

GENERAL INSTRUCTIONS FOR INSTALLING MODEL 28 CABINETS
LBAC233**, 235**, 241** AND 248** TO PROVIDE HOUSING AND
MOUNTING FACILITIES FOR MODEL 28 TYPING AND SEND-
RECEIVE UNITS

1. GENERAL

a. The Model 28 Cabinet LBAC233** (Figure 1) provides housing and mounting facilities for two Model 28 Receive-Only Page Printer Sets (LP103WY/AHM) and one Model 28 Keyboard Send-Receive Set (LK29BRE + LP103WY/AHM) for Teletypewriter Set AN/FGC-69 or 69X. The cabinet is provided with a set of slides for each typing unit so that they may be pulled forward and serviced from the front of the cabinet. An individual hinged cover is provided for each typing unit. The cabinet is capable of the following methods of copy handling:

- (1) Single copy paper to be fed out and torn off.
- (2) Single copy paper to be displayed on the copy display rack and wound on paper winder behind typing unit.
- (3) Two-ply paper; first copy torn off and second copy displayed and wound up on paper winder.

b. The LBAC233** Cabinet provides a mounting panel in which is mounted the electrical service assembly. The cabinet provides cabling for interconnecting the various units with the electrical service assembly.

c. The two asterisks (**) indicate a two letter suffix for the paint finish.

d. The following parts are in a muslin bag tied to bottom shelf mounting bracket:

#12	2191	Washer, Lock	2	84579	Washer, Flat
4	2449	Washer, Lock	#12	151632	Screw
2	2669	Washer, Lock	1	179293**	Panel, Keyboard
4	2846	Washer, Flat	2	179294	Bracket, Keyboard Panel
4	3595	Nut	4	179303	Screw
#12	7002	Washer, Flat	4	179304	Nut Plate
2	8669	Screw, Shoulder			

e. The LBAC235** (Figure 1) Cabinet is similar to the LBAC233** Cabinet except for the following:

#only the LBAC248** contains 12 of these items. All others contain only 8.

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*Indicates change

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(1) The LBAC235** Cabinet has electrical service units (LESU) with line relays, while the LBAC233** Cabinet has three selector magnet drivers in its electrical service assembly.

(2) The LBAC235** is shipped completely assembled with no parts in muslin bag as in 1.d.

(3) LBAC235** Cabinet provides for housing and mounting facilities for three Model 28 Receive-Only Page Printer Sets (LP) or two Model 28 Receive-Only Page Printer Sets (LP and one Model 28 Keyboard Send-Receive Set (LP and LK).

(4) The top fixed panel of the LBAC235** has three control panels (one for each level) each containing one open line light, one busy line light, one print suppression switch and one power switch. The open line lamp lens is red and marked "Open". The busy line lamp lens is yellow and marked "Busy". The print suppression switch is marked "Print" to the left and "Supp" to the right. The power switch is marked "Power" above the switch, "OFF" to the left and "ON" to the right. The top fixed panel of Cabinet LBAC233** mounts power switches for each level and two indicator lamps marked "Stand By" and "Operate".

*f. The LBAC241** provides housing and mounting facilities for two Model 28 typing units (LP109RN/AY) and one Model 28 Send-Receive Set (LK36ARN + LP109RN/AY) for Teletypewriter Set AN/FGC-74 or 74X.

g. The general and detailed description of the LBAC241** Cabinet are covered in Teletype Specification 50142S. See Specification 50142S. The installation procedure of the LBAC241** and LBAC248** Cabinets is the same as the LBAC233** Cabinet.

*h. The LBAC248** Cabinet is similar to the LBAC241** except for the following:

(1) The LBAC248** provides housing and mounting facilities for two Model 28 Typing Units (LP109RN/AY) and one Model 28 Send-Receive Set (LK39ARN + LP113RN/AY) for Teletypewriter Set AN/FGC-79 or 79X. The AN nomenclature for the LBAC248** is CY-4166FGC-79 when used in this set.

(2) The LBAC248** contains mounting facilities for a 48VDC 1 ampere power supply. This power supply is edited separately and no wiring facilities are provided. The rack also contains mounting and wiring facilities for a customer supplied special control relay which will permit transmission in any one of the input signal lines.

(3) The LBAC248 is equipped for 7.42 Unit Code Operation and does not have keyboard synchronous pulsing facilities. The cabinet provides for separate input signal lines as well as separate output signal lines for each set level. The cabinet has switching relays which permit the output of the signal generator to be switched into any one of the output signal lines or to a keyboard only signal line. The cabinet also has mounting facilities for a customer supplied special control relay which will repeat keyboard transmission to any one of the input signal lines.

i. For part numbers referred to and for parts ordering information see Teletype Model 28 Parts Bulletin 1149B.

2. INSTALLATION

NOTE

References in the text to left or right, front or rear up or down apply to the unit in its normal operating position as viewed from the front, unless specifically stated otherwise.

a. Cabinets LBAC233**, LBAC241** and LBAC248**.

(1) On the two upper bases install a LMU21 or LMU28 Motor. The LMU21 Motor is secured to the base assembly by four 104124 Screws and four 2449 Lock Washers, which are in the muslin bag assembly. The LMU28 Motor Unit Shell Assembly is mounted to the base assembly by four 104124 Screws and four 2449 Lock Washers. Mount the box containing the filtering element to the left of the intermediate gear shaft assembly and directly behind the left rear typing unit foot. Secure the filter box assembly to the base assembly with three 121575 Screws, three 2669 Lock Washers and three 3438 Flat Washers which are in the muslin bag tied to the unit.

(2) Select the proper gear set for the desired operating speed. Gear sets are listed below:

<u>Speed</u>	<u>Gear Set No.</u>
60 W.P.M.	161293
75 W.P.M.	161294
100 W.P.M.	161295

Install the 159287 Isolator on the motor pinion. Place the pinion with isolator on the motor shaft so that the isolator is away from the motor. Secure the pinion to the motor shaft with two 161301 Posts. Remove the two 151631 Screws and two 2191 Lock Washers from the intermediate gear assembly. Mount the driven gear on the intermediate gear assembly and secure it with the two 151631 Screws and two 2191 Lock Washers. Adjust the gear mesh so that there is between .004" and .008" backlash between the motor pinion and driven gear. To adjust gear mesh loosen the four screws which mount the intermediate gear assembly to the base plate. Position the gear assembly to meet requirements. Re-tighten mounting screws. Connect motor power leads of the motor terminals 1 and 2 of the motor terminal block as shown on wiring diagram 4763WD.

NOTES

Before installing typing unit on base, untie copy display rack from printer front plate assembly. Loosen the paper display rack clamp screws. Rotate rack to approximately a vertical position and tighten clamp screws.

The cabinet gaps between the closed top and fixed covers, and the closed middle and top covers should be approximately 1/16 inches. If adjustment is required, see Figures 3 and 4 of this specification for procedure.

(3) Mount the typing unit on the base assembly, being sure the locating studs on the base are through the locating holes in the front legs of the typing unit. Rotate the motor hand wheel to insure the typing unit and intermediate gears are meshed. Secure the typing unit to the base plate assembly by four 25123 Screws, four 2449 Lock Washers and four 2864 Flat Washers. Adjust the gear mesh between the typing unit and intermediate gear shaft assembly so that there is barely perceptible backlash between the driven gear of the typing unit and the driving gear of the intermediate gear assembly. To adjust, loosen the clamp screw in the front of the intermediate gear. Adjust gear mesh by raising or lowering intermediate gear shaft assembly by means of the adjusting screw. Retighten clamp screw. Check motor gear mesh adjustment. Loosen the five screws which mount the paper winder assembly. Center the paper winder reel behind the typing unit supply reel. Tighten the mounting screws.

NOTE

On the upper typing unit, it may be necessary to readjust the vertical position of the copy display modification kit to obtain the correct clearance to the top fixed cover. To adjust, loosen the four screws which mount the two copy display mounting brackets to the typing unit side frame. Position the copy display up or down as needed. Tighten the mounting screws.

(4) To install the keyboard do the following:

(a) Install the 179294 Brackets on the 179293 Keyboard Panel using four 151631 Screws, four 7002 Flat Washers, four 2191 Lock Washers and two 179304 Nut Plates. Leave screws friction tight.

(b) Remove the upper screws which mount the rubber keyboard seal. Mount the 179293 Keyboard Panel and Brackets on the keyboard using two 8669 Shoulder Screws, two 2669 Lock Washers and two 84579 Flat Washers. Leave screws friction tight.

(c) Mount the 179298 Mounting Bracket on the left side of the keyboard so that the leading edge of the bracket is inside the returns of the keyboard panel using two 179303 Screws, two 2449 Lock Washers, two 2846 Flat Washers and two 3595 Nuts. Leave screws friction tight.

(d) Mount the 179297 Mounting Bracket on the right side of the keyboard so that the leading edge of the bracket is inside returns of the keyboard panel using two 179303 Screws, two 2449 Lock Washers, two 2846 Flat Washers and two 3595 Nuts. Tighten these screws.

(e) Mount paper winder assembly, if not already mounted, on the 179297 and 179298 Mounting Brackets behind the keyboard, using four 153442 Screws, six 111516 Flat Washers, four 45815 Lock Washers and four 125231 Nuts.

(f) Mount the keyboard and paper winder, if not already mounted, on the lower set of slides. Position the left mounting bracket so that the slide does not bind when it is pulled out or pushed in. Tighten the mounting screws on the left side.

(g) Adjust the keyboard panel and bottom cover as given in Section 3.

(h) Install a Model 28 Motor Unit (LMU3 or LMU4) on the keyboard. Secure the motor unit to the base using four 151678 Screws and four 2449 Lock Washers.

(i) Mount typing unit as in Para. (3), except use four 151678 Screws and four 2449 Lockwashers.

(5) Cabinet Installation

CAUTION NOTE

This cabinet must be bolted on a level floor. See Figure 2. Bolt cabinet as follows:

(a) Remove mounting panel.

(b) Remove plate floor.

(c) Bolt cabinet to floor (hardware not supplied).

(d) Replace floor in cabinet.

(e) Replace mounting panel.

(f) Remove shipping bolts which tie inner frame to outer shell.

(g) Check adjustments to assure proper fit of covers with cabinet in its operating position.

b. Cabinet LBAC235**

(1) On the two upper bases install a LMU21 Motor Unit. Secure the motor unit to the base assembly by four 104124 Screws and four 2449 Lock Washers, which are in a muslin bag tied to the assembly.

(2) Follow procedure in Paragraphs 2.a.(1) through 2.a.(3) and note after 2.a.(3).

(3) Install the base as follows:

(a) Install the 179294 Brackets on the 179293 Keyboard Panel using four 151631 Screws, four 7002 Flat Washers, four 2191 Lock Washers, and two 179304 Nut Plates. Leave screws friction tight. (Refer to Figure 11).

(b) Remove the upper two screws which mount the rubber base seal. Mount the 179293 Keyboard Panel and brackets on the base using two 80342 Shoulder Screws and two 84579 Flat Washers. Leave screws friction tight.

(c) Mount the 179298 Mounting Bracket on the left side of the base with the 193552 Oil Drip Pan between base and bracket so that the leading edge of the bracket is inside the returns of the keyboard panel using two 179303 Screws, two 2449 Lock Washers, two 2846 Flat Washers, and two 3595 Nuts. Leave screws friction tight.

(d) Mount the 179297 Mounting Bracket on the right side of the base with the 193552 Oil Drip Pan between base and bracket so that the leading edge of the bracket is inside returns of the keyboard panel using two 179303 Screws, two 2449 Lock Washers, two 2846 Flat Washers, and two 3595 Nuts. Tighten these screws.

(e) Mount the paper winder assembly (part of 164926 Modification Kit) on the 179297 and 179298 Mounting Brackets behind the keyboard, using four 153442 Screws, six 111516 Flat Washers, four 45815 Lock Washers, and four 125231 Nuts.

(f) Mount the paper winder drive parts to the base in accordance with Specification 5982S.

(g) Solder the 171158 Ground Strap to pin 19 of the base connector and ground under a connector mounting bracket screw.

(h) Mount the base and paper winder on the lower set of slides. Position the left mounting bracket so that the slide does not bind when it is pulled out or pushed in. Tighten the mounting screws on the left side.

(i) Adjust the keyboard panel and bottom cover per Section 3 of this specification.

(j) Install a Model 28 Motor Unit (LMU12) on the base. Secure the motor unit to the base using four 151678 Screws and four 2449 Lock Washers.

(k) Mount the typing unit in a similar manner as in (1.b.(3)) above; except mount the typing unit using four 151678 Screws and four 2449 Lock Washers.

(4) Assemble the mounting racks per Figure 12.

(a) Mount the electrical service units to the 144976 and 144972 Brackets with the power switches to the front using the 151437 Mounting Screws.

(b) Mount the transmitter control device to the 193543 and 193544 Mounting Brackets with 160389 Screws and 150323 Flat Washers.

(c) Mount the connector panel to the 144966 and 144967 Racks with the 165103 Screw, 150323 Flat Washer, and 153017 Nut.

(5) Assemble the control panel per Figure 13.

(6) Route the 193541 Cabinet Cable per Figure 14.

(7) Connect the electrical service unit and transmitter control device cables in the following manner:

(a) Electrical Service Unit: For the electrical service unit in position #1, plug the "A" connector in position "A1" of the connector panel. The "B" connector to "1B". The "C" connector to "1C". And the "D" connector to "1D". Connect the electrical service units in position #2 and #3 in a similar manner.

(b) Transmitter Control Device: Connect the connector panel cable "1M" to the transmitter control device in the #1 position; connect the transmitter control devices in positions #2 and #3 in a similar manner using cables "2M" and "3M" respectively.

(c) Mount the racks to the cabinet floor using the eight 151723 Screws, eight 2669 Lock Washers and eight 41663 Flat Washers.

(8) Mounting of Signal Bell.

(a) Remove terminals from the 146437 Bell Assembly.

(b) Mount bell to 193551 Bell Mounting Bracket.

(c) Mount bell mounting bracket in upper left hand corner of cabinet rear using the existing 10-24 Screw and the 119703 Screw and 2449 Lock Washer.

(d) Wire Bell per 4942WD and tie bell leads to the bracket.

(9) The 179369 Copy Display Modification Kits are to be installed by the customer.

(10) Follow Cabinet Installation Instructions as given in 2.a.(5).

3. ADJUSTMENTS AND LUBRICATION

a. For standard adjustments and lubrication procedure refer to Teletype Model 28 Bulletin 217B.

b. Make the adjustments shown on Figures 3 through 10.

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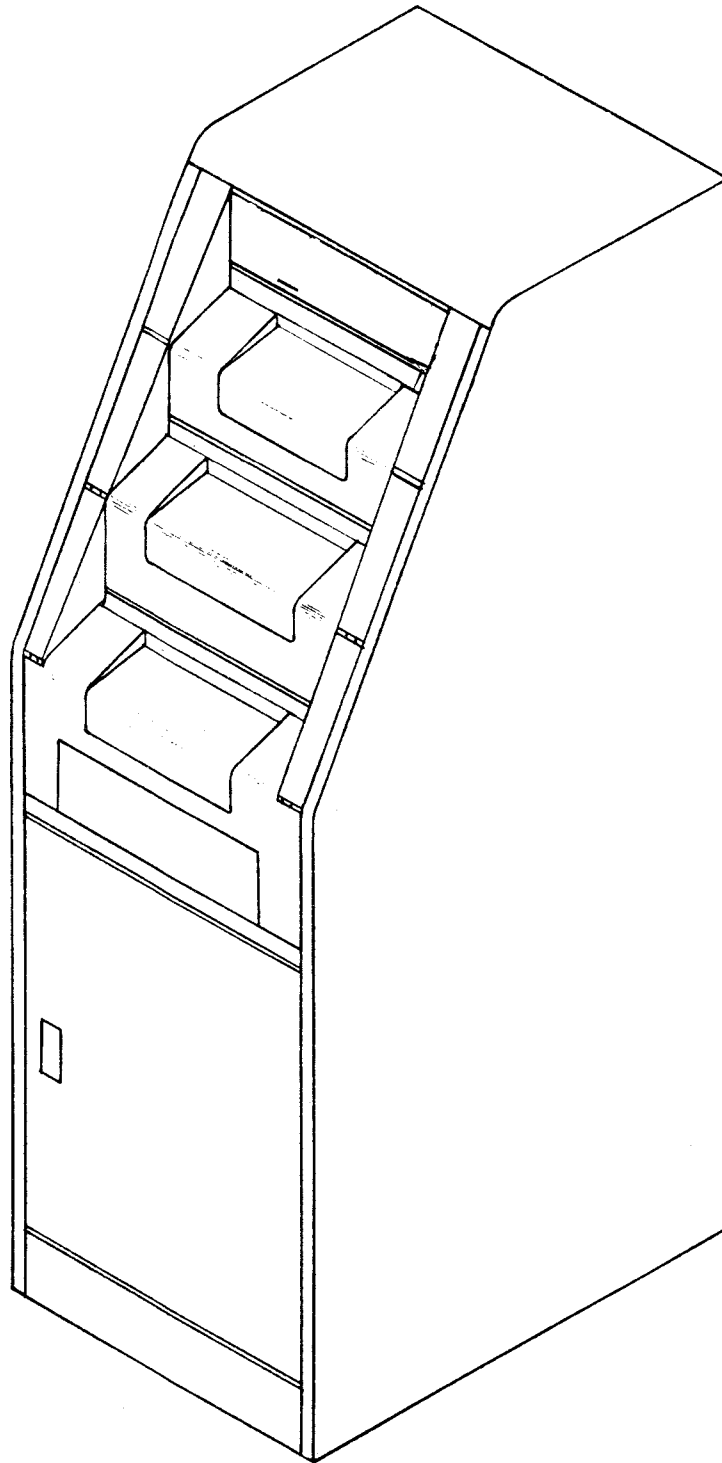


FIGURE 1. LBAC233**, LBAC235**, LBAC241**,
OR LBAC248** CABINET



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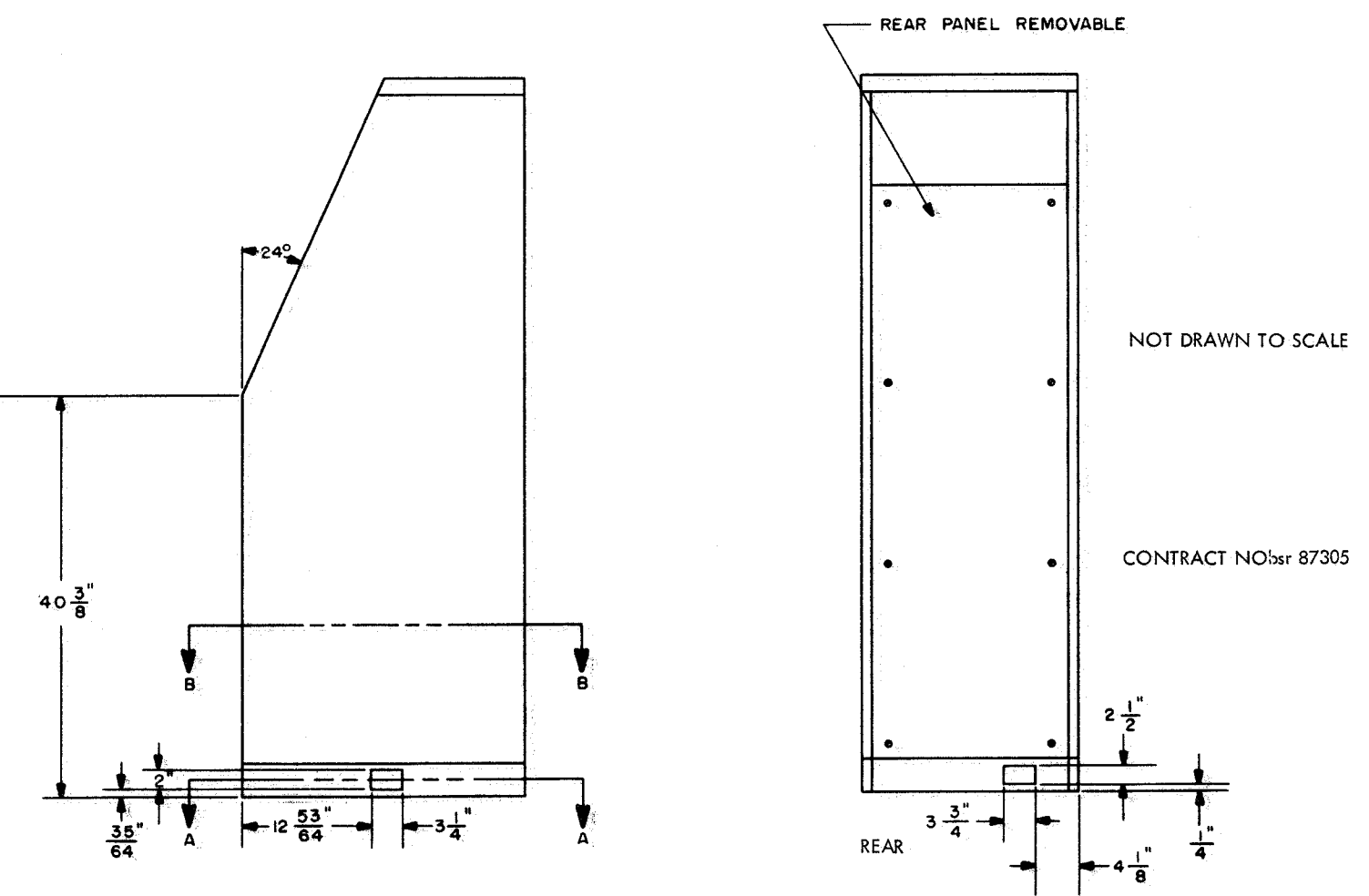
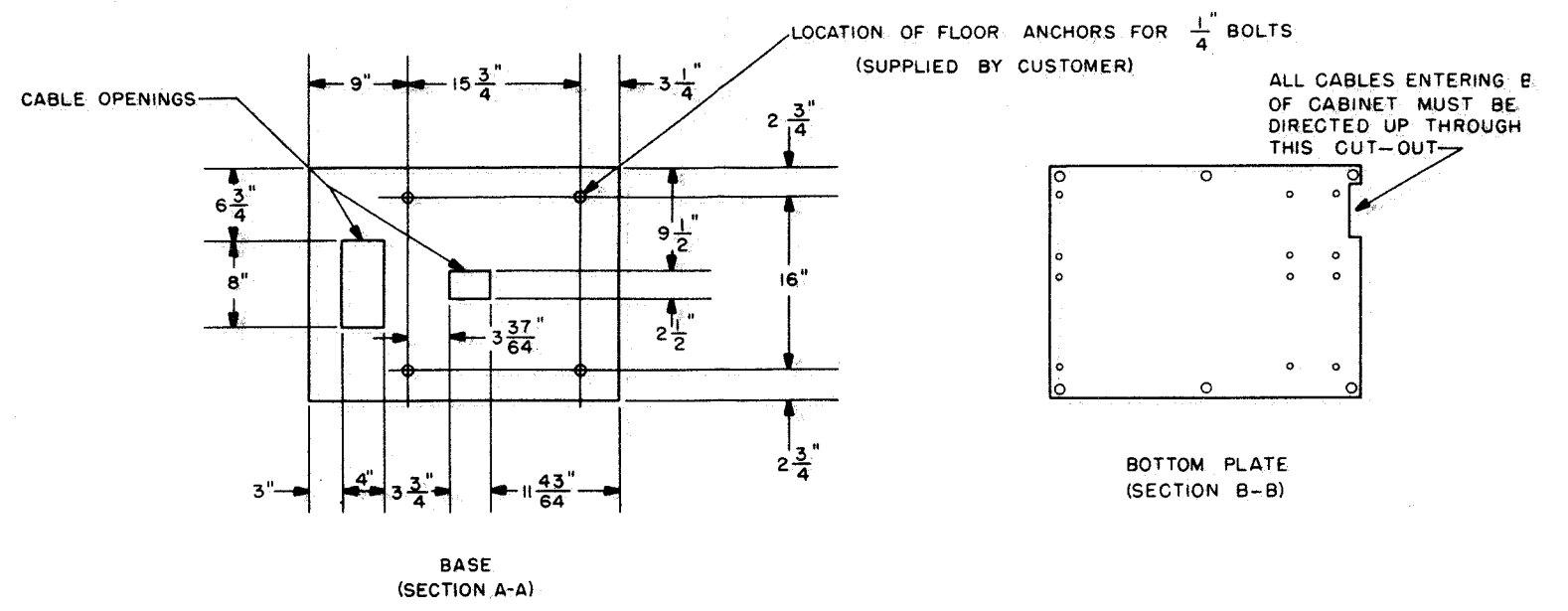
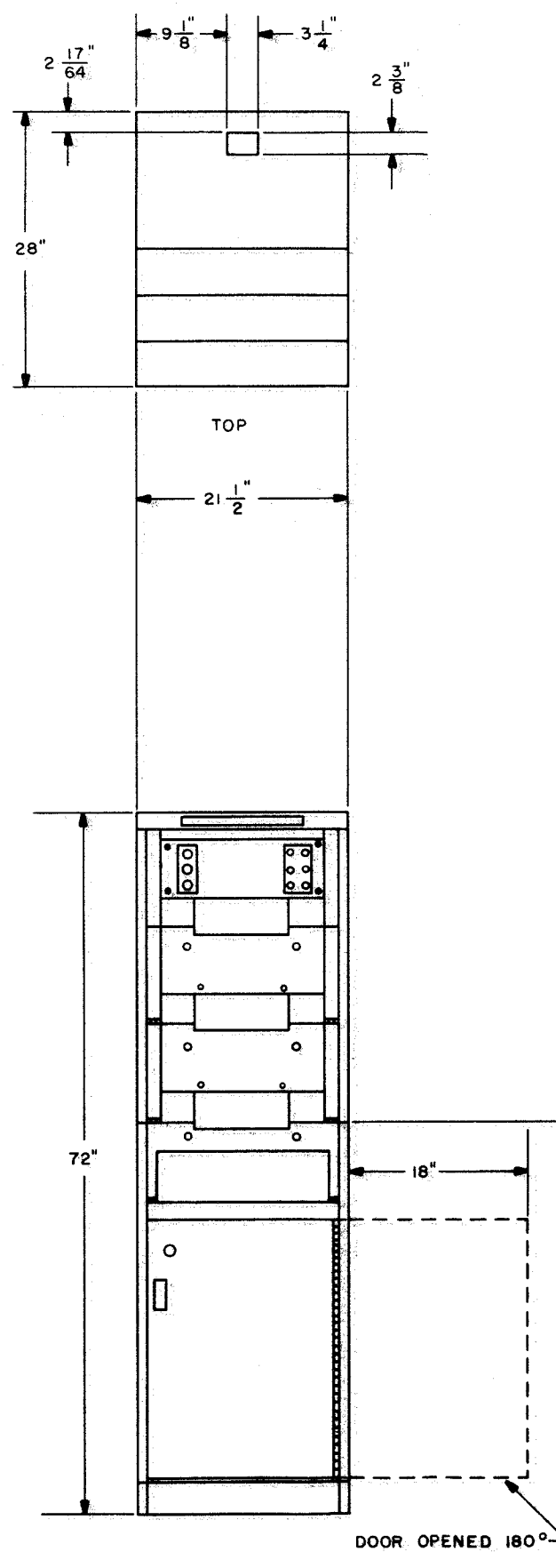
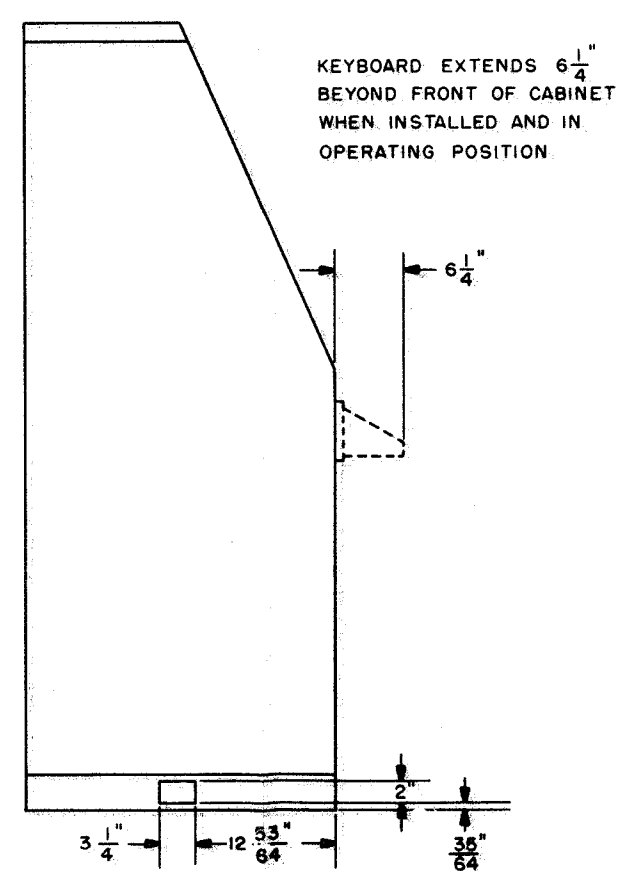
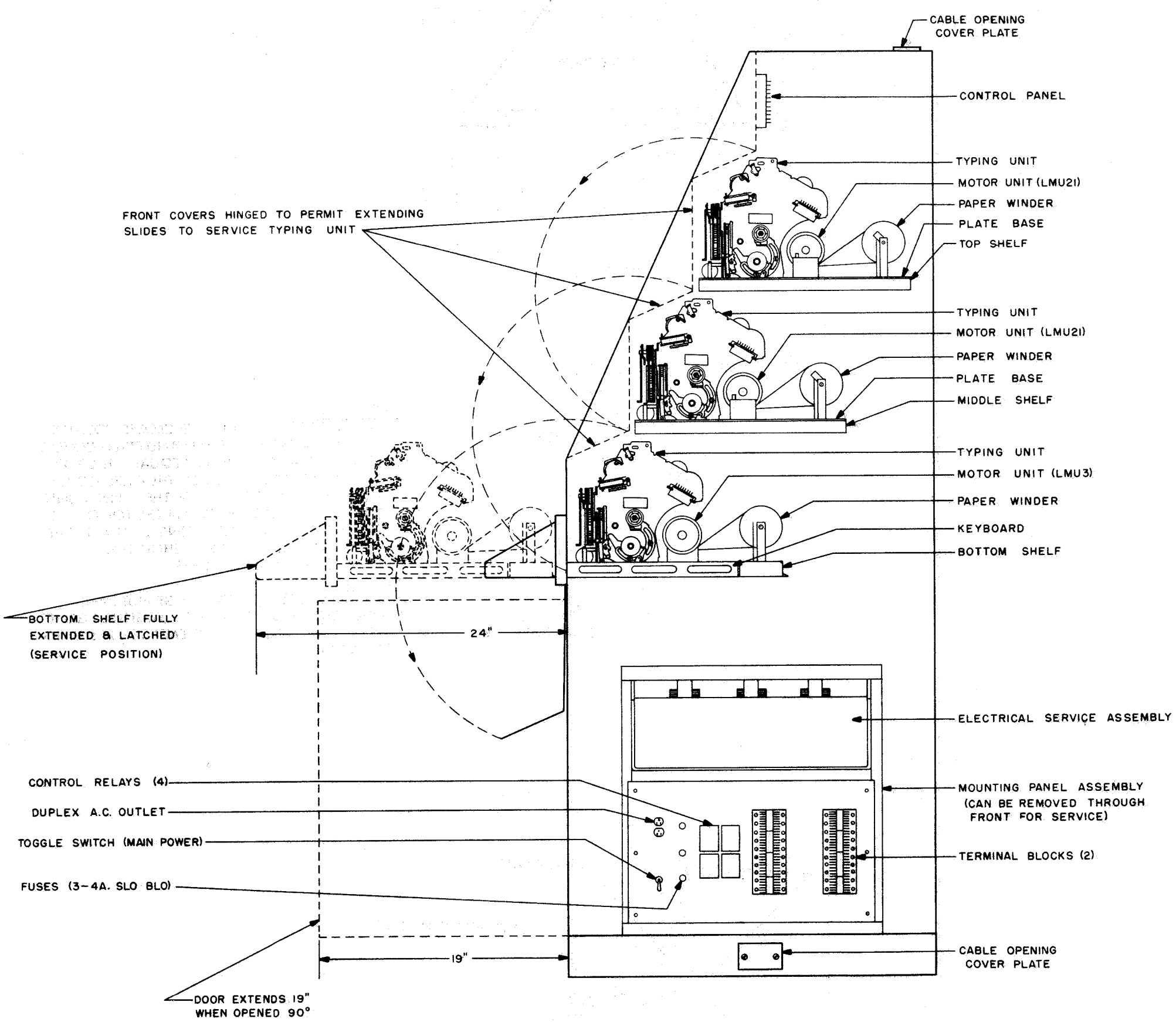
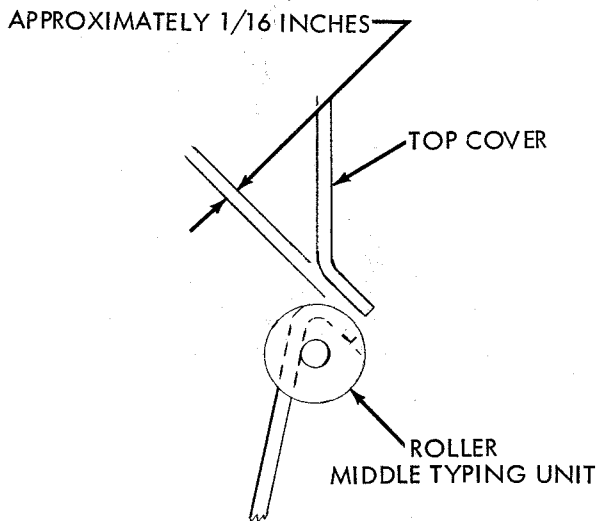
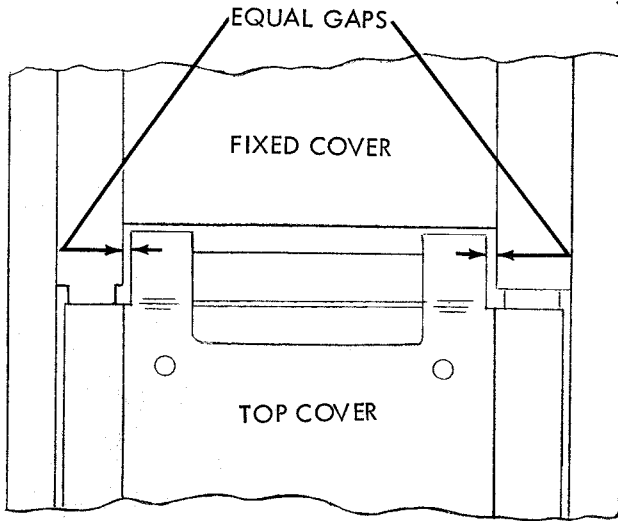


FIGURE 2. OUTLINE AND DIMENSION DRAWING TELETYPEWRITER SET AN/FGC-74 AND 74X

**REQUIREMENT**

WITH THE TOP COVER IN THE CLOSED POSITION, THE GAPS BETWEEN THE TOP AND FIXED COVERS SHOULD BE APPROXIMATELY EQUAL. THE TOP COVER SHOULD NOT TOUCH THE FIXED COVER WHEN BEING OPENED. WITH THE TYPING UNIT INSTALLED, THE GAP BETWEEN THE TOP OF THE ROLLER ON THE MIDDLE TYPING UNIT AND THE RETURN ON THE TOP COVER SHOULD BE APPROXIMATELY 1/16 INCHES.

TO ADJUST

LOOSEN THE TOP COVER HINGE NUTS AND MAKE THEM FRICTION TIGHT. POSITION COVER TO MEET THE ABOVE REQUIREMENTS. RETIGHTEN THE NUTS.

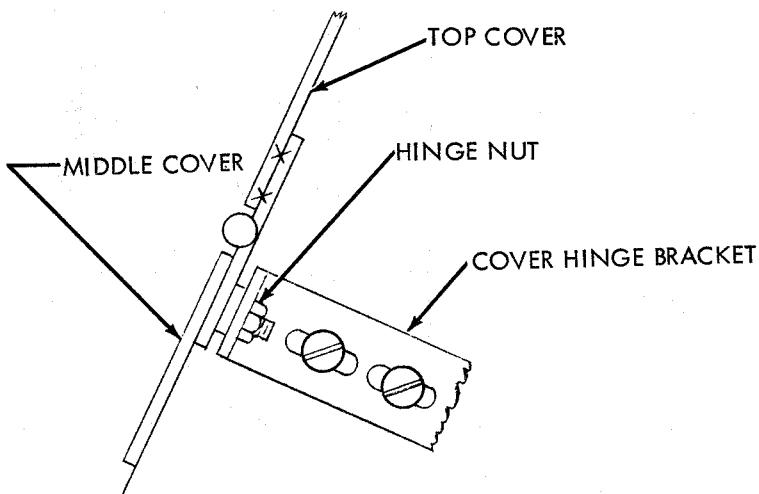
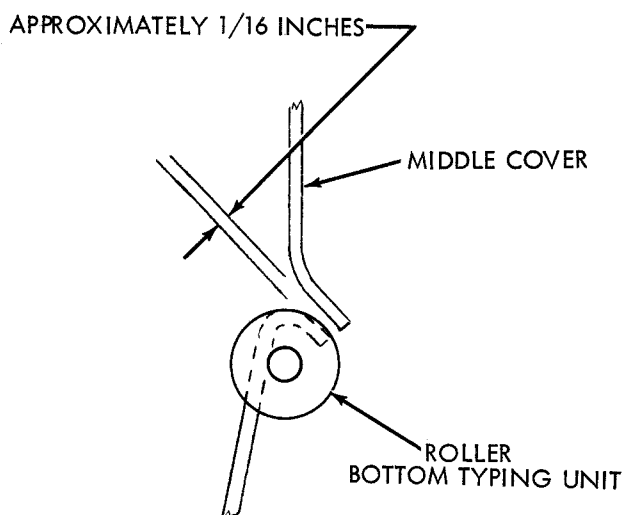
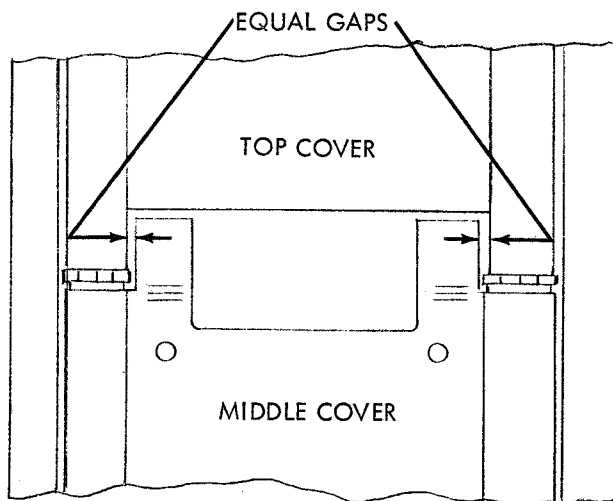


FIGURE 3. TOP COVER ADJUSTMENT

REQUIREMENT

WITH THE MIDDLE COVER IN THE CLOSED POSITION, THE GAPS BETWEEN THE TOP AND MIDDLE COVERS SHOULD BE APPROXIMATELY EQUAL. THE MIDDLE COVER SHOULD NOT TOUCH THE TOP COVER WHEN BEING OPENED. WITH THE TYPING UNIT INSTALLED, THE GAP BETWEEN THE TOP OF THE ROLLER ON THE BOTTOM TYPING UNIT AND THE RETURN OF THE MIDDLE COVER SHOULD BE APPROXIMATELY 1/16 INCHES.

TO ADJUST

LOOSEN THE MIDDLE COVER HINGE NUTS AND MAKE THEM FRICTION TIGHT. POSITION THE COVER TO MEET THE ABOVE REQUIREMENTS. RETIGHTEN THE NUTS.

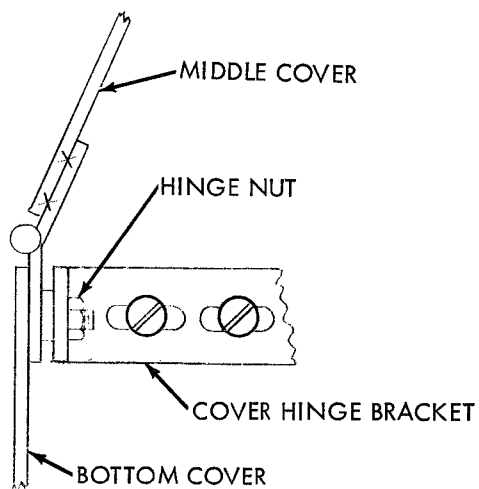
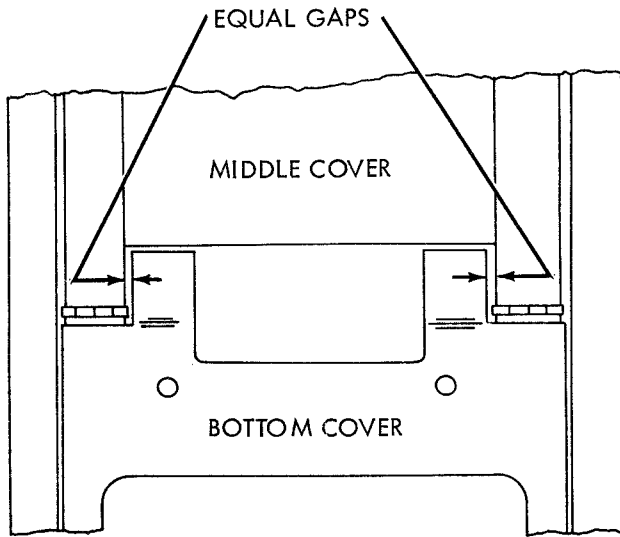
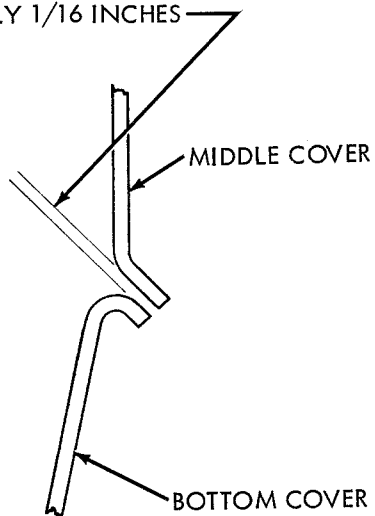


FIGURE 4. MIDDLE COVER ADJUSTMENT



APPROXIMATELY 1/16 INCHES



REQUIREMENT

WITH THE BOTTOM COVER IN THE CLOSED POSITION, THE GAPS BETWEEN THE MIDDLE AND BOTTOM COVERS SHOULD BE APPROXIMATELY EQUAL, THE BOTTOM COVER SHOULD NOT TOUCH THE MIDDLE COVER WHEN BEING OPENED. THE RETURN GAP BETWEEN THE BOTTOM OF THE MIDDLE COVER AND THE TOP OF THE BOTTOM COVER SHOULD BE APPROXIMATELY 1/16 INCHES.

TO ADJUST

LOOSEN THE BOTTOM COVER HINGE NUTS AND MAKE THEM FRICTION TIGHT. POSITION COVER TO MEET THE ABOVE REQUIREMENTS. RETIGHTEN THE NUTS.

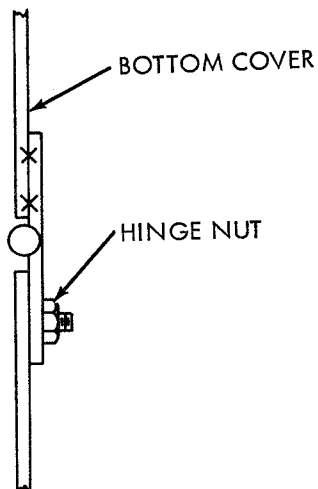


FIGURE 5. BOTTOM COVER ADJUSTMENT

REQUIREMENT

THE BOTTOM RETURN OF THE KEYBOARD PANEL SHOULD BE IN THE LINE WITH THE FORMED EDGE OF THE 179300 TOP FRONT BRACE ASSEMBLY. THE PANEL SHOULD BE CENTERED WITHIN THE OPENING OF THE BOTTOM COVER.

TO ADJUST

LOOSEN THE KEYBOARD PANEL MOUNTING SCREWS AND MAKE THEM FRICTION TIGHT. POSITION THE KEYBOARD PANEL TO MEET THE ABOVE REQUIREMENT. TIGHTEN THE TOP MOUNTING SCREWS BEING SURE TO DRAW THE PANEL TIGHT AGAINST THE RUBBER GASKET ON THE KEYBOARD OR BASE.

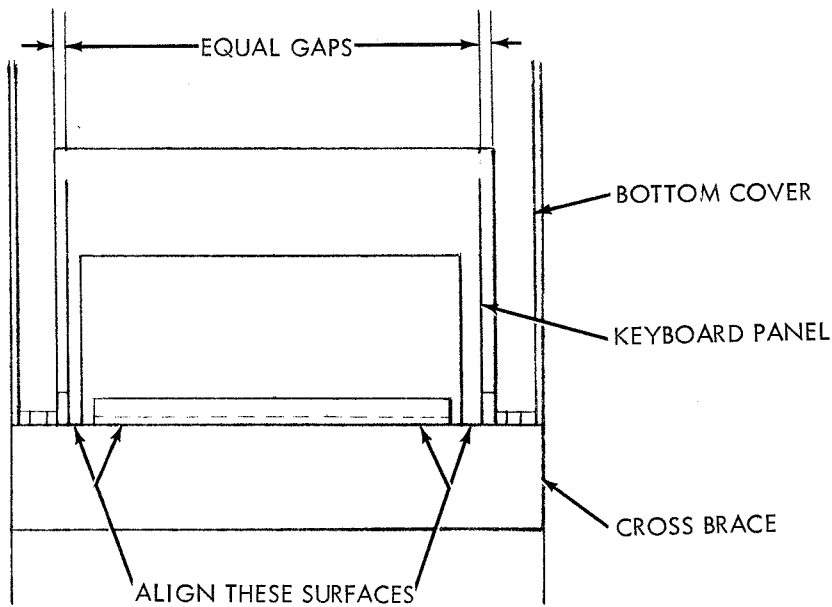
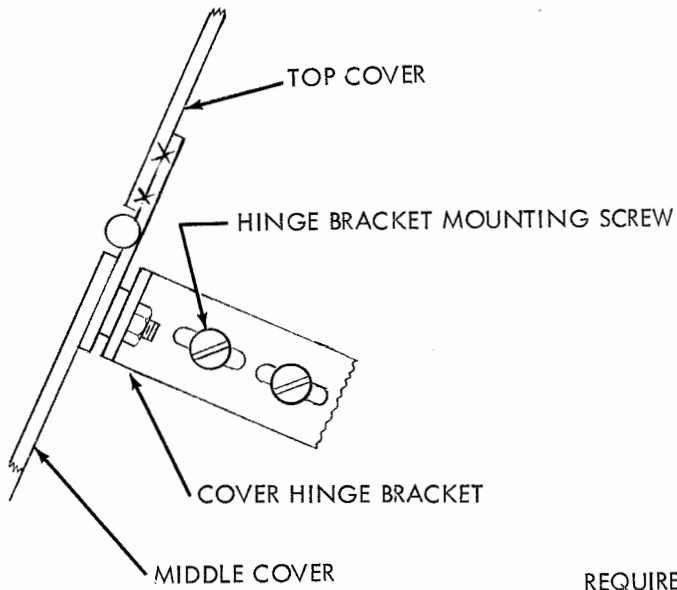


FIGURE 6. KEYBOARD PANEL ADJUSTMENT

REQUIREMENT

THE RETURN SURFACES OF THE TOP AND MIDDLE COVERS SHOULD BE FLUSH WITH THE FRONT SURFACE OF THE CABINET WITHIN $+0$ AND $-1/16$ INCHES.

TO ADJUST

WITH THE COVER HINGE BRACKET MOUNTING SCREWS FRICTION TIGHT, POSITION THE COVERS TO MEET THE REQUIREMENT. TIGHTEN SCREWS

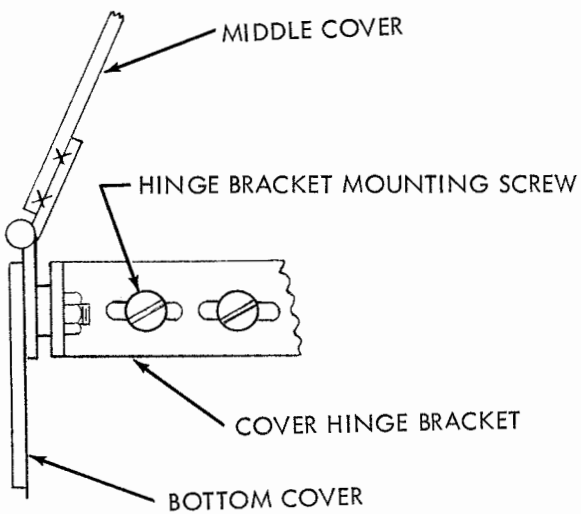
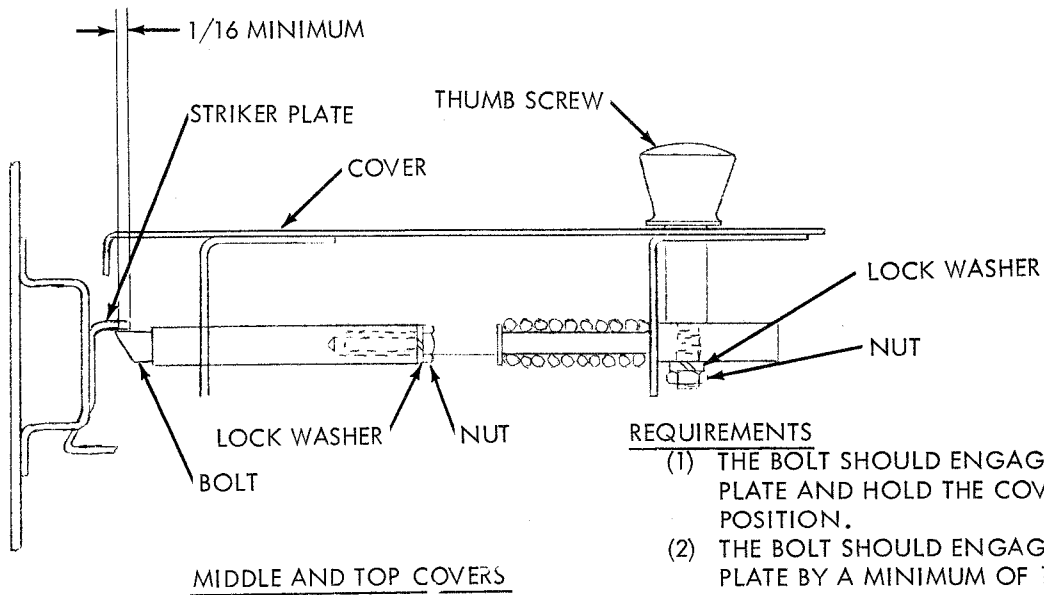


FIGURE 7. SURFACE ALIGNMENT - TOP AND MIDDLE COVERS

REQUIREMENTS

- (1) THE BOLT SHOULD ENGAGE THE STRIKER PLATE AND HOLD THE COVER IN THE CLOSED POSITION.
- (2) THE BOLT SHOULD ENGAGE THE STRIKER PLATE BY A MINIMUM OF 1/16 INCHES.

TO ADJUST

- (1.a) ON THE BOTTOM TWO COVERS POSITION THE STRIKER PLATE, WITH THE MOUNTING SCREWS FRICTION TIGHT, TOWARD THE FRONT OF THE CABINET. OPEN EACH COVER ABOVE AND POSITION THE STRIKER PLATE TO JUST TOUCH THE BOLT. MOVE THE THUMB SCREWS INWARD TO DISENGAGE THE BOLT FROM THE STRIKER PLATE AND OPEN THE COVER. TIGHTEN THE STRIKER PLATE MOUNTING SCREWS.
- (1.b) ON THE TOP COVER APPROXIMATE THE CORRECT POSITION FOR THE STRIKER PLATES AND CLOSE THE COVER. THE STRIKER PLATE SHOULD HOLD COVER SECURELY IN CLOSED POSITION. OPEN COVER AND ADJUST POSITION OF STRIKER PLATES TO MEET THE REQUIREMENT. TIGHTEN THE STRIKER PLATE MOUNTING SCREWS.
- (2) WITH THE THUMBSCREW REMOVED FROM THE EXTENSION, POSITION THE BOLT BY ROTATING THE EXTENSION IN THE REQUIRED DIRECTION. TIGHTEN THE NUT AND LOCKWASHER AGAINST THE BOLT. REPLACE THE THUMBSCREW.

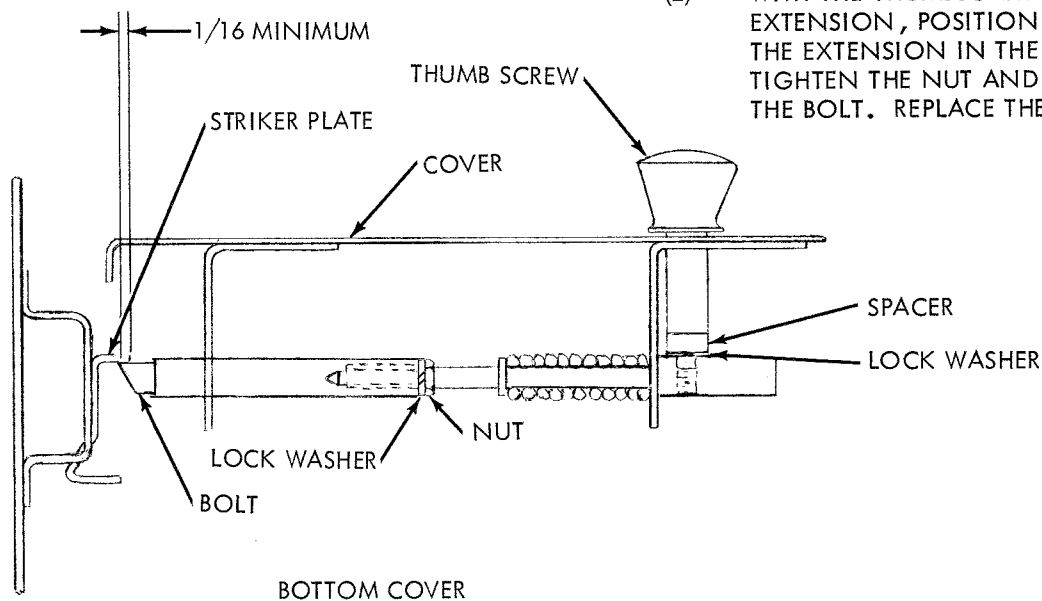
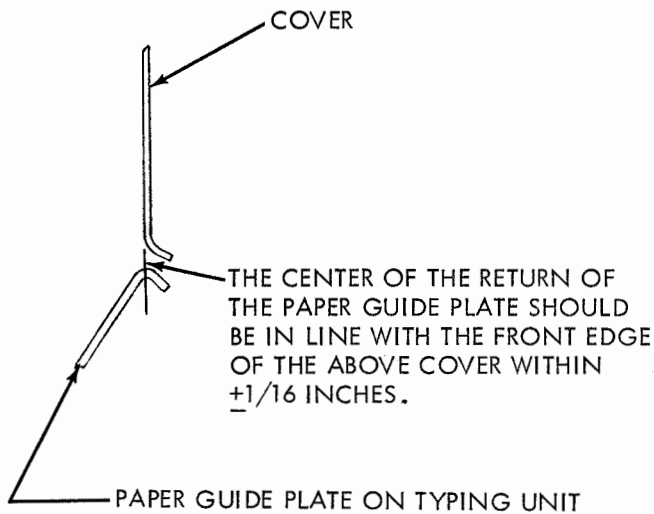


FIGURE 8. STRIKER PLATE AND LATCH ADJUSTMENTS (THREE LEVELS)

REQUIREMENT

WITH THE TYPING UNIT MOUNTED ON ITS BASE AND IN THE REARMOST POSITION, THE CENTER OF THE RETURN OF THE PAPER GUIDE PLATE SHOULD BE IN LINE WITH THE FRONT EDGE OF THE ABOVE COVER WITHIN $\pm 1/16$ INCHES

TO ADJUST

WITH THE SLIDE MOUNTING SCREWS FRICTION TIGHT, POSITION THE SLIDE, BASE, AND TYPING UNIT TO MEET THE ABOVE REQUIREMENT. TIGHTEN THE SLIDE MOUNTING SCREWS.

NOTE

ANY CHANGE IN THIS ADJUSTMENT WILL AFFECT THE CARRIAGE RETURN AND LINE FEED LEVER ADJUSTMENTS. IT WILL BE NECESSARY TO RECHECK THESE ADJUSTMENTS.

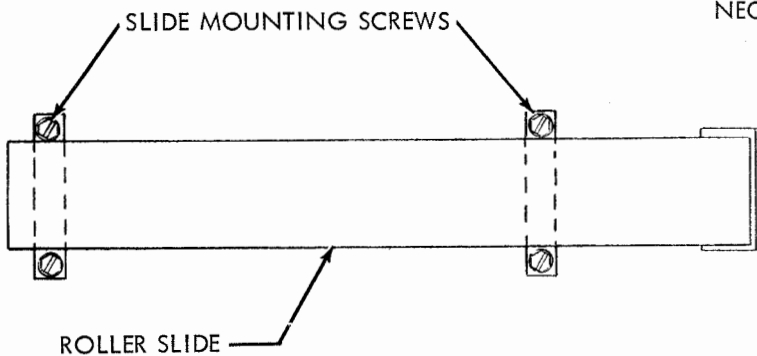
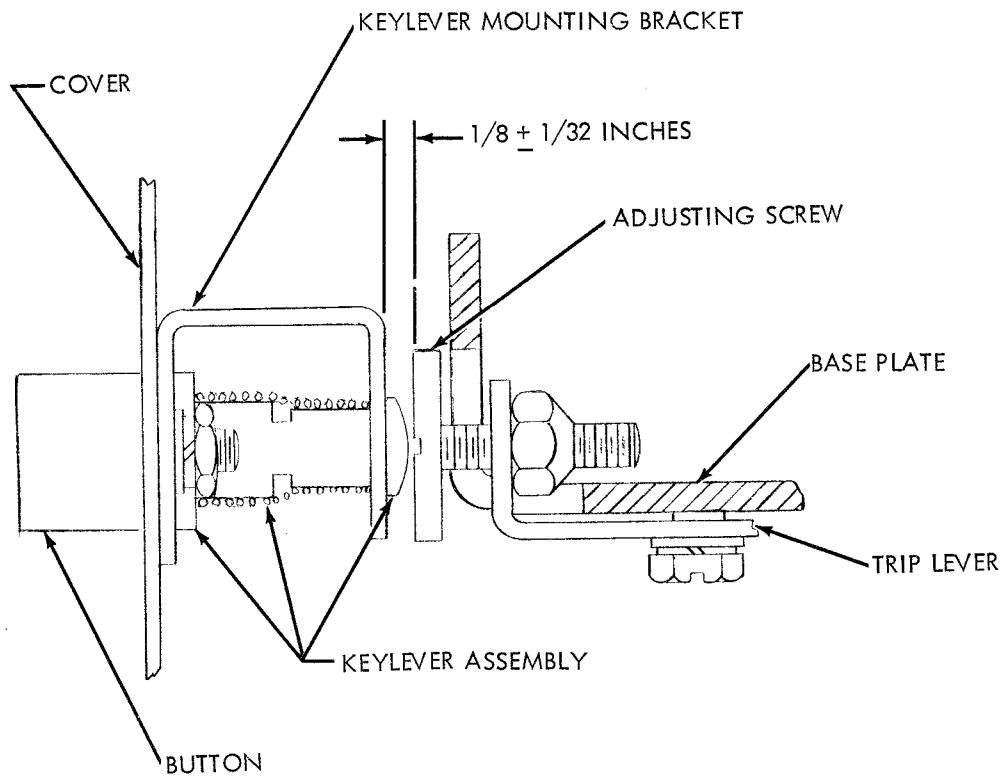


FIGURE 9. SLIDE ADJUSTMENT

REQUIREMENT

THE CLEARANCE BETWEEN THE LEVER ADJUSTING SCREW AND THE KEYLEVER MOUNTING BRACKET SHOULD BE $1/8 \pm 1/32$ INCHES.

TO ADJUST

DEPRESS KEYLEVER ASSEMBLY AND ROTATE IT 90 DEGREES. REMOVE KEYLEVER ASSEMBLY AND KEYLEVER SPRING. CLOSE THE COVER AND TURN THE LEVER ADJUSTING SCREW, ACCESSIBLE THROUGH THE HOLE IN THE COVER, TO MEET THE ABOVE REQUIREMENT, REPLACE THE KEYLEVER ASSEMBLY.

NOTE

THE SLOT IN THE ADJUSTING SCREW SHOULD BE HORIZONTAL AFTER ADJUSTING.

FIGURE 10. CARRIAGE RETURN AND LINE FEED LEVER ADJUSTMENT

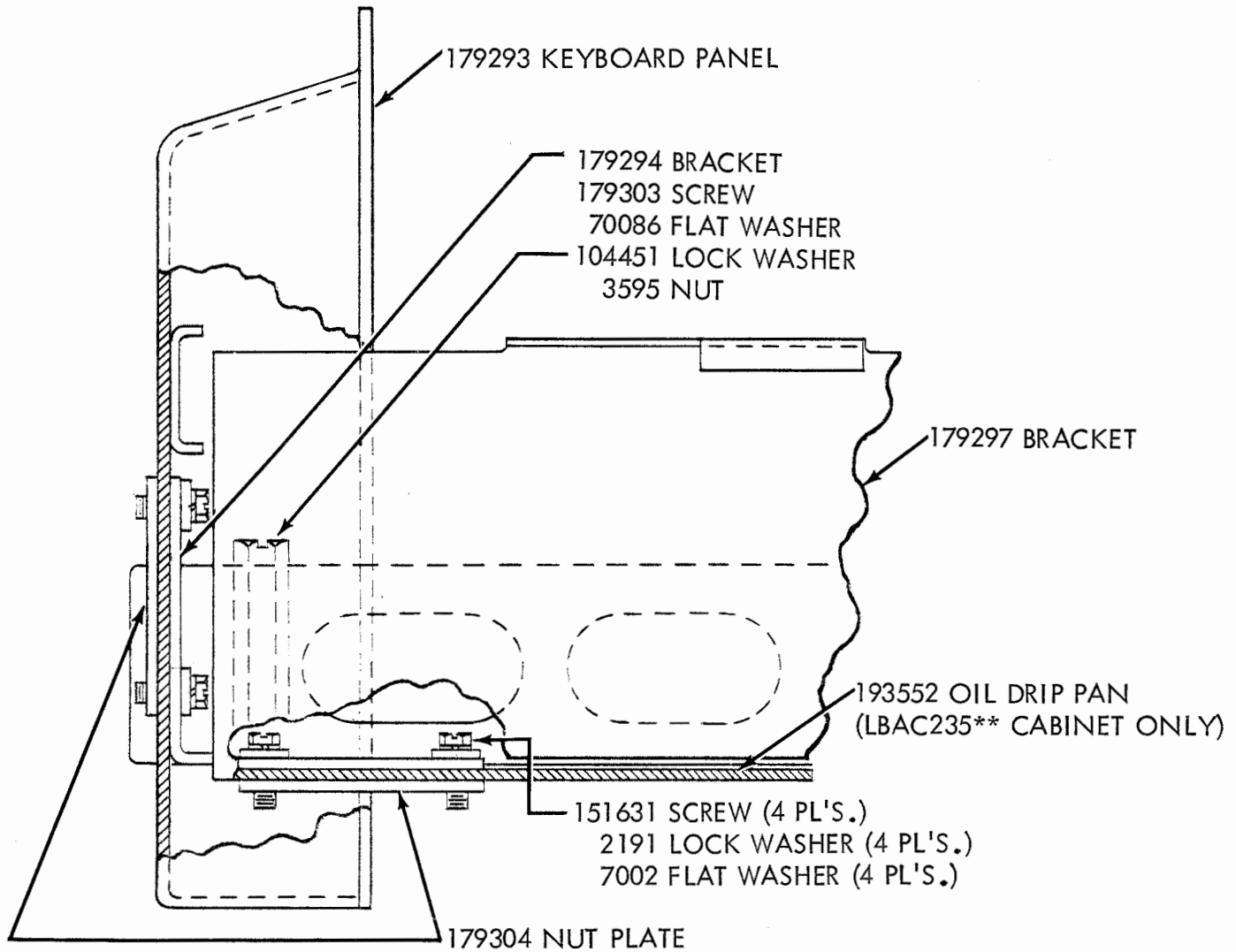
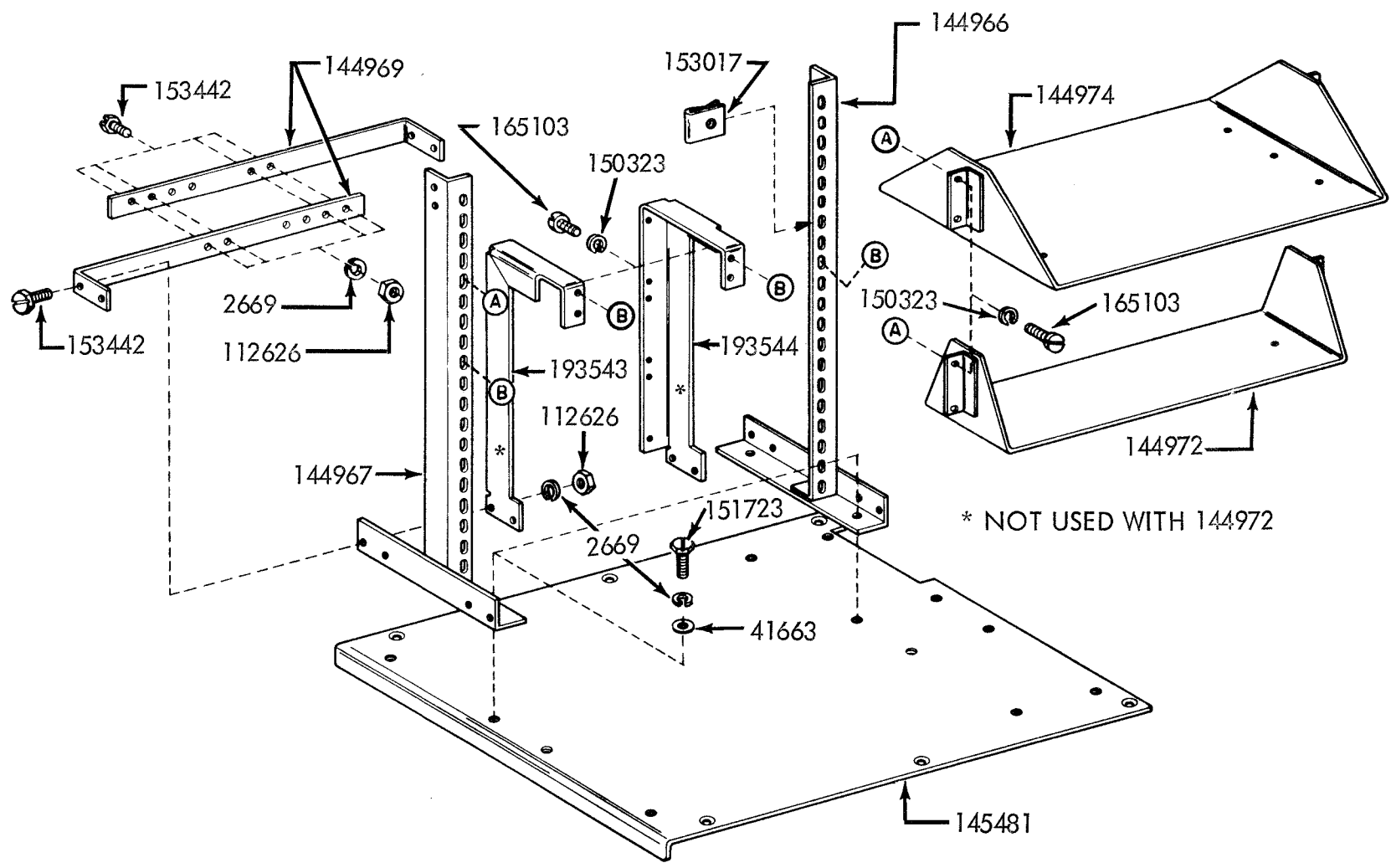


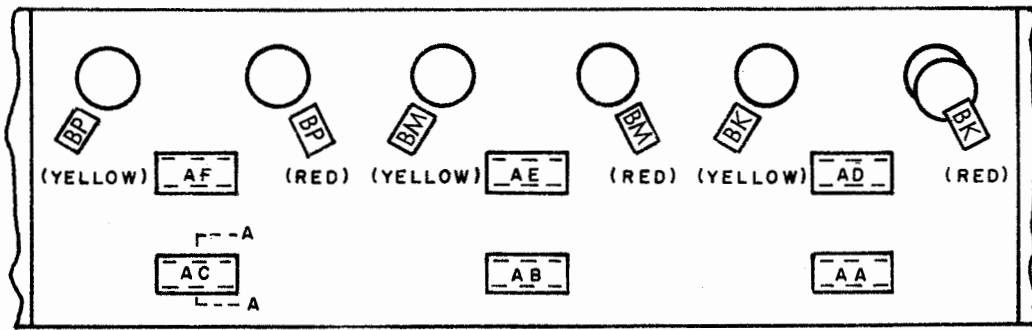
FIGURE 11. KEYBOARD PANEL ATTACHMENT

FIGURE 12. MOUNTING RACK ASSEMBLY



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PANEL ASSEMBLY
(REAR VIEW)

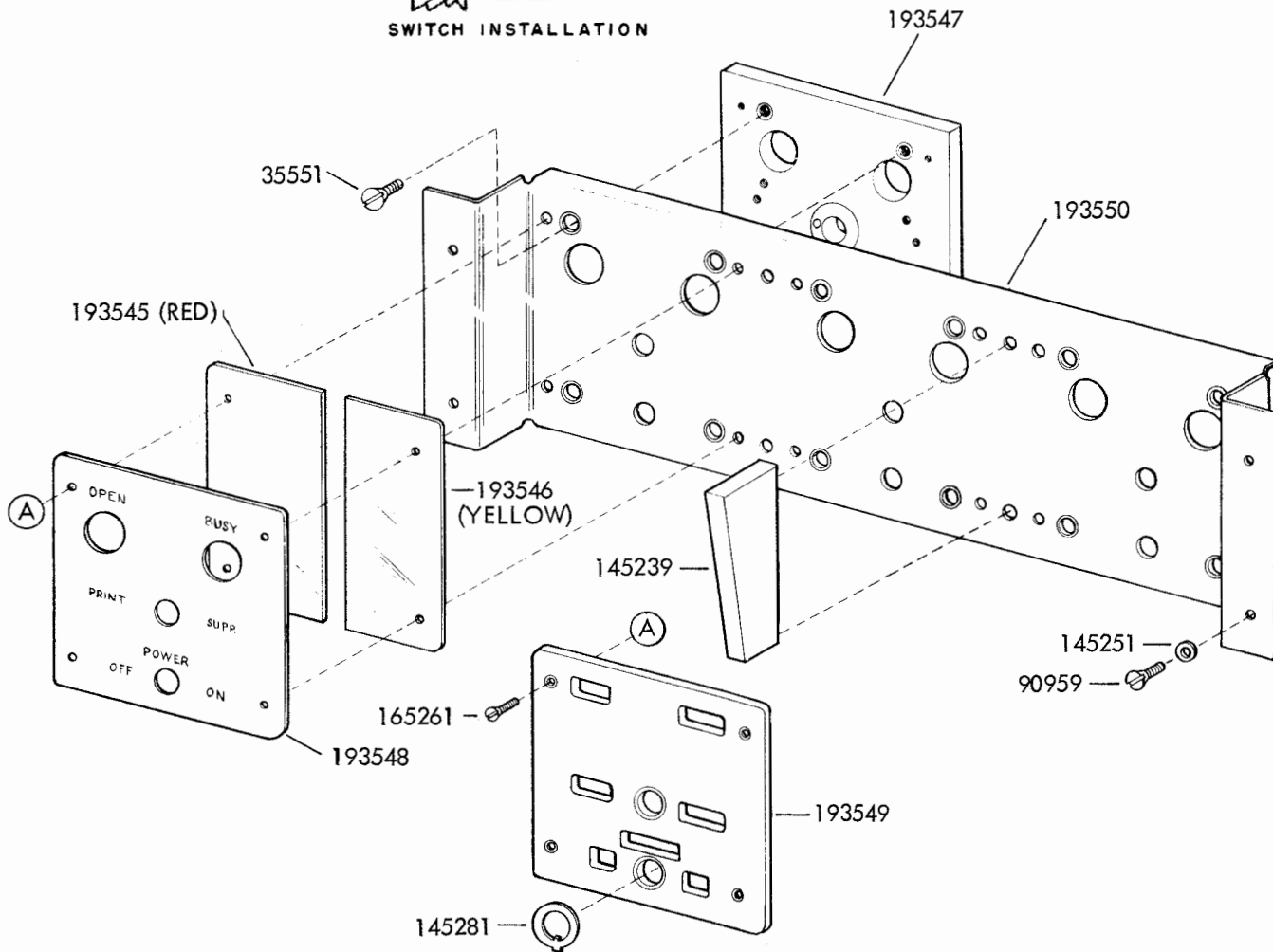
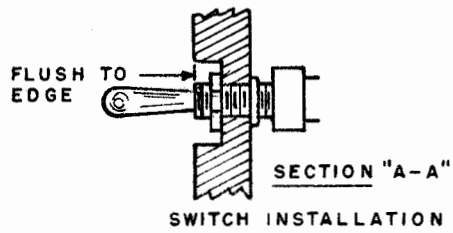


FIGURE 13. CONTROL PANEL ASSEMBLY

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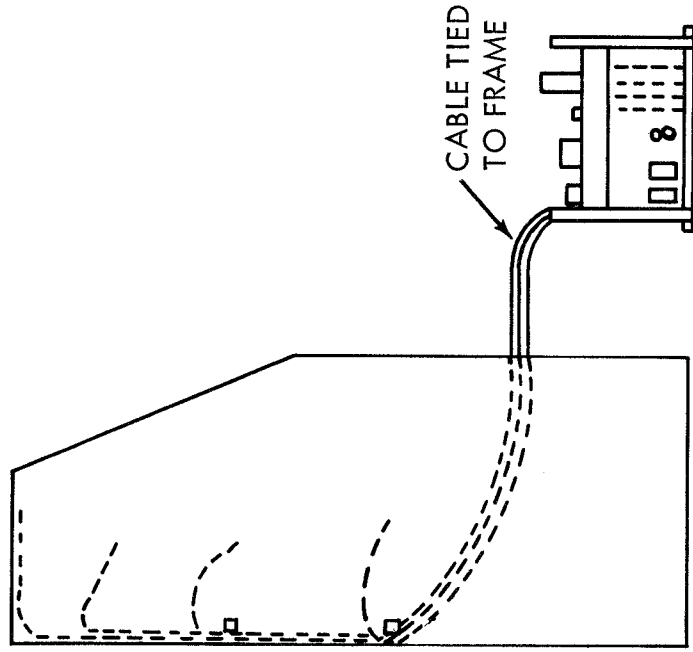
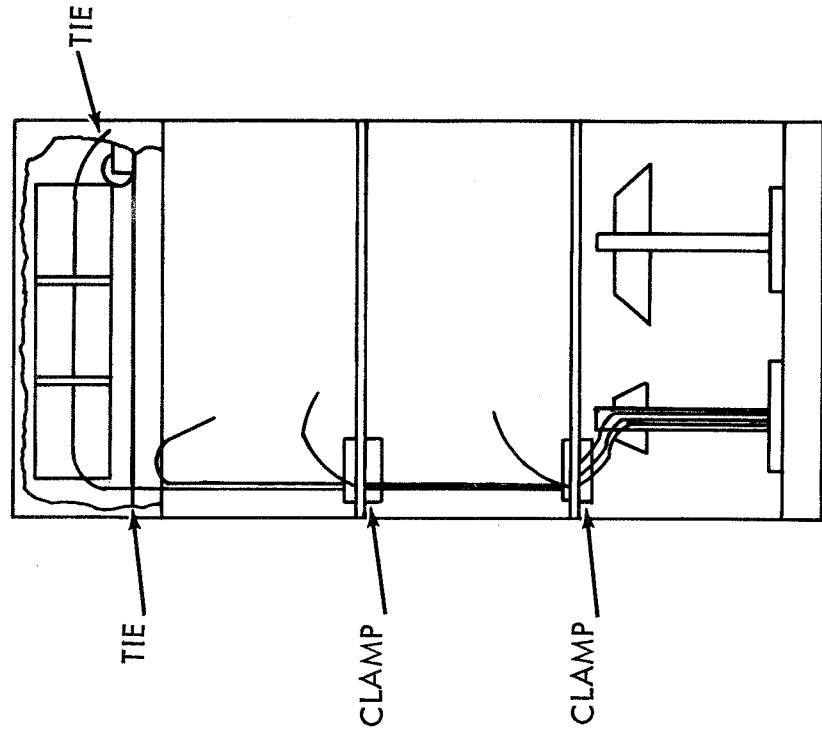


FIGURE 14. CABLE ROUTING

