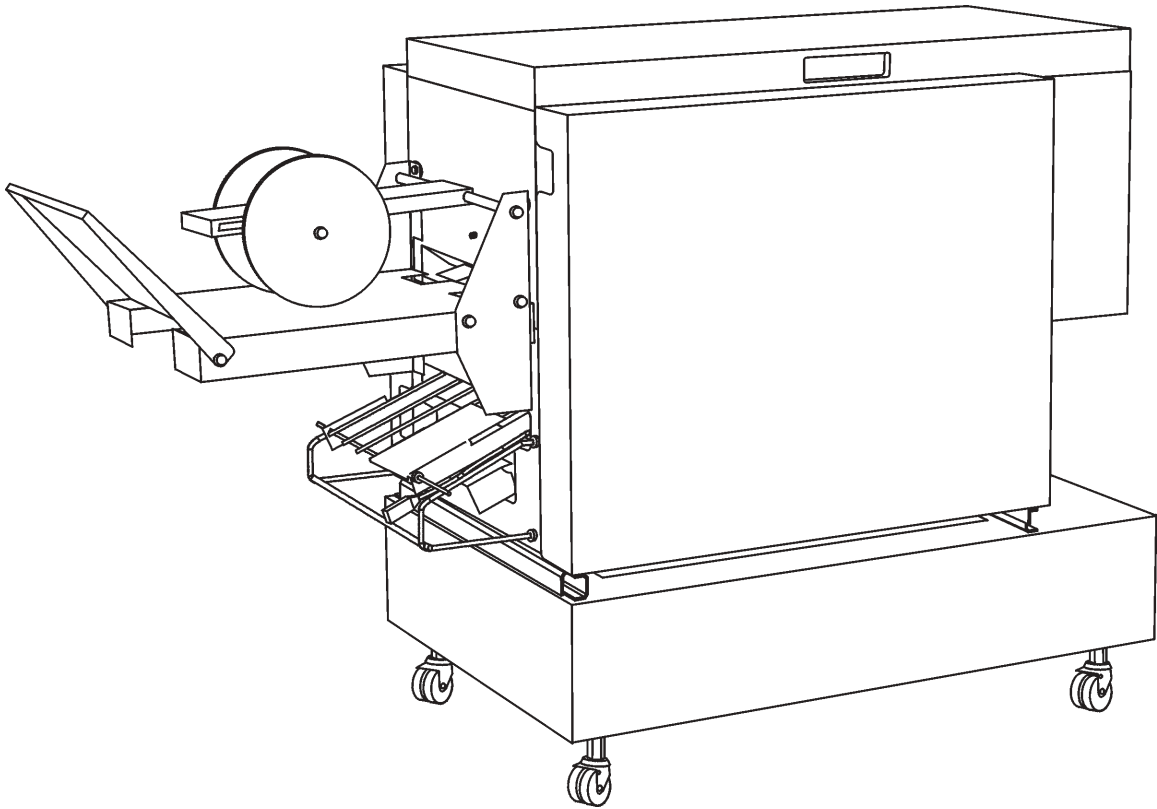


# ***Stapler Folder Model 102***

## ***Operator Manual***



***February 1999***

***Part No. 87499***

# **Table of contents**

## **1. Introduction**

1.1 Operational safety	1-1
------------------------	-----

## **2. Getting to know the Model 102**

2.1 Main components	2-1
2.2 Control panel	2-4

## **3. Operator instructions**

3.1 Switching on the Model 102	3-1
3.2 Setting up the Model 102	3-2
3.3 Feeding and adjusting a test set	3-5
3.4 Making fine adjustments	3-7
3.5 Beginning the production	3-8
3.6 Restoring the factory set A3, A4 or A5 program	3-9
3.7 Jam indications	3-10

## **4. Maintenance**

4.1 Removal/replacement of the staple cartridge	4-1
4.2 Removal/replacement of the stapler head	4-4
4.3 Cleaning fold rolls	4-6
4.3 Lubrication of parts	4-7

## **5. Specifications**

5.1 Specifications	5-1
--------------------	-----

# 1. Introduction

## 1.1 Operational safety

---

Attention to the following notes ensures the continued safe operation of your equipment.

**Always** connect the equipment to a properly grounded power source receptacle. In doubt, have the receptacle 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 receptacle 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 receptacle and call your customer service engineer to correct the problem.

## 2. Getting to know the Model 102

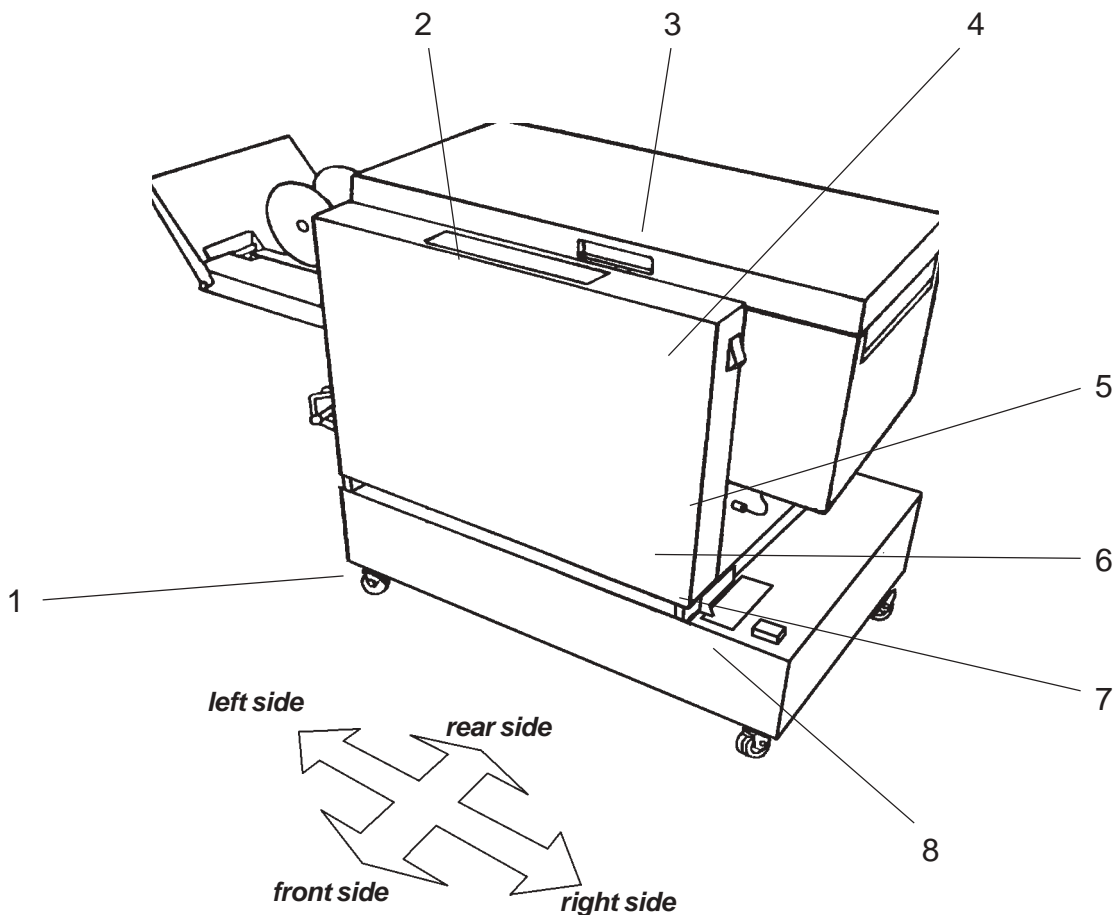
### 2.1 Main components

---

The Model 102 can be quickly and easily connected to the Air Feed Collator Model 100 for on-line booklet making. The Model 102 also makes an ideal manual hand feed booklet maker with an optional manual feed tray.

The Model 102 is equipped with motor driven stapler heads (5000 staples per head), the anvils are of the clinch type, ensuring professional flat staples. In addition, the operation that fold the paper provide a sharp booklet fold.

Take a few minutes to get familiar with the main components of the Model 102.



- |   |               |   |                            |
|---|---------------|---|----------------------------|
| 1 | Castor lock   | 5 | Ground fault interrupter   |
| 2 | Control panel | 6 | Power receptacle/main fuse |
| 3 | Top cover     | 7 | Machine positioning scale  |
| 4 | Power switch  | 8 | Foot pedal                 |

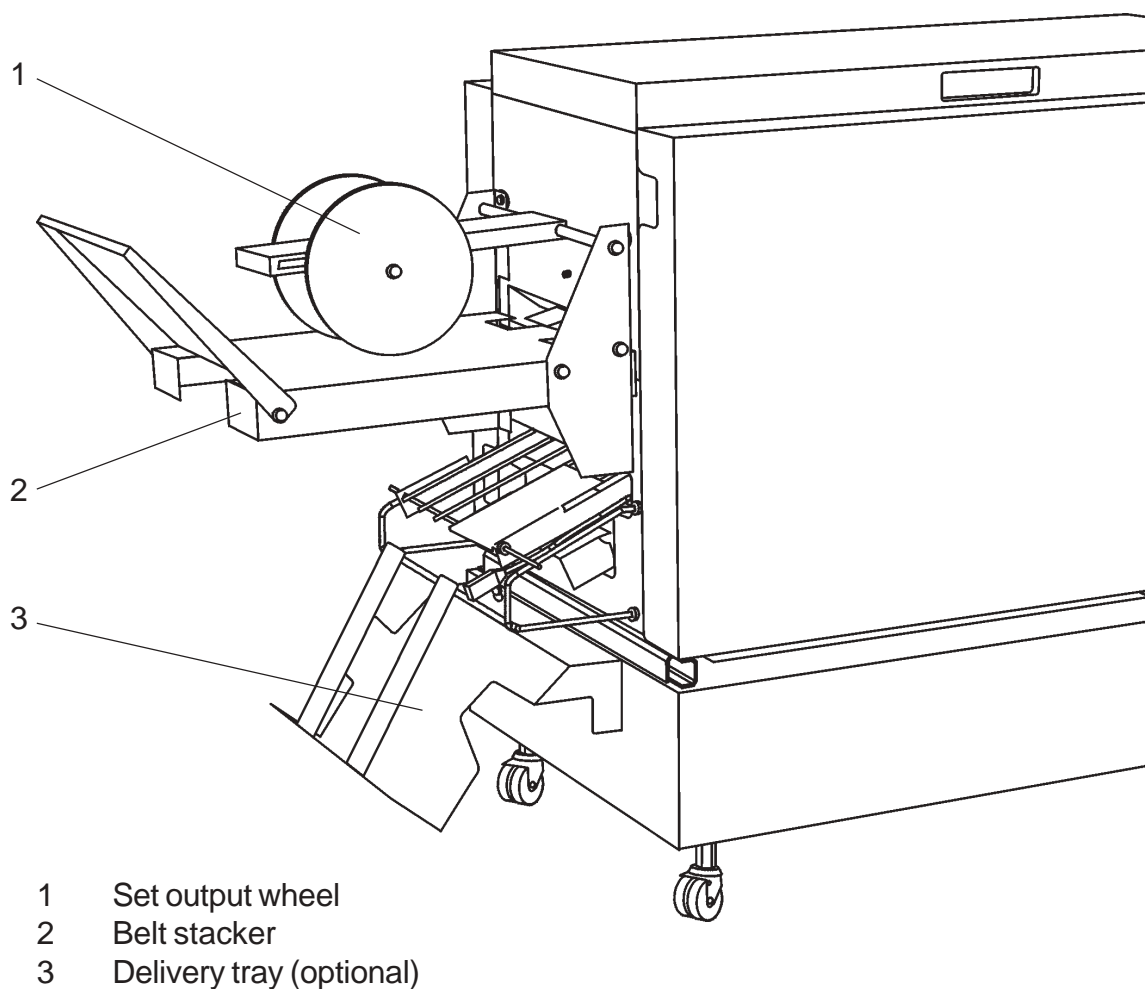
## 2.1 Main components, continues

---

The belt stacker is used when stapling/folding or folding only is selected. The function of the belt stacker is the same whether the feed is automatic or manual.

The back of the belt stacker is normally angled upward (about 15 degrees to horizontal), but can be lowered to allow booklets to drop into a box.

The output wheels should be positioned at the innermost notch for A4, A5 ( 8.5"x14", 8.5"x11") and similar sizes, at the middle notch for A3 (11"x17") and similar sizes, and at the outermost notch for storage. Using customized formats the output wheels should be positioned approximately 50mm from the leading edge of the first set.

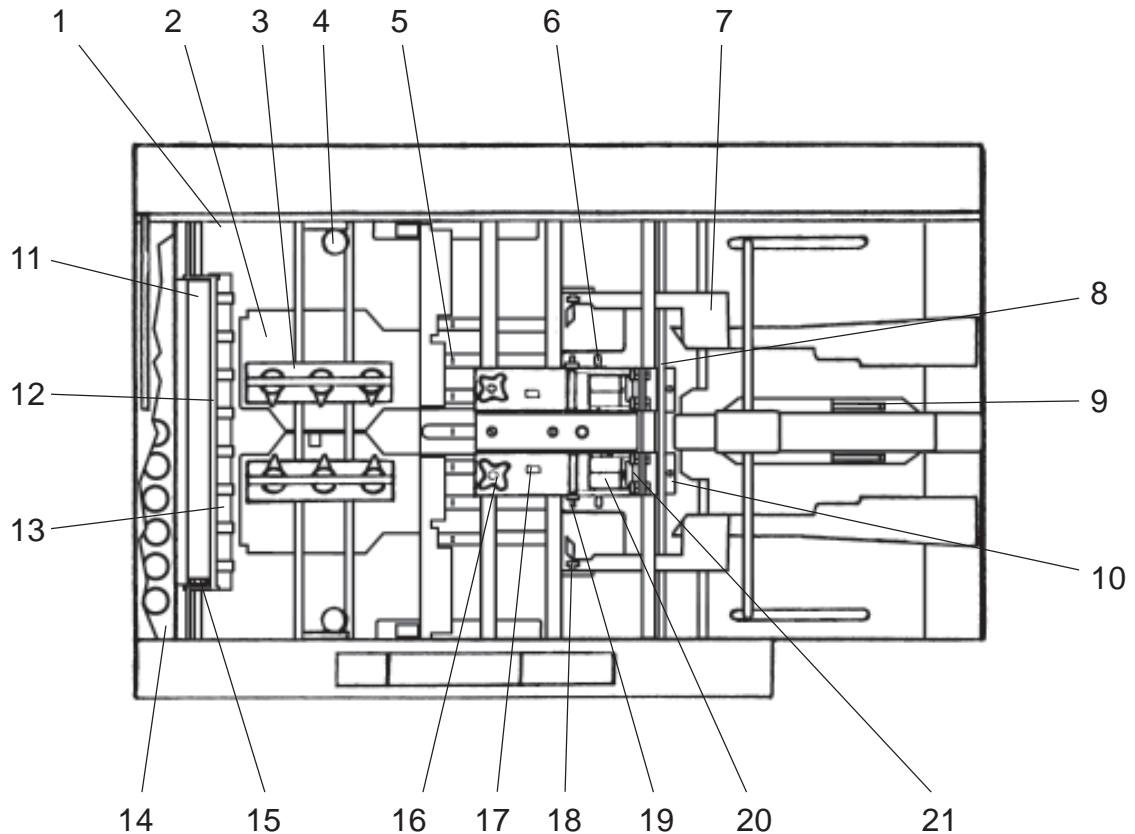


The optional delivery tray is used for side or corner stapling if there is no trimmer attached. When side or corner stapling is selected, the fold stop moves away automatically and the stapled sets are delivered onto the tray.

## 2.1 Main components, continues

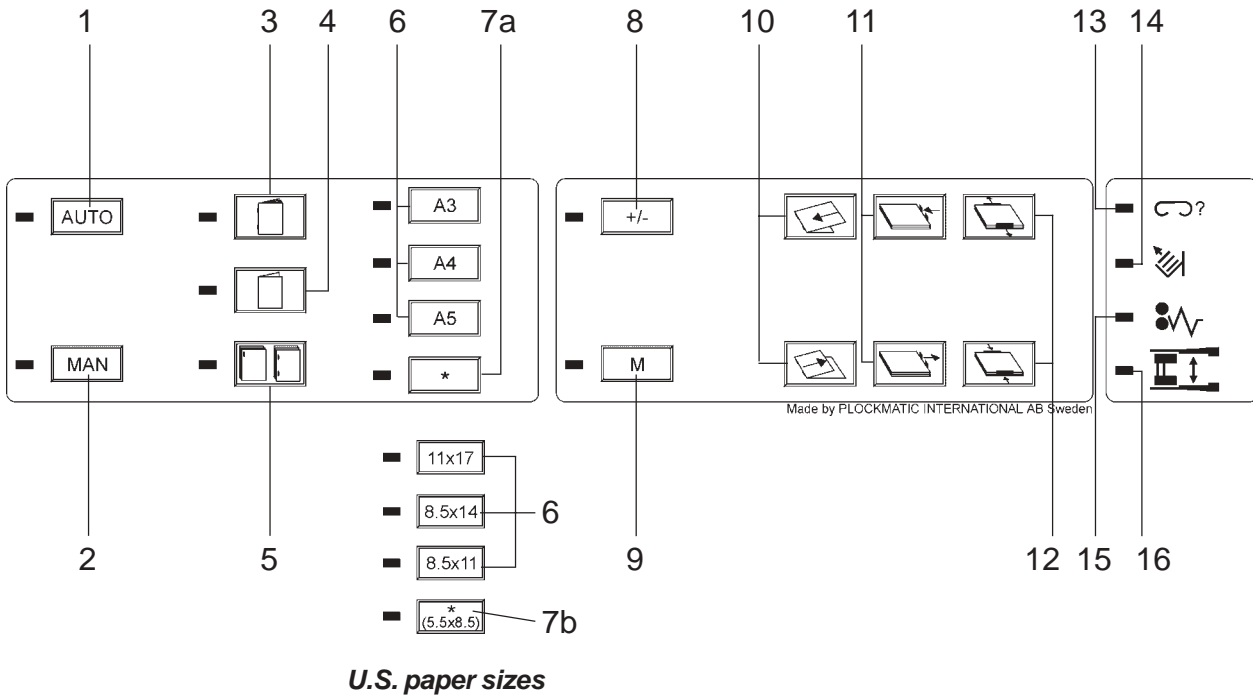
---

The Model 102 interior has parts that you will come in contact with when making the fine adjustments to the booklet or when performing maintenance.



- |    |                            |    |   |
|----|----------------------------|----|---|
| 1  | Total set counter          | 13 | Lower fold roll   |
| 2  | Paper guide                | 14 | Tool box including balls, allen key and open end wrench |
| 3  | Ball cage                  | 15 | Hex grip, upper fold roll                               |
| 4  | Fold adjust lever          | 16 | Thumb screw for stapler assembly                        |
| 5  | Staple stop                | 17 | Staple detection switch                                 |
| 6  | Lock pin                   | 18 | Side jogger incorrectly positioned actuator             |
| 7  | Side jogger                | 19 | Side jogger incorrectly positioned switch               |
| 8  | Anvil position scale       | 20 | Staple cartridge  |
| 9  | Back jogger                | 21 | Stapler head  |
| 10 | Anvil                      |    |   |
| 11 | Upper fold roll            |    |   |
| 12 | Fold roller guide cassette |    |   |

## 2.2 Control panel



- |    |  |    |  |
|----|--|----|--|
| 1  | Automatic set feed mode  | 8  | Programming access/format adjustment access              |
| 2  | Manual set feed mode   | 9  | Memory   |
| 3  | Stapling and folding   | 10 | Fold position adjustment                                 |
| 4  | Folding only   | 11 | Back jogger position adjustment                          |
| 5  | Side stapling or corner stapling   | 12 | Side jogger position adjustment                          |
| 6  | Factory preprogrammed paper size<br>(Can also be used to store customer programmable paper size) | 13 | Staple(s) missing indicator                              |
| 7a | Customer programmable paper size   | 14 | Stacker full Indicator                                   |
| 7b | Factory preprogrammed paper size/<br>Customer programmable paper size                            | 15 | Paper jam indicator                                      |
|    |  | 16 | Staplers or side jogger incorrectly positioned indicator |

### **3. Operator instructions**

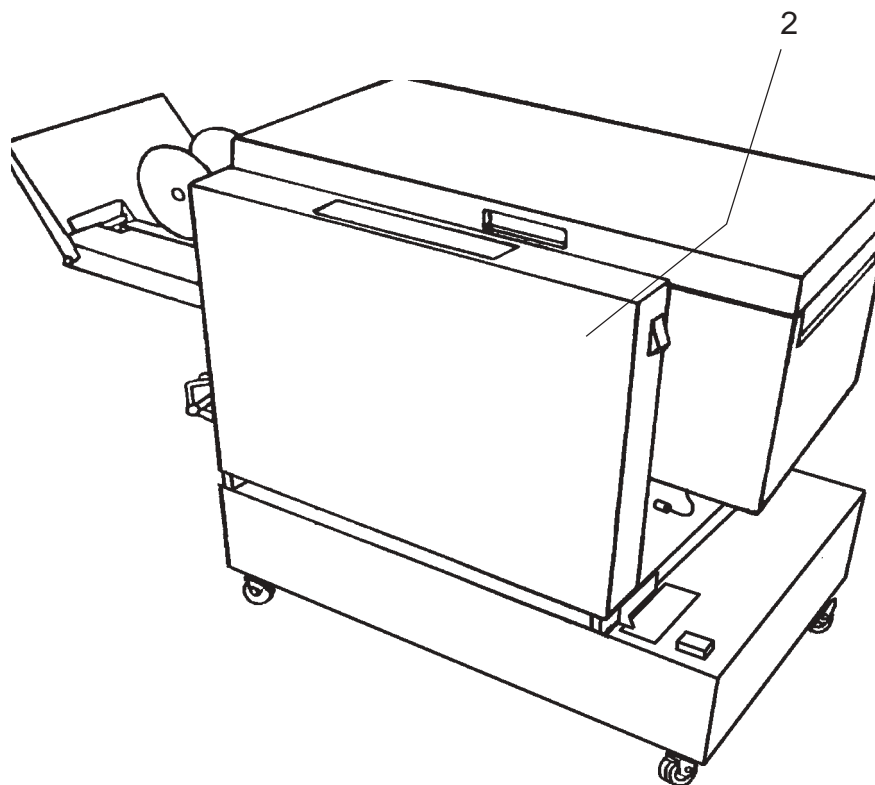
#### **3.1 Switching on the Model 102**

---

This chapter explains the operations for making the booklets, whether the Model 102 is in automatic or manual mode.

The following steps apply to both automatic and manual feed.

- 1 Plug the Model 102 into the wall outlet.
- 2 Set ON/OFF switch to ON position.



- 3 Wait until there is steady illumination of the paper size indicator. If you previously used the Model 102, the paper size that was last used will illuminate.

## 3.2 Setting up the Model 102

---

This section explains how to set up the Model 102 and do a test run. After the test run you can do fine adjustments of the settings, if necessary. When you are satisfied with the test run you can begin production.

### Select a paper feed mode



1 If the papers are fed from a collator, press the AUTO button.

**NOTE: Make sure the Model 102 is correctly positioned on the base. Press the green foot pedal on the base and move the Model 102 to the corresponding format according to the machine positioning scale.**



2 Or, if the papers are fed manually, press the MANUAL button.

### Select the type of finishing

You can select staple and fold, fold only, corner stapling or side stapling for your booklets.

**NOTE: For corner stapling and side stapling an optional delivery tray is necessary if a trimmer is not installed. If a trimmer is present, consult the trimmer operator manual.**

Pressing any of the following buttons will start the paper size program indicators to light up in sequence (running light), waiting for you to select the correct paper size program.



3 Press this button for stapled and folded booklets.



4 Press this button for non stapled, folded booklets.

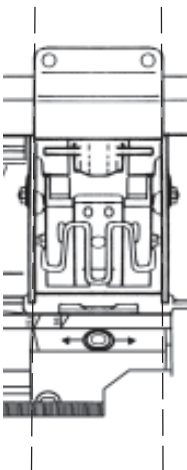


5 Press this button for corner stapling or side stapling. Disable either stapler by removing it according to section 4.2, and switch off the staple detection switch if corner stapling is chosen.

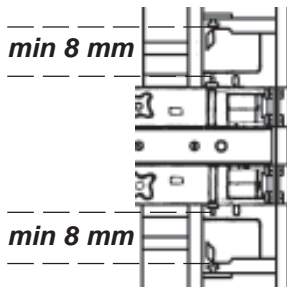
**NOTE: Side stapling or corner stapling of A3 paper format is not possible.**

6. Depending of the actual paper size and/or the selected booklet form you might want to change the position of the staples.

Use the allen key to loosen the anvil(s). Move the anvil(s) to the desired position and tighten the screw(s). Loosen the thumb screw(s) for the stapler assembly. Centre the stapler assembly over the anvils and tighten the thumb screw(s).



## 3.2 Setting up the Model 102, continues



**NOTE1:** If the distance between the stapler and the side jogger is too narrow, the staplers or side joggers incorrectly positioned indicator will be illuminated (also see section 3.7.). Make sure the distance between the actuator and the switch is no less than 8 mm.

**NOTE2:** Depending of the previous job setup you might have to select paper size program before you move the staplers apart.

The anvil position scale indicates the distance, in millimetres, from centre to centre (cc) of the staples.

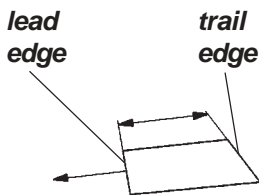
Type of finishing	Paper format	Setting (cc)
booklet making	5,5", CD	98
booklet making	A5	105
booklet making	8,5", A4	120
booklet making	11", A3	120 or 200
side stapling	11", A4	144 (Recommended)
corner stapling	11"	255 (Recommended)
corner stapling	A4	273 (Recommended)

**NOTE:** Using other settings could result in poor staple/fold result.

### Select a paper size program

For your convenience, the A3, A4 and A5 (8.5"x11", 8.5x14", 11"x17" and 5.5"x8.5") paper size programs were factory set with appropriate jogging, staple position and fold line position. The jogging, staple position and the fold line position may need fine adjustments depending on the type of paper used.

**NOTE:** If you want to use a custom format, select the next bigger (distance between the lead edge and the trail edge) paper size program. Fine adjustments will be explained in section 3.3 and 3.4.



7 Press the appropriate button to select paper size program.

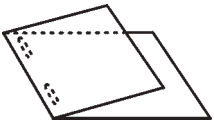
- |   |                               |                                   |   |
|---|-------------------------------|-----------------------------------|---|
| ■ <input type="checkbox"/> 11x17          | ■ <input type="checkbox"/> A3 | The A3 button for 297 x 420 mm.   | - Position the output wheel at the middle notch.                                      |
| ■ <input type="checkbox"/> 8.5x14         | ■ <input type="checkbox"/> A4 | The A4 button for 297 x 210 mm.   | - Position the output wheel at the innermost notch.                                   |
| ■ <input type="checkbox"/> 8.5x11         | ■ <input type="checkbox"/> A5 | The A5 button for 148 x 210 mm.   | - Position the output wheel at the innermost notch.                                   |
| ■ <input type="checkbox"/> *<br>(5.5x8.5) | ■ <input type="checkbox"/> *  | The * button for customised size. | - Position the set output wheel approx. 50 mm from the leading edge of the first set. |
- U.S. paper sizes**

## 3.2 Setting up the Model 102, continues

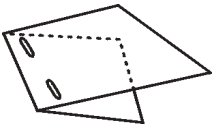
8. When selecting staple and fold, or fold only the configuration of the balls in the ball cage is important. The purpose is to apply enough pressure on the set to ensure proper alignment against the fold stop before the set is being folded. By doing that the set will be correctly folded at the middle of the set. The Model 102 is delivered with glass balls at the left side and plastic balls at the right side of the ball cage which should cover most jobs.

Depending on the number of sheets in each set and the stiffness of the papers used you might need to change the configuration. In the tool box you can find 2 steel balls, 2 glass balls and 2 plastic balls.

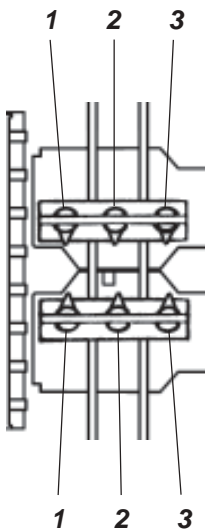
The heaviest configuration, for several sheets with high stiffness, is 2 steel balls at the left side and 2 glass balls at the right side. The lightest configuration, when running just a few sheets with low stiffness, is plastic balls at the left only.



If your booklets comes out with the staples on the back of the booklet the configuration is too heavy. Too many and/or too heavy balls allowed the set to buckle (travel too far) before it was folded.



If your booklets comes out with the staples on the front, and/or with a skew fold, the configuration is too light. By using not enough and/or too light balls the set did not travel all the way down to the fold stop and was not aligned correctly.



### Ball configuration guidelines

	1	2	3
Single large sheets only folding with low paper weight/stiffness	Plastic	-	-
Stapled-folded few sheet sets with low paper weight/stiffness	Plastic	-	Plastic
<b>Standard configuration</b>	<b>Glass</b>	-	<b>Plastic</b>
Several stapled-folded sheets	Glass	-	Glass
Several hard stapled-folded sheets	Steel	-	Glass
If markings occurs on the centerfold when running several staple-folded sheets	Glass	Plastic	Plastic

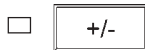
### 3.3 Feeding and adjusting a test set

---

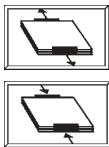
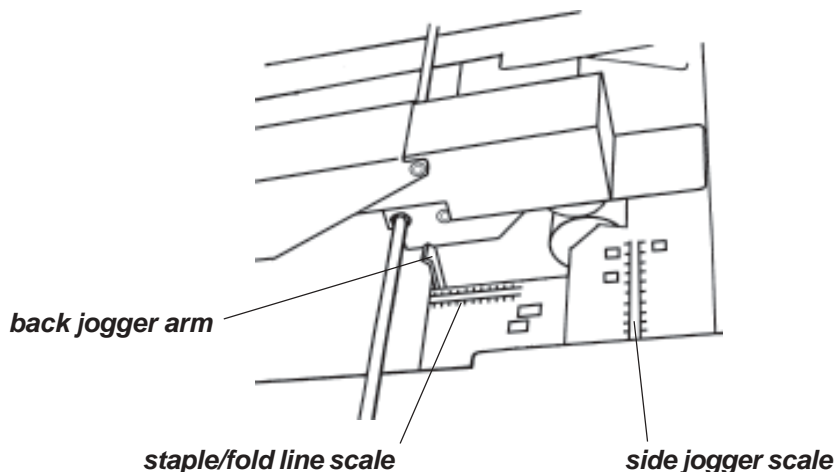
The first time you use the Model 102, or when you change to a different paper size program, you run one test set and make necessary adjustments before you begin production. You can use automatic feed from the collator, using the calibration option or manual feed.

#### Coarse adjustment

You have already selected either automatic or manual operation, type of finishing, and paper size program.

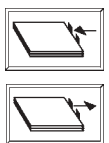


- 1 Press the program access button.
- 2 Open the cover.
- 3 Look at the side jogger scale.



- 4 Press and hold the side jogger button until the side jogger reaches the position on the side jogger scale for the test set.

- 5 Look at the staple/fold line scale.



- 6 Press and hold the back jogger button until the back jogger reaches the position on the staple/ fold line scale for the test set.  
(Manually lift the back jogger arms)

**NOTE:** *The staple/fold line scale does not show the correct position for the set when corner stapling or side stapling is chosen.*

### 3.3 Feeding and adjusting a test set, continues

---

- 7 Close the top cover.
- 8 Feed one set of the chosen paper size into the model 102 (The machine will repeatedly make a jog cycle).
- 9 Open the top cover.

*moving the staple stop towards the infeed*

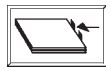


- 10 Press and hold the staple stop adjustment button until the trail edge of the set reaches the paper size mark on the staple fold/line scale. If the required paper size mark is not visible (the set is too close to the infeed), press the staple stop adjustment button until the set passes the required paper size mark (towards the outfeed). Ensure that the set is aligned against the staple stop and press the staple stop adjustment button until the trail edge of the set reaches the paper size mark on the staple fold/line scale.

*moving the staple stop towards the outfeed*



- 11 Press the side jogger button until the side joggers jog the set firmly without making a buckle in the set.



- 12 Press and hold the back jogger button until the back jogger is approximately 1 mm from the set.

- 13 To store your settings:



- press the format adjustment access button (the +/- button) to keep your settings temporarily. Your settings are not stored but will remain until a paper size format button is pressed even if the power is switched off.



- press the memory button to store your settings on the actual paper size button, earlier selected according to section 3.2.



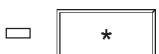
- or, select any other paper size program button and then press the memory button.



**NOTE1: Side stapling or corner stapling of A3 paper format (or similar sizes) is not possible.**



**NOTE2: You can store 4+4 different settings. Four in the staple/fold or fold only finishing mode, and four in the corner or side stapling finishing mode.**



- 14 Close the top cover. The paper set moves to the belt stacker.

- 15 In booklet finishing mode: If the cover is torn from the body sheets increase the gap between the fold rolls by adjusting the fold adjust levers from the factory setting 1 to a higher number.

### 3.4 Making fine adjustments

This section shows you how to make fine adjustments of the booklet. The test run has just been completed and the Model 102 is switched ON. Your selection for paper size program is still in effect.



- 1 Press the program access button.
- 2 Feed one set.
- 3 Open the top cover.

PROBLEM	CORRECTION	BUTTON
The side edges of the sheets are not even	Move the side joggers closer	
The side edges of the sheets are deformed	Move the side joggers apart	
The top/bottom edges of sheets are not even	Move the back jogger closer to the set	
The cover or back of the booklets are damaged	Move the back jogger away from the set	
The fold is not centered, the top of the booklet is too short	Set the fold stop higher. The back jogger must be readjusted after you adjust the fold position	
The fold is not centered, the top of the booklet is too long	Set the fold stop lower. The back jogger must be readjusted after you adjust the fold position	

**NOTE:** Pressing the adjustment buttons shortly will increase/decrease the position with approximately 0.5 mm.

- 4 Store your settings according to section 3.3, item 13.
- 5 Close the top cover. The booklet transports to the set output tray.
- 6 Check the booklet. If it is still not good, repeat the fine adjustment. Otherwise go to section 3.5 Beginning the production.

## 3.5 Beginning the production

---

This section shows you how to begin production. You have run a test set and made necessary adjustments. The Model 102 is switched ON.

### Automatic operation



- 1 Verify that the indicator lights, associated with the paper size button (example showing A3 selected) and type of finishing (example showing stapling and folding) that you selected, is on.
- 2 Check that the Model is correctly positioned on the base according to the machine positioning scale.
- 3 Start your collator. The sets are automatically fed into the Model 102 and the booklets appear on the belt stacker.

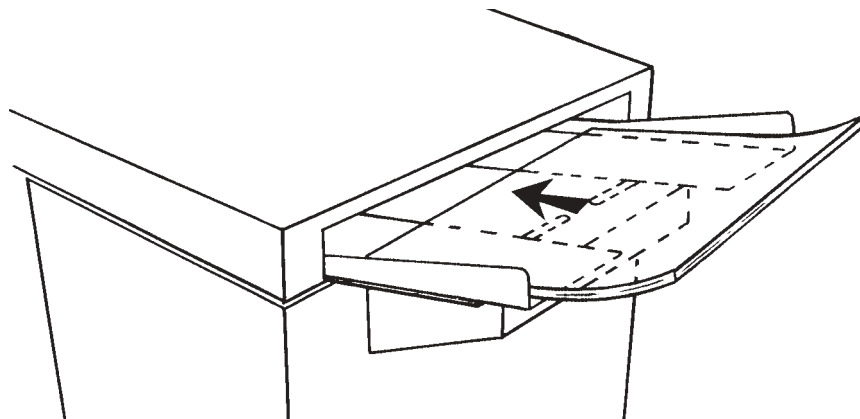
**NOTE:** After a successful booklet production, if you change the paper size or weight, you may need to go back to section 3.3 Feeding and adjusting a test set.

### Manual operation



- 1 Verify that the indicator lights, associated with the paper size button (example showing A4 selected) and type of finishing (example showing side/corner stapling) that you selected, is on.
- 2 Check that the optional delivery tray for side/corner stapling is installed. Or, if a trimmer is present, consult the trimmer operator manual.

To facilitate hand feeding, use an optional feeding tray as shown in the drawing below.



### 3.6 Restoring the factory set A3, A4 or A5 program

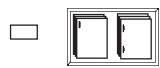

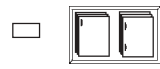
---

This section shows you how to restore the factory set program. You might want to do this after you made fine adjustments of the A3, A4 or A5 program but no longer need those adjustments.

- 1 Select the type of finishing and paper size format, for which you want to restore the factory preset paper size program.
- 2 Press and hold the paper size button until the indicator light goes off and then comes back on after approximately 7 seconds.
- 3 Again, press the type of finishing button. The factory set program is restored and the Model 102 will set up the retrieved format.


Example:

Restoring the factory setting for side stapling of A4 paper size.

-  1 Press the side/corner stapling button. The paper size program indicators will now lit up in sequence (running light). Press the A4 button. Wait until the Model 102 is finished setting up the "old" adjustments.
-  2 Press and hold the A4 button until the indicator light goes off and then comes back on after approximately 7 seconds. The type of finishing indicators will now lit up in sequence (running light).
-  3 Press the side/corner stapling button. The factory set program is restored and the Model 102 will set up the retrieved format.

## 3.7 Jam indications

---

□  **Staple(s) missing indicator**

The staple(s) missing indicator is illuminated when a set is missing one or two staples. The model 102 will automatically shut down the on-line system when this indicator is lit. Check/replace the staple cartridge(s) according to section 4.1.

□  **Stacker full indicator**

The stacker full indicator is illuminated when the belt stacker is full. Remove the completed sets.

□  **Paper jam indicator**


The paper jam indicator is illuminated when an operation in the Model 102 is not done within the preset time. Open the top cover and remove the jammed sets reachable.

If necessary:

- Lift the fold roll guide cassette.
- Turn the upper fold roll using the open end wrench at the hex grip at the front side of the roll. The Model 102 is delivered with an open end wrench for that purpose in the tool box.
- Press the staple stop down and move the paper guides apart.
- Fold down the fold roller guide cassette and reposition the paper guides. There is a magnetic lock holding the paper guides together.

Close the top cover and the model 102 will automatically purge remaining jammed sets.

### **Staplers or side joggers incorrectly positioned indicator**

-  The staplers or side joggers incorrectly positioned indicator is illuminated when the distance between the side jogger and the stapler is too narrow. Check/adjust the position of the staplers according to section 3.2. Switch the power off and then on again to reset the position of the side joggers.

## 4. Maintenance

---

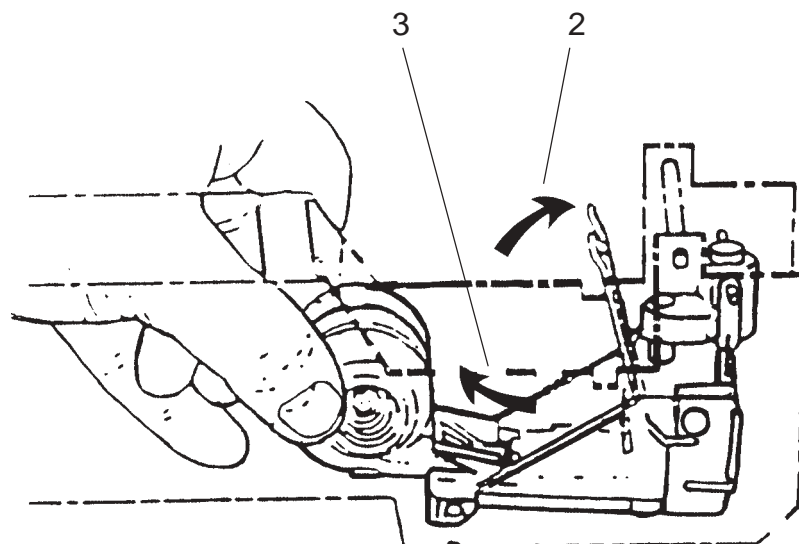
This chapter explains how to do routine maintenance of the Model 102. Maintenance of the Model 102 consists of removal and replacement of the stapler head and the staple cartridge, and lubrication of the parts associated with the staplers and jiggers. The steps for how to do this are given next.

### 4.1 Removal/replacement of the staple cartridge

---

You may remove and replace the staple cartridge while the stapler head assembly is in place.

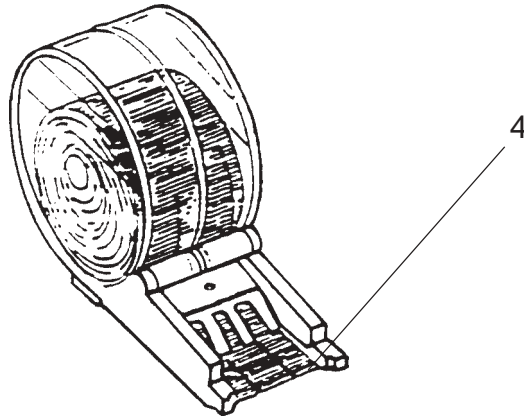
- 1 Open the top cover.
- 2 Raise the staple cartridge locking lever as indicated in the drawing below.
- 3 Gently twist the staple cartridge from side to side, and pull out the staple cartridge from the stapler head.



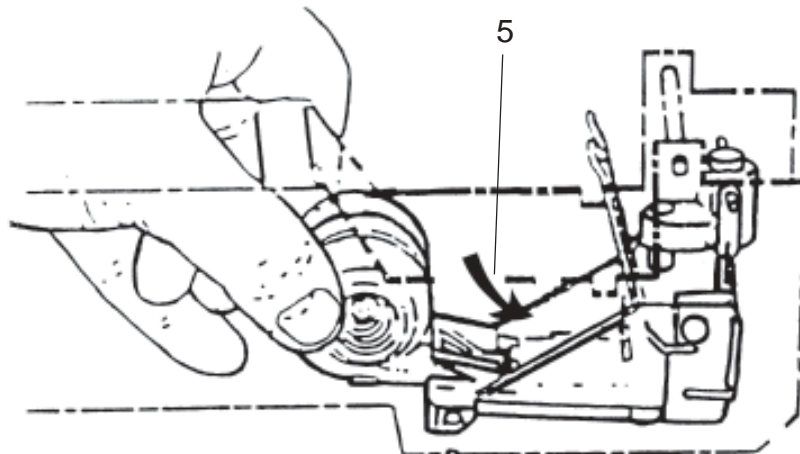
## 4.1 Removal/replacement of the staple cartridge, continues

---

- 4 If the staple cartridge is empty, discard it and replace it with a new one. Before replacing the cartridge, pull at least 20 mm of the staples out and tear off at the staple tear line which is marked on the cartridge. If there has been a miss-feed, and the cartridge still contains staples, pull 20 mm of staples out of the cartridge and tear off at the stapler tear line. Check that the first staple is flat. If not, tear off another 20 mm, using less force.



- 5 Insert the cartridge into the stapler head with the staples facing towards the head mechanism. The cartridge should be placed flat on the slide on the bottom of the stapler head and pushed firmly into the stapler head.

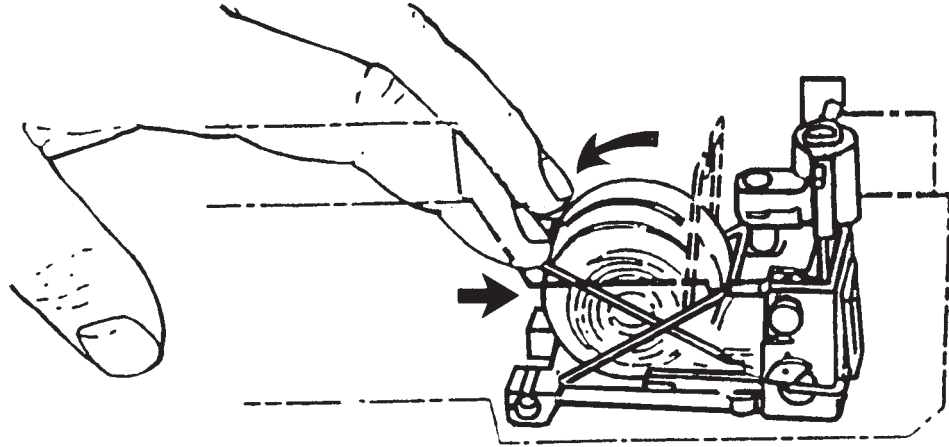


- 6 Hold the staple cartridge firmly in place and push down the cartridge locking lever.

**NOTE:** *If the cartridge is allowed to move away from the stapler head before the locking lever is engaged, remove cartridge and tear off 20 mm of staples level with the staple tear line.*

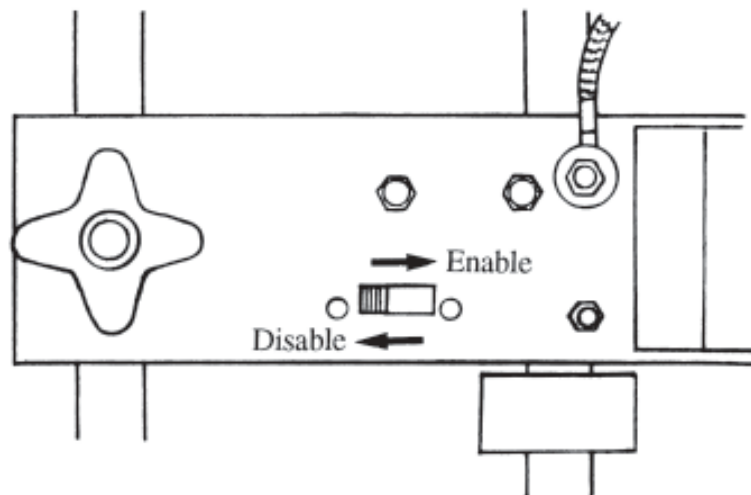
## 4.1 Removal/replacement of the staple cartridge, continues

---



**NOTE:** *The staples will not be fed until a few booklets have passed through the Model 102.*

- 7 Move the staple detection switch to the disable position to prevent the Model 102 from shutting down when it detects missing staples in the first few booklets. Reset the staple detection switch to normal position to enable future staple miss-feed indications, after checking that there are two staples in the booklet.

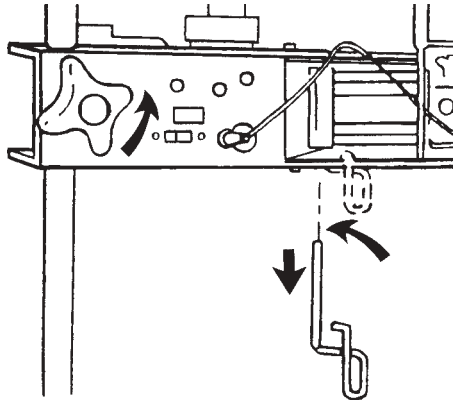


- 8 Continue production.

## 4.2 Removal/replacement of the stapler head

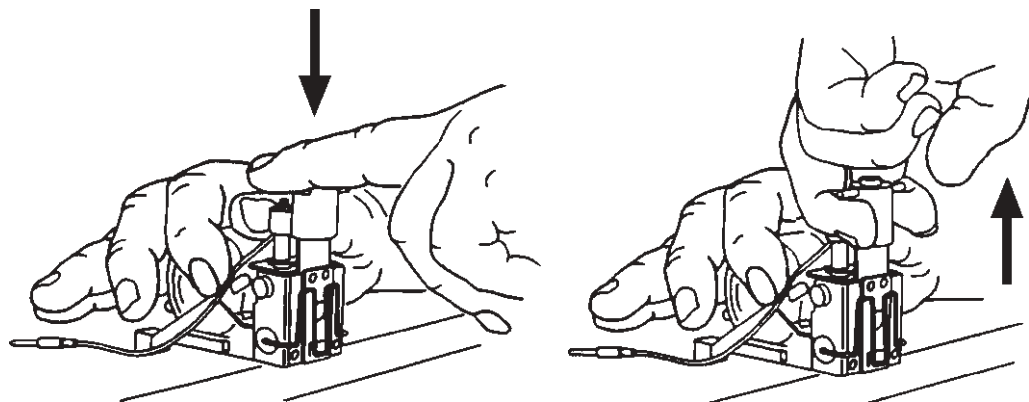
---

- 1 Select the A3 (11"x17") position to ensure that the side joggers are away from the stapler head.
- 2 Loosen the thumb screw. Rotate the lock spring towards the thumb-screws and remove the lock pin from the stapler head assembly.



- 3 Disconnect the red wire. Push the stapler head towards the in-feed side, out of the stapler head assembly.

**NOTE:** Whenever you remove a stapler head, be sure to manually eject some staples before replacing it in the Model 102. To do this, rest the stapler head on a firm surface (for example, the top of a table or the Model 102) and actuate the staple driver post up/down through full travel. Do this a number of times to ensure that the staples are ejected on each down movement. If you need to change the staple cartridge, see previous section, removal/replacement of staple cartridge.

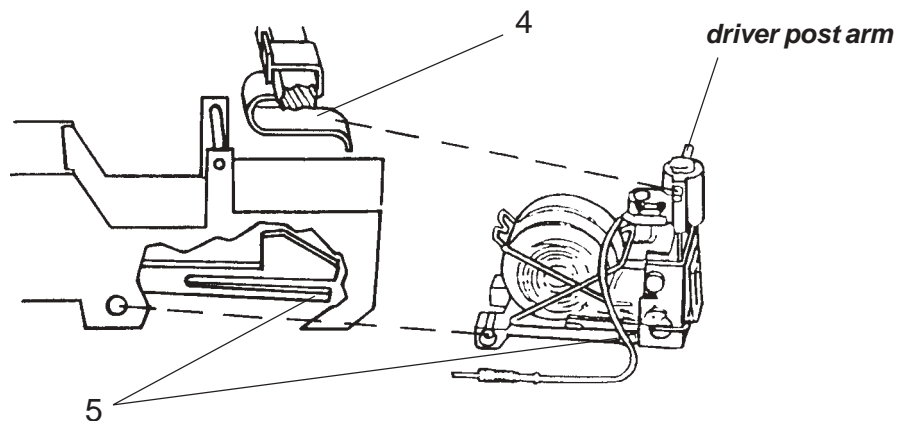


**WARNING:** When manually ejecting the stapler, stay clear from stapler output area.

## 4.2 Removal/replacement of the stapler head, continues

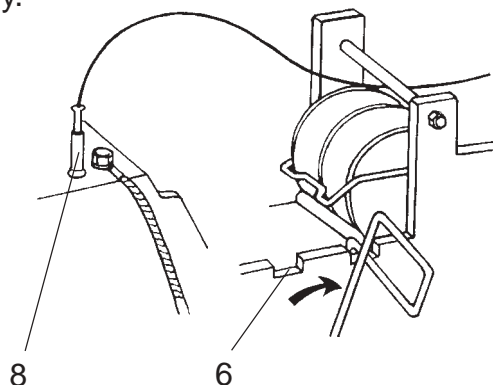
---

- 4 Before inserting the stapler head, centre the movable carrier over the area that will receive the stapler head. Ensure that the staple driver post is in its uppermost position.
- 5 Place the stapler head back into the Model 102. The front tab of the stapler assembly must be placed under the nylon tension spring and the driver post arm placed into the carrier.



**CAUTION:** *If the driver post arm is not correctly positioned into the carrier (4) it will cause permanent damage to the stapler head as well as the carrier. Subsequently, also future correctly mounted stapler heads will be damaged.*

- 6 Press on the lower front edge of the stapler head to align the hole in the stapler bracket with the hole in the stapler head. Insert the lock spring so that it engages the stapler head and the metal sides of the stapler assembly.



- 7 Lock the pin by rotating it towards the in-feed side. Check that the stapler head is correctly mounted by pushing the stapler head towards the infeed area.
- 8 Insert the red wire into its outlet.

### **4.3 Cleaning fold rolls**

---

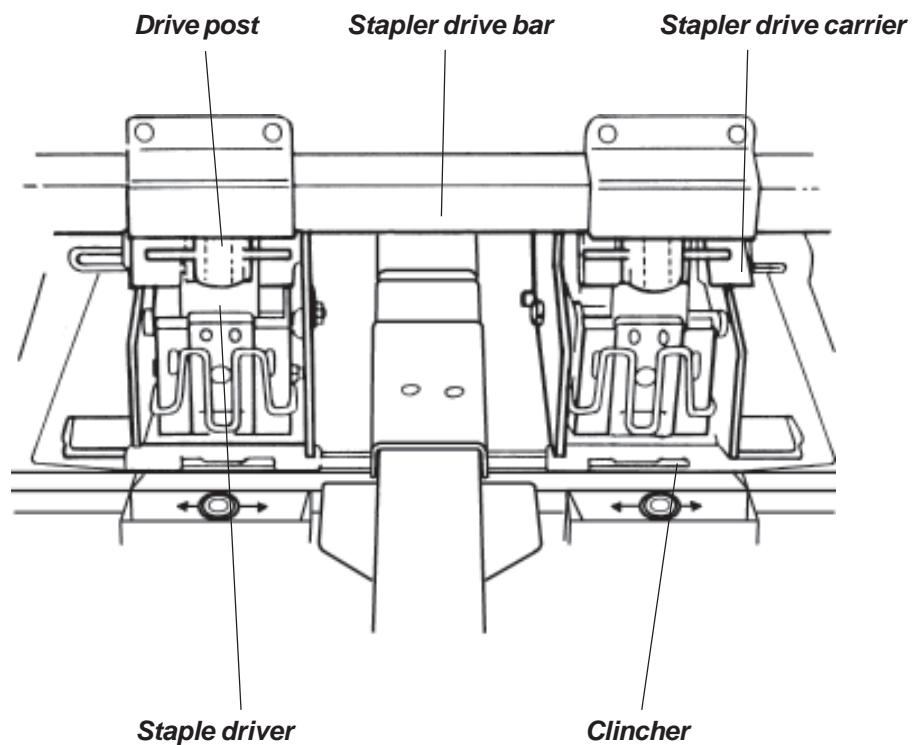
The fold rolls will eventually need cleaning due to colour deposits from the print-out. Especially the upper fold rolls. How often depends of the printing method but you will notice that when you can see marks or deposits on the cover of the booklets.

The fold rolls guide cassette can be folded up for better access. At the front end of the upper fold roll you will find a hex grip. Use the open end wrench delivered with the Model 102 in the tool box to turn the fold rolls. Use the same procedure to clean the lower fold rolls.

## 4.3 Lubrication of parts

### Lubrication of parts

The parts that need lubrication are shown in the table below.



PART	FREQUENCY	PART LOCATION
Clinchers	Every 20K booklets	Beneath the stapler head assembly (thin oil)
Drive posts	Every 20K booklets	Staple cartridge (grease)
Stapler drive bar	Every 20K booklets	Above the staple head (grease)
Stapler drive carrier	Every 20K booklets	Above the staple head (grease)
Staple driver	Every 20K booklets	Staple driver (thin oil)

## 5. Specifications

### 5.1 Specifications

#### Stapler Folder Model 102

<b>Capacity</b>	Up to 24 sheets 75 gsm
<b>Modes</b>	Saddle stapling and folding Folding only Side stapling Corner stapling
<b>Speed</b> <b>Saddle stapling and folding</b>	Up to 2800 A6 (5.5"x4.25") sized booklets per hour Up to 2600 A5 (5.5"x8.5") sized booklets per hour Up to 2200 A4 (8.5"x11") sized booklets per hour
<b>Side and corner stapling</b>	Up to 2100 A4 (8.5"x11") sized booklets per hour
<b>Paper size</b>	<b>Min</b> 120 x 210 mm <b>Max</b> 320 x 457 mm
<b>Paper weights</b>	<b>Min</b> 60 gsm <b>Max</b> 200 gsm
<b>Staples</b>	2 x 5000 chisel pointed
<b>Stapler empty detection and jam detection</b>	Yes
<b>Preset programmes</b>	A3, A4 and A5 / 11"x17", 8.5"x14", 8.5"x11" and 5.5"x8.5"
<b>Custom paper format storing possibilities</b>	4+4 permanent, 1 temporary
<b>Dimensions (HxWxD)</b>	945 x 1485 x 620
<b>Weight</b>	147 kg
<b>Voltage</b>	230 / 240V 50 - 60 Hz 115V 60 Hz

The machine design and specifications are subject to change without notice

