Technical Bulletin No.CGO-001

SUBJECT: Service Manual Correction	**DATE:** Sep. 14, 1994
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CLASSIFICATION: ☐ Action Required ■ Revision of service manual ☐ Troubleshooting ☐ Information only ☐ Retrofit Information ☐ Other	MODEL: FAX5600L

Following pages have been corrected.

Page: 2-18, 19
6-1~28

A floppy disk with corrected pages except page 2-18 and 19, is enclosed.

6. TROUBLESHOOTING

6.1. COPY QUALITY TROUBLESHOOTING

If there is a copy quality problem that cannot be solved easily, try using the following troubleshooting flow chart, while referring to the point-to-point diagram. The flow chart may not be exhaustive, but it may help you to find the problem.

Symptom: Blank copies

Check	Action if Yes	Action if No
1. Make a printer test (see section 4-1-13). Is it OK?	There may be a scanner problem; go to step 15.	Go to step 2.
2. Is the master installed correctly?	Go to step 3.	Install it properly.
3. Does the master rotate correctly during the copy cycle?	Go to step 4.	Correct any problems with the mechanism.
4. Is the master grounded properly?	Go to step 5.	Check the grounding wire, terminals and plates. Clean or replace if necessary.
5. Are any of the laser optical components broken, blocked, or misaligned?	Correct the problem.	Go to step 6.
6. Are the transfer corona unit and wire correctly installed?	Check the connections between the corona wire and the FCU. Go to step 7.	Correct the problem.
7. Does the FCU output the power and corona trigger signal to the power pack?	Clean the transfer corona unit. Go to step 8.	Change the FCU.
8. Does the problem go away if you change the power pack?	Finished.	Go to step 9.
9. Does the development bias terminal reach the correct voltage (about -530 Vdc)?	Go to step 12.	Go to step 10. Do not adjust the variable resistors on the power pack.
10. Does the FCU output the power and bias trigger signal to the power pack?	Clean the area around the bias terminal. Go to step 11.	Change the FCU.
11. Does the problem go away if you change the power pack?	Finished.	Clean the development roller. Go to step 12.
12. Does the development roller attract toner?	Check all LDDR - FCU - interlock switch connections. Go to step 13.	Replace the roller.

Symptom: Blank copies		
Check	**Action if Yes**	**Action if No**
13. Is the laser diode unit screwed in properly?	Go to step 14.	Install it properly.
14. Do the interlock switches close when the cover is closed, and do they pass power to the LDDR?	Change the LD unit, FCU, master unit, or varistor.	Change them.
15. Check the FCU - SBU connection. Is there a signal from the SBU (AVIDEO)?	Go to step 16.	Light the xenon lamp. Align the SBU (see section 5-2-9); replace the FCU or SBU if impossible.
16. Does the problem only occur when printing from memory?	Check the connection to the memory card. Change the memory card, FCU, or MBU.	Go to step 17.
17. If the problem only occurs during communication, check the FCU - NCU - line connections. Check for severe line problems. If the problem cannot be found, replace the NCU or FCU.		

Symptom: Black copies		
Check	**Action if Yes**	**Action if No**
1. Make a printer test (see section 4-1-13). Is it OK?	There may be a scanner problem; go to step 10.	Go to step 2.
2. Are the charge corona unit and wire correctly installed?	Check the connections between the corona wire and the FCU. Go to step 3.	Correct the problem.
3. Does the FCU output the power and corona trigger signal to the power pack?	Clean the charge corona unit. Go to step 4.	Change the FCU.
4. Does the problem go away if you change the power pack?	Finished.	Go to step 5.
5. Is the varistor shorted?	Change the varistor.	Go to step 6.
6. Is the master grounded properly?	Go to step 7.	Check the grounding wire, terminal and plate. Clean or replace if necessary.
7. Does the development bias terminal reach the correct voltage (about -530 Vdc)?	Go to step 10.	Go to step 8. Do not adjust the variable resistors on the power pack.
8. Does the FCU output the power and bias trigger signal to the power pack?	Clean the area around the bias terminal. Go to step 9.	Change the FCU.
9. Does the problem go away if you change the power pack?	The laser beam may always be on. Change the FCU or LD unit.	Clean the development roller. Go to step 10.
10. Check the connections from the FCU to the xenon lamp. Does the lamp work?	Go to step 12.	Go to step 11.

Symptom: Black copies		
Check	**Action if Yes**	**Action if No**
11. Does the FCU output the power and drive signals to the lamp driver?	Change the xenon lamp or the drive board.	Change the FCU.
12. Check the FCU - SBU connection. Is there a signal from the SBU (AVIDEO)?	Go to step 13.	Light the xenon lamp. Align the SBU (see section 5-2-9); replace the FCU or SBU if impossible.
13. Does the problem only occur when printing from memory?	Check the connection to the memory card. Change the memory card, FCU, or MBU.	Go to step 14.
14. If the problem only occurs during communication, check the FCU - NCU - line connections. Check for severe line problems. If the problem cannot be found, replace the NCU or FCU.		

Symptom: Faint copy		
Check	**Action if Yes**	**Action if No**
1. Make a printer test (see section 4-1-13). Is it OK?	There may be a scanner problem; go to step 7.	Go to step 2.
2. Try the following steps (a to f) to solve the problem. If they fail, check the connections through the machine between the FCU, toner near-end sensor, and toner supply motor. Then go to step 3. a) Replace the master. b) If the Add Toner indicator is lit, add toner. c) Clean or replace the corona wires. d) Clean the toner metering blade (soft cloth and alcohol). e) If the copy paper is damp, replace it. f) If the toner contains dirt or paper particles, replace it.		
3. Has the toner run out even though the Add Toner indicator is not lit?	Check the sensor actuator mechanism. Change the sensor if necessary.	Go to step 4.
4. Does the toner supply motor turn just after the main power is switched on?	Go to step 5.	Change the toner supply motor or the FCU.
5. Work through steps 4 to 12 of "Blank copies".		
6. Change the varistor, FCU, or LD unit .		
7. Clean the exposure glass and the white plate in the scanner.		

Symptom: Faint copy at leading or trailing edge		
Check	**Action if Yes**	**Action if No**
The paper in the cassette may be curled at the leading edge The paper in the cassette may be damp. The paper may be too thick or too thin. Instruct the user how to store paper, and instruct them to use recommended types and weights of copy paper.		

Symptom: Dirty background all over the copy

Check	Action if Yes	Action if No
1. Make a printer test (see section 4-1-13). Is it OK?	There may be a scanner problem; go to step 13.	Go to step 2.
2. Try the following steps (a to f) to solve the problem. If they fail, go to step 3. a) Clean the quenching lamp and cleaning blade. b) Tighten the toner metering blade securing screws (see section 5-6-2). c) If the toner contains dust or paper particles, change the CTM. d) Clean the area around the bias terminal of the development unit. e) If the pattern is constant down the page, clean the laser optics with a blower brush, or clean or replace the corona wires.		
3. Is the master grounded properly?	Go to step 4.	Check the grounding wire, terminals and plates. Clean or replace if necessary.
4. Is the varistor shorted?	Change the varistor.	Go to step 5.
5. Does the development bias terminal give a constant correct voltage (about -530 Vdc)?	Go to step 8.	Go to step 6. Do not adjust the variable resistors on the power pack.
6. Does the FCU output constant power and bias trigger signals to the power pack?	Clean the area around the bias terminal. Go to step 7.	Change the FCU.
7. Does the problem go away if you change the power pack?	Finished.	Go to step 8.
8. Are the charge corona unit and wire correctly installed?	Check the connections between the corona wire and the FCU. Go to step 9.	Correct the problem.
9. Does the FCU output constant power and corona trigger signals to the power pack?	Clean the charge corona unit. Go to step 10.	Change the FCU.
10. Does the problem go away if you change the power pack?	Finished.	Go to step 11.
11. Does the quenching lamp operate correctly?	Go to step 13.	Check the connections between the FCU and lamp. Go to step 12.
12. Does the FCU send constant power and drive signals to the lamp?	Replace the quenching lamp.	Replace the FCU.
13. Try replacing the master unit.		
14. Clean the scanner optics, exposure glass, and white plate. Check the SBU white waveform for peaks, dropouts, or noise in the signal. Change the SBU or FCU if such wave patterns are present. Adjust the RAM addresses containing contrast threshold levels.		

Symptom: Stray toner flecks fused into the copy		
Check	**Action if Yes**	**Action if No**
1. Clean the inside of the machine, especially around the development and transfer unit. Clean the cleaning blade. Clean the rollers in the fusing unit.		
2. Replace the master unit or CTM.		

Symptom: Previous copy shows faintly		
Check	**Action if Yes**	**Action if No**
1. Does the quenching lamp operate correctly?	Clean or replace the master.	Check the connections between the FCU and lamp. Go to step 2.
2. Does the FCU send constant power and drive signals to the lamp?	Replace the quenching lamp.	Replace the FCU.

Symptom: Density changes gradually across the printout		
Check	**Action if Yes**	**Action if No**
1. Make a printer test (see section 4-1-13). Is it OK?	There may be a scanner problem; go to step 3.	Go to step 2.
2. Check that the charge corona wire is clean and that it is installed correctly. Check that none of the laser optic components are out of position. Check that toner is being distributed evenly across the development unit. If it is not, change the CTM, development unit, or toner supply motor. Try changing the master unit, quenching lamp, or the charge corona wire.		
3. The xenon lamp may need to be changed.		
4. Is the SBU scan line alignment is correct (see section 5-2-9)?	Change the FCU.	Change the SBU.

Symptom: Uneven density in vertical bands		
Check	**Action if Yes**	**Action if No**
1. Make a printer test (see section 4-1-13). Is it OK?	There may be a scanner problem; go to step 3.	Go to step 2.
2. Clean or change the charge corona wire. Clean or change the quenching lamp. Clean the laser optic components with a blower brush or dry cloth. Check that toner is being distributed evenly across the development unit. If it is not, change the CTM, development unit, or toner supply motor.		
3. Clean the exposure glass, white plate, and scanner optics. Change the xenon lamp, especially if bands appear on the sides of copies made using copy mode.		
4. Are there any bands in the SBU white waveform (see section 5-2-9)?	Change the SBU.	Change the FCU.

Symptom: Uneven density in horizontal bands		
Check	**Action if Yes**	**Action if No**
1. Does the xenon lamp flicker?	Change the lamp.	Go to step 2.
2. Is there a clear boundary between the bands?	Clean the charge and transfer corona units (there could be a leak, so check if any Auto Service Calls were made).	Clean the development unit, its bearings, and drive mechanism. or replace the master unit and/or development unit.

Symptom: Thin vertical white lines		
Check	**Action if Yes**	**Action if No**
1. Make a printer test (see section 4-1-13). Is it OK?	There may be a scanner problem; go to step 5.	Go to step 2.
2. Clean the grid plate, toner metering blade, and laser optics. Clean or replace the corona wires. Add toner if the toner supply is getting low. Check for foreign objects around the master that could cause leakage of charge form the belt.		
3. Is the surface of the hot roller scratched?	Replace the component that is damaging the hot roller, then replace the hot roller. If the hot roller strippers are badly stained with toner, replace them, and the thermistor (or FCU or PSU).	Go to step 4.
4. Is the master scratched?	Replace the component that is doing the damage, then replace the master.	Finished
5. Clean the white pressure plate above the exposure glass.		
6. Are there any peaks in the SBU white waveform (see section 5-2-9)?	Change the SBU.	Change the FCU.

Symptom: Fuzzy vertical white lines		
Check	**Action if Yes**	**Action if No**
Clean or replace the corona wires.		

Symptom: Wavy vertical black lines or bands		
Check	**Action if Yes**	**Action if No**
The cleaning blade or toner metering blade may be dirty or damaged. Replace the hexagonal mirror motor.		

Symptom: Vertical dotted lines		
Check	**Action if Yes**	**Action if No**
1. If the master is scratched, replace the master, and the component that is scratching it.		
2. If the development roller is scratched, replace the roller, and the component that is scratching it.		
3. Clean the corona wires.		

Symptom: Vertical black band at the left or right edge of the printout		
Check	**Action if Yes**	**Action if No**
1. Make a printer test (see section 4-1-13). Is it OK?	There may be a scanner problem; go to step 3.	Go to step 2.
2. Make sure that the charge corona wire cleaner is at home position. Clean the laser optics with a blower brush or soft dry cloth.		
3. Clean the scanner optics. Replace the xenon lamp.		

Symptom: Vertical black lines or bands at constant positions on the copy		
Check	**Action if Yes**	**Action if No**
1. Make a printer test (see section 4-1-13). Is it OK?	There may be a scanner problem; go to step 5.	Go to step 2.
2. Clean the thermistor, hot and pressure rollers, and hot roller strippers. Change the cleaning pad if it is dirty. Is the surface of the hot roller scratched?	Replace the component that is damaging the hot roller, then replace the hot roller. If the hot roller strippers are badly stained with toner, replace them, and the thermistor (or FCU or PSU).	Go to step 3.
3. Is the master scratched?	Replace the component that is doing the damage, then replace the master.	Go to step 4.
4. Clean the corona wires and guide plates in the paper feed path. Clean the quenching lamp. Replace the toner metering blade if it is damaged. Clean the laser optics carefully with a blower brush or soft dry cloth. If the problem remains, change the FCU or LD unit.		
5. Clean the white pressure plate above the exposure glass.		
6. Are there any peaks in the SBU white waveform (see section 5-2-9)?	Change the SBU.	Change the FCU.

Symptom: Defects at repeating intervals on the printout		
Check	**Action if Yes**	**Action if No**
There is a defect on the master belt or on one of the rollers (the most likely ones are the hot roller, pressure roller, or development roller		

Symptom: Black streaks at the leading edge		
Check	**Action if Yes**	**Action if No**
Clean the hot roller strippers or change the master unit.		

Symptom: Black spots at the leading edge		
Check	**Action if Yes**	**Action if No**
Clean inside the machine, especially around the fusing unit and transfer unit entrances. Clean the transfer corona wire and check that it is installed properly. If the problem remains, change the transfer corona wire or the power pack.		

Symptom: Horizontal white lines or stripes across printouts		
Check	**Action if Yes**	**Action if No**
1. Make sure that the user is using the correct type of copy paper, and storing it in a dry place.		
2. Does the printout have a crease mark where the white band appears?	Check the paper feed mechanism and path from paper feed through transfer; correct any faults.	Go to step 3.
3. Does the development bias terminal stay at a constant voltage (about -530 Vdc)?	Go to step 6.	Go to step 4. Do not adjust the variable resistors on the power pack.
4. Does the FCU output the power and bias trigger signal to the power pack?	Clean the area around the bias terminal. Go to step 5.	Change the FCU.
5. Does the problem go away if you change the power pack?	Finished.	Clean the development roller. Go to step 6.
6. Clean the transfer corona unit (wire, endblocks, casing). Check and replace any parts that may be causing the corona charge to leak.		
7. Check that the development roller and master unit are both rotating smoothly, and that the start and stop at the same time. If there are any problems, do the following: a) Check the roller, master unit, and drive mechanism for any defective components, such as gears. b) Try changing the main motor.		

Symptom: Black page with horizontal white stripes		
Check	**Action if Yes**	**Action if No**
Replace the optic fiber cable from the main scan start detector. If the problem remains, change the LD unit or FCU.		

Symptom: Random black spots on the printout		
Check	**Action if Yes**	**Action if No**
The grid plate may not be grounded properly. If the problem cannot be corrected, try changing the charge corona unit, which contains the grid plate. If the surface of the development roller is dirty, clean it. The laser diode may be out of control. Change the LDDR or FCU.		

Symptom: Horizontal black stripes		
Check	**Action if Yes**	**Action if No**

Symptom: Horizontal black stripes		
1. Is the Call Service indicator lit?	Replace the LD unit or FCU.	Go to step 2.
2. Check that the master unit is installed properly and correctly grounded. Change the master unit if it is damaged. If the problem only occurs in copy mode, the xenon lamp may be flickering: change the lamp, driver, or FCU. If the problem remains, go to step 3.		
3. Does the development bias terminal stay at a constant voltage (about -530 Vdc)?	Go to step 6.	Go to step 4. Do not adjust the variable resistors on the power pack.
4. Does the FCU output the power and bias trigger signal to the power pack?	Clean the area around the bias terminal. Go to step 5.	Change the FCU.
5. Does the problem go away if you change the power pack?	Finished.	Clean the development roller. Go to step 6.
6. Check that the toner metering blade is screwed in securely.		

Symptom: White spots in black areas		
Check	**Action if Yes**	**Action if No**
Clean the development roller (soft cloth and alcohol). Clean the corona wires. If the problem cannot be solved, change the development unit, master, or power pack.		

Symptom: Data missing at the leading edge		
Check	**Action if Yes**	**Action if No**
1. Does the problem only occur during copying?	Go to step 2.	Go to step 3.
2. Check that the scan line sensor is in the correct position. Try changing the FCU.		
3. Is the correct type of copy paper being used, and is it curled at the leading edge? Check for dust on the rollers in the paper feed path. Lower cassette: Is the registration mechanism working correctly?		

Symptom: Part of the copy missing at the left or right edges		
Check	**Action if Yes**	**Action if No**
1. Does the problem only occur during copying?	Go to step 2.	Go to step 3.
2. Check the scanner optic path. Change the SBU or FCU.		
3. Check the laser optic path. Change the FCU.		

Symptom: Distorted printout		
Check	**Action if Yes**	**Action if No**
1. Does the problem only occur during copying?	Go to step 2.	Go to step 3.
2. Check that the document feed mechanism is operating smoothly.		
3. Poorly installed or defective hexagonal mirror motor. Blockage in the paper path. Check that the main motor, gears, rollers, and drive belts are moving smoothly.		

Symptom: Fuzzy copy		
Check	**Action if Yes**	**Action if No**
1. Does the problem only occur during copying?	Go to step 8.	Check the connections between the ozone fan and the FCU. Go to step 2.
2. Does the ozone fan turn on?	Go to step 4.	Go to step 3.
3. Does the fan receive the power and drive signals?	Replace the fan.	Replace the FCU (or PSU).
4. Change the ozone filter. Check for obstructions between the transfer unit and the fusing unit. Check that the master is grounded properly. Change the master unit. Clean or replace the corona wires. Clean the laser optics carefully with a blower brush or soft dry cloth. If the problem remains, go to step 5.		
5. Does the development bias terminal stay at a constant voltage (about -530 Vdc)?	Go to step 8.	Go to step 6. Do not adjust the variable resistors on the power pack.
6. Does the FCU output the power and bias trigger signal to the power pack?	Clean the area around the bias terminal. Go to step 7.	Change the FCU.
7. Does the problem go away if you change the power pack?	Finished.	Clean the development roller.
8. Clean the scanner optics and the xenon lamp. Check the SBU waveforms, especially MTF and reduction rate (section 5-2-9).		

Symptom: Unfused copy		
Check	**Action if Yes**	**Action if No**
Clean the thermistor in the fusing unit. Check the pressure roller spring mechanism. Change the thermistor, fusing unit, FCU, or PSU.		

Symptom: Jitter, image stretched down the page		
Check	**Action if Yes**	**Action if No**
1. Does the problem only occur during copying?	Go to step 3.	Go to step 2.
2. Check the paper feed drive mechanism (motors, gears, timing belts). Check for obstructions in the paper feed path. Jitter: Try changing the LD unit or FCU.		
3. Check the document feed drive mechanism (motors, gears, timing belts). Check the tx motor timing belt tension (see section 5-2-7). Replace the FCU or tx motor if the motor is making abnormal noise.		

Symptom: Magnification or reduction, filled-in characters		
Check	**Action if Yes**	**Action if No**
Adjust the SBU reduction rate (see section 5-2-9). If the problem only occurs in copy mode, check the paper size sensors. Replace the sensors or the FCU (or the PFU for the lower cassette).		

Symptom: Misaligned output - data shifted to the left or right		
Check	**Action if Yes**	**Action if No**
1. Check that the laser diode unit is screwed in properly. Check that the laser optics are not misaligned. Try changing the LD unit or FCU.		
2. Adjust the SBU scan start position (see section 5-2-9). Check that the scanner optics are not misaligned. Check that the document table is aligned properly (see section 5-2-3). Try changing the LD unit or FCU.		

6.2. MECHANICAL PROBLEMS

The following flow charts may help you find the problem. They do not include such obvious steps as checking the power connection or changing the PSU or FCU if nothing appears on the operation panel.

6.2.1. ADF/Scanner

Symptom: Non feed		
Check	**Action if Yes**	**Action if No**
1. Are the covers closed properly?	Go to step 2.	Close the covers securely.
2. Are the pick-up and feed rollers clean?	Go to step 3.	Clean the rollers with a soft cloth and water. Replace them if they are damaged.
3. Is the shutter mechanism blocked? (If the shutter does not lift up after pressing Start, the tx motor may be defective; see step 10.)	Free the mechanism.	Go to step 4.
4. Is the problem corrected by adjusting the separation roller (see section 5-2-2)?	Finished	Put the separation roller adjustment back to the original setting. Try replacing the separation roller. If that does not help, go to step 5.
5. Are the gears and spring clutches clean and working properly?	Go to step 6.	Clean the gears and clutches. Remove any debris from the mechanism.
6. Are the connections between the operation panel, FCU, and document sensor loose?	Connect the cables properly.	Go to step 7.
7. Does the LCD prompt change when a document is placed in the feeder?	Go to step 8.	Replace the document sensor, operation panel PCB, or FCU.
8. Are the connections between the PSU and FCU and the tx motor loose?	Connect the cables properly.	Go to step 9.
9. Does the tx motor work?	This troubleshooting procedure has finished.	Go to step 10.
10. Does the FCU receive + 24V from the PSU?	Go to step 11.	Change the PSU.
11. Does the FCU output power and phase drive signals to the tx motor?	Replace the tx motor.	Replace the FCU.

Symptom: Skew caused by the scanner mechanism		
Check	**Action if Yes**	**Action if No**
1. Are the scanner rollers clean?	Replace the separation roller and or separation plate.	Clean the rollers using a oft cloth and water

Symptom: Jam		
Check	**Action if Yes**	**Action if No**
1. Are the scanner rollers clean?	Go to step 2.	Clean the rollers using a soft cloth and water
2. Is the document feed path blocked?	Go to step 3.	Remove any debris.
3. Is the scanner mechanism in good shape, and is the tx motor timing belt tension correct?	Go to step 4.	Correct the problem.
4. Are the connections between the operation panel, FCU, document width sensor, and scan line sensor loose?	Connect the cables properly.	Go to step 5.
5. Does the operation panel PCB receive signals from the scan line sensor and the document width sensor?	Replace the operation panel PCB or FCU.	Replace the document width sensor and/or scan line sensor.

Symptom: Abnormal noise		
Check	**Action if Yes**	**Action if No**
1. Is the machine assembled properly.	Go to step 2.	Correct the problem.
2. Are the springs and clutches in the feed/pick-up mechanism clean?	Replace the tx motor or the FCU.	Clean them.

Symptom: Double feed		
Check	**Action if Yes**	**Action if No**
1. Is the problem solved by cleaning or lubricating the separation roller?	Finished	Try cleaning or replacing the separation plate. If that does not help, go to step 2.
2. Does adjusting the separation roller solve the problem (see section 5-2-2)?	Finished	Put the adjustment back to the original position, and replace the separation roller.

Symptom: Dirty document		
Check	**Action if Yes**	**Action if No**
Clean the rollers and guide plates using a soft cloth and water.		

Symptom: Second page not fed in		
Check	**Action if Yes**	**Action if No**
1. Clean the rollers using a soft cloth and water.		
2. Are the connections between the operation panel, FCU, and scan line sensor loose?	Connect the cables properly.	Go to step 3.
3. Does the operation panel PCB receive signals from the scan line sensor?	Replace the operation panel PCB or FCU.	Replace the scan line sensor.

6.2.2. Printer

Symptom: Non-feed		
Check	**Action if Yes**	**Action if No**
1. Check that non-feed is not due to another problem, such as "Call Service" being lit, or the power cord not being plugged in. Check that the feed-in area is not jammed with debris. Check that the covers are closed properly. Clean or replace the pick-up and feed rollers, and check that the paper lift and feed mechanisms are working properly. Lower cassette: Check the separation roller and spring clutch. Clean/replace if necessary. If the problem only happens during communication, check the connections between the FCU, NCU, and telephone line.		
2. Are the connections between the FCU and the upper paper size and end sensors loose? If the problem is in the lower cassette, check the connections from the FCU to the PFU and lower paper size and end sensors.	Connect the cables properly.	Go to step 3.
3. Do the upper or lower cassettes' Add Paper indicators light even if paper is present?	Go to step 4.	Go to step 7.
4. Do the upper or lower cassettes' Add Paper indicators light when the cassettes are installed in the machine?	Go to step 5.	Go to step 6.
5. Do the signals from the paper size sensor change when the cassette is installed?	Change the PFU (lower cassette only) or FCU.	Change the sensor and/or the actuator mechanism.
6. Does the signal from the paper end sensor change when paper is added?	Change the PFU (lower cassette only) or FCU.	Change the sensor and/or the actuator mechanism.
7. Are the connections between the PSU, FCU, front cover switch and front cover interlock switch cover loose?	Connect the cables properly.	Go to step 8.
8. Does the signal from the front cover switch change when the cover is closed?	Go to step 9.	Change the switch and/or the actuator mechanism.

Symptom: Non-feed		
Check	**Action if Yes**	**Action if No**
9. Does the front cover interlock switch pass + 24V and + 5V from the FCU through to the FCU?	Go to step 10.	Change the switch and/or the actuator mechanism.
10. Do the upper and lower paper feed motors and clutches operate?	Go to step 15	Go to step 11 (motors) or 13 (clutches).
11. Are the connections between the FCU and the upper and lower paper feed motors loose?	Connect the cables properly.	Go to step 12.
12. Does the FCU output power and drive signals to the motors?	Replace the defective motor.	Replace the FCU.
13. Are the connections between the FCU and the upper and lower paper feed clutches loose?	Connect the cables properly.	Go to step 14.
14. Does the FCU output power and drive signals to the clutches?	Replace the defective clutch.	Replace the FCU.
15. If the main and paper feed motors do not turn on but are in good condition, the basic starting conditions for printing may not have been met. The conditions are as follows: The fusing lamp must be at the correct temperature. See "Service Call Conditions: Hot Roller Down". The hexagonal mirror motor must have reached the correct speed. See "Service Call Conditions: Mirror Motor Locked". One page must have been stored in the page memory. Check the connections between the components of the video data path (see section 1-5-2) and replace any defective PCBs.		

Symptom: Copy Jam - General		
Check	**Action if Yes**	**Action if No**
1. Is the printer jammed with debris?	Clear the debris.	Go to step 2.
2. Is the correct type of paper being used, and is it correctly loaded in the cassette?		
3. Is a paper jam indicated when the power is switched on, even if there is no jam.	Go to step 4.	Go to step 5.
4. Does the FCU receive the correct signals from the registration, lower paper feed, and copy feed-out sensors?	Change the PFU (lower cassette only) and/or FCU.	Change the defective sensor.
5. Is the correct paper size sensor actuator being used?	Go to step 6.	Install the correct actuator.

Symptom: Copy Jam - General

Check	Action if Yes	Action if No
6. Is the paper size sensor (upper/lower) outputting the correct signals for the installed actuator? The signals that should be seen are shown in the following table.	If you suspect that the FCU or PFU is processing the sensor signals wrongly, change the FCU and/or PFU.	Change the sensor.

FCU Connector (Upper Cassette)	32-4	32-3	32-2
PFU Connector (Lower Cassette)	4-6	4-5	4-4
A5	L	L	L
Letter	H	L	L
A4	L	H	L
F, F4	L	H	H
Legal	H	H	L
B4	H	L	H

7. Are the connections between the FCU and the main motor loose?	Connect the cables properly.	Go to step 8.
8. Does the main motor work?	Go to step 10.	Go to step 9.
9. Does the FCU output power and drive signals to the main motor?	Replace the main motor.	Replace the FCU.
10. Do the upper/lower paper feed motors and clutches work? See steps 10 to 14 of "Non-feed".		

Symptom: Copy jam in the paper feed entrance (error code 9-07)

Check	Action if Yes	Action if No
1. Clean the rollers in the paper feed entrance. Replace any defective rollers		
2. Check the registration sensor and lower paper feed sensor (see steps 3 and 4 of "Copy jam - General").		
3. Do the upper/lower paper feed motors and clutches work? See steps 10 to 14 of "Non-feed".		

Symptom: Copy jam inside the machine (error code 9-08)

Check	Action if Yes	Action if No
1. Clean the registration rollers (metal rollers - soft cloth and alcohol, rubber rollers - soft cloth and water). Check the paper feed path and mechanism, especially the area around the entrance to the transfer/fusing unit. Check the fusing unit drive mechanism. Replace the pressure springs or fusing unit rollers or gears if necessary.		
2. Check the registration sensor and copy feed-out sensor (see steps 3 and 4 of "Copy jam - General").		

Symptom: Copy jam at the feed-out area (error code 9-09)		
Check	**Action if Yes**	**Action if No**
1. Clean the rollers in the copy feed-out area.		
2. Check the copy feed-out sensor (see steps 3 and 4 of "Copy jam - General").		

Symptom: Double feed		
Check	**Action if Yes**	**Action if No**
Upper cassette: Check the corner separator mechanism and side fences, and replace if necessary. Lower cassette: Clean, lubricate, or replace the separation roller.		

Symptom: Dog-eared copies		
Check	**Action if Yes**	**Action if No**
Excessive copy paper curl Defective hot roller stripper Incorrect corner separator/side fence position		

Symptom: Wrinkled copies		
Check	**Action if Yes**	**Action if No**
Check whether the problem can be solved by using another stack of paper. Check paper transport through the printer and replace the defective component. Replace the fusing unit pressure springs, or the entire fusing unit.		

Symptom: Soiled copy paper		
Check	**Action if Yes**	**Action if No**
Clean the rollers in the printer. If the dirt is part of the image, then clean the ADF and scanner rollers. Also, see Copy Quality Troubleshooting (section 6-1).		

Symptom: Dirt along the leading edge on the reverse side		
Check	**Action if Yes**	**Action if No**
See "Soiled Copy Paper" above. Clean the following components: transfer corona unit and vicinity, paper feed path, registration rollers (soft dry cloth), feed-out rollers.		

Symptom: Skew caused by the printer mechanism		
Check	**Action if Yes**	**Action if No**
Clean the rollers in the cassettes and paper feed path. Replace any defective rollers.		

Symptom: Ozone odor		
Check	**Action if Yes**	**Action if No**
1. Is the ozone fan working?	Change the ozone filter.	Go to step 2.
2. Does the FCU send power and drive signals to the fan?	Change the ozone fan.	Change the FCU.

6.3. SERVICE CALL CONDITIONS

If the Call Service indicator is lit, one of the following conditions has occurred.

- Mirror Motor Locked (hexagonal mirror motor lock failure)
- Hot Roller Down (fusing lamp failure)
- LD Power Control Failure (laser diode power control failure)
- Main Motor Locked (main motor lock failure)
- Charger Leak (transfer corona charge leak)

To find out which problem has occurred, either:

- See the Auto Service Call report that was sent to the service station for the problem with the machine. This report lists a sub-code, as well as the error message; this sub-code may help you find the problem.
- Check the error code history using function 93.
- Try to clear the service call condition: switch the power off, wait 10 seconds, then switch back on.

If the problem remains, work through the appropriate troubleshooting procedure from the following pages.

After each troubleshooting attempt, reset the machine and try to operate it. If the machine still does not work, continue troubleshooting.

Symptom: Charger Leak (Error Code 9-17)

This error occurs if FCU CN27-3 stays high for 3 s or more while the transfer corona is on (sub-code 31)

Check	Action if Yes	Action if No
Clean the transfer corona wire and unit. Check that the FCU outputs the power and trigger signals to the power pack. If not, replace the FCU. Replace the FCU, power pack or transfer corona unit if the problem still occurs.		

Symptom: LD Power Control Failure (Error Code 9-20)

This error occurs in either of the following conditions:

- Error in the Laser Interface (LIF) chip on the FCU (sub-code 41 or 42)
- Laser power failure (sub-code 43)

Check	Action if Yes	Action if No
1. Do the front cover interlock switch and front cover microswitch both pass + 5V?	Replace the FCU or laser diode drive board.	Replace the defective switch or actuator mechanism.

Symptom: Hot Roller Down (Error Code 9-22)

This error occurs in any of the following conditions:

Standby mode: If the fusing lamp takes more than 40 s to reach 80 °C (sub-code 01)
Standby mode: If the fusing lamp is accidentally disconnected for more than 15 s (sub-code 06)
During printing: If the fusing lamp takes more than 30 s to rise to 150 °C from 80 °C (sub-code 02)
During printing: If the fusing lamp stays below 150 °C for more than 10 s (sub-code 04)
During printing: If the thermistor is accidentally disconnected (sub-code 07)
After printing: If the fusing lamp takes more than 10 minutes to fall back to 150 °C (sub-code 03)
At any time: If the fusing lamp temperature reaches 280 °C (sub-code 05)

Check	Action if Yes	Action if No
Is the fusing unit thermistor disconnected (FCU CN30)? Is the thermistor open or shorted? If so replace it. Otherwise clean it. Replace the fusing lamp if it is open circuit. Replace the thermostat if it is broken. Replace the FCU or PSU. Replace the front cover interlock switch if it does not pass + 24V from the PSU to the FCU.		

Symptom: Mirror Motor Locked (Error Code 9-23)

This error occurs in either of the following conditions:

- If FCU CN9-2 does not go low within 10 s of the hexagonal mirror motor being switched on (sub-code 21)
- If FCU CN9-2 goes back to high for 10 s or more during hexagonal mirror motor operation (sub-code 22)

Check	Action if Yes	Action if No
1. Check the connections through the machine between the PSU, FCU, interlock switches, hexagonal mirror motor and laser diode unit.		
2. Does the FCU receive + 24V from the PSU?	Go to step 3.	Change the PSU or the front cover interlock switch.
3. Does the FCU send + 24V to the motor?	Replace the motor and driver.	Replace the FCU.

Symptom: Main Motor Locked (Error Code 9-24)

This error occurs in either of the following conditions:

- If FCU CN22-4 does not go low within 10 s of the main motor being switched on (sub-code 11)
- If FCU CN22-4 goes back to high for 10 s or more during main motor operation (sub-code 12)

Check	Action if Yes	Action if No
1. Check that the mechanism is not obstructed.		
2. Does the front cover interlock switch pass + 24V?	Replace the FCU or the main motor.	Replace the defective switch mechanism.

6.4. ERROR CODES

If an error code occurs, retry the communication. If the same problem occurs, try to fix the problem as suggested below. Note that error codes 4-00, 01, 02, and 10 only appear in the error code display and on the service report.

Code	Meaning	Suggested Cause/Action
0-00	DIS/NSF not detected within 40s of Start being pressed	Check the line connection Check the NCU - FCU connectors. The machine at the other end may be incompatible. Replace the NCU or FCU. Check for DIS/NSF with an oscilloscope. If the rx signal is weak, there may be a bad line.
0-01	DCN received unexpectedly	The other party is out of paper or has a jammed printer. The other party pressed Stop during communication.
0-03	Incompatible modem at the other end	The other terminal is incompatible.
0-04	CFR or FTT not received after modem training	Check the line connection. Check the NCU - FCU connectors. Try changing the tx level (use NCU parameter 01 or a dedicated tx parameter for that address). Replace the FCU or NCU. The other terminal may be faulty; try sending to another machine. If the rx signal is weak or defective, there may be a bad line.
0-05	Unsuccessful after modem training at 2400 bps	Check the line connection. Check the NCU - FCU connectors. Try adjusting the tx level (use NCU parameter 01 or a dedicated tx parameter for that address). Replace the FCU or NCU. Check for line problems.
0-06	The other terminal did not reply to DCS	Check the line connection. Check the FCU - NCU connectors. Try adjusting the tx level (use NCU parameter 01 or a dedicated tx parameter for that address). Replace the NCU or FCU. The other end may be defective or incompatible; try sending to another machine. Check for line problems.

Code	Meaning	Suggested Cause/Action
0-07	No post-message response from the other end after a page was sent	Check the line connection. Check the FCU - NCU connectors. Replace the NCU or FCU. The other end may have jammed or run out of paper. The other end user may have disconnected the call. Check for a bad line. The other end may be defective; try sending to another machine.
0-08	The other end sent RTN or PIN after receiving a page, because there were too many errors	Check the line connection. Check the FCU - NCU connectors. Replace the NCU or FCU. The other end may have jammed, or run out of paper or memory space. Try adjusting the tx level (use NCU parameter 01 or a dedicated tx parameter for that address). The other end may have a defective modem/NCU/FCU; try sending to another machine. Check for line problems and noise.
0-14	Non-standard post message response code received	Check the FCU - NCU connectors. Incompatible or defective remote terminal; try sending to another machine. Noisy line: resend. Try adjusting the tx level (use NCU parameter 01 or a dedicated tx parameter for that address). Replace the NCU or FCU.
0-15	The other end does not have the confidential or transfer function	Incompatible remote terminal. Remote terminal memory full.
0-16	CFR or FTT not detected after modem training in confidential or transfer mode	Check the line connection. Check the FCU - NCU connectors. Replace the NCU or FCU. Try adjusting the tx level (use NCU parameter 01 or a dedicated tx parameter for that address). The other end may have disconnected, or it may be defective; try calling another machine. If the rx signal level is too low, there may be a line problem.
0-20	Facsimile data not received within 6 s of retraining	Check the line connection. Check the FCU - NCU connectors. Replace the NCU or FCU. Check for line problems. Try calling another fax machine. Change the reconstruction time from 6 s to 10 s (bit switch 03, bit 7). Switch the rx cable equalizer on (bit switch 0A, bit 6).
0-21	EOL signal (end-of-line) from the other end not received within 5 s of the previous EOL signal	Check the connections between the FCU, NCU, & line. Check for line noise or other line problems. Replace the NCU or FCU. The remote machine may be defective or may have disconnected.

Code	Meaning	Suggested Cause/Action
0-22	The signal from the other end was interrupted for more than 0.2 s	Check the line connection. Check the FCU - NCU connectors. Replace the NCU or FCU. Defective remote terminal. Check for line noise or other line problems.
0-23	Too many errors during reception	Check the line connection. Check the FCU - NCU connectors. Replace the NCU or FCU. Defective remote terminal. Check for line noise or other line problems. Ask the other end to adjust their tx level.
0-24	Printer failure occurred while the memory was full during non-ECM reception; negative response returned	There is no memory space available, or substitute reception is disabled. Try the following: Change bit 6 of bit switch 07 to 1. Ask the user to change bit 0 of user parameter 05 to 1.
0-52	Polarity has changed during communication	Check the line connection. Retry communication.
0-70	A 'disc' signal was received during ISDN G3 reception	Network or remote terminal error.
1-00	Document jam	Improperly inserted document or unsuitable document type. Clean the document jam sensor. See "Mechanical Operation - Document Jam".
1-01	Document length exceeded the maximum	Divide the document into smaller pieces. Clean the sensors in the ADF/scanner. See "Mechanical Operation - Document Jam".
1-17	Document jam in the feed-out area	Clear debris from the sensor actuator. Clean the sensors in the ADF/scanner. Check the connections between the sensors and FCU. Replace defective sensor, operation panel board, or FCU.
1-71	Cover has been opened or cassette has been pulled out during printing	Close the cover or put back the cassette.
2-10	The modem cannot enter tx mode	Replace the FCU.
2-11	Only one V.21 connection flag was received	Change the FCU.
2-12	Modem clock irregularity	Replace the FCU.
2-20	Abnormal coding/decoding (cpu not ready)	Check the connections from the FCU to the MBU. Replace the FCU or MBU.
2-50	The machine reset itself	Change the FCU.
4-00	One page took longer than 8 minutes to transmit	Check for a bad line. Try the communication at a lower resolution, or without halftone. Change the FCU.

Code	Meaning	Suggested Cause/Action
4-01	Line current was cut	Check the line connector. Check the connection between the FCU and the NCU. Check for line problems. Replace the FCU or the NCU.
4-02	The other end cut the received page as it was longer than the maximum limit.	Ask the other end to change their maximum receive length setting, then resend.
4-10	Communication failed because of ID Code mismatch (Closed Network) or Tel. No./CSI mismatch (Protection against Wrong Connections)	Get the ID Codes the same and/or the CSIs programmed correctly, then resend. The machine at the other end may be defective.
4-80	Start mark not detected at the top of OMR sheet	See section 6.6. If the problem remains, replace the FCU.
4-81	OMR sheet placed in the ADF the wrong way	
4-82	Skew detection mark not detected	
4-83	Skew was detected before scanning the OMR data field	
4-84	Guide mark not detected while scanning an OMR sheet	
4-85	Skew was detected while scanning the OMR data field	
4-89	End mark not detected at the bottom of the OMR sheet	
4-90	Reduction rate in the main scan direction not acceptable while scanning an OMR sheet	
5-00	Data reconstruction not possible	Replace the FCU.
5-20	Storage impossible because of a lack of memory	Temporary memory shortage; otherwise, replace the FCU or memory PCB.
5-21	Memory overflow	
5-25	SAF file access error	Change the FCU, memory card, or hard disk.
5-30	Mode table for the first page to be printed was not effective	Change the FCU.

Code	Meaning	Suggested Cause/Action
6-01	ECM - no V.21 signal was received	Try adjusting the rx cable equalizer. Replace the FCU or NCU.
6-02	ECM - EOR was received	
6-05	Facsimile data frame not received within 18 s of CFR, but there was no line fail (G3 ECM)	Check the line connection. Check connections from the FCU to the NCU. Check for a bad line or defective remote terminal. Replace the FCU, NCU or MBU. Switch the rx cable equalizer on (bit switch 0A, bit 6).
6-06	Coding/decoding error (G3 ECM)	Defective FCU. The other terminal may be defective.
6-08	PIP/PIN received in reply to PPS.NULL (G3 ECM)	The other end pressed Stop during communication. The other terminal may be defective.
6-09	ERR received (G3 ECM)	Check for a noisy line. Adjust the tx levels of the communicating machines. See code 6-05.
6-10	Error frames still received at the other end after all communication attempts at 2400 bps (G3 ECM)	Check for line noise. Adjust the tx level (use NCU parameter 01or the dedicated tx parameter for that address). Check the line connection. Defective remote terminal.
9-07	Copy jam at the cassette entrance	See section 6-2-2. If the problem remains, replace the FCU.
9-08	Copy jam inside the machine	See section 6-2-2. If the problem remains, replace the FCU.
9-09	Copy jam in the copy feed-out area	See section 6-2-2. If the problem remains, replace the FCU.
9-17	Transfer corona power leak	See section 6-3 (Charger Leak). If the problem remains, replace the FCU.
9-20	Laser diode power control failed	See section 6-3 (LD Power Control Failure). If the problem remains, replace the FCU.
9-22	Fusing lamp failure	See section 6-3 (Hot Roller Down). If the problem remains, replace the FCU.
9-23	Hexagonal mirror motor lock failure, or laser main scan synch failure	See section 6-3 (Mirror Motor Locked). If the problem remains, replace the FCU.
9-24	Main motor lock failed	See section 6-3 (Main Motor Locked). If the problem remains, replace the FCU.
9-50	Copy jam in the PFU	See section 6-2-2. If the problem remains, replace the FCU.

6.5. ELECTRICAL COMPONENT DEFECTS

6.5.1. Defective Sensor Table

Sensor	Symptoms if Defective
Document sensor	"CLEAR ORIGINAL" or "ENTER FAX NO" is displayed at power-up.
	"SET DOCUMENT" is still displayed after a document is placed in the feeder.
Document width sensor	Reduction should take place if the original is wide enough to actuate the sensor and the copy paper is not wide enough to. However, there is no reduction.
	"CLEAR ORIGINAL" is displayed at power-up.
Scan line sensor	"CLEAR ORIGINAL" is displayed at power-up.
	"CLEAR ORIGINAL" is displayed soon after the start of copying.
Front cover sensor	There is no alarm on opening the cover, and "CLOSE COVER" is not displayed.
	"CLOSE COVER" is displayed at power-up.
CTM sensor	"ADD TONER" is displayed at power-up.
Toner near-end sensor	Toner is never transferred from the CTM to the development unit.
Upper paper size sensor	"ADD PAPER" is displayed at power-up.
	Page separation may be done even if the original is the same size as the copy paper.
Upper paper end sensor	The Replace Paper indicator lights even if paper is remaining.
	The Replace Paper indicator does not light when the paper has run out.
Lower paper size sensor	"ADD PAPER" is displayed at power-up.
	Page separation may be done even if the original is the same size as the copy paper.
	If the original and the paper in the two cassettes are all of the same size, paper will be fed from the upper cassette.
Lower paper end sensor	The Replace Paper indicator on the lower cassette's operation panel lights even if paper is remaining.
	The Replace Paper indicator on the lower cassette's operation panel does not light when the paper has run out.
Registration sensor Copy feed-out sensor	"CLEAR COPY" is displayed at power-up.
	"CLEAR COPY" is displayed soon after the start of copying.

Sensor	Symptoms if Defective
Lower paper feed sensor	The Copy Jam indicator on the lower cassette's operation panel lights at power-up.
	The Copy Jam indicator on the lower cassette's operation panel lights soon after the start of copying.

6.5.2. Blown Fuse Table

The only service-replaceable fuse is the following.

Fuse	Symptoms if Defective
PSU - F1	No power to the machine

6.6. OMR SHEET

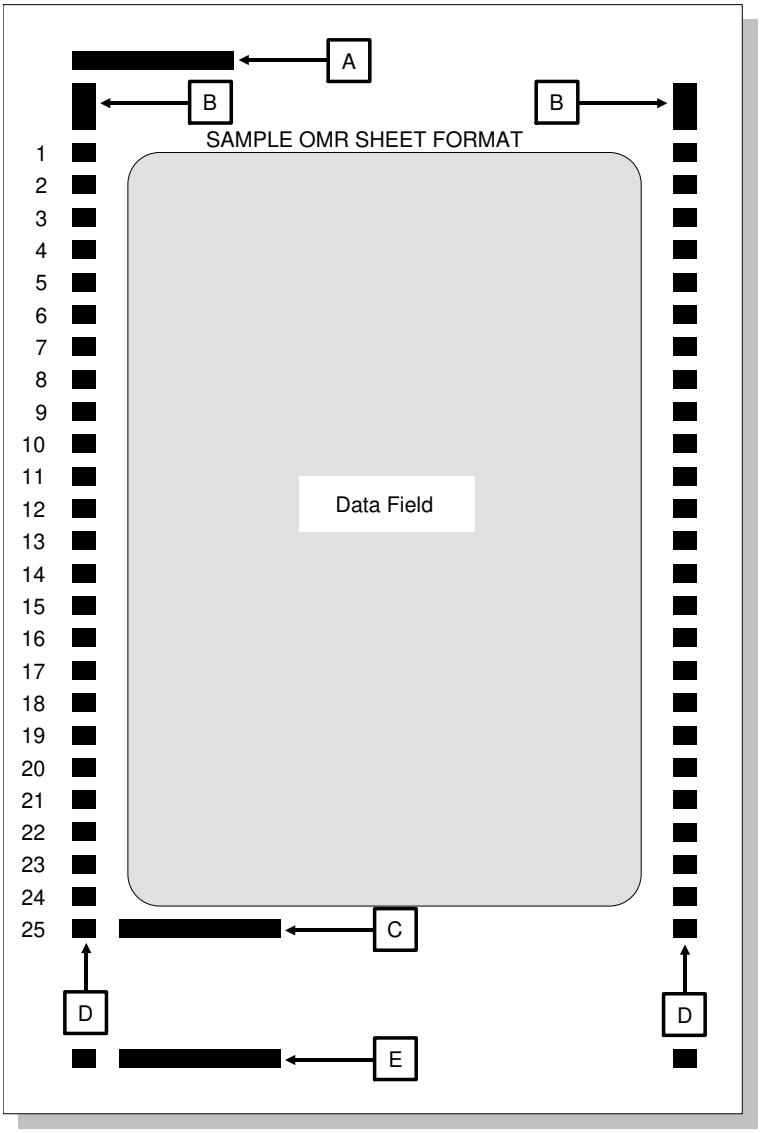
6.6.1. Possible Errors with OMR Sheets

If one of the following errors occurs while scanning an OMR sheet, the scanned data are not stored and an error code is stored in the memory.

Symptom	Action	Error Code
Start mark not detected	Check the ADF/scanner mechanisms.	4-80
Skew detection mark not detected	Check if a photocopy of the sheet was used. Check if a cut-off portion of the sheet was used.	4-82
Guide mark not detected while scanning the data field	Check if the document guides are adjusted correctly.	4-84
End mark not detected after the data field	Check if the sheet is dirty. Check for any adhesive tapes on the sheet.	4-89
OMR sheet placed in the ADF the wrong way	Place the sheet correctly in the ADF.	4-81
Skew detected at the skew detection mark	Check the ADF mechanisms. Check if a photocopy of the sheet was used.	4-83
Skew detected while scanning the data field	Checjk for any adhesive tapes on the sheet. Check if the document guides are adjusted correctly.	4-85
Reduction rate not acceptable	Check if a reduced photocopy was used. Adjust the scanner correctly.	4-90

6.6.2. Sample OMR Sheet Format

The following marks on the OMR sheet are used to detect errors. Refer to the following diagram for the locations of these marks.



	Name	Usage
A	Start mark	Used to detect the start of an OMR sheet.
B	Skew detection marks	Used to detect skew before scanning the data field.
C	End mark	Used to detect the end of the data field.
D	Guide marks	Used to detect lines in the data field, and to detect skew while scanning the data field.
E	Wrong way insertion detection mark	Used to detect worng way insertion. On the transfer request program sheet, this mark is also used as the end mark.

RICOH Technical Bulletin No. CGO-002

SUBJECT: S/M Correction, New Feature	**DATE:** Dec. 15, 1994
PREPARED BY: H.Yokoyama CHECKED BY: S.Hamano	FROM: 2nd T.S. Section
CLASSIFICATION: ☐ Action Required ■ Revision of service manual ☐ Troubleshooting ☐ Information only ☐ Retrofit Information ☐ Other	MODEL: CGO

1. Service Manual Correction

The description for the toner supply RAM address on page 5-14 of the service manual is not correct.

Current : 000418 to 40 (H)
↓
Correct : 080412 to 44 (H)

2. The RAM address for inch-to-mm conversion will be modified as follows.

Current : 08004A (Page 4-26)
Bit 2 inch-to-mm conversion (Transmission)
↓
After Modification : 08004A
Bit 2 inch-to-mm conversion (Immediate Tx)
0: Disabled, 1: Enabled

08026B
Bit 0 inch-to-mm conversion (Memory Tx)
0: Disabled, 1: Enabled

Dedicated Tx parameters
Byte 3. bit 4 (inch-to-mm conversion)
0: According to the above setting
1: Enabled for Immediate Tx and Memory Tx

- Modification -

H513-20, 23, 28
H5136014E → F:PCB-MBU
(H5137108D → E:PROM)
(H5137109D → E:PROM)

H513-53
H5136021 → A:PCB-MBU: TWN
(H5137117 → A:PROM)
(H5137118 → A:PROM)

The modification is in effect from Dec. 1994 production (Not fixed yet).

Technical Bulletin No. CGO-003

SUBJECT: SBU Harness	**DATE:** Dec. 15, 1994
PREPARED BY: Y.Okunishi CHECKED BY: S.Hamano	FROM: 2nd T.S. Section

CLASSIFICATION:

- ☐ Action Required
- ■ Troubleshooting
- ☐ Retrofit Information
- ☐ Revision of service manual
- ☐ Information only
- ☐ Other

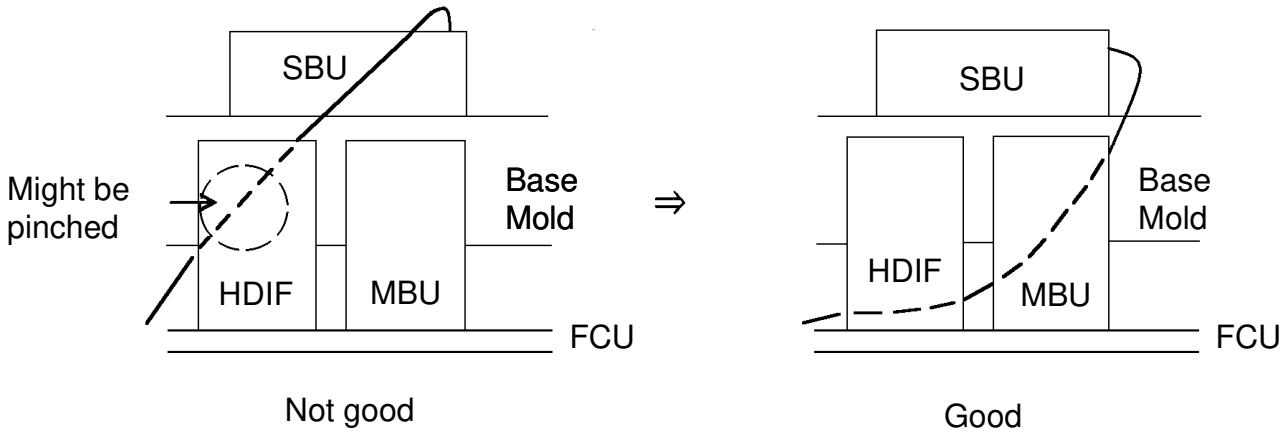
MODEL: CGO

Problem : Damage to the SBU harness

Reason : Pin edges of the HD Interface Board and the Printer Interface Board damage the harness if the harness is not re-located correctly, causing it to be pinched between the base mold and the board. When the HD Interface Board or Printer Interface Board is installed.

Action taken :

Re-locate the SBU harness as follows after fising the HD Interface Board or the Printer Interface Board :



Not good

Good

Technical Bulletin No. CGO-004

SUBJECT: CGO Service Manual	**DATE:** 1995
PREPARED BY: Y.Okunishi CHECKED BY: M. Iwasa	FROM: 2nd T.S. Section
CLASSIFICATION: ☐ Action Required ■ Revision of service manual ☐ Troubleshooting ☐ Information only ☐ Retrofit Information ☐ Other	MODEL: CGO

Page **3-12** to **3-14** of CGO Service Manual for Hard Disk have been corrected.

3.2.6. Hard Disk

If the ISDN option is installed at the same time, the hard disk option must be installed prior to the ISDN option.

The installation has three phases.

A. SAF memory initialization
B. Bit switch programming
C. Software initialization
D. Hard disk formatting

A. SAF Memory Initialization

1. **Function** **6** **0** **1** **9** **9** **1** , then immediately **Yes**
2. **0** **1**
3. Set bit 2 of bit switch 00 to 1.
4. **Yes** **Function**

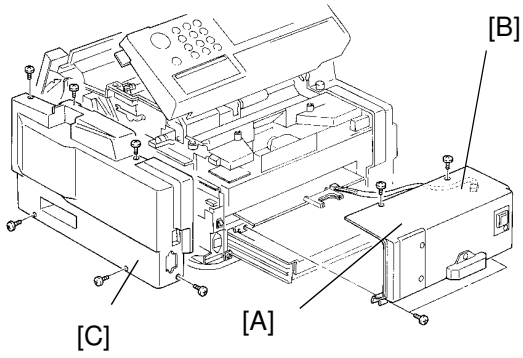
B. Installation Procedure

Cuation: Print any messages still stored in the SAF.
Ensure that 100% memory is displayed on the operation panel before installing a hard disk, or data may be lost.

1. Turn off the power switch, and unplug the machine from the wall socket.

Caution: Do not plug in or switch on until the entire installation is completed.

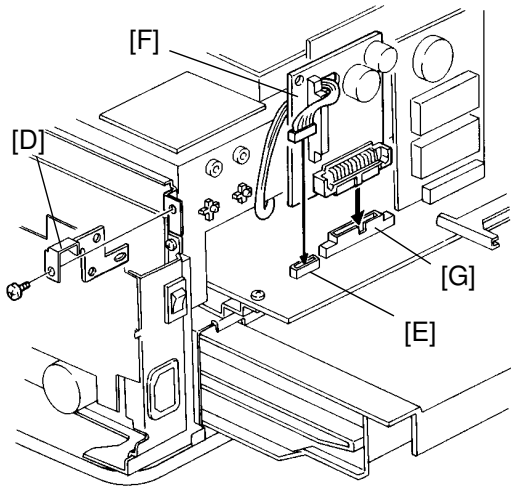
2. Remove the rear cover [A], and disconnect the monitor speaker harness [B].
3. Take off the right cover [C].



4. Attach the ground plate [D] to the PSU.

5. Disconnect the connector CN9 [E] from the FCU, and thread the harness through the opening in the I/F board [F].

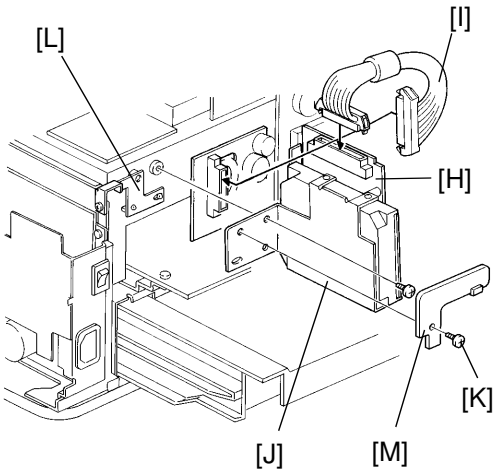
6. Plug the I/F board into CN10 [G] on the FCU, and reconnect the harness to CN9.



7. Change the position of the jumper switch on the hard disk interface board [H] to turn on the battery switch.

8. Connect the flat cable [I] to the I/F board and the hard disk unit [J].
Note: Connect the " ▼ " markings together.

9. Attach the hard disk unit .
Note: Tighten the screws [K] that attach the hard disk unit to the ground plate [L] and the I/F board holder [M].

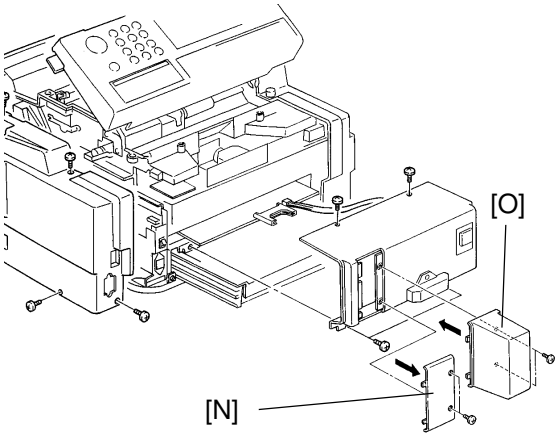


10. Remove the option cover [N] from the rear cover.

11. Reconnect the monitor speaker harness, and install the rear cover [A] and right cover [C].

12. Attach the hard disk cover [O].

13. Plug in the machine, and turn on the power.

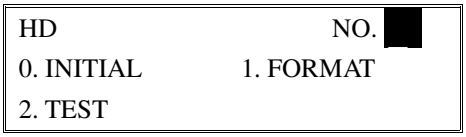


C. Software Initialization

1. **Function** **6** **0** **1** **9** **9** **1** , then immediately **Yes**
2. **1** **1**
3. Set bit 0 of bit switch 0D to 1.
4. **Yes** **Function**
5. Turn off the power, then turn it back on after a few seconds.
6. **Function** **6** **0** **1** **9** **9** **1** , then immediately **Yes**
7. **0** **1**
8. Set bit 2 of bit switch 00 to 1.
9. **Yes** **Function**
10. Turn off the power, then turn on the power after a few seconds.

D. Hard Disk format (Function 17)

1. **Function** **6** **0** **1** **9** **9** **1** , then immediately **Yes**
2. **1** **7**



3. Format the hard disk: **1** **Start**

Caution: Do not turn off the switch until formatting is completed.
Formatting the hard disk takes about 10 minutes.

4. Print the system parameter list and ensure that the Total Memory Size indicates “HD”. Refer to page 4-2.
5. Return to the standby mode and ensure that the remaining memory indicator shows “100%”.

Technical Bulletin No. Multi-003

SUBJECT: Harness for PFU	**DATE:** July 31, 1995
PREPARED BY: Y. Okunishi CHECKED BY: M. Iwasa	FROM: 2nd T.S. Section

CLASSIFICATION:

- ■ Action Required
- ☐ Troubleshooting
- ☐ Retrofit Information
- ☐ Revision of service manual
- ☐ Information only
- ☐ Other

MODEL: Fax3500L(USA), NRG9665(USA), Savin Fax3670 Fax5600L(USA), Lanier Fax7550, Omnifax L540

Problem: The Paper Feed Unit may not work correctly.

Cause: Wires of the harness (H511 5528) from the FCU to the relay connectors for the paper feed unit (PFU) are not allocated properly.

Affected machines:

Fax 3500L	S/N R8750600001 ~ R8750700600
NRG9665	S/N 6355060620 ~ 6355060671
Savin Fax 3670	S/N 0950600001 ~ 0950700120
Fax 5600L	S/N M2050600001 ~ M2050700500
Lanier Fax 7550	S/N L7555060677 ~ L7555060780
Omnifax L540	S/N L5405060271 ~ L5405060330

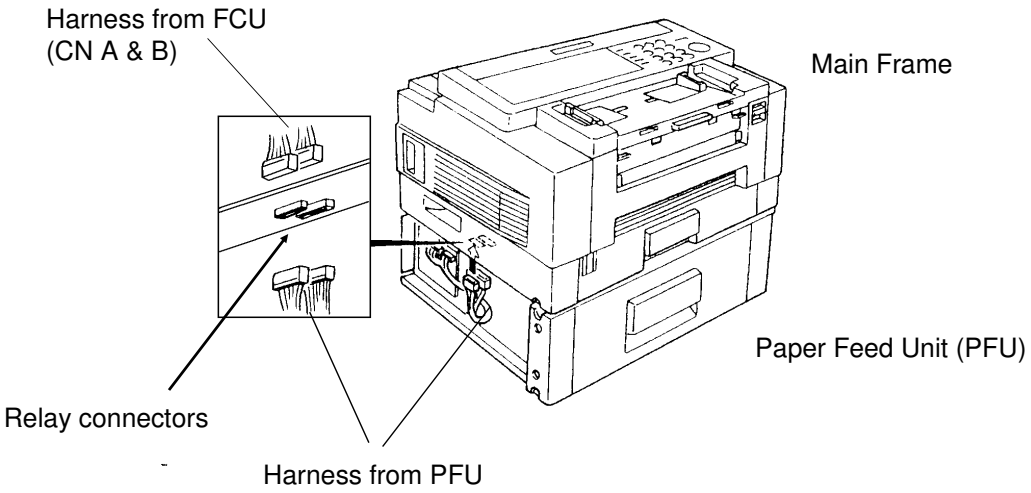
Action Required:

The harness should be checked before the start of the PFU installation because the FCU or the PFU PCB may become damaged.

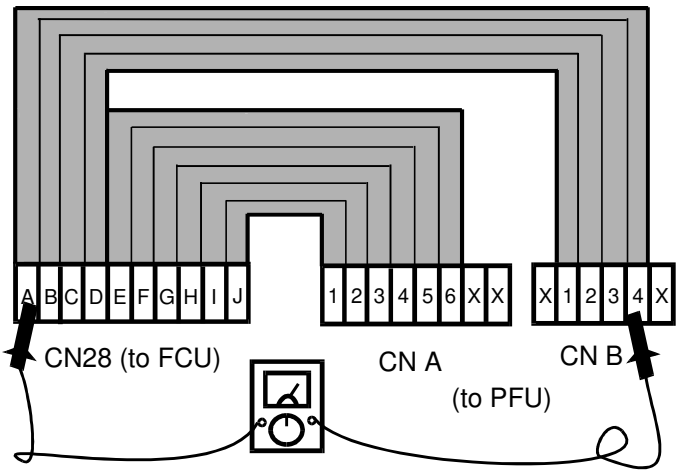
Follow the attached procedure before PFU installation and change the harness to a new one if it is bad.

Harness Check Procedure

1. Remove the Rear Cover and Left Cover.
2. Unplug the connector CN28 on the FCU.
3. Unplug the connectors CN A and CN B on the relay connector board located at the bottom of Main Frame.



4. Check the continuity of the harness pin by pin using a multimeter.
   See below for what the correct allocation of all wires of the harness should be.



View from the side without the plastic cover

<u>Check the continuity of the following.</u>

A of CN28 to 4 of CN B
⇓ ⇓
D of CN28 to 1 of CN B

E of CN28 to 6 of CN A
⇓ ⇓
J of CN28 to 1 of CN A

RICOH Technical Bulletin No. Multi - 004A

SUBJECT: Fusing Unit

DATE: Oct. 15, 1996

PREPARED BY: Y.Okunishi
CHECKED BY: S.Fujii

FROM: Quality Assurance Center

CLASSIFICATION:
- ☐ Action Required
- ■ Troubleshooting
- ☐ Retrofit Information
- ☐ Revision of service manual
- ☐ Information only
- ☐ Other

MODEL: CSO, CRO, CS1, CFO, CGO

A: "NOTE" is added to page 2/3.

SYMPTOM:

Background on received and copied documents.

Cause:

Hot Roller failure as a result of not changing the Cleaning Pad at the 10K PM. Failure to change the Cleaning Pad results in dirty Strippers and Thermostat and then Hot Roller failure.
As the machine warms up from the standby temperature to the fusing temperature, it is exposed to slight overheating before the temperature levels off. This leads to softening of the Teflon layer on the Hot Roller. As a result, the Teflon layer peels off in the areas where the Strippers and other parts come in contact with it. Dirty Strippers and Thermostat put more stress on the Hot Roller and cause premature Hot Roller failure.
Also, the dirty Thermistor causes the Hot Roller to overherat and fail prematurely.

A second cause can be a damaged (bent) Thermistor from a previous service visit. The damaged Thermistor causes the Hot Roller to overheat and fail prematurely.

SOLUTION:

Ricoh recommends replacing the Cleaning Pad at the 10K PM. However, this is sometimes ignored. Realizing this, Ricoh will conduct the following modifications to protect the Hot Roller from the failure mentioned above.

No.	Old Part	New Part	Description	Qty Used	Interchangeability
1	H0812121	H0812123	Stripper Spring	2 → 2	X / O
2	H0812120	H5132119	Stripper (Separation Pawl)	2 → 2	X / O
3	H0812137		Thermistor Assembly	1 → 0	X / O as an assembly
		H0815035	Thermistor	1 → 1	
		H0812141	Bracket	1 → 1	
		03130080B	Screw - M3x8	0 → 1	
4	H0812100	H0819600	Hot Roller Kit	1 → 1	X / O

RICOH **Technical Bulletin No. Multi - 004A**

SUBJECT: Fusing Unit

DATE: Oct. 15, 1996

Hot Roller Kit:

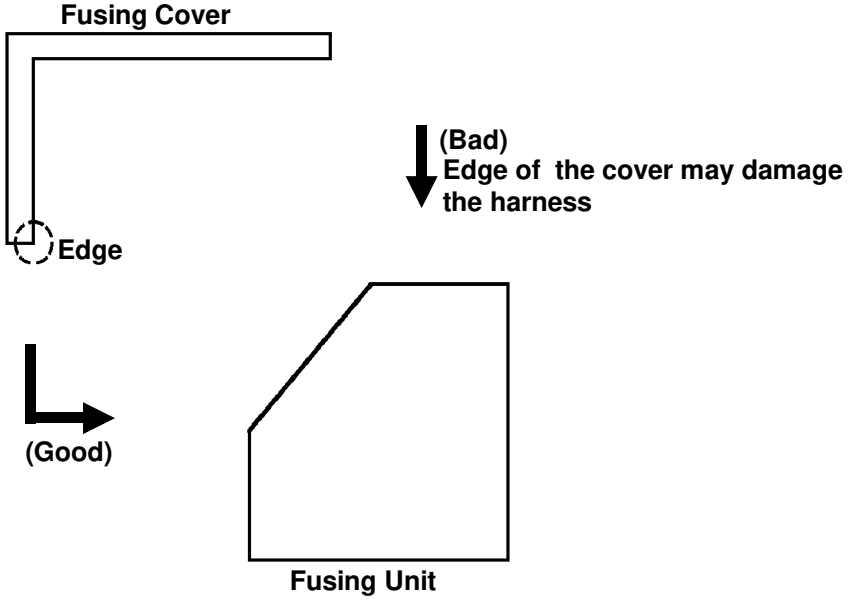
The hot rollers shipped from the SPC in Japan will be replaced by the Hot Roller Kit in July.
This kit will be comprised of the following: Hot Roller, Cleaning Pad, Thermistor, Thermistor Bracket, Screw, Strippers (2), Stripper Springs (2) and Installation Sheet.
The individual Hot Roller will be no longer available. The Cleaning Pad will continue to be a Service Part.

Ricoh recommends change of the above modified parts and Cleaning Pad when the failed Hot Roller is replaced with the new one.

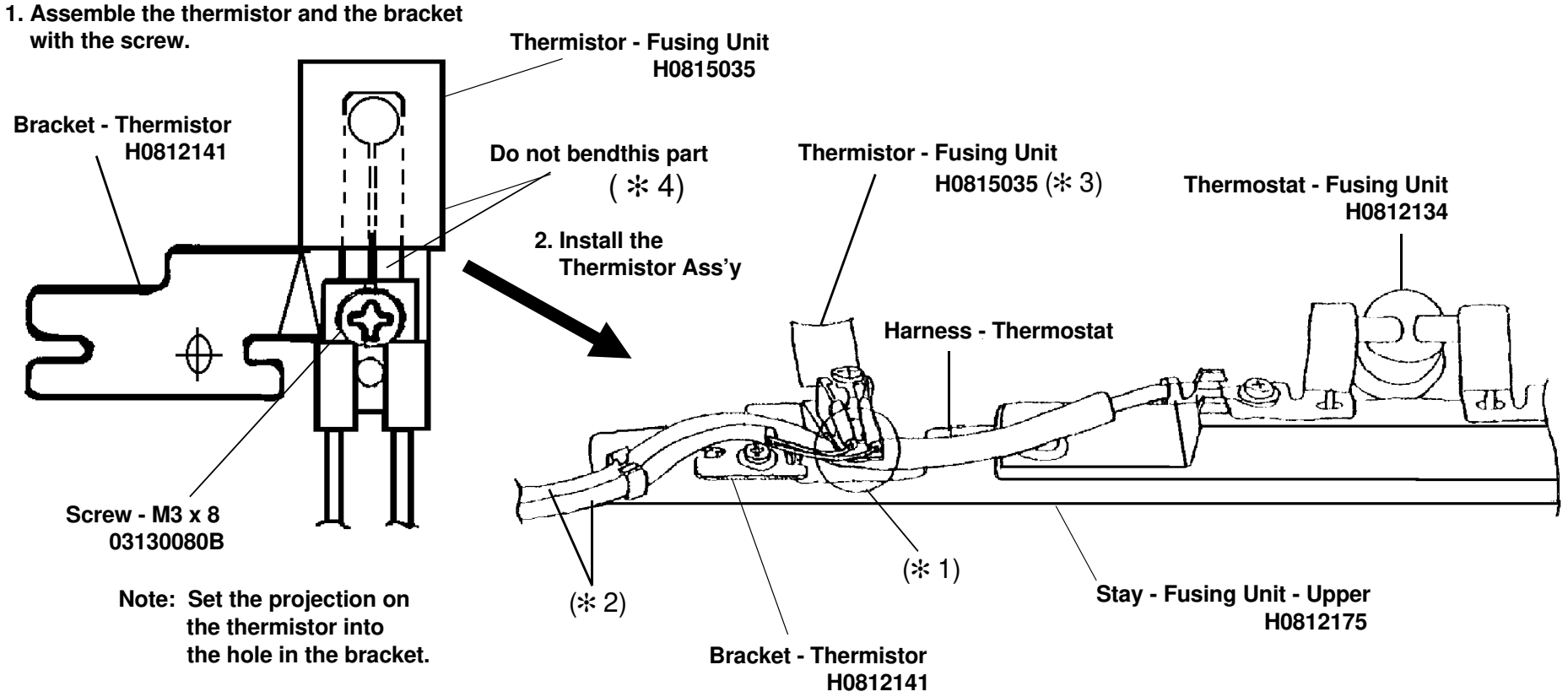
NOTE

(A): Please refer to the following instructions and fix the cover to the fusing unit and check that the harness is not pinched before installing the fusing unit in the machine.

If the metal wire of the harness contacts the thermistor bracket, a no power condition may occur. Please check the thermistor harness if this occurs.



Installation Procedure for the Thermistor



Note: ✻ 1 Place the thermostat harness under the part of the bracket.
✻ 2 Do not cross the thermostat harness and the thermistor harness.
✻ 3 Push the thermistor head (sensor) gently against the hot roller witha finger to make sure that the thermistor head touches the hot roller surface. Do not push it strongly.
✻ 4 Do not bend the thermistor neck (spring plate) when installing or cleaning it . If the thermistor is bent, replace it.

RICOH

Technical Bulletin

Model: K105 (FAX4000L)	Date: 15-Sep-97	No: 015
Subject: 14.4 Kbps Modem	Prepared by: Y.Okunishi	
From: QAC 2nd Field Information Dept.		

Classification:

☐ Troubleshooting	☐ Part information	☐ Action required
☐ Mechanical	☐ Electrical	☐ Service manual revision
☐ Paper path	☒ Transmit/receive	☐ Retrofit information
☐ Other ( )		

The V.33 standard for 14.4 kbps modems has not been supported by FX4 and FX6MK2 because V.33 has been deleted from the ITU (CCITT) recommendations.

So, data transfer at 14.4 kbps speed between a FAX4000L which supports only V.33 and products which support only V.17 will not be successful, and 9.6 kbps is the highest speed for data transfer between them .

See the following list.

Only V.33 is supported	V.33 and V.17 are supported	Only V.17 is supported
K105 (FAX4000L)	CFO, CS1, CGO	FX6MK2, FX4

RC	RE	ASIA	
✶			

Model: ISDN Option	Date: 30-Nov-97	No: Multi - 006
Subject: US National ISDN	Prepared by: H.Kamiya	
From: IPP Business Division Technical Service Dpt.		

Classification:

☐ Troubleshooting	☐ Part information	☐ Action required
☐ Mechanical	☐ Electrical	☒ Service manual revision
☐ Paper path	☐ Transmit/receive	☐ Retrofit information
☐ Other ( )		

This technical bulletin informs of the settings required when a machine is connected to the US National ISDN network

Models: CFO, CGO, LHO, FX4, ADAM

- **Subscriber Number**

Input the subscriber number given by the telephone company at :

1.G4 SUBSCRIBER NO.1 (MAIN)

2.G3 SUBSCRIBER NO.1 (MAIN)

- **SPID Number (Service Profile Identification Number)**

Input the SPID number given by the telephone company at :

1.G4 SUBSCRIBER NO.2 (Sub)

2.G3 SUBSCRIBER NO.2 (Sub)

Note: Input a "_" (pause) before the SPID number.

- **G4 Internal Switches**

SW No.	Bit	Setting	Definition
SW11	Bit1	0: Dynamic TEI	Type of TEI used (Layer 2) (Default)
SW13	Bit2	1: Yes	Attachment of calling party number (L3 SET UP)
	Bit5	1: Yes	Attachment of channel information element (L3 CONN)
SW14	Bit0	1: Speech	ISDN G3 information transfer capability (L3)
	Bit5	1: Keypad facility	Called ID mapping (L3)
SW15	Bit7	1: On	Transmission of STAT in reply to STAT_ENQ received in the U0 state.
SW19	Bit0	1: Permanent	Permanence of the link (L2)
	Bit2	1: On	SPID procedure (L2)
	Bit3	1: On	G4 SPID procedure (L2)

Note: After completing a G4 service mode operation, turn off the machine and turn it back on to make the new settings take effect.

RC	RE	ASIA	
*			