DEPARTMENT OF THE ARMY TECHNICAL MANUAL

# ORGANIZATIONAL, DIRECT SUPPORT, GENERAL SUPPORT AND DEPOT MAINTENANCE MANUAL

## PRINTING PRESS, OFFSET, WEB-FED, MOTOR DRIVEN 220 VOLT, 60 CYCLE, 3 PHASE (HESS AND BARKER MODEL 3-C) FSN 3610-854-4153

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**Organizational, Direct Support, General Support and Depot Maintenance Manual**
**PRINTING PRESS, OFFSET, WEB-FED, MOTOR DRIVEN**
**220 VOLT, 60 CYCLE, 3 PHASE**
**(HESS AND BARKER MODEL 3-C)**
**NSN 3610-008544153**

TM 10-3610-200-15, 17 May 1968, is changed as follows.

Page iv, Contents. The title for Appendix B and C is changed to read as follows:

Appendix B. COMPONENTS OF END ITEM LIST ..... B-1
C. ADDITIONAL AUTHORIZATION LIST ..... C-1

Add the following:

D. MAINTENANCE ALLOCATION CHART ..... D-1
E. EXPENDABLE SUPPLIES AND MATERIAL LIST ..... E-1

Page 1, paragraph 1. Subparagraph b and c are superseded as follows:

b. Appendix A contains a list of publications applicable to this manual Appendix B contains the integral components of and basic issue items for the printing press. Appendix C lists additional items you are authorized for support. Appendix D contains the maintenance allocation chart, and Appendix E lists expendable supplies and materials you will need to operate and maintain the equipment. Organizational, Direct and General Support and Depot Maintenance Repair Parts and Special Tools are listed in TM 10-3610-200-25P..

c. You can help to improve this manual by calling attention to errors and by recommending improvements. Your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), and/or DA Form 2028-2 (Recommended Changes to Equip ment Technical Manuals), may be used. Copies of DA Form 2028-2 are attached in the back of the manual for your use. Please mail your recommended changes direct to Commander, US Army Troop Support Command, ATTN: DRSTS-MPP, 4300 Goodfellow Blvd., St. Louis, MO 63120. A reply will be furnished direct to you.

Paragraph 3a, subparagraph (10) is superseded as follows.

(10) Operating supplies, installation and maintenance tools. A list of operating supplies and installation and maintenance tools supplied in the press package are listed in appendix B of this manual. Page 15. In paragraph 8, add a. in front of the existing subparagraph.

After paragraph 8a, paragraph b is added as follows:

b. For maintenance and operating supplies, see table 1.

*Table 1. Maintenance and Operating Supplies*

| (1) Component application | (2) Federal stock number | (3) Description | (4) Qty required for Initial operation | (5) Qty required for 8 hrs operation | (6) Notes |
|---|---|---|---|---|---|
| | | CLEANER: Dampener cover (Lestoil) 1 gal can. | 4gal | 1 pt | |
| | | DRIER: cobalt, 1 lb can | 30 cans | 1 lb | |
| | | HYDROCHLORIC ACID: 1 lb bottle | 1 btle | 1 oz | |
| | 6850-281-3461 | ASPHALTUM SOLUTION: Lithographic plate, 1 quart. | 2qt | 2oz | |
| | | FOUNTAIN SOLUTION: Concentrated, 1 gallon bottle | 10gal | 1qt | |
| | | SOLVENT, VARNISH: Reducing, grade 00, 1 lb can. | 1pt | lf0z | |
| | | INK, PRINTING: PMS BLACK: Web-fed, offset process, fultone and halftone, 5 lb can. | 90 cans | 10 lbs | |
| | | INK, PRINTING, PMS YELLOW: Web-fed, offset process, fultone and halftone, 5 lb can. | 10 cans | 2 lb | |
| | | INK, PRINTING, PMS REFLEX BLUE: Web-fed, offset process, fultone and halftone, 5 lb can. | 10 cans | 2 lb | |
| | | INK, PRINTING, RMS PROCESS BLUE: Web-fed, offset, fultone and halftone, 5 lb can. | 10 cans | 2 lb | |
| | | INK, PRINTING, PMS WARM RED: Web-fed, offset process, fultone and halftone, 5 lb can. | 10 cans | 2 lb | |
| | | INK, PRINTING, PMS WHITE TRANSPARTENT: Web-fed, offset process, fultone and halftone, 5 lb can. | 5 cans | 1 lb | |
| | 8010-261-4160 | TURNPENTINE, GUM: Spirits or steam distilled wood, 1 qt can. | 5qt | As req | |
| | | PUMICE POWDER: FFF Pulverized, 5 lb can | 1 can | as req | |
| | | SULPHUR POWDER: USP, 1 lb pkg | 1 pkg | As req | |
| | | SOLVENT, DRY CLEANING: Per Federal Specification P-S-66L | As req | As req | |
| LUBRICATOR, AUTOMATIC | 9150-265-9435 | LUBRICATING OIL, ENGINE, OE 30-5, gal can, | 1 can MILIL2104. | 2qt | |
| P.I.V. UNIT | 9150-2659442 | LUBRICATING OIL, ENGINE: | 1 OE-50, 5 gal can, MIL-L-2104. | 2qt can | |
| GEARS, | | 9150-190-0905 | GREASE, AUTOMOTIVE AND | 1 | lib |
| CHAINS: ETC | | ARTILLERY: GAA, 5 lb | can MIL-G-10924 | | |

*Page 37*, paragraph 19, line 3. “Appendix C” is changed to read, “Appendix B”.

*Page B-1.* Appendix B is superseded as follows

# APPENDIX B
# COMPONENTS OF END ITEMS LIST

## SECTION I. INTRODUCTION

### 1. Scope

This appendix lists Integral Components of and Basic Issue Items (B II) for the printing press to help you inventory items required for safe and efficient operation.

### 2. General

The components of end item list are divided into the following sections:

*a. Section II.* Integral Components of the End Item. These items, when assembled, comprise the printing press and must accompany it whenever it is transferred or turned in. These illustrations will help you identify these items.

*b. Section III*. Basic Issue Items. These are minimum essential items required to place the printing press in operation, to operate it and to perform emergency repairs. Although shipped separately packed, they must accompany the printing press during operation and whenever it is transfer-red between accountable officers. The illustrations will assist you with hard-to-identify items. This manual is your authority to requisition replacement BII based on Table(s) of Organization and Equip ment (TOE)/Modification Table of Organization and Equipment (MTOE) authorization of the end item.

### 3. Explanation of Columns

*a. Illustration*: This column is divided as follows:

(1) Figure number. Indicates the figure number of the illustration on which the item is shown (if applicable).

(2) Item Number. The number used to identify item called out in the illustration.

*b. National Stock Number (NSN):* Indicates the National Stock Number assigned to the end item which will be used for requisitioning.

*c. Part Number (PIN):* Indicates the primary number used by the manufacturer which controls the design and characteristics of the item by means of its engineering drawings, specifications, standards and inspection requirements to identify an item or range of items

*d. Description*: Indicates the federal item name and, if required, a minimum description to identify the item.

*e. Location:* The physical location of each item listed is given in this column. The lists are designed to inventory all items in one area of the major item before moving on to an adjacent area

*f. Usable on Code:* "USABLE ON" codes are included to help you identify which component items are used on the different models. Identification of the codes used in this list are:

| CODE | USED ON |
|---|---|
| | (Not Applicable) |

*g. Quantity Required (Qty Reqd):* This column lists the quantity of each item required for a complete major item-

*h. Quantity*: This column is left blank for use during inventory. Under the received column, list the quantity you actually receive on your major item. The date columns are for use when you inventory the major item at a later date, such as for shipment to another site.

## SECTION II. INTEGRAL COMPONENTS OF END ITEM

| (1) ILLUSTRATION (a) Figure No | (1) ILLUSTRATION (b) Item No | (2) National Stock Number | (3) Part No. & FSCM | (4) Description | (5) Location | (6) Usable On Code | (7) Qty Reqd | (8) Quantity Rcv'd | (8) Quantity Date | (8) Quantity Date | (8) Quantity Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 4-47 | 16 | | 6-1-3225-7 (81337) | Skid, Fixed | | 2 | | | | | |
| 447 | 17 | 3610-00-431-3747 | MK4S (04135) | Skid, Swivel | | 1 | | | | | |
| 4-47 | 19 | 3610-00-482-8852 | 6-1-3221-16 (81337) | Delivery Ramp Assembly | | | 1 | | | | |
| 4-47 | 21 | 5120-00-834-5169 | 84A (59462) | Jack, Ratchet | | | 2 | | | | |
| 4-47 | 22 | 3610-00-478-5700 | 6-1-3221-12 (81337) | Table, Folding | | | 4 | | | | |
| 4-47 | 7 | 3610-00-482-8848 | 6-1-3220-17 (81337) | Ramp Assembly | | | 2 | | | | |
| 447 | 12 | | 6-1-3224-21 (81337) | Extension Platform Assy | | | 2 | | | | |
| 4-54 | - | 3610-00-256-5423 | 6-1-3007-11 (81337) | Plate Bending Jig Assy | | | 1 | | | | |
| 447 | 2 | | 6-1-3227-13 (81337) | Cover, Press Package Assembly | | | 1 | | | | |
| 447 | 24 | | 6-1-3010-10 (81337) | Spreader Frame Assembly | | | 1 | | | | |
| 4-48 | A | | 6-1-3212-4 (81337) | Cabinet Assembly, A | | | 1 | | | | |
| 4-49 | B | | 6-1-3213-5 (81337) | Cabinet Assembly, B | | | 1 | | | | |
| 4-50 | C | | 6-1-3214-6 (81337) | Cabinet Assembly, C | | | 1 | | | | |
| 4-51 | D | | 6-1-3215-7 (81337) | Cabinet Assembly, D | | | 1 | | | | |
| 4-52 | E | | 6-1-3216-8 (81337) | Cabinet Assembly, E | | | 1 | | | | |
| 4-53 | F | | 6-1-3217-9 (81337) | Cabinet Assembly, F | | | 1 | | | | |
| 1-3 | - | | 21006-41S (50380) | Magnetic Control (Motor Generator Unit) | | | 1 | | | | |
| 4-47 | 43 | | 6-1-3008-3 (81337) | Base Assembly | | | 1 | | | | |
| 4-47 | 2 | | HB2212 (28410) | Drip Pan Assembly | | | 1 | | | | |
| 1-1 | -- | 3610-00-863-8378 | 3C (28410) | Printing Press, Offset | | | 1 | | | | |
| 4-3 | 20 | | 6375B (92194) | Cable, Power, 100 FT LG | | | 1 | | | | |
| 4-3 | 18 | | 1937-3B (92194) | Cable, Blower Motor | | | 1 | | | | |
| 4-3 | -- | 6145-00-770-4127 | 4620 (92194) | Cable, Control, 20 FT LG | | | 1 | | | | |
| | | 3610-00-418-4744 | 6-1-40584-1 (81337) | Roller Assembly, Ink Ductor | | | 3 | | | | |
| | | 3610-00-418-4740 | 6-1-4059-4-15 (81337) | Roller Assembly. Ink Form and Distributor | | | 18 | | | | |
| | | 3610-00418-4765 | 6-1-4039-5-11 (81337) | Roller Assembly, Water Form and Ductor | | | 9 | | | | |
| | | 5307-00422-0976 | 6-1-4067-4-99 (81337) | Stud, Ink and Water Form Roller | | | 24 | | | | |
| | | 3120-00445-7107 | 6-1-4067-4-104 (81337) | Stud, Ink and Water Ductor Roller Bearing | | | 12 | | | | |
| | | 3610-00-418-4763 | 6-1-40644-63 (81337) | Block, Ink Distributor Roller | | | 24 | | | | |
| | | 3110-00-990-4223 | 6202A2RSC3 (52676) | Bearing, Roller | | | 60 | | | | |
| | | 5310-00-446-8129 | 6-1-4068-4-113 (81337) | Washer, Roller End | | | 60 | | | | |
| | | | 6-1-4005-4-218 (81337) | Screw, Cap, FH, Hex Socket STL, CAD-PLD, ¼-20 UNC-2A, 1/21N LG | | | 60 | | | | |

## Section III. BASIC ISSUE ITEMS

| (1) ILLUSTRATION (a) Figure No. | (1) ILLUSTRATION (b) Item No. | (2) National Stock Number | (3) Part No & FSCM | (4) Description | (5) Location | (6) Usable On Code | (7) Qty Reqd | (8) Quantity Rcv'd | (8) Quantity Date | (8) Quantity Date | (8) Quantity Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 6-1-4046-61 (81337) | Wrench, Sheeter Pin | | | 2 | | | | |
| | | | 6-1-4046-59 (81337) | Wrench, Roller Setting Pin | | | 2 | | | | |
| | | | 6-14046-56 (81337) | Wrench, Plate & Blanket Cylinder | | | 2 | | | | |
| | | | 6-1-4046-58 (81337) | Gage, Blanket | | | 2 | | | | |
| | | | 6-1-4046-60 (81337) | Gage, Knife Edge Cylinder | | | 1 | | | | |
| | | 5210-00-517-8096 | | Gage, Thickness, 9 Blades, 6 in Lg X ½ n. wide, 0.0015 thru 0.015 in. Thk., FED SPEC GGG-G-17, Type VIII, Class Style B, Size 1. | | | | | | | |
| | | 4930-00-253-2478 | | Gun, Grease, Lever Operated, High Pressure. 14 oz. Capacity MIL-G-3859C, Type 1, Size 1 | | | 1 | | | | |
| | | 5120-00-293-0486 | | Hammer, Plastic, Screw-in Inserted Face, 1 in. Dia., 8 oz., Total Wt. FED SPEC GGG-H-33, Type 1, Class 3, Style B, Design A. | | | 1 | | | | |
| | | 5120-00-935-4641 | | Key, Socket Head Screw (Allen Type) Short Series, L-Handle w/ Metal Case, Sizes 0.028, 0.035, 0.050, 1/16, 5/64, 3/32, 7/64 1/8, 9/64, 5/32, 3/16, 7/32, ¼, 5/16, 3/8, 7/16, ½,9/16, 5/8 and ¾ in., FED SPEC GGG-K-275, Type 1, Class 1. | | | 1 | | | | |
| | | 5120-00-935-7340 | | Key, Socket Head Screw T-Handle Type, Nonreplaceable Blades, 8-¾ in. Lg., Sizes 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, ¼, 5/16, and 3/8 in. Across Flats | | 1 | | | | | |
| | | 5120-00-221-1536 | | Knife, Putty, Flexible Blade, 1 ¼ in. w. X 3-1/2 m. Lg., FED SPEC GGG-K481, Type IV, Class 1. | | | | | | | |
| | | 5120-00-223-9159 | | Caliper, Micrometer Paper, Ratchet Stop, 0 thru 3/8 x1/1000 in., FED SPEC GGG-C-105, Type 1, Class 2. | | | 2 | | | | |
| | | 5120-00-293-3514 | | Rule, Machinist, Steel R.H. Reading, Graduations 32d's and 64th's One Side Only, .500 in. w X 6 in. Lg., FED SPEC | | 1 | | | GGG-K-791, Type IV. | | |
| | | 5120-00-831-1054 | | Wrench, Reversible Ratchet, Size 3/8 in. and 7/16 in., Double End, Six Point Box Wrench, FED SPEC GGG-W-001405 | | | 1 | | | | |
| | | 5120-00-293-0315 | | Screwdriver, Medium Heavy Duty, Design A, Round Blade, Shape A, 3/8 in. Dia. X 6 in. Lg., FED SPEC GG-S-121 Class 5 | | | 1 | | | | |
| | | 5120-00-293-3309 | | Screwdriver, Medium-Heavy Duty, Design A, Round Blade, Shape A, 3/8 in. Dia/ X 10 in. Lg., FED SPEC GG-S-121 Class 5 | | | 1 | | | | |
| | | 5120-00-228-9504 | | Wrench, Box and Open End Combination, Box End Offset 15 Degree, 3/8 in Size Both Ends FED SPEC GGG-W-636, Type III | | | 1 | | | | |
| | | 4930-00-141-8703 | | Oiler, Hand, Compressible Feed, 9 in. Lg. Spout, 16 oz. Capacity, FED SPEC GGG0-59 1, Type 1, Class B | | 1 | | | | | |
| | | | | Wrench, Open End, Fixed Double Head, Engineers, 15 Degree Angle Opening, FED SPEC GGG-W-636, Type IV Wrench Opening Size | | | | | | | |
| | | 5120-00-271-2311 | | ¼ in. X 5/16 in | | | 1 | | | | |
| | | 5120-00-277-2307 | | 5/16 in. X 3/8 in | | | 1 | | | | |

| (1) ILLUSTRATION | | (2) | (3) | (4) | (5) | (6) | (7) | (8) Quantity | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| (a) Figure No | (b) Item No. | National Stock Number | Part No. & FSCM | Description | Location | Usable On Code | Qty Reqd | Rcv'd | Date | Date | Date |
| | | 5120-00-293-1329 | | 3/8 in. X ½ in | | | 1 | | | | |
| | | 5120-00-277-4834 | | 7/16 in. X 9/16 in | | | 1 | | | | |
| | | 5120-00-277-1228 | | 9/32 in. X 11/16 in | | | 1 | | | | |
| | | 5120-00-277-8299 | | 11/16 in. X ¾ in | | | 1 | | | | |
| | | 5120-00-187-7131 | | 7/8 in. X 15/16 in | | | 1 | | | | |
| | | 5120-00-187-7134 | | 1/16 in. X 1 ¼ in | | | 1 | | | | |
| | | | | Wrench, Socket, Single Socket, T Type, Fixed Handle, Hex Socket SOCKET SIZE/NOMINAL O/A LENGTH | | | | | | | |
| | | 5120-00-227-7382 | | ½ in 5 ¼ in | | | 1 | | | | |
| | | 5120-00-227-7412 | | 9/16 in 5 ¾ in. | | | | | | | |
| | | 5120-00-227-7385 | | 5/8 in 6 in | | | 1 | | | | |
| | | 5120-00-227-7387 | | ¾ in 6 1/8 in | | | 1 | | | | |
| | | 5140-00-331-5496 | | Box, Tool, 7 in. X 7 in. X 9 in. Size, FED SPEC FED SPEC GGG-T -558 | | | 1 | | | | |
| | | 3610-00-971-2223 | Model 6-80 (92075) | Beveler, Belt Hand | | | 1 | | | | |
| | | 3610-00-962-4713 | Model 5-80 (92075) | Press, Belt | | | 1 | | | | |
| | | 6530-00-772-0326 | | Bowl, Surgical Sponge 6 ¼ in. I.D. X ¾ in. Deep, FED SPEC RRR-B-616, Size 2 | | | 3 | | | | |
| | | 7240-00-274-3875 | | Pail, Stainless Steel, 4 gal. Size, MIL-P-20637A | | | 1 | | | | |
| | | 7240-00-256-7700 | | Can, Flammable Waste, STL, 10 Gal. Capacity Foot Operated FED SPEC RRC-1 1 4 | | | 1 | | | | |
| | | 7240-00-404-9792 | | Funnel, Plastic, 7 ¾ in. O.D. Rigid Spout w/o Strainer, 2 QT Capacity, FED SPEC L-F-1593, Class 2 | | | 1 | | | | |
| | | 6630-00-247-2956 | | Hydrometer, Graduated Scale, Baume 0 to 20 Deg. 6 in. Lg w/Jar, FED SPEC 66-H-925, Type 1, Class A | | | 2 | | | | |
| | | 6640-00-427-5250 | | Graduate, Liquid, Laboratory Glass, Conical, 200 to 1000 ML, w/Pour Out Graduations 8, 12, 16, 20, 24, 28 and 32 oz. FED SPEC DD-G666, Type III, Size 1. | | | 2 | | | | |
| | | 7350-00-170-8333 | | Pitcher, Stainless Steel 5 QT. Capacity, FED SPEC RR-P-386 | | | 1 | | | | |
| | | 6640-00-264-8285 | | Spatula, Laboratory, Steel Blade 1 ¾ in. w. X 12 in. Lg., Wooden Handle, FED SPEC NNN-S-1 356, Class 2, Size 6 | | | 3 | | | | |
| | | 6640-00-634-9313 | 35999-1 (96906) | Rod, Stirring, Laboratory, Phenol Fiber, Flat Ends, 3/8 in Dia. X 18 in. Lg. | | | 3 | | | | |
| | | 7240-00-244-7412 | | Safety Can, Steel, 1 in. Dia. Fixed Spout, I QT. Capacity, FED SPEC RR-S-30, Style 1 | | | 4 | | | | |
| | | TM 10-3610-215-14 | | Technical Manual, Department of the Army, Operator, Organ-izational, Direct and General Support Maintenance | | | 1 | | | | |

*Page C-1*. Appendix C is superseded as follows.

**APPENDIX C**
**ADDITIONAL AUTHORIZATION LIST**
**SECTION I. INTRODUCTION**

**1. Scope**

This appendix lists additional items you are authorized for the support of the printing press.

**2. General**

This list identifies items that do not have to accompany the printing press and that do not have to be turned in with it. These items are authorized to you by CTA, MTOE, TDA or JTA.

**3. Explanation of Listing**

National Stock Number, descriptions and quantities are provided to help you identify and request the additional items you require to support this equip-ment. “USABLE ON” codes are identified as follows:

| CODE | USED ON |
|---|---|
| | (Not Applicable) |

**Section II. ADDITIONAL AUTHORIZATION LIST**

| (1) | (2) Description | | (3) | (4) |
|---|---|---|---|---|
| | Part Number & FSCM | Usable on Code | U M | Qty Auth |
| THERE ARE NO AAL ITEMS REQUIRED FOR THIS END ITEM | | | | |

By Order of the Secretary of the Army:

BERNARD W. ROGERS
General, United States Army
Chief of Staff

Official:

PAUL T. SMITH
Major General, United States Army
The Adjutant General

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## SAFETY PRECAUTIONS

Exercise great care when handling or moving the press and associated equipment. They are extremely heavy units. Use all safety precautions and provide sufficient qualified personnel when performing installation work. Carelessness can result in serious injury or death!

Make sure that all safety guards are in place before operation to insure safety of operating personnel.

Do not attempt to oil the press when it is running.

To prevent damage to the press, always disengage the clutch before reversing the offset unit.

Read and follow all instructions, warning and safety notices on containers and packages which contain chemicals, paints, ink, lubricants, etc.

When using inflammable solvents, provide adequate ventilation and keep away from open flames. Place ink and solvent soaked rags in sealed safety cans. Empty cans daily to prevent the probability of the occurance of spontaneous combustion.

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NO. 10-3610-200-15

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DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 17 May 1968

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# MAINTENANCE MANUAL

# PRINTING PRESS, OFFSET, WEB-FED, MOTOR DRIVEN, 220 VOLT,

# 60 CYCLE, 3 PHASE, (HESS AND BARKER MODEL 3-C) FSN 3610-854-4153

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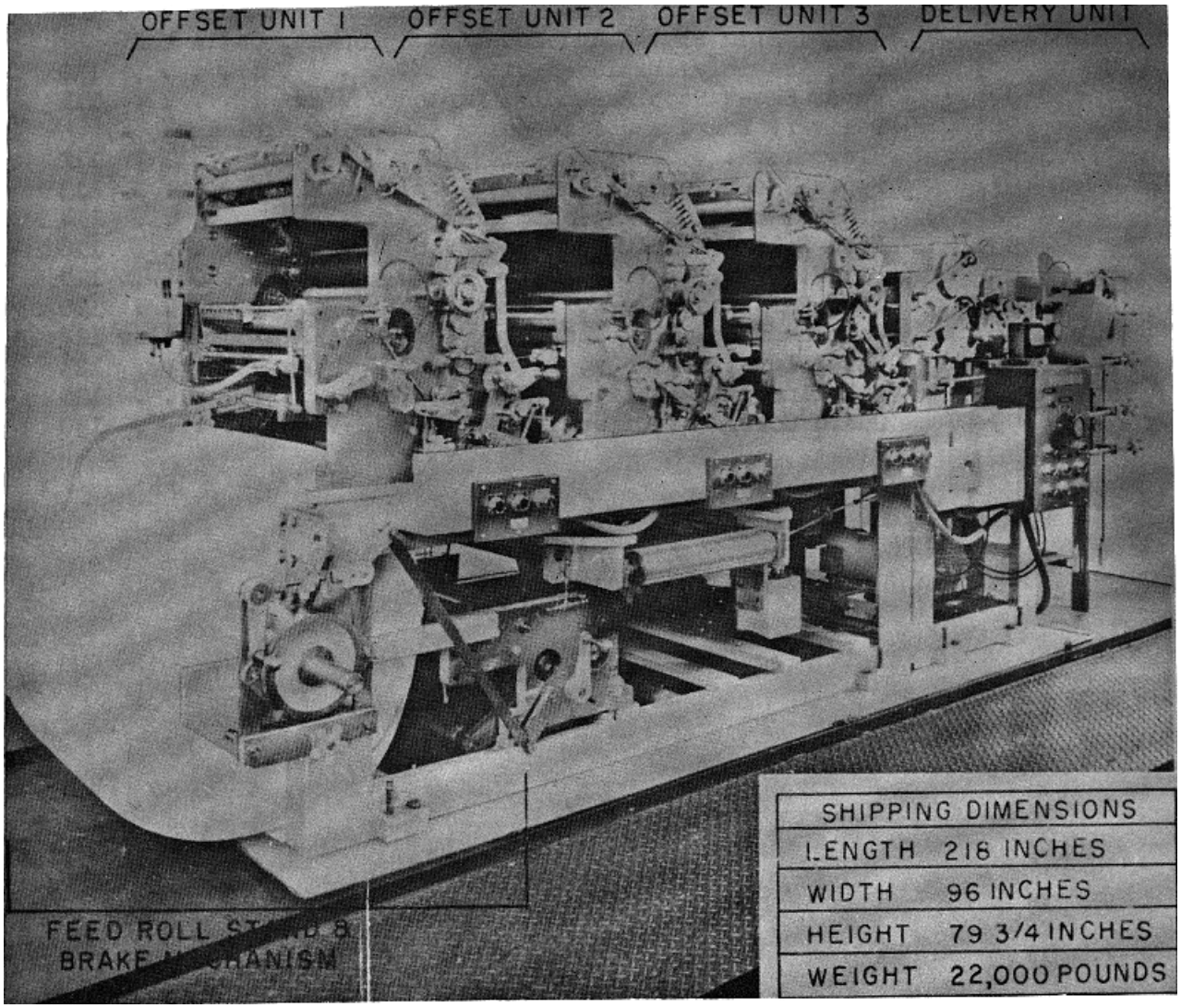



*Figure 1. Model 3C Lithographic Offset, Web-Fed Press, Front View*

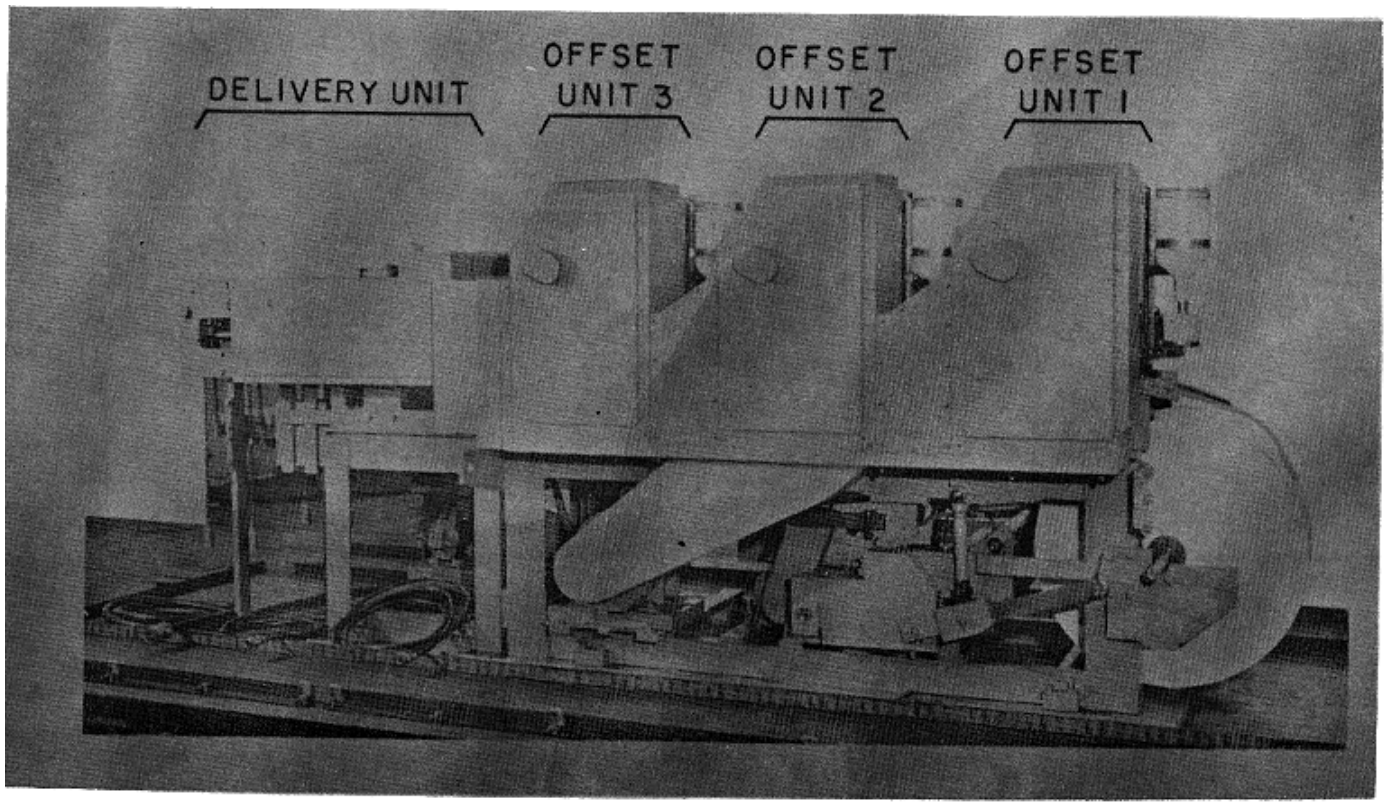



*Figure 2. Model 3C Lithographic Offset, Web-Fed Press, Rear View*

# CHAPTER 1
# INTRODUCTION

## Section I. GENERAL

1. SCOPE

a. These instructions are published for the use of the personnel to whom the Model 3C Lithographic Offset Press with Press Package is issued. Chapters 1 through 3 provide information on the installation and operation, preventive maintenance, services, and organizational maintenance of the equipment, accessories, components, and attachments. Chapter 4 provides information on demolition, shipment and limited storage. Chapters 5 and 6 provides information for field and depot maintenance. Also included are descriptions of main units and their functions in relation-ship to other components.

b. Appendix A contains a list of publications applicable to this manual. Appendix B contains the Maintenance Allocation Chart. Appendix C contains the list of Basic Issue Items authorized the operator of this equipment. and the list of Maintenance and Operating Supplies required for initial operation. Organizational, Direct and General Support and Depot Maintenance Repair Parts and Special Tools are listed in ET 10-3610-200-25P.

c. Report of errors, omissions, and recommendations for improving this publication by the individual user is encouraged. Reports should be submitted on DA Form 2028 (Recommended Changes to DA Publications) and forwarded direct to the Commanding General, U.S. Army Mobility Equipment Command, ATTN: AMSME-MPP, 4300 Goodfellow Blvd., St. Louis, Mo. 63120.

d. Report all equipment improvement recommendations as prescribed by TM 38-750.

2. RECORD AND REPORT FORMS.

For record and report forms applicable to the operator, crew, and organizational maintenance, refer to TM 38-750.

**NOTE**

Applicable forms, excluding standard Form 46 which is carried by the operator, shall be kept in a canvas bag mounted on the equipment.

## Section II. DESCRIPTION AND DATA

3. DESCRIPTION.

a. General. The Model 3C press is a mobile, motor driven, web-fed, three color press which produces leaflets, news sheets, small posters and other printed matter, by the offset lithographic process. The principal functional components of the press consist of a feed roll stand, three offset units and a delivery unit. The press will produce at least 25, 000 impressions per hour and is capable of producing at least 160, 000 cut 10-1/2 by 16 inch sheets either scored or slot perforated per eight hour shift. The overall equipment is shown in two views and is depicted in figures 1 and 2. The Model 3C press package contains the following associated equipment:

(1) Motor-Generator Unit. The motor-generator unit (see fig. 10) supplies the power for operation of the press through three cables.

(2) Plate Bending Jig. The plate bending jig (see fig. 11) is used to bend the ends of a plate to a specific angle so that the plate can be properly mounted on the plate cylinder.

(3) Riveting Device. The reveting device (see fig. 12) is used for riveting blankets to blanket bars with grommets or eyelets.

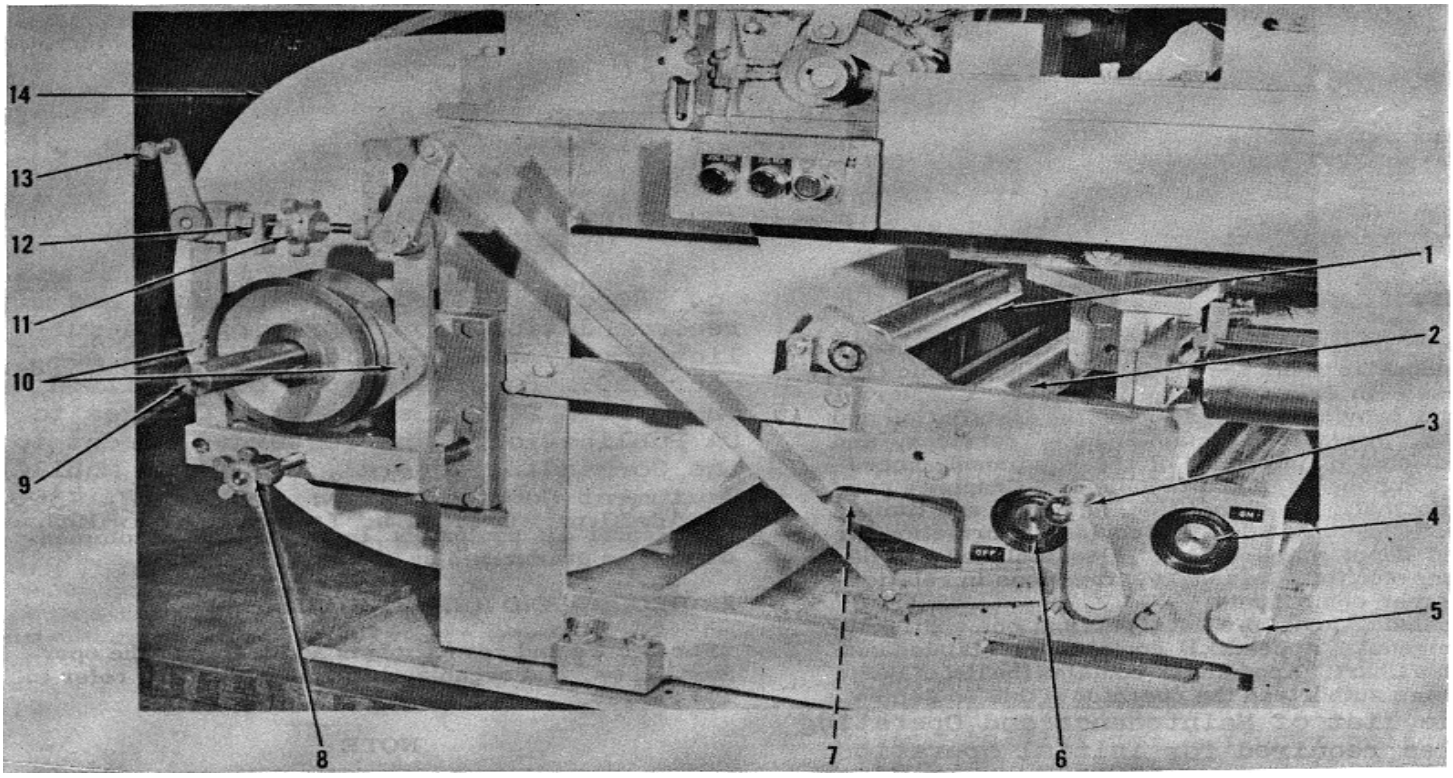
(4) Ramp Plates. The ramp plates (2 and 4 fig. 18) are made of plywood with skid-proof faced steel plates. Each plate is 88 inches long by 21 inches wide. They are used when unpacking the storage cabinets and motor -generator unit as explained in paragraph 7 a.(4).

(5) Platform Extension Plates. The platform extension plates (1 and 3 fig. 18) are made of plywood with skid-proof faced steel plates and equipped with six legs. Each plate is 88 inches long by 21 inches wide. They are used to extend the width of the platform base (13 fig. 18) as explained in paragraph 7. b. (1).

(6) Platform Base Ramp. The platform base ramp (25, fig. 18) is made of steel and is 48 inches long by 30 inches wide. It is used to extend one end of the plat-form base as explained in paragraph 7. b. (2).

(7) Tables. The four tables (5 and 7, fig. 18) are made of steel with a zinc-faced top and folding legs. Each table is 72 inches long and 22 inches wide. They are used as explained in paragraph 7. a. (3).

(8) Storage Cabinets. The storage cabinets (22, 23, 24, 26, 28, 30 fig. 18) are made of steel and painted two-tone green. Each cabinet is 62-1/4 inches long by 72 inches high by 18-1/2 inches deep, and is provided with two eyebolts (31 fig. 18) on top for lifting purposes when installing the equipment.




1. Feeder Tension Roller
2. Tension Roller
3. ON-OFF Feeder Rider Roller Handle
4. Feeder Roller
5. P.I. V. Control Knob
6. Feeder Roller
7. Dancing Roller
8. Paper Roll Lateral Adjusting Knob
9. Paper Roll Shaft with Brake Drum
10. Brake Shoes (two)
11. Brake Tension Adjusting Knob
12. Brake Locking Nut
13. Brake Locking Handle
14. Paper Roll

*Figure 3. Feed Roll Stand and Brake Mechanism*

(9) Ink Mixing Slabs. The three ink mixing slabs (27 fig. 18) are made of stainless steel. Each slab is 18 inches long by 18 inches wide. When in use they are mounted on a table (see fig. 19).

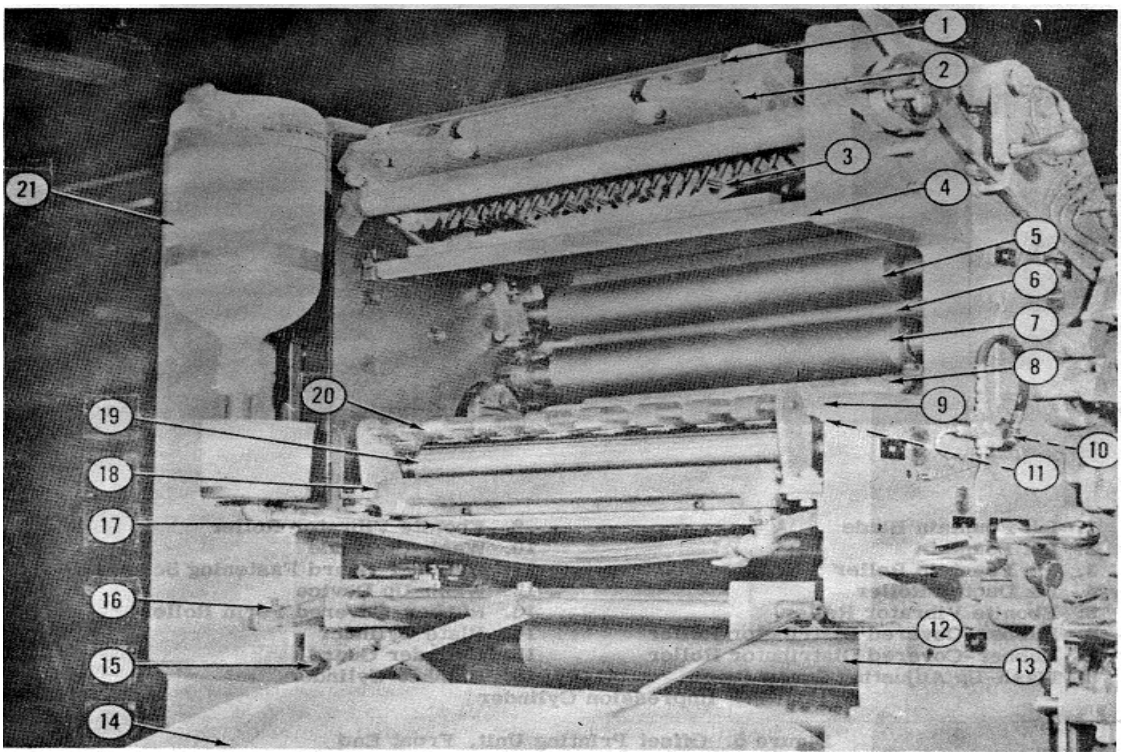
(10) Operating Supplies, Installation and Maintenance Tools. A list of operating supplies and installation and maintenance tools supplied in the press package are listed in Appendix C of this manual.

b. Feed-Roll Stand and Brake Mechanism. (Fig. 3) The function of the feed-roll stand is to accommodate and feed to the offset units a paper roll (14 fig. 3) having a maximum diameter of 32 inches and maximum width of 16 inches. The paper rolls used have a cardboard. core with an inside diameter of 3 inches. The feed roll stand automatically controls the tension on the web from the maximum diameter of the paper roll to its minimum diameter. The feed-roll stand is equipped with variable speed regulating rollers (1, 2, 4, 6 and 7 fig. 3) to insure register of printing and other press functions such as scoring, cross perforating and cut off. A brake mechanism is provided which controls rotation of the paper web roll spindle. The mechanism consists essentially of two lateral members which house the brake shoes (10 fig 3), a top member with a brake tension adjusting knob (11 fig. 3) and a bottom member with the paper roll lateral adjusting knob (8 fig. 3).

c. Offset Units. (See figs. 1, 4 and 5.) Printing is accomplished by means of three offset units which are identical in design and interchangeable as a unit or as to parts. These units can print one color on one side of the web and two colors on the other side, or they can print three colors on one side of the web. These choices are possible by throwing blanket cylinders off impression and using turn over bars on press. The design of the press is such that it can be converted to a two-unit press by the removal of one offset unit and relocation of the delivery mechanism on the base of the unit. Each offset unit is designed for simple but efficient operation and incorporates the following features:

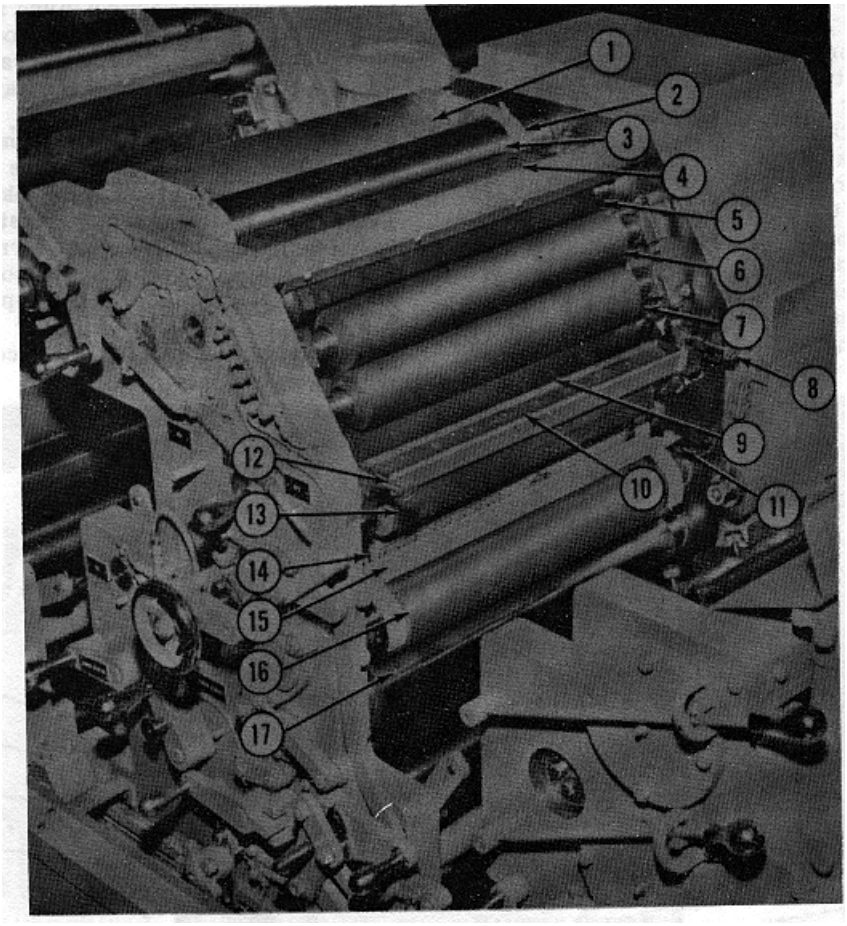
(1) Ink Distribution System. (See figs. 4, 5, and 6. ) The ink distribution system has the function of delivering a thin film of ink from the ink fountain to the image portions of the plate. The system consists of two rubber covered form rollers, four rubber covered distributor rollers, two ebonite vibrator rollers, a rubber covered ductor roller, an ink fountain roller and an adjustable ink fountain. The system functions by the ink fountain roller taking ink from the ink fountain and transferring the ink to the ductor roller. The ductor roller then transfers the ink to a distribution system consisting of two ebonite vibrator rollers and four rubber covered ink distributor rollers (see fig. 6). The ink is then delivered in a thin even film to the two rubber covered ink form rollers which in turn transfers
the ink to the printing plate mounted on the plate cylinder. Wash up of the ink distributing system is accomplished by a wash-up device (12 fig. 5) hinged to the side frame and when not in use it rests against stop pins. To facilitate the mounting of offset plates, gumming plates, adjusting form rollers, etc., the wash-up device can be moved out of the way.

(2) Water Distribution System. (See figs. 4, 5 and 6.) The water distribution system has the function of feeding fountain solution from the water fountain to the printing plate just ahead of the ink form rollers. The water distribution system consists of two rubber based molleton covered water form rollers, a rubber based molleton covered water ductor roller, a chrome-plated vibrator roller, a chrome-plated fountain roller and a water fountain (see fig. 6). Water is fed to the fountain from the water solution container and holder




1. Ink Fountain Blade
2. Ink Fountain
3. Ink Fountain Keys (twenty-two)
4. Ink Drip Pan
5. Rubber-Covered Distributor Roller (two)
6. Ebonite Vibrator Roller
7. Rubber-Covered Form Roller
8. Plate Cylinder
9. Water Form Roller (two)
10. Water Vibrator Roller
11. Water Ductor Roller
12. Paper Roll Limit Switch Handle
13. Lead Roller
14. Paper Roll Limit Switch Arm
15. Paper Roll Limit Switch
16. Paper Roll Limit Switch Adj4stment Screw
17. Water Drip Pan
18. Water Fountain
19. Water Fountain Roller
20. Water Fountain Stops (seven)
21. Water Solution Container and Holder

*Figure 4. Offset Printing Unit, Rear End*




1. Ink Fountain Blade
2. Ink Fountain
3. Ink Fountain Roller
4. Ink Ductor Roller
5. Ebonite Vibrator Roller
6. Rubber-Covered Distributor Roller
7. Rubber-Covered Distributor Roller
8. Wash-Up Adjusting Screw (two)
9. Ebonite Vibrator Roller
10. Wash-Up Blade
11. Cylinder Guard Fastening Screw
12. Wash-Up Device
13. Rubber-Covered Form Roller
14. Plate Cylinder
15. Cylinder Guard
16. Blanket Cylinder
17. Impression Cylinder

*Figure 5. Offset Printing Unit, Front End*

(21 fig: 4). A water drip pan (17 fig. 4) is provided to catch overflow or spillage from the system. The system functions by taking fountain solution from the water fountain by the water fountain roller which feeds the fountain solution to a ductor roller. The fountain solution is then passed from the ductor roller to a chrome plated vibrator roller which in turn transfers the fountain solution to the two molleton covered water form rollers. The fountain solution is then fed to the printing plate just ahead of the ink form rollers.

(3) Plate Cylinder. (See figs. 5 and 6. ) The plate cylinder (14 fig. 5) is the image-carrying cylinder and is capable of handling standard zinc, aluminum or poly-metallic plates The plate cylinder has hardened steel bearers which are . 012 inch above the main surface of the plate cylinder. The plate cylinder is adjustable horizontally by the use of a lateral control wheel t6 plus' or minus 1/8 inch from side to side, to provide for side registration between offset units. This rotating plate cylinder with printing plate receives fountain solution from the water form rollers and ink from the ink form rollers. The ink image is then transferred from the printing plate to the blanket cylinder.

(4) Blanket Cylinder. (See figs. 5 and 6.) The blanket cylinder (16 fig. 5) is the image reproduction

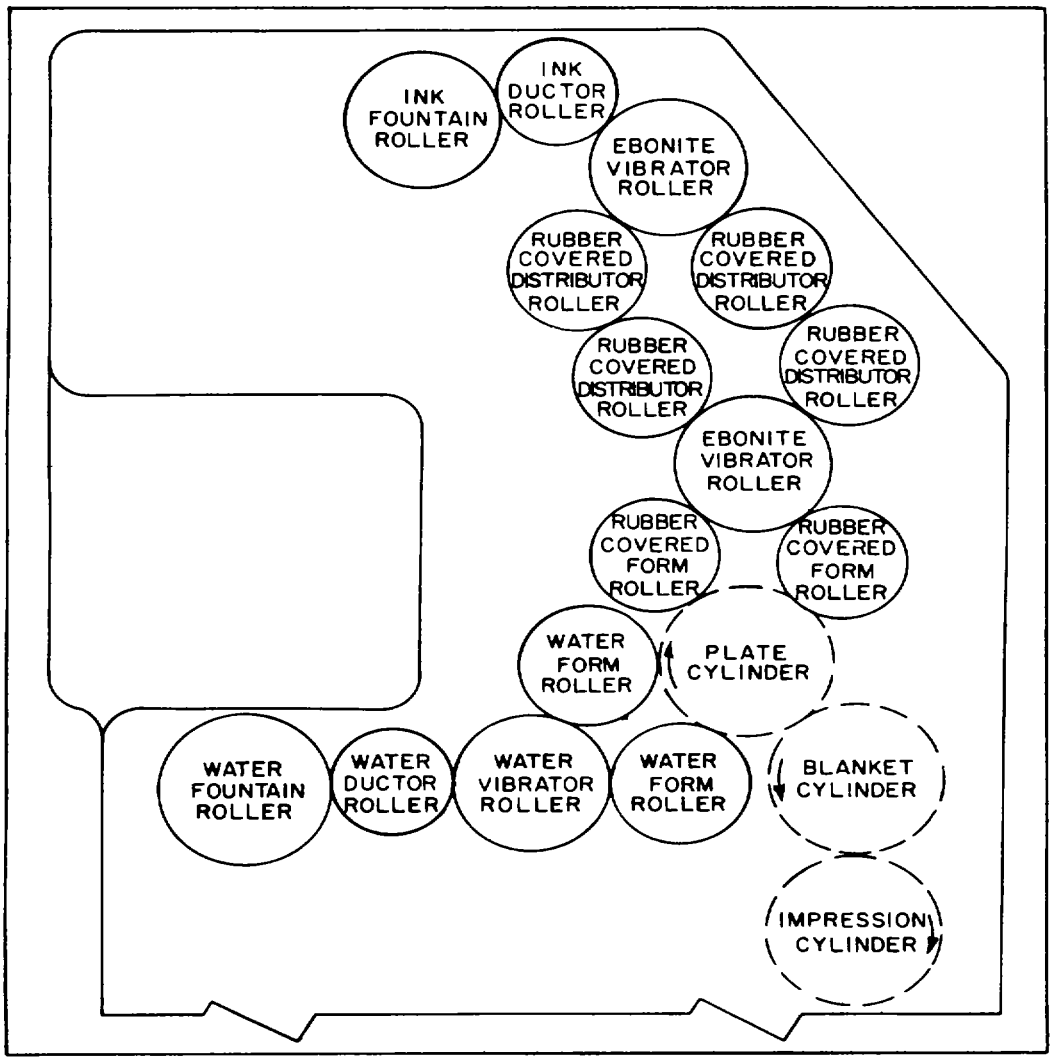
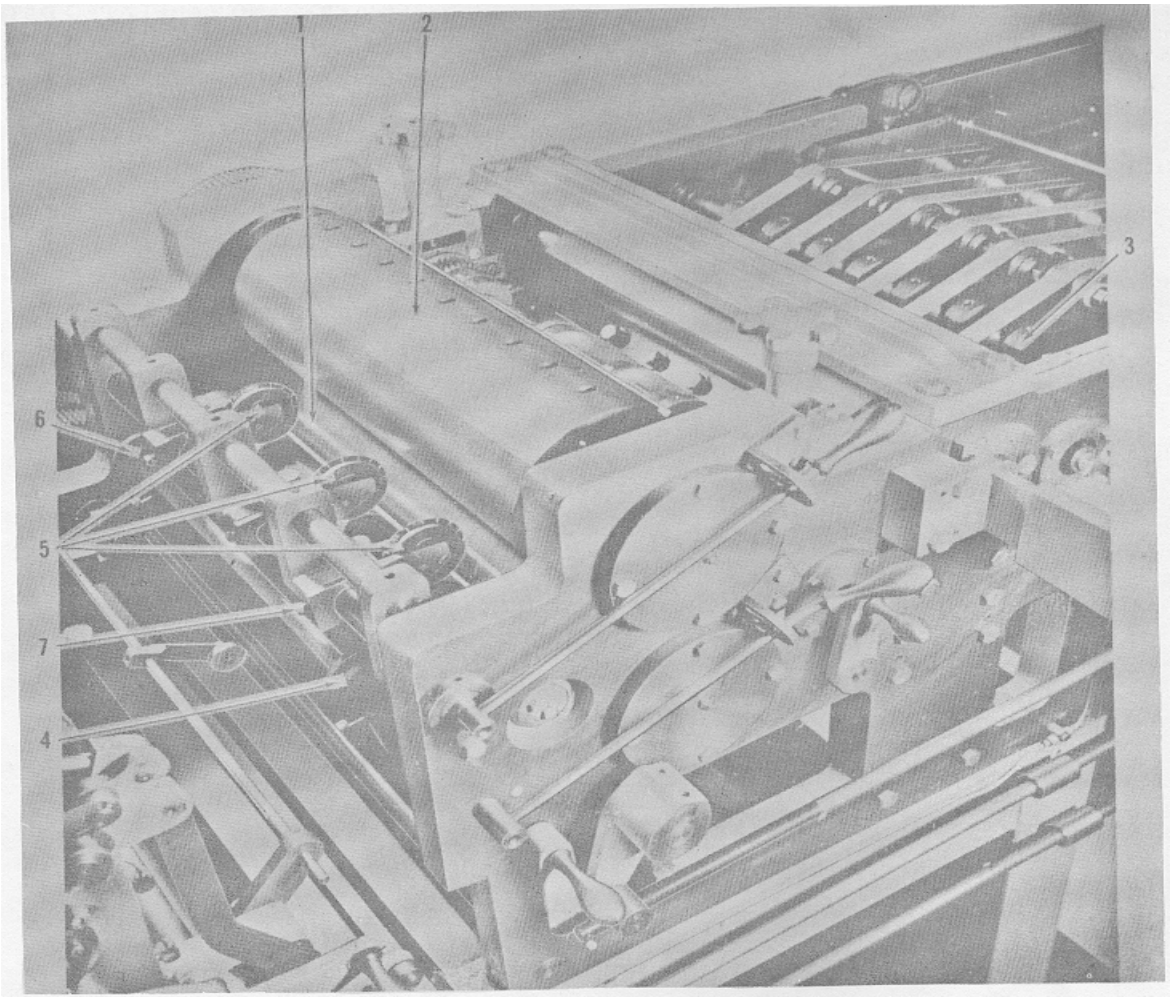



*Figure 6. Arrangement of Rollers and Cylinders of Offset Unit*

cylinder and accommodates standard 3-ply blankets. The blanket cylinder has hardened steel bearers .071 inches above the main body of the cylinder and has a reel rod for mounting the blanket. The blanket cylinder bearers ride against the plate cylinder bearers, there-by maintaining a constant pressure between the printing plate and blanket.

(5) Impression Cylinder. (See figs. 5 and 6.) The impression cylinder (17 fig. 5) is a smooth surfaced cylinder which forces the web against the blanket cylinder which offsets the image unto the web. The impression cylinder has an adjustment to permit changing the distance between the impression and blanket cylinders. Paper varying from 9-lb. manifold to 90-lb. index can be accommodated.

d. Delivery Unit. (See figs. 7 and 8.) The delivery unit cuts the printed web into 10-1/2 inch flat sheets. The cut sheets are delivered to an automatic lowering delivery table with castors (12 fig. 8) and an intermediate supporting delivery board (11 fig. 8) is provided to receive the sheets while the printed pile is being removed. Vertical slot perforating devices are incorporated in the delivery unit so that 8 inch by 10½ inch (and also 4 inch by 10-1/2 inch) perforated divisions may be obtained in the 10-1/2 inch by 16 inch sheet. In addition, the 10-1/2 inch by 16 inch sheets can be cross perforated so that they may readily be broken into either 5-1/4 inch by 8 inch or 5-1/4 inch by 4 inch leaflets as may be required. Further, by simply replacing the cross perforating rule in the male perforating cylinder (2 fig. 7) with a scoring rule (blunt-faced rule) the sheets can be delivered so that they can be readily folded. Similarly, the three perforating wheels (5 fig. 7) can be replaced with blunt-faced scoring wheels for scoring in the direction of the web. The cross perforator blade need not necessarily be run full




1. Female Perforating Cylinder
2. Male Perforating Cylinder
3. Sheet Kickers (seven)
4. Trolley Wheel
5. Perforating Wheels (three)
6. Trolley Wheel
7. Adjusting Screws for Perforating Wheels and Trolley Wheels (five)

*Figure 7. Delivery Unit, Rear End*

width, but may be cut to perforate the width required to suit the layout of the job. Refer to figure 9 and note the following steps which pertain to above cutting and creasing operations.

(1) Line AE and HL are cut by cutting knives.

(2) Line FG can be either slot perforated or creased by the cross-perforating cutting cylinder.

(3) Lines BI, CJ and DK can be either slot perforated or creased by the vertical perforating wheels.

e. Control Stations. Operating control stations are provided at each offset unit on the operators side of the press to permit forward or reverse jogging and stopping of the offset unit. Starting control and speed a control of the entire press is handled from the main control station on the operator's side. A positive infinitely variable P.I.V. control operated from the operator's side permits the regulation of the web tension. Compensating controls are provided for adjusting the register between these functions. Tension is usually considered right when cut-off is exactly 10-½ inches and does not vary. A manually operated clutch located between offset unit No. 3 and the delivery unit disengages the delivery unit from the offset unit, and this clutch must always be disengaged before reversing the offset units. Manually operated electric switches located at the main control station are pro-

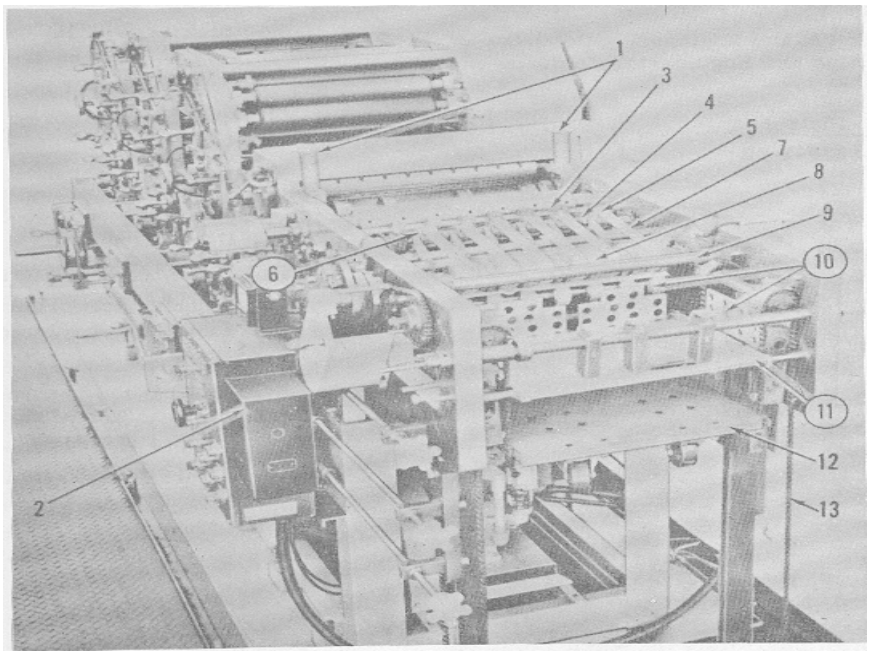
vided to throw the blanket cylinders to on or off impression. The press is equipped with automatic controls which stop the press whenever there is a breakage of the web, a jam prior to the slot-perforating or scoring and cutting knife, a roll up on the cylinder by the web, or when the paper has reached a distance of ¼ inch from the outside of the paper roll core. An automatic control raises the inking system from the offset printing plate whenever the press is stopped. As a safety feature, shear pins are located in the cutting head, which disengage the gear operating the cutting knife in the event of a severe pile up. For less severe pile-ups automatic press cut-offs are made by means of an electric eye unit(2 fig. 8). The press will go from maximum speed to a dead stop in less than two seconds.

f. Motor-Generator Unit. (See fig. 10.) A separately supplied motor-generator unit is used to operate the web-fed press at a desired rate of speed. The unit supplies power for operation of the press through three cables.

4. IDENTIFICATION AND TABULATED DATA.

a. Identification. The press and accessories have major identification plates, and information contained on these plates is listed below.

(1) Press Plate
Model No. 3C
Size 10-1/2" x 16"
Max. Width of Web 16"
Cylinder Circumference 10-1/2"
Plate Cylinder Undercut .012"
Plate Size 11-5/8" x 16-3/8"
Blanket Cylinder Undercut . 071"
Blanket Size 11-9/16" x 16-5/8"
Printing Surface 9-7/8" x 15-1/2"
Hess and Barker, Philadelphia, Pa.




1. Nipping Roller and Adjustment Knobs (two)
2. Electric Eye Unit
3. Rotary Cutter
4. Paper Guides (six)
5. Sheet Kickers (seven)
6. Delivery Belt Adjusting Pulleys
7. Delivery Belt
8. Knurled Delivery Roller
9. Static Eliminator Bar
10. Side and End Joggers
11. Delivery Board
12. Delivery Table With Castors
13. Chain and Chain Weights

*Figure 8. Delivery Unit, Front End*

(2) Drive, Positive Infinitely Variable Plate
Model 50
Drive Size H-1/2
Order No.
Ratio 2:1
Size 1-27
Link-Belt Co., Philadelphia, Pa.

(3) Drive Motor Plate
Serial No. 1L-827471
Frame 254A
Duty-Continuous
240 Volt
1750 RPM
7-1/2 HP
28.6 Amps
1-1/8" dia shaft
Reliance Electric and Engineering Company
Cleveland, Ohio

(4) Blower Motor Plate
Serial No. 396330-1-80
Type P
Frame L56
Horsepower ½
Speed 1725 RPM
Voltage 220, 60-Cycle, 3-phase
Duty-Continuous
Temperature Rise 55°C
Amperage 2. 0
Reliance Electric and Engineering Company
Cleveland, Ohio

(5) Air Pump Plate
Size B-2
600 RPM
Leiman Brothers, Incorporated
East Rutherford, New Jersey

(6) Power Unit Plate
Serial No. 11ST-827471
Frame D7-1/2 V-S
Volts 208 VDC, 3-phase, 60-Cycle
Amperes Full Load 31
Amperes Locked Rotor 204
3530 RPM
Volts 240 VDC
Amperes 28.5
Duty-Continuous
Kilowatts 6.85
Temperature Rise 70°C
Reliance Electric and Engineering Company
Cleveland, Ohio

b. Tabulated Data
(1) Offset Press
Manufacturer: Hess and Barker
Model No. 3C
(a) Paper
Sheet Size, 10-1/2 in, by 16 in. maximum
Paper roll, 32 in. diameter maximum
(b) Plate Cylinder
Size 11-5/8 in. by 16-3/8 in.
Undercut 0. 012 in.
Adjustment, side to side *1/8 in.
(c) Blanket Cylinder
Size 11-9/16 in. by 16-5/8 in.
Undercut 0.071 in.
Speed (sheets per hour) 25,000 maximum

**NOTE**

Operating speed depends upon the size, the thickness, both the kind and the condition of stock, the accuracy of register, and other operating conditions.

(d) Control, Drive, Positive Infinitely Variable
Manufacturer: Link-Belt Company
Model No. H ½-50
Input revolutions per minute 619
Horsepower delivered at output RPM
1.21 at 872 RPM, .65 at 436 RPM
Chain size 1-27 links per inch
(e) Motor, Drive, main
Manufacturer: Reliance Electric and Engineering Company
Serial No. 1L-827471
Horsepower 7-1/2
Speed 1750 RPM
Voltage 240, 60-Cycle, 3-phase
Amperes 28.6
Current -Direct
(f) Motor, Blower, delivery end
Manufacturer: Reliance Electric and Engineering Company
Serial No. 396330-1-80

Frame L56

Horsepower 1/2
Speed 1725 RPM
Voltage 220, 60-Cycle, 3-phase
Amperage 2.0
Duty-Continuous
Temperature Rise 55°C

(2) Dimensions and weight
Overall Length 218 in.
Overall Width 96 in.
Overhaul Height 79-3/4 in.
Weight 22, 000 lbs as packaged

(3) Wiring Diagram. The electrical system of the Model 3C offset press is depicted in the wiring diagram shown in figure 13.

(4) Base Plan. All base plan requirements for the Model 3C press are shown in figure 14.

5. **DIFFERENCE IN MODELS.**

This manual covers only the Hess and Barker Lithographic Offset Press Model No. 3C. No known unit differences exists for the model covered by this manual.

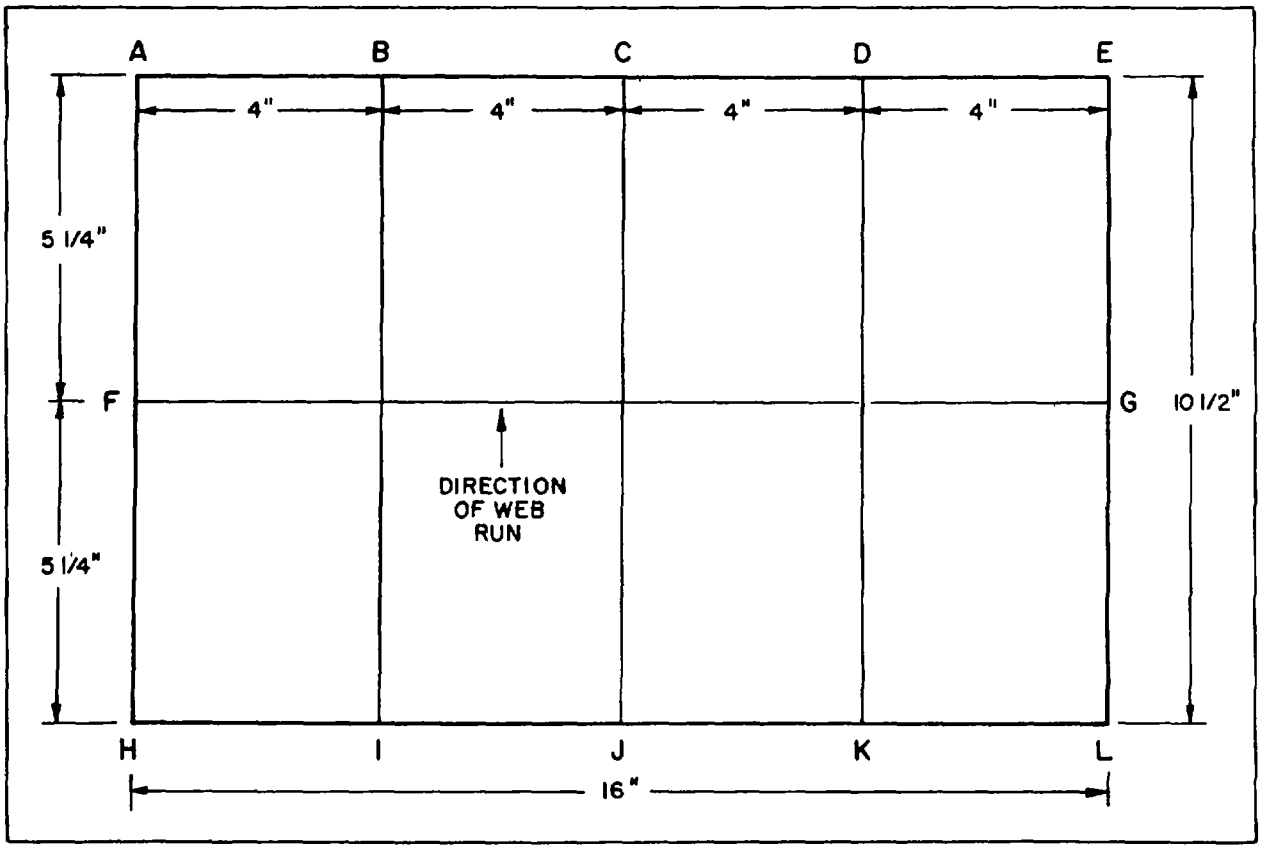



*Figure 9. Method of Dividing Finished Sheet*

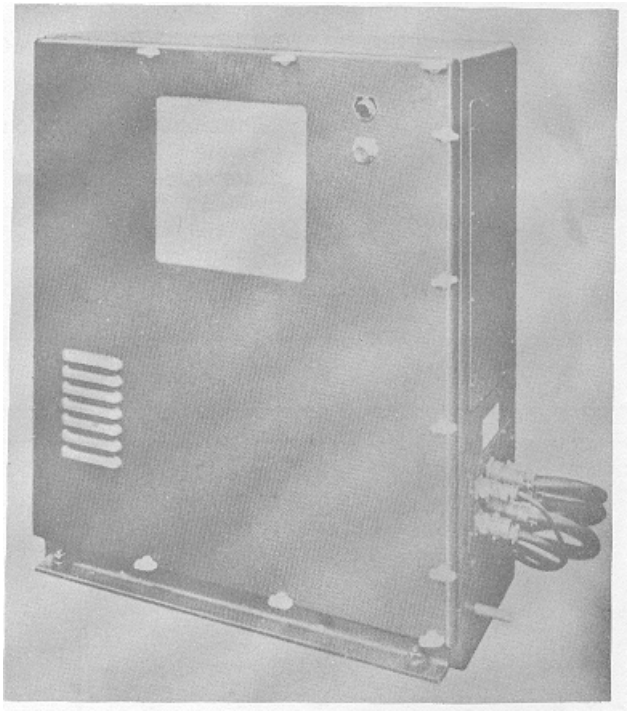


*Figure 10. Motor-Generator Unit*

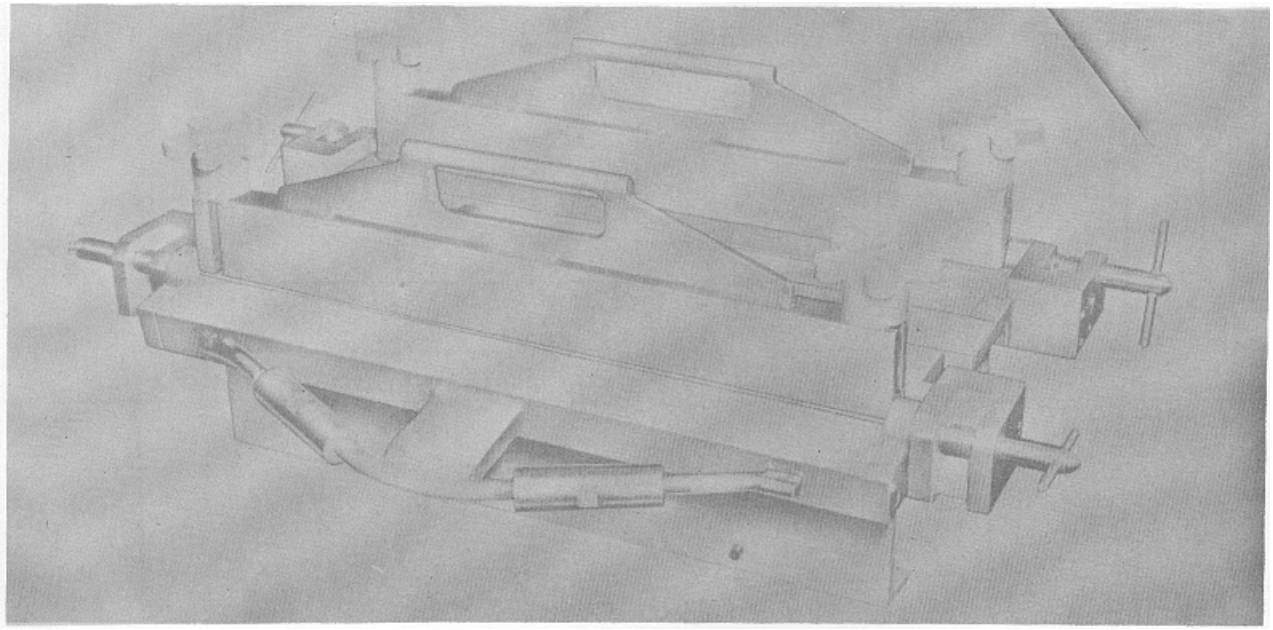


*Figure 11. Plate Bending Jig.*

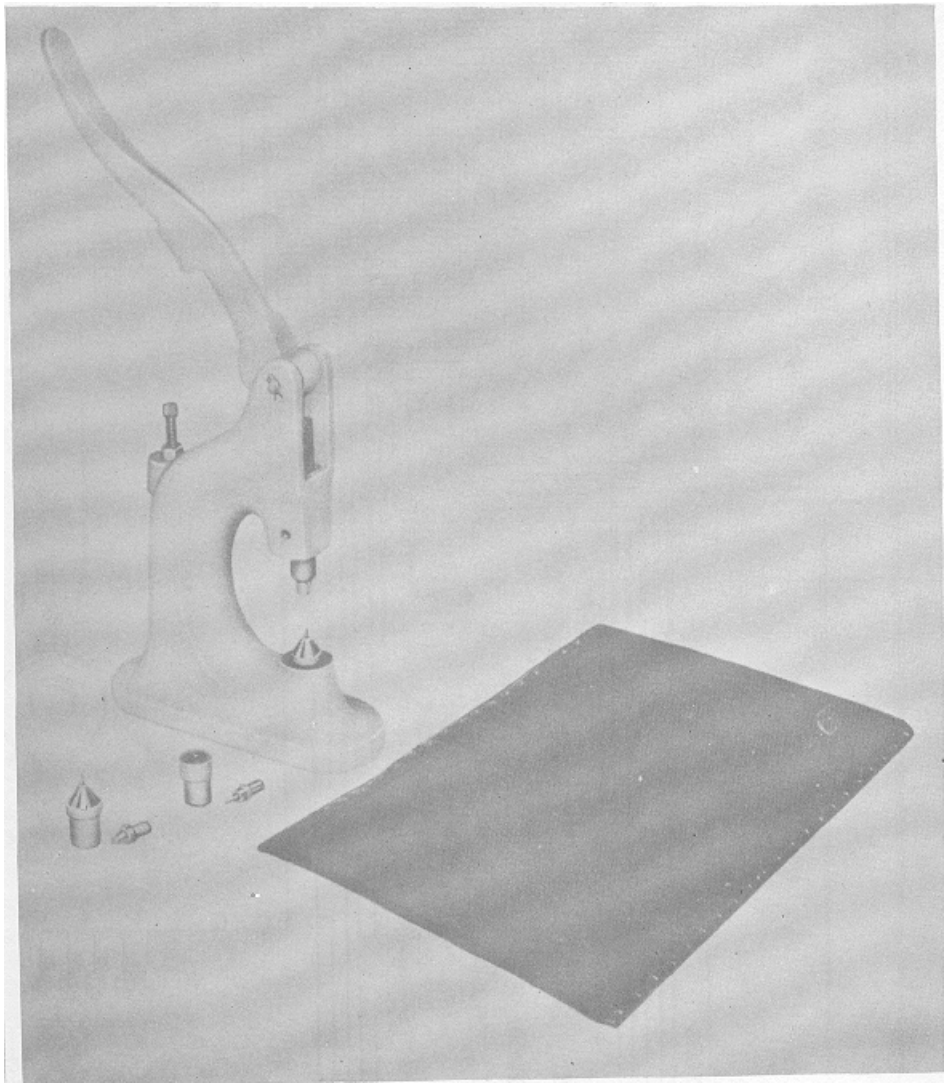


*Figure 12. Blanket Riveting Device*

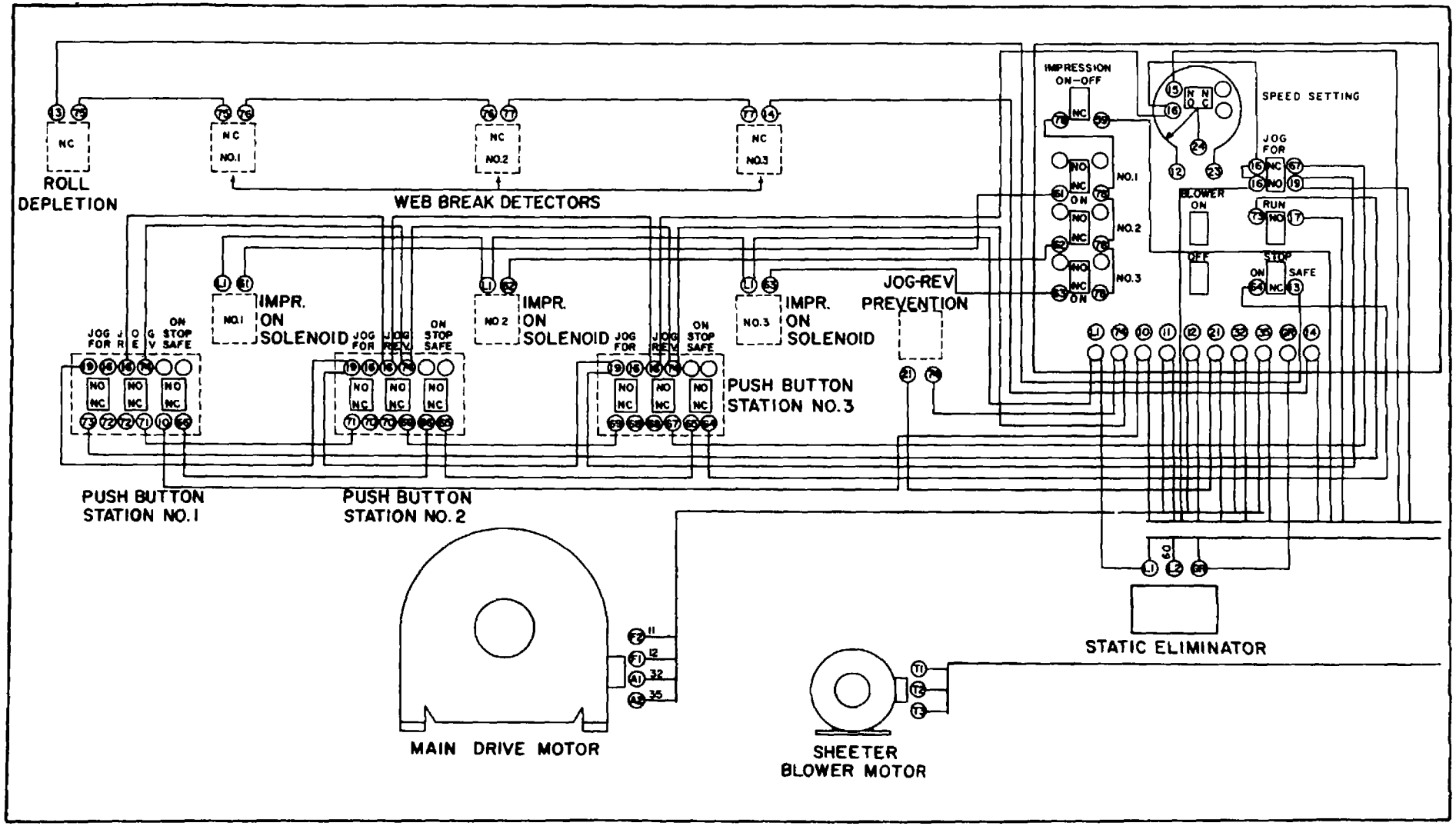



*Figure 13. Model 3C Press, Wiring Diagram*

# CHAPTER 2

# INSTALLATION AND OPERATING INSTRUCTIONS

## Section I. SERVICE UPON RECEIPT OF EQUIPMENT

### 6. UNLOADING THE EQUIPMENT.

**WARNING**

Exercise great care when handling or moving the press and associated equipment. They are extremely heavy units. Use all safety precautions and provide sufficient qualified personnel when' performing installation work. Refer to SAFETY PRECAUTIONS on page ii at front of this manual.

CARELESSNESS CAN RESULT IN SERIOUS INJURY OR DEATH!

a. General. All that is required to unload the Model 3C press with press package (see fig. 15) from a flatbed trailer, flat car or ship hold is a standard (15 ton min. capacity) crane. The base has four recessed shackles (10, 12, 23, 25 fig. 16) through which cables can be placed. The cables in turn can then be looped and secured to the crane hook, enabling the packaged press to be lifted. Lifting cables should pass over shipping frame spreader bars.

b. Working Space Required. The press with press package as assembled for shipment weighs approximately 22, 000 pounds. It must first therefore be positioned in its final operating place with ample working space around it as shown in figure 14. A satisfactory installation requires a space of at least 26 feet by 35 feet with an access door or opening (at point E or F) of at least 8-1/2 feet high through which the shipped equipment can be moved. Three roller skids (2, 5, 7 fig. 17) are provided for moving the press into its final position.

### 7. UNPACKING THE EQUIPMENT.

**NOTE**

Remove all waterproof tarpaulin as necessary when following unpacking procedures below.

a. Storage Cabinets and Motor-Generator Units. When the press and associated equipment is positioned in its operating place (para. 6b) first remove the six storage cabinets and motor-generator unit (1, 3, 5, 7, 16, 18, 20, fig. 16) in the following manner:

(1) Remove the six L-angle brackets (2, 4, 6, 15, 17, 19 fig. 16) holding the storage cabinets in place.

**NOTE**

Wrenches are provided for loosening fasteners holding L-angle brackets and are packed in storage, cabinet F (20 fig. 16) which has rear access doors.

(2) Disconnect locksets and strikes securing top plates and holding storage cabinets in place.

(3) Remove the four tables (5 and 7, fig. 18) and install them at the positions shown by index numbers 8, 9, 16, and 17 in figure 14.

(4) Remove two ramp plates (2, 4, fig. 18) and install them at position A in figure 14 as shown in figure 17. Three wooden ramp blocks(8 fig. 17) will be found packed in storage cabinet F (20 fig. 16).

(5) Remove storage cabinet A (3 fig. 16) over the ramp plates to the position shown by index number 2 in figure 14.

**NOTE**

Eye bolts are provided in all cabinets which can be removed and reinstalled on top of cabinets and the use of a monorail hoist will facilitate movement of cabinets.

(6) Next sucessively move the ramp plates and incline ramps to positions B, C, and D in figure 14 and over them move storage cabinets B, C, D, E and F (5, 7, 16, 18, 20 fig. 16) to the positions shown by index numbers 4, 5, 11, 12, and 13, in figure 14.

b. Platform Extension Plates, Ramp, and Tables. After the storage cabinets and motor-generator unit are installed in place, (para. 7a.) proceed as follows: (1)

Remove the two platform extension plates (1, 3, fig. 18) and install them at positions shown by index numbers 10 and 14 in figure 14.

(2) Remove the platform base ramp (25 fig. 18) and install it at the position shown by index number 7 in figure 14.

(3) Mount the three ink mixing slabs (fig. 19) on the table at position (17, fig. 14) and the plate bending jig (fig. 11) on the table position (16, fig. 14).

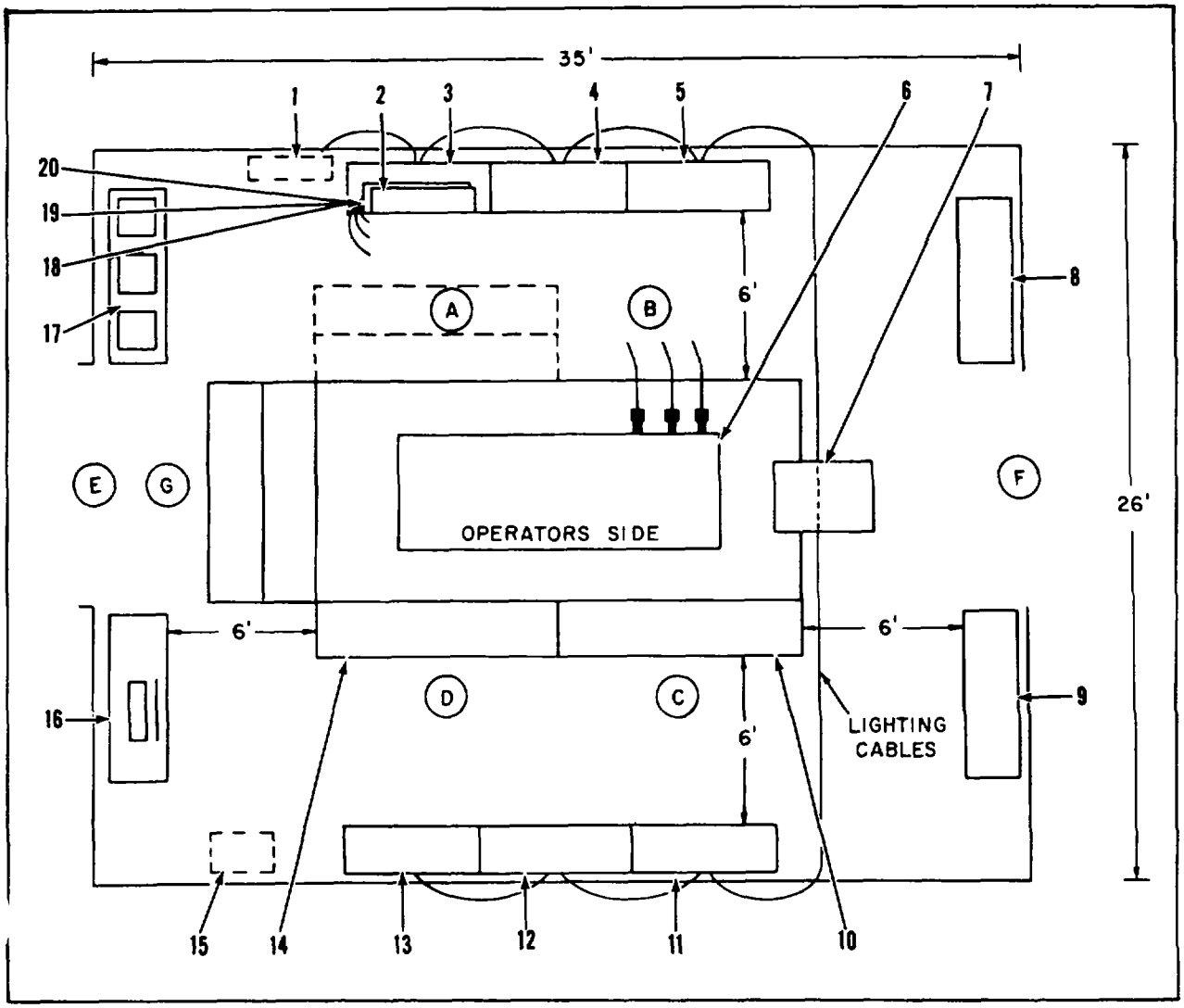
(4) Install ramp plates and inclines at the position "G" in fig. 14.

c. Shipping Frame and L-Angle Brackets. After the ramp plates, platform extension plates and tables have been removed from the shipping frame proceed as follows:

(1) Take out the bolts (9, 13, 22, 26, fig. 16) attaching the shipping frame, and remove it from the platform base (13, fig. 18).

(2) Remove the four L-angle brackets (8, 11, 14, 24, fig. 16).

(3) Remove angle braces from shipping frame and swing upright section down flat against horizontal section. Tag all pieces for identification and store it for use in reshipment of the press. Also, tag and store for reshipment all ten L-angle brackets.




1. Electric Power Supply Box (Not Furnished)
2. Adjustable Speed Control Unit (Mot - Gen.)
3. Storage Cabinet A
4. Storage Cabinet B
5. Storage Cabinet C
6. Press
7. Platform Base Ramp
8. Table
9. Table
10. Platform Extension Plate
11. Storage Cabinet D
12. Storage Cabinet E
13. Storage Cabinet F
14. Platform Extension Plate
15. Sink and Water Supply (Not Furnished
16. Table With Plate Bending Jig
17. Table With Three Ink Mixing Slabs
18. Blower Motor Cable
19. Static Eliminator Cable
20. Press Control Cable

*Figure 14. Model 3C Press Base Plan*

8. **INSPECTING AND SERVICING EQUIPMENT**.

Inspecting and servicing of the equipment consists of inspecting the equipment for cleanliness, especially the effectiveness of the previous days washup; insuring that blankets are clean, in good condition, and tight; that rollers are free from damage or evidence of glazing and that proper lubrication is accomplished. Refer to paragraph 24 Daily Preventive Maintenance Service for more detailed servicing procedures.

9. **INSTALLATION AND SETTING UP INSTRUCTIONS**.

a. Location. After the equipment has been unpacked (par. 7) the various units should be positioned as shown by the recommended installation plan (fig. 14). Make sure there is at least a six foot width of working space between the press and storage cabinets and the tables. Use the roller skids and jacks (fig. 17) to move and position the press in its operating position.

b. Power Supply, Light, and Water Lines Required. 3-phase, 220 volts, 60-cycle, ac power supply line is required for operation of the press. A 110-volt, 60-cycle, ac power supply line is also required for lighting circuits. Refer to index number 1, figure 14 for suggested location of the electric power supply box (not supplied).

(1) Lighting. The six storage cabinets ( 3, 5, 7, 16, 18, 2 , fig. 16) are equipped with neon lights and these lights should be connected to the 110 volt ac power supply line as shown in figure 14. Six cables are used for this purpose and are interconnected via receptacles located on rear side of storage cabinets(see fig. 15). The four shortest cables (approx. 10 ft. long) are connected to receptacles located on storage cabinets(3, 4, 5 and 11, 12, 13 fig. 14). The two longest cables (approx. 25 ft. long) are connected to receptacles on power supply box (1) and cabinet (3) and cabinets (5) and (11) fig. 14. Other working lights should be installed over the press (6), tables (8, 9, 16, 17) and sink(15). Use No. 14 AWG, run in conduit, or BX cable No. 14 AWG, for all lighting circuits, and provide switches, as desired, for the lighting circuits.

(2) Water Supply. A water supply and sink (not supplied) for general utility use should be installed at a convenient place such as that shown by index number (15) in figure 14.

c. Cable Connections. Input power supply of 220 volt alternating current, three phase, is brought to the motor-generator unit through a cable and receptacle. The output of the unit is carried to the press through three heavy duty cables and self latching receptacles having non-interchangeable contacts. The attaching of the power output supply of the press requires only plugging in to the cable receptacles on the press. It is impossible to incorrectly join the cables.

d. Leveling of Offset Press. The press should always be carefully leveled before operation. Two bubble

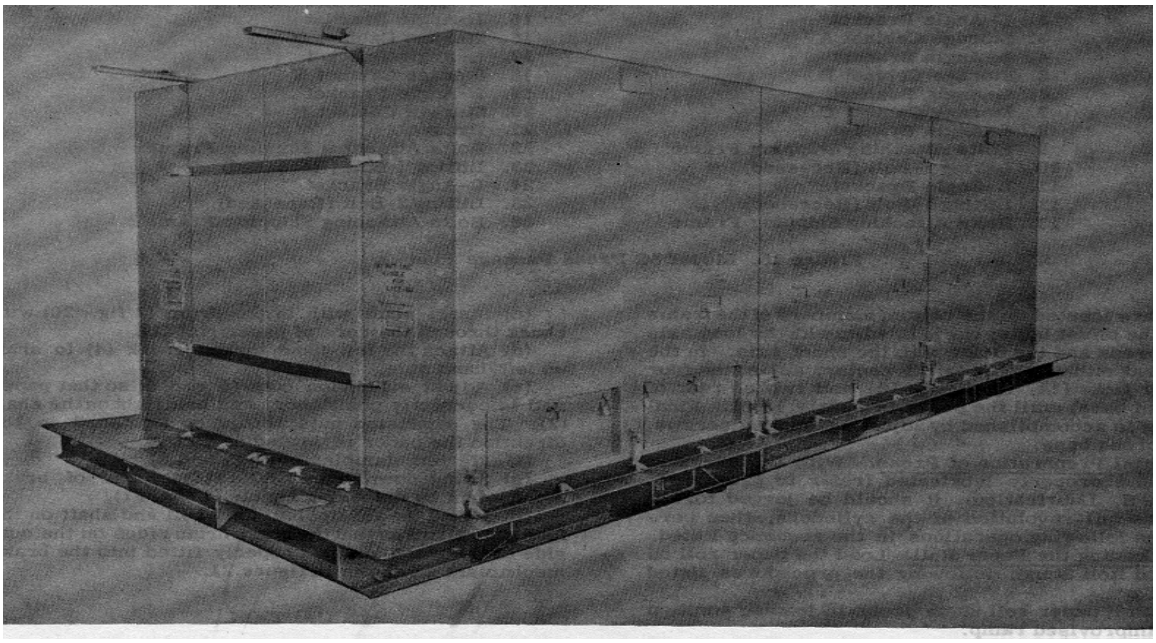
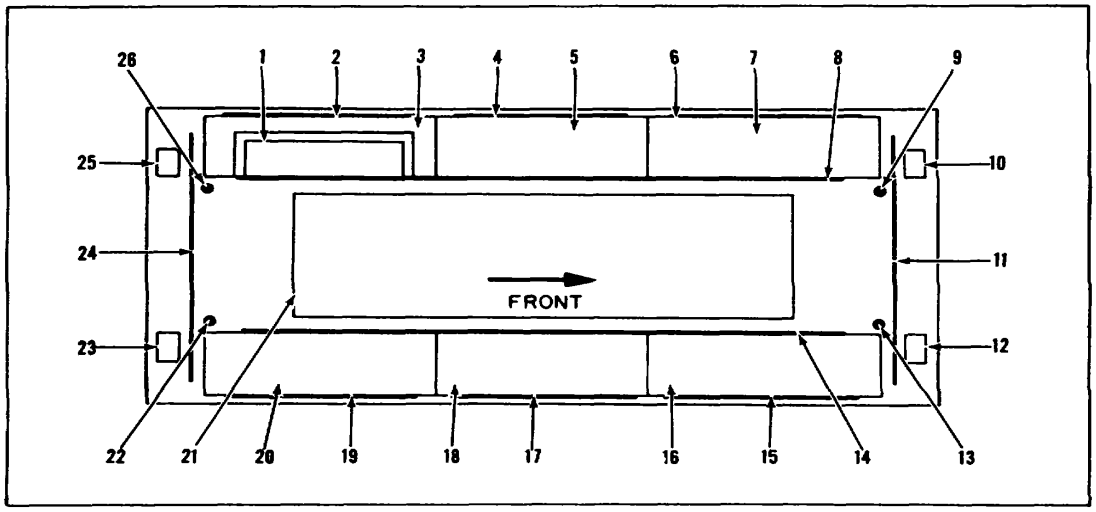


*Figure 15. Model 3C Press With Press Package*




1. Motor-Generator Unit
2 L-Angle Bracket
3 Storage Cabinet A
4 L-Angle Bracket
5 Storage Cabinet B
6 L-Angle Bracket
7 Storage Cabinet C
8 L-Angle Bracket
9 Bolts Attaching Shipping Frame
10 Lifting I-Bolt (Recessed)
11 L-Angle Bracket
12 Lifting I-Bolt (Recessed)
13 Bolts Attaching Shipping Frame
14. L-Angle Bracket
15. L-Angle Bracket
16. Storage Cabinet D
17. L-Angle Bracket
18. Storage Cabinet E
19. L-Angle Bracket
20. Storage Cabinet F
21. Press
22. Bolts Attaching Shipping Frame
23. Lifting I-Bolt (Recessed)
24. L-Angle Bracket
25. Lifting I-Bolt (Recessed)
26. Bolts Attaching Shipping Frame

*Figure 16. Model 3C Press Package Plan*

levels are located on the bottom members of the frame under the offset units; one is lined up with the long axis of the press and the other with the short axis. In the event that either bubble is off center, adjust the four leveling jacks (14, 19, figure 18, and two on rear of platform base) until the press is nearly level. Final leveling is accomplished by adjusting leveling screws, in the press base.

e. Initial Preparation of Press. With the press in order and properly lubricated (refer to Chapter 3, Section U, Lubrication), it should be jogged for at least one full revolution of the cylinders, then perform the following operations in the sequence listed.

(1) Loading the Paper Roll. Load the paper roll on the Feed Roll Stand, following the procedures listed below:

(a) Roll paper roll up on press to loading position on the improvised ramp.

(b) With operator facing paper roll attach right hand thread chuck(3, Fig. 20) to shaft with brake drum (2) on right hand side.

(c) Insert shaft with brake drum (2 fig. 20) with chuck through the core of paper roll (1).

(d) Attach the left-hand thread chuck (4) to shaft on left-hand side.

(e) Adjust expansion nuts (5 and 6) so that paper roll is correctly positioned, and held tight on the shaft (2). The expansion nuts should be tightened in the direction the paper is unwinding.

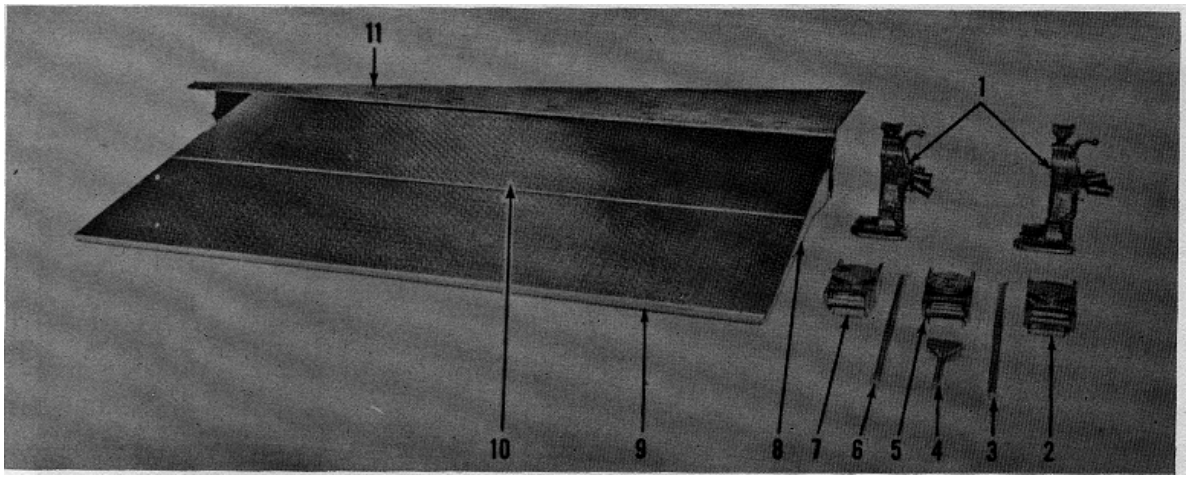
(f) Tighten clamping bolts (7 and 8).

(g) Swing down outer lateral member of brake mechanism by unlocking handle (1 fig. 21).

(h) Mount the assembled paper roll and shaft on the feed roll stand so that the brake drum rides on the outside of the stand and is properly fitted into the brake mechanism as shown in figure 21.

**CAUTION**

Be careful not to damage paper roll when mounting it on feed-roll stand.




1. Jack
2. Roller Skid (Fixed)
3. Jack Handle
4. Roller Skid Handle
5. Roller Skid (Swivel)
6 Jack Handle
7 Roller Skid (Fixed)
8 Wooden Ramp Incline
9 Ramp Plate
10 Ramp Plate
11. Platform Base of Press

*Figure 17. Ramp Plates Installed for Removing Storage Cabinets, Motor-Generator Unit and Equipment Moving Tools.*

(i) Adjust the brake mechanism by tightening brake tension adjusting knob (2 fig. 21) in a clockwise direction. Tighten knob until dancing roller (3 fig. 21) is supported by paper (refer to par. (2)(c). Generally the brake mechanism should be tightened until the dancing roller is supported by the paper.

**CAUTION**

If the brake is too tight, it may cause the web to break. If the brake is not tight enough the web will continue to unwind when the press is stopped.

(2) Threading the Web. To thread the web, (see fig. 22) proceed as follows:

(a) Loosen the brake drum holding the paper roll (1).

(b) Pull the web up and around the feeder tension roller (2). The weight of this roller is controlled by a movable weight on a lever attached to the roller. Once this weight has been properly set, it is rarely necessary to move it, usually only when extremely lightweight paper is being run through the press.

(c) Pull the web down and around the dancing roller (3).

(d) Pull the web up and around the tension roller (4).

(e) Feed the web down and around the feed roller ’5), then up and around the feeder rider roller (6).

(f) Feed the web down and around the feed roller ().

(g) Pull the web up and over the lead roller (8), and then under and around the lead roller (9).

(h) Throw the impression cylinder throw-off handle (11 fig. 34) on offset unit No. 1 to the "off" position, and then thread the web between the impression cylinder l10, Fig. 22) and the blanket cylinder (11).

(i) Pull the web down and over the lead roller(13).

(j) Pull the web down and around the lead roller (14).

(k) Throw the impression cylinder throw-off handle (11 fig. 34) on offset unit No. 2 to the "off" position.

(l) Pull the web up and under lead roller (15 fig 22 ) then between the impression cylinder (16) and the blanket cylinder (17).

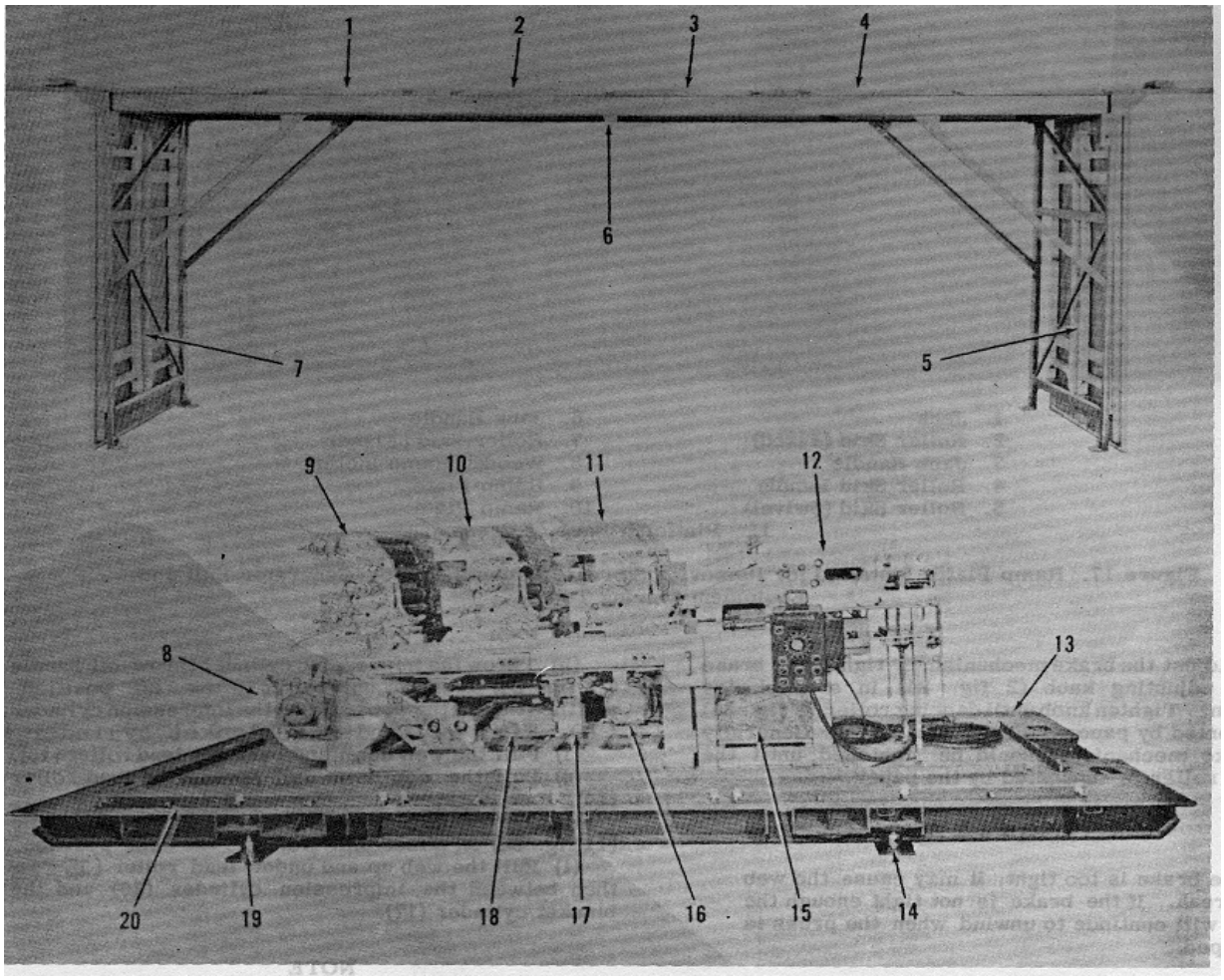
**NOTE**

If offset unit No. 2 is to print on the opposite side of the web from the printing done by offset unit No. 1, the web must be turned over. To do so follow instructions (m) through (p) below.

(m) Pull the web from lead roller (14, fig. 22) over and around the lower turning bar (1 fig. 23). This bar is at a 45 degree angle with the main axis of the press.

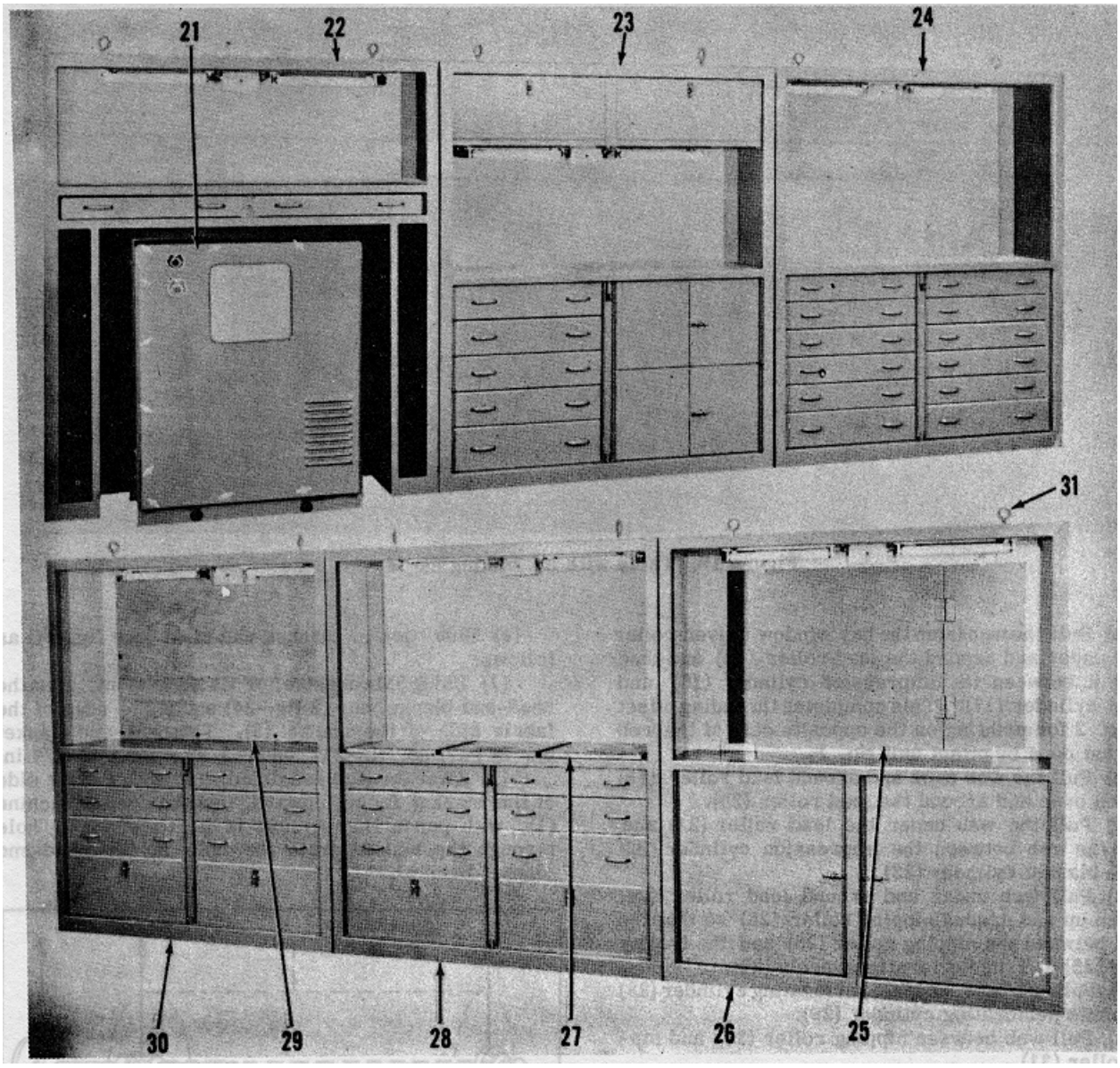
(n) Pull the web from the lower turning bar (1) under and around the bay window roller (2), and then up and over and around the upper turning bar (3). This bar is also at a 45 degree angle with the main axis of the press and at a right angle with the lower turning bar. The two bars thus form a cross.

(o) From upper turning bar (3) pull the web under and up and over the bay window driven roller (18 fig. 22).




1. Platform Extension Plate (With Legs)
2. Ramp Plate (For Removing Storage Cabinets)
3. Platform Extension Plate (With Legs)
4. Ramp Plate (For Removing Storage Cabinets)
5. Tables (two)
6. Shipping Frame (Knock-Down Type)
7. Tables (two)
8. Feed-Roll Stand and Brake Machanism
9. Offset Unit No. 1
10. Offset Unit No. 2
11. Offset Unit No 3
12. Delivery Unit
13. Platform Base
14. Leveling Jack
15. Blower and Motor Unit
16. Main Drive Motor
17. Oil Reservoir
18. P. I.V. Control Unit
19. Leveling Jack
20. Brackets

*Figure 18 (1). Model 3C Press and Associated Equipment*




21. Motor-Generator Unit
22. Storage Cabinet A
23. Storage Cabinet B
24. Storage Cabinet C
25. Platform Base Ramp
26. Storage Cabinet F
27. Ink Mixing Slabs (three)
28. Storage Cabinet E
29. Tool Board
30. Storage Cabinet D
31. Lifting Eyebolts

*Figure 18 (2) Continued.*

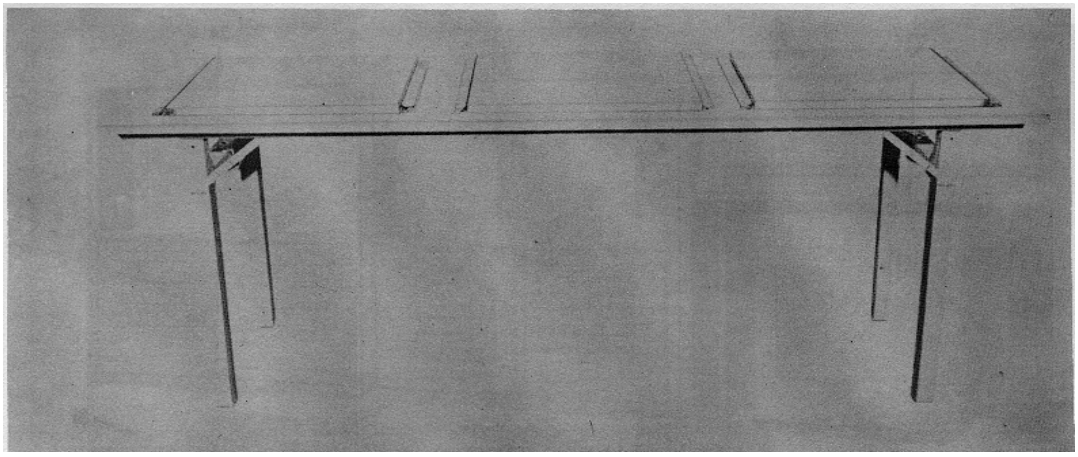


*Figure 19. Table with Ink Mixing Slabs*

(p) Pull the web from the bay window driven roller up and under and around the lead roller (15) and then thread it between the impression cylinder (16) and blanket cylinder (17). This completes threading offset unit No. 2 for printing on the opposite side of the web from that done by offset unit No. 1.

(q) Pull the web over and around lead roller (19) and then over and around the lead roller (20).

(r) Pull the web under the lead roller (21) and thread the web between the impression cylinder (22) and the blanket cylinder (23).

(s) Pull web under and around lead roller (24) and then up and around nipping roller (26) so that the web is between the nipping roller (26) and the trolley wheels (25) and the perforating wheels (27).

(t) Pull web between male perforating cylinder (28) and female perforating cylinder (29).

(u) Pull web between nipping roller (30) and nipping roller (31).

(v) Pull web between rotary cutter (32) and stationary cutter (33) and then through delivery belts (34). This will complete threading the web.

**NOTE**

Threading the press is a time consuming operation. It is advisable, therefore, to leave the press threaded at all times, using the paper which remains in the press as a leader to thread the new paper roll.

(3) Blanket Preparation. Prepare the blanket for installation, following the procedures listed below.

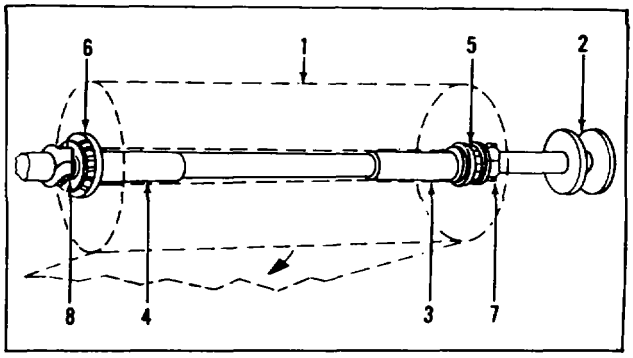
(a) Inspect the blanket carefully for both imperfections and dirt.

Measure the blanket to be certain that it is square, and that it is not too long or too short. The direction in which the blanket must be mounted on the blanket cylinder is shown by arrows on the reverse side of the blanket. A line drawn through these arrows will be perpendicular to the blanket bars.

(c) Glue bars to blanket and rivet (see fig. 24) as follows:

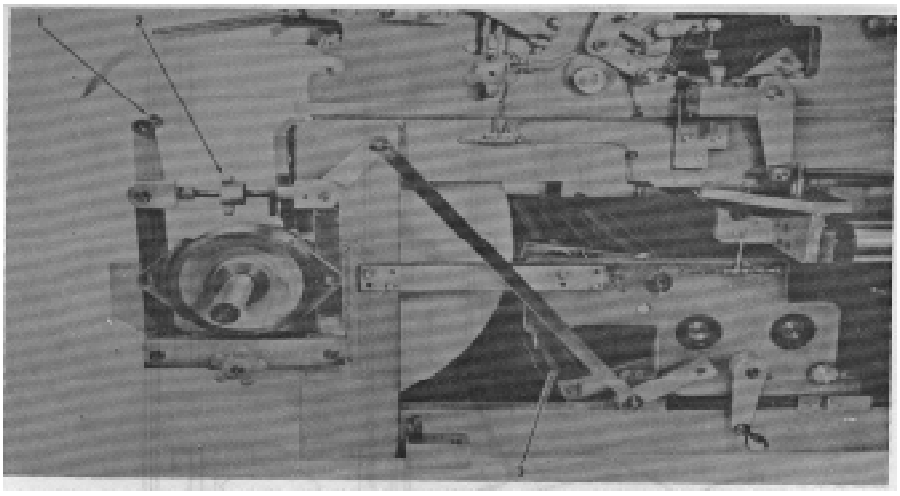
(1) Using 3M adhesive, or its equivalent, glue the head-end blanket bar (2 fig. 24) square to edge of the fabric side of the blanket (3). The head-end blanket bar is Part no. HB-217, and is 3/32 x3/8 x 16-1/4 in.

(2) After the glue has dried, and with rubber side of the blanket facing upward, use the eyelet machine (1), with punch No. A-1094 in it, to punch a hole through the blanket from the hole in the head-end blanket bar.




1. Paper Roll
2. Shaft with Brake Drum
3. Right-hand Thread Chuck
4. Left-hand Thread Chuck
5. Expansion Nut
6. Expansion Nut
7. Clamping Bolt
8. Clamping Bolt
9.

*Figure 20. Paper Web Installation*



1. Brake Locking Handle
2. Brake Tension Adjusting Knob
3. Dancing Roller

*Figure 21. Adjusting Brake Mechanism*

(3) Insert an eyelet no. 1A-1094 in the hole and form it. Continue until all holes in the head-end blanket bar and blanket are punched and have formed eyelets in them.

(4) Use two blanket gages to square up the tail-end blanket bar (4) to the other edge of the blanket (3) on the fabric side, and then glue the tail-end blanket bar to the blanket. The tail-end blanket bar is Part HB-218 and is 1/32 in. thk X 3/8 in. w X 16-1/4 in. lg.

(5) After glue has dried, and with the rubber side of the blanket facing upward, use the eyelet machine (1) with punch No. A-2162 in it to punch a hole through the blanket from the hole in the tail-end blanket bar.

(6) Insert an eyelet No. A-2162 in the hole and form it. Continue until all holes in the tail-end blanket bar and blanket are punched and have formed eyelets in them.

(7) Trim off end of blanket at both head-end and tail-end blanket bars so that blanket will not extend out past the bars.

(d) Carefully measure the distance between the left edge and the right edge of the ends of both blanket bars. The measurements should be equal within one- sixty fourth inch. The blanket is now ready to mount on the blanket cylinder.

(4) Blanket Installation. Install the blankets following the procedures listed below:

(a) Clean the blanket surface thoroughly with pumice powder, wash the blanket with clean water, and dry the blanket. Dust the surface of the blanket with French chalk. Wipe off any excess chalk and clean off the back of the blanket.

**CAUTION**

Be careful to remove any lint or loose threads from the blanket.

(b) Using a micrometer, measure the thickness of the blanket at several places, being careful not to compress the rubber surface of the blanket.

(c) Average the measurements; use the average to determine amount of packing required The blanket cylinder is undercut 0.071 inch. This means that the bearers are 0.071 inch above the main body of the cylinder. The surface of the blanket should be 0.002 inch above the surface of the bearers. Thus, the thickness of the blanket and the packing together should be 0.073 inch. Because the average 3-ply blanket has an average thickness of 0.064 inch, usually 0.009 inch of packing will have to be added.

(d) Inspect the packing sheets to be sure that they are square and that they are cut to the proper size.

(e) Insert the front blanket bar (see figure 25) into the stationary slot in the blanket cylinder.

(f Make sure slot on reel rod faces up so that tail end of blanket can be installed.

(g) Insert the previously selected packing between the blanket and the cylinder, and, while holding the rear of the blanket, slowly jog the press, allowing the

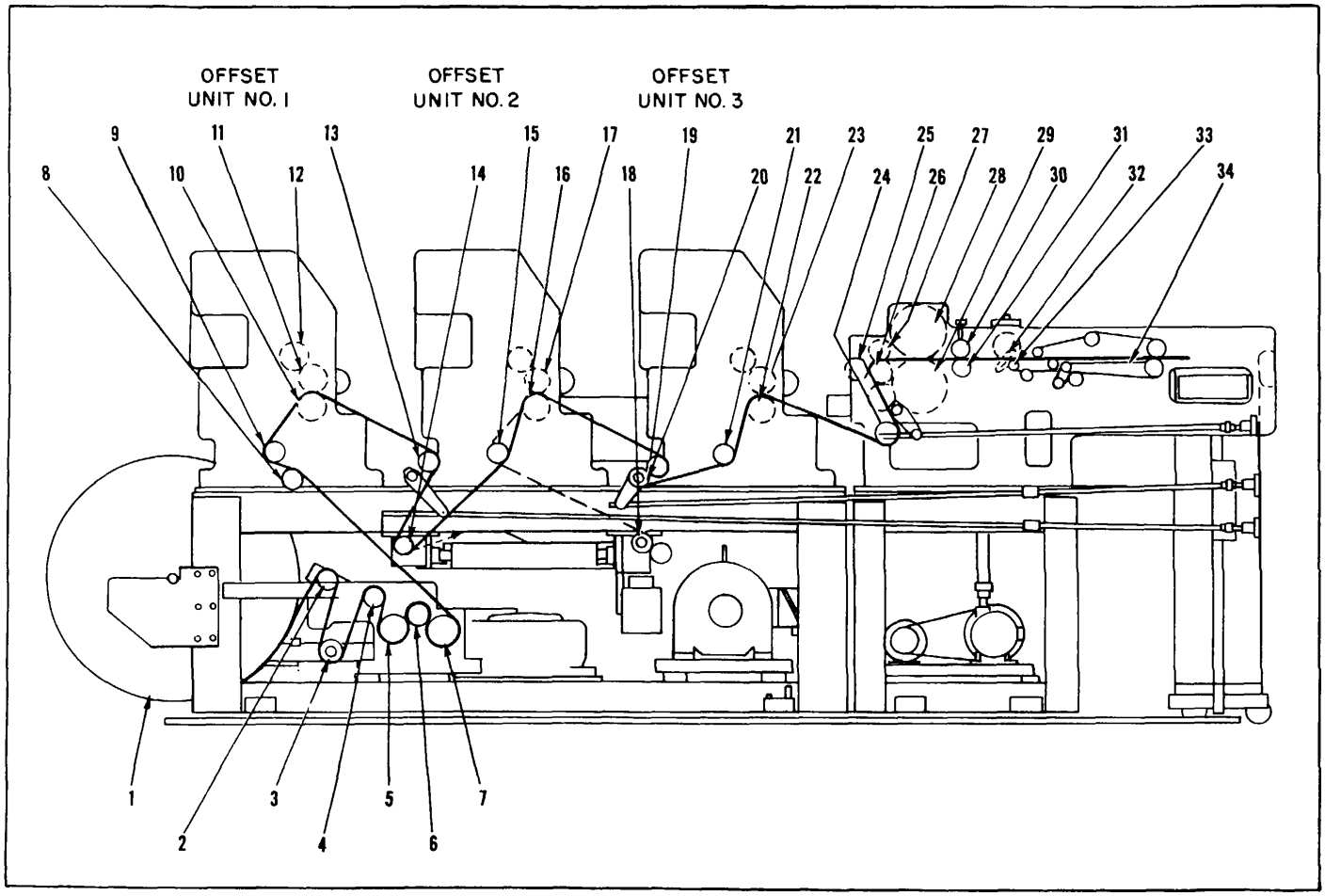
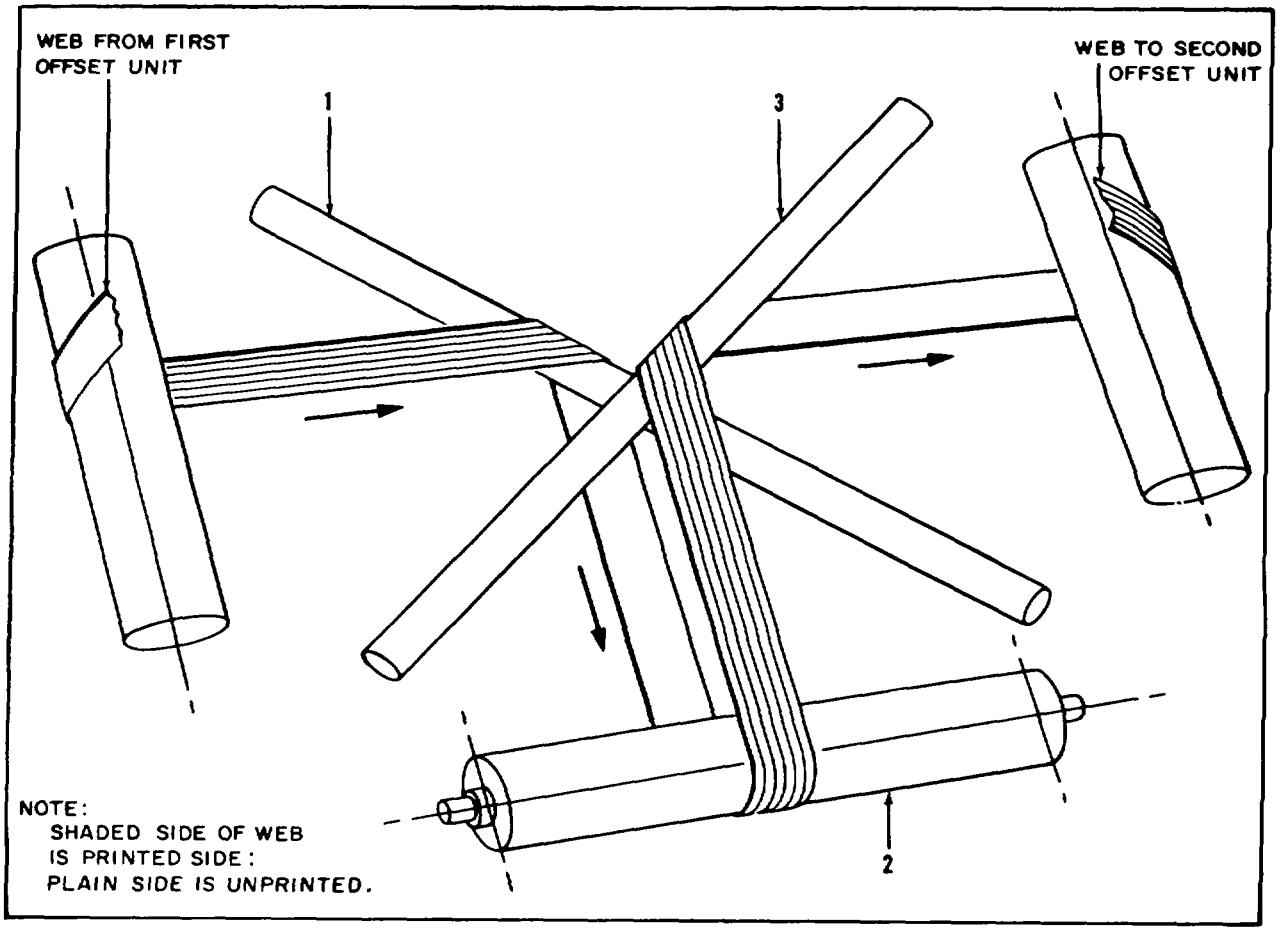



*Figure 22. Method of Threading the Web*

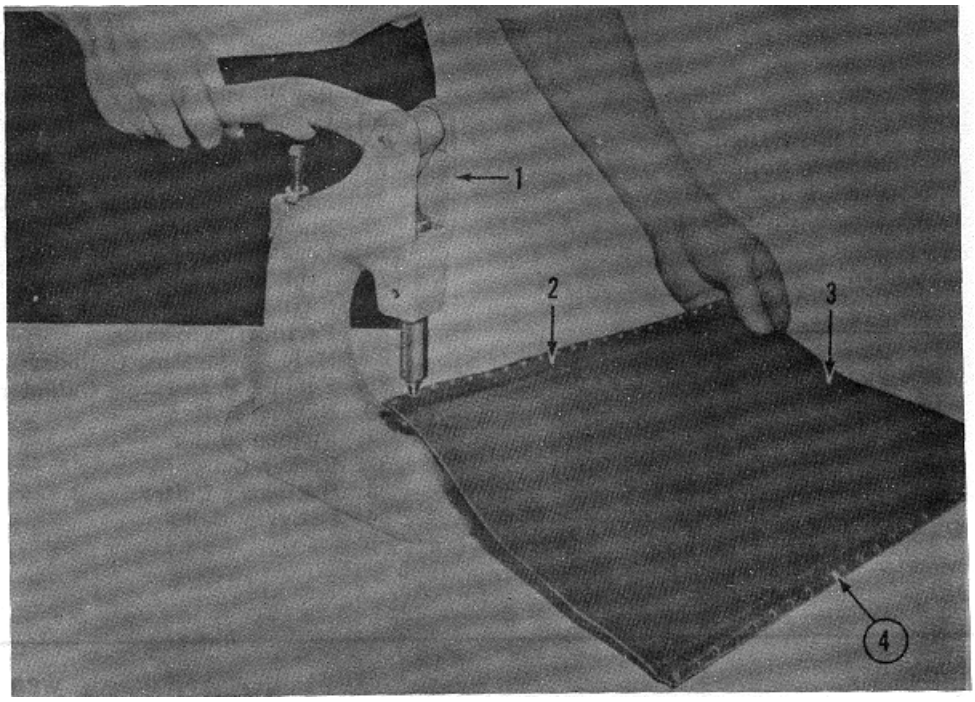
LEGEND FOR FIGURE 22

1. Paper
2 Feeder Tension Roller
3 Dancing Roller
4 Tension Roller
5 Feed Roller
6 Feeder Rider Roller
7 Feed Roller
8 Lead Roller
9 Lead Roller
10 Impression Cylinder
11 Blanket Cylinder
12 Plate Cylinder
13 Lead Roller
14 Lead Roller
15 Lead Roller
16 Impression Cylinder
17 Blanket Cylinder
18. Bay Window Driver Roller
19. Lead Roller
20. Lead Roller
21. Lead Roller
22. Impression Cylinder
23. Blanket Cylinder
24. Lead Roller
25. Trolley Wheels
26. Nipping Roller
27. Perforating Wheels
28. Male Perforating Cylinder
29. Female Perforating Cylinder
30. Nipping Roller
31. Nipping Roller
32. Rotary Cutter
33. Stationary Cutter
34. Delivery Belts




1. Lower Turning Bar 2. Bay Window Roller 3. Upper Turning Bar

*Figure 23. Web Lead over Turning Bars*




1. Eyelet Machine
2. Head-End Blanket Bar
3. Blanket
4. Tail-End Blanket Bar

*Figure 24. Riveting the Blanket*

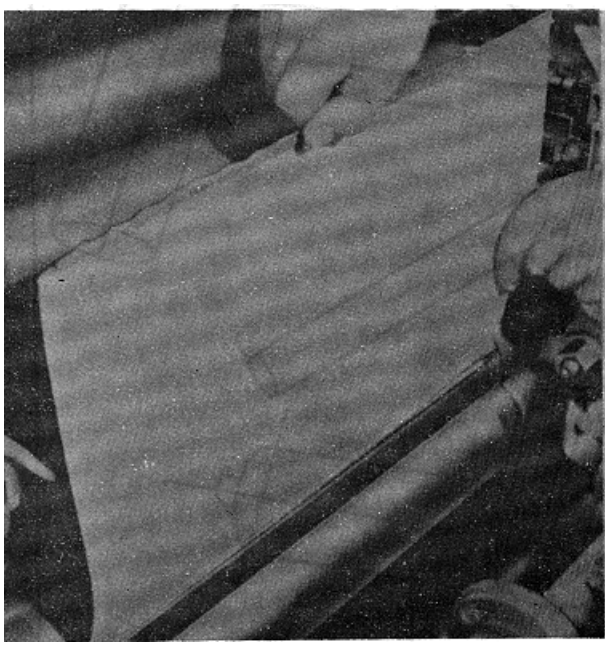


*Figure 25. Inserting Front Blanket Bar*

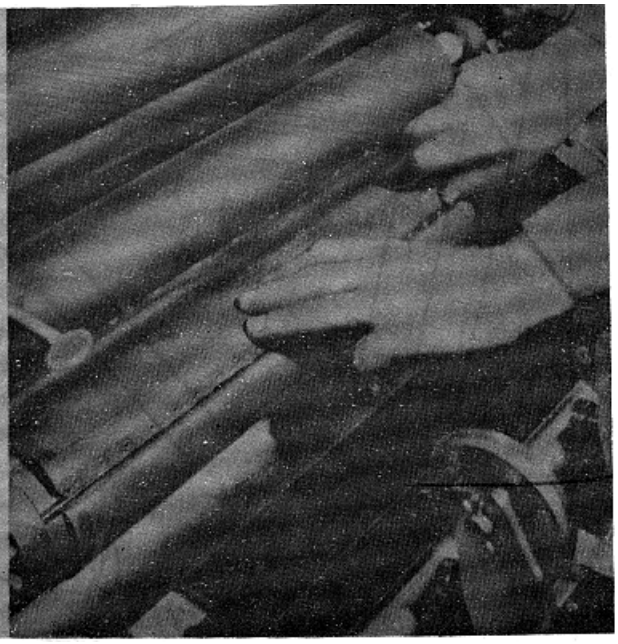


*Figure 26. Inserting Tail Blanket Bar*

blanket to feed around the cylinder. Be certain that the packing does not wrinkle nor pull away from the head end.

(h) When the blanket is in place, insert the tail bar into the stationary slot (see figure 26) and lock it in place, making sure that the blanket is properly centered on the cylinder.

(i) Tighten the blanket (see figure 27) with box and pin wrench provided. Lock in place by engaging pawl with ratchet (58, 60 fig. 72).Do not attempt to take all of the stretch out of the blanket at this time; it cannot be done, and attempting to do so may damage the blanket. Apply only as much pressure as one man can apply with his hands. (After a few hundred impressions have been run, stop the press and tighten the blanket again.)

(5) Plate Preparation. Prepare the plates for installation, following the procedures listed below:

(a) Check the plate (1 fig. 28) to see that it is square. The leading and tail edges must be parallel. Be certain that the centerline of the plate is clearly marked.

(b) Place the plate ( 1 fig. 28) on the table of the plate bending jig, face side up.

(c) Line up the center marks on the plate with those engraved on the metal plates (2 fig. 28) imbedded in the plate bending jig.

(d) Place the locking bars (1 fig. 29) on the studs provided, and lay strips of clean paper under the bars to protect the plate. The locking bars are not interchangeable; however, the head bar and the tail bar are clearly marked and the way they are to be mounted is clearly indicated.

(e) Tighten all knobs (2 fig. 29) just enoughto hold the plate firmly against the table.

(f) Recheck the center marks and make adjustments as necessary; then tighten the hand knobs until the plate cannot be moved.

(g) Install the plate bending bar (1 fig. 30) on one end of the jig with bending bar pin handles (2 fig. 30) and pull the bar downward to the stops. This will bend the end of the plate. Follow the same procedures on the other end of the jig.

(6) Plate Installation. Install the plates on the press, following the procedures listed below:

(a) Inspect the plate for dirt and for damages of any type. Be certain that the plate is flat and that its edges are smooth and straight.

(b) Clean the back of the plate; first with solvent and next with water.

**CAUTION**

Do not allow the water to touch the front of the plate. Water will remove the protective gum surface of the plate. Dry the back of the plate thoroughly.

(c) Using a micrometer, measure the thickness of the plate in several places and average the readings.

(d) Using the figure obtained as an average, determine the amount of packing required. The plate' cylinder is undercut 0. 012 inch; that is, the bearers are 0. 012 inch above the main surface of the cylinder. The surface of the plate should be 0. 001 inch above the bearers. Thus, the total thickness of the plate and packing should be 0.013 inch. Packing the plate to this level, and packing the blanket cylinder as recommended in paragraph (4), will produce a squeeze or Chapter 2, Section I Paragraph 9 pressure of 0. 003 inch between the two cylinders. This amount of pressure will insure that the transfer of ink from the plate to the blanket, under normal conditions, is adequate. Also it will result in good reproductions and long plate life.

(e) Wipe the surface of the plate cylinder with an oily rag, leaving a thin film of oil. This action will prevent rusting and will keep the plate from sticking to the cylinder.

(f) Remove the safety guard which fits over the point of contact between the plate and the blanket cylinders. This guard is provided to protect the operator's fingers when the press is running.

(g) Insert the leading edge of the plate into the slot in the plate cylinder, making sure that the plate is centered on the cylinder (fig. 31).

(h) Hold the plate straight out, jog the press slightly and insert the packing between the plate and the cylinder. The packing must be the exact width of the plate and long enough to cover the entire printing surface.

(i) Move the ink form rollers to the "off" position. Rotate the press slowly, and keep the tension on the plate by pulling the plate outward. Avoid wrinkling the packing.

(j) When the cylinder has made a complete revolution, insert the tail edge of the plate (see figure 32) into the cylinder slot.

(k) Using pin and box wrench provided tighten plate on cylinder sufficiently (see figure 33), to remove any buckles from the plate, and lock in place by engaging pawl (23, 25 fig. 74). Buckles in the plate make it impossible for the impression to register properly. If the plate still shows a buckle after the screws have been properly tightened, the plate has not been put on straight. This condition must be corrected or the buckled portions will wear excessively and will produce a distorted image at the buckled points. To test the plate for proper adjustment, tap it lightly with the

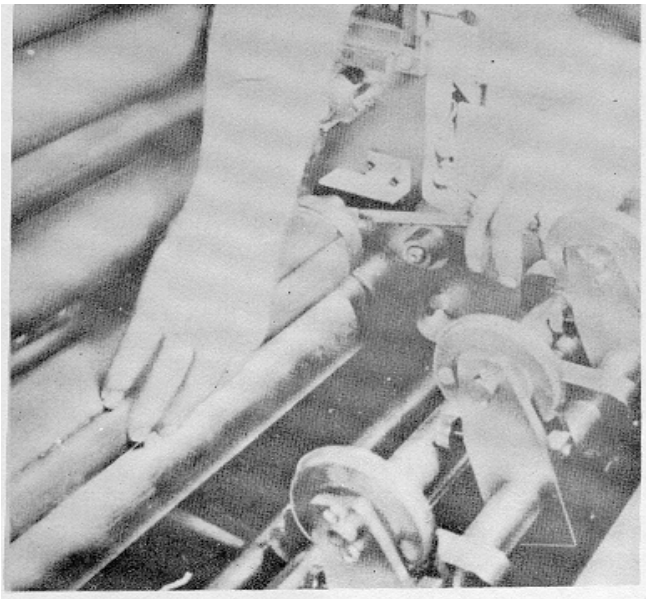
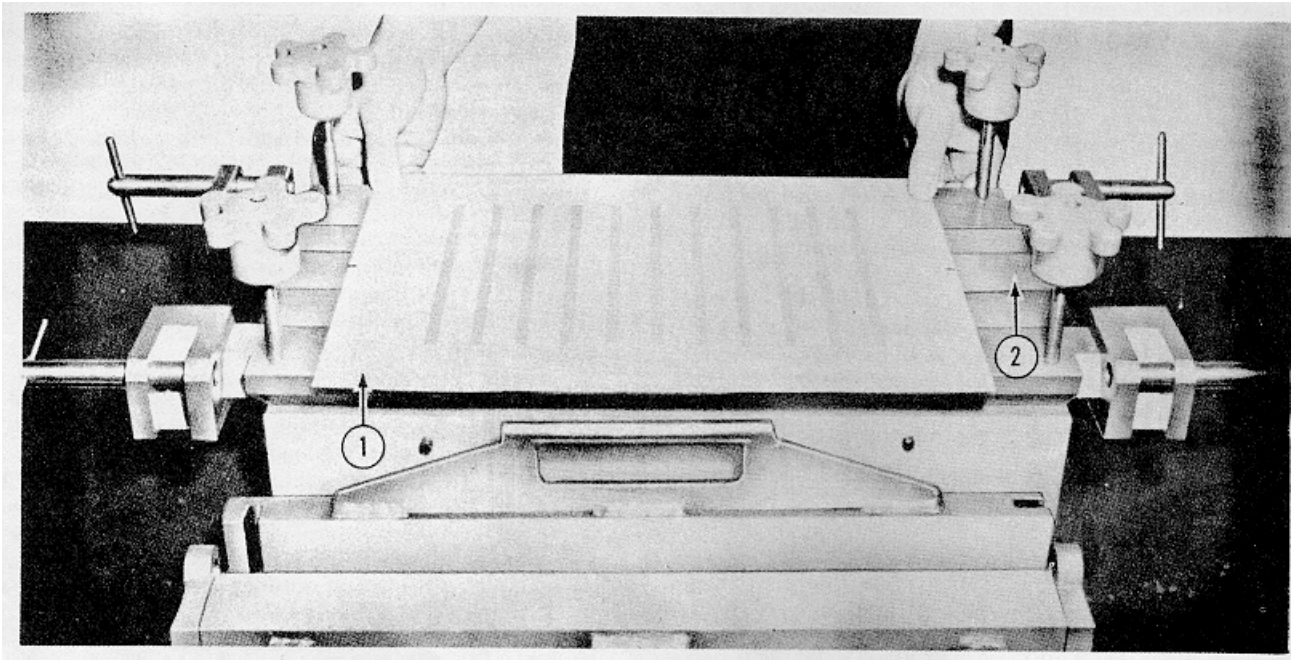
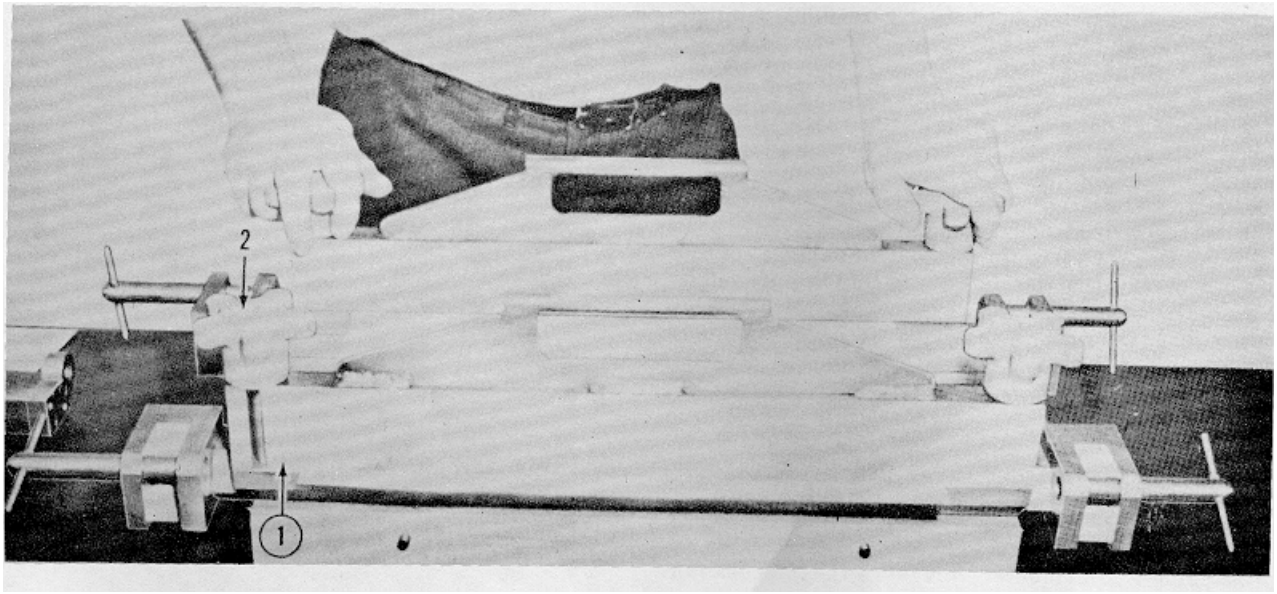


*Figure 27. Tightening the Blanket*




1. Plate
2. Guide Plate

*Figure 28. Placing the Plate on Bending Jig.*




1. Gripper Edge Stationary Bar
2. Hand Knob

*Figure 29. Tightening Jig Hand Knobs*

end of the pin wrench. If the plate gives off a hollow sound, it is not adjusted properly.

(I) Replace the safety guard.

(7) Installing Ink Rollers. After Ink rollers are initially installed, it is necessary to remove then reinstall them only for maintenance, extended shutdown, or replacement. To install a roller, fit the roller into the mounting slots or bearings on the offset units. To adjust each roller unit properly, use an Allen wrench and adjust set screws at each end of the roller for clearance as follows:

(a) Set the fountain roller (3 fig. 5) and ink ductor roller (4 fig. 5) to the ebonite vibrator roller (5 fig. 5), using strips of . 002-inchpaper approximately one inch wide between the two ink rollers and vibrator roller to determine the proper setting. When the strips can be pulled out with a firm drag, the rollers are properly set.

(b) Drop the rubber covered form rollers on the plate and place two one-inch wide strips of .002 inch paper between the roller being set and the plate at the ends of the roller. Adjust each form roller to the plate so that a light, even pressure is required to withdraw the paper strips. It is most important that the form rollers are properly set, otherwise poor ink distribution and excessive plate wear will result.

(8) Installing Water Form Rollers. The procedure for setting the water form rollers (dampeners) is the same ast hat for setting the ink form rollers (par.7 (c). Care must be taken that they are properly adjusted and lined up with each other and the plate cylinder in order to insure an even application of dampening solution to the plate. Since the form rollers are covered with mallet on, it is essential that the feelers employed have a smooth surface such as cellophane or thin base fixed-out photographic film. It is Chapter 2, Section I Paragraph 9 advisable to set the top roller (9 fig. 4) with a slightly lighter contact with the roller(10 fig. 4) than the bottom dampener. This will allow even distribution of water to both rollers. The mallet on covering of the water form rollers must always be tight against the vibrator roller: a loose or uneven covering prevents the plate from being properly dampened. When installing newly covered rollers, it is advisable to reset them at the end of the day's operations. Set the dampeners and the ductor, and allow the press to oper ate long enough to wet them and for the solution to be absorbed by the new rollers. The following morning, be sure to recheck the setting prior to running the press.

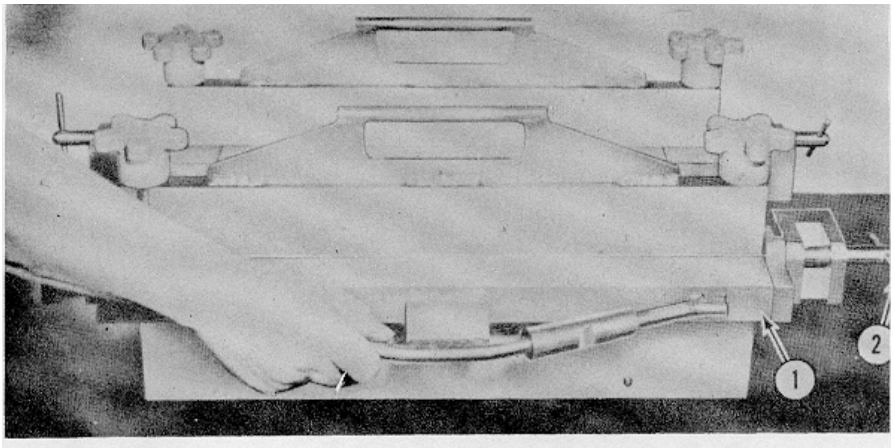
(9) Inking the Press,

(a) For making three pounds or less batches of ink, remove required amount of ink from can with ink knife and place on a clean slab or glass plate. Add drier in accordance with ink manufacturer's instruct ons. Work drier throughly into ink by turning it over and kneading with ink knife. For making three to five pound batches of ink use electric mixer instead of ink knife and slab.

(b) Before placing ink in fountain, the ink fountain blade must be positioned parallel to the ink fountain roller. This is accomplished by first opening all the adjusting screws (3 fig. 4) wide, then starting In the center and working outward. tighten each screw until the blade just touches the roller. After all screws have been so tightened, back each one off approximately one-quarter turn.

(c) Put the ink in ink fountain (2 fig. 4) and spread it along the fountain roller in a uniform layer until fountain is half full.

(d) Rotate press to bring ductor roller into contact with fountain roller. Then, turn fountain roller by means of the ink fountain operating lever, (3 fig. 34) and examine ink distribution by thickness of ink layer




1. Gripper Edge Bending Bar
2. Bending Bar Pin

*Figure 30. Bending the Plate*

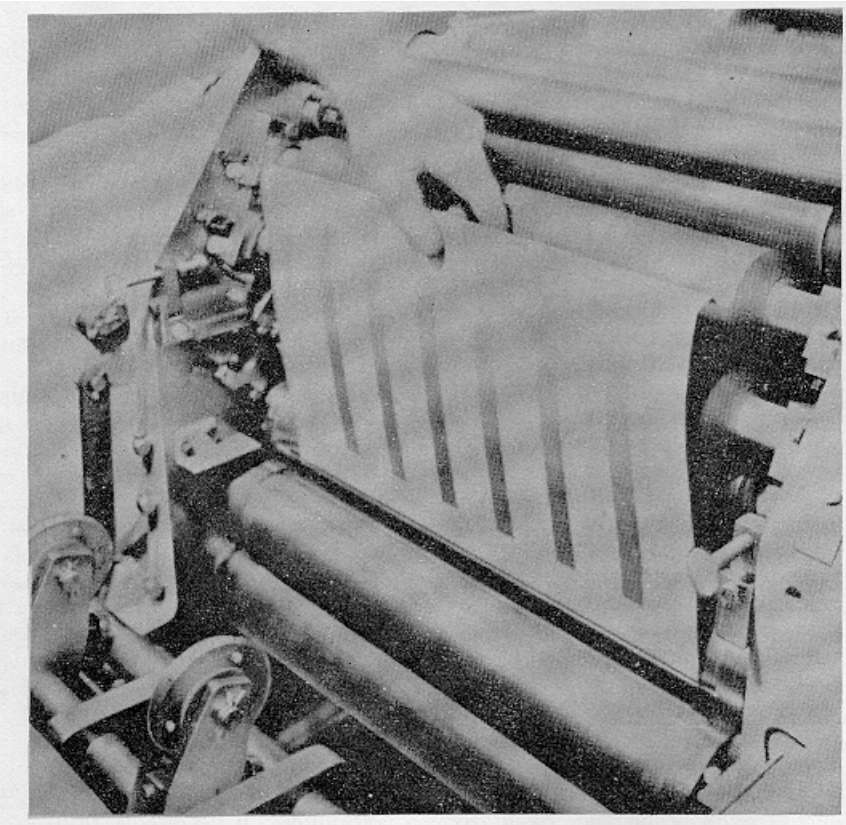


*Figure 31. Inserting Leading Edge of Plate*

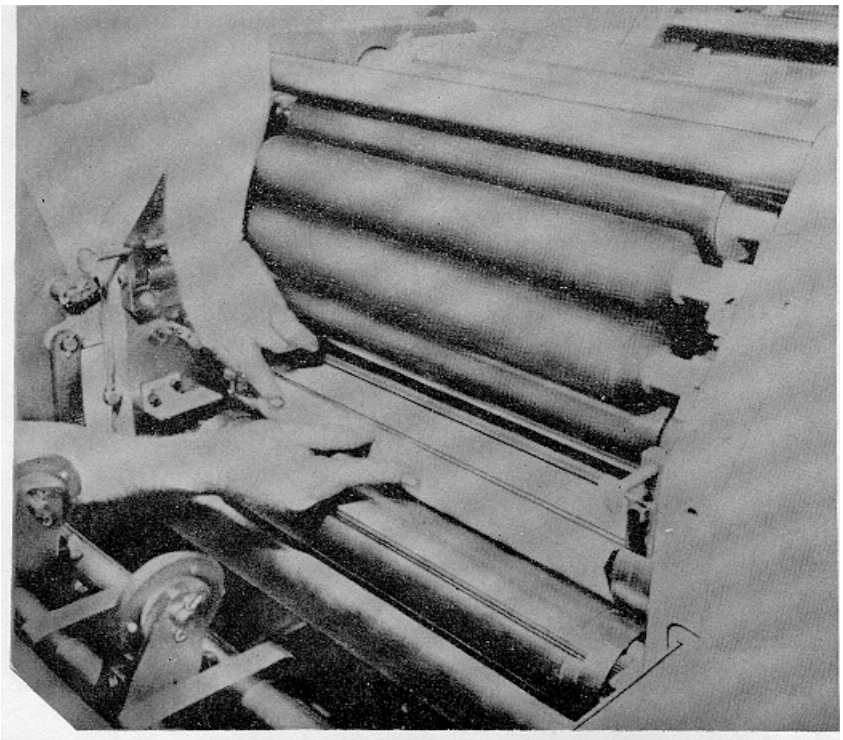


*Figure 32. Inserting Tail Edge of Plate*

on roller. Open or close thumbscrews if necessary so ink layer corresponds to approximate requirements along the plate.

(10) Water Fountain Preparation: Fill the water fountain, following the procedures listed below: (a) Fill the water fountain bottle with the prepared fountain solution, and mount the bottle on the press.

(b) Check to be certain that the fountain solution flows through the tubes to the water fountains on all offset units.

(c) Adjust height of the water fountain bottles so that the desired level will be maintained in the water fountains.

(11) Setting Vertical Petforators. If it is desired to use the vertical perforators, ( 5 fig. 7) loosen set screw on each, position, then tighten set screw. Each individual perforating wheel can be disengaged by the pressure nut adjacent to it. Tightening the nut will Chapter 2, Section I Paragraph 9 prevent perforating.

(12) Setting Cross-Perforator. The cross-perforating or cross-creasing rule which produces line FG (fig. 9) fits into a slot in the male perforator (2 fig. 7) and must be set to an accurate height from the main body of the cylinder. To do this, proceed as follows:

(a) Insert the desired rule (perforating or creasing) into the slot with 1/16 inch protruding above the cylinder, and tighten the adjusting nuts lightly with a wrench.

(b) Rotate the male perforator until the rule is centered over the female perforator (1 fig. 7). The resulting pressure will force the rule further into the slot until it is at the right height.

(c) Rotate the male perforator until the rule is on top, then tighten the adjusting nuts firmly.

(d) The final pressure on the perforation can be varied by using more or less force in the initial tightening operation as described in (a) above.

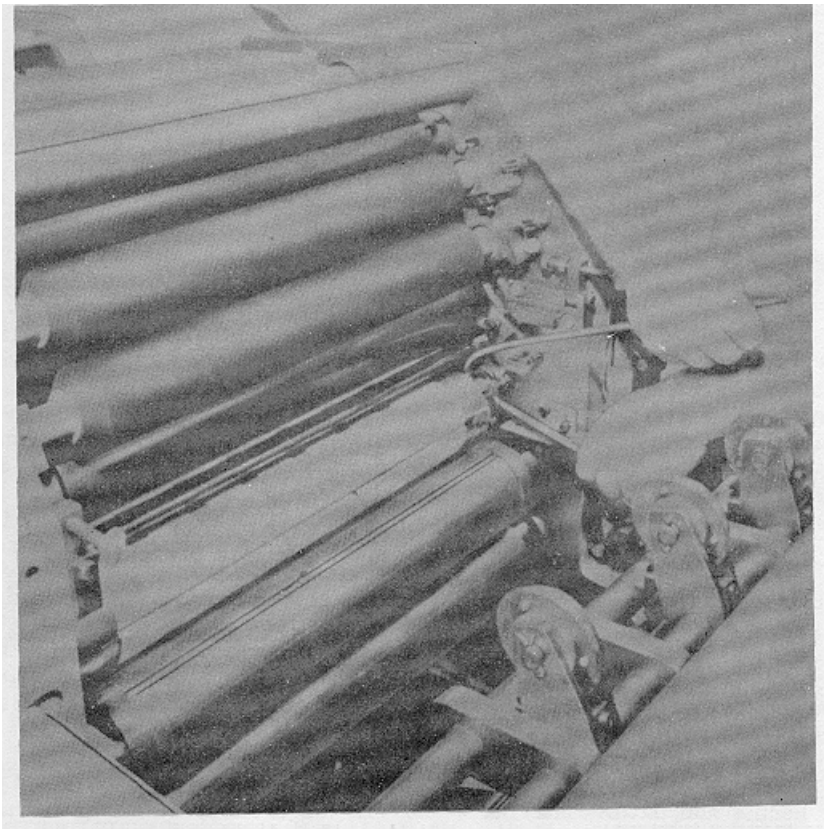


*Figure 33 . Tightening the Plate with Box and Pin Wrench*

## Section II. MOVEMENT TO A NEW WORKSITE

10. DISMANTLING FOR MOVEMENT.

**CAUTION**

Before packaging the press (for either domestic or foreign shipment) all press cables should be removed and stored, and all loose equipment should be packaged and stored in appropriate cabinet drawers, tool boxes, etc.

a. Short Move. To facilitate a short move of the Model 3C press it is only necessary for the maintenance personnel to use the roller skids and jacks (fig. 17) to move and position the press to a new operating position.

b. Long Distance Movement. If the press is to be moved along distance, it should be packaged in re verse procedure of paragraph 7, Section 1. Prior to packaging, the press with press package can be moved from its operating position to the point of packaging in accordance with procedures outlined in paragraph (a) above.

A standard 15 ton lift crane (par. 6a. Sect. 1) can now place-the package on a flat car, flat bed trailer or in a ship hold for shipment to ultimate destination. During shipment, standard tie down procedures should be employed to prevent vibration and shifting.

11. REINSTALLATION AFTER MOVEMENT.

Refer to paragraph 9 Section I (INSTALLATION AND SETTING UP INSTRUCTIONS) as procedures are identical.

## Section III. CONTROLS AND INSTRUMENTS

12. GENERAL.

This section describes, locates, illustrates, and furnishes the operator, crew, or organizational maintenance personnel sufficient information about the various controls and instruments for proper operation of the Lithographic Offset Press.

13. CONTROLS AND INSTRUMENTS.

The purpose of the controls and instruments and the normal and maximum reading of the instruments are illustrated in figures 34 and 35.

a. Purpose and Location.

(1) Impression handle with solenoid switch. The impression handle with solenoid switch (6 fig. 34) actuates the blanket cylinder putting it on impression at the same time dropping the two rubber covered form rollers on the plate cylinder.

(2) Ink form on-off handle. The ink form on-off handle (4 fig. 34) acutates the trip linkage which lifts the form rollers from the plate. When the press is stopped the form rollers are automatically lifted from the plate.

(3) Ink fountain roller handle and pawl. The ink fountain roller handle and pawl (3 fig. 34), is used to turn the ink fountain roller manually. The ink fountain pawl works automatically and when the press is running this pawl automatically rotates and distributes the ink to the ink ductor roller. Each time the press makes one revolution, the pawl makes apart turn, and the amount it turns determines the amount of ink that is fed to the ink ductor roller.

(4) Ink ratchet setting screw. The ink ratchet setting screw (2 fig. 34) can be adjusted to control this movement, and more uniform ink distribution will result if the fountain is set with a "narrow gap" between the ink fountain blade and the ink fountain roller so that a thin film of ink is delivered, and the ink fountain roller has a longer stroke, that is, using a high number on the ink ratchet setting screw. The method of using a "wider gap" between the ink fountain blade and ink fountain roller and a "short stroke" will not produce as satisfactory a result.

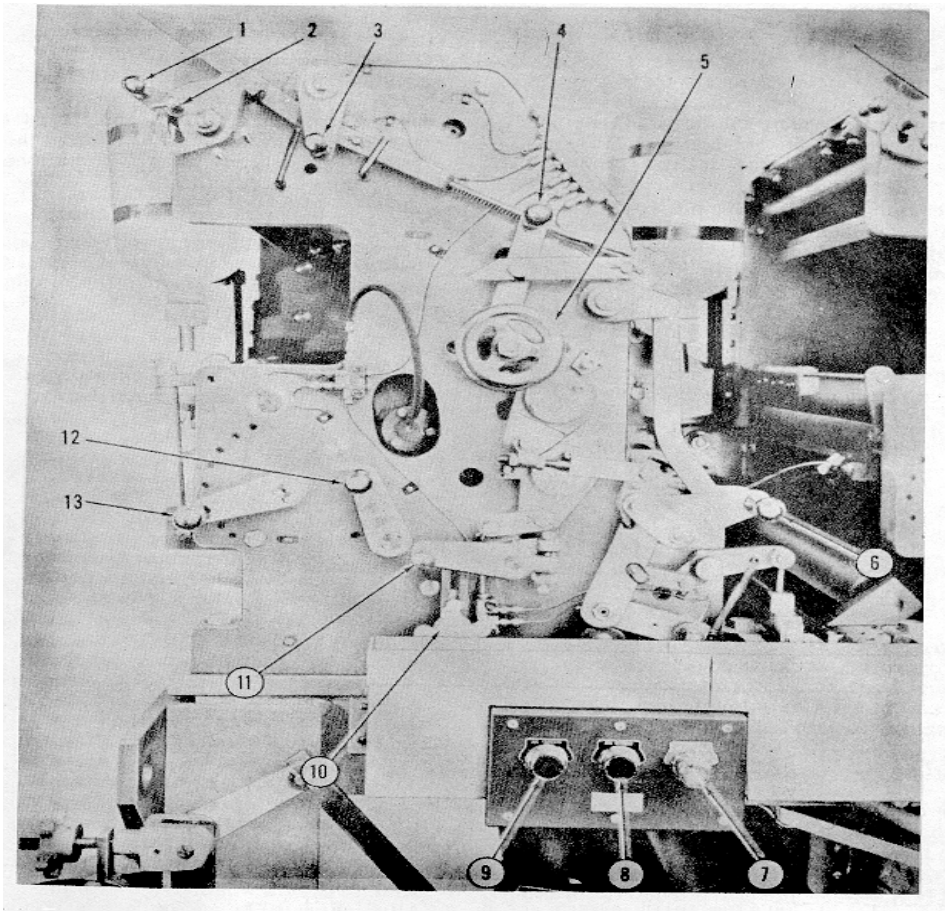
(5) Impression Cylinder Adjusting Knob. The impression cylinder adjusting knob (10 fig. 34) is provided to permit changing the distance between the blanket and impression cylinder as may be required by varying thickness of paper being run in the press. Paper varying from 9-lb. manifold to 90-lb. index can be easily accommodated. The amount of pressure between the two cylinders must be carefully regulated and should not be greater than the minimum required to produce a clean impression. It is generally best to start with less pressure that is required for a clean impression and then gradually increase the pressure until a good clear print is obtained.

(6) Impression Cylinder Throw-off Handle. The impression cylinder throw-off handle (11 fig. 34) is provided to manually operate the impression cylinder and this handle can be locked in place by means of the cylinder adjusting knob(10 fig. 34). A stop is provided on this adjustment which allows the impression cylinder to be returned to a predetermined pressure.

(7) Jogger Control Station Switch. The offset web fed press has three jogger control stations, one for each offset unit. Each station has a forward switch(9, fig. 34) a reverse switch(8) and a stop switch(7). To jog an offset unit forward, depress the appropriate forward switch ;to jog it in reverse, depress the reverse switch. To stop the offset unit, depress the stop switch.

(8) Water ductor on-off handle. The water ductor on-off handle (13 fig. 34) locks a ductor cam which controls action of the two molleton covered water form rollers. Any desired position can be secu red by setting the handle in the notches provided for this purpose.

(9) Water form, on-off handle. The water form on off handle (12 fig. 34) is used to lift the water form rollers from the plate cylinder.




1. Ink Fountain Handle
2. Ink Ratchet Setting Screw
3. Ink Fountain Roller Handle and Pawl
4. Ink Form, On-Off Handle
5. Plate Cylinder Lateral Control Wheel
6. Impression Handle (With Solenoid Switch)
7. On-Stop-Safe Switch
8. Jog Rev Switch
9. Jog For Switch
10. Impression Cylinder Adjusting Knob
11. Impression Cylinder Throw-Off Handle
12. Water Form, On-Off Handle
13. Water Ductor, On-Off Handle

*Figure 34. Controls and Instruments, Offset Unit*

(10) Plate Cylinder Lateral Control Wheel. The plate cylinder lateral control wheel (5 fig. 34) is used to make lateral adjustments of the image to plus or minus 1/8 inch from the centerline. By means of this wheel it is possible to register the image of the offset units from side to side without moving the plates.

(11) Trolley and Perforating Wheels Handle. The trolley and perforating wheels handle (l fig. 35) is used to throw the perforating wheels( 5, fig. 7) and trolley wheels(6, fig. 7) to the "off" position to allow for change of positions of the three perforating wheels and the two trolley wheels.

(12) Manual Sheet Lowering and Raising Handle. The manual sheet lowering and raising handle (9 fig. 35) raises and lowers the delivery board to its top position. To lower the delivery board turn the handle clockwise

(13) Delivery Clutch Handle. The delivery clutch handle (23 fig. 35) controls the delivery throw-off clutch gear which disengages the entire delivery unit from the offset unit. The delivery unit must always be disengaged when reversing the offset units.

(14) Cut-Off Compensating Adjusting Knobs. The compensator knobs (10, 11, 12, fig. 35) are located to the right of the variable speed control station on the

operator's side of the press. They are used by the operator as an aid in making adjustments relative to properly positioning the printed image for the cutting operation. The top knob (10) is used to make adjustments at offset unit no. 3, the middle knob (11) is used to adjust offset unit no. 2, and the bottom knob(12) is used to make adjustments at the delivery unit. To position it closer to back of a sheet, turn the appropriate knob clockwise. To position it closer to the front of a sheet, turn the appropriate knob counter clockwise.

(15) Blower On-Off Switches. The blower on-off switches (16, 17 fig. 35) are located on the cover of the variable speed control station. To start the blower and motor which delivers compressed air fpr the operation of the delivery unit, depress switch (l6to on position. To stop operation, depress the blower off switch 17)to off position.

(16) Variable Speed Control Station. The variable speed control station (24 fig. 35) is located just below the delivery unit at the operator's side of the press. It contains the controls for regulating the operating speed of the press and for starting and stopping the press.

(17) Off-On Master Impression Switch. The off-on master impression switch (22 fig. 35) is located on the cover of the variable speed control station (24). It must be turned to the "on" position before switches that control offset units can be operated. Turn the switch to the "off" position to make the press inoperative.

(18) Run Switch. The run switch (14 fig. 35) is located on the cover of the variable speed control station (24). Depress the switch to start the press.

(19) Jog Forward Switch. The jog forward switch (13 fig. 35) is located ont he cover of the variable speed control station (24). It allows the press to be operated in either a forward direction or a reverse direction. The press will jog only as long as the switch is depressed, and it will jog in reverse only when the sheet delivery unit is disengaged.

(20) On-stop-safe Switch. The on-stop-safe switch (15 fig. 35) is located on the cover of the variable speed control station (24). Because of the dynamic braking mechanism with which the variable speed control unit is provided, the press will come to a dead stop in less than two seconds, regardless of the speed at which it is operating, whenever the stop switch is depressed.

(21) Speed Setting Control. The speed setting control (18 fig. 35) is located ont he cover of the variable speed control station (24). It regulates the speed at which the press is operated. The recommended speed at which the press should be operated is approximately 25, 000 impressions per hour. To set the potentiometer for the number of impressions desired, start the motor generator unit and turn the potentiometer control knob to the desired setting.

(22) On-Off Impression Switch. The on-off impression unit printing switches (19, 20, 21 fig. 35) are mounted to the left on the variable speed control stat ion (24). The top switch controls the first offset unit, the middle switch the second offset unit, and the bottom switch controls the third offset unit. The off -on master impression switch (22) must be In the "on" position to operate the on-off impression switches. To operate an offset unit, turn the proper unit switch to the "on" position. To stop all offset units simultaneously, turn off-on master impression switch to the "off" position.

(23) Oil Pressure Gage. The oil pressure gage (5 fig. 35) is mounted on the operator's side of the delivery unit. Start the press, and hold down the pressure lubricating button (L, Fig. 3b) for 15 seconds. The oil pressure gage should register 20 psi. If the pressure reading is below 20 psi, check the level of the oil in the oil reservoir.

(24) Speed Indicator. The speed indicator (6 fig. 35) is mounted on the operator's side of the delivery unit. It registers in impressions per hour the operating speed of the press. The recommended operating speed of the press is 25,000 impressions per hour.

(25) Sheet Counter. The sheet counter (4 fig. 35) is a six digit counter located on the operator's side of the press. It registers the number of sheets printed. A knob on the end of the counter is used to set it at zero.

(26) Microswitches. Microswitches are installed at different locations on the press. They automatically stop the press whenever the web rolls up at a cylinder.

(27) Static Elirminators. Static eliminators are installed at different locations on the press. They ellml nate from the web the static electricity that is generated when the press is running. A static eliminator unit (25 fig. 35) mounted on the rear press frame member under the delivery unit contains an incandescent bulb which reveals whether the eliminators are operating. When the bulb is burning the static eliminator unit is operating.

(28) Motor-Generator Unit. The motor-generator unit has one control, a start stop switch (fig. 10), which supplies the power for operation of the press through three cables. The switch is used to start the motor generator unit and stop it.

## Section IV. OPERATION OF EQUIPMENT

14. GENERAL.

a. The instructions ion this section are published for the information and guidance of the personnel responsible for operation of the Lithographic Offset Press.

b. Tile operator must know how to perform every operation of which the offset press is capable. This section gives instructions for starting and stopping the offset press, basic motions of the press, and for coordinating the basic motions to perform the specific tasks for which the equipment is designed. Since nearly every job represents a different problem, the operator may have to vary given procedures to fit the individual job.

15. STARTING THE EQUIPMENT.

a. Preparation for Starting.

(1) Perform the necessary daily preventive maintenance services (par. 24).

(2) Prepare plates for plate cylinder (par. 9e (5).

(3) Load paper roll and adjust the brake mechanism (par. 9e (1), )

(4) Thread the web on press (par. 9e (2),).

(5) Slowly run the press (par. 15b). Set the brake mechanism so that the weighted shaft is at its midway position, and check that the web is running properly into the delivery unit.

(6) Stop the press. Disengage the delivery clutch handle (23 fig. 35), and the ON-OFF feeder rider roller handle (3 fig. 3).

(7) Mount the plate on the plate cylinder (par. 9e (6),).

(8) Put ink into the ink fountain and adjust the ink fountain for the approximate flow of ink required by the job (par. 9e (9), ).

(9) Put fountain solution in the water fountain(par 9e (10),).

(10) Run the press with both the delivery clutch handle (23 fig. 35) and ON-OFF feeder rider roller handle engaged. Check that the ink system rollers are properly inked up (par 9e (7), ) and water system rollers are properly dampened (par 9e (8),).

(11) Stop the press. Drop and raise the rubber covered ink form rollers on and off the gummed-up plate to check the setting of the form rollers (par. 9e (7),).

(12) Sponge off the plate to remove the gum and asphaltum. Run the press slowly. Engage dampening rollers, and drop the ink form rollers. Allow the plate to ink up and then raise the ink form rollers again. Check the plate to be sure it is properly inked up and that the non-printing areas are clean.

(13) Jog the press to engage the delivery clutch handle (23 fig. 35) and then engage the ON-OFF feeder rider roller handle (3 fig. 3).

b. Starting. Refer to figure 36 and start the offset press as follows:

(1) Start the motor -generator unit (fig. 10) by pressing the START switch and allow it to warm up for at least 45 seconds.

CAUTION

Check that all safety guards are in place before operation of press to insure safety of operating personnel.

(2) Depress the pressure lubricating button on the oil (1 fig. 36) lubricator and hold it for about 15 seconds. At the end of 15 seconds, the oil pressure should read at least 20 psi on the oil pressure gage (2 fig. 36).

(3) Turn SPEED SETTING control(3 fig. 36)to zero position.

(4) Throw BLOWER ON switch (4 fig. 36] to ON position.

(5) Push RUN switch (5 fig. 36) to ON POSITION.

(6) Throw ON-OFF master impression switch (6 fig. 36) and ON-OFF impression switches (7, 8, 9, fig. 36) to ON position.

(7) Throw WATER FORM handle to ON position ( 10 fig. 36) and INK FORM handle(ll fig. 36) to ON position.

**CAUTION**

Make sure that the water form rollers are thrown to ON position before the ink form rollers.

(8) With ON-OFF impression switches (7, 8 and 9) to ON position, the blanket cylinders will be thrown into impression.

(9) Turn SPEED SETTING control (3 fig. 36) to setting whereby 25,000 impressions per hour are shown on the speed indicator (12 fig. 36).

(10) Stop the p ress by throwing master impression ON-OFF switch (6 fig. 36) to OFF position. This will automatically throw off both the impression cylinder and the ink rollers.

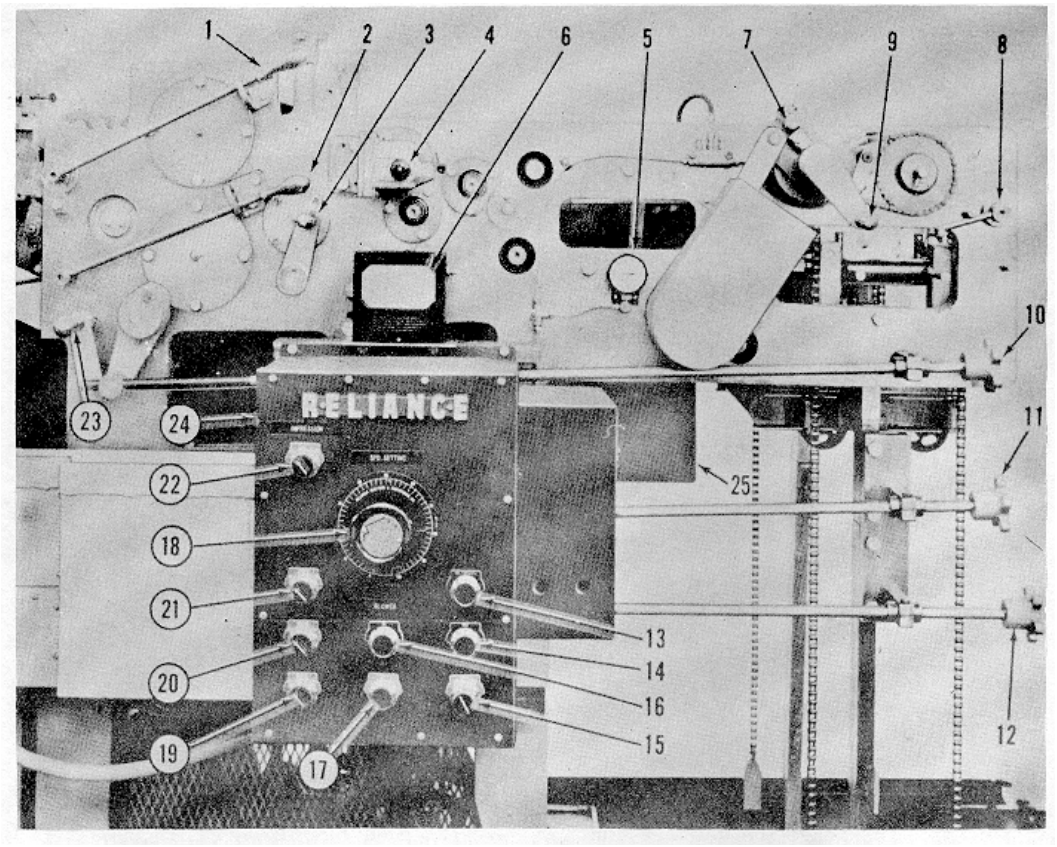
(11) Throw off the water form rollers and turn the blanket cylinder trip switch to the OFF position.

(12) Check that printed sheets meet the quality required. Also check the sheet for register of images and for register between the image and the cut-off, vertical, and cross perforations.

(13) Make all necessary adjustments and repeat steps 3 through 13 above.

(a) Adjusting. During operation of the press, the operator must make repeated checks of the printed sheets to determine if any press adjustments are necessary. Determining when and what adjustments are necessary is primarily a matter of experience, and no set rules can be given. It is always necessary however, to adjust the ink and water distribution systems frequently to maintain a proper balance between the two. The ink fountain blade adjusting screws and the ratchet and pawl mechanism must be adjusted to control the amount of ink transmitted to the plate. Increase or decrease the ink feed necessary to obtain full density of the ink over the entire image. Water supplied to the plate must always be kept to a minimum.

(b) Press Difficulties. A list of common difficulties encountered in operating an offset press, their causes and corrections are given in Chapter III Section V of



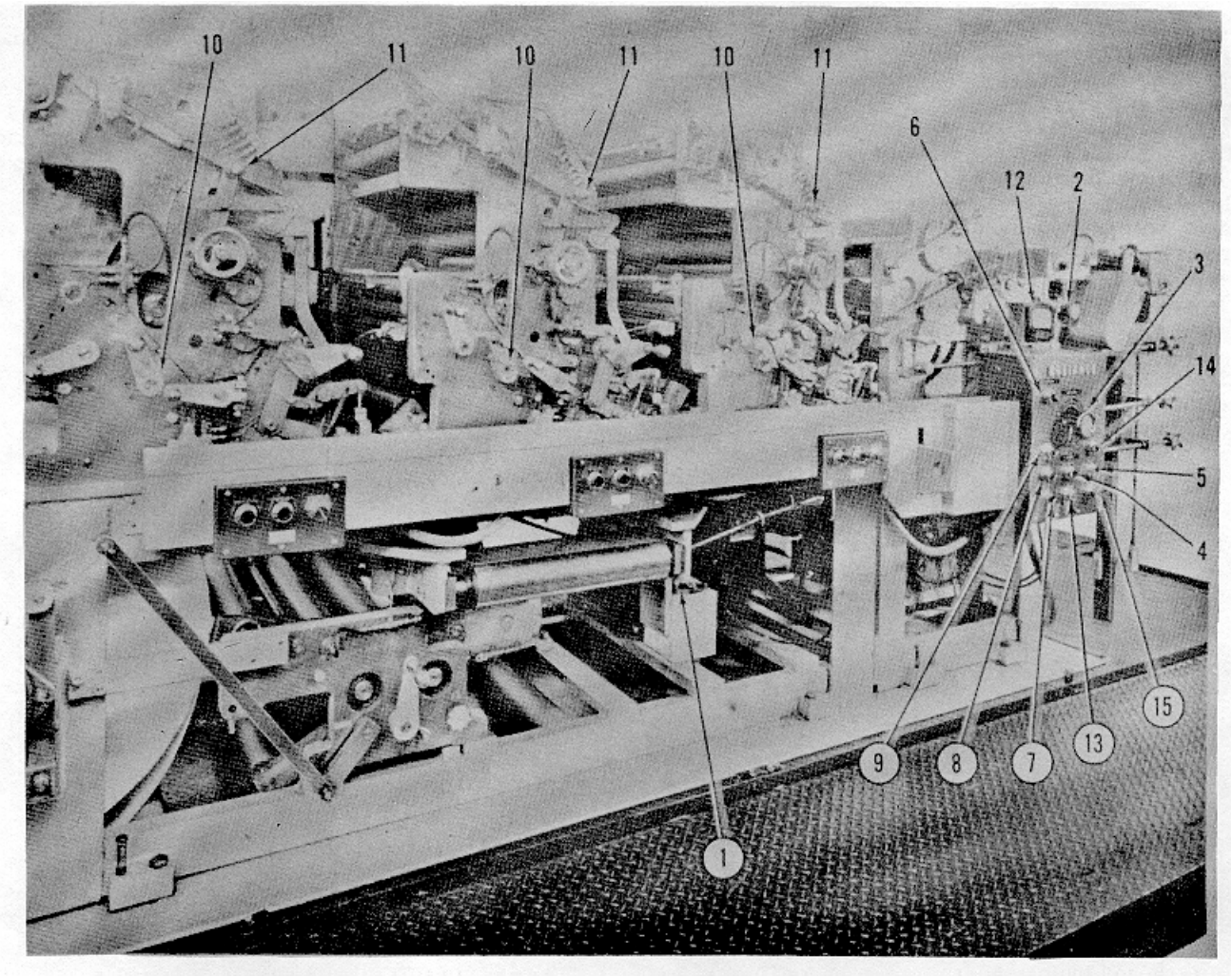

1. Trolley and Perforating Wheels Handle
2. Trolley Wheels Handle
3. Nipping Roller Adjusting Handle
4. Sheet Counter
5. Oil Pressure Gage
6. Speed Indicator
7. Automatic Sheet Lowering Handle
8. Sheet Stop Handle
9, Manual Sheet Lowering and Raising Handle
10. Cut-Off Compensating Adjusting Knob
11. Second Compensating Adjusting Knob
12. First Compensating Adjusting Knob
13. Jog Forward Switch
14. Run Switch
15. On-Stop-Safe Switch
16. Blower, On Switch
17. Blower, Off Switch
18. Speed Setting Control
19. On-Off Impression Switch Offset Unit No. 3
20. On-Off Impression Switch Offset Unit No. 2
21. On-Off Impression Switch Offset Unit No. 1
22. On-Off Master Impression Switch
23. Delivery Clutch Handle
24. Control Station
25. Static Eliminator Unit

*Figure 35. Controls and Instruments Delivery Unit*

this manual and Table XVII, TM5-245. Instructions in this table are concerned with offset presses in general, and in some instances do not apply to this offset press. When instructions deal with setting rollers, packing plates and blankets, or correcting paper feed, refer to pertinent paragraphs in this manual for proper procedures or data.

(c) Control of Paper Roll. When the press has been operating long enough to reduce the size of the paper roll to about one half its original diameter, spindle a second roll and place it in a ready position on the feed roll stand. When the diameter of the roll has been reduced to one -fourth inch, exclusive of the core, a paper check lever, which rides on the roll, automatically actuates a limit switch which stops the press. When the 34 press stops, throw off all water form rollers by hand and cut off the balance of the paper remaining on the core, making sure that enough is left to splice onto the new roll. Next, unfasten the brake and remove the old core. Insert the new paper roll par. 9e(1) and, using a razor blade, cut its leading end square. Also, make sure that the end oft he old web is square: then overlap this end on the new web about one inch. Attach the two ends together with gummed paper tape two inches wide. Now take out any slack in web and run t he press at slow speed until the splice has cleared the press.

Drop water form rollers by the water form , on-off handle and ink form rollers by the ink form, on-off handle. Throw on the impression cylinder handle, and resume normal operating speed.




1. Pressure Lubricating Button
2. Oil Pressure Gage
3. Speed Setting Control
4. Blower On Switch
5. Run Switch
6. On-Off Master Impression Switch
7. On-Off Impression Switch Offset Unit No. 3
8. On-Off Impression Switch Offset Unit No. 2
9. On-Off Impression Switch Offset Unit No. I
10. Water Form, On-Off Handle
11. Ink-Form, On-Off Handle
12. Speed Indicator
13. Blower Off Switch
14. Jog Forward Switch
15. On-Stop-Safe Switch

*Figure 36. Operation of the Press*

16. SHUTTING DOWN THE EQUIPMENT.

a. Refer to figure 36 and stop the offset press as follows:

(1) Place in the "off" position the switches on the press and the stop switch that controls the motor generator unit.

(2) Disengage the delivery unit from the in feed roller, and throw off the water form rollers.

(3) Remove the plate from the press, and place it on a flat surface. Sponge the plate with water, then clean it with a gum solution. If the plate is to be stored, coat it with a thin film of asphaltum.

(4) Wash the ink rollers in the following manner: Scrape all the ink from the ink fountain, and wash the ink fountain with solvent. Release the pins that keep the wash up device away from the ebonite vibrators, and allow the device to drop with its blade against the vibrators. Lock the blade in place after it has been adjusted evenly.

17. OPERATION UNDER UNUSUAL CONDITIONS.

When the printing press is operated under unusual conditions such as extreme cold or heat, follow the operating procedures that are applicable when the equipment is operated under usual conditions. A specific temperature and a specific humidity is required to properly condition the paper used in the printing operation, and this requirement is applicable regardless of operating conditions.

An air conditioner should be installed in the press shelter so that proper temperature and humidity required to condition the paper and to operate the press can be maintained. However, when the printing plant is operated under unusual conditions, requirements for preventive maintenance services may differ from those followed ordinarily.

# CHAPTER 3

# OPERATOR AND ORGANIZATIONAL MAINTENANCE INSTRUCTIONS

## Section I. SPECIAL TOOLS AND EQUIPMENT

18. SPECIAL TOOLS AND EQUIPMENT.
No special tools or equipment are required by the operator or organizational maintenance personnel for the maintenance of the Lithographic Offset Press.

19. BASIC ISSUE TOOLS AND EQUIPMENT.
Tools and repair parts issued with or authorized for the Lithographic Offset Press are listed in the Basic Issue Items List, Appendix C this manual.

20. ORGANIZATIONAL MAINTENANCE REPAIR PARTS.
Organizational maintenance repair parts are listed and illustrated in all 10-3610-200-25P.

## Section II. LUBRICATION

21. GENERAL LUBRICATION INFORMATION.

a. This section contains a reproduction of the lubrication order and lubrication instruction which are supplemental to, and not specifically covered in the lubrication order.

b. The lubrication order shown in figure 37 is an exact reproduction of the approved lubrication order for the offset press.

22. DETAILED LUBRICATION INFORMATION

a. Care of lubrication. Keep all lubricants inclosed containers and store in a clean, dry place away from external heat. Allow no dust, dirt, or foreign material to mix with the lubricants. Keep all lubrication equipment clean and ready for use.

b. Points of Lubrication. The press is equipped with a pressure lubricating system which automatically lubricates all main press bearings while the press is in operation. Lubrication points on the press that require manual lubrication are indicated by red dots painted on the press. Lubricate these points daily using heavy duty engine oil S. A. E. 30 in oil holes and caps, and Alemite No. 32 in all grease fittings.

c. Cleaning. Keep all external parts not requiring lubrication clean of lubricants. Before lubricating the equipment, wipe all lubrication points free of dirt and grease. Clean all lubrication points after lubricating to prevent accumulation of foreign matter.

d. Operation Immediately After Lubrication. After lubrication and upon commencement of operation of the press, inspect the press as follows:

(1) Inspect for evidence of excessive amounts of oil dripping on the floor or parts of the press, and wipe up surplus oil, especially from the floor.

(2) Inspect all running bearings of press and should any bearing run exceptionally hot, stop press and remedy fault by allowing the bearing to cool. Then thoroughly clean the bearing and relubricate.

(3) Inspect hard to reach lubrication points, and be sure they always receive proper lubrication.

(4) Inspect bearings and bushings for foreign matter such as sand, dirt and grit which are particularly harmful to parts.

(5) Inspect that no item or parts are overlubricated. Always keep in mind that frequent lubrication is preferable to infrequent and excessive lubrication.

(6) Inspect that automatic pressure lubricating system of press, when operating, is functioning properly by lubricating all main press bearings.

(7) Check the oil level in the oil reservoir. When the oil level is less than half full, fill the oil reservoir with heavy duty engine oil S. A. E. No. 30.

**CAUTION**

Never fill the oil reservoir, oil holes and caps, or grease the press when it is running.

LUBRICATION ORDER **LO 10-3610-200-15**

Intervals are based on normal 8-hour operation. Reduce intervals to compensate for abnormal operation, severe weather conditions, or contaminated lubricants. During inactive periods, intervals may be extended provided that the equipment is preserved adequately.

Broken arrow shafts indicate lubrication points on both sides of the equipment.

Be sure oil holes are clean before applying oil and do not oil press when it is running. Do not allow excess oil to drip on parts of the press. Make certain that oil does not get on the rubber rollers because oil will cause the rubber to swell. Wipe up surplus oil, especially from the floor.

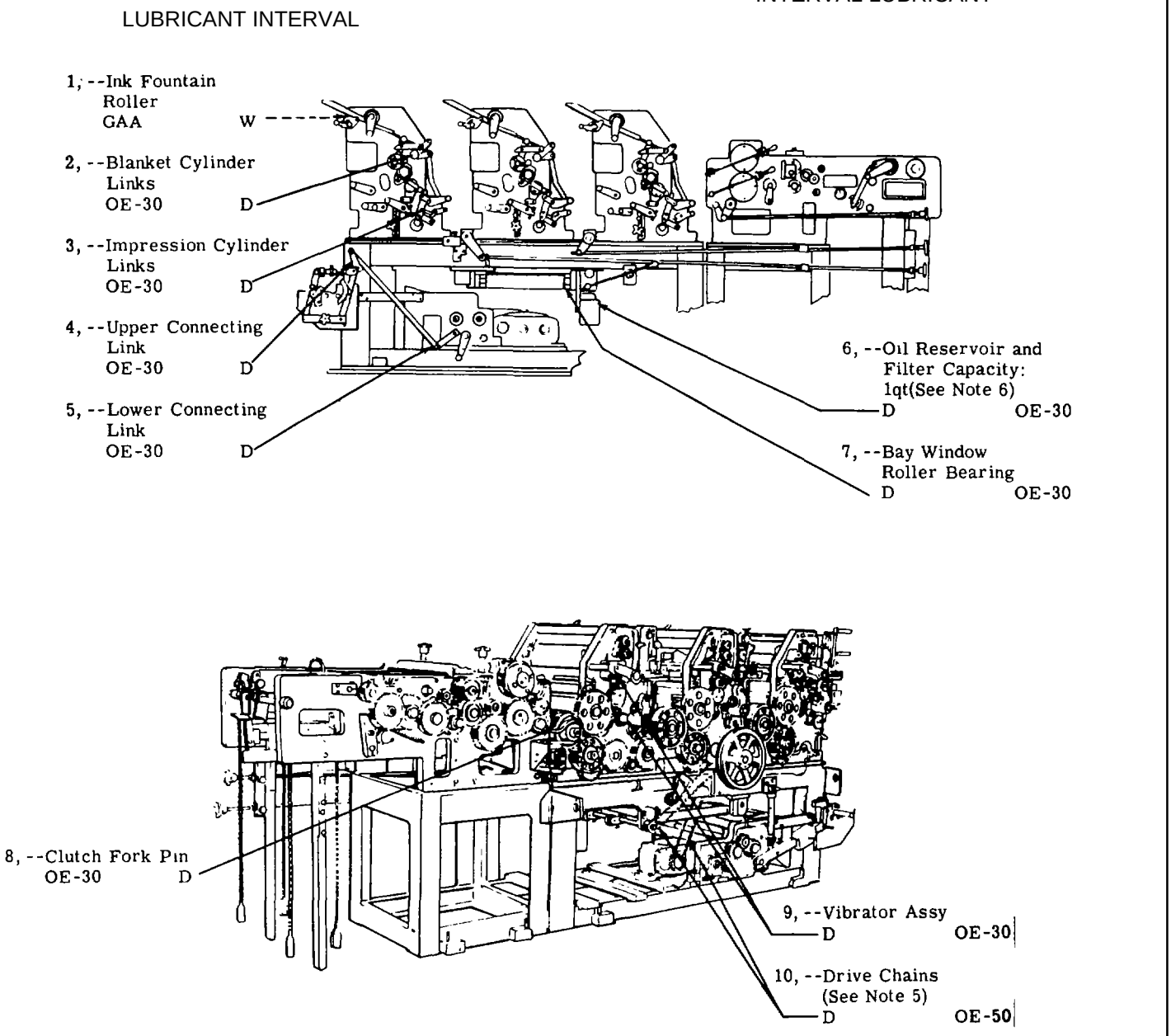
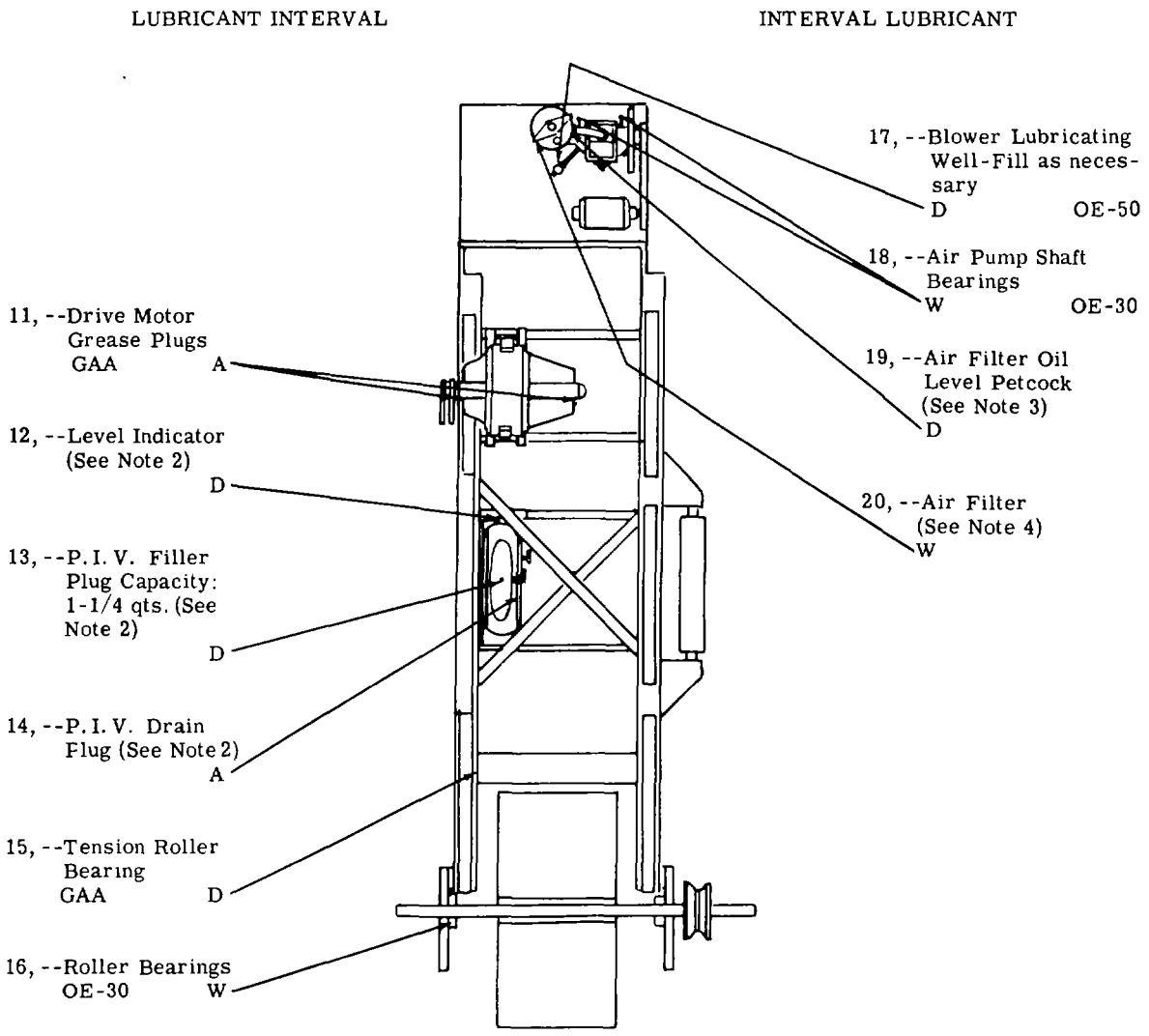



*Figure 37 (1). Draft Lubrication Order*




DRIVE AND BRAKE SECTION

KEY

| LUBRICANTS | EXPECTED TEMPERATURES 70"F to 85"F | INTERVALS |
|---|---|---|
| OE-30 LUBRICATING OIL, SAE 30 | All Temperatures | D - Daily<br>W - Weekly<br>S - Every 6 months or 500 operating hours whichever occurs first. |
| OE-50 LUBRICATING OIL, SAE 50 | All Temperatures | A - Every 12 months or 1000 operating hours, whichever occurs first. |
| GAA GREASE, Automotive and Artillery | All Temperatures | |

*Figure 37 (2). Continued.*

**NOTE**

1. OILCAN POINTS-D, apply 1 or 2 drops of lubricant each time the press is to be used. Oil can points are painted red. Throughout press apply lubricant to all moving parts that have fittings or oil holes and to parts that may rub against other parts. Wipe off excess oil with clean cloth

2. P. I. V. -D, check level and add oil if necessary. A, drain, clean and fill P. I. V. Capacity: 1-1/4 quarts

3. AIR FILTER PETCOCK DRAIN-D, check petcock; if oil runs out of petcock, drain the filter.

4. AIR FILTER-W, check filter element, if element shows signs of oil saturation, change element.

5. DRIVE CHAINS-D, lubricate all drive chains sparingly. Wipe off excess oil.

6. OIL RESERVOIR FILTER-D, check oil gage and add oil as necessary. S, drain, clean, and fill reservoir. Capacity: 1 quart. Clean the filter when the reservoir is drained.

A copy of this lubrication order will remain with the equipment at all times. Instructions contained herein are mandatory

By order of the Secretary of the Army:

*Figure 37 (3). Continued.*

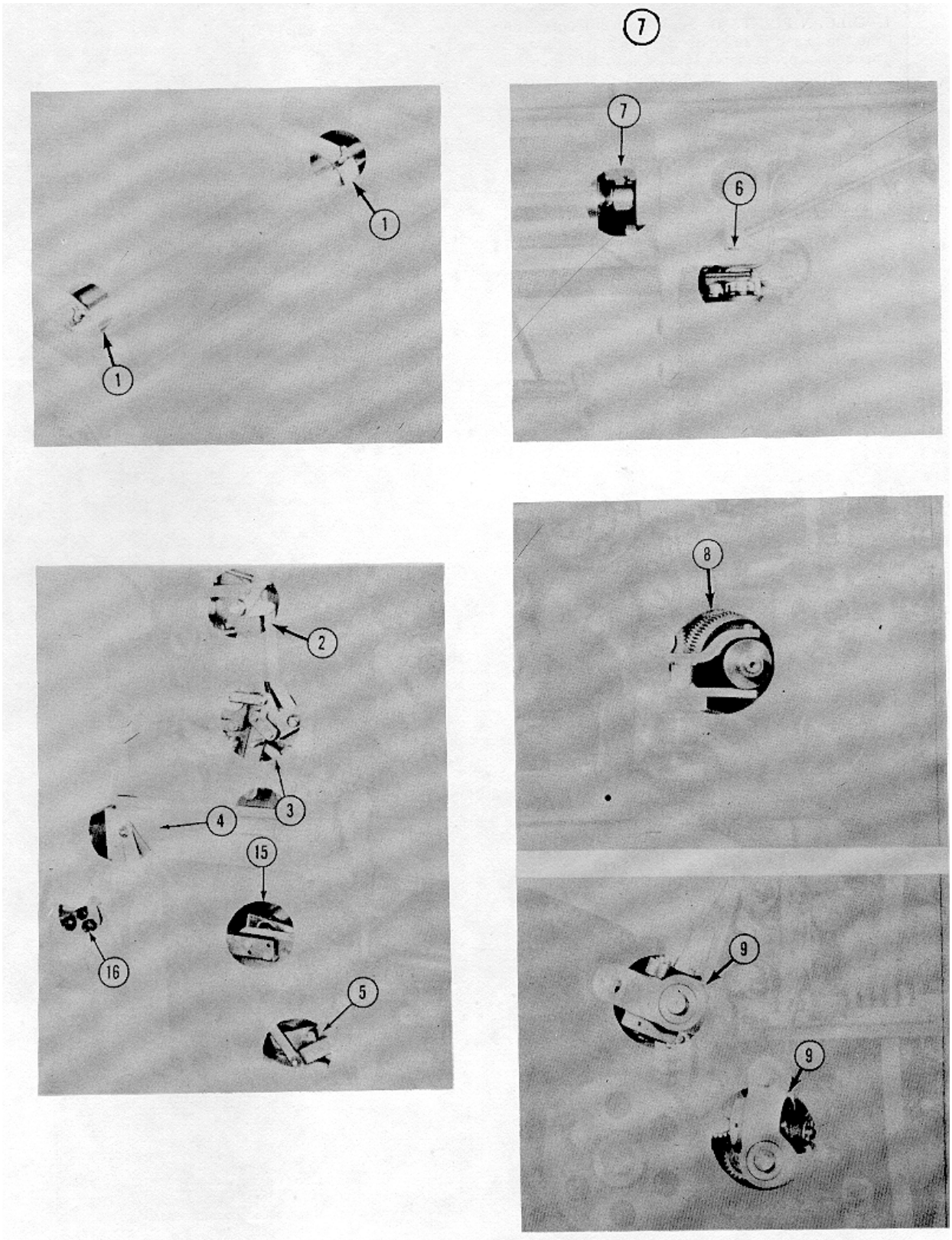



*Figure 37 (4). Continued.*

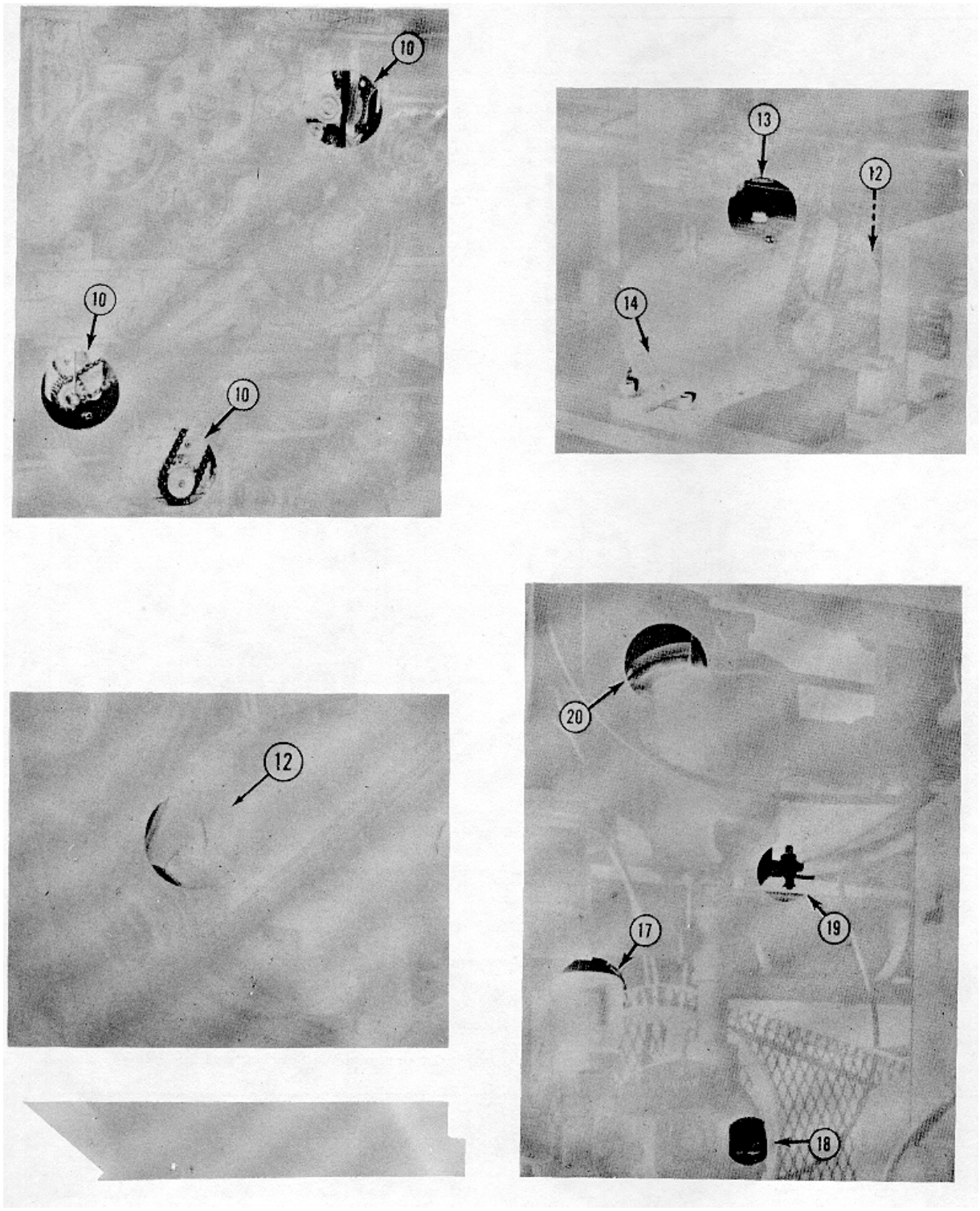
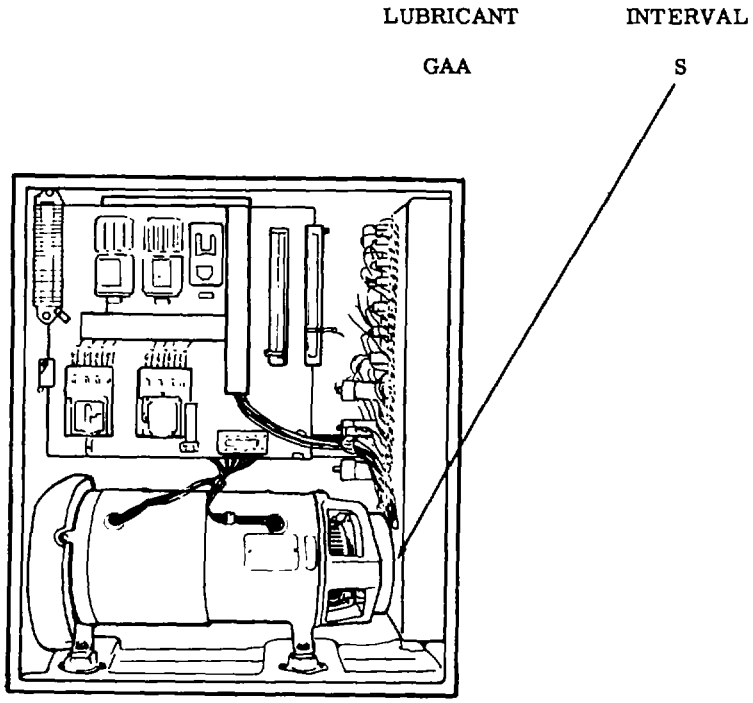



*Figure 37 (5). Continued.*

LUBRICATION ORDER

**LO 10-3610-200-15**

| Fig. 37---- | MOTOR BEARING | LUBRICANT | INTERVAL |
|---|---|---|---|
| | (Remove plug from filling hole. Apply grease through opening until grease appears at armature shaft. Apply two thirds this amount of grease at the far end fitting hole. Replace plug in filling hole) | | |




Interval are based on normal 8-hour operation. Reduce intervals to compensate for abnormal operation, severe weather conditions, or contaminated lubricants. During inactive periods, intervals may be extended provided that the equipment is preserved adequately.

KEY

| LUBRICANT | EXPECTED TEMPERATURES | | | INTERVAL |
|---|---|---|---|---|
| | above + 32° F | +40° to -10°F | 0° to -65°F | |
| GAA Grease, Automotive and Artillery | | All temperatures | | S-Every 6 months or 500 operating hours, whichever occurs first. |

A copy of this lubrication order will remain with the equipment at all times. Instructions contained herein are mandatory.

By order of the Secretary of the Army.

*Figure 37 (6). Continued.*

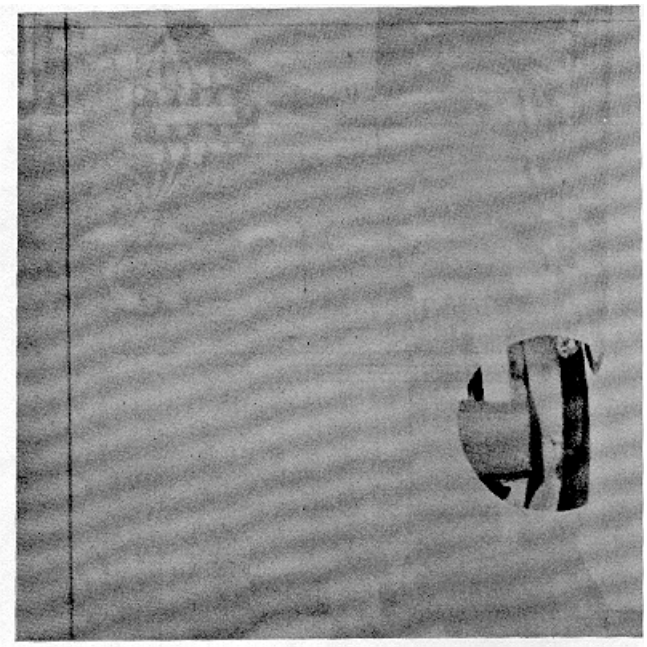


*Figure 37 (7). Continued.*

## Section III. PREVENTIVE MAINTENANCE SERVICES

23. GENERAL.

To insure that the offset press is ready for operation at all times, it must be inspected systematically, so that defects may be discovered and corrected before they result in serious damage or failure. The necessary Preventive Maintenance Services to be performed are listed and described in paragraphs 24 and 25. The item numbers indicate the sequence of minimum inspection requirements. Defects discovered during operation of the unit shall be noted for future correction, to be made as soon as operation has ceased. Stop operation immediately if a deficiency is noticed, during operation which would damage the equipment if operation were continued. All deficiencies and shortcomings will be recorded together with the corrective action taken on DA Form 2404 at the earliest possible opportunity.

24. DAILY PREVENTIVE MAINTENANCE SERVICE.

This paragraph contains an illustrated tabulated listing of preventive maintenance services which must be performed by the operator. The item numbers are listed consecutively and indicate the sequence of mini- mum requirements. See figure 38 for the Daily Preventive Maintenance Services.

25. QUARTERLY PREVENTIVE MAINTENANCE SERVICES.

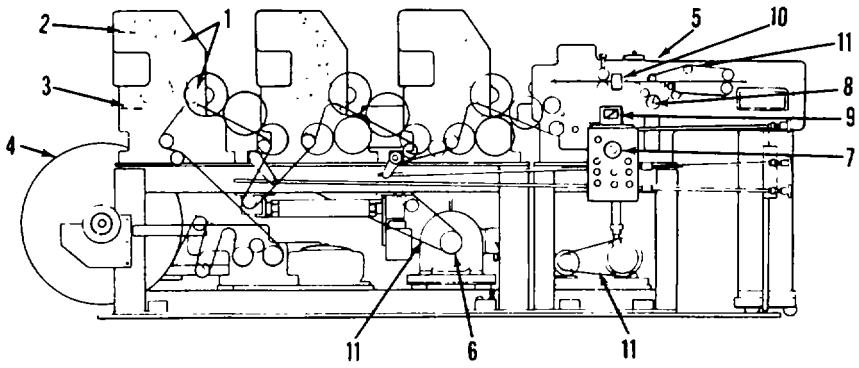
a. This paragraph contains an illustrated tabulated listing of preventive maintenance services which must be performed by Organizational Maintenance personnel at quarterly intervals. A quarterly interval is equal to 3 calendar months, or 250 hours of operation, whichever occurs first.

b. The item numbers are listed consecutively and indicate the sequence of minimum requirements. See figure 39, for the Quarterly Preventive Maintenance Services.

**PREVENTIVE MAINTENANCE SERVICES**
**DAILY**

HESS AND BARKER
MODEL 3C

PRESS, LITHOGRAPHIC OFFSET




LUBRICATE IN ACCORDANCE WITH CURRENT LUBRICATION ORDER

| ITEM | | PAR, REF |
|---|---|---|
| 1 | CYLINDERS AND ROLLERS. Inspect the cylinders and the rollers for dirt, pits, flat spots, and improper installation. | 28. b, c, d. |
| 2 | INK FOUNTAIN ASSEMBLY. Inspect the ink fountain assembly for dirt, breaks, and improper mounting. Be certain that all black Ink has been cleaned from the ink fountain if a different color ink is to be used. | 28. a |
| 3 | WATER FOUNTAIN ASSEMBLY. Inspect the water fountain bottle, hoses and levels for leaks, breaks, cracks, and improper mounting. Be certain that the water fountain bottles contain freshly prepared fountain solution of the proper PH. | 29. a |
| 4 | WEB. Inspect the web for tears, improper tension, and improper mounting Be certain that second roll of paper is ready to be mounted on the feed roll stand. | 9. (1) |
| 5 | DELIVERY UNIT. Inspect the delivery board for dirt, improper mounting, and the delivery tapes for frayed condition. Be certain that the shear pin of the perforating cylinder gear is intact and that the perforating wheels, slitting wheels, or the creasing wheels are installed properly. | 32. a, b, c, d, e. |
| 6 | DRIVE MOTOR. Be certain the drive motor starts easily and operates satisfactorily and without unusual noises. | 15. b (1) |
| 7 | SPEED SETTING CONTROL. Check the speed setting control to be certain it is set to operate the press to produce 25, 000 impressions per hour. | 15. b (9) |
| 8 | OIL PRESSURE GAGE. Depress the pressure lubricating button when starting press and hold it in this position for 15 seconds. Check the oil pressure gage. It should register 20 psi. | 15. b (2) |

*Figure 38 (8). Daily Preventive Maintenance Services*

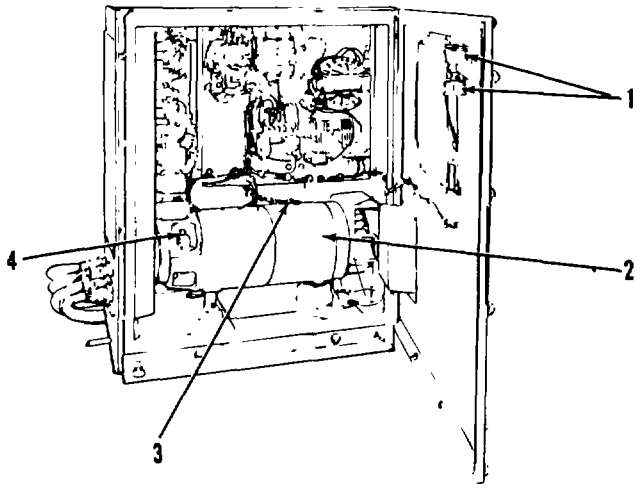
| ITEM | | PAR, REF |
|---|---|---|
| 9 | SPEED INDICATOR. Check the speed indicator to be certain the press, when operating, is at the recommended speed of 25, 000 impressions per hour. | 35. a (24) |
| 10 | REVOLUTION COUNTER Inspect the revolution counter with the press operating to be certain it is functioning properly. | 35. a (25) |
| 11 | DRIVE BELTS, PULLEYS, CHAINS, AND SPROCKETS. Inspect the drive belts and the chains for wear and improper tension. The belts and the chains should deflect no more than one-half inch when pressure is applied with the index finger midway between the pulleys. Inspect the pulleys for cracks, breaks, and improper mounting. Inspect the sprockets for cracks, breaks, chipped or broken teeth, and loose mounting. (weekly) | |
| | | |

*Figure 38. Continued.*

**PREVENTIVE MAINTENANCE SERVICES**
**DAILY**

HESS AND BARKER
MODEL 3C

PRESS, LITHOGRAPHIC OFFSET




LUBRICATE IN ACCORDANCE WITH CURRENT LUBRICATION ORDER

| ITEM | | PAR, REF |
|---|---|---|
| 1 | START-STOP SWITCH. Check the switch for proper operation. | |
| 2 | POWER UNIT MOTOR. Start the motor-generator unit and see that the power unit motor starts easily. Listen for any unusual noise that may indicate worn or loose motor parts. Be certain that the motor responds properly under load. At the close of operation, cut off the unit and Inspect the power unit motor for over-heating. | |
| 3 | ELECTRICAL CONDUIT. Check the electrical conduit for cracks, breaks, loose connections, and improper mounting. | |
| 4 | BRUSHES. Inspect the motor brushes for dirt, copper imbedded in the contact surfaces, burns, wear, loose electrical connections, and improper installation. If brushes are worn an amount equal to one-half their original length, replace them. Clean the brushes by blowing the dust from them with clean, dry compressed air. (weekly) | |

*Figure 38 (3). Continued.*

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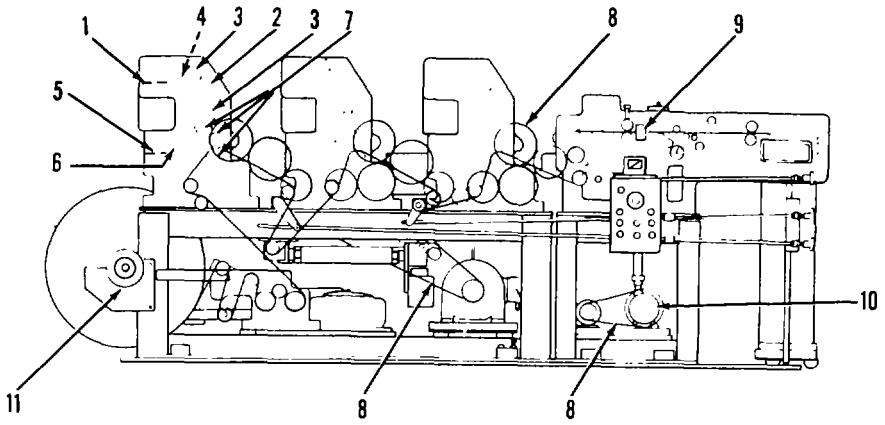
**PREVENTIVE MAINTENANCE SERVICES**
**DAILY**

HESS AND BARKER MODEL 3C — PRESS, LITHOGRAPHIC OFFSET




LUBRICATE IN ACCORDANCE WITH CURRENT LUBRICATION ORDER

| ITEM | | PAR, REF |
|---|---|---|
| 1 | INK FOUNTAIN ASSEMBLY. Inspect, remove and clean ink fountain blade | 28. a |
| 2 | INK ROLLERS. Inspect all rubber ink rollers for glazing and deterioration of roller ends. If glazed, clean in accordance with approved cleaning instructions. If deteriorated, notify proper echelon of maintenance of existing defect. Remove and replace defective roller. | 28. b, c, d. |
| 3 | INK VIBRATION ROLLERS. Inspect and clean rollers with ink solvent | 28. d |
| 4 | WASH-UP DEVICE. Inspect wash up blade. Clean if necessary | |
| 5 | WATER FOUNTAIN ASSEMBLY. Inspect and clean the water fountain | 29. a, b, c. |
| 6 | WATER FORM, DUCTOR AND VIBRATOR ROLLERS. Inspect and remove rollers from press. Clean in accordance with approved cleaning instructions. Replace molleton covers as required. | 29. d |
| 7 | IMPRESSION, PLATE AND BLANKET CYLINDER ASSEMBLIES. Inspect cylinder rollers for dirt, dents, unwanted images, proper packing and other defects of any kind. Check printing pressure between Plate and Blanket Cylinder if necessary. Check for correct parallel between Impression and Blanket Cylinder. Adjust as required. | 31 |
| 8 | PRESS DRIVE COMPONENTS. Inspect, clean, lubricate, and adjust as required all chains and gear drives. Inspect, clean and adjust as required all pulley belts. | 32f., 91 |
| 9 | SHEET COUNTER. Inspect and clean window. Remove all surface dirt from indicator dial to assure free running. | 35. a (25) |
| 10 | AIR PUMP, FILTER AND HOSES. Clean, Inspect, and check if air filter is saturated and replace if necessary. Check pulley on pump for excessive play and replace worn bearings if necessary. | 94 |

*Figure 39 (1). Quarterly Preventive Maintenance Services*

| ITEM | | PAR, REF |
|---|---|---|
| 11 | FEED ROLL STAND AND BRAKE MECHANISM. Clean and inspect the feed roll stand and brake mechanism. Check and adjust brake mechanism. | 9. e (1), 27c |
| NOTE 1 | If repainting is required, DO NOT PAINT PARTS that require lubrication or parts that would affect serviceability. | |

*Figure 39 (2). Continued.*

## SECTION IV. OPERATOR MAINTENANCE

26 GENERAL

The instructions in this section are for the information and guidance of the operator to maintain the press.

27 FEED ROLL STAND AND BRAKE MECHANISM SERVICE AND ADJUSTMENT.

a Paper Roll Lateral Adjusting Knob and brake tension adjusting knob. Service the lateral and brake tension adjusting knobs (figure 41) as follows:

(1) Inspect lateral adjusting knob (1) and brake tension adjusting knob (2) for cracks, breaks, dirty or mutilated threads and improper mounting.

(2) Clean the surfaces of the knobs with a cloth dipped in dry cleaning solvent. Using a stiff brush, clean the dirt from the threaded shafts which attach knobs.

CAUTION

Use solvent in a well-ventilated area and avoid prolonged breathing of fumes. Keep solvent away from open flame.

b. Brake shoe Linings. Service the brakeshoe lining as illustrated in figure 41 and 42 and proceed as follows:

(1) Loosen the brake tension adjusting knob(2 fig. 41) counterclockwise. Swing the outer brakeshoe member (1, Fig. 42) down away from the opposite inner brakeshoe member (2).

(2) Inspect the brakeshoe lining (3 fig. 42) for dirt, grease, and wear beyond the screws (4) that secure the lining to the brakeshoe members (1 and 2).

(3) Clean the loose dirt from the lining, using a clean, dry cloth. Remove grease spots and roughen slick surfaces, using fine steel wool or fine sandpaper.

c Feeder-Bearings. Service the feeder bearings as illustrated in figure 41 and proceed as follows:

(1) Open the outer brakeshoe member of the brake mechanism, paragraph b above; and, remove the paper roll with shaft from the feed roll stand. Inspect the bearings (4) for scoring, loose mounting, wear, dirt, and the absence of lubrication.

(2) Clean the bearings with dry cleaning solvent and a soft cloth; then apply a small amount of oil in the bearing oil holes.

(3) Re-install the paper roll and adjust the brake mechanism (par. 9 e (1)).

28 OFFSET UNIT INK DISTRIBUTING SYSTEM SERVICE.

a. Ink Fountain Blade and Blade Adjusting Service.

Service the ink blade and adjusting screw as illustrated in figure 43 and proceed as follows:

(1) Scrape the ink from the ink fountain (3), and wash the fountain with an ink solvent. Dry the fountain thoroughly with a clean, dry cloth.

(2) Inspect the ink fountain for breaks, cracks, pits, and improper mounting.

(3) Remove the screws (2) that secure the ink fountain blade (1) to the ink fountain, and slide the blade from the fountain.

(4) Scrape any crusty accumulation of ink from the ink fountain blade, and wash the blade with solvent. Dry the fountain thoroughly with a clean, dry cloth.

(5) Inspect the blade for nicks, cracks, break, pits and other visible defects. Replace the blade if necessary.

(6) To reinstall reverse the procedures in step (3) above.

(7) Turn the ink fountain blade adjusting, screws counterclockwise until it comes from the ink fountain.

(8) Inspect the keys for breaks, cracks, anti stripped threads. Replace the keys if necessary.

(9) To reinstall reverse the procedures in step (1) above.

b Ductor Roller. Service the ductor roller as illustrated in figure 44 and proceed as follows:

(1) Remove the screws (1) that secure the ducti)r roller (2) and the ductor roller bearing(3) to the ductor levers (4) and remove the ductor roller with the bearings from the press Slide the bearings frond the ductor roller.

(2) Clean each roller with a cloth dampened with ink solvent, paying special attention to the ends of the rollers. Dry the rollers with a clean, soft cloth.

(3) Inspect the ductor roller forpits, gouges, flat spots, and other similar defects. Replace the roller as authorized.

(4) To reinstall reverse the procedures it, step (1) above The ductor roller does not need tot be djusted.

Ink Distributor and Vibrator Ink Rollers. Service the ink distributor and vibrator ink rollers as illustrated in

(1) Remove the ductor roller from the press par. 28b(1), then remove the screw (7) that secures the distributor roller hold-down bracket tothedistributor rollers (5) and remove the rollers with bushings from the press.

(2) Remove the bushings from the ends of each distributor roller.

(3) Clean each roller with a cloth dampened with ink solvent, paying special attention to the ends of the rollers Dry the rollers with a clean, soft cloth.

(4) Inspect the rollers for pits, gouges, flat spots, and other similar defects. Replace the rollers as authorized.

(5) To reinstall reverse the procedures in steps (1 and (2) above. The distributor rollers do not need to be djusted.

(6) Clean the ebonite vibrator rollers (6) with a cloth dampened with ink solvent, paying special attention to the ends of the rollers. Dry the rollers with a clean soft cloth.

(7) Inspect the roller for breaks, cracks, nicks, and other similar defects.

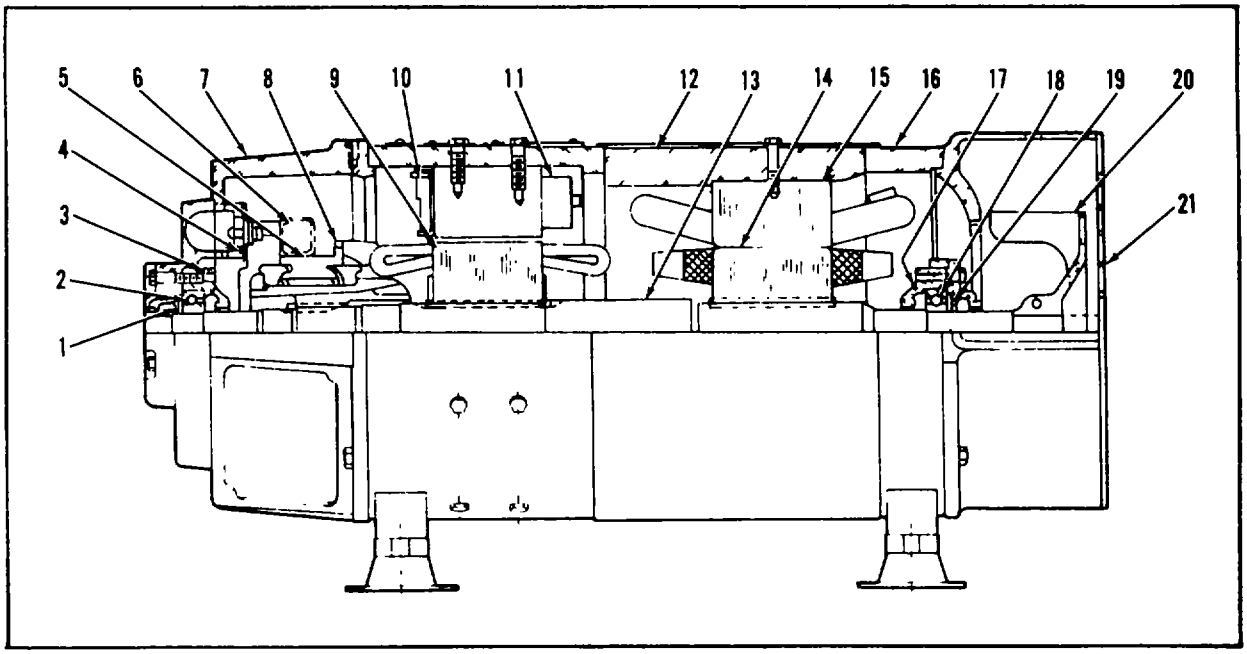
d. Outside and Inside Form Rollers. Service the outside and inside form rollers as illustrated in figure 45 and proceed as follows:

(1) Remove the distributor rollers from the press (par. 28c (1) thru (2),).

(2) Loosen the screw (1) that secures the retainer cover (2) to the bracket.

(3) Move retainer aside and lift the form roller (3) with its bearings (4) from the press.

(4) To remove the inside ink form roller, follow steps (2) and (3) above.




1 Metering Plate-F. E.
2 Ball Bearing-F. E.
3 Cap (Inner) F. E.
4 Rocker
5 Carbon Brush
6 Brusholder
7 Bracket-F. E.
8 Commutator
9 Armature Core
10 Interpole Coil
11 Field Coil
12 Motor Frame
13 Shaft
14 Rotor
15 Stator Core
16 Bracket-B. E.
17 Cap (Inner) B. E.
18 Ball Bearing-B. E.
19 Metering Plate-B. E.
20 Motor Fan-B. E.
21. Cover-B.E. Brkt.

*Figure 40. Motor-Generator Power Unit*

(5) Clean each roller with a cloth dampened with ink solvent, paying special attention to the ends of the rollers. Dry the rollers with a clean, soft cloth.

(6) Inspect the rollers for pits, gouges, flat spots, and other similar defects. Replace the rollers as authorized.

(7) To reinstall reverse the procedures in(1) thru (3) or (4) above, depending on which roller was removed.

29 OFFSET UNIT WATER DAMPENING SYSTEM SERVICE.

a. Water Fountain. Service the water fountain as illustrated in figure 46 and proceed as follows:

(1) Using a sponge, remove all water from the water fountain, they dry the fountain with a clean, dry cloth.

(2) Inspect the fountain for cracks, breaks, holes, indentations, and other similar defects.

b. Water Stop Rubber. Service the water stop rubber as illustrated in figure 46 and proceed as follows:

(1) Remove the screw (2) that secures the water stop rubber to the water stop bracket (3), and remove the water stop rubber from the press.

(2) Dry the rubber with a clean, soft cloth; then inspect the rubber for breaks, excessive wear and general deterioration. Replace the rubber as authorized.

(3) To reinstall reverse the procedures in step (1) above.

c. Water Fountain Bottle, Level, and Hoses. Service the water bottle, level and hoses as illustrated in figure 46 and proceed as follows:

(1) Drain the water from the water system. Lift the water fountain bottle (4) from the water fountain level (5) and remove the bottle from the press.

(2) Manipulate the ends of the plastic hoses (6) until they are free of both the water fountain level and the water fountain, and lift the level from the water fountain bracket and from the press.

(3) Loosen the screws that secure the support band (7) to the upright support (8) and remove the water fountain bottle from both the support and the bands.

(4) Using a sponge, water, and a small amount of commercial detergent clean the water fountain level, and the outside surfaces of the hoses. Rinse the items with clean water and dry them thoroughly.

(5) Inspect the items for cracks, breaks, distortion and other forms of deterioration. Replace the items as authorized.

(6) To assemble reverse procedures in step (3).

(7) To reinstall reverse procedures in steps (1) and (2) above.

d. Water Ductor, Form and Vibrator Rollers. Service the ductor form and vibrator rollers as illustrated in figure 46 and proceed as follows:

(1) Remove capscrews that secure the ductor roller bearing to the ductor bearing bar, and remove the ductor roller (9) with bearings from the press.

(2) Slide the ductor roller bearings from the shaft on the ductor roller.

(3) Clean the ductor roller with a soft cloth moistened with solvent. Wash the roller and dry it with a soft, clean cloth.

(4) Inspect the ductor roller for glazed spots, pits, gouges, flat spots, loose covers, and other defects. Replace the covers on the rollers.

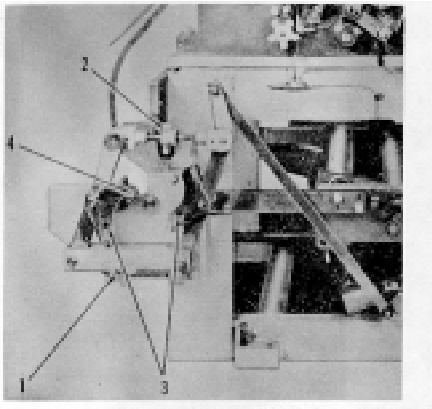
(5) To reinstall reverse the procedures in step (1) above.

(6) To remove the form rollers, place the water throw-off lever (10) in the "off" position. Lift the top form roller (11) from the press, then lift the bottom form roller from the press.

(7) Using a scrub brush, clean the molleton covered form rollers with alternate spongings of solvent and water. Dry the rollers with a soft, dry cloth.

(8) Inspect the rollers for loose or worn covers. Replace defective covers.

(9) Clean the vibrator roller (12) with a clean, soft cloth dampened with solvent. Rinse the roller with clean water and dry it with a clean, soft cloth.




1 Lateral Adjusting Knob
2 Brake Tension Adjusting Knob
3 Brake Shoes (two)
4 Feeder Bearings

*Figure 41. Lateral and Brake Tension Adjusting Knobs, Mounted*

(10) Inspect the roller for breaks, cracks, nicks, and other similar defects.

30 REPLACEMENT OF WATER DUCTOR ROLLER SPROCKET.

a. Change the water ductor roller sprocket as necessary as illustrated in figure 47 and proceed as follows:

(1) Open safety guard door on rear of offset unit (2, 3, or 4 fig. 53).

(2) Remove sprocket (3 fig. 47) and replace it with any one of two additional sprockets provided with the press.

**NOTE**

The smaller the size of sprocket used the greater will be the speed of the water ductor roller, and hence more water will be supplied.

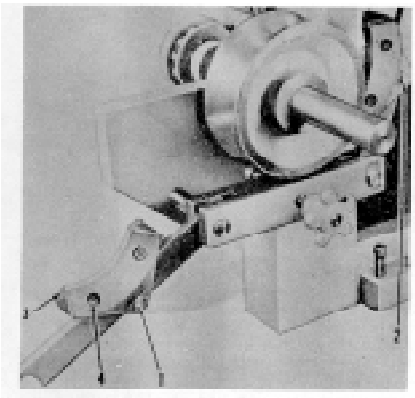
(3) Move idler sprocket (1) outward until the water fountain drive chain (2) is tight, then, tighten the nut holding the idler sprocket.

(4) Close safety guard door.

31 PLATE, BLANKET AND IMPRESSION CYLINDER CLEANING.

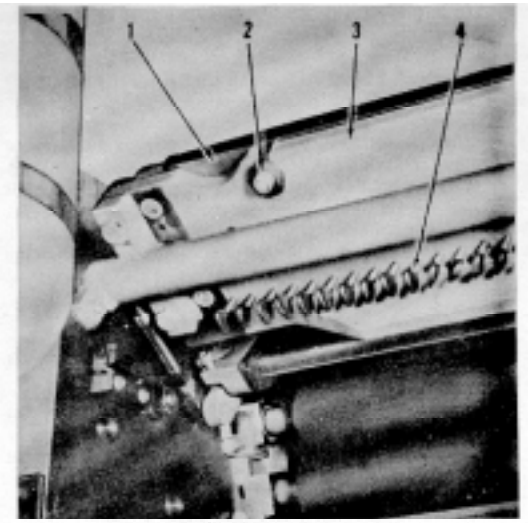
a. Clean the plate, blanket and impression cylinders as illustrated in figure 48 and proceed as follows:

(1) Wipe the cylinders thoroughly with a clean cloth moistened with solvent in a back and forth horizontal direction. Pay particular attention to the cleaning of the ends of the cylinders. Dry the cylinders thoroughly with a clean dry cloth.



1 Outer Brakeshoe Member
2 Inner Brakeshoe Member
3 Brakeshoe Lining
4 Screws

*Figure 42. Brakeshoe Lining Service*




1 blade, Ink Fountain
2 Screws
3 Fountain, Ink
4 Screw, Ink Fountain Adjusting

*Figure 43. Ink Fountain Blade and Adjusting Blade, Mounted*

(2) Inspect the cylinders for dirt, dents, unwanted images, proper packing and other defects of any kind.

32. DELIVERY UNIT SERVICE.

a. Perforating Wheels, Slitter Wheels and Trolley Wheels. (See fig. 49.)

(1) Using a clean cloth, wipe all grease and dirt from the perforating wheels (1) or the slitter wheels (the slitter wheels and the perforating wheels are interchangeable) and from the trolley wheels (2).

(2) Inspect the wheels for chips, cracks, breaks, missing hardware, and other defects. Inspect the rubber tires for wear, gouges, broken sections, and other forms of deterioration.

b. Perforator Blades. Service the perforator blade as illustrated in figure 49 and proceed as follows:

(1) Wipe the blade with a clean soft cloth.

(2) Inspect the blade for nicks, cracks, breaks, distortion, and other defects.

c. Adjustment of Male Perforating Cylinder. If it is necessary to adjust the image and cross perforations (ref par. 9 e (12)) refer to figure 50 and proceed as follows:

(1) Open the safety guard door (1 fig. 50) on the rear of the delivery unit.

(2) Loosen four cap screws (3 fig. 50).

(3) Rotate male perforating cylinder(2 fig. 7) to required position as directed by par 9. e (12) and tighten four cap screws (3 fig. 50).

(4) Close the safety guard door.

d. Replacement of Shear Pins on Male Perforating Cylinder Gear. If shear pins on the gear of the male perforating cylinder gear are sheared off refer to figure 50, and proceed as follows:

(1) Open the safety guard door (1 fig. 50).

(2) Knock out the old sheared pins (2 fig. 50) with a punch and install new shear pins.

(3) Close the safety guard door.

e. Delivery Table Casters, Tapes, Chains and Sprockets. Service the table casters and tape assembly belts as illustrated in figure 51 and proceed as follows:

(1) Clean. Using a clean soft cloth, wipe all dirt, oil, and other foreign matter from the delivery table casters (1).

(2) Inspect the casters for deteriorated rubber, lost hardware, breaks, distortion, and other defects.

(3) Clean the tapes (2) with liquid detergent and a stiff brush.

(4) Inspect. Inspect the belts for frayed edges, tears, cuts, and other indications of deterioration.

(5) Using a clean cloth, wipe all dirt and grease from chain (3), and sprockets (4).

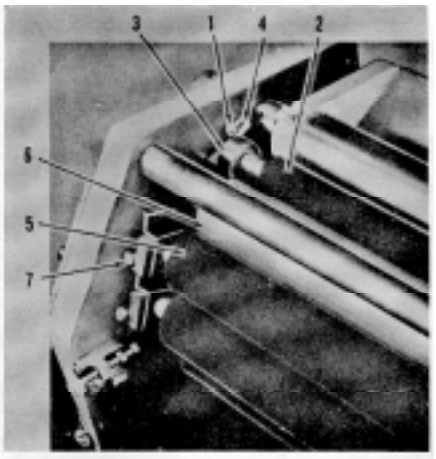
(6) Inspect the sprocket for cracks and breaks and for missing teeth. Inspect the chain for loose, worn or broken links.

f. Belt Replacement. Replace any broken or torn belt (see fig. 52) on the delivery unit as follows:

(1) Using a steel tape measure the shortest usable length on the delivery unit.

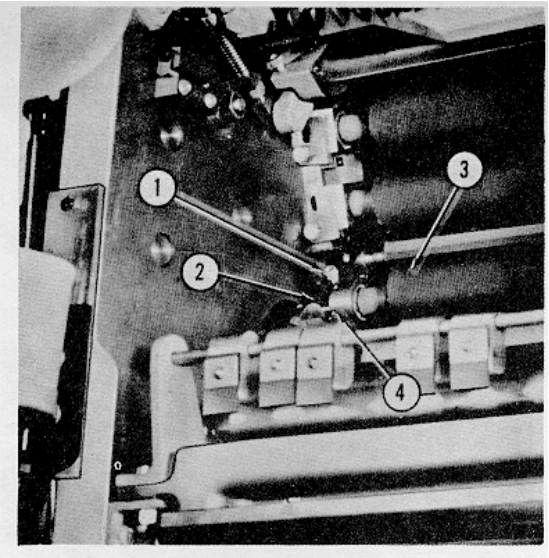
(2) Belt length should be 2-4% shorter than the measured length (1/4 inch to 1/2 inch per foot).

(3) Place end of belt in grinder and bevel the end.




1 Screws
2 Roller, Ductor
3 Bearing
4 Lever, Ductor
5 Roller, Ink Distributor
6 Roller, Vibrator
7 Screw

*Figure 44. Ductor, Ink Distributor and Vibrator Ink Rollers*




1 Screw
2 Cover, Retainer
3 Roller, Ink Form
4 Bearings

*Figure 45. Outside and Inside Form Rollers*

(4) From point A (fig. 52a) measure the length determined in step 1 above and cut off square.

(5) Bevel this end on opposite surface Belt should look as shown in fig 52b.

(6) Trim off ragged ground ends on the lap.

(7) Preheat bonding press approximately 15 minutes.

(8) Install belt in position around pulley and shaft on delivery unit.

(9) Place one end in center of press, beveled side up (see fig. 52c).

(10) Lock hold down clamp and leave other end free.

(11) Place paper under lap.

(12) With a clean rag, wet with alcohol, carbon tetrachloride or any such grease solvent, wipe the ground ends clean.

CAUTION

After cleaning, do not touch again or allow any grease or dirt to get on them.

(13) After lapped ends have dried, lightly wet both laps with Texalon cement. Do free end first.

(14) Place free end in the press and lock other hold down clamp. Carefully line up both laps.

(15) With lap straight, place apiece of paper over the lap. Close and tighten press.

(16) Wait 7 minutes, then remove side clamp and loosen pressure screw. Carefully remove soft lap.

(17) Allow to cool and trim edges. Belt is now ready to run.

g. Air Pump, Pump Filter Rubber Hoses, and Oil Lubricator. Service pump, filter and hoses located on delivery unit base as follows:

(1) Using a cloth dampened with solvent, wipe the oil and the dirt from the air pump, pump filter, hoses, and the oil lubricator at the front of the press.

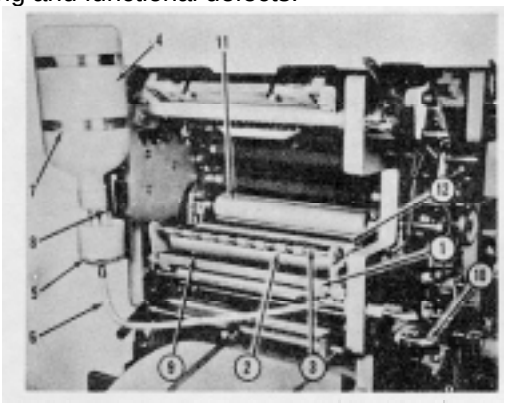
(2) Inspect all components for wear, improper mounting, and air leaks. Open the drain valve on the filter. If oil drips from the valve, the waste within the filter is saturated and, therefore, must be replaced. Move the large pulley on the pump backward and forward and upward and downward. Excessive play indicates that the bearings are worn. Inspect the oil pump for leaks around the gasket.

33. AUXILIARY EQUIPMENT.

a. Auxiliary equipment on the press encompasses the complicated drive mechanism of the press. The drive mechanism includes the drive motor; the positive infinitely variable control unit; the various gears, sprockets, and drive chains, and the operating controls and instruments. The moving parts on the rear side of the press are shielded by metal safety guards (see fig. 53).

(1) Switches. Inspect all switches (ref Chapter 2 Section III) for proper mounting, ease of operations, and correct operation.

(2) Indicators and Gages. Inspect speed indicator (6 fig. 35) and gage (5 fig. 35) for improper mounting and functional defects.



1. Fountain, Water
2 Screw
3 Bracket, Water Stop
4 Bottle, Water Fountain
5 Level, Water Fountain
6 Hoses, Plastic
7 Band, Support
8 Support, Upright
9 Roller, Ductor
10 Lever, Water Form Throw-Off
11 Roller, Top Water Form
12 Roller Vibrator

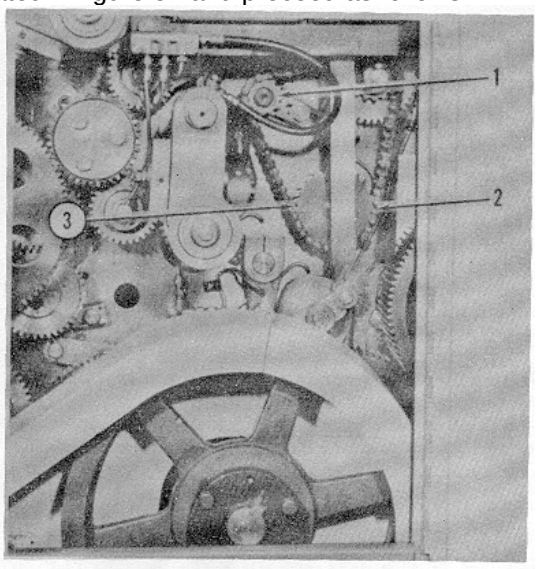
*Figure 46. Water Dampening System, Rear View*

(3) Drive Motor (Refer to par. 87).

(4) Positive Infinitely Variable Control Unit. (Refer to par 92).

34 MOTOR-GENERATOR UNIT SERVICE.

a Service the motor-generator unit as illustrated in figure 54 and proceed as follows:




1 Idler Sprocket

2 Water Fountain Drive Chain

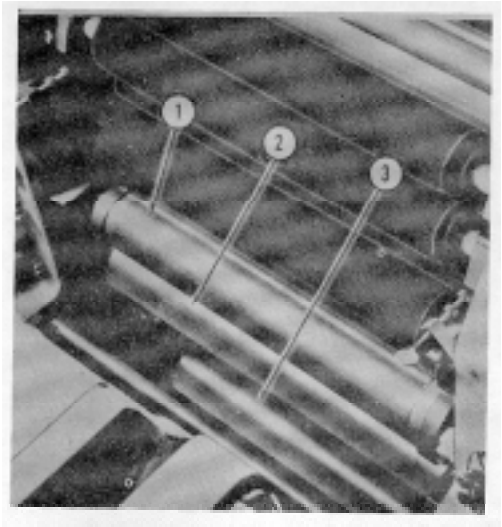
3 Water Ductor Roller Sprocket

*Figure 47. Rear of Offset Unit, Interior View*

(1) Remove the screws and the lockwashers that secure the inspection cover to the power unit 12 and remove the cover from the power unit.

(2) Using compressed air, blow the dust from the brushes (1).

(3) Inspect the brushes for loose electrical connections and for wear. The brushes should rest upon the commutator.

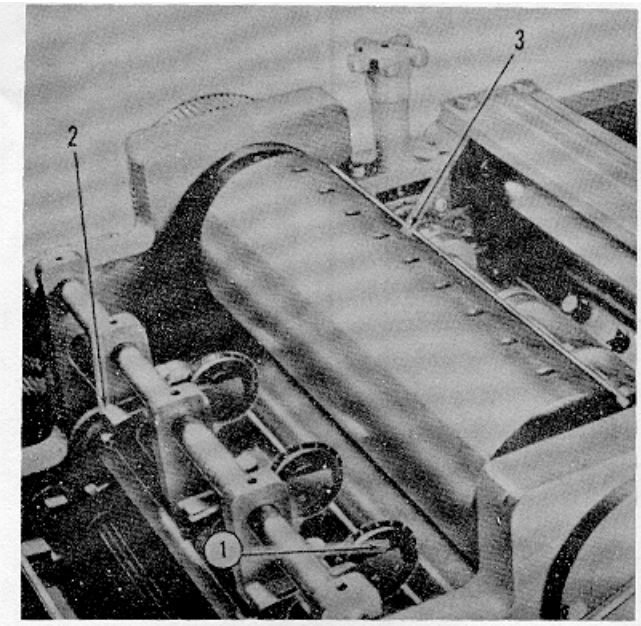



1 Cylinder, Plate

2 Cylinder, Blanket

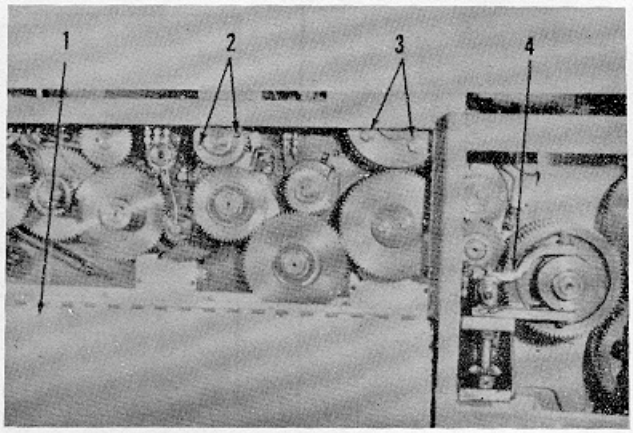
3 Cylinder, Impression

*Figure 48. Plate, Blanket and Impression Cylinders, Mounted*



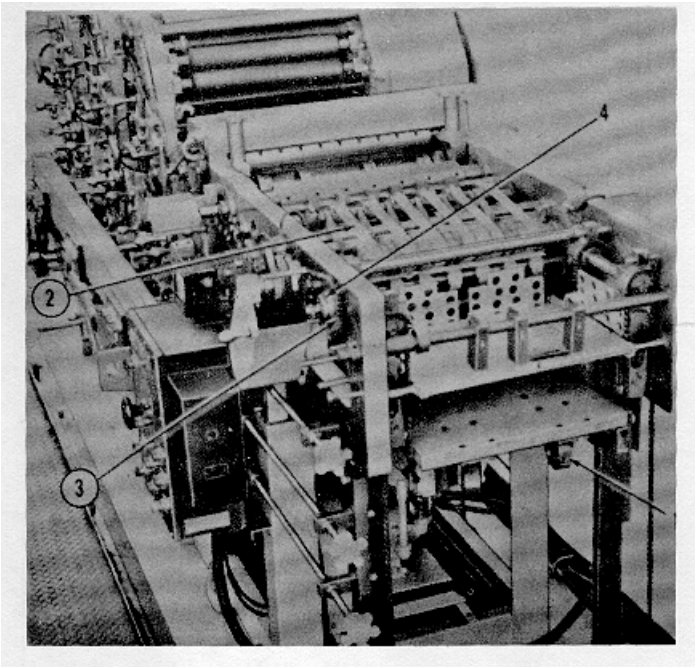

1. Wheels, Perforating
2. Wheels, Trolley
3. Blade, Perforator

*Figure 49. Perforating and Slitter Wheels, Trolley Wheels and Blade, Mounted*




1. Safety Guard Door of Delivery Unit
2. Shear Pins (2) on Male Perforating Cylinder Gear
3. Cap Screws (four)
4. Delivery Clutch Assembly

*Figure 50. Rear of Delivery Unit, Interior View*




1. Casters Delivery Table
2. Tapes
3. Chain
4. Sprocket

*Figure 51. Delivery Unit Component Parts, Front View*

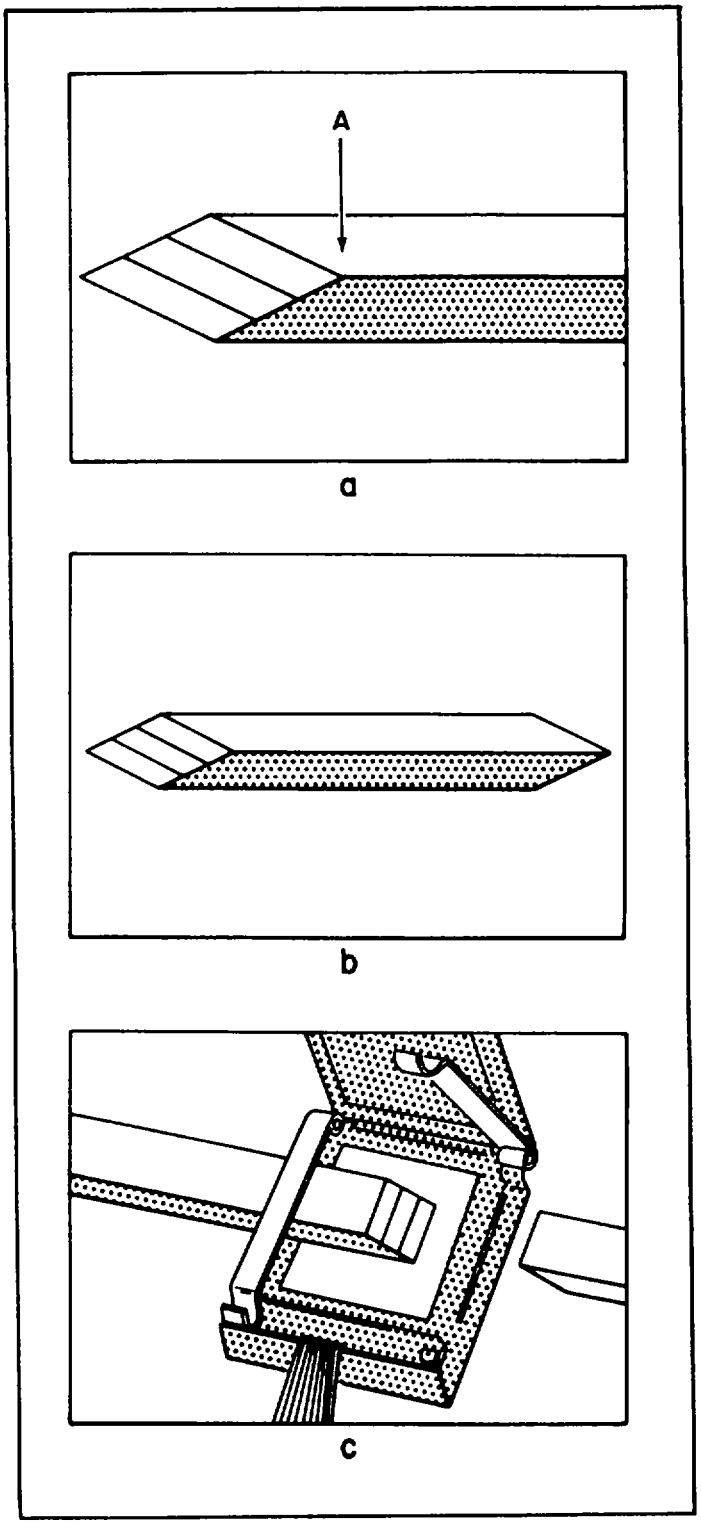
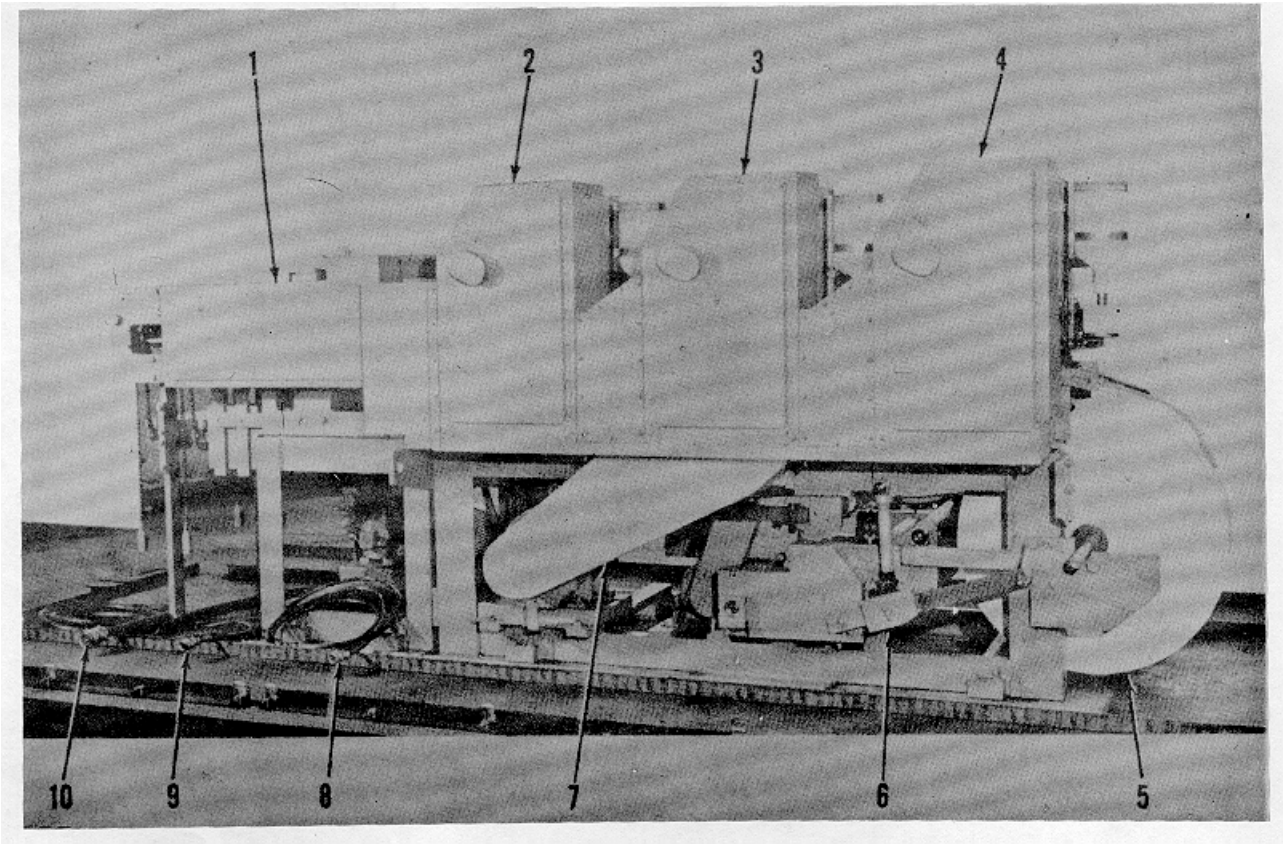
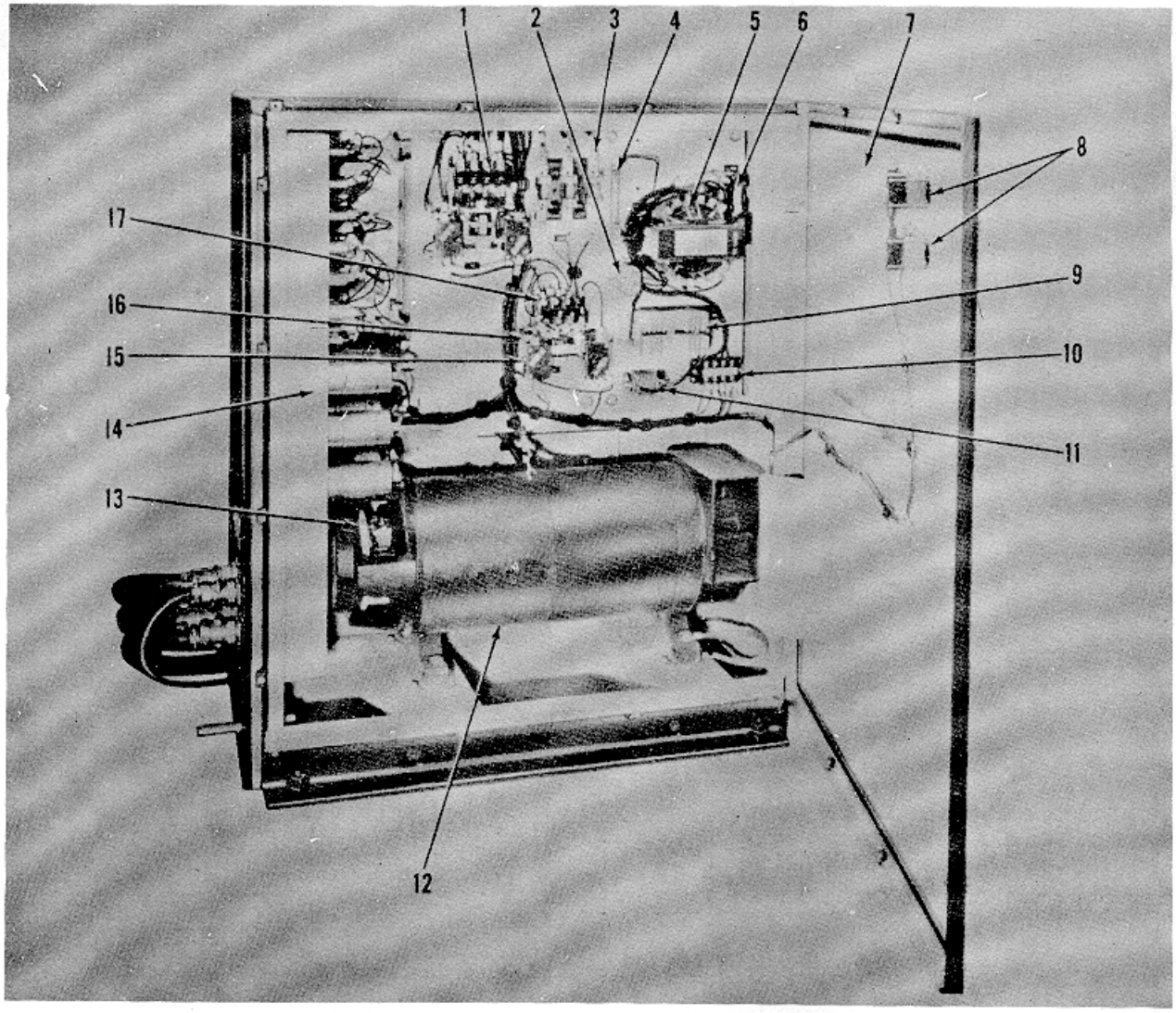



*Figure 52. Replacement of Delivery Unit Belts*



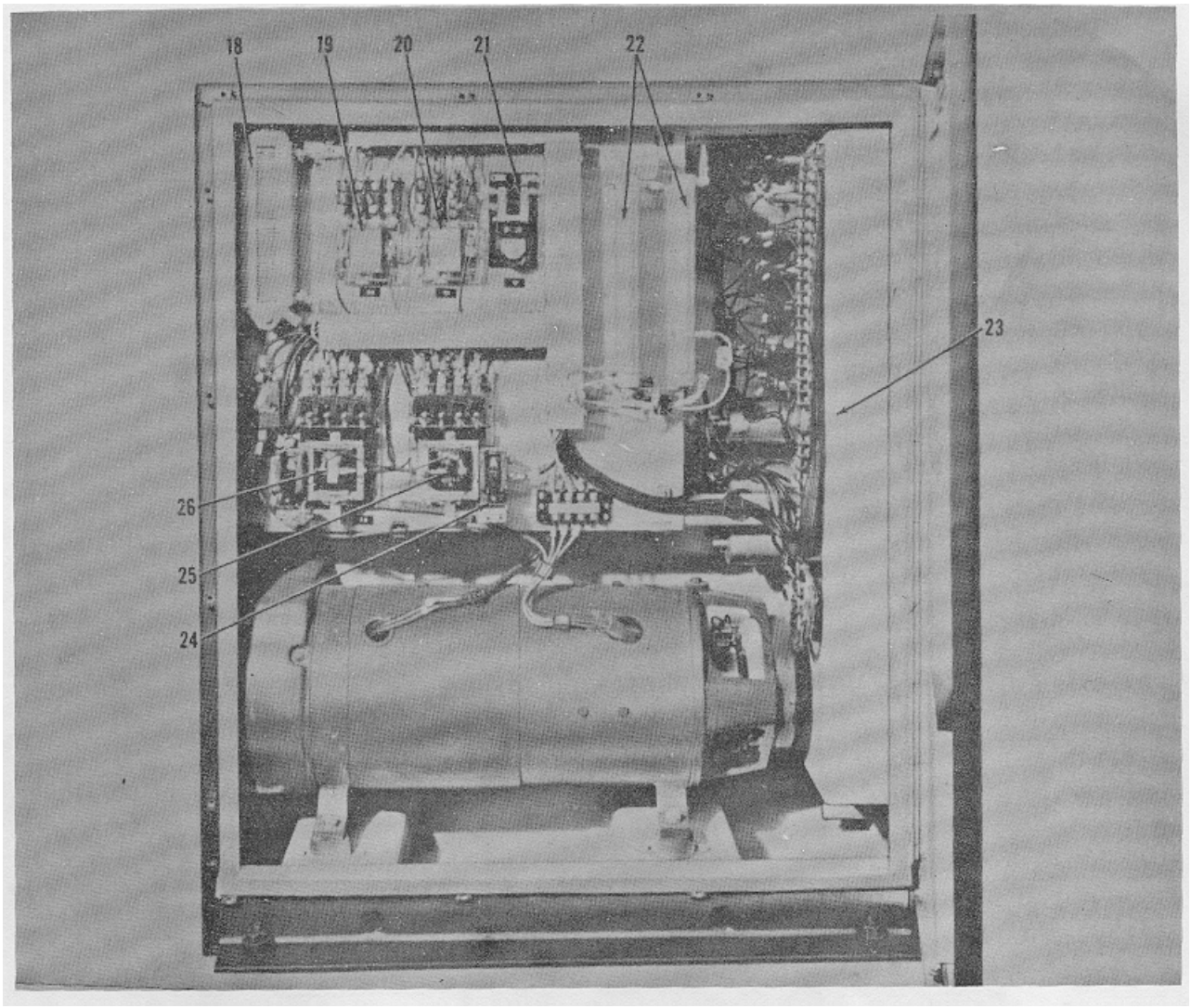

1. Safety Guard Door for Delivery Unit
2. Safety Guard Door for Offset Unit No. 3
3. Safety Guard Door for Offset Unit No. 2
4. Safety Guard Door for Offset Unit No. 1
5. Paper Roll
6. Counterweight for Dancing Roller
7. Safety Guard for Main Drive Wheels and V-Belt
8. Press Control Cable
9. Static Eliminator Cable
10. Blower Cable

*Figure 53. Safety Guards and Rear of Offset Units and Delivery Units*




1. Starter In
2. Capacitor
3. Fuses
4. Resistor
5. Transformer
6. Fuses
7. Air Filter (Two)
8. Start-Stop Switches
9. Rectifier
10. Terminal Block
11. Rectifier
12. Power Unit
13. Brushes
14. Filter Box Assy
15. Capacitors
16. Overload Relays
17. Starter 2N

*Figure 54. ⓘ Motor-Generator Unit, Inspection*




18. Dynamic Braking Resistor
19. Contactor 1RR
20. Contactor RR
21. Anti-Plugging Relay
22. Resistors
23. Terminal Block
24. Dynamic Braking Assy
25. Contactor RM
26. Contactor FM

*Figure 54. - Continued.*

## Section V. TROUBLESHOOTING

35. GENERAL.

This section provides information useful in diagnosing and correcting unsatisfactory operation or failure of the offset press and its components. Each trouble symptom stated is followed by a list of probable causes of the trouble. The possible remedy recommended is described opposite the probable cause. Any trouble beyond the scope of organizational maintenance shall be reported to field maintenance, 3rd echelon.

36. MAIN DRIVE MOTOR FAILS TO START.

| Probable Cause | Possible Remedy |
|---|---|
| Switch at the motor-generator has not been turned on. | Replace the switch in the "on" position. |
| Loose electrical connections or broken electrical wires. | Check the connection and the wires. Report damage conditions as authorized by TM38-750. |
| Components of the motor-generator unit are not functioning properly. | Report the condition as authorized by TM38-750. |

37. MAIN DRIVE MOTOR STARTS BUT THE PRESS WILL NOT RUN.

| Probable Cause | Possible Remedy |
|---|---|
| Drive belts are either adjusted improperly or broken. | Adjust drive belts or replace drive belts. |
| Link in the drive chain is broken. | Replace drive chain. |

38. INK NOT RUB-PROOF AFTER DRYING. WILL OFFSET OR SCUFF IN SOME BINDING OPERATIONS. (CHALKING)

| Probable Cause | Possible Remedy |
|---|---|
| Ink vehicle has been absorbed by paper, leaving pigment in chalky, condition on top of sheet. | Use a stiffer ink, or a less absorbent paper, or a faster drying agent. |

39. PAPER BLISTERS OR PARTICLES OF COATING ADHERES TO BLANKET. (PICKING)

| Probable Cause | Possible Remedy |
|---|---|
| Coating not suitable for offset. Stock is weak, or ink too stiff. Too much back pressure. | Soften ink slightly. Reduce back pressure to minimum. Change paper. |

40. PART OF IMAGE ON PLATE DOES NOT TAKE INK. (BLINDING)

| Probable Cause | Possible Remedy |
|---|---|
| Gum adheres to surface of lacquer. | Wet wash plate. Use non-blinding lacquer. |
| Image is worn off the plate. | Re-adjust rollers and pressure. Lower blanket. |

41. STEEL ROLLERS REFUSE TO TAKE INK. (STRIPPING)

| Probable Cause | Possible Remedy |
|---|---|
| Fountain acid and gum have de-sensitized rollers. Use less gum in fountain solution. | Counter-etch rollers. Copperize rollers. |

42. INK DOES NOT DRY FLAT. SOME AREAS DULL AND OTHERS SHINY. (MOTTLING)

| Probable Cause | Possible Remedy |
|---|---|
| Driers not evenly distributed in ink. | Distribute driers in more thoroughly. |
| Paper not of same porosity all over sheet. | Try another paper. |

43. INK CHANGES HUE OR LIGHTENS UNDER EXPOSURE TO LIGHT. (FADING)

| Probable Cause | Possible Remedy |
|---|---|
| The pigment is fugitive or a poor vehicle was used. Too much compound or extender or acid. | Use a light-fast ink. Use less compound, extender, and acid. |

44. ONE COLOR DOES NOT ADHERE PROPERLY ON A PREVIOUSLY PRINTED COLOR. (OVERPRINTING)

| Probable Cause | Possible Remedy |
|---|---|
| First color has crystallized. The surface has dried tight from a cobalt type of drier. | Use a paste drier without cobalt on all colors that are to be overprinted. |

45. GLOSS INKS DRY DULL. (NO GLOSS)

| Probable Cause | Possible Remedy |
|---|---|
| Paper not glossy. Paper absorbs too much to gloss ink printing. Adjust ink to set before too much absorption takes place. | Use a high-gloss paper expecially suited |

46. INDISTINCT IMAGE PATTERNS APPEAR IN SOLIDS. (GHOSTING)

| Probable Cause | Possible Remedy |
|---|---|
| Poor layout of sheet. Emulsified ink. Too much water being run on plate. | Change layout. Change ink. Use a plate that requires less water. |

47. SECOND PLATE ON PRESS, SCUMS OVER FIRST COLOR AREA. (SECOND COLOR PICK-UP)

| Probable Cause | Possible Remedy |
|---|---|
| First color ink transfers to second color blanket and sensitizes second color plate. | Use better de-sensitized plates. Run blankets lower. |

48. INK REQUIRES EXCESSIVE LENGTH OF TIME TO DRY. (SLOW DRYING)

| Probable Cause | Possible Remedy |
|---|---|
| Too much water and too much acid used on plate. High humidity of paper and atmosphere. | Use better plates so that less water and acid are necessary. |

49. RADIAL BAND OF INK APPEARING ON NON-PRINTING AREAS. (CATCH-UP)

| Probable Cause | Possible Remedy |
|---|---|
| Dirty or dry dampeners or parts of dampeners not touching plate. | Recover dampeners and reset them. |

50. AREA OF NON-PRINTING SURFACE TAKING INK. (SCUMMING)

| Probable Cause | Possible Remedy |
|---|---|
| Plate poorly de-sensitized. Incorrect fountain solution Ph. Ink greasy or soupy. Running too much ink. Dirty dampeners. | Correct plate and solution Ph. Stiffen ink. Use stronger and less ink. Clean dampeners. |

51. LIGHT TINT APPEARING ALL OVER SHEET. CAN BE WASHED OFF WITH SPONGE. (TINTING)

| Probable Cause | Possible Remedy |
|---|---|
| Ink and water is forming an emulsion. | Run less water on plate. Use a more water resistant ink. Try a different paper. |

52. GRAY AND WEAK PRINTING WITH GRANULAR LOOK. (GRAININESS).

| Probable Cause | Possible Remedy |
|---|---|
| Ink is waterlogged and in a caked condition. | Run less water on plate. Use a more water resistant ink. Try a different paper. |

53. SHADOW DOTS AND REVERSE LETTERS FILL UP. (SLUR)

| Probable Cause | Possible Remedy |
|---|---|
| Over pressure, or blanket too high. | Reduce pressure. Remove some packing from under blanket and put it under plate. |

54. INK PILES ON BLANKET AND ROLLERS. (PILING)

| Probable Cause | Possible Remedy |
|---|---|
| Too much water in ink. Coating of paper unsuited for offset. Ink too short. | Run less water on plate. Try another paper. Long varnish in ink. |

55. MOTOR GENERATOR UNIT, INOPERATIVE WITH START SWITCH ON.

| Probable Cause | Possible Remedy |
|---|---|
| The brushes on the generator or the drive motor do not contact the commutators. | Report this condition, following the procedures specified in TM 38-750. |

## SECTION VI. RADIO INTERFERENCE SUPPRESSION

### 56. DEFINITIONS.

a. Interference. The term "interference" as used herein, applies to electrical disturbances in the radio frequency range which are generated by the press and which may interfere with the proper operation of radio receivers or other electronic equipment.

b. Interference Suppression. The term "interference suppression" as used herein, applies to the methods used to eliminate or effectively reduce radio interference generated by the press.

### 57. PURPOSE OF INTERFERENCE SUPPRESSION.

The tactical importance of effective interference suppression cannot be stressed too greatly. Since the electrical disturbances generated by the press are composed partly of electrical waves in the radio frequency range, they must be suppressed for two important reasons. First, they will interfere with the operation of the friendly radio net, and second, they will enable the enemy to locate the equipment and its associated units.

### 58. GENERAL SOURCES OF INTERFERENCE.

Generally, radio interference is generated anywhere a spark occurs or where a high-frequency current is present. A spark is a small amount of current jumping an air gap in response to the force of a relatively high voltage. Magneto breaker points, generator commutators, relay contacts, and static charges collecting on the frame or other common sources which in some way must be suppressed.

### 59. GENERAL METHODS USED TO ATTAIN PROPER SUPPRESSION.

Essentially, suppression is attained by providing a low resistance path to ground for the stray currents.
The methods used include shielding the high frequency wires, grounding the frame with bonding straps, and using capacitors and resistors.

### 60. REPLACEMENT OF SUPPRESSION COMPONENTS.

The manufacturer of the Press Drive and Blower Motor has taken all necessary precautions in the internal construction of these units to assure satisfactory radio interference suppression.

# CHAPTER 4

# DEMOLITION, SHIPMENT, AND LIMITED STORAGE

## Section I. DEMOLITION OF THE EQUIPMENT TO PREVENT ENEMY USE

### 61. GENERAL.

When capture or abandonment of the offset press to an enemy is imminent, the responsible unit commander must make the decision either to destroy the equipment or to render it inoperative. Based on this decision, orders are issued which cover the desired extent of destruction. Whatever method of demolition is employed, it is essential to destroy the same vital parts of all offset presses and all corresponding repair parts.

### 62. DEMOLITION BY MECHANICAL MEANS.

This equipment can be made inoperative by any mechanical means available to the operator (sledge hammers, picks, axes, etc.) so long as destruction is directed at the Plate, Blanket or Impression Cylinders. Also, any means available for disabling any or all of the various drive gears, sprockets, chains, pulleys, etc., which will disable the equipment satisfactorily.

### 63. DEMOLITION BY EXPLOSIVES.

Figure 55 shows the placement of explosive charges for destruction of this equipment. A 1/2 lb. explosive charge shall also be placed within the Motor -Generator cabinet.

### 64. OTHER DEMOLITION METHODS.

If time permits, this equipment can be made inoperative by the removal of several easily accessible major components at the discretion of the operator. These components can be scattered, concealed, mechanically destroyed or submerged.

### 65. TRAINING.

All operators should receive thorough training in the destruction of the offset press. Simulated destruction, using all of the methods listed above, should be included in the operator training program. It must be emphasized in training, that demolition operations are usually necessitated by critical situations when time available for carrying out destruction is limited. For this reason, it is necessary that operators be thoroughly familiar with all methods of destruction of equipment, and be able to carry out demolition instructions without reference to this or any other manual.

## Section II. SHIPMENT AND LIMITED STORAGE

### 66. PREPARATION OF EQUIPMENT FOR SHIPMENT (see figs. 15, 16, 17, 18).

a. The packaging of this equipment is the final phase in reassembly (after overhaul). The following paragraphs cover the recommended method of packaging the press for export shipment.

b. Rollers must be removed from the press and the metal ends of rollers cleaned using process C-1 and coated with type P-7 preservative of MIL-P-116. Rollers must then be individually wrapped in grease-proof barrier material conforming to type I, grade A of MIL-B-121, and the rollers secured in the appropriate cabinet with means provided.

c. All exposed, unpainted ferrous metal surfaces of the press should be cleaned using process C-1 and coated with type P-7 preservative of MIL-P-116.

d. Tools and operating supplies should be placed in the appropriate cabinet. Cushioning material or blocking and bracing should be used as necessary, to prevent damage to the tools and supplies while in transit.

e. The components of the printing press should be secured in position on the platform base.

f. The tarpaulin should be installed in place over the printing press and secured.

g. For domestic packaging of this equipment, all procedures outlined above are identical.

### 67. LOADING EQUIPMENT FOR SHIPMENT.

The offset press should be packaged for either domestic or export shipping as described in par. 66, a through g. Loading the equipment on either a flat car, in a shiphold or in a van is identical to the requirements discussed in par. 6 "UNLOADING THE EQUIPMENT".

### 68. PREPARATION OF EQUIPMENT FOR STORAGE.

a. Inspection. Make a complete inspection of the offset press equipment and correct any deficiencies noted.

b. Cleaning and Painting. Prior to the application of any preservative or paint, thoroughly clean all sur-

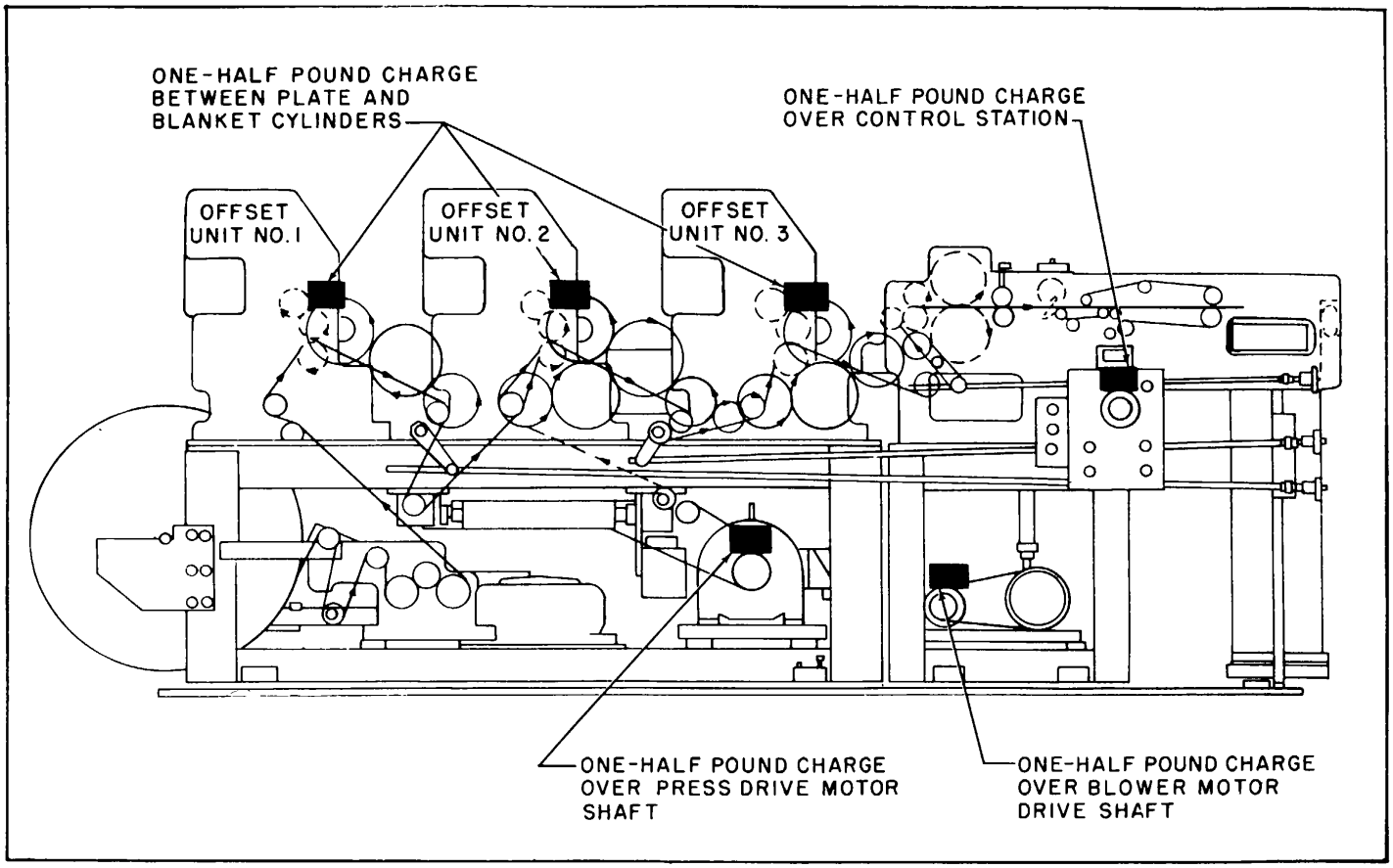



*Figure 55. Placement of Explosives for Demolition of Equipment*

faces. Scrub or wipe surfaces with a clean brush or cloth soaked in solvent. Paint all surfaces where the paint film has been removed during the cleaning operation, making certain to use materials of the same quality as those originally employed.

c. Servicing. The offset press should be serviced with the instructions given in para. 22 through 34 and lubricated as described in Lubrication Order figure 37.

**69. INSPECTION AND MAINTENANCE OF EQUIPMENT IN STORAGE.**

a. Inspection. If the equipment is to be stored but not packaged, perform a monthly inspection while the equipment is in storage and check for evidence of physical damage, such as rusting, accumulation of water, or leaking of lubricants when exercised.

b. Operation. If equipment is packaged during period of storage, a monthly record of the packaging date should be maintained. If equipment is stored without packaging it should be started up and initially operated only once during every 30 days, to ensure that proper operation of the equipment is maintained.

c. Work Sheet. A DA Form 464 will be executed on the Model 3C Lithographic Offset Press when it is initially placed into limited storage and every thirty days thereafter, required maintenance will be per- formed to ensure that equipment is mechanically sound and ready for immediate use.

# CHAPTER 5

# DIRECT SUPPORT, GENERAL SUPPORT AND DEPOT MAINTENANCE INSTRUCTIONS

## Section I. GENERAL

### 70. SCOPE

a. These instructions are published for the use of field and depot maintenance personnel maintaining the Model 3C Lithographic Offset Press. They provide in- formation on the maintenance of the equipment which is beyond the scope of the tools, equipment, personnel or supplies normally available to using organizations.

b. Report all equipment improvement recommendations as prescribed in TM 38-750.

### 71. RECORD AND REPORT FORMS.

For record and report forms applicable to field and depot maintenance, refer to TM 38-750.

**NOTE**

Applicable forms, excluding standard form 46 which is carried by the operator, shall be kept in a canvas bag mounted on the equipment.

## Section II. DESCRIPTION AND DATA

### 72. DESCRIPTION.

For a complete description of the Model 3C offset press, refer to paragraph 3.

### 73. TABULATED DATA.

a. General. This paragraph contains overhaul data pertinent to field and depot maintenance personnel.

(1) Motor, drive, main

| | |
|---|---|
| Manufacturer | Reliance Electric and Engineering Co. |
| Serial No. | 1L-827471 |
| Horsepower | 7-1/2 |
| Speed | 1750 RPM |
| Voltage | 240 |
| Amperes | 28.6 |
| Current | Direct |

(2) Power Unit V*S

| | |
|---|---|
| Manufacturer | Reliance Electric and Engineering Co. |
| Serial No | 11ST-827471 |
| Frame | D-71/2 V-S |
| Voltage | 208 |
| Amperes full load | 31 |
| Amperes locked rotor | 204 |
| Current | 3-phase, 60-cycle |

(3) Control Drive, Positive Infinitely Variable

| | |
|---|---|
| Manufacturer | Link Belt Co. |
| Model No | H-1/2-50 |
| Input revolutions per minute | 619 |
| Ratio | 2:1 |
| Horsepower delivered at output RPM | 1.21 at 872 RPM: .85 at 436 RPM |
| Chain Size | 1-27 links per in. |
| Weight | 80 lbs. |

(4) Lubricator Unit

| | |
|---|---|
| Manufacturer | Bijur Lubricating Corp. |
| Model No. | AAD-R3 |
| Part No. | D-2234 |
| Lubricating Cycle | 4 min. to 35 min. |
| RPM of drive shaft | Min: 400<br>Normal: 600<br>Max: 1000 |
| Drive Direction | Right Hand |

(5) Reservoir

| | |
|---|---|
| Manufacturer | Bijur Lubricating Corp. |
| Part No. | D-2214 |
| Capacity | 3 pints (1400 cu. cm.) |

(6) Pressure Gage

| | |
|---|---|
| Manufacturer | Bijur Lubricating Corp. |
| Type | PB |
| Part No. | B-3513 |
| Pressure Range | 0-200 lbs. |

(7) Rotary Air Pump

| | |
|---|---|
| Manufacturer | Leiman Bros. Inc. |
| Type | Curved Wing Type |
| Part No. | B2 |
| Weight | 27 lbs. |
| Speed | 600 RPM |
| Displacement | 8.5 cu. ft. per min. |

(8) Blower Motor

| | |
|---|---|
| Manufacturer | Reliance Electric and Engineering Co. |
| Serial No. | 396330-1-80 |
| Type | P |
| Frame | L56 |
| Speed | 1725 RPM |
| Horsepower | 1/2 |
| Voltage | 220, 60-cycle, 3-phase |
| Amperage Duty | 2.0 continuous |

(9) Static Eliminator

| | |
|---|---|
| Manufacturer | Simco Company |
| Model No. | SR165S4 |
| Part No. | 8062 |
| Voltage and Frequency | 110 volt, 60-cycle |
| Static Bars | 5/8 in. dia (3 req'd) |
| Lamp | 15 watt, 120 volt, 3-5/8 in. lg. |

(10) Sheet Counter

| | |
|---|---|
| Manufacturer | Vendor Root, Inc. |
| Series No. | 1669 |
| Part No. | 166946-1 |
| Shaft rotation | No. 4 (one count per revolution of drive shaft) |

# CHAPTER 6

# GENERAL MAINTENANCE INSTRUCTIONS

## Section I. SPECIAL TOOLS AND EQUIPMENT

### 74. SPECIAL TOOLS AND EQUIPMENT.

No special tools or equipment are required for the Model 3C Lithographic Offset Press.

### 75. FIELD AND DEPOT MAINTENANCE REPAIR PARTS.

Field and Depot Maintenance Repair Parts are listed and illustrated in TM 10-3610-200-25P. (when printed).

## Section II. TROUBLESHOOTING

### 76. GENERAL.

This section provides information useful in diagnosing and correcting unsatisfactory operation or failure to the offset press or any of its components. Each trouble symptom stated is followed by a list of probable causes of trouble. The possible remedy recommended is described opposite the probable cause.

### 77. CONTROL DRIVE SPEED FLUCTUATIONS.

| Probable Cause | Possible Remedy |
|---|---|
| Improper chain tension<br>Excessive shock loads. | Check and adjust chain tension (par. 92 a).<br>Inspect drive mounting. Check all screws and nuts. |
| Improper connections with other equipment<br>Closer limits on speed control necessary. | Check keys for size and fit. |
| Chain worn beyond effective limits. | Add preloading mechanism to absorb control system tolerances. |

### 78. CONTROL DRIVE OVERHEATING.

| Probable Cause | Possible Remedy |
|---|---|
| Load exceeds drive capacity. | Use oversize chain or larger size unit.<br>Lower load requirements. |
| Insufficient oil. Too much oil in drive; heat is generated by excessive oil churning. | Check oil level and adjust to proper level. |
| Improper grade of oil. | Flush and refill per data on nameplate. |
| Excessive loading. | Check and adjust chain tension. |
| Constant speed shaft RPM higher than 5% limit. | Reduce input speed of drive. |

### 79. CONTROL DRIVE RAPID CHAIN WEAR.

| Probable Cause | Possible Remedy |
|---|---|
| Load exceeds drive capacity. | Use over size chain or larger size unit.<br>Lower load requirements. |
| Improper chain tension | Check and adjust chain tension. (par 92 a). |

**80. CONTROL DRIVE NOISE AND VIBRATION.**

| Probable Cause | Possible Remedy |
|---|---|
| Improper installation. | Check mounting bolts use lockwashers to prevent loosening. |
| Wear evident by dullness of balls, rollers and raceways. | Replace worn bearings. |
| Abrasives in oil. | Clean and flush drive and replace oil. |
| Spalling or flaking out of raceways. | Replace bearings. |
| Usual indication of overload. | Check bearing adjustments, loading of drive, coupling alignment, and overhung loads. |
| Cage failure indicates overload | Reduce load or replace with drive of sufficient capacity. |
| Overloading causes pitting of tooth faces. | Check for proper locations. |
| Shoe bracket springs in wrong locations. | Check chain tension, loading, and lubrication. |
| Improper care or excessive loads. | Fill to level indicated. |
| Low oil level reduces lubrication effect of oil and increases friction in drive. | Check and adjust chain tension (par. 87. a). |
| Improper chain tension. | |

**81. CONTROL DRIVE EXCESSIVE SHAFT END PLAY**

| Probable Cause | Possible Remedy |
|---|---|
| Normal wear or abrasive conditions. | Check adjustment on tapered bearings. Replace ball bearings and check seals for entrance of foreign material. Drain, flush, and refill. |

**82. CONTROL DRIVE OIL LEAKAGE.**

| Probable Cause | Possible Remedy |
|---|---|
| Excessive oil. | Check level |
| Worn seals. | Replace seals. |
| Clogged breather holes. | Clean breather holes. |
| Housing joints not sealed. | Refer to reassembly on cleaning and sealing metal-to-metal joints. |

**83. AIR PUMP RUNS HARD OR EXCESSIVELY HOT.**

| Probable Cause | Possible Remedy |
|---|---|
| Pump requires lubrication | Lubricate in accordance with lubrication instructions. |
| Pump is dirty | Clean inside of pump and check that inlet and outlet port are not clogged with foreign matter (refer to par 95 b). |

**84. LACK OF PRESSURE OF AIR PUMP.**

| Probable Cause | Possible Remedy |
|---|---|
| Pump not running at correct speed. | Check that inlet of pressure pump is free and open. |
| Obstruction or leaks in air hoses | Check that pump interior is free from dirt. |
| | Repair or replace all defective air hoses. |

## Section III. REMOVAL AND INSTALLATION OF MAJOR COMPONENTS OF AUXILIARIES

### 85. GENERAL.

This section provides instructions for removal and installation of major components of the offset press. In general the major components of the offset press are the motor generator unit with associated drive motor and control panel and the positive infinitelv variable control unit.

### 86. MOTOR-GENERATOR UNIT.

a. Removal. To remove the motor-generator unit (see fig. 10) from its location for any reason, simply disconnect the cables leading into the unit. The unit can now be lifted by inserting steel rods through the holes located at the bottom of the unit and placed on any suitable dolly for movement.

b. Installation. The motor-generator unit has a specific location (2 fig 14). It should be mounted in this space with the front side facing the press. The front door of the control unit is of special construction incorporating both an air intake and exhaust. It is important that this side of the cabinet be clear from obstruction so that the unit will receive proper ventilation. It should be mounted on a firm, level foundation with approximately 6 inches clearance in the front. Rotating equipment of two bearing construction does not require a critical check of alignment. If the rotor and armature turn freely, it should give no trouble.

### 87. DRIVE MOTOR AND OPERATOR'S CONTROL STATION.

The drive motor and operator's control station and auxiliary pushbutton stations are properly located and mounted on the press. The drive motor and control station has been completely interwired and if removed, care should be taken to see that all connecting wires are coded so that they can easily be correctly rewired.

### 88. POSITIVE INFINITELY VARIABLE SPEED (P.I.V.) CONTROL UNIT.

a. Removal. To remove the variable speed control unit (see 18 fig. 18) remove the four attaching capscrews, sprocket and chain. Eyebolts are furnished for lifting and handling the unit; however a rope sling can also be used to balance or level the drive. Use a hoist and sling only when properly secured and capable of handling the load.

b. Installation. Before installing, remove any rust preventive with kerosene or a similar solvent from shaft projections, seals and parts. Mount sprockets as close to the drive as possible, to minimize the overhung load. Avoid heavy blows which may damage the internal gears or bearings. When tight fits are encountered, heat the part, preferably in oil at 150°F to 200°F. This will expand the bore sufficiently to mount easily on the shaft. Install unit with capscrews provided and check that unit rests evenly on support. If uneven, shim unit with flat shims so that unit rests uniformly on support. This will prevent distortion and misalignment when bolted down. After a few days operation, check alignment and tighten bolts if necessary.

# CHAPTER 7
# COMPONENT REPAIR INSTRUCTIONS
## Section I. ADJUSTABLE SPEED CONTROL UNIT

**89. GENERAL.**

The adjustable speed control unit consists of three parts; the Motor-Generator Unit, the Adjustable Speed Drive Motor and the Operator's Control Station and Pushbutton Stations. Refer to TM 5-764 for additional electric motor repair instructions.

**90. ADJUSTABLE SPEED DRIVE MOTOR.** (See fig. 56.)

a. Removal and Disassembly. The drive motor and component parts should be removed and disassembled as follows:

**NOTE**

The motor should not be disassembled unless it is necessary to replace a field pole or bearings or make repairs on armature. When dismantling the motor, care must be taken not to damage the field coils, commutator, armature windings, metering plates and bearings. These parts may be injured by improper or rough handling. The bearings must be kept free of dirt or contamination.

(1) Make certain the motor is disconnected from the line.

(2) Disconnect leads in the terminal box. Tag incoming leads to insure correct reconnection.

(3) Remove the motor from its base.

(4) Mark the bracket and frame so they can be replaced easily.

(5) Remove protective covers.

(6) Remove brushes, disconnect leads to brushholder studs. Tag leads and studs for proper reconnection.

(7) Observe special care to protect mating surfaces and fits of explosion-proof motors.

(8) Lockwashers should be noted for proper replacement when reassembling.

(9) Remove cap screws near shaft holding bearing cartridge from front (commutator) end bracket.

(10) Remove four cap screws attaching front end bracket to frame. Remove front end bracket from frame. Due to the close fits between the bracket and the frame and bearing cartridge, force is required to remove the bracket. Force should be evenly applied to the bracket around the frame fit using either a lead mallet or a wood block to transmit the blows. Use care to avoid injury to the commutator when removing the bracket. The bracket should be well supported and balanced during removal. Do not let the bracket bear on the shaft to avoid damage to the metering plate installed in the bracket hub.

(11) Remove four cap screws attaching the back (drive) end bracket to the frame. Remove the armature and bracket from the frame together. Do not damage the armature coils, commutator or fan. On large frames, use a rope sling and a hoist to support the weight of the armature and bracket. A long pipe L1 with a snug fit to the drive shaft extension is useful as a lever to balance the armature during removal. As the armature is inched out, move the rope sling progressively closer to the center of gravity of the assembly. Do not place the sling under the coil heads or commutator. Rest the armature on wood supports under the core iron only.

(12) Remove the back end bearing cartridge cap screws.

(13) Remove the back end bracket from the armature with care to avoid damage to the metering plate.

(14) If bearings are not being replaced, protect them from dirt and contamination by wrapping the en- tire bearing and cartridge assembly with clean wrapping paper. Seal the paper to the shaft with tape.

(15) If a bearing is to be replaced, remove it by first bending up the ear of the lock washer and unscrewing the lock nut where provided. Pull off the bearing by applying steady pressure on the cartridge with a bearing puller. Use a spacer block to protect the shaft center.

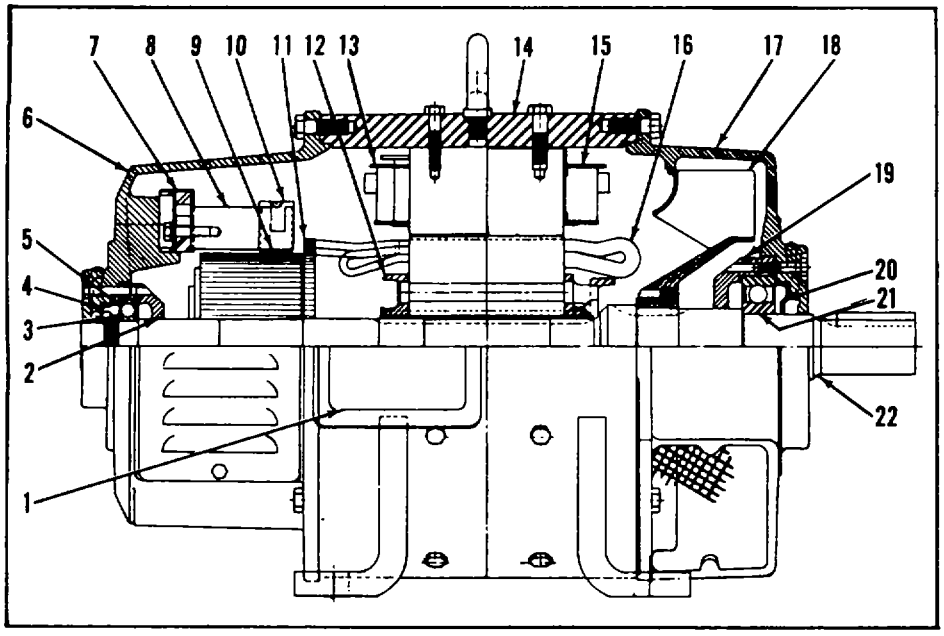
(16) To remove main or interpole field poles, disconnect the leads and remove the bolts holding the field poles to the frame. The shims must be kept with the pole to which they belong for proper reassembly. Stainless steel interpole bolts must be kept with the interpoles. Diagram or tag the field coil connections so that proper reconnection can be made.

(17) Main field coils slip easily off the poles for removal. (Main field coils of four-pole frames are fixed on steel bobbins.)

(18) To remove interpole coils from the poles, carefully straighten the steel clips holding the coil in position and slide the coil off the pole.

(19) Because of the critical nature of the alignment of the brush rigging, these parts should not be dismantled unless necessary. Disassembly is easily accomplished by loosening or removing the bolts which hold the brush holders to the studs, the studs to the rocker, and the rocker to the frame. Before disassembly, mark all parts so that they can be reassembled in their original positions to give the same spacing and setting of the brushes relative to the bracket.

b. Brushes. Brush pressure is correctly established and maintained at the correct value throughout the life of the brush by means of a constant pressure design. Brushes and brush-holders should be clean so that the brushes are free to move in the holders. Replace




1 Conduit Box
2 Cap (Inner)--F. E.
3 Metering Plate--F. E.
4 Bearing Lockwasher and nut
5 Ball Bearing--F. E.
6 Bracket--F. E.
7 Rocker
8 Brush Stud
9 Carbon Brush
10 Brushholder
11 Commutator
12 Armature Core
13 Interpole Coil With Pole
14 Frame
15 Field Coil
16 Armature Coil
17 Bracket--B. E.
18 Fan (Inner)--B. E.
19 Cap (Inner)--B. E.
20 Meter Plate--B. E.
21 Ball Bearing--B. E.
22 Shaft

*Figure 56. Adjustable Speed Drive Motor*

brushes with new brushes of the same grade before wear permits the rivet to score the commutator or the shunt to reduce brush pressure. Fit the face of new brushes to the contour of the commutator with sandpaper only. Keep brush lead (pig-tail) connections tight.

c. Commutator. A commutator in good condition is clean and smooth with a medium polish and a light brown color. Keep clean by occasionally wiping with a canvas pad. Use no lubricant or emery abrasive. If a commutator becomes rough, it needs to be resurfaced. Roughness can be easily detected with the machine running by resting a pencil-like rod of insulating material (dry wood) on one of the brushes. In mild cases, a commutator dressing stone can be used. Very rough or out of round commutators require turning in a lathe. In every case, maintain concentricity and remove the minimum material required for proper clean-up. Undercut the mica approximately 1/16" and polish. Adjust brush holders for approximately 1/8-inch clearance to commutator.

d. Bearings. Frequent bearing checks are recommended. If temperatures become excessive, investigate immediately for the cause. Bearing temperatures should not exceed 400C (1040F) rise above room temperature. Causes for high bearing temperature are:

(1) Contaminated grease.
(2) Insufficient grease
(3) Incorrect grease.
(4) Excessive load or thrust due to misalignment or motor overload.
(5) Loose bearings.
(6) Bearing failure.
(7) Excessive ambient temperature.

e. Reassembly. Reassembly of the parts is primarily a matter of reversing the disassembly operations. Care must be exercised to avoid injury to critical parts, to make sure all parts are clean and are returned to their original positions and alignment. Specific instructions are as follows:

(1) Replace the internal fan after first placing the key in the shaft keyway. Heating the fan hub slightly by means of a torch or in an oven will facilitate assembly. Replace snap ring.

(2) Place bearing in its cartridge and heat in oven at 2500F. for 30 minutes maximum. Bearing can then be pressed into shouldered position by hand. Gloves should be clean. Higher temperatures or longer heating periods may cause separation of oil in the grease. With roller bearing, make sure grease seal ring and spring washer are in cartridge. Heat cartridge and place outer race into cartridge. Slip cartridge over shaft as far as possible for room to install inner race. Heat inner race and press into shouldered position by hand. Position outer race and cartridge over inner race. After installing front end bearing, tighten lock nut over lock washer and bend washer ear into slot of lock nut.

(3) Install back end bracket on shaft and tighten bearing cartridge cap screws. Avoid injury to metering plate in bracket hub. A long threaded stud may be useful in aligning bearing cartridge holes.

(4) Install field poles and coils and reconnect correctly. Make sure original bolts and shims are replaced. Brass shims are placed next to the frame. Pole bolts must be tight.

(5) Use the same care in placing the armature in the frame as in removing It. Bolt the back end bracket to the frame.

(6) Replace the front end bracket and bolt to the frame. Make sure bracket is in its original position. Avoid injury to the metering plate in the hub. Replace bearing cartridge cap screws.

(7) Reconnect the leads to the brush-holder studs and replace brushes.

(8) Brush-holders should have 1/8-inch clearance to the surface of the commutator. A 1/8-inch thick piece of hard-board or plastic may be used as a gauge. All brushes on each stud must be in line. After seating the brushes, this may be checked by noting if they toe the same commutator slot or bar. The brushes must be equally spaced around the commutator. This spacing is assured by the milled brush stud slots in the rocker. If the rocker has been rotated from its original position or if the commutator diameter has been reduced by turning or grinding, it may be necessary to reset the rocker so that the brushes are on the electrical neutral. The preferred method of checking rocker position is to observe full load speed in both directions of rotation as a motor or full load voltage in both directions of rotation as a generator. Adjust the rocker until speed or voltage in both directions is equal.

**91. MOTOR-GENERATOR UNIT.** (See figs 10 & 54.)

a. Power Unit. What has been said above regarding bearings, care of brushes and commutator and replacing brushes of the drive motor applies equally to the Power Unit.

b. Filter Cleaning. The Control Unit cabinet is supplied with filters designed and built to remain efficient over a period of years. To realize this, the filters must be cleaned and recharged properly at intervals which will depend on the service conditions. There are three means of cleaning and they are as follows:

(1) Boiling: Place filter, fine mesh down, in a tank containing solution of Oakite No. 20 (3 pounds to 5 gallons of water) trisodium phosphate (1-1/2 pounds to 5 gallons of water) or other commercial solvent. Boil until the filter is clean.

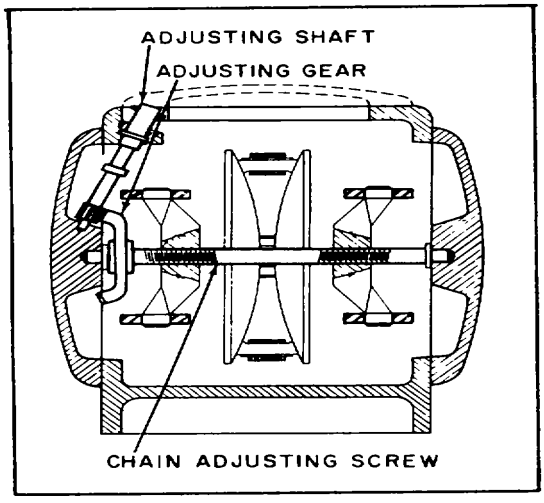



*Figure 57. Chain Tension Adjustment of P. I. V. Speed Control Unit*

**CAUTION**

Do not use caustic soda.

(2) Hot Water: Agitate filter, fine mesh down, in tank containing hot water and Oakite No. 20 (3 pounds to 5 gallons of water) or other compound.

(3) Hose: Use flat nozzle and water pressure. Sweep back and forth across the fine mesh side, holding nozzle firmly against surface, flushing out intake and discharge faces. Hot water is preferred. After cleaning, the filter should be inspected by looking through it toward the light. When thoroughly clean, no cloudy areas will be seen. To recharge the clean filter, the adhesive may be applied by dipping in a suitable tank, power spray gun, or brush. When using the last two means, apply adhesive to both sides of filter to insure complete coverage. An adhesive supplied by the filter manufacturer, or regular SAE 30 to 50 motor oil may be used in recharging. The filter panels should be allowed to dry thoroughly before recharging.

c. Control Unit Contactors and Relays. Perform the following services on the control unit contactors and relays:

(1) Check moving parts for easy operation.

(2) Check moving parts for proper seating when operating coil is energized.

(3) Check return spring tension to make sure moving parts seat properly when operating coil is de-energized.

(4) Check relay contacts for pitting or corrosion Clean with No. 000 sandpaper if necessary.

d. Miscellaneous. Perform the following additional checks and services.

(1) Check all terminal connection screws for firm connections.

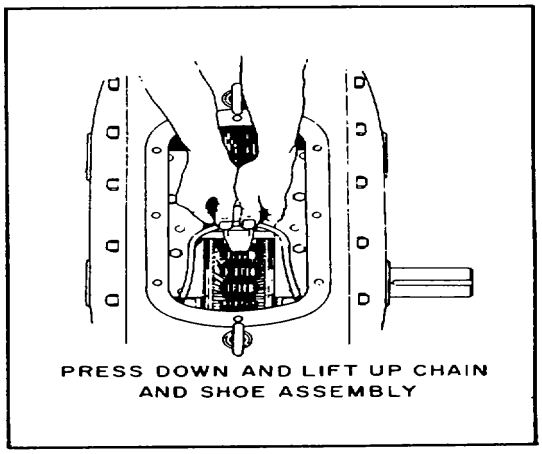
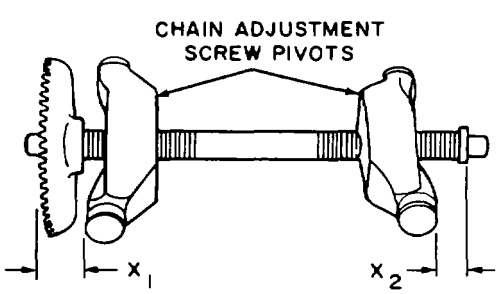
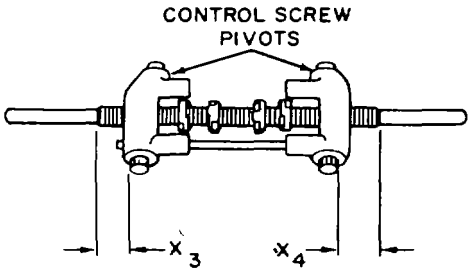



*Figure 58. Loosening or Tightening of P. I. V. Speed Control Unit Chain*




**ADJUSTING SCREW ASSEMBLY SHOWING CORRECT POSITION OF CHAIN ADJUSTING SCREW PIVOTS FOR PROPER ALIGNMENT OF ASSEMBLED UNIT. $X_1$ MUST EQUAL $X_2$ WITHIN 1/2 PITCH OF THREAD.**




**CONTROL SCREW ASSEMBLY SHOWING CORRECT POSITION OF CONTROL SCREW PIVOTS, ESSENTIAL FOR PROPER ALIGNMENT OF ASSEMBLED UNIT. $X_3$ MUST EQUAL $X_4$ WITHIN 1/2 PITCH OF THREAD.**

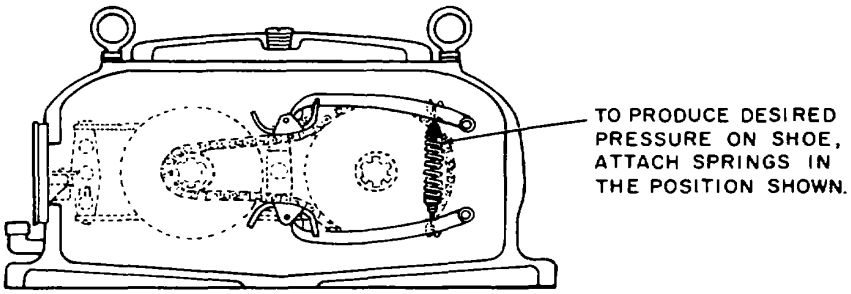



*Figure 59. Chain Adjusting Screw Pivots, Control Screw Pivots of P. I. V. Unit*

(2) Check all nut and bolt connections on wire lugs for firm connections.

(3) If repairs have been made, check for solder droppings.

(4) Blow out dust accumulation on both panels. If shop air supply is used, make sure no moisture is present.

**92. POSITIVE INFINITELY VARIABLE SPEED CONTROL UNIT.**

a. Chain Tension Adjustment. The chain tension of the unit should be checked after approximately 250 hours, 500 hours and 1000 hours of operation. Check after 1000 hours thereafter. To check chain tension proceed as follows:

(1) Remove cover plate.

(2) By pressing down and lifting up the chain and shoe assembly as a unit, check total movement of shoe (see figure 57).

(3) Maintain chain slack (total of shoe) of 5/8 in. to 7/8 in.

(4) To loosen or tighten chain as required, rotate drive by hand and turn adjusting shaft in desired direction (see figure 58).

(5) Replace cover which automatically locks chain adjusting mechanism.

b. Replacing Chain. Before installing new chain,
drain oil from drive and flush if dirty. Remove inspection cover and inspect all parts to determine if any need replacement.

(1) Loosen chain sufficiently, as explained above, permit easy removal of snap ring, or cotter pin and washer, from the connecting pin. There is only one connecting pin for each chain.

(2) Using the old connecting pin, couple the new chain to the old. Make sure the bevel of the slats slopes inward toward the center of the drive. Then, slowly pull the old chain out of the housing until the connecting pin and new chain are visible.

(3) Couple the new chain together by using a new connecting pin, washer, and snap ring or cotter pin. It is essential that the cotter pin encircles the connecting pin.

(4) If the old chain has already been removed from the drive, insert the new chain over the lower shoe and under the upper shoe. If necessary, use a wire as a guide. The new chain must be the same length and width as the original.

(5) To tighten chain, refer to paragraph a, Chain Tension Adjustment.

c. Disassembly. The following recommended disassembly procedures are as follows: (see figure 93).

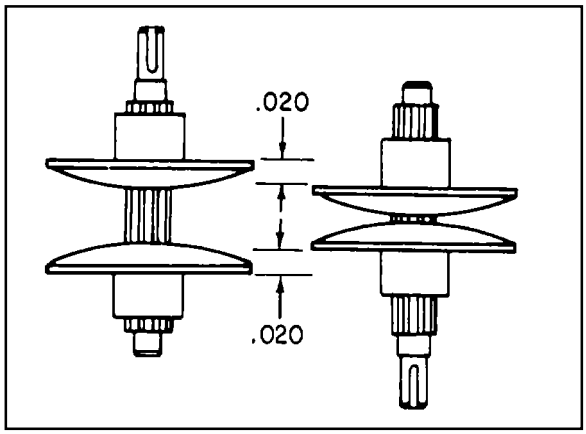



*Figure 60. Alignment Check of P. I. V. Unit*

(1) Release tension by turning adjusting shaft in direction indicated while turning unit by hand.

(2) Remove indicator plate, lockplate and handwheel.

(3) Remove springs from shoe bracket assembly. Refer to positions of springs as related to figure 59.

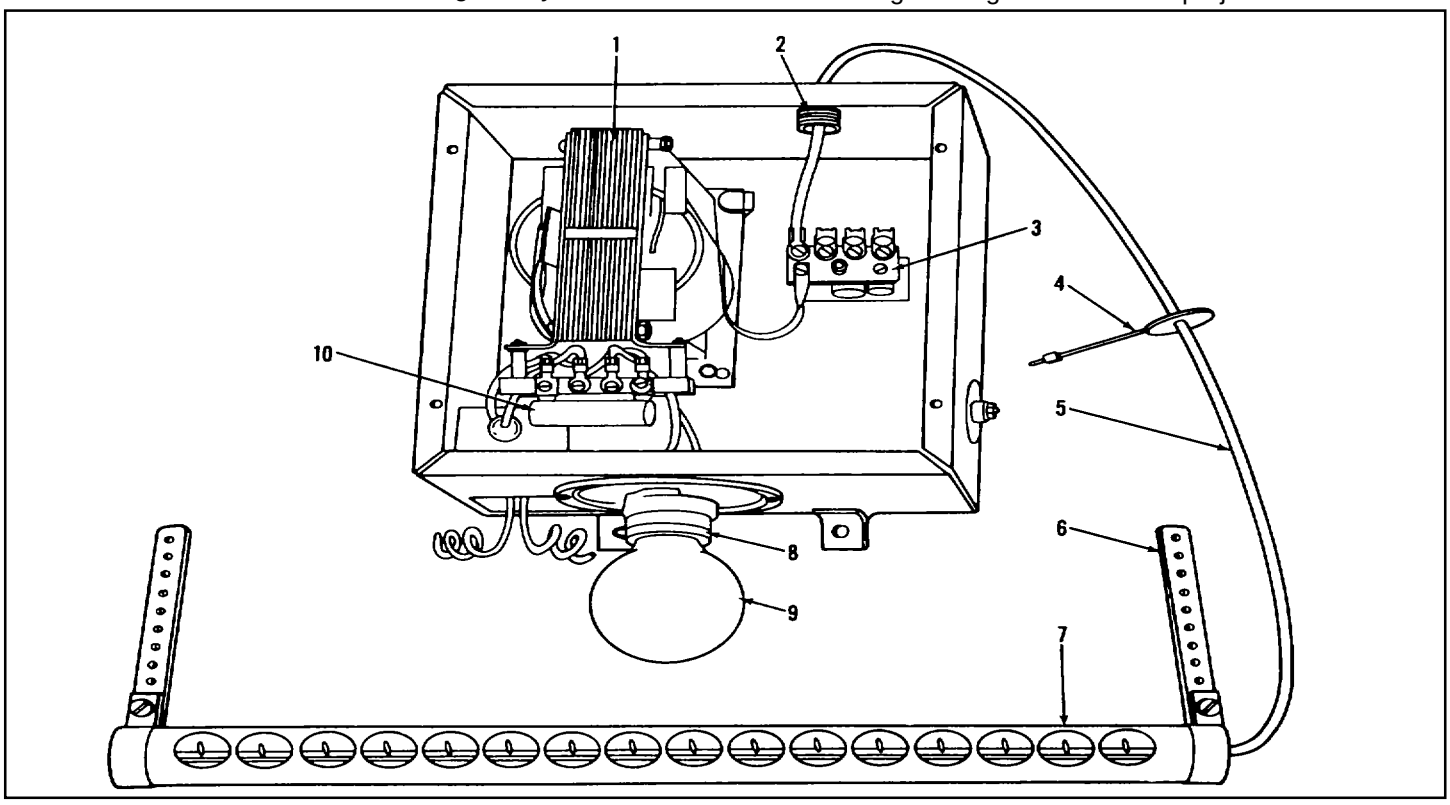
(4) Uncouple and remove chain, following the procedures outlined in paragraph b.

(5) Remove drag link and screw from sideplate at control screw projection. Do not remove oil seals from side plates at the control screw unless damaged. File or polish setscrew marks or burrs from control screw projection to protect seals from damage.

(6) Remove all keys from extensions. Clean off all burrs and make provisions to protect seals if they are to be used again. Replace all damaged seals.

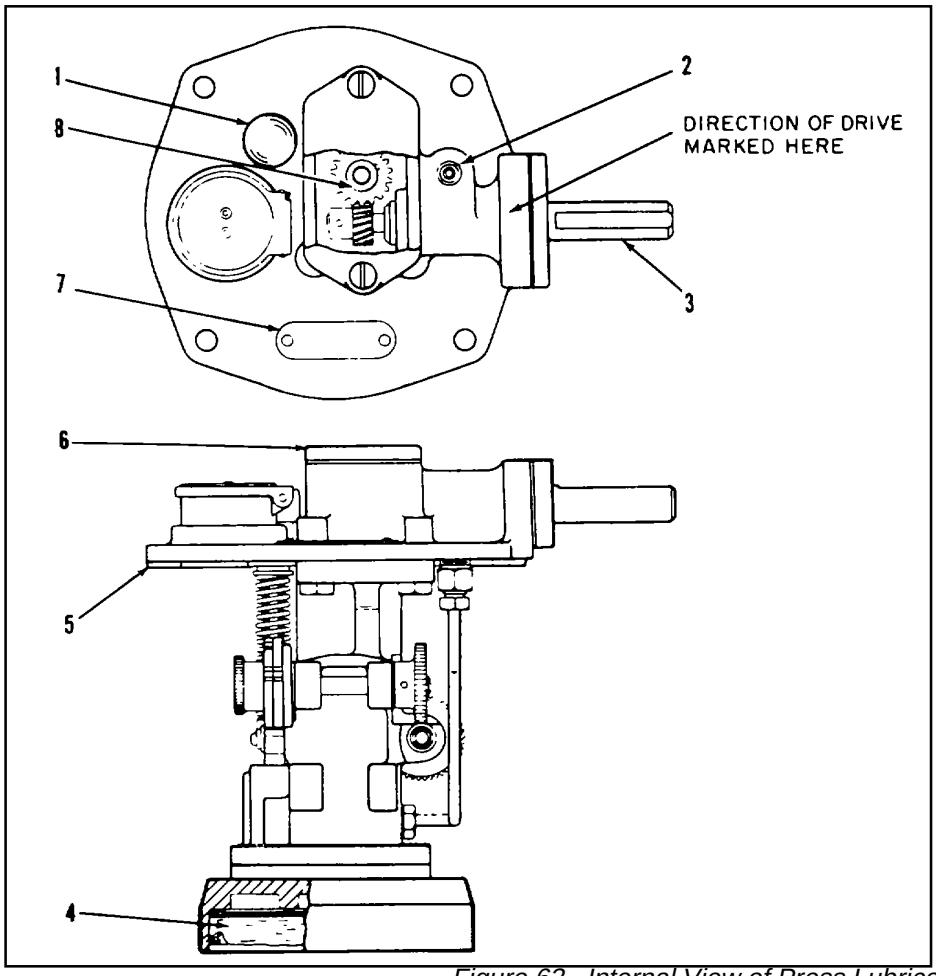
**NOTE**

Upon further disassembly of unit, it should be turned on its side, slinging whenever necessary. Support on blocks high enough to clear shaft projections.




1. TRANSFORMER
2. BUSHING PROCELAIN
3. TERMINAL BLOCK
4. SUPPORT, CABLE
5. CABLE, HIGH VOLTAGE
6. CLAMP, STATIC BAR
7. BAR, STATIC (3 Reqd)
8. RECEPTACLE, CLAMP
9. BULB, WARNING
10. RESISTOR

*Figure 61. Static Eliminator*




1. BUTTON INSTANT FEED
2. DISCHARGE OUTLET
3. DRIVE SHAFT
4. FILTER ASSEMBLY
5. COVER GASKET
6. GEAR CASE COVER
7. IDENTIFICATION PLATE
8. VERTICAL DRIVE SHAFT

*Figure 62. Internal View of Press Lubricator*

(7) Remove all bolts in upper sideplate and separate joint with thin steel wedge or jack screws. Lift sideplate straight up until clear of all projections. Now with a rope sling, lift out the balance of the internal parts of the unit as an assembly. Remove shoe bracket assemblies.

(8) Remove entire control screw assembly by sliding it out of the slots in the levers. Be careful not to lose the control pivot blocks on the ends of the control pivots.

(9) Remove bolts from top of control levers and lift off. Note their position for reassembly. Holes are off-center and levers become right or left hand by inverting.

(10) Lift out chain adjusting screw assembly.

(11) Remove shafts by lifting out entire assembly including wheel flanges, bearings and yokes.

(12) Press bearings from shaft and remove thrust yoke. Remove thrust bearings noting that the I. D. of one race seats on hub of flange while the other does not.

(13) Remove wheel flanges from shaft, keeping them in matched Pairs for each shaft.

d. Reassembly. Reassembly is essentially the reverse of disassembly with the following additional instructions.

(1) Thoroughly clean all parts before reassembly. Pay special attention to. all metal-to-metal sealing joints to assure oil-tight units after assembly. Use the following compounds or their equivalent: Gasket shellac, 9 lb. cut shellac.

(2) Replace wheel flanges on shafts in pairs as removed, noting etched numbers on back rim of flanges. Be sure they are assembled diametrically opposite. If flanges require replacement, always replace in pairs.

(3) It is essential to evenly space control screw pivots and chain adjusting screw pivots on their respective screws before reassembling. This assures proper alignment of the assembled unit. (See figure 59.)

(4) Guide control screw, chain adjusting screw and shoe bracket journals into their respective bores. Be certain each is properly seated and moves freely when the unit is reassembled.

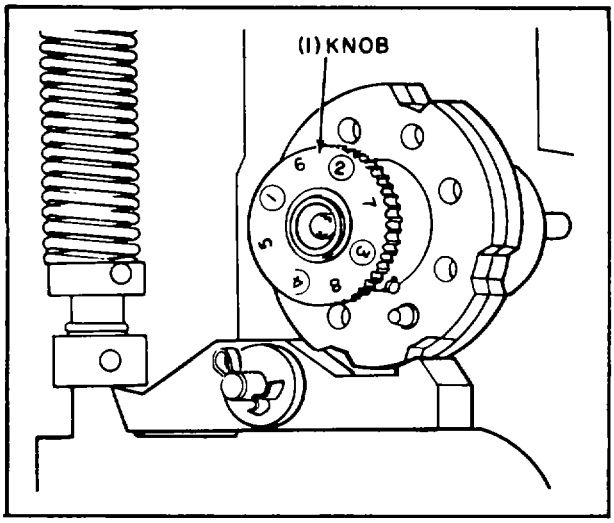



*Figure 63. Cam Setting of Lubricator*

(5) Tighten bolts uniformly on sideplates, covers and attachments during assembly.

(6) Check rotation of the basic variable speed unit by hand. Then reassemble geared input, and output attachments in their proper positions.

(7) Adjust chain tension as described in paragraph 92 a.

(8) check alignment of unit as described in Alignment Check, paragraph e above.

(9) Fill with proper grade and quantity of lubricant for operating conditions as specified in lubrication instructions.

e. Alignment Check. In operation, unit should be centered and chain should follow a path parallel to the wheel flanges. Check alignment after reassembly operation, using a straight edge and scale, through the inspection cover opening. Place the scale on back side of flange contacting rim at two points as far apart as possible and extending to second pair of flanges. Take accurate measurement from straight edge to back of flange. Record this dimension and repeat same procedure for opposite flange. The two dimensions obtained by this method must not exceed .020" (see fig. 60) variation. If variation beyond limit is encountered, it is necessary to dismantle the unit and reassemble it again. Pay particular attention to spacing of the control screw and chain adjusting screw pivots on their respective screws.

**93. STATIC ELIMINATOR.** (See figure 61.)

a. Inspection. Perform the following inspection services on the static eliminator.

(1) Check all cabling and wiring for evidence of rot,
burns or brittleness.

(2) Check procelain bushings and lamp receptacle for breaks, looseness or discoloration.

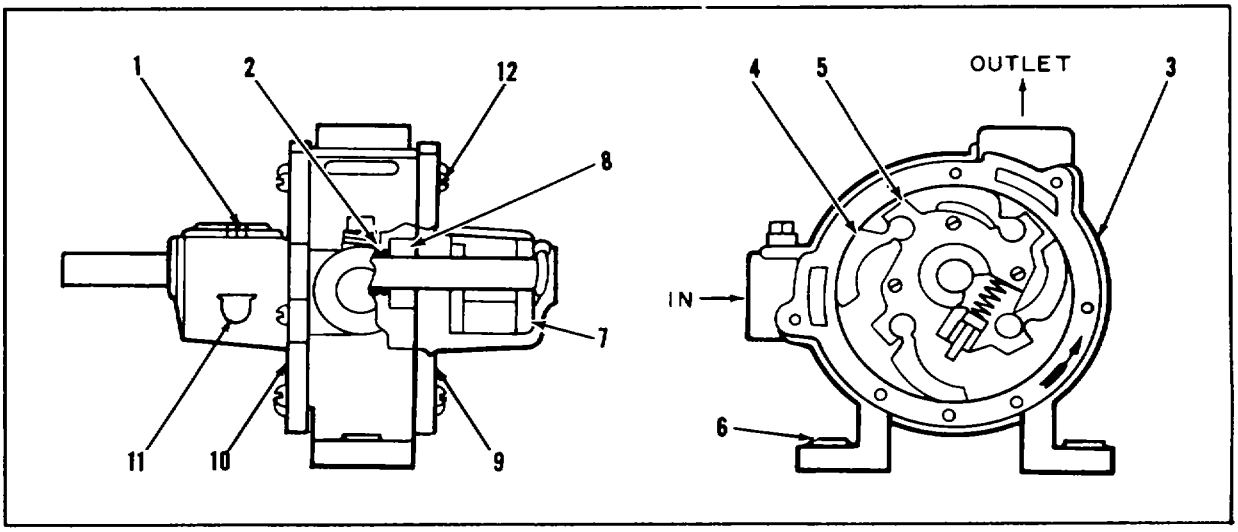
(3) Inspect transformer and resistor for secureness of mounting and evidence of corrosion.

(4) Inspect terminal block for cracks or loose terminals.

(5) Check holes of static bars for loose particles and foreign matter.

b. Cleaning. To clean the static bars proceed as follows:

(1) Loosen the supports and revolve the bar to face downward; tapping it to dislodge the particles. Re-




1. Cover, Bearing
2. Spring, Oil Retainer
3. Cylinder
4. Wing
5. Piston, Shaft
6. Leg
7. Bearing, Feltwick
8. Collar, Oil Retainer
9. Head, Cylinder
10. Head, Cylinder
11. Elbow, Oil Fill
12. Bolts

*Figure 64. Internal View of Air Pump*

volve the bar back into position and tighten clamps.

(2) Apply dry compressed air inside of bar to remove light accumulations of dust and dirt.

(3) Use a soft brush to clean lint, grease and other foreign matter which reduces sharpness and decreases efficiency of the points.

c. Installation. To install the static eliminator proceed as follows:

(1) Position the power unit with the lamp vertically down and mount the unit to the press frame with screws.

(2) Attach cable supports to high voltage cables from the bars in the following manner:

(a) Press the split bushing out of the eye and apply bushing to cable at desired location.

(b) Mount the eye, then press the bushing with cable back into eye.

(c) Close the eye with pliers to clamp the cable.

**CAUTION**

Be sure that cable support is located to remove all strain and motion from the cable where it enters a static bar.

(3) Replace metal encased bars with screws and clamps provided.

**NOTE**

Distance of static bars from material to be discharged should be between 1/4 inch and 3/4 inch.

(4) Check that both metal encased bars and power unit are properly grounded to metal frame.

**94. OIL LUBRICATOR.** (Fig. 62).

a. Removal. Remove the oil lubricator by unfastening attaching hardware, discharge line, and sprocket from drive shaft.

b. Inspection. Perform the following inspections on the lubricator:

(1) Check for low level, broken or cracked tubes.

(2) Check for loose connections, flattened lubricator outlet tube or clogged filter.

c. Adjustment. If too little oil is being delivered to bearings, remove lubricator from reservoir and note index hole number on cam in which locating pin is engaged. Pull out knurled knob on cam (see fig. 63) and rotate until locating pin enters index hole with next higher number. Reinstall lubricator on press and check all bearing points thoroughly before further adjustments.

(1) If too much oil is being delivered to bearings, repeat step 2 but, rotate cam knob until locating pin enters index hole with next lower number to original setting.

d. Replacement.

(1) Replace filter (4 fig. 62) on lubricator at least once a year.

(2) Replace gasket (5 fig. 62) as necessary.

**95. AIR PUMP. (Fig. 64)**

a. Removal. To remove the pump unscrew hold down bolts and disconnect from line fittings, and proceed as follows:

(1) Remove bolts (12 fig. 64) from side flange and remove flange.

(2) Remove piston-shaft (5 fig. 64) and wings (4).

(3) If it is necessary to remove the inner race of the roller bearing, a suitable wheel puller should be used.

b. Cleaning. Clean air pump as follows:

(1) Flush out cylinder and all parts with kerosene or gasoline and wipe dry with clean cloth.

(2) Clean dirt out of inlet and outlet ports.

(3) Coat all parts with lubricating oil.

**NOTE**

A small steel sliver or pipe thread crumb (too small to be easily seen) under a wing will cause hard running and overheating.

(4) Scrape old shellac from flange and rim of cylinder and clean with cloth.

c. Replacement.

(1) If necessary replace piston-shaft and wings in cylinder.

(2) If it should be found that the tips of any worn wings have a sharp edge, as in figure 65, this edge should be filed off round.

(3) The edge must be filed even and straight across, and should be checked with a square to see if it has been filed square with the sides of wing.

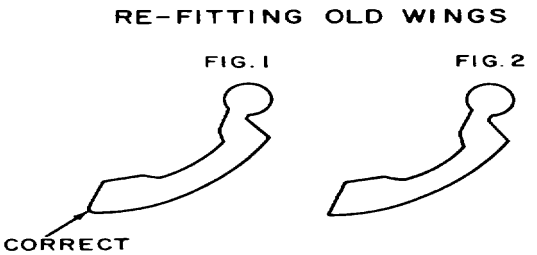



*Figure 65. Wing Replacement of Air Pump*

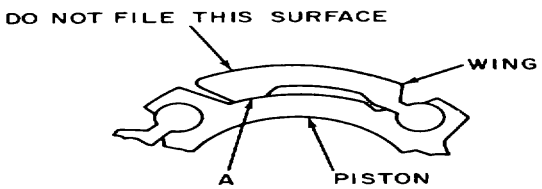



*Figure 66. New Wing Installation on Air Pump*

**NOTE**

All wings are numbered on side 1-2-3-4. Be sure to replace them in their proper socket in rotor, which is also numbered.

(4) Check oil level of automatic oiler and refill as necessary.

(5) Coat outer rim of cylinder or flange with thin shellac before replacing flange.

d. New Wing Installation. When fitting new wings the following instructions should be followed carefully:

(1) One flange or head should be securely bolted to the one side of the cylinder and the piston put in position. The wings if wider then the piston should be filed to match the piston.

(2) Each wing should be fitted separately by inserting in the piston, putting on the head or flange and turning the piston one revolution. If the wing will not pass the top of the cylinder, the wing should be removed and the point "A" filed. (See figure 66.)

## Section II. GENERAL REPAIR INSTRUCTIONS

### 96. DELIVERY UNIT KNIVES

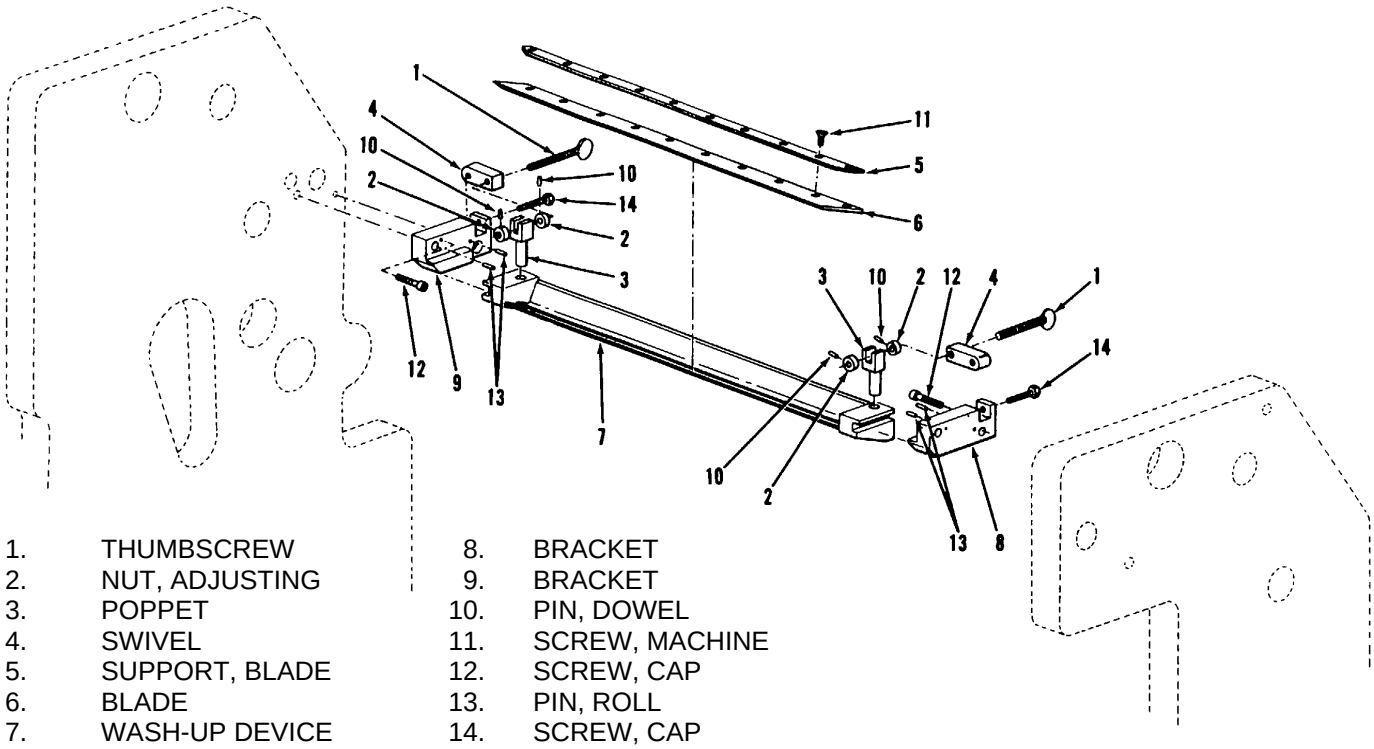
**NOTE**

When delivery unit knives are to be replaced after resharpening, or if new knives are to be installed they must be readjusted in accordance with the following procedures (refer to figure 84).

1. Insert the rotary cutter knife (24), in rotary cutter (25). This knife has a slight bevel, and the cutting or leading edge is wider than the base.
2. Slightly clamp the rotary knife (24) by installing setscrews (53). With rotary knife loosely clamped in place, adjust cutting edge of the knife from the center of rotary cutter (25), by using setscrews (52) and knife gage supplied, Part No. HB-1245.
3. Lay the gage on the trailing portion of the rotary cutter (25) and adjust knife (24), until the cutting edge just meets the gaging surface.
4. Tighten setscrews (53), to clamp the rotary knife firmly in place.
5. The stationary cutter knife (26), is next installed by loosely installing bolts (48) into stationary bracket (28).
6. Adjust stationary knife (26) by turning setscrews (49), so that the stationary knife just contacts the rotary knife (24).
7. Test the above adjustments by inserting a sheet of tissue paper between the knives and rotate the rotary cutter (25) by hand. The stationary knife (26) should be set just sufficiently to clearly cut the tissue paper.
8. Firmly tighten stationary knife with cap screws (48).

### 97. REPAIR INSTRUCTIONS

For removal, disassembly, reassembly and installation of the remaining components of the Model 3-C Offset Press, refer to figures 67 through 98.




| | | | |
|---|---|---|---|
| 1. | THUMBSCREW | 8. | BRACKET |
| 2. | NUT, ADJUSTING | 9. | BRACKET |
| 3. | POPPET | 10. | PIN, DOWEL |
| 4. | SWIVEL | 11. | SCREW, MACHINE |
| 5. | SUPPORT, BLADE | 12. | SCREW, CAP |
| 6. | BLADE | 13. | PIN, ROLL |
| 7. | WASH-UP DEVICE | 14. | SCREW, CAP |

*Figure 67. Wash-Up Device Exploded View*

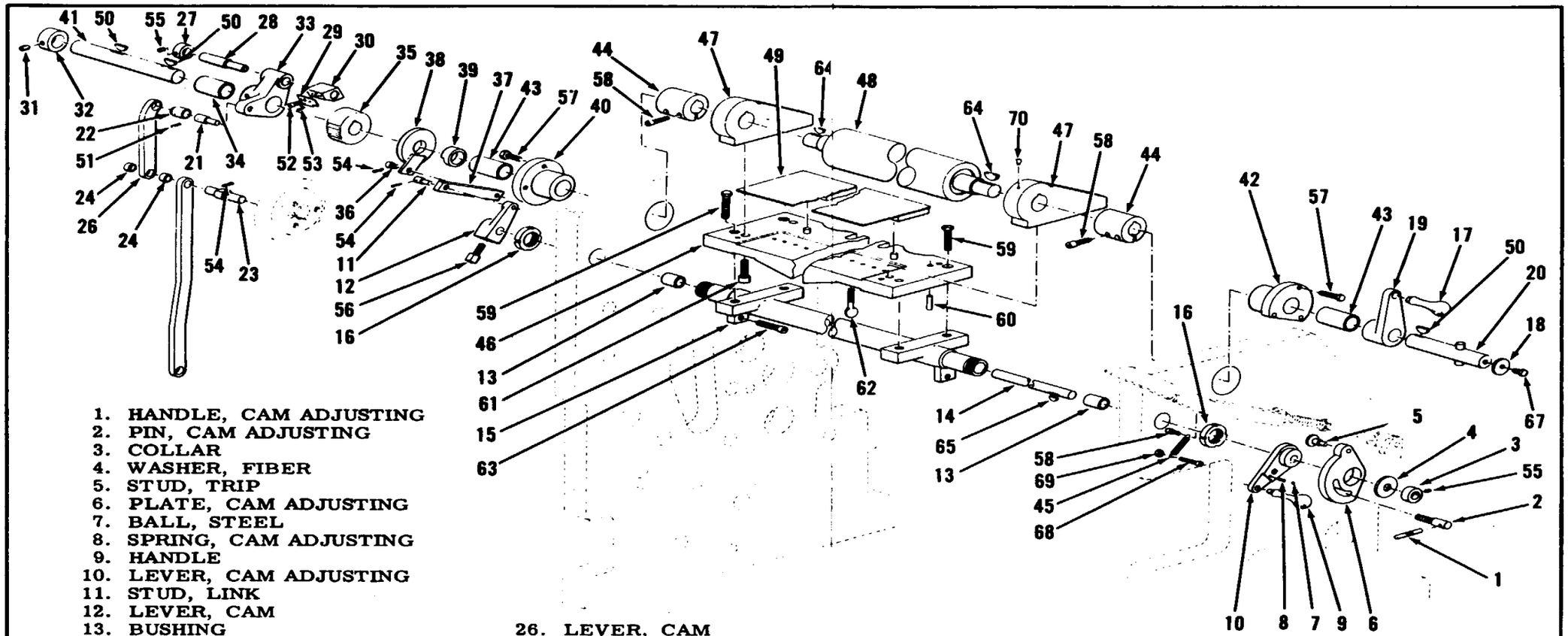



*Figure 68. Ink Motion Alignment, Exploded View*

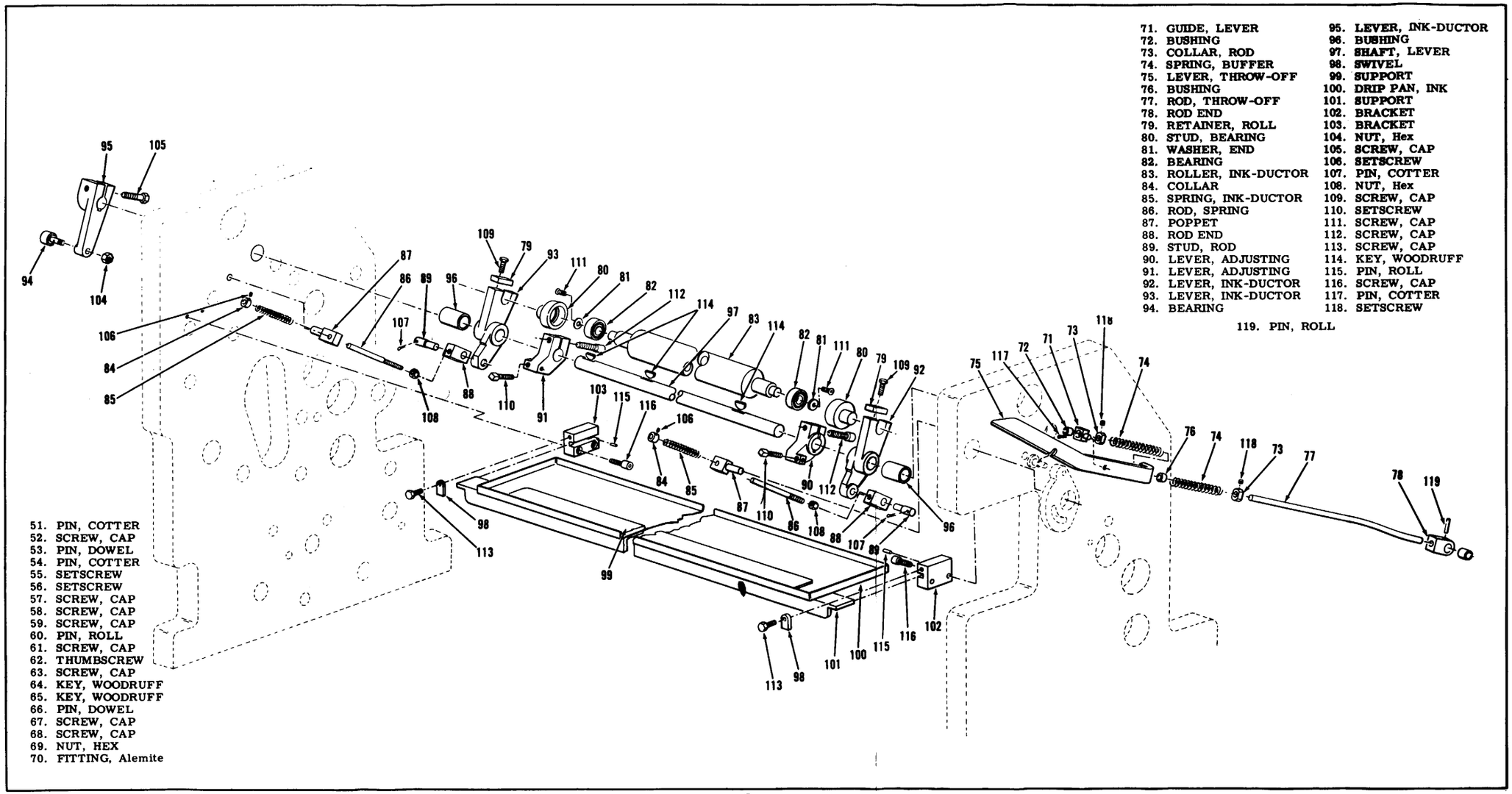
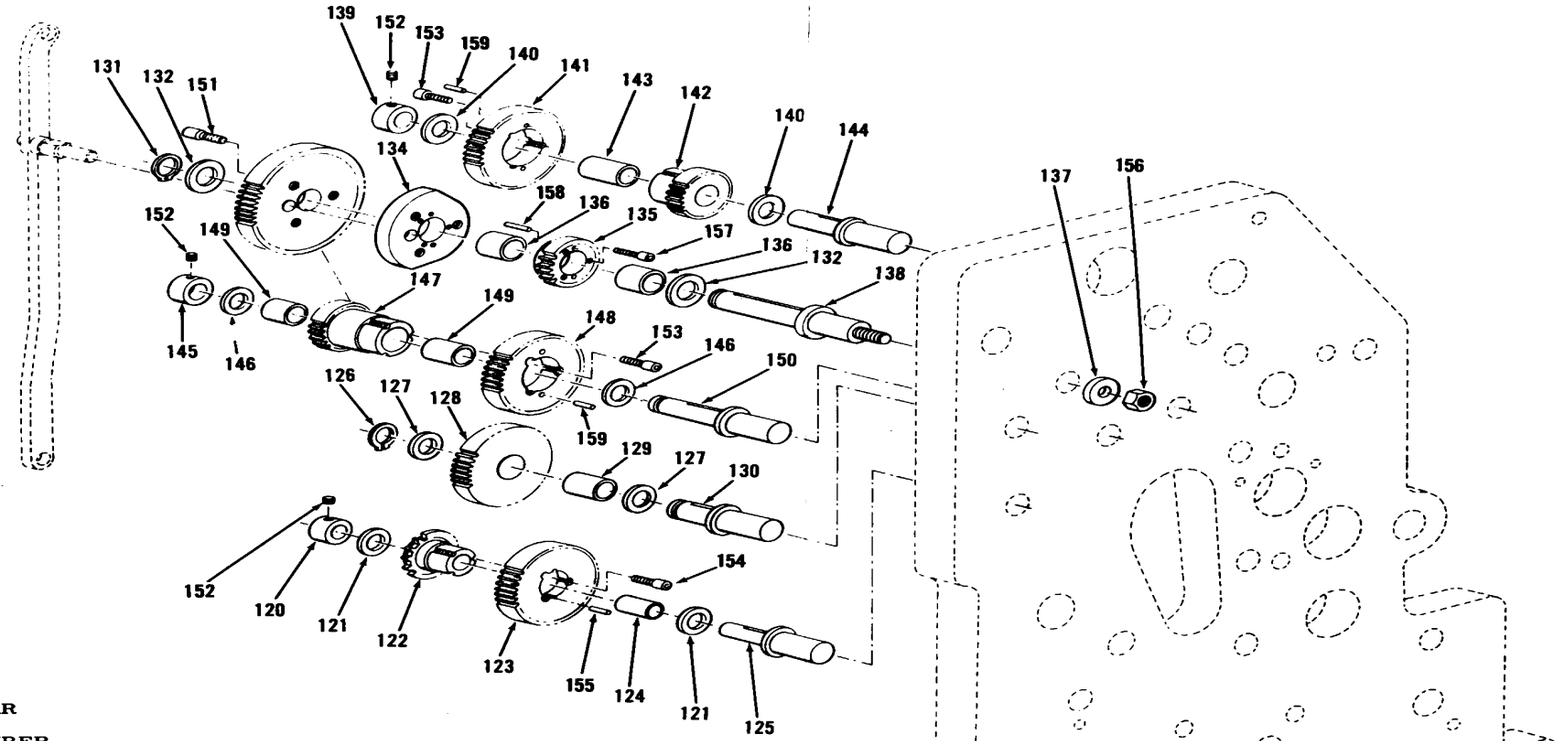



*Figure 68. Continued.*




120. COLLAR
121. WASHER FIBER
122. SPROCKET
123. GEAR
124. BUSHING
125. STUD, GEAR
126. RING, RETAINING
127. WASHER FIBER
128. GEAR
129. BUSHING
130. STUD, GEAR
131. RING, RETAINING
132. WASHER, FIBER
133. GEAR
134. CAM, INK DUCTOR
135. GEAR
136. BUSHING
137. WASHER, STUD
138. STUD, CAM
139. COLLAR
140. WASHER FIBER
141. GEAR
142. GEAR
143. BUSHING
144. STUD, GEAR
145. COLLAR
146. WASHER FIBER
147. GEAR
148. GEAR
149. BUSHING
150. STUD, GEAR
151. SCREW, CAP,
152. SETSCREW
153. SCREW
154. SCREW, CAP
155. PIN, ROLL
156. NUT, HEX
157. SCREW, CAP
158. PIN, ROLL
159. PIN, ROLL

*Figure 68②. Continued*

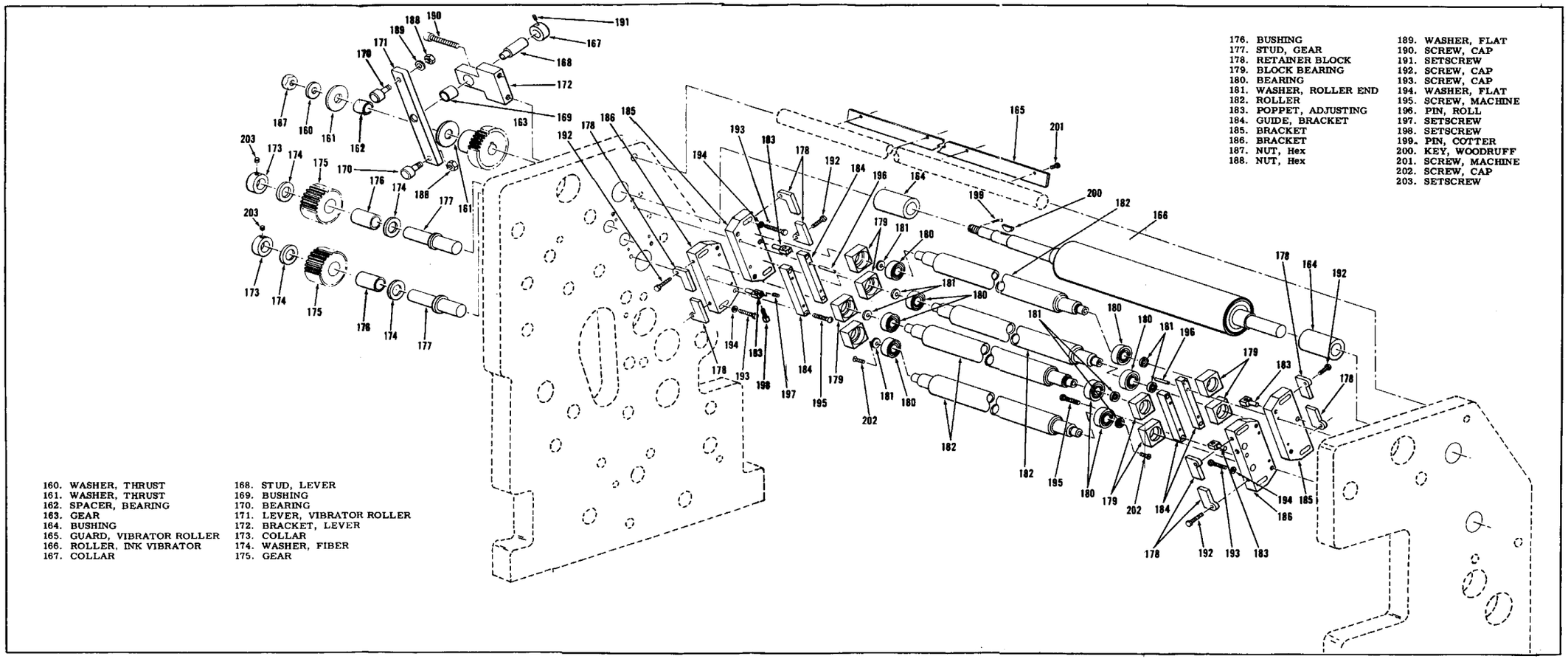



*Figure 68[d]. Continued.*

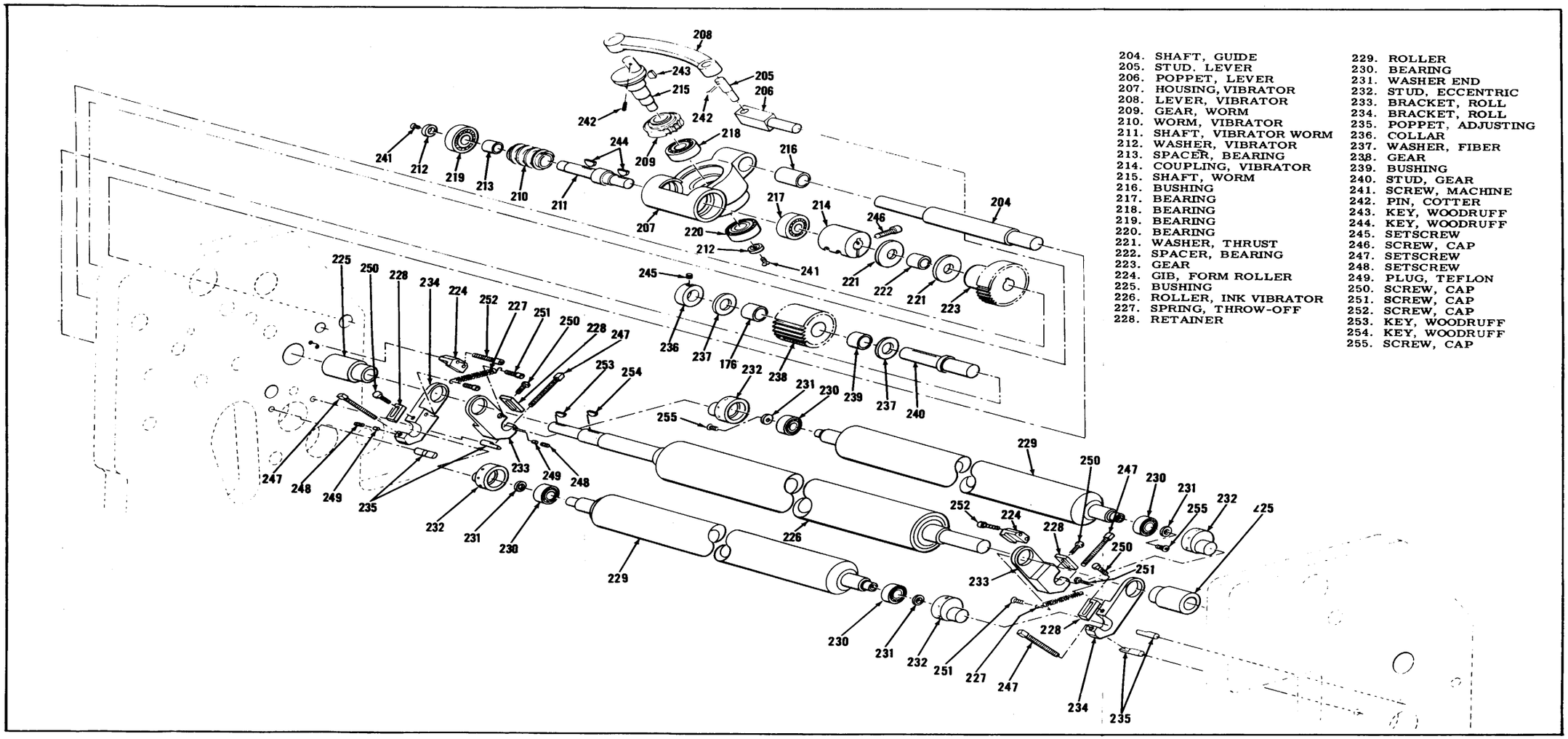
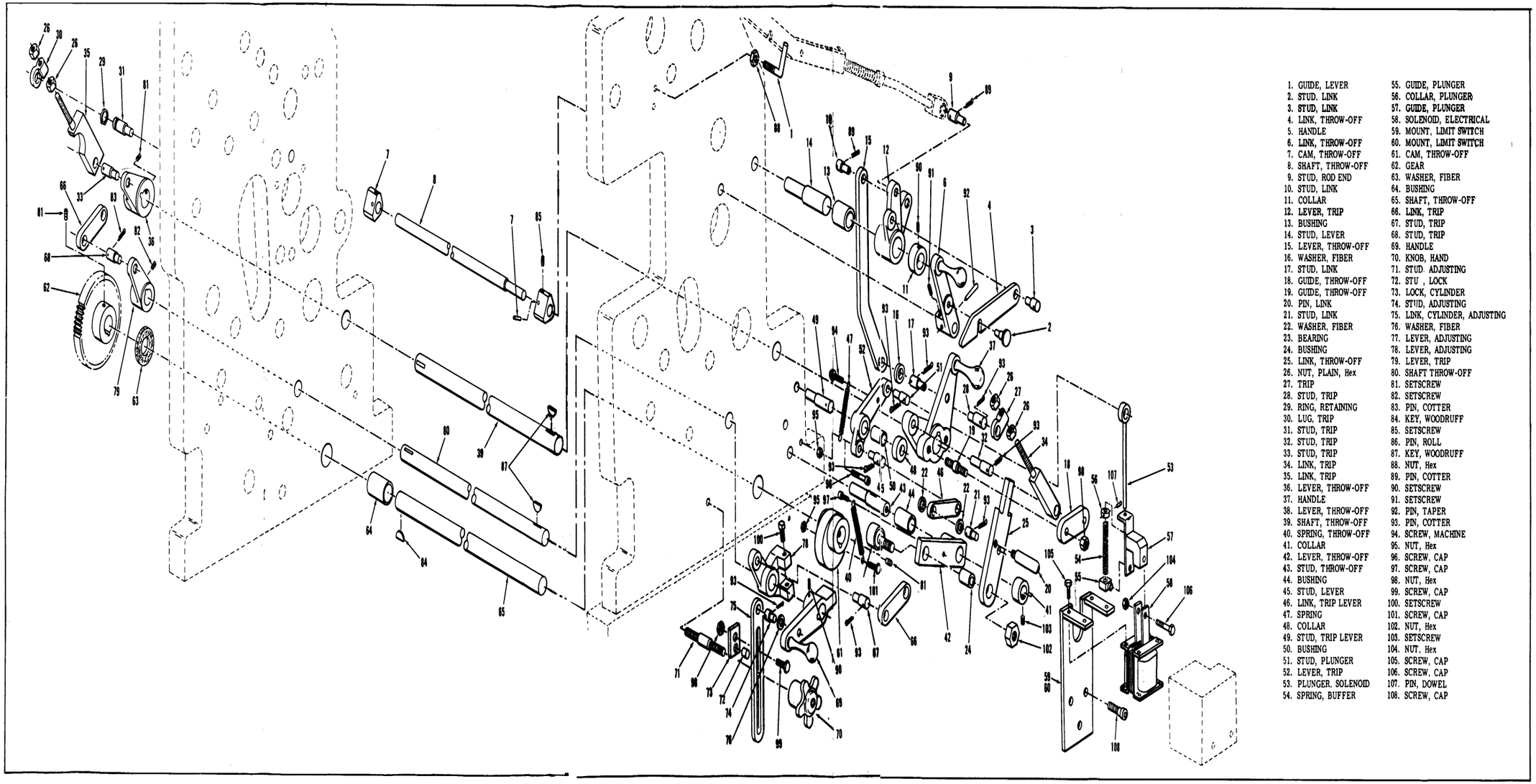
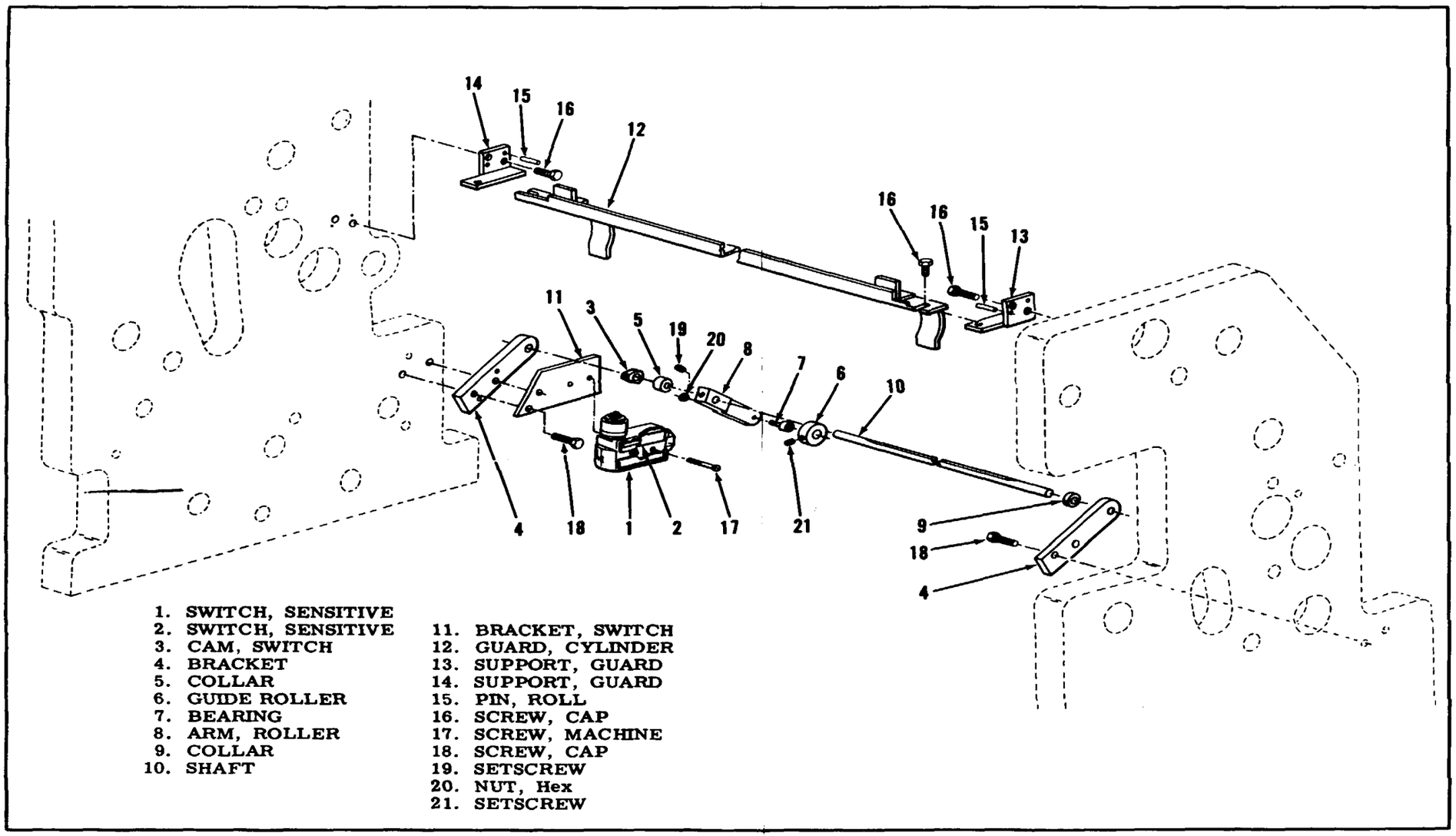



*Figure 68. Continued.*



1. GUIDE, LEVER
2. STUD. LINK
3. STUD, LINK
4. LINK, THROW-OFF
5. HANDLE
6. LINK, THROW-OFF
7. CAM, THROW-OFF
8. SHAFT, THROW-OFF
9. STUD, ROD END
10. STUD, LINK
11. COLLAR
12. LEVER, TRIP
13. BUSHING
14. STUD, LEVER
15. LEVER, THROW-OFF
16. WASHER, FIBER
17. STUD, LINK
18. GUIDE, THROW-OFF
19. GUIDE, THROW-OFF
20. PIN, LINK
21. STUD, LINK
22. WASHER, FIBER
23. BEARING
24. BUSHING
25. LINK, THROW-OFF
26. NUT, PLAIN, Hex
27. TRIP
28. STUD, TRIP
29. RING, RETAINING
30. LUG, TRIP
31. STUD, TRIP
32. STUD, TRIP
33. STUD, TRIP
34. LINK, TRIP
35. LINK, TRIP
36. LEVER, THROW-OFF
37. HANDLE
38. LEVER, THROW-OFF
39. SHAFT, THROW-OFF
40. SPRING, THROW-OFF
41. COLLAR
42. LEVER, THROW-OFF
43. STUD, THROW-OFF
44. BUSHING
45. STUD, LEVER
46. LINK, TRIP LEVER
47. SPRING
48. COLLAR
49. STUD, TRIP LEVER
50. BUSHING
51. STUD, PLUNGER
52. LEVER, TRIP
53. PLUNGER. SOLENOID
54. SPRING, BUFFER
55. GUIDE, PLUNGER
56. COLLAR, PLUNGER
57. GUIDE, PLUNGER
58. SOLENOID, ELECTRICAL
59. MOUNT, LIMIT SWITCH
60. MOUNT, LIMIT SWITCH
61. CAM, THROW-OFF
62. GEAR
63. WASHER, FIBER
64. BUSHING
65. SHAFT, THROW-OFF
66. LINK, TRIP
67. STUD, TRIP
68. STUD, TRIP
69. HANDLE
70. KNOB, HAND
71. STUD. ADJUSTING
72. STU , LOCK
73. LOCK, CYLINDER
74. STUD, ADJUSTING
75. LINK, CYLINDER, ADJUSTING
76. WASHER, FIBER
77. LEVER, ADJUSTING
78. LEVER, ADJUSTING
79. LEVER, TRIP
80. SHAFT THROW-OFF
81. SETSCREW
82. SETSCREW
83. PIN, COTTER
84. KEY, WOODRUFF
85. SETSCREW
86. PIN, ROLL
87. KEY, WOODRUFF
88. NUT, Hex
89. PIN, COTTER
90. SETSCREW
91. SETSCREW
92. PIN, TAPER
93. PIN, COTTER
94. SCREW, MACHINE
95. NUT, Hex
96. SCREW, CAP
97. SCREW, CAP
98. NUT, Hex
99. SCREW, CAP
100. SETSCREW
101. SCREW, CAP
102. NUT, Hex
103. SETSCREW
104. NUT, Hex
105. SCREW, CAP
106. SCREW. CAP
107. PIN, DOWEL
108. SCREW, CAP

*Figure 69. Throw off alignment, exploded view.*




1. SWITCH, SENSITIVE
2. SWITCH, SENSITIVE
3. CAM, SWITCH
4. BRACKET
5. COLLAR
6. GUIDE ROLLER
7. BEARING
8. ARM, ROLLER
9. COLLAR
10. SHAFT
11. BRACKET, SWITCH
12. GUARD, CYLINDER
13. SUPPORT, GUARD
14. SUPPORT, GUARD
15. PIN, ROLL
16. SCREW, CAP
17. SCREW, MACHINE
18. SCREW, CAP
19. SETSCREW
20. NUT, Hex
21. SETSCREW

*Figure 70. Paper Break Mechanism and Cylinder Guard, Exploded View*

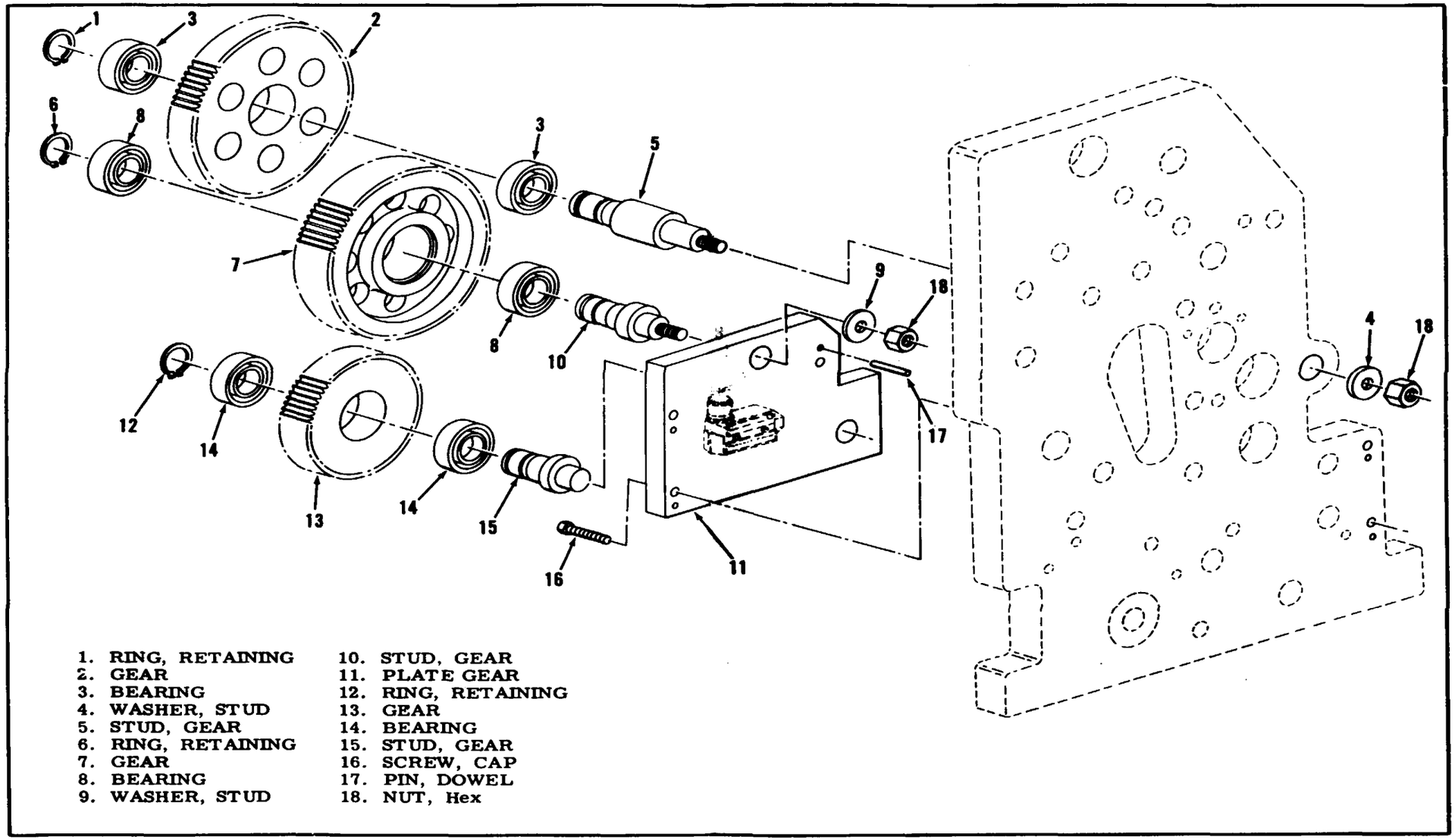



*Figure 71. Drive Gear and Gear Plate Assembly*

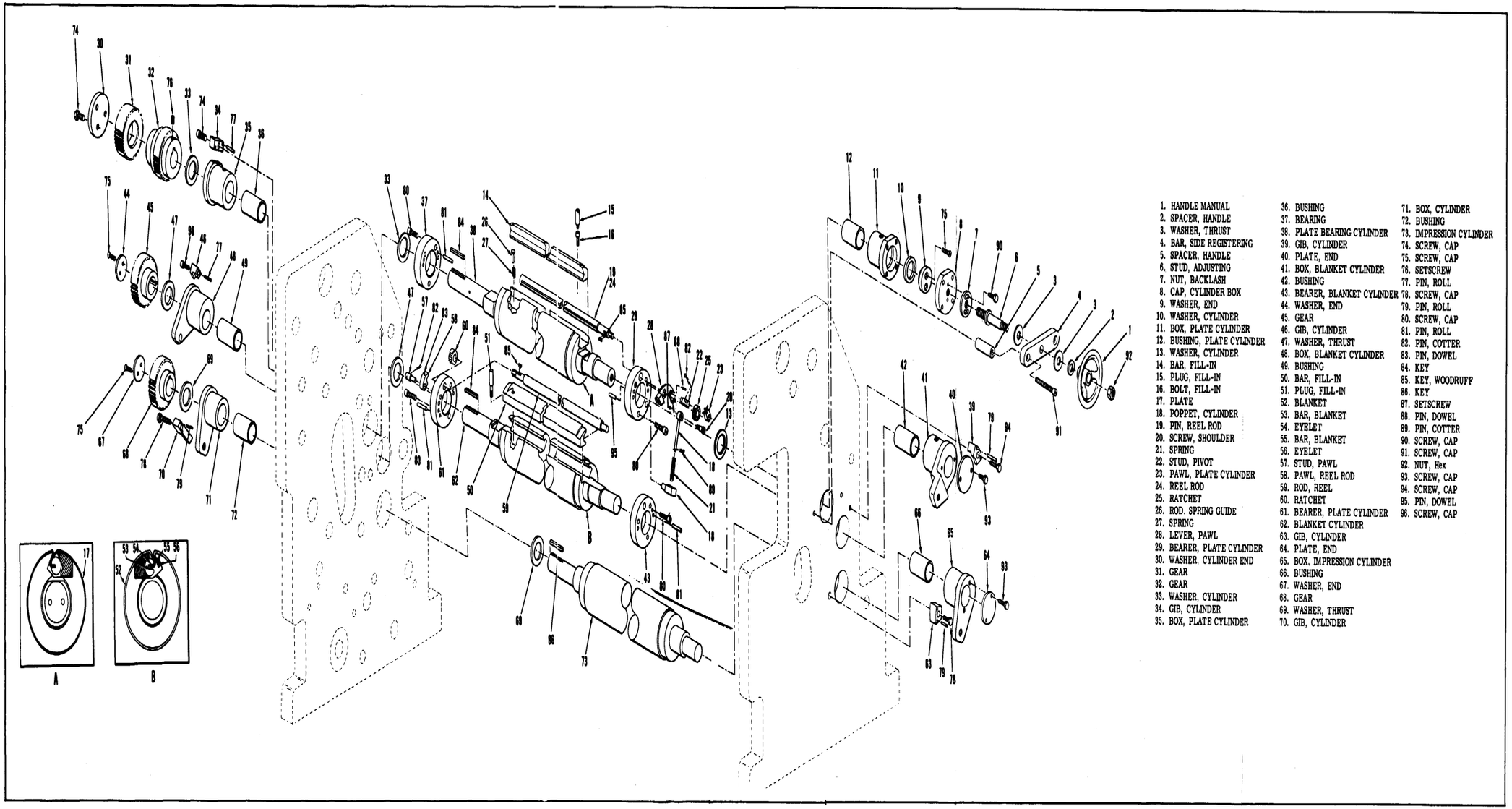



*Figure 72©. Cylinder and main drive assembly, exploded view.*

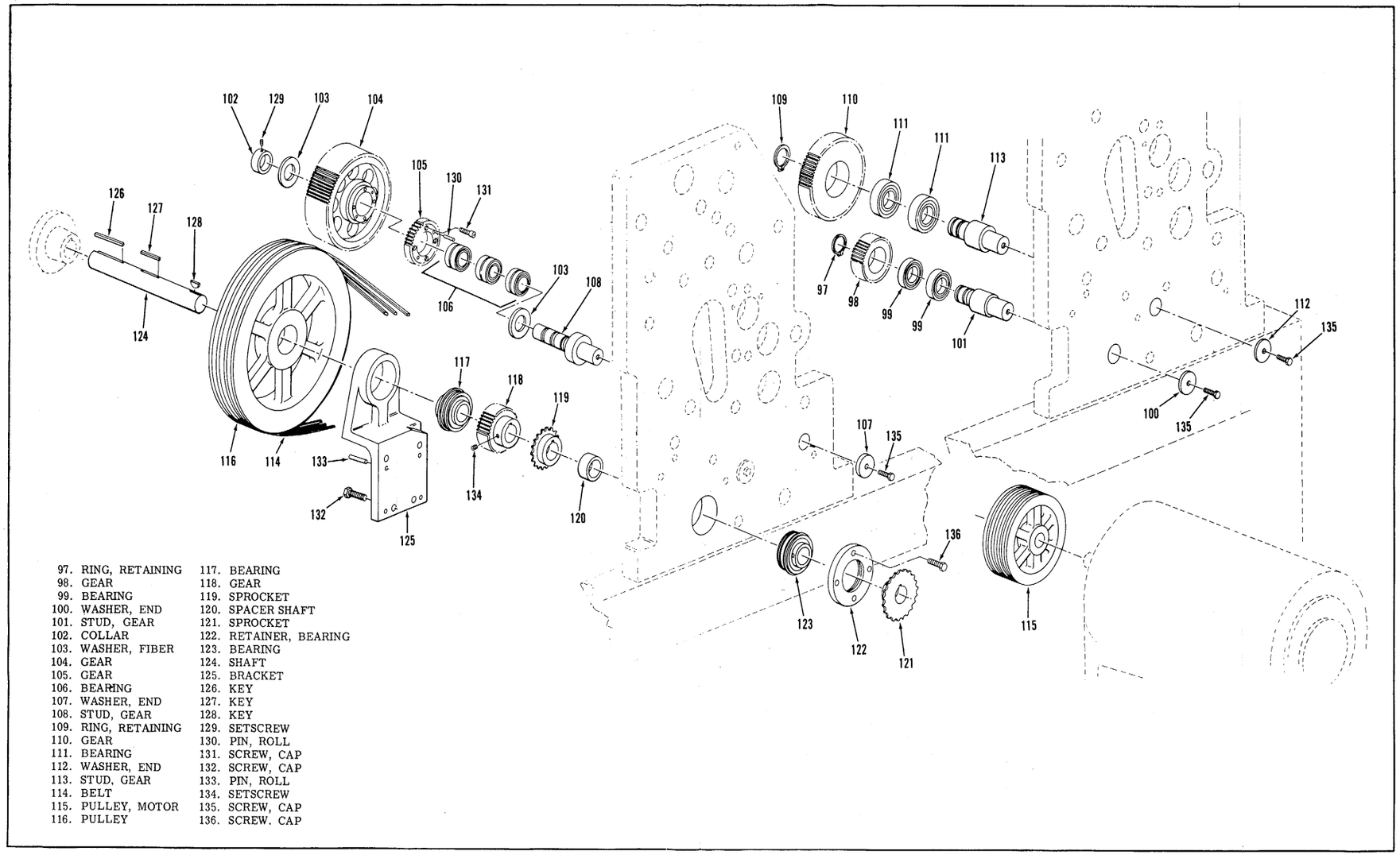



*Figure 72. Continued.*

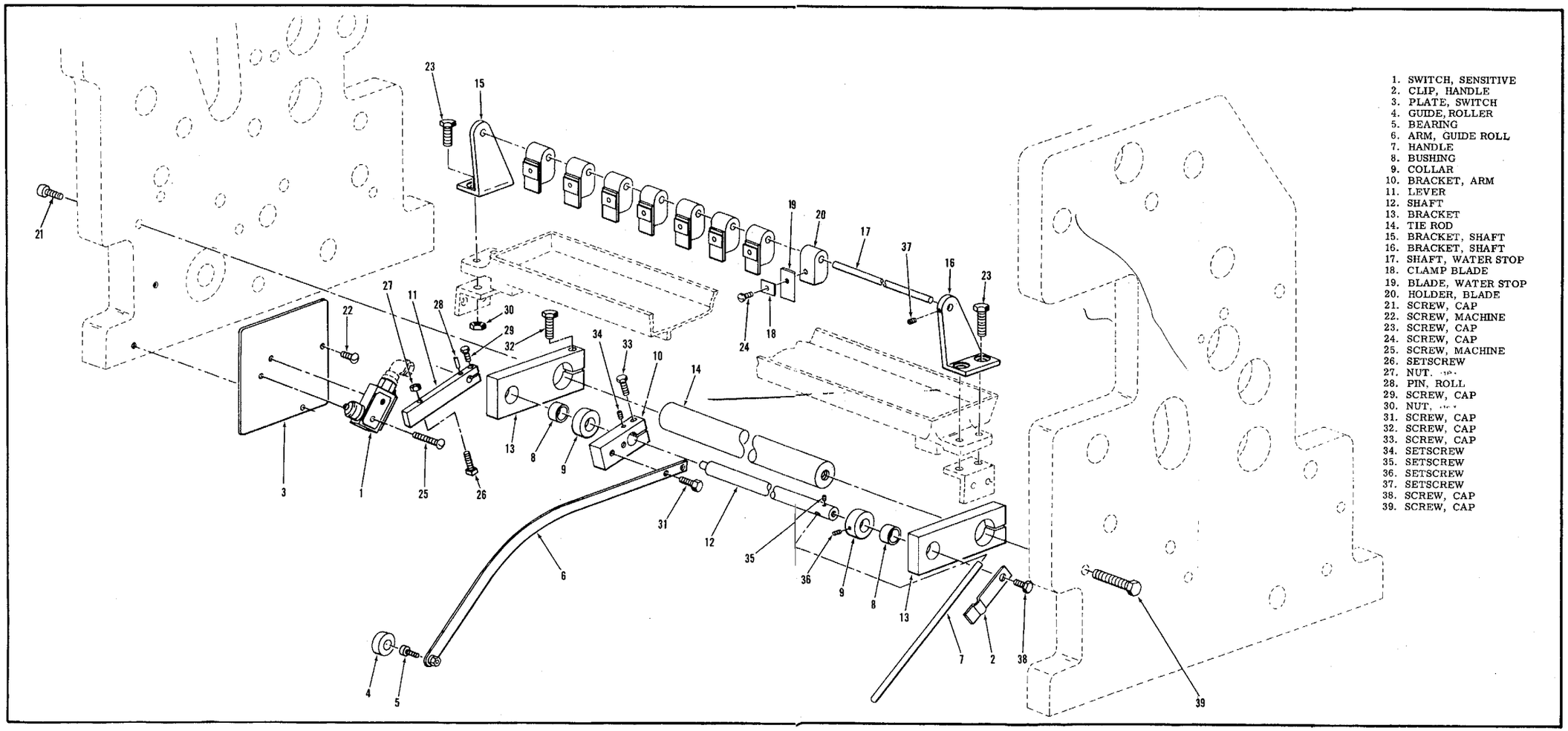



*Figure 73. Paper roll stop switch and water stop assembly, exploded view.*

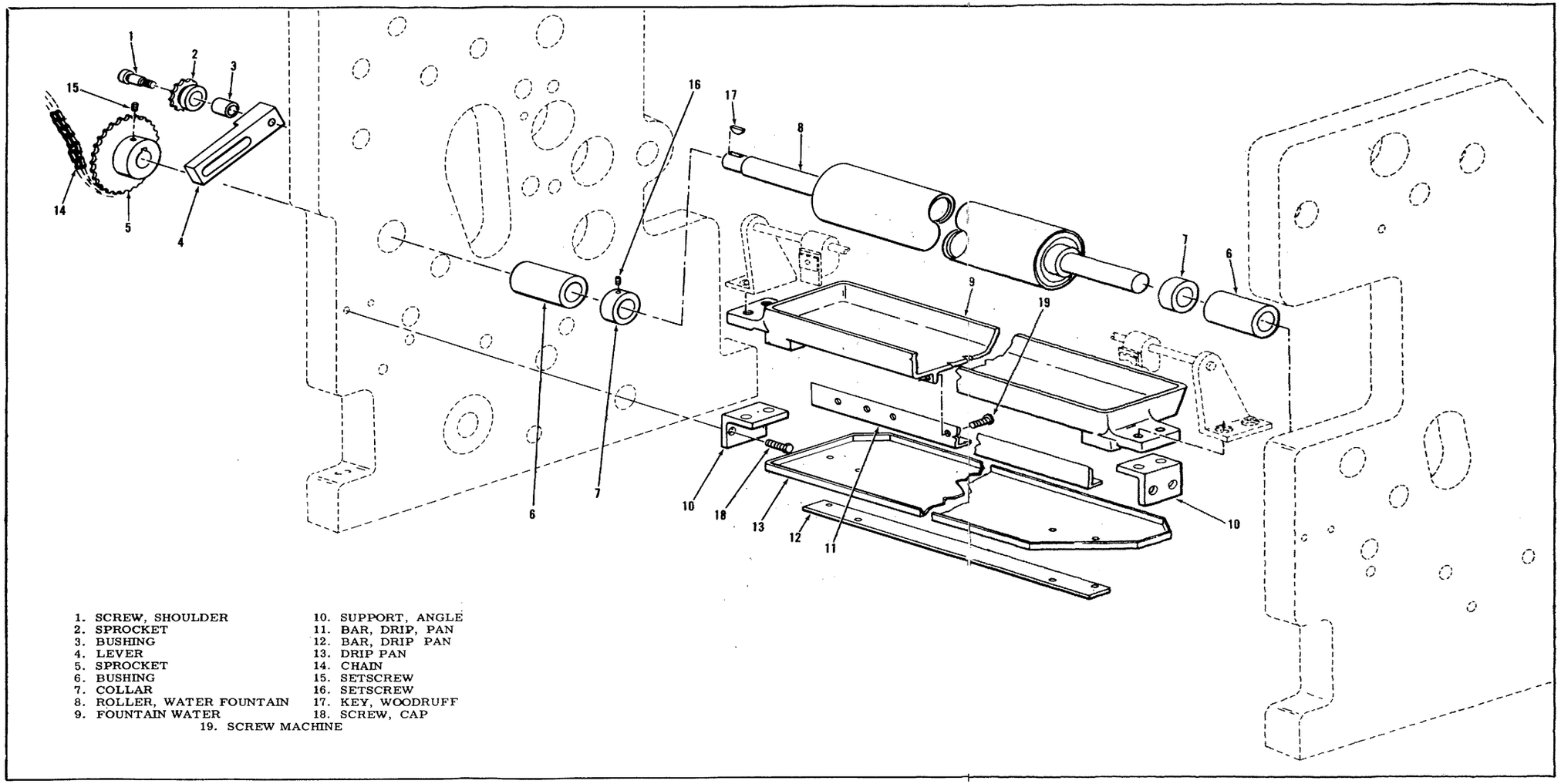



*Figure 74.①. Water motion alignment, exploded view.*

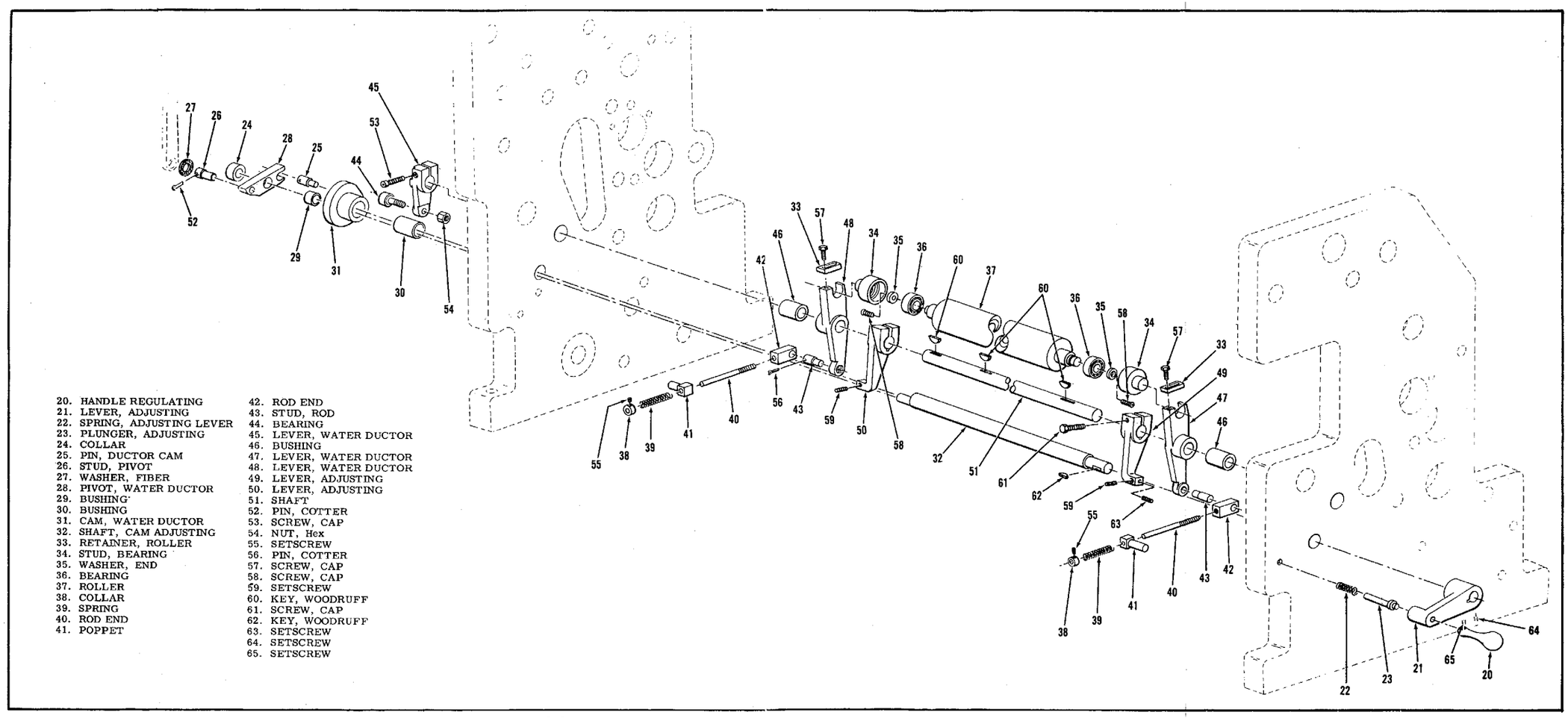
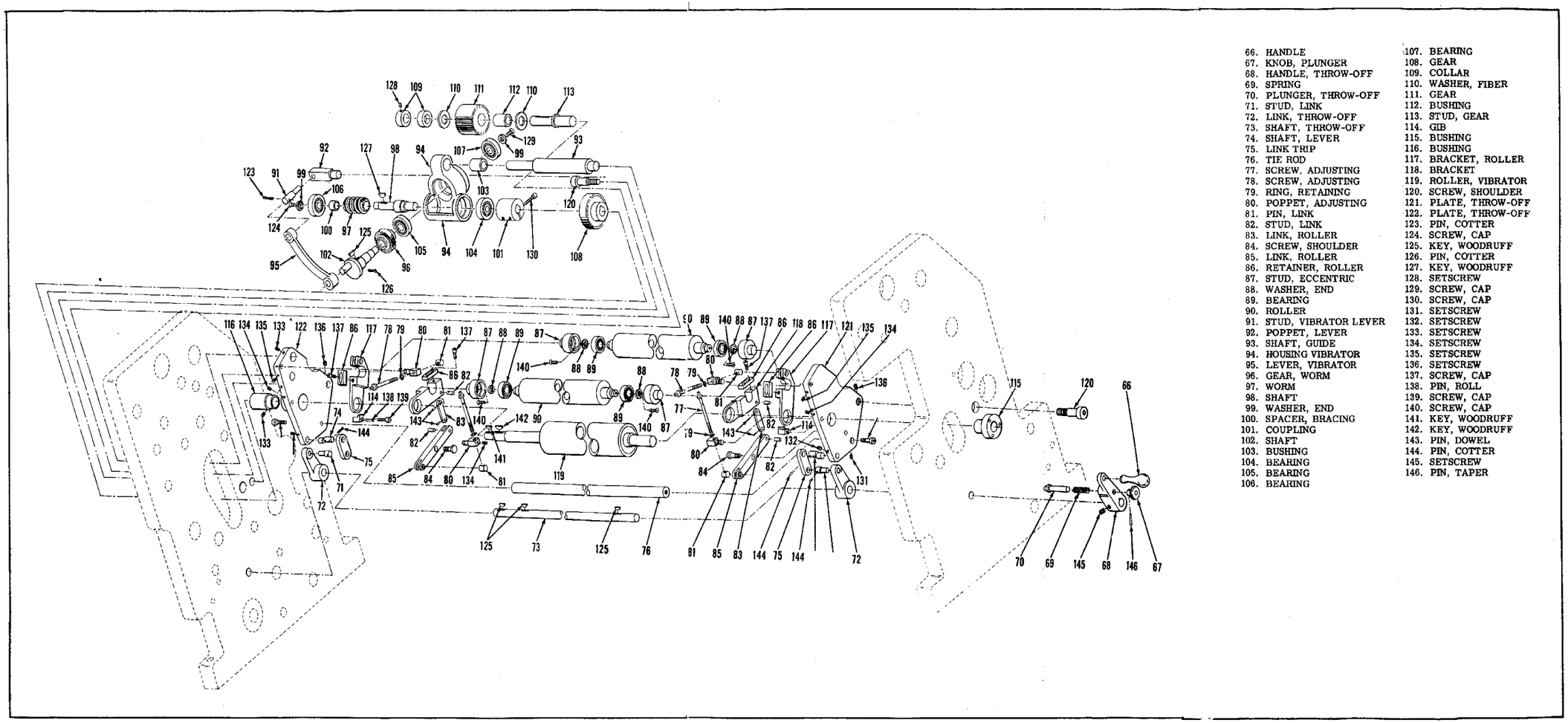



*Figure 74②. Continued.*



66. HANDLE
67. KNOB, PLUNGER
68. HANDLE, THROW-OFF
69. SPRING
70. PLUNGER, THROW-OFF
71. STUD, LINK
72. LINK, THROW-OFF
73. SHAFT, THROW-OFF
74. SHAFT, LEVER
75. LINK TRIP
76. TIE ROD
77. SCREW, ADJUSTING
78. SCREW, ADJUSTING
79. RING, RETAINING
80. POPPET, ADJUSTING
81. PIN, LINK
82. STUD, LINK
83. LINK, ROLLER
84. SCREW, SHOULDER
85. LINK, ROLLER
86. RETAINER, ROLLER
87. STUD, ECCENTRIC
88. WASHER, END
89. BEARING
90. ROLLER
91. STUD, VIBRATOR LEVER
92. POPPET, LEVER
93. SHAFT, GUIDE
94. HOUSING VIBRATOR
95. LEVER, VIBRATOR
96. GEAR, WORM
97. WORM
98. SHAFT
99. WASHER, END
100. SPACER, BRACING
101. COUPLING
102. SHAFT
103. BUSHING
104. BEARING
105. BEARING
106. BEARING
107. BEARING
108. GEAR
109. COLLAR
110. WASHER, FIBER
111. GEAR
112. BUSHING
113. STUD, GEAR
114. GIB
115. BUSHING
116. BUSHING
117. BRACKET, ROLLER
118. BRACKET
119. ROLLER, VIBRATOR
120. SCREW, SHOULDER
121. PLATE, THROW-OFF
122. PLATE, THROW-OFF
123. PIN, COTTER
124. SCREW, CAP
125. KEY, WOODRUFF
126. PIN, COTTER
127. KEY, WOODRUFF
128. SETSCREW
129. SCREW, CAP
130. SCREW, CAP
131. SETSCREW
132. SETSCREW
133. SETSCREW
134. SETSCREW
135. SETSCREW
136. SETSCREW
137. SCREW, CAP
138. PIN, ROLL
139. SCREW, CAP
140. SCREW, CAP
141. KEY, WOODRUFF
142. KEY, WOODRUFF
143. PIN, DOWEL
144. PIN, COTTER
145. SETSCREW
146. PIN, TAPER

*Figure 74®. Continued.*

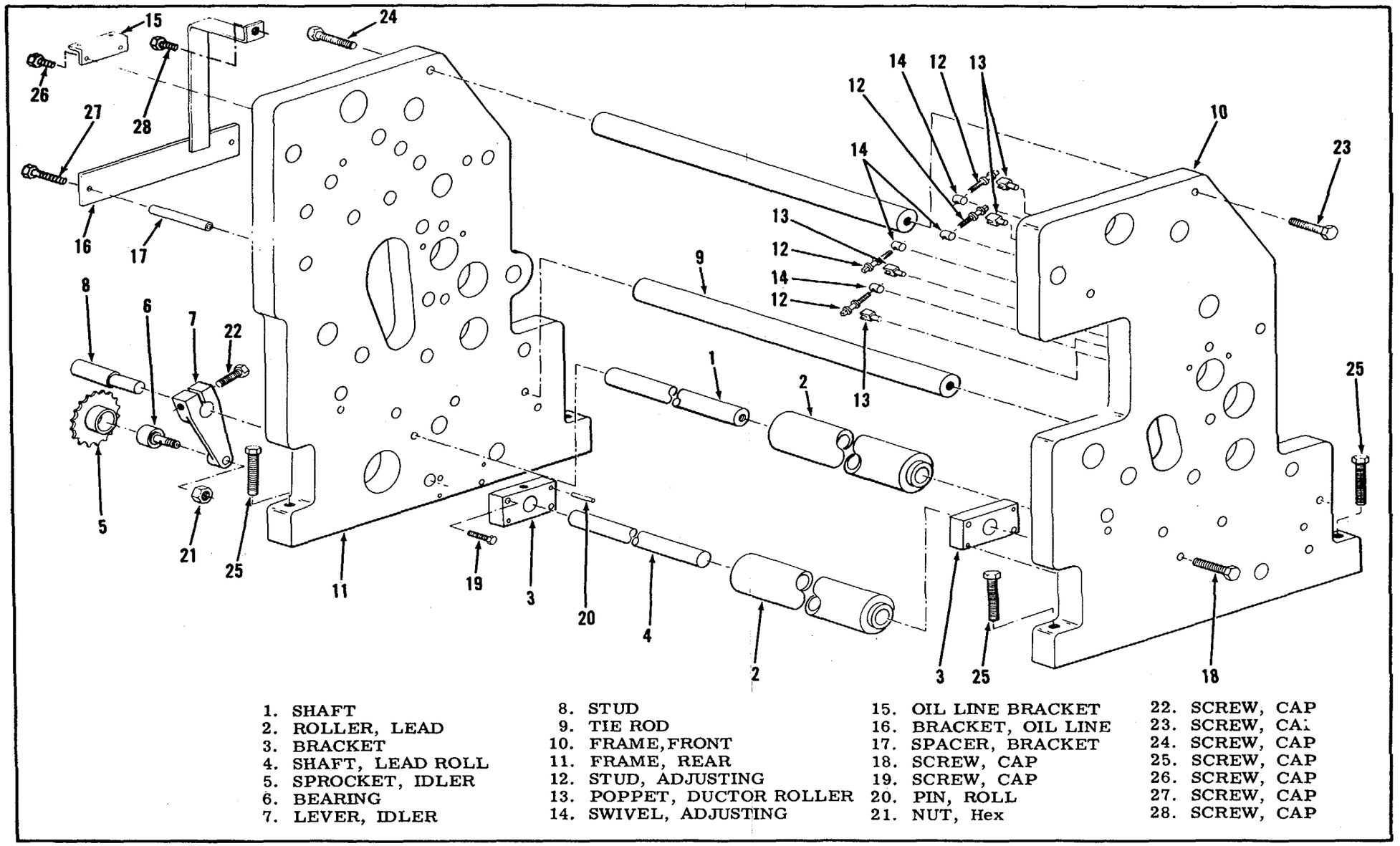



*Figure 75. Lead Roller, Idler Sprocket and Unit Frame Assembly, Exploded View.*

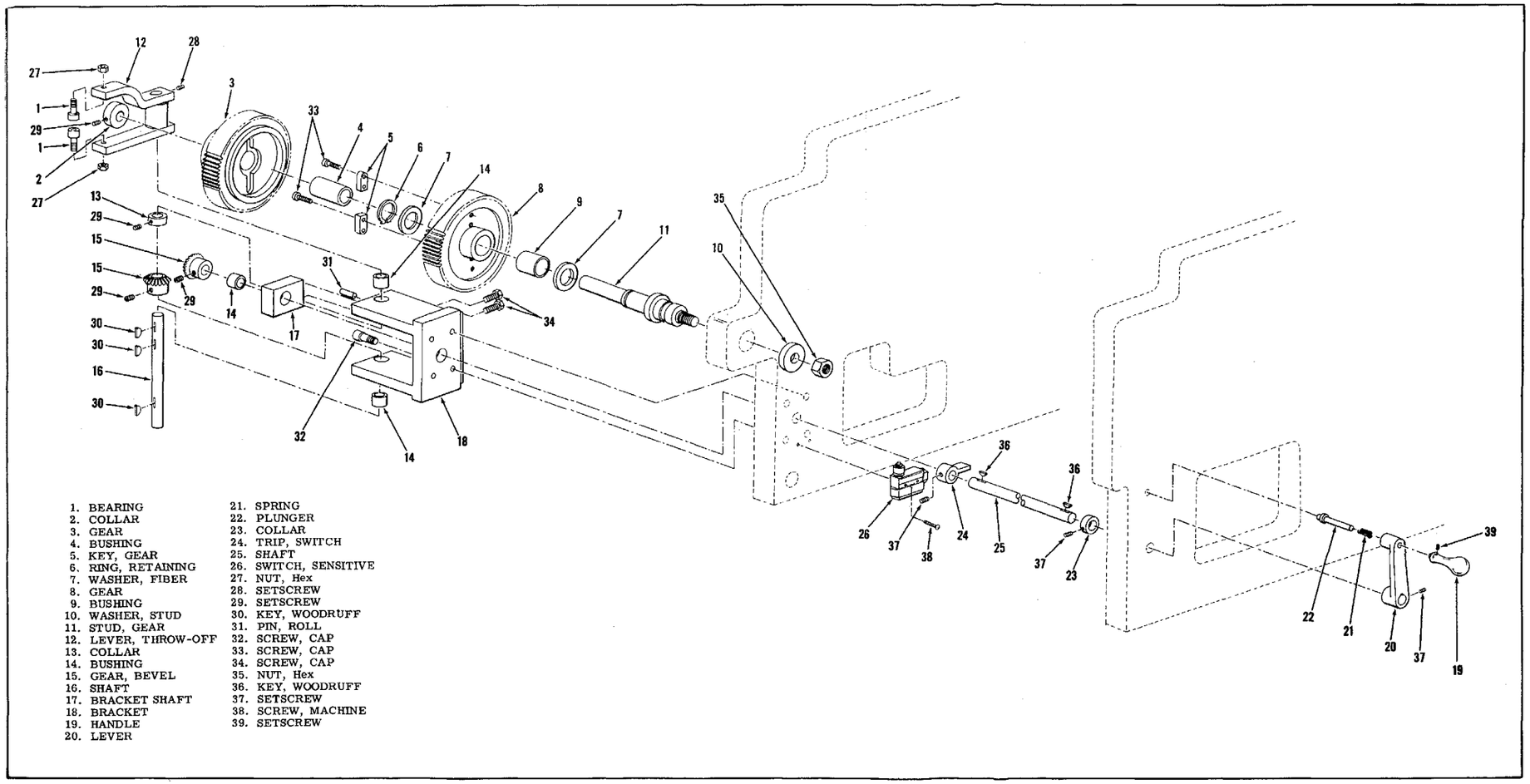



*Figure 76. Sheeter clutch mechanism, exploded view.*

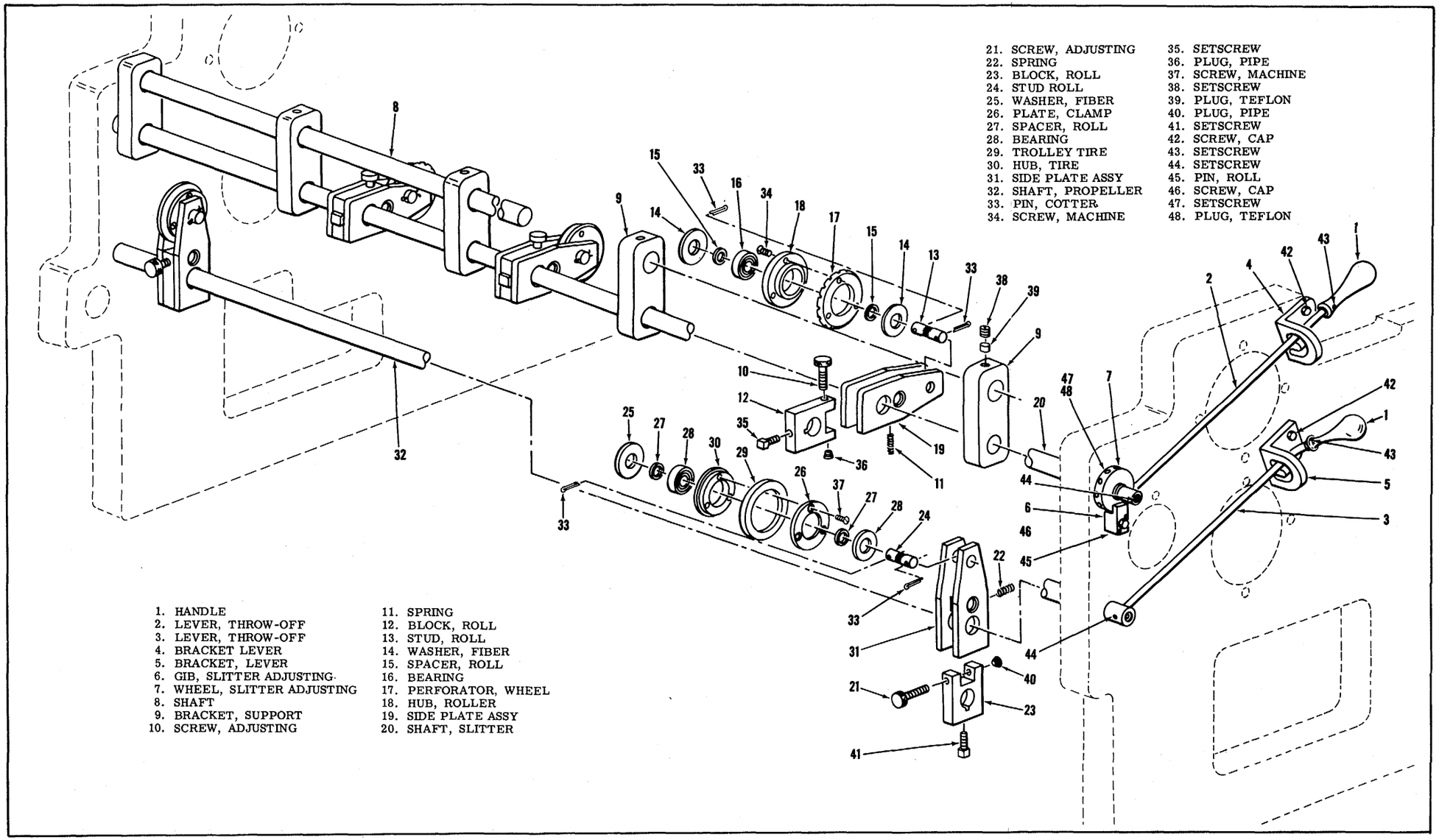



*Figure 77. Propeller and perforating wheel assembly, exploded view.*

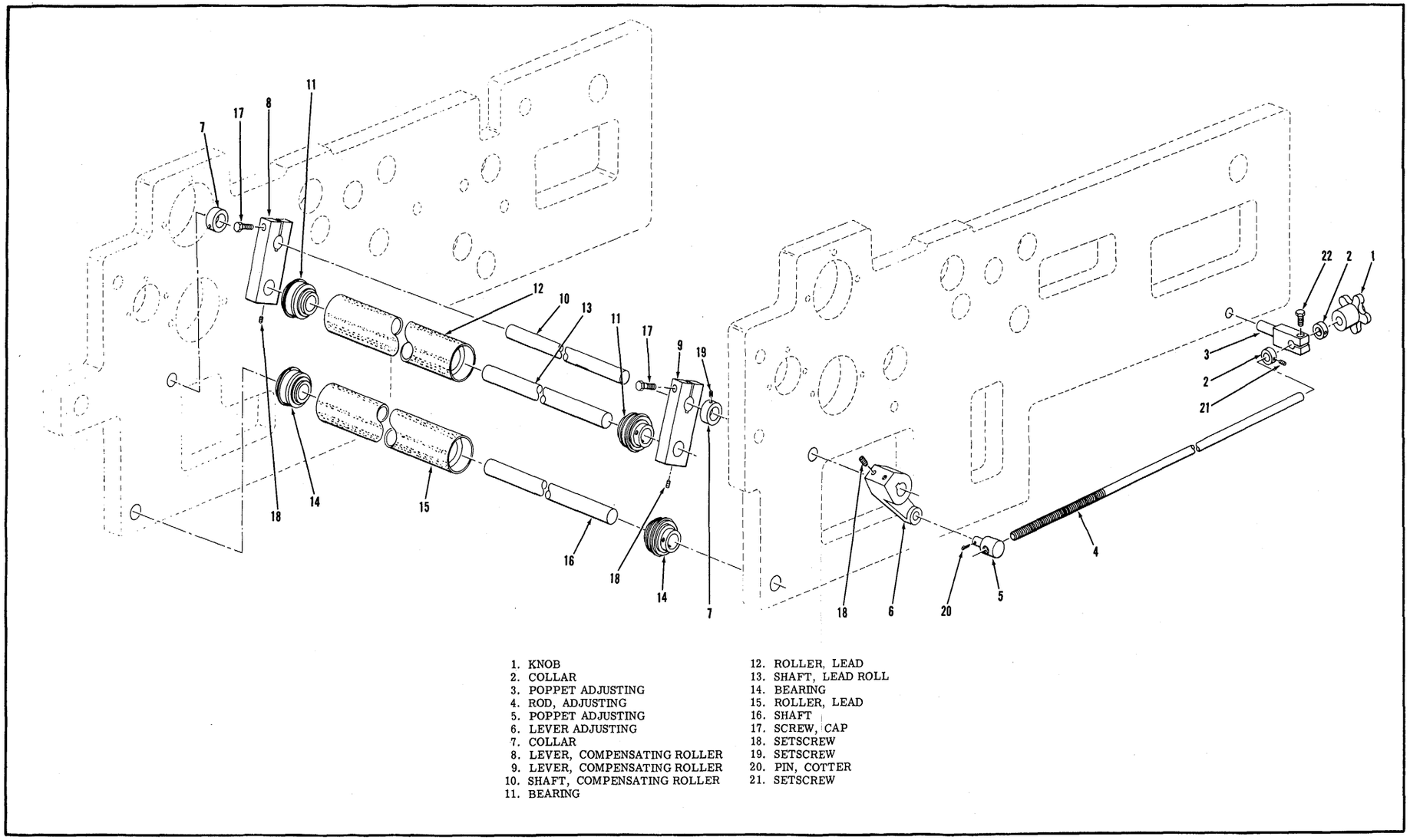



*Figure 78. Compensator lever and lead roller assembly, exploded view.*

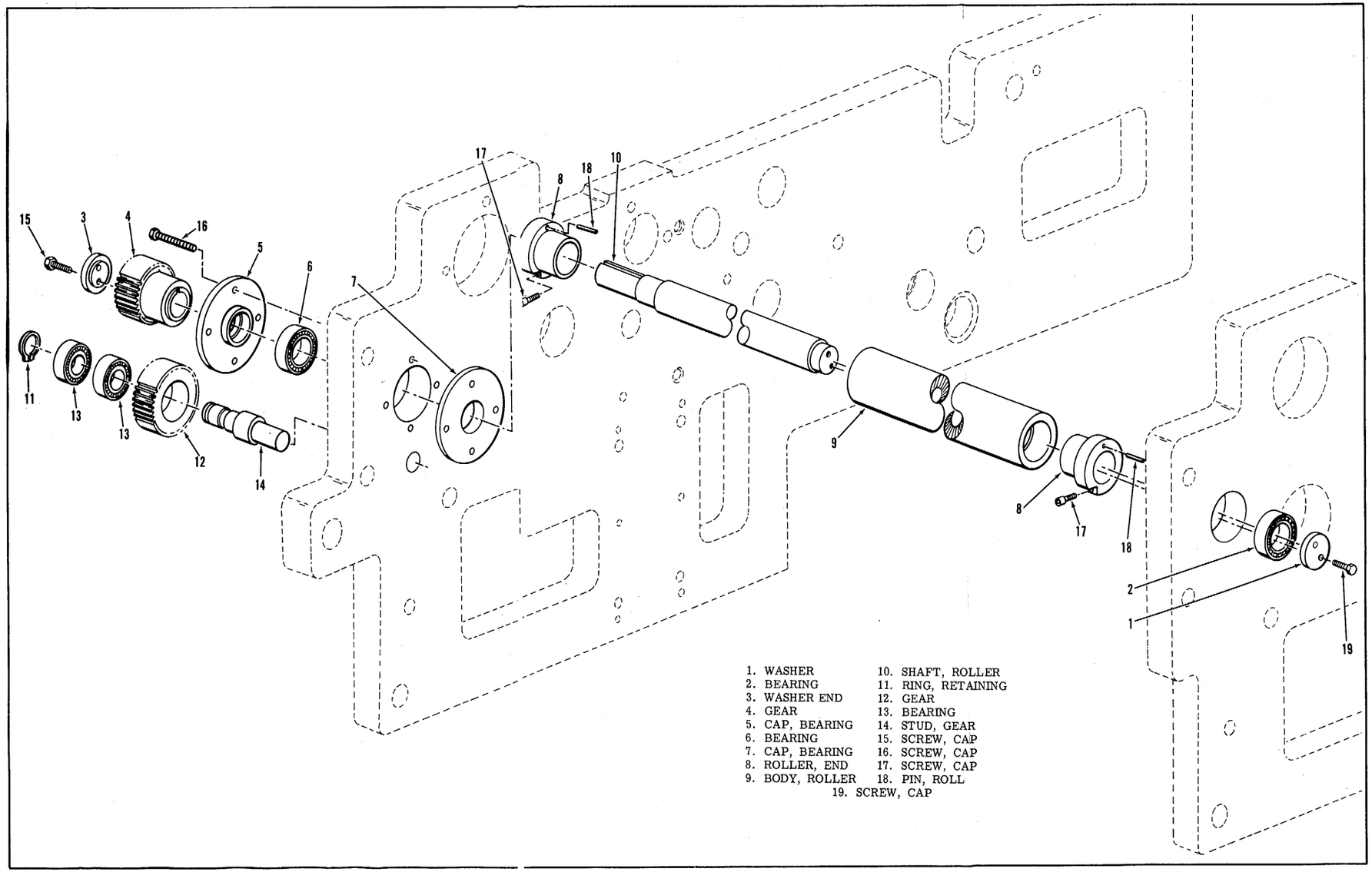



*Figure 79. Slitter assembly, exploded view.*

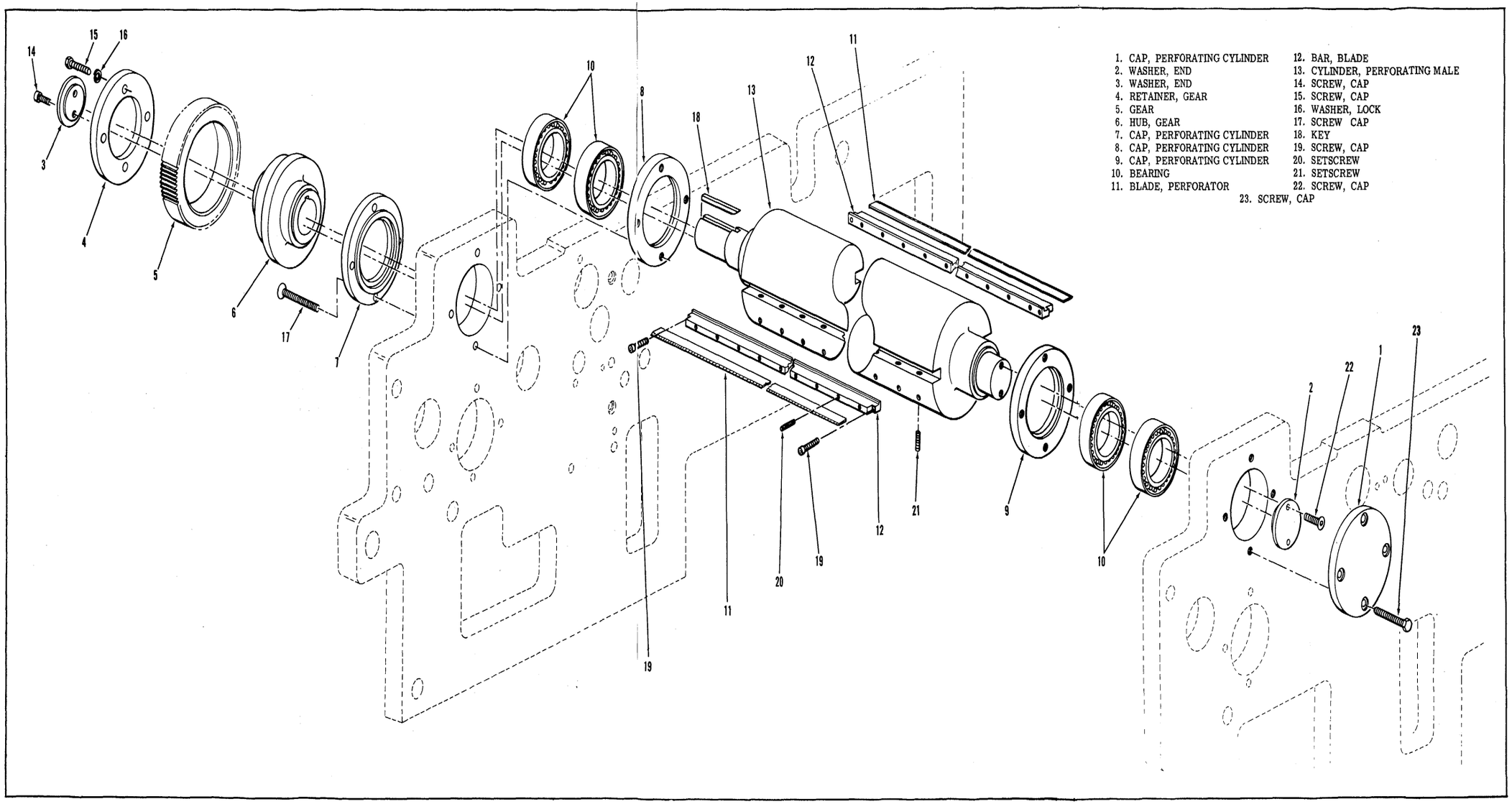



*Figure 80. Male perforating cylinder assembly, exploded view.*

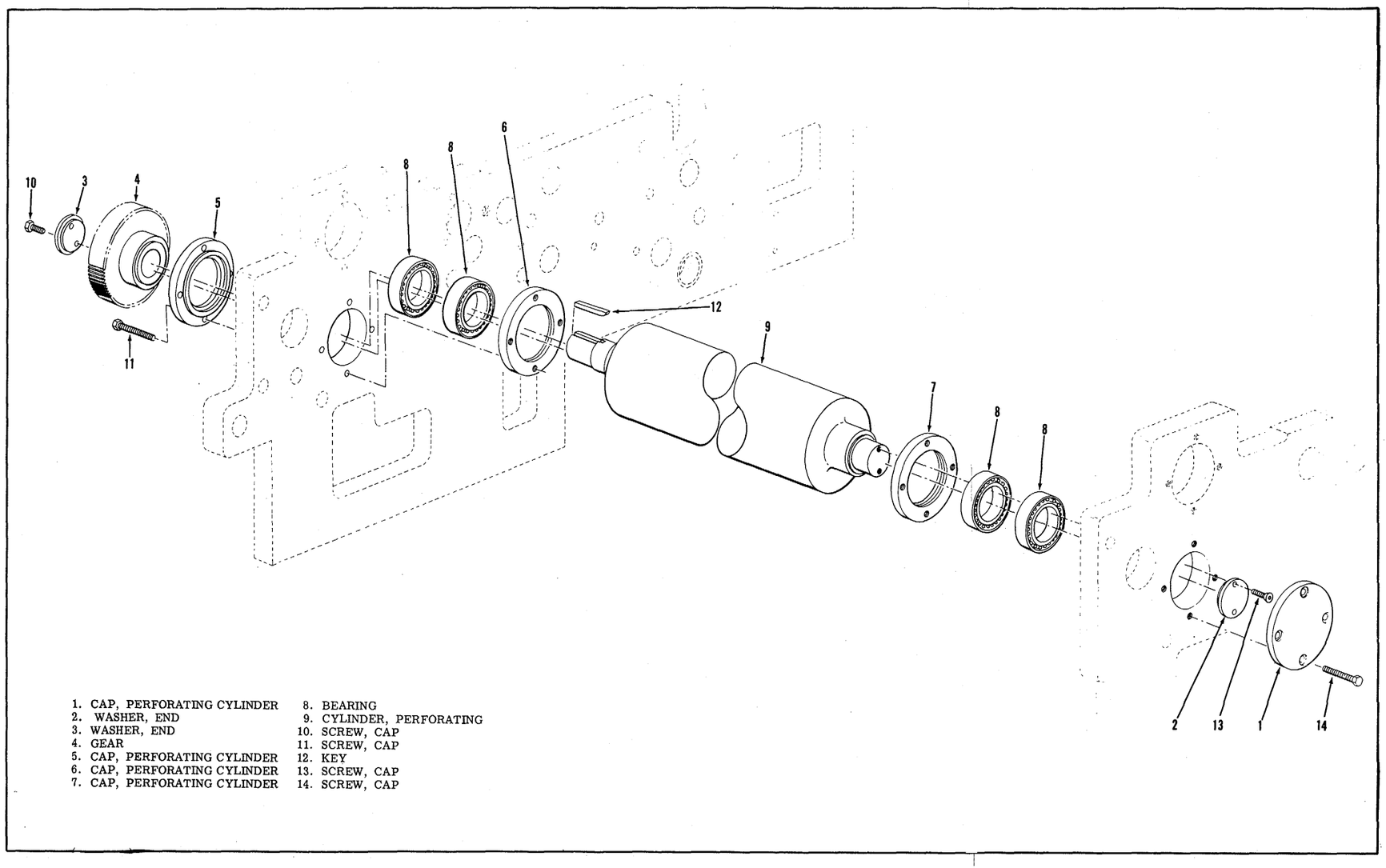



*Figure 81. Female perforating cylinder assembly, exploded view.*

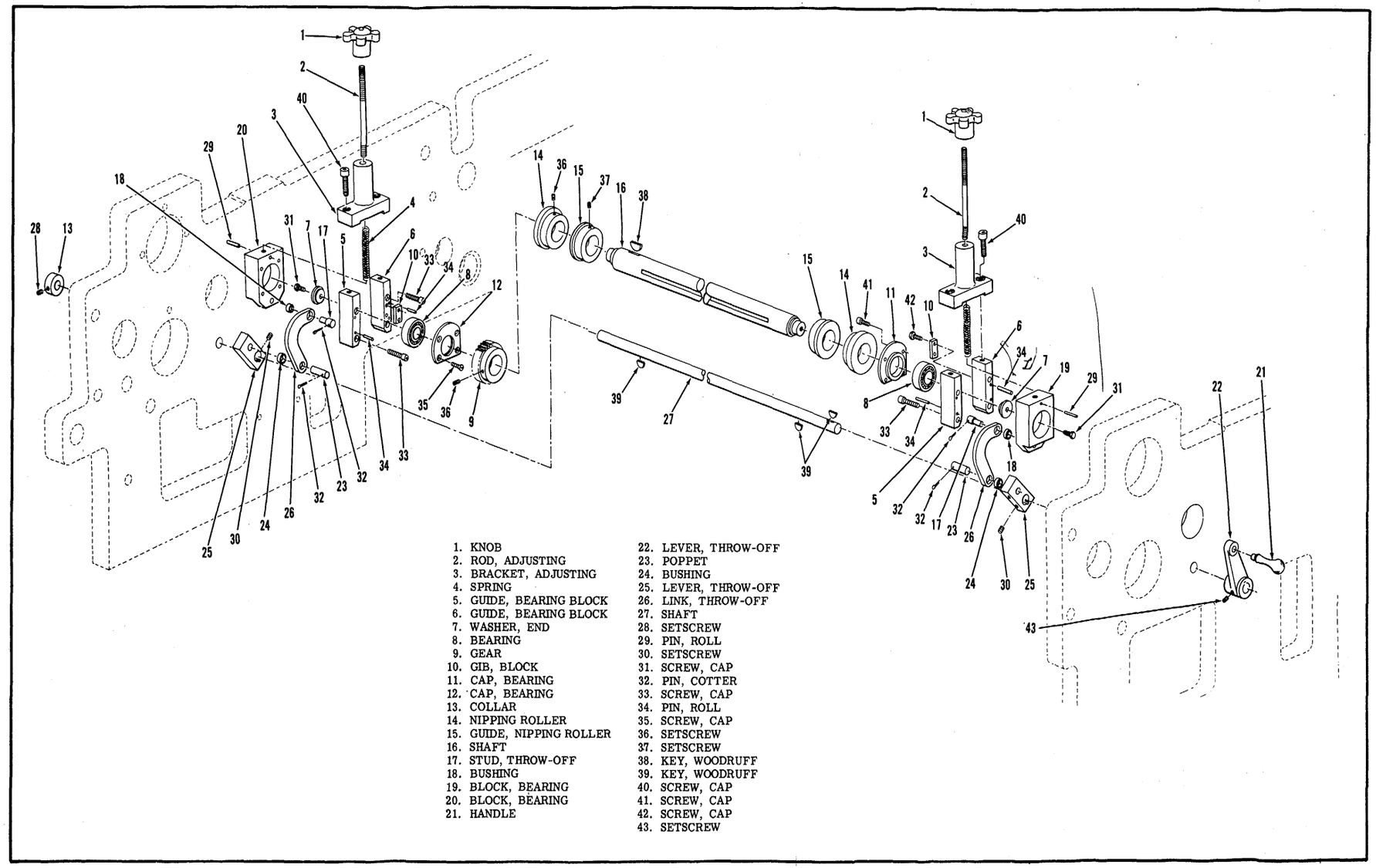



*Figure 82. Nipping roller guide assembly, exploded view.*

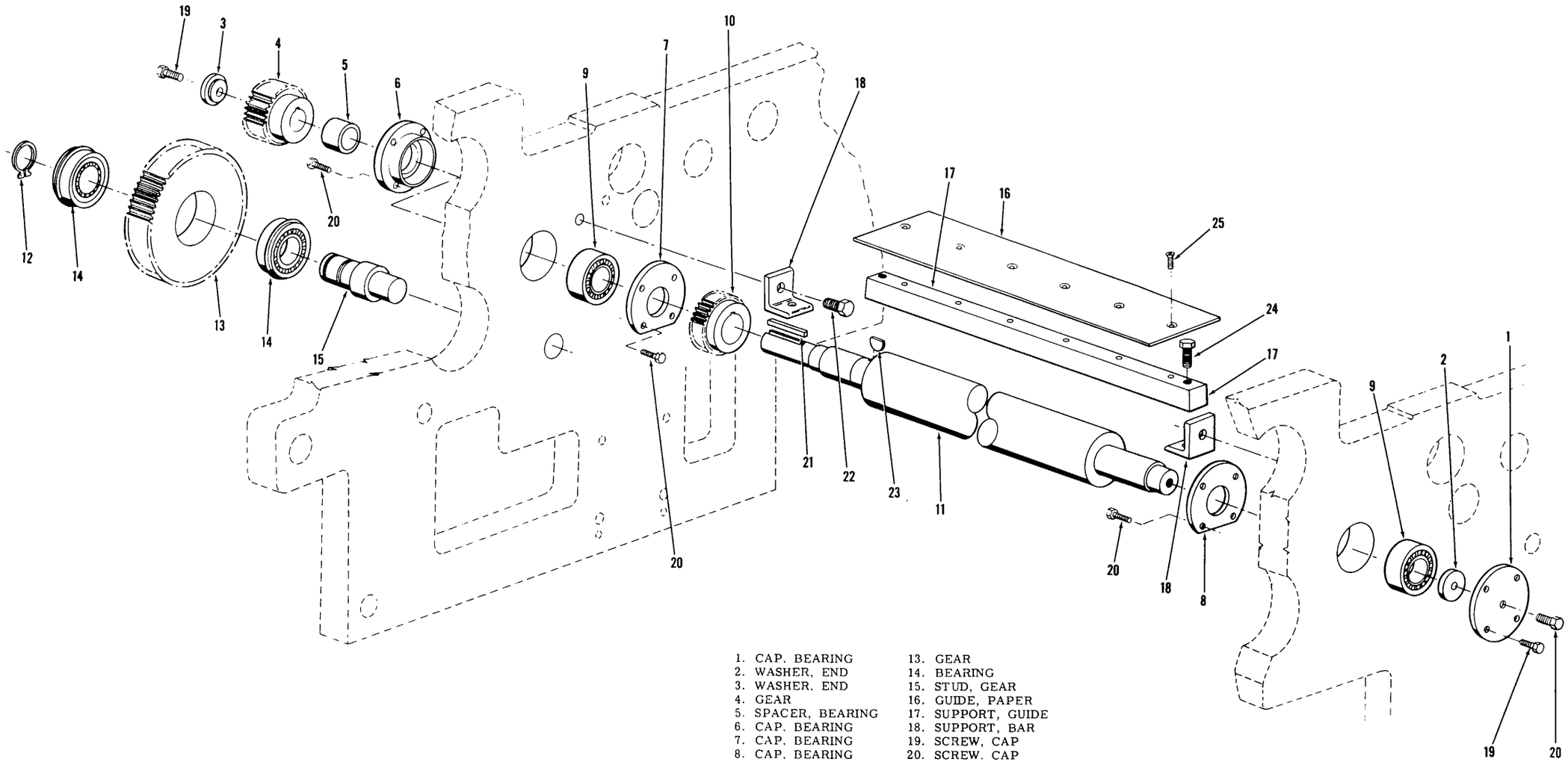
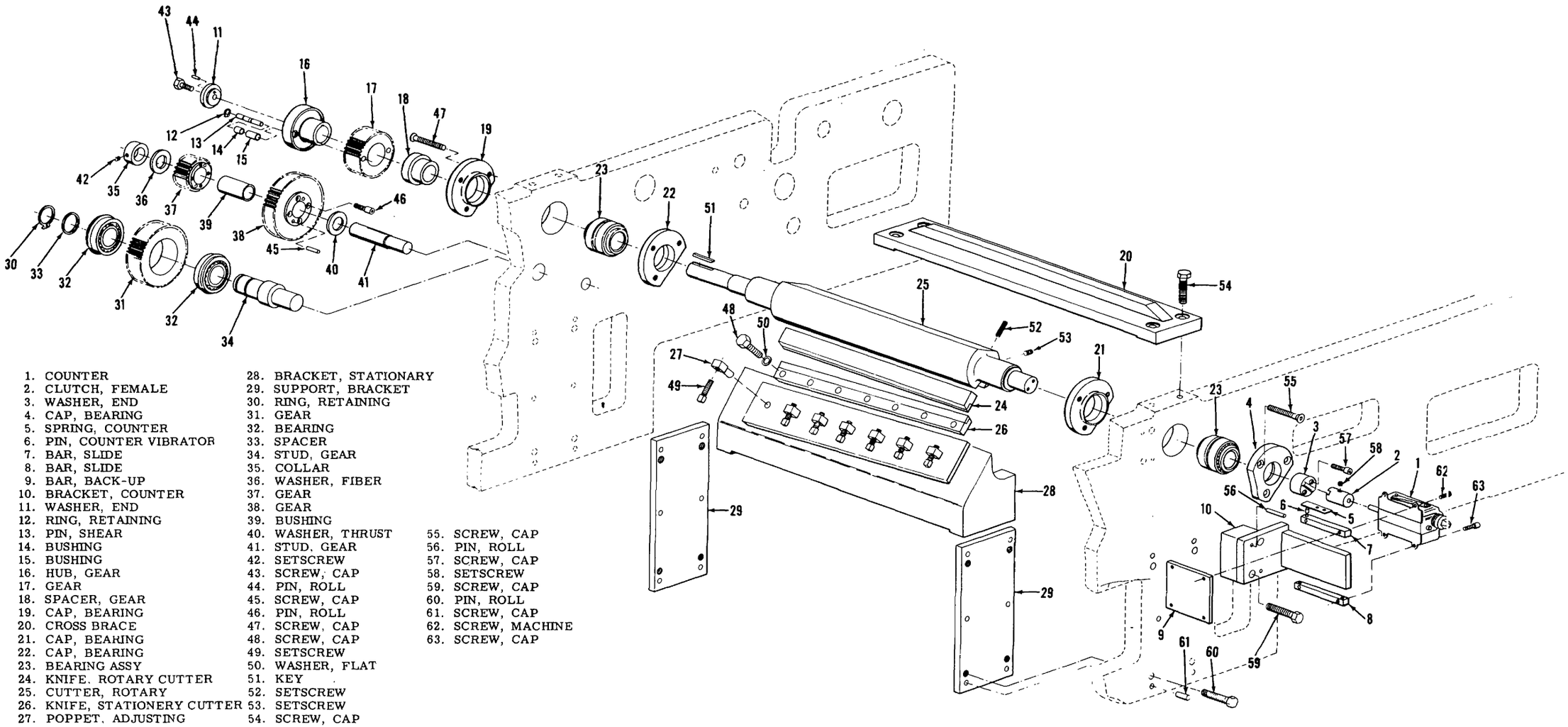
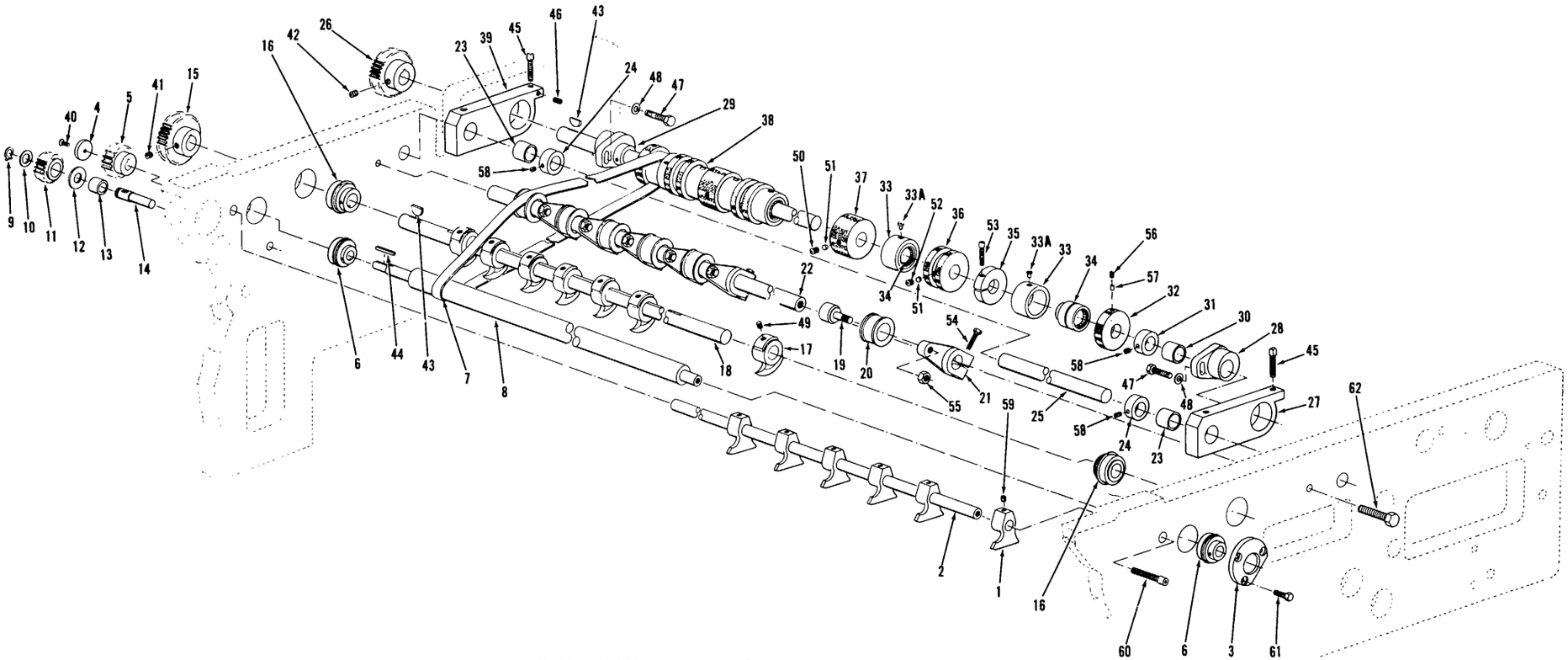



*Figure 83. Nipping roller and paper guide assembly, exploded view*



1. COUNTER
2. CLUTCH, FEMALE
3. WASHER, END
4. CAP, BEARING
5. SPRING, COUNTER
6. PIN, COUNTER VIBRATOR
7. BAR, SLIDE
8. BAR, SLIDE
9. BAR, BACK-UP
10. BRACKET, COUNTER
11. WASHER, END
12. RING, RETAINING
13. PIN, SHEAR
14. BUSHING
15. BUSHING
16. HUB, GEAR
17. GEAR
18. SPACER, GEAR
19. CAP, BEARING
20. CROSS BRACE
21. CAP, BEARING
22. CAP, BEARING
23. BEARING ASSY
24. KNIFE, ROTARY CUTTER
25. CUTTER, ROTARY
26. KNIFE, STATIONERY CUTTER
27. POPPET, ADJUSTING
28. BRACKET, STATIONARY
29. SUPPORT, BRACKET
30. RING, RETAINING
31. GEAR
32. BEARING
33. SPACER
34. STUD, GEAR
35. COLLAR
36. WASHER, FIBER
37. GEAR
38. GEAR
39. BUSHING
40. WASHER, THRUST
41. STUD, GEAR
42. SETSCREW
43. SCREW, CAP
44. PIN, ROLL
45. SCREW, CAP
46. PIN, ROLL
47. SCREW, CAP
48. SCREW, CAP
49. SETSCREW
50. WASHER, FLAT
51. KEY
52. SETSCREW
53. SETSCREW
54. SCREW, CAP
55. SCREW, CAP
56. PIN, ROLL
57. SCREW, CAP
58. SETSCREW
59. SCREW, CAP
60. PIN, ROLL
61. SCREW, CAP
62. SCREW, MACHINE
63. SCREW, CAP

*Figure 84. Counter, stationary, and rotary cutter assembly, exploded view.*



1. GUIDE, PAPER
2. SHAFT, GUIDE
3. RETAINER, BEARING
4. WASHER, END
5. GEAR
6. BEARING
7. BELT, HI-SPEED
8. SHAFT, TAPE
9. RING, RETAINING
10. WASHER, FIBER
11. GEAR
12. WASHER, FIBER
13. BUSHING
14. STUD, GEAR
15. GEAR
16. BEARING
17. KICKER
18. SHAFT, KICKER
19. BEARING
20. PULLEY, TAPE
21. LEVER
22. SHAFT, LEVER
23. BUSHING
24. COLLAR
25. SHAFT
26. GEAR
27. LEVER
28. ECCENTRIC, LEVER
29. ECCENTRIC, LEVER
30. BUSHING
31. COLLAR
32. ROLLER, PULL
33. PULL, TAPE
33A FITTING, OIL
34. BEARING
35. SPACER, PULLEY
36. ROLLER, PULL
37. ROLLER, PULL
38. SHAFT, PULL
39. LEVER, ADJUSTING
40. SCREW, CAP
41. SETSCREW
42. SETSCREW
43. KEY, WOODRUFF
44. KEY
45. SETSCREW
46. SETSCREW
47. SCREW, CAP
48. WASHER, FLAT
49. SETSCREW
50. SETSCREW
51. PLUG, TEFLON
52. SETSCREW
53. SCREW, CAP
54. SCREW, CAP
55. NUT, HEX
56. SETSCREW
57. PLUG, TEFLON
58. SETSCREW
59. SETSCREW
60. SCREW, CAP
61. SCREW, CAP
62. SCREW, CAP

*Figure 85. Paper guide, kicker and tape bracket assembly, exploded view.*

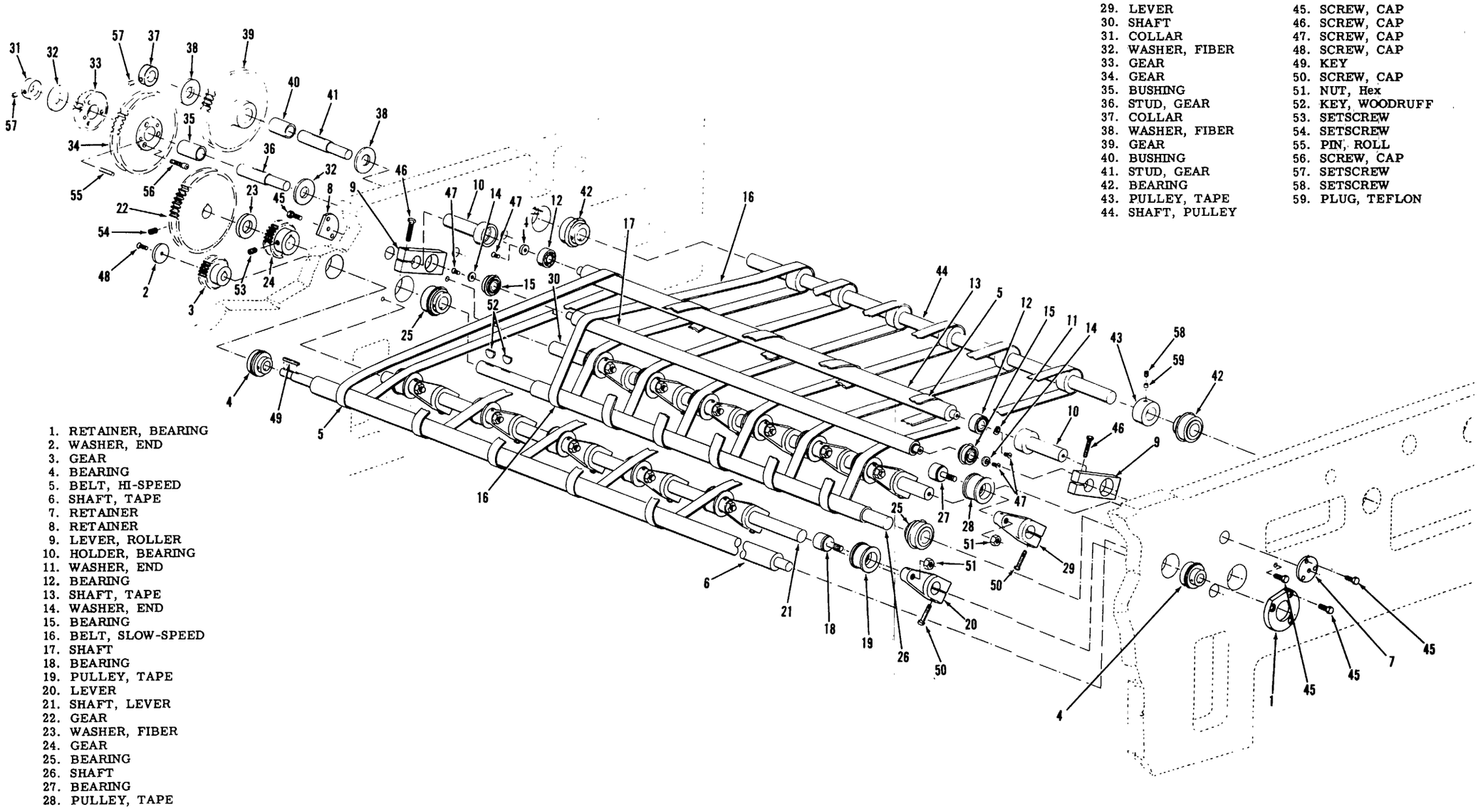
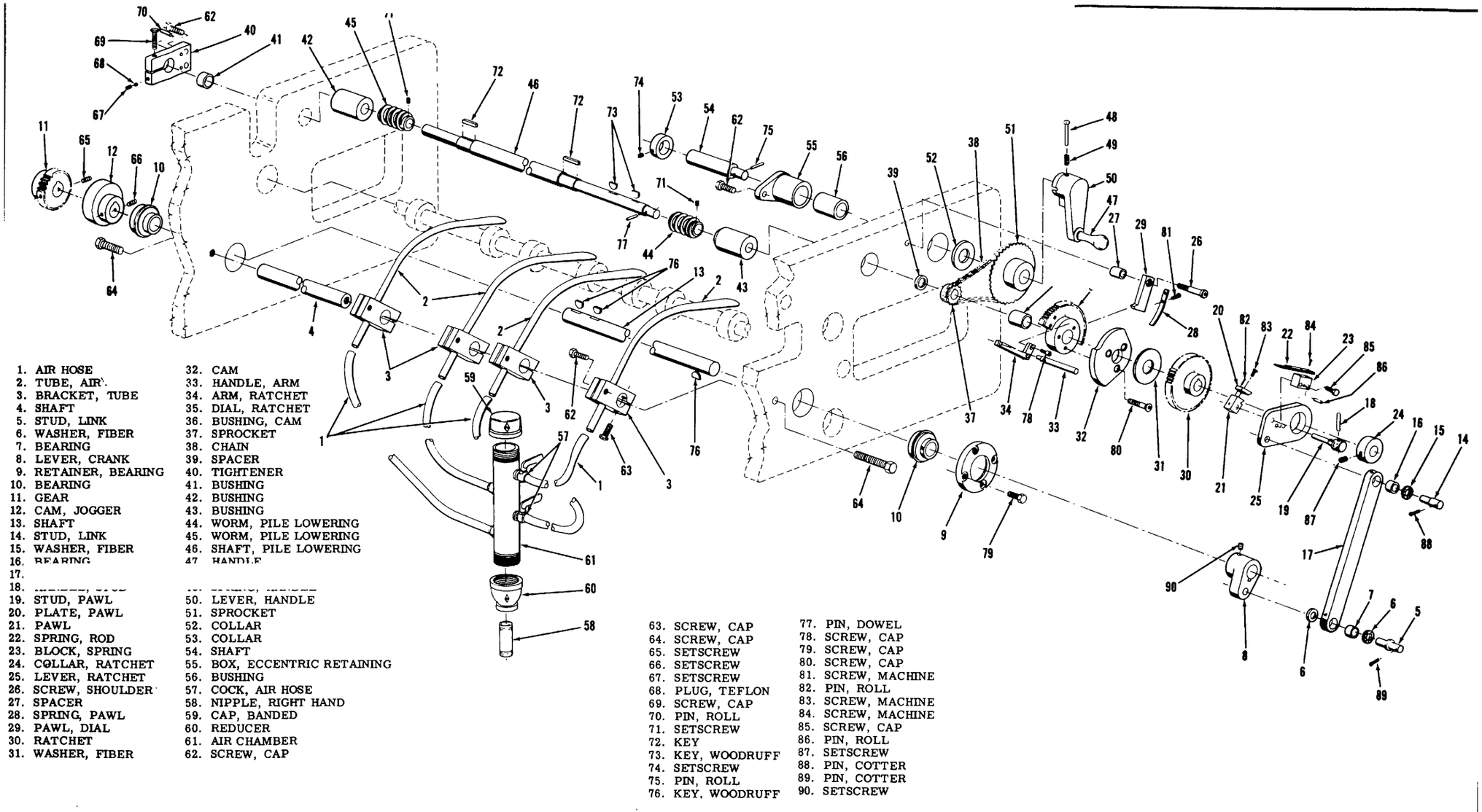
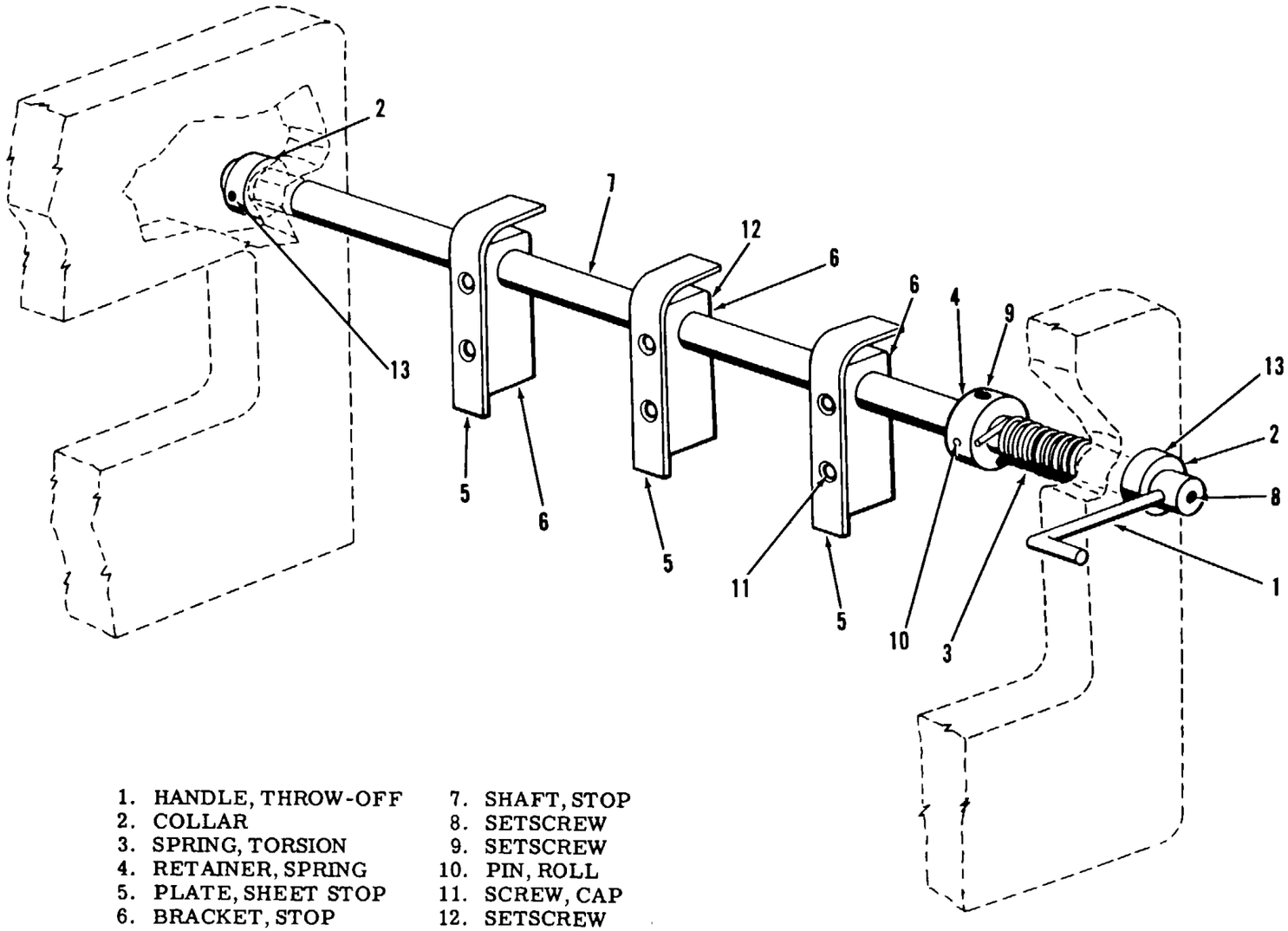



*Figure 86. Roller lever, pulleys and tape shaft assembly, exploded view.*



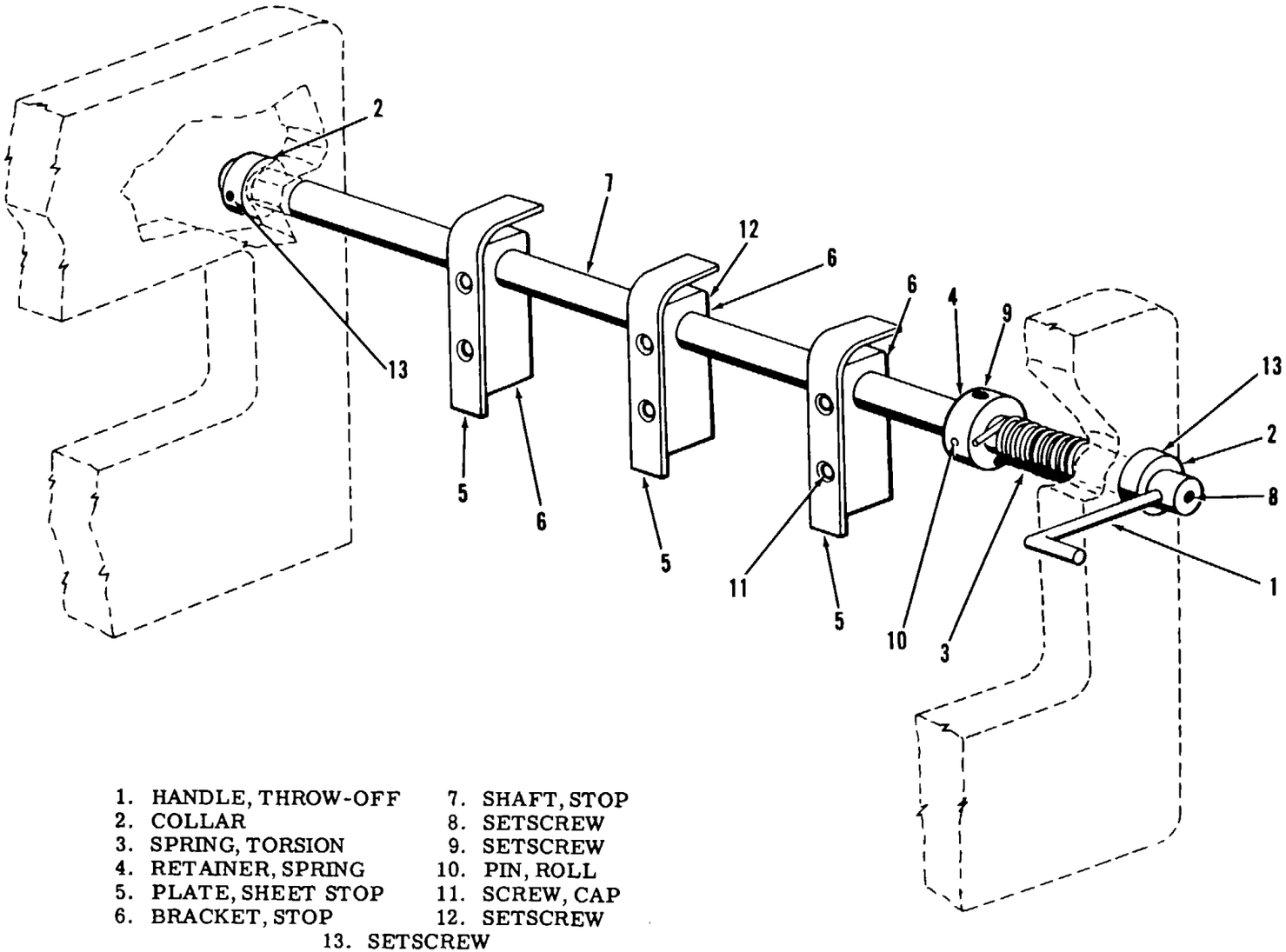
1. AIR HOSE
2. TUBE, AIR
3. BRACKET, TUBE
4. SHAFT
5. STUD, LINK
6. WASHER, FIBER
7. BEARING
8. LEVER, CRANK
9. RETAINER, BEARING
10. BEARING
11. GEAR
12. CAM, JOGGER
13. SHAFT
14. STUD, LINK
15. WASHER, FIBER
16. BEARING
17.
18.
19. STUD, PAWL
20. PLATE, PAWL
21. PAWL
22. SPRING, ROD
23. BLOCK, SPRING
24. COLLAR, RATCHET
25. LEVER, RATCHET
26. SCREW, SHOULDER
27. SPACER
28. SPRING, PAWL
29. PAWL, DIAL
30. RATCHET
31. WASHER, FIBER
32. CAM
33. HANDLE, ARM
34. ARM, RATCHET
35. DIAL, RATCHET
36. BUSHING, CAM
37. SPROCKET
38. CHAIN
39. SPACER
40. TIGHTENER
41. BUSHING
42. BUSHING
43. BUSHING
44. WORM, PILE LOWERING
45. WORM, PILE LOWERING
46. SHAFT, PILE LOWERING
47. HANDLE
50. LEVER, HANDLE
51. SPROCKET
52. COLLAR
53. COLLAR
54. SHAFT
55. BOX, ECCENTRIC RETAINING
56. BUSHING
57. COCK, AIR HOSE
58. NIPPLE, RIGHT HAND
59. CAP, BANDED
60. REDUCER
61. AIR CHAMBER
62. SCREW, CAP
63. SCREW, CAP
64. SCREW, CAP
65. SETSCREW
66. SETSCREW
67. SETSCREW
68. PLUG, TEFLON
69. SCREW, CAP
70. PIN, ROLL
71. SETSCREW
72. KEY
73. KEY, WOODRUFF
74. SETSCREW
75. PIN, ROLL
76. KEY, WOODRUFF
77. PIN, DOWEL
78. SCREW, CAP
79. SCREW, CAP
80. SCREW, CAP
81. SCREW, MACHINE
82. PIN, ROLL
83. SCREW, MACHINE
84. SCREW, MACHINE
85. SCREW, CAP
86. PIN, ROLL
87. SETSCREW
88. PIN, COTTER
89. PIN, COTTER
90. SETSCREW

*Figure 87. Air tubes and pile lowering mechanism, exploded view.*




1. HANDLE, THROW-OFF
2. COLLAR
3. SPRING, TORSION
4. RETAINER, SPRING
5. PLATE, SHEET STOP
6. BRACKET, STOP
7. SHAFT, STOP
8. SETSCREW
9. SETSCREW
10. PIN, ROLL
11. SCREW, CAP
12. SETSCREW
13. SETSCREW

*Figure 88. Jogger slide plates and lowering sprocket, chain and gear assembly, exploded view.*




1. HANDLE, THROW-OFF
2. COLLAR
3. SPRING, TORSION
4. RETAINER, SPRING
5. PLATE, SHEET STOP
6. BRACKET, STOP
7. SHAFT, STOP
8. SETSCREW
9. SETSCREW
10. PIN, ROLL
11. SCREW, CAP
12. SETSCREW
13. SETSCREW

*Figure 89. Paper Sheet Stop Assembly, Exploded View.*

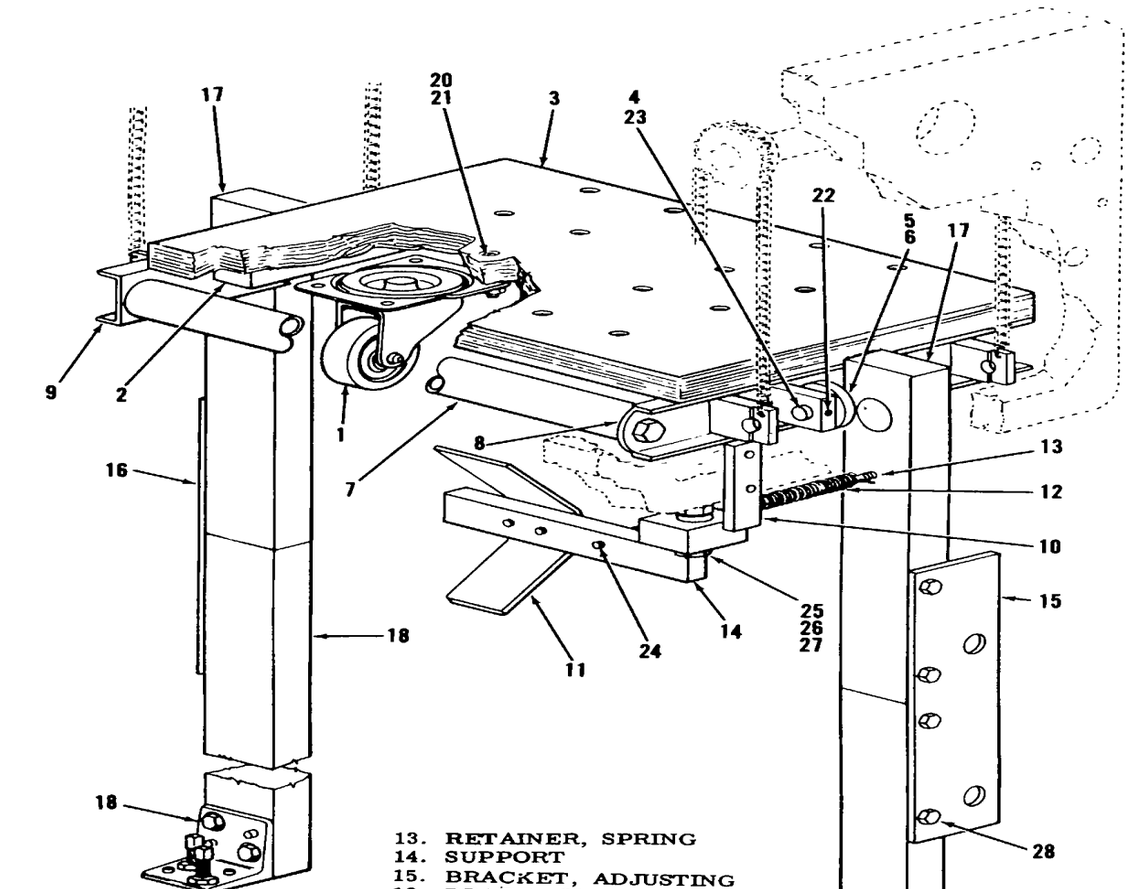
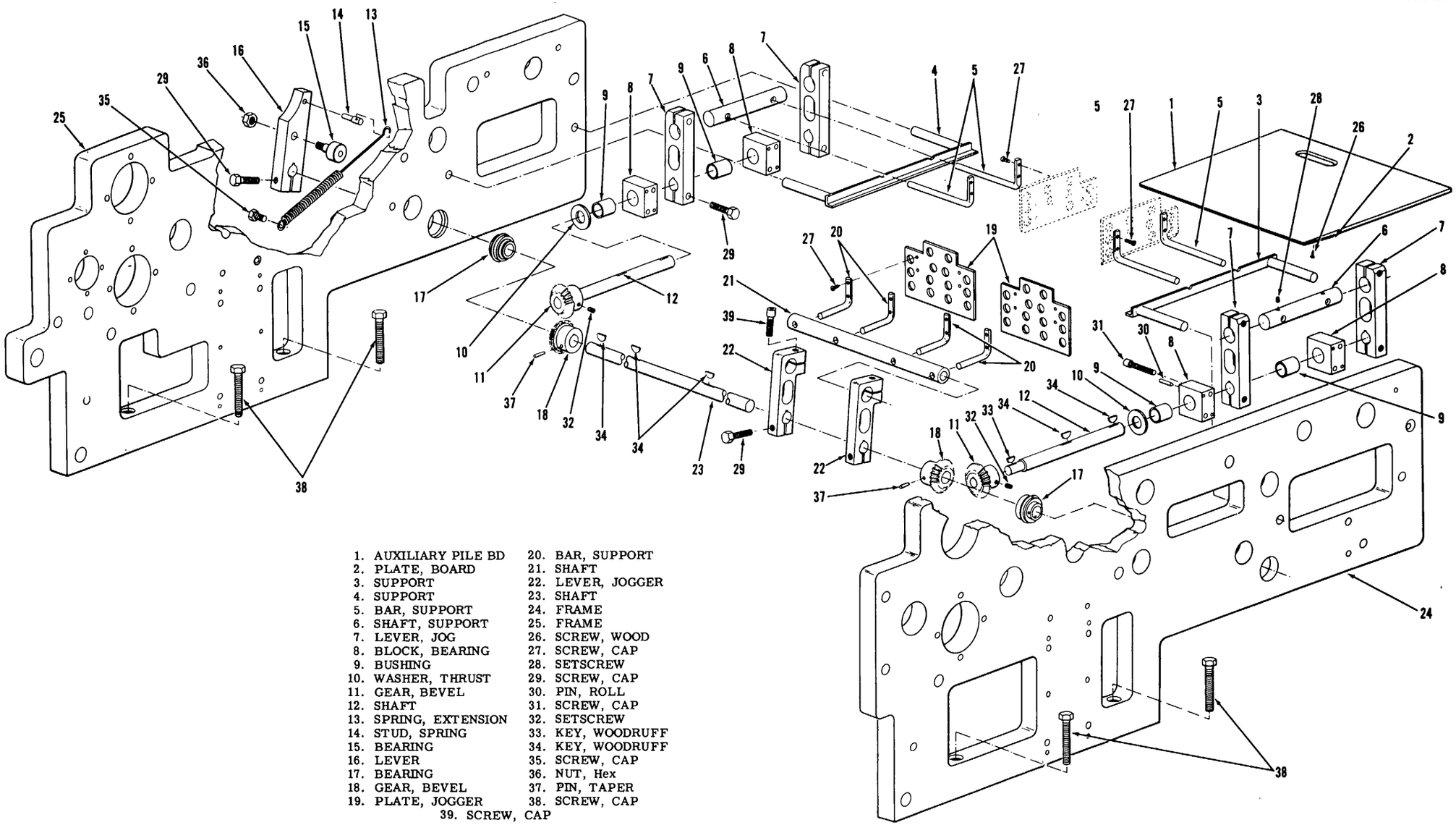
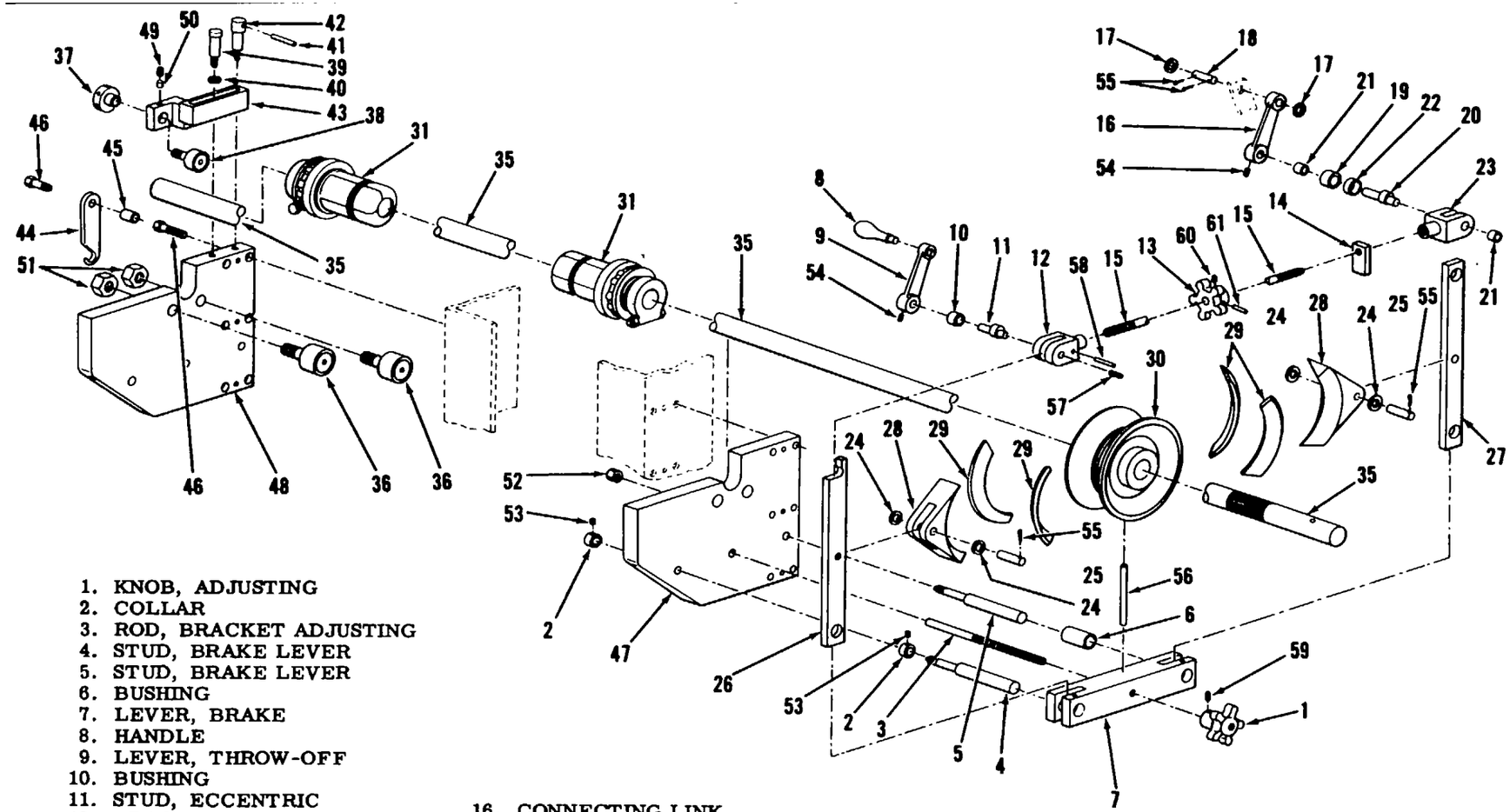



*Figure 90. Delivery Board and Pile Guide Assembly, Exploded View.*



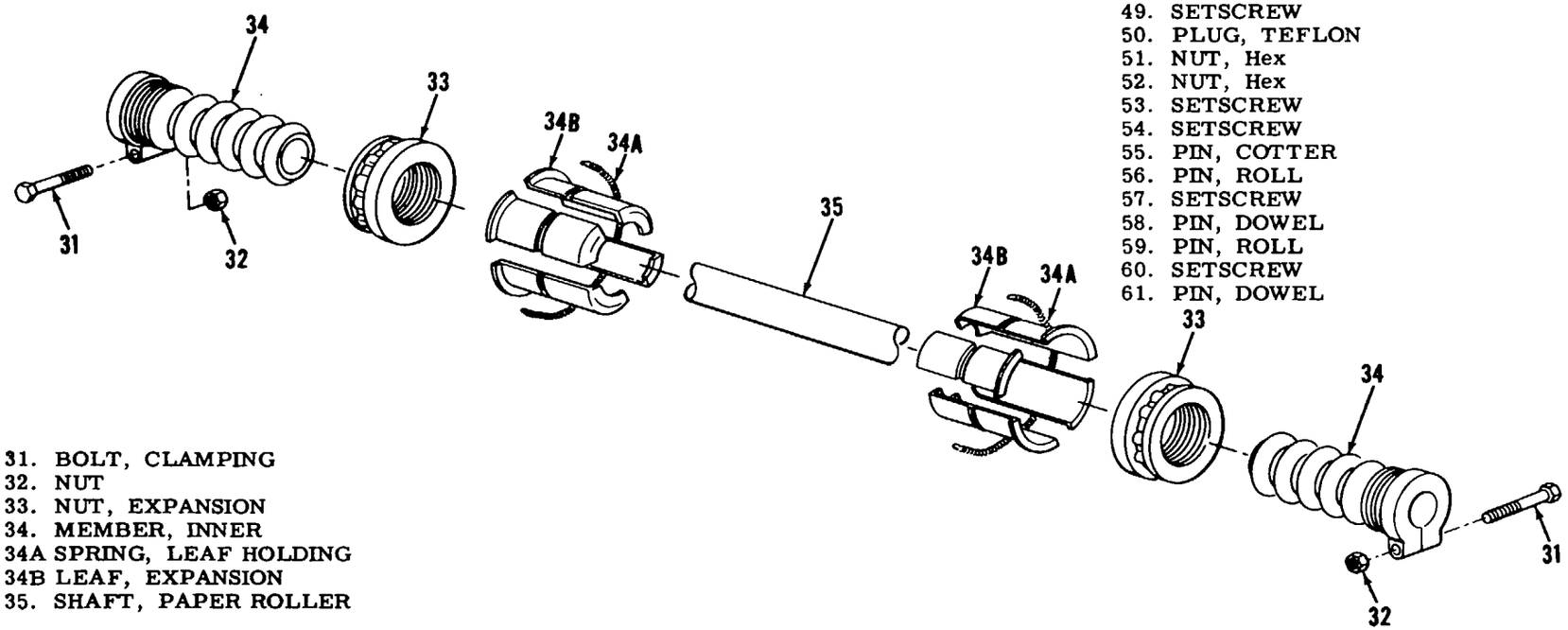
1. AUXILIARY PILE BD
2. PLATE, BOARD
3. SUPPORT
4. SUPPORT
5. BAR, SUPPORT
6. SHAFT, SUPPORT
7. LEVER, JOG
8. BLOCK, BEARING
9. BUSHING
10. WASHER, THRUST
11. GEAR, BEVEL
12. SHAFT
13. SPRING, EXTENSION
14. STUD, SPRING
15. BEARING
16. LEVER
17. BEARING
18. GEAR, BEVEL
19. PLATE, JOGGER
20. BAR, SUPPORT
21. SHAFT
22. LEVER, JOGGER
23. SHAFT
24. FRAME
25. FRAME
26. SCREW, WOOD
27. SCREW, CAP
28. SETSCREW
29. SCREW, CAP
30. PIN, ROLL
31. SCREW, CAP
32. SETSCREW
33. KEY, WOODRUFF
34. KEY, WOODRUFF
35. SCREW, CAP
36. NUT, Hex
37. PIN, TAPER
38. SCREW, CAP
39. SCREW, CAP

*Figure 91. Paper sheet jogger assembly, exploded view.*



1. KNOB, ADJUSTING
2. COLLAR
3. ROD, BRACKET ADJUSTING
4. STUD, BRAKE LEVER
5. STUD, BRAKE LEVER
6. BUSHING
7. LEVER, BRAKE
8. HANDLE
9. LEVER, THROW-OFF
10. BUSHING
11. STUD, ECCENTRIC
12. BRACKET, ADJUSTING
13. HANDLE BRAKE
14. LOCK, BRAKE LEVER
15. ROD, BRAKE LEVER
16. CONNECTING LINK
17. WASHER, FIBER
18. STUD, LINK
19. BUSHING
20. STUD, ECCENTRIC
21. BUSHING
22. BUSHING
23. BRACKET, ADJUSTING
24. WASHER, FIBER
25. STUD, BRAKE LEVER
26. LEVER, BRAKE
27. LEVER, BRAKE
28. BRAKE SHOE
29. BRAKE LINING
30. BRAKE DRUM

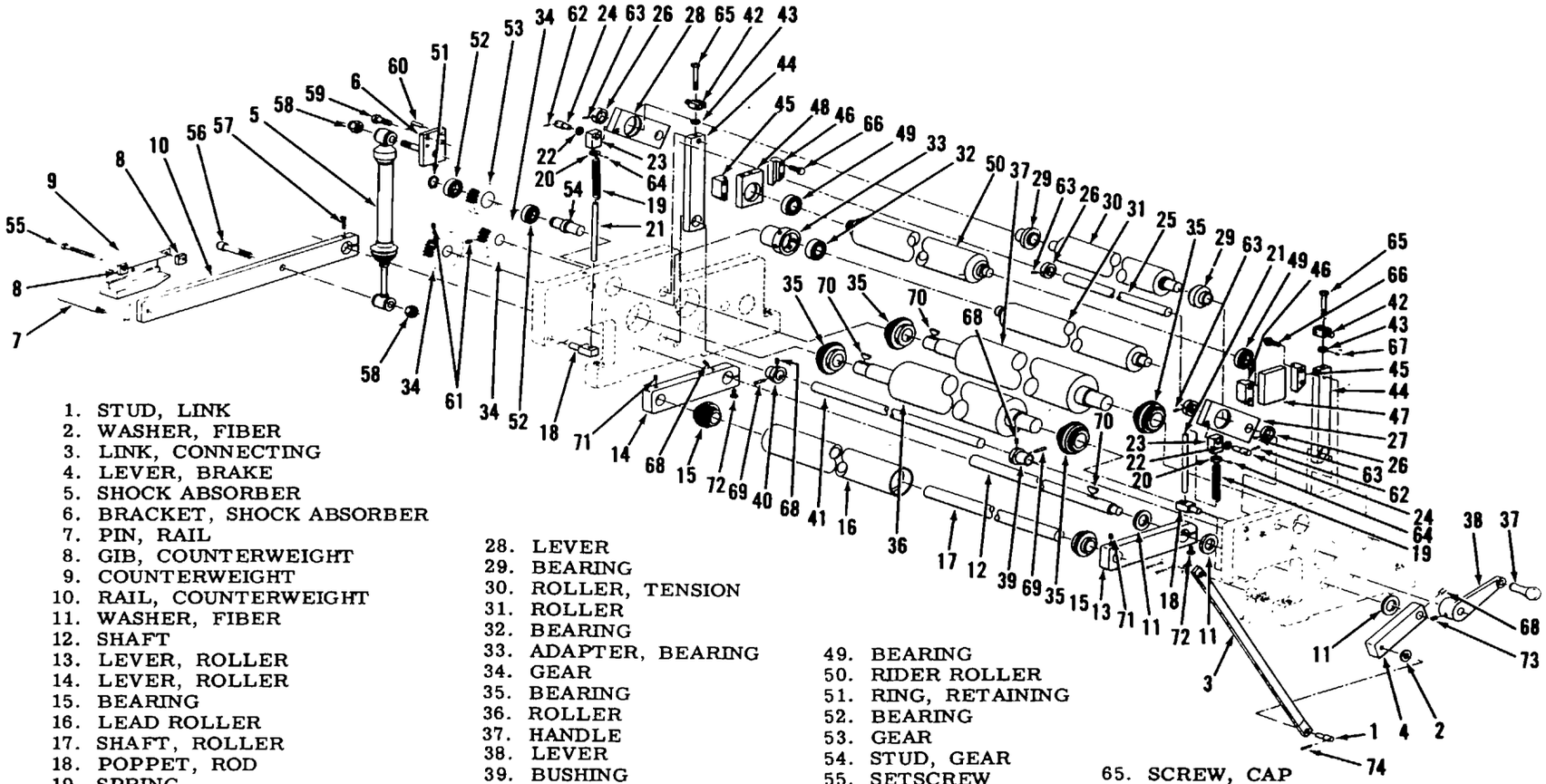
*Figure 92①. Brake Mechanism Exploded View*




31. BOLT, CLAMPING
32. NUT
33. NUT, EXPANSION
34. MEMBER, INNER
34A SPRING, LEAF HOLDING
34B LEAF, EXPANSION
35. SHAFT, PAPER ROLLER

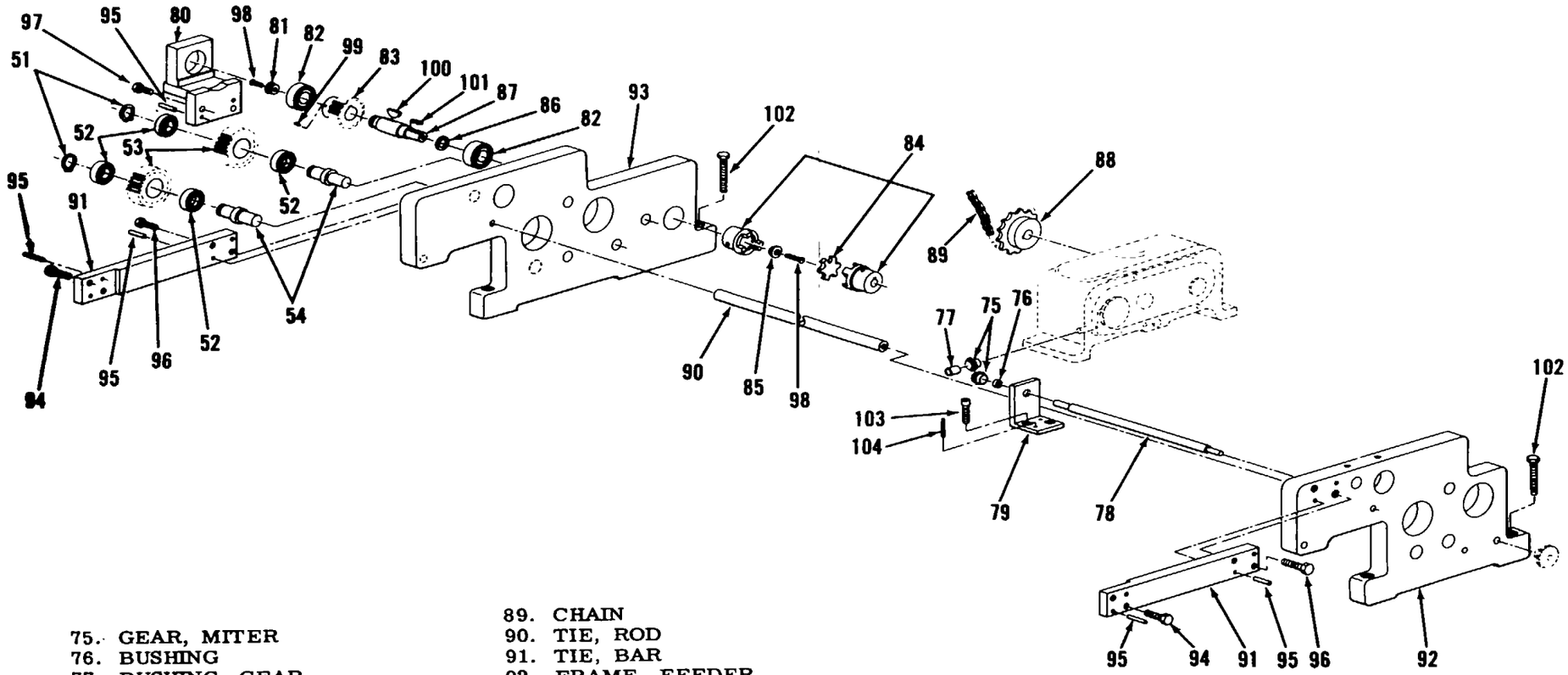
36. BEARING
37. BUSHING
38. BEARING
39. SCREW, SHOULDER
40. WASHER, THRUST
41. LEVER
42. SCREW, BRACKET
43. BRACKET, SPINDLE RETAINER
44. HOOK, COUNTERWEIGHT RAIL
45. SPACER, HOOK
46. SCREW, EXTENSION
47. EXTENSION, FRAME
48. EXTENSION, FRAME
49. SETSCREW
50. PLUG, TEFLON
51. NUT, Hex
52. NUT, Hex
53. SETSCREW
54. SETSCREW
55. PIN, COTTER
56. PIN, ROLL
57. SETSCREW
58. PIN, DOWEL
59. PIN, ROLL
60. SETSCREW
61. PIN, DOWEL

*Figure 92②. Continued*



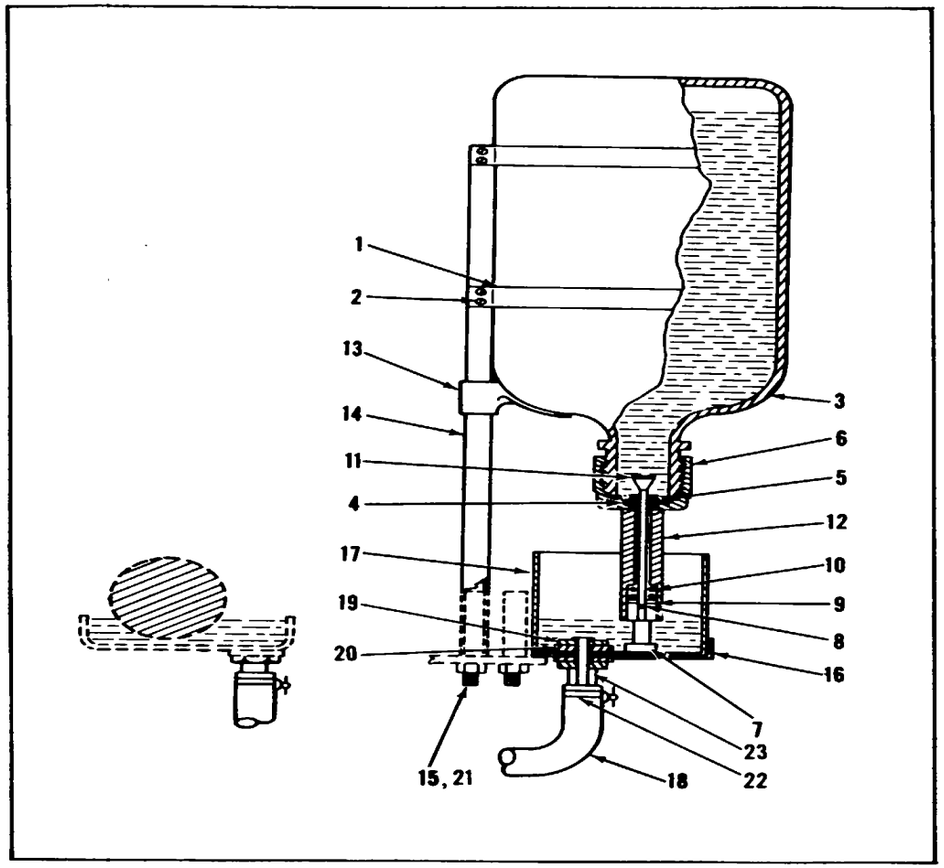
1. STUD, LINK
2. WASHER, FIBER
3. LINK, CONNECTING
4. LEVER, BRAKE
5. SHOCK ABSORBER
6. BRACKET, SHOCK ABSORBER
7. PIN, RAIL
8. GIB, COUNTERWEIGHT
9. COUNTERWEIGHT
10. RAIL, COUNTERWEIGHT
11. WASHER, FIBER
12. SHAFT
13. LEVER, ROLLER
14. LEVER, ROLLER
15. BEARING
16. LEAD ROLLER
17. SHAFT, ROLLER
18. POPPET, ROD
19. SPRING
20. COLLAR
21. ROD, SPRING
22. WASHER, FIBER
23. END, SPRING ROD
24. STUD, SPRING ROD
25. SHAFT
26. COLLAR
27. LEVER
28. LEVER
29. BEARING
30. ROLLER, TENSION
31. ROLLER
32. BEARING
33. ADAPTER, BEARING
34. GEAR
35. BEARING
36. ROLLER
37. HANDLE
38. LEVER
39. BUSHING
40. BUSHING
41. SHAFT
42. POPPET
43. COLLAR
44. LINK, THROW-OFF
45. GUIDE, ROLL
46. GUIDE, ROLL
47. HOLDER, BEARING
48. HOLDER, BEARING
49. BEARING
50. RIDER ROLLER
51. RING, RETAINING
52. BEARING
53. GEAR
54. STUD, GEAR
55. SETSCREW
56. SCREW, CAP
57. SCREW, CAP
58. NUT, Hex
59. SCREW, CAP
60. PIN, ROLL
61. SETSCREW
62. PIN, COTTER
63. SETSCREW
64. SETSCREW
65. SCREW, CAP
66. SCREW, CAP
67. SETSCREW
68. SETSCREW
69. PIN, TAPER
70. KEY, WOODRUFF
71. SETSCREW
72. SCREW, CAP
73. SETSCREW
74. PIN, COTTER

*Figure 93①. Feed Roll Assembly, Exploded View*



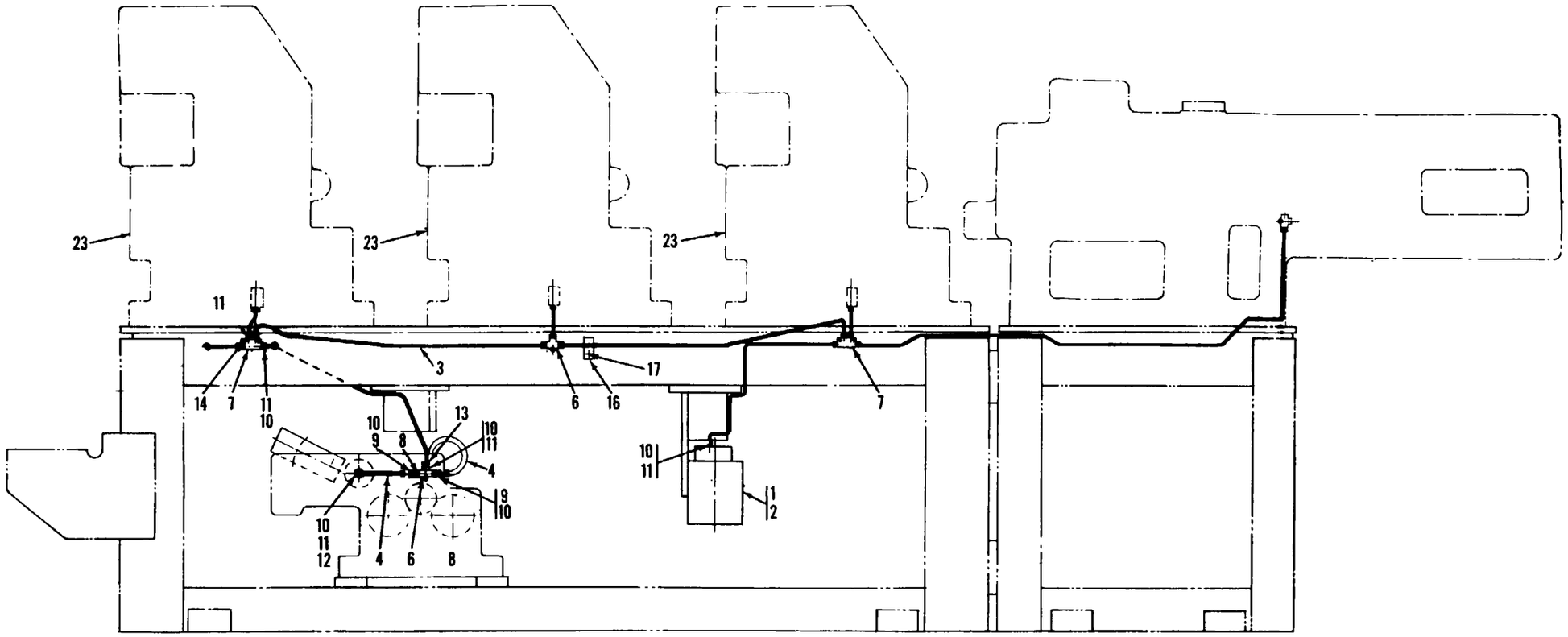

75. GEAR, MITER
76. BUSHING
77. BUSHING, GEAR
78. SHAFT, VERNIER ADJUSTING
79. BRACKET
80. BRACKET, DRIVE
81. WASHER, END
82. BEARING
83. GEAR
84. COUPLING
85. WASHER, END
86. SPACER
87. SHAFT
88. SPROCKET
89. CHAIN
90. TIE, ROD
91. TIE, BAR
92. FRAME, FEEDER
93. FRAME, FEEDER
94. SCREW, CAP
95. PIN, ROLL
96. SCREW, CAP
97. SCREW, CAP
98. SCREW, CAP
99. SETSCREW
100. KEY, WOODRUFF
101. KEY
102. SCREW, CAP
103. SCREW, CAP
104. PIN, ROLL

*Figure 93②. Continued*




1. STRAP
2. SCREW
3. BOTTLE
4. NUT, VALVE
5. GASKET
6. CAP
7. SHOE
8. PIN, COTTER
9. GUIDE, PLUNGER
10. SPRING
11. PLUNGER, VALVE
12. BODY, VALVE
13. SUPPORT, BOTTLE
14. POST
15. NUT
16. BASKET
17. RESERVOIR
18. HOSE
19. NUT
20. GASKET
21. STUD
22. CLAMP, HOSE
23. NIPPLE

*Figure 97. Water Level Assembly, Detail View*




1. LUBRICATOR, Automatic
2. RESERVOIR
3. TUBING
4. HOSE ASSY
5. BAR, JUNCTION
6. BAR, JUNCTION
7. BAR, JUNCTION
8. METER UNIT
9. NUT, COMPRESSION
10. SLEEVE, COMPRESSION
11. BUSHING, COMPRESSION
12. ADAPTER, STRAIGHT
13. ADAPTER, ELBOW
14. SCREW, CAP
15. METER UNIT
16. CLIP, TUBING
17. SCREW, MACHINE
18. ADAPTER, ELBOW
19. TUBING
20. SLEEVE, COMPRESSION
21. NUT, COMPRESSION
22. BUSHING, COMPRESSION
23. OFFSET UNIT OIL LINE ASSY, TENDING SIDE (See sheet 3)
24. DELIVERY UNIT OIL LINE ASSY, TENDING SIDE (See sheet 5)
25. PLUG, CLOSURE
26. ADAPTER
27. HOSE ASSY
28. BAR, JUNCTION 5-way
29. BAR, JUNCTION 6-way
30. BAR, JUNCTION 8-way
31. CLIP, TUBING
32. CLIP, TUBING
33. ADAPTER, STRAIGHT
34. HOSE ASSY
35. HOSE ASSY
36. GAUGE (TYPE PB)

*Figure 98①. Oil lines and fittings, detail view.*

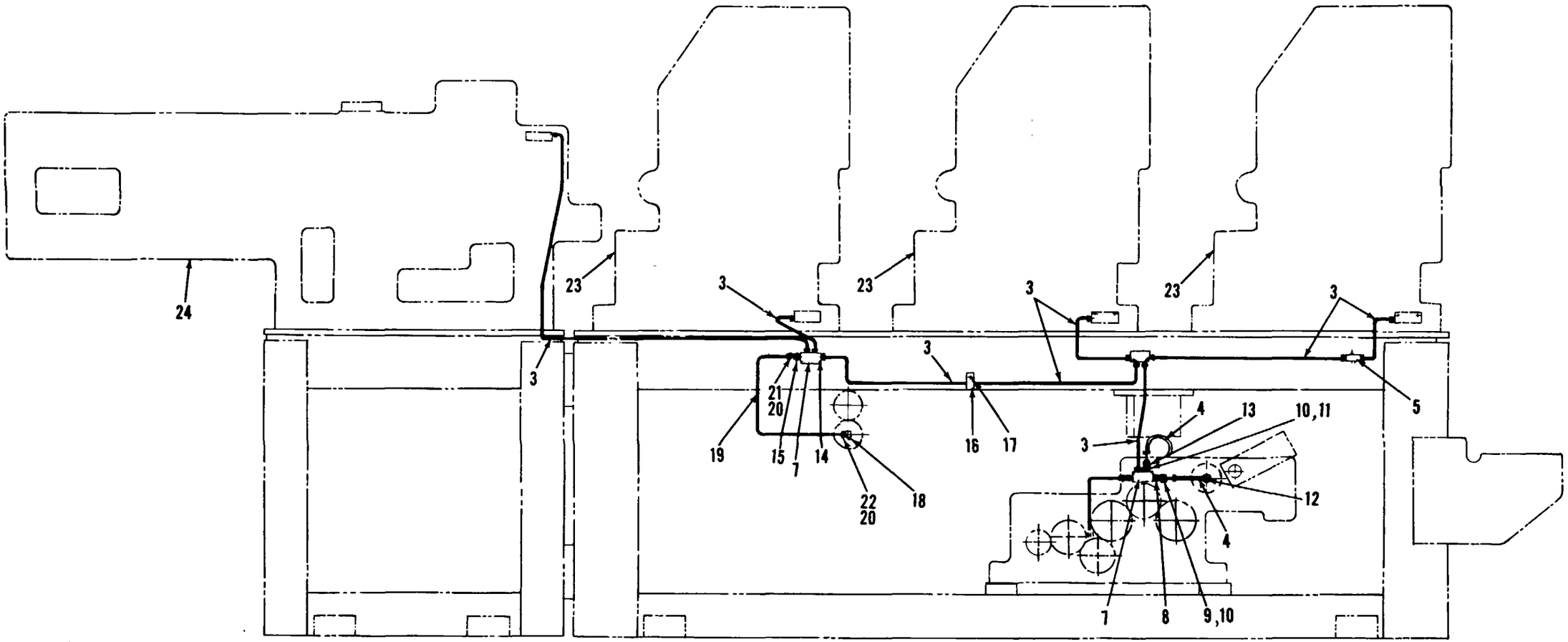



*Figure 98②. Continued.*

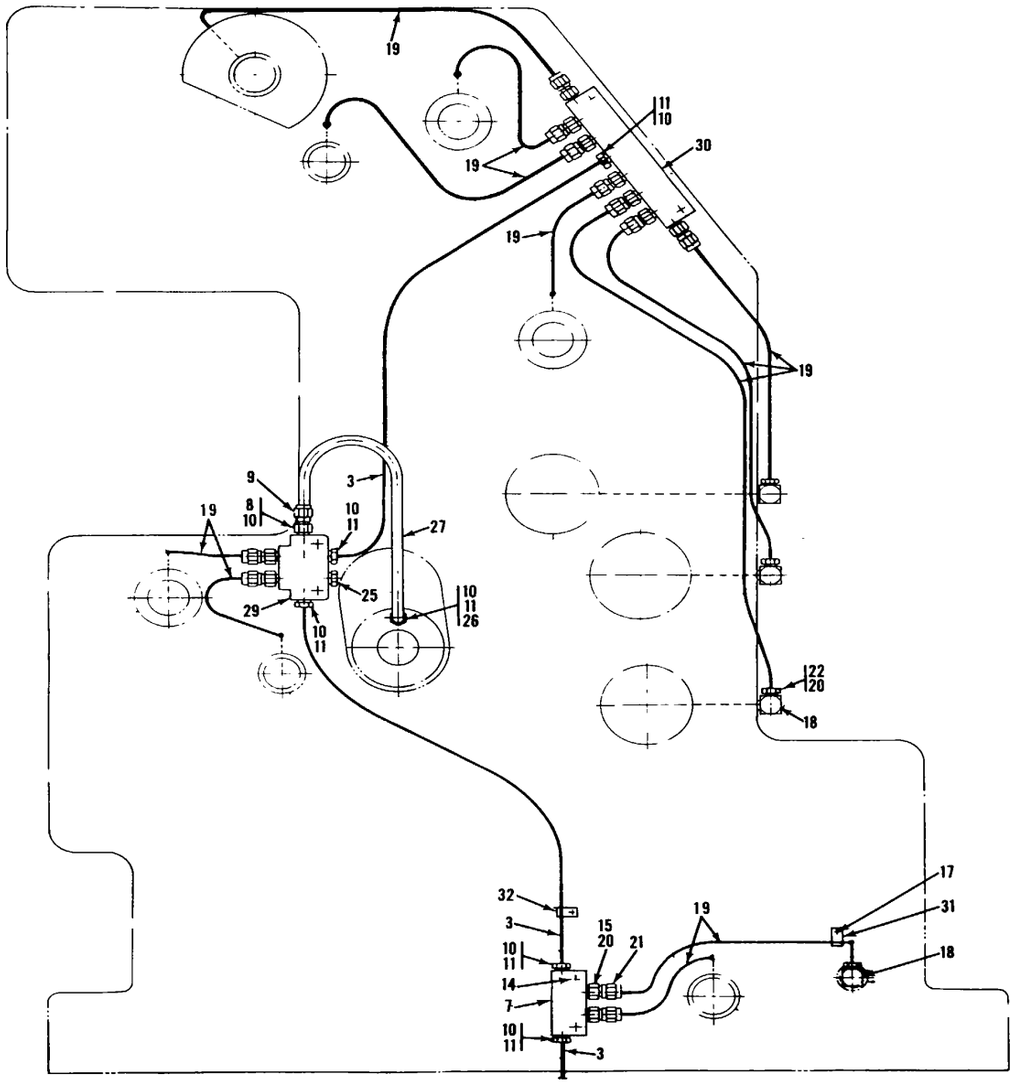



*Figure 98③. Continued.*

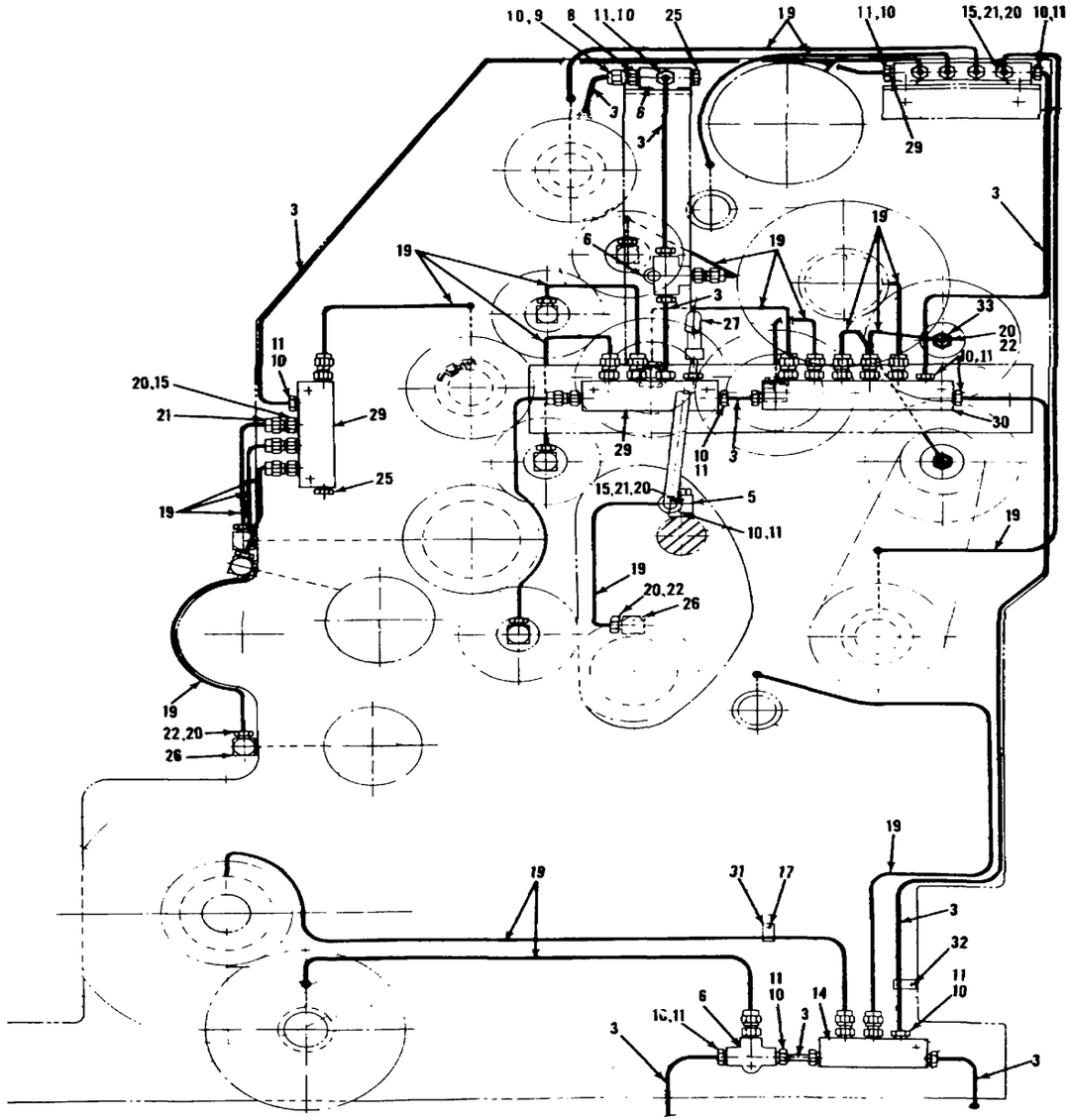



*Figure 98④. Continued*

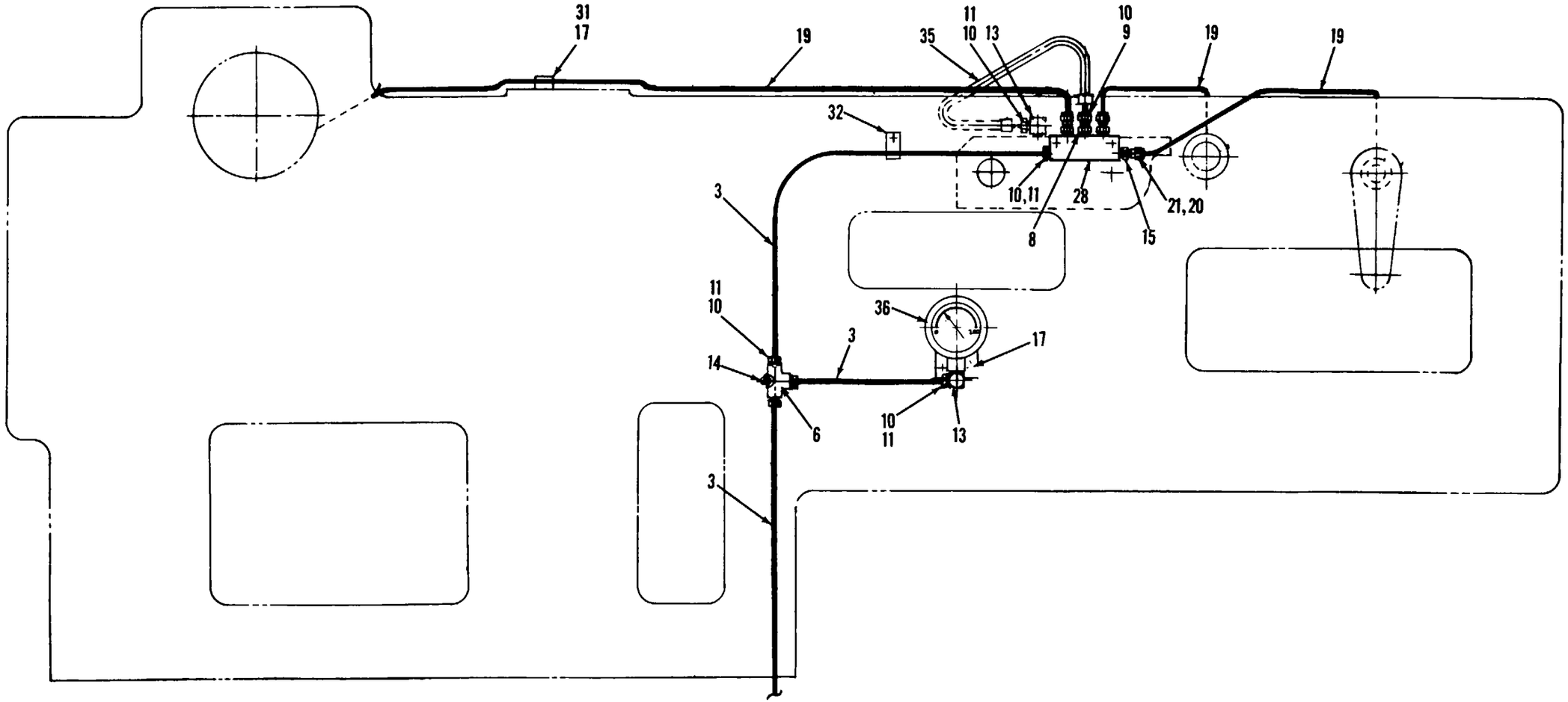



*Figure 98⑤. Continued*

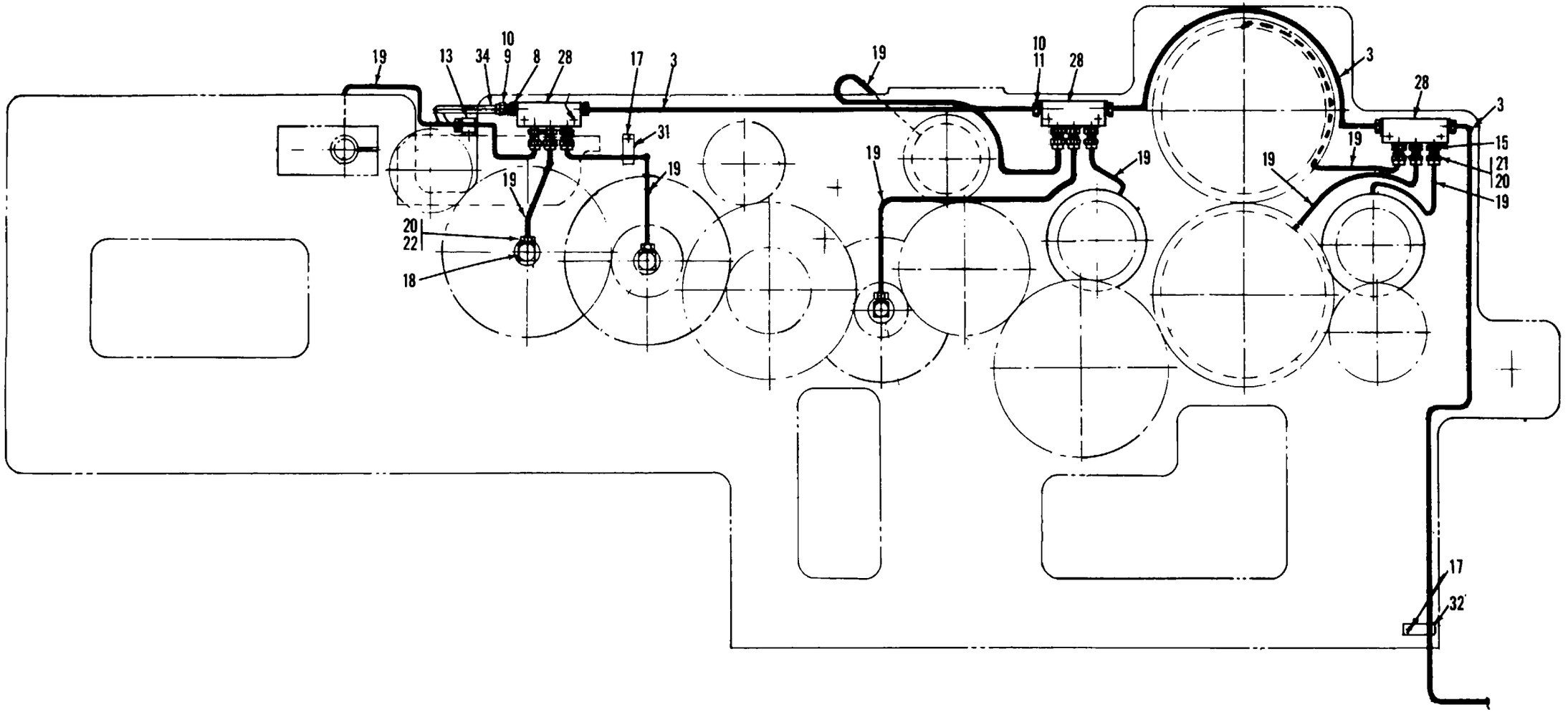



*Figure 98©. Continued.*

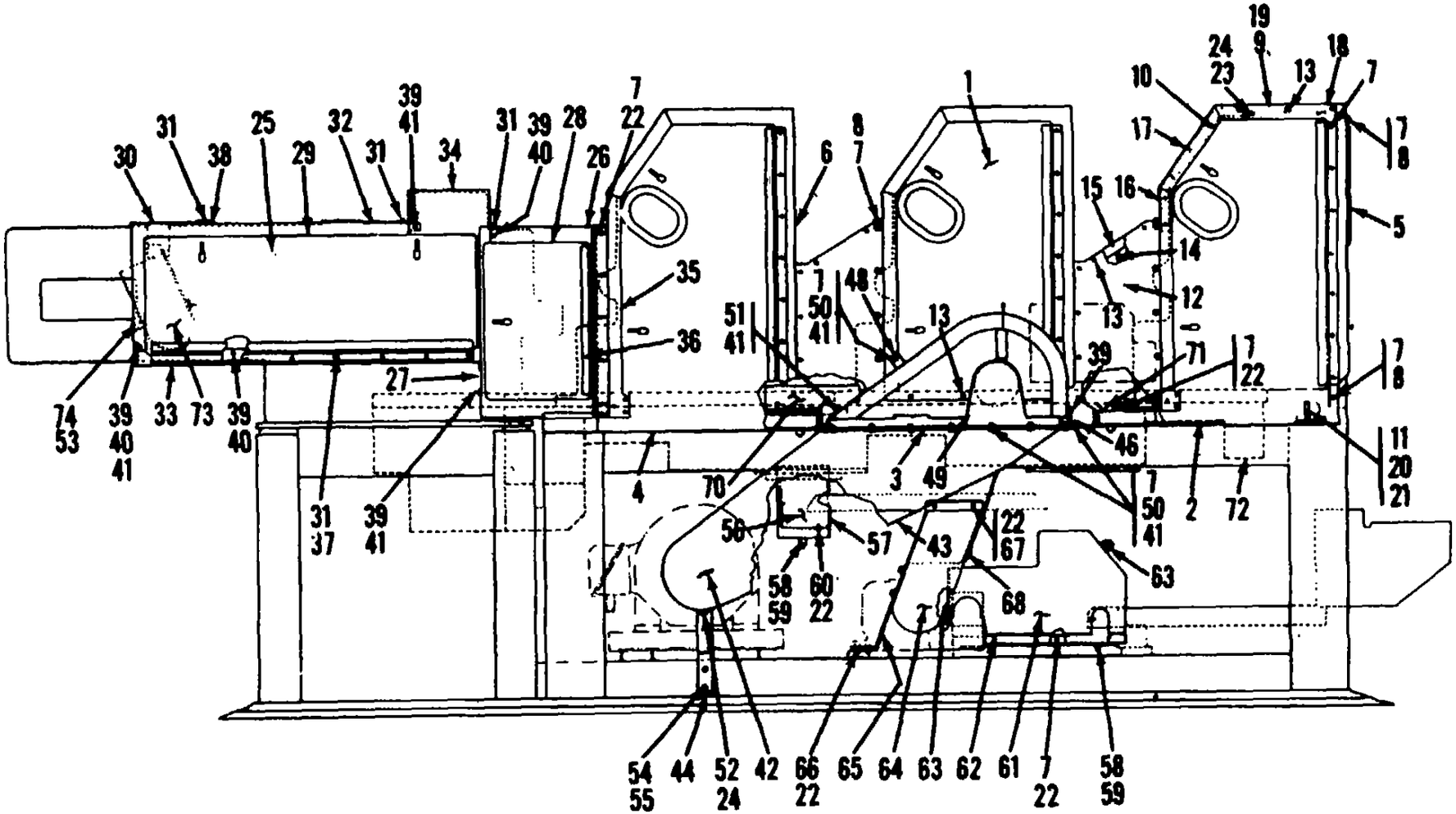



*Figure 99. Guard Covers of Offset Press, Detail View*

LEGEND FOR FIGURE 94

1. HOUSING
2. EYE BOLT
3. PLUG, PIPE
4. PLUG, DRAIN
5. GASKET
6. COVER, PLATE
7. SCREW, CAP
8. CLOSURE
9. COVER, PLATE
10. BREATHER
11. SCREW, CAP
12. GASKET
13. STUD
14. NUT
15. WASHER, LOCK
16. INDICATOR ASSY
17. SCREW, CAP
18. BODY, OIL GAUGE
19 GASKET
20. ADAPTER
21. CAP, OIL GAUGE
22. PIN, OIL GAUGE
23. SLEEVE, EXT.
24. RACK, INDICATOR
25. PIN, RACK
26. GASKET
27. SCREW, CONTROL
28. PIVOT, CONTROL
29. PIVOT, CONTROL
30. BLOCK, PIVOT
31. PIN, FIXED LIMIT
32. SHIM
33. SETSCREW
34. HANDWHEEL
35. CONTROL, VERNIER
36. SHAFT, VERNIER
37. HANDWHEEL, VERNIER
38. SCREW, ADJUSTING
39. PIVOT, ADJUSTING, R.H.
40. PIVOT, ADJUSTING, L H.
41. GEAR, BEVEL
42. KEY
43. KEY
44. SHAFT
45. BEARING
46. WHEELFACE
47. BEARING
48. YOKE, THRUST
49. LEVER, CONTROL
50. SPACER, LEVER
51. SCREW, CAP
52. WASHER, LOCK
53. SHOE
54. PIN, SHOE
55. SPRING, EXTENSION
56. NAMEPLATE
57. NUT, FIXED LIMIT
58. NUT, ADJUSTING LIMIT
59. BRACKET, SHOE
60. BUSHING
61. CHAIN
62. SCREW, CAP
63. LINKAGE
64. SCREW
65. WASHER, LOCK
66. SEAL
67. SEAL
68. SCREW
69. PLATE, INSTRUCTION
70. SCREW
71. BUSHING
72. PIN

73. PINION, ADJUSTING

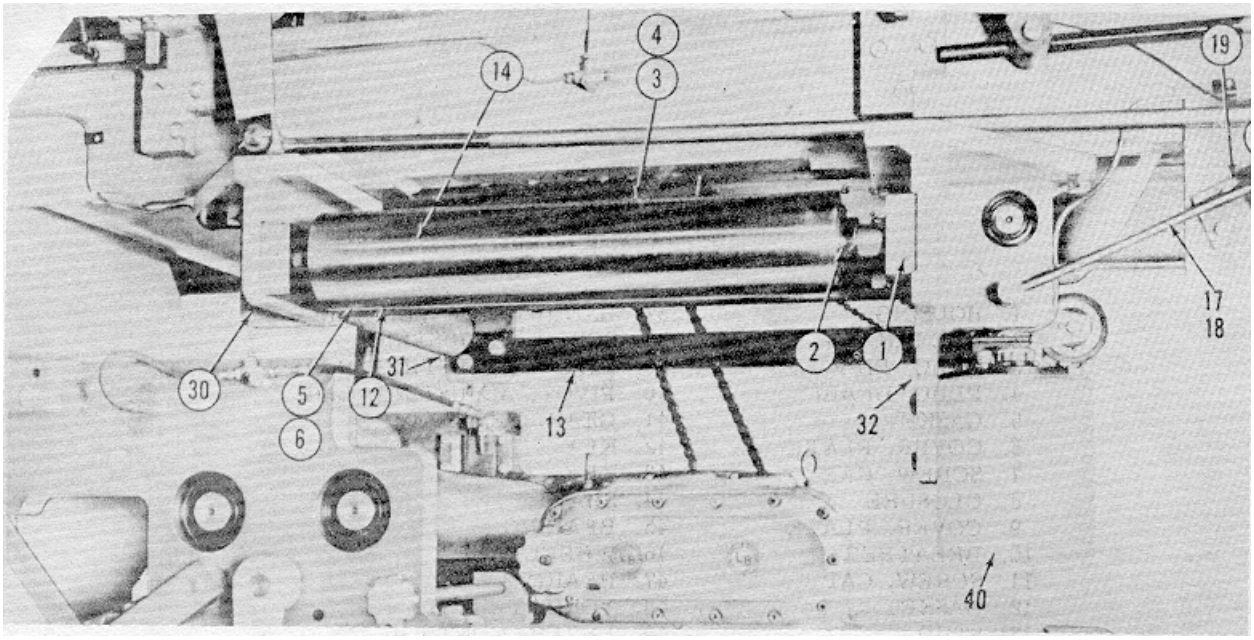



*Figure 95① ..Turn Bars Assembly*

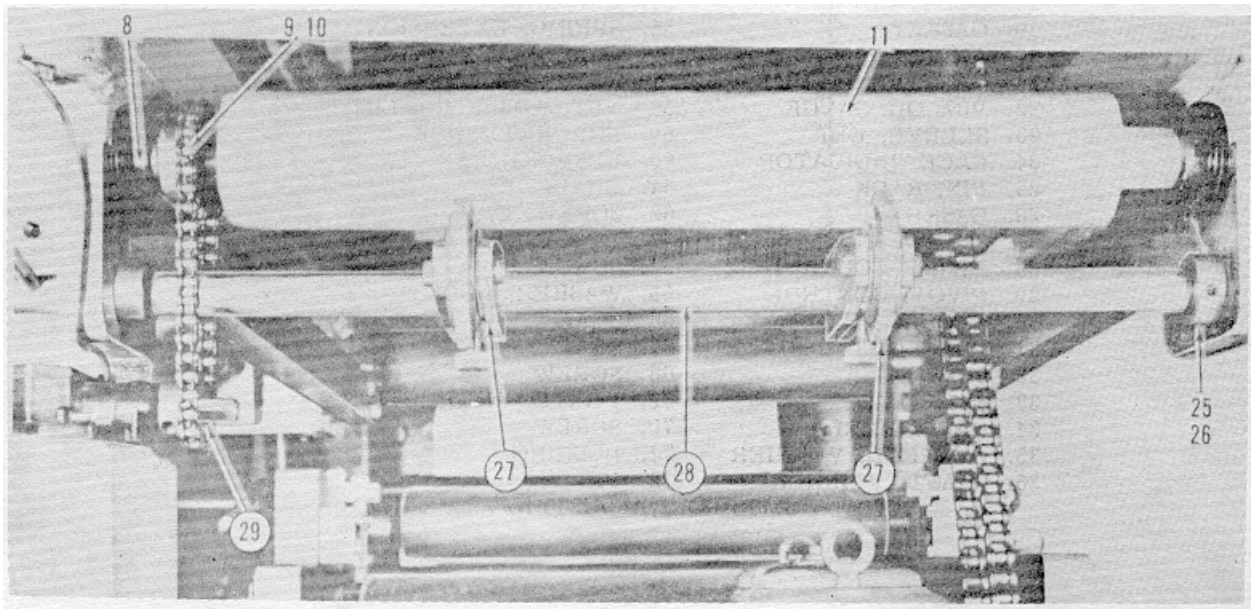



*Figure 95②. Continued*

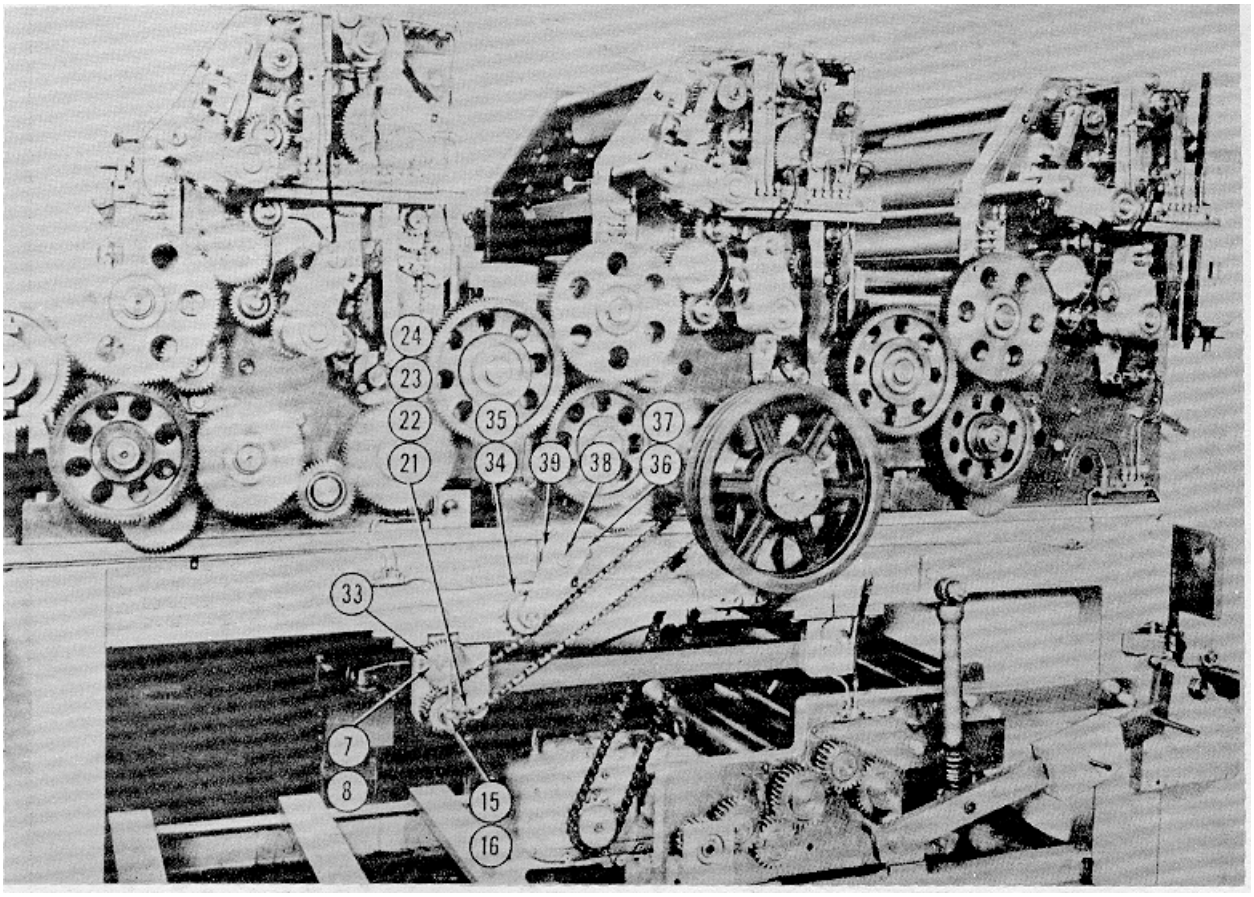
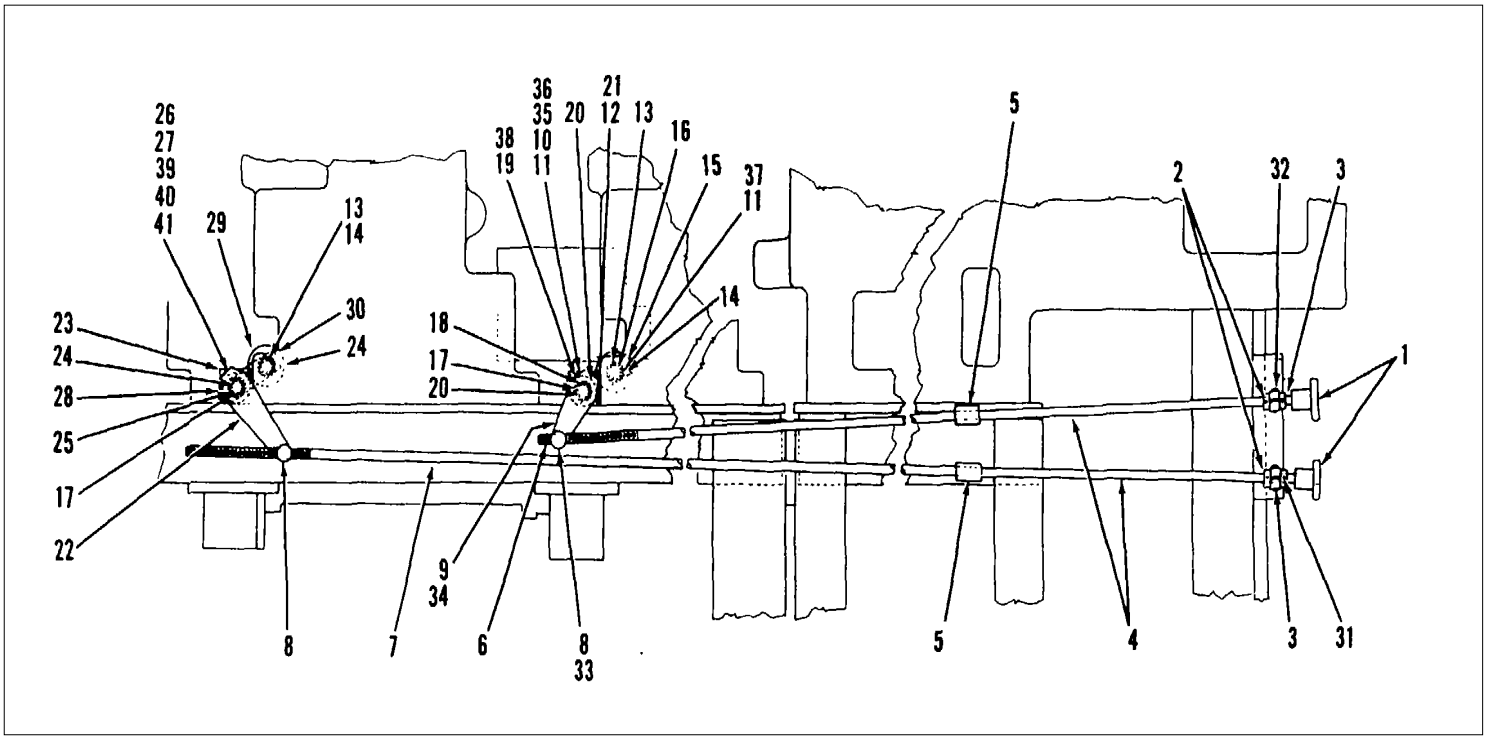



*Figure 95③. Continued*

LEGEND FOR FIGURE 95

1. BLOCK, ADJUSTING
2. BEARING
3. ROLLER
4. SHAFT, ROLLER
5. ROLLER, LEAD
6. BEARING
7. GEAR
8. BEARING
9. SPROCKET
10. CHAIN
11. ROLLER
12. SUPPORT, BAR
13. SUPPORT, BAR
14. TURN BAR
15. COLLAR
16. WASHER, FIBER
17. HANDLE
18. LEVER, PROP
19. BRACKET
20. BRACKET
21. SPROCKET
22. CHAIN
23. GEAR
24. BUSHING
25. BUSHING
26. COLLAR
27. PROP ASSEMBLY
28. SHAFT
29. SPROCKET
30. BRACKET
31. BRACKET
32. BRACKET
33. BRACKET
34. SPROCKET
35. BEARING
36. LEVER
37. SPACER
38. STUD
39. BLOCK, STUD
40. LUBRICATOR, OIL (See fig. 62)




1. KNOB
2. COLLAR
3. POPPET, ADJUSTING
4. ROD, ADJUSTING
5. COUPLING
6. ROD, ADJUSTING
7. ROD, ADJUSTING
8. POPPET, ADJUSTING
9. LEVER, ADJUSTING
10. BRACKET, SHAFT
11. BUSHING
12. LEVER, ROLLER
13. COLLAR
14. BEARING
15. ROLLER, LEAD
16. SHAFT
17. COLLAR
18. BEARING
19. ROLLER, LEAD
20. SHAFT
21. LEVER, ROLLER
22. LEVER, ADJUSTING
23. BRACKET, SHAFT
24. BUSHING
25. SHAFT
26. LEVER, ROLLER
27. LEVER, ROLLER
28. BEARING
29. ROLLER, LEAD
30. SHAFT
31. SETSCREW
32. SCREW, CAP
33. PIN, COTTER
34. SETSCREW
35. PIN, ROLL
36. SCREW, CAP
37. SETSCREW
38. SCREW, MACHINE
39. PIN, TAPER
40. SCREW, CAP
41. SETSCREW

*Figure 96. Compensator Roller and Lever Assembly, Exploded View*

LEGEND FOR FIGURE 99

1. REAR OFFSET UNIT GUARD ASSY
2. RH TRAY ASSY
3. INTERMEDIATE TRAY ASSY
4. LH TRAY ASSY
5. SIDE GUARD ASSY
6. SIDE GUARD ASSY
7. SCREW, MACHINE
8. WASHER, PLAIN
9. TOP GUARD ASSY
10. DOOR ASSY
11. SPROCKET HOLDER ASSY
12. FRONT PIECE
13. SCREW, TAP
14. REAR PIECE
15. TOP PIECE
16. BRACKET, MTG, LOWER
17. BRACKET, MTG, CENTER
18. BRACKET, MTG, UPPER
19. STRIP, FILLER
20. NUT, WING
21. WASHER, PLAIN
22. WASHER, LOCK
23. SCREW, MACHINE
24. WASHER, LOCK
25. REAR DELIVERY UNIT GUARD ASSY
26. FRAME & OIL TRAY ASSY
27. FRAME POST ASSY
28. VERTICAL DOOR ASSY
29. HORIZONTAL DOOR ASSY
30. COVER ASSY
31. SCREW THD FORMING
32. FRAME ASSY
33. TRAY ASSY
34. GEAR GUARD ASSY
35. PLATE, SPLASH
36. PLATE, SPLASH
37. STRIP, FILLER
38. STRIP, FILLER
39. SCREW, MACHINE
40. WASHER, LOCK
41. WASHER, FLAT
42. MAIN DRIVE & V BELT GUARD ASSY
43. MAIN DRIVE BASE GUARD ASSY
44. BRACKET
45. UPPER R.H. GUARD ASSY
46. BRACKET GUARD UPPER RH
47. UPPER L..H. GUARD ASSY
48. BRACKET, GUARD, UPPER
49. UPPER L.H. GUARD EXTENSION ASSY
50. NUT, Hex
51. SCREW, MACHINE
52. NUT, Hex
53. DELETED
54. SCREW, MACHINE
55. WASHER, LOCK
56. CHAIN DRIVE GUARD ASSY
57. HOUSING
58. HALF COUPLING
59. PLUG, SQUARE
60. SCREW, MACHINE
61. FEEDER GEAR GUARD ASSY
62. SCREW, CAP
63. SCREW, CAP
64. VARIABLE CONTROL GUARD ASSY
65. BRACKET
66. SCREW, MACHINE
67. SCREW, MACHINE
68. SCREW, THD
69. NUT
70. PLATE, SPLASH
71. PLATE, SPLASH
72. ELECTRIC WIRE & SWITCH ASSY
73. CRANK LINK GUARD ASSY
74. BOLT, Hex Hd

# APPENDIX A

# REFERENCES

A-1. Fire Protection

| | |
|---|---|
| TB 5-4200-200-10 for Army Users | Hand Portable Fire Extinguishers |

A-2. Lubricants

| | |
|---|---|
| C9100IL | Fuels, Lubricants, Oils and Waxes |
| LO 5-3610-200-15 | Lubrication Order, Printing Press, Offset, Web-Fed Motor Driven, 220 Volt, 60 Cycle, 3 Phase, Hess and Barker Model 3-C |

A-3. Painting

| | |
|---|---|
| TM 9-213 | Painting Instructions for Field Use |

A-4. Radio Suppression

| | |
|---|---|
| TM 11-483 | Radio Interference Suppression |

A-5. Maintenance

| | |
|---|---|
| TM 38-750 | Army Equipment Record Procedures |
| TM 5-3610-200-15 | Organizational, Direct, General Support, and Depot Maintenance Manual, Printing Press, Offset, Web-Fed, 220 Volt, 60 Cycle, 3 Phase (Hess and Barker Model 3-C) |
| TM 5-3610-200-25P | Organizational, Direct and General Support and Depot Maintenance Repair Parts and Special Tool List, Printing Press, Offset, Web-Fed, 220 Volt, 60 Cycle, 3 Phase (Hess and Barker Model 3-C) (when printed) |
| TM 5-764 | Electric Motor and Generator Repair |

A-6. Shipment and Limited Storage

| | |
|---|---|
| TB 740-93-2 Equipment | Preservation of USAMEC Mechanical |
| TB 740-93-3 Mechanical Equipment | Administrative Storage of USAMEC |

# APPENDIX B

# MAINTENANCE ALLOCATION CHART

## Section I. INTRODUCTION

B-1. **General**

a. This section provides a general explanation of all maintenance and repair functions authorized at various maintenance levels.

b. Section II designates overall responsibility for the performance of maintenance functions on the identified end item or component. The implementation of the maintenance functions upon the end item or component will be consistent with the assigned maintenance functions.

c. Section III lists the special tools and test equipment required for each maintenance function as referenced from Section II.

B-2. **Explanation of Columns in Section II**

a. Group Number, Column 1. The functional group is a numerical group set up on a functional basis. The applicable functional grouping indexes (obtained from TB 750-93-1, Functional Grouping Codes) are listed on the MAC in the appropriate numerical sequence. These indexes are normally set up in accordance with their function and proximity to each other.

b. Functional Group, Column 2. This column contains a brief description of the components of each functional group.

c. Maintenance Functions, Column 3. This column lists the various maintenance functions (A through K) and indicates the lowest maintenance category authorized to perform these functions. The symbol designations for the various maintenance categories are as follows:

C - Operator or Crew
0 - Organizational maintenance
F - Direct support maintenance
H - General support maintenance
D - Depot maintenance

The maintenance functions are defined as follows:

A - INSPECT. To determine serviceability of an item by comparing its physical, mechanical, and electrical characteristics with established standards.

B - TEST. To verify serviceability and to detect electrical or mechanical failure by use of test equipment.

C - SERVICE. To clean, to preserve, to charge, to paint, and to add fuel, lubricants, cooling agents, and air.

D - ADJUST. To rectify to the extent necessary to bring into proper operating range.

E - ALIGN. To adjust specified variable elements of an item to bring to optimum performance.

F - CALIBRATE. To determine the corrections to be made in the readings of instruments or test equipment used in precise measurement. Consists of the comparisons of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared -with the certified standard.

G - INSTALL. To set up for use in an operational environment such as an emplacement, site, or vehicle.

H - REPLACE. To replace unserviceable items with serviceable assemblies, subassemblies, or parts.

I - REPAIR. To restore an item to serviceable condition. This includes, but is not limited to, inspection, cleaning, preserving, adjusting, replacing, welding, riveting, and strengthening.

J - OVERHAUL. To restore an item to a completely serviceable condition as prescribed by maintenance serviceability standards using the Inspect and Repair Only as Necessary (IROAN) technique.

K - REBUILD. To restore an item to a standard as nearly as possible to original or new condition in appearance, performance, and life expectancy. This is accomplished through complete disassembly of the item, inspection of all parts or components, repair or replacement of worn or unserviceable elements (items) using original manufacturing tolerances and specifications, and subsequent reassembly of the item.

d.Tools and Equipment, Column 4. This column is provided for referencing by code the special tools and test equipment (Section III) required to perform the maintenance functions (Section II).

e.Remarks, Column 5. This column is provided for referencing by code the remarks (Section IV) pertinent to the maintenance functions.

**B-3.Explanation of Columns in Section III**

a.Reference Code. This column consists of a number and a letter separated by a dash. The number references the T&NE requirements column on the MAC. The letter represents the specific maintenance function the item is to be used with. The letter is representative of Columns A through K on the MAC.

b.Maintenance Category. This column shows the lowest level of maintenance authorized to use the special tool or test equipment.

c.Nomenclature. This column lists the name or identification of the tool or test equipment.

d.Tool Number. This column lists the manufacturer's code and part number, or Federal Stock Number of tools and test equipment.

## SECTION II. MAINTENANCE ALLOCATION CHART

| (1) (2) GROUP NUMBER | (3) FUNCTIONAL GROUP | (4) MAINTENANCE FUNCTIONS | | | | | | | | | | | (5) TOLS AND EQUIPMENT | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | F | G | H | I | J | K | | |
| INSPECT | | TEST | SERVICE | ADJUST | ALIGN | CALIBRATE | INSTALL | REPLACE | REPAIR | OVERHAUL | REBUILD | | | |
| 15F | FRAME , TOWING ATTACHMENTS AND DRAWBARS | | | | | | | | | | | | | |
| 1501 | Frame Assembly | | | | | | | | | | | | | |
| | Base Assembly | O | | | | | | | | H | | | | |
| 18 | BODY, CA B, HOOD AND HULL | | | | | | | | | | | | | |
| 1808 | Storage Cabinets, Tables, Platform Extension Plates Ramp Plates, Shipping Frame | 0 | | | | | | | 0 | H | | | | |
| 22 | BODY CHASSIS OR HULL ACCES-SORY ITEMS | | | | | | | | | | | | | |
| 2201 | Tarpaulin | O | | | | | | O | O | F | | | | |
| | Roller Skids | O | | | | | | O | O | F | | | | |
| | Jacks | O | | | | | | | O | F | | | | |

## SECTION II. MAINTENANCE ALLOCATION CHART

| (1) GROUP NUMBER | (2) | (3) FUNCTIONAL GROUP | (4) MAINTENANCE FUNCTIONS | | | | | | | | | | | (5) TOLS AND EQUIPMENT | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | A | B | C | D | E | F | G | H | I | J | K | | |
| | INSPECT | | TEST | SERVICE | ADJUST | ALIGN | CALIBRATE | INSTALL | REPLACE | REPAIR | OVERHAUL | REBUILD | | | |
| | 2202 | Accessory Items | | | | | | | | | | | | | |
| | | Ink Slabs | O | | | | | | | O | | | | | |
| | | Tool Boards | O | | | | | | | O | F | | | | |
| | 2210 | Data Plates | O | | | | | | | O | | | | | |
| 40 | | ELECTRIC MOTORS AND MOTOR GENE .TORS (OTHER THAN ENGINE ACCESSORIES) | | | | | | | | | | | | | |
| | 4000 | Motor Generator Unit and Motor Assemblies | O | F | | | | | F | F | H | D | | | |
| | 4001 | Rotor Assembly | | H | | | | | | H | H | D | | | |
| | 4002 | Stator Assembly | | H | | | | | | H | H | D | | | |
| | 4003 | Brush Holders | | | | O | | | | F | | | | | |
| | | Brushes | O | | | | | | | O | | | | | |

## SECTION II. MAINTENANCE ALLOCATION CHART

| (1) (2) GROUP NUMBER | (3) FUNCTIONAL GROUP | (4) MAINTENANCE FUNCTIONS | | | | | | | | | | | (5) TOLS AND EQUIPMENT | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | F | G | H | I | J | K | | |
| | | INSPECT | TEST | SERVICE | ADJUST | ALIGN | CALIBRATE | INSTALL | REPLACE | REPAIR | OVERHAUL | REBUILD | | |
| | 4005 | Frame Supports and Housings | O | | | | | | | F | | | | |
| | 4007 | Drive Components Belts | | | | O | | | | O | | | | |
| | 4010 | Master or Auxiliary Control Assembly | O | F | | | | | | | F | | | |
| 42 | | ELECTRIC EQUMENT | | | | | | | | | | | | |
| | 4201 | Transformers | | F | | | | | | F | | | | |
| | 4202 | Electric Controls | | | | | | | | | | | | |
| | | Main and Auxiliary | | F | | | | | | F | | | | |
| | 4203 | Fuses | O | | | | | | | O | | | | |
| | 4205 | Control Resistances | | F | | | | | | F | | | | |
| | 4216 | Miscellaneous Wiring, Fittings, etc. | | | | | | | | F | | | | |

## SECTION II. MAINTENANCE ALLOCATION CHART

| (1) (2) GROUP NUMBER | (3) FUNCTIONAL GROUP | (4) MAINTENANCE FUNCTIONS | | | | | | | | | | | (5) TOLS AND EQUIPMENT | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | F | G | H | I | J | K | | |
| | | INSPECT | TEST | SERVICE | ADJUST | ALIGN | CALIBRATE | INSTALL | REPLACE | REPAIR | OVERHAUL | REBUILD | | | |
| 43 | HYDRAULIC, AIR AND VACUUM SYSTEMS | | | | | | | | | | | | | |
| 4316 | Assembled Hose, Fittings, Lines, Breathers, Filters and Traps | | O | | | | | | | O | | | | |
| 4317 | Manifolds and Control Valves | | O | | | | | | | F | | | | |
| 4319 | Pumps and Pump Drives | | O | | O | O | | | | O | F | H | | |
| 4320 | Air, Vacuum and/or Manual Controls | | | | | | | | | O | | | | |
| 47 | GAGES (NON-ELECTRIC) WEIGHT AND MEASURING DEVICES | | | | | | | | | | | | | |
| 4701 | Instruments | | | | | | | | | | | | | |
| | Counters | | | | | | | | | O | | | | |
| | Indicators, Speed | | | O | | | | | | F | | | | |

## SECTION II. MAINTENANCE ALLOCATION CHART

| (1) (2) GROUP NUMBER | (3) FUNCTIONAL GROUP | (4) MAINTENANCE FUNCTIONS | | | | | | | | | | | (5) TOLS AND EQUIPMENT | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | F | G | H | I | J | K | | |
| | | INSPECT | TEST | SERVICE | ADJUST | ALIGN | CALIBRATE | INSTALL | REPLACE | REPAIR | OVERHAUL | REBUILD | | |
| | 4702 | Gages, Mounting, Lines and Fittings | | | | | | | | O | | | | |
| 65 | | REPRODUCTION EQUIPMENT | | | | | | | | | | | | |
| | 6500 | Press Lithographic Offset | O | | O | O | | | | F | F | H | | |
| | 6502 | Offset Press Feeder | O | | O | O | | | | F | F | H | | |
| | 6503 | Offset Main Press Assembly | O | | O | O | | | | F | F | H | | |
| | | Cylinder, Plate, Blanket and Impression | O | | O | C | | | | F | H | D | | 1 and 2 |
| | 6504 | Offset Press Inker | | | O | C | | | | F | F | H | | 3 |
| | | Fountain Assembly | | | O | O | | | | F | F | | | |
| | 6505 | Offset Press, Water System | | | O | O | | | | F | F | | | |
| | 6506 | Offset Press, Delivery System | | | O | O | | | | F | F | | | |
| | | Sheeter Assembly | | | | C | | | | F | F | | | 4 |

**SECTION III**

**MAINTENANCE ALLOCATION CHART**

**FOR:PRINTING PRESS, OFFSETT, WEB-** **DATE**_____

**FED** **PAGE**_____**OF**_____

**SECTION III. SPECIAL TOOL AND SPECIAL TEST EQUIPMENT REQUIREMENTS**

| REFERENCE CODE | MAINTENANCE LEVEL | NOMENCLATURE | TOOL NUMBER |
|---|---|---|---|
| 1 - D | C | Wrench, Pin, Plate and Blanket Cylinder | (81337) 6-1-4046-56 |
| 2 - D | C | Gage, Blanket Bar Tolerance | (81337) 6-1-4046-58 |
| 3 - D | C | Wrench, Pin, Roller Setting | (81337) 6-1-4046-59 |
| 4 - D | C | Cage, Knife Tolerance | (81337) 6-1-4046-60 |

# APPENDIX C

# BASIC ISSUE ITEMS LIST

## Section I. INTRODUCTION

### C-1. Scope

This appendix lists items which accompany the Printing Press or are required for installation, operation, or operator's maintenance.

### C-2. General

This Basic Issue Items List is divided into the following sections:

a. Basic Issue Items Section II. A list of items which accompany the Printing Press or are required for the installation, operation, or operator's maintenance.

b. Maintenance and Operating Supplies - Section III. A listing of maintenance and operating supplies required for initial operation.

### C-3. Explanation of Columns

The following provides an explanation of columns in the tabular list of Basic Issue Items, Section II.

a. Source, Maintenance, and Recoverability Codes (SMR), Column 1.

(1) Source Code, indicates the selection status and source for -the listed item. Source code is:

| Code | Explanation |
|---|---|
| P | Applied to repair parts which are stocked in or supplied from GSA/DSA or Army supply system, and authorized for use at indicated maintenance categories. |

NOTE: Source code and level of maintenance are not shown on common hardware items known to be readily available in Army supply channels and through local procurement.

(2) Maintenance Code, indicates the lowest category of maintenance authorized to install the listed item. The maintenance level code is:

| Code | Explanation |
|---|---|
| C | Operator/crew |
| O | Organizational maintenance |

(3) Recoverability Code, indicates whether unserviceable items should be returned for recovery or salvage. Items not coded are expendable.

b. Federal Stock Number, Column 2. This column indicates the Federal stock number for the item.

c. Description, Column 3. This column indicates the Federal item name and any additional description of the item required. A part number or other reference number is followed by the applicable five-digit Federal supply code for manufacturers in parentheses. Repair parts quantities included in kits, sets, and assemblies are shown in front of the repair part name.

d. Unit of Issue, Column 4. This column indicates the unit used as a basis for issue, e.g., ea, pr, ft, yd, etc.

e. Quantity Incorporated in Unit Pack, Column 5. This column indicates the actual quantity contained in the unit pack.

i. Quantity Incorporated in Unit, Column 6. This column indicates the quantity of the item used in the functional group.

g. Quantity Furnished With Equipment, Column 7. This column indicates the quantity of an item furnished with the equipment.

h. Quantity Authorized, Column 8. This column indicates the quantity of an item authorized the operator/crew to have on hand or to obtain as required. As required items are indicated with an asterisk.

i. Illustration, Column 9. This column is divided as follows:

(1) Figure Number, Column 9a. Indicates the figure number of the illustration in which the item is shown.

(2) Item Number, Column 9b. Indicates the callout number used to reference the item in the illustration.

## C-4. Explanation of Columns in the Tabular List of Maintenance and Operating Supplies Section III

a. Component Application, Column 1. This column identifies the component application of each maintenance or operating supply item.

b. Federal Stock Number, Column 2. This column indicates the Federal stock number for the item and will be used for requisitioning purposes.

c. Description, Column 3. This column indicates the item and brief description.

d. Quantity Required for Initial Operation, Column 4. This column indicates the quantity of each maintenance or operating supply item required for initial operation of the equipment.

e. Quantity Required for 8 Hours Operation, Column 5. This column indicates the estimated quantities required for an average eight hours of operation.

f. Notes, Column 6. This column indicates informative notes keyed to data appearing in a preceding column.

## C-5. Abbreviations

| Abbreviations | Explanations |
|---|---|
| B1 | Ball |
| Bo | Bolt |
| Btle | Bottle |
| Deg | Degree |
| Dia | Diameter |
| Ea | Each |
| Gal | Gallon |
| In | Inch |
| Lb | Pound |
| Lg | Long |
| Oz | Ounce |
| Pkg | Package |
| Pt | Pint |
| Qt | Quart |
| Sh | Sheet |

**C-6.Federal Supply Code for Manufacturers**

CodeManufacturer

53800Sears Roebuck and Co., Chicago, Ill.
57163Starret, L.S. Company, Athol, Mass.
57771Edwin B.  Simpson Co.  Inc., Brooklyn, New York
65814Williams, J.H. and Co., Buffalo, New York
72498J.P. Danielson, Jamestowm, New York
78525Stanley Tool, Diva of Stanley Works, New Britain, Conn.
81337Army Natick Laboratories, Natick, Mass.
83447Alemite Co. of Boston, Boston, Mass.
90028Simplex Manufacturing Co., New Orleans, La.
92075Rhoads, J.E. and Sons, Philadelphia, Pa.

## Section II. BASIC ISSUE ITEMS

| (1) (2) SMR Code | Description of Federal Stock Number | (3) Unit inc Ref no. & mfr Code | (4) Qty Usable on code Pack | (5) Qty inc Issue | (6) Qty furn in Unit | (7) Qty Auth in unit | (8) with equip | (9) Illustration (A) | (B) Fig no. | Item No. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | GROUP 31 - BASIC ISSUE ITEMS, MANUFACTURER INSTALLED<br><br>3100 - BASIC ISSUE ITEMS, MANUFACTUR OR DEPOT INSTALLED | | | | | | | | |
| PC | 3610-971-2223 | BEVELER, BELT: | | EA | 1 | | 1 | 1 | | |
| PC | | CEMENT, TEXALON BELT: 2 oz. bottle w/applicator (92075) NPN | | EA | 1 | | 1 | 1 | | |
| PC | 8305-170-5063 | CHEESE CLOTH: unbleached, closely inoven, 70 yard bolt | | BO | 1 | | 2 | 2 | | |
| PC | 6510-291-4000 | COTTON: Surgical, 1 lb. roll | | PKG | 1 | | 4 | 4 | | |
| PC | | GAGE, BLANKET: (81337) 6-1-4046-58 | | EA | 1 | | 2 | 2 | | |
| PC | | GAGE, FEELER: (57163) 1467 | | EA | 1 | | 1 | 1 | | |
| PC | | GAGE, KNIFE SETTING (81337) 6-1-4046-60 | | EA | 1 | | 1 | 1 | | |
| PC | | GUN, GREASE: (83447) 7585-2 | | EA | 1 | | 1 | 1 | | |
| PC | | HAMMER, PLASTIC: 8 OZ. (78525) 593 | | EA | 1 | | 1 | 1 | | |

## Section II. BASIC ISSUE ITEMS

| (1) (2) SMR Code | Description of Federal Stock Number | (3) Unit inc Ref no. & mfr Code | (4) Qty Usable on code Pack | (5) Qty inc Issue | (6) Qty furn in Unit | (7) Qty Auth in unit | (8) with equip | Illustration (A) | (9) (B) Fig no. | Item No. |
|---|---|---|---|---|---|---|---|---|---|---|
| PC | | HANDLE: Lowering Jack (90028) H-84A-H | | EA | 1 | | 2 | 2 | | |
| PC | 6630-247-2956 | HYDROMETER, GRAU-ATED SCALE: Baume Scale 0 to 20 Deg. 0.5 Deg. smallest increment 6 in. lg. with jar | | EA | 1 | | 2 | 2 | | |
| PC | | JACK, RATCHET LOWRING: (90028) 84A | | EA | 1 | | 2 | 2 | | |
| PC | | JIG, PIATE BRIDING: (81337) 6-1-3007 | | EA | 1 | | 1 | 1 | | |
| | | KEY SET, SOCKET HEAD SCREW: Hex drive, L-type handle w/roll, c/o | | ST | 1 | | 1 | 1 | | |
| | | WIDTH ACROSS FLATS, INCHES / NOIENAL LONG ARM LENGTH INCHES | | | | | | | | |
| PC | 5120-198-5398 | 1/16 1-3/4 | | EA | 1 | | 1 | 1 | | |
| PC | 5120-224-2504 | 5/64 1-7/8 | | EA | 1 | | 1 | 1 | | |
| PC | 5120-242-7410 | 3/32 2 | | EA | 1 | | 1 | 1 | | |
| PC | 5120-240-5292 | 1/8 2-1/4 | | EA | 1 | | 1 | 1 | | |
| PC | 5120-198-5392 | 5/32 2-1/2 | | EA | 1 | | 1 | 1 | | |
| PC | 5120-240-5300 | 3/16 2-3/4 | | EA | 1 | | 1 | 1 | | |
| PC | 5120-242-7411 | 7/32 3 | | EA | 1 | | 1 | 1 | | |
| PC | 5120-224-4659 | 1/4 3-1/4 | | EA | 1 | | 1 | 1 | | |
| PC | 5120-240-5274 | 5/16 3-3/4 | | EA | 1 | | 1 | 1 | | |
| PC | 5120-240-5268 | 9/16 5-3/4 | | EA | 1 | | 1 | 1 | | |
| PC | 5120-198-5391 | 1/2 5-1/4 | | EA | 1 | | 1 | 1 | | |

## Section II. BASIC ISSUE ITEMS

| (1) (2) SMR Code | Description of Federal Stock Number | (3) Unit inc Ref no. & mfr Code | (4) Qty Usable on code Pack | (5) Qty inc Issue | (6) Qty furn in Unit | (7) Qty Auth in unit | (8) with equip | Illustration (A) | (9) (B) Fig no. | Item No. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | EYSET, SOCKET HEAD SCREW: Hex type; T-handle, w/replace-able & non-adjustable blades, and L-type Keys, c/o<br><br>WIDTH ACROSS FLATS INCHES — NOMINAL LONG ARM LENGTH INCHES | | ST | 1 | | 1 | 1 | | |
| PC | | 1/8 — 5 | | EA | 1 | | 1 | 1 | | |
| PC | | 3/16 — 6 | | EA | 1 | | 1 | 1 | | |
| PC | | 7/32 — 6 | | EA | 1 | | 1 | 1 | | |
| PC | | 1/4 — 6 | | EA | 1 | | 1 | 1 | | |
| PC | | 5/16 — 7 | | EA- | 1 | | 1 | 1 | | |
| PC | | 3/8 — 7 | | EA | 1 | | 1 | 1 | | |
| PC | | 1/2 — 8 | | EA | 1 | | 1 | 1 | | |
| PC | | KNIFE, PALLET: 8 inch blade | | EA | 1 | | 4 | 4 | | |
| PC | | KNIFE, INK SCRAPER: 4 inch blade | | EA | 1 | | 3 | 3 | | |
| PC | 3610-926-5361 | LITHOGRAPHIC PIATE KIT: 25 each bi-metallic long run plates w/process chemicals | | KT | 25 | | 4 | 4 | | |
| PC | | NEEDLE, DAMPENER COVER: | | EA | 1 | | 12 | 12 | | |
| PC | | PAPER PACKING: 19 in x 23 in x 0.002 in thick sheets | | SH | 1 | | 300 | 300 | | |
| PC | | PAPER PACKING 19 in x 23 in x 0.003 in thk sheets | | SH | 1 | | 100 | 100 | | |

## Section II. BASIC ISSUE ITEMS

| (1) (2) SMR Code | Description of Federal Stock Number | (3) Unit inc Ref no. & mfr Code | (4) Qty Usable on code Pack | (5) Qty inc Issue | (6) Qty furn in Unit | (7) Qty Auth in unit | (8) with equip | (9) Illustration (A) | (B) Fig no. | Item No. |
|---|---|---|---|---|---|---|---|---|---|---|
| PC | | PAPER PACKING: 19 in x 23 in x 0.005 in thick sheets | | SH | 1 | | 100 | 100 | | |
| PC | | WRENCH, PIN: Plate & blanket cylinder (81337)6-1-4046-56 | | EA | 1 | | 2 | 2 | | |
| PC | | PITCHER, MIXING: Porcelain, 64 oz | | EA | 1 | | 1 | 1 | | |
| PC | 3610-962-4713 | PRESS, BELT: Heat type; non-tempera-ture controlled | | EA | 1 | | 1 | 1 | | |
| PC | | PULLER GEAR (72498)4070-C | | EA | 1 | | 1 | 1 | | |
| PC | | PUNCHING MACHINE: hand operated (57771)4o5 | | EA | 1 | | 1 | 1 | | |
| PC | | PUNCH: Large size (57771) A-2162 | | EA | 1 | | 1 | 1 | | |
| PC | | PUNCH: Small size (57771)A-1094 | | EA | 1 | | 1 | 1 | | |
| PC | 3610-606-5767 | ROD, STIRRING: Plastic, 10 in long | | EA | 1 | | 3 | 3 | | |
| PC | | ROLLER, SKID (FIXED) (Stovkis Multiton Corporation) Mark 4 | | EA | 1 | | 1 | 1 | | |
| PC | | ROLLER, SKID, SWIVEL (Stovkis Miltiton Corp.) Mark 4S | | EA | 1 | | 1 | 1 | | |
| PC | | RULE, STEEL: (57163) 310K | | EA | 1 | | 1 | 1 | | |

## Section II. BASIC ISSUE ITEMS

| (1) (2) SMR Code | Description of Federal Stock Number | (3) Unit inc Ref no. & mfr Code | (4) Qty Usable on code Pack | (5) Qty inc Issue | (6) Qty furn in Unit | (7) Qty Auth in unit | (8) with equip | Illustration (A) | (9) (B) Fig no. | Item No. |
|---|---|---|---|---|---|---|---|---|---|---|
| PC | 7240-244-7412 | SAFETY CAN: Steel, fixed spout, 1 in. dia., 1 qt. capacity | | EA | 1 | | 4 | 4 | | |
| PC | | SCREWDRIVER FLAT TIP: 1/4 in. wide tip x 7-1/2 in. long (78525) 90(71/2) | | EA | 1 | | 1 | 1 | | |
| PC | | SCREWDRIVER, FLAT TIP :3/8 in. wide tip x i1-1/2 in. long (78525) 90(11-1/2) | | EA | 1 | | 1 | 1 | | |
| PC | 5350-240-2920 | STEEL WOOL: Grade 00, 1 lb. pkg. | | PG | 1 | | 5 | 5 | | |
| PC | | SNAKE, SLIP: (Etcho) | | EA | 1 | | 12 | 12 | | |
| PC | | SPONGE, CELLULO SE: 6 inch | | EA | 1 | | 6 | 6 | | |
| PC | | SPONGE, NATURAL: 8 inch | | EA | 1 | | 6 | 6 | | |
| PC | | STONE, CORRECTION: Lithographic, Scotch honetype, 1/4 inch x 6 inch | | EA | 1 | | 12 | 12 | | |
| PC | | THREAD, DAMPENER 1/2 lb. ball | | BL | 1 | | 2 | 2 | | |
| PC | 5120-288-9504 | WRENCH, BOX, OPEN END, COMBINATION: offset type 15 deg. angle | | EA | 1 | | 1 | 1 | | |

## Section II. BASIC ISSUE ITEMS

| (1) (2) SMR Code | Description of Federal Stock Number | (3) Unit inc Ref no. & mfr Code | (4) Qty Usable on code Pack | (5) Qty inc Issue | (6) Qty furn in Unit | (7) Qty Auth in unit | (8) with equip | Illustration (A) | (9) (B) Fig no. | Item No. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | WRENCH, OPEN END, FIXED: Double head type, 15 deg. angle of head<br><br>WRENCH OPENING INCHES / NOMINAL LENGTH OVERALL | | | | | | | | |
| PC | | 19/32x (65814) | 5 25 | EA | 1 | | 1 | 1 | | |
| PC | | 5/16 x 3/8 (65814)1721 | 4-1/4 | EA | 1 | | 1 | 1 | | |
| PC | 5120-277-1228 | 11/16x19/32 (65814) 27 | 6-1/2 | EA | 1 | | 1 | 1 | | |
| PC | 5120-277-2311 | 1/4x5/16 (65814) | 8-3/8 728 | EA | 1 | | 1 | 1 | | |
| PC | | 7/8x11/16 (65814) | 10 733 | EA | 1 | | 1 | 1 | | |
| PC1 | | 1-1/16x7/8 (65814) 34 | 10-1/2 | EA | 1 | | 1 | 1 | | |
| PC | | WRENCH, PIN: roller setting (81337)6-1-4046-59 | | EA | 1 | | 2 | 2 | | |
| PC | | WRENCH, PIN: sheeter (81337)6-1-4000-61 | | EA | 1 | | 2 | 2 | | |
| PC | | WRENCH, WALDEN: spintite (6581)4) | 341 | EA | 1 | | 1 | 1 | | |

## Section II. BASIC ISSUE ITEMS

| (1) (2) SMR Code | Description of Federal Stock Number | (3) Unit inc Ref no. & mfr Code | (4) Qty Usable on code Pack | (5) Qty inc Issue | (6) Qty furn in Unit | (7) Qty Auth in unit | (8) with equip | (9) Illustration (A) | (B) Fig no. | Item No. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | WRENCH, SQUARE HEAD: Set screw c/o WIDTH ACROSS FLATS INCHES | | | | | | | | |
| PC | | 5/16 x ¼ (65814)525 | | EA | 1 | | 1 | 1 | | |
| PC | | 1/2 x 3/8 (65814)530 | | EA | 1 | | 1 | 1 | | |
| PC | | 1/2 x 7/16 (65814)725 | | EA | 1 | | 1 | 1 | | |
| PC | 5120-224-2569 | WRENCH, SOCKET: single socket, T type fixed handle, square socket, 3/4 inches socket size 7-3/8 in long (65814) 969-IH | | EA | 1 | | 1 | 1 | | |
| | | WRECH, SOCKET: single socket, T type, fixed handle hex socket, c/o | | | | | | | | |
| PC | 5120-227-7382 | 1/2 5-1/4 (65814) 964-A | | EA | 1 | | 1 | 1 | | |
| PC | 5120-227-7412 | 9/16 5-3/4 (658114) 965-D | | EA | 1 | | 1 | 1 | | |
| PC | 5120-227-7385 | 5/8 6 (65814) 967-D | | EA | 1 | | 1 | 1 | | |
| PC | 5120-227-7387 | 3/4 6-1/8 (65814) 966-D | | EA | 1 | | 1 | 1 | | |
| PC | | WRENCH, REVERSIBLE RATCHET, DOUBLE HEAD w/12 points 3/8 X 7/16 (53800) 9A43661 | | EA | 1 | | 1 | 1 | | |

**Section III. MAINTENANCE AND OPERATING SUPPLIES**

| (1) (2) (3) Component applicationstock number | (4) Quantity Federal operation | (5) Quantity Description f/initial operation | (6) required f/8 hrs | required | Notes |
|---|---|---|---|---|---|
| | | CLEANER: Dampener cover (Lestoil), 1 gal can | 4 gal | 1 pt | |
| | | DRIER: cobalt, 1 lb can | 30 cans | 1 lb | |
| | | HYDROCHLORIC ACID: 1 lb bottle | 1 btle | 1 oz | |
| | 6850-281-3461 | ASPHALTUM SOLUTION: litho-graphic plate, 1 quart | 2 qt | 2 oz | |
| | | FOUNTAIN SOLUTION: concen-trated, 1 gallon bottle | 10 gal | 1 qt | |
| | | SOLVENT, VARNISH: reduc-ing, Grade 00, 1 lb can | 1 pt | 1/2 oz | |
| | | INK, PRINTING: PMS BIACK: web-fed, offset process, fultone and halftone, 5 lb can | 90 cans | 10 lbs | |
| | | INK, PRINTING, PMS YEIIOW: web-fed, offset process, fultone and halftone, 5 lb can | 10 cans | 2 lb | |
| | | INK, PRINTING, PM REFLE BLUE: web-fed, offset process, fultone and halftone, 5 lb can | 10 cans | 2 lb | |

**Section III. MAINTENANCE AND OPERATING SUPPLIES**

| (1) (2) (3) Component applicationstock number | (4) Quantity Federal operation | (5) Quantity Description f/initial operation | (6) required f/8 hrs | required | Notes |
|---|---|---|---|---|---|
| | | INK, PRINTING, PME PROCESS BIUE: web-fed, offset, fultone and halftone, 5 lb can | 10 cans | 2 lb | |
| | | INK, PRINTING, PMS WARM RED: web-fed, offset process, fultone and halftone, 5 lb can | 10 cans | 2 lb | |
| | | INK, PRINING, PMS HEITE TRAISPARENT: web-fed, offset process, fultone and halftone, 5 lb can | 5 cans | 1 lb | |
| | 8010-261-4160 | TURPENTINE, GUM: spirits or steam distilled wood, 1 quart can | 5 qt | As req | |
| | | PUMICE POWDER: FFF Pulver-ized, 5 lb can | 1 can | As req | |
| | | SULPHUR POWDER: USP, 1 lb pkg | 1 pkg | As req | |
| | | SOLVENT, DRY CLEANING: per Federal Specification P-s-661 | As req | As req | |
| LUBRICATOR, AUTOMATIC | 9150-265-9435 | Lubricating Oil, Engine, OE-30, 5 gal can, MIL-2104 | 1 can | 2 qt | |

**Section III. MAINTENANCE AND OPERATING SUPPLIES**

| (1) (2) (3) Component applicationstock number | (4) Quantity Federal operation | (5) Quantity Description f/initial operation | (6) required f/8 hrs | required | Notes |
|---|---|---|---|---|---|
| P.I.V. UNIT | 9150-265-9442 | Lubricating Oil, Engine, OE-50, 5 gal can, MIL-L-2104 | 1 can | 2 qt | |
| GEARS, CHAINS, ETC. | 9150-190-0905 | Grease, Automotive and Artillery, GAA, 5 lb can, MIL-G-10924 | 1 can | 1 lb | |

*Page D-1*. Appendix D is added as follows.

**APPENDIX D**
**MAINTENANCE ALLOCATION CHART**

**Section I. INTRODUCTION**

**D-1. General**

*a.* This section provides a general explanation of all maintenance and repair functions authorized at various maintenance levels.

*b*. Section II designates overall responsibility for the performance of maintenance functions on the identified end item or component. The implementation of the maintenance functions upon the end item or component will be consistent with the assigned maintenance functions.

*c.* Section III lists the special tools and test equipment required for each maintenance function as referenced from Section II.

**D-2. Explanation of Columns in Section II**

*a. Group Number, Column 1.* The functional group is a numerical group set up on a functional basis. The applicable functional grouping indexes (obtained from TB 75093-1, Functional Grouping Codes) are listed on the MAC in the appropriate numerical sequence. These indexes are normally set up in accordance with their function and proximity to each other.

*b*. *Functional Group, Column 2*. This column contains a brief description of the components of each functional group.

*c*. *Maintenance Functions, Column 3*. This column lists the various maintenance functions (A through K) and indicates the lowest maintenance category authorized to perform these functions. The symbol designations for the various maintenance categories are as follows:

C - Operator or Crew
O - Organizational maintenance
F - Direct support maintenance
H -General support maintenance
D - Depot maintenance

The maintenance functions are defined as follows:

A- INSPECT. To determine serviceability of an item by comparing its physical, mechanical, and electrical characteristics with established standards.

B - TEST. To verify serviceability and to detect electrical or mechanical failure by use of test equipment.

C - SERVICE. To clean, to preserve, to charge, to paint, and to add fuel, lubricants, cooling agents, and air.

D - ADJUST. To rectify to the extent necessary to bring into proper operating range.

E - ALIGN. To adjust specified variable elements of an item to bring to optimum performance.

F - CALIBRATE. To determine the corrections to be made in the readings of instruments or test equipment used in precise measure-ment. Consists of the comparisons of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared with the certified standard.

G - INSTALL. To set up for use in an operational environment such as an emplacement, site, or vehicle.

H- REPLACE. To replace unserviceable items with serviceable assemblies, subassemblies, or parts.

I - REPAIR. To restore an item to serviceable condition. This includes, but is not limited to, inspection, cleaning, preserving, adjusting, replacing, welding, riveting, and strengthening.

J - OVERHAUL. To restore an item to a completely serviceable condition as prescribed by maintenance serviceability standards using the Inspect and Repair Only as Necessary (IROAN) technique.

K - REBUILD. To restore an item to a standard as nearly as possible to original or new condition in appearance, performance, and life expectancy This is accomplished through complete disassembly of the item, inspection of all parts or components, repair or replacement of worn or unserviceable elements (items) using original manufacturing tolerances and specifications, and subsequent reassembly of the item.

*d. Tools and Equipment, Column 4.* This column is provided for referencing by code the special tools and test equipment (Section III) required to perform the maintenance functions (Section II).

*e. Remarks, Column 5*. This column is provided for referencing by code the remarks (Section IV) pertinent to the maintenance functions.

**D-3. Explanation of Columns in Section III**

*a. Reference Code*. This column consists of a number and a letter separated by a dash. The number references the T&TE requirements column on the MAC. The letter represents the specific

maintenance function the item is to be used with. The letter is representative of Columns A through K on the MAC.

*b. Maintenance Category*. This column shows the lowest level of maintenance authorized to use the special tool or test equipment.

c. Nomenclature. This column lists the name or identification of the tool or test equipment.

*d. Tool Number*. This column lists the manufacturer's code and part number, or Federal Stock Number of tools and test equipment.

## SECTION II. MAINTENANCE ALLOCATION CHART

| (1) GROUP NUMBER | (2) FUNCTIONAL GROUP | (3) MAINTENANCE FUNCTIONS A INSPECT | B TEST | C SERVICE | D ADJUST | E ALIGN | F CALIBRATE | G INSTALL | H REPLACE | I REPAIR | J OVERHAUL | K REBUILD | (4) TOLS AND EQUIPMENT | (5) REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15 | FRAME, TOWING ATTACHMENTS AND DRAWBARS | | | | | | | | | | | | | |
| 1501 | Frame Assembly | | | | | | | | | | | | | |
| | Base Assembly | 0 | | | | | | | | H | | | | |
| 18 | BODY, CAB, HOOD AND HULL | | | | | | | | | | | | | |
| 1808 | Storage Cabinets, Tables, Platform Extension Plates, Ramp Plates, Shipping | | | | | | | | | | | | | |
| | Frame | 0 | | | | | | | 0 | H | | | | |
| 22 | BODY CHASSIS OR HULL ACCESSORY ITEMS | | | | | | | | | | | | | |
| 2201 | Tarpaulin | 0 | | | | | | 0 | 0 | F | | | | |
| | Roller Skids | 0 | | | | | | 0 | 0 | F | | | | |
| | Jacks | 0 | | | | | | | 0 | F | | | | |
| 2202 | Accessory Items | | | | | | | | | | | | | |
| | Ink Slabs | 0 | | | | | | | 0 | | | | | |
| | Tool Boards | 0 | | | | | | | 0 | F | | | | |
| 2210 | Data Plates | 0 | | | | | | | 0 | | | | | |
| 40 | ELECTRIC MOTORS AND MOTOR GENERATORS (OTHER THAN ENGINE ACCESSORIES) | | | | | | | | | | | | | |
| 4000 | Motor Generator Unit and | | | | | | | | | | | | | |
| | Motor Assemblies | 0 | F | | | | F | F | H | D | | | | |
| 4001 | Rotor Assembly | | H | | | | | H | H | D | | | | |
| 4002 | Stator Assembly | | H | | | | | H | H | D | | | | |
| 4003 | Brush Holders | | | | 0 | | | F | | | | | | |
| | Brushes | 0 | | | | | | 0 | | | | | | |
| 4005 | Frame Supports and Housings | 0 | | | | | | F | | | | | | |
| 4007 | Drive Components Belts | | | | 0 | | | 0 | | | | | | |
| 4010 | Master or Auxiliary Control Assembly | 0 | F | | | | | | F | | | | | |
| 42 | ELECTRIC EQUIPMENT | | | | | | | | | | | | | |
| 4201 | Transformers | | F | | | | | F | | | | | | |
| 4202 | Electric Controls Main and Auxiliary | | F | | | | | F | | | | | | |
| 4203 | Fuses | 0 | | | | | | 0 | | | | | | |
| 4205 | Control Resistances | | F | | | | | F | | | | | | |
| 4216 | Miscellaneous Wiring, Fittings, etc. | | | | | | | F | | | | | | |

| (1) GROUP NUMBER | (2) FUNCTIONAL GROUP | (3) MAINTENANCE FUNCTIONS | | | | | | | | | | | (4) TOLS AND EQUIPMENT | (5) REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | F | G | H | I | J | K | | |
| | | INSPECT | TEST | SERVICE | ADJUST | ALIGN | CALIBRATE | INSTALL | REPLACE | REPAIR | OVERHAUL | REBUILD | | |
| 43 | HYDRAULIC, AIR AND VACUUM SYSTEMS | | | | | | | | | | | | | |
| 4316 | Assembled Hose, Fittings, Lines, Breathers, Filters and Tapes | 0 | | | | | | | 0 | | | | | |
| 4317 | Manifolds and Control Valves | 0 | | | | | | | F | | | | | |
| 4319 | Pumps and Pump Drives | 0 | | 0 | 0 | | | | 0 | F | H | | | |
| 4320 | Air, Vacuum and/or Manual Controls | | | | | | | | 0 | | | | | |
| 47 | GAGES (NON-ELECTRIC) WEIGHT AND MEASURING DEVICES | | | | | | | | | | | | | |
| 4701 | Instruments | | | | | | | | | | | | | |
| | Counters | | | | | | | | 0 | | | | | |
| | Indicators, Speed | | 0 | | | | | | F | | | | | |
| 4702 | Gages, Mounting, Lines and Fittings | | | | | | | | 0 | | | | | |
| 65 | REPRODUCTION EQUIPMENT | | | | | | | | | | | | | |
| 6500 | Press Lithographic Offset | 0 | | 0 | 0 | | | | F | F | H | | | |
| 6502 | Offset Press Feeder | 0 | | 0 | 0 | | | | F | F | H | | | |
| 6503 | Offset Main Press Assembly | 0 | | 0 | 0 | | | | F | F | H | | | |
| | Cylinder, Plate, Blanket and Impression | 0 | | 0 | C | | | | F | H | D | | 1 and 2 | |
| 6504 | Offset Press Inker | | | 0 | C | | | | F | F | H | | 3 | |
| | Fountain Assembly | | | 0 | 0 | | | | F | F | | | | |
| 6505 | Offset Press, Water System | | | 0 | 0 | | | | F | F | | | | |
| 6506 | Offset Press, Delivery System | | | 0 | 0 | | | | F | F | | | | |
| | Sheeter Assembly | | | | C | | | | F | F | | | 4 | |

## Section III. SPECIAL TOOL AND SPECIAL TEST EQUIPMENT REQUIREMENTS

| (1) Reference Code | (2) Maintenance Level | (3) Nomenclature | (4) Tool Number |
|---|---|---|---|
| 1 - D | C | Wrench, Pin, Plate and Blanket Cylinder | (81337) 6-14046-56 |
| 2 - D | C | Gage, Blanket Bar Tolerance | (81337) 6-1-4046-58 |
| 3 - D | C | Wrench, Pin, Roller Setting | (81337) 6-1-4046-59 |
| 4 - D | C | Gage, Kimfe Tolerance | (81337) 6-1-4046-60 |

*Page E-1.* Appendix E is added as follows.

**APPENDIX E**
**EXPENDABLE SUPPLIES AND MATERIALS LIST**
**Section I. INTRODUCTION**

**1. Scope**

This appendix lists Expendable Supplies and Materials you will need to operate and maintain the printing press. These items are authorized to you by CTA50970, Expendable Items (except Medical, Class V, Repair Parts and Heraldic Items).

**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.

*b. Column 2 - Level*. This column identifies the lowest level of maintenance that requires the listed item.

*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 part number followed by the Federal Supply Code for Manufacturer (FSCM) in parenthesis, if applicable.

*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., each (ea), inch (in), pair (pr), etc.). If the unit of measure differs from the unit of issue, requisition the lowest unit of issue that will satisfy your requirements.

| (1) ITEM NUMBER | (2) LEVEL | (3) NATIONAL STOCK NUMBER | (4) DESCRIPTION | (5) U/M |
|---|---|---|---|---|
| | C | 8305-00-170-5063 | Cheesecloth, Unbleached, Closely Woven, 50 YD Bolt, Size 36 in. w. X 1.07 oz. to Square Yard, Fed Spec CCC-C-440 | BO |
| | C | 6510-00-201-4000 | Cotton, Surgical, I lb. Roll, Grade A, USP, Fed Spec JJJ-C-561 | PC |
| | C | 6640-00-290-0146 | Litmus Paper, Blue Strip, 5 CM LG, 0.6 CM W, 100 Units per Vial | VI |
| | C | 6640-00-290-0147 | Litmus Paper, Red Strip, 5 CM LG, 0.6 CM W, 100 Units per Vial | VI |
| | C | 5320-00-240-2920 | Steel Wool, Grade 00, 1 lb. Pkg | PG |
| | C | 7920-00-240-2555 | Sponge, Cellulose, Rectangular, 6 in: Lg., X 3 13/16 in W. X 1 7/8 THK, Fed Spec L-S-626, Type II, Class 2, Porosity B | EA |
| | C | 3610-00-263-9017 | Stone', Correction, Litho, Etching Slip, Rectangular or Round, MIL-S 11476, Type I1 | EA |
| | C | 3610-00-263-9018 | Stone, Construction. Litho, Scotch Hone Square, MIL-S-1 1476, Type I | EA |
| | C | 8310-00-238-2401 | Thread, Linen, Polished, 8 Ply, 84 yd ball, Fed Spec V-T-291, Type B | EA |
| | C | 7920-00-205-1711 | Rag, Wiping, Cotton, Unbleached, 50 lb. Bale Fed Spec DDD-R-30, Class 2, Grade B | BE |
| | C | 6850-00-291-0963 | Lithographic Blanket - Roller Wash, Slow drying, Type I, Fed Spec O-L-298 GL | |
| | C | 6850-00-281-1985 | Dry Cleaning Solvent, Liquid, I Gal Can, Fed Spec D-D-680, Type I | GL |
| | | | Ink, Printing, Offset Process, Full Tone & Halftone, 5 lb. Can | |
| | C | 7510-00-018-9480 | Black | CN |
| | C | 7510-00-018-9481 | Warm Red | CN |
| | C | 7510-00-018-9484 | Rhodamine Red | CN |
| | C | 7510-00-018-9485 | Process Blue | CN |
| | C | 7510-00-935-7246 | Victoria Blue | CN |
| | C | 7510-00-018-9486 | Bright Green | CN |
| | C | 7510-00-018-9487 | Benzadine Yellow | CN |
| | C | 7510-00-9 35-7427 | Gold | CN |
| | C | 6850-00-270-9991 | Regenerator, Lithographic Blanket, Liquid I Qt Can, Fed Spec O-R-1 151 | QT |
| | C | 5350-00-161-9034 | Pumice, Technical, Pulverized, 5 lb. Can, Fed Spec SS-P-821, Grade FF | CN |
| | C | 6850-00-281-3461 | Lithographic Plate, Asphaltum Solution, I QT Can | QT |
| | C | 3610-00-926-5361 | Lithographic Plate Kit, Bi-Metallic, Fredrick H. Levey Co., P/N LPILSKT C/o 25 each plates and Processing Chemicals | |
| | 0 | 3030-00-124-1238 | Cement, Texalon, P/N 20ZTC (92075) 2 oz. Bottle | BT |

| (1) ITEM NUMBER | (2) LEVEL | (3) NATIONAL STOCK NUMBER | (4) DESCRIPTION | (5) U/M |
|---|---|---|---|---|
| | C | 7510-00-262-8617 | Varnish, Lithographic, O Viscosity, I QT Can | CN |
| | C | 7510-00-262-8618 | Varnish, Lithographic, 8 Viscosity, I QT Can | CN |
| | C | 6810-00-270-9989 | Talc, Technical, Powder, I lb. Can, Fed Spec ZZ-T-416, Type IV, Class C | LB |
| | C | 6810-00-753-4777 | Phosphoric Acid, ACS, I PT Bottle, Fed Spec O-C-265 | BT |
| | C | 6850-00-935-7244 | Gum, Arabic Solution, 14 Baume | CN |
| | C | 6515-00-339-7900 | Gloves, Surgeon's Rubber, Medium Weight Size 8 ½, Fed Spec ZZ-G-421, Type II, Grade A | PR |
| | C | 3610-00-495-6048 | Blanket, Lithographic, Rubber, w/Bars Size I ] 9/16 in. Around the Cylinder Lay X 16 5/8 in Wide | EA |
| | C | 3610-00-741-5520 | Cover, Roller, Inner, Flannel, to fit over 1 15/16 in. Dia. X 17 in. Lg Roller. Final Dia Size w/Molleton Cover 2 ¼ in. | EA |
| | C | 3610-00-777-5382 | Cover, Roller, Molleton to fit over I 15/16 in. Dia. X 17 in. Lg Roller w/one Inner Flannel, final Dia. Size 2 ¼ in. | EA |
| | C | 8150-00-163-1547 | Needle, Sailmaker's Steel, Straight Shank, Triangular Point, Size 14, 25 per Pkg, Fed Spec GGG-N-202 | PG |
| | C | 9150-00-265-9435 | Lubricating Oil, Engine, OE-30, 5 Gal., Can, MIL-L-2104 | CN |
| | 0 | 9150-00-265-9442 | Lubricating Oil, Engine, OE-50, 5 Gal., Can, MIL-L-2104 | CN |
| | C | 9150-00-190-0905 | Grease, Automotive and Artillery, GAA, 5 lb. Can, MIL-G-10924 | CN |
| | C | 9310-00-727-0511 | Paper, Book, Uncoated, White Chemical-Wood Paper, Offset or Letterpress Long Grain, Size 16 in. w. X 32 in. Dia, 80 lb., Wt. Basis: 1000 SH 25" X 38" | RL |
| | C | 9310-00-727-7071 | Paper, Book, Uncoated, White Chemical-Wood Paper, Offset or Letterpress Long Grain, Size 16 in w. X 32 in. Dia, 100 lb., Wt. Basis: 1000 SH 25" X 38" | RL |
| | C | 9310-00-727-0510 | Paper, Book, Uncoated, White Chemical-Wood Paper, Offset or Letterpress Long Grain, Size 16 in w. X 32 in Dia., 120 lb., Wt. Basis: 1000 SH 25" X 38" | |

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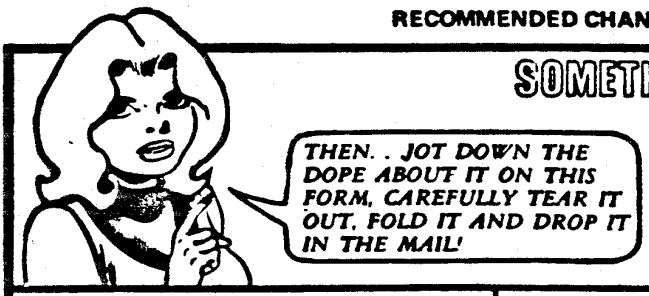


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