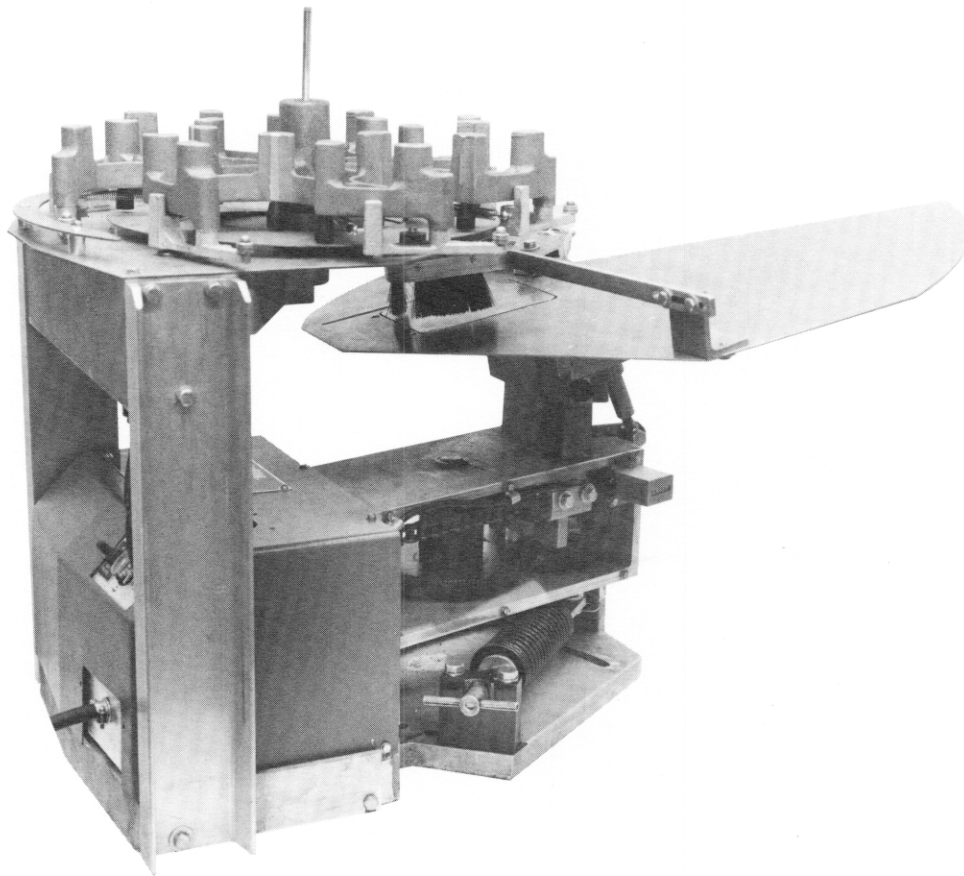


# Model 4100 S Autoloading Skeet Trap



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***Remington®***

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## I. INTRODUCTION

1. THE REMINGTON MODEL 4100S is an autoloading electric skeet trap designed for U.S. skeetshooting and simulated international style shooting.

2. THE MODEL 4100S has been carefully designed to be versatile and to provide the sportsman with challenging and enjoyable shooting by incorporating the following features:

Highly stable target flight to resist wind deflection.

Easy adjustment to compensate for prevailing wind condition.

Magazine capacity of 112 targets when filled to the recommended height.

Dependable feeding system to handle targets gently and avoid breakage.

No vertical guide rails to permit easy and quick filling of the magazine which remains level at all times.

Safe release switch to deactivate trap from within traphouse.

Quiet smooth operation.

## II. SAFETY

### "IMPORTANT INFORMATION"

1. The Model 4100S Trap requires 110 VAC, 60 HZ, 15 AMP electric service for operation.

2. The safety switches and operating controls are on the rear of the trap (see Figure 1) and include:

- A. "Off-On-Safe Release" switch.
- B. Magazine Cable
- C. 15-amp fuse.
- D. Power input cable.

3. The "On-Off-Safe Release" switch allows an individual to safely deactivate trap from rear. The trap is made inactive when the switch is placed in the "Off" position, pushed down to the "Safe Release" position until the trap fires, and immediately released to return to the "Off" position. While in "Safe Release" position the trap will fire once. **DO NOT ALLOW ANYONE TO STAND IN FRONT OF THE TRAP WHEN USING THE SAFE RELEASE SWITCH.** Returning the switch immediately from "Safe Release" to "Off" leaves the throwing arm in an uncocked, safe position.

4. When working on internal repairs the power line should be completely disconnected from trap except when required for certain repair procedures. **CAUTION: ALWAYS PUT TRAP IN "SAFE RELEASE" BEFORE DISCONNECTING POWER LINE AND PROCEEDING WITH REPAIRS. ALWAYS DISCONNECT POWER AT WALL SOCKET RATHER THAN AT THE TRAP CONTROL PANEL. THIS IS TO PREVENT DROPPING AN INADVERTENTLY ENERGIZED POWER CORD ONTO A WET TRAP HOUSE FLOOR.**

5. WHENEVER WORKING AROUND OR NEAR THE TRAP, DISARM REMOTE SWITCH BY UNPLUGGING CORD FROM POWER SOURCE.

**CAUTION: KEEP HANDS AND BODY AWAY FROM TRAP AND PERIPHERY OF THROWING ARM WHEN TRAP IS RUNNING.**



Figure 1 — Safety Switches and Operating Controls

### III. INSTALLATION

1. Attach trap to a solid base by 3 bolts or lag screws of at least 1/2" diameter (see Figure 2).

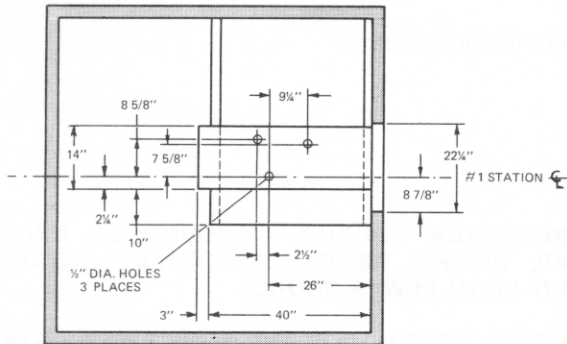
Loading magazine and periodic servicing will be made easier if clearance for a man is left around the trap.

2. The trap weighs 200 lbs. with magazine attached and 140 lbs. without magazine. The following precautions should be observed when handling and moving trap.

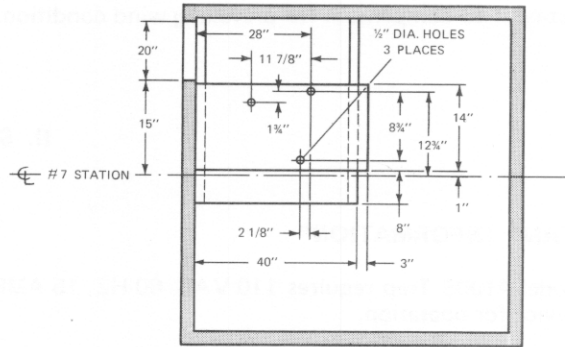
A. Make proper preparations and have assistance when handling or moving trap. Consider use of gloves to protect hands.

B. Watch out for pinch points when moving or positioning trap.

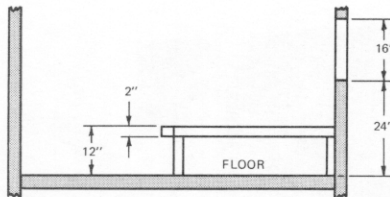
C. Do not lift by or lean on platform or throwing arm.



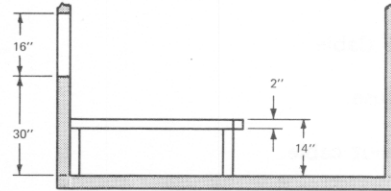
HI HOUSE FLOOR PLAN



LOW HOUSE FLOOR PLAN



HI HOUSE ELEVATION



LOW HOUSE ELEVATION

Figure 2

### IV. OPERATION

1. Read Section II (page 1) before operating trap. Before plugging in power cable check following:

- Make sure the safe release switch is in the off position.
- Check to make sure nothing is in path of throwing arm or magazine rotation.
- Plug in the magazine cord if necessary.
- Connect power cable to trap.

2. Properly ground the ground wire into power cable at trap house wall outlet.

3. The throwing arm should be in uncocked position (see Figure 3). If throwing arm is not in uncocked position. "Safe Release" the trap as explained in Section II. (page 1).

4. Target nest brush should not interfere with targets dropping from magazine. Stand directly above magazine and observe through target drop hole. The target nest arm and brush mounting plate should not be protruding into path of target when it is dropped. The arm and mounting plate should be just out of view of the observer (see Figure 4).

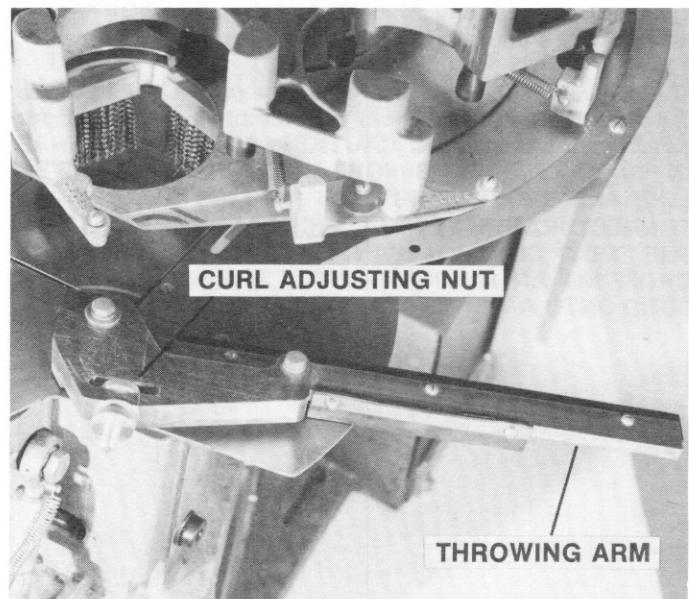


Figure 3 — Throwing Arm in Uncocked Position



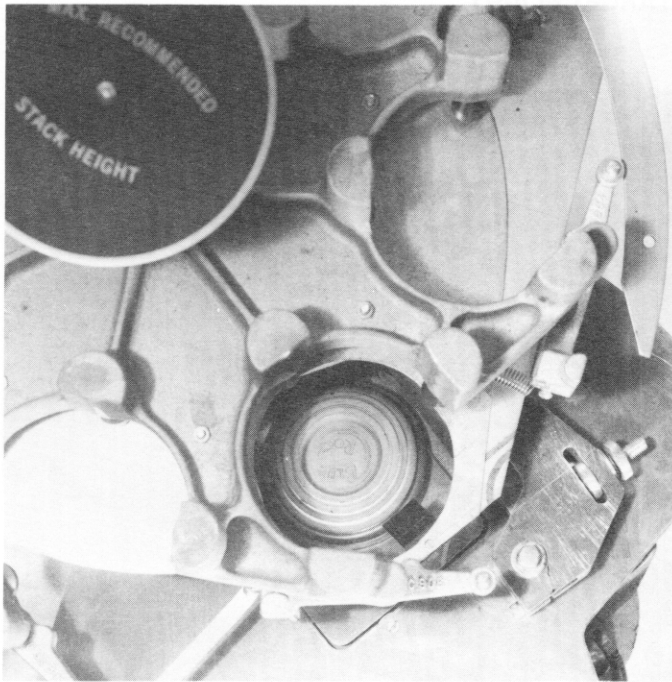


Figure 4 — Target Nest Mounted Correctly

5. To reposition target nest arm, loosen the two screws that hold target nest bracket to platform (see Fig. 5) and pivoting arm. To position target nest arm sideways, loosen the two screws that hold target nest arm to target nest bracket (see Figure 5).

6. Load magazine to height of stack indicator. Depress magazine fingers to allow target to rest on magazine ramp.

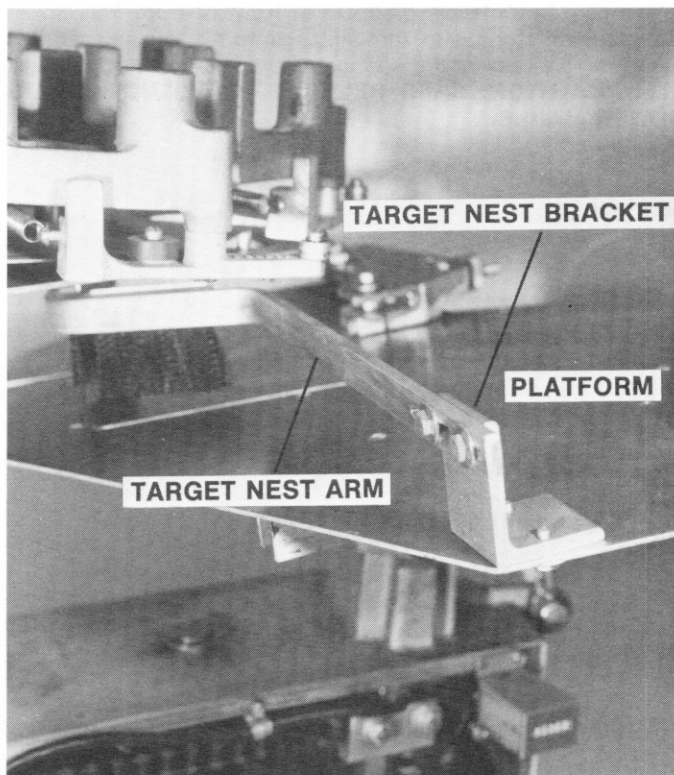


Figure 5 — Target Nest Arm and Bracket Screws

7. Test firing the trap.

- A. Before turning on power, check to make sure no obstruction is in way of throwing arm or target flight (test firing may be done with or without targets in magazine).
- B. Plug in power cord.
- C. Move safe release toggle switch to "On" position.
- D. Throwing arm will rotate to firing position (see Figure 6).
- E. Momentarily move toggle switch to "Safe Release" position.
- F. Throwing arm will fire thru to safe released position (see Figure 3).
- G. Magazine will index to drop target.
- H. Repeat steps C thru G as many times as necessary.
- J. **NOTE:** Targets may break or jam if less than two (2) are left in each magazine stack.
- K. Refer to trouble shooting section when trap does not perform normally.

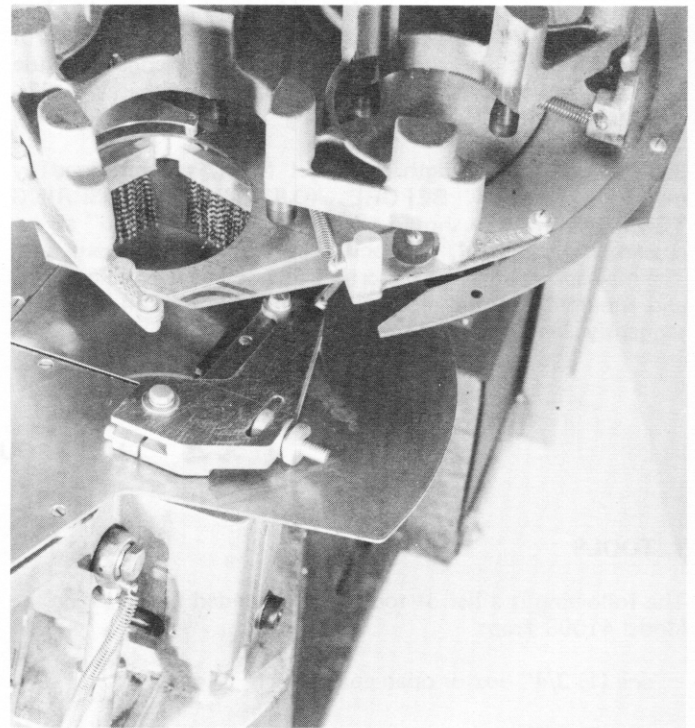


Figure 6 — Throwing Arm in Firing Position

8. The target flight should be observed so any necessary corrections can be made. Test firing should be done with the "Safe Release" switch on back of trap by sequencing from "On" to "Off" to "Safe Release" to "Off." This latter method will fire a target and may be repeated any number of times. When test firing, use of the "Safe Release" switch as opposed to remote firing switch assures an uncocked throwing arm after firing so that any necessary flight corrections can be made safely.

## V. ADJUSTMENTS — TARGET FLIGHT

**1. CURL** — Curl is the hooked path taken by a target when flying incorrectly. Use the following method to correct curl:

- A. The target nest should be positioned so that the bottom of the "V" is even with lower edge of drop pad.
- B. Turn curl adjusting nut (see Figure 3). Moving the throwing arm toward target will correct curl to right. Moving arm away from target will correct curl to left.

**2. ATTITUDE** — A target is flying in the correct attitude when plane of target is parallel to its flight path (a flat flying target). An incorrect attitude occurs when plane of target is at an angle to the flight path (target is flying in a nose up attitude). This is due to difference in manufacturing specifications among target vendors. A target flying in an incorrect attitude will be more affected by wind conditions and will drop more quickly than a target in a correct attitude. An incorrect attitude will also give the target a larger shooting profile.

- A. Incorrect attitude is caused by target shoulder being higher than target guide rail. Target shoulder height can vary among manufacturers and even among production facilities of the same manufacturer.
- B. Correct attitude is obtained by shimming between throwing arm carrier and top of mainshaft assembly (see section VII, 1-D for disassembly of throwing arm assembly). The distance between upper edge of guide rail and target shoulder should be approximately  $1/32''$  (see Figure 7).

**3. DISTANCE** — Length of target flight is determined by mainspring tension. **BEFORE ADJUSTING MAINSPRING TENSION**, the trap should always be "Safe Released" as discussed in Section II, and power cord unplugged from wall. The mainspring adjustment screw is located at right side of trap and should be turned clockwise to increase tension and, consequently, length of target flight.

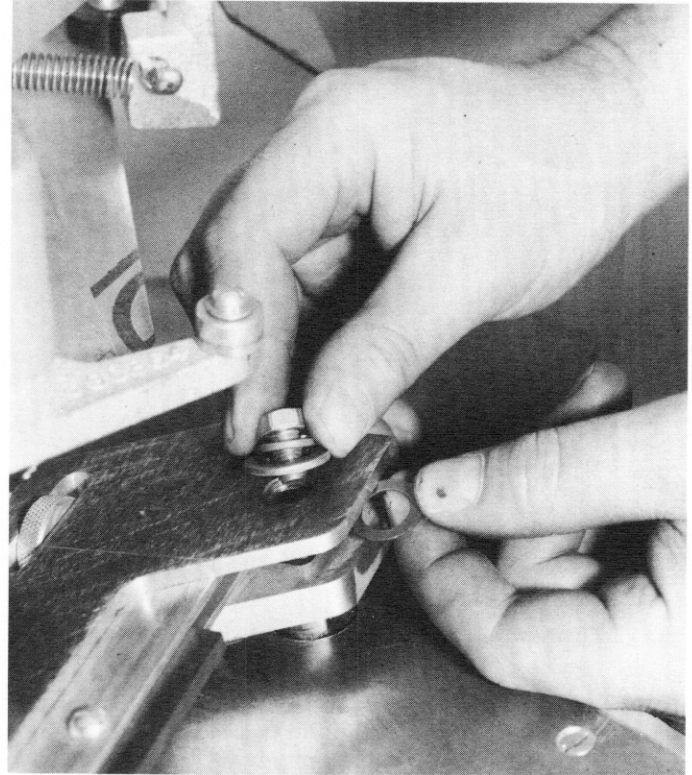


Figure 7 — Shimming Between Throwing Arm Carrier and Top of Mainshaft Assembly

**4. ELEVATION** — Target elevation is controlled by elevation adjustment knob below platform at front of trap. This causes the platform along with throwing arm to tilt fore and aft. It is easier to disconnect the spring to turn elevation adjustment knob. **CAUTION: SAFE RELEASE TRAP AND UNPLUG POWER CABLE.**

## VI. TROUBLESHOOTING

### 1. TOOLS

The following is a list of tools recommended for servicing the Model 4100S Trap:

- one (1)  $3/4''$  box or open end wrench.
- one (1)  $3/4''$  socket wrench.
- one (1)  $1/16''$  box or open end wrench.
- one (1)  $9/16''$  box or open end wrench.
- one (1)  $9/16''$  socket wrench.
- one (1) wire stripper, crimper tool.
- one (1)  $5/16$  hex nut driver.

- one (1)  $1/2''$  box or open end wrench.
- one (1)  $7/16''$  box or open end wrench.
- one (1) Allen wrench set.
- one (1) large and one (1) small screwdriver.
- one (1) lead or plastic hammer (soft hammer head).
- File (optional).
- one (1) pair needle nose pliers.
- one (1) # 2 phillips screwdriver.

## 2. TRAP FAILS TO START

### Cause

- A. Blown fuse.
- B. Loose fuse.
- C. Power cord disconnected (either end).
- D. Main power off.
- E. Defective On-Off switch.
- F. Motor damaged or stuck.

### Solution

- A. Replace fuse (15 amp fuse).
- B. Tighten fuse.
- C. Connect power cord.
- D. Turn main power on.
- E. Replace On-Off switch.
- F. Examine motor.

## 3. MAGAZINE FAILS TO FEED – DOES NOT ROTATE

### Cause

- A. Cord from control panel to magazine not plugged in.
- B. Cord from control panel to magazine damaged.
- C. Drive shaft not connected.
- D. Key missing between magazine and shaft.
- E. Clutch jammed from rotating.

### Solution

- A. Plug cord in.
- B. Inspect for disconnected or damaged wires.
- C. Connect drive shaft.
- D. Insert key.
- E. Rotate magazine counterclockwise by hand until slack is taken up. Clutch should engage when trap is released.

## 4. MAGAZINE FAILS TO FEED – ROTATES BUT DOES NOT DROP TARGET OR BREAKS TARGET

### Cause

- A. Targets placed in magazine were cracked.
- B. Targets sticking together and unable to drop.
- C. Targets jamming or breaking when level in magazine gets below two targets.
- D. Target nest arm interfering with fall of targets from magazine.
- E. Magazine fingers not contacting cam ring correctly.
- F. Worn rubber parts not holding targets securely.
- G. Wrong timing sequence. Magazine does not stop at correct point.

### Solution

- A. Examine targets for cracks when loading magazine.
- B. Wet targets. Suction between targets causes them to stick together. Replace with dry targets. Targets out of round or paint sticking targets together. Replace with good targets.
- C. Add more targets when this level is reached.
- D. Readjust target nest arm. Refer to Section IV-5 (page 3).
- E. Check cam alignment and straighten if bent.
- F. Replace or rotate magazine sleeve and target bumpers.
- G. Disassemble magazine assembly (refer to Section VII-6, page 11). Replace any broken parts. Reassemble and check timing sequence. If sequence is still wrong, magazine gears are probably out of phase. Rephase gears according to Section VII-8, page 12).

## 5. TRAP FAILS TO FIRE

### Cause

- A. Release cable broken, switch defective.
- B. Wires leading to clutch actuating solenoid assembly may be loose or broken.
- C. Solenoid or actuating lever stuck or broken.
- D. Cocking clutch dirty or malfunctioning due to wear or breakage.
- E. Keys in mainshaft drive arm and / or mainshaft crank assembly missing.
- F. Clutch actuating lever out of adjustment.

### Solution

- A. Try "Safe Release" position on main switch. If trap fires, trouble is not in the trap. Repair or replace release cable switch and / or cable assembly.
- B. Connect wires properly or replace.
- C. Remove left side cover and examine solenoid and actuating lever (refer to Figure 17 and paragraph VII-4C, page 10). Activating release button or Safe Release switch should cause solenoid and actuating lever to snap instantly when top of clutch actuating lever clears pawl on cocking clutch sleeve. **(BE CAREFUL TO STAY AWAY FROM THROWING ARM).**
- D. Remove clutch. Clean or replace. Refer to Sections VII-2 page 9, VII-3 page 9 and VII-4 page 10.
- E. Install key.
- F. Adjust clutch actuating lever to clear pawl on cocking clutch with 1/16" (refer to Section VII-4C page 10).

## 6. SLOW RELEASE OR DELAYED RELEASE

### Cause

- A. Mainshaft gear turned clockwise relative to cocking clutch gear.

### Solution

- A. Rephase gears (refer to Section VII-5 page 10).

## 7. THROWING ARM FAILS TO RECOCK

### Cause

- A. Broken mainspring jamming trap.
- B. Mainshaft gear advanced relative to cocking clutch gear.
- C. Speed reducer defective.

### Solution

- A. Replace mainspring assembly. Safe release trap (refer to paragraph VII-1H page 7).
- B. Rephase gears (refer to Section VII-5 page 10).
- C. Replace reducer.

## 8. THROWING ARM FIRES THROUGH WITHOUT STOPPING AT COCKED POSITION

### Cause

- A. Mainshaft gear to cocking clutch gear out of phase.
- B. Clutch Actuating lever fails to connect on cocking clutch cam stop.

### Solution

- A. Retard mainshaft gear (refer to Section VII-5 page 10)
- B. Adjust or repair clutch actuating lever assembly.

## 9. CHATTER NOISE IN COCKED POSITION

### Cause

- A. Cocking clutch needs lubrication.
- B. Sprag clutches need lubrication.
- C. Chain too loose.

### Solution

- A. Lubricate with WD-40 or equivalent thru spring holes in side of cocking clutch.
- B. Remove screw to sprag oil hole and lubricate with automatic transmission oil.
- C. Tighten chain.



## VII. DISASSEMBLY AND REASSEMBLY PROCEDURES

### 1. MAINSHAFT AREA PROCEDURES — Mainshaft Clutch, Mainshaft Assembly, Mainshaft Gear, and Associated Parts.

The following procedures should be followed:

- A. "Safe Release" trap and disconnect power.
- B. Detach power cord at magazine gearbox by turning counterclockwise and pulling out (see Figure 8).

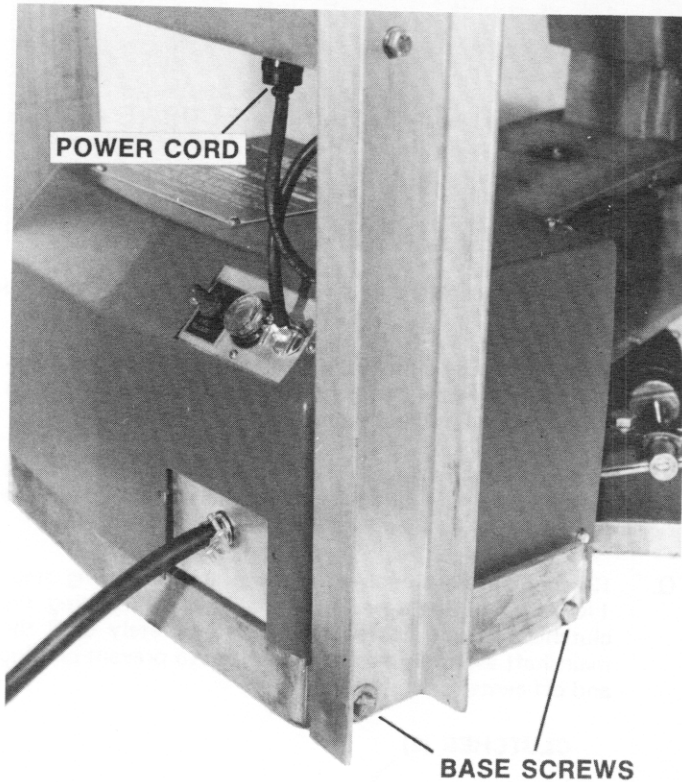


Figure 8 — Power Cord and Leg Attachment Screws

- C. Loosen the four screws that hold magazine support legs to base (see Figure 8). Pull up on both legs and remove magazine assembly. Be careful not to lose drive shaft or the two molded rubber coupling spacers that fit in coupling ends (see Figure 9).
- D. Remove throwing arm assembly by removing carrier screw, loosening carrier clamp screw, and lifting or prying carrier off shaft (see Figure 10).
- E. Remove upper elevation adjusting assembly bolt (see Figure 11).
- F. Remove both elevation pivot screws (see Figure 11).
- G. Lift and remove platform and universal housing.
- H. Release all tension from mainspring by turning adjusting screw counterclockwise until it has disengaged mainspring assembly. Remove adjusting screw assembly, retaining pin, and mainspring assembly.

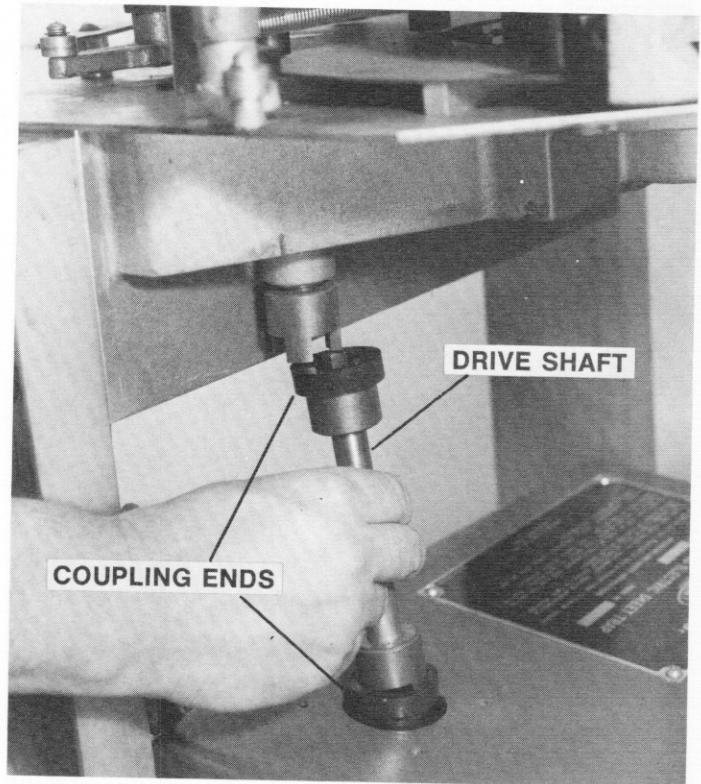


Figure 9 — Drive Shaft and Coupling Spacers

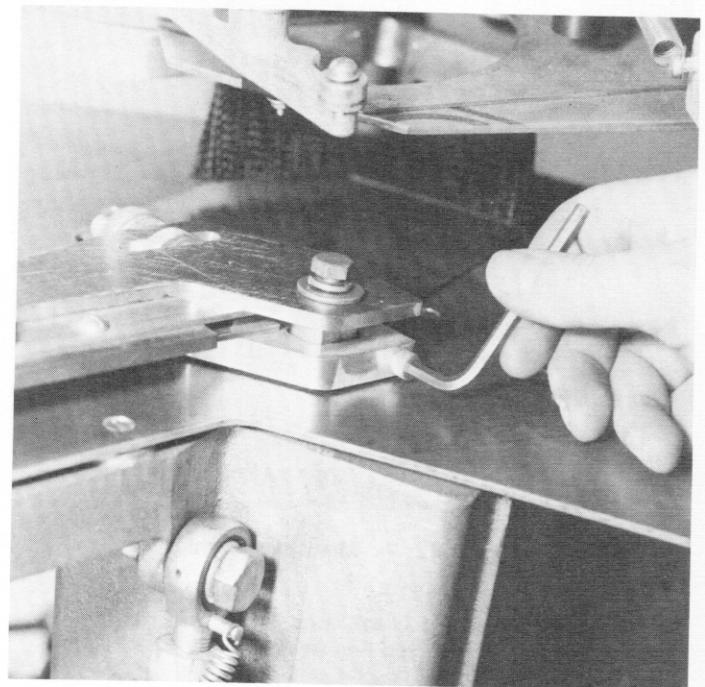


Figure 10 — Throwing Arm Assembly



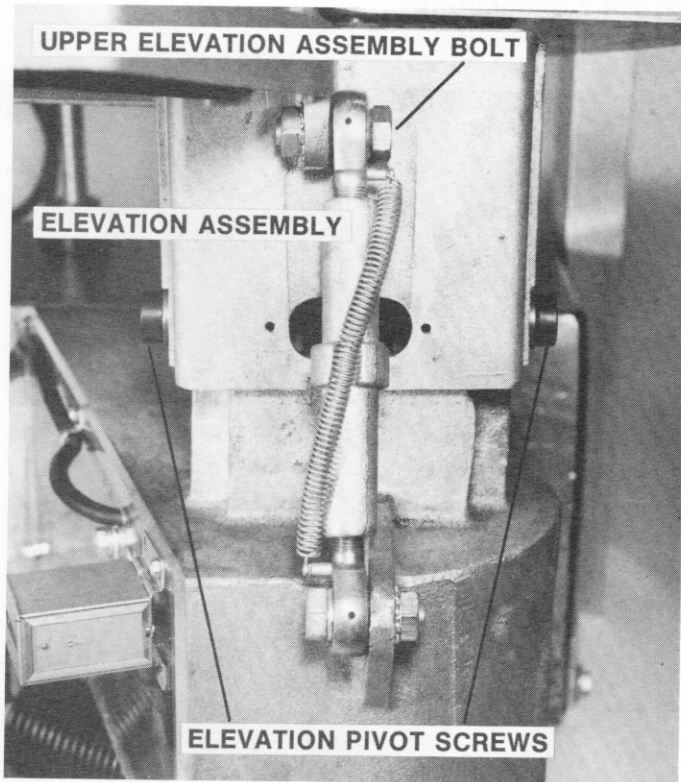


Figure 11 — Elevation Pivot Screws

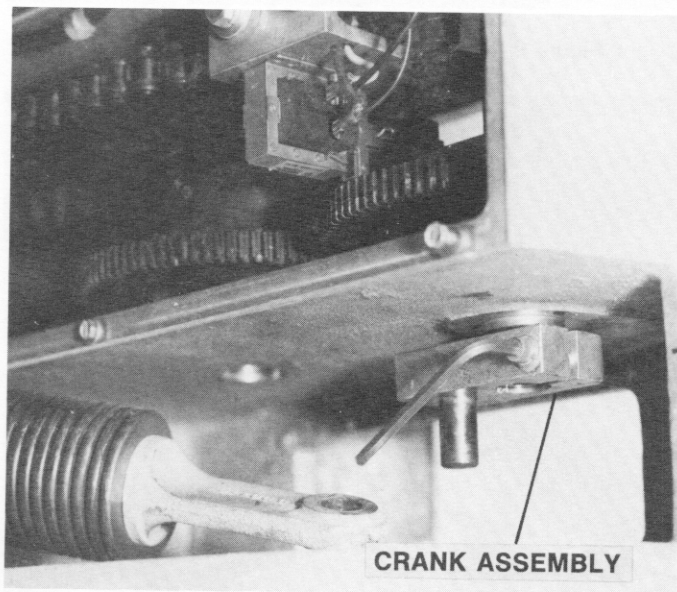


Figure 12 — Mainshaft Crank

- J. Loosen mainshaft crank lock screw and remove crank assembly and key (see Figure 12).
- K. Remove left and right side panels.
- L. Paint match mark on mainshaft gear and clutch gear to retain orientation for reinstalling (see Figure 13).
- M. Loosen mainshaft drive arm lock screw (see Figure 13), slide drive arm upward and remove drive arm key.
- N. Pull mainshaft assembly out of its housing to facilitate removal of drive arm.

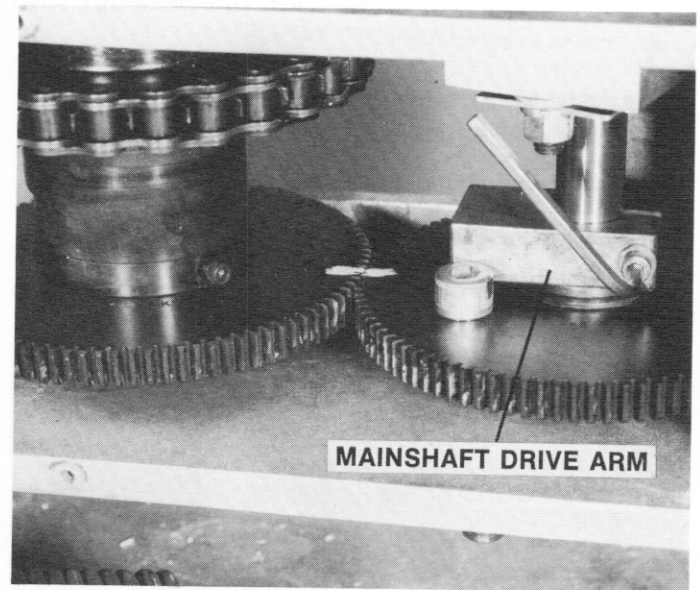


Figure 13 — Match Mark on Mainshaft Gear and Clutch Gear

- O. Mainshaft sprag clutches may be examined by removing the two mainshaft clutch housing nuts (see Figure 13) to allow removal of clutch housing.
- P. External clutch flanges must be on the shiny milled side of the mainshaft clutch housing and must face up (see Figure 14).
- Q. Reassemble housing by following the preceding steps 1A — 1Q in the reverse order. When reinstalling the clutches, do not tighten the nuts completely until the mainshaft assembly has been inserted to prevent binding and off-center assembly.

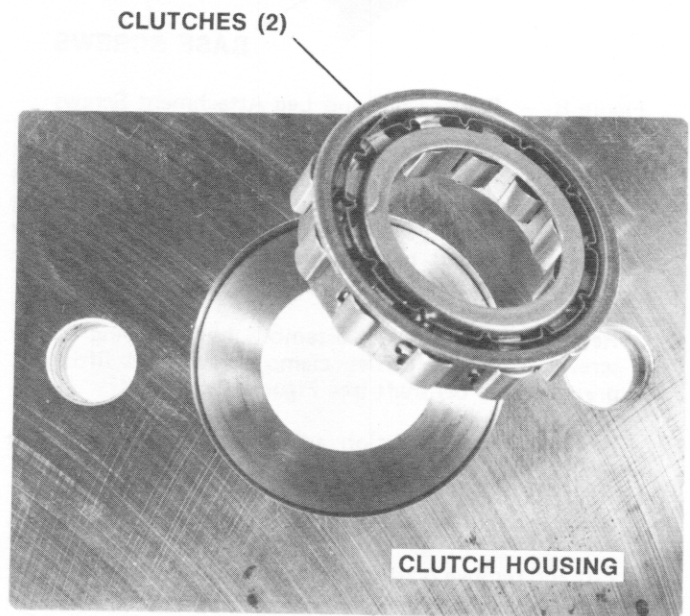


Figure 14 — Mainshaft Clutches and Clutch Housing

## 2. COCKING CLUTCH SHAFT AREA PROCEDURES (DIS-ASSEMBLY). Clutch Actuating Lever Assembly, Cocking Clutch Shaft, Cocking Clutch, and Associated Parts.

- A. Servicing or examining the clutch actuating lever assembly, pivot shaft, cocking clutch, or associated parts may require their removal. This is performed after removing the magazine assembly. Tilt platform forward by turning elevation adjusting screw. Remove left and right side covers.
- B. Remove cover by taking out the eight cover screws.
- C. Match mark cocking clutch gear and mainshaft gear (see Figure 13). This permits gears to be correctly phased when reassembling.
- D. Slacken chain by loosening the four motor mounting base bolts and the chain tension bolt (see Figure 15).
- E. Rotate clutch until cocking clutch lock screw can be backed out about 1/4" with an allen wrench. This screw is the larger of two screws through the side of the cocking clutch, just above gear (see Figure 13).
- F. Pull cocking clutch shaft out of casting. **NOTE:** leave retainer ring on shaft.
- G. Remove cocking clutch assembly from right side and remove chain.

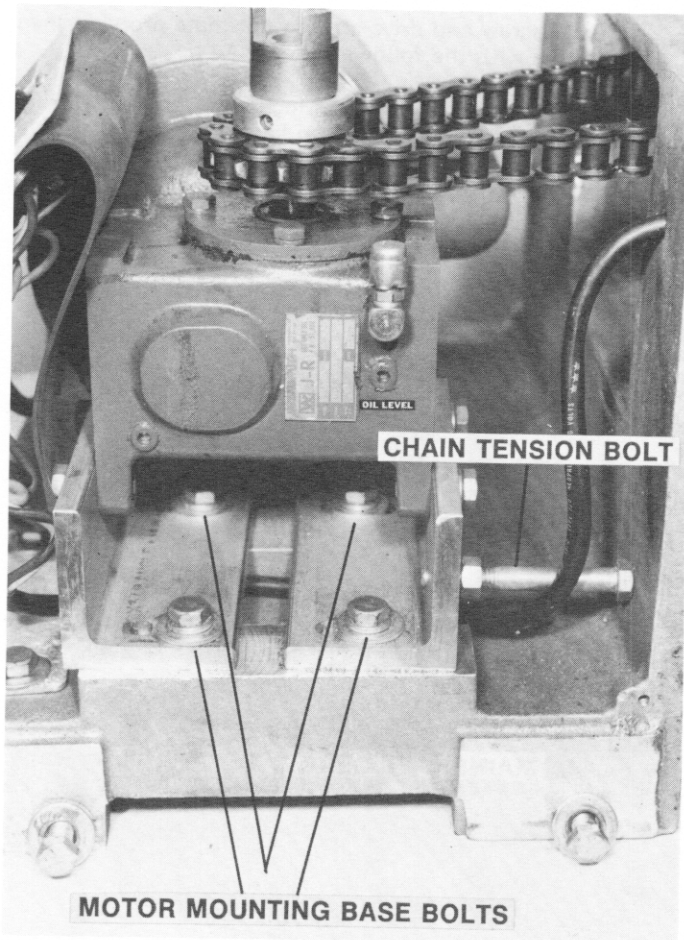


Figure 15 — Chain, Motor Mounting Base Bolts and Chain Tension Bolt

## 3. COCKING CLUTCH DETAILED INSPECTION PROCEDURES.

- A. Remove the cocking clutch assembly by following paragraphs VII-2A through VII-2G (page 9). Inspect the cocking clutch according to the following steps:
- B. Remove Truarc snap ring located just above cocking clutch sprocket (see Figure 16).



Figure 16 — Cocking Clutch Sprocket and Snap Ring

- C. To remove the sprocket, set gear down on a flat surface and grasp the clutch sleeve and sprocket. With left hand rotating counterclockwise and downward, use right hand on the sprocket to pull up with a slight clockwise motion. Note: A burr may be left from removing the snap ring. It may help to remove the burr before disassembly.
- D. Match mark cocking clutch and cocking clutch gear if the gear is removed from the cocking clutch.
- E. Remove sleeve from gear to expose cocking clutch torsion spring. First pull the sleeve over the spring.
- F. Expand spring and thoroughly clean it with solvent. If spring is broken replace entire clutch. Reassemble the spring and gear with the sleeve. Tilt sleeve over tab side of spring. Reach in and grasp spring tab with a pair of pliers, pull to extend the spring, push sleeve down over the spring and line up sleeve notch with spring tab.
- G. Lubricate bronze bearing in the cocking clutch sprocket before reassembly.
- H. Reassemble the sprocket with the spring, sleeve, and gear. Use the same type of twisting motion on sleeve and sprocket with pressure pushing parts together. Refasten the Truarc snap ring.



**4. COCKING CLUTCH SHAFT AREA PROCEDURES (RE-ASSEMBLY)** — Cocking Clutch, Pivot Shaft, Clutch Actuating Lever Assembly, and Associated Parts.

- A. Reinstall cocking clutch and be sure the match marks on cocking clutch gear and mainshaft gear are in alignment (see Figure 13). Install cocking clutch shaft. If the match marks become misaligned during the assembly, they can be realigned by following the procedures in Section VII-5 page 10).
- B. Tighten cocking clutch lock screw.
- C. When reinstalling side panel with cocking clutch actuating lever assembly (see Figure 17), use a rubber band to keep the armature seated in the coil until the screws have been reinstalled in the panel. Remove rubber band and allow lever to engage sleeve. The clutch actuating lever assembly should have a clearance of  $\frac{1}{16}$ " between clutch actuating lever and cocking clutch pawl when solenoid is depressed. (see Figure 18).

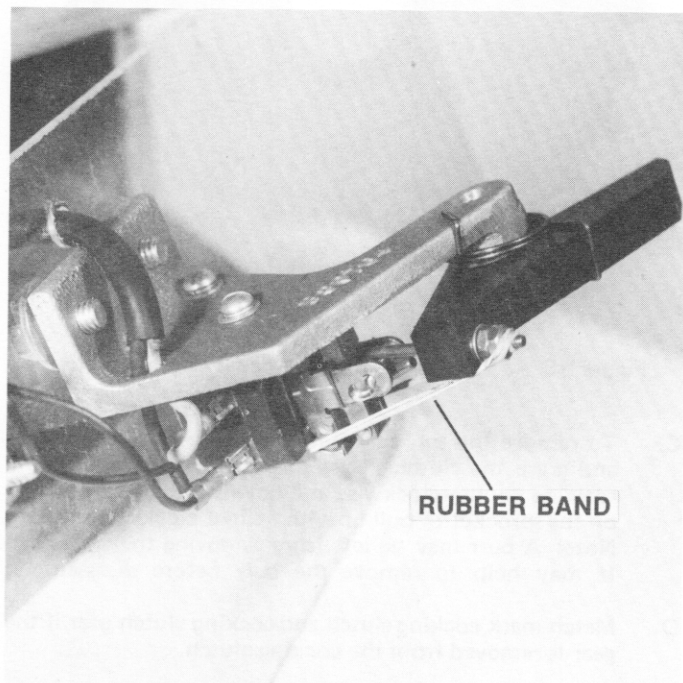


Figure 17 — Cocking Clutch Actuating Lever Assembly

**5. MAINSHAFT ASSEMBLY REPHASING PROCEDURES** — Cocking Clutch Gear and Mainshaft Gear.

The phase between cocking clutch gear and mainshaft gear is correctly reset by the following procedure:

- A. Turn trap "On" and let throwing arm cock.
- B. Loosen mainspring tension to minimum level without disengaging adjusting screw from mainspring assembly.
- C. Pull throwing arm to correct cocked position. (The correct cocked position is where rubber rail is parallel with long slot in platform.
- D. Observe amount of mainshaft gear rotation necessary to make mainshaft gear stud screw contact the right side of mainshaft drive arm (see Figure 19). The mainshaft gear stud should touch or nearly touch mainshaft drive arm. The mainshaft drive gear is then in proper position when trap is cocked.

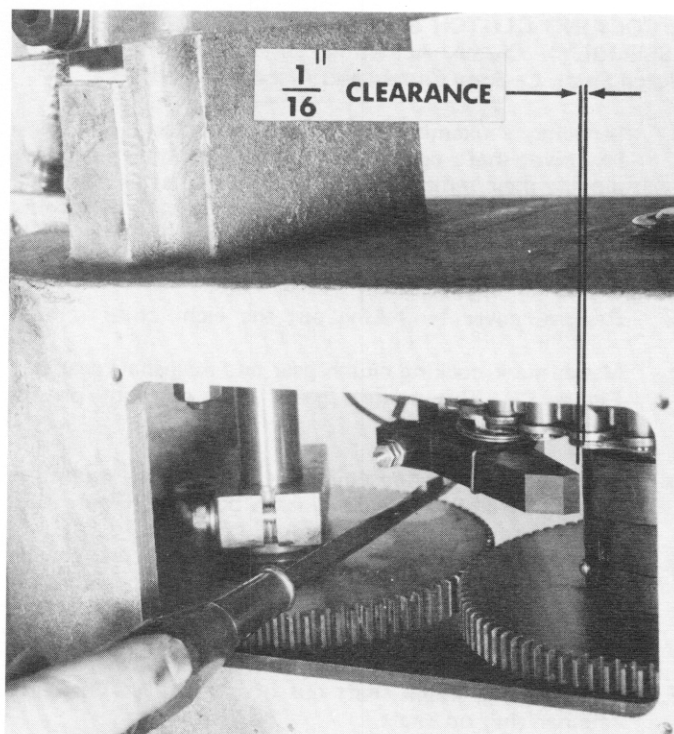


Figure 18 — Clutch Actuating Lever Clearance

- E. If stud screw and drive arm do not mate properly then continue with the following steps.
- F. Loosen mainshaft drive arm lock screw and slide mainshaft drive arm up so key can be removed.
- G. The mainshaft gear can now be lifted out of mesh with cocking clutch gear and rotated to approximate position required (see Figure 20).

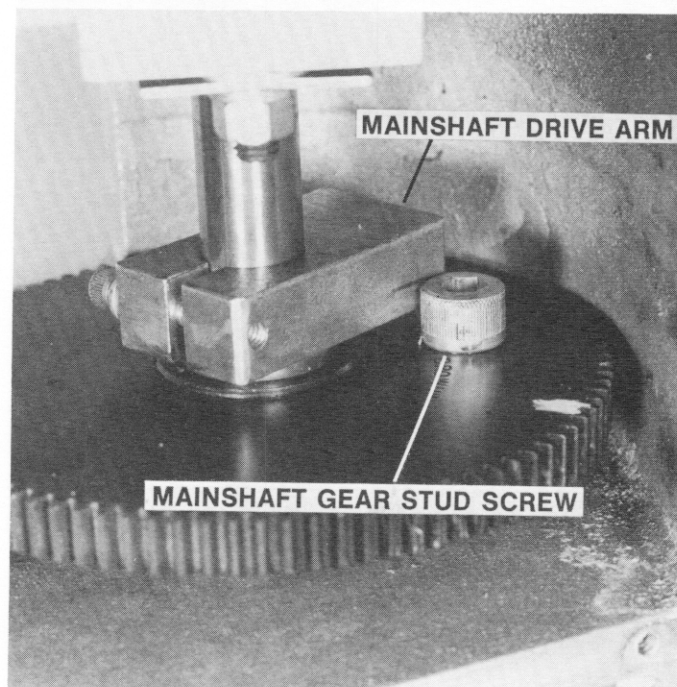


Figure 19 — Mainshaft Gear Stud Screw Contacting Mainshaft Drive Arm

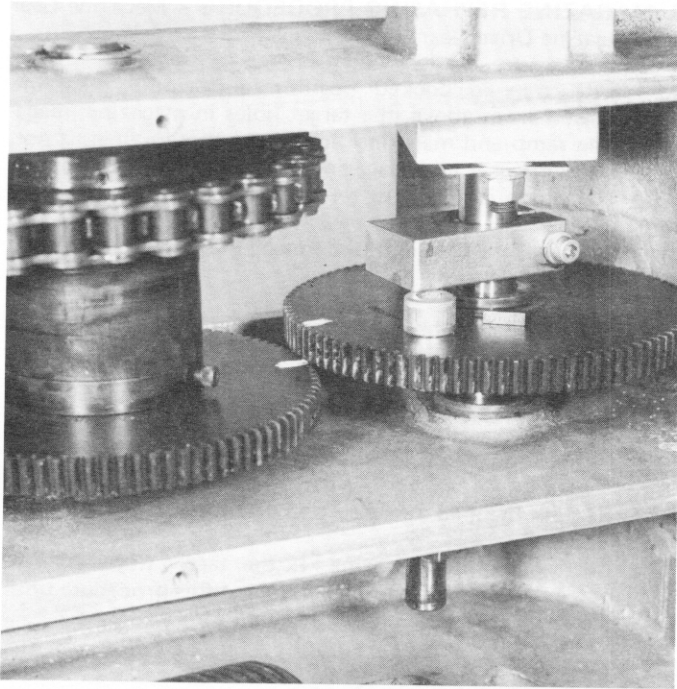


Figure 20 — Unmeshing Mainshaft Gear and Cocking Clutch Gear

- H. Increase mainspring tension.
- K. Turn trap "On" and try cycling. If trap stops in correct position when cocked, mainshaft drive arm lock screw should be tightened. If not, the gear should be advanced or retarded appropriate amount by repeating paragraphs VII-5C through VII-5K. **NOTE: TRAP MUST BE SAFE RELEASED BEFORE TIGHTENING DRIVE ARM LOCK SCREW.**

#### 6. MAGAZINE AREA PROCEDURES — Magazine Gear, Magazine Drive Gear, Magazine Clutch, and Associated Parts.

- A. When inspecting or servicing magazine gear, magazine drive gear, magazine clutch, or associated parts, the following procedure should be followed:
- B. "Safe Release" trap and disconnect power.
- C. Pull up and remove magazine. The magazine key will be exposed and should be removed to avoid loss.
- D. Remove the four floor plate screws holding magazine floor plate to magazine gearbox (see Figure 21). The magazine drive gear shaft lock nut must be removed; however, the magazine drive gear shaft, which is held by this nut, must be held from below when floor plate is removed to prevent magazine drive gear from moving. If magazine drive gear moves without first being match marked with magazine gear, incorrect timing will result.

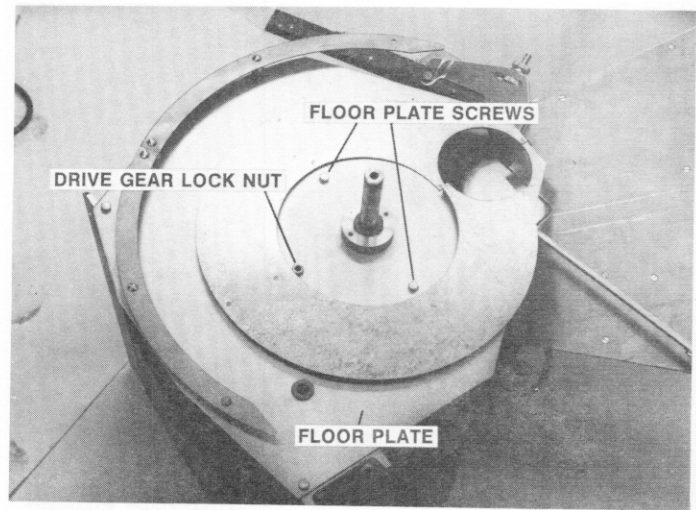


Figure 21 — Floor Plate Screws, Magazine Drive Gear Shaft Lock Nut and Floor Plate

- E. Match mark magazine gear with magazine drive gear (see Figure 22).
- F. Hold magazine gear to keep from turning, pull magazine drive gear shaft out from beneath gearbox, and reinsert shaft into magazine shaft bearing and magazine drive gear from above. This will hold gears in place.
- G. The chain disconnect link is positioned for unsnapping by disengaging magazine indexing clutch to allow free movement of chain (see Figure 22). The magazine indexing clutch is disengaged by pressing on the end of the metal indexing finger and rotating slightly on the vertical pin (see Figure 23). The chain may also be removed by removing magazine drive gear and not disconnecting chain link.

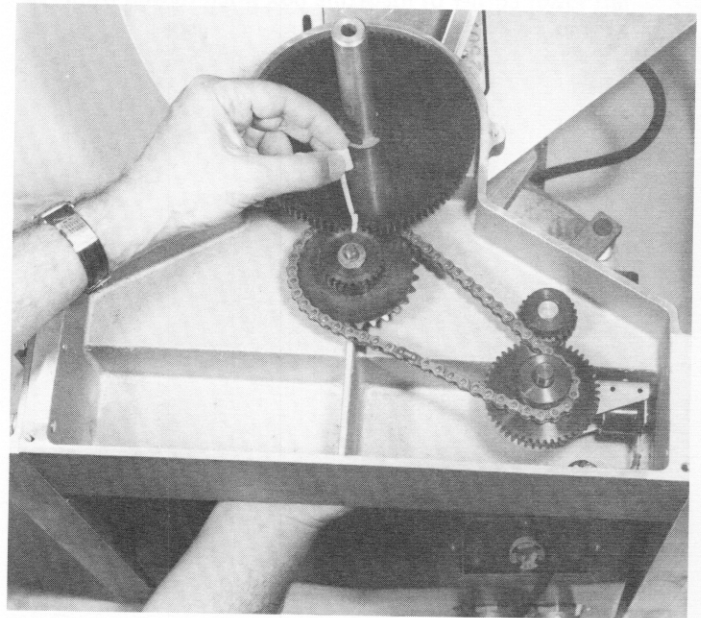


Figure 22 — Match Marking Magazine Gear and Magazine Drive Gear

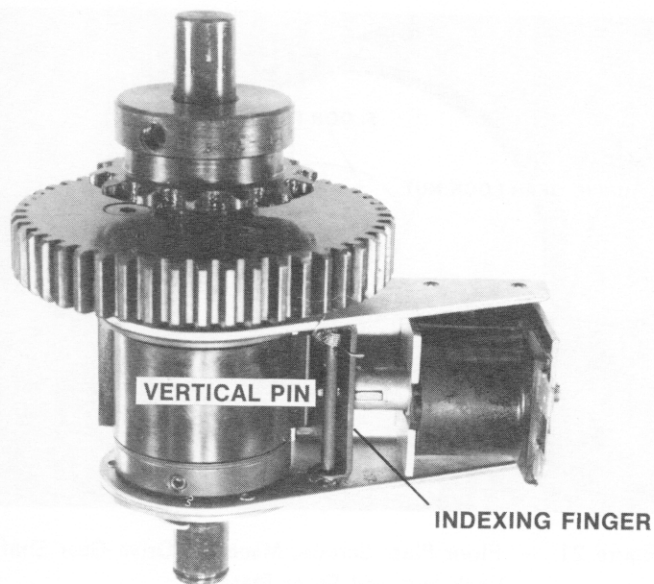


Figure 23 — Magazine Indexing Clutch Assembly

- H. The magazine indexing clutch is removed by disengaging clutch shaft retaining ring (see Figure 24) located beneath magazine gearbox.
- J. Reassemble by following steps VII-6A through VII-6H in reverse order.

## 7. INITIAL TIMING OF MAGAZINE ASSEMBLY

- A. Follow steps 6B, 6C, 6D.
- B. Pull the magazine gear, make sure chain will rotate freely. Reinsert magazine shaft with the keyway in line with left lower corner of magazine box when viewed from rear of trap.

## 8. MAGAZINE REPHASING PROCEDURE — Magazine Gear and Magazine Drive Gear.

- A. With trap in cocked position and empty magazine viewed from above, the target holes in magazine, magazine ramp and magazine floor plate should align. If not, magazine gear and magazine drive gear are out of phase. The phase is correctly set by the following procedure:
- B. Safe Release trap and disconnect the power at the wall socket.
- C. Follow disassembly procedure in Section VII-6C through VII-6F (page 12).
- D. Lift the magazine gear to disengage it from the magazine drive gear. Rotate the magazine gear one or two teeth in the direction required to line up the target holes.
- E. Remesh the magazine gear and drive gear.
- F. Reassemble the magazine. If the target holes are still not in the proper orientation, repeat this procedure until the holes are in the proper orientation.

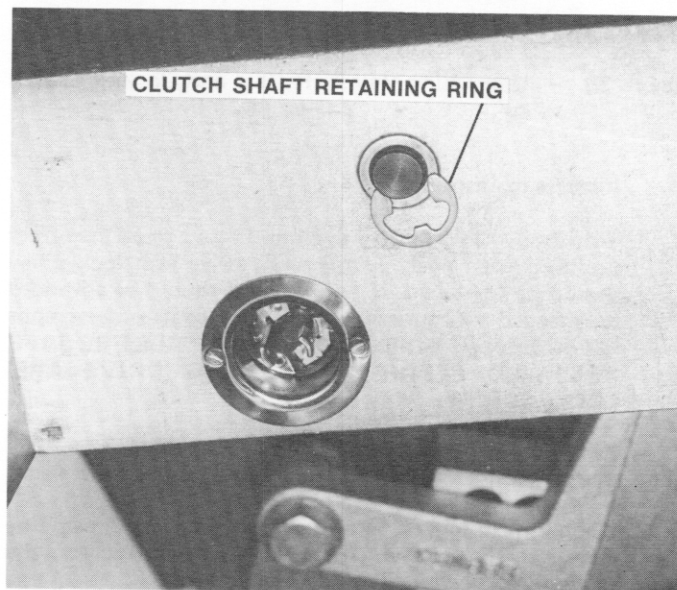


Figure 24 — Magazine Clutch Shaft Retaining Ring



**APPENDIX A**

**PARTS LISTS AND EXPLODED  
VIEW DRAWINGS**

## PARTS LIST

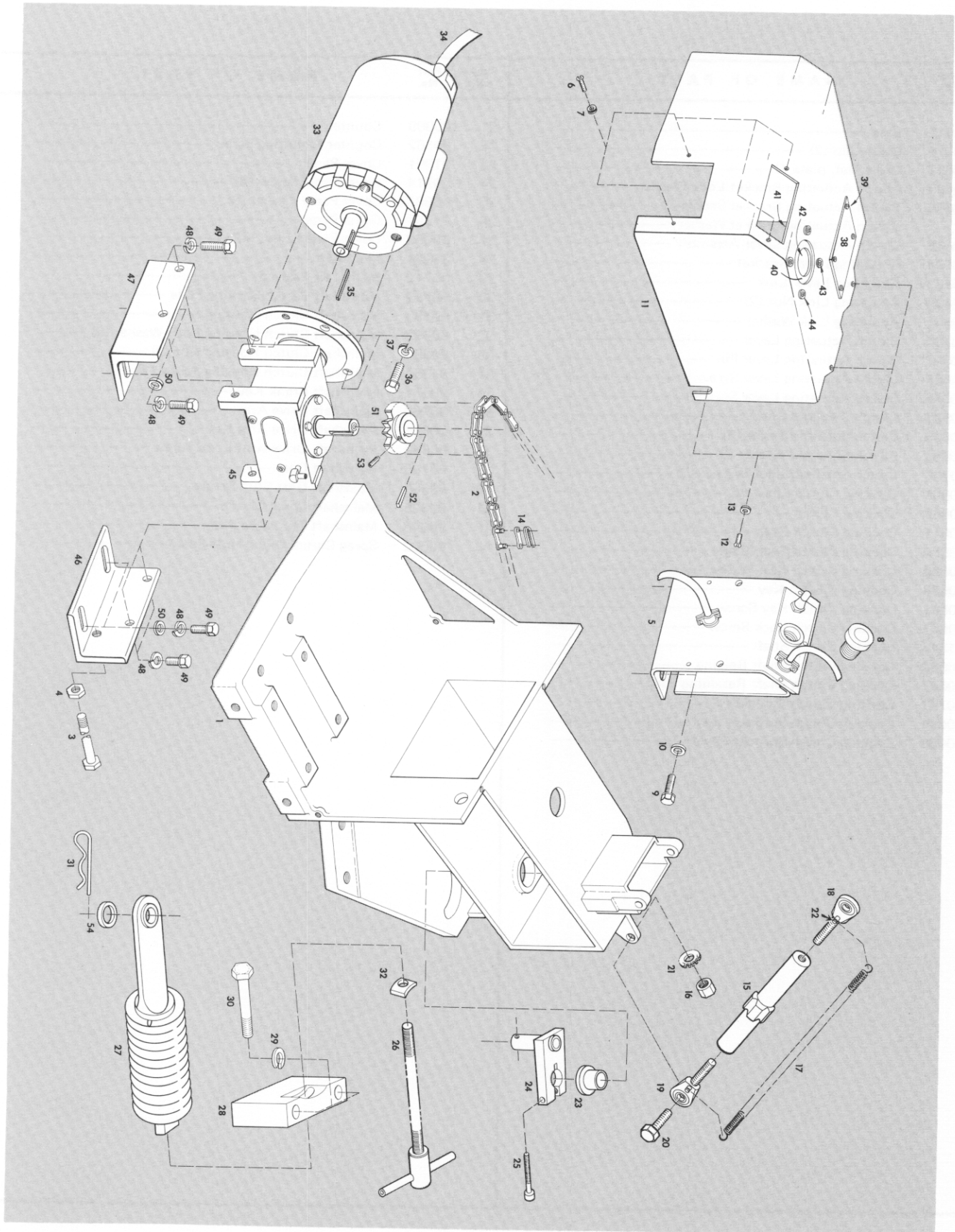
## MODEL 4100 S

## PLATE 1

View No.	Part No.	NAME OF PART	View No.	Part No.	NAME OF PART
1	91011	Base -----	31	90659	Mainspring Retaining Pin -----
2	90627	Chain -----	32	90583	Mainspring Swivel Washer -----
3	90669	Chain Tension Bolt -----	33	90701	Motor -----
4	90683	Chain Tension Lock Nut -----	34	90820	Motor Control Cable Assembly -----
5	91344	Control Panel Assembly -----	35	90664	Motor Key -----
	91345	Control Panel -----	36	90682	Motor Mounting Lock Washer (3) -----
	90595	Control Panel Fuse Receptacle -----	37	90704	Motor Mounting Screw (3) -----
	90805	Control Panel Guard -----	38	91358	Name Plate -----
	90601	Control Panel Guard Washer -----	39	90679	Name Plate Screw -----
	90594	Control Panel Hookup Wire -----	40	90828	Seal -----
	90593	Control Panel Lock Nut -----	41	90593	Seal Nut -----
	91346	Control Panel Marker Strip -----	42	90827	Seal Retaining Plate -----
	90605	Control Panel Terminal (10) -----	43	90602	Seal Screw -----
	91347	Control Panel Terminal Block -----	44	90601	Seal Washer -----
	90600	Control Panel Terminal Jumper -----	45	90851	Speed Reducer -----
	91065	Control Instruction Plate -----	46	90796	Speed Reducer Bracket, Front -----
	90602	Fuse Receptacle Mounting Screw -----	47	90797	Speed Reducer Bracket, Rear -----
	90878	Magazine Power Cable Connector -----	48	90682	Speed Reducer Bracket Lock Washer -----
	90878	Power Cable Connector -----	49	90704	Speed Reducer Bracket Screw -----
	91064	Safe Release Toggle Switch -----	50	90693	Speed Reducer Bracket Washer -----
	90606	Terminal Block Mounting Screw -----	51	90626	Speed Reducer Sprocket -----
	90968	Toggle Switch Boot -----	52	90664	Speed Reducer Sprocket Key -----
6	90667	Control Panel Cover Screw (4) -----	53	91029	Speed Reducer Sprocket Set Screw -----
7	90601	Control Panel Cover Washer (4) -----	54	90806	Thrust Washer -----
8	90596	Control Panel Fuse (15 amp) -----			
9	90713	Control Panel Mounting Screw (2) -----			
10	90693	Control Panel Mounting Washer (2) -----			
11	91363	Cover -----			
12	90662	Cover Screw (4) -----			
13	90663	Cover Washer (4) -----			
14	91038	Drive Chain Link -----			
15	90787	Elevation Adjusting Knob -----			
16	90687	Elevation Adjusting Knob Nut (2) -----			
17	90654	Elevation Adjusting Knob Spring -----			
18	90590	Elevation Adjusting Screw, RH -----			
19	90591	Elevation Adjusting Screw, LH -----			
20	90686	Elevation Knob Bolt -----			
21	90688	Elevation Knob Lock Washer -----			
22	90705	Elevation Screw Spring Mount Pin -----			
23	90712	Mainshaft Bearing -----			
24	33331	Mainshaft Crank Assembly -----			
25	90689	Mainshaft Crank Lock Screw -----			
26	90817	Mainspring Adjusting Screw Assembly -----			
28	91355	Mainspring Pivot Block -----			
29	91357	Mainspring Pivot Block Lock Washer -----			
30	91356	Mainspring Pivot Block Screw -----			

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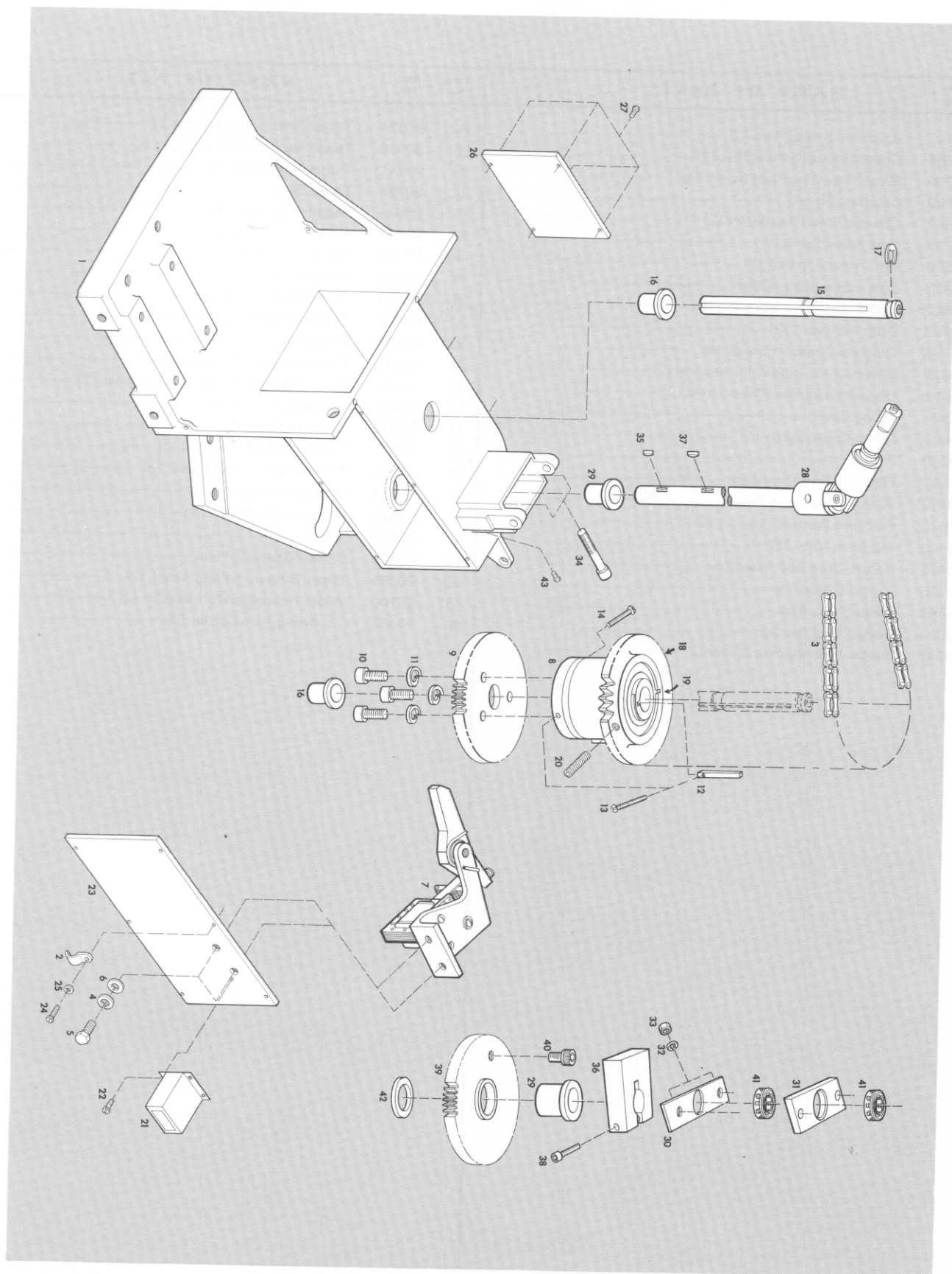


## PARTS LIST

## MODEL 4100 S

## PLATE 2

View No.	Part No.	NAME OF PART	View No.	Part No.	NAME OF PART
1	91011	Base -----	21	90999	Counter -----
2	90710	Cable Clip (2) -----	22	90662	Counter Mounting Screw -----
3	90627	Chain (ref. plate 1) -----	23	91351	Cover Panel -----
4	90685	Clutch Actuating Bracket Lock Washer -----	24	90714	Cover Panel Screw (6) -----
5	90684	Clutch Actuating Bracket Screw -----	25	90663	Cover Panel Washer (6) -----
6		Clutch Actuating Bracket Washer -----	26	91352	Cover Plate -----
7	90818	Clutch Actuating Lever Assembly -----	27	90662	Cover Plate Screw (4) -----
	90764	Actuating Lever Bracket -----	28	33336	Mainshaft -----
	90865	Actuating Lever Link -----	29	90712	Mainshaft Bearing -----
	90604	Actuating Link Nut (2) -----	30	90794	Mainshaft Clutch Backing Plate -----
	90601	Actuating Link Washer -----	31	90793	Mainshaft Clutch Housing -----
	90763	Clutch Actuating Lever -----	32	90682	Mainshaft Clutch Housing Lock Washer (2) -----
	90697	Clutch Actuating Lever Pin -----	33	90683	Mainshaft Clutch Housing Nut (2) -----
	90698	Clutch Actuating Lever Screw -----	34	91354	Mainshaft Clutch Housing Screw (2) -----
	90945	Clutch Actuating Lever Spring -----	35	90651	Mainshaft Crank Key -----
	90991	Clutch Solenoid Buffer -----	36	90760	Mainshaft Drive Arm -----
	90695	Clutch Solenoid Screw (2) -----	37	90651	Mainshaft Drive Arm Key -----
	90663	Clutch Solenoid Washer (2) -----	38	90689	Mainshaft Drive Arm Lock Screw -----
	90700	Clutch Solenoid Lock Washer (2) -----	39	90766	Mainshaft Gear -----
	90804	Cocking Clutch Solenoid -----	40	90665	Mainshaft Gear Stud Screw -----
8	90859	Cocking Clutch -----	41	90625	Mainshaft Sprag Clutch -----
9	90811	Cocking Clutch Gear -----	42	90643	Mainshaft Thrust Bearing -----
10	90880	Cocking Clutch Gear Screw -----	43	90622	Sprag Clutch Oiling Hole Screw -----
11	90690	Cocking Clutch Gear Washer -----			
12	90588	Cocking Clutch Key -----			
13	90661	Cocking Clutch Key Screw -----			
14	90657	Cocking Clutch Lock Screw -----			
15	91343	Cocking Clutch Shaft -----			
16	90630	Cocking Clutch Shaft Bearing -----			
17	90647	Cocking Clutch Shaft Retaining Ring -----			
18	90767	Cocking Clutch Sprocket -----			
19	90651	Cocking Clutch Sprocket Key -----			
20	90660	Cocking Clutch Sprocket Screw -----			





## PARTS LIST

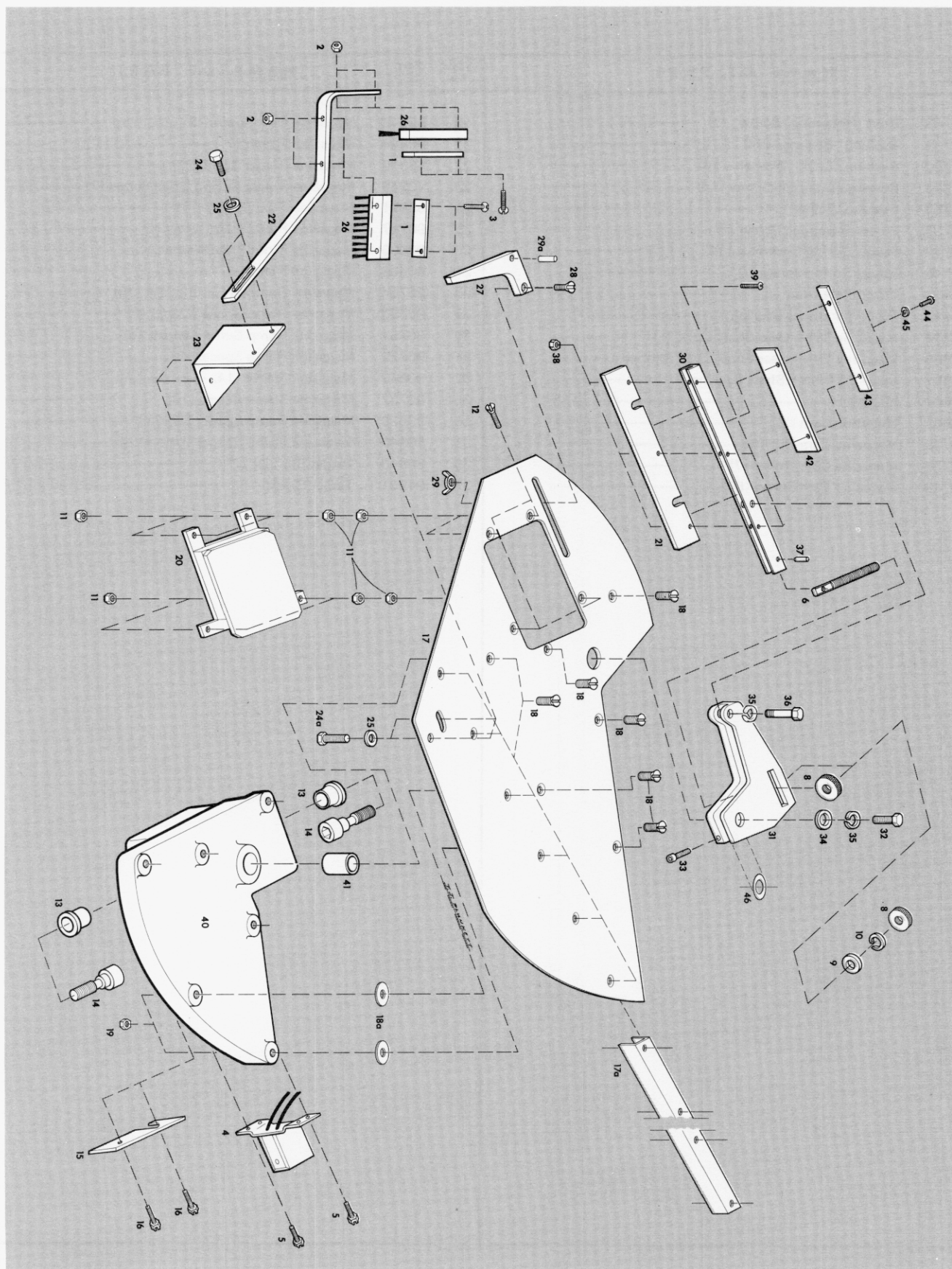
# MODEL 4100 S

## PLATE 3

View No.	Part No.	NAME OF PART	View No.	Part No.	NAME OF PART
1	90735	Brush Mounting Plate (2) -----	24a	90671	Target Nest Bracket Screw (2) -----
2	90754	Brush Mounting Plate Nut (4) -----	25	90670	Target Nest Bracket Washer (4) -----
3	90750	Brush Mounting Plate Screw (4) -----	26	90841	Target Nest Brush (2) -----
4	90999	Counter -----	27	90798	Target Stop -----
5	90662	Counter Mounting Screw (2) -----	28	90674	Target Stop Screw (1) -----
6	90768	Curl Adjusting Screw -----	29	90673	Target Stop Lock Nut -----
8	90586	Curl Adjusting Nut (2) -----	29a	91126	Target Stop Roll Pin -----
9	90693	Curl Adjustment Washer -----	30	90854	Throwing Arm -----
10	90682	Curl Adjustment Lock Washer -----	31	90853	Throwing Arm Carrier -----
11	90703	Drop Pad Nut (12) -----	32	90676	Throwing Arm Carrier Screw -----
12	90752	Drop Pad Support Screw (4) -----	33	90678	Throwing Arm Carrier Clamp Screw -----
13	90628	Universal Housing Pivot Bearing (2) -----	34	90675	Throwing Arm Carrier Washer -----
14	90655	Universal Housing Pivot Screw (2) -----	35	90685	Throwing Arm Carrier Lock Washer (2) -----
15	90587	Oiling Cover -----	36	90592	Throwing Arm Pivot -----
16	90662	Oiling Cover Screw (2) -----	37	90585	Throwing Arm Pivot Pin -----
17	90869	Platform -----	38	90702	Throwing Arm Rail Nut (3) -----
17a	91107	Platform Reinforcement -----	39	90695	Throwing Arm Rail Screw (3) -----
18	90752	Platform Screw (12) -----	40	90874	Universal Housing -----
18a	90670	Platform Washer (Spacer) (6) -----	41	90635	Universal Shaft Bearing -----
19	90703	Platform Nut (12) -----	42	90810	Wiper -----
20	33415	Target Drop Pad Assembly -----	43	90809	Wiper Retaining Plate -----
21	90785	Target Guide Rail -----	44	90695	Wiper Retaining Plate Screw (2) -----
22	90863	Target Nest Arm -----	45	90700	Wiper Retaining Plate Washer (2) -----
23	90839	Target Nest Bracket -----	46	91331	Throwing Arm Carrier Shim -----
24	90747	Target Nest Bracket Screw (2) -----			

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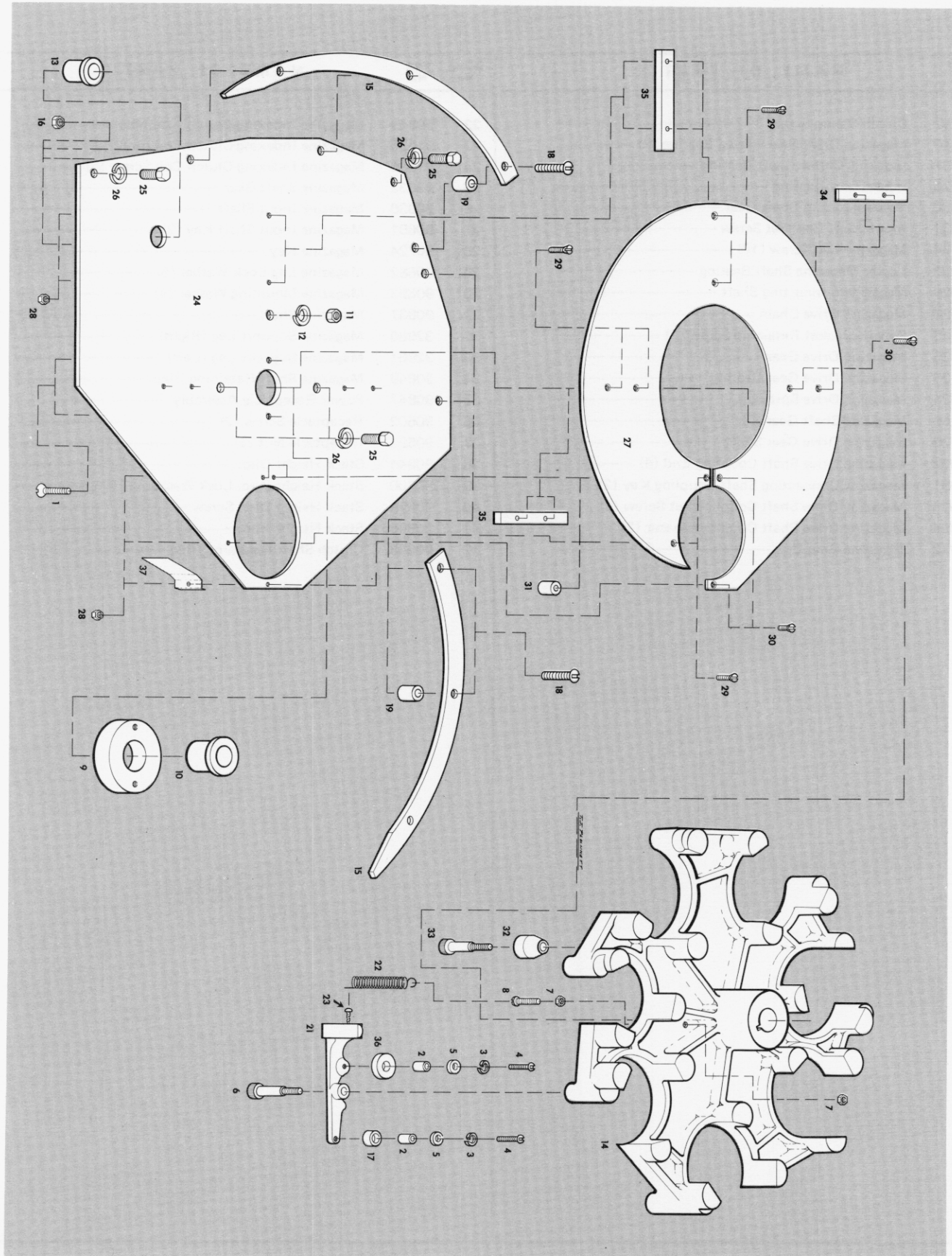
## PARTS LIST

## MODEL 4100 S

## PLATE 4

View No.	Part No.	NAME OF PART	View No.	Part No.	NAME OF PART
1	90743	Boss Retaining Screw (2) -----	19	90718	Magazine Cam Spacer (5) -----
2	90738	Bushing Bearing (14) -----	21	90864	Magazine Finger (7) -----
3	90700	Bushing Lock Washer (14) -----	22	13300	Magazine Finger Spring (7) -----
4	90744	Bushing Retaining Screw (14) -----	23	13249	Magazine Finger Spring Drive Screw (7) -----
5	90663	Bushing Washer (14) -----	24	90871	Magazine Floor Plate -----
6	90737	Finger Retaining Screw (7) -----	25	90747	Magazine Floor Plate Screw (4) -----
7	90742	Finger Spring Lock Nut (14) -----	26	90690	Magazine Floor Plate Washer (4) -----
8	90746	Finger Spring Screw (7) -----	27	90868	Magazine Ramp -----
9	90831	Floor Plate Boss -----	28	90754	Magazine Ramp Mounting Nut (10) -----
10	90712	Floor Plate Boss Bearing -----	29	90750	Magazine Ramp Screw (Long) (6) -----
11	90717	Magazine Drive Gear Shaft Lock Nut -----	30	90751	Magazine Ramp Screw (Short) (4) -----
12	90685	Magazine Drive Gear Shaft Lock Washer -----	31	90722	Magazine Ramp Spacer (2) -----
13	90727	Indexing Clutch Shaft Bearing -----	32	90842	Magazine Sleeve (14) -----
14	90867	Magazine -----	33	90737	Magazine Sleeve Screw (14) -----
15	90862	Magazine Cam (2) -----	34	90830	Magazine Ramp Spacer (Lower) -----
16	90749	Magazine Cam Nut (5) -----	35	90840	Magazine Ramp Spacer (Upper) (2) -----
17	90736	Magazine Cam Roller (7) -----	36	90843	Target Bumper (7) -----
18	90748	Magazine Cam Screw (5) -----	37	91201	Target Guide -----





## PARTS LIST

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## PLATE 5

View No.	Part No.	NAME OF PART	View No.	Part No.	NAME OF PART
1	90757	Clutch Clamp Screw -----	22	90849	Magazine Indexing Clutch Assembly -----
2	90640	Magazine Drive Gear Thrust Bearing (2) -----	23	91035	Magazine Indexing Clutch Coil (only) -----
3	90727	Indexing Clutch Shaft Bearing -----	24	91036	Magazine Indexing Clutch Coil Screw (2) -----
4	90726	Input Shaft Bearing -----	25	90832	Magazine Shaft Gear -----
5	90730	Magazine Input Shaft Gear -----	26	90836	Magazine Input Shaft -----
6	91031	Input Shaft Gear Set Screw -----	27	90651	Magazine Input Shaft Key (2) -----
7	90704	Magazine Leg Screw (10) -----	28	90724	Magazine Key -----
8	90632	Lower Magazine Shaft Bearing -----	29	90682	Magazine Leg Lock Washer (6) -----
9	90829	Magazine Connecting Shaft -----	30	90693	Magazine Mounting Washer (4) -----
10	90732	Magazine Drive Chain -----	31	90837	Magazine Shaft -----
11	90743	Drive Sprocket Retaining Screw (3) -----	32	32960	Magazine Support Leg (Right) -----
12	90835	Magazine Drive Gear -----	33	32961	Magazine Support Leg (Left) -----
13	90725	Magazine Drive Gear Bearing -----	34	90649	Magazine Shaft Retaining Ring -----
14	90834	Magazine Drive Sprocket -----	35	90847	Power Receptacle Assembly -----
15	90756	Magazine Shaft Gear Key -----	36	90602	Receptacle Screw (2) -----
16	90723	Magazine Drive Gear Shaft -----	37	90593	Receptacle Nut (2) -----
17	91032	Magazine Drive Shaft Coupling End (4) -----	38	90844	Stack Height Disc. -----
18	90651	Magazine Connecting Shaft Coupling Key (2) -----	39	90700	Stack Height Disc. Lock Washer -----
19	91033	Magazine Drive Shaft Coupling Set Screw (4) -----	40	90679	Stack Height Disc. Screw -----
20	91034	Magazine Drive Shaft Coupling Spacer (2) -----	41	90845	Stack Height Rod -----
21	90872	Magazine Gear Box -----	42	90648	Clutch Shaft Retaining Ring -----



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