

COVER FEEDER CF90

SERVICE MANUAL

January 12, 2004
Subject to change

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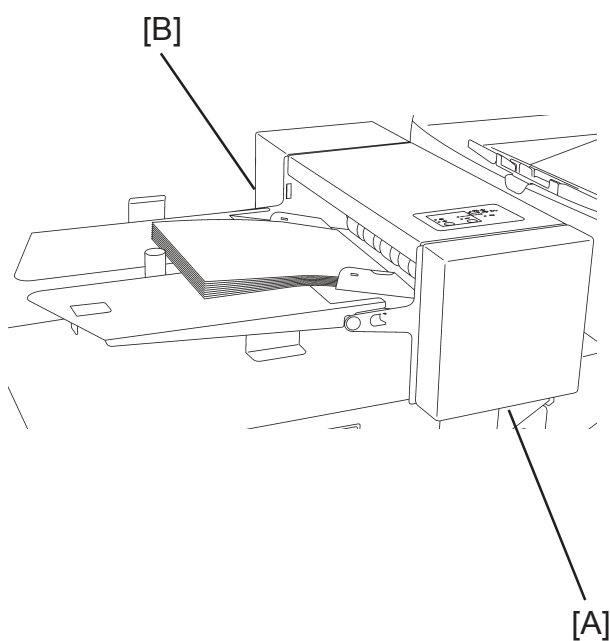
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1. REPLACEMENT AND ADJUSTMENT

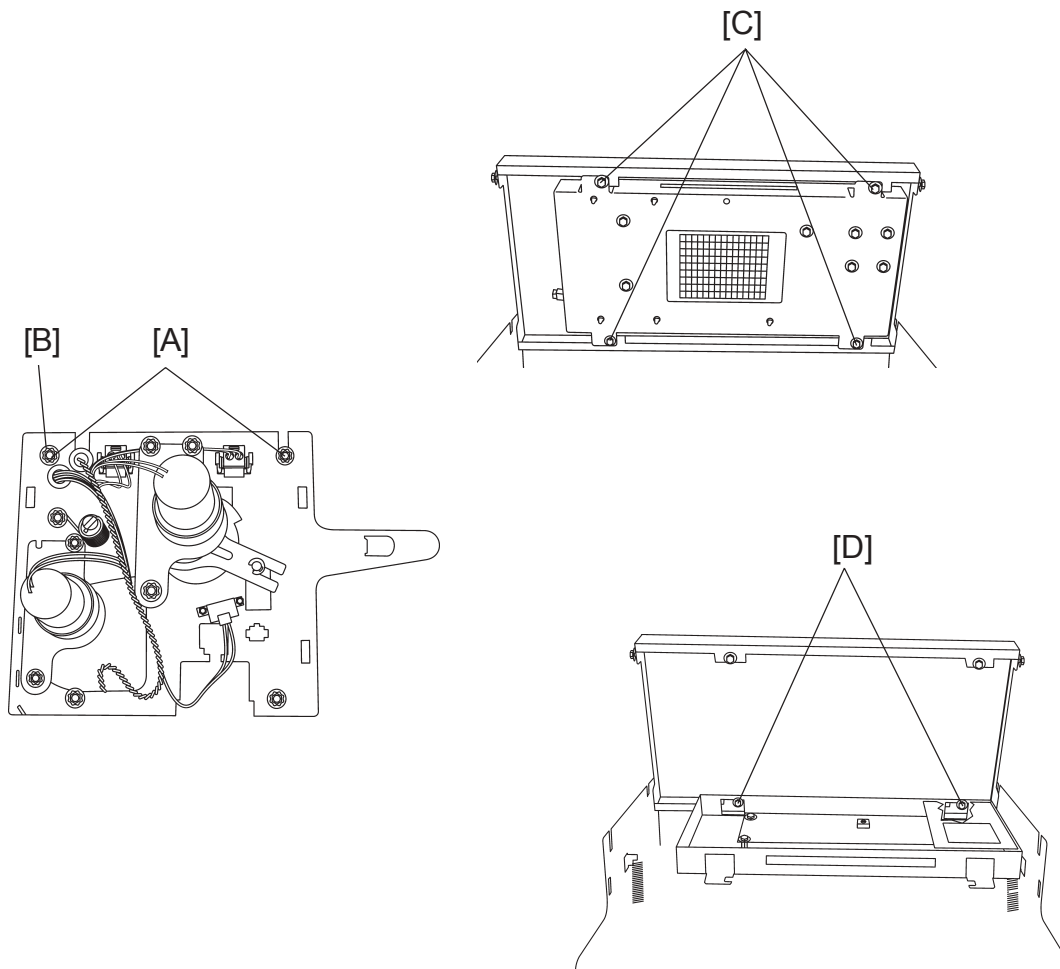
1.1 COVERS

1.1.1 FRONT AND REAR COVER



1. Remove Front cover [A] (⚙️ x1).
2. Remove Rear cover [B] (⚙️ x1).

1.1.2 TOP COVER

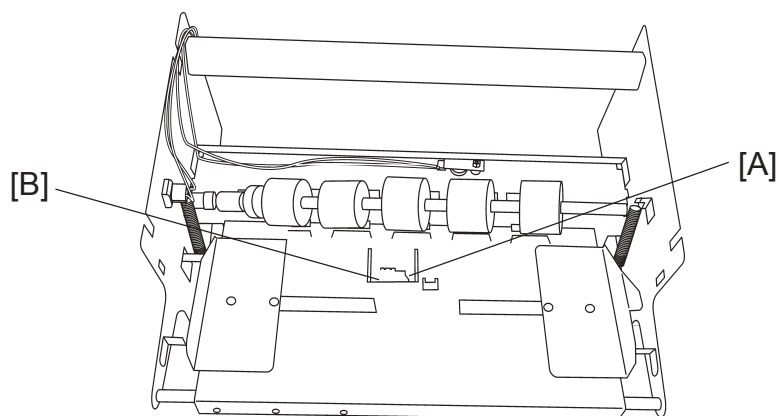


1. Remove Front and Rear cover ((👉 2.1.1).
2. Loosen screws on Front and Rear side of the Cover Feeder [A] (🔧 x4).
3. Lift up the top cover and tighten the screws [B] to secure the top cover in an open position (🔧 x2).
4. Loosen the screws [C] holding the PCB plate (🔧 x4).
NOTE: Slide the PCB plate to the Rear of the Cover Feeder, and hook it up on the two lower screws [D].

1.2 AREA D

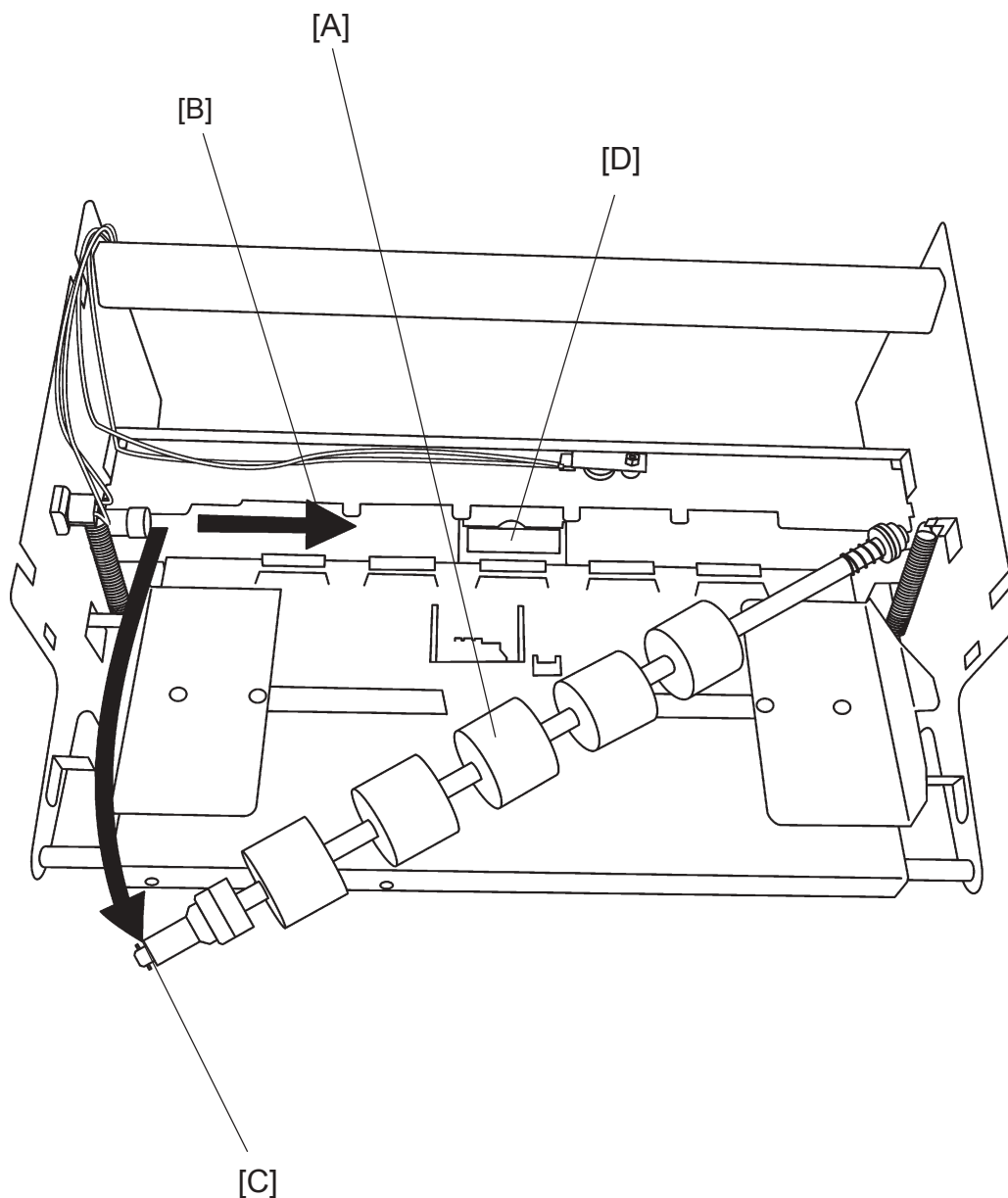
1.2.1 EMPTY BIN SENSOR Q1

Replacement
Adjustment



1. Remove screw [A] ( x1).
2. Remove Sensor [B] ( x1).

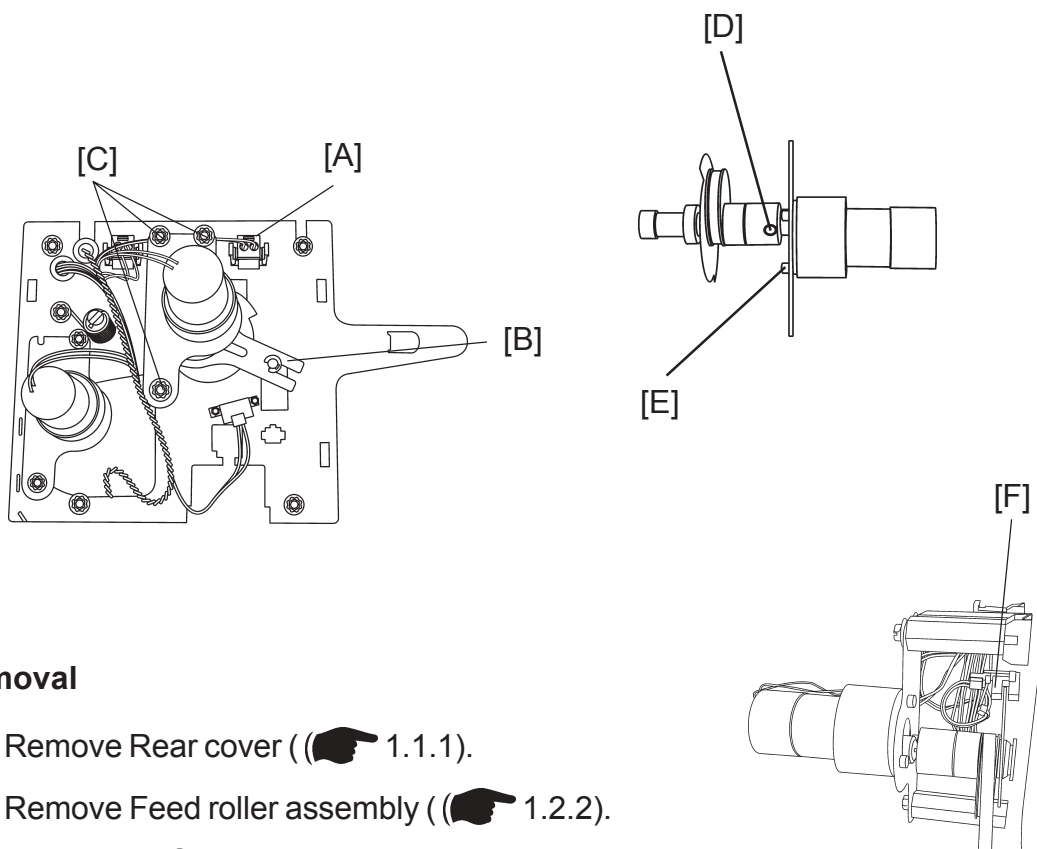
1.2.2 FEED ROLLER ASSY AND PAPER SEPARATOR PAD



1. Remove the Fold roller assembly [A] by pressing it to the front side according to figure [B].
2. Lift out the rear side [C] of the Fold roller assembly.
3. Remove the Paper separator pad [D] by lifting it out (with a small screwdriver) from the holder.

1.2.3 FEED MOTOR M1 ASSEMBLY

Replacement
Adjustment



Removal

1. Remove Rear cover ((👉 1.1.1).
2. Remove Feed roller assembly ((👉 1.2.2).
3. Disconnect Connector [A] (🔌 x1).
4. Remove E-clip [B] (🔩 x1).
5. Remove Feed motor M1 assembly by removing screws [C] (🔩 x3).
6. Loosen the allen screw [D] to Roller clutch assembly (🔩 x1).
7. Remove the motor bracket by removing screws [E] (🔩 x3).

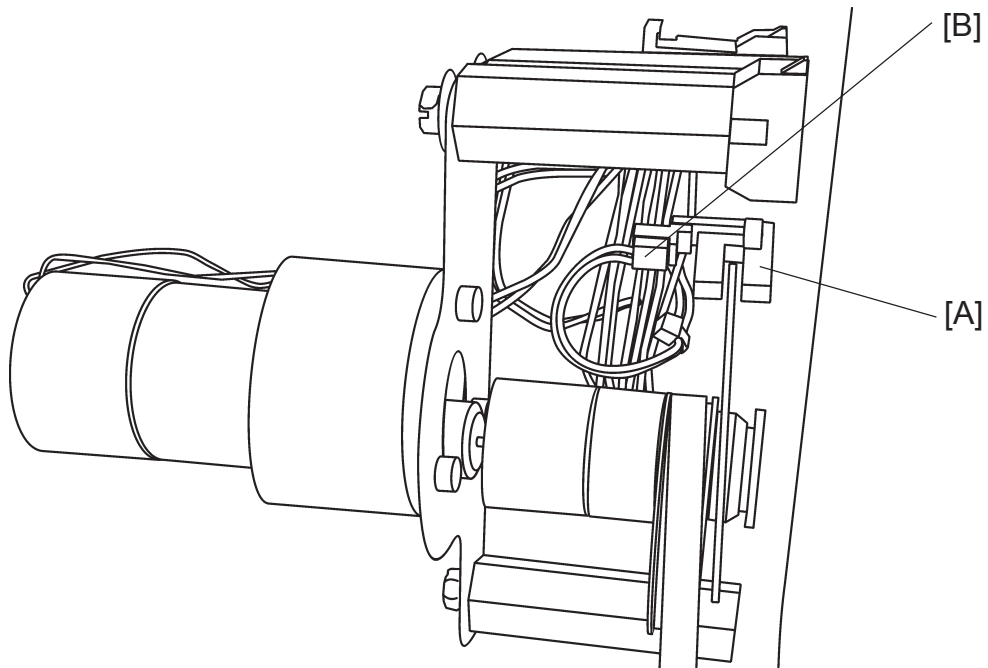
Replacement

1. Reverse the removal procedure.
2. Enter Service mode ((👉 5.1.1 in SR90 Service Manual).
3. Perform Cover Feeder motor calibration ((👉 5.5 in SR90 Service Manual).

Adjustment

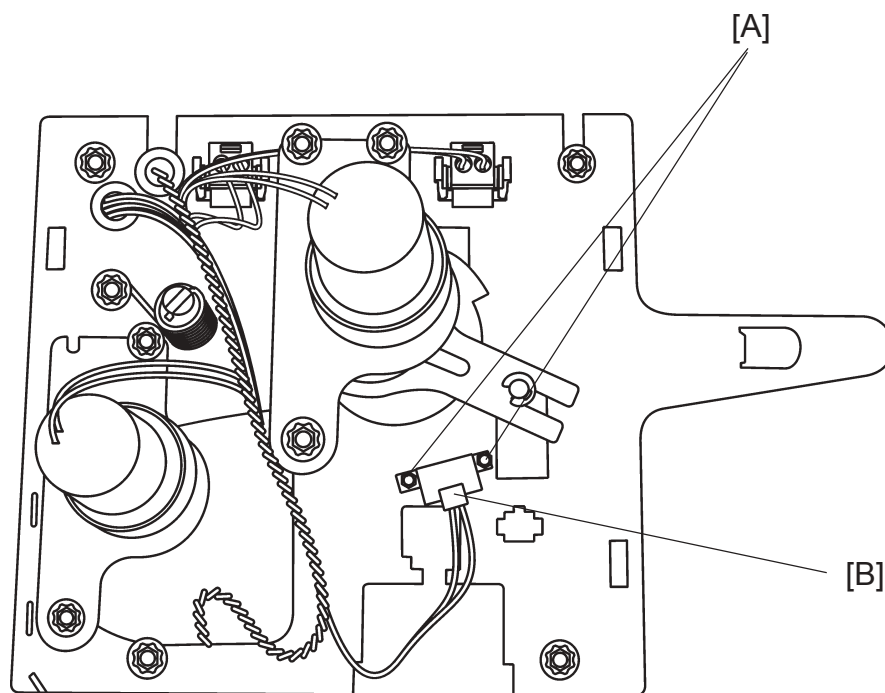
Adjust the Roller clutch assembly, so that the sensor activator is in the middle ± 0.5 mm of Bin home position sensor Q2 [F]. Adjust by loosen screw [D].

1.2.4 BIN HOME POSITION SENSOR Q2



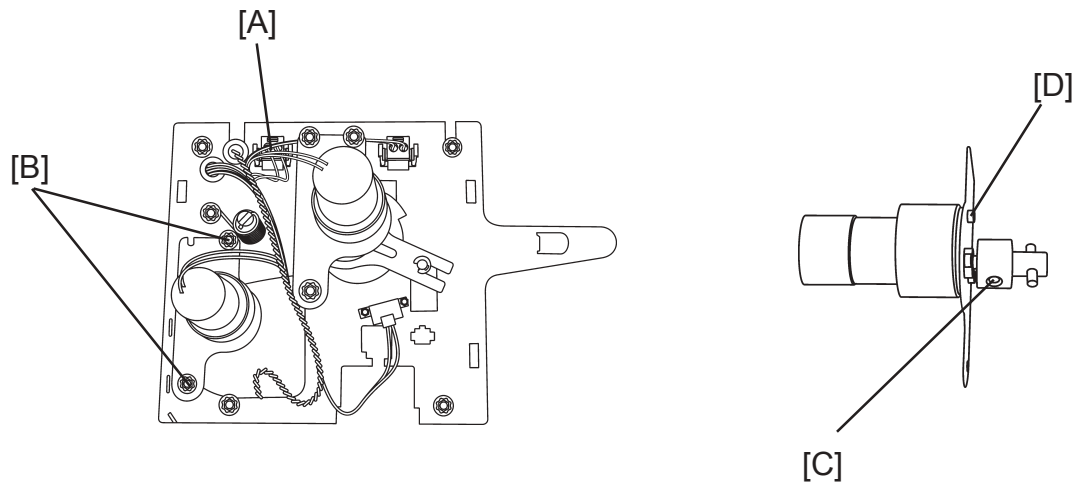
1. Remove Rear cover ((👉 1.1.1).
2. Remove Bin home position Sensor Q2 [A] (🔧 x1).
3. Remove Connector [B] (🔌 x1).

1.2.5 PAPER BIN LOW SENSOR Q5



1. Remove Rear cover ((👉 1.1.1) .
2. Remove Paper bin low sensor Q5 [A] (🔧 x2).
3. Remove connector [B] (🔌 x1).

1.2.6 DRIVE MOTOR M2 ASSEMBLY



Removal

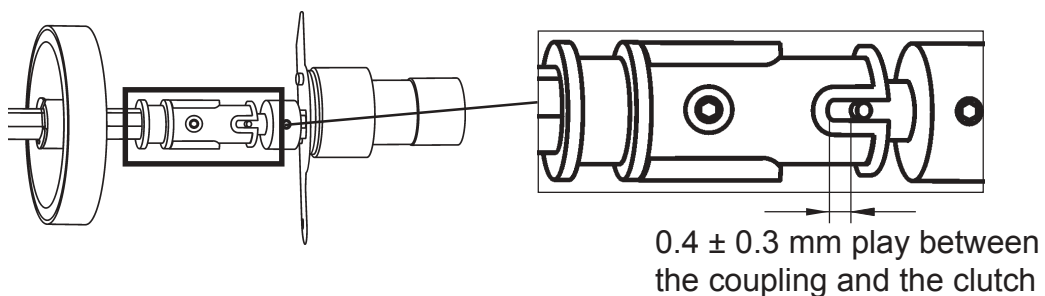
1. Remove Rear cover ((👉 1.1.1).
2. Disconnect Connector [A] (🔌 x1).
3. Remove Drive motor M2 assembly by removing screws [B] (🔩 x2).
4. Loosen the allen screw [C] to Drive clutch assembly (🔩 x1).
5. Remove the motor bracket by removing screws [D] (🔩 x3).

Replacement

1. Reverse the removal procedure.
2. Enter Service mode ((👉 5.1.1 in SR90 Service Manual).
3. Perform Cover Feeder motor calibration ((👉 5.5 in SR90 Service Manual).

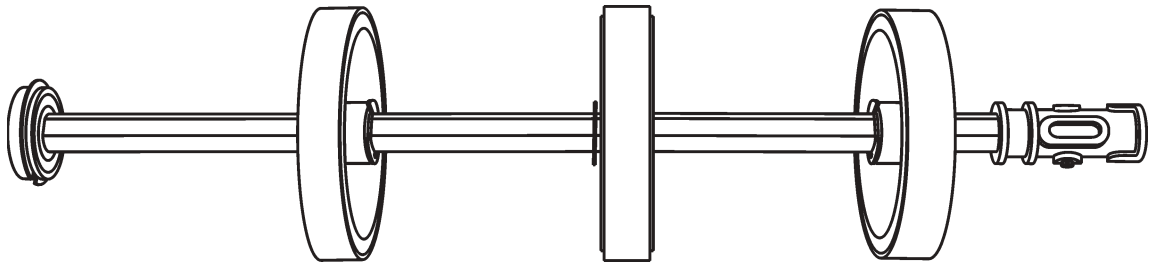
Adjustment

Adjust the Drive clutch assembly, so that there is a play between the coupling on the Drive shaft and the Clutch. The play should be 0.4 ± 0.3 mm. Adjust by loosen screw [C].



1.2.7 DRIVE SHAFT ASSEMBLY

Replacement
Adjustment



Removal

1. Remove Rear cover ((👉 1.1.1).
2. Remove Drive motor M2 assembly ((👉 1.2.6).
NOTE: Be careful when removing the Drive motor M2 assembly, so it will not damage LED sensor ((👉 3.1.2).
3. Remove the Drive motor M2 assembly, by sliding it out through the rear frame.

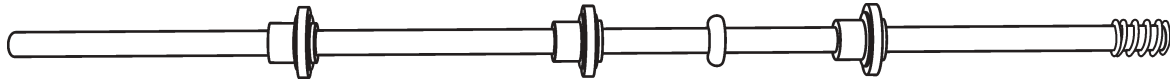
Replacement

1. Reverse the removal procedure.

Adjustment

Adjust the Drive clutch assembly ((👉 1.2.6).

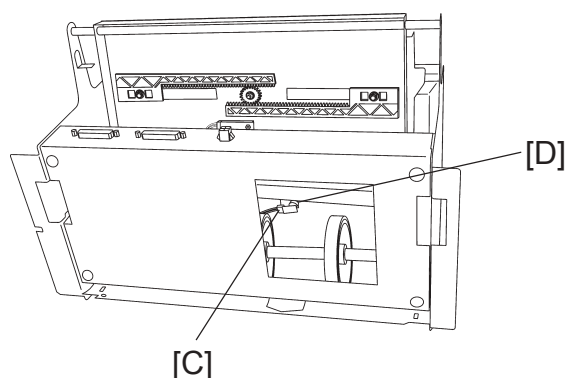
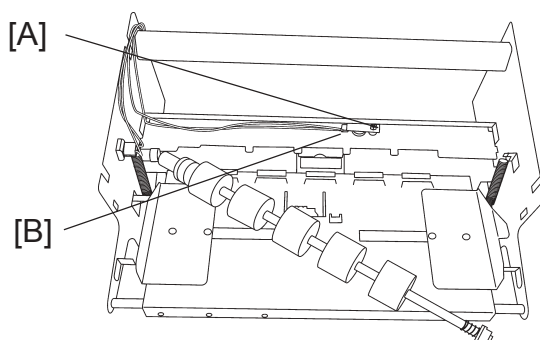
1.2.8 PINCH ROLL SHAFT ASSEMBLY



1. Remove the Pinch roll shaft assembly by pressing it to the rear side of the Cover Feeder.

1.2.9 PAPER PATH / DSD DETECTION SENSOR Q3

Replacement
Adjustment



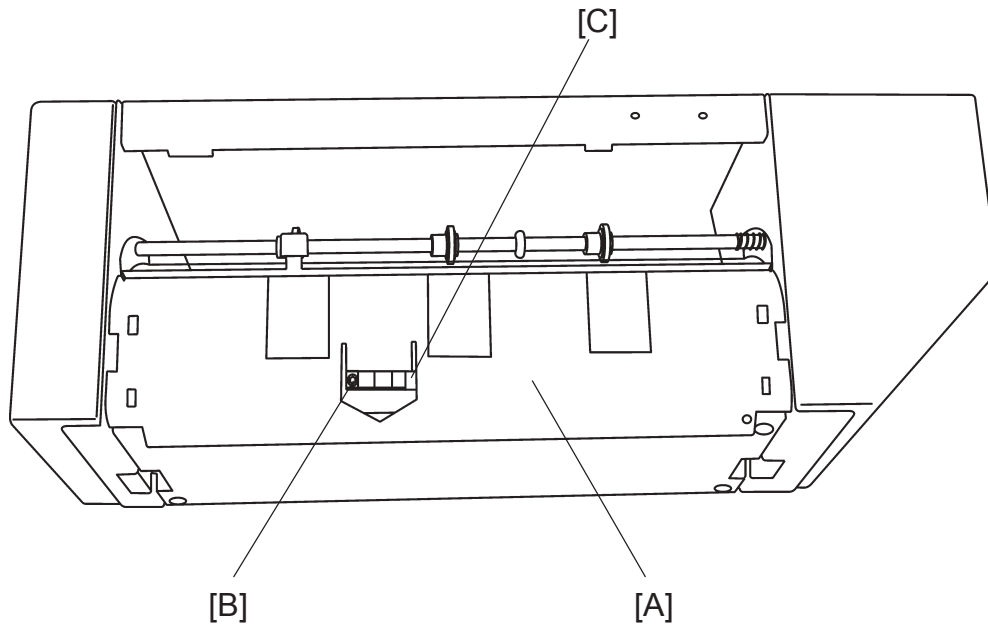
Removal

1. Remove nut [A] ((🔧) x1).
2. Disconnect Photo transistor connector [B] ((🔌) x1).
3. Remove Drive shaft assembly ((👉 1.2.7).
4. Disconnect LED connector [C] ((🔌) x1).
5. Loosen the LED nut [D] and slide off the connector ((🔧) x1).

Replacement

NOTE: Make sure to install the LED connector [C] correctly, so it will not interfere with the Drive shaft assembly.

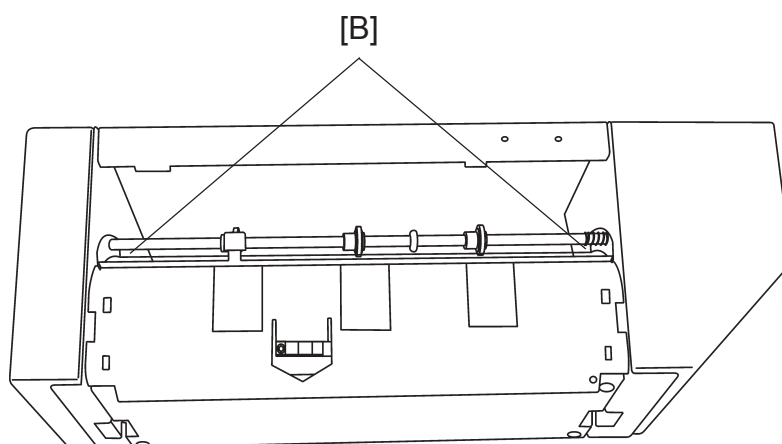
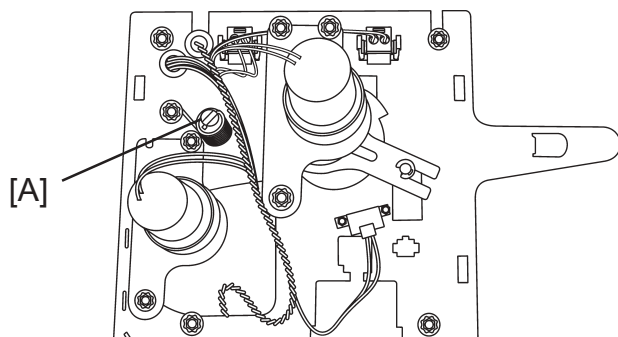
1. Reverse the removal procedure.
2. Enter Service mode ((👉 5.1.1 in SR90 Service Manual).
3. Perform Cover Feeder DSD sensor calibration ((👉 5.5 in SR90 Service Manual).

1.2.10 PAPER POSITIONING SENSOR Q4

1. Remove the Jam clearance baffle [A].
2. Remove screw [B] ( x1).
3. Disconnect connector [C] ( x1).

1.2.11 UPPER PAPER PATH

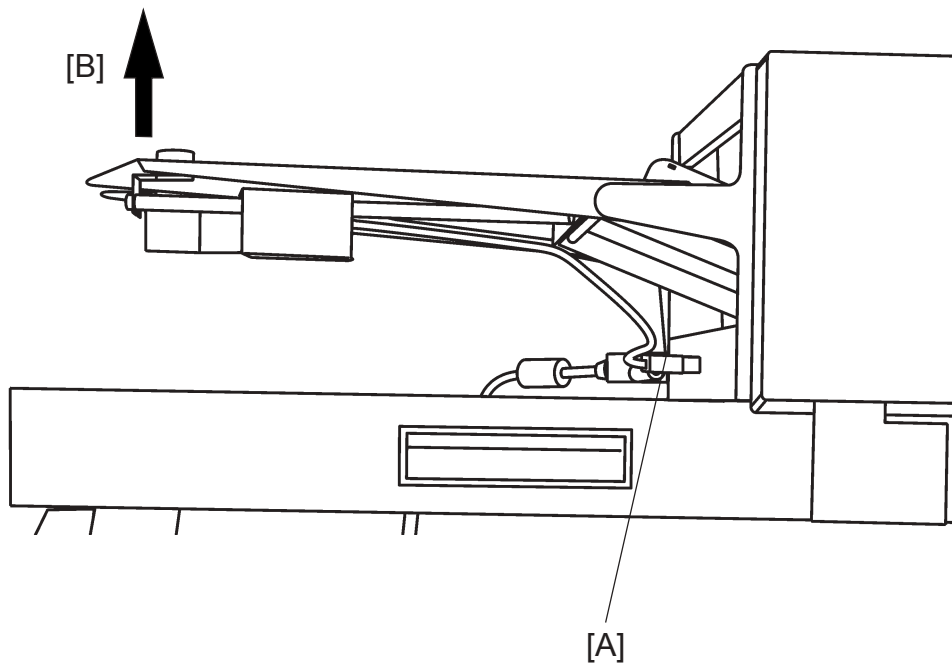
Replacement
Adjustment



1. Remove Front and Rear cover ((👉 2.1.1).
2. Remove Spring [A] on the Front and Rear side of the Cover Feeder (🌀 x2).
3. Remove screws [B] to Upper paper path (🔩 x2).

1.3 BIN EXTENSION PLATE

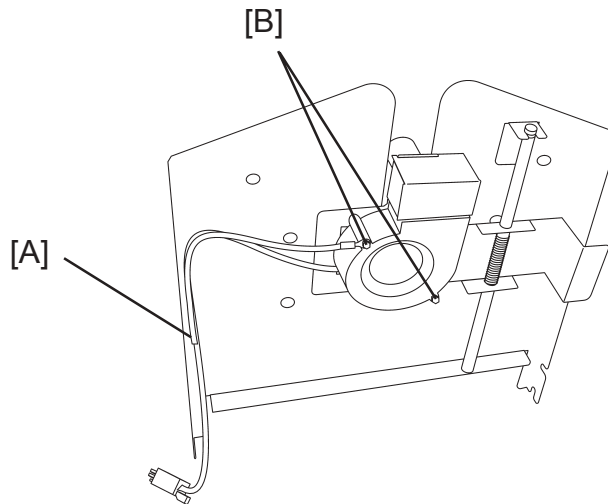
1.3.1 BIN EXTENSION PLATE ASSEMBLY



1. Remove connector and ground wire [A] to Bin extension plate assembly (⌘x2).
2. Lift up the Bin extension plate [B] and remove it.

1.3.2 BLOWER MOTOR M3

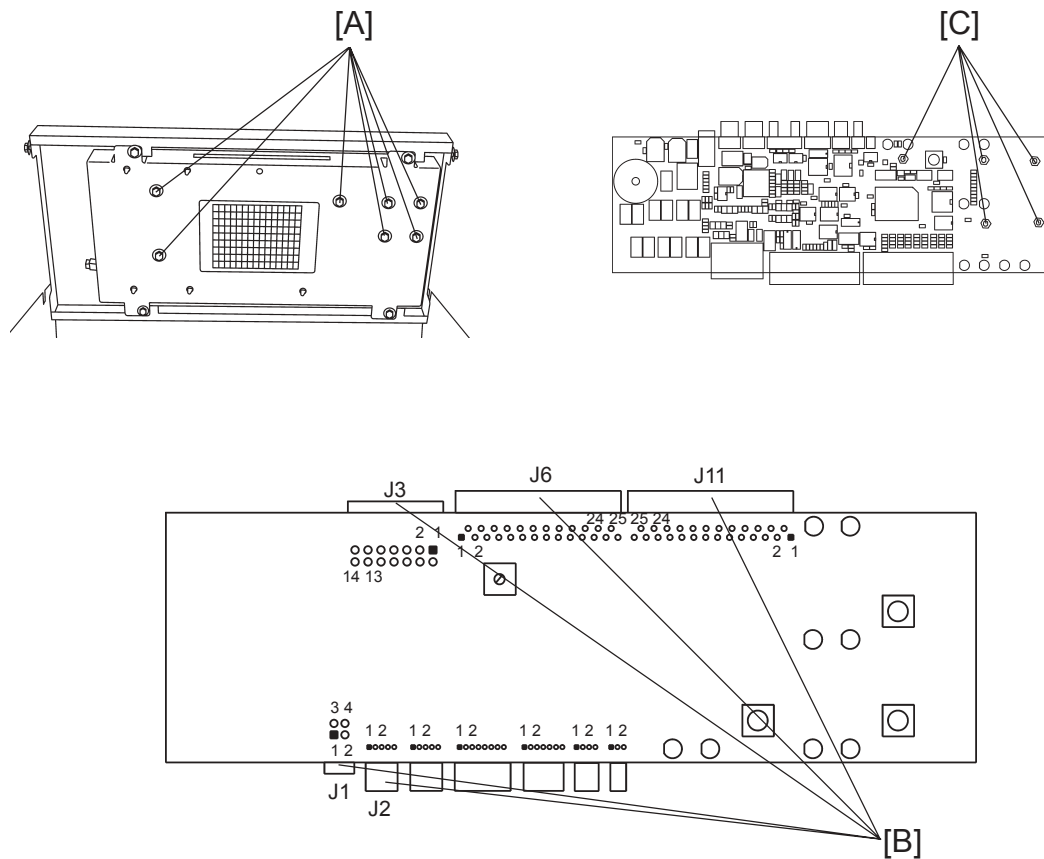
Replacement
Adjustment



1. Remove Bin extension plate assembly ((👉 1.3.1).
2. Remove Ground cable [A] (🔌 x1).
3. Remove Blower motor M3 [B] (🔩 x2)

1.4 PCB

1.4.1 MD3DC PCB "A"



Removal

1. Remove Front and Rear cover ((👉 1.1.1).
2. Open Top cover ((👉 1.1.2).
3. Remove screws [A] (🔧 x7).
4. Disconnect connectors [B] (🔌 x5).

NOTE: The Total counter will be set to 0 when changing MD3DC PCB.

Replacement

1. Reverse the removal procedure.
2. Enter Service mode ((👉 5.1.1 in SR90 Service Manual).
3. Perform Cover Feeder motor calibration ((👉 5.5 in SR90 Service Manual).

2. TROUBLESHOOTING

2.1 FAULT CODE DESCRIPTIONS

CF-001	CF-M1	Feed motor cycle time out	CF90-2-2
CF-002	CF-M1	Feed motor short circuit	CF90-2-2
CF-003	CF-M1	Feed motor open circuit	CF90-2-3
CF-004	CF-M2	Drive motor short circuit	CF90-2-3
CF-005	CF-M2	Drive motor open circuit	CF90-2-3
CF-008	CF-Q1	Empty bin sensor is faulty	CF90-2-4
CF-009	CF-Q3	Paper path / DSD sensor is faulty	CF90-2-5
CF-010	CF-Q4	Paper positioning sensor is faulty	CF90-2-5
CF-011	CF-Q5	Paper bin low sensor is faulty	CF90-2-6
CF-201	CF-Q3	Paper path / DSD sensor was Not blocked within timeout	CF90-2-7
CF-202	CF-Q3	Paper path / DSD sensor was Blocked exceeding timeout	CF90-2-7
CF-203	CF-Q4	Paper positioning sensor was Not blocked within timeout	CF90-2-7
CF-204	CF-Q4	Paper positioning sensor was Blocked exceeding timeout	CF90-2-8
CF-205		Double feed / Misfeed, Q3 DSD sensor	CF90-2-8
CF-401		Load covers, Q1 Empty bin sensor	CF90-2-8
CF-501		Load covers, Q5 paper bin low sensor	CF90-2-8

Trouble-
shooting

CF-001

Fault Code CF-001, indicates that the Feed motor (CF-M1) had a Cycle time out.

Initial Actions

- Check fuse F2 on Transformer.
- Enter the Service mode and select Feed motor (CF-M1) in check motors.
- Make sure that the Bin home position sensor (CF-Q2) is installed correctly.

Procedure

Enter the Service mode and select Bin home position sensor (CF-Q2) in check sensors. **The Bin home position sensor indicates D:1 when the sensor is blocked and D:0 when the sensor is unblocked?**

Y	N
	1. Replace sensor CF-Q2.
	2. Disconnect plug P11 from MD3DC PCB "A". Measure between J11-4 and J11-6 (5V and ground). The voltage is approximately 5 VDC.
	Y N
	Replace MD3DC PCB "A".
	Connect plug P11 to MD3DC PCB "A". Disconnect plug from sensor CF-Q2. Measure between the red wire Q2 and the black wire Q2 (5V and ground). The voltage is approximately 5 VDC.
	Y N
	Replace wire Harness.
	Connect the sensor CF-Q2 plug. Measure between J11-5 and J11-6 (5V and ground). The voltage is approximately 5 VDC.
	Y N
	Replace wire Harness.
	Replace MD3DC PCB "A".

Turn motor CF-M1 in both directions by hand. You should be able to use about the same amount of force throughout the turn.

Are you able to turn the motor without using a lot of force?

Y	N
	1. Make sure that there is no mechanical binding.
	2. Replace motor CF-M1.

1. Make sure that the allen screw on the Bin motor roller clutch assy is tighten.
2. Replace motor CF-M1.

CF-002

Fault Code CF-002, indicates that the Feed motor (CF-M1) has a Short circuit.

Initial Actions

- Check fuse F2 on Transformer.

Procedure

Disconnect the motor plug M1. Run the SDS again. **Fault code CF-003 (Open circuit) is displayed?**

Y	N
	Disconnect plug P3 from MD3DC PCB "A". Check wires for Short circuit across leads the orange wire M1 to P3-7 (violet) and the violet wire M1 to P3-14 (orange). Is there Short circuit?
	Y N
	Replace MD3DC PCB "A".
	Replace wire Harness.

Replace motor CF-M1.

CF-003

Fault Code CF-003, indicates that the Feed motor (CF-M1) has an Open circuit.

Initial Actions

- Check fuse F2 on Transformer.

Procedure

Disconnect the motor plug M1. Enter Service mode and start Feed motor (CF-M1) in check motors. Measure between the orange wire M1 and the violet wire M1 (PWM 36V and ground). **The voltage is approximately 36 VDC.**

Y

N

Disconnect plug P3 from MD3DC PCB "A". Measure between P3-7 and violet wire on the motor connector and between P3-14 and the orange wire on the motor connector.**Is there an open circuit in any of the wires.**

Y

N

Replace MD3DC PCB "A".

Replace wire Harness.

Replace motor CF-M1.

Trouble-shooting

CF-004

Fault Code CF-004, indicates that the Drive motor (CF-M2) has a Short circuit.

Initial Actions

- Check fuse F2 on Transformer.

Procedure

Disconnect the motor plug M2. Run the SDS again. **Fault code CF-005 (Open circuit) is displayed?**

Y

N

Disconnect plug P3 from MD3DC PCB "A". Check wires for Short circuit across leads the orange wire M2 to P3-6 (violet) and the violet wire M2 to P3-13 (orange). **Is there Short circuit?**

Y

N

Replace MD3DC PCB "A".

Replace wire Harness.

Replace motor CF-M2.

CF-005

Fault Code CF-005, indicates that the Drive motor (CF-M2) has an Open circuit.

Initial Actions

- Check fuse F2 on Transformer.

Procedure

Disconnect the motor plug M2. Enter Service mode and start Drive motor (CF-M2) in check motors. Measure between the orange wire M2 and the violet wire M2 (PWM 36V and ground). **The voltage is approximately 36 VDC.**

Y

N

Disconnect plug P3 from MD3DC PCB "A". Measure between P3-6 and violet wire on the motor connector and between P3-13 and the orange wire on the motor connector.**Is there an open circuit in any of the wires.**

Y

N

Replace MD3DC PCB "A".

Replace wire Harness.

Replace motor CF-M2.

CF-008

Fault Code CF-008, indicates that the Empty bin sensor (CF-Q1) is faulty.

Initial Actions

- Make sure that the Empty bin sensor (CF-Q1) is installed correctly.

Procedure

1. Replace sensor CF-Q1.
2. Disconnect plug P11 from MD3DC PCB "A". Measure between J11-1 and J11-3 (5V and ground). **The voltage is approximately 5 VDC.**

Y	N
	Replace MD3DC PCB "A".

Connect plug P11 to MD3DC PCB "A". Disconnect plug from sensor CF-Q1. Measure between the red wire Q1 and the black wire Q1 (5V and ground). **The voltage is approximately 5 VDC.**

Y	N
	Replace wire Harness.

Connect the sensor CF-Q1 plug. Measure between J11-2 and J11-3 (5V and ground). **The voltage is approximately 5 VDC.**

Y	N
	Replace wire Harness.

Replace MD3DC PCB "A".

CF-009

Fault Code CF-009, indicates that the Paper path / DSD sensor (CF-Q3) is faulty.

Initial Actions

- Make sure that the Paper path / DSD photo transistor sensor, and the Paper path / DSD LED sensor (CF-Q3) is installed correctly.
- Ensure that the Paper path / DSD sensor (CF-Q3) is clean.

Procedure

Disconnect plug J20. Measure between P20-2 and P20-1 (5V and ground) in the P-20 plug. **The voltage is approximately 5 VDC.**

Y	N				
	Connect plug J20. Disconnect plug P6 from MD3DC PCB "A". Measure between the J6-4 and J6-9 (5V and ground). The voltage is approximately 5VDC.				
	<table border="0"> <tr> <td style="vertical-align: top;">Y</td> <td style="vertical-align: top;">N</td> </tr> <tr> <td style="border-left: 1px solid black; height: 20px;"></td> <td>Replace MD3DC PCB "A".</td> </tr> </table>	Y	N		Replace MD3DC PCB "A".
Y	N				
	Replace MD3DC PCB "A".				
	Replace wire Harness.				

1. Connect plug J20.
2. Disconnect the Paper path / DSD photo transistor sensor plug. Measure between the white wire Photo transistor and the black wire Photo transistor (5V and ground). **The voltage is approximately 5 VDC.**

Y	N				
	Disconnect plug P6 from MD3DC PCB "A". Measure between the J6-10 and J6-22 (5V and ground). The voltage is approximately 5 VDC.				
	<table border="0"> <tr> <td style="vertical-align: top;">Y</td> <td style="vertical-align: top;">N</td> </tr> <tr> <td style="border-left: 1px solid black; height: 20px;"></td> <td>Replace MD3DC PCB "A".</td> </tr> </table>	Y	N		Replace MD3DC PCB "A".
Y	N				
	Replace MD3DC PCB "A".				
	Replace wire Harness.				

Replace MD3DC PCB "A".

CF-010

Fault Code CF-010, indicates that the Paper positioning sensor (CF-Q4) is faulty.

Initial Actions

- Make sure that the Paper positioning sensor (CF-Q4) is installed correctly.

Procedure

1. Replace sensor CF-Q4.
2. Disconnect plug P11 from MD3DC PCB "A". Measure between J11-7 and J11-9 (5V and ground). **The voltage is approximately 5 VDC.**

Y N
| Replace MD3DC PCB "A".

Connect plug P11 to MD3DC PCB "A". Disconnect plug J20. Measure between P20-6 and P20-8 (5V and ground) in the P-20 plug. **The voltage is approximately 5 VDC.**

Y N
| Replace wire Harness.

Connect the sensor CF-Q4 plug. Measure between J11-8 and J11-9 (5V and ground). **The voltage is approximately 5 VDC.**

Y N
| Replace wire Harness.

Replace MD3DC PCB "A".

Trouble-
shooting

CF-011

Fault Code CF-011, indicates that the Paper bin low sensor (CF-Q5) is faulty.

Initial Actions

- Check fuse F3 on Transformer.
- Make sure that the Paper bin low sensor (CF-Q5) is installed correctly.

Procedure

1. Replace sensor CF-Q5.
2. Disconnect plug P11 from MD3DC PCB "A". Measure between J11-10 and J11-12 (5V and ground). The voltage is approximately 5 VDC.

Y N
| Replace MD3DC PCB "A".

Connect plug P11 to MD3DC PCB "A". Disconnect plug from sensor CF-Q5. Measure between the red wire Q5 and the black wire Q5 (5V and ground). The voltage is approximately 5 VDC.

Y N
| Replace wire Harness.

Connect the sensor CF-Q5 plug. Measure between J11-11 and J11-12 (5V and ground). The voltage is approximately 5 VDC.

Y N
| Replace wire Harness.

Replace MD3DC PCB "A".

CF-201

Fault Code CF-201, indicates that during Run, the Paper path / DSD sensor (CF-Q3), was not blocked within timeout after the start signal from the copier, was detected.

Initial Actions

- Check fuse F2 on Transformer.
- Make sure that the Paper path / DSD photo transistor sensor, and the Paper path / DSD LED sensor (CF-Q3) is installed correctly.
- Ensure that the Paper path / DSD sensor (CF-Q3) is clean.

Procedure

Enter the Service mode and select Paper path / DSD sensor (CF-Q3) in check sensors. Block, then unblock, the CF-Q3 with a sheet of paper. **The Paper path / DSD sensor (CF-Q3) sensor indicates D:0 when the sensor is blocked and D:1 when the sensor is not blocked.**

Y	N
	Go to CF-009

1. Clean the feed rollers.
2. Make sure that the feed rollers are not worn out.
3. Check /clean the Paper separator pad.
4. Make sure that nothing interferes with the paper path in the Cover feeder.

CF-202

Fault Code CF-202, indicates that during Run, the Paper path / DSD sensor (CF-Q3), was blocked exceeding timeout

Initial Actions

- Check fuse F2 on Transformer.
- Make sure that the Paper path / DSD photo transistor sensor, and the Paper path / DSD LED sensor (CF-Q3) is installed correctly.
- Ensure that the Paper path / DSD sensor (CF-Q3) is clean.

Procedure

Enter the Service mode and select Paper path / DSD sensor (CF-Q3) in check sensors. Block, then unblock, the CF-Q3 with a sheet of paper. **The Paper path / DSD sensor (CF-Q3) sensor indicates D:0 when the sensor is blocked and D:1 when the sensor is not blocked.**

Y	N
	Go to CF-009

1. Clean the feed rollers.
2. Make sure that the Jam clearance baffle is installed correctly.
3. Make sure that nothing interferes with the paper path in the Cover feeder.

CF-203

Fault Code CF-203, indicates that during Run, the Paper positioning sensor (CF-Q4), was not blocked within timeout.

Initial Actions

- Check fuse F2 on Transformer.
- Make sure that the Paper positioning sensor (CF-Q4) is installed correctly.
- Ensure that the Paper positioning sensor (CF-Q4) is clean.

Procedure

Enter the Service mode and select Paper positioning sensor (CF-Q4) in check sensors. Block, then unblock, the CF-Q4 with a sheet of paper. **The Paper positioning sensor (CF-Q4) sensor indicates D:0 when the sensor is blocked and D:1 when the sensor is not blocked.**

Y	N
	Go to CF-010

1. Clean the feed rollers.
2. Make sure that the Jam clearance baffle is installed correctly.
3. Make sure that nothing interferes with the paper path in the Cover feeder.

CF-204

Fault Code CF-204, indicates that during Run, the Paper positioning sensor (CF-Q4), was blocked exceeding timeout.

Initial Actions

- Check fuse F2 on Transformer.
- Make sure that the Paper positioning sensor (CF-Q4) is installed correctly.
- Ensure that the Paper positioning sensor (CF-Q4) is clean.

Procedure

Enter the Service mode and select Paper infeed sensor (BM-Q1) in check sensors. Block, then unblock, the BM-Q1 with a sheet of paper. **The Paper infeed sensor (BM-Q1) sensor indicates D:0 when the sensor is blocked and D:1 when the sensor is not blocked.**

Y N
| Go to CF-010

1. Clean the Drive shaft tires.
2. Make sure that the Jam clearance baffle is installed correctly.
3. Make sure that nothing interferes with the paper path in the Cover feeder.

Trouble-
shooting

CF-205

Go to CF-009 Paper path / DSD sensor is faulty

CF-401

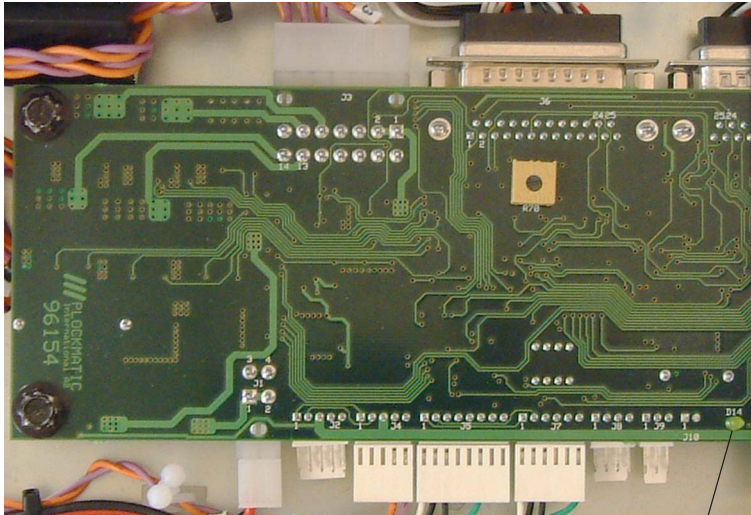
Go to CF-008 Empty bin sensor faulty.

CF-501

Go to CF-011 Paper bin low sensor faulty.

2.2 LEDS

PCB in Cover Feeder



D14

D14: Green LED flashes whenever information is sent or received on the Internal CAN. If power is switched on but no operations are performed, Green LED is off.

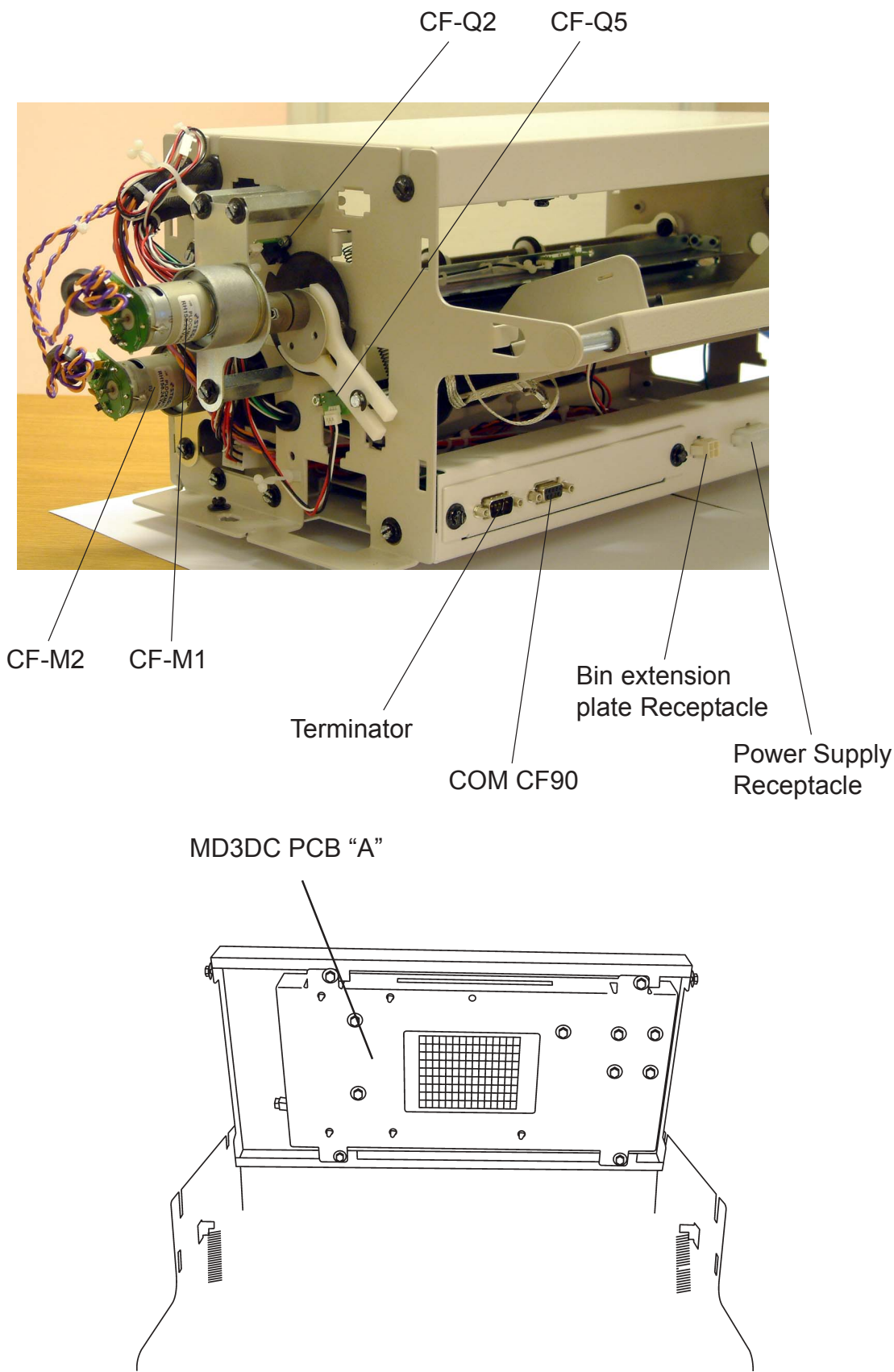
3. DETAILED SECTION DESCRIPTIONS

3.1 ELECTRICAL COMPONENT LIST

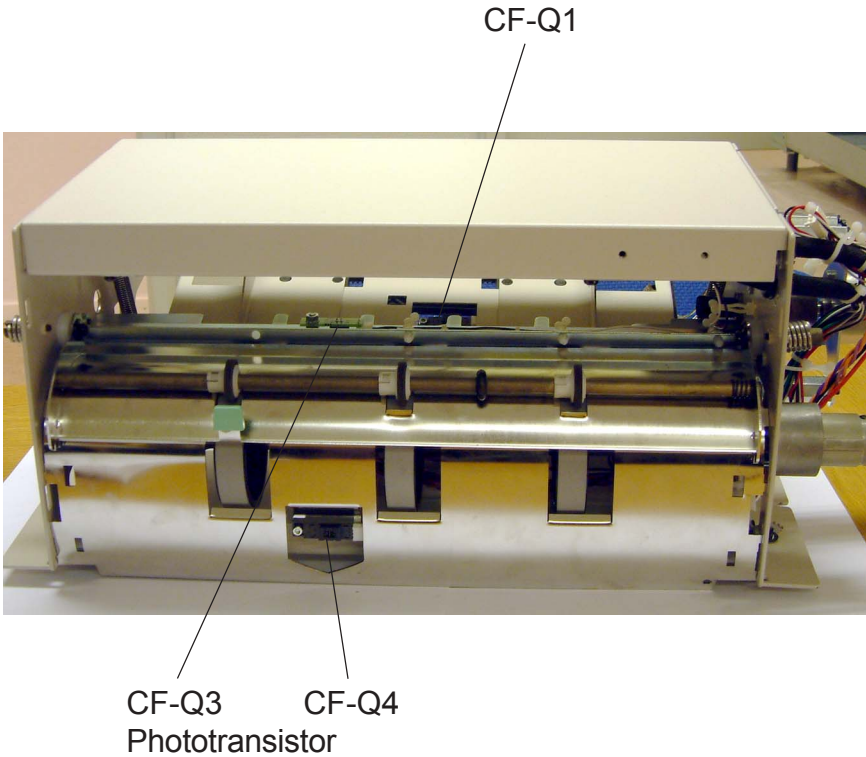
		Page	Grid code
CF-M1	Feed motor	CF90-3-2	A1
CF-M2	Drive motor	CF90-3-2	A1
CF-M3	Blower motor	CF90-3-4	B1
CF-Q1	Empty bin sensor	CF90-3-3	D1
CF-Q2	Bin home position sensor	CF90-3-2	G1
CF-Q3	Paper path / DSD detection sensor (Phototransistor)	CF90-3-3	C1
CF-Q3	Paper path / DSD detection sensor (LED)	CF90-3-3	C1
CF-Q4	Paper positioning sensor	CF90-3-3	E1
CF-Q5	Paper bin low sensor	CF90-3-2	F1
PCB	MD3DC PCB "A"	CF90-3-2	D1
Terminator		CF90-3-2	E8
Communication Cover Feeder		CF90-3-2	D8
Bin extension plate Receptacle		CF90-3-2	B2
Power supply Trimmer		CF90-3-2	B8

Detailed
description

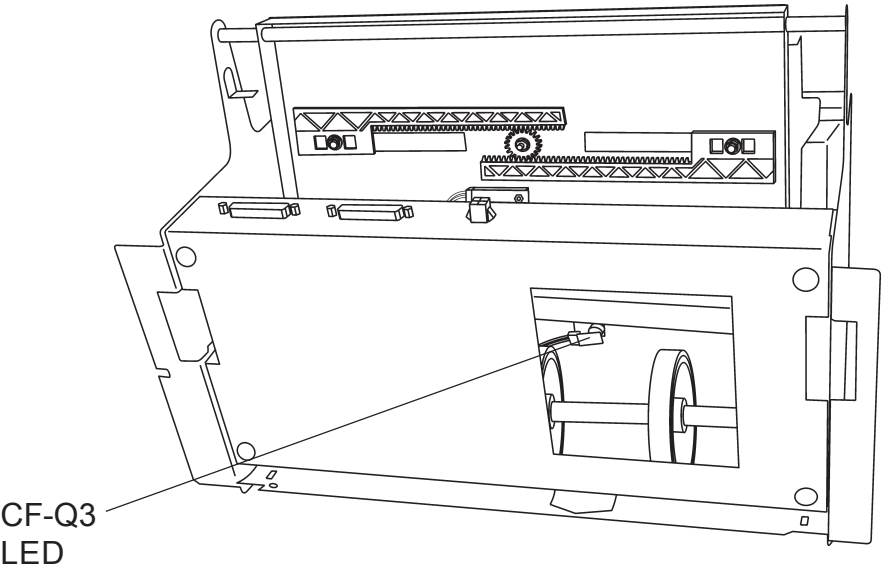
3.1.1 REAR VIEW



3.1.2 OUTFEED VIEW



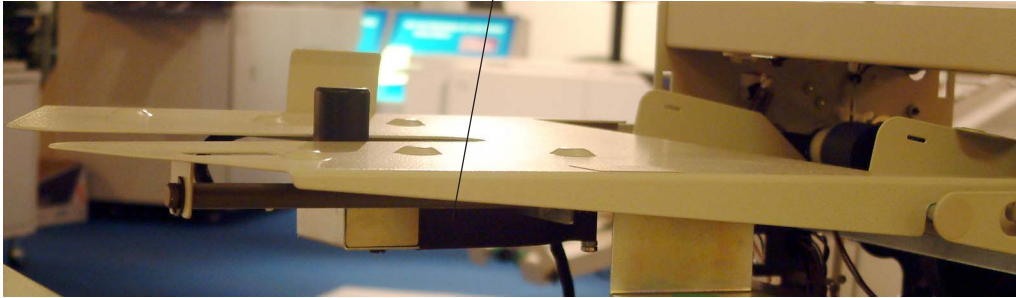
Detailed
description



Shown in tipped position for clarify

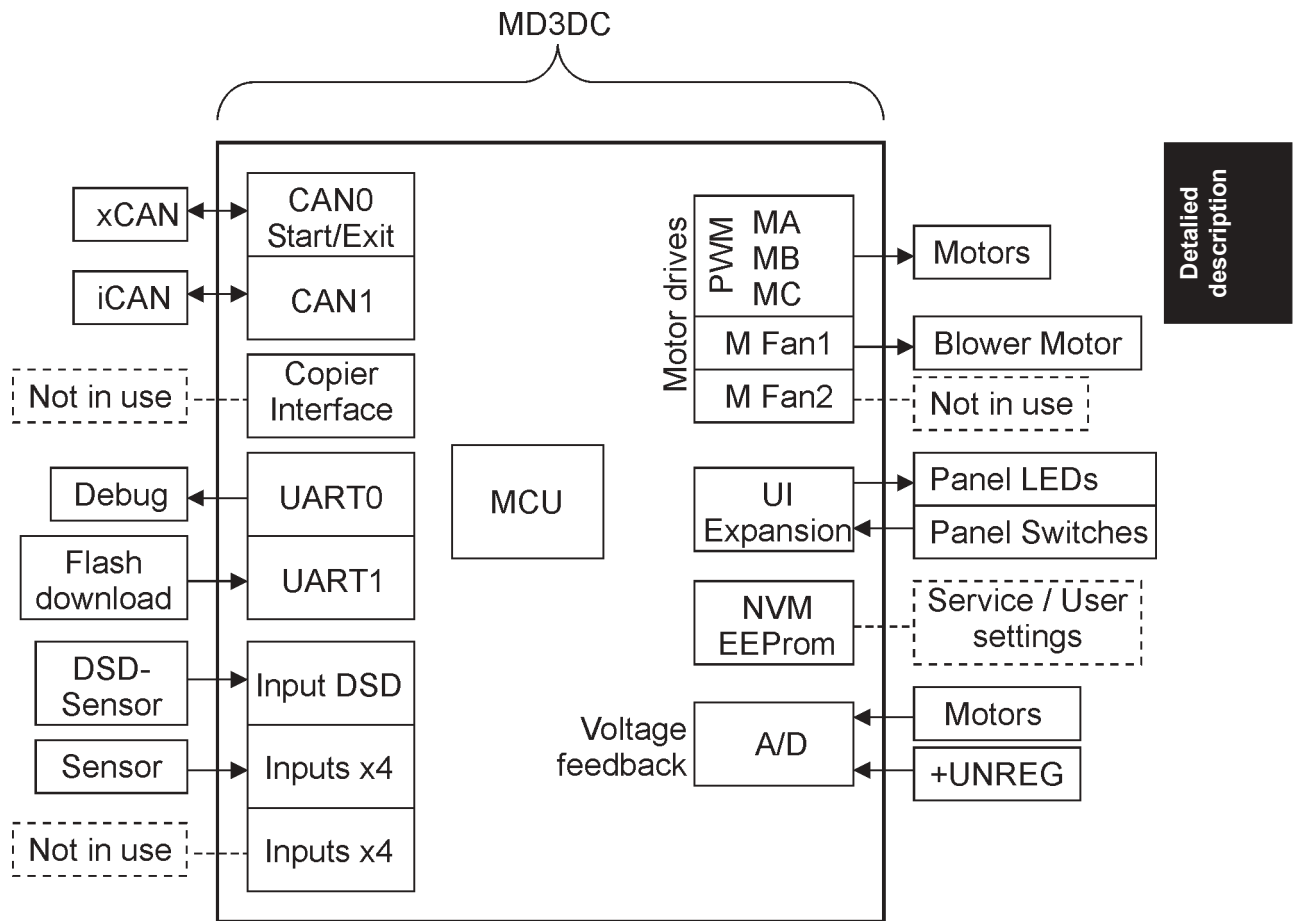
3.1.3 BIN VIEW

CF-M3



3.2 BOARD STRUCTURE

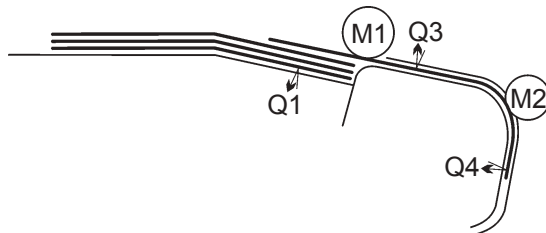
3.2.1 CONTROLLER MD3DC



3.3 COVER FEEDING PROCESS

3.3.1 PRINCIPLE OF OPERATION

Inserting covers



Cover on selected on the booklet maker UI.

Empty bin sensor (CF-Q1) detects that sheets are loaded. Feed motor (CF-M1) reverses moving the bin to the up position and stops by bin home position sensor (CF-Q2). The stack is now up against the feed roller. Blower motor (CF-M3) blows separation air into the stack for a while.

If sheets has been run previously, the cover feeder is now in ready mode.

If sheets has just been loaded, feed motor (CF-M1) and drive motor (CF-M2) starts and transports the sheet past sensor (CF-Q3). When paper positioning sensor (CF-Q4) is activated, both motors stop (CF-M1 & M2). The cover feeder is now in ready mode.

Copier sends a start signal.

Feed motor (CF-M1) and drive motor (CF-M2) starts*. First sensor (CF-Q3) becomes deactivated when first sheets leaves the sensor and activated again by the second sheet. Then sensor (CF-Q4) becomes deactivated and activated the same way. Both motors (CF-M1 & M2) stop when sensor (CF-Q4) becomes activated by the second sheet. A sheet has been pulled and cover feeder is back in ready mode.

**What separates the sheet distance from each other is that drive motor (CF-M2) is faster but weaker than feed motor (CF-M1). When both motors drives the sheet it runs on the feed motor's (CF-M1) speed. But as soon as the first sheet's trail edge is release from motor (CF-M1), the sheet accelerates and runs on the drive motor's (CF-M2) faster speed.*