customer manual

SAFETY PRECAUTIONS AVOID INJURY

Safeguards are designed into this application equipment to protect operators and maintenance personnel from most hazards during equipment operation. However, certain safety precautions must be taken by the operator and repair personnel to avoid personal injury, as well as damage to the equipment. For best results, application equipment must be operated in a dry, dust–free environment. Do not operate equipment in a gaseous or hazardous environment.

Carefully observe the following safety precautions before and during operation of the equipment:

- ALWAYS wear appropriate ear protection.
- ALWAYS wear approved eye protection when operating powered equipment.
- ALWAYS keep guard(s) in place during normal operation.
- ALWAYS insert power plug into a properly grounded receptacle to avoid electrical shock.
- ALWAYS turn off the main power switch and disconnect electrical cord from the power source when performing maintenance on the equipment.
- NEVER wear loose clothing or jewelry that may catch in moving parts of the application equipment.
- NEVER insert hands into installed application equipment.
- NEVER alter, modify, or misuse the application equipment.

TOOLING ASSISTANCE CENTER

CALL TOLL FREE 1–800–722–1111 (CONTINENTAL UNITED STATES AND PUERTO RICO ONLY)

The **Tooling Assistance Center** offers a means of providing technical assistance when required.

In addition, Field Service Specialists are available to provide assistance in the adjustment or repair of the application equipment when problems arise which your maintenance personnel are unable to correct.

INFORMATION REQUIRED WHEN CONTACTING THE TOOLING ASSISTANCE CENTER

When calling the Tooling Assistance Center regarding service to equipment, it is suggested that a person familiar with the device be present with a copy of the manual (and drawings) to receive instructions. Many difficulties can be avoided in this manner.

When calling the Tooling Assistance Center, be ready with the following information:

1. Customer name
2. Customer address
3. Person to contact (name, title, telephone number, and extension)
4. Person calling
5. Equipment number (and serial number if applicable)
6. Product part number (and serial number if applicable)
7. Urgency of request
8. Nature of problem
9. Description of inoperative component(s)
10. Additional information/comments that may be helpful

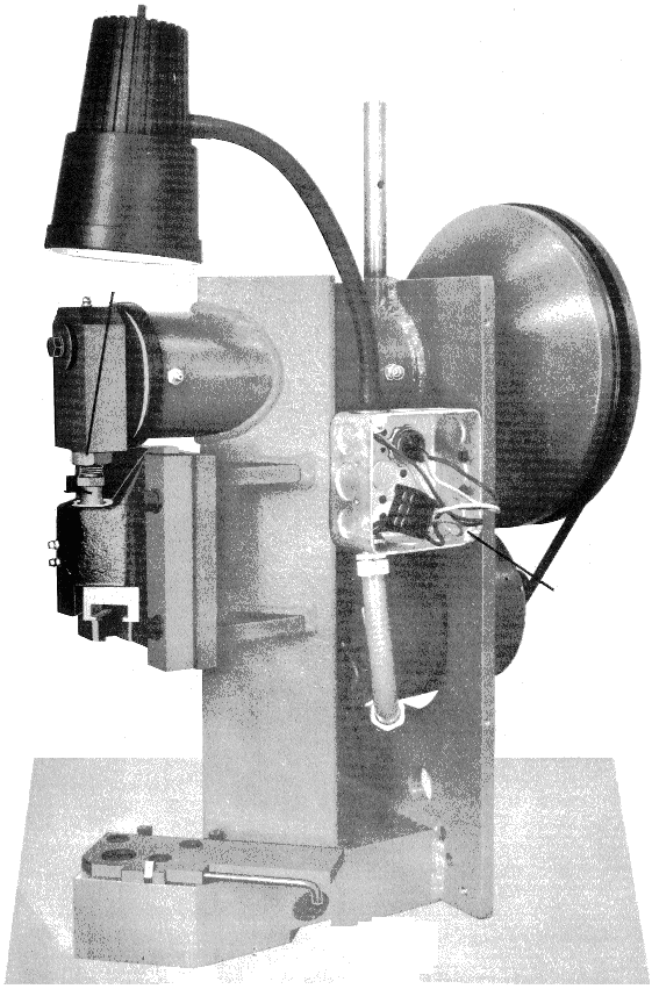


Figure 1

1. INTRODUCTION

This manual has been prepared to cover the Basic Model “T” Terminating Unit ONLY and does not include the electrical controls and modifications or additional components as required to adapt the terminating unit to the machines on which it is used (such as the AMP–O–MATIC* Single End Lead Machine, and others). Electrical controls, modifications, and additional components are covered in the machine manual for the machine on which the terminating unit is installed. The various applicators which can be used in the unit are covered in individual applicator instructions and must be referred to for maintenance and adjustments of the applicator. This manual contains information pertaining to the Basic “T” Terminating Unit, description, preventive maintenance, adjustments, parts replacement, and parts lists.

DANGER

Denotes an imminent hazard which may result in moderate or severe injury.

CAUTION

Denotes a condition which may result in product or equipment damage.

NOTE

Highlights special or important information.

2. DESCRIPTION

2.1. General

This section of the manual pertains to the functional description of the Basic Model “T” Terminating Unit. The Terminating Unit is designed to accept miniature type quick–change applicators which can be quickly and easily installed and removed. This feature greatly reduces set–up time for terminal change–over. The wide variety of applicators available provides a broad selection of terminals for almost any application.

Standard equipment within each terminating unit includes a mechanical feature that prevents double tripping of the terminating unit, thus ensuring against damage to the applicator.

2.2. Mechanical

The terminating unit provides the force required to crimp the terminals in the applicator. The terminating unit consists of five functional parts groups (see Figure 2) as follows:

A. Motor–Flywheel Group

The motor–flywheel group includes a 230–volt, 3–phase, one–third horsepower motor which drives a flywheel by a ribbed V–belt. The motor and flywheel run continuously whenever electrical power is supplied from the machine on which the terminating unit is installed.

B. Crankshaft–Ram Group

The crankshaft–ram group provides the means for converting the flywheel’s rotational force to the up and down action of the ram for driving the applicator during the crimping cycle.

C. Clutch

The clutch, when actuated by the trip mechanism, connects the revolving flywheel to the crankshaft for one cycle of operation.

D. Clutch Trip Mechanism

The clutch trip mechanism trips the clutch when the solenoid is energized by the control circuit of the machine on which the terminating unit is installed.

E. Baseplate

The baseplate provides the mounting surface on which the applicators are installed. the quick–release feature permits quick installation and removal of the applicator.

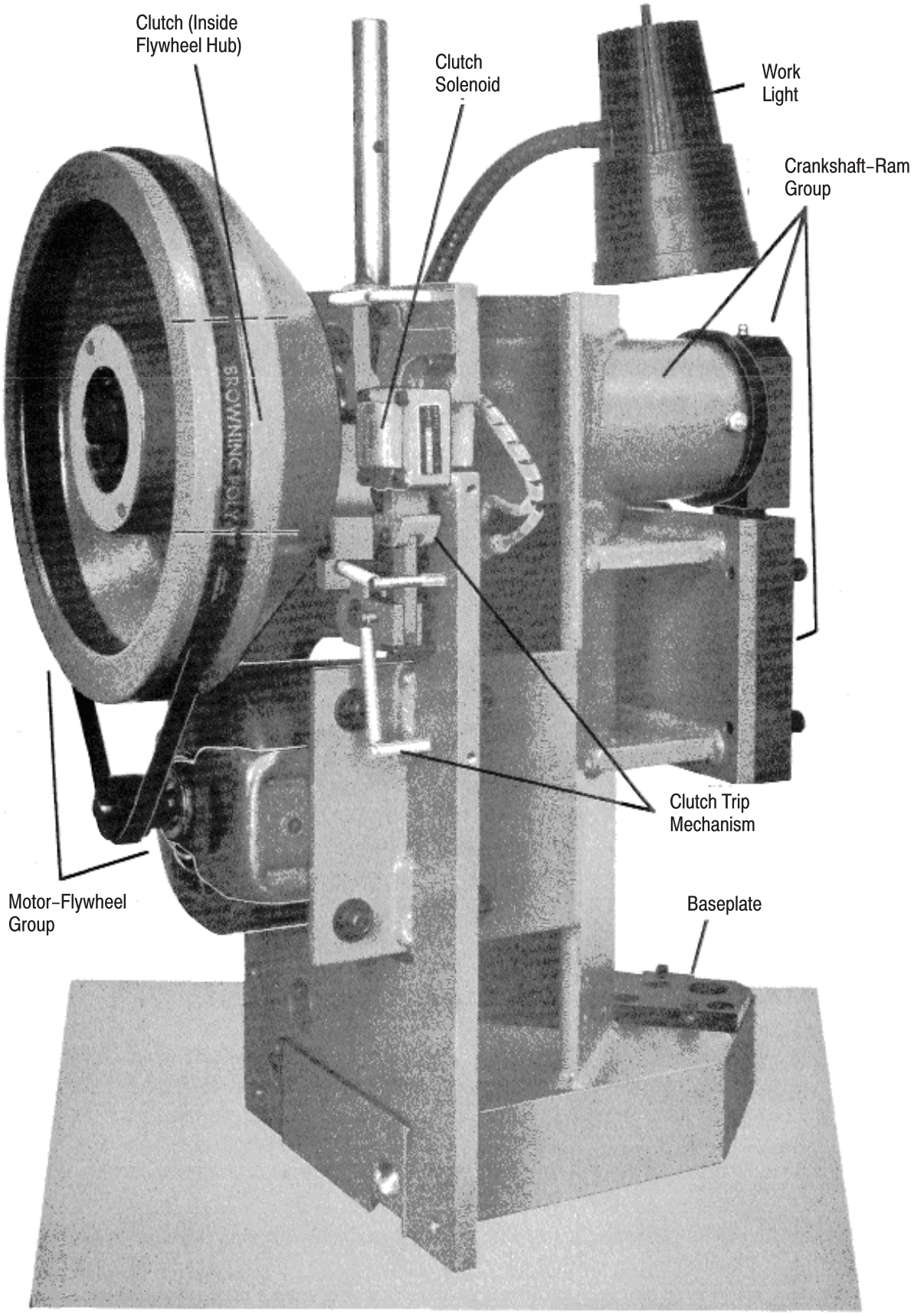

Clutch (Inside Flywheel Hub)
Clutch Solenoid
Work Light
Crankshaft–Ram Group
Clutch Trip Mechanism
Motor–Flywheel Group
Baseplate

Figure 2

2.3. Electrical

The terminating unit has three electrical components consisting of the motor, clutch solenoid, and the work light (see Figure 2). The work light uses a 40–watt appliance bulb. Since the Control Circuit for the electrical components of the unit is part of the machine on which the unit is installed, refer to the manual for the machine for the description and maintenance of the electrical system.

2.4. Operation

The operating cycle of the terminating unit begins the moment the electrical circuit within the machine, on which the terminating unit is installed, is CLOSED. This energizes the clutch trip solenoid which pulls upward on the solenoid lever and at the same time releases the lever latch (see Figure 3). It is necessary for the solenoid to be energized ONLY momentarily but if the solenoid remains energized after the terminating unit has completed one cycle it cannot perform another cycle until it is de–energized, then re–energized. This is because both the lever latch and trip pawl are spring–loaded, so that when the engager ratchet rotates approximately 45–degrees the trip pawl returns to the standby condition. This acts as a stop for the engager ratchet after it completes each cycle.

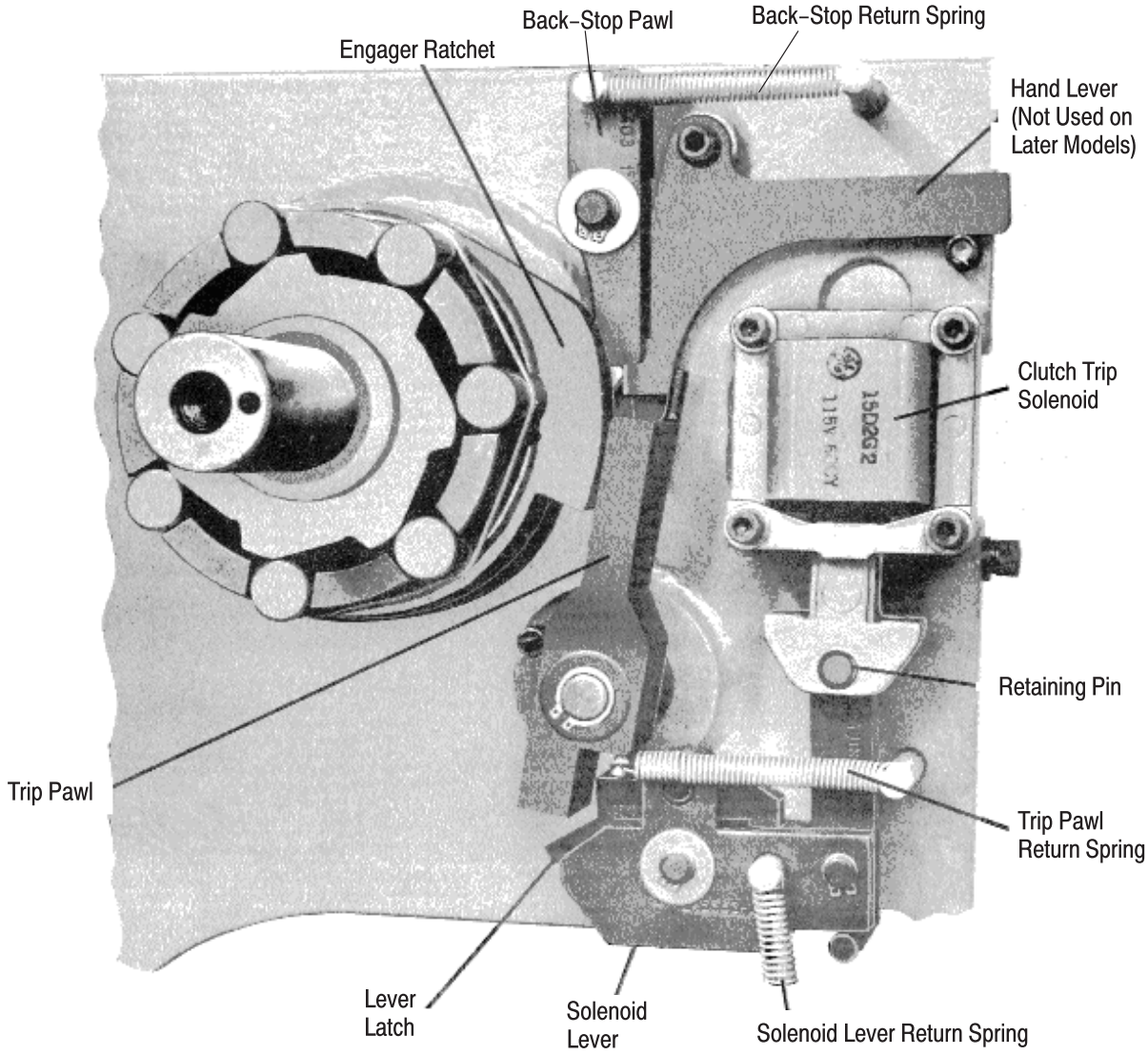
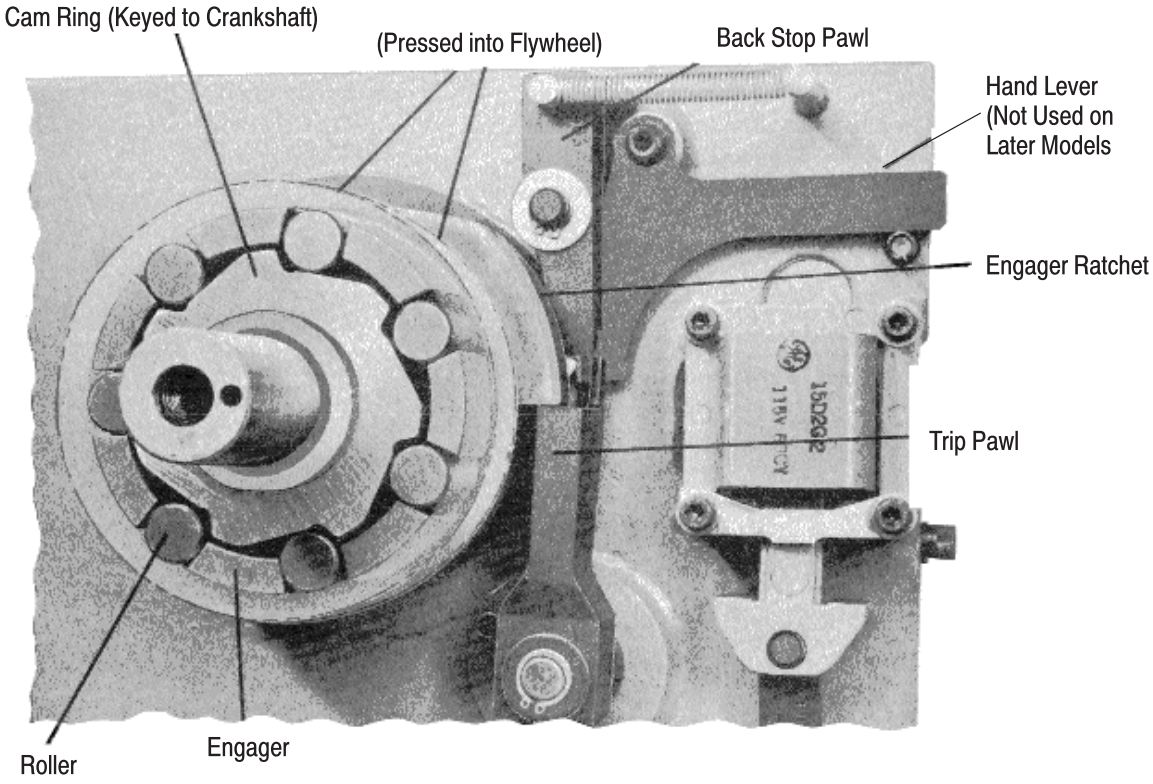
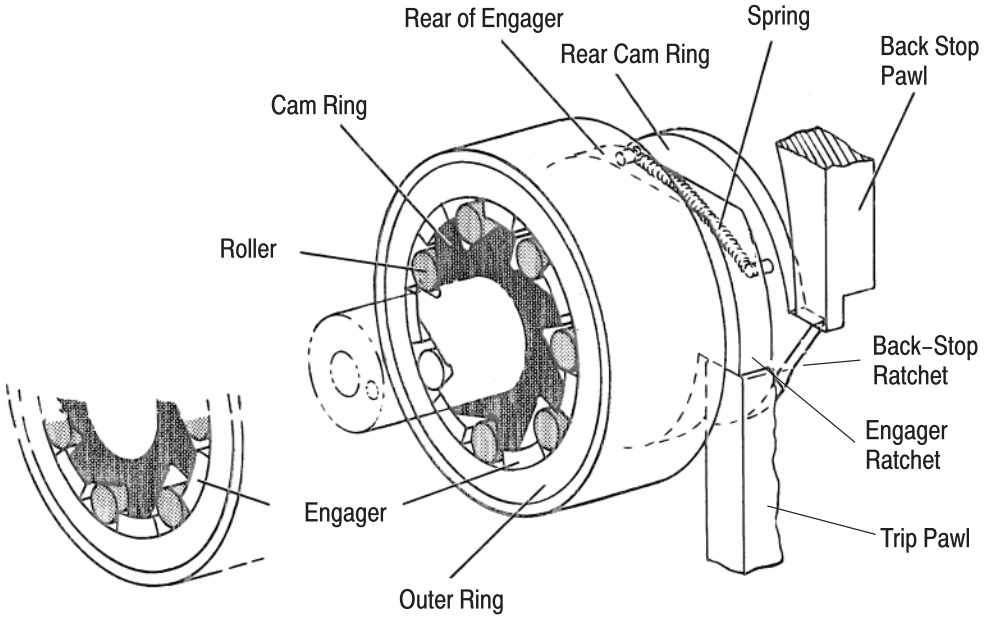


Figure 3

By the trip pawl releasing, the engager ratchet is unlocked and the engager is rotated slightly by three springs (see Figure 4). In doing so, the seven rollers lock up between the 7–faced cam ring that is keyed to the crankshaft and the outer ring (race) that is pressed into the flywheel. With this action and with the flywheel running continuously, the crankshaft is rotated one revolution whereby the engager ratchet again is stopped by the trip pawl and this releases the rollers to stop the crankshaft. Backward rotation of the crankshaft, is prevented by the spring–loaded back–stop pawl as it drops off the back–stop ratchet on the rear cam ring.





Clutch Engaged ***Clutch Disengaged***

Figure 4

With the terminating unit in the standby condition, the crank block, which drives the ram, is up. During rotation of the crankshaft, the crank block drives the ram downward during the first half of the cycle, to crimp the terminal in the applicator. Then the ram is raised during the last half of the cycle, by the upward travel of the crank block to release the crimped terminal for removal from the applicator. (Figure 5)

2.5. Hand Cycling

DO NOT attempt hand–cycling of the terminating unit at any time when the main power switch for the machine, on which the terminating unit is installed, is ON.

To hand–cycle the terminating unit during setup or as may be required during adjustment or repairs, lift the retaining pin protruding through the frame in back of the clutch trip solenoid. This performs the same function as energizing the solenoid which releases the trip pawl. On older terminating unites a hand lever was installed to release the trip pawl (see Figure 3). With the trip pawl released, the terminating unit can be hand–cycled by one of two methods. If the guard over the flywheel has been removed, manually turn the flywheel CLOCKWISE as viewed from the rear of the terminating unit. The other method is by installing a spanner wrench (part no. 244908–1) on the ring behind the crank block (see Figure 2). The spanner wrench is supplied with the terminating unit.

MAKE CERTAIN the crank block is at TOP DEAD CEN TER and the trip pawl is latched behind the engager ratchet BEFORE operating the terminating unit under power. If the trip pawl IS NOT latched when power is applied to the machine on which the terminating unit is installed, it will cycle and could cause damage to the applicator.

3. PREVENTIVE MAINTENANCE

3.1. General

Preventive maintenance consists of simply keeping the unit in good working order to ensure maximum reliability and service from its component parts. it includes inspection of the unit on a regular basis, cleaning of the components, and lubrication.

3.2. Inspections

A. Hardware

Once each month, check all the screws and nuts in the unit to make sure they are tight. Pay particular attention to the motor mounting screws, the ram retainer screws, and the retaining screws for the flywheel and the crankshaft.

B. Clutch Trip Mechanism

Every 30 days inspect the retaining rings in the mechanism to make sure they are secure. Also check the 0–ring(s) which hold the solenoid retaining pin in place. In addition, check the extension springs to make sure they are not stretched or bent out of shape.

C. Drive Belt

Inspect the drive belt for the proper tension. Check for particles of rubber below the unit. This indicates that the flywheel and motor pulley are mis–aligned. Adjust according to Section 4.

3.3. Cleaning

The parts of the clutch should be cleaned periodically; usually it is only necessary to clean them when the clutch has been disassembled for some other reason. If, however, the area in which the machine is located is particularly dusty, it may be necessary to clean the clutch more often. Simply wash the parts in a solvent and then dry them thoroughly. After cleaning the clutch, reassemble and install it. Then lubricate it according to Paragraph 3.4.B.

3.4. Lubrication (Figure 5)

The moving parts in the Model “T” Terminating Unit, as in other machinery, require regular lubrication to ensure reliable service and long life. Use only the following lubrications:

- Grease: NLGI * No. 2 (E.g. TEXACO Inc. MARFAK Multi–purpose No. 2 Grease
- Oil: S.A.E. No.10 Non–Detergent Motor Oil

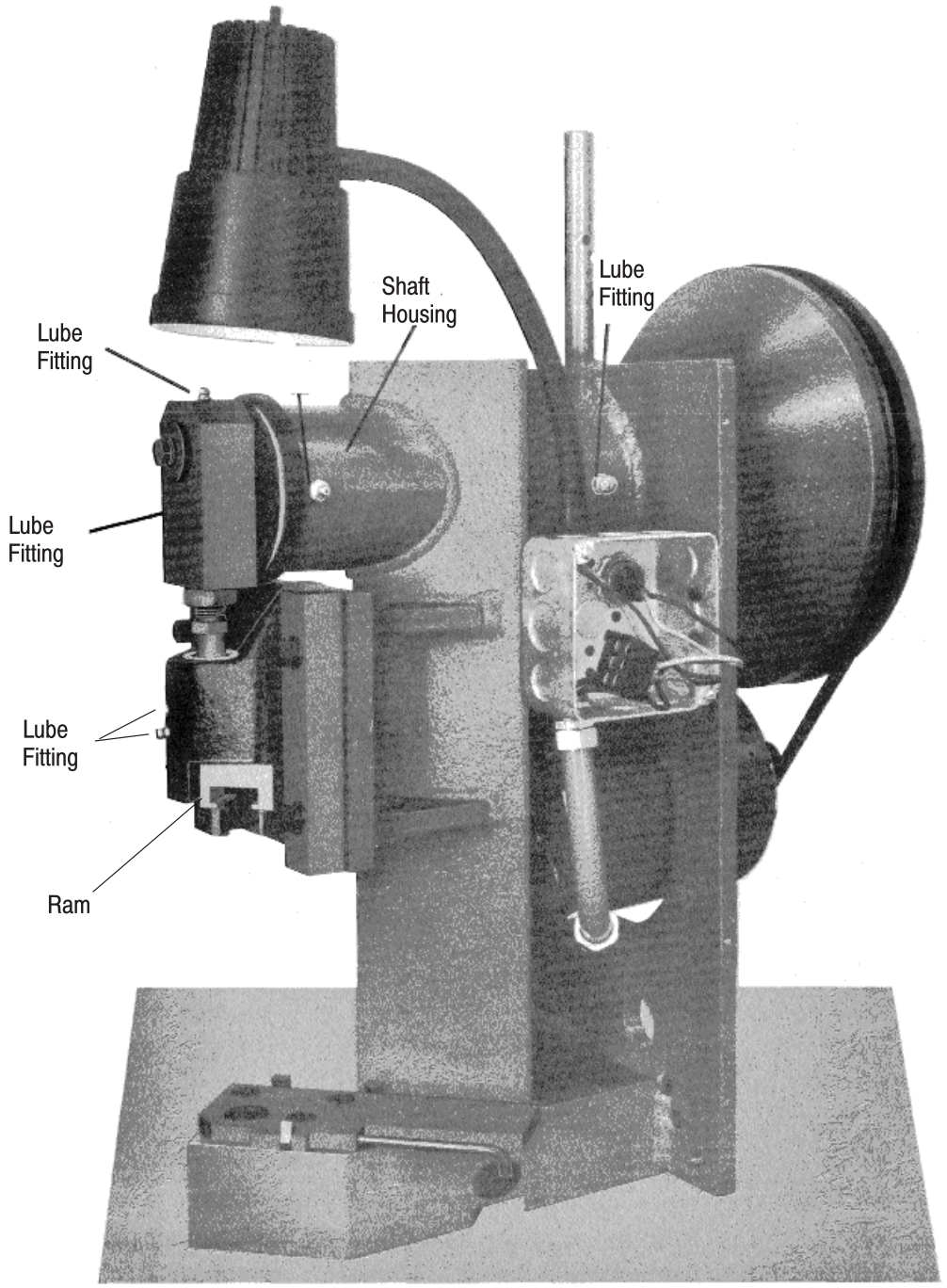


Figure 5

A. Crankshaft –Ram Group (Figure 5)

The ram and crankshaft should be greased once each week. There are two grease fittings (4 and 5) for the crankshaft, one on the crank block, and two for the ram. A quick shot in each fitting will suffice. Use a lubricant conforming to the National Lubricating Grease Institute’s specification for No. 2 Grease.

NOTE

If too much grease is used in the rear crankshaft fitting, it may work its way into the clutch and cause it to malfunction. In this case, the clutch must be removed and then cleaned and oiled.

B. Clutch

Once each week apply a few drops of S.A.E. No. 10 non–detergent motor oil to clutch rollers and 7–faced cam (see Figure 6). This should be accomplished by LOOSENING bolt retaining flywheel, then slipping flywheel toward the rear until the rollers are partially exposed. if the clutch appears to be gummy, disassemble and clean as described in Paragraph 3.3. The oil will prevent rust and excessive friction which will cause wear. Too much oil may cause slippage or slow clutch operation.

NOTE

Santo Trac 50 (high traction lubricant), manufactured by Monsanto Chemical Company, may be used to increase friction on old clutches which appear to be slipping. One–quart cans may be purchased under part no. 26364–1.

C. Clutch Linkage (Figure 5)

Once each week apply a few drops of S.A.E. No. 10 non–detergent motor oil to the following points:

- 1— Back–Stop Pawl Pivot Stud
- 2 —Top Surface of Trip Pawl
- 3 — Trip Pawl Pivot Stud
- 4 — Mating surfaces of Trip Pawl and Lever Latch
- 5 —Lever Latch Pivot Pin
- 6 —Solenoid Lever Pivot Stud
- 7 —Solenoid Link Retaining Pin

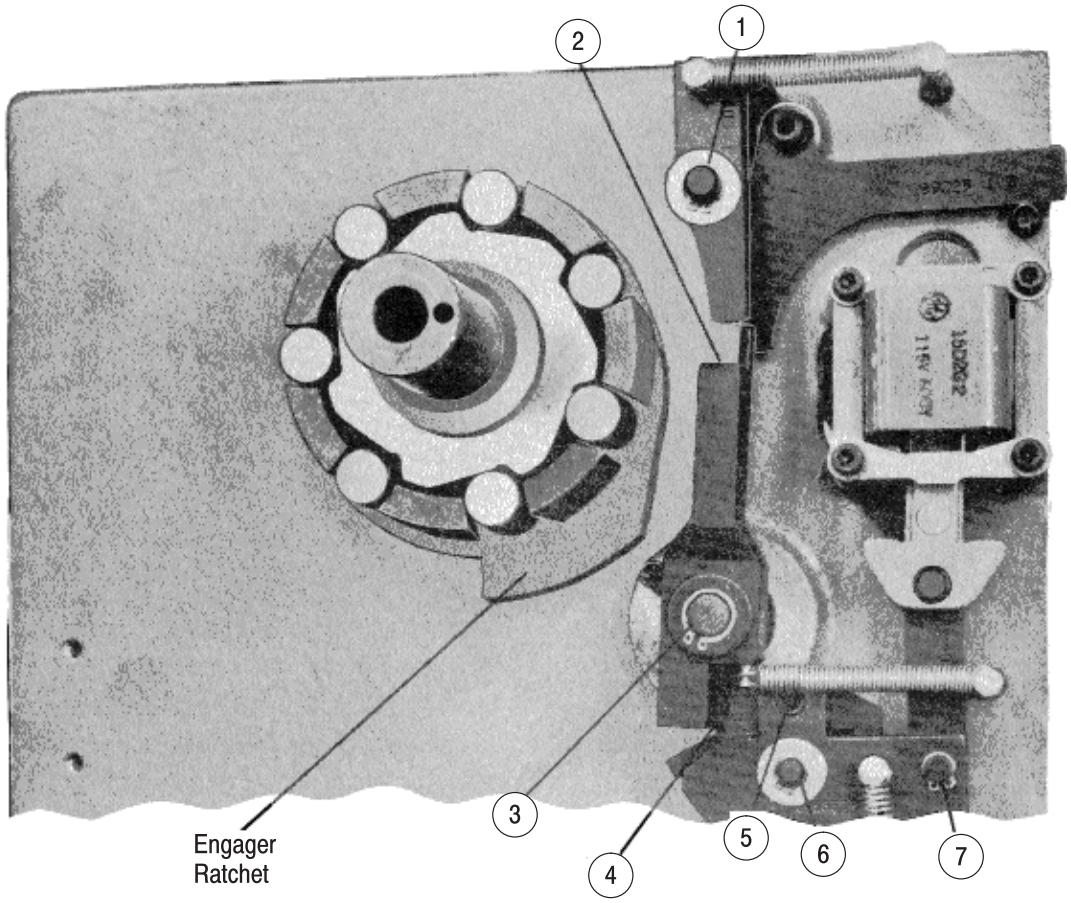


Figure 6

D. Terminating Unit Motor

Lubricate the motor’s two oil cups once a year using S.A.E. No. 10 non–detergent motor oil.

4. ADJUSTMENTS

4.1. Shut Height Adjustment (Figure 7)

Shut height is determined by the position of the ram at the bottom of the crimping stroke. This is set at the factory under a 2,000 pound load to ensure that applicators can be interchanged from one terminating unit to another. It should not require adjustment. Before you make any adjustments to shut height, contact your local Tyco Electronics field engineer. You should NOT attempt this procedure except in an emergency. If the adjustment must be made, use the procedure below. Be sure to have the height checked by a Tyco Electronics field engineer at the earliest possible time.

1. Make sure power to the unit is OFF.
2. Install a properly operating applicator and load it with the correct terminals.
3. Refer to the crimp data plate on the front of the applicator, and set the crimp height adjustment disc at the correct lettered position. Refer to the instructions covering the applicator.
4. Insert a wire of the proper size into the terminal in the applicator and cycle the unit by hand using the spanner wrench. Refer to Section 2.
5. Check this crimp height.
6. Loosen the hex nut and adjust the ball screw as necessary. Tighten the hex nut.

Turn the ball screw in small increments. One quarter turn will change the shut height by about .016 inch. If the height is set TOO LOW the tooling in the applicator may be RUINED.

7. Repeat steps 4, 5, and 6 until the correct crimp height is obtained.
8. Crimp one or two terminals under power. Check their crimp height. Slight re–adjustment may be necessary.

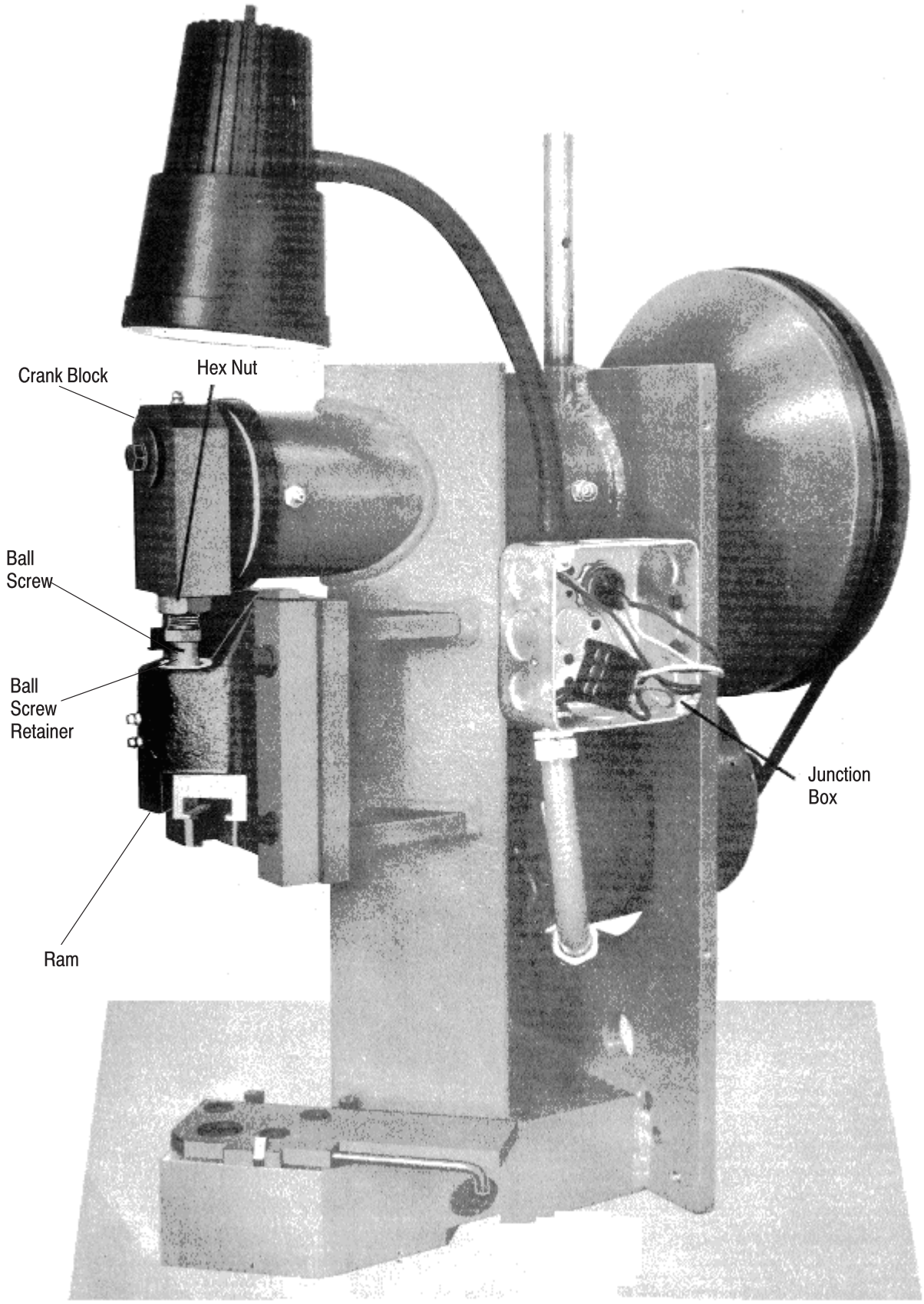

Crank Block
Hex Nut
Ball Screw
Ball Screw Retainer
Junction Box
Ram

Figure 7

4.2. Drive Belt Tension and Alignment (Figure 8)

CAUTION

Turn OFF main disconnect switch on parent machine before making adjustments.

Drive belt tension is adjusted by positioning the motor closer to or farther from the flywheel. Too little tension will allow the belt to slip; too much tension will strain the motor’s shaft bearings. The tension is correct when you can deflect the belt about 1/4 inch with moderate pressure. Make sure the motor’s shaft and the crankshaft are parallel. Make sure also that the drive belt travels from the motor pulley to the flywheel in a straight line.

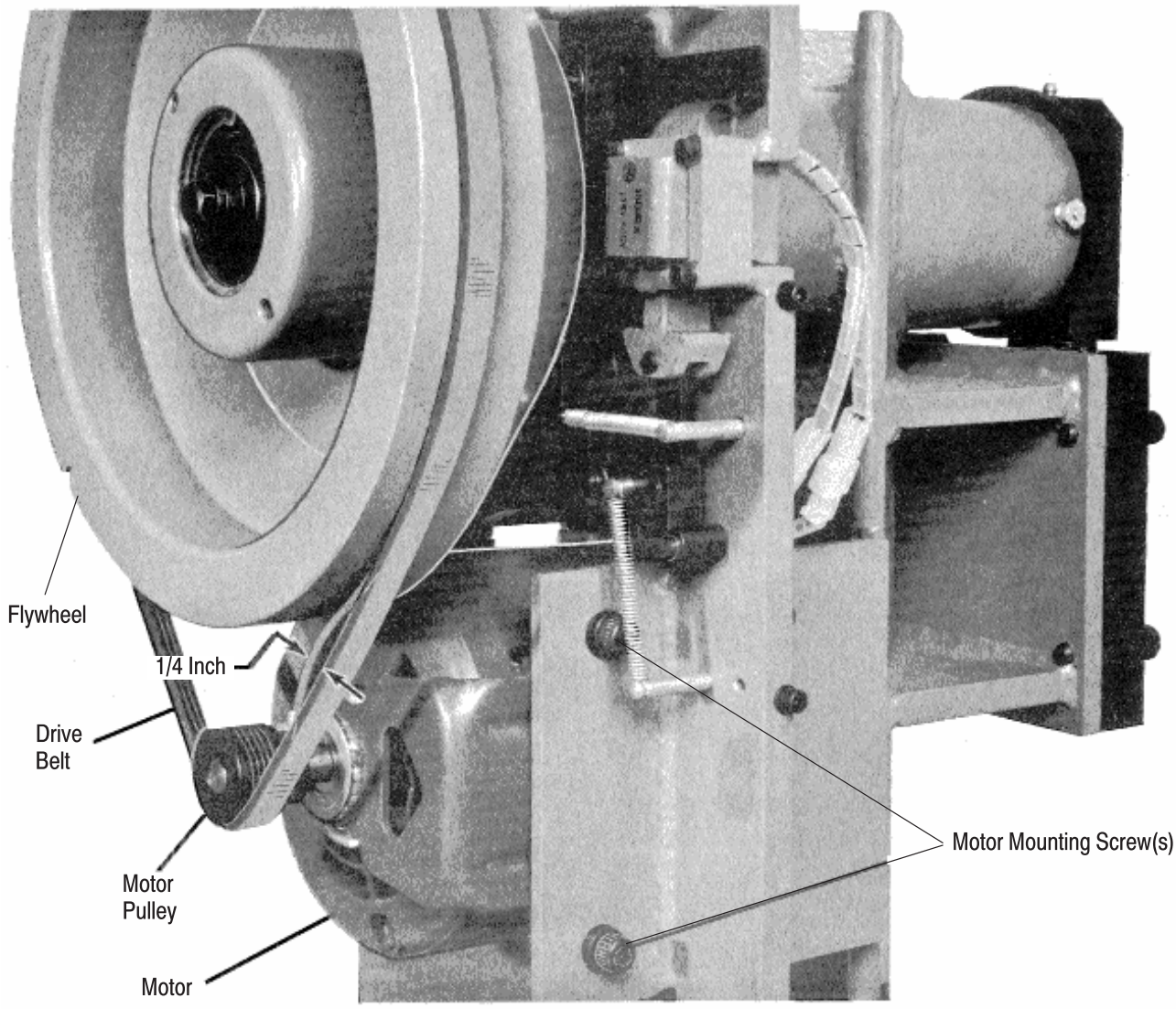


Figure 8

5. PARTS REPLACEMENT

For personal protection, be sure the machine is turned off and disconnected before attempting replacement procedures.

5.1. General

This section pertains to the replacement of parts as may be required by inspection because of excessive wear or damage. Reference shall be made to exploded views and parts lists in Section 6 as applicable.

5.2. Drive Belt (Figure 9)

1. Remove flywheel guard from unit.
2. Loosen four screws (Item 1) enough to slide motor upward and release tension on drive belt (Item 8).
3. Remove drive belt (Item 8) from motor pulley and flywheel.
4. Install new drive belt using the reversed procedure. Before tightening screws to secure motor, adjust tension of drive belt as described in Section 4.

5.3. Terminating Unit Motor (Figure 9)

1. Remove drive belt as described in Paragraph 5.2.
2. Disconnect electrical conduit at motor.
3. Remove cover from junction box.
4. Using a thin–bladed screwdriver, remove motor leads from tab housing inside junction box, then pull leads through conduit.
5. Remove motor (Item 5) from unit by removing four screws (Item 1), lock washers (Item 2) and flat washers (Item 3). also remove two tie bars (Item 4).
6. Loosen setscrew (Item 6), then slide motor pulley (Item 7) from motor shaft.
7. Install replacement motor using the reversed procedure. Insert tabs of motor leads No. 1, 2, and 3 into tab housing positions 1, 2 and 3.

If the motor rotates in the opposite direction after completing the installation, switch any two motor leads in the tab housing to correct direction of rotation. Correct direction is CLOCKWISE as viewed from the pulley end of motor.

8. Adjust tension of drive belt as described in Section 4.

5.4. Flywheel Removal and Installation (Figure 9)

Although the flywheel is not considered a replaceable part, it must be removed to perform maintenance to the clutch assembly or to replace bearings. Perform removal and installation as follows:

1. Remove the drive belt (Item 8) as described in Paragraph 5.2.
2. Remove the screw (Item 9), lock washer (Item 10), and the retaining washer (Item 11) securing flywheel assembly (Item 12) on crankshaft.
3. Pull the flywheel toward the rear of the unit about one–half inch, then STOP. It may be necessary to use a puller to remove flywheel from crankshaft.

It may be necessary to use a puller to remove the flywheel from the crankshaft.

4. In back of the flywheel wrap a piece of string around the clutch rollers to retain the rollers in the clutch engager, as the clutch outer ring will be removed with the flywheel.

5. Continue to pull the flywheel from the crankshaft.

BE EXTREMELY CAREFUL when removing the flywheel because it weighs approximately 54 pounds. ALWAYS lay the flywheel flat to prevent rolling and possible damage to the grooves for the drive belt.

6. To install the flywheel, use the procedure in reverse. Be sure to remove string around clutch rollers before pushing flywheel all the way onto crankshaft.

PARTS

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	1–21001–9	SCREW, Skt Hd Cap, 5/16–18 x .875” L	4
2	21024–7	WASHER, Spr Lk, 5/16”	4
3	21899–4	WASHER, Flat, 5/16”	4
4	239036–1	BAR, Tie	2
5A	694621–1	MOTOR, Terminated, 230–V 3–Phase, 60–Hz	1
5B	694621–2	MOTOR, Terminated, 460–V 3–Phase, 60–Hz	1
6	21007–2	SCREW, Skt Set, 1/4–20 x .250” L	1
7	239009–1	PULLEY, Motor, 60–Hz Operation	1
8	22902–3	BELT, Drive, V–4 Rib	1
9	3–21015–1	SCREW, Hex Hd Cap, 3/8–16 x 1.000” L	1
10	21024–8	WASHER,SprLk,3/8”	1
11	239017–1	WASHER, Retaining	1
12	See Fig. 10	FLYWHEEL ASSY, Press	1
13	239015–2	SPACER, Flywheel	1
14	239136–1	KEY, Clutch	1
15	239014–1	SPACER, Clutch	1

Figure 9 (Continued)

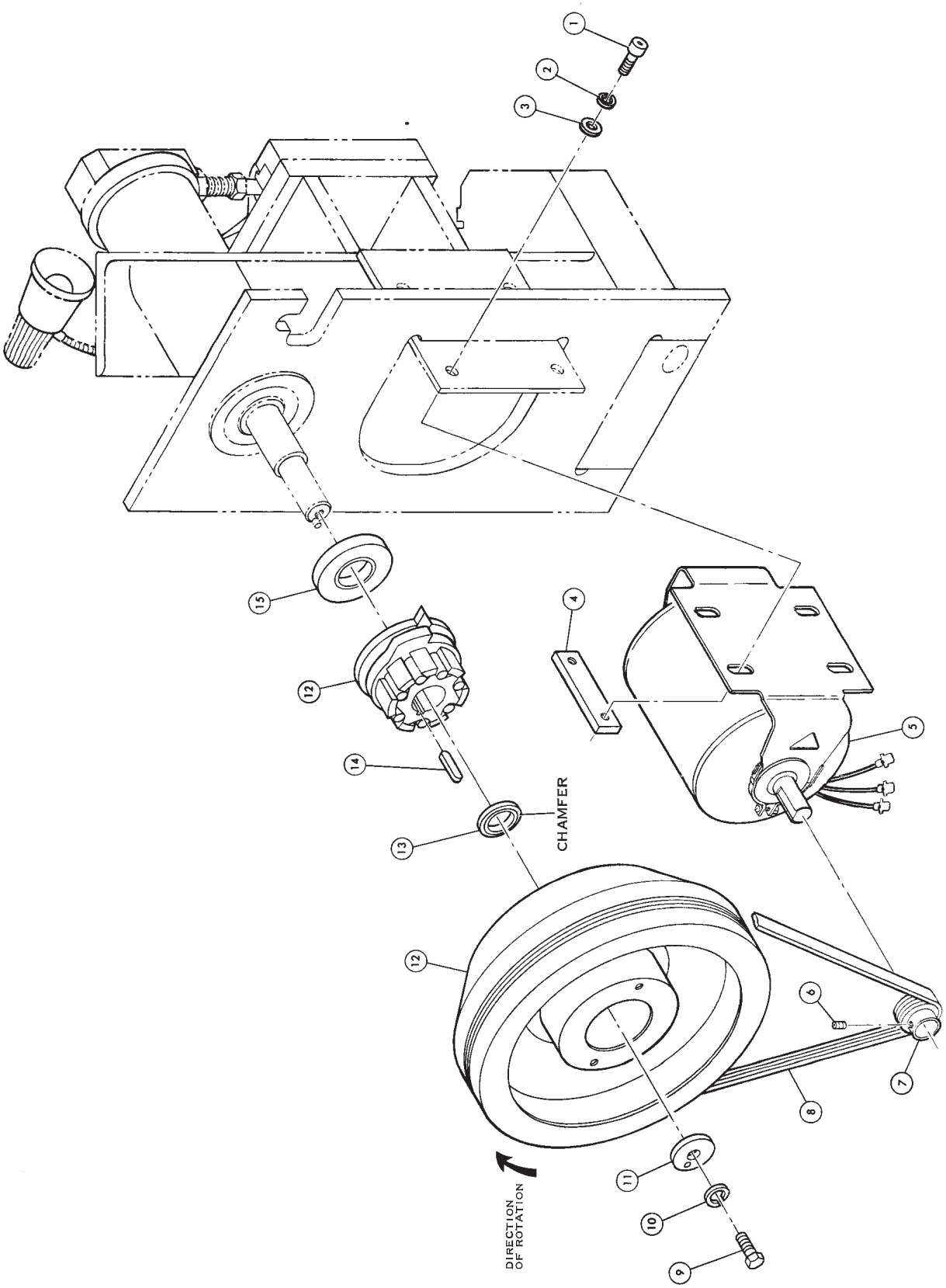


Figure 9 (end)

5.5. Clutch Assembly

To replace the clutch assembly, or any part thereof, perform the following:

NOTE

As noted in the parts list, a repair kit is available to extend the life of the clutch assembly.

1. Remove the flywheel (Item 1, Figure 10), which includes the outer ring of the clutch, as described in Paragraph 5.4.

2. Remove the rollers (Item 3), then disengage the three springs (Item 7) from pins on rear ring (Item 5) and clutch engager (Item 8). slide engager off of rear ring and cam ring (Item 4).

3. Slide the flywheel spacer (Item13, Figure 9), and cam ring off of crankshaft. penetrating oil may be used. Remove the key (Item 14), then slide the clutch spacer (Item 15) off of crankshaft.

4. If necessary to remove outer ring (Item 9, Figure 10) from the flywheel, use a drift punch through the two holes in the flywheel to drive it out. pin (Item 10) will come out with ring.

5. Inspect all parts and remove burrs as necessary, then clean thoroughly including end of rollers. if installing new parts, remove rust preventive. Shiny spots on rollers and cam faces on cam ring may be roughened. Oil LIGHTLY before installing.

6. When reassembling, refer to Figure 10. Make sure the outer ring is FULLY seated in the flywheel with the LARGE chamfer inserted first. Insert pin to lock ring in flywheel.

7. Install the clutch spacer on crankshaft, then insert key. Slide the assembled clutch assembly onto crankshaft, (with string around engager to hold rollers). Install flywheel spacer with outer chamfer toward bearings in flywheel.

8. Install the flywheel as described in Paragraph 5.4. Be sure to remove the string from around rollers before fully installing flywheel.

5.6. Flywheel Bearings (Figure 10)

1. Remove the flywheel (Item 1) as described in Paragraph 5.4.

2. Remove the two internal retaining rings (Item 11) from the flywheel. Use TRUARC Internal Pliers No. 2500 or equivalent.

3. Using an arbor frame, press the two bearings (Item 12) and spacer (Item 13) from flywheel.

NOTE

It is NOT necessary to remove the outer ring (Item 9) of the clutch assembly to replace the bearings. ALWAYS place the bearings in pairs.

4. Install the new bearings using the reversed procedure.

5.7. Clutch Trip Mechanism

1. Loosen screw (Item 9, Figure 9), but do not completely remove, then pull the flywheel back for access to the clutch trip mechanism (Figure 11).

2. To remove the solenoid (Item 12), remove the 0–ring (Item 13) and slide out the retaining pin (Item 14), then remove the four screws (Item 10) and lock washers (Item11). Disconnect wire leads at the connectors.

NOTE

IF the retaining pin (Item 14) is the short type and is secured with two 0–rings Item (13) and IF the frame has a 7/8–inch hole behind the pin, then it is recommended that the pin be replaced with the L ONG type for manually tripping the unit. If the pin is replaced, then remove and discard Items 25 through 29 and 37 as noted on the parts list.

3. If necessary to replace any springs (Items 1, 16, or 21) it is recommended that all three springs be replaced at the same time.

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
–	691632-5	FLYWHEEL ASSY, Press	1
1	See Note 1	. FLYWHEEL, Press	1
2	686468-1	. CLUTCH ASSY, Press (See Note 2)	1
3A	238604-1	. . ROLLER, Clutch (See Note 3)	7
3B	238604-2	. . ROLLER, Clutch (stamped with "+") (See Note 4)	7
4	694463-2	. . RING, Cam (stamped with "+") (See Note 3)	1
5	See Note 1	. . RING, Rear	1
6	453588-1	. . . PLATE, Back-Stop	1
7	22286-9	. . SPRING, Extension (See Note 3)	3
8	See Note 1	. . ENGAGER, Clutch	1
9	See Note 1	. . RING, Outer (Race)	1
10	1- 21921-4	. PIN, Sltd Spr, .438" dia x 1.00" L	1
11	4- 21983-5	. RING, Intl Rtng, 2.438" dia x .078" thk	2
12	23524-1	. BEARING, Ball	2
13	239016-1	. SPACER, Bearing	1
		NOTE 1: Part for reference only, not available separately for field replacement. Order next higher Assembly.	
		NOTE 2: Complete Assembly not normally required, order Repair Kit, Part No. 686468-3, consisting of Parts as indicated by Note 3.	
		NOTE 3: Part included in Repair Kit. It is recommended that the Kit be installed rather than individual Parts. Kit includes a new Key, Part No. 239136-1, for Cam Ring.	
		NOTE 4: Rollers are used with Cam Ring, Part No. 694463-1, which is no longer supplied. If Cam Ring (unmarked) does not require replacement, order Rollers, otherwise install Repair Kit.	

Figure 10 (continued)

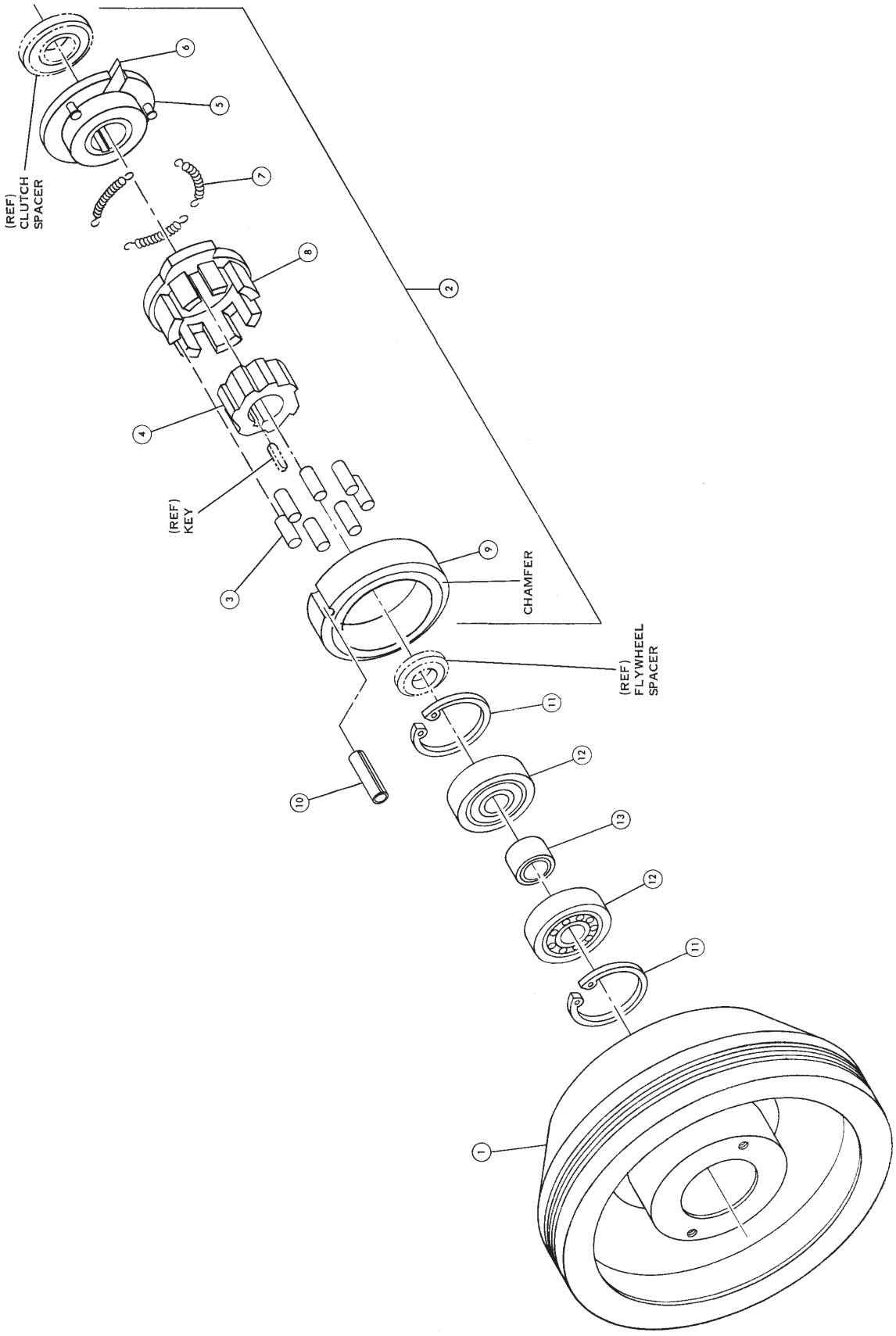


Figure 10 (end)

4. Removal of all remaining parts should not require detailed instructions. Refer to the exploded view to determine the order of disassembly. Retaining rings may be removed with TRUARC Pliers No. 2209 (90–degree angle) or equivalent without removing the flywheel.

5. Closely inspect all parts for excessive wear and damage that may cause malfunction. Replace parts as deemed necessary.

6. Reinstall Parts in the reverse order of disassembly.

NOTE

When installing trip pawl (Item19) and back–stop pawl (Item 24), be sure they correctly engage with clutch engager and rear ring respectively. If trip pawl does not engage, hand–cycle the unit one revolution.

5.8. Crankshaft and Ram (Figure 12)

CAUTION

BEFORE attempting to disassemble and/or remove the unit crankshaft (Item 20) or the ram (Item 8) or any parts thereof, first measure the shut height so the ball screw (Item 12) can be properly adjusted at re–assembly.

To replace parts related to the crankshaft and ram, disassemble in the sequence of item numbers assigned on the exploded view. Reassembly is in the reverse order of item numbers. After reassembly, adjust the shut height to the EXACT dimension as measured before disassembly by turning the ball screw (Item12) IN or OUT of the crank block (Item 17). After the correct height is obtained, secure ball screw by tightening hex jam nut (Item 11).

5.9. Base Plate Assembly (Figure 13)

To remove and replace parts within the plate assembly (Item 2), first remove three screws (Item 1), then disassemble in the sequence of item numbers (Items 3 through 11). Reassemble in the reverse order of Item Numbers. Replace any defective or excessively worn Parts.

5.10. Electrical Components (Figure 13)

There are no special instructions required for replacement of electrical components other than referring to the exploded view. Replace bulb in work light with 40–watt appliance–type bulb ONLY.

6. PARTS LISTS

This section contains a complete breakdown of the Basic “T” Unit Assembly, Part No. 694620–1, by exploded views accompanied by parts lists. When ordering parts, locate the part on the exploded view, then refer to the parts list by item no. to obtain the correct part number, description, and quantity (QTY) required. The item no. is for reference purposes only and has NO significance when ordering parts.

Parts lists containing descriptions that are indented one or more spaces are detail parts pertaining to the next higher assembly or sub–assembly. pay special attention to all notes on each parts list, when applicable.

7. REVISION SUMMARY

This manual was revised primarily to change the TE logo.

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	23438-9	SPRING, Extension, 2.500" L	1
2	4- 21042-1	PIN, Spiral Wrap, 1/4" Dia x .625 " L	1
3	21048-7	RING, Retaining	1
4	21099-3	WASHER, Thin Flat, 1/4"	1
5	245553-1	LEVER, Solenoid	1
6	4- 21029-1	PIN, Spiral Wrap, 1/4" Dia x .625" L	1
7	245558-1	LATCH, Solenoid Lever	1
8	686546-1	SPRING, Compression	1
9	5- 21042-0	PIN, Spiral Wrap, 1/4" Dia x 1.38" L	1
10	3- 21000-2	SCREW, Skt Hd Cap, No. 8-32 x 1.25" L	4
11	21024-4	WASHER, Spr Lk, No. 8	4
12	691423-3	SOLENOID, Terminated, 60-Hz	1
13	4- 21086-0	O-RING (2 required for Item No. 14B)	1
** 14A	454667-1	PIN, Retaining (Long)	1
* 14B	23729-1	PIN, Retaining (Short)	1
15	239024-1	LINK, Solenoid	1
16	23438-6	SPRING, Extension, 1.750" L	1
17	1- 21048-3	RING, Retaining	1
18	21899-5	WASHER, Flat, 3/8"	1
19	245394-2	PAWL, Trip	1
20	686512-1	BUSHING, Trip Pawl	1
21	23438-6	SPRING, Extension, 1.750" L	1
22	1- 21048-0	RING, Retaining	1
23	21099-4	WASHER, Thin Flat, 5/16"	1
24	686403-1	PAWL, Back Stop	1
* 25	3- 21000-6	SCREW, Skt Hd Cap, No. 10-32 x .625 " L	1
* 26	21024-5	WASHER, Spr Lk, No. 10	1
* 27	21899-2	WASHER, Flat, No. 10	1
* 28	239025-1	LEVER, Clutch Hand	1
* 29	238386-1	BUSHING, Hand Lever	1
30	5- 21042-0	PIN, Spiral Wrap, 1/4 x 1.375" L	1
31	22184-8	PIN, Grooved, 1/4 x 1.750" L	1
32	686401-1	STUD, Back Stop Pivot	1
33	Deleted		
34	21024-7	WASHER, Spr Lk, 5/16"	1
35	21019-2	NUT, Hex, 5/16-18	1
36	5- 21042-0	PIN, Spiral Wrap, 1/4" Dia x 1.375" L	1
37	4- 21029-7	PIN, Slotted Spring, 1/4" Dia x 1.000" L	1
38	245395-1	STUD, Trip Pawl Pivot	1
39	Deleted		
40	21024-9	WASHER, Spr Lk, 1/2"	1
41	1- 21019-0	NUT, Hex, 1/2-20	1
42	686402-1	STUD, Solenoid Lever Pivot	1
44	21024-6	WASHER, Spr Lk, 1/4"	1
45	21019-1	NUT, Hex, 1/4-20	1
46	22184-8	PIN, Grooved, 1/4" Dia x 1.750" L	1
47	22184-8	PIN, Grooved, 1/4" Dia x 1.750" L	1
		*Items were used on earlier Presses.	

Figure 11 (continued)

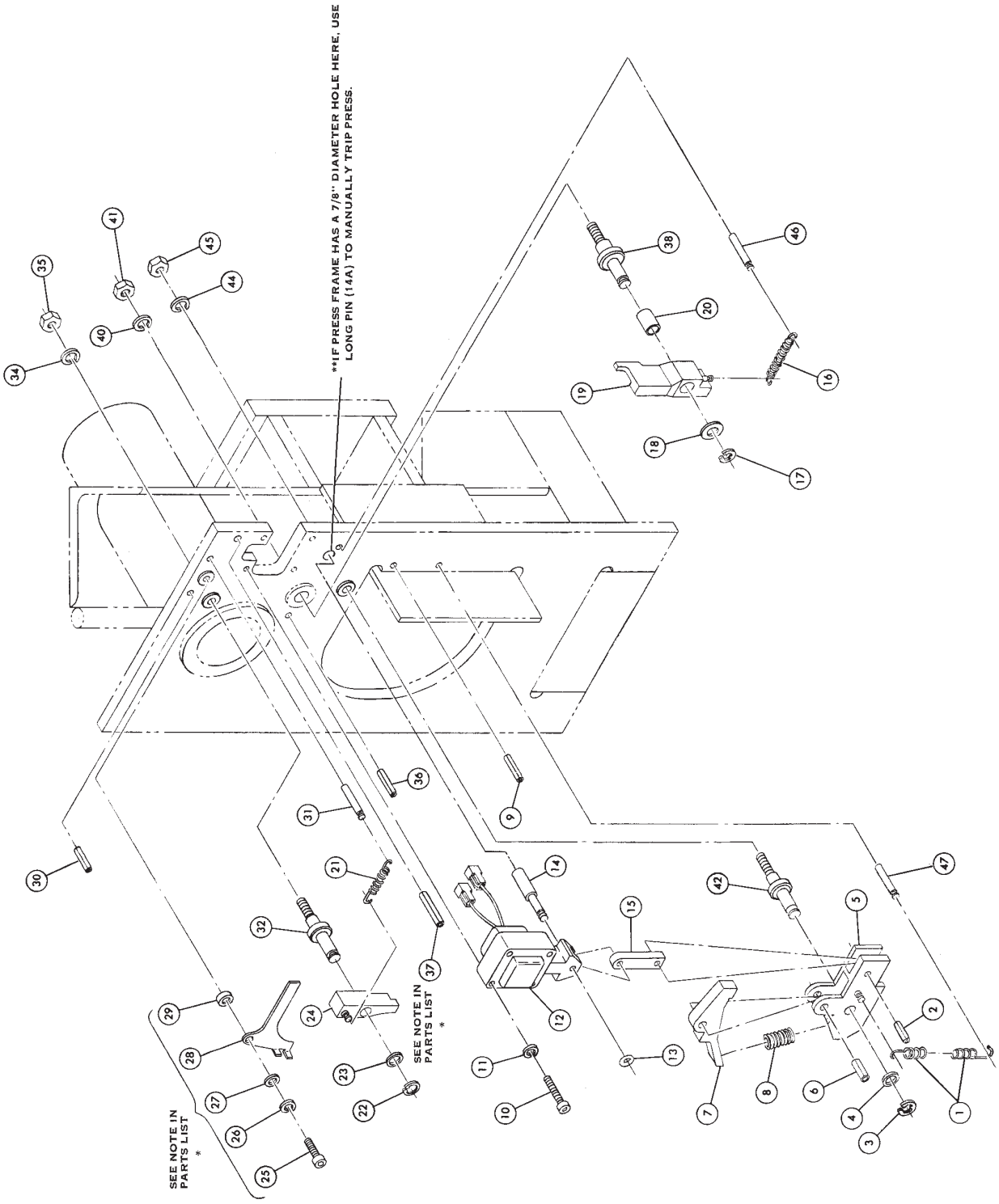


Figure 11 (end)

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	3- 21001-7	SCREW, Skt Hd Cap, 3/8-16 x 1.750" L	4
2	21024-8	WASHER, Spr Lk, 3/8"	4
3	238290-2	GIB, L. H.	1
4	238290-1	GIB, R. H.	1
5	2- 23531-5	SCREW, Skt Set, Knrl Cup-Pt, No. 10-32 x .250" L	1
6	690191-2	PAD, Set Screw	1
7	388384	RETAINER, Ball Screw	1
8	238289-2	RAM, Press	1
9	23657-4	SCREW, Skt Hd Cap, 1/4-20 x .750" L (Self-Locking)	2
10	685855-1	ADAPTER, Post	1
11	1- 21020-3	NUT, Hex Jam, 3/4-16	1
12	388383-1	SCREW, Ball	1
13	3- 21015-1	SCREW, Hex Hd Cap, 3/8-16 x 1.000" L	1
14	21024-8	WASHER, Spr Lk, 3/8"	1
15	239017-1	WASHER, Retaining	1
16	5- 21028-1	PIN, Sltd Spr, 1/4" Dia x .500" L	1
17	238853-1	BLOCK, Crank	1
18	2- 25133-0	SCREW, Fl Hd Skt Cap, No. 8-32 x .500" L	5
19	239012-1	ENDPLATE, Shaft	1
20	239007-1	CRANKSHAFT, Press	1
21	5- 21028-1	PIN, Sltd Spr, 1/8" Dia x .500" L	1
22	1- 21024-1	WASHER, Spr Lk, 3/4"	1
23	22792-1	FITTING, Grease 1/8" NPT	3

Figure 12 (continued)

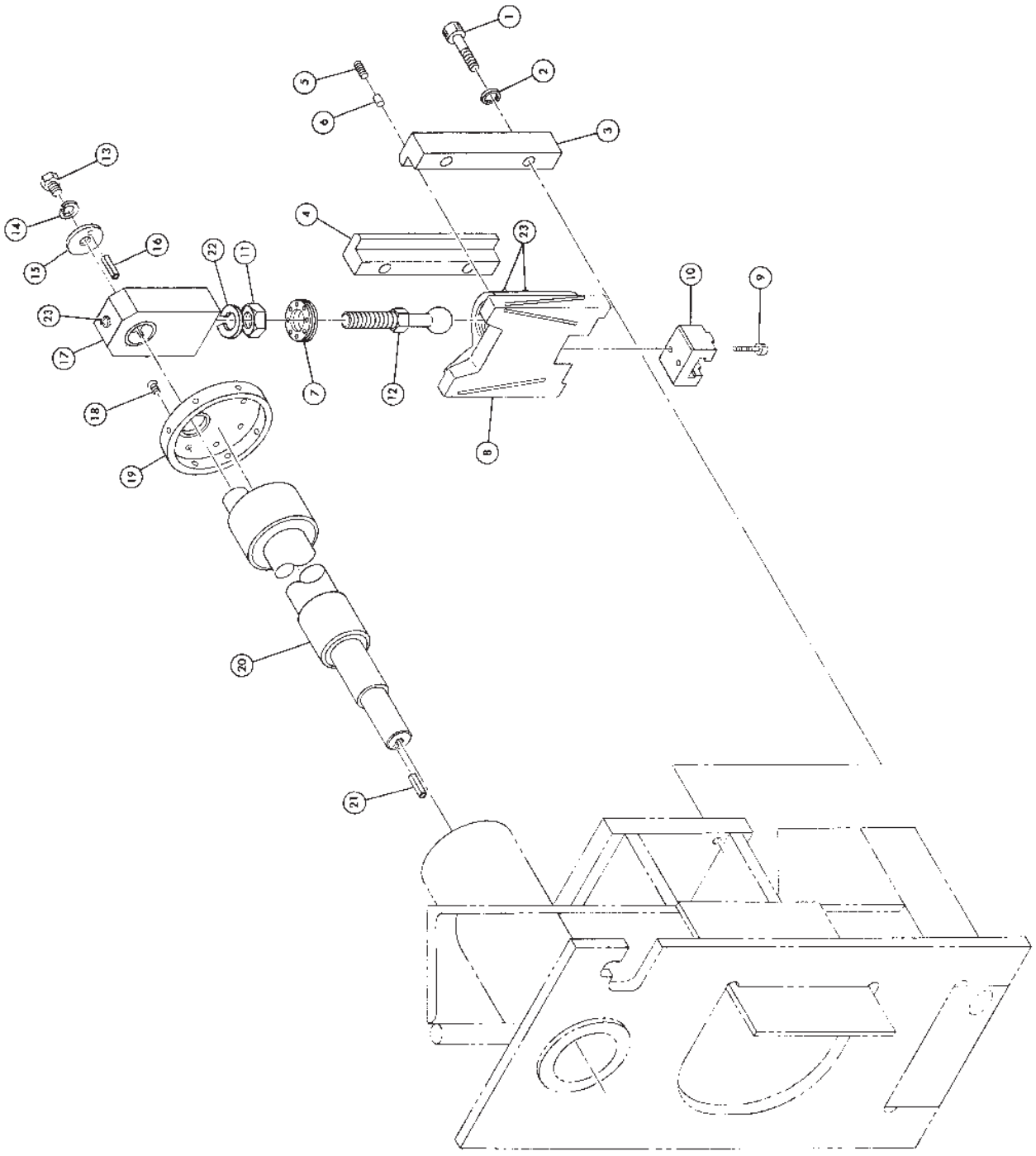


Figure 12 (end)

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	4- 21002-4	SCREW, Btn Hd Skt Cap, 3/8-16 x .500" L	3
2	238970-1	PLATE ASSY, Base	1
3	24073-9	. SCREW, Btn Hd Skt Cap, No. 10-32 x .500" L (Self-Locking)	2
4	690317-2	. STOP, Applicator	2
5	1- 21003-8	. SCREW, Fl Hd, No. 6-32 x .250" L	1
6	690320-1	. WEDGE, Latch	1
7	5- 21028-5	. PIN, Sltd Spr, .125" Dia x .750" L	1
8	690319-2	. LATCH, Applicator	1
9	3- 22280-4	. SPRING, Compression	1
10	690680-2	. PIN, Latch	1
11	690679-2	. PLATE, Base (See Note 1)	1
12	23262-2	CONNECTOR, Conduit 1/2"	1
13	23261-7	CONDUIT, Electrical 1/2"	5.5"
14	811569-2	LIGHT, Terminated Work	1
15	1- 21023-2	WASHER, Flat, 5/8"	2
16	480054-3	HOUSING, Receptacle	2
17	42282-2	TERMINAL, Receptacle (1-Ckt)	2
18	42242-2	TERMINAL, Tab (back-to-back)	1
19	42241-2	TERMINAL, Tab	1
20	3- 21000-4	SCREW, Skt Hd Cap, No. 10-32 x .375" L	2
21	23545-1	CLAMP, Cable	1
22	22787-2	CONNECTOR, Straight Box	1
23	23382-5	WIRE, SJO No. 16, 2-Wire	12"
24	480195-8	HOUSING, Tab, 6-Cir. (Black)	1
25	3- 21000-4	SCREW, Skt Hd Cap, No. 10-32 x .375" L	2
26	23752-1	BOX, Junction	1
27	1- 25633-0	SPEEDNUT, No. 10-24	2
28	2- 21002-6	SCREW, Btn Hd Cap, No. 10-32 x .375" L	4
29	454669-1	BRACKET, L.H. Cover	1
30	454668-1	BRACKET, R.H. Cover	1
31	22792-1	FITTING, Grease, 1/8" NPT	1
32	22904-1	FITTING, Grease, 1/8" NPT x 45 Degrees	1
33	23753-1	FITTING, Relief Lube	1
34	22306-3	ELBOW, Street, 1/8" NPT	1
35	453592-6	SIGN, Caution	1
36	See Note 2	FRAME, Press	1
		NOTE 1: If Plate is defective, normally replace complete Assembly.	
		NOTE 2: Not field replaceable. If defective, return entire Press.	

Figure 13 (continued)

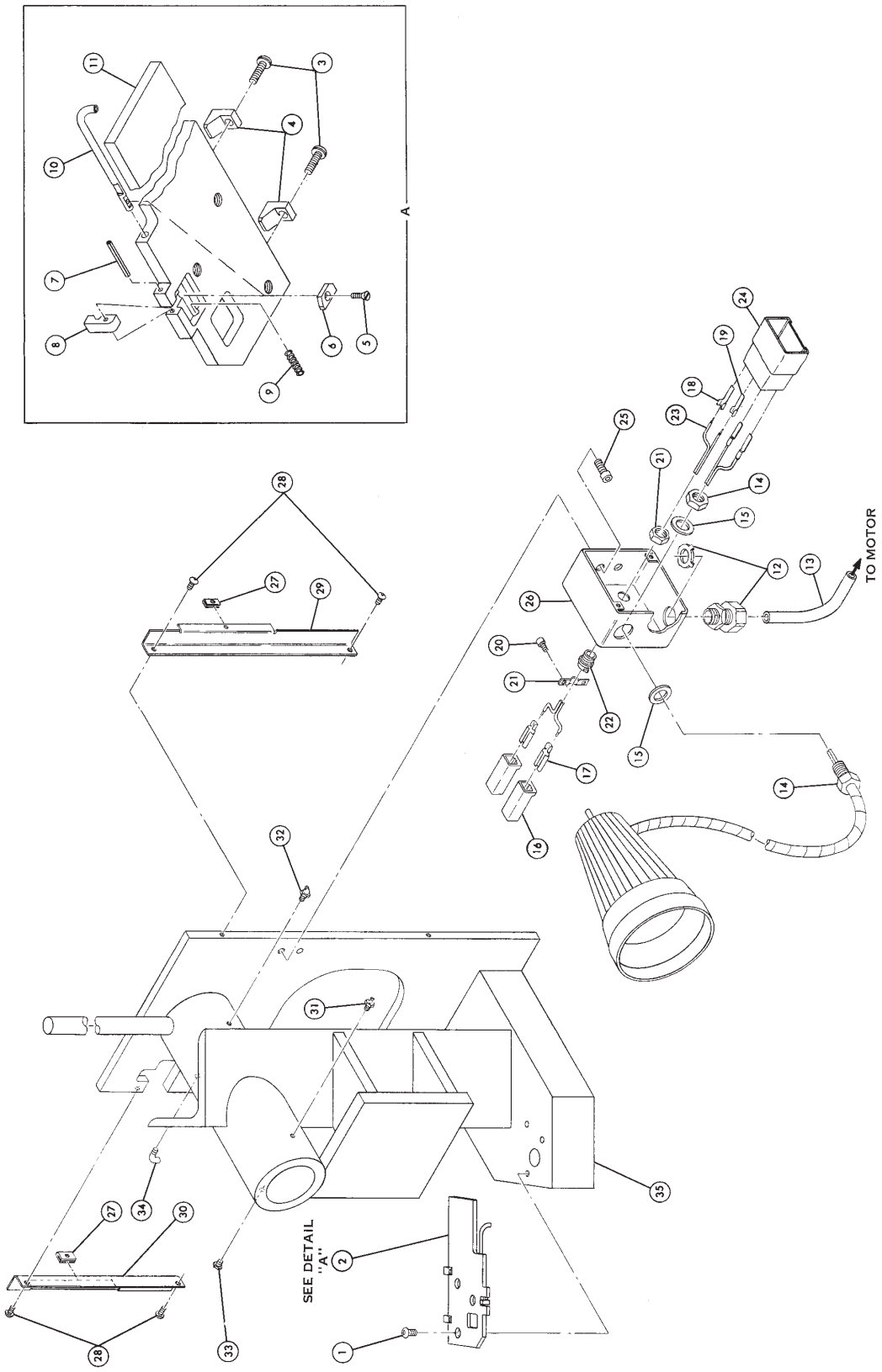


Figure 13 (end)