

Morgana FSN Suction Feed Rotary Numbering Machine

Instruction Manual



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FSN

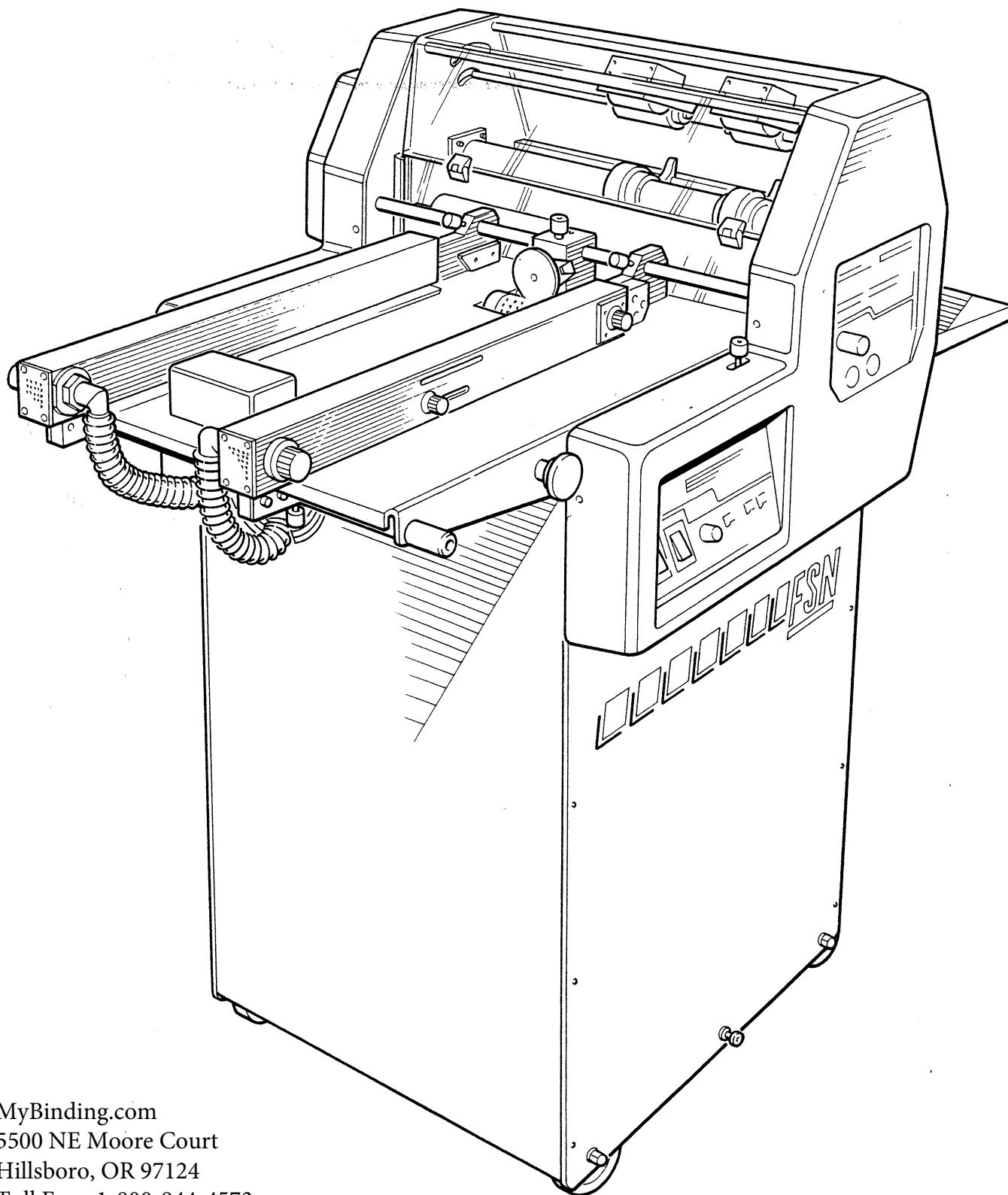
**SUCTION FEED
ROTARY NUMBERING
MACHINE**

OPERATORS GUIDE

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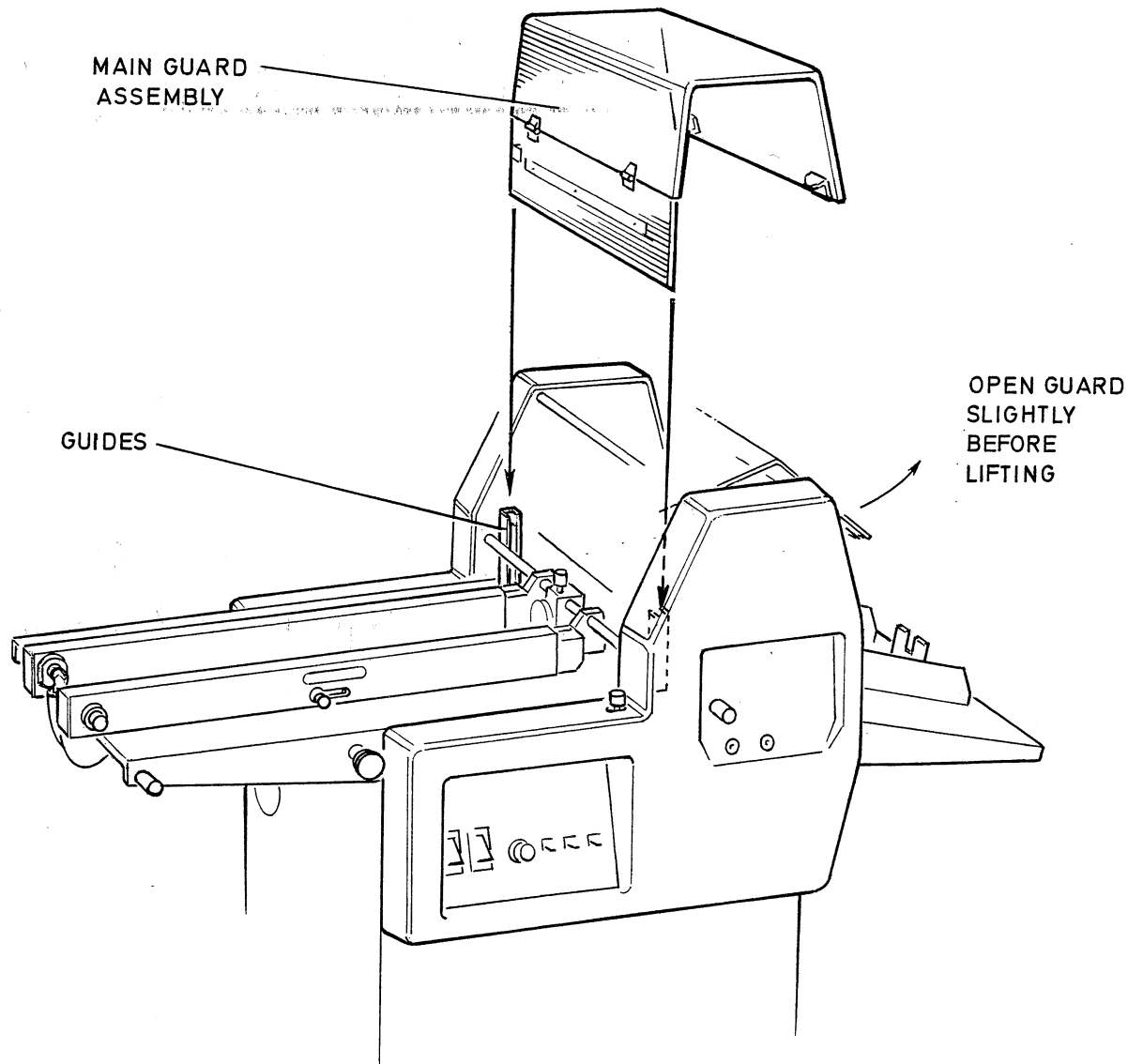
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Morgana **FSN**
ROTARY NUMBERING MACHINE

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Main Guard..... Fig 1.11

1.1..... Main Guard

The main guard is normally opened at the stacker end, and is pivoted all the way over until it rests on the feeder.

The complete guard maybe removed from the machine by lifting off it's guides as shown in fig. 1.1.

NOTE..... *The machine will not run until the guard is correctly fitted.*

1.2Stacker

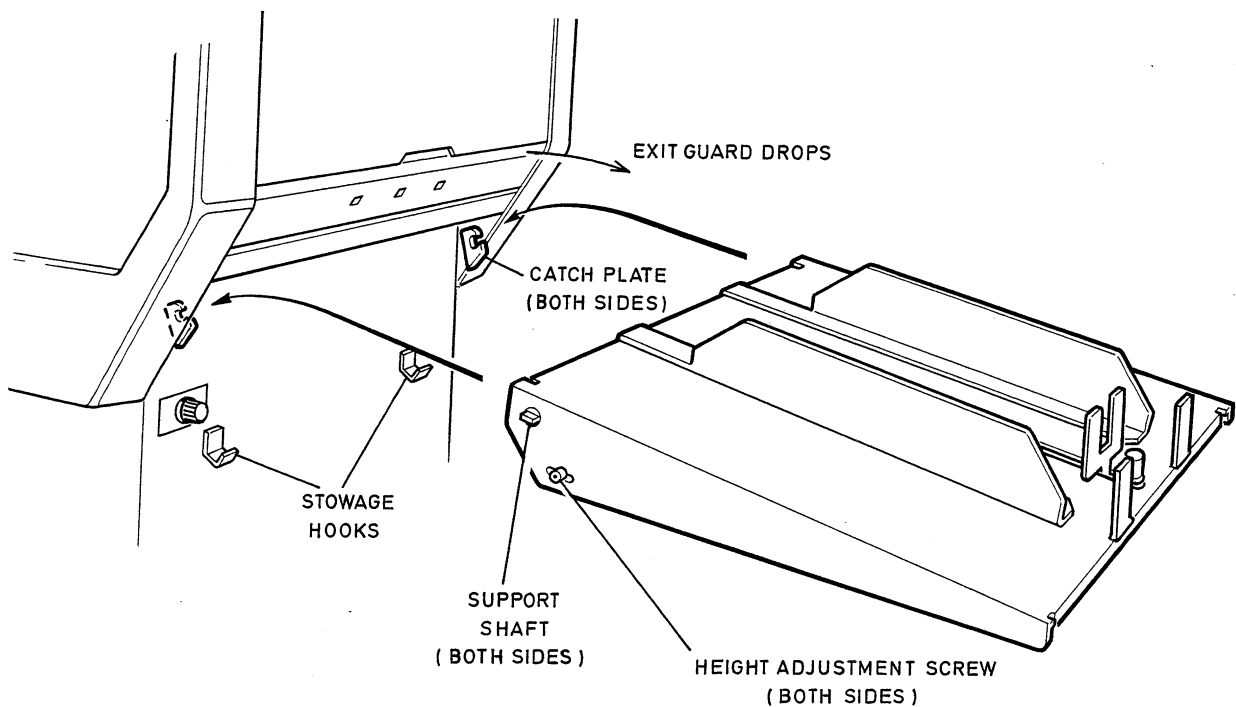
The stacker is fitted by locating the support shafts each side into the catch plates. Raising the end of the stacker will allow it to fit. It may then be lowered into position.

The height adjustment screws on each side may be positioned to obtain the optimum height. It is recommended that only one screw at a time (using a 5mm allen key) is released when adjusting the stacker height.

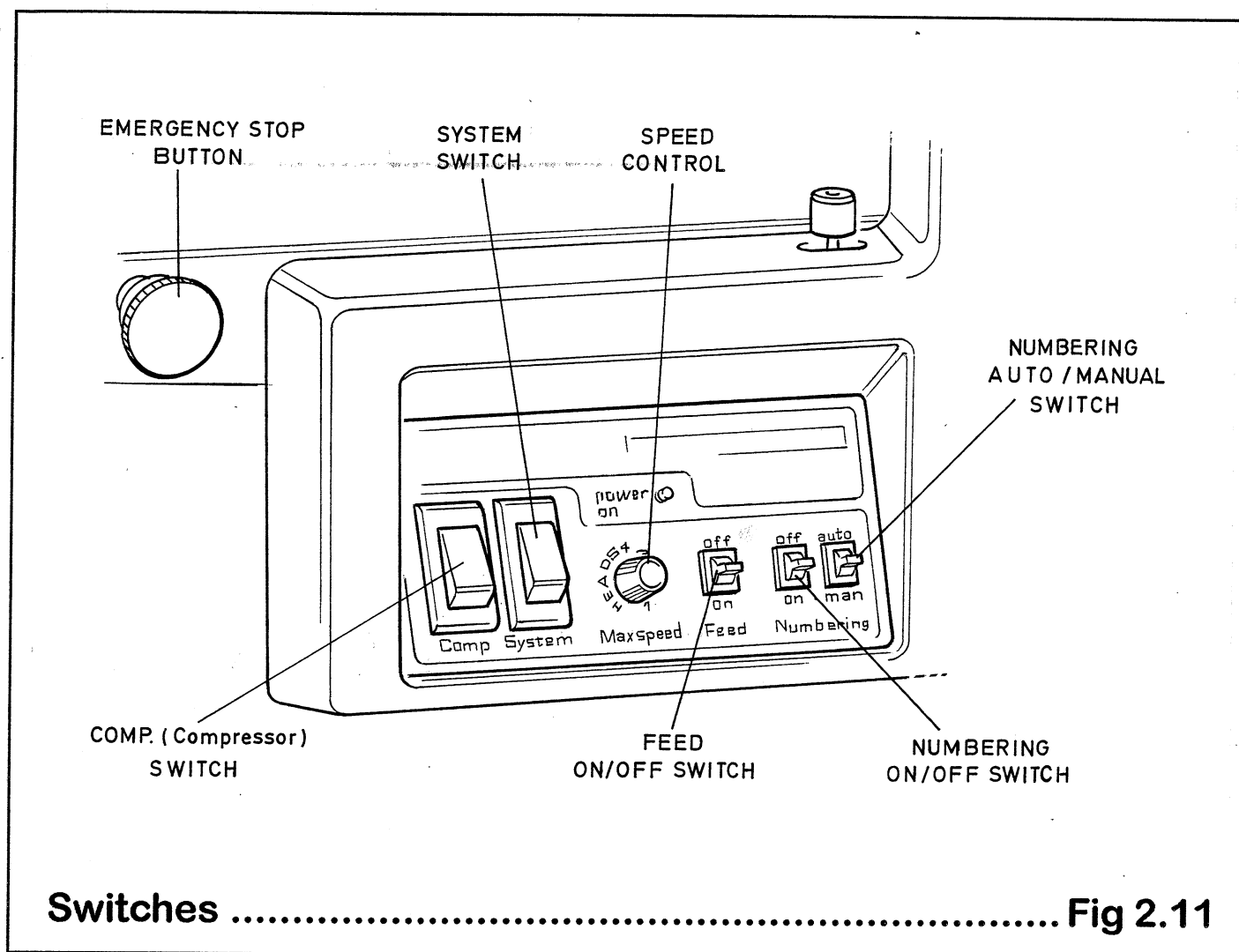
When not in use, the stacker may be hung on the stowage hooks.

With the stacker removed, the exit guard will drop fully for the best access to the output perforating and scoring shafts.

NOTE..... *The machine will not run with the exit guard lowered.*



Stacker InstallationFig 1.21



2.1 Switches

Isolator This switch is located at the rear of the machine and will isolate the machine from the power supply.

Mains Power On Indicator Illuminates when the machine is connected to the power supply and the Isolator switched on. The System Switch will not latch, and the Auto/Man switch will be inactive if this indicator is not illuminated.

Emergency Stop Releases the System switch to stop the machine. To re-set, rotate clockwise.

NOTE..... The Machine will not start if Emergency Stop is engaged.

Compressor Switch Switches the pump on or off. This switch incorporates a circuit breaker and will switch off if the pump develops a fault.

NOTE.....*After operating the Compressor Switch, allow the Pump to reach full speed before operating the System Switch. If this procedure is not adopted fuse failure may result from a temporary overload.*

System Switch Switches the drive on or off. If a guard is open, this switch will not latch. If, while the machine is running, a guard is opened, this switch will trip and stop the machine.

Speed Control Controls the speed of the machine.

Feed On/Off Controls the paper feed by turning the vacuum on and off.

On/Off Numbering Disables the clutch, thus enabling sheets to be fed continuously without the numbering head rotating.

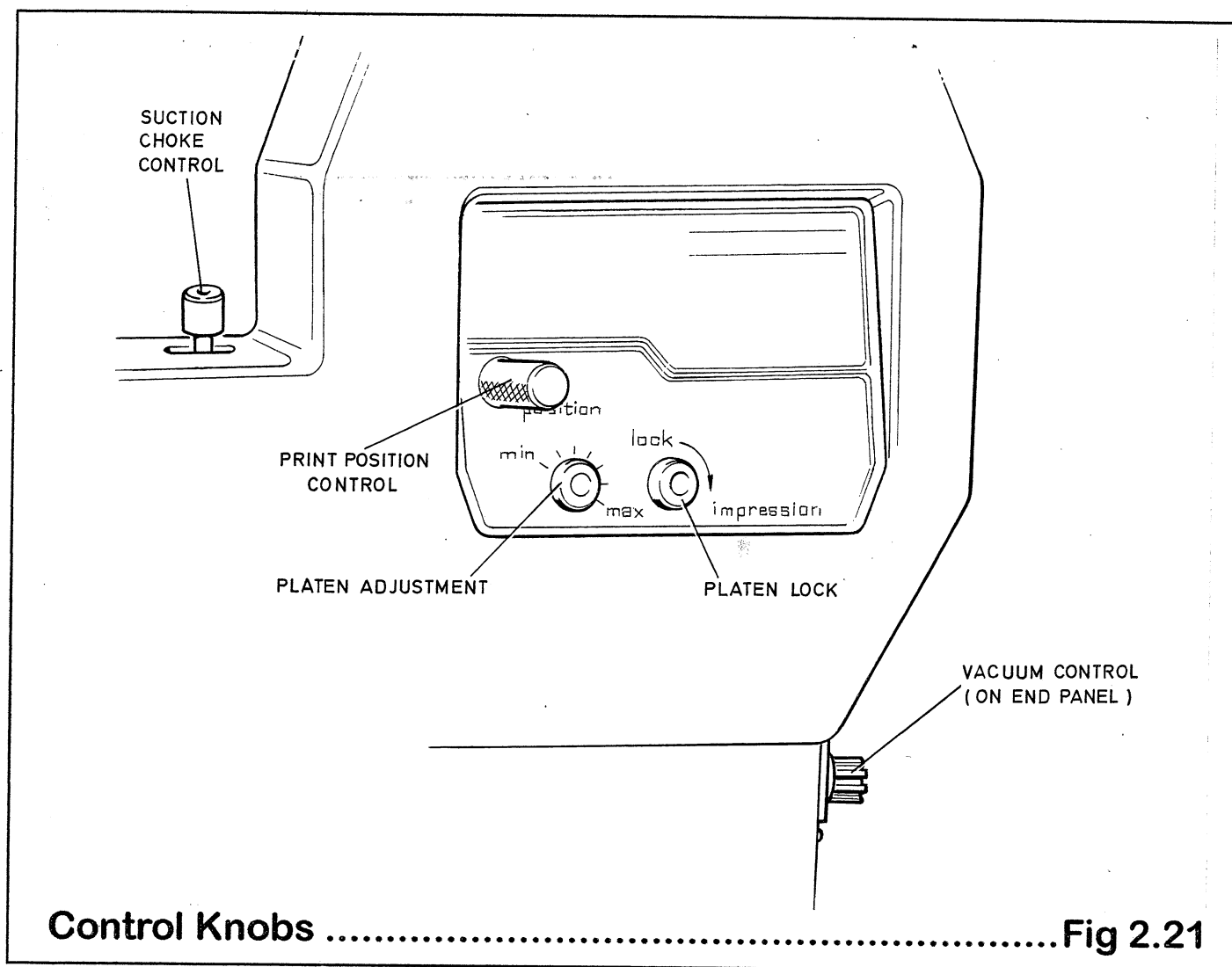
Auto/Manual Numbering Operating this switch to manual, will allow the numbering shaft to be turned by the handwheel to facilitate setting up.

WARNING

NEVER OPERATE THE AUTO / MAN SWITCH WHILST THE MACHINE IS RUNNING.

NOTE.....*Always connect the power cord directly to a suitable power outlet. Do not use extension cables as the resulting voltage drop may cause Fuses to blow, the System Switch to trip and the Compressor to overheat.*

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2.2 Control Knobs

Print Position A fine adjust control which gives +7mm or -7mm (+1/4" or -1/4") of movement to the print position.

The three rings indicate the general position of the control and clockwise rotation will move the number down the sheet.

One full revolution moves the print position 1mm (3/64")
The control may be rotated while the machine is operating.

Platen adjustment and platen lock. These controls are used together to adjust the platen (or printing) pressure. The pressure is adjusted as follows:-

Fit a 4mm allen key into the lock, and a 5mm allen key into the pressure control.

Loosen the lock and turn the pressure control either towards min or max as required.

Hold the pressure control in position while *lightly* tightening the lock.

The pressure control has a small mark to indicate it's position.

WARNING

ALWAYS OPERATE THE MACHINE AT THE LOWEST PLATEN PRESSURE NECESSARY TO MAKE A SATISFACTORY PRINT. DAMAGE TO THE MACHINE WILL OCCUR IF EXCESSIVE PRINTING PRESSURES ARE USED.

Suction Choke control This control is used to advance or retard the wrap of the sheets around the vacuum drum.

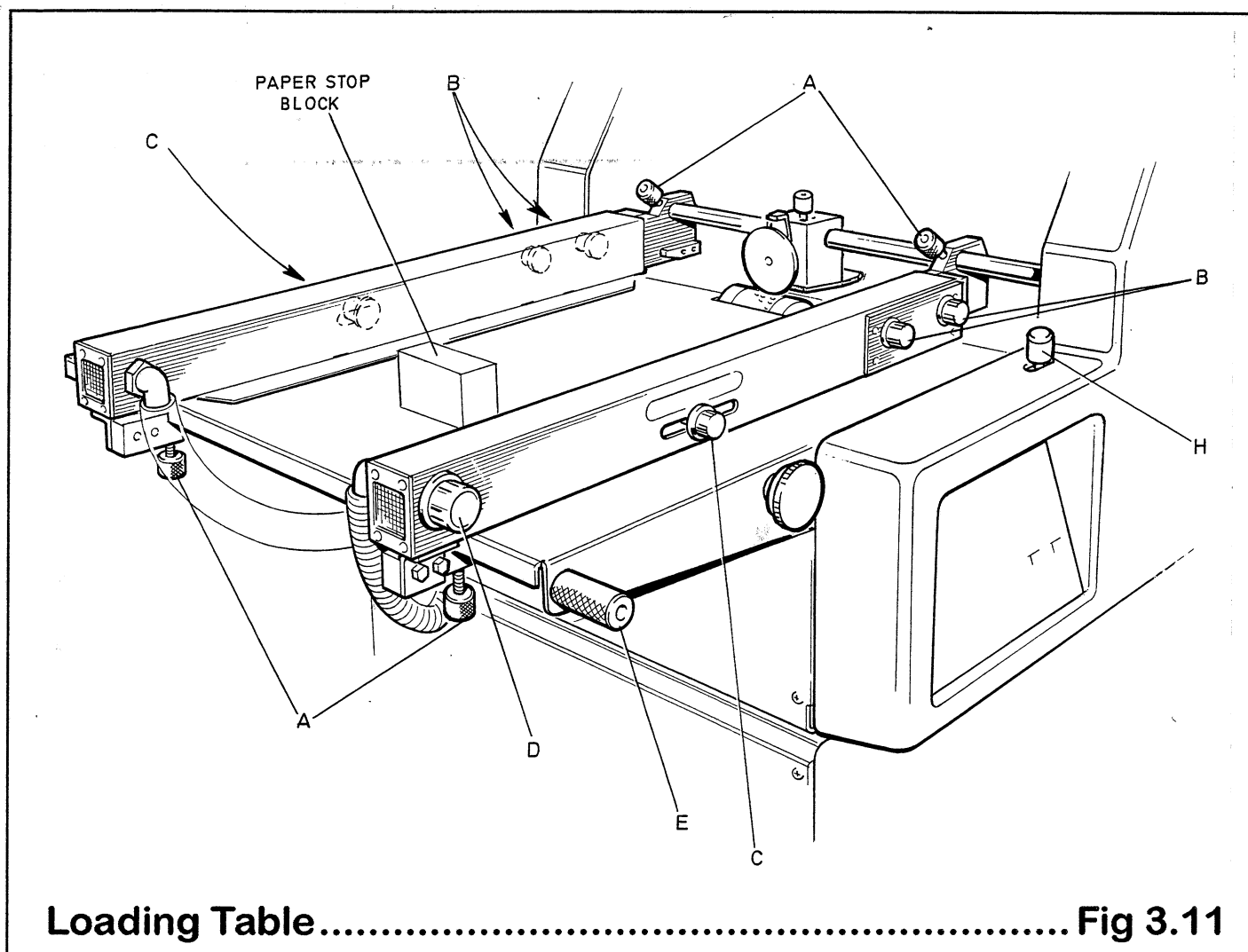
It is operated by turning anti-clockwise to release, and then moving forward (to increase wrap), or back (to reduce wrap).

Once the correct position has been established it should be turned clockwise to lock.

Vacuum Control Decreases suction to the Vacuum Drum to facilitate feeding light-weight stocks.

Handwheel The handwheel is located on the rear of the machine and is used when setting-up.

NOTE It is not necessary to overtighten any of the locks as this can damage the mechanisms.



Loading Table Fig 3.11

3.1 Loading Table

The Loading Table is set as follows:-

1. Slacken the four screws (A) at the ends of each manifold and move the manifolds to the approximate position required to bring the paper central on the machine.

Set the operator-side manifold accurately, using the scales as a guide to ensure squareness.

Place a piece of paper on the loading table and move the non-operator side manifold, until the paper is a good fit between both manifolds. Not too loose to prevent wasting air and reducing performance. Not too tight because this will restrict feeding.

Tighten all the knobs.

The knob (E) may be used to swing the paper to achieve a straight perforation.

2. Place the paper stop block at the back of the paper.
3. Set the air control knobs (B, C and D) as follows:-

Knobs (B) should normally be set fully on with the white dot at 12 o'clock. Fully off is when the dot is at 3 o'clock or 9 o'clock. These knobs are only adjusted when running light weight stocks, carbonless sets or landscape jobs, and are set as necessary.

Knobs (C) select the air according to the paper size. Slide them into the appropriate position as follows:-

The small square for paper up to:- 240mm (9½") long.

The medium square for paper from:- 240mm (9½") long.
to:- 370mm (14½") long.

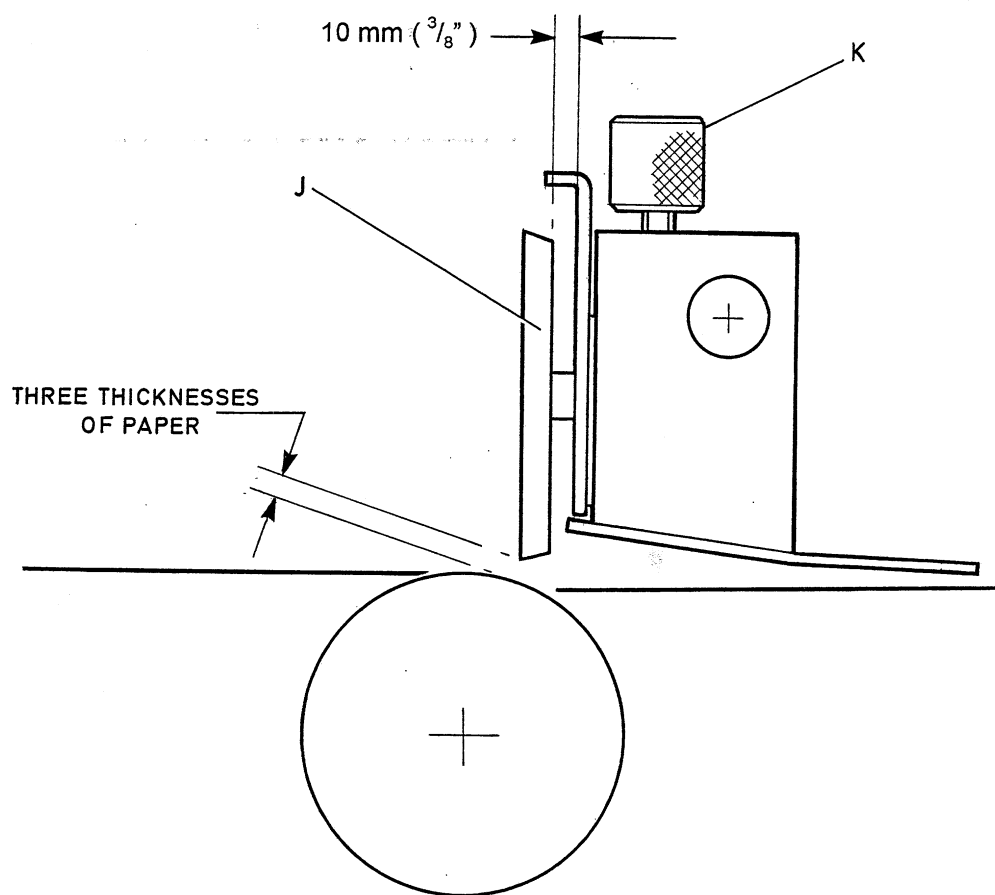
The large square for paper from:- 370mm (14½") long.
to:- 460mm (18") long.

The bleed valve knobs (D) are overall air controls for each manifold. They may be set so that each manifold receives all the available air, no air at all or any position in between, depending on how much air is required, to just float the paper.

Maximum air is when the white dot is facing the end of the machine, and fully off is when the white dot is facing towards the stacker.

As a guide, heavy stocks or landscape jobs will require maximum air, whereas carbonless sets and light stocks will only require sufficient air to separate the sheets.

NOTE..... Excessive air can cause the sheets to twist and will not allow a straight or consistent perforation.



Papergate..... Fig. 3.21

3.2 Paper Gate and Suction Control

Set the Paper Gate to the correct position. The standard setting for horizontal adjustment of the Paper Gate is 10mm (3/8") away from the mounting chassis.

This adjustment is made by turning disc (J). This setting is only intended as a guide, for instance, sheets with an upward curl will require this setting to be increased.

Set the height of the Paper Gate to approximately three thicknesses of paper, by releasing knob (K) and adjusting lever (H). Moving the lever (H) away from the operator, will reduce the gap.

An excessive gap is the most likely cause of double-sheet feeding.

When running carbon-less sets, the paper gate should be raised high enough to allow easy feeding.

WARNING

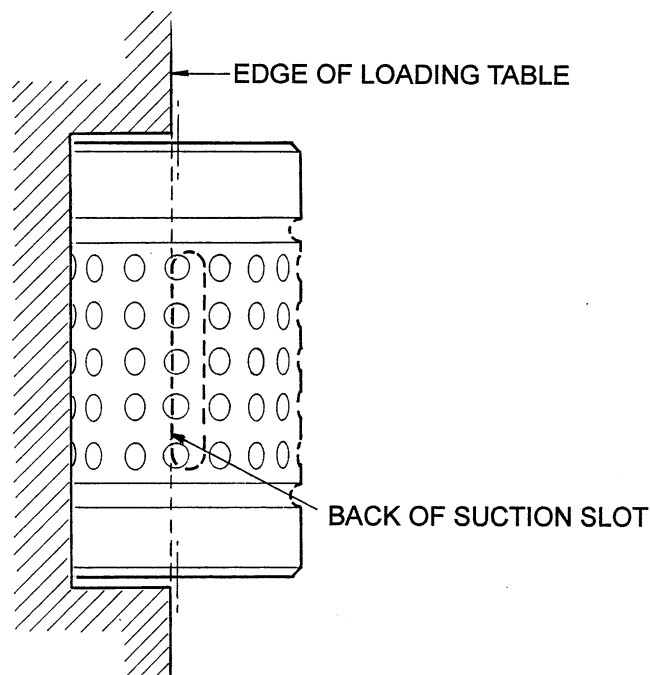
DO NOT ADJUST THE PAPER GATE WHILE THE MACHINE IS RUNNING OR THE SUCTION DRUM MAY BECOME DAMAGED.

Ensure that the Suction Slot is set correctly. To achieve this, slacken the Suction Choke Control (Fig. 2.21 on page 8) and move to the desired position and re-tighten.

The standard setting is with the back of the Suction Slot (viewed through the holes in the drum), in line with the edge of the Loading Table.

If the lead edge of the sheet is damaged by the Paper Gate, either increase the gap of the horizontal adjustment (and re-set the vertical adjustment) or move the Suction Slot slightly towards the delivery. *SEE WARNING ABOVE.*

The over-all suction can be reduced by turning the Vacuum Control Valve (Fig. 2.21 on page 8). This knob is always on maximum, but may be reduced when running light weight stocks.



Suction Choke Control Fig. 3.22

3.3 Numbering

Fit a numbering head to a collar, using the scale on the collar to obtain the correct position. The scale relates to the distance from the top of the sheet, to the top of the number. Line up the back edge of the numbering head with the scale. To make the scale position accessible, operate the Auto/Man switch and turn the machine using the handwheel at the rear of the machine.

Position the numbering head sideways, by releasing the collar locking screw. This locking screw is only accessible by operating the auto/man switch, (see 2.1) and rotating the machine by hand.

NOTE.....*Every time the collars are moved, the advance cam will need moving and the hold-down wheels checked , by rotating the machine by hand. NEVER operate the machine under power until the auto/man switch has been released, and the numbering head has been turned one complete revolution by hand, to ensure that the hold-down wheels and advance cams are positioned correctly.*

3.4 Setting Numbering Digits

Set the Numbering Head digit wheels using the pointed stylus, supplied with your Numbering Head. The wheels can only be turned in the direction shown in Fig. 3.31

To avoid having to reset the digit wheels after make-ready, set them to a number somewhat lower than, (forward heads) or higher than, (backward heads) your jobs required starting number.

Standard heads have seven digits. If less than seven digits are to be printed, up to six zero's may be depressed so that they do not print. (*This feature may not apply to all heads*)

To depress the digits, turn the digit wheel until the zero is at the top of the head. Turn the wheel further while pressing the zero down into the head. The zero will drop down and remain down.

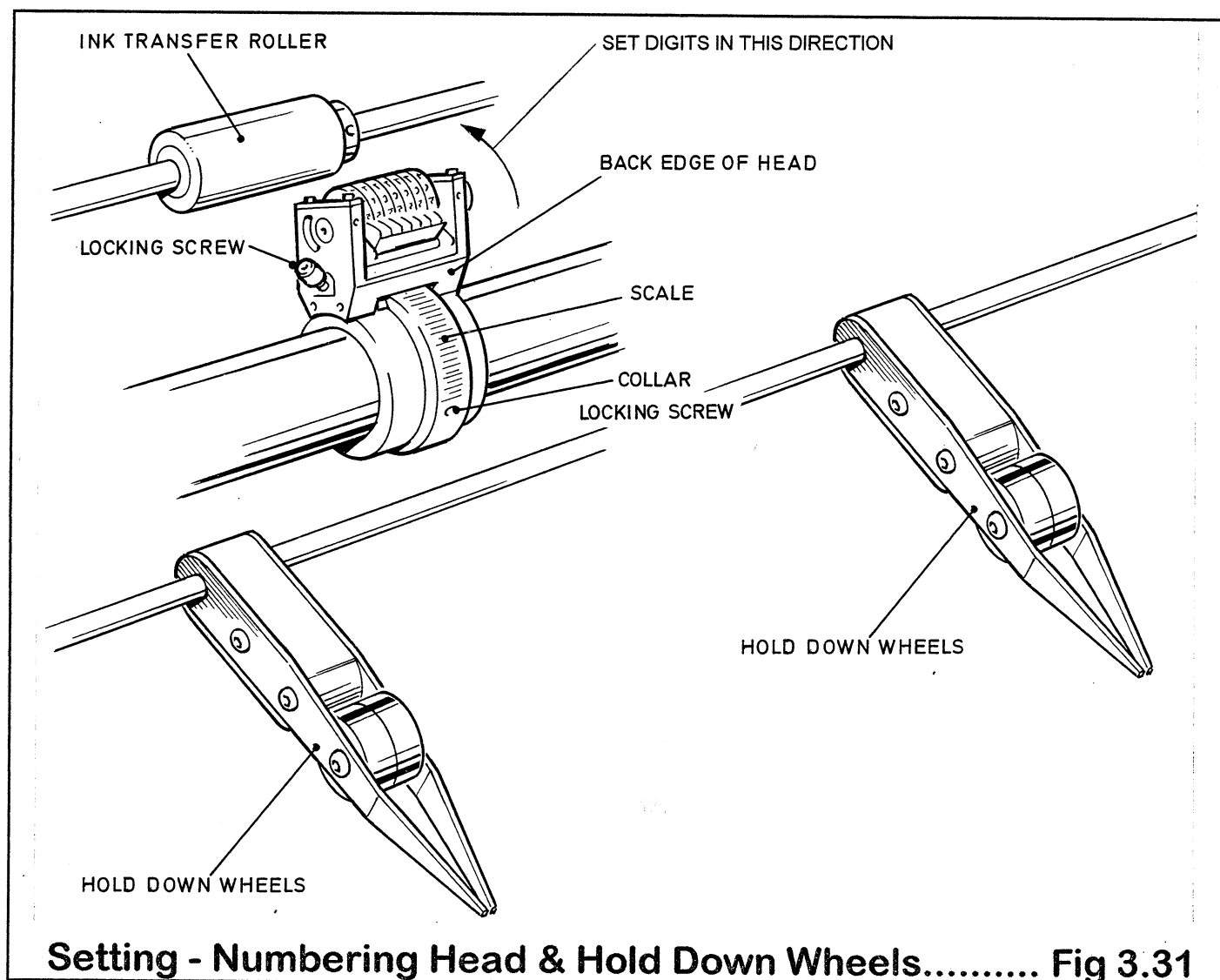
To release the zero, turn the wheel further in the normal direction.

3.5..... Hold-Down Wheels

Set the Hold-Down Wheels (which are simply pushed into position) so that they run on the work but will not be in the way of the Numbering Heads.

It is important, particularly when Perforating or Slitting, that the Hold Down Wheels are positioned equally about the centre of the sheet. If this is not possible due to the position of the Numbering Heads, then set one Hold Down Wheel to run on the centre of the sheet.

NOTE..... *If the Hold Down Wheels are not correctly positioned sheets may become misaligned causing inaccurate perforating and possibly registration errors.*



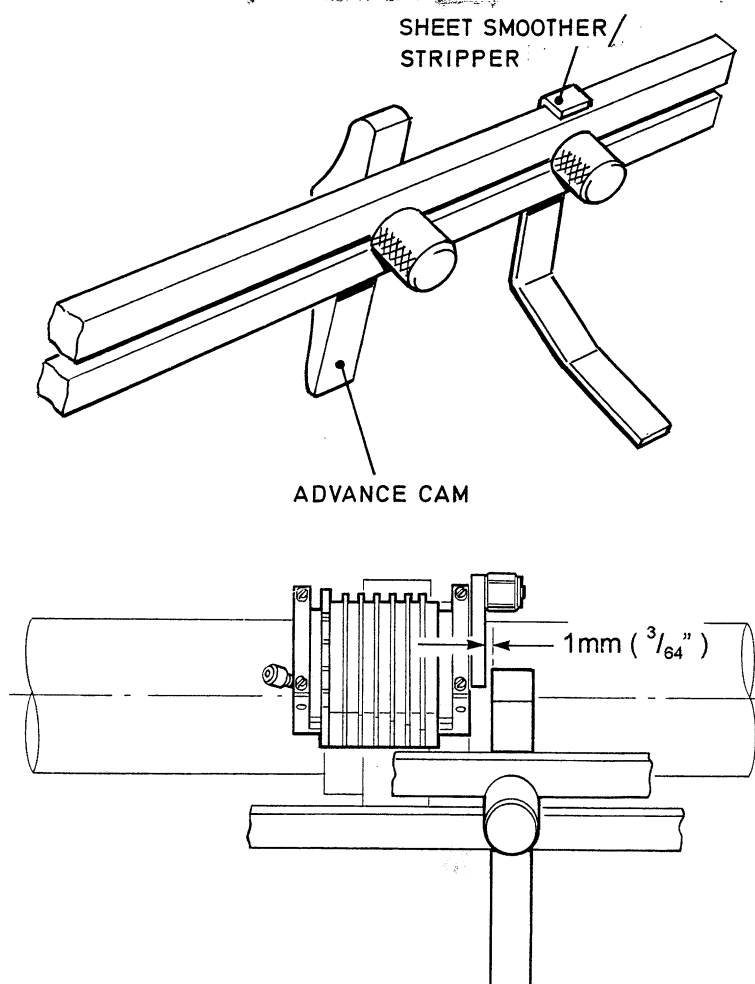
Setting - Numbering Head & Hold Down Wheels..... Fig 3.31

3.6..... Advance cam

Set the advance cam to operate the numbering head as shown in Fig. 3.61. Always operate the auto/man switch & rotate the machine by hand until the numbering head is just past the cam for setting. Position the sheet smoothers/strippers, to hold the work flat, through the exit guard (see Fig 3.61).

WARNING

NEVER OPERATE THE MACHINE UNDER POWER UNTIL THE AUTO/MAN SWITCH HAS BEEN RELEASED, AND THE NUMBERING HEAD HAS BEEN TURNED ONE COMPLETE REVOLUTION BY HAND, TO ENSURE THAT THE HOLD-DOWN WHEELS AND ADVANCE CAMS ARE POSITIONED CORRECTLY.



Setting - Advance CamFig 3.61

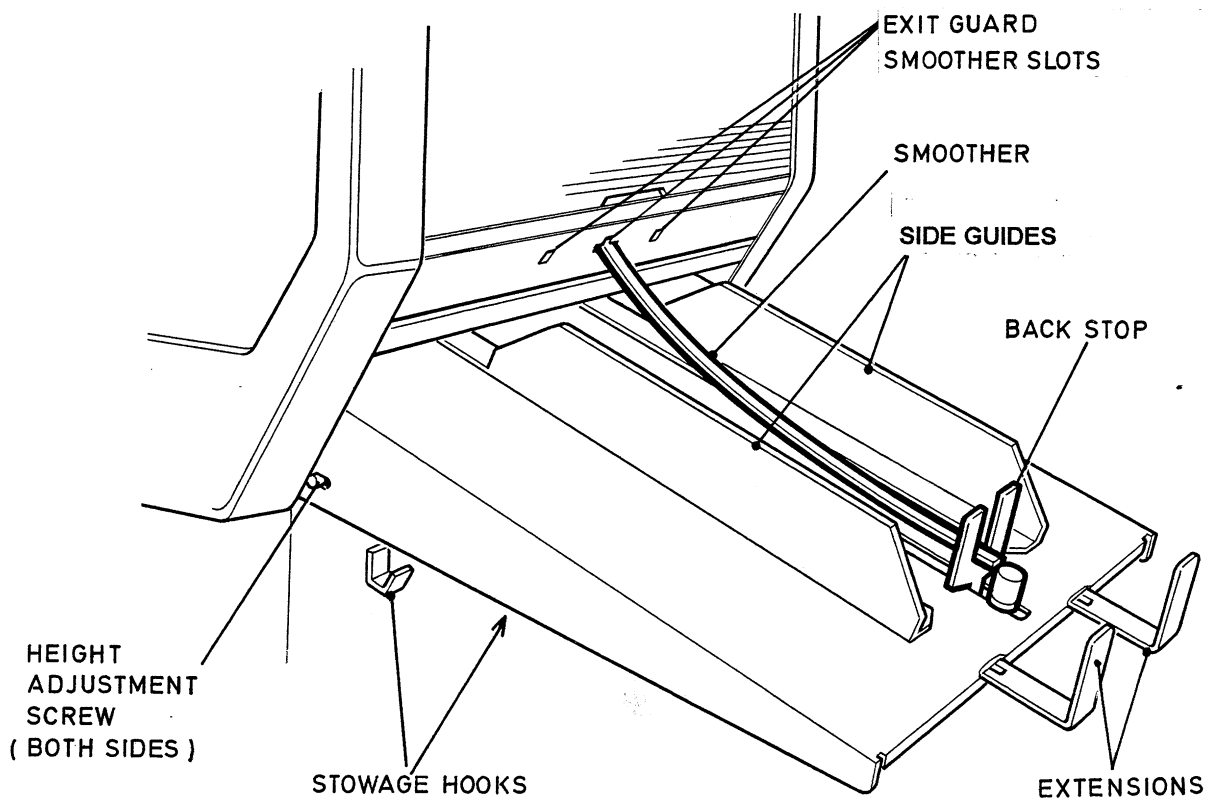
3.7..... Stacker

The Stacker Side Guides should be set to guide the sheets into a neat pile. They are magnetic and are simply placed where required but it is important to ensure that they do not come into contact with the sheets before the sheets are free of the output shafts as this may impair registration, particularly when perforating.

Adjust the Back Stop to allow the sheets to drop into the Stacker by releasing its locking knob and sliding it into the required position.

For long sheets, remove the Back Stop by fully unscrewing its locking knob and manoeuvring it out of its slot. The Extensions may now be extended to the required position after releasing their locking knobs, which you will find under the Stacker Bed.

The sheet smoother may now be inserted into the centre slot in the output guard. If two smoothers are required they should be inserted into the outer slots. (*If perforating or slitting, see notes in sections 5 & 8*). Only use smoothers if sheets won't stack without them.

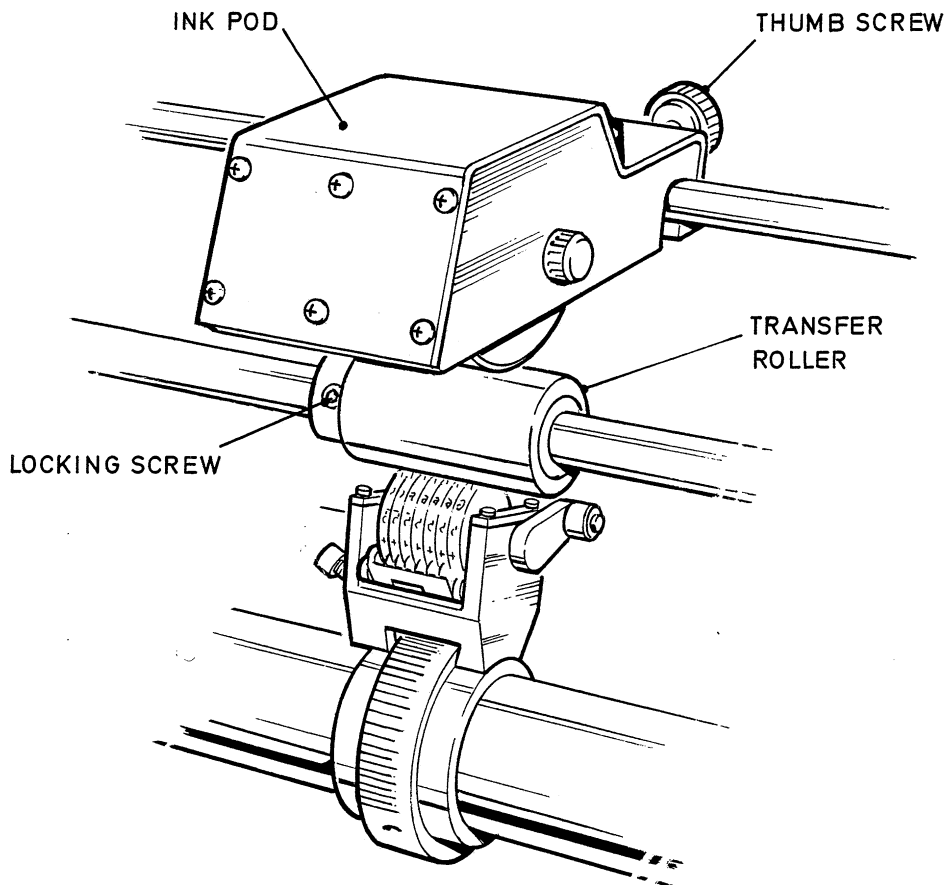


Setting - Stacker. Fig 3.71

4.1..... Setting

Set the ink transfer roller so that it runs fully over the numbering head, by releasing it's locking screw with a 2mm Allen key.

Set the inking pod position by releasing it's thumb screw and positioning it so that it inks up the transfer roller, in the area above the numbering head.

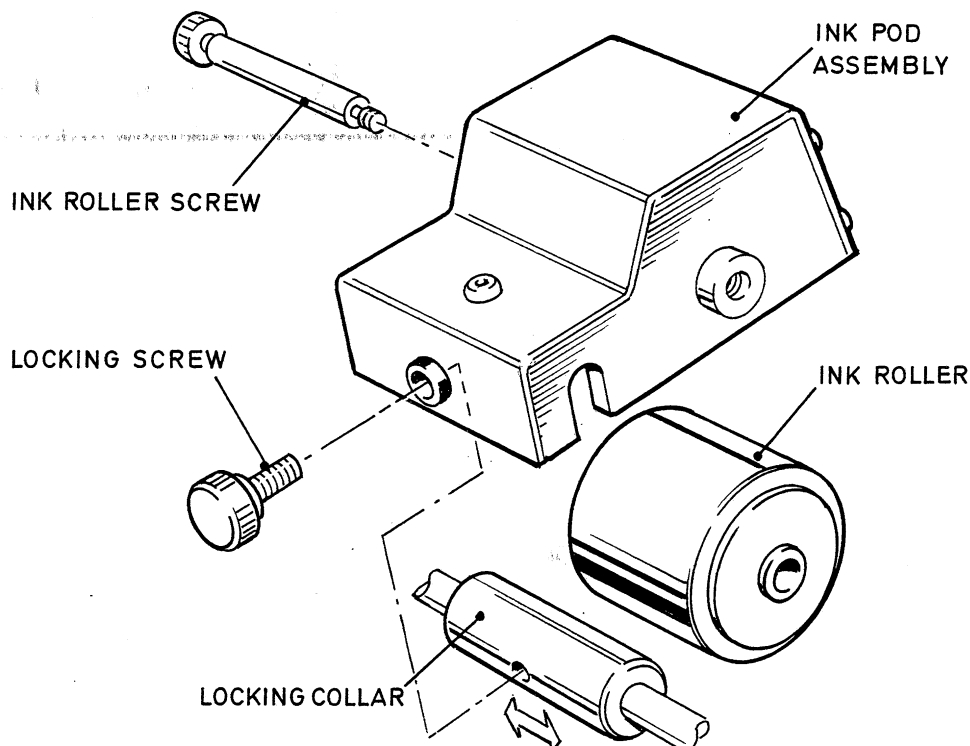


Setting - Inking Fig 4.11

4.2..... Fitting Ink Roller to Pod

The inking pod assembly may be removed from the machine by removing the locking thumb screw and lifting the pod off the shaft.

There are two types of ink roller available, the standard preloaded type, and a re-inkable type. The ink roller may be replaced by removing the ink roller screw (see Fig 4.21), using a 4mm Allen key.



Fitting Ink Wheel to Pod.....Fig 4.21

4.3Re-fitting the Inking Pod

To re-fit the inking pod assembly to the machine, slot it over the locking collar and rotate the collar until the screw hole is visible through the hole in the ink pod. Fit the locking screw and tighten.

When not in use, the inking pod assemblies may be supported on the sides of the machine. Re-inkable rollers **MUST ALWAYS** be stored at the side when not in use, to prevent a flat spot occurring on the roller. (see section 4.4 on page 20).

The ink used in the pre-loaded ink rollers will not dry out when not in use and therefore does not need special storage requirements.

NOTE..... Do not attempt to re-ink preloaded ink rollers

Re-inkable rollers will dry out and harden if not used regularly. If drying out or hardening occurs, renew the ink roller.

4.4..... Re-Inkable roller

The inking system may be fitted with an optional re-inkable roller which if inked using the red and black inks developed for the purpose, can give excellent results.

NOTE.....Only use ink which has been supplied by your dealer specifically for this system. The ink formulation has been carefully balanced to ensure optimum liquidity coupled with a fast absorption capacity to ensure that it does not dry out too quickly on the roller but does dry quickly once in contact with the paper.

The following procedure should be used for loading the roller with ink:

1. Squeeze 5 ml (a teaspoonful) ribbon of ink from the 30ml tube of ink supplied, on to a metal plate. The plate should be at least 300mm (12") long.
2. Install the roller into the inking pod (see section 4.2 on page 18) and, holding the pod firmly, roll the assembly over the ink from one end of the plate to the other, as many times as necessary to ensure that the ink is evenly distributed over the entire circumference and width of the roller.
3. Allow the roller to stand for at least 8 hours (the pod may be turned upside down and placed on a convenient non-slip surface or installed on to the machine and stacked against the sideframe) to allow the ink to penetrate the surface of the cover and then re-ink the roller carrying out the procedure described above. Less ink will be required this time.

Our tests have shown that approximately two hours of continuous use can be achieved before re-inking becomes necessary and that after subsequent re-filling longer time spans can be achieved. This would indicate that the full capacity of the roller may not be reached until several re-inking cycles have been carried out.

After running the inking system it is important that the pod is lifted clear of the transfer roller and stacked on its stowage points against the machine sideframe or removed from the machine and placed upside down on a non-slip surface. If the roller is left in contact with the transfer roller or left resting upon any other surface, a flat may develop which will impair its efficiency and make it noisy when running.

NOTE..... This re-inkable system is only recommended if you use the machine frequently as the roller dries out and solidifies making it impossible to re-ink if it is left without inking for more than a week (depending on temperature).

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4.5 Secondary Inking Position

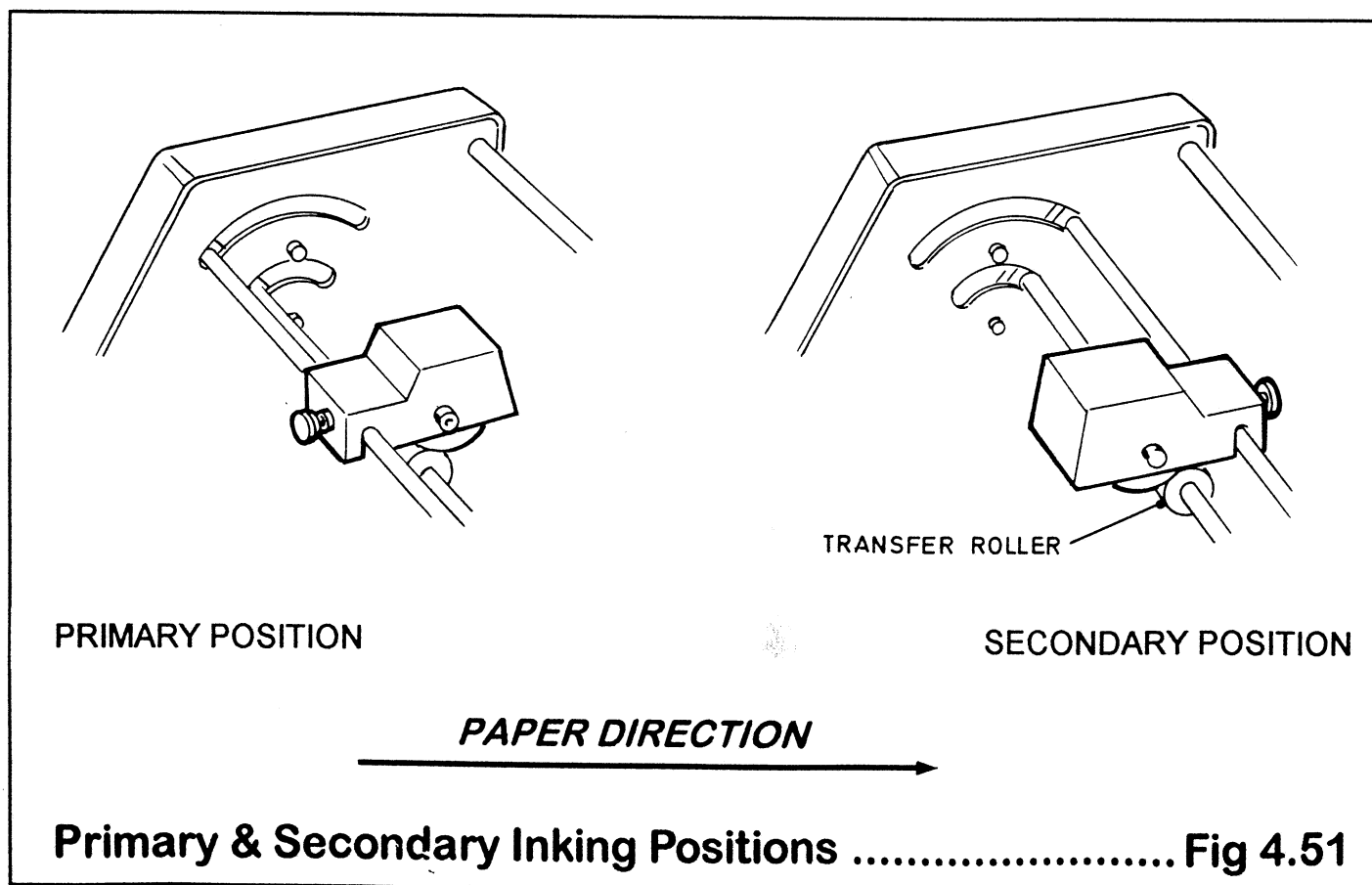
There are two positions for the inking assembly as shown in Fig.4.51. The primary position is preferred because it allows better access into the machine.

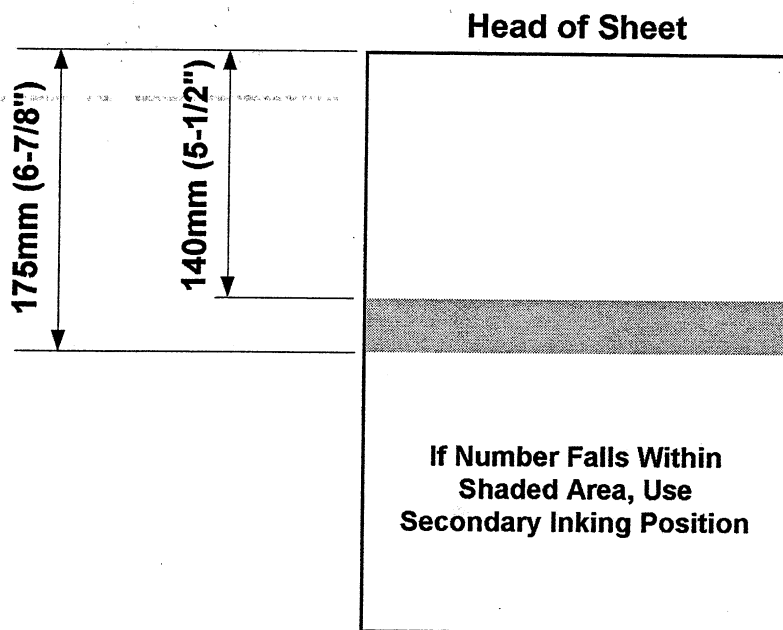
Both positions work equally as well but with the following exceptions:-

- If, after setting a numbering head, it stops below or just in front of the ink transfer roller, you must change the inking to the alternative position. Refer to Figs 4.52 & 4.53 to establish the exact point at which the position will need to be changed.

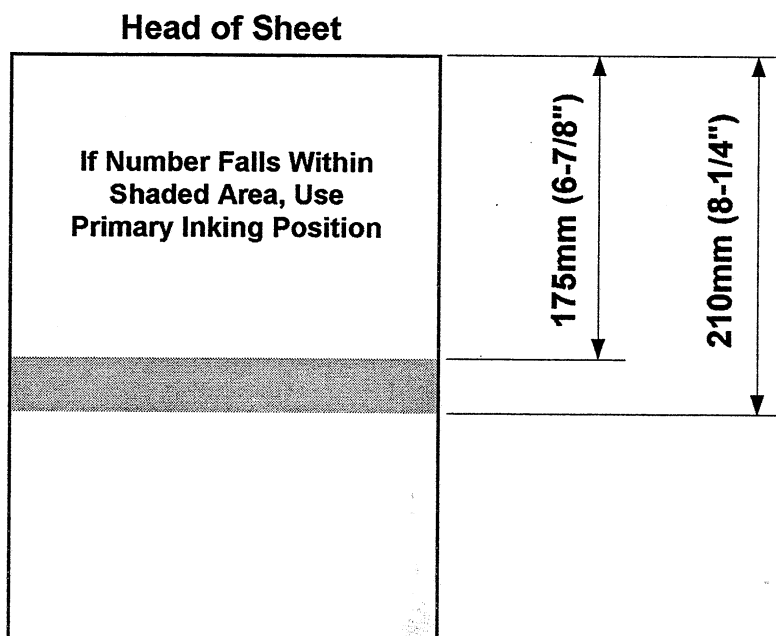
Failure to move the inking will cause the transfer roller to be damaged (when the head stops below the roller), or poor quality inking (when the head stops just before the roller).

To change from primary to secondary positions or vice versa, remove all ink pods, (see section 4.2) push the assembly to the desired position, and then replace the Ink Pods. (See section 4.3).





Primary Inking PositionFig 4.52



Secondary Inking PositionFig 4.53

5.1 Make ready

Having set the hold-down wheels (see note 2 below) and inking, check the numbering position by switching on the system and operating the feed switch, so that a sheet feeds through the machine. (Remember to turn head by hand BEFORE switching on).

Set the stacker side-guides, back-stop and sheet smoothers (See Fig. 3.71 and note 2 below).

If the first sheet does not print, try a second. If it still does not print, check the platen pressure. (See section 2.2)

With one sheet numbered, it can then be seen if further adjustment is required to the numbering head.

For sideways adjustment, operate the auto/man switch, rotate the machine by hand and release the collar locking screw. Move the collar as required and fully tighten the screw. For vertical adjustment, use the print position control (See section 2.2).

NOTE 1 ...*Everytime the collars are moved, check that the numbering head will not hit the hold-down wheels or advance cams, by operating the auto/man switch and rotating the machine by hand.*

NOTE 2....*If you are intending to use the Perforating & Slitting facility, it is important that particular attention is paid to setting the Hold Down Wheels, Stacker Side Guides and Sheet Smoothers. Any interference with the sheet whilst it is running through the Perforating or Slitting Blades is likely to have an adverse effect upon cutting accuracy. Hold Down Wheels must be set on, or equally about, the centre of the sheet and Side Guides should not touch the sheets. You may need to experiment with the angle of the Stacker Bed, (see section 1.2), and the position of the Smoothers to obtain optimum results. Avoid using Smoothers if possible.*

6.1..... Technical Specifications

Overall Length	<i>Working</i>	1340mm	52 $\frac{3}{4}$ "
	<i>Stored</i>	990mm	40"
Width		780mm	31"
Height		1050mm	41 $\frac{1}{2}$ "
Weight		162Kgs	357lbs
Power Requirements		230v-50Hz	
Maximum Running Speed	1-4 Heads	9000 SPH	
	5-6 Heads	5000 SPH	
	7-8 Heads	4000 SPH	
Maximum Number of Heads		8	
Maximum Recommended Sheet Size	<i>Length</i>	460mm	18"
	<i>Width</i>	460mm	18"
Minimum Recommended Sheet Size	<i>Length</i>	210mm	8 $\frac{1}{4}$ "
	<i>Width</i>	125mm	5"
Recommended Stock Thickness	<i>Maximum</i>	7 Part Carbonless	7 Part Carbonless
	<i>Minimum</i>	45 gsm	11lbs
Maximum Spacing of Heads on same Collar with First Number Printed on head of Sheet.	<i>Parallel</i>	365mm	14-3/8"
	<i>Convex</i>	354mm	13-13/16"
Minimum Spacing of Heads on Same Collar. (Radial Spacing)	<i>Parallel</i>	50mm	1-15/16"
	<i>Convex</i>	73,5mm	2-7/8"
Minimum Spacing of Adjacent Heads	<i>Parallel</i>	62mm	2-3/8"
	<i>Convex</i>	48mm	1-7/8"

Consult Your Agent for Advice Regarding Applications Outside the Recommended Specifications.

The Manufacturer Reserves the Right to Alter Specifications Without Prior Notice

6.2..... Spacing of Numbers

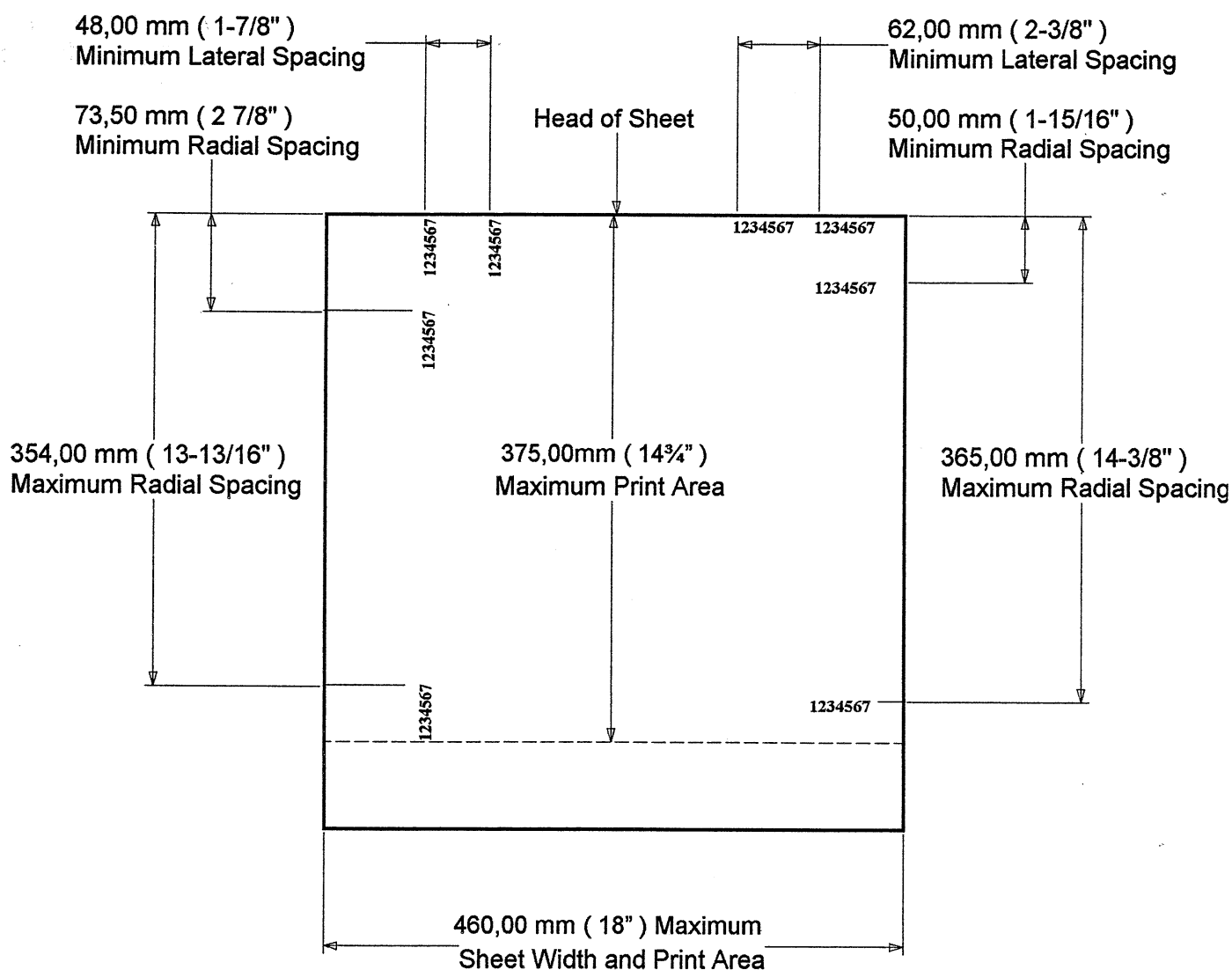
Although you can position one number anywhere on a sheet within the above specification, there are some restrictions on how close a second number can be placed to the first.

The following diagram shows the minimum and maximum spacings for numbers placed on the same sheet in a single pass.

You can of course, run a sheet through the machine as many times as is necessary, *or in a different. direction or orientation.*

Convex Boxes

..... Parallel boxes

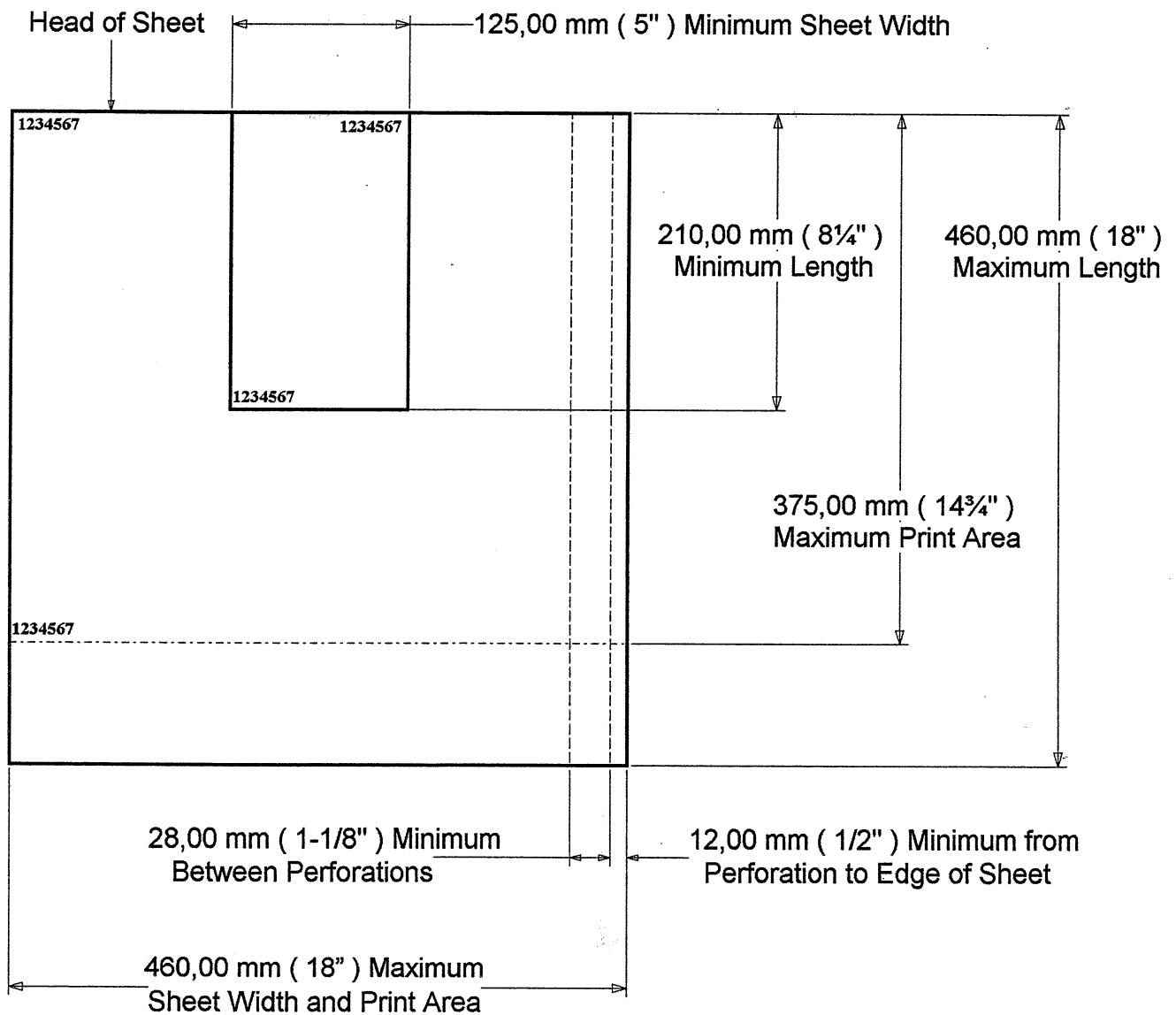


Number Spacing..... Fig 6.21

6.3Sheet Sizes and Perforation Spacing

The following diagram shows the Maximum and Minimum sheet sizes, the actual printable area for sheets over 375mm (14³/₄") long, and the Minimum spacings and edge distances for Perforating & Slitting.

It is quite possible to print right up to the edges of sheets which fall within the maximum print area shown, but in order to maintain accuracy. Perforations should always be kept well away from the edge of the sheet and certainly no closer than the recommended minimum shown.



Sheet Sizes & Perforation SpacingFig 6.31

7.1 Fitting the Perforators.

Perforating is carried out on the output shafts, access to which is improved by removing the stacker & lowering the exit guard.

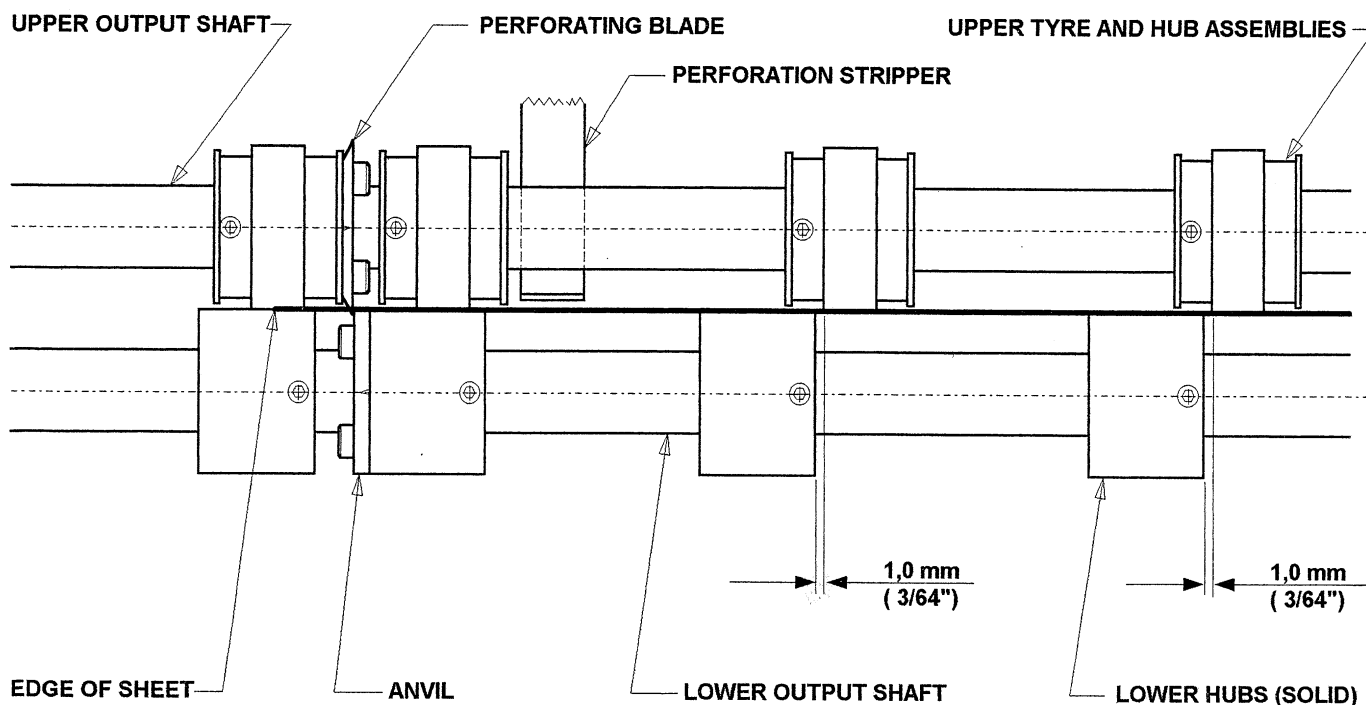
The perforating blades are split into two matching halves and are fitted to the upper hubs on the output shafts, as shown in Figs. 7.11 & 7.12 using the four screws supplied.

A hardened anvil is fitted to the lower hub, as shown in Figs. 7.11 & 7.12 using the four screws supplied. The anvils are also made from matching halves.

When fitting the anvil or blades, ensure that the 'vee' formed at the joint of the two halves is facing the hub.

IMPORTANT - To prevent blades or anvils chipping, always hold both halves together **CAREFULLY** with one hand and then tighten all four screws using the 2.5mm key provided.

NOTEDo not mix matching halves of perforating blades, anvils, or slitting blades. (See section 8 for slitting details)

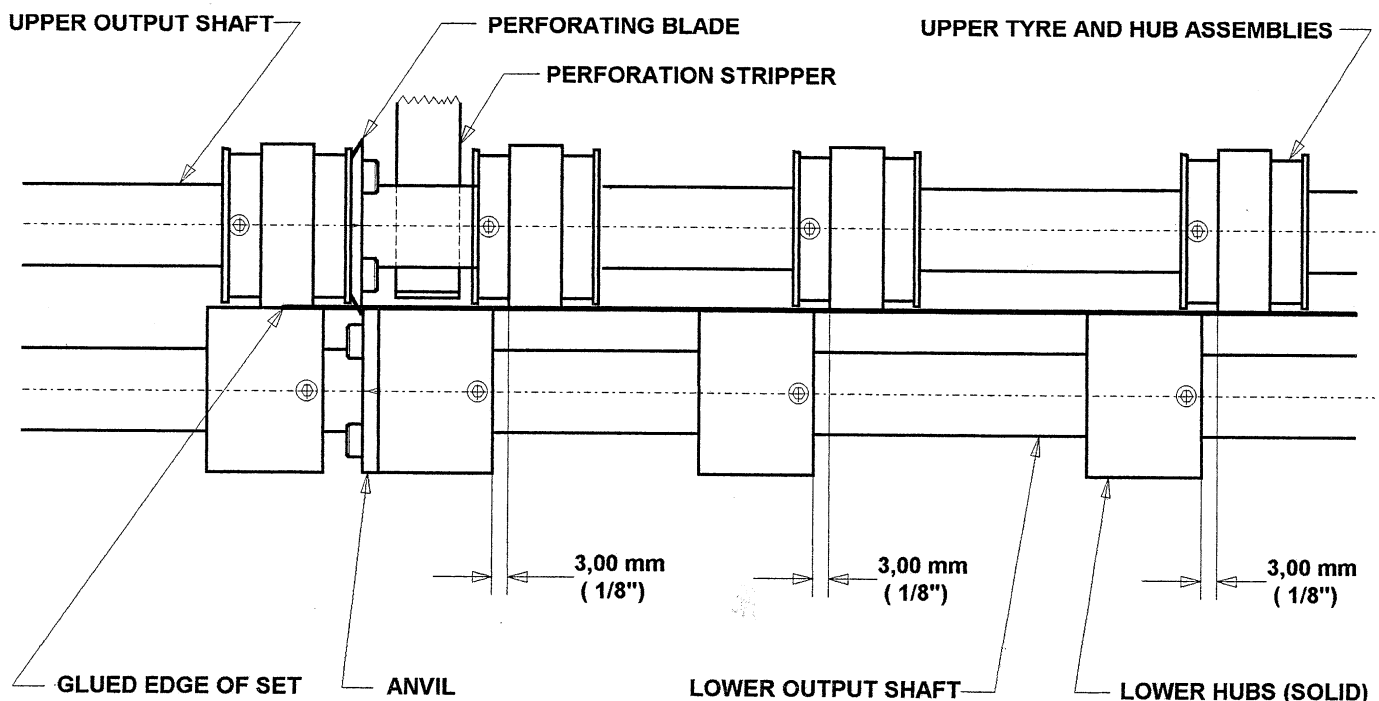


Perforating - Single sheets.....Fig 7.11

7.2..... Setting up

To set a perforator in the required position, follow these steps:-

- Set up the feed bed as described in sections 3.1 & 3.2
- Loosen the hub with the perforating blade fitted and all other hubs on the shaft.
- Wind a sheet through the machine until the sheet is near the blade.
- Tighten the hub with the blade in the exact position to the job.
- Wind the sheet out of the machine and set the stacker guides and backstop. (see section 3.7 on page 17)
- Set all the other hubs as shown in the drawings, (Figs 7.11 & 7.12) noting the gaps between upper tyres and lower hubs. **THIS SETTING IS IMPORTANT** to ensure perforating accuracy.
- Fit a perforation stripper as close as possible to the perforating blade (as shown in Figs. 7.11 & 7.12.) This will prevent the sheets wrapping around the blade. *See section 8.1 (Slitting) for an important note about setting stacker guides & sheet smoothers.*



Perforating - Carbonless Sets Fig 7.12

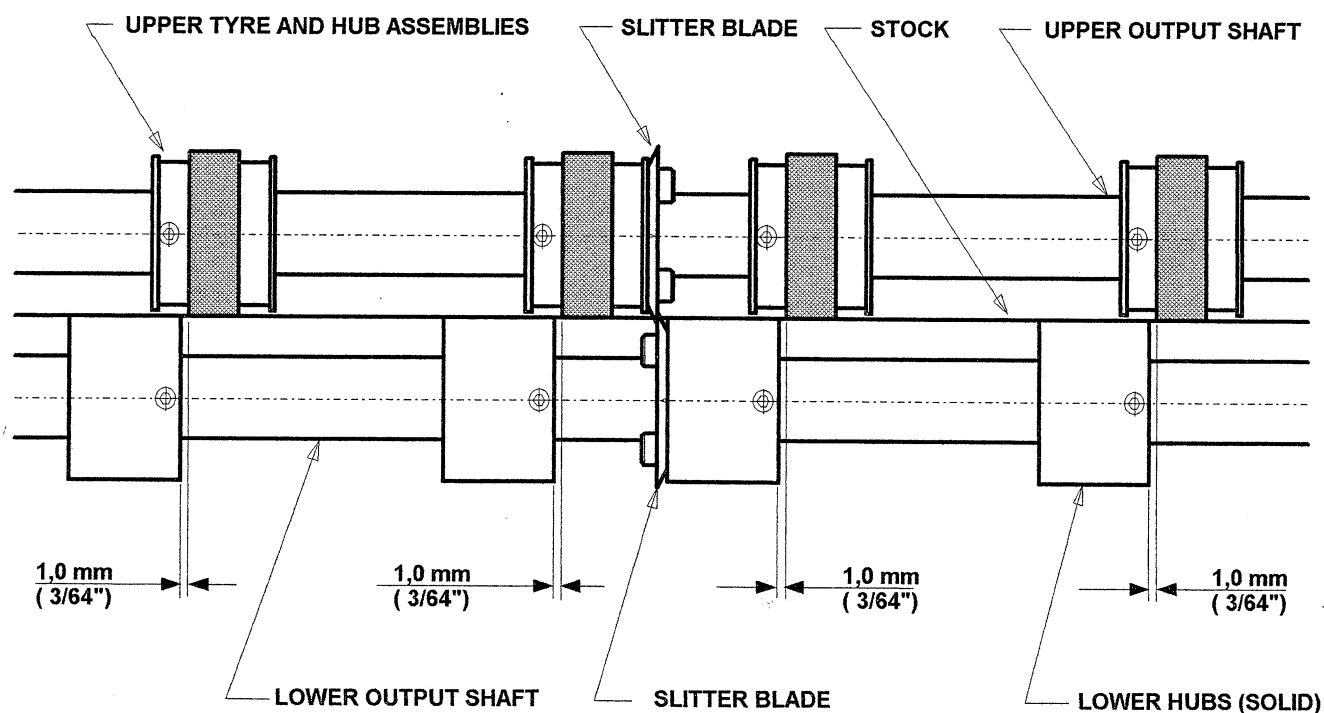
8.1 Slitting

Slitting is carried out on the output shafts and is very similar in operation to Perforating as described in the previous section.(7)

As with the Perforators the Slitting Blades are split into two matching halves, (*which should not be mixed*) but in this case they are fitted to both the upper and lower output shafts, using the screws supplied, as shown in fig. 8.11. An Anvil is not required.

When fitting and setting Slitters, refer to Fig 8.11 below and the instructions for Perforating in section 7, starting on page 28

NOTEHaving setup for Perforating or Slitting it is important that the Hold Down Wheels, Stacker Guides, and Sheet Smoothers are correctly set. If you experience any straightness or alignment problems, check that the Hold Down Wheels are positioned on, or equally about the centre of the sheet, Stacker Guides are not touching the sheet and that the Smoothers are not steering the sheet before it is clear of the output shafts.



Slitting Fig 8.11

9.1 Scoring

Scoring is also carried out on the output shafts.

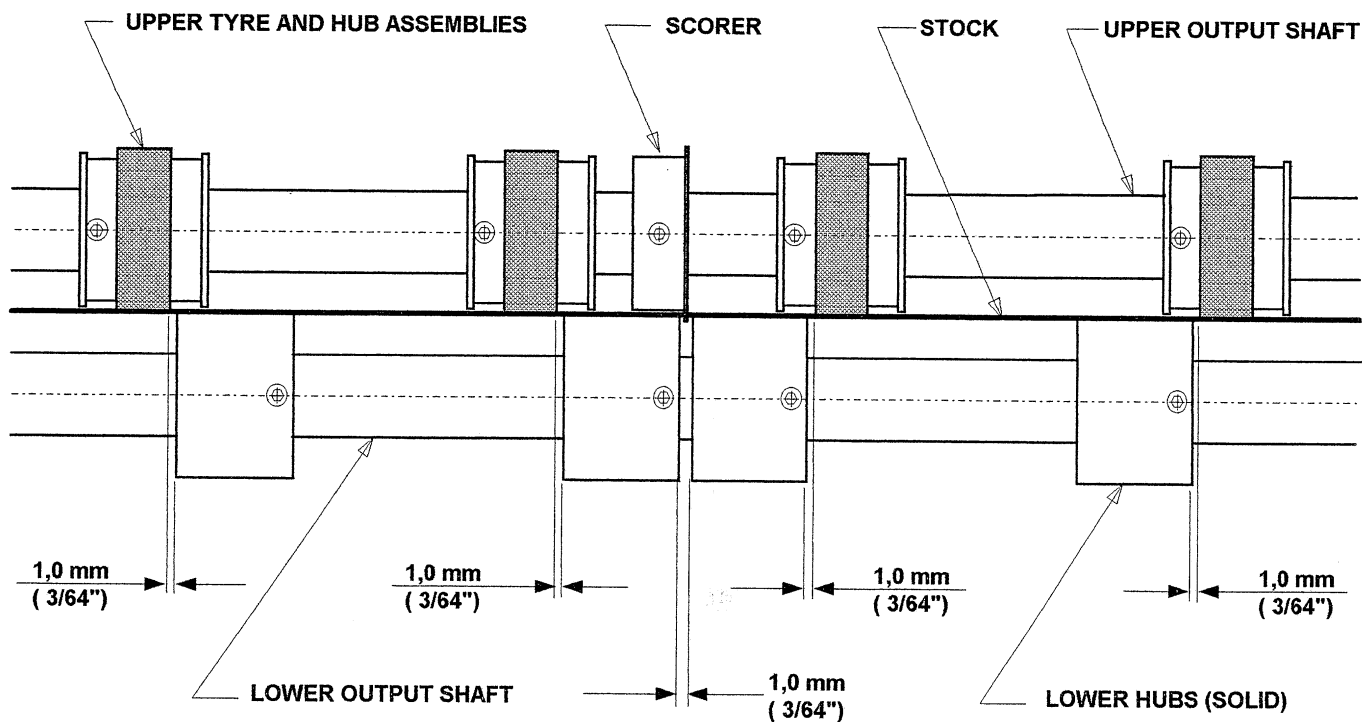
The Scoring wheel is split into two halves and is fitted to the upper output shaft.

Set up the feeder and wind a single sheet through the machine. As it approaches the output shafts, the Scorer should be positioned so that it aligns with the required position on the job.

Continue to wind the sheet through the machine and then move the lower hubs up to, but not touching, the Scorer blade as shown in Fig. 9.11.

The actual spacing between the lower hubs and the Scorer blade is critical and may require some experimentation to obtain a satisfactory Score line.

Move the other hubs as shown in Fig. 9.11.



Scoring..... Fig 9.11

10.1..... Paper Jams

It is not normally possible to rotate the machine backwards. However, in order to assist in the removal of paper jams, this can be achieved by releasing the drive system using a 2.5mm allen key to remove the grub screw behind the handwheel.

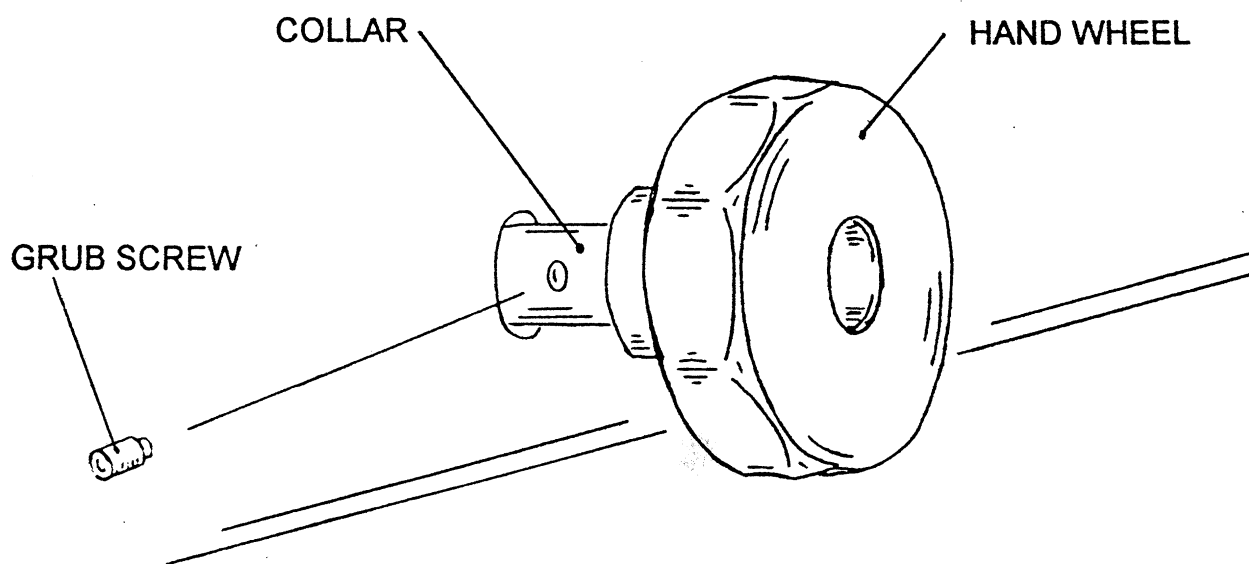
The input rollers, output rollers or platen may then be rotated in reverse by turning them by hand.

NOTE..... *The Main Print Shaft cannot be reversed. Attempting to do so will damage the Clutch and impair registration.*

After removing the paper jam, align the grub screw holes as follows:-

- Insert the allen key into one of the holes in the collar to prevent it from turning and turn the handwheel clockwise.
- When the key engages with the handwheel and drops further into the collar, stop turning and replace the grub screw and tighten **SECURELY**.

NOTE..... *Do not attempt to clear a jam by cutting the paper as damage to the rollers or platen is inevitable.*



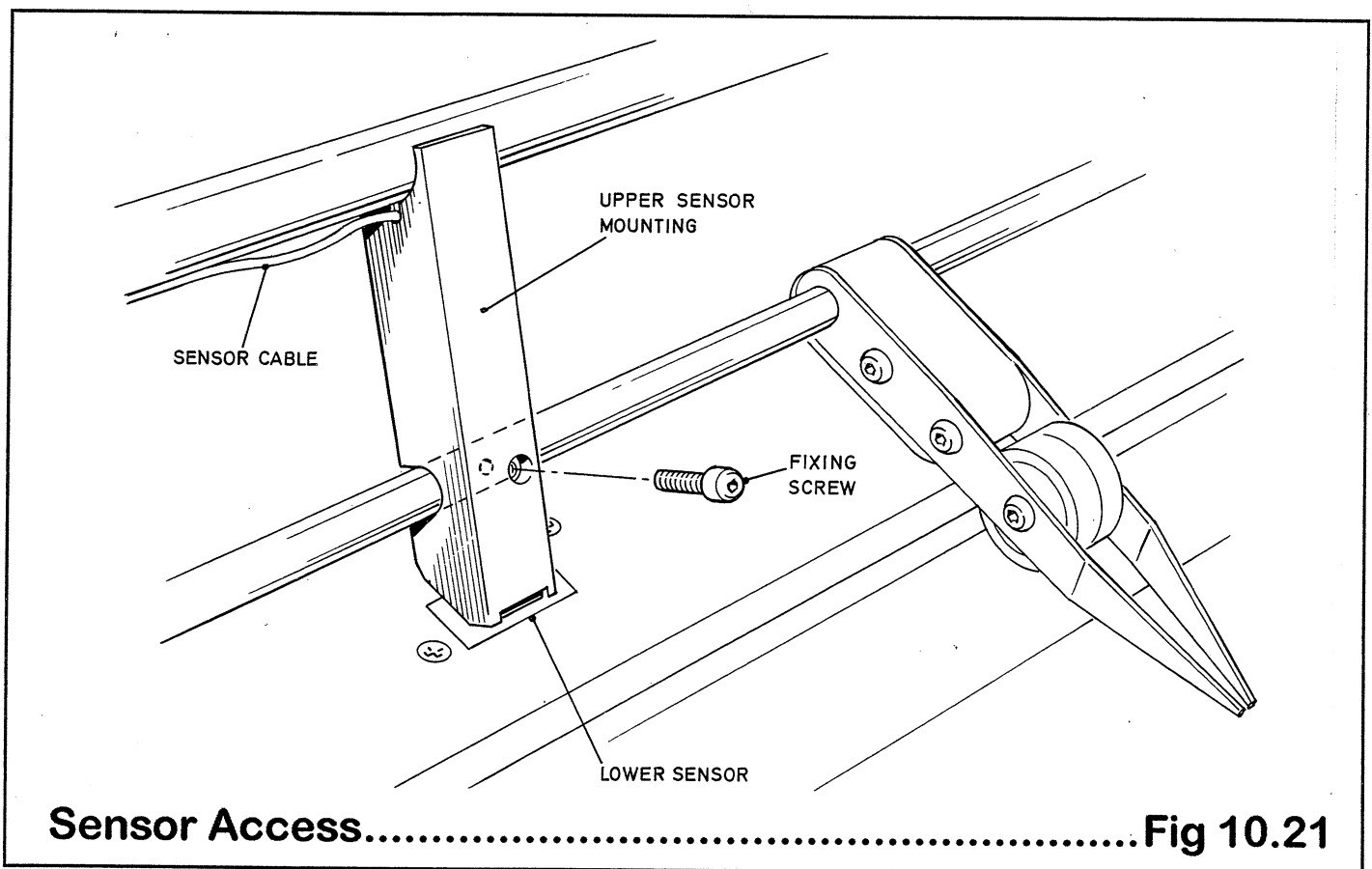
Drive Disconnection Fig 10.11

10.2Sensor

After a period of use, the sheet sensor may become dirty and the machine will fail to number, causing the sheets to feed continuously.

The sensor can be accessed by removing the screw in the upper sensor mounting, using a 2.5mm allen key. The mounting can then be lifted away, giving access to both upper and lower sensors.

NOTE Take care not to damage the sensor cable.



10.3Transfer Rollers

The Ink Transfer Rollers, see Fig. 4.11, should be cleaned regularly, using white spirit or a turpentine substitute. This is particularly important if you are using re-inkable ink rollers

10.4 Numbering Head

Numbering Heads are precision instruments and should be handled carefully to avoid damage.

The quality of the paper being numbered, and the type of ink used, all have a bearing on the reliability of the heads performance.

Fluffy paper will clog the head quickly and lead to various faults, including jamming of the number wheels which may necessitate dismantling of the head. (*See Section 10.5*)

If your machine is fitted with re-inkable rollers, thick or sticky inks, or excessively applied thin inks, will have a similar effect, so care should be exercised when re inking.

NOTE.....Do not attempt to re-ink standard ink rollers.

The numbering heads should be regularly cleaned and lubricated, preferably by following the head manufacturers cleaning and lubrication instructions. If these are not available the following guide-lines may be followed.

The complete numbering head may be soaked in a bath of white spirit, with two or three drops of very light machine oil added.

After soaking, a small brush may be used to remove ink from crevices. Dry the head using a lint-free cloth.

When the head is *completely dry* lubricate all moving parts, including the operating arm and its ball or roller and between the number wheels, *sparingly* with a light machine oil (SAE 30) taking great care not to get oil on the numbering faces.

NOTE.....Do not use aerosol lubricants as they are normally too thin and very difficult to apply precisely.

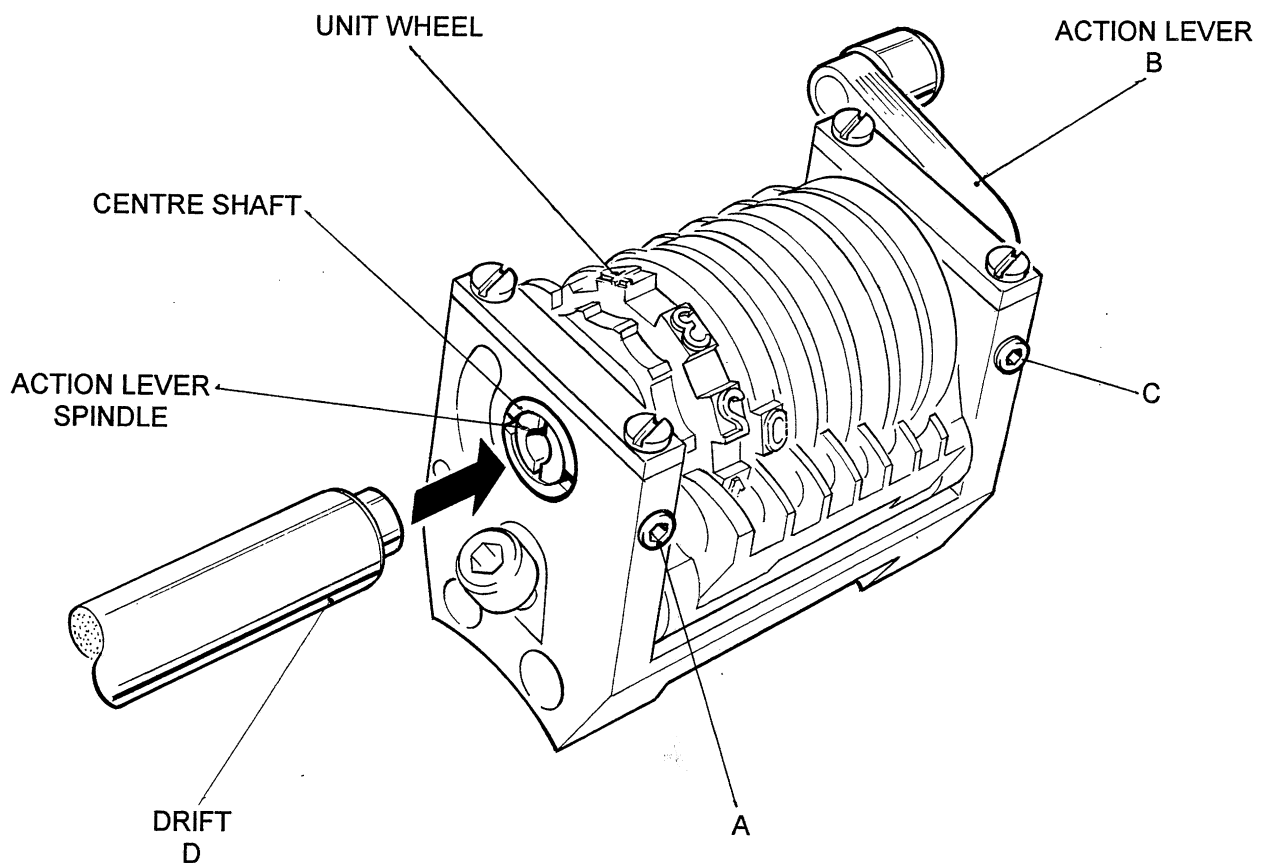
WARNING

NEVER FIT NUMBERING HEADS FROM A PRESS OR ANOTHER MANUFACTURERS NUMBERING MACHINE AS SERIOUS DAMAGE *WILL* RESULT. YOUR MACHINE REQUIRES HEADS DESIGNED TO RUN ON AN OPERATING CIRCUMFERENCE OF 16.697."

10.5Numbering Head - Dismantling

It may be necessary to dismantle the Numbering Heads from time to time in order to clean them thoroughly or to replace the wheels to allow skip or repeat numbering.

The following instructions are provided as a guide only and are specifically for 60 & 70 series heads. As mentioned earlier, Numbering Heads are precision instruments and should be handled carefully.



Dismantling the Numbering Head.....Fig 10.51

If your machine is fitted with Heads from a different manufacturer or you are unhappy about dismantling them please use the instructions supplied with your heads or consult your dealer.

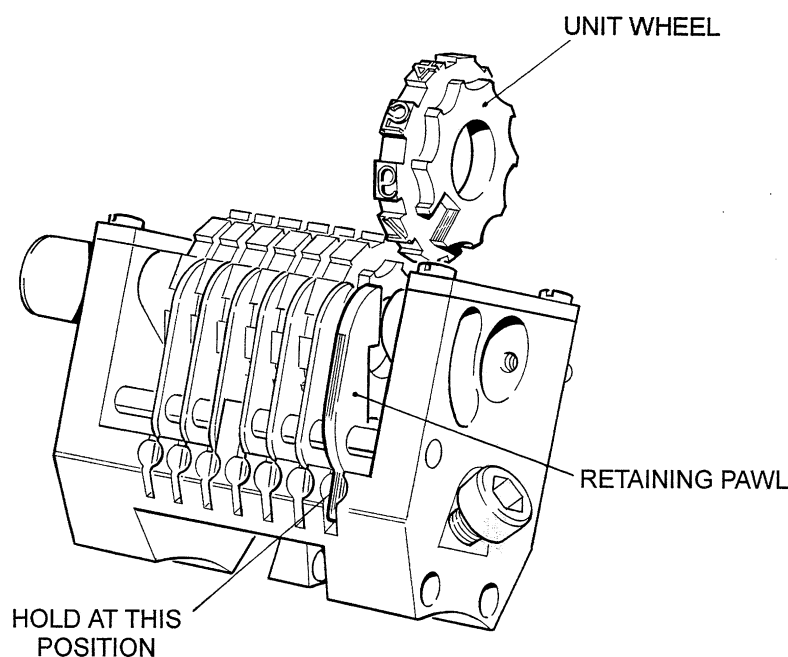
Repeat or skip numbering is achieved by replacing the standard unit wheel with a special wheel.

Using a 1/16" Allen key, release and unscrew 'A' five full turns. the action lever 'B' may now be worked loose and removed from the head.

Release and unscrew 'C' three full turns, and using a drift 'D' (available as an option under part number 41-001-3) push the centre shaft so that it is protruding 16mm (5/8") out from the other end of the Head.

The drift may now be withdrawn and the unit wheel lifted clear of the Head.(see Fig 10.52).

NOTE.....*As you remove the unit wheel, be sure you have a finger over the lower part of the retaining pawl otherwise the tiny spring behind will be lost.*



Numbering Wheel Removal..... Fig 10.52

10.6Numbering Head - Re-assembly

Fit the appropriate wheel and position it so that the centre shaft can be pushed back into place using the drift. The centre shaft is then aligned so that it's ends are flush and the slots in the ends are horizontal.

Tighten screw 'C' until it is flush with the frame. If it will not go flush, re-align centre shaft and try again.

Fit the action lever ,ensuring that its operating pin engages in the hole in the actuating pawl bar. Operate the action lever up and down to confirm correct assembly and operation. Now tighten screw 'A' until it is just clear of the end of the action lever spindle.

Engage a screw-driver into the slot in the end of the action lever spindle and rotate clockwise until the slot is vertical. Hold this position whilst fully tightening screw 'A'. If the screw will not go flush, re-align the spindle and try again.

10.7Filters

The compressor which supplies both air for sheet separation, and vacuum for feeding, is protected from air borne contamination by two filters.

These filters are of a replaceable cartridge type and should be changed from time to time depending on the operating enviroment.

Failure to replace the filters will reduce the machines paper handling capabilities and will lead to over-heating which will damage the compressor.

Access to the compressor filters is gained by removing the end panel under the Loading table, which is secured by four "pozi-driv" headed screws. (Two through each side frame)

One filter housing is retained by a wing nut and the other by two spring clips.Consult your parts manual or dealer for ordering details.

SYMPTOM	CAUSE	REMEDY
Machine Dead & No Lights on Front Panel.	Not Switched On. Fuse Blown in Plug. Fault in Power Supply. Loose Power Lead.	Switch Main Isolator On. Replace Fuse. Check Supply. Check Connection.
System Switch Will Not Latch.	Guard Not Closed. System Fuse Fault. Defective Switch.	Ensure Guards are Securely Closed. Check Fuses are Intact & that Holders are Secure. Call Service Agent.
Drive Motor Will Not Run (<i>Switch Latched</i>)	Motor Fuse Fault. Motor Brushes Worn Paper Jammed in Rollers. Component Fault.	Check Fuse is Intact & that Holder is Secure. Check & replace Brushes Remove All Paper from Within Machine. Call Service Agent.
Machine Will Not Feed. (No Suction to Roller)	Compressor not Switched on Vacuum Control off. Control Valve not operating. Auto-Reset Not Active. Hose Split or Disconnected.	Switch Compressor on. Turn Control to Max. Check connections & Fuse. Switch Isolator Off, Wait 30 seconds, Switch Back On. Check all Hoses.
Machine Will Not Number.	Auto-Reset Not Active. Number on/off Switch off. Dirty Sensors. Faulty Component.	Switch Isolator Off, Wait 30 seconds, Switch Back On. Operate Switch to on Clean Sensors (See 10.2). Call Service Agent.
Compressor won't run.	Loose Power Lead. Compressor Overheated.	Check Lead. Allow to cool & check Filters

SYMPTOM	CAUSE	REMEDY
Number Image Poor.	Ink Roller Empty. Transfer Roller or Inking Pod incorrectly Positioned Numbering Head Under, or Just in Front of Transfer Roller When Stopped. Insufficient Platen Pressure.	Replace Ink Roller. Re - Position Transfer Roller & Inking Pod. Move Transfer Roller Assy. to Secondary Inking Position. (See 4.5). Increase Platen Pressure.
Number Image Scuffed	Excessive Platen Pressure. Dirty or Oil Contaminated Numbering Wheels. Mechanical Problem.	Reduce Platen Pressure. Clean Working Faces of Numbering Wheels. Call Service Agent.
Number Register Poor	Paper Transport Mis-Alignment. Drive Disconnection Screw Miss-Aligned or not Secure. Mechanical Problem.	Check & Reset Side Guides and Hold Down Wheels. Re-Align and Tighten Grub Screw. (See Section 10.1) Call Service Agent.
Numbers Not Indexing	Dirty / Dry Numbering Box. Advance Cam Not Clamped Tightly.	Clean & lubricate Box. Tighten Knurled Clamp Knob.
Zeros Sinking on Run.	Excessive Platen Pressure. Faulty Numbering Box.	Reduce Platen Pressure. Try Another box, and Call Service Agent.
Perforating Crooked	Manifolds Too Loose. Paper Size Varying. Too much Air. Insufficient Sheet Control. Incorrectly Set Output Tyres. Stacker Guides & Smoother Interfering with Sheets.	Re-Set Manifolds Trim Paper, Reset Manifolds Reduce Air flow. Re-set Hold-Down Wheels. Re-Set Output Tyres. (7.1). Check & Re-set Guides and Smoothers.
Sheets Wrap Around Perforating Blades.	Sheet Stripper Not Set.	Fit Sheet Stripper & set Close to Blade.(Fig. 7.11)