

35 TYPING UNIT

DISASSEMBLY AND REASSEMBLY

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1. GENERAL

1.01 Disassembly, as outlined in this section, covers a procedure for removing the principal sub-assemblies which make up the unit.

1.02 The technician should refer to the exploded views found in the appropriate parts literature for an illustration of the mechanism to be disassembled, for location and visual identification of parts and detailed disassembly and reassembly features.

1.03 Most maintenance, lubrication and adjustments can be accomplished simply by removing the subject component from the cabinet. If possible, disassembly should be confined to sub-assemblies, which can, in some cases, be removed without disturbing adjustments. When reassembling the sub-assemblies, be sure to check all associated adjustments, clearances and spring tensions.

1.04 If a part that is mounted on shims is removed, the number of shims used at each of its mounting screws should be noted so that the same shim pile-up can be replaced when the part is remounted.

1.05 Retaining rings (Tru-arcs) are made of spring steel and have a tendency to release suddenly when attempting to remove them. Loss of these retainers can be minimized as follows: Hold the retainer with the left hand to prevent it from rotating. Place the blade of a suitable screwdriver in one of the slots of the retainer. Rotate the screwdriver in a direction to increase the diameter of the retainer for removal.

1.06 Avoid loss of springs in disassembly by holding one spring loop with the left hand while gently removing the opposite loop with a spring hook. Do not stretch or distort springs in removing them.

1.07 Raise cabinet lid or enclosure cover (after removing the control panel bezel and the copyright plug) and remove the typing unit from its base by removing the four screws that secure it to its keyboard or base. Remove the cable plug connector from the side frame. Lift the typing unit off.

Note: On sets equipped with a form supply container on the rear of the cabinet, a rearward foot extension should be in

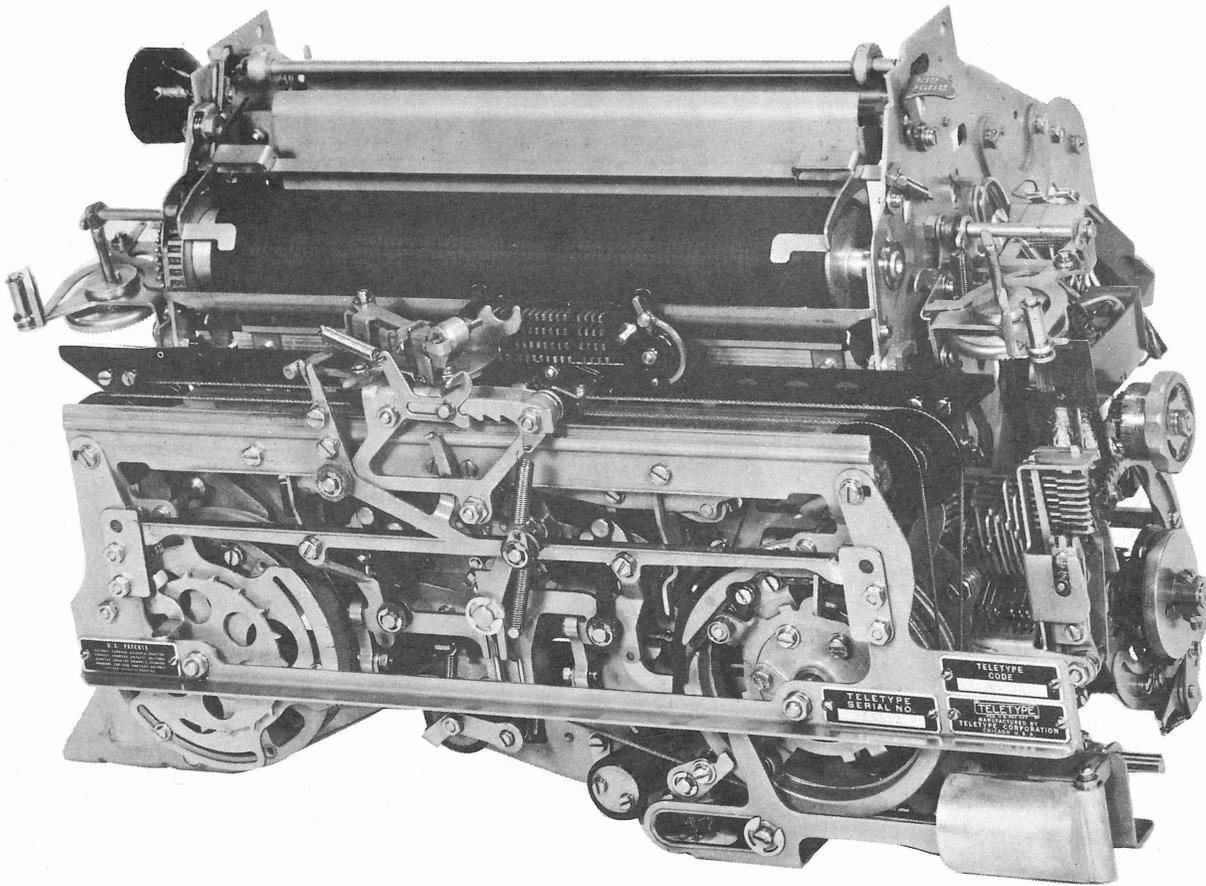


Figure 1 - 35 Typing Unit - Friction Feed

position on the cabinet. This prevents the cabinet from tilting when the typing unit is removed.

2. DISASSEMBLY AND REASSEMBLY

2.01 In removing a sub-assembly from the unit, the procedure followed and the location from which parts are removed must be carefully noted so that reassembly can be done correctly. Where no specific instructions are given for reassembly, reverse the procedure used in removing it.

TYPE BOX

2.02 To Remove: Trip the type box latch to the right. Lift the right end of the type box upward to an angle of approximately 45 degrees and pull toward the right to disengage it from the left hand bearing stud.

(a) To disassemble the type box for replacing type pallet or spring, remove both screws and nuts that secure the front plate to the rear plate assembly. Separate the two plates.

(b) Remove the spring from the pallet by compressing it slightly and pulling the formed end out of the slot in the pallet.

(c) If the pallet is being replaced the spring should also be replaced. In any change or replacement, where the spring is removed, it should be replaced with a new one.

(d) When installing the spring make certain that the formed end extends through the slot in the pallet.

(e) To reassemble the type box, line up the front plate with the rear plate assembly and draw the two plates together until the head of the pallet leaves the rear plate by approximately 1/16 inch. This may be accomplished by using two 6-40 screws (at least 11/32" long) and nuts in place of the two screws and nuts removed when disassembling, and tighten them only enough to hold the pallets as specified above. Do not clamp the plates together until all pallets have been moved into their correct position.

(f) Manipulate the pallets until they fall into their respective openings in the front plate. Press the plates together.

(g) Replace the screws and nuts used in step (e) with screws and nuts removed in step (a).

2.03 To Replace Type Box: Reverse the procedure used in removing it.

CAUTION: TO AVOID SPRINGING THE TYPE BOX LATCH, THE TYPE BOX SHOULD BE FIRMLY SEATED ON THE BEARING STUD AND THE POINT OF THE LATCH SHOULD BE PLACED IN THE NOTCH OF THE TYPE BOX PLATE BEFORE MOVING THE LATCH TO ITS LOCKED POSITION.

PRINTING CARRIAGE

2.04 To Remove: Loosen the two screws in the printing-carriage clamp plate and disengage the carriage from the upper draw-wire rope. Move the carriage to the left of its track and tilt the lower part forward to disengage the rollers from the track.

2.05 To Replace: Make certain that the printing arm is correctly re-engaged with the printing track. Position the carriage clamp on the upper draw-wire rope for correct printing carriage position as specified in the adjustment section.

TYPE BOX CARRIAGE

2.06 To Remove: Move the type box carriage to its extreme right hand position.

(a) Select a character which will shift the type box to its uppermost position.

(b) Remove the ribbon from the ribbon guide.

(c) Remove the retainer ring from the stud in the right hand end of the type box carriage link. Disengage the link from the carriage.

(d) Hold the ribbon guide forward and the right ribbon reverse lever back. Pull the carriage toward the right to disengage it from the carriage track.

FRONT PLATE

2.07 To Remove: Manually move the type box carriage to the extreme right. Select any character in the bottom row of the type box and rotate main shaft until type box carriage is in its uppermost position.

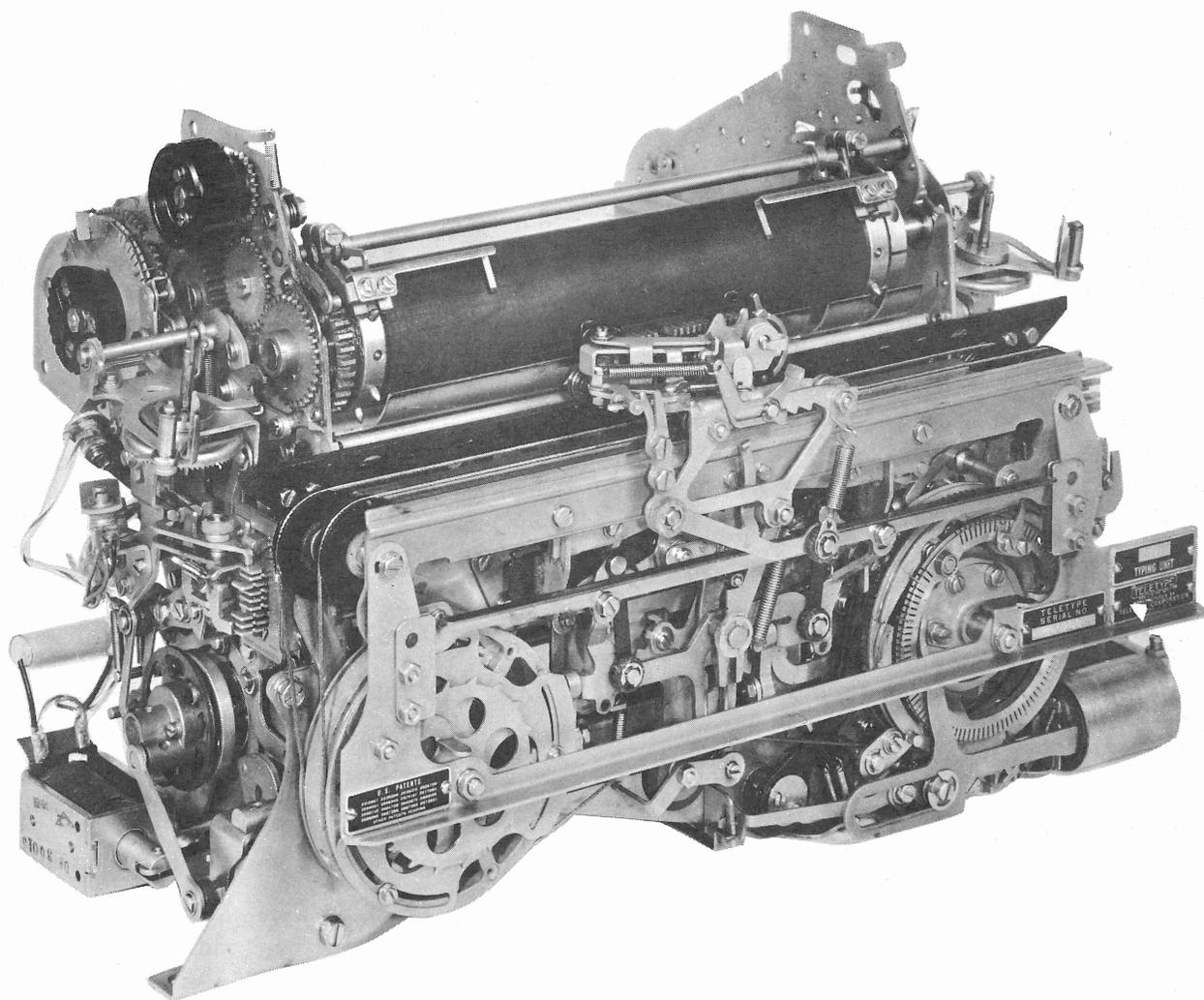


Figure 2 - 35 Typing Unit - Sprocket Feed

- (a) Remove the retainer ring from the type box carriage link right hand stud and disengage the link from the carriage. (See instructions for removing the link retainer in 2.06(c).)
- (b) Remove the three screws, which secure the main bail drive bracket to the rocker shaft.
- (c) Remove the spacing shaft gear.
- (d) Remove the four screws which secure the front plate assembly to the typing unit side frames.
- (e) Pull the front plate assembly forward to disengage it from its connecting parts in the typing unit.

2.08 To Replace Front Plate: Make certain that the TP150770 and TP150771 code bar bell cranks, the TP170063 reversing slide shift lever, TP157972 automatic CR - LF bell crank, if so equipped, and the TP152545 carriage return lever extension are properly engaged with their mating parts before tightening the front plate mounting screws.

2.09 Replace the spacing shaft gear. See appropriate section for adjustment on phasing the spacing gears.

STUNT BOX

2.10 To Remove: The procedure for removing the stunt box proper is essentially the same for both the friction feed units and sprocket feed units except that, preparatory to removing it from the sprocket feed unit, a number of other assemblies must first be removed, as follows:

- (a) Remove the two contact bracket assemblies and the magnet assembly from outside the left side frame.
- (b) Remove the form-out switch assembly from the inside of the left side frame.
- (c) Snap the form feed paper guide upward and slide it out.
- (d) Unfasten the cable from the tie bar.

2.11 Remove the TP151627 rear tie bar from typing unit side frames.

- (a) Remove the line feed function pawl stripper from the TP160577 stripper blade.

- (b) Remove the screws which secure the stunt box assembly in the typing unit.

- (c) Remove the screw from the TP153291 cam shaft drive arm, and slide the drive arm to the left, out of engagement with the stripper blade drive arm.

- (d) Lift the stunt box assembly upward to disengage it from its locating brackets and pull toward the rear to disengage all code bar forks from the code bars. Remove the connector receptacle from the right side frame and disconnect the wires from selector magnets. Remove the stunt box.

Note: Proceed with 2.12 through 2.16 before replacing stunt box.

STUNT BOX SWITCH

2.12 To replace the contact arm spring in a stunt box switch, remove the two screws that hold the contact plate to the block.

- (a) Remove the contact plate assembly from the contact block.

- (b) Remove the contact arm(s) from the contact plate assembly by slipping contact arm spring out of engagement with the center lug of the section being replaced.

- (c) Place the new spring in position on the contact plate.

- (d) Before mounting the contact plate on the block make sure the end of the spring rests on top of the formed-over portion of the contact clip. There should be some clearance between the low end of the spring (front) and the upper edge of the contact arm to avoid interference with the normal movement of the contact arm.

- (e) Replace the contact plate assembly, with the contact arms removed, into the contact block. Mount the contact block in the required location with the two screws friction tight.

- (f) Insert the pointed end of the contact arm, notch downward, between the bent up end of the spring and the formed-over portion of the contact clip. Push the arm into its operating position in the contact block.

- (g) Before tightening the contact plate screws, see appropriate section on adjusting information.

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FUNCTION BAR

- 2.13 To remove a function bar, first unhook the function bar spring.
- (a) Hold the function bar toward the rear of the stunt box and disengage its function pawl from the function bar.
 - (b) Pull the function bar toward the front to remove it from the stunt box.

FUNCTION PAWL

- 2.14 To remove a function pawl after the function bar has been removed:
- (a) Remove the pawl spring.
 - (b) Hold associated function lever back.
 - (c) Remove the pawl from top of stunt box.

FUNCTION LEVER

- 2.15 To remove a function lever after the function bar and function pawl have been removed:
- (a) Remove the TP152889 shaft retainer plate.
 - (b) Remove the TP150547 shaft nearest the front of the stunt box.
 - (c) Unhook spring from function lever and remove the lever through top of stunt box.

FUNCTION LEVER SPRING PLATE

- 2.16 To remove a function lever spring plate or latch after the function bar, function pawl and function lever have been removed:
- (a) Loosen the screws that fasten the three TP150689 guide blocks to the lower side of the guide bar.
 - (b) Remove the spring from the TP152660 spring plate or TP154613 latch.
 - (c) Pull downward on the function-lever spring plate or latch to snap it out of engagement with the retainer shaft.
- 2.17 To replace the stunt box, push it forward in its guide rails to within 1/8 inch of its final position.

2.18 Manually disengage the function pawls from their function bars and push the stunt box assembly forward and downward until it is latched in place on its locating brackets.

2.19 Replace the stunt box mounting screws, receptacle and selector magnet wires. (If unit is sprocket feed, replace other assemblies removed.)

CODE BARS

2.20 To unblock the suppression code bar, loosen the TP151152 screw that mounts the TP154650 code bar clip and the retaining plate to the left hand code bar guide bracket and rotate the code bar clip up out of engagement with the suppression code bar. Tighten the screws.

2.21 To Remove the Code Bar Assembly: First, remove the stunt box assembly and the front plate assembly as previously described.

- (a) Remove the screws and lock washers which secure the code bar assembly to the side frame.
- (b) Remove the TP150301 code bar shift bar retainer plate from right-hand code bar guide bracket.
- (c) Unblock the suppression code bar as instructed in 2.20. Remove the TP152548 and TP152255 code bar shift bars and springs from the code bars and pull the code bar assembly forward and to the left.

2.22 To Reinstall Code Bar Assembly: Reverse the procedure used in removing it, except do not tighten the mounting screws.

- (a) Hook the short extension of the TP152257 spring in the spring hole of the code bar. The short extension of the spring should be hooked from the bottom of the code bar and the long extension should be hooked over the top of the code bar shift bar.
- (b) Loosen the TP151630 code bar assembly tie bar screws and hold the code bar guide brackets back and downward firmly against their locating surfaces on the side frame and tighten the four mounting screws.
- (c) Tighten the two tie bar screws.

MAIN SHAFT

- 2.23 To Remove Main Shaft. The selector cam-clutch assembly must be removed.
- (a) Set the typing unit upside down.
 - (b) Return the carriage to its left hand position.
 - (c) Remove the screw that secures the spacing shaft in the spacing collar.
 - (d) Remove the spacing shaft with gear.
 - (e) Remove the screw that secures the collar and the clamp to right end of main shaft.
 - (f) Remove the TP152573 main shaft right hand bearing retainer plate.
 - (g) Remove the TP150010 retainer plate at the TP150046 clutch bearing and remove the TP150244 link.
 - (h) Remove the two screws from the TP152537 main shaft left hand bearing clamp.
 - (i) Unhook the springs from the trip levers and latch levers associated with all clutches. Position the code bar clutch so that the low part of the clutch cam clears the spring arm on the cam follower. Unhook the code bar clutch cam follower spring.
 - (j) Remove the TP153300 function clutch arm by removing the two screws and retainer ring if present.
 - (k) Unhook the spring from the TP153573 function bar.
 - (l) Move the main shaft assembly toward the left to disengage the code bar clutch and function clutch links from their connecting pins.
 - (m) Lift the left end of the shaft assembly out of the side frame. Position the shaft so that the function clutch link passes the suppression assembly bracket, then remove the shaft assembly from the typing unit.

Note: Disassembly of the main shaft and the clutch assemblies can be accomplished by referring to the exploded views contained in the appropriate parts literature.

It should be noted, that when assembling clutches that have cams and disks marked "O" for identification, the marked side of the parts should face away from the clutch side of the assembly. Function and code bar clutches should have their driving links assembled so that the longer end of the hub faces away from the clutch side of the assembly.

- 2.24 To Reinstall Shaft Assembly: Reverse the procedure used in removing it. The line feed clutch spur gear should be positioned with its flat side toward the line feed clutch spacer and with the indentation in the gear toward the special washer between the gear and the main shaft ball bearing.
- 2.25 To phase the spacing gears, and remake the stripper blade drive cam position adjustment refer to the appropriate adjustment section.

UPPER DRAW WIRE ROPE

- 2.26 To Remove Upper Draw Wire Rope: Return the carriage to the left hand position.
- (a) Loosen the nut on the front end of the spring drum stud. Operate the ratchet escapement lever to unwind the carriage return spring.
 - (b) Remove the upper draw wire rope from the clamp plate on the printing carriage, and the clamp on the oscillating rail slide.
 - (c) Loosen the clamp screw that secures the upper draw wire rope to the spring drum. Remove the wire rope from the drum.
 - (d) Remove the screw in the spacing drum that secures the ends of the wire rope. Remove the rope from the drum.

LOWER DRAW WIRE ROPE

- 2.27 To Remove Lower Draw Wire Rope: Remove the screw that secures the wire rope to the spacing drum. Remove the end of the rope from the drum.
- (a) After loosening the screws that secure the TP150796 margin indicator cam disk on the spring drum, position the disk to expose the lower draw wire rope mounting screw.
 - (b) Remove the lower draw wire rope screw and rope from the spring drum.

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(c) Loosen the screws in the pulley bearing studs that mount draw wire rope pulleys and move the studs toward the center of the typing unit.

2.28 To Replace Draw Wire Rope: Make certain that the lower draw wire rope is in front of the upper draw wire rope in the track around the drums.

2.29 Adjust the position of the type box, the printing carriage, and the wire rope tension as specified in the appropriate adjusting section.

PLATEN (FRICTION FEED)

2.30 To Remove Platen: Remove the line feed spur gear.

(a) Remove the TP150719 and TP150720 platen bearing retainers.

(b) Remove the TP152832 paper straightener shaft.

(c) Hold off the detent and lift the platen out of the side frame.

2.31 When replacing each platen bearing retainer, put its upper screw in first. Leave the screw slightly loose. Press the lower end of the retainer downward and hook it into the elongated hole in the side frame. Replace the lower screw. Tighten both screws.

PLATEN (SPROCKET FEED)

2.32 To Remove Platen: Remove the paper fingers or guide bracket assembly.

(a) Remove the spur gear from left end.

(b) Remove the TP150719 and TP150720 platen bearing retainers.

(c) Hold off the detent bail and remove the platen.

(d) Remove sprocket hub assembly from platen assembly.

(e) Insert the TP153673 shaft tool into the hub and fasten it with the TP151346 screw.

(f) Remove the TP157286 clamp and TP153699 cam from the assembly.

(g) Insert the hub into the TP153797 retaining tool.

Note: These tools must be used when disassembling the TP153700 platen hub in order to hold the spring loaded pins in place when the feed cam is replaced.

2.33 To Replace a Pin: Rotate the hub assembly within the retaining tool, with a tommy wrench inserted in the shaft tool, until the desired pin is opposite the notch in the retaining tool. A pin may then be removed or replaced. Grease pin cylinder liberally before inserting new pin.

CAUTION: WHILE ROTATING THE HUB, THE NOTCH MUST BE COVERED TO PREVENT THE PINS FROM BEING RELEASED. SINCE THE PINS ARE SPRING LOADED, THEY CAN EJECT WITH CONSIDERABLE FORCE.

2.34 To Replace Platen: Reverse the procedure used in removing it. In replacing the TP153686 right sleeve bearing, the chamfer side or side marked "O" must face the end of the shaft and the wide part placed toward the front of the unit. When replacing each platen bearing retainer, put its upper screw in first. Leave the screw slightly loose. Press the lower end of the retainer downward and hook it into the elongated hole in the side frame. Replace the lower screw. Tighten both screws.

SELECTOR CAM-CLUTCH

2.35 To Remove Selector Cam-Clutch: Lift and move to rear the TP170238 push lever reset bail cam follower from its cam and latch it in its raised position on the push lever guide. Lift the selector levers and the marking lock lever by moving the marking lock lever forward until the armature drops behind it.

(a) Remove the screw which mounts the selector clutch drum and position the cam clutch so that the stop lug on the clutch-cam disk is in the uppermost position.

(b) Place TP170238 pushlever-reset bail in raised position. Hold TP170198 stop arm and TP170236 marking lock lever to left, grasp cam-clutch by cam-disk (not by drum) and pull forward while rotating cam-clutch slowly. Cam-clutch should come off easily. Do not force it.

2.36 To Replace Cam-Clutch Assembly: Reverse the procedure used in removing it except as the cam-clutch approaches its fully installed position, move the trip shaft lever and the cam-clutch latch lever so that they ride on their respective cams. Restore the push lever reset bail and the armature to their operating position.

SELECTOR MECHANISM

2.37 To Remove Selector Mechanism: The cam-clutch assembly must first be removed. See 2.35.

- (a) Remove the TP151658 screw that secures the selector mechanism to the TP170118 intermediate bracket on the code bar positioning mechanism.
- (b) Remove from the selector mechanism the spring which connects with the common transfer lever on the code bar positioning mechanism.
- (c) Remove the remaining three selector mounting screws and lift the selector from the main shaft bearing housing.

CODE BAR POSITIONING MECHANISM

2.38 To Remove Code Bar Positioning Mechanism: Unhook from the selector the spring attached to the common transfer lever and restore any operating push levers to the spacing position by raising the TP170238 push-lever-reset bail.

- (a) Loosen the clamp screw on the TP150447 shift lever drive arm, and remove the two screws which mount the mechanism -

one to the side frame and one to the selector mounting plate.

- (b) Manipulate the transfer levers and TP152548 or TP152255 code bar shift bars while gently twisting the mechanism so as to slide the mechanism off the code bar shift bars.

2.39 To Remove Code Bar Positioning Mechanism on the typing unit: Rotate the main shaft in the stop position, push the code bar shift bars to the marking position (left front view). Manipulate the code bar shift bars and transfer levers so that the shift bars line up with their respective slots in the TP170117 bracket, and slide the shift bars through the slots, one at a time, leaving the bottom slot vacant.

RANGE FINDER ASSEMBLY

2.40 To Remove the Range Finder Assembly: Remove the two screws and the nut that mount it to the selector-mounting plate. Move the TP152438 stop arm bail forward so that it disengages from the TP170237 start lever and clears the selector clutch disk, while rocking the range finder assembly back and forth as it is removed.

SELECTOR MAGNET ASSEMBLY

2.41 To Remove Selector Magnet Assembly: Remove the two screws and nut which mount the range finder to the selector.

- (a) Remove the selector-magnet cable from the coil terminal screws.
- (b) Remove the two magnet assembly mounting screws and lift the assembly out.