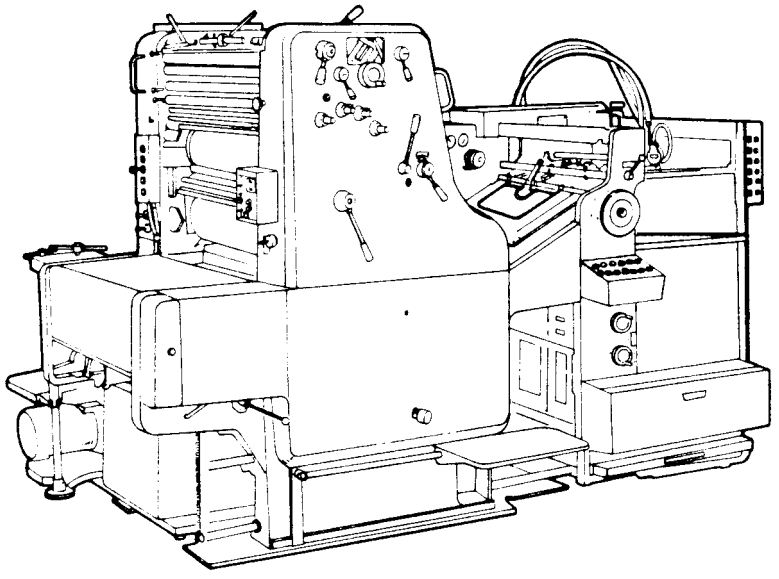
TM 5-3610-286-10

OPERATOR'S MANUAL



TOPOGRAPHIC SUPPORT SYSTEM
PRESS SECTION PRINTING PRESS
MODEL SOR
3610-01-214-1245

HEADQUARTERS, DEPARTMENT OF THE ARMY

6 JANUARY 1986

CHANGE
NO. 2

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D. C., 15 April 1991

Operator's Manual

TOPOGRAPHIC SUPPORT SYSTEM
PRESS SECTION PRINTING PRESS
MODEL SOR
NSN 3610-01-214-1245

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TM 5–3610–286–10, 6 January 1986 is changed as follows:

1. Remove and insert pages as indicated below. New or changed text material is indicated by a vertical bar in the margin. An illustration change is indicated by a miniature pointing hand.

Remove pages	Insert pages
i and ii	i and ii
1–1 and 1–2	1–1 and 1–2
1–7 and 1-8	1–7 and 1-8
D–3 through D–6	D–3 through D–6

2. Retain this sheet in front of manual for reference purposes.

By Order of the Secretary of the Army:

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Genera/, United States Army
Chief of Staff

Official:

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The Adjutant Genera/

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CHANGE
No. 1

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 24 June 1988

Operator's Manual

TOPOGRAPHIC SUPPORT SYSTEM
PRESS SECTION PRINTING PRESS
MODEL SOR
3610-01-214-1245

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Remove pages	Insert pages
2-19 and 2-20	2-19 and 2-20
2-25 and 2-26	2-25 and 2-26
3-43 and 3-44	3-43 and 3-44

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DISTRIBUTION:
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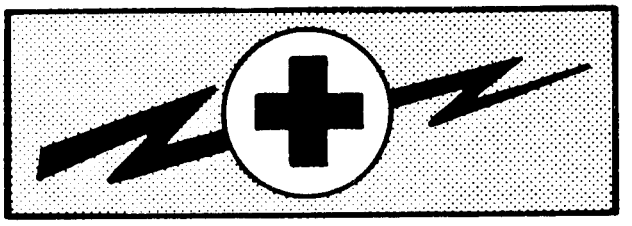
WARNING



WARNING

HIGH VOLTAGE

- Do not operate Printing Press unless it is connected to a suitable ground. Failure to observe this warning may result in death or serious injury.
- Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in death or serious injury.
- When working on high voltage components, keep one hand away from equipment to reduce hazard of current flowing through vital organs of body. Failure to do so may result in death or serious burn injury.
- Remove all jewelry from fingers, wrists, and neck prior to working on electrical components. Failure to do so may result in death or serious burn injury.

WARNING

ELECTRICAL HAZARDS

- ELECTRICAL SHOCK. Static electricity is retained in static eliminator bar for up to two hours after power is turned off. Touching static eliminator bar while charged may result in injury from electrical shock.
- Hazardous electrical voltages exist within Printing Press. Do not connect or disconnect any electrical components while power is on. Death, serious electrical shock, or burns may result.

WARNING

OPERATIONAL HAZARDS

- EXPOSED MOVING PARTS. Do not inch Printing Press and wipe cylinders at the same time. Return Printing Press to SAFETY STOP after each inching. Failure to do so may result in serious injury.

- EXPOSED MOVING PARTS. All adjustments will be made while Printing Press is on SAFETY STOP except those authorized by this manual to be made with Printing Press running. Printing Press must be on safe at all times when not in motion. Always shout “clear” and wait for “clear” response before taking Printing Press off safe to inch or run. Failure to follow this warning may result in serious injury.

- EXPOSED MOVING PARTS. Remove all jewelry. Keep shirts tucked in, sleeves above elbows, and ties removed. Failure to observe these precautions while operating Printing Press may result in serious injury.

- HIGH NOISE LEVEL. Hearing protection must be worn while operating Printing Press. Failure to do so may result in hearing impairment.

For detailed Printing Press safety procedures, refer to TM 5-245.

For first aid procedures, refer to FM 21-11.

TECHNICAL MANUAL

NO. 5-3610-286-10

TM 5-3610-286-10
HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 6 January 1986

Operator's Manual

TOPOGRAPHIC SUPPORT SYSTEM PRESS SECTION

PRINTING PRESS MODEL SOR

3610-01-214-1245

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

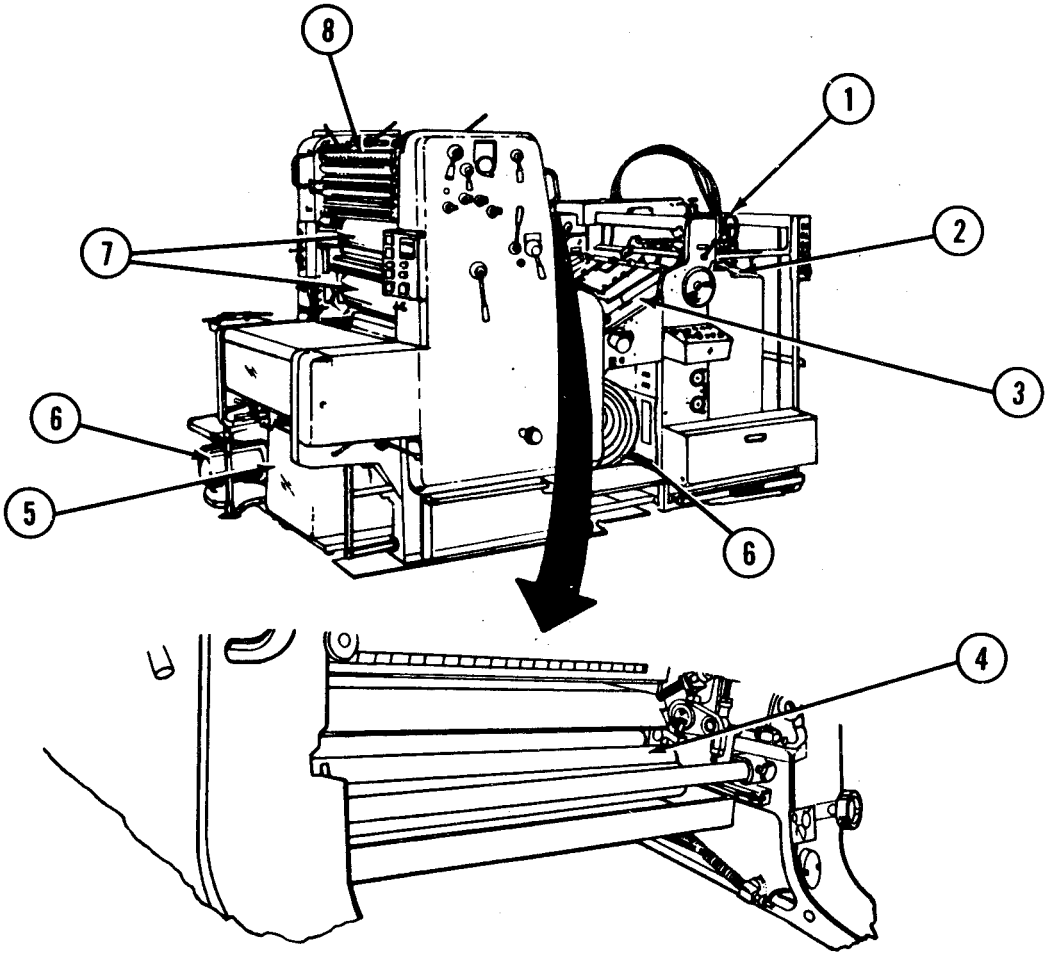
You can help improve this manual. If you find any mistakes, or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual directly to: Commander, U.S. Army Troop Support Command, ATTN: AMSTR-MMTS, 4300 Goodfellow Boulevard, St. Louis, MO 63120-1798. A reply will be furnished to you.

Page

CHAPTER 1

INTRODUCTION

Section I. GENERAL INFORMATION



1	Suction Head	5	Delivery Assembly
2	Feeder	6	Compressors
3	Feeder Table	7	Cylinder Assembly
4	Dampening Assembly	8	Inking Assembly

Topographic Support System Press Section Printing Press

1-1. SCOPE. This manual contains operating and operator's maintenance instructions for the Topographic Support System (TSS) Press Section Printing Press Model SOR, 3610-01-214-1245. Organizational maintenance instructions for the Printing Press are contained in TM 5-3610-286-20. The TSS Press Section Printing Press provides printing support for topographic units. The Printing Press must be housed in a temperature- and humidity-controlled environment with access to electrical power and water supply. Operating and operator's maintenance instructions for the Section that houses the Printing Press are contained in TM 5-3610-287-10. Organizational, direct support, and general support maintenance instructions for the Printing Press Section are contained in TM 5-3610-287-24. Repair parts and special tools for the Printing Press are listed in TM 5-3610 -286-20P, and those for the Section are listed in TM 5-3610-287-24P. For lubrication instructions for the Printing Press, refer to LO 5-3610-286-12; for lubrication instructions for the Section, refer to LO 5-3610-287-12. The Press Section is mounted on a flatbed semitrailer chassis. Operating and maintenance instructions for the semitrailer chassis are contained in TM 5-2330-305-14. In case of conflict with the contents of any referenced document, the contents of this manual will be followed.

1-2. MAINTENANCE FORMS AND RECORDS. Department of the Army forms and procedures for forms used for equipment maintenance will be those prescribed by DA PAM 738-750, The Army Maintenance Management System (TAMMS).

1-3. HAND RECEIPT (-HR) MANUALS. This manual has a companion document with a TM number followed by -HR (which stands for hand receipt). The TM 5-3610-286-10-HR consists of preprinted hand receipts (DA Form 2062) that list end item related equipment (i.e., COEI, BII, and AAL) you must account for. As an aid to property accountability, additional-HR manuals may be requisitioned from the following source in accordance with procedures in chapter 3, AR 310-2: The U.S. Army Adjutant General Publications Center, 2800 Eastern Boulevard, Baltimore, Maryland 21220-2896.

1-4. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIRs). If your Printing Press needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you do not like about your equipment. Let us know why you do not like the design or performance. Put it on an SF 368 (Quality Deficiency Report). Mail it to us at Commander, U.S. Army Troop Support Command, ATTN: AMSTR-MOF, 4300 Goodfellow Boulevard, St. Louis, Missouri 63120-1798. We will send you a reply.

1-5. WARRANTY INFORMATION. The TSS Press Section Printing Press is warranted by Heidelberg East for six months after installation into the Section. Parts are warranted for one year after installation. Warranty starts on the date found on DA Form 2408-9, shipped with Printing Press Section. Report all defects in material or workmanship to your supervisor who will take appropriate action.

Section II. EQUIPMENT DESCRIPTION

1-6. EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES

a. Characteristics

(1) Single-color offset press

(2) Streamfed

(3) High speed

(4) 24 by 30 in. (61 by 76 cm) maximum sheet size

(5) Pushbutton electric controls

(6) Continuous feed and delivery

(7) High quality, close-registration

(8) Transportable in a 30 ft (9.15 m) expandable container

b. Capabilities and Features

(1) Maximum image area is 23-3/8 by 30 in. (59.5 by 76 cm)

(2) Gripper margin is adjustable from 5/16 to 3/8 in. (8 to 10 mm)

(3) Blanket cylinder is undercut 0.090 in. (2.3 mm)

(4) Plate cylinder is undercut 0.020 in. (0.5 mm)

(5) Distance from plate edge to print beginning is 2 in. (5.08 cm)

(6) Feeder pile height is 39-3/8 to 42-29/32 in. (100 to 109 cm)

(7) Delivery pile height is 17-23/32 to 23-5/8 in. (45 to 60 cm)

c. Limitations

(1) Must have 220 vat, 3-phase power supply to operate

(2) Can only handle sheet sizes up to 24 by 30 in. (61 by 76 cm)

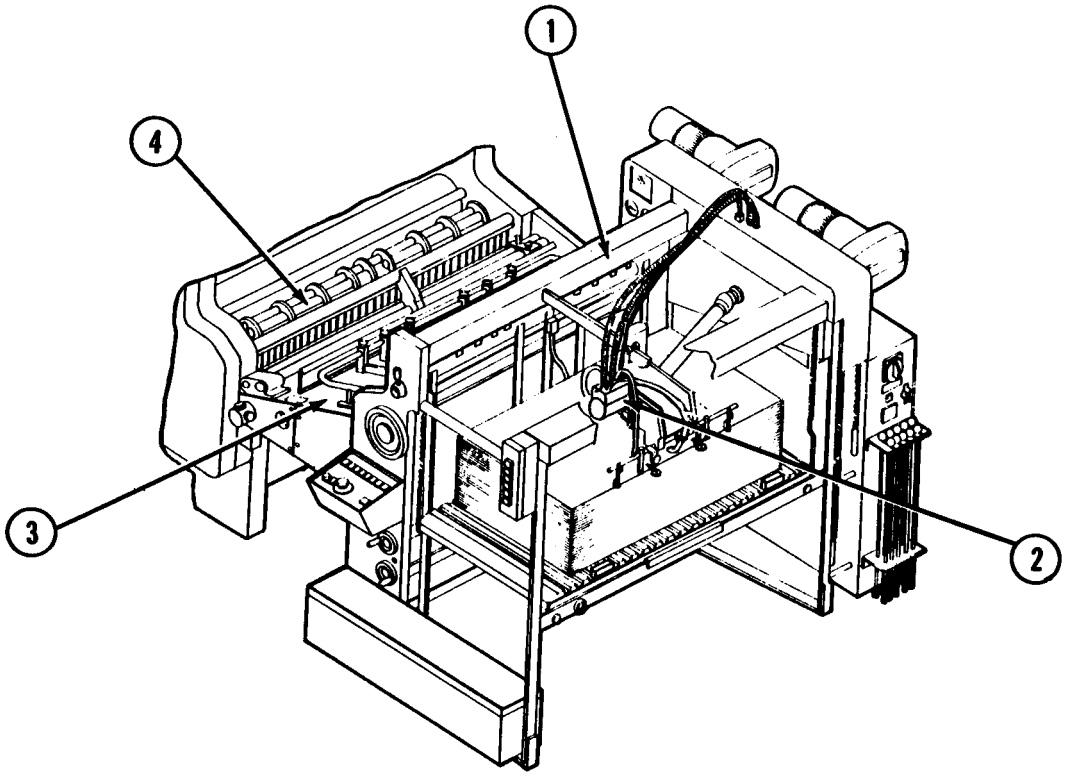
(3) Can only print one color at a time

(4) Can only print 10,000 impressions per hour maximum

(5) Must be in a temperature- and humidity-controlled environment with access to electrical power and water supply.

1-7. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS

FEEDER END



FEEDER (1). Provides basic positioning of pile and raises pile to suction head.

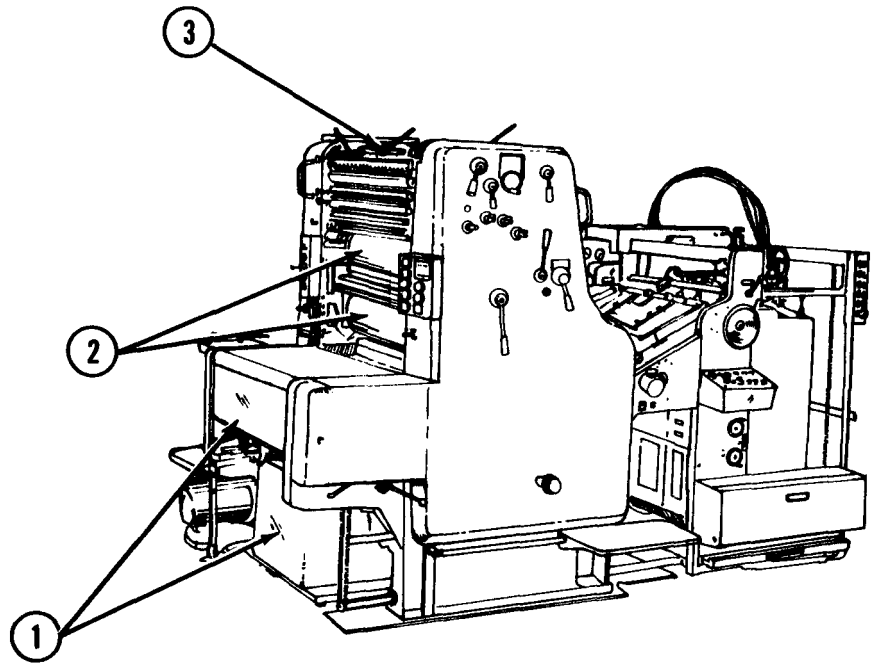
SUCTION HEAD (2). Maintains correct pile height and continuous airflow for separating, lifting, and forwarding sheets to feeder table.

FEEDER TABLE (3). Alines streamfed sheets from suction head for proper registration. Delivers sheets to register feed drum.

REGISTER FEED DRUM (4). Picks up sheets from feeder table, accelerates to press speed, and transfers sheets to impression cylinder.

1-7. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS (CONT)

DELIVERY END



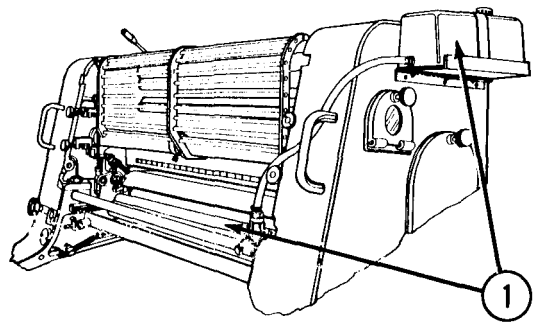
DELIVERY ASSEMBLY (1). Receives, positions, and stacks printed sheets.

CYLINDER ASSEMBLY (2). Consists of impression, plate, and blanket cylinders, and a skeleton cylinder.

INKING ASSEMBLY (3). Provides an even distribution of ink from ink fountain to plate.

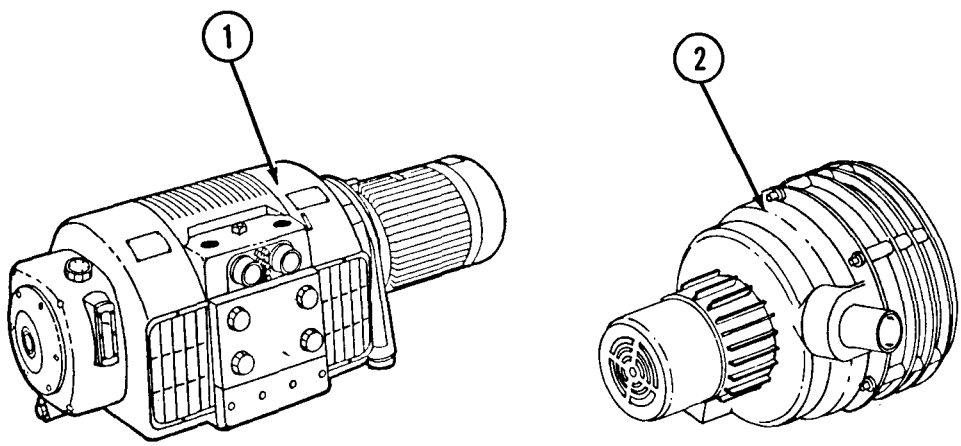
1-7. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS (CONT)

DAMPENING ASSEMBLY



DAMPENING ASSEMBLY (1). Provides an even distribution of fountain solution to the plate.

COMPRESSOR

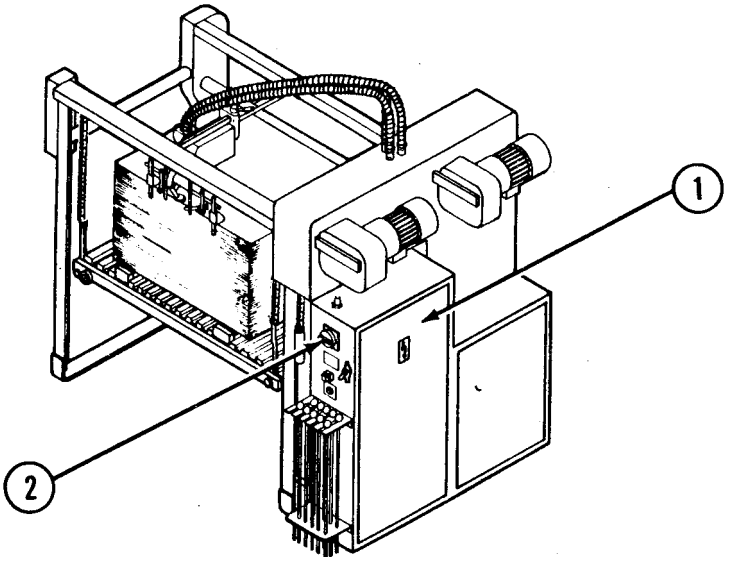


COMPRESSOR (1). Provides airflow to blowers and vacuum to suction head. Located on drive side delivery end of Printing Press.

COMPRESSOR (2). Provides suction to feeder table and front guide suction holes. Located under feeder table.

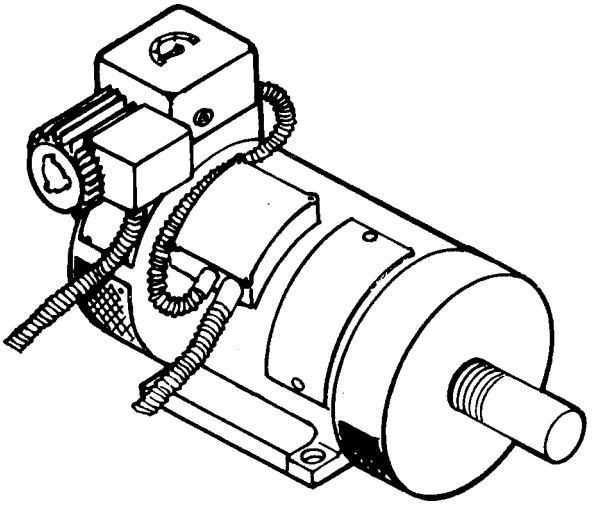
1-7. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS (CONT)

CONTROL BOX



CONTROL BOX (1). Houses main power switch (2) and electrical components that provide all electrical power to Printing Press.

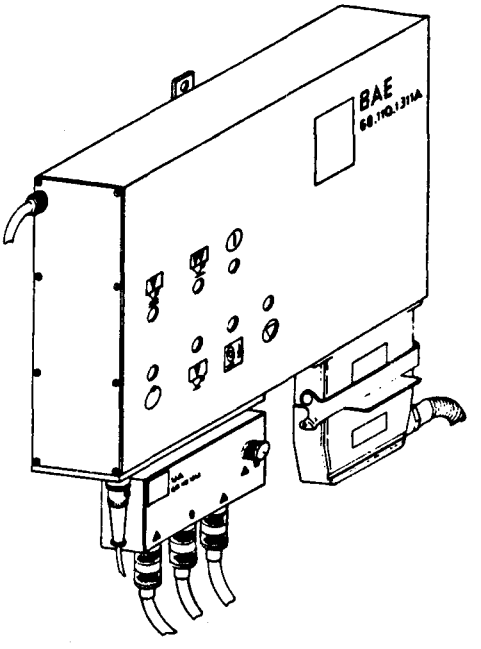
MAIN DRIVE MOTOR



MAIN DRIVE MOTOR. Provides mechanical power to drive main Printing Press. Located under feeder table on drive side.

1-7. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS (CONT)

ELECTRONIC SHEET FEED CONTROL



ELECTRONIC SHEET FEED CONTROL. Receives signals from electronic sensors located throughout Printing Press.

1-8. EQUIPMENT DATA

a. Press Dimensions and weights

Length	115 in. (292.100 cm)
Width	69-1/4 in. (175.895 cm)
Height	72-1/2 in. (184.150 cm)
Weight	12,040 lb. (5,466.2 kg)

b. Power Data

Main power source	220 vat, 3-phase, 60 Hz
Rated power, main motor	6.30 hp = 4.699 kW
Rated power, complete machine approx.	16.00 hp = 11.936 kW

1-8. EQUIPMENT DATA (CONT)

c. Specifications

Sheet size

Maximum	24 by 30 in. (61 by 76 cm)
Minimum	11 by 16-1/2 in. (28 by 42 cm)

Blanket size

Length	27-5/32 in. (69 cm)
Width	33-17/32 in. (85.2 cm)
Thickness	0.075 in. (1.9 mm)

Plate size

Length	27-1/4 to 28-1/8 in. (69.2 to 71.5 cm)
Width	33-17/32 in. (85.2 cm)
Thickness	0.006 to 0.020 in. (0.15 to 0.050 mm)

Impressions per hour (IPH)	2,000 to 10,000

Section III. TECHNICAL PRINCIPLES OF OPERATION

1-9. GENERAL. The TSS Printing Press SOR is a streamfed, offset lithographic press. Its functions depends on five major systems working together. The five systems are:

a. the paper cycle, which consists of the feeder, register, and delivery mechanisms

b. the cylinder assembly, which consists of plate, blanket, impression cylinders, and a skeleton cylinder

c. the inking assembly

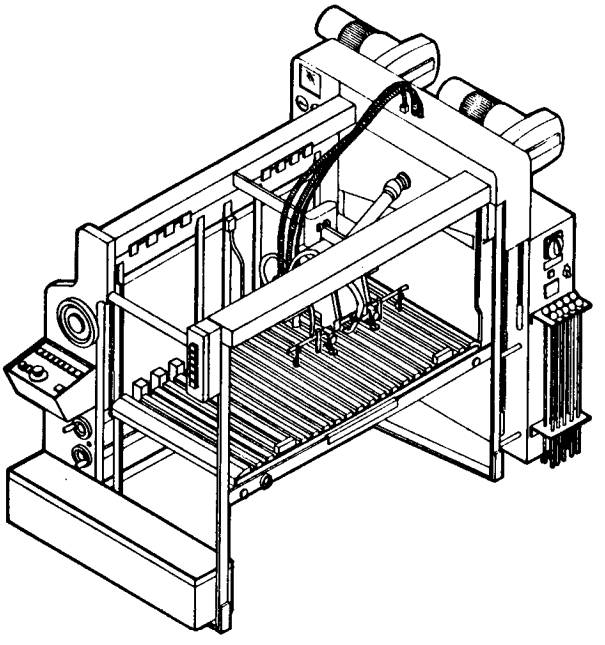
d. the dampening assembly

e. motors and compressors.

1-10. DESCRIPTION OF MAJOR SYSTEMS. Each Printing Press system is controlled by devices at various stations on the Printing Press. Detailed descriptions of each system follow.

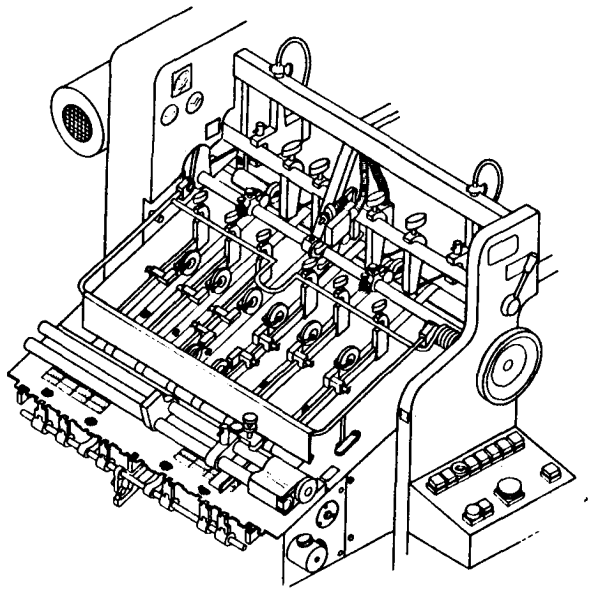
1-10. DESCRIPTION OF MAJOR SYSTEMS (CONT)

a. Paper Cycle



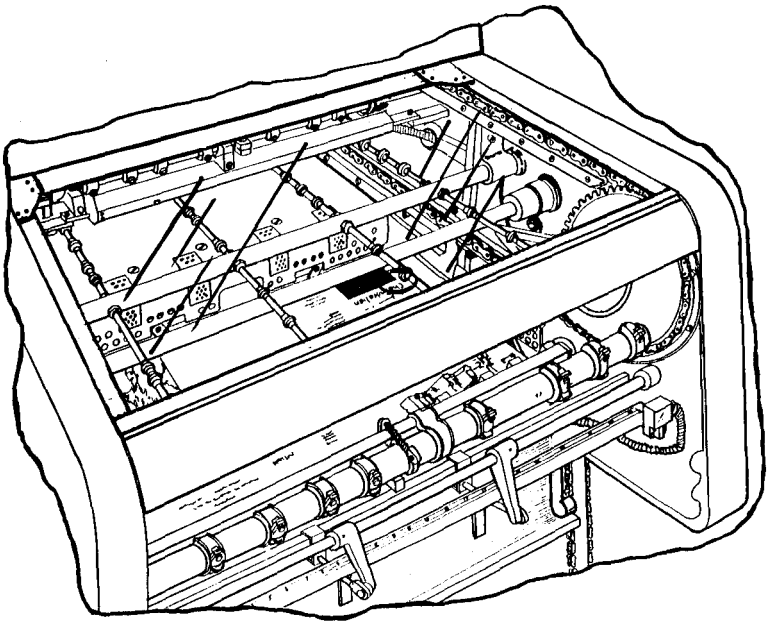
(1) Feeder Mechanism. The feeder is a streamfed pile feeder with a non-stop feature. Paper is neatly loaded on the feeder pile board and positioned in correspondence to the register and insertion devices. Pile height is monitored by the governor foot, and is electrically and mechanically raised when the pile is below a determined height. The suction head, located above the pile, has various suction feet which lift the top sheet from the pile and forward that sheet to forwarding rollers which transfer it farther into the paper cycle. The suction head also has sheet separation air blowers which blast air between sheets and float up the top sheet, allowing only one sheet to be lifted and forwarded. Blast Is also provided by the front flap support bar.

1-10. DESCRIPTION OF MAJOR SYSTEMS (CONT)

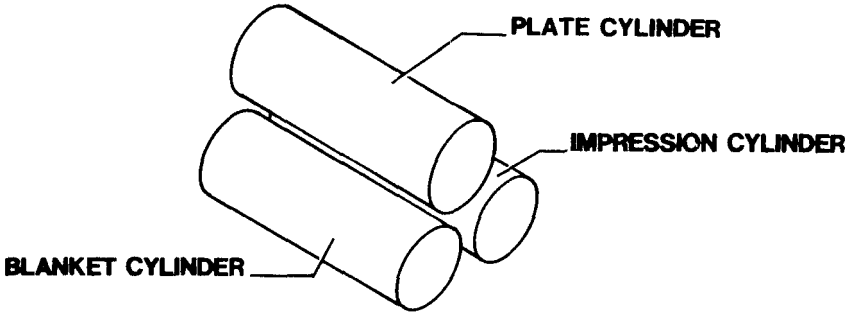


(2) Register Mechanism. The register mechanism receives sheets from the forwarding rollers, and transfers them down the feeder table. As each sheet travels down the feeder table, it is under control of feeder tapes and wheels or cage balls mounted on the sheet smoother. The sheets stop when they contact the front lays, at which time the side guide assumes control by laterally pulling the sheets to a predetermined position. The front lays then release the sheet to the register drum grippers, which carry it forward to the impression cylinder grippers. When the impression cylinder grippers have control of the sheet, the register drum grippers release it, and the sheet is pulled around the impression cylinder. As the sheet is pulled around the impression cylinder, it is pressed against the blanket cylinder, where the printed image is transferred to the paper.

1-10. DESCRIPTION OF MAJOR SYSTEMS (CONT)



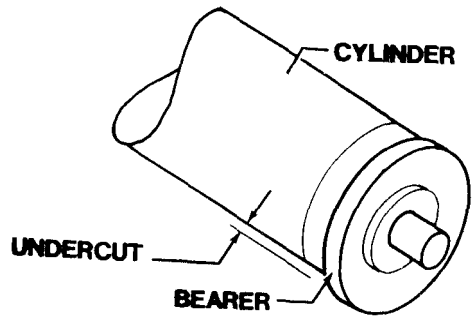
(3) Delivery Mechanism. After the sheet has been offset with the image, the delivery grippers take the sheet from the impression cylinder grippers and carry it into the delivery mechanism. When the sheet is over the delivery pile boards, the delivery grippers release it and the sheet is dropped onto the delivery pile where it is neatly stacked with aid of the delivery side sheet joggers. The delivery pile can be lowered, and printed sheets removed for insertion back into the feeder (for printing of an additional color) or for finishing.



b. Cylinder Assembly

(1) Plate Cylinder. This cylinder carries the lithographic printing plate. The cylinder has a gap containing clamps which hold the plate. The plate cylinder rotates so that the plate contacts first the dampening rollers, then the inking rollers. The plate cylinder maintains contact with the blanket cylinder by means of its bearers. The bearers are rings of hardened steel pressed on the cylinder body.

1-10. DESCRIPTION OF MAJOR SYSTEMS (CONT)

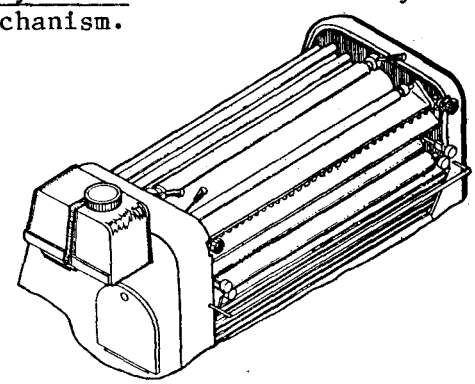


The plate cylinder body is cut below the level of the bearers. The difference between the radius of the bearers and the radius of the cylinder is called undercut, and is .020 in. (0.50 mm) on this Printing Press. The undercut accommodates the plate and packing required to bring the plate surface up to the required printing height.

(2) Blanket Cylinder. The blanket cylinder looks much like the plate cylinder, with a heavy metal undercut body with a gap across its length and bearers on each end. The gap houses clamps for attaching the blanket and packing. The blanket is attached to bars, which are held in place by the clamps. The blanket may be tightened at either the lead or the tail edge. The undercut of this cylinder is .090 in. (2.30 mm). The function of the blanket cylinder is to transfer the image to be printed from the plate cylinder to the paper. The blanket cylinder can be moved to compensate for the thickness of paper being printed.

(3) Impression Cylinder. The impression cylinder is the surface against which the paper is squeezed as the blanket cylinder transfers the image. The impression cylinder has a gap containing grippers which carry the paper around the cylinder. Unlike the plate and blanket cylinders, the impression cylinder has no undercut and uses no packing.

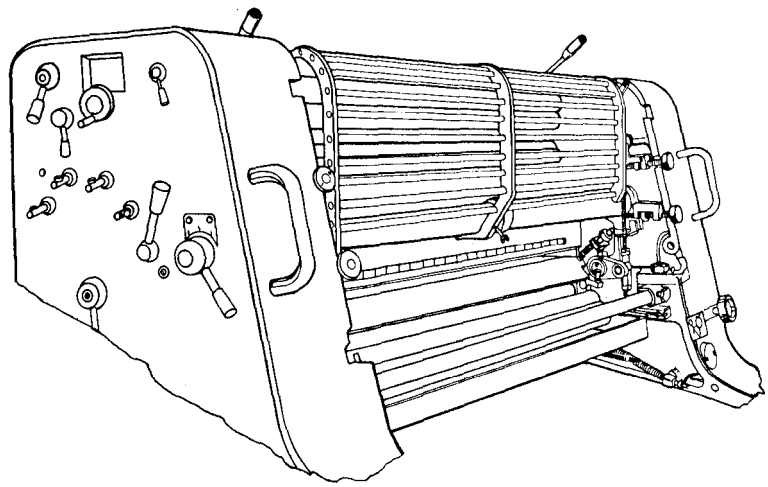
(4) Skeleton Cylinder. The skeleton cylinder is the driving force for the delivery mechanism.



c. Inking Assembly. The inking assembly has the most demanding role of all the systems. Its main functions are: (1) to break down the ink to a semi-liquid state; (2) to distribute ink from the ink fountain to the

1-10. **DESCRIPTION OF MAJOR SYSTEM** (CONT)

inking form rollers; (3) to deposit a fine, smooth layer of ink on the image area of the plate; (4) to pick up fountain solution from the plate, emulsify some of this solution into the ink, and evaporate the rest into the atmosphere; and (5) to pick up any foreign matter from the plate and keep it in the inking assembly until washup. There are three main sections of the inking assembly. The first section is the ink fountain section, which is the ink reservoir. The ink fountain looks like a "V" on its side (>), with the lower leg of the "V'* being the fountain blade and the upper leg being the fountain roller. The fountain roller turns and draws ink through the gap set between the roller and the blade by the ink fountain keys. While the fountain roller turns, the ductor roller is held in contact with it, and takes ink from the fountain roller for transfer through the rest of the inking assembly. The second inking assembly section is the ink distribution section, which consists of oscillator rollers, rider rollers, and distributor rollers. These rollers break down ink viscosity and transfer ink to the third section, the form roller section. The form roller section receives ink from the ink distribution section and transfers it to the plate in uniform thickness. The rollers also pick up dampening solution and foreign materials from the plate and distribute them back into the inking assembly.



d. Dampening Assembly. The conventional dampening assembly, in conjunction with the inking assembly, is the heart of the lithographic process. The TSS Printing Press works on the simple premise that oil and water do not mix (oil = ink, water = dampening solution). Water sticks to the non-image areas of the plate, but not to the image areas. Ink sticks to the image area of the plate, but not to the non-image areas. The dampening assembly consists of: (1) a dampening fountain, which holds the fountain solution; (2) a fountain roller, which carriers solution from the fountain to the ductor roller; (3) a ductor roller (covered with a thick, absorbent cloth called a molleton cover), which turns against the fountain

1-10. DESCRIPTION OF MAJOR SYSTEMS (CONT)

roller, picks up water, and carries it to the oscillator roller; (4) an oscillator roller, which transfers solution from the ductor roller to the form rollers, and (5) the dampening form rollers, (covered with molleton covers), which deposit solution on the non-image areas of the plate.

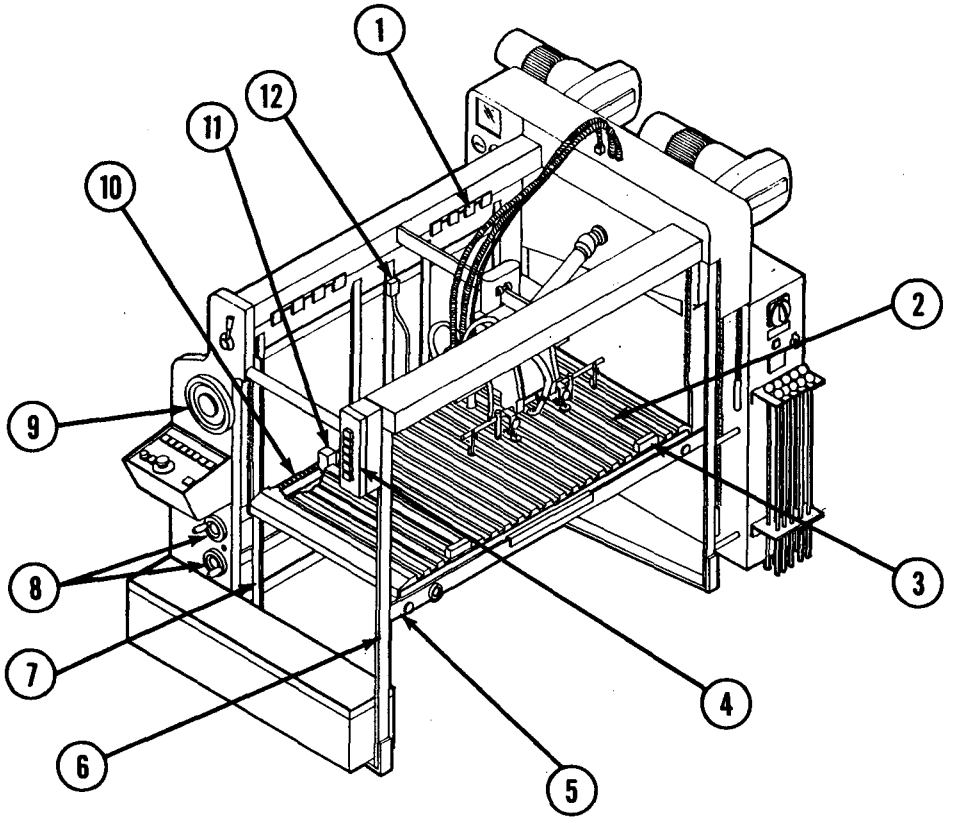
e. Motors and Compressors

(1) Motors. There are several motors which drive various components of the Printing Press. They drive the Printing Press and lift or lower the feeder pile board or delivery pile board.

(2) Compressors. The two compressors provide suction and blast to lift and separate sheets in the feeder, hold sheets down on the feeder table, and hold sheets down as they enter delivery.

1-11. FUNCTIONAL DESCRIPTION. Functional descriptions of individual components are provided in the following paragraphs.

FEEDER



FRONT FLAPS (1). Hold top sheets of paper pile in position during feeder operation.

1-11. FUNCTIONAL DESCRIPTION (CONT)

FEEDER PILE BOARD (2). Supports paper to be printed and is raised or lowered by control station.

WOODEN REAR SPACERS (3). Prevent feeder pile board from backing away from front flaps.

CONTROL STATION (4). Used for raising, lowering, and stopping main or auxiliary feed piles.

GUIDE RAIL (5). Used to pre-position feeder pile board.

SIDE RAILS (6). Attach to and support feeder pile board.

SIDE STANDARDS (7). Used to pre-position paper pile on feeder pile board.

HANDWHEELS FOR SIDE STANDARDS (8). Used to position side standards for proper placement of paper pile.

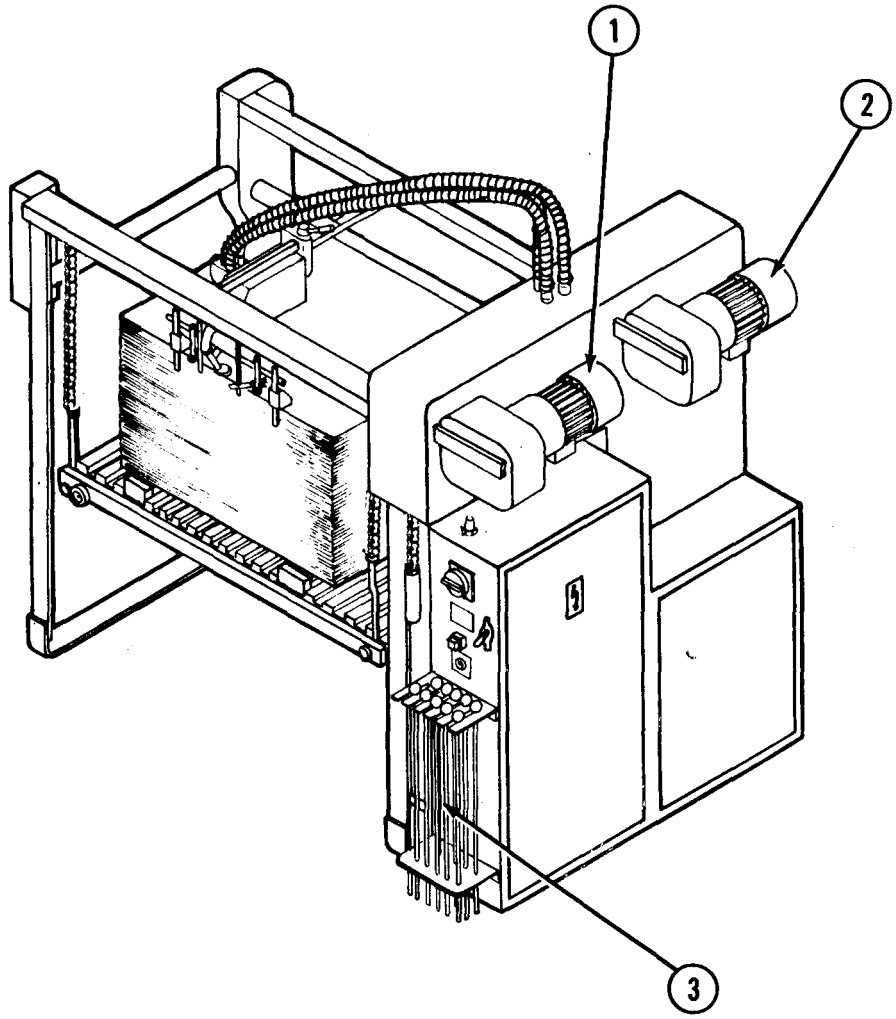
FEEDER HANDWHEEL (9). Used to turn feeder table and suction head by hand.

UPPER AND LOWER SCALE (10). Used to position side standards. Graduated in millimeters.

FRONT SPACERS (11). Prevent front edge of paper pile from curling under edge of feeder pile board. (Three on each side of feeder.)

FEEDER SHEET STOPS (12). Aline front edge of paper pile in the feeder.

1-11. FUNCTIONAL DESCRIPTION (CONT)



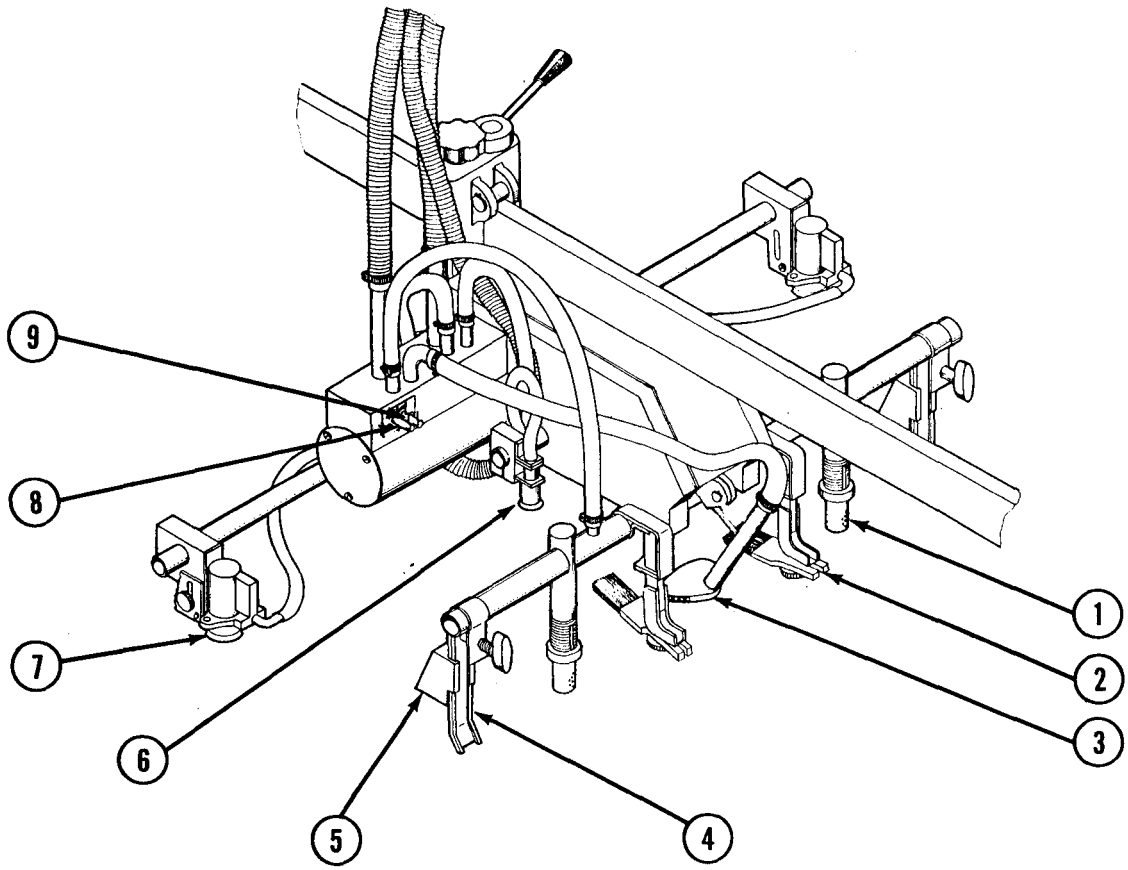
FEEDER PILE MOTOR (1). Provides mechanical power to raise and lower feeder pile board.

AUXILIARY FEEDER PILE MOTOR (2). Provides mechanical power to raise and lower feeder pile board for continuous feed operations.

NONSTOP FZEEDER RODS (3). Support paper pile while loading paper on feeder pile board during nonstop feed operation.

1-11. FUNCTIONAL DESCRIPTION (CONT)

SUCTION HEAD



SHEET SEPARATION AIR BLOWERS (1). Lift and separate sheets for forwarding.

SHEET SEPARATION BRUSHES (2). Aid in forwarding no more than one sheet at a time.

GOVERNOR FOOT (3). Controls paper pile height and provides air blast for smooth forwarding of top sheet by forwarding suckers.

REAR SHEET STOPS (4). Prevent sheets from backing away from front flaps.

PLASTIC WEIGHTS (5). Aid in forwarding no more than one sheet at a time.

LIFTING SUCKERS (6). Lift sheets to be transported by forwarding suckers.

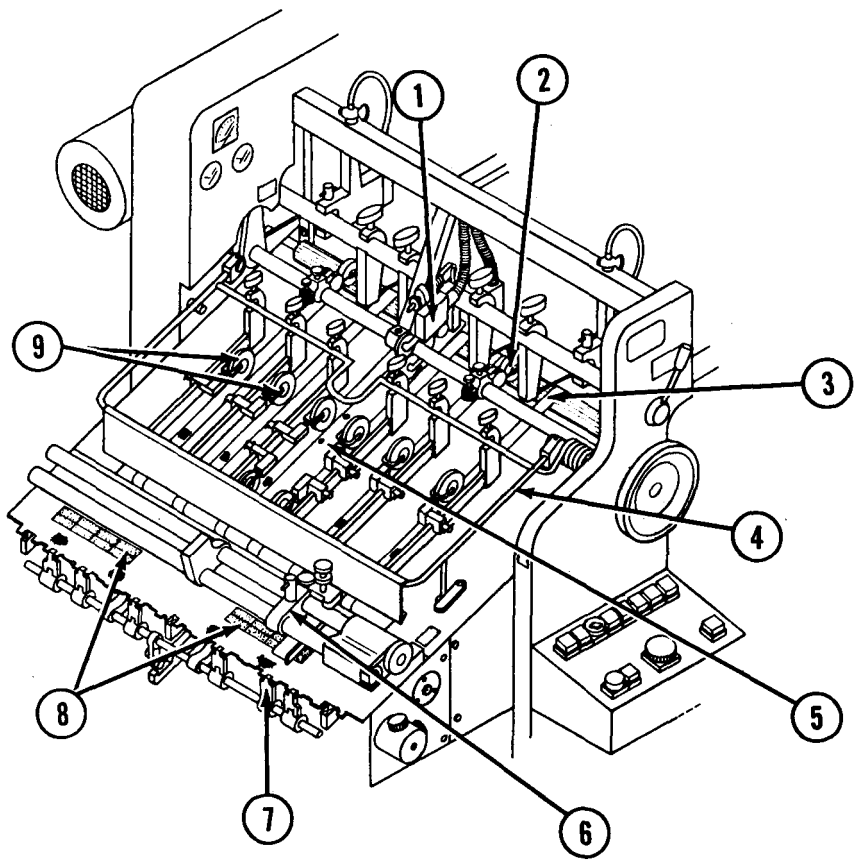
FORWARDING SUCKERS (7). Forward sheets received from lifting suckers to forwarding rollers.

1-11. FUNCTIONAL DESCRIPTION (CONT)

SEPARATION AIR ADJUSTMENT VALVE (8). Regulates air blast for sheet separation air blowers.

TRANSPORT AIR ADJUSTMENT VALVE (9)0 Regulates air blast for governor foot.

FEEDER TABLE



DOUBLE SHEET DETECTOR (1). Prevents excess number of sheets from being moved down feeder table. When tripped, stops feeding of sheets and turns off impression.
FORWARDING ROLLERS (2). Move sheets received from forwarding suckers down feeder table.

1-11. FUNCTIONAL DESCRIPTION (CONT)

FEEDER TAPES (3). Together with sheet smoother, provide forward movement to sheets as they move down feeder table.

SHEET SMOOTHER (4). Houses roller wheels, brush wheels, and cage balls, which keep sheets smooth for travel on feeder table.

FEEDER TABLE SUCTION HOLES (5). Provide suction to sheets on feeder table during removal of misfed sheets.

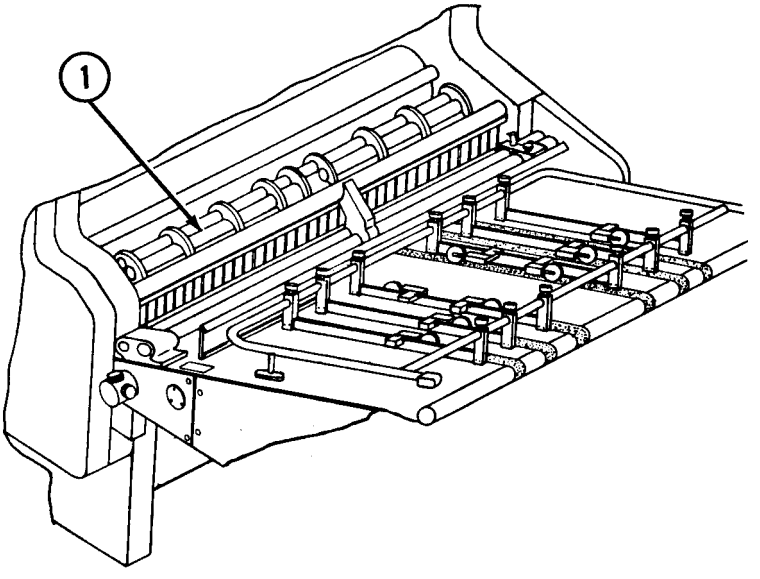
SIDE GUIDES (6). Position sheets for proper lateral registration.

FRONT LAYS (7). Stop forward progress of sheets for proper cylinder registration and side guide alinement.

COVER SLIDES (8). Prevent sheets from curling into recessed area on feeder table.

ROLLER WHEELS, BRUSH WHEELS, AND CAGE BALLS (9). Provide light, even pressure to keep sheets smooth and maintain forward movement from forwarding rollers to front lays.

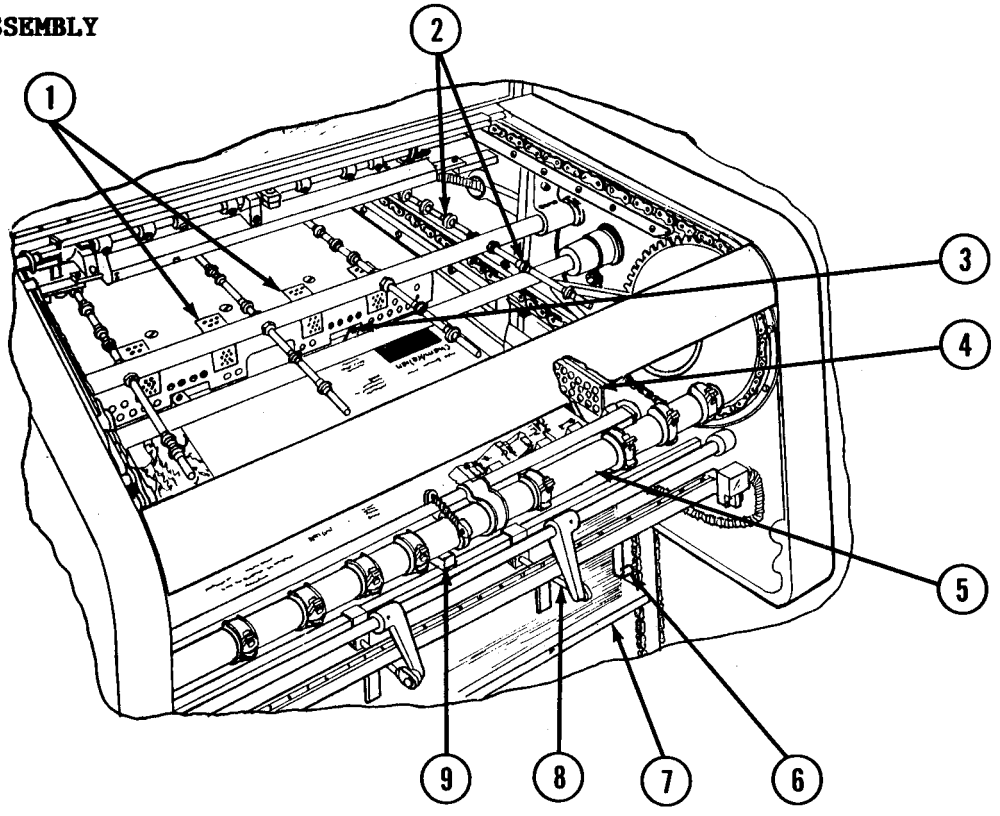
REGISTER FEED DRUM



REGISTER FEED DRUM (1). Transfers sheets from front lays to impression cylinder grippers.

1-11. FUNCTIONAL DESCRIPTION (CONT)

DELIVERY ASSEMBLY



SUCTION SLOWDOWN WHEELS (1). Reduce forward sheet speed to prevent sheet override in delivery assembly.

DELIVERY AIR BLAST PIPES (2). Ensure printed sheets settle on delivery pile board and prevent sheets from overriding in delivery assembly.

REAR SHEET STOP (3). Houses suction slowdown wheels and maintains even, front-to-back stacking of printed sheets.

DELIVERY SIDE SHEET JOGGERS (4). Maintain even, side-to-side stacking of printed sheets.

DELIVERY GRIPPER BARS (5). House grippers which receive sheets at transfer point and forward to delivery assembly.

FRONT SHEET STOP (6). Maintains even front-to-back stacking of printed sheets.

DELIVERY PILE BOARD (7). Receives printed sheets from delivery gripper bars and supports printed paper pile.

1-11. FUNCTIONAL DESCRIPTION (CONT)

SHEET CATCHERS (8). Pull into position to hold sheets when operator removes a printed sheet for inspection.

OVERRIDE SAFETY (9). Prevents paper jams by shutting off impression and feeder if sheets override front sheet stop.

CYLINDER ASSEMBLY

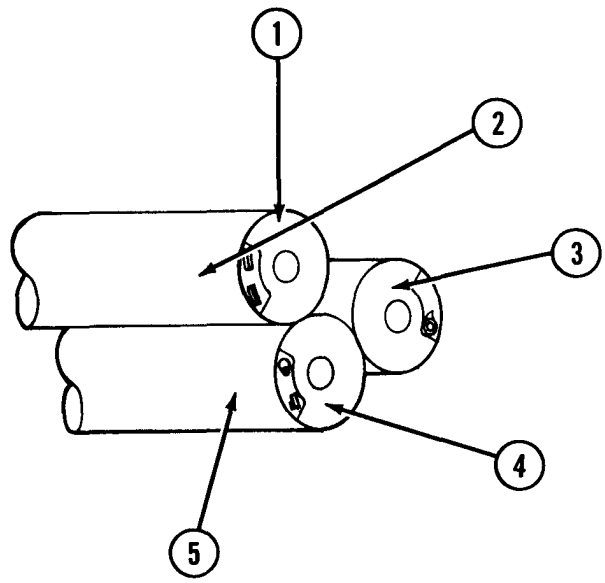


PLATE CYLINDER (1). Cylinder that holds plate.

PLATE (2). Thin metal sheet coated with light-sensitive surface that, when exposed to light, forms a surface image. The image area of the plate accepts ink and repels fountain solution, while the non-image area of the plate accepts fountain solution and repels ink. The plate then transfers the image to the blanket.

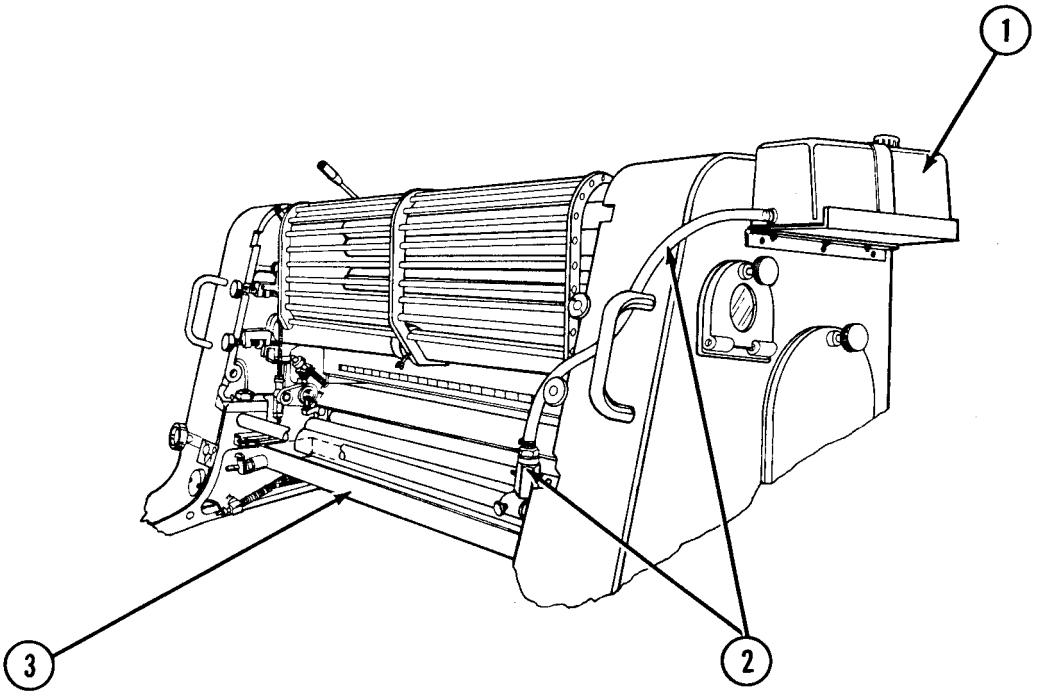
IMPRESSION CYLINDER (3). Transfers sheets from register feed drum to delivery gripper bars. The printed image transfers from the blanket to sheets passing between the blanket and impression cylinders.

BLANKET CYLINDER (4). Cylinder that holds blanket.

BLANKET (5). A fabric, coated with natural or synthetic rubber, that is clamped around blanket cylinder. The blanket transfers inked images from plate cylinder onto sheets to be printed.

1-11. FUNCTIONAL DESCRIPTION (CONT)

DAMPENING ASSEMBLY

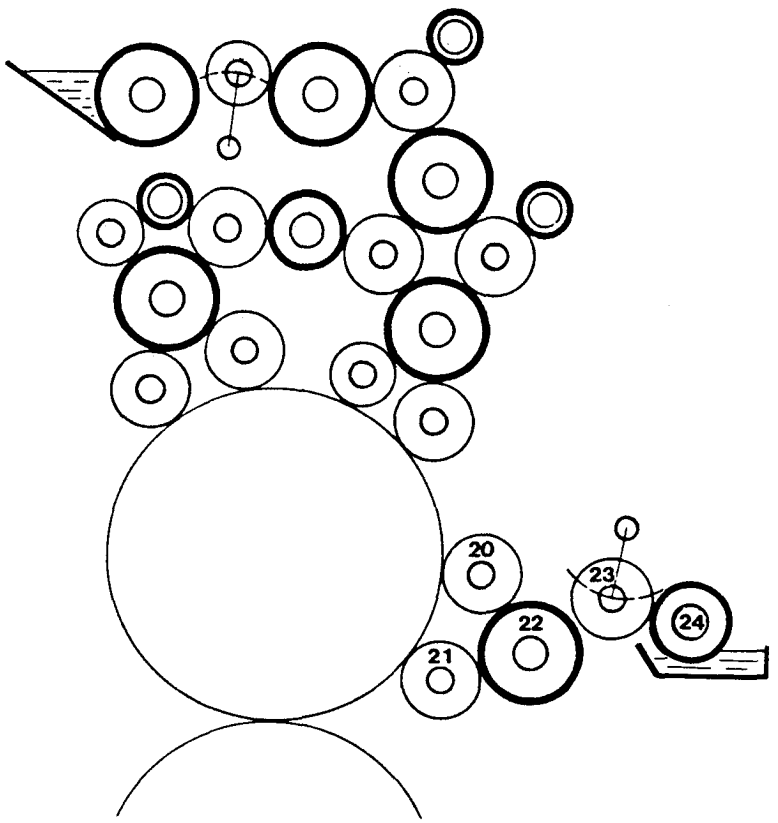


FOUNTAIN SOLUTION CONTAINER (1). Stores fountain solution.

FOUNTAIN HOSE AND STOPCOCK (2). Deliver fountain solution from container to fountain. Ensure proper fountain solution level in fountain. Can be turned off for removal of fountain solution container during washup.

DAMPENING FOUNTAIN (3). Contains fountain solution which is picked up by dampening fountain roller.

1-11. FUNCTIONAL DESCRIPTION (CONT)



DAMPENING FOUNTAIN ROLLER NO. 24. Transfers fountain solution from dampening fountain to dampening ductor roller.

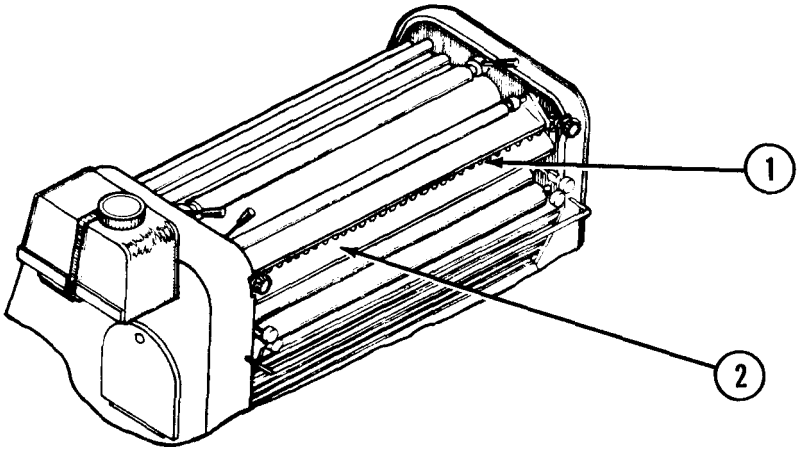
DAMPENING DUCTOR ROLLER NO. 23. Moves back and forth between dampening fountain roller and dampening oscillator roller. Carries fountain solution from dampening fountain roller to dampening oscillator roller.

DAMPENING OSCILLATOR ROLLER NO. 22. Transfers fountain solution from dampening ductor roller to dampening form rollers.

DAMPENING FORM ROLLERS NO. 20 and 21. Evenly transfer fountain solution from dampening oscillator roller to plate.

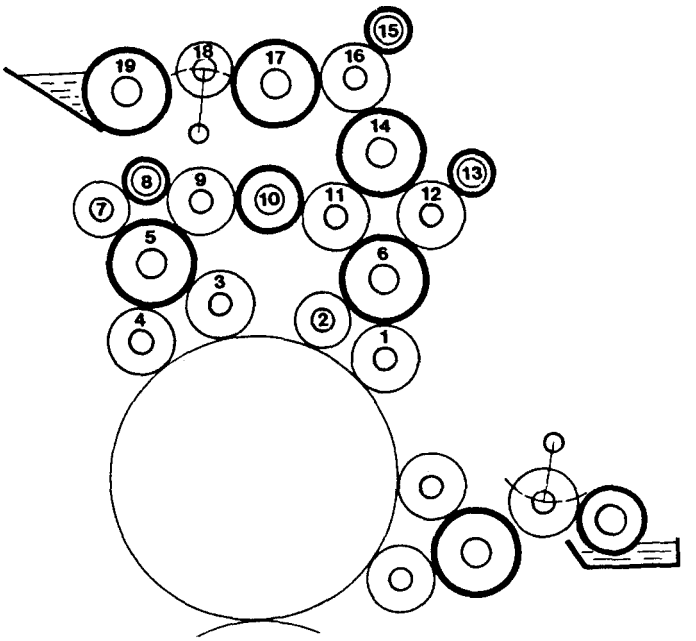
1-11. FUNCTIONAL DESCRIPTION (CONT)

INKING ASSEMBLY



INK FOUNTAIN KEYS (1). Adjustable keys on ink fountain that provide proper ink distribution to ink fountain roller.

DROP-AWAY INK FOUNTAIN (2). Holds ink for distribution to ink fountain roller. Swings down for washup.



INK FOUNTAIN ROLLER NO. 19. Transfers ink from ink fountain to ink ductor roller.

1-11. FUNCTIONAL DESCRIPTION (CONT)

INK DUCTOR ROLLER NO. 18. Delivers controlled amounts of ink from ink fountain roller to ink oscillator roller.

INK OSCILLATOR ROLLERS NO. 5, 6, 14, and 17. Distribute and smooth ink throughout inking system.

MANUAL INKING ROLLER NO. 15. Provides Printing Press operator with easy way to ink up without filling ink fountain.

DISTRIBUTOR ROLLERS NO. 7, 9, 10, 11, 12, and 16. Transfer ink throughout inking system.

RIDER ROLLERS NO. 8 and 13. Smooth ink throughout inking system.

INKING FORM ROLLERS NO. 1, 2, 3, and 4. Transfer ink from oscillator rollers to image area on plate.

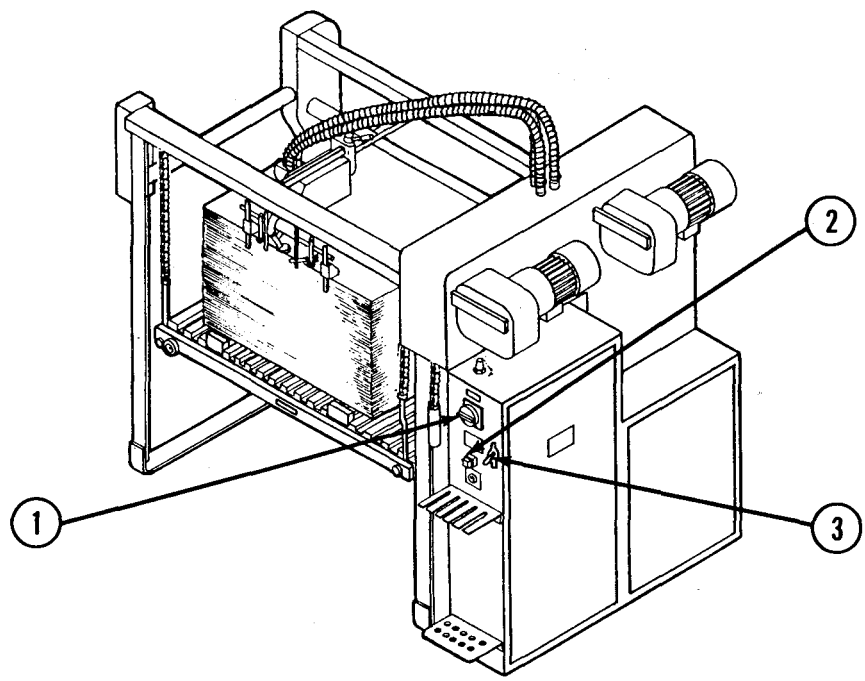
CHAPTER 2

OPERATING INSTRUCTIONS

2-1. INTRODUCTION. This chapter describes procedures used by the operator for maintaining and operating the Printing Press. Section I describes the location and function of the operator's controls and indicators. Section 11 lists and describes operator preventive maintenance checks and services (PMCS) . Section III describes operation under usual conditions.

Section I. DESCRIPTION AND USE OF OPERATOR'S CONTROLS AND INDICATORS

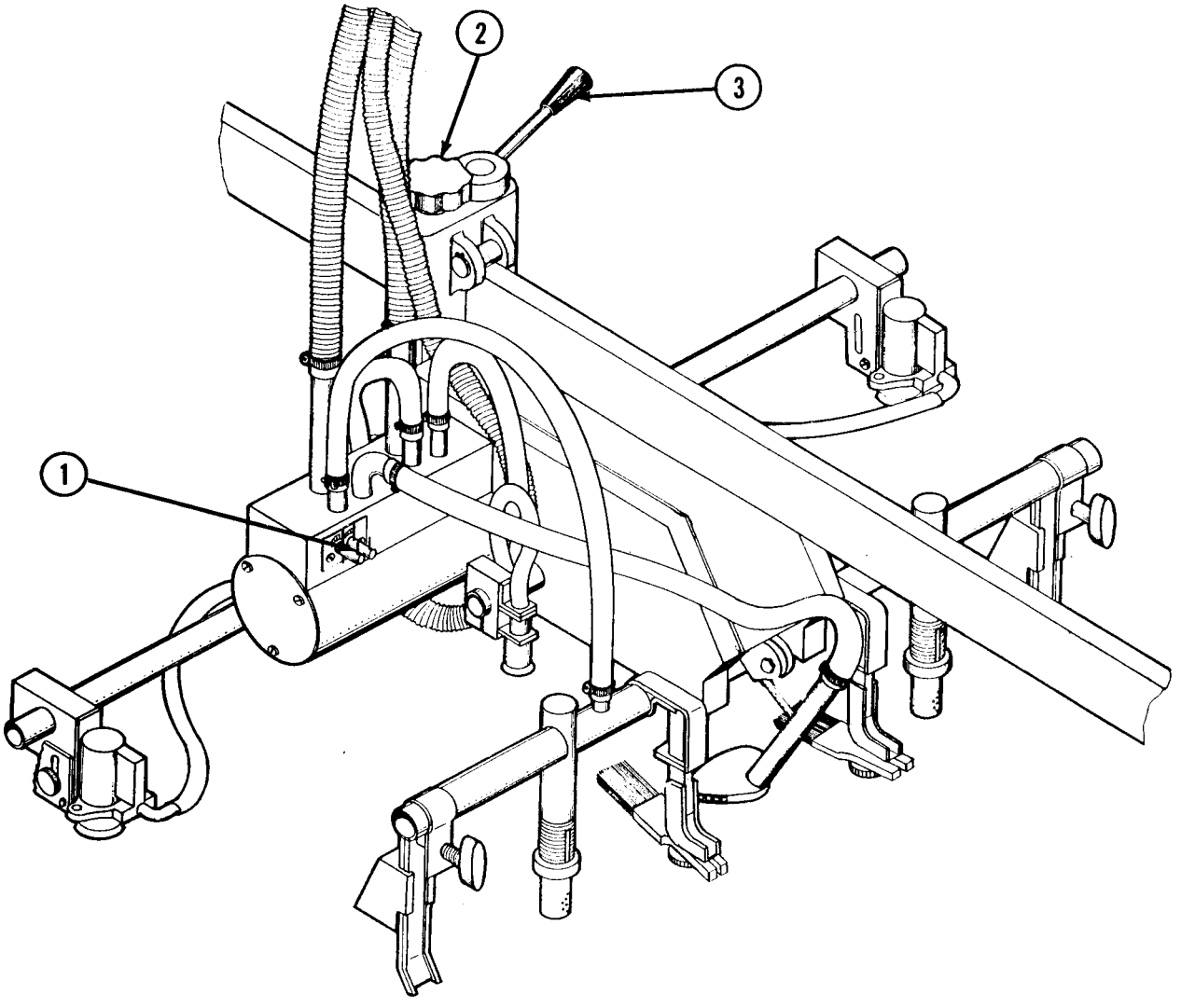
2-2. OPERATOR'S CONTROLS AND INDICATORS



2-2. OPERATOR'S CONTROLs AND INDICATORS (CONT)

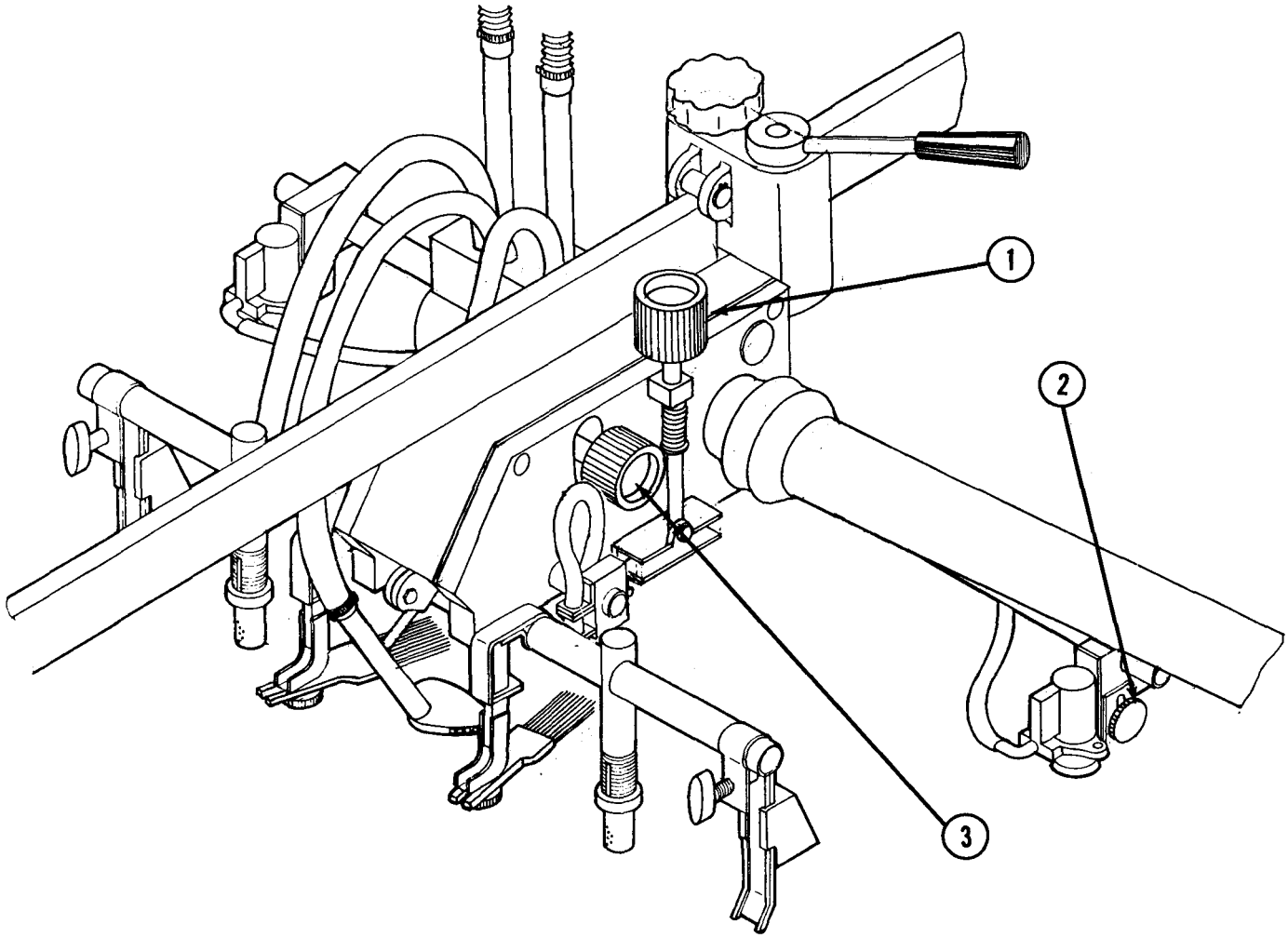
Key	Control or Indicator	Function
1	Main Power Switch	Turns on power to Printing Press and components.
2	Control Light	Lights when power is supplied to Printing Press.
3	Delivery Blackout Light Switch	Allows delivery light to be turned off during blackout conditions.

2-2. OPERATOR'S CONTROLS AND INDICATORS (CONT)



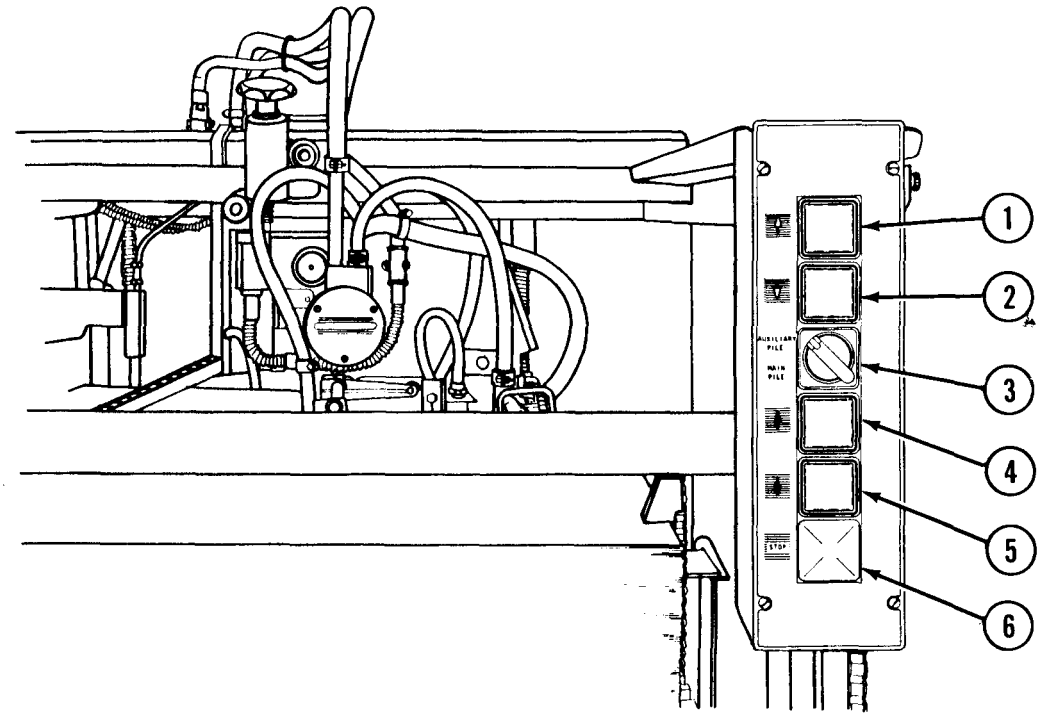
Key	Control or Indicator	Function
1	**Air Adjustment Valves**	Increase or decrease amount of separation and transport air.
2	**Star-Shaped Handle**	Raises or lowers suction head for proper height adjustment of paper pile.
3	**Locking Handle**	Releases suction head for positioning. Once positioned, locks suction head in place.

2-2. OPERATOR'S CONTROLS AND INDICATORS (CONT)



Key	Control or Indicator	Function
1	**Forwarding Sucker Alinement Adjustment Knob**	Adjusts alinement of sheet for proper forwarding.
2	**Forwarding Sucker Height Adjustment Knob**	Raises or lowers forwarding suckers to proper height.
3	**Lifting Sucker Height Adjustment Knob**	Raises or lowers lifting suckers to proper height.

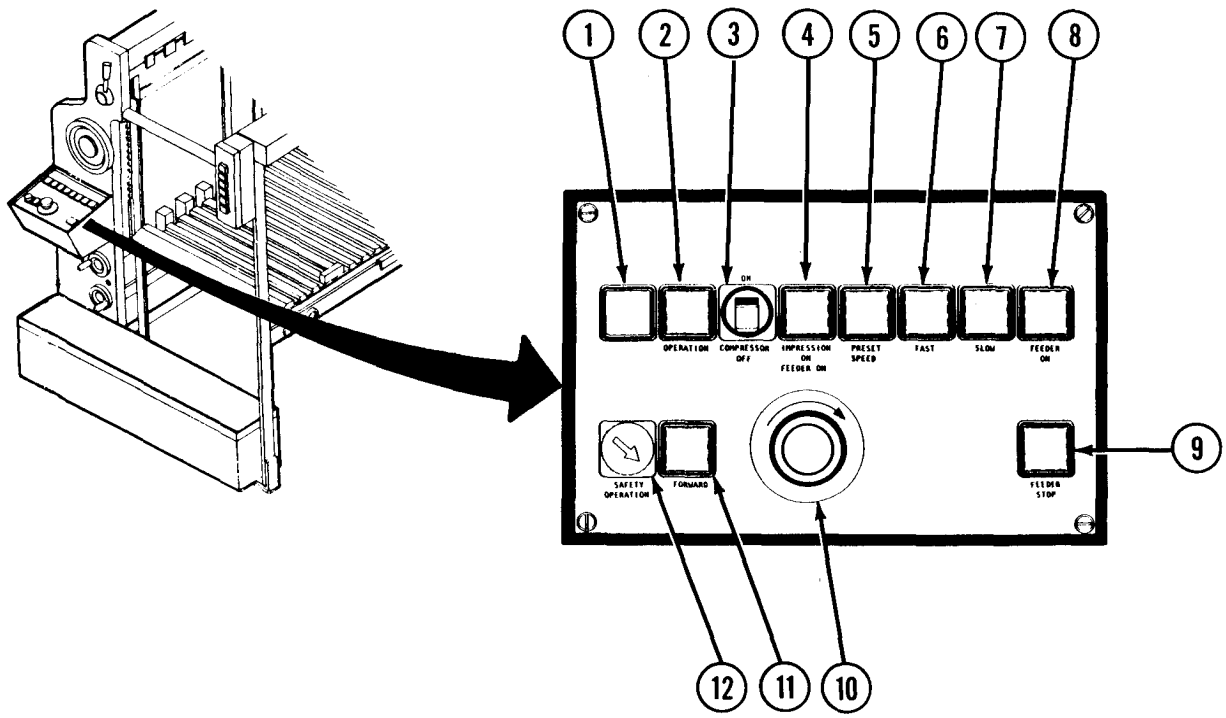
2-2. OPERATOR'S CONTROLS AND INDICATORS (CONT)



Key	Control or Indicator	Function
		NOTE
	Feeder pile cannot be raised or lowered when safety stop pushbutton is pressed.	
1	**Auxiliary Pile Up Pushbutton**	Moves pile up when AUXILIARY PILE/MAIN PILE selector switch is in AUXILIARY PILE position.
2	**Auxiliary Pile Down Pushbutton**	Moves pile down when AUXILIARY PILE/MAIN PILE selector switch is in AUXILIARY PILE position.
3	**AUXILIARY PILE/MAIN PILE Selector Switch**	Activates AUXILIARY PILE or MAIN PILE.
4	**Main Pile Up Pushbutton**	Moves pile up when AUXILIARY PILE/MAIN PILE selector switch is in MAIN PILE position. Must be pressed and held.

2-2. OPERATOR'S CONTROLS AND INDICATORS (CONT)

Key	Control or Indicator	Function
5	**Main Pile Down Pushbutton**	Moves pile down when AUXILIARY PILE/MAIN PILE selector switch is in MAIN PILE position.
6	**Pile** STOP **Pushbutton**	Stops downward motion of feeder pile board.

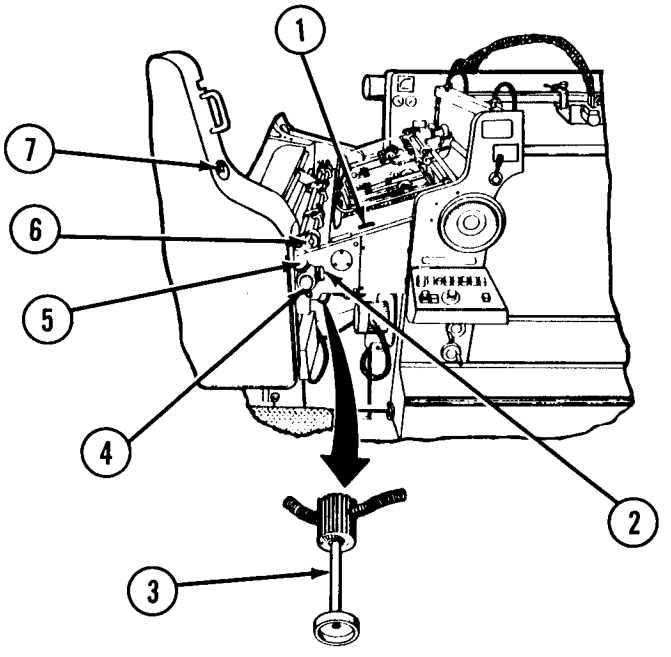


Key	Control or Indicator	Function
1	**Control Light**	Lights when power is supplied to Printing Press.
2	**OPERATION Pushbutton**	Turns on Printing Press. When SAFETY/ OPERATION knob is in the OPERATION position, Printing Press will run only at idle speed, approximately 2000 impressions per hour (IPH).

2-2. OPERATOR'S CONTROLS AND INDICATORS (CONT)

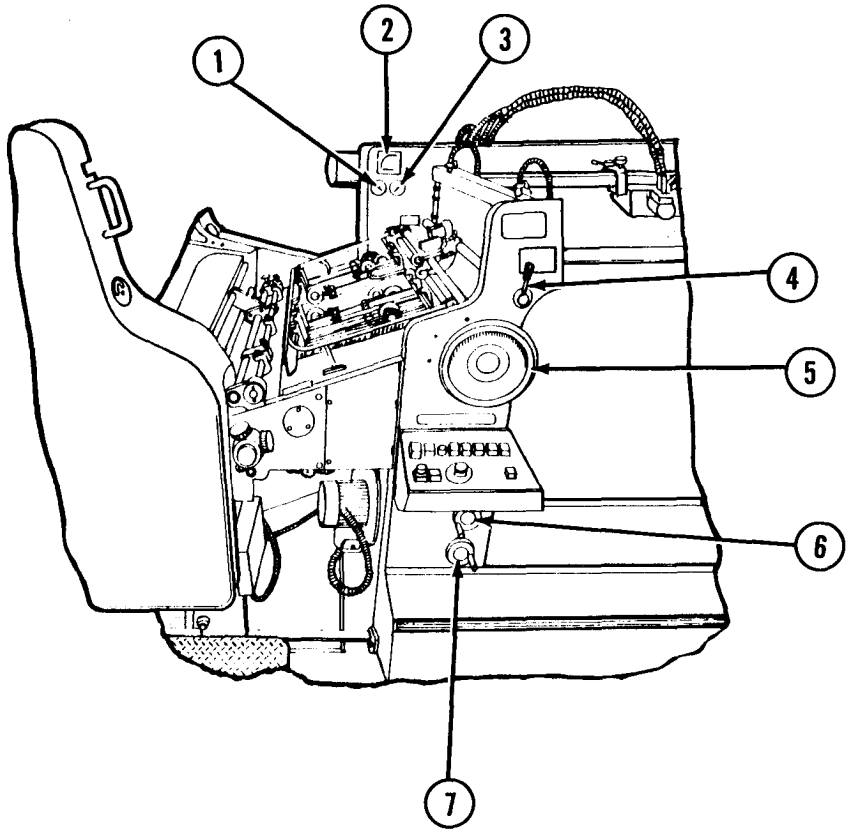
Key	Control or Indicator	Function
3	**COMPRESSOR ON/OFF Toggle Switch**	Turns compressor ON and OFF.
4	**IMPRESSION ON/FEEDER ON Pushbutton**	Turns ON impression and engages feeder.
	NOTE Feeder must be in operation before PRESET SPEED pushbutton is pressed.	
5	**PRESET SPEED Pushbutton**	Automatically increases speed of Printing Press to preset speed.
6	**FAST Pushbutton**	Increases Printing Press speed when pushbutton is pressed and held. Feeder must be engaged.
7	**SLOW Pushbutton**	Decreases Printing Press speed when pushbutton is pressed and held.
8	**FEEDER ON Pushbutton**	Engages feeder when pushbutton is held for one complete revolution of cylinders.
9	**FEEDER STOP Pushbutton**	Stops feeder when pushbutton is pressed.
10	**Safety Stop Pushbutton**	Stops all functions of Printing Press. Printing Press cannot be restarted until pushbutton is turned in direction of arrow and unlocked.
11	**FORWARD Pushbutton**	Inches Printing Press forward when pressed and quickly released. SAFETY/OPERATION knob must be moved to SAFETY position to allow this pushbutton to operate.
12	**SAFETY/OPERATION Knob**	Allows Printing Press to be inched when in SAFETY position. Allows Printing Press to run normally when in OPERATION position.

2-2. OPERATOR'S CONTROLS AND INDICATORS (CONT)



Key	Control or Indicator	Function
1	**Feeder Table Suction Air Valve**	Activates suction air at feeder table and acts as lock-down device for sheet smoother.
2	**Gripper Margin Knurled Adjustment Screw**	Provides adjustment for gripper margin.
3	**Suction Air Valve**	Increases or decreases amount of suction air supplied to front lay suction device and feeder table.
4	**Knurled Lock Screw**	Loosens or locks front lay height adjustment screw and gripper margin knurled adjustment screw.
5	**Front Lay Height Adjustment Screw**	Provides adjustment for height clearance of front lays.
6	**Microadjustment Ratchet Ring**	Provides microadjustment of side guide.
7	**Water Feed Adjustment Handwheel**	Adjusts distance of dampening fountain roller rotation.

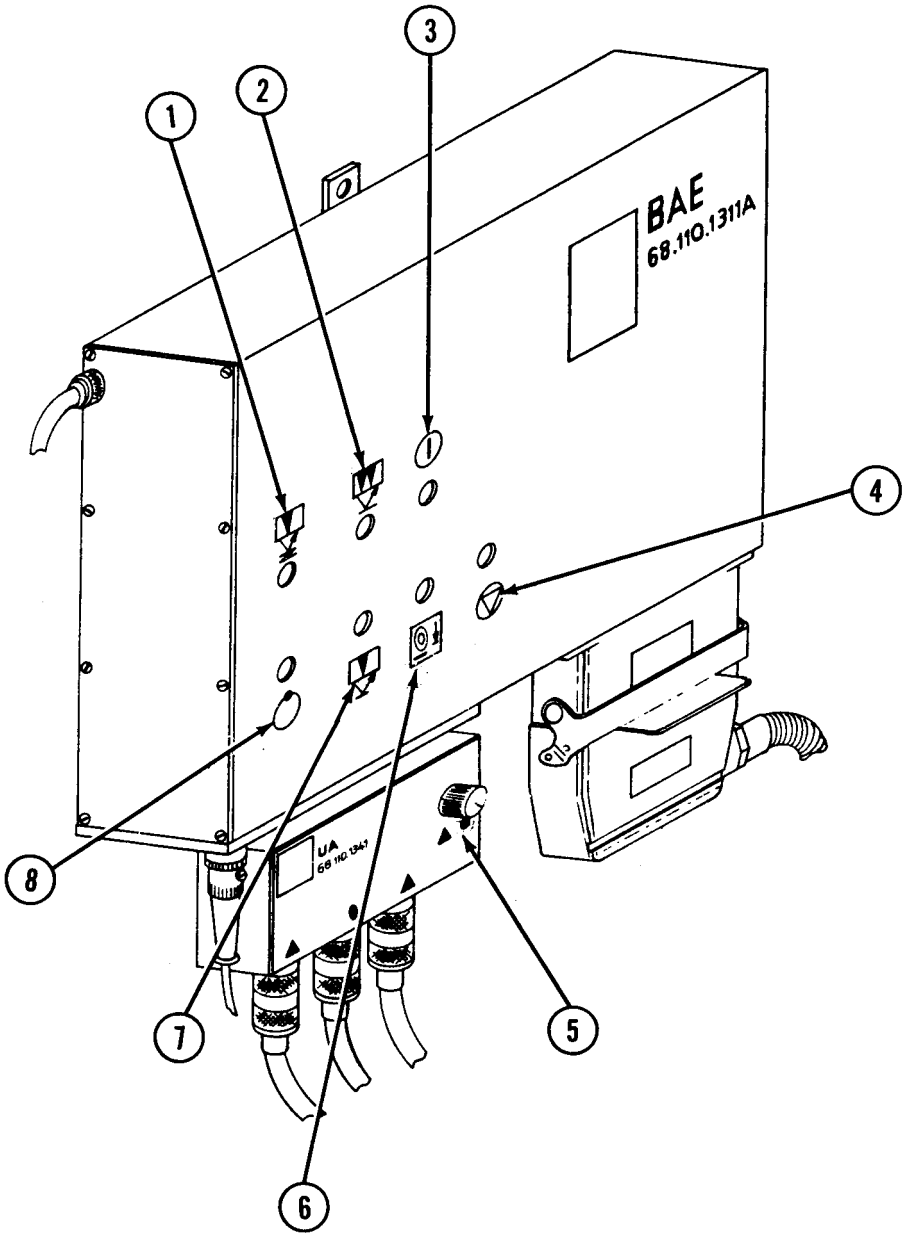
2-2. OPERATOR'S CONTROLS AND INDICATORS (CONT)



Key	Control or Indicator	Function
1	**Air Blast Gage**	Shows air pressure being delivered to feeder.
2	**Impressions Per Hour Gage**	Shows speed of Printing Press in impressions per hour (IPH).
3	**Vacuum Gage**	Shows vacuum pressure being drawn from suction head.
4	**Air Supply Control Lever**	Controls airflow at feeder. Turns off airflow when placed in right position. Turns on airflow at sheet separation air blowers when in center position. Turns on airflow at both sheet separation air blowers and suction head when in left position.

2-2. **OPERATOR'S CONTROLS AND INDICATORS (CONT)**

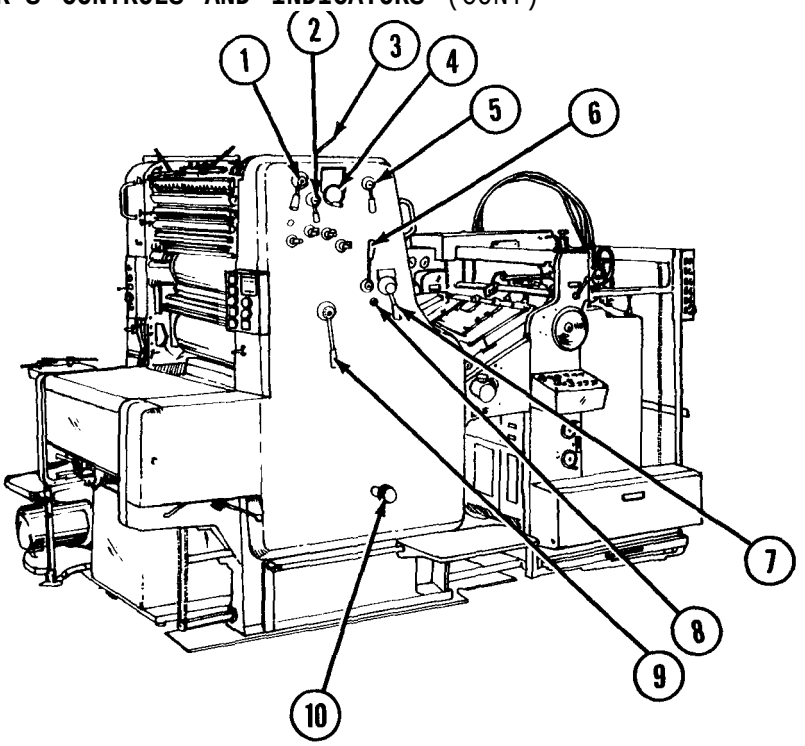
Key	Control or Indicator	Function
5	**Feeder Handwheel**	Turns feeder when in pulled-out position. Has no function when pushed in.
6	**Operator Side Standard Handwheel**	Adjusts side standard on operator side of Printing Press.
7	**Drive Side Standard Handwheel**	Adjusts side standard on drive side of Printing Press.



2-2 . OPERATOR'S CONTROLS AND INDICATORS (CONT)

Key	Control or Indicator	Function
1	 **Adjustment Indicator**	Lights when sheet alinement control signals are fed into electronic sheet feed control in logical sequence. Lights with sheet alinement control indicator.
2	 **Early Sheet Control Indicator**	Lights as long as detector of at least one light barrier recognizes sheet of paper.
3	 **Operation Indicator**	Lights as soon as electronic sheet feed control is ready for operation.
4	 **Malfunction Indicator**	Lights when feeder is stopped or a fault has been recognized by electronic sheet feed control.
5	 **Electronic Sheet Detector Control Knob**	When turned to ▲,inside light barrier activates for sheets smaller than 29-1/2 in. When turned to ●, outside light barriers activate for sheets larger than 29-1/2 in.
6	 **Impression Indicator**	Lights when Printing Press is prepared to go on impression and preset speed has not yet been activated.
7	 **Sheet Alinement Control Indicator**	Lights as long as detector of at least one light barrier recognizes sheet of paper. Lights with adjustment indicator.
8	 **Timing of the Control Disk Indicator**	Lights when cutout of control disk passes control switch, once per each cylinder revolution.

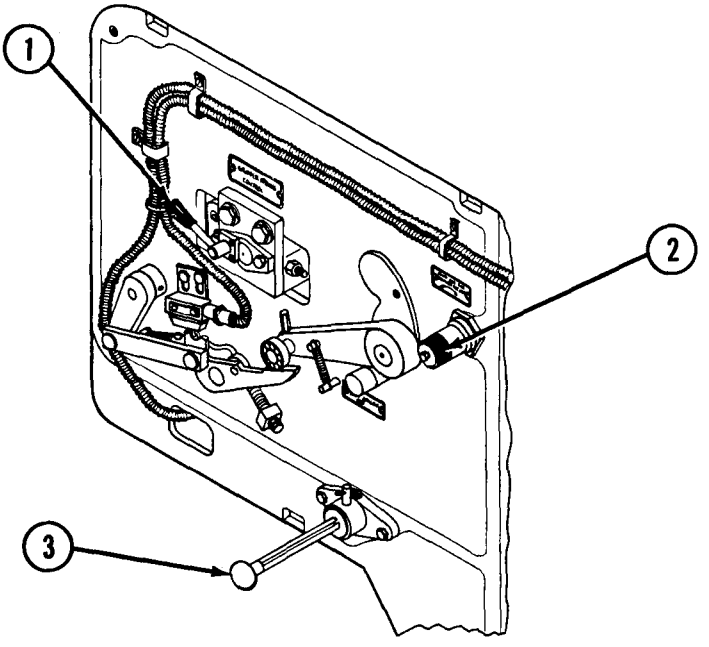
2-2. OPERATOR'S CONTROLS AND INDICATORS (CONT)



Key	Control or Indicator	Function
1	**Ink Fountain Roller Ratchet**	Manually turns ink fountain roller.
2	**Ink Supply Lever**	Controls ink supply. Has three positions: ON, AUTO, OFF.
3	**Manual Inking Roller Handle**	Releases manual inking roller for manual ink-up operations.
4	**Ink Feed Adjustment Handwheel**	Adjusts distance of ink fountain roller rotation.
5	**Dampening Fountain Solution Supply Lever**	Controls dampening fountain solution supply. Has three positions: ON, AUTO, OFF.
6	**Dampening Form Roller Control Lever**	Manually engages dampening form rollers to plate.
7	**Dampening Fountain Roller Ratchet**	Manually turns dampening fountain roller.

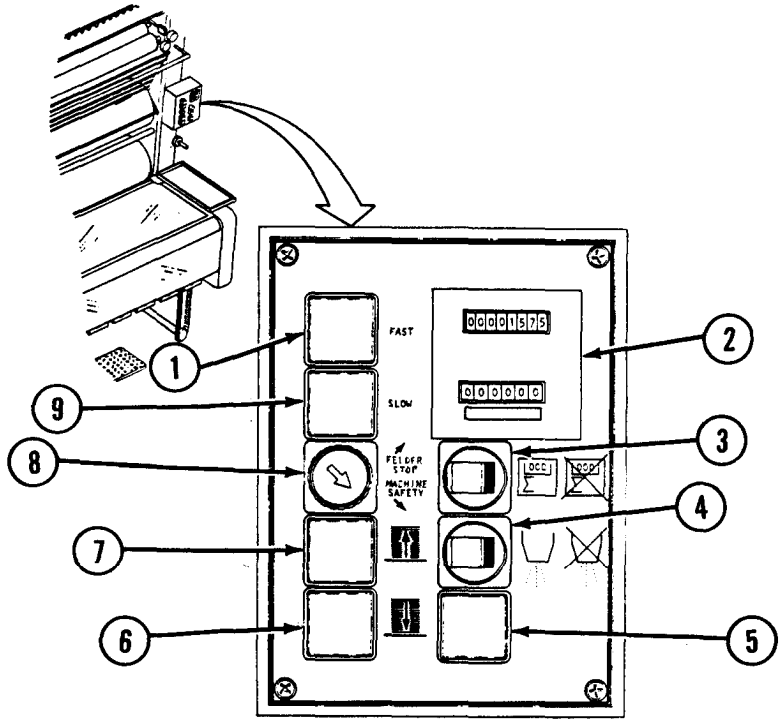
2-2. OPERATOR'S CONTROLS AND INDICATORS (CONT)

Key	Control or Indicator	Function
8	**Dampening Form Roller Lockout Lever**	Manually locks dampening form rollers off plate.
9	**Inking Form Roller Control Lever**	Manually engages inking form rollers to plate. Also allows inking form rollers to be locked off while Printing Press is on impression.
10	**SUCTION ROLLER MOVEMENT Knob**	Adjusts rear sheet stops for length of paper.



Key	Control or Indicator	Function
1	**GRIPPER OPENING CONTROL**	Adjusts distance sheet is pulled into delivery area before release from delivery gripper bars.
2	**Air Blast Adjustment Knob**	Adjusts amount of air supplied to delivery air blast pipes.
3	**Delivery Side SHEET JOGGERS**	Adjust delivery side SHEET JOGGERS to width of sheets on delivery pile board.

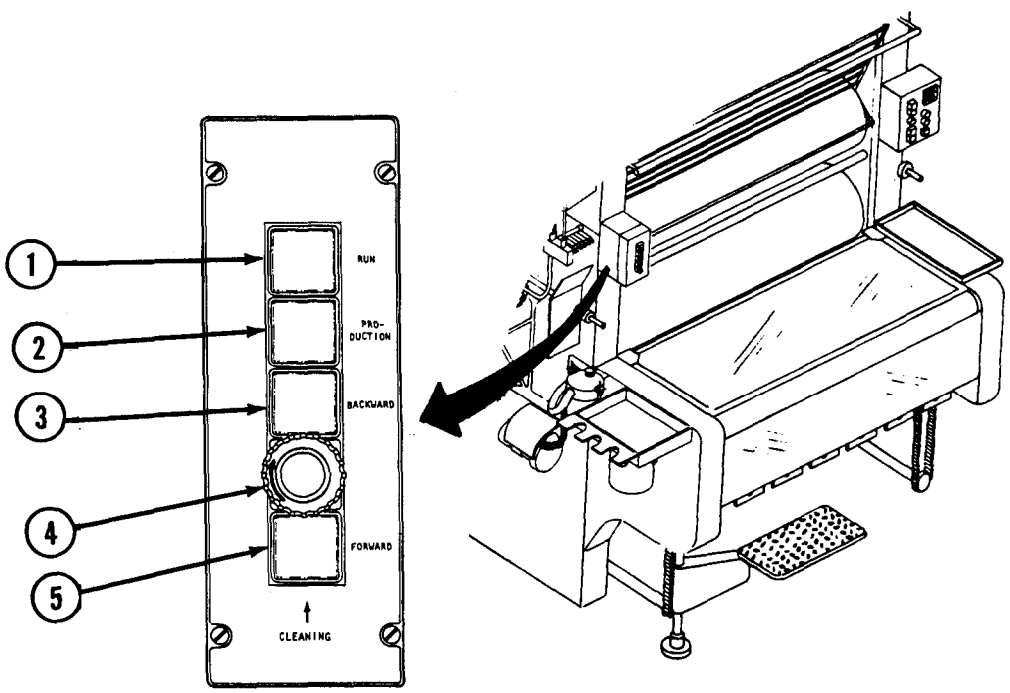
2-2. OPERATOR'S CONTROLS AND INDICATORS (CONT)



Key	Control or Indicator	Function
1	**FAST Pushbutton**	Increases Printing Press speed when pushbutton is pressed and held. Feeder must be engaged.
2	**Sheet Counter**	Counts number of impressions made by Printing Press during operation. Upper portion counts number of total impressions made on Printing Press and cannot be reset. Lower portion counts impressions completed during each run and has reset button below it.
3	**Sheet Counter On/Off Toggle Switch**	Turns sheet counter on or off as necessary.

2-2. OPERATOR'S CONTROLS AND INDICATORS (CONT)

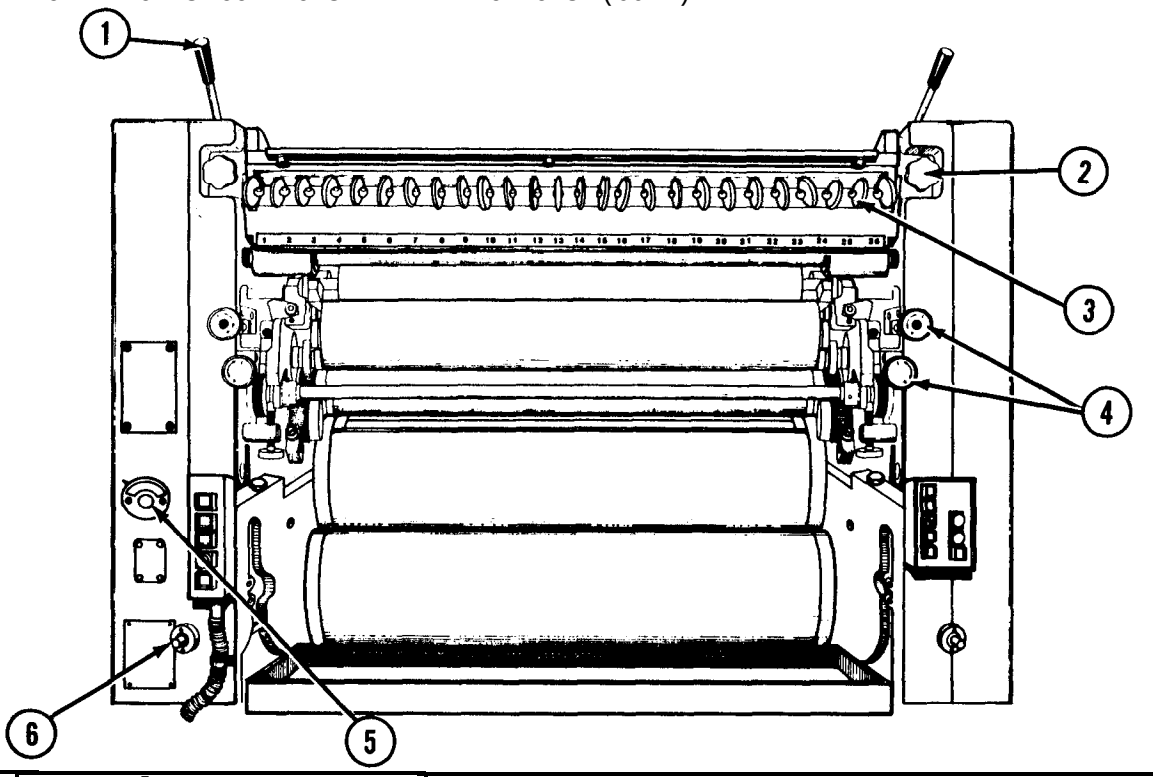
Key	Control or Indicator	Function
4	**Powder Spray Unit On/Off Toggle Switch**	Not in use on this Printing Press.
5	**Indicator Light**	Not in use on this Printing Press.
6	**Pile Down Pushbutton**	Lowers delivery pile board when pushbutton is pressed and held.
7	**Pile Up Pushbutton**	Raises delivery pile board when pushbutton is pressed and held.
8	**FEEDER STOP/MACHINE SAFETY Knob**	Slows Printing Press to idle and turns off feeder when in FEEDER STOP position. Allows Printing Press to be inched when in MACHINE SAFETY position.
9	**SLOW Pushbutton**	Decreases Printing Press speed when pushbutton is pressed and held.



2-2. OPERATOR'S CONTROLS AND INDICATORS (CONT)

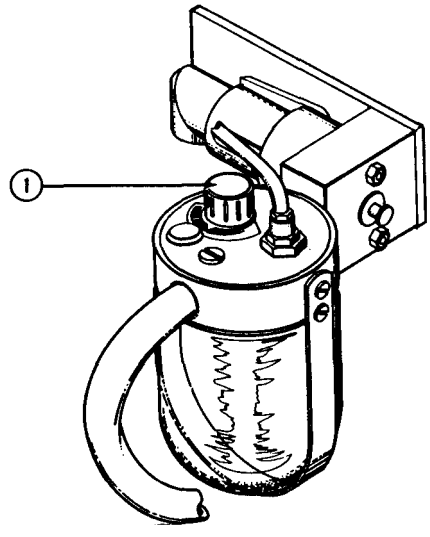
Key	Control or Indicator	Function
1	**RUN Pushbutton**	Starts Printing Press and runs at idle speed.
2	**PRODUCTION Pushbutton**	Engages feeder and returns Printing Press to preset speed to resume production. Printing Press must be running with pushbutton pressed for one revolution of cylinder. Used when paper is in front lays, air is on, and Printing Press is otherwise operational. Also used to resume production from a temporary stop.
		NOTE PRODUCTION pushbutton is not for use when restarting after an early/late/missed sheet.
3	**BACKYARD Pushbutton**	Inches Printing Press in reverse. FEEDER STOP/MACHINE SAFETY knob must be in MACHINE SAFETY position to activate this pushbutton.
4	**Safety Stop Pushbutton**	Stops all functions of Printing Press. Printing Press cannot be restarted until pushbutton is turned in direction of arrow and unlocked.
5	**FORWARD Pushbutton**	Inches Printing Press forward when pressed and quickly released. SAFETY/OPERATION knob must be moved to SAFETY position to allow this pushbutton to operate.

2-2. OPERATOR'S CONTROLS AND INDICATORS (CONT)

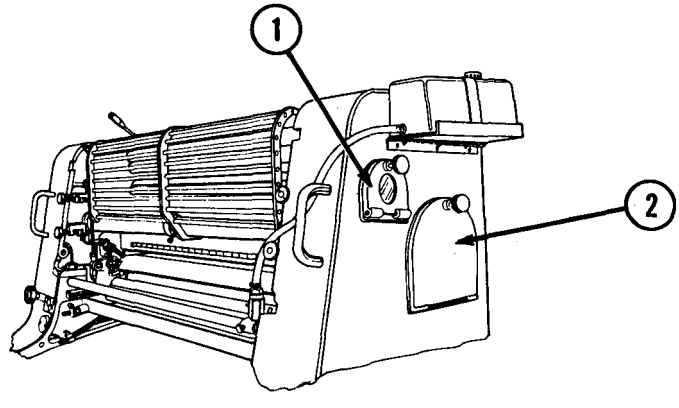


Key	Control or Indicator	Function
1	**Ink Fountain Roller Ratchet**	Manually turns ink fountain rollers.
2	**Fountain Lockout Knob**	Locks fountain in position.
3	**Ink Fountain Keys**	Adjust ink flow to ink fountain roller.
4	**Inking Form Roller Adjustments Screws**	Adjust pressure of inking form rollers against plate. Each inking form roller has two color-coded adjustments, one on operator side and one on drive side.
		NOTE For quality printing, adjust blanket-to-impression cylinder pressure to 0.003 in. (0.008 cm) when paper is present.
5	**CENTRAL LUBRICATION Plunger**	Allows lubrication of operator side of Printing Press and forces oil into oil metering pistons. Hums when pushed.
6	**Blanket-to-Impression Cylinder Microscale**	Indicates adjustment of blanket-to-impression cylinder pressure.

2-2. OPERATOR'S CONTROLS AND INDICATORS (CONT)

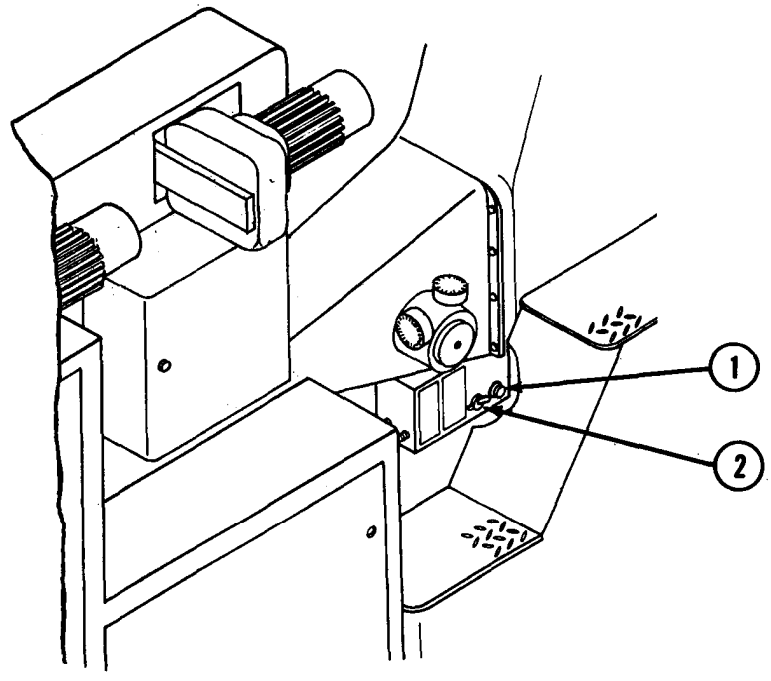


Key	Control or Indicator	Function
1	**Anti-Offset Spray Control**	Not in use on this Printing Press.



Key	Control or Indicator	Function
1	**SETTING OF LATERAL INK DISTRIBUTION**	Indicates amount of lateral movement of oscillator rollers.
2	**CIRCUMFERENTIAL REGISTER ADJUSTMENT**	Indicates distance and direction of plate cylinder swing.

2-2. OPERATOR'S CONTROLS AND INDICATORS (CONT)



Key	Control or Indicator	Function
1	**Indicator Light**	Lights when static eliminator bar is in operation.
2	**Static Eliminator Switch**	Activates static eliminator bar.

Section II. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

2-3. GENERAL. The TSS Press Section Printing Press must be inspected regularly to find and correct defects and to perform regular services to keep it operational.

a. Before You *Operate.* Always keep in mind the CAUTIONS and WARNINGS. Perform your before (B) operation PMCS.

b. *While You Operate.* Always keep in mind the CAUTIONS and WARNINGS. Perform your during (D) operation PMCS.

c. After You Operate. Be sure to perform your after (A) operation PMCS.

d. *If Your Equipment Fails to Operate.* Troubleshoot with the proper equipment. Report any deficiencies using the proper forms. See DA PAM 738-750.

2-4. PMCS PROCEDURES

a. Your Preventive Maintenance Checks and Services table lists the inspections and care of your equipment required to keep it in good operating order.

b. Checks and services are numbered in chronological order regardless of interval. Use this column as a source of item numbers for the "TM Number" column on DA Form 2404, Equipment Inspection and Maintenance Worksheet, in recording results of PMCS.

c. The interval column of your PMCS table tells you when to do a certain check or service.

d. Perform weekly as well as before operation PMCS if:

(1) You are the assigned operator and have not operated the Printing Press since the last weekly PMCS.

(2) You are operating the Printing Press for the first time.

e. The item to be inspected and procedure column of your PMCS table identifies the item by name and tells you how to do the required checks and services. Carefully follow these instructions. If you do not have the tools, or if the procedure tells you to, have organizational maintenance do the work.

f. If your equipment does not perform as required, refer to chapter 3 under Troubleshooting for possible problems. Report any malfunctions or failures on DA Form 2404, or refer to DA PAM 738-750.

g. Instructions for removal of assemblies or equipment in order to perform PMCS. None required.

2-5. **EQUIPMENT IS NOT READY/AVAILABLE IF: PROCEDURES.** This column tells you when and why your equipment cannot be used.

NOTE

The terms *ready/available* and *mission capable* refer to the same status: Equipment is on hand and is able to perform its combat mission. (See DA PAM 738-750.)

Table 2-1. Preventive Maintenance Checks and Services

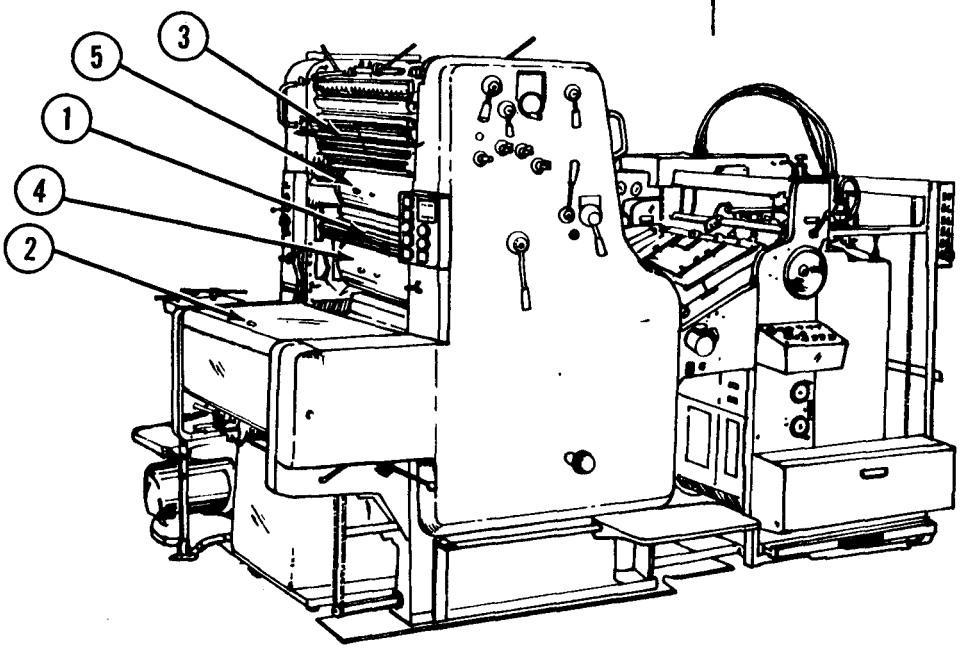
B—Before Operation D–During Operation A—After Operation
W–Weekly M–Monthly S–Semiannually

Item No.	Interval						Item to be Inspected Procedure	Equipment Is Not Ready/ Available If
	B	D	A	W	M	S		
1	•		•				**TOPOGRAPHIC SUPPORT SYSTEM** PRESS SECTION PRINTING PRESS. Visually inspect entire Printing Press, moving in 360-degree circle around Printing Press from feeder table, to ensure all areas are free of tools, rags, and foreign materials. Ensure all red thumbscrews are unlocked. Check for proper oil level at compressor. Rotate oil filter valve two to three times. Check for tampering or damage since last inspection. Inspect visible wiring and electrical components for damage. Audibly inspect. Operate Printing Press for three revolutions by inching forward and listening for unusual sounds.	Parts are damaged or missing. Wiring is frayed or electrical components are damaged. There are unusual sounds (grinding, humming noises, etc.).

Table 2-1. Preventive Maintenance Checks and Services (Cent)

B - Before Operation D - During Operation A - After Operation
W - Weekly M - Monthly S - semiannually

Item No.	Interval						Item to be Inspected Procedure	Equipment Is Not Ready/ Available If:
	B	D	A	W	M	S		
2	•						SAFETY DEVICES	



WARNING

EXPOSED MOVING PARTS. All adjustments will be made while Printing Press is on SAFETY STOP except those authorized by this manual to be made with Printing Press running. Printing Press must be on safe at all times when not in motion. Always shout “clear" and wait for "clear” response before taking Printing Press off safe to inch or run. Failure to follow this warning may result in serious injury.

WARNING

EXPOSED MOVING PARTS. Do not inch Printing Press and wipe cylinder at the same time. Return Printing Press to SAFETY STOP after each inching. Failure to do so may result in serious injury.

Table 2-1. Preventive Maintenance Checks and Services (Cont)

B - Before Operation D - During Operation A - After Operation
W - Weekly M - Monthly S - semiannually

Item No.	Interval						Item to be Inspected Procedure	Equipment Is Not Ready/ Available If:
	B	D	A	W	M	S		
							WARNING EXPOSED MOVING PARTS. Remove all jewelry. Keep shirts tucked in, sleeves above elbows, and ties removed. Failure to observe these precautions while operating Printing Press may result in serious injury.	
(cont)	●						a. Cylinder Safety Spindle (1). Press spindle down. Printing Press should not inch.	Cylinder safety spindle is inoperable or missing.
							b. Delivery Safety Glass Door (2). Lift up. Printing Press should not inch.	Delivery safety glass door is inoperable or missing.
							c. Safety Gate (Delivery End) (3). Pull down. Printing Press should not inch.	Safety gate is inoperable or missing.
							d. Blanket Cylinder Guard (4). Ensure guard is installed.	Blanket cylinder guard is inoperable or missing.
							e. Plate Cylinder Guard (5). Ensure guard is installed.	Plate cylinder guard is inoperable or missing.

Table 2-1. Preventive Maintenance Checks and Services (Cent)

B - Before Operation D - During Operation A - After Operation
W - Weekly M - Monthly S - Semiannually

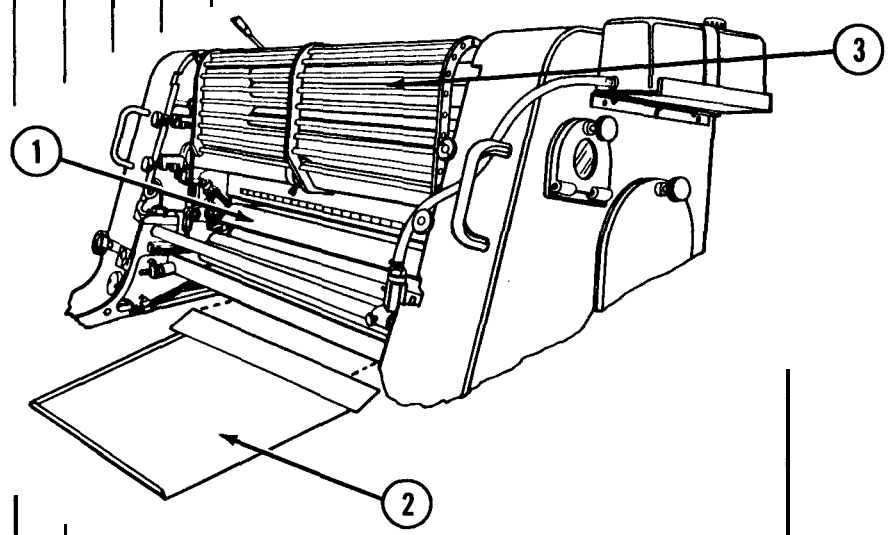
Item No.	Interval						Item to be Inspected Procedure	Equipment Is Not Ready/ Available If:
	B	D	A	W	M	S		
								
2 (Cont)	•						f. Plate Guard (1). Lift up. Printing Press should not inch.	Plate guard is inoperable or missing.
							g. Register Drum and Impression Cylinder Cover (2). Ensure cover is installed.	Register drum and impression cylinder cover is inoperable or missing.
							h. Safety Gate (Feeder End) (3). Lift up. Printing Press should not inch.	Safety gate is inoperable or missing.
3		l					SUCTION HEAD. Check for worn or frayed hoses and ensure suckers are soft and flexible.	
				•			a. Inspect lifting suckers for cleanliness and damage. Clean (para 3-10). Replace (para 3-10).	Suckers are damaged.

Table 2-1. Preventive Maintenance Checks and Services (Cont)

B - Before Operation D - During Operation A - After Operation
W - Weekly M - Monthly S - Semiannually

Item No.	Interval						Item to be Inspected Procedure	Equipment Is Not Ready/ Available If:
	B	D	A	W	M	S		
3 (Cont)				●			b. Inspect forwarding suckers for cleanliness or damage. Clean (para 3-11). Replace damaged suckers (para 3-11).	Suckers are damaged.
					●		c. Inspect suction head valve. Clean (para 3-13). Remove and inspect all section head hoses. Clean (para 3-12).	Valve channels are blocked.
4							FEEDER TABLE	
		●					a. Check all roller wheels, brush wheels, and cage balls to ensure they rotate freely. Inspect feeder tapes for signs of wear and tightness. If worn, replace (para 3-15).	

Table 2-1. Preventive Maintenance Checks and Services (Cont)

B–Before Operation D—During Operation A—After Operation
W–Weekly M–Monthly S–Semiannually

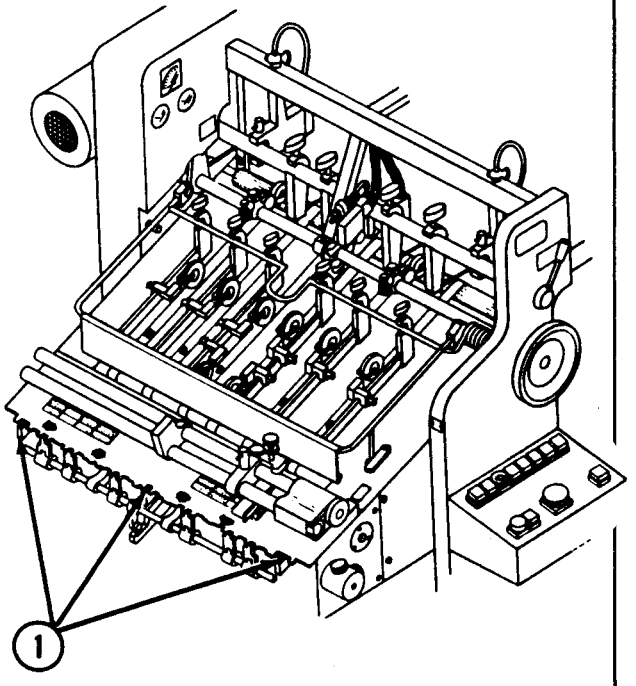
Item No.	Interval						Item to be Inspected Procedure	Equipment Is Not Ready/ Available If:
	B	D	A	W	M	S		
								
4 (Cont)				•			b. Inspect light barriers (1). Clean light barriers with cotton swab dipped in lens cleaner (appendix D, item 11).	Light barriers are damaged.
5							CYLINDERS	
	•		•				a. Ensure plate cylinder is lightly oiled.	
	•						b. Ensure blanket is tight on cylinder.	

Table 2-1. Preventive Maintenance Checks and Services (Cont)

B—Before Operation D—During Operation A—After Operation
W–Weekly M–Monthly S–Semiannually

Item No.	Interval						Item to be Inspected Procedure	Equipment Is Not Ready/ Available If
	B	D	A	W	M	S		
5 (Cont)			•				c. Inspect bearers for cleanliness, nicks, and dents. Use damp rag to soften gum residue. Use rag and lithographic solvent (appendix D, item 60) to clean bearers. Wipe dry with clean rag. Apply thin coat of oil (appendix D, item 42) for rust protection.	Bearers are damaged.
				•			d. Clean blanket with damp rag, deglazing solution and lithographic solvent (appendix D, items 57 and 60).	
6							INKING ASSEMBLY	
	•						a. Lock ink fountain in position. Ensure ink fountain roller turns freely.	
	•						b. Check ink fountain blade for dents, nicks, or raised areas from keys. If necessary, back off fountain keys.	Ink fountain blade has dents or nicks.
		•					c. Ensure ink fountain keys turn freely.	Ink fountain keys will not turn.
			•				d. Check all ink rollers for cleanliness and condition.	Ink rollers are damaged.

Table 2-1. Preventive Maintenance Checks and Services (Cent)

B - Before Operation D - During Operation A - After Operation
W - Weekly M - Monthly S - semiannually

Item No.	Interval						Item to be Inspected Procedure	Equipment Is Not Ready/ Available If:
	B	D	A	W	M	S		
7							**DAMPENING ASSEMBLY**	
	•						a. Ensure all rollers and dampening fountain are clean and roller covers are free of wrinkles.	
		•					b. Inspect hoses and dampening solution container for cracks or leakage.	Hoses or container leaks.
							CAUTION Dampening form roller rubber caps should be used during washup to keep roller bearings dry.	
			•				c. Clean rollers and dampening fountain with water and detergent (appendix D, item 14). Replace worn covers (para 3-5).	
							CAUTION Clean filter carefully. Careless cleaning may result in poor feeder and delivery performance due to insufficient air supply and may damage filters.	
							CAUTION Filter should be cleaned more frequently during multiple-shift operation or when operating in dusty conditions.	
8				•			**COMPRESSOR FILTERS.** Inspect for cleanliness and damage. Remove cover and lift out filter inserts. Clean (para 3-16). Replace damaged filters (para 3-16).	

Table 2-1. Preventive Maintenance Checks and Services (Cont)

B - Before Operation D - During Operation A - After Operation
W - Weekly M - Monthly S - semiannually

Item No.	Interval						Item to be Inspected Procedure	Equipment Is Not Ready/ Available If:
	B	D	A	W	M	S		

WARNING

ELECTRICAL SHOCK. Static electricity is retained in static eliminator bar for up to 2 hours after power is turned off. Touching static eliminator bar while charged may result in injury from electrical shock.

9				•			**STATIC ELIMINATOR BAR.** Inspect for cleanliness. Use firm brush (appendix D, item 5) to clean bar. Do not use solvents or fluids.	
10					•		**DUST CATCHER FILTER.** Inspect for cleanliness and damage. Clean (para 3-6).	
11						•	**FOUNTAIN SOLUTION CONTAINER.** Unhook strap holding container and remove container from shelf. Wash container with water and detergent (appendix D, item 14). Flush container and hose thoroughly with clean water.	

Section III. OPERATION UNDER USUAL CONDITIONS

INDEX

2-6. ASSEMBLY AND PREPARATION FOR USE. The Topographic Support System Press Section Printing Press does not require unpackaging, assembly, or installation instructions other than those covered in TM 5-3610-287-10, Operator's Maintenance Manual for Topographic Support System Press Section.

2-7. OPERATING PROCEDURES

a. Perform Before Operation PMCS (Table 2-1)

b. Prepare Paper Cycle

INITIAL SETUP

Tools

0.10 mm Feeler gage (appendix B, section III, item 12)
Yardstick/meterstick (appendix D, item 67)
Curved pin wrench (appendix B, section III, item 41)
5 mm Hex key (appendix B, section III, item 20)
Long-handle flat-tip screwdriver (appendix B, section III, item 32)
U-shape special wrench (appendix B, section III, item 46)
Suction air adjustment key (appendix B, section III, item 21)

Materials

Map paper (appendix D, item 42)

2-7. OPERATING PROCEDURES (CONT)

b. Prepare Paper Cycle (Cont)

General Safety Instructions

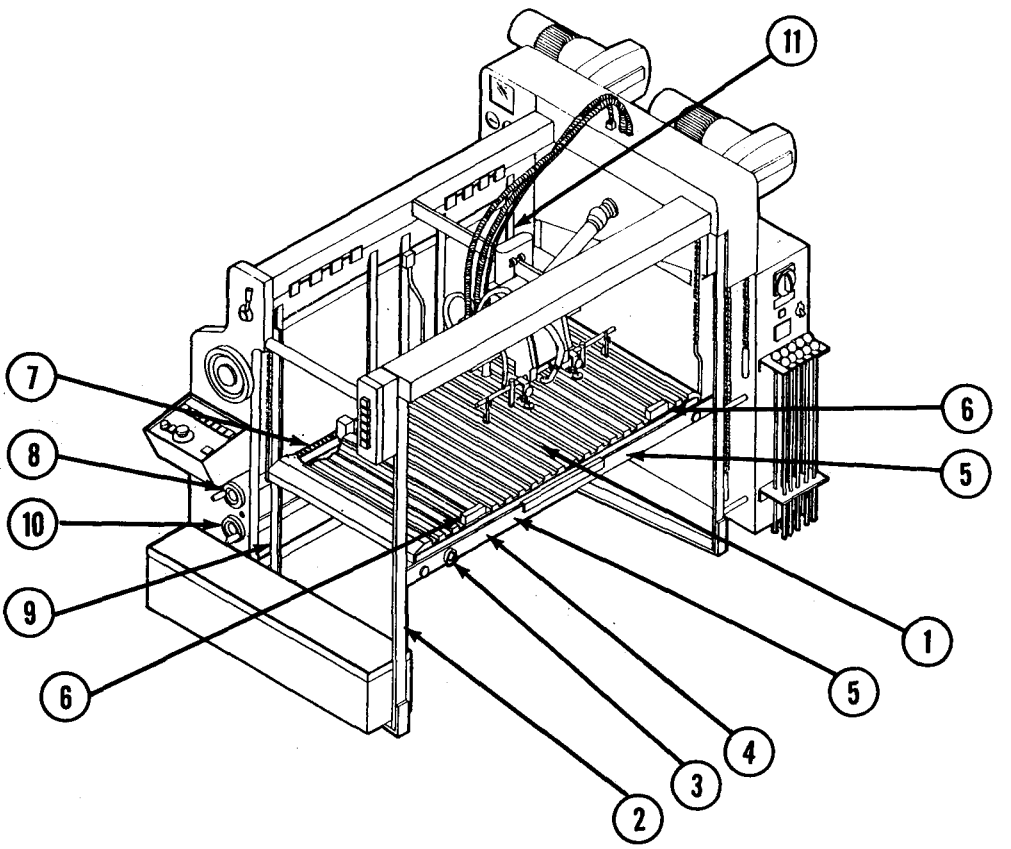
WARNING

- EXPOSED MOVING PARTS. All adjustments will be made while Printing Press is on SAFETY STOP except those authorized by this manual to be made with Printing Press running. Printing Press must be on safe at all times when not in motion. Always shout “clear” and wait for “clear" response before taking Printing Press off safe to inch or run. Failure to follow this warning may result in serious injury.

- EXPOSED MOVING PARTS. Remove all jewelry. Keep shirts tucked in, sleeves above elbows, and ties removed. Failure to observe these precautions while operating Printing Press may result in serious injury.

- ELECTRICAL SHOCK. Static electricity is retained in static eliminator bar for up to 2 hours after power is turned off. Touching static eliminator bar while charged may result in injury from electrical shock.

(1) Prepare Feeder



2-7. OPERATING PROCEDURES (CONT)

b. Prepare Paper Cycle (Cont)

(a) Install feeder pile board (1) between side rails (2).

(b) Insert pin wrench into knurled knob (3) and turn to left to unlock guide rail (4).

(c) Move guide rail (4) laterally and center between two split pins (5).

(d) Turn knurled knob (3) to right to lock into position.

(e) Insert two wooden rear spacers (6) between guide rail (4) and feeder pile board (1) to prevent shifting.

(f) Measure sheet of paper.

(g) Locate upper scale (7) and operator side standard handwheel (8). Using handwheel, position operator side standard (9) on scale that matches sheet size.

(h) Place sheet on feeder pile board (1) flush against front and side of operator side standard (9).

(i) Turn drive side standard handwheel (10) and move drive side standard (11) to within 1/16 inch of sheet edge on drive side.

(j) Remove sheet and position front spacers evenly between side standards and center space.

NOTE

- Check stock for imperfections and foreign material.
- If not in nonstop feed mode, leave nonstop feeder bar off.

(k) Remove nonstop feeder bar.

NOTE

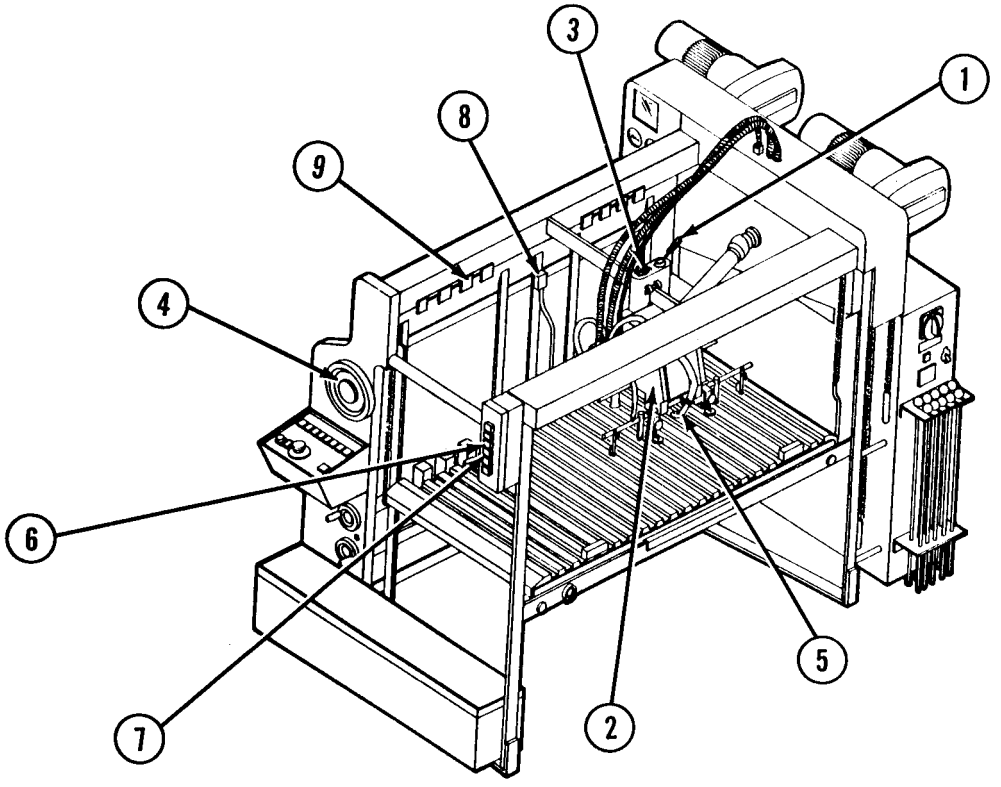
Wedges can be used to level paper pile.

(l) Prepare and load stock.

2-7. OPERATING PROCEDURES (CONT)

b. Prepare Paper Cycle (Cont)

(2) Prepare Suction Head



WARNING

EXPOSED MOVING PARTS. All adjustments will be made while Printing Press Is on SAFETY STOP except those authorized by this manual to be made with Printing Press running. Printing Press must be on safe at all times when not in motion. Always shout “clear’* and wait for “clear”’ response before taking Printing Press off safe to inch or run. Failure to follow this warning may result in serious injury.

NOTE

During setup procedures, use the safety device (SAFETY/OPERATION knob or FEEDER STOP/MACHINE SAFETY knob) only in the area where you are working.

(a) Loosen locking handle (1) and move suction head (2) over center of paper pile.

2-7. OPERATING PROCEDURES (CONT)

b. Prepare Paper Cycle (Cont)

(b) Tighten locking handle (1).

(c) Turn star-shaped handle (3) on top of suction head (2) to left to move suction head to its lowest position.

(d) Pull feeder handwheel (4) outward and turn to right until governor foot (5) is at its highest position.

(e) Set AUXILIARY PILE/MAIN PILE selector switch (6) to MAIN PILE position.

(f) Take Printing Press off safe. Press and hold main pile up pushbutton (7) to raise paper pile until it stops at transfer switch (8).

(g) To raise paper pile automatically, turn feeder handwheel to left until governor foot (5) is in its lowest position.

(h) Loosen locking handle (1) and move suction head (2) until red mark on governor foot (5) is alined with rear edge of paper pile.

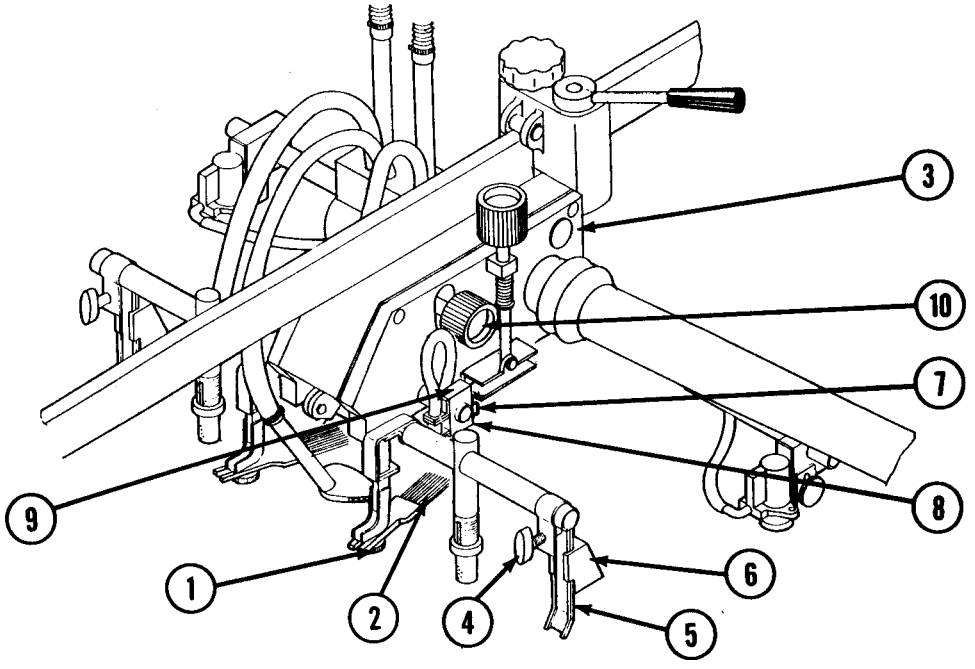
(i) Tighten locking handle (1).

(j) Turn feeder handwheel (4) to left until front flaps (9) are in vertical position and governor foot (5) is in its lowest position. Push in feeder handwheel (4) to disengage.

(k) Turn star-shaped handle (3) on top of suction head (2) to right until paper pile rises to a point 3/16 to 5/16 in. (0.48 to 0.79 cm) below top of front flaps (9). Put Printing Press on safe.

2-7. OPERATING PROCEDURES (CONT)

b. Prepare Paper Cycle (Cont)



NOTE

Sheet separation springs may be used instead of brushes. They are positioned in same manner.

(1) Loosen lockscrews (1), extend sheet separation brushes (2) 1/16 to 3/16 in. (0.15 to 0.48 cm) onto paper pile, and angle toward suction head (3). Set sheet separation brushes (2) to apply light pressure on paper pile.

(m) Tighten lockscrews (1).

(n) Loosen thumbscrews (4) and slide sheet stops (5) laterally to a point 2 to 4 in. (5.1 to 10.2 cm) in from edge of sheet.

2-7. OPERATING PROCEDURES (CONT)

b. Prepare Paper Cycle (Cont)

(o) Aline sheet stops (5) parallel to and 1/64 in. (0.08 cm) away from rear edge of paper pile. Allow plastic weights (6) to rest lightly on top of paper pile.

(p) Tighten thumbscrews (4).

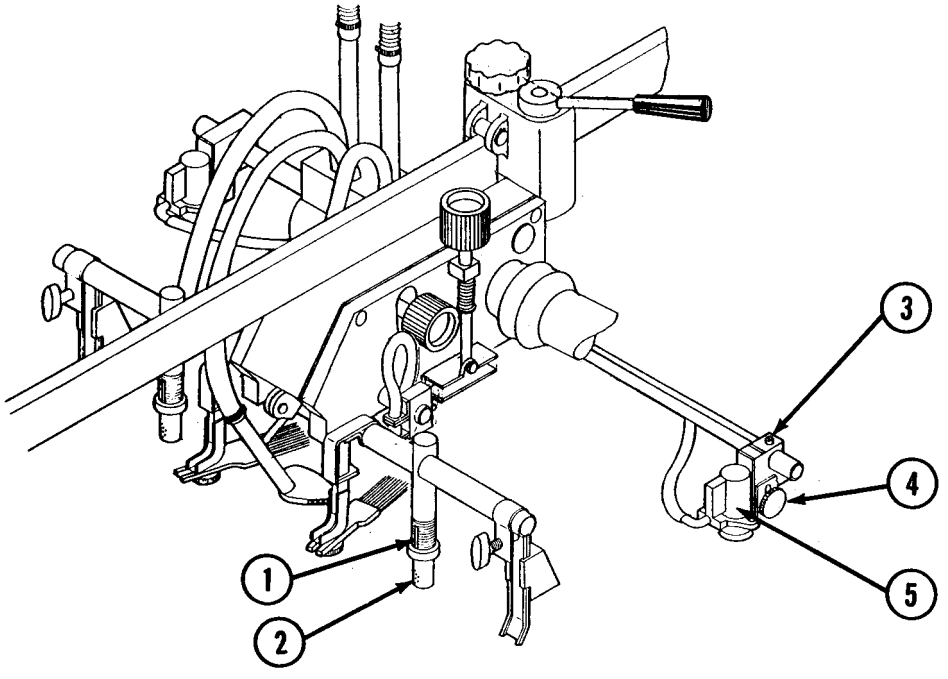
(q) Loosen socket head screws (7) and aline lifting suckers (8) with groove in guide rail (9). Use indicator marks to adjust both suckers in same manner.

(r) Tighten socket head screws (7).

NOTE

Distance from bottom of lifting suckers to top of paper pile can be adjusted while Printing Press is running. Maximum distance should be maintained to prevent feeding two sheets at a time.

(s) Set lifting sucker height adjustment knob (10) at midway point.



(t) Turn knurled adjustment ring (1) to raise or lower air tubes (2) 1/8 to 3/16 in. (0.33 to 0.48 cm) below top of paper pile to separate top 6 to 10 sheets of paper pile.

2-7. OPERATING PROCEDURES (CONT)

b. Prepare Paper Cycle (Cont)

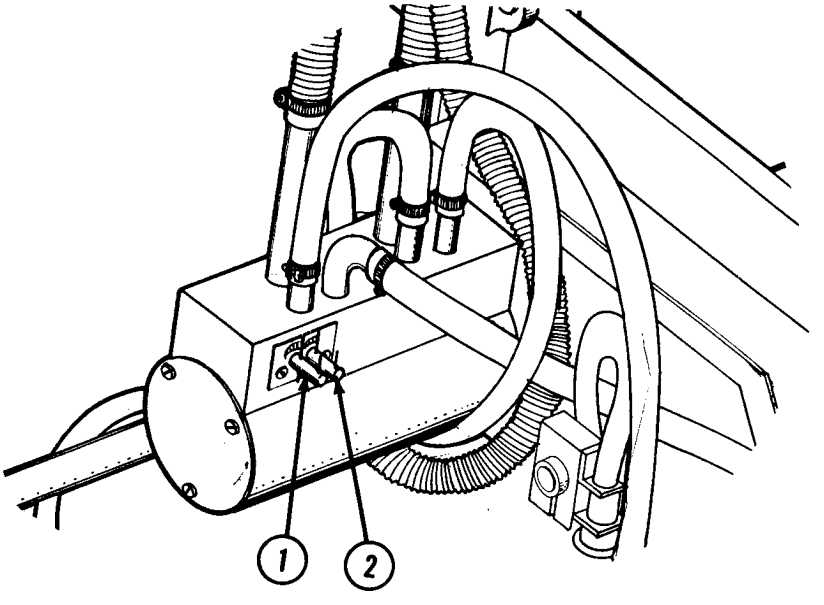
NOTE

Drop height of forwarding suckers should be from 1/8 to 3/16 in. (0.33 to 0.48 cm) and can be checked while Printing Press is running. Maximum height should be maintained to prevent double sheeting.

(u) Loosen socket head screw (3) and position forwarding suckers (4) halfway from edge of paper pile to center point of paper pile.

(v) Aline white indicator mark on top of sucker mechanism with groove in shaft and tighten socket head screw (3).

(w) Set sucker height knurled adjustment knob (5) to first position from top.



NOTE

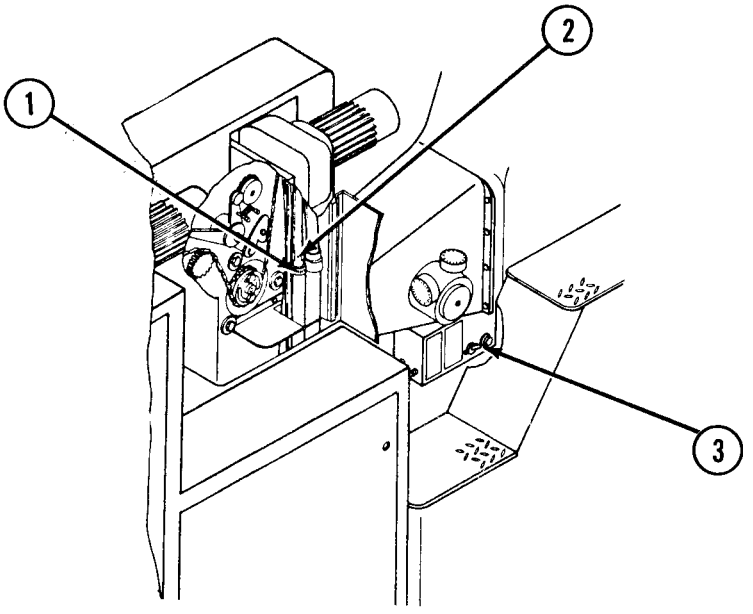
Air and vacuum gages are located on drive side of Printing Press and are preset for normal operation. Vacuum can be reduced in case of sheet marking by bleeding air at hose connection.

(x) Set separation air adjustment valve (1), providing blast for sheet separation air blowers, to setting 1 on valve housing scale.

(y) Set transport air adjustment valve (2), providing air blast for governor foot, between settings 1 and 2 on valve housing scale.

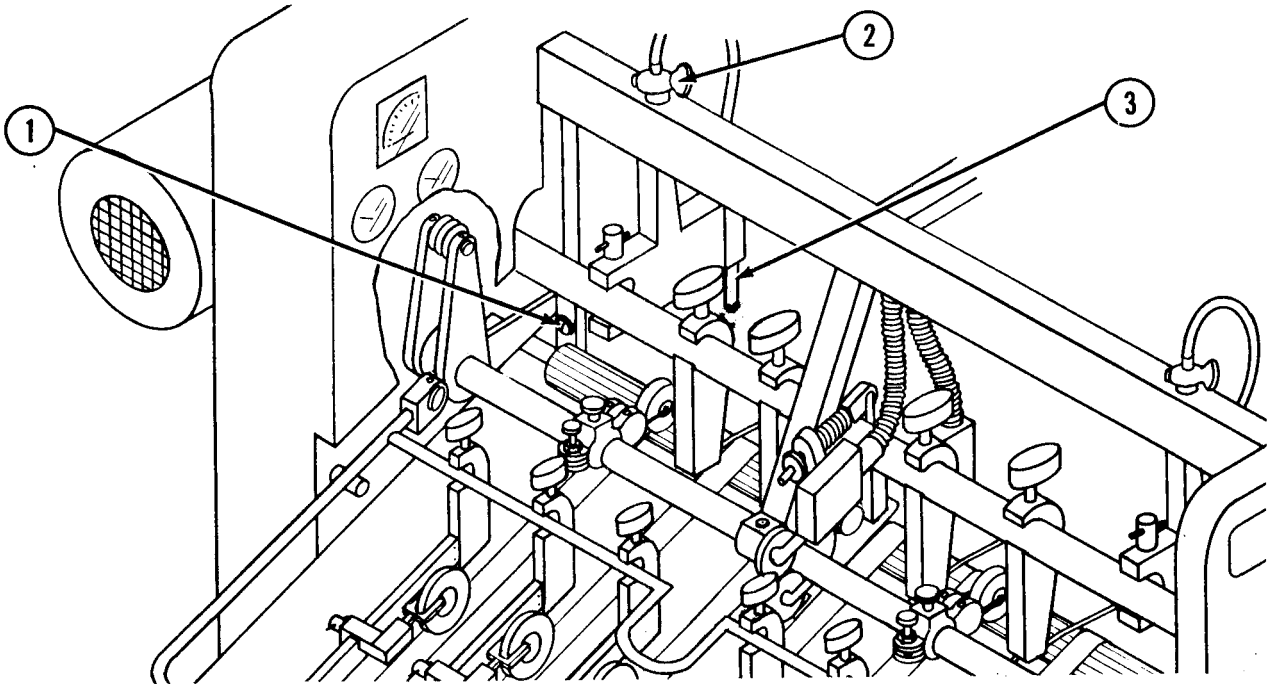
2-7. OPERATING PROCEDURES (CONT)

b. Prepare Paper Cycle (Cont)



(z) Open feeder timing door and adjust clamp (1) to cover half of hole on bleed hose (2).

(aa) Turn static eliminator switch (3) to ON.



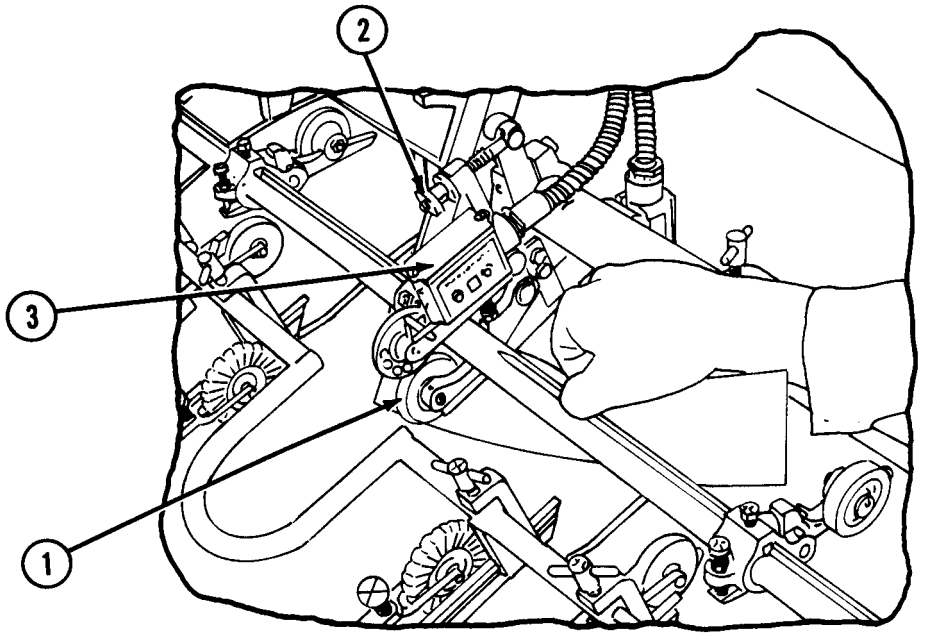
2-7. OPERATING PROCEDURES (CONT)

b. Prepare Paper Cycle (Cont)

(bb) Adjust air blast for front sheet edge by turning valve (1) until slot in head is in vertical position for maximum blast.

(cc) Open lateral sheet separation valve (2) and adjust lateral sheet separators (3) as required (depending on size of paper being used).

(3) Prepare Double Sheet Detector and Electronic Sheet Detector



(a) Obtain four strips of paper 3 by 12 in. (7.62 by 30.48 cm) of same thickness as paper in feeder.

NOTE

Ensure that the SAFETY/OPERATION button is turned to the OPERATION position.

(b) Take Printing Press off safe. Press OPERATION pushbutton to start Printing Press.

(c) Press FEEDER ON pushbutton to engage feeder.

2-7. OPERATING PROCEDURES (CONT)

b. Prepare Paper Cycle (Cont)

NOTE

The double sheet detector must be adjusted to pass three sheets and prevent the passage of four sheets.

(d) Insert three thicknesses of paper below lower detector wheel (1).

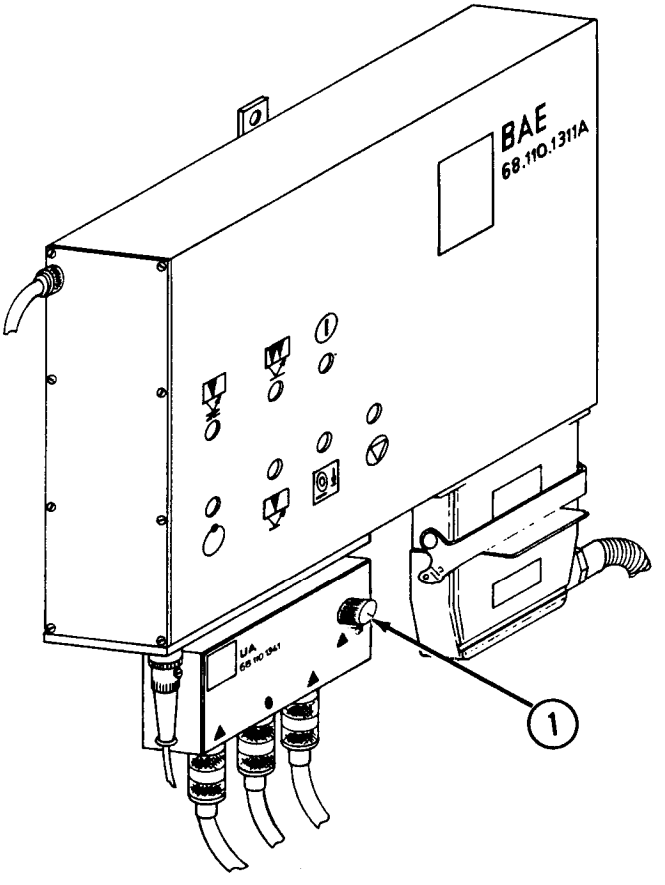
(e) Turn knurled adjustment knob (2) to left to lower detector wheel (1) until feeder disengages.

(f) Turn knurled adjustment knob (2) 1/4 turn to right to raise detector wheel (1).

(g) Repeat steps (c) through (f) above until double sheet detector (3) permits three thicknesses of paper to pass under detector wheel with feeder engaged.

(h) Insert four thicknesses of paper under detector wheel. Feeder must disengage.

(i) Put Printing Press on safe.



2-7. OPERATING PROCEDURES (CONT)

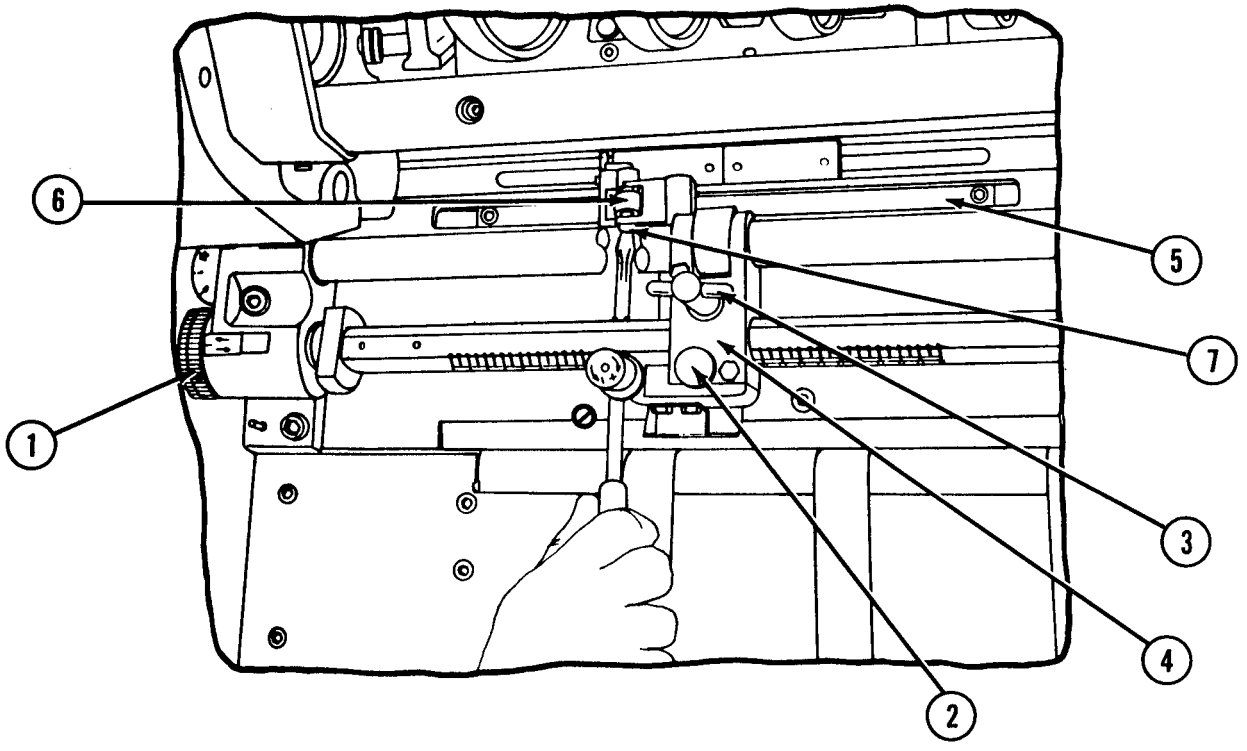
b. Prepare Paper Cycle (Cont)

NOTE

The electronic sheet detector has two positions. When the control knob is turned to ▲, the center light is activated for sheets smaller than 29-1/2 in. (74.93 cm). When the control knob is turned to ●, the two outside lights are activated for sheets larger than 29-1/2 in. (74.93 cm). This setting may vary if pile is shifted to one side or the other.

(j) Set control knob (1) for appropriate sheet size.

(4) Prepare Register Mechanism



(a) Turn microadjustment ratchet ring (1) to center microadjustment.

(b) Press and turn disengaging knob (2) 90 degrees to lock pulling wheel and guide plate in up position.

(c) Loosen thumbscrew (3) to unlock side guide (4) and move side guide to same setting as on scale at side standard. Tighten thumbscrew.

2-7. OPERATING PROCEDURES (CONT)

b. Prepare Paper Cycle (Cont)

NOTE

The height of the side guide cover plate must be adjusted properly to ensure consistent registration. If the cover plate is too high, the sheet has too much clearance. If the cover plate is too low, the sheet may not be pulled completely to the stop.

(d) Slide all cover plates out from under side guide stop.

(e) Press and turn disengaging knob (2) 90 degrees to lower pulling wheel and guide plate.

WARNING

EXPOSED MOVING PARTS. All adjustments will be made while Printing Press is on SAFETY STOP except those authorized by this manual to be made with Printing Press running. Printing Press must be on safe at all times when not in motion. Always shout “clear” and wait for “clear” response before taking Printing Press off safe to inch or run. Failure to follow this warning may result in serious injury.

(f) Take Printing Press off safe and inch until side guide stop is in down position.

(g) put Printing Press on safe. Slide cover plate in recessed channel to a position 1/32 in. (0.08 cm) away from side guide stop.

(h) Distribute remaining cover plates evenly to guide sheet safely over recessed channels.

(i) Take Printing Press off safe and inch until side guide pulling racks (5) move one-half their travel distance from center toward outer side of Printing Press.

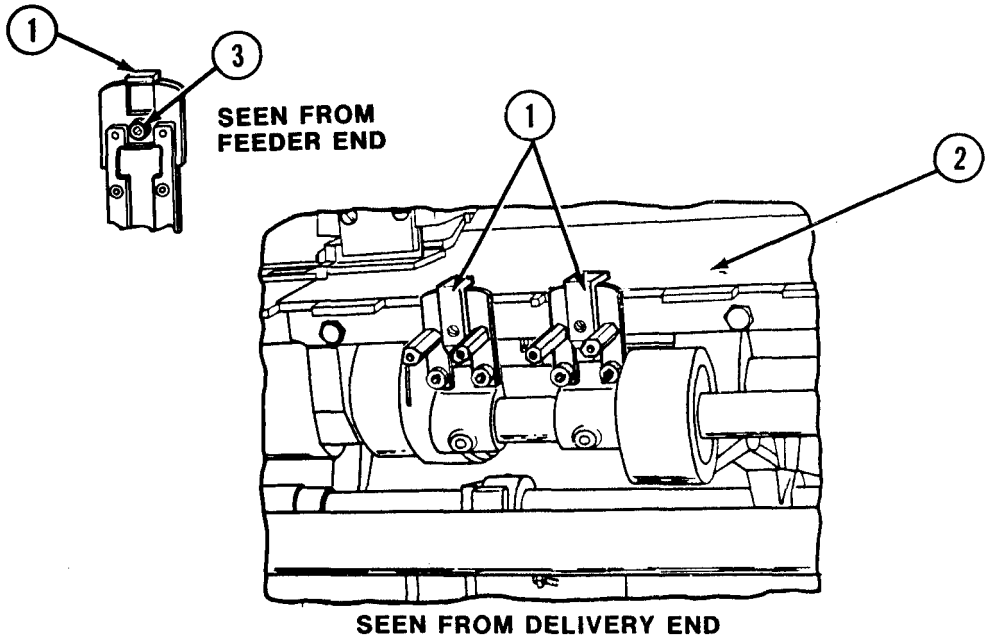
(j) put Printing Press on safe. Obtain a strip of paper 0.004 by 1/4 by 6 in. long (0.11 by 0.64 by 15.24 cm). Insert paper between pulling wheel (6) and stop plate. Turn adjustment screw (7) until slight drag is felt on piece of paper as it is moved under pulling wheel (6). Turn adjustment screw (7) slightly until no drag is felt.

2-7. OPERATING PROCEDURES (CONT)

b. Prepare Paper Cycle (Cont)

(k) Set suction air valve, located under feeder table, to fourth position from left.

(l) Set front lay height adjustment screw to zero on both sides of Printing Press.



(m) Take Printing Press off safe and inch until front lays (1) are in their lowest position over feeder table.

(n) Put Printing Press on safe. Insert 0.10 mm feeler gage between front lays (1) and feeder table (2). If feeler gage is snug in front lay, proceed to paragraph 2-7b (5). If not, proceed to step (o).

(o) Take Printing Press off safe and inch until socket head screw (3) is accessible. Loosen socket head screw (3).

(p) put Printing Press on safe. Lift front lay (1) high enough to allow feeler gage to be inserted.

(q) Finger tighten socket head screw (3).

(r) Take Printing Press off safe and inch until front lays are again in their lowest position.

2-7. OPERATING PR0CEDURES (CONT)

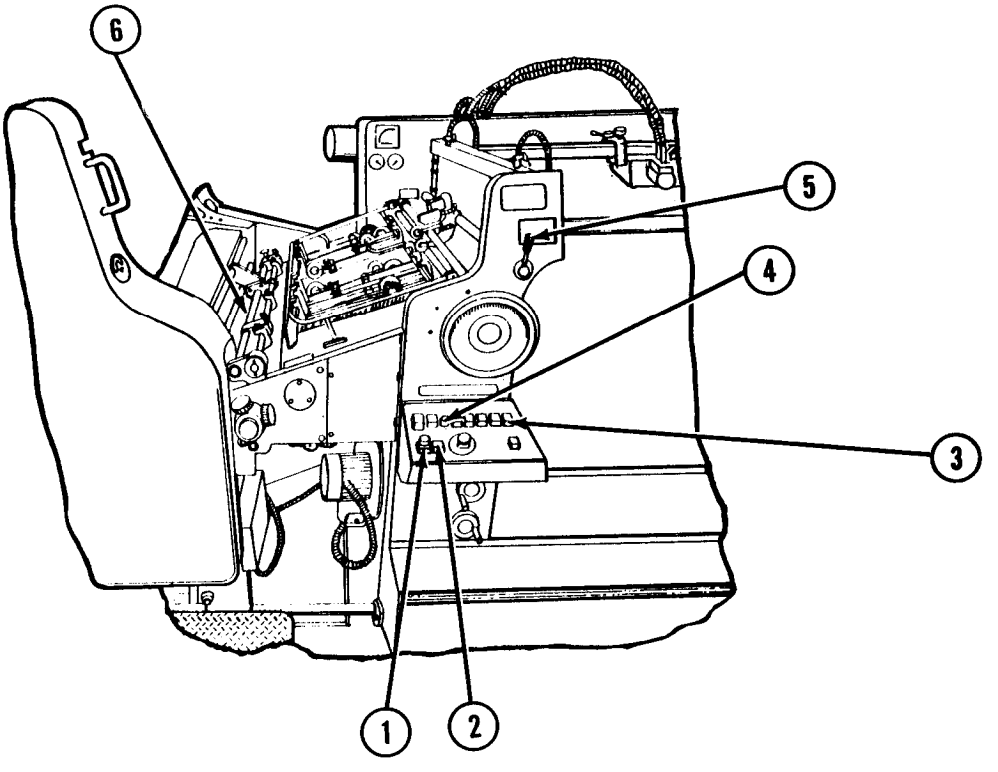
b. Prepare Paper Cycle (Cont)

(s) Put Printing Press on safe. Insert 0.10 mm feeler gage under front lay (1) and tap on front lay until tight. Take printing Press off safe and inch until socket head screw (3) is accessible.

(t) Put Printing Press on safe. Tighten socket head screw (3).

(u) Reset front lay height adjustment screw if thickness of paper being used is greater than 0.004 in. (0.10 mm).

(5) Prepare Sheet Smoother



(a) Press and turn SAFETY/OPERATION button (1) to SAFETY position to set Printing Press for inching.

(b) Take Printing Press off safe. Press and hold FORWARD pushbutton (2).

(c) Press FEEDER ON pushbutton (3) to engage feeder.

2-7. OPERATING PROCEDURES (CONT)

b. Prepare Paper Cycle (Cont)

WARNING

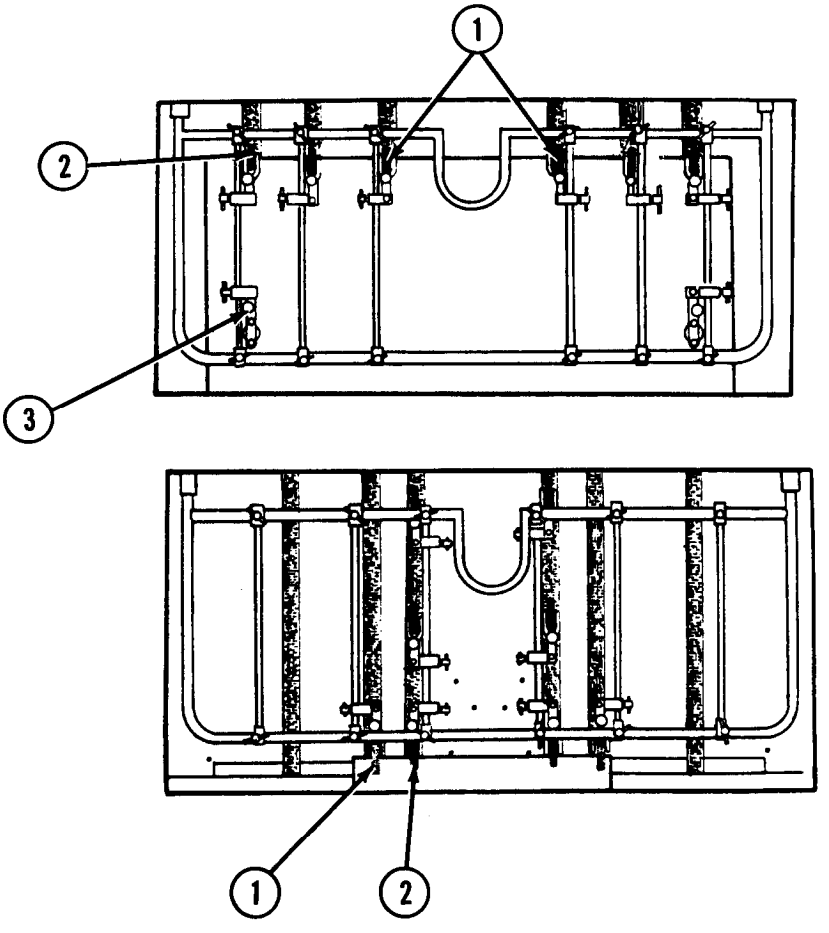
ELECTRICAL SHOCK. Static electricity is retained in static eliminator bar for up to 2 hours after power is turned off. Touching static eliminator bar while charged may result in injury from electrical shock.

(d) Move COMPRESSOR ON/OFF toggle switch (4) to ON position.

(e) Move air supply control lever (5) to left position, lift three sheets, and move lever back to right position.

(f) Continue to inch sheets forward until first sheet reaches front lays (6).

(g) Move COMPRESSOR ON/OFF toggle switch (4) to OFF position.



2-7. OPERATING PROCEDURES (CONT)

NOTE

Placement of roller wheels, brush wheels, and cage balls depends upon sheet size being run. Illustrations above show distribution of components for largest and smallest sheet sizes that can be run on this Printing Press. If paper stock is curled, more wheels may be used to ensure smooth delivery to front lays.

(h) Put Printing Press on safe. Set brush wheels (1) to position just off rear edge of sheet 1/32 to 1/16 in. (0.08 to 0.16 cm) and rotate brushes to ensure they have light, even tension.

(i) Position roller wheels (2) as needed and check for light, even tension.

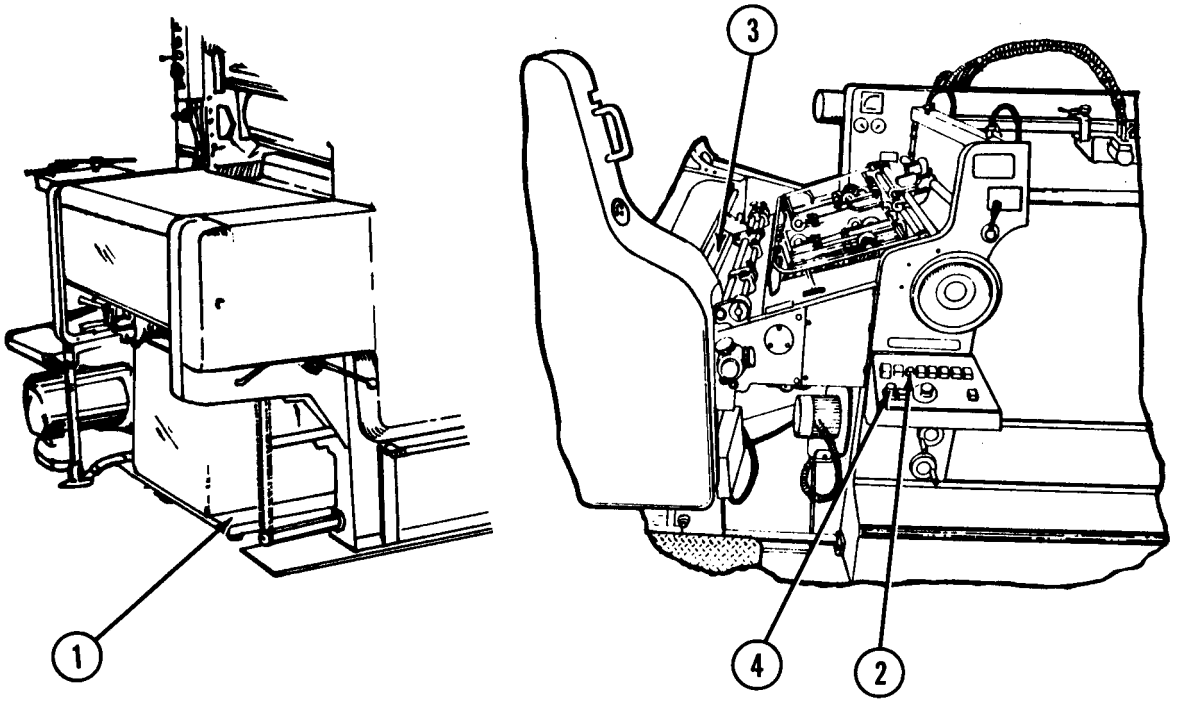
(j) Position cage balls (3) at front outside edge of sheet. Ensure cages do not touch paper.

(k) Attach offset sheet smoother to side guide rails to help keep sheets smooth.

2-7. OPERATING PROCEDURES (CONT)

b. Prepare Paper Cycle (Cont)

(6) Prepare Delivery



(a) Check delivery pile board (1) to ensure that it is raised to up position.

(b) Position delivery side sheet joggers to their outermost position. Move rear sheet stop all the way toward feeder.

(c) Turn COMPRESSORON/OFF toggle switch (2) to ON.

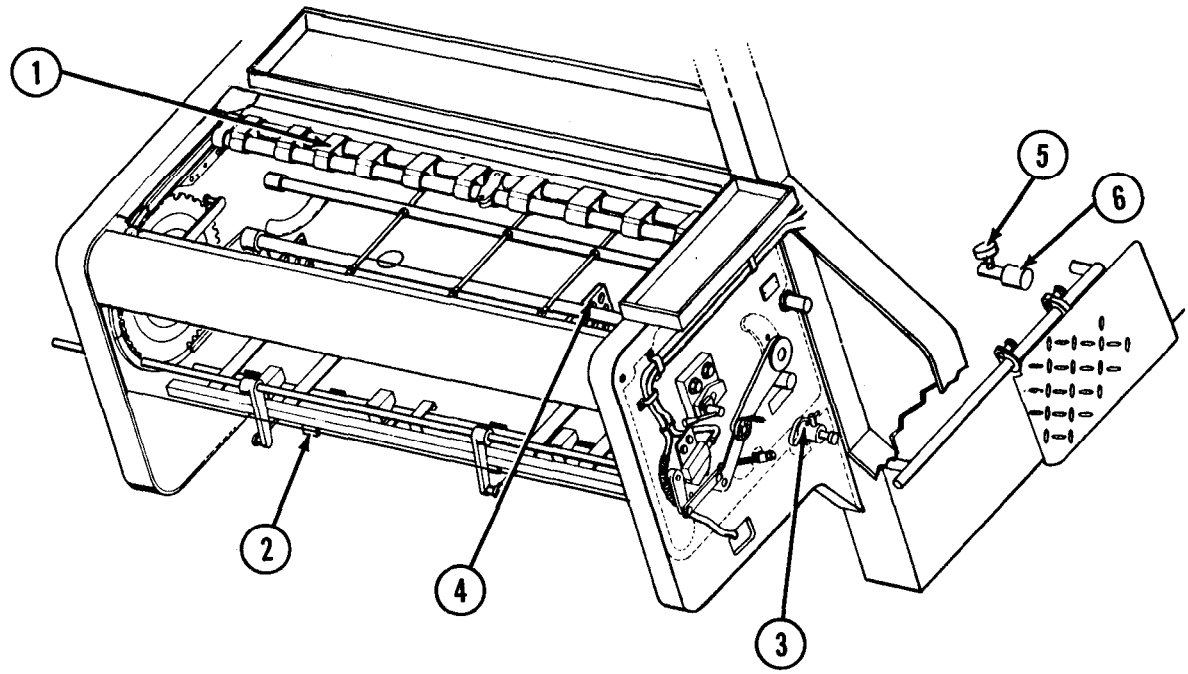
(d) Take Printing Press off safe and inch until third sheet enters register feed drum grippers (3).

(e) Turn COMPRESSOR ON/OFF toggle switch (2) to OFF.

(f) Turn SAFETY/OPERATION button (4) to OPERATION. Move to delivery control station.

2-7. **OPERATING PROCEDURES** (CONT)

b. Prepare Paper Cycle (Cont)



(g) Turn FEEDER STOP/MACHINE SAFETY knob to MACHINE SAFETY position.

NOTE

When the gripper bars are alined in the following manner, the delivery joggers are in their innermost position.

(h) Inch Printing Press until gripper bar (1) holding third sheet is directly under gripper bar above it.

(i) Put Printing Press on safe. Position two sheets in delivery assembly against front sheet stops (2) and in line with sheet held by gripper bar (1).

(j) Open operator side delivery guard door. Loosen thumbscrew (3) and move operator delivery side sheet jogger (4) inward to lightly contact sheet. Tighten thumbscrew (3).

(k) Close operator side delivery guard door.

(l) Loosen thumbscrew and move drive delivery side sheet jogger inward to lightly contact sheet. Tighten thumbscrew.

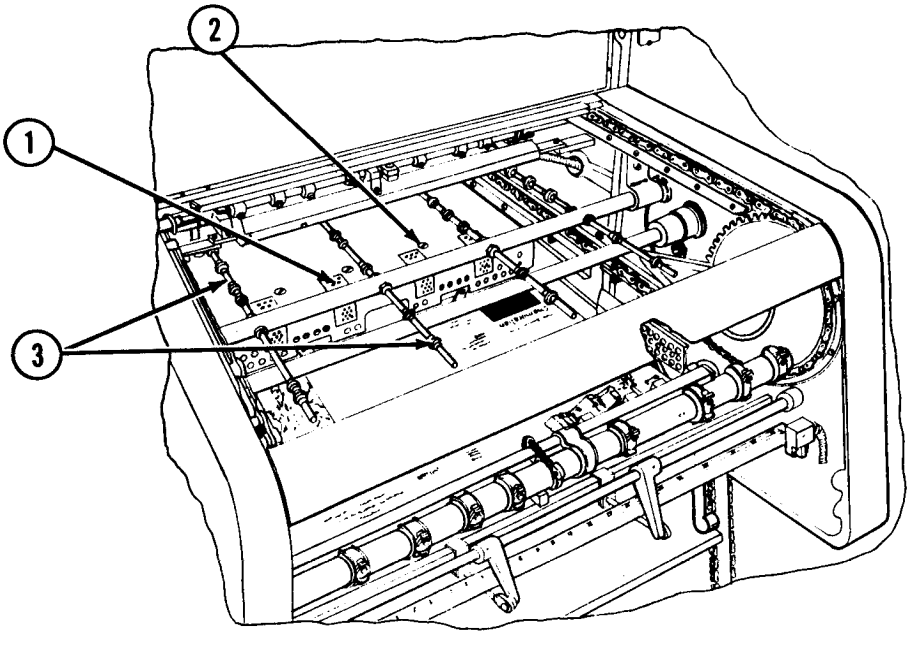
2-7. OPERATING PROCEDURES (CONT)

b. Prepare Paper Cycle (Cont)

(m) Take Printing Press off safe and inch until sheet drops onto delivery pile and gripper bars are alined.

(n) Put Printing Press on safe. Ensure that all sheets are against front sheet stops and delivery side sheet joggers.

(o) Loosen thumbscrew (5) and turn SUCTION ROLLER MOVEMENT knob (6) to move rear sheet stop inward to lightly contact sheet. Tighten thumbscrew (5).



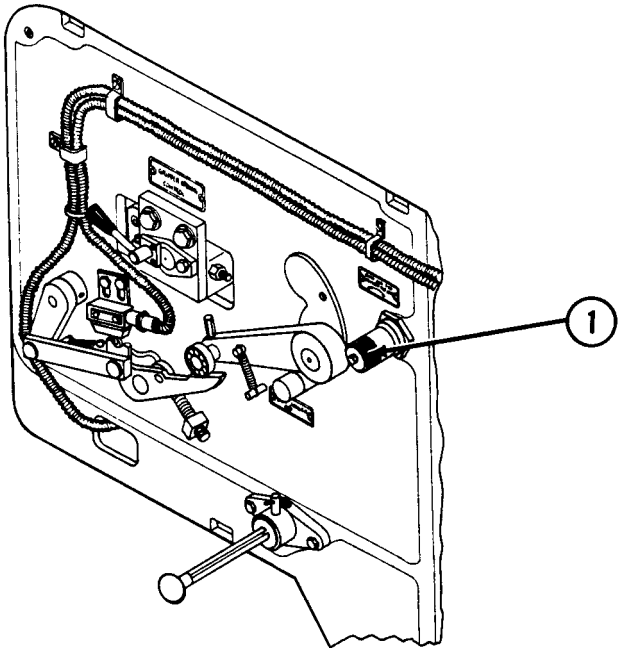
(p) Check to ensure that sheet completely covers suction slowdown wheels (1).

(q) Using suction slowdown adjustment key, turn adjustment screw (2) parallel to cylinder shaft to shut off suction to suction slowdown wheels not covered by sheet.

(r) Move plastic sleeves (3) to shut off air outlets not covered by sheet size.

2-7. OPERATING PROCEDURES (CONT)

b. Prepare Paper Cycle (Cont)



(s) Turn air blast adjustment knob (1) to regulate air blast to prevent sheets from floating.

NOTE

- Anti-offset rollers can be attached to skeleton bars to keep bars from marking printed sheets. Delivery end splash guard must be removed to allow access to skeleton bars.

- Wedges can be used to maintain a neat, even paper pile.

(t) Take Printing Press off safe and test-operate paper cycle. Refine adjustments as necessary.

2-7. OPERATING PROCEDURES (CONT)

c. Prepare Cylinder Assembly

INITIAL SETUP

Tools

17 mm T-handle socket wrench (appendix B, section III, item 44)
13 mm T-handle socket wrench (appendix B, section III, item 44)
19 mm T-handle socket wrench (appendix B, section III, item 44)
Scribe gage (appendix B, section III, item 10)
Paper caliper micrometer (appendix B, section III, item 25)
Packing punch (appendix B, section III, item 31)
Plate wrench (appendix B, section III, item 43)
17 mm open-end wrench (appendix B, section III, item 40)
U-shaped special wrench (appendix B, section III, item 46)
Straight pin wrenches (appendix B, section III, item 42)
Packing gage (appendix B, section III, item 9)

Materials

Blanket (appendix D, item 4)
Packing paper (appendix D, item 43)
No. 2 pencil (appendix D, item 48)
Light machine oil (appendix D, item 39)
Plate
Gum solution (appendix D, item 55)
Rag (appendix D, item 50)
Deglazing solution (appendix D, item 53)
Bucket (appendix B, section III, item 5)
Sponge (appendix D, item 57)
Water

General Safety Instructions

WARNING

- EXPOSED MOVING PARTS. All adjustments will be made while Printing Press is on SAFETY STOP except those authorized by this manual to be made with Printing Press running. Printing Press must be on safe at all times when not in motion. Always shout “clear” and wait for “clear” response before taking Printing Press off safe to inch or run. Failure to follow this warning may result in serious Injury.

2-7. OPERATING PROCEDURES (CONT)

c. Prepare Cylinder Assembly (Cont)

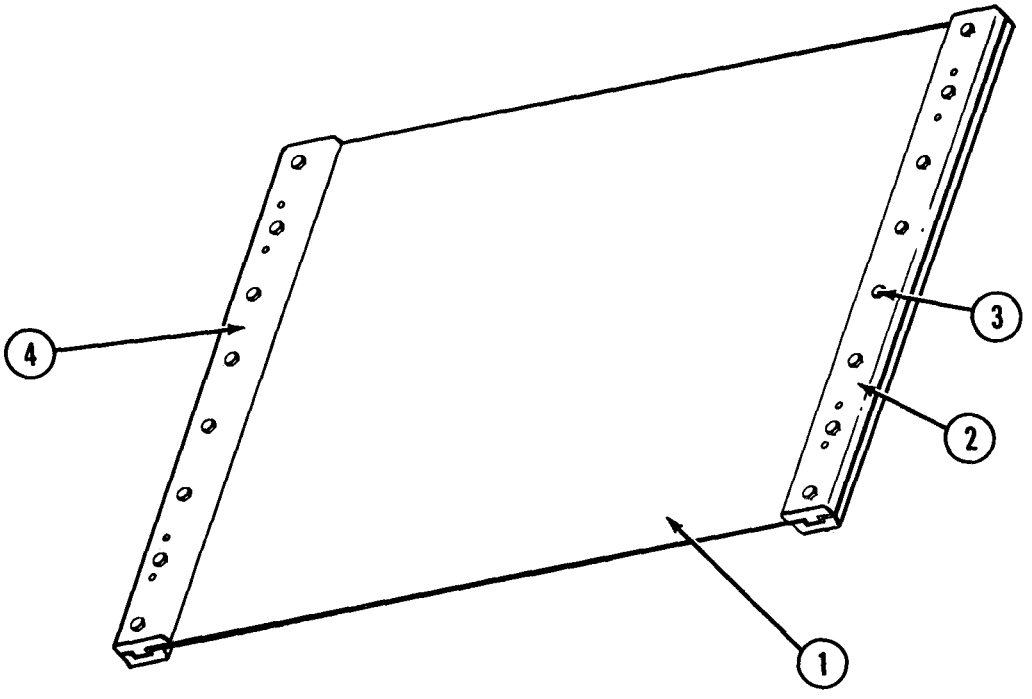
WARNING

- EXPOSED MOVING PARTS. Do not inch Printing Press and wipe cylinder at the same time. Return Printing Press to SAFETY STOP after each inching. Failure to do so may result in serious injury.
- EXPOSED MOVING PARTS. Remove all jewelry. Keep shirts tucked in, sleeves above elbows, and ties removed. Failure to observe these precautions while operating Printing Press may result in serious injury.

(1) Prepare Blanket Cylinder

NOTE

It is important that lead edge of blanket lines up perfectly with shoulder of clamp. Control holes are provided for visual inspection of blanket edge.



(a) Insert lead edge of blanket (1) into blanket bar (2) and tighten eight hex head screws (3), starting from center and working out.

2-7. OPERATING PROCEDURES (CONT)

c. Prepare Cylinder Assembly (Cont)

(b) Insert tail edge of blanket (1) into other blanket bar (4) and tighten eight hex head screws (3), starting from center and working out.

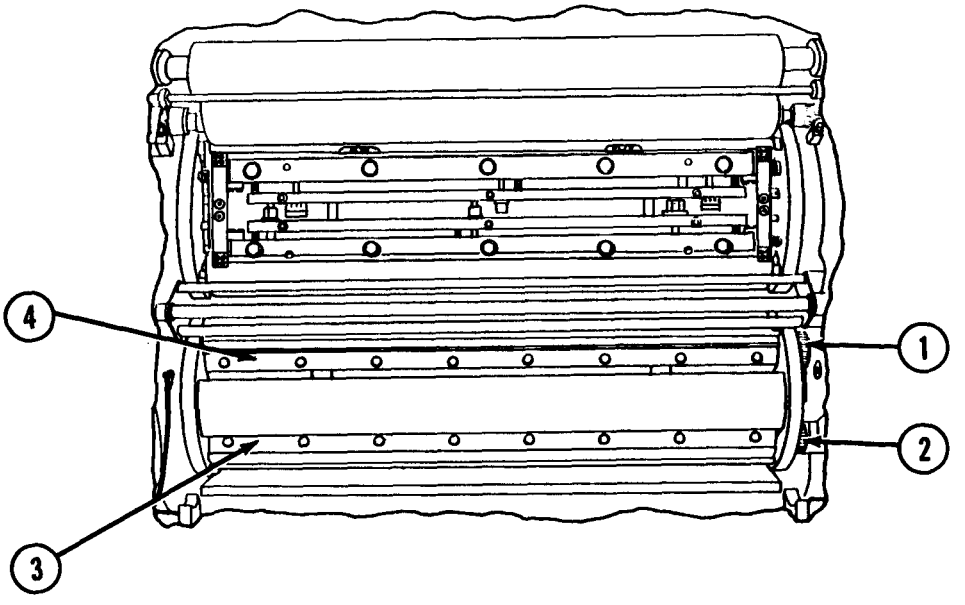
(c) Using micrometer, measure four corners of blanket, add together, and divide by four to find average thickness of blanket.

NOTE

The bearer height of the Printing Press is 0.090 in. (0.23 cm).

(d) Determine amount of packing required to bring blanket to bearer height by subtracting average thickness of blanket from bearer height.

(e) Mount blanket and packing.



2-7. OPERATING PROCEDURES (CONT)

c. Prepare Cylinder Assembly (Cont)

WARNING

EXPOSED MOVING PARTS. All adjustments will be made while Printing Press is on SAFETY STOP except those authorized by this manual to be made with Printing Press running. Printing Press must be on safe at all times when not in motion. Always shout "clear" and wait for "clear"' response before taking Printing Press off safe to inch or run. Failure to follow this warning may result in serious injury.

1 With Printing Press on safe, remove blanket cylinder guard and place on work table or stand.

WARNING

EXPOSED MOVING PARTS. Do not inch Printing Press and wipe cylinder at the same time. Return Printing Press to SAFETY STOP after each inching. Failure to do so may result in serious injury.

2 Coat blanket cylinder lightly with oil to prevent rust.

3 Cover delivery safety glass door with paper for protection.

4 Turn worm gear (1) to position lip of tail edge clamp shaft 1 to 1-1/2 in. (2.54 to 3.81 cm) from cylinder surface.

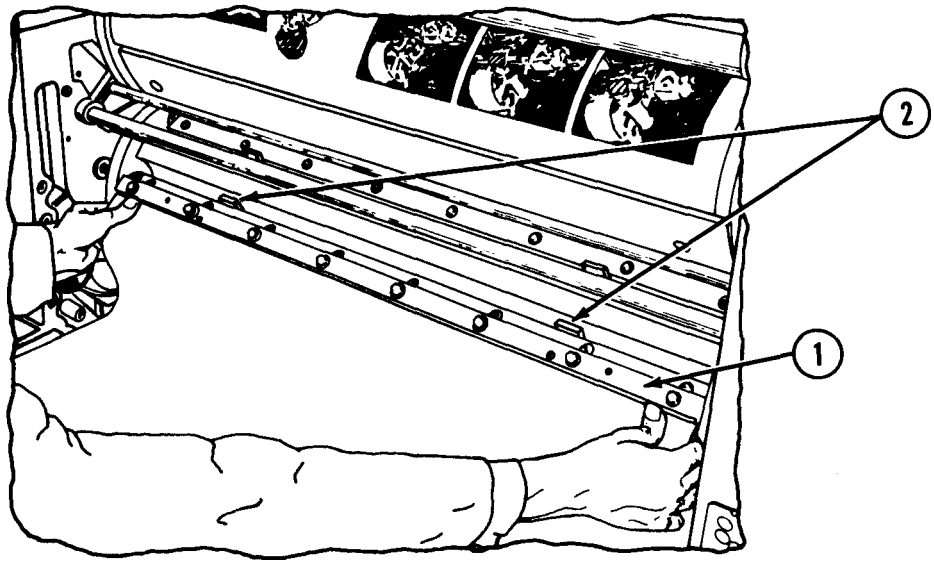
5 Take Printing Press off safe and inch until lead edge worm gear (2) is in position.

6 Put Printing Press on safe. Turn worm gear (2) to position lip of lead edge clamp shaft 3/4 in. (1.91 cm) from cylinder surface.

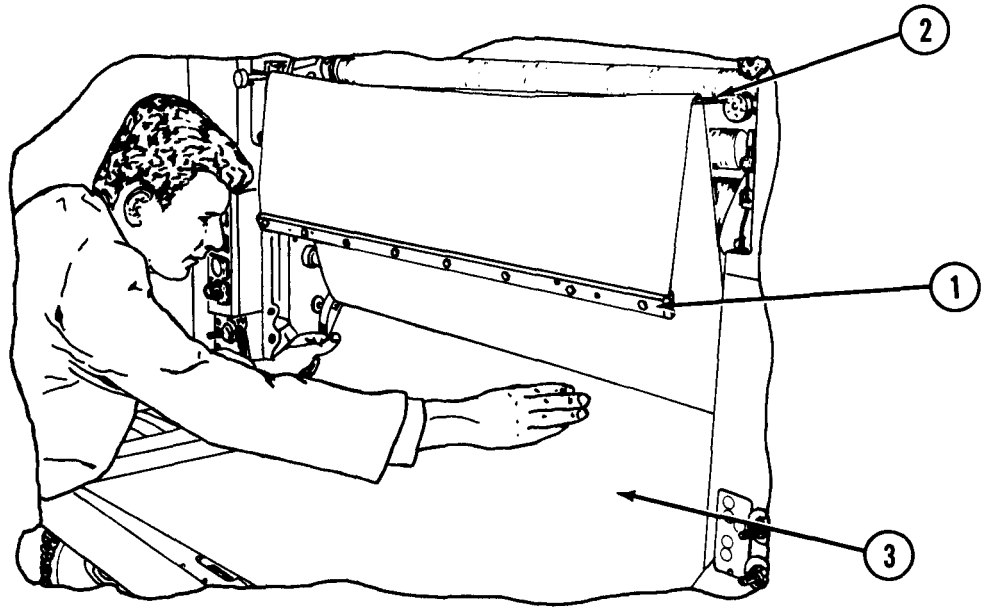
7 Check rotation direction of blanket cylinder and ensure that directional arrow on blanket points in same direction.

2-7. OPERATING PROCEDURES (CONT)

c. Prepare Cylinder Assembly (Cent)



8 Insert lead edge blanket bar (1) into blanket clamp (2), pushing forward and then down, to lock blanket bar into place. Center blanket between bearers.



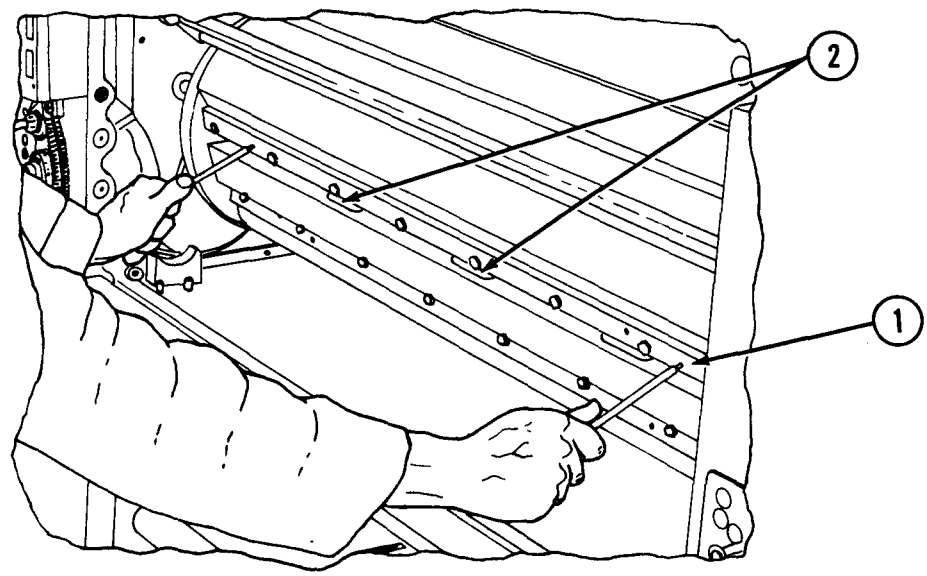
9 Place tail edge of blanket (1) over handrail (2) and insert required packing (3) between blanket and blanket cylinder. Ensure that packing paper is centered side-to-side beneath blanket.

2-7. OPERATING PROCEDURES (CONT)

c. Prepare Cylinder Assembly (Cont)

10 Remove blanket from handrail (2) and lay it over packing (3).

11 Take Printing Press off safe and inch forward while applying light pressure to blanket until tail clamp (1) is accessible.

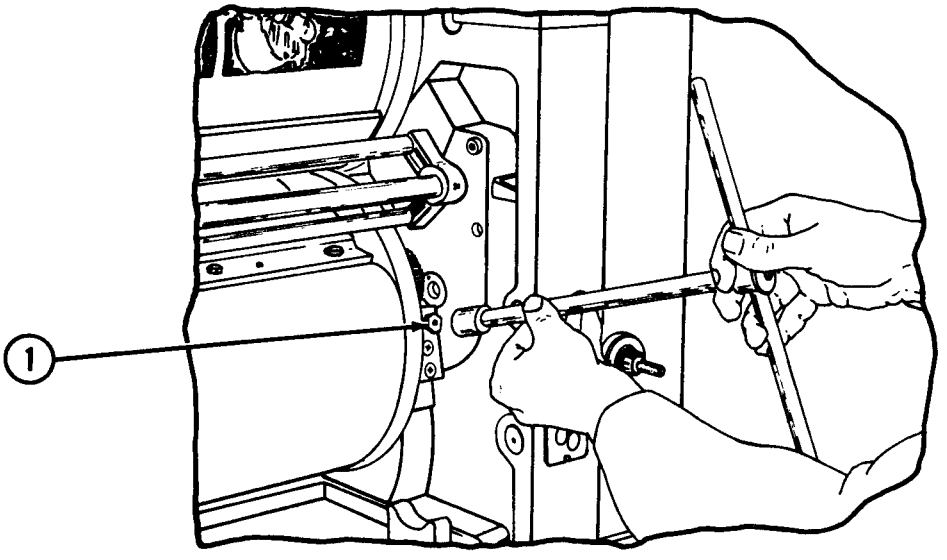


12 Put Printing Press on safe. Using pin wrenches, insert tail edge blanket bar (1) into tail clamp (2), pushing down and in, to lock blanket bar into place.

13 Tighten tail edge worm gear of blanket cylinder. Take Printing Press off safe and inch until lead edge is in position.

2-7. OPERATING PROCEDURES (CONT)

c. Prepare Cylinder Assembly (Cont)



14 Put Printing Press on safe. Tighten lead edge worm gear (1) of blanket cylinder until blanket is tight.

15 Ensure blanket is tight by thumping blanket with finger to check for hollow sound. Check for wrinkles. If wrinkles are found, remove blanket and packing. Remount.

16 Reinstall blanket cylinder guard.

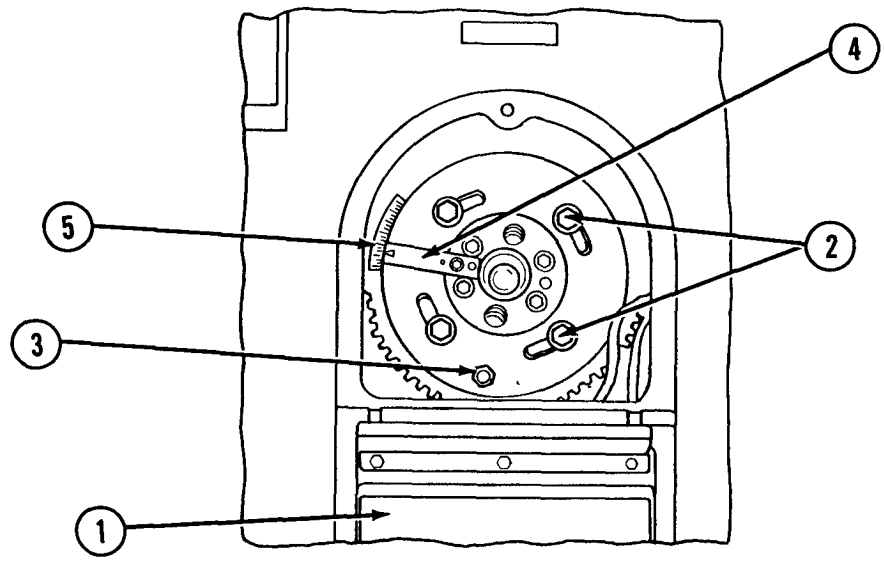
NOTE

Retighten blanket as necessary after 400 to 500 sheets have been printed and during print production.

2-7. OPERATING PROCEDURES (CONT)

c. Prepare Cylinder Assembly (Cont)

(2) Position Plate Cylinder



(a) Open gear side plate cylinder access door (1).

(b) Using T-handle wrench, loosen bottom cylinder clamping bolt (2), then tighten until snug.

(c) Loosen remaining three cylinder clamping bolts (2).

NOTE

Cylinder can be moved to advance the printed image 1-15/16 in. (4.93 cm) or to retard it by 3/8 inch (0.97 cm).

(d) Turn pinion gear adjustment bolt (3) until pointer (4) reads zero on indicator scale (5).

(e) Tighten all four cylinder clamping bolts (2).

(f) Close and secure plate cylinder access door (1).

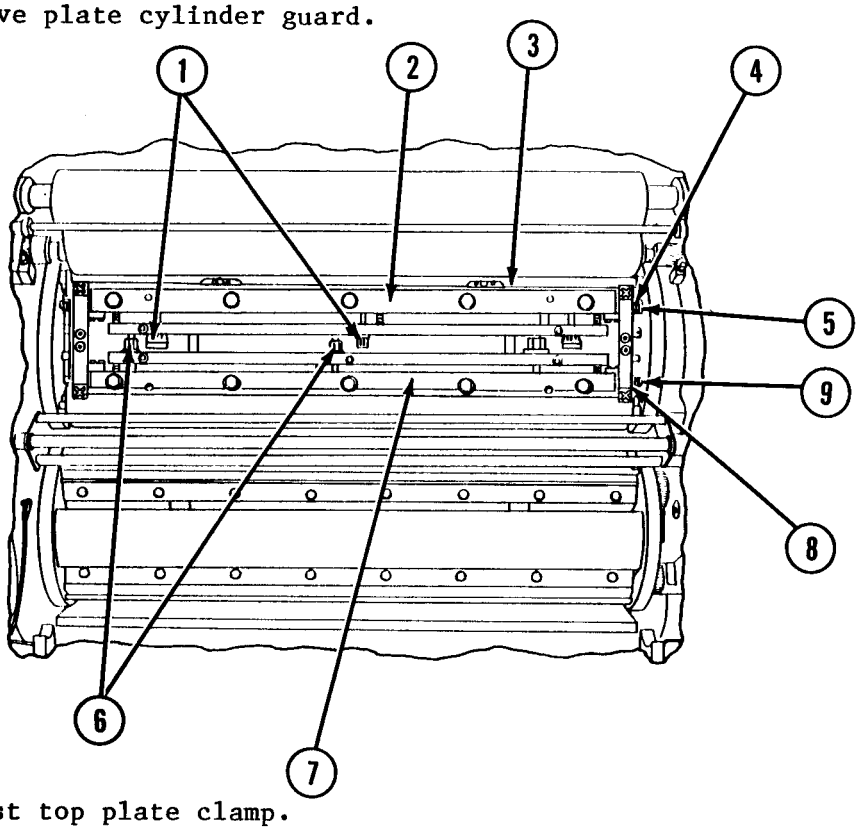
(g) Take Printing Press off safe and inch until cylinder gap is accessible. Put Printing Press on safe.

2-7. OPERATING PROCEDURES (CONT)

c. Prepare Cylinder Assembly (Cont)

(3) Parallel and Center Plate Clamps

Remove plate cylinder guard.



Adjust top plate clamp.

1 Loosen tension nuts (1) until clamp bar (2) can be pushed flush with cylinder body (3).

NOTE

Ensure adjustment screw heads do not bind on inner wall of cylinder bearers.

2 Loosen locknuts (4) and turn lateral adjustment screws (5) until spaces at either end of clamp bar (2) are equal. Tighten locknuts (4).

(c) Adjust bottom plate clamp.

1 Loosen tension nuts (6) until clamp bar (7) can be pushed flush with cylinder body (3).

2-7. OPERATING PROCEDURES (CONT)

c. Prepare Cylinder Assembly (Cont)

NOTE

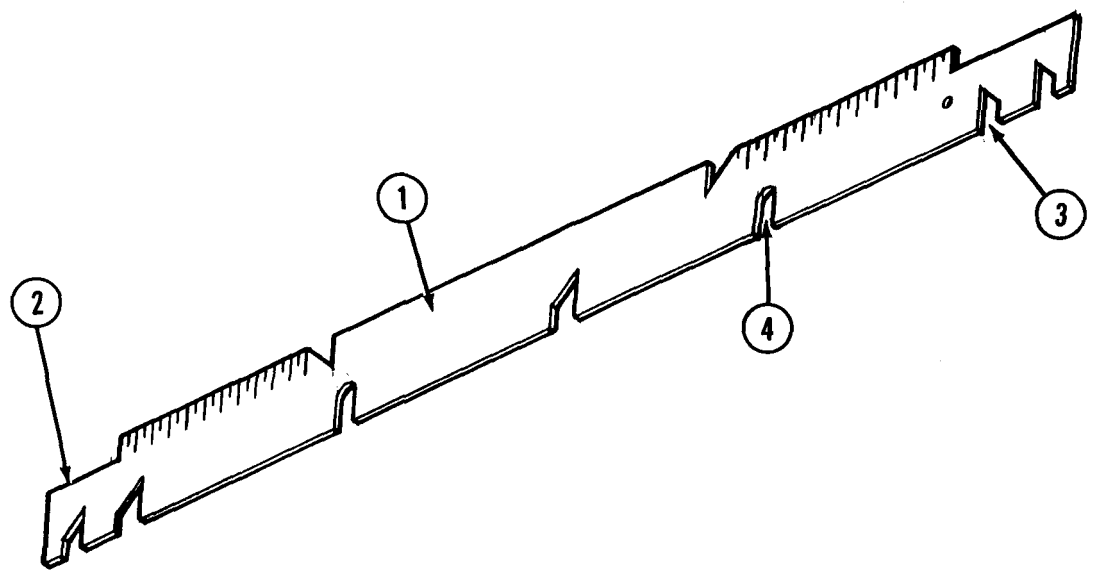
Ensure adjustment screw heads do not bind on inner wall of cylinder bearers.

2 Loosen locknuts (8) and turn lateral adjustment screws (9) until spaces at either end of clamp bar (7) are equal. Tighten locknuts (8).

(4) Prepare Plate and Packing

(a) Ensure plate measures 27-1/4 in. by 32-1/2 in. (69.2 by 82.6 cm).

(b) Inspect plate.



(c) Scribe register marks on plate.

1 Aline marked edge of scribe gage (1) with gripper edge of plate and center side-to-side.

2 Draw a horizontal line at gage indentation (2) on both sides of plate.

2-7. OPERATING PROCEDURES (CONT)

c. Prepare Cylinder Assembly (Cent)

3 Turn scribe gage (1) over. Aline opposite side of gage with gripper edge of plate and center side-to-side.

4 Draw a vertical line at gage indentation (3) on both sides of plate.

(d) Using micrometer, measure plate in one area 1/2 in. (1.27 cm) from edge of plate on either gripper or tail end of plate.

(e) Select packing.

1 Subtract plate thickness from cylinder undercut of 0.020 in. (0.05 cm).

2 Add 0.006 (0.015 cm) to amount above to bring plate and packing to a total of 0.026 in. (0.066 cm). Example: 0.020 (undercut) - 0.008 (plate thickness) = 0.012 +0.006 (added thickness) = 0.018 (required packing thickness).

(f) Aline unmarked edge of scribe gage (1) with gripper edge of packing and center side-to-side.

(g) Mark packing material at elongated slots (4).

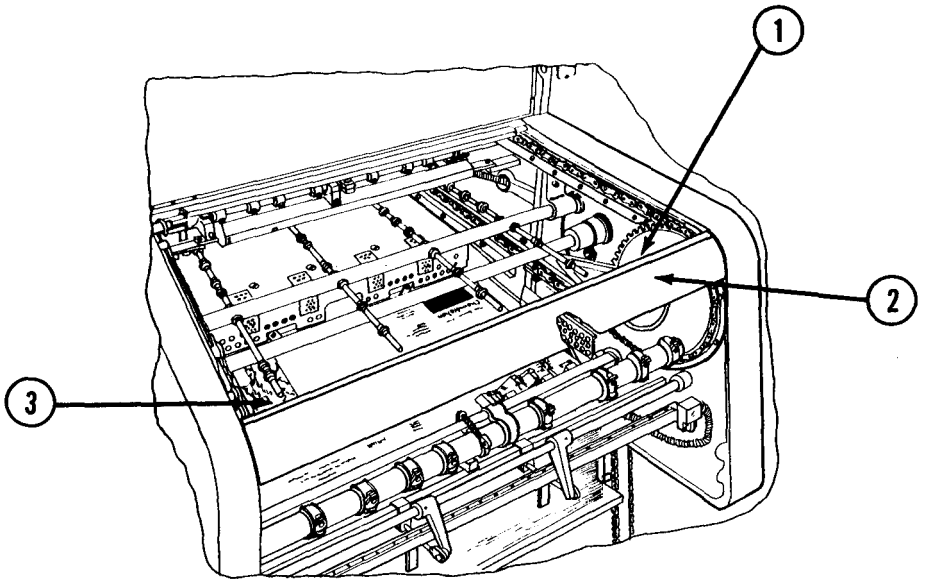
(h) Using hand punch, punch two elongated slots in packing.

(i) Hang scribe gage (1) in designated place.

2-7. OPERATING PROCEDURES (CONT)

c. Prepare Cylinder Assembly (Cont)

(5) Mount Plate and Packing



(a) Bend tail edge of plate.

1 Hold plate by gripper edge with image facing feeder end of Printing Press.

2 Insert tail edge of plate into crimping device (1) between delivery cover glass (2) and frame (3).

3 Bend plate downward with both hands.

4 Remove plate from crimping device (1).

2-7. OPERATING PROCEDURES (CONT)

c. Prepare Cylinder Assembly (Cont)

WARNING

EXPOSED MOVING PARTS. All adjustments will be made while Printing Press is on SAFETY STOP except those authorized by this manual to be made with Printing Press running. Printing Press must be on safe at all times when not in motion. Always shout “clear” and wait for “clear” response before taking Printing Press off safe to inch or run. Failure to follow this warning may result in serious injury.

(b) Take Printing Press off safe and inch until gripper clamp is accessible.

(c) Put Printing Press on safe. Insert plate into gripper clamp. Ensure register marks aline with scale at each end of clamp.

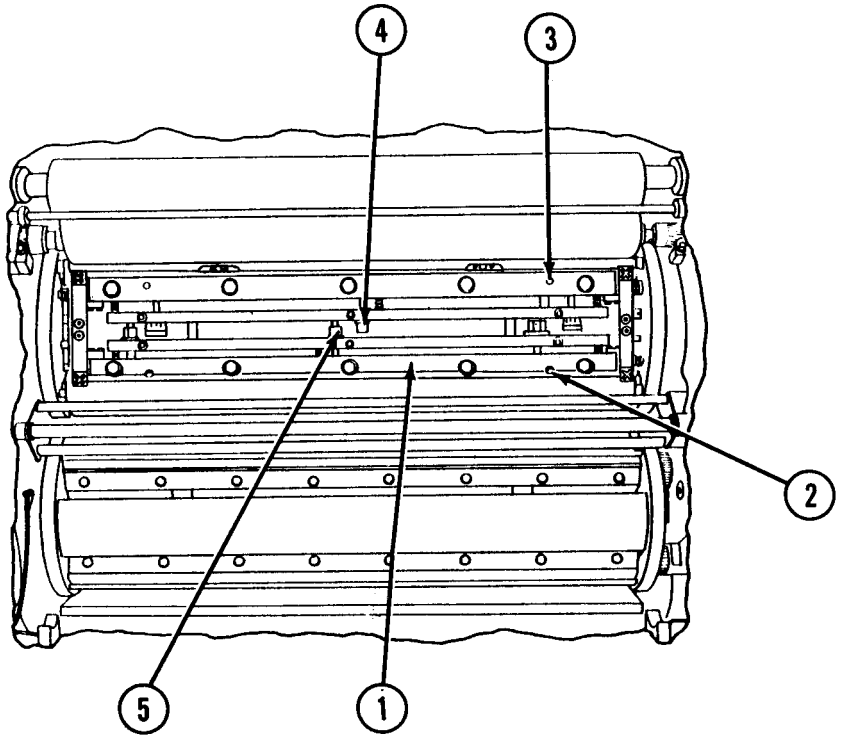
(d) Lock gripper clamp with plate wrench.

(e) Insert packing behind plate flush against gripper clamp with elongated slots alined with register scopes.

(f) Take Printing Press off safe. Hold tail edge of plate back and inch Printing Press until tail clamp is positioned to allow buckle of plate to hold plate in clamp after insertion.

2-7. OPERATING PROCEDURES (CONT)

c. Prepare Cylinder Assembly (Cont)



(g) Put Printing Press on safe. Insert tail edge of plate into tail clamp (1).

(h) Ensure plate is seated against pins (2) and lock tail clamp (1) with plate wrench.

(i) Take Printing Press off safe and inch forward until register scopes (3) are visible.

(j) Put Printing Press on safe. Starting at center, tighten gripper clamp tension nuts (4) until register scopes (3) are alined with holes in plate.

(k) Using wrench, tighten tail clamp tension nuts (5) until plate is tight around cylinder.

(1) Check plate tension on cylinder by tapping plate near cylinder end with knuckle.

(m) Tighten gripper clamp tension nuts (4).

2-7. OPERATING PROCEDURES (CONT)

c. Prepare Cylinder Assembly (Cont)

NOTE

Plate is sufficiently tight when hollow sound has disappeared. Do not overtighten or clamps will pull off plate and damage plate edge.

(n) Take Printing Press off safe and rotate cylinders 3 or 4 revolutions. Put Printing Press on safe and recheck plate tension at tail and gripper edges.

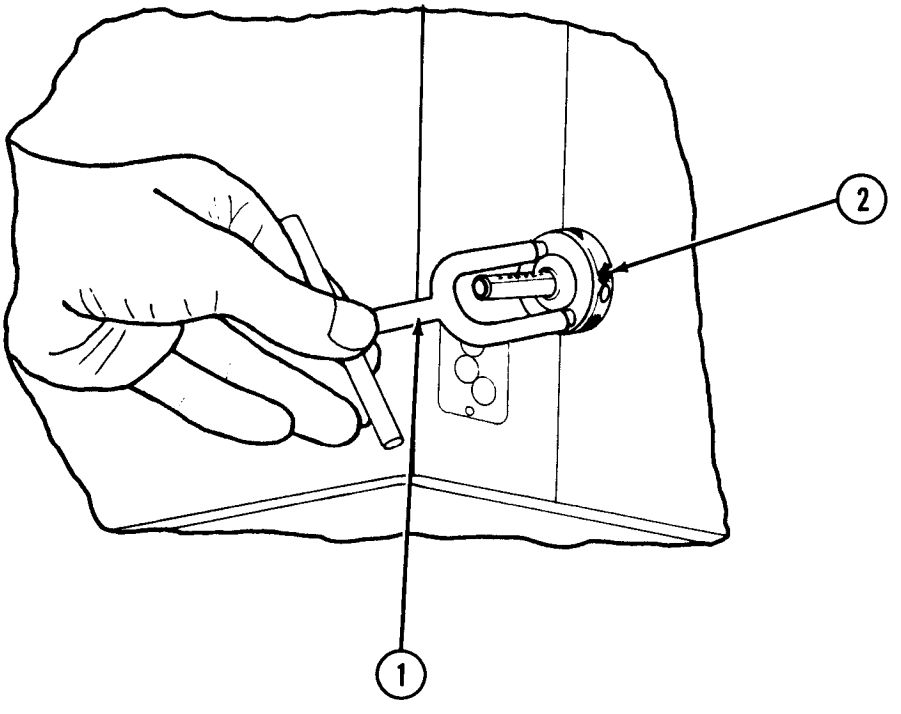
(o) Set stock thickness gage for stock thickness.

NOTE

Basic setting for 0.004 in. (0.01 cm) paper is 0.001 in. (0.003 cm) beyond 0 (zero) setting on microscale. This setting allows for 0.003 in. (0.008 cm) printing pressure between blanket and impression cylinders when sheet is between cylinders.

1 Check microscale settings for blanket-to-impression cylinder pressure. Both settings must read the same.

2 Insert special wrench (1) into holes in microscale (2). Turn to adjust printing pressure.



2-7. OPERATING PROCEDURES (CONT)

d. Prepare Dampening Assembly

INITIAL SETUP

Tools

19 mm T-handle socket wrench (appendix B, section III, item 44)
0.10 mm feeler gage (appendix B, section III, item 12)
Curved pin wrench (appendix B, section III, item 41)
10 mm open-end wrench (appendix B, section III, item 40)
13 and 17 mm combination wrench (appendix B, section III, item 40)
Long-handle flat-tip screwdriver (appendix B, section III, item 32)

Materials

Paper strips
Fountain solution (appendix D, item 54)
Water

General Safety Instructions

WARNING

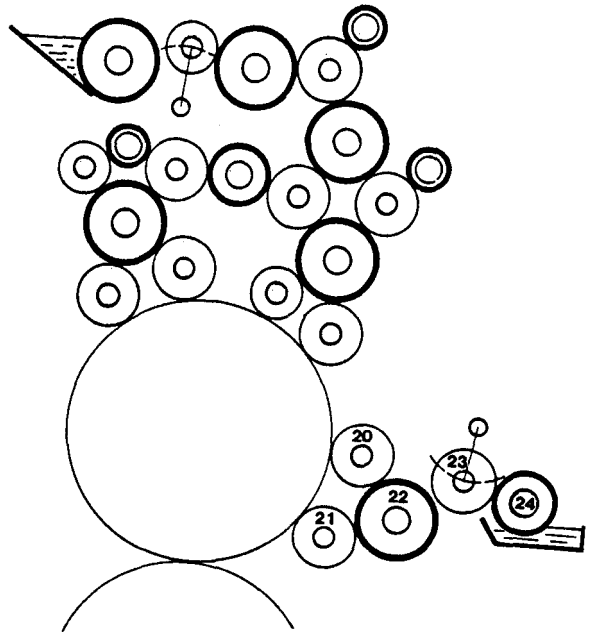
l **EXPOSED MOVING PARTS. All adjustments will be made while Printing Press is on SAFETY STOP except those authorized by this manual to be made with Printing Press running. Printing Press must be on safe at all times when not in motion. Always shout "clear" and wait for "clear" response before taking Printing Press off safe to inch or run. Failure to follow this warning may result in serious injury.**

l **EXPOSED MOVING PARTS. Remove all jewelry. Keep shirts tucked in, sleeves above elbows, and ties removed. Failure to observe these precautions while operating Printing Press may result in serious injury.**

2-7. OPERATING PROCEDURES (CONT)

d. Prepare Dampening Assembly (Cont)

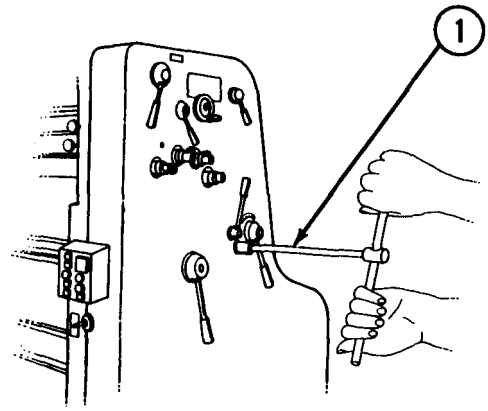
(1) Install Dampening Form Rollers



Roller Name	Roller Number	Color	Diameter	Composition
DAMPENING FORM ROLLER	No. 20		2-15132 in. (63mm)	Rubber
DAMPENING FORM ROLLER	No. 21		2-15/32 in. (63 mm)	Rubber
DAMPENING OSCILLATOR ROLLER	No. 22			chrome-plated steel
DAMPENING DUCTOR ROLLER	No. 23			Rubber
DAMPENING FOUNTAIN ROLLER	No. 24			Stainless Steel

NOTE

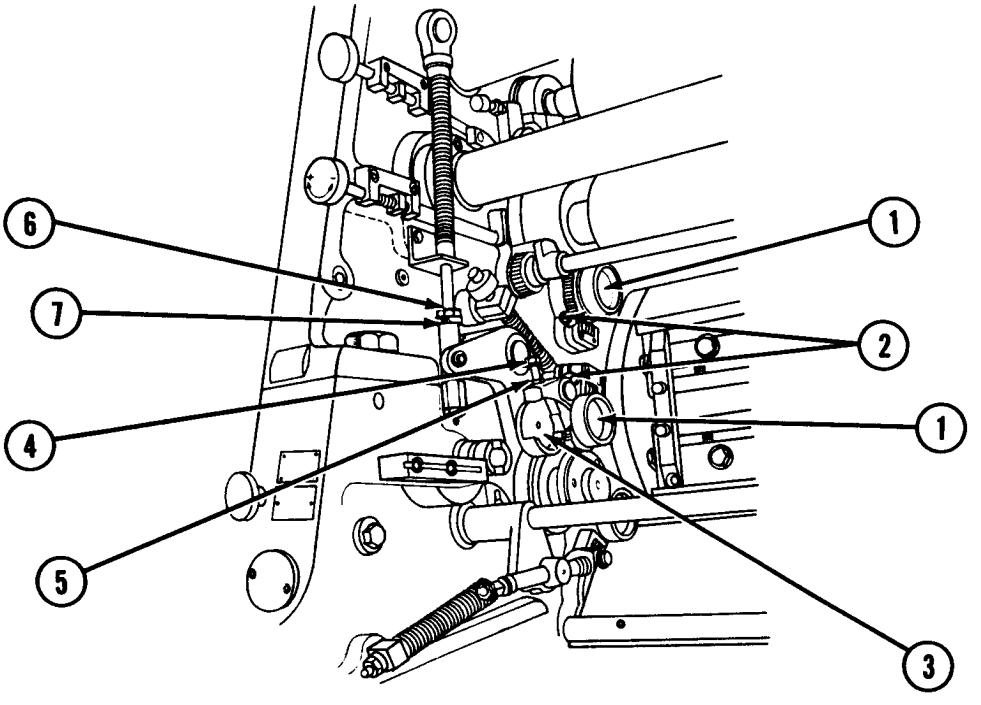
Use above dampening roller schematic to identify rollers in the following procedures.



2-7. OPERATING PROCEDURES (CONT)

d. Prepare Dampening Assembly (Cont)

(a) Remove cylinder guard. Using T-handle wrench (1). disengage dampening form roller journals from plate cylinder by turning disengaging knob to left.



(b) Insert dampening form roller no. 21 with ball bearings mounted on spindles into roller journal (1) on operator side first. Then, insert into journal on drive side.

NOTE

Rollers are adjusted properly when 0.004 in. (0.10 mm) feeler gage moves between dampening form rollers no. 20 and no. 21 and dampening oscillator roller no. 22 with light resistance.

(c) Using T-handle wrench, engage rollers to plate cylinder.

(d) Move dampening form roller control lever to left (off) position.

(e) Using pin wrench and 0.10 mm feeler gage, adjust dampening form rollers no. 20 and no. 21 to dampening oscillator roller no. 22 using worm screws (2) at operator and drive sides of Printing Press. Turn worm screws (2) left to decrease pressure and right to increase pressure.

2-7. OPERATING PROCEDURES (CONT)

d. Prepare Dampening Assembly (Cont)

(f) Insert dampening ductor roller no. 23 into journal cup (3) on drive side, then into journal box on operator side, and lock into place with adjustment screw (4). Secure locknut (5).

(g) Move dampening fountain solution supply lever to left (on) position.

WARNING

EXPOSED MOVING PARTS. All adjustments will be made while Printing Press is on SAFETY STOP except those authorized by this manual to be made with Printing Press running. Printing Press must be on safe at all times when not in motion. Always shout “clear” and wait for **clear** response before taking Printing Press off safe to inch or run. Failure to follow this warning may result in serious injury.

(h) Take Printing Press off safe and inch until dampening ductor roller no. 23 completes its movement to dampening oscillator roller no. 22.

(i) Put Printing Press on safe. Loosen locknuts (6).

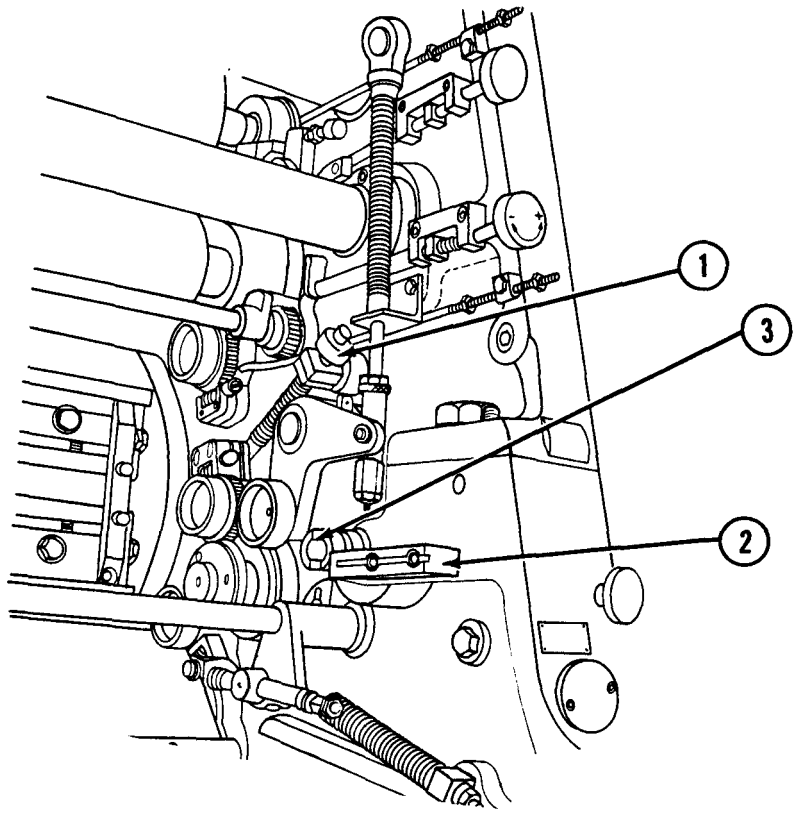
(j) Using knurled adjustment nuts (7), adjust dampening ductor roller no. 23 against dampening oscillator roller no. 22 on operator and drive sides until slight drag is felt with 0.004 in. (0.10 mm) feeler gage.

(k) Turn knurled adjustment nuts (7) left to decrease pressure and right to increase pressure. Tighten locknuts (6).

2-7. OPERATING PROCEDURES (CONT)

d. Prepare Dampening Assembly (Cont)

(2) Adjust Dampening Form Rollers To Plate



NOTE

Dampening form rollers no. 20 and no. 21 are set to plate while Printing Press is running. Dampening form rollers are set properly when leading edge of plate makes dampening form rollers bounce slightly. Bounce can be felt at ends of knurled setting collar shafts while Printing Press is running.

(a) Reinstall cylinder safety guard.

(b) Take Printing Press off safe and run.

(c) Set dampening form roller control lever to right (on) position.

(d) Use four knurled setting collars (1) to set dampening form rollers. Turn right to increase pressure and left to decrease pressure.

(e) Put Printing Press on safe.

2-7. OPERATING PROCEDURES (CONT)

d. Prepare Dampening Assembly (Cont)

(3) Insert Dampening Fountain Roller No. 24 and Dampening Fountain

NOTE

If necessary, use dampening fountain blades to remove excess water from dampening fountain roller. If used, dampening fountain blades must be installed before dampening fountain roller.

(a) Insert dampening fountain into guide pieces (2).

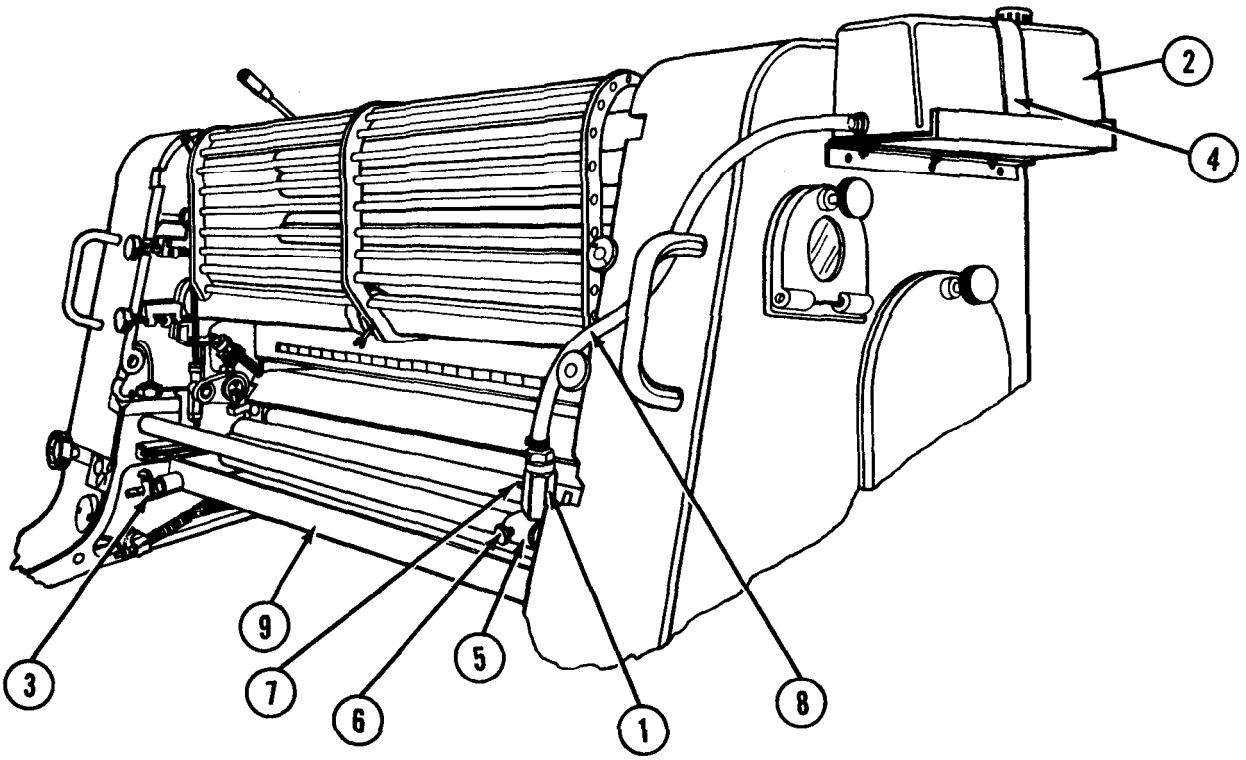
(b) Using ratchet, rotate dampening fountain roller journal (3) until half coupling faces up.

(c) Disengage safety catch and push dampening fountain roller no. 24 journal toward side frame.

(d) Insert dampening fountain roller no. 24 into drive side journal. Then insert operator side, lining up couplings.

(e) Engage safety catch.

(4) Prepare Fountain Solution



2-7. OPERATING PROCEDURES (CONT)

d. Prepare Dampening Assembly (Cont)

(a) Mix fountain solution.

(b) Close valve on fountain solution container stopcock (1). Fill fountain solution container (2) to desired level.

(c) Ensure drain valve (3) on dampening fountain is closed.

(5) Prepare Continuous Fountain Solution Feed

(a) Place fountain solution container (2) in position in tray on top drive side frame. Secure with strap (4).

(b) Insert stopcock (1) into retaining bracket (5). Secure with knurled locking knob (6).

(c) Slowly open valve (7) on fountain solution container hose (8) and allow fountain (9) to fill.

NOTE

The following steps (d) and (e) can be performed at the same time as steps (i) and (j), para 2-7e (24).

(d) Take Printing Press off safe. Start Printing Press and adjust water feed adjustment handwheel to desired setting. Set water supply lever to left (on) position.

NOTE

Dampening form rollers can be moistened more quickly by moving water feed adjustment lever rapidly back and forth while ductor roller is in contact with fountain roller.

(e) Allow Printing Press to continue running until dampening form rollers are completely moistened. Put Printing Press on safe.

e. Prepare Inking Assembly

INITIAL SETUP

Tools

L-handle special wrench (appendix B, section III, item 45)
Curved pin wrench (appendix B, section III, item 41)
Long-handled flat-tip screwdriver (appendix B, section III, item 32)
Yardstick/meterstick (appendix D, section II, item 67)

2-7. OPERATING PROCEDURES (CONT)

e. Prepare Inking Assembly (Cont)

Tools (Cont)

13 and 17 mm combination wrench (appendix B, section III, item 39)
Putty knife (appendix B, section III, item 22)
Scraping knife (appendix B, section III, item 23)
Laboratory spatula (appendix B, section III, item 33)

Materials

Paper strips
Ink (appendix D, items 23-35)
Lithographic solvent (appendix D, item 56)
Rags (appendix D, item 50)
Gum solution (appendix D, item 55)

General Safety Instructions

WARNING

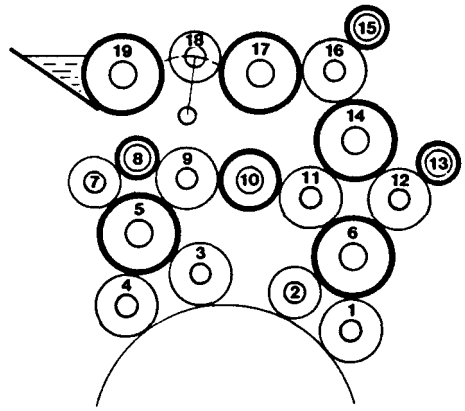
- EXPOSED MOVING PARTS. All adjustments will be made while Printing Press is on SAFETY STOP except those authorized by this manual to be made with Printing Press running. Printing Press must be on safe at all times when not in motion. Always shout “clear” and wait for “clear” response before taking Printing Press off safe to inch or run. Failure to follow this warning may result in serious injury.

- EXPOSED MOVING PARTS. Do not inch Printing Press and wipe cylinder at the same time. Return Printing Press to SAFETY STOP after each inching. Failure to do so may result in serious injury.

- EXPOSED MOVING PARTS. Remove all jewelry. Keep shirts tucked in, sleeves above elbows, and ties removed. Failure to observe these precautions while operating Printing Press may result in serious injury.

2-7. OPERATING PROCEDURES (CONT)

e. Prepare Inking Assembly (Cont)



NOTE

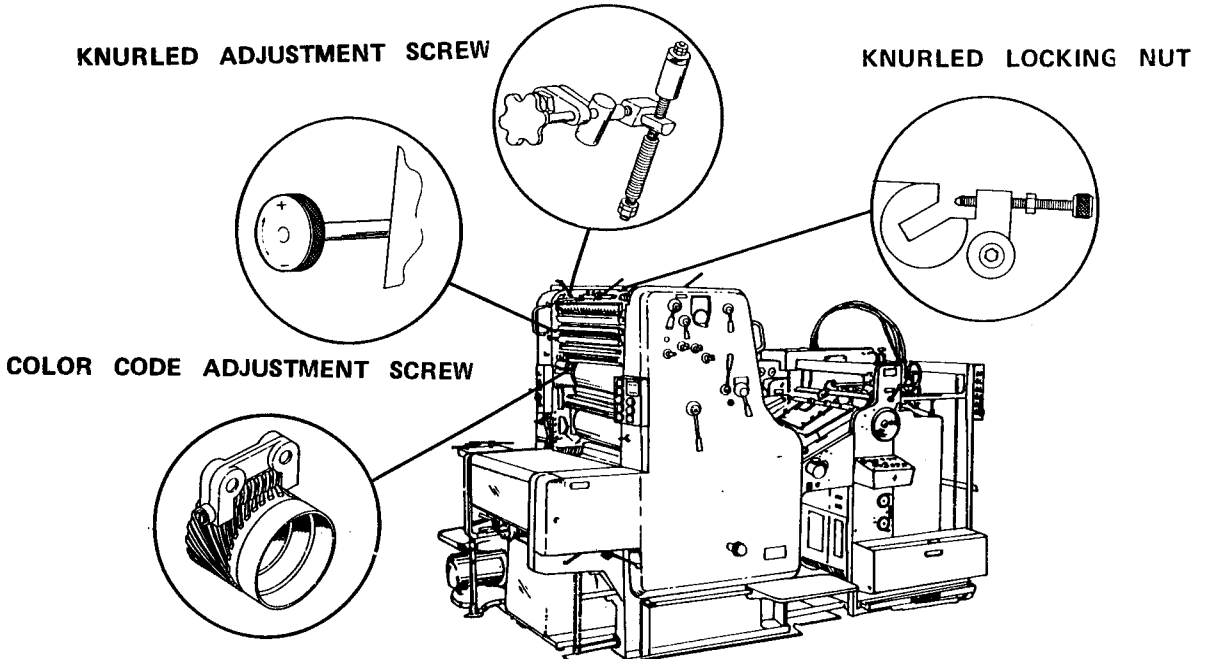
Use above inking roller schematic to identify rollers in the following procedures.

Roller Name	Roller Number	Color	Diameter	Composition
INKING FORM ROLLER	No. 1	White	2-7/16 in. (62.5 mm)	Rubber
INKING FORM ROLLER	No. 2	Blue	2-1/4 in. (57 mm)	Rubber
INKING FORM ROLLER	No. 3	Red	2-3/8 in (60 mm)	Rubber
INKING FORM ROLLER	No. 4	Yellow	2-9/16 in. (65 mm)	Rubber
INK OSCILLATOR ROLLER	No. 5			Coated Steel
INK OSCILLATOR ROLLER	No. 6			Coated Steel
DISTRIBUTOR ROLLER	No. 7	Blue	2-1/4 in. (57 mm)	Coated Steel
RIDER ROLLER	No. 8			Coated Steel
DISTRIBUTOR ROLLER	No. 9	White	2-7/16 in. (62.5 mm)	Rubber
DISTRIBUTOR ROLLER	No. 10			Coated Steel
DISTRIBUTOR ROLLER	No. 11	Yellow	2-9/16 in. (65 mm)	Rubber
DISTRIBUTOR ROLLER	No. 12	Red	2-3/8 in. (60 mm)	Rubber
RIDER ROLLER	No. 13			Coated Steel
INK OSCILLATOR ROLLER	No. 14			Coated Steel
MANUAL INKING ROLLER	No. 15			Coated Steel
DISTRIBUTOR ROLLER	No. 16	White	2-7/16 in. (62.5 mm)	Rubber
INK OSCILLATOR ROLLER	No. 17			Coated Steel
INK DUCTOR ROLLER	No. 18	Blue	2-1/4 in. (57 mm)	Rubber
INK FOUNTAIN ROLLER	No. 19			Steel

2-7. OPERATING PROCEDURES (CONT)

e. Prepare Inking Assembly (Cont)

(1) Preparation for Roller Installation



CAUTION

Use roller supports for removed rollers that are not stored in roller rack. Failure to do so may damage roller surface.

(a) Remove rider roller no. 8 by backing off knurled adjustment screw and lifting roller out.

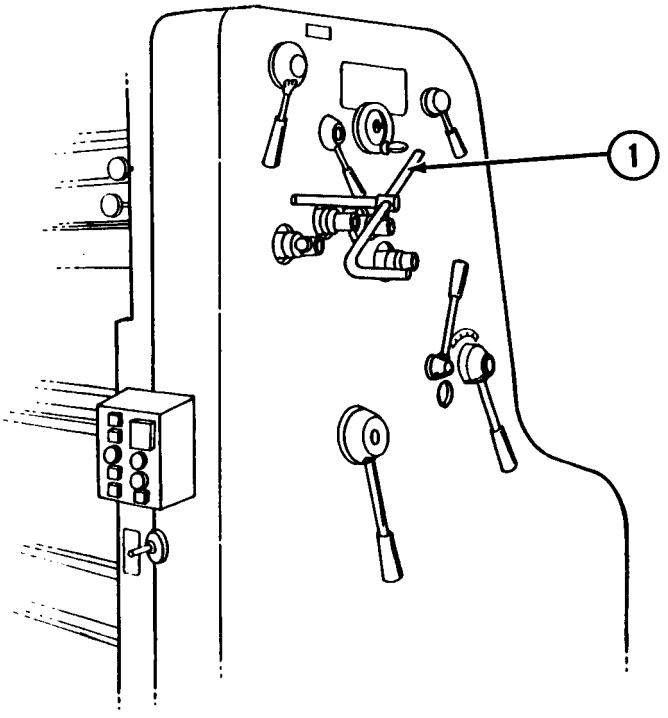
WARNING

EXPOSED MOVING PARTS. All adjustments will be made while Printing Press is on SAFETY STOP except those authorized by this manual to be made with Printing press running. Printing Press must be on safe at all times when not in motion. Always shout "clear" and wait for "clear" response before taking Printing Press off safe to inch or run. Failure to follow this warning may result in serious injury.

(b) Take Printing Press off safe and inch until oscillator roller no. 5 is in far left position (drive side) and red mark on roller points toward delivery end of Printing Press.

2-7. OPERATING PROCEDURES (CONT)

e. Prepare Inking Assembly (Cont)



(c) Put Printing Press on safe. Insert L-handle special wrench (1) into opening of inking unit side frame.

(d) Turn L-handle wrench to left until it stops.

(e) Remove oscillator roller no. 5 from delivery end of Printing Press and place on delivery gripper cover roller supports.

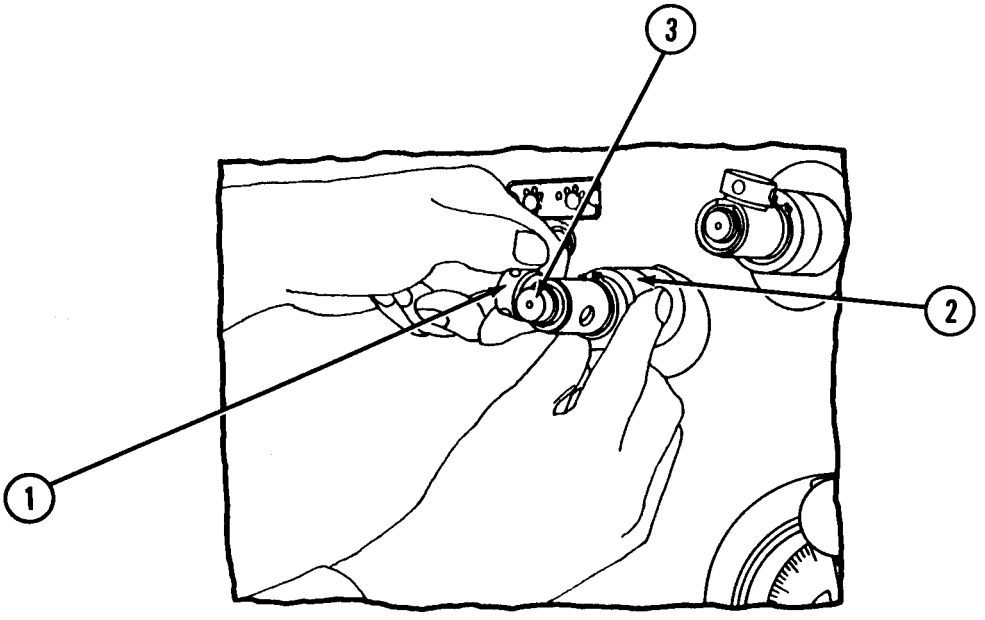
(f) Slide distributor roller no. 10 out of Printing Press.

(g) Loosen locknut, back off locking knurled adjustment screws, and remove rider roller no. 13.

2-7. OPERATING PROCEDURES (CONT)

e. Prepare Inking Assembly (Cont)

(2) Install Form Roller No. 1 (White)



(a) Loosen knurled locking nut (1).

(b) Push safety sleeve (2) completely in. Grasp knurled locking nut (1) and pull journal shaft (3) outward.

(c) Insert form roller no. 1 bearing into retracted journal on operator side.

(d) Aline opposite roller bearing and slide roller bearing into gear side journal.

(e) Push roller journal shaft completely in.

(f) Using pin wrench, tighten knurled locking nut (1).

(3) Install Form Roller No. 2 (Blue)

(a) Loosen knurled locking nut (1).

(b) Push safety sleeve (2) completely in. Grasp knurled locking nut (1) and pull journal shaft (3) outward.

(c) Insert form roller no. 2 bearing into retracted journal on operator side.

2-7. OPERATING PROCEDURES (CONT)

e. Prepare Inking Assembly (Cent)

(d) Aline opposite roller bearing and slide roller bearing Into drive side journal.

(e) Push roller journal shaft completely in.

(f) Using pin wrench, tighten knurled locking nut (1).

(4) Adjust Form Roller No. 1 to Oscillator Roller No. 6

NOTE

Printing Press will not operate with safety gate open.

(a) Open safety gate on feeder side. Apply ink across surface of oscillator roller no. 6. Close safety gate.

(b) Take Printing Press off safe and run until ink smoothes out on rollers.

(c) Put Printing Press on safe and let sit for 15 seconds.

(d) Take Printing Press off safe and inch forward until nip line is visible on oscillator roller no. 6.

(e) Put Printing Press on safe. Press a small strip of paper over nip line on oscillator roller no. 6 approximately 4 in. (10.2 cm) from each end of roller.

(f) Remove paper strip and check width of nip line. Nip line width should be 5/32 in. (0.41 cm).

NOTE

Turning worm adjustment screw to right will increase width of nip and to left will decrease width of nip. A slight move in either direction may cause substantial change in width of nip.

(g) Using long-handled screwdriver, turn worm adjustment screw located on roller journal inside frame. Adjust from feeder end of Printing Press as required to obtain a 5/32 in. (0.41 cm) nip at both ends of roller.

2-7. OPERATING PROCEDURES (CONT)

e. Prepare Inking Assembly (Cont)

(5) Adjust Form Roller No. 2 to Oscillator Roller No. 6

NOTE

Printing Press will not operate with safety gate open.

(a) Take Printing Press off safe and run until ink smoothes out on rollers.

(b) Put Printing Press on safe and let sit for 15 seconds.

(c) Take Printing Press off safe and inch backward until nip line is visible on form roller no. 2.

(d) Put Printing Press on safe. At delivery end, press a small strip of paper over nip line on form roller no. 2 approximately 4 in. (10.2 cm) from each end of roller.

(e) Remove paper strip and check width of nip line. Nip line width should be 5/32 in. (0.41 cm).

NOTE

Turning worm adjustment screw to right will increase width of nip and to left will decrease width of nip. A slight move in either direction may cause substantial change in width of nip.

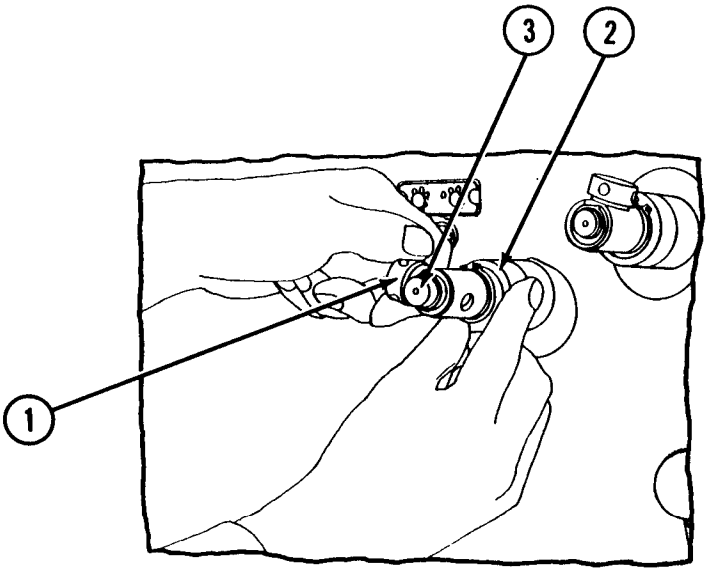
(f) Using long-handled screwdriver, turn worm adjustment screw located on roller journal inside frame. Adjust from feeder end of Printing Press as required to obtain a 5/32 in. (0.41 cm) nip at both ends of roller.

(6) Install Form Roller No. 3 (Red)

(a) Take Printing Press off safe and inch forward until oscillator roller no. 5 journal is in far left position (drive side) and red mark on roller journal points to delivery end of Printing Press.

2-7. OPERATING PROCEDURES (CONT)

e. Prepare Inking Assembly (Cont)



(b) Put Printing Press on safe. Loosen knurled locking nut (1).

(c) Push safety sleeve (2) completely in. Grasp knurled locking nut (1) and pull journal shaft (3) outward.

(d) Insert form roller no. 3 bearing into retracted journal on operator side.

(e) Aline opposite roller bearing and slide roller bearing into gear side journal.

(f) Push roller journal shaft completely in.

(g) Using pin wrench, tighten knurled locking nut (1).

2-7. OPERATING PROCEDURES (CONT)

e. Prepare Inking Assembly (Cont)

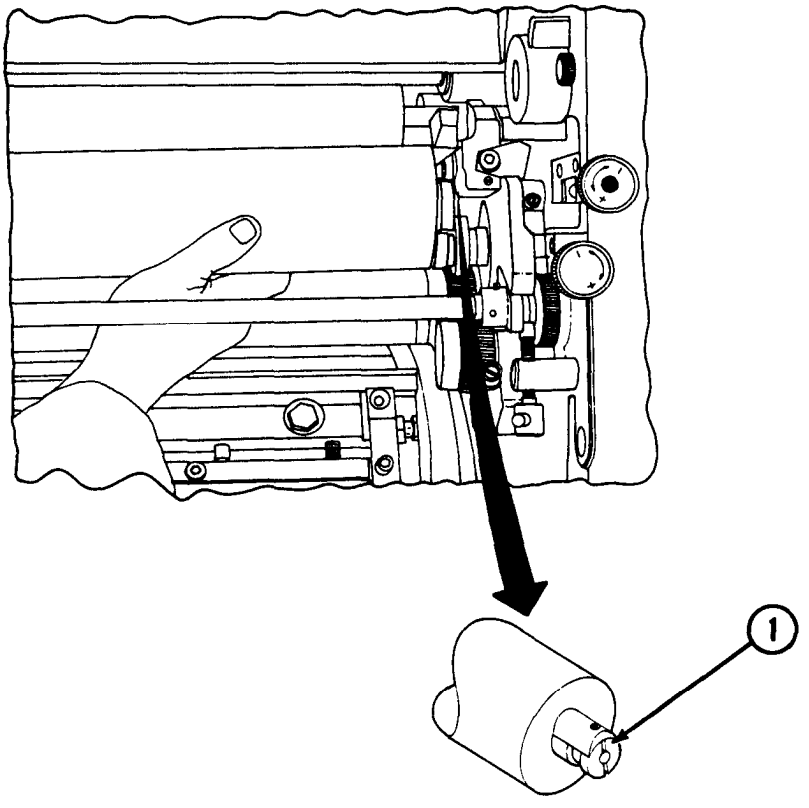
(7) Install Oscillator Roller No. 5

NOTE

Form roller no. 3 must be moved away from oscillator roller no. 5 to prevent contact pressure between two rollers.

(a) At delivery end, locate form roller no. 3 worm adjustment screws on roller journal inside frame. Turn worm adjustment screws to left to move form roller no. 3 away from oscillator roller no. 5.

(b) Ensure open ends of oscillator roller no. 5 stub shafts are facing upward.



(c) Position oscillator roller no. 5 so that sickle-shaped part on shaft (1) faces up and toward operator side.

2-7. OPERATING PROCEDURES (CONT)

e. Prepare Inking Assembly (Cent)

NOTE

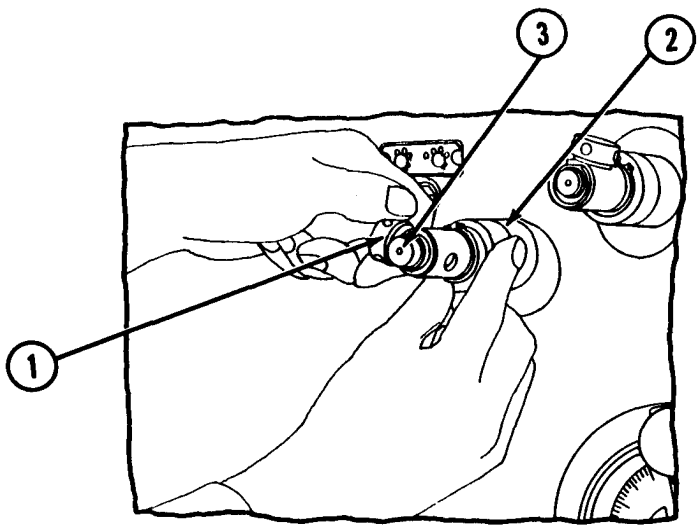
Two people are required to perform next step.

(d) As first person holds operator side stub shaft, second person inserts oscillator roller no. 5 evenly into stub shafts.

(e) Insert special wrench into operator side frame opening. Engage wrench in slot and turn to right until roller stops.

(f) Ensure open end of stub shafts completely penetrate oscillator roller no. 5 from both sides.

(8) Install Form Roller No. 4 (Yellow)



(a) Loosen knurled locking nut (1).

(b) Push safety sleeve (2) completely in. Grasp knurled locking nut (1) and pull journal shaft (3) outward.

(c) Insert form roller no. 4 bearing into retracted journal on operator side.

(d) Aline opposite roller bearing and slide roller bearing into gear side journal.

2-7. OPERATING PROCEDURES (CONT)

e. Prepare Inking Assembly (Cont)

(e) Turn worm adjustment screws to left to relieve tension on form roller no. 4.

(f) Push roller journal shaft completely in.

(g) Using pin wrench, tighten knurled locking nut (1).

(h) Turn worm adjustment screws to right until slight resistance is felt.

(i) Turn adjustment screws for form roller no. 3 to right until slight resistance is felt.

(9) Adjust Form Roller No. 3 to Oscillator Roller No. 5

NOTE

Printing Press will not operate with safety gate open.

(a) Open safety gate on delivery side. Apply ink across surface of oscillator roller no. 5. Close safety gate.

(b) Take Printing Press off safe and run until ink smoothes out on rollers.

(c) Put Printing Press on safe and let sit for 15 seconds.

(d) Take Printing Press off safe and inch forward until nip line is visible on oscillator roller no. 5.

(e) Put Printing Press on safe. Press a small strip of paper over nip line on oscillator roller no. 5 approximately 4 in. (10.2 cm) from each end of roller.

(f) Remove paper strip and check width of nip line. Nip line width should be 5/32 in. (0.41 cm).

2-7. OPERATING PROCEDURES (CONT)

e. Prepare Inking Assembly (Cont)

NOTE

Turning worm adjustment screw to right will increase width of nip and to left will decrease width of nip. A slight move in either direction may cause substantial change in width of nip.

(g) Using long-handled screwdriver, turn worm adjustment screw located on roller journal inside frame. Adjust from delivery end of Printing Press as required to obtain a 5/32 in. (0.41 cm) nip at both ends of roller.

(10) Adjust Form Roller No. 4 to Oscillator Roller No. 5

(a) Take Printing Press off safe and run until ink smoothes out on rollers.

(b) Put Printing Press on safe and let sit for 15 seconds.

(c) Take Printing Press off safe and inch backward until nip line is visible on oscillator roller no. 5.

(d) Put Printing Press on safe. Press a small strip of paper over nip line on oscillator roller no. 5 approximately 4 in. (10.2 cm) from each end of roller.

(e) Remove paper strip and check width of nip line. Nip line width should be 5/32 in. (0.41 cm).

NOTE

Turning worm adjustment screw to right will increase width of nip and to left will decrease width of nip. A slight move in either direction may cause substantial change in width of nip.

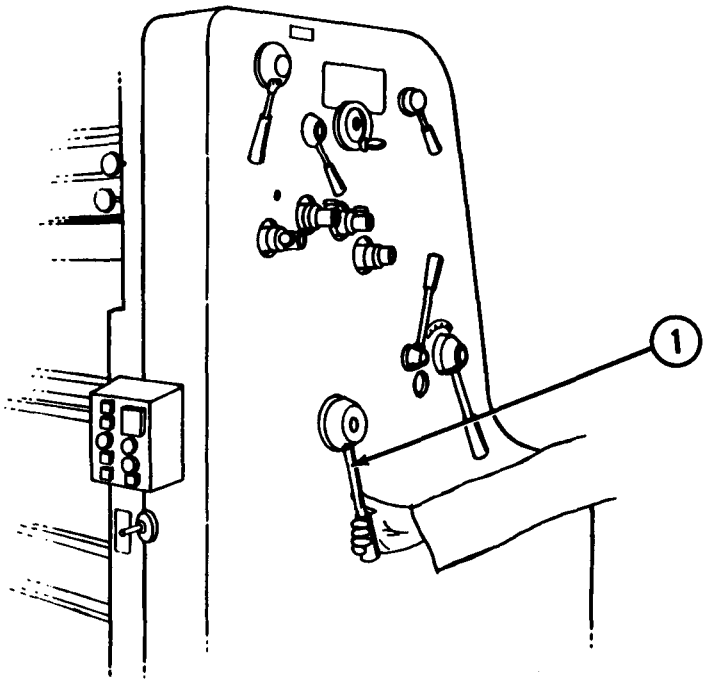
(f) Using long-handled screwdriver, turn worm adjustment screw located on roller journal inside frame. Adjust from delivery end of Printing Press as required to obtain a 5/32 in. (0.41 cm) nip at both ends of roller.

(11) Adjust Form Rollers to Plate

(a) Take Printing Press off safe and inch forward until lead edge of plate is below form roller no. 4.

2-7. OPERATING PROCEDURES (CONT)

e. Prepare Inking Assembly (Cont)



(b) Put Printing Press on safe. Pull form roller control handle (1) out and toward delivery end to drop form rollers onto plate. Wait 15 seconds, then move form roller control handle to original position.

(c) Take Printing Press off safe and inch forward until form roller no. 4 and no. 3 ink beads on plate are accessible.

(d) Put Printing Press on safe. Measure width of ink bead approximately 4 in. (10.2 cm) from each end of plate. Ink bead width should be 5/32 in. (0.41 cm).

NOTE

- Turning adjustment screws toward "+" will increase width of ink bead and toward "-" will decrease width of ink bead. A slight adjustment in either direction may cause substantial change in width of ink bead.
- After measuring ink bead, smear bead with finger to aid in identifying new beads.

2-7. OPERATING PROCEDURES (CONT)

e. Prepare Inking Assembly (Cont)

(e) Turn yellow adjustment screw to adjust form roller no. 4 for 5/32 in. (0.41 cm) wide bead of ink at both ends of plate.

(f) Turn red adjustment screw to adjust form roller no. 3.

(g) Take Printing Press off safe and inch forward until ink beads from form rollers no. 2 and no. 1 are visible on plate.

(h) Put Printing Press on safe. Use blue adjustment screw on feeder side to adjust form roller no. 2.

(i) Use white adjustment screw to adjust form roller no. 1.

(j) Repeat steps (a) through (h) above until all form rollers have a 5/32 in. (0.41 cm) ink bead on plate.

(k) Take Printing Press off safe and run.

(1) Lower form rollers to plate and allow plate to black out.

(m) Place finger on feeler rods just above color-coded adjustment screws to check for excessive bounce. Turn adjustment screws as required to take out excessive bounce.

(n) Raise form rollers from plate.

(o) Put Printing Press on safe.

WARNING

EXPOSED MOVING PARTS. Do not inch Printing Press and wipe cylinder at the same time. Return Printing Press to SAFETY STOP after each inching. Failure to do so may result in serious injury.

(p) Take Printing Press off safe. Inch as required to clean plate. Use solvent, then water. Gum plate if necessary. Put Printing Press on safe.

(12) Install Distributor Roller No. 11 (Yellow)

(a) Open safety gate at delivery end.

(b) Insert roller bearings in guide bracket above form rollers.

(c) Push distributor roller no. 11 forward until it rests against oscillator roller no. 6.

2-7. OPERATING PROCEDURES (CONT)

e. Prepare Inking Assembly (Cent)

(13) Install Distributor Roller No. 10 (Steel)

(a) Aline flat sides of spindle ends with slotted journals.

(b) Slide roller spindles into slotted journals.

(c) Push roller forward against distributor roller no. 11.

(14) Install Distributor Roller No. 9 (White)

(a) Insert roller bearings in guide bracket above form roller no. 3.

(b) Push roller forward against distributor roller no. 10.

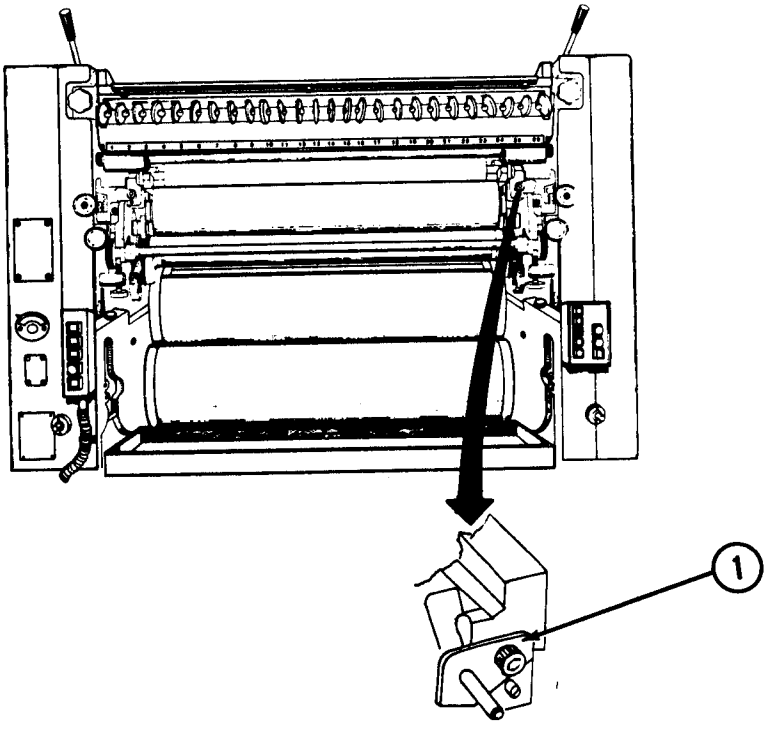
(15) Install Rider Roller No. 8

(a) Aline flat sides of spindle ends with slotted journals.

(b) Slide roller spindles into slotted journals.

(16) Install Distributor Roller No. 7 (Blue)

(a) Insert roller bearings into slots above and in front of oscillator roller no. 5.



2-7. OPERATING PROCEDURES (CONT)

e. Prepare Inking Assembly (Cont)

(b) Move pivot latches (1) over roller bearings to lock roller in position.

(c) Tighten knurled adjustment screws finger tight.

(17) Adjust Rider Roller No. 8 to Distributor Roller No. 7

Turn knurled adjustment screws to right until finger tight.

(18) Install Distributor Roller No. 12 (Red)

(a) Open safety gate at feeder end.

(b) Insert distributor roller no. 12 roller bearings in journals between oscillator rollers no. 6 and no. 14.

(19) Install Rider Roller No. 13

(a) Aline flat sides of spindle ends with grooves in journals.

(b) Insert roller spindles in journals.

(c) Apply light pressure on spindles using locking knurled adjustment screws. Turn locknuts finger tight.

(20) Adjust Rider Roller No. 13 to Distributor Roller No. 12

NOTE

It may be necessary to add more ink to rollers.

(a) Take Printing Press off safe and run until ink smoothes out on rollers.

(b) Put Printing Press on safe and let sit for 15 seconds.

(c) Take Printing Press off safe and inch until nip line is visible on rider roller no. 13.

(d) Put Printing Press on safe. Press a small strip of paper over nip line on rider roller no. 13 approximately 4 in. (10.2 cm) from each end of roller.

(e) Remove paper strips and check width of nip line on paper. Nip line should be 1/8 to 3/16 in. (0.32 to 0.48 cm).

2-7. OPERATING PROCEDURES (CONT)

e. Prepare Inking Assembly (Cont)

NOTE

Turning locking knurled adjustment screw to right will increase pressure and to left will decrease pressure. A slight move in either direction may cause substantial change in pressure.

(f) To adjust, loosen locknut and adjust locking knurled adjustment screw. Tighten locknut finger tight.

(g) Repeat steps (a) through (f) above until desired nip line is obtained.

(21) Install Distributor Roller No. 16 (White)

(a) Grasp handle and pull manual inking roller no. 15 toward delivery end to disengage.

(b) Insert distributor roller no. 16 into guide brackets above oscillator roller no. 14.

NOTE

Engaging manual inking roller no. 15 provides required pressure against distributor roller no. 16. No further adjustment is necessary.

(c) Move manual inking roller no. 15 toward feeder and press down on handle to engage.

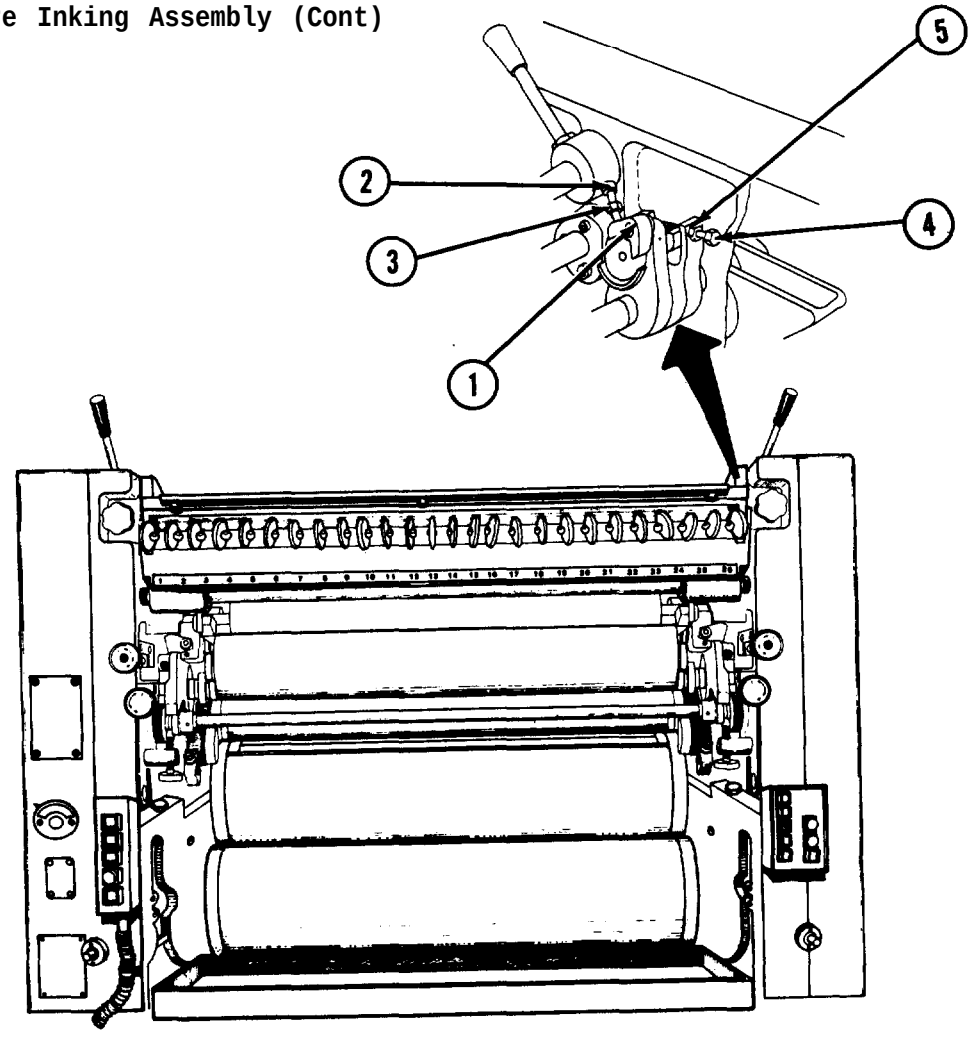
(22) Install Ductor Roller No. 18 (Blue)

(a) Move ink supply lever to left (on) position. Take Printing Press off safe and inch forward until ductor roller no. 18 journals have moved completely toward fountain roller no. 19.

(b) Put Printing Press on safe. Insert roller bearing into gear side journal between fountain roller no. 19 and oscillator roller no. 17.

2-7. OPERATING PROCEDURES (CONT)

e. Prepare Inking Assembly (Cont)



(c) Pivot operator side journal locking latch (1) upward and insert roller bearing under latch and into journal.

(d) Turn locking knurled adjustment screw (2) finger tight. Tighten locknut (3).

(23) Adjust Ductor Roller No. 18 to Oscillator Roller No. 17

NOTE

It may be necessary to add more ink to rollers.

(a) Take Printing Press off safe and inch forward until ductor roller no. 18 has moved completely toward oscillator roller no. 17.

2-7. OPERATING PROCEDURES (CONT)

e. Prepare Inking Assembly (Cont)

(b) Allow rollers to rest against each other for 15 seconds.

(c) Inch Printing Press backward until ductor roller no. 18 backs away from oscillator roller no. 17.

(d) Put Printing Press on safe. Turn ductor roller no. 18 by hand until nip line is accessible.

(e) Press a small strip of paper over nip line on ductor roller no. 18 approximately 4 in. (10.2 cm) from each end of roller.

(f) Remove paper strips and check width of nip line on paper. Nip line width should be 5/32 in. (0.41 cm).

(g) Turn locking hex head adjustment screw (4) to adjust ductor roller no. 18 until a 5/32 in. (0.41 cm) nip line is obtained.

(h) Holding locking hex head adjustment screw (4), turn locknuts (5) to right to lock roller setting in position.

NOTE

Ductor roller no. 18 is spring loaded against fountain roller no. 19. No adjustment is necessary.

(24) Ink Up Printing Press

(a) Swing ink fountain up and lock into place with star-shaped knobs.

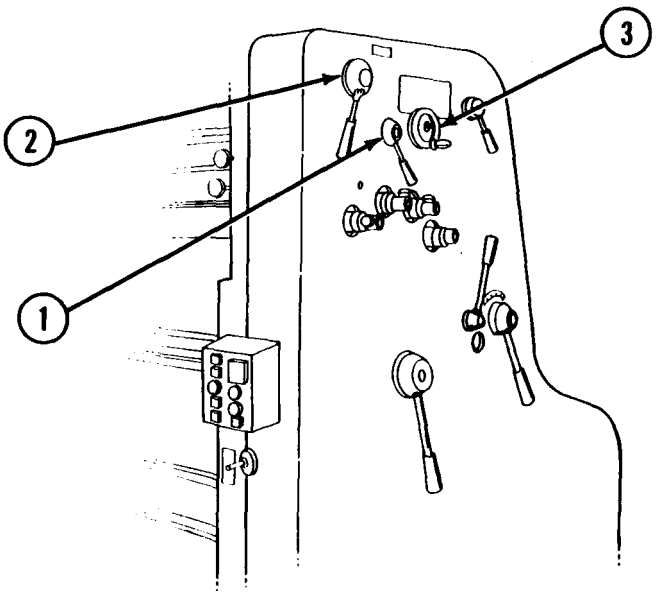
NOTE

Ink fountain end plates can be used to split ink fountain.

(b) Load fountain with ink.

2-7. OPERATING PROCEDURES (CONT)

e. Prepare Inking Assembly (Cont)



(c) Set ink supply lever (1) to left (on) position.

(d) Take Printing Press off safe and inch until ductor roller no. 18 comes in contact with fountain roller no. 19.

(e) Put Printing Press on safe. Move ink fountain roller ratchet (2) back and forth until fountain roller no. 19 and ductor roller no. 18 are covered with ink.

(f) Check fountain roller no. 19 and ductor roller no. 18 for even distribution of ink across the rollers.

(g) Adjust keys for even ink flow.

(h) Repeat steps (e) through (g) above until even ink distribution is obtained.

NOTE

Steps (i) and (j) below can be performed at the same time as steps (d) and (e), para 2-7d (5).

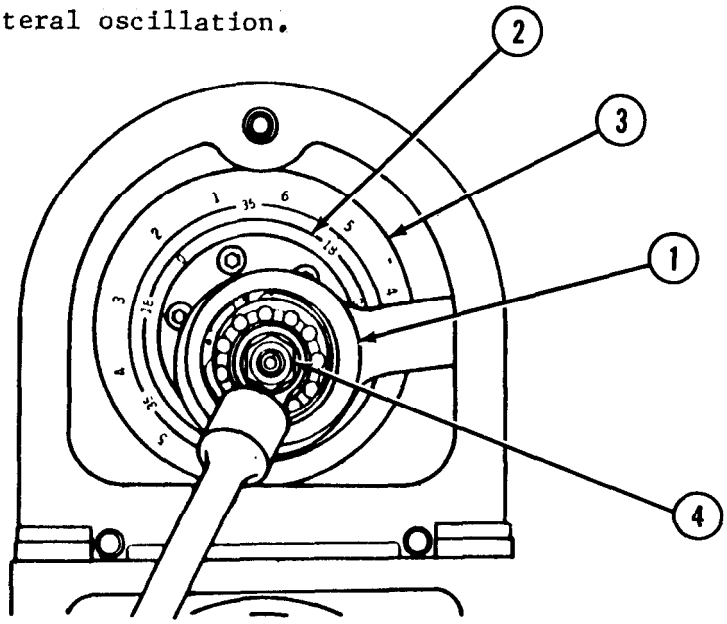
(i) Take Printing Press off safe and run ink onto rollers. Adjust ink feed handwheel (3) to desired setting.

(j) When ink makes a slight hiss on ink rollers, move ink supply lever to the middle (auto) position. Stop Printing Press.

2-7. OPERATING PROCEDURES (CONT)

e. Prepare Inking Assembly (Cent)

(25) Adjust lateral oscillation.



(a) Take Printing Press off safe and inch until oscillator rollers no. 5, no. 6, no. 14, and no. 17 are centered. They should protrude 3/8 in. (10 mm) from the ends of the rollers they contact.

NOTE

Centering pivot bolt (1) in inner ring (2) on scale provides no oscillation. Moving pivot bolt (1) to outer ring (3) provides maximum oscillation.

(b) Put Printing Press on safe. Loosen hex-head nut (4) with T-handle wrench, and slide pivot bolt (1) to desired setting.

(c) Tighten hex-head nut (4).

2-7. OPERATING PROCEDURES (CONT)

f. Perform Make-Ready Procedures

INITIAL SETUP

Tools

19 mm T-handle socket wrench (appendix B, section III, item 44)
Plate wrench (appendix B, section 111, item 43)
Straight pin wrench (appendix B, section III, item 42)
13 and 17 mm combination wrench (appendix B, section III, item 39)

Materials

Erasing shield, (appendix D, item 52)
Rags (appendix D, item 50)
Sponge (appendix D, item 57)
Eraser (appendix D, item 15)
Etching needle (appendix B, section III, item 26)
No. 6 pencil (appendix D, item 49)
Bucket (appendix B, section III, item 5)

General Safety Instructions

WARNING

- EXPOSED MOVING PARTS. All adjustments will be made while Printing Press is on SAFETY STOP except those authorized by this manual to be made with Printing Press running. Printing Press must be on safe at all times when not in motion. Always shout "clear" and wait for "clear" response before taking Printing Press off safe to inch or run. Failure to follow this warning may result in serious injury.

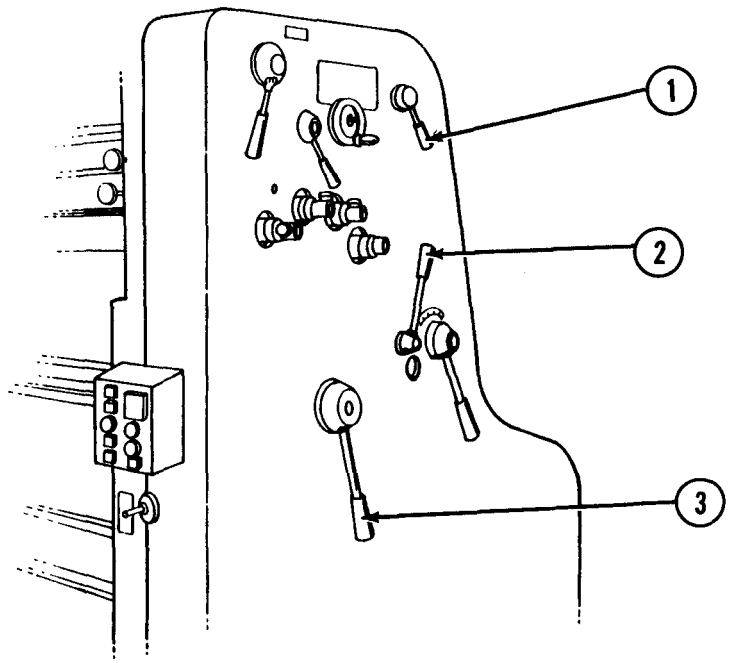
- EXPOSED MOVING PARTS. Remove all jewelry. Keep shirts tucked in, sleeves above elbows, and ties removed. Failure to observe these precautions while operating Printing Press may result in serious injury.

- ELECTRICAL SHOCK. Static electricity is retained in static eliminator bar for up to 2 hours after power is turned off. Touching static eliminator bar while charged may result in injury from electrical shock.

- EXPOSED MOVING PARTS. Do not inch Printing Press and wipe cylinder at the same time. Return Printing Press to SAFETY STOP after each inching. Failure to do so may result in serious injury.

2-7. OPERATING PROCEDURES (CONT)

f. Perform Make-Ready Procedures (Cont)



(1) Take Printing Press off safe. Remove gum from plate with sponge and water.

(2) Move water supply lever (1) to center (AUTOMATIC).

(3) With Printing Press running, move dampening form roller control lever (2) to right (on) position.

(4) Pull out inking form roller control lever (3) and move to left (on) position.

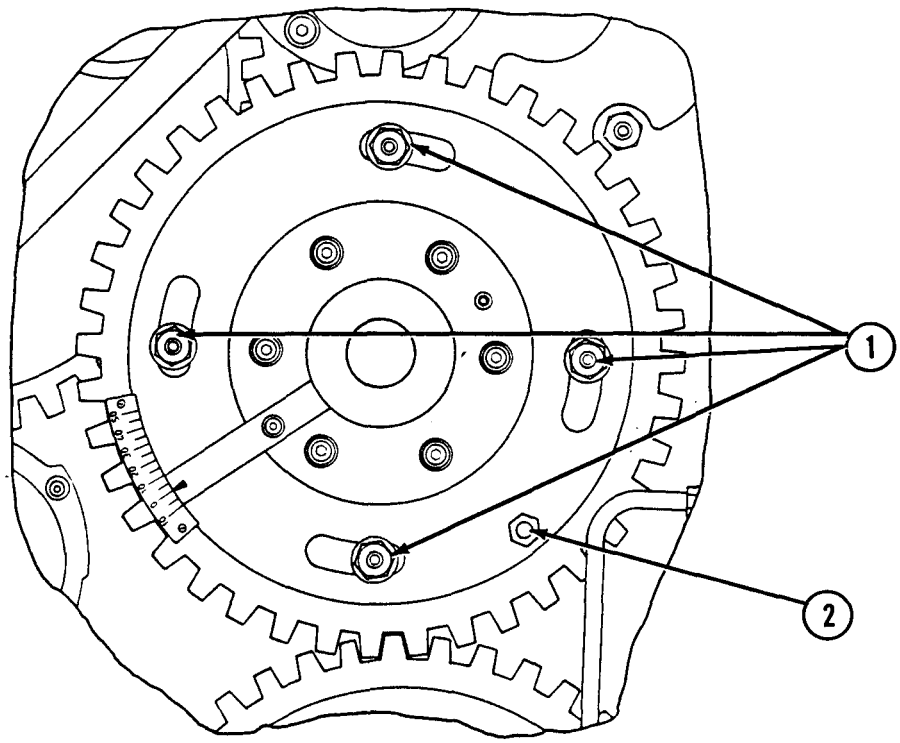
(5) Inspect image on plate. Make necessary corrections.

(6) Feed five sheets through Printing Press. Put Printing Press on safe. Move dampening form roller control lever (2) to left (off) position.

(7) Examine printed sheets for position of image.

2-7. OPERATING PROCEDURES (CONT)

f. Perform Make-Ready Procedures (cont)



NOTE

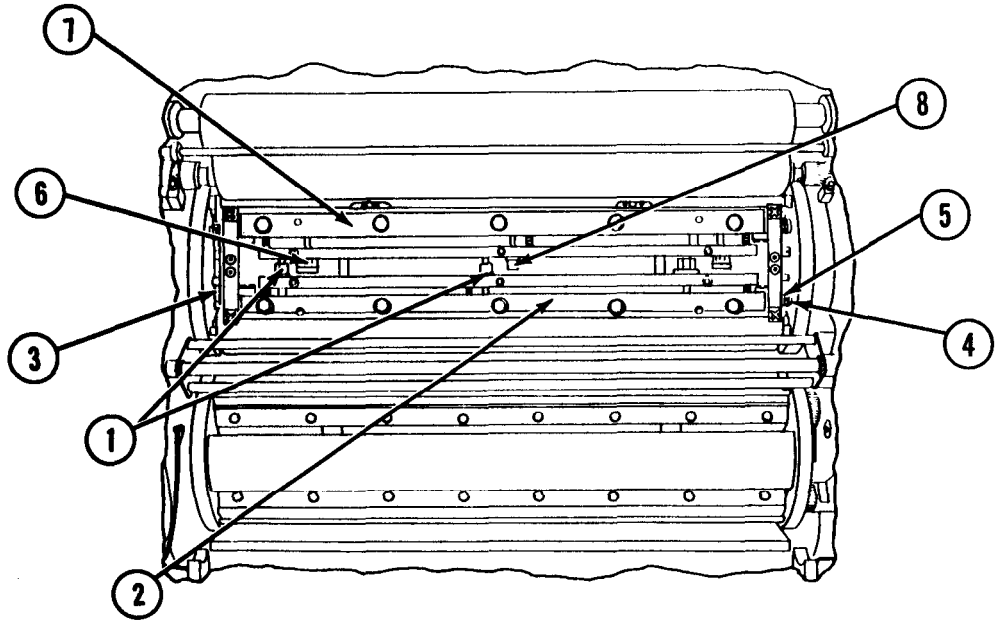
The following steps (a), (b), and (c) can be performed in sequence of operator's choice.

(a) If swing is required, move to circumferential register adjustment (para 2-7c (2) (b)) and make desired swing. Loosen tension bolts (1) and turn pinion bolt (2) right to raise image and left to lower image.

2-7. OPERATING PROCEDURES (CONT)

f. Perform Make-Ready Procedures (Cont)

(b) If twist is required to bring the drive side image down, use following procedure:



1 Loosen two tension bolts (1) on drive side of tail clamp (2).

NOTE

Be sure lateral adjustment screw (3) on drive side allows sufficient clearance to move tail clamp (2) to desired position with operator side lateral adjustment screw (4).

2 Loosen locknut (5) and turn lateral adjustment screw (4) on operator side up until tail clamp has moved desired distance. Secure locknut (5).

3 Turn tension bolt (6) on drive side of lead clamp (7) desired distance.

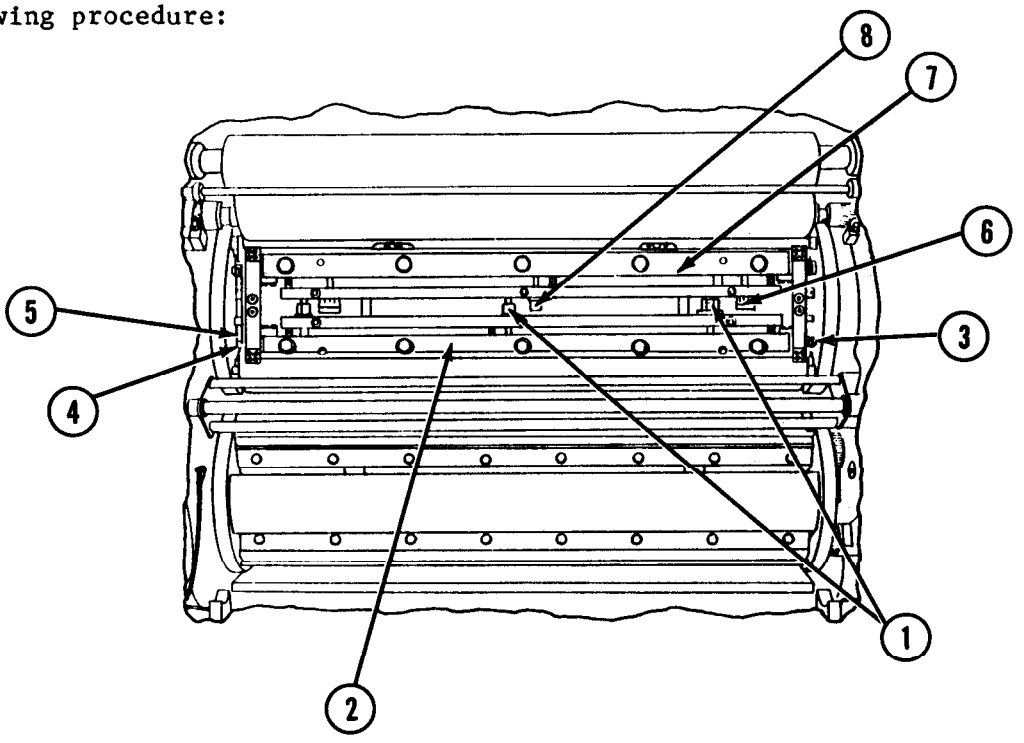
4 Turn center tension bolt (8) on lead clamp to right until finger tight.

5 Tighten two tension bolts (1) on drive side of tail clamp (2).

2-7. OPERATING PROCEDURES (CONT)

f. Perform Make-Ready Procedures (Cont)

(c) If twist is required to bring operator side image down, use following procedure:



1 Loosen two tension bolts (1) on operator side of tail clamp (2).

NOTE

Be sure lateral adjustment screw (3) on operator side allows sufficient clearance to move tail clamp (2) to desired position with drive side lateral adjustment screw (4).

2 Loosen locknut (5) and turn lateral adjustment screw (4) on drive side up until tail clamp (2) has moved desired distance. Secure locknut (5).

3 Turn tension bolt (6) on operator side of lead clamp (7) desired distance.

4 Turn center tension bolt (8) on lead clamp (7) to right until finger tight.

5 Tighten two tension bolts (1) on operator side of tail clamp (2).

2-7. OPERATING PROCEDURES (CONT)

f. Perform Make-Ready Procedures (Cont)

(d) Adjust side guide (para 2-7b (4) (c) and (d)).

(e) Take Printing Press off safe. Run five more test sheets. Put Printing Press on safe.

(f) Repeat steps (a) through (e) above until desired registration is obtained.

(g) Scribe register marks on plate.

(8) Begin production and refine adjustments as necessary.

NOTE

For instructions on operation of nonstop feeder and continuous delivery, refer to paragraph 2-9.

g. Perform Washup Procedure

INITIAL SETUP

Tools

Putty knife (appendix B, section III, item 22)
Scraping knife (appendix B, section III, item 23)

Materials

Rag (appendix D, item 50)
Lithographic solvent (appendix D, item 56)

General Safety Instructions

WARNING

- EXPOSED MOVING PARTS. All adjustments will be made while Printing Press is on SAFETY STOP except those authorized by this manual to be made with Printing Press running. Printing Press must be on safe at all times when not in motion. Always shout “clear” and wait for “clear” response before taking Printing Press off safe to inch or run. Failure to follow this warning may result in serious injury.

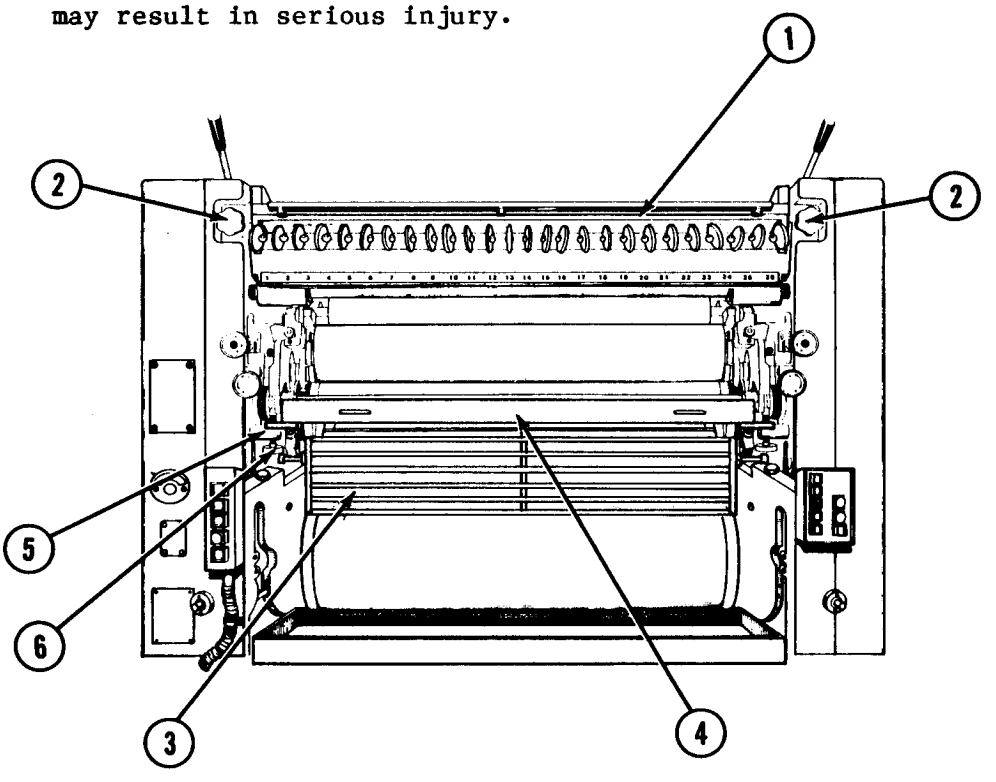
2-7. OPERATING PROCEDURES (CONT)

g. Perform Washup Procedures (Cont)

WARNING

- EXPOSED MOVING PARTS. Do not inch Printing Press and wipe cylinder at the same time. Return Printing Press to SAFETY STOP after each inching. Failure to do so may result in serious injury.

- EXPOSED MOVING PARTS. Remove all jewelry. Keep shirts tucked in, sleeves above elbows, and ties removed. Failure to observe these precautions while operating Printing Press **may result in serious injury.**



(1) Remove unused ink from ink fountain (1) and discard.

(2) Unlock star-shaped locking handles (2) and lower ink fountain.

(3) Clean ink fountain with rag and lithographic solvent.

(4) Turn ink supply lever to right (off) to disengage ductor roller no. 18 from fountain roller no. 19.

(5) Clean fountain roller no. 19 with rag and lithographic solvent.

2-7. OPERATING PROCEDURES (CONT)

g. Perform Washup Procedures (Cont)

(6) Lower delivery safety gate (3). Place washup basin (4) over end shafts (5) and raise delivery safety gate (3).

(7) Take Printing Press off safe and run. Engage feeder and push PRESET SPEED pushbutton to washup speed.

(8) Squirt a coat of lithographic solvent across ductor roller no. 18.

(9) Adjust knurled adjustment screws (6) until edge of washup basin (4) contacts oscillator roller no. 5 and ink begins to flow into washup basin.

(10) Apply lithographic solvent to ductor roller no. 18 and rider roller no. 13 until all rollers are clean.

(11) Disengage feeder.

(12) With Printing Press at idle speed, turn knurled adjustment screws (6) until edge of washup basin (4) moves away from oscillator roller no. 5.

(13) Put Printing Press on safe. Lower delivery safety gate (3). Loosen knurled adjustment screws (6) and remove washup basin (4). Raise delivery safety gate.

(14) Clean washup basin (4).

WARNING

EXPOSED MOVING PARTS. Do not inch Printing Press and wipe cylinder at the same time. Return Printing Press to SAFETY STOP after each inching. Failure to do so may result in serious injury.

(15) Clean blanket with rag and lithographic solvent.

2-7. OPERATING PROCEDURES (CONT)

h. Remove Plate

INITIAL SETUP

Tools

Plate wrench (appendix B, section III, item 43)
17 mm open-end wrench (appendix B, section III, item 40)

Materials

Lithographic solvent (appendix D, item 56)
Rag (appendix D, item 50)
Oil (appendix D, item 38)

General Safety Instructions

WARNING

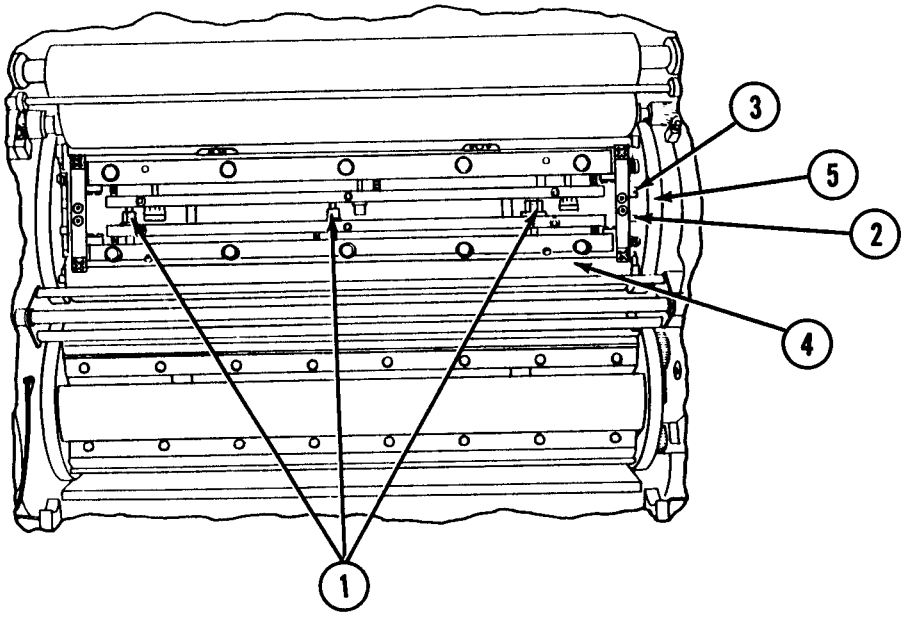
- EXPOSED MOVING PARTS. All adjustments will be made while Printing Press is on SAFETY STOP except those authorized by this manual to be made with Printing Press running. Printing Press must be on safe at all times when not in motion. Always shout “clear” and wait for “clear" response before taking Printing Press off safe to inch or run. Failure to follow this warning may result in serious injury.

- EXPOSED MOVING PARTS. Do not inch Printing Press and wipe cylinder at the same time. Return Printing Press to SAFETY STOP after each inching. Failure to do so may result in serious injury.

- EXPOSED MOVING PARTS. Remove all jewelry. Keep shirts tucked in, sleeves above elbows, and ties removed. Failure to observe these precautions while operating Printing Press may result in serious injury.

2-7. OPERATING PROCEDURE (CONT)

h. Remove Plate (Cont)



(1) Remove plate cylinder guard.

(2) Loosen tail edge clamp tension nuts (1).

(3) Release tail edge clamp (2) with plate wrench.

(4) Remove plate from tail edge clamp (2).

WARNING

EXPOSED MOVING PARTS. All adjustments will be made while Printing Press is on SAFETY STOP except those authorized by this manual to be made with Printing Press running. Printing Press must be on safe at all times when not in motion. Always shout "clear" and wait for *'clear"' response before taking Printing Press off safe to inch or run. Failure to follow this warning may result in serious injury.

(5) Take Printing Press off safe. Hold plate and packing with right hand. Inch Printing Press backward until lead edge clamp (3) is accessible.

2-7. OPERATING PROCEDURE (CONT)

h. Remove Plate (Cont)

(6) Put printing Press on safe. Release lead edge clamp (3) with plate wrench.

(7) Remove plate and packing from lead edge clamp (3).

(8) Install plate cylinder guard.

WARNING

EXPOSED MOVING PARTS. Do not inch Printing Press and wipe cylinder at the same time. Return Printing Press to SAFETY STOP after each inching. Failure to do so may result in serious injury.

(9) Take Printing Press off safe. Wipe down plate cylinder (4) and bearers (5) with clean rag and lithographic solvent.

(10) Apply light coat of oil to plate cylinder and bearers to prevent rust. Put Printing Press on safe.

i. Drain Dampening Assembly

INITIAL SETUP

Materials/Parts

Plastic tubing (appendix B, section III, item 37)
Rag (appendix D, item 50)
Water

General Safety Instructions

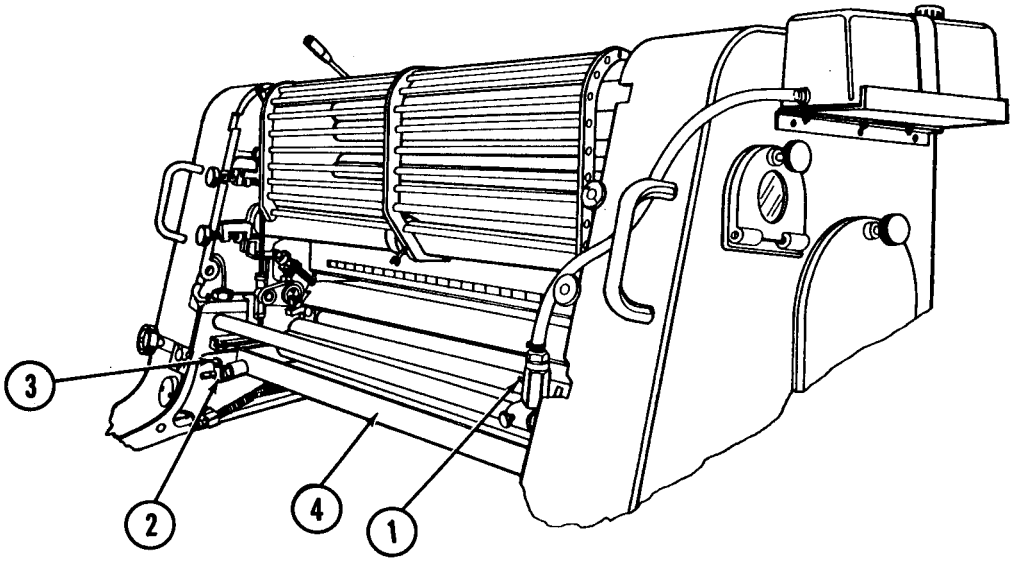
WARNING

- EXPOSED MOVING PARTS. All adjustments will be made while Printing Press is on SAFETY STOP except those authorized by this manual to be made with Printing Press running. Printing Press must be on safe at all times when not in motion. Always shout “clear” and wait for "clear” response before taking Printing Press off safe to inch or run. Failure to follow this warning may result in serious injury.

- EXPOSED MOVING PARTS. Remove all jewelry. Keep shirts tucked in, sleeves above elbows, and ties removed. Failure to observe these precautions while operating Printing Press may result in serious injury.

2-7. OPERATING PROCEDURES (CONT)

i. Drain Dampening Assembly (Cont)



(1) Turn off dampening fountain continuous flow valve (1).

(2) Insert plastic tubing over dampening fountain drain nozzle (2).

(3) Open dampening fountain drain valve (3) and drain old solution into container.

(4) Flush dampening fountain (4) with clean water.

(5) Dry dampening fountain (4) with clean rag.

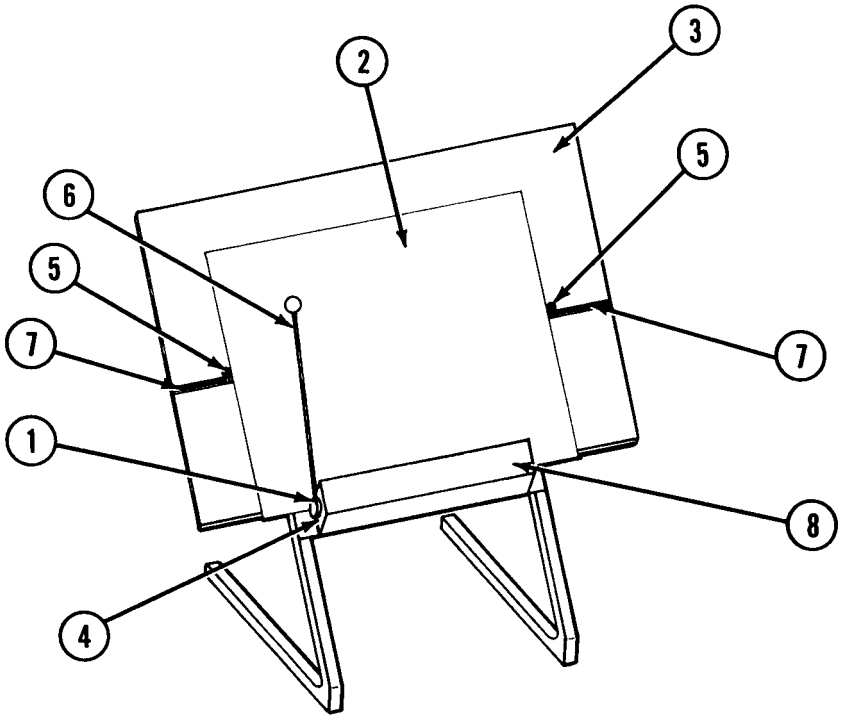
(6) Polish all chrome rollers.

(7) Perform after operation PMCS (table 2-1).

2-8. OPERATION OF AUXILIARY EQUIPMENT

a. Plate Register Punch

(1) Operation



(a) Loosen red thumbscrew (1) on lever.

(b) Place plate (2) on plate table (3) and let plate slide down against stop plates (4).

(c) Slide stops (5) together to center plate.

(d) Push down on lever (6) to punch plate.

(2) Lubrication

(a) Lubricate guide groove (7) using light machine oil (appendix D, item) every three months.

(b) Remove front cover (8). Lubricate punch units with light machine oil (appendix D, item 43) semiannually.

(c) Lubricate gears with multipurpose machine oil (appendix D, item 42) semiannually.

2-8. OPERATION OF AUXILIARY EQUIPMENT (CONT)

b. Nonstop Feeder

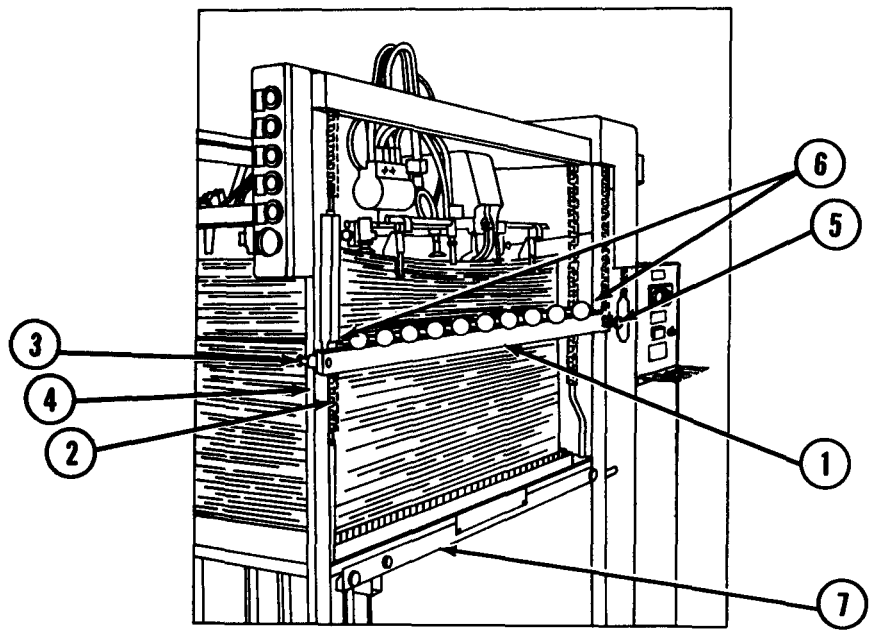
WARNING

ELECTRICAL SHOCK. Static electricity is retained in static eliminator bar for up to 2 hours after power is turned off. Touching static eliminator bar while charged may result in injury from electrical shock.

NOTE

- This procedure is performed with the Printing Press running.
- Use of nonstop feeder will depend on quantity of the job being run.
- Nonstop feeder must be prepared with at least 1500 sheets remaining on the main pile.

(1) Slide auxiliary feeder pile board under main feeder pile board. Load with paper.



(2) Attach nonstop feeder bar (1) to chain (2) on operator side. Position pawl (3) over side rail (4) on operator side.

2-8. OPERATION OF AUXILIARY EQUIPMENT (CONT)

b. Nonstop Feeder (Cont)

(3) Place nonstop feeder bar (1) into notch on side rail (4) on drive side and slide down. Attach nonstop feeder bar to chain (2) and secure with knurled nut (5).

(4) Slide rods (6) into grooves on feeder board until rods contact stop plate. Space bars for even support of paper.

(5) Press AUXILIARY PILEUP pushbutton until nonstop feeder bar (1) meets rods (6).

(6) Switch AUXILIARY PILE/MAIN PILE selector switch to AUXILIARY PILE .

(7) Press MAIN PILE DOWN pushbutton to lower main feeder pile board until feeder rail (7) can be removed.

(8) Remove wooden spacers, feeder rail, and feeder pile board.

(9) Press MAIN PILE DOWN pushbutton to lower feeder pile board supports to auxiliary feeder pile board. Place supports under feeder pile board.

(10) Install feeder rail (7) to feeder pile board support. Ensure feeder rail edges are inserted into side rails (4). Insert wooden spacers.

(11) Press MAIN PILE UP pushbutton until pile on feeder pile board rests against rods (6).

(12) Switch AUXILIARY PILE/MAIN PILE selector switch to MAIN PILE.

(13) Slide rods (6) out from pile.

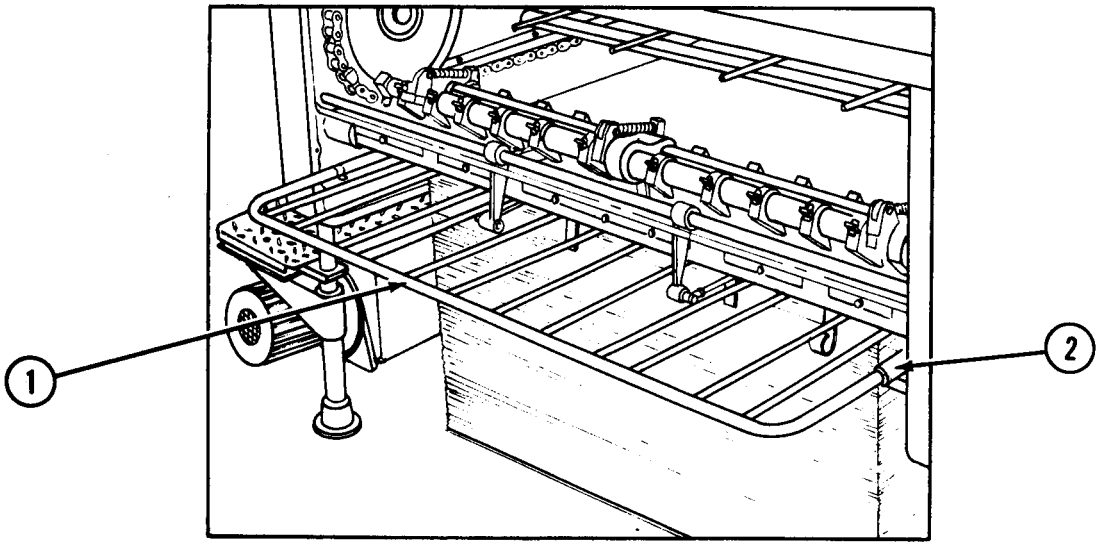
c. Continuous Delivery

NOTE

- This procedure is performed with the Printing Press running.
- Use of continuous delivery will depend on quantity of the job being run.

2-8. OPERATION OF AUXILIARY EQUIPMENT (CONT)

c. Continuous Delivery (Cont)



(1) Insert ends of continuous delivery rake (1) into guide tubes (2).

NOTE

Time insertion of continuous delivery rake between delivery of sheets.

(2) Slide continuous delivery rake quickly into guide tubes until it stops .

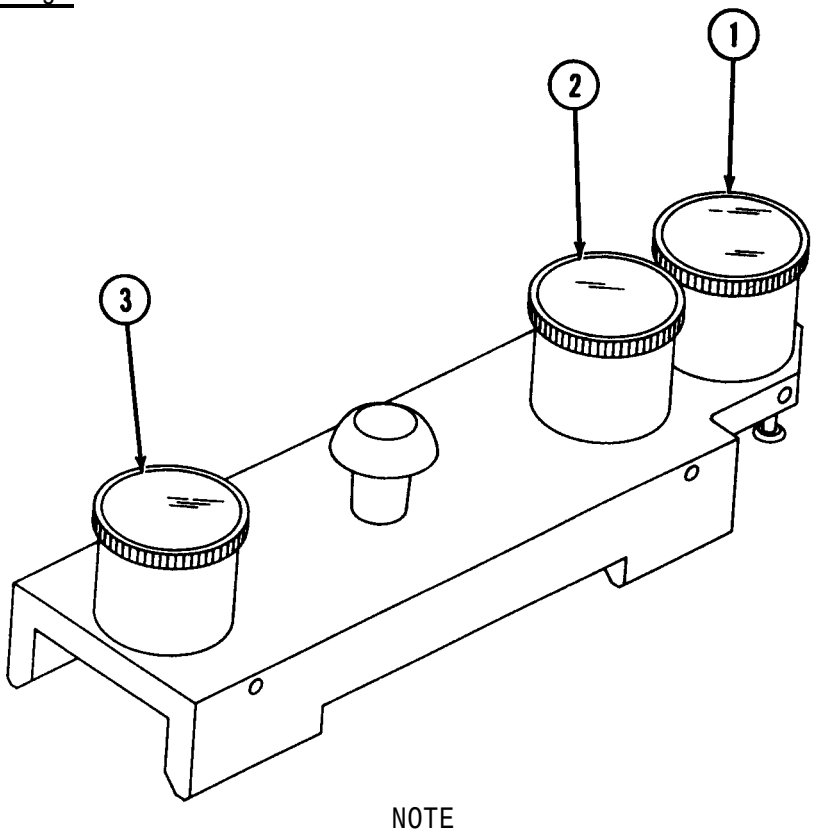
(3) Press PILE DOWN pushbutton until delivery pile board and pile can be removed. Remove delivery pile board and pile.

(4) Insert empty delivery pile board. Push PILE UP pushbutton until delivery pile board stops.

(5) Slide continuous delivery rake out of guide tubes.

2-8. OPERATION OF AUXILIARY EQUIPMENT (CONT)

d. Packing Gage



NOTE

Use light pressure when measuring the blanket.

(1) Set all dials on packing gage to zero by rotating face of dial.

(2) Place packing gage squarely on blanket cylinder so that dial (1) rests on bearer of cylinder.

(3) Take readings from dial (2) and dial (3). Readings should be the same as dial (1) if blanket cylinder is packed properly (para 2-7c (1) (c) and (d)).

NOTE

Refer to metric conversion chart on back cover of this manual.

2-9. PREPARATION FOR MOVEMENT

CAUTION

Prior to moving Press Section, perform operating procedures (para 2-7g thru i). Failure to do so will result in damage to the Printing Press.

a. Feeder End

(1) Remove paper from feeder pile board.

(2) Lower feeder pile board to floor. Remove and store in position between cabinet and wall.

(3) Lock guide rail, storage cabinet , and nonstop feeder rods in place with red thumbscrews.

(4) Lock cylinder cover and safety gate in place.

(5) Lock static eliminator bar in place.

b. Operator Side

(1) Slide footstep over hole.

(2) Secure with pin.

c. Delivery End

(1) Lower delivery pile board to floor. Remove paper. Remove, store, and lock delivery pile board in position between cabinet and wall.

(2) Lock delivery side door (operator side) in place.

CAUTION

Ensure footstep is locked UNDER the delivery. Failure to do so will damage section walls.

(3) Lock footstep under delivery.

(4) Raise manual inking roller no. 15 and remove distributor roller no. 16. Push manual inking roller no. 15 back and into distributor roller no. 16 position. Secure with thumbscrew. Secure distributor roller no. 16 in roller rack. Secure roller rack.

(5) Remove washup basin from storage rack and lock in position on inking assembly. Lock safety gate in place.

2-9. PREPARATION FOR MOVEMENT (CONT)

c. Delivery End (Cont)

(6) Store all tools.

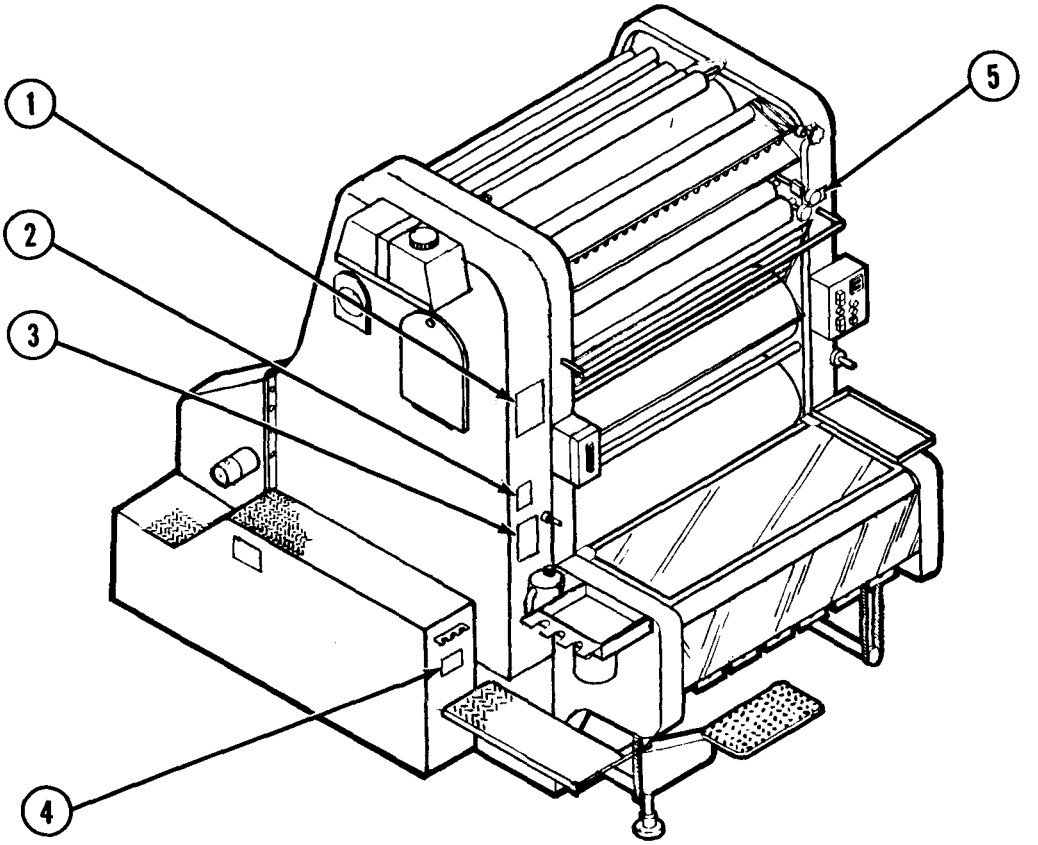
(7) Lock tool rack with thumbscrew.

(8) Walk around Printing Press and ensure all red thumbscrews are secure.

d. TSS Press Section

Proceed with para 2-7, TM 5-3610-287-10 to prepare TSS Press Section for movement.

2-10. OPERATING INSTRUCTIONS ON DECALS AND INSTRUCTION PLATES



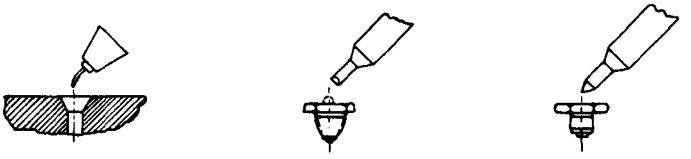
2-10. OPERATING INSTRUCTIONS ON DECALS AND INSTRUCTION PLATES (CONT)

FOR FOR FILLING THE GEAR BOX WITH OIL AND THUS FOR THE CENTRAL LUBRICATION AS WELL FOR ALL OTHER OIL LUBRICATION POINTS USE ONLY HIGHEST QUALITY OIL WITH A VISCOSITY OF 90 cSt/40° C - 110 cSt/40° C (CORRESPONDS WITH ISO VG 100). OILS OF LOWER OR HIGHER VISCOSITY ARE NOT SUITABLE AND SHOULD NOT BE USED.

CHECK OIL LEVEL WEEKLY.

THE SUITABLE OILS ARE LISTED IN THE LUBRICANT CHART OF THE OPERATION MANUAL YOU MAY ALSO USE OTHER LUBRICANT OILS OF AN EQUAL QUALITY.

INDIVIDUAL LUBRICATION POINTS



WITH OIL GUN WITH OIL GUN WITH GREASE GUN

● DAILY ⊕ WEEKLY

○ MONTHLY ⊖ SEMI - ANNUALLY

● CENTRAL LUBRICATION

EXCEPT ON PRESSES WITH FULLY AUTOMATIC CENTRAL LUBRICATION, THE RED BALL PUMP HANDLE ON THE CENTRAL LUBRICATION MUST BE PRESSED IN SLOWLY EVERY 4 OPERATING HOURS AND REMAIN ABOUT 10 SECONDS IN END POSITION WHILE PRESS IS RUNNING.

○ COMPRESSORS

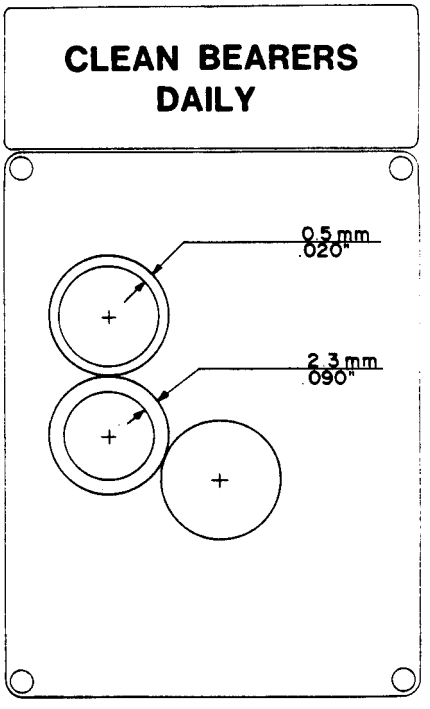
CHECK OIL LEVEL AT THE COMPRESSORS WEEKLY.
FOR THE COMPRESSORS USE OIL OF A VISCOSITY OF 288 cSt/40°C - 352 cSt/40° C (CORRESPONDS WITH ISO VG 320).
SUITABLE OILS ARE LISTED IN THE COMPRESSOR OPERATION MANUAL.

⊖ THE MOTORS ARE TO BE CLEANED BY AN ELECTRICIAN SEMI-ANNUALLY AND GREASED WITH BALL BEARING GREASE.

⊕ DUE TO POWDER DEPOSITS FROM THE SPRAY APPARATUS ALL LUBRICATION POINTS MUST BE CAREFULLY CLEANED. THE FILTERS OF BOTH COMPRESSOR UNITS AND THE FILTER IN THE DELIVERY ARE TO BE CLEANED WEEKLY.

①

2-10. OPERATING INSTRUCTIONS ON DECALS AND INSTRUCTION PLATES (CONT)



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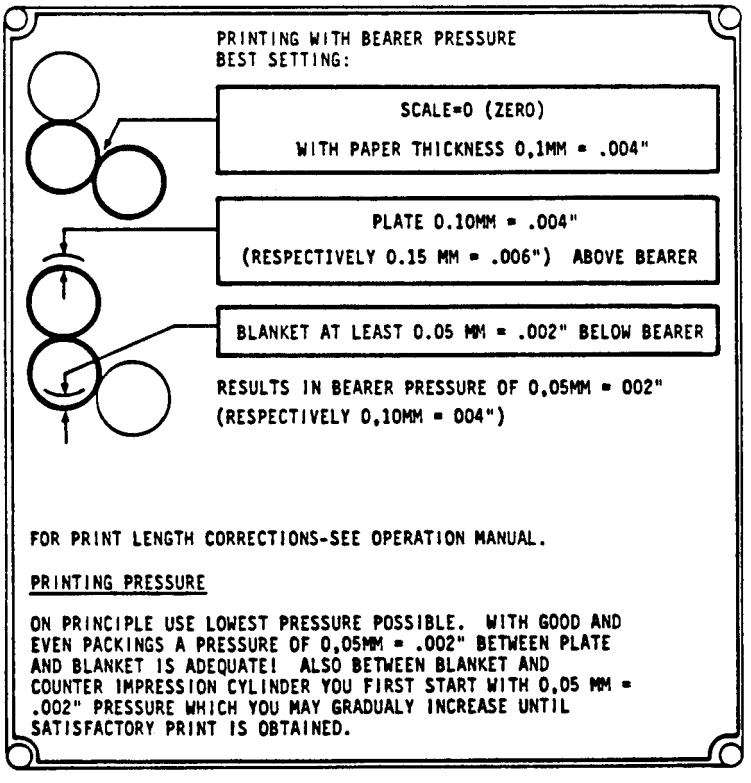

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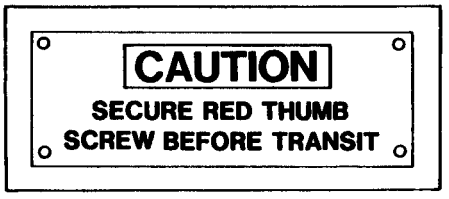
2-10. OPERATING INSTRUCTIONS ON DECALS AND INSTRUCTION PLATES (CONT)

4



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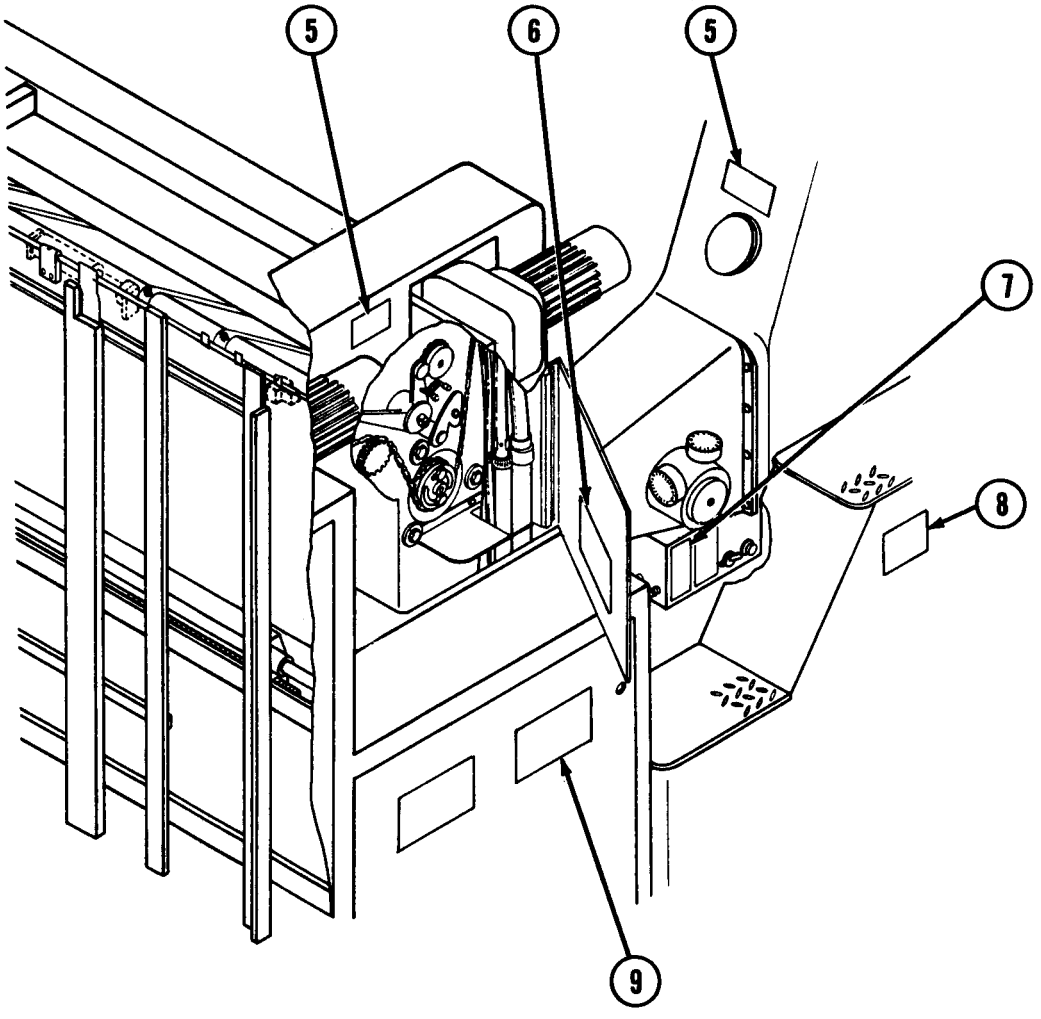
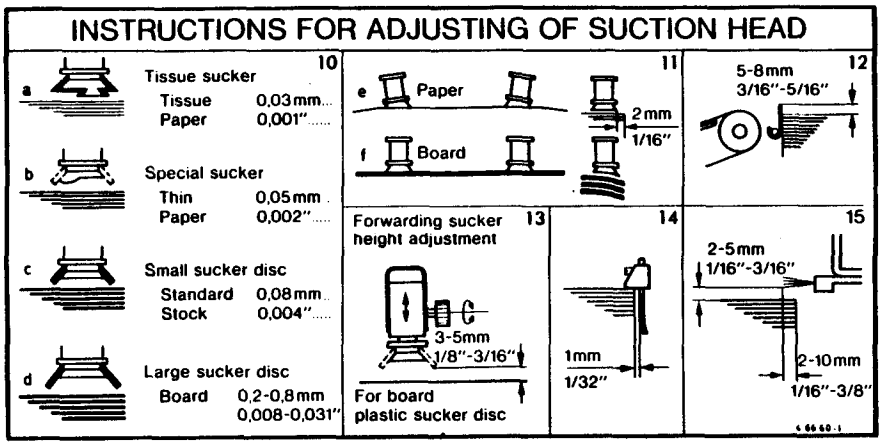


2-10. OPERATING INSTRUCTIONS ON DECALS AND INSTRUCTION PLATES (CONT)



6

- Vor dem Oeffnen Gerät ausschalten
- Switch power unit off before opening.
- Débranchez avant dôuvrir la boîte.
- Voor het openen apparaat uitschakelen

7

ATTENTION !

CHANGE OIL FOR COMPRESSOR

FOUR-MONTHLY WHEN RUN 8 HOURS A DAY
TWO-MONTHLY WHEN RUN 16 HOURS A DAY
MONTHLY WHEN RUN 24 HOURS A DAY

CLEAN AIR FILTERS AND YELLOW-MARKED FILTER WEEKLY

8

2-10. OPERATING INSTRUCTIONS ON DECALS AND INSTRUCTION PLATES (CONT)

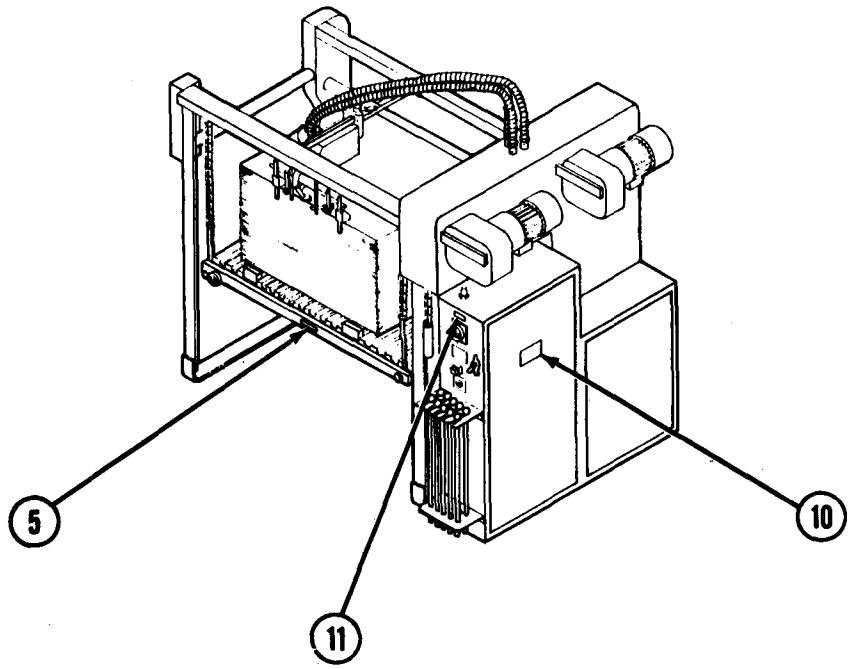
ATTENTION !

1) KEEP CONTROL-BOX ALWAYS CLOSED WHEN THE MACHINE IS RUNNING.

2) DO NOT CONNECT ANY OTHER ELECTRICAL DEVICES TO THE CONTROL-BOX.

THE FACTORY'S GUARANTEE FOR THE ELECTRICAL EQUIPMENT EXPIRES AUTOMATICALLY IF THIS INSTRUCTION IS NOT FOLLOWED !

(9)



2-10. OPERATING INSTRUCTIONS ON DECALS AND INSTRUCTION PLATES (CONT)

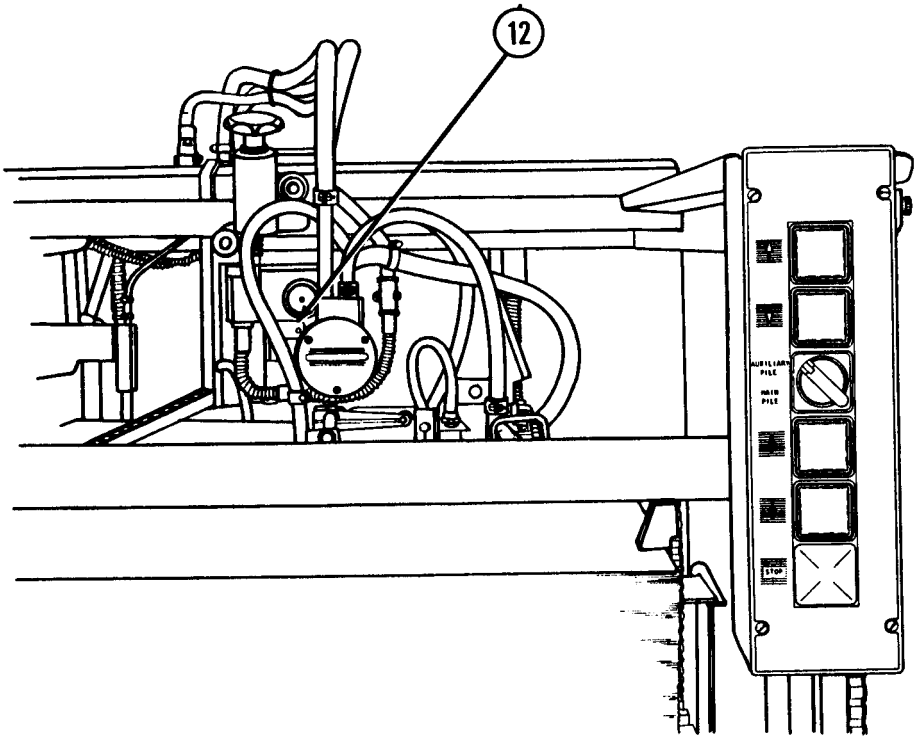
DANGER

HIGH VOLTAGE

(10)

CAUTION
HEARING PROTECTION
MUST BE WORN WHEN
OPERATING THIS
EQUIPMENT

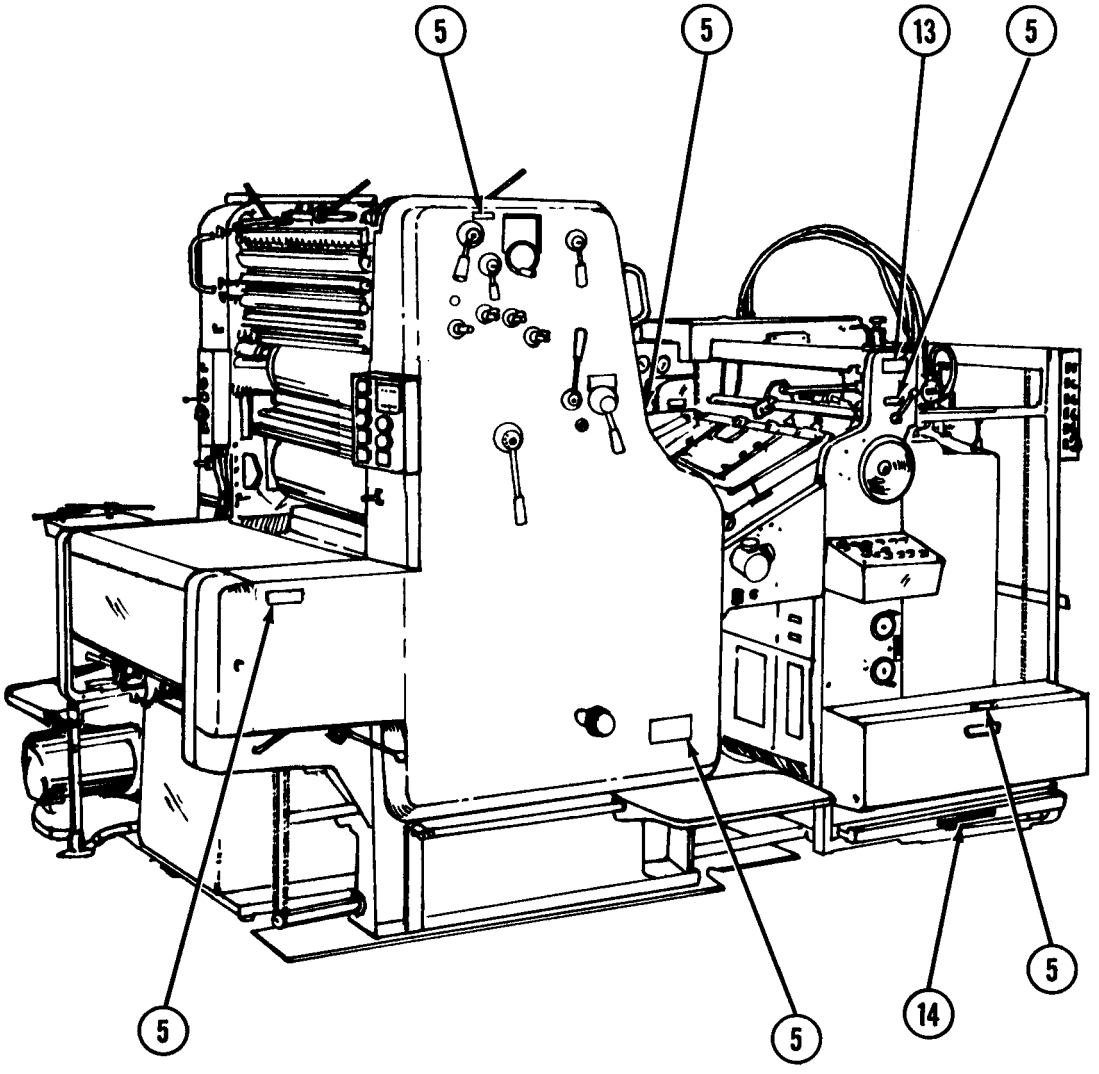
(11)



2-10. OPERATING INSTRUCTIONS ON DECALS AND INSTRUCTION PLATES (CONT)

TAKE OFF
VALVE HOUSING
FOR CLEANING

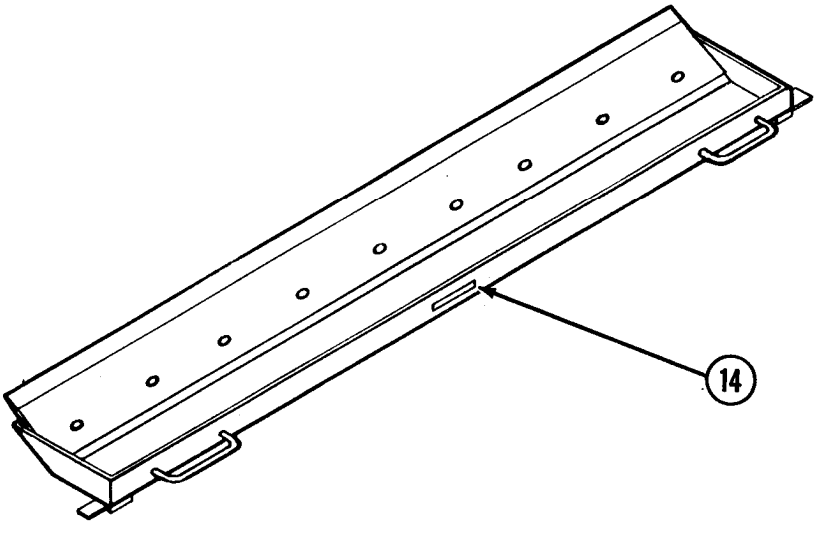
12



2-10. OPERATING INSTRUCTIONS ON DECALS AND INSTRUCTION PLATES (CONT)

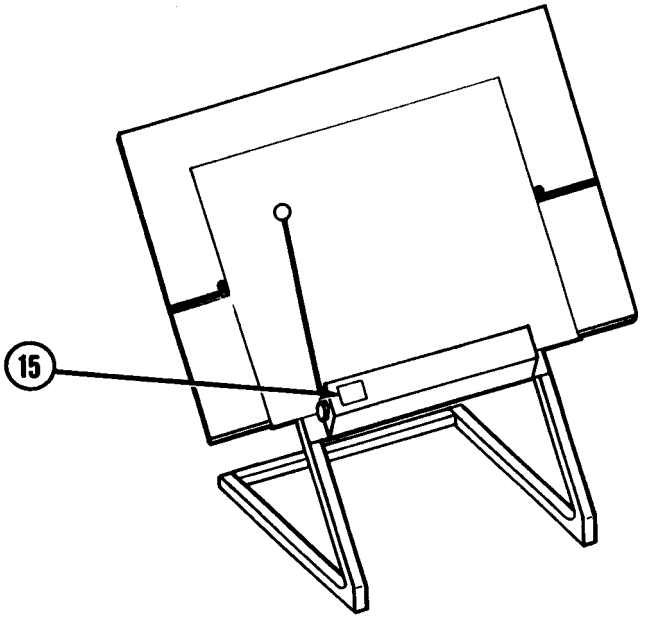
"GUARDS AND SAFETY DEVICES AND/OR SAFETY MECHANISMS MUST NEVER BE ALTERED, REMOVED OR RENDERED INOPERATIVE FAILURE TO OBSERVE THIS WARNING MAY RESULT IN SERIOUS PERSONAL INJURY AND/OR DAMAGE TO THIS EQUIPMENT. READ TM 5-3610-286-10, TSS PRINTING PRESS OPERATOR'S MANUAL, AND MAKE YOURSELF COMPLETELY FAMILIAR WITH THE PRESS AND ITS SAFETY FUNCTIONS BEFORE YOU START OPERATING THE PRESS"

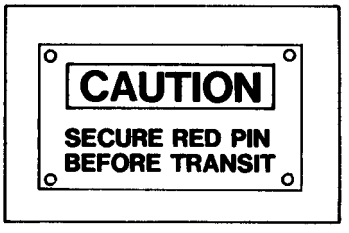
(13)



FIRST POUR ON CLEANING SOLUTION, THEN TURN ON ROLLER CLEANER

2-10. OPERATING INSTRUCTIONS ON DECALS AND INSTRUCTION PLATES (CONT)





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CHAPTER 3

MAINTENANCE INSTRUCTIONS

Section I. LUBRICATION INSTRUCTIONS

3-1. GENERAL. Lubrication instructions for the TSS Printing Press are provided in a separate lubrication order, LO 5-3610-286-12.

Section II. TROUBLESHOOTING PROCEDURES

3-2. GENERAL. This section contains instructions for the operator to efficiently troubleshoot the TSS Printing Press. These instructions are in troubleshooting table format. The table lists the common malfunctions which you may find during operation or maintenance of the Printing Press or its components. You should perform the tests/inspections and the corrective actions in the order listed.

This manual cannot list all malfunctions that may occur, nor all tests or Inspections and corrective actions. If a malfunction is not listed or is not corrected by the listed corrective actions, notify your supervisor.

3-2. GENERAL (CONT)

SYMPTOM INDEX

Table 3-1. Troubleshooting

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION
1. PLATE IMAGE DOES NOT TAKE INK.
Step 1. Check that inking form rollers are lowered to plate.
Lower inking form rollers to plate.
Step 2. Check plate packing.
Repack plate to proper thickness (para 2-7c (4)).
Step 3. Check that inking form rollers contact ink oscillator rollers no. 5 and no. 6 and plate.
Adjust inking form rollers to plate (para 2-7e (11)).
Adjust inking form rollers to ink oscillator rollers no. 5 and no. 6 (para 2-7e (4), (5), (9), and (10)).
Step 4. Check for blind plate.
Replace plate (para 2-7c (5)).
2. PLATE IMAGE NOT INKED UNIFORMLY.
Step 1. Check ink supply in ink fountain (para 2-7e (24)).
Add ink to ink fountain.
Step 2. Check ink fountain keys for proper settings.
Adjust ink fountain keys.
Step 3. Check inking form rollers for proper settings.
Adjust inking form rollers to plate (para 2-7e (11)).
Adjust inking form rollers to ink oscillator rollers no. 5 and no. 6 (para 2-7e (4), (5), (9), and (10)).

Table 3-1. Troubleshooting (Cont)

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION
2. PLATE IMAGE NOT INKED UNIFORMLY (CONT)
Step 4. Check for worn or improperly adjusted dampening form rollers.
Replace all worn roller covers (para 3-5).
Adjust dampening form rollers to plate (para 2-7d (2)).
Adjust dampening form rollers to dampening oscillator roller no. 22 (para 2-7d (1) (e)).
Step 5. Check plate packing with packing gage (para 2-8d).
Replace packing as necessary (para 2-7c).
Step 6. Check for glazed or worn rollers.
Thoroughly wash with deglazing solution and lithographic solvent (appendix D, items 57 and 60).
Replace worn inking rollers (para 3-4).
3. PLATE IMAGE IS GOOD; UNEVEN OR NO PRINT ON BLANKET.
Step 1. Check blanket for proper packing.
Repack blanket (para 2-7c (1)).
Step 2. Check for low areas on blanket.
Repair low areas in blanket (para 3-8).
Replace blanket (para 2-7c (1)).
Step 3. Check for glazed blanket.
Wash thoroughly with water, deglazing solution, and lithographic solvent (appendix D, items 57 and 60) to remove gum and ink deposits.
Replace blanket (para 2-7c (1)).

Table 3-1. Troubleshooting (Cont)

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION
4. GOOD IMAGE ON PLATE AND BLANKET; NO IMAGE ON PAPER.
Step 1. Check that press is going on impression.
Ensure PRODUCTION or IMPRESSION pushbuttons have been pressed.
Step 2. Check blanket-to-impression cylinder pressure.
Adjust pressure (para 2-7c (5) (o)).
5. INK IMPRESSION TOO HEAVY.
Step 1. Check ink fountain for proper settings.
Adjust ink fountain adjustment handwheel.
Adjust ink fountain keys (para 2-7e (24)).
Step 2. Check dampening assembly for proper settings.
Adjust settings (para 2-7d (1) and (2)).
Step 3. Check for soft ink.
Stiffen ink with varnish no. 00 (appendix D, item 72).
Step 4. Check for double image.
Tighten blanket (para 2-7c (1) (e)) 13 thru 15 .
Step 5. Check for glazed inking form rollers.
Thoroughly wash with deglazing solution and lithographic solvent (appendix D, items 57 and 60).
Step 6. Check for excessive end play in inking form rollers.
Replace inking form roller bearings (para 3-4).
Step 7. Check bearer pressure setting.
Adjust bearer pressure (para 2-7c (5) (o)).

Table 3-1. Troubleshooting (Cont)

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION
6. INK IMPRESSION GRAYISH IN COLOR.
Step 1. Check dampening assembly for correct settings. Adjust settings (para 2-7d (1) and (2)).
Step 2. Check for correct ink feed settings. Adjust settings (para 2-7e (24)).
Step 3. Check pH value of dampening solution. Adjust pH value.
Step 4. Check for poorly prepared or damaged plate. Clean plate with cleaner/conditioner (appendix D, item 9). Replace plate (para 2-7c (5)).
Step 5. Check for glazed blanket. Wash thoroughly with water, deglazing solution, and lithographic solvent (appendix D, items 57 and 60) to remove gum and ink deposits. Remove blanket and scrub with lithographic solvent. Replace blanket (para 2-7c (1)).
Step 6. Check blanket and plate packing. Replace packing (para 2-7c (4)).
Step 7. Check stock thickness adjustment. Adjust for stock thickness (para 2-7c (5) (o)).
Step 8. Check quality of ink. Replace ink (appendix D, items 27 thru 40).

Table 3-1. Troubleshooting (Cont)

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION
7. PLATE SCUMS, TINTS, OR CATCHES UP.
Step 1. Check dampening assembly for correct settings.
Adjust settings (para 2-7d (1) and (2)).
Step 2. Check pH value of dampening solution.
Adjust pH value of dampening solution.
Replace dampening solution (appendix D, item 58).
Step 3. Check dampening assembly roller covers.
Clean rollers.
Replace roller covers (para 3-5).
Step 4. Check for defective plate.
Clean plate with cleaner/conditioner (appendix D, item 9).
Replace plate (para 2-7c (5)).
Step 5. Check inking assembly for correct settings.
Adjust settings (para 2-7e (24)).
Step 6. Check condition of blanket.
Wash blanket thoroughly with water, deglazing solution, and lithographic solvent (appendix D, items 57 and 60).
Replace blanket (para 2-7c (1)).
Step 7. Check cylinders for correct blanket-to-impression cylinder pressure.
Adjust pressure (para 2-7c (5) (o)).

Table 3-1. Troubleshooting (Cont)

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION
8. IMAGE DISINTEGRATES OR BREAKS UP.
Step 1. Check pH value of dampening solution.
Adjust pH value of dampening solution.
Step 2. Check for correct packing of plate and blanket.
Replace plate and/or blanket (paras 2-7c (5) and 2-7c (1)).
Step 3. Check settings of inking and dampening form rollers.
Adjust rollers (paras 2-7d (1) and (2) and 2-7e (11)).
9. PAPER DOES NOT FEED CORRECTLY.
Step 1. Check feeder for correct settings.
Reset feeder settings (para 2-7b (l)).
Clean suction head (paras 3-10 thru 3-13).
Step 2. Check condition of paper.
Place paper on feeder pile board with curl facing down and wedge pile.
Step 3. Check sheet smoother for correct adjustment of brush wheels and roller wheels.
Reset tension of brush wheels and roller wheels (para 3-9).
10. REGISTRATION DIFFICULTIES.
Step 1. Check for bounce.
Refer to malfunction 9.
Adjust side guides.
Step 2. Check for twisted image.
Readjust plate (para 2-7c (2)).

Table 3-1. Troubleshooting (Cont)

MALFUNCTION TEST OR INSPECTION	CORRECTIVE ACTION
11. FEEDER KEEPS TRIPPING OFF.	
Step 1. Check for correct feeder settings.	Adjust feeder (para 2-7b (1) and (2)).
Step 2. Check adjustment of double sheet detector.	Adjust double sheet detector (para 2-7b (3)).
Step 3. Check for cleanliness of light barrier.	Clean light barrier (table 2-1, item 4).

Section III. MAINTENANCE PROCEDURES

3-3. GENERAL. This section contains operator maintenance instructions authorized by the maintenance allocation chart (MAC) in TM 5-3610-286-20, appendix B. The following topics are included as applicable: a. Removal b. Cleaning c. Repair d. Installation e. Adjustment. All maintenance procedures in this chapter will be performed by one Photolithographer MOS 83F20. The Printing Press must be shut down to perform maintenance procedures unless otherwise stated in the initial setup.

3-4. INKING ROLLER MAINTENANCE INSTRUCTIONS

This task covers: a. Removal b. Cleaning c. Repair d. Installation e. Adjustment

INITIAL SETUP

Tools

Special L-handle wrench (appendix B, section III, item 45)
Curved pin wrench (appendix B, section III, item 41)
Rubber mallet (appendix B, section III, item 24)
Bearing puller (appendix B, section III, item 30)
Bearing guide (appendix B, section III, item 14)
13 mm combination wrench (appendix B, section III, item 39)
Roller supports (appendix B, section III, item 34)
19 mm T-handle socket wrench (appendix B, section III, item 44)

3-4. INKING ROLLER MAINTENANCE INSTRUCTIONS (CONT)

Materials/Parts

Rags (appendix D, item 54)
Lithographic solvent (appendix D, item 60)

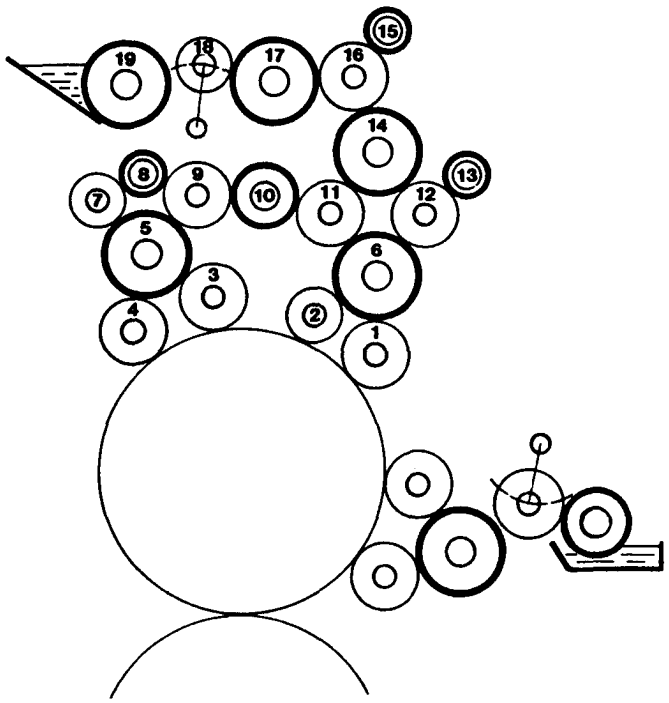
General Safety Instructions

WARNING

- EXPOSED MOVING PARTS . All adjustments will be made while Printing Press is on SAFETY STOP except those authorized by this manual to be made with Printing Press running. Printing Press must be on safe at all times when not in motion. Always shout “clear” and wait for “clear” response before taking Printing Press off safe to inch or run. Failure to follow this warning may result in serious injury.

- EXPOSED MOVING PARTS. Remove all jewelry. Keep shirts tucked in, sleeves above elbows, and ties removed. Failure to observe these precautions while operating Printing Press may result in serious injury.

REMOVAL



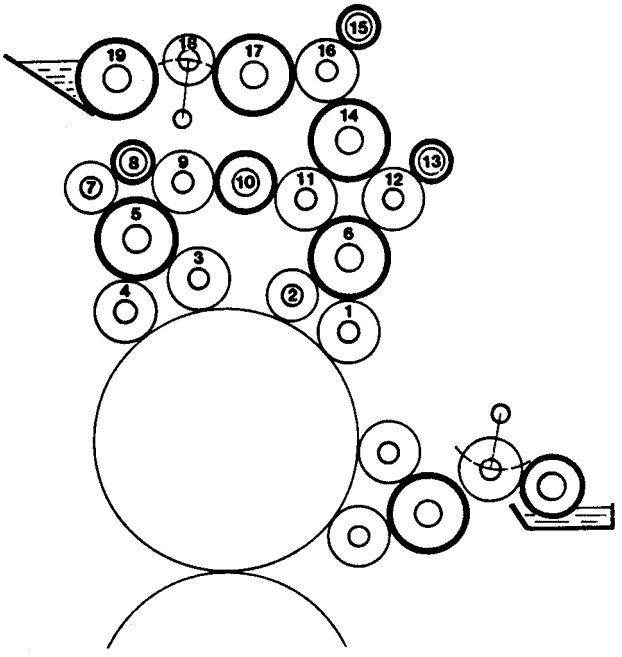
NOTE

Use above inking roller schematic to identify rollers in the following procedures.

3-4. INKING ROLLER MAINTENANCE INSTRUCTIONS (CONT)

Roller Name	Roller Number	Color	Diameter	Composition
INKING FORM ROLLER	No. 1	White	2-7/16 in. (62.5 mm)	Rubber
INKING FORM ROLLER	No. 2	Blue	2-1/4 in. (57 mm)	Rubber
INKING FORM ROLLER	No. 3	Red	2-3/8 in (60 mm)	Rubber
INKING FORM ROLLER	No. 4	Yellow	2-9/16 in. (65 mm)	Rubber
INK OSCILLATOR ROLLER	No. 5			Coated Steel
INK OSCILLATOR ROLLER	No. 6			Coated Steel
DISTRIBUTOR ROLLER	No. 7	Blue	2-1/4 in. (57 mm)	Coated Steel
RIDER ROLLER	No. 8			Coated Steel
DISTRIBUTOR ROLLER	No. 9	White	2-7/16 in. (62.5 mm)	Rubber
DISTRIBUTOR ROLLER	No. 10			Coated Steel
DISTRIBUTOR ROLLER	No. 11	Yellow	2-9/16 in. (65 mm)	Rubber
DISTRIBUTOR ROLLER	No. 12	Red	2-3/8 in. (60 mm)	Rubber
RIDER ROLLER	No. 13			Coated Steel
INK OSCILLATOR ROLLER	No. 14			Coated Steel
MANUAL INKING ROLLER	No. 15			Coated Steel
DISTRIBUTOR ROLLER	No. 16	White	2-7/16 in. (62.5 mm)	Rubber
INK OSCILLATOR ROLLER	No. 17			Coated Steel
INK DUCTOR ROLLER	No. 18	Blue	2-1/4 in. (57 mm)	Rubber
INK FOUNTAIN ROLLER	No. 19			Steel

3-4. INKING ROLLER MAINTENANCE INSTRUCTIONS (CONT)

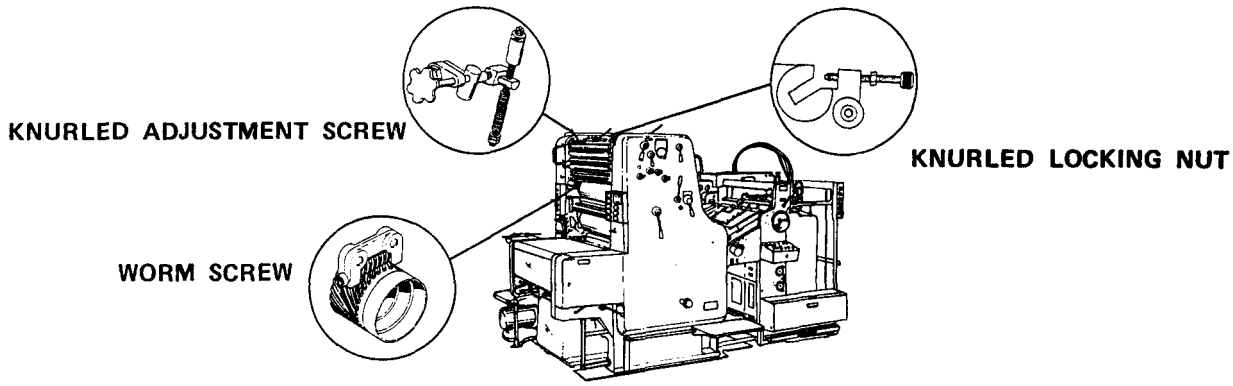


NOTE

Use above inking roller schematic to identify rollers in the following procedures.

To Remove Roller No.	Remove These Rollers First
1	None
2	7, 8, 9, 5, 3
3	7, 8, 9, 5
4	None
5	7, 8, 9
6	Permanent
7	None
8	7
9	7, 8
10	7, 8, 9
11	7, 8, 9, 10
12	13
13	None
14	Permanent
15	Permanent
16	None
17	Permanent
18	None
19	Permanent

3-4. INKING ROLLER MAINTENANCE INSTRUCTIONS (CONT)



1. Remove ink ductor roller no. 18 (blue).

a. Turn ink supply lever to left (on) position.

WARNING

EXPOSED MOVING PARTS. All adjustments will be made while Printing Press is on SAFETY STOP except those authorized by this manual to be made with Printing Press running. Printing Press must be on safe at all times when not in motion. Always shout “clear” and wait for “clear" response before taking Printing Press off safe to inch or run. Failure to follow this warning may result in serious injury.

b. Take Printing Press off safe and inch forward until ink ductor roller no. 18 is midway between ink fountain roller no. 19 and ink oscillator roller no. 17.

c. Put Printing Press on safe. Loosen locknut, then turn knurled adjustment screw to left several turns.

d. Pivot operator side journal locking latch downward and remove roller.

e. Store roller in roller rack.

2. Remove distributor roller no. 16 (white).

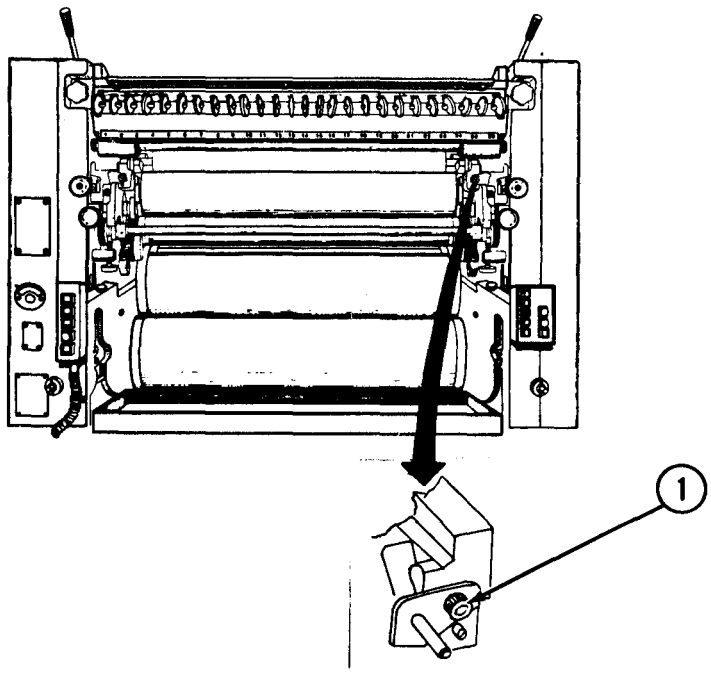
a. Grasp handle and pull manual inking roller no. 15 toward delivery end to disengage.

b. Remove distributor roller no. 16 from guide brackets above oscillator roller no. 14.

c. Store roller in roller rack.

d. Move manual inking roller no. 15 toward feeder and press down on handle to lock.

3-4. INKING ROLLER MAINTENANCE INSTRUCTIONS (CONT)



3. Remove distributor roller no. 7 (blue).

a. Pivot latches (1) away from roller bearings to unlock distributor roller no. 7.

b. Remove roller and store in roller rack.

4. Remove rider roller no. 8 (steel).

a. Turn knurled adjustment screws to left several turns.

CAUTION

Use roller supports for removed rollers that are not stored in roller rack. Failure to do so may damage roller surface.

b. Remove rider roller no. 8 from slotted journals by lifting up and out.

5. Remove distributor roller no. 9 (white). Store roller in roller rack.

6. Remove distributor roller no. 10 (steel) from slotted journals by pulling out and up.

3-4. INKING R0LLER MAINTENANCE INSTRUCTIONS (CONT)

7. Remove distributor roller no. 11 (yellow).

a. Remove distributor roller no. 11 from guide brackets by pulling out and up.

b. Store roller in roller rack.

8. Remove rider roller no. 13 (steel).

a. Loosen locknuts. Turn knurled adjustment screw to left several turns.

CAUTION

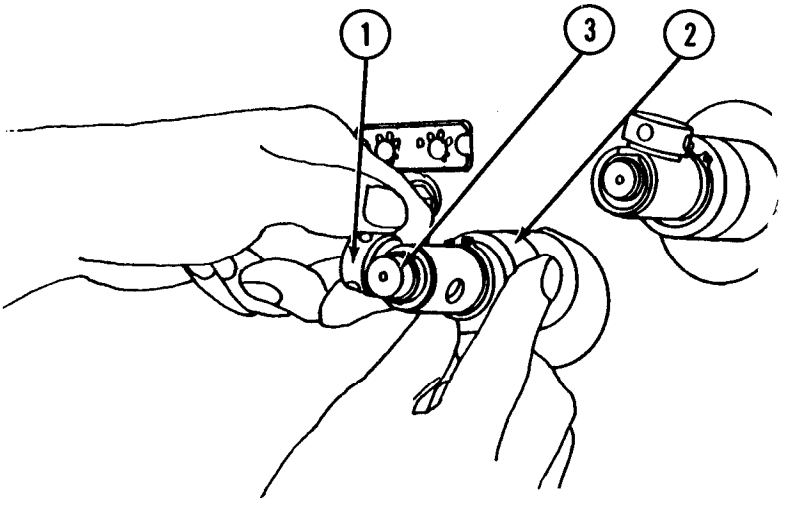
Use roller supports for removed rollers that are not stored in roller rack. Failure to do so may damage roller surface.

b. Remove rider roller no. 13 from grooves in journals.

9. Remove distributor roller no. 12 (red).

a. Remove distributor roller no. 12 from journals between oscillator rollers no. 6 and no. 14.

b. Store roller in roller rack.



10. Remove inking form roller no. 4 (yellow).

a. Loosen knurled locking nut (1).

b. Push safety sleeve (2) completely in. Grasp knurled locking nut (1) and pull journal shaft (3) outward.

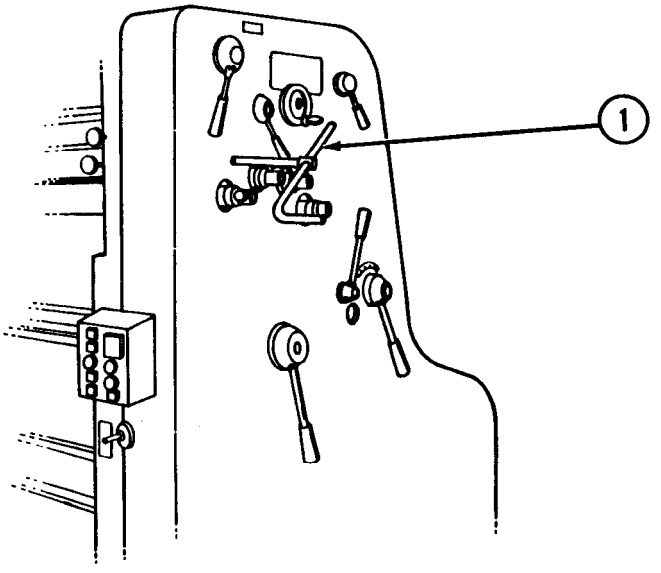
3-4. INKING ROLLER MAINTENANCE INSTRUCTIONS (CONT)

c. Push inking form roller no. 4 to operator side and remove from Printing Press.

d. Store roller in roller rack.

11. Remove oscillator roller no. 5.

a. Take Printing Press off safe and inch until oscillator roller no. 5 is in far left position (drive side). Red mark on roller should point toward delivery end of Printing Press.

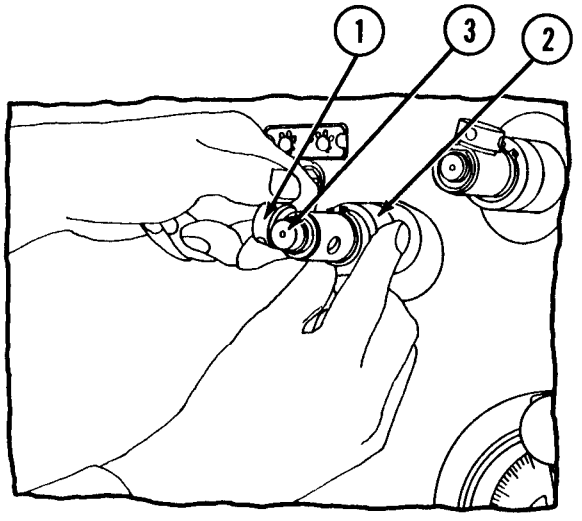


b. Put Printing Press on safe. Insert special L-handle wrench (1) into opening of inking unit side frame.

c. Turn special L-handle wrench to left until it stops.

d. Remove oscillator roller no. 5 from delivery end of Printing Press and place on delivery gripper cover roller supports.

3-4. INKING ROLLER MAINTENANCE INSTRUCTIONS (CONT)



12. Remove inking form roller no. 3 (red).

a. Loosen knurled locking nut (1).

b. Push safety sleeve (2) completely in. Grasp knurled locking nut (1) and pull journal shaft (3) outward.

c. Push inking form roller no. 3 toward operator side and remove from Printing Press.

d. Store roller in roller rack.

13. Remove inking form roller no. 1 (blue).

a. Loosen knurled locking nut (1).

b. Push safety sleeve (2) completely in. Grasp knurled locking nut (1) and pull journal shaft (3) outward.

c. Push inking form roller no. 2 toward operator side and remove from Printing Press.

d. Store roller in roller rack.

14. Remove inking form roller no. 1 (white).

a. Loosen knurled locking nut (1).

3-4. INKING ROLLER MAINTENANCE INSTRUCTIONS (CONT)

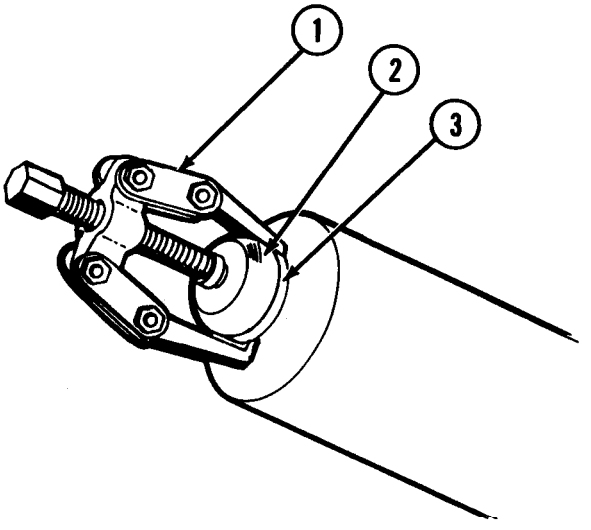
b. Push safety sleeve (2) completely in. Grasp knurled locking nut (1) and pull journal shaft (3) outward.

c. Pull inking form roller no. 1 toward operator side and remove from Printing Press.

d. Store roller in roller rack.

CLEANING Refer to para 2-7g.

REPAIR



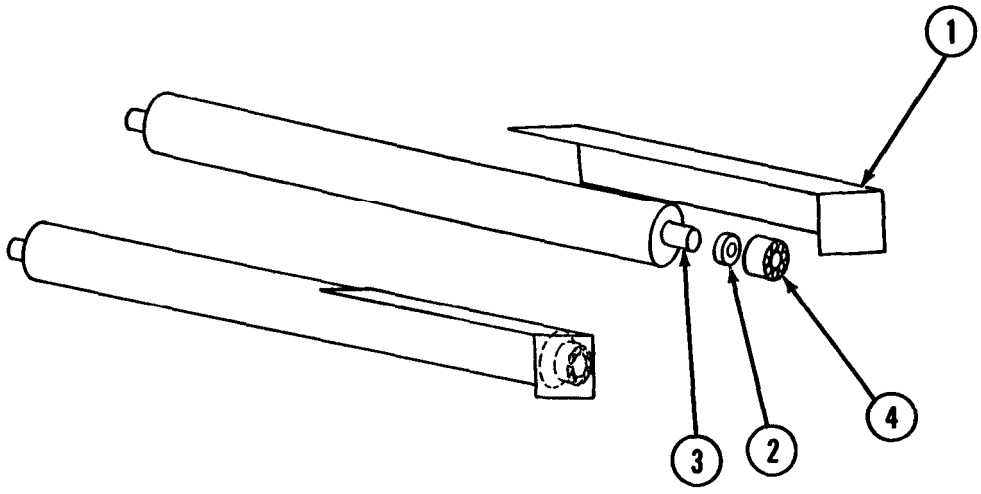
1. Using bearing puller (1), remove bearings (2) from both ends of roller.

2. Place bearing puller claws under spacer piece (3) and extract spacer piece until bearing is free.

NOTE

Ensure oil holes in spacer pieces are positioned over innermost oil holes on roller shaft.

3-4. INKING ROLLER MAINTENANCE INSTRUCTIONS (CONT)



3. Using bearing guides (1) and rubber mallet, tap spacer piece (2) onto roller shaft (3).

4. Using bearing guide (1) and rubber mallet, tap bearing (4) onto roller shaft (3).

INSTALLATION Refer to para 2-7e.

ADJUSTMENT Refer to para 2-7e (25).

3-5. DAMPENING ROLLERS MAINTENANCE INSTRUCTIONS

This task covers: a. Removal b. Repair c. Installation

INITIAL SETUP

Tools

19 mm T-handle socket wrench (appendix B, section III, item 44)
13 and 17 mm combination wrench (appendix B, section III, item 39)
Bearing puller (appendix B, section III, item 30)
Bearing guide (appendix B, section III, item 14)
Rubber mallet (appendix B, section III, item 24)

3-5. DAMPENING ROLLERS MAINTENANCE INSTRUCTIONS (CONT)

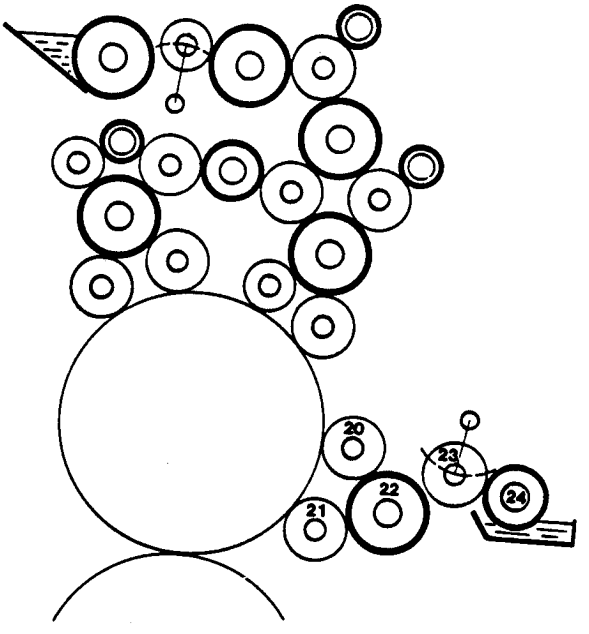
Materials/Parts

Roller bearing (appendix B, section II, item 2)
Talc (appendix D, item 70)
Spacer piece (appendix B, section II, item 4)
Razor blade (appendix D, item 5)
Roller cover (appendix D, item 16) (or other suitable roller cover)

General Safety Instructions

WARNING

EXPOSED MOVING PARTS. All adjustments will be made while Printing Press is on SAFETY STOP except those authorized by this manual to be made with Printing Press running. Printing Press must be on safe at all times when not in motion. Always shout "clear" and wait for "clear" response before taking Printing Press off safe to inch or run. Failure to follow this warning may result in serious injury.



Roller Name	Roller Number	Color	Diameter	Composition
DAMPENING FORM ROLLER	No. 20		2-15/32 in. (63 mm)	Rubber
DAMPENING FORM ROLLER	No. 21		2-15/32 in. (63 mm)	Rubber
DAMPENING OSCILLATOR ROLLER	No. 22			Chrome-plated steel
DAMPENING DUCTOR ROLLER	No. 23			Rubber
DAMPENING FOUNTAIN ROLLER	No. 24			Stainless Steel

NOTE

Use above dampening roller schematic to identify rollers in the following procedures.

3-5. DAMPENING ROLLERS MAINTENANCE INSTRUCTIONS (CONT)

REMOVAL

1. Remove dampening fountain roller no. 24.

a. Disengage safety catch.

b. Using dampening fountain roller ratchet, rotate dampening fountain roller no. 24 until half coupling on roller shaft (operator side) faces up.

CAUTION

Use roller supports for removed rollers that are not stored in roller rack. Failure to do so may damage roller surface.

c. Push roller to drive side and lift out of Printing Press.

2. Remove dampening ductor roller no. 23.

a. Loosen locknut and turn knurled adjustment screw to left to loosen roller latch.

b. Remove dampening ductor roller no. 23 from Printing Press and store in roller rack.

3. Remove dampening form rollers no. 20 and no. 21.

a. Using T-handle socket wrench, disengage dampening form rollers no. 20 and no. 21 from plate.

b. Pull rollers toward operator side of Printing Press and remove.

c. Store rollers in roller rack.

REPAIR

CAUTION

Extreme care must be used when cutting old roller cover away from roller. Cutting into roller surface will damage equipment.

NOTE

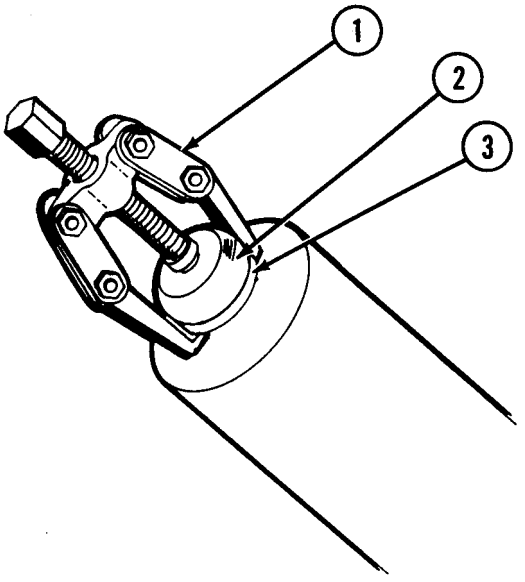
The following steps are the same for both dampening form rollers no. 20 and no. 21 and dampening ductor roller no. 23.

1. Using razor blade, carefully cut old cover from roller.

3-5. DAMPENING ROLLERS MAINTENANCE INSTRUCTIONS (CONT)

NOTE

The following step is necessary only if bearings are worn or damaged.



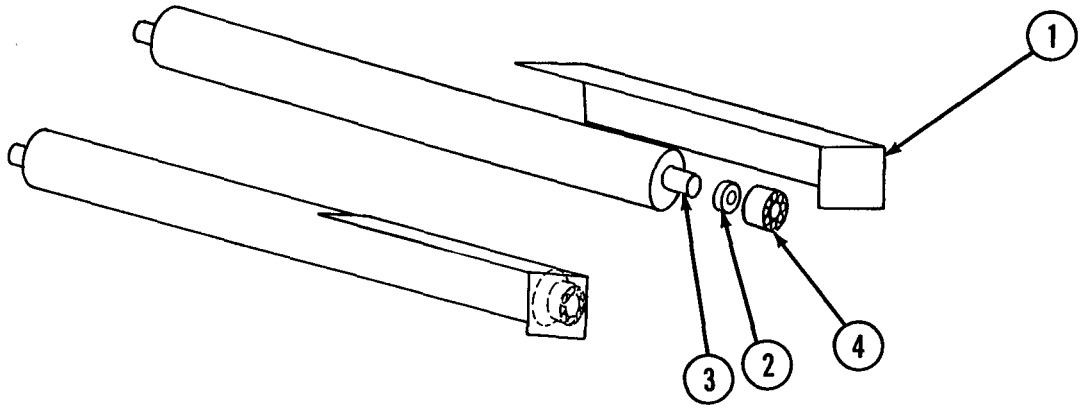
NOTE

Ensure oil holes in spacer pieces are positioned over innermost oil holes on roller shaft.

2. Using bearing puller (1), remove bearings (2) from both ends of roller.

a. Place bearing puller claws under spacer piece (3) and extract spacer piece until bearing (2) is free.

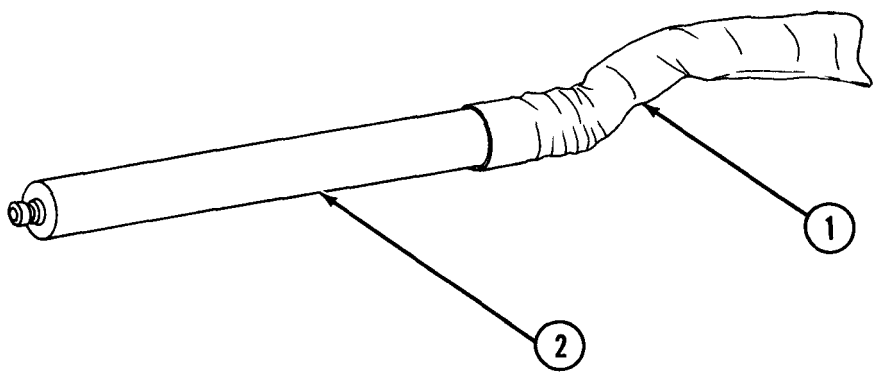
3-5. DAMPENING ROLLERS MAINTENANCE INSTRUCTIONS (CONT)



b. Using bearing guide (1) and rubber mallet, tap spacer piece (2) onto roller shaft (3).

c. Using bearing guide (1) and rubber mallet, tap bearing (4) onto roller shaft.

3. Lightly dust roller surface with talc.



4. Slide new cover (1) on roller (2). Leave 1-3/16 in. (3.0 cm) excess length on both ends of roller.

NOTE

There are a wide variety of suitable seamless covers available. The fastening of cover to roller depends upon type of cover being used. The following step is for synthetic shrinking roller covers.

3-5. DAMPENING ROLLERS MAINTENANCE INSTRUCTIONS (CONT)

5. Secure roller cover to roller.

a. Pour water over covered roller. If warm water is used, wait 3 to 5 minutes for shrinkage. If cold water is used, wait 15 minutes for shrinkage.

b. If necessary, cut excessive sleeve length from end of rollers after shrinking.

INSTALLATION Refer to para 2-7d.

ADJUSTMENT Refer to para 2-7d (2).

3-6. DUST CATCHER MAINTENANCE INSTRUCTIONS

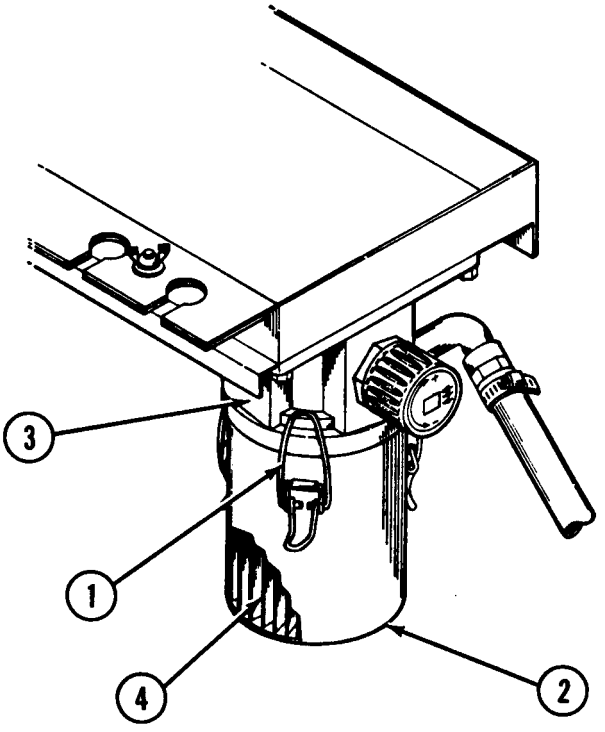
This task covers: Cleaning

INITIAL SETUP

Materials/Parts

Rags (appendix D, item 54)
Detergent (appendix D, item 17)
Filter (appendix D, item 21)

3-6. DUST CATCHER MAINTENANCE INSTRUCTIONS (CONT)



CLEANING

1. Unlatch four retaining latches (1) and remove filter box (2) from housing (3).

2. Remove filter (4) from filter box (2).

3. Knock end of filter (4) against heel of hand several times to remove dust .

NOTE

The following step is only necessary if filters are heavily coated with dust and dirt.

4. Move filter (4) back and forth several times in solution of lukewarm water and detergent. Rinse thoroughly in clear water and air-dry.

5. Wipe inside of filter box (2) clean with rag.

6. Insert filter (4) into filter box (2).

7. Install filter box (2) on housing (3) and latch.

3-7. DELIVERY LIGHT MAINTENANCE INSTRUCTIONS

This task covers: Repair

INITIAL SETUP

Tools

10 mm open-end wrench (appendix B, section III, item 40)

Materials/Parts

Fluorescent lamp (appendix D, item 40)
Fluorescent light starter (appendix D, item 64)

General Safety Instructions

WARNING

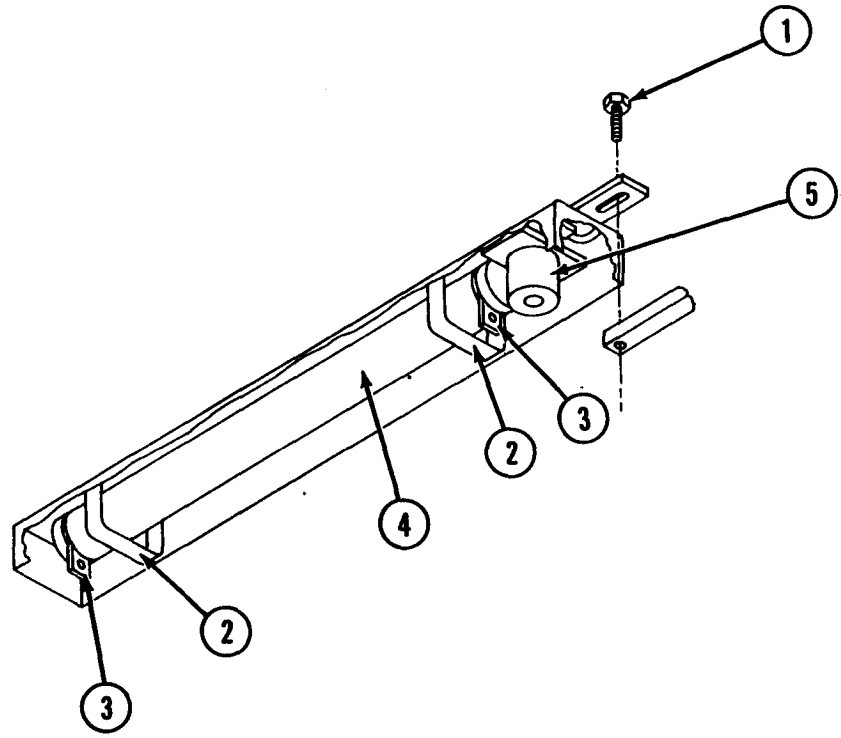
- EXPOSED MOVING PARTS. All adjustments will be made while Printing Press is on SAFETY STOP except those authorized by this manual to be made with Printing Press running. Printing Press must be on safe at all times when not in motion. Always shout "clear" and wait for “clear" response before taking Printing Press off safe to inch or run. Failure to follow this warning may result in serious injury.

- Hazardous electrical voltages exist within Printing Press. Do not connect or disconnect any electrical components while power is on. Death, serious electrical shock, or burns may result.

3-7. DELIVERY LIGHT MAINTENANCE INSTRUCTIONS (CONT)

REPAIR

1. Take Printing Press off safe. Inch until gripper bars are positioned to allow access to delivery light fixture through top of delivery.



2. Put Printing Press on safe. Open delivery safety glass door. Remove two hex head screws (1) securing fixture to Printing Press.

3. Remove plastic retaining clips (2) by squeezing and pulling out.

4. Pull out plastic locks (3).

5. Twist fluorescent lamp (4) to unlock and remove.

6. Twist starter (5) to left and pull out to remove.

7. Place starter (5) in position and twist to right.

8. Insert fluorescent lamp (4) in position and twist to lock.

9. Push plastic locks (3) into place.

10. Push plastic retaining clips (2) into place.

11. Install fixture on Printing Press with hex head screws (1).

12. Close delivery safety glass door.

3-8. BLANKET MAINTENANCE INSTRUCTIONS

This task covers: a. Removal b. Cleaning c. Repair d. Installation

INITIAL SETUP

Tools

Paper caliper micrometer (appendix B, section III, item 25)
17 mm T-handle socket wrench (appendix B, section III, item 44)
Straight pin wrench, 2 required (appendix B, section III, item 42)
13 mm T-handle socket wrench (appendix B, section III, item 44)

Materials/Parts

Lithographic blanket (appendix D, item 7)
Rag (appendix D, item 54)
Lithographic solvent (appendix D, item 60)
Rubber adhesive (appendix D, item 1)
Packing paper (appendix D, item 47)
Lithographic regenerator (appendix D, item 55)
Felt-tip pen (appendix D, item 50)

Equipment Conditions

Printing Press must be placed in FEEDER STOP/MACHINE SAFETY position at delivery end of Printing Press.

General Safety Instructions

WARNING

- EXPOSED MOVING PARTS. All adjustments will be made while Printing Press is on SAFETY STOP except those authorized by this manual to be made with Printing Press running. Printing Press must be on safe at all times when not in motion. Always shout “clear” and wait for "clear" response before taking Printing Press off safe to inch or run. Failure to follow this warning may result in serious injury.

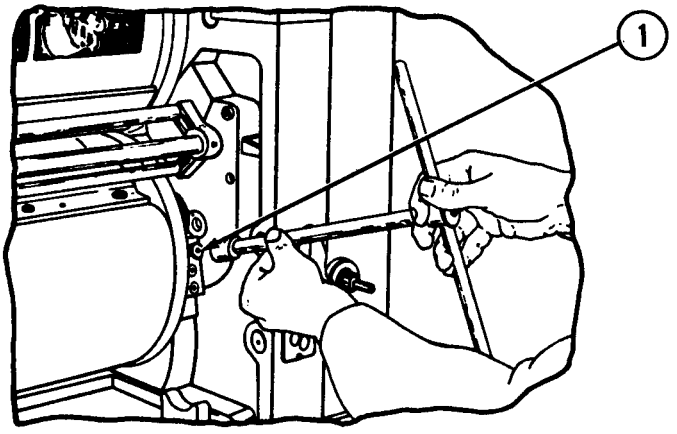
- EXPOSED MOVING PARTS. Remove all jewelry. Keep shirts tucked in, sleeves above elbows, and ties removed. Failure to observe these precautions while operating Printing Press may result in serious injury.

- EXPOSED MOVING PARTS. Do not inch Printing Press and wipe cylinder at the same time. Return Printing Press to SAFETY STOP after each inching. Failure to do so may result in serious injury.

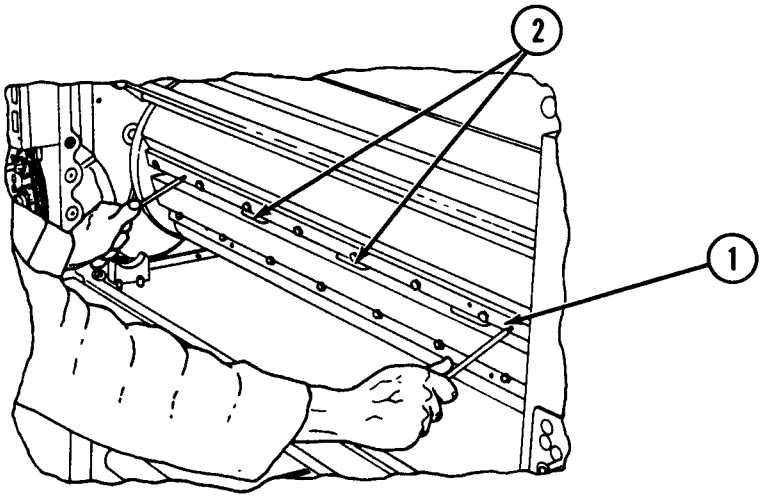
3-8. BLANKET MAINTENANCE INSTRUCTIONS (CONT)

REMOVAL

1. Remove blanket cylinder guard.



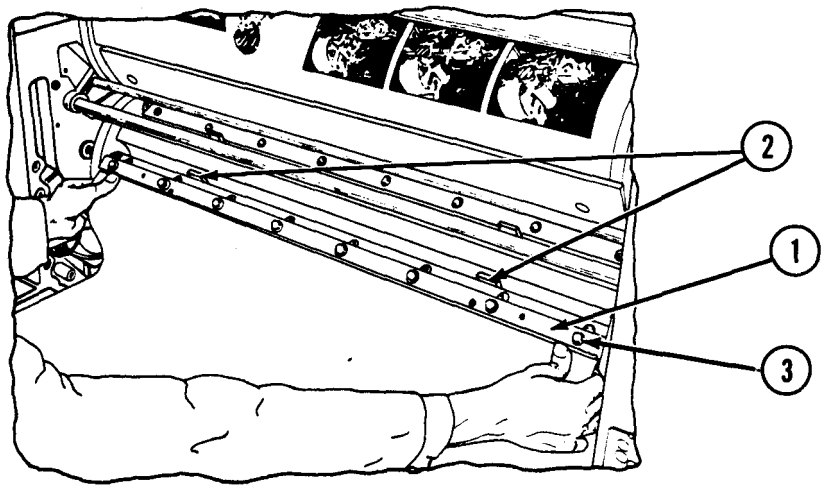
2. Loosen tail edge worm gear (1).



3. Using pin wrenches, remove tail edge blanket bar (1) from tail clamp (2) by pushing down and out.

4. Hold blanket and packing with right hand. Take Printing Press off safe and inch backward until lead clamp is accessible.

3-8. BLANKET MAINTENANCE INSTRUCTIONS (CONT)



5. Put Printing Press on safe. Grasp blanket on both sides and push blanket bar (1) up and out from clamps (2).

6. To remove blanket bars from blanket, remove eight hex head screws (3) from each blanket bar.

7. Install blanket cylinder guard.

CLEANING

WARNING

EXPOSED MOVING PARTS. Do not inch Printing Press and wipe cylinder at the same time. Return Printing Press to SAFETY STOP after each inching. Failure to do so may result in serious injury.

Clean blanket with lithographic solvent.

REPAIR

1. Locate low spot in blanket and soak spot with lithographic regenerator to remove.

3-8. BLANKET MAINTENANCE INSTRUCTIONS (CONT)

WARNING

EXPOSED MOVING PARTS. All adjustments will be made while Printing Press is on SAFETY STOP except those authorized by this manual to be made with Printing Press running. Printing Press must be on safe at all times when not in motion. Always shout "clear" and wait for "clear" response before taking Printing Press off safe to inch or run. Failure to follow this warning may result in serious injury.

NOTE

The following steps are for low spots which are not repaired by above method or are too big to be repaired by above method.

2. Loosen and remove tail edge of blanket. Take Printing Press off safe and inch backward until low spot is accessible.

3. Put Printing Press on safe. Using felt-tip pen, trace outline of low spot on back of blanket. Observe pen tip movement from front of blanket.

4. Prepare patch by tearing tissue or packing paper to fit low spot.

5. Apply rubber adhesive to patch and attach to low spot outlined on blanket.

6. Take Printing Press off safe. Install blanket and packing. Put Printing Press on safe.

INSTALLATION Refer to para 2-7c.

3-9. SHEET SMOOTHER COMPONENTS MAINTENANCE INSTRUCTIONS

This task covers: a. Removal b. Installation c. Adjustment

INITIAL SETUP

Materials/Parts

Rubber roller wheels (appendix B, section II, item 24)
Steel roller wheels (appendix B, section II, item 25)
Nylon brush wheels (appendix B, section II, item 9)
Horsehair brush wheels (appendix B, section II, item 9)
Cage balls (appendix B, section II, item 1)

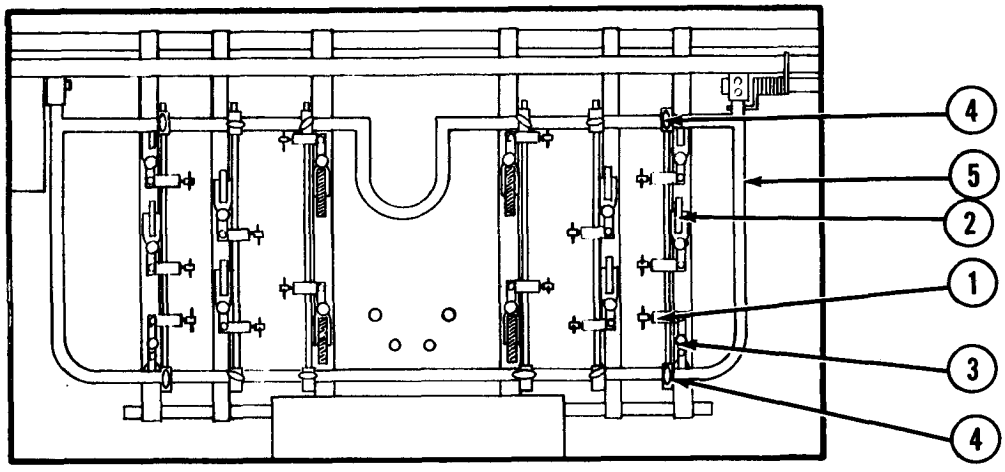
3-9. SHEET SMOOTHER COMPONENTS MAINTENANCE INSTRUCTIONS (CONT)

General Safety Instructions

WARNING

- EXPOSED MOVING PARTS . All adjustments wi1l be made while Printing Press is on SAFETY STOP except those authorized by this manual to be made with Printing Press running. Printing Press must be on safe at all times when not in motion. Always shout "clear" and wait for "clear'" response before taking Printing Press off safe to inch or run. Failure to follow this warning may result in serious injury.

- EXPOSED MOVING PARTS. Remove all jewelry. Keep shirts tucked in, sleeves above elbows, and ties removed. Failure to observe these precautions while operating Printing Press may result in serious injury.



REMOVAL

NOTE

The cage balls, roller wheels, and brush wheels are mounted and removed in the same manner.

1. Fully loosen thumbscrews (1) and pull wheels (2) from guide rail (3).

2. Fully loosen thumbscrews (4). Push guide rail (3) back and remove from sheet smoother (5).

3-9. SHEET SMOOTHER COMPONENTS MAINTENANCE INSTRUCTIONS (CONT)

INSTALLATION

NOTE

All wheels must ride on feeder tape.

1. Place guide rail (3) in position on sheet smoother (5) and tighten thumbscrews (4).

2. Place wheels (2) onto guide rail (3) and tighten thumbscrews (1).

ADJUSTMENT Refer to para 2-7b (5).

3-10. LIFTING SUCKERS MAINTENANCE INSTRUCTIONS

This task covers: a. Removal b. Cleaning c. Installation

INITIAL SETUP

Materials/Parts

Suckers (2 required)
30 mm rubber (appendix D, item 67)
38 mm rubber (appendix D, item 68)
30 mm plastic (appendix D, item 65)
38 mm plastic (appendix D, item 66)
Tissue paper (appendix D, item 69)
Rag (appendix D, item 54)

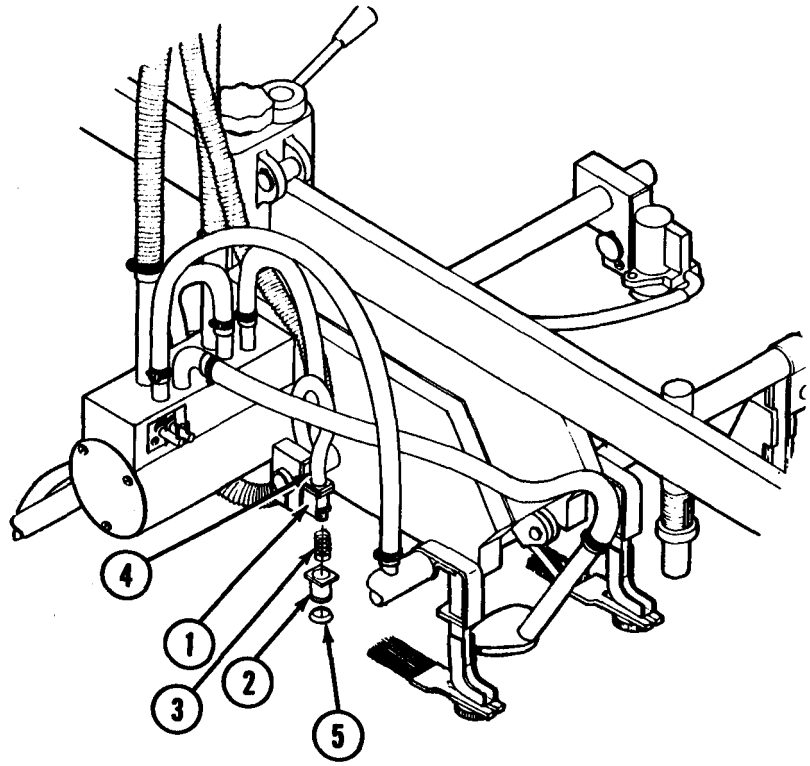
General Safety Instructions

WARNING

- EXPOSED MOVING PARTS. All adjustments will be made while Printing Press is on SAFETY STOP except those authorized by this manual to be made with Printing Press running. Printing Press must be on safe at all times when not in motion. Always shout “clear” and wait for “clear” response before taking Printing Press off safe to inch or run. Failure to follow this warning may result in serious injury.

- ELECTRICAL SHOCK. Static electricity is retained in static eliminator bar for up to 2 hours after power is turned off. Touching static eliminator bar while charged may result in injury from electrical shock.

3-10. LIFTING SUCKERS MAINTENANCE INSTRUCTIONS (CONT)



REMOVAL

1. Pull back leaf spring (1), slide lifting sucker (2) and spring (3) from air tube (4).

2. Pull sucker (5) from lifting sucker (2).

CLEANING

CAUTION

Do not use petroleum products on lifting suckers. Damage to lifting suckers and their components could occur.

1. Wipe lifting sucker (2) clean inside and out using damp rag.

2. Wipe air tube (4) with damp rag.

3. Wipe debris off sucker (5).

3-10. LIFTING SUCKERS MAINTENANCE INSTRUCTIONS (CONT)

INSTALLATION

1. Replace sucker (5) on lifting sucker (2) and ensure that sucker is in groove.

2. Slide lifting sucker (2) and spring (3) onto air tube (4) and past leaf spring (1). Ensure that bottom of lifting sucker is parallel to feeder board.

3-11. FORWARDING SUCKERS MAINTENANCE INSTRUCTIONS

This task covers: a. Removal b. Cleaning c. Installation

INITIAL SETUP

Tools

Key, hex, 5 mm (appendix B, section III, item 20)

Materials/Parts

Suckers (2 required)
30 mm rubber (appendix D, item 67)
38 mm rubber (appendix D, item 68)
30 mm plastic (appendix D, item 65)
38 mm plastic (appendix D, item 66)
Tissue paper (appendix D, item 69)
Rag (appendix D, item 54)

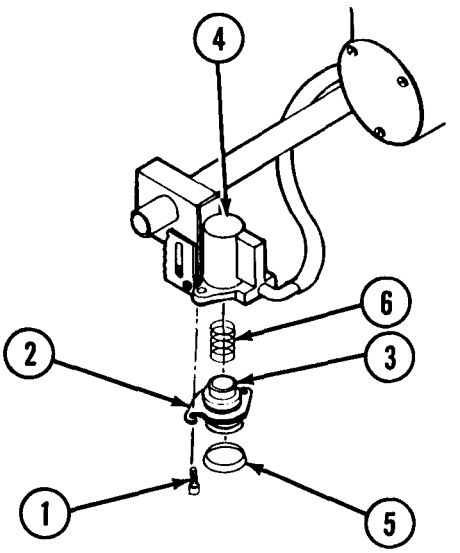
General Safety Instructions

WARNING

- EXPOSED MOVING PARTS. All adjustments will be made while Printing Press is on SAFETY STOP except those authorized by this manual to be made with Printing Press running. Printing Press must be on safe at all times when not in motion. Always shout "clear" and wait for “clear” response before taking Printing Press off safe to inch or run. Failure to follow this warning may result in serious injury.

- ELECTRICAL SHOCK. Static electricity is retained in static eliminator bar for up to 2 hours after power is turned off. Touching static eliminator bar while charged may result in injury from electrical shock.

3-11. FORWARDING SUCKERS MAINTENANCE INSTRUCTIONS (CONT)



REMOVAL

1. Loosen two socket head screws (1).

2. Twist cover (2) to right and remove forwarding sucker piston (3) from its cylinder (4).

3. Pull sucker (5) from forwarding sucker piston (3).

CLEANING

CAUTION

Do not use petroleum products on suckers. Damage to suckers and their components could occur.

1. Wipe cylinder (4) out with rag.

2. Wipe forwarding sucker piston (3) with dry rag, ensuring that spring (6) is-not damaged.

3. Clean nozzle with rag and lithographic solvent (appendix D, item 60).

4. Wipe debris from sucker (5).

INSTALLATION

1. Place sucker (5) on forwarding sucker piston (3) and seat securely.

2. Slide forwarding sucker piston (3) into its cylinder (4) and twist cover (2) to left to secure.

3. Tighten socket head screws (1).

3-12. SUCTION HEAD HOSES MAINTENANCE INSTRUCTIONS

This task covers: a. Removal b. Cleaning c. Installation

INITIAL SETUP

Tools

1.0 mm flat-tip screwdriver (appendix B, section III, item 32)

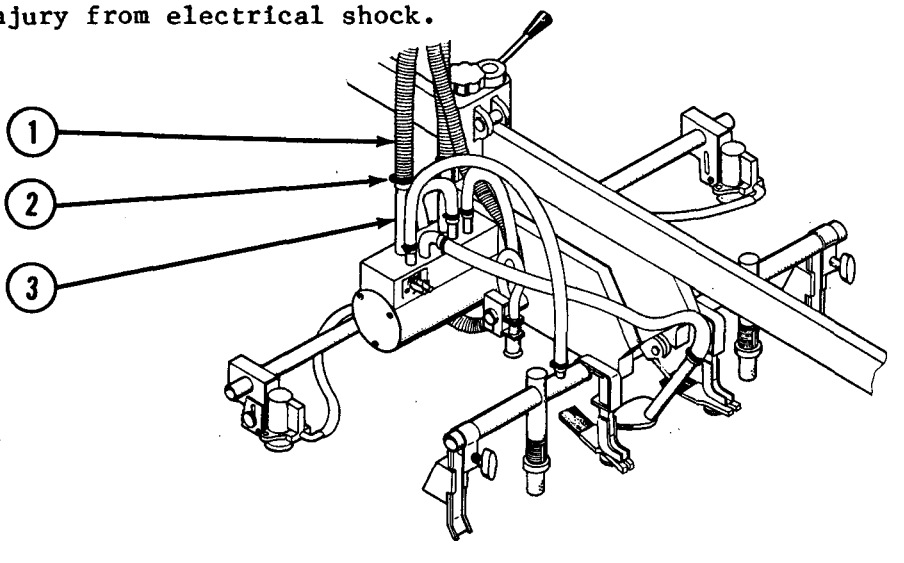
Materials/Parts

Rag (appendix D, item 54)

General Safety Instructions

WARNING

- EXPOSED MOVING PARTS. All adjustments will be made while Printing Press is on SAFETY STOP except those authorized by this manual to be made with Printing Press running. Printing Press must be on safe at all times when not in motion. Always shout “clear” and wait for “clear” response before taking Printing Press off safe to inch or run. Failure to follow this warning may result in serious injury.
- ELECTRICAL SHOCK. Static electricity is retained in static eliminator bar for up to 2 hours after power is turned off. Touching static eliminator bar while charged may result in **injury from electrical shock.**



REMOVAL

1. Loosen appropriate hose clamps (1).
2. Pull hose (2) from stem (3).

3-12. SUCTION HEAD HOSES MAINTENANCE INSTRUCTIONS (CONT)

CLEANING

1. Wipe hose (2) and stem (3) with rag dampened in lukewarm water.

2. Run water or blow through hose (2) to remove paper dust.

3. Air-dry.

INSTALLATION

1. Push hose (2) over stem (3).

2. Tighten hose clamps (1).

3-13. SUCTION HEAD VALVE HOUSING MAINTENANCE INSTRUCTIONS

This task covers: a. Removal b. Cleaning c. Installation

INITIAL SETUP

Materials/Parts

Rag (appendix D, item 54)
Tobacco pipe cleaner (appendix D, item 12)
Kitchen scrub brush (appendix D, item 8)

Equipment Conditions

Suction head hoses removed (para 3-12)

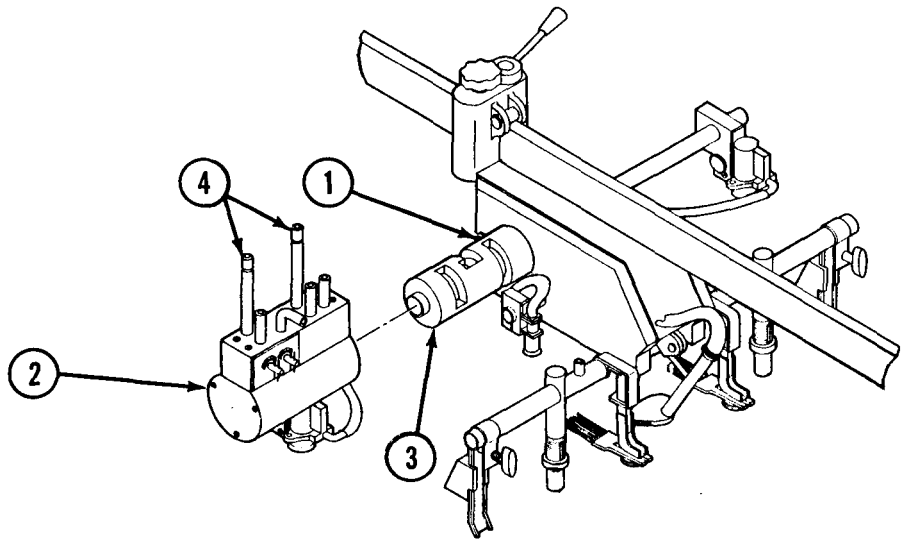
General Safety Instructions

WARNING

- EXPOSED MOVING PARTS. All adjustments will be made while Printing Press is on SAFETY STOP except those authorized by this manual to be made with Printing Press running. Printing Press must be on safe at all times when not in motion. Always shout “clear” and wait for “clear” response before taking Printing Press off safe to inch or run. Failure to follow this warning may result in serious injury.

- ELECTRICAL SHOCK. Static electricity is retained in static eliminator bar for up to 2 hours after power is turned off. Touching static eliminator bar while charged may result in injury from electrical shock.

3-13. SUCTION HEAD VALVE HOUSING MAINTENANCE INSTRUCTIONS (CONT)



REMOVAL

Pull leaf spring (1) away from housing lock and slide off valve housing (2).

CLEANING

1. Wipe or brush valve (3) to remove any dust or dirt.

2. Wipe inside of valve housing (2). Clean off dust or dirt.

3. Clean dust or dirt from stems (4) using pipe cleaners.

INSTALLATION

1. Push valve housing (2) over valve (3) until housing lock snaps behind leaf spring (1).

2. Reinstall suction head hoses (para 3-12).

3-14. FEEDER TIMING MAINTENANCE INSTRUCTIONS

This task covers: Adjustment

INITIAL SETUP

Tools

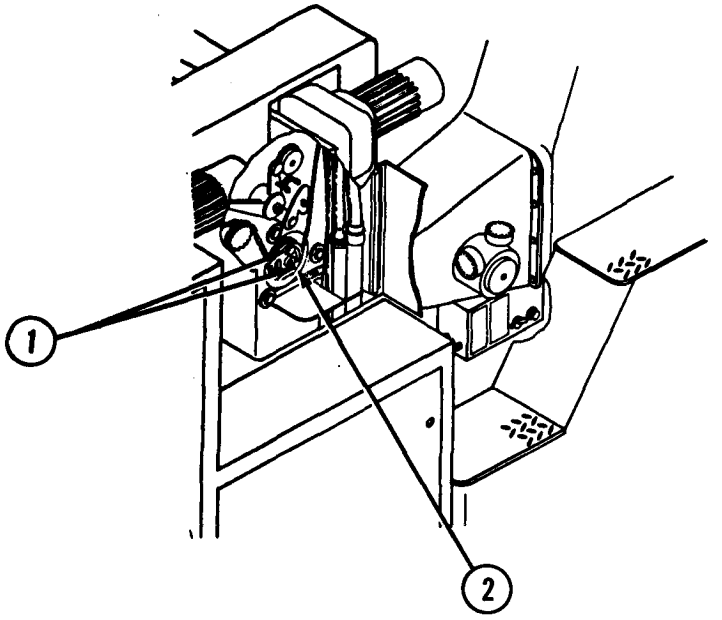
13 mm combination wrench (appendix B, section III, item 39)
13 mm T-handle socket wrench (appendix B, section III, item 44)

3-14. FEEDER TIMING MAINTENANCE INSTRUCTIONS (CONT)

General Safety Instructions

WARNING

EXPOSED MOVING PARTS. All adjustments will be made while Printing Press is on SAFETY STOP except those authorized by this manual to be made with Printing Press running. Printing press must be on safe at all times when not in motion. Always shout “clear” and wait for “clear" response before taking Printing Press off safe to inch or run. Failure to follow this warning may result in serious injury.



ADJUSTMENT

1. Using both wrenches, loosen hex head screws (1).

NOTE

Each line on reference scale moves feeder approximately 1/8 in. (0.32 cm) forward or backward.

2. With fingers, move sprocket wheel (2) to desired setting.

3. Tighten hex head screws (1).

3-15. FEEDER TAPE MAINTENANCE INSTRUCTIONS

This task covers: a. Replacement b. Adjustment

INITIAL SETUP

Tools

Feeder tape gluing device (appendix B, section III, item 13)

Materials/Parts

Feeder tape (appendix D, item 71)
Feeder tape glue (appendix D, item 25)
Single-edge razor blade (appendix D, item 5)

General Safety Instructions

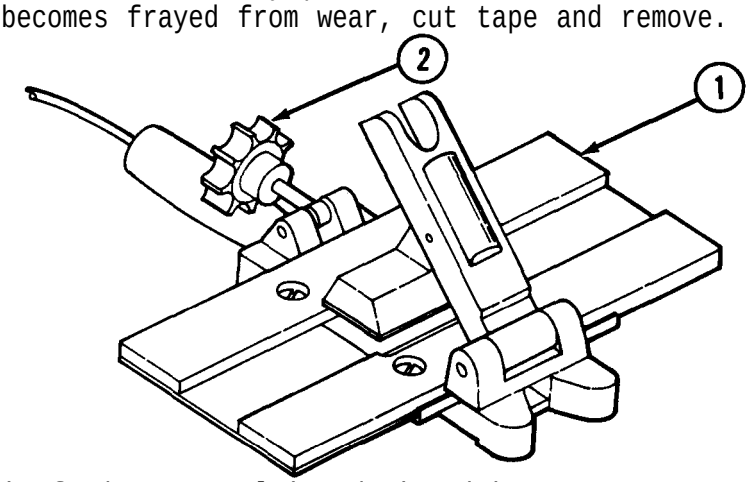
WARNING

EXPOSED MOVING PARTS. All adjustments will be made while Printing Press is on SAFETY STOP except those authorized by this manual to be made with Printing Press running. Printing Press must be on safe at all times when not in motion. Always shout "clear" and wait for "clear" response before taking Printing Press off safe to inch or run. Failure to follow this warning may result in serious injury.

REPLACEMENT

NOTE

There is no need to remove feeder tapes to perform maintenance on any part of feeder table. If feeder tape becomes frayed from wear, cut tape and remove.



1. Plug in feeder tape gluing device (1) to warm up.

3-15. FEEDER TAPE MAINTENANCE INSTRUCTIONS (CONT)

NOTE

When performing next step, be sure to loosen tommy bar and thread feed tape through tension wheels.

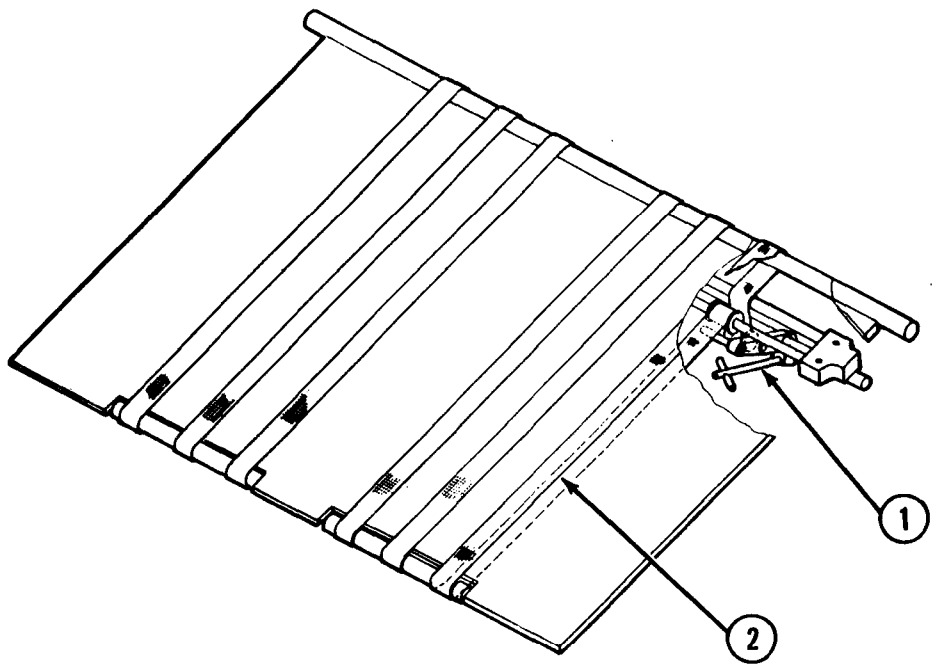
2. Position new feeder tape around feeder table so that feeder tape starts and ends on top of feeder table and arrow points in direction of travel.

3. Apply glue to feeder tape.

4. Position feeder tape gluing device (1) on feeder tape.

5. Swing star-shaped handle (2) into position and lock. Wait approximately 1 minute.

6. Release feeder tape gluing device (1) and adjust feeder tape tension wheels.



ADJUSTMENT

1. Unlock sheet smoother and raise to resting position.

2. Loosen tommy bar (1) for appropriate feeder tape (2).

3-15. FEEDER TAPE MAINTENANCE INSTRUCTIONS (CONT)

3. Position feeder tape (2) and put pressure on tommy bar (1) while tightening.

4. Lower sheet smoother and lock in position.

3-16. COMPRESSOR MAINTENANCE INSTRUCTIONS

This task covers: a. Cleaning b. Repair

INITIAL SETUP

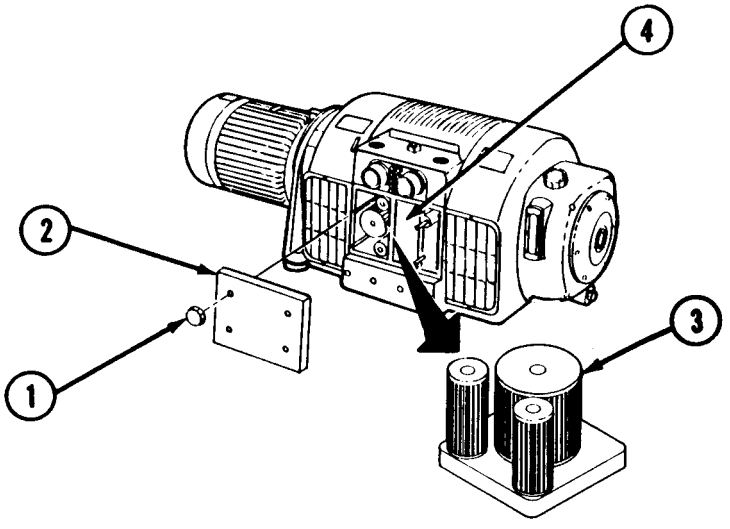
Materials/Parts

Detergent (appendix D, item 17)
Compressor filter (appendix D, item *19)*

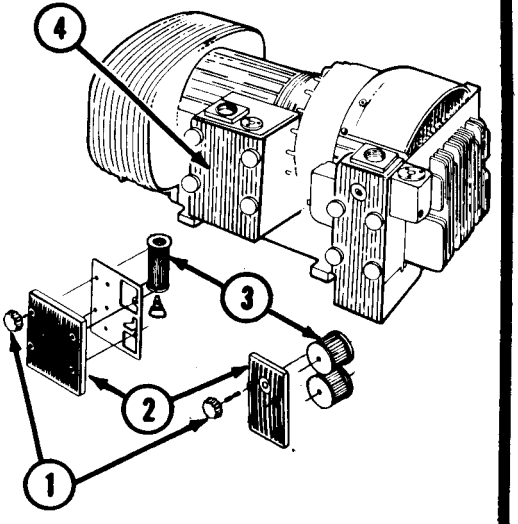
General Safety Instructions

WARNING

EXPOSED MOVING PARTS. All adjustments will be made while Printing Press is on SAFETY STOP except those authorized by this manual to be made with Printing Press running. Printing Press must be on safe at all times when not in motion. Always shout" clear" and wait for" clear" response before taking Printing Press off safe to inch or run. Failure to follow this warning may result in serious injury.



Compressor Model CL60DVV used with Printing Presses Serial Numbers 520-407 through 520-656.



Compressor Model TR60DVV used with Printing Presses Serial Numbers 522-938 through 523-886.

CLEANING/REPAIR

1. Remove screwheads (1) and filter chamber cover(s) (2).

3-16. COMPRESSOR MAINTENANCE INSTRUCTIONS (CONT)

2. Pull filter cartridges (3) from housing (4).

3. Knock front end of filter cartridges (3) against heel of hand several times to clean out dust.

NOTE

If filters cannot be cleaned, replace.

4. Insert filter cartridges (3) in housing (4).

5. Install filter chamber covers (2) and screwheads (1) and tighten securely.

3-17. WASHUP BASIN MAINTENANCE INSTRUCTIONS

This task covers: Repair

INITIAL SETUP

Tools

10 mm open-end wrench (appendix B, section III, item 40)

Materials/Parts

Washup blade (appendix D, item 7)

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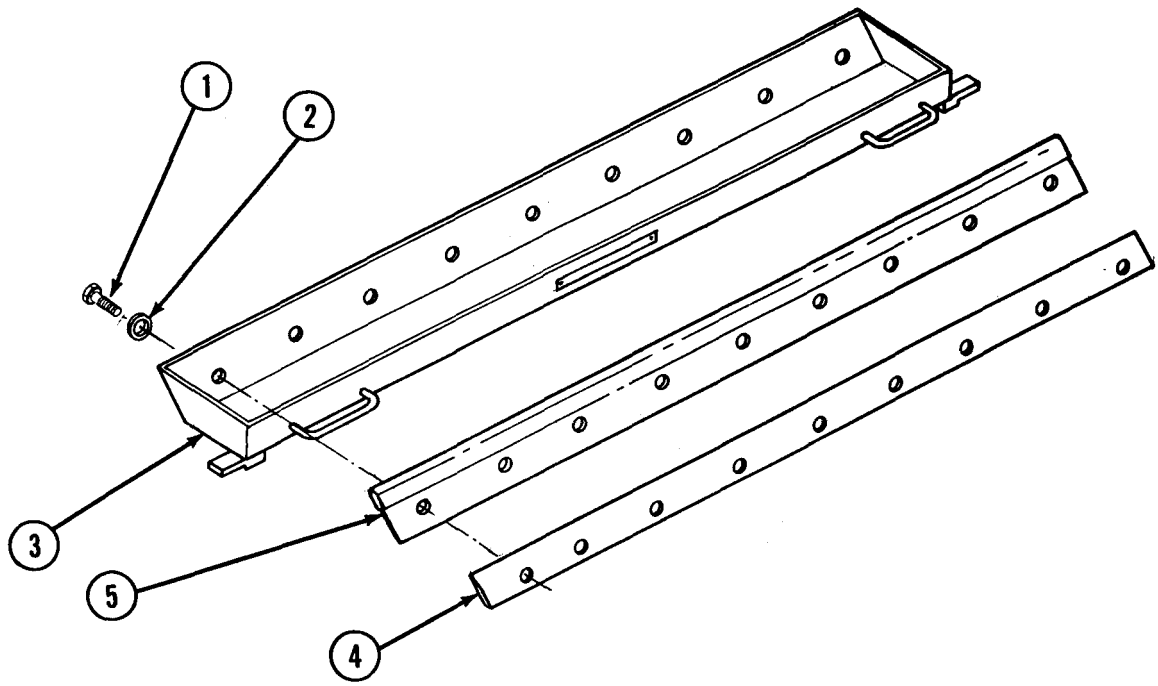
PIN: 059581-001

3-17. WASHUP BASIN MAINTENANCE INSTRUCTIONS (CONT)



REPAIR

1. Remove hex head screws (1) and washers (2) from washup basin (3).
2. Remove support bar (4) and washup blade (5) from washup basin (3).
3. Replace washup blade (5) on support bar (4).
4. Install support bar (4) and washup blade (5) on washup basin (3) with washers (2) and hex head screws (1).

APPENDIX A

REFERENCES

A-1. SCOPE. This appendix lists all forms, field manuals, technical manuals, and miscellaneous publications referenced in this manual.

A-2. FORMS

Hand Receipt/Annex Number	DA Form 2062
Equipment Inspection and Maintenance Worksheet	DA Form 2404
Recommended Changes to Publications and Blank Forms	DA Form 2028
Recommended Changes to Equipment Technical Publications	DA Form 2028-2

A-3. FIELD MANUALS

First Aid for Soldiers	FM 21-11

A-4. TECHNICAL MANUALS

Offset Photolithography and Map Reproduction	TM 5-245
Operator’s Manual for Topographic Support System Press Section	TM 5-3610-287-10
Organizational Maintenance Manual for Topographic Support System Press Section Printing Press	TM 5-3610-286-20
Organizational, Direct Support, and General Support Maintenance Manual for Topographic Support System Press Section	TM 5-3610-287-24
Organizational Maintenance Repair Parts and Special Tools List for Topographic Support System Press Section Printing Press	TM 5-3610-286-20P
Organizational, Direct Support, and General Support Maintenance Repair Parts and Special Tools List for Topographic Support System Press Section	TM 5-3610-287-24P
Operator’s, Organizational, Direct Support, and General Support Maintenance Manual for the Topographic Support System Chassis, Semi-trailer	TM 5-2330-305-14

A-4 . TECHNICAL MANUALS (CONT)

Hand Receipt Covering Contents of Components of End Item (COEI), Basic Issue Items (BII), and Additional Authorization List (AAL) for Topographic Support System Press Section Printing Press ..... TM 5-3610-286-10-HR

A-5. MISCELLANEOUS PUBLICATIONS

Lubrication Order for Topographic Support System Press Section Printing Press ..... LO 5-3610-286-12

Lubrication Order for Topographic Support System Press Section . . . . . LO 5-3610-287-12

The Army Maintenance Management System (TAMMS) ..... DA PAM 738-750

Photolithographer Soldier's Manual and Trainer's Guide ..... STP 5-83F24-SM-TG

Identffication and Distribution of DA Publications and Issue of Agency and Command Administrative Publications . . . . . AR 310-2

APPENDIX B

COMPONENTS OF END ITEM AND BASIC ISSUE ITEMS LISTS

Section I. INTRODUCTION

B-1. SCOPE. This appendix lists components of end item and basic issue items for the Printing Press to help you inventory items required for safe and efficient operation.

B-2. GENERAL. The Components of End Item and Basic Issue Items Lists are divided into the following sections:

a. Section II - Components of End Item. This listing is for informational purposes only, and is not authority to requisition replacements. These items are part of the end item, but are removed and separately packaged for transportation or shipment. As part of the end item, these items must be with the end item whenever it is issued or transferred between property accounts. Illustrations are furnished to assist you in identifying the items.

b. Section III - Basic Issue Items. These are the minimum essential items required to place the Printing Press in operation, to operate it, and to perform emergency repairs. Although shipped separately packaged, BII must be with the Printing Press during operation and whenever it is transferred between property accounts. The illustrations will assist you with hard-to-identify items. This manual is your authority to request/ requisition replacement BII, based on TOE/MTOE authorization of the end item.

B-3. EXPLANATION OF COLUMNS. The following provides an explanation of columns found in the tabular listings:

a. Column (1) - Illustration Number (Illus Number). Indicates the number of the illustration in which the item is shown.

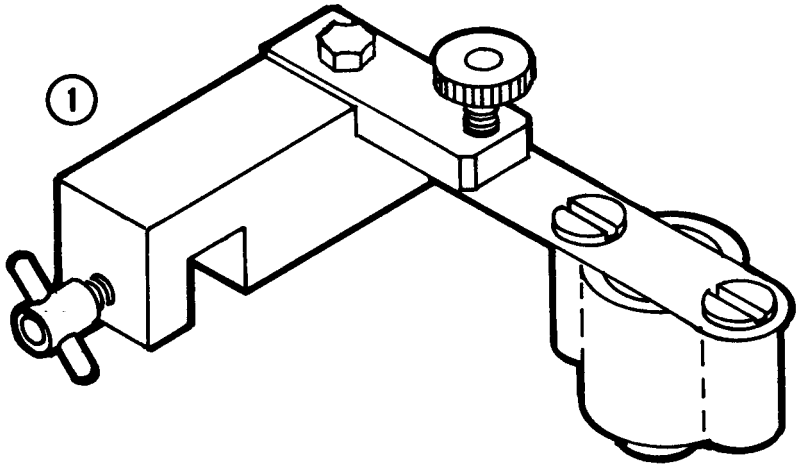
b. Column (2) - National Stock Number. Indicates the National stock number assigned to the item and will be used for requisitioning purposes.

c. Column (3) - Description. Indicates the Federal item name and, if required, a minimum description to identify and locate the item. The last line for each item indicates the FSCM (in parentheses) followed by the part number.

d. Column (4) - Unit of Measure (U/M). Indicates the measure used in performing the actual operational/maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., EA, IN., PR).

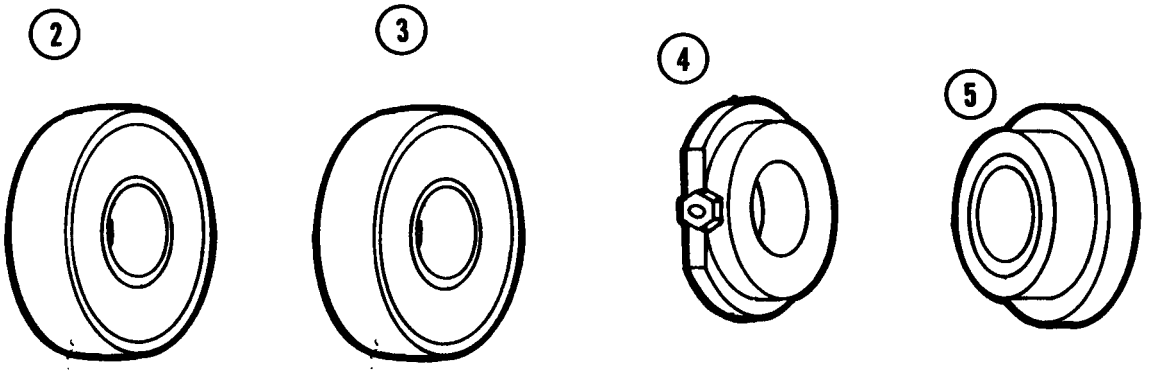
e. Column (5) - Quantity Required (Qty Rqr). Indicates the quantity of the item authorized to be used with/on the equipment.

Section II. COMPONENTS OF END ITEM



(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION FSCM AND PART NUMBER	USABLE ON CODE	(4) U/M	(5) QTY RQR
1		BALLS, CAGE (65713) 66.020		EA	2

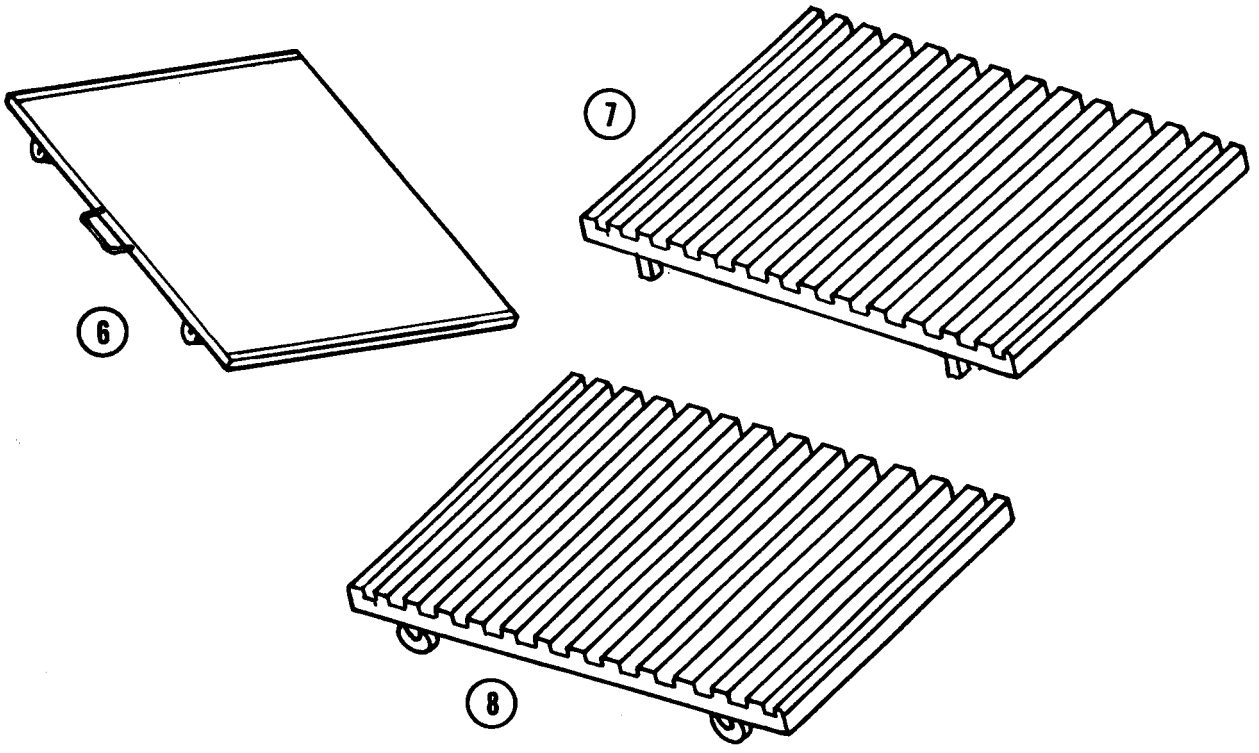
Section II. COMPONENTS OF END ITEMS (CONT)



(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION FSCM AND PART NUMBER	USABLE ON CODE	(4) U/M	(5) QTY RQR
2		BEARINGS, DAMPENING FORM ROLLER * (65713) 66.009.092		EA	4
3		BEARINGS, INK ROLLER * (65713) 66.009.091		EA	20
4		BEARING SPACER, DAMPENING FORM ROLLER * (65713) 66.009.007		EA	4
5		BEARING SPACER, INK ROLLER * (65713) 66.009.008		EA	20

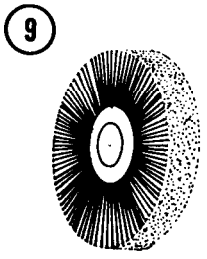
* Onboard spares

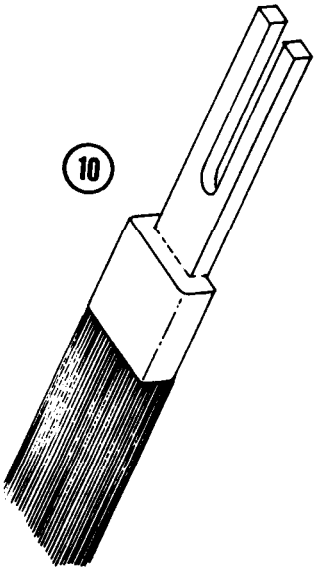
Section II. COMPONENTS OF END ITEMS (CONT)



(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION FSCM AND PART NUMBER	USABLE ON CODE	(4) U/M	(5) QTY RQR
6		BOARD, DELIVERY PILE (65713) 66.015		EA	2
7		BOARD, FEEDER PILE (65713) 66.521		EA	1
8		BOARD, FEEDER PILE, MODIFIED (97403) 13227E6254		EA	1

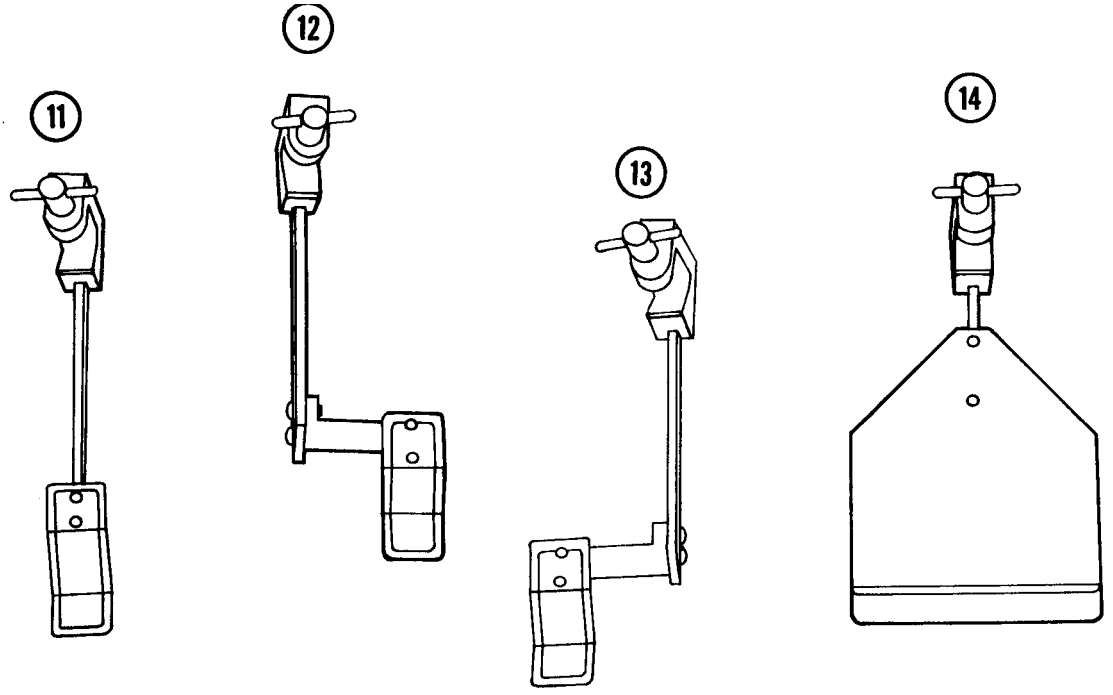
Section II. COMPONENTS OF END ITEMS (CONT)





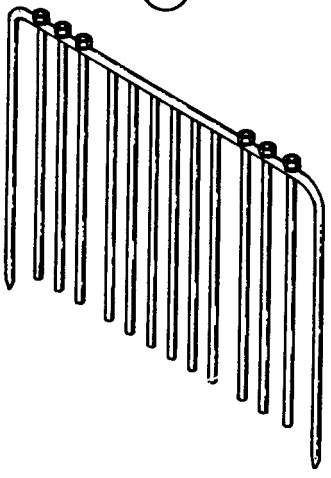
(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION FSCM AND PART NUMBER	USABLE ON CODE	(4) U/M	(5) QTY RQR
9		BRUSH WHEELS			
		NYLON		EA	2
		(65713) 66.891			
		HORSEHAIR		EA	2
		(65713) 66.020			
10		BRUSHES, SHEET SEPARATION (65713) 66.028.109F		EA	2

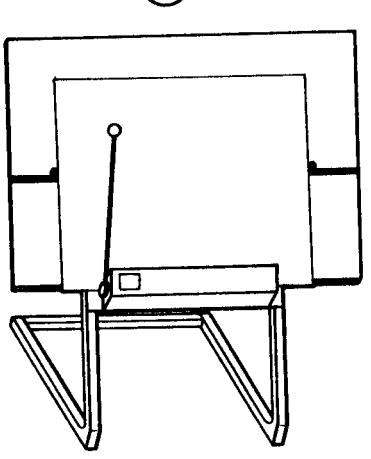
Section II. COMPONENTS OF END ITEMS (CONT)

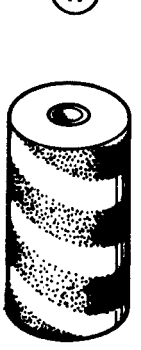


(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION FSCM AND PART NUMBER	USABLE ON CODE	(4) U/M	(5) QTY RQR
11		EXTENSION, SHEET SMOOTHER, NARROW CARDBOARD (65713) 66.891.001F PAPER (65713) 66.072.089F		EA	2
12		EXTENSION SHEET SMOOTHER, OFFSET, LEFT (65713) 66.849.022F		EA	1
13		EXTENSION, SHEET SMOOTHER, OFFSET, RIGHT (65713) 66.849.020F		EA	1
14		EXTENSION, SHEET SMOOTHER, WIDE (65713) 66.072.084F		EA	2

Section II. COMPONENTS OF END ITEMS (CONT)

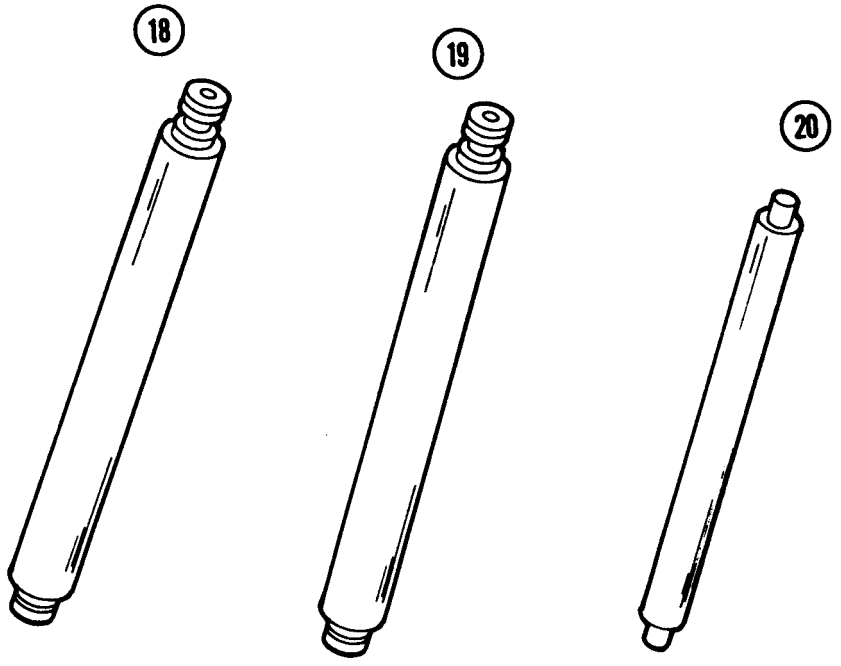






(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION FSCM AND PART NUMBER	USABLE ON CODE	(4) U/M	(5) QTY RQR
15		RAKE, CONTINUOUS DELIVERY (65713) 66.015		EA	1
16		REGISTER PUNCH, PLATE (97403) 13227E5717		EA	1
17		ROLLER, ANTI-OFFSET (65713) 49.006.544F		EA	24

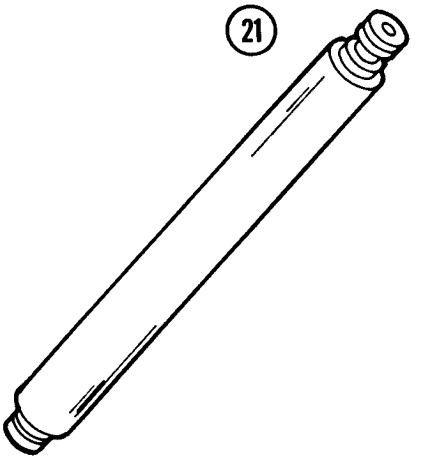
Section II. COMPONENTS OF END ITEMS (CONT)



(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION FSCM AND PART NUMBER	USABLE ON CODE	(4) U/M	(5) QTY RQR
18		ROLLERS (WITH BEARINGS), DAMPENING DUCTOR * (65713) 66.030		EA	2
19		ROLLERS (WITH BEARINGS), DAMPENING FORM * (65713) 66.009		EA	
20		ROLLERS (WITHOUT BEARINGS), DAMPENING FORM * (65713) 66.009.043		EA	

* Onboard spares

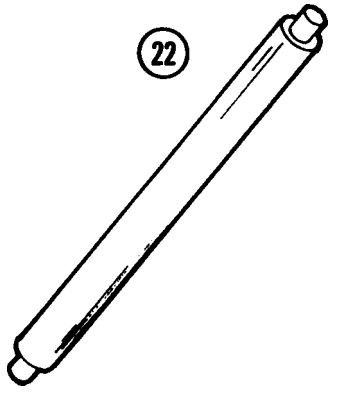
Section II. COMPONENTS OF END ITEMS (CONT)



(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION FSCM AND PART NUMBER	USABLE ON CODE	(4) U/M	(5) QTY RQR
21		ROLLERS (WITH BEARINGS), INK *			
		RUBBER, RED 2-3/8 IN. DIA (65713) 66.009		EA	2
		RUBBER, YELLOW 2-9/16 IN. DIA (65713) 66.009.034F		EA	2
		RUBBER, BLUE, 2-1/4 IN. DIA (65713) 66.009.031F		EA	3
		RUBBER, WHITE, 2-7/16 IN. DIA (65713) 66.009.033F		EA	3

* Onboard spares

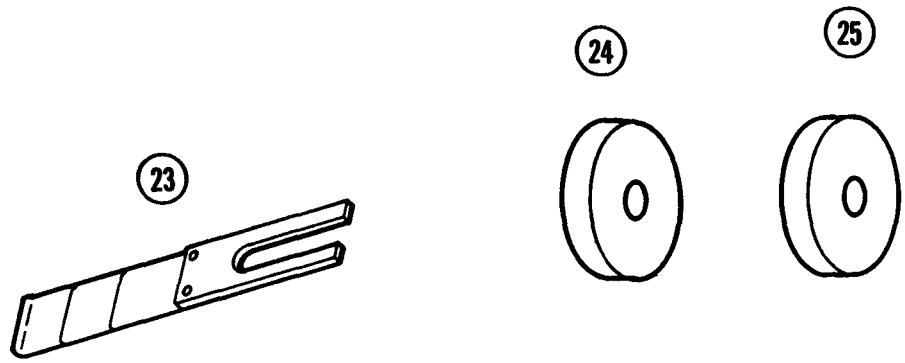
Section II. COMPONENTS OF END ITEMS (CONT)



(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION FSCM AND PART NUMBER	USABLE ON CODE	(4) U/M	(5) QTY RQR
22		ROLLERS (WITHOUT BEARINGS), INK *			
		RUBBER, RED 2-3/8 IN. DIA (65713) 66.009.032		EA	2
		RUBBER, YELLOW 2-9/16 IN. DIA (65713) 66.009.034		EA	2
		RUBBER, BLUE, 2-1/4 IN. DIA (65713) 66.009.031		EA	3
		RUBBER, WHITE, 2-7/16 IN. DIA (65713) 66.009.033		EA	3

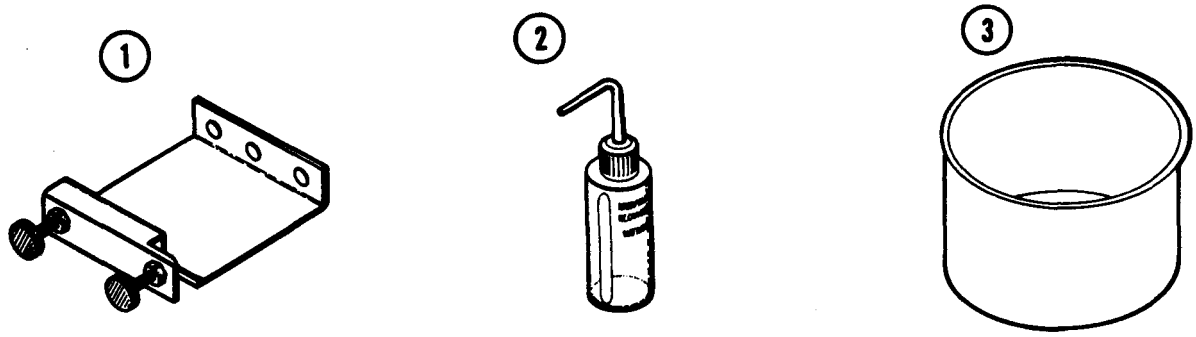
* Onboard spares

Section II. COMPONENTS OF END ITEMS (CONT)



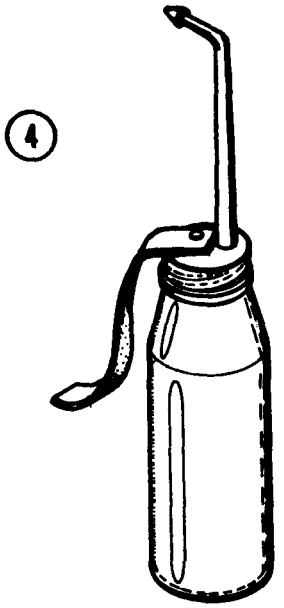
(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION FSCM AND PART NUMBER	USABLE ON CODE	(4) U/M	(5) QTY RQR
23		SPRINGS, SHEET SEPARATION (65713) 66.		EA	2
24		WHEELS, ROLLER, RUBBER (65713) 66.020.118F		EA	4
25		WHEELS, ROLLER, STEEL (65713) 66.020.108F		EA	4

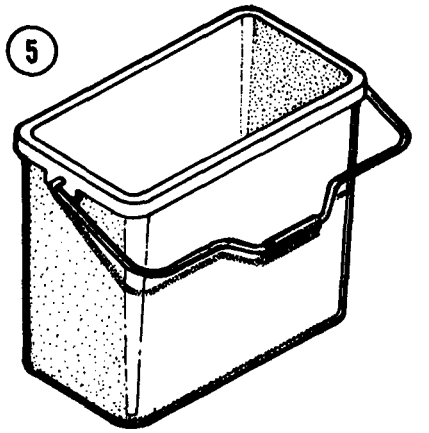
Section III. BASIC ISSUE ITEMS



(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION FSCM AND PART NUMBER	USABLE ON CODE	(4) U/M	(5) QTY RQR
1		BLADE, DAMPENING FOUNTAIN (65713) 66.		EA	2
2		BOTTLE, FLUID, WASHUP (65713) 08.024.040		EA	1
3	6530-00-7720-0326	BOWL, SURGICAL SPONGE (05668) 7272-00		EA	2

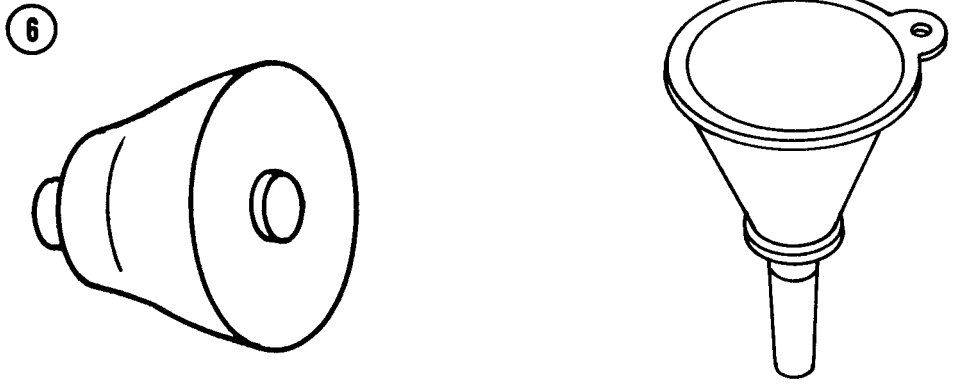
Section III. BASIC ISSUE ITEMS (CONT)





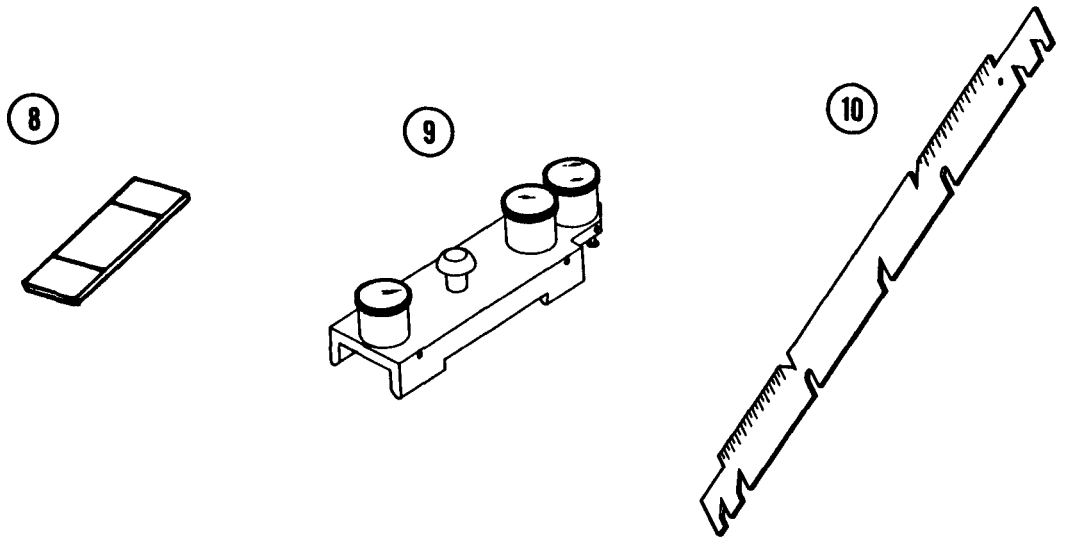
(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION FSCM AND PART NUMBER	USABLE ON CODE	(4) U/M	(5) QTY RQR
4		BOTTLE WITH PUMP, OIL (65713) 00.580.0746		EA	1
5		BUCKET, WATER, SQUARE (65713) 09.024.015		EA	1

Section III. BASIC ISSUE ITEMS (CONT)



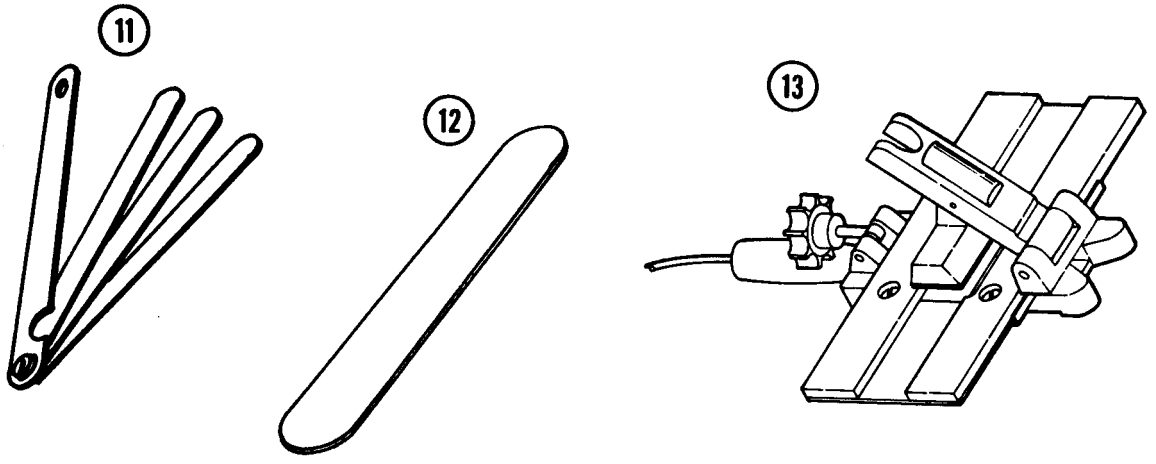
(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION FSCM AND PART NUMBER	USABLE ON CODE	(4) U/M	(5) QTY RQR
6		CAP, RUBBER, DAMPENING FORM ROLLER (65713) 09.030.066		EA	1
7	7240-00-243-3614	FUNNEL (58536) A-A-1663		EA	1

Section III. BASIC ISSUE ITEMS (CONT)



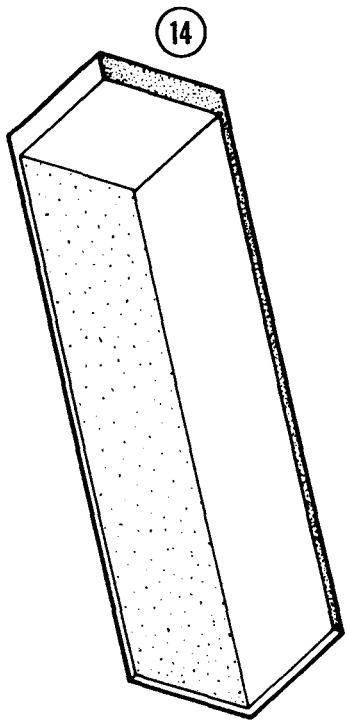
ILLUS NUMBER	NATIONAL STOCK NUMBER	DESCRIPTION FSCM AND PART NUMBER	USABLE ON CODE	U/M	QTY RQR
8		GAGE, GRIPPER (65713) 27.024.005		EA	1
9		GAGE, PACKING (65713) 09.465.000/1		EA	1
10		GAGE, SCRIBE (65713) 66.024.007		EA	1

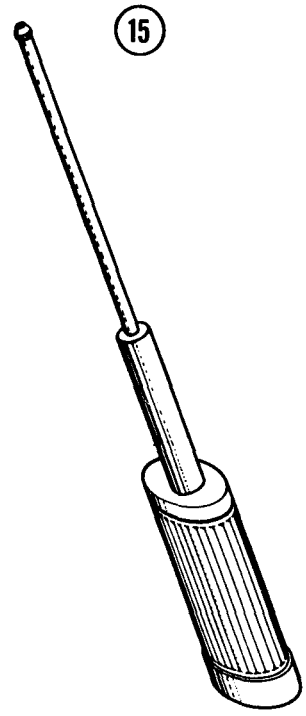
Section III. BASIC ISSUE ITEMS (CONT)

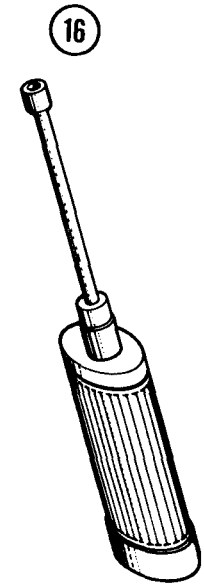


(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION FSCM AND PART NUMBER	USABLE ON CODE	(4) U/M	(5) QTY RQR
11	5210-00-517-8096	GAGE SET, FEELER (09058) 599-642		EA	1
12	5210-00-197-9681	GAGES, FEELER 0.004 in. (0.10 mm)		EA	6
13		GLUING DEVICE, FEEDER TAPE (65713) 66.173.471		EA	1

Section III. BASIC ISSUE ITEMS (CONT)

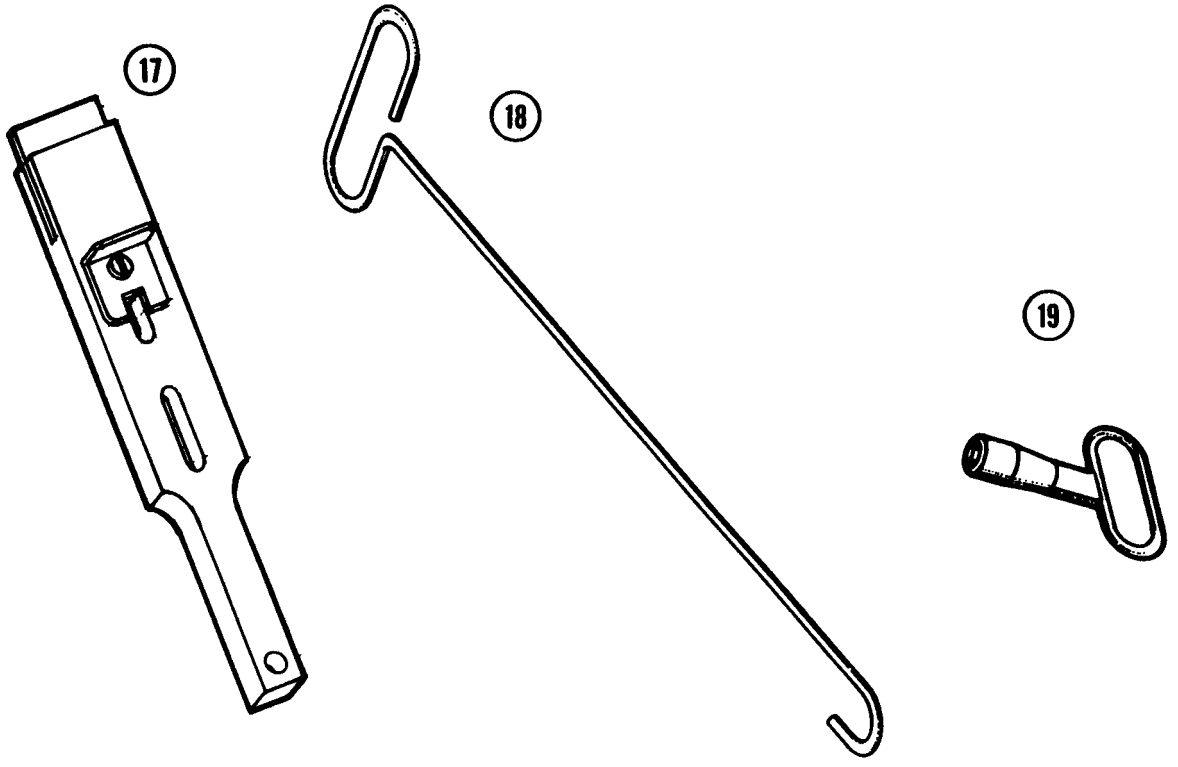






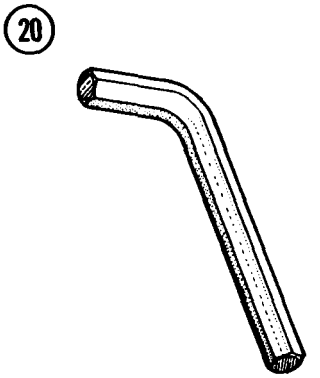
(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION FSCM AND PART NUMBER	USABLE ON CODE	(4) U/M	(5) QTY RQR
14		GUIDE, BEARING (65713) 66.024.013		EA	1
15		GUN, GREASE (65713) 04.024.061		EA	1
16		GUN, OIL (65713) 03.024.062		EA	1

Section III. BASIC ISSUE ITEMS (CONT)



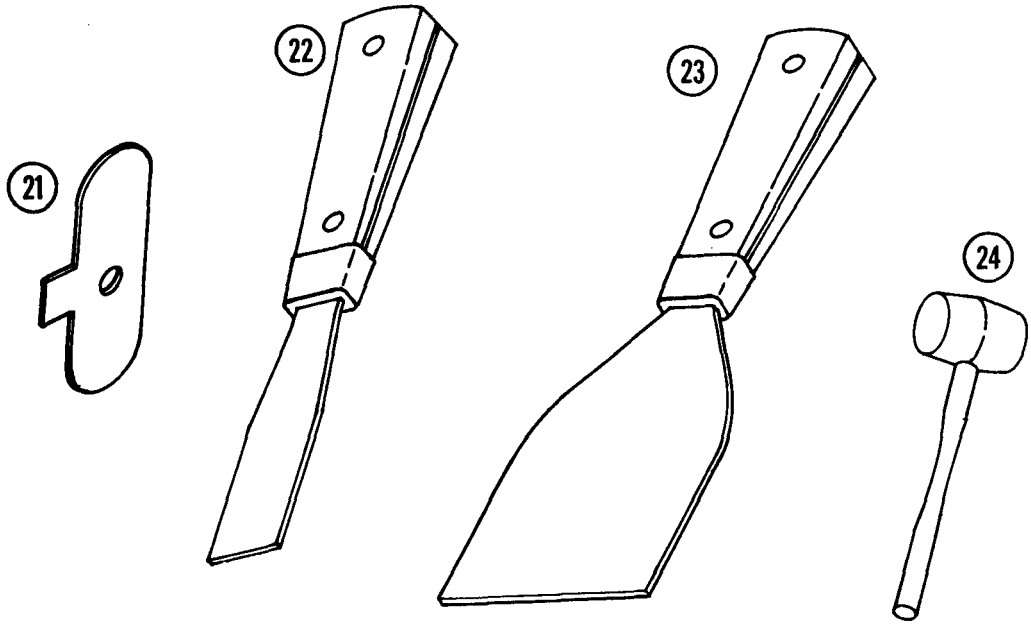
(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION FSCM AND PART NUMBER	USABLE ON CODE	(4) U/M	(5) QTY RQR
17		HICKEYPICKER Part number unavailable		EA	1
18		HOOK, DELIVERY PILE BOARD (65713) 66.024.005		EA	1
19		KEY, CONTROL BOX (65713) 00.780.0854		EA	1

Section III. BASIC ISSUE ITEMS (CONT)



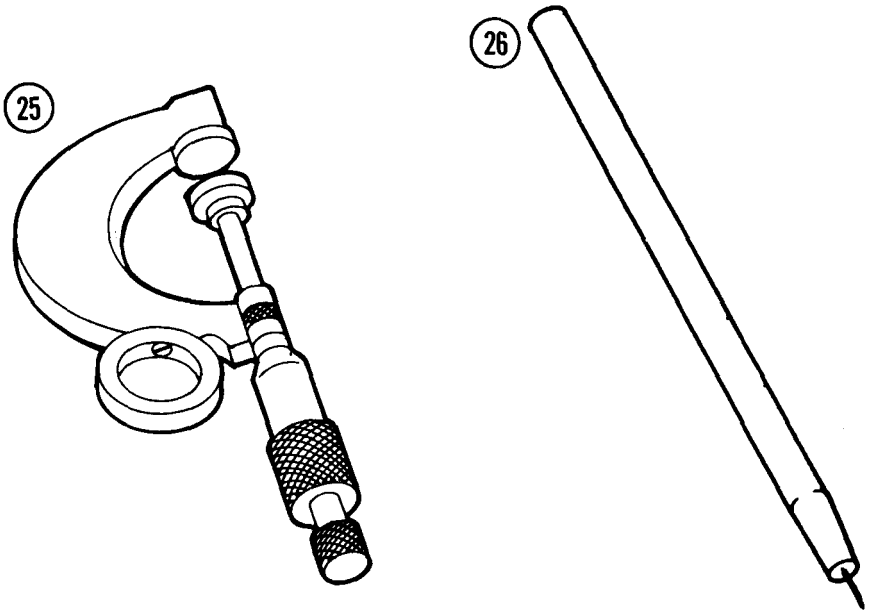
(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION FSCM AND PART NUMBER	USABLE ON CODE	(4) U/M	(5) QTY RQR
20		KEYS, HEX			
		1 MM		EA	1
		(55719) AWM1C			
		2 MM		EA	1
		(55719) AWN2C			
		3 MM		EA	1
		(65713) 66.024.020			
		4 MM		EA	1
		(65713) 00.520.0230			
		5 MM		EA	1
		(65713) 00.520.0231			
		5 MM (LONG)		EA	1
		(65713) 66.024.008			
		6 MM		EA	1
		(65713) 00.520.0232			

Section III. BASIC ISSUE ITEMS (CONT)



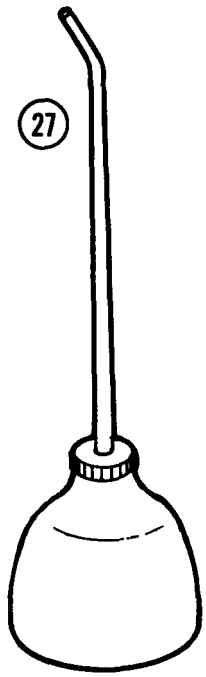
(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION FSCM AND PART NUMBER	USABLE ON CODE	(4) U/M	(5) QTY RQR
21		KEY, SUCTION AIR ADJUSTMENT (65713) 66.024.017		EA	1
22	5120-00-221-1536	KNIFE, PUTTY (39428) 3668A13		EA	2
23	5110-00-221-1538	KNIFE, SCRAPING (39428) 3668C3		EA	1
24	5120-00-293-3390	MALLET, RUBBER		EA	1

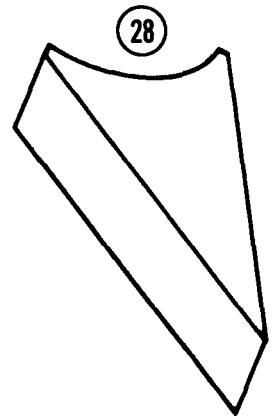
Section III. BASIC ISSUE ITEMS (CONT)

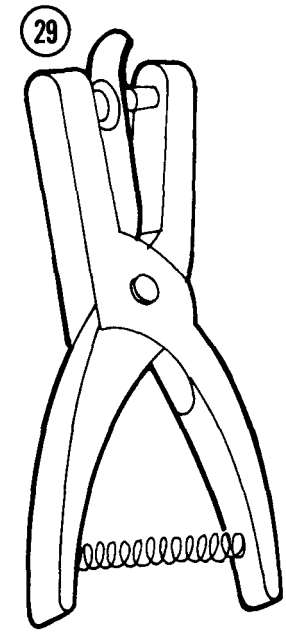


(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION FSCM AND PART NUMBER	USABLE ON CODE	(4) U/M	(5) QTY RQR
25	5210-00-223-9159	MICROMETER, CALIPER, PAPER (37163) 3630		EA	1
26		NEEDLES, ETCHING			
	5120-00-293-0591	0.031 IN. DIA PT (81349) MIL-N-43186		EA	4
	5120-00-293-0593	0.063 IN. DIA PT (81349) MIL-N-43186		EA	4

Section III. BASIC ISSUE ITEMS (CONT)

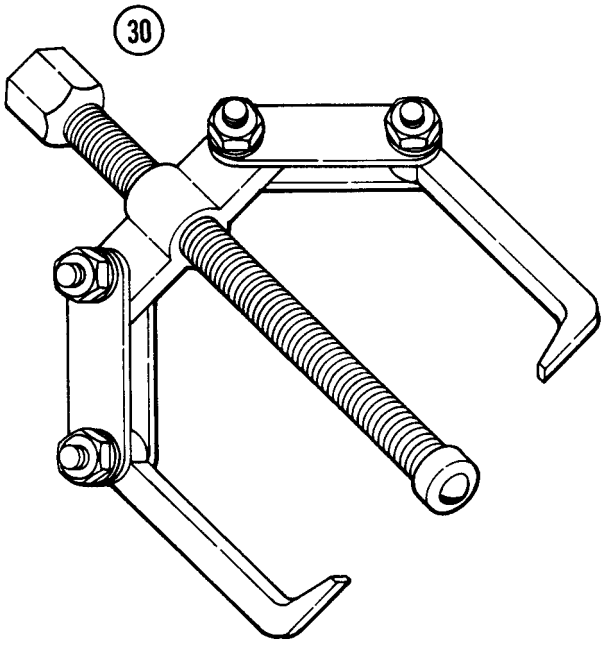


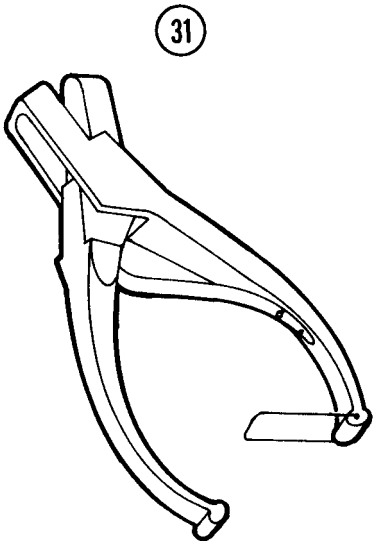




(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION FSCM AND PART NUMBER	USABLE ON CODE	(4) U/M	(5) QTY RQR
27	4930-00-141-8703	OILER, HAND, TYPE 1, CLASS A, 3/4 PINT (81348) GGG0591		EA	1
28		PLATE, END, INK FOUNTAIN (65713) 03.008.019		EA	1
29	7520-00-271-8892	PUNCH, HAND, 1 HOLE (58536) A-A-65		EA	1

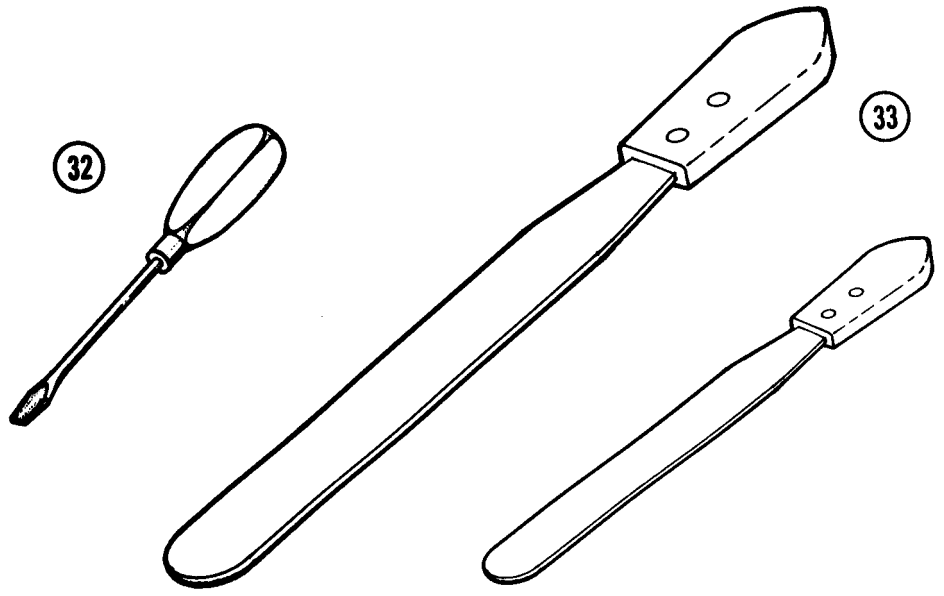
Section III. BASIC ISSUE ITEMS (CONT)





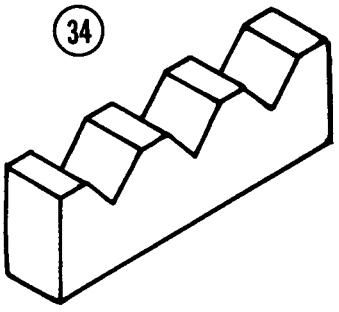
(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION FSCM AND PART NUMBER	USABLE ON CODE	(4) U/M	(5) QTY RQR
30		PULLER, BEARING (65713) 66.024.010		EA	1
31		PUNCH, PACKING (65713) 66.024.023		EA	1

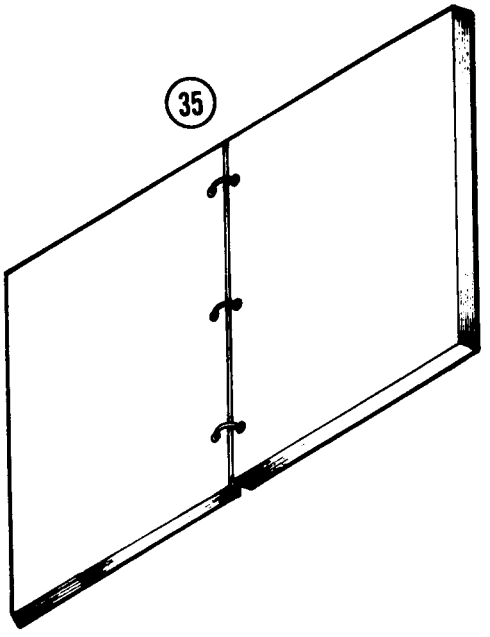
Section III. BASIC ISSUE ITEMS (CONT)



(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION FSCM AND PART NUMBER	USABLE ON CODE	(4) U/M	(5) QTY RQR
32		SCREWDRIVER, FLAT-TIP			
		LONG-HANDLE		EA	1
		(65713) 66.024.001			
		0.5 MM		EA	1
		(65713) 00.540.0001			
		1.0 MM		EA	1
		(65713) 00.540.0003			
33		SPATULAS, LABORATORY			
	6640-00-439-7365	(22527) 14-365D		EA	1
	6640-00-264-8285	(22527) 14-365G		EA	1

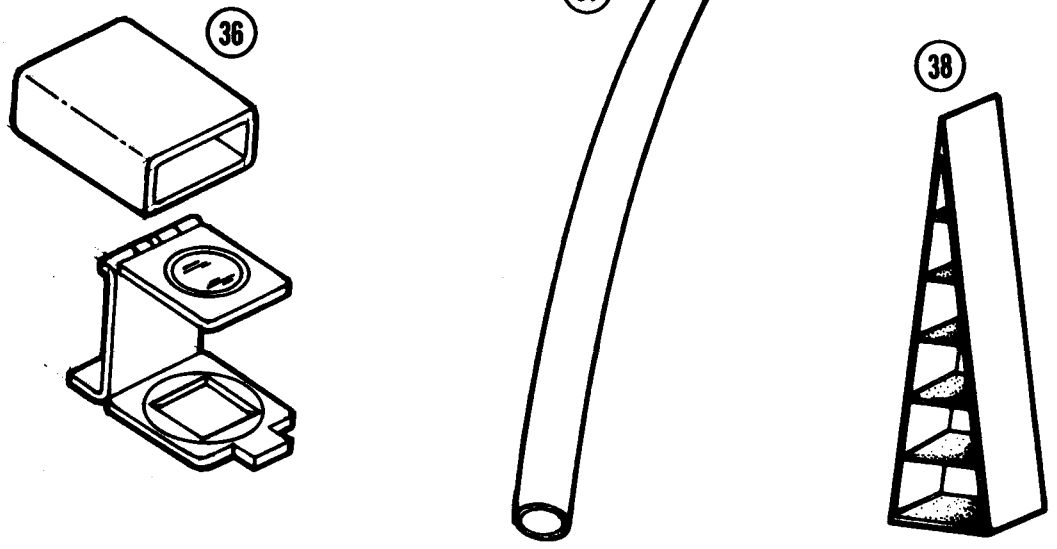
Section III. BASIC ISSUE ITEMS (CONT)





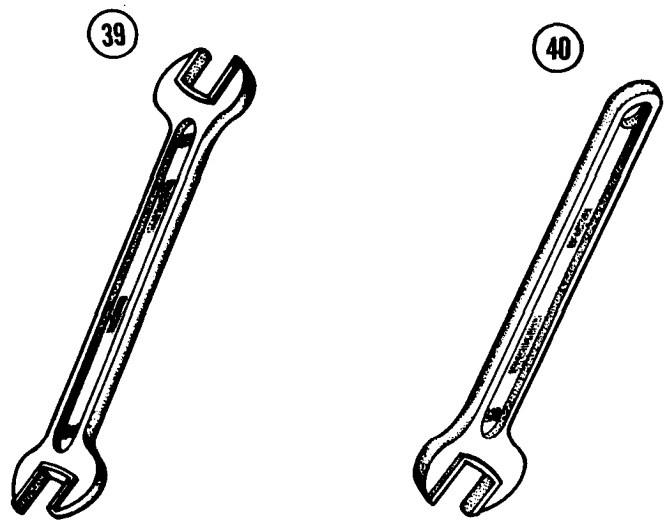
(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION FSCM AND PART NUMBER	USABLE ON CODE	(4) U/M	(5) QTY RQR
34		SUPPORT, ROLLER (65713) 66.024.003		EA	2
35		TECHNICAL MANUALS			
	TM 5-3610-286-10	Operator's Manual, TSS Printing Press		EA	1
	LO 5-3610-286-12	Lubrication Order, TSS Printing Press		EA	1

Section III. BASIC ISSUE ITEMS (CONT)



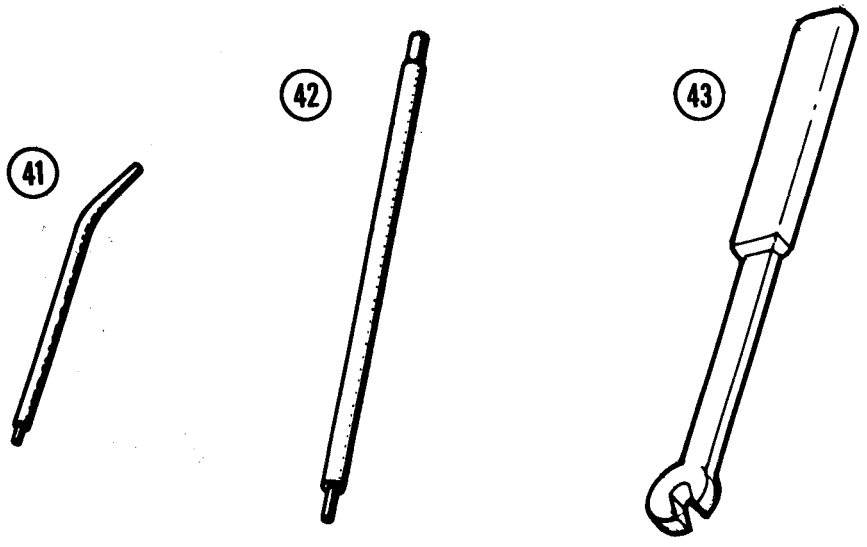
(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION FSCM AND PART NUMBER	USABLE ON CODE	(4) U/M	(5) QTY RQR
36	6650-00-255-8268	TESTER, LINEN (22527) 12-064-10		EA	1
37	4720-00-224-1942	TUBE, PLASTIC (97942) 578R733H06		EA	1
38		WEDGE (65713) 66.024.012		EA	4

Section III. BASIC ISSUE ITEMS (CONT)



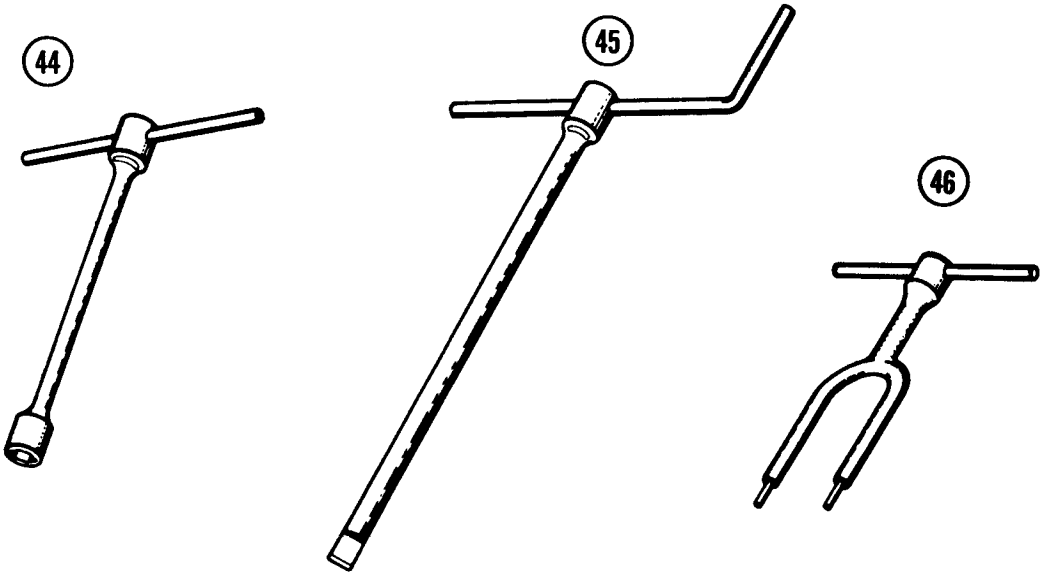
(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION FSCM AND PART NUMBER	USABLE ON CODE	(4) U/M	(5) QTY RQR
39		WRENCHES, COMBINATION			
		7 and 8 MM and 8 MM		EA	1
		(65713) 00.520.1024			
		13 and 17 MM		EA	1
		(65713) 00.520.0785			
		19 and 22 MM		EA	1
		(65713) 00.520.0228			
		24 and 27 MM		EA	1
		(65713) 00.520.0229			
40		WRENCHES, OPEN-END			
		10 MM		EA	1
		(65713) 66.024.015			
		17 MM		EA	1
		(65713) 00.520.0616			

Section III. BASIC ISSUE ITEMS (CONT)



(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION FSCM AND PART NUMBER	USABLE ON CODE	(4) U/M	(5) QTY RQR
41		WRENCH, PIN, CURVED (65713) 03.024.021		EA	1
42		WRENCH, PIN, STRAIGHT (65713) 08.024.020		EA	2
43		WRENCH, PLATE (65713) 66.353		EA	1

Section III. BASIC ISSUE ITEMS (CONT)



(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION FSCM AND PART NUMBER	USABLE ON CODE	(4) U/M	(5) QTY RQR
44		WRENCHES, SOCKET, T-HANDLE			
		8 MM MM		EA	1
		(65713) 66.024.001			
		10 MM		EA	1
		(65713) 09.024.019			
		13 MM		EA	1
		(65713)			
		17 MM BLANKET		EA	1
		(65713) 09.024.001			
		17 MM PLATE CYLINDER		EA	1
		(65713) 09.024.010			
		19 MM			
		(65713) 03.024.006			
45		WRENCH, SPECIAL, L-HANDLE		EA	1
		(65713) 66.024.002			
46		WRENCH, SPECIAL, U-SHAPE		EA	1
		(65713) 66.024.018			

APPENDIX C

ADDITIONAL AUTHORIZATION LIST (AAL) ITEMS

Not Applicable.

APPENDIX D

EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST

Section I. INTRODUCTION

D-1. SCOPE . This listing is for informational purposes only and is not authority to requisition the listed items. These items are authorized to you by CTA 50-970, Expendable/Durable Items (except medical, class V, repair parts, and heraldic items).

D-2. EXPLANATION OF COLUMNS

a. Column (1) - Item Number. This number is assigned to the entry in the listing and is referenced in the narrative instructions to identify the material (e.g., "Use cleaning compound, item 5, appendix E").

b. Column (2) - Level. This column identifies the lowest level of maintenance that requires the listed item.

C - Operator/Crew

O - Organizational Maintenance

F - Direct Support Maintenance

H - General Support Maintenance

c. Column (3) - National Stock Number. This is the National stock number assigned to the item; use it to request or requisition the item.

d. Column (4) - Description. Indicates the Federal item name and, if required, a description to identify the item. The last line for each item indicates the Federal Supply Code for Manufacturer (FSCM) in parentheses followed by the part number.

e. Column (5) - Unit of Measure (U/M). Indicates the measure used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., EA, IN., PR). If the unit of measure differs from the unit of issue, requisition the lowest unit of issue that will satisfy your requirements.

Section II. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/M
1	C	8040-00-262-9040	ADHESIVE, RUBBER	QT
2	C	8415-00-100-7742	APRON, LABORATORY	EA
3	C		BEARING, ROLLER, DAMPENING (65713) 66.009.092	EA
4	C		BEARING, ROLLER, INKING (65713) 66.009.091	EA
5	C	5110-00-656-6815	BLADE, RAZOR, SINGLE-EDGE	EA
6	C		BLADE, WASHUP (65713) 66.010.180	EA
7	C	3610-01-056-0983	BLANKET, LITHOGRAPHIC (28174) 77-9800-7630-9	EA
8	C	7920-00-061-0037	BRUSH, SCRUB, KITCHEN	EA
9	C		CLEANER/CONDITIONER, (54627) HURST 18510	GL
10	C	8520-00-965-2109	CLEANER, HAND (81348) P-H-31	LB
11	C	6850-00-428-3695	CLEANER, LENS (32153) KP38131-1C	
12	C	9920-00-292-9946	CLEANER, TOBACCO PIPE	DZ
13	C	6850-01-073-0659	COMPOUND, DEGLAZING (09177) DEGLAZING SOLVENT	GL
14	C		COMPOUND, DEGLAZING (54627) HURST 17330	GL
15	C	6850-00-412-1251	COMPOUND, DEGLAZING (09135) SOLVENT 95	GL
16	C		COVER, ROLLER, DAMPENING (87903) 7780074510-9	EA

Section II. EXPANDABLE/DURABLE SUPPLIES AND MATERIALS LIST (Cont)

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/M
17	C	7930-00-985-6911	DETERGENT (81349) MIL-D-16791	CN
18	C	7510-00-634-5035	ERASER, RUBBER (81348) ZZ-E-61	DZ
19	C		FILTER, AIR (65713) 00.591.0048 (Used on Oil-less Compressor Model TR 60 DVV)	EA
19A	C	4130-01-230-0747	FILTER, AIR 00.780.0091 (65713) (Used on Oil-type Compressor Model DCL 60DV)	EA
19B	C		FILTER, AIR (65713) 00-780.1567 (Used on Oil-less Compressor, Model TR60 DVV)	EA
20	C	4130-01-230-0746	FILTER, AIR (65713) 00.780.0092 (Used on Oil-type Compressor, Model DCL 60DV)	EA
21	C		FILTER, DUST CATCHER (65713) 47.018.106	EA
21A	C		FILTER, FLUID (65713) 00.591.0055 (Used on Oil-less Compressor, Model TR 60 DVV)	EA
21B	C	4330-01-269-0478	FILTER, FLUID (65713) 00.780.1185 (Used on Oil-type, Compressor, Model DCL 60 DV)	EA
22	C	3610-00-559-7934	FLUID, DELETION (28174) DLTEFLUIDMR412BA	BT
23	C	7510-01-125-4668	FLUID, DELETION (PEN) (28136) 77-9800-7205-0	BX
24	C	8415-00-248-3228	GLOVES, DISPOSABLE (05668) 9708-20	DZ
25	C		GLUE, FEEDER TAPE (65713) 66-173-052	YD
26	C	9150-01-086-4163	GREASE, MULTIPURPOSE (54527) ALVANIA2	

Section II. EXPANDABLE/DURABLE SUPPLIES AND MATERIALS LIST (Cont)

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/M
27	C	7510-00-285-2510	INK, PRINTING, BLACK	LB
28	C	7510-00-286-4712	INK, PRINTING, BLUE	LB
29	C	7510-00-224-6719	INK, PRINTING, BROWN	LB
30	C	7510-00-034-1470	INK, PRINTING, GRAY	LB
31	C	7510-00-224-6720	INK, PRINTING, GREEN	LB
32	C		INK, PRINTING, MAGENTA SPC90342 (00494) ML/MLS314	LB
33	C	7510-00-079-8772	INK, PRINTING, ORANGE	LB
34	C	7510-01-069-9042	INK, PRINTING, PURPLE	LB
35	C	7510-00-285-2511	INK, PRINTING, RED	LB
36	C		INK, PRINTING, RED-BROWN SPC61121 (81349) MIL-I-3606 (00494) ML/MLS168	LB
37	C		INK, PRINTING, WHITE, FOR CHANGING FROM DARK TO LIGHT COLOR, SPC57309 (81349) MIL-I-3606 (00494) ML/MLS138	LB
38	C	7510-00-843-5258	INK, PRINTING, YELLOW	LB
39	C	7510-00-269-8769	INK, PRINTING, YELLOW	LB
40	C		LAMP, FLUORESCENT, (34167) TL20W55	EA
41	C	4910-00-513-9872	OIL, COMPRESSOR (19207) 8708338	EA
42	C	9510-01-152-7060	OIL, GENERAL PURPOSE	GL
43	C	9510-00-153-0207	OIL, MACHINE, LIGHT (81349) MIL-L-21260	GL
44	C		PAPER, LITMUS (54627) HURST 13634	BX

Section II. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST (CONT)

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/M
45	C	7530-00-682-7372	PAPER, MANIFOLD (74322) JCP F-20	MX
46	C	9310-00-274-3842	PAPER, MAP (74322) JCP E-20	RM
47	C		PAPER, PACKING 002, 36.X25.75 (19996) PACKING PAPER	HD
48	C		PAPER, PACKING 003, 36.X25.75 (19996) PACKING PAPER	HD
49	C		PAPER, PACKING, SET (65713) 66.464	EA
50	C	7520-00-973-1059	PEN, FELT -TIP	DZ
51	C	7510-00-240-1526	PENCIL, BLACK. GLAZED SURFACE (75364) 1555	DZ
52	C	7510-00-286-5755	PENCIL, NO. 2	DZ
53	C	7510-00-286-5751	PENCIL, NO. 6	DZ
54	C	7920-00-148-9666	RAGS, WIPING, UNBLEACHED COTTON	
55	C	6850-00-270-9991	REGENERATOR, LITHOGRAPHIC (81348) O-R-1151	QT
56	C	7510-00-224-7242	SHIELD, ERASING, METAL (81348) GGG-S-321	DZ
57	C	6850-00-821-8882	SOLUTION, DEGLAZING (09177) 200-788-1A	PT
58	C	6850-01-014-9270	SOLUTION, FOUNTAIN, LITHOGRAPHIC (09177) 200-1150-4A (20383) UNIVERSAL 3	GL
59	C	6810-01-NNIIN	SOLUTION, GUM (54627), HURST 325	GL
60	C	6850-00-205-6740	SOLVENT, LITHOGRAPHIC (09135) SOLVENT 95	GL

Section II. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST (CONT)

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/M
61	C		SPACER PIECE, DAMPENING ROLLER BEARING (65713) 66.009.007	EA
62	C		SPACER PIECE, INKING ROLLER BEARING (65713) 66.009.008	EA
63	C	7920-00-240-2555	SPONGE, CELLULOSE (81348) L-S-626 TYPE II	EA
64	C		STARTER, FLUORESCENT LIGHT (34167) 510	EA
65	C		SUCKER, PLASTIC, 30 MM (65713) 66.028.403/A	DZ
66	C		SUCKER, PLASTIC, 38 MM (65713) 66.028.404/A	DZ
67	C		SUCKER, RUBBER, 30 MM (65713) 66.028.401/B	DZ
68	C		SUCKER, RUBBER, 38 MM (65713) 66.028.402/B	DZ
69	C		SUCKER, TISSUE PAPER (65713) 66.028.405/B	EA
70	C	6810-00-270-9990	TALC, TECHNICAL (22527) T-4	LB
71	C		TAPE, FEEDER (65713) 66.020.029/D	EA
72	C	7510-00-262-8617	VARNISH, LITHOGRAPHIC	
73	C	5210-00-243-3349	YARDSTICK/METERSTICK	EA

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TM 10-3610-286-10

By Order of the Secretary of the Army:

JOHN A. WICKHAM, JR.
General, United States Army
Chief of Staff

Official:

MILDRED E. HEDBERG
Brigadier General, United States Army
The Adjutant General

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TM 5-3610-286-10	6 Jan 86	TSS for Press Section Printing Press Model SOR

BE EXACT. . .PIN-POINT WHERE IT IS

PAGE NO	PARA-GRAPH	FIGURE NO	TABLE NO	IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:
6	2-1 a			In line 6 of paragraph 2-1a the manual states the engine has 6 Cylenders. The engine on my set only has 4 Cylenders. Clenge the manual to show 4 Cylenders.
B1		4-3		Callout 16 on figure 4-3 is pointing at a bolt. In key to figure 4-3, item 16 is called a shim - Please correct one or the other.
125	line 20			I ordered a gasket, item 19 on figure B-16 key NSN 2910-00-762-3001. I got a gasket but it doesn't fit. Supply says I got what I ordered. so the NSN is wrong. Please give me a good NSN

PRINTED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER	SIGN HERE
JOHN DOE, PFC (268) 317-7111	JOHN DOE

DA FORM 1 JUL 79 2028-2

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DRSTS-M Overprint 1, 1 Nov 80

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TEAR ALONG PERFORATED LINE

REVERSE OF DA FORM 2028-2 Reverse of DRSTS-M Overprint 2, 1 Nov 80

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FOLD BACK

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OFFICIAL BUSINESS
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DOD 314

U.S. MAIL

COMMANDER
U S ARMY TROOP SUPPORT COMMAND
ATTN: AMSTR-MCTS
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TM 5-3610-286-10	6 Jan 86	TSS for Press Section Printing Press Model SOR

BE EXACT. . .PIN-POINT WHERE IT IS

PAGE NO.	PARA-GRAPH	FIGURE NO	TABLE NO.

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The Metric System and Equivalents

Linear Measure

1 centimeter = 10 millimeters = .39 inch
1 decimeter = 10 centimeters = 3.94 inches
1 meter = 10 decimeters = 39.37 inches
1 dekameter = 10 meters = 32.8 feet
1 hectometer = 10 dekameters = 328.08 feet
1 kilometer = 10 hectometers = 3,280.8 feet

Weights

1 centigram = 10 milligrams = .15 grain
1 decigram = 10 centigrams = 1.54 grains
1 gram = 10 decigram = .035 ounce
1 dekagram = 10 grams = .35 ounce
1 hectogram = 10 dekagrams = 3.52 ounces
1 kilogram = 10 hectograms = 2.2 pounds
1 quintal = 100 kilograms = 220.46 pounds
1 metric ton = 10 quintals = 1.1 short tons

Liquid Measure

1 centiliter = 10 milliliters = .34 fl. ounce
1 deciliter = 10 centiliters = 3.38 fl. ounces
1 liter = 10 deciliters = 33.81 fl. ounces
1 dekaliter = 10 liters = 2.64 gallons
1 hectoliter = 10 dekaliters = 26.42 gallons
1 kiloliter = 10 hectoliters = 264.18 gallons

Square Measure

1 sq. centimeter = 100 sq. millimeters = .155 sq. inch
1 sq. decimeter = 100 sq. centimeters = 15.5 sq. inches
1 sq. meter (centare) = 100 sq. decimeters = 10.76 sq. feet
1 sq. dekameter (are) = 100 sq. meters = 1,076.4 sq. feet
1 sq. hectometer (hectare) = 100 sq. dekameters = 2.47 acres
1 sq. kilometer = 100 sq. hectometers = .386 sq. mile

Cubic Measure

1 cu. centimeter = 1000 cu. millimeters = .06 cu. inch
1 cu. decimeter = 1000 cu. centimeters = 61.02 cu. inches
1 cu. meter = 1000 cu. decimeters = 35.31 cu. feet

Approximate Conversion Factors

To change	*To*	*Multiply by*	*To change*	*To*	*Multiply by*
inches	centimeters	2.540	ounce-inches	newton-meters	.007062
feet	meters	.305	centimeters	inches	.394
yards	meters	.914	meters	feet	3.280
miles	kilometers	1.609	meters	yards	1.094
square inches	square centimeters	6.451	kilometers	miles	.621
square feet	square meters	.093	square centimeters	square inches	.155
square yards	square meters	.836	square meters	square feet	10.764
square miles	square kilometers	2.590	square meters	square yards	1.196
acres	square hectometers	.405	square kilometers	square miles	.386
cubic feet	cubic meters	.028	square hectometers	acres	2.471
cubic yards	cubic meters	.765	cubic meters	cubic feet	35.315
fluid ounces	milliliters	29,573	cubic meters	cubic yards	1.308
pints	liters	.473	milliliters	fluid ounces	.034
quarts	liters	.946	liters	pints	2.113
gallons	liters	3.785	liters	quarts	1.057
ounces	grams	28.349	liters	gallons	.264
pounds	kilograms	.454	grams	ounces	.035
short tons	metric tons	.907	kilograms	pounds	2.205
pound-feet	newton-meters	1.356	metric tons	short tons	1.102
pound-inches	newton-meters	.11296			

Temperature (Exact)

°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

PIN: 059581-000