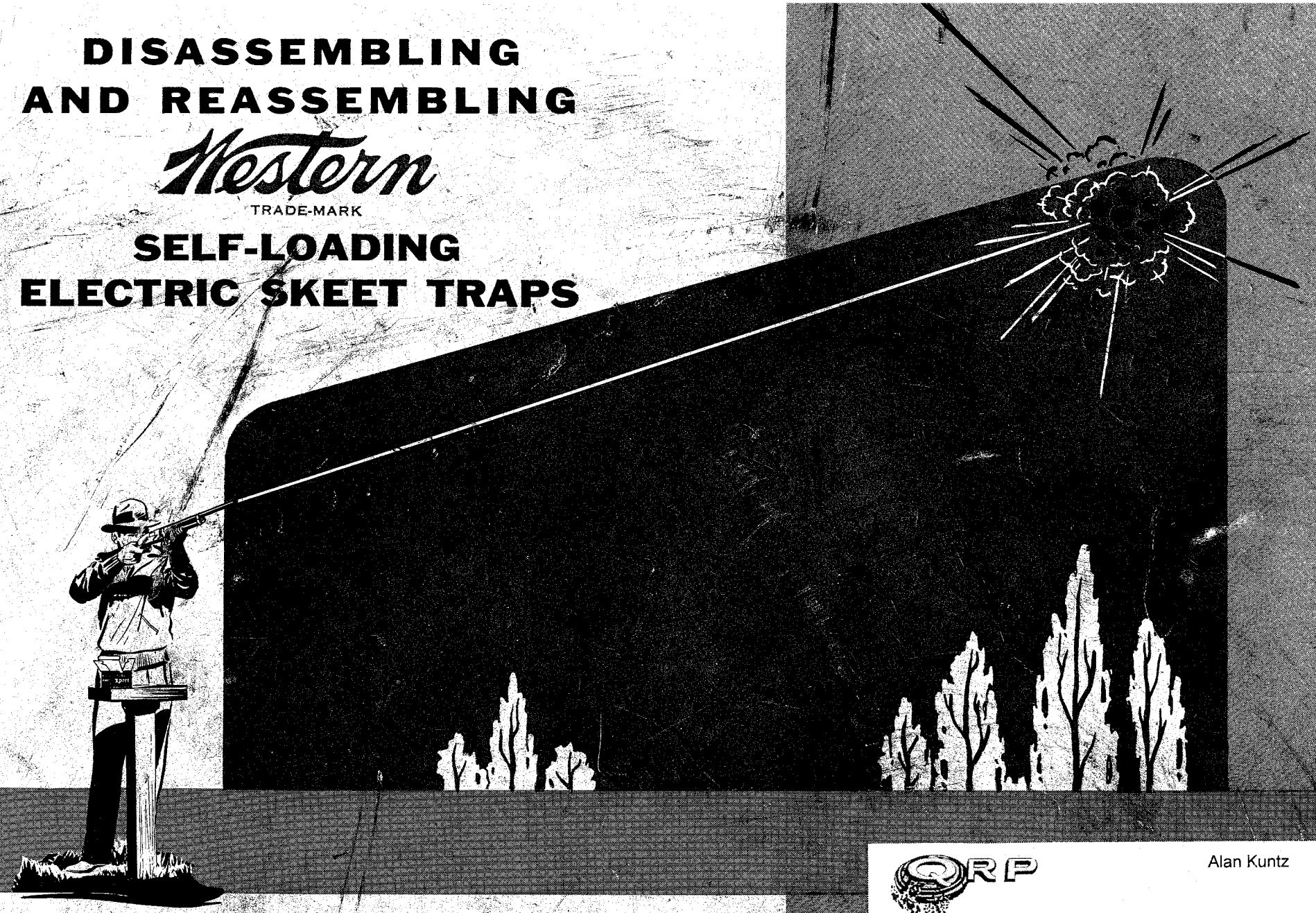
DISASSEMBLING AND REASSEMBLING

Western

TRADE-MARK

SELF-LOADING ELECTRIC SKEET TRAPS



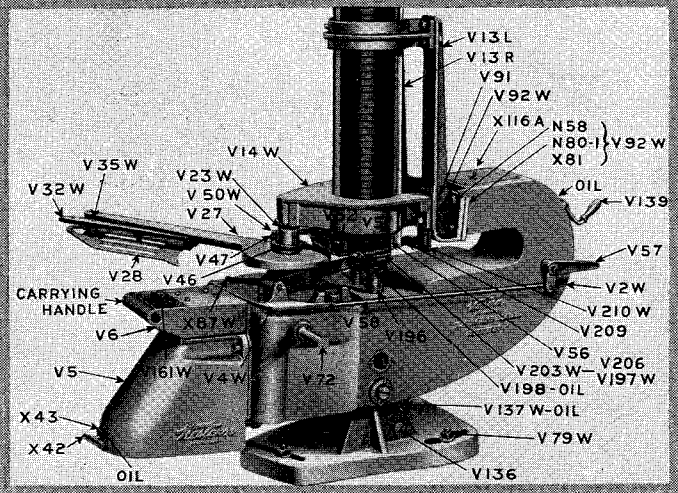
ARMS AND AMMUNITION DIVISION

OLIN MATHIESON CHEMICAL CORPORATION

EAST ALTON, ILLINOIS, U. S. A.

DISASSEMBLING THE GEAR HOUSING

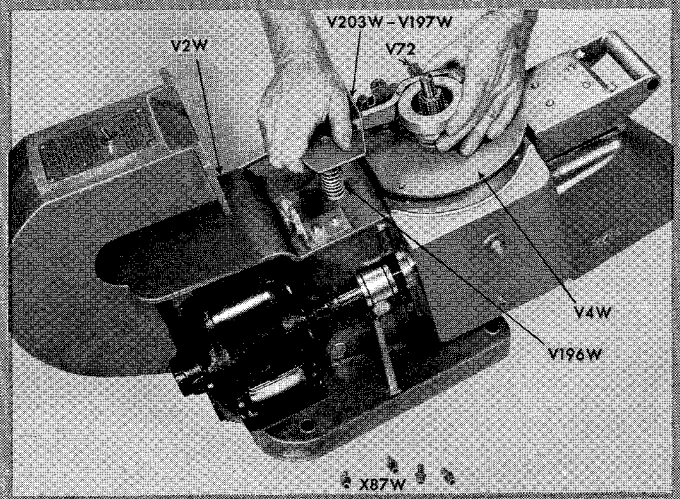
The Gear Housing should not be opened except in rare instances when some repair may be necessary after long usage. In such case, disassemble the parts in the following order, providing a pan with capacity greater than 2 qts. to catch oil when main shaft is removed.



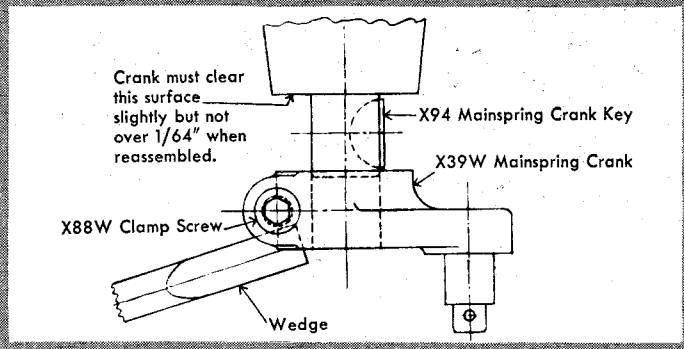
1. See that Carrier Arm V27 is in fired position, twist Power Plug to left and remove.

2. Unhook Escapement Spring V51 from Post V56, remove Bolts V92W from mounting flanges and lift complete target magazine from Frame V2W.
Caution: Do not stand magazine on end as the mechanism on bottom may be damaged.

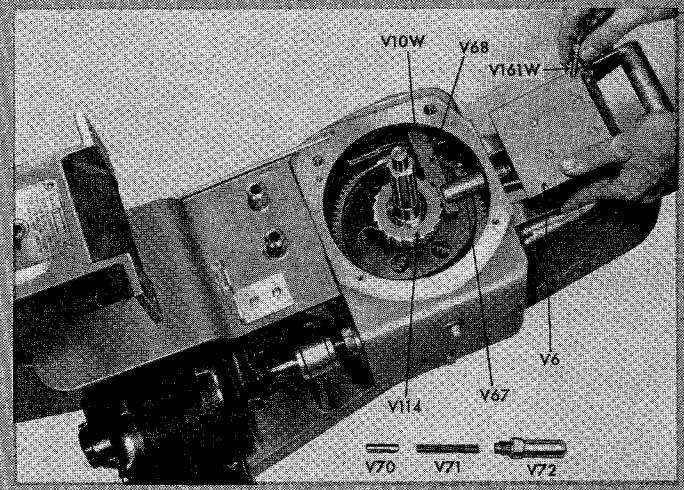
3. Remove Escapement Cam V46 and Carrier Arm V27, pulling upward on hub only to avoid damage.



4. Remove four screws X87W from Gear Housing Cover V4W and remove the Cover, Target Feed Cam and Target Feed Arm as a unit while guiding the Target Feed Shelf V203W and its Bracket V197W out of bushings in Frame V2W to avoid cramping by Springs V196W.



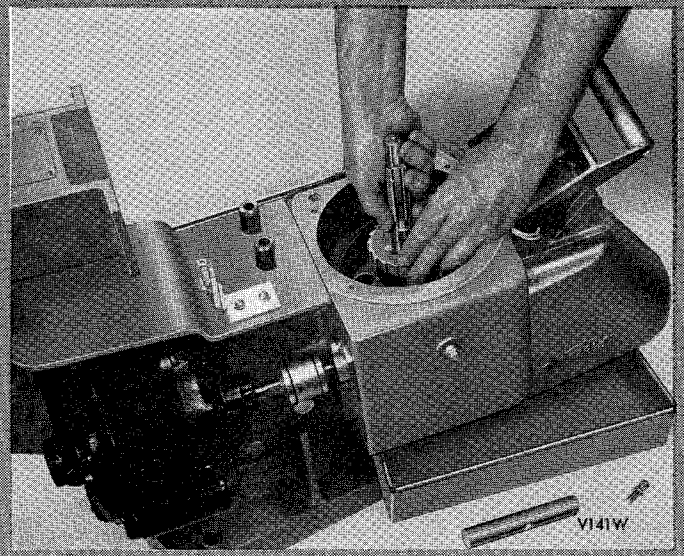
5. Completely remove Mainspring Adjusting Screw X42, loosen Mainspring Crank Clamp Screw X88W, drive wedge in slot of Crank only enough to free from shaft and remove Crank with Mainspring attached (not shown). Remove Mainspring Crank Key X94 from shaft.

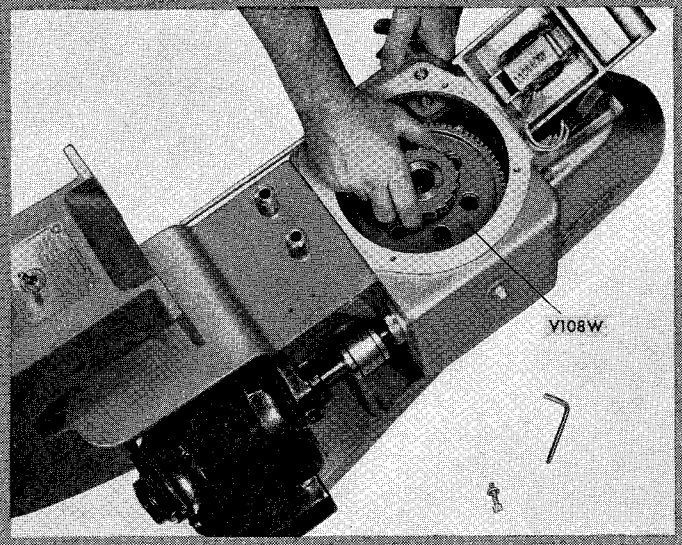


6. Remove Sear Plunger Bushing V72, being careful not to lose Sear Plunger V70 or Sear Spring V71.

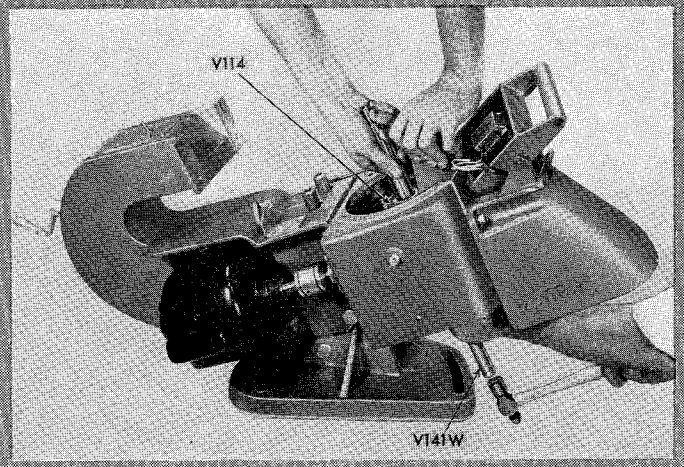
7. Remove Solenoid Housing Screws V161W and remove Solenoid Housing V6. Then remove Firing Pin Guide V67 being careful not to lose the Firing Pin V66 which floats inside Guide. Remove Firing Bar V68 from stud on Sear V10W.

DISASSEMBLING THE GEAR HOUSING

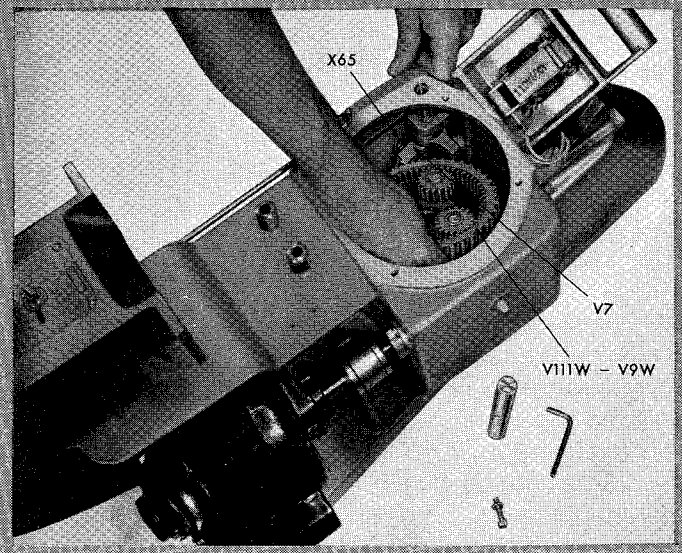




9. Lift Worm Gear Assembly V108W out of Gear Housing.

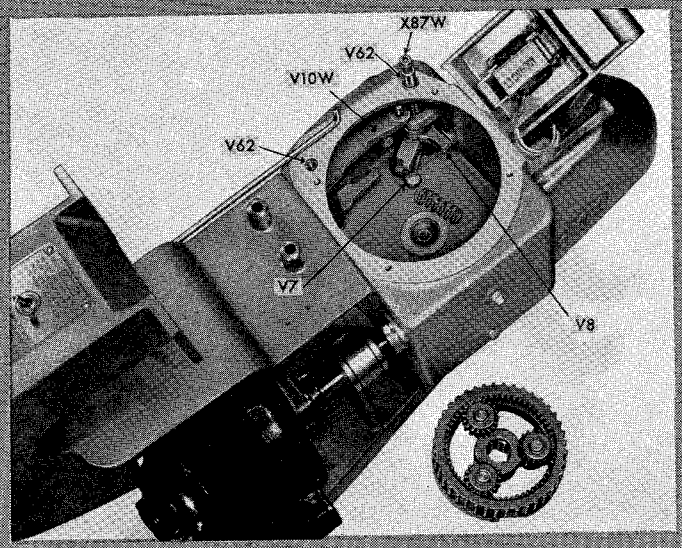


8. Place pan under Gear Housing, hold gears down with one hand and withdraw Main Shaft V45 from top. If Main Shaft is too tight for pulling out of gears, it may be driven out using Special Tool V141W described on next page to avoid damaging end of shaft. Bear downward with heavy object on Firing Ratchet V114 to avoid damaging Worm Gear while driving upward on Main Shaft.

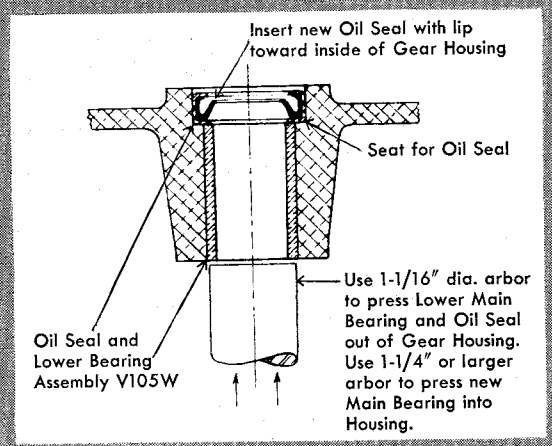


10. Lift out Ring Gear and Ratchet V111W and Control Cam V9W as a unit, keeping right side up to avoid dropping the three Planet Gears V110W. Note that removal of the Control Cam allows rotation of the Cocking Pawl V7 which in turn releases the Cocking Pawl Spring X65.

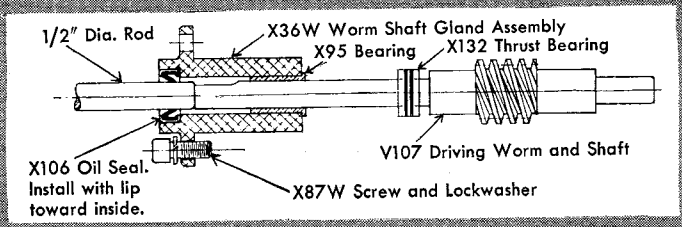
DISASSEMBLING THE GEAR HOUSING



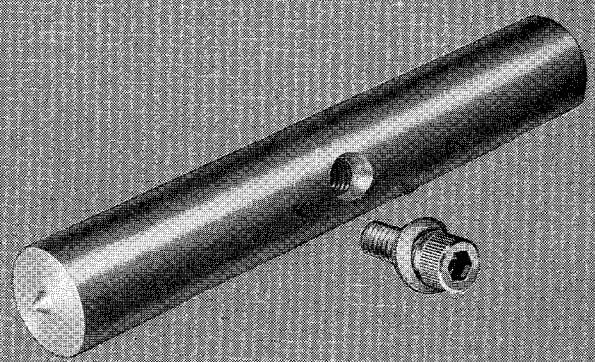
11. To remove the Cocking Pawl V7 and Hold-back Pawl V8, or the Sear Assembly V10W, withdraw their respective Shafts V62 with aid of a Cover Screw X87W screwed into top of each shaft to provide a pulling knob.



12. Should it become necessary to replace the Main Shaft Oil Seal V105W, this is best accomplished by pressing the Lower Bearing with Oil Seal toward inside of housing. Insert new Oil Seal with sealing lip toward inside of housing and press or tap squarely to seat in pocket. Insert new Lower Bearing from outside of Gear Housing and press flush with bottom.



13. In order to remove Worm Shaft V107, it is first necessary to remove the motor, with or without removal of the Motor Coupling X130A. Then remove Screws X87W and remove Worm Shaft Gland X36W with Worm V107 and Thrust Bearing X132. Note that in reassembling these parts, it will be necessary to obtain a piece of 1/2" diameter smooth rod to insert into Worm Shaft Oil Seal X106 from outside end of Gland X36W. Then slip Thrust Bearing X132, with flat races on each side of ball race, over *long* end of Worm Shaft. Follow by pushing Worm Shaft into Gland Bearing while keeping its end in contact with the 1/2" diameter guide rod to prevent damage to Oil Seal. Then reassemble entire unit in Gear Housing with a light coat of cup grease on outside of Gland to prevent leakage. When replacing Motor Coupling and Motor, make sure that Motor is carefully aligned and that center ring of Coupling has about 1/16" free endplay to avoid vibration and noise. The front end of Coupling should be 3/8 to 7/16" from end of Gland X36W when fastened to Worm Shaft.

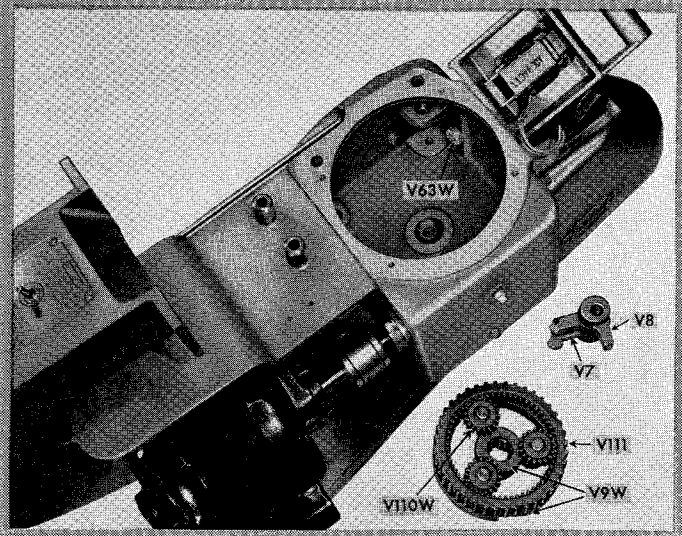


SPECIAL ASSEMBLING TOOL

Under the lower right side of the Gear Housing will be found a special "Tool for Guiding Main Shaft thru Oil Seal" V141W, which is fastened to Housing with Screw X87W. Never assemble Main Shaft without using this tool as described on following pages or the Oil Seal V105W will be damaged. Note that this tool may also be used in disassembly as a plug to avoid draining oil, by inserting it against bottom of Main Shaft to follow Shaft upward for about half the length of tool. Then crank trap to its lowest elevation to hold the tool in place. However, unless it is known that the oil is relatively new and clean, it is better to drain and replace with new or filtered oil.

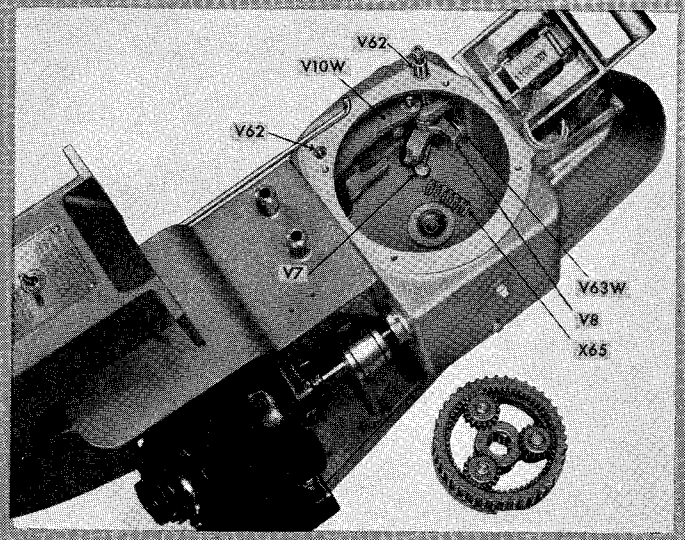
REASSEMBLING THE GEAR HOUSING

ASSEMBLE THE PARTS IN THE FOLLOWING ORDER:

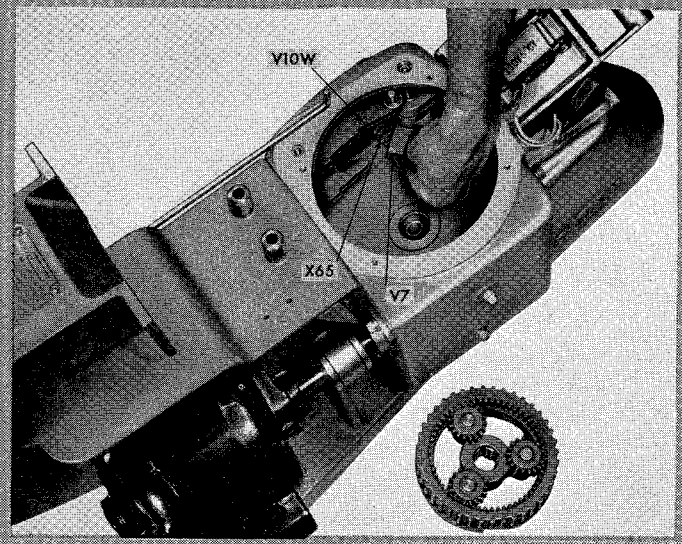


1. Assemble Ring Gear and Ratchet V111 and Planet Gears V110W onto Control Cam V9W and lay aside for later assembly in Gear Housing.

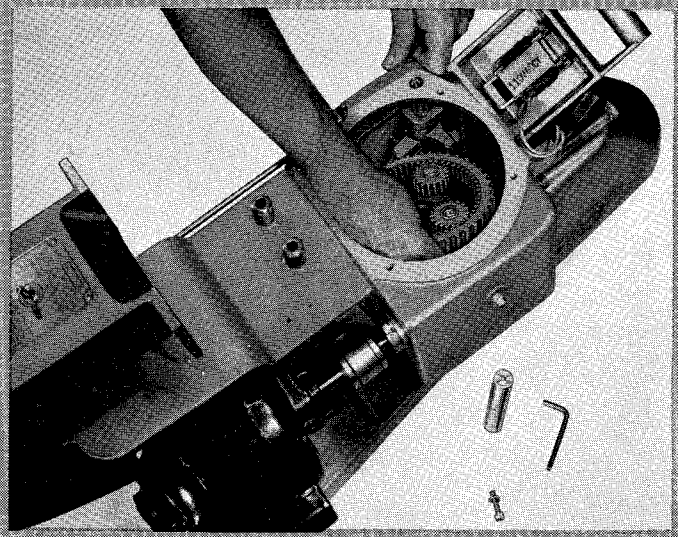
2. Insert Hold-back Pawl V8 in Cocking Pawl V7 from the top side which has square corner to engage Ratchet Wheel.



3. Place Pawls and Sear V10W in their respective pockets in Gear Housing and insert Shafts V62 with closed ends down.

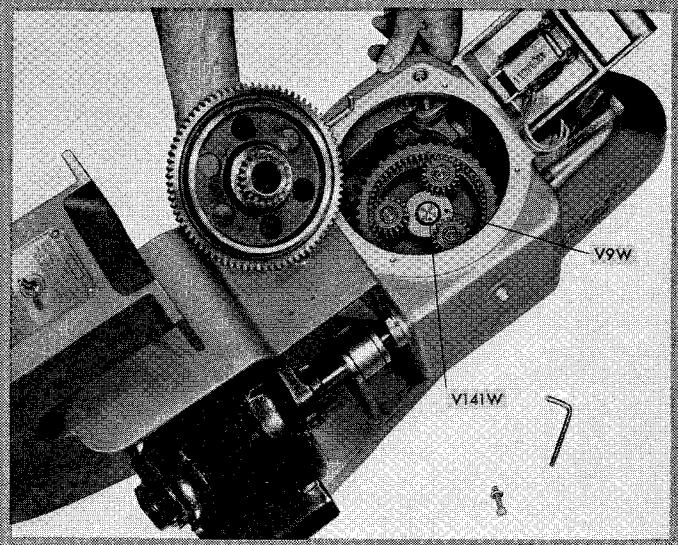


4. Place Cocking Pawl Spring X65 over boss on inside wall of Gear Housing and compress the spring to seat in pocket of Cocking Pawl V7, making sure that spring is entirely within pocket by pushing Pawl V7 to contact housing wall. Swing the Sear V10W to lay against this side wall of housing, and swing the Hold-back Pawl V8 against the front wall where it will be held by Magnet V63W. (See preceding photos).

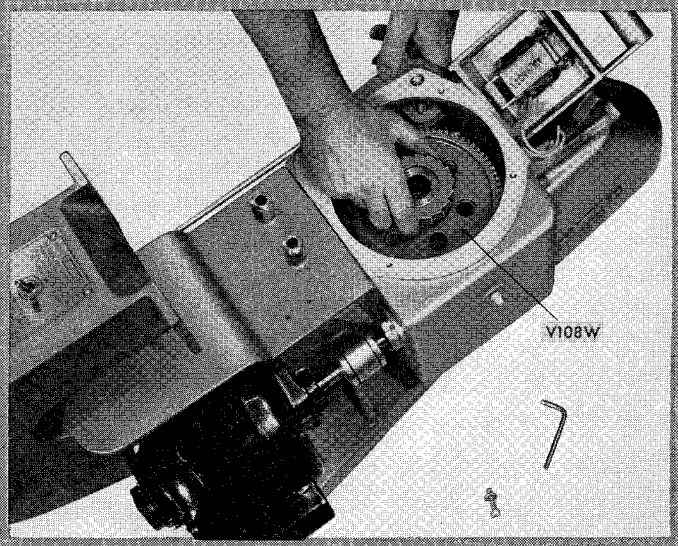


5. Hold the Cocking Pawl toward housing wall to retain Spring X65 and carefully lower the Control Cam and Gear Assembly (described under Item 1) into bottom of Gear Housing, whereupon the Cocking Pawl may be released.

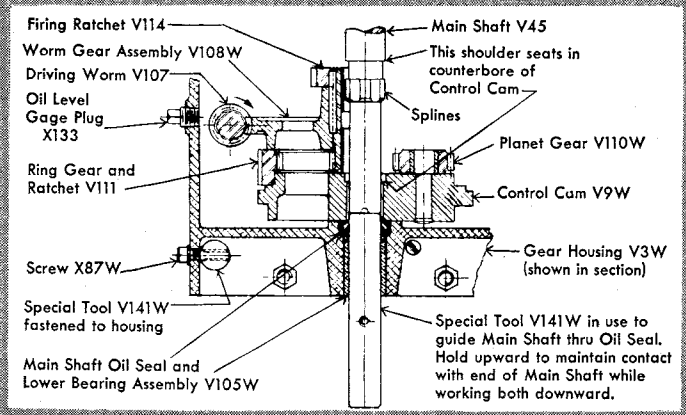
REASSEMBLING THE GEAR HOUSING



6. Crank trap to highest elevation and insert Special Tool V141W *from bottom only* of housing until the end with small guide projection is about flush with top of Control Cam V9W.

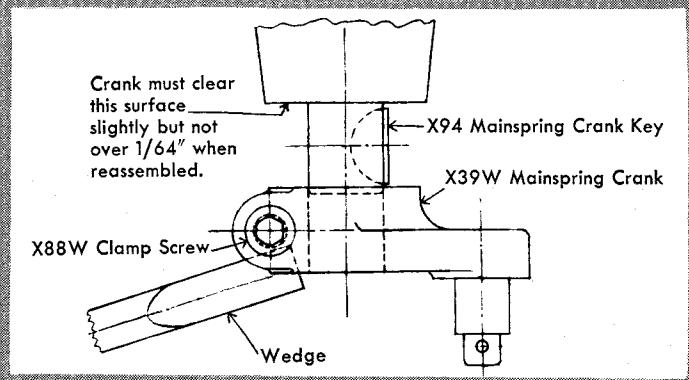


7. Place Worm Gear Assembly V108W in housing, gently working all gears into mesh.



8. Insert Main Shaft from top and work downward while holding upward on Special Tool V141W to avoid gap as end of Main Shaft passes thru the Oil Seal. (First see paragraph 6).

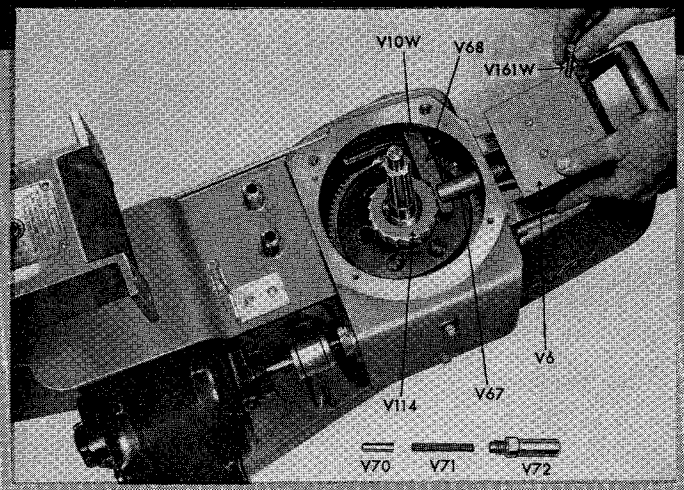
9. Turn the Main Shaft in alternate directions while pushing downward until feel indicates that the shaft splines have entered the control cam splines which will match in only one position. During this operation, the Cocking and Hold-back Pawls will normally both engage the Ratchet V111 to prevent further rotation of Control Cam while the Main Shaft is turned further to match splines. When it is believed that the splines are engaged, gently tap shaft downward using a piece of wood to protect upper end. If shaft does not move readily, pull slightly upward and rotate further while pushing downward to find matching point of splines. When completely seated, shaft should project about 1-1/16" from bottom of Gear Housing. Replace Special Tool V141W under Gear Housing to avoid loss.



10. Replace Key X94 in lower end of Main Shaft, tilting it so that lower end lies somewhat closer to shaft than upper end.

11. With a wedge driven lightly into open end of Mainspring Crank X39W, slip the Crank onto Main Shaft, remove wedge and insert Clamp Screw and Lockwasher Assembly X88W. Recheck to see that Main Shaft is down against seat in Control Cam and that there is a little clearance, not over 1/64", showing between Crank and bottom of Gear Housing. Tighten Clamp Screw.

If the Target Stop Finger Bracket Assembly V216W has been removed from Frame V2W, it should be replaced prior to assembling of Feed Shelf V203W. The adjustment of Stop Bracket V216W must be checked after the trap is reassembled, but prior to connecting Mainspring with Adjusting Screw X42, by pushing Carrier Arm V27 to the cocked position and then adjusting Bracket V216W so that side of Target Stop Finger V215 will clear edge of Carrier Plate V28 not over 1/16 inch. (Refer to photos on pages 6 and 7).



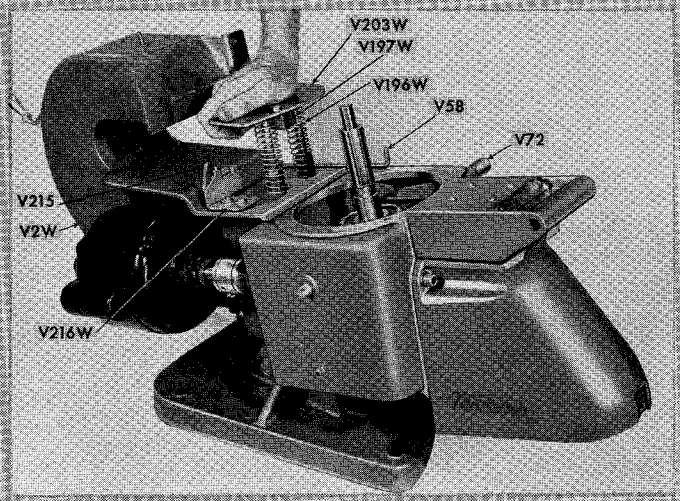
12. Hook Firing Bar V68 onto stud in Sear V10W with the offset side of Bar toward Firing Ratchet V114.

13. Insert Firing Pin Guide V67 in Gear Housing to straddle Firing Bar V68 and place Firing Pin V66 in the Guide.

14. Slip Solenoid Housing V6 over Firing Pin Guide V67 and tighten Solenoid Housing Screws V161W alternately to insure uniform seating. Make sure that Firing Bar V68 moves freely in slotted end of Firing Pin Guide V67. If it does not, loosen Solenoid Housing Screws and rotate Guide V67 slightly before retightening screws.

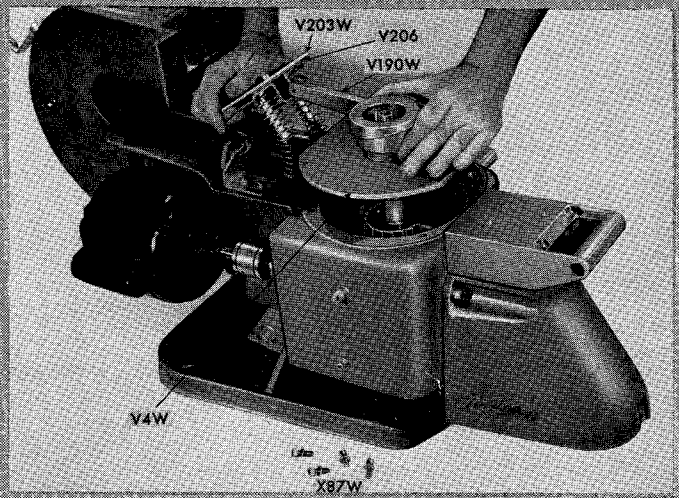
15. Place Sear Plunger V70 on top of Sear Spring V71 in Sear Plunger Bushing V72 and screw the Bushing tightly into Gear Housing.

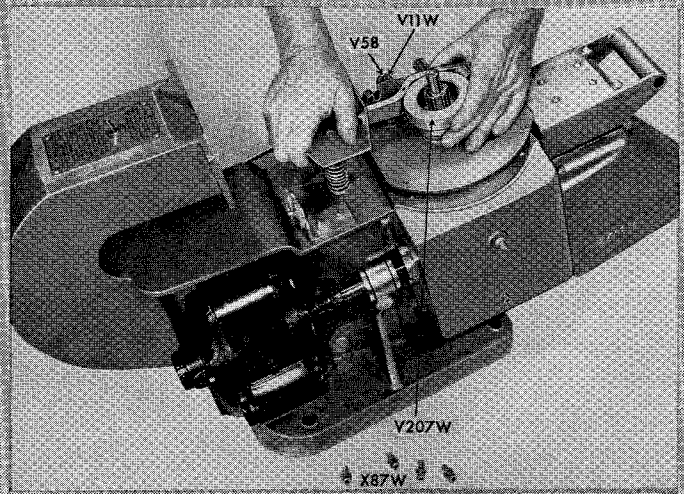
16. Pour two quarts of clean SAE 20 Motor Oil into Gear Housing.



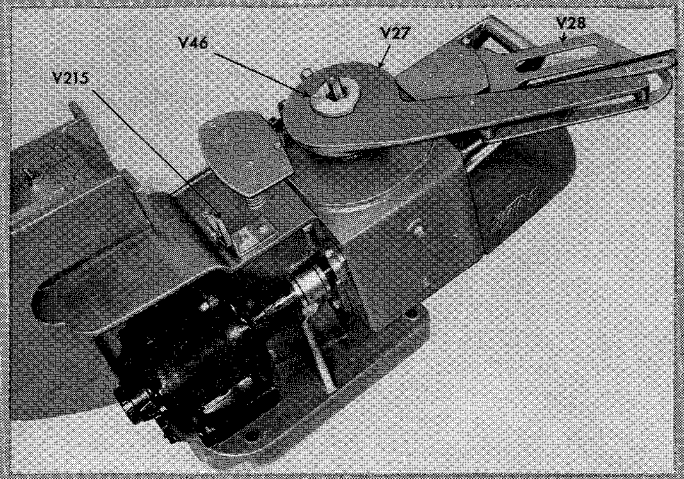
17. Test the Feed Shelf Operating Bracket V197W, complete with shims V206 and Feed Shelf V203W, in guide bushings of Frame V2W to make sure that there is no binding, and lay aside for later assembly. Note that the side of Feed Shelf with Target Guide Button must be toward Gear Housing.

18. Place the Feed Shelf Lifting Springs V196W over guide bushings on Frame V2W and position Trigger Pull Rod V58 on top of Gear Housing.



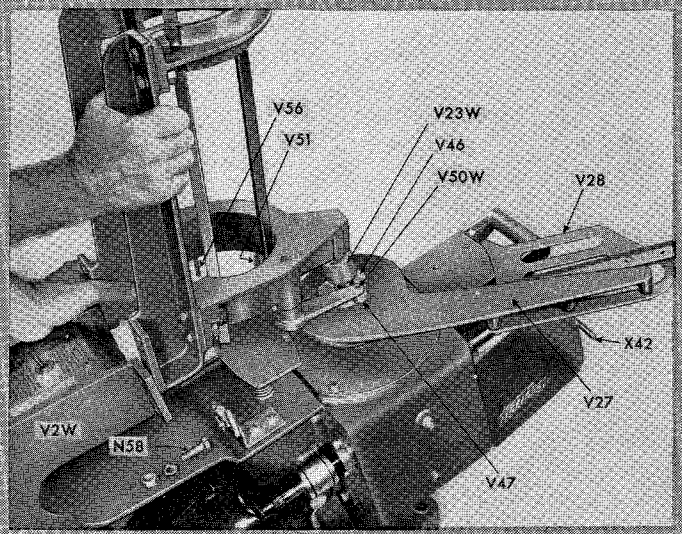


19. Start the Gear Housing Cover Assembly V4W, complete with Feed Cam and Target Feed Arm V190W with Rollers, over the Main Shaft. Then hook the Feed Shelf Assembly (described under paragraph 17) over the roller end of Feed Arm V190W and push Feed Shelf and Housing Cover into place while guiding the Trigger Pull Rod V58 into hole in Trigger Arm V11W. Fasten the Housing Cover uniformly with the four Screws X87W while testing to see that Main Shaft moves freely. Note that the Main Shaft may be prevented from turning by engagement of Pawls or Sear. To disengage Sear, hold up on Trigger while turning Main Shaft counter-clockwise. If still locked by Pawls, turn Motor Coupling in running direction toward Frame until Pawls are disengaged and Main Shaft stops turning. Then pull Trigger and turn Main Shaft counter-clockwise. (Use Carrier Arm V27 to turn Main Shaft).



20. See that pocket in top of Target Feed Cam V207W is clean, place Carrier Arm V27 over Shaft and turn to match splines, then push down to seat.

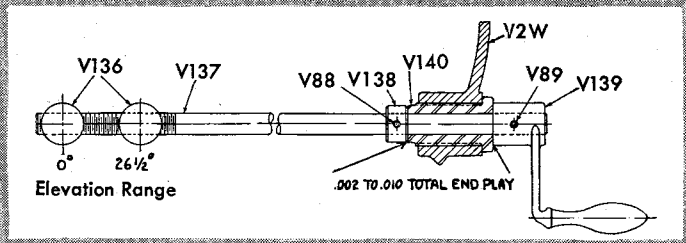
21. Place Escapement Cam V46 on shaft splines being sure that side marked "Top" is upward.



22. Replace Target Magazine Assembly, lowering the Magazine Stabilizer V23W onto Main Shaft while guiding both ends of Escapement Lever V50W to clear Escapement Cam V46. Then bolt Magazine to Frame V2W, inserting Screws N58 from inside of Support Brackets and placing Lock Washers and Nuts against mounting flanges on Frame. Hook Spring V51 onto Post V56.

23. Turn Carrier Arm V27 to the fired position shown in which the V46 Escapement Cam will have just moved the V47 Escapement Roll to its outer position. Then re-connect Mainspring with the X42 Adjusting Screw.

V137W ELEVATION ADJUSTING SCREW ASSEMBLY



TO REMOVE ELEVATION MECHANISM FROM TRAP

1. Crank trap forward to its lowest elevation.

2. Hold crank against turning and unscrew Bushing V140. (Trap will raise to a higher elevation while unscrewing bushing.)

3. Remove Adjusting Screw Assembly by turning Crank V139 counter-clockwise as in lowering elevation.

TO REASSEMBLE ELEVATION MECHANISM IN TRAP

1. Insert Elevation Adjusting Screw Assembly V137W through boss on rear of Trap Frame V2W and engage threads of Elevation Screw Swivel V136.

2. Allow trap to rock back to its highest elevation and turn Crank clockwise until end of Elevation Screw Bushing V140 is drawn into boss on Frame.

3. Tilt trap forward by hand while turning Bushing to engage threads in boss on Frame.

4. Hold Crank against further turning and screw the Bushing in tight against its seat. (This operation will rock trap back to a lower elevation, after which the Crank may be used for any further adjustment).