TELETYPE
PRINTING TELEGRAPH SYSTEMS

BULLETIN 226B

INSTALLATION
ADJUSTMENTS AND LUBRICATION
MODEL 28 PRINTER SET
(STUNT BOX C.A.A)

CHANGE 1
LIST OF EFFECTIVE PAGES

APRIL 1955

<table>
<thead>
<tr>
<th>PAGE NUMBERS</th>
<th>CHANGE IN EFFECT</th>
</tr>
</thead>
<tbody>
<tr>
<td>TITLE PAGE</td>
<td>CHANGE I</td>
</tr>
<tr>
<td>EFFECTIVE PAGE</td>
<td>CHANGE I</td>
</tr>
<tr>
<td>A TO D</td>
<td>ORIGINAL</td>
</tr>
<tr>
<td>1-0 TO 2-18</td>
<td>ORIGINAL</td>
</tr>
<tr>
<td>2-19</td>
<td>CHANGE I</td>
</tr>
<tr>
<td>2-20 TO 2-23</td>
<td>ORIGINAL</td>
</tr>
<tr>
<td>2-24</td>
<td>CHANGE I</td>
</tr>
<tr>
<td>2-25 TO 3-30</td>
<td>ORIGINAL</td>
</tr>
</tbody>
</table>

THIS PAGE LISTS THE EFFECTIVE PAGES IN THE BULLETIN AND MUST BE REPLACED WHEN CHANGES ARE MADE.
# TABLE OF CONTENTS

## SECTION I

### INSTALLATION
- General ................................................................. Page 1-0
- Procedure ........................................................................ 1-1

## SECTION II

### ADJUSTMENTS
1. General ........................................................................ 2-0
2. Adjustments
   a. General ....................................................................... 2-1
   b. Manual Selection of Characters or Functions ..................... 2-1
c. Instructions
   - Mounting Typing Unit .................................................. 2-65
   - Removing Code Bar Assembly ......................................... 2-38
   - Removing Code Bar Shift Mechanism ................................. 2-16
   - Removing Front Plate Assembly ....................................... 2-35
   - Removing Main Shaft .................................................. 2-58
   - Removing Platen ........................................................ 2-58
   - Removing Print Carriage .............................................. 2-14
   - Removing Selector Magnet ............................................ 2-6
   - Removing Selector Cam Assembly with Clutch .................... 2-14
   - Removing Selector Mechanism ........................................ 2-12
   - Removing Type Box .................................................... 2-10
   - Removing Type Box Carriage ........................................ 2-15
   - Replacing Spacing Cables ............................................ 2-40
d. Requirements – Base
   - Intermediate Gear Bracket ........................................... 2-3
   - Synchronous Motor Positioning .................................... 2-4
e. Spring Tensions – Base
   - Local Line Feed Trip Link ........................................... 2-5
   - Local Carriage Return Bail Spring .................................. 2-5
   - Margin Indicator ........................................................ 2-4
f. Requirements – Typer
   - Automatic Carriage Return Arm ..................................... 2-60
   - Carriage Return Latch Bail ........................................... 2-38
   - Carriage Return Lever ............................................... 2-39
   - Carriage Wire Rope .................................................... 2-36
   - Code Bar Detent ........................................................ 2-63
   - Code Bar Clutch Trip Lever .......................................... 2-17
   - Code Bar Shift Lever Drive Arm ..................................... 2-15
   - Code Bar Shift Lever Link Guide ................................... 2-16
   - Condition Code (Zero), Code Bar Shift Mechanism ............... 2-24
   - Copyholder ................................................................... 2-69
   - Copy Lamps .................................................................. 2-69
   - Clutch Drum Position (Except Selector) ............................... 2-23
   - Clutch Shoe Lever ..................................................... 2-22
   - Clutch Trip Shaft Set Collars ....................................... 2-19
   - Cradle ........................................................................... 2-66
   - Dashpot Vent Screws ................................................... 2-40
   - Dome ............................................................................ 2-67
   - Dome Catch .................................................................. 2-67
   - Figures and Letters Code Bar Shift Mechanism ..................... 2-54

---

**Note:** The page numbers indicate the page where each section or item begins.
TABLE OF CONTENTS

SECTION II

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Function Clutch Trip Lever</td>
<td>2–18</td>
</tr>
<tr>
<td>Function Reset Bail Blade</td>
<td>2–34</td>
</tr>
<tr>
<td>Horizontal Positioning Drive Linkage</td>
<td>2–33</td>
</tr>
<tr>
<td>Indicator Lamp</td>
<td>2–69</td>
</tr>
<tr>
<td>Intermediate Arm-Backstop Bracket</td>
<td>2–14</td>
</tr>
<tr>
<td>Left Hand Margin</td>
<td>2–41</td>
</tr>
<tr>
<td>Left Vertical Positioning Lever Eccentric Stud</td>
<td>2–29</td>
</tr>
<tr>
<td>Line Feed Clutch Trip Lever Adjusting Screw</td>
<td>2–21</td>
</tr>
<tr>
<td>Line Feed Clutch Trip Lever Eccentric Post</td>
<td>2–21</td>
</tr>
<tr>
<td>Line Feed Clutch Phasing</td>
<td>2–26</td>
</tr>
<tr>
<td>Line Feed Spur Gear Detent Eccentric</td>
<td>2–57</td>
</tr>
<tr>
<td>Margin Indicating Lamp</td>
<td>2–64</td>
</tr>
<tr>
<td>Off Line Stunt Shift Bracket Assembly</td>
<td>2–24</td>
</tr>
<tr>
<td>Oscillating Rail Slide Position</td>
<td>2–30</td>
</tr>
<tr>
<td>Paper Finger Adjustment</td>
<td>2–62</td>
</tr>
<tr>
<td>Paper Straightener Collar</td>
<td>2–61</td>
</tr>
<tr>
<td>Printing Arm</td>
<td>2–46</td>
</tr>
<tr>
<td>Printing Carriage Lower Roller</td>
<td>2–43</td>
</tr>
<tr>
<td>Printing Carriage Position</td>
<td>2–43</td>
</tr>
<tr>
<td>Printing Hammer Bearing Stud</td>
<td>2–44</td>
</tr>
<tr>
<td>Printing Hammer Stop Bracket</td>
<td>2–46</td>
</tr>
<tr>
<td>Printing Track</td>
<td>2–45</td>
</tr>
<tr>
<td>Rocker Shaft Bracket Eccentric Stud</td>
<td>2–27</td>
</tr>
<tr>
<td>Range Finder Knob Phasing</td>
<td>2–11</td>
</tr>
<tr>
<td>Remote Signal Bell</td>
<td>2–66</td>
</tr>
<tr>
<td>Reversing Slide Adjusting Stud</td>
<td>2–32</td>
</tr>
<tr>
<td>Reversing Slide Brackets</td>
<td>2–32</td>
</tr>
<tr>
<td>Ribbon Feed Lever Bracket</td>
<td>2–48</td>
</tr>
<tr>
<td>Ribbon Reverse Detent</td>
<td>2–47</td>
</tr>
<tr>
<td>Ribbon Reverse Spur Gear</td>
<td>2–47</td>
</tr>
<tr>
<td>Right Margin</td>
<td>2–42</td>
</tr>
<tr>
<td>Ratchet Shaft Left Bracket</td>
<td>2–26</td>
</tr>
<tr>
<td>Right Vertical Positioning Lever Eccentric Stud</td>
<td>2–28</td>
</tr>
<tr>
<td>Selector Armature</td>
<td>2–6</td>
</tr>
<tr>
<td>Selector Magnet Bracket</td>
<td>2–7</td>
</tr>
<tr>
<td>Selector Cough Stop Arm</td>
<td>2–11</td>
</tr>
<tr>
<td>Shift Linkage</td>
<td>2–44</td>
</tr>
<tr>
<td>Small Door</td>
<td>2–68</td>
</tr>
<tr>
<td>Small Door Catch</td>
<td>2–68</td>
</tr>
<tr>
<td>Small Door Stop Arm</td>
<td>2–68</td>
</tr>
<tr>
<td>Spacing Clutch Trip Lever</td>
<td>2–20</td>
</tr>
<tr>
<td>Spacing Gear Clearance</td>
<td>2–25</td>
</tr>
<tr>
<td>Spacing Gear Phasing</td>
<td>2–25</td>
</tr>
<tr>
<td>Spacing Trip Lever Bail Cam Plate</td>
<td>2–31</td>
</tr>
<tr>
<td>Stop Arm Bail Guide</td>
<td>2–12</td>
</tr>
<tr>
<td>Stripper Blade Cam Position</td>
<td>2–55</td>
</tr>
<tr>
<td>Stunt Case Code Bar Shift Mechanism</td>
<td>2–24</td>
</tr>
<tr>
<td>Transfer Lever Eccentric</td>
<td>2–13</td>
</tr>
<tr>
<td>Type Box Clutch Suppression Arm</td>
<td>2–24</td>
</tr>
<tr>
<td>Type Box Clutch Trip Lever</td>
<td>2–22</td>
</tr>
<tr>
<td>Type Box Clutch Trip Lever Eccentric Post</td>
<td>2–21</td>
</tr>
<tr>
<td>Vertical Positioning Lock Lever</td>
<td>2–35</td>
</tr>
<tr>
<td>Window and Paper Guide</td>
<td>2–69</td>
</tr>
</tbody>
</table>
# TABLE OF CONTENTS

## SECTION II

<table>
<thead>
<tr>
<th>g. Spring Tensions – Typer</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automatic Carriage Return – Line Feed Bell Crank</td>
<td>2-41</td>
</tr>
<tr>
<td>Automatic Carriage Return – Line Feed Blocking Slide</td>
<td>2-53</td>
</tr>
<tr>
<td>Breaker Slide Bail</td>
<td>2-27</td>
</tr>
<tr>
<td>Carriage Return Latch Bail</td>
<td>2-38</td>
</tr>
<tr>
<td>Clutch Latch Lever (Except Selector)</td>
<td>2-17</td>
</tr>
<tr>
<td>Clutch Shoe</td>
<td>2-23</td>
</tr>
<tr>
<td>Clutch Shoe Lever</td>
<td>2-23</td>
</tr>
<tr>
<td>Clutch Trip Lever</td>
<td>2-20</td>
</tr>
<tr>
<td>Code Bar Clutch Cam Follower</td>
<td>2-18</td>
</tr>
<tr>
<td>Code Bar Detent</td>
<td>2-63</td>
</tr>
<tr>
<td>Code Bar Yield Spring</td>
<td>2-63</td>
</tr>
<tr>
<td>Common Transfer Lever</td>
<td>2-13</td>
</tr>
<tr>
<td>Condition Code Shift Fork</td>
<td>2-53</td>
</tr>
<tr>
<td>Decelerating Slide Bell Crank</td>
<td>2-42</td>
</tr>
<tr>
<td>Function Bar</td>
<td>2-52</td>
</tr>
<tr>
<td>Function Contact</td>
<td>2-56</td>
</tr>
<tr>
<td>Function Lever</td>
<td>2-52</td>
</tr>
<tr>
<td>Function Pawl</td>
<td>2-52</td>
</tr>
<tr>
<td>Horizontal Positioning Drive Linkage</td>
<td>2-33</td>
</tr>
<tr>
<td>Horizontal Positioning Lock Lever</td>
<td>2-27</td>
</tr>
<tr>
<td>Horizontal Stop Slide</td>
<td>2-60</td>
</tr>
<tr>
<td>Line Feed Bar Bell Crank</td>
<td>2-57</td>
</tr>
<tr>
<td>Line Feed Bar Release Lever</td>
<td>2-57</td>
</tr>
<tr>
<td>Lower Wire Rope Pulley Bail</td>
<td>2-36</td>
</tr>
<tr>
<td>Marking Lock Lever</td>
<td>2-8</td>
</tr>
<tr>
<td>Off Line Stunt Shift Solenoid</td>
<td>2-24</td>
</tr>
<tr>
<td>Paper Finger</td>
<td>2-62</td>
</tr>
<tr>
<td>Paper Pressure Bail</td>
<td>2-62</td>
</tr>
<tr>
<td>Paper Straightener Lever</td>
<td>2-61</td>
</tr>
<tr>
<td>Platen Detent Bail</td>
<td>2-57</td>
</tr>
<tr>
<td>Printing Hammer Operating Bail</td>
<td>2-45</td>
</tr>
<tr>
<td>Printing Hammer Operating Bail Latch</td>
<td>2-45</td>
</tr>
<tr>
<td>Printing Hammer Yield</td>
<td>2-45</td>
</tr>
<tr>
<td>Printing Hammer Plunger</td>
<td>2-45</td>
</tr>
<tr>
<td>Pressure Roller Lever</td>
<td>2-62</td>
</tr>
<tr>
<td>Push Lever Reset Bail</td>
<td>2-10</td>
</tr>
<tr>
<td>Reset Bail</td>
<td>2-34</td>
</tr>
<tr>
<td>Reversing Slide Detent</td>
<td>2-32</td>
</tr>
<tr>
<td>Ribbon Feed Lever</td>
<td>2-48</td>
</tr>
<tr>
<td>Ribbon Ratchet Wheel Friction</td>
<td>2-48</td>
</tr>
<tr>
<td>Ribbon Reverse</td>
<td>2-49</td>
</tr>
<tr>
<td>Ribbon Reverse Detent Lever</td>
<td>2-47</td>
</tr>
<tr>
<td>Ribbon Tension</td>
<td>2-49</td>
</tr>
<tr>
<td>Selector Arm</td>
<td>2-8</td>
</tr>
<tr>
<td>Selector Clutch Drum</td>
<td>2-9</td>
</tr>
<tr>
<td>Selector Clutch Latch Lever</td>
<td>2-10</td>
</tr>
<tr>
<td>Selector Lever</td>
<td>2-9</td>
</tr>
<tr>
<td>Selector Push Lever</td>
<td>2-9</td>
</tr>
<tr>
<td>Single – Double Line Feed Stripper Bail</td>
<td>2-59</td>
</tr>
<tr>
<td>Shift Linkage</td>
<td>2-44</td>
</tr>
<tr>
<td>Signal Bell Armature</td>
<td>2-66</td>
</tr>
<tr>
<td>Spacing Cutout Transfer Bail</td>
<td>2-42</td>
</tr>
<tr>
<td>Spacing Feed Pawl Release Link</td>
<td>2-37</td>
</tr>
<tr>
<td>Spacing Feed Pawl</td>
<td>2-30</td>
</tr>
</tbody>
</table>
# TABLE OF CONTENTS

## SECTION II

<table>
<thead>
<tr>
<th>g. Spring Tensions – Typer (Cont’d)</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spacing Lock Lever</td>
<td>2-10</td>
</tr>
<tr>
<td>Spacing Trip Lever</td>
<td>2-31</td>
</tr>
<tr>
<td>Spacing Trip Lever Bail</td>
<td>2-31</td>
</tr>
<tr>
<td>Spacing Suppression Bail</td>
<td>2-58</td>
</tr>
<tr>
<td>Start Lever</td>
<td>2-12</td>
</tr>
<tr>
<td>Suppressor Code Bar</td>
<td>2-24</td>
</tr>
<tr>
<td>Transfer Slide</td>
<td>2-40</td>
</tr>
<tr>
<td>Trip Shaft Lever</td>
<td>2-17</td>
</tr>
<tr>
<td>Type Box Carriage Roller Arm</td>
<td>2-43</td>
</tr>
<tr>
<td>Type Pallet</td>
<td>2-46</td>
</tr>
<tr>
<td>Vertical Positioning Lever</td>
<td>2-28</td>
</tr>
<tr>
<td>Vertical Positioning Lock Lever</td>
<td>2-29</td>
</tr>
</tbody>
</table>

3. Selector Receiving Margin Adjustment ................................................................. 2-70

## SECTION III

<table>
<thead>
<tr>
<th>LUBRICATION</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. General</td>
<td>3-1</td>
</tr>
<tr>
<td>2. Procedure</td>
<td>3-2; 3-31</td>
</tr>
</tbody>
</table>

D
1. INSTALLATION
   a. GENERAL DESCRIPTION

   The Model 28 printer set with Station Selecting Mechanism (Stunt Case) consists of the following basic units: Apparatus Cabinet; Receiving only Base; Motor Unit; Set of Gears; and an Electrical Service Assembly.

   The Typing Units may be provided with various accessory groups for different service requirements.

   b. PROCEDURE

   Unpack all component units and parts with care. Observe all caution labels and instructions. Muslin bags and small parts should be kept with their associated pieces of apparatus until used in the installation.

CABINET DOME

TERMINAL BLOCK

INSULATORS

CRADLE

POWER SWITCH

EXTENSION SHAFT & KNOB

SPRING

CABINET - Remove the insulating covers for access to terminal screws when installing the AC power cable and the signal line cable. Refer to the wiring diagram associated with each unit for the terminal connections.
CAUTION
A good ground is important for satisfactory operation of the equipment. The ground screw is located at the extreme right of the cabinet above the terminal board.

ELECTRICAL SERVICE UNIT  The unit is wired for 0.060 ampere operation at the factory. If 0.020 ampere operation is desired, change the wiring as shown in the associated wiring diagram. Install the rectifier in accordance with the instructions accompanying the unit.

With the cabinet dome raised, place the Electrical Service Unit in the rear of the cabinet with the legs extending upward and the name plates facing the front. Drop the two studs through the holes located at each end of the panel and fasten the unit to the cabinet shelf. Untie the power switch extension shaft from the hinge bar and remove the knob. Insert the shaft through the hole near the right front corner of the cabinet from the back side. Place the opposite end of the shaft in the hole near the corner and engage the slotted extension with the toggle switch. Hook one end of the spring (furnished) around the shaft and attach the other end to the cradle. Replace the knob with the arrow to the right.

AC MOTOR  Place the pinion on the motor shaft the gear toward the motor. Mount the intermediate driven gear on the shaft with the flat side of the gear toward the right. Place motor on the base and secure it with the four Mounting screws and lockwashers. See that the gears mesh properly.

Remove the insulating cover from the terminal block on the base. Attach the motor leads to terminals 1 and 2. Replace the cover with the No. 1 stamp toward the rear.

TYPING UNIT  The Stunt Box may be furnished without certain stunt case and common function bars in order that the assigned code for the Station, Area, or Relay Call may be inserted in the field. DO NOT OPERATE THE TYPER WITHOUT THE FUNCTION BARS FOR WHICH THE FUNCTION PAWLS HAVE BEEN FURNISHED. HOWEVER, THREE SPECIAL SPRINGS MAYBE PLACED UNDER THE LOOSE PAWLS WITH THE ENDS OF THE SPRING CLIPPED TO THE TIE BAR FOR SUPPORT. Refer to the chart (P. 2-51) for the function bars corresponding to the Station Calls to be set up.

Remove the four 1/4 - 32 (hex head) screws with lockwashers from the base. Engage the front feet on the locating studs. Rotate the motor by hand to insure proper meshing of the gears. Secure the Typing Unit with the four screws.

PAPER AND RIBBON
a. To replenish the supply of paper, open the dome of the cabinet, move the paper release lever on the Typing Unit toward the rear, slide one of the spindle retainers toward the rear and remove the paper spindle. Insert the spindle in a fresh roll of paper and remount it so that the paper unwinds from underneath. Feed the paper over the paper straightener shaft (Figure 61) and fold the end of the paper backward to square it off. With the paper release lever toward the rear, start the paper feeding around the platen and then restore the release lever to its forward position. Depress the line feed wheel and continue to feed the paper upward. Do not disturb the ribbon. Make certain that the paper passes under the paper fingers which may be raised momentarily to facilitate the operation. It may be necessary to operate the release lever momentarily when finally straightening the paper.

b. To replace the ribbon, open the glass door in the dome, raise the toggles on the ribbon spool shafts (Figure 48) to the vertical position and remove both spools. Engage the hook that is on the end of the new ribbon in the hub of the empty spool. Wind a few turns of the ribbon onto the empty spool to make sure that the reversing eyelet has been wound upon the spool. Place the spools on the ribbon spool shafts in such a manner that the ribbon feeds from the rear of each spool without twisting. Turn each spool shaft slightly until the driving pins on the spool shafts engage the holes in the spools. Thread the ribbon forward around both ribbon rollers, through the slots in the ribbon reverse levers, and through the ribbon guide on the type box carriage. Make certain that the ribbon remains in the guide slots and that both reversing eyelet are between the ribbon spools and the reverse levers. Eliminate any slack in the ribbon.
226B
SECTION II
ADJUSTMENTS

1. GENERAL
   a. The model 28 receiving only printer with station selection (Stunt Case) feature is arranged for operation in a country wide communication system which is divided into a number of area Networks. The printers in each area are operating in a stand-by condition (Motor Running) with printing suppressed until the assigned call code or codes is received. Printers in one area network may be individually or collectively selected to received a message. The printers in an adjacent area may be selected in a similar manner by routing station calls codes through a relay station where facilities are available for entering the adjacent network.

   b. A code sequence composed of functions and character combinations, precede each message. The sequence (CONDITION CODE CR–CR–LTRS followed by the SELECT CODE consisting of three characters) serves as an address. All printers in the area respond to the condition code which momentarily opens a "gate". The call letters following the condition code determines the printer or printers in the group that respond to the call and type the message to follow. Upon the completion of the text the end of message sequence (Consisting of Fig–CR–LTRS) is transmitted to shift the typer out of the printing position.

   The remote – local feature is provided to manually shift the typer in printing position when desired.
2. ADJUSTMENTS
   a. GENERAL
      The sequence in which the following adjustments are arranged takes into consideration the normal approach to the mechanism and the fact that a change in one adjustment may affect others. Adjustments should not be disturbed unnecessarily. Tools required to perform the adjustments are listed in 1124B but are not supplied as part of the equipment. After performing an adjustment, tighten any screws or nuts that have been loosened and check related adjustments.

      In the figures of this bulletin, fixed pivot points are designated by solid black circles and the floating pivot points are crosshatched. The terms right, left, front, rear, upper, and lower, refer to the normal position of the Typing Unit when installed in the cabinet.

      NOTES

      (1) When rotating the main shaft of the Typing Unit by hand, the clutches do not fully disengage upon reaching their stop positions. In order to relieve the drag on the clutches and permit the main shaft to rotate fully, apply pressure on the lug of each clutch disc (Figure 16) with a screwdriver to cause it to engage its latch lever. This procedure should always be followed prior to placing the Typing Unit on the base and switching on the power.

      (2) The Typing Units are furnished without certain function bars in the Stunt Box which pertain to the area, Station or Relay Call Codes. CAUTION — — — DO NOT OPERATE THE TYPING UNIT UNTIL ALL FUNCTION BARS HAVE BEEN INSTALLED FOR WHICH THE ASSOCIATED FUNCTION LEVERS AND FUNCTION PAWLS HAVE BEEN FURNISHED. Refer to page 50 and page 51 for the field installation procedure for the assigned call codes.

      (3) Adjustments that call for rotation of the type box clutch must be made with the unit in a printing case. The Typing Unit may be shifted into a printing case by latching the function lever associated with a Stunt Case Shift mechanism.

      (4) When making a complete adjustment of the Typing Unit, the following conditioning operations should be performed to prevent damage to the unit:

         (a) Loosen the shift lever drive arm clamp screw (Figure 14)
         (b) Move the right and left vertical positioning lever eccentric stud (Figure 28 and 29) and the rocker shaft bracket to their lowest position.
         (c) Loosen the two bearing stud mounting screws and the horizontal positioning drive linkage (FIGURE 27)
         (d) Loosen the clamp screws and move the reversing slide brackets to their uppermost position (Figure 32)
         (e) Loosen the function reset bail blade mounting screws (FIGURE 34)
         (f) Disconnect the stripper blade driving link (P. 2–59).
         (g) Loosen the carriage return lever clamp screw.

   b. MANUAL SELECTION OF CHARACTERS OR FUNCTIONS.
      To manually operate the Typing Unit while removed from the base, hold the selector magnet armature (Figure 5) operated by means of a spring clip and rotate the main shaft in counterclockwise direction (by means of the handwheel listed in Table 1124B) to bring all clutches to their positions. Fully disengage all clutches as described in the preceding note. Release the armature momentarily to permit the selector clutch to engage. Turn the main shaft slowly until No. 5 selector lever has just moved to the peak of its cam. Strip the push levers from the selector levers which are spacing in the code combination of the character or function that is being selected. It should be noted that the selector levers (Figure 12) move in succession starting with the inner lever (Number one). Continue to rotate the main shaft until all operations initiated by selector action clears through the unit.
D. BASE

INSTRUCTIONS FOR REMOVING TYPING UNIT FROM CABINET
REFER TO P. 3-2 FOR DISASSEMBLY PROCEDURE

INTERMEDIATE GEAR BRACKET

(1) REQUIREMENT

THERE SHOULD BE A BARELY PERCEPTIBLE AMOUNT OF BACKLASH BETWEEN THE TYPER DRIVEN GEAR AND THE TYPER DRIVING GEAR AT THE POINT WHERE BACKLASH IS THE LEAST.

TO ADJUST
POSITION THE COMPLETE INTERMEDIATE GEAR MECHANISM BRACKET BY UTILIZING THE ADJUSTING SLOTS WITH THE THREE HEXAGON HEAD SCREWS LOосEEnsE. ALIGN GEARS AT THIS TIME.

(2) REQUIREMENT

THERE SHOULD BE A BARELY PERCEPTIBLE AMOUNT OF BACKLASH BETWEEN THE INTERMEDIATE DRIVING GEAR AND THE INTERMEDIATE DRIVEN GEAR AT THE POINT WHERE THE BACKLASH IS THE LEAST.

TO ADJUST
RAISE OR LOWER THE FRONT END OF THE INTERMEDIATE GEAR BRACKET BY MEANS OF THE FILISTER HEAD ADJUSTING AND CLAMPING SCREWS LOCATED AT THE FRONT END OF THE BRACKET. REFINE REQUIREMENT (1) IF NECESSARY.

FIGURE 1  BASE AND MOTOR GEARING
OILER MARGIN INDICATOR SPRING TENSION REQUIREMENT
MIN. 9 OZS.
MAX. 14 OZS.
TO MOVE THE CONTACT LEVER FROM THE CONTACT PLUNGER.

SYNCHRONOUS MOTOR POSITIONING REQUIREMENT
TWO OILERS SHOULD BE UPWARD AND APPROXIMATELY EQUIDISTANT FROM A VERTICAL LINE THROUGH THE MOTOR SHAFT TO ADJUST POSITION THE MOTOR WITH THE TWO CLAMP SCREWS LOOSENED.

FIGURE 2 SYNCHRONOUS MOTOR

FIGURE 3 BASE, MARGIN INDICATING MECHANISM, FRONT VIEW
LOCAL LINE FEED TRIP LINK SPRING

REQUIREMENT
MIN. 10 OZS.
MAX. 15 OZS.
TO START THE LINK MOVING

LOCAL LINE FEED TRIP BAIL

LOCAL LINE FEED TRIP SPRING

LOCK BAIL

CARRIAGE RETURN BAIL SPRING

BRACKET

LOCAL CARRIAGE RETURN BAIL SPRING

REQUIREMENT
SPRING UNHOOKED FROM BRACKET
MIN. 10 OZ.
MAX. 15 OZS.
TO PULL SPRING TO INSTALLED LENGTH.

FIGURE 4  BASE, LOCAL LINE FEED MECHANISM
F. TYPING UNIT

NOTE
TO FACILITATE MAKING THE FOLLOWING ADJUSTMENTS, REMOVE THE SELECTOR MAGNET ASSEMBLY AND THE RANGE FINDER ASSEMBLY. TO INSURE BETTER OPERATION, PULL A PIECE OF PAPER BETWEEN THE ARMATURE AND THE POLE PIECES TO REMOVE ANY OIL OR FOREIGN MATTER THAT MAY BE PRESENT. MAKE CERTAIN THAT NO LINT OR PIECES OF PAPER REMAIN BETWEEN THE POLE PIECES AND ARMATURE. BEFORE REMOUNTING THE RANGE FINDER, CHECK AND ADJUST THE RANGE FINDER KNOB PHASING.

A. SELECTOR ARMATURE

NOTE
THIS REQUIREMENT NEED NOT BE MADE NOR CHECKED IF SELECTOR MAGNET BRACKET (FIG. 6) AND RECEIVING MARGIN (TABLE 1) REQUIREMENTS ARE MET.

1. REQUIREMENT (ARMATURE CLAMP STRIP) CLEARANCE
MIN. 0.010 INCH
MAX. 0.030 INCH
BETWEEN ARMATURE CLAMP STRIP AND CASTING.

2. REQUIREMENT (ARMATURE ALIGNMENT) OUTER EDGE OF ARMATURE SHOULD BE FLUSH (WITHIN 0.015 INCH) WITH OUTER EDGE OF POLE PIECES.

3. REQUIREMENT (ARMATURE BACKSTOP ALIGNMENT) SOME CLEARANCE
MIN. 0.010 INCH
BETWEEN THE SIDES OF THE BACKSTOP AND THE SIDES OF THE ARMATURE EXTENSION TO ADJUST FIRST, POSITION ARMATURE SPRING ADJUSTING NUT TO HOLD ARMATURE FIRMLY AGAINST PIVOT EDGE OF CASTING, THEN POSITION ARMATURE AND BACKSTOP WITH MOUNTING SCREWS LOOSENED.

INSTRUCTIONS FOR REMOVING SELECTOR MAGNET ASSEMBLY
NOTE - - - REMOVE ONLY FOR SERVICING

REMOVE THE RANGE FINDER BY REMOVING THE TWO SCREWS AND THE NUT WHICH MOUNT IT TO THE SELECTOR.
REMOVE THE CABLE FROM THE COIL TERMINAL SCREWS.
REMOVE THE TWO MAGNET ASSEMBLY MOUNTING SCREWS AND LIFT THE ASSEMBLY OUT OF THE HOLE IN LOCATING PLATE.

FIGURE 5 TYPER, SELECTOR MAGNET
SELECTOR MAGNET BRACKET

(1) REQUIREMENT
SPACING LOCK LEVER ON EACH HIGH PART OF CAM.
ARMATURE IN CONTACT WITH FRONT POLE PIECE.
CLEARANCE BETWEEN THE END OF THE ARMATURE
EXTENSION AND SHOULDER ON SPACING LOCK LEVER.
MIN. 0.012 INCH
MAX. 0.025 INCH

TO ADJUST
POSITION THE MAGNET BRACKET BY MEANS OF THE ADJUSTING LINK WITH
THE TWO MAGNET BRACKET MOUNTING SCREWS LOOSENED. TIGHTEN THE
LINK CLAMP SCREW ONLY.

(2) REQUIREMENT
MAGNET ENERGIZED. ARMATURE IN CONTACT WITH FRONT POLE PIECE.
SOME CLEARANCE BETWEEN THE UPPER SURFACE OF ARMATURE EXTENSION
AND LOWER SURFACE OF THE SPACING LOCK LEVER, WHEN LOCK LEVER
IS HELD DOWNWARD.
MAX. 0.003 INCH

TO ADJUST
POSITION UPPER END OF MAGNET BRACKET WITH MOUNTING SCREWS
LOOSENED. RECHECK REQUIREMENT (1).

FIGURE 6 TYPER, SELECTOR MAGNET, RIGHT SIDE VIEW.
SELECTOR ARMATURE SPRING TENSION

(1) REQUIREMENT (WHEN NO DISTORTION TEST SET IS AVAILABLE)
WITH THE MARKING LOCK LEVER, SPACING LOCK LEVER, AND START LEVER ON HIGH PART OF THEIR CAMS. SCALE APPLIED AS NEARLY VERTICAL AS POSSIBLE AT END OF ARMATURE EXTENSION. IT SHOULD REQUIRE APPROXIMATELY 3 OZS. TO PULL ARMATURE TO MARKING POSITION.
TO ADJUST
ROTATE THE ADJUSTING NUT.

(2) REQUIREMENT (USING A DISTORTION TEST SET)
The selector should be relatively free of internal bias when checked as specified in the instructions furnished with the set.
TO ADJUST
VARY THE TENSION OF THE ARMATURE SPRING BY ROTATING ITS ADJUSTING NUT.

MARKING LOCK LEVER SPRING TENSION REQUIREMENT
LETTERS COMBINATION SELECTED, MAIN SHAFT ROTATED UNTIL SELECTOR CLUTCH IS DISENGAGED.
PUSH SCALE APPLIED HORIZONTALLY TO LOWER HORIZONTAL EXTENSION OF THE LOCK LEVER MIN. 1-1/2 OZS.
MAX. 3 OZS.
TO START LEVER MOVING

FIGURE 7 TYPEWRITER, SELECTOR MECHANISM, RIGHT SIDE VIEW
SELECTOR PUSH LEVER SPRING TENSION

REQUIREMENT

PUSH LEVER IN SPACING POSITION
MIN. 3/4 OZS.
MAX. 1 1/2 OZS.
TO MOVE PUSH LEVER FROM THE SELECTOR LEVER (HORIZONTAL PRESSURE).
CHECK ALL FIVE PUSH LEVER SPRINGS

MIN. 1 1/4 OZS.
MAX. 2 1/2 OZS.
TO START EACH LEVER MOVING.
CHECK ALL FIVE SELECTOR LEVER SPRINGS.

SELECTOR LEVER SPRING TENSION

REQUIREMENT

RESET BAIL ON PEAK OF ITS CAM.
MIN. 1 1/4 OZS.
MAX. 2 1/2 OZS.
TO START EACH LEVER MOVING.
CHECK ALL FIVE SELECTOR LEVER SPRINGS.

CAM CLUTCH ASSEMBLY

SELECTOR CLUTCH DRUM

REQUIREMENT

CLUTCH LATCHED IN STOP POSITION. CLUTCH DRUM AGAINST THE SHOULDER ON THE MAIN SHAFT. CAM CLUTCH ASSEMBLY SHOULD HAVE SOME END PLAY.
MAX. 0.010 INCH
TO ADJUST
UTILIZE CLEARANCE IN CLUTCH DRUM MOUNTING HOLE WITH MOUNTING SCREW LOOSENED.

FIGURE 8 TYPER, SELECTOR MECHANISM
INSTRUCTIONS FOR REMOVING THE TYPE BOX
NOTE -- REMOVE ONLY FOR SERVICING

MOVE TYPE BOX LATCH TOGGLE TO THE RIGHT. LIFT THE RIGHT END OF THE TYPE BOX (APPROX. 45°) AND PULL TO THE RIGHT TO DISENGAGE TYPE BOX FROM ITS LEFT BEARING STUD.
REINSTALL IN REVERSE ORDER. MAKE SURE THAT THE TYPE BOX IS FIRMLY SEATED ON ITS BEARING STUDS AND THE POINT OF LATCH TOGGLE IS PLACED IN THE NOTCH OF THE TYPE BOX PLATE BEFORE LATCHING THE TOGGLE.

FIGURE 9 TYPER, SELECTOR CLUTCH MECHANISM, RIGHT SIDE VIEW
RANGE FINDER KNOB PHASING

REQUIREMENT
WITH RANGE FINDER KNOB TURNED TO EITHER END OF RACK, ZERO MARK ON SCALE SHOULD BE IN LINE WITH Scribed LINE ON RANGE FINDER PLATE – 3 POINTS.

TO PHASE
REMOVE PLATE AND POSITION KNOB WITH MOUNTING NUT LOOSENED

SELECTOR CLUTCH STOP ARM

REQUIREMENT
RANGE SCALE SET AT 60. SELECTOR CLUTCH DISENGAGED. ARMATURE IN MARKING POSITION. CLUTCH STOP ARM SHOULD ENGAGE THE CLUTCH SHOE LEVER BY APPROXIMATELY THE FULL THICKNESS OF THE SHOE LEVER.

TO ADJUST
POSITION THE STOP ARM ON THE STOP ARM BAIL WITH ITS CLAMP SCREW LOOSENED.

FIGURE 10  TYPER  RANGE FINDER MECHANISM. RIGHT SIDE VIEW
INSTRUCTIONS FOR REMOVING SELECTOR MECHANISM

NOTE: REMOVE ONLY FOR SERVICING

REMOVE SELECTOR MAGNET (SEE P.2-6) REMOVE FELT WICK FROM ITS HOLDER THEN REMOVE HOLDER. UNHOOK COMMON TRANSFER LEVER SPRING FROM PUSH LEVER GUIDE. REMOVE REMAINING THREE SELECTOR MOUNTING SCREWS (ONE IS INSIDE THE SIDE FRAME) AND LIFT SELECTOR FROM SIDE FRAME REPLACE IN REVERSE ORDER.
REAR CODE BAR SHIFT LEVER

COMMON TRANSFER LEVER SPRING TENSION

TRANSFER LEVER SPRING TENSION REQUIREMENT
TRANSFER LEVERS HELD IN SPACING POSITION.
MIN. 1/2 OZS.
MAX. 2 1/2 OZS.
TO START INTERMEDIATE ARM MOVING.

TRANSFER LEVER E CCENTRIC
REQUIREMENT
ALL PUSH LEVERS SELECTED. ALL SHIFT BARS TO THE LEFT. SHIFT LEVER LINK IN ITS UPPERMOST POSITION. CLEARANCE BETWEEN REAR CODE BAR SHIFT LEVER AND THE SHIFT BAR WHICH IS FARthest FROM THE CODE BAR SHIFT LEVER MIN. 0.010 INCH
MAX. 0.025 INCH
WHEN PLAY OF SHIFT BAR IS TAKEN UP TO PROVIDE MAXIMUM CLEARANCE.
TO ADJUST
ROTATE THE ECCENTRIC BUSHING WITH ITS CLAMP SCREW LOOSEned. KEEP BOTH HOLES IN THE ECCENTRIC BUSHING ABOVE HORIZONTAL CENTER.

NOTE
ONE OR MORE SHIFT BARS MAY TOUCH SHIFT LEVERS.

BEARING CLAMP SCREW

INTERMEDIATE ARM

SELECTOR LEVER

(REIGHT SIDE VIEW)

FIGURE 12 TYPER, CODE BAR SHIFT MECHANISM 2-13
INTERMEDIATE ARM BACKSTOP BRACKET

REQUIREMENT
SELECTOR PUSH LEVERS STRIPPED. CLEARANCE BETWEEN FRONT EDGE OF INNER STEP OF SHIFT BAR AND THE FRONT CODE BAR SHIFT LEVER WHEN THE PLAY IN THE PARTS IS TAKEN UP TO MAKE THE CLEARANCE MAXIMUM
MIN. 0.010 INCH
MAX. 0.025 INCH

TO ADJUST
POSITION THE BACKSTOP BRACKET WITH ITS TWO CLAMP SCREWS LOOSENED.

INSTRUCTIONS FOR REMOVING PRINT CARRIAGE
NOTE... REMOVE ONLY FOR SERVICING

LOOSEN TWO SCREWS IN PRINT CARRIAGE CABLE CLAMP AND DIS-ENGAGE THE CABLE FROM THE CLAMP. MOVE CARRIAGE TO LEFT END OF ITS TRACK AND TILT LOWER PART OF THE CARRIAGE FORWARD TO DISENGAGE ROLLER FROM TRACK. REINSTALL IN REVERSE ORDER, MAKE SURE THAT PRINTING LEVER ARM IS RE-ENGAGED CORRECTLY WITH THE PRINTING BAIL. POSITION CARRIAGE CLAMP ON CABLE FOR CORRECT PRINTING. SEE FIGURE 43

INSTRUCTION FOR REMOVING SELECTOR CAM ASSEMBLY WITH CLUTCH
NOTE... REMOVE ONLY FOR SERVICING

LIFT THE PUSH LEVER BAIL CAM FOLLOWER FROM THE CAM AND LATCH IT IN THE RAISED POSITION ON THE LEDGE OF THE PUSH LEVER GUIDE BY SLIDING IT TO THE LEFT. LIFT SELECTOR LEVERS AND MARKING LOCK LEVER FROM THEIR CAMS BY MOVING THE MARKING LOCK LEVER FORWARD UNTIL THE ARMATURE DROPS BEHIND IT. REMOVE NUT AND SCREW WHICH MOUNT SELECTOR CLUTCH DRUM AND POSITION THE SELECTOR CLUTCH SO THAT THE STOP LUG IS IN THE UPPERMOST POSITION. HOLD START LEVER AND SPACING LOCK LEVER AWAY FROM THEIR CAMS WITH FOREFINGER OF LEFT HAND AND WITH DRAW THE CAM ASSEMBLY BY SLIDING IT TO THE RIGHT WHILE ROCKING IT BACK AND FORTH SLIGHTLY.
REPLACE THE ASSEMBLY IN THE REVERSE ORDER EXCEPT FOR THE FOLLOWING. AS THE CAM ASSEMBLY APPROACHES ITS FULLY INSTALLED POSITION, IT WILL BE NECESSARY TO POSITION THE CODE BAR CLUTCH TRIP CAM FOLLOWER AND THE SELECTOR CLUTCH LATCH SO THEY RIDE ON THEIR RESPECTIVE CAM SURFACES.
RESTORE PUSH LEVER BAIL AND THE ARMATURE TO THEIR NORMAL OPERATING POSITIONS.
INSTRUCTIONS FOR REMOVING TYPE BOX CARRIAGE

NOTE - - - REMOVE ONLY FOR SERVICING

MOVE TYPE BOX CARRIAGE TO EXTREME RIGHT. HOLD CODE BARS IN MARKING POSITION AND
ROTATE MAIN SHAFT SO THAT TYPE BOX IS IN ITS UPPERMOST POSITION.
REMOVE RETAINER RING FROM STUD AT RIGHT END OF TYPE BOX CARRIAGE LINK AND
DISENGAGE LINK FROM CARRIAGE. ROTATE PRINTER SHAFT SO THAT TYPE BOX IS IN ITS LOWEST
POSITION. HOLD RIBBON GUIDE FORWARD AND RIBBON REVERSE LEVER BACK AND PULL
CARRIAGE TOWARD THE RIGHT TO DISENGAGE IT FROM CARRIAGE RACK.
REINSTALL CARRIAGE IN REVERSE ORDER.

TRANSFER LEVERS

CODE BAR SHIFT LEVER

ROLLER

CODE BAR SHIFT LEVER DRIVE ARM

REQUIREMENT
CODE BAR SHIFT LEVER LINK IN THE
UPPERMOST POSITION.
THERE SHOULD BE SOME CLEARANCE
BETWEEN THE TOP OF THE ROLLERS AND
THE TOP OF THE CAM SLOTS IN THE CODE
BAR SHIFT LEVERS
MAX. 0.025 INCH
ON THE CLOSEST LEVER.
TO ADJUST
LOOSE THE CLAMP SCREW. POSITION
THE CODE BAR SHIFT LEVER DRIVE
ARM ON ITS SHAFT TO MEET THE
REQUIREMENT AND TO PROVIDE SOME
END PLAY, NOT MORE THAN 0.006 INCH

SHIFT LEVER LINK

CLAMP SCREW

CODE BAR
SHIFT LEVER
DRIVE ARM

(FRONT VIEW)

(RIGHT SIDE VIEW)

FIGURE 14  TYPER, CODE BAR SHIFT MECHANISM
INSTRUCTIONS FOR REMOVING CODE BAR SHIFT MECHANISM
NOTE -- -- REMOVE ONLY FOR SERVICING

REMOVE THE SPRING ATTACHED TO COMMON TRANSFER LEVER AND RESTORE ANY OPERATED
PUSH BARS TO THE SPACING POSITION BY RAISING THE RESET BAIL.
LOOSEN THE CLAMP SCREW ON THE SHIFT LEVER, AND REMOVE THE TWO SCREWS WHICH MOUNT THE
MECHANISM -- ONE TO SIDE FRAME, OTHER TO SELECTOR MECHANISM MANIPULATE THE TRANSFER
LEVERS AND CODE BAR EXTENSIONS WHILE GENTLY TWISTING THE MECHANISM SO AS TO SLIDE THE
MECHANISM OFF THE CODE BAR EXTENSIONS.

TO REPLACE THE MECHANISM ON THE TYPING UNIT, REVERSE THE PROCEDURE USED IN
REMOVING IT, EXCEPT FOR THE FOLLOWING:
WITH THE MAIN SHAFT IN THE STOP POSITION, PUSH THE CODE BAR EXTENSIONS TO THE
MARKING POSITION (LEFT, OR IN). MANIPULATE THE CODE BAR EXTENSIONS AND TRANSFER LEVERS
SO THAT THE EXTENSIONS LINE UP WITH THEIR RESPECTIVE SLOTS, AND SLIDE THE EXTENSIONS
THROUGH THE SLOTS, ONE AT A TIME (BOTTOM SLOT VACANT.)

FIGURE 15  TYPER, CODE BAR SHIFT MECHANISM
CLUTCH LATCH LEVER SPRING (EXCEPT SELECTOR)

**Requirement**
- Clutch turned to stop position but with latch lever not latched.
- Min. 5 OZs.
- Max. 7 1/4 OZs.
- To move latch lever from lug. This requirement applies to code bar clutch, function clutch, spacing clutch, line feed clutch, and type box clutch.

SELECTOR CLUTCH AND CODE BAR CLUTCH DISENGAGED. CODE BAR CLUTCH TRIP LEVER SHOULD ENGAGE THE CLUTCH SHOE LEVER BY THE FULL THICKNESS OF THE SHOE LEVER AND HAVE SOME END PLAY.
- Max. 0.006 INCH

TO ADJUST POSITION THE TRIP LEVER ON ITS SHAFT WITH ITS CLAMP SCREW LOOSENED.

TRIP SHAFT LEVER SPRING TENSION

**Requirement**
- Trip shaft lever on low part of cam. Code bar clutch engaged. Rotate 1/4 turn.
- Min. 1 OZ.
- Max. 2 OZs.

TO START LEVER MOVING.

**Figure 16** Typer, Code Bar Clutch Trip Shaft Mechanism
FUNCTION CLUTCH TRIP LEVER
REQUIREMENT
CODE BAR CLUTCH AND FUNCTION CLUTCH DISENGAGED.
FUNCTION CLUTCH TRIP LEVER SHOULD ENGAGE THE CLUTCH SHOE LEVER BY THE FULL THICKNESS OF THE SHOE LEVER. CHECK AT LUG WITH LEAST ENGAGEMENT
TO ADJUST
POSITION THE TRIP LEVER ON ITS SHAFT WITH ITS CLAMP SCREWS LOOSENED. WHEN POSITIONING THE TRIP LEVER PROVIDE THE SHAFT WITH SOME END PLAY.
MAX. 0.006 INCH

CODE BAR CLUTCH CAM FOLLOWER SPRING TENSION
REQUIREMENT
CAM FOLLOWER ROLLER ON THE LOW PART OF CAM.
THE SPRING UNHOOKED FROM SPRING BRACKET.
MIN. 20 OZS.
MAX. 24 OZS.
TO PULL SPRING TO INSTALLED LENGTH.

FIGURE 17 TYPER, FUNCTION CLUTCH MECHANISM
Figure 18 Typer, Trip Latch Mechanism

**CLUTCH TRIP SHAFT SET COLLARS**

1. **Requirement**
   - The spacing clutch latch lever should have some side play.
   - Max. 0.008 inch
   - To adjust
     - Position the spacing clutch latch lever set collar.

2. **Requirement**
   - Approximate alignment of right end of stop extensions on trip lever and shoe lever
   - To adjust
     - Position the linefeed clutch trip lever set collar

3. **Requirement**
   - The linefeed clutch latch lever should have some side play.
   - Max. 0.008 inch
   - To adjust
     - Position the linefeed clutch latch lever set collar.

**ANTI-DEFLECTION PLATE**

- Requirement
  - With the typing unit upside down
  - Min. 1 lb.
  - Max. 5 lbs.
  - To pull trip shaft away from anti-deflection plate
  - To adjust
    - Position the plate with its mounting screws loosened.
SPACING CLUTCH TRIP LEVER

REQUIREMENT
SPACING AND TYPE BOX CLUTCHES DISENGAGED.
TRIP LEVER ARM IN ITS UPWARD POSITION
TRIP LEVER SHOULD BE APPROXIMATELY
FLUSH WITH OUTER SURFACE OF THE SHOE
LEVER OR UNDER FLUSH BY NOT MORE
THAN ½ THE THICKNESS OF THE SHOE LEVER.
CHECK THE STOP LUG WITH THE LEAST ENGAGEMENT
TO ADJUST
POSITION THE TRIP LEVER ADJUSTING SCREW.

CLUTCH TRIP LEVER SPRING TENSION

1. SPACING
2. LINE FEED
3. TYPE BOX

REQUIREMENT
CLUTCH ENGAGED AND ROTATED UNTIL
TRIP LEVER RESTS ON STOP LUG.
MIN. 5 OZS.
MAX. 7 1/4 OZ.
TO MOVE TRIP LEVER AWAY FROM STOP LUG

FIGURE 19  TYPER, SPACING CLUTCH MECHANISM
A. TYPE BOX CLUTCH TRIP LEVER  
ECCENTRIC POST  
REQUIREMENT  
TYPE BOX CLUTCH DISENGAGED.  
TRIP LEVER SHOULD ENGAGE THE CLUTCH  
SHOE LEVER BY THE FULL THICKNESS OF  
THE SHOE LEVER  
TO ADJUST  
POSITION THE TRIP LEVER ECCENTRIC  
POST.

B. LINE FEED CLUTCH TRIP LEVER  
ECCENTRIC POST  
REQUIREMENT  
TRIP LEVER ADJUSTING SCREW  
BACKED OFF.  
LINE FEED CLUTCH IN ITS STOP  
POSITION.  
TRIP LEVER SHOULD ENGAGE THE  
CLUTCH SHOE LEVER BY THE FULL  
THICKNESS OF THE SHOE LEVER.  
CHECK AT STOP LUG WITH LEAST  
ENGAGEMENT.  
TO ADJUST  
POSITION THE TRIP LEVER ECCENTRIC  
POST.

C. LINE FEED CLUTCH TRIP LEVER  
ADJUSTING SCREW  
REQUIREMENT  
LINE FEED FUNCTION SLIDE ARM  
in rear position.  
CLUTCH TRIP LEVER AGAINST ITS  
ECCENTRIC POST.  
TRIP ARM HELD AGAINST ITS  
FUNCTION SLIDE ARM.  
SOME CLEARANCE BETWEEN THE  
END OF THE TRIP LEVER ADJUST­  
ING SCREW AND THE TRIP ARM.  
MAX. 0.006 INCH  
TO ADJUST  
POSITION THE ADJUSTING SCREW.

FIGURE 20  TYPER, TYPE BOX CLUTCH AND LINE FEED CLUTCH MECHANISM
2-22

**TYPE BOX CLUTCH TRIP LEVER**

1. **REQUIREMENT** (See Note 3 Page 2-1)
   - Clutch Trip Shaft Cam Follower Roller
     (See Fig. 17) on the lowest surface of cam (located on code bar clutch). Clearance between inner face of type box clutch trip lever and the clutch disk stop lug.
     - **MIN.** 0.040 inch
     - **MAX.** 0.050 inch

   **TO ADJUST**
   - Loosen clamp screw and position stop.

2. **REQUIREMENT**
   - When positioning the trip arm determine that the latch lever has some side play.
     - **MAX.** 0.008 inch

   **TO ADJUST**
   - Position the clutch trip arm on its shaft with the clamp screw loosened.

---

**FIGURE 21 TYPE, TYPE BOX CLUTCH MECHANISM**

**CLUTCH SHOE LEVER REQUIREMENT**
- Gap between clutch shoe lever and its stop lug should be 0.055 inch to 0.075 inch greater when clutch is engaged than when the clutch is disengaged.

**TO CHECK**
- Disengage the clutch and measure the gap. Trip the clutch and rotate it until the clutch shoe lever is toward the bottom of the unit. Align the head of the clutch drum mounting screw with the stop lug. Manually compress the shoe lever against the stop lug and allow them to snap apart. Again measure the gap with the clutch thus engaged.

**NOTE**
- On multiple stop clutches check the clearance at the stop lug that is adjacent to the notch in the clutch adjusting disk.

**TO ADJUST**
- Loosen the two clamp screws on the clutch disk. Engage a wrench on the lug of the adjusting disk and rotate the disk.

**NOTE**
- After the above adjustment is made, disengage the clutch, remove the drum mounting screw and rotate the drum in its normal direction of rotation to make certain that it does not drag on the shoe if the drum drags, refine the above adjustment.

---

**FIGURE 22 TYPE, CLUTCH SHOE MECHANISM (ALL CLUTCHES)**
**CLUTCH SHOE LEVER SPRING TENSIONS REQUIREMENT**

- CLUTCH ENGAGED, HOLD CAM DISK TO PREVENT TURNING. SPRING SCALE PULLED AT TANGENT TO CLUTCH.
  - MIN. 15 OZS.
  - ONE-STOP CLUTCHES
  - MAX. 20 OZS.
  - MIN. 16 OZS.
  - MULTIPLE-STOP CLUTCHES
  - MAX. 22 OZS.

To move the shoe lever in contact with the stop lug.

**CLUTCH DRUM POSITION (EXCEPT SELECTOR) REQUIREMENT**

- CLUTCH SHOE LEVER HELD DISENGAGED. CLUTCH SHOULD HAVE SOME END PLAY
  - MAX. 0.020 INCH

To adjust position each drum and spacing clutch set collar with mounting screws loosened.

**CLUTCH SHOE SPRING TENSION NOTE**

In order to check this spring tension, it is necessary to remove the clutch from the main shaft. Therefore, it should not be checked unless there is good reason to believe that it does not meet its requirement.

**REQUIREMENT**

- CLUTCH DRUM REMOVED. SPRING SCALE APPLIED TO PRIMARY SHOE AT A TANGENT TO THE FRICTION SURFACE
  - MIN. 3 OZS.
  - MAX. 5 OZS.

To start the primary shoe moving away from secondary shoe at point of contact.

---

**FIGURE 23**

TYPER, CLUTCH MECHANISM, LEFT SIDE VIEW
NOTE: TO CHECK REQUIREMENT (A, B, and D), SET FUNCTION CLUTCH IN STOP POSITION AND ALL CODE BARS TO THE RIGHT

A  STUNT CASE CODE BAR SHIFT MECHANISM

REQUIREMENT
WITH LATCH FUNCTION LEVER ON ITS LOWER RELEASING LATCH, NOTCH IN SUPPRESSION CODE BAR SHOULD ALIGN WITH NOTCHES IN OTHER CODE BARS

TO ADJUST
POSITION PROPER GUIDE PLATE WITH ITS CLAMP NUTS LOOSENED. (Similar parts Figure 53 and 54). REPEAT FOR EACH STUNT CASE CODE BAR SHIFT MECHANISM.

B  CONDITION CODE (ZERO) CODE BAR SHIFT MECHANISM

REQUIREMENT
NOTCH IN CONDITION CODE BAR SHOULD ALIGN WITH NOTCHES IN OTHER CODE BARS

TO ADJUST
POSITION GUIDE PLATE (FIG. 53 WITH CLAMP NUTS LOOSENED.

C  TYPE BOX CLUTCH SUPPRESSION ARM

REQUIREMENT
WITH SUPPRESSION ARMS IN BLOCKED POSITION. SOME TO 0.005 INCH CLEARANCE BETWEEN TRIP ARM EXTENSION AND CLUTCH TRIP LEVER.

TO ADJUST
POSITION SUPPRESSION ARM WITH ITS MOUNTING SCREWS LOOSENED.

D  OFF LINE STUNT SHIFT BRACKET ASSEMBLY

REQUIREMENT
NOTCH IN SUPPRESSION CODE BAR SHOULD ALIGN WITH NOTCHES IN OTHER CODE BARS WHEN SOLENOID IS HELD IN OPERATED POSITION

TO ADJUST
POSITION SOLENOID BRACKET ASSEMBLY WITH ITS MOUNTING SCREWS LOOSENED.

FIGURE 24  TYPER, OFF LINE STUNT SHIFT SOLENOID MECHANISM
B. SPACING GEAR PHASING REQUIREMENT
SPACING CLUTCH DISENGAGED. INDEX LINE ON THE SPACING PAWL SHOULD BE BETWEEN THE TWO LINES ON THE PAWL RETAINING WASHER.
TO ADJUST
REMOVE THE MOUNTING SCREW FROM THE SPACING SHAFT GEAR. HOLD THE PAWLS IN ALIGNMENT AND ENGAGE THE SPACING SHAFT GEAR WITH THE CLUTCH GEAR AT A POINT WHERE THE SPACING SHAFT GEAR MOUNTING SCREW HOLE IS IN LINE WITH THE TAPPED HOLE IN THE SPACING SHAFT AND INSERT THE MOUNTING SCREW.

A. SPACING GEAR CLEARANCE REQUIREMENT
CARRIAGE FULLY RETURNED. MINIMUM BACKLASH OF SPACING GEARS WITHOUT BIND.
TO ADJUST
INSERT SHIMS BETWEEN THE SPACING SHAFT BEARING AND FRONT PLATE AT UPPER MOUNTING SCREW TO INCREASE CLEARANCE AND AT LOWER MOUNTING SCREW TO DECREASE BACKLASH.

FIGURE 25 TYPER, SPACING MECHANISM
LINE FEED CLUTCH PHASING

REQUIREMENT
LINE FEED CLUTCH IN STOP POSITION.
BOTH LINE FEED BARS SHOULD ENGAGE
THE TEETH OF THE LINE FEED SPUR GEAR.

TO ADJUST
DISENGAGE LINE FEED CLUTCH.
LOOSEN ASSEMBLY BEARING POST AND
MESH LINE FEED ECCENTRIC SPUR GEAR
WITH CLUTCH GEAR SO THAT BOTH BARS
ARE ENGAGED.

ROCKER SHAFT LEFT BRACKET

REQUIREMENT
ROCKER SHAFT LEFT BRACKET FIRMLY
SEATED AGAINST INNER BEARING RACE

TO ADJUST
HOLD ROCKER SHAFT IN EXTREME LEFT
POSITION AND POSITION THE BRACKET
AGAINST THE INNER BEARING RACE
WITH THE MOUNTING SCREWS
LOOSENED.

FIGURE 26  TYPER, LINE FEED AND ROCKE R SHAFT MECHANISM
ROCKER SHAFT BRACKET ECCENTRIC STUD

REQUIREMENT
MIN. 0.065 INCH
MAX. 0.080 INCH

TO ADJUST
POSITION THE ECCENTRIC STUD IN THE LOWER END OF THE ROCKER SHAFT LEFT BRACKET. KEEP HIGH PART OF ECCENTRIC (MARKED WITH DOT) BELOW CENTER LINE OF DRIVE LINK.

NOTE
AFTER MAKING RELATED ADJUSTMENTS ANY CHANGE IN THIS ADJUSTMENT WILL REQUIRE A RECHECKING OF THE FOLLOWING ADJUSTMENTS: HORIZONTAL POSITIONING DRIVE LINKAGE (FIGURE -32), RIGHT VERTICAL POSITIONING LEVER ECCENTRIC STUD (FIGURE 28), LEFT VERTICAL POSITIONING LEVER ECCENTRIC STUD (FIGURE 29), VERTICAL POSITIONING LOCK LEVER (FIGURE -35), RIBBON FEED LEVER STOP BRACKET (FIGURE -47), FUNCTION STRIPPER BLADE ARMS (FIGURE -55), SPACING TRIP LEVER BAIL CAM PLATE (FIGURE -31), PRINTING TRACK (FIGURE -44), PRINTING ARM (FIGURE -45), REVERSING SLIDE BRACKETS (FIGURE -60).

FIGURE 27 TYPER, SHIFT AND POSITIONING MECHANISMS
RIGHT VERTICAL POSITIONING LEVER
ECCENTRIC STUD
REQUIREMENT

TYPE BOX CLUTCH DISENGAGED, COMMON CODE BAR IN SPACING POSITION. PLAY TAKEN UP BETWEEN THE COMMON CODE BAR AND THE TYPE BOX TRACK TO MAKE THE CLEARANCE A MINIMUM.
MIN. 0.035 INCH
MAX. 0.050 INCH

CLEARANCE BETWEEN THE TOE OF VERTICAL POSITIONING LEVER AND THE BOTTOM OF THE COMMON CODE BAR WHEN PLAY IS TAKEN UP TO MAKE CLEARANCE MINIMUM

TO ADJUST
POSITION THE ECCENTRIC STUD IN THE RIGHT ROCKER SHAFT BRACKET, POSITION HIGH PART OF ECCENTRIC (MARKED WITH DOT) TOWARD THE REAR

VERTICAL POSITIONING LEVER TOE

RIGHT VERTICAL POSITIONING LEVER

VERTICAL POSITIONING LEVER SPRING TENSION
REQUIREMENT
VERTICAL POSITIONING LEVER TOES (RIGHT AND LEFT) IN CONTACT WITH THE SUPPRESSION CODE BAR, LEVERS NOT BUCKLED
MIN. 5 OZS.
MAX. 10 OZS.

TO MOVE THE LINK EXTENSION AWAY FROM THE VERTICAL POSITION

TO MOVE THE LINK EXTENSION AWAY FROM THE VERTICAL POSITIONING LEVER
CHECK BOTH RIGHT AND LEFT SPRINGS.

FIGURE 28  TYPER, VERTICAL POSITIONING MECHANISM, RIGHT
VERTICAL POSITIONING LOCK LEVER
SPRING TENSION
REQUIREMENT
TYPE BOX CLUTCH DISENGAGED
MIN. 2 OZS.
MAX. 4 OZS.
TO START THE LOCK LEVER MOVING
CHECK BOTH RIGHT AND LEFT SPRINGS.

VERTICAL POSITIONING LOCK LEVER SPRING

COMMON CODE BAR

VERTICAL POSITIONING LEVER TOE

LEFT VERTICAL POSITIONING LEVER ECCENTRIC STUD
REQUIREMENT
THE RIGHT AND LEFT VERTICAL POSITIONING LEVERS SHOULD BUCKLE EQUALLY WITHIN 0.006 INCH. TO CHECK PLACE COMMON CODE BAR IN SPACING POSITION.
TRIP THE TYPE BOX CLUTCH. ROTATE THE MAIN SHAFT UNTIL THE TOE OF THE RIGHT VERTICAL POSITIONING LEVER TOE TOUCHES THE COMMON CODE BAR AND BUCKLES THE LOWER LINK BY APPROXIMATELY 0.008 INCH.
THE LEFT LINK SHOULD BUCKLE EQUALLY WITHIN 0.006 INCH.
TO ADJUST POSITION THE ECCENTRIC STUD ON THE ROCKER SHAFT LEFT BRACKET INNER ARM. POSITION HIGH PART OF ECCENTRIC (MARKED WITH DOT) TOWARD REAR.

FIGURE 29 TYPER, VERTICAL POSITIONING MECHANISM, LEFT SIDE
OSCILLATING RAIL SLIDE POSITION REQUIREMENT (See Note 3 Page 2-1)
SPACING CUTOUT LEVER AND AUTOMATIC C.R. L.F. ARM IN MAXIMUM COUNTER-CLOCKWISE POSITION ON THE SPACING DRUM. SPACING CLUTCH DISENGAGED. SPACING PAWL WHICH IS FARDEST ADVANCED ENGAGED WITH THE TOOTH THAT IS JUST ABOVE CUT-AWAY SECTION IN THE RATCHET WHEEL. THE RIGHT END OF THE OSCILLATING RAIL SLIDE SHOULD CLEAR THE PULLEY BY
MIN. 0.025 INCH
MAX. 0.050 INCH

TO ADJUST
POSITION THE SLIDE ON THE WIRE ROPE WITH ITS CLAMP SCREWS LOOSENED.

FIGURE 30  TYPHER, SPACING MECHANISM
SPACING TRIP LEVER BAIL CAM PLATE

REQUIREMENT (See Note 3 Page 2-1)

SPACING TRIP LEVER ARM IN ITS UPWARD POSITION. TYPE BOX CLUTCH ROTATED THROUGH APPROXIMATELY ONE-HALF OF ITS CYCLE. ALL FUNCTION PAWLS DISENGAGED FROM THEIR FUNCTION BAR. CLEARANCE BETWEEN TOP SURFACE OF THE TRIP LEVER ARM EXTENSION AND THE SHOULDER ON THE SPACING TRIP LEVER.

MIN. 0.015 INCH
MAX. 0.030 INCH

TO ADJUST POSITION THE CAM PLATE ON THE ROCKER SHAFT WITH ITS MOUNTING SCREWS LOOSENED. POSITION FORWARD EDGE OF CAM PLATE PARALLEL TO SHAFT.

SPACING TRIP LEVER BAIL SPRING TENSION

REQUIREMENT
TRIP LEVER BAIL AGAINST ITS STOP.
TRIP LEVER BAIL SPRING UNHOOKED.
MIN. 8 OZS.
MAX. 12 OZS
TO PULL SPRING TO INSTALLED LENGTH.

FIGURE 31 TYPER, SPACING MECHANISM
REVERSING SLIDE ADJUSTING STUD

REQUIREMENT

TYPE BOX CLUTCH DISENGAGED.

WITH NO. 3 CODE BAR IN SPACING POSITION (RIGHT), THE REVERSING SLIDE DETENT ROLLERS SHOULD BE FULLY SEATED IN THE RIGHT-HAND NOTCHES OF THE DETENT LEVER

WITH NO. 3 CODE BAR IN MARKING POSITION (LEFT), THE REVERSING SLIDE DETENT ROLLERS SHOULD BE FULLY SEATED IN THE LEFT-HAND NOTCHES OF THE DETENT LEVER.

TO ADJUST

POSITION THE REVERSING SLIDE STUD IN ITS ELONGATED HOLE WITH ITS MOUNTING NUT LOOSENED.

REVERSING SLIDE BRACKETS

REQUIREMENT

TYPE BOX CLUTCH, CODE BAR-CLUTCH, AND FUNCTION CLUTCH DISENGAGED. REVERSING SLIDE MOVED TO RIGHT AND LEFT THROUGH ITS FULL TRAVEL. RIGHT MOTION SHOULD BUCKLE LEFT HORIZONTAL POSITIONING DRIVE LINKAGE AND LEFT MOTION SHOULD BUCKLE RIGHT HORIZONTAL POSITIONING DRIVE LINKAGE.

THE AMOUNT OF BUCKLING IN EACH CASE SHOULD BE

MIN. 0.030 INCH
MAX. 0.045 INCH
MEASURED AT POINT OF MAXIMUM CLEARANCE.

TO ADJUST

POSITION EACH REVERSING SLIDE BRACKET WITH THEIR CLAMP SCREWS LOOSENED.
HORIZONTAL POSITIONING DRIVE LINKAGE

REQUIREMENT
TYPE BOX CLUTCH DISENGAGED.
CODE BARS 5 AND 5 TO SPACING (RIGHT)
CLEARANCE BETWEEN EACH SIDE OF CENTER HORIZONTAL STOP SLIDE AND DECELERATING SLIDES,
ON SIDE WHERE KNEE LINK IS STRAIGHT, SHOULD BE EQUAL (WITHIN 0.005 INCH)
MIN. 0.015 INCH
MAX. 0.040 INCH

TO ADJUST
LOosen TWO MOUNTING SCREWS OF BOTH BEARING STUDS (INNER TWO FRICTION TIGHT).
POSITION ONE OR BOTH BEARING STUDS ON THE CONNECTING STRIP TO PROVIDE 0.025
INCH TO 0.035 INCH BETWEEN THE CENTER HORIZONTAL SLIDE AND THE DECELERATING
SLIDE ON THE SIDE WHERE THE LINKAGE IS NOT BUCKLED. TIGHTEN THE TWO INNER
MOUNTING SCREWS. CHANGE POSITION OF REVERSING SLIDE AND CHECK OPPOSITE
CLEARANCE. EQUALIZE BY SHIFTING BOTH STUDS AND CONNECTING STRIP AS A UNIT.
HOLD THE DRIVE LINKAGE HUB AGAINST THE LOWER VERTICAL LINK OF THE DRIVE
LINKAGE. tighten THE TWO OUTER BEARING STUD MOUNTING SCREWS. CHECK THE
LINKAGE FOR FREENESS THROUGHOUT A COMPLETE CYCLE.

FIGURE 33  TYPER, SHIFT SLIDE DRIVE MECHANISM
FUNCTION RESET BAIL BLADE

(1) REQUIREMENT
CLEARANCE BETWEEN FRONT EDGE OF CARRIAGE RETURN AND INNER LINE FEED FUNCTION BARS AND
EDGE OF RESET BAIL WHEN FUNCTION BARS ARE HELD IN THEIR EXTREME REAR POSITION
MIN. 0.018
MAX. 0.030 INCH
NOTE: ANY UNIT WITH FUNCTION BARS LOCATED BETWEEN THE NO. 10 AND NO. 30 SLOT, MEASURE
CLEARANCE ON FUNCTION BARS CLOSEST TO EACH OF THE BLADE INNER MOUNTING SCREWS.

TO CHECK
DISSENGAGE FUNCTION AND TYPE BOX CLUTCHES AND UNLATCH FUNCTION PAWLS FROM THEIR RESPECTIVE
FUNCTION BARS. LOOSEN CARRIAGE RETURN LEVER CLAMP SCREWS.

TO ADJUST
POSITION BLADE ON FUNCTION BAIL WITH ITS MOUNTING SCREWS FRICTION TIGHT.

(2) REQUIREMENT
TYPE BOX CLUTCH ROTATED 1/2 REVOLUTION. EACH FUNCTION LEVER IN TURN HELD IN ITS EXTREME
REAR POSITION. LATCH ASSOCIATED FUNCTION PAWL ONE AT A TIME. HOOK SCALE OVER END OF
FUNCTION PAWL. WITH NOT MORE THAN 16 OZS. APPLIED, THE CLEARANCE BETWEEN FUNCTION PAWL AND
ITS BAR SHOULD NOT BE LESS THAN 0.006 INCH.
NOTE: DO NOT LATCH MORE THAN ONE FUNCTION PAWL AT A TIME. THE SHIFT CODE BAR SHOULD HAVE
SOME END PLAY WHEN LETTERS AND FIGURES FUNCTION PAWLS ARE ALTERNATELY LATCHED ON THEIR
BARS

TO ADJUST
REFINE ABOVE ADJUSTMENT AND/OR SHIFT CODE BAR OPERATING MECHANISM, ADJUSTMENT. ALSO STUNT
SHIFT MECHANISM ADJUSTMENT AND ZERO CODE
BAR MECHANISM ADJUSTMENT.

FIGURE 34 TYPER, RESET BAIL MECHANISM
INSTRUCTIONS FOR REMOVING FRONT PLATE ASSEMBLY

NOTE --- REMOVE ONLY FOR SERVICING

REMOVE TYPING UNIT FROM BASE (SEE P.3-2). REMOVE RETAINING RING FROM TYPE BOX CARRIAGE LINK RIGHT STUD AND DISENGAGE LINK FROM CARRIAGE (SEE FIG. 43). REMOVE TWO SCREWS WHICH SECURE HORIZONTAL MECHANISM ROCKER BRACKET TO ROCKE R SHAFT. REMOVE SPACING SHAFT GEAR. REMOVE FOUR SCREWS WHICH SECURE FRONT PLATE ASSEMBLY TO TYPER FRAME AND PULL FRONT PLATE FORWARD TO DISENGAGE IT FROM CONNECTING PARTS OF THE UNIT. REINSTALL IN REVERSE ORDER. MAKE SURE THAT HORIZONTAL STOP BELL CRANKS, SHIFT SLIDE LEVER, REVERSING SLIDE LEVER, AUTOMATIC C.R.-L.F. BELL CRANK, AND CARRIAGE RETURN LEVER EXTENSION ARE PROPERLY ENGAGED WITH MATING PARTS BEFORE TIGHTENING PLATE MOUNTING SCREWS. REPLACE SPACING SHAFT GEAR (SEE P. 2-25 FOR PHASING)

LEFT VERTICAL SLIDE PROJECTION

LEFT VERTICAL POSITIONING LOCK LEVER

CLAMP SCREWS

INNER EXTENSION

LEFT MAIN SIDE LEVER

LEFT FOLLOWER ARM REAR EXTENSION

VERTICAL POSITIONING LOCK LEVER REQUIREMENT (See Note 3 Page 2-1)

LETTERS COMBINATION SET UP ON CODE BARS.

MAIN SIDE OPERATING LEVERS AT THE UPPER END OF TRAVEL. UPPER NOTCH OF VERTICAL POSITIONING LOCK LEVER FULLY ENGAGED (MANUALLY IF NECESSARY) WITH THE VERTICAL SLIDE PROJECTION. THE UPPER SURFACE OF THE FOLLOWER ARM REAR EXTENSION SHOULD BE IN CONTACT WITH OR NOT MORE THAN 0.004 INCH AWAY FROM THE INNER EXTENSION OF THE MAIN SIDE LEVER.

TO ADJUST

POSITION THE RIGHT AND LEFT VERTICAL POSITIONING LOCK LEVERS WITH THEIR CLAMP SCREWS LOOSENED. TAKE UP PLAY.
Figure 36: Type Spacing Mechanism

Lower Wire Rope Pulley Spring Requirement

Spring unhooked from pulley bail, bail extension resting on opening in front plate.

Min. 18 ozs.
Max. 22 ozs.

To pull spring to position length.

Carriage Wire Rope Requirement (See Note 3 Page 2-1)

Clearance between lower wire rope and carriage return latch bail post should be at least 0.006 inch. With the horizontal positioning mechanism in its lowest position, clearance between the lower wire rope and the left horizontal positioning drive linkage should be.

Min. 0.030 inch

To adjust:

Return the printing carriage to its left hand position. Loosen the rope clamp screw one turn only. Position the pulley bearing studs with their mounting screws loosened to meet the requirement. Make certain that the rope moves around its clamp screw to an equalized position. Tighten the clamp screw and mounting screws.
PRINTING HAMMER OPERATING BAIL
SPRING BRACKET
PRINTING CARRIAGE
ESCAPEMENT LEVER

CARRIAGE RETURN SPRING
REQUIREMENT
SPACING DRUM IN ITS RETURNED POSITION, PRINTING TRACK IN LOWER POSITION TRANSFER SLIDE AND CARRIAGE RETURN LATCH HELD AWAY MIN. 3 LBS.
MAX. 3 1/2 LBS.
TO START THE SPRING DRUM MOVING.
TO ADJUST
ROTATE THE SPRING DRUM RATCHET WHEEL WITH THE SPRING DRUM NUT LOOSENED TO INCREASE TENSION. OPERATE ESCAPEMENT LEVER TO DECREASE IT.

SPACING FEED PAWL RELEASE LINK
SPRING TENSION
REQUIREMENT
MIN. 1/2 OZ.
MAX. 2 1/2 OZS.
TO START SPRING STRETCHING

SPACING FEED PAWL
RELEASE LINK
SPRING DRUM NUT
TRANSFER SLIDE

FIGURE 37
TYPE CARTRIDGE RETURN MECHANISM
INSTRUCTIONS FOR REMOVING CODE BAR ASSEMBLY

NOTE — REMOVE ONLY FOR SERVICING

REMOVE TYPING UNIT FROM BASE. (SEE P. 3-2) REMOVE STUNT BOX ASSEMBLY (P 2-50) AND FRONT PLATE ASSEMBLY (P2-35) REMOVE CODE BAR ASSEMBLY MOUNTING SCREWS—2 EACH SIDE. REMOVE CODE BAR SHIFT BAR RETAINER PLATE AND THE SHIFT BARS. PULL THE CODE BAR ASSEMBLY FORWARD AND TO THE LEFT. REINSTALL CODE BAR ASSEMBLY IN REVERSE ORDER. LOOSEN TIE BAR SCREWS AND PRESS THE ASSEMBLY TOWARD THE REAR AND DOWNWARD AGAINST THE LOCATING SURFACES.

CARRIAGE RETURN LATCH BAIL

REQUIREMENT
CARRIAGE FULLY RETURNED (SEE FIG. 41). CLEARANCE BETWEEN RIGHT-HAND SIDE OF CARRIAGE RETURN LEVER AND THE LEFT EDGE OF THE CARRIAGE RETURN LATCH BAIL.
MIN. 0.004 INCH
MAX. 0.025 INCH
TO ADJUST POSITION THE LATCH BAIL PLATE WITH ITS CLAMP SCREW LOOSENED.

FIGURE 38 TYPER, CARRIAGE RETURN MECHANISM
FUNCTION PAWL

CARRIAGE RETURN FUNCTION BAR

UNSHIFT ON SPACE

FUNCTION PAWL

CARRIAGE RETURN FUNCTION BAR

SPACING FEED PAWL

CARRIAGE RETURN FUNCTION SET UP ON SELECTOR. MAIN SHAFT ROTATED UNTIL FUNCTION CLUTCH IS DISENGAGED IN STOP POSITION THAT RESULTS IN LEAST CLEARANCE. CARRIAGE RETURN FUNCTION PAWL HOOKED ONTO ITS FUNCTION BAR. SPACING DRUM HELD SO THAT THE CARRIAGE RETURN LATCH BAIL IS IN ITS LATCHED POSITION. CLEARANCE BETWEEN LATCHING FACE OF CARRIAGE LATCH BAIL AND TOP OF CARRIAGE RETURN LEVER MIN. 0.006 INCH MAX. 0.025 INCH POSITION THE CARRIAGE RETURN LEVER ON THE CARRIAGE RETURN BAIL WITH ITS CLAMP SCREW LOOSENED

CARRIAGE RETURN LEVER

REQUIREMENT

CARRIAGE RETURN BAIL

RIGHT SIDE FRAME (REAR VIEW)

(FRONT TOP VIEW)

RELEASE LINK

SPACING FEED PAWL

CARRIAGE RETURN LATCH BAIL

CARRIAGE RETURN LEVER

CARRIAGE RETURN LEVER CLAMP SCREW

(LAST SIDE VIEW)

FIGURE 39 TYPER, CARRIAGE RETURN MECHANISM

ORIGINAL
DASH POT VENT SCREW REQUIREMENT (See Note 3 Page 2-1)

TYPE BOX CARRIAGE SHOULD RETURN FROM ANY LENGTH OF LINE WITHOUT BOUNCING WHEN THE PRINTER IS OPERATED UNDER POWER FROM AUTOMATIC TRANSMISSION OF ONE CR AND ONE LF SIGNAL BETWEEN LINES AT ANY SPEED. THE FIRST CHARACTER OF EACH LINE SHOULD BE PRINTED IN THE SAME LOCATION (GAUGED BY EYE) AS IT WOULD IF THE UNIT WERE OPERATED SLOWLY IN MANUAL OPERATION TO ADJUST

BACK OFF THE VENT SCREW UNTIL A MECHANICAL BOUNCE IS PERCEPTIBLE THEN ADVANCE THE SCREW UNTIL A SLIGHT PNEUMATIC BOUNCE IS PERCEPTIBLE. LOCK THE SCREW HALF WAY BETWEEN THE TWO POSITIONS.

TRANSFER SLIDE SPRING TENSION REQUIREMENT

TRANSFER SLIDE IN EXTREME LEFT POSITION.

SPRING UNHOOKED.

MIN. 3 1/2 OZS

MAX. 4 1/2 OZS.

TO PULL SPRING TO INSTALLED LENGTH.

DASH POT VENT SCREW

FIGURE 40 TYPER, DASHPOT MECHANISM

INSTRUCTIONS FOR REPLACING THE SPACING CABLES

NOTE --- DO NOT REMOVE UNLESS THERE IS REASON TO BELIEVE THAT THE ADJUSTMENTS CAN NOT BE MADE.

CARRIAGE CABLE

RETURN THE CARRIAGE TO THE LEFT POSITION. UNWIND CARRIAGE RETURN SPRING BY LOOSENING NUT ON FRONT OF SPRING DRUM BEARING POST AND OPERATING RATCHET ESCAPEMENT LEVER. REMOVE CABLE FROM CLAMP ON PRINTING CARRIAGE, AND THE CLAMP ON TYPE BOX DRIVING SLIDE. LOOSEN CLAMP SCREW WHICH SECURES CABLE TO SPRING DRUM, AND REMOVE SCREW IN SPACING DRUM WHICH SECURES THE ENDS OF THE CABLE, AND REMOVE CABLE FROM DRUM. REPLACE IN REVERSE ORDER.

LOWER TIE CABLE

REMOVE SCREW WHICH SECURES CABLE TO SPACING DRUM AND REMOVE END OF CABLE FROM THE DRUM. LOOSEN SCREWS WHICH SECURE MARGIN BELL CONTACT CAM PLATE ON SPACING DRUM AND POSITION THE PLATE TO EXPOSE CABLE MOUNTING SCREW. REMOVE CABLE SCREW AND REMOVE CABLE FROM SPRING DRUM. LOOSEN SCREWS IN BEARING STUDS ON PRINTING CARRIAGE CABLE ROLLERS AND MOVE STUDS TOWARD CENTER OF TYPING UNIT. REPLACE IN REVERSE ORDER. WHEN INSTALLING CABLE OBSERVE THAT EACH CABLE IS IN ITS CORRECT TRACK AROUND DRUMS. (LOWER CABLE SHOULD BE TOWARD FRONT OF DRUM) ADJUST POSITION OF TYPE BOX, PRINTING CARRIAGE, MARGIN CONTACT CAM PLATE AND CABLE TENSION AS SPECIFIED IN ADJUSTING REQUIREMENTS.
LEFT HAND MARGIN
(1) REQUIREMENT (FOR 72 CHARACTER LINE) (See Note 3 Page 2–1)
TYPE BOX CLUTCH DISENGAGED. SPACING DRUM IN RETURNED POSITION
TYPE BOX SHIFTED TO THE LETTERS POSITION. CENTER OF THE LETTERS
PRINT INDICATOR ON THE TYPE BOX SHOULD BE
MIN. 9/16 INCH
MAX. 11/16 INCH
FROM THE LEFT EDGE OF THE PLATEN

AUTOMATIC CR - LF BELL
CRANK SPRING
REQUIREMENT
FUNCTION CLUTCH DISENGAGED
MIN. 6½ OZS.
MAX. 11 OZS.
TO MOVE THE BELL CRANK

(2) REQUIREMENT
SPACING CLUTCH DISENGAGED.
SPACING DRUM FULLY RETURNED. CLEARANCE AT CLOSEST POINT BETWEEN THE OPERATING FACE OF THE FRONT SPACING FEED PAWL WHEN FARTHEST ADVANCED AND THE FACE OF A TOOTH ON RATCHET WHEEL SHOULD BE
MIN. 0.004 INCH
MAX. 0.012 INCH
CHECK THE REAR PAWL WHEN IT IS FARTHEST ADVANCED TO MAKE CERTAIN THAT IT DROPS INTO A TOOTH IN THE RATCHET WHEEL.

TO ADJUST
POSITION THE STOP ARM ON THE SPACING DRUM WITH ITS MOUNTING SCREWS LOOSENED.

NOTE
FOR LINES OTHER THAN 72 CHARACTERS IN LENGTH, THE MARGIN MAY BE VARIED AS REQUIRED.
RIGHT MARGIN (See Note 3 Page 2-1)
REQUIREMENT (OPERATING ON BASE)
TYPE BOX CARRIAGE IN POSITION
TO PRINT CHARACTER ON WHICH
SPACING CUTOUT IS DESIRED.
FRONT SPACING PAWL FARthest
ADVANCED. CLEARANCE BETWEEN
UPPER EDGE OF SPACING CUTOUT
LEVER AND CUTOUT TRANSFER
BAIl WHEN SPACING CUTOUT
TRANSFER BAIl IS HELD IN ITS
EXTREME UPPER POSITION
MIN. 0.006 INCH
MAX. 0.025 INCH

TO ADJUST
POSITION THE CUTOUT LEVER WITH
ITS CLAMP SCREW LOOSENED.

SPACING CUTOUT LEVER
SPACING CUTOUT TRANSFER BAIL SPRING TENSION
REQUIREMENT
MIN. 1 OZ.
MAX. 3-1/2 OZS.
TO START BAIL MOVING.

DECELERATING SLIDE
DECELERATING SLIDE BELL CRANK
DECELERATING SLIDE BELL CRANK SPRING TENSION
REQUIREMENT
MIN. 3/4 OZ.
MAX. 1 1/4 OZS.
TO START PAWLS MOVING.
CHECK LEFT AND RIGHT.

FIGURE 42  TYPER, RIGHT MARGIN AND DECELERATING SLIDE MECHANISM
CARRIAGE WIRE ROPE CLAMP SCREWS LOOSENED. PLAY OF CARRIAGE ON ITS GUIDE RAIL SHOULD BE MINIMUM WITHOUT BIND THROUGHOUT FULL LENGTH OF GUIDE RAIL TO ADJUST ROTATE THE LOWER ROLLER ECCENTRIC WITH ITS NUT FRICTION TIGHT. KEEP CHAMFERED CORNER OF ECCENTRIC TOWARD RIGHT SIDE OF UNIT.

TYPE BOX CARRIAGE ROLLER ARM SPRING REQUIREMENT

MIN. 28 OZS. MAX. 36 OZS.

TO START THE UPPER ROLLER NEAREST THE TYPE BOX LATCH MOVING AWAY FROM THE CARRIAGE TRACK

PRINTING CARRIAGE POSITION REQUIREMENT (See Note 3 Page 2-1)

TYPE BOX IN LETTERS POSITION. "M" TYPE PALLET SELECTED. WITH TYPE BOX IN PRINTING POSITION THE "M" TYPE PALLET SHOULD BE APPROXIMATELY IN THE CENTER OF THE PRINTING HAMMER WHEN THE PRINTING HAMMER IS JUST TOUCHING THE "M" TYPE PALLET.

TO ADJUST POSITION THE PRINTING CARRIAGE ON THE WIRE ROPE WITH ITS CLAMP SCREWS LOOSENED.

FIGURE 43  TYPER, PRINTING AND TYPE BOX CARRIAGE
CARRIAGE NEAR MIDPOINT OF PLATEN. TYPE BOX IN POSITION TO PRINT "M". MANUALLY BUCKLE RIGHT SHIFT LINKAGE AND SHIFT TYPE BOX TO LEFT. THE PERIOD TYPE PALLET SHOULD BE APPROXIMATELY IN THE CENTER OF THE PRINT HAMMER WHEN THE PRINT HAMMER IS JUST TOUCHING THE PERIOD TYPE PALLET.

TO ADJUST
POSITION THE LEFT SHIFT LINKAGE ON THE OSCILLATOR RAIL WITH ITS TWO CLAMP SCREWS LOOSENED.

RECHECK THE ADJUSTMENT BY SHIFTING ALTERNATELY FROM M TO PERIOD. TAKE UP PLAY IN EACH DIRECTION AND REFINE THE ADJUSTMENT IF NECESSARY.
PRINTING TRACK

REQUIREMENT (See Note 3 Page 2-1)
PRINTING TRACK IN ITS EXTREME DOWNWARD POSITION. BLANK SELECTION IN FIGURES.
PRINTING HAMMER OPERATING BAIL LATCHING EXTENSION HELD WITH LEFT FACE IN LINE
WITH THE LATCH SHOULDER. PRINTING ARM SLIDE POSITIONED ALTERNATELY OVER EACH
TRACK MOUNTING SCREW. PRINTING BAIL RESET EACH TIME. CLEARANCE BETWEEN LATCHING
EXTENSION AND OPERATING BAIL LATCH SHOULD BE
MIN. 0.015 INCH
MAX. 0.040 INCH
TO ADJUST
POSITION THE PRINTING TRACK UP OR DOWN WITH ITS MOUNTING SCREWS LOOSENED.

PRINTING HAMMER OPERATING BAIL
OPERATING BAIL LATCH
PRINTING HAMMER PLUNGER SPRING TENSION
REQUIREMENT
MIN. 3 OZS.
MAX. 5 3/4 OZS.
TO START PLUNGER MOVING.

PRINTING HAMMER BAIL
PRINTING HAMMER
YIELD SPRING
SPRING ADJUSTING BRACKET
PRINTING HAMMER YIELD SPRING TENSION
REQUIREMENT
OPERATING BAIL LATCHED.
SPRING ADJUSTING BRACKET IN LEFT-
HAND NOTCH. HAMMER YIELD SPRING
UNHOOKED.
MIN. 10 OZS.
MAX. 13 OZS.
TO START BAIL MOVING.

PRINTING HAMMER OPERATING BAIL SPRING
TENSION (NOT AS ILLUSTRATED)
REQUIREMENT
PRINTING HAMMER OPERATING BAIL AGAINST ITS STOP.
MIN. 1 1/2 OZS.
MAX. 2 1/2 OZS.
TO START HAMMER BAIL MOVING
(HORIZONTAL POSITION).

PRINTING HAMMER OPERATING BAIL LATCH
SPRING TENSION (NOT AS ILLUSTRATED)
REQUIREMENT
PRINTING TRACK IN ITS EXTREME UPWARD
POSITION.
MIN. 3 OZS.
MAX. 4 1/2 OZS.
TO START LATCH MOVING.
PRINTING HAMMER STOP BRACKET

REQUIREMENT
TYPE BOX, IN BLANK POSITION AND NEAR CENTER OF PLATEN. PRINTING BAIL IN ITS DOWNWARD POSITION. PRINTING HAMMER HELD AGAINST ITS STOP WITH 8 OZS. OF PRESSURE, CLEARANCE BETWEEN PRINTING HAMMER AND DUMMY TYPE PALLET MIN. 0.015 INCH MAX. 0.030 INCH
TO ADJUST POSITION THE STOP BRACKET WITH ITS MOUNTING SCREWS AND THE PRINTING HAMMER BAIL PIVOT STUD LOOSENED.

NOTE
THE PRINTING ARM ADJUSTMENT SHOULD ALWAYS BE MADE WITH THE PRINTING HAMMER OPERATING BAIL SPRING BRACKET (FIGURE -37 ) IN THE NO 1 POSITION. POSITIONS NO. 2 AND NO. 3 ARE TO BE USED ONLY FOR MAKING MULTIPLE COPIES.

(See Note 3 Page 2-1)
RIBBON REVERSE SPUR GEAR REQUIREMENT

When right reversing lever is in maximum downward position, the left reversing lever should be in its maximum upward position.

To adjust:
Loosen the set screws in the detent cam. Loosen the left spur gear nut. Securely tighten the right spur gear nut. Move the right reversing lever to its maximum downward position and hold the left reversing lever in its maximum upward position. Then tighten the left spur gear nut.

RIBBON REVERSE DETENT LEVER SPRING TENSION REQUIREMENT

Detent seated in notch of cam. Right ribbon reversing lever held downward.

Min. 6½ ozs.
Max. 9 ozs.
To start the detent lever moving.

RIBBON REVERSE DETENT REQUIREMENT

Detent should be seated approximately equal in each notch of cam. Free end of the detent flush with cam.

To adjust:
Position the cam on its shaft with its set screws loosened.

FIGURE 47 TYPER, RIBBON REVERSE MECHANISM
RIBBON FEED LEVER BRACKET

(1) REQUIREMENT (LEFT-HAND MECHANISM)
LEFT REVERSING LEVER IN UPWARD POSITION.
RIBBON MECHANISM IN UPPER POSITION
RATCHET WHEEL HELD AGAINST THE DETENT LEVER.
CLEARANCE BETWEEN THE FRONT FACE OF THE
FEED LEVER AND THE SHOULDER OF A TOOTH
ON THE RATCHET WHEEL
MIN. 0.020 INCH
MAX. 0.030 INCH
TO ADJUST
POSITION THE FEED LEVER BRACKET WITH ITS
MOUNTING SCREWS LOOSENED.

(2) REQUIREMENT (RIGHT-HAND MECHANISM)
RIGHT REVERSING LEVER AND RIBBON
MECHANISM IN UPWARD POSITION.
ADJUST FEED LEVER BRACKET IN THE
SAME MANNER.

NOTE
ROTATE THE MAIN SHAFT. THE
RATCHET WHEEL SHOULD STEP ONE
TOOTH ONLY WITH EACH OPERATION.

RIBBON FEED LEVER SPRING TENSION

REQUIREMENT
FEED LEVER AND DETENT LEVER IN RATCHET
WHEEL TOOTH. SCALE APPLIED VERTICALLY TO EACH
LEVER NEAR FEED LEVER SPRING
MIN. 3/4 OZ.
MAX. 2 OZ.
TO START EACH LEVER MOVING DOWNWARD. CHECK
LEFT AND RIGHT. IF NECESSARY ADJUST TORSION
SPRING BY PULLING LOWER END TOWARD REAR.

RIBBON RATCHET WHEEL FRICTION

SPRING TENSION
REQUIREMENT
FEED LEVERS DISENGAGED.
MIN. 3 OZS.
MAX. 7 1/2 OZS.
TO START THE RATCHET WHEEL MOVING

FIGURE 48  TYPER, RIBBON FEED MECHANISM
RIBBON REVERSE SPRING TENSION REQUIREMENT

MIN. 1 1/2 OZS.
MAX. 3 OZS.

TO START THE LEVER MOVING, CHECK BOTH RIGHT AND LEFT SPRINGS.

RIBBON LEVER SPRING
RIBBON LEVER
SPOOL SHAFT

RIBBON TENSION SPRING REQUIREMENT

RIBBON RATCHET WHEEL POSITIONED SO THAT EACH DRIVING PIN IS TOWARD THE OUTSIDE OF THE SPOOL SHAFT.

IT SHOULD REQUIRE

MIN. 3 OZS.
MAX. 5 1/2 OZS.

TO START SPOOL SHAFT MOVING.

FIGURE 49  TYPER, RIBBON REVERSE MECHANISM
INSTRUCTIONS FOR REMOVING STUNT BOX ASSEMBLY

NOTE — — — REMOVE ONLY FOR SERVICING

REMOVE TYPING UNIT FROM BASE (SEE P.3-2). REMOVE THE STUNT BOX MOUNTING SCREWS AND DISCONNECT STRIPPER BAIL ARM (FIG. 55).

SLIDE UPPER END OF STRIPPER DRIVING LINK TO THE RIGHT (REAR VIEW) TO DISENGAGE LINK FROM STRIPPER BLADE DRIVING ARM. LIFT STUNT BOX ASSEMBLY UPWARD AND PULL TOWARD THE REAR TO DISENGAGE SHIFT FORKS AND PILOT PINS FROM CODE BAR ASSEMBLY. REMOVE CONTACT ASSEMBLY.

REINSTALL STUNT ASSEMBLY IN REVERSE ORDER. PUSH THE ASSEMBLY FORWARD IN ITS GUIDE RAILS TO WITHIN 1/8" OF ITS FINAL POSITION, THEN MANUALLY DISENGAGE FUNCTION PAWLS FROM THEIR FUNCTION LEVERS AND PUSH FUNCTION ASSEMBLY FORWARD AND DOWN TO LATCH IN PLACE.

INSTRUCTIONS FOR INSTALLING FUNCTION BARS IN STUNT BOX

NOTE — — — TYPING UNITS ARE FURNISHED WITHOUT THE FUNCTION BARS ASSOCIATED WITH THE AREA CALL, STATION CALL, OR RELAY CALL (IF REQUIRED). REFER TO P-51 FOR LOCATION AND P. 51 FOR IDENTIFICATION OF FUNCTION BARS CORRESPONDING TO ASSIGNED CALL.

OBSERVE POSITION OF EACH STUNT CASE FUNCTION BAR.

CAUTION — — — DO NOT OPERATE TYPER UNTIL ALL FUNCTION BARS HAVE BEEN INSTALLED FOR WHICH CORRESPONDING FUNCTION PAWLS AND FUNCTION LEVERS HAVE BEEN SUPPLIED.


REMOVE THE FUNCTION BAR IN THE REVERSE ORDER.

FIGURE 50 TYPER, STUNT BOX MECHANISM
## Function Bar Position for Sequential Selection

<table>
<thead>
<tr>
<th>SLOT NO.</th>
<th>TYING UNIT Responds To</th>
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<th>A.J.</th>
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**WARNING** --- DO NOT OPERATE TYING UNIT WITHOUT INSTALLING ALL THE FUNCTION BARS.

### Stunt Case Function Bars

**Initial Function Bar for Area, Station or Relay Call Code**

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<th>CHARACTER</th>
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### Common Function Bars

**Successive Function Bars for Area, Station or Relay Call Code**

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**Figure 51 Typer, Stunt Box Mechanism**
FUNCTION BAR SPRING TENSION

REQUIREMENT

FUNCTION CLUTCH DISENGAGED.
FUNCTION PAWL HELD AWAY.
MIN. 2 1/2 OZS.
MAX. 3 1/2 OZS.
TO START FUNCTION BAR MOVING

FUNCTION PAWL SPRING

FUNCTION PAWL

FUNCTION LEVER SPRING TENSION

NOTE: IF A FUNCTION LEVER OPERATES A CONTACT, HOLD OFF THE CONTACT WHEN CHECKING THE SPRING TENSION.

REQUIREMENT

FUNCTION LEVER IN UNOPERATED POSITION
SUPPRESSION BAIL HELD FORWARD
MIN. 1 1/2 OZS.
MAX. 2 3/4 OZS.
CHECK EACH SPRING

FUNCTION BAR SPRING

FUNCTION BAR

FUNCTION LEVER

FUNCTION LEVER SPRING

SUPPRESSION BAIL

FIGURE 52 TYPER, STUNT BOX MECHANISM
CONDITION CODE SHIFT FORK SPRING REQUIREMENT

WITH CONDITION CODE SHIFT FORK IN ITS UNOPERATED POSITION.
MIN. 1 OZ.
MAX. 3 OZS.
TO PULL SPRING TO ITS INSTALLED POSITION

AUTOMATIC CARRIAGE RETURN — LINE FEED BLOCKING SLIDE SPRING REQUIREMENT

WITH CONDITION CODE SHIFT FORK IN ITS UNOPERATED POSITION.
MIN. 1 OZ.
MAX. 3 OZS.
TO PULL SPRING TO ITS INSTALLED LENGTH.

FIGURE 53  TYPER, STUNT BOX MECHANISM
FIGURES AND LETTERS CODE BAR SHIFT MECHANISM

NOTE——ROTATE FUNCTION CLUTCH UNTIL FUNCTION BARS ARE IN THEIR EXTREME REAR POSITION.

(1) REQUIREMENT

HOOK LETTERS FUNCTION PAWL OVER END OF FUNCTION BAR (FIGS. PAWL DISENGAGED).
CLEARANCE BETWEEN LOWER GUIDE PLATE EXTENSION AND LETTERS SHIFT SLIDE.

MIN. 0.005 INCH  MAX. 0.015 INCH

(2) REQUIREMENT

HOOK FIGURES FUNCTION PAWL OVER END OF FUNCTION BAR (LTRS. PAWL DISENGAGED).
CLEARANCE BETWEEN LOWER GUIDE PLATE EXTENSION AND FIGURES SHIFT SLIDE

MIN. 0.005 INCH  MAX. 0.015 INCH

TO ADJUST
POSITION UPPER AND/ OR LOWER GUIDE PLATE BY ITS ADJUSTING SLOT WITH THE CLAMP NUTS LOOSENED.

--- ADJUSTING SLOT ---

FIGURES FUNCTION PAWL

FIGURES SHIFT SLIDE

UPPER GUIDE PLATE EXTENSION

CLAMP NUTS

ADJUSTING SLOT

FUNCTION BAR

FUNCTION LEVER

LOWER GUIDE PLATE EXTENSION

LETTERS SHIFT SLIDE

LETTERS FUNCTION PAWL

ADJUSTING SLOT

FIGURE 54  TYPER, SHIFT MECHANISM
STRIPPER BLADE CAM POSITION

REQUIREMENT

STRIPPER BLADE CAM SHOULD MOVE EACH STRIPPER BLADE ARM AN EQUAL DISTANCE ABOVE AND BELOW CENTER LINE OF ITS PIVOT. (GAUGE BY EYE).

A. UPWARD DIRECTION
B. DOWNWARD DIRECTION

TO CHECK

WITH FUNCTION CLUTCH IN ITS STOP POSITION, OBSERVE ENGAGEMENT OF STRIPPER BLADE CAM (UPPER PEAK) WITH STRIPPER BLADE ARM. THEN ROTATE CLUTCH TO TURN CAM TO ITS EXTREME DOWNWARD POSITION AND OBSERVE ENGAGEMENT OF LOWER CAM PEAK.

TO ADJUST

WITH STRIPPER BLADE DRIVING LINK MOUNTING SCREWS LOOSENED, EQUALIZE THE OVER TRAVEL OF EACH CAM PEAK BY USING SCREW DRIVER ADJUSTMENT ON LINK.

FIGURE 55  TYPER, FUNCTION PAWL STRIPPER.
CONTACT ASSEMBLY

FUNCTION CONTACT SPRING

REQUIREMENT
MIN. 1 OZ.
MAX. 2 OZS.
TO OPEN CONTACTS

FUNCTION LEVER (UNOPERATED)

CONTACTS NORMALLY OPEN

FUNCTION CONTACT SPRING

REQUIREMENT
MIN. 1 OZ.
MAX. 2 OZS.
TO OPEN CONTACTS

FUNCTION LEVER (OPERATED)

CONTACTS NORMALLY CLOSED

FIGURE 56 TYPER, FUNCTION CONTACTS
LINE FEED SPUR GEAR DETENT ECCENTRIC
REQUIREMENT
LINE FEED CLUTCH DISENGAGED.
PLATEN ROTATED UNTIL DETENT STUD IS SEATED BETWEEN TWO TEETH ON LINE FEED SPUR GEAR. WHEN HAND WHEEL IS RELEASED, THE TEETH ON THE FEED BARS SHOULD MESH WITH THE TEETH ON THE LINE FEED SPUR GEAR.
TO ADJUST
ROTATE THE DETENT ECCENTRIC WITH ITS MOUNTING SCREWS LOOSENED. KEEP HIGH PART OF ECCENTRIC UPWARD.

LINE FEED BAR RELEASE LEVER SPRING TENSION
REQUIREMENT
MIN. 3 OZS.
MAX. 8 OZS.
TO START LEVER MOVING.

LINE FEED BAR BELL CRANK SPRING TENSION
REQUIREMENT
ONE LINE FEED BAR IN REAR POSITION
MIN. 19 OZS.
MAX. 24 OZS.
TO START BAR MOVING.

PLATEN DETENT BAIL SPRING TENSION
REQUIREMENT
DETENT SEATED BETWEEN TWO TEETH ON LINE FEED SPUR GEAR.
MIN. 20 OZS.
MAX. 28 OZS.
TO START DETENT BALL MOVING

FIGURE 57 TYPER, LINE FEED MECHANISM
INSTRUCTIONS FOR REMOVING THE MAIN SHAFT ASSEMBLY

NOTE --- REMOVE ONLY FOR SERVICING

REPLACE PRINTER FROM BASE (SEE P.3-2). REMOVE SELECTOR CAM ASSEMBLY (SEE 2-14), REMOVE CLAMP COLLAR (WITH OILER) FROM RIGHT END OF SHAFT. PLACE CARRIAGE IN ITS LEFT POSITION. REMOVE SCREW WHICH SECURES SPACING SHAFT (FIG. 25) IN SPACING PAIL ASSEMBLY AND REMOVE SPACING SHAFT WITH GEAR. REMOVE MAIN SHAFT RIGHT HAND BEARING RETAINER PLATE. REMOVE TYPE BOX CLUTCH CONNECTING LINK RETAINER PLATE AT THE CLUTCH STUD AND REMOVE STUD. REMOVE LEFT BEARING RETAINER MOUNTING SCREWS. SLIDE UPPER END OF STRIPPER DRIVING LINK TO THE RIGHT (REAR VIEW) TO DISENGAGE LINK FROM STRIPPER BLADE DRIVING ARM. UNHOOK SPRINGS FROM STOP LEVERS AND LATCH LEVERS ON ALL CLUTCHES AND THE CLUTCH TRIP SHAFT CAM FOLLOWER SPRINGS POSITION CODE BAR CLUTCH SO THAT LOW PART OF TRIP CAM CLEAR$ CAM FOLLOWER. MOVE MAIN SHAFT ASSEMBLY TOWARD THE LEFT TO DISENGAGE THE CODE BAR CLUTCH AND FUNCTION CLUTCH LINKS FROM THEIR CONNECTING PINS. LIFT LEFT END OF SHAFT OUT OF THE SIDE FRAME AND POSITION THE SHAFT SO THAT THE FUNCTION

INSTRUCTIONS FOR REMOVING THE PLATEN

NOTE --- REMOVE ONLY FOR SERVICING

REPLACE PLATEN, GEAR, PLATEN BEARING RETAINERS AND PAPER FINGER SHAFT. HOLD OFF DETENT AND LIFT PLATEN OUT OF SIDE FRAME. REPLACE IN THE REVERSE ORDER. WHEN REPLACING THE PLATEN BEARING RETAINERS, PUT THE RETAINER UPPER SCREW IN FIRST. LEAVE SCREW SLIGHTLY LOOSE. PRESS LOWER END OF RETAINER DOWN AND HOOK IT INTO ELONGATED HOLE IN SIDE FRAME. REPLACE LOWER SCREW. TIGHTEN BOTH SCREW.

SPACING SUPPRESSION BAIL SPRING

TENSION

REQUIREMENT

SPACING SUPPRESSION BAIL IN REAR POSITION. SCALE APPLIED NEAR CENTER OF HORIZONTAL PORTION OF BAIL.

MIN. 1/2 OZ.

MAX. 1 1/2 OZS.

TO START BAIL MOVING.

FIGURE 58  TYPEN, SPACING SUPPRESSION MECHANISM

ORIGINAL
(1) REQUIREMENT
LINE FEED CLUTCH disengaged and Single - Double Line Feed Lever in Double Line Feed Position.
MIN. 1/2 OZ.
MAX. 2 1/2 OZS.
TO START STRIPPER BAIL ARM MOVING UPWARD.

(2) REQUIREMENT
LINE FEED CLUTCH disengaged and Single - Double Line Feed Lever in Single Line Feed Position.
MIN. 1/2 OZ.
MAX. 2 1/2 OZS.
TO START ARM MOVING TO LEFT.

FIGURE 59  TYPER, SINGLE - DOUBLE LINE FEED MECHANISM
HORIZONTAL STOP SLIDE SPRING TENSION REQUIREMENT

CODE BARS IN MARKING POSITION (LEFT).
TYPE BOX CLUTCH ROTATED ¼ TURN FROM ITS STOP POSITION.
HORIZONTAL MOTION DECELERATING SLIDES (FIG. 33) HELD AWAY FROM HORIZONTAL STOP SLIDES.
MIN. 1/2 OZ. MAX. 1 ½ OZS. FOR UPPER AND LOWER SLIDES
MIN. 1¼ OZS.; MAX. 3 OZS. FOR MIDDLE SLIDE
TO START SLIDE MOVING.
NOTE: WHEN CHECKING UPPER AND LOWER SLIDES, HOLD MIDDLE SLIDE 1/32 INCH FORWARD.

AUTOMATIC CARRIAGE RETURN ARM REQUIREMENT (OPERATING ON BASE)
CARRIAGE IN POSITION TO PRINT TWO SPACES BEFORE THE LAST DESIRED CHARACTERS, AND FRONT SPACING PAWL FARTHEST ADVANCED. CLEARANCE BETWEEN LEADING END OF AUTOMATIC CARRIAGE RETURN ARM AND BELL CRANK.
MIN. 0.040 INCH
MAX. 0.055 INCH
TO ADJUST
POSITION AUTOMATIC CARRIAGE RETURN ARM WITH MOUNTING SCREWS LOOSENED.
NOTE RANGE OF ADJUSTMENT IS FROM 65TH TO 85TH CHARACTERS.
PAPER STRAIGHTENER COLLAR - LEFT
PAPER STRAIGHTENER COLLAR - RIGHT
PAPER STRAIGHTENER SHAFT

Requirement
Left collar spaced
Min. 9/32 inch
Max. 21/64 inch
From the left shoulder on the paper straightener shaft.
Right collar spaced
Min. 1/16 inch
Max. 5/64 inch
From the right shoulder.
To adjust position collars on shaft with set screws loosened.

PAPER STRAIGHTENER LEVER SPRING TENSION
Requirement
Min. 1 1/2 ozs.
Max. 4 ozs.
To start the lever moving.

FIGURE 61 TYPER, PAPER MECHANISM
PAPER FINGER SHAFT

PAPER FINGER

FRONT VIEW

PAPER FINGER ADJUSTMENT REQUIREMENT

The pressure end of the paper fingers should overlap the paper from 3/8 inch to 1/2 inch.

To adjust position the paper fingers by sliding them on their shaft.

PAPER FINGER SPRING TENSION REQUIREMENT

Pull upward on right paper finger to start left paper finger moving from platen.

Min. 3 OZS.
Max. 5 OZS.

PRESSURE ROLLER

PRESSURE ROLLER LEVER SPRING REQUIREMENT

Min. 26 OZS.
Max. 32 OZS.
To start each center lever moving

PAPER PRESSURE BAIL SPRING TENSION REQUIREMENT

Scale hooked over pressure bail at each end of platen.

Min. 10 OZS.
Max. 20 OZS.
To move pressure bail from platen.

FIGURE 62 TYPER, PAPER MECHANISM

2-62
CODE BAR DETENT

REQUIREMENT
FRONT PLATE REMOVED. ALL CLUTCHES DISENGAGED. SHIFT CODE BAR SHOULD DETENT EQUALLY (Gauge By Eye).

TO ADJUST
EQUALIZE THE DETENTING OF THE CODE BARS BY ADDING OR REMOVING SHIMS BETWEEN THE CASTING AND THE CODE BAR BRACKET.

CODE BAR DETENT SPRING TENSION

NOTE
UNLESS THERE IS REASON TO BELIEVE THAT THESE SPRINGS ARE CAUSING OPERATING FAILURE DO NOT CHECK THIS REQUIREMENT.

REQUIREMENT (EXCEPT SUPPRESSOR)
CODE BAR DETENT BRACKET CAREFULLY REMOVED AND CODE BARS REMOVED FROM DETENT BRACKET. SCALE APPLIED TO DETENT BALL AND PULLED IN DIRECTION OF BALL TRAVEL.
MIN. 1 1/2 OZS.
MAX. 3 1/2 OZS.
TO START BALL MOVING AGAINST COMPRESSION OF SPRING. CHECK EACH BAIL

CODE BAR GUIDE BRACKET
CODE BAR DETENT BRACKET
SHIMS

(left side view)

CODE Bar

(detent)

SUP
94
4
3
2
1
0
5
COM.

(code bar)

(front view)

SHIMS

(detent ball)

(top cross section)

CODE BAR YIELD SPRING
REQUIREMENT
SELECTOR CLUTCH, CODE BAR CLUTCH, AND TYPE BOX CLUTCH DISENGAGED. NO. 1 CODE BAR IN SPACING POSITION
MIN. 17 OZS.
MAX. 23 OZS.
TO START CODE BAR SHIFT BAR PIVOT MOVING AWAY FROM CODE BAR. CHECK NO. 2 AND COMMON CODE BAR SHIFT BAR IN THE SAME MANNER.

FIGURE 63 TYPER, CODE BAR DETENT MECHANISM
OPERATING UNDER POWER, THE LAMP SHOULD ILLUMINATE ON THE DESIRED CHARACTER.

TO ADJUST
SET THE TYPE BOX CARRIAGE TO PRINT THE DESIRED CHARACTER AND POSITION THE CAM DISK COUNTERCLOCKWISE ON THE SPRING DRUM WITH ITS THREE MOUNTING SCREWS LOOSENED.

NOTE
THE RANGE OF ADJUSTMENT IS FROM THE 5TH TO 85TH CHARACTER.

FIGURE 64 TYPER, MARGIN INDICATING MECHANISM
LEFT SIDE OF KEYBOARD OR BASE

RIGHT SIDE OF KEYBOARD OR BASE

TYPER MOUNTING SCREWS

TYPER LOCATING STUDS

MOUNTING TYPING UNIT ON KEYBOARD OR BASE

REQUIREMENT

WHEN PLACING THE TYPING UNIT ON THE BASE HOLD IT TILTED SLIGHTLY TO THE RIGHT AND LOWER THE RIGHT END INTO ENGAGEMENT WITH THE RIGHT LOCATING STUD. WHILE EASING THE LEFT END DOWNWARD ROTATE THE MOTOR BY HAND TO PROPERLY MESH THE GEARS. SECURE BY FOUR MOUNTING SCREWS

FIGURE 65 MOUNTING TYPING UNIT
ARMATURE SPRING TENSION
REQUIREMENT
MIN. 1/2 OZ.
MAX. 1 OZ.
TO PUSH THE ARMATURE AGAINST THE CORE (VERTICALLY).

REMOTE SIGNAL BELL
REQUIREMENT
ARMATURE HELD AGAINST THE MAGNET CORE.
CLEARANCE BETWEEN THE ARMATURE BALL AND THE BELL
MIN. 0.020 INCH
MAX. 0.035 INCH
TO ADJUST
BEND THE ARMATURE EXTENSION JUST BELOW THE ARMATURE SPRING.

ARMATURE SPRING
ARMATURE
BELL
ARMATURE BALL

Cradle
REQUIREMENT
TOP OF HINGE BRACKET PARALLEL TO TOP OF HINGE BAR.
TO ADJUST
TURN STOP SCREW WITH LOCK NUT LOOSENED.

STOP SCREW
LOCK NUT
HINGE BAR
HINGE BRACKET

FIGURE 66 REMOTE SIGNAL BELL AND CRADLE
NOTE
THE FOLLOWING ADJUSTMENTS ARE MADE AT THE FACTORY AND SHOULD NOT BE DISTURBED UNLESS THERE IS REASON TO BELIEVE THAT THE PARTS ARE OUT OF ADJUSTMENT OR HAVE BEEN DISASSEMBLED.

REQUIREMENT
DOME SHOULD BE CENTERED (RIGHT TO LEFT) ON CABINET AND PLACED MIN. 1 1/4 INCH MAX. 5/16 INCH FROM FRONT EDGE OF CABINET.

TO ADJUST POSITION DOME WITH THE NUTS, WHICH FASTEN THE DOME TO ITS HINGES, LOOSENED. THEN TIGHTEN NUTS.

REQUIREMENT

TO ADJUST POSITION THE DOME IN THE DOWNWARD DIRECTION WITH THE NUTS WHICH FASTEN THE DOME TO ITS HINGES, LOOSENED. TIGHTEN NUTS.

REQUIREMENT
DOME SHOULD LATCH SECURELY WITH A LIGHT-PROOF SEAL AT THE FRONT OF THE DOME BETWEEN RUBBER GASKET AND TOP EDGE OF THE CABINET.

TO ADJUST BEND THE TWO DOME LATCH CATCHES.

REQUIREMENT
DOME CATCH SHOULD UNLATCH WHEN THE CATCH BUTTON IS DEPRESSED NO DEEPER THAN THE OUTER SURFACE OF THE DOME.
SMALL DOOR CATCH

(1) REQUIREMENT

With small door latched, the rubber gasket should press against the ledge of the dome at all points. The door should be flush within 1/16 inch with top surface of dome.

(2) REQUIREMENT

When door is released from its catch it should spring open at least 1/2 inch.

TO ADJUST

Bend the small door catch. Recheck rear of door to make certain it is flush with or slightly above the dome.

SMALL DOOR

REQUIREMENT

Small door should be centered (left to right) and should be positioned so as to provide a light-tight seal between rubber gasket and ledge of the dome at all points.

TO ADJUST

Loosen the (4) nuts which secure the dome to the dome bracket. Push the hinges against the dome bracket and tighten the (4) nuts. Loosen the (3) nuts which secure the hinge extension to the door. Slide the door to its extreme forward position and position centrally (side to side). Tighten the (3) nuts which secure the hinge extension to the hinges. Position the door so that it is flush with or slightly above the dome and tighten the (4) nuts. Loosen the (3) nuts which secure the hinge extension to the door. Close the door and slide it toward the rear to provide a light-tight seal at the front corners of the door. Tighten the (4) nuts.

SMALL DOOR STOP ARM

REQUIREMENT

Stop arm should be free of binds when door is opened or closed.

TO ADJUST

Loosen the stop arm bracket mounting screws. Close the door. Disconnect the torsion spring. Align stop arm for freeness and tighten mounting screws with door closed. Replace torsion spring.

FIGURE 68 COVER
COPYHOLDER

Requirement
There should be sufficient tension on the line guide to prevent it from slipping down its shaft. It should also hold the copy in place.

To adjust
Remove the nuts from shaft mounting post, and turn the shaft. Replace the shaft mounting post.

Window and Paper Guide

(1) Requirement
The bottom edge of the paper guide should be flush with the bottom edge of the window.

To adjust
Position the paper guide with its mounting screws loosened.

(2) Requirement
The edge of window should barely clear the paper guide when the window is opened or closed.

To adjust
Position window with its retainer screws loosened.

Indicator Lamp

Requirement
Clearance between indicator lamp and translucent button approximately 1/16 inch.

To adjust
Position lamp holder on its bracket with its mounting nut loosened.

Copy Lamp

Requirement
Clearance between copy lamp and cover approximately 1/16 inch.

To adjust
Position lamp holder on its bracket with its mounting nut loosened.
3. SELECTOR RECEIVING MARGIN ADJUSTMENT (FINAL)

When a signal distortion test set is used for determining the receiving margins of the selector, and where the condition of the components is equivalent to that of new equipment, the range and distortion tolerance tabulated in Table 1 should be met.

<table>
<thead>
<tr>
<th>Current</th>
<th>Speed in W.P.M.</th>
<th>Points Range with Zero Distortion</th>
<th>Percentage of Marking and Spacing Bias Tolerated</th>
<th>End Distortion With Scale At Bias Optimum Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.060 Amp.</td>
<td>60</td>
<td>72</td>
<td>40</td>
<td>35</td>
</tr>
<tr>
<td>(Windings Parallel)</td>
<td>75</td>
<td>72</td>
<td>40</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td>100</td>
<td>72</td>
<td>40</td>
<td>35</td>
</tr>
<tr>
<td>0.020 Amp.</td>
<td>60</td>
<td>72</td>
<td>40</td>
<td>35</td>
</tr>
<tr>
<td>(Windings Series)</td>
<td>75</td>
<td>72</td>
<td>40</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td>100</td>
<td>72</td>
<td>35</td>
<td>35</td>
</tr>
</tbody>
</table>
SECTION III
LUBRICATION

1. GENERAL

1.01 The printer set should be lubricated as directed in this section. Their figures indicate points to be lubricated and the kind and quantity of lubricant to be used. Lubricate the printer just prior to placing it in service. After a few weeks in service, relubricate to make certain that all points receive lubrication. The following lubrication schedule should be followed thereafter.

<table>
<thead>
<tr>
<th>Operating Speed (Words per minute)</th>
<th>Lubricating Interval (Typing Unit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>60</td>
<td>3000 hrs. or 1 yr.)</td>
</tr>
<tr>
<td>75</td>
<td>2400 hrs. or 9 mo.) whichever occurs</td>
</tr>
<tr>
<td>100</td>
<td>1500 hrs. or 6 mo.) first</td>
</tr>
</tbody>
</table>

1.02 Use Teletype KS-7470 oil at all locations where the use of oil is indicated. Use KS-7471 grease on all surfaces where grease is indicated except the motor bearings. Apply two drops of KS-7470 oil to motor bearings every four months (depress oiler with metal object). If the motor is disassembled at any time, repack the bearings with KS-7471 grease.

1.03 All spring wicks and felt oilers should be saturated. The friction surfaces of all moving parts should be thoroughly lubricated. However, over lubrication which will permit oil or grease to drip or to be thrown on other parts should be avoided. Take special care to prevent any oil or grease from getting between the selector armature and its magnet pole faces or between electrical contacts.

1.04 Apply a thin film of grease to all gears and the spacing clutch reset cam plate.

1.05 Apply oil to all cams, including the camming surfaces of each clutch disk.

1.06 The photographs show the paragraph numbers referring to particular line drawings of mechanisms and where these mechanisms are located on the unit. Parts in the line drawings are shown in an upright position unless otherwise specified.

1.07 The illustration symbols indicate the following lubrication directions:

- O Apply 1 drop of oil.
- O2 Apply 2 drops of oil.
- O3 Apply 3 drops of oil.
- O20 Apply 20 drops of oil, etc.
- G Apply thin film of grease.
- GF Fill in (spaces between cams) with grease.
- SAT Saturate (Felt oilers, washers, wicks) with oil.
2. DISASSEMBLY

2.01 CABINET DISASSEMBLY

PERFORM OPERATIONS IN NUMERICAL SEQUENCE

1. Disconnect the plug on the cable from the receptacle on the right side of the typing unit.

2. Disconnect the plug on the cable from the receptacle on the left side of the base.

3. Remove the cross bar from the front of the cabinet by loosening the two knurled thumb screws.

4. Remove the four screws holding the base to the cradle assembly and remove the base with automatic typer.

5. Remove the four screws holding the automatic typer to the base and remove typing unit.
4. BASE
4.01 REST BASE BOTTOM SIDE UP

4.02 LOCAL CARRIAGE-RETURN MECHANISM

4.03 LOCAL LINE-FEED MECHANISM
4.04 BASE GEARS AND MARGIN INDICATOR

REST BASE IN UPRIGHT POSITION

4.05 MARGIN-INDICATING MECHANISM

- 02 BEARING SURFACE
- 0 HOOKS-EACH END
- 0 CONTACTING SURFACE

MARGIN-INDICATOR CONTACT LEVER
SPRING
SWITCH PLUNGER

4.06 BASE GEARS

- 02 OILER-EACH END (RIGHT AND LEFT)
- G TEETH (2 GEARS)
- 02 BALL BEARING

MOTOR SHAFT BEARING
INTERMEDIATE GEARS
INTERMEDIATE GEAR SHAFT
5. TYPING UNIT
5.01 TYPE BOX CARRIAGE AND PRINTING MECHANISM

REST TYPING UNIT IN UPRIGHT POSITION

5.02 PRINTING MECHANISM

- SAT FELT WASHERS (2 WASHERS)
- PRINTING HAMMER
- OPERATING BAIL
- SAT FELT WICK
- SPRING WICK
- G ENGAGING SURFACE
- SECONDARY PRINTING ARM
- G ENGAGING SURFACE
- PRINTING HAMMER
- SAT FELT WICK
- SPRING WICK
- 0 HOOKS—EACH END (4 SPRINGS)
- SPRING
- SAT FELT WASHER
- OPERATING BAIL LATCH
- 02 ENGAGING SURFACES (2 PLACES)
- OPERATING BAIL LATCH
5.03 PRINTING MECHANISM (Continued)

SAT FELT WASHER (3 WASHERS)

G GUIDING SURFACE

OIO TRACK SURFACE

SAT FELT WASHERS (2 WASHERS)

PRINTING CARRIAGE ROLLERS

PRINTING ARM EXTENSION

PRINTING TRACK

PRINTING ARM

5.04 TYPE BOX CARRIAGE MECHANISM

0 BEARING SURFACE

02 BEARINGS (3 ROLLERS)

0 HOOK-EACH END

SAT FELT WICK

0 BEARING SURFACE

02 BEARING SURFACE

TYPE BOX CARRIAGE LATCH

TOGGLE

TYPE BOX CARRIAGE ROLLERS

SPRING

TYPE BOX CARRIAGE LATCH

TYPE BOX CARRIAGE LINK

ORIGINAL
5.05 CODE BAR AND PAPER FEED MECHANISM

REST TYPING UNIT IN UPRIGHT POSITION

(FRONT VIEW)

5.06 CODE BAR MECHANISM (Continued)

- 02 GUIDE SLOTS (RIGHT, CENTER AND LEFT—9 BARS)
- 02 ENGAGING SURFACES (6 BARS)
- 0 HOOKS—EACH END

CODE BARS
SHIFT BARS
SUPPRESSION CODE BAR
OPERATING BRACKET SPRING
5.07 CODE BAR MECHANISM (Continued)

REST TYPING UNIT IN UPRIGHT POSITION

(LEFT SIDE VIEW)

5.08 TYPE BOX CLUTCH SUPPRESSION MECHANISM

- 02 BEARING SURFACES (2 PIVOTS)
- 0 HOOKS—EACH END
- 02 ENGAGING SURFACES (2 PLACES)
- 02 BEARING BALLS (16 BALLS)
- SAT FELT WASHERS (TOP AND BOTTOM)
- CODE BAR DETENTS
- SOLENOID BELL CRANK LEVER
- SPRING
- SUPPRESSION CODE BAR BLOCKING BAIL
- SUPPRESSION CODE BAR BLOCKING BAIL
5.09 PAPER FEED MECHANISM

- 02 BEARING SURFACES (EACH END)
- 02 BEARING SURFACES (RIGHT AND LEFT)
- 0 HOOKS—EACH END
- 02 BEARING SURFACE
- 02 BEARING SURFACES (EACH END)
- 0 HOOKS—EACH END
- 02 BEARING SURFACE
- 02 BEARING SURFACES (EACH END)
- G TEETH (2 GEARS)
- 02 BEARINGS (EACH END)
- 0 BEARING SURFACES—EACH END (6 ROLLERS)

PAPER STRAIGHTENER SHAFT
PAPER STRAIGHTENER LEVERS
PAPER STRAIGHTENER LEVERS
S P R I N G
RELEASE LEVER
RELEASE LEVER LINK
S P R I N G
PLATEN DETENT BAIL
PAPER FINGER SHAFT
PAPER PRESSURE ROLLER SHAFTS (WIPE OFF EXCESS OIL)

5.10 REST TYPING UNIT IN UPRIGHT POSITION

(LEFT SIDE VIEW)
5.11 REST TYPING UNIT IN UPRIGHT POSITION

5.12 RIBBON FEED MECHANISM (RIGHT SIDE)

- 02 BEARING SURFACE
- 02 BEARING SURFACE
- SAT FELT WASHER
- 0 HOOKS—EACH END
- RIBBON ROLLER SHAFT
- RIBBON SPOOL TOGGLE
- RIBBON SPOOL SHAFT
- RIBBON FEED LEVER SPRING
- 0 HOOKS—EACH END
- RIBBON RATCHET WHEEL SPRING

5.13 RIBBON FEED MECHANISM (Continued)

- SAT FELT WASHERS (2 WASHERS)
- RIBBON FEED LEVER BAIL
- 0 HOOKS—EACH END
- 02 BEARING SURFACE
- 02 BEARING SURFACES (2 PLACES)
- G TEETH
- SPRING
- RIBBON—REVERSE LEVER
- RATCHET FEED LEVER SHAFT
- RIBBON RATCHET WHEEL
5.14 RIBBON FEED MECHANISM (Continued)

5.15 VERTICAL POSITIONING MECHANISM (RIGHT SIDE)
5.16 RIBBON FEED MECHANISM (LEFT SIDE)

- 0 HOOKS—EACH END
- 0 BEARING SURFACE
- 02 BEARING SURFACE
- SAT FELT WASHER
- 02 BEARING SURFACE
- 0 HOOKS—EACH END

- SAT FELT WASHERS (2 WASHERS)
- 02 BEARING SURFACE
- G TEETH
- RIBBON-REVERSE LEVER
- 0 HOOKS—EACH END
- 02 BEARING SURFACES (2 PLACES)
- RATCHET FEED LEVER SHAFT
- SPRING
- RIBBON FEED LEVER BAIL
- RIBBON RATCHET WHEEL
- RIBBON SPOOL SHAFT
- RIBBON ROLLER SHAFT
- SPRING

5.17 RIBBON FEED MECHANISM (Continued)

- 02 BEARING SURFACE
- RIBBON DETENT LEVER
- G TEETH
- RIBBON—REVERSE SPUR GEAR

ORIGINAL
5.18 VERTICAL POSITIONING MECHANISM (LEFT SIDE)

- 02 BEARING SURFACE
- 0 ENGAGING SURFACES (4 PLACES)
- SAT FELT WASHER
- 0 HOOKS--EACH END
- 02 ENGAGING SURFACE
- 02 BEARING SURFACE
- 02 BEARING SURFACES (2 PLACES)
- SAT FELT OILER
- SAT FELT WASHERS (2 WASHERS)
- 02 CAMMING SURFACE
- 0 HOOKS--EACH END
- 02 BALL BEARING
- SAT FELT WICK
- 02 BEARING SURFACE

- RIBBON DRIVE LINK
- VERTICAL POSITIONING LOCK LEVER
- VERTICAL POSITIONING LEVER
- VERTICAL POSITIONING LEVER
- VERTICAL POSITIONING LEVER
- VERTICAL POSITIONING LEVER
- MAIN SIDE LEVER FOLLOWER ARM
- MAIN SIDE LEVER FOLLOWER ARM
- SPRING
- MAIN ROCKEB SHAFT
- SPRING WICK
- ROCKER SHAFT BRACKET

5.19 REST TYPING UNIT IN UPRIGHT POSITION

5.20 (RIGHT SIDE VIEW)
5.20 CODE BAR MECHANISM

- 02 GUIDE SLOTS
- 02 BEARING GUIDE SLOTS (6 SLOTS)
- 02 ROLLER BEARINGS (4 ROLLERS)
- 02 GUIDE SLOTS (5 SLOTS)
- 02 BEARING SURFACES (2 PLACES)
- 02 BEARING GUIDE SLOTS (5 SLOTS)
- 03 OIL HOLE
- SAT FELT WASHERS (2 WASHERS)
- 0 HOOKS—EACH END (5 SPRINGS)
- 02 GUIDE SLOTS (5 SLOTS)
- SAT FELT WASHER
- SHIFT LEVERS
- TRANSFER LEVER GUIDE BEARING
- SHIFT LEVER LINK ROLLERS
- SHIFT LEVER LINK SHAFT
- SPRING
- INTERMEDIATE ARMS AND TRANSFER LEVERS
- SHIFT LEVERS
- INTERMEDIATE ARM GUIDE BEARING
- SHIFT LEVER DRIVE ARM SHAFT
- SHIFT LEVER LINK

5.21 SELECTOR MECHANISM

- 02 BEARING GUIDE SLOTS (5 SLOTS)
- SAT FELT WICK
- 02 ENGAGING SURFACES (5 LEVERS)
- 02 GUIDE SLOT
- 02 GUIDE SLOTS (5 LEVERS)
- 0 HOOKS—EACH END (12 SPRINGS)
- 02 BEARING GUIDE SLOTS (6 SLOTS)
- PUSH LEVER GUIDE BEARING
- SELECTOR WICK
- PUSH LEVERS
- MARKING LOCK LEVER
- SELECTOR AND PUSH LEVERS
- SPRINGS
- SELECTOR LEVER GUIDE BEARING

ORIGINAL
5.22 SELECTOR MECHANISM (Continued)

5.23 REST TYPING UNIT IN UPRIGHT POSITION

( Rear View)
5.24 REMOVE STUNT BOX
(REFER TO ADJUSTMENT SECTION
FOR REMOVAL INSTRUCTIONS)

5.25 STUNT BOX MECHANISM

- 02 PIVOT BEARINGS
- 02 FELT WASHERS
- 02 ENGGING SURFACES
- 02 SAT
- 02 EACH ENGAGING SURFACE
- 02 EACH GUIDE SLOT
- 02 EACH GUIDE SLOT
- 02 EACH ENGAGING SURFACE
- 02 HOOKS—EACH END
- SAT
- SAT FELT WASHER
- G ENGAGING SURFACES
- G SAT
- G (2 CAMS)
- G CAMMING SURFACES
- 02 ENGGING SURFACES
- 02 BEARING SURFACE
- 02 ENGGING SURFACES
- G CAMMING SURFACES
- 02 LINE—FEED SLIDE ARM
- 02 SPRING
- 02 KEYBOARD LOCK LEVER
- 02 FUNCTION LEVERS
- 02 SAT
- 02 STRIPPER BLADE CAM ARMS
- 02 STRIPPER BLADE CAMS
- 02 STRIPPER BLADE CAM ARMS
- 02 SAT
- 02 SWITCH ARM
- 02 FUNCTION PAWLS
- 02 FUNCTION LEVERS
- 02 FUNCTION BARS
- 02 FUNCTION PAWL SPRINGS
- 02 SPRINGS
- 02 FUNCTION BARS
- 02 LINE—FEED SLIDE ARM
- 02 SPRING
- 02 KEYBOARD LOCK LEVER
- 02 FUNCTION LEVERS
- 02 SAT
- 02 STRIPPER BLADE CAM ARMS
- 02 STRIPPER BLADE DRIVE LINK
5.26 STUNT BOX MECHANISM (Continued)

- 02 ENGAGING SURFACE (EACH FUNCTION SLIDE)
- 02 SLIDING SURFACES (2 PLACES)
- 02 HOOKS—EACH END (2 SPRINGS)
- EACH ROLLER AND FORK PIVOT
- 02 EACH SLIDING SURFACE
- 02 EACH ENGAGING SURFACE
- 02 ENGAGING SURFACES (2 PLACES)
- 02 SLIDING SURFACE
- 02 GUIDING SURFACE
- G UPPER AND LOWER WORKING SURFACES
- 02 ENGAGING SURFACES

5.27 SINGLE—DOUBLE LINE FEED MECHANISM

- 02 PIVOT
- 02 EACH ENGAGING AND GUIDING SURFACE
- SAT FELT WASHER
- 02 EACH ENGAGING SURFACE
- 02 BEARINGS (2 BEARINGS)
- 02 SPRING COILS
- 0 HOOKS—EACH END

- CODE BAR FORKS
- BLOCKING SLIDE
- CR—LF SUPPRESSION SPRINGS
- FUNCTION SLIDES
- FUNCTION SLIDES
- LINE FEED FUNCTION PAWL
- STRIPPER SLIDE
- STRIPPER BLADE
- STRIPPER BLADE
- STRIPPER BAIL

- SINGLE—DOUBLE LINE FEED LEVER
- OPERATING ARM
- OPERATING ARM
- STRIPPER BAIL
- STRIPPER BAIL
- TORSION SPRING
- SPRINGS
5.28 RIBBON-REVERSE MECHANISM

- ENGAGING SURFACE
- BEARING SURFACE
- TEETH
- BEARING (RIGHT AND LEFT)
- HOOKS—EACH END
- BEARING SURFACE

- RIBBON—REVERSE DETENT
- PAPER RELEASE LEVER
- RIBBON—REVERSE SPUR GEAR
- RIBBON—REVERSE SHAFT
- SPRING
- RIBBON—REVERSE DETENT LEVER

5.29 FUNCTION BAR RESET MECHANISM

- FELT WASHER
- GUIDE SURFACE
- FELT WASHERS (3 WASHERS)
- HOOKS—EACH END (2 SPRINGS)
- FELT WICKS (2 SPRINGS)
- FELT WASHERS (2 BEARINGS)
- BEARINGS (3 ROLLERS)

- SPACE SUPPRESSION BAIL
- CARRIAGE RETURN SLIDE ARM
- FUNCTION RESET BAIL ROLLERS
- RESET BAIL SPRINGS
- SPRINGS
- RESET BAIL CAM SHAFT
- FUNCTION RESET BAIL ROLLERS

- CAM SHAFT DRIVE LINK
- FUNCTION BAR RESET BAIL
- FUNCTION CAM ROLLER
- FUNCTION CAM ROLLER BRACKET LINK
5.30 REST TYPING UNIT ON ITS BACK

5.31 SPACING DRUM DRIVE MECHANISM

- 02 ENGAGING SURFACE
- 02 BEARING (OUTER AND INNER END)
- 02 SAT FELT WASHER
- 02 ENGAGING SURFACE
- 02 ROLLER BEARING
- 02 ENGAGING SURFACES (2 PLACES)
- 02 GUIDING SURFACE HOOKS-EACH END (4 SPRINGS)
- 02 BEARING SURFACES (2 ECCENTRICS)
- 02 BEARING SURFACES (2 PLACES)
- 02 T EETH
- 02 CABLE GROOVES (2 PLACES)

SPACING CUTOUT LEVER
SPACING DRUM SHAFT
TRANSFER SLIDE
STOP ARM ROLLER
CARRIAGE RETURN LATCH BAIL
DASHPOT SPRING
SPACING DRUM FEED PAWLS ECCENTRICS
CARRIAGE RETURN LATCH BAIL
SPRING WICK
TRANSFER SLIDE ROLLERS
SPACING DRUM RATCHET WHEEL
SPACING DRUM
5.32  CARRIAGE RETURN MECHANISM

SAT  FELT OILER
02  BETWEEN LAYERS
G  CAM DISK SURFACE
02  BEARING (OUTER AND INNER END)
SAT  FELT WASHER
0  HOOKS–EACH END
02  BEARING SURFACE

PRINTING TRACK GUIDE
CARRIAGE RETURN SPRING
MARGIN INDICATOR CAM DISK
CARRIAGE RETURN SPRING DRUM SHAFT
SPRING
TENSION PULLEY BAIL

5.33  CARRIAGE RETURN MECHANISM (Continued)

02  ENGAGING SURFACES (2 PLACES)
AUTOMATIC CARRIAGE RETURN BELL CRANK

02  BEARING SURFACE
AUTOMATIC CARRIAGE RETURN BELL CRANK

0  HOOKS–EACH END
02  ENGAGING SURFACE
SPRING
SPACING DRUM FEED PAWL RELEASE LINK

02  BEARING SURFACES (2 PLACES)
SPACING DRUM FEED PAWL RELEASE LINK
SPRING

5.34  PRINTING TRACK GUIDE

SAT  FELT OILER

PRINTING TRACK GUIDE
5.35 POSITIONING MECHANISM

REST TYPING UNIT ON ITS BACK

(FRONT VIEW)

5.36 HORIZONTAL POSITIONING MECHANISM

- SAT FELT WASHER
- 02 ENGAGING SURFACE
- 02 ENGAGING SURFACE
- SAT FELT WASHERS
- 02 BEARING SURFACE
- 02 DETENTS (2 DETENTS)
- 02 ENGAGING SURFACES (2 PLACES)
- SAT FELT WASHERS (2 WASHERS)
- SAT FELT WASHERS (2 WASHERS)

HORIZONTAL REVERSING SLIDE
HORIZONTAL REVERSING SLIDE SHIFT LEVER
DETENT BAILS
OSCILLATING RAIL SHIFT SLIDE
HORIZONTAL REVERSING SLIDE SHIFT LEVER
HORIZONTAL REVERSING SLIDE
OSCILLATING RAIL SHIFT SLIDE
5.37 HORIZONTAL POSITIONING MECHANISM (Continued)

(TOP VIEW)

0 HOOKS—EACH END
0 HOOKS—EACH END
SAT FELT WASHER
02 ENGAGING SURFACES
(3 SLIDES)

SPRING
SPRING
CODE BAR BELL CRANK
HORIZONTAL MOTION STOP SLIDES

5.38 HORIZONTAL POSITIONING MECHANISM (Continued)

(FRONT VIEW)

0 HOOKS—EACH END
(2 SPRINGS)
02 BEARING SURFACES
(2 BELL CRANKS)
02 ENGAGING SURFACES
(2 SLIDES)
SAT FELT WASHERS
(3 WASHERS)
0 BEARING SURFACES
(8 PLACES)

SPRING
DECELERATING SLIDE BELL CRANKS
DECELERATING SLIDES
SHIFT SLIDE DRIVE LINKS
SHIFT SLIDE DRIVE LINKS

5.39 HORIZONTAL POSITIONING MECHANISM (Continued)

02 GUIDING SURFACE
02 BEARING SURFACE
0 HOOKS—EACH END
SAT FELT WICK
SAT FELT WASHER
HORIZONTAL POSITIONING LOCK LEVER
HORIZONTAL LOCK LEVER ARM ROLLER
SPRING
SPRING WICK
HORIZONTAL POSITIONING LOCK LEVER
5.40  REST TYPING UNIT IN UPRIGHT POSITION

5.41  LETTERS–FIGURES SHIFT MECHANISM

- 02 GUIDING SURFACES (2 SLIDES)
- SAT FELT WASHER
- SHIFT LINK BREAKER SLIDE
- LETTERS–FIGURES SHIFT SLIDE POST
- BEARING SURFACE
- SAT FELT WASHER
- LETTERS–FIGURES SHIFT SLIDE
5.42 LETTERS-FIGURES SHIFT MECHANISM (Continued)

SAT FELT WASHER  SHIFT SLIDE DRIVE LINK

02 BEARING SURFACE  BREAKER SLIDE BAIL

02 BEARING SURFACES  MAIN BAIL LINK
(2 PLACES)

5.43 OSCILLATING MECHANISM

SAT FELT OILER  OSCILLATING RAIL SLIDE

SAT FELT WASHER  OSCILLATING RAIL SHIFT LINK

02 BEARING SURFACE  OSCILLATING RAIL SHIFT LINK

02 BEARING SURFACE  OSCILLATING RAIL SHIFT LINK

SAT FELT WASHERS  (3 WASHERS)  PULLEYS

SAT FELT WASHER  OSCILLATING RAIL GUIDE ARM
5.44 OSCILLATING MECHANISM (Continued)

SAT FELT WASHER
OSCILLATING RAIL SHIFT LINK

0 HOOKS–EACH END SPRING

SAT FELT WASHERS
(3 WASHERS)
PULLEYS

02 BEARING SURFACES
(2 PLACES)
OSCILLATING RAIL SHIFT LINK

SAT FELT WASHER
OSCILLATING RAIL GUIDE ARM

5.45 REST TYPING UNIT IN BOTTOM UPWARD POSITION

5.46
5.47
5.48
5.49

(BOTTOM VIEW)
5.46 MAIN SHAFT (CLUTCHES, GEARS, ETC.)

- FELT WASHER
- INTERNAL MECHANISM (2 CLUTCHES)
- FELT WICKS
- TEETH (4 GEARS)
- BEARING SURFACES (2 CLUTCHES)
- BALL BEARING

5.47 MAIN SHAFT (CLUTCHES, GEARS, ETC.) (Continued)

- FELT WASHER (2 WASHERS)
- INTERNAL MECHANISM (3 CLUTCHES)
- FELT WICKS
- BEARING SURFACES (2 CAMS)
- CAMMING SURFACE
- BALL BEARING
- BEARING SURFACES (3 CLUTCHES)
- CAMMING SURFACES (4 DISKS)

5.48 MAIN SHAFT (CLUTCHES, GEARS, ETC.) (Continued)

- FELT WASHERS (2 WASHERS)
- CAMMING SURFACE
- INTERNAL MECHANISM
- EACH CAMMING SURFACE

DRIVE LINK BEARING
CLUTCH ASSEMBLY
MAIN SHAFT GEARS
CLUTCH SLEEVES
MAIN SHAFT BEARING
CLUTCH DISK
DRIVE LINK BEARING
ECCENTRIC FOLLOWER ARM BEARINGS
CLUTCH ASSEMBLY
ECCENTRIC FOLLOWER ARM CAMS
FUNCTION CAM
MAIN SHAFT BEARING
CLUTCH SLEEVE
CLUTCH DISKS
SELECTOR CAM ASSEMBLY
CLUTCH DISK
SELECTOR CAM ASSEMBLY
5.49 MAIN SHAFT (CLUTCHES, GEARs, ETC.) (Continued)

02 ENGAGING SURFACES (5 LEVERS) CLUTCH TRIP LEVER

02 ENGAGING SURFACES (5 LEVERS)

SAT FELT WASHER
SAT FELT WICK
02 BEARING SURFACE
0 HOOKS—EACH END (9 SPRINGS)
SAT FELT WASHERS (16 WASHERS)

CAM FOLLOWER ARM ROLLER
SPRING WICK
CAM FOLLOWER ARM SPRINGS

CLUTCH LATCH LEVER
CLUTCH TRIP LEVER SHAFT

5.50 REST TYPING UNIT IN BOTTOM UPWARD POSITION

(BOTTOM VIEW)
5.51 SPACING MECHANISM

02 ENGAGING SURFACES

SAT FELT WASHERS (2 WASHERS)

SPACING TRIP LEVER

SPACING SUPPRESSION SLIDE

SAT FELT WASHER

SPACING TRIP LEVER

SAT FELT WASHER

SPACING TRIP LEVER BAIL SHAFT

02 ENGAGING SURFACE

SPACING TRIP LEVER BAIL

0 HOOKS—EACH END (2 SPRINGS)

SPRING

5.52 SPACING MECHANISM (Continued)

02 OIL HOLE

SPACING SHAFT

G TEETH

SPACING SHAFT GEAR

5.53 SPACING MECHANISM (Continued)

02 ENGAGING SURFACE

SPACING CUT OUT TRANSFER BAIL

SAT FELT WASHERS (2 WASHERS)

SPACING CUT OUT TRANSFER BAIL

SAT FELT WASHER

SPACING CUT OUT BAIL

02 ENGAGING SURFACE

SPACING CUT OUT BAIL

SAT FELT WASHERS (2 WASHERS)

CARRIAGE RETURN BAIL SHAFT
5.54 REST TYPING UNIT IN BOTTOM UPWARD POSITION

5.55 LINE-FEED MECHANISM

- 0 HOOKS—EACH END
- 02 BEARING SURFACE
- 02 BEARING SURFACE
- G TEETH (2 GEARS)
- 0 HOOKS—EACH END
- 02 GUIDING SURFACES (2 BARS)
- 02 GUIDING SURFACE
- 02 GUIDING SURFACES (2 BARS)
- 02 BEARING SURFACE
- 02 BEARING SURFACES (2 BEARINGS)
- G TEETH

SPRING
PLATEN HAND WHEEL
PLATEN IDLER SPUR GEAR
PLATEN SPUR GEARS
SPRING
LINE-FEED BARS
LINE-FEED BAR RELEASE LEVER
LINE-FEED BAR BELL CRANK
LINE-FEED CLUTCH SPUR GEAR SHAFT
LINE-FEED BAR ECCENTRIC BEARING
LINE-FEED CLUTCH SPUR GEAR