BOOKLET MAKER SR90 / SR90+

SERVICE MANUAL

January 12, 2004
Subject to change

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IMPORTANT SAFETY NOTICES

PREVENTION OF PHYSICAL INJURY

Always connect the equipment to a properly grounded power source. In doubt, have the power source checked by a qualified electrician.

WARNING: Improper connection of the equipment grounding conductor can result in electrical shock.

Always follow all warnings marked on, or supplied with, the equipment.

Always locate the equipment on a solid support surface with adequate strength for the weight of the machine.

Always exercise care in moving or relocating the equipment.

Always keep magnets and all devices with strong magnetic field away from the machine.

Never use a ground adapter plug to connect the equipment to a power source that lacks a ground connection terminal.

Never attempt any maintenance function that is not specifically described in this documentation.

Never remove the covers or guards that are fastened with screws.

Never install the unit near a radiator or any other heat source.

Never override or “cheat” electrical or mechanical interlock devices.

Never operate the equipment if you notice unusual noises or odours. Disconnect the power cord from the power source and call your customer service engineer to correct the problem.

1. Before disassembling or assembling parts of the Booklet maker and peripherals. make sure that the Booklet maker power cord is unplugged,
2. The wall outlet should be near the Booklet maker and easily accessible.
3. Note that some components of the Booklet maker and peripherals are supplied with electrical voltage even if the main power switch is turned off.
4. If any adjustment or operation check has to be made with exterior covers off or open while the main switch is turned on, keep hands away from electrical or mechanically driven components.

OBSERVANCE OF ELECTRICAL SAFETY STANDARDS

1. The Booklet maker and its peripherals must be installed and maintained by a customer service representative who has completed the training course on those models.

SAFETY AND ECOLOGICAL NOTES FOR DISPOSAL

1. Dispose of replaced parts in accordance with local regulations.

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PERIPHERALS

TRIMMER TR90

PERIPHERALS

COVER FEEDER CF90

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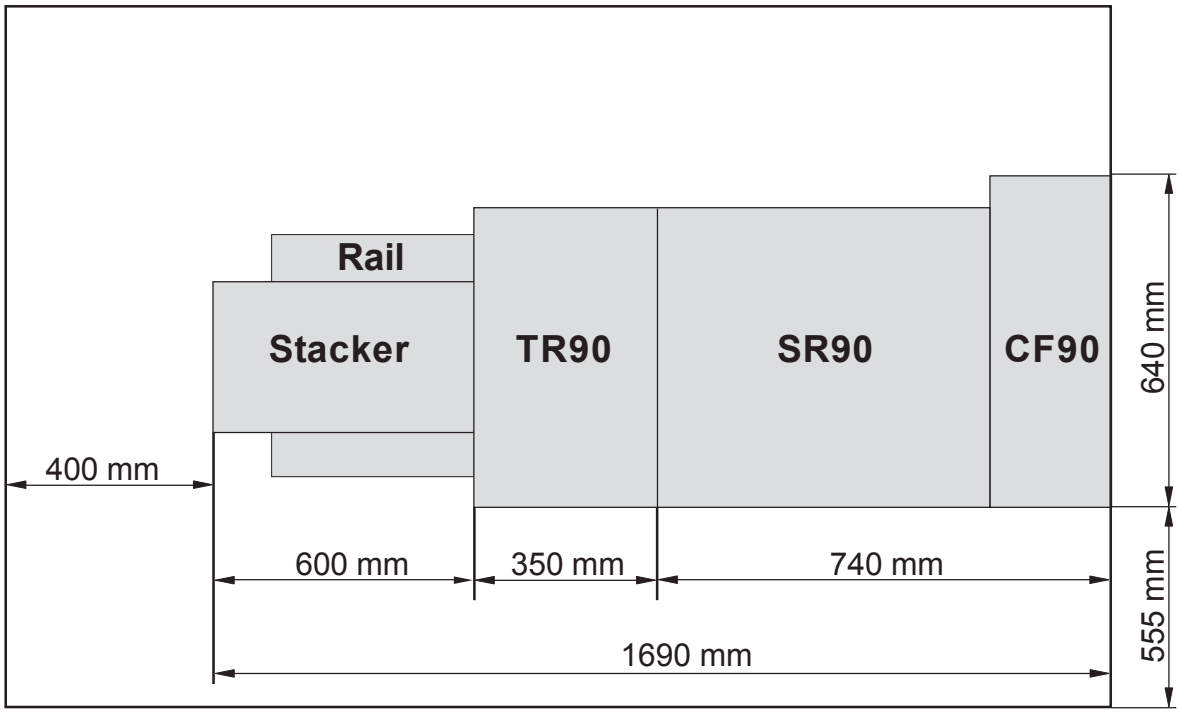
1. INSTALLATION PROCEDURE

1.1 INSTALLATION REQUIREMENTS

1.1.1 MINIMUM SPACE REQUIREMENTS



1.1.2 POWER REQUIREMENTS

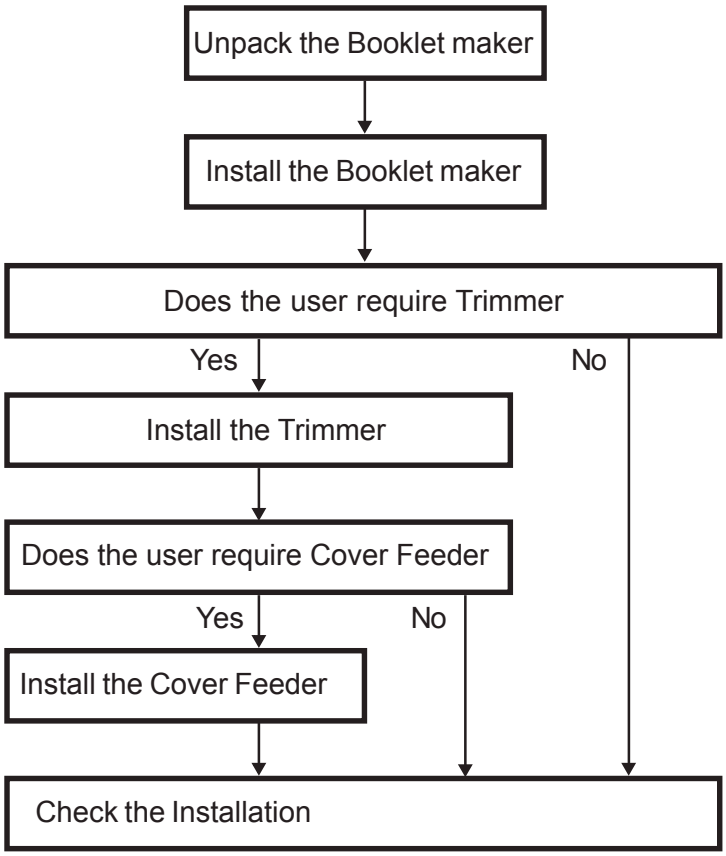
⚠ CAUTION

1. Make sure that the wall outlet is near the main machine and easily accessible. Make sure the plug is firmly inserted in the outlet.
2. Avoid multi-wiring.
3. Be sure to ground the machine.

1. Input voltage level:
   North America 115V, 50Hz/60Hz: More than 3 A.
   Europe/Asia 230V, 50Hz/60Hz: More than 1.5 A.
2. Permissible voltage fluctuation: ± 10%
3. Never set anything on the power cord.

1.2 INSTALLATION FLOW CHART

The following flow chart shows how to install the optional units more efficiently.

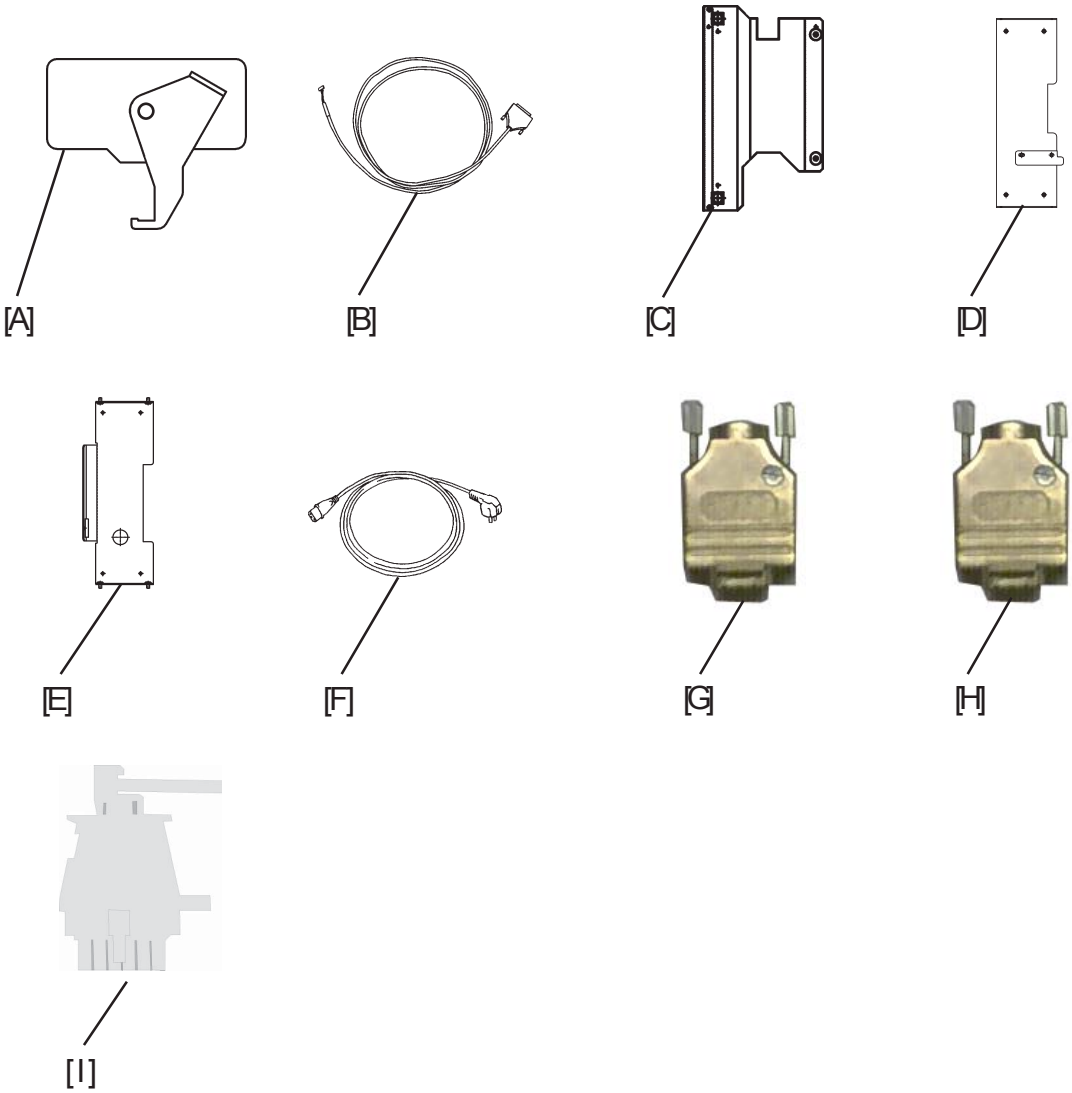


TR90 Trimmer: Enables On-line trimming. Especially thicker sets (> 4 sheets) look unprofessional because of ”creep”. TR90 will trim those edges (up to 12.5 mm / 1/2”).

CF90 Cover Feeder: Enables the possibility to add colour covers to the booklets.

1.3 BOOKLET MAKER INSTALLATION

1.3.1 ACCESSORY CHECK



Check the quantity and condition of the accessories in the box against the following list:

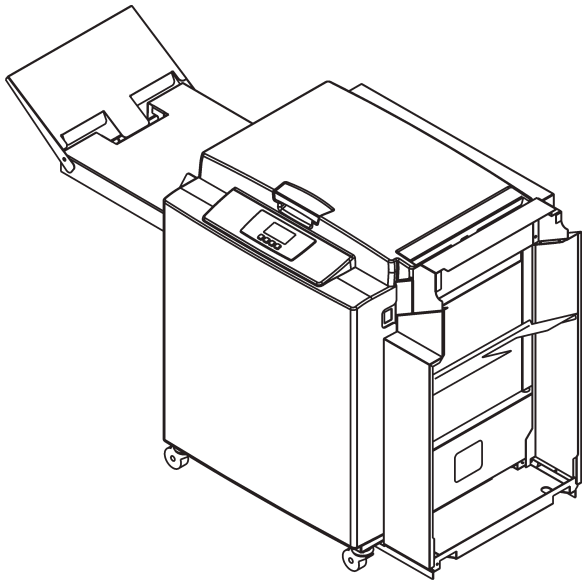
Description

A. Exit arm Catcher
B. Communication Cable for finisher SR840
C. Docking assembly for the finisher
D. Shift tray plate for finisher SR840
E. Exit tray plate
F. Powercord
G. Terminator CF90
H. Terminator TR90
I. Interlock Jumper (x2)

For Conversion kit to finisher SR810, check Bulletin RZP7 001.

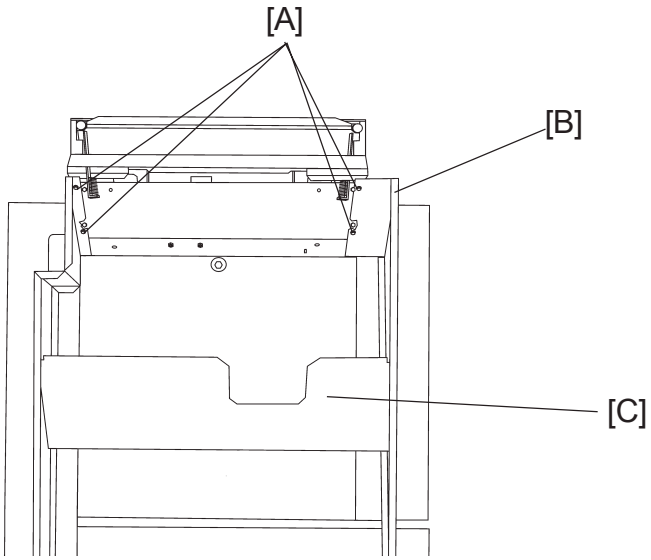
1.3.2 INSTALLATION PROCEDURE

Unpacking



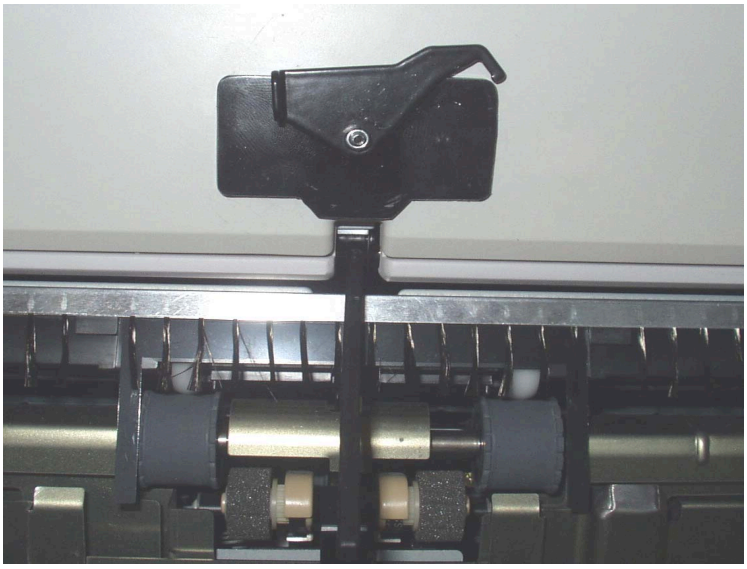
1. Remove all parts from the pallets. Slide the SR90 off the pallet, by pulling the two cardboard handles underneath the Booklet maker straight out [A].
2. Remove the two cardboard handles.

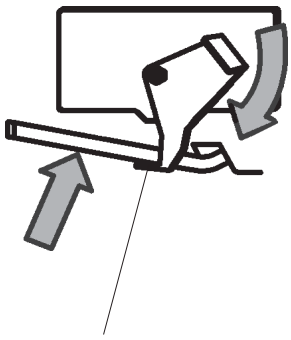
Panels and Shelf



1. Loosen [A] (x 4) .
2. Slide the top of the Panels [B] away from the screws. Remove the Panels and the Shelf [C].

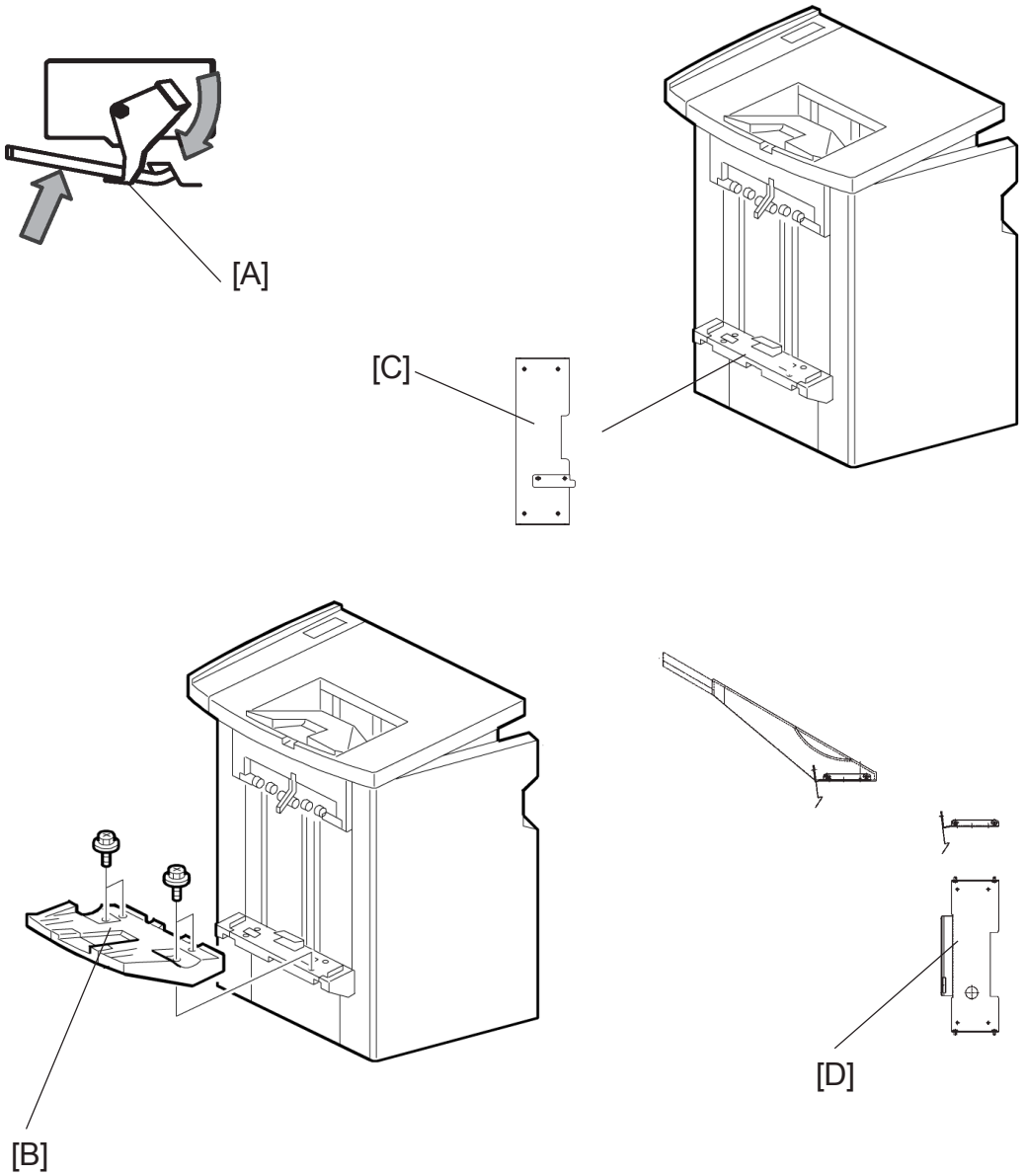
Exit arm catcher





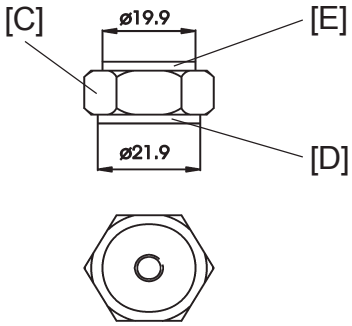
1. Remove the adhesive backing from the Exit arm catcher.
2. Install the Exit arm catcher so that the Exit paper arm is as high as possible. The nut on the Exit arm catcher should be centred over the Exit paper arm on the finisher, according to figure.
3. lift up the Exit paper arm, and set it onto the Exit arm catcher [A].

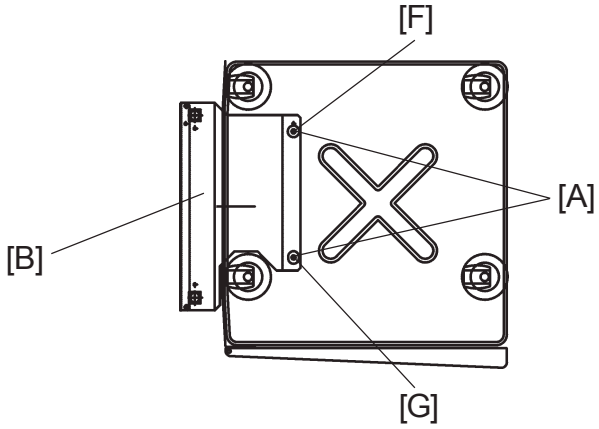
Copier exit tray



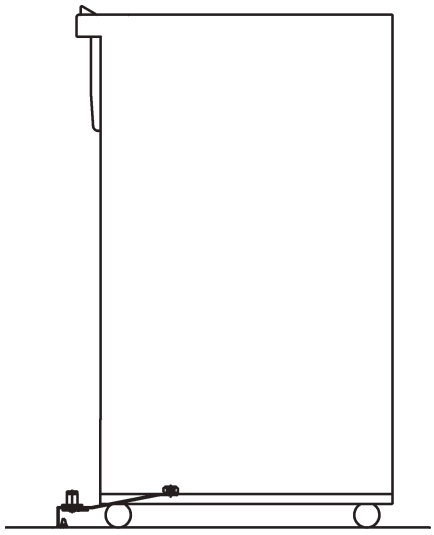
1. Make sure that the Exit paper arm is in the upper position [A].
2. Turn ON the Copier, the shift tray will go down to the lower position.
3. Turn OFF the copier.
4. Remove the finisher exit tray [B] (x 4).
5. Remove the plastic deflector, underneath the finisher exit tray.
6. Install the Shift tray plate [C] on to the finisher (x 4 counter screws from installation kit)
7. Install the Exit tray plate [D] on to the finisher exit tray (x 4 from installation kit).

Docking assembly





Finisher seen from above



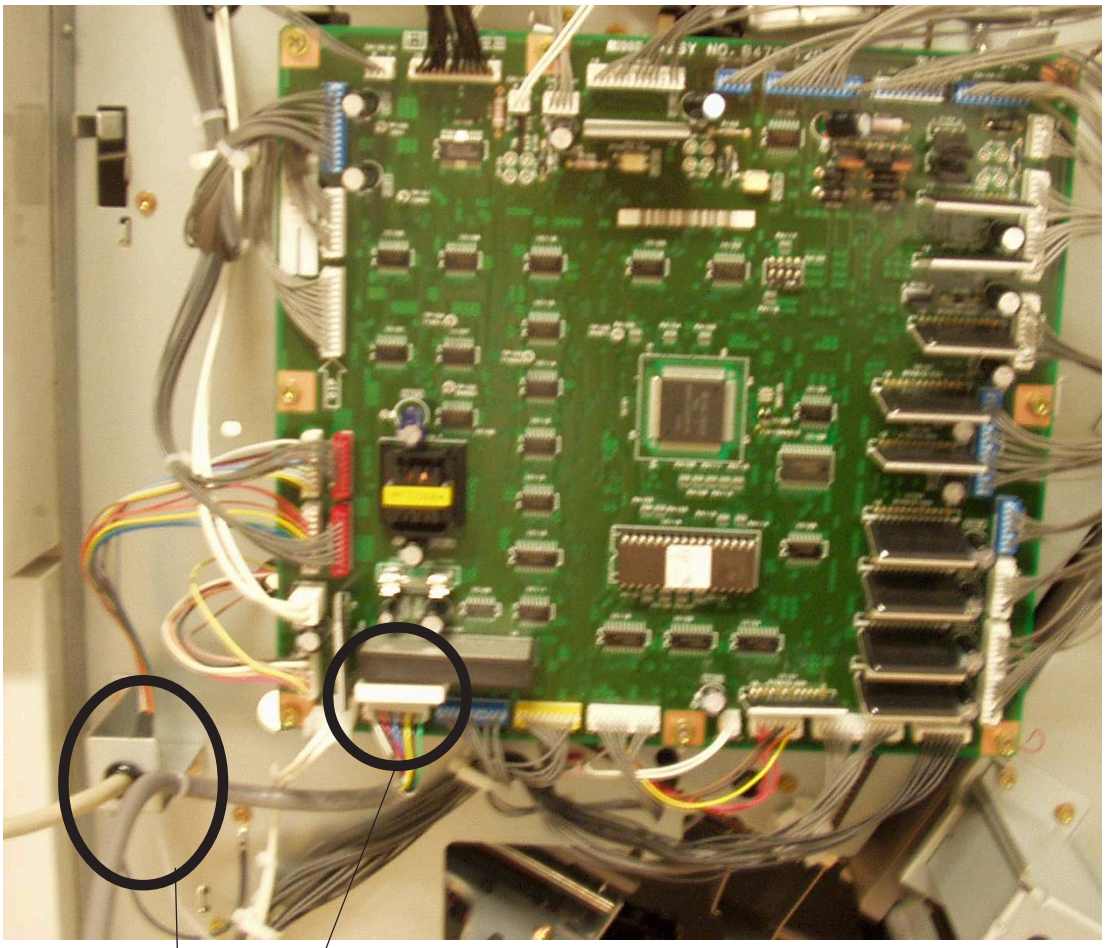
Finisher seen from front side

1. Remove the finisher rear cover (x 2).
2. Open the finisher door and pull out the stapling tray.
3. Remove black plastic covers [A] (x2) at the bottom of the finisher (x 2).
4. Install the docking assembly [B] in the holes under the black plastic covers [A].
   NOTE: Both of the nuts [C], that are installed on the docking assembly, have different diameters on each side of the nut. A big diameter [D] on one side, and a smaller diameter [E] on the other side.
5. Secure the docking assembly with the two nuts [C], using the multi tool.
   NOTE: Make sure you fit the nuts in the correct position. The bigger diameter should fit in the hole nearest the rear side [F] of the finisher. And the smaller diameter should fit in the hole nearest the front side [G] of the finisher.

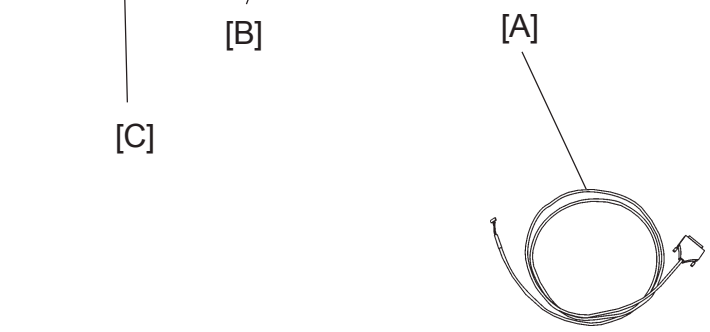
   NOTE: The Multi tool is located behind the rear cover of the Booklet maker (x 3).

   There shall be no play in the Docking assembly if mounted correctly.

Interface

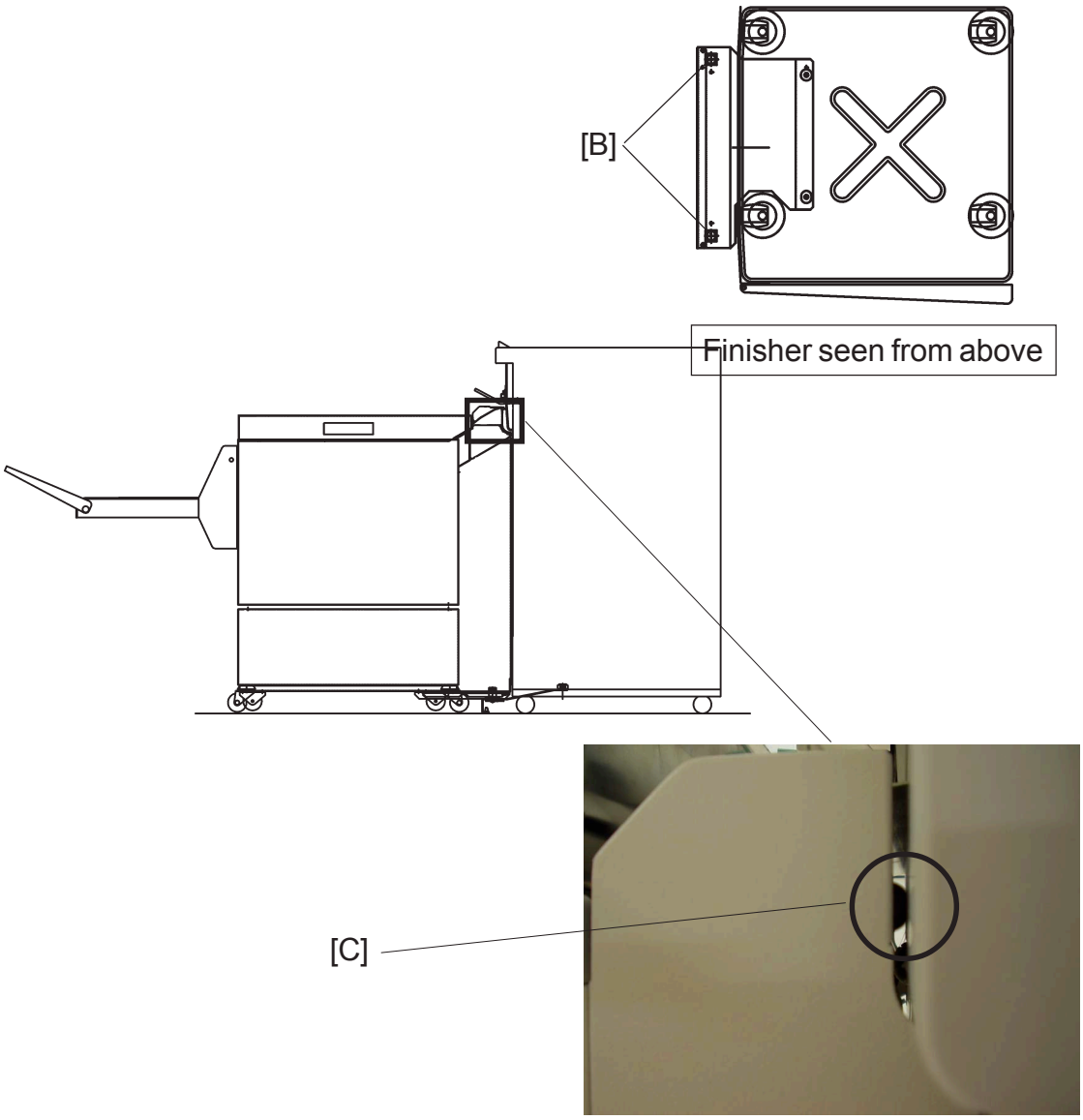


Finisher Main PCB



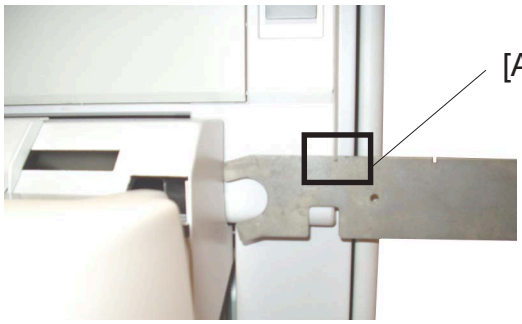
1. Install the Communication cable [A] from the installation kit, to connector CN132 on the finisher main board [B] (x1).
2. Secure the Communication cable in the finisher [C], with a tie wrap from the installation kit.

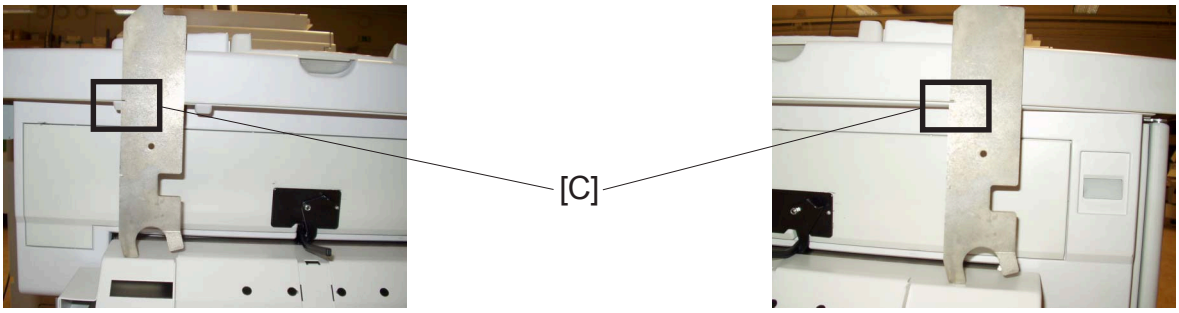
1.3.3 ADJUSTMENTS

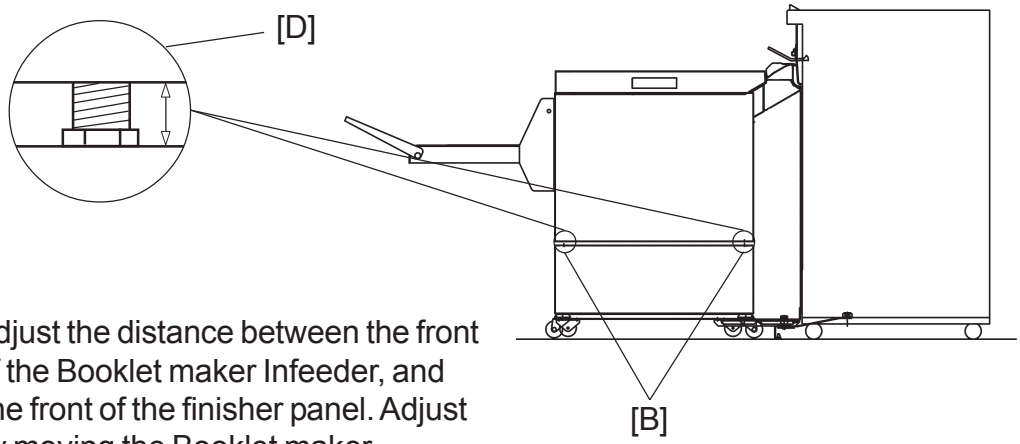


1. Loosen the two positioning pins [B] with the Multi tool.
2. Dock the Booklet maker to the Docking assembly.
   NOTE: Make sure that the Exit arm catcher have clearance.
3. Adjust the gap between the infeeder assembly and the finisher. Adjust by moving the Booklet maker.
   NOTE: The two black studs on the infeeder assembly should just have contact with the finisher cover [C].

   IT IS IMPORTANT THAT THE BOOKLET MAKER IS NOT INSTALLED TO CLOSE TO THE FINISHER.







4. Adjust the distance between the front of the Booklet maker Infeeder, and the front of the finisher panel. Adjust by moving the Booklet maker.
   NOTE: The distance should be within the first cut out [A] on the Multi tool.

5. Tighten the two positioning pins, with the Multi tool.
   NOTE: Before tightening the two positioning pins, make sure that both adjustments are correct.

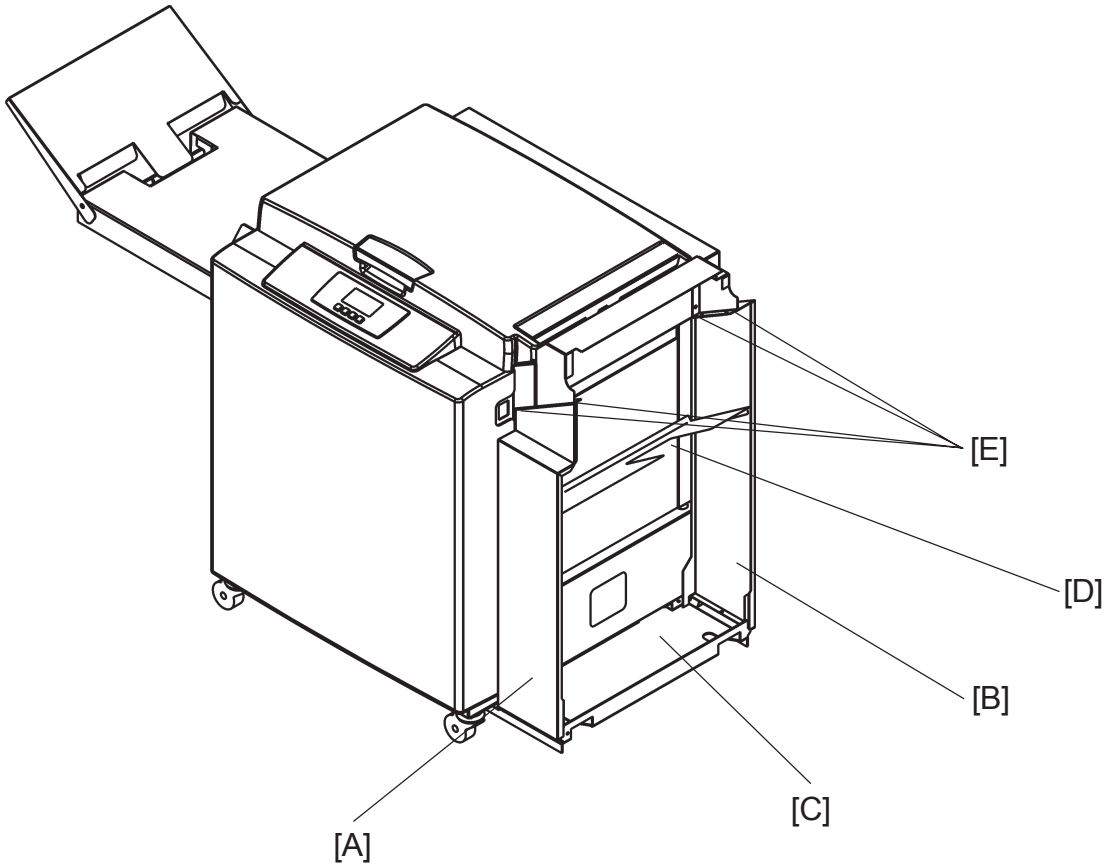
6. If installing a Rail. Install it now.

7. Remove the front cover by loosening two screws, and removing two screws (x4).

8. Adjust the height on the Booklet maker. Adjust by turning the four nuts [B] on the Booklet maker with the Multi tool (one revolution on the nuts is 2 mm / 5/64" in height). Adjust on front side and rear side.
   NOTE: Place the Multi tool on the infeeder of the Booklet maker, make sure that it is not placed on the manual feed guides. The distance should be within the second cut out (119 mm / 4 11/16") on the Multi tool [C], according to figures.

   The distance on the right side, and the left side of the Booklet maker should be equal [D].

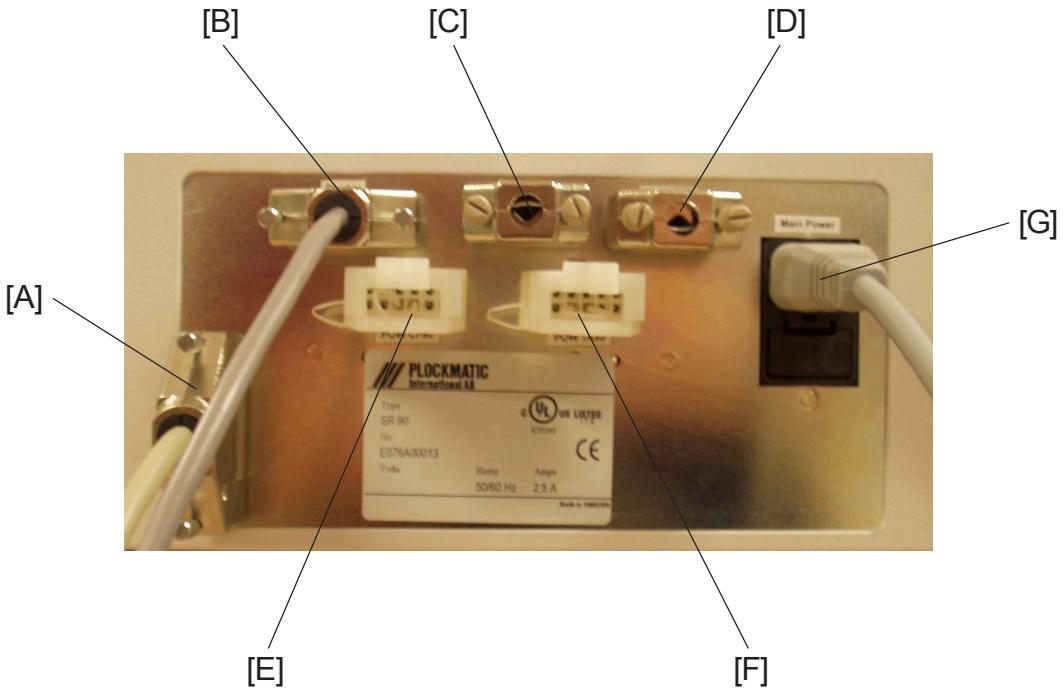
Panels and Shelf



1. Undock the Booklet maker.
2. Reinstall the front and rear cover (x 7).
3. Slide the front [A] and rear [B] panels in place, with the bottom first onto the docking assembly [C].
4. Put the shelf between the panels. Make sure to turn the shelf correct.
   NOTE: The cut out [D] should be away from the Booklet maker, NOT TOWARDS.
5. Slide the top of the panels under the screws on the infeeder, tighten [E] (x 4) .
6. Take the finisher exit tray and put it on the shelf [D].

1.3.4 CONNECTORS

1. Connect the communication cable [A] from the finisher (x1).
2. Connect the Belt stacker cable [B] (x1).
3. Install the Terminator plug [C] and the Interlock jumper [E], If not installing the optional Cover feeder CF90.
   NOTE: The Terminators and Interlock jumpers are stored in the installation kit.
4. Install the Terminator plug [D] and the Interlock jumper [F], If not installing the optional Trimmer TR90.
5. Connect the powercord [G] to the Booklet maker (x1).

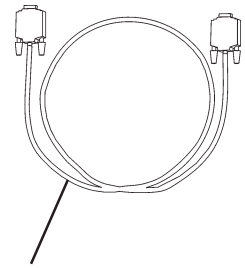


1.3.5 CHECK THE INSTALLATION

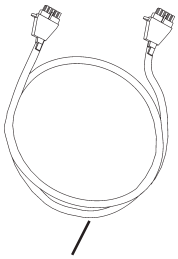
1. If installing a Trimmer TR90 or Cover Feeder CF90, continue to that section ((☛ 1.4 or 1.5).
2. Power on the Booklet maker.
   NOTE: Make sure that the finisher connector is connected to the copier.
3. Remove the two Stapler heads, according to section ((☛ 3.4.12).
4. Perform a Detailed self-diagnostic, according to section ((☛ 5.3.3)
5. Reinstall the two Stapler heads, according to section ((☛ 3.4.12).
6. Power on the Copier.
   NOTE: Make sure that the Booklet maker is powered ON before the Copier.
7. Set up the Booklet maker to Auto paper size.
8. Send one A4/8.5 x 11” job to the Booklet maker.
9. Check for the correct feeding of the paper.
   NOTE: The paper should enter in the middle of the infeeder. If not, adjust the Booklet maker according to section ((☛ 1.3.3).
10. Send one A3/11 x 17” job to the Booklet maker.
11. Check for the correct feeding of the paper.
    NOTE: The paper should enter in the middle of the infeeder. If not, adjust the Booklet maker according to section ((☛ 1.3.3).

1.4 TRIMMER INSTALLATION

1.4.1 ACCESSORY CHECK



[A]



[B]

Check the quantity and condition of the accessories in the box against the following list:
NOTE: The Installation Box is located in the trim bin on the Trimmer.
NOTE: The trim bin is tie wraped on the rear side.

Description

A. Communication Cable between the Booklet maker and Trimmer

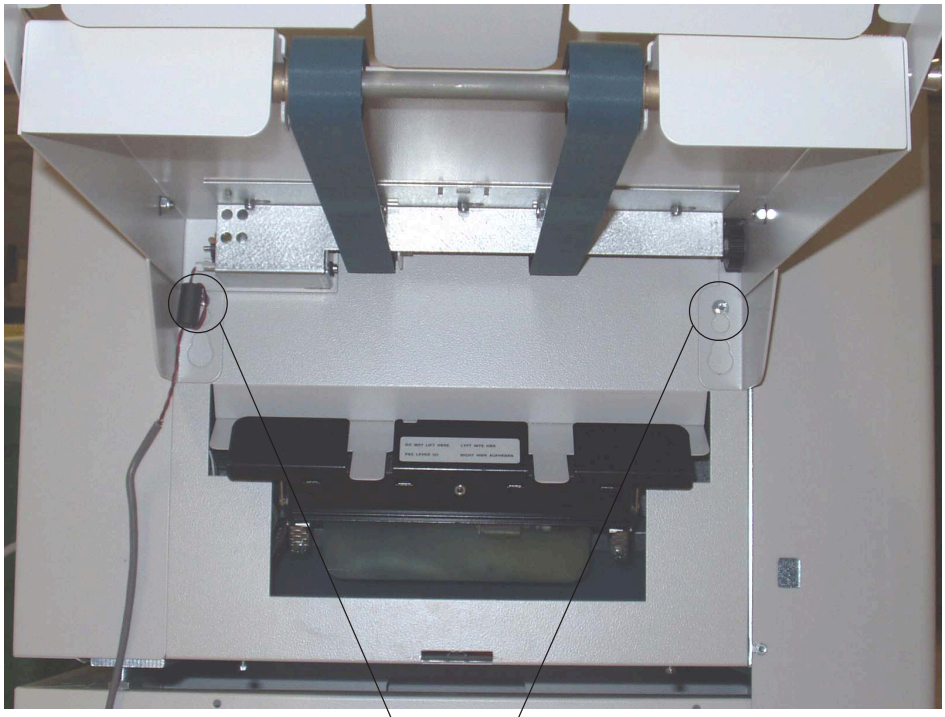
B. Powercord between the Booklet maker and Trimmer

1.4.2 ADJUSTMENTS

Unpacking

1. Remove all parts from the pallets.
2. Ensure all of the packing material is removed from the outside of the Trimmer.

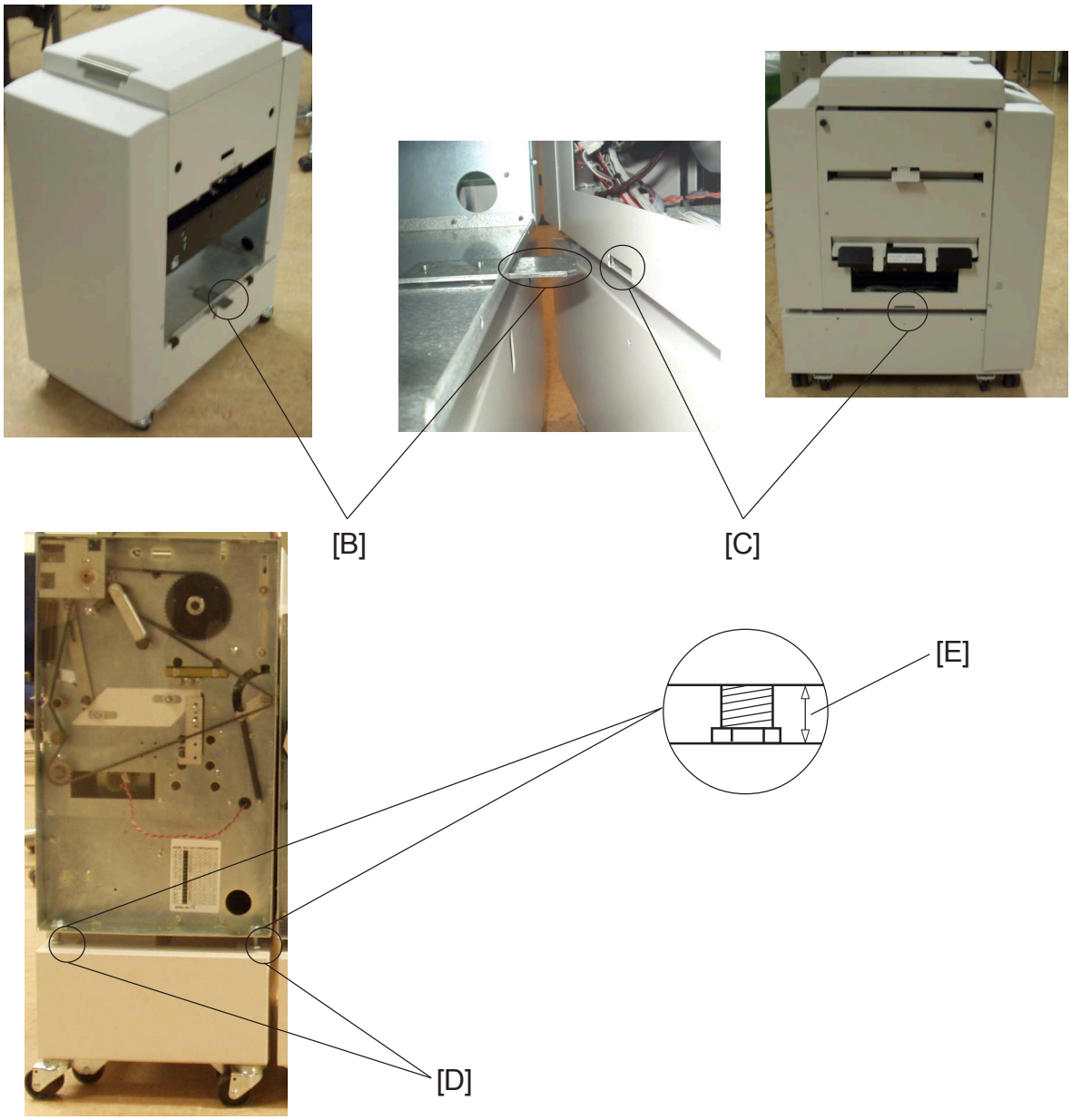
Remove the belt stacker



[A]

1. Remove screws [A] (x 2).
2. Disconnect the Belt stacker cable (x 1).
3. Remove belt stacker from SR90.

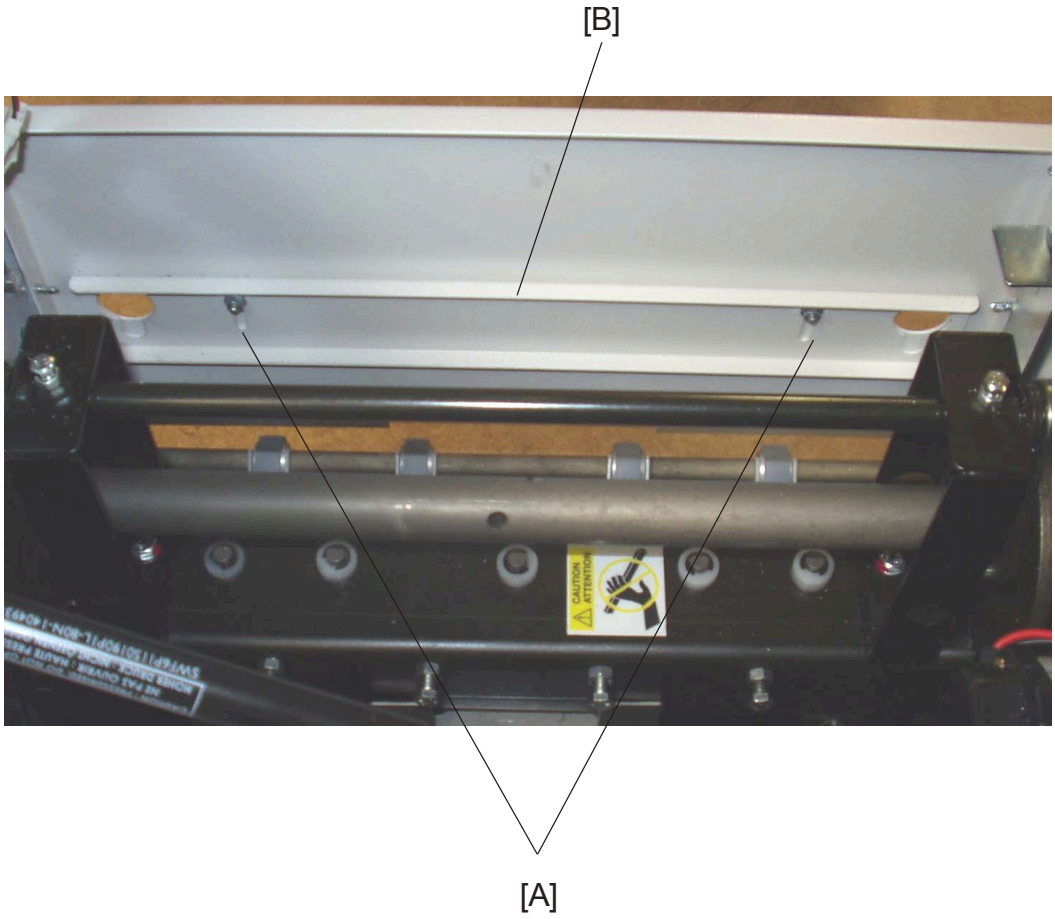
Height adjustment

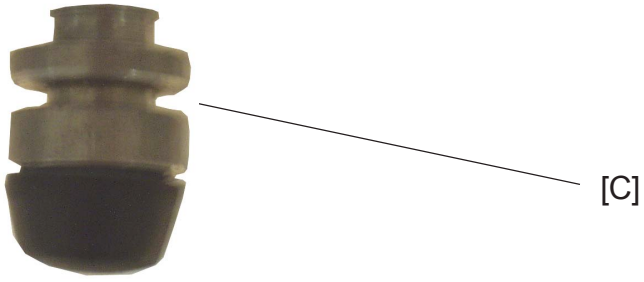


1. Remove the front cover by loosen two screws, and removing two screws (x 4).
2. Move the Trimmer up to the Booklet maker.
3. Adjust the height on the Trimmer, so that the docking bracket [B] on the Trimmer fits in the docking hole [C] on the Booklet maker (one revolution on the nuts is 1,5mm / 1/16” in height). Adjust by turning the four nuts [D] on the Trimmer with the caster tool.
   NOTE: Make sure that the Ground plate on the docking bracket [B], is grounded correctly.

1.4.3 INSTALLATION PROCEDURE

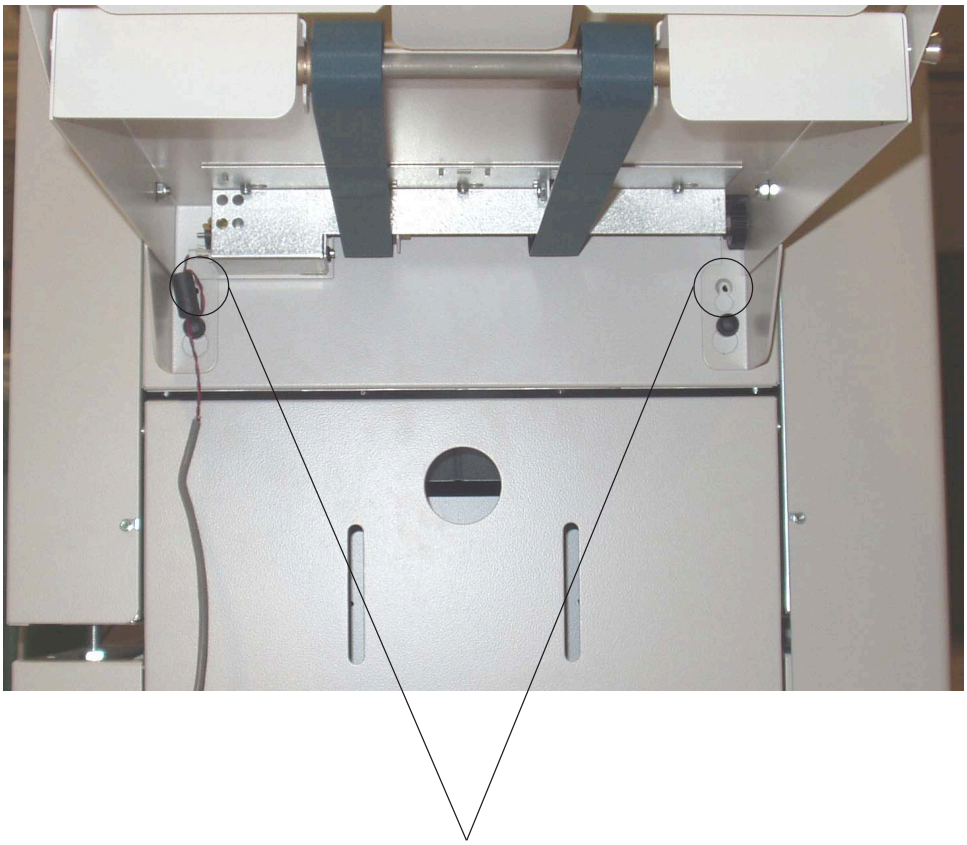
Docking





1. Loosen nuts [A] to the Locking bracket [B] (x 2).
2. Dock the Trimmer to the Booklet maker.
3. Secure the Trimmer by lifting the Locking bracket [B] and tightening nuts [A] (x 2).
   NOTE: Make sure that the Trimmer locking bracket [B] locks in the outer slots [C] on the positioning pins.

Install Belt stacker

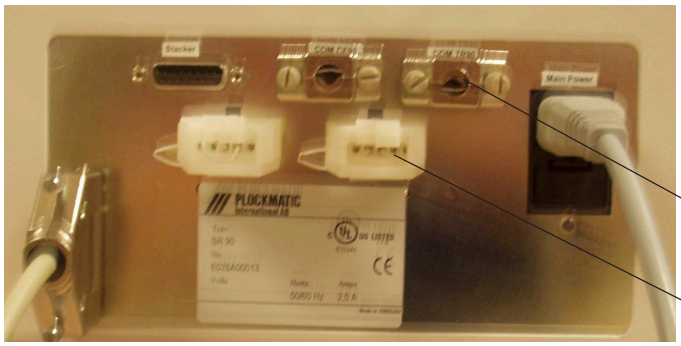


1. Install the Belt stacker on to the Trimmer.
2. Secure the Belt stacker with the screws [A] you removed from the Booklet maker (x 2).

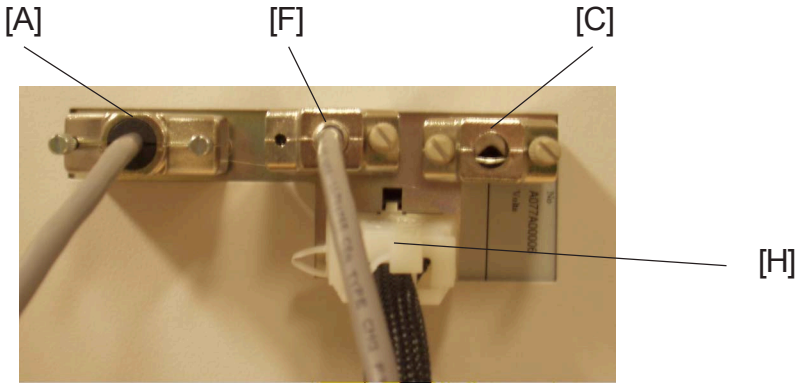
1.4.4 CONNECTORS

Connectors when only a Trimmer is installed

1. Connect the Belt stacker cable [A] to the Trimmer (x1).
2. Remove the Terminator plug from the Booklet maker [B] (x1).
3. Connect the Terminator plug on the Trimmer [C] (x1).
4. Remove the Interlock jumper [D] from the Booklet maker (x1).
5. Connect the Interlock jumper to the Booklet maker frame [E] (x1). (see next page)
6. Connect the communication cable to the Trimmer [F] (x1). NOTE: The communication cable you received with the Trimmer.
7. Connect, the other end of the communication cable, to the Booklet maker [G] (x1). (see next page)
8. Connect the powercord to the Trimmer [H] (x1).
9. Connect, the other end of the powercord, to the Booklet maker [I] (x1). (see next page)
10. Secure the cables between the Booklet maker and the Trimmer in the cable holders on the Booklet maker base.



Booklet maker SR90



Trimmer TR90

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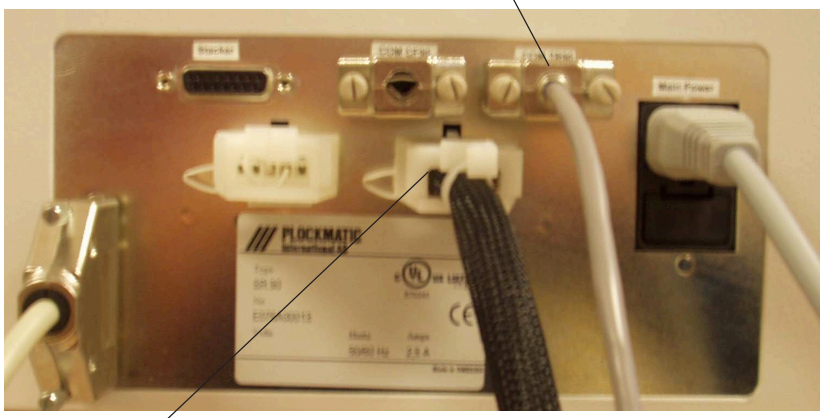
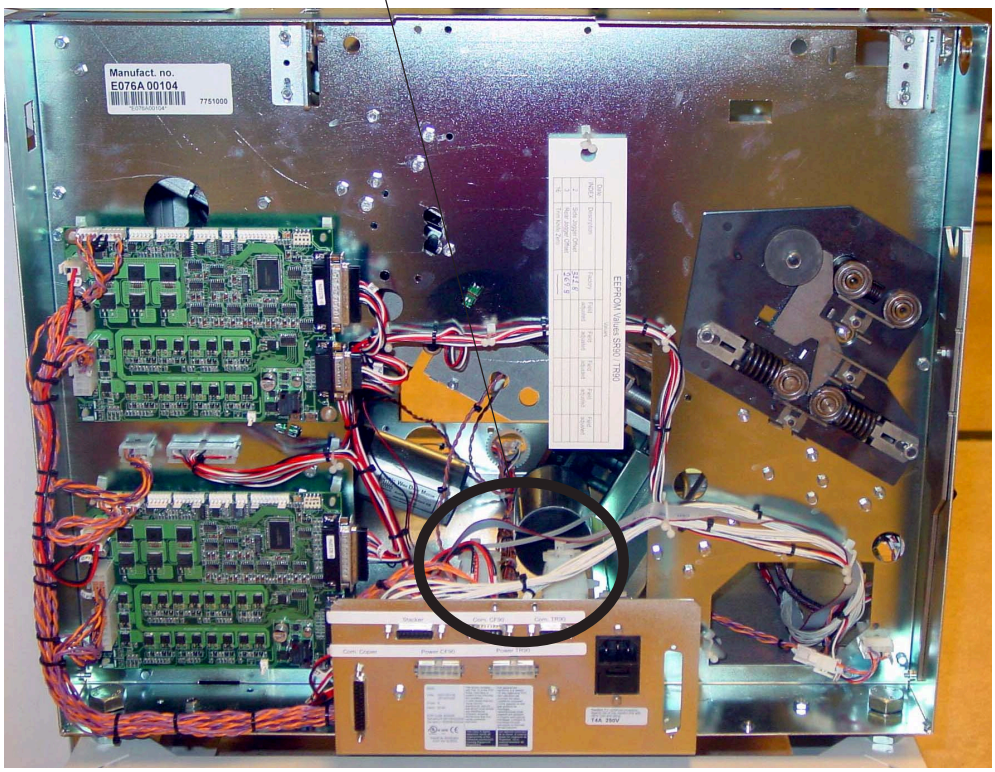
[G]



Booklet maker SR90

[I]

[E]

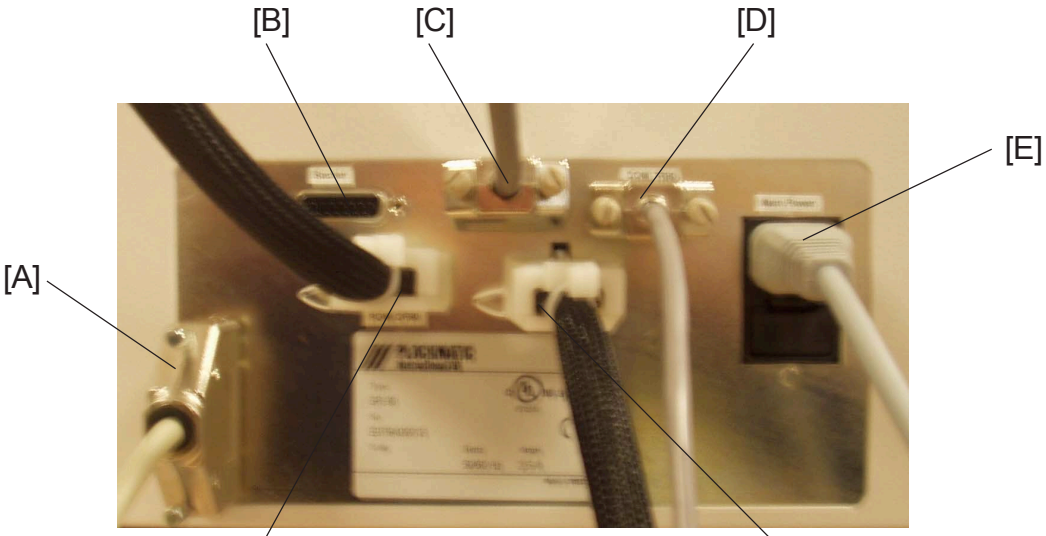


Rear side Booklet maker

Connectors when a Trimmer and Cover Feeder is installed

CONNECTOR PLATE SR90

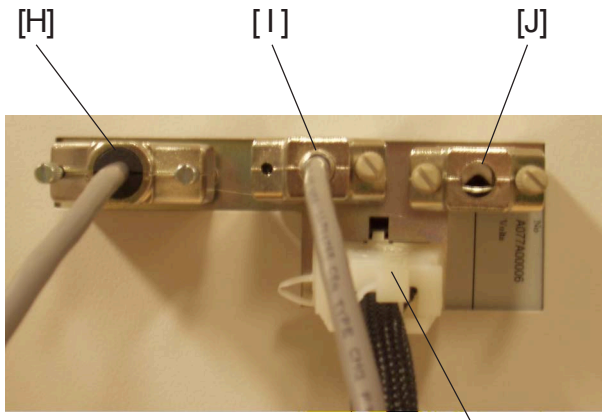
1. Communication cable [A] to finisher.
2. The connector [B] to the Belt stacker on SR90, should be empty.
3. Communication cable [C] between Cover Feeder CF90 and Booklet maker SR90.
4. Communication cable [D] between Trimmer TR90 and Booklet maker SR90.
5. Powercord [E] from the wall outlet.
6. Powercord [F] between Cover Feeder CF90 and Booklet maker SR90.
7. Powercord [G] between Trimmer TR90 and Booklet maker SR90.



Booklet maker SR90

CONNECTOR PLATE TR90

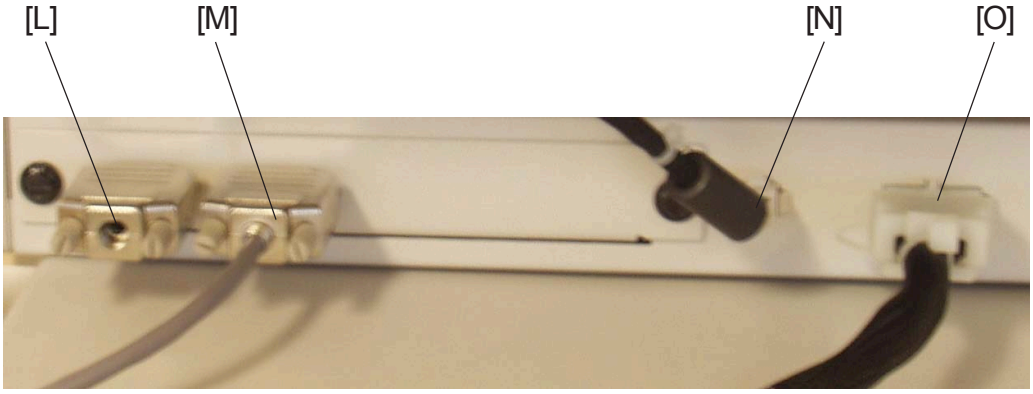
1. Communication cable [H] to Belt stacker.
2. Communication cable [I] between Cover Feeder CF90 and Booklet maker SR90.
3. Terminator plug [J].
4. Powercord [K] between Trimmer TR90 and Booklet maker SR90.



Trimmer TR90

CONNECTOR PLATE CF90

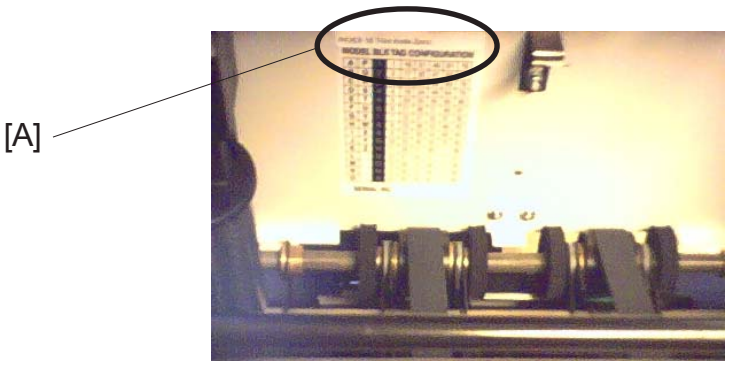
1. Terminator plug [L].
2. Communication cable [M] between Cover Feeder CF90 and Booklet maker SR90.
3. Communication cable [N] to Bin extension plate.
4. Powercord [O] between Cover Feeder CF90 and Booklet maker SR90.



Cover Feeder CF90

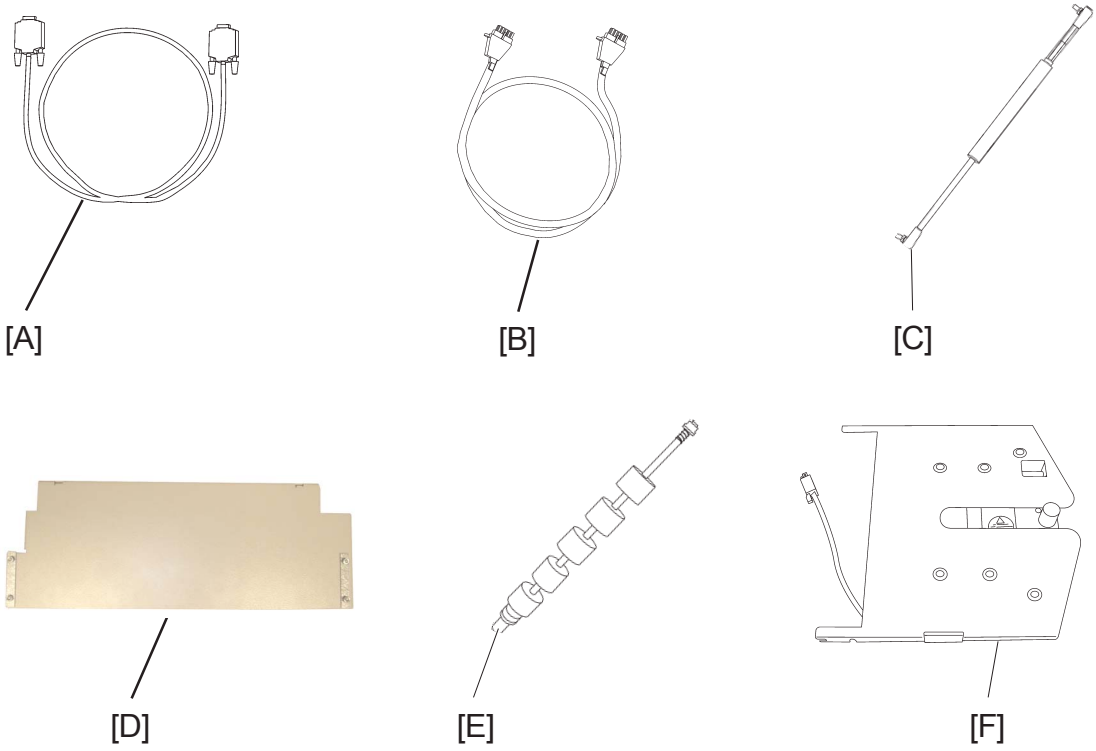
1.4.5 CHECK THE INSTALLATION

1. If installing a Cover Feeder CF90, continue to section ((☛ 1.5).
2. Power on the Booklet maker.
3. In the Trimmer, check the Index 16 value [A].
4. Press the Tools button.
5. Scroll down to Service and press the OK button.
6. Key in the Password.
7. Scroll down to EEPROM Values and press the OK button.
8. Scroll to INDEX 16, TR90.Knife Zero, and press the CHG button.
9. Key in the value you have in the trimmer.
10. Go down to Store and press the OK button.
11. Remove the two Stapler heads, according to section ((☛ 3.4.12).
12. Perform a Detailed self-diagnostic, according to section ((☛ 5.3.3).
13. Power on the Copier.
14. Set up the Booklet maker to Auto paper size.
15. Set up the Trimmer to Trimmer ON.
16. Send one A4/8.5 x 11" job to the Booklet maker system.
17. Check for the correct feeding of the set from the finisher.
    NOTE: The paper should enter in the middle of the infeeder. If not, adjust the Booklet maker according to section ((☛ 1.3.3).
18. Check if the set have been trimmed correctly.
19. Send one A3/11 x 17" job to the Booklet maker system.
20. Check for the correct feeding of the set from the finisher.
    NOTE: The paper should enter in the middle of the infeeder. If not, adjust the Booklet maker according to section ((☛ 1.3.3).
21. Check if the set have been trimmed correctly.



1.5 COVER FEEDER INSTALLATION

1.5.1 ACCESSORY CHECK



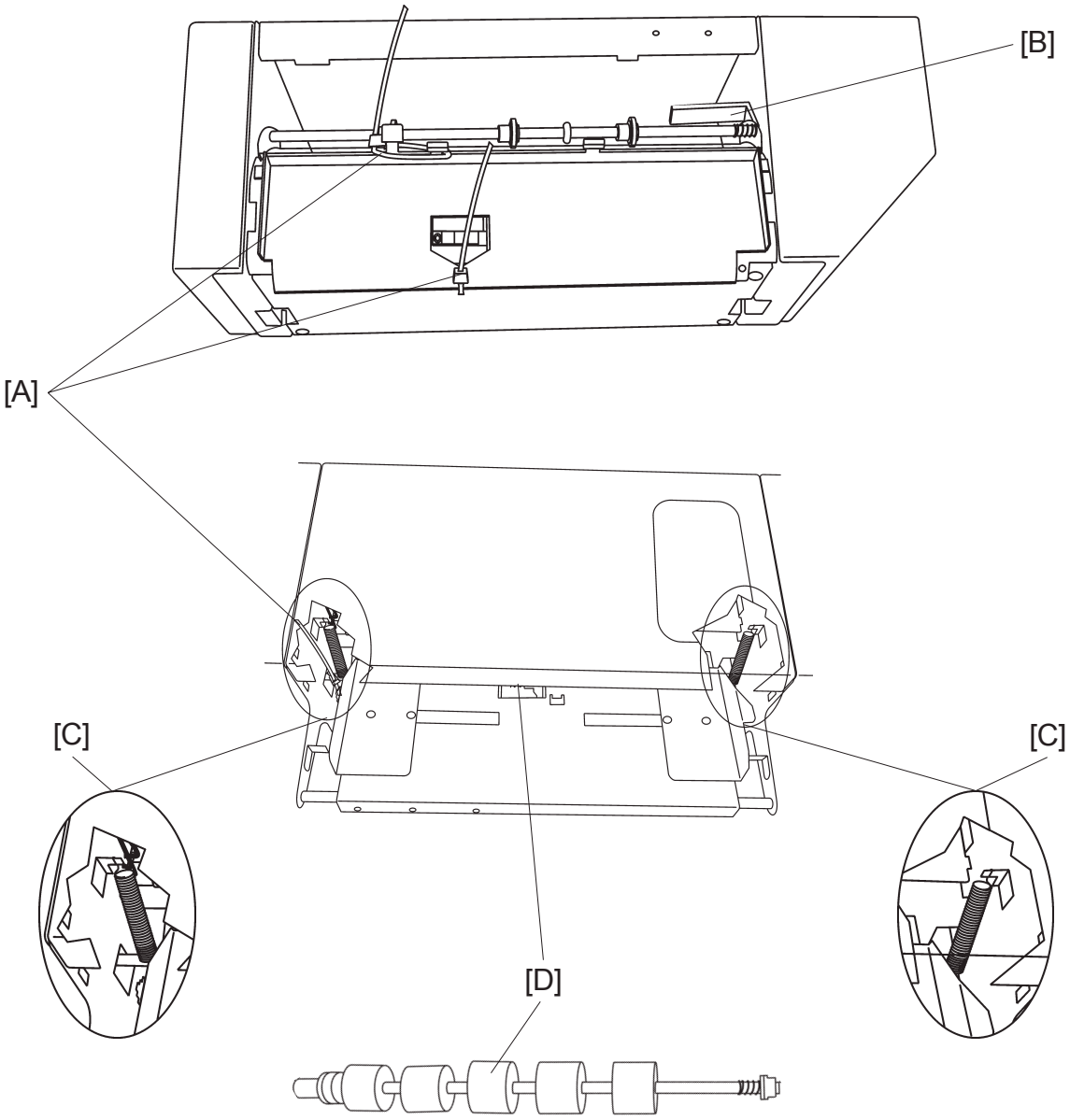
Check the quantity and condition of the accessories against the following list:

Description

A. Communication Cable between the Booklet maker and Cover Feeder
B. Powercord between the Booklet maker and Cover Feeder
C. Gas Spring
D. Mounting bracket for Cover Feeder
E. Feed roller assembly
F. Bin extension plate

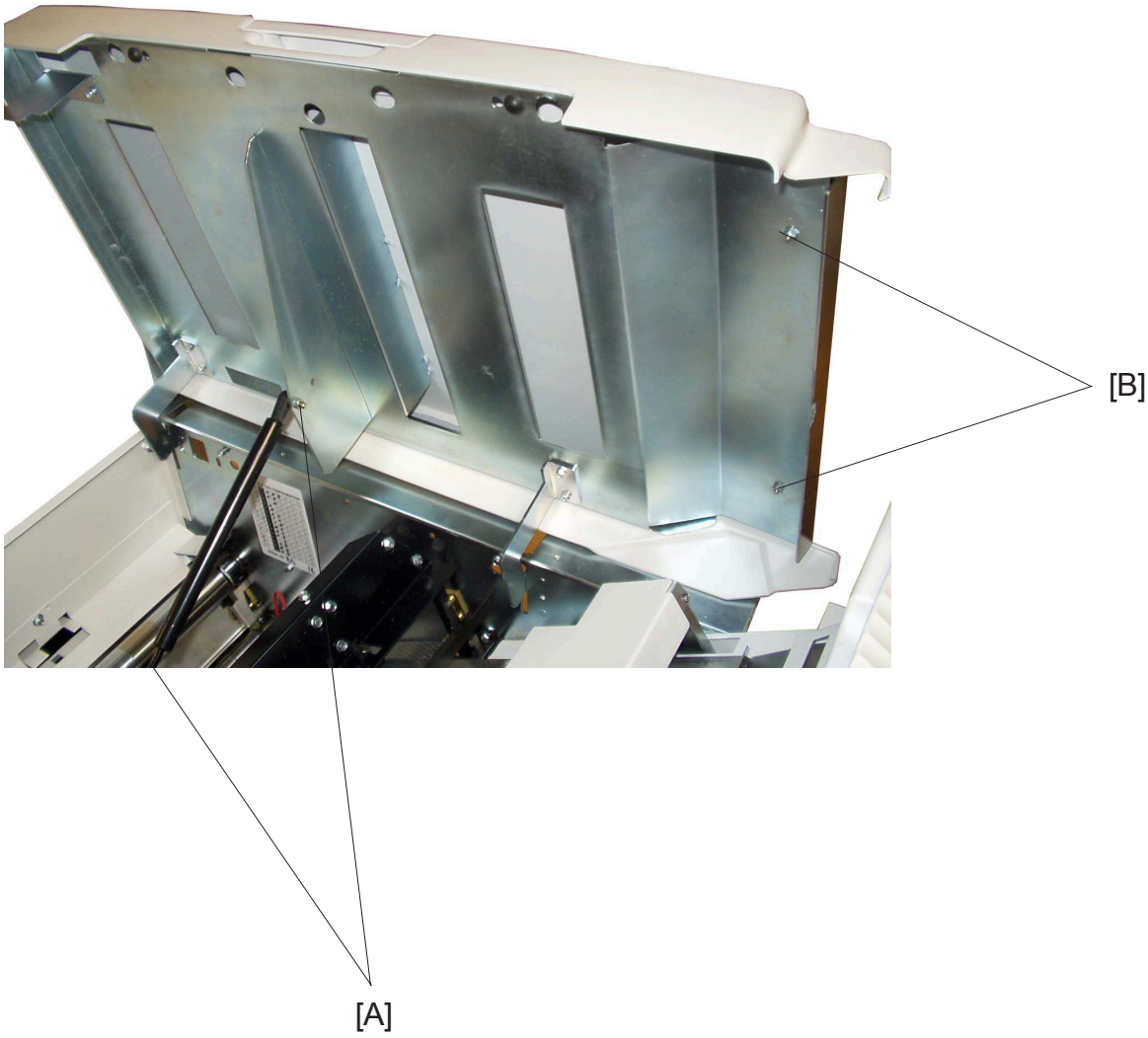
1.5.2 INSTALLATION PROCEDURE

Unpacking



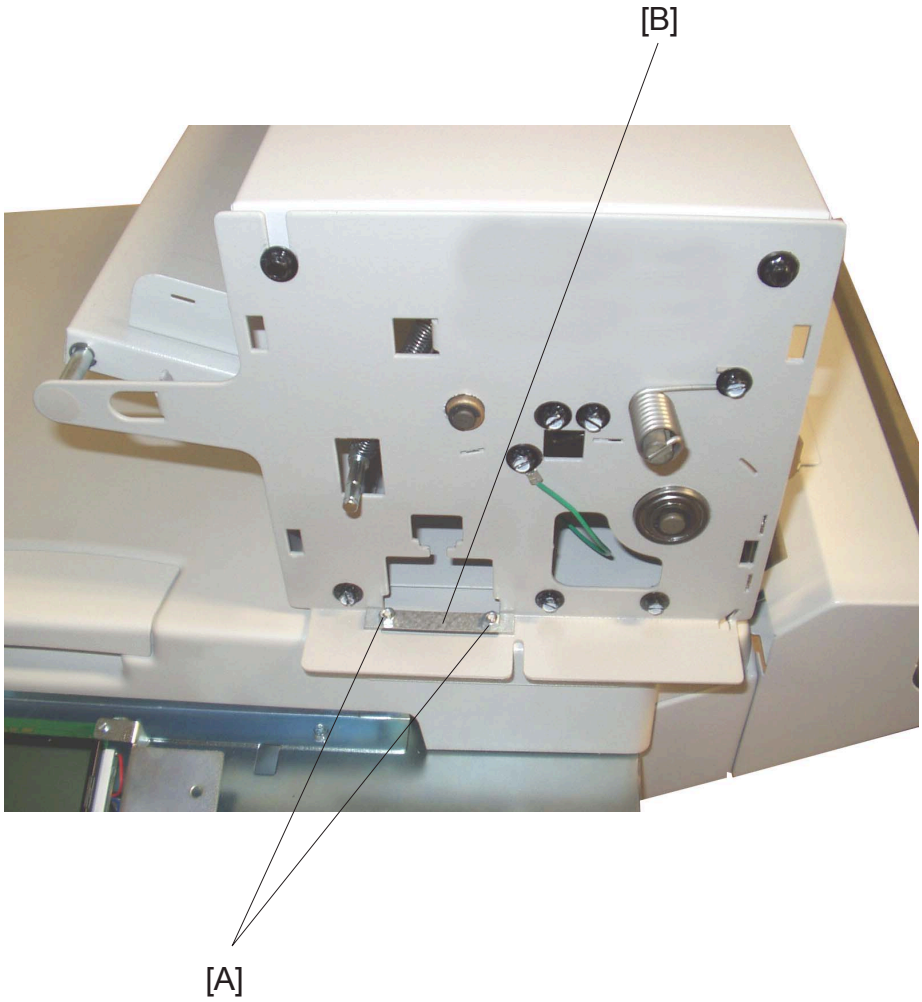
1. Remove all parts from the Box.
2. Cut the three red tie wraps [A] and remove the cardboard [B] between the Upper paper path and frame.
3. Connect the two paper bin springs [C].
4. Install the Feed roller assembly [D].

Install mounting bracket



1. Remove the nuts [A] to the Gas spring in the Booklet maker (x 2).
   NOTE: Make sure you notice the orientation of the Gas spring, before removing it.
2. Install the lower end of the new and shorter Gas spring, from the installation kit, to the black bracket in Booklet maker (x 1).
3. Remove the stainless plate on the Top cover by removing nuts [B] (x 2).
4. Install the Mounting bracket where you removed the stainless plate (x 2).
5. Remove the four nuts and two brackets on the top side of the Mounting bracket (x 4, brackets x 2).

Install the Cover Feeder



1. Remove the Front and Rear cover on the Cover Feeder
   ((☛ Service Manual CF90 1.1.1).
2. Place the Cover Feeder on top of the Mounting bracket.
3. Secure the Cover Feeder by replacing the brackets [B], and tightening the nuts [A]
   (x 4).
   NOTE: No adjustments is needed.
4. Reinstall the Front and Rear cover on the Cover Feeder
   ((☛ Service Manual CF90 1.1.1).

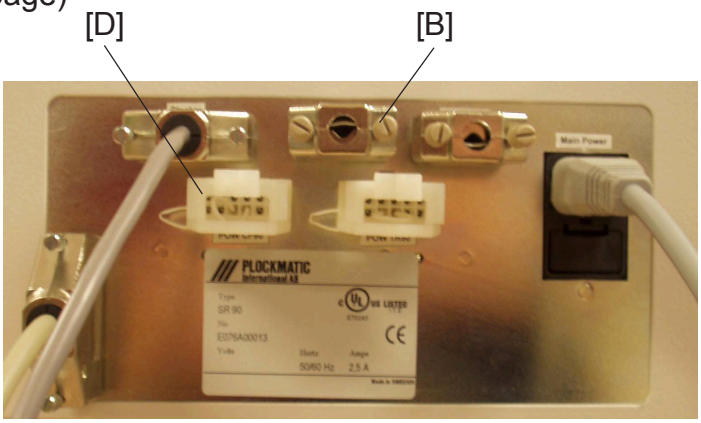
Reinstalling the new Gas spring

1. Open the Top cover on the Booklet maker.
   NOTE: Open the Top cover carefully, because of the weight of the Cover Feeder.
2. Install the upper end [A] of the Gas spring to the Top cover.
   NOTE: Make sure you install the Gas spring in the upper hole in the Top cover bracket. The lower hole is used when a Cover Feeder is not installed.
3. Secure the Gas spring by tightening the nut you removed earlier (x 1).

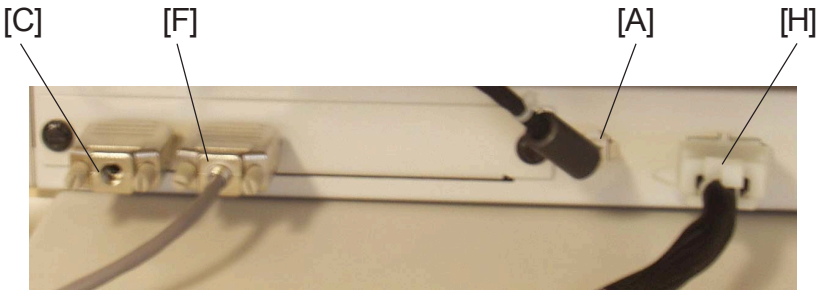
1.5.3 CONNECTORS

Connectors when only a Cover Feeder is installed

1. Install the Bin extension plate.
2. Connect the Bin extension plate cable [A] (x1).
3. Connect the ground cable to the Cover Feeder (x1).
4. Remove the Terminator plug from the Booklet maker [B] (x1).
5. Connect the Terminator plug on the Cover Feeder [C] (x1).
6. Remove the Interlock jumper [D] from the Booklet maker (x1).
7. Connect the Interlock jumper to the Booklet maker frame [E] (x1). (see next page)
8. Connect the communication cable to the Cover Feeder [F] (x1). NOTE: The communication cable you received with the Trimmer.
9. Connect, the other end of the communication cable, to the Booklet maker [G] (x1). (see next page)
10. Connect the powercord to the Cover Feeder [H] (x1).
11. Connect, the other end of the powercord, to the Booklet maker [I] (x1). (see next page)



Booklet maker SR90



Cover Feeder CF90

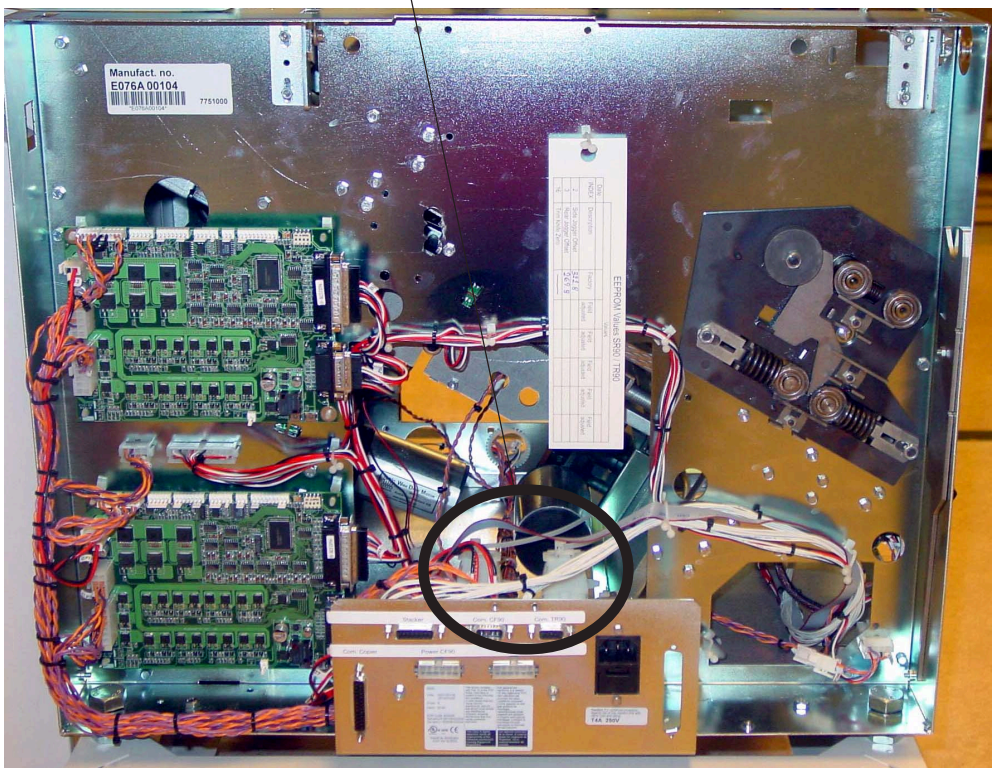
Continued on next page....

[G]

Booklet maker SR90

[I]

[E]

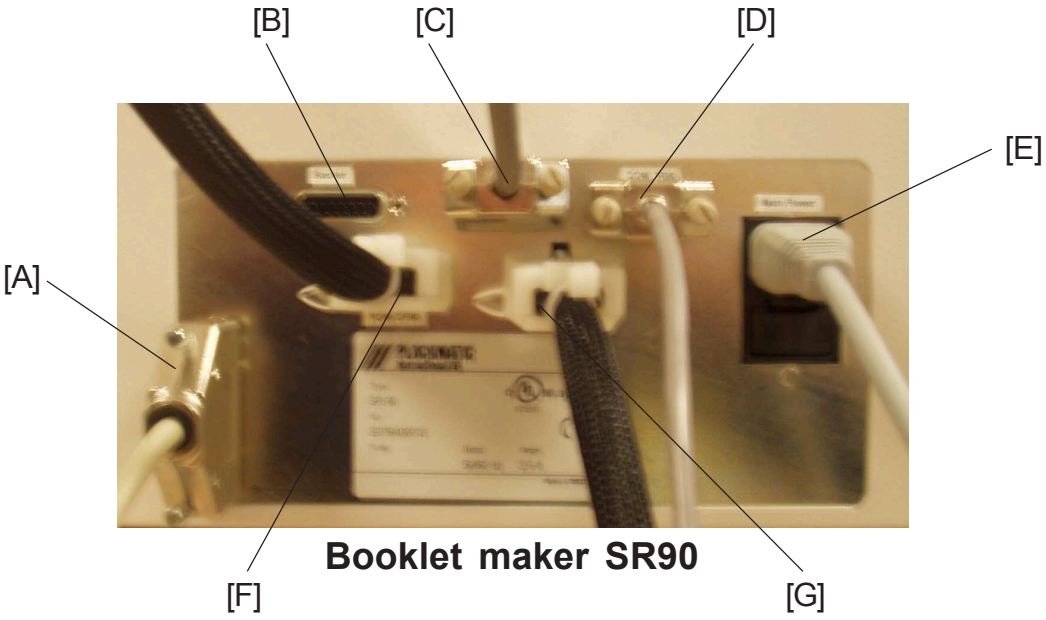


Rear side Booklet maker

Connectors when a Cover Feeder and a Trimmer is installed

CONNECTOR PLATE SR90

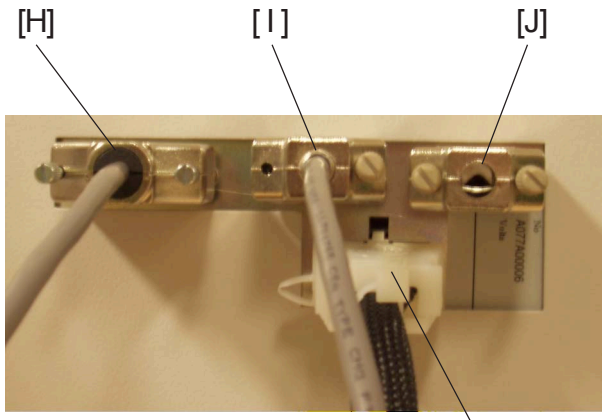
1. Communication cable [A] to finisher.
2. The connector [B] to the Belt stacker on SR90, should be empty.
3. Communication cable [C] between Cover Feeder CF90 and Booklet maker SR90.
4. Communication cable [D] between Trimmer TR90 and Booklet maker SR90.
5. Powercord [E] from the wall outlet.
6. Powercord [F] between Cover Feeder CF90 and Booklet maker SR90.
7. Powercord [G] between Trimmer TR90 and Booklet maker SR90.



Booklet maker SR90

CONNECTOR PLATE TR90

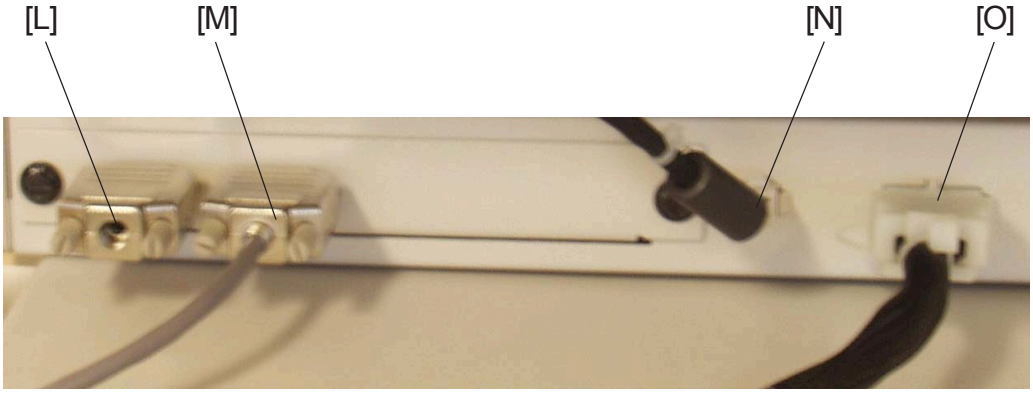
1. Communication cable [H] to Belt stacker.
2. Communication cable [I] between Cover Feeder CF90 and Booklet maker SR90.
3. Terminator plug [J].
4. Powercord [K] between Trimmer TR90 and Booklet maker SR90.



Trimmer TR90

CONNECTOR PLATE CF90

1. Terminator plug [L].
2. Communication cable [M] between Cover Feeder CF90 and Booklet maker SR90.
3. Communication cable [N] to Bin extension plate.
4. Powercord [O] between Cover Feeder CF90 and Booklet maker SR90.



Cover Feeder CF90

1.5.4 CHECK THE INSTALLATION

1. Power on the Booklet maker.
2. Remove the two Stapler heads, according to section ((☛ 3.4.12).
3. Perform a Detailed self-diagnostic, according to section ((☛ 5.3.3).
4. If a Trimmer is installed, remember to key in the Index 16 value (TR90.knife(Zero)) ((☛ page 1-26, step 3).
5. Power on the Copier.
6. Make sure that the covers are well fanned to avoid misfeeds or double-feeds.
7. Align the covers well to achieve a reliable collating operation and good finishing result.
8. Make sure that the ink has dried out well, to avoid smearing.
9. Load the covers into the Paper bin.
10. Move the adjustable side guides up against the covers, until there is no clearance.
11. Move the adjustable Air nozzle, so that the green stripe on the Air nozzle bracket is up against the paper stock.
12. Set up the Cover Feeder to Cover ON, the Cover Feeder will prefeed the first cover to be ready for the set from the copier.
13. If a Trimmer is installed, set up the Trimmer to Trimmer ON.
14. Set up the Booklet maker to Auto paper size.
15. Send one A4/8.5 x 11” job to the Booklet maker system.
16. Check for the correct feeding of the set from the finisher.
    NOTE: The paper should enter in the middle of the infeeder. If not, adjust the Booklet maker according to section ((☛ 1.3.3).
17. Check that the cover are correctly fed into the Booklet maker.
18. If a Trimmer is installed, check if the set have been trimmed correctly.
19. Send one A3/11 x 17” job to the Booklet maker system.
20. Check for the correct feeding of the set from the finisher.
    NOTE: The paper should enter in the middle of the infeeder. If not, adjust the Booklet maker according to section ((☛ 1.3.3).
21. Check that the cover are correctly fed into the Booklet maker.
22. If a Trimmer is installed, check if the set have been trimmed correctly.

2. PREVENTIVE MAINTENANCE SCHEDULE

2.1 PM TABLE

NOTE: Amounts mentioned as the PM interval indicate the number of sets.

Symbol key: **C**: Clean, **R**: Replace, **L**: Lubricate, **I**: Inspect

SR90	100K	200K	300K	400K	NOTE	REFERENCE
Paper paths	C	C	C	C	Blower Brush	
Sensors	C	C	C	C	Blower Brush	
Booklet quality	I	I	I	I	Inspect	Section 3.8
Stapler assembly						
Clinchers (2x)	L	L	L	L	Oil, **Every 20K**	3.4.17
Drive bars (2x)		L		L	Grease 501	3.4.16
Stapler heads (2x)	I	R	I	R	Inspect, Replace if needed	3.4.12
Stapler Drive Bar	I	L	I	L	Grease 501	3.4.15
Folder assembly						
Fold knife drive bars (2x)		L		L	Grease 501	
Fold stop bars (2x)		L		L	Grease 501	
Length adjustment shft		L		L	Grease 501	3.5.2
Fold roller bearings (x6, x2 bracket)		L		L	Grease: KS660: SHI	3.5.10
Cams to Upper fold rollers (2x)	L	L	L	L	Grease: KS660: SHI	3.5.11 Item [J]
Drive						
Driving belt / Fold transmission	I	I	I	R	Inspect, Replace if needed	3.5.7
Fold transmission coupling assy.	I	I/R	I	I/R	Inspect. Replace if needed.	3.5.9

TR90	100K	200K	300K	400K	NOTE	REFERENCE
Paper paths	C	C	C	C	Blower Brush	
Sensors	C	C	C	C	Blower Brush	
Infeed module						
Infeed belts (4x)	C	C	C	R	Alcohol	1.2.20
Outfeed module						
Upper outfeed belts (2x)	C	C/ I	C	C/ I	Alcohol	1.2.15
Lower outfeed belts (2x)	C	C/ I	C	C/ I	Alcohol	1.2.14
Trim Knife						
Trim knife	I	I	I	I	Inspect	1.2.8
Drive						
Knife chain	L	L	L	L	Launa Oil 40	1.2.19
Knife support chain	L	L	L	L	Launa Oil 40	1.2.18
Transmission chain / Chain sprockets	L	L/ I	L	L/ I	Launa Oil 40	1.2.17
Gear rack		L		L	Grease 501	1.2.10

CF90	100K	200K	300K	400K	NOTE	REFERENCE
Paper paths	C	C	C	C	Blower brush	
Sensors	C	C	C	C	Blower brush	
Feed rollers (5x)	C	C/R	C	C/R	Alcohol	1.2.2
Paper seperator pad	C	C/R	C	C/R	Alcohol	1.2.2
Drive shaft tires (3x)	C	C	C	R	Alcohol	1.2.7, 1.2.8

3. REPLACEMENT AND ADJUSTMENT

3.1 GENERAL CAUTIONS

⚠ CAUTION

Turn off the main power switch and unplug the machine before attempting any of the procedures in this section

Using the ESD Ground Strap

Purpose

The purpose of the ESD (Electrostatic Discharge) ground strap is to preserve the inherent reliability and quality of electronic components handled by the Service Representative. The strap should be used whenever handling the circuit boards or any other ESD sensitive components.

Procedure

NOTE: *All procedures requiring use of the ESD ground strap will contain a caution referring to this procedure.*

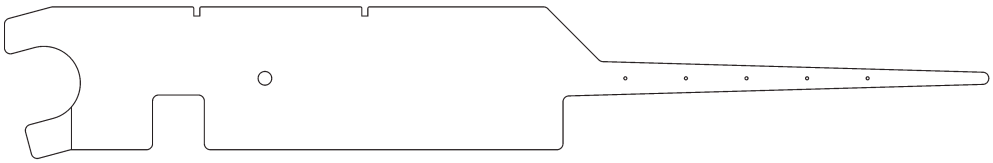
1 Switch off the main power switch.
2. Make sure the power cord connects the machine to the wall outlet. The power cord and wall outlet must have ground.
3. Connect the claw end of the grounding cord to a chassis ground, such as earth wires screwed to chassis ground, unpainted frame or an unpainted bracket secured to the frame.
4. Connect the snap end of the blue cord to the snap on the adjustable wrist strap.
5. Place the adjustable wrist strap securely on the wrist. Wait for one minute to let the electrostatic be discharged from your body.
6. ESD sensitive components can now be handled without causing any ESD related damage.
7. New replacement PCBs and ESD sensitive components, as well as old defective PCBs should be handled during unpacking and repacking using the ESD ground strap. During the transfer from or to the packaging material, the PCB should be placed on the ESD bag the replacement PCB came in.

⚠ CAUTION

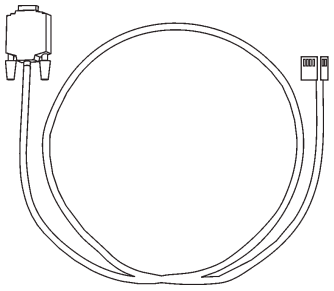
ESD Hazard! ESD (Electrostatic Discharge) can cause software crashes, data and/or communications problems. Failure to use proper ESD procedures will cause damage to electronic components (example: PCBs). ESD problems can be minimized by maintaining all machine ground connections, ensuring the proper handling of circuit boards/ sensors, refer to this procedure 3.1.
- Use ESD protection when working near PCBs. Failure to use ESD protection is likely to result in a PCB failure.

3.2 SPECIAL TOOLS AND LUBRICANTS

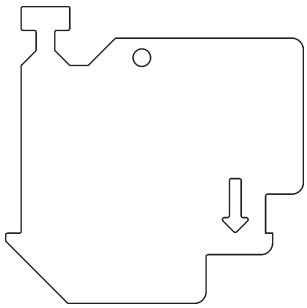
3.2.1 SPECIAL TOOLS



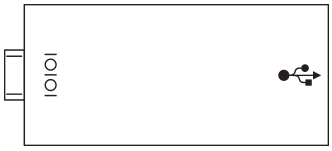
Multi tool



Software loading cable



Interlock cheater



USB converter

NOTE: For the SR90 system not to be interlocked (interlocked=36V interrupted), the Interlock switch must be activated and the Interlock magnet must be blocked with a metal. Use the Cheater to override the interlock for running the system with open top covers:

1. Hold the Cheater above the interlock so the arrows meet.
2. Put in the left end in the slot so it hooks under the bracket.
3. Push the Cheater down and to the right so it latches in place.

The Cheaters (2 pcs. one for SR90 and one for TR90) are stored inside the panels between copier and SR90.

3.2.2 REQUIRED TOOLS

Open wrenches:
5.5, 7, 8, 10, 17, 19 mm

Allen keys:
1.5, 2, 2.5, 3, 4, 5 mm

Torx T-20

Circlip pliers

Metric Feeler gauge set

Metric Sliding calliper

3.2.3 LUBRICANTS

Grease:	**Part number:**
Grease : KS660 : SHI	G004-9668
Grease 501	5203-9502
Oil:	
Launa oil 40	5442-9103

3.2.4 SYMBOLS USED IN TEXT

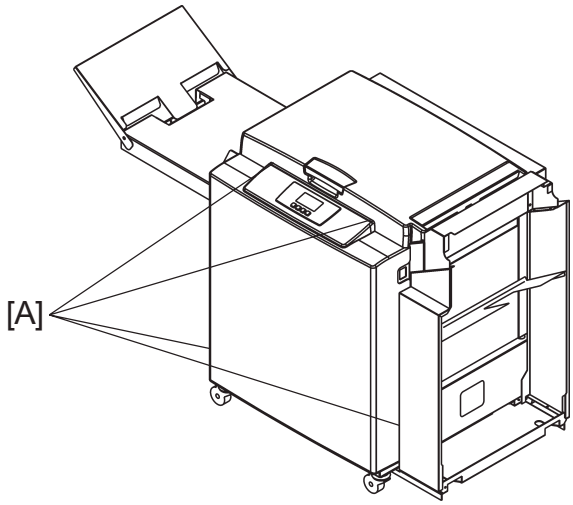
Go to section:  Screw:  Nut:  Connector: 

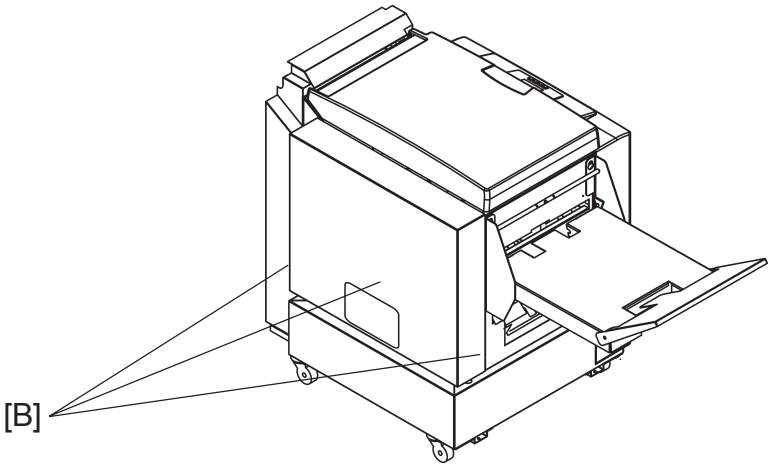
Allen screw:  E-clip:  Spring:  Washer: 

Use a Screwdriver: 

3.3 COVERS

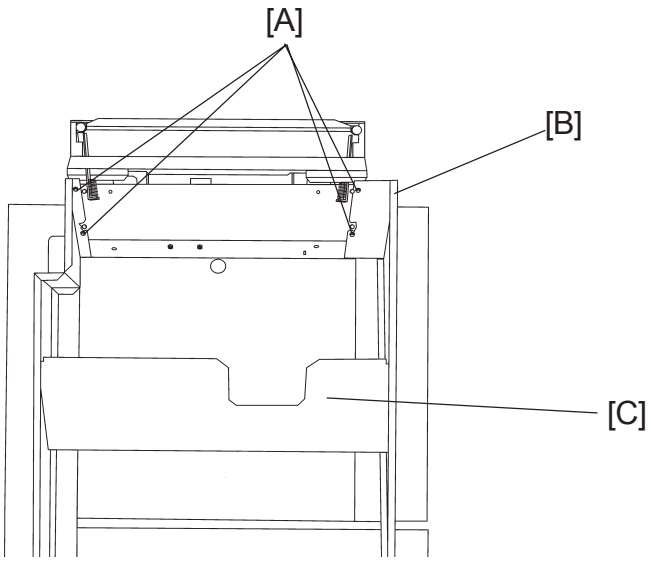
3.3.1 FRONT AND REAR COVER





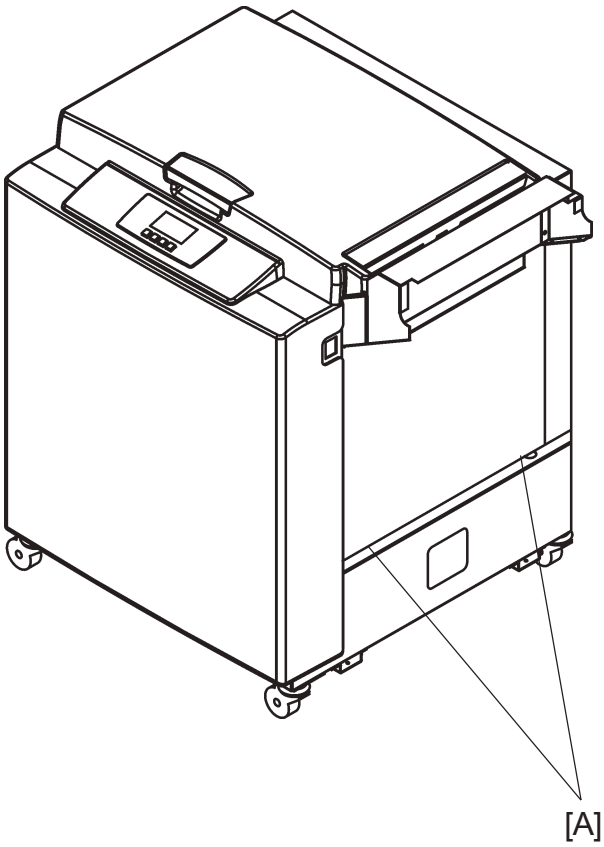
1. Open top cover.
2. Remove screws [A] to Front cover (x4).
3. Remove screws [B] to Rear cover (x3)
   NOTE: Unhook the Rear cover.

3.3.2 PANELS AND SHELF



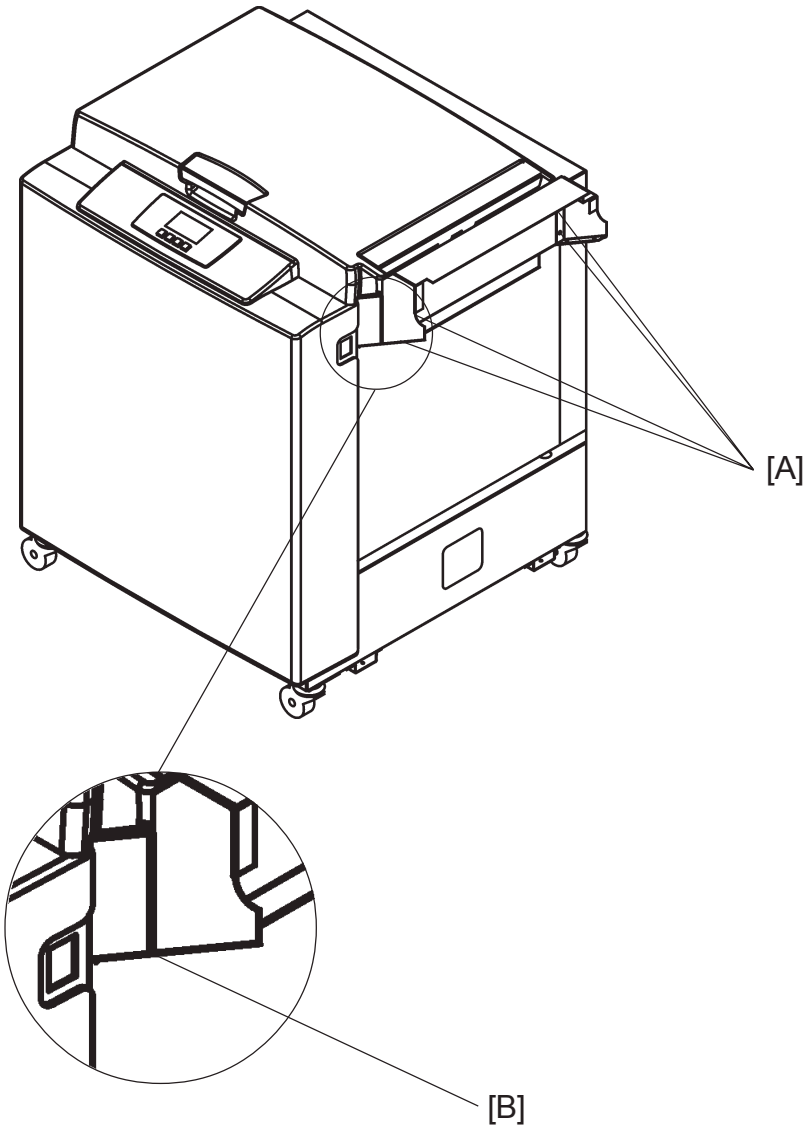
1. Loosen [A] (x4) .
2. Slide the top of the Panels [B] away from the screws. Remove the Panels and the Shelf [C].

3.3.3 INFEED COVER



1. Remove Panels and Shelf ((☛ 3.3.2).
2. Loosen screws [A] (x2).

3.3.4 INFEEDER



Removal

1. Remove Panels and Shelf ((☛ 3.3.2).
2. Loosen screws [A] (x4).

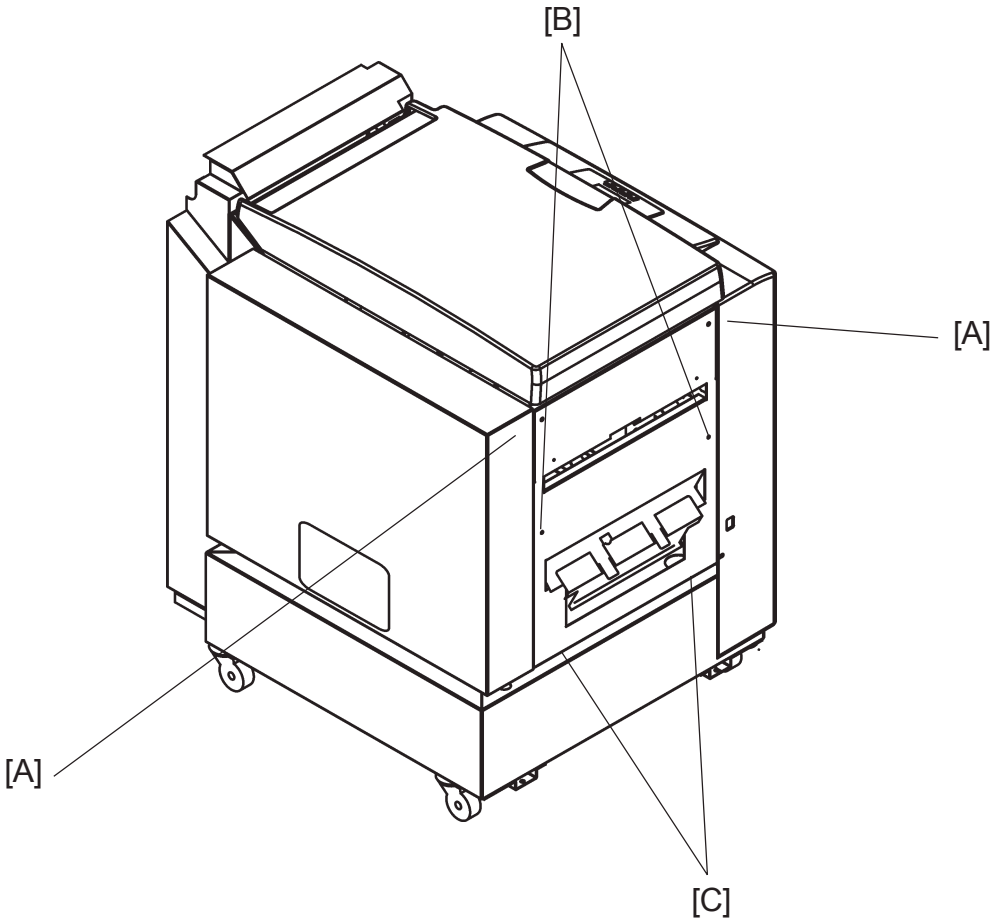
Replacement

1. Reverse the removal procedure.

Adjustment

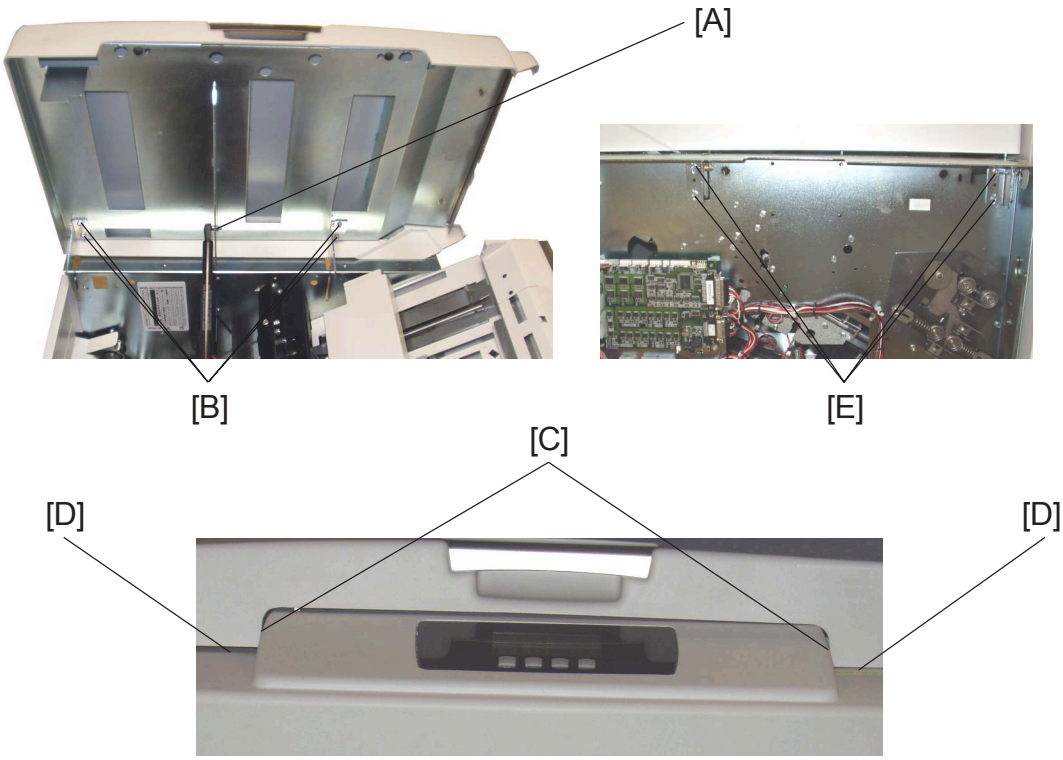
1. Make sure that the Infeeder is aligned [B] with the Booklet maker.

3.3.5 OUTFEED COVER



1. Set the machine to A4 / 8.5x11".
2. Remove Stacker module ((☛ 3.7.1).
3. Remove Front and Rear cover ((☛ 3.3.1).
4. Remove screws [A] (x2).
5. Remove screws [B] (x2).
6. Loosen screws [C] (x2).
7. Remove Outfeed cover.

3.3.6 TOP COVER



Removal

1. Remove nut [A] to Gas spring (x1).
2. Remove screws [B] (x4).

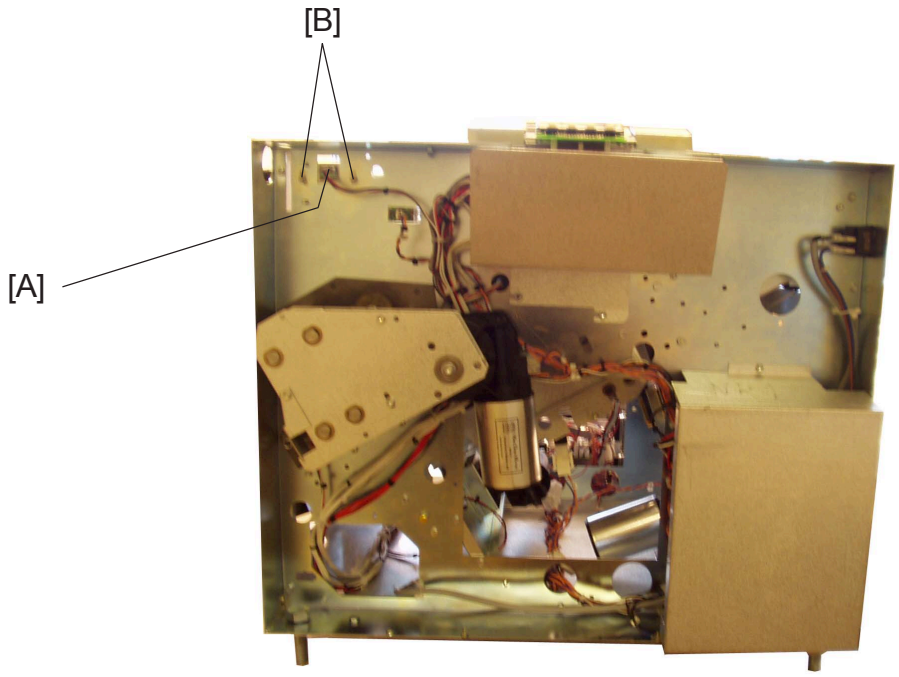
Replacement

1. Reverse the removal procedure.

Adjustment

1. Check that the distance [C] is equal on both sides. If not, go to step 2.
2. Loosen screws [B] (x4).
3. Adjust the Top cover so that the distance [C] is equal on both sides.
4. Tighten the screws [B] (x4).
5. Recheck the distance [C].
6. Check that the distance [D] is equal on both sides. If not, go to step 6.
7. Remove Rear cover ((3.3.1).
8. Loosen nuts [E] (x4).
9. Adjust the Top cover so that the distance [D] is equal on both sides.
10. Tighten the nuts [E] (x4).

3.3.7 INTERLOCK SWITCH S16 &S17



Removal

1. Remove Front cover ((☛ 3.3.1).
2. Remove connector [A] (x1).
3. Remove nuts [B] to Interlock box (x2).
4. Remove screws to Switch PCB (x2).

Replacement

1. Reverse the removal procedure.

Adjustment

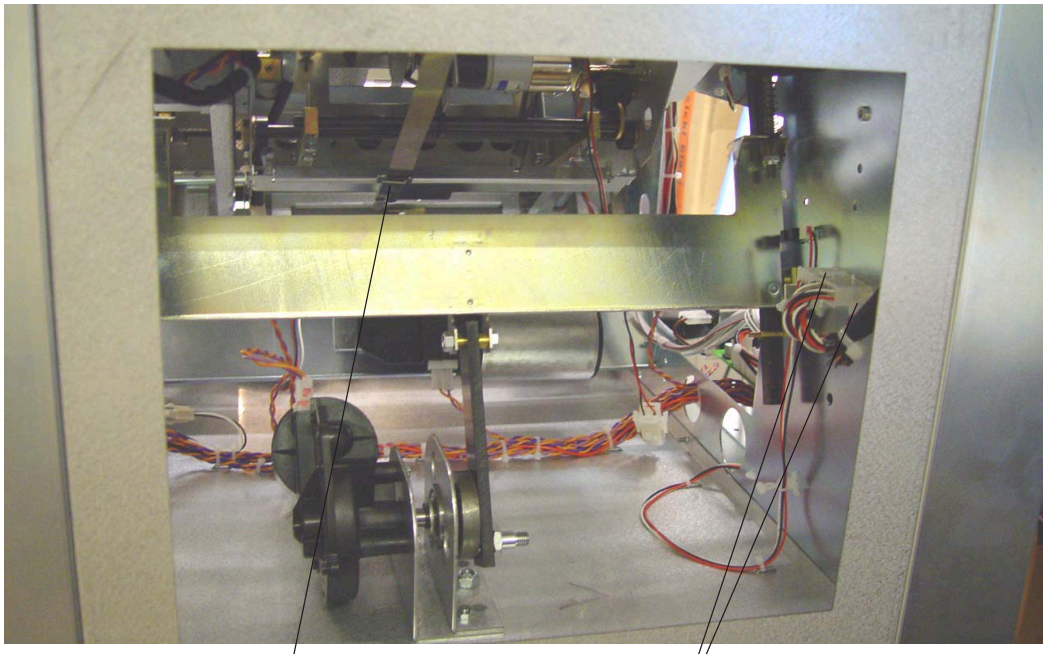
1. Check that the Top cover is correctly adjusted ((☛ 3.3.6).
2. Loosen nuts [B] to Interlock box (x2).
3. Adjust the Interlock box, so that Top cover activates interlock switch 2 mm / 5/64” before closing.
4. Tighten nuts [B] to Interlock box (x2).
5. Recheck step 3.

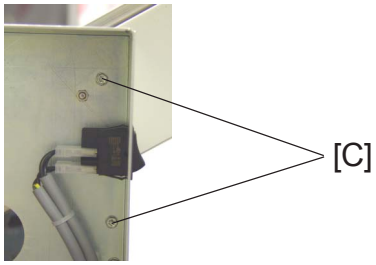
⚠ WARNING

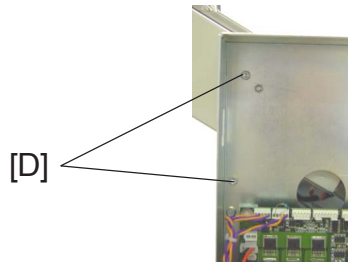
Overriding or cheating the interlock allows the SR90 system to operate with the top cover open which can result in personal injury. Never give the operator access to the cheater or show how overriding the interlock system is carried out.

3.4 AREA A

3.4.1 INFEED MODULE



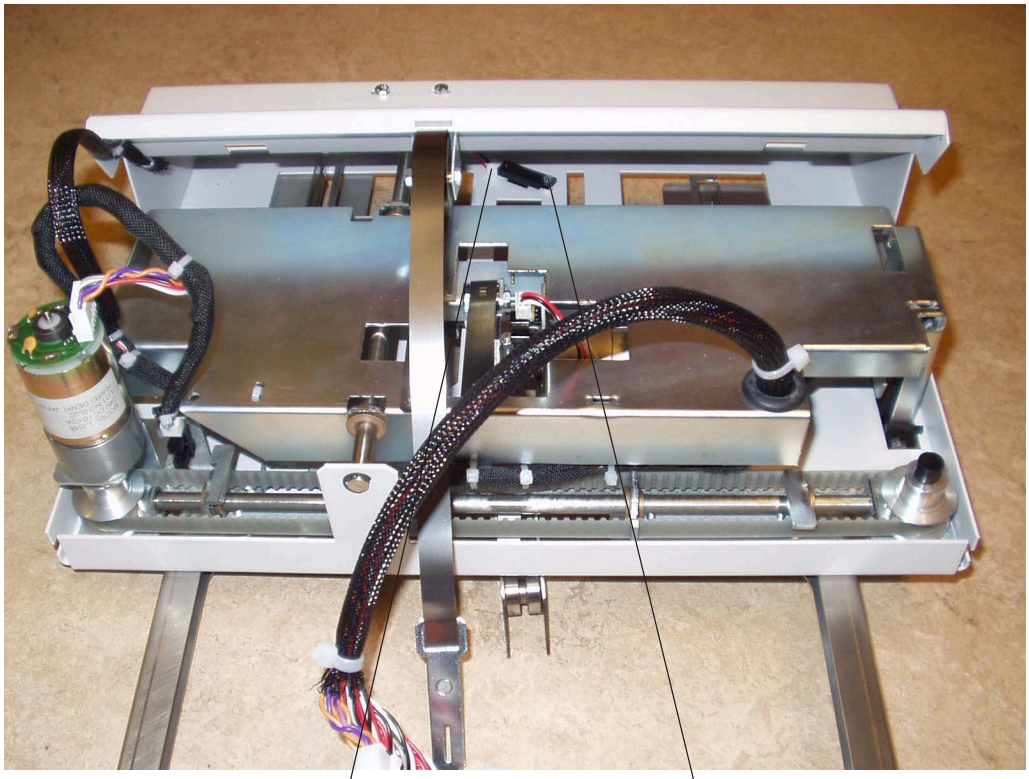




1. Remove Front and Rear cover ((3.3.1).
2. Remove Infeed cover ((3.3.3).
3. Remove connectors [A] (x2).
4. Unhook of the length adjustment strap [B].
5. Remove screws [C] on the Front side of the Booklet maker (x2).
6. Remove screws [D] on the Rear side of the Booklet maker (x2).
7. Pull out the Infeeder carefully.

   NOTE: Make sure that the Side jogger motor M3 is not catching the frame of the Booklet maker.

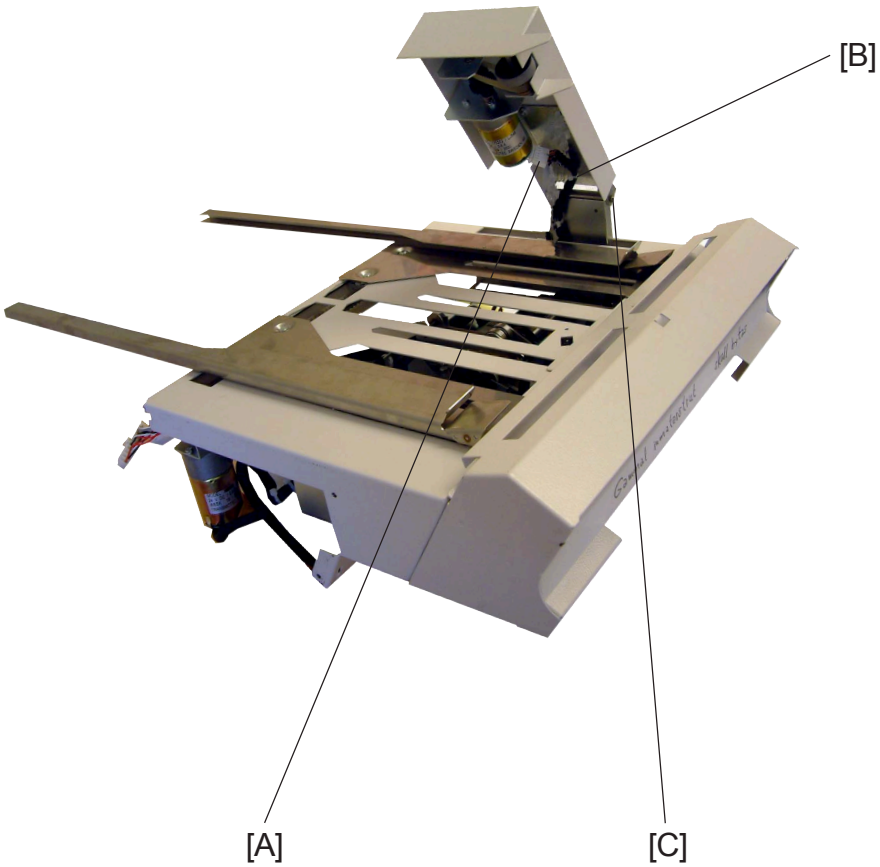
3.4.2 PAPER INFEED SENSOR



Showing Infeed module removed, for clarity

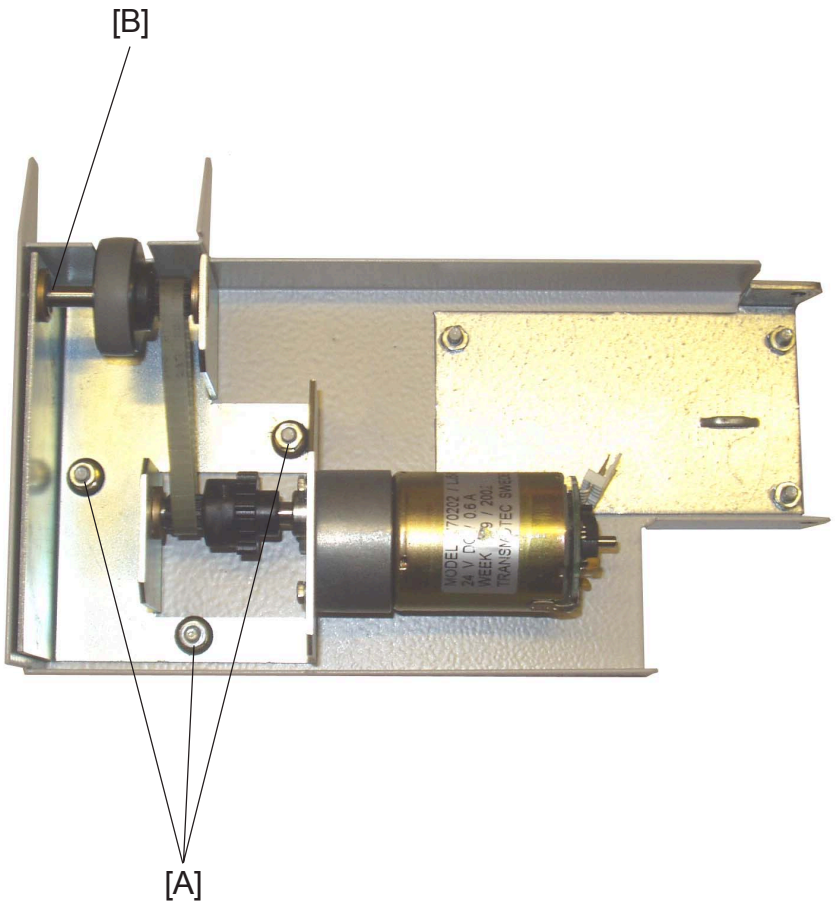
1. Remove screw [A] (x1).
   NOTE: You do not have to remove the Infeed module to reach the screw, you are able to reach the screw through the hole in the Infeed module.
2. Remove connector [B] (x1).

3.4.3 INFEED TRANSPORT MODULE



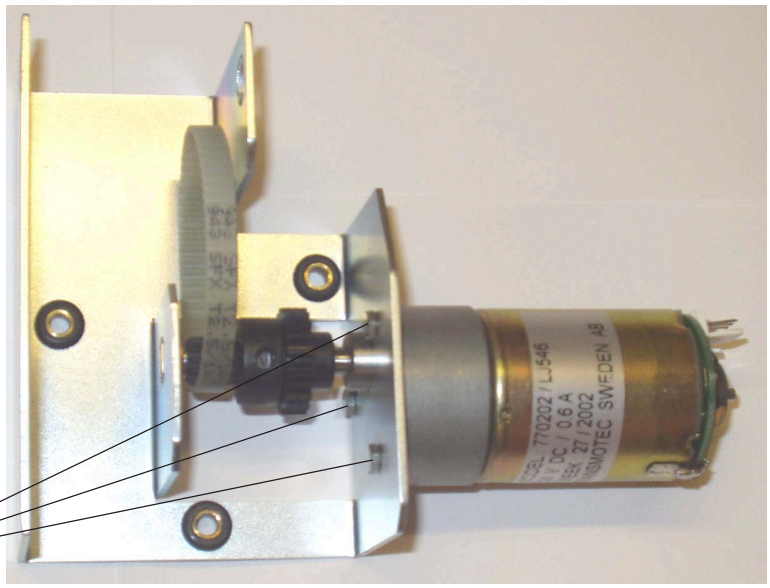
1. Remove connectors [A] (x2).
2. Cut tie wrap [B] .
3. Remove E-clip [C] (x1).
4. Remove pin to the Infeed transport module.

3.4.4 INFEED TRANSPORT WHEEL



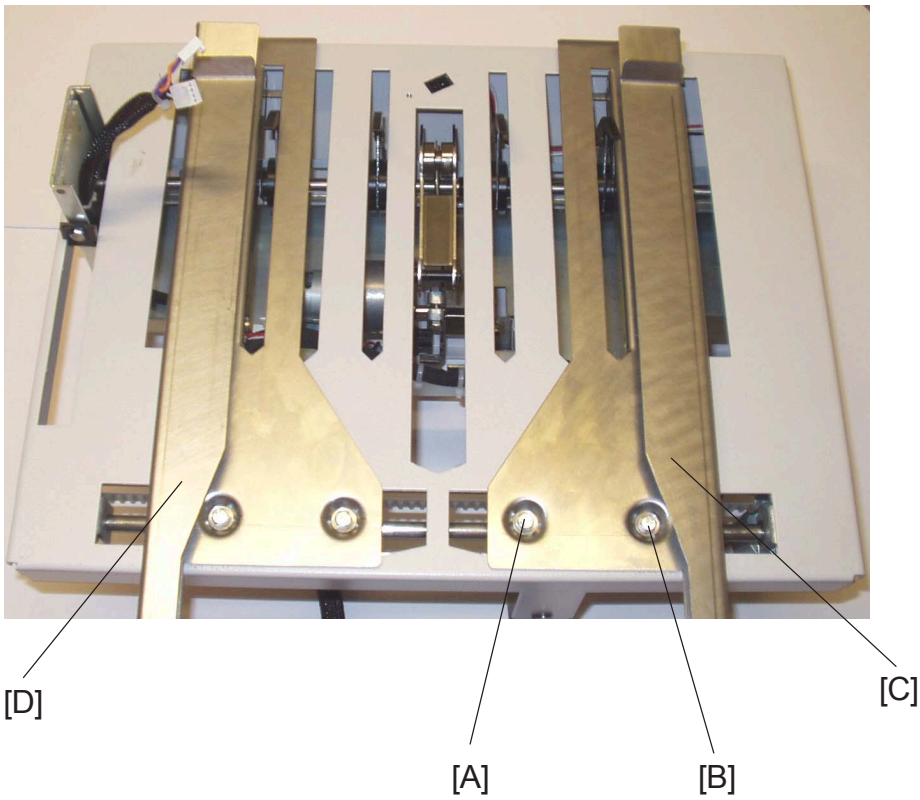
1. Remove Infeed transport module ((☛ 3.4.3).
2. Remove nuts [A] (x3).
3. Remove E-clip [B] (x1).

3.4.5 INFEED MOTOR M1 & SENSOR Q2



1. Remove Infeed transport wheel ((☛ 3.4.4).
2. Remove screws [A] (x3).
3. Pull out the Infeed motor M1 & sensor Q2.
   NOTE: The sensor Q2 is located on the motor.

3.4.6 SIDE GUIDES



Removal Front

1. Remove Infeed module ((☛ 3.4.1).
2. Remove screw [A] and [B] to the Front side guide [C] (x2).
   NOTE: The nut plate may fall down into the machine.
3. Same procedure on the Rear side guide [D].

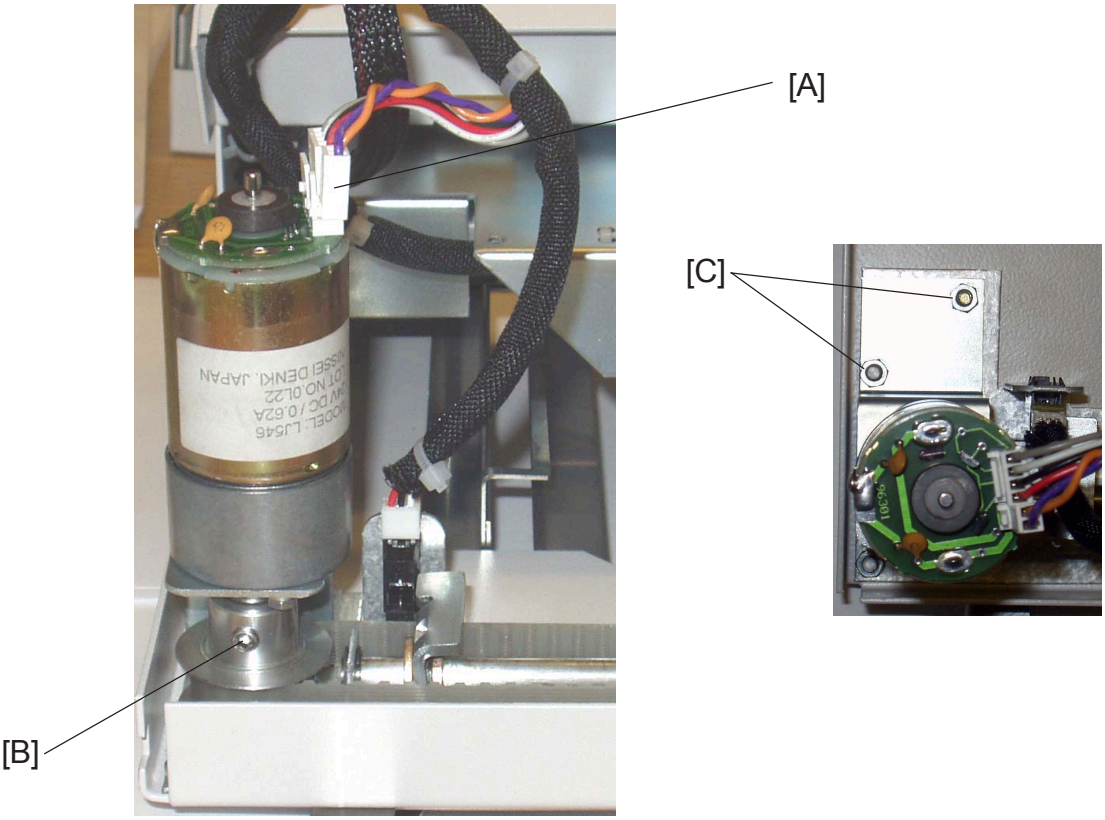
Replacement

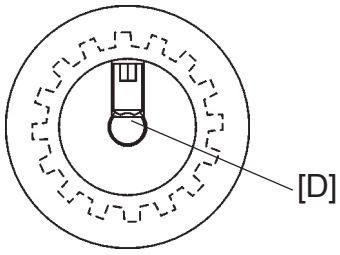
1. Reverse the removal procedure.
   NOTE: Make sure that you are using the correct screws (M4 x 8mm) when reinstalling the side guides. If you are using longer screws, you may damage the side guide shaft.

Adjustment

1. Adjust Side guide parallelism ((☛ 3.8.2).

3.4.7 SIDE JOGGER MOTOR M3 &SENSOR Q12





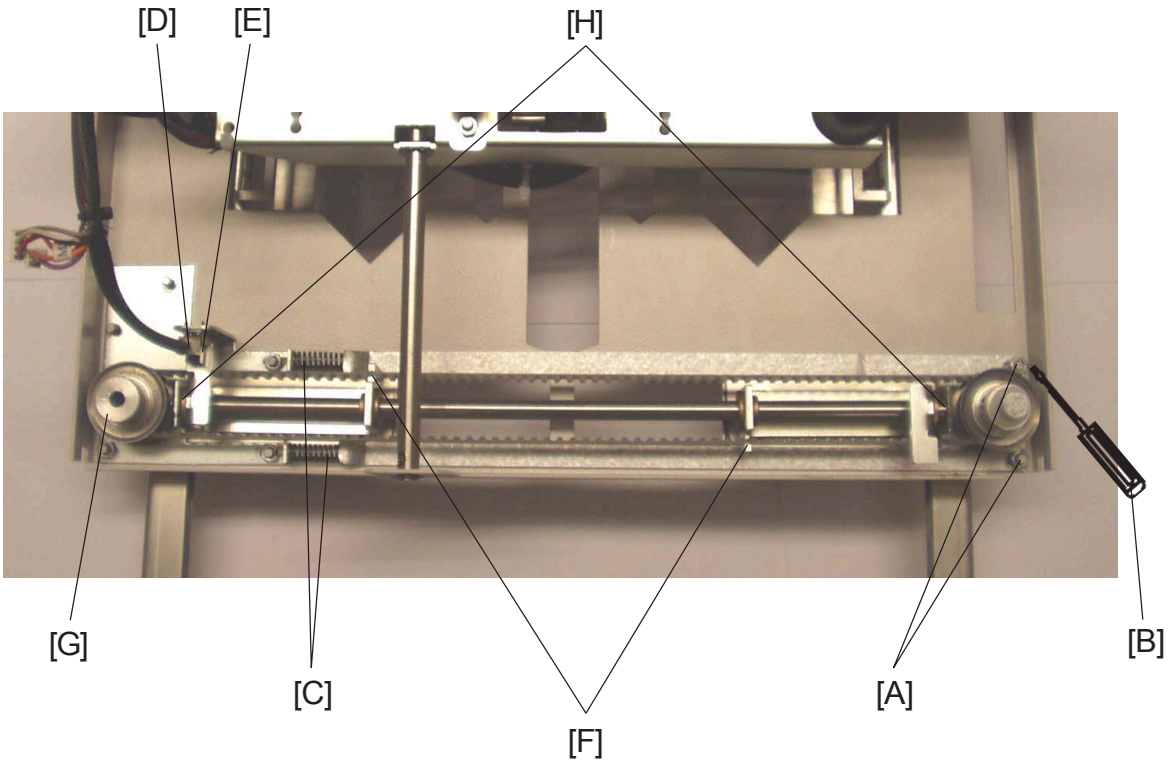
Removal

1. Remove Infeed module ((☛ 3.4.1).
2. Remove connectors [A] (x2).
3. Loosen allen screw [B] to pulley (x1).
4. Remove screws [C] to motor bracket (x2).
5. Remove Side jogger motor M3 & sensor Q12.
   NOTE: The sensor Q12 is located on the motor.

Replacement

1. Push the pulley down, to make sure that it is in the right position.
2. When installing the motor, make sure that the allen screw is positioned against the flat [D] of the motor shaft.
3. Reverse the rest of the removal procedure.

3.4.8 SIDE GUIDE TRANSMISSION &SENSOR Q13



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Removal Sensor Q13

1. Remove Infeed cover ((☛ 3.3.3).
2. Disconnect connector [E] to sensor Q13 (x1).

   NOTE: Make sure that the side guides are in there most inner position and move the Back jogger module by hand, to make it easier to get to the sensor.

Replacement

1. Reverse the removal procedure.

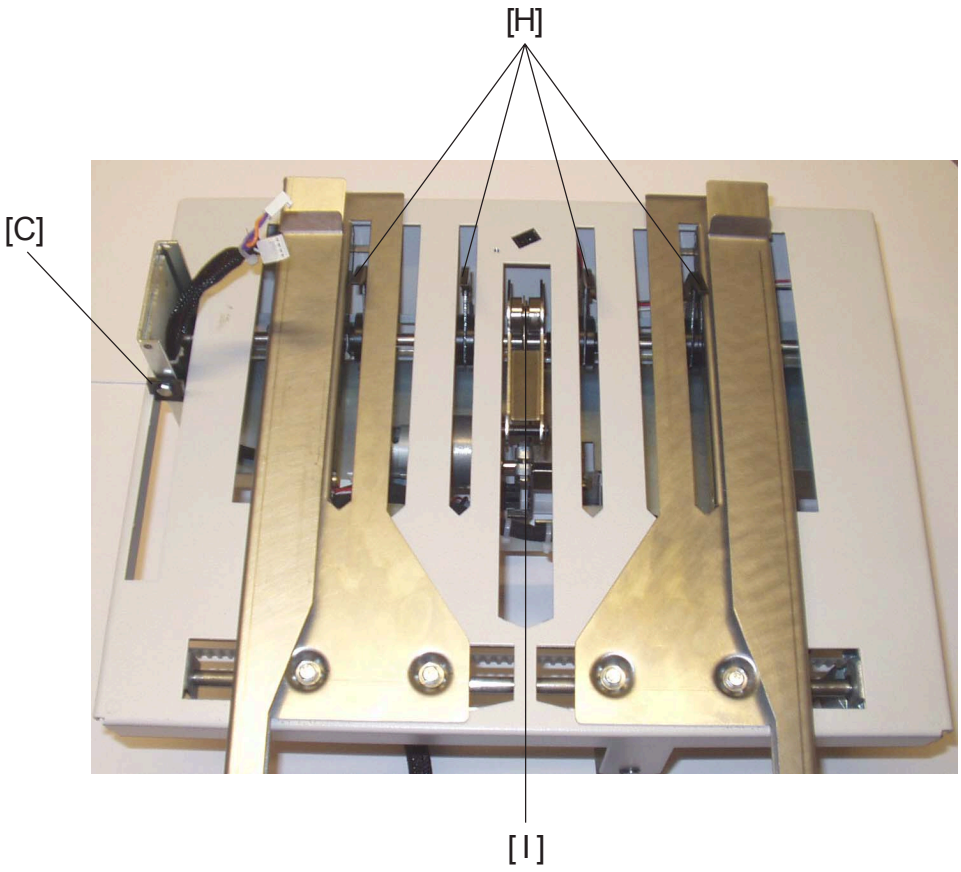
Removal Side guide transmission

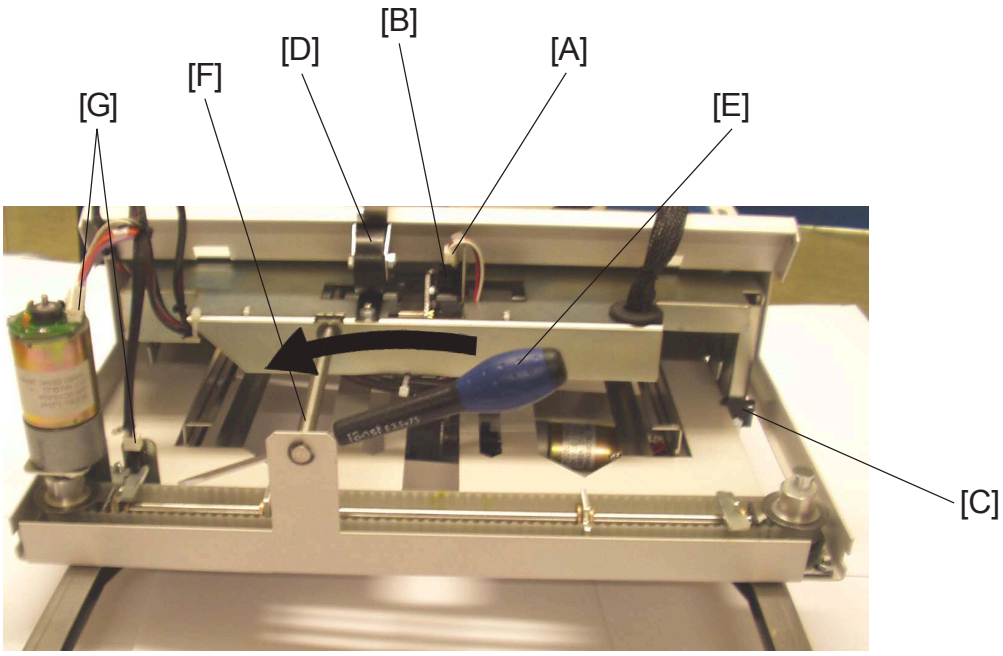
1. Remove Side jogger motor ((☛ 3.4.5).
2. Loosen nuts [A] (x2).
3. Use a screwdriver [B] to press the spring [C] together, to slack the drive belt (x2, x1).
4. Tighten nuts [A] again (x2).
5. Remove screwdriver [B] (x1).
6. Remove connector [D] (x2).
7. Remove Side jogger home position sensor Q13 [E].
8. Use a flat plier to lift up the drive belt from the side guide brackets [F].
9. Remove the pulley [G] and the dive belt.

Replacement

1. Place the side guides in there most outer position [H].
2. Take the pulley [G], and press the drive belt into the left side guide bracket [F]. Continue and press the drive belt into the right side guide bracket [F].
3. Loosen nuts [A], and let the spring [C] tensioning the drive belt (x2, x2).
4. Tighten nuts [A] again (x2).
5. Reverse the rest of the removal procedure.

3.4.9 BACK JOGGER MODULE & SENSOR Q3





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Removal Sensor Q3

1. Remove Infeed cover ((☛ 3.3.3).
2. Disconnect connector [A] to Sensor Q3 (x1).
3. Remove sensor Q3 [B].

Replacement Sensor Q3

1. Reverse the removal procedure.

Removal Back jogger module

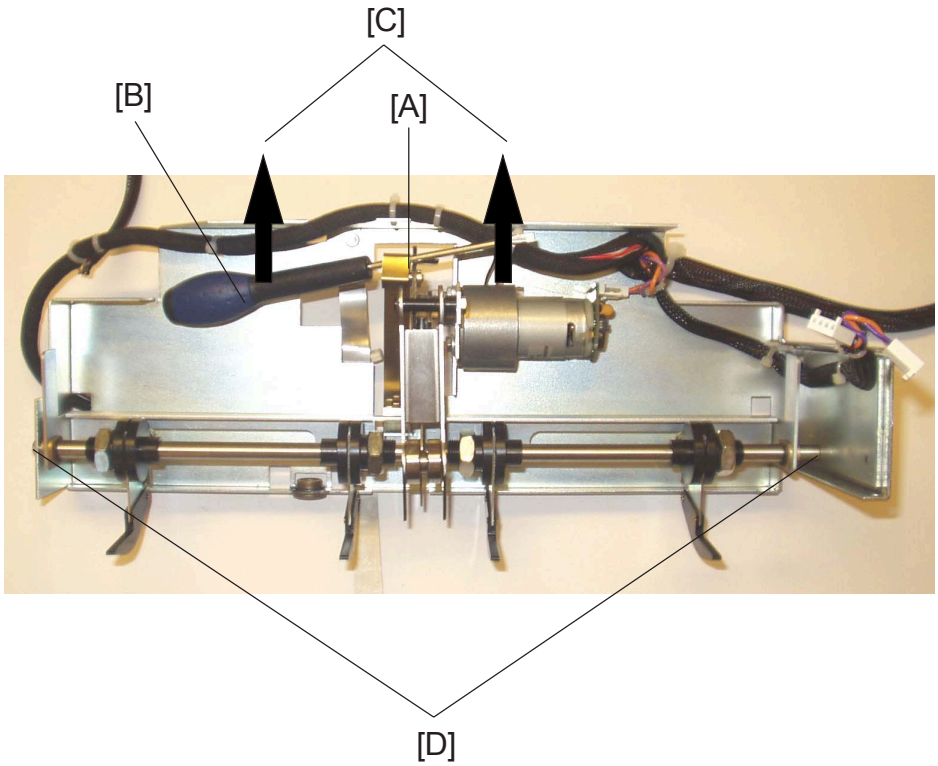
1. Remove Infeed module ((☛ 3.4.1).
2. Remove Infeed transport module ((☛ 3.4.3).
3. Remove the screw to plastic distance [C] (x1).
4. Unhook the Length adjustment strap wheel [D].
   NOTE: DO NOT TURN ON THE ADJUSTMENT SCREW.
5. Insert a screwdriver [E] in the shaft and unscrew the shaft [F] to the Back jogger module (x1).
   NOTE: Rotate the screwdriver counterclockwise to unscrew the shaft.
6. Remove the shaft [F].
7. Remove the Back jogger module.
   NOTE: If removing the Back jogger module completely, remove three tie wraps to the Infeed sensor Q1 harness.

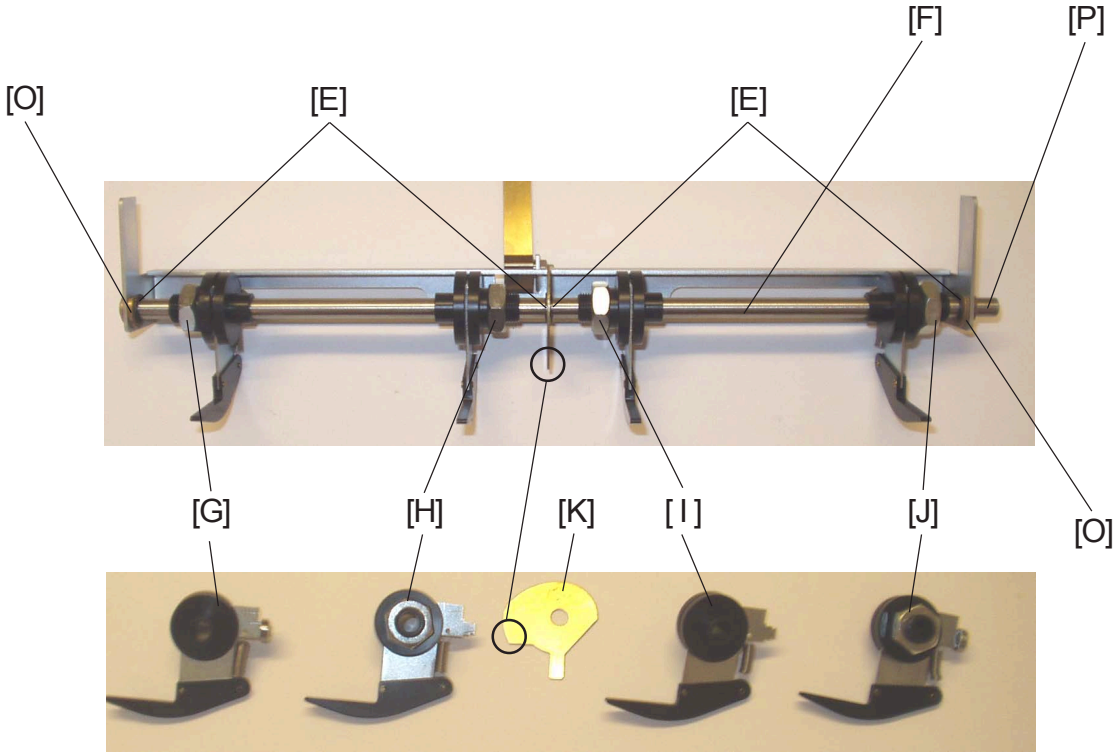
Replacement Back jogger module

NOTE: When replacing the Back jogger module, make sure that the Back jogger fingers [H] and the Infeed bearing bracket [I] is in its right position.

1. Reverse the removal procedure.

3.4.10 BACK JOGGER FINGERS





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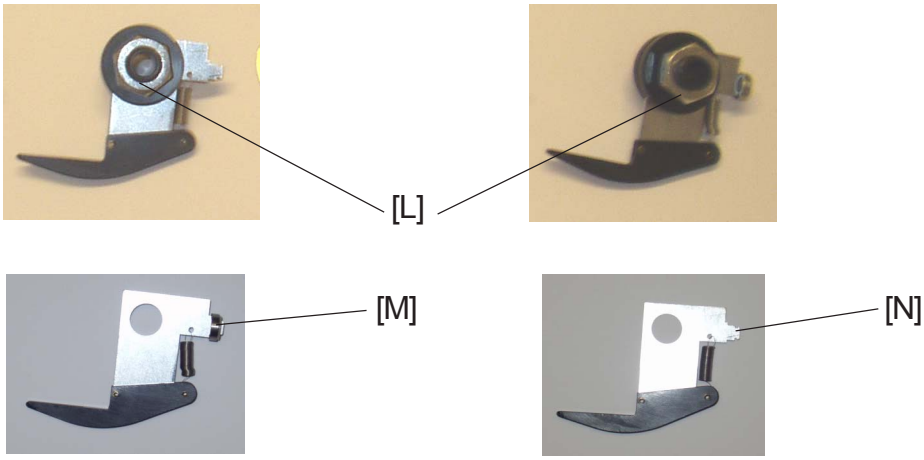


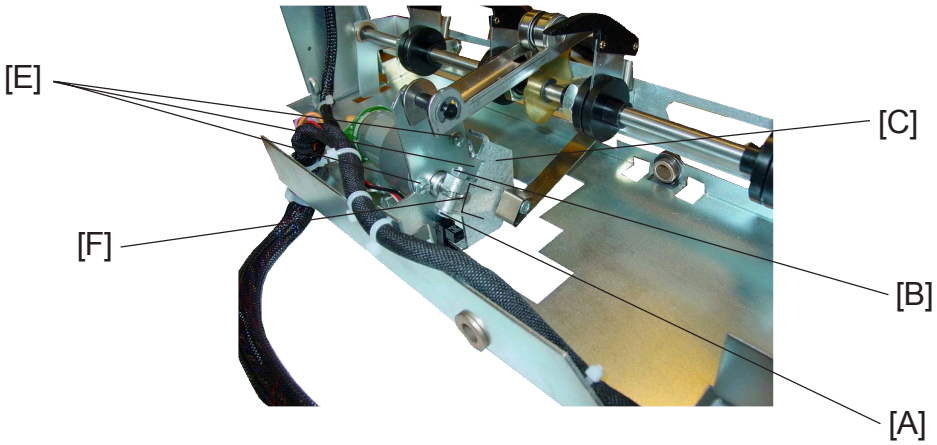
Removal

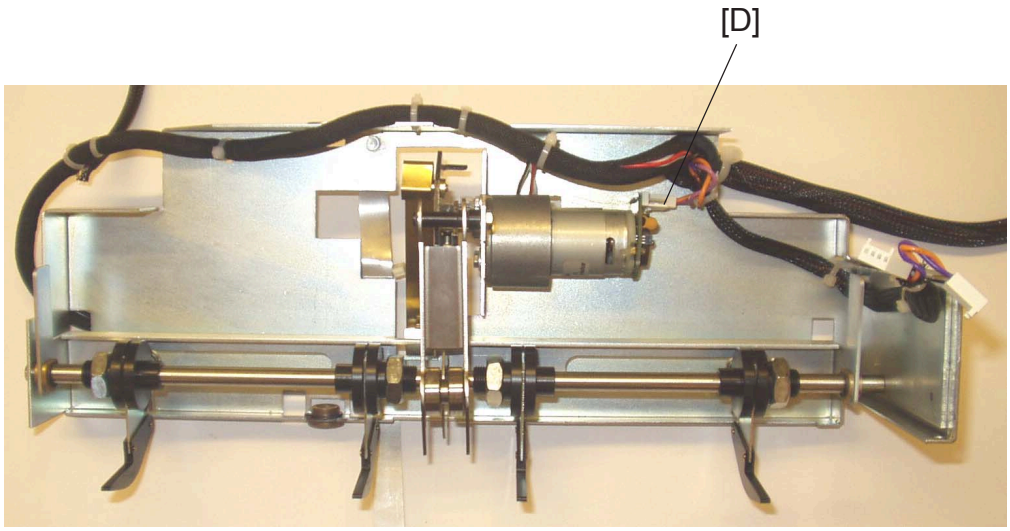
1. Remove Back jogger module ((3.4.9)
2. Loosen spring [A] with a screwdriver [B], by pulling the screwdriver straight out according to the arrows [C] (x1).
3. Remove screws [D] (x2).
4. Remove E-clips [E] (x4).
5. Pull out the Back jogger arm shaft [F].
   NOTE: Make sure to notice the orientation of the Back jogger fingers [G], [H], [I] and [J], and the brass bracket [K].
6. Remove nut [L] and dismount the Back jogger finger (x1).
   NOTE: There is two different kind of Back jogger fingers. One type with a bearing [M] and one type without a bearing [N].

Replacement

1. Remount the Back jogger finger and tighten the nut [L] (x1).
   NOTE: Tighten the nut finger tight, then tighten the nut ½ revolution with a 19 mm open wrench.
2. Reinstall correct Back jogger finger [G], [H], [I] and [J], Bras bracket and the two bushings [O] on correct place.
   NOTE: Make sure to turn the Bras bracket correctly, according to the circles in the picture.
3. Slide Back jogger arm shaft [F] in place.
   NOTE: Make sure to turn the shaft the correct way [P].
4. Reinstall E-clips [E] (x4).
5. Reinstall Back jogger arm module in place, and tighten screws [D] (x2).
6. Push the spring [A] back with your thumb.
   NOTE: Make sure that the bearing is in the slot on the feather spring.
7. Reverse the rest of the removal procedure.

3.4.11 BACK JOGGER MOTOR M2





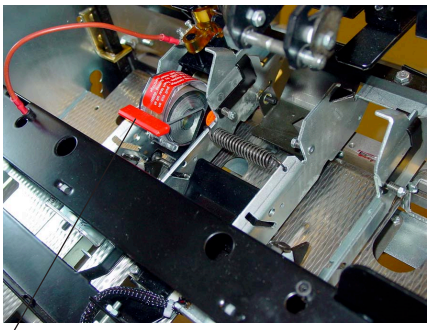
Removal

1. Remove Back jogger module ((☛ 3.4.9).
2. Remove screw [A] and nut [B] (x1, x1).
3. Remove the Bracket [C] from the motor axel.
4. Remove connector [D] (x1).
5. Remove screws [E] to the motor (x3).

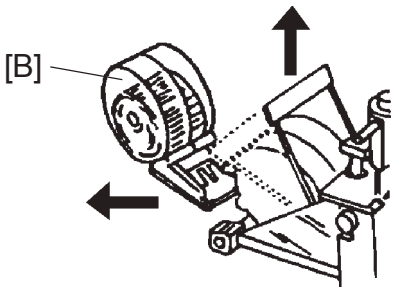
Replacement

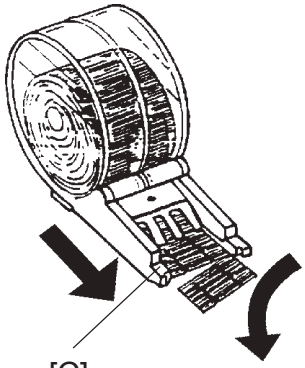
1. Reinstall screws [E] to the motor (x3).
2. Reinstall connector [D] (x1).
3. Reinstall screw [A] and nut [B] (x1, x1).
   NOTE: Make sure that the screw [A] is positioned against flat of the motor shaft. And that the motor shaft is level [F] with the Bracket [C].
4. Reverse the rest of the removal procedure.

3.4.12 STAPLER HEAD

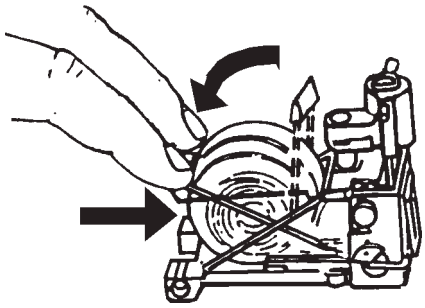


[A]





1. Open the booklet maker top cover.
2. Raise the handle (A) on the staple cartridge locking lever.
3. Remove the staple cartridge [B] from the stapler head by sliding it away from the stapler head.
4. Renewing or reinstalling the staple cartridge, pull 25 mm / 1 inch of staples out of the cartridge and tear the staples downward against the staple tear line [C]. The staple tear line is indicated by an arrow on the side of the cartridge.
5. Insert the cartridge into the stapler head with the end of the staples facing toward the head of the stapler mechanism. Push it firmly ahead.
   NOTE: Hold the staple cartridge firmly in place and push down the cartridge locking lever [A].
6. Close the top cover. Hand feed a four sheet set of paper. The booklet maker will automatically cycle and advance staples until both staple heads are driving staples. If not and/or if error message persists, repeat procedure.



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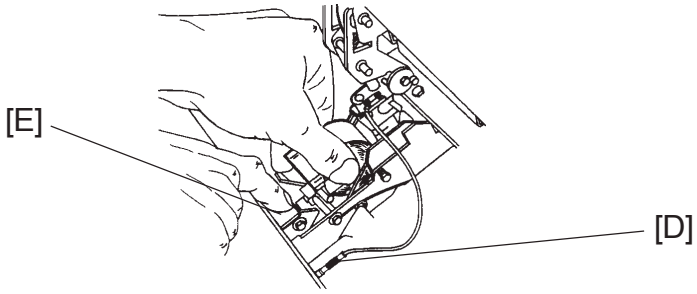
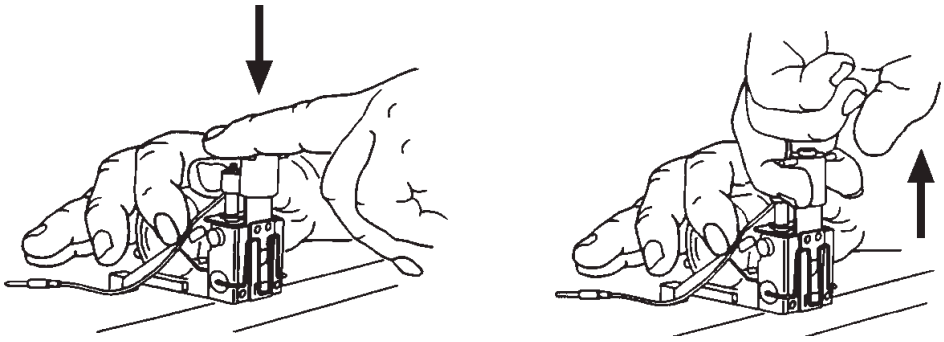
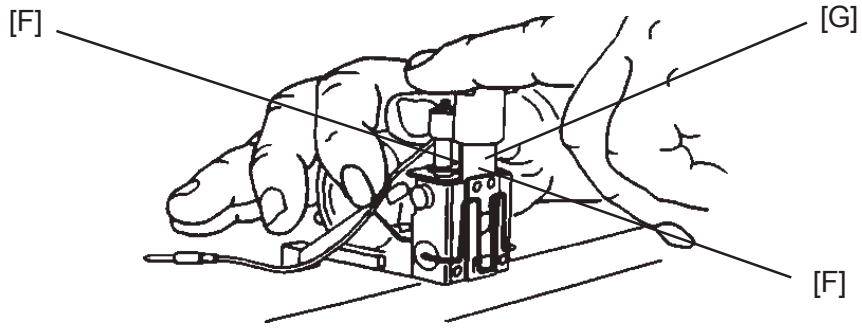


7. Disconnect the staple indication lead [D] from the socket.
8. Hold the stapler head in place, press the release lever [E] to release the rear end of the stapler head and lift up this end.
9. Lift out the head, allowing it to rotate around the front end. The stapler assembly is spring loaded and will follow the rotation of the stapler.

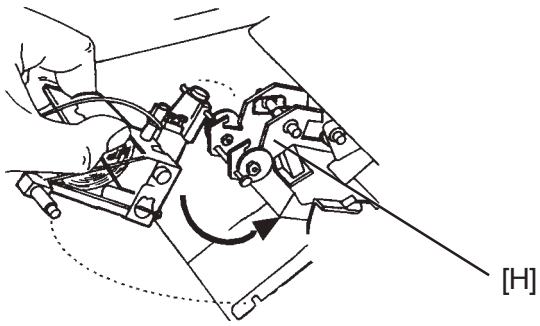


10. Remove staple cartridge. Look inside stapler head to locate jammed staples by eject point. Remove staples if any.
11. Position the stapler head on the edge of a firm surface (for example the top of a table).
12. While securely holding the head, actuate the stapler up and down through full travel. Perform this operation fist without staple cartridge, then with staple cartridge. Repeat this a few times to ensure that the staples are ejected at each down movement.



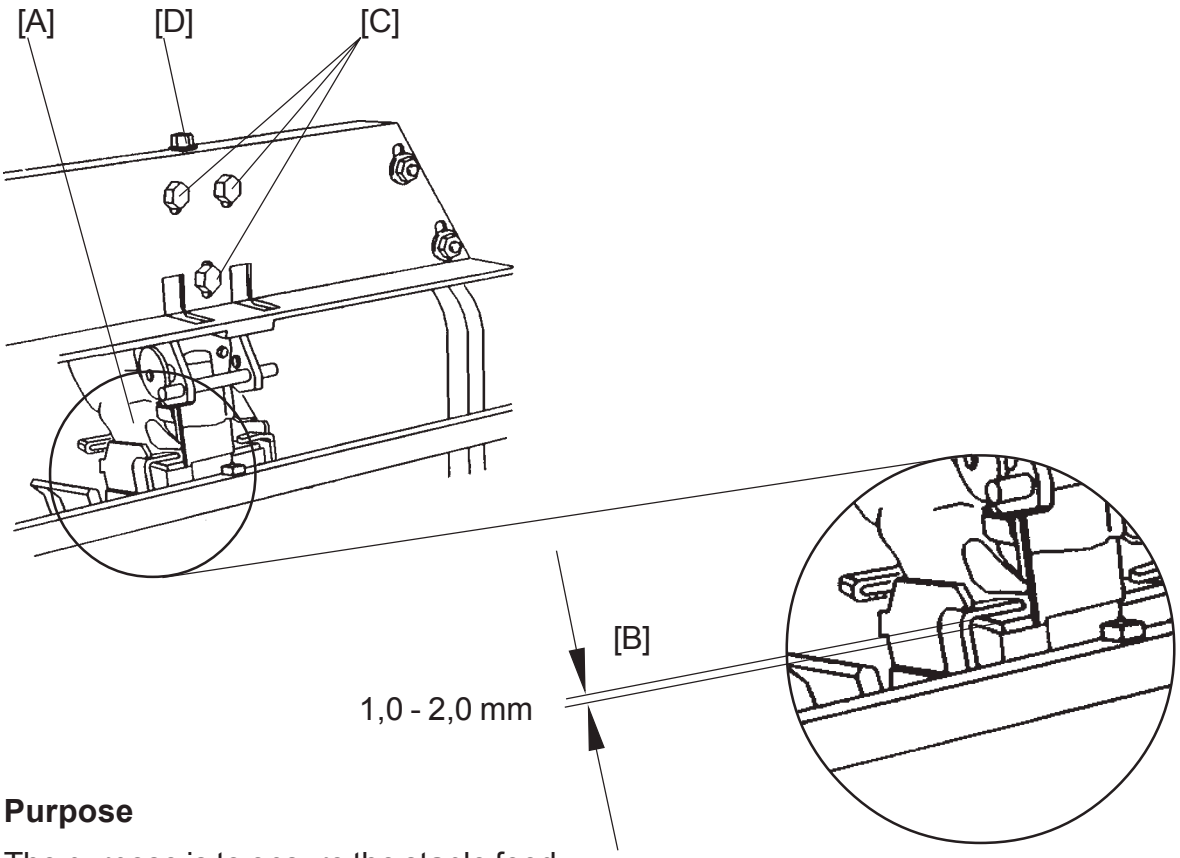
The stapler head drive post on each stapler head should be lubricated every 20 000 cycles.

13. Put a couple of drops of oil [F] on each side of the drive post [G].
14. Cycle the stapler head a few times before installing it again.



15. Reinstall the stapler head by inserting the pin at the top of the stapler head into the stapler retraction swing arm [H].
16. While rotating the stapler head, insert the pin located at the rear end of the stapler head into the slots in the frame of the stapler head assembly. Press down the rear end of the stapler head until the release lever snaps into place, locking the stapler head in position.
17. Press down the front end of the stapler head until it snaps in position under the frame assembly.
18. Reconnect the staple indication lead [D].
19. Close the top cover and switch on the booklet maker. The booklet maker will automatically cycle and advance staples until both staple heads are driving staples. If not and/or if err message persists, repeat procedure.

3.4.13 STAPLER HEAD RETRACTION DISTANCE



Purpose

The purpose is to ensure the staple feed.

Removal

1. Remove Infeed cover((☛ 3.3.3).
2. Make sure that the Stapler motor linkage is in the top dead centre.

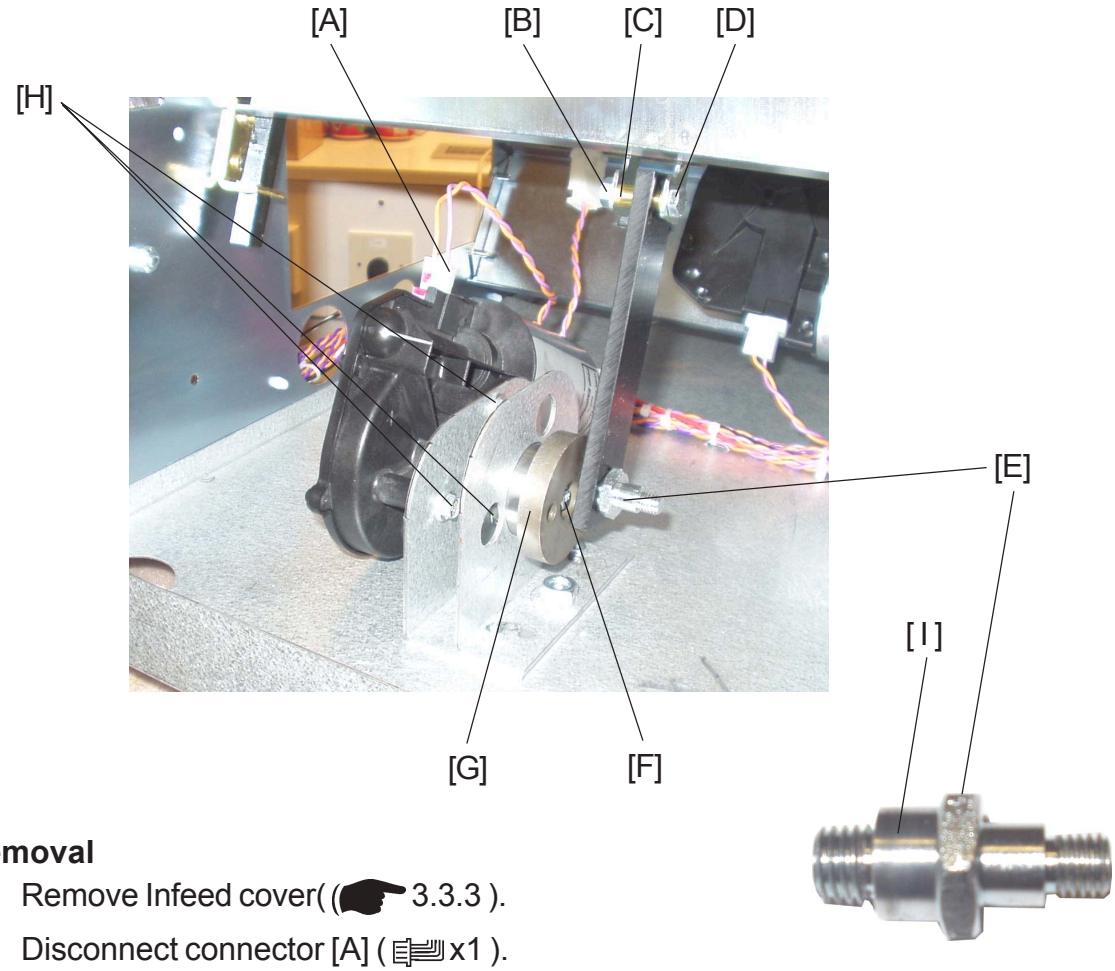
Adjustment

1. Push down the stapler head [A].
2. Check that the gap [B] is 1,0 - 2,0 mm. If nor, go to step 3.
3. Loosen screws [C] (x3).
4. Adjust screws [D] according to step 2 (x1).
5. Tighten screws [C] (x3).
5. Perform the same check on the Rear side [E], adjust if needed.

Replacement

1. Reverse the removal procedure.

3.4.14 STAPLER MOTOR M4



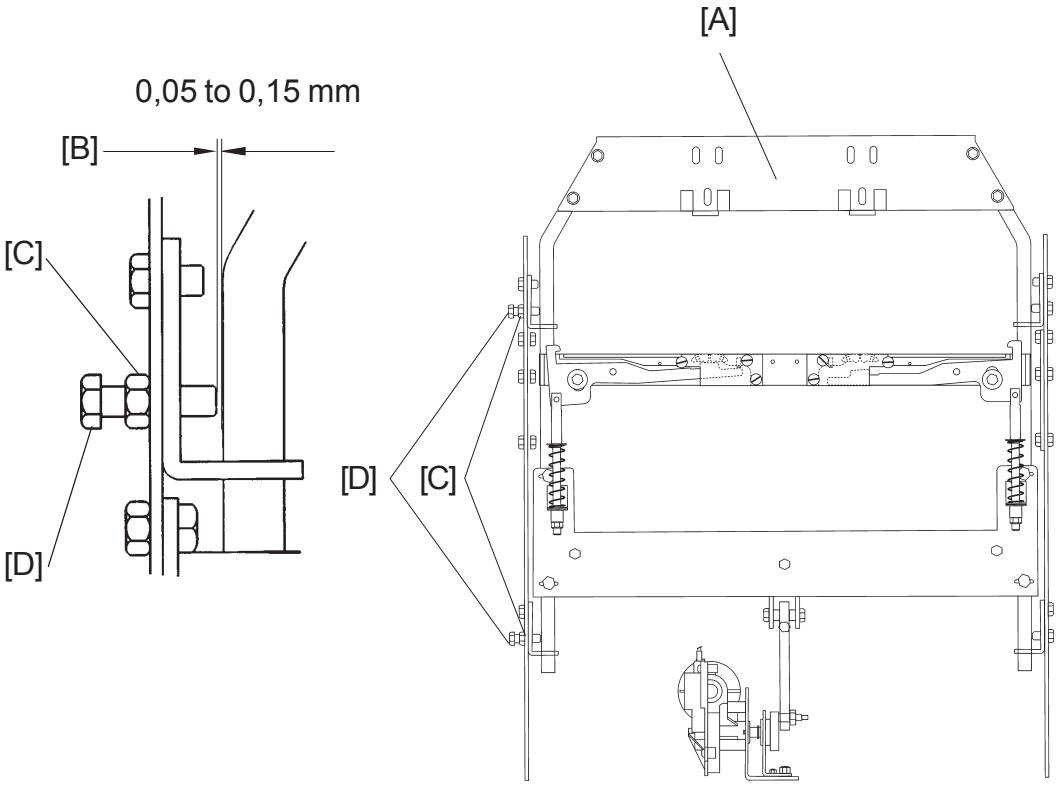
Removal

1. Remove Infeed cover((3.3.3).
2. Disconnect connector [A] (x1).
3. Remove nut [B], bras spacer [C] and screw [D] (x1, x1).
4. Remove Crank journal [E] with an 17 mm open wrench.
5. Remove screw and washer [F] (x1, x1).
6. Remove the Crank wheel [G].
7. Remove screws [H] to the motor (x3).

Replacement

1. Reinstall screws [H] to the motor (x3).
   NOTE: DO NOT TIGHTEN THE SCREWS.
2. Reinstall the Crank wheel [G].
3. Reinstall screw and washer [F] (x1, x1).
4. Tighten screws [H] (x3).
5. Reinstall Crank journal [E] with an 17 mm open wrench.
   NOTE: Make sure to install the grater end [I] of the Crank journal.
6. Reverse the rest of the removal procedure.

3.4.15 STAPLER ASSY DRIVE BAR & SENSOR Q14



Purpose

The purpose is to limit the front-to-rear movement of the Stapler assembly drive bars, without causing them to bind.

Removal

1. Remove Front and Rear cover ((☛ 3.3.1).
2. Remove Infeed cover((☛ 3.3.3).

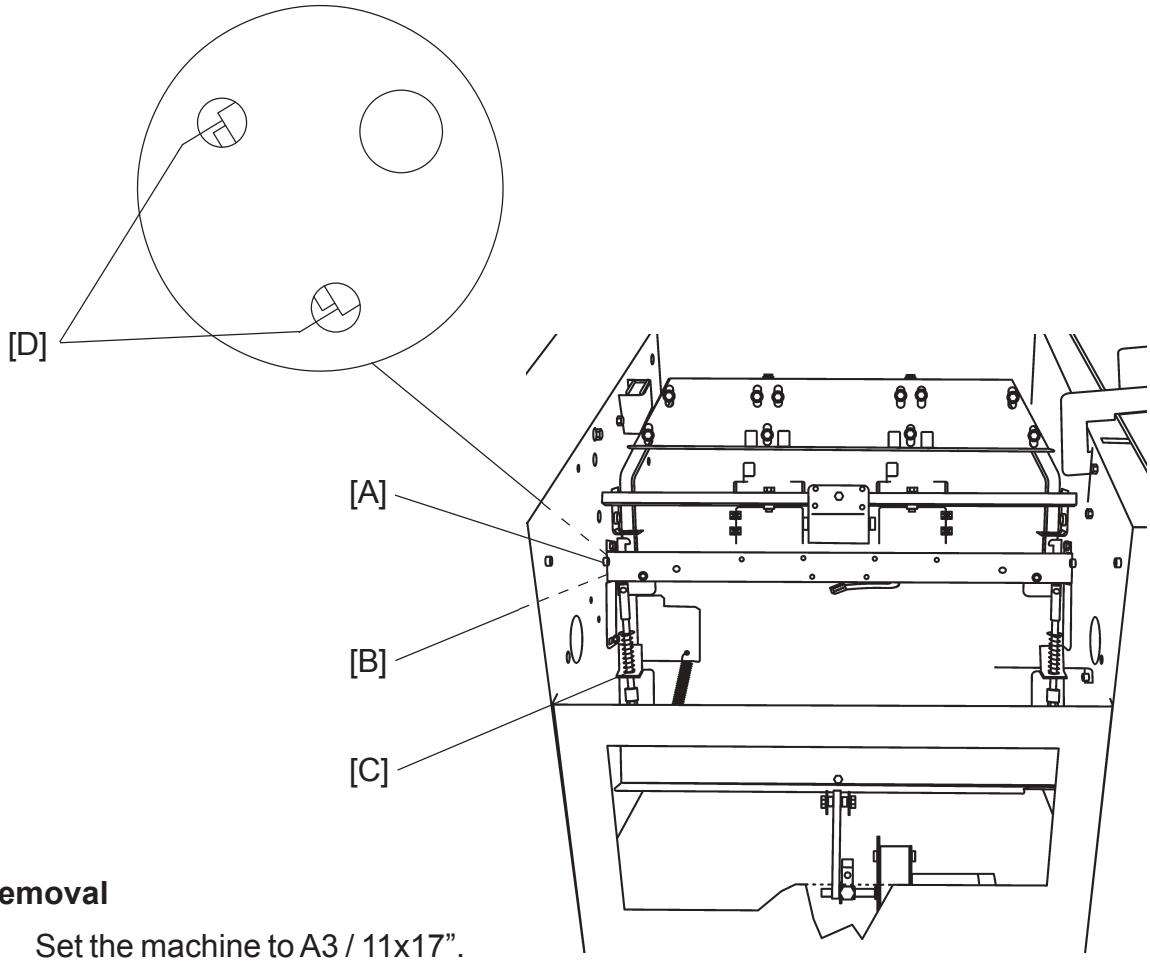
Adjustment

1. Push the Drive bar [A] toward the Rear of the Booklet maker.
2. Insert a feeler gauge to Check the gap [B]. The distance should be 0.05 - 0.15 mm. If not, go to step 3.
3. Loosen locknuts [C] (x2).
4. Adjust screws [D] according to step 2 (x2).
5. Tighten locknuts [C] (x2).
6. Perform the same check on the Rear side [E], adjust if needed.

Replacement

1. Reverse the removal procedure.

3.4.16 CLINCHER BAR ASSEMBLY



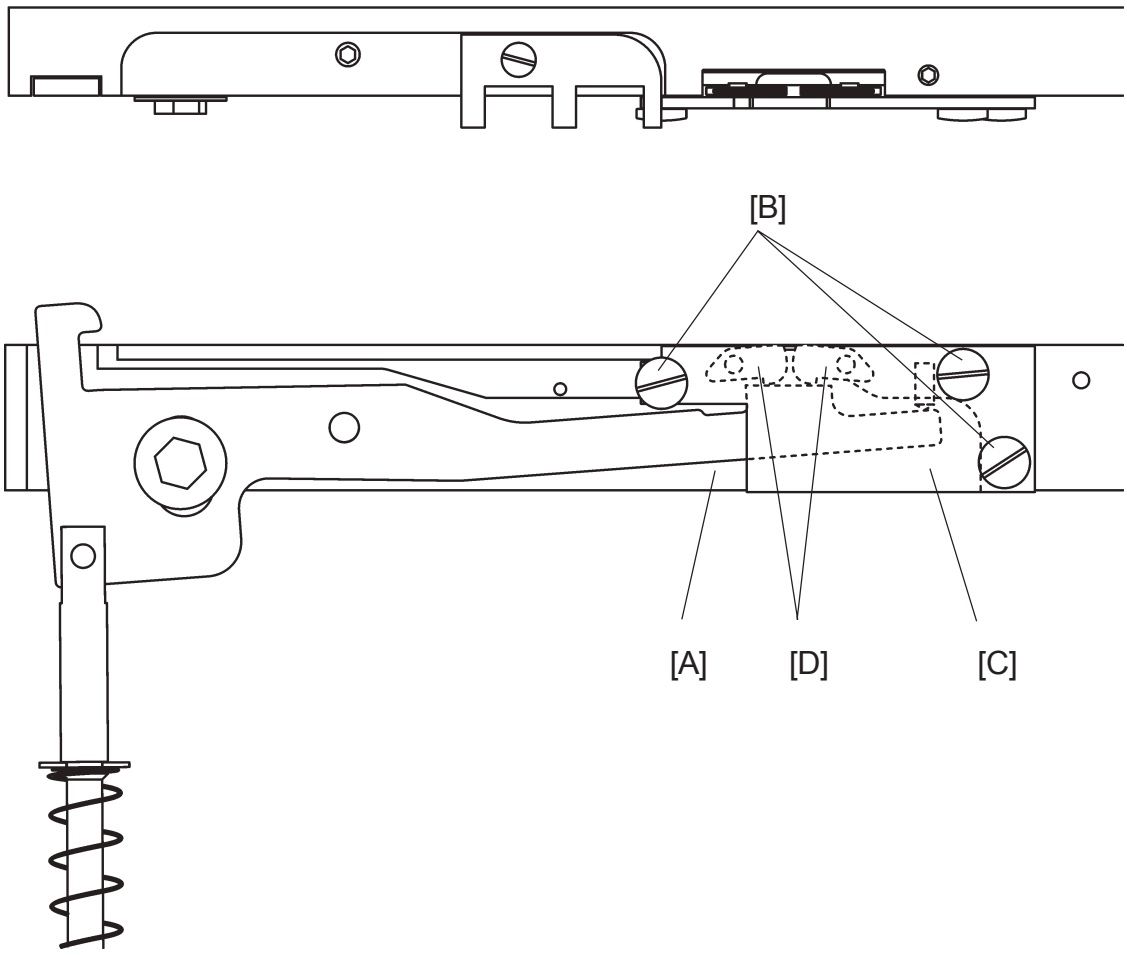
Removal

1. Set the machine to A3 / 11x17".
2. Remove Infeed module ((☛ 3.4.1).
3. Remove screws and nuts [A] on both sides of the Booklet maker (x2, x2).
4. Remove the screws [B] fastening the clincher beam, on both sides of the Booklet maker (x2).
5. Lift out the Clincher bar assembly.

Replacement

1. Reinstall the Clincher bar assembly.
   NOTE: Make sure that the spring [C] is positioned on top of the Stapler assy drive bar (x2).
2. Before tightening the screws [B], make sure that the Clincher bar assembly is firmly seated [D].
   NOTE: There should be no space [D], If you look in the positioning holes in the Front and Rear frame.
3. While pressing the Clincher bar assembly, tighten the screws [B] (x2).
4. Reverse the rest of the removal procedure.

3.4.17 CLEANING CLINCHER POINTS



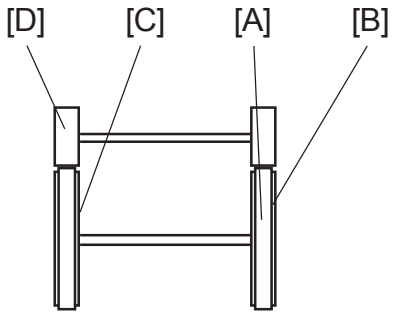
Removal

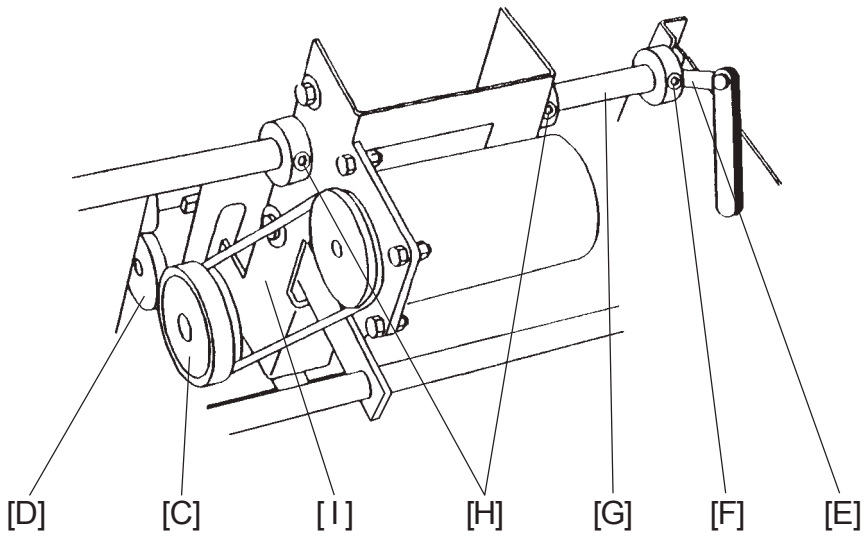
1. Remove Clincher bar assembly [A] ((☛ 3.4.16).
2. Remove screws [B] to clincher plate [C] (x3).
3. Remove clincher plate [C].
   NOTE: The clincher points [D] are not interchangeable. They must be refitted on their original position.
4. Clean clincher bar [A], clincher plate [C] and clincher points [D].
   NOTE: Check for wear, replace if needed.
5. Apply oil on moving surfaces.

Replacement

1. Reverse the removal procedure.
2. Before refitting the clincher bar assembly, check/adjust the Clincher points height ((☛ 3.8.5).

3.4.18 SET TRANSPORT DRIVE ALIGNMENT





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Purpose

The purpose is to horizontally align the Set transport drive rollers with the Idler wheels, to ensure the correct set transportation into the fold area.

1. Set the machine to A4 / 8.5x11".
2. Ensure that the tires [A] are centred on the hubs [B] of the drive rollers.
3. Manually move the Drive rollers [C] up against the Pressure rollers [D], by pushing the Staple stop gate down.
4. Visually check that the Drive rollers [C] are centred on the Pressure rollers [D].

Removal

1. Remove Infeed cover ((☛ 3.3.3).

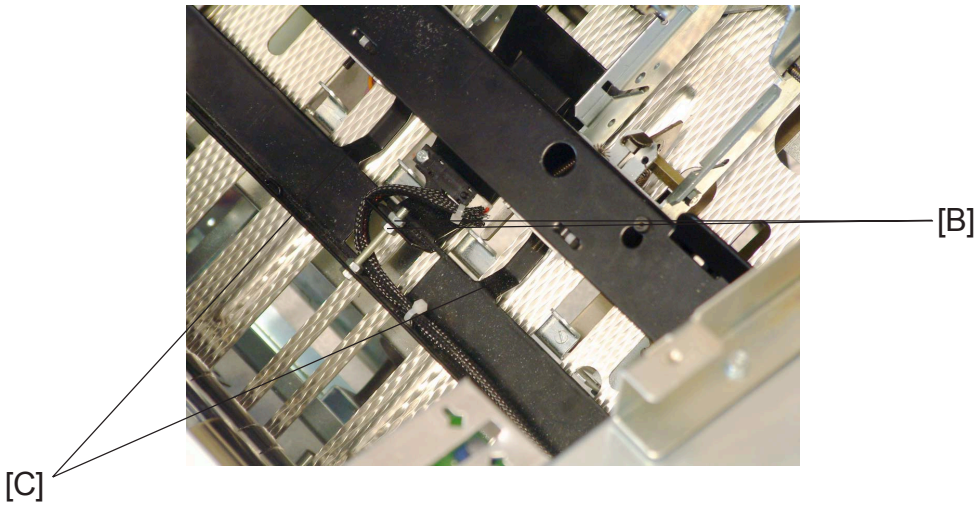
Adjustment

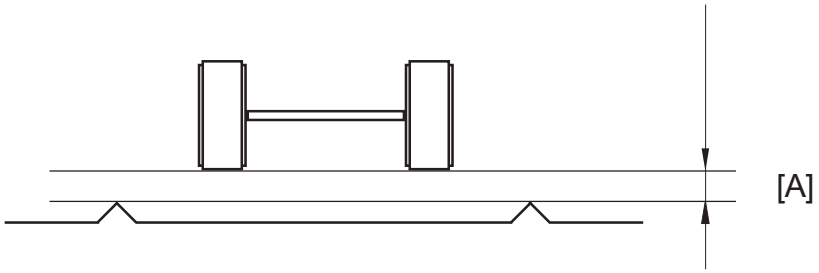
1. Insert a 0.3 mm feeler gauge [E] to ensure 0,3 ± 0,2 mm endplay.
   If not, go to step 2.
   NOTE: the endplay 0.3 mm is to prevent the Staple stop gate shaft from binding.
2. Loosen allen screw [F] (x 1).
3. Push the shaft [G] toward the Front of the Booklet maker.
4. Adjust distance according to step 1.
5. Tighten allen screw [F] (x 1).
6. Loosen allen screws [H] (x 2).
7. Move the assembly [I], so that the tires [A] are centred on the Pressure rollers [D].
8. Tighten allen screws [H] (x 2).

Replacement

1. Reverse the removal procedure.

3.4.19 PRESSURE ROLLER





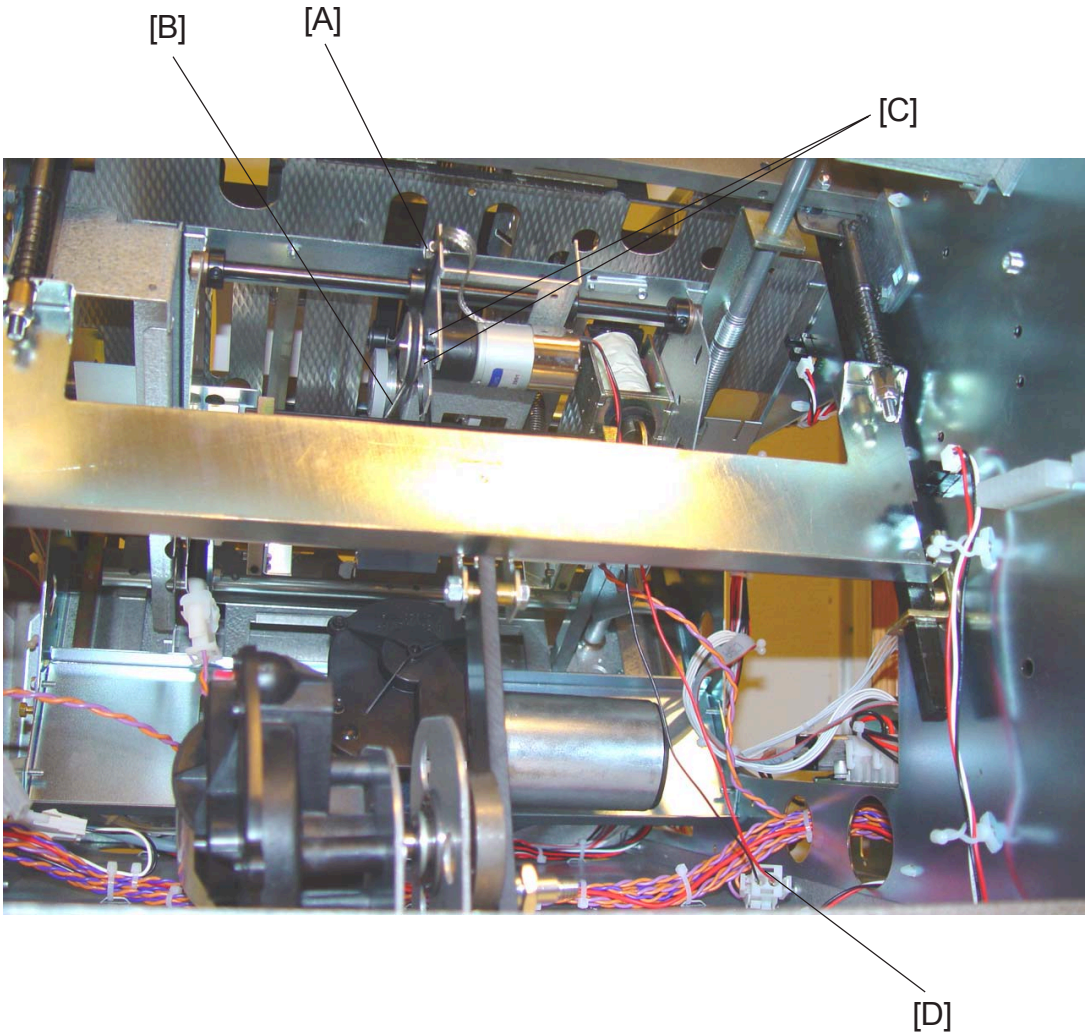
Purpose

The purpose is to position the Pressure rollers for the correct engagement with the Drive rollers

Adjustment

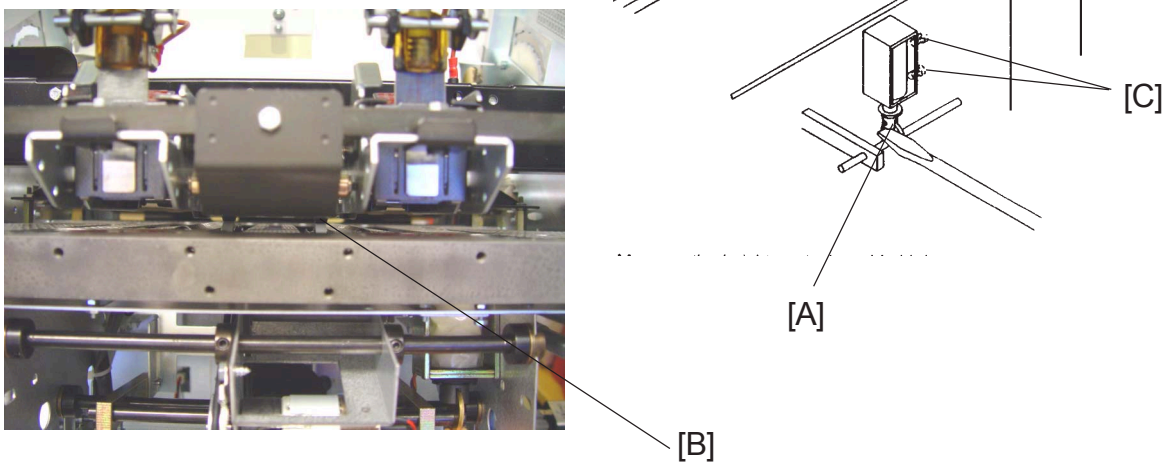
1. Set the machine to A3 / 11x17".
2. Check that the gap [A] is 4 mm.
   NOTE: Use a 4 mm allen wrench, to check the gap between the Pressure roller [B] and the Paper path [C]. Make sure that the allen wrench is positioned on the raised strips of the paper path.
3. Adjust Press roller height [A] on the two nuts [B] (x2).
   NOTE: If you want to make the Gap [A] grater, turn the two nuts [B] CW.
   If you want to make the Gap [A] smaller, turn the two nuts [B] CCW.
4. Make sure that the distance between the raised strips of the paper path and the paper guides [C] is 4 mm.
5. If paper guides [C] is deformed, form paper guides to obtain adjustment.

3.4.20 SET TRANSPORT MOTOR M5



1. Remove Infeed cover ((☛ 3.3.3).
2. Remove screw [A] to ground strap (x1).
3. Remove O-ring [B].
4. Loosen the allen screw underneath the O-ring (x1).
5. Loosen screws [C] and remove the motor (x2).
6. Disconnect connector [D] (x1).

3.4.21 STAPLE STOP GATE SOLENOID SOL1



Purpose

The purpose is to ensure adequate engagement of the stapled set Drive rollers.

Removal

1. Check/Adjust the Pressure roller ((☛ 3.4.18).
2. Set the machine to A4 / 8.5x11".
3. Remove Infeed cover ((☛ 3.3.3).

Adjustment

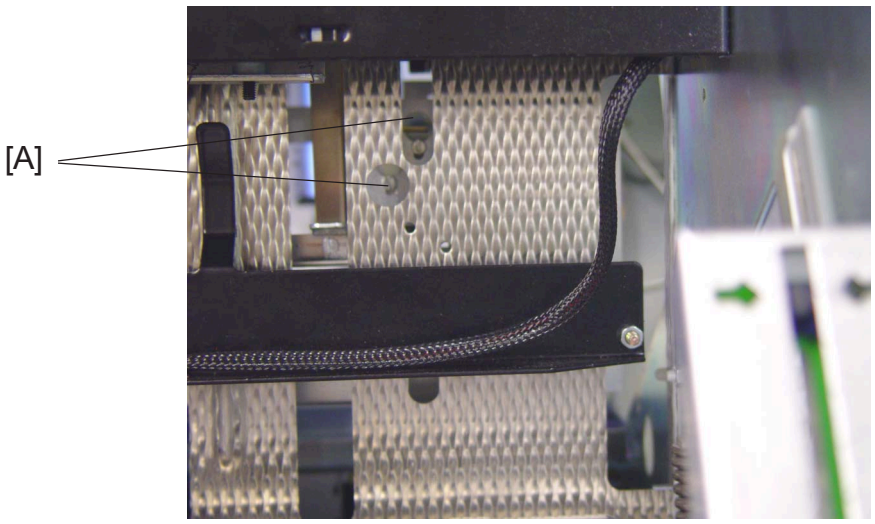
1. Enter service mode and activate the SOL1, in check solenoids ((☛ 5.1.1, 5.1.2).
   NOTE: The solenoid will be activated for approximately 30 seconds.
2. Look on the Pressure roller [B]. When releasing the solenoid, the Pressure roller should descend 2-3 mm. If not, go to step 3.

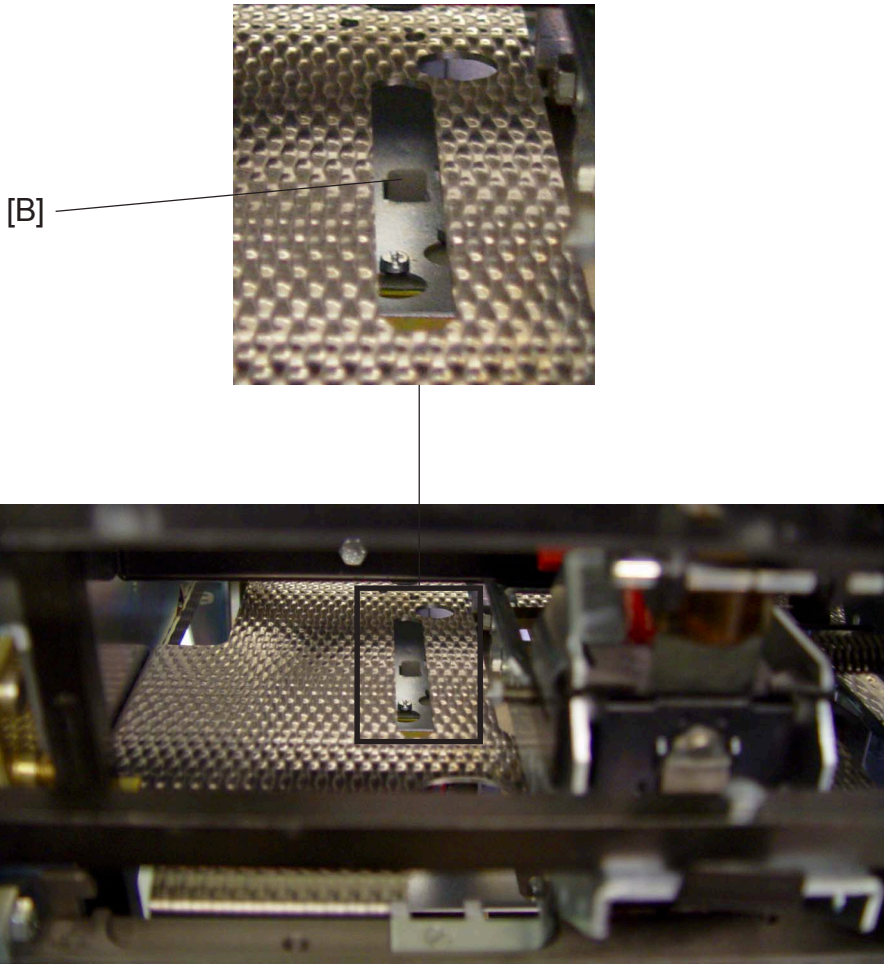
   NOTE: Make sure that the right and left Drive roller, hits the Pressure roller at the same time. If not, form the Drive rollers to obtain adjustment.
3. Loosen screws [C] (x2).
4. Activate the SOL1 again, and adjust according to step 2.
5. Tighten screws [C] (x2).

Replacement

1. Reverse the removal procedure.

3.4.22 STAPLE STOP GATE RELEASE SOLENOID SOL2





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Removal

1. Start Staple / Fold positioning motor M9, in Check motors ((☛ 5.1.1).
2. Engage the motor until you can see the screws [A].
3. Remove Infeed cover ((☛ 3.3.3).
4. Cut the tie wrap, securing the cable.
5. Disconnect connector to SOL2 (x1).
6. Loosen screws [A] (x2).

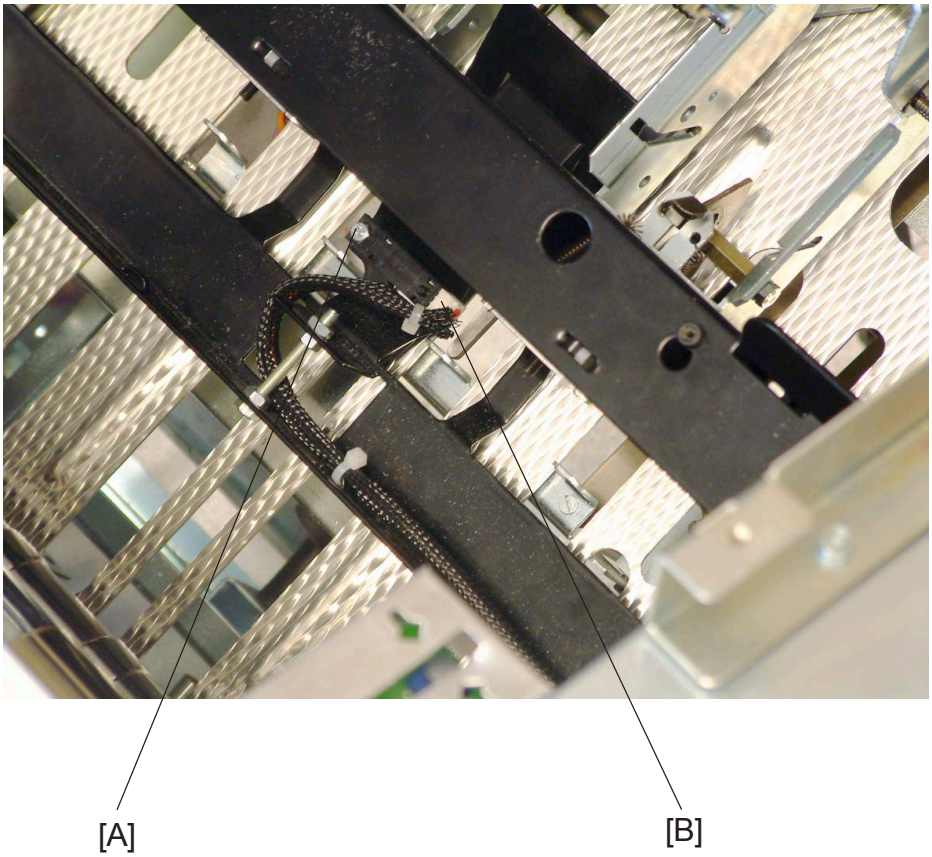
Adjustment

1. When the Stapled stop gate is in it's upper position, the play in the solenoid plate [B] should be 0,1-0,5 mm. If not, go to step 2.
2. Loosen screws [A] (x2).
3. Adjust according to step 1.
4. Tighten screws [A] (x2).

Replacement

1. Reverse the removal procedure.

3.4.23 SADDLE STAPLING START SENSOR Q4



Removal

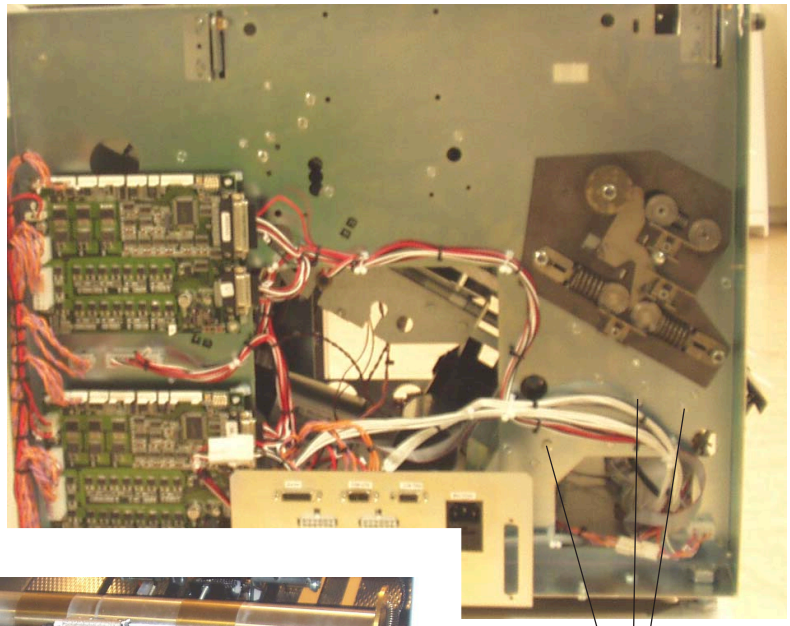
1. Remove nut [A] (x1).
2. Disconnect connector [B] (x1).

Replacement

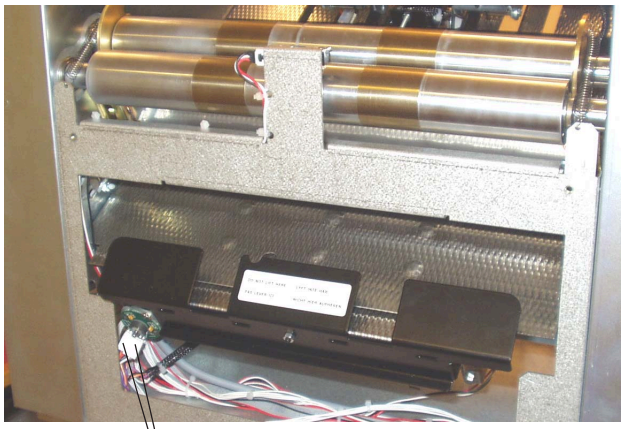
1. Reverse the removal procedure.
   NOTE: Make sure that the sleeve of the wire, do not interfere with the paper path.

3.5 AREA B

3.5.1 STAPLE / FOLD POSITION MOTOR M9 & SENSOR Q10



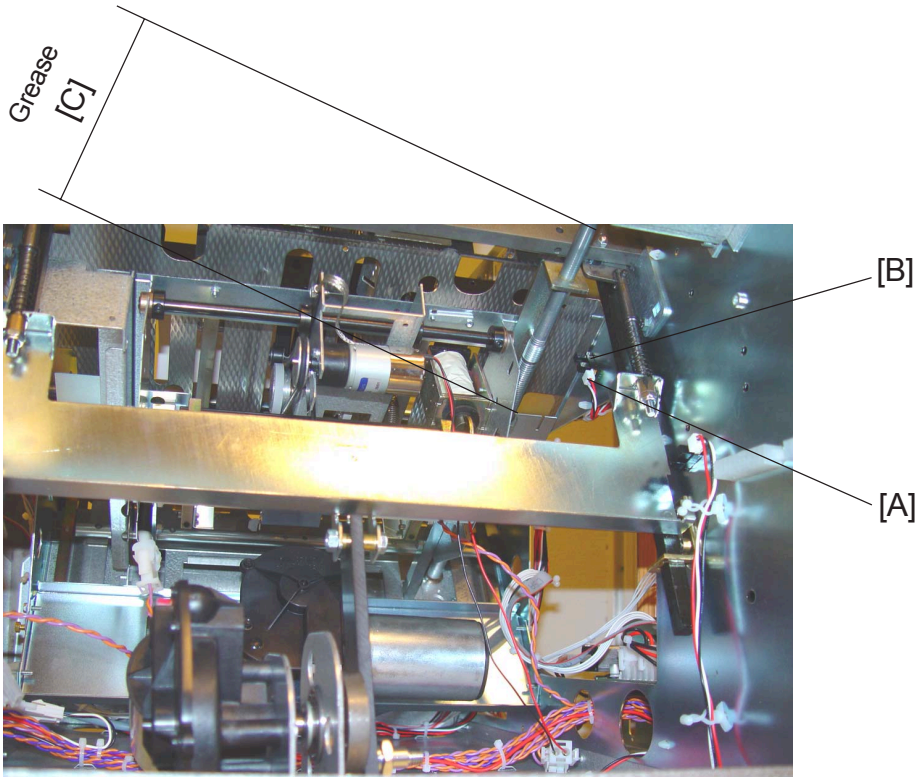
[B]



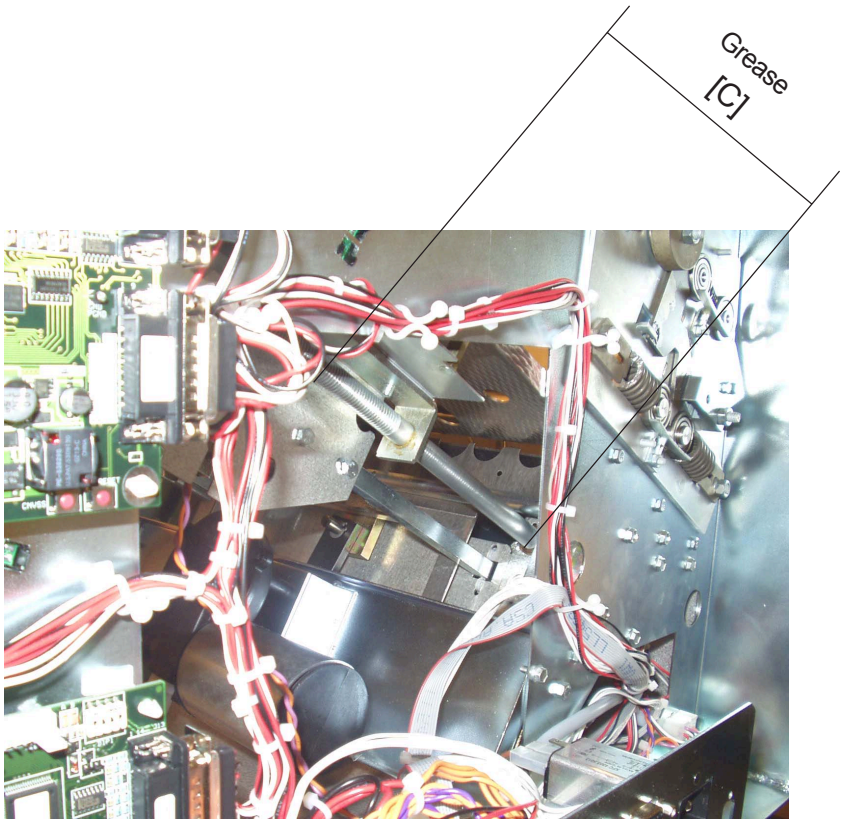
[A]

1. Set the machine to A4 / 8.5x11".
2. Remove Outfeed cover ((☛ 3.3.5).
3. Disconnect connectors [A] (x2).
4. Remove screws [B] to the motor bracket (x3).
   NOTE: The sensor Q10 is located on the motor.
5. Remove Joint.

3.5.2 LENGTH TRANSMISSION SHAFT & SENSOR Q11



View inside Booklet maker with Infeed cover removed



View on Length adjustment shaft with Rear cover removed

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Removal Sensor Q11

1. Remove Rear cover ((☛ 3.3.1).
2. Remove Infeed cover ((☛ 3.3.3).
3. Disconnect connector [A] (x1).
4. Remove sensor Q11 [B].

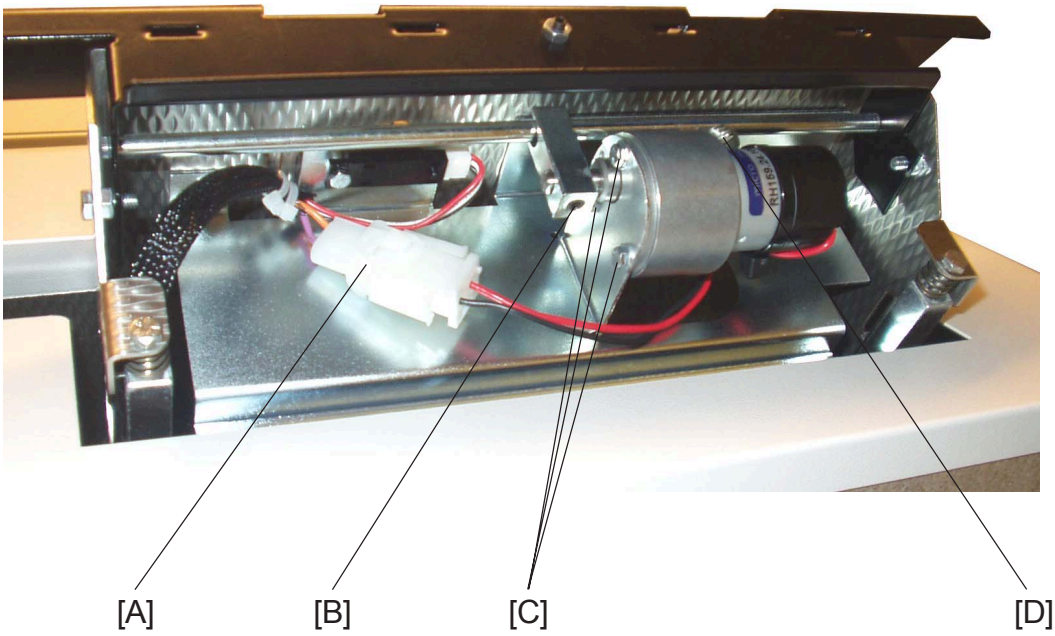
Replacement Sensor Q11

1. Reverse the removal procedure.

Lubricate Length transmission shaft

1. Remove Rear cover ((☛ 3.3.1).
2. Remove Infeed cover ((☛ 3.3.3).
3. Lubricate with grease on the Length transmission shaft [C], and the nut to the Length transmission shaft.
   NOTE: You should be able to turn the length adjustment shaft by hand.

3.5.3 FOLD STOP GATE MOTOR M8 & SENSOR Q7



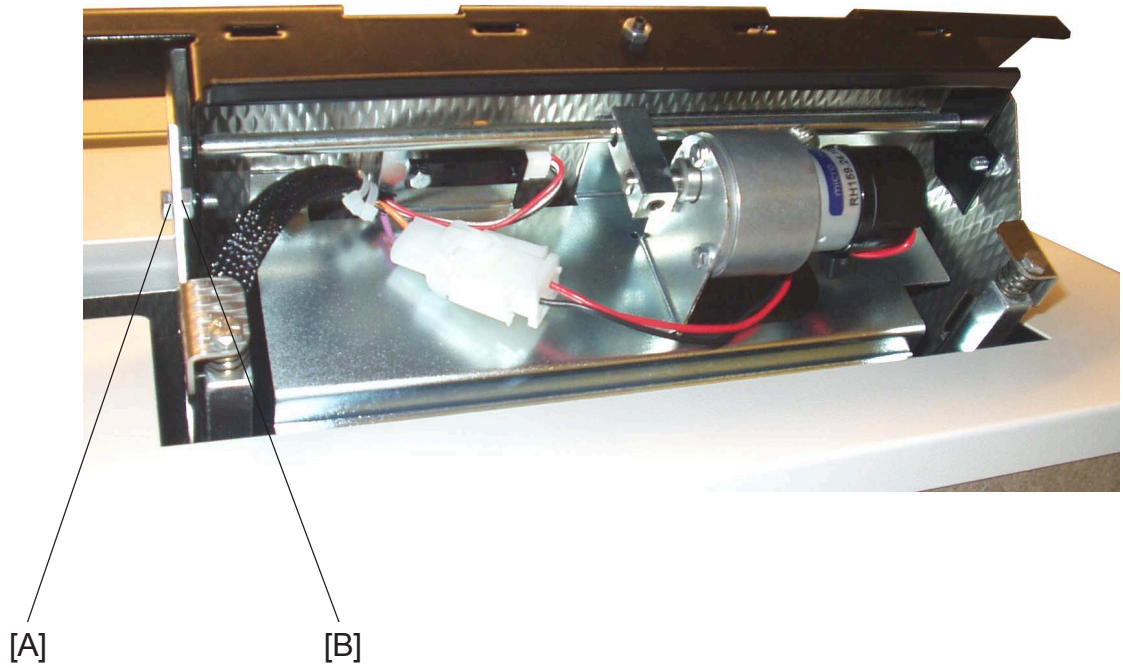
Removal

1. Set the machine to A3 / 11x17".
2. Disconnect connector [A] (x1).
3. Loosen allen screw [B] and remove the linkage (x1).
4. Remove screws [C] to the motor (x3).
5. Remove screw and washer [D] to the ground strap (x1, x1).

Replacement

1. Reinstall screw and washer [D] to the ground strap (x1, x1).
2. Reinstall screws [C] to the motor (x3).
3. Reinstall linkage and tighten allen screw [B] (x1).
   NOTE: Make sure that allen screw [B] is positioned against the D-surface.
4. Reverse the rest of the removal procedure.

3.5.4 FOLD STOP GATE



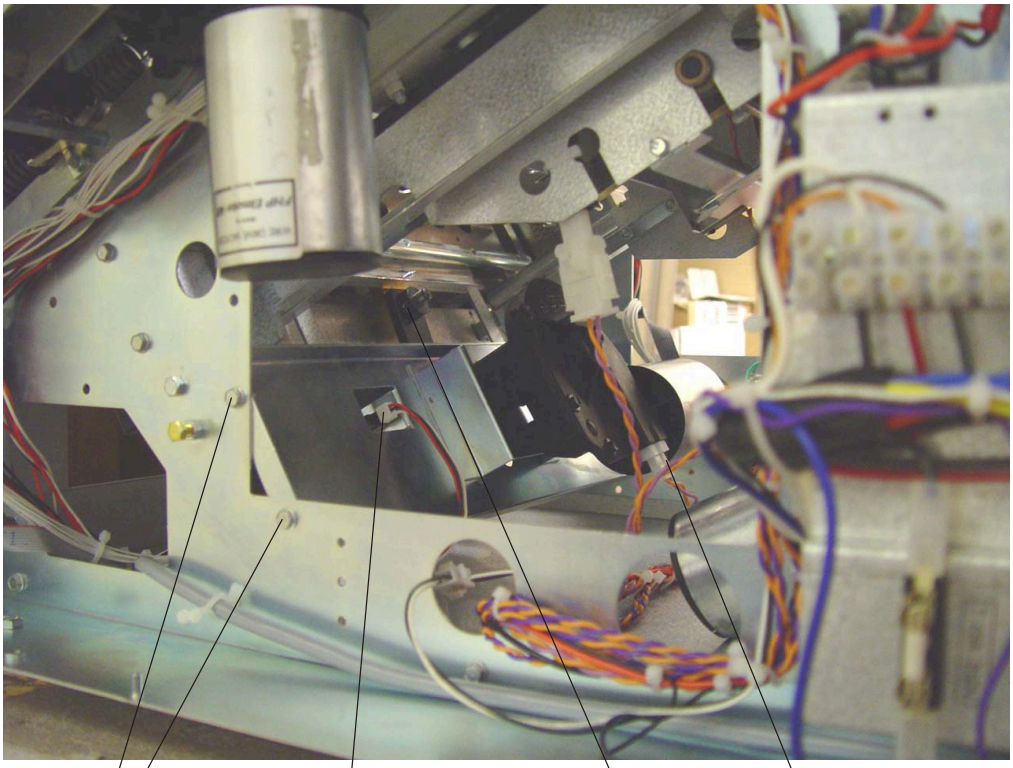
Removal

1. Set the machine to A3 / 11x17".
2. Loosen locknut [A] (x1).
3. Remove screw [B] (x1).
4. Remove the Fold stop gate.

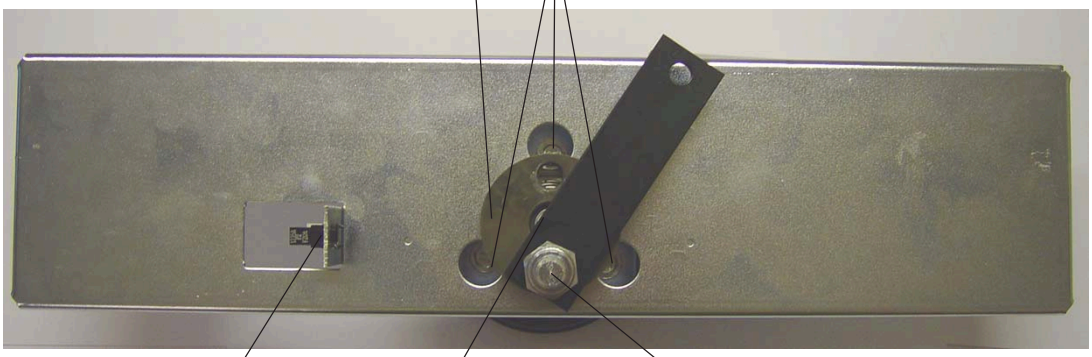
Replacement

1. Reinstall the Fold stop gate.
   NOTE: Make sure that the shaft on the Fold stop gate, is positioned in the linkage.
2. Reverse the rest of the removal procedure.

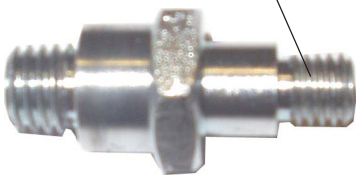
3.5.5 FOLD KNIFE MOTOR M7 & SENSOR Q15



[D] [B] [H] [I] [C] [A]



[E] [G] [J] [F]



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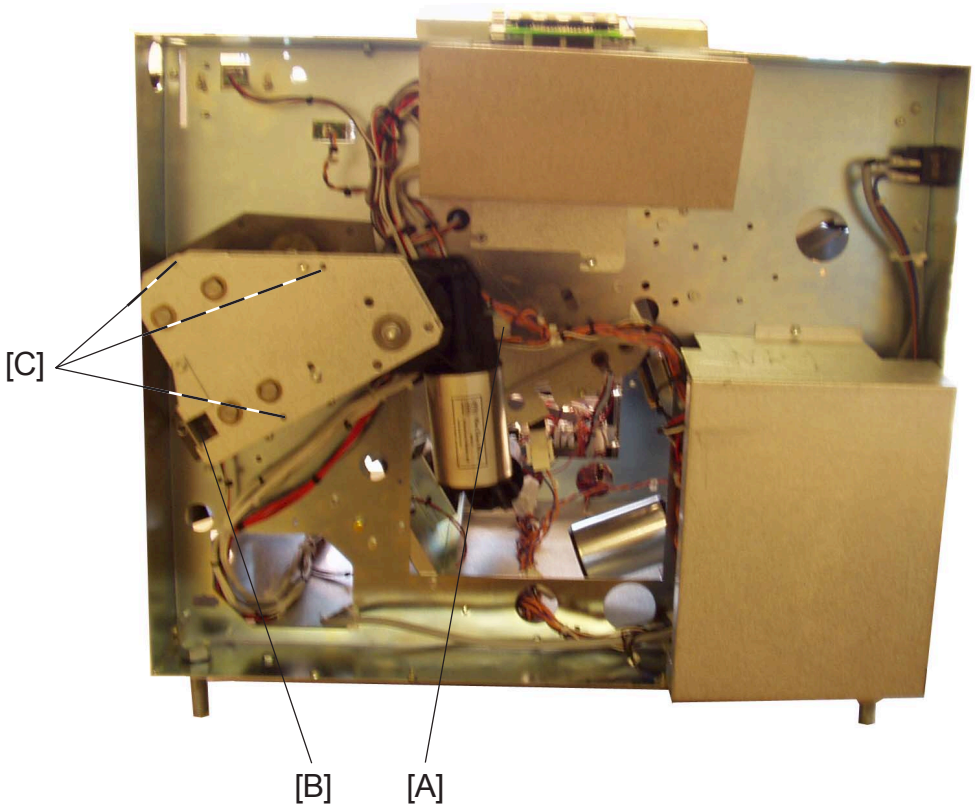
Removal

1. Set the machine to A4 / 8.5x11".
2. Remove Front and Rear cover ((3.3.1).
3. Remove Infeed cover ((3.3.3).
4. Disconnect connector [A] to motor M7 (x1).
5. Disconnect connector [B] to sensor Q15 (x1).
6. Loosen allen screw [C] and remove the stop ring (x1).
7. Remove screws [D] on front side of the Booklet maker (x2).
8. Remove the same screws on the rear side of the Booklet maker (x2).
9. Remove the Fold knife motor M7 module.
10. Remove sensor Q15 [E].
11. Remove Crank journal [F] with an 17 mm open wrench.
12. Remove screw and washer [G] (x1, x1).
13. Remove the Crank wheel [H].
14. Remove screws [I] to the motor (x3).

Replacement

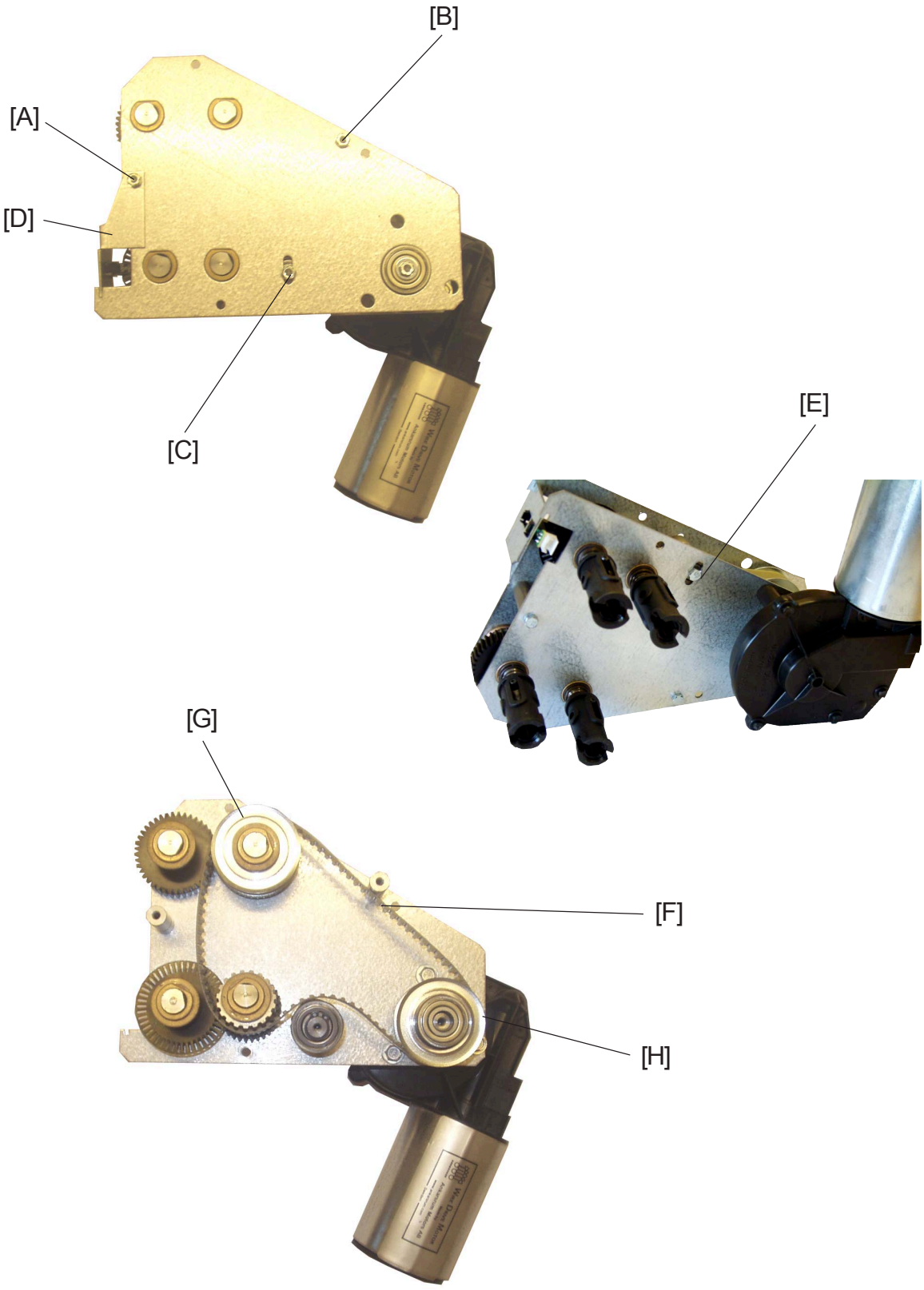
1. Reinstall screws [I] to the motor (x3).
   NOTE: DO NOT TIGHTEN THE SCREWS.
2. Reinstall the Crank wheel [H].
3. Reinstall screw and washer [G] (x1, x1).
4. Tighten screws [I] to the motor (x3).
5. Reinstall Crank journal [F] with an 17 mm open wrench.
   NOTE: Make sure to install the smaller end [J] of the Crank journal.
6. Reverse the rest of the removal procedure.

3.5.6 FOLD TRANSMISSION MODULE



1. Remove Front cover ((☛ 3.3.1).
2. Disconnect connector [A] to Fold roller motor M6 (x1).
3. Disconnect connector [B] to Fold roller sensor Q9 (x1).
4. Remove nuts [C] to the Fold transmission module (x3).

3.5.7 FOLD TRANSMISSION BELT & SENSOR Q9



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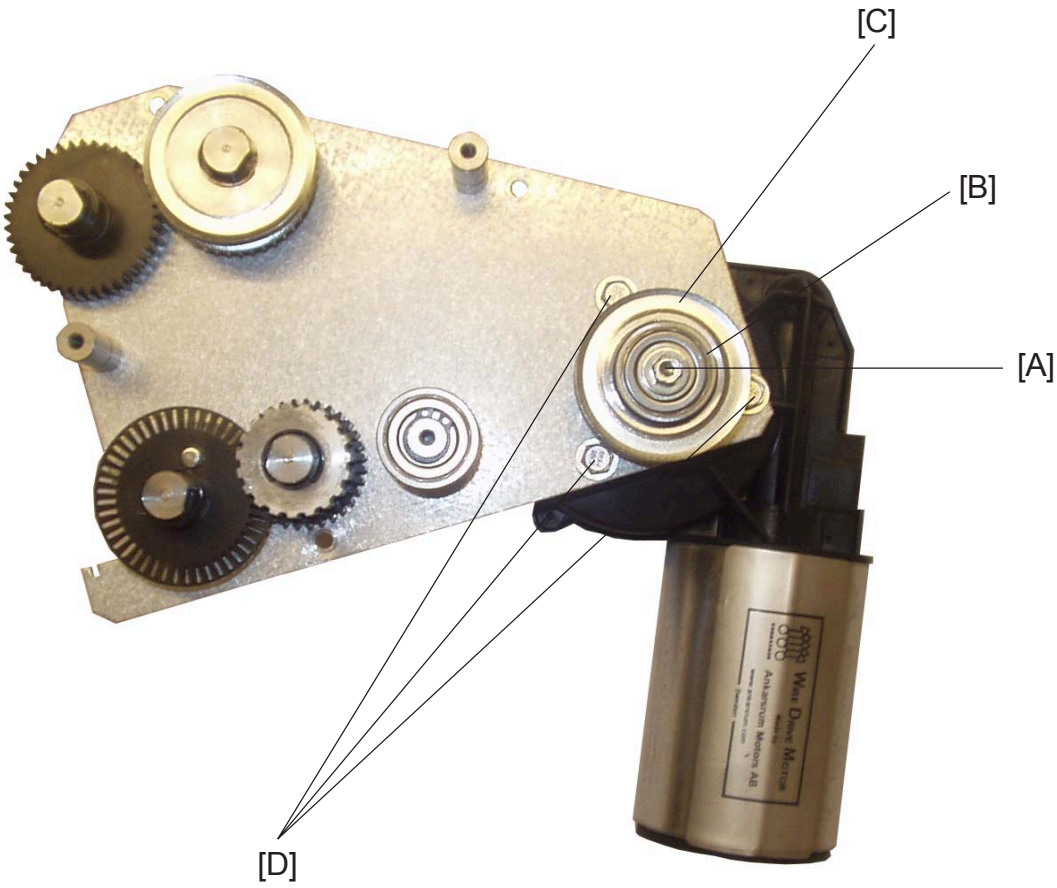
Removal

1. Remove Fold transmission module ((☛ 3.5.6).
2. Remove screws [A], [B] and [C] to Fold transmission plate (x3).
3. Remove the Fold transmission plate and Fold roller sensor Q9 plate [D].
3. Loosen screw [E] (x1).
4. Remove the Fold transmission belt [F].

Replacement

1. Reinstall Fold transmission belt.
2. Reinstall Fold roller sensor Q9 plate [D).
   NOTE: make sure that the sensor plate is correctly installed.
3. Reinstall the Fold transmission plate.
   NOTE: Make sure that the flat of the flange bushing, correspond to the flat on the Fold transmission plate.
4. Reinstall screws [A], [B] and [C] (x3).
   NOTE: Check/adjust the Fold transmission belt tension by tightening screws [C] and [E], so you have 1mm of deflection on the middle of the belt [F], between pully [G] and [H] (x2).
5. Reverse the rest of the removal procedure.

3.5.8 FOLD ROLLER MOTOR M6



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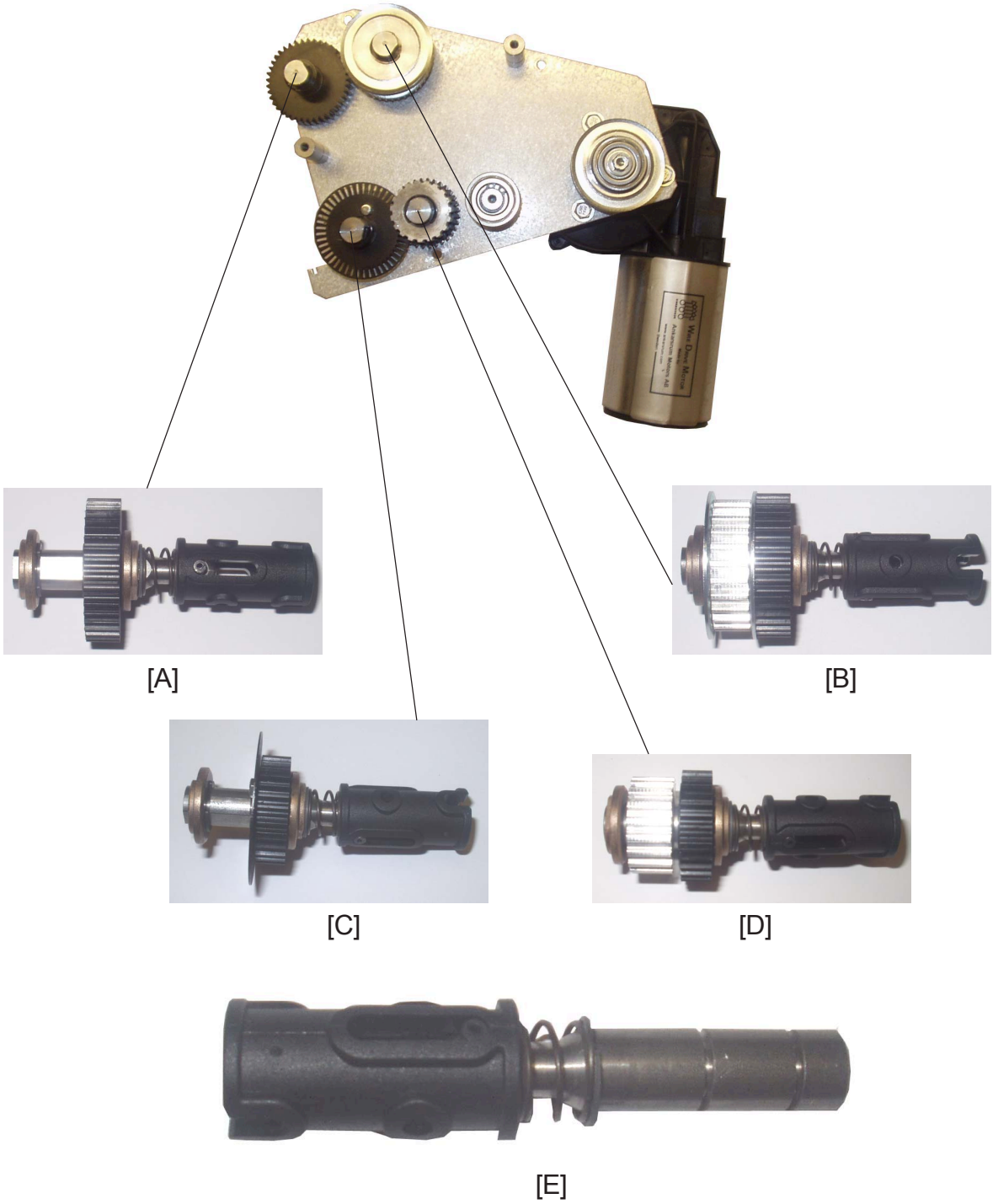
Removal

1. Remove Fold transmission belt ((☛ 3.5.7).
2. Remove screw and washer [A] (x1, x1).
3. Remove bearing [B].
4. Remove the Motor transmission pulley [C].
5. Remove screws [D] (x3).

Replacement

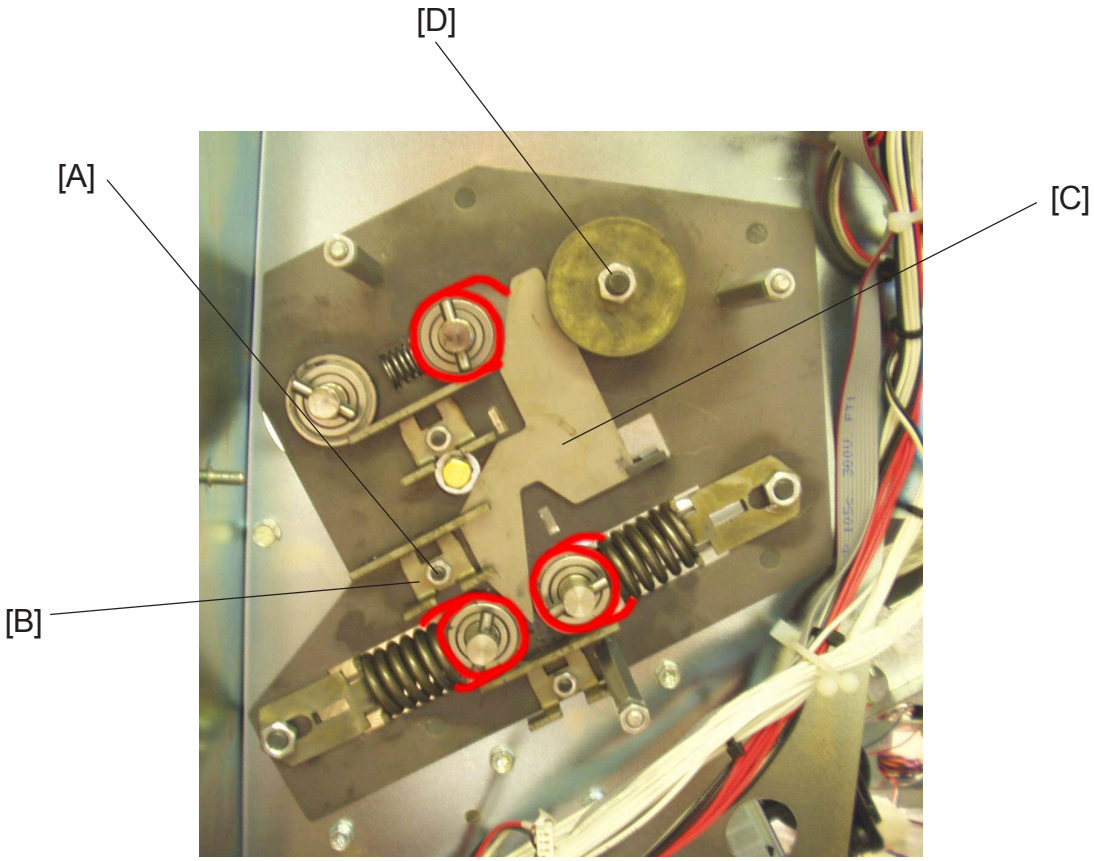
1. Reinstall screws [D] (x3).
   NOTE: DO NOT TIGHTEN THE SCREWS.
2. Reinstall the Motor transmission pulley [C].
3. Reinstall screw and washer [A] (x1, x1).
4. Reinstall Fold transmission belt.
5. Reinstall Fold roller sensor Q9 plate.
   NOTE: make sure that the sensor plate is correctly installed.
6. Reinstall the Fold transmission plate.
   NOTE: Make sure that the flat of the flange bushing, correspond to the flat on the Fold transmission plate.
7. Reinstall screws to the Fold transmission plate (x3).
   NOTE: Tighten the Fold transmission belt before tightening the screws to the tensioner, then tighten the last screw (x3).
8. Tighten screws [D] (x3).
9. Reverse the rest of the removal procedure.

3.5.9 FOLD TRANSMISSION GEAR ASSEMBLYS



1. Remove Fold transmission belt ((☛ 3.5.7).
2. Remove E-clips (Ⓒ).
3. Remove transmission gears.
4. It is the same Fold transmission coupling assembly [E] on all of the Fold transmission gear assembly's.

3.5.10 FOLD DISTANCE BRACKET



Removal

1. Remove Fold transmission module ((☛ 3.5.6).
2. Remove nut [A] to the middle bearing bracket (x1).
3. Remove the bearing bracket [B].
4. Remove Fold distance bracket [C].
   NOTE: DO NOT LOOSEN OR REMOVE THE NUT [D] TO THE EXCENTER.

Replacement

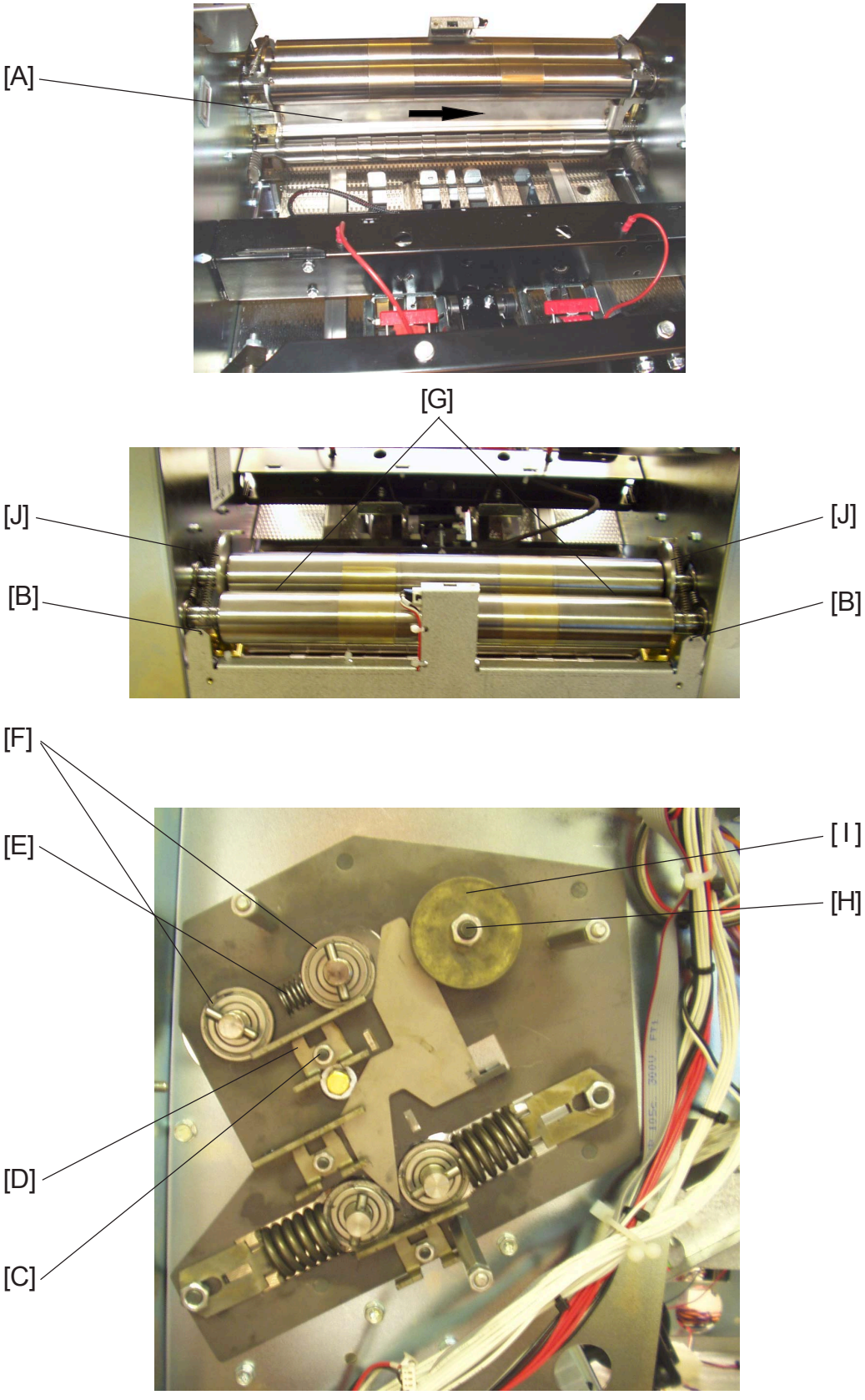
1. Reverse the removal procedure.

   NOTE: DO NOT LOOSEN OR REMOVE THE NUT [D] TO THE EXCENTER.

Lubricate Fold distance brackets and Fold roller bearings

1. Lubricate with Molybdenum grease, behind the Fold distance bracket and on the places marked with red.
2. Perform the same lubrication on the rear side of the Booklet maker.

3.5.11 UPPER FOLDER ROLLER



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Removal

1. Remove outfeed cover ((☛ 3.3.5).
2. Remove the paper guide [A] by pressing it against the rear side of the Booklet maker.
3. Loosen springs [B] to the Cams to the Upper folder rollers (x2).
4. Remove Fold distance bracket ((☛ 3.5.10).
5. Remove nuts [C] and bearing brackets [D] on the front and rear side of the booklet maker (x2).
6. Remove springs [E] on the front and rear side of the Booklet maker (x2).
7. Remove bearings [F] (x2) on the rear side of the Booklet maker.
8. Gently remove the Upper folder rollers.

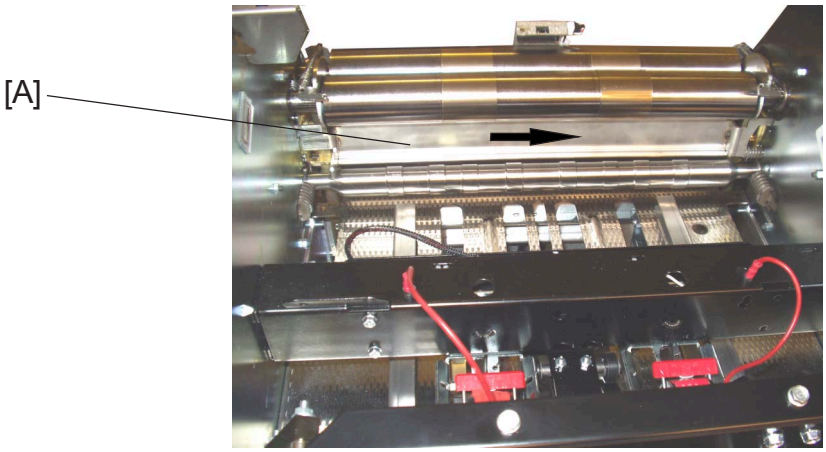
Adjustment

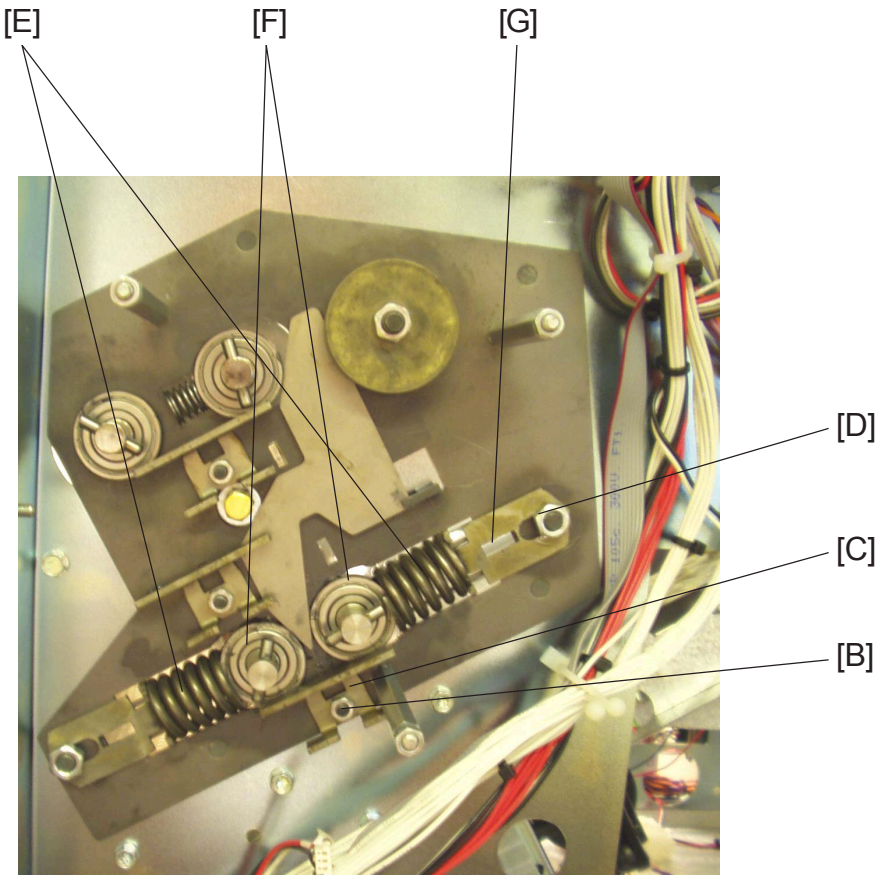
1. Insert a 0,2 mm feeler gauge between the Upper folder rollers [G], to ensure 0,2 ± 0,05 mm gap [G] between the Upper folder rollers. If not, go to step 2.
2. Loosen nuts [H] on the front and rear side of the booklet maker (x2).
3. Adjust excenter [I] on the front and rear side of the Booklet maker, according to step 1.
4. Tighten nuts [H] (x2).
5. After tightening nuts [H], recheck the distance between the Upper folder rollers [G].
6. Lubricate with Molybdenum grease, on the upper side [J] of the Cams to the upper folder rollers.

Replacement

1. Reverse the removal procedure.
   NOTE: Make sure to lubricate, with Molybdenum grease, according to ((☛ 3.5.10).

3.5.12 LOWER FOLDER ROLLER





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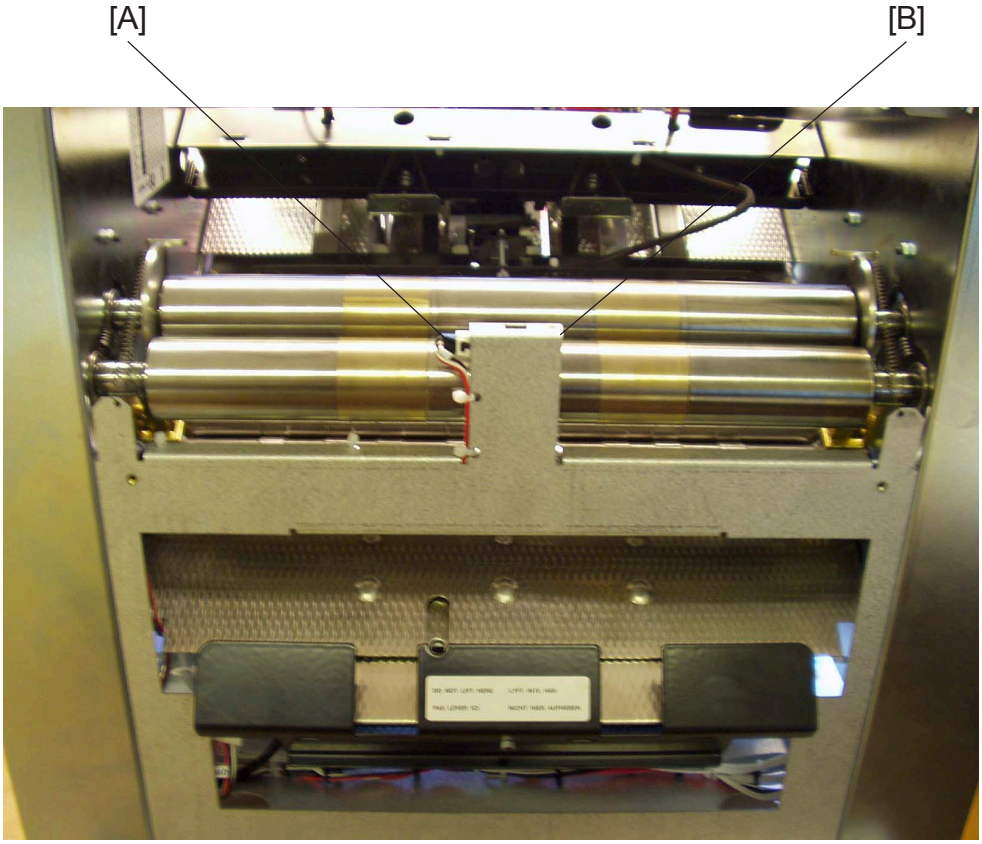
Removal

1. Remove outfeed cover ((☛ 3.3.5).
2. Remove the paper guide [A] by pressing it against the rear side of the Booklet maker.
3. Remove Fold distance bracket ((☛ 3.5.10).
4. Remove nuts [B] and bearing brackets [C] on the front and rear side of the booklet maker (x2).
5. Loosen nuts [D] on the front and rear side of the Booklet maker (x4).
6. Remove springs [E] on the front and rear side of the Booklet maker (x4).
   NOTE: Use the Caster tool to remove the springs.
7. Remove bearings [F] (x2) on the rear side of the Booklet maker.
8. Gently remove the Lower folder rollers.

Replacement

1. Reinstall the Lower folder rollers.
2. Reinstall the bearings [F] (x2) on the rear side of the Booklet maker.
   NOTE: Make sure to lubricate, with Molybdenum grease, according to ((☛ 3.5.10).
3. Reinstall springs [E] on the front and rear side of the Booklet maker (x4).
4. Insert the Caster tool, with the pointed end, in the hole [G].
   NOTE: Insert the Caster the whole way.
5. When the Caster tool is in it's most inner position, tighten the nut [D].
   NOTE: Repeat step 4 and 5 for all four of the springs.
6. Reverse the rest of the removal procedure.
   NOTE: Make sure to lubricate, with Molybdenum grease, according to ((☛ 3.5.10).

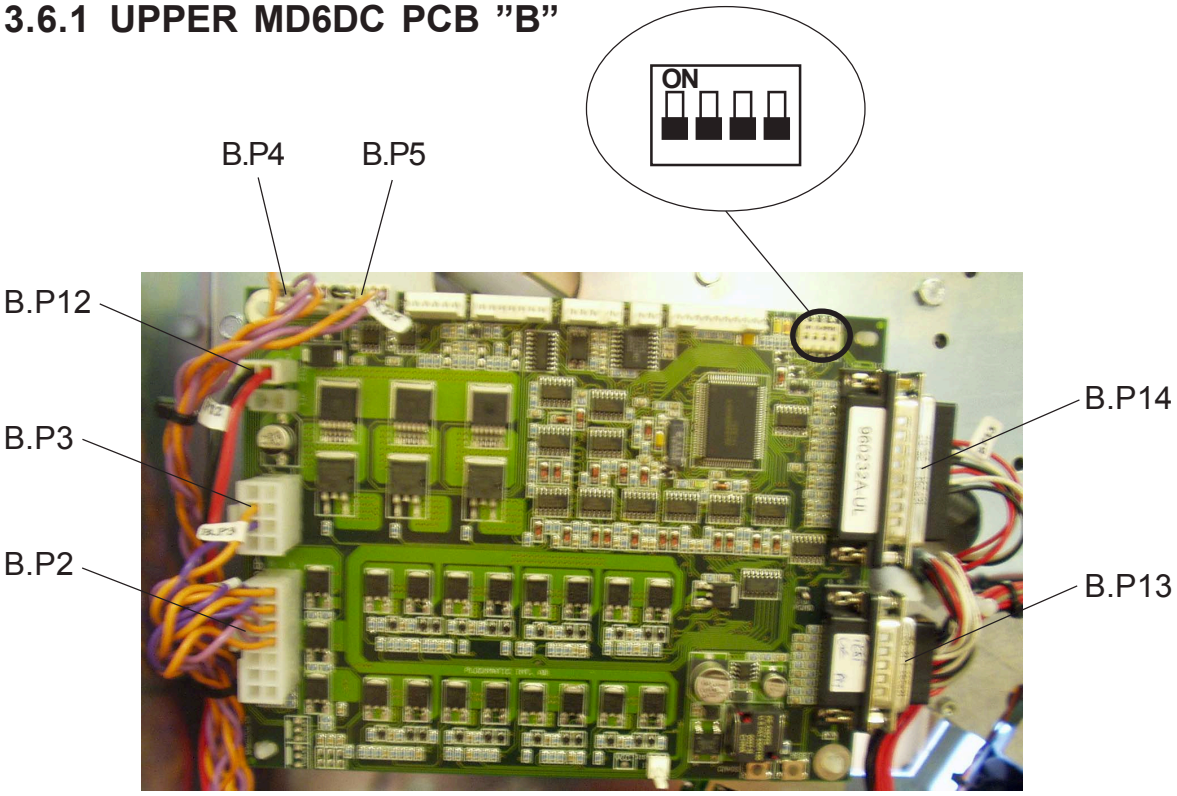
3.5.13 OUTFEED SENSOR



1. Remove outfeed cover ((☛ 3.3.5).
2. Remove nut [A] (x1).
3. Disconnect connector [B] (x1).

3.6 PCB

3.6.1 UPPER MD6DC PCB "B"



⚠ CAUTION

ESD Hazard! ESD (Electrostatic Discharge) can cause software crashes, data and/or communications problems. Failure to use proper ESD procedures will cause damage to electronic components (example: PCBs). ESD problems can be minimized by maintaining all machine ground connections, ensuring the proper handling of circuit boards/ sensors - Use ESD protection when working near PCBs. Failure to use ESD protection is likely to result in a PCB failure ((☛ 3.1).

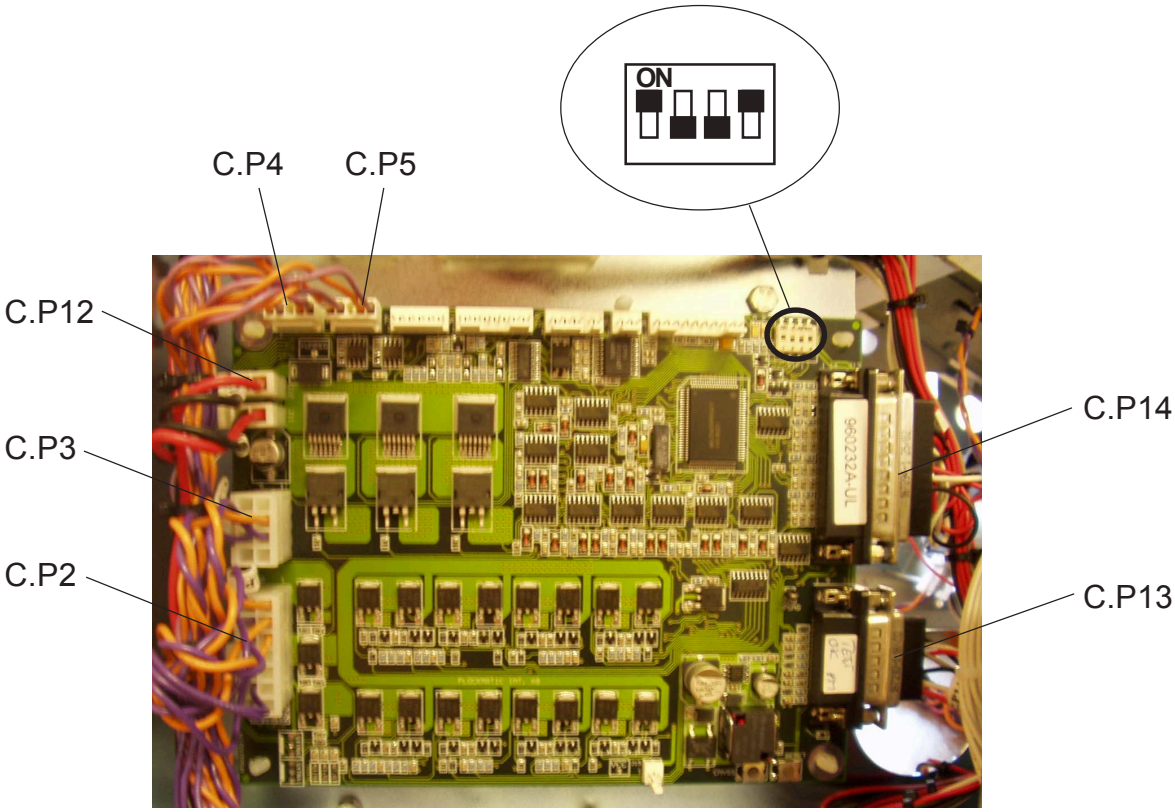
Removal

1. Remove Rear cover ((☛ 3.3.1).
2. Remove all connectors from the PCB "B" (x7).
3. Squeeze the barbs of the pins and remove PCB "B".

Replacement

1. Reinstall PCB "B".
2. Reconnect all connectors to the PCB "B" (x7).
3. Make sure all DIP-switches are set to OFF according to picture.
   NOTE: Make sure replaced PCB has matched software with the system, referring to the latest Technical Bulletin.
4. Reinstall Rear cover ((☛ 3.3.1).

3.6.2 LOWER MD6DC PCB "C"



⚠ CAUTION

ESD Hazard! ESD (Electrostatic Discharge) can cause software crashes, data and/or communications problems. Failure to use proper ESD procedures will cause damage to electronic components (example: PCBs). ESD problems can be minimized by maintaining all machine ground connections, ensuring the proper handling of circuit boards/ sensors - Use ESD protection when working near PCBs. Failure to use ESD protection is likely to result in a PCB failure ((3.1).

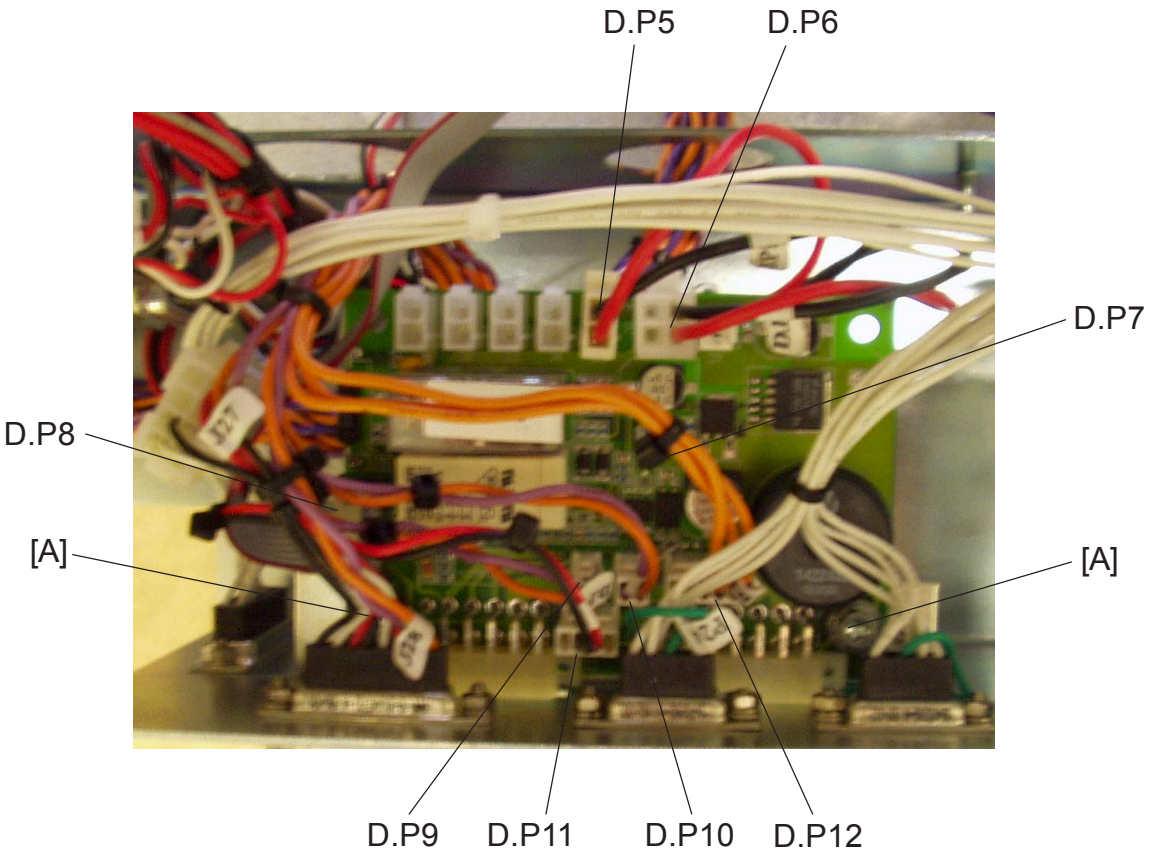
Removal

1. Remove Rear cover ((3.3.1).
2. Remove all connectors from the PCB "C" (x7).
3. Squeeze the barbs of the pins and remove PCB "C".

Replacement

1. Reinstall PCB "C".
2. Reconnect all connectors to the PCB "C" (x7).
3. Make sure DIP-switches 1 and 4 is set to ON according to picture.
   NOTE: Make sure replaced PCB has matched software with the system, referring to the latest Technical Bulletin.
4. Reinstall Rear cover ((3.3.1).

3.6.3 INTERLOCK PCB

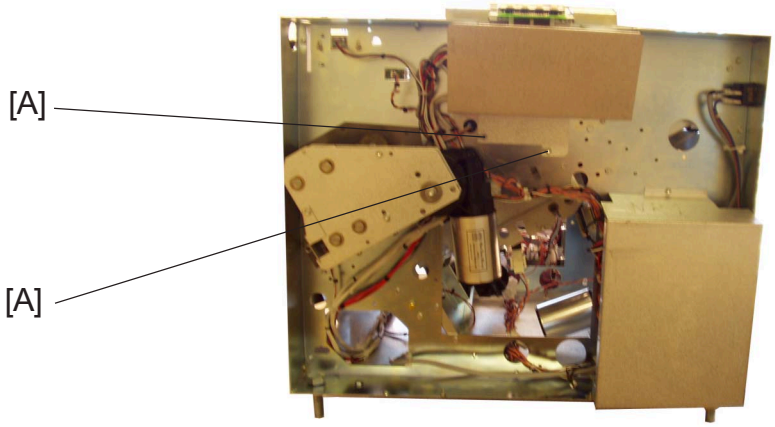


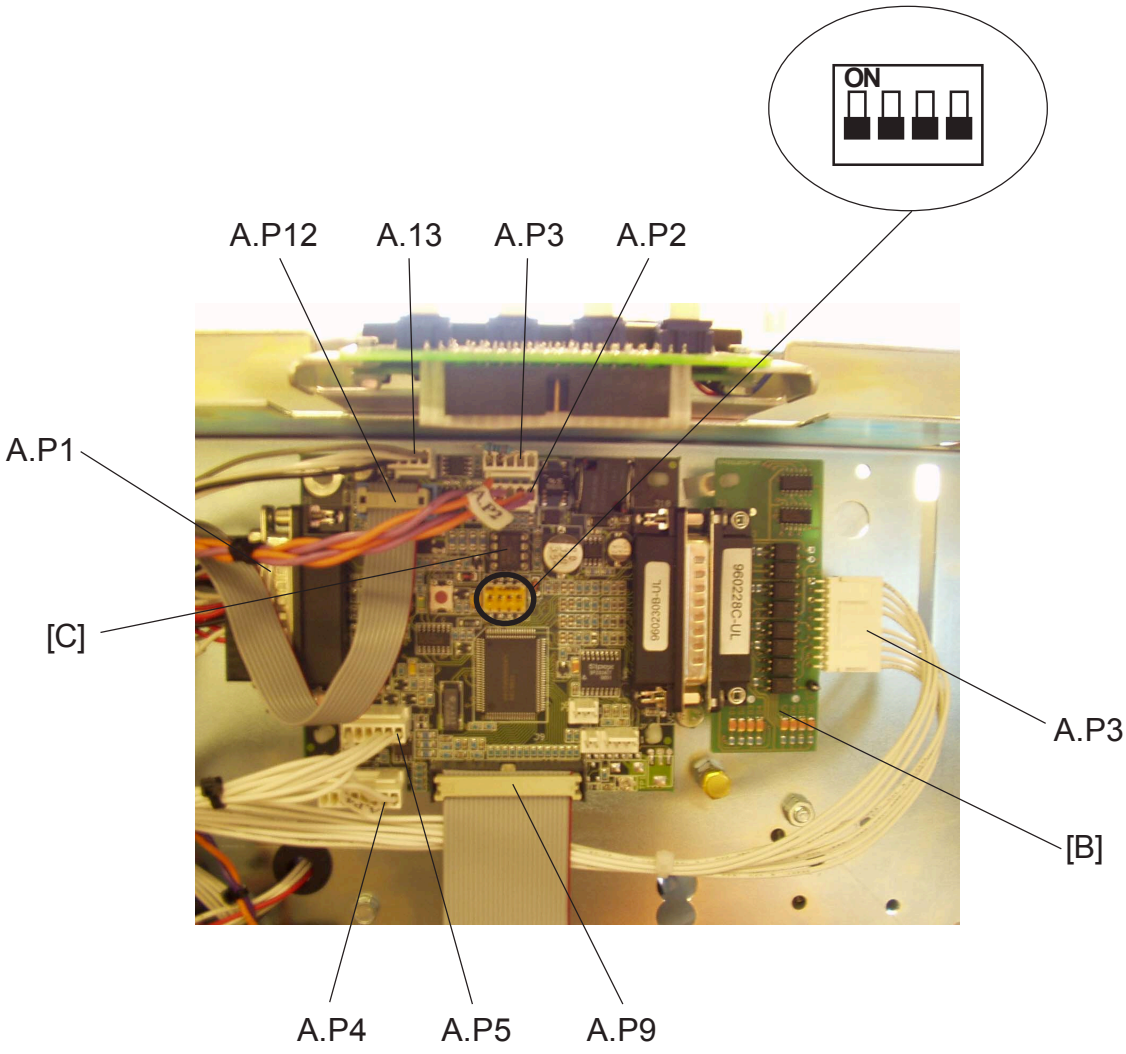
⚠ CAUTION

ESD Hazard! ESD (Electrostatic Discharge) can cause software crashes, data and/or communications problems. Failure to use proper ESD procedures will cause damage to electronic components (example: PCBs). ESD problems can be minimized by maintaining all machine ground connections, ensuring the proper handling of circuit boards/ sensors - Use ESD protection when working near PCBs. Failure to use ESD protection is likely to result in a PCB failure ((☛ 3.1).

1. Remove Rear cover ((☛ 3.3.1).
2. Remove all connectors from the Interlock PCB (x7).
3. Remove screws [A] (x2).

3.6.4 CPU PCB AND COPIER INTERFACE PCB





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⚠ CAUTION

ESD Hazard! ESD (Electrostatic Discharge) can cause software crashes, data and/or communications problems. Failure to use proper ESD procedures will cause damage to electronic components (example: PCBs). ESD problems can be minimized by maintaining all machine ground connections, ensuring the proper handling of circuit boards/ sensors - Use ESD protection when working near PCBs. Failure to use ESD protection is likely to result in a PCB failure ((☛ 3.1).

Removal

1. Enter service mode ((☛ 5.1.1).
2. Note all EEPROM values (Index 1-17) ((☛ 5.1.2 EEPROM values).
3. Remove Front cover ((☛ 3.3.1).
4. Loosen screws [A] to protection plate (x2).
5. Remove all connectors from the CPU and Opto PCB (x9).
6. Squeeze the barbs of the pins and remove CPU and Opto PCB
7. Remove Copier Interface PCB [B] from CPU PCB.
8. Remove EEPROM [C].

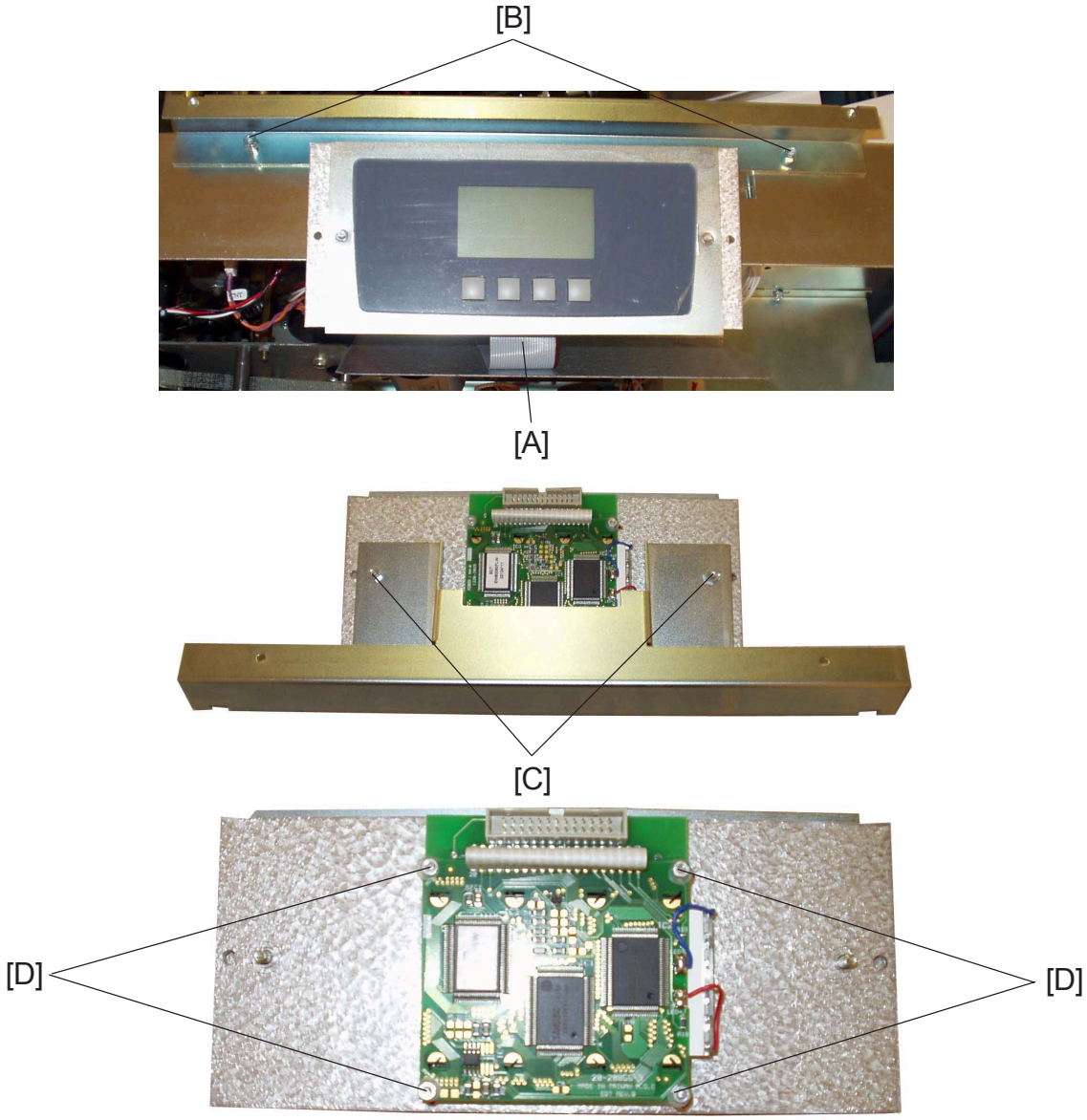
Replacement

1. Install the EEPROM [C] on the new CPU PCB.
   NOTE: If the EEPROM is changed or broken, you have to manually type in the EEPROM values you previously noted ((☛ 5.1.1 Changing EEPROM values).
2. Reinstall the CPU PCB.
3. Reconnect all connectors to the CPU PCB (x9).
4. Make sure all DIP-switches are set to OFF, according to picture.
   NOTE: Make sure replaced PCB has matched software with the system, refering to the latest Technical Bulletin.
5. Reinstall Protection plate and tighten screws [A] (x2).
6. Reinstall Front cover ((☛ 3.3.1).

Adjustment

1. If you do not have the EEPROM values or EEPROM is corrupted, perform the EEPROM reset followed by Paper size reset ((☛ 5.1.3, 5.4).

3.6.5 LCD PANEL



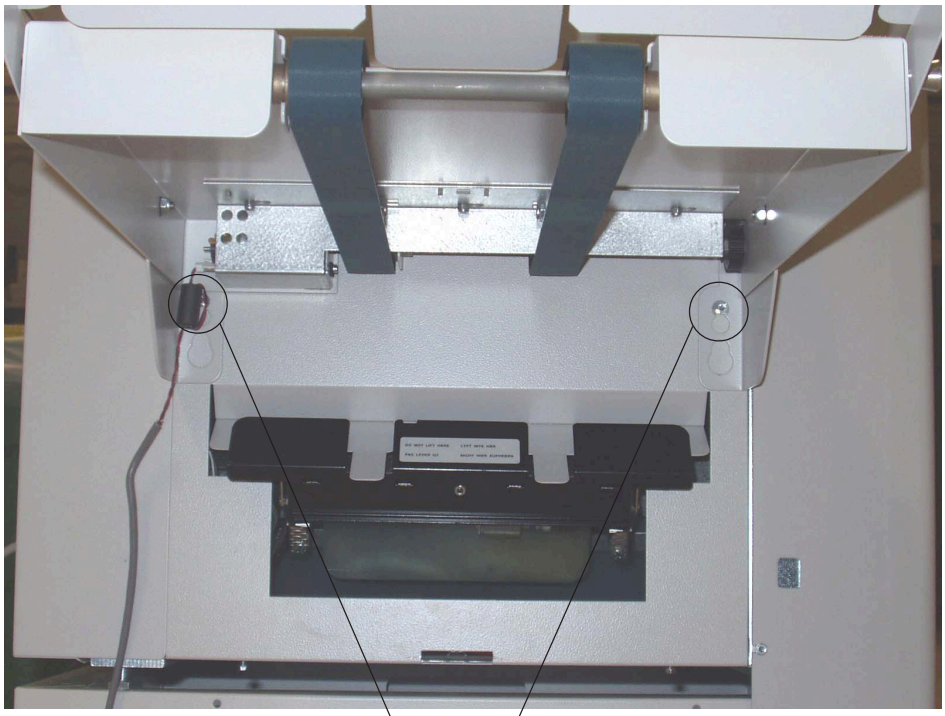
⚠ CAUTION

ESD Hazard! ESD (Electrostatic Discharge) can cause software crashes, data and/or communications problems. Failure to use proper ESD procedures will cause damage to electronic components (example: PCBs). ESD problems can be minimized by maintaining all machine ground connections, ensuring the proper handling of circuit boards/ sensors - Use ESD protection when working near PCBs. Failure to use ESD protection is likely to result in a PCB failure ((☛ 3.1).

1. Remove Front cover ((☛ 3.3.1).
2. Disconnect connector [A] (x2).
3. Remove screws [B] to the Panel bracket (x2).
4. Remove nuts [C] (x 2).
5. Remove nuts [D] and plasic washers (x4, x4).
6. Remove plastic washers between the button PCB and display (x4).

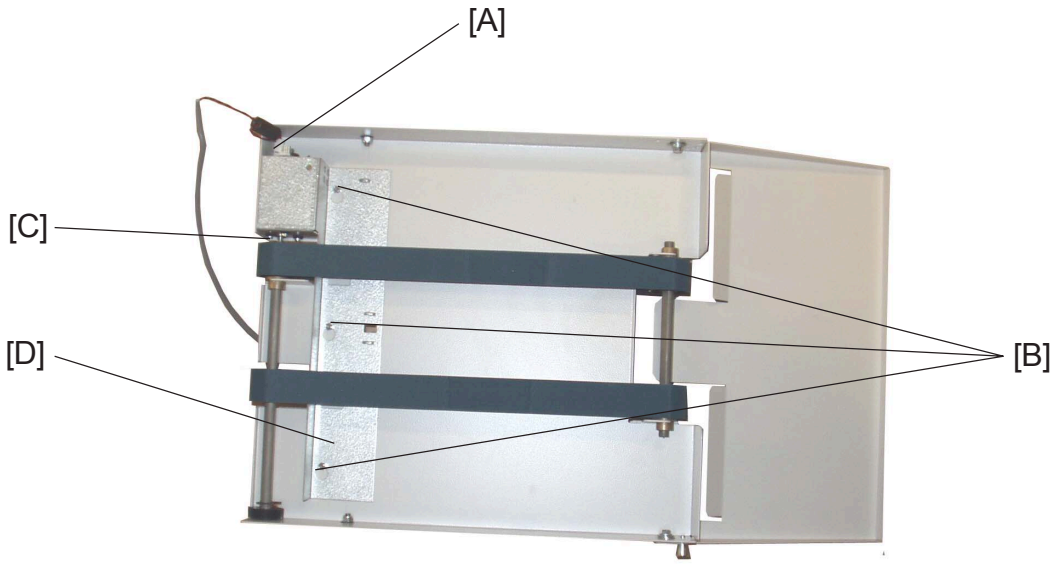
3.7 STACKER

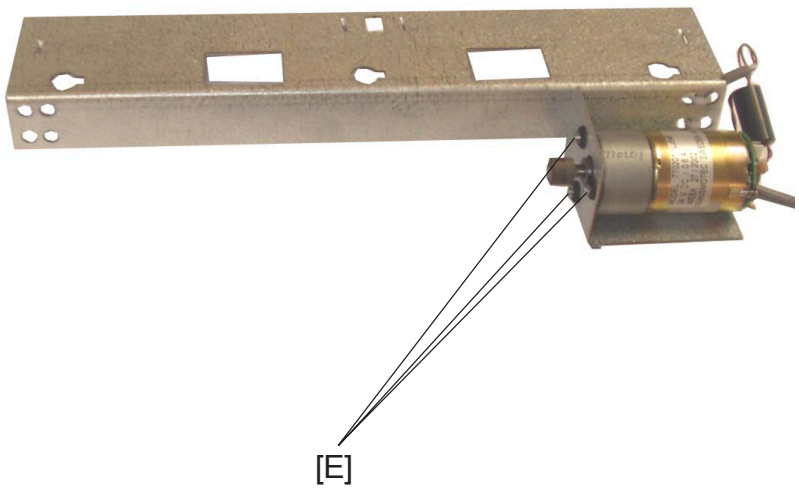
3.7.1 STACKER MODULE



1. Loosen screws [A] to the Belt stacker (x2).
2. Disconnect the connector to the Belt stacker (x1).

3.7.2 STACKER MOTOR M1

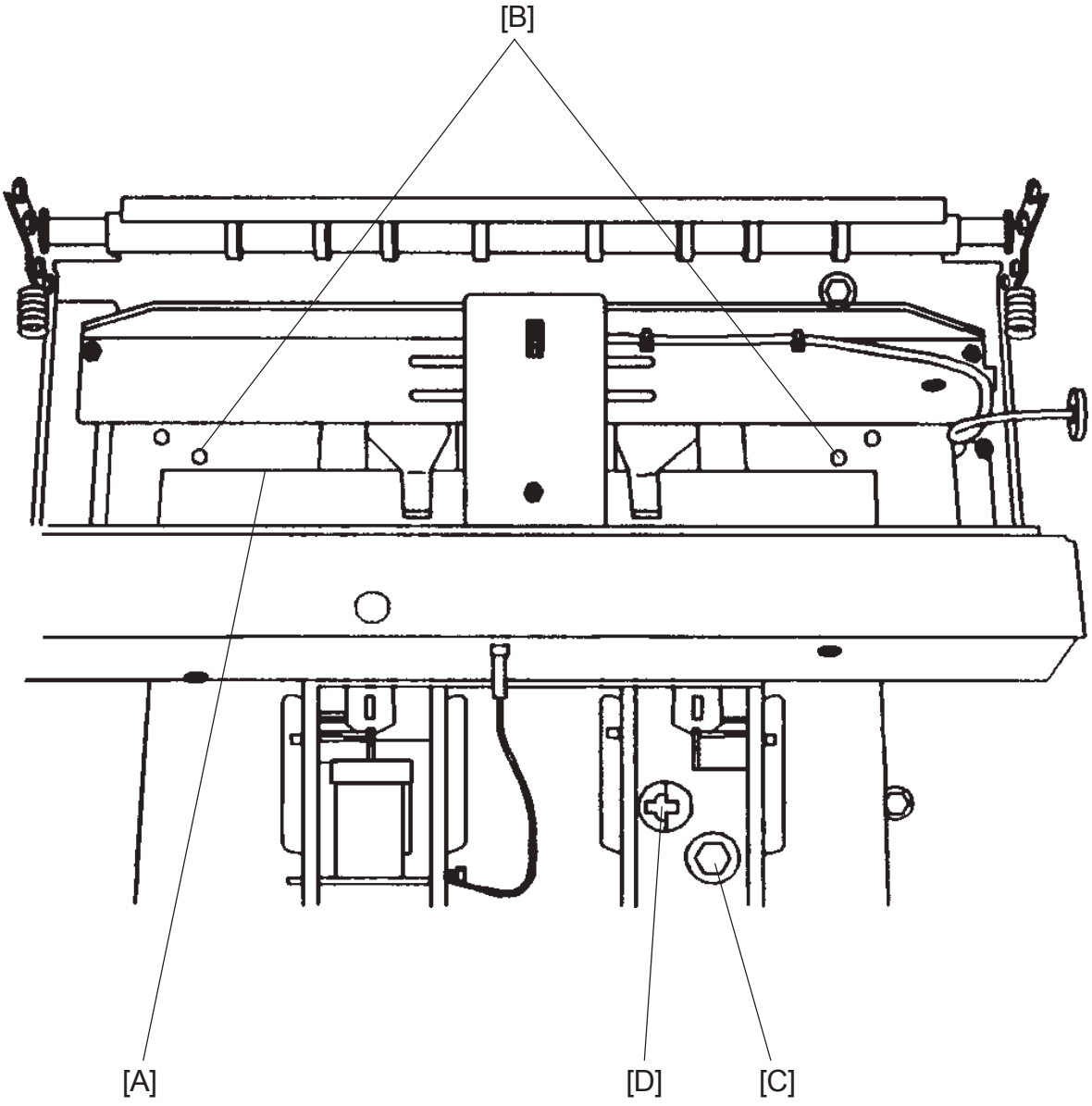




1. Remove Belt stacker ((☛ 3.7.1).
2. Disconnect connector [A] (x1).
3. Loosen screws [B] (x3).
4. While holding the conveyor belt [C]. Slide the motor bracket [D] to the right, and remove the motor bracket[D].
5. Remove screws [E] (x3).

3.8 BOOKLET QUALITY ADJUSTMENT

3.8.1 STAPLE STOP GATE PARALLELISM



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Purpose

The purpose is to ensure that the staples are parallel to the edge of the sets.

Removal

1. Set the machine to A3 / 11x17".
2. Open Top cover.
3. Remove the rear stapler head ((☛ 3.4.12).
4. Fold an A4 / 8.5x11" paper lengthwise by hand, an feed the paper down between the side guides (LEF).
5. Feed the paper so that the straight edge [A] is positioned against the Staple stop gate.
6. Enter the Service program ((☛ 5.1.1).
7. Start the Staple / Fold positioning motor M9.
8. Step the motor to align the straight edge [A] with the locating holes [B] in the paper path.
9. The straight edge [A] must align with the locating holes on both sides.

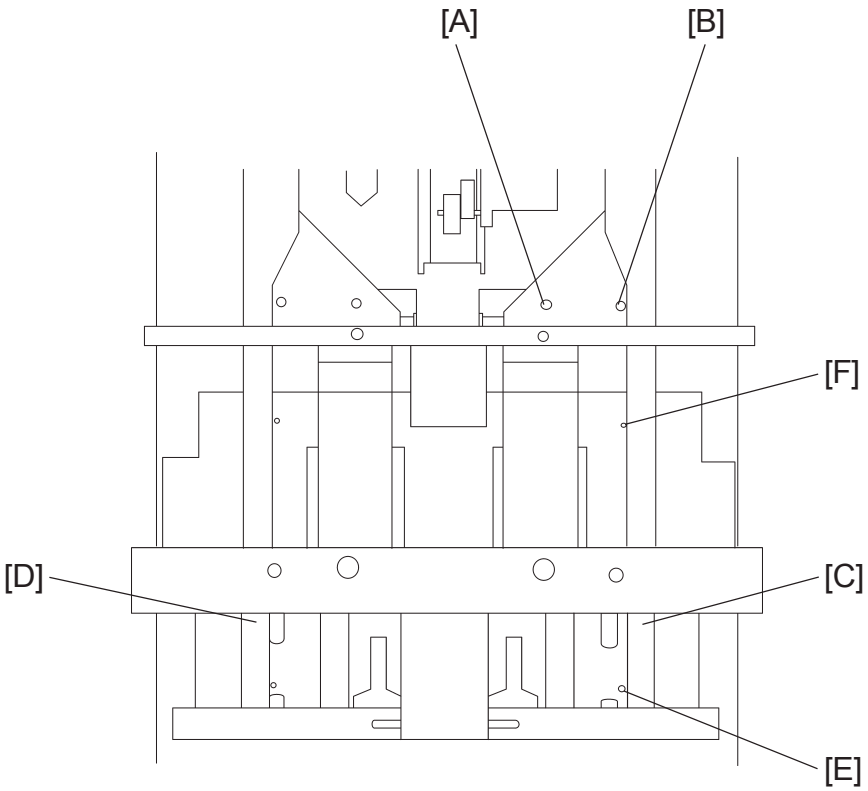
Adjustment

1. Loosen screw [C] (x1).
2. Insert a screwdriver in the notches [D], rotate to align the locating holes [B] with the straight edge [A] (x1).
3. Tighten the screw [C] (x1).
4. Check according to step 9 in Removal section.

Replacement

1. Reverse the removal procedure.

3.8.2 SIDE GUIDE PARALLELISM



Stapler area seen from above, with the stapler heads removed.

Removal Front

1. Check/adjust Staple stop gate parallelism ((☛ 3.8.1).
2. Remove Infeed cover ((☛ 3.3.3).
3. Remove screw [A] and [B] to the Front side guide [C] (x2).
   NOTE: The nut plate may fall down into the machine.
4. Same procedure on the Rear side guide [D].

Adjustment

1. Move the side guide [C] to the two holes [E] and [F] in the paper path.
2. Check the distance between the two holes and the side guide. The distance should be equal ± 0.3 mm between the lower hole [E] and the side guide [C], and the upper hole [F] and the side guide [C]. If not, go to step 3.
3. Loosen screw [A], also loosen screw [B] a little. Adjust the side guide [C] according to step 2 (x2).
4. Perform the same check on the Rear side guide [D], adjust if needed.

Replacement

1. Reverse the removal procedure.

3.8.3 STAPLE POSITION TO CLINCHER

⚠ CAUTION

Alignment of the stapler head to clincher is carried out at factory. Screws are after that sealed with red paint to ensure that alignment will persist and also to indicate if not.

Alignment will not change over time and will therefore not need further adjustment. However, if the adjustment has been tampered with (i.e if red seal is broken) it is very important to strictly follow the described procedure below. The alignment of the stapler head to anvil is crucial and will determine the staple result as well as the lifetime of the stapler head.

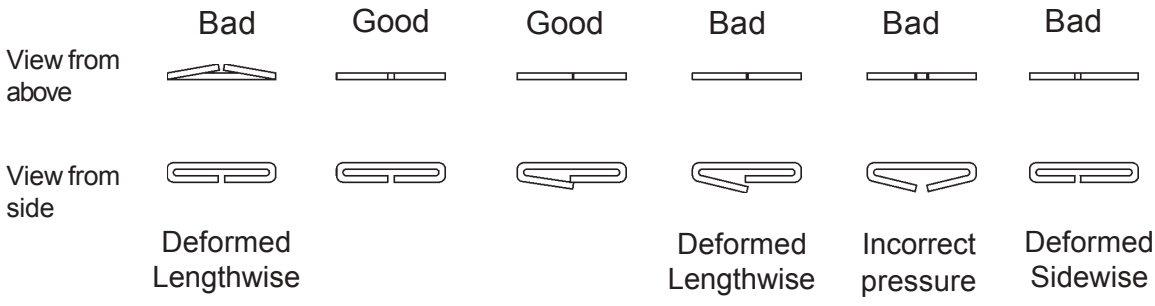
The procedure requires 2 pcs brand new stapler heads.

If the new stapler heads at any time during the procedure were cycled when adjustment were off (staple legs not hitting the slot in the anvil/clincher), stapler heads are ruined and must be replaced.

The Stapler heads must be adjusted very precise in order to achieve proper staple result.

Checking Adjustment

1. Open the Top cover and disconnect a staple detection lead, close the Top cover.
2. Hand feed a two sheet set of paper.
   NOTE: Open and close the Top cover and the Booklet maker will automatically cycle and advance staples.
3. Check that the staples are formed properly, according to Figures below.
4. If a bad staple result is achieved, first perform step 1-20, then proceed from step 21.
5. If a good staple result is achieved on two sheets of paper, double check the adjustment by running a 20 sheet set.



((☛ 3.8.4)

Adjustment

1. Check/adjust Stapler Assembly Drive Bar ((☛ 3.4.15).
2. Check/adjust Stapler Pressure ((☛ 3.8.4).
3. Check/adjust Stapler Head Retraction distance ((☛ 3.4.13).
4. Check/adjust Clincher points height ((☛ 3.8.5).
5. Check/adjust Clincher pressure ((☛ 3.8.6).

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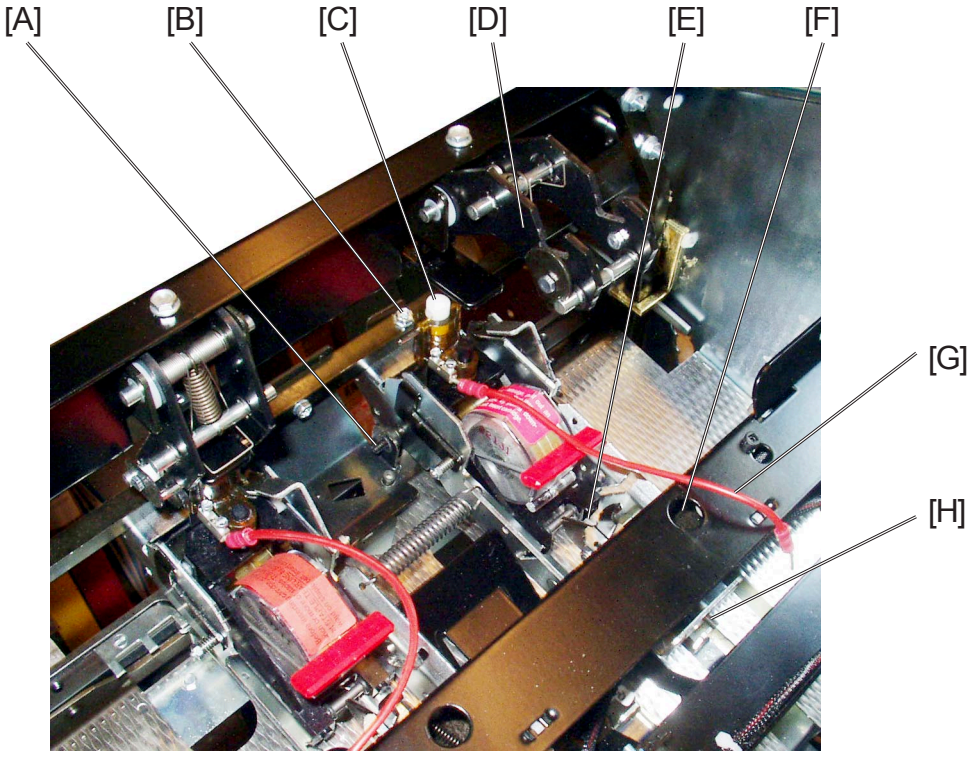
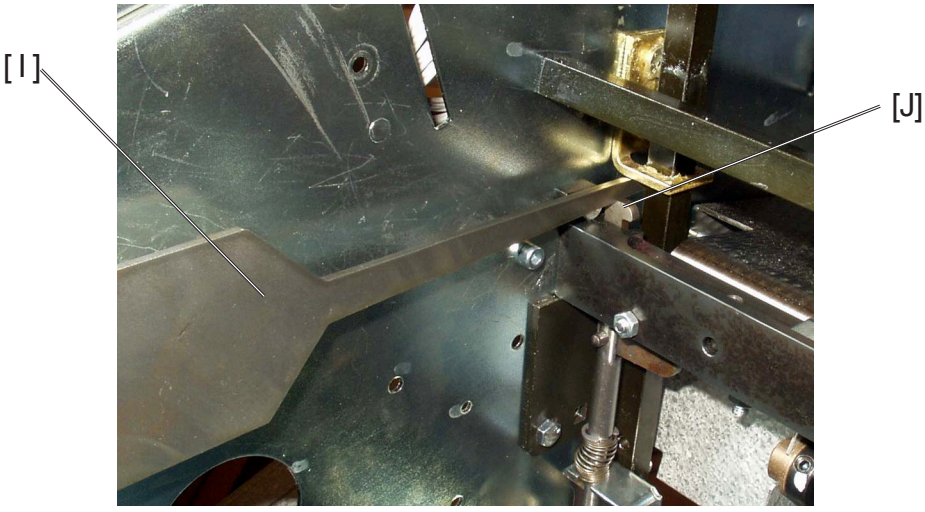


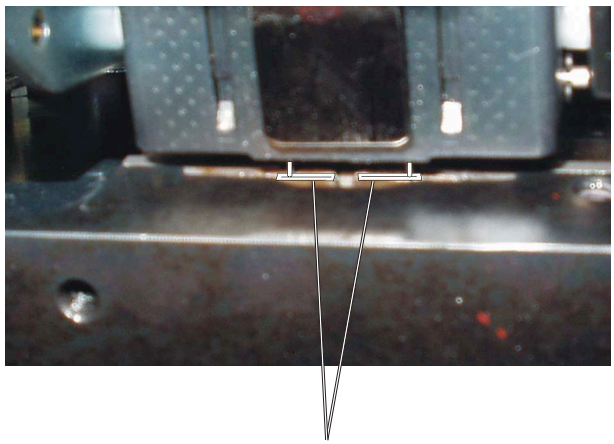
6. Remove Infeeder ((☛ 3.3.4).
7. Disconnect the Staple detection lead [G].
8. Push down latch [E] and lift the Stapler head out.
9. Push the pluncher [C] slowly so that the legs of the staple comes out about 1-2 mm.



10. Insert the Multi Tool [I] so lever [J] becomes pressed down.
11. Reinstall Stapler head only on the pivot pin side. Not in the retraction swing arm [D].
    NOTE: Install the Stapler head gently so the staple legs are not touched.

Continued on next page....

12. Push gently on pluncher [C] and check if the staple legs are positioned in the center of the clincher points [K]. Check both sidewise and lengthwise.
    NOTE: Use a flash light to clearer see the alignment.
13. Loosens screws [B] and [F] (x2).
14. For lengthwise adjustment, turn adjustment screw [H].
    For sidewise adjustment, turn adjustment screw [A].
    NOTE: Push Stapler head bracket against adjustment screw [A] while adjusting sidewise. Push Stapler head bracket upwards while adjusting lengthwise.
15. When correct position is obtained, tighten screws [F] and [B] (x2).
    NOTE: First tighten screw [F] while pushing Stapler head bracket upwards. Secondly tighten screw [B] while pushing Stapler head bracket against screw [A].
16. Repeat procedure for the other Stapler head.
17. Remove Tool [I].
18. Reinstall Infeeder (3.3.4).
19. Install new stapler heads.
20. Repeat **Checking Adjustment**.



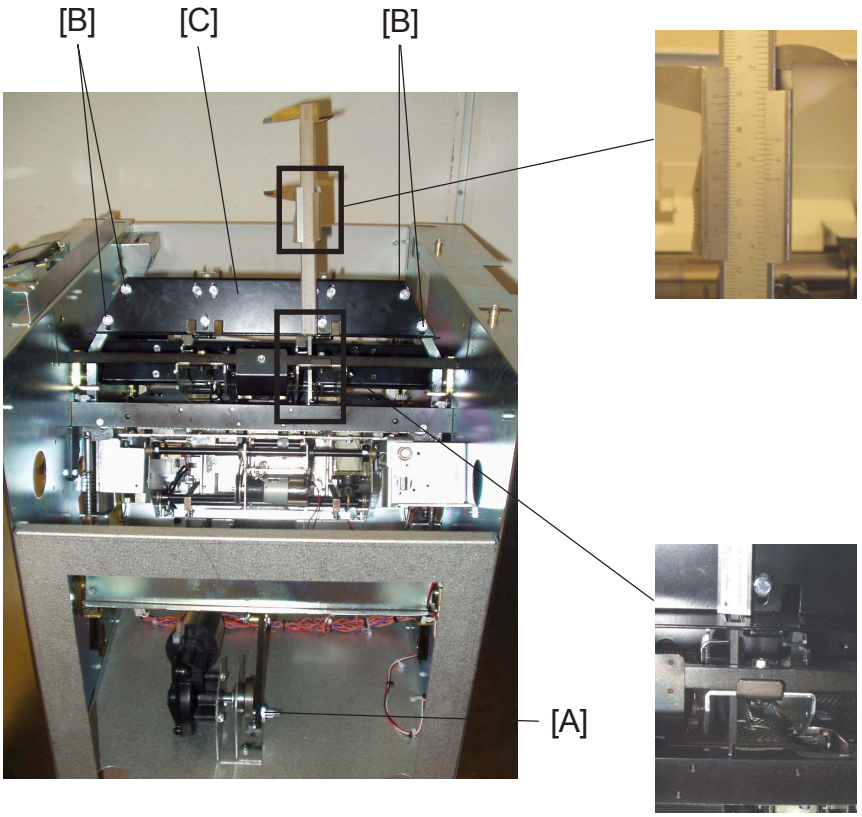
Staple deformed Lengthwise

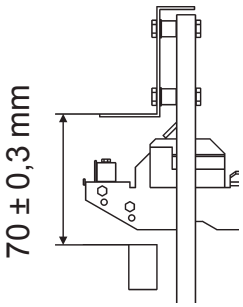
21. Loosens screws [B] and [F] (x2).
22. Turn Screw [H] maximum 1/8 of a revolution (45°).
    NOTE: Turn clockwise if adjusting stapler assembly downwards and vice versa.
23. Tighten screws [F] and [B] (x2).
    NOTE: First tighten screw [F] while pushing Stapler head bracket upwards. Secondly tighten screw [B] while pushing Stapler head bracket against screw [A].
24. Repeat **Checking Adjustment**.
    NOTE: This procedure may need to be performed several times before a good staple result is achieved.

Staple deformed Sidewise

21. Repeat step 6-20 regarding the sidewise adjustment.
    NOTE: Do not loosen screw [F] this time.

3.8.4 STAPLER PRESSURE





Removal Front

1. Remove Infeed cover ((☛ 3.3.3).
2. Remove Stapler heads ((☛ 3.4.12).
3. Check/adjust the Clincher Pressure ((☛ 3.8.6).
4. Rotate the motor linkage [A] to the down dead centre.
   NOTE: Use a 17 mm open wrench.

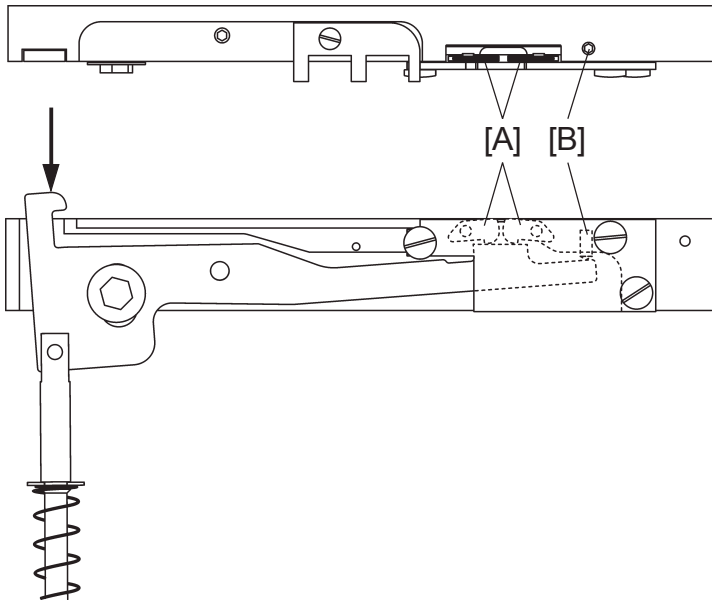
Adjustment

1. Use a sliding calliper, and check that the distance between the upper side of the clincher bar, and the upper side of the sheet plate is 70 mm ± 0,3 mm. If not, go to step 2.
   NOTE: Check both front and rear side.
2. Loosen screws [B] (x4).
3. Adjust the sheet plate [C] according to step 1.
4. Tighten screws [B] (x4).
5. Check/adjust the Stapler assy drive bar ((☛ 3.4.15).
6. Check/adjust Stapler head retraction distance ((☛ 3.4.13).

Replacement

1. Reverse the removal procedure.

3.8.5 CLINCHER POINTS HEIGHT



Purpose

The purpose is to achieve the correct, flat form of the staples and to maintain lifetime of the clincher points and stapler heads.
NOTE: Adjustment of clincher points can be performed with clincher beam installed. However, if Clincher bar assembly is already removed, perform Clincher bar assembly ((☛ 3.4.16).

Removal Front

1. Remove Stapler heads ((☛ 3.4.12).

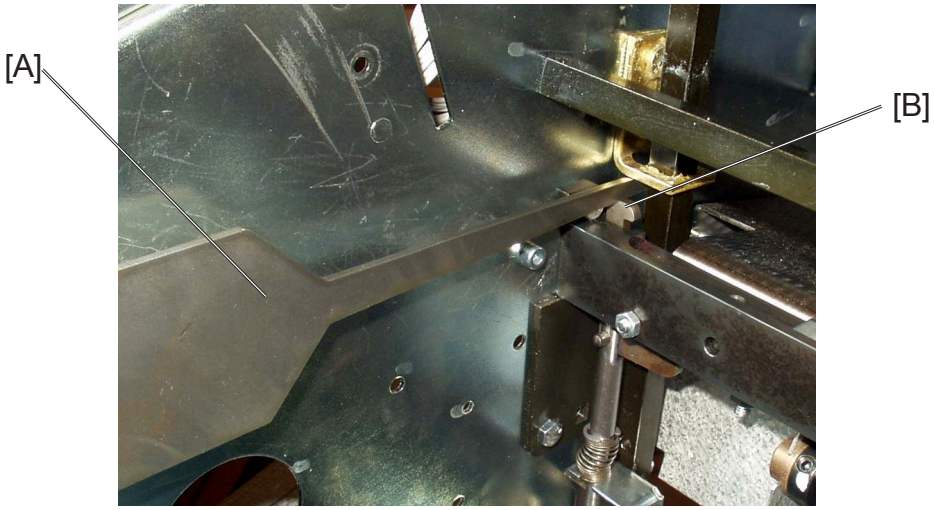
Adjustment

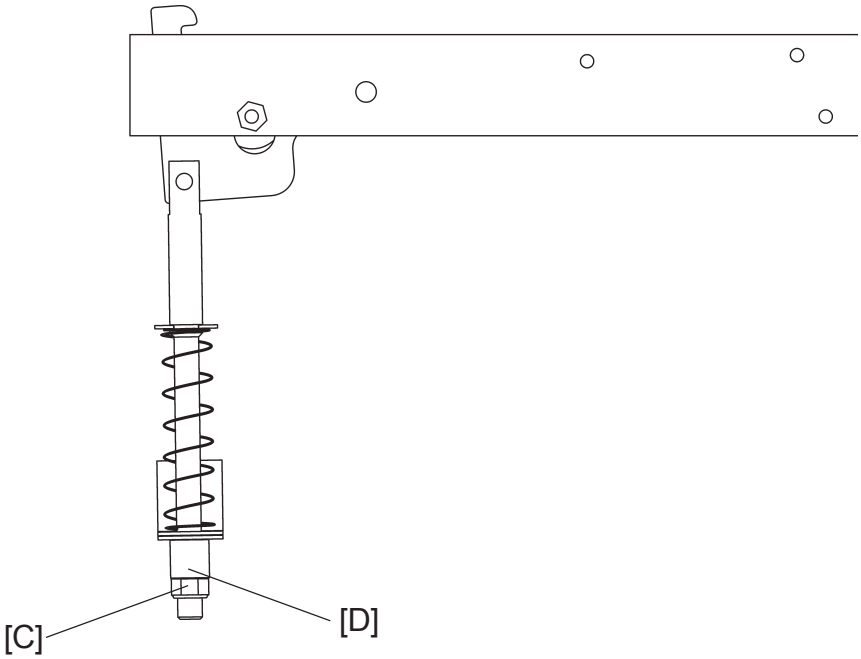
1. Press on the clincher arm where the arrow indicates.
2. Press down the clincher points [A] to make sure that they are resting on the clincher arm.
3. Check that the clincher points are flush with the upper side of the clincher beam when actuated. If not, go to step 4.
4. Rotate allen screws [B] to adjust the clincher points (x2).
   NOTE: Rotate the allen screw clockwise if the clincher points are located to high. Rotate the allen screw counterclockwise if the clincher points are located to low.
5. Go to Adjustment step 1.

Replacement

1. Reverse the removal procedure.

3.8.6 CLINCHER PRESSURE





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Purpose

The purpose is to achieve the correct, flat form of the staples.

Removal Front

1. Check/adjust Clincher points height (☛ 3.8.5).
2. Remove Infeed cover (☛ 3.3.3).
3. Remove Stapler heads (☛ 3.4.12).
4. Rotate the motor linkage (see Removal step3, (☛ 3.8.4) to the down dead centre.

Adjustment

1. Insert the Multi Tool [A] so lever [B] becomes pressed down.
2. Loosen the nut [C] until the bushing [D] just barely can be rotated by hand (x1).
3. Tighten nut [A] 2 revolutions more (x1).
4. Repeat the procedure on the Rear side of the Booklet maker.
5. Check/adjust Stapler pressure (☛ 3.8.4).
6. Reinstall Stapler heads (☛ 3.4.12).
7. Run a set of 22 sheets, 80 gsm. Check that the staples are flat. If not, go to step 8.
8. Tighten the nut [A] ¼ revolutions more (x1). Check adjustment according to step 5.
   NOTE: Check/adjust Stapler pressure (☛ 3.8.4).

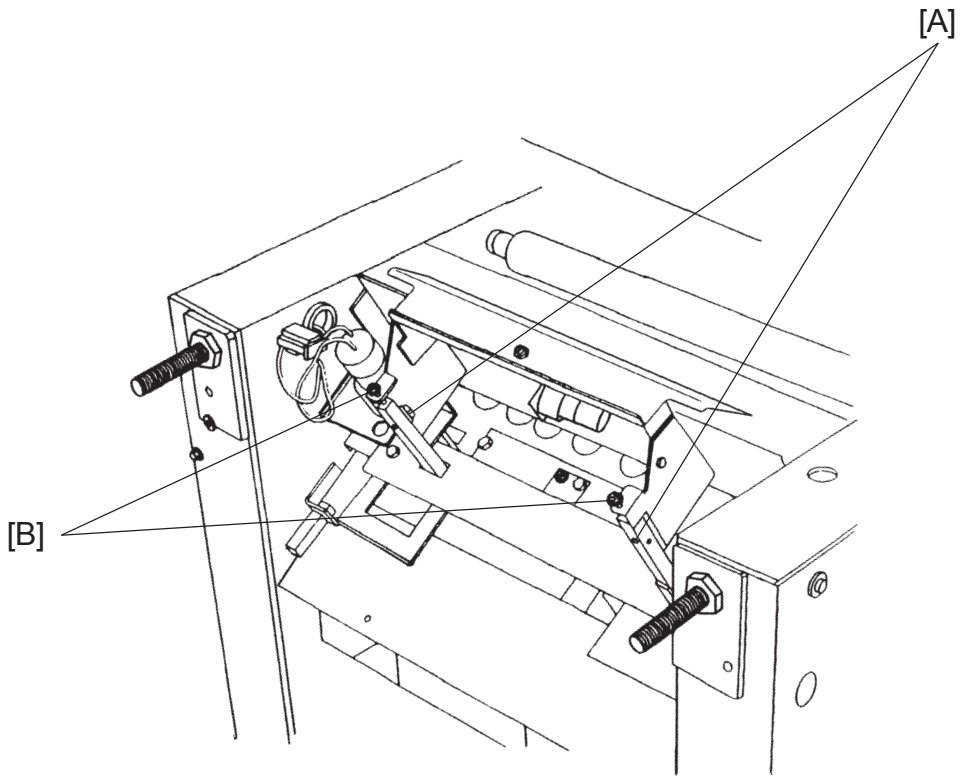
Replacement

1. Reverse the removal procedure.

3.8.7 STAPLE AND FOLD POSITION

Purpose

The purpose is to ensure that the set is folded in the centre of the set, and that the staple is positioned in the centre of the set.



Shown in tipped position for clarity

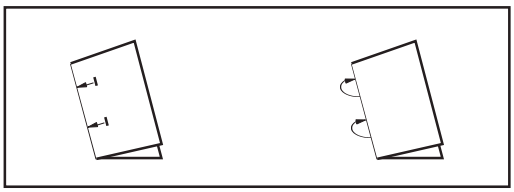
Initial Action

1. Check/adjust Side guide Parallelism ((☛ 3.8.2).
2. Make sure that the value ”Index3, Rear jogger offset” in EEPROM values, is the same value as the value on the label in the back of the machine.
3. If not, Change the value in EEPROM values to the value on the label.
4. Set up the Booklet maker for 297x420 mm / 11x17” in Custom size.
   NOTE: Do NOT use the preset A3 or 11x17” paper sizes.
5. Hand feed a 2-sheet set, using 297x420 mm / 11x17” paper.
6. Run a few sets.
7. Check that the staples are aligned with fold, and that the fold is in the middle of the set. If not, go to Adjustment .

Continued on next page....

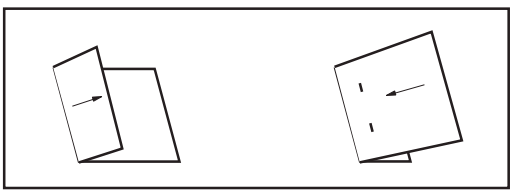
Staple Adjustment:

1. Check/adjust Paper size reset ((5.4).
2. Set up the Booklet maker for 297x420 mm / 11x17" in Custom size.
   NOTE: Do NOT use the preset A3 or 11x17" paper sizes.
3. Hand feed a 2-sheet set, using 297x420 mm / 11x17" paper.
4. Run a few sets.
5. Check that the staples are in the middle of the set (½ of the input paper size, 210 mm / 8.5")
6. If the staple position is incorrect, fine adjust by changing "Index3, Rear jogger offset" in EEPROM values.

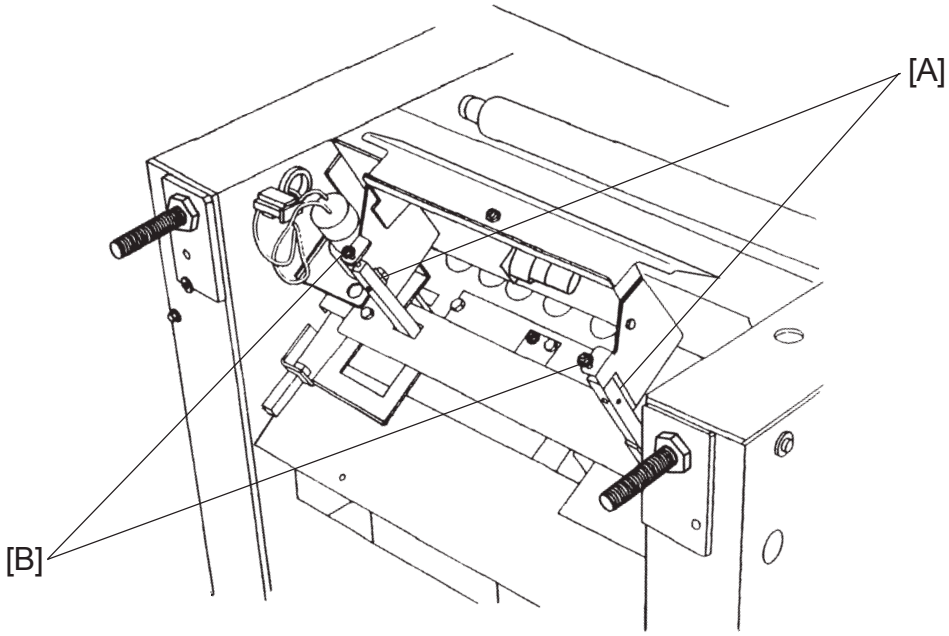


Fold Adjustment:

1. Staple Adjustment must be performed before performing the Fold Adjustment.
2. Loosen screws [A], and rotate screws [B] to adjust the staples to the fold (x2, x2).
   NOTE: Rotate both screws [B], same amount of turns, clockwise if the staples are located on the bottom side of the set. Rotate both screws [B], same amount of turns, counterclockwise if the staples are located on the top side of the set.
3. Tighten screws [A].
4. Hand feed a 2-sheet set, using 297x420 mm / 11x17" paper.
5. Run a few sets.
6. Check that the staples are aligned with fold. If not, go to step 2.



3.8.8 FOLD SKEW



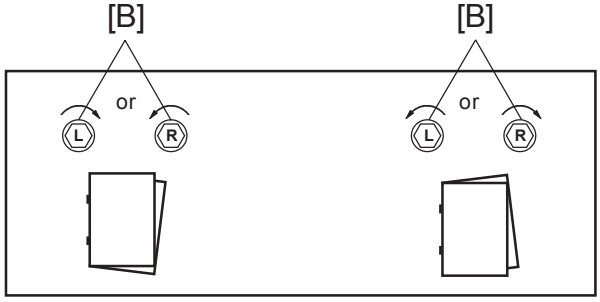
Shown in tipped position for clarity

Purpose

The purpose is to ensure that the fold is parallel to the edge of the sets.

Adjustment

1. Hand feed a 2-sheet set, using A3/ 11x17" paper.
2. Run a few sets.
3. Check that the fold is parallel to the edge of the set. If not, go to step 4.
4. Loosen screws [A] (x2).
5. Rotate the two screws [B] to adjust the fold pocket (x2).
   NOTE: Adjust according to the picture.



6. Tighten screws [A] (x2).
   NOTE: Push in the fold stop assembly, when tightening the screws.
7. Retrieve a new job, then retrieve the job you where working with.
8. Go to step 1.

4. TROUBLESHOOTING

4.1 FAULT CODE DESCRIPITIONS

⚠ CAUTION

ESD Hazard! ESD (Electrostatic Discharge) can cause software crashes, data and/or communications problems. Failure to use proper ESD procedures will cause damage to electronic components (example: PCBs). ESD problems can be minimized by maintaining all machine ground connections, ensuring the proper handling of circuit boards/ sensors - Use ESD protection when working near PCBs. Failure to use ESD protection is likely to result in a PCB failure (3.1).

BM-001

Fault Code BM-001, indicates that the Infeed motor (BM-M1) do not receive any displacement pulses.

Initial Actions

- Check fuse F2 on Transformer.
- Enter the Service mode and select Infeed motor (BM-M1) in check motors.

Procedure

Disconnect the sensor plug Q2 to motor BM-M1. Measure between the red wire Q2 and the black wire Q2 (5V and Signal ground). **The voltage is approximately 5 VDC?**

Y **N**

Disconnect plug B.P14 from PCB "B". Measure between the J14-13 and J14-15 (5V and Signal ground). **The voltage is approximately 5 VDC?**

Y **N**

Replace PCB "B".

Replace wire harness.

Disconnect plug B.P14 from PCB "B". Check wires for Continuity / Short circuit from, the white wire Q2 to B.P14-14, the black wire Q2 to B.P14-13, the red wire Q2 to B.P14-15. **Is there Continuity and no Short circuit?**

Y **N**

Replace wire harness.

1. Replace motor BM-M1.
2. Replace PCB "B".

BM-002

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

Initial Actions

- Check fuse F2 on Transformer.

Procedure

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

Y **N**

Disconnect plug B.P2 from PCB "B". Check wires for Short circuit across leads, the orange wire M1 to B.P2-8 (violet) and the violet wire M1 to B.P2-1 (orange). **Is there Short circuit?**

Y **N**

Replace PCB "B".

Replace wire Harness.

Replace motor BM-M1.

BM-003

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

Initial Actions

- Check fuse F2 on Transformer.

Procedure

Disconnect the motor plug M1. Enter Service mode and start Infeed motor (BM-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 B.P2 from PCB "B". Measure between J2-1 and J2-8 (PWM 36V and ground). **The voltage is approximately 36 VDC?**

Y **N**

Replace PCB "B".

Replace wire Harness.

Replace motor BM-M1.

BM-004

Fault Code BM-004, indicates that the Back jogger motor (BM-M2) had a Cycle time out.

Initial Actions

- Check fuse F2 on Transformer.
- Enter the Service mode and select Back jogger motor (BM-M2) in check motors.
- Make sure that the Back jogger home position sensor (BM-Q3) is installed correctly.

Procedure

Enter the Service mode and select Back jogger home position sensor (BM-Q3) in check sensors. **The back jogger home position sensor indicates :1 when the sensor is blocked, and :0 when the sensor is unblocked?**

Y **N**

1. Replace sensor BM-Q3.
2. Disconnect plug C.P13 from PCB "C". Measure between J13-1 and J13-3 (5V and ground). **The voltage is approximately 5 VDC?**

Y **N**

Replace PCB "C".

Disconnect plug from sensor BM-Q3. Check wire for Continuity / Short circuit from, the white wire Q3 to C.P13-2. **Is there Continuity and no Short circuit?**

Y **N**

Replace wire Harness.

Connect plug C.P13 to PCB "C". Measure between the red wire Q3 and the black wire Q3 (5V and ground). **The voltage is approximately 5 VDC?**

Y **N**

Replace wire Harness.

Replace PCB "C".

Turn motor BM-M2 one and a half turn 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**

Is the two outer back jogger finger in their right position, according to 3.4.9 Item [H]?

Y **N**

Position the two outer back jogger finger in their correct position, according to 3.4.9.

1. Lubricate were needed.
2. Replace motor BM-M2.

Replace motor BM-M2.

BM-005

Fault Code BM-005, indicates that the Back jogger motor (BM-M2) has a Short circuit.

Initial Actions

- Check fuse F2 on Transformer.

Procedure

Disconnect the motor plug M2. Run the SDS again. **Fault code BM-006 (Open circuit) is displayed?**

Y **N**

Disconnect plug C.P2 from PCB "C". Check wires for Short circuit across leads, the orange wire M2 to C.P2-8 (violet) and the violet wire M2 to C.P2-1 (orange). **Is there Short circuit?**

Y **N**

Replace PCB "C".

Replace wire Harness.

Replace motor BM-M2.

BM-006

Fault Code BM-006, indicates that the Back jogger motor (BM-M2) has an Open circuit.

Initial Actions

- Check fuse F2 on Transformer.

Procedure

Disconnect the motor plug M2. Enter Service mode and start Back jogger motor (BM-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 C.P2 from PCB "C". Start Back jogger motor (BM-M2) in check motors again. Measure between J2-1 and J2-8 (PWM 36V and ground). **The voltage is approximately 36 VDC?**

Y **N**

Replace PCB "C".

Replace wire Harness.

Replace motor BM-M2.

BM-007

Fault Code BM-007, indicates that the Side jogger motor (BM-M3) do not receive any displacement pulses.

Initial Actions

- Check fuse F2 on Transformer.
- Enter the Service mode and select Side jogger motor (BM-M3) in check motors.

Procedure

Disconnect the sensor plug Q12 to motor BM-M3. Measure between the red wire Q12 and the black wire Q12 (5V and Signal ground). **The voltage is approximately 5 VDC?**

Y **N**

Disconnect plug C.P14 from PCB "C". Measure between the J14-6 and J14-8 (5V and Signal ground). **The voltage is approximately 5 VDC.**

Y **N**

Replace PCB "C".

Replace wire harness.

Disconnect plug C.P14 from PCB "C". Check wires for Continuity / Short circuit from, the gray wire Q12 to C.P14-4, the white wire Q12 to C.P14-7, the black wire Q12 to C.P14-6, the red wire Q12 to C.P14-8. **Is there Continuity and no Short circuit?**

Y **N**

Replace wire harness.

1. Replace motor BM-M3.
2. Replace PCB "C".

BM-008

Fault Code BM-008, indicates that the Side jogger motor (BM-M3) had a Cycle time out.

Initial Actions

- Check fuse F2 on Transformer.
- Enter the Service mode and select Side jogger motor (BM-M3) in check motors.
- Make sure that the Side jogger home position sensor (BM-Q13) is installed correctly.

Procedure

Enter the Service mode and select Side jogger home position sensor (BM-Q13) in check sensors. **The Side jogger home position sensor indicates :1 when the sensor is blocked, and :0 when the sensor is unblocked?**

Y **N**

1. Replace sensor BM-Q13.
2. Disconnect plug C.P13 from PCB "C". Measure between J13-4 and J13-6 (5V and ground). **The voltage is approximately 5 VDC?**

Y **N**

Replace PCB "C".

Disconnect plug from sensor BM-Q13. Check wire for Continuity / Short circuit from, the white wire Q13 to C.P13-5. **Is there Continuity and no Short circuit?**

Y **N**

Replace wire Harness.

Connect plug C.P13 to PCB "C". Measure between the red wire Q13 and the black wire Q13 (5V and ground). **The voltage is approximately 5 VDC?**

Y **N**

Replace wire Harness.

Replace PCB "C".

Is the two outer back jogger fingers in it's right position, according to 3.4.9 Item [H]?

Y **N**

Position the two outer back jogger fingers in their correct position, according to 3.4.9.

1. Lubricate were needed.
2. Replace motor BM-M3.

BM-009

Fault Code BM-009, indicates that the Side jogger motor (BM-M3) has a Short circuit.

Initial Actions

- Check fuse F2 on Transformer.

Procedure

Disconnect the motor plug M3. Run the SDS again. **Fault code BM-010 (Open circuit) is displayed?**

Y **N**

Disconnect plug C.P2 from PCB "C". Check wires for Short circuit across leads, the orange wire M3 to C.P2-9 (violet) and the violet wire M3 to C.P2-2 (orange). **Is there Short circuit?**

Y **N**

Replace PCB "C".

Replace wire Harness.

Replace motor BM-M3.

BM-010

Fault Code BM-010, indicates that the Side jogger motor (BM-M3) has an Open circuit.

Initial Actions

- Check fuse F2 on Transformer.

Procedure

Disconnect the motor plug M3. Enter Service mode and start Side jogger motor (BM-M3) in check motors. Measure between the orange wire M3 and the violet wire M3 (PWM 36V and ground). **The voltage is approximately 36 VDC?**

Y **N**

Disconnect plug C.P2 from PCB "C". Measure between J2-2 and J2-9 (PWM 36V and ground). **The voltage is approximately 36 VDC?**

Y **N**

Replace PCB "C".

Replace wire Harness.

Replace motor BM-M3.

BM-011

Fault Code BM-011, indicates that the Stapler motor (BM-M4) had a Cycle time out.

Initial Actions

- Check fuse F2 on Transformer.
- Enter the Service mode and select Stapler motor (BM-M4) in check motors.
- Make sure that the Stapler home position sensor (BM-Q14) is installed correctly.

Procedure

Enter the Service mode and select Stapler home position sensor (BM-Q14) in check sensors. **The Stapler home position sensor indicates :1 when the sensor is blocked, and :0 when the sensor is unblocked?**

Y **N**

1. Replace sensor BM-Q14.
2. Disconnect plug C.P13 from PCB "C". Measure between J13-7 and J13-9 (5V and ground). **The voltage is approximately 5 VDC?**

Y **N**

Replace PCB "C".

Disconnect plug from sensor BM-Q14. Check wire for Continuity / Short circuit from, the white wire Q14 to C.P13-8. **Is there Continuity and no Short circuit?**

Y **N**

Replace wire Harness.

Connect plug C.P13 to PCB "C". Measure between the red wire Q14 and the black wire Q14 (5V and ground). **The voltage is approximately 5 VDC?**

Y **N**

Replace wire Harness.

Replace PCB "C".

Is the crank journal correctly mounted, according to 3.4.14 Item [I]?

Y **N**

Mount the crank journal correctly, according to 3.4.14 Item [I].

Remove the stapler heads according to 3.4.12. **Does the stapler heads run as they should, according to 3.4.12?**

Y **N**

1. Make sure that there is no jammed staples in the stapler head.
2. Lubricate the stapler head.
3. Replace stapler head.

Move the right and left Clinch arm up and down. **Does they run as they should, according to 3.8.5?**

Y **N**

1. Remove any jammed staples.
2. Lubricate the Clinch.

Remove the link arm to the crank journal. Move the Lower stapler bracket, by hand, up and down. **Does it run as it should?**

Y **N**

1. Make sure that nothing interferes with the movement.
2. Adjust the stapler assy drive bar according to 3.4.15.

Replace motor BM-M4.

BM-012

Fault Code BM-012, indicates that the Stapler motor (BM-M4) has a Short circuit.

Initial Actions

- Check fuse F2 on Transformer.

Procedure

Disconnect the motor plug M4. Run the SDS again. **Fault code BM-013 (Open circuit) is displayed?**

Y **N**

Disconnect plug C.P3 from PCB "C". Check wires for Short circuit across leads, the orange wire M4 to C.P3-7 (violet) and the violet wire M4 to C.P3-6 (orange). **Is there Short circuit?**

Y **N**

Replace PCB "C".

Replace wire Harness.

Replace motor BM-M4.

BM-013

Fault Code BM-013, indicates that the Stapler motor (BM-M4) has a Open circuit.

Initial Actions

- Check fuse F2 on Transformer.

Procedure

Disconnect the motor plug M4. Enter Service mode and start Stapler motor (BM-M4) in check motors. Measure between the orange wire M4 and the violet wire M4 (PWM 36V and ground). **The voltage is approximately 24 VDC?**

Y **N**

Disconnect plug C.P3 from PCB "C". Measure between J3-6 and J3-7 (PWM 36V and ground). **The voltage is approximately 24 VDC?**

Y **N**

Replace PCB "C".

Replace wire Harness.

Replace motor BM-M4.

BM-014

Fault Code BM-014, indicates that the Set transport motor (BM-M5) has a Short circuit.

Initial Actions

- Check fuse F2 on Transformer.

Procedure

Disconnect the motor plug M5. Run the SDS again. **Fault code BM-015 (Open circuit) is displayed?**

Y **N**

Disconnect plug C.P2 from PCB "C". Check wires for Short circuit across leads, the orange wire M5 to C.P2-10 (violet) and the violet wire M5 to P2-3 (orange). **Is there Short circuit?**

Y **N**

Replace PCB "C".

Replace wire Harness.

Replace motor BM-M5.

BM-015

Fault Code BM-015, indicates that the Set transport motor (BM-M5) has an Open circuit.

Initial Actions

- Check fuse F2 on Transformer.

Procedure

Disconnect the motor plug M5. Enter Service mode and Set transport motor (BM-M5) in check motors. Measure between the orange wire M5 and the violet wire M5 (PWM 36V and ground). **The voltage is approximately 36 VDC?**

Y **N**

Disconnect plug C.P2 from PCB "C". Measure between J2-3 and J2-10 (PWM 36V and ground). **The voltage is approximately 36 VDC?**

Y **N**

Replace PCB "C".

Replace wire Harness.

Replace motor BM-M5.

BM-016

Fault Code BM-016, indicates that the Fold roller motor (BM-M6) do not receive any displacement pulses.

Initial Actions

- Check fuse F2 on Transformer.
- Make sure that the Fold roller sensor (BM-Q9) is installed correctly, according to 3.5.7.

Procedure

Enter the Service mode and select Fold roller motor (BM-M6) in check motors. **Does the encoder run properly, PL page 24 Item 10**

Y **N**

1. Check fold transmission according to 3.5.7.
2. Replace motor BM-M6.

1. Replace sensor BM-Q9.
2. Disconnect plug C.P14 from PCB "C". Measure between J14-10 and J14-12 (5V and ground). **The voltage is approximately 5 VDC?**

Y **N**

Replace PCB "B".

Disconnect plug from sensor Q9. Check wire for Continuity / Short circuit from, the white wire Q9 to C.P14-11. **Is there Continuity and no Short circuit?**

Y **N**

Replace wire Harness.

Connect plug C.P14 to PCB "C". Measure between the red wire Q9 and the black wire Q9 (5V and ground). **The voltage is approximately 5 VDC?**

Y **N**

Replace wire Harness.

Replace PCB "C".

BM-017

Fault Code BM-017, indicates that the Fold roller motor (BM-M6) has a Short circuit.

Initial Actions

- Check fuse F2 on Transformer.

Procedure

Disconnect the motor plug M6. Run the SDS again. **Fault code BM-018 (Open circuit) is displayed?**

Y **N**

Disconnect plug C.P3 from PCB "C". Check wires for Short circuit across leads the orange wire M6 to C.P3-3 (violet) and the violet wire M6 to C.P3-2 (orange). **Is there Short circuit?**

Y **N**

Replace PCB "C".

Replace wire Harness.

Replace motor BM-M6.

BM-018

Fault Code BM-018, indicates that the Fold roller motor (BM-M6) has a Open circuit.

Initial Actions

- Check fuse F2 on Transformer.

Procedure

Disconnect the motor plug M6. Enter Service mode and start Fold roller motor (BM-M6) in check motors. Measure between the orange wire M6 and the violet wire M6 (PWM 36V and ground). **The voltage is approximately 19 VDC?**

Y **N**

Disconnect plug C.P3 from PCB "C". Measure between J3-2 and J3-3 (PWM 36V and ground). **The voltage is approximately 19 VDC?**

Y **N**

Replace PCB "C".

Replace wire Harness.

Replace motor BM-M6.

BM-019

Fault Code BM-019, indicates that the Fold knife motor (BM-M7) had a Cycle time out.

Initial Actions

- Check fuse F2 on Transformer.
- Enter the Service mode and select Fold knife motor (BM-M7) in check motors.
- Make sure that the Fold knife home position sensor (BM-Q15) is installed correctly.

Procedure

Enter the Service mode and select Fold knife home position sensor (BM-Q15) in check sensors. **The Fold knife home position sensor indicates :1 when the sensor is blocked, and :0 when the sensor is unblocked?**

Y **N**

1. Replace sensor BM-Q15.
2. Disconnect plug B.P13 from PCB “B”. Measure between J13-7 and J13-9 (5V and ground). **The voltage is approximately 5 VDC?**

Y **N**

Replace PCB “B”.

Disconnect plug from sensor BM-Q15. Check wire for Continuity / Short circuit from, the white wire Q15 to B.P13-8. **Is there Continuity and no Short circuit?**

Y **N**

Replace wire Harness.

Connect plug B.P13 to PCB “B”. Measure between the red wire Q15 and the black wire Q15 (5V and ground). **The voltage is approximately 5 VDC?**

Y **N**

Replace wire Harness.

Replace PCB “B”.

Replace motor BM-M7.

BM-020

Fault Code BM-020, indicates that the Fold knife motor (BM-M7) has a Short circuit.

Initial Actions

- Check fuse F2 on Transformer.

Procedure

Disconnect the motor plug M7. Run the SDS again. **Fault code BM-021 (Open circuit) is displayed?**

Y **N**

Disconnect plug B.P3 from PCB “B”. Check wires for Short circuit across leads, the orange wire M7 to B.P3-7 (violet) and the violet wire M7 to B.P3-6 (orange). **Is there Short circuit?**

Y **N**

Replace PCB “B”.

Replace wire Harness.

Replace motor BM-M7.

BM-021

Fault Code BM-021, indicates that the Fold knife motor (BM-M7) has an Open circuit.

Initial Actions

- Check fuse F2 on Transformer.

Procedure

Disconnect the motor plug M7. Enter Service mode and start Fold knife motor (BM-M7) in check motors. Measure between the orange wire M7 and the violet wire M7 (PWM 36V and ground). **The voltage is approximately 19 VDC?**

Y **N**

Disconnect plug B.P3 from PCB "B". Measure between J3-6 and J3-7 (PWM 36V and ground). **The voltage is approximately 19 VDC?**

Y **N**

Replace PCB "B".

Replace wire Harness.

Replace motor BM-M7.

BM-022

Fault Code BM-022, indicates that the Fold stop gate motor (BM-M8) has a Short circuit.

Initial Actions

- Check fuse F2 on Transformer.

Procedure

Disconnect the motor plug M8. Run the SDS again. **Fault code BM-023 (Open circuit) is displayed?**

Y **N**

Disconnect plug B.P2 from PCB "B". Check wires for Short circuit across leads, the orange wire M8 to B.P2-9 (violet) and the violet wire M8 to B.P2-2 (orange). **Is there Short circuit?**

Y **N**

Replace PCB "B".

Replace wire Harness.

Replace motor BM-M8.

BM-023

Fault Code BM-023, indicates that the Fold stop gate motor (BM-M8) has an Open circuit.

Initial Actions

- Check fuse F2 on Transformer.

Procedure

Disconnect the motor plug M8. Enter Service mode and start Fold stop gate motor (BM-M8) in check motors. Measure between the orange wire M8 and the violet wire M8 (PWM 36V and ground). **The voltage is approximately 12 VDC?**

Y **N**

Disconnect plug P2 from PCB "B". Measure between J2-2 and J2-9 (PWM 36V and ground). **The voltage is approximately 12 VDC?**

Y **N**

Replace PCB "B".

Replace wire Harness.

Replace motor BM-M8.

BM-024

Fault Code BM-024, indicates that the Staple / Fold positioning motor (BM-M9) do not receive any displacement pulses.

Initial Actions

- Check fuse F2 on Transformer.
- Enter the Service mode and select Staple / Fold positioning motor (BM-M9) in check motors.

Procedure

Disconnect the sensor plug Q10 to motor BM-M9. Measure between the red wire Q10 and the black wire Q10 (5V and Signal ground). **The voltage is approximately 5 VDC?**

Y **N**

Disconnect plug B.P14 from PCB “B”. Measure between the J14-6 and J14-8 (5V and Signal ground). **The voltage is approximately 5 VDC?**

Y **N**

Replace PCB “B”.

Replace wire harness.

Disconnect plug B.P14 from PCB “B”. Check wires for Continuity / Short circuit from, the gray wire Q10 to B.P14-7, the white wire Q10 to B.P14-4, the black wire Q10 to B.P14-6, the red wire Q10 to B.P14-8. **Is there Continuity and no Short circuit?**

Y **N**

Replace wire harness.

1. Replace motor BM-M9.
2. Replace PCB “B”.

BM-025

Fault Code BM-025, indicates that the Staple / Fold positioning motor (BM-M9) had a Cycle time out.

Initial Actions

- Check fuse F2 on Transformer.
- Enter the Service mode and select Staple / Fold positioning motor (BM-M9) in check motors.
- Make sure that the Staple / Fold home position sensor (BM-Q11) is installed correctly.

Procedure

Enter the Service mode and select Staple / Fold home position sensor (BM-Q11) in check sensors. **The Staple / Fold home position sensor indicates :1 when the sensor is blocked, and :0 when the sensor is unblocked?**

Y **N**

1. Replace sensor BM-Q11.
2. Disconnect plug B.P13 from PCB "B". Measure between J13-4 and J13-6 (5V and ground). **The voltage is approximately 5 VDC?**

Y **N**

Replace PCB "B".

Disconnect plug from sensor BM-Q11. Check wires for Continuity / Short circuit from, the white wire Q11 to B.P13-5. **Is there Continuity and no Short circuit?**

Y **N**

Replace wire Harness.

Connect plug B.P13 to PCB "B". Measure between the red wire Q11 and the black wire Q11 (5V and ground). **The voltage is approximately 5 VDC?**

Y **N**

Replace wire Harness.

Replace PCB "B".

Turn the length transmission shaft by hand. **Are you able to turn the shaft?**

Y **N**

Adjust according to 3.5.2.

Pull the length adjustment strap, Item [B] page 3-11, down towards Stapler motor BM-M4. **Does it move easily?**

Y **N**

1. Make sure that nothing interferes with the movement.
2. Lubricate where needed.

1. Lubricate where needed.
2. Replace motor BM-M9.

BM-026

Fault Code BM-026, indicates that the Staple / Fold positioning motor (BM-M9) has a Short circuit.

Initial Actions

- Check fuse F2 on Transformer.

Procedure

Disconnect the motor plug M9. Run the SDS again. **Fault code BM-027 (Open circuit) is displayed?**

Y **N**

Disconnect plug B.P2 from PCB "B". Check wires for Short circuit across leads, the orange wire M9 to B.P2-10 (violet) and the violet wire M9 to B.P2-3 (orange). **Is there Short circuit?**

Y **N**

Replace PCB "B".

Replace wire Harness.

Replace motor BM-M9.

BM-027

Fault Code BM-027, indicates that the Staple / Fold positioning motor (BM-M9) has an Open circuit.

Initial Actions

- Check fuse F2 on Transformer.

Procedure

Disconnect the motor plug M9. Enter Service mode and start Staple / Fold positioning motor (BM-M9) in check motors. Measure between the orange wire M9 and the violet wire M9 (PWM 36V and ground). **The voltage is approximately 36 VDC?**

Y **N**

Disconnect plug B.P2 from PCB "B". Measure between J2-3 and J2-10 (PWM 36V and ground). **The voltage is approximately 36 VDC?**

Y **N**

Replace PCB "B".

Replace wire Harness.

Replace motor BM-M9.

BM-031

Fault Code BM-031, indicates that the stopgate solenoid has an Open circuit

Initial Actions

- Make sure that the connectors are properly connected to the Solenoid.
- Check fuse F3

Procedure

Power off the machine. Remove connectors from solenoid SOL1. Measure on the contacts on the Solenoid. Is there an open circuit?

Y **N**

Reinstall connectors. Measure between the violet connector on the solenoid and P2-12 on PCB MD6DC C Is there continuity?

Y **N**

Replace wire harness.

Measure between the orange connector on the solenoid and P11-1om the interlock PCB. Is there continuity?

Y **N**

Replace wire Harness.

Replace PCB MD6DC C.

Replace Solenoid SOL1.

BM-033

Fault Code BM-033, indicates that the stopgate release solenoid has an Open circuit

Initial Actions

- Make sure that the connectors are properly connected to the Solenoid.
- Check fuse F3

Procedure

Power off the machine. Remove connectors from solenoid SOL2. Measure on the contacts on the Solenoid. **Is there an open circuit?**

Y **N**

Reinstall connectors. Measure between the violet connector on the solenoid and P2-13 on PCB MD6DC C. **Is there continuity?**

Y **N**

Replace wire harness.

Measure between the orange connector on the solenoid and P11-2 on the interlock PCB. **Is there continuity?**

Y **N**

Replace wire Harness.

Replace PCB MD6DC C.

Replace Solenoid SOL2.

BM-034

Fault Code BM-034, indicates that the Paper Infeed sensor (BM-Q1) is faulty.

Initial Actions

- Make sure that the Paper Infeed sensor (BM-Q1) is installed correctly.

Procedure

1. Replace sensor BM-Q1.
2. Disconnect plug A.P1 from CPU PCB. Measure between J1-7 and J1-9 (5V and ground). **The voltage is approximately 5 VDC?**

Y **N**

Replace CPU PCB.

Disconnect plug from sensor BM-Q1. Check wire for Continuity / Short circuit from, the white wire Q1 to A:P1-8. **Is there Continuity and no Short circuit?**

Y **N**

Replace wire Harness.

Connect plug A.P1 to CPU PCB. 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.

Replace CPU PCB.

BM-035

Fault Code BM-035, indicates that the Start sensor, Saddle stapling sensor (BM-Q4) is faulty.

Initial Actions

- Make sure that the Start sensor, Saddle stapling sensor (BM-Q4) is installed correctly.

Procedure

1. Replace sensor BM-Q4.
2. Disconnect plug A.P1 from CPU PCB. Measure between J1-4 and J1-6 (5V and ground). **The voltage is approximately 5 VDC?**

Y **N**

Replace CPU PCB.

Disconnect plug from sensor BM-Q4. Check wire for Continuity / Short circuit from, the white wire Q4 to A:P1-5. **Is there Continuity and no Short circuit?**

Y **N**

Replace wire Harness.

Connect plug A.P1 to CPU PCB. Measure between the red wire Q4 and the black wire Q4 (5V and ground). **The voltage is approximately 5 VDC?**

Y **N**

Replace wire Harness.

Replace CPU PCB.

BM-038

Fault Code BM-038, indicates that the Fold stop sensor (BM-Q7) is faulty.

Initial Actions

- Make sure that the Fold stop sensor (BM-Q7) is installed correctly.

Procedure

1. Replace sensor BM-Q7.
2. Disconnect plug A.P1 from CPU PCB. Measure between J1-10 and J1-12 (5V and ground). **The voltage is approximately 5 VDC?**

Y **N**

Replace CPU PCB.

Disconnect plug from sensor BM-Q7. Check wire for Continuity / Short circuit from, the white wire Q7 to A:P1-11. **Is there Continuity and no Short circuit?**

Y **N**

Replace wire Harness.

Connect plug A.P1 to CPU PCB. Measure between the red wire Q7 and the black wire Q7 (5V and ground). **The voltage is approximately 5 VDC?**

Y **N**

Replace wire Harness.

Replace CPU PCB.

BM-039

Fault Code BM-039, indicates that the Oufeed sensor Booklet maker (BM-Q8) is faulty.

Initial Actions

- Make sure that the Oufeed sensor Booklet maker (BM-Q8) is installed correctly.

Procedure

1. Replace sensor BM-Q8.
2. Disconnect plug A.P1 from CPU PCB. Measure between J1-17 and J1-19 (5V and ground). **The voltage is approximately 5 VDC?**

Y **N**

Replace CPU PCB.

Disconnect plug from sensor BM-Q8. Check wire for Continuity / Short circuit from, the white wire Q8 to A:P1-18. **Is there Continuity and no Short circuit?**

Y **N**

Replace wire Harness.

Connect plug A.P1 to CPU PCB. Measure between the red wire Q8 and the black wire Q8 (5V and ground). **The voltage is approximately 5 VDC?**

Y **N**

Replace wire Harness.

Replace PCB.

BM-150

Fault Code BM-150, indicates that the 36V input is high

Initial Actions

- Make sure that contact P8 on interlock PCB is correctly installed.
- Make sure that contact P12 on controller PCB is correctly installed
- Make sure that the transformer in the machine i wired correcly.

Procedure

Power on machine. Measure incoming voltage on Rectifier (White and Blue). **The voltage is approximately 26V?**

Y **N**

Replace transformer

Measure outgoing voltage on rectifier (Red and Black). **The voltage is approximately 36V?**

Y **N**

Replace Rectifier.

Power off the machine. Measure between the black connector on the Rectifier and P6-3 on interlock PCB. **Is there continuity?**

Y **N**

Replace wire Harness.

Measure between the red connector on the Rectifier and P6-1 on interlock PCB. **Is there continuity?**

Y **N**

Replace wire harness.

Replace interlock PCB.

BM-151

Fault Code BM-151, indicates that the 36V input is low.

Initial Actions

- Check fuse F3.
- Check the Voltage protection plug P7 on the interlock PCB. The resistance must be grater than Mohm.
- Make sure that contact P8 on interlock PCB is correctly installed.
- Make sure that contact P12 on controller PCB is correctly installed
- Make sure that the transformer in the machine is wired correctly.

Procedure

Measure incoming voltage on Rectifier (White and Blue). **The voltage is approximately 26V?**
Y N
Replace transformer

Measure outgoing voltage on rectifier (Red and Black). **The voltage is approximately 36V?**
Y N
Replace Rectifier.

Power off the machine. Measure between the black connector on the Rectifier and P6-3 on interlock PCB. **Is there continuity?**
Y N
Replace wire Harness.

Measure between the red connector on the Rectifier and P6-1 on interlock PCB. **Is there continuity?**
Y N
Replace wire harness.

Replace interlock PCB.

BM-152

Fault Code BM-152, indicates that the 36V output is high.

Procedure

Power on machine and close covers. Measure between P6-1 and P6-3 on the interlock PCB. **The voltage is approximately 36V.**
Y N
The voltage is more than 43V?
Y N
The voltage is less than26V?
Y N
Replace the interlock PCB.

Go to 36V output low Fault code description BM153.

Go to 36V input high Fault code description BM150.

Measure between P4-1 and P4-2 on the interlock PCB. **The voltage is more than 43V?**
Y N
The voltage is less than 26V?
Y N
Replace the interlock PCB.

Go to 36V output low Fault code description BM153.

Replace the interlock PCB.

BM-153

Fault Code BM-153, indicates that the 36V output is low.

Initial Actions

- **Make sure that all the connectors are properly installed on the interlock PCB**

Procedure

Power on machine and close covers. Measure between P6-1 and P6-3 on the interlock PCB. **The voltage is approximately 36V.**

Y N

The voltage is less than26V?

Y N

The voltage is more than 43V?

Y N

Replace the interlock PCB.

Go to 36V output high Fault code description BM150.

Go to 36V input low Fault code description BM151.

Measure between P4-1 and P4-2 on the interlock PCB. **The voltage is less than 26V?**

Y N

The voltage is more than 43V?

Y N

Replace the interlock PCB.

Go to 36V output high Fault code description BM152.

Replace the interlock PCB.

BM-154

Fault Code BM-154, indicates that the 24V output is high.

Initlal Actions

- Make sure that all the connectors are properly installed on the SR90 interlock PCB.
- Enter Service mode, run and run Timmer motors M5/6, make sure that they rum correct.

Procedure

Power on machine and close covers. Measure between J14-11 and J14-8 and between J12-11 and J12-8 on the interlock PCB. **The voltage is approximately 24V at both measurements.**

Y N

Measure between J6-1 and J6-3 on the interlock PCB. **The voltage is approximately 36V.**

Y N

The voltage is more than 43V.

Y N

The voltage is less than 26V.

Y N

Replace the interlock PCB.

Go to 36 V input low Fault code description BM151.

Go to 36 V input high Fault code description BM150.

Replace the interlock PCB.

Replace the interlock PCB.

Trouble-shooting

BM-155

Fault Code BM-155, indicates that the 24V output is low.

Initial Actions

- Make sure that all the connectors are properly installed on the SR90 interlock PCB.
- Enter Service mode, run and run Timmer motors M5/6, make sure that they rum correct.

Procedure

Power on machine and close covers. Measure between J14-11 and J14-8 on the interlock PCB. **The voltage is approximately 24V.**

Y **N**

Measure between J6-1 and J6-3 on the interlock PCB. **The voltage is approximately 36V.**

Y **N**

The voltage is more than 43V.

Y **N**

The voltage is less than 26V.

Y **N**

Replace the interlock PCB.

Go to 36 V input low Fault code description BM151.

Go to 36 V input high Fault code description BM150.

Replace the interlock PCB.

Replace the interlock PCB.

BM-156

Fault Code BM-156, indicates that one of the interlock switches in the system is faulty.

Initial Actions

- If a trimmer is not installed, make sure that the interlock jumper (PL page 8, Item 7) is installed in the SR90.
- If a trimmer is installed, make sure that the interlock jumper (PL page 8, Item 7) is installed in the TR90.
- Make sure that all the connectors to the interlock switches are properly installed.

Procedure

Use interlock cheaters to close all covers. Measure between P1-1 and P1-2 on the SR90 Interlock PCB. **Is there continuity?**

Y **N**

Replace the SR90 interlock switch.

Measure between P1-4 and P1-5 on the SR 90 interlock. **Is there an open circuit?**

Y **N**

Replace the SR90 interlock switch.

Measure between P1-1 and P1-2 on the TR 90 interlock. **Is there continuity?**

Y **N**

Replace the TR 90 interlock switch.

Measure between P1-4 and P1-5 on the TR 90 interlock. **Is there an open circuit?**

Y **N**

Replace the TR 90 interlock switch.

Replace the interlock PCB.

BM-157

Fault Code BM-157, indicates that the 36V output relay is faulty.

Initial Actions

- Check fuse F2.

Procedure

Power on machine. Measure between P6-1 and P6-3 on the Interlock PCB. **The voltage is approximately 36VDC.**

Y **N**

The voltage is less than 26VDC.

Y **N**

The voltage is more than 43V.

Y **N**

Replace Interlock PCB.

Go to 36V input high Fault code description BM150.

Go to 36V input low Fault code description BM151.

Measure between J5-1 and J5-2. **The voltage is approximately 36VDC.**

Y **N**

The voltage is less than 26VDC.

Y **N**

The voltage is more than 43V.

Y **N**

Replace Interlock PCB.

Go to 36V output high Fault code description BM152.

Go to 36V output low Fault code description BM153.

Replace Interlock PCB.

BM-158

Fault Code BM-158, indicates that there is a communication lost problem.

Initial Actions

- Make sure that the communication cable between the SR90 and the TR90 is properly con - nected.
- Make sure that the communication cable between the SR90 and the CF90 is properly con - nected.

Procedure

Power off the machine. Remove all connectors to the TR90. Power on the machine. **Is there still communication lost?**

Y **N**

Replace the communication cable between the SR90 and the TR90.

Power off the machine. Remove all connectors to the CF90. Power on the machine. **Is there still communication lost?**

Y **N**

Replace the communication cable between the SR90 and the CF90.

Replace the Interlock PCB.

BM-159

Fault Code BM-159, indicates that the PCB MD6DC B is not connected.

Initial Actions

- Make sure that all contacts are properly connected to PCB MD6DC B.
- Make sure that the dipswitches on the PCB are set correctly.

Procedure

Power off the machine. Measure for continuity between P4-1 on MD6DC B PCB and P5-1 on MD6DC C PCB. **Is there continuity?**

Y **N**
Replace wire harness.

Measure for continuity between P4-2 on MD6DC B PCB and P5-2 on MD6DC C PCB. **Is there continuity?**

Y **N**
Replace wire harness.

Replace MD6DC B PCB.

BM-160

Fault Code BM-160, indicates that the PCB MD6DC C is not connected.

Initial Actions

- Make sure that all contacts are properly connected to PCB MD6DC C.
- Make sure that the dipswitches on the PCB are set correctly.

Procedure

Power off the machine. Measure for continuity between P4-1 on MD6DC C PCB and P2-1 on Controller PCB. **Is there continuity?**

Y **N**
Replace wire harness.

Measure for continuity between P4-2 on MD6DC C PCB and P2-2 on Controller PCB. **Is there continuity?**

Y **N**
Replace wire harness.

Replace MD6DC B PCB.

BM-201

Fault Code BM-201, indicates that during Run, the Paper infeed sensor (BM-Q1), 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 infeed sensor (BM-Q1) is installed correctly.
- Ensure that the Paper infeed sensor (BM-Q1) 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 :0 when the sensor is blocked, and :1 when the sensor is not blocked.**

Y **N**

Go to BM-034 fault code.

1. Make sure that nothing interferes with the paper coming out from the copier, and going in to the Booklet maker.
2. Make sure that nothing interferes with the paper path in the Booklet maker.
3. Make sure that the Booklet maker is correctly installed.

BM-202

Fault Code BM-202, indicates that at “initialization” or during Run, the Paper infeed sensor (BM-Q1), was blocked exceeding timeout.

Initial Actions

- Check fuse F2 on Transformer.
- Make sure that the Paper infeed sensor (BM-Q1) is installed correctly.
- Ensure that the Paper infeed sensor (BM-Q1) 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 :0 when the sensor is blocked, and :1 when the sensor is not blocked.**

Y **N**

Go to BM-034 fault code.

Make sure that nothing interferes with the paper path.

BM-203

Fault Code BM-203, indicates that during Run, the Start sensor Saddle stapling (BM-Q4), was not blocked within timeout.

Initial Actions

- Check fuse F2 on Transformer.
- Make sure that the Start sensor Saddle stapling (BM-Q4) is installed correctly.
- Ensure that the Start sensor Saddle stapling (BM-Q4) is clean.

Procedure

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

Y **N**

Go to BM-035 fault code.

Make sure that nothing interferes with the paper path.

BM-204

Fault Code BM-204, indicates that at “initialization” or during Run, the Start sensor Saddle stapling (BM-Q4), was blocked exceeding timeout.

Initial Actions

- Check fuse F2 on Transformer.
- Make sure that the Start sensor Saddle stapling (BM-Q4) is installed correctly.
- Ensure that the Start sensor Saddle stapling (BM-Q4) is clean.

Procedure

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

Y **N**

Go to BM-035 fault code.

Make sure that nothing interferes with the paper path.

BM-207

Fault Code BM-207, indicates that during Run, the Fold stop sensor (BM-Q7), was not blocked within timeout.

Initial Actions

- Check fuse F2 on Transformer.
- Make sure that the Fold stop sensor (BM-Q7) is installed correctly.
- Ensure that the Fold stop sensor (BM-Q7) is clean.

Procedure

Enter the Service mode and select Fold stop sensor (BM-Q7) in check sensors. Block, then unblock, the BM-Q7 with a sheet of paper. **The Fold stop sensor (BM-Q7) sensor indicates :0 when the sensor is blocked, and :1 when the sensor is not blocked.**

Y **N**

Go to BM-038 fault code.

Make sure that nothing interferes with the paper path.

BM-208

Fault Code BM-208, indicates that at “initialization” or during Run, the Fold stop sensor (BM-Q7), was blocked exceeding timeout.

Initial Actions

- Check fuse F2 on Transformer.
- Make sure that the Fold stop sensor (BM-Q7) is installed correctly.
- Ensure that the Fold stop sensor (BM-Q7) is clean.

Procedure

Enter the Service mode and select Fold stop sensor (BM-Q7) in check sensors. Block, then unblock, the BM-Q7 with a sheet of paper. **The Fold stop sensor (BM-Q7) sensor indicates :0 when the sensor is blocked, and :1 when the sensor is not blocked.**

Y **N**

Go to BM-038 fault code.

Make sure that nothing interferes with the paper path.

BM-209

Fault Code BM-209, indicates that during Run, the Outfeed sensor Booklet maker (BM-Q8), was not blocked within timeout.

Initial Actions

- Check fuse F2 on Transformer.
- Make sure that the Outfeed sensor Booklet maker (BM-Q8) is installed correctly.
- Ensure that the Outfeed sensor Booklet maker (BM-Q8) is clean.

Procedure

Enter the Service mode and select Outfeed sensor Booklet maker (BM-Q8) in check sensors. Block, then unblock, the BM-Q8 with a sheet of paper. **The Outfeed sensor Booklet maker (BM-Q8) sensor indicates :0 when the sensor is blocked, and :1 when the sensor is not blocked.**

Y **N**

Go to BM-039 fault code.

Make sure that nothing interferes with the paper path.

BM-210

Fault Code BM-210, indicates that at “initialization” or during Run, the Outfeed sensor Booklet maker (BM-Q8), was blocked exceeding timeout.

Initial Actions

- Check fuse F2 on Transformer.
- Make sure that the Outfeed sensor Booklet maker (BM-Q8) is installed correctly.
- Ensure that the Outfeed sensor Booklet maker (BM-Q8) is clean.

Procedure

Enter the Service mode and select Outfeed sensor Booklet maker (BM-Q8) in check sensors. Block, then unblock, the BM-Q8 with a sheet of paper. **The Outfeed sensor Booklet maker (BM-Q8) sensor indicates :0 when the sensor is blocked, and :1 when the sensor is not blocked.**

Y **N**

Go to BM-039 fault code.

Make sure that nothing interferes with the paper path.

BM-401

Fault Code BM-401, indicates that the stapler head is faulty.

Initial Actions

- Check fuse F4 on Transformer.
- Check stapler head accoring to ((☛ 3.4.12).

Procedure

Disconnect the connectors to the stapler heads. Disconnect plug A.P13 from CPU PCB. Check wire for Continuity / Short circuit from, the rear stapler head lead to the A.P13-3 and the front stapler head lead to the A.P13-4. Is there Continuity and no Short circuit?

Y **N**

Replace wire Harness.

Replace CPU PCB.

ST-001

Fault Code ST-001, indicates that the Stacker motor (ST-M1) have a Short circuit.

Initial Actions

- Make sure that the connectors are properly installed on the stacker motor.

Procedure

Disconnect the motor plug M1. Run the SDS again. **Fault code ST-002 (Open circuit) is displayed?**

Y **N**

Disconnect plug P2 from PCB "B". Check wires for Short circuit across leads the red wire M1 to P2-11 (violet) and the black wire M1 to P2-4 (orange). **Is there Short circuit?**

Y **N**

Replace PCB "B".

Replace wire Harness.

Replace motor ST-M1.

ST-002

Fault Code ST-002, indicates that the Stacker motor (ST-M1) have a Open circuit.

Initial Actions

- Make sure that the connectors are properly installed on the stacker motor.

Procedure

Disconnect the motor plug M1. Enter Service mode and start Stacker motor (ST-M1) in check motors. Measure between the red wire M1 and the black wire M1 (24V and ground). **The voltage is approximately 24? VDC?**

Y **N**

Disconnect plug P2 from PCB "B". Measure between J2-4 and J2-11 (24V and ground). **The voltage is approximately 24? VDC?**

Y **N**

Replace PCB "B".

Replace wire Harness.

Replace motor ST-M1.

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4.2 BLOWN FUSE CONDITIONS

⚠ CAUTION
ONLY USE SLOW BLOW FUSES.

Fuse	Sec.	Rating		Symptom at power on
		115V	210 - 230V	
F1	6.1.3	6.3A	3.15A	No responce
F2	6.1.1	16A	16A	Normal display function but no operations in the machine possible
F3	6.1.1	2A	2A	No responce
F4	6.1.1	2A	2A	Normal operation until stapling action after stapling action “Check staples” BM-401 is displayed

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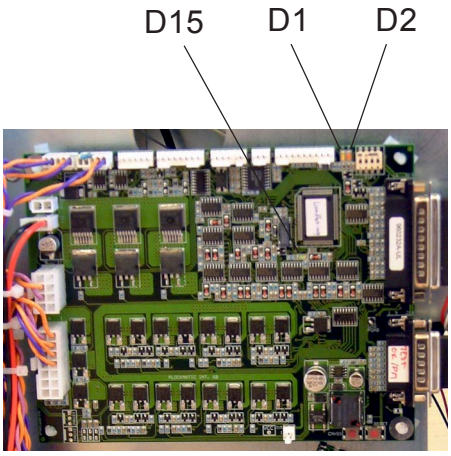
4.3 LEDS

Motor Drive PCB (MD6DC) in Booklet Maker & Trimmer

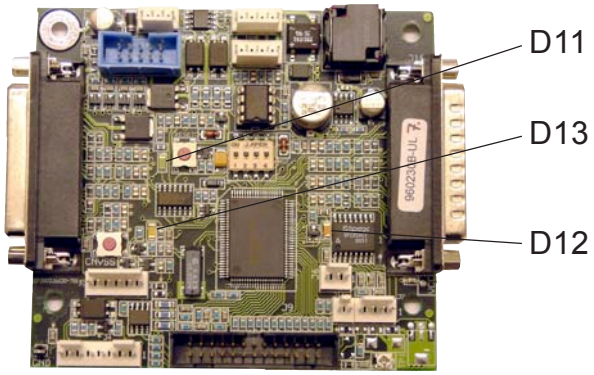


D1: Yellow LED flashes when power is on. The flashing indicates that a program is present and functioning. Should a download fail or the 5V be missing, LED would be OFF.

D2: Red LED flashes whenever information is sent or received on the Internal CAN. If power is switched on but no operations are performed, LED is OFF.

D15: Green LED permanently OFF. It has no direct function in this configuration.

CPU PCB in Booklet Maker



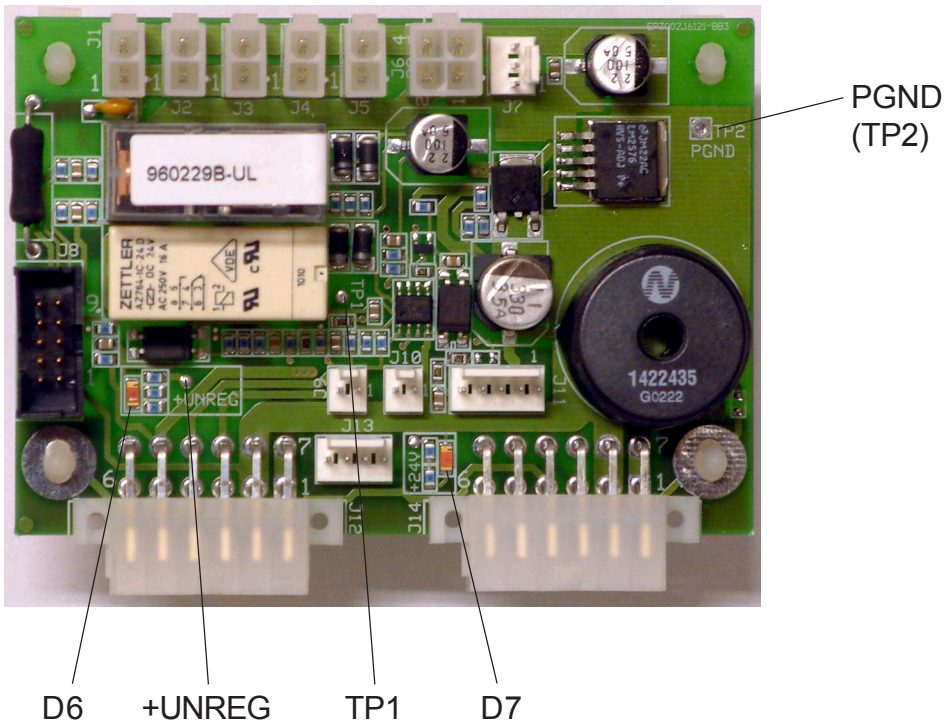
D11: Green LED is ON when power is switched on. At power up the 36V is checked that it is within allowed range. If within allowed range, LED illuminates and relay contacts closes for the 36V. If not within allowed range, LED stays OFF and relay will not let the 36V through.
If LED is flashing in 2 seconds periods, the output 36V from interlock PCB is too low. The output 36V should be more than 80% of the input 36V. Too low output voltage indicates short circuit or similar that draws too much current on the output end.

- Measure wall outlet.
- Measure +UNREG on MD6DC B, C and Interlock PCB ((☛ 4.4).
- Disconnect motors etc. until voltage goes up within range, to locate component drawing to much current.

D13: Yellow LED flashes when power is on. The flashing indicates that a program is present and functioning. Should a download fail or the 5V be missing, Yellow LED would be OFF.

D12: Reserved.

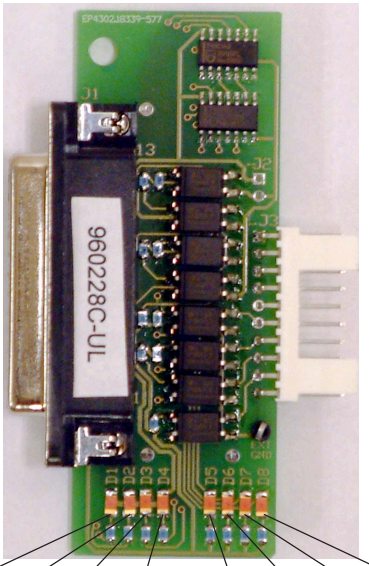
Interlock PCB in Booklet Maker



D6: Red LED is ON when unregulated 36V is present. If machine is interlocked (i.e. the top cover is open) or 36V is missing, LED is OFF.
The unregulated 36V can be measured between +UNREG Test Point and PGND Test Point.

D7: Red LED is ON when 24V is present. If machine is interlocked (i.e. the top cover is open) LED will still be ON.
It will also be ON if 36V is present but not 24V. In such a case the 24V stabilising circuit on the Interlock PCB would be defective. To establish that actual 24V is present, measure between +24V Test Point and PGND Test Point.

Copier Interface PCB in Booket Maker



D1 D2 D3 D4 D5 D6 D7 D8

D1 - D4 are signals from the Copier to the SR 90.

D5 - D8 are signals from the SR90 to the Copier

D1: Start signal from copier.

D2 / D3: Paper size indicators. A binary pattern between the two LEDs shows the paper size sent from the copier.

	Size A (A3)	Size B (A4)	Size C (11”x17”)	Size C (8.5”x11”)
D2	0	0	0	0
D3	0	0	0	0

D4: Not connected.

D5: Soft stop from SR90. Copier cycles out (such as when stacker is full).

D6: Connection. SR90 indicates connection to Copier.

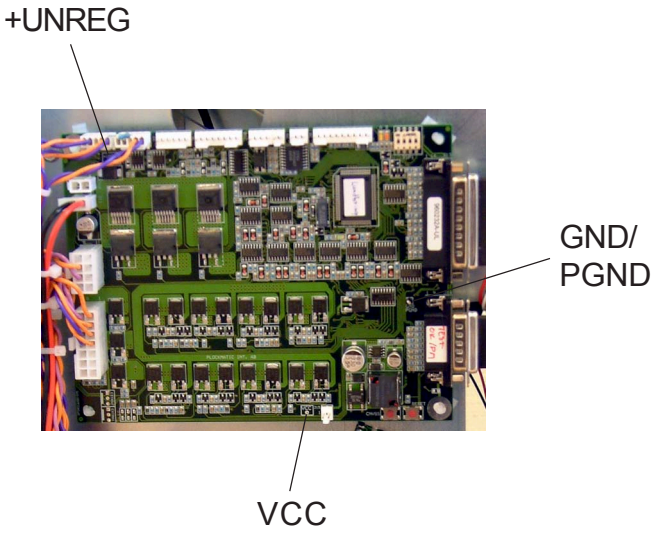
D7: Hard stop from SR90. Copier stops immediatly (such as when top cover opens).

D8: Reserved.

- All LEDs are red.
- The LED illuminates throughout the duration of the signal.

4.4 TEST POINTS

Motor Drive PCB (MD6DC) in Booklet Maker & Trimmer

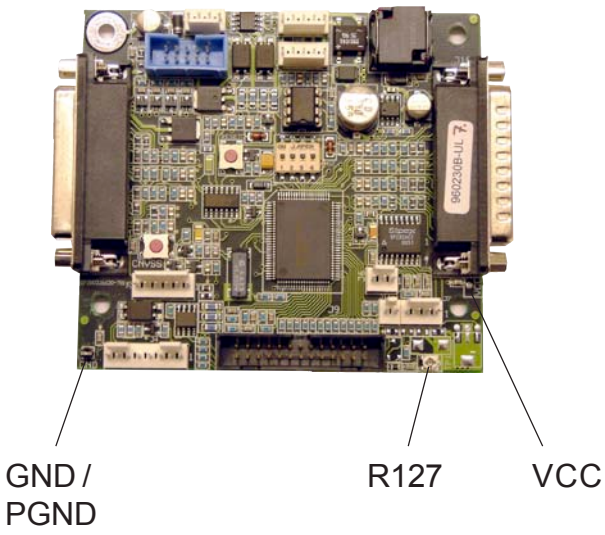


+**UNREG**: Outgoing unregulated 36V, after interlock relay. Measure between Test Point +UNREG and Test Point GND/PGND using a voltmeter. The voltage will be shown on the voltmeter unless:
voltage is outside allowed range 29-43V. Voltage will be 0V.
machine is interlocked (i.e. the top cover is open). Voltage will be 0V.

VCC: Stabilised and rectified 5V made from incoming 10V AC from transformer. Measure between Test Point VCC and Test Point GND/PGND using a voltmeter. The voltage will be shown on the voltmeter. Range 4.9-5.1V.

GND / PGND: Ground /Power Ground is the minus when measuring either unregulated 36V (+UNREG) or 5V (VCC).

CPU PCB in Booklet Maker

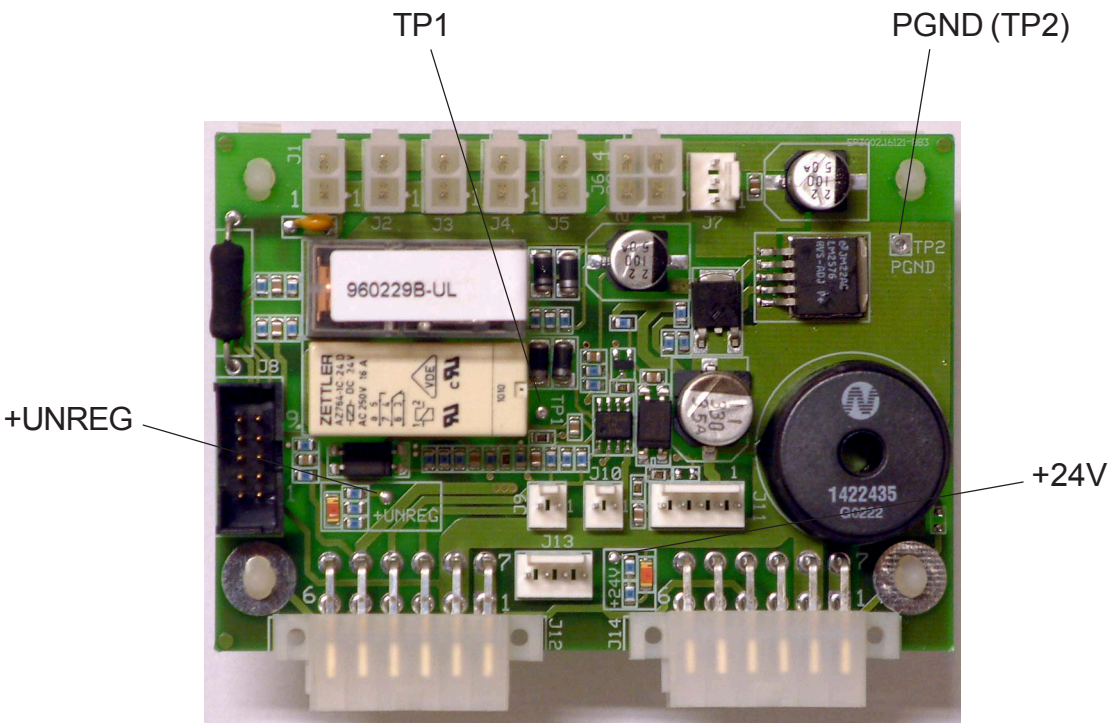


VCC: Stabilised and rectified 5V made from incoming 10V AC from transformer. Measure between Test Point VCC and Test Point GND/PGND using a voltmeter. The voltage will be shown on the voltmeter. Range 4.9-5.1V.

GND / PGND: Ground /Power Ground is the minus when measuring either unregulated 36V (+UNREG) or 5V (VCC).

R127: Trim Potentiometer for Contrast setting of the LCD.

Interlock PCB in Booklet Maker



TP1: Incoming unregulated 36V, before interlock relay. Measure between Test Point TP1 and Test Point PGND using a voltmeter. The voltage will be shown on the voltmeter regardless of the voltage being outside allowed range 29-43V.

+**UNREG**: Outgoing unregulated 36V, after interlock relay. Measure between Test Point +UNREG and Test Point PGND using a voltmeter. The voltage will be shown on the voltmeter unless:
voltage is outside allowed range 29-43V. Voltage will be 0V.
machine is interlocked (i.e. the top cover is open). Voltage will be 0V.

+**24V**: Stabilised 24V made from incoming unregulated 36V, before interlock relay. Measure between Test Point +24V and Test Point PGND using a voltmeter. The voltage will be shown on the voltmeter. Range 23-25V.

PGND (TP2): Power Ground is the minus when measuring either unregulated 36V (+UNREG) or 24V (+24V).

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5. SERVICE TABLES

⚠ CAUTION

Never turn off the main power when motors are cycling. To avoid damaging the circuitry, stop the motor/motors running under the Check Motors menu, and then switch the main power off.

5.1 SERVICE PROGRAM MODE

5.1.1 SERVICE PROGRAM MODE OPERATIONS

The service program mode is used to check electrical data, check electrical components and adjust values. One service program mode is provided and controlled from the UI on the booklet maker. Peripheral units are embedded in this service program. Where applicable, a sub menu appears after a function is selected listing the peripherals.

Entering and Exiting the SP mode

There are two ways to enter the service mode either from the operator mode (1) or directly from switched off machine (2).

1

1. Press the Tools button.
   NOTE: Insert interlock cheater if +UNREG (voltage for motors) is needed.
2. With the Arrow key, select Service access and press the OK button.
3. Key in password: **107** (using the Arrow and Change button).
4. Press the OK button.

Exit

5. Switch off the main power to exit the Service mode or press the ESC button to exit the Service mode and enter the operator mode.

2

1. Make sure the main power is switched off.
   NOTE: Insert interlock cheater if +UNREG (voltage for motors) is needed.
2. Press and hold the left hand button on the Control Panel.
3. Switch on the main power switch.
4. Release the button on the Control Panel.
   NOTE: When entering the SP mode this way, the machine will reset the password to the default value 107.
5. Key in password: **107** (using the Arrow and Change button)
6. Press the OK button.

Exit

7. Switch off the main power to exit the Service mode or press the ESC button to exit the Service mode and enter the operator mode.

Checking Motors and Solenoids

1. Go to Check Motors or Check Solenoids. Press OK.
2. Go to the unit in which the motor/solenoid to be checked is located. Press OK.
3. Go to the motor/solenoid to be checked. Press OK.
4. Press Arrow (two arrows appear if motor is bi-directional) to start the motor (symbol appears if motor is off).

   Press Cycle button (motors with defined positions only) to let the motor perform one working cycle.

   NOTE: Motors with defined positions also shows status (H:1 or H:0) of corresponding sensor.
5. Press Stop to stop the motor (symbol appears if motor is running).

   Press ESC to exit that motor check, which leaves it running.

NOTE: When checking BM-M9, you have to press the cycle button before being able to press the Arrow buttons (To get the position of the motor).

NOTE: For safety reasons you have to press the unlock button to be able to start TR-M2. You have to press the unlock button between every cycle.

Checking Sensors

Functionality of all sensors can individually be checked by blocking/unblocking sensors. While blocking/unblocking, view the display for response. Displayed is the state by :1 or :0. Which state corresponding to blocked/unblocked is depending on whether the sensor has inverted function or not.
For status definition, see Service Program Mode Tables 5.1.2.

Running Dead Cycling (free run)

Dead cycling is a modified machine cycle. All functions in the machine are run such as motors and solenoids. The program is basically made for factory testing, but can be of some use when trouble shooting.

1. Remove the two stapler heads.
2. Go to Dead Cycling. Press OK.
3. Press Arrow to go to the unit in which to perform the dead cycling.
4. Press On to start the dead cycling.
5. Press Off to stop the dead cycling.

Interface

Under Interface you adapt the SR90 interface to the correct host machine.

1. Go to Interface. Press OK.
2. Press Arrow to select correct host machine. Press OK.

Changing EEPROM Values

1. Go to EEPROM values. Press OK.
2. Press Arrow to go to the Index to be changed.
3. Press Change.
4. Key in New value (using the Arrow and Change button).
5. Go to Store. Press OK.

> ⚠ **IMPORTANT**
>
> **Changing EEPROM values can jeopardize the way the machine operates considerably. Be sure that changing the EEPROM value is the correct solution before doing so. Should changes be made beyond certainty of retrieval of default values, perform the EEPROM reset procedure ((☛ 5.1.3).**

Using Fold Delay

Fold delay is default On. The fold delay indicates that the booklet is stopped between the second pair of fold rollers by the spine, to make the booklet flatter. It sits in that position up to about 15 seconds depending on the interval between sets. If the time interval between the sets from the Copier is less, the booklet is fed out sooner, when the next booklet enters the booklet maker.

Counters

Under Counters the total amount of cycles are displayed for the stapler heads, Fold knife, trimmer knives and cover feeder. When stapler heads or the trimmer knives have been replaced, the counter for the corresponding function should be reset to zero. That is done under EEPROM Values.

Jam History

The last 100 error messages are listed here. The most resent error at the top. This is a very helpful tool when troubleshooting as all events are logged consecutive. Displayed are the total count for the event and the fault code. It is also logged when the service program mode has been entered. It is indicated by a wrench symbol in front of the total count. To remedy errors listed, go to Fault Code Descriptions ((☛ 4.1).

5.1.2 SERVICE PROGRAM MODE TABLES

Check Motors and function

Booklet Maker

Motor	Normal Reading	Function
BM-M1	14V ±2V, ≈0.90m/s	Infeed Motor transports the set to the stapling section.
BM-M2	9V ±2V	Back Jogger Motor jogs the sheets together lengthwise.
BM-M3	202mm - ≈335mm	Side Jogger Motor adjusts the position of the side guides for different paper sizes. It also jogs the sheets together sidewise and guides the set through the machine.
BM-M4	15V ±2V	Stapler Motor drives the staples into the set and drives the clinchers that clinches the staple legs flat.
BM-M5	24V ±2V	Set Transport Motor transports the set from the stapling area to the folding area.
BM-M6	18V ±2V, 0.25m/s	Fold Roller Motor folds and compresses the set and transport it out of the Booklet Maker.
BM-M7	19V ±2V	Fold Knife Motor pushes the set up through the fold rollers.
BM-M8	12V ±2V	Fold Stop Gate Motor makes a slight jog to ensure set is straightened up before folding.
BM-M9	≈269mm - ≈432mm	Staple/Fold Position Motor adjusts the position of the staple stop, fold stop and back jogger for different paper sizes.

Trimmer

Motor	Normal Reading	Function
TR-M1	22V ±2V, ≈0.70m/s	Transport/Knife Motor transports the booklet in and out of the Trimmer unit. It also functions as a second Trim Knife Motor when reversed. In Service mode, only transport direction can be run.
TR-M2	28V ±2V	Trim Knife Motor cycles knife to cut the booklet.
TR-M3	14V ±2V	Stop Gate Motor moves the stop gate up to stop the booklet to be trimmed and down when transporting it out.
TR-M4	21V ±2V, ≈120-220mm	Length Adjustment Motor adjusts the position of the stop gate for different booklet sizes.
TR-M5/M6	24V ±2V	Blower Motor blows the trimmed shingle down to the scrap bin.

Cover Feeder

Motor	Normal Reading	Function
CF-M1	20V ±2V	Feed Motor moves the tray up or down to apply a feed pressure of the sheets to the feed rollers. When reversed it feeds the sheet.
CF-M2	20V ±2V	Drive Motor transports the sheet into the Booklet Maker.
CF-M3	20V ±2V	Blower Motor blows air between the sheets in the Cover Feeder as a pre-separation.

Stacker

Motor	Normal Reading	Function
ST-M1	17V ±2V or 29V ±2V	Stacker Motor transports the set on the belt stacker.

Check Solenoids and function

Booklet Maker

Solenoid	Normal Reading	Function
BM-SOL1	Will be actuated for appr. 30 sec.	Stop Gate Solenoid moves the staple stop down and set transport rollers up/down.
BM-SOL2	Will be actuated for appr. 5 sec.	Stop Gate Release Solenoid releases the staple stop when latched in down position.

Check Sensors/Switches and function

Booklet Maker

Sensor	Normal State	Function
BM-Q1	0 = Unblocked	Paper Infeed Sensor
BM-Q3	0 = Unblocked	Back Jogger Home Position Sensor
BM-Q4	0 = Unblocked	Start Sensor, Saddle Stapling
BM-Q7	0 = Unblocked	Fold Stop Sensor
BM-Q8	0 = Unblocked	Outfeed Sensor
BM-Q11	0 = Unblocked	Staple/Fold Home Position Sensor
BM-Q13	0 = Unblocked	Side Jogger Home Position Sensor
BM-Q14	1 = Blocked	Stapler Home Position Sensor
BM-Q15	1 = Blocked	Fold Knife Home Position Sensor
BM-Q19	0 = No signal	Staple Detection
BM-Q20	0 = No signal	Staple Detection

Trimmer

Sensor	Normal State	Function
TR-S1/S2/S3	0 = Unactuated	Infeed Switch / Control Switch Infeed / Control Switch Out feed
TR-Q5	1 = Blocked	Trim Knife Home Position Sensor
TR-Q6	1 = Unblocked	Outfeed Sensor
TR-Q7	0 = Blocked	Stop Gate Home Position Sensor
TR-Q8	0 = Unblocked	Trim Bin Full Sensor
TR-S9/S10	1 = Unactuated	Interlock switches (S9 -switch, S10 -magnet)
TR-S11	1 = Unactuated	Length Adjustment Home Position Switch

Cover Feeder

Sensor	Normal State	Function
CF-Q1	1 = Unblocked	Empty Bin Sensor
CF-Q2	0 = Blocked	Bin Home Position Sensor
CF-Q3	1 = Unblocked	Paper Path Sensor / DSD detection
CF-Q4	1 = Unblocked	Paper Positioning Sensor
CF-Q5	1 = Unblocked	Paper Low Sensor, Bin

Voltmeter

Voltage at	Range	Function
MD6DC (B)	29-43V	Unregulated 36V (after interlock relay) distributed from Interlock PCB in Booklet maker. Voltage supplies: BM-M1 Infeed motor BM-M7 Fold knife motor BM-M8 Fold stop gate motor BM-M9 Staple/fold pos. mot. ST-M10 Stacker motor
MD6DC (C)	29-43V	Unregulated 36V (after interlock relay) distributed from Interlock PCB in Booklet maker. Voltage supplies: BM-M2 Back jogger motor BM-M3 Side jogger motor BM-M4 Stapler motor BM-M5 Set transport motor BM-M6 Fold roller motor Ground only to: BM-SOL1 Stop gate sol. BM-SOL2 Stop gate rel. sol. BM Set counter
TR90	29-43V	Unregulated 36V (after interlock relay) distributed from Interlock PCB in Booklet maker. Voltage supplies: TR-M1 Transport/knife motor TR-M2 Knife motor TR-M3 Stop gate motor TR-M4 Length adjust. motor TR Set counter Ground only to: TR-M5 Blower motor TR-M6 Blower motor
CF90	29-43V	Unregulated 36V (after interlock relay) distributed from Interlock PCB in Booklet maker. Voltage supplies: CF-M1 Feed motor CF-M2 Drive motor From this voltage a stabilised 24V is made. The 24V supplies: CF-M3 Blower motor

EEPROM Values

Index		Default	Function
0	Password	107	The password to enter service mode can be changed here.
1	STD Trim	004.50	Standard trim margin that is default presented in the user menu. Value reflects how many millimetres that will be trimmed off from the longest sheet (centre fold) in the booklet.
2	Side Jog Offset	≈327.5 mm	Reference regarding position for paper size adjustment. Value reflects paper size width at home position.
3	Rear Offset	≈270 mm	Reference regarding position for paper size adjustment. Value reflects paper size length at home position.
4	Staple	0 -	The counter for the stapler. Value reflects the count of how much the stapler heads have cycled.
5	Fold	0 -	The counter for the folder. Value reflects the count of how much the fold knife has cycled.
6	Trim knife	0 -	The counter for the trimmer. Value reflects the count of how much the trimmer knife has cycled.
7	Cover feed	0 -	The counter for the cover feeder. Value reflects the count of how many sheets the cover feeder has delivered.
8	Book Folder	0 -	The counter for the Book Folder. Value reflects the count of how many Books the Book Folder has delivered.
9	M3 BrakeCal0	≈-00040	The values reflect calibration of side jogger movement at break point in different positions.
10	M3 BrakeCal1	≈00023	
11	M3 BrakeCal2	≈00010	
12	M3 BrakeCal3	≈00050	
13	M1 Speed Low	≈00900	The values reflect calibration of Infeed motor M1and
14	M1 Speed High	≈01340	Fold roller motor M6 at power on.
15	M6 Speed	≈01800	
16	Zero Trim Offset	≈0	Fine tuning of trim margin. Value reflects deviation from real trim margin and STD trim margin.
17	TR-M1 Speed	≈01800	The value reflect calibration of Transport motor M1.
18	xCAN ID.no	015	Factory use only

EEPROM Values

Index		Default	Function
19	Service timeout	10	The value reflects the time that you can be logged in to service mode without touching any buttons before the machine closes the service mode.
20	Size A4	B=209,4 x H=296,5	
21	Size A3	B=296,4 x H=418,5	
22	Size 8,5x11	B=215,3 x H=278,8	
23	Size 8,5x14	B=215,3 x H=355,0	
24	Size 11x17	B=278,8 x H=431,2	
25	UI Control reg	0 -	Factory use only.

NOTE: Previous Index 8 (UI Control reg) has been replaced by Book Folder counter. UI Control reg has been moved to Index 25.

5.1.3 EEPROM RESET

If minor logic problems arise the EEPROM reset procedure can be initiated. All data in the EEPROM will be cleared including jobs, jam history etc. The only data not cleared are:

Counters:
- Staple
- Fold
- Trim knife
- Cover feed

Paper size parameters:
- Trim std
- Side jog offset
- Rear jog offset
- UI.CR
- SR90 M3 BrakeCal1
- SR90 M3 BrakeCal2
- SR90 M3 BrakeCal3
- SR90 M3 BrakeCal4
- Knife Zero
- TR90 M1speed
- Size A4
- Size A3
- Size 8,5x11
- Size 8,5x14
- Size 11x17

1. Make sure the main power to the Booklet maker is switched off.
2. Move DIP-switch 4 to up position on the SR90 CPU PCB.
3. Press and hold the leftmost button on the Control Panel.
4. Switch ON the main power switch.
5. Release the button on the Control Panel.
6. The text CLEARING EEPROM followed by DONE will be shown on the LCD:
7. Key in the password, press the OK button.
8. Press the ESC button.
9. Switch off the main power to the Booklet maker.
10. Move DIP-switch 4 back to down position on the SR90 CPU PCB.
11. Switch on the main power switch.
    - Default EEPROM values are restored.

Followed by this procedure it is advised to perform the Paper Size Reset in order to also reset the paper size parameters that have a great importance in the operation of the machine ((☛ 5.4).

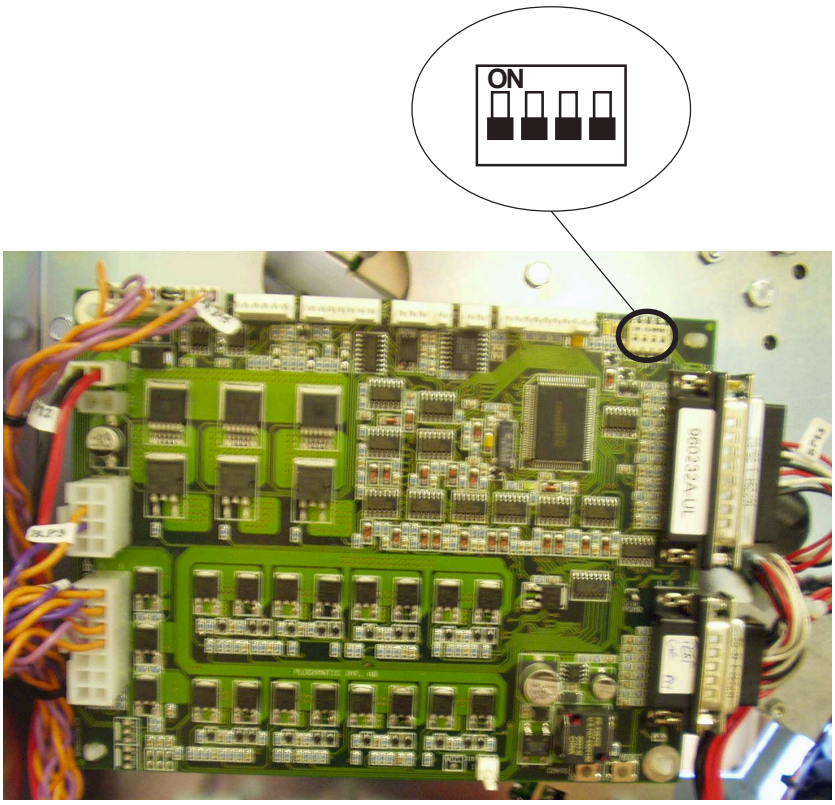
5.2 SOFTWARE DOWNLOAD

Downloading software to upper PCB MD6DC B in Booklet maker.

⚠ CAUTION

ESD Hazard! ESD (Electrostatic Discharge) can cause software crashes, data and/or communications problems. Failure to use proper ESD procedures will cause damage to electronic components (example: PCBs). ESD problems can be minimized by maintaining all machine ground connections, ensuring the proper handling of circuit boards/ sensors - Use ESD protection when working near PCBs. Failure to use ESD protection is likely to result in a PCB failure ((☛ 3.1).

1. Switch Off the Main Power Switch.
2. Remove Rear Cover ((☛ 3.3.1).
3. Make sure all DIP-switches 1 - 4 is set to OFF (down) position.
4. Run the SR90 MD6DC v1.00.exe file and follow the instruction in the program, or according to the latest bulletin.

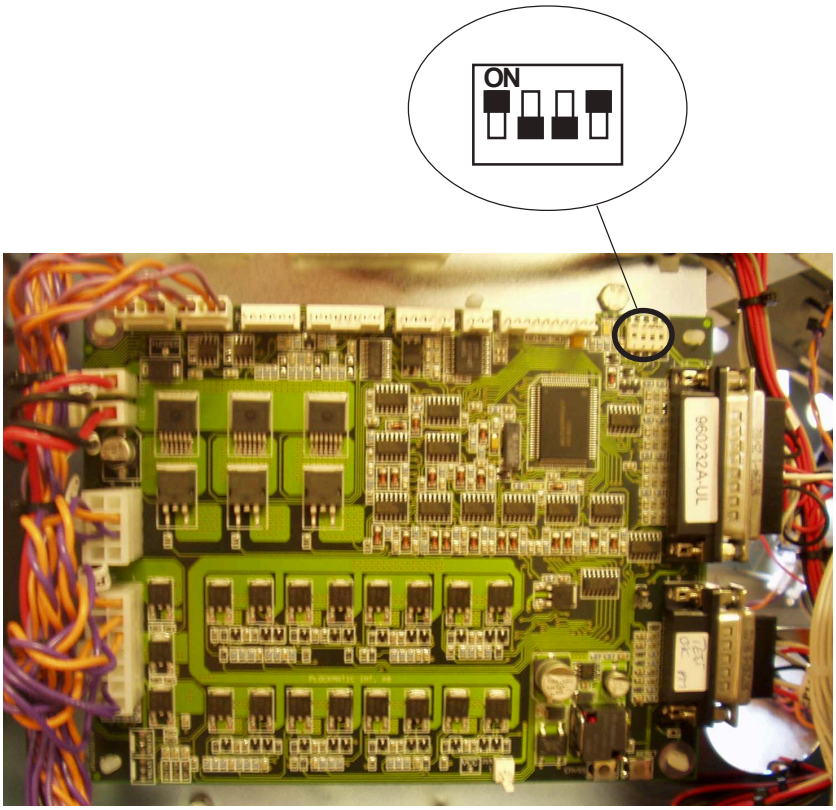


Downloading software to lower PCB MD6DC C in the Booklet maker.

⚠ CAUTION

ESD Hazard! ESD (Electrostatic Discharge) can cause software crashes, data and/or communications problems. Failure to use proper ESD procedures will cause damage to electronic components (example: PCBs). ESD problems can be minimized by maintaining all machine ground connections, ensuring the proper handling of circuit boards/ sensors - Use ESD protection when working near PCBs. Failure to use ESD protection is likely to result in a PCB failure ((☛ 3.1).

1. Switch Off the Main Power Switch.
2. Remove Rear Cover ((☛ 3.3.1).
3. Make sure DIP-switches 1 and 4 is set to ON (up) position.
   Make sure DIP-switches 2 and 3 is set to OFF (down) position.
4. Run the SR90 MD6DC v1.00.exe file and follow the instruction in the program, or according to the latest bulletin.



Downloading software to PCB CPU in Booklet maker.

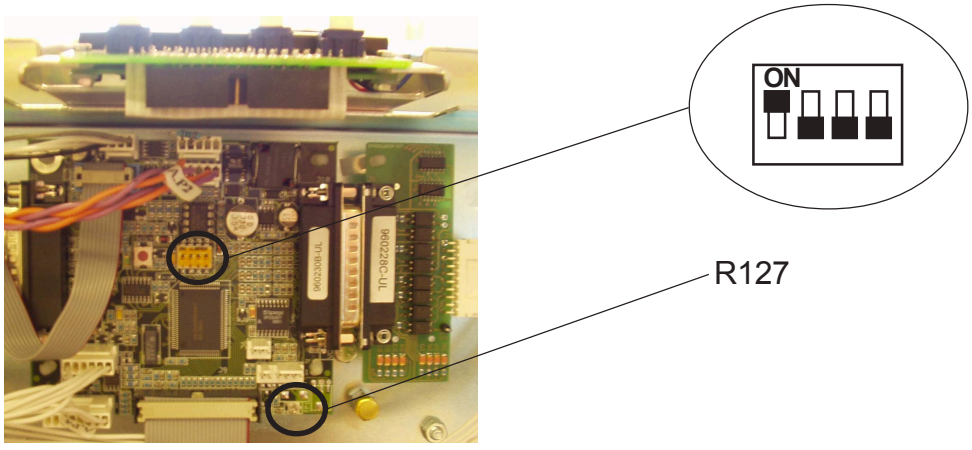
⚠ CAUTION

ESD Hazard! ESD (Electrostatic Discharge) can cause software crashes, data and/or communications problems. Failure to use proper ESD procedures will cause damage to electronic components (example: PCBs). ESD problems can be minimized by maintaining all machine ground connections, ensuring the proper handling of circuit boards/ sensors - Use ESD protection when working near PCBs. Failure to use ESD protection is likely to result in a PCB failure ((☛ 3.1).

When the Book folder BF90 is/have been installed to the SR90 system, you will have some differences in the Service menu, such as BF90 Service.

1. Switch Off the Main Power Switch on the SR90.
2. Remove the Front Cover on the SR90 ((☛ 3.3.1).
3. Depending on the configuration of the SR90, do the DIP-switch setting to be different.
   - **SR90 CPU PCB, DO NOT have the PWB adapter installed on the CPU (SR90 without the Book folder BF90):**
     DIP-switch 1 should be set to normal OFF (down) position.
   - **SR90 CPU PCB, DO have the PWB adapter installed on the CPU (SR90 without the Book folder BF90):**
     DIP-switch 1 should be set to ON (up) position.

   NOTE: When PWB Adapter is installed on the SR90 CPU PCB, DIP-switch 1 should always be set to ON.
4. Run the SR90 CPU v2.01.exe file and follow the instruction in the program, or according to the latest bulletin.
5. When the download is complete, set the contrast of the LCD by turning the potentiometer R 127 ((☛ 4.4).
6. Perform a EEPROM RESET ((☛ 5.1.3).
7. Performed a Paper Size Reset ((☛ 5.4).

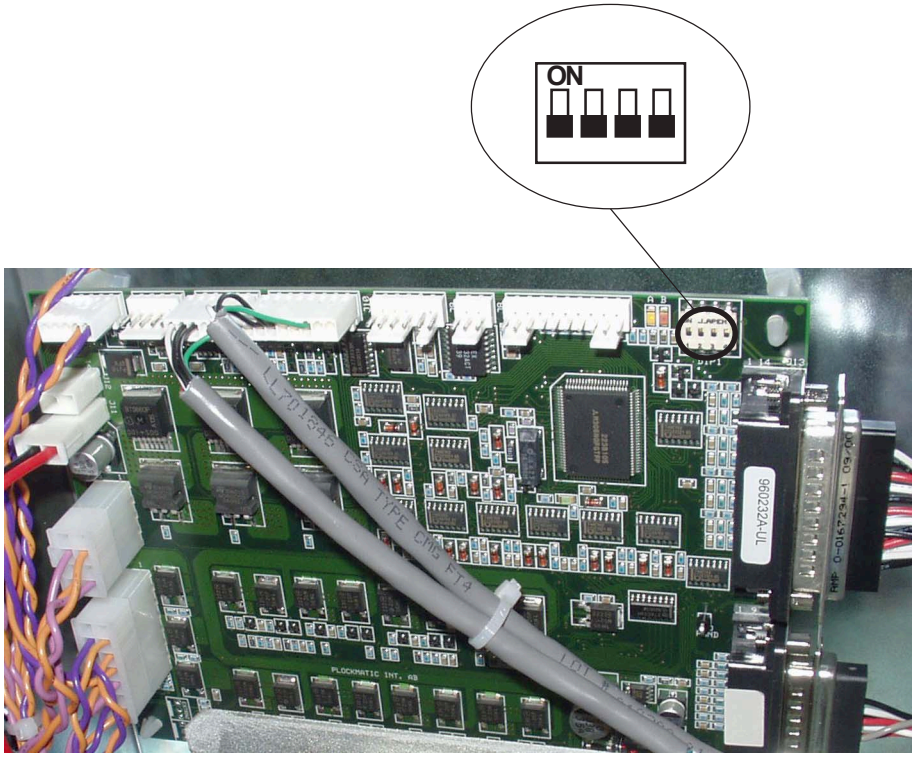


Downloading software to PCB MD6DC A in Trimmer.

⚠ CAUTION

ESD Hazard! ESD (Electrostatic Discharge) can cause software crashes, data and/or communications problems. Failure to use proper ESD procedures will cause damage to electronic components (example: PCBs). ESD problems can be minimized by maintaining all machine ground connections, ensuring the proper handling of circuit boards/ sensors - Use ESD protection when working near PCBs. Failure to use ESD protection is likely to result in a PCB failure (☛ 3.1).

1. Switch Off the Main Power Switch.
2. Remove Rear Cover (☛ TR90 Service Manual 1.1.1).
3. Make sure all DIP-switches 1 - 4 is set to OFF (down) position.
4. Run the TR90 MD6DC v1.00.exe file and follow the instruction in the program, or according to the latest bulletin.



Downloading software to PCB MD3DC A in Cover Feeder.

⚠ CAUTION

ESD Hazard! ESD (Electrostatic Discharge) can cause software crashes, data and/or communications problems. Failure to use proper ESD procedures will cause damage to electronic components (example: PCBs). ESD problems can be minimized by maintaining all machine ground connections, ensuring the proper handling of circuit boards/ sensors - Use ESD protection when working near PCBs. Failure to use ESD protection is likely to result in a PCB failure ((☛ 3.1).

1. Switch Off the Main Power Switch.
2. Open the PCB cover ((☛ CF90 Service Manual 1.1.2).
3. Open the SR90 Top cover.

   NOTE: The Top cover must be open throughout the download procedure. Do not cheat the interlock.
4. Run the SR90 MD3DC v1.00.exe file and follow the instruction in the program, or according to the latest bulletin.

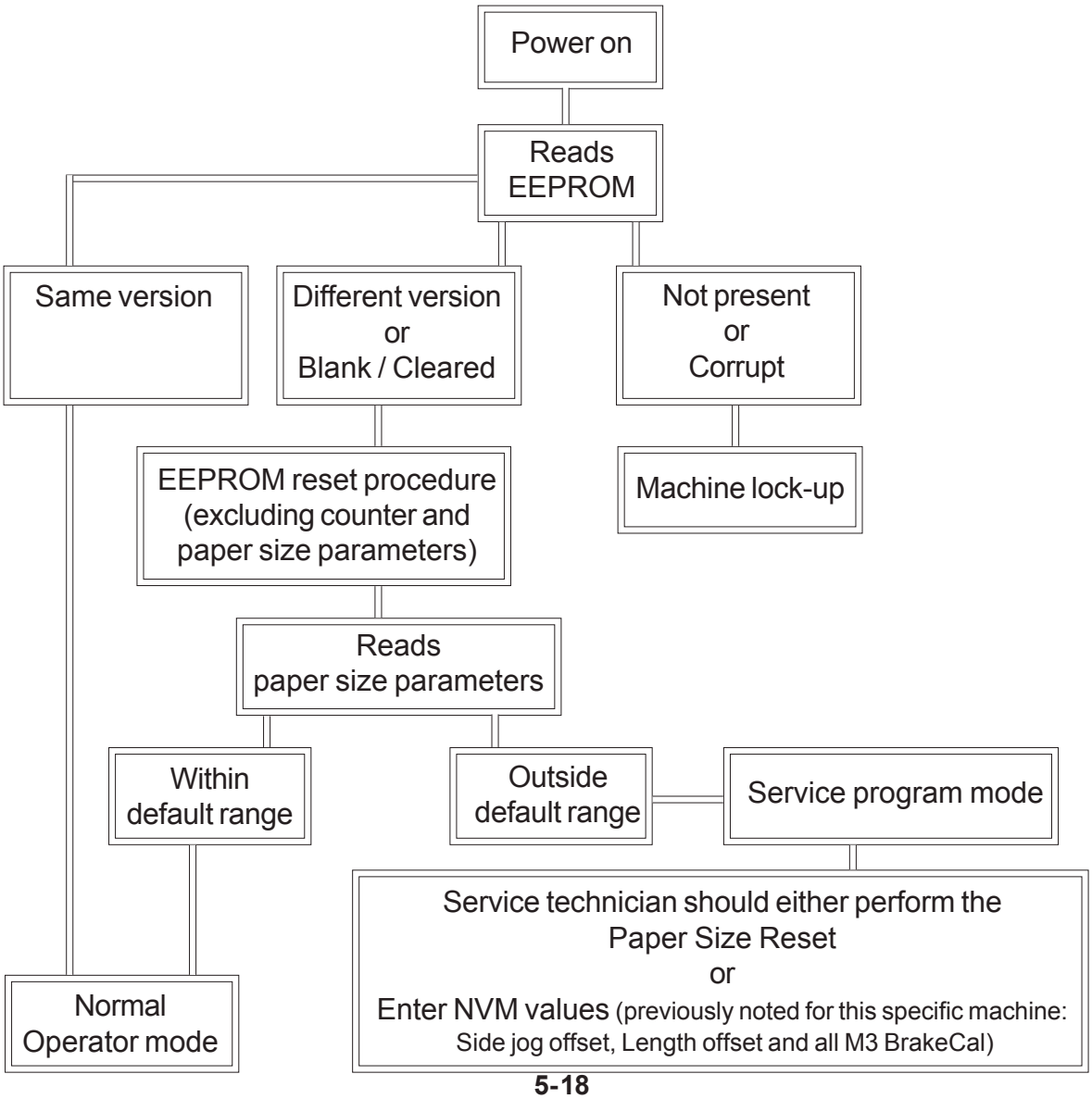
5.3 SELF-DIAGNOSTIC MODE

5.3.1 RUN TIME DIAGNOSTICS

Throughout the operation of the machine all functions and components are monitored. Should an error occur, a fault code is displayed. Many faults can simply be corrected by the operator. In that case a picture shows the location of the fault with a text message, such as ”Clear Misfeed(s)”. If the fault can not be corrected by the operator, the text message ”Fault in area” is displayed. All messages regardless of nature are always accompanied by a fault code. The operator manual lists the fault codes that the operator can solve. This manual lists all fault codes. To correct the fault, go to Fault Code Descriptions ((☛ 4.1) .

5.3.2 POWER ON SELF TEST

At power on the program checks the EEPROM. It checks that it is present, if it has a new version or if it is blank. If a new program has been downloaded, an EEPROM reset is automatically carried out as a result of the power on self test.



5.3.3 DETAILED SELF-DIAGNOSTIC MODE

The main self-diagnostic mode, Diagnostics, is available from the service program mode. Diagnostics checks the EEPROM, the sensors and the motors. If a fault is found it will be displayed as a fault code. To remedy the fault, go to Fault Code Description ((☛ 4.1).

⚠ IMPORTANT

Reflecting paper path sensors can be faulty although not detected by the diagnostics. If they have a failure state equal to constantly unblocked, it will not be detected as it is the correct home position state. Should such failure occur though it will be detected by the run time diagnostics.

Executing Diagnostics

Follow this procedure to execute the diagnostics.

1. Enter the service program mode ((☛ 5.1.1).
2. Remove the two stapler heads ((☛ 3.4.12).
3. Go to Diagnostics. Press OK.
4. Press Run.
5. If a fault code is displayed, go to Fault Code Descriptions. ((☛ 4.1). Locate the fault code and follow the procedure .
6. When the fault has been remedied, go through this procedure again until no faults are found

   NOTE: Look through Jam History in the Service mode to locate other faults or to establish a pattern of repeated faults ((☛ 5.1.1).
7. **IMPORTANT:**
   ALWAYS POWER OFF THE SYSTEM WHEN EXITING THE DIAGNOSTIC MODE.

5.4 PAPER SIZE RESET

If any mechanical adjustments have been carried out that effects the positioning of side guides, staple stop or fold stop, this procedure must be performed.
If the EEPROM or the CPU PCB has been replaced, this procedure must be performed.

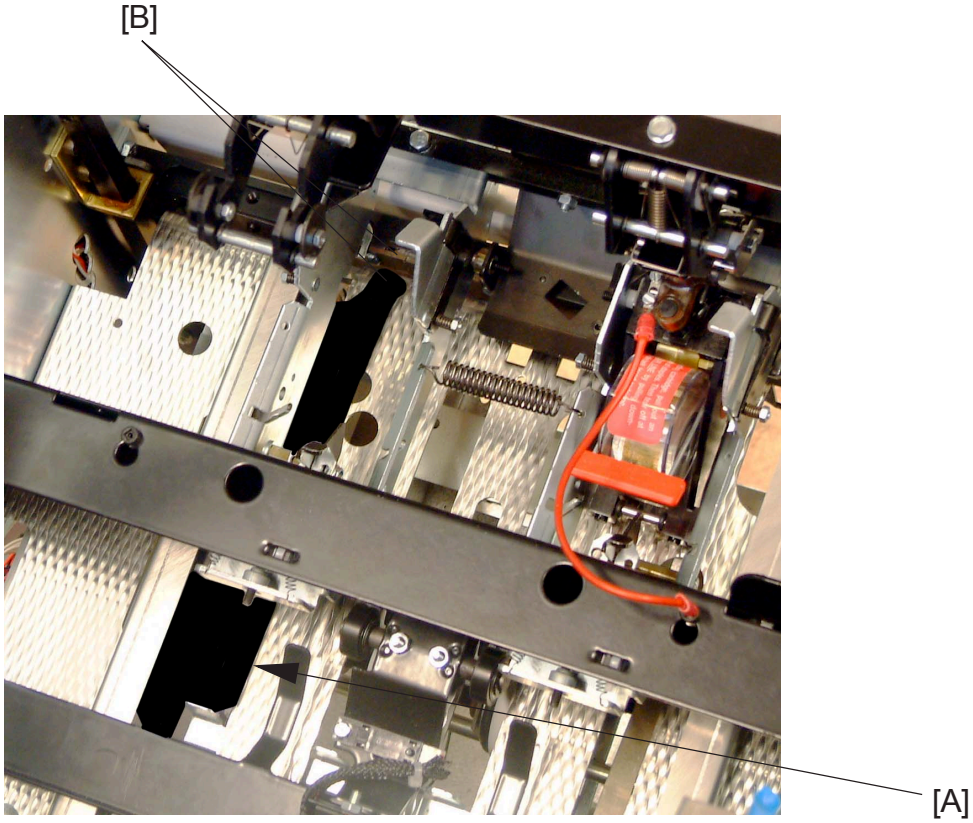
During the procedure, the side jogger motor and staple/fold positioning motor moves between given positions to calculate this specific motors characteristics in conjunction with this specific machines mechanics. The paper size reset procedure results in variables used when calculating the different positions for different paper sizes.

Should the procedure fail or not be carried out after an EEPROM reset or CPU PCB exchange:
The side guides will stop in the wrong position, resulting in booklets not properly jogged or sets jamming between the side guides.
The staple and fold stop will stop in the wrong position, resulting in booklets not folded in the centre, booklets not properly jogged or sets jamming between the side guides.

Executing Paper Size Reset

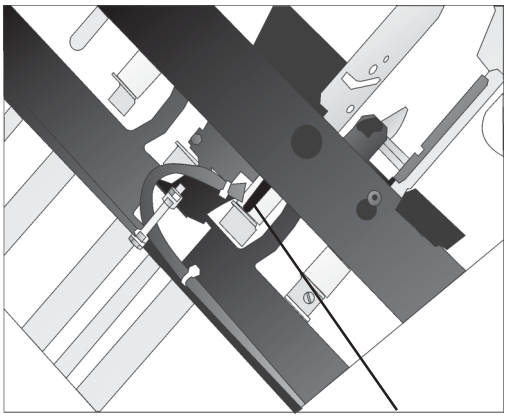
The side guides and stop gate must be parallel and square when this procedure is carried out ((☛ 3.8.1, 3.8.2).

1. Remove the two stapler heads ((☛ 3.4.12).
2. Insert a Interlock cheater.
3. Enter the Service Program Mode.
4. Go to Paper Size Reset. Press OK.
5. The text READY will be shown on the LCD. Press Run.
   The text SIDE JOGGERS will be shown.
   The side joggers moves in and out repeatedly to different positions.
   NOTE: If this fails, switch OFF and ON the main power switch and go to step 1.
6. The text INSERT TOOL will be shown.
7. Insert the Multi tool [A], according to picture below.
   Push the Multi tool gently up against the side guide to make sure it is in contact.
8. Press OK.
   The text LENGTH JOG will be shown on the LCD.
   The stop gate moves the Multi tool upwards [B] so the top of the Multi tool catches the clincher bar.
   IMPORTANT: If this fails, the procedure must be done all over again!
   The text REMOVE TOOL will be shown.
9. Remove the tool. Press OK.

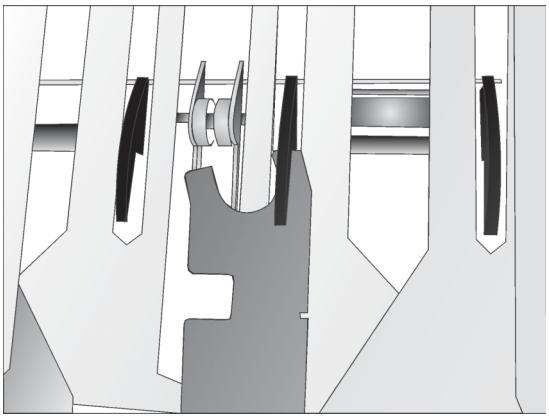


If the purpose of performing the paper size reset procedure is strictly a result of an electronical or logical operation, such as replacement of CPU PCB, the procedure can be ended her by pressing ESC.
If any changes has been made that effects the geometry regarding the paper size, such as mechanically adjusted stop gate, back jogger or replaced/moved home position sensor, the procedure must be continued to the end.

9. The text BACK JOGGER will be shown on the LCD. Press RUN.
10. The text INSERT TOOL will be shown.
11. Insert the tool according to pictures below.
12. Press OK.

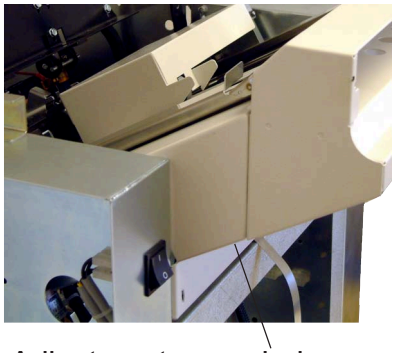


The sharp end of the tool on the 3rd stop finger.

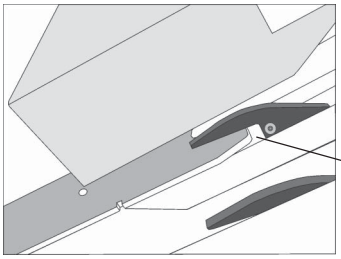


The other end of the tool by the 3rd back jogger finger.

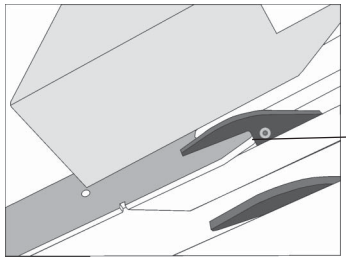
13. The text Adjust B. Jogger will be shown.
14. Turn the adjustment screw to move the back jogger fingers so the finger just touches the tool slightly.



Adjustment screw below infeed module.



Wrong!



Correct!
No tension,
no play.

15. Press OK.
    The text REMOVE TOOL will be shown.
16. Remove the tool. Press OK.
    The text IS TOOL REMOVED will be shown.
17. Press OK.

5.5 CF SERVICE

In the Cover Feeder Service you are able to calibrate the motors and DSD sensor in the Cover Feeder, or perform a Burn In.

When performing the Burn In, the Cover Feeder is testing the motor stage in the MD3DC PCB. The Burn In is mainly used for Factory use only.

If any mechanical adjustments have been carried out in the Cover Feeder. If the Cover Feeder is displaying false doubles, or if the Cover Feeder have problem with the feeding of the covers, the Calibration procedure can be performed. If the MD3DC PCB has been replaced in the Cover Feeder, this procedure must also be performed.

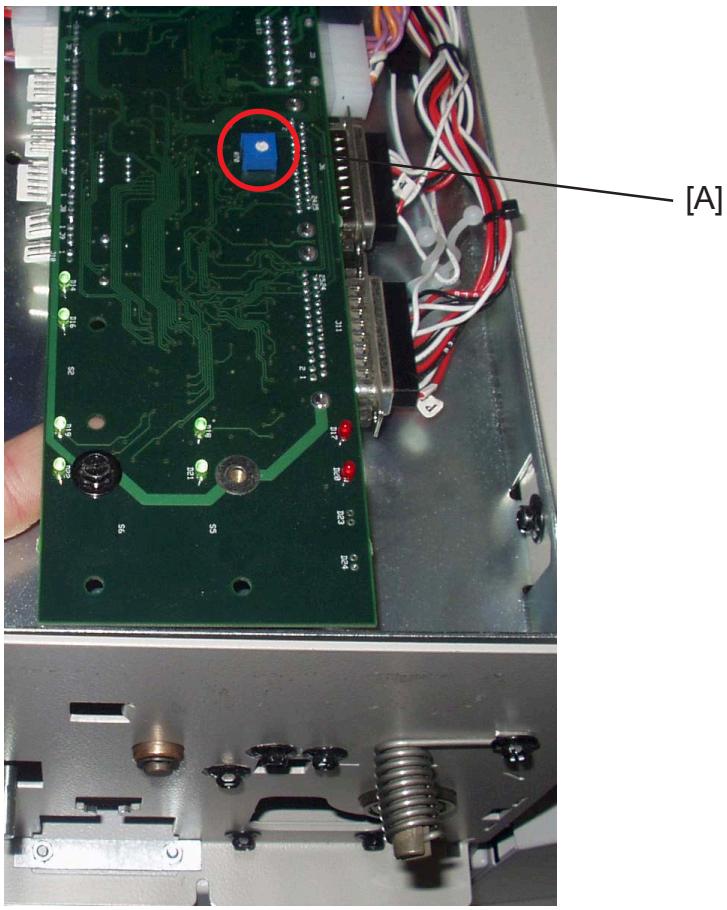
During the Calibration procedure, the side jogger motor and staple/fold positioning motor moves to selected paper size.

Executing Cover Feeder motors Calibration

1. Enter the Service Program Mode.
2. Go to CF SERVICE. Press OK.
3. Select Calibrations. Press OK.
4. Select Motors. Press OK.
5. Press the RUN button. The Cover Feeder will start by calibrate the CF-M1 Feed motor.
6. When the text “Load 25 A4(s)>CF” is displayed, put approximately 25 sheet of A4 paper in the Cover Feeder. Press RUN.
7. The text “Running...” will be displayed while the Cover Feeder is calibrating the Cover Feeder for A4 speed.
8. When the text “Clear SR90 & CF90” is displayed, remove the covers from the Booklet maker and the Cover Feeder. Press OK.
9. The text “Load 25 A3(s)>CF” is displayed, put approximately 25 sheet of A3 paper in the Cover Feeder. Press RUN.
10. The text “Running...” will be displayed while the Cover Feeder is calibrating the Cover Feeder for A3 speed.
11. When the text “Successful” is displayed, press OK.
12. The text “Clear SR90 & CF90” is displayed, remove the covers from the Booklet maker and the Cover Feeder. Press OK.

Executing Cover Feeder DSD sensor Calibration

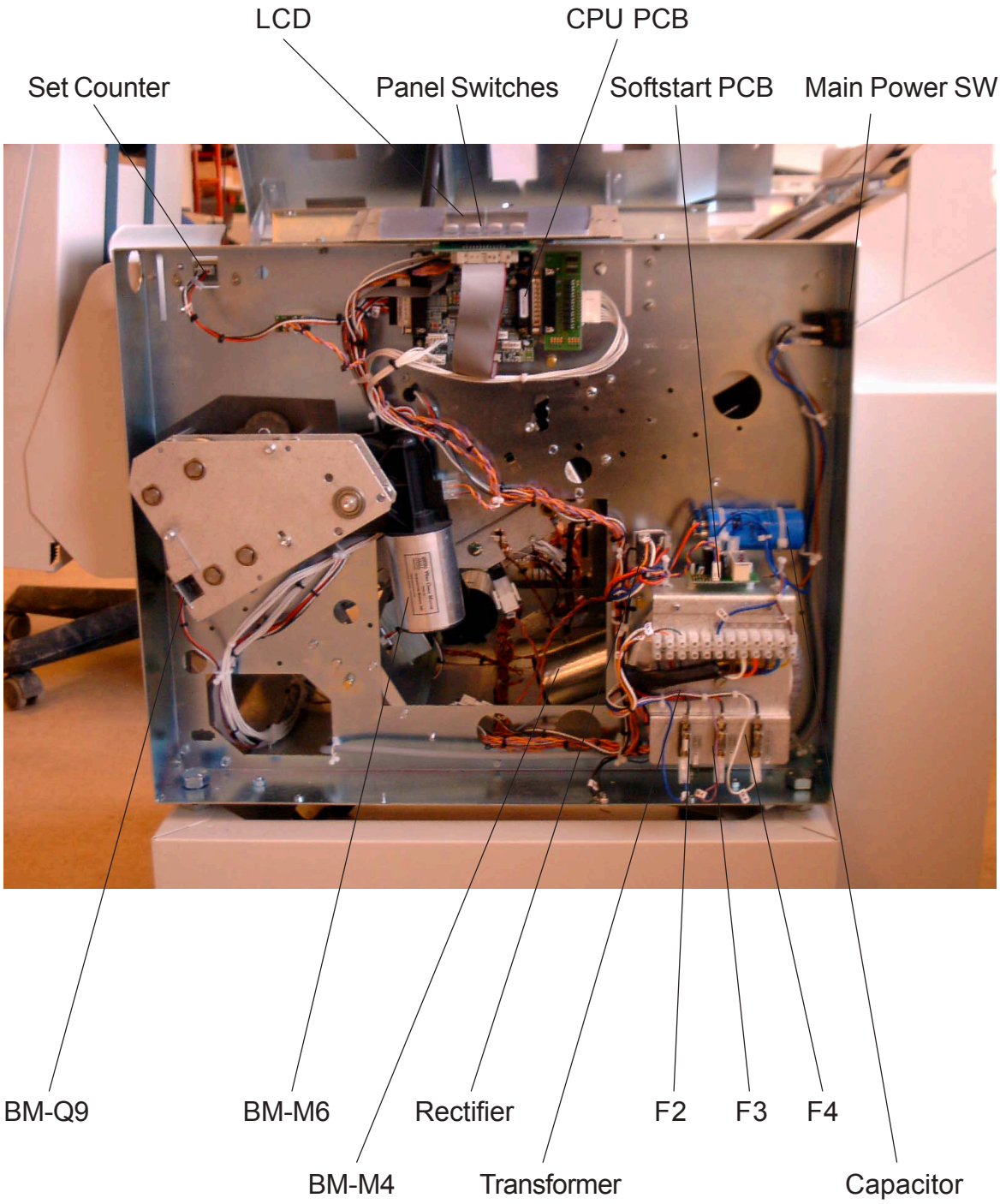
1. Enter the Service Program Mode.
2. Go to CF SERVICE. Press OK.
3. Select Calibrations. Press OK.
4. Select Double Sheet Det. Press OK.
5. Place the White calibration strip (located behind the front cover on the Cover Feeder), between the DSD sensor.
6. The value should be +4.75 ± 0.05. If not, go to step 7.
7. Open the Cover Feeder PCB cover ((☛ CF90 Service Manual 1.1.2).
8. Turn the potentiometer [A] on the MD3DC PCB until you reach the value in step 6.



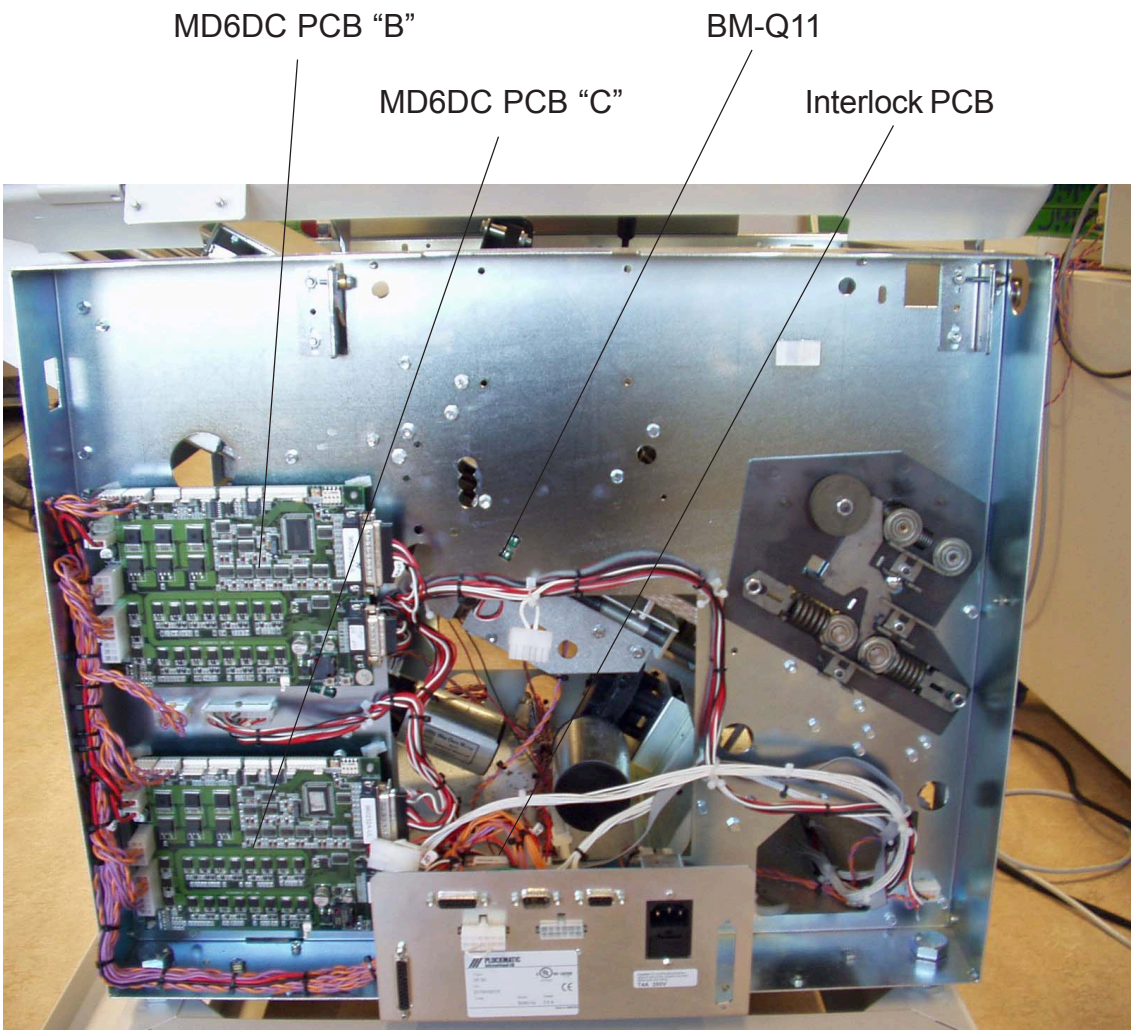
6. DETAILED SECTION DESCRIPTIONS

6.1 ELECTRICAL COMPONENT LIST

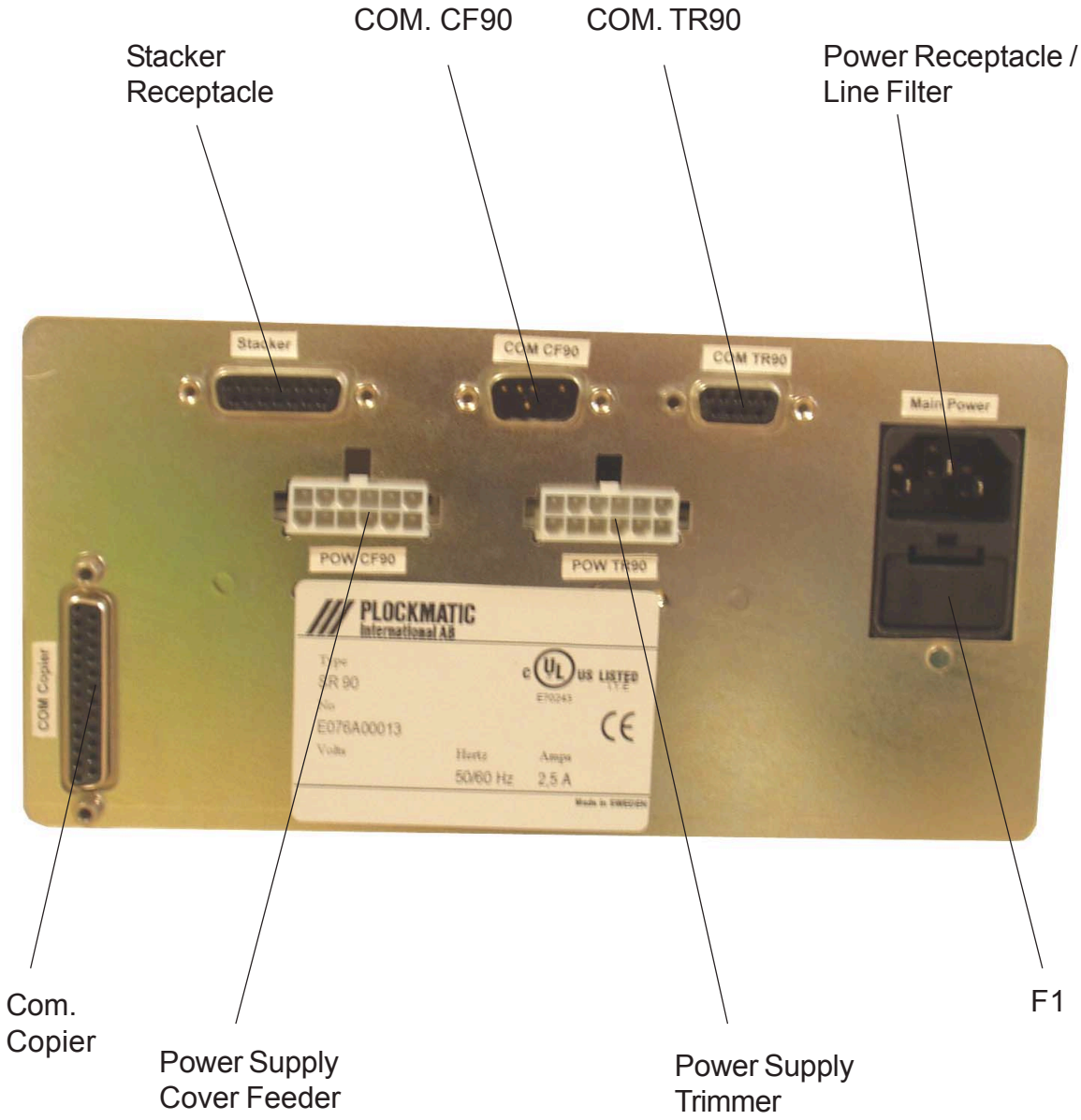
6.1.1 FRONT VIEW



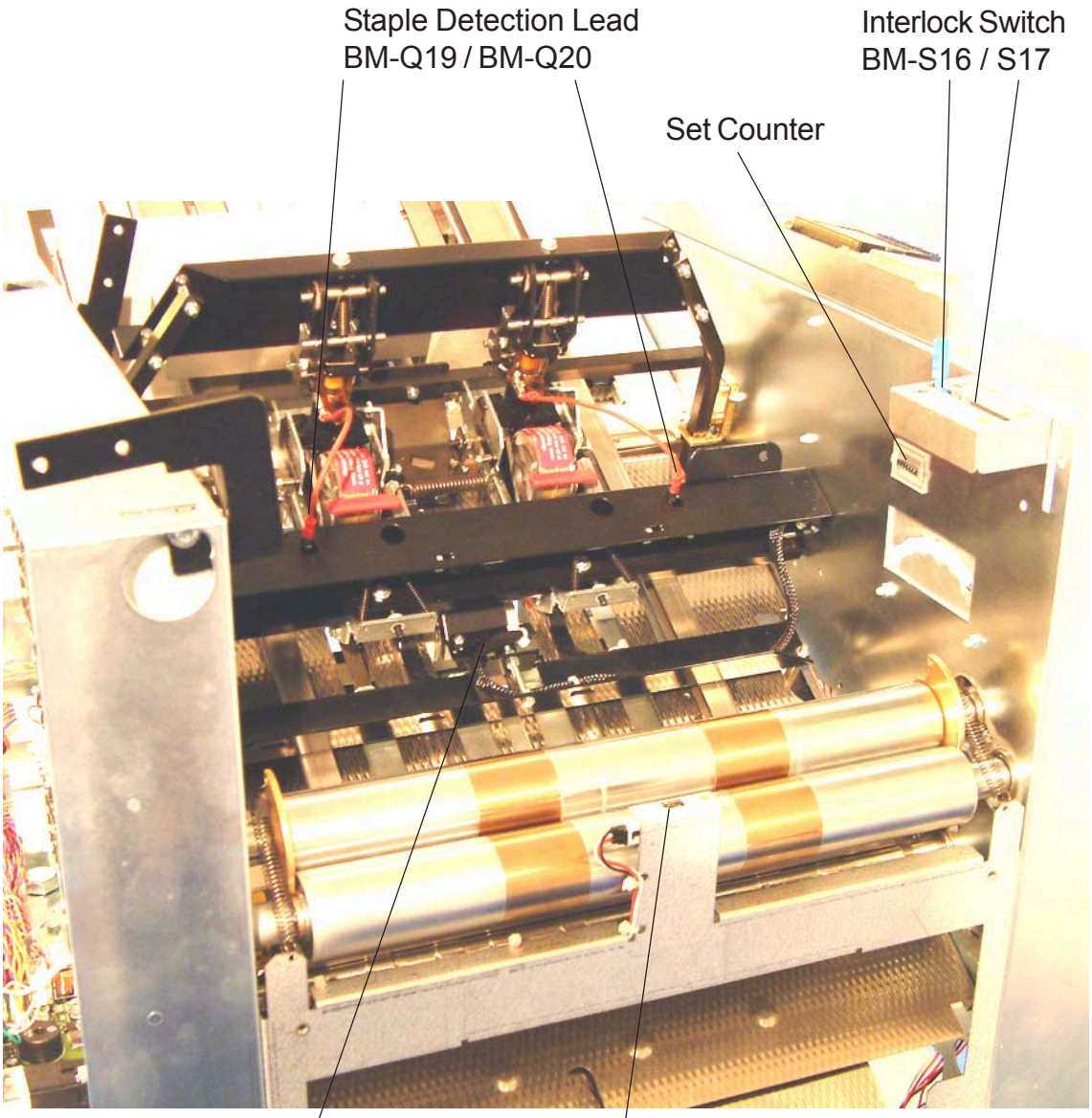
6.1.2 REAR VIEW



6.1.3 CONNECTOR VIEW

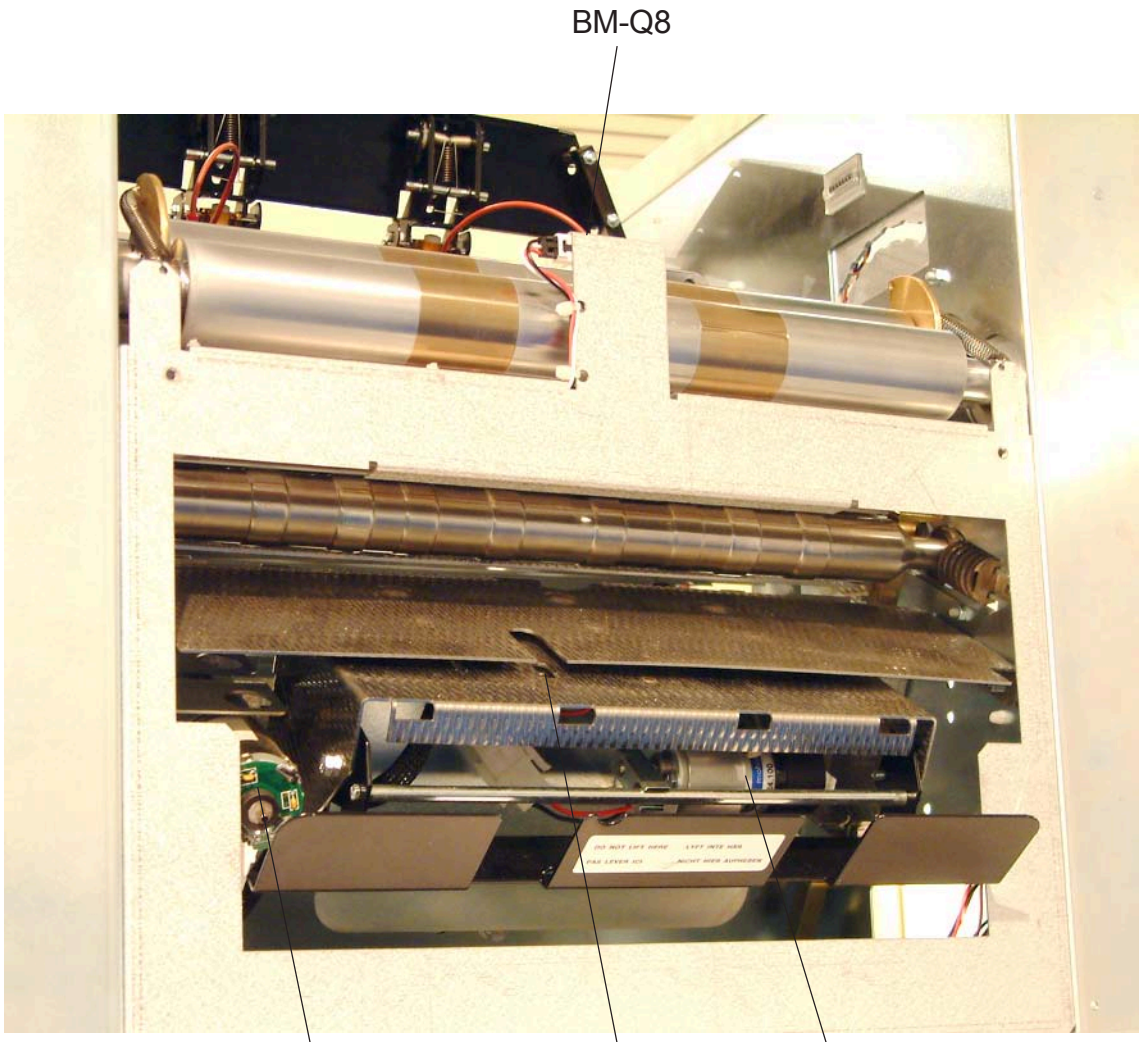


6.1.4 OUTFEED UPPER VIEW



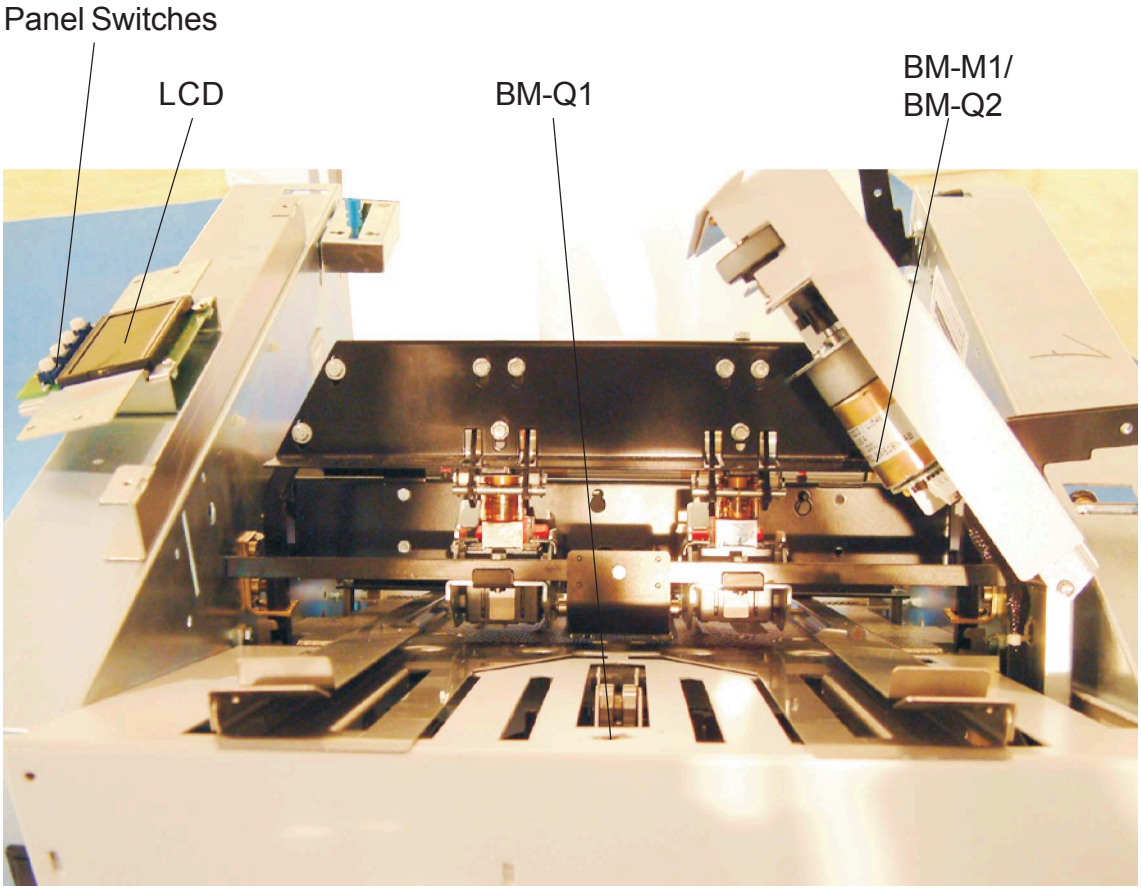
Outfeed cover removed

6.1.5 OUTFEED LOWER VIEW

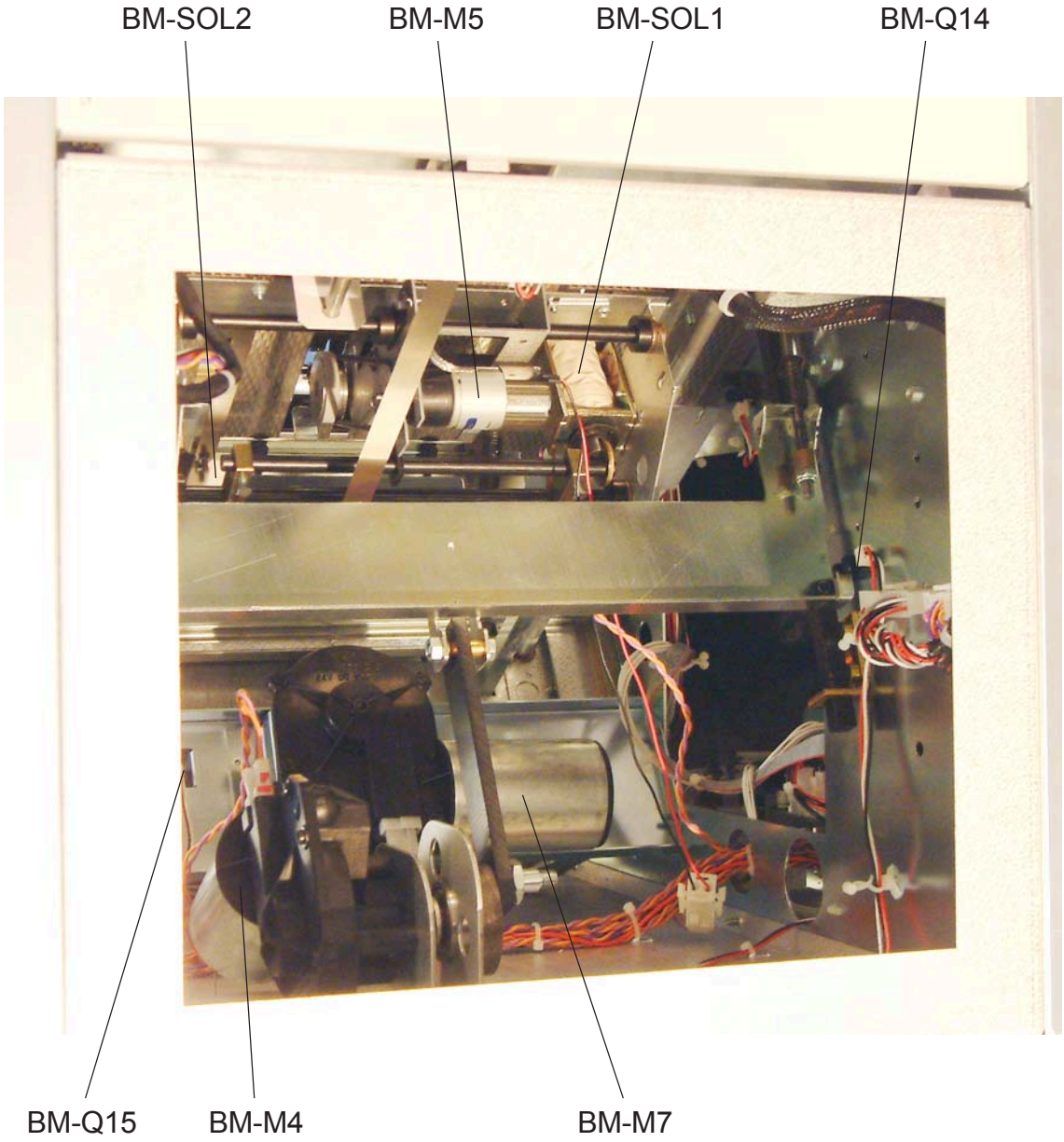


Outfeed cover removed

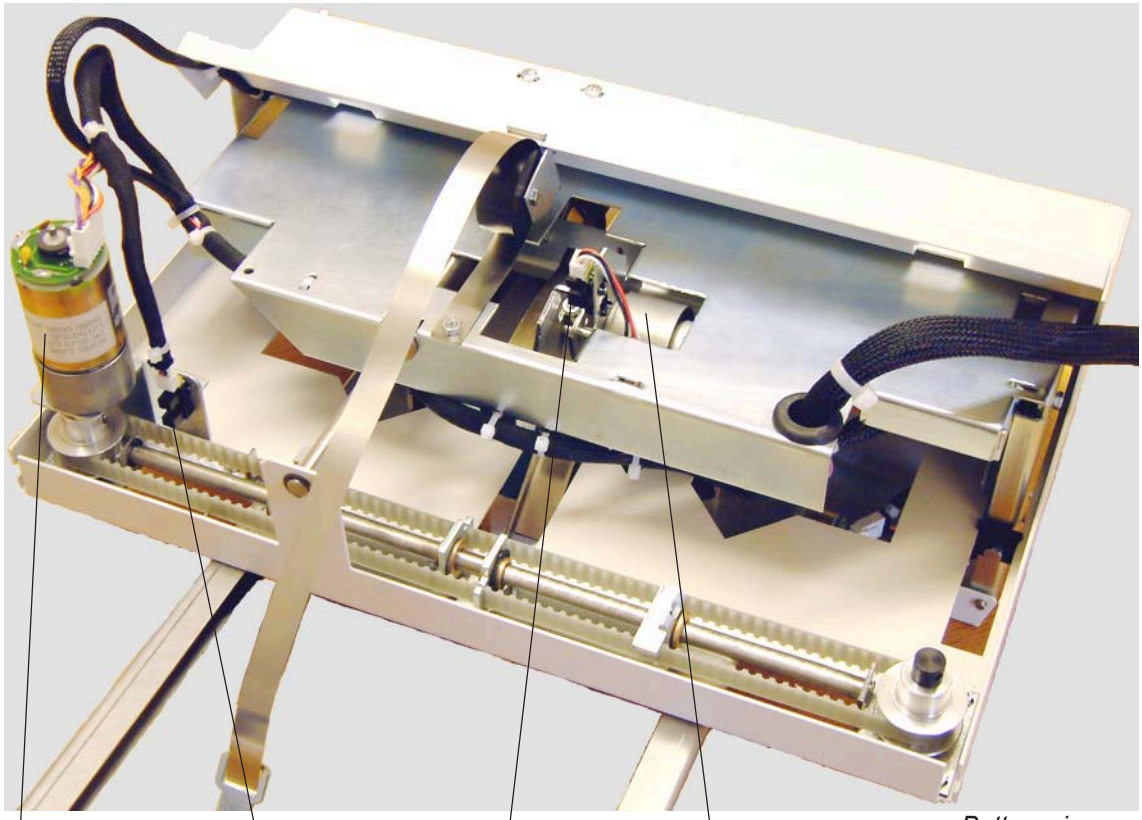
6.1.6 INFEED UPPER VIEW



6.1.7 INFEED LOWER VIEW



6.1.8 INFEED MODULE VIEW



Bottom view

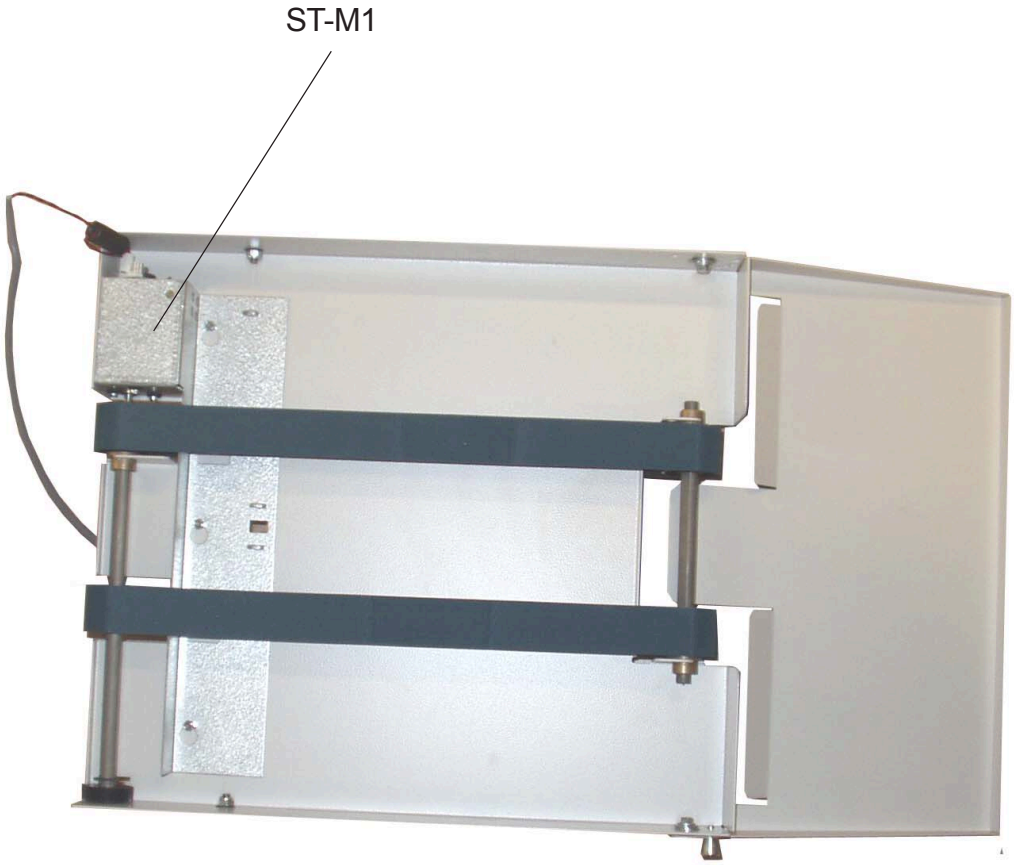
BM-M3 / BM-Q12

BM-Q13

BM-Q3

BM-M2

6.1.9 STACKER MODULE VIEW



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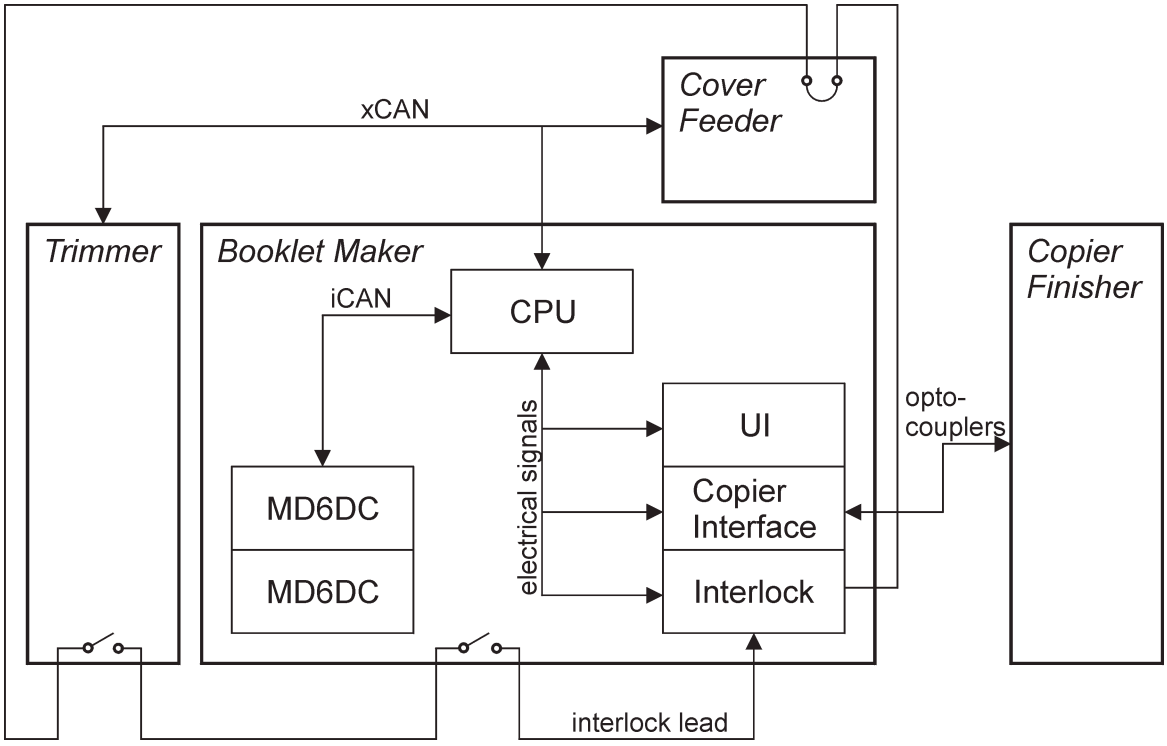
6.2 BOARD STRUCTURE

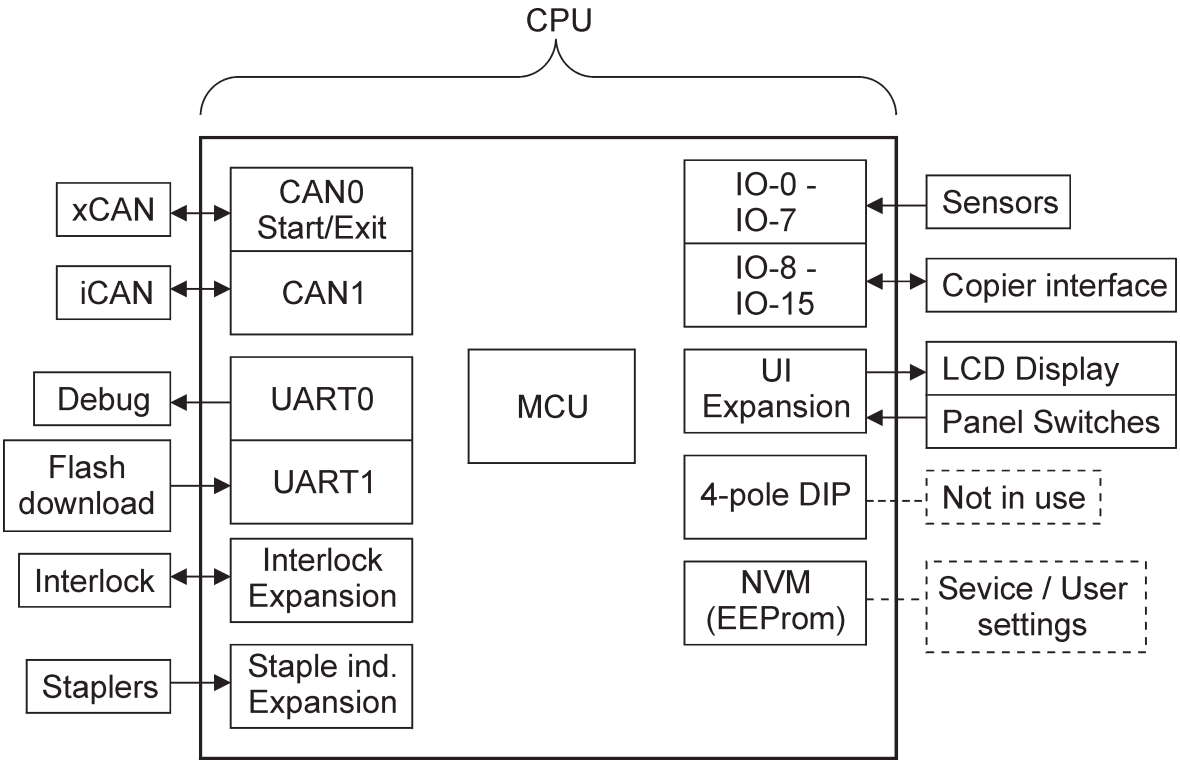
6.2.1 BLOCK DIAGRAM



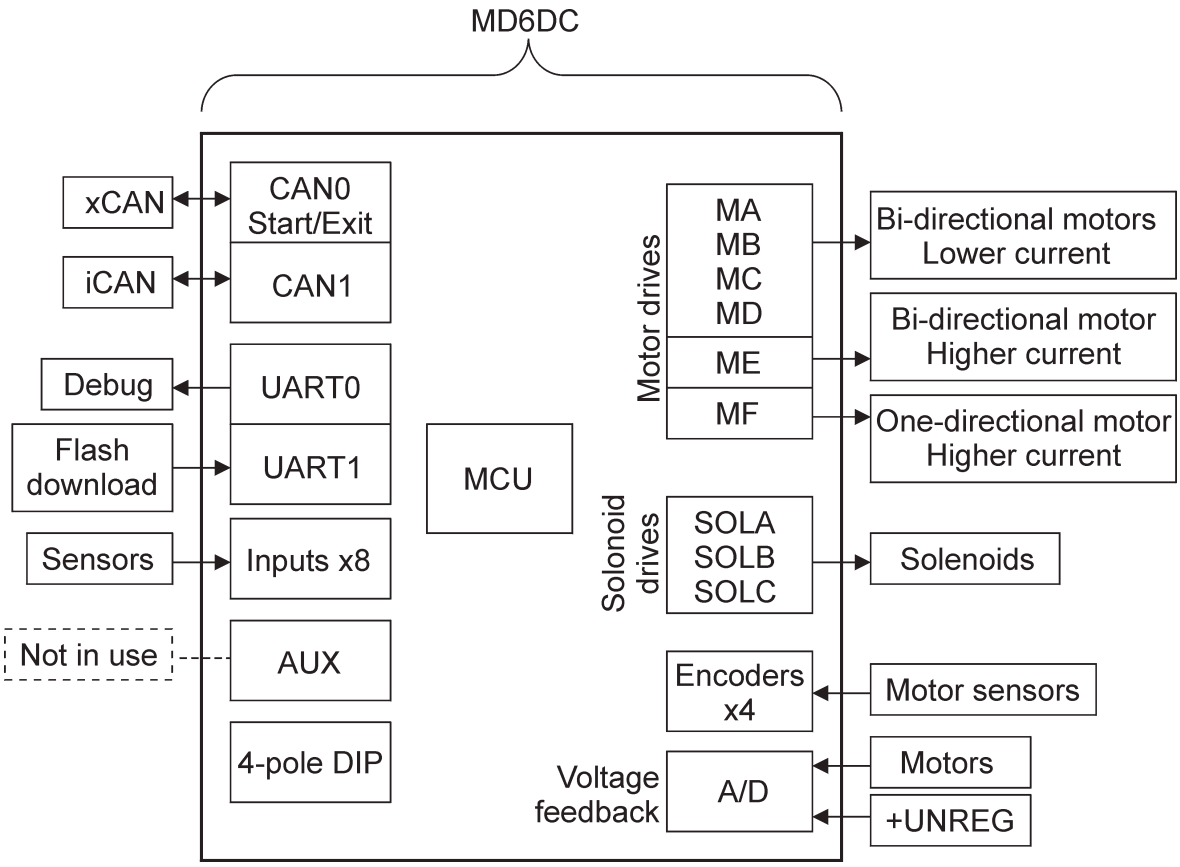
The electronics in the SR90 is distributed and divided in three different PCBs, one CPU board (CPU PCB PL76) and two motor drive boards (PCB MD6DC) . Each PCB has their own processor, they are communicating via internal CAN (iCAN). The system also has many support PCBs, such as one interlock PCB and one copier interface PCB.

The CPU board is equipped with a 16 bit processor M16C which has two CAN channels, iCAN and xCAN. iCAN to communicate with the motor drive boards and xCAN to communicate with other external units, such as the Cover Feeder and the Trimmer.
The power supply to the Cover Feeder and Trimmer are taken from the Booklet Maker. The Booklet Maker also controls the interlock system, why an interlock lead is connected between the interlock PCB and the Trimmer (through the Cover Feeder but only jumped there).

6.2.2 CONTROLLER CPU



6.2.3 CONTROLLER MD6DC

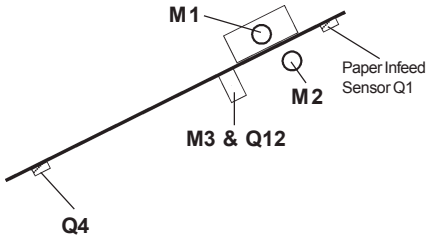


The MD6DC PCB is present in booklet maker (x2) and in trimmer (x1).
The xCAN portion on MD6DC is not used in the booklet maker as the external communication is handled by the xCAN portion on the CPU PCB.
In the trimmer the xCAN portion on MD6DC is used for external communication.

Detailed Description

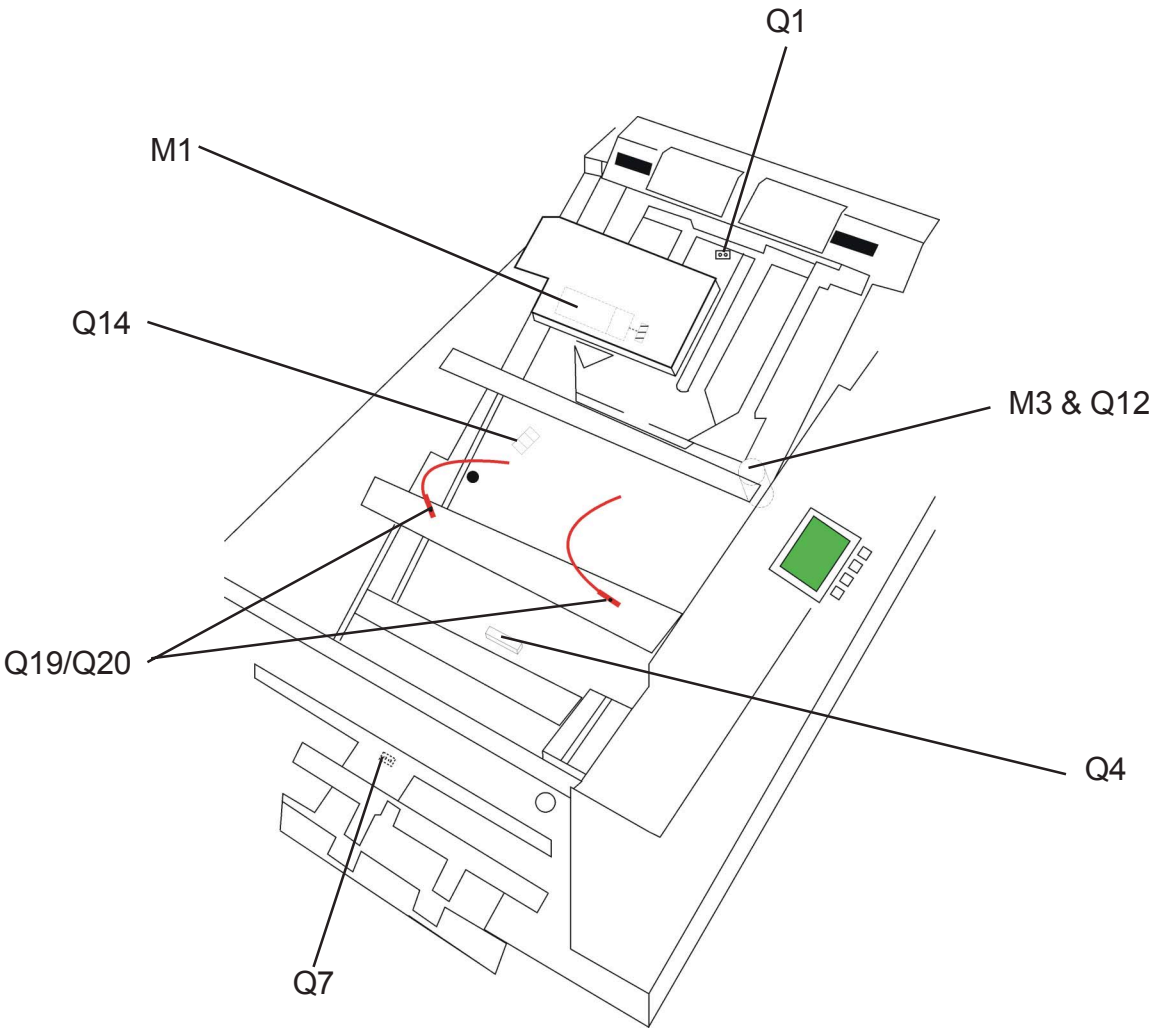
6.3 BOOKLET MAKING PROCESS

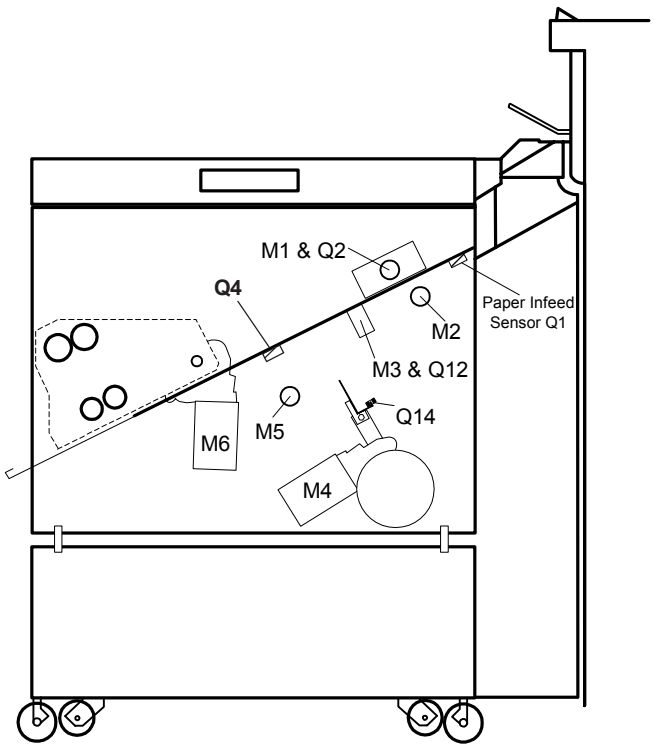
6.3.1 PRINCIPLE OF OPERATION



Compiling

Copier sends a start signal. The infeed motor (BM-M1) starts. The set enters the infeed module. Infeed sensor (BM-Q1) activates. Side guides moves half way in (BM-M3). The infeed wheel transports the set down to the staple stop. The set stops at the staple stop. The start sensor (BM-Q4) by the staple stop activates. The infeed wheel keeps on running a certain time set by the paper size after the trail edge of the last sheet has passed the infeed sensor (BM-Q1).



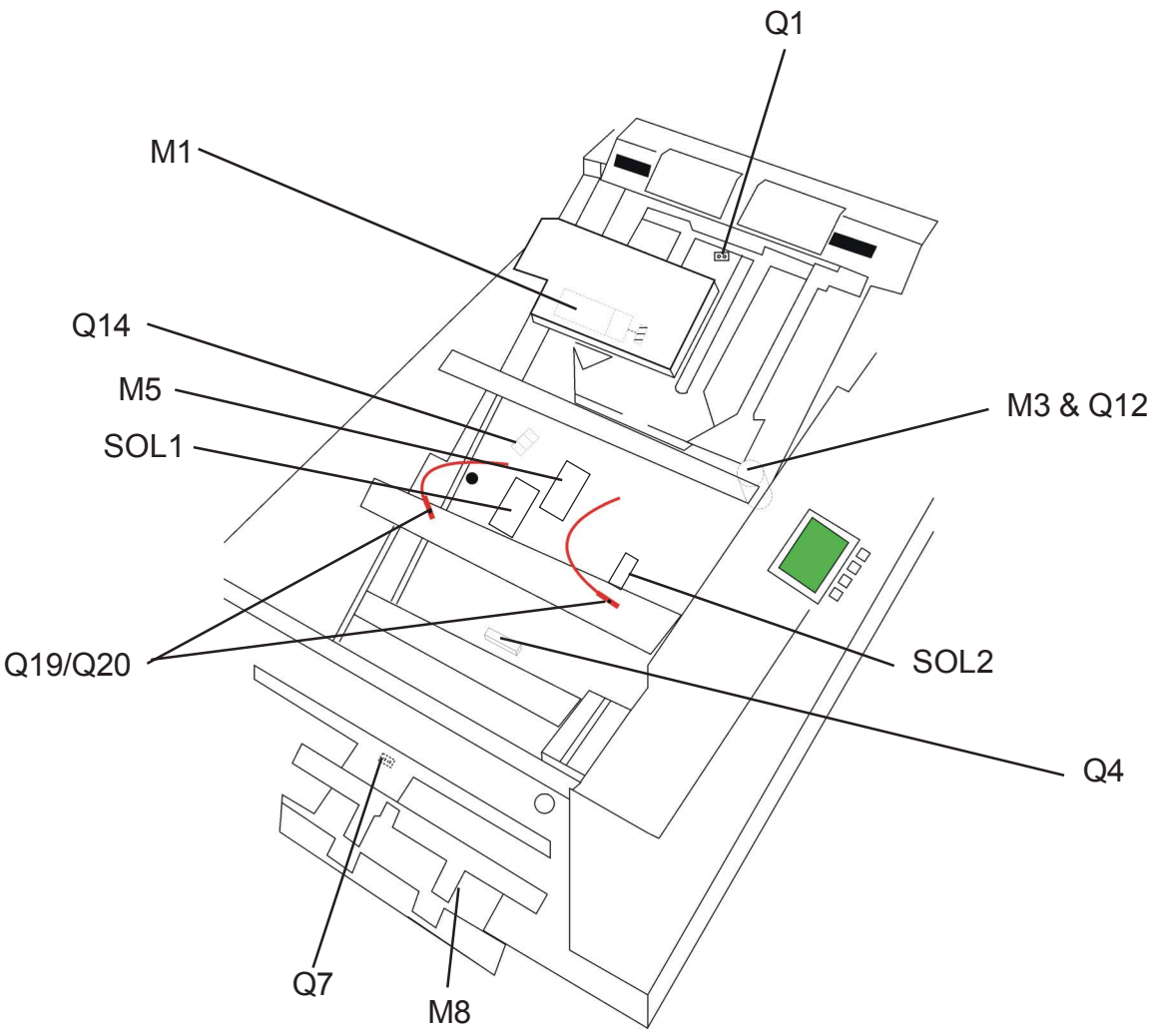


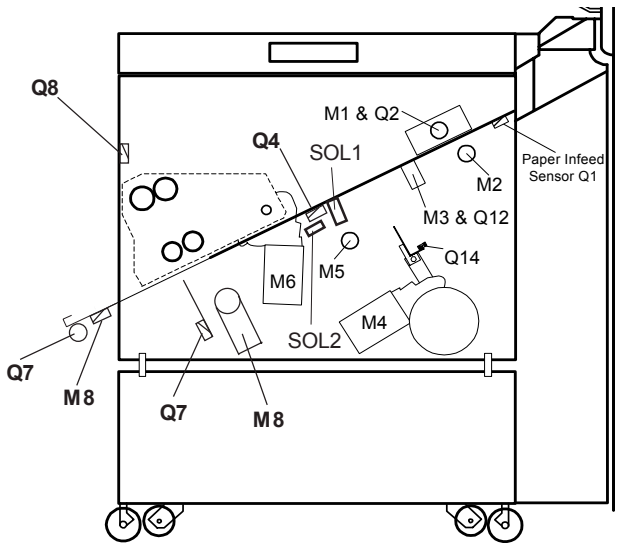
Jogging and Stapling

When start sensor (BM-Q4) is activated and infeed sensor (BM-Q1) deactivated: Back jogger motor (BM-M2) moves the back jogger up to knock the trail edge of the set. At the same time the side jogger motor (BM-M3) moves the side guides up against the paper plus a few millimetre to over jog the set by about 5mm, depending on the set stiffness. The side guides then moves outwards to the paper width plus about one millimetre. The positions is set by the paper width that has been entered and found by encoder (BM-Q12) on side jogger motor. At the same time the stapler motor (BM-M4) cycles putting staples through the centre of the set. When the staples contact the clinchers a closed circuit are established (BM-Q19/Q20) by current running from stapler head through staple contacting the clincher. That closed circuit created indicates that staples are present. If out of staples the paper will insulate stapler head from the clincher which will result in an open circuit. The open circuit at this time will indicate out of staples. The stapler motor (BM-M4) will complete its cycle and stop in upper position by stapler home position sensor (BM-Q14) activates.

Pre-fold transport

When staples is detected (BM-Q19/Q20):
Back jogger motor (BM-M2) moves the back jogger down to release the trail edge of the set. The side guides (BM-M3) goes out slightly. Just enough to release the grip of the set but still to guide the set straight to the fold stop. The stop gate solenoid (BM-SOL1) moves the transport rollers upwards, gripping the set between the transport roller below and idler roller on top of the set. The staple stop gate is pulled down by the same solenoid and latched below the paper path. The set transport motor (BM-M5) starts and transports the set down to the fold stop. Fold stop sensor (BM-Q7) by the fold stop activates. Side guides (BM-M3) goes out to initial position.
In case the sheet length is shorter than the distance between staple stop and fold stop (i.e.A4), the staple stop will unlatch as soon as set has cleared the start sensor. The staple stop is unlatched by stop gate release solenoid (BM-SOL2).
In case the sheet length is longer than the distance between staple stop and fold stop (i.e. A3), the staple stop will remain latched during folding until the set has cleared the start sensor (BM-Q4).
The stop gate solenoid (BM-SOL1) releases and set transport motor (BM-M5) stops when fold stop sensor (BM-Q7) is activated or start sensor (BM-Q4) is clear, whatever comes first.





Folding

Folder roller motor (BM-M6) that drives the first and second pair of fold rollers starts already about the time when start sensor (BM-Q4) is activated. Also fold stop gate motor (BM-M8) moves the fold stop away a bit at that time.
Slightly after the fold stop sensor (BM-Q7) is activated, the fold stop gate motor (BM-M8) joggers the set upwards to position. Slightly after that the fold knife motor (BM-M7) cycles. The fold knife is pushing the centre of the set up through the first pair of fold rollers. The fold knife motor will complete its cycle and stop in lower position by fold knife home position sensor (BM-Q15) activates. A booklet is now formed.
When the booklets leading edge (the spine) has just about entered the second pair of fold rollers, the fold roller motor (BM-M6) stops for a short time* and then starts again. The time the booklet sits between the second pair fold rollers is depending on the speed (the delay between each set). The longer it sits the more compressed the spine becomes, resulting in a flatter booklet.
When the set is exiting the second pair of fold rollers the outfeed sensor (BM-Q8) activates. When the trail edge of the set has exit the booklet maker the outfeed sensor (BM-Q8) becomes clear.

Belt stacker

If the belt stacker is installed directly on the booklet maker (no trimmer installed) the stacker motor (ST-M1) starts when the outfeed sensor (BM-Q8) activates and runs for a short while to separate the booklets on the stacker belt.

** If fold delay is set to On. The booklet sits between the second pair of fold rollers up to about 15 seconds depending on the interval between sets. If the time interval between the sets from the Copier is less, the booklet is fed out sooner. When the next booklet activates infeed sensor (BM-Q1) the fold roller motor (BM-M6) starts again.*

6.3.2 SIZE ADJUSTMENT

Initialisation cycle

Main power is switched on
Staple/fold positioning motor (BM-M9) and side jogger motor (BM-M3) starts.
Staple/fold positioning motor (BM-M9) moves staple stop and fold stop to the shortest sheets size.
Side jogger motor (BM-M3) moves side guides to the widest paper size.
Staple/fold positioning motor (BM-M9) stops when staple/fold home position sensor (BM-Q11) is activated.
Side jogger motor (BM-M3) stops when side jogger home position sensor (BM-Q13) is activated.

When both sensors (BM-Q11 & Q13) have been activated. A counter for each motor starts and both motors (BM-M9 & M3) reverses.
Staple/fold positioning motor (BM-M9) runs until staple/fold positioning sensor (BM-Q10) has counted the preset amount of pulses set by the paper size. Staple stop and fold stop are now in correct position corresponding to the paper size selected.
Side jogger motor (BM-M3) runs until side jogger motor sensor (BM-Q12) has counted the preset amount of pulses set by the paper size. Side guides are now in correct position corresponding to the paper size selected.

Changing paper size

New paper size is selected on the UI.
Staple/fold positioning motor (BM-M9) and side jogger motor (BM-M3) starts.
Side jogger motor (BM-M3) runs in the direction towards the new paper size. Side jogger motor sensor (BM-Q12) counts pulses from the previous paper size to the new paper size and stops motor (BM-M3) when correct amount of pulses are received.
Side guides are now in correct position corresponding to the new paper size selected.
The staple/fold positioning motor (BM-M9) movement depends on the change in paper size (to take out mechanical play):
- If changing to a longer paper size where the total length is 30 mm longer or more, staple/fold positioning motor (BM-M9) runs in the direction towards the new paper size. Staple/fold positioning sensor (BM-Q10) counts pulses from the previous paper size to the new paper size and stops the motor (BM-M9) when correct amount of pulses are received. Staple stop and fold stop are now in correct position corresponding to the new paper size selected.
- If changing to a longer paper size where the total length is shorter than 30 mm, staple/fold positioning motor (BM-M9) runs opposite the direction of the new paper size for a bit. Then the motor (BM-M9) reverses and runs in the direction towards the new paper size. Staple/fold positioning sensor (BM-Q10) counts pulses from the previous paper size to the new paper size and stops the motor (BM-M9) when correct amount of pulses are received. Staple stop and fold stop are now in correct position corresponding to the new paper size selected.
- If changing to a shorter paper size,
staple/fold positioning motor (BM-M9) runs in the direction towards the new paper size. The motor (BM-M9) passes new selected paper size. Then the motor (BM-M9) reverses and runs in the direction towards the new paper size. Staple/fold positioning sensor (BM-Q10) counts pulses from the previous paper size to the new paper size and stops the motor (BM-M9) when correct amount of pulses are received. Staple stop and fold stop are now in correct position corresponding to the new paper size selected.

If paper jam occurs

If jam occurs, side jogger motor (BM-M3) starts.
Side jogger motor (BM-M3) moves side guides to the widest paper size (to ease the removal of jammed papers).
Side jogger motor (BM-M3) stops when side jogger home position sensor (BM-Q13) is activated.
When top cover has been opened, jammed papers removed and top cover closed, a counter for the motor (BM-M3) starts and motor (BM-M3) reverses.
Side jogger motor (BM-M3) runs until side jogger motor sensor (BM-Q12) has counted the preset amount of pulses set by the paper size. Side guides are now back in position corresponding to the paper size.

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SPECIFICATIONS

MAJOR SPECIFICATIONS

	Specifications	Remarks
Speed	2 A4 / 8.5x11" sheets from the copier 800 books/h 2 A3 / 11x17" sheets from the copier 500 books/h	Maintain engine speed
Standard Paper Sizes	A4, A3, 8.5x11", 8.5x14" & 11x17"	Custom sizes are available
Paper Weight (Minimum)	64 gsm / 17 lb. Bond	Engine Duplex : 64 gsm
Paper Weight (Maximum)	240 gsm / 135 lb. Index /90 lb. Cover	Engine Duplex : 163 gsm
Input / Output Sheets	2 - 20 Sheets (80 / 20 lb. Bond, equivalent)	Stapled
Input / Output Sheets	2 Sheets	Non Stapled Folding
Off-line Use	Possible	Stitch / Fold (2 staples)
Weight	81 kg / 178,2 lb.	
Dimensions (L x H x D)	1370 x 810 x 620 mm / 53.9" x 31.9" x 24.4"	Incl. Base and Stacker
Power Source	100/110/115/127/220/230 50-60 Hz	± 10 %
Power consumption	200 W or less	Continuous Operations

QUALITY SPECIFICATIONS

	Specifications	Remarks
Target Shut Down *	1 / 500 booklets or less	1 / 4000 Copies
Fold Skew	A4: 0.7 mm, A3: 1.0 mm	
	8.5x11": 0.03", 11x17": 0.04"	
Fold Variation	0.5 mm / 0.02"	
Fold Quality	Less than 17 mm / 0.7"	Maximum height
	A3, 80 gsm, 4 Sheets	
	11x17", 20 lb. Bond, 4 Sheets	
Stapled Set Registration	0.7 mm / 0.03" Maximum	
Staple Line Position variation	Less than 0.5 mm / 0.02"	

* Shut down : Finisher stops by paper jam, staple jam.

ATTACHMENT TO BELLINI

Physical Connection	Attached after SR840 (detachable) Attach by bracket (docking unit) Released by foot release	Bracket is standard accessory
Elecrical Connection	Jam signal to stop Bellini (Hard stop) Jam signal to stop Bellini (Soft stop) Set Signal from Bellini to start SR90 Paper size information from Bellini	Four types of paper size information: A3SEF / A4SEF / DLT SEF/LT SEF

PERIPHERALS SPECIFICATION

TRIMMER

	Specifications	Remarks
Speed	Same as SR90	
Standard Paper Sizes	Same as SR90	Custom sizes are available
Default Trim Length	4,5 mm / (11/64")	Adjustable
Minimum Trimming	0,5 mm / (1/64")	
Maximum Trimming	12,5 mm / (1/2")	
Paper Weight (Minimum)	Same as SR90	Engine Duplex : 64 gsm
Paper Weight (Maximum)	Same as SR90	Engine Duplex : 163 gsm
Input / Output Sheets	Same as SR90	
Input / Output Sheets	Same as SR90	
Off-line Use	Possible, if connected to a Booklet maker	Stitch / Fold (2 staples)
Weight	57 kg / 125.4 lb.	
Dimensions (L x H x D)	360 x 880 x 620 mm / 14.2" x 34.6" x 24.4"	Trimmer only
Power Source	Same as SR90	

COVER FEEDER

	Specifications	Remarks
Maximum Speed	Same as SR90	
Standard Paper Sizes	Same as SR90	
Paper Weight (Minimum)	70 gsm / 18 lb. Bond	Engine Duplex : 64 gsm
Paper Weight (Maximum)	Same as SR90	Engine Duplex : 163 gsm
Cover Feeder Capacity	20 mm Approx. 200 Sheets of 80 gsm	
	13/16" Approx. 200 Sheets of 20 lb. Bond	
Off-line Use	Possible, if connected to a Booklet maker	Stitch / Fold (2 staples)
Weight	12,5 kg / 27,6 lb. or less	
Dimensions (L x H x D)	645 x 188 x 560 mm / 25.4" x 7.4" x 22"	Cover feeder only (Adds 40 mm / 1 9/16" to the SR90 depth, only on rear side).
Power Source	Same as SR90	