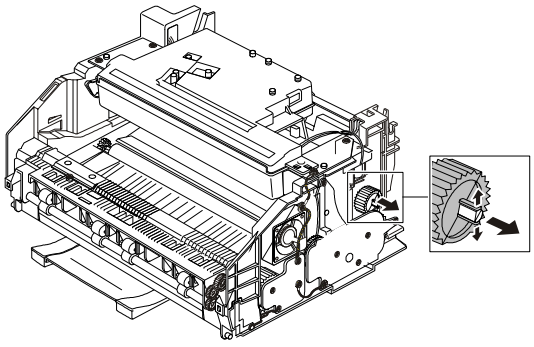
1. Before removing the Gear Pickup Ass'y, you should remove:
   – OPE cover (☛ 3.2)
   – Rear cover (☛ 3.12)
   – Top cover (☛ 3.13)

   NOTE: When reassembling, make sure that the direction of the gear is correct.



H911R943.WMF

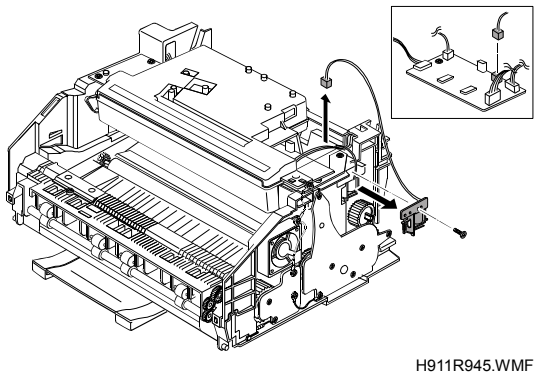
2. Release both snap-fits and remove the Gear Pickup Ass'y from the main frame.



H911R944.WMF

3.25 SOLENOID

1. Before removing the solenoid, you should remove:
   – OPE cover (☛ 3.2)
   – Rear cover (☛ 3.12)
   – Top cover (☛ 3.13)
2. Unplug the single connector from the engine board and remove the screw.
3. Remove the solenoid.

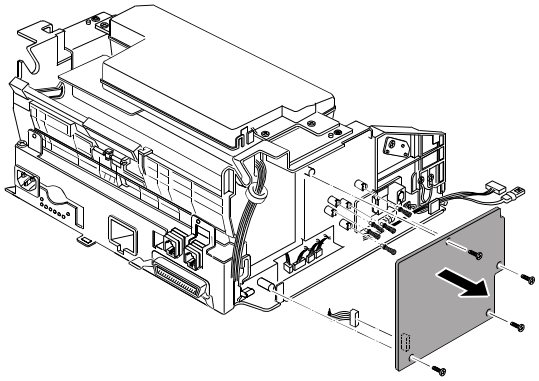


H911R945.WMF

3.26 HVPS BOARD (ALSO KNOWN AS POWER PACKER)

1. Before removing the HVPS board, you should remove:
   – OPE cover (☛ 3.2)
   – Rear cover (☛ 3.12)
   – Top cover (☛ 3.13)
2. Remove four screws and single connector from the HVPS board, and then remove the board.

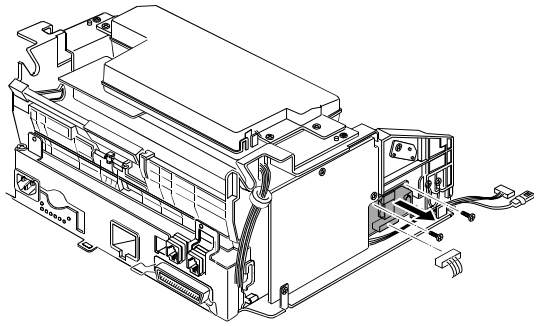
NOTE: When reassembling, make sure that all five springs to be used as connection terminals are set properly.



H911R946.WMF

3.27 HOOK BOARD

1. Before removing the hook board, you should remove:
   – OPE cover (☛ 3.2)
   – Rear cover (☛ 3.12)
   – Top cover (☛ 3.13)
2. Unplug the single connector from the main board and remove both screws.
3. Remove the hook board from the main frame.



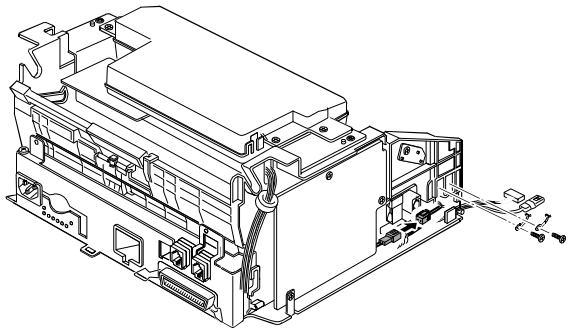
H911R947.WMF

3.28 FUSING UNIT ASS'Y

⚠CAUTION

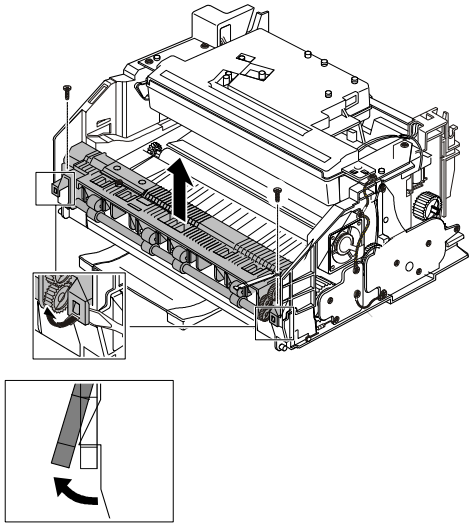
The fusing unit is assembled with tapping screws. Assembly/disassembly should be kept to a minimum. Repeated adjustments may cause failure. To avoid hazardous situations, do not replace any components inside the fusing unit such as thermistor, hot roller, stripper pawls, fusing lamp, etc..

1. Before removing the Fusing Unit Ass'y, you should remove:
   – OPE cover (☛ 3.2)
   – Rear cover (☛ 3.12)
   – Top cover (☛ 3.13)
2. Remove both wires after you have removed both screws from the main frame, and the single connector from the inter connector.



H911R948.WMF

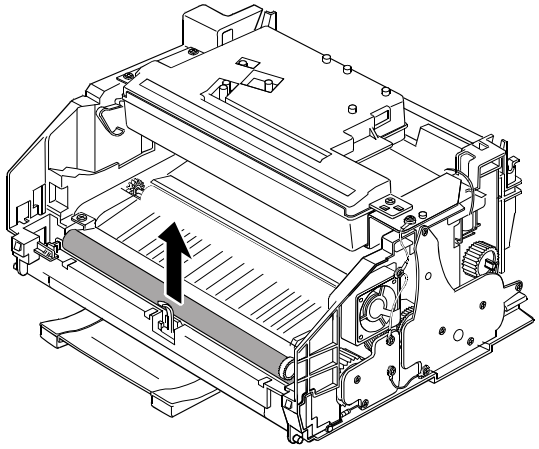
3. Remove both screws and unlatch the Fusing Unit Ass'y using a suitable tool.



H911R949.WMF

3.29 PRESSURE ROLLER

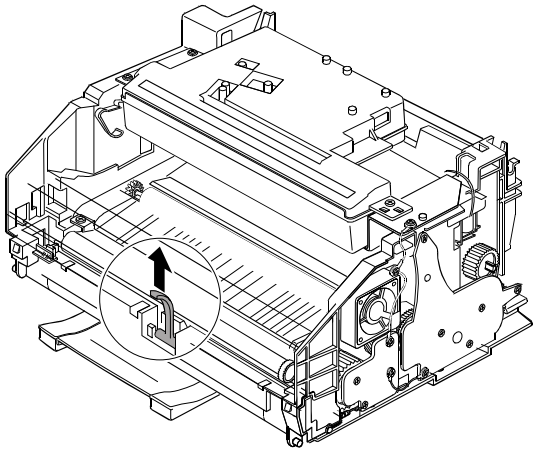
1. Before removing the pressure roller, you should remove:
   – OPE cover (☛ 3.2)
   – Rear cover (☛ 3.12)
   – Top cover (☛ 3.13)
   – Fusing Unit Ass'y (☛ 3.28)
2. Lift and remove the pressure roller from the main frame.



H911R954.WMF

3.30 ACTUATOR-EXIT

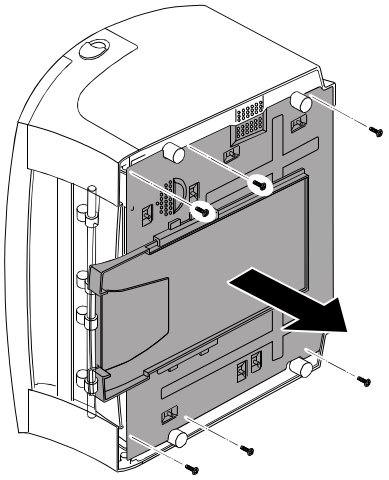
1. Before removing the actuator-exit, you should remove:
   – OPE cover (☛ 3.2)
   – Rear cover (☛ 3.12)
   – Top cover (☛ 3.13)
   – Fusing Unit Ass'y (☛ 3.28)
2. Lift and remove the actuator-exit from the main frame.



H911R955.WMF

3.31 SHIELD ENGINE ASS'Y

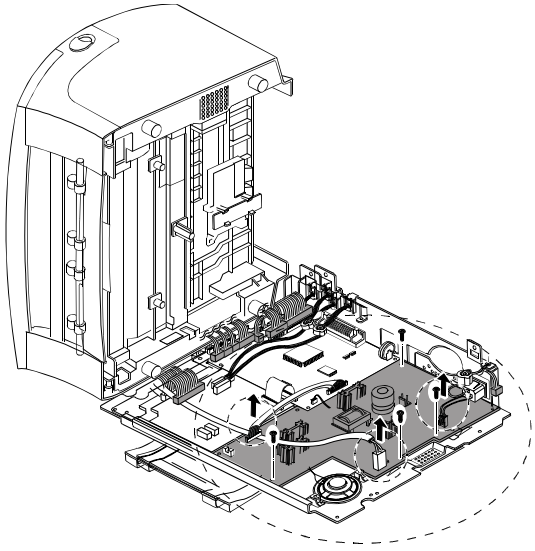
1. Before removing the Shield Engine Ass'y, you should remove:
   – Rear cover (☛ 3.12)
2. Set the machine on its left side as shown in the illustration.
3. Remove six screws securing the Shield Engine Ass'y.
4. Remove the Shield Engine Ass'y from the main frame.



H911R957.WMF

3.32 SMPS BOARD (ALSO KNOWN AS POWER SUPPLY UNIT)

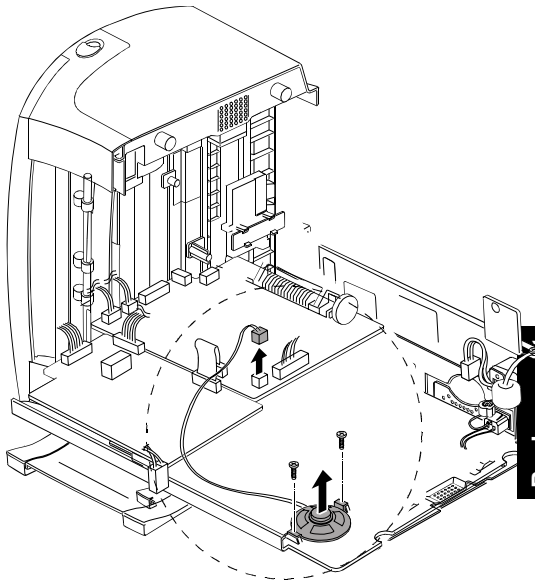
1. Before removing the SMPS board, you should remove:
   – Rear cover (☛ 3.12)
   – Shield Engine Ass'y (☛ 3.31)
2. Remove the four screws and three connectors.
3. Remove the SMPS board from the main frame.



H911R958.WMF

3.33 MONITOR SPEAKER

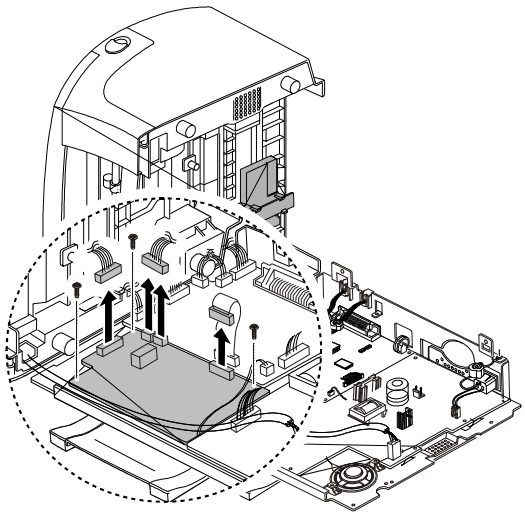
1. Before removing the speaker, you should remove:
   – Rear cover (☛ 3.12)
   – Shield Engine Ass'y (☛ 3.31)
   – SMPS board (☛ 3.32)
2. Remove the single connector that connects the speaker to the main board as well as both screws securing the speaker.
3. Remove the speaker.



H911R959.WMF

3.34 LIU BOARD (ALSO KNOWN AS NCU)

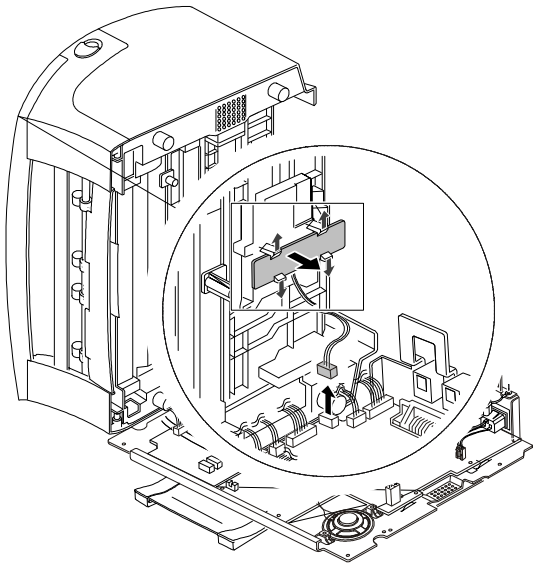
1. Before removing the LIU board, you should remove:
   – Rear cover (☛ 3.12)
   – Shield Engine Ass'y (☛ 3.31)
2. Remove the three screws and three connectors from the LIU board.
3. Remove the board from the main frame.



H911R960.WMF

3.35 SENSOR BOARD

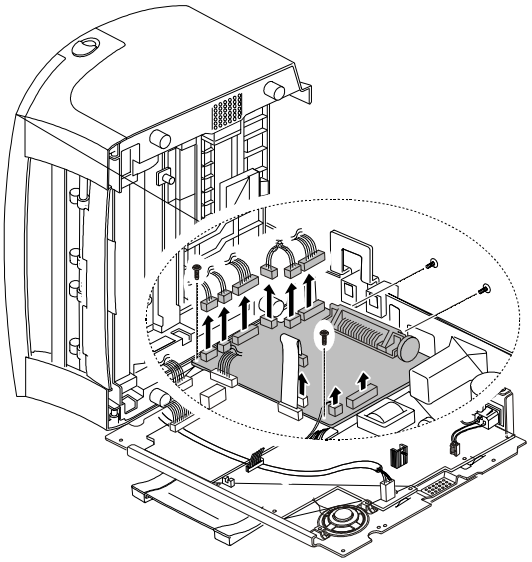
1. Before removing the sensor board, you should remove:
   – Rear cover (☛ 3.12)
   – Shield Engine Ass'y (☛ 3.31)
2. Release the four snap-fits securing the sensor board and unplug the single connector from the main board.
3. Remove the sensor board.



H911R962.WMF

3.36 MAIN BOARD

1. Before removing the main board, you should remove:
   – Rear cover (☛ 3.12)
   – Shield Engine Ass'y (☛ 3.31)
2. Remove the four screws and all nine connectors from the main board.
3. Remove the board.

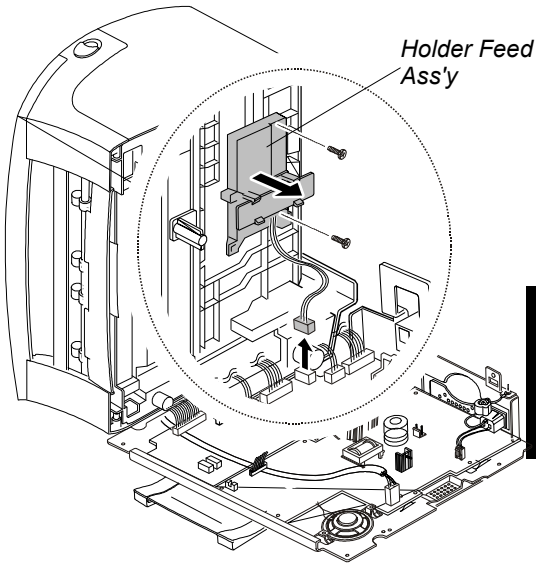


H911R961.WMF

3.37 ACTUATOR EMPTY/FEEDER

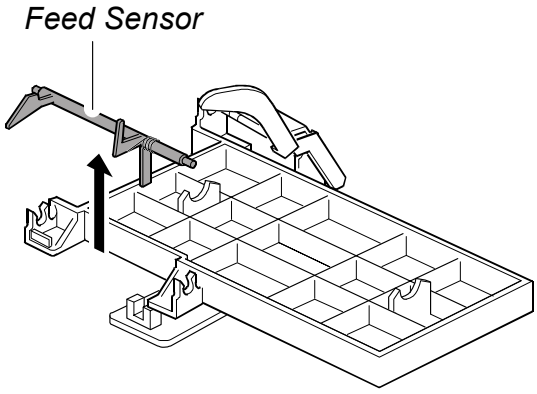
(ALSO KNOWN AS actuator paper end/paper feed sensors)

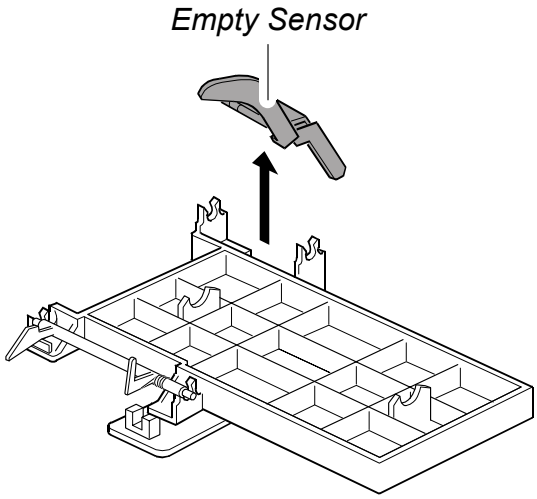
1. Before removing the actuator empty/feeder, you should remove:
   – Rear cover (☛ 3.12)
   – Shield Engine Ass'y (☛ 3.31)
2. Remove the single connector from the main board and both screws securing the holder feed Ass'y.
3. Remove the Holder Feeder Ass'y.



H911R963.WMF

4. Remove the feed sensor and the empty sensor actuators.

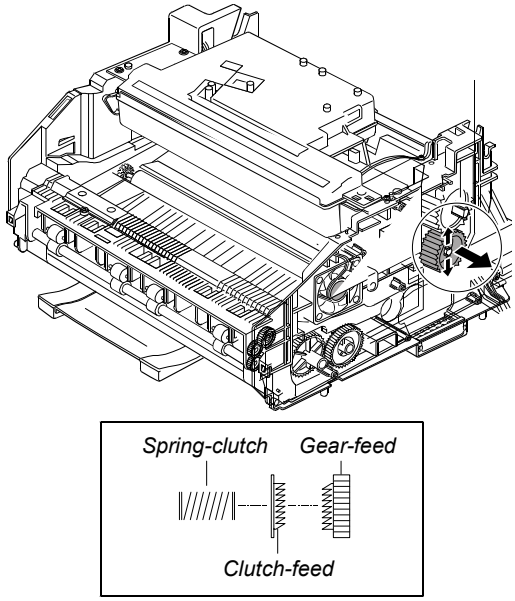




H911R964.WMF

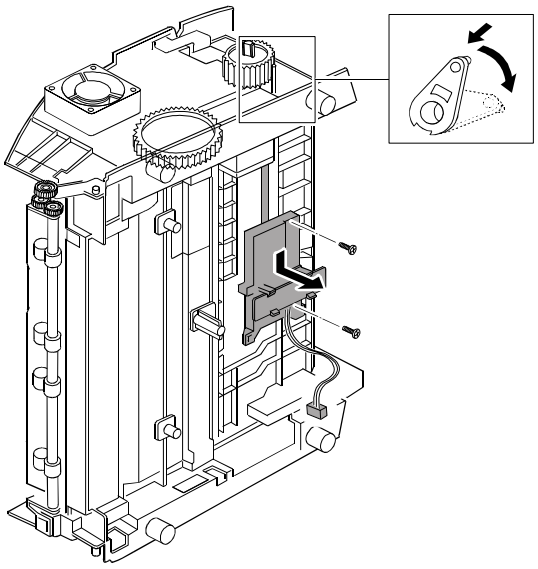
3.38 ROLLER FEED (ALSO KNOWN AS PAPER FEED ROLLER)

1. Before removing the roller feed, you should remove:
   – OPE cover (☛ 3.2)
   – Rear cover (☛ 3.12)
   – Top cover (☛ 3.13)
   – Main Motor Ass'y (☛ 3.22)
2. Release both snap-fits and remove the gear-feed, clutch-feed, and the spring-clutch.

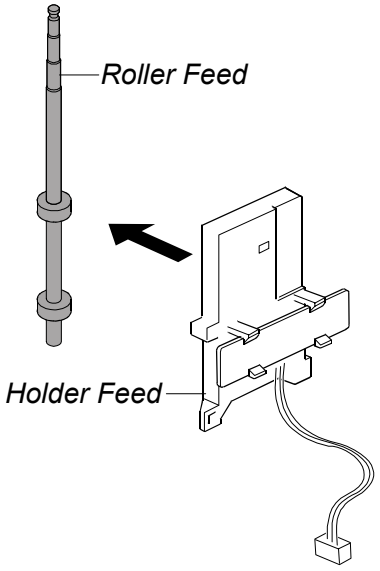


H911R965.WMF

3. Rotate the pick-up bushing as shown.
4. Remove Holder Feed Ass'y and Roller Feed.
5. Separate the Roller Feed from the Holder Feed Ass'y.



H911R966.WMF



H911R967.WMF

4. TROUBLESHOOTING

4.1 TOOLS FOR TROUBLESHOOTING

The following tools are recommended for troubleshooting.

1. DVM (Digital Volt Meter)

Standard: More than 3 digits.

2. Electronic Scale

Standard: Equipment for checking the weight of consumables (toner cartridge) supplied by Ricoh Electronics. (The gram unit can be measured.)

3. Screw Drivers

Standard: "–" type, "+" type (M3 long, M3 short, M2 long, M2 short).

4. Pinset

Standard: General home use, small type.

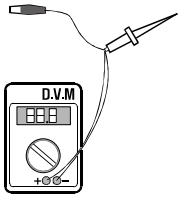
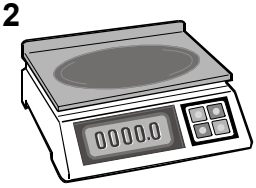
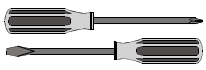
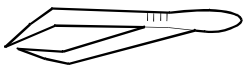
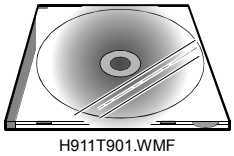
5. Cotton Swabs

Standard: General home use or medical service.

6. Cleaning Equipment: IPA (Isopropyl Alcohol), dry cloth or soft neutral detergent.

7. Software (Driver): Installation CD ROM – Model L1b only

NOTE: When disassembling and reassembling ensure your hands do not touch any PCB assemblies. (For example the Main Board, SMPS, or HVPS)

1  H911T906.WMF	2  H911T902.WMF	3  H911T903.WMF	4  H911T904.WMF
5  H911T905.WMF	7  H911T901.WMF		

4.2 DIAGNOSTICS

This section describes methods and procedures to isolate the cause of a malfunction in the machine. This machine displays all diagnostic information on the LCD. In addition, it can perform a series of tests that allow the machine to observe individual machine functions.

4.2.1 ERROR MESSAGES

Error Message	Description	Solution
DOCUMENT JAM	The loaded document has jammed in the feeder.	Clear the document jam.
DOOR OPEN	The front cover is not securely latched.	Press down on the cover until it clicks in place.
FUSER ERROR	A problem has occurred in the fusing unit.	Unplug the power code and plug it back in. If the problem still persists, please call for service.
JAM/NO CARTRIDGE	Recording paper has jammed inside the unit, or the toner cartridge is not installed.	Clear the jam, or install the cartridge
LINE ERROR	Unit cannot connect with the remote machine, or has lost contact because of a problem with the phone line.	Try again. If failure persists, wait an hour or so for the line to clear, then try again. Or, turn the ECM mode on.
LOAD DOCUMENT	You have attempted to set up a sending operation with no document loaded.	Load a document and try again.
LSU ERROR	A problem has occurred in the LSU (Laser Unit).	Unplug the power code and plug it back in. If the problem still persists, please call for service.
MEMORY FULL	The memory is full.	Either delete unnecessary documents, or retransmit after more memory becomes available, or split the transmission into more than one operation.
NO ANSWER	The remote machine has not answered after all the redial attempts.	Try again. Make sure the remote machine is operational.
NO. NOT ASSIGNED	The one-touch or speed dial location you tried to use has no number assigned to it.	Dial the number manually with the key- pad, or assign a number.
NO PAPER	The recording paper has run out.	Load the recording paper.
OVER HEAT	The printer part in your unit has overheated.	Please wait until it cools down. If you cannot solve the problem, please call for service.
PAPER JAM 0	Recording paper has jammed in the paper feeding area.	Press Stop and clear the jam.
PAPER JAM 2	Jammed paper still remains inside the unit.	Clear the jam.

Error Message	Description	Solution
POLLING ERROR	The remote fax machine you want to poll is not ready to respond to your poll. Or when setting up to poll another fax machine, you have used an incorrect poll code.	The remote operator should know in advance that you are polling and have their fax unit loaded with the original document. Enter the correct poll code.
POWER FAILURE	A power failure has occurred.	If documents have been stored in the memory, a “Power Failure Report” will be automatically printed when the power is restored.
RECEIVE ERROR	A fax has not been received successfully.	A problem with the facsimile communications has occurred. Ask the sender to try again.
RETRY REDIAL ?	The machine is waiting for a specified time interval to redial a previously busy station.	You can press Start/Enter to immediately redial, or Stop to cancel the redial operation.
SEND ERROR	Your fax has not gone through successfully.	A problem with the facsimile communications has occurred. Try again.
TONER EMPTY	The toner cartridge has run out. The machine stops.	Replace with a new toner cartridge.
TONER LOW	The toner is almost empty.	Take out the toner cartridge and gently shake it. By doing this, you can temporarily re-establish the print quality.
WARMING UP	The printer is warming up and is off-line.	Wait until the printer is on-line.

4.3 PRINT QUALITY

No.	Roller	Abnormal image period	Kind of abnormal image
1	OPC Drum	75.4 mm	• White spot on black image • Black spot
2	Charge Roller	37.7 mm	Black spot
3	Supply Roller	26.8 mm	Horizontal density band
4	Develop Roller	31.6 mm	Horizontal density band
5	Transfer Roller	47.1 mm	Black side contamination/ transfer fault
6	Heat Roller	50.1 mm	Black spot, White spot
7	Pressure Roller	50.2 mm	Black side contamination

4.4 NOTE FOR REPLACING MAIN BOARD

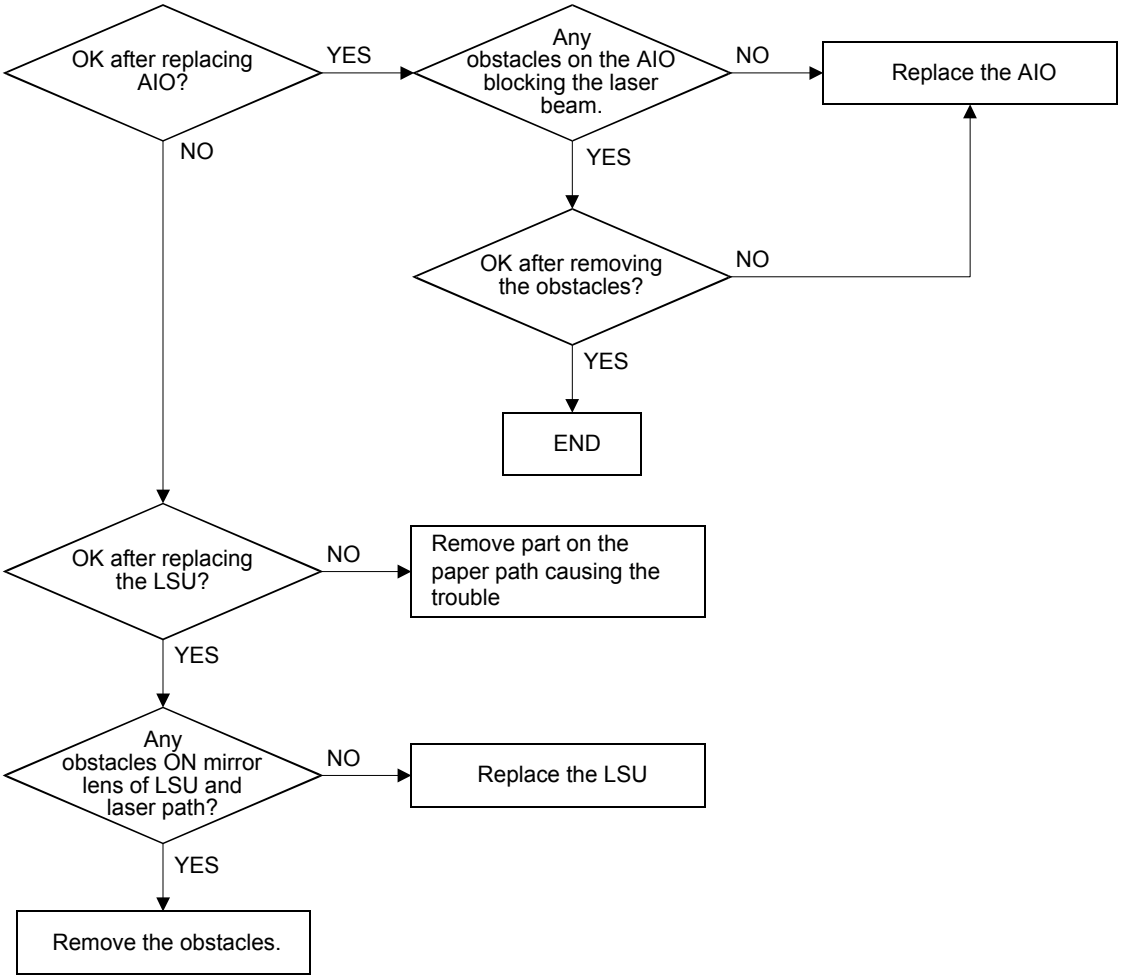
When you replace the main board with a new one, the information on the toner state is cleared. Therefore, you should update the information to the new board by entering the exact value of total toner count and specifying the toner cartridge installed currently is shipped with the machine or new.

Failure to do this results in “TONER LOW/EMPTY” message not appearing when the toner has run out.

1. In Tech mode, print “SYSTEM DATA LIST”. The list includes the total toner count and CRU state information.
   - TOTAL TONER COUNT: The total number of the dots used to print up to current time.
   - CRU STATE: The number of pages the toner cartridge can print.
2. Replace Main board.
3. In Tech mode,
   1) Press Setup, and find “MAINTENANCE” by pressing repeatedly “◀” or “▶”. Then press Start/Enter.
   2) When “TONER COUNT” is displayed in LCD, press Start/Enter, and enter the value of the total toner count in the system data list.
   3) When you are prompted to enter CRU STATE, press Start/Enter.
   4) When you see “[1.1000 2.3000]” in LCD, select the value of the CRU state in the system data list.
      Select “1” for the starter CRU, and “2” for a new CRU. (Also known s AIO)
4. In Tech mode, print “SYSTEM DATA LIST” and make sure that the toner information is updated.

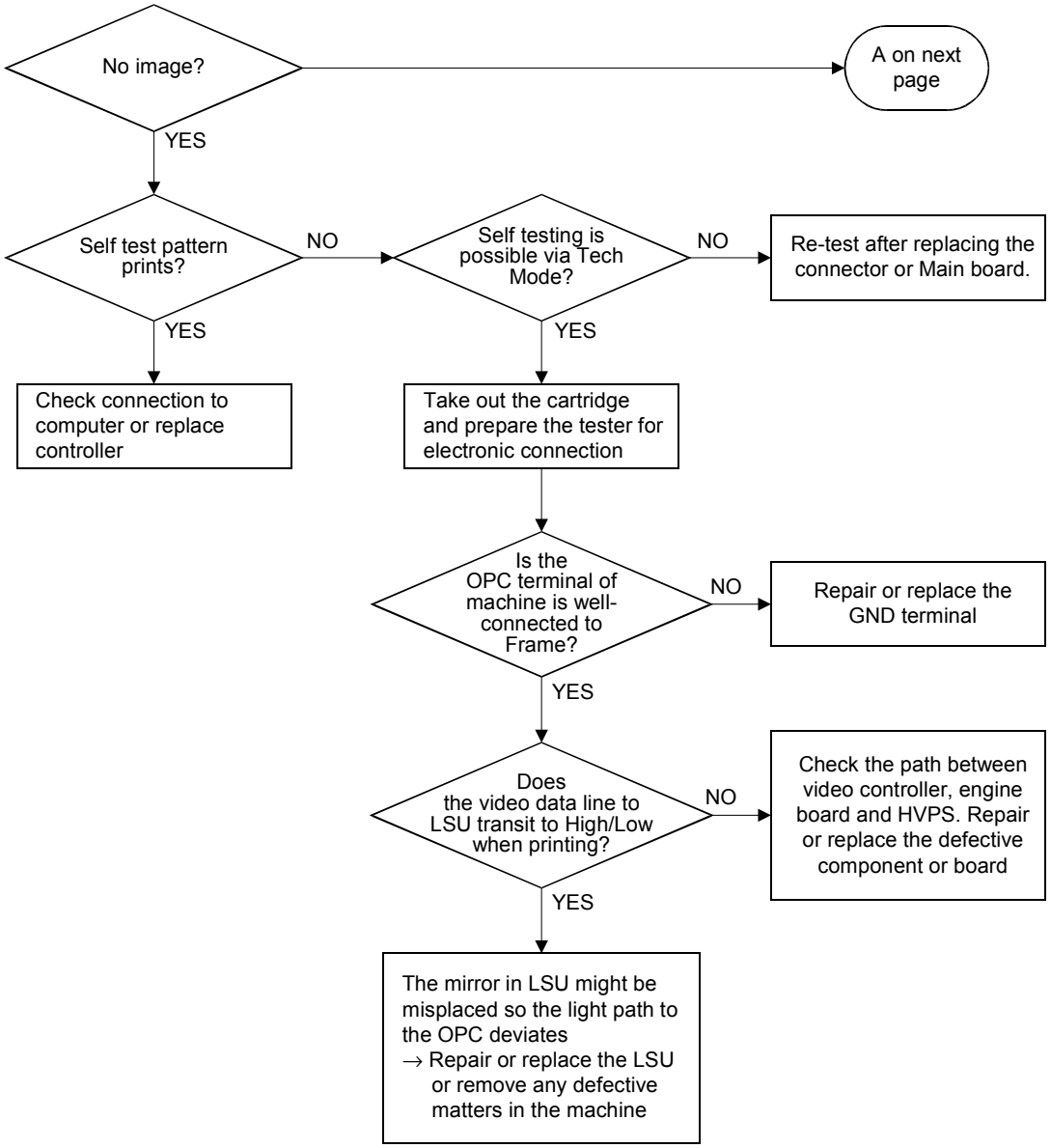
4.5 TROUBLESHOOTING FLOW CHART

4.5.1 VERTICAL BLACK LINE BAND

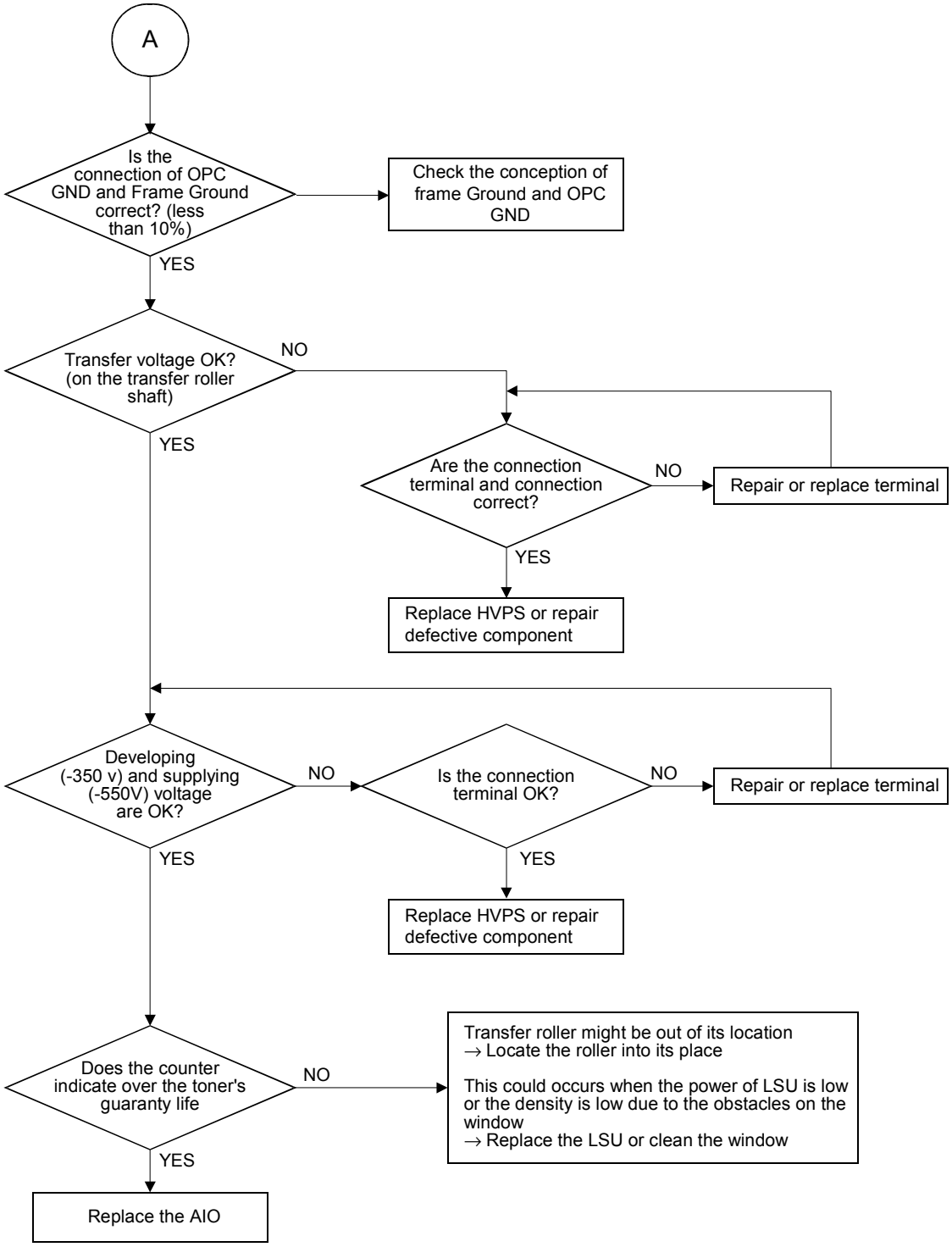


H911T910.WMF

4.5.2 NO IMAGE

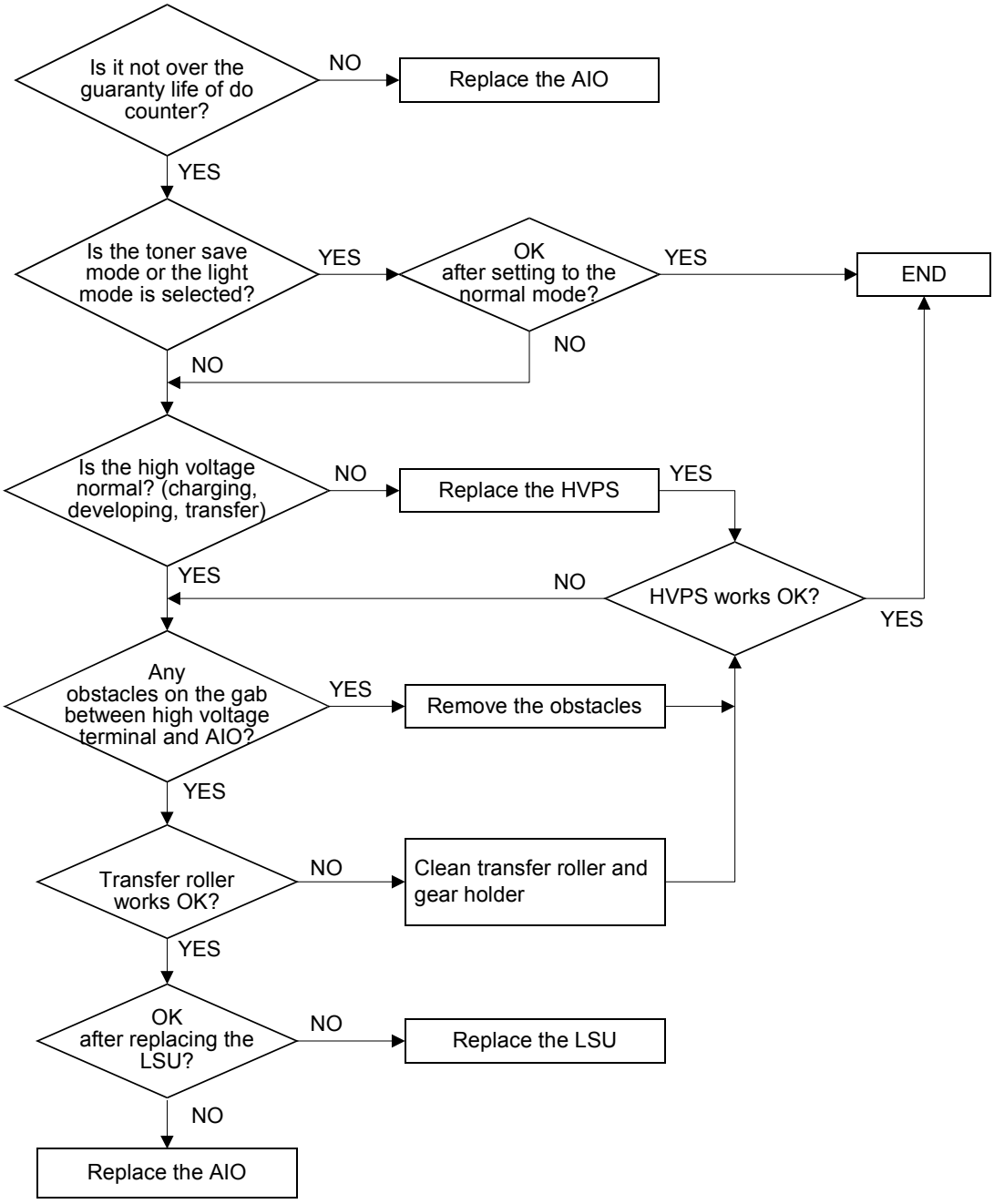


H911T911.WMF



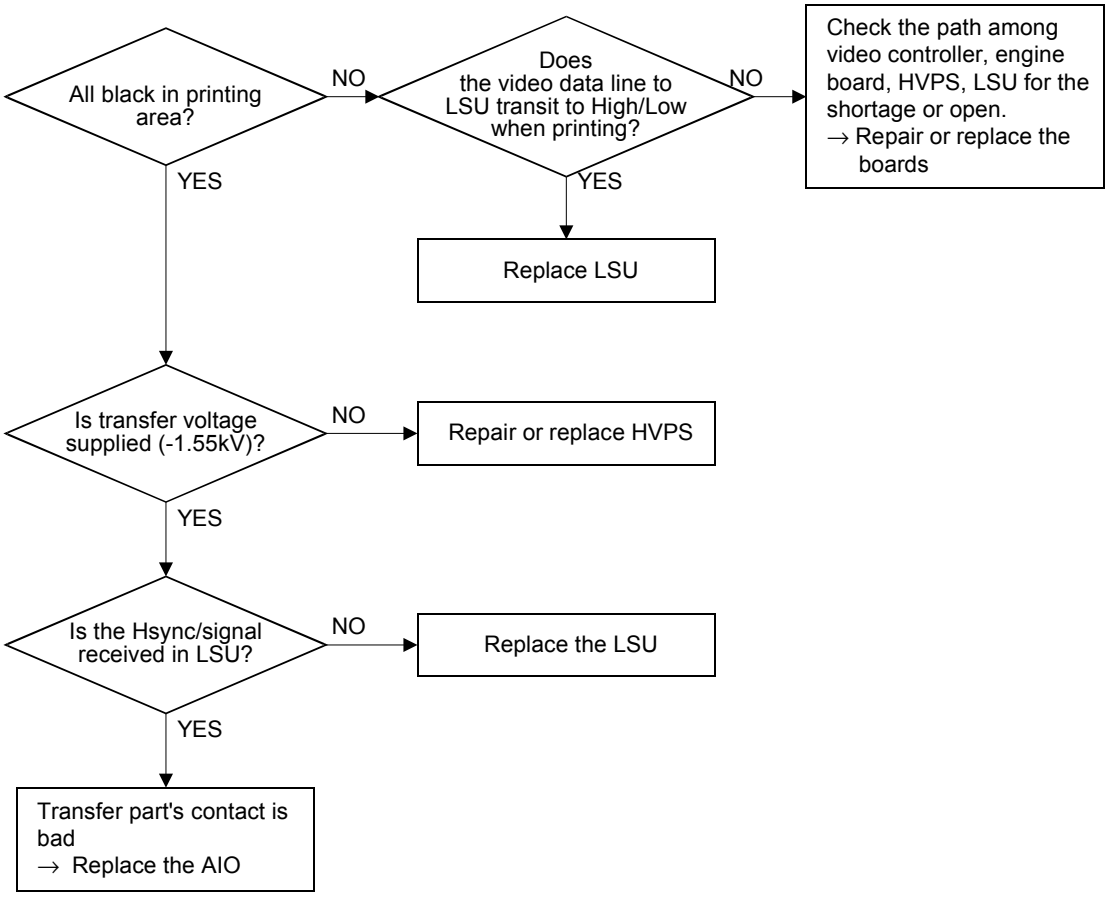
H911T912.WMF

4.5.3 LIGHT IMAGE



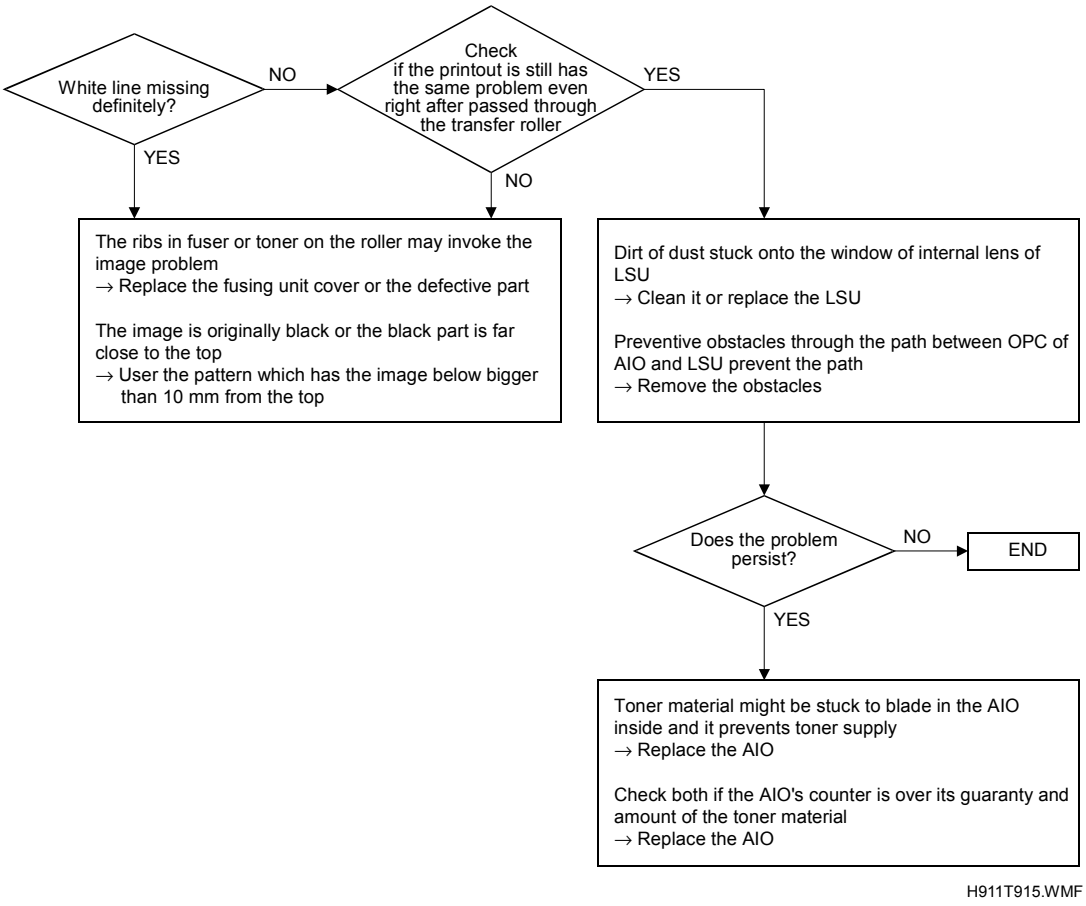
H911T913.WMF

4.5.4 ALL BLACK



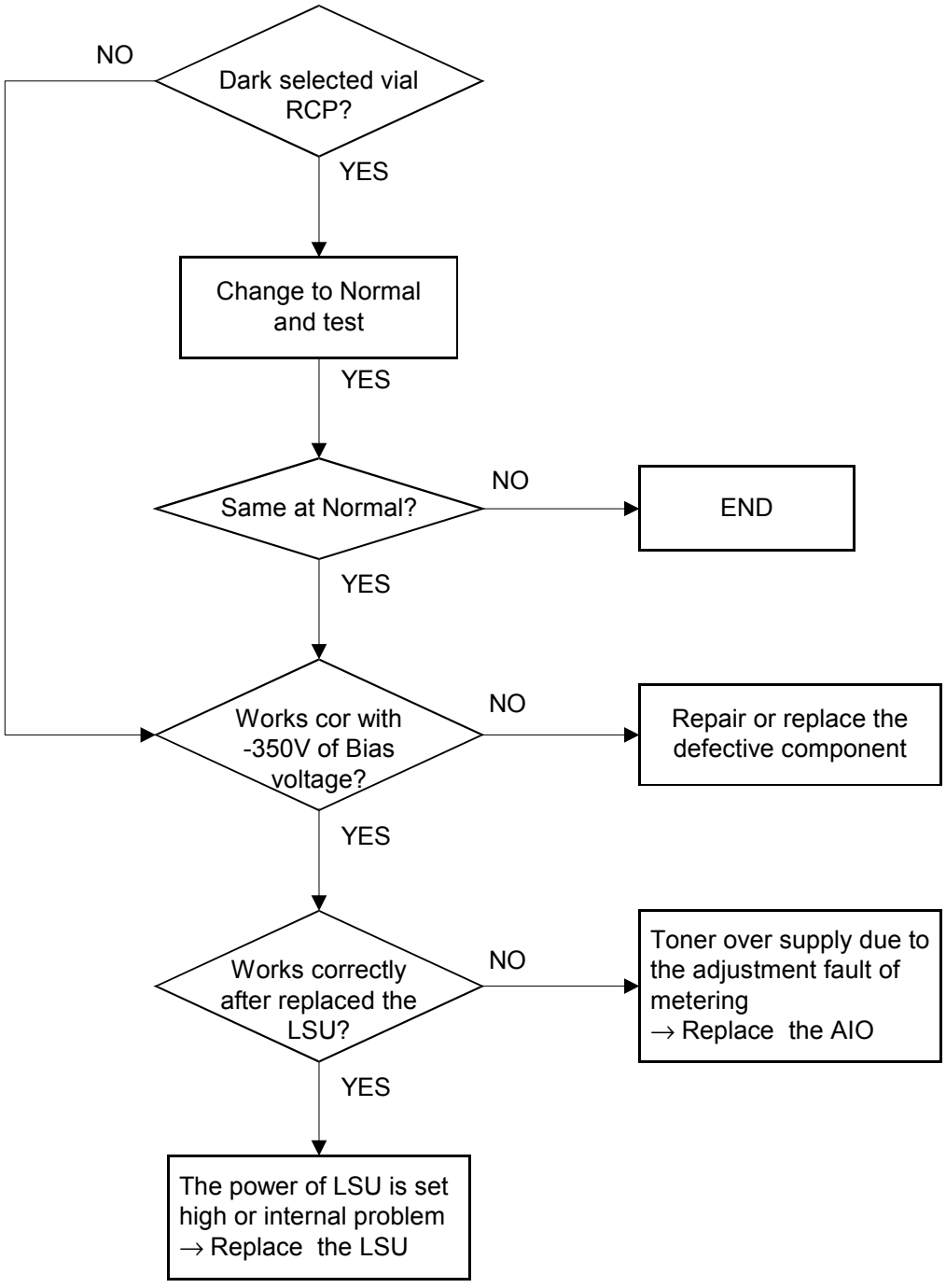
H911T914.WMF

4.5.5 VERTICAL WHITE LINE (BAND)

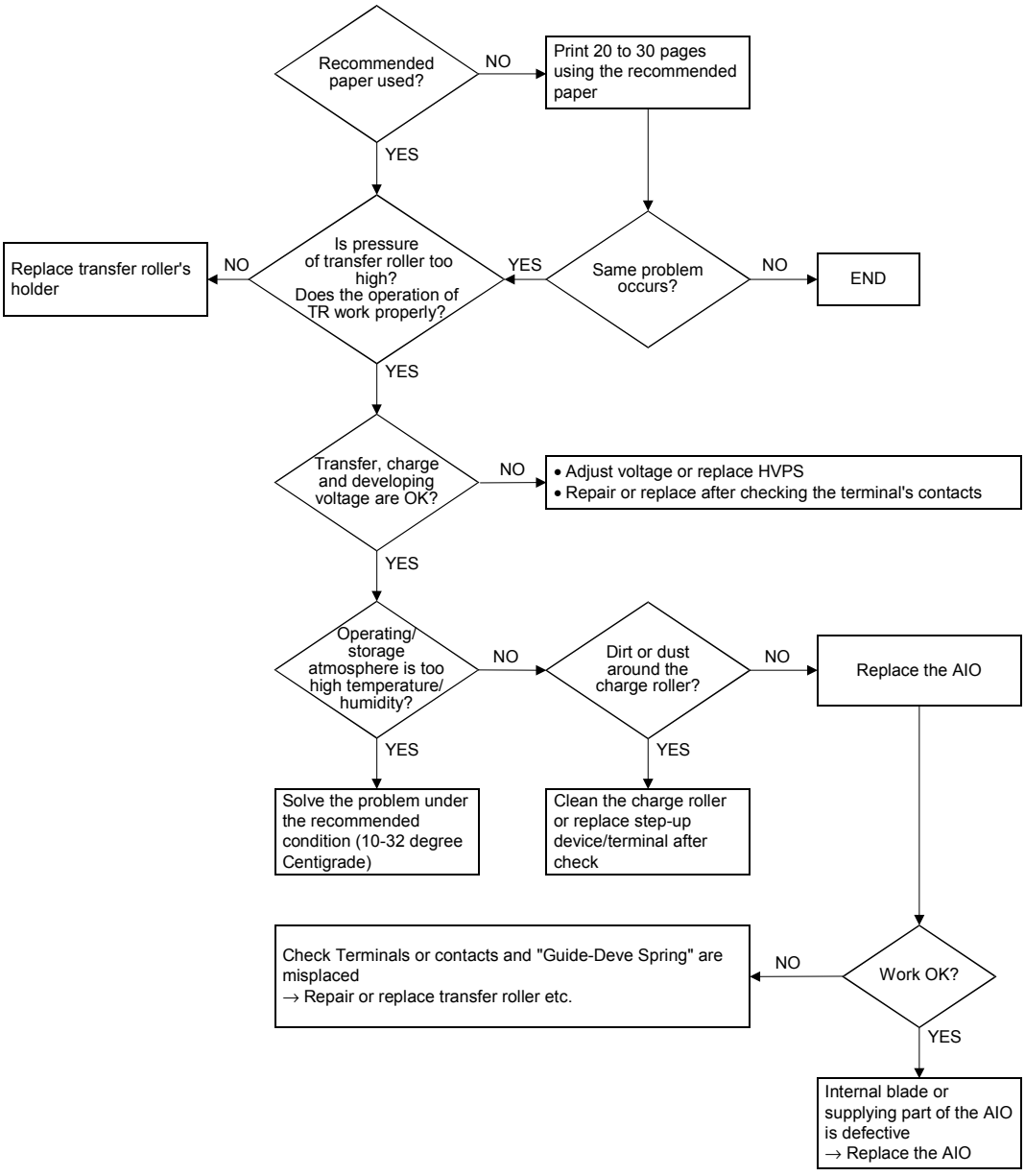


H911T915.WMF

4.5.6 DARK IMAGE

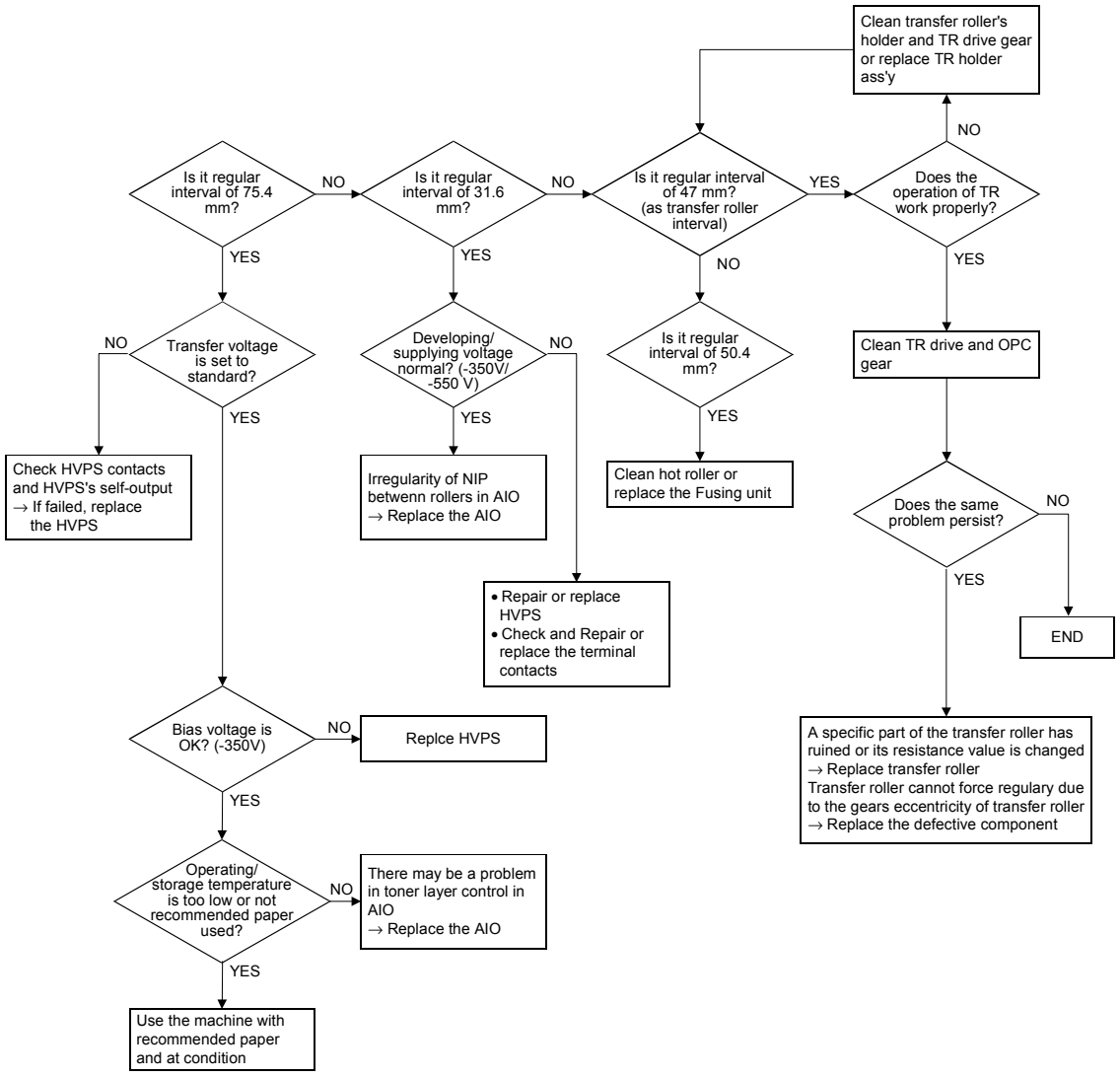


4.5.7 DIRTY BACKGROUND



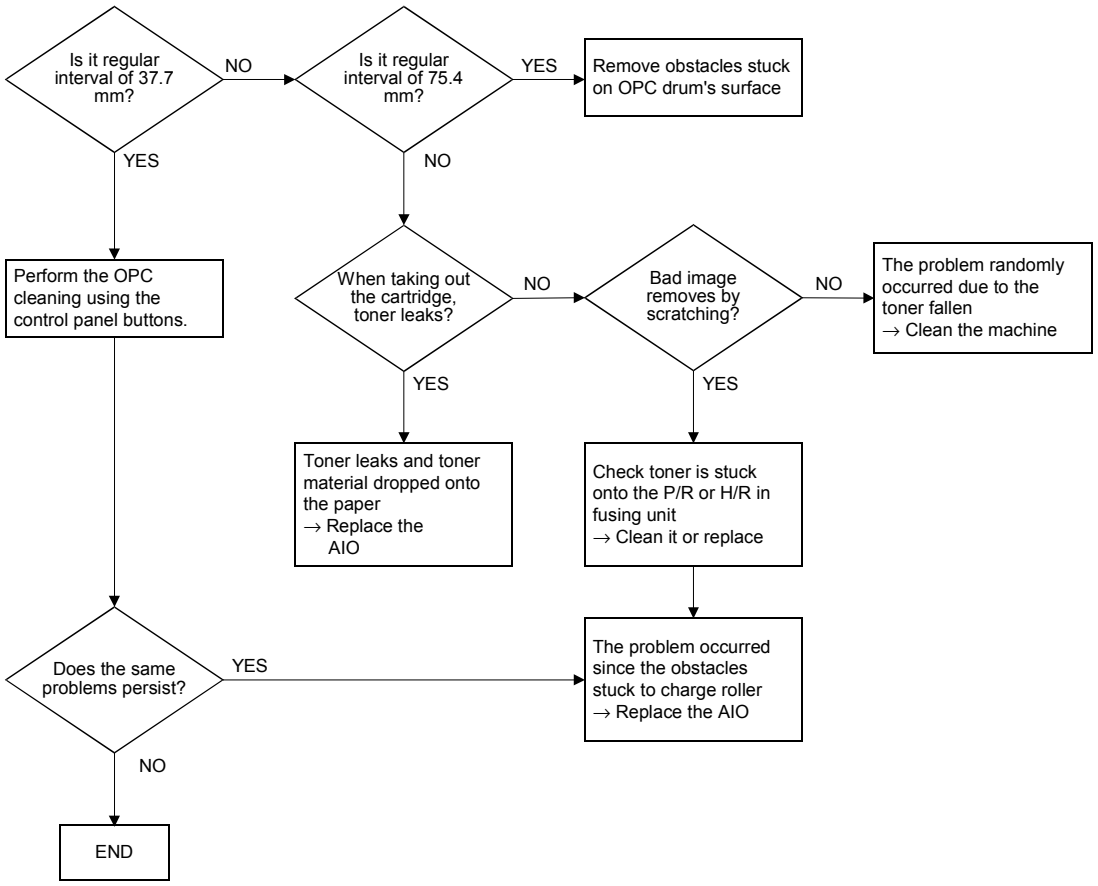
H911T917.WMF

4.5.8 GHOST



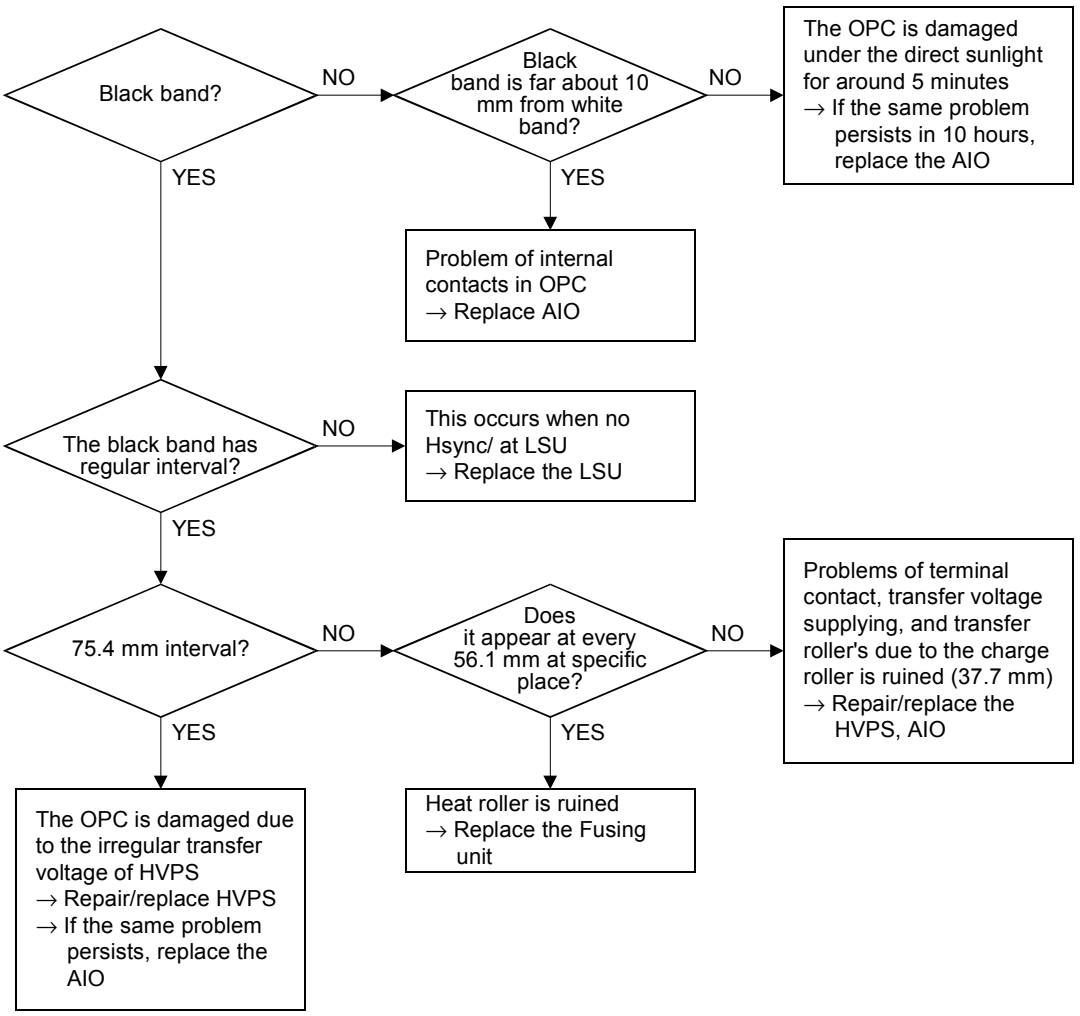
H911T918.WMF

4.5.9 BLACK SPOT



H911T919.WMF

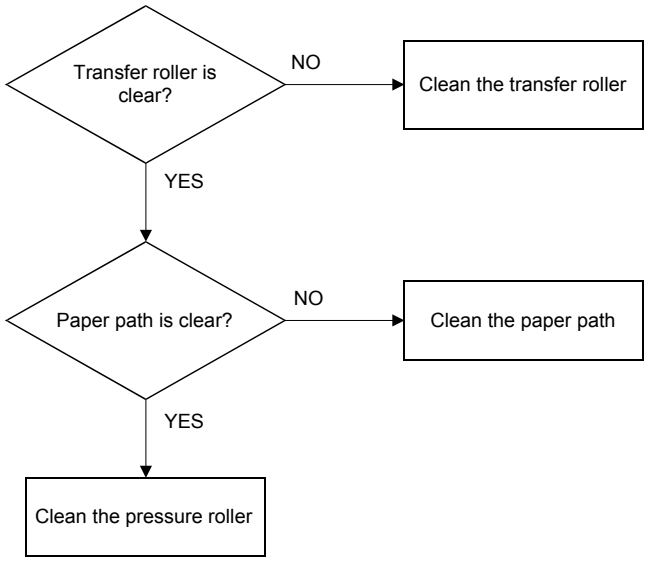
4.5.10 HORIZONTAL BAND



H911T920.WMF

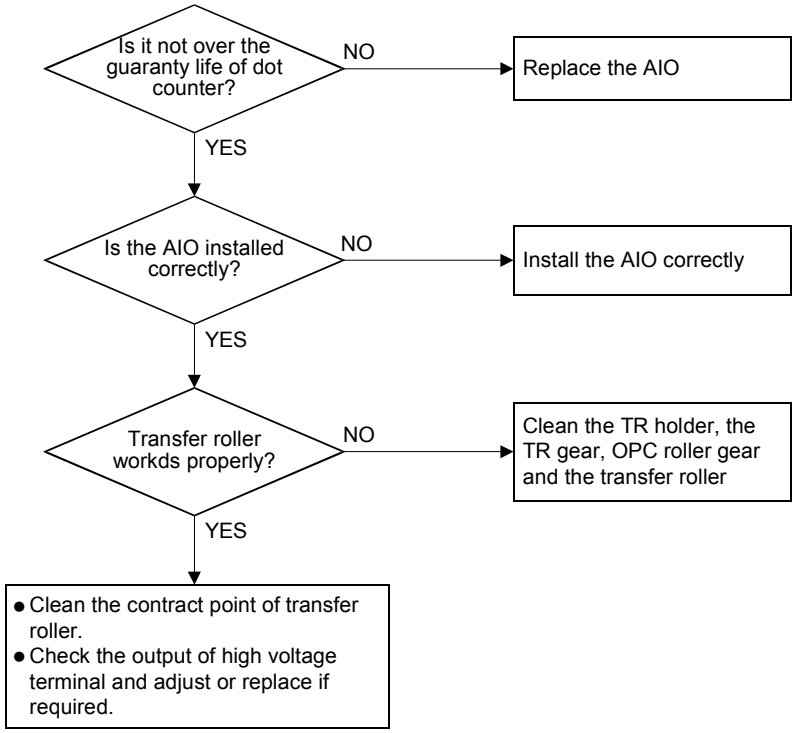
Trouble-shooting

4.5.11 TONER CONTAMINATIONS BACK OF PAPER



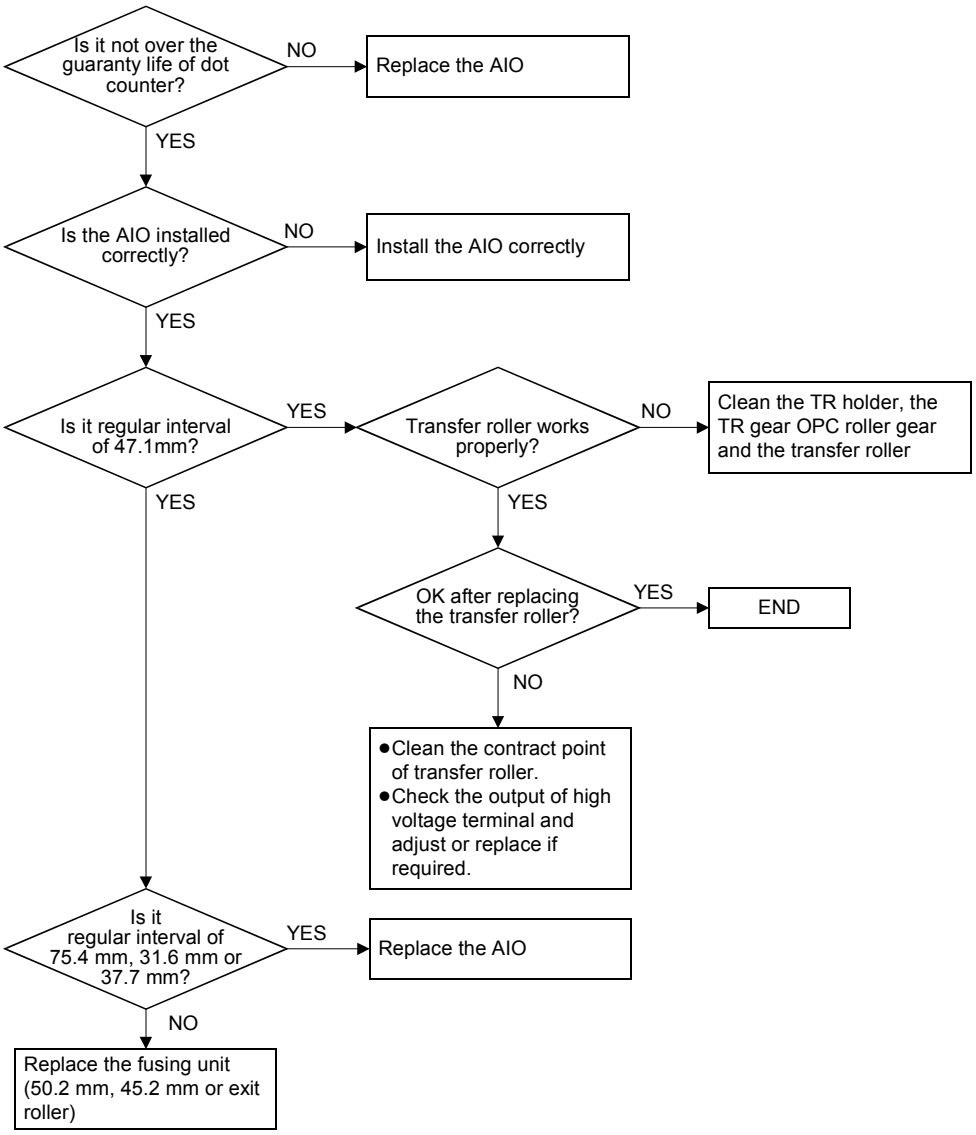
H911T921.WMF

4.5.12 PARTIAL BLANK IMAGE (NOT PERIODIC)



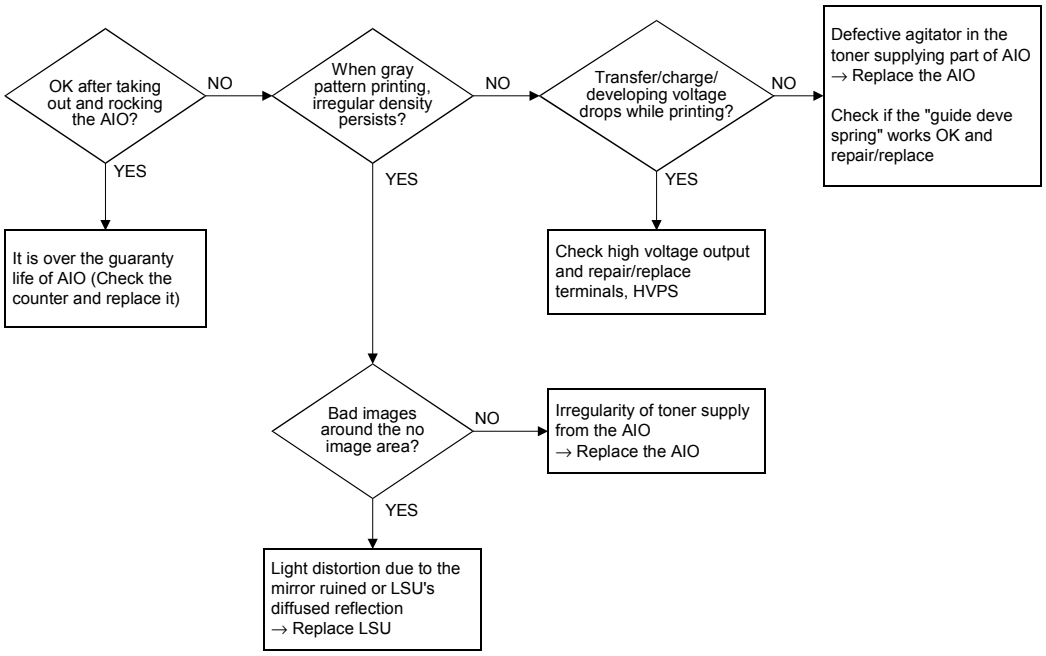
H911T922.WMF

4.5.13 PARTIAL BLANK IMAGE (PERIODIC)



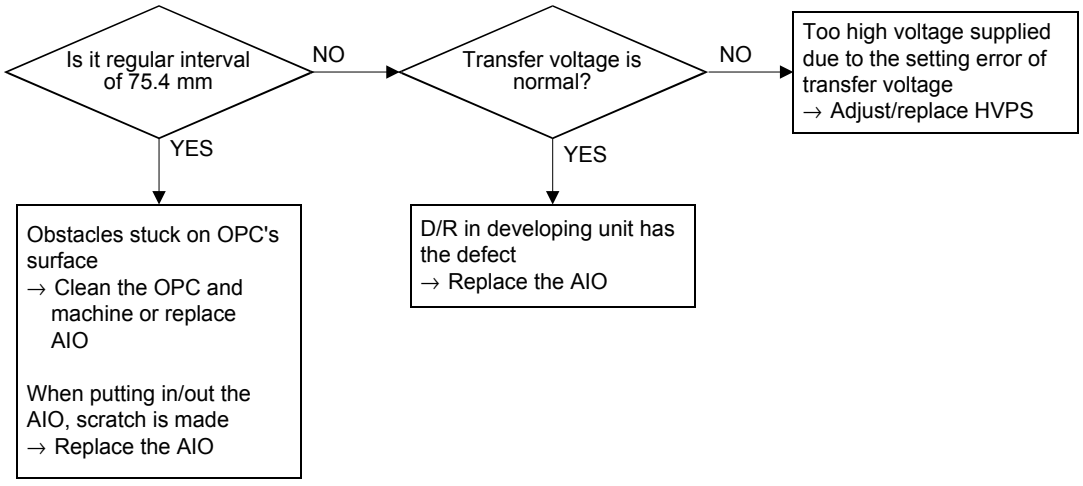
H911T923.WMF

4.5.14 IRREGULAR DENSITY



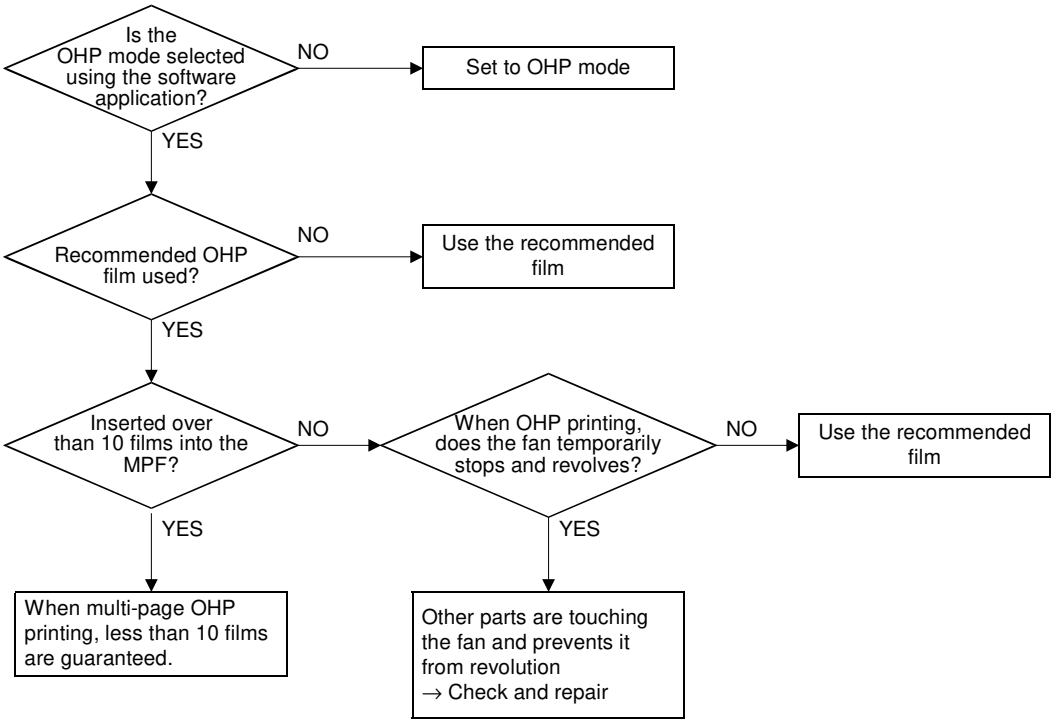
H911T924.WMF

4.5.15 WHITE SPOT



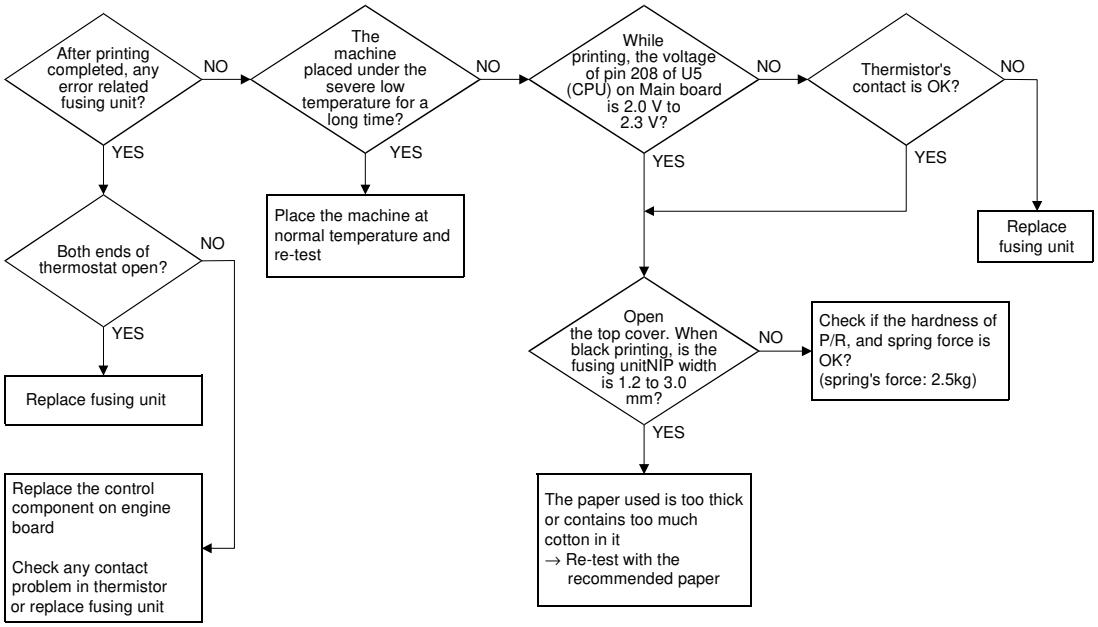
H911T925.WMF

4.5.16 TREMBLING AT THE END WHEN OHP PRINTING



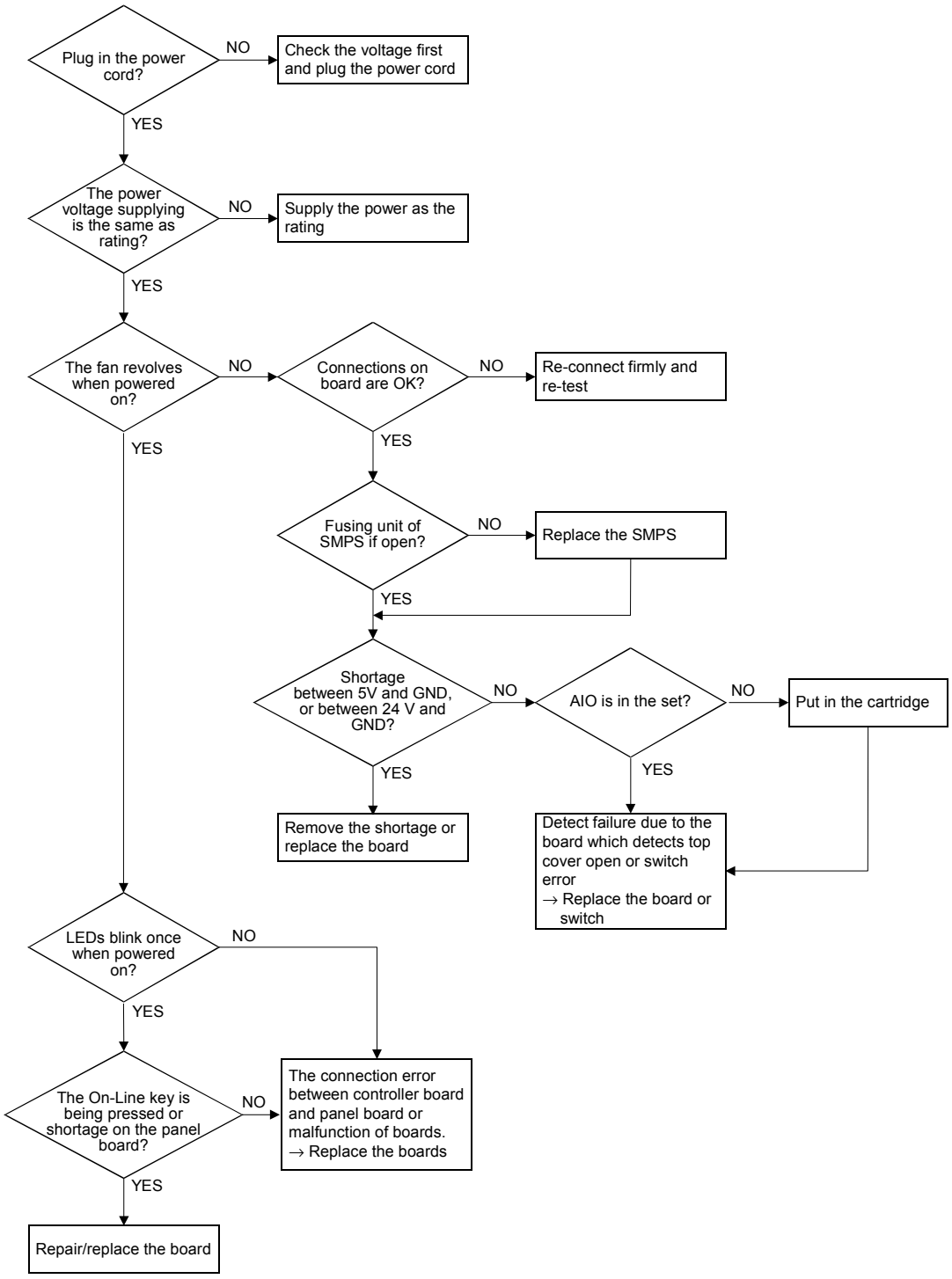
H911T926.WMF

4.5.17 POOR FUSING GRADE



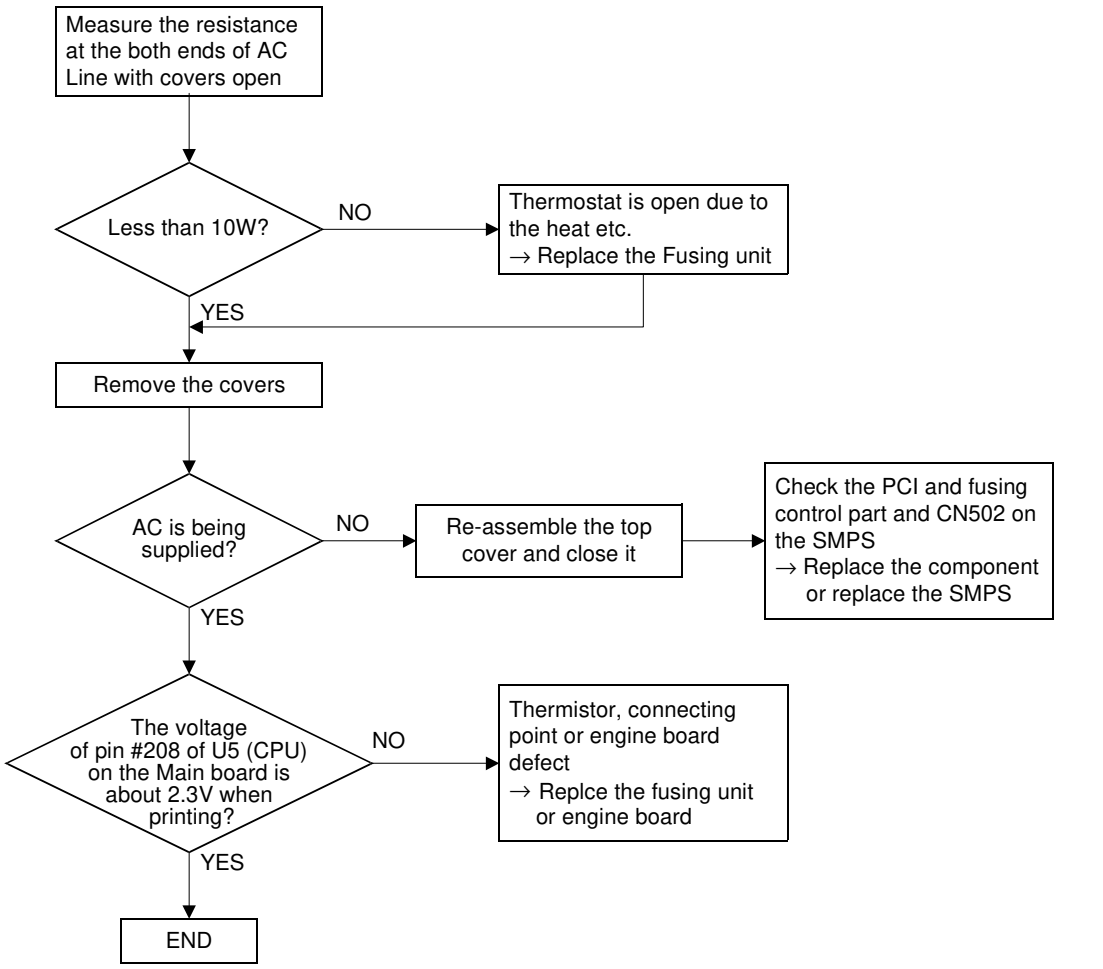
H911T927A.WMF

4.5.18 NO POWER (LCD NO DISPLAY LED OFF)



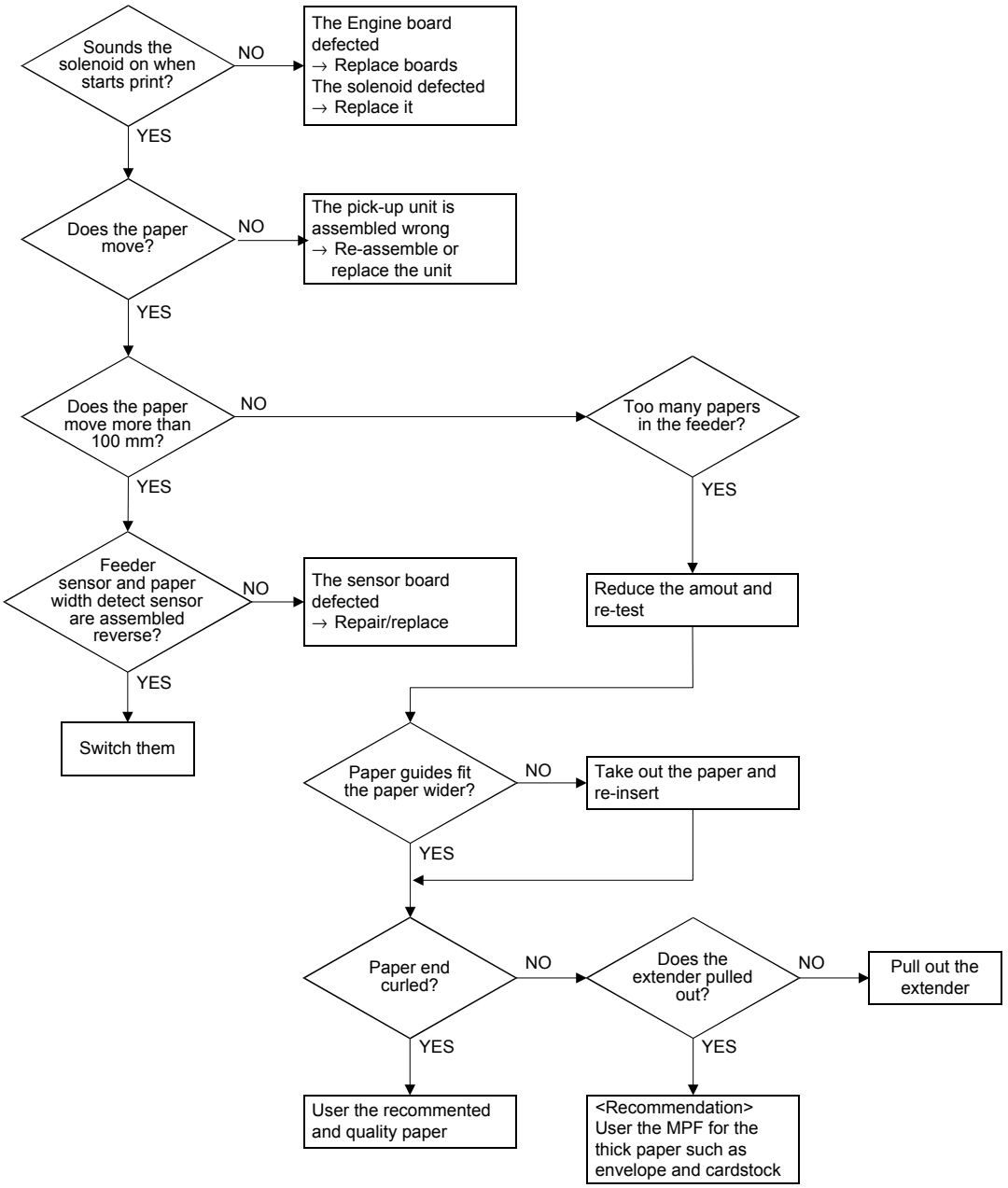
H911T928.WMF

4.5.19 FUSING UNIT ERROR

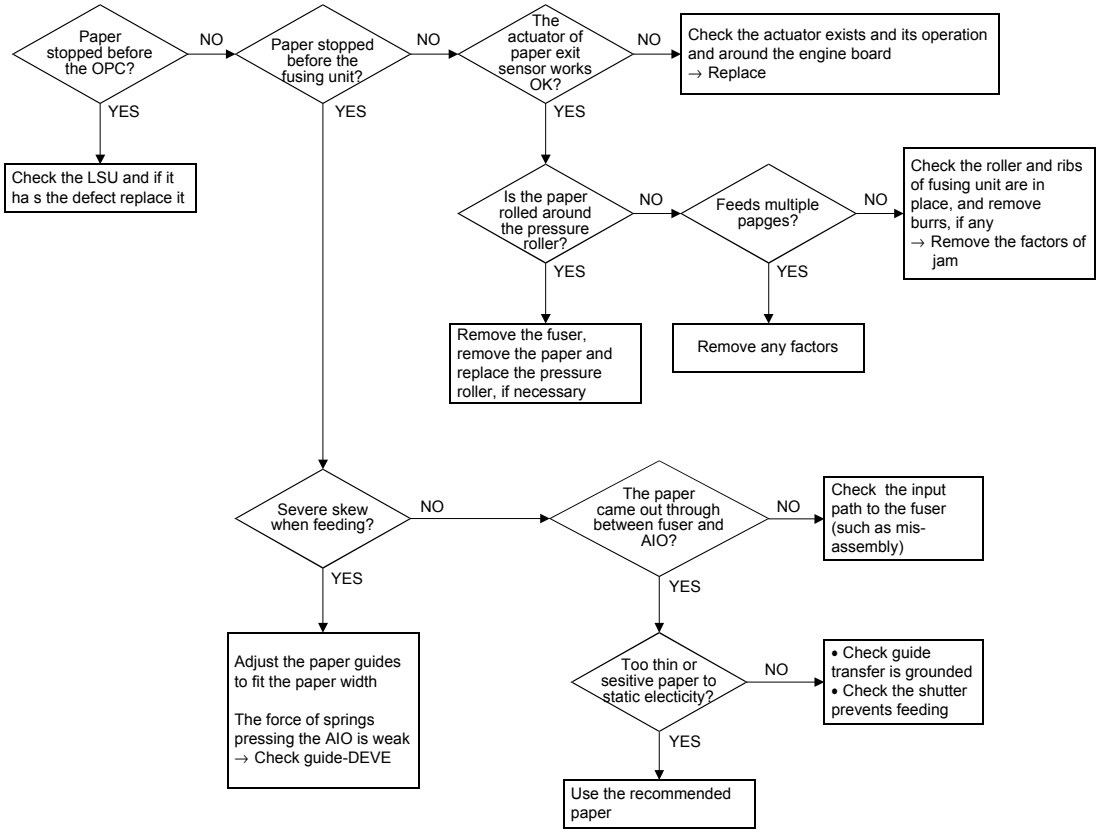


H911T929A.WMF

4.5.20 PAPER JAM (MISFEEDING)

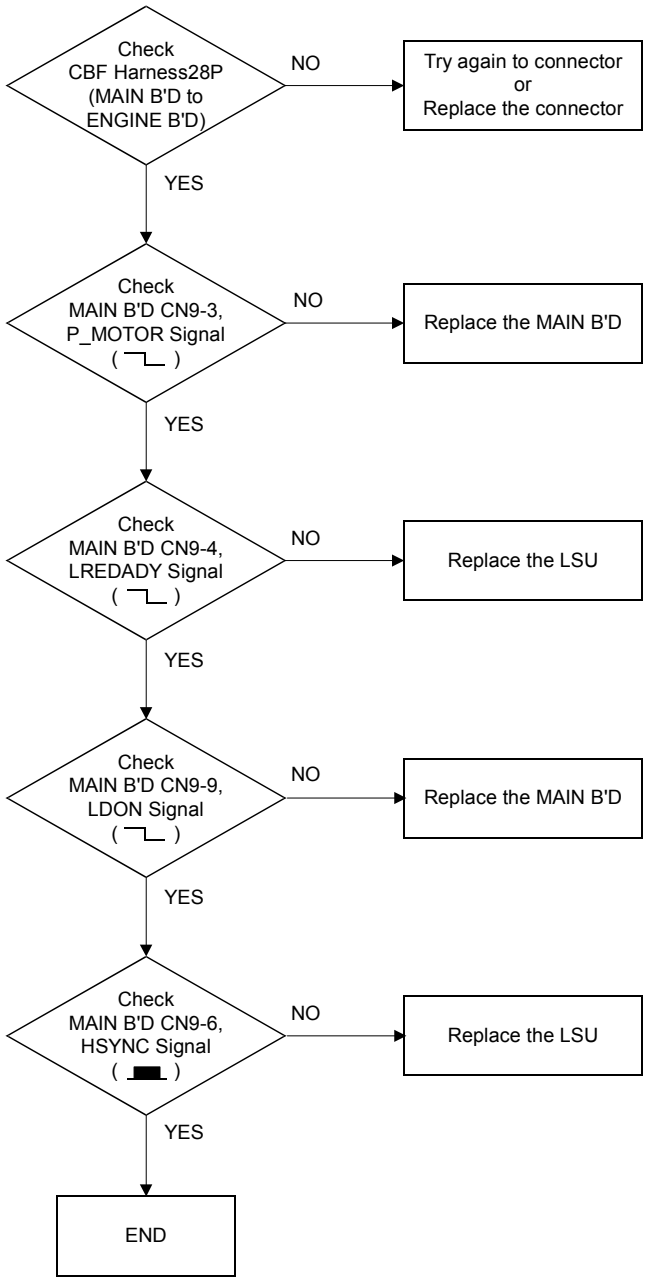


4.5.21 PAPER JAM (JAM1)



H911T931.WMF

4.5.22 LSU ERROR



H911T932.WMF

5. SERVICE MODE

5.1 TECH MODE

In TECH mode, the technician performs various tests to isolate a malfunction. Additionally the technician sets optional features to customize the machine depending on the user's operation environment.

5.1.1 ACCESSING TECH MODE

To Access TECH Mode

Press User Tools, #, 1, 9, 3, 4 in sequence. The LCD displays "TECH" in the standby mode screen. While in TECH mode, the machine still performs all normal operations.

To Return to the Normal User Mode

Either:
* Turn the power off and on.
* Leave the machine as it is for 5 minutes.

Options that were previously set in TECH mode are not changed unless you clear the machine's memory in TECH mode.

5.1.2 SYSTEM DATA LIST IN TECH MODE

Function	Item	Content	Default
FAX NUMBER/ NAME	FAX NUMBER		
	FAX NAME		
TIME/DATE SETUP	DATE FORMAT	EUROPE/USA	NA: mmddyy EU/AS: ddmmyy
	TIME/DATE		
SYSTEM SETUP	LANGUAGE	ENG / D / F / I / ES / P / NL	ENGLISH
	SEND FROM MEMORY	ON/OFF	ON
	SENDING CONFIRM	ON/OFF/ERROR	ERROR
	FAX PAPER SIZE	LETTER/A4/LEGAL	NA: LETTER EU/AS: A4
	TONER SAVE MODE	ON/OFF	OFF
	POWER SAVE MODE	ON/OFF, 5/10/15 MIN	ON, 5MIN
	AUTO REDUCTION	ON/OFF	ON
	DISCARD SIZE	0 to 30 MM	20MM
	RINGS TO ANSWER	1 to 7	2
	STAMP RCV.NAME	ON/OFF	OFF
	RCV.START CODE	*0* to *9*	*9*
	ECM MODE	ON/OFF	ON
	JUNK FAX BARRIER	ON/OFF	OFF
	DRPD MODE (Distinctive Ring)	ON/OFF	OFF
TECH MODE	MODEM SPEED	2400/4800/7200/9600/12000 /14400/28800/33600 BPS	33600 BPS
	DIALING MODE	TONE/PULSE	TONE
	SEND FAX LEVEL	0 to -15 DBM	–12 DBM
	PAUSE TIME	1 to 9 SEC	3 SEC
	REDIAL INTERVAL	1 to 15 MIN.	3 MIN.
	REDIAL COUNT	0 to 2	2
	DP MAKE/BREAK	40 / 60, 33 / 67	NA: 40 / 60 EU/AS: 33 / 67
	SILENCE TIME	UNLIMITED/12 SEC	UNLIMITED
	ERROR RATE	5%/10%	10%
	IGNORE TONER EMPTY	ON/OFF	OFF
GROUP DIAL SETUP	GROUP NO [1–20]		
VOLUM SETUP	ALARM VOLUM	ON/OFF	ON
	KEY VOLUM	ON/OFF	ON
MEMORY CLEAR	FAX NUMBER/NAME		
	DIAL/SCHEDULE		
	JOURNAL		
	DEFAULT SETUP		
MAINTENANCE	CLEAN DRUM		
	ADJUST SHADING		
	REMOTE TEST (RDC)	OFF/ON	OFF
	NOTIFY TONER LOW	OFF/ON	OFF
	ROM TEST	ROM OK! (VERSION)	
	CIS TEST		
	DRAM TEST	DRAM OK	
	SWITCH TEST		
	MODEM TEST		
	DTMF TEST		
	TONER COUNT	TOTAL TONER COUNTS / CRU STATE	
	PRINTING INFO	OFF/ON	OFF
	PROGRAM DOWNLOAD		
	SCAN COUNT CLEAR	COUNT CLEARING.	

: Only TECH Mode

5.1.3 TECH MODE OPTIONS

In TECH mode, press User Tools, then press "◄" or "►" until "TECH MODE" appears in the display. Press Start/Enter.

The following options are available.

NOTE: If necessary, print System Data List in TECH mode.
This list shows all current system data settings including the TECH MODE options. To print the system data list, press Report/Help. Then press "◄" or "►" until "SYSTEM DATA" appears in the display. Then press Start/Enter.

MODEM SPEED

- You can set the maximum modem speed.
- Communication is done with the modem automatically set at a lower speed. When communicating with another modem at lower speed, communication proceeds where modem speed is low for transmission/ reception. It is recommended to set 33600 bps as the default.

DIALING MODE

- Selecting the dialing mode depends on the user's line status.
- TONE: Electrical dial type.
- PULSE: Mechanical dial type.

SEND FAX LEVEL

- You can set the level of the transmission signal. Normally, the Tx level should be under –12 dBm. The level within the range of 0 to –15 dBm is acceptable.

CAUTION: This is set in the factory before shipment. These settings should never be changed.

PAUSE TIME

- Pause time mean delay time (unit: second) inserted between dial number signal and the next number of signal in the automatic dial (One touch, Speed dial, Redial) and the manual dial.

CAUTION: This is set in the factory before shipment. These settings should never be changed.

REDIAL INTERVAL

- If the remote machine is busy after the machine has sent a fax using automatic dialing, the machine automatically redials the number. You can select the time interval between automatic redial attempts. Enter the desired redial interval using the number keypad: 1 through 15 minutes.

REDIAL COUNT

- You can set the number of times you want the machine to redial automatically; when automatic transmission is done, when the remote machine is busy or when the machine sends a fax. If there is no response after redialing the number of times specified, redial is terminated. Enter the desired times from 0 through 2. No redial will occur if the setting is 0.

DP MAKE/BREAK

- Select the dial pulse make and break time: 40/60 or 33/67.

CAUTION: This is set in the factory before shipment. These settings should never be changed.

SILENCE TIME

- In ANS/FAX mode, after a call is picked up by the answering machine, the machine monitors the line.
- If a period of silence is detected on the line at any time, the call will be treated as a fax message and the machine begins receiving.
- Silence detection time is selectable between 12 seconds and unlimited time.
- When “12 sec” is selected, the machine switches to receiving mode as soon as it detects a period of silence.
- When “Unlimited” is selected, the machine waits until the answering operation has terminated. After the answering operation has terminated, the machine switches to receiving mode.

ERROR RATE

- When the error rate is over the setting value, the Baud rate will automatically lower by up to 2400 bps to make the error rate remain below the setting value.
- You can select the rate between 5% and 10%.

IGNORE TONER EMPTY

- You can set this function ON if you wish to drive the engine continuously. The machine will continue to run regardless if the toner has run out, or toner empty status is displayed.

5.1.4 MEMORY CLEAR OPTIONS

In USER mode, items to be cleared are selectable; either FAX NUMBER/NAME, DIAL/SCHEDULE, JOURNAL or DEFAULT SETUP.

In TECH mode, all items listed above are cleared in one time by pressing Start/Enter after showing “ARE YOU SURE?” on the LCD.

Memory clear function will not reset all counter values, CRU STATE setting and date/time.

5.1.5 MAINTENANCE OPTIONS

In TECH mode, press User Tools, then press “◄” or “►” until “MAINTENANCE” appears in the display. Press Start/Enter.

The following technical options are available.

CLEAN DRUM

- Use this feature to get rid of any toner remaining in the development unit. This will enhance the print quality. Perform this feature if stains or specks appear on the print jobs, or if the print quality decreases.
- Perform this function as many times as required until a clean print job appears.

ADJUST SHADING

- Use this feature to correct the white reference on the scanner if you experiencing bad copy images. When using this feature, white paper should be used in order to get clean copy images.
- Use this adjustment feature to achieve optimal image (scan) quality depending on the characteristics of the CIS (Contact Image Sensor) parts.

  1) Select [ADJUST SHADING] from “MAINTENANCE” option.
  2) Insert a clean white original [Letter Size] into the paper loading part.
  3) The original is scanned after pressing the Start/Enter.
  4) If the original scan is successful, CIS SHADING PROFILE is output.

- If the output image differs from the normal screen, the CIS is poor.

NOTES: 1) Always perform ADJUST SHADING after downloading Firmware. Otherwise, the system may not operate properly.
2) Always perform ADJUST SHADING after replacing the CIS.
3) Always use a clean white paper in ADJUST SHADING (Maximum paper width: Letter Size).
4) ADJUST SHADING may be performed in the User Mode but CIS SHADING PROFILE is output only in the TECH mode.

REMOTE TEST

The Remote Test feature can be enabled to call up and run a diagnostic test on customer's machine from a remote location using RDC program.

NOTIFY TONER LOW

With this feature enabled, and the toner becomes low, the toner low information will be sent to a specified contact point. For example, the service company. After you access this menu, select ON, and when the LCD prompts, enter the name and the number of the customer, the service station's fax number and the serial number.

ROM TEST

Use this feature to test the machine's ROM. The result and the software version appear in the LCD display.

CIS TEST

This test checks the operation of the Contact Image Sensor (CIS). Each time the number changes by one increment, the average ADC value of CIS displays.

ADC: This is digital value of CIS output and is average value of CIS center area. If CIS is not working, this will indicate very low value.

No: This is repetition count. Whenever this value is changed, the ADC is newly calculated.

DRAM TEST

Use this feature to test the machine's DRAM. The result appears in the LCD display.

SWITCH TEST

Use this feature to test all keys on the operation panel. The result is displayed on the LCD window each time you press a key.

MODEM TEST

- Use this feature to hear various transmission signals to the telephone line from the modem and to check the modem.
- If no transmission signal sound is heard, it means that the modem part of the main board is poor.

DTMF TEST

DTMF (Dual Tone Multi Frequency) signal. When you press any key on the number keypad including "•" and "#", you will hear the corresponding key tone.

TONER COUNT

This feature shows the current state of the toner cartridge.

- TONER COUNT: The total number of the dots used to print up to current time.
- CRU STATE: The number of pages which the toner cartridge can print.

CAUTION: After replacing the Main Board, you should update all relevant information to the new board.

PRINTING INFO

This feature allows the machine to automatically print information such as: toner count, transfer voltage, fusing temperature and page number. The information is printed at the bottom of each printed page.

Item	Description
PAGE TONER CNT	Prints the number of dots used to print the page
TOTAL TONER CNT	Prints the total number of the dots used to print up to current time
THVONDUTY	Prints average value of transfer voltage
THERMISTER	Prints average value of fusing temperature
TI	Transfer index
P	Prints the page number

PROGRAM DOWNLOAD

Use this feature to download a new upgraded ROM file from a PC that is connected to the machine with a parallel cable (IEEE 1284).
See section 5.2.

SCAN COUNT CLEAR

If performing this feature, the value of scanning original until now is initialized (0). (Total scan count value on the system data list becomes 0.)

5.1.6 PRINTOUT REPORTS

In TECH mode, press Report/Help, then select the desired list or report by using "◀" or "▶", key, then press Start/Enter.

The following options are available. But in User Mode, options listed below "SYSTEM DATA" are not appeared.

HELP

This function lists a brief description on the machine's basic functions and commands. Use it as a quick reference guide.

SENT JOURNAL

This journal lists specific information concerning transmission activities. When using this feature, the time and dates of up to 40 of the most recent transmissions will be printed.

RECEIVED JOURNAL

This journal lists specific information concerning reception activities. When using this feature, the time and dates of up to 40 of the most recent transmissions will be printed.

PHONEBOOK

This feature lists all telephone numbers that have been stored in the machine.

SENDING CONFIRM

This feature shows the result of the last send operation.

SCHEDULE INFORM

This feature provides specific information on the documents currently stored for delayed transmission. It provides the operation number, starting time, type of operation, etc.

SYSTEM DATA

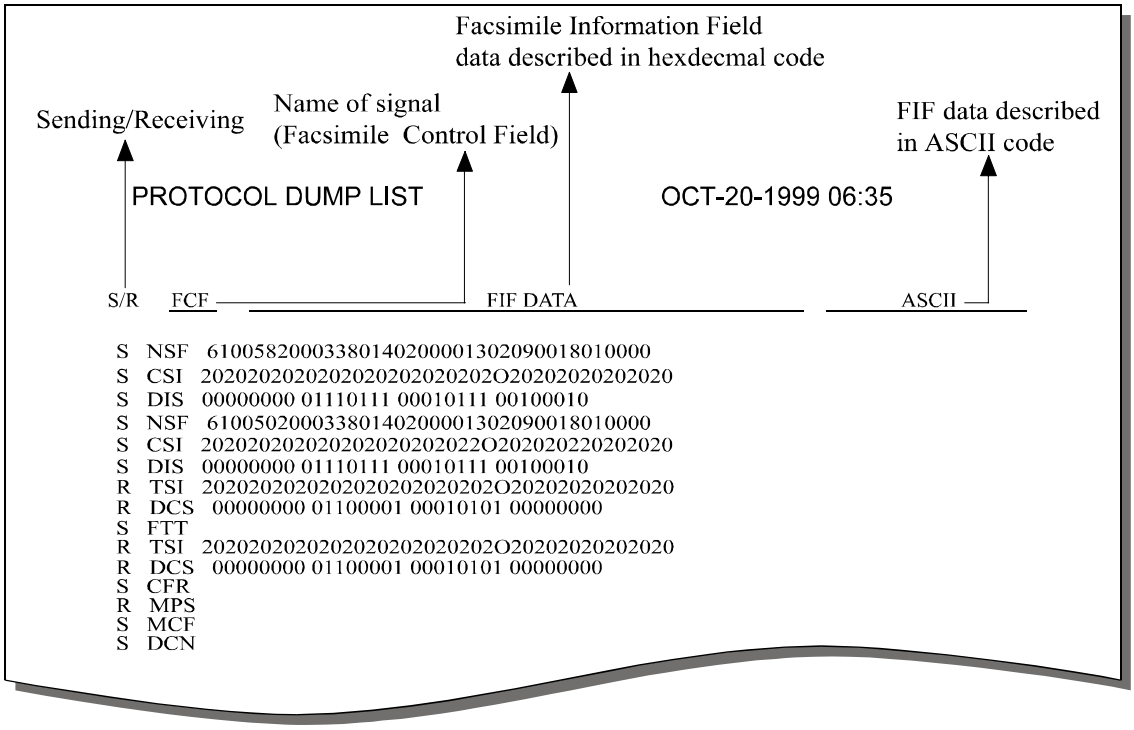
This feature provides a list of the user system data settings and TECH mode settings.

NOTE: In User Mode, the TECH mode settings are not printed.

PROTOCOL LIST

This feature shows the sequence of the CCITT group 3 T.30 protocol during the most recent sending or receiving operation.
Use this list to check for send and receive errors. If a communication error occurs while the machine is in TECH mode, the protocol list will print automatically.

Sample of a Protocol Dump List



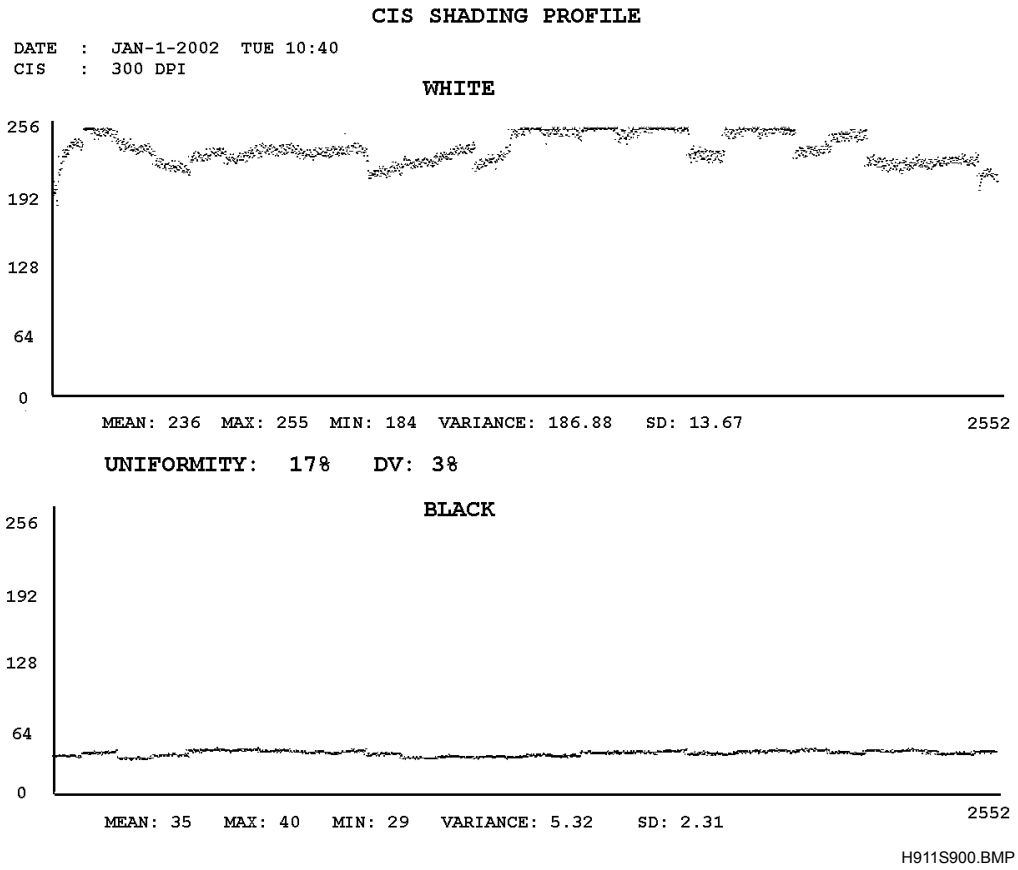
H911S901.WMF

PATTERN PRINT

Using this pattern printout, you can check if the printer mechanism is functioning properly. Examine the pattern and look for a break in the pattern image. If the pattern image is not broken, the printer mechanism is functioning properly.

There are 9 different test patterns available.

SHADING PRINT



With this print, you can check the scanning elements of the CIS (Contact Image Sensor).

NOTE: This print is automatically printed after the ADJUST SHADING is performed in TECH mode.

5.1.7 ENGINE TEST MODE

The Engine Test mode is used to check the operation of the components related to the printer engine.

The following tests are available:

To access the Engine Test Mode:

1. Press User Tools, #, 1, 9, 3, 1 in sequence.
2. When “ENGINE TEST?” appears, press Start/Enter.
3. Scroll the options by pressing “◄” or “►” repeatedly find the one you want.
4. Press Start/Enter to start the test.
5. Press Stop to exit the Engine test mode.

Engine Test Mode Options:

1. MAIN MOTOR TEST
2. PTL TEST
3. FAN TEST
4. FUSING UNIT TEST (ON : 145°C ↓, OFF : 145°C ↑)
5. LSU MOTOR TEST
6. LD (LASER DIODE) TEST
7. HSYNC TEST (NG/OK)
8. LSU OPERATION TEST (NG/OK)
9. SENSOR TEST (FEED , EXIT , PAPER EMPTY , COVER OPEN)
10. SOLENOID TEST
11. MHV TEST (–1550 V)
12. DEV TEST (– 430 V)
13. THV(+) TEST (+1300 V)
14. THV(–) TEST
15. THV TRIGGER TEST
16. ALL FUNCTION TEST:
    With this function, you can test all functions at once (1 to 15).
    - When you push the Start/Enter, the Main Motor runs.
    - If you push the Start/Enter again, the current test stops, and the next test starts.

5.2 PROGRAM DOWNLOAD

Program (firmware) for this machine is upgraded by connecting to a PC via a parallel cable. A DOS Command to upgrade the program must be entered.
Files needed to upgrade:

- down_com.bin
- fprt.exe
- Program file (e.g. 531P_RC.551)

The above files are all saved under a root directory. (e.g. "C:\").

5.2.1 DOWNLOAD PROCEDURE

Perform the following steps, after the parallel cable is connected and all necessary files are saved in the PC. Entering the DOS command depends on your OS version. The download command will differ for each OS. See below for details.

<table>
<tr><th rowspan="2">PC</th><th colspan="2">Machine</th></tr>
<tr><th>LCD Display</th><th>Machine Status</th></tr>
<tr><td colspan="3">1. All programmed data and settings will be erased after the program has download.
For re-programming them after download, print out the System Data List in Tech mode and Phone book.
Note: All data cannot be re-programmed after software has downloaded.</td></tr>
<tr><td>3. In Command prompt, type as below and hit Enter.</td><td colspan="2">2. Make sure that the machine is in standby mode.
Note: You do not need to enter "PROGRAM DOWNLOAD" in "MAINTENANCE" menu. Otherwise, the download may fail.</td></tr>
<tr><td>[Windows 9x and Me]
4. fprt down_com.bin [Enter]
[Windows NT, 2000 and XP]
4. copy/b down_com.bin lpt1 [Enter]</td><td>➔ "TYPE ON THE PC."</td><td>Standby to receive the firmware file</td></tr>
<tr><td>[Windows 9x and Me]
5. fprt 531p_rc.551* [Enter]
[Windows NT, 2000 and XP]
5. copy/b 531p_rc.551* lpt1 [Enter]</td><td>➔ "DATA RECEIVING"</td><td>Receiving firmware from PC</td></tr>
<tr><td rowspan="4">The program will be automatically upgraded.

*: 531p_rc.551= Program file name</td><td>"PC to DRAM is OK"</td><td>Verifying received firmware</td></tr>
<tr><td>"FLASH IS ERASING"</td><td>Erasing flash memory</td></tr>
<tr><td>"FLASH PROGRAMING"</td><td>Writing firmware to flash memory</td></tr>
<tr><td>"DOWNLOAD OK"
➔ "SYSTEM INITIAL"</td><td>Restart automatically</td></tr>
</table>

Do not turn off the power and/or disconnect the parallel cable during the upgrading process. If a failure occurs, refer to 5.2.3.

5.2.2 RE-PROGRAMMING PROCEDURE AFTER DOWNLOAD

The following items need to be re-programmed after the software has download.

Re-Program Country Code

1. Press User Tools, #, 1, 9, 3 and then Start/Enter in sequence.
2. "MEMORY ALL CLEAR" will appear.
3. Press Start/Enter. The default country name will appear after "Select Country".
4. Scroll through the countries by pressing "◄" or "►" repeatedly to find the correct country code of each version:
   - EU version defaults to "UK" (see note 1 below)
   - NA version defaults to "USA" (see note 1 below)
   - Asia version defaults to "Singapore" except (see note 2 below)

   NOTE: 1. Do not select any other country than the above listed.
   2. In Malaysia and Vietnam, it is necessary to select these two country codes. Also, it is necessary to select the country code in the Philippines if the machine is using DP (dial pulse) mode.
5. Press Start/Enter to set the designated country code.
6. After "MEMORY CLEARING" and 'beep', the machine initializes and starts up.
7. As the machine memory is reset, re-program all necessary items. Refer to the following.

Re-Program Settings and Data

1. Necessary items listed in System Data List. (☛ 5.1.2)
   NOTE: Though all counters are cleared, only the TOTAL TONER COUNTS (toner dot counter) and CRU STATE can be re-programmed.
2. One-touch/Speed/Group dials
3. Ringer/On Hook Dial volumes
4. Receive mode

5.2.3 RECOVERY PROCEDURE

If the upgrade procedure fails during download, the machine freezes and stops working. In this case, perform the following steps.

1. Turn the power off/on.
2. Repeat the steps in the download procedure from step 5.

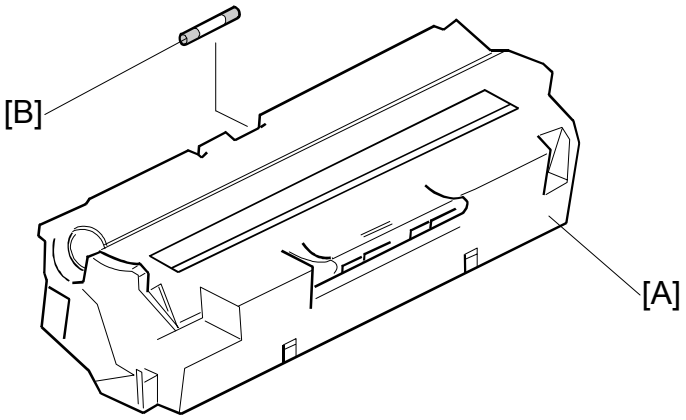
   The machine will start the upgrade process again.

6. DETAILED DESCRIPTIONS

6.1 NEW CRU (AIO) DETECTION

The new supply CRU cartridge [A] has a fuse [B] that when detected informs the machine that a brand-new cartridge has been installed. (Starter CRU does not have fuse.)

When the new cartridge is installed in the machine, the machine automatically detects by the fuse that the cartridge is brand-new, and resets the total dot counter (TOTAL TONER COUNTS) and CRU print counter (CRU PRINTS). If the previous cartridge was a starter CRU, the CRU STATE would have been set to 1000. However when a new cartridge is installed, the CRU STATE will be changed to 3000.



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The fuse will blow opening the circuit just after the CRU was installed.

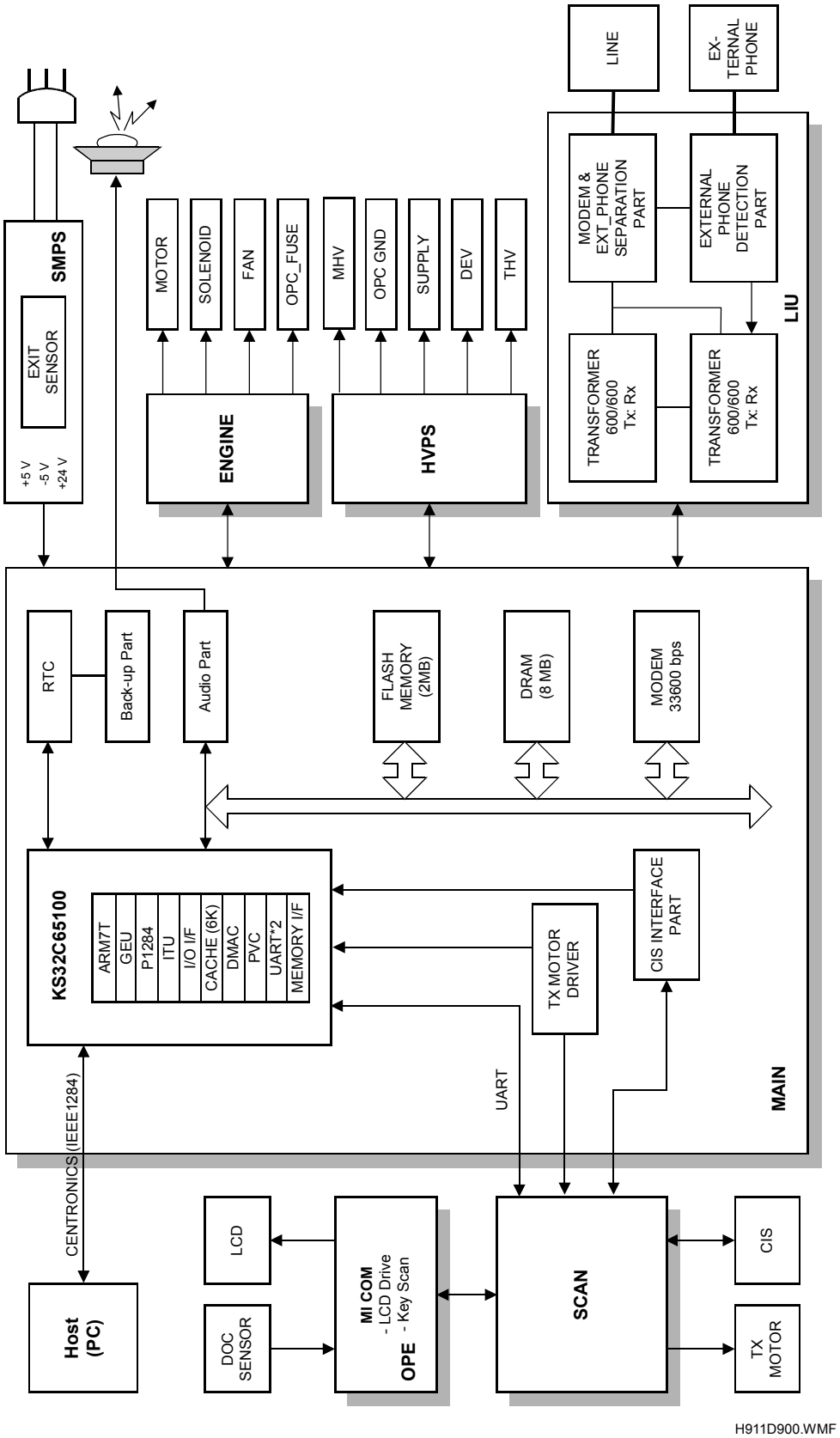
6.2 TONER END DETECTION

There is no toner end sensor available on the machine. The machine determines the amount of toner via software in the machine by counting and adding up black dots as toner consumption.
For example, when the machine prints 5% of black rate chart, 640,720 dots will be added up.

When the total number of dots reaches a pre-programmed figure (as for toner near-end), the machine displays “TONER LOW”. After another period of dots has bee counted up, the machine finally displays “TONER EMPTY” (as for toner end), and the machine stops printing.

You can check the total dot counts from the current AIO in the System Data List in TECH mode.

6.3 BLOCK DIAGRAM



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SPECIFICATIONS

1. ITEMS FAX MFP REMARKS L1A/L1B

ITEMS			FAX	MFP	REMARKS
			L1A	L1B	
General	Size (W*D*H)		313 x 356 x 195 mm / 12.3 x 14.0 x 7.7 ins		W x D x H
	Weight		7.7 Kg / 17.0 lbs		With accessories
	Power Rating	NA	AC 110 V to 127 V / 2.5A, 50/60 Hz ± 3 Hz		
		EU/AS	AC 220 V to 240 V / 1.5A, 50/60 Hz ± 3 Hz		
	Operating Environment	Temp.	10 to 32°C (Optimum: 16 to 26°C)		
		Humidity	20 to 80% RH (Optimum: 30 to 70% RH)		
	LCD		16 x 1 Characters		
	Interface		No*	ECP (IEEE1284)	*: L1a also has “Parallel I/F” to upgrade machine firmware.
	Halftone		64 Level		Error Diffusion
Power	Power Switch		No		
	Input Voltage	NA	--	AC 110 to 120 V	50/60 Hz
		EU/AS	AC 220 to 240 V	AC 220 to 240 V	
	Power Con-sumption	Power save	9.5 W	9.5 W	
		Standby	50 W	50 W	
		Max	700 W	700 W	
	Power Save Mode		OFF, 5, 10, 15 Min	OFF, 5, 10, 15 Min	
Copy	Print Method		Laser	Laser	
	Speed	Single copy	8 cpm	8 cpm	
		Multi copy	3 cpm	3 cpm	
	Optical Resolution		200 x 200 DPI	300 x 300 DPI	
	Print Width	Max	Legal		
		Effective	202 mm for A4, 208 mm for Letter/Legal		
	Zoom Range		50 to 130% in 1% increments	50 to 200% in 1% increments	
	Collate/Reverse		Yes	Yes	
	Multi Copy		1 to 99	1 to 99	
	Toner Save		30%	30%	

ITEMS			FAX	MFP	REMARKS
			L1A	L1B	
Print	Speed		No	8 ppm	
	Resolution		No	300 x 300, 600 x 600 DPI	
	Print Width	Max	No	Legal	
		Effective	No	202 mm for A4, 208 mm for Letter/Legal	
	Print Language		No	GDI	
	Toner Save		No	30 %	
Scan	Scan Method		CIS	CIS	
	Quick Scan Speed		6 sec	3 sec	
	Resolution		200 x 200 DPI	300 x 300 DPI	
	Scan Width	Max	216 mm	216 mm	
		Effective	208 mm	208 mm	
	Scan Length Max		356 mm (Legal)	356 mm (Legal)	
		Copy Mode	1500 mm	1500 mm	
Tele-phone	Handset		No	No	
	1-Touch Dial		20	20	
	Speed Dial		80	80	
	Group Dial		20	20	
	TAD		No	No	
	TAD I/F		Yes	Yes	
	Tone/Pulse		Yes	Yes	In TECH. mode
	No Power Operation		No	No	
FAX Modem	Compatibility		ITU G3		
	Communication System		PSTN/PABX		
	Modem Speed		33600/ 28800/ 21600/ 19200/ 14400/ 12000/ 9600/ 7200/ 4800/ 2400 bps		
	TX Speed		3 sec.		Using ITU-T #1 Chart with Standard resolution, MMR, 33.6 kbps
	Compression		MH/MR/MMR		
	Rcv. Mode		TEL, FAX, AUTO, ANS/FAX		
	ECM		Yes		
	Modulation		V.34, V.17, V.29, V.27ter, V.21, V.8		

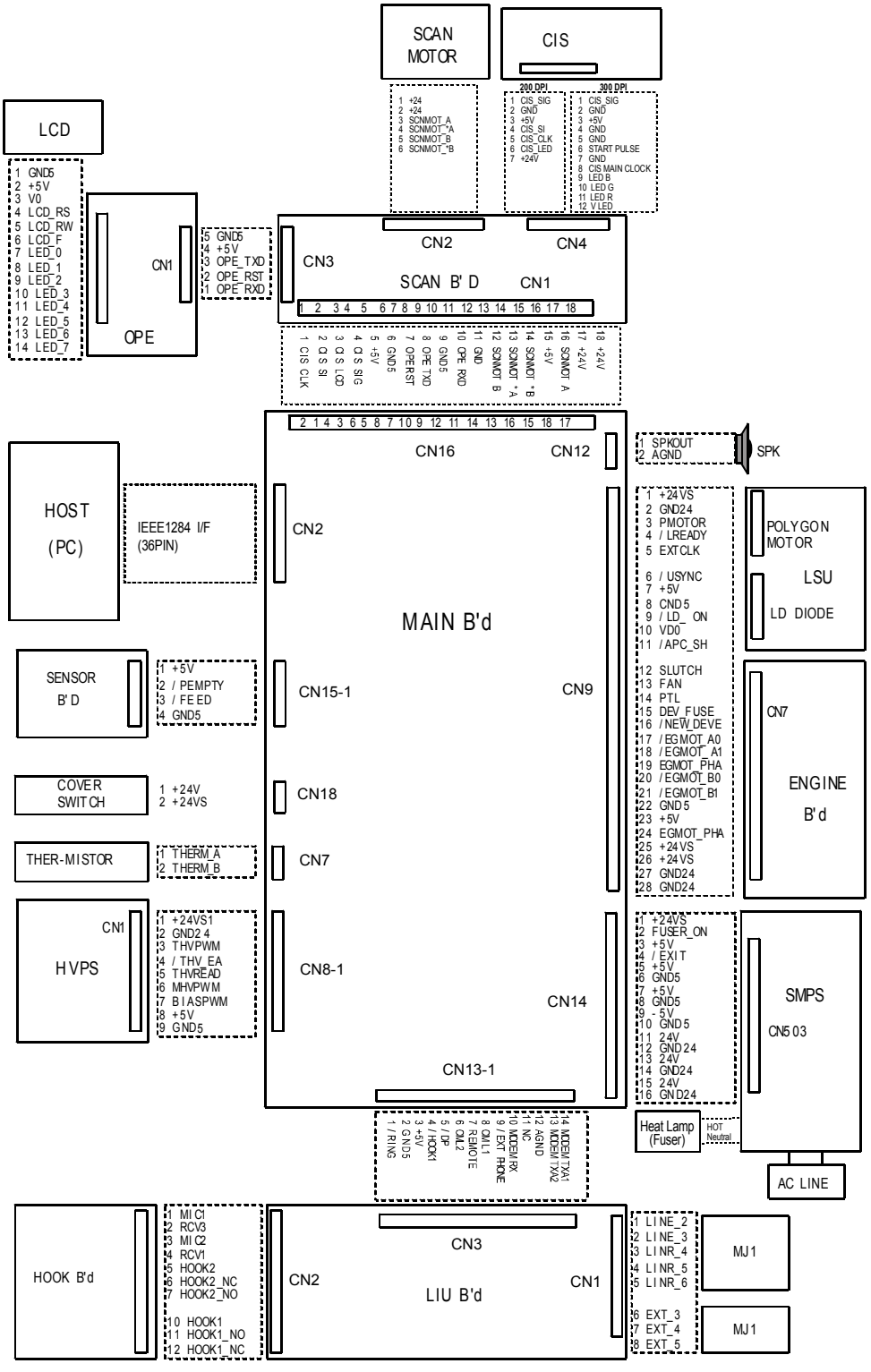
ITEMS			FAX	MFP	REMARKS
			L1A	L1B	
FAX	Resolu-tion	Standard	8 x 3.85 lines/mm (203 x 98 dpi)		
		Fine	8 x 7.7 lines/mm (203 x 196 dpi)		
		Super Fine	11.8 x 11.8 lines/mm (300 x 300 dpi)		
	Memory	Capacity	2 MB (About 160 sheets of an ITU-T #1chart with standard resolution)		
		Optional Memory	None		
	Function	TTI	Yes		YOUR NAME
		RTI	No		
		CSI	Yes		YOUR NUMBER
		Polling	Yes		
		Authorized Reception	Yes		JUNK FAX BARRIER
		Auto Reduction	Yes		
		Broad-casting	20		
		Priority TX	Yes		3 files
		Delay TX	25		
		Substitute Reception	Yes		
		Support from RDC	Yes		
	Battery Backup		Yes		Min. 30 minutes
Paper Handling	Paper Tray (ASF: Auto Sheet Feeder)	Type	Bin type tray		
		Input Capacity	150 Sheets / 20 lb or 80 g/m^2		
		Optional Cassette	No		
		Output Capacity	100 Sheets / 20 lb or 80 g/m^2		
		Output Control	Face up		
	Bypass		No	Yes; 1 sheet, 16 - 43 lb / 60 - 163 g/m^2	
	Paper Spec.	Paper Type	Plain paper	ASF: Plain paper Bypass: Plain paper, Envelope, Label, Transparency, Cardstock	

Spec.

ITEMS				FAX	MFP	REMARKS
				L1A	L1B	
Paper Handling	Paper Spec.	Paper Size	NA	--	A4, Letter, Legal, Folio, Executive, A5, B5, A6, Monarch (7 3/4), COM10, #9, C5, DL, Custom*	*: 98.0 x 148 - 215.9 x 355.6 mm / 3.86 x 5.83 - 8.5 x 14.0 ins
			EU/ AS	A4, Letter, Legal, Folio		
		Paper Weight		16 - 24 lb / 60 - 90 g/m^2	Paper Tray: 16 - 24 lb/ 60 - 90 g/m^2 Bypass Tray: 16 - 43lb/ 60 - 163 g/m^2	
	ADF	Input Capacity		20 Sheets / 20 lb or 80 g/m^2		
		Output Capacity		20 Sheets / 20 lb or 80 g/m^2		
	Original Size	Length		128 - 356 mm		Up to 1500 mm manually assisted (copy mode only)
		Width		148 - 216 mm		
		Weight		12.5 - 28 lb, 32 lb (1 sheet)		
		Thickness		0.075 - 0.13 mm, 0.15 mm (1 sheet)		
Software	Compatibility	Win 3.x		No		
		Win 95		No	Yes	
		Win 98		No	Yes	
		Win Me		No	Yes	
		Win NT 4.0		No	Yes	
		Win 2000		No	Yes	
		Win XP		No	Yes	
	Driver	Printer		No	Yes	GDI
		Scanner		No	Yes	TWAIN
		PC-FAX		No	No	
	Media	CD-ROM		No	Yes	
		Diskette		No	No	
	Y2K Compliant			Yes	Yes	
	Including Software			No	Yes	Printer driver and Scanner driver
CRU (AIO)	Toner Sensor	Support		Yes		Toner low and empty
		Method		Software		Dot Counting
	New cartridge detection			Yes, Detected by a fuse		Not available on starter cartridge

APPENDIX

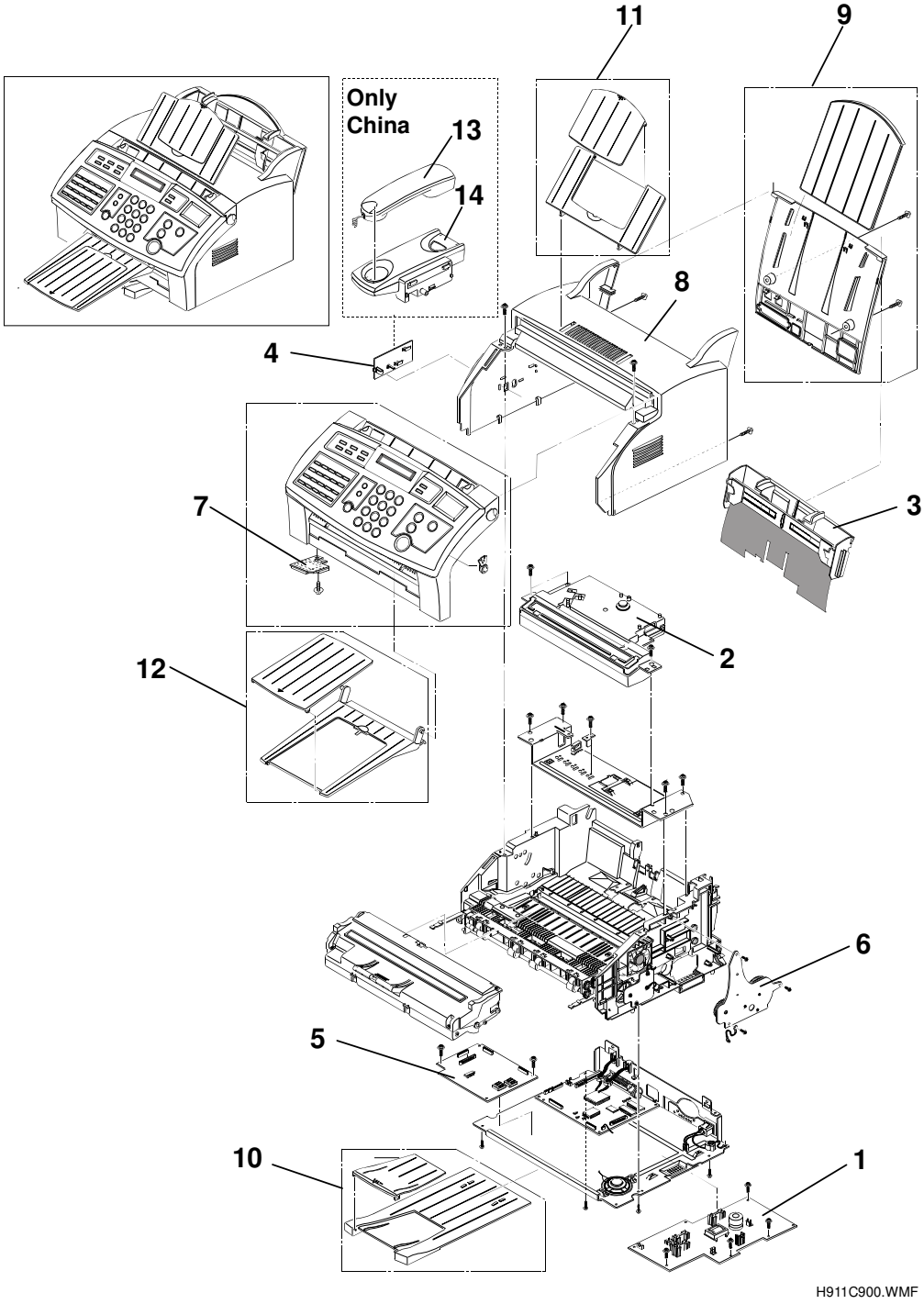
CONNECTION DIAGRAM



PARTS CATALOG

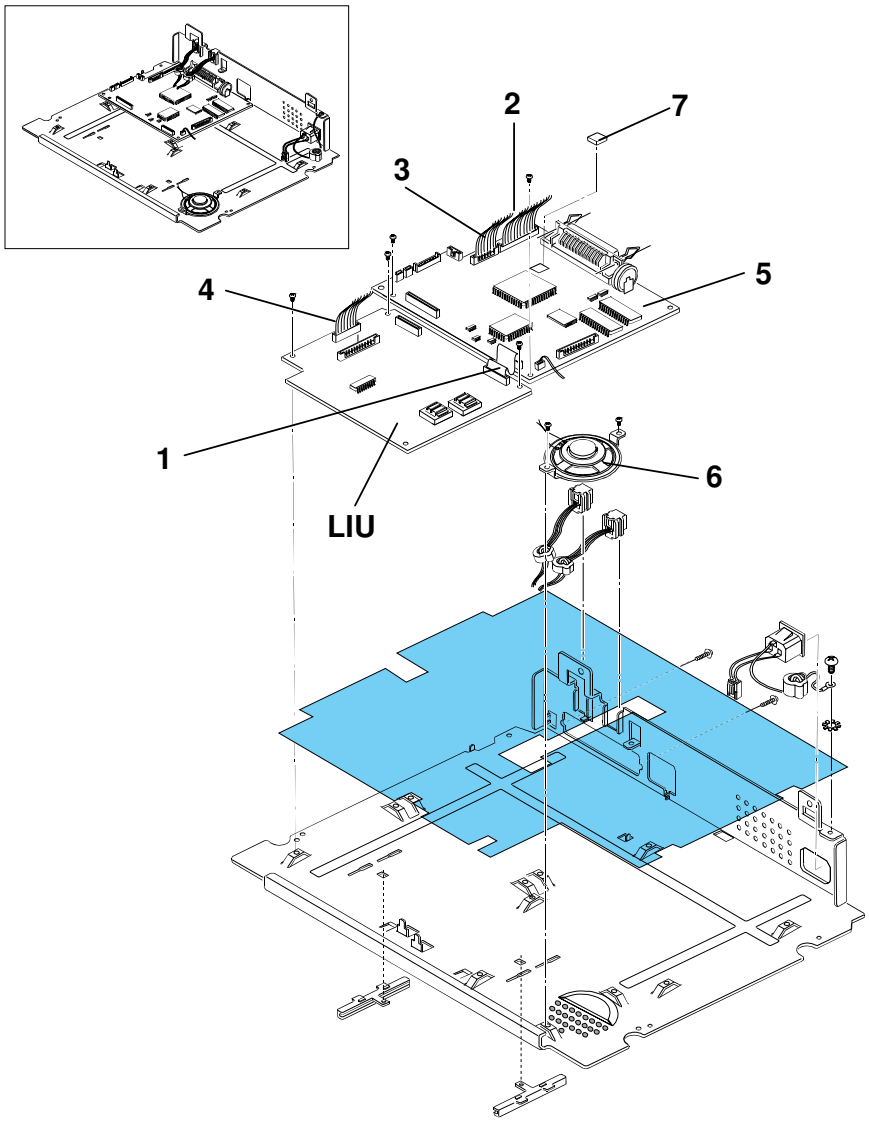
Contents

1. MAIN ASSEMBLY



Index No.	Part No.	Description	Q'ty	H911			H912		
				21	27	29	17	27	
1	H911 9500	PSU-110V	1				O		
1	H911 9501	PSU-220V	1		O	O		O	
1	H911 9567	PSU-220V ‘ China	1	O					
2	H911 9502	Laser Unit	1	O	O	O	O	O	
3	H911 9503	By-pass Tray: 1a	1	O	O	O			
3	H911 9504	By-pass Tray: 1b	1				O	O	
4	H911 9546	Cap-Left Side	1		O	O	O	O	
5	H911 9505	PCB-NCU: USA	1				O		
5	H911 9506	PCB-NCU: EU	1		O			O	
5	H911 9564	PCB-NCU: Asia	1			O			
5	H911 9568	PCB-NCU: China	1	O					
6	H911 9507	RX Drive Unit	1	O	O	O	O	O	
7	H911 9508	Connecter Board-Scanner: L1b	1				O	O	MB004
7	H911 9577	Connecter Board-Scanner: L1a	1	O	O	O			MB004
8	H911 9509	Top Cover	1	O	O	O	O	O	
9	H911 9511	Rear Cover	1	O	O	O	O	O	
10	H911 9512	Paper Exit Tray	1	O	O	O	O	O	
11	H911 9513	Document Guide	1	O	O	O	O	O	
12	H911 9514	Document Tray	1	O	O	O	O	O	
13	H911 9565	Handset	1	O					
14	H911 9566	Handset Cradle	1	O					
*	H911 9570	Telephone Cable	1	O					
*	H911 1000	User’s Guide – NA/Asia	1			O	O		MB001
*	H911 1001	Quick Guide - EU	1		O			O	MB001
*	H911 1016	Quick Guide - China	1	O					
*	H911 9578	Carton Box – L1a China	1	O					MB005

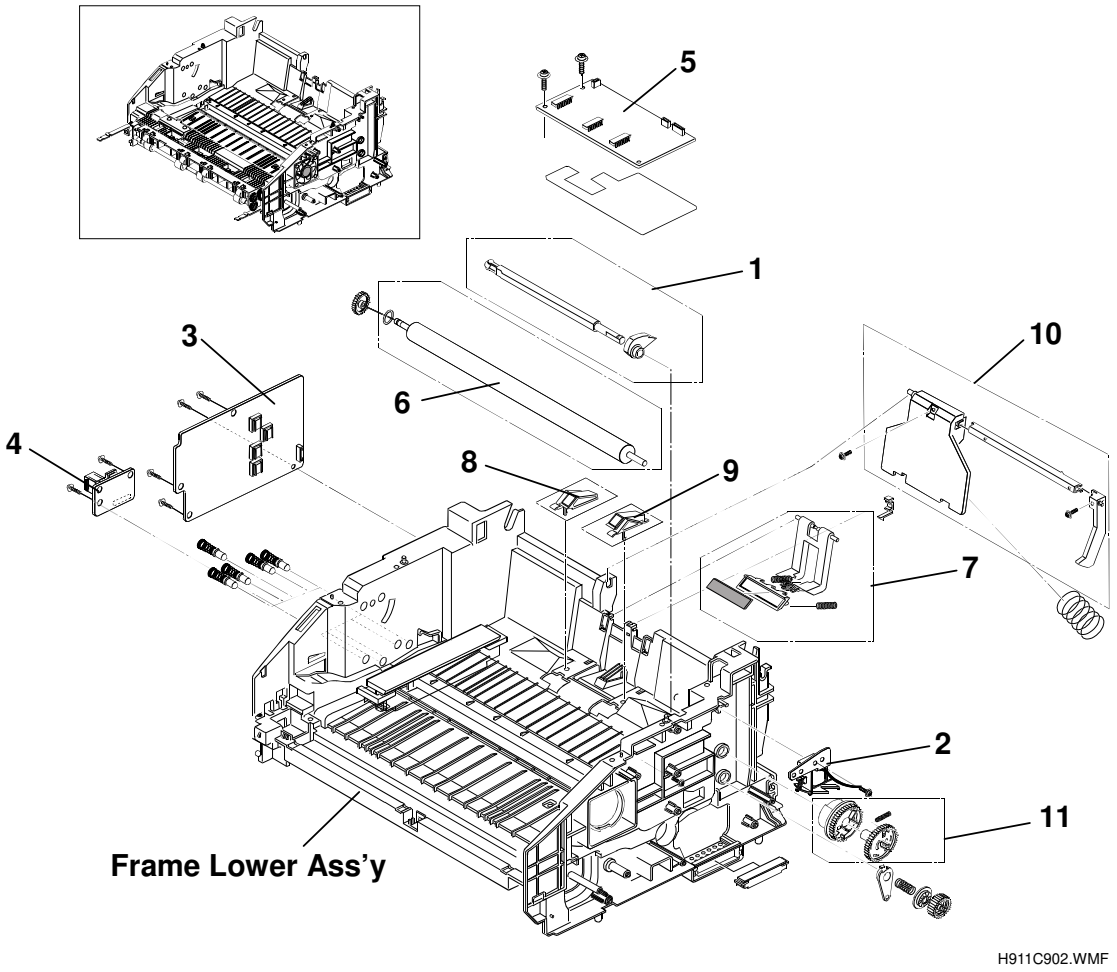
2. SHIELD ENGINE UNIT ASSEMBLY



H911C901CHN.WMF

Index No.	Part No.	Description	Q'ty	H911			H912		
				21	27	29	17	27	
1	H911 9515	Flat Cable	1	O	O	O	O	O	
2	H911 9516	Harness-Laser Unit	1	O	O	O	O	O	
3	H911 9517A	Harness-Power Pack	1	O	O	O	O	O	MB002
4	H911 9518	Harness-NCU	1	O	O	O	O	O	
5	H911 9519	PCB-Main Board: 1a	1		O	O			
5	H911 9579	PCB-Main Board: 1a China	1	O					MB005
5	H911 9520	PCB-Main Board: 1b	1				O	O	
6	H911 9571	Monitor Speaker	1	O	O	O	O	O	MB002
7	H911 9573	Rubber Foot	1	O	O	O	O	O	MB002

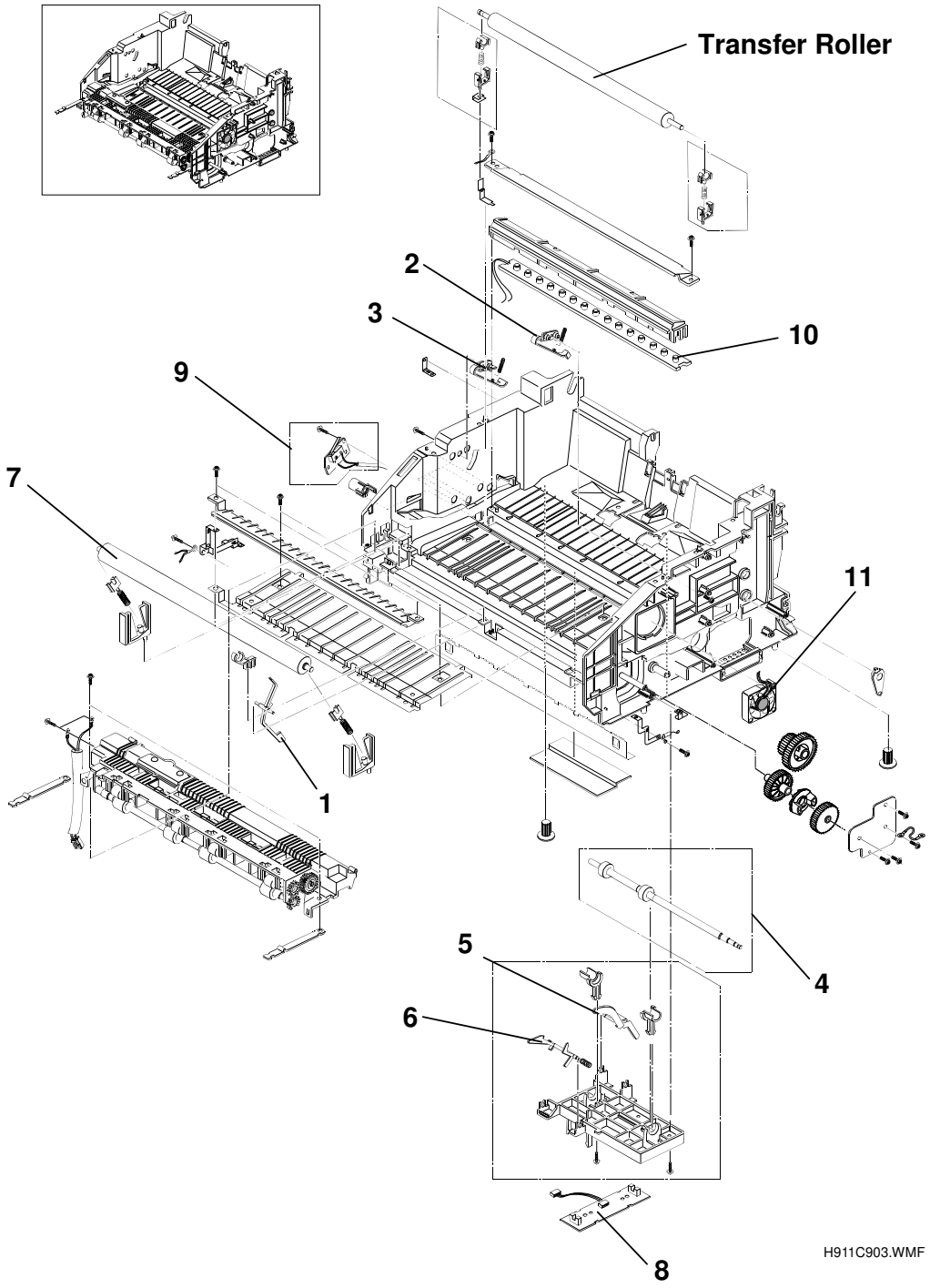
3. ENGINE ASSEMBLY



H911C902.WMF

Index No.	Part No.	Description	Q'ty	H911			H912	
				21	27	29	17	27
1	H911 9522	Paper Pick-up Cam	1	O	O	O	O	O
2	H911 9523	Solenoid-Paper Pick-up	1	O	O	O	O	O
3	H911 9524	Power Pack	1	O	O	O	O	O
4	H911 9547	PCB-Hook	1	O	O	O	O	O
5	H911 9525	Connector Board-Main	1	O	O	O	O	O
6	H911 9526	Transfer Roller	1	O	O	O	O	O
7	H911 9527	Friction Pad Ass'y	1	O	O	O	O	O
8	H911 9548	Side Friction Pad-Left	1	O	O	O	O	O
9	H911 9549	Side Friction Pad-Right	1	O	O	O	O	O
10	H911 9528	Paper Knockup Ass'y	1	O	O	O	O	O
11	H911 9550	Paper Pick-up Gear Ass'y	1	O	O	O	O	O

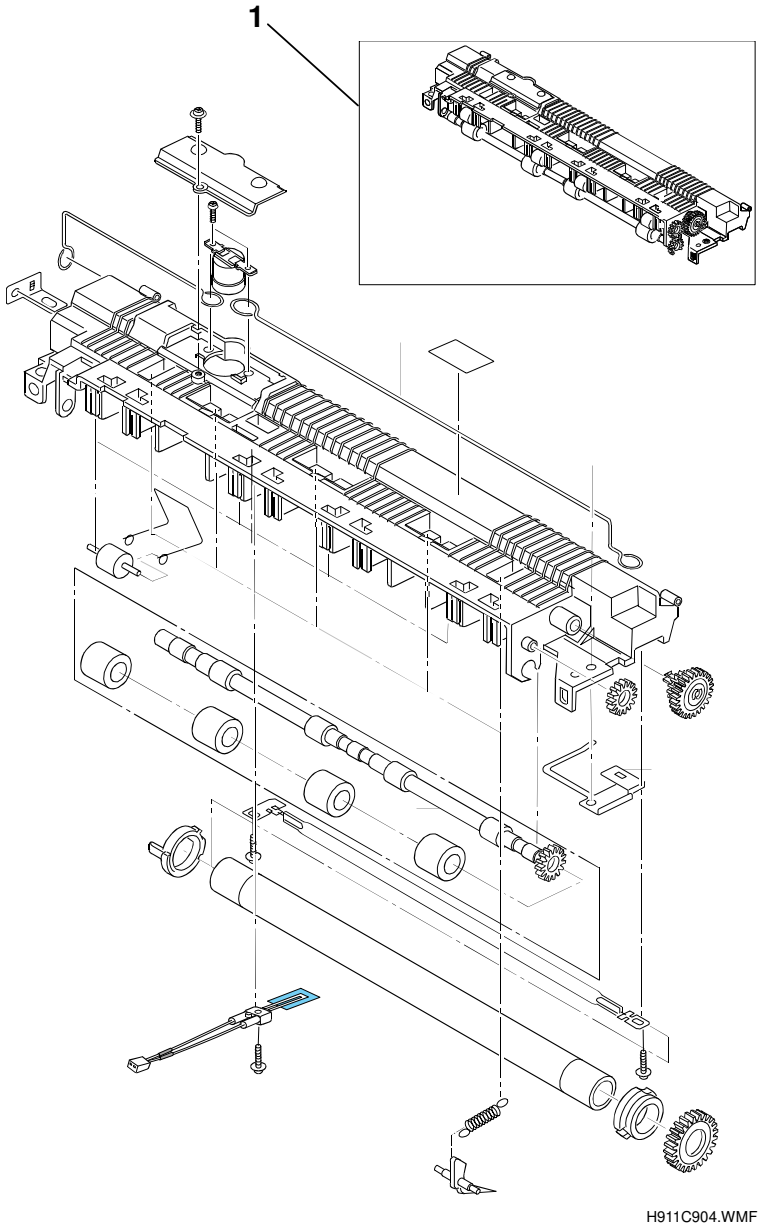
4. FRAME LOWER ASSEMBLY



Index No.	Part No.	Description	Q'ty	H911			H912	
				21	27	29	17	27
1	H911 9551	Sensor Actuator- Paper Exit	1	O	O	O	O	O
2	H911 9552	AIO Guide Rail-Right	1	O	O	O	O	O
3	H911 9553	AIO Guide Rail-Left	1	O	O	O	O	O
4	H911 9529	Paper Feed Roller	1	O	O	O	O	O
5	H911 9554	Sensor Actuator-Paper End	1	O	O	O	O	O
6	H911 9555	Sensor Actuator-Paper Feed	1	O	O	O	O	O
7	H911 9530	Pressure Roller	1	O	O	O	O	O
8	H911 9531	Sensor Board	1	O	O	O	O	O
9	H911 9532	Cover Open Sensor	1	O	O	O	O	O
10	H911 9572	Quenching Lamp	1	O	O	O	O	O
11	H911 9536	Cooling Fan	1	O	O	O	O	O

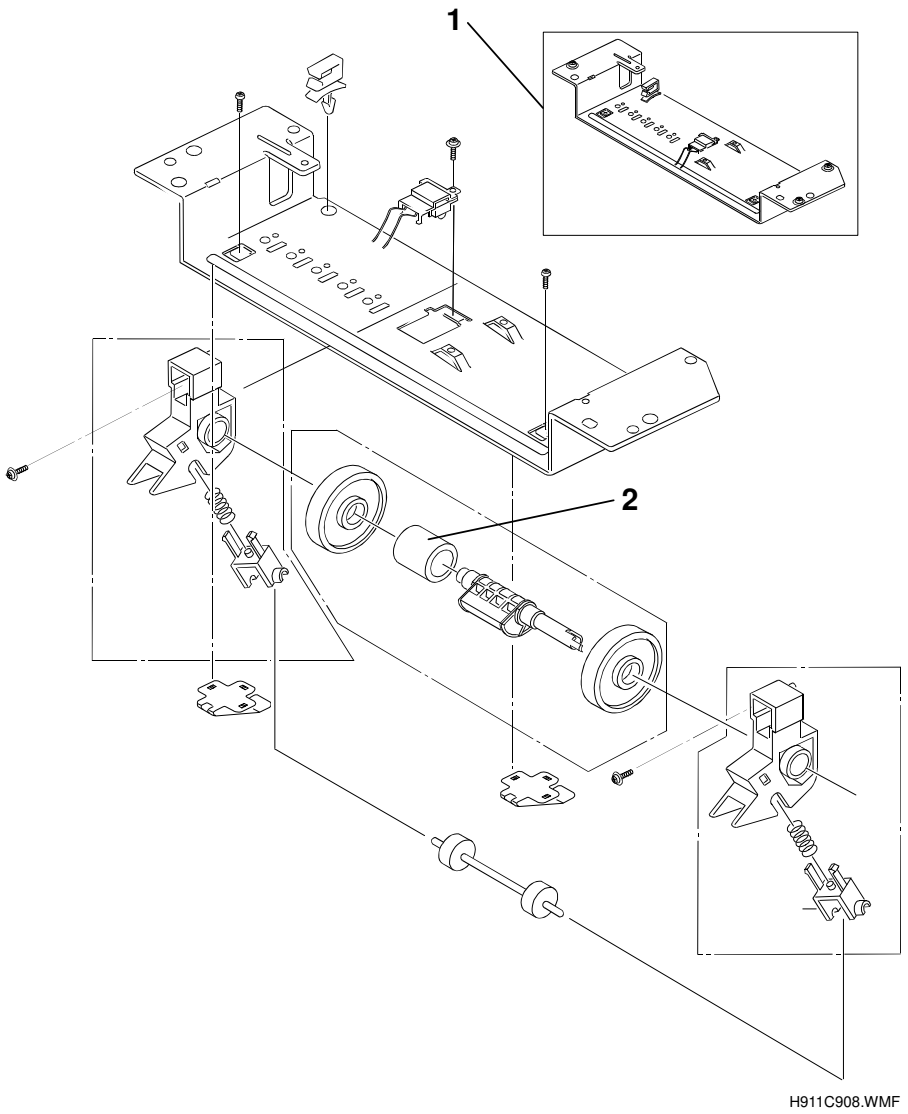
MB002

5. FUSER ASSEMBLY



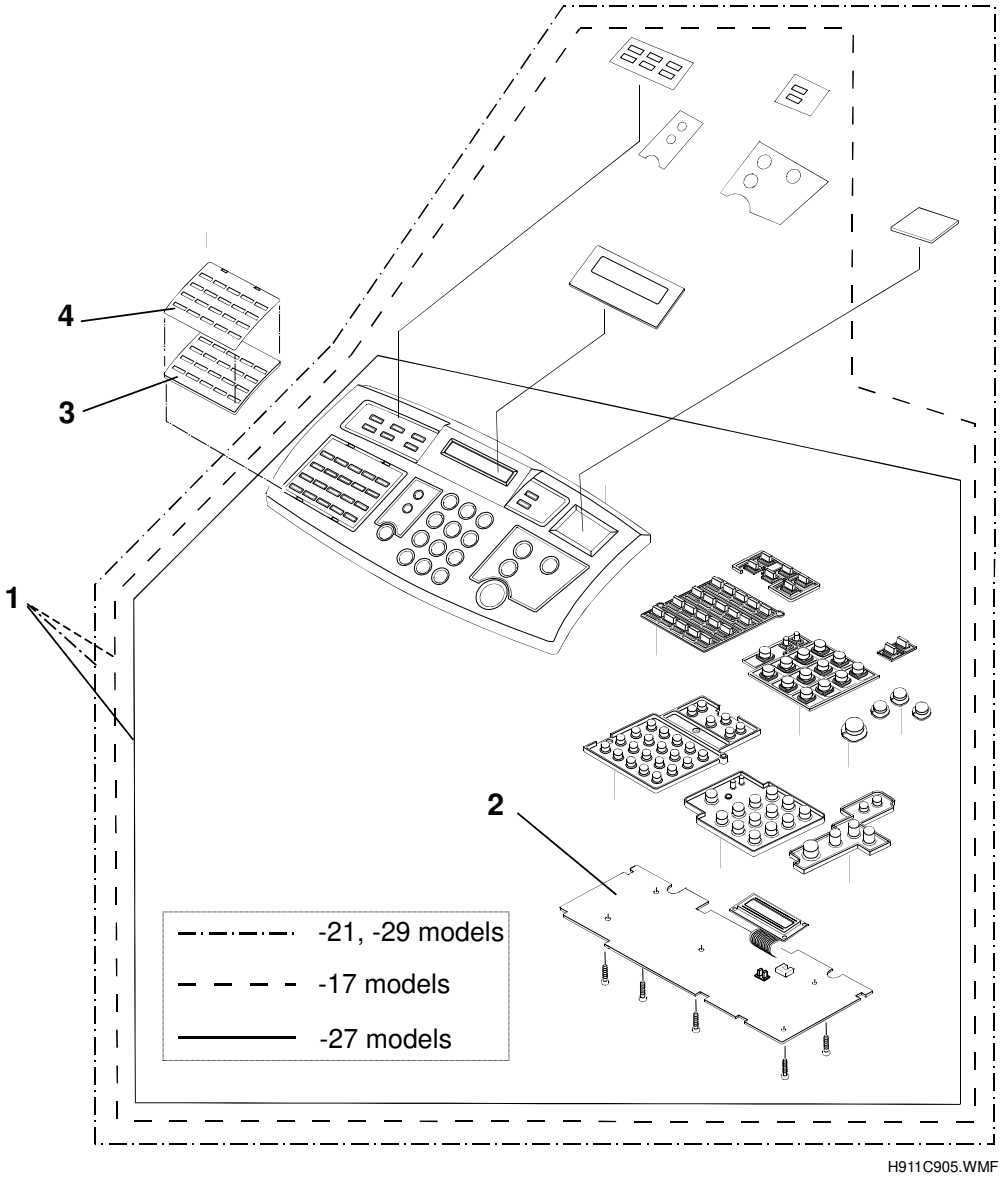
Index No.	Part No.	Description	Q'ty	H911			H912	
				21	27	29	17	27
1	H911 9534	Fusing Unit-110V	1				O	
1	H911 9535	Fusing Unit-220V	1	O	O	O		O

6. PLATE-UPPER UNIT ASSEMBLY



Index No.	Part No.	Description	Q'ty	H911			H912	
				21	27	29	17	27
1	H911 9537	Upper Metal Plate	1	O	O	O	O	O
2	H911 9538	Paper Pick-up Roller	1	O	O	O	O	O

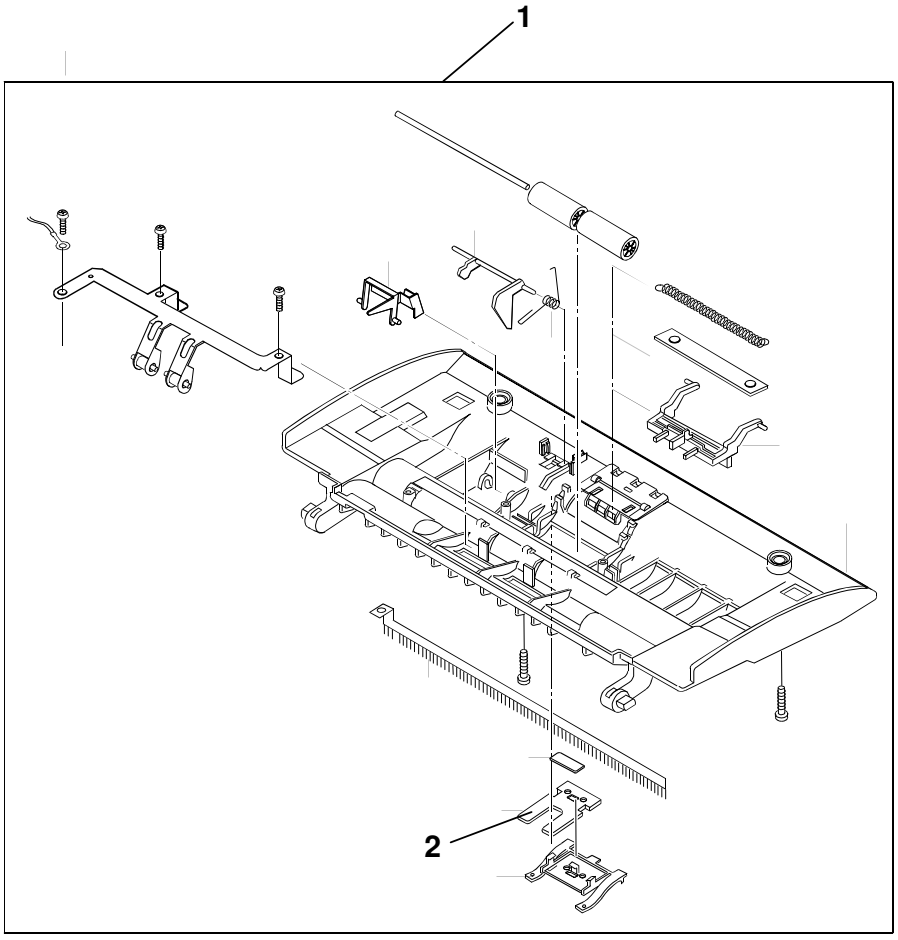
7. OPE UNIT



H911C905.WMF

Index No.	Part No.	Description	Q'ty	H911			H912		
				21	27	29	17	27	
1	H911 9539	OP-Port Unit-Upper: USA	1				O		
1	H911 9540	OP-Port Unit-Upper: EU	1		O			O	
1	H911 9574	OP-Port Unit-Upper: Asia	1			O			MB003
1	H911 9569	OP-Port Unit-Upper: China	1	O					
2	H911 9541	PCB-OP-Port	1	O	O	O	O	O	
3	H911 9575	Quick Dial Sheet	1	O	O	O	O	O	MB003
4	H911 9576	Quick Dial Sheet Cover	1	O	O	O	O	O	MB003

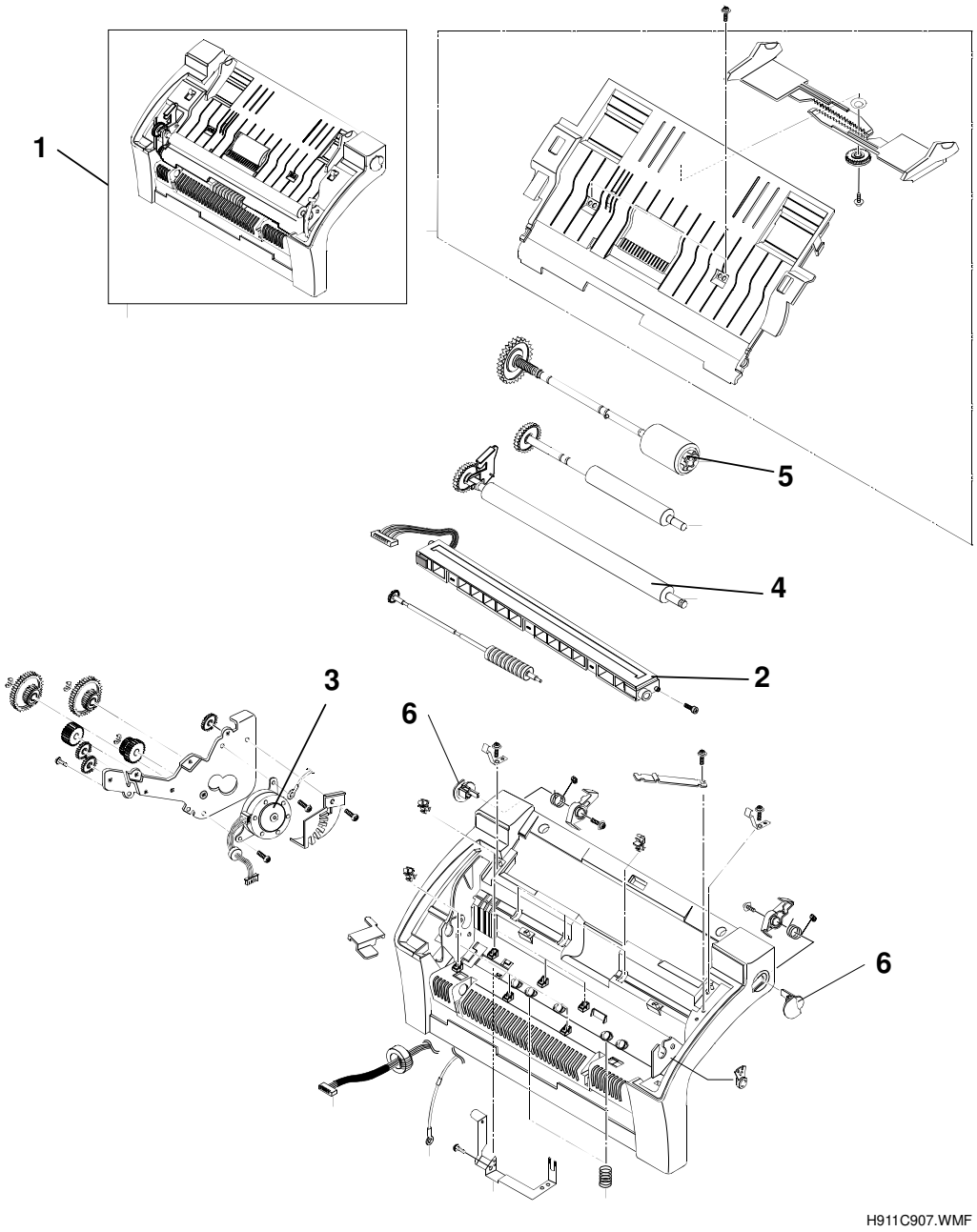
8. SCAN UPPER ASSEMBLY



H911C906.WMF

Index No.	Part No.	Description	Q'ty	H911			H912	
				21	27	29	17	27
1	H911 9542	Scanner Upper Unit	1	O	O	O	O	O
2	H911 9559	ADF Rubber Plate	1	O	O	O	O	O

9. FRONT ASSEMBLY



H911C907.WMF

Index No.	Part No.	Description	Q'ty	H911			H912	
				21	27	29	17	27
1	H911 9543	Scanner Unit-1b	1				O	O
1	H911 9560	Scanner Unit-1a	1	O	O	O		
2	H911 9561	Contact Image Sensor-1b	1				O	O
2	H911 9562	Contact Image Sensor-1a	1	O	O	O		
3	H911 9563	TX Motor	1	O	O	O	O	O
4	H911 9544	White Roller	1	O	O	O	O	O
5	H911 9545	ADF Feed Roller	1	O	O	O	O	O
6	H911 9580	Open Button - Scanner	2	O	O	O	O	O

MB005

PARTS CATALOG INDEX

Part No.	Description	Section and Index No.
H911 1000	User's Guide – NA/Asia	1-*
H911 1001	Quick Guide - EU	1-*
H911 1016	Quick Guide - China	1-*
H911 9500	PSU-110V	1-1
H911 9501	PSU-220V	1-1
H911 9502	Laser Unit	1-2
H911 9503	By-pass Tray: 1a	1-3
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