

THE MODEL 28 TELETYPE ^R

Registered trademark of the Teletype Corporation

SM 28

THE MARKING SYSTEM

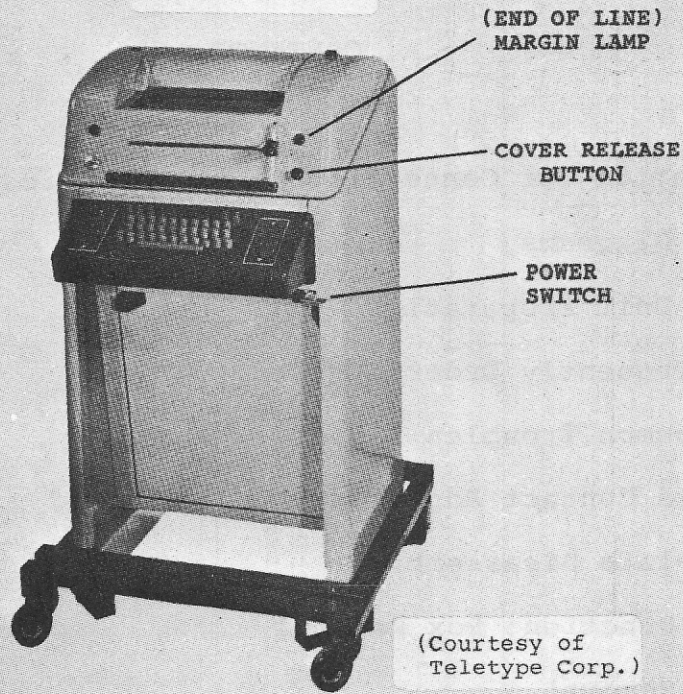
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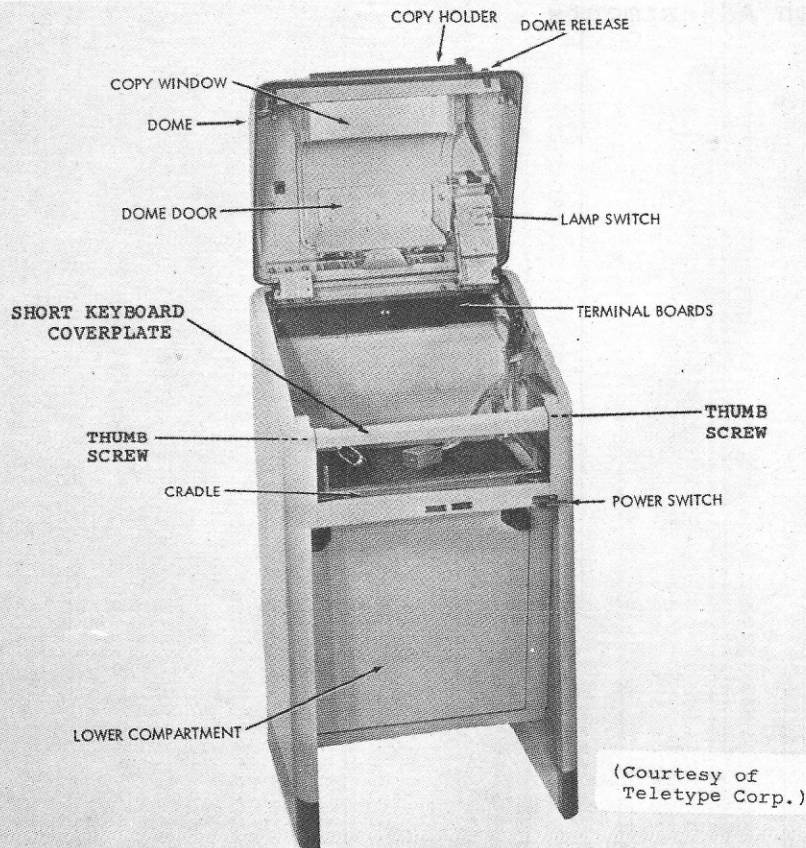
Fig. 28-1



(Courtesy of Teletype Corp.)

KEYBOARD SEND-RECEIVE (KSR) SET (On Dolly)

Shmed



(Courtesy of Teletype Corp.)

Fig. 28-2

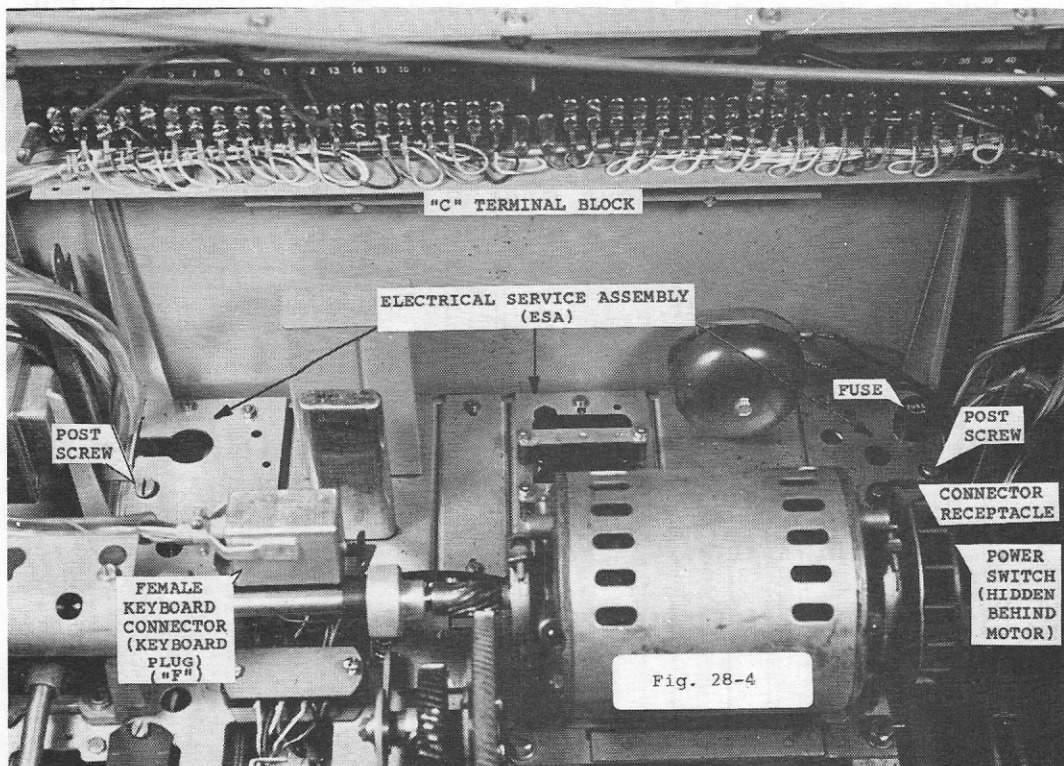
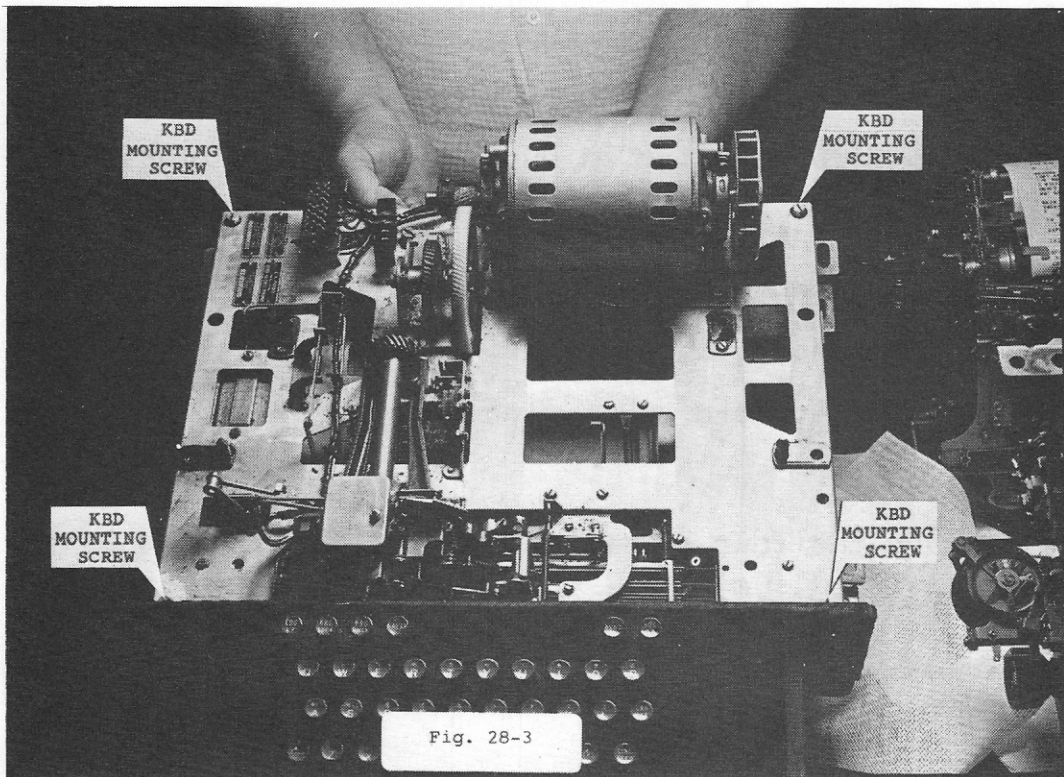
Cabinet LAC214BR (Dome Open)

Shmed

MODEL 28

A. PREPARATION FOR CONNECTION TO AN ACOUSTICAL COUPLER

1. Make sure power cord is unplugged.
2. Raise cover by pushing in button located on right hand side of cover (Fig. 28-1).
3. Unscrew two thumb screws behind short keyboard cover plate and remove the plate (Fig. 28-2).
4. Remove the keyboard and typing unit as a complete unit, as follows:
 - a) Remove the four screws that hold the keyboard to the cabinet (Fig. 28-3).
 - b) Remove the keyboard plug and the typing unit (female) plug (Fig. 28-4,5).
 - c) Lift the keyboard and typing unit upward from the cabinet. (some oil may drip out!)
5.
 - a) Notice the Electrical Service Assembly (ESA) in the rear of the cabinet (Fig. 28-4).
 - b) Disengage the metal power switch rod from the ESA by pulling the rod out of the hole (Fig. 28-2).
6.
 - a) Remove the two post screws which fasten the ESA to the cabinet base (Fig. 28-4).
 - b) Remove the four assemblies indicated (Fig. 28-6).
 - c) Lift out the ESA and turn it upside down for rewiring.



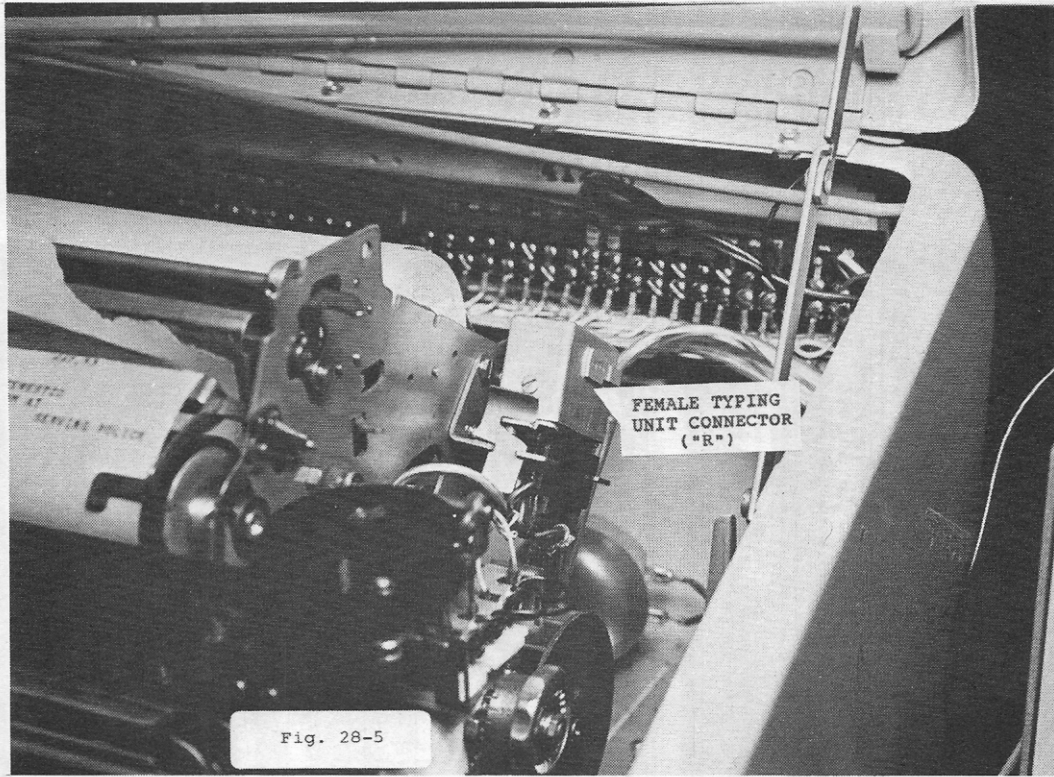


Fig. 28-5

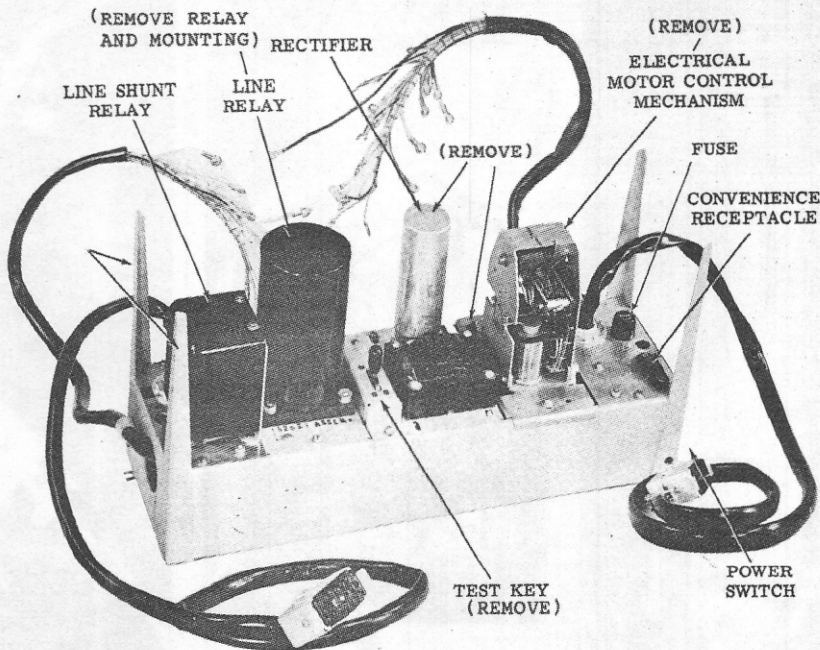


Fig. 28-6

(Courtesy of Teletype Corp.)

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Typical 28 Electrical Service Unit

508-2

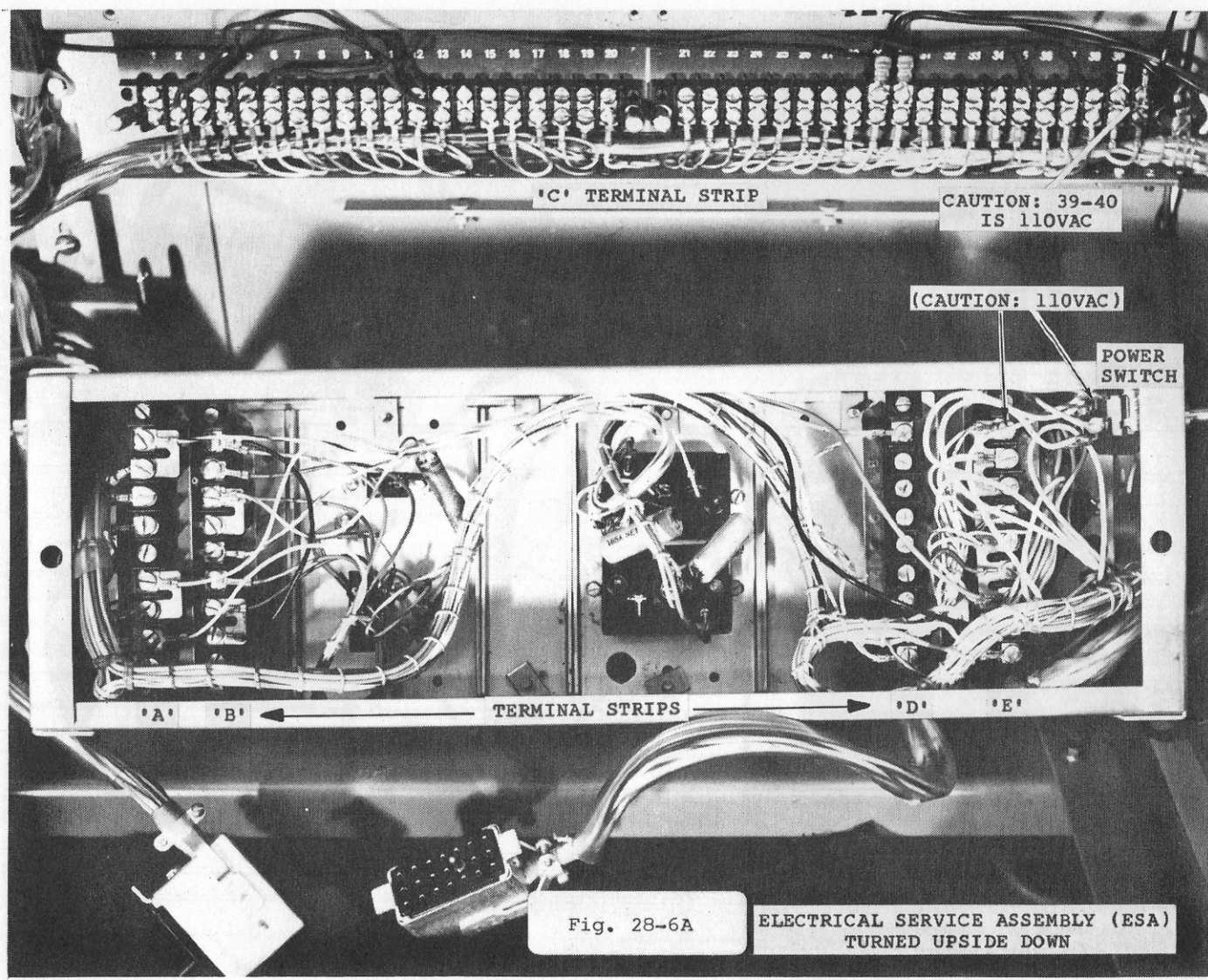


Fig. 28-6A

ELECTRICAL SERVICE ASSEMBLY (ESA)
TURNED UPSIDE DOWN

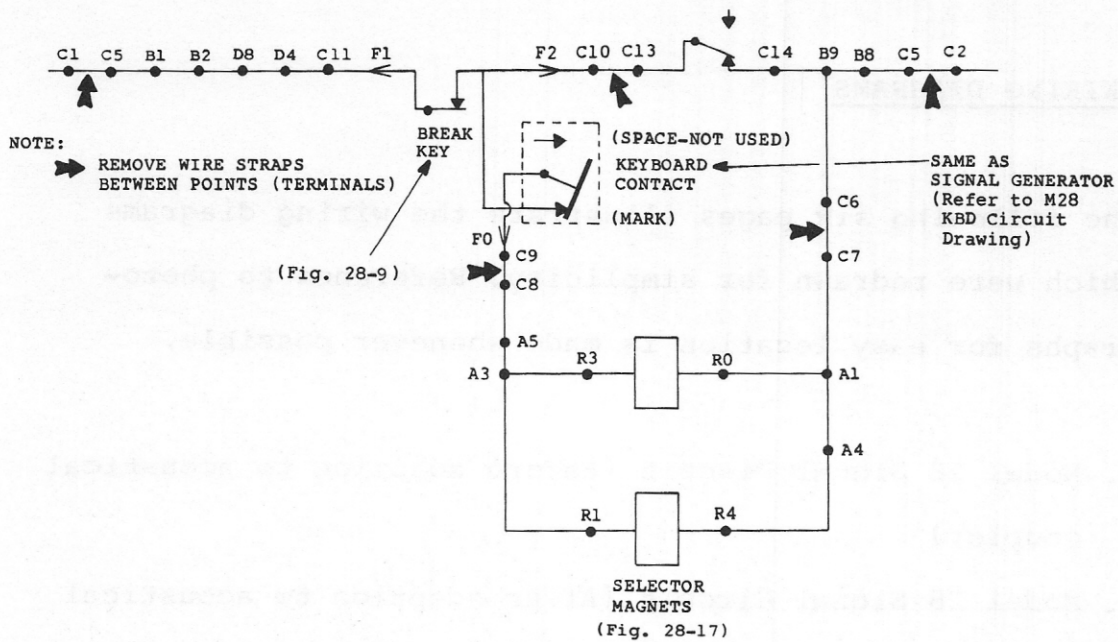
M28-6

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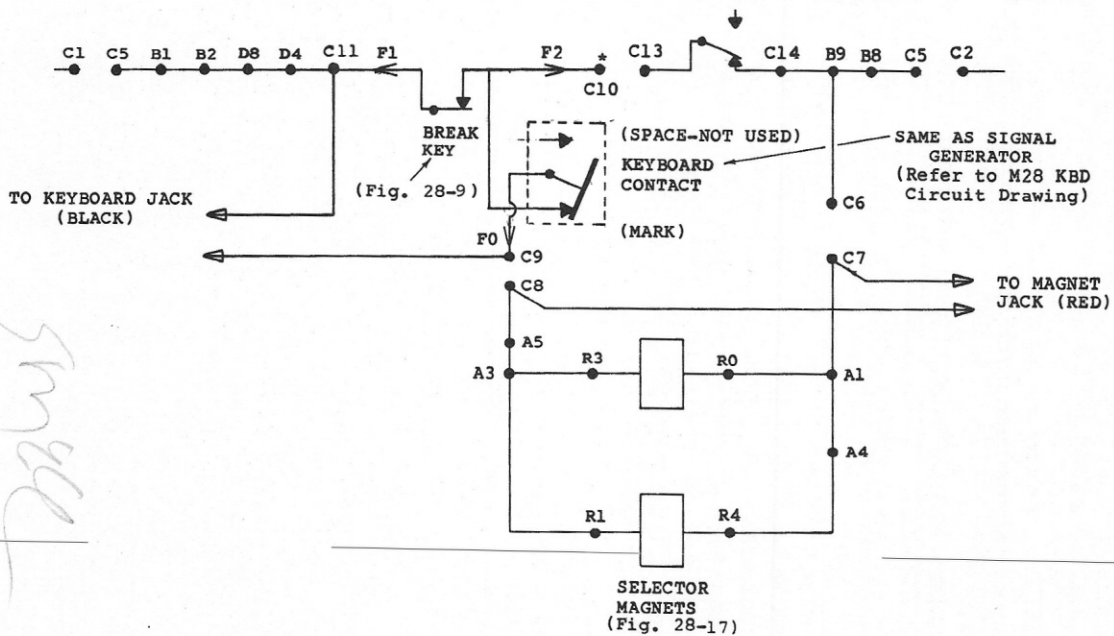
B. WIRING DIAGRAMS

The following six pages illustrate the wiring diagrams which were redrawn for simplicity. Reference to photographs for easy location is made whenever possible.

1. Model 28 Signal Circuit (Before adaption to acoustical coupler)
2. Model 28 Signal Circuit (After adaption to acoustical coupler)
3. Model 28 Motor Circuit
4. Model 28 Selector Magnet Circuit
5. Model 28 Keyboard Circuit
6. Model 28 Margin Indicator

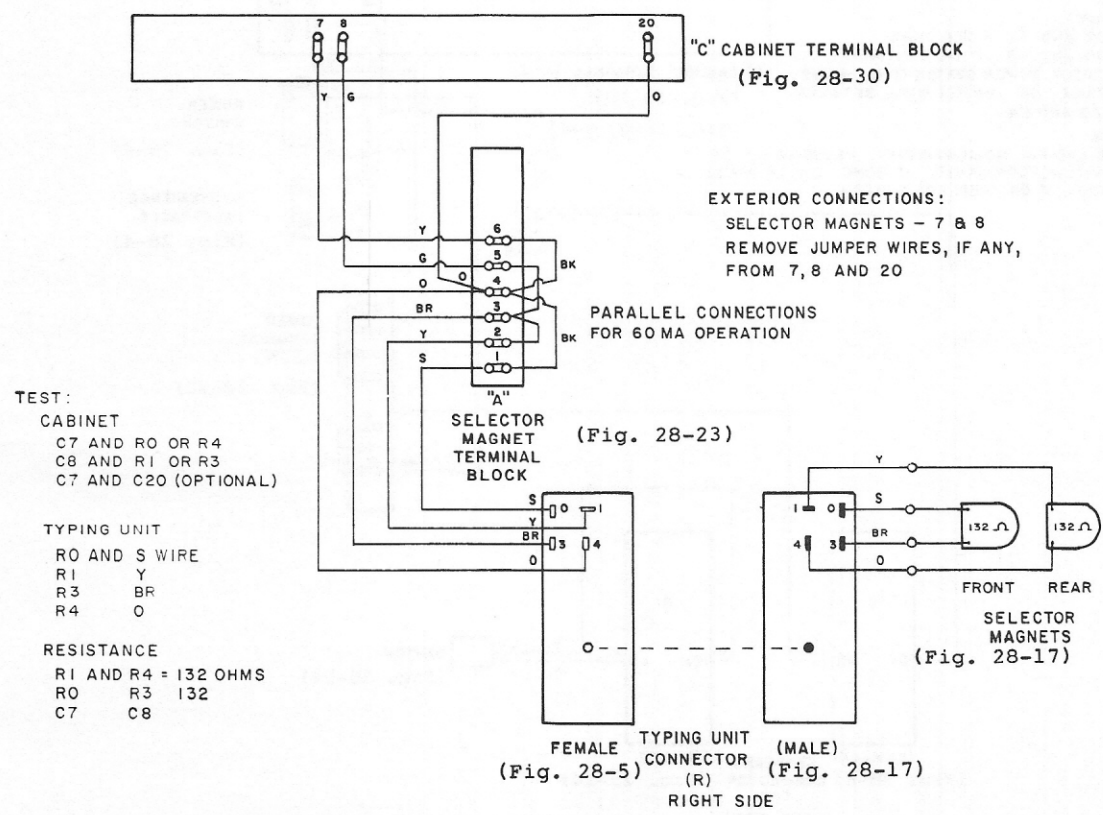
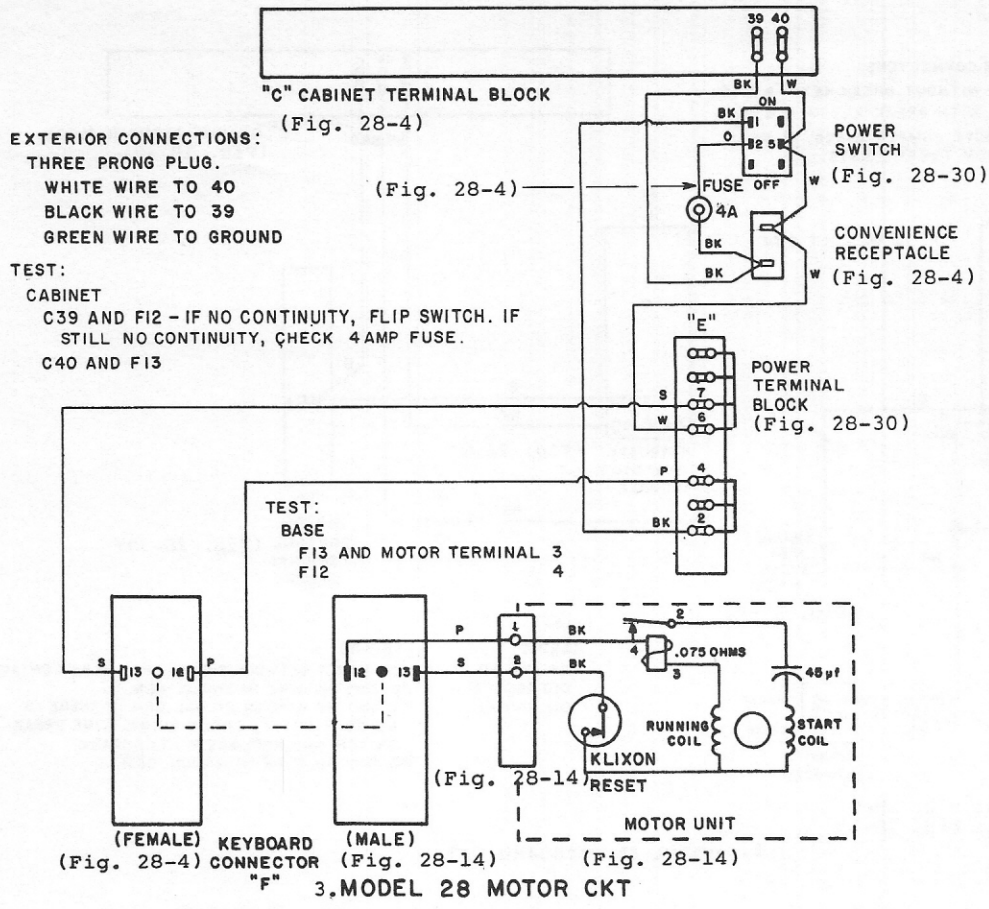


1. Model 28 Signal Circuit (Before Adaption to Acoustical Coupler)



*NOTE: Should the TTY lack the break key, it will be necessary to connect to C10 rather than C11.

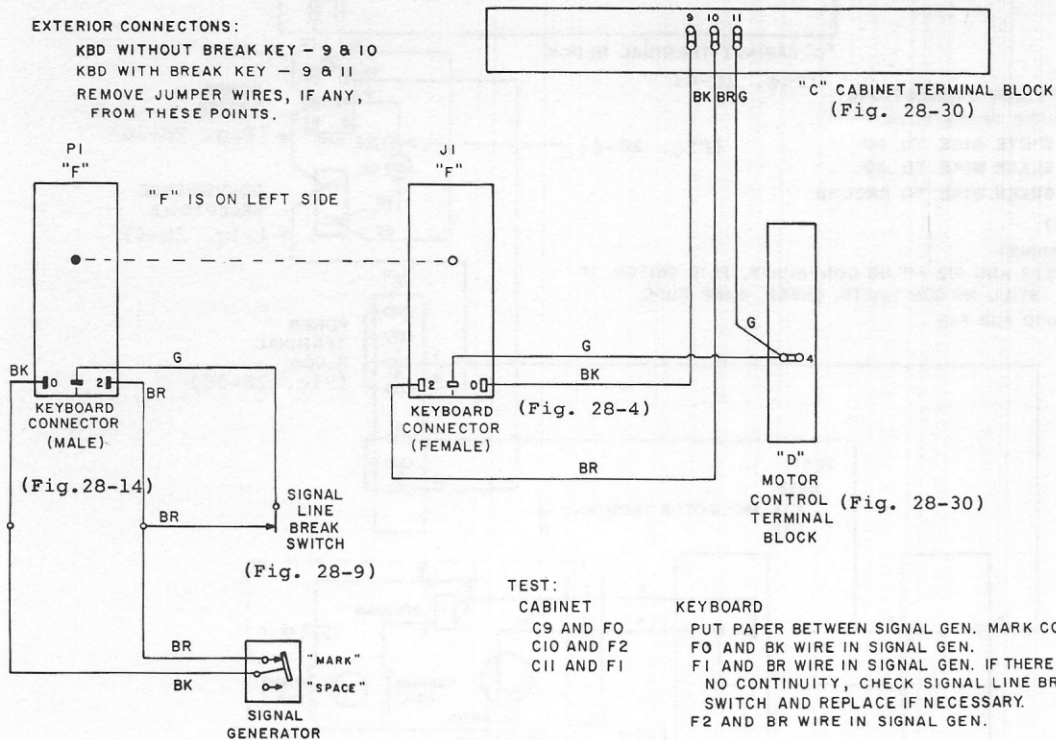
2. Model 28 Signal Circuit (After Adaption to Acoustical Coupler)



4. MODEL 28 SELECTOR MAGNET CKT

EXTERIOR CONNECTORS:

KBD WITHOUT BREAK KEY - 9 & 10
 KBD WITH BREAK KEY - 9 & 11
 REMOVE JUMPER WIRES, IF ANY,
 FROM THESE POINTS.



TEST:

CABINET
 C9 AND F0
 C10 AND F2
 C11 AND F1

KEYBOARD

PUT PAPER BETWEEN SIGNAL GEN. MARK CONTACT.
 F0 AND BK WIRE IN SIGNAL GEN.
 F1 AND BR WIRE IN SIGNAL GEN. IF THERE IS
 NO CONTINUITY, CHECK SIGNAL LINE BREAK
 SWITCH AND REPLACE IF NECESSARY.
 F2 AND BR WIRE IN SIGNAL GEN.

OLD STYLE: Fig. 28-9
 NEW STYLE: Fig. 28-19

5. MODEL 28 KEYBOARD CKT

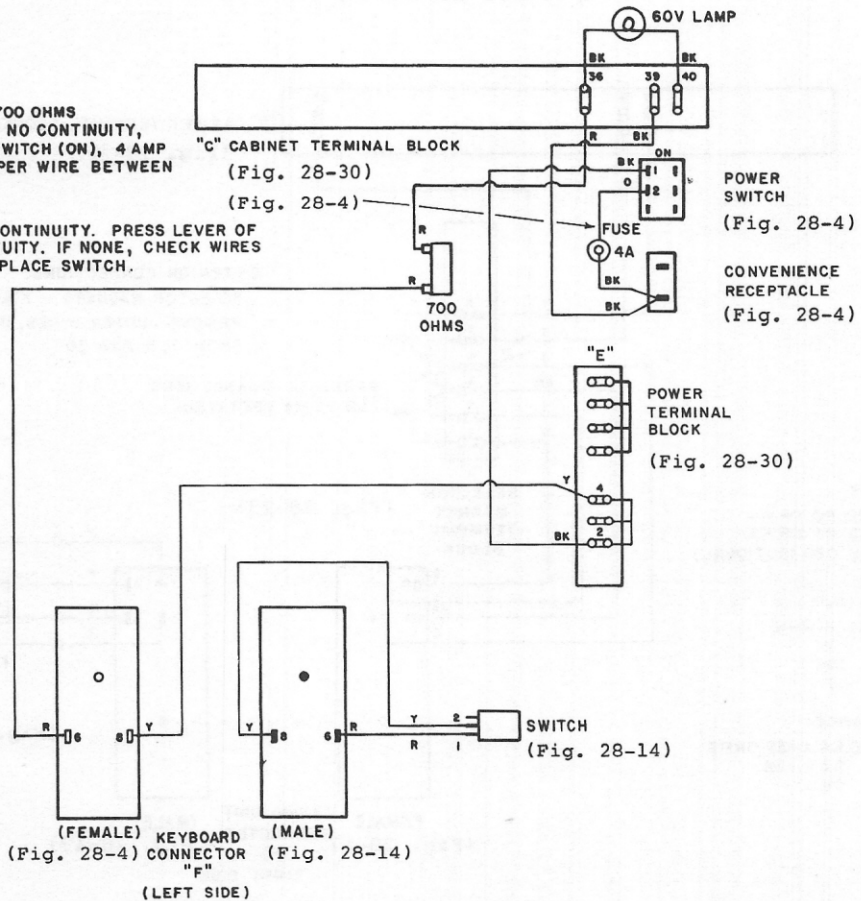
TEST:

CABINET

C36 AND F6 = 700 OHMS
 C39 AND F8. IF NO CONTINUITY,
 CHECK POWER SWITCH (ON), 4 AMP
 FUSE, OR JUMPER WIRE BETWEEN
 E2 AND E4

BASE

F6 AND F8. NO CONTINUITY. PRESS LEVER OF
 SWITCH, CONTINUITY. IF NONE, CHECK WIRES
 FIRST. IF OK, REPLACE SWITCH.

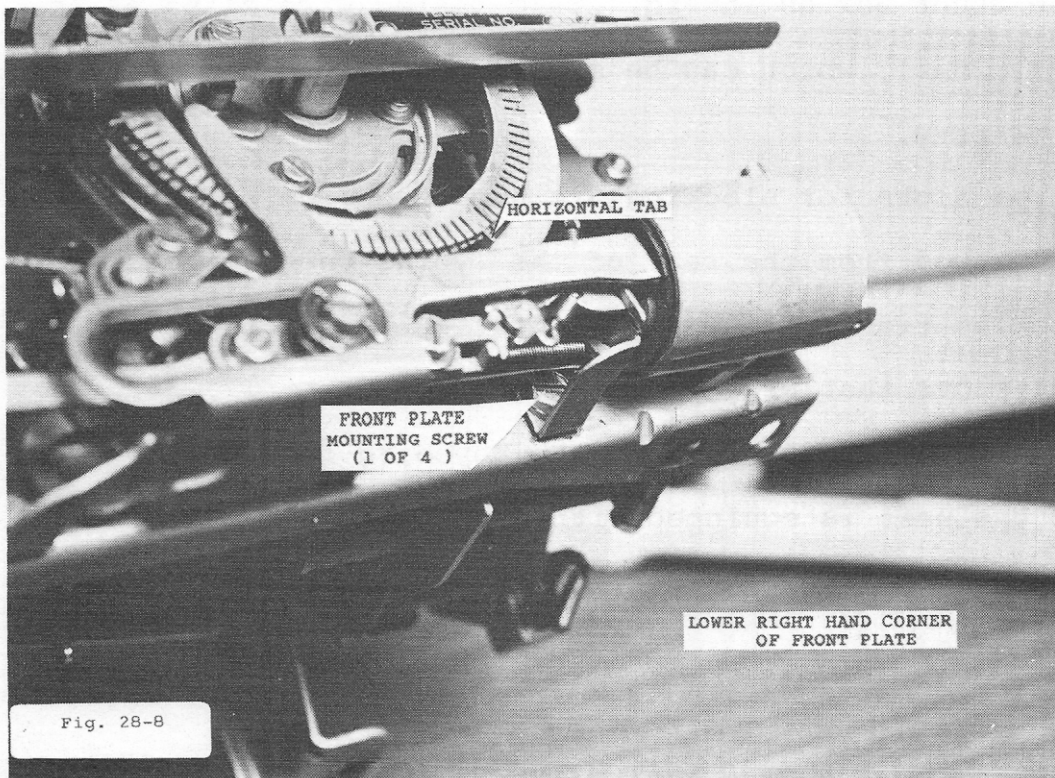
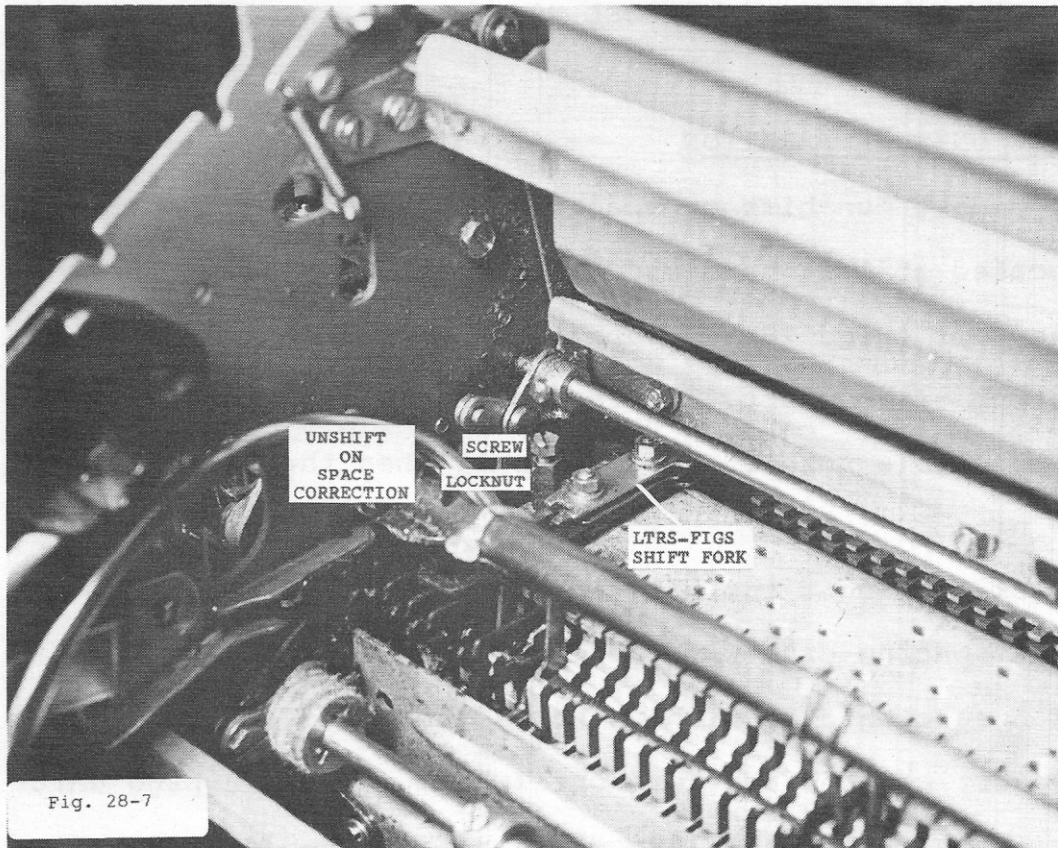


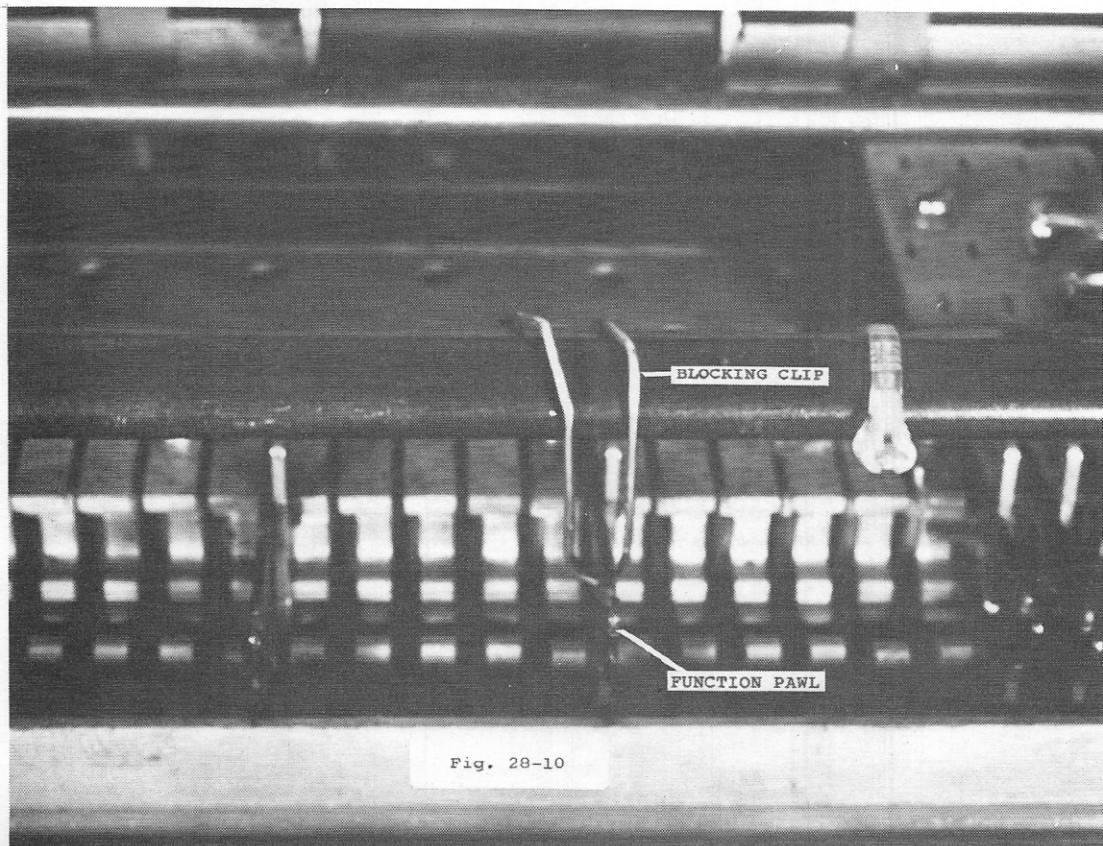
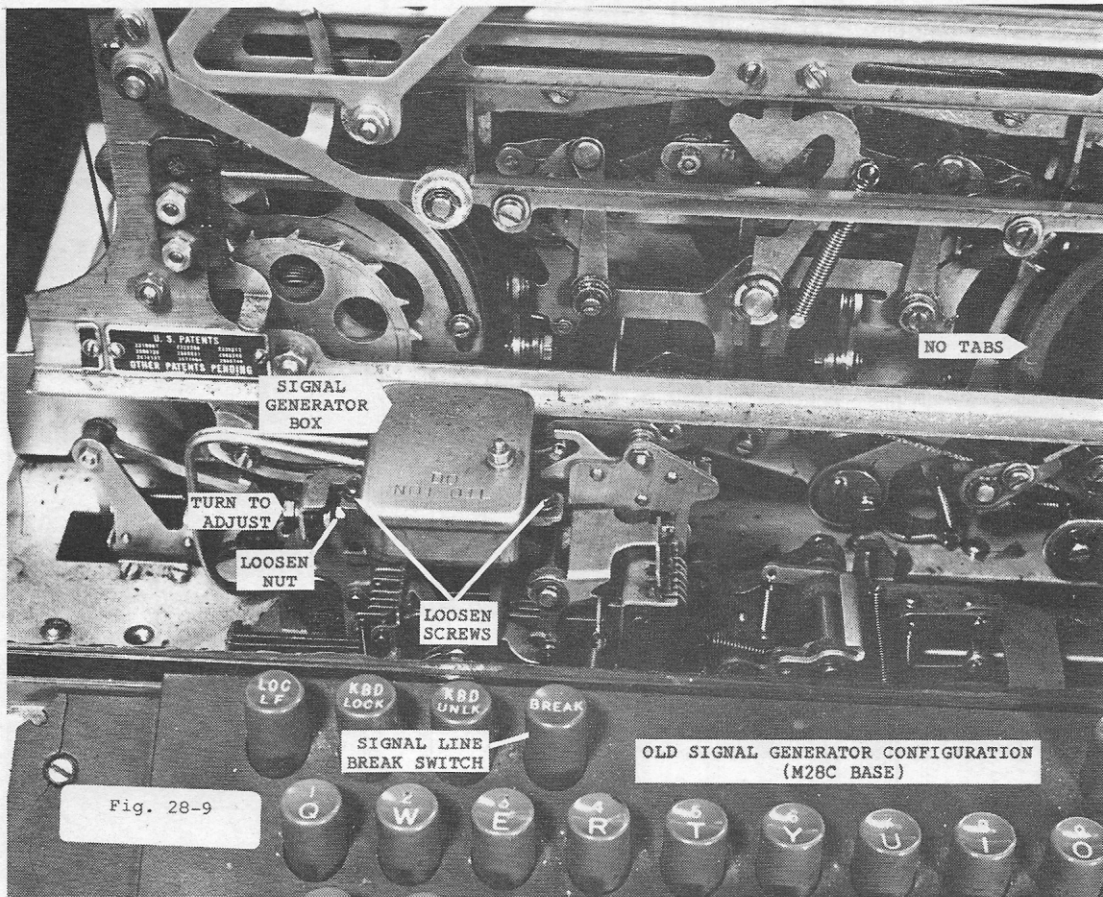
6. MODEL 28 MARGIN INDICATOR

C. TYPING UNIT PREPARATION

1. To remove "unshift on space" feature, loosen locknut located at left hand side of stuntbox as viewed from the rear (Fig. 28-7). Turn screw downward towards bottom of the unit. Tighten locknut afterwards. This will enable unshift to occur only when the LTRS key is hit.
2. Check to see if the unit is equipped with:
 - a) A spacing drum with horizontal tabs (Fig. 28-8).
 - b) A spacing drum without horizontal tabs (Fig. 28-9).
 - c) Vertical tab and form out (wheel on left typing unit frame that looks like drum in Fig. 28-8).
3. Block the Function Pawls for any of the above parts in the Stunt Box as in Fig. 28-10, using wire clips as in Fig. 28-11, which can be made out of paper clips if necessary.

Note: Slots for blocking are numbered from left to right as viewed from the rear of the Typing Unit, with every 5th location stamped on the casting as in Fig. 28-12. The slots that will have to be blocked are 17, 35, 41, and 42. (Slot 35 disables the keyboard lock.)
4. If the unit is equipped with Selective Calling, clip the suppression code bar as in Fig. 28-13.





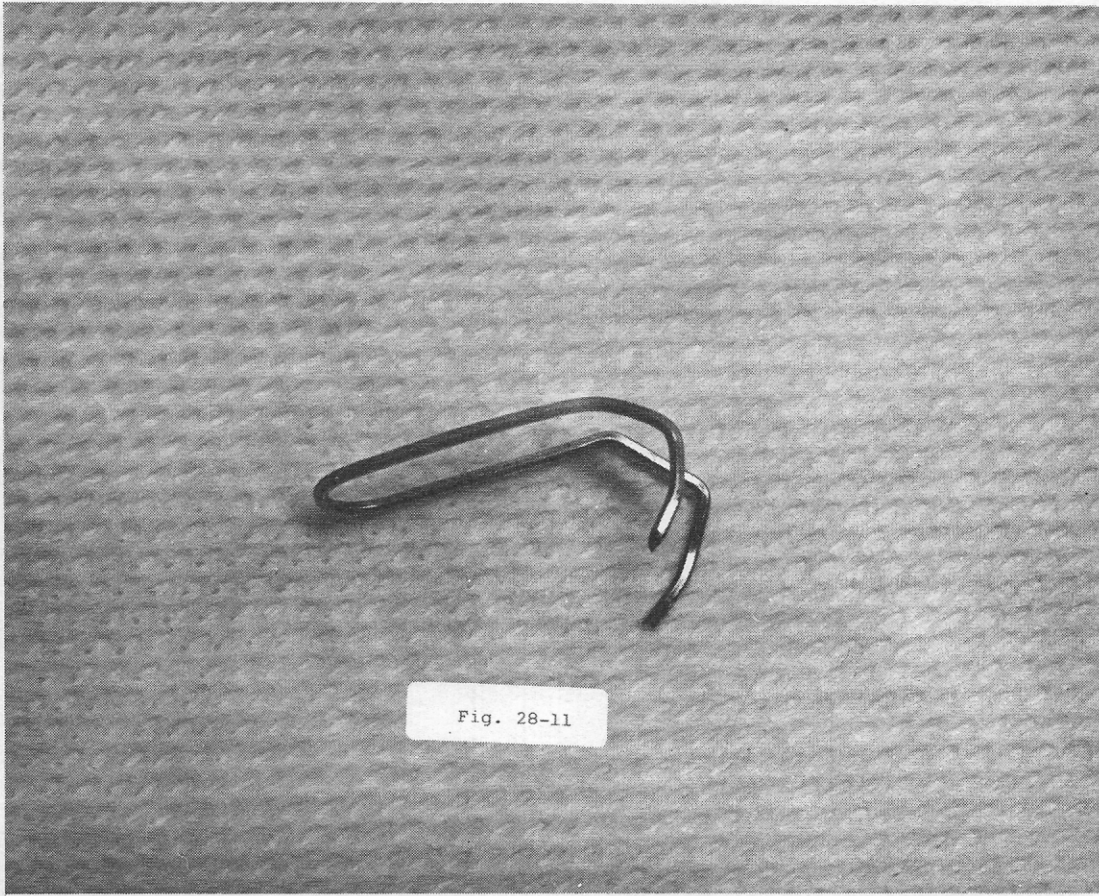


Fig. 28-11

Small

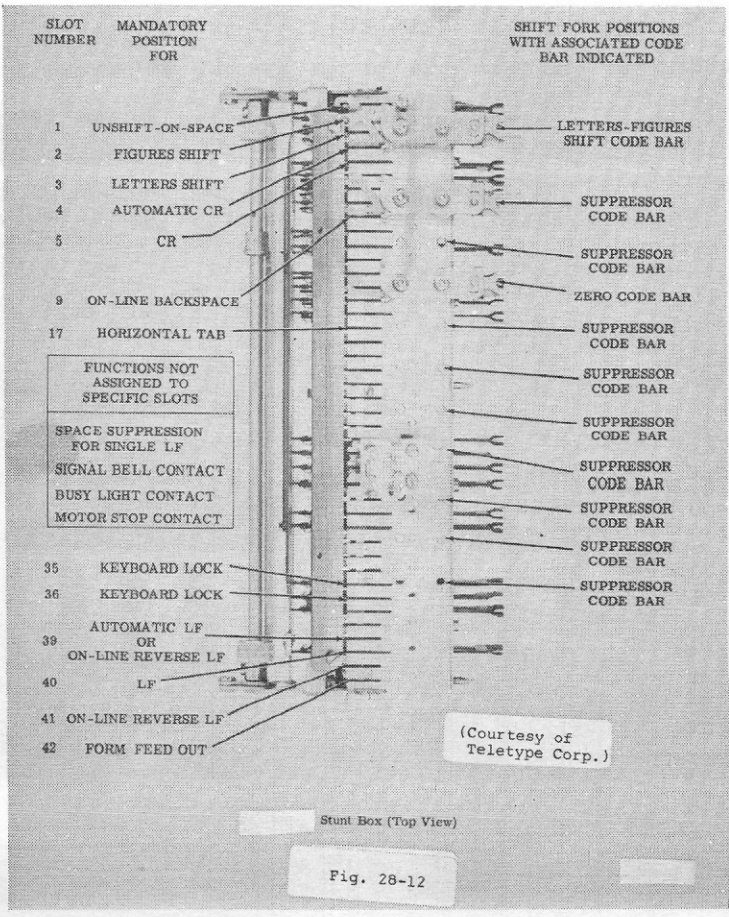
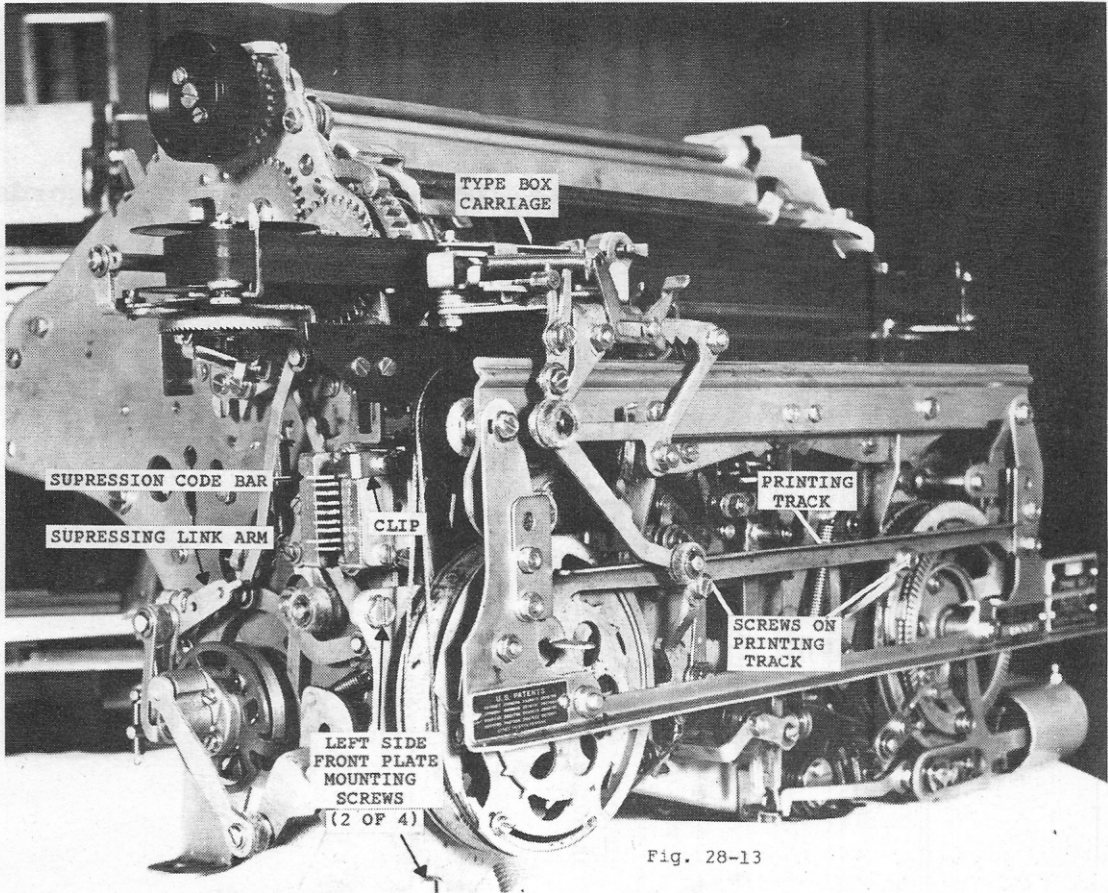
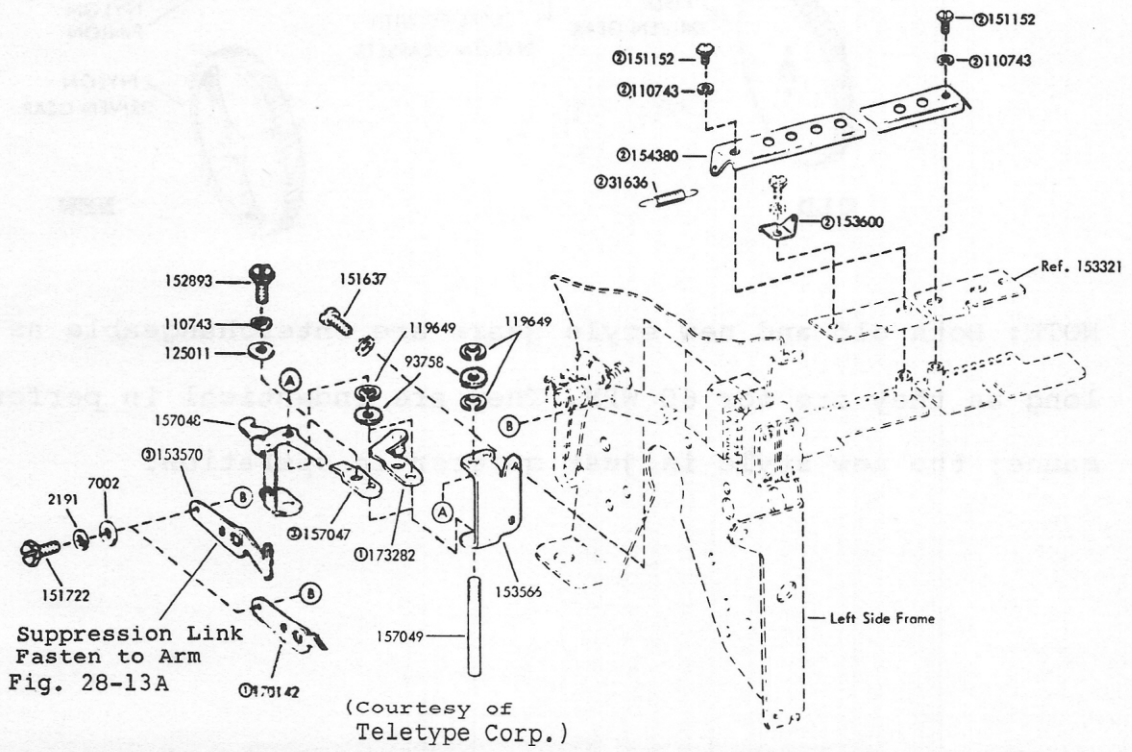


Fig. 28-12



Handwritten note: 5/20/42

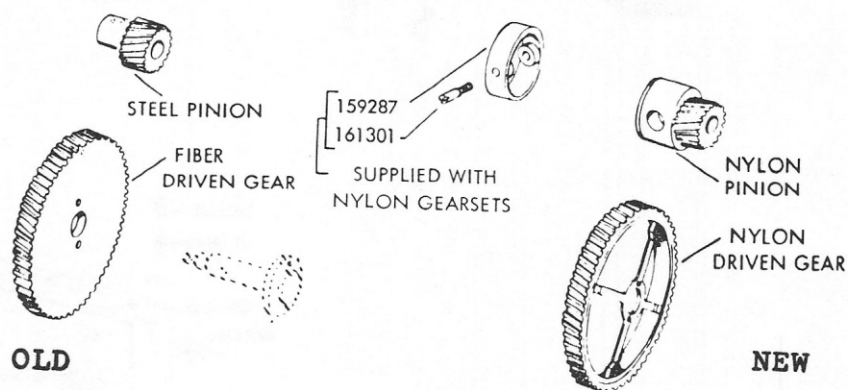


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D. MOST FREQUENTLY ORDERED PARTS

1. Check that the gears as in Fig. 28-14 are for 60 words per minute:

<u>OLD STYLE</u>	<u>TELETYPE PART NO.</u>
Motor Pinion	151130
Driven Gear	151131
Both	151060
 <u>NEW STYLE</u>	
Motor Pinion	159278
Driven Gear	159279
Both	161293



NOTE: Both old and new style gears are interchangeable as long as they are for 60 WPM. They are identical in performance; the new style is just quieter in operation.

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2. Check that the Signal Generator is in good condition
(that it has clean contacts and an easy working toggle).

OLD STYLE - 28C BASE - Fig. 28-9

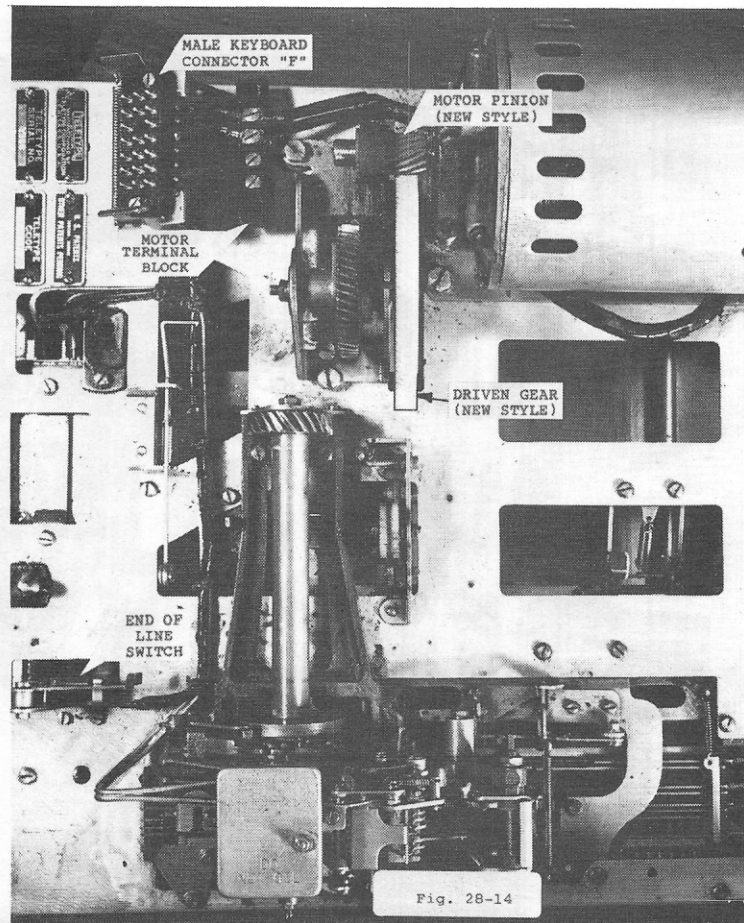
Contact 151173

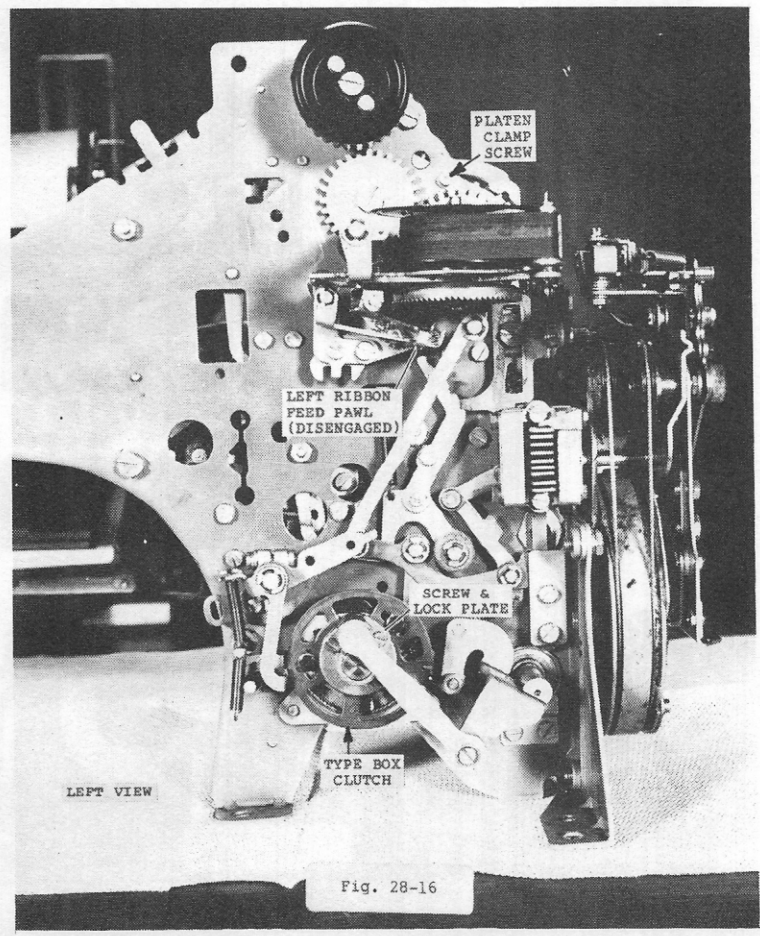
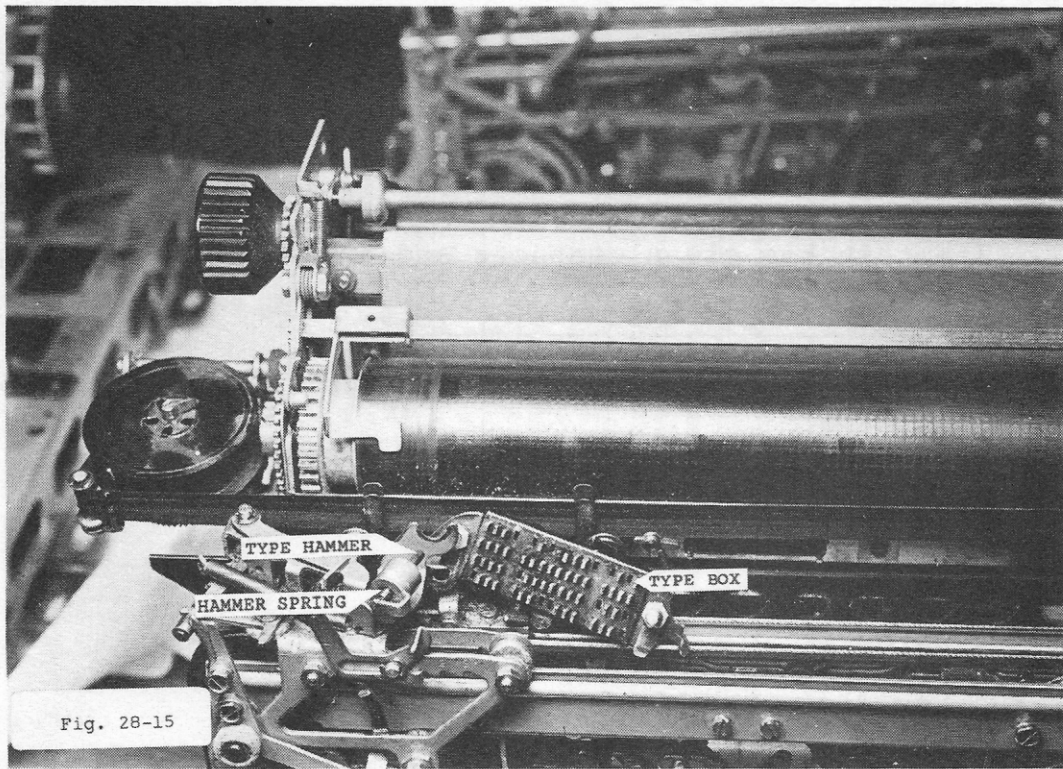
Toggle 151171

NEW STYLE - 28D BASE - Fig. 28-14

Contact 154045

Toggle 151171





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E. SOME COMMON TROUBLES

1. Motor is not running.

- a) Check the fuse. (Fig. 28-4)
- b) Check the keyboard plug to see if it is connected fully. (Fig. 28-4)
- c) Push the red reset button on the Motor base. It is a thermal cut-out resettable fuse.
- d) Check the power switch. (Fig. 28-1)

2. Printing does not occur.

- a) Type box may have come off if it was not latched. (Fig. 28-15)
- b) Check hammer spring and type hammer. (Fig. 28-15)
- c) Check the screws on the printing track for tightness. Also check for printing track levelness. (Fig. 28-13)
- d) E-type box may not be centered as it should be.

Note: If printing does not occur because the unit is running open (type carriage shifting rhythmically up and down):

- e) Keyboard contact hit accidentally and is now off normal, i.e., the toggle is not on Mark contact. To correct this, hit any key on the keyboard so it will reset.
- f) Typing unit connector is not attached properly.
- g) Black keyboard plug or red magnet plug not pushed into acoustical coupler jack all the way.

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h) Open transistor or other element in acoustical coupler.

3. Ribbon does not feed properly.

Feed pawls may not be engaged on either the left or right ribbon spool. Note that only one side should be engaged at a time. Refer to the following illustrations:

Left side spool (disengaged): Fig. 28-16

Right side spool (engaged): Fig. 28-17

4. Paper does not feed properly.

a) Check paper release lever for proper position (Fig. 28-17)

b) Check for proper installation of paper roll.

c) Platen is hard and slick from years of use. Either replace platen or rough up old platen with emery cloth. Refer to Section I for platen removal instructions.

5. Typing is garbled after teletypewriter is turned off for a long time.*

Oil may have accumulated between selector magnet armature and pole pieces (Fig. 28-17). Insert a dry piece of paper between the armature and pole to absorb and wipe off the oil film.

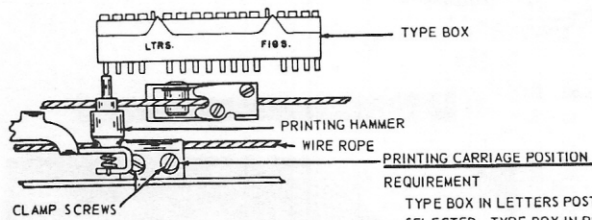
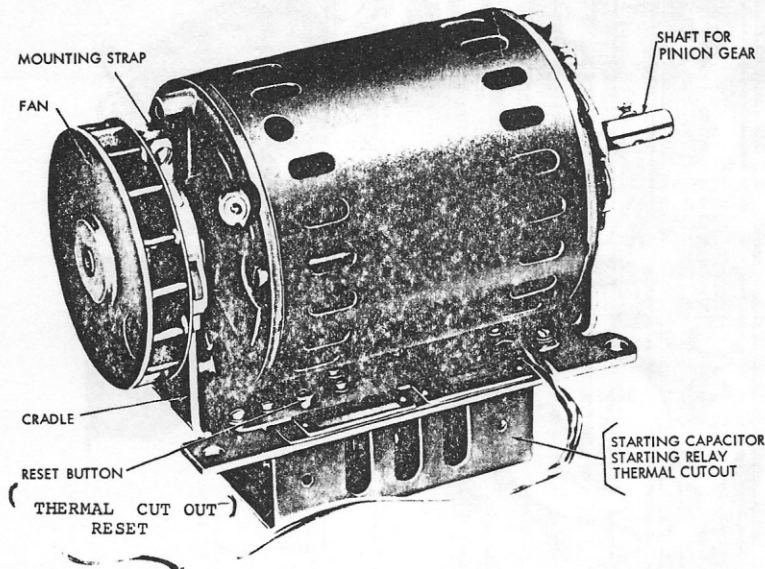
6. Typing is garbled due to dirty keyboard contact.*

Remove cover from signal generator contact box (Fig. 28-19) and clean contact on right side (marking contact) with a cloth impregnated with naphtha or an electrical contact cleaner according to Fig. 28-18. (Note that the left side contact is not wired into the circuit and can

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be ignored.)

* Garbles are due to a malfunction in either the keyboard or typing unit or both. No. 5 refers to the typing unit and No. 6 refers to the keyboard.



(TOP VIEW)

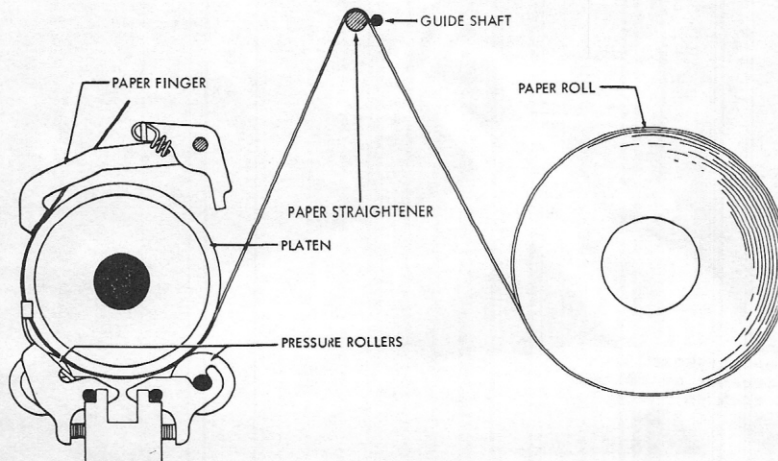
(Courtesy of Teletype Corp.)

PRINTING CARRIAGE POSITION REQUIREMENT

TYPE BOX IN LETTERS POSITION, M TYPE PALLET SELECTED. TYPE BOX IN PRINTING POSITION. M TYPE PALLET SHOULD BE APPROXIMATELY IN CENTER OF PRINTING HAMMER WHEN HAMMER IS JUST TOUCHING M TYPE PALLET. TAKE UP PLAY IN TYPE BOX CARRIAGE IN EACH DIRECTION AND SET HAMMER IN CENTER OF PLAY

TO ADJUST

POSITION PRINTING CARRIAGE ON WIRE ROPE WITH CLAMP SCREWS LOOSENED.



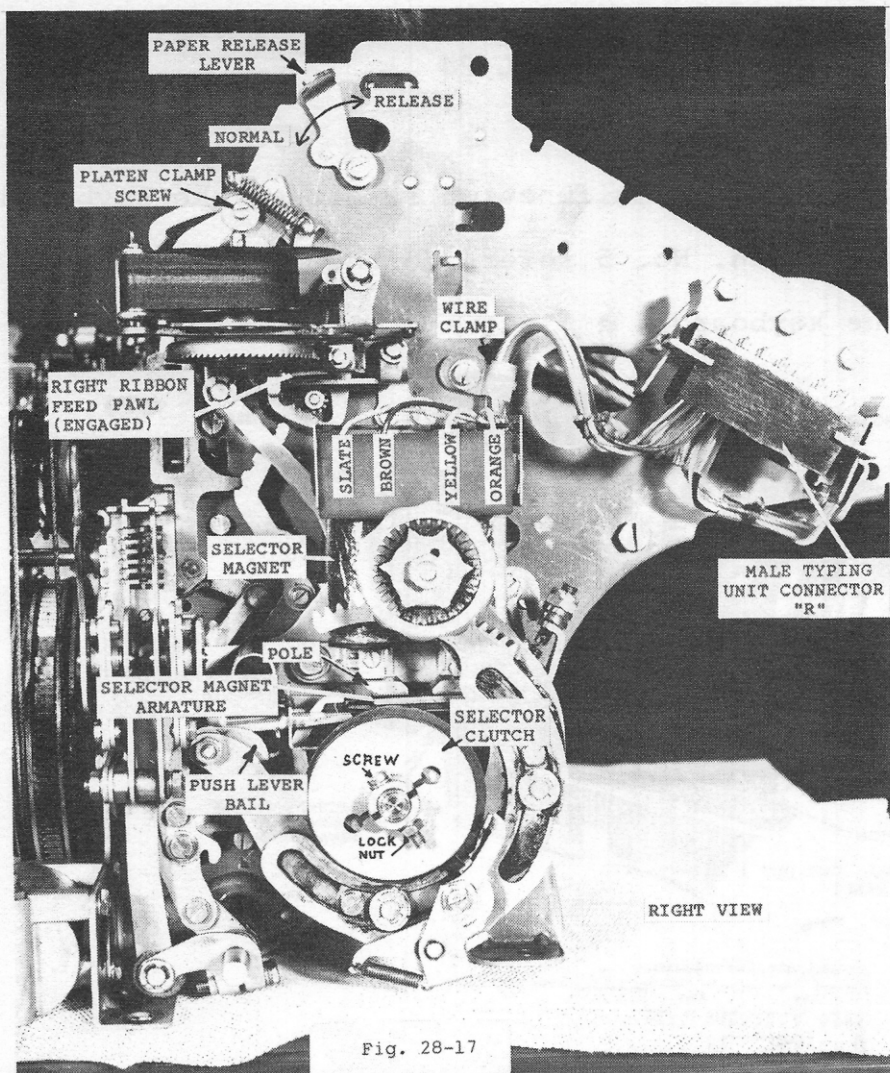


Fig. 28-17

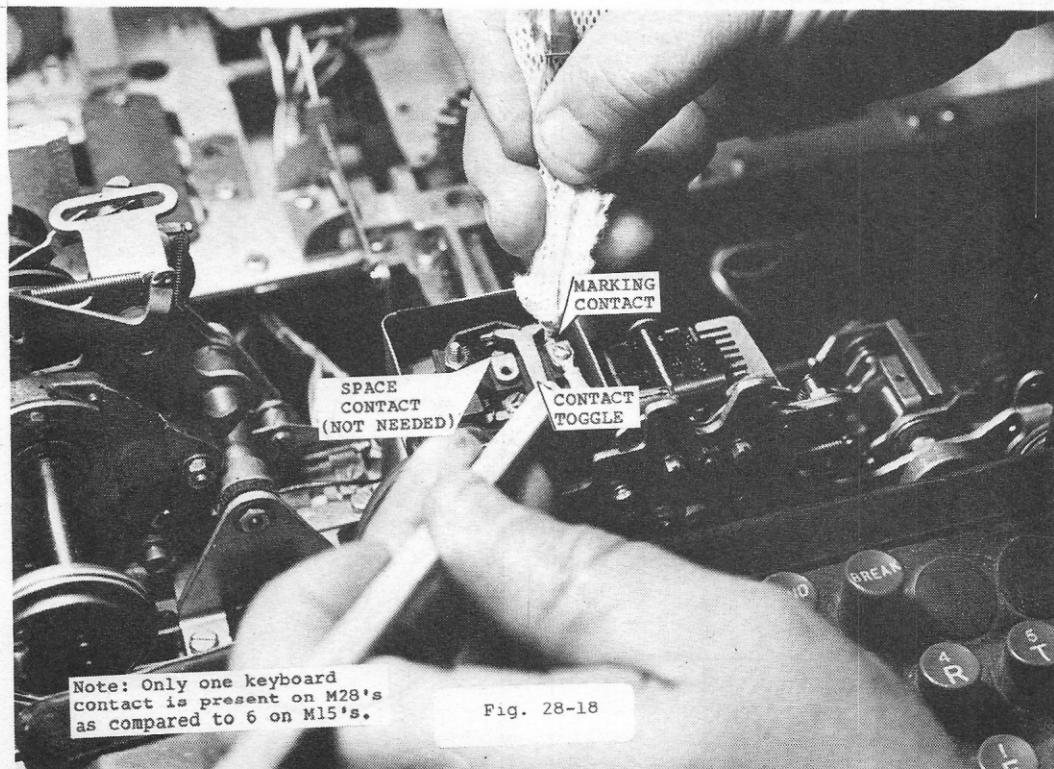


Fig. 28-18

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F. KEYBOARD CONTACT ADJUSTMENT

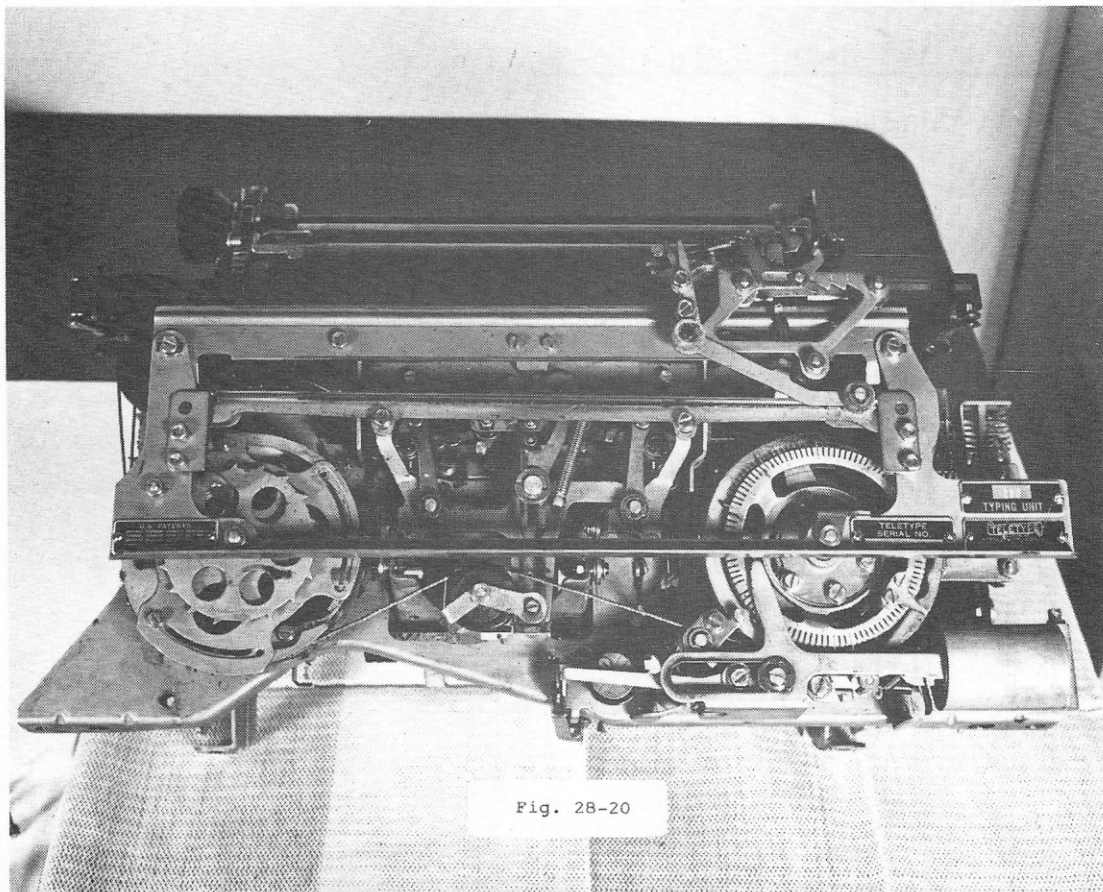
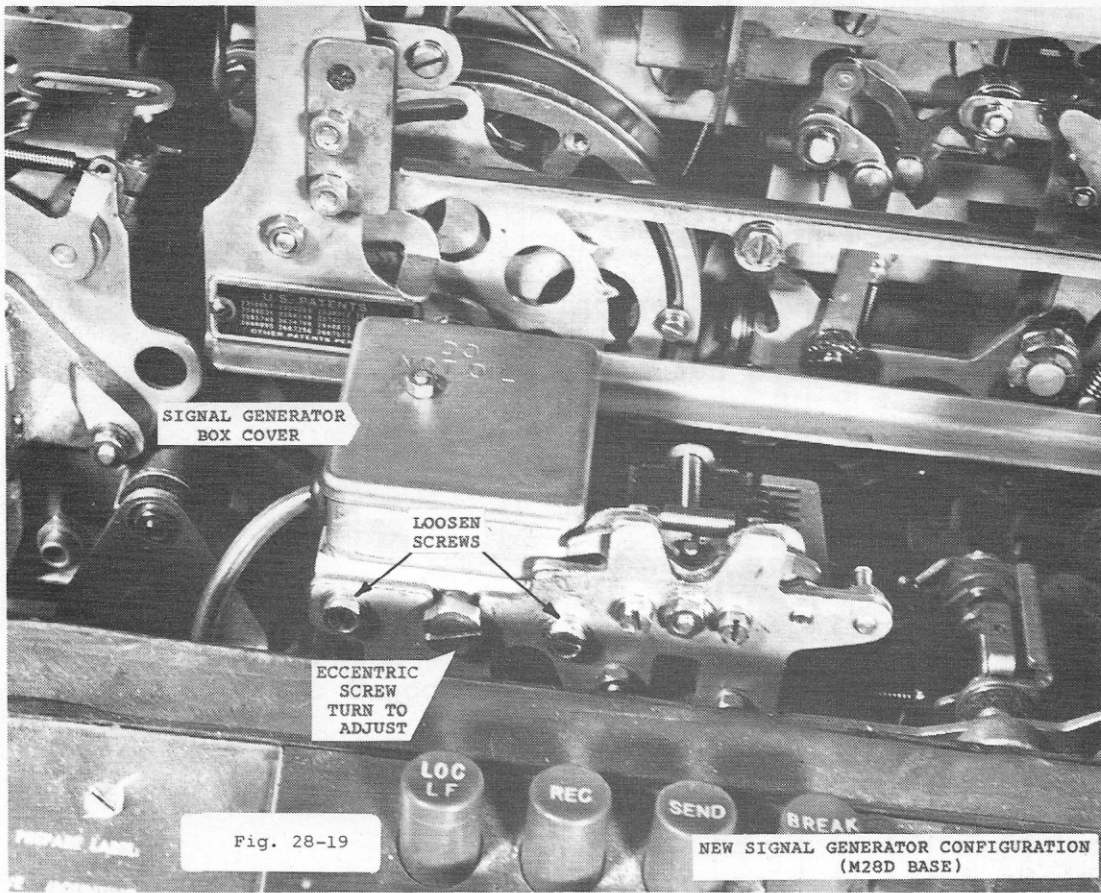
Note: Unless you have an appropriately connected oscilloscope, transmission measuring set, or distortion meter, it is not advisable to attempt this adjustment.

OLD STYLE - 28C BASE - Fig. 28-9

1. Loosen Contact Box mounting screws.
2. Loosen adjusting screw lock nut.
3. Turn adjusting screw to adjust keyboard contacts for the least amount of distortion as indicated by one of the above noted instruments.
4. Tighten the lock nut.
5. Tighten Contact Box mounting screws.

NEW STYLE - 28D BASE - Fig. 28-19

1. Loosen Contact Box mounting screws.
2. Turn the eccentric screw to adjust keyboard contacts for the least amount of distortion as indicated by one of the above mentioned instruments.
3. Tighten Contact Box mounting screws.



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G. FRONT PLATE (Fig. 28-20) DISASSEMBLY

Note: This procedure is to be used only to tear down the unit for repair.

1. Remove the two mounting screws indicated in Fig. 28-13, and the other two indicated in Fig. 28-21 and Fig. 28-8, respectively.
2. Push the Type Box carriage to the extreme right of the print track (Fig. 28-13).
3. Remove the snap ring from the Type Box carriage link and pull the link arm out of the hole in the Type Box carriage (Fig. 28-22).
4. Remove two screws from the rocker shaft (Fig. 28-23).
5. Now pull the Front Plate up and it will lift off as a complete unit.

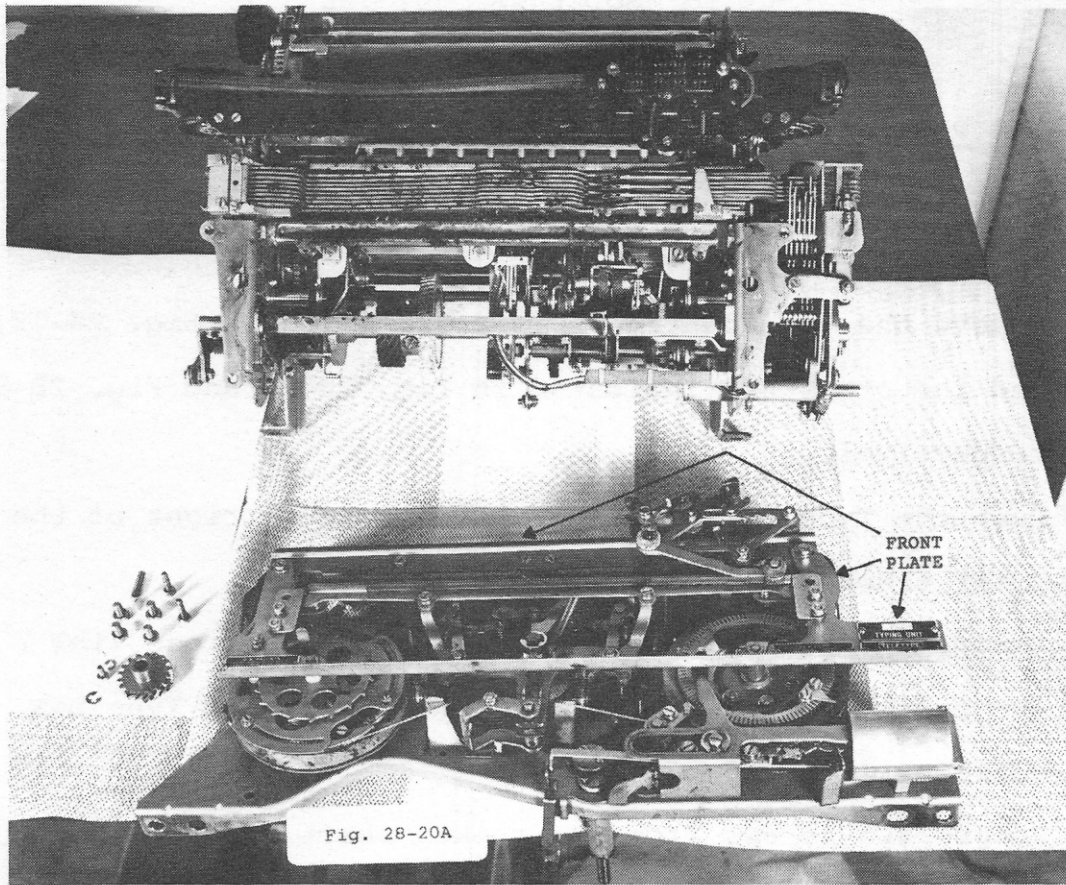
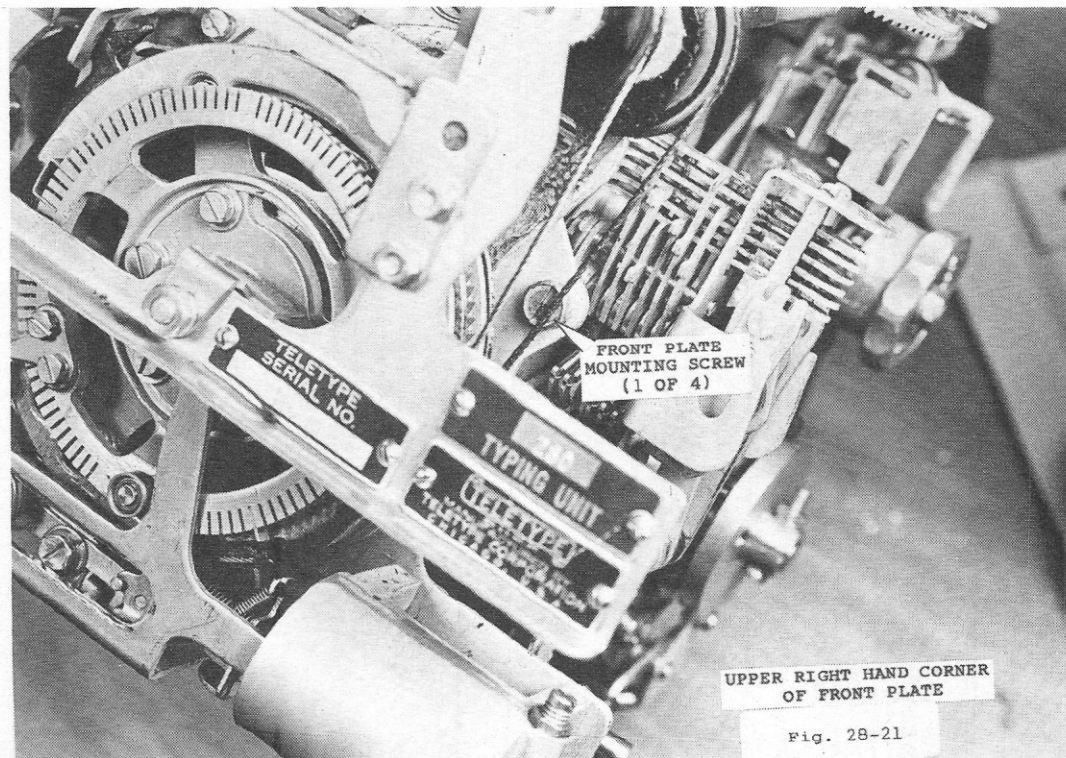


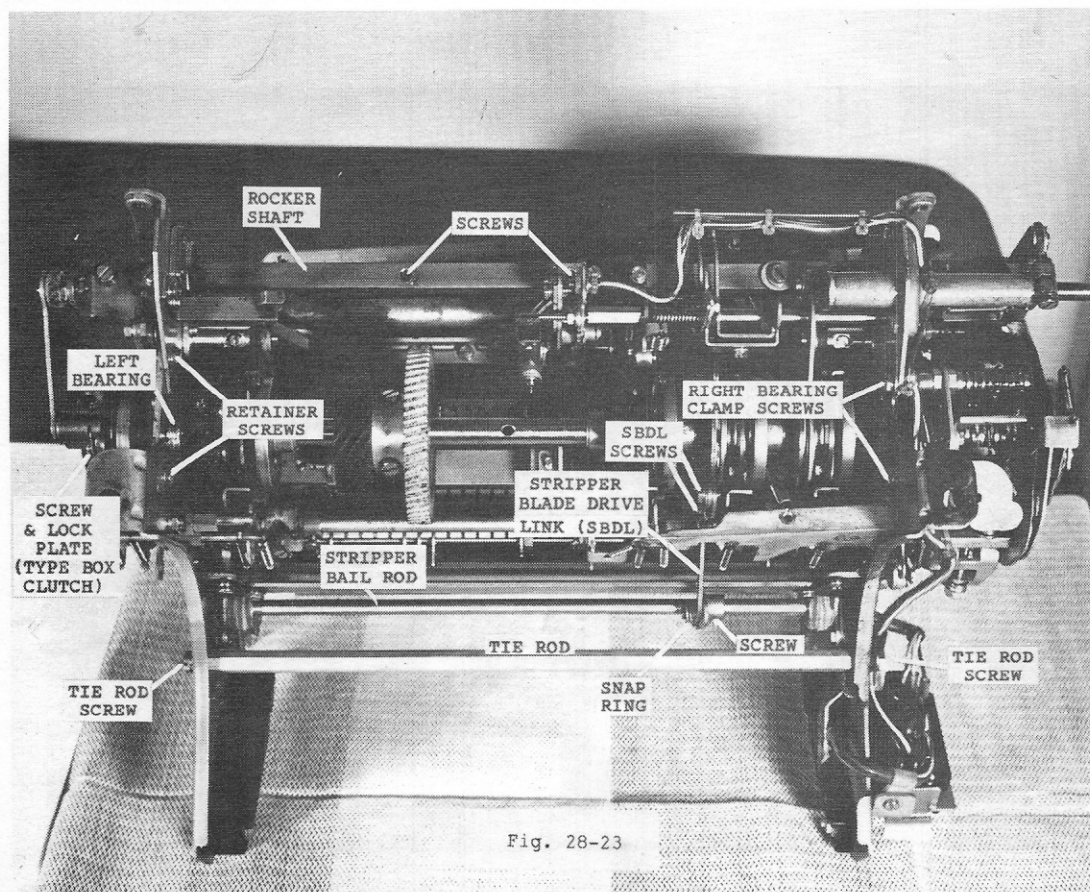
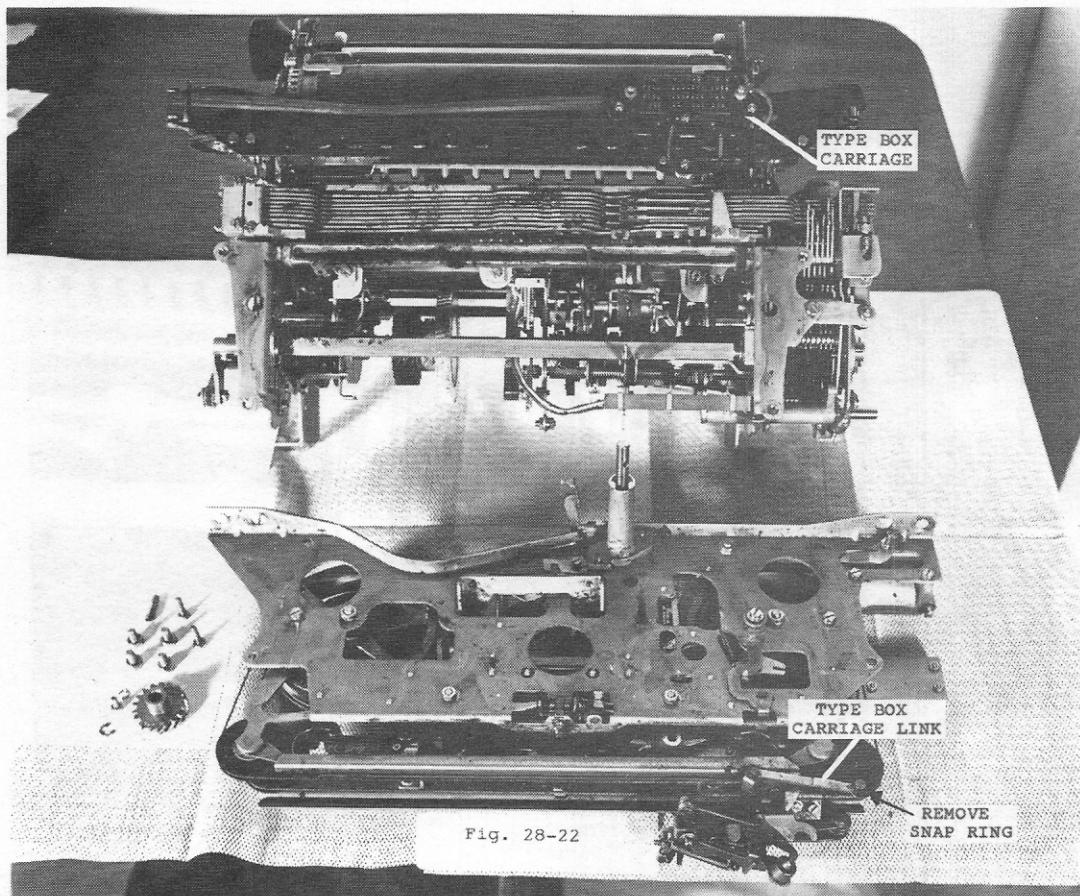
Fig. 28-20A



FRONT PLATE MOUNTING SCREW (1 OF 4)

UPPER RIGHT HAND CORNER OF FRONT PLATE

Fig. 28-21



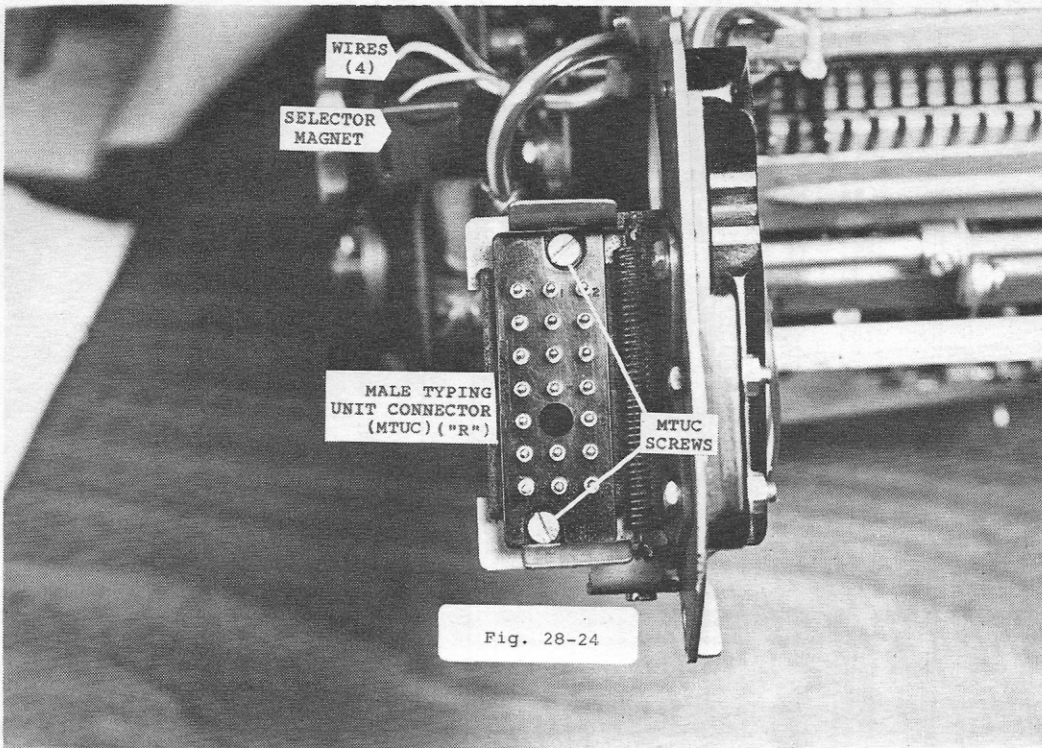


Fig. 28-24

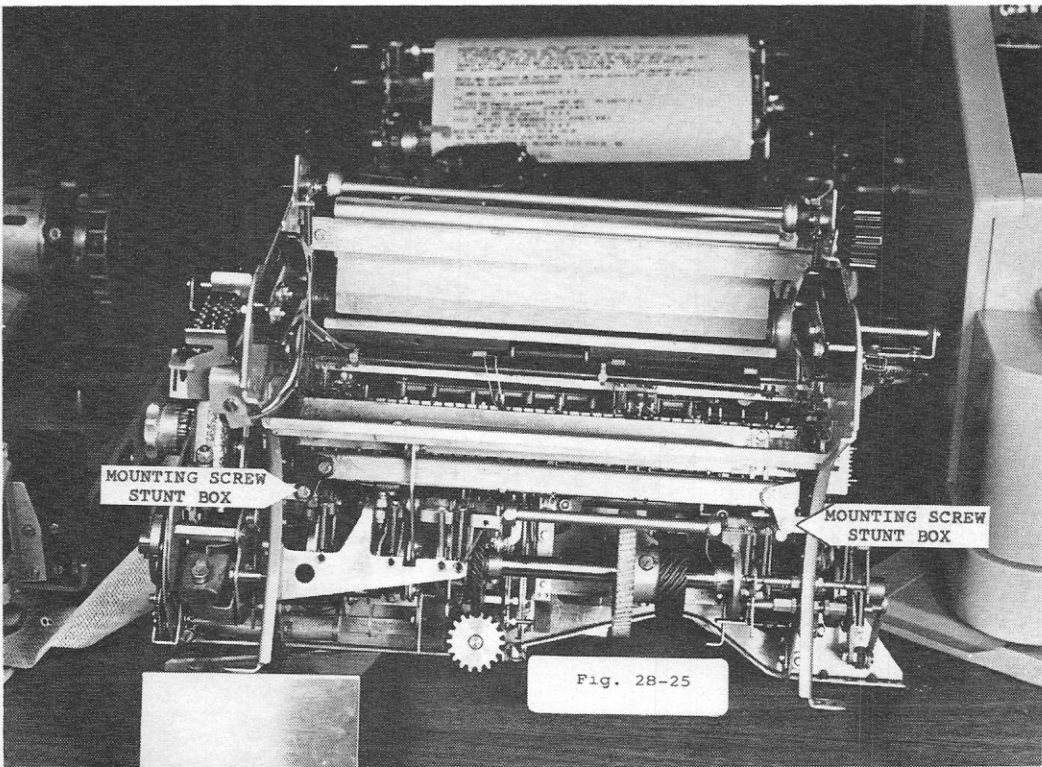
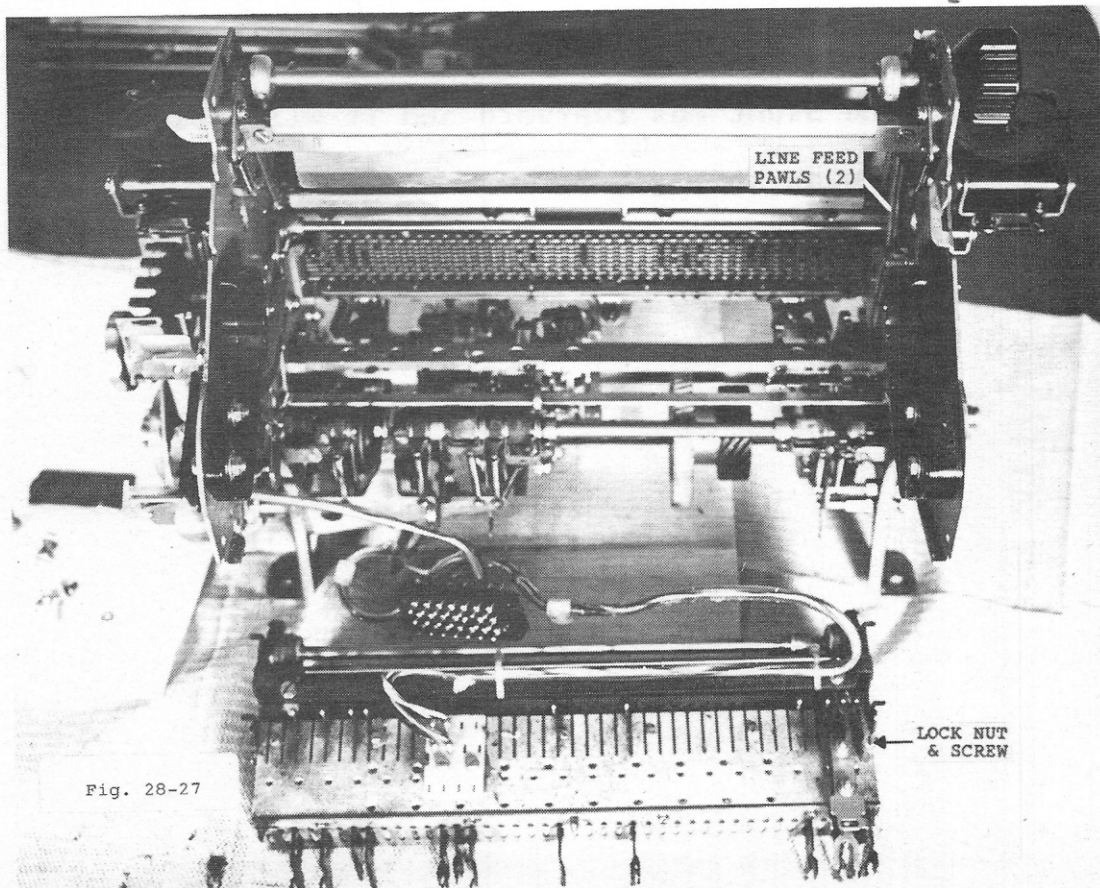
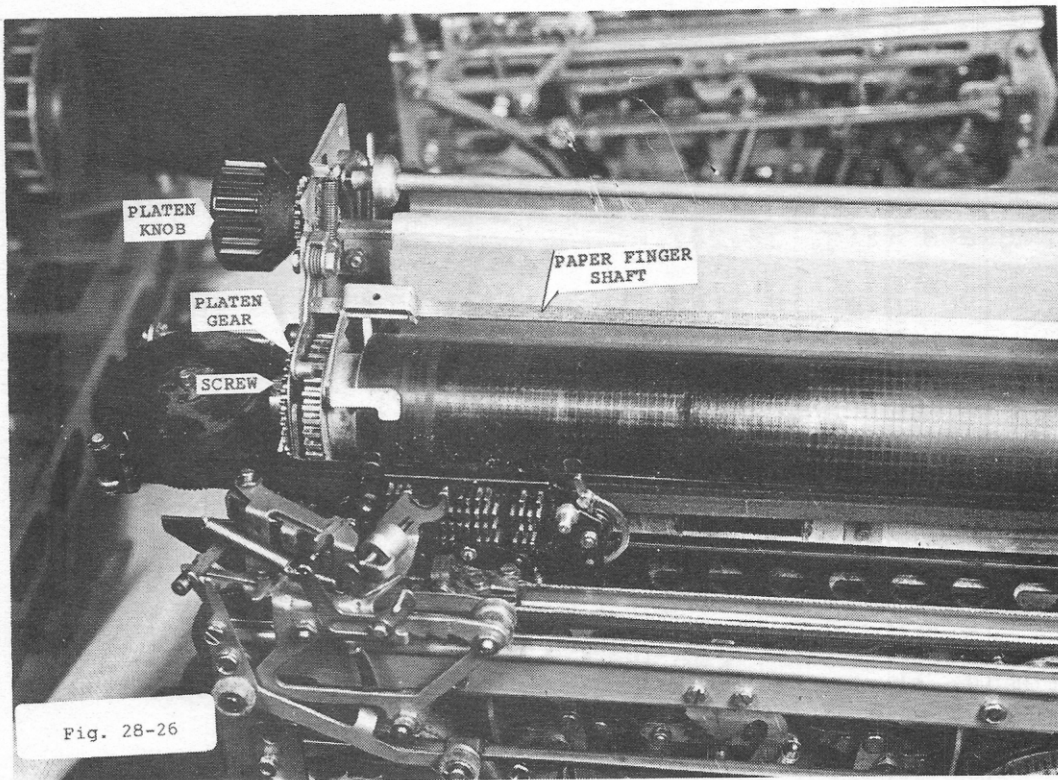


Fig. 28-25

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H. STUNT (FUNCTION) BOX (Fig. 28-12) REMOVAL

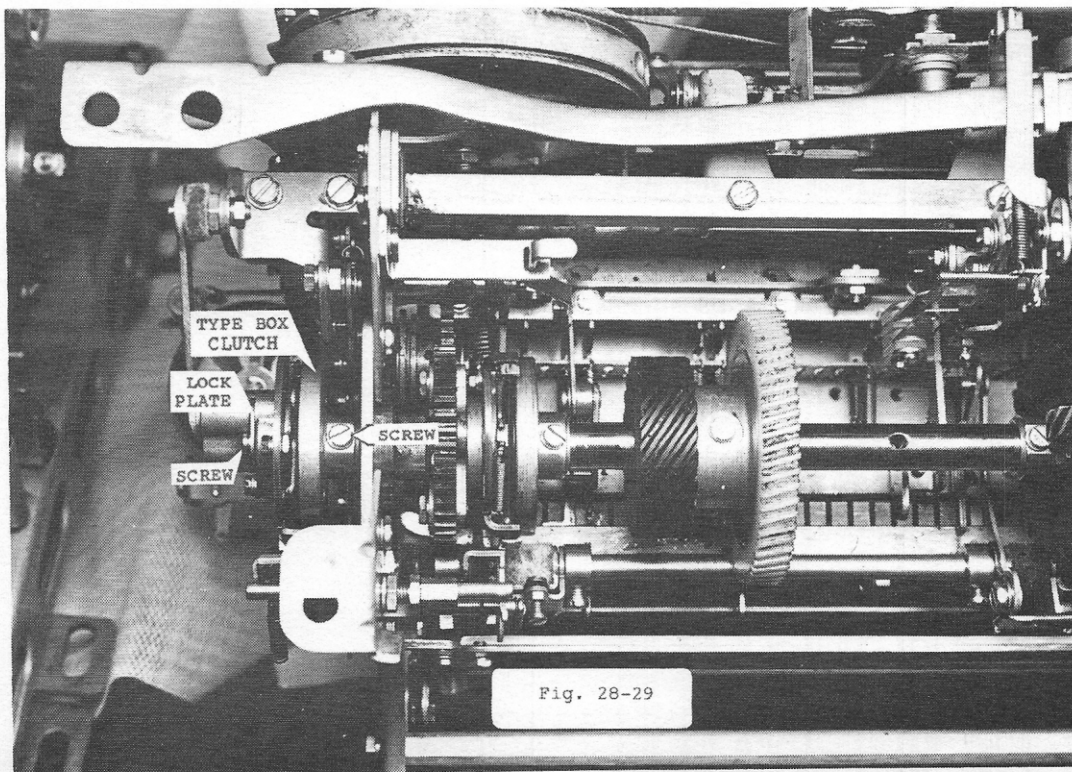
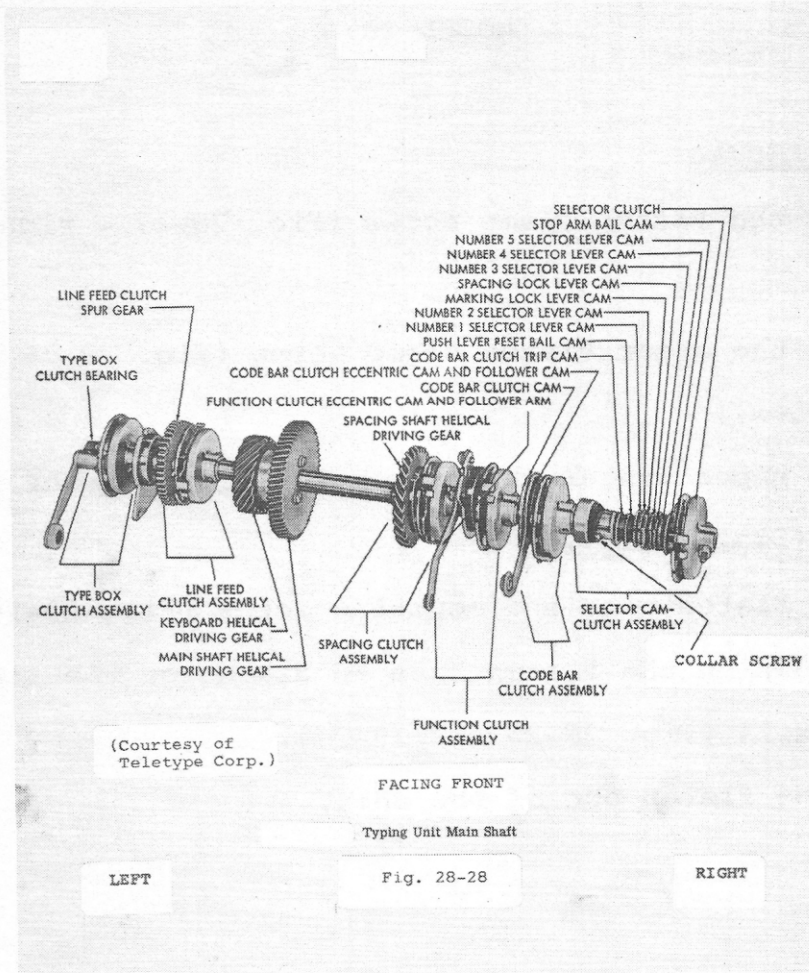
1. Remove wires that are connected to the selector magnets (Fig. 28-24).
2. Remove screw in clamp that holds wiring to the Right frame (Fig. 28-17).
3. Remove the two screws that mount the connector to the typing unit (Fig. 28-24).
4. Remove the two screws holding the tie rod. (Fig. 28-23).
5. Remove the screw and snap ring from the stripper bail rod and push link to the left.
6. Remove the two screws mounting the Stunt Box to the typing unit (Fig. 28-25).
7. Now pull the Stunt Box rearward and it will release from the typing unit.



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I. PLATEN REMOVAL

1. Remove the Platen clamp screw (Fig. 28-17 - right view).
2. Remove the other Platen clamp screw (Fig. 28-16 - left view).
3. Remove paper finger shaft by pulling out to the Right (Fig. 28-26).
4. Remove Platen gear and mounting screw (Fig. 28-26).
5. Push down on the Platen knob to disengage the line feed pawls (Fig. 28-26 and 28-27).
6. Lift the Platen out of the unit.



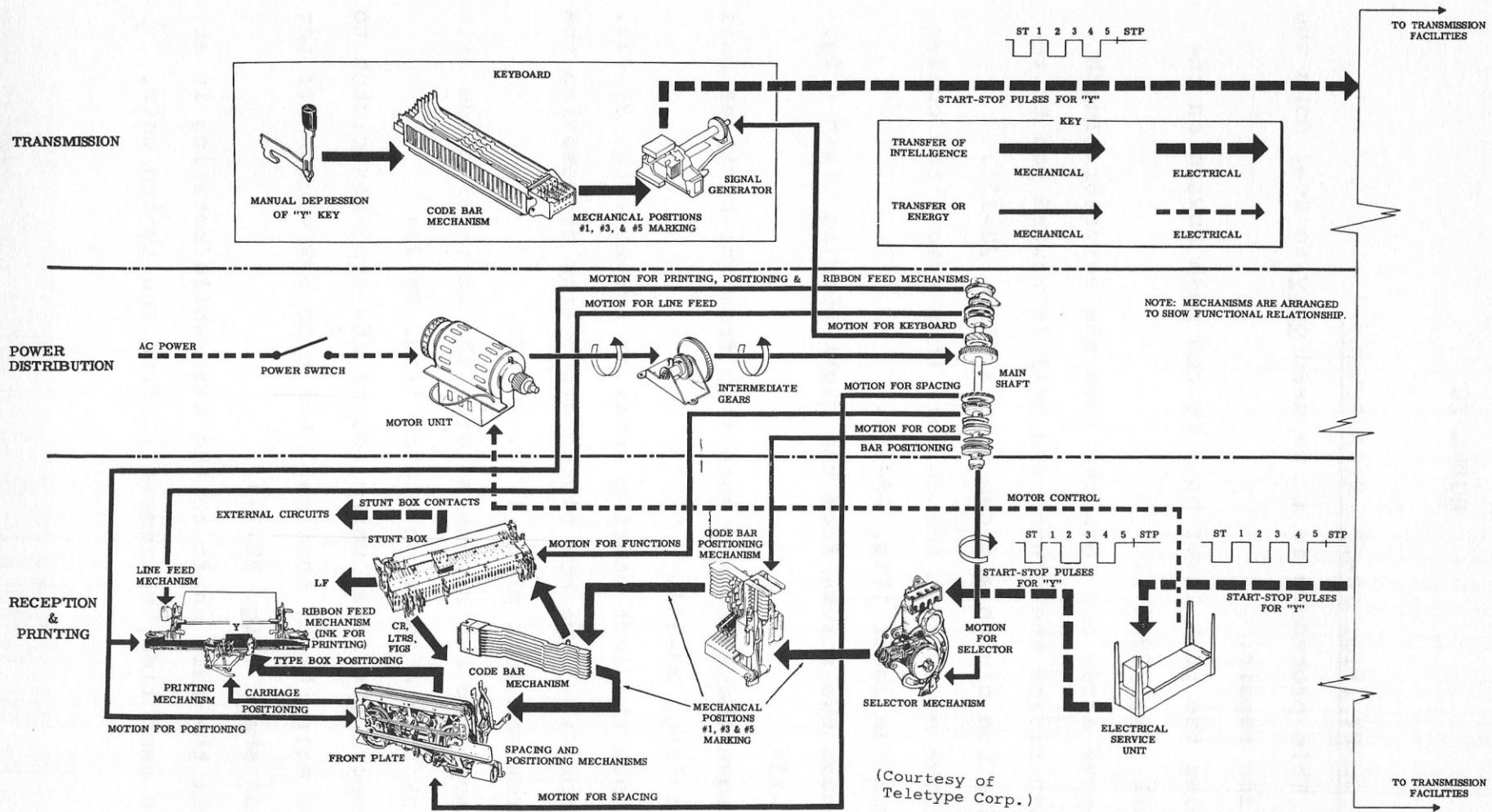
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J. MAIN SHAFT (Fig. 28-28) DISASSEMBLY

Note: This procedure is to be used only to tear down the unit for repair.

1. Raise the push lever bail up and push inward on the bail (Fig. 28-17).
2. Remove screw and lock nut from the selector clutch, then rotate the clutch and pull it toward you to remove the clutch and cam sleeve (Fig. 28-17).
3. Remove screw from the collar, then remove the collar from the shaft (Fig. 28-28).
4. Remove two screws from the right bearing clamp (Fig. 28-23).
5. Remove the screw and snap ring from the stripper bail rod (Fig. 28-23).
6. Remove the left bearing retainer screws (Fig. 28-23).
7. Remove the type box clutch drive link by removing the screw and lock plate (Fig. 28-29).
8. Remove the two screws holding the stripper blade drive link to the function clutch (Fig. 28-23).
9. Remove the screw which mounts the type box clutch to the main shaft; then pull the type box clutch off the main shaft (Fig. 28-29).
10. Pull the main shaft to the left while rotating it at the same time, to remove it from the typing unit.

M28-34

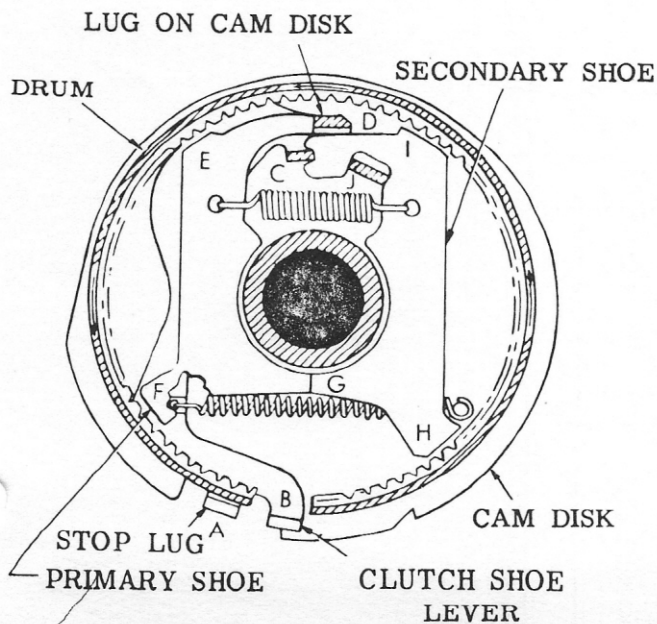


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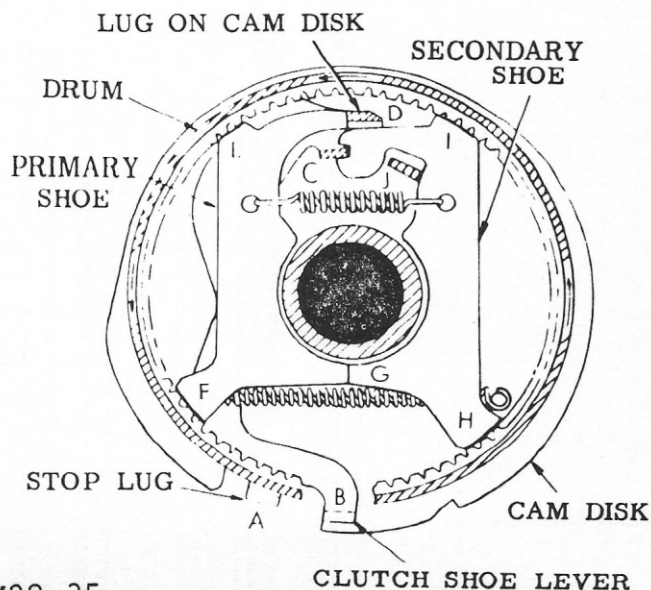
28 Typing Unit, Schematic Diagram

K. DESCRIPTIONS OF VARIOUS CLUTCHES

1. SELECTOR CLUTCH - Converts incoming signals into mechanical marking or spacing pulses.
2. CODE BAR CLUTCH -
 - a) Positions the code bars.
 - b) Prepares the stunt box for functions which can be selected, i.e., a cam on the code bar clutch operates the function clutch and the type box clutch.
3. FUNCTION CLUTCH - Causes operation of the function bail, and of the stunt box stripper bail.
4. SPACING CLUTCH - Advances the type box across the page.
5. LINE FEED CLUTCH - Operates the linkage that feeds the paper.
6. TYPE BOX CLUTCH -
 - a) Prepares the unit for vertical positioning.
 - b) Activates the ribbon feed.
 - c) Prepares the unit for horizontal positioning.



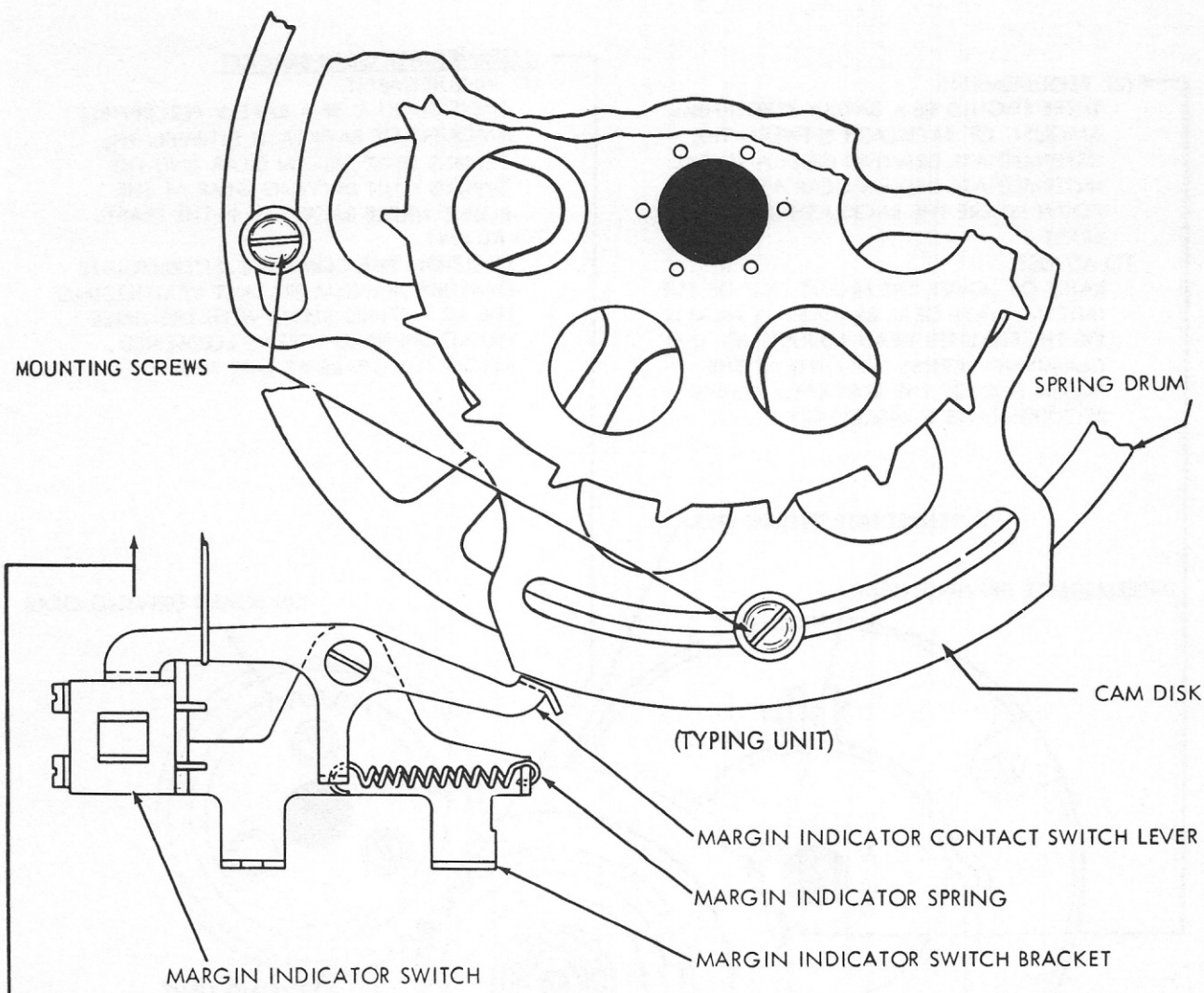
- One Stop Clutch (Disengaged)



One Stop Clutch (Engaged)

L. COMMON ADJUSTMENTS

The following pages of this section contain reproductions of selected procedures from manuals issued by the Teletype Corporation. Included are a few Keyboard adjustments, followed by Typing Unit adjustments, which, in the experience of the authors, have required most frequent attention. Contingent upon demand, this approach will be applied to future additions, with abridgement or clarification of instructions if necessary.



MARGIN INDICATOR LAMP

REQUIREMENT

OPERATING UNDER POWER, THE LAMP SHOULD LIGHT 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 SO THAT THE SWITCH JUST OPENS.

MARGIN INDICATOR SPRING TENSION

REQUIREMENT

MIN. 7 OZS.
 MAX. 11 OZS.
 TO START LEVER MOVING.

(Courtesy of Teletype Corp.)

Typing Unit and Keyboard, Margin Indicating Mechanism

(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 FILLISTER HEAD ADJUSTING AND CLAMPING SCREWS LOCATED AT THE FRONT END OF THE BRACKET. REFINE REQUIREMENTS IF NECESSARY.

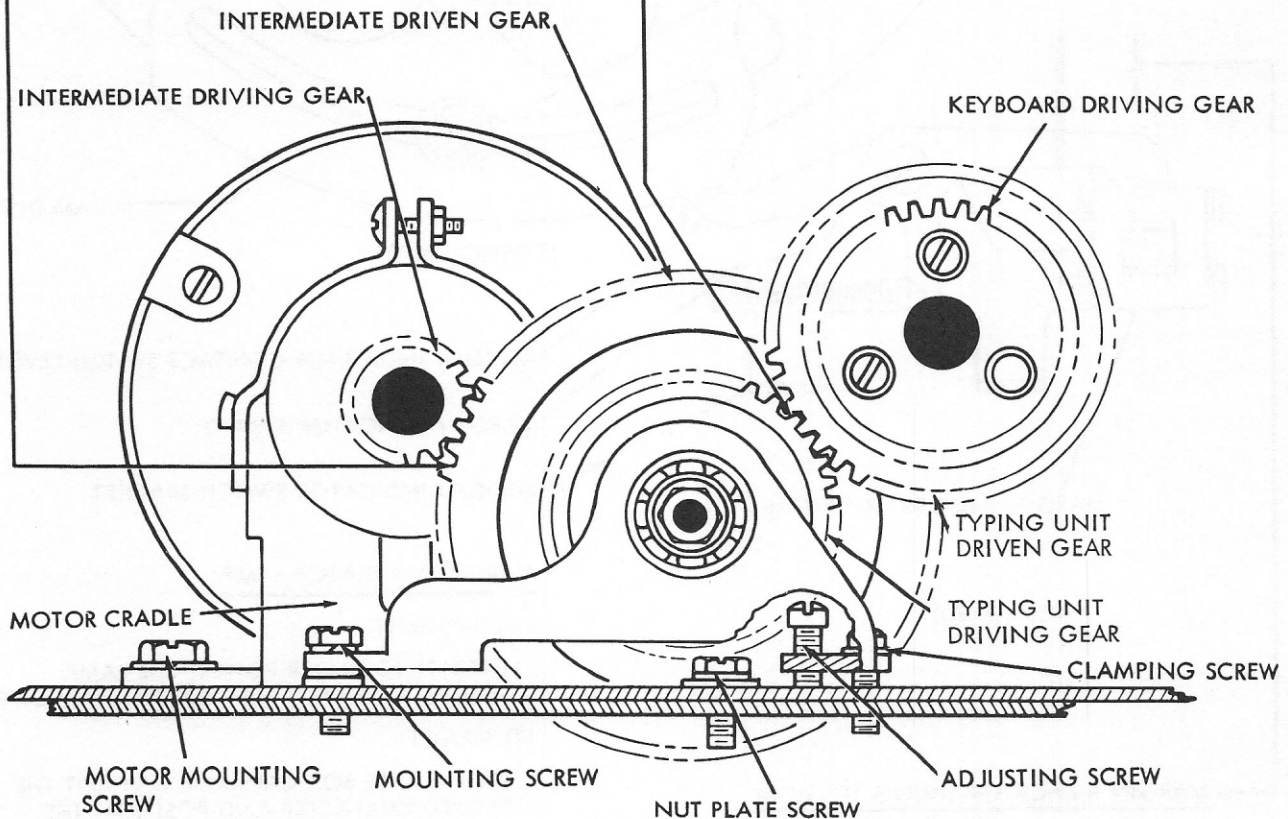
INTERMEDIATE GEAR BRACKET

(1) REQUIREMENT

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

TO ADJUST

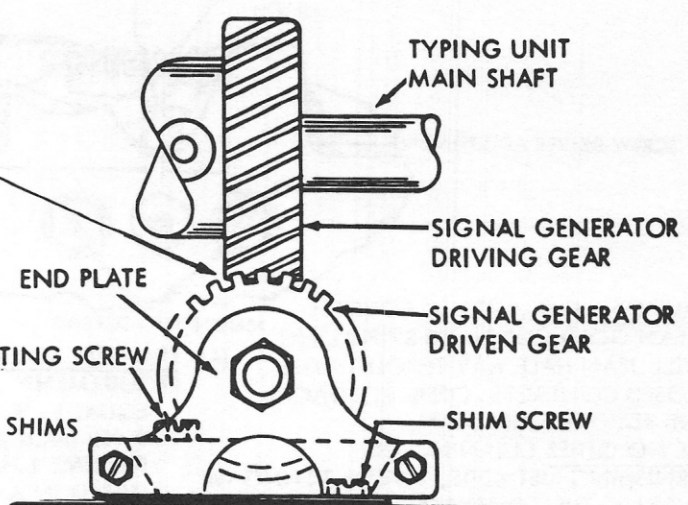
POSITION THE COMPLETE INTERMEDIATE GEAR MECHANISM BRACKET BY UTILIZING THE ADJUSTING SLOTS WITH THE THREE HEXAGON HEAD SCREWS LOOSENED. ALIGN THE GEARS AT THIS TIME



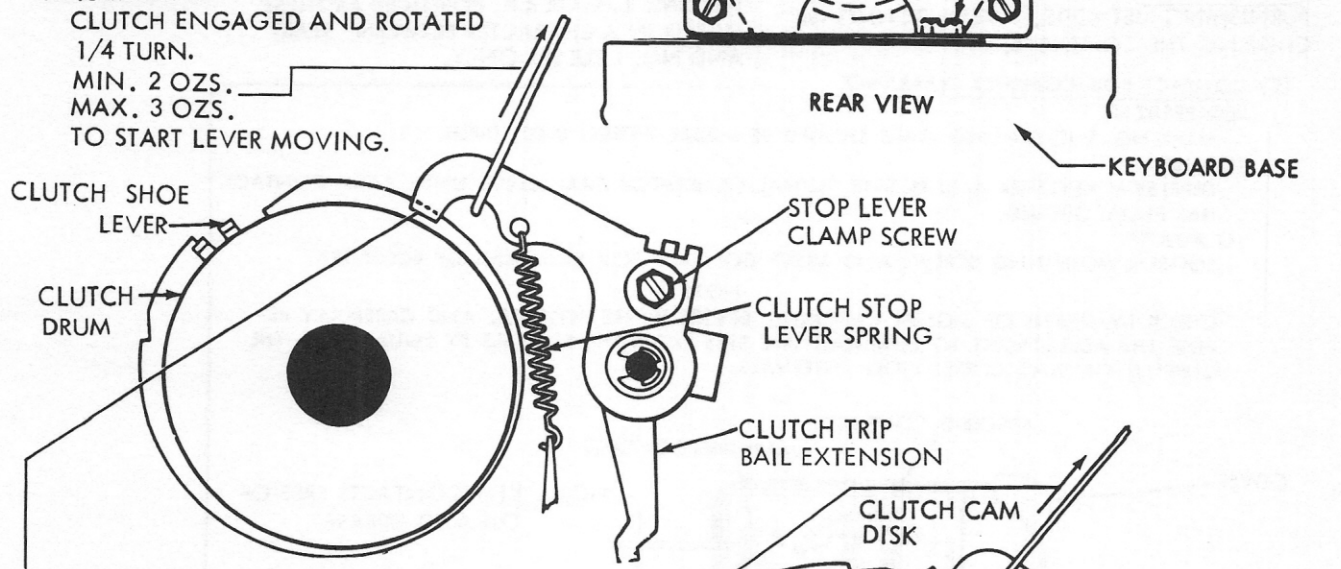
(Courtesy of
Teletype Corp.)

Keyboard or Base, Intermediate Gear Assembly

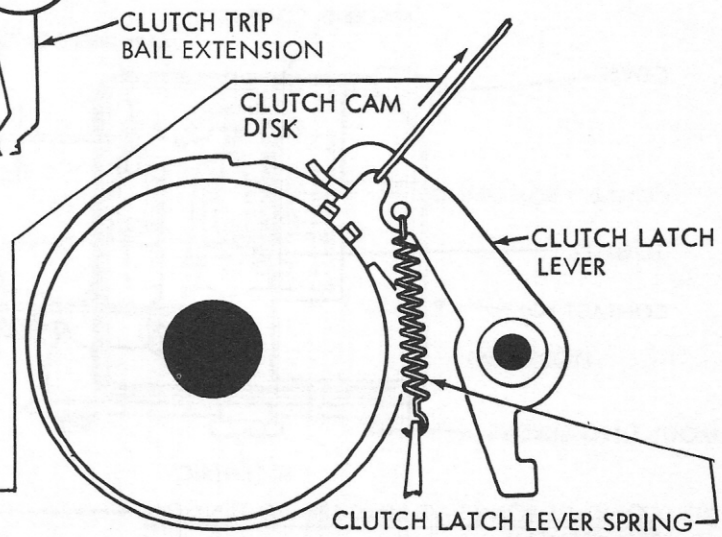
(A) SIGNAL GENERATOR FRAME REQUIREMENT
 WITH TYPING UNIT MOUNTED IN POSITION, THERE SHOULD BE A PERCEPTIBLE AMOUNT OF BACKLASH BETWEEN THE SIGNAL GENERATOR DRIVEN GEAR AND THE SIGNAL GENERATOR DRIVING GEAR AT THE POINT WHERE BACKLASH IS THE LEAST.
 TO ADJUST REMOVE THE SIGNAL GENERATOR FRAME REAR MOUNTING SCREW AND LOOSEN THE SHIM SCREW. ADD OR SUBTRACT SHIMS AS REQUIRED.



(C) CLUTCH STOP LEVER SPRING TENSION REQUIREMENT
 CLUTCH ENGAGED AND ROTATED 1/4 TURN.
 MIN. 2 OZS.
 MAX. 3 OZS.
 TO START LEVER MOVING.



(B) CLUTCH STOP LEVER REQUIREMENT
 SHOULD FULLY ENGAGE CLUTCH SHOE LEVER.
 DURING ROTATION, THE LEVER SHOULD NOT TOUCH THE CLUTCH DRUM AT ANY POINT.
 TO ADJUST POSITION STOP LEVER WITH ITS CLAMP SCREW LOOSENED.

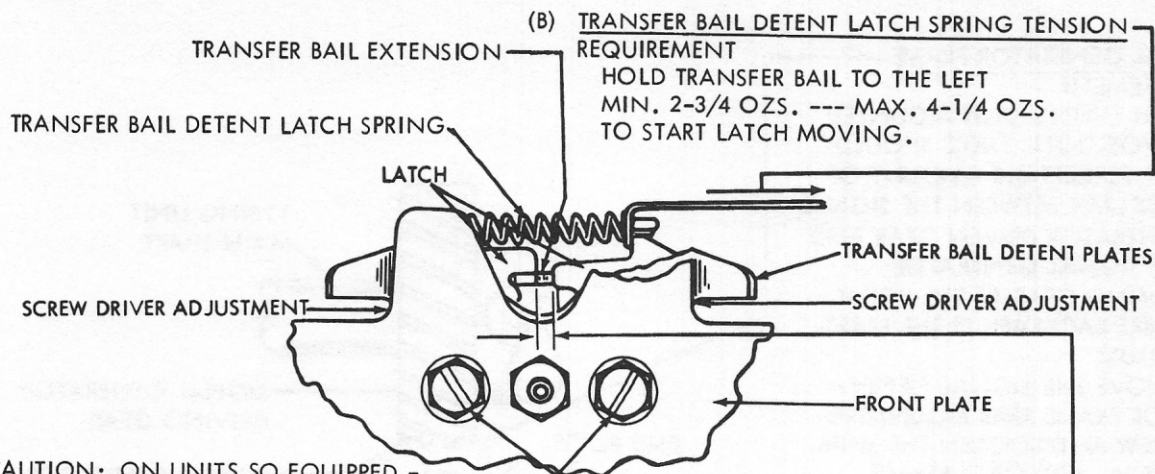


(D) CLUTCH LATCH LEVER SPRING TENSION REQUIREMENT
 CLUTCH LATCH LEVER RESTING ON THE HIGHEST POINT OF CLUTCH DISK.
 MIN. 2 OZS.
 MAX. 3 OZS.
 TO START LATCH LEVER MOVING.

- CLUTCH DRUM POSITION SEE FIGURE 5-19
- CLUTCH SHOE LEVER SPRING TENSION SEE FIGURE 5-19
- CLUTCH SHOE SPRING TENSION SEE FIGURE 5-19

(Courtesy of Teletype Corp.)

Keyboard, Signal Generator Clutch



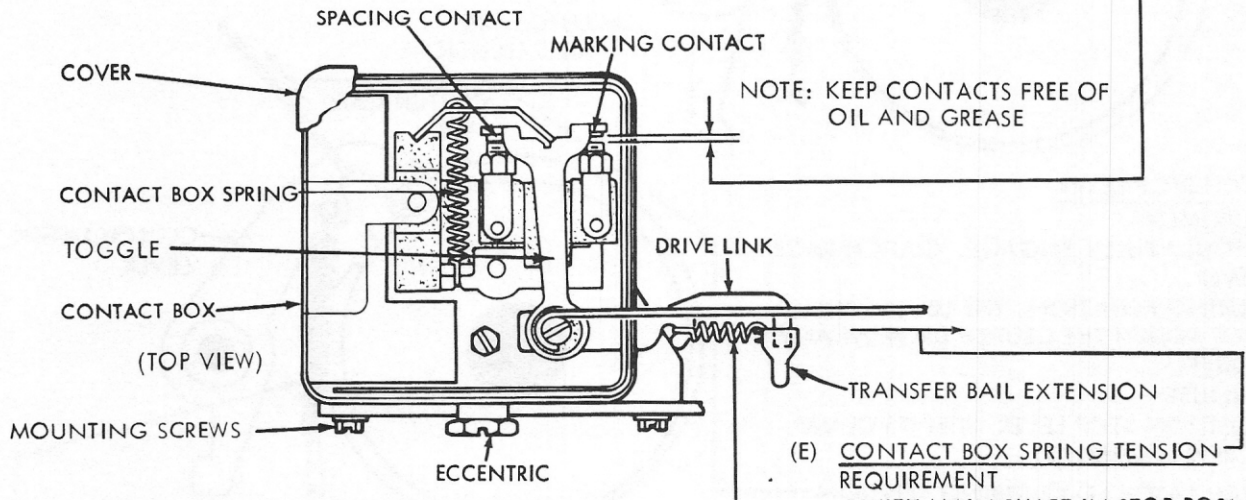
(B) TRANSFER BAIL DETENT LATCH SPRING TENSION REQUIREMENT
 HOLD TRANSFER BAIL TO THE LEFT
 MIN. 2-3/4 OZS. --- MAX. 4-1/4 OZS.
 TO START LATCH MOVING.

CAUTION: ON UNITS SO EQUIPPED -
 CLEAN GOLD CONTACTS BY PULLING
 TWILL JEAN HALF WAY THROUGH THE
 CLOSED CONTACTS, OPEN CONTACTS
 AND REMOVE TWILL JEAN.
 USE NO OTHER CLEANING OR
 BURNISHING METHODS. AVOID PITTING OR
 CHIPPING THE CONTACTS.

(A) TRANSFER BAIL DETENT PLATE REQUIREMENT
 EQUAL L. H. AND R. H. CLEARANCE WITHIN
 0.002 INCH WHEN TRANSFER BAIL IS AT
 EXTREME L.H. OR R.H. POSITION AS THESE
 OCCUR IN A CHARACTER BETWEEN START
 AND NO. 1 PULSES ONLY.

(C) CONTACT BOX CONTACT CLEARANCE REQUIREMENT
 MARKING AND SPACING GAPS SHOULD BE EQUAL WITHIN 0.001 INCH.
 TO CHECK
 DEPRESS Y KEYLEVER AND ROTATE SIGNAL GENERATOR CAM SLEEVE UNTIL EACH CONTACT
 HAS FULLY OPENED.
 TO ADJUST
 LOOSEN MOUNTING SCREWS AND MOVE CONTACT BOX BY MEANS OF ECCENTRIC.

NOTE
 CHECK BY MEANS OF SIGNAL CHECKING DEVICE WHERE POSSIBLE, AND CAREFULLY RE-
 FINE THE ADJUSTMENT TO ELIMINATE ALL BIAS FROM THE SIGNALS BY EQUALIZING THE
 CURRENT-ON AND CURRENT-OFF INTERVALS.

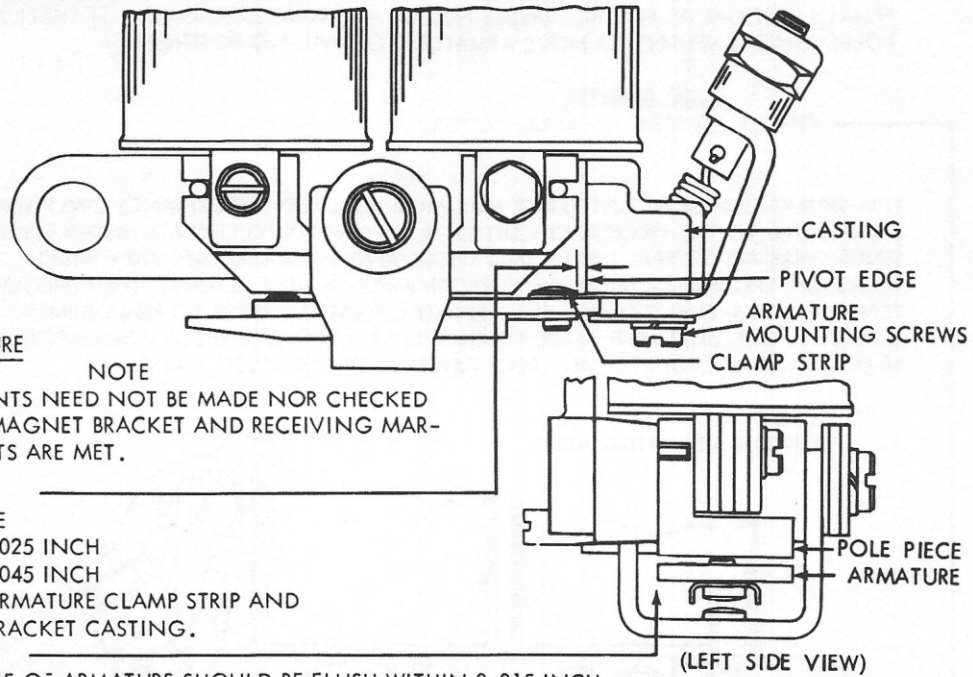


(E) CONTACT BOX SPRING TENSION REQUIREMENT
 WITH MAIN SHAFT IN STOP POSI-
 TION AND COVER OF CONTACT
 BOX REMOVED, UNHOOK THE
 DRIVE LINK SPRING AND HOLD
 TRANSFER BAIL CLEAR OF DRIVE
 LINK
 MIN. 2 OZS.
 MAX. 3 OZS.
 TO START LINK MOVING.

(D) CONTACT BOX DRIVE LINK SPRING TENSION REQUIREMENT
 WITH MAINSHAFT IN STOP POSITION AND TRANSFER
 BAIL DETENT LATCH SPRING UNHOOKED (SEE FIG.
 ABOVE) MOVE LATCHES AWAY FROM TRANSFER BAIL
 EXTENSION. HOLD THE TOGGLE FIRMLY AGAINST
 CONTACTS.
 MIN. 6 OZS. --- MAX. 9 OZS.
 TO START TRANSFER BAIL EXTENSION MOVING.

d. TYPING UNIT - LP77YD/AGM, LP77YD/AJV AND LP124YD/AJU

NOTE: TO FACILITATE MAKING THE FOLLOWING ADJUSTMENTS, REMOVE THE RANGE FINDER AND SELECTOR MAGNET ASSEMBLIES. TO INSURE BETTER OPERATION, PULL A PIECE OF BOND 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.



SELECTOR ARMATURE

NOTE

THESE REQUIREMENTS NEED NOT BE MADE NOR CHECKED IF THE SELECTOR MAGNET BRACKET AND RECEIVING MARGIN REQUIREMENTS ARE MET.

(1) REQUIREMENT
CLEARANCE

MIN. 0.025 INCH

MAX. 0.045 INCH

BETWEEN ARMATURE CLAMP STRIP AND
MAGNET BRACKET CASTING.

(2) REQUIREMENT

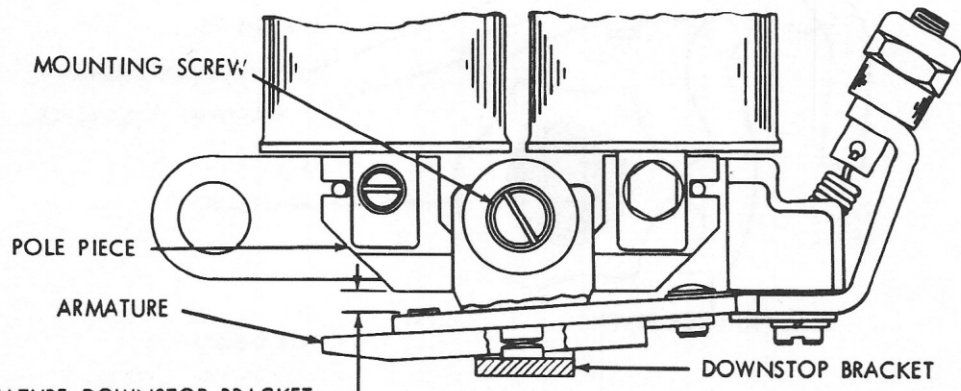
OUTER EDGE OF ARMATURE SHOULD BE FLUSH WITHIN 0.015 INCH
WITH OUTER EDGE OF POLE PIECES.

(3) REQUIREMENT

START LEVER SHALL DROP FREELY INTO ARMATURE EXTENSION SLOT.

TO ADJUST

POSITION ARMATURE SPRING ADJUSTING NUT TO HOLD ARMATURE FIRMLY AGAINST PIVOT
EDGE OF CASTING. POSITION ARMATURE WITH MOUNTING SCREWS LOOSENED.



SELECTOR ARMATURE DOWNSTOP BRACKET

REQUIREMENT

REMOVE OIL SHIELD. WITH MAGNET DE-ENERGIZED, LOCK LEVERS ON HIGH PART OF
THEIR CAM, AND ARMATURE RESTING AGAINST ITS DOWNSTOP, CLEARANCE BETWEEN
END OF ARMATURE AND LEFT EDGE OF LEFT POLE PIECE.

MIN. 0.025 INCH

MAX. 0.030 INCH

TO ADJUST

POSITION DOWNSTOP BRACKET WITH MOUNTING SCREW LOOSENED.

(Courtesy of
Teletype Corp.)

SELECTOR ARMATURE SPRING

(FOR UNITS EMPLOYING SELECTOR ARMATURE WITH SINGLE ANTI-FREEZE BUTTON ONLY).
REQUIREMENT (PRELIMINARY)

WITH LOCKING LEVERS AND START LEVER ON HIGH PART OF THEIR CAMS, SCALE APPLIED AS NEARLY VERTICAL AS POSSIBLE UNDER END OF ARMATURE EXTENSION. IT SHALL REQUIRE THE FOLLOWING TENSIONS TO MOVE ARMATURE TO MARKING POSITION:

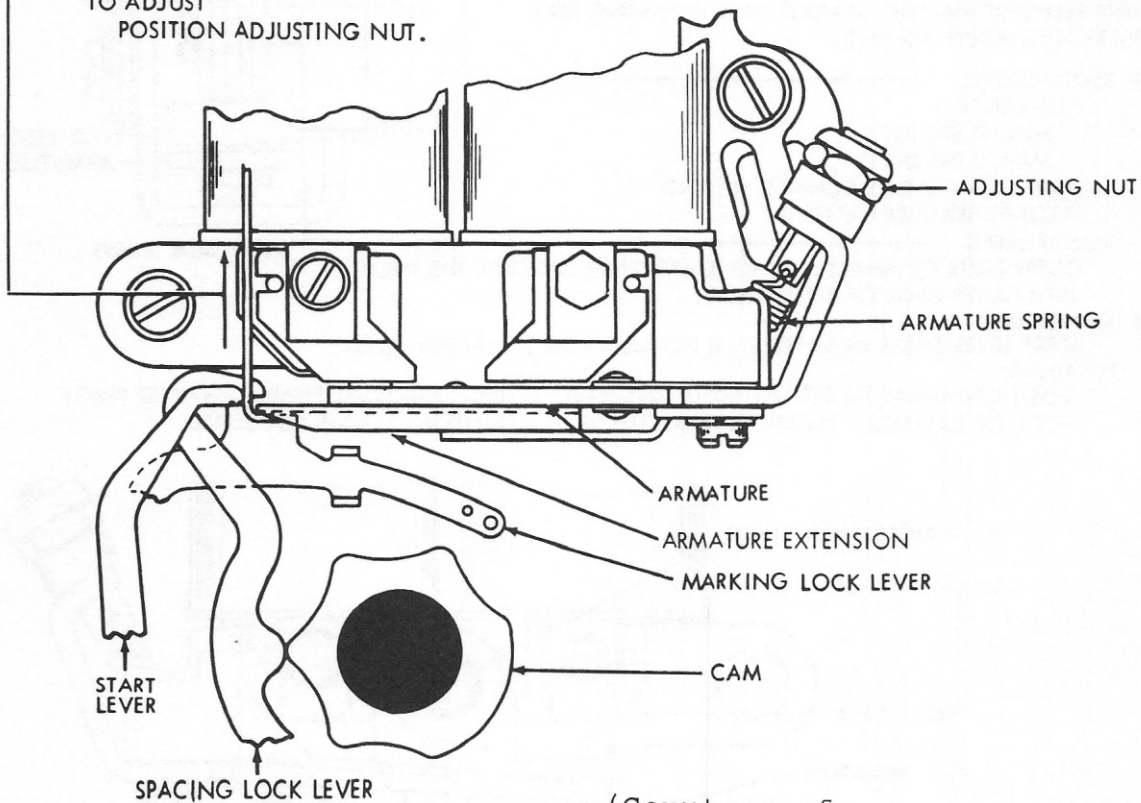
0.035 AMPERES

MIN. 1-1/2 OZS. --- MAX. 2 OZS.

NOTE

THIS SPRING CAN BE ADJUSTED FOR MAXIMUM SELECTOR PERFORMANCE ONLY WHEN PRINTER IS CONNECTED TO THE SPECIFIC CIRCUIT OVER WHICH IT IS TO OPERATE UNDER SERVICE CONDITIONS. SINCE THERE ARE SEVERAL OPERATING SPEEDS AND SINCE CIRCUITS VARY WIDELY, IT IS IMPOSSIBLE TO ADJUST SPRING FOR MAXIMUM PERFORMANCE AT THE FACTORY. THE FOREGOING SPRING TENSION REQUIREMENT IS GIVEN TO PERMIT OPERATION PRIOR TO MEASUREMENT OF RECEIVING MARGINS. READJUSTMENT MADE TO OBTAIN SATISFACTORY RECEIVING MARGIN SHOULD NOT BE DISTURBED IN ORDER TO MEET REQUIREMENTS OF THIS ADJUSTMENT.

TO ADJUST
POSITION ADJUSTING NUT.



(Courtesy of
Teletype Corp.)

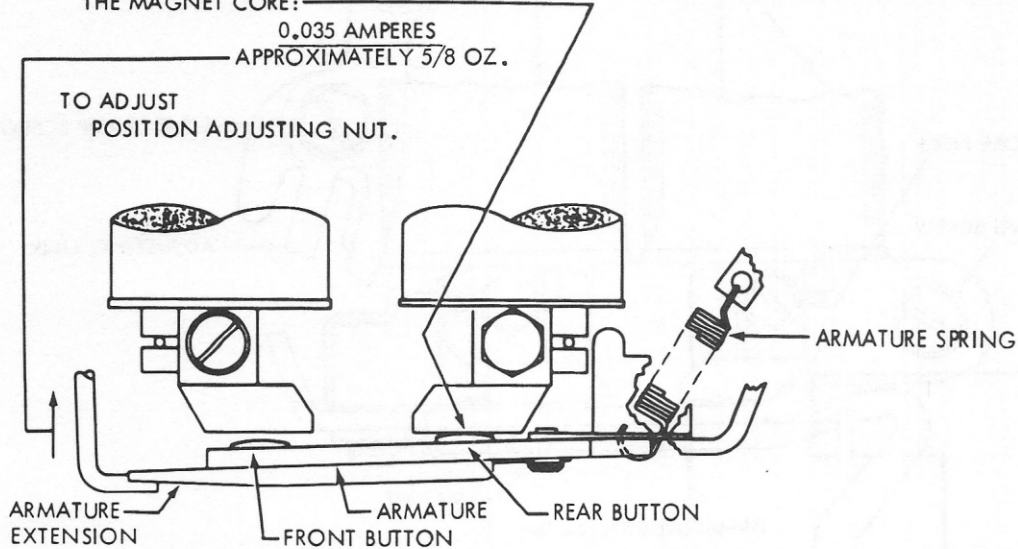
REQUIREMENT (FINAL)
SEE SELECTOR RECEIVING MARGIN ADJUSTMENT
FIGURE 5-9.

Typing Unit, Selector Spring Tension

SELECTOR ARMATURE SPRING

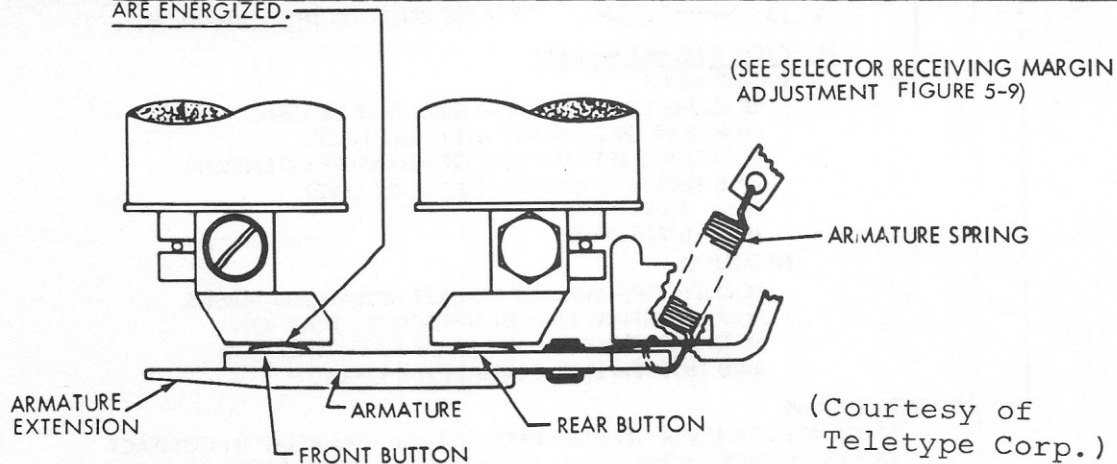
(FOR UNITS EMPLOYING SELECTOR ARMATURE WITH TWO ANTI-FREEZE BUTTONS ONLY).
REQUIREMENT (PRELIMINARY)

WITH LOCKING LEVERS AND START LEVER ON HIGH PART OF THEIR CAMS, SCALE APPLIED AS NEARLY VERTICAL AS POSSIBLE UNDER END OF ARMATURE EXTENSION. IT SHALL REQUIRE APPROXIMATELY THE FOLLOWING TENSIONS TO MOVE THE REAR ANTI-FREEZE BUTTON AGAINST THE MAGNET CORE:

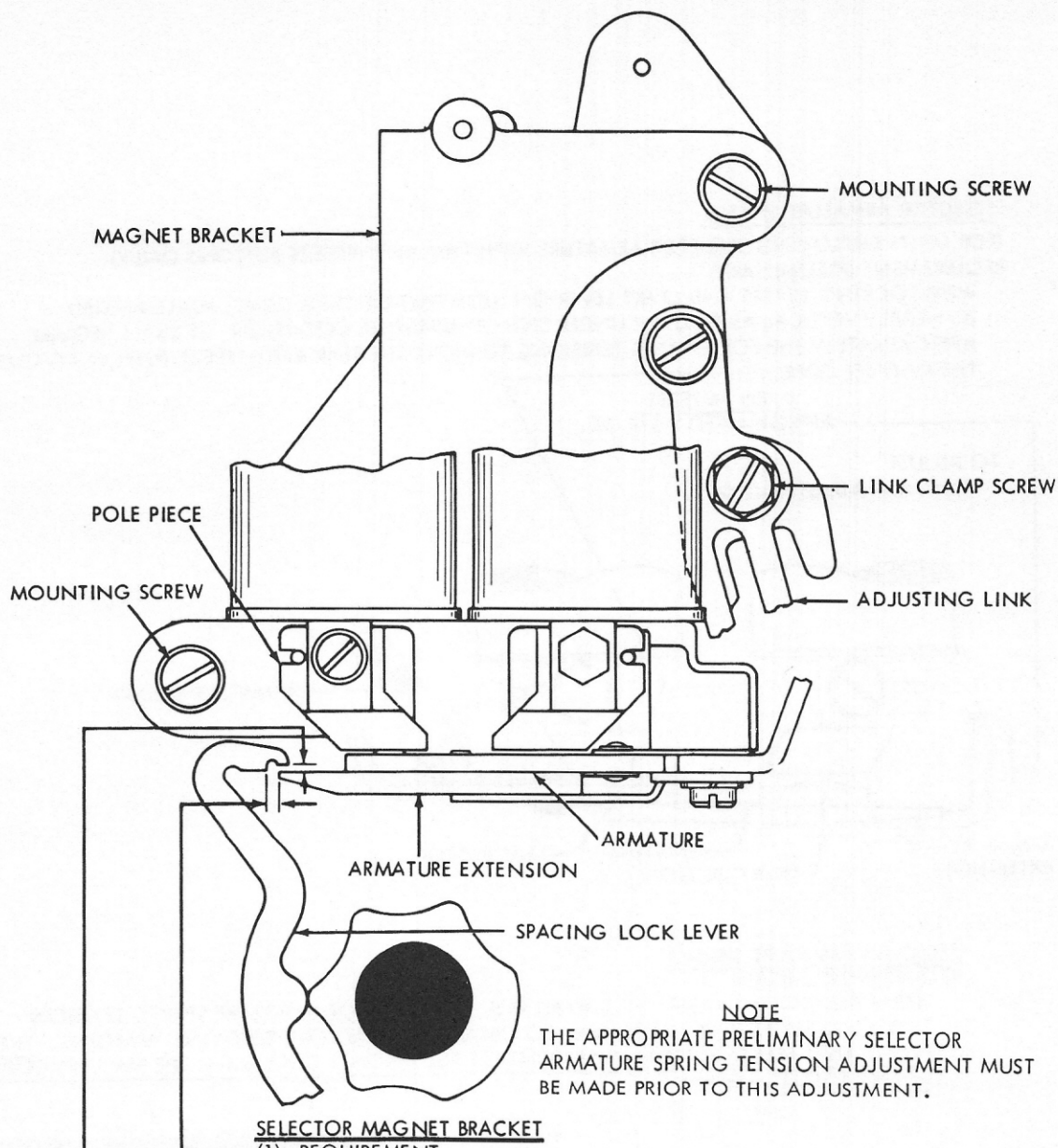


SELECTOR ARMATURE SPRING
REQUIREMENT (FINAL)

WHEN A DISTORTION TEST SET IS AVAILABLE, THE SELECTOR ARMATURE SPRING TENSION SHOULD BE REFINED, IF NECESSARY, TO OBTAIN SATISFACTORY RECEIVING MARGINS. THE FRONT ANTI-FREEZE BUTTON MUST CONTACT THE MAGNET CORE WHEN THE MAGNET COILS ARE ENERGIZED.



(Courtesy of Teletype Corp.)



NOTE
THE APPROPRIATE PRELIMINARY SELECTOR ARMATURE SPRING TENSION ADJUSTMENT MUST BE MADE PRIOR TO THIS ADJUSTMENT.

SELECTOR MAGNET BRACKET

(1) REQUIREMENT

SPACING LOCK LEVER ON HIGH PART OF CAM.
ARMATURE IN CONTACT WITH POLE PIECE.
CLEARANCE BETWEEN END OF ARMATURE EXTENSION
AND SHOULDER ON SPACING LOCK LEVER.
MIN. 0.020 INCH
MAX. 0.035 INCH

TO ADJUST

LOOSEN TWO MAGNET BRACKET MOUNTING SCREWS
AND ADJUSTING LINK CLAMP SCREW. POSITION
MAGNET BRACKET BY MEANS OF ADJUSTING LINK
AND TIGHTEN LINK CLAMP SCREW ONLY.

(2) REQUIREMENT

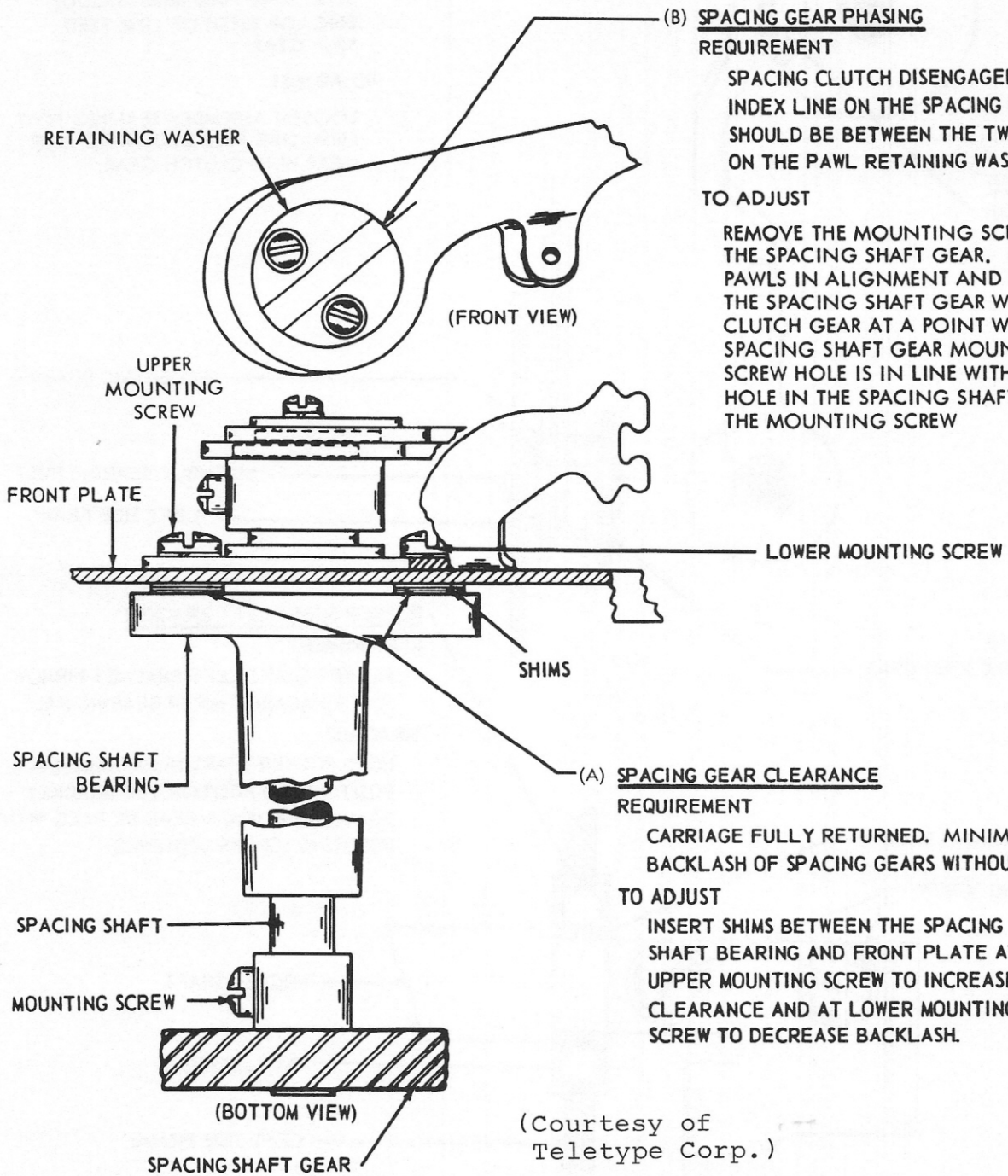
SPACING LOCK LEVER ON HIGH PART OF CAM. ARMATURE IN CONTACT
WITH POLE PIECE. SOME CLEARANCE BETWEEN UPPER SURFACE OF ARMATURE
EXTENSION AND LOWER SURFACE OF SPACING LOCK LEVER WHEN LOCK LEVER
IS HELD DOWNWARD.
MAX. 0.003 INCH

TO ADJUST

POSITION UPPER END OF MAGNET BRACKET. TIGHTEN TWO MAGNET
BRACKET MOUNTING SCREWS. RECHECK REQUIREMENT (1).

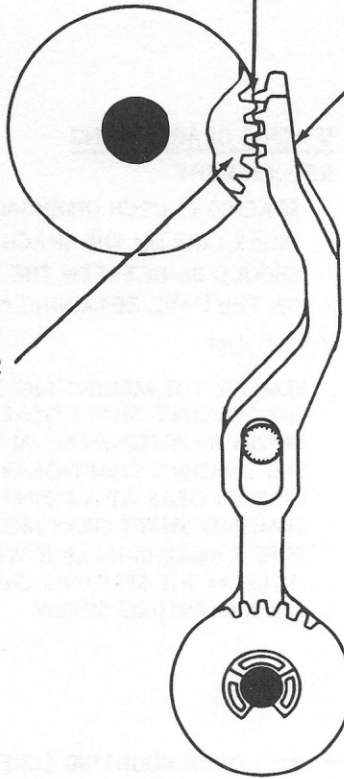
(Courtesy of
Teletype Corp.)

Typing Unit, Selector Magnet Bracket



(Courtesy of Teletype Corp.)

LINE-FEED BARS ENGAGED



LINE FEED SPUR GEAR

LINE FEED ECCENTRIC SPUR GEAR

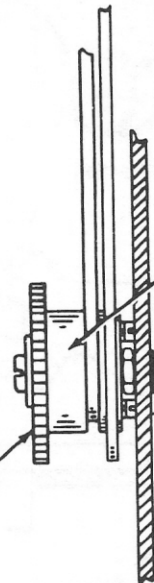
LINE FEED CLUTCH PHASING

REQUIREMENT

LINE FEED CLUTCH DISENGAGED. BOTH LINE-FEED BARS SHOULD ENGAGE TEETH OF LINE FEED SPUR GEAR.

TO ADJUST

LOOSEN ASSEMBLY BEARING POST. MESH LINE FEED ECCENTRIC SPUR GEAR WITH CLUTCH GEAR.



ECCENTRIC BEARING

ASSEMBLY BEARING POST

LEFT SIDE FRAME

ROCKER SHAFT LEFT BRACKET

REQUIREMENT

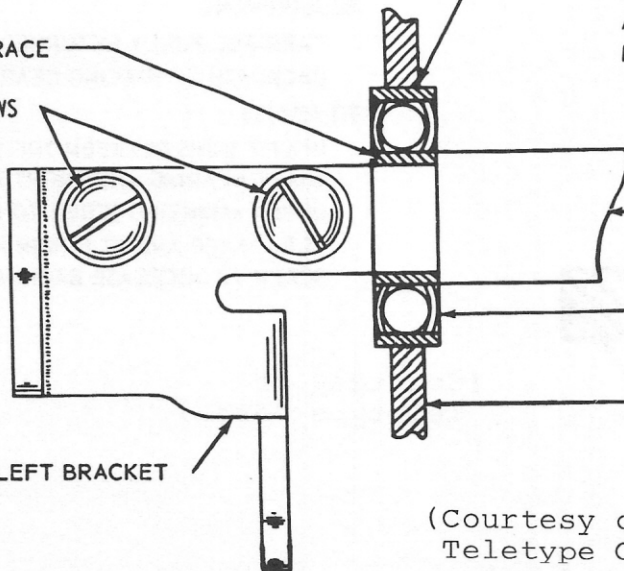
ROCKER SHAFT LEFT BRACKET FIRMLY SEATED AGAINST INNER BEARING RACE.

TO ADJUST

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

INNER BEARING RACE

MOUNTING SCREWS



ROCKER SHAFT

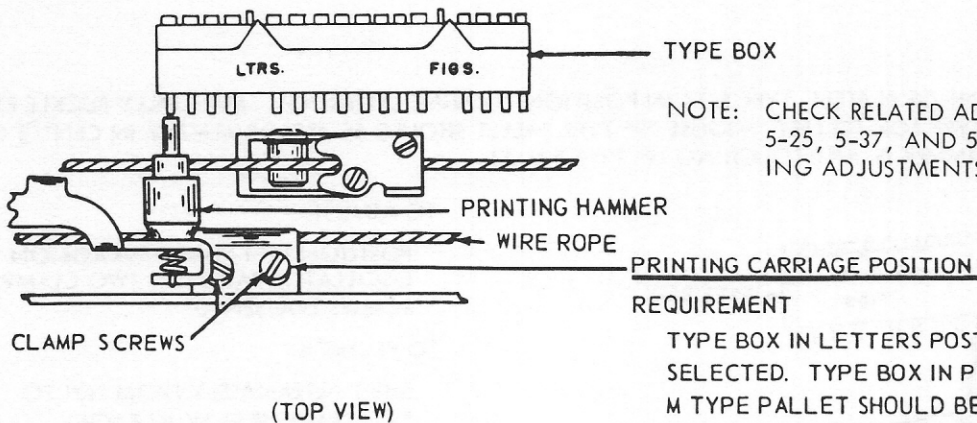
BALL BEARING

LEFT SIDE FRAME

ROCKER SHAFT LEFT BRACKET

(Courtesy of Teletype Corp.)

Typing Unit, Line Feed and Rocker Shaft Mechanisms



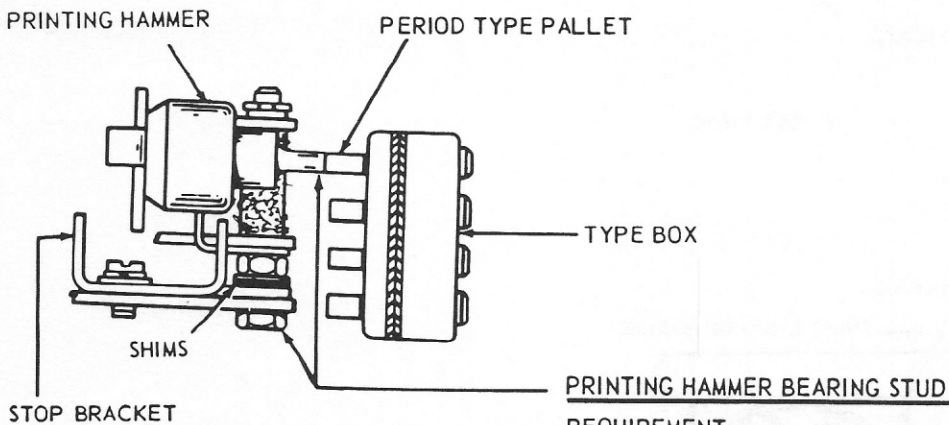
NOTE: CHECK RELATED ADJUSTMENTS, FIGURES 5-25, 5-37, AND 5-38, IF THE FOLLOWING ADJUSTMENTS ARE REMADE.

PRINTING CARRIAGE POSITION
REQUIREMENT

TYPE BOX IN LETTERS POSITION. M TYPE PALLET SELECTED. TYPE BOX IN PRINTING POSITION. M TYPE PALLET SHOULD BE APPROXIMATELY IN CENTER OF PRINTING HAMMER WHEN HAMMER IS JUST TOUCHING M TYPE PALLET. TAKE UP PLAY IN TYPE BOX CARRIAGE IN EACH DIRECTION AND SET HAMMER IN CENTER OF PLAY

TO ADJUST

POSITION PRINTING CARRIAGE ON WIRE ROPE WITH CLAMP SCREWS LOOSENED.



(RIGHT SIDE VIEW)

(Courtesy of Teletype Corp.)

PRINTING HAMMER BEARING STUD
REQUIREMENT

TYPE BOX AT MIDPOINT OF PLATEN AND IN POSITION TO PRINT PERIOD. PRINTING HAMMER IN CONTACT WITH TYPE PALLET AND PRESSED DOWNWARD AT BEARING POST. FACE OF HAMMER SHOULD BE FULLY ON END OF TYPE PALLET.

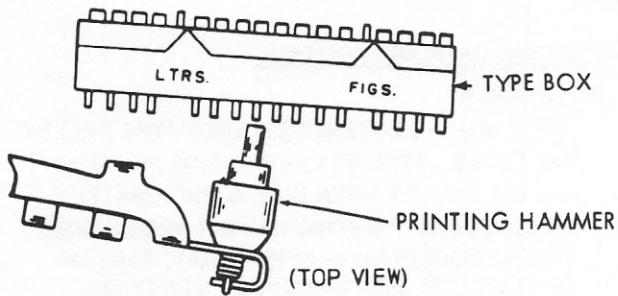
TO ADJUST

ADD OR REMOVE SHIMS BETWEEN SHOULDER ON BEARING POST AND STOP BRACKET.

SHIFT LINKAGE

REQUIREMENT

CARRIAGE NEAR MIDPOINT OF PLATEN. TYPE BOX IN POSITION TO PRINT LETTER "O". MANUALLY BUCKLE RIGHT SHIFT LINKAGE. SHIFT TYPE BOX TO LEFT. FIGURE "9" TYPE PALLET SHOULD BE APPROXIMATELY IN CENTER OF PRINT HAMMER WHEN HAMMER IS JUST TOUCHING "9" TYPE PALLET.

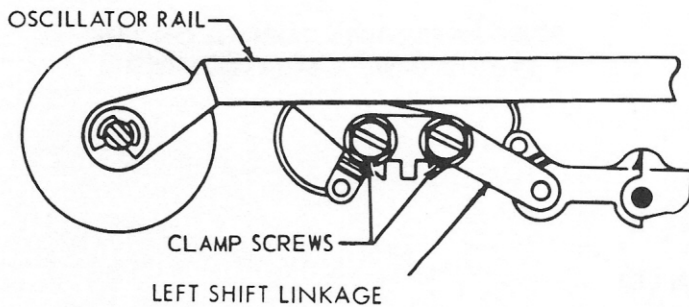


TO ADJUST

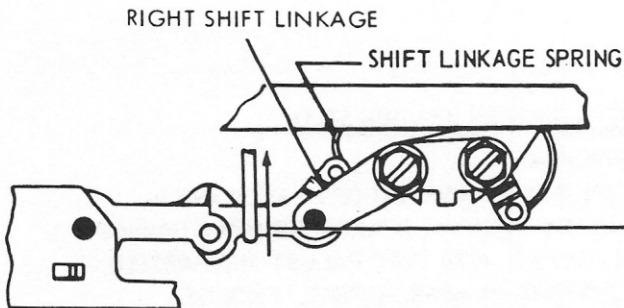
POSITION LEFT SHIFT LINKAGE ON OSCILLATOR RAIL WITH TWO CLAMP SCREWS LOOSENED

TO RECHECK

SHIFT ALTERNATELY FROM "O" TO "9". TAKE UP PLAY IN EACH DIRECTION. REFINE ADJUSTMENT IF NECESSARY.



(FRONT VIEW)



SHIFT LINKAGE SPRING TENSION

REQUIREMENT

LINK IN STRAIGHT POSITION

MIN. 6 OZS.

MAX. 14 OZS.

TO START EACH LINK MOVING.

(Courtesy of Teletype Corp.)

5M94

(A) PRINTING TRACK

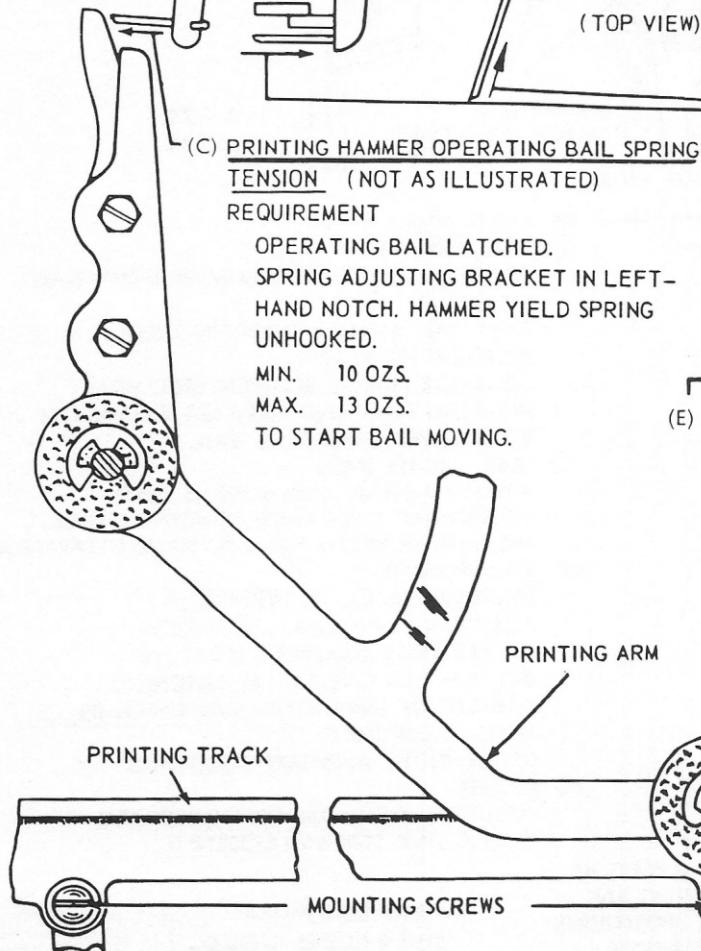
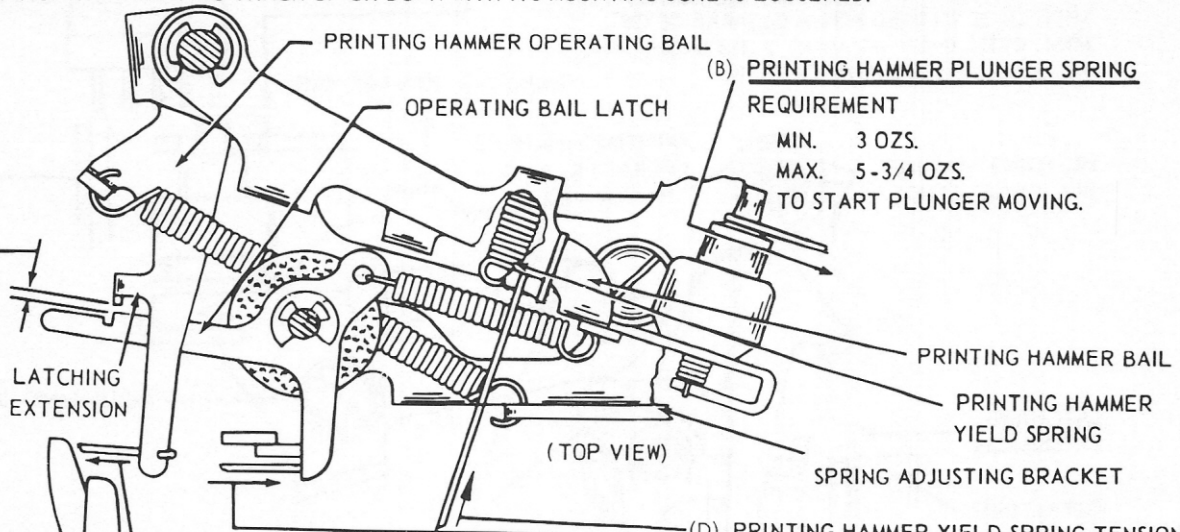
REQUIREMENT

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.



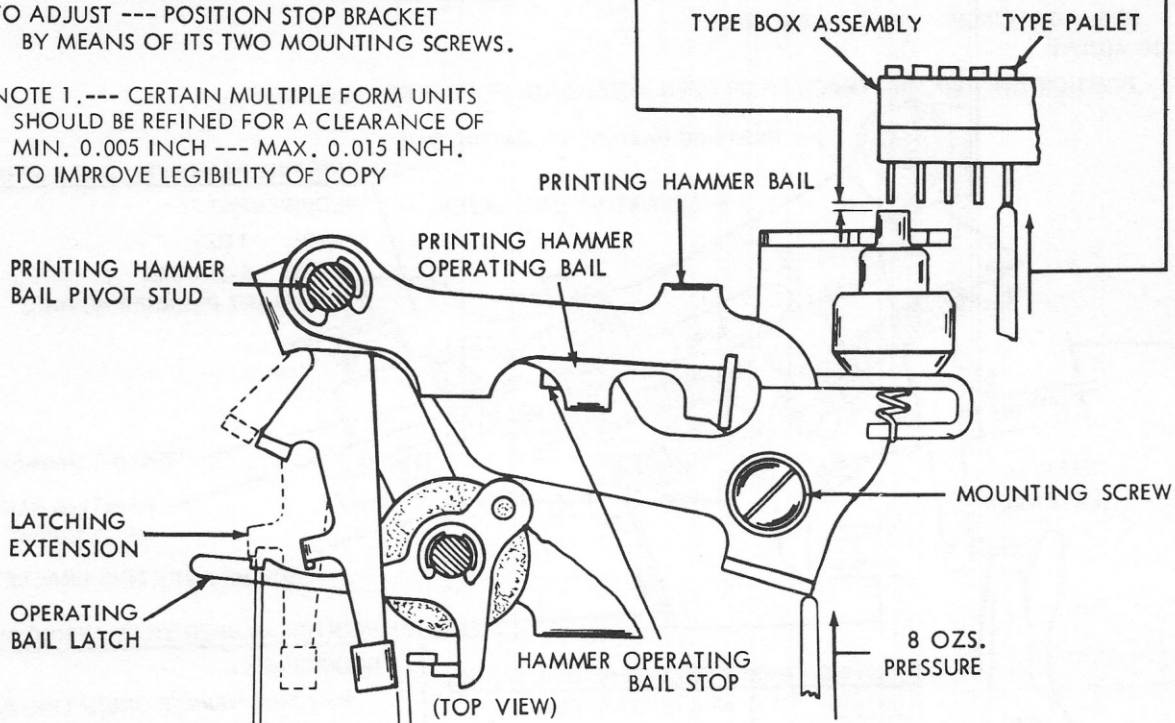
SM 300

(Courtesy of Teletype Corp.)

PRINTING HAMMER STOP BRACKET REQUIREMENT --- WITH TYPE BOX IN POSITION TO PRINT CHARACTER "M", PRINTING TRACK IN ITS MAXIMUM DOWNWARD POSITION, AND PRINTING HAMMER STOP BRACKET HELD TOWARD THE PLATEN WITH PRESSURE OF 8 OZS; CLEARANCE BETWEEN PRINTING HAMMER AND "M" TYPE PALLET. (NOTE 1.) MIN. 0.005 INCH --- MAX. 0.020 INCH AT END OF PLATEN WITH LEAST CLEARANCE TO ADJUST --- POSITION STOP BRACKET BY MEANS OF ITS TWO MOUNTING SCREWS.

NOTE 1. --- CERTAIN MULTIPLE FORM UNITS SHOULD BE REFINED FOR A CLEARANCE OF MIN. 0.005 INCH --- MAX. 0.015 INCH. TO IMPROVE LEGIBILITY OF COPY

TYPE PALLET SPRING TENSION REQUIREMENT
 TYPE BOX REMOVED FROM THE UNIT. 8 OZS. SCALE APPLIED VERTICALLY TO THE END OF THE PALLET SHANK.
 MIN. 1/4 OZS.
 MAX. 3/4 OZS.
 TO START PALLET MOVING.



LATCHING EXTENSION

OPERATING BAIL LATCH

PRINTING HAMMER OPERATING BAIL

PRINTING HAMMER BAIL

TYPE BOX ASSEMBLY

TYPE PALLET

MOUNTING SCREW

8 OZS. PRESSURE

HAMMER OPERATING BAIL STOP

(TOP VIEW)

PRINTING ARM

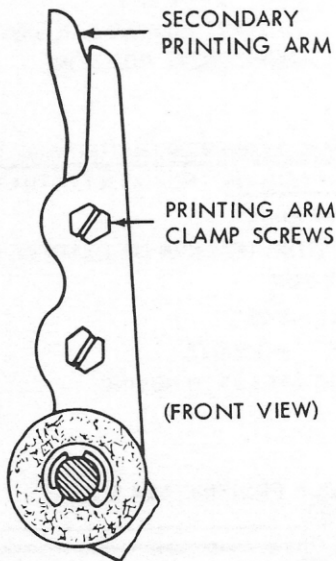
(1) REQUIREMENT

PRINTING TRACK IN MAXIMUM DOWNWARD POSITION.
 PRINTING HAMMER OPERATING BAIL AGAINST ITS STOP.
 SOME CLEARANCE BETWEEN SECONDARY PRINTING ARM AND FORWARD EXTENSION OF HAMMER OPERATING BAIL.
 MAX. 0.015 INCH
 WHEN PRINTING ARM SLIDE IS HELD DOWNWARD OVER EACH PRINTING TRACK MOUNTING SCREW FOR MAXIMUM CLEARANCE.

(2) REQUIREMENT

PRINTING TRACK IN UPPERMOST POSITION. LATCHING EXTENSION OF PRINTING HAMMER OPERATING BAIL SHOULD OVERTRAVEL LATCHING SURFACE OF OPERATING BAIL LATCH BY MIN. 0.006 INCH
 CHECK RIGHT AND LEFT POSITIONS

TO ADJUST POSITION SECONDARY PRINTING ARM WITH CLAMP SCREWS LOOSENED.



SECONDARY PRINTING ARM

PRINTING ARM CLAMP SCREWS

(FRONT VIEW)

NOTE 2

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

(Courtesy of Teletype Corp.)

Typing Unit, Printing Mechanism

NOTE: THIS ADJUSTMENT SHOULD BE MADE WITH THE TYPE BOX IN ITS UPPER POSITION.

NOTE: RECHECK PRINT HAMMER STOP BRACKET ADJUSTMENT, FIGURE 5-43 AND READJUST IF NECESSARY

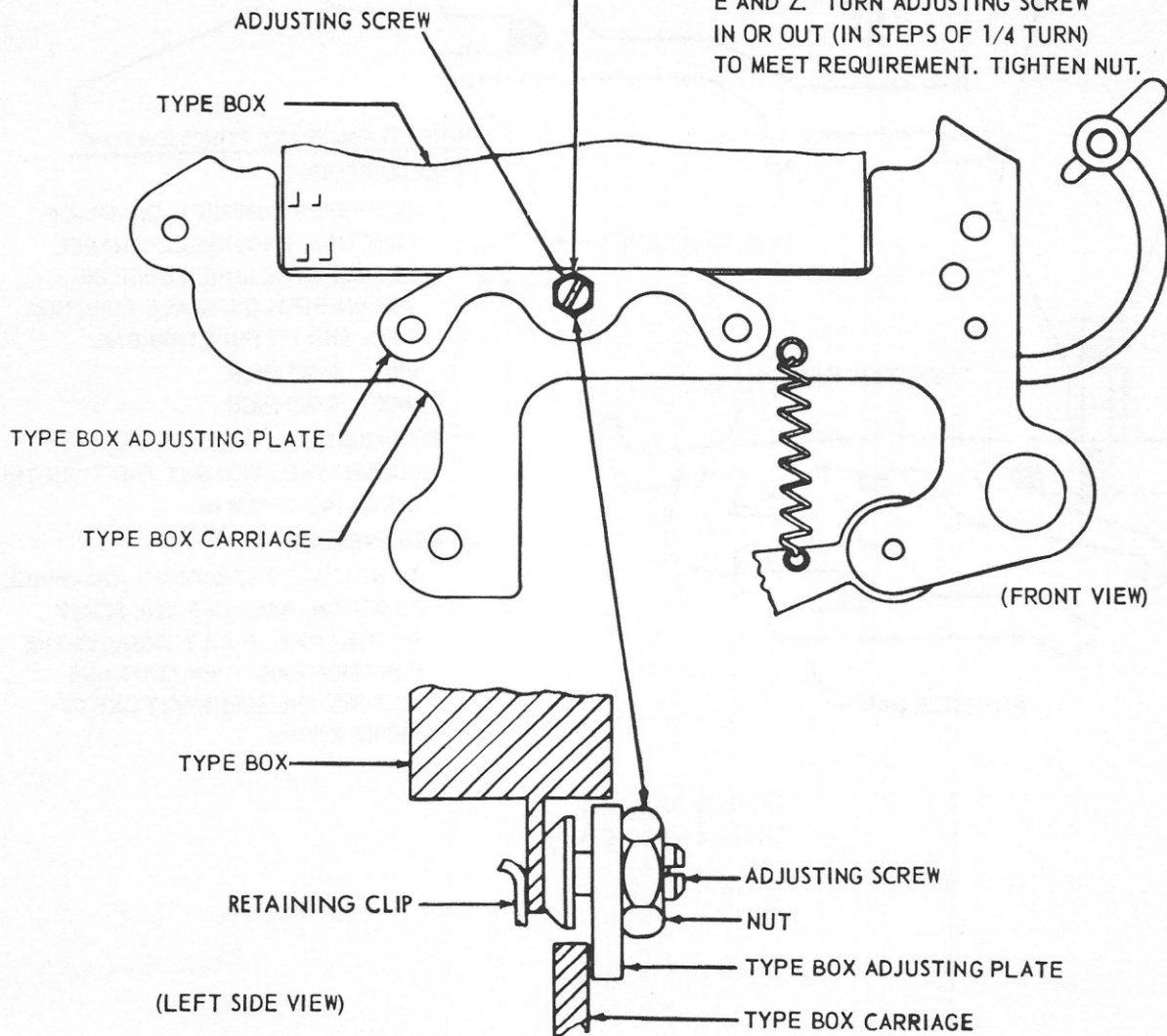
TYPE BOX ALIGNMENT

REQUIREMENT

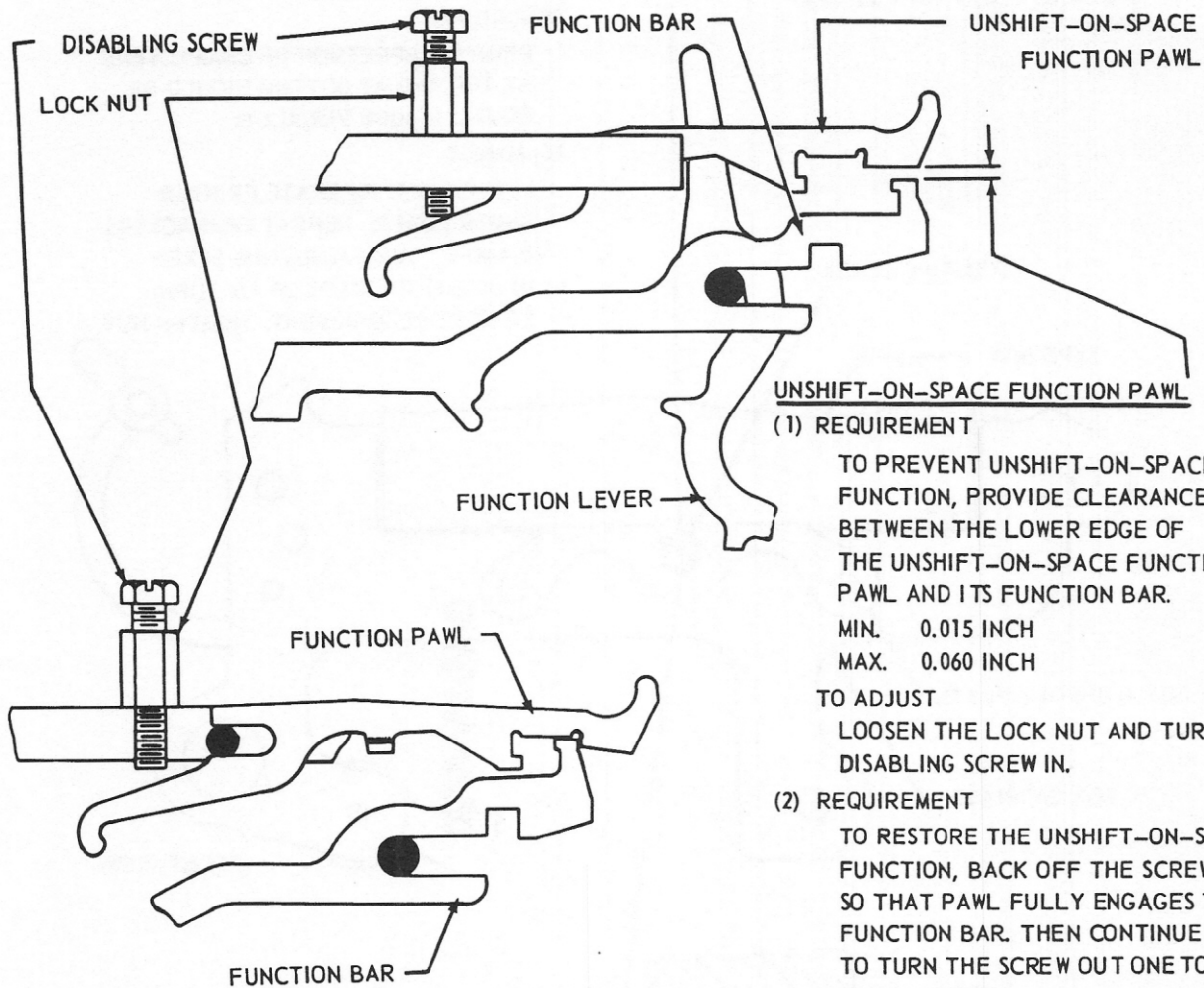
PRINTED IMPRESSION OF CHARACTERS AT TOP AND AT BOTTOM SHOULD BE EQUAL. (GAUGE VISUALLY)

TO ADJUST

LOOSEN NUT. OPERATE PRINTER UNDER POWER. REPEAT CHARACTERS E AND Z. TURN ADJUSTING SCREW IN OR OUT (IN STEPS OF 1/4 TURN) TO MEET REQUIREMENT. TIGHTEN NUT.



(Courtesy of Teletype Corp.)



UNSHIFT-ON-SPACE FUNCTION PAWL

(1) REQUIREMENT

TO PREVENT UNSHIFT-ON-SPACE FUNCTION, PROVIDE CLEARANCE BETWEEN THE LOWER EDGE OF THE UNSHIFT-ON-SPACE FUNCTION PAWL AND ITS FUNCTION BAR.

MIN. 0.015 INCH
 MAX. 0.060 INCH

TO ADJUST

LOOSEN THE LOCK NUT AND TURN THE DISABLING SCREW IN.

(2) REQUIREMENT

TO RESTORE THE UNSHIFT-ON-SPACE FUNCTION, BACK OFF THE SCREW SO THAT PAWL FULLY ENGAGES THE FUNCTION BAR. THEN CONTINUE TO TURN THE SCREW OUT ONE TO THREE TURNS.

(Courtesy of Teletype Corp.)