

SPECIFICATION S-5167

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# TELETYPE

PRINTING TELEGRAPH SYSTEMS

DESCRIPTION, INSTALLATION, ADJUSTMENTS  
AND CATALOG OF PARTS FOR THE  
TELETYPE PARTY-LINE STATION SELECTOR  
FOR MODEL 15 PRINTER SETS

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AND CATALOG OF PARTS FOR TELETYPE  
PARTY-LINE STATION SELECTOR  
FOR USE WITH MODEL 15 PRINTER

SECTION I

DESCRIPTION

1. GENERAL

a. The party-line station selector herein described is an automatic station-selecting device which enables any station on a party-line telegraph circuit, using Model 15 printer sets, to establish connection with any other similarly equipped station or group of stations on the circuit through the medium of the printer selection code. A complete selector for one station consists of a control unit mounted either on a printer table or in an apparatus cabinet, three contact assemblies used in the printer typing unit, an answer-back magnet assembly used in the keyboard, and an inter-connecting cable with base attachments.

b. Each station on the circuit is assigned a call letter and an answer-back letter if required. Letters "M", "O", "T", and "V" are not assigned as call letters because any one of these letters may be selected falsely when the signal-line circuit for the station selector is restored at the end of the operating cycle of the station-selector start key, or after a prolonged line interruption elsewhere.

c. The function of the answer-back feature is to indicate automatically that communication has been established with the called station. Any letter that is not used as a station call letter may be used as an answer-back letter.

d. Since "M", "O", "T", and "V" cannot be used for call letters, only 22 stations are possible on any circuit. If the answer-back feature is required, only 13 stations can be connected to the circuit, provided "M", "O", "T", and "V" are used as answer-back letters.

2. GENERAL CHARACTERISTICS

a. Figure 1 shows the table-model control unit mounted on a Model 15 printer table and the cabinet-model control unit installed in an apparatus cabinet. Details of the various control units are shown on Figures 2, 3, and 4.

b. Station selector equipment previously furnished for table mounting included SE9, SE10, SE11, and SE12 which have been replaced by SE13

and associated parts. SE13 in turn has been superseded by SE200\*\*, the double asterisks (\*\*) designating a two-letter suffix indicating the paint finish. The following four standard wrinkle finishes are now available:

AA - Black  
AB - Gray-Green  
AC - Light-Brown  
AD - Dark-Brown

For apparatus cabinet mounting, an SE14 is provided. See Figure 1.

c. SE9 identified a complete station selector finished in black wrinkle and included sets of parts for the associated typing unit, base, and keyboard. The set consisted of an SE12 plus the following sets of parts:

94292 for typing unit  
94293 for base  
94294 for keyboard (if answer-back  
feature was required)  
Function lever (see Page 5-5)

d. In the following descriptions the 94292 set of parts for the typing unit, the 94293 set of parts for the base, the 94294 set of parts for the keyboard, and a function lever were necessary only when a Model 15 printer was to be converted in the field for station selector operation.

e. SE10 identified a control unit only finished in gray-green wrinkle. It required the typing unit, base, and keyboard sets of parts listed in Paragraph 2.d. above to complete the station selector.

f. SE11 identified a complete station selector finished in black wrinkle enamel and included the associated typing unit, and base parts listed in Paragraph 2.d. above. The keyboard parts (answer-back feature) were omitted.

g. SE12 identified a control unit only which was identical to that used in SE9. It required sets of parts for the typing unit, base, and

keyboard as listed in Paragraph 2.d. above to complete the station selector.

h. The SEL3 (SE200AA) identifies a control unit only, similar to the control unit used with the SE9 station-selector set but includes a spark protection feature for the line-relay contacts, and a push-button switch to break the D.C. power to the station selector in case the transmitting station becomes locked-out accidentally when the wrong sequence of characters is transmitted. Its internal cable terminates in a 12-prong plug on the side of the unit. In order to complete the station selector the following additional sets of parts and cable are required:

- 94292 for typing unit
  - 106954 for base
  - 94294 for keyboard (if answer-back feature is required)
  - 114332 connecting cable for connecting the control unit directly to the printer base.
- Function lever (see Page 5-5)

i. The SEL4 identifies a control unit with a 114529 interconnecting cable. This unit has the spark protection and push-button features like the SEL3 (SE200AA). It also has an internal cable which terminates in a 12-prong plug on the side of the unit. The SEL4 is designed for use in the AC33 (now superseded by AC216AA) apparatus cabinet which may be arranged alongside other similar apparatus cabinets. Two control units may be installed in each cabinet. After the unit is installed in the cabinet it may be pulled out of the cabinet, by means of slides and rollers, so as to become accessible for maintenance purposes. Like the SEL3 (SE200AA), the SEL4 requires the following sets of parts and cables:

- 94292 for typing unit
  - 106954 for base
  - 94294 for keyboard (if answer-back feature is required)
  - 114332 cable for connecting the printer base with 114529 extension cable
- Function lever (see Page 5-5)

### 3. SIZE AND WEIGHT

The control units for table mounting are 14" high, 9" deep, and 3-1/4" wide while the one for cabinet mounting is 12-1/2" deep, 10-5/8" high, and 3-3/4" wide excluding the rollers. The start key protrudes 1-1/4" outward from the external surface on both types. The weight of a control unit complete plus rectifier is approximately 20 lbs.

### 4. POWER REQUIREMENTS

The units are arranged to operate on 110 volts direct current. For those installations where a direct-current power supply is not available, a compact rectifier of the vacuum-tube type, for operation on 110 volts 50/60 cycle A.C., that fits within the control unit is furnished as a supplementary item. The power consumption of the selector is approximately 30 watts D.C. and 45 watts A.C. when equipped with the rectifier.

### 5. OPERATING PROCEDURE

a. To make a call (or select stations) the procedure is as follows:

- (1) Turn the start key and allow it to return to its normal position.
- (2) Using the printer keyboard, send the station call letters of all stations to be selected including the call letter of the calling station.

#### NOTE

Each station equipped with the answer-back feature will automatically answer with a single letter (when that station is selected) which all machines will print, indicating correct selection.

- (3) Send SPACE.
- (4) Send messages.

b. To disconnect after completing call:

- (1) Turn the start key and allow it to return to its normal position.
- (2) Send CARRIAGE RETURN.

## SECTION II

## THEORY OF OPERATION

## 1. GENERAL THEORY

a. Referring to the schematic Wiring Diagram Figure 5 it may be seen that the signal line passes through the contacts of the start key and the winding of the line relay located in the control unit (the actual wiring diagram furnished with the station selector shows location of parts). The contacts of the line relay close the circuit supplying battery to the start-relay magnet. The start relay is of the slow releasing type and even though the line-relay contacts respond to the impulses carried on the line for message traffic (interrupting the circuit to the start relay), the start-relay armature remains in the position shown. When the start key is operated at any station on the circuit to make a call, the signal line and line-relay contacts are permitted to open sufficiently long to allow the start relay to release its armature.

b. The start-relay armature will now complete the circuit to the green "ON" lamp and the motor control relay. When the motor control relay armature operates, one of its contacts will close the circuit to the printer motor and the other will complete a circuit to the motor-control relay winding through the transfer and disconnect contacts (on the typing unit). This action starts the printer motors at all stations on the circuit and temporarily locks the control relays in their operated position.

c. When the start key comes to rest, the signal line again closes and causes the line and start relays to attract their armatures.

d. The calling station will then transmit the call letters of the stations to be selected, and will allow sufficient time for reception of the answer-back letter of the called station before proceeding to call the next station. To retain the calling station in the hook-up, the call letter of this station should also be transmitted. By sending this call letter last, the calling station will identify itself.

e. The call letter, followed by the answer-back letter of the called station, will be printed at all stations on the circuit. The printer at the called station only, in addition to printing the call letter, will have its call contact momentarily closed through the action

of the call-contact function lever. This momentary closing of the call contact applies battery to the call relay and answer-back magnet. The answer-back magnet will operate the key lever to which it is connected and transmit the answer-back letter. The call relay is locked in the operated position by the circuit starting at the start-relay contacts, through the make-before-break contacts of the call relay and through the call-relay winding. Also, the lowermost contacts on the call relay will now supply locking battery to the motor-control relay, thereby shunting the circuit through the transfer and disconnect contacts at the called stations.

f. In order to complete the selection of the called stations and to cut off those not desired, the space bar must be depressed at the calling station. Reception of the SPACE signal causes the transfer contacts to be operated momentarily at all stations. Operation of these contacts breaks the locking circuit of the motor-control relay and interrupts the current of the green "ON" lamp at all unselected stations. At selected stations the motor-control relay locking circuits and the "ON" lamp circuits are held closed at the call-relay contacts. Power will be cut off from the motors at unselected stations but the printer relays will remain responsive to line signals.

g. When the transfer contact is operated, battery is applied to the red "BUSY" lamp and to the winding of the busy relay at all stations. The busy relay is then locked in its operated position by battery from the contacts of the start relay (in its energized position) and the "BUSY" lamp remains illuminated. With the busy relay in the operated position, the answer-back magnet and call-contact circuits are open so as to make them inoperative while messages are being transmitted.

h. With the busy relay operated and the call relay unoperated at unselected stations, a circuit is established through the upper contacts of the busy and call relays (as shown on Figure 5) that short-circuits the transmitting contacts and the start key so as to prevent interference with the signal line. If this short-circuiting feature is not desired, the circuit may be modified as indicated on the actual Wiring Diagram furnished. It should be noted that at all called stations the green

"ON" lamp and red "BUSY" lamp will be illuminated after selection of stations has been completed, whereas, at uncalled stations only the red "BUSY" lamp will be illuminated. The monitor switch is provided to enable uncalled stations to print a copy of the transmitted messages without interrupting the other stations. If this feature is not required, one of the leads on the switch may be removed as shown on the Wiring Diagram furnished.

i. If the calling station accidentally becomes "locked out" of the circuit due to incorrect selective procedure, depressing the D.C. break switch on either the SEL3 (SE200AA) or SEL4 control unit for several seconds will restore normal operation and the calling station can then reselect the desired stations.

j. Operation of the start key at any called station on the circuit for the purpose of disconnecting opens the signal line, allows the line-relay armature at all stations to be released, and removes battery from the start

relay magnet. The contacts of the start relay will, in turn, open the circuit supplying locking battery to the busy relay and "BUSY" lamp at the uncalled stations, and to the call relay, busy relay, and "BUSY" lamp at the called stations. The releasing of the start relay contacts will also cause the motor control relay to be energized, thereby turning the motor on and illuminating the "ON" lamp at the uncalled stations, in the same manner as when calling. The motor-control relay at all stations on the circuit will now be locked in by the circuit through the disconnect and transfer contacts and all motors will be running.

k. When the start key comes to rest and closes the signal line, the line and start relays will again be energized. When CARRIAGE RETURN is transmitted, the disconnect contacts will open and interrupt the circuit to the motor-control relay and "ON" lamp at all stations. The power will then be disconnected from the motors and lamps at all stations.

## SECTION III

## INSTALLATION

## 1. GENERAL

On printers not equipped for station-selector operation, it is necessary to install the 94292 set of parts on the typing unit and the 94293 or the 106954 set of parts on the base. (See description on Page 1-2.) If the answer-back feature is desired, it is also necessary to install the 94294 set of parts on the keyboard.

## 2. INSTALLATION OF THE 94292 SET OF TYPING UNIT PARTS

## NOTE

If the typing unit is equipped with a motor-stop mechanism, this mechanism together with its wiring should be removed before installing the typing-unit parts for the party-line station selector. For numbers referred to in the following text, which are not included in the catalog section of this specification, refer to the Model 15 Printer Parts Bulletin. Remove the typing unit from the base and rest it on its right side.

a. Loosen the two set screws, which clamp the 74005 function-lever shaft, and slide the shaft downward until it just clears the third slot from the top in the vane-frame casting (third from the left when the unit is in its normal position). Insert the 94296 transfer contact lever in the third slot so that the bearing hole is in alignment with the 74005 shaft and slide the shaft back into place. Make sure that the line-feed function lever is properly replaced.

b. Hook one end of the 22015 spring in the hole in the transfer contact lever and the other end in the third hole from the top of the 74019 spring plate.

c. Remove and discard the 74130 space function lever and 74962 space function-lever spring from slot 9. Assemble the 94298 extension on the 94297 transfer-contact function lever using the two 76168 screws and 2191 lock washers. Also assemble the 33-45 adjusting screw and 34-56 nut to the function lever as shown in Figure 6.

d. Install this transfer-contact function-

lever assembly so that the slot in the function lever engages the 74005 shaft and so that the 74167 function-lever bail roller is between the vertical projections of the function lever. Hook one end of the 74961 spring in the spring hole of the function lever and the other end in the sixth hole from the top of the 74019 spring plate.

## NOTE

With the transfer-contact function-lever extension installed as shown in Figure 6, the typing unit will unshift on space. If the unshift-on-space feature is not required, reverse the extension so that its lobe will extend outward, away from the letters push bar.

e. On typing units equipped with the new style 74255 function-lever comb which has only 12 slots, install the call-contact function lever as follows:

(1) Rotate the main shaft until the printing bail is in its extreme rear position. Insert the call-contact function lever in the uppermost slot of the vane-frame casting so that the 74167 function-lever bail roller is between the vertical projections of the function lever.

(2) On typing units equipped with the old style 74255 function-lever comb which has 13 slots, it will be necessary to first loosen the three function-lever-comb mounting screws before inserting the function lever as described in (1). After installing the function lever, tighten the comb mounting screws.

f. Hook one end of the 74962 spring in the spring hole of the call function lever and the other end in the uppermost hole in the 74019 spring plate.

g. Remove and discard the retaining nuts from the ends of the two 1222 screws in the 74890 call contact assembly. Mount this assembly, by means of two 1222 screws, on the flat projection at the upper end of the 74539 send-receive mechanism plate so that the insulator on the end of the contact spring centers be-

neath the lobe on the end of the function lever (see Figure 7).

h. Mount the 94295 transfer contact assembly with bracket to the lower end of the send-receive mechanism plate, using the two 1161 screws and 2191 lock washers furnished (see Figure 7). The middle contact spring insulator should touch the end of the transfer contact lever.

i. Place the typing unit in its normal upright position. Remove and discard the 74413 signal-bell-hammer backstop. Using the two 6746 mounting screws, washers, and lock washers just removed, mount the 94299 disconnect contact assembly with bracket in place of the bell hammer backstop as shown in Figure 8. The new bracket should be positioned so that the extension at the lower end of the contact operating lever is in contact with the upper edge of the 74068 carriage-return latch bar. It should be noted that the disconnect contact bracket includes an adjustable screw which replaces the bell hammer backstop.

j. Remove and discard the 81956 blocking plate located on the function-lever bail assembly and replace it with the 94300 blocking plate. Use standard adjustments.

k. Referring to Wiring Diagram 1787 shipped with the set of parts, install the 94301 cable in the typing unit. Run the end of the cable, which has the two red and one black wires, to the disconnect contacts. Solder the two red wires to the lower contact terminal and the black wire to the upper contact terminal and tie this portion of the cable to the 74254 rear cross bar as shown in Figure 8. Run that portion of the cable, which has the four short leads, along the 8884 terminal block so that the leads are opposite the terminals to which they are to be attached. Solder the white, red, orange, and blue leads to the 8884 terminal block furnished and install the block adjacent to the 8884 block already in place, using the 1226 screws, 2191 lock washers, 7002 washers, and the 74946 insulator also furnished. Tie the 94301 cable to the selector-magnet cable about one inch beyond the terminal blocks, and route the remainder of the cable along the rear (right) surface of the selector mounting plate along the upper flat part of the left end frame, to the call and transfer contact assemblies. Solder the red and white leads to the upper and lower call contacts respectively and the orange, black, and blue leads to the transfer contacts in the order named (top to bottom). Tie that portion of the cable running to the transfer contacts, to the 74415

guide bracket or to the 74019 spring plate. It is important that the cable be positioned and tied so that it does not come into contact with any moving parts.

### 3. INSTALLATION OF 94293 OR 106954 SET OF BASE PARTS

a. Refer to Wiring Diagram 1786. From the send-receive-break mechanism, remove and tape separately the bare ends of the black wires connected to the left contacts of both the double and single contact pile-ups (see notes on WD-1786). Remove, twist together, solder, and tape the ends of the two brown wires connected to the two right (break) contacts of the double contact pile-up.

b. From the terminal blocks at the right side of the base, remove and tape separately the wires on terminals numbered 31, 35, and 44. Remove, twist together, solder, and tape the two wires on terminal 33; then do the same with the pair of wires on terminal 36 and also with those on terminal 45.

c. Remove the base plate from the bottom of the base. Remove the 74551 typing unit slip-connection cover and the screws which mount the slip-connection assembly. Without removing any connections, move the slip-connection assembly away from the base to make it accessible and install the four 7094 slip connection springs on the 74568 block, using the 7095 spring plates and 6811 screws furnished.

d. In the place provided on the 74053 slip-connection mounting plate assembly, mount the 7398 spring plate, 7399 spring stiffener, and 74685 contact spring with the 8539 screws, 4293 insulators, 3897 bushings, 2191 lock washers and 7002 washers (all of which are furnished).

e. From the bottom of the base insert the end of the 94304 cable, that has only four wires, into the cable hole in the vertical wall of the base casting near the keyboard slip connections and solder the four wires to the four newly installed slip connections; the green wire to the 112 end slip-connection spring, and the blue, white, and orange wires to the remaining three springs, as shown on Wiring Diagram 1786. Also see that there is a strap (jumper) across slip connections 9 and 10.

f. In replacing the typing unit slip-connection assembly, locate the slack in the four new wires between the slip-connection springs and the vertical wall of the base casting. Run the new cable along the base cable, so that the single white wire is located beneath



the base casting. Replace the slip-connection cover.

g. Solder the single white wire to the "spare" keyboard slip-connection spring (the end one nearest the condenser) designated as #50 on the wiring diagram. Route the cable along the two base cables, against the casting to the rear of the cable-clamp boss, and tie it to the boss. Continue forming the new cable along the two larger ones and insert the free end of the cable through the hole in the base casting at the end of the motor slip-connection mounting. Tie the new cable to the base cable at two or three convenient places beneath the base casting to prevent damage.

h. Replace the base plate. Place the base in a position so that connections can easily be made to the three terminal blocks. Form the end of the cable which protrudes through the hole in the base so that it lies against the surface of the casting beneath the rear terminal block. Connect the longest white wire to terminal 31, the terminal-lug end of the green wire jumper to terminal 35, the blue wire to 36, the orange wire to 43, the remaining green wire with terminal lug to 44 and the remaining white wire to 45 as shown on the wiring diagram.

i. Remove the two wires connected to terminal 22 and test to determine which of the two connects to the governor resistors. Remove the terminal lug from the wire that connects to the resistors. Splice and solder it to the free end of the green jumper wire so that it connects the wire from the governor resistor to terminal 35. Replace the other wire on terminal 22.

#### 4. INSTALLATION OF THE 94294 SET OF KEYBOARD PARTS

a. Remove the keyboard from the base and place it upside down with the key levers toward the front.

b. Remove the 74590 right and left guide plates. Remove the 800-800 ohm resistor located on the right side of the keyboard. Also, unsolder the two wires from the resistor and pull them through the hole in the casting.

c. Drill the tapped hole, which was used to mount the resistor, to .196" diameter (No. 9 drill) as indicated on Figure 11.

d. The end of the 94320 cable which has the two green leads should be inserted through the hole in the casting from which the resistor

wires were withdrawn. Solder the ends of these two leads to the terminals on the answer-back magnet as shown on Wiring Diagram WD-1788.

Tape each magnet terminal and approximately 1/2" of the wires soldered to them to reduce the possibility of the terminals and bare wire touching the casting.

e. Install the 94309 magnet bracket with the M209 magnet using the 49056 screw and 2669 lock washer in the redrilled hole as shown on Figure 11. Install the 94314 armature assembly on the magnet bracket using the 6746 screw, 2191 lock washer, and 94318 washer.

f. Remove the resistor from the left side of the keyboard without unsoldering the leads and mount it on the 94319 resistor mounting plate. Also mount the 800-800 ohm resistor (previously removed) on the 94319 mounting plate and screw the mounting plate in place with the 1269 screw and 2191 lock washer furnished.

g. Remove and discard the four 8539 screws which mount the 7396 and 7397 left and right universal-bar brackets and retain the lock washers. Using the 6811 screws furnished and the lock washers previously removed mount the two 94305 bail brackets against the universal-bar brackets as shown in Figure 11. The 6814 pilot screws with 2191 lock washers, 96833 eccentric with the 2191 lock washer, and 74986 screw should be assembled on the bail brackets as shown. Assemble the 81599 eccentric using the 74986 screw and 2191 lock washer on the 94306 bail. Locate the bail over the screws in the brackets with the fork of the magnet armature engaging the eccentric.

h. Remove the 74986 spring-plate mounting screw nearest the answer-back magnet and install the 94307 bail spring beneath the lock washer on this screw, as illustrated in Figure 11.

i. Install the 94308 key-lever link on the key lever that is assigned for the answer-back so that the hook on the link engages the bail. Use the 1163 screw furnished to clamp the link.

j. Place the keyboard in its normal upright position and remove the 74589 terminal-block (slip connection) assembly. Using the 1262 screw and 34-48 nut, install the 96883 terminal in the vacant slot of the terminal block.

k. Solder the short green wire of the 94320 cable to the slip-connection terminal 50 just installed and splice the two red wires (adjacent to the green wire) to the two wires removed from the 800-800 ohm resistor. Solder and tape

these spliced connections and place them, with the cable, beneath the slip-connection terminals. Solder the remaining green wire to slip-connection terminal 58 and route the two remaining red wires down through the cable hole at the right rear corner of the keyboard. Solder the two red wires to the 800 ohm resistor as indicated on the wiring diagram. Tie the new cable to the keyboard cable wherever necessary to prevent damage.

NOTE

The adjustments should then be made on the newly installed keyboard parts and the 74590 guide plates should be replaced. See Page 4-4 for adjustments.

5. INSTALLATION OF THE CONTROL UNITS FOR SE9, SE10, SE11, SE12, AND SE13 (SE200AA)

a. WOODEN TABLES

(1) A hole 1/2" in diameter should be drilled in the right side panel of the table, five inches from the front surface of the right front leg, and just beneath the table top, to accommodate the control-unit cable.

(2) Remove the control-unit cover which is held in place by three screws. Pass the control unit cable through the hole in the right panel. With the 6332 spacer at the rear bottom and the 5926 spacer at the front bottom, mount the control unit so that its upper surface is on the same plane (flush) with the table top and the front edge of the control unit is in line with the front surface of the front right leg. Three 33-339 wood screws are furnished for mounting. Replace the cover on the control unit.

b. METAL TABLES

Remove the control-unit cover which is held in place by three screws. If holes are not already in the right side of the table, they should be drilled, as shown in Figure 9A. With the 96766 bakelite spacer at the rear bottom and the 96767 bakelite spacer at the front bottom, mount the control unit so that its upper surface is on the same plane (flush) with the table top and the front edge of the control unit is in line with the front surface of the front right leg. Three 33-202 screws, three 2669 lock washers and three 55216 nuts are furnished for mounting. Replace the cover on the control unit.

6. INSTALLATION OF THE CONTROL UNIT FOR SEL4 IN THE AC33 (AC216AA) CABINET

a. Remove the front and rear panels from the cabinet.

b. Pull the left and right cabinet slides outward to full length.

c. Place the SEL4 selector control unit in the cabinet with its rollers resting on the slides.

d. Locate the control unit centrally in the front cover opening and position it so that its front portion is parallel to the front cover plate. The control unit may be centralized by adding or removing shims between the roller brackets and the frame of the unit. The parallel adjustment may be made by positioning the roller brackets on their elongated mounting holes.

e. Replace the front panel.

f. With the selector control unit in place on the slides and the front panel fastened in place, there should be some clearance, not more than 1/8", between the front of the control unit and the front cover plate. Adjust by means of the adjusting screws at the rear edge of the slides. Tighten the lock nut.

g. Fasten the 114529 interconnecting cable (furnished with SEL4 control unit) to the cabinet wall by means of the cable clamp and screw furnished with the cabinet. Leave 18" of cable between the clamp and the receptacle which fits onto the plug on the SEL4 control unit. From the cable clamp, run the interconnection cable downward in the rear corner and then through the left or right wiring duct opening to the adjacent cabinet. Run the cable upward through the opening in the rectifier shelf and connect it to the receptacle of the 114332 intermediate cable which connects to the base. See Figure 10.

h. Replace the rear panel.

7. INTERMEDIATE WIRING (Figure 10)

a. FOR SE9, SE10, SE11, AND SE12 STATION SELECTORS

(1) PRINTER BASE

One end of the 94322 intermediate cable is formed to connect to the printer-base terminal

blocks and the other end is arranged to connect with the intermediate terminals. The printer base end of the cable may be identified by the fact that the leads have the more irregular arrangement and the first three wires are black-red-black. Connect the cable to the terminals on the printer base as indicated on Figure 10 and pass the other end of the cable through the cord hole in the table top.

#### (2) WOODEN TABLES

The two 73670 terminal blocks should be mounted in a straight line (end to end) on the rear panel of the table so as to permit the intermediate and control unit cables to be neatly wired. Four 33-74 wood screws are furnished for this purpose. Connect the 94322 intermediate cable to these blocks and connect the control-unit cable as shown in Figure 10.

#### (3) METAL TABLES

Drill four 3/16" holes in the rear panel, as shown on Figure 9 and use the four 74986 screws, 2191 lock washers and 3598 nuts to mount the terminal blocks as described in the previous paragraph (2) (WOODEN TABLES).

(4) The terminal lugs of the intermediate and control-unit cables should be connected to opposite sides of the terminal blocks as shown on Figure 10. It should be noted that the color coding is carried through from one cable to the other to facilitate wiring.

#### b. FOR SEL3 (SE200AA) STATION SELECTOR

The terminal lugs on the connecting cable should be connected to the printer-base terminal block as shown on Figure 10. If the holes in the top and side of the table are too small to allow the 12 slot receptacle to pass through, it will be necessary to insert the end of this cable with the terminal lugs first, through the hole in the right side of the table, and then up through the hole in the top. Plug the receptacle into the control unit to complete all connections.

#### c. FOR SEL4 STATION SELECTOR

Connect the terminal lugs on the 114332 connecting cable to the printer-base terminal block as shown on Figure 10. Pass the receptacle through the cord hole in the top of the table and connect it to the plug on the 114529 interconnecting cable.

#### 8. SIGNAL-LINE AND POWER CONNECTIONS

If the printer was modified in the field for station-selector operation, connect the signal line and power as shown on the wiring diagram furnished with the set of base parts. If the printer was factory equipped for station selector operation, connect the signal line and power as shown on the wiring diagram furnished with the base.

SECTION IV

ADJUSTMENTS

1. GENERAL

In making the following adjustments the control unit should be in its upright operating position. The spring tension values indicated in this specification are scale readings which should be obtained when Teletype scales are used as specified.

2. CONTROL UNIT

a. START-KEY CONTACT CAM ADJUSTMENT

With the key in the normal stop position, the cam-follower contact spring should be centrally located on the high portion of the cam insulator, (gauge by eye). Also, there should be some clearance, not more than .010" between the cam hub and the end plate. To adjust, loosen the set screws which hold the contact cam to its shaft.

b. START-KEY CONTACTS ADJUSTMENT

(1) The cam-follower contact spring should be centrally located on the cam and the upper contact point should "make" approximately in the center of the lower contact. To adjust, loosen the contact mounting screws and position the contact pile-up.

(2) With the cam located so that the cam-follower contact spring is opposite the low part of the cam (off the cam insulator), and the cam-follower contact spring against its stiffener, the cam-follower contact spring should clear the low part of the cam by .030" to .045". To adjust, bend the stiffener.

(3) With the cam-follower contact spring opposite the low part of the cam, hook an 8 oz. scale over the edge of the spring and pull horizontally at right angle to the contact spring. It should require some tension, not more than 2 ozs., to start the contact spring moving away from the stiffener. To adjust, bend the contact spring. Recheck (2).

(4) With the cam-follower contact spring opposite the low portion of the cam, there should be a gap of .020" to .030" between the two contact points. To adjust, bend the outer contact spring and its stiffener.

(5) With the cam-follower contact spring

on the high portion of the cam insulator, hook an 8 oz. scale over the end of the outer contact spring just above the contact and pull horizontally at right angle to the spring. A tension of 1/2 to 2 ozs. should be required to just open the contacts. To adjust, bend the contact spring. Recheck (4).

c. MOTOR-CONTROL RELAY ADJUSTMENTS

(1) All four contacts should be closed when the antifreeze rivet on the armature is .030" away from the pole piece, and should be open when the rivet is .045" away. To adjust, bend the contact springs.

(2) With the armature resting against the backstop screw, adjust the backstop screw so that there is a gap of .060" to .075" between the end contacts on the contact springs and the contacts against which they make.

(3) With the armature against the backstop screw, apply the push end of an 8 oz. scale to the outer edge of the armature and push upward. A tension of 3/4 to 1-3/4 ozs. should be required to start the armature moving. To adjust, regulate the armature-spring adjusting screw.

NOTE

The armature should rotate freely on its bearings.

d. LINE RELAY ADJUSTMENTS

(1) When the relay armature is against the backstop nut, there should be .015" to .018" clearance between the armature antifreeze rivets and the relay core. To adjust, position the adjustable backstop nut.

(2) The lower contact spring should exert sufficient tension (but not more than 1 oz.) against the armature to hold the armature against the backstop. This tension should be measured by hooking an 8 oz. scale under the end of the armature and pulling upward. Take the reading when the armature just starts moving away from the backstop.

NOTE

For SEL4 control unit this adjustment should be as follows: The inner

contact spring should exert sufficient tension (but not more than 1/2 oz.) against the armature to hold it against the backstop. This tension should be measured by hooking an 8 oz. scale to the end of the armature and pulling horizontally outward. Take the reading when the armature just starts moving away from the backstop. To adjust, bend the lower contact spring near the insulators.

(3) With the relay armature against the backstop, there should be a gap of .005" to .008" between the contact points. To adjust, bend the stop lug on the upper contact spring.

(4) With the relay armature against the backstop, hook an 8 oz. scale to the end of the upper contact spring. A tension of 1/2 to 3/4 oz. should be required to start the contact spring moving away from the spool end.

#### NOTE

For SEL4 control unit this adjustment should be as follows: With the relay armature against the backstop, hook an 8 oz. scale to the end of the outer contact spring. A tension of 1/4 to 1/2 oz. should be required to start the contact spring moving away from the spool end. To adjust, bend the contact spring. Recheck (3).

### 3. START, CALL AND BUSY RELAY ADJUSTMENTS

a. The start, call and busy relays should meet the following requirements:

#### b. HEEL-PIECE AIR GAP ADJUSTMENT (Figure 12A)

There should be a clearance of .0015" to .003" between the relay armature and the end of the heel piece when the armature is in the operated position and the residual screw is backed away so that it does not touch the magnet core. To adjust, loosen the armature yoke mounting screw and position the armature.

#### c. RESIDUAL SCREW ADJUSTMENT (Figure 12B)

There should be a clearance of .0015" to .003" between the armature and the core when

the armature is in the operated position. To adjust, loosen the residual-screw lock nut and adjust the screw.

#### d. STROKE GAP ADJUSTMENT (Figure 12C)

(1) The distance between the core and the residual screw, when the armature is in the unoperated position, is called the stroke gap. Dimensions for the stroke gaps are given under CONTACT GAPS below.

(2) To adjust, place a gauge of the required thickness (equal to the stroke gap) between the core and the residual screw and push the armature and gauge toward the core. Bend the armature arms to provide a barely perceptible clearance (not more than .004") between the insulator and the contact spring against which it moves. When making this adjustment, it may be necessary to back the armature backstop away.

#### e. ARMATURE BACKSTOP ADJUSTMENT

With the armature arm resting against the armature backstop, there should be some clearance (not more than .004") between the insulator on the arm adjacent to a "Break" contact spring and the contact spring. To adjust, bend the armature backstop.

#### f. CONTACT GAPS

(1) Contact springs which close electrical circuits when the relay is operated are called MAKE contacts or springs. MAKE contacts are adjusted so that, when a thickness gauge of specified size is inserted between the armature residual screw and the core, the MAKE contacts will just make when the relay is energized.

(2) Contacts which open electrical circuits when the relay is operated and close the circuit when the relay is unoperated are called BREAK contacts. BREAK contacts are adjusted so that, when a thickness gauge of the specified size is inserted between the armature residual screw and the core, the break contacts will just break the circuit through the relay.

(3) The table showing the gauges to be inserted between the residual screw and the core, to cause the MAKE contacts to just make and BREAK contacts to just open, follows:

(S-5167)

GAUGE TABLE

Upper Contact Group

Lower Contact Group

Start Relay .013" to .015"

Break Contacts:  
Break .009"  
Not Break .011"  
Make Contacts:  
Make .005"  
Not Make .007"

Call Relay .015" to .017"

1st Make Contact:  
Make .007"  
Not Make .009"  
2nd Make Contact:  
Make .008"  
Not Make .010"  
Break Contacts:  
Break .003"  
Not Break .005"

Break Contact:  
Break .010"

.Busy Relay .013" to .015"

Break Contacts:  
Break .009"  
Not Break .011"

1st Make Contact:  
Make .005"  
Not Make .007"  
2nd Make Contact:  
Make .005"  
Not Make .007"

NOTE

In checking the foregoing contact gaps make sure that the armature and gauge are held firmly toward the core. Recheck the ARMATURE BACKSTOP ADJUSTMENT.

the value of the current with which the relay armature residual screw should pull up against the core. Nonoperating current is the value of current which should not move the armature from the unoperated position sufficiently to close any MAKE contacts or open any BREAK contacts. After adjusting spring tension, recheck ARMATURE BACKSTOP and CONTACT GAP ADJUSTMENTS.

g. CONTACT SPRING TENSIONS

(1) Spring tensions are checked electrically. Values of operating and nonoperating currents are specified with which the spring tensions should conform. Operating current is

(2) Besides operate and nonoperate current values, the following table indicates the nominal resistance of the relay coil windings:

CURRENT VALUES

	<u>Amperes</u> <u>Operating Current</u>	<u>Amperes</u> <u>Nonoperating Current</u>	<u>Ohms</u> <u>Resistance</u>
Start Relay	.0065	.0050	3400
Call Relay	.0130	.0085	3400
Busy Relay	.0047	.0038	7850

(3) MAKE contact armature springs should follow the armature or the preceding armature spring all the way back. BREAK contact armature springs should rest against the associated contact springs with at least 20 grams tension.

a. CALL CONTACTS ADJUSTMENTS

(1) With the main shaft rotated so that the call-contact function lever is resting against the selector vanes, but not selected, there should be some clearance not more than .010" between the insulator on the end of the

4. TYPING UNIT PARTS ADJUSTMENTS

contact spring and the lobe on the call-contact function lever. To adjust, bend the upper contact spring.

(2) With the main shaft in the same position as specified for part (1) above, there should be a contact gap of .015" to .020". To adjust, bend the lower contact spring.

#### b. CALL-CONTACT FUNCTION-LEVER SPRING TENSION

With the call-contact function lever resting against the vanes, not selected, and the contact spring held away, hook a 32 oz. scale under the extreme front end of the lever and pull vertically upward. It should require a tension of 24 to 32 ozs. to start the function lever moving.

#### c. TRANSFER CONTACTS ADJUSTMENTS

(1) With the transfer contact lever held away from the insulator on the transfer contact spring, the center contact should make with the lower contact. There should also be a clearance of .030" to .040" between the center and upper contacts.

(2) To adjust, bend the upper (heavy) contact spring so that it is parallel to and in line with the insulators between which it is mounted. Bend the center contact spring so that it rests against the lower spring with just a slight amount of tension and then bend the lower contact spring to obtain the required gap.

(3) With the transfer contact lever held away from the contact insulator, hook an 8 oz. scale under the center contact spring between the insulator and the contact and pull vertically upward. A tension of 4-1/2 to 5-1/2 ozs. should be required to open the contacts. To adjust, bend the center contact spring. Recheck (1).

(4) The position of the transfer contacts in relationship to the transfer contact lever should be such that, when the transfer contact lever is in its lowermost position, there would be a clearance of .010" to .020" between the end of the transfer contact lever and the insulator on the center contact spring.

(5) To adjust, loosen the screws which secure the transfer contact bracket to the send-receive plate, and position the transfer contact assembly so that the upper and lower contact springs are parallel to the function lever spring plate. Tighten the transfer contact bracket mounting screws. Set up the SPACE combination (front edge of #3 vane down,

front edges of #1, #2, #4, and #5 up) and rotate the main shaft until the printing bail is in its extreme forward position. Position the adjusting screw on the transfer-contact function lever to meet the requirement, and tighten the lock nut.

#### d. TRANSFER CONTACT-LEVER SPRING TENSION

Rest the typing unit on its right side. With the main shaft in the stop position and the transfer contact held away from the contact lever, hook a 32 oz. scale to the transfer contact lever at the spring hole and pull horizontally in line with the spring. It should require a tension of 12 to 16 ozs. to start the lever moving.

#### e. TRANSFER CONTACT FUNCTION-LEVER SPRING TENSION

Rest the typing unit on its right side. Select SPACE (#3 vane down) and rotate the main shaft until the printing bail is in its extreme forward position. With the transfer contact lever held away from the screw head, hook a 4 lb. scale to the rear end of the transfer-contact function lever and pull horizontally. It should require a tension of 1-1/4 to 1-3/4 lbs. to start the lever moving.

#### NOTE

See note under FUNCTION LEVER BAIL ADJUSTMENT in Model 15 Printer Adjustment Bulletin or Correction Sheet.

#### f. DISCONNECT CONTACT ADJUSTMENTS

(1) Set up the CARRIAGE-RETURN combination and rotate the main shaft until the printing bail is in its extreme forward position. There should be a clearance of .010" to .020" between the disconnect contacts. To adjust, bend the stiffener, if necessary, to obtain this clearance.

(2) With the main shaft in its STOP position, check to see that there is some clearance between the insulator on the lower disconnect contact spring and the bell crank when the play in the bell crank is taken up in the direction to make this clearance a maximum. To adjust, bend the stiffener and the upper contact spring.

(3) With the printer resting on its right side and the main shaft in its STOP position, hook an 8 oz. scale to the lower contact spring between the contact and insulator and pull at a right angle to the contact spring. It should require a tension of 4-1/2 to 5-1/2 ozs. to

just break contact. To adjust, bend the lower contact spring.

5. KEYBOARD ADJUSTMENTS

a. KEY-LEVER LINK ADJUSTMENT

The key-lever link should be positioned on its key lever to provide from .020" to .040" clearance between the vertical edge of the link and the vertical side of the bail. To adjust, loosen the link clamping screw and position the link.

b. BAIL SPRING TENSION

With the keyboard upside down, hook an 8 oz. scale under the end of the bail spring and pull vertically upward. It should require a tension of 3 to 3-1/2 ozs. to start the spring moving away from the bail. To adjust, bend the spring.

c. BAIL BACKSTOP ADJUSTMENT

There should be some clearance, not more than .004" between the edge of the bail and the hook on the key-lever link. To adjust, loosen

the bail-backstop eccentric mounting screw. Hold the bail against the eccentric backstop, and turn the eccentric. Tighten the screw.

d. ANSWER-BACK-MAGNET HEEL-PIECE AIR GAP ADJUSTMENT

There should be a clearance of .025" to .030" between the end of the heel piece and the armature when the armature is held in the operated position. To adjust, loosen the armature-yoke mounting screw and place a .025" gauge between the heel piece and the armature. Hold the armature firmly against the gauge and tighten the mounting screw.

e. BAIL ADJUSTMENT

The eccentric bushing on the bail which is engaged in the forked end of the answer-back-magnet armature lever should be adjusted to provide full travel of the key lever which it operates. To adjust, loosen the eccentric bushing screw, fully depress the answer-back key lever, place the magnet armature in its operated position, and rotate the eccentric bushing until the bail just touches the key-lever link. Tighten the eccentric bushing screw.



## SECTION V

## CATALOG OF PARTS

## 1. CONTROL UNIT PARTS (does not include rectifier)

## a. PARTS COMMON TO SE9, SE10, SE11, SE12, SE13 (SE200AA), AND SE14 (See Figure 2)

94705	Start Key (Assem.)
84990	Selector-Key Mounting Screw
94280	Lamp Jack
87329	Lamp-Jack Mounting Screw
77879	Lamp-Jack Mounting-Screw Spacer
3640	Lamp-Jack Mounting Screw Lock Washer
3599	Lamp-Jack Mounting-Screw Nut
94277	Instruction Plate
92265	Instruction-Plate Mounting Screw
94281	Lamp - 48 Volt
94282	Lamp Cap - Red
94283	Lamp Cap - Green
94291	Power Relay
1161	Power-Relay Mounting Screw
2191	Power-Relay Mounting-Screw Lock Washer
76117	Terminal Block (Assem.)
76118	Terminal Block
1028	Terminal Screw
3650	Terminal-Screw Washer
80342	Terminal-Block Mounting Screw
2191	Terminal-Block Mounting-Screw Lock Washer
96235	Black Connecting Wire
90813	Toggle Switch
	91683 Toggle-Switch Mounting Nut (Hex.)
	91684 Toggle-Switch Mounting Nut (Ring)
2191	Relay Mounting-Plate Mounting-Screw Lock Washer
94287	Line Relay (Flat Type)
90095	Insulator
1064	Relay Mounting Screw
2191	Relay Mounting-Screw Lock Washer
94288	Busy Relay (Complete)
94289	Call Relay (Complete)
94290	Start Relay (Complete)
79967	Relay Mounting Insulator
79012	Relay Mounting-Screw Bushing
83497	Relay Mounting-Screw Washer
83496	Relay Mounting Screw
74615	Resistor (2000 Ohms)
1297	Resistor Mounting Screw
3649	Resistor Mounting-Screw Lock Washer
3438	Resistor Mounting-Screw Washer
75750	Resistor Mounting-Screw Insulator Washer
35975	Number Plate
75645	Number-Plate Drive Screw
94323	Patent Plate
75645	Patent-Plate Drive Screw

b. PARTS COMMON TO SE9, SEL1, AND SEL2

94271 Rear Plate  
94272 Cover

c. PARTS PECULIAR TO SELO ONLY

94696 Rear Plate  
94697 Cover

d. PARTS COMMON TO SE9, SELO, SEL1, AND SEL2 (See Figure 2)

94276 Relay Mounting Plate  
94321 Cable (Complete)  
80460 Cable Clamp  
6811 Cable-Clamp Mounting Screw  
2191 Cable-Clamp Mounting-Screw Lock Washer

e. PARTS COMMON TO SE9, SELO, SEL1, SEL2, AND SEL3 (SE200AA) (See Figures 2 and 3)

94273 Relay Mounting Bar  
8539 Relay Mounting-Bar Mounting Screw  
2191 Relay Mounting-Bar Mounting-Screw Lock Washer  
94274 Top Bar  
94275 Bottom Bar  
1248 Bar Mounting Screw  
80342 Relay Mounting-Plate Mounting Screw  
8543 Cover Mounting Screw

f. PARTS COMMON TO SEL3 (SE200AA) AND SEL4 (See Figures 3 and 4)

114928 Switch - Push Button  
6970 Switch - Push Button - Nut  
81841 Condenser .25 M.F.  
74691 Resistor (1600 Ohms)  
114926 Multiple Pin Plug  
8543 Multiple-Pin-Plug Mounting Screw  
2191 Multiple-Pin-Plug Mounting-Screw Lock Washer  
34-8 Multiple-Pin-Plug Mounting-Screw Nut  
106320 Code Designation Plate  
83408 Code Designation-Plate Mounting Screw  
81824 Code Designation-Plate Mounting-Screw Nut

g. PARTS PECULIAR TO SEL3 (SE200AA) ONLY (See Figure 3)

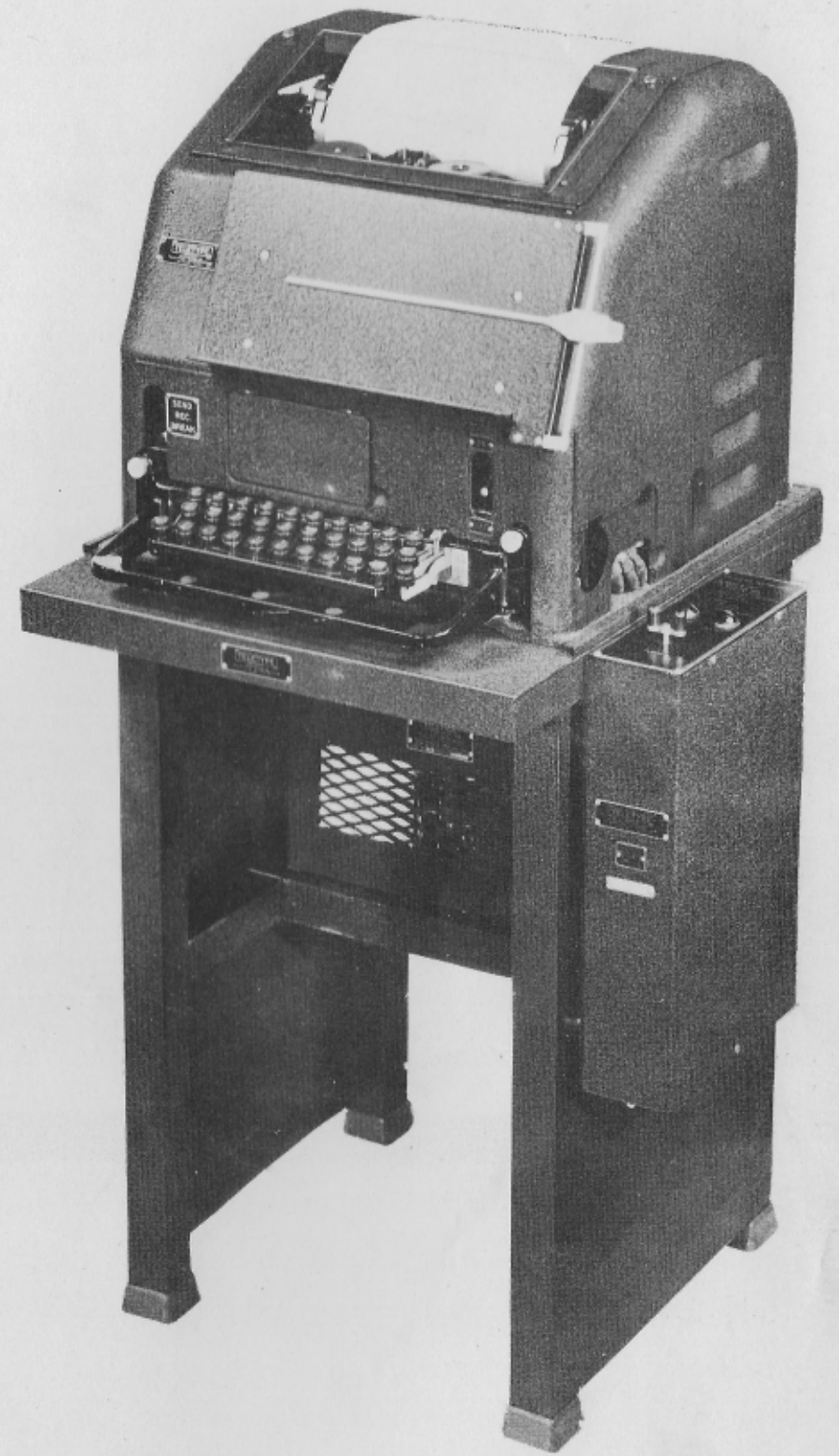
118299AA (114055) Rear Plate  
115514 Relay Mounting Plate  
106843 Multiple-Pin-Plug Mounting Bracket  
74059 Multiple-Pin-Plug Mounting-Bracket Mounting Screw  
2191 Multiple-Pin-Plug Mounting-Bracket Mounting-Screw Lock Washer  
106841 Cable (Complete)  
118298AA (114056) Cover

h. PARTS PECULIAR TO SEL4 ONLY (See Figure 4)

115521 Rear Plate  
115522 Relay Mounting Plate  
6746 Relay Mounting-Plate Mounting Screws  
34-8 Relay Mounting-Plate Mounting Screw Nut  
114853 Roller (Assem.)  
81258 Roller (Assem.) Mounting Screw  
74099 Roller (Assem.) Mounting-Screw Washer

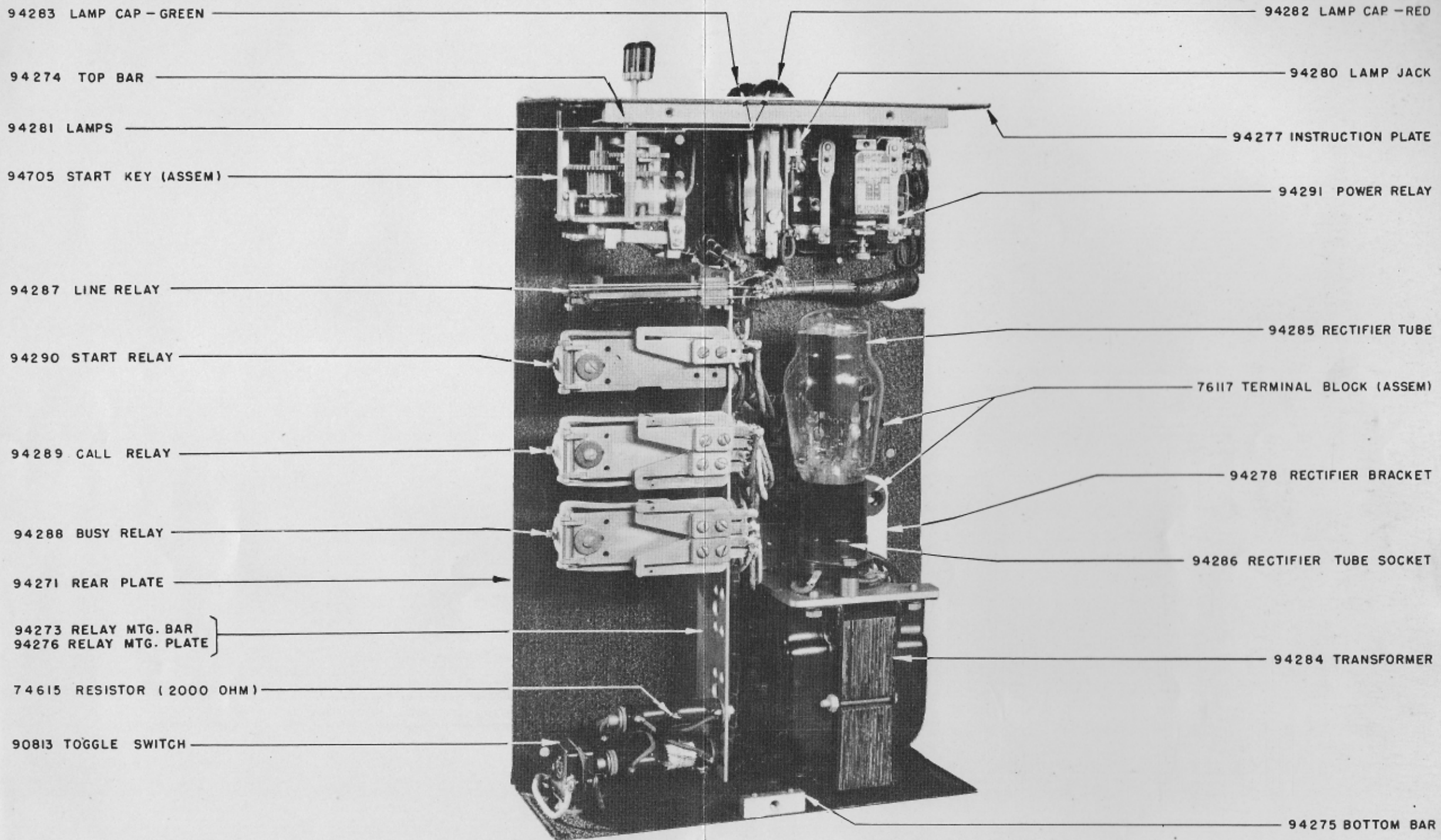


SE 14 MOUNTED IN AC 33 CABINET. A SECOND SE 14  
MAY BE MOUNTED IN LOWER POSITION.



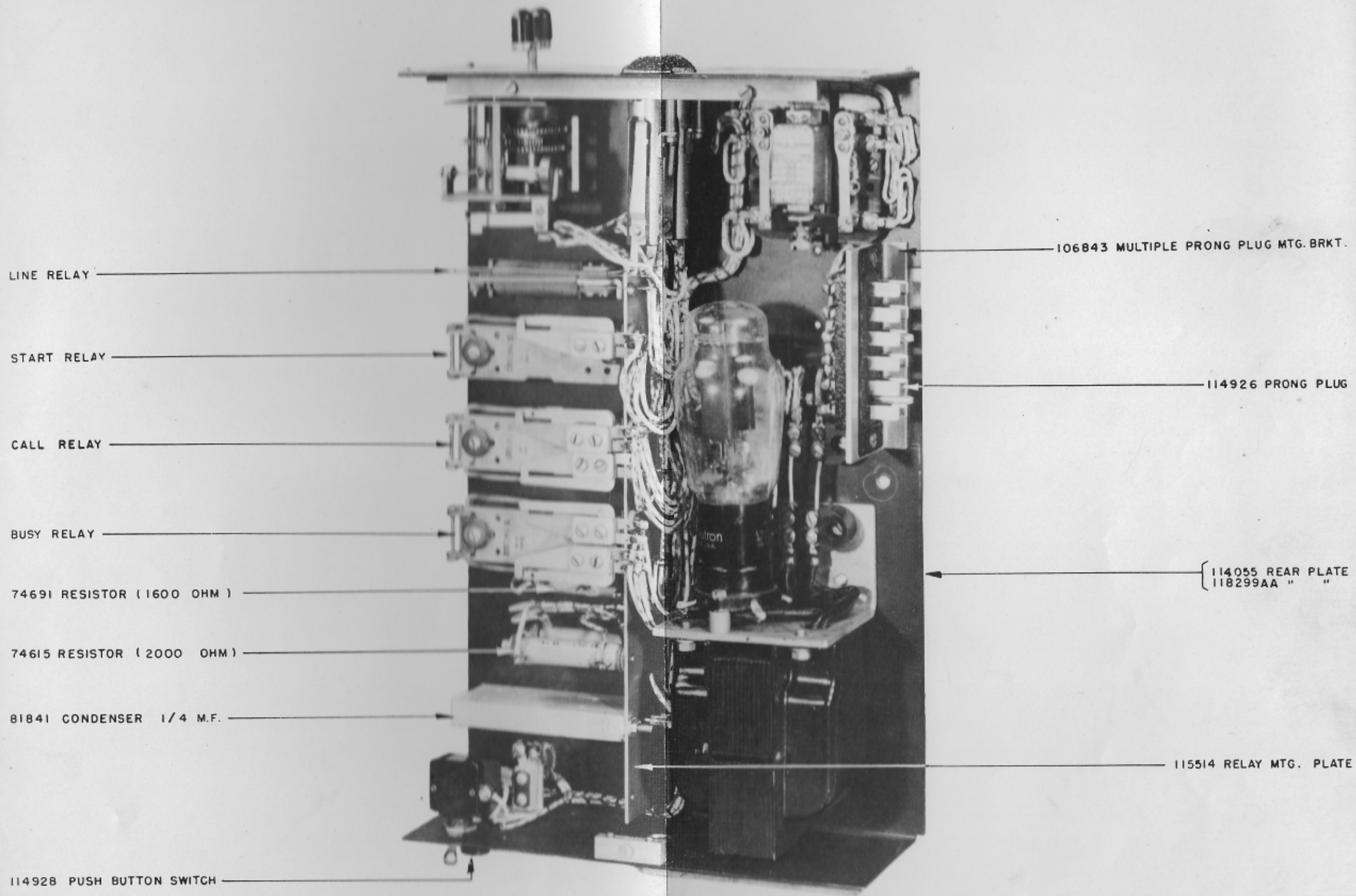
SE 13(SE 200AA) MOUNTED ON MODEL 15 TABLE

FIGURE 1



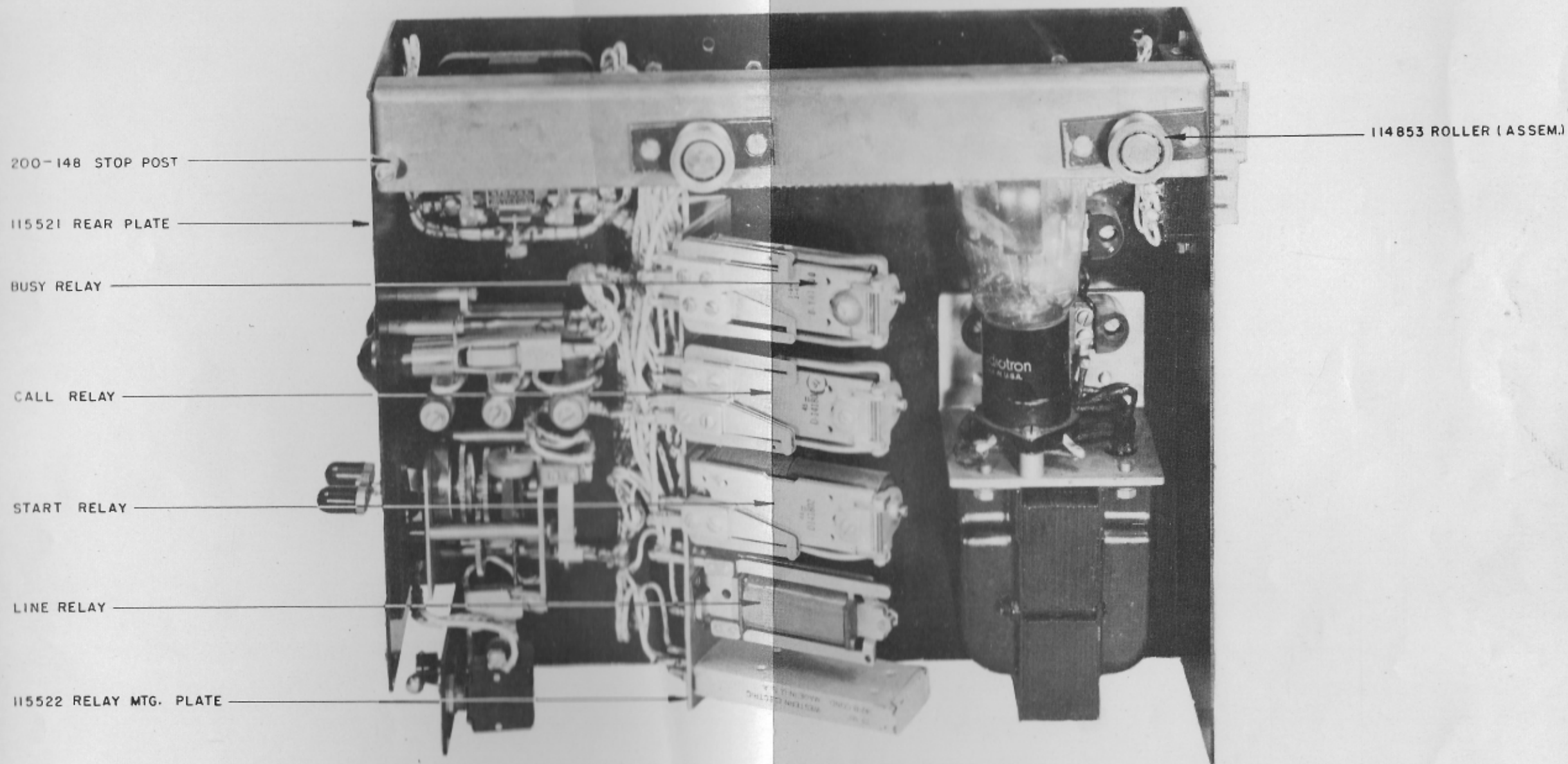
CONTROL UNIT SE 9 , SE 10 , SE 11 , SE 12 ( WITH REG 4 RECTIFIER )

FIGURE 2



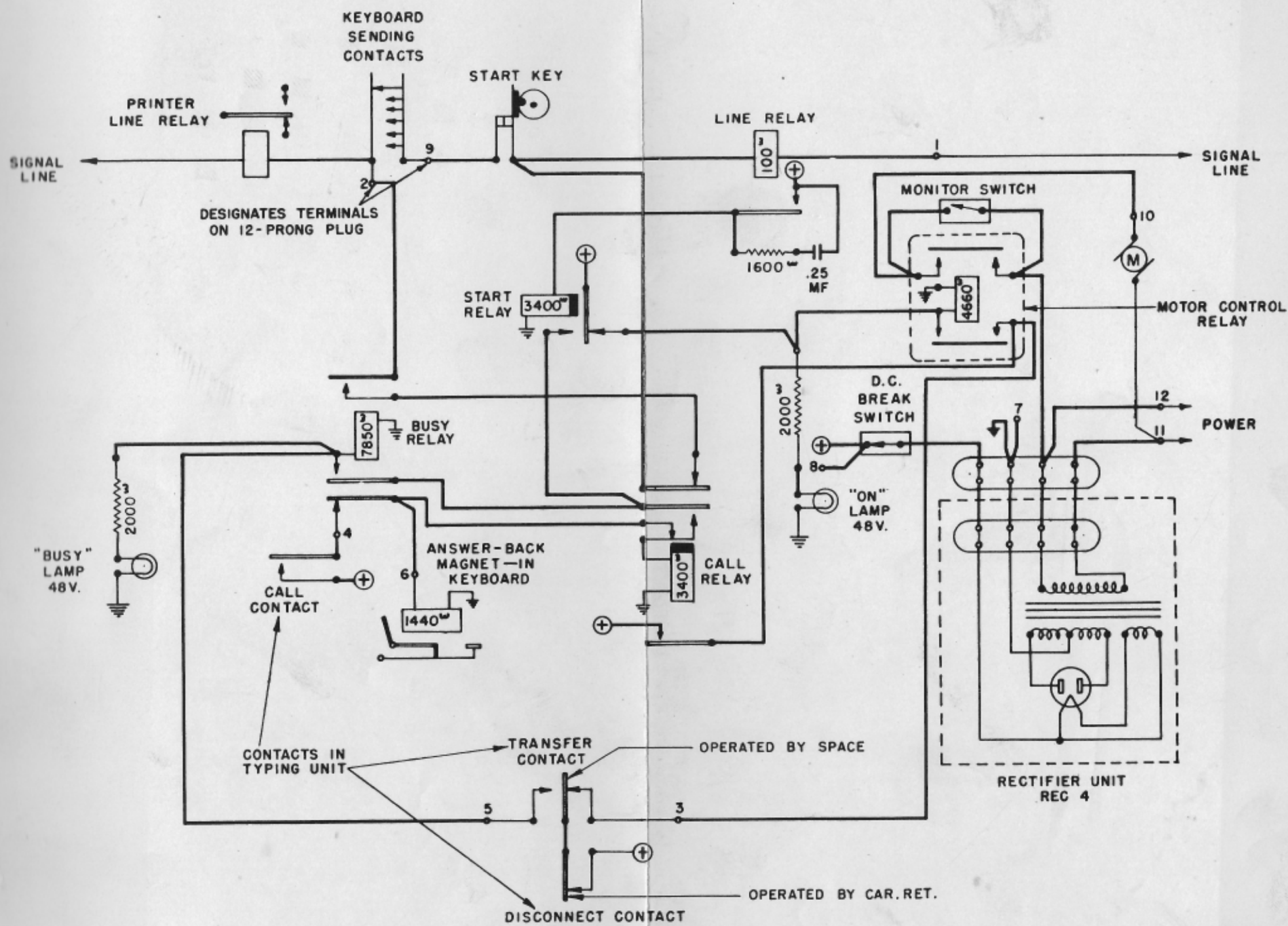
CONTROL UNIT SE 13 (SE200AA) WITH REC 4 RECTIFIER. SEE FIGURE 2 FOR COMMON PARTS

FIGURE 3



CONTROL UNIT SE 14 (WITH REC 4 RECTIFIER). SEE FIGURES 2 AND 3 FOR COMMON PARTS

FIGURE 4



SCHEMATIC OF SE 13 (SE 200AA) AND SE 14

FIGURE 5

15 PRINTER TYPING UNIT  
BOTTOM VIEW

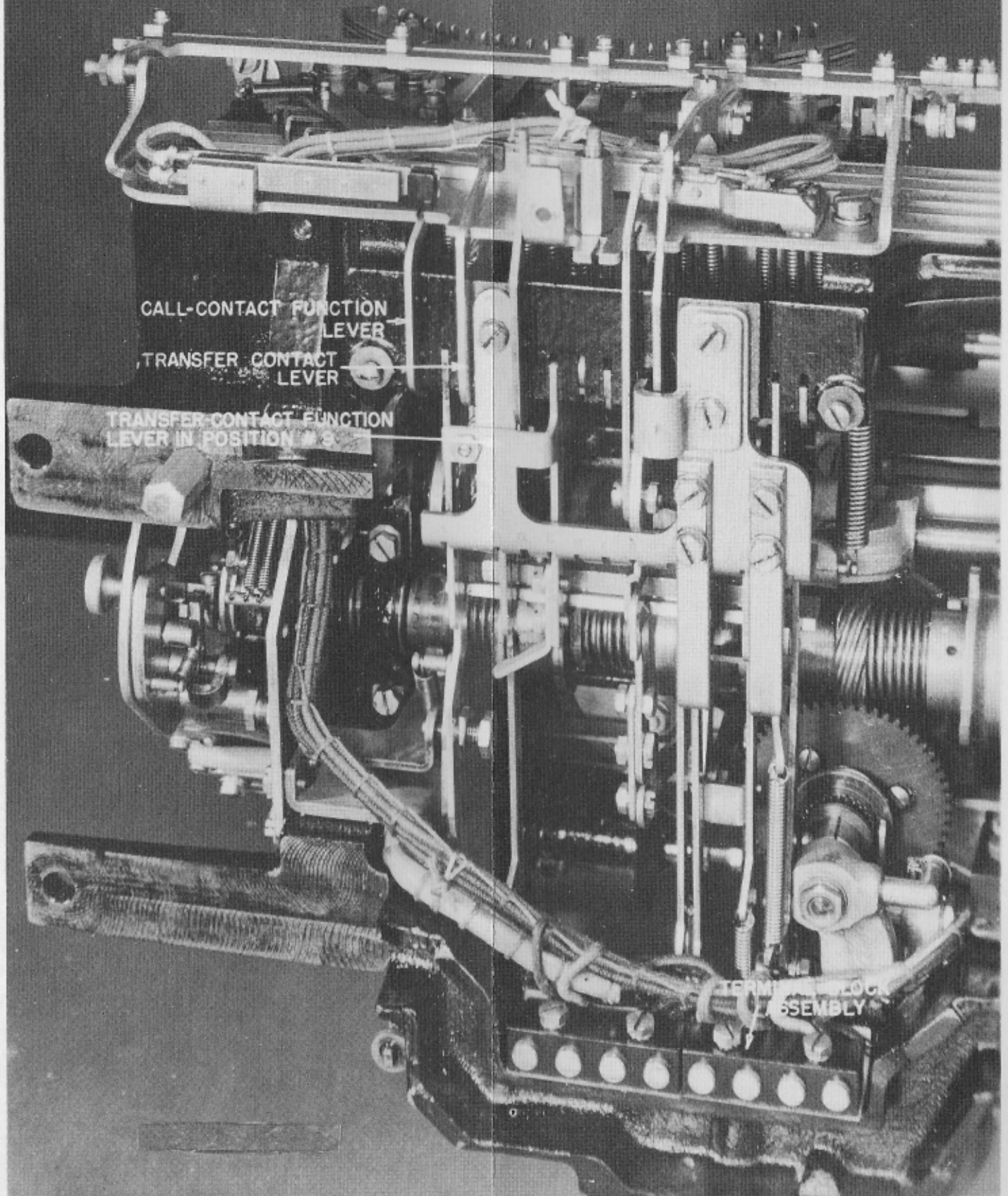


FIGURE 6



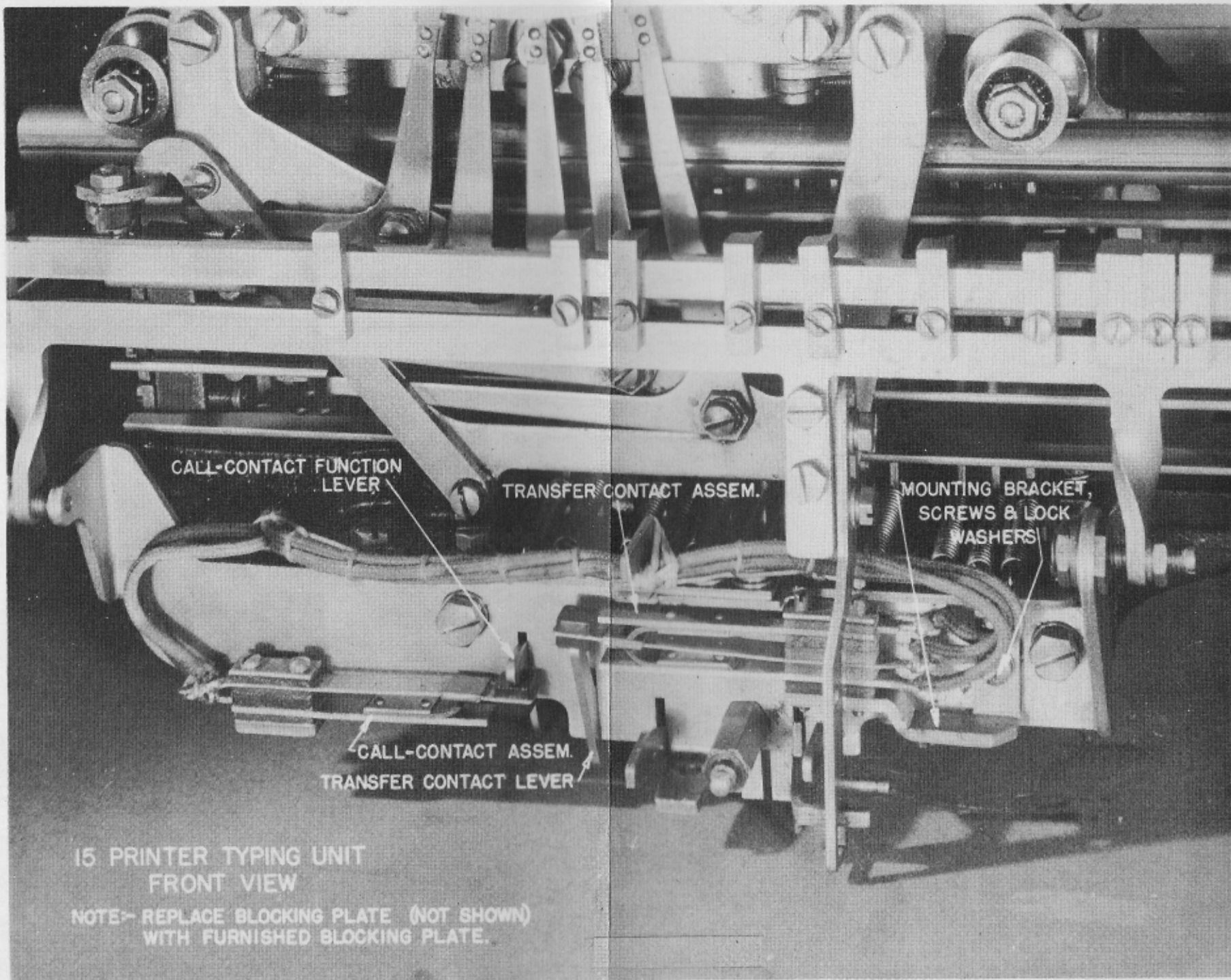


FIGURE 7

15 PRINTER TYPING UNIT

REPLACE BELL-HAMMER BACK STOP  
WITH DISCONNECT CONTACT AND  
CONTACT BELL-CRANK ASSEMBLY

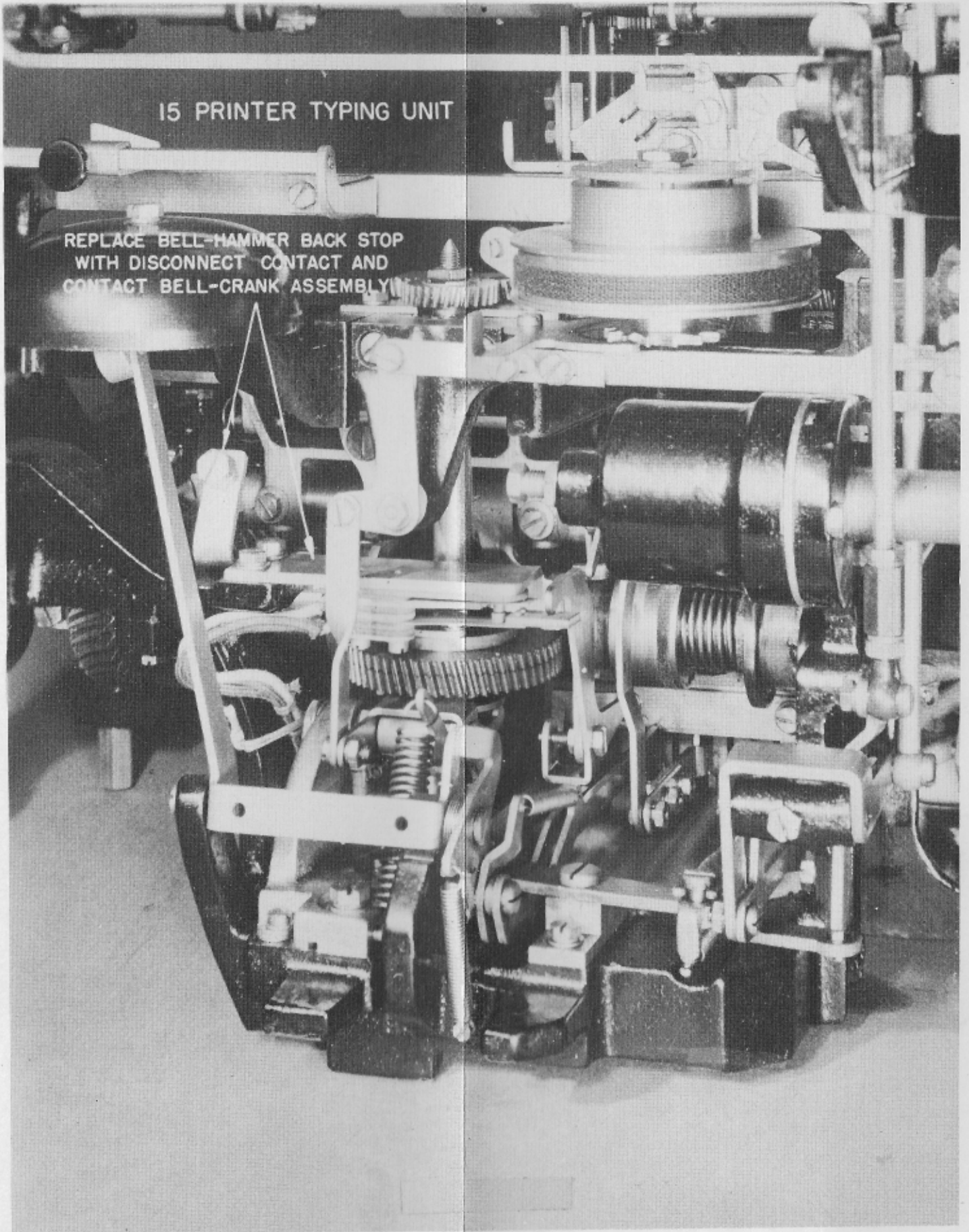
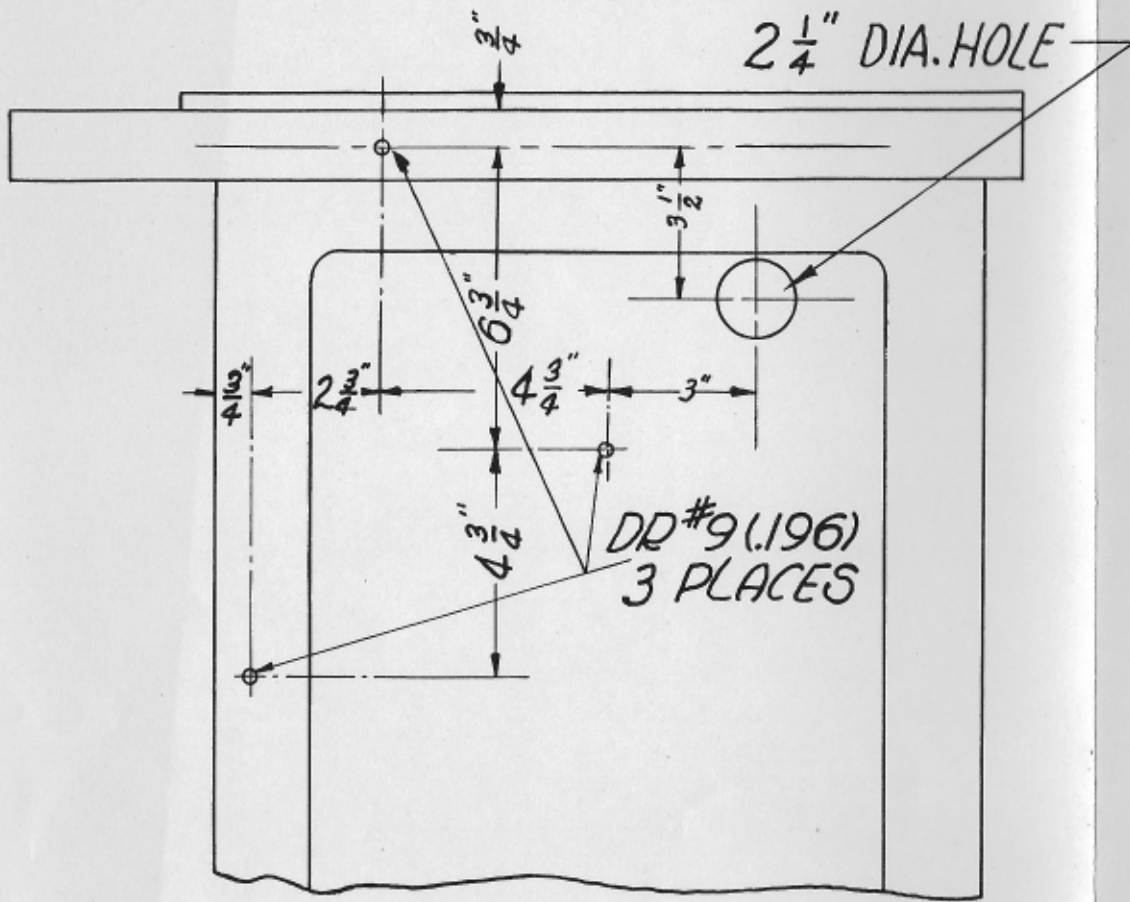
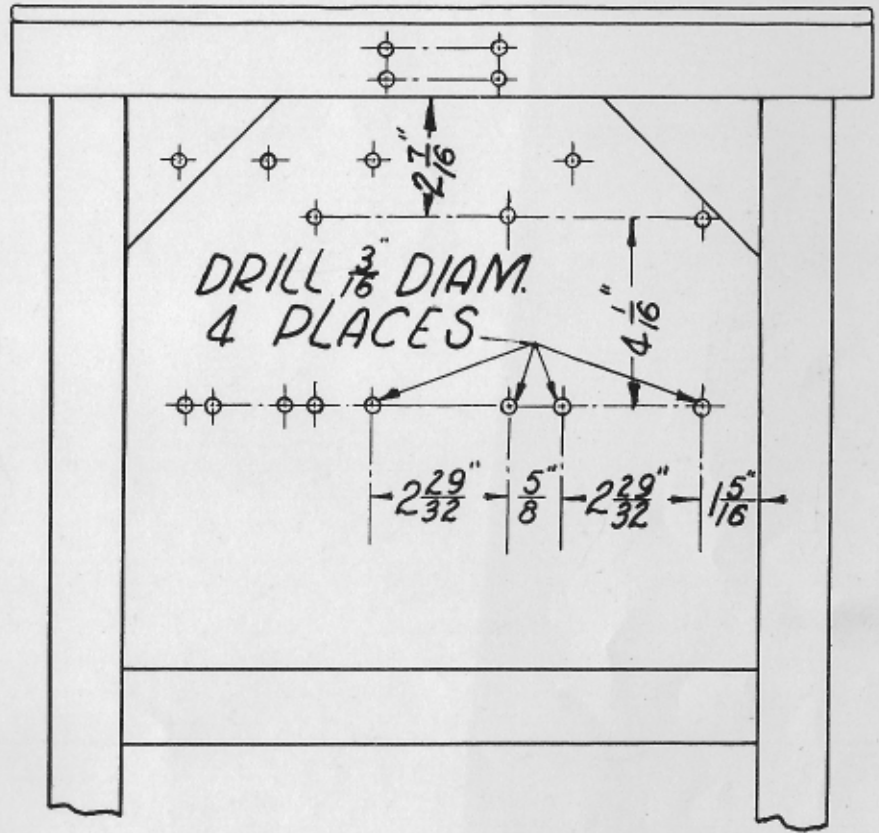


FIGURE 8



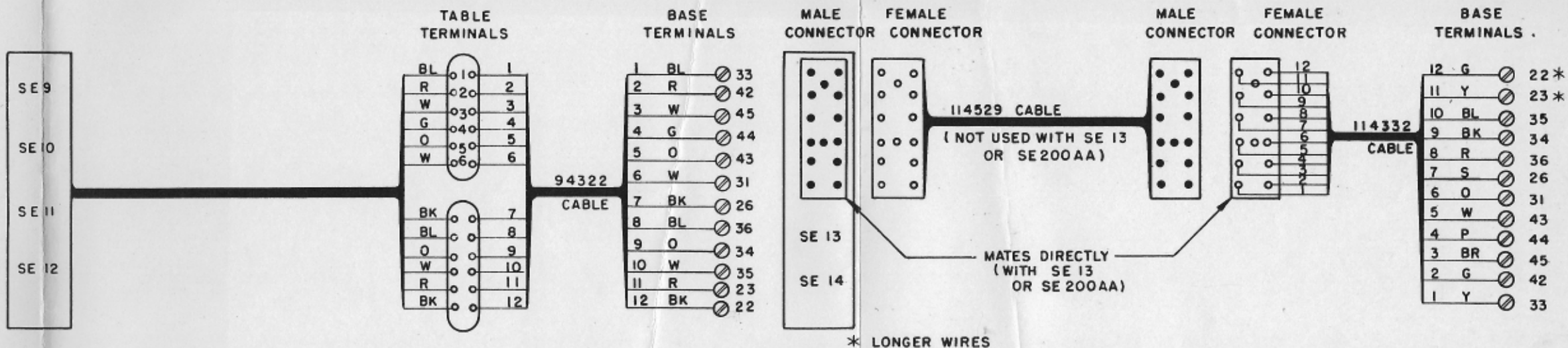
(A)



(B)

FIGURE 9

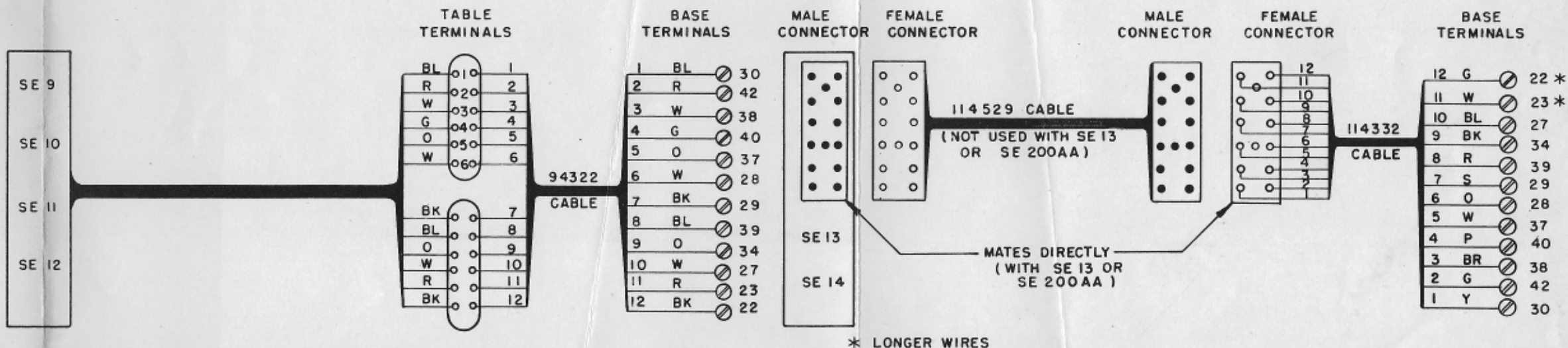
### STATION SELECTOR CONNECTIONS TO PRINTER BASE



THE ABOVE CONNECTIONS APPLY WHEN USING SE 9, SE 10, SE 11 OR SE 12 STATION SELECTOR WITH A MODEL 15 BASE WHICH IS CONVERTED IN THE FIELD OR BB 31 BASE WHICH IS FACTORY WIRED FOR STATION SELECTOR OPERATION.

THE ABOVE CONNECTIONS APPLY WHEN USING SE 13 (SE 200AA) OR SE 14 STATION SELECTOR WITH A MODEL 15 BASE WHICH IS CONVERTED IN THE FIELD OR BB 31 BASE WHICH IS FACTORY WIRED FOR STATION SELECTOR OPERATION.

\* LONGER WIRES



THE ABOVE CONNECTIONS APPLY WHEN USING SE 9, SE 10, SE 11 OR SE 12 STATION SELECTOR WITH MODEL 15 BASES BB 69 OR BB 70 WHICH ARE FACTORY WIRED FOR STATION SELECTOR OPERATION.

THE ABOVE CONNECTIONS APPLY WHEN USING SE 13 (SE 200AA) OR SE 14 STATION SELECTOR WITH MODEL 15 BASES BB 69 OR BB 70 WHICH ARE FACTORY WIRED FOR STATION SELECTOR OPERATION.

\* LONGER WIRES

FIGURE 10

15 PRINTER KEYBOARD  
ANSWER-BACK EQUIPMENT

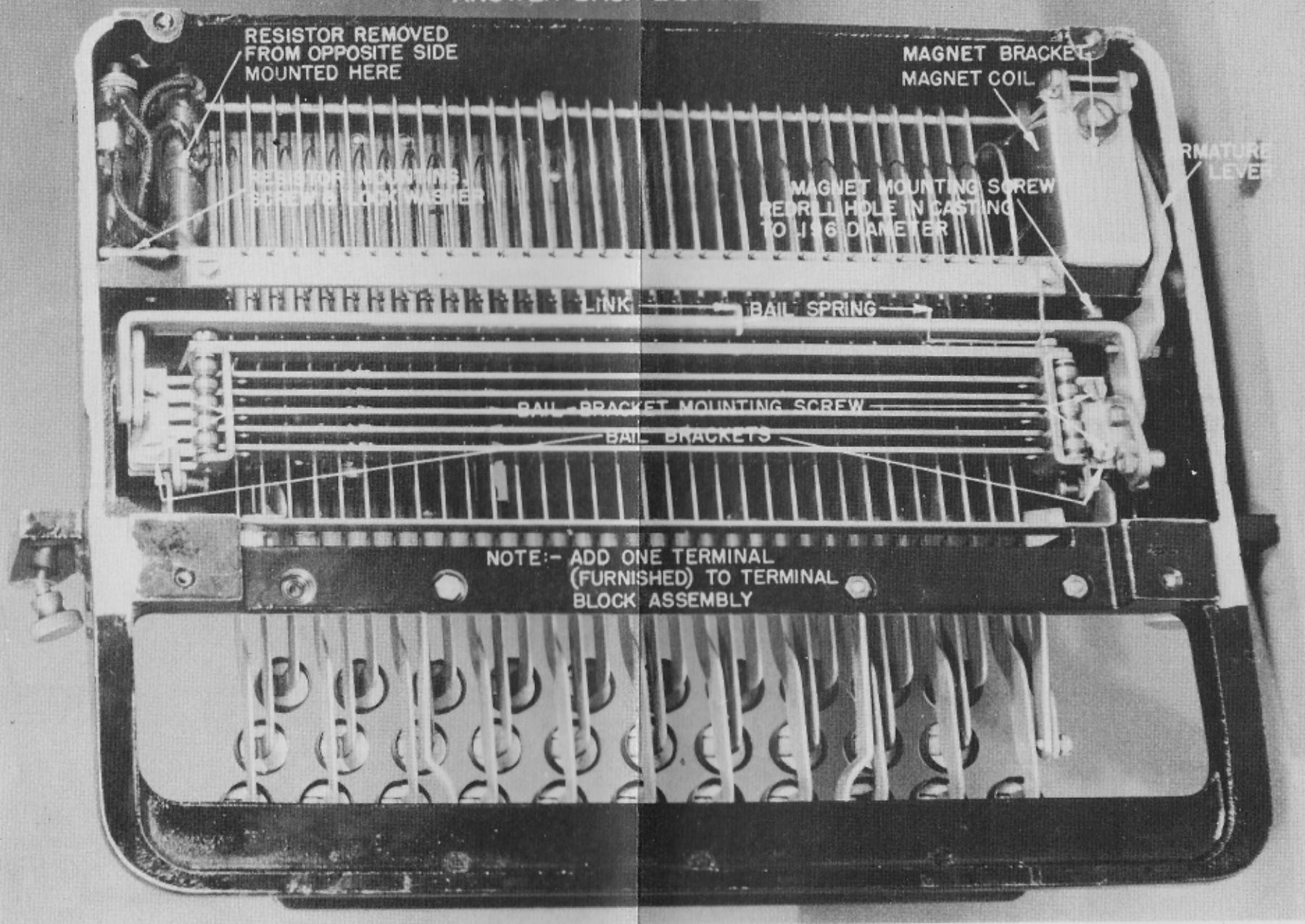
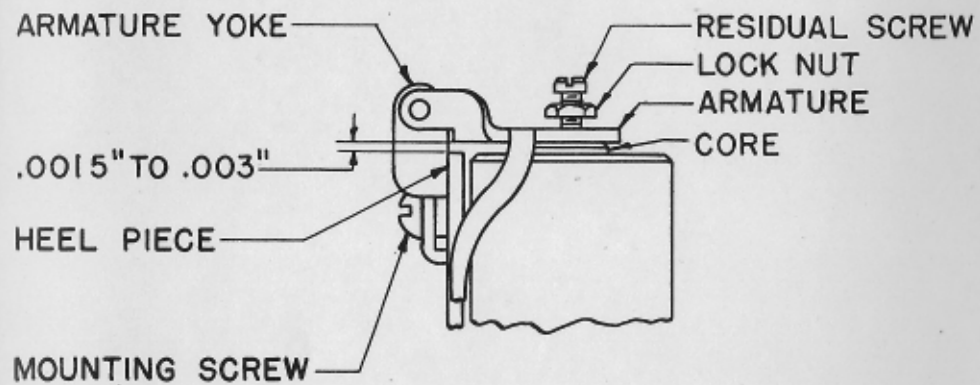
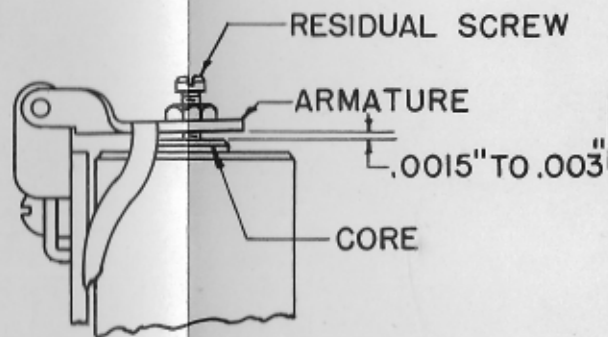


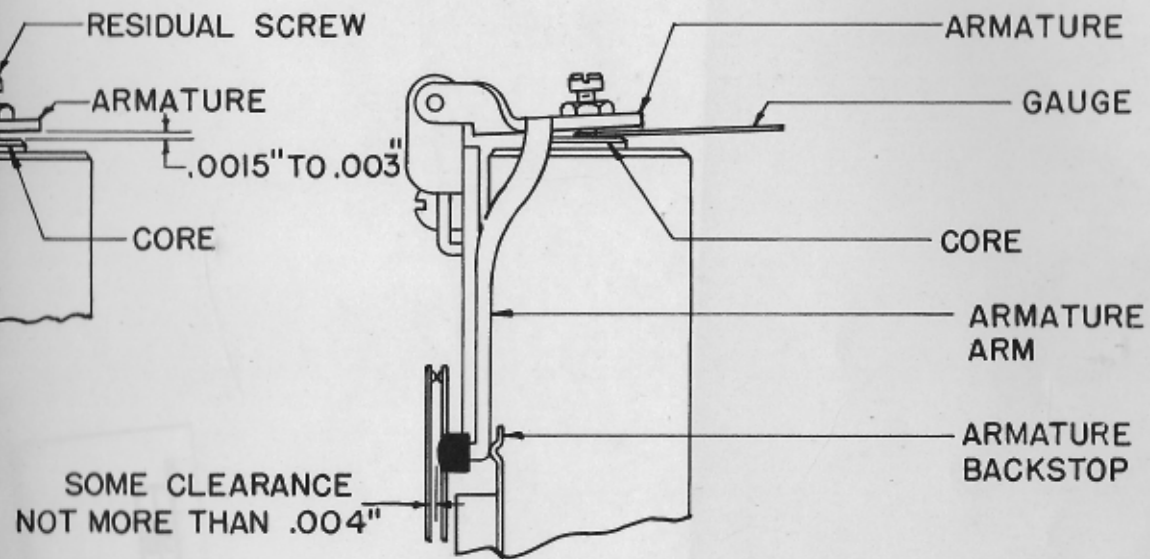
FIGURE 11



(A)



(B)



(C)

FIGURE 12

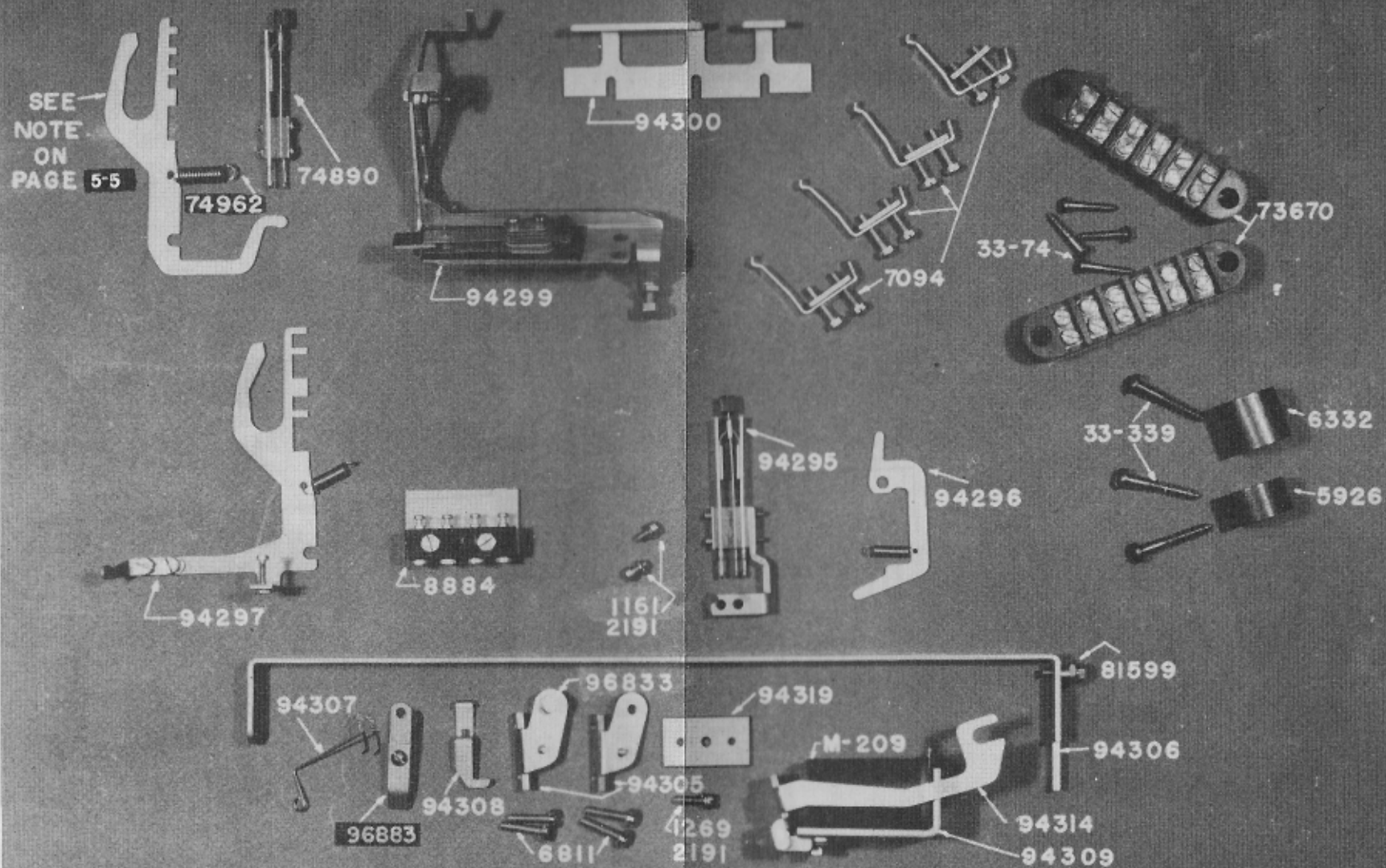


FIGURE 13

2191	Roller (Assem.) Mounting-Screw Lock Washer
34-8	Roller (Assem.) Mounting-Screw Nut
72967	Roller (Assem.) Mounting-Screw Spacer
6987	Roller (Assem.) Mounting-Screw Shim
85991	Stop Post
33-180	Stop-Post Mounting Screw
2191	Stop-Post Mounting-Screw Lock Washer
115531	Cable (Complete)

## 1. ACCESSORIES FOR SE9, SE10, SE11, SE12, AND SE13 (SE200AA) CONTROL UNITS

33-339	Wood Screw
5926	Spacer (Short)
6332	Spacer (Long)
33-202	Round-Head Screw
96766	Spacer (Long)
96767	Spacer (Short)
2669	Lock Washer
55216	Nut

## j. RECTIFIER UNIT (ASSEM.) (See Figure 2)

94278	Rectifier Bracket
6810	Rectifier-Bracket Mounting Screw
2669	Rectifier-Bracket Mounting-Screw Lock Washer
94284	Transformer
6810	Transformer Mounting Screw
2669	Transformer Mounting-Screw Lock Washer
3438	Transformer Mounting-Screw Washer
94286	Rectifier-Tube Socket
72508	Rectifier-Tube Socket Mounting Screw
3422	Rectifier-Tube Socket Mounting-Screw Spacer
76117	Terminal Block (Assem.)
76118	Terminal Block
1028	Terminal Screw
3650	Terminal-Screw Washer
80342	Terminal-Block Mounting Screw
2191	Terminal-Block Mounting-Screw Lock Washer
94285	Rectifier Tube
82474	Terminal

## 2. ACCESSORIES FOR PARTY-LINE STATION SELECTOR (See Figure 13)

## a. 94292 SET OF PARTS FOR TYPING UNIT

74890	Call Contact (Assem.)
1222	Screw
3571	Bushing
79513	Plate
3618	Insulator (3)
73593	Contact Spring (Long)
3647	Insulator (1)
73588	Contact Spring (Short)
34-11	Nut (for Temporary Assembly of Parts)
74962	Call-Contact Function-Lever Spring
94295	Transfer Contact (Assem.)
74538	Transfer Contact Bracket
3647	Insulator
73588	Contact Spring (Short) (2)
73593	Contact Spring (Long) (1)
3618	Insulator



79513	Plate
33-43	Screw
75249	Bushing
1161	Transfer-Contact (Assem.) Mounting Screw
2191	Transfer-Contact Mounting-Screw Lock Washer
94296	Transfer Contact Lever
22015	Transfer Contact-Lever Spring
94297	Transfer-Contact Function Lever
94298	Transfer Function-Lever Extension
76168	Transfer Function-Lever Extension Screw
2191	Transfer Function-Lever Extension-Screw Lock Washer
33-45	Transfer Function-Lever Adjusting Screw
34-56	Transfer Function-Lever Adjusting Nut
74961	Transfer Function-Lever Spring
94299	Disconnect Contact (Assem.)
91158	Disconnect-Contact Bracket
94302	Disconnect-Contact Bell Crank
94303	Bell-Crank Pilot Screw
3598	Bell-Crank Pilot-Screw Nut
78365	Insulator - Large (1)
41733	Insulator (4)
74728	Terminal
41820	Contact Spring - Small
70529	Stiffener
76382	Contact Spring - Large
80755	Bushing
41732	Plate
1206	Contact-Spring Mounting Screw
6745	Bell-Hammer-Backstop Adjusting Screw
2669	Bell-Hammer-Backstop Adjusting-Screw Lock Washer
34-4	Bell-Hammer-Backstop Adjusting-Screw Nut
94300	Blocking Plate
8884	Terminal Block
74946	Terminal-Block Insulator
1226	Terminal-Block Mounting Screw
2191	Terminal-Block Mounting-Screw Lock Washer
7002	Terminal-Block Mounting-Screw Washer
94301	Cable (not illustrated)

b. 94293 OR 106954 SET OF BASE PARTS FOR STATION SELECTOR

7094	Connecting Spring
7095	Connecting-Spring Plate
6811	Connecting-Spring Mounting Screw
94304	Cable (not illustrated)
7398	Plate
7399	Spring Stiffener
74685	Contact Spring
8539	Screw
4293	Insulator
3897	Bushing
2191	Lock Washer
7002	Washer
*94322	Intermediate Cable
*73670	Terminal Block
*33-74	Screw - Wood
*74986	Screw
*2191	Lock Washer
*3598	Nut

\*Not included with 106954 set of parts for SEL3 (SE200AA) and SEL4.

## c. 94294 SET OF PARTS FOR KEYBOARD

94305	Bail Bracket (2)
6811	Bail-Bracket Mounting Screw
96833	Eccentric Stud (1)
2191	Eccentric-Stud Lock Washer
74986	Eccentric-Stud Screw
94306	Bail
6814	Bail Pilot Screw
2191	Bail Pilot-Screw Lock Washer
81599	Eccentric
74986	Eccentric Mounting Screw
2191	Eccentric Mounting-Screw Lock Washer
94307	Bail Spring
94308	Key-Lever Link
1163	Key-Lever-Link Mounting Screw
94309	Magnet Bracket
M209	Magnet
49056	Magnet Mounting Screw
2669	Magnet Mounting-Screw Lock Washer
94314	Armature (Assem.)
94315	Armature
94316	Armature Yoke
94317	Armature-Yoke Shaft
6746	Armature-Assembly Mounting Screw
2191	Armature-Assembly Mounting-Screw Lock Washer
94318	Armature-Assembly Mounting-Screw Washer
94319	Resistor Mounting Plate
1269	Resistor Mounting-Plate Mounting Screw
2191	Resistor Mounting-Plate Mounting-Screw Lock Washer
96883	Slip-Connection Terminal
1262	Slip-Connection-Terminal Mounting Screw
34-48	Slip-Connection-Terminal Mounting-Screw Nut
94320	Cable (not illustrated)
75750	Washer (Bakelite)

## d. FUNCTION LEVERS

94312	Function Lever for Letter "A"
105161	Function Lever for Letter "B"
94313	Function Lever for Letter "C"
105162	Function Lever for Letter "D"
94324	Function Lever for Letter "E"
105163	Function Lever for Letter "F"
94325	Function Lever for Letter "G"
101597	Function Lever for Letter "H"
94336	Function Lever for Letter "I"
105165	Function Lever for Letter "J"
94337	Function Lever for Letter "K"
105166	Function Lever for Letter "L"
105167	Function Lever for Letter "N"
105168	Function Lever for Letter "P"
96761	Function Lever for Letter "Q"
105169	Function Lever for Letter "R"
96762	Function Lever for Letter "S"
104307	Function Lever for Letter "U"
96760	Function Lever for Letter "W"
105170	Function Lever for Letter "X"
96777	Function Lever for Letter "Y"
105164	Function Lever for Letter "Z"

Note: The call-contact function lever used is determined by the call letter.