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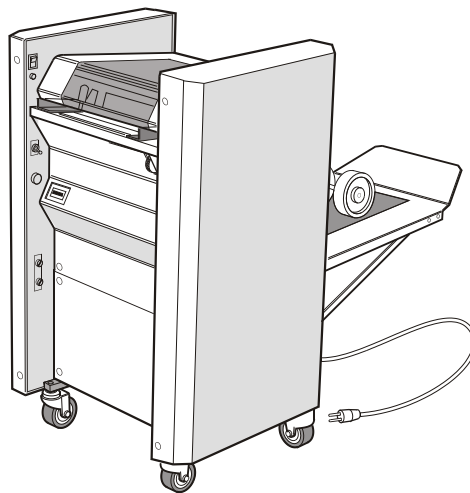
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Technical Manual for the **SPRINT** Booketmakers



SPRINT 2000 and 5000HCS

CONTENTS

1.	Specifications.	2
2.	Initial setting up.	3
3.	Checking and resetting the Bookletmaker.	4
3.1	Timing cam	5
3.2	Stapling head and left-hand side jog actuator.	6
3.3	Right-hand side jog actuator.	7
3.4	Knife-in cam.	8
3.5	Knife-out cam.	9
3.6	Paper stop cam.	10
3.7	Takeaway wheel actuator cam.	10
4.	Checking and adjusting the fold rollers and knife.	11
5.	Resetting calibration where staples are off fold line	16
6.	Edge staple stop setup.	19
7.	Staple Out System.	20
8.	Staple jam.	22
9.	Problem solving. Electrical faultfinding.	23

Appendix A: Wiring diagrams

1. SPECIFICATIONS

Model	No. of Sheets	Sheet Size	Speed	Width	Height	Length	Weight
	80gsm bond (or 20lb)			Cm	Cm	Cm	Kg
5000HCS	20	A5 - A3	1500	57	94	117 (49)	98
5000	25	A5 - A3	1500	57	94	117 (49)	98
3000	25	A5 - A3	1500	57	94	117 (49)	98
2000	25	A4 - A3	1500	57	89	117 (49)	94
1000	20	A4 - A3	1200	52	87	88 (48)	76

Figure in brackets denotes length of machine with conveyor stored in the upright position.

Note: Maximum number of sheets for HCS machines is 20 (80gsm or 20lb).

SHEET SIZES:	A3	11½" x 17½".
	A4	8½" x 11½"
	A5	5½" x 8"

Common to all machines:

	Europe	North America
Staples: Rapid head	6mm or 8mm	
HCS	5000 cartridge (6mm legs)	
Power	220/240v @ 50Hz	115v @ 60Hz
	Consumption approx. 180 Watts	
	Fuse: 6.3 amps @ 240v.	Fuse: 10 amps @ 115v.

2. INITIAL SETTING UP

Please refer to operator's manual for details of model specific setup.

1. Remove the 4 bolts holding the machine to the pallet.
2. The castors are already fitted to the machine, so lift the machine from the pallet on to an even surface.
3. Remove packing from the stapling section and from under the fold stop, beneath the conveyor.
4. Lower the output conveyor, allowing the slotted ends on the support bars to locate on the protruding bolts provided. These bolts are located at the base of the machine.
5. When making books, one need only fit the conveyor wheels and make sure that the divert plate shown in figure 1 is pushed forward. Please refer to the operator's manual for setting up for corner or edge stapling.

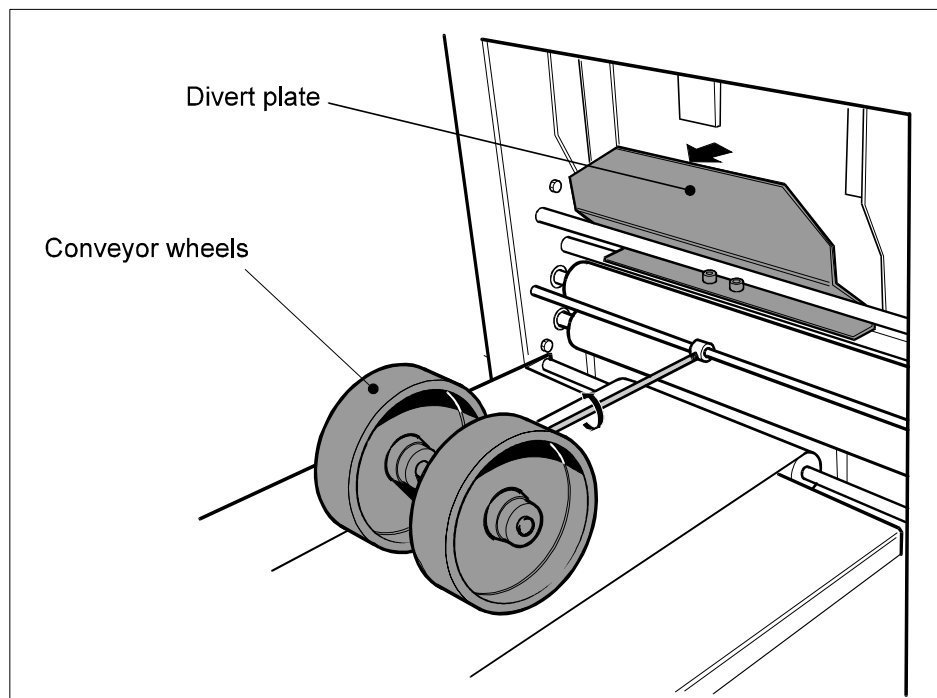


Figure 2.1 - Conveyor setup.

6. Insert the conveyor end stop at the far end of the conveyor, making sure it does not interfere with the belt. It is held in position by a flat magnet.
7. Check that the power supply is of the correct voltage for the machine. Once connected, the machine is ready for use.

3. CHECKING AND RESETTING THE BOOKLETMAKER

Prior to delivery, the bookletmaker will have been factory set and tested. All roller microswitches, cams and pulleys would have been correctly set and locked down. However over a period of use/time it may be necessary to make some adjustments to the bookletmaker as some parts may, in time, 'bed-in'.

If the any timing cams need to be adjusted, for example if the machine is folding or stapling incorrectly after a part replacement or a serious jam, it may be necessary to check and reset the cams. To do this, the following steps should be carried out in sequence:

Ensure that the Bookletmaker is at its home position. This may be done by feeding a document into the machine and allowing the Bookletmaker to complete its cycle.

Turn off the power at the mains and disconnect the mains cable from the power supply. Remove the two side covers and the top front cover (underneath infeed).

The machine will always stop in the 'rest position' having been allowed to complete its cycle. At this point the main timing cam should be in a position similar to that shown in figure 3.1. On some machines, three (3) microswitches may be found on this shaft; the main timing microswitch will be nearest the sidewall of the machine and will be connected to black/white cables.

Basic sequence of events:

1. Document is placed over infeed photocell. There is only one photocell in the machine which consists of an emitter in the anvil bar and the receiver in the top bar.
2. Timer starts as set by potentiometer.
3. When the timer is finished the clutch arm is activated and the main timing shaft allowed to turn.
4. The side jog arms come in and knock-up the document. The side guides should be set so as not to pinch the document as this may produce a bad staple.
5. The staple head is forced down, the side jog releases the document a small amount (so as to provide a smooth takeaway to the fold section) and the staple stops begin to move down. At this point the staple heads are holding the document.
6. As the staple heads start to return to their uppermost position, the staple stop should be fully retracted.
7. Once the staple heads are approximately 20cms (3/4") from the document the takeaway wheel should start to come into contact with the document and drive it toward the fold area.
8. As the trailing edge of the document clears the staple stops, the stops should begin to return to their uppermost position. This should be checked again using A3 (17") paper.

3.1 Main Timing Cam

Before making adjustments to any of the bookletmaker's settings it is good practice to check the machine's basic timing.

1. Ensure that the cam's stopping position is just prior to the center of its flat, as figure 1b. This can be seen from inside the machine, having removed the front cover. The cam is traveling in a clockwise direction.
2. Set the microswitch to the timing cam such that as soon as microswitch roller comes over the angle of the cam, it activates, i.e. on line x-x. This is achieved by adjusting the position of the microswitch on the sidewall.

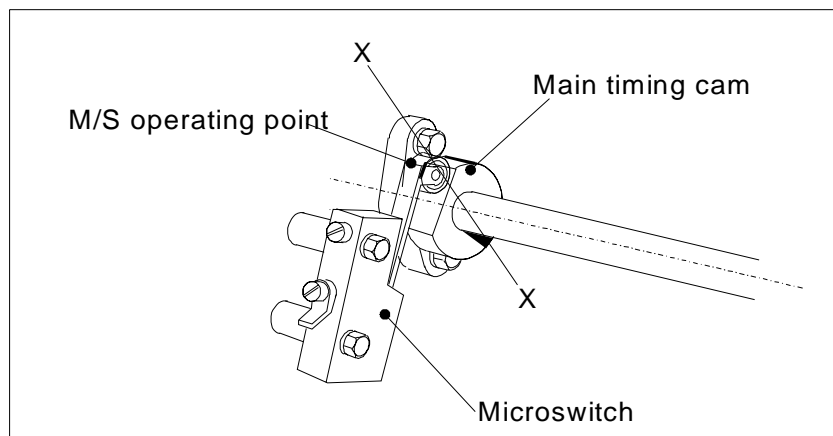


Figure 3.1

3. If the timing shaft does not stop as above, the machine may be overrunning due to excess oil or dirt within the clutch. Remove the clutch and clean the inner surfaces of the clutch and clutch solenoid and the shaft. Do not use oil or grease on any part of the clutch assembly.

3.2 Stapling head actuator and Side jog actuator.

1. Check the left-hand side of the Bookletmaker to ensure that the cam followers are in the same positions as shown in figure 3.2.
2. If any of the cams are not in the correct place, it will be necessary to loosen their grub screws and move them to the position shown. Ensure that the microswitch roller is at the correct position on the main timing cam flat before adjusting any of the other cam positions.
3. On the left hand side of machine there is a large sprocket, the timing shaft drive sprocket, fitted with a ball race (the stapling head actuator) and a nylon cam (the side jog actuator).

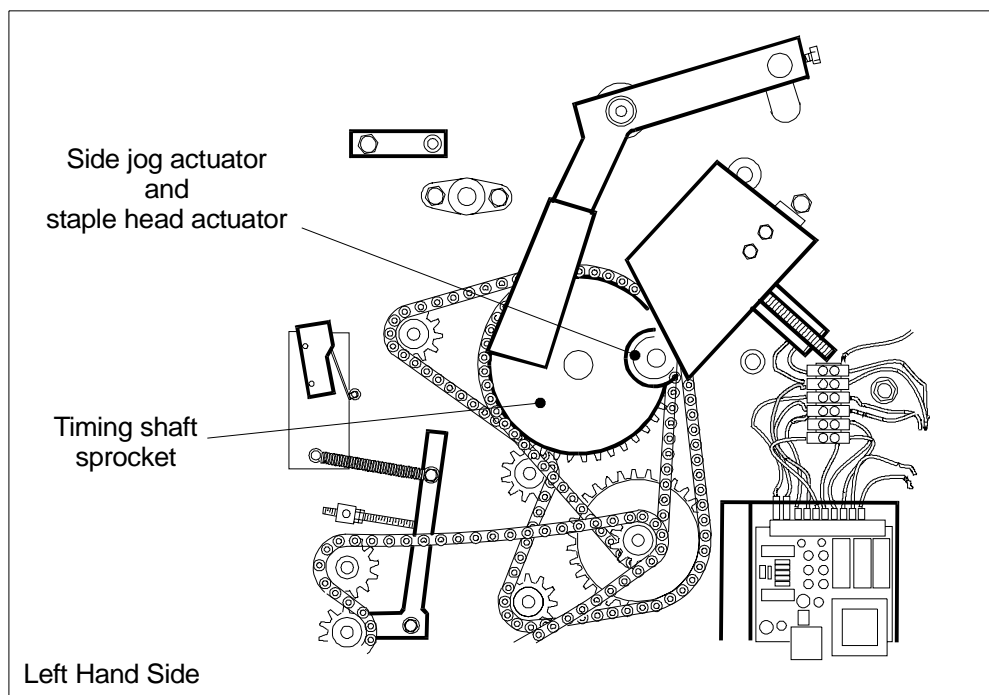


Figure 3.2 - Left-hand side of Bookletmaker

4. The next adjustment is to ensure that the timing shaft sprocket is stopping in the correct position. This is at just prior to 3 o'clock as shown in figure 3.2. This sprocket is moving in an anti-clockwise direction. To change the rest position of this sprocket, adjust the position of the main timing cam on the timing shaft.
5. After each adjustment cycle the bookletmaker to check resting position.

3.3 Side jog actuating cam.

1. Check the right-hand side of the Bookletmaker to ensure that the cam followers are in the same positions as shown in figure 3.3
2. Ensure that the large aluminium timing cam on the right hand side of the machine is in the correct position with respect to the timing sprocket on the left hand side. Release the cycle clutch and turn the machine over by hand until the ball race that is the staple head actuator is just resting on the staple head actuator compensation plate. Then adjust the aluminium cam on the right hand side so that its ball race is also just resting on its staple head actuator compensation plate.
3. The bolt for the spring tensioner on the staple head compensation plate should be factory set with 22mm (7/8") from inside of locking nut to inside of bolt head.

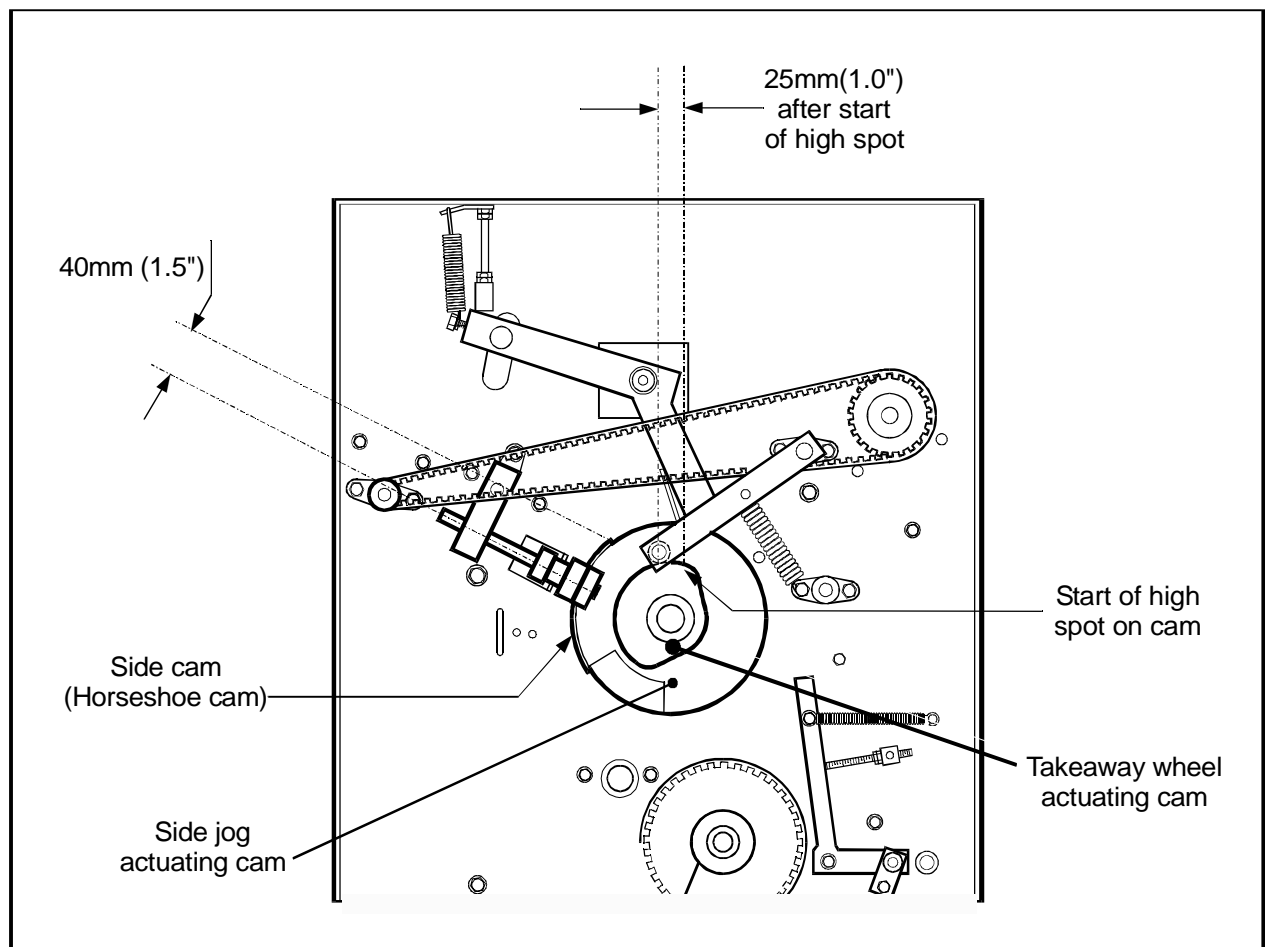


Figure 3.3 - Right-hand side of the Bookletmaker

4. On the right hand side of machine there is a large aluminium cam, the side jog actuating cam, which also has a ball race fitted, also the stapling head actuator. This cam has to match the sprocket on the left hand side. To achieve this, turn machine over by hand by releasing the clutch, see figure 3.5, until both ball races come into contact with their activating levers simultaneously. If needed adjust the aluminium cam.

3.4 'Knife-In' cam.

1. Ensure that the knife-in cam, knife-out cam and the paper stop cam are in the position shown in figure 3.4.
2. When the machine is at rest this cam should be approximately 6 mm (0.25") from the knife-in screw. This cam is held by two grub screws and is dimpled to the shaft; adjustment should be made by moving the timing cam, figure 3.4.

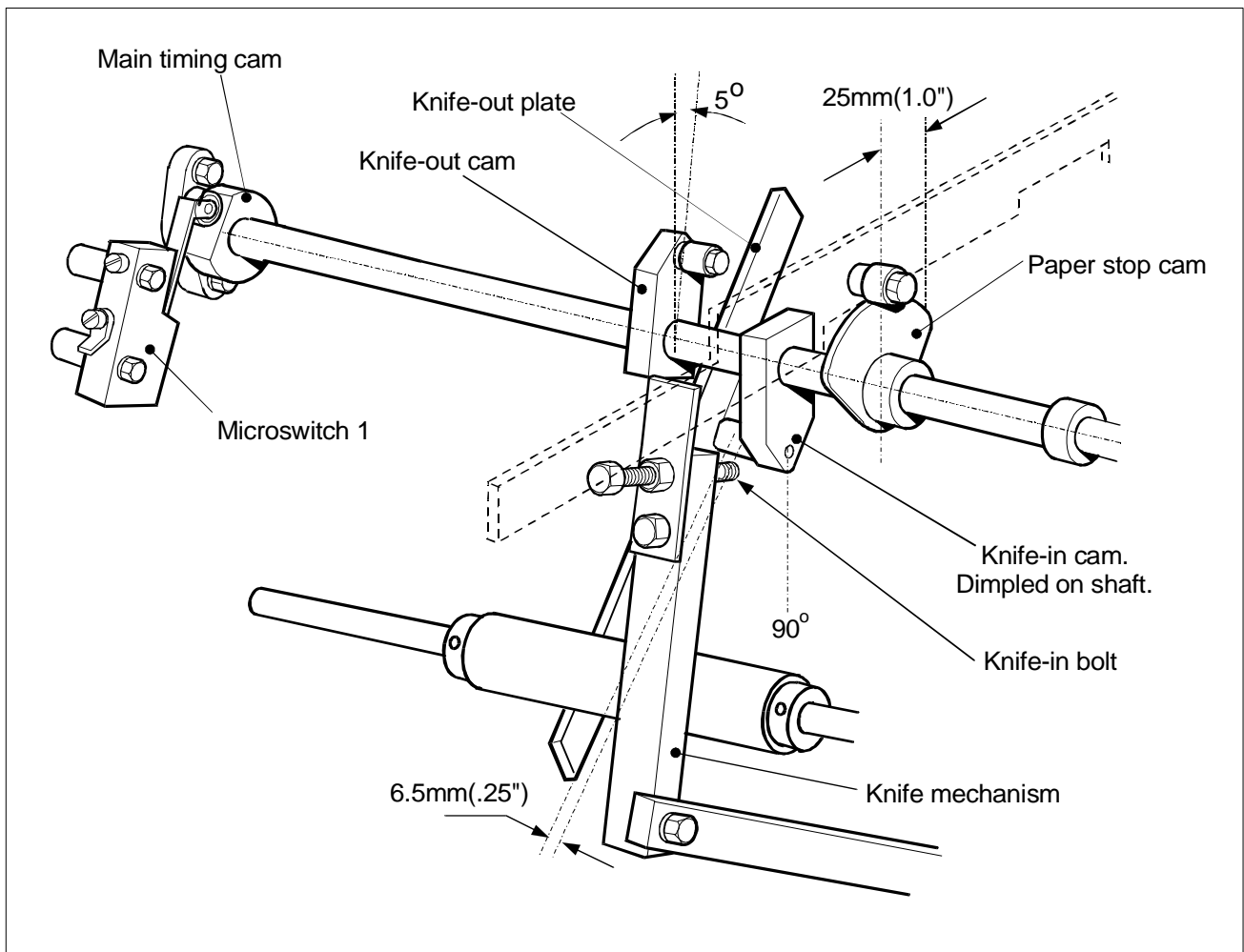


Figure 3.4 - Timing cam shaft.

3.5 'Knife-Out' cam.

1. Ensure that the knife-in cam, knife-out cam and the paper stop cam are in the position shown in figure 2.
2. Two screws hold the knife-out cam. The knife-in cam and knife-out cam must be set together, i.e. if one cam is adjusted, then the other must also be reset.
3. Using a flat head screwdriver, release the clutch by pushing down the clutch release plate, figure 3.
4. Turn machine over by hand until the knife-in cam has struck the knife-in plate and is just about to release at its highest point. The knife-out cam should now be just about to contact the knife-out plate.
5. Always be sure that a lock position between knife-in and knife-out cams does not happen, i.e. when the knife-out cam strikes the knife-out plate, the knife-in cam must be past the knife-in plate.

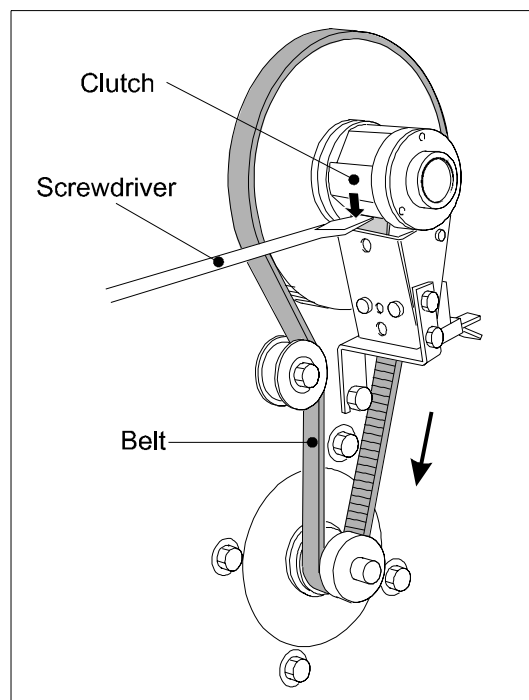


Figure 3.5 - Manual clutch release.

3.6 Paper stop cam.

The timing should be that as the machine ends its cycle the paper stop comes to a point 25mm (1") past its highest position.

3.7 Takeaway wheel actuating cam.

This cam is found adjacent to the side jog actuating cam and controls the timing of the paper takeaway wheel.

The correct timing is for the takeaway wheel to contact the lower wheel in paper table as stapling heads release paper. As a rough guide see figure 3.3.

4. CHECKING AND ADJUSTING THE FOLD ROLLERS AND KNIFE.

If the fold is not even or is puckered around the staples, it will be necessary to adjust the fold rollers and knife blade to achieve the correct fold.

1. Turn off the power at the mains and disconnect the mains cable from the power supply. The machine will always stop in the 'rest position' having completed its cycle.
2. Remove the two side covers and the top front cover by removing their fixing screws.
3. Using a flat head screwdriver, release the clutch by pushing down the clutch release plate. See detail A, figure 4.1.
4. Turn the clutch pulley mechanism manually clockwise until the knife assembly is at its furthest position between the fold rollers, figure 4.1.

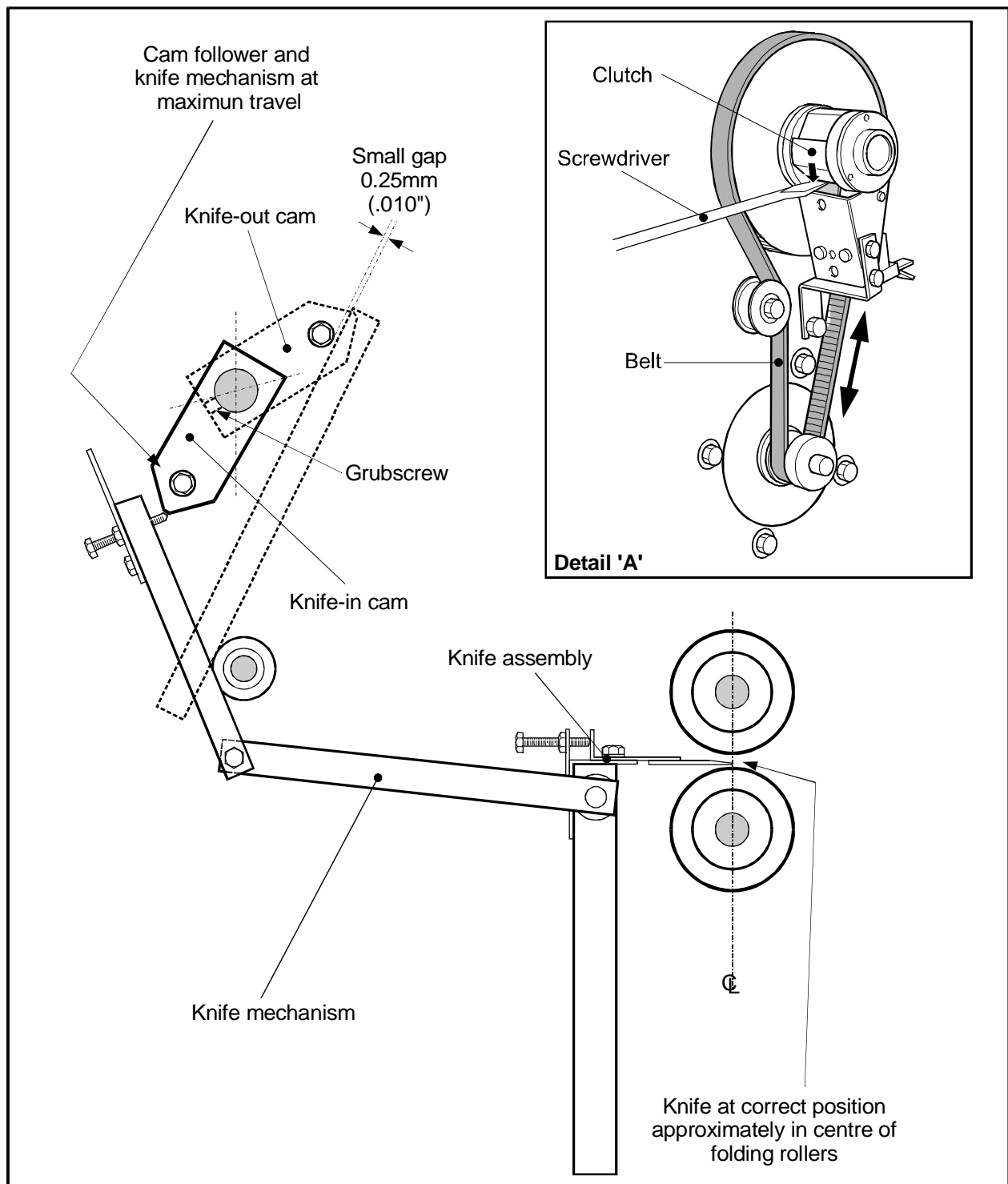


Figure 4.1 - Knife at maximum travel position.
Detail A - Clutch release.

5. Ensure there is a gap of 0.25 mm (0.010") between the knife-out cam and the knife-out plate. Adjust if necessary by moving the cam on its shaft.
6. Using a feeler gauge, ensure that the knife is just clear of the bottom of the fold roller with an even gap along its entire length, approximately 0.125 mm (0.005").

7. Measure the gap between the two fold rollers, this should be 0.625 mm (0.025"). See figure 4.2.

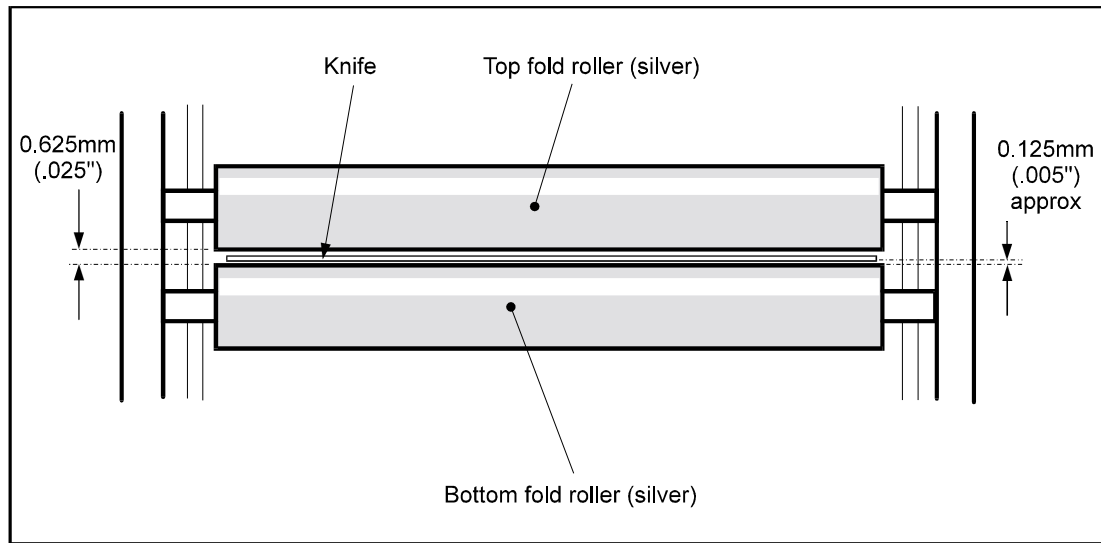


Figure 4.2 - Fold rollers and knife settings.

8. If the gap between the two rollers is not set correctly, the rollers can be adjusted by releasing the locknut on the top of the mechanism at the sides of the machine, figure 4.3.

Do not adjust using the bottom fold rollers as this will alter the gap between the bottom fold roll and the knife.

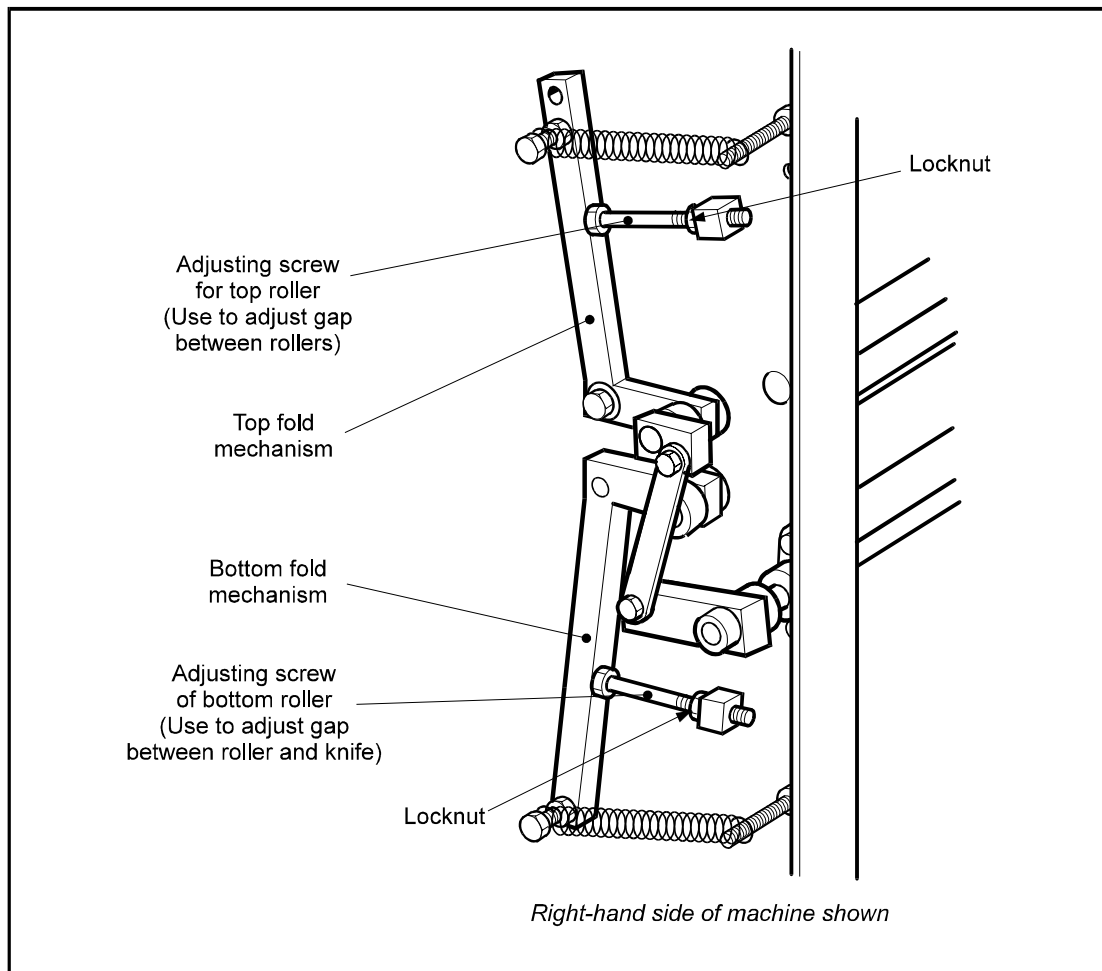


Figure 4.3 - Adjusting the knife assembly.

9. If the knife is not parallel to the bottom roller, slacken the locknut on the bottom roller mechanism on both sides of the machine, figure 4.3, and reset the knife. It may be necessary to repeat step 8 if the knife has been reset.
10. When correct, re-tighten the locknuts on both sides of the machine.

11. If the knife edge does not run parallel with the centerline of the two fold rollers, release the 4 bolts on the top of the knife assembly, figure 4.4. Using the adjusting screws move the knife to its correct position. When correct tighten all bolts and locknuts.

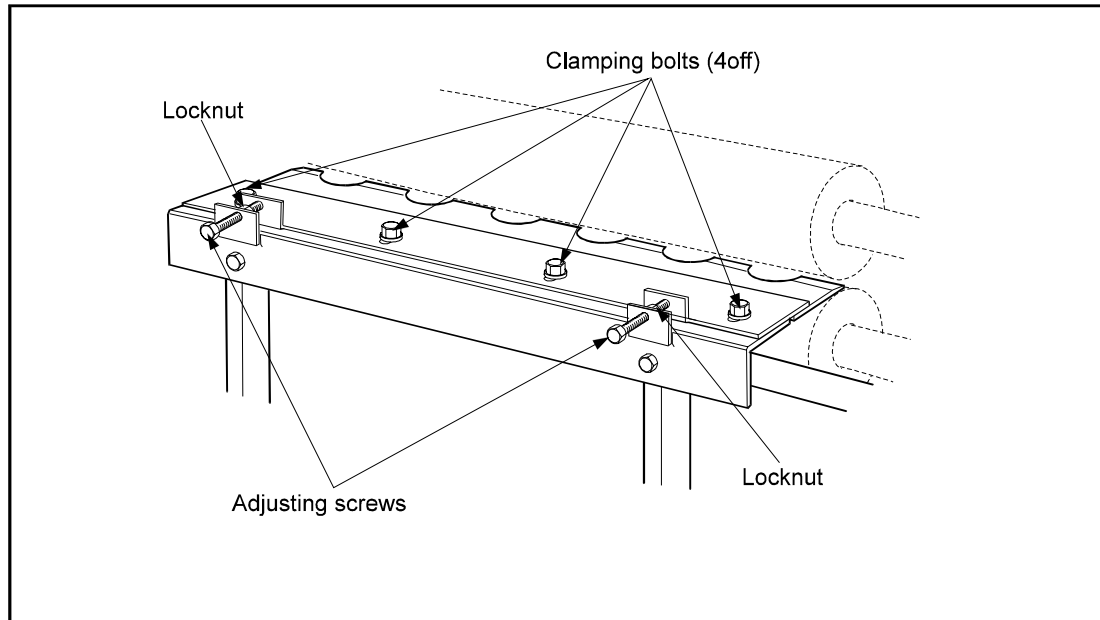


Figure 4.4 - Knife clamp bolts and adjusting screws.

5. RESETTING CALIBRATION WHERE STAPLES ARE OFF FOLD LINE.

If staples are not on the fold line and the fault can not be rectified using the incremental adjusting control (3000 and 5000 only), it will be necessary to reset the drive pulleys at the top, on the right-hand side of the machine. To reset this follow the sequence below:

1. Remove the right-hand side cover.
2. Remove the staples from the stapling heads.
3. Release the fold stop clamp and turn the fold stop adjustment wheel to set the indicator stop at 'A4' (8½" x 11") on the scale. Figure 5.1.

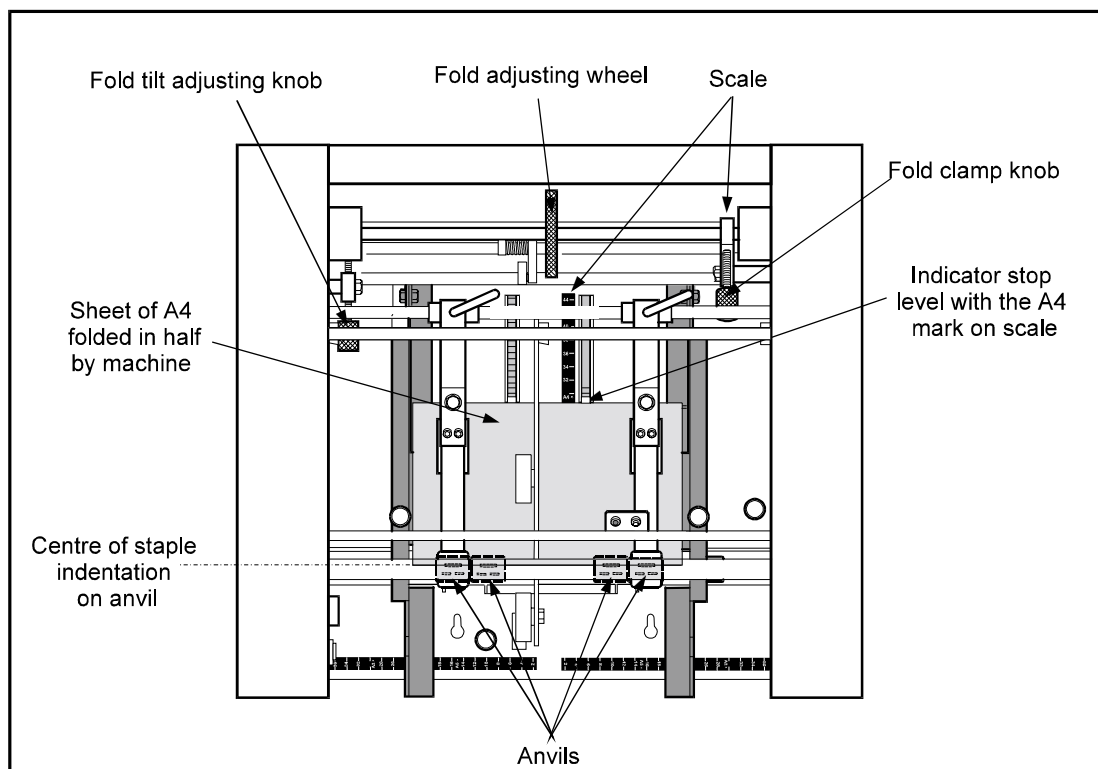


Figure 5.1 - View showing plan of machine.

4. Turn on the Bookletmaker and run a few A4 (8½" x 11") sheets through to ensure that the fold is along the center of the sheet. Figure 5.2, details A, B and C.

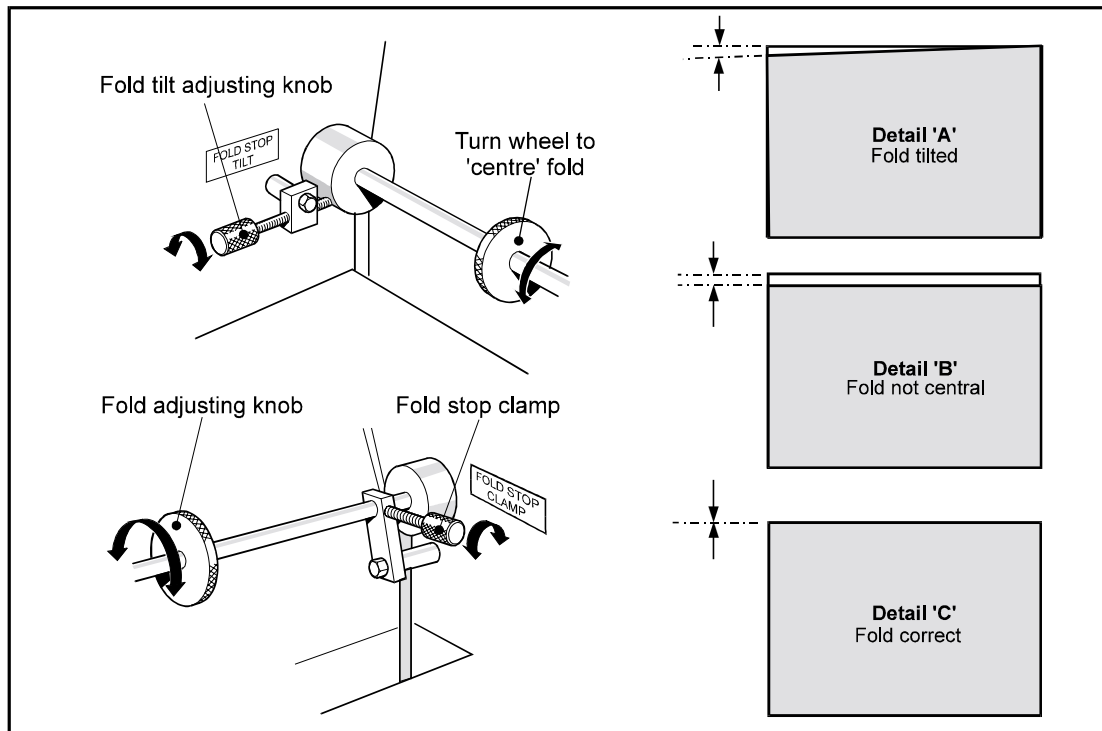


Figure 5.2 - Adjusting the fold.

5. If not square, detail A, adjust the fold tilt adjustment until correct. This must be checked by running more sheets.
6. If the fold is not in the center of the sheets, detail B, release the clamp nut and turn the fold adjusting wheel slightly and re-test until the sheets are folded along their center, detail C.
7. Tighten the fold clamp knob.

8. Replace the staples and run sheets through the machine. If the staples are not on the fold slacken the two grub screws securing the larger aluminium pulley, figure 5.3, and turn the small pulley using the belt until the indicator is lined up with the 'A4' (8½" x 11") mark on the scale.

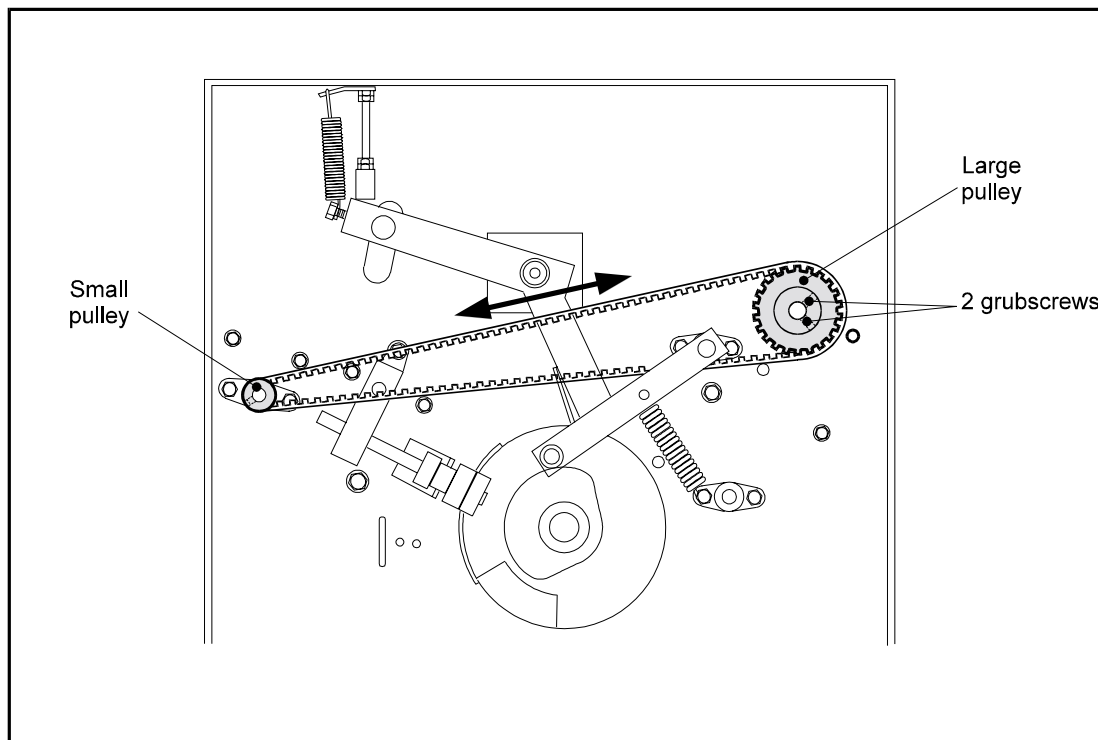


Figure 5.3 - Re-setting the fold indicator.

9. Tighten the pulley grub screws and then replace the side cover.

6. EDGE / CORNER STAPLE STOP SETUP (5000 only).

This unit is linked to the paper stop arm and therefore gets its timing from the paper stop cam. The only adjustment to the unit which may be needed is to the height of the paper stops.

To adjust these stops, turn the Bookletmaker over by hand until the paper stop arm has reached its lowest position. The edge paper stops should now be set so that the top edge of the stops are just below the anvil bar, this is done by loosening the retaining nuts on the stops which are slotted, adjust and re-tighten.

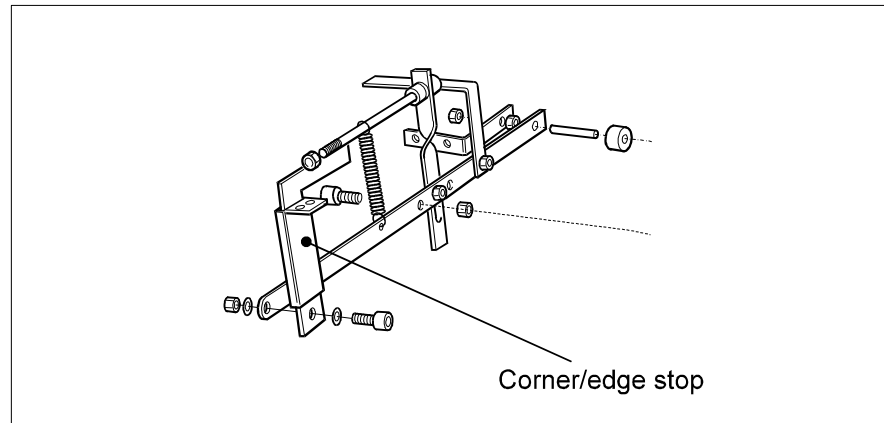
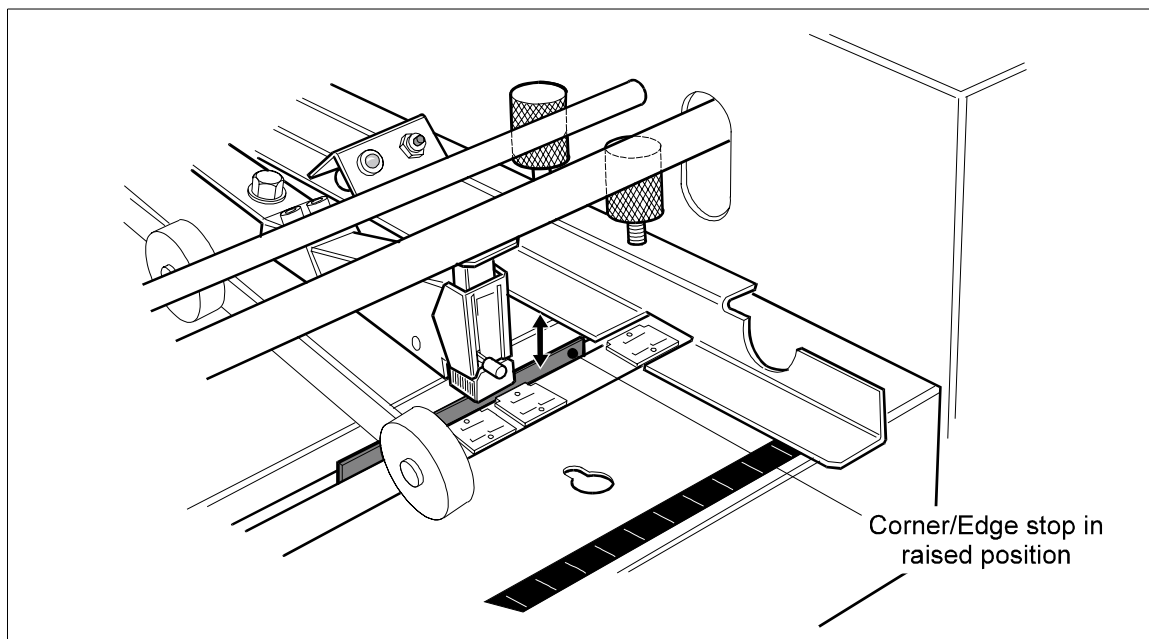


Figure 6.1 & 6.2 - Corner/edge stops



7. STAPLE OUT SYSTEM.

7.1 RAPID HEAD

The Staple Out System consists of :-

1. Detector photocell - An emitter and receiver are fitted by a cradle to one of the stapling heads. This photocell detects when no staples cover its path. There are only 30 staples left in the staple cassette at this time.
2. PC Board - Mounted below the main control board in the side panel of the machine, this board begins a count down, from 28, when the photocell is uncovered.

At zero count, the staple out PCB illuminates the staple out indicator lamp and also signals the main control board to stop the operation of the Bookletmaker.

3. Staple Out Indicator lamp - Illuminates to indicate lack of staples. This lamp is mounted on the staple actuating bar running across the top of the stapling heads.
4. Reset button - After replenishment of the staples, the reset button should be operated to reset the count in the PCB.
5. Staple Out Detection Off Switch - A toggle switch is located on the rear of the Bookletmaker, above the time delay potentiometer knob, allowing the detector photocell to be switched off if the job requires folding without stapling.

System operation is as follows :-

1. Each staple cassette should be charged with a complete stick of staples, approximately 210. If not, ensure that a similar number of staples is placed in each head. For the Staple Out System to operate a minimum of 35 staples must be loaded.
2. Ensure the Staple Out Detection Switch is set to ON.
3. The Bookletmaker is now ready for use.
4. During operation the Bookletmaker will continue to run until two or three staples are left, and then the Staple Out Indicator, figure 3, will illuminate and the Bookletmaker will stop.
5. Leaving the remaining three staples in the cassette, the operator must now refill both staple cassettes. Close both cassettes securely and press the reset button before continuing the job.

Note: If the Bookletmaker is switched off with less than 30 staples in the cassette, the count is lost, i.e. when switched back on, the machine will not detect that staples are low. To avoid this, do not switch the machine off for short periods of non-operation. The Bookletmaker motor will automatically shut down if left unattended for more than 3 minutes, however in this case the staple count is retained.

7.2 HCS HEAD

The HCS head is connected to the Staple Low Indicator Panel by a plug-in lead which is fitted to the HCS head. Each head has its own indicator. When a staple has not fired the machine will stop, indicating that either there is a jammed staple in the head, or that the cassette is empty of staples.

In this instance, the Staple Out Board is looking for electrical continuity between the staple driver and the anvil at any point in the cycle. This is provided by a staple being feed.

8. STAPLE JAM.

8.1 RAPID HEAD

To clear jammed staples from heads, pull up on bottom of the stapling head near the front to eject any damaged staples. Repeat this step two or three times to make sure that staples are being ejected correctly and are not damaged.

WARNING - When clearing jammed staples, do not put fingers under front-most portion of stapling head, so avoiding injury to fingers from staples being ejected from the head.

Make sure that the anvils are clear of all loose and/or damaged staples.

8.2 HCS HEAD

To clear jammed staples, remove HCS head from the machine and operate the staple driver by hand.

Before inserting the staple cartridge, pull out 25 mm (1") or more of staples. Then tear off at the 'staple tear line' by pulling downward on the staple belt.

WARNING - When clearing jammed staples, do not put fingers under front-most portion of stapling head, so avoiding injury to fingers from staples being ejected from the head. Also ensure the head is pointed toward the floor, as the staple are ejected with some speed.

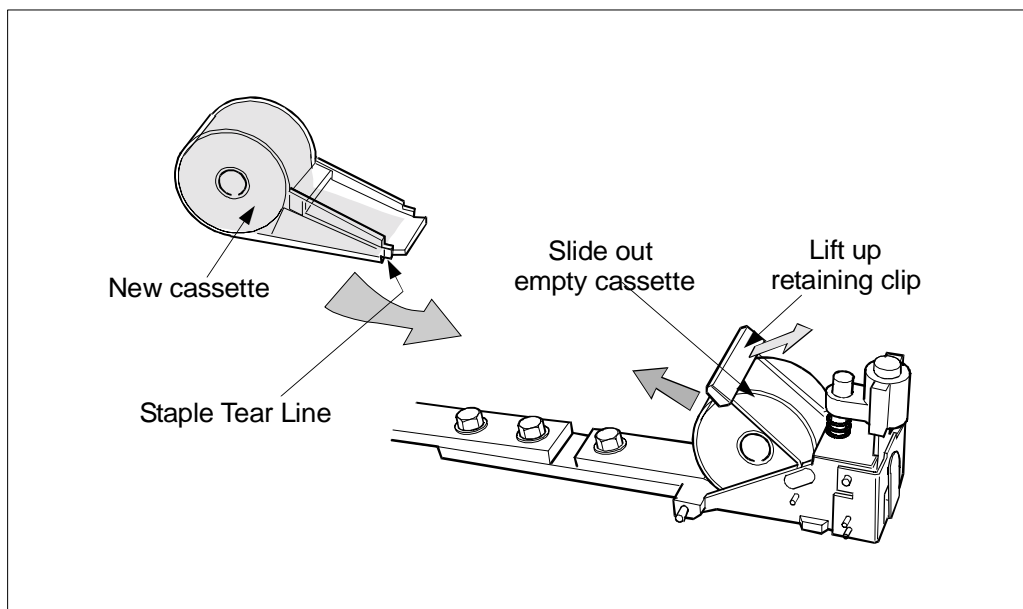


Figure 8.2 - HCS Staple Cartridges.

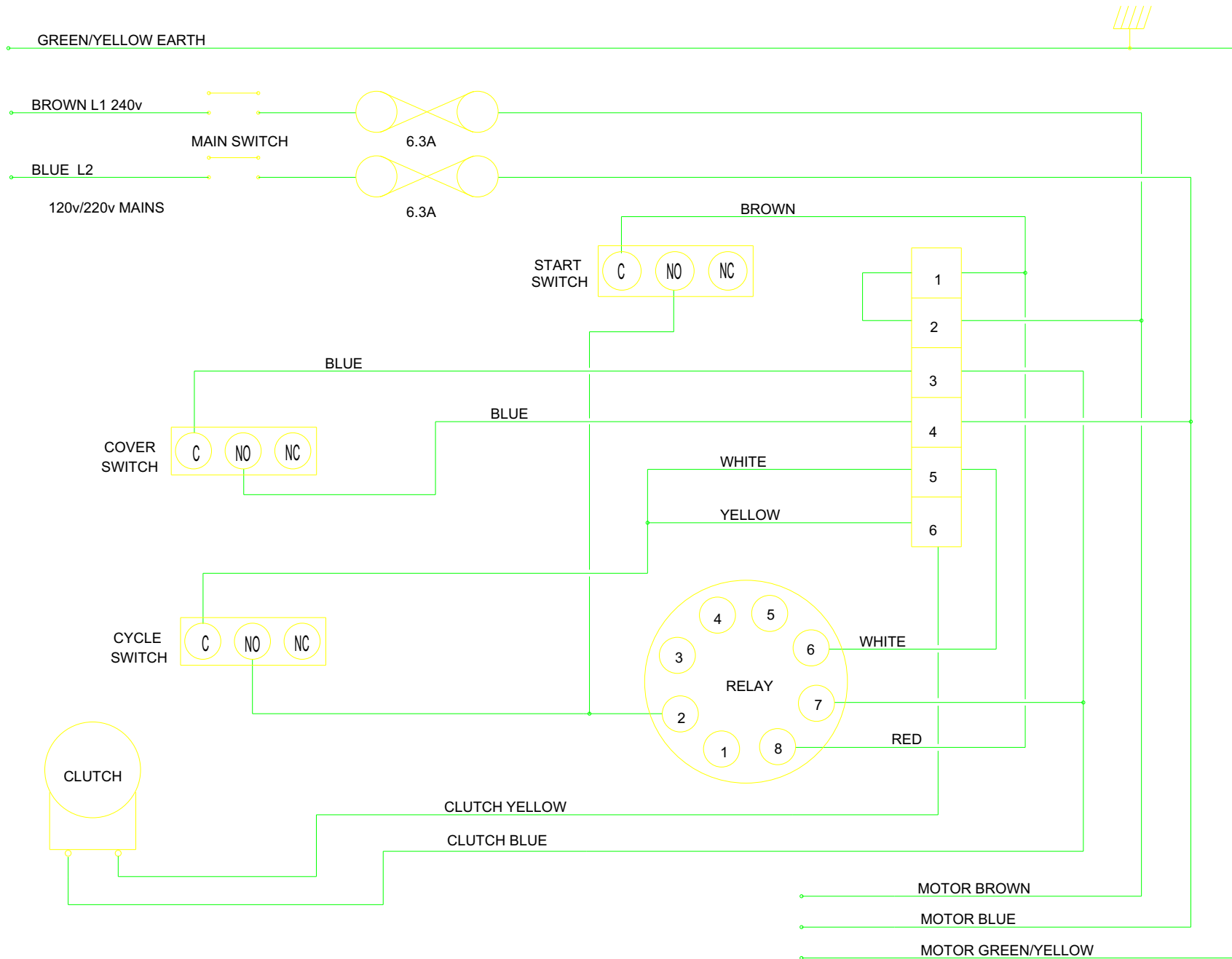
9. PROBLEM SOLVING - ELECTRICAL FAULT FINDING.

PROBLEM	POSSIBLE CAUSES	REMEDY
Motor will not start	Blown Fuse	Switch off and unplug m/c. Check and replace fuses as necessary
M/c will not start when paper is inserted	Powerful light source from above	Shield safety cover from light or move m/c
M/c will not cycle	M/c in jam mode	Remove paper from m/c in stapling section to allow photo-cell to reset
Paper jams in stapling section	Wrong length of staple leg for paper thickness	Use 66/6 staples for up to 15 sheets Use 66/8 staples for over 15 sheets
Stapling head jammed	Incorrect staples	Switch off m/c, lift safety cover, remove staples from cassette, clear jammed staples with tool provided.
Repeated jamming of stapling head.	Miss aligned head with anvil	Check that guide lines on stapling head and anvil match.
Staple legs breaking.	Miss aligned head with anvil	Check that guide lines on stapling head and anvil match.
One staple not on fold line	Fold stop out of line	Adjust tilt screw
Book does not travel through m/c after stapling	Side guides too tight	Open right hand side guide
Pinching around staples	Residue being left on rollers	Clean rollers
Book not ejected from fold rollers.	Knife not traveling far enough forward.	Remove power from m/c, remove top front cover, adjust knife forward by its four fixing screws, replace cover
Staple out system not working	Dip switch on PCB 'PSKF04' not set	Dip switch no. 3, 4, 5, & 6 should be in the 'up' position
Staple out system not working	Photocells on stapling head out of line.	Check voltage reading on wires tagged red and yellow should read approx. 1 volt dc, realign till correct.
Staple legs breaking	Miss-aligned stapling head with anvil	Check that guide lines on head and anvil match

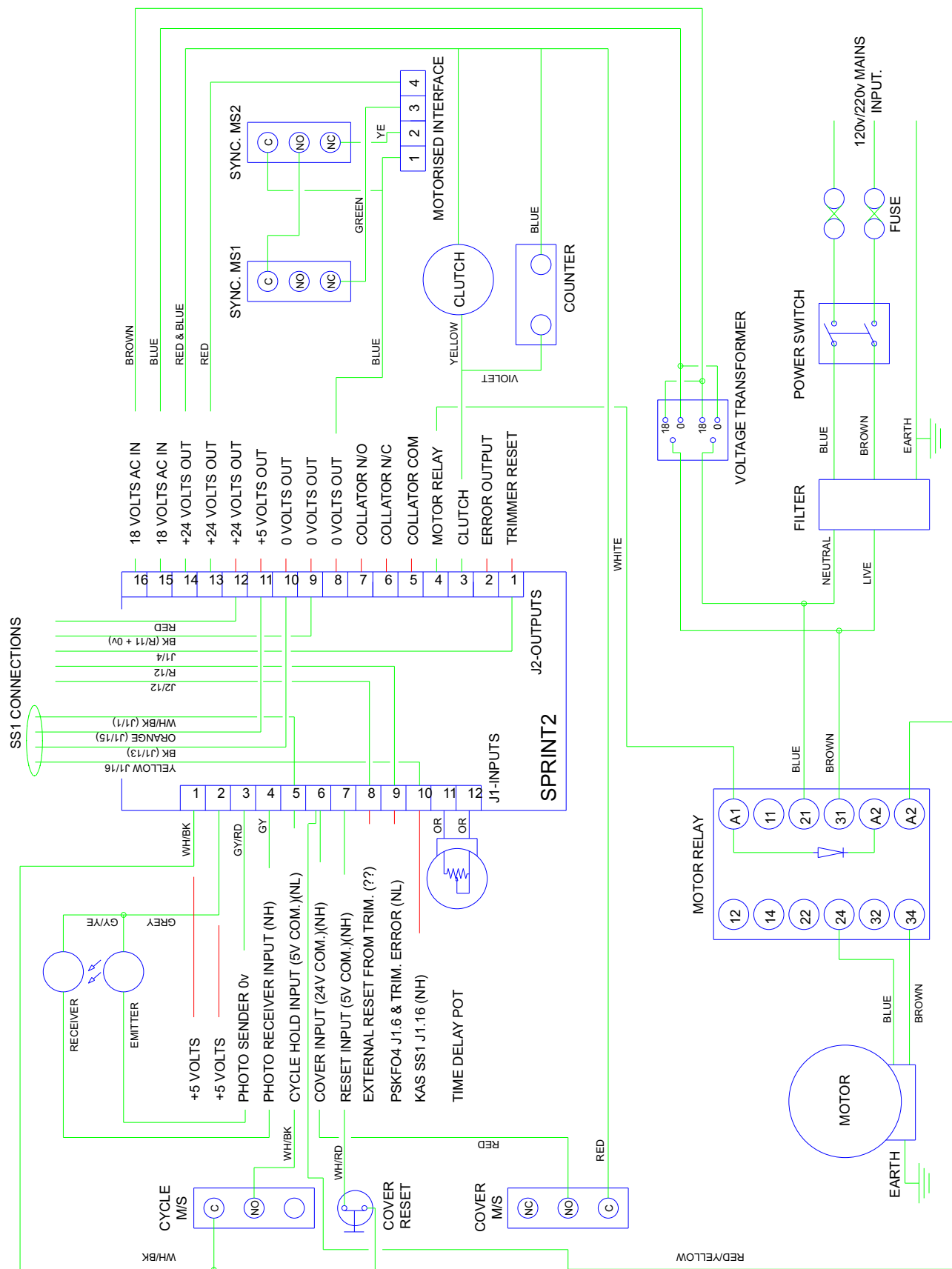
M/c continues to cycle	Microswitch on timing cam needs resetting	Turn m/c over by hand and set microswitch to open and close on timing cam.
Motor starts and m/c cycles when m/c is switched on, but no paper is under photocell	Faulty photocell receiver.	Shine torch at receiver in anvil bar and ensure signal at PCB. If not, replace receiver.
M/c runs continuously	Faulty photocell emitter or PCB.	Check if photocell in anvil bar is receiving light by shining a torch at receiver, if m/c stops change emitter. If fault persists, change PCB.
M/c cycles repeatedly	Faulty counter counting multiples (caused by diode in counter)	Change counter.
M/c double fires	Oil in solenoid.	Clean solenoid.
Clutch will not fire	Faulty PCB or wiring.	With paper under photocell, check for mains output for terminal 10, if none change PCB. Then check voltage at solenoid.
Clutch will not fire	Jammed clutch	Check that clutch actuator is releasing. It is possible for back pressure to make actuator tight. With m/c switched off release actuator by hand, then operate m/c. If fault persists, check for tight shafts in m/c.
Motor will not start	Faulty PCB or wiring	Check terminal 9 on PCB PSFK01 for mains input. With paper under photocell check for mains output from terminal 11. If none change PCB. If output voltage exists check wiring to motor.
M/c stops during cycle.	Incorrect microswitch setting or faulty microswitch.	Reset or replace.

APPENDIX A: Wiring diagrams

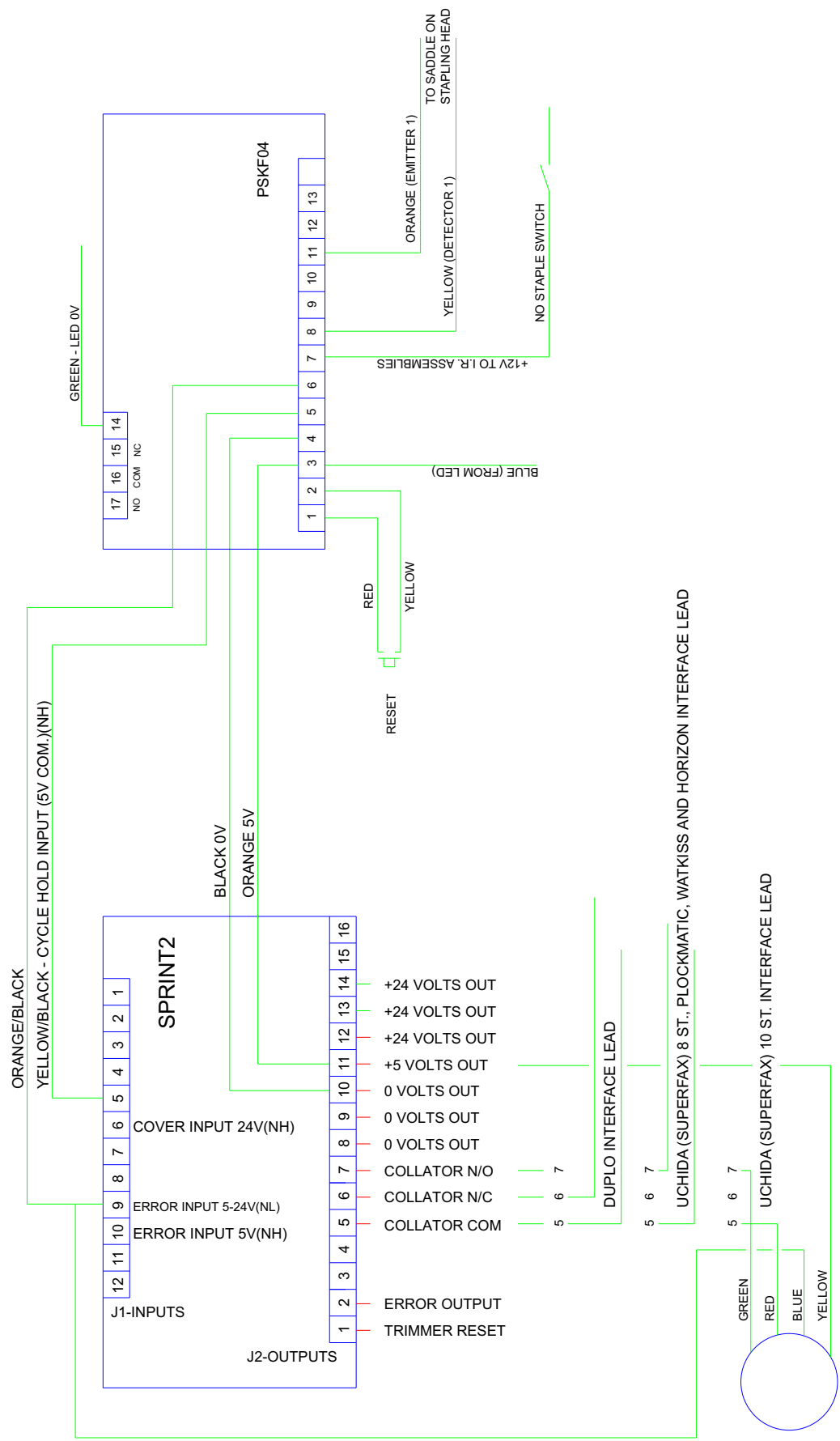
KASFOLD 1000
BOOKLETMAKER WIRING DIAGRAM.



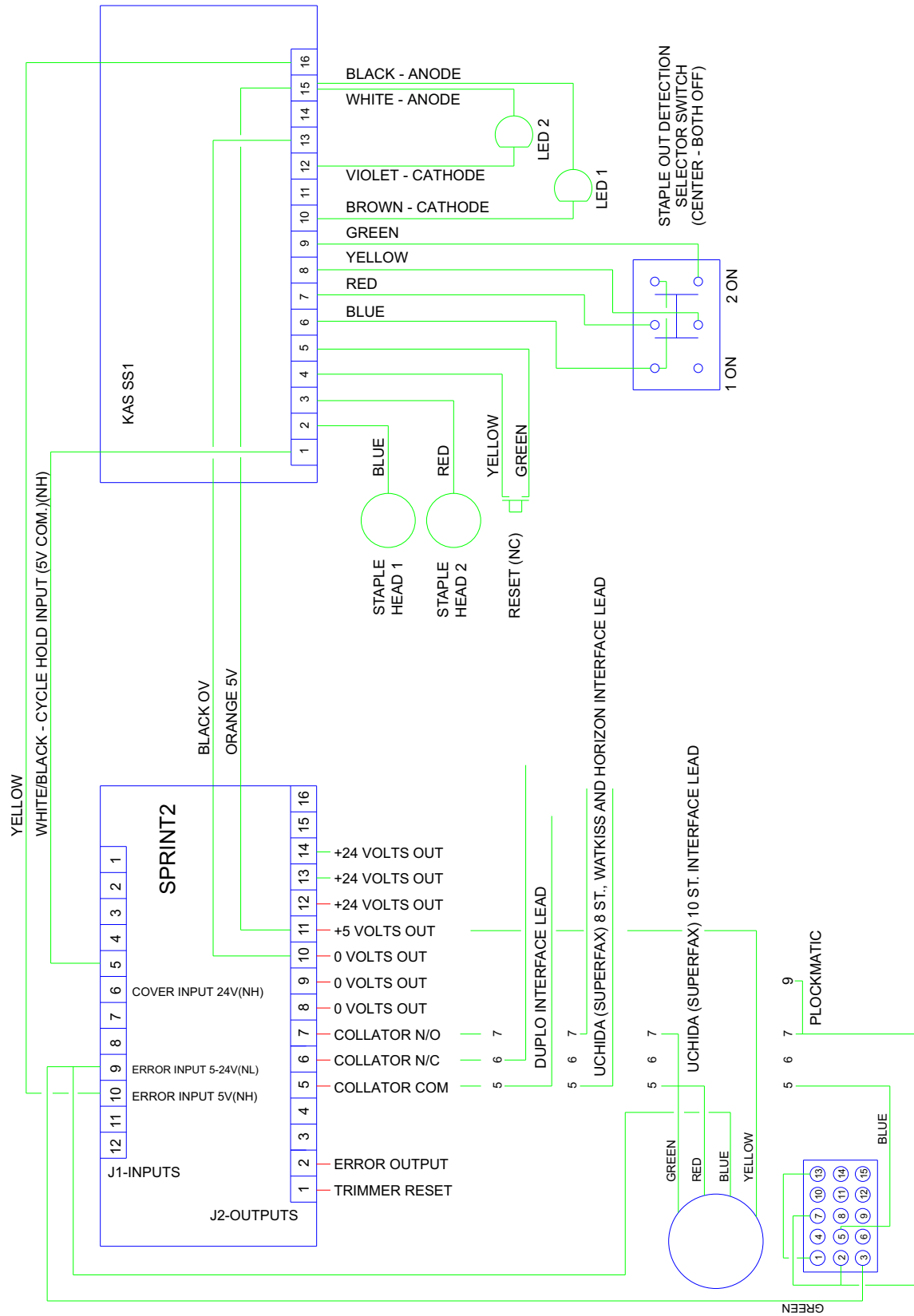
BOOKLETMAKER WIRING DIAGRAMS.
MODELS 2000, 3000 & 5000.



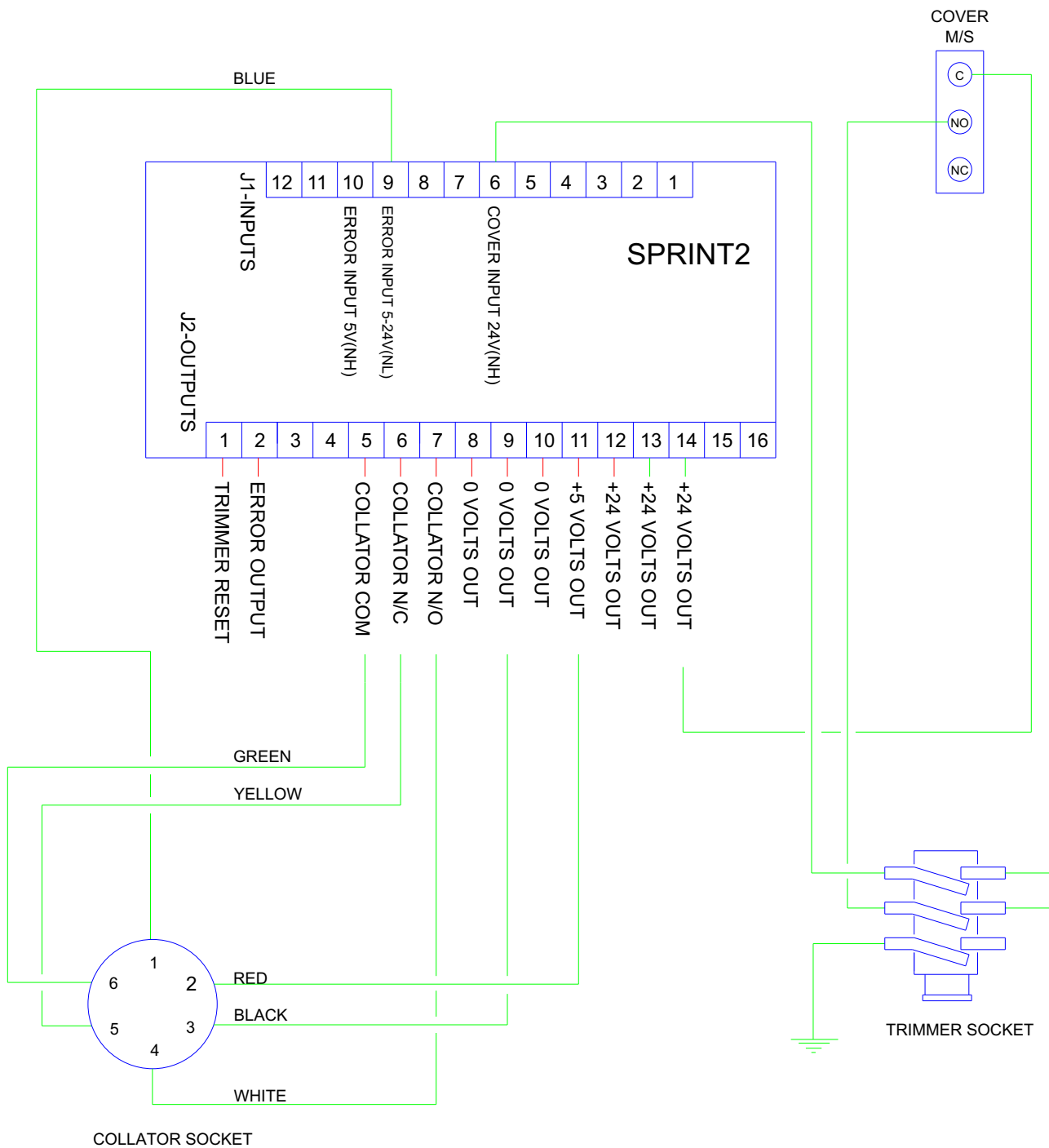
'STAPLE OUT SYSTEM' AND 'STOP FOR ON-LINE COLLATOR' WIRING.
FOR 24v SYSTEMS WITH 210 CAPACITY STAPLE HEADS.



'STAPLE OUT SYSTEM' AND 'STOP FOR ON-LINE COLLATOR' WIRING.
FOR 24v SYSTEMS WITH HCS MODEL STAPLE HEADS.



BOOKLETMAKER WIRING DIAGRAMS.
INTERFACE CONNECTIONS



BOOKLETMAKER WIRING DIAGRAMS.
MODELS 2000, 3000 & 5000.

