

**SUPPLEMENTARY  
INSTRUCTION MANUAL**

**THE  
ORIGINAL HEIDELBERG  
CYLINDER**

**SHEET SIZES**

**$15\frac{3}{4} \times 22\frac{1}{2}$ "  
 $18 \times 22\frac{1}{2}$ "**

**ORIGINAL HEIDELBERG**

**SCHNELLPRESSENFABRIK AG HEIDELBERG**

Service throughout the World

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ORIGINAL HEIDELBERG

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## PREFACE

These instructions are a supplementary manual to the master manual of the Heidelberg K line machines. In this book we cover operation of the

**Original Heidelberg Cylinder  $15\frac{3}{4}" \times 22\frac{1}{2}"$  (Model KSB)**

and the

**Original Heidelberg Cylinder  $18" \times 22\frac{1}{2}"$  (Model KSBA)**

In this manual both machines are just called Original Heidelberg Cylinder. We recommend to every printer that he should first read the master manual.

The hints and suggestions in this supplementary manual have been proved by practical day-to-day experiences. We hope that they will be a valuable source of reference for your daily work.

**SCHNELLPRESSENFABRIK AG HEIDELBERG**



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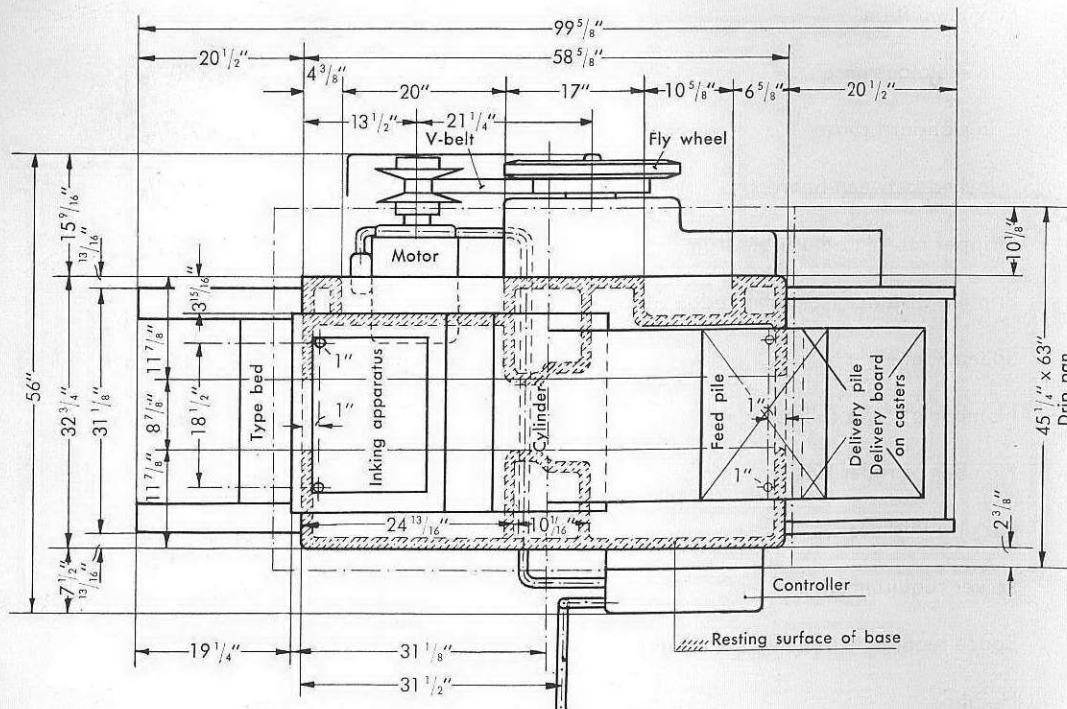
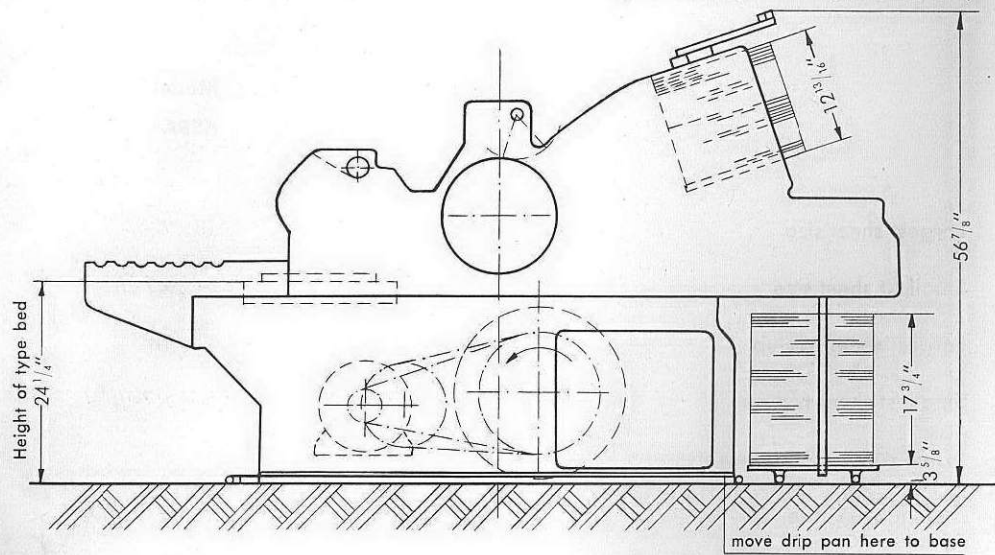
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## SPECIFICATIONS

|  | Model<br>KSB                             | Model<br>KSBA                              |
|--|--|--|
| Largest sheet size                         | 15- $\frac{3}{4}$ × 22- $\frac{1}{2}$ "  | 18 × 22- $\frac{1}{2}$ "                   |
| Smallest sheet size                        | 4- $\frac{15}{16}$ × 5- $\frac{7}{8}$ "  | 5- $\frac{1}{2}$ × 7- $\frac{1}{8}$ "      |
| Largest sheet two-up                       | 11 × 15- $\frac{3}{4}$ "                 | 11 × 18"                                   |
| Smallest sheet two-up                      | 4- $\frac{15}{16}$ × 5- $\frac{7}{8}$ "  | 5- $\frac{1}{2}$ × 7- $\frac{1}{8}$ "      |
| Inside chase measurements:                 |  |  |
| standard chase                             | 15- $\frac{1}{2}$ × 20- $\frac{5}{8}$ "  | 17- $\frac{29}{32}$ × 20- $\frac{5}{8}$ "  |
| skeleton chase                             | 15- $\frac{1}{2}$ × 21- $\frac{7}{16}$ " | 17- $\frac{29}{32}$ × 21- $\frac{7}{16}$ " |
| Maximum form                               |  |  |
| in skeleton chase                          | 15 × 20- $\frac{5}{8}$ "                 | 17- $\frac{1}{8}$ × 20- $\frac{5}{8}$ "    |
| in standard chase                          | 15 × 21- $\frac{7}{16}$ "                | 17- $\frac{1}{8}$ × 21- $\frac{7}{16}$ "   |
| locked between bearers                     | 15 × 22- $\frac{1}{8}$ "                 | 17- $\frac{1}{8}$ × 22- $\frac{1}{8}$ "    |
| Gripper margin adjustable from             | $\frac{5}{16}$ to $\frac{25}{64}$ "      | $\frac{5}{16}$ to $\frac{25}{64}$ "        |
| Printing distance from front edge of sheet | 15- $\frac{3}{8}$ "                      | 17- $\frac{1}{2}$ "                        |
| Speed range                                | 2.500–5.000 i.p.h.                       | 2.500–5.000 i.p.h.                         |
| Number of form rollers                     | 4  | 3 + 1 rider roller                         |
| Number of roller tracks                    | 4  | 4  |
| Packing thickness                          | approx. .047"                            | approx. .047"                              |
| Power requirements                         | 5.5 HP                                   | 6.7 HP                                     |
| Space requirements (length × width)        | 8'4" × 4'9"                              | 8'4" × 4'9"                                |
| Height                                     | 4'9"                                     | 4'9"                                       |
| Net weight of machine                      | 6.630 lbs.                               | 6.700 lbs.                                 |

**Floor Plan of Original Heidelberg Cylinder  $15\frac{3}{4} \times 22\frac{1}{2}$ " and  $18 \times 22\frac{1}{2}$ "**  
(Model KSB) (Model KSBA)



Minimum distance on all 4 sides = 25"  
Floor contact surface abt. 13 cu. ft. (1.2 m<sup>2</sup>)  
Net weight of the machine abt. 6630 lbs (KSB) and abt. 6700 lbs (KSBA)

## **Oil Drip Pan**

We strongly recommend placing the machine on an oil drip pan, to prevent soiling of the floor. This is particularly important on concrete, which is subject to decomposition when saturated with oil or grease.

Each stroke of the central lubrication handle forces approximately 1.8 cubic inches of oil under high pressure into the bearings. The used oil which is forced out drains on the drip pan, which should be cleaned weekly.

The drip pan generally comes with a rolled  $\frac{1}{4}$ " or  $\frac{3}{8}$ " bead and measures 3'10" by 5'3". It is made by galvanized sheet iron, and can be obtained from our agency (or made locally).

## **MAINTENANCE**



### Running in Machine

Any new piece of machinery must be carefully run in. In the first two weeks of operation printing speed should not exceed 3.000 i.p.h.

With each of our machines we supply an oil chart, developed in cooperation with several well-known mineral oil firms.

We would particularly refer you to the running-in oils for the gear box listed under (b) in the oil chart. These running-in oils are enriched with additives against wear and seizing. (We are not necessarily opposed to the use of Molykote previously recommended, provided the specified quantities are strictly adhered to.)

Normally, the pump handle of the central lubrication is pulled to the left, up to the red marking, once every four operating hours. During the running-in period in the first two weeks, we recommend one stroke of the central lubrication lever every two hours. A careful running-in period will ensure many years of trouble-free service and a minimum of wear.

### Lubrication of the Machine

Careful and regular lubrication is vital for long machine life.

The lubrication points are divided into three groups:

1. **Daily.** All red-marked points and nipples must be lubricated daily.
2. **Weekly.** All yellow-marked points and nipples are to be lubricated weekly.
3. **Semi-annual.** All green-marked bearing points require lubrication every six months.

Lubrication nipples have been provided to protect the bearings against dirt, paper dust and anti-setoff spray powder.

Some bearings must be lubricated exclusively with grease. To prevent any confusion, oil lubrication points have been given different shaped fittings from those which require grease. Two types of lubrication guns are supplied with each machine: the mouth-pieces are different. The short lubrication gun is for oil nipples, while the longer one is for grease fittings. Use only top quality grease!

### Oil Lubrication

All bearings which must be lubricated with oil are fitted with round protruding nipples. Use the shorter gun (ill. 1). Oiling must be in accordance with specifications given on the instruction plates of the machine.

We recommend only top quality oil, as specified in the lubrication chart.

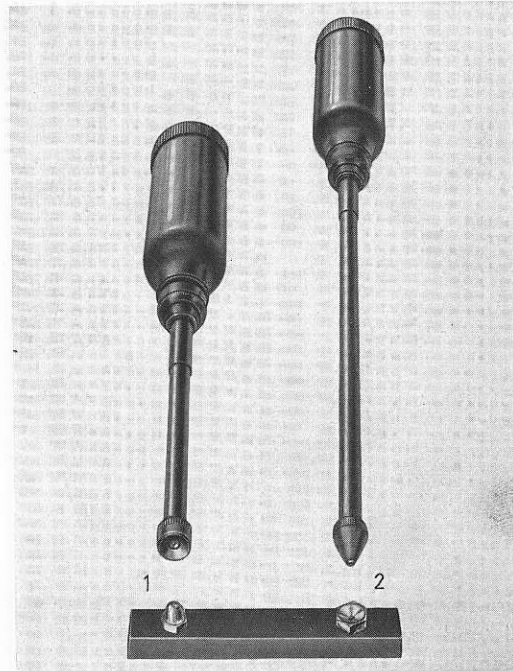


Illustration 1

Attention is particularly drawn to the following oil lubrication points:

1. On the impression cylinder below the cylinder grippers, there is an oiling point. (ill. 2)

A wide groove on the inner side is marked in yellow, indicating weekly lubrication. At the end of the groove there is an oil nipple for lubrication of the cylinder gripper movement.

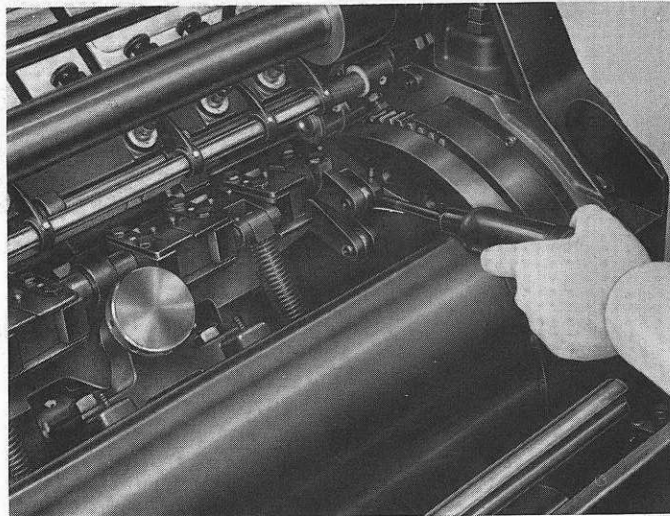


Illustration 2

2. On the inside of the air pump and the bottom of the pump piston there is another important oil lubrication point. Stop the press with the pump piston at the bottom of its stroke and remove the green painted hexagon head screw exposing the oil nipple. After lubrication with oil gun the hexagon head screw is put back and tightened firmly. The piston should be lubricated every three months.
3. The rectangular hole in the aluminum feed board is primarily for the center side guide when printing two-up and also provides for lubrication of the traveling feed gripper carriage pivot bearing.

Turn the press over until the felt oil pad appears beneath the opening (ill. 3). A few drops of oil once a week are sufficient. Excess lubrication could drip and possibly soil printed sheets.

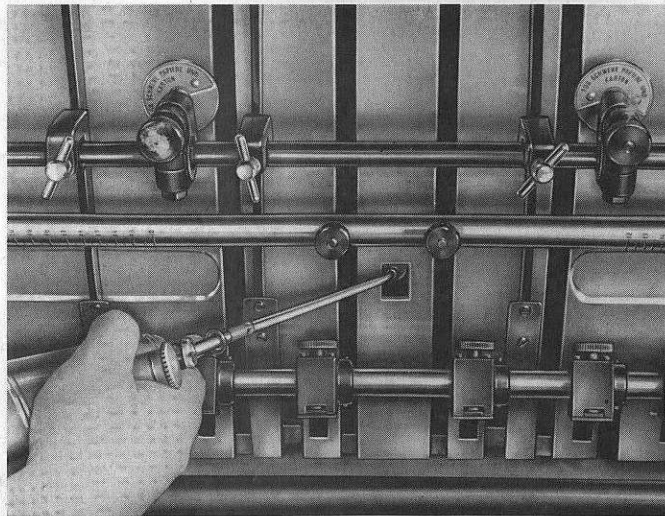


Illustration 3

### **Grease Lubrication**

The following parts should be lubricated only with grease:

#### **1. Feeder Bearings**

Lubrication of the bearings beneath the aluminum feed board is carried out from the front side of the feed table through



# **Lubrication of Feeder** feed grippers in top position close to sucker bar

● feed grippers in lower position  
 close to transfer grippers

Illustration 4 Side view

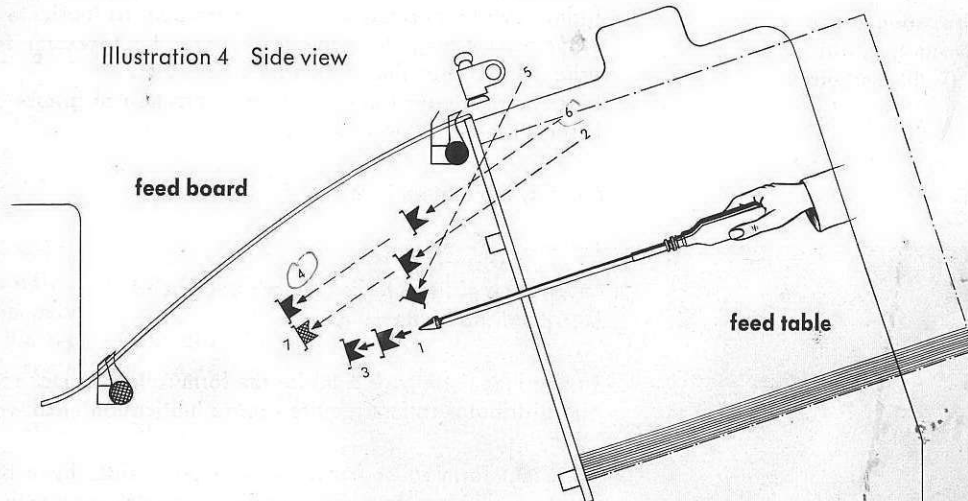
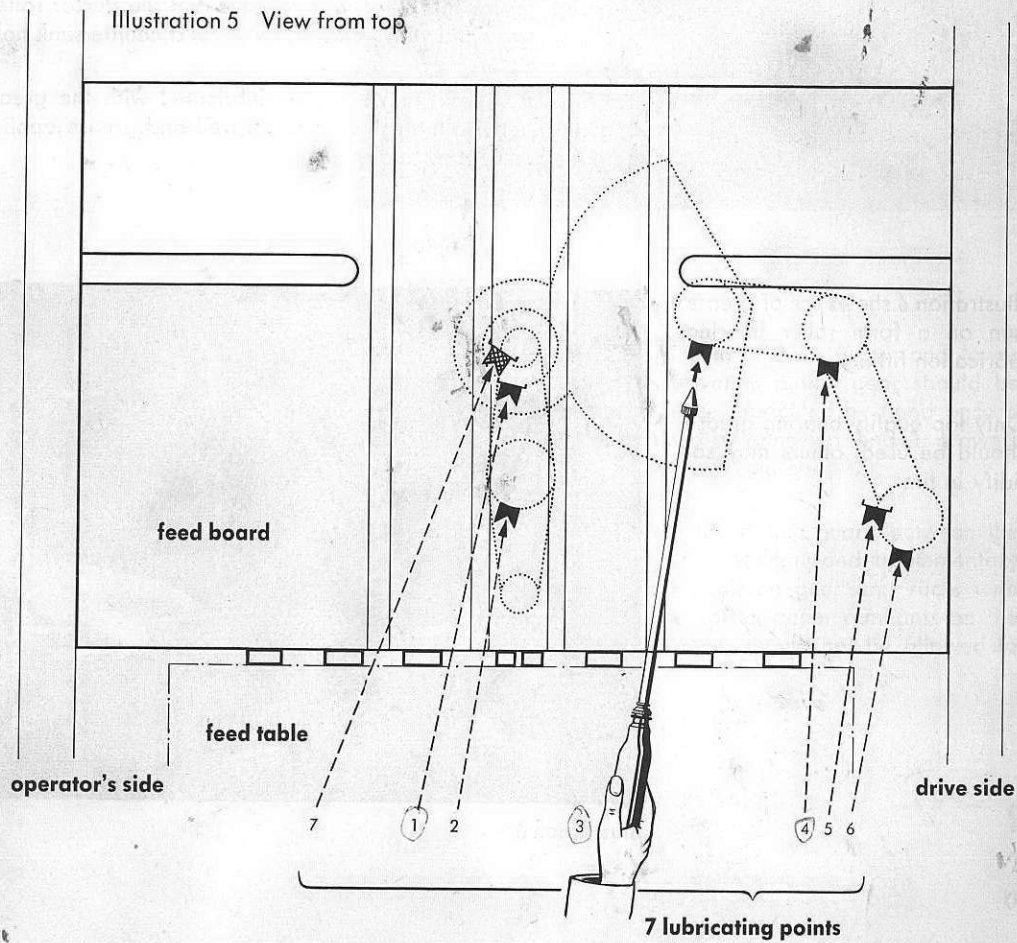


Illustration 5 View from top



the front paper standards. Stop the press with the traveling feed grippers close to the suckers. In this position 6 grease fittings can be reached with the grease gun. To lubricate the 7th grease fitting, turn the press until the traveling feed grippers are near the bottom of their travel. Location of grease fittings as well as position of grease gun is shown in illustration 4 and 5.

Monthly lubrication is required.

## **2. Lubrication of Form Roller, Ductor Roller, and Distributor Roller Bearings**

14 bearings (7 on each side) for the form rollers, ductor roller and distributor rollers require grease lubrication each week.

The eight form roller bearings (4 on each side) have been provided with grease fittings and can be lubricated with the long grease pressure gun. The remaining 6 bearings (3 on each side) for the 2 distributor rollers and the ductor rollers are not provided with grease fittings but a countersunk hole.

With care these points can be lubricated with the grease gun. Otherwise the rollers are removed and grease applied to the bearings manually.

Illustration 6 shows use of grease gun on a form roller bearing lubrication fitting

Only top quality bearing grease should be used, others may solidify in time.

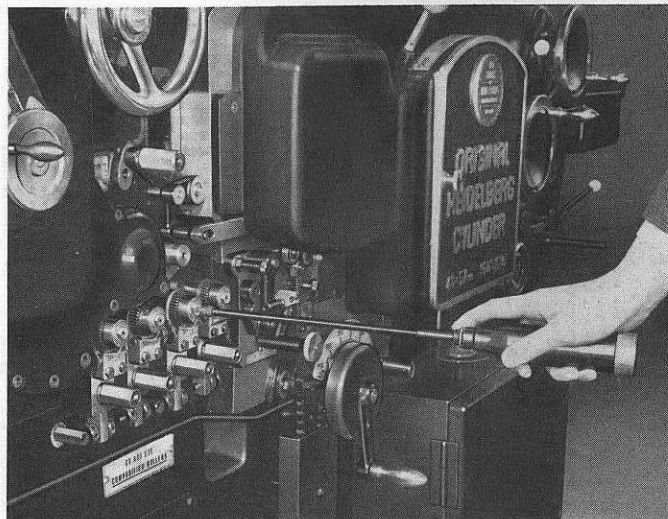


Illustration 6

### 3. Lubrication of the Upper Gear Rack

For lubricating the last few teeth of the **upper gear rack** on the underside of the type bed, a grease fitting is provided below the guard at the front end of the type bed. (ill. 7). This fitting is red and requires **daily** greasing.

Since this lubrication point provides only for the last four teeth of the gear rack, it is essential that the type bed is at its front dead center position. Only in this position do the last four teeth receive sufficient lubrication.

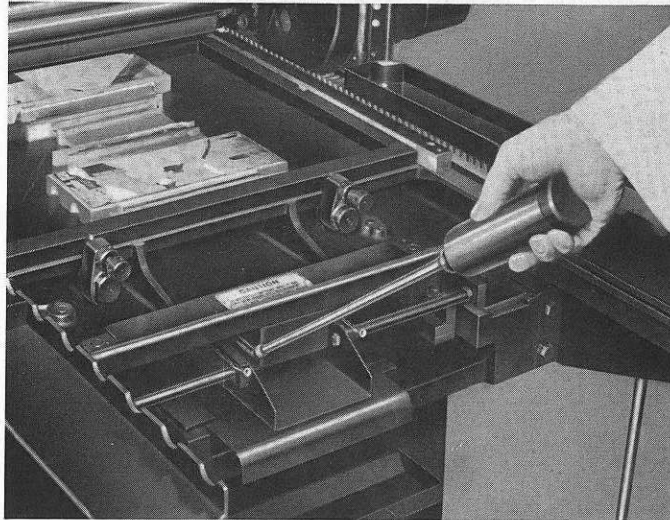


Illustration 7

In addition, the remaining teeth of both upper and lower gear rack as well as the traveling pinion gear should be thoroughly cleaned and grease lubricated by hand once a month. Access is best obtained by removing the two drawers in the base below the inking unit (see page 18).

It is also recommended that the sliding guard between the bed tracks (inking end) be pulled out daily and supplementary lubrication be applied to the pinion gear and racks with the **oil** can. This will tend to soften paper remnants on the gears. Paper remnants, however, should not be allowed to accumulate!



#### 4. Lubrication of the Drive Pulley

Lubrication of the drive pulley, provided with a two-way grease fitting, can be done either through an opening on the top of the belt guard (ill. 8), or through the side. The grease fitting is marked red, requiring daily lubrication.

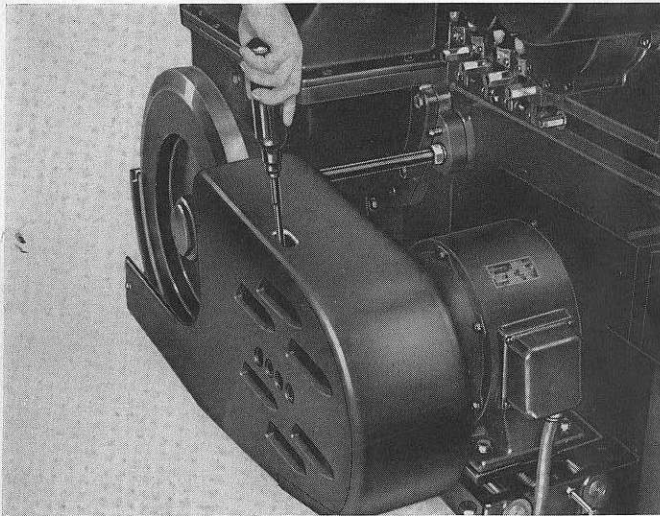


Illustration 8

The oil reservoir for the one-shot central lubrication is fitted to the side frame of the delivery unit on the operator's side (illustration 9).

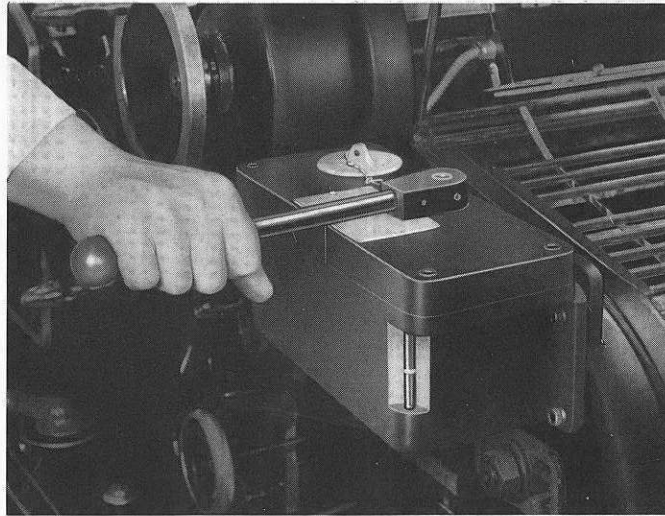


Illustration 9

### Central Lubrication

The one-shot central lubrication pump supplies the exact amount of oil required to the major lubrication points.

In operating the central lubrication the following points must be observed:

1. If the machine is idle for 2 to 3 days or longer, the red-balled handle must be pulled fully to the left, up to the red marking, at least four times **before starting the machine**. About 10 minutes after starting the machine, we recommend a fifth stroke of the pump handle.

It is essential to follow these instructions, since the oil lines of the central lubrication system may partially drain. **When operating the lever a heavy counter-pressure should build up.** The presence of this counter pressure guarantees that enough oil gets to the bearing points. It may be necessary to operate the lever several times until the counterpressure builds up.

2. After this, the lubrication pump should be operated up to the red marking every four hours **while the machine is running**. Lubrication when running at a low speed will guarantee a better oil distribution.

Emptying of the oil reservoir should be avoided. The oil level can be checked at the glass gauge of the pump. Should the level in the gauge get below the mark, new oil must be added.

### **Gear Box Oil Bath**

A weekly check must be made of the oil level in the gear box on the drive side of the press. For the first filling, about 1 gallon of oil is required.

For selecting the correct oil, please refer to the lubrication chart supplied with each press.

A dip-stick for checking the oil level is located at the bottom of the gear box. The dip-stick is pulled out, wiped clean and redipped to ascertain the level in the gear box. The oil should reach the indented ring on the dip stick about  $\frac{3}{4}$ " from the tip (illustration 10).

Use only those oils recommended by your agency.

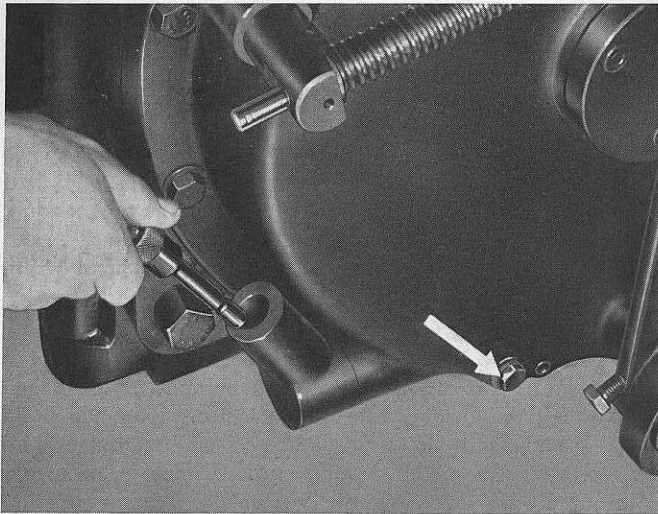


Illustration 10

**Checking of the oil level should, of course, only be done when the machine is idle.**

When additional oil is required, add only enough to bring it up to the level mark. Sometimes the level of oil in the gear box will rise above the mark on the dip-stick, due to oil drain-



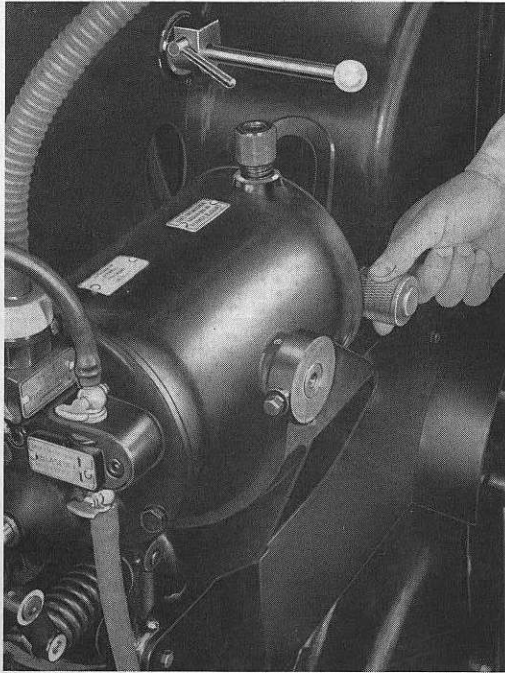
ing from certain bearings connected to the central lubrication system. Such excess oil should be drained off by removing the hexagon head plug at the bottom edge of the gear box below the flywheel (see arrow in illustration 10).

### **Cleaning the Machine**

The machine should be cleaned thoroughly at least once a week. Special care must be taken to remove all spray deposits from open oil holes. All important lubrication points are fitted with nipples to prevent clogging. All air blast holes in the tubes on the feeder should be cleaned each week with a brush. Go over the bright parts with an oily cloth after cleaning to prevent rust. For current machine maintenance rust preventative oils are recommended (e. g. "Rust-Ban 3370", a product of Esso). The automatic cut-out device on the transfer gripper bar should be cleaned every three months with kerosene or washup fluid to ensure free movement of the control rods.

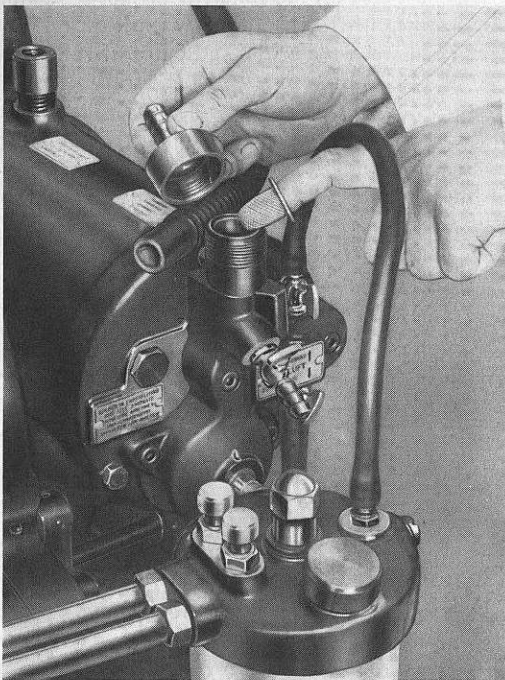
In particular the inking unit should be cleaned carefully once a week. Take out the rollers and wash them manually. For the Friday afternoon general cleaning we recommend treating the rubber rollers with a regeneration paste. Best results will be obtained by leaving the paste on the rollers over the weekend. Then (since the paste contains some grease) wash it off with a rag dipped in lukewarm water. Life and resiliency of rollers is lengthened considerably by this treatment. Plastic rollers should not be treated with regeneration paste, which will attack the surface of the plastic material. Accordingly, plastic rollers must be cleaned very carefully at regular intervals. The sludge basin and the washup blade should be also cleaned regularly, so that ink residues do not harden.

### Cleaning the Air Filter and the Paper Dust Screen in the Suction and Blast Air Pump



In the cover of the air pump there is a filter through which the air passes when entering the pump. This filter should be removed, dipped in cleaning solvent and rinsed each week. Do not use rubber roller cleaning solvents which contain oil and will not dry quickly. Be certain the filter is dry before putting it back.

Illustration 11



At the same time the paper dust screen in the valve body of the pump bottom should be removed and cleaned. Illustration 12 shows how the screen is removed after unscrewing the hose nipple.

This cleaning must be done **daily** when running very dusty stock.

Illustration 12

### Cleaning of Main Pinion, Gear Racks and Crankshaft Area

The main pinion, the gear racks and the crankshaft area in the base have to be cleaned and greased regularly. For this purpose the base has been made accessible at the inking end, delivery end, and operator's side.

Illustration 13. Removal of sliding guard located on the inking end makes the pinion and the lower gear rack accessible from the top. The best position for cleaning is when the type bed is in its dead center position at the delivery end.

After cleaning thorough hand lubrication of the pinion and the gear racks is necessary. When replacing the guard, be sure it is engaged in the guide rails. Otherwise, the guard may drop into the pinion gear and cause damage.



Illustration 13

Illustration 14. An opening is provided in the rear guard at the rear of the delivery pile by sliding two small guards to the sides. The most favorable position for cleaning is when the type bed is at its dead center position on the inking end.

All paper in the crankshaft area must be removed.

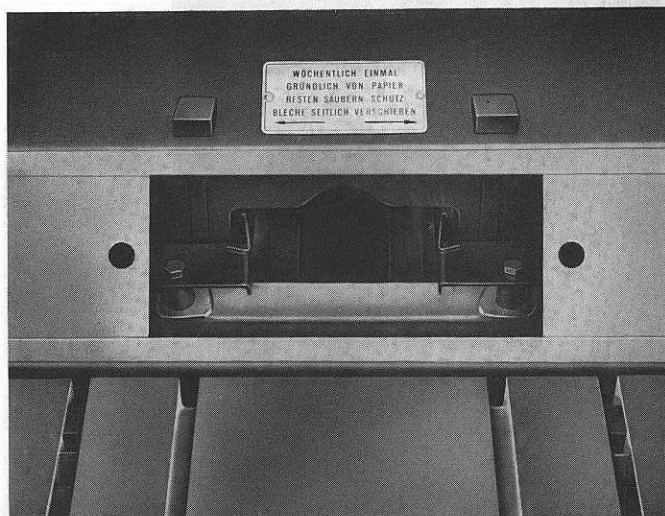


Illustration 14

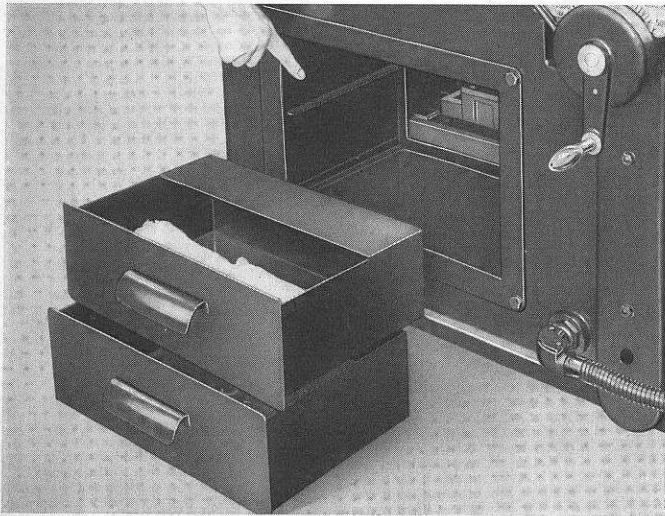
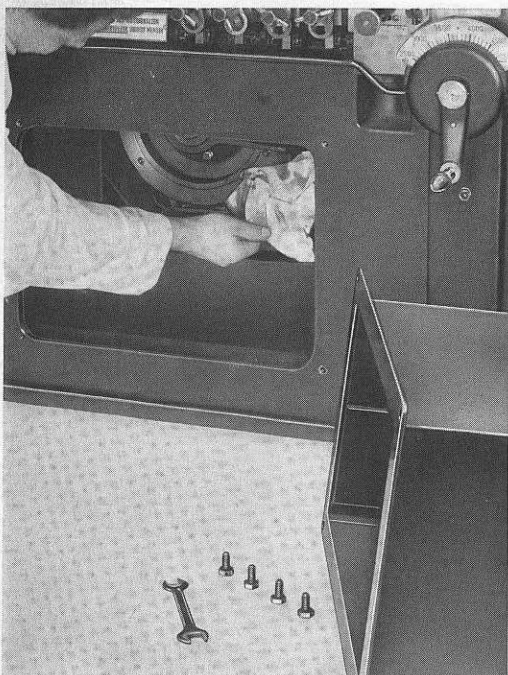


Illustration 15

The two drawers are a good place to store small accessory items. However, do not use them for bulky items, such as plastic or rubber hoses, for instance, which must be rolled together; otherwise, when the drawer is pulled out while the machine is running such items may get into the pinion gear.



If paper should ever get in the base of the machine, and cannot be reached by removing the drawers on the operator's side, further access can be gained by removing the drawer frame.

To prevent damage to the pinion gear, replace the drawer frame carefully.

Illustration 16



**OPERATING THE MACHINE**

### **Form and Roller Guard**

Before the machine can be started the form and roller guard must be down. As long as the machine is in operation the form and roller guard cannot be lifted (illustration 17).

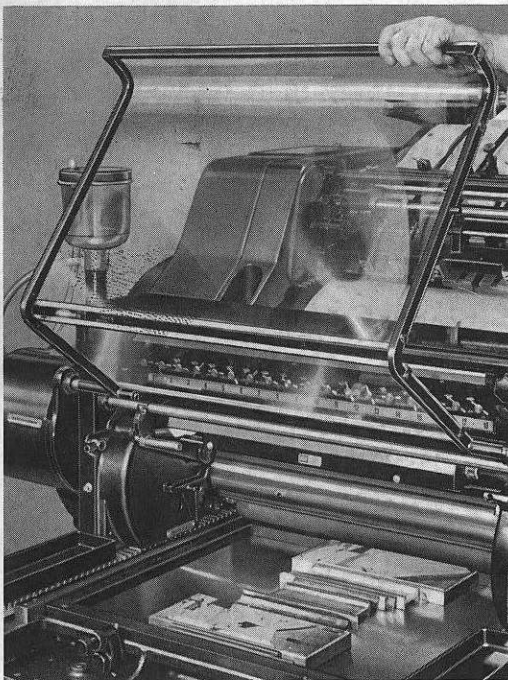
### **Important!**

Before starting the machine always be certain that:

1. **The form has been locked up securely,**
2. **Nothing has been left lying on the form,**
3. **The quoin key has not been left in one of the quoins,**
4. **The inking rollers are securely locked,**
5. **The bearers and racks are free from paper and dirt.**

Serious damage can result if the above points are not observed. A warning plate is attached close to the main control lever, giving the above reminders.

Illustration 17



## Inking Unit

The inking unit of the Original Heidelberg Cylinder  $15\frac{3}{4} \times 22\frac{1}{2}$ " (Model KSB) is equipped with 4 form rollers of different diameters, **all clearing the maximum form** (see arrow in ill. 18). This is a great advantage, particularly when printing difficult forms. The roller diameters are indicated by colors at the journal boxes, as well as at the roller journals so that the operator cannot insert the wrong roller. (ill. 18).

Ink is distributed by 2 distributing rollers and the ductor roller, in conjunction with 3 steel distributors of different diameters. Reciprocation can be adjusted from  $0-1\frac{3}{8}$ ".

The inking apparatus is driven from both sides of the type bed to avoid one-sided stress.

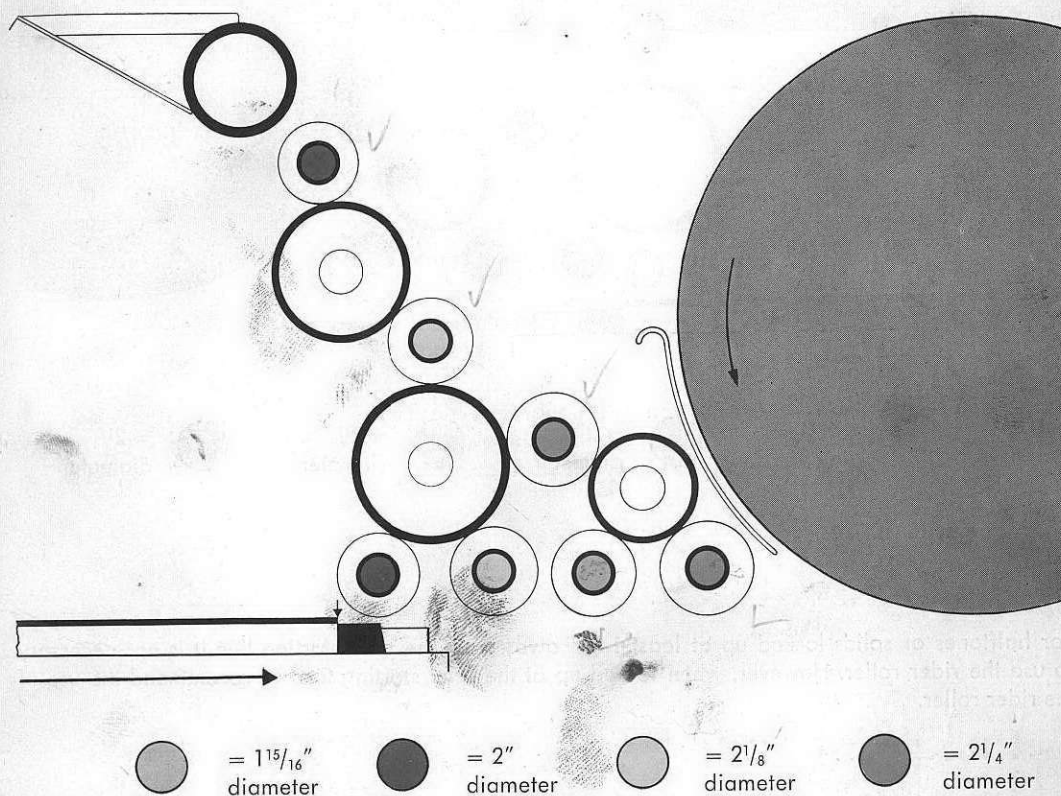


Illustration 18

Original Heidelberg Cylinder  $18 \times 22\frac{1}{2}$ " (Model KSBA) has been increased in printing length by  $2\frac{3}{8}$ " while the printing width is the same as Model KSB.

Both machines have the same inking unit. However, on account of the longer type bed, model KSBA has only 3 form rollers, but a rider roller can be added. Here again no form roller reverses on the form. We refer to the KSBA inking roller diagram (ill. 19).

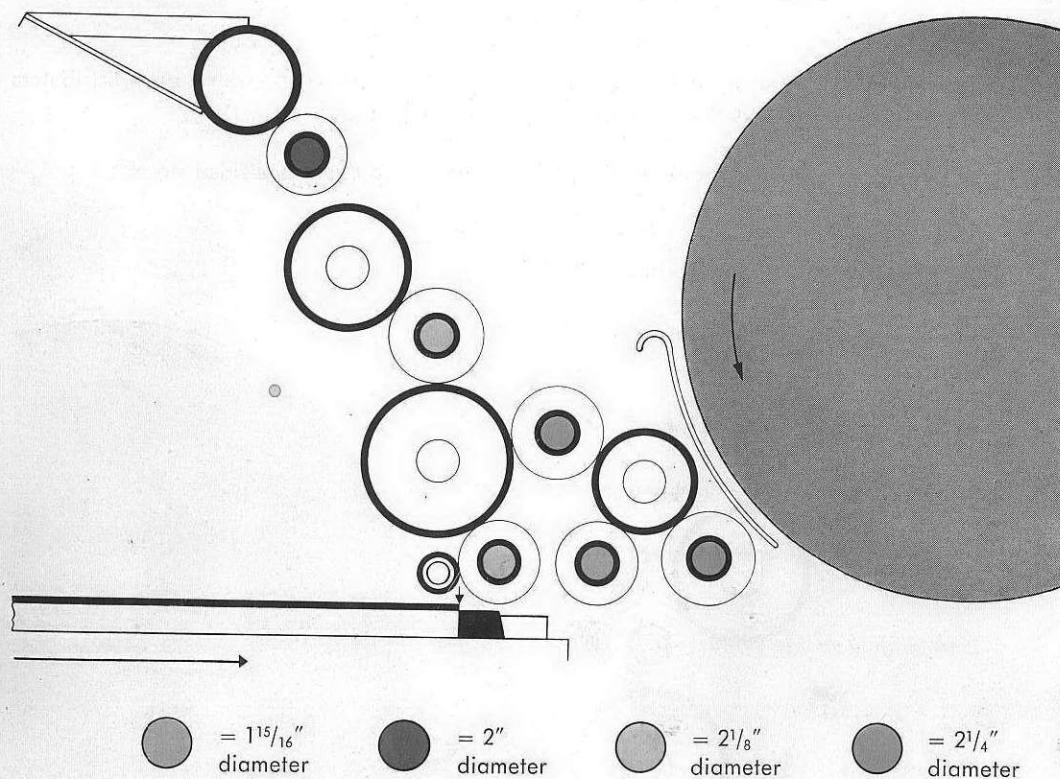


Illustration 19

For halftones or solids locked up at least 1-3/4" away from the print starting line it is not necessary to use the rider roller. However, when locked up at the print starting line we recommend the use of the rider roller.



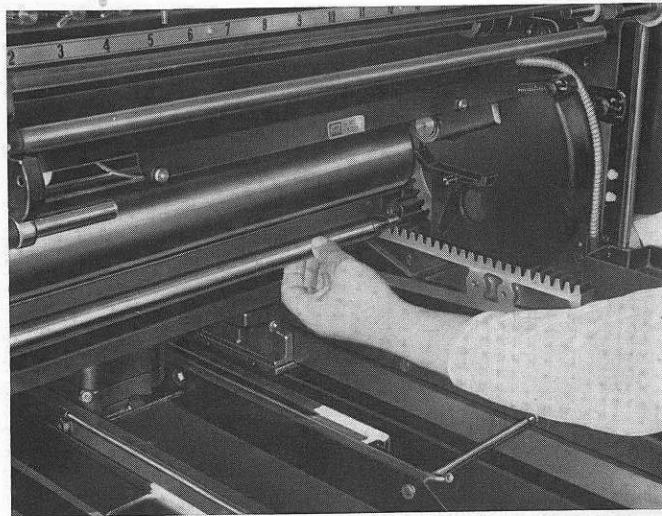


Illustration 20

The rider roller is inserted the same way as the form rollers (illustration 20).

The same type of roller locks are used for the rider roller (see page 26).

Press the rider roller against the third form roller with light pressure and lock the journal box. It is important that the rider roller contacts the form roller evenly on both ends.

### Inserting and Removing the Ductor Roller

The socket for the ductor roller on the operator's side is fitted with a sliding bearing which must be locked into position (illustration 21).

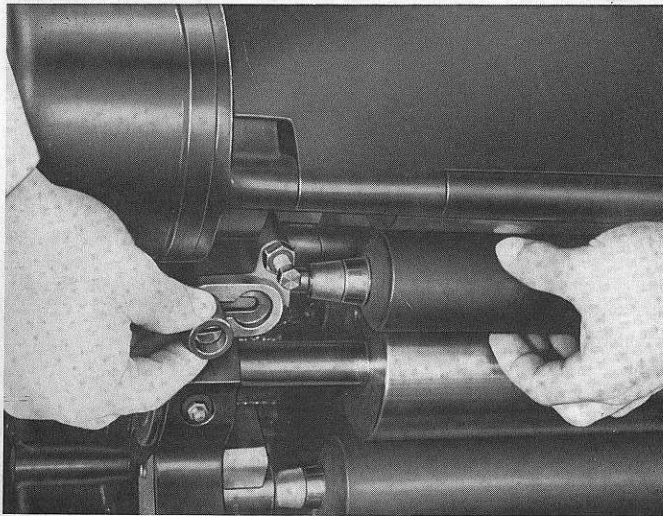


Illustration 21

Illustration 21 shows how the ductor roller is inserted. The sliding bearing is retracted. The journal of the roller is first put into the retracted sliding bearing and then it is put into the socket on the drive side of the machine. The roller is then lifted up slightly on the operator's side and the sliding bearing is engaged until the roller journal fits into the bearing and the locking knob engages the countersunk portion.

To remove the ductor roller the locking knob on the roller socket is first disengaged. Then the sliding bearing can be retracted. The roller journal on the operator's side is pushed into the retracted bearing so the journal on the drive side can be removed from the socket. The ductor roller is then easily removed.

### Inserting and Removing the 2 Distributor Rollers

First, the needle-bearing sleeve on the operator's side is put on the roller journal. Then the roller journal on the other side is placed into the bearing sleeve already positioned in the guide block on the drive side. The roller is inserted on the operator's side by putting the bearing sleeve with the roller journal into the guide block (ill. 22).

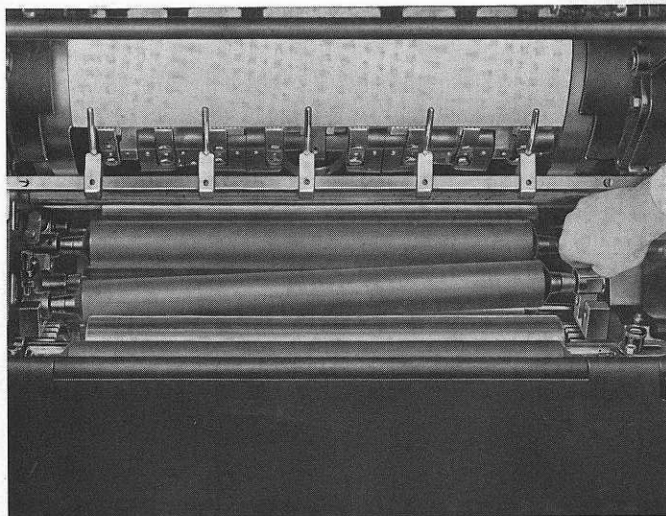
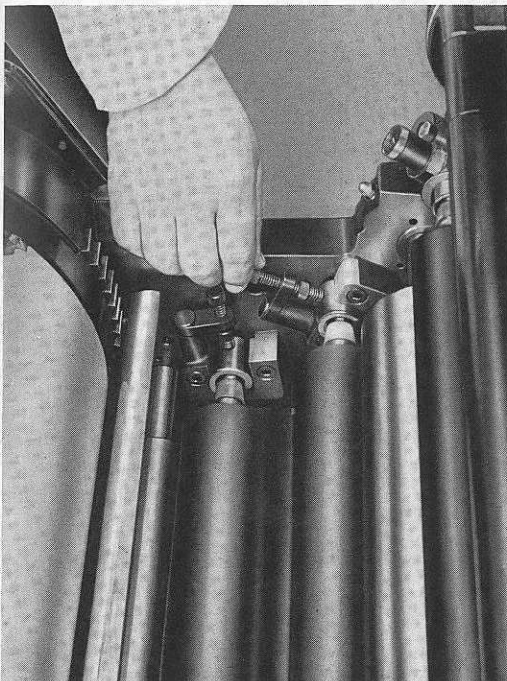


Illustration 22

Illustration 23



To insert the needle-bearing sleeve on the drive side, the safety latch is turned away so that the opening of the guide block is free. After fitting in the bearing sleeve, the safety latch is turned in and locked on top of the adjustment screw (illustration 23).

It is only on the operator's side that the needle-bearing sleeves must be taken out in order to remove the distributor rollers. To be certain that the sleeves are readily available, place them back in the guide block when the distributor rollers have been removed. To keep the bearing sleeves from falling into the machine, close the opening with the latch. Do not change the setting of the adjustment screw if you desire to maintain the same roller alignment.

### **Inserting and Removing Form Rollers**

When inserting form rollers use the following procedure:

1. Run type bed to rear dead center.
2. The journal boxes on the drive side are fixed, i.e. they cannot be retracted. For inserting the rollers the journal boxes on the operator's side are released.
3. Start with the form roller nearest to the cylinder and insert it into the retracted journal box on the operator's side.
4. Insert the roller journal into the journal box on the drive side.
5. The roller journal on the operator's side slides out of the retracted socket and comes to rest on the gear rack below.
6. Lift the roller journal slightly so that it enters the socket when the journal box is put into place.
7. The journal box is locked on the drive side and the operator's side with the T-handle socket wrench, after adjusting the roller (see also page 31, illustration 30).
8. Insert the remaining rollers in the same manner.

For removal of the rollers the hexagon head screws of the journal boxes on the operator's side are released with the T-handle socket wrench. Then the journal box is withdrawn. Thus one roller after the other can be taken out of the machine. The pressman must see that the adjustment screws remain in position when removing the form rollers. This will eliminate new adjustment when reinserting the rollers.

The rollers must always be put back in the same journal box, because rollers with the same nominal diameter may have slight differences in size.



### Adjusting the Ductor Roller

Spring tension presses the ductor roller against the fountain roller on both sides. The contact of the ductor roller with the steel reciprocating cylinder must be adjusted carefully. Adjustment is shown in illustration 24.

In this position the ductor roller will be in contact with the steel distributing roller.

This is the first condition for setting the ductor roller properly. Beneath each end of the fountain

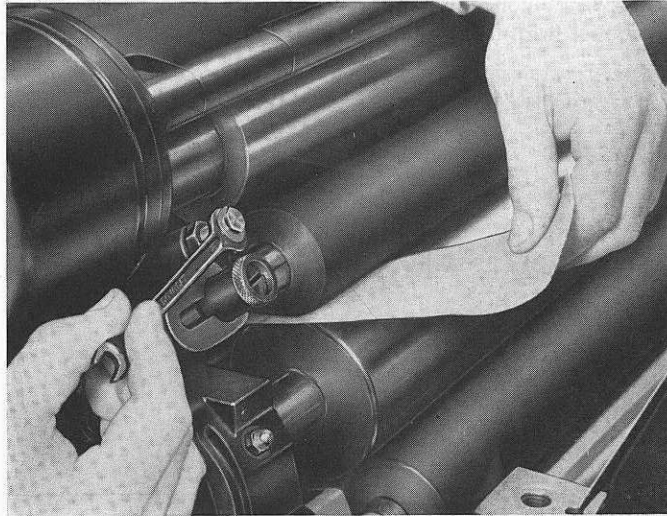


Illustration 24

It is essential that the two adjustment screws are evenly adjusted. If this is not done, some machine parts may be subjected to excessive strain. It is important that the pressman checks the proper setting of the ductor roller when a new set of rubber rollers is put in. This adjustment is necessary in order to adapt the setting to the new conditions brought about by new rubber rollers.

As you will note from the roller diagram on page 21 and 22 the ductor roller has a diameter of 2". Under no circumstances should a larger diameter roller be used.

When adjusting the ductor roller it is best to proceed as follows:

Before beginning this adjustment run the type bed approximately 8" past the front dead center.

roller a hexagon adjustment bolt and lock nut will be found. The screws are adjusted on both sides so that the ductor roller contacts the steel distributor roller with light pressure. Following this adjustment the lock nuts are tightened. The proper contact of the ductor roller is checked in the usual way, i.e. with two strips of paper placed between the ductor and the steel reciprocating roller on each end. The adjustment is correct when the paper strips can just be pulled out slowly without tearing.

### Adjusting the Distributor Rollers

Each of the distributor rollers must contact two steel cylinders.

First, the safety latch is released from the guide block on both sides. After releasing the adjustment screw fitted to each needle-bearing sleeve, the roller is pressed slightly by hand against the two steel cylinders. Here again, the proper contact of the distributor rollers with the steel cylinders is checked with two paper strips (illustration 25).

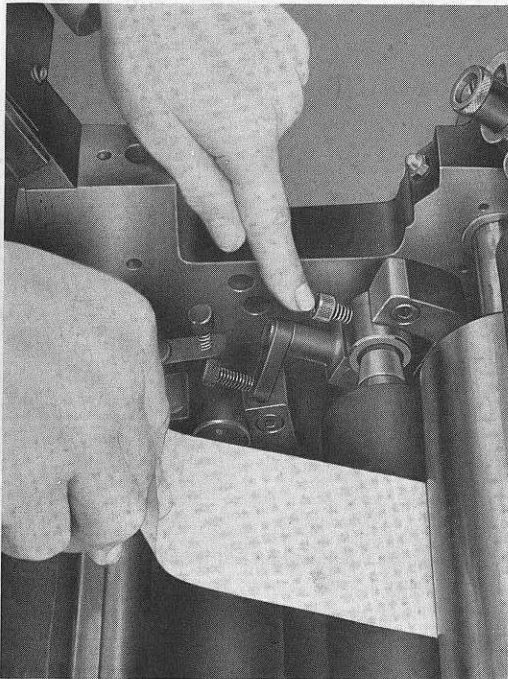


Illustration 25

After the rollers are positioned, the two adjustment screws are screwed into the needle bearing sleeves until they rest on the bottom of the guide block.

After adjustment, the latches are turned into position and secured with a knurled screw.

The position of the adjustment screw need not be changed when the rollers are removed or reinserted. Maintaining the position of the adjustment screw ensures the identical position of the roller.

### Adjusting the Form Rollers

The form rollers must contact the steel distributing cylinders slightly and be adjusted type-high. First loosen the hexagon nuts on the journal boxes with the T-handle socket wrench provided, both on the drive and the operator's side. Then proceed by pressing the rollers against the inking cylinder under even pressure of both ends until the roller has the proper contact. At first the hexagon nuts are tightened slightly by hand (illustration 26).

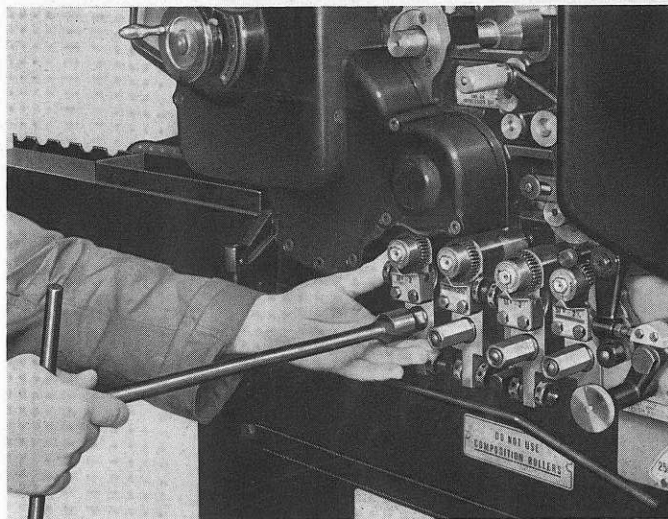


Illustration 26

Only after all rollers have been aligned to the inking cylinders and adjusted to type height the 4 journal boxes are tightened firmly on both sides with the T-handle socket wrench (ill. 30).

Adjusting the rollers to type height is made with the roller gauge supplied with the machine. This gauge makes it possible to adjust each form roller for height without removing the rollers in front of it. All form rollers may remain in the machine for adjustment. This is of particular importance when the pressman wishes to double-check the proper adjustment of single form rollers for height.



Illustration 27

The gauge is put on the type bed with the flat side and moved in this position behind the roller to be adjusted (illustration 27). The height of the flat side is lower than type-high, so the gauge can be put in without touching the roller.

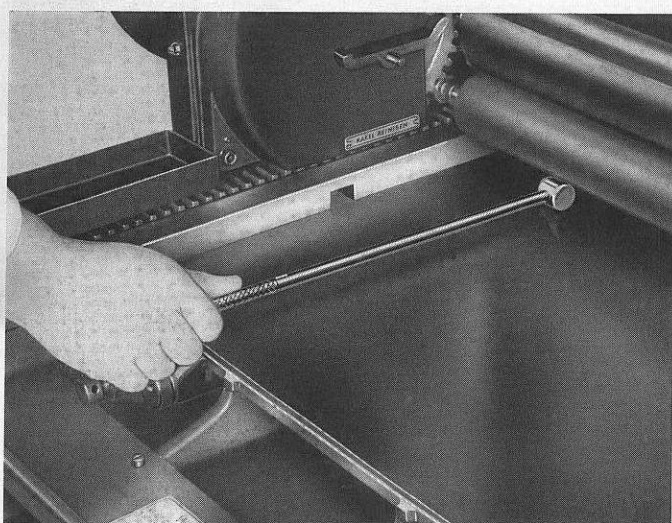


Illustration 28

The gauge is then turned so that the rounded portion is flat on the type bed as shown in ill. 28. In this position the gauge is exactly type high. It is now moved forward or backward under the roller. Before being pulled out, the gauge is turned again on its flat side so the printer can check the ink strip on round portion from contact with the roller. The width of the ink strip should be approximately  $\frac{1}{16}$ ". Since the adjustment of the rollers for height is based on the ink strip on the gauge, the rollers must be inked.

To facilitate handling the gauge properly a white mark has been recessed into the handle. The gauge is in the correct position for checking the rollers when the white mark is turned up. When the gauge is inserted, the mark cannot be seen from the top.



The height of the form roller is adjusted by turning the micro-adjustment screw with the pin wrench (illustration 29).

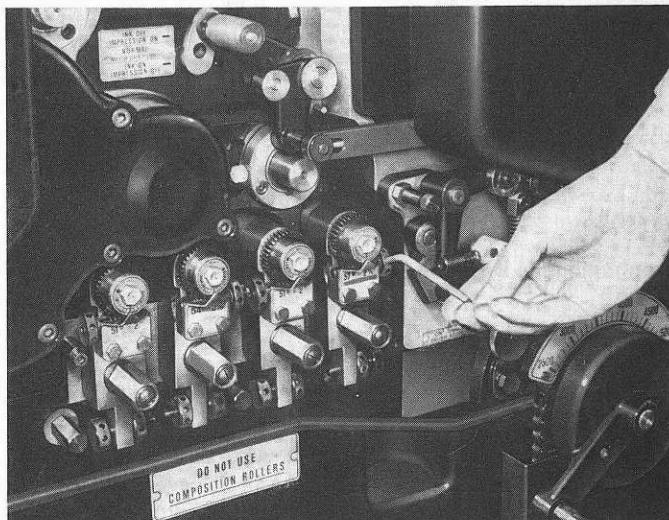


Illustration 29

The microadjustment screw operates a worm gear at the roller bearing which raises or lowers the roller. Above each microadjustment screw a scale indicates the center position of the roller and shows whether the roller is raised or lowered. The scales can be seen in the illustration.

After adjusting the form rollers for proper height they must be re-aligned to the inking cylinder on both sides. Then tighten the journal boxes with the T-handle socket wrench (illustration 30). **Tightening the hexagon nuts by hand is not sufficient.**

Finally the stop screw at the lower end of the journal box is adjusted to its stop and locked. If rollers are released this will ensure correct position when re-locked. See page 31.

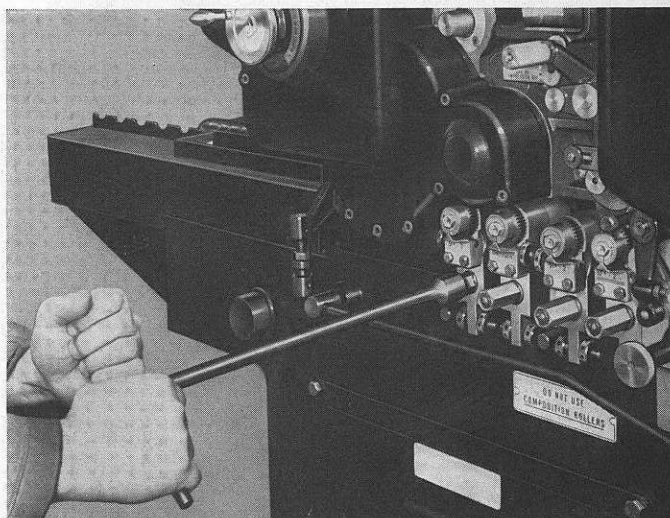


Illustration 30

### **Disengaging the Ductor Roller**

The ductor roller is disengaged when the type bed is in its dead center position at the inking end. In this position all form rollers clear the form.

### **Disengaging the Distributor Rollers**

On the drive side, both distributor rollers can be disengaged with the roller journal remaining in the needle bearing sleeve in the guide block. Loosening of the safety latches is not necessary for disengaging on the drive side.

On the operator's side the needle bearing sleeve is lifted out of the guide block together with the roller journal after the latch has been swung away. Place the needle bearing sleeve on the guide block with the flat portion of the sleeve pointing upward. In this position the sleeve cannot slide back into the guide block opening (illustration 31).

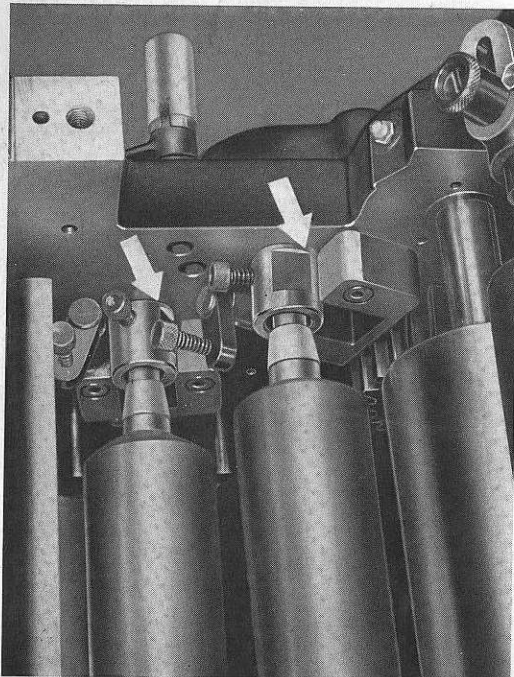


Illustration 31

This illustration shows the two distributor rollers disengaged.

### **Disengaging the Form Rollers**

The hexagon nuts for locking the 4 form roller journal boxes are loosened on the operator's side with the T-handle socket wrench. Move the journal boxes away from the inking cylinders and retighten the nuts slightly by hand. There is sufficient clearance when the pressure of the roller against the cylinder is relieved. When re-engaging the rollers they are merely moved to their stops and locked.

### **Setting of Fountain Blade and Ink Flow**

The fountain blade is regulated by 18 fine threaded screws which can be set to suit the inking requirements of the form (illustration 32).

There is a scale on the fountain which is duplicated on the delivery table. The two scales enable the operator to regulate the ink supply accurately.



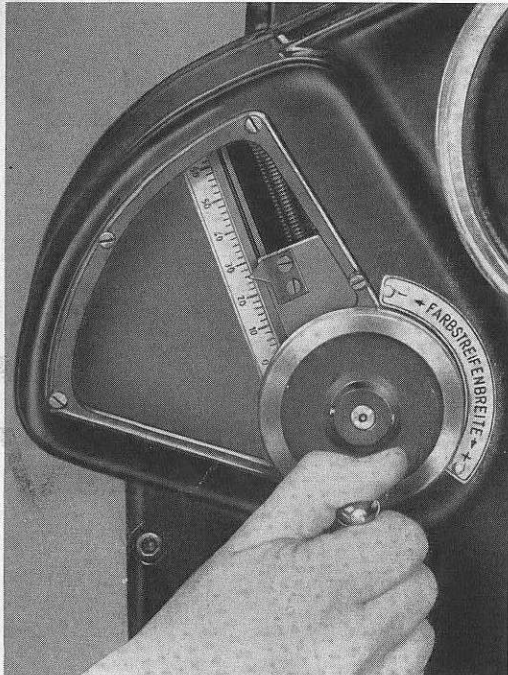
Illustration 32

The fountain roller has an adjustable ink feed from 0- $2\frac{7}{16}$ " which can be adjusted infinitely by turning a small handwheel on the operator's side (illustration 33).

When setting the ink, it is advisable to work as much as possible with the regulation of the ink feed rather than with the adjusting screws on the fountain. Better distribution is obtained as there is a thinner film of ink to break up.

The plexiglass guard can be removed for cleaning.

Illustration 33





### Fountain Trip

It has previously been explained that the single lever control automatically trips the ink supply when the control lever is off impression.

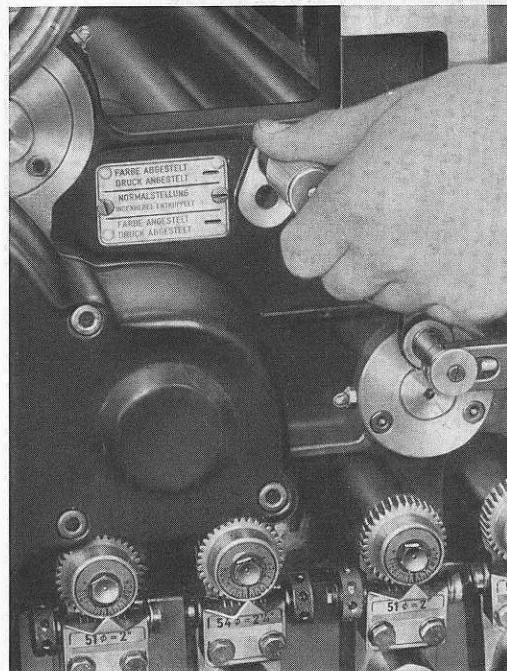
However, when the ink is to be run up with the control lever off impression, or when it is necessary to trip the ink supply with the control lever on impression, a lever located on the side frame of the inking apparatus must be used.

If the lever is engaged at the top position „INK OFF, IMPRESSION ON“ the ink supply is tripped, even when the control lever is on „IMPRESSION“. If the lever is engaged at the lower position, where the instruction plate reads „INK ON, IMPRESSION OFF“ ink is supplied, even when the machine runs off impression (illustration 34).

This lever is engaged only when the pressman wishes to trip the ink while printing or when he wishes to run up the ink when the control lever is on „RUN“ or „PAPER“. The lever must be turned to the disengaging position after the required adjustment of the ink flow has been made. This is indicated on the instruction plate.

**Normally the lever remains in the disengaged position, otherwise the automatic trip does not function.**

Illustration 34



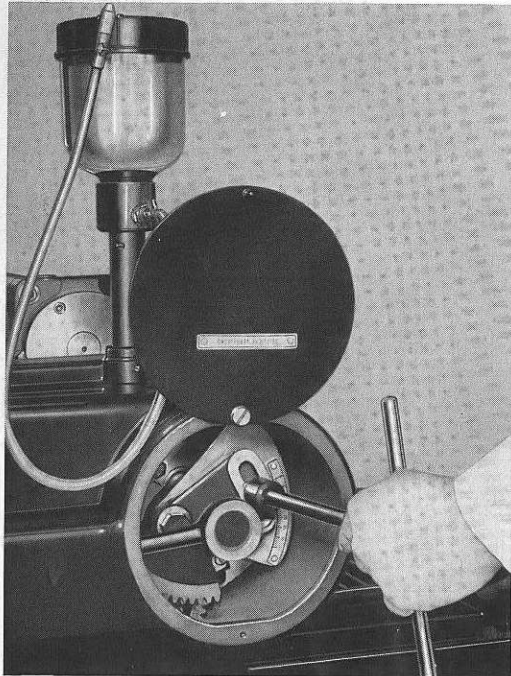
### Regulating the Reciprocating Rollers

The three steel distributors with different diameters reciprocate in opposite directions. Reciprocation can be adjusted from 0– $1\frac{3}{16}$ ".

The regulating mechanism is located on the drive side behind a disc guard which can be swung upward (illustration 35).

Loosen the hexagon bolt with the T-handle socket wrench (also used for locking the form rollers), set the indicator on the required reciprocation and retighten the hexagon bolt. The amount of reciprocation depends on the requirements of the job. Solids or reverses that tend to repeat often need all the reciprocation that can be obtained. Most jobs, however, can be inked satisfactorily with a reciprocation of  $\frac{3}{4}$ "–1". Reciprocation does, of course, mean added wear on the rubber rollers, resulting in an increased warming up of the rubber rollers and the steel cylinders. When warming up the rollers, the consistency of the ink film on the rollers changes. Thus a resetting of the ink regulation screws at the ink duct becomes necessary. So maximum reciprocation should be used only when absolutely necessary.

Illustration 35



### Operating the Roller Washing Device

The roller washing device is based on the principle of applying a blade to the top inking cylinder. The blade is brought into contact with the cylinder with a lever on the side frame of the inking unit on the drive side. To operate the roller washing device proceed as follows:

1. Insert the sludge basin (illustration 36).



Illustration 36

2. Set the control lever at "RUN" position. The ink supply is automatically tripped provided that the lever for the ink supply is in its normal position.
3. Set the speed control at a low speed.

**Do not engage the wash-up blade before you have applied washing fluid to the rollers.**

4. Take the plastic tube leading from the glass container and hold the nozzle between the thumb and middle finger. Close the nozzle with the index finger so that the fluid cannot squirt out when the nozzle is below the level in the glass container.

5. Hold the nozzle above the rollers, remove index finger and allow the fluid to run on the rollers. It is advisable to start cleaning one half of the rollers from one side, then repeat on the other side. This ensures just enough roller friction necessary for cleaning (illustration 37).



Illustration 37

6. The lever for engaging the wash-up blade is positioned on the side frame of the inking unit below the cleaning fluid container. Normally, this lever is on position "ROLLER WASHING OFF". When the lever is put on position "ROLLER WASHING ON", the blade is engaged (illustration 38).

The blade removes the ink sludge from the inking cylinder in a manner similar to a wiper blade cleaning a windshield.

7. Continue applying small quantities of fluid until the rollers are clean. Do not engage the blade to the **dry** inking cylinder.



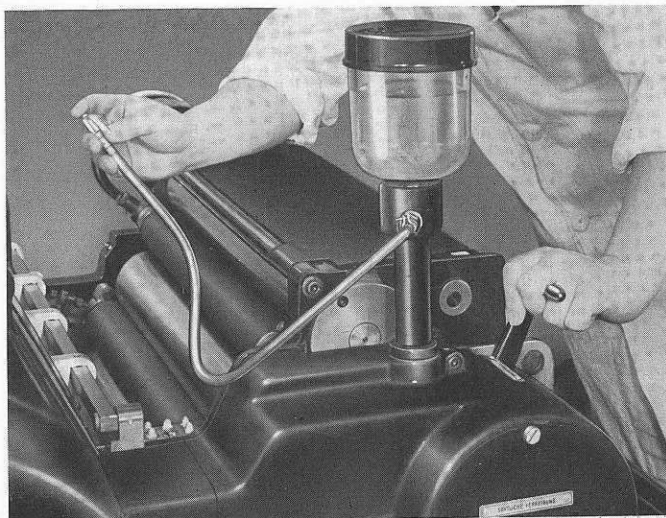
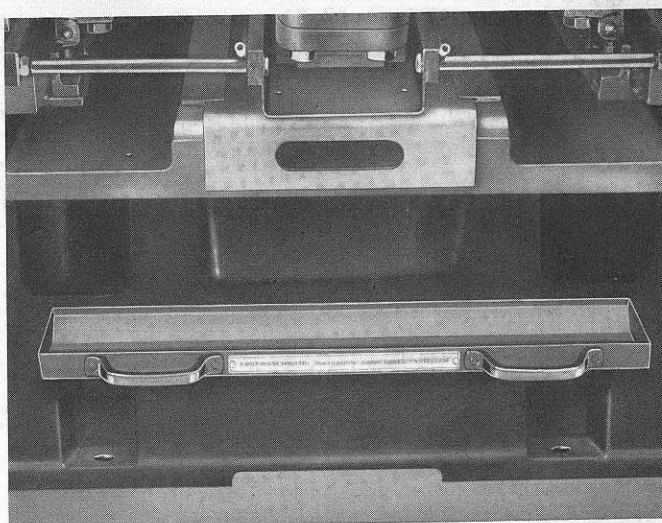


Illustration 38

8. As soon as the rollers are clean the lever is returned to the position "ROLLER WASHING OFF", and the machine stopped. The sludge basin is removed, cleaned and placed on two brackets fixed to the front end of the base below the guards for the cylinder gear racks (illustration 39).

After wash-up the hose is returned to its position on the glass container.

Illustration 39



9. It is practical to clean the blade after each wash-up. This will prevent sludge from drying and hardening on the blade making cleaning difficult.

For easy cleaning, the blade can be dropped downward by pulling down a lever inside the side frame (illustration 40). When cleaning the blade with a rag, be sure sludge does not drop on the form, since the sludge basin is out when the blade is being cleaned.

The lever must be returned to its normal position after cleaning has been completed.



Illustration 40

After wash-up the printer merely engages the ductor roller, runs up his ink and continues the run.

When washing up for a color change, say from black to yellow, the operator first washes off the black ink. He then places a little yellow ink on the ductor roller and runs up the ink until it is evenly distributed. He then washes up again.

It is advisable to reserve one set of rollers for printing the dark colors, such as blue and black. The other set is used for the lighter colors, such as red and yellow. This will facilitate roller washing and reduce the time taken for wash-up.

### **Cleaning the Fountain**

The fountain blade can be dropped down after unscrewing two knobs and swinging the two latches upward. The fountain roller and the ink blade are then well accessible for cleaning (illustration 41).

Before swinging back the fountain blade, apply a drop of oil to the end faces of the fountain roller to prevent seizing on the end plates of the fountain.

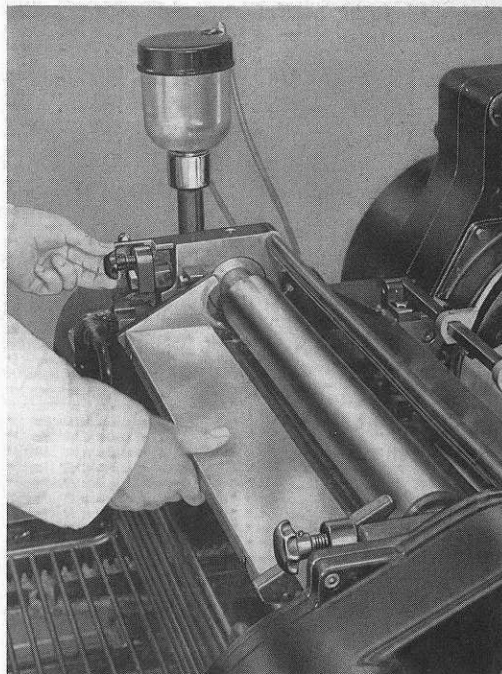
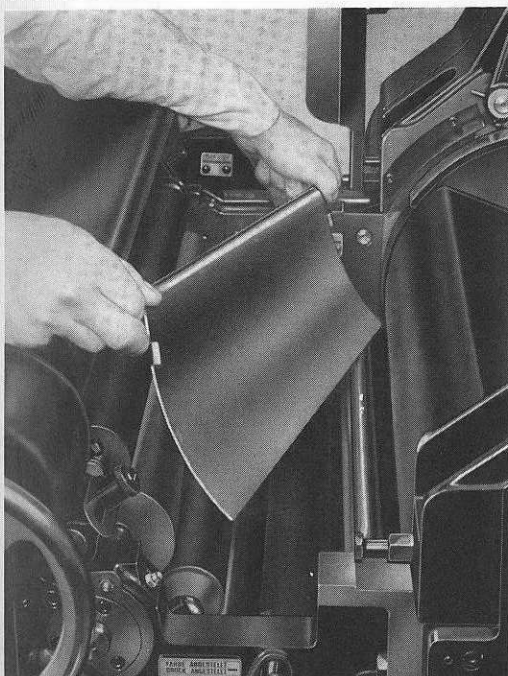


Illustration 41

Illustration 42



### **Cleaning the Splash Guard**

There is a splash guard fitted between the impression cylinder and the inking system. This guard prevents ink from getting on the cylinder during the run.

The guard fits in guide rails on the drive side and operator's side. To clean, it is pulled out after raising the sheet guide bar. Removing of the splash guard is done without the use of tools (illustration 42).

No lock or safety mechanism is necessary. Before removing the guard, stop the machine with the tympan reels toward the ink fountain. Otherwise the cylinder segment gears could make it difficult to replace the guard.

### Device for Adjusting Form

Modern printshops are increasingly demanding some system of pre-makeready. This cuts expensive down time to a minimum and increases a printshop's earning capacity. A device for pre-registering forms is supplied with the Original Heidelberg Cylinders to cut makeready time even further.

On multi-color work or imprinting, plates or type can be accurately positioned in the composing room by using this speedy form positioner made of transparent plastic. If desired, we can supply an imposing surface (composing stone) similar to the type bed in the machine. It has two bed bearers, stops at the gripper edge, and chase locks. With this imposing surface it is possible to lock up jobs with exact register in the composing room (illustration 43).

Illustration 43

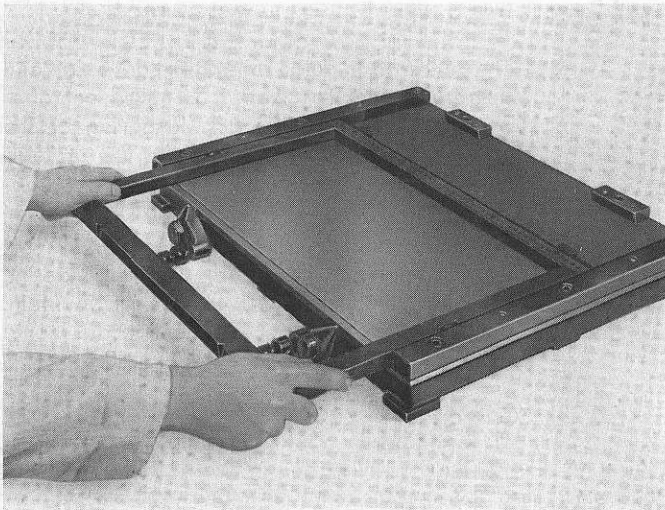




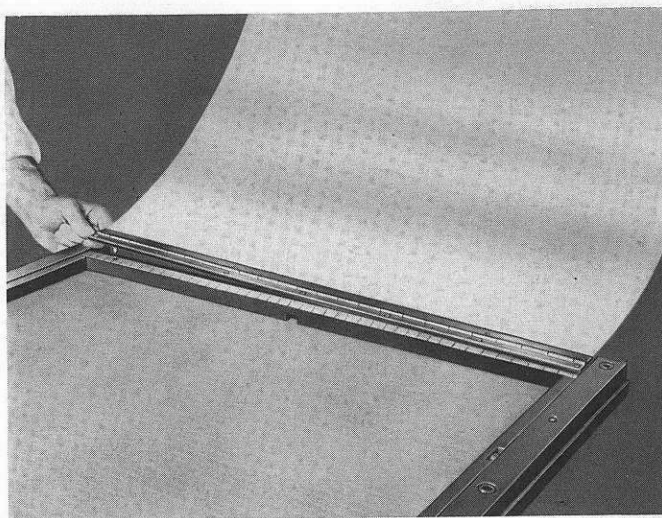
Illustration 43 shows imposing surface with side bars corresponding to the bearers on the type bed of the machine, and stops at the gripper edge for securing the chase in position. At the tail end chase locks are positioned as on the type bed so that the chase – which is just being put on in the illustration – can be locked under the same conditions as in the machine. A springing of the chase when locking the form (which possibly might affect register) is eliminated by this special imposing surface.

Two pin holes are drilled in the head bar of the chase that corresponding with two pins in the hinged frame of the plastic sheet (ill. 44).

For the first color the form is positioned and locked in the chase.

The form is now well inked with black ink.

Illustration 44

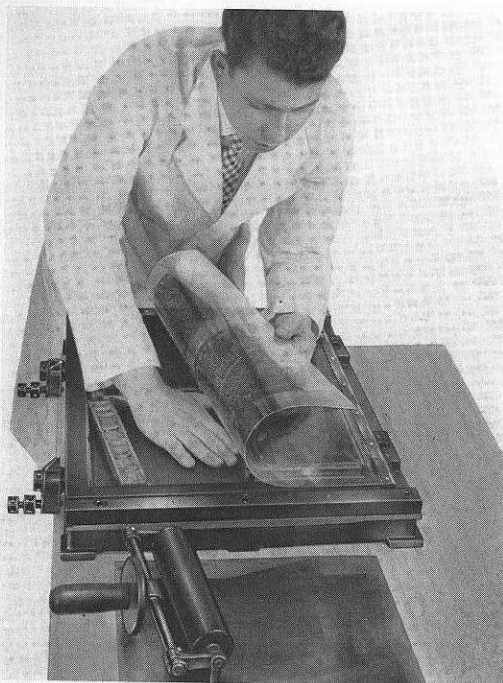




After the form has been inked the transparent sheet is brought down and an image is obtained by rubbing over it firmly (illustration 45).

Illustration 45

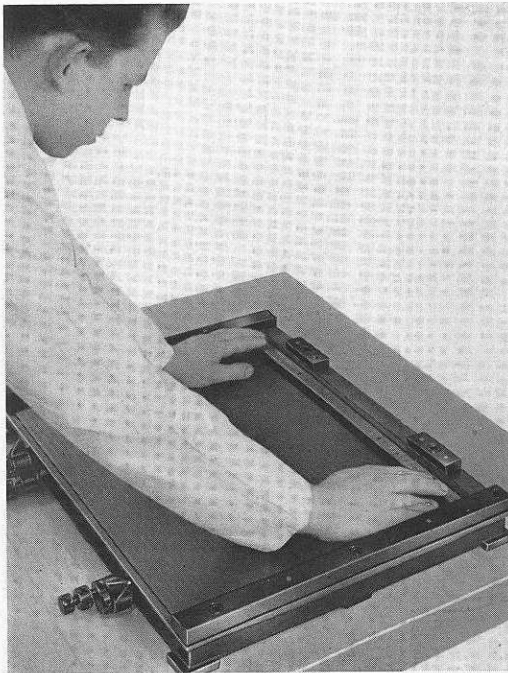
Illustration 46



The printer makes sure that all the important details necessary for registering the succeeding colors can be seen clearly. Now the second color can be registered according to the image of the first form (illustration 46).

Using the same special imposing surface, precise adjustment of multi-color work which must be printed with forms locked between bearers can also be done outside the press room (see page 45).

### Adjusting Form to be Locked Between Bearers



A special accessory for printing between bearers can be supplied (see page 60).

The special imposing surface also enables the pre-makeready department to precisely line up multi-color work with the transparent sheet which must be printed between the bearers. Full advantage of the maximum printing width can be taken with the device.

Illustration 47

Inserting the head bar which is a duplicate of the head bar of a chase (ill. 47).

Depending on the length of the form, the rear locking bar is inserted in one of the slots in the bearers (ill. 48).

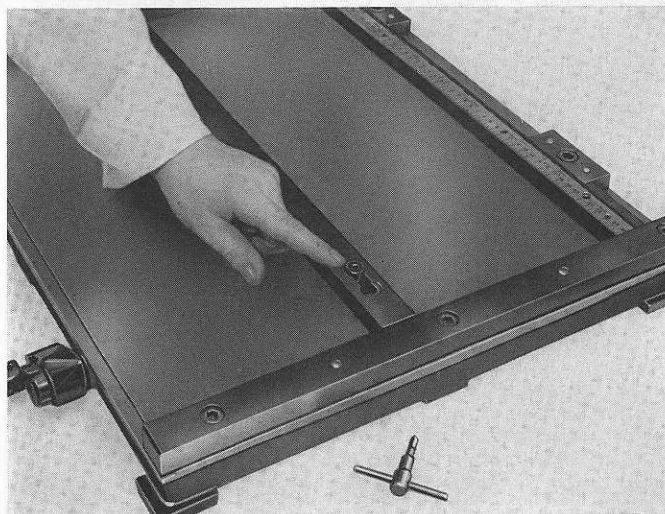


Illustration 48

If the form covers the entire printing area, the rear locking bar is inserted in the recessed slots of the bearers, nearest to the chase locks which are also tightened. The correct locking of a form between bearers has been described on page 60.

The image of the form is transferred to the transparent sheet.

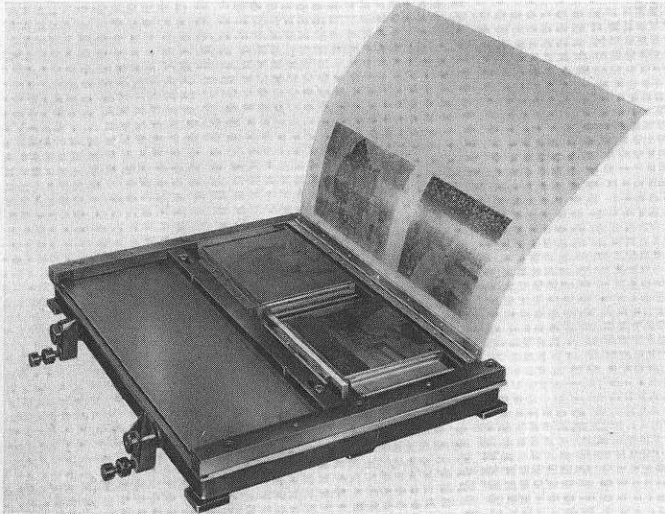


Illustration 49

After unlocking and loosening the rear locking bar, the form is slid onto the imposing board and can be carried to the machine.

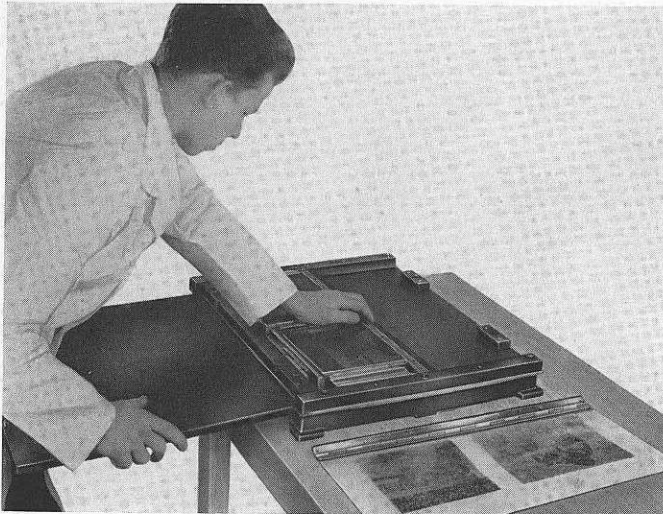


Illustration 50



### Locking Chase on the Bed

The bed must be in front dead center position on the inking end. When the form is on the bed, loosen all quoins in the form and raise the two chase locks which secure the chase onto the bed (illustration 51).

The two side bars of the chase have two round-headed screws, and when adjusted will contact the bearers to prevent the chase from springing when it is locked. These screws also make it possible for the chase to be replaced on the bed in dead register if it has to be removed at any time during a run (illustration 52).

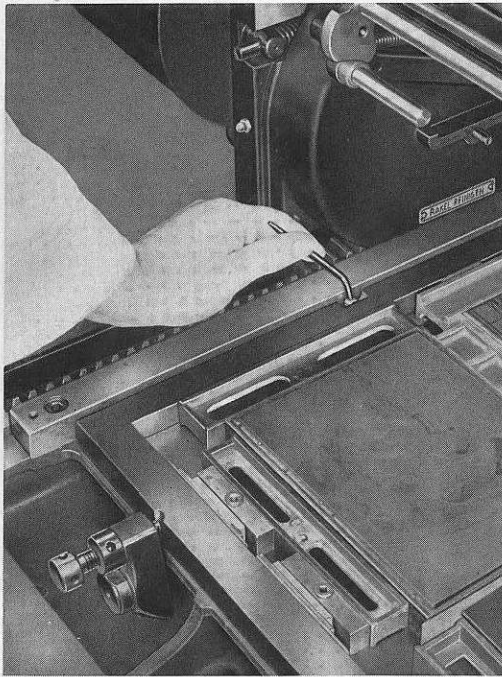


Illustration 51

Do not force the screws when adjusting them against the bearers. Merely adjust them to a firm fit. The screws eliminate the dangerous practice of inserting leads or strips of furniture between chase and bearer to counteract chase expansion (illustration 52).

If the chase has to be removed from the bed after register has been obtained, or during a multi-color job, only one of these set screws should be loosened. The other acts as a guide and helps to register the form when it is replaced on the bed.

Illustration 52



After the one screw has been readjusted against the bearer, the form can be planed down and relocked.

### Composition of Cylinder Packing

Opinions vary on the make-up of the cylinder packing, as they do on positioning and methods of make-ready. No set rule for packing can apply for all jobs and for all cylinder presses. Under actual working conditions the hard packing without a rubber blanket has proved most valuable for line and type forms and the medium-hard packing for mixed forms of type matter and plates and for heavy forms.

All sheets of the packing should have a 90 degree fold of about 1" at the head, so they can be inserted into the clamping bracket easily and accurately. **No loose sheets should be inserted in the packing.** A stock of all sheets cut to size for the cylinder should be kept on hand so the pressman always has uniform materials available especially when operating more than one Original Heidelberg Cylinder.

#### A. Hard Packing for Type Matter and Tabular Work

1. 1 Manila top sheet, pulled tight by draw bar.
2. 1 Manila sheet, loose end. (Hanger)
3. 6-7 M.F. printing sheets, approx. .002" each (40-50 gr/sq.m.), loose end.
4. 1 Manila sheet for fastening of make-ready, loose end.
5. 2 ivory boards, approx. .008" each (0.225 mm), loose end.

#### B. Medium-Hard Packing for Mixed Form of Type Matter and Plates

1. 1 Manila top sheet, pulled tight by draw bar.
2. 1 Manila sheet, loose end. (Hanger)
3. 1 Heidelberg press blanket of .012" (0.3 mm).
4. 4-5 M.F. printing sheets loose end.
5. 1 Manila sheet for fastening of make-ready, loose end.
6. 1 ivory board, approx. .008" (0.2 mm), loose end.

The sheets of M.F. printing (approx. .002" each) which are above and below the make-ready, should be torn out as make-ready is added.

We recommend ivory boards for packing, since this board is supplied in an even thickness. Boards of varying thicknesses cause unnecessary make-ready.

In packing the cylinder, use only the best grade of Manila paper that can be stretched tightly without tearing. We recommend always cut Manila sheets (.003" to .004" - 0.08 to 0.1 mm) in the correct size. This will save time and money. Always test paper thickness with a micrometer, type gauge or paper caliper. The prescribed packing thickness is approx. .047", including a sheet of the stock to be run.

We recommend that the make-ready be pasted to the Manila sheet. Manila sheets have a smooth surface, with no tendency to creep, as in the case of a rough-surfaced paper.

### The Heidelberg Press Blanket

A word on the use of the Heidelberg press blanket.

The Original Heidelberg Cylinder has a maximum packing thickness of approx. .047". The rigidity of the impression mechanism requires a small degree of elasticity in the packing. The Heidelberg blanket supplied as standard equipment is not a soft rubber blanket but consists of two layers of silk batiste cloth of approximately .010"

thickness. Since the packing thickness of .047" is considered "hard", the use of this blanket will be sufficient to yield the required elasticity in packing. Contact your Heidelberg agent when it is necessary to replace the blanket. The Heidelberg blanket is hemmed at one end for passage of a rod that secures it to the front edge of the cylinder by means of three hooks (illustration 54). The blanket is drawn taut by the tympan draw bar.

### Clamping the Packing

The paper guard over the cylinder is raised so that the cylinder is fully accessible. Then, the top lid of the duct is laid over the rollers so the ink does not smear the sheets of the packing. The exceptional size of the cylinder facilitates clamp-

ing considerably. The clamp, with the cylinder grippers, is opened by turning a single handwheel. The creased cylinder packing is easily inserted, and securely clamped with a few turns of the handwheel (illustration 53).

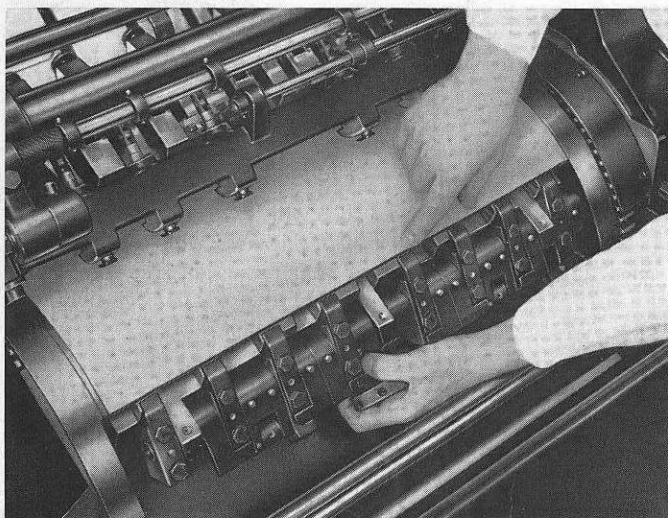


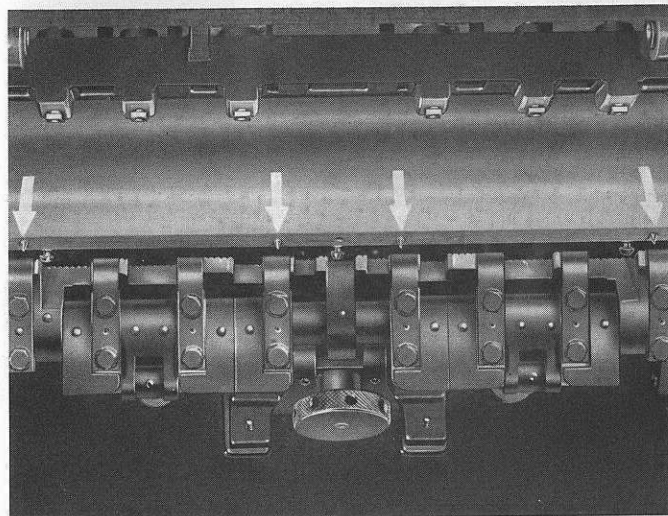
Illustration 53



Some pressmen feel that packing pins in the front edge of the cylinder are essential, so a set of four is furnished. The pins are threaded and can be screwed in (ill. 54). If desired, they will be installed when the machine is erected. It is, however, perfectly safe to work without them.

Illustration 54 also shows the three hooks used to secure the blanket and the four packing pins.

Illustration 54



When the packing is secured in the clamp, the machine is inched with the control lever, until the two draw bars are accessible.

The blanket is stretched on the first bar and the top sheet of Manila on the one above. Both bars can be easily tightened with a pin wrench. When the packing is to be released, a turn of the release bolt lifts the ratchet pawl and the bar is free (illustration 55).

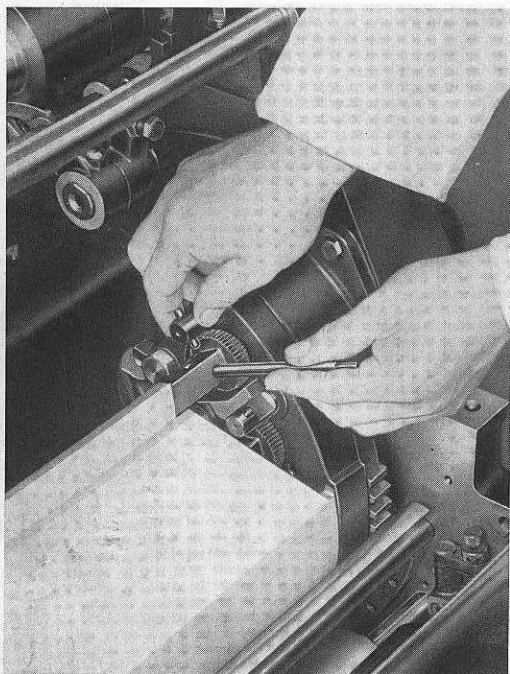


Illustration 55

### **Makeready**

The massive cylinder, free from deflection, reduces makeready to a minimum. Makeready is confined to correcting inaccuracies in the form, and in the case of a halftone, bringing out highlights. Whether the printer uses a chalk over-lay makeready, a Primaton makeready, or 3 M, does not matter. The machine will show a marked reduction in makeready time. Every tissue is fully effective.

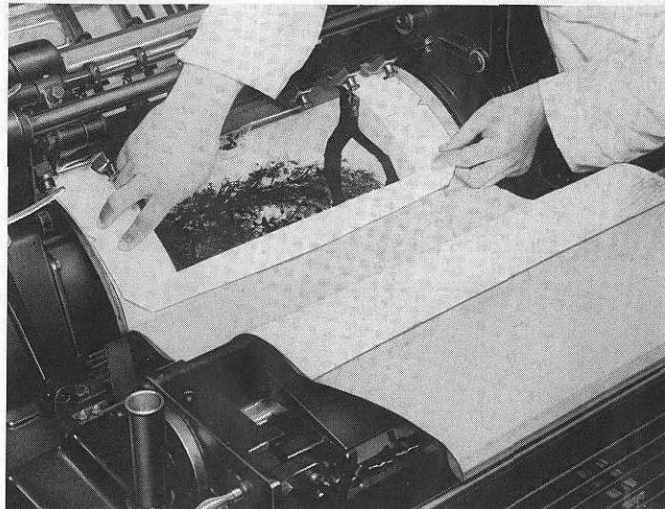


Illustration 56

Illustration 56 shows pasting of the make-ready on the Manila.

The top Manila and the blanket are put back on the roller guard to prevent contact with the rollers. The top lid of the fountain forms this guard when lowered over the rollers.

When used for halftones, the blanket should be placed on top of the makeready to obtain a small degree of elasticity in the packing. Position of the blanket in make-ready is of great importance. It should not be directly beneath the top sheet, but inserted further down in the packing or under the second Manila. Because of its solid construction, the Original Heidelberg Cylinder has many advantages not found in other machines. Printers will benefit if they follow suggestions concerning packing, make-ready, and form adjustment.



### Cylinder Brush Adjustment

The cylinder brush holds the sheet flat against the cylinder, and prevents paper or spray dust from falling on the form.

The action of the brush is controlled. It moves away from the cylinder to allow the cylinder grippers to pass and returns to the cylinder when the front edge of the sheet has passed.

The brush pressure is regulated with a hand control lever.

This control lever has three positions:

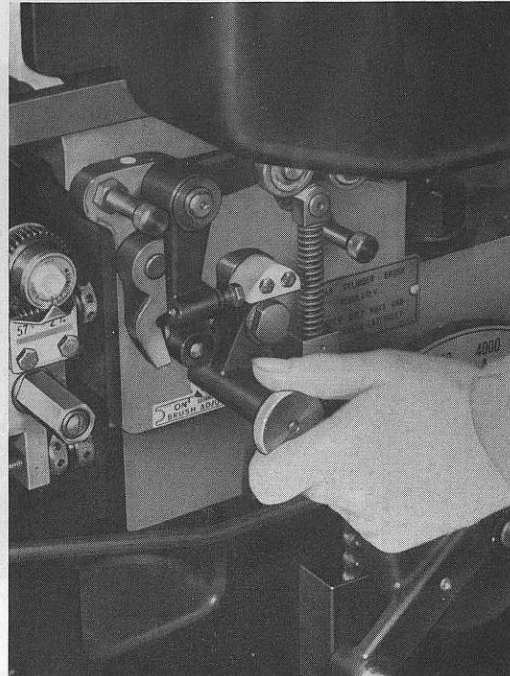
- (a) Brush Off, (b) Brush On – Medium,
  - (c) Brush On – Full
- (illustration 57).

The brush must be used for all close register work, especially process jobs. For example, when printing the second color of a four-color process job and the ink is not quite dry, pressure of the brush can be eased to avoid marking. However, on most jobs the brush can be used with full pressure. The brush comes in contact with the sheet before impression begins, so that the sheet does not sag and touch the form.

### Replacing the Brush

After a period of time the bristles become worn and the brush must be replaced. A new brush can be secured from your nearest Heidelberg agent.

Illustration 57



### Cleaning the Brush

The brush must be cleaned periodically. This is a simple operation. **Turn the press over to front dead center position.** Move the control lever to position "OFF" and remove the two extended bolts on the operator's side which hold the brush (illustration 58).

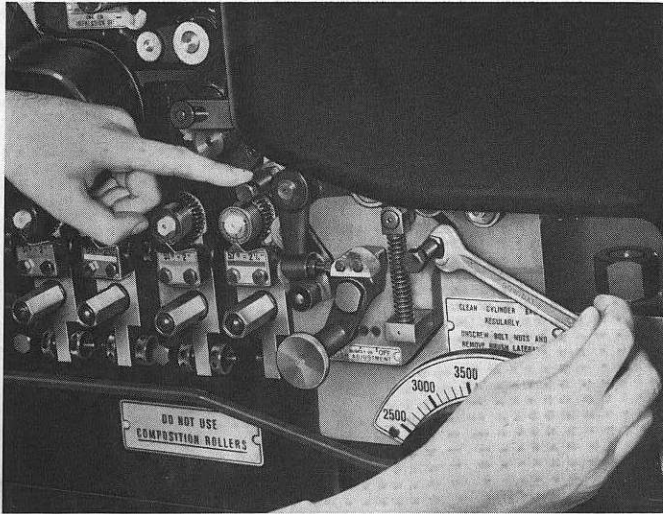


Illustration 58

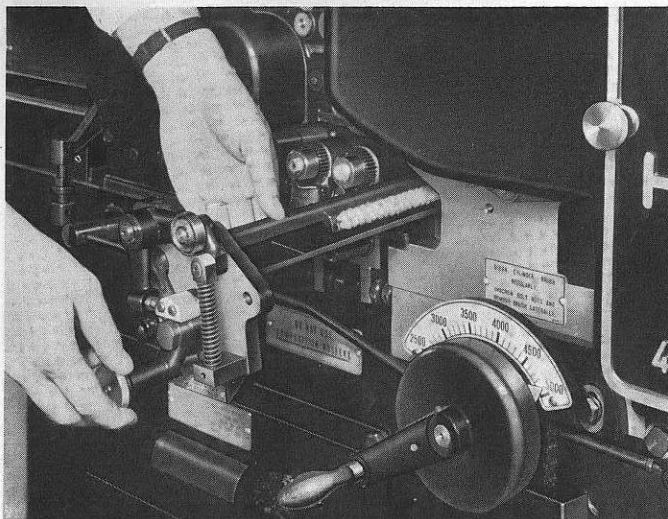


Illustration 59

The brush and the dust basin under it must be cleaned thoroughly. Use white gasoline or type cleaning fluid to wash the ink out of the bristles. When replacing the brush assembly after cleaning, be sure it is not forced into position.

**The brush should be cleaned daily when operating the anti-setoff spray gun.**

### Support of Sheet in the Delivery with Model KSBA

With very thin papers it is necessary to guide the sheet over its full length in the delivery; otherwise the sheet may collapse.

To prevent this, the adjustable sheet guides mounted to the square bar in the delivery are each provided with a spring guide. When processing thin papers, these springs can be put against the sheet to be delivered (ill. 60). Thus the sheet is well supported in delivery. When processing heavier papers or board, the springs are swung back.

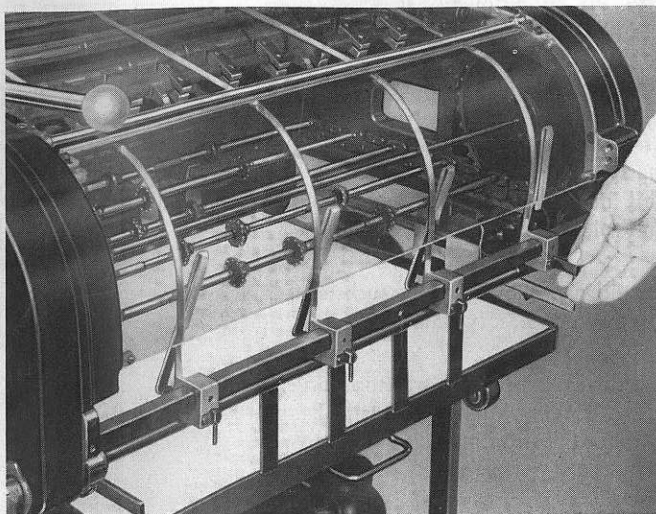


Illustration 60

### EXTRA ACCESSORIES

In the K line master manual are listed all those extra accessories available for the various K line models. In this supplementary manual we cover only those extra accessories which can be used on the Original Heidelberg Cylinder.

### Brushes for Onion Skin and Thin Papers

As every printer knows, there are papers which tend to sag just before actual printing begins. This may affect register, particularly with line and rule forms.

Should a printer be using such papers regularly, this extra accessory will be useful.

The device consists of two small brushes mounted to the sheet guide bar in front of the impression cylinder (illustration 61).

Illustration 62

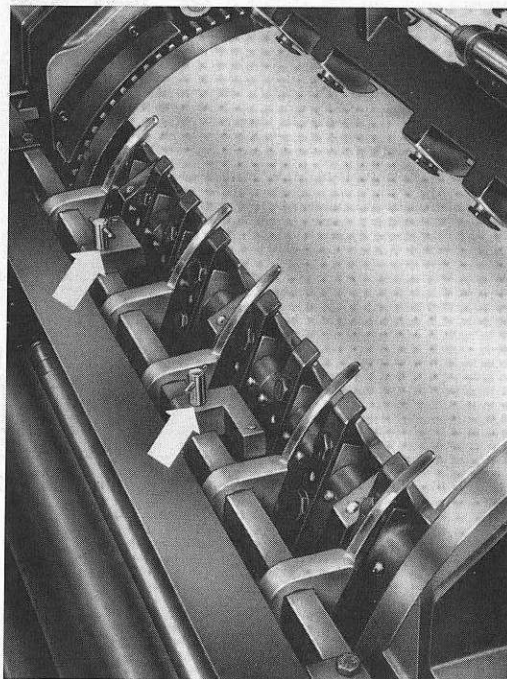
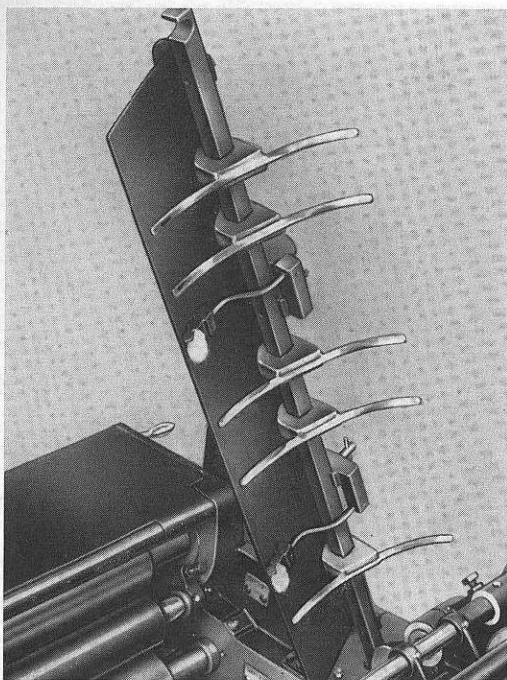


Illustration 61

These brushes keep the sheet snugly to the packing, and thus prevent sagging before actual printing takes place.

The brush holders are reversible and can be mounted on either side of the sheet guard bar. The sheet size determines the position of the brush and holder (ill. 62).

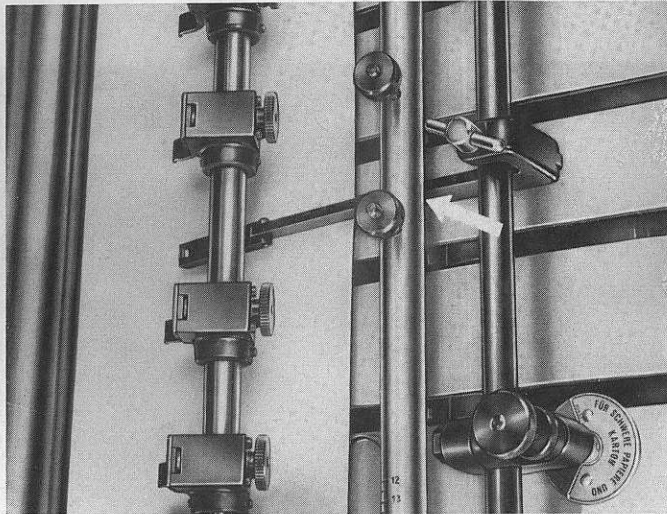


### Cardboard Sheet Guide

Some printshops regularly process heavy and, in particular, stiff cardboard. To ensure favorable transfer conditions from the transfer grippers to the cylinder grippers for such materials, a special cardboard sheet guide is available as an extra accessory.

The cardboard sheet guide is clamped to the same bar to which the sheet smoothers are clamped, above the curved aluminum feed board (ill. 63).

Illustration 63



When positioning the cardboard sheet guide, the lower part with the two rolls should be slightly off the aluminum feed board. The rolls then press the sheet downward when it passes. On the upper face of the sheet guide a stop screw has been fitted which is already set for the proper height. It will touch the side guide bar from beneath (arrow).

### Device for Locking Form between Bearers

To print the maximum width a special device for locking forms between bearers is available as an accessory.

The normal chase is substituted by two bars that fit at the head and tail of the type bed. The head bar is an exact duplicate of the head bar of the chase and is merely placed into position against the stops on the type bed. The tail bar fits into one of the slots in the bearers and is locked into position with a key. Laterally, the form is locked against the bearers with ordinary quoins. If the tail bar is placed at the very end of the type bed, the chase bolts are put into their

locking position and tightened as they are with a chase.

The plastic pre-registering device can be used on the head bar exactly as on a chase. Exact positioning can be done outside the press room (also see page 46).

The form is placed on the type bed by using the imposing board.

Illustration 64 shows a form locked between bearers.

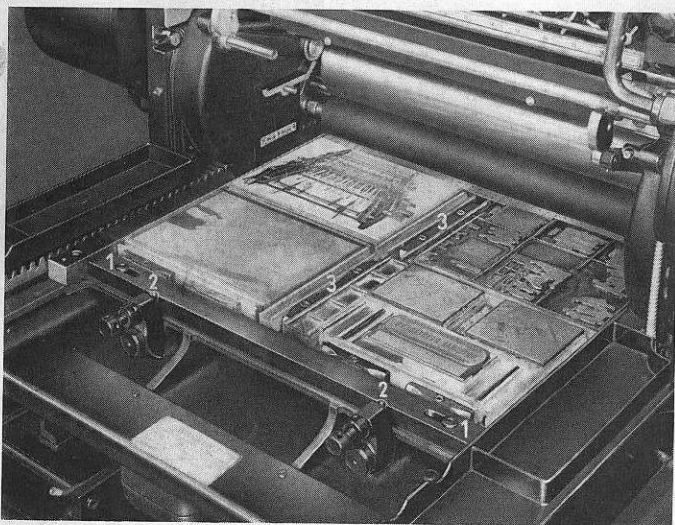


Illustration 64

When locking up, proceed as follows:

1. Slide head bar squarely into position on type bed.
2. Put the chase bolts into position when the tail bar is at the end of the type bed (also see page 47).
3. Lock the tail bar in the grooves of the bearers.

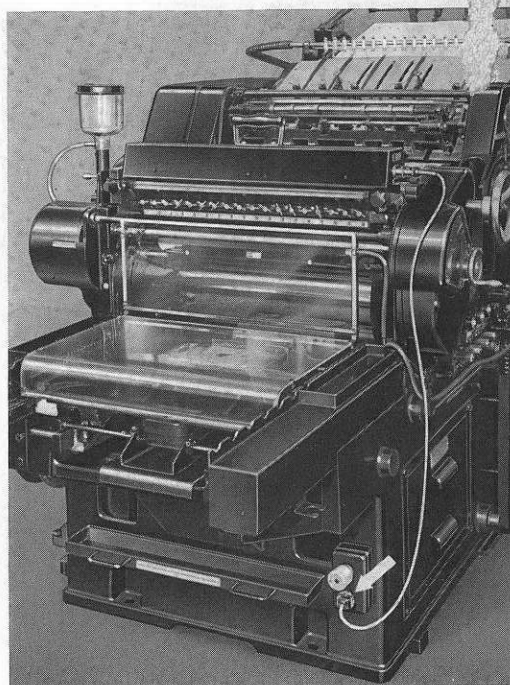
### Imposing Surface for Adjusting Form

We can also supply a steel imposing surface for the Original Heidelberg Cylinder. It has side bars corresponding to the bearers on the type bed of the machine, and stops at the gripper edge for securing the chase in position. With this imposing surface it is possible to lock up jobs with precise register outside the press room. Use of the imposing surface was discussed on page 42.

### Device for Carbon Printing

Until recently, the production of copy pads, duplicating books etc. was carried out only by special machines and presses. The Original Heidelberg Cylinder does not replace such machines, for there are pertinent technical factors to be considered. There are, however, numerous carbon printing jobs of comparatively short runs which can be economically handled on platen or cylinder presses.

Illustration 65



A unit can be furnished for heating the ink when using the Original Heidelberg Cylinder for carbon printing. **Carbon inks contain wax. Therefore, it is necessary for the fountain to be warmed while the machine is in use to ensure free flow of the carbon ink from the fountain to the ductor roller.**

The apparatus is simply plugged into the electric supply and placed on the fountain. The machine is then ready for carbon printing. The plug is mounted to the press base on the inking end (see arrow in illustration 65).



### **Numbering on the Original Heidelberg Cylinder**

When going off impression, the cylinder is lifted about .060". When numbering with plunger-operated numbering machines, only numbering boxes with a plunger height below .048" (= 1,2 mm) should, if possible, be used, to prevent the plungers from contacting the cylinder packing. The lower the plunger height, the better the results. Furthermore, low plunger machines are far less damaging to the form rollers.

There are numbering machines on the market today with a plunger height down to .036" (= 0.9 mm). Check with your Heidelberg agency for full details.

Usually, plunger-operated numbering machines are supplied with a small steel plate, to be pasted to the cylinder packing. These plates prevent embossing of the cylinder packing.

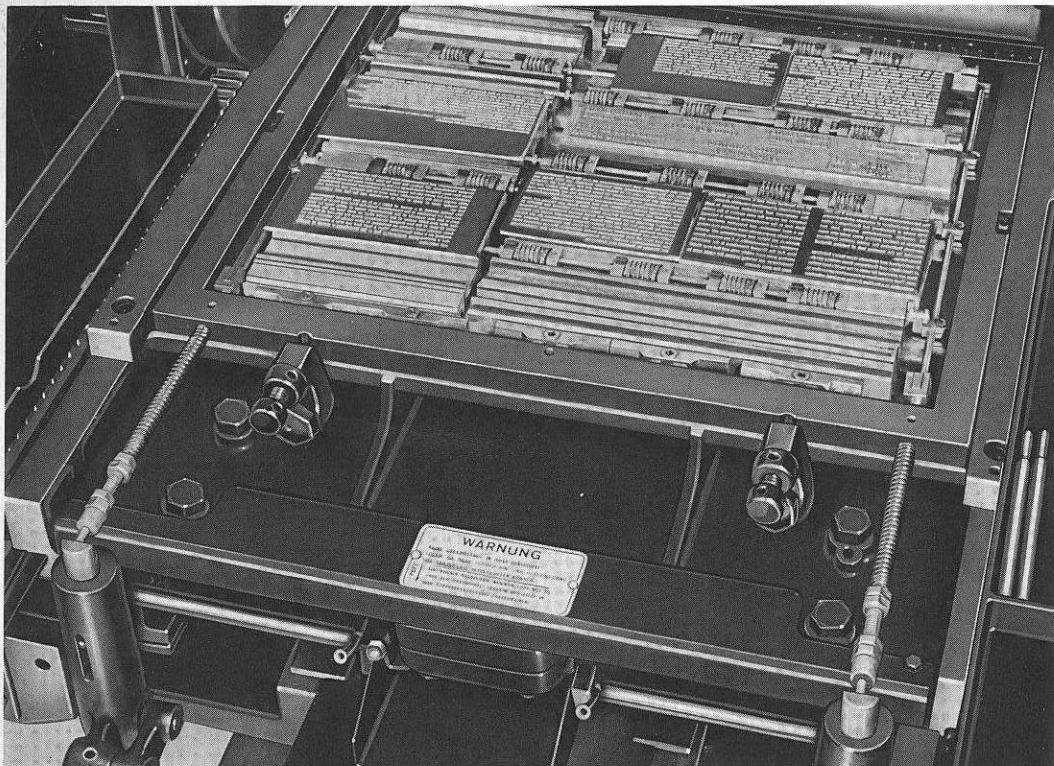
### **Numbering with Centrally Operated Numbering Machines on Original Heidelberg Cylinder**

For jobs that require a quantity of reliable numbering machines, such as printing security papers, checks etc., we recommend the centrally operated numbering device.

For this method, the Heidelberg Cylinder chase is fitted with moving rods which centrally operate all the numbering machines in the form obviating the need to purchase expensive numbering chases of special design. With the Heidelberg chase, the numbering machines can be locked up with ordinary quoins, and type matter and numbering machines can be worked together in one form. To operate the moving rods, stops are fitted to the machine which automatically cut out when the machine is running off impression (illustration 66).

It is possible to operate two moving rods simultaneously with the extra accessory supplied by us, so that the numbering machines can be built in lengthwise and across to the impression cylinder. This also allows the use of numbering machines of different sizes and with different liftings. Printers interested in numbering on their Heidelberg cylinder presses should communicate with their Heidelberg agent for full particulars.

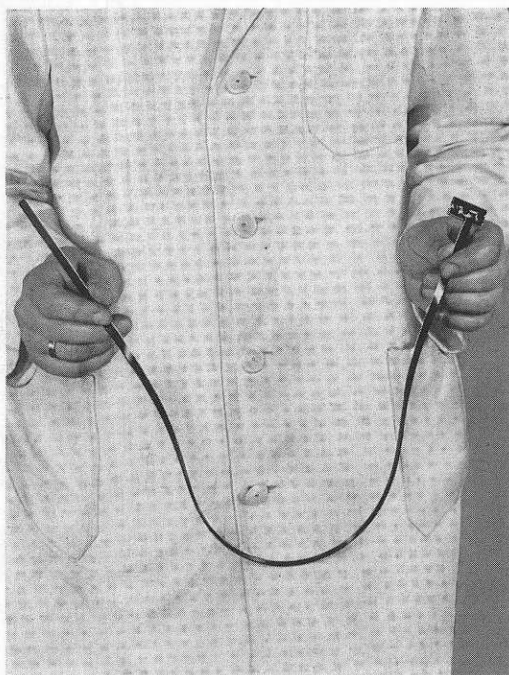
Illustration 66



### Special Chases for the Original Heidelberg Cylinder

Standard equipment includes one standard chase plus a standard chase with center bar. If desired, the following special chases can also be supplied:

1. Skeleton chase with center bar.
2. Skeleton chase with center bar and built-in quoins.
3. Standard chase with center bar, for gripper margin of  $\frac{1}{4}$ " instead of the normal  $\frac{5}{16}$ ".
4. Standard chase without center bar, for gripper margin of  $\frac{1}{4}$ " instead of the normal  $\frac{5}{16}$ ".
5. Skeleton chase with center bar for gripper margin of  $\frac{1}{4}$ ".
6. Skeleton chase with center bar and built-in quoins, for gripper margin of  $\frac{1}{4}$ ".



No alterations whatsoever are necessary on the machine to use the chases described under item 3-6. The gripper margin and not the gripper bite is reduced. The construction of the head bar of the chase moves the printing line closer to the edge of the cylinder grippers. **It is recommended that the narrow margin chases be used only when absolutely necessary.**

### Sheet Guide Band for Heavy Board

Often, board or heavy paper must be printed on the machine. These stocks may have the unfavorable characteristics of feed edges curved downward or upward. There are also jobs where the printing must be almost up to the leaving edge of the sheet. On such jobs the rear edge of the sheet may touch the form, resulting in "tail slur", namely during the transfer of the sheet from the cylinder grippers to the delivery grippers.

Such difficulties can be prevented with our sheet guide band, which is available as an extra accessory. Illustration 67 shows this guide band, which at one end is fitted with a holder into which the steel band is clamped. On the other end, the band is painted red, marking the normal band length.

Illustration 67

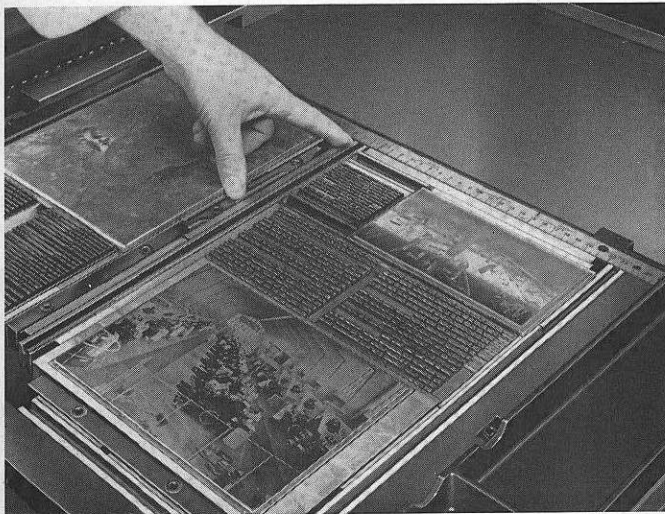
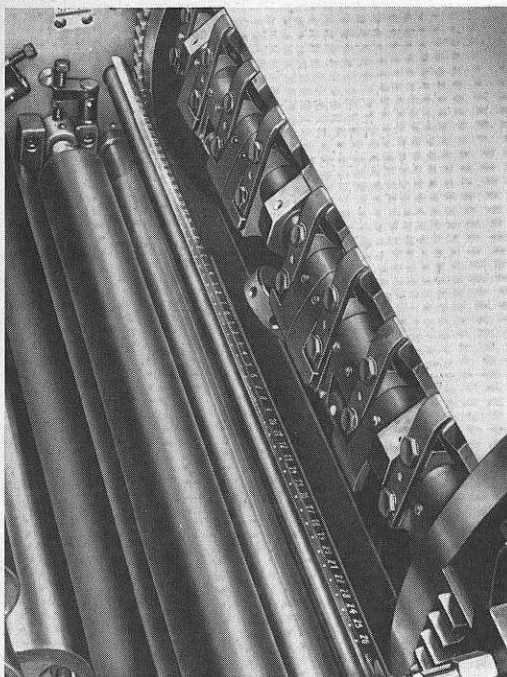


Illustration 68

Since the sheet guide band can only be positioned over print-free gutters that run through the entire form, check the number on the scale of the chase. If the print-free channel is in the center of the sheet to be printed, one steel band will be sufficient. However, if there are only 2 print-free margins on each side of the sheet, 2 steel bands are required. It is for this reason that this extra accessory is supplied with 2 sheet guide bands.

The width of the sheet guide band is abt.  $\frac{1}{4}$ " (6 mm). The print-free margin, therefore, should be at least  $\frac{3}{8}-\frac{15}{32}$ " (10-12 mm).

Illustration 69



The splash guard in front of the impression cylinder has the same scale as the one on the chase, facilitating proper positioning of the sheet guide band in accordance with the print-free margin in the form.



For fitting the sheet guide band, proceed as follows:

Clamp the red-marked end of the sheet guide band into the cylinder gripper closest to the print-free margin (see number of scale on splash guard). The red mark on the band must be clamped-in face down so that the red marking can no longer be seen from above. This is very important, otherwise the sheet band may be turned when beneath the cylinder.

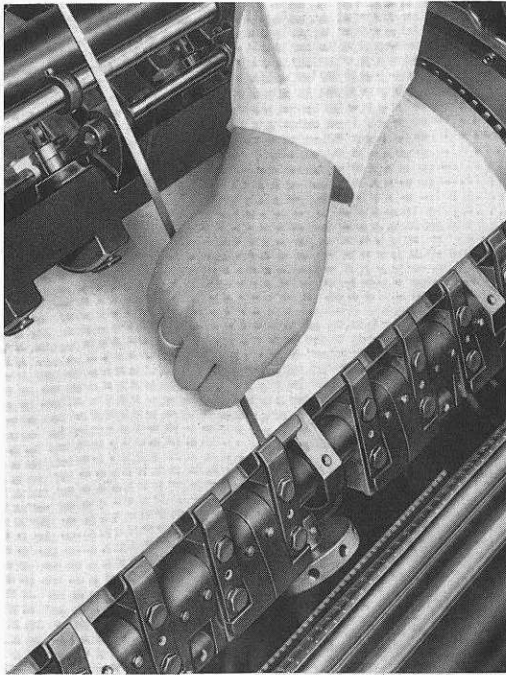


Illustration 70

The pressman now holds the other end of the band with the holder and inches the machine forward, bringing the red-marked end which is clamped in the cylinder grippers towards the delivery. At approximately this point the cylinder grippers will open and release the band.



Illustration 71

Now attach the holder to the splash guard. There is a red mark on the holder which corresponds to the position of the sheet guide band. Adjust the red mark to the corresponding number on the splash guard which in turn has to correspond to the position of the print-free margin. After mounting the holder to the splash guard, tighten the screw with a screw-driver, as shown in illustration 72.

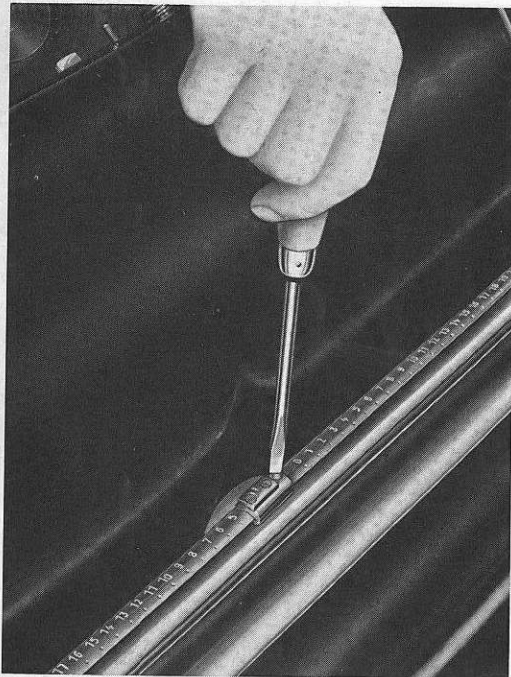


Illustration 72

On the clamping bar beneath the feeder there is another scale provided which corresponds to the scale on the splash guard. Put the end of the sheet guide band beneath the clamping bar. The red mark now faces upward. Pull the sheet guide band until the end of the mark lines up with the edge of the clamping bar. The position of the band must, of course, correspond to the figure on the splash guard. The red mark on the end of the sheet guide band indicate the proper length of the band, so that the free passing of the sheet is not impaired.

Actual clamping of the end of the sheet guide band in the clamping bar is by tightening 2 hexagon head screws on the right and left of the sheet guide band.

After the sheet guide band has been attached it is advisable to run a few sheets through, to check that the band does not mark the top of the sheet.

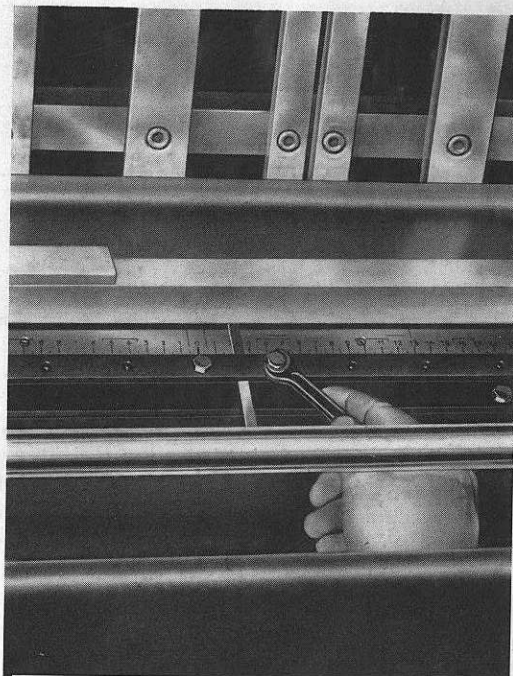


Illustration 73

### Die-Cutting, Creasing and Scoring on the Original Heidelberg Cylinder

The massive impressional strength and size of its cylinder enables the Original Heidelberg machine to be used for die-cutting, suitable material permitting. Of course, heavy board, or material not flexible enough to conform to the curve of the cylinder or delivery, cannot be processed. For those firms regularly doing die-cutting, particularly folding cartons, the Heidelberg cutting and creasing machines are recommended.

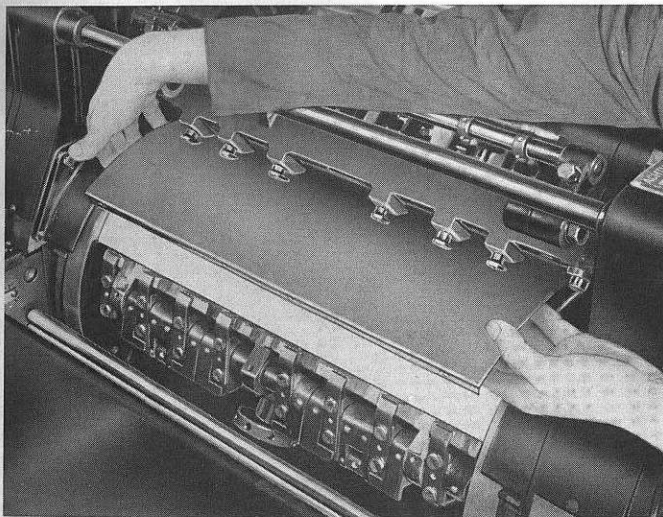


Illustration 74

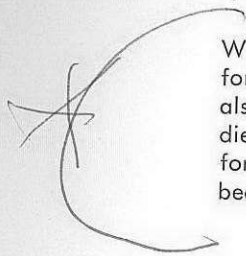
Different types of cardboard vary considerably in their flexibility and this rather than thickness determines the suitability for running on the Original Heidelberg Cylinder. In all cases, the cardboard must be cut with the grain running parallel to the grippers. Do not run board thicker than .020" or 5 ply. Remember that the stiffer the board, the thinner it must be to retain flexibility. As an extra accessory, a stainless steel die-cutting jacket of  $\frac{1}{32}$ " thickness is available (illustration 74).

The front edge of the jacket is bent at a right angle for clamping. This edge also has holes to correspond with the pins in the clamping edge of the cylinder, for proper positioning and mounting.

A strong canvas strip is rivetted to the tail end of the jacket and is wound around the rear tympan bar to draw the jacket tight to the cylinder.



For die-cutting forms the standard steel cutting rules fitted into plywood are used. These cutting dies are supplied to your specifications by specialty firms.



We recommend the use of a steel plate **beneath** the die-cutting form for the protection of the type bed surface. This steel plate also facilitates make-ready. Instead of making ready under the die-cutting jacket, all make-ready is done under the die-cutting form, i.e. the make-ready spot sheet is placed between the type bed and the steel plate.

When a steel plate is not used under the die-cutting form, the cutting rules must be ordered type high. We draw your attention to this point, because die-cutting rules for cutting and creasing presses used in the carton or folding box industry, are over type high. Such rules are not suitable for use on the Heidelberg Cylinder Printing presses. Not only would the alignment between the impression cylinder and the form be incorrect, but the higher rules would damage the surface of the type bed.

When using a steel plate under the form, the die-cutting rules must be reduced accordingly. Specifically, if the steel plate is 1 mm (.040") in thickness the height of the cutting rules must be reduced by 1 mm (.040").

Scoring or creasing is another field where the Original Heidelberg Cylinder can be used. The principles of scoring are identical to those for die-cutting except that the scoring rules do not cut through the sheet. When scoring or creasing in conjunction with die-cutting, such as the production of folding boxes, the height of the scoring rules depends upon the thickness of the stock. For scoring or creasing only, the type high rules can be locked in the form and the packing adjusted accordingly.

On the pages 74 to 75 we discuss perforating on the Original Heidelberg Cylinder with our perforating device.

Apart from cutting and creasing, other types of perforation can be undertaken on the Original Heidelberg Cylinder. Information may be obtained from your Heidelberg agent.

### Device for Hot Embossing

The exceptional impression strength and rigidity of the Original Heidelberg Cylinder makes it very suitable for embossing.

With due care in makeready, the Original Heidelberg Cylinder can emboss at an average speed of 4000 i.p.h. A special device has been designed for heating the embossing form. It consists of a heater with infra-red elements which heat the form from 160 degrees to 200 degrees Fahrenheit (70-90° Celsius).

Hot embossing is preferable to cold embossing because:

1. The paper, especially brittle stock, does not easily break at the outline of the embossing.
2. The embossed outlines are sharp and the design remains permanent, even when sheets are stored in large piles over a long period of time.
3. On bronzed prints the luster of the bronze is enhanced. The bronze powder must not be too fine.
4. Bronze prints do not rub off as easily as on cold embossing.

Illustration 75 shows the Heidelberg special heating apparatus being positioned over the embossing form on the gear rack guards.

Illustration 75



When hot embossing, it is necessary to place a sheet of aluminum foil between the form and the type bed. This insulates the type bed from excessive heat, which could cause serious damage to the machine. To further prevent this, lubricate the sides of the guide rails for the type bed with a grease having a high melting point. Such grease will not liquify at high temperatures. Under no circumstances should oil be used.

Cold embossing can be produced on the Original Heidelberg Cylinder without special devices.

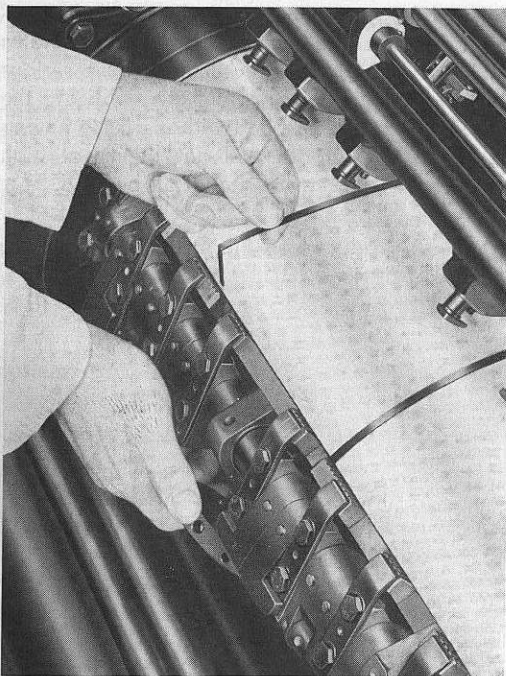


Illustration 76

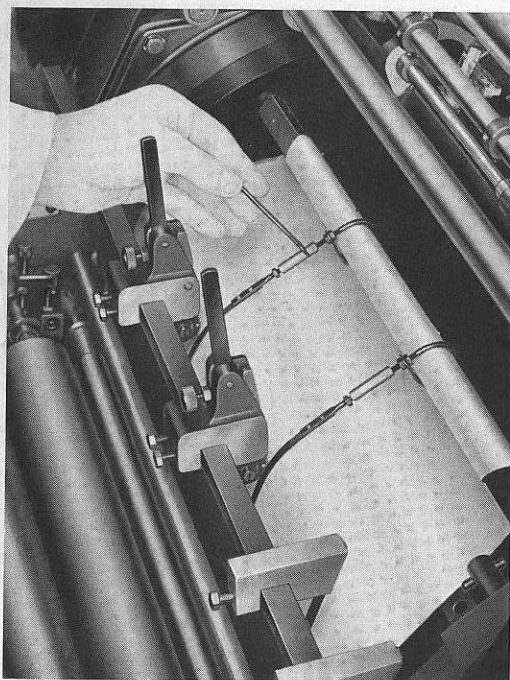
### Perforating and Cutting on the Original Heidelberg Cylinder

A special device has been designed for perforating, scoring and slitting on the Original Heidelberg Cylinder. The present sheet guard bar is replaced by a re-inforced bar to maintain absolute rigidity during perforation. This bar is affixed with the hexagon bolts supplied with the device. Remove the 2 bolts with which the sheet guard bar is fitted. Store these bolts carefully along with the removed sheet guard bar so that they are available when needed later.

The re-inforced perforation bar can be swung upward also.

In normal perforating work, standard steel bands of  $\frac{1}{4}$ " in width are used. ( $\frac{1}{8}$ " steel bands can be supplied on special order only.) The steel band is secured at the gripper edge by the packing clamp.

Illustration 77



The other end of the steel band has a hook and turnbuckle. The hook goes over the rear tympan reel and the turnbuckle draws the steel band tightly to the packing. The steel band must be located between cylinder grippers, because the perforating wheel must not roll over the cylinder grippers. When positioning for a perforating job, be sure that the perforation is done between the grippers. Remember that the sheet can only be perforated  $\frac{1}{4}$ " to  $\frac{5}{16}$ " from the gripper edge.



The bracket of the perforating wheel is mounted on the steel bar which carries the new sheet guards. The perforating device is secured by two screws and several perforators can be used simultaneously. The minimum distance between perforating wheels is  $1\frac{3}{8}$ ".

The perforating wheel is adjusted to the steel band with an adjusting screw on top of the bracket (see arrow). The long lever must be down when making this adjustment. (Perforation on.) Adjustment must be made in such a way that the perforating wheel is rolling evenly on the steel band and is not positioned too low. To disengage the perforator, the lever is raised to its vertical position so that the perforating wheel is drawn back from the steel band. When continuing the perforation, the lever is simply lowered. In addition to this extra accessory, a brush is supplied which will extend over the whole width of the cylinder. This brush is also mounted on the bar. It serves to smooth the sheet before perforation begins, and assures even perforation at the edges of the sheet. We recommend the brush for smoothing the sheet even if perforation is done only in the center.

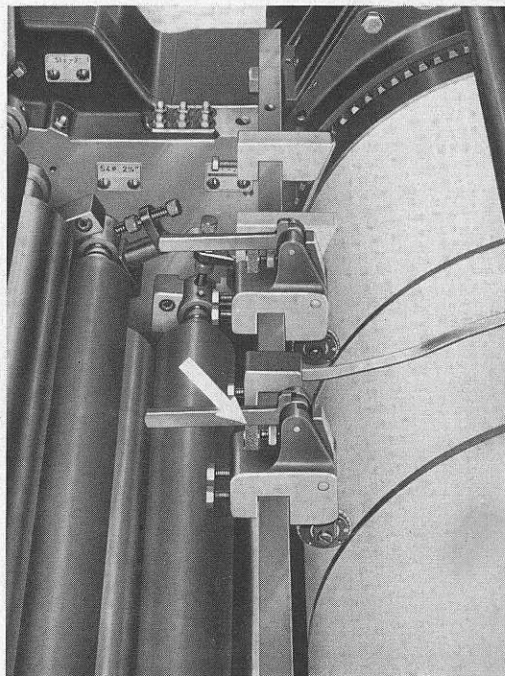
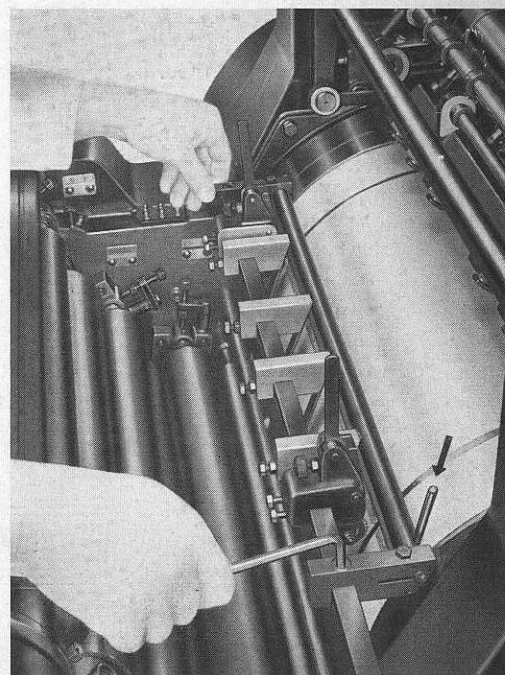


Illustration 78

Illustration 79



The brush is fastened with 2 countersunk screws. Close contact of the brush to the cylinder can be regulated with a lever (see arrow). Loosen the two hexagon screws with the wrench furnished with the machine. This will release the spindles in their bearings and they can be turned by the lever. After the brush has been brought to the desired position the hexagon screws must be secured. This way it is free of contact with the cylinder without removing the brush from the machine. If desired, the perforating knives can be replaced with slitting knives. Slitting and perforating can be done simultaneously.

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