142A AMPLIFIER
INPUT CIRCUIT VARIATIONS

CONTENTS PAGE

1. GENERAL

1.01 This section is issued to describe a number of variations in the input circuit of the 142A amplifier. The use of the circuits is described, and also the properties of the entire amplifier when these input arrangements are used. Some of these variations are available as standard 142B, 142C, or 142D amplifiers, as covered in Section 024-106-100, but are included for reasons stated below. Other arrangements must be assembled locally as required.

1.02 This section should aid materially where a customer's requirements may necessitate modification of an available model of the 142-type amplifier.

1.03 A description of the parts needed for the modifications, and instructions for mounting the components is included.

1.04 Several of the variations refer to the use of the 116B amplifier. A description of the latter is contained in Section 024-104-100.

2. CIRCUIT DESCRIPTION

2.01 Figs. 1A and 1B show a number of variations in the input circuit of the 142A amplifier. The use of each circuit will be described, and also the properties of the entire amplifier when these input arrangements are used. Information on source impedance is given in the chart. When no range of impedance is given, the latter may vary from the nominal value by ± 40% without appreciable change in the frequency characteristics.

Standard 142A Amplifier

2.02 This amplifier, as explained in Section 024-106-100, is basic to the series of the 142 type. As shipped, this amplifier provides for two high impedance input circuits. The electrical characteristics of this amplifier are given in Section 024-106-100.

Variation 1

2.03 This variation adds a 141A preamplifier. It is used when a low level transformer input is required for microphone or other low level inputs. This circuit is the same as that of the 142B amplifier, and its characteristics may be found in Section 024-106-100.

Variation 2

2.04 This variation adds a 618D input transformer. The latter has a single electrostatic shield between windings and may be used when a line level transformer input is required for connection to telephone lines or other sources of comparable level. This circuit is the same as that of the 142C amplifier and its characteristics are given in Section 024-106-100.

Variation 3

2.05 This variation adds a 618C input transformer. It may be used when a line level transformer input is required which may be operated from a large range of source impedances.

Gain - High gain input - provides approximately 70 db gain from a 600-ohm source.

Bridging input - provides approximately 57 db gain from a 600-ohm source.

Gain Control - Master potentiometer in 142A amplifier.

Variation 4

2.06 This variation adds a 285S input transformer which has double electrostatic shields between windings. It may be used in

place of the 618D input transformer of Variation 2 when a high quality balanced and shielded input circuit may aid in the reduction of noise when operating from telephone lines.

Gain - Approximately 65 db from 600-ohm source.

Variation 5

2.07 This variation adds one 116B preamplifier (see Paragraph 1.04) and its associated gain control. It may be used when one low level transformer input is required for operation from microphone or other low level device. The gain control potentiometer may be remotely located from the amplifier if desired.

Gain - Approximately 105 db.

Gain Control - Potentiometer associated with 116B preamplifier. Master potentiometer in 142A amplifier.

Variation 6

2.08 This variation adds two 116B preamplifiers and their associated gain controls. It is used when two low level transformer inputs are required for operation from low level devices. The two inputs may be operated simultaneously if necessary, or either may be cut off by means of the switch at the minimum gain end of the gain control potentiometer. The latter may be located at a distance from the amplifier if preferred.

Gain - Approximately 105 db.

Gain Control - On individual channels by potentiometers associated with 116B preamplifiers. Master potentiometer in 142A amplifier controls both channels.

Variation 7

2.09 This variation adds a 618C input transformer and a gain control potentiometer having 38 db of control in 2 db steps. It may be used in place of Variation 3 when a stepped gain control is required.

Gain - Approximately 68 db from 600-ohm source (high gain input).

Gain Controls - 38, 2 db steps and "OFF." Master potentiometer of 142A amplifier.

Variation 8

2.10 This variation adds a 116B preamplifier and a transformer. It may be used when a low level transformer input and also a line level transformer input are required. It consists of a combination of Variation 5 with Variation 2, 3 or 4, and the characteristics are the same as given for these variations.

Variation 9

2.11 This variation adds a 141A preamplifier, transformer, switch and potentiometer. It is used when a low level transformer input and also a line level transformer input are required, with a switch to choose between the two inputs. It consists of a combination of Variation 1 with Variation 2, 3 or 4, and the characteristics are the same as given for these variations. The arrangement using the 618D input transformer (combination of Variations 1 and 2) has the same circuit as the 142D amplifier, and its characteristics may be found in Section 024-106-100.

3. LIST OF PARTS

3.01 The items required for the several circuit variations are listed in Figs. 1A and 1B in somewhat abbreviated form. These items will be described in more detail. Suitable substitutes, of course, may be used.

3.02 Item 1 - 1 - KS-13625-L3 Cabinet. The latter is designed to mount a 142A, 142B or 142C amplifier.

3.03 Item 2 - 1 - KS-13625-L4 Cabinet. This cabinet differs from that in item 1 in that it has an extra cutout in the front cover for controls. It will mount the 142D amplifier or certain circuit variations of the 142A amplifier.

3.04 Item 3 - 1 - W.E. Co. 405B-15 Panel. This is an aluminum gray panel, 8-3/4" high, for use as a front mat when a 142-type amplifier is rack mounted.

3.05 Item 4 - 1 - Allen Bradley, Type JS, U4022, FS-2040 4000-ohm potentiometer with M2898 lockwasher and M2786 nut. This is the gain control for the 116B preamplifier when a short shaft (5/8") is required for cabinet use. It is a 4000-ohm potentiometer with a switch attached.

3.06 Item 5 - 1 - Allen Bradley, Type JS, U4022, FS-3232, 4000-ohm potentiometer with M2898 lockwasher and M2786 nut. This is the gain control for the 116B preamplifier when a long shaft (2-1/2") is required for rack use. It is a 4000-ohm potentiometer with a switch attached.

3.07 Item 6 - 1 - Allen Bradley, Type J, U5031, FS-2040, 50,000-ohm potentiometer with M2898 lockwasher and M2786 nut. This potentiometer is used in the output circuit of the 141A preamplifier in Variation 9 when a short shaft (5/8") is required for cabinet use.

3.08 Item 7 - 1 - Allen Bradley, Type J, U5031, FS-3232, 50,000-ohm potentiometer with M2898 lockwasher and M2786 nut. This potentiometer is used in the output circuit of the 141A preamplifier in Variation 9 when a long shaft (2-1/2") is required for rack use.

3.09 Item 8 - 1 - Mallory No. 3242J Switch. This is a rotary switch used in Variation 9 to switch between amplifier and transformer. It is furnished with a long shaft for rack use, which may be cut to length for cabinet use. A nut, lockwasher and knob is furnished with the switch.

3.10 Item 9 - This is a small chassis which must be obtained locally. See Fig. 2. It is the same as a 713A apparatus unit less the transformer, backplate and miscellaneous hardware. It may be used for mounting potentiometers, switch and transformers. Four 8/32" x 3/8" round head machine screws and lockwashers are required to attach this chassis to the 142A amplifier.

3.11 Item 10 - 1 - Kurz-Kasch No. 292-3L Knob. This is used with any of the potentiometers, items 4 to 7, and is the same as the knob supplied with the switch, item 8.

3.12 Item 11 - 1 - Tech.-Lab. No. A 1330-2 Attenuator. This is a stepped attenuator, 19 steps of 2 db each and "OFF" position, 250,000 ohms, with designation plate and with a short shaft (5/8") for cabinet use.

3.13 Item 12 - 1 - Tech.-Lab. No. A - 1330-1 Attenuator. This is the same as item 11 except that a long shaft (2-1/4") is furnished for rack use.

3.14 Item 13, Mounting - When a 618-type input transformer is to be mounted, the following hardware is required:

1 - Aerovox Mounting Ring, Type E, 1-1/2" diameter
1 - 6/32 x 1-1/4" round head machine screw
2 - 6/32 x 3/8" round head machine screws
3 - 6/32 nuts and lockwashers

3.15 Item 14, Bracket - This is the bracket shown in Fig. 3. It must be fabricated locally and may be attached to the chassis of the 142A amplifier in place of a 713-type apparatus unit and used to mount two potentiometers or one switch and one potentiometer. Four - 8/32 x 3/8" round head machine screws and lockwashers are required to attach the bracket to the amplifier chassis.

3.16 Item 15 - 1 - Mallory UB241 Bushing and Nut. This is a bushing to mount in a 13/32" hole and accommodates a 1/4" shaft. It should be used in the 405B-15 panel when the long shafts of potentiometers, etc., extend through this panel.

4. MOUNTING ARRANGEMENTS

4.01 Provision is made to mount additional equipment on the input end of the 142A amplifier in two removable plates and in several extra mounting holes in the chassis. A 141A preamplifier may be mounted in place of the two removable plates; a 116B preamplifier may be mounted in place of either of the plates; and the under side of the plates is marked with drilling instructions for mounting transformers, potentiometers, and switches. The extra holes in the chassis may be used to mount two potentiometers or one switch and one potentiometer. A 713-type apparatus unit may be mounted in place of one of the removable plates or over the extra mounting holes in the chassis.

4.02 The following gives detailed instructions for mounting the equipment required for the input circuit arrangements shown in the chart in Figs. 1A and 1B. In this chart, each circuit has accompanying diagrams showing the location of the extra equipment for cabinet or rack mounting of the 142A amplifier, and reference to mounting instructions given in this section. The item numbers referred to are indicated under "Components Required."

4.03 Tools which may be required for this work are standard screwdrivers and wrenches, a No. 8 Allen wrench for the set screws in the knobs and a small Phillips screwdriver. In some cases a means of drilling holes in metal panels will be required.

Mounting Instruction A - Rack Mounted 142A Amplifier

4.04 When the 142A amplifier is to be rack mounted, a 405B-15 panel is used as a front mat. Since the 142A amplifier, as shipped, has its power switch and volume control on the side of the chassis in a position for cabinet mounting, it is necessary to rotate these controls 90° to a position where they will be available through the cutout in the 405B-15 panel. This may be done as follows:

(a) Remove the knob of the volume control by loosening its set screw with a No. 8 Allen wrench.

(b) Remove the etched plate by removing the four No. 4 screws holding it in position. This loosens the bracket holding the controls.

(c) The bracket should now be rotated 90° to its mounting position on the two mounting spacers on the chassis. Two No. 8 screws furnished with the 405B-15 panel should be passed through these spacers and into the tapped holes in the bracket.

(d) Fasten the etched plate to the bracket with the four No. 4 screws removed in step 2, and replace the volume control knob.

(e) The holes in the chassis through which the controls formerly protruded should be closed with the plug buttons supplied with the 405B-15 panel.

4.05 The rear of the 405B-15 panel is marked with drilling information for holes that are in line with certain mounting holes on the amplifier. This is for use only when additional parts are mounted on the chassis as described below.

Mounting Instructions B - 141A Amplifier

4.06 To mount a 141A preamplifier on the 142A amplifier chassis, first remove the two blank cover plates near the input end of the chassis. The 141A preamplifier is mounted in place of these plates on top of the chassis, and oriented so that the input transformer is toward the end of the chassis. This input transformer may be rotated for minimum hum pickup. Mounting screws, lockwashers and plain washers are furnished with the 141A preamplifier.

Mounting Instruction C - 116B Amplifier

4.07 One or two 116B preamplifiers may be mounted on the 142A amplifier chassis, each in place of one of the blank cover plates on the chassis. Remove the cover plate and place the 116B preamplifier in its place on top of the chassis, with the input transformer toward the end of the chassis. This input transformer may be rotated for minimum hum pickup. Mounting screws and washers are furnished with the 116B preamplifier.

Mounting Instruction D - 713-Type Apparatus Units

4.08 The 713A apparatus unit may be mounted in place of either of the blank cover plates or beside the cover plates adjacent to the front edge of the chassis where the controls are located. Four screws are furnished with the apparatus unit as mounting screws.

4.09 The 713B apparatus unit should be mounted only in the position at the edge of the chassis, so that the switch on this unit is available from the front when the amplifier is mounted in a cabinet. The potentiometer in this apparatus unit is normally mounted on top of the unit with the transformer, and is accessible only by removing the front of the cabinet. If this control is wanted in a position accessible from the outside, it may be moved to the side of the apparatus unit as follows:

(a) Remove the knob from the potentiometer.

(b) Remove the potentiometer from its position in the top of the apparatus unit, and bend back the locating tab.

(c) Remove the designation plate from the side of the apparatus unit, uncovering an additional hole in the side in which the potentiometer may be mounted. The reverse side of the designation plate is etched for use with two controls. A 3/4" hole should be cut in this plate so that both controls may project through the plate.

(d) Replace the plate with the reverse side showing, and replace the knobs.

Mounting Instruction E - 618-Type Input Transformer

4.10 A 618-type input transformer may be mounted on either of the blank cover plates. The plate must be drilled in accordance with the marking on its under side. The transformer is held in place by an Aerovox Type E, 1-1/2" diameter mounting ring, held tight with a 6/32 x 1-1/4" round head machine screw and associated nut and lockwasher. The mounting ring is fastened to the plate by two 6/32 x 3/8" round head machine screws, nuts and lockwashers. This transformer may be rotated for minimum hum pickup.

Mounting Instruction F - Potentiometers and Switch

4.11 The 4000-ohm potentiometer (item 4 or 5), 50,000-ohm potentiometer (item 6 or 7), and switch (item 8) are similar in mechanical, form and mounting requirements. When the amplifier is to be cabinet mounted, any one or two of these units, with short shafts, may be mounted in a chassis, item 9, or a bracket, item 14. The potentiometer or switch is placed in the bracket

with the shaft extending through an existing hole in the side of the bracket and held in place with its lockwasher and nut. The knob is then fastened to the shaft and the bracket fastened to the amplifier as described in Mounting Instruction D.

4.12 When the amplifier is to be rack mounted, the potentiometer or switch must have a long shaft. Three holes are available in the amplifier chassis next to the cover plates normally closed with plug buttons. The center hole is for wiring, and either of the others may be used for mounting purposes. The potentiometer or switch is mounted so that the long shaft extends through the front panel. The 405B-15 panel is marked on the rear with drilling information for shaft holes which line up with the mounting holes in the amplifier chassis. Bushings, item 15, should be used in these holes to support the shaft.

4.13 The removable cover plates are marked with drilling information for potentiometer or switch, but no provision is made for carrying shafts from these through the front panel. If controls are mounted in these positions, short shafts should be used, extending through the top of the chassis. These controls will be available only from the rear of a rack, or by removing the front panel of a cabinet.

Mounting Instruction G - 285-Type Input Transformer

4.14 A 285-type input transformer may be mounted on one of the removable cover plates or on item 9. Drilling information is specified on the back of the plate, except that the 285S input transformer requires an additional hole as shown in Fig. 2. The transformer should be fastened to the plate with two No. 8/32 x 3/8" screws.

Mounting Instruction H - Attenuator, Item 11 or 12

4.15 This attenuator, used in Variation 7, is arranged for single hole mounting and is supplied complete with designation plate. The knob, item 10 is not furnished with the attenuator. The attenuator may be obtained with long (item 12) or short (item 11) shaft for rack or cabinet mounting respectively.

4.16 For cabinet mounting, it may be mounted on a chassis, item 9, or a bracket, item 14. For rack mounting, it may be mounted through either end hole of the three holes in the chassis next to the cover plates, with the shaft extending through the front panel. The 405B-15 panel is marked on the rear with drilling information for shaft holes which line up with the mounting holes in the amplifier chassis. A bushing, item 15, should be used in this hole to support the shaft and hold the designation plate in place.

Mounting Instruction J - Equipment for Variation 9

4.17 Equipment for Variation 9 varies according to which type of transformer is to be used. A chassis, item 9, is required to mount the transformer because the 141A preamplifier occupies the space where the transformer is mounted in Variations 2, 3 and 4.

The equipment required is as follows:

Cabinet Mtg.	Rack Mtg.
1 - Cabinet, Item 2	1 - Panel, Item 3
1 - 141A Amplifier	1 - 141A Amplifier
1 - 6J7 Electron Tube	1 - 6J7 Electron Tube
1 - 6SN7 " "	1 - 6SN7 " "
*1 - Chassis, Item 9	**1 - Chassis, Item 9
*1 - Potentiometer, Item 6	1 - Potentiometer, Item 7
*1 - Switch, Item 8	1 - Switch, Item 8
	2 - Designation Plates for Items 7 and 8
*1 - Knob, Item 10	1 - Knob, Item 10
*1 - Set of equipment listed for Variation 2, 3 or 4, less cabinet	2 - Bushings, Item 15
	**1 - Set of equipment listed for Variation 2, 3 or 4, less panel

*If Variation 2 is to be used, a 713B apparatus unit may be used in place of these items.

**If Variation 2 is to be used, these items may be obtained assembled as a 713A apparatus unit.

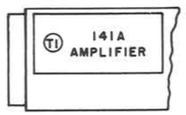
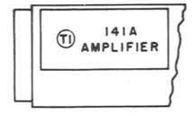
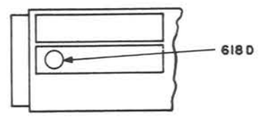
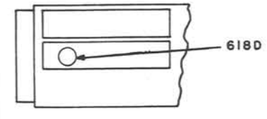
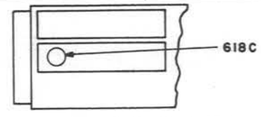
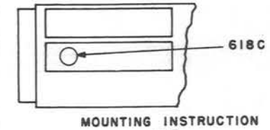
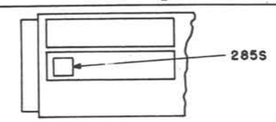
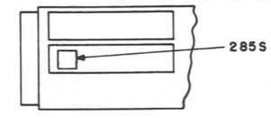
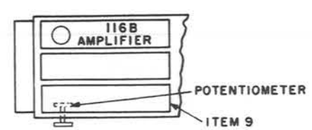
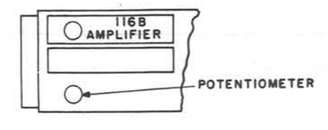
4.18 For cabinet mounting, the equipment is assembled according to Mounting Instructions B, D, F and E or G depending on the transformer used.

4.19 For rack mounting, the equipment is assembled according to Mounting Instructions A, B, D, F and E or G. It should be noted that the switch and potentiometer are first mounted in the mounting holes in the amplifier chassis, and then the chassis, item 9 or 713A apparatus unit is mounted over them.

5. WIRING

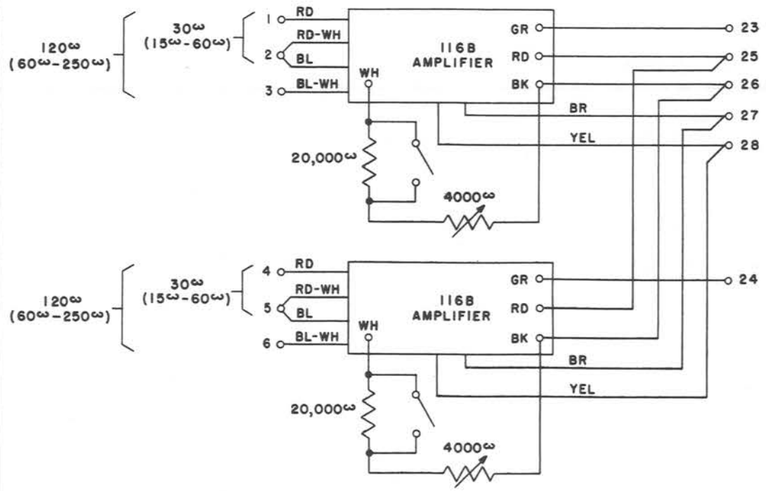
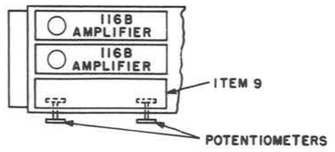
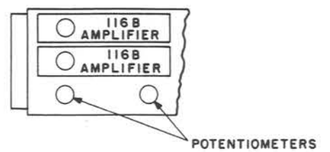
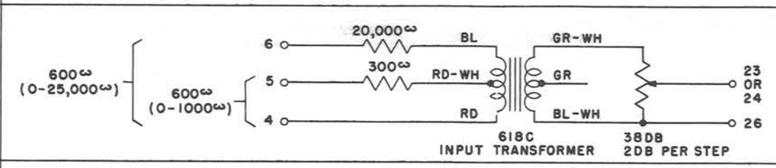
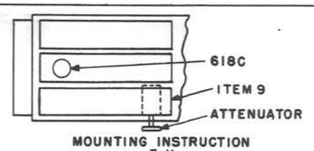
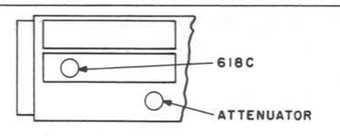
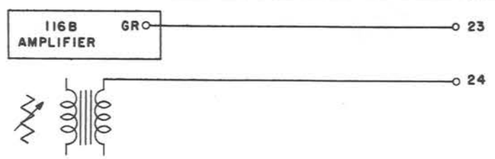
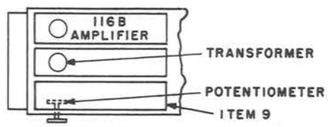
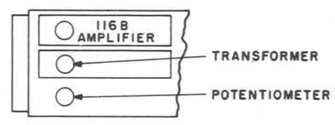
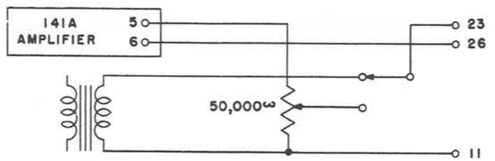
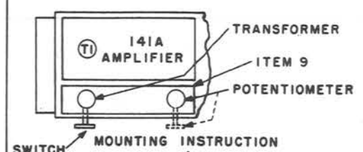
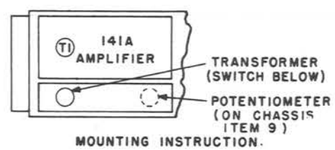
5.01 The various input arrangements may all be wired with straps on the 142A chassis. Variation 1 to Variation 7 have complete connections shown in the circuits on Figs. 1A and 1B, and may be wired accordingly. Variation 8 and Variation 9 have only part of the connections shown. Wiring not shown in Variation 8 should be the same as in Variation 5 and Variation 2, 3, or 4. Wiring not shown in Variation 9 should be the same as Variation 1 and Variation 2, 3, or 4.

5.02 The wiring for Variation 3 or 7 will be facilitated if the resistors in series with the primary of the 618C input transformer are wired using spare input terminals of the 142A amplifier as tie-points for the ends of the resistors connected to the transformer.

VARIATION	SCHEMATIC	CABINET MOUNTING POSITION	CABINET MOUNTING MATERIAL REQUIRED	RACK MOUNTING POSITION	RACK MOUNTING MATERIAL REQUIRED
STANDARD 142A AMPLIFIER	0-250,000ω 600ω NOMINAL → 9 OR 10, 11	NORMAL	1 – CABINET, ITEM 1	MOUNTING INSTRUCTION A	1 – PANEL, ITEM 3
VARIATION 1 (CIRCUIT OF 142B AMPLIFIER)	600ω: 30ω (1,2), 250ω (2,3); 141A AMPLIFIER 1,2,3,8,7,5,6,4 → 23, 26, 25, 27, 28	 MOUNTING INSTRUCTION B	1 – CABINET, ITEM 1 1 – 141A AMPLIFIER 1 – 6J7 VACUUM TUBE 1 – 6SN7 VACUUM TUBE	 MOUNTING INSTRUCTION A,B	1 – PANEL, ITEM 3 1 – 141A AMPLIFIER 1 – 6J7 VACUUM TUBE 1 – 6SN7 VACUUM TUBE
VARIATION 2 (CIRCUIT OF 142C AMPLIFIER)	600ω: 150ω (8,7), 150ω (6,5), 37.5ω (5,4); 618D INPUT TRANSFORMER GR, BL-WH, BL, RD-WH, RD, BR, GR, GR-WH → 24, 26	 MOUNTING INSTRUCTION E	1 – CABINET, ITEM 1 1 – 618D INPUT TRANSFORMER 1 – MOUNTING, ITEM 13	 MOUNTING INSTRUCTION A,E	1 – PANEL, ITEM 3 1 – 618D INPUT TRANSFORMER 1 – MOUNTING, ITEM 13
VARIATION 3	600ω (0-25,000ω); 600ω (0-1000ω); 20,000ω (6), 300ω (5), 4; 618C INPUT TRANSFORMER BL, RD-WH, RD, GR-WH, GR, BL-WH → 24, 26	 MOUNTING INSTRUCTION E	1 – CABINET, ITEM 1 1 – 618C INPUT TRANSFORMER 1 – 20,000ω, 1/2 WATT RESISTOR 1 – 300ω, 1/2 WATT RESISTOR 1 – MOUNTING, ITEM 13	 MOUNTING INSTRUCTION A,E	1 – PANEL, ITEM 3 1 – 618C INPUT TRANSFORMER 1 – 20,000ω, 1/2 WATT RESISTOR 1 – 300ω, 1/2 WATT RESISTOR 1 – MOUNTING, ITEM 13
VARIATION 4	600ω: 6, 5, 4; 285S INPUT TRANSFORMER RD, RD-WH, BL, GR, BL-WH, BK → 24, 26	 MOUNTING INSTRUCTION G	1 – CABINET, ITEM 1 1 – 285S INPUT TRANSFORMER 2 – 8-32x3/8 ROUND HEAD MACHINE SCREW	 MOUNTING INSTRUCTION A,G	1 – PANEL, ITEM 3 1 – 285S INPUT TRANSFORMER 2 – 8-32x3/8 ROUND HEAD MACHINE SCREW
VARIATION 5	120ω (60ω-250ω); 30ω (15ω-60ω); 1,2,3; 116B AMPLIFIER WH; GR, RD, BK, BR, YEL → 23, 25, 26, 27, 28; 20,000ω; 4000ω	 MOUNTING INSTRUCTION C,F	1 – CABINET, ITEM 2 1 – 116B AMPLIFIER 1 – POTENTIOMETER, ITEM 4 1 – 20,000ω, 1/2 WATT RESISTOR 1 – KNOB, ITEM 10 1 – BRACKET, ITEM 9 (OR 14) 1 – 1612 VACUUM TUBE	 MOUNTING INSTRUCTION A,C,F	1 – PANEL, ITEM 3 1 – 116B AMPLIFIER 1 – POTENTIOMETER, ITEM 5 1 – 20,000ω, 1/2 WATT RESISTOR 1 – KNOB, ITEM 10 1 – BL-148185 DESIGNATION PLATE 1 – 1612 VACUUM TUBE 1 – BUSHING, ITEM 15

NOTE 1 : ALL NUMBERED TERMINALS ARE ON THE 142-TYPE AMPLIFIER, EXCEPT THOSE INDICATED ON THE 141A AMPLIFIER.

Fig. 1A —142 Type Amplifier Input Circuit Variations (Sheet 1)

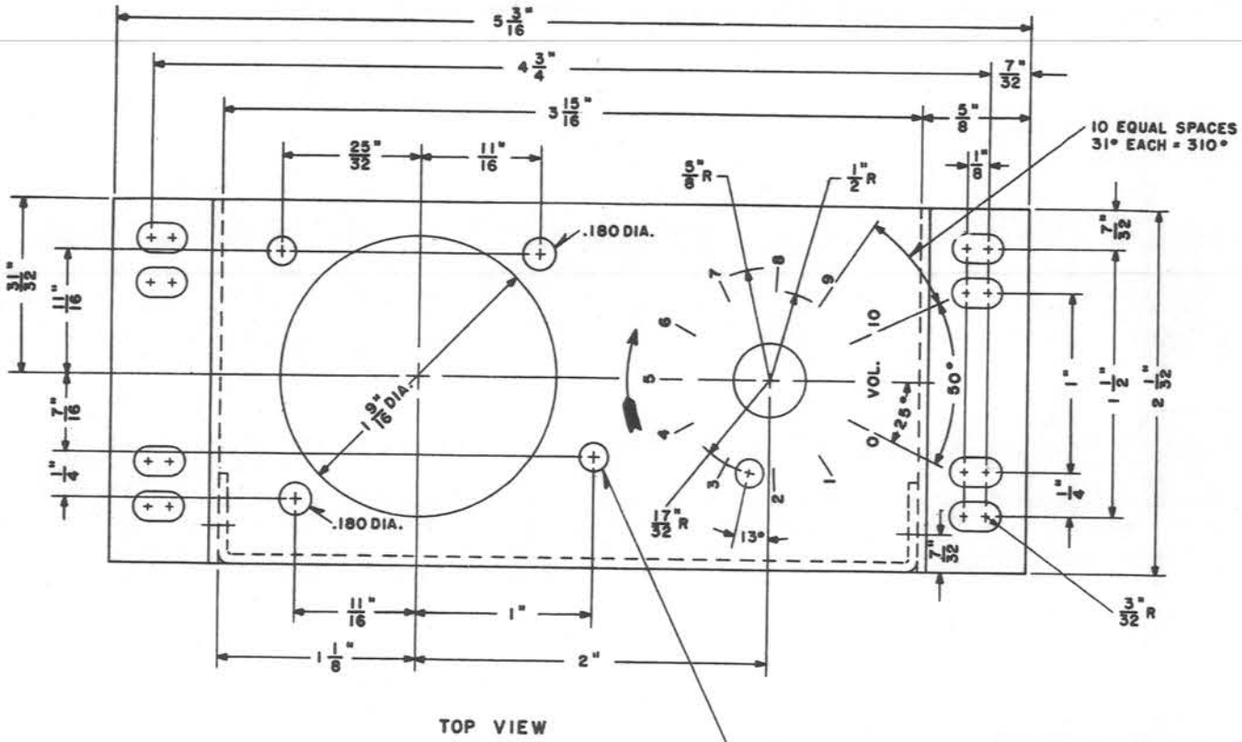
VARIATION	SCHEMATIC	CABINET MOUNTING POSITION	CABINET MOUNTING MATERIAL REQUIRED	RACK MOUNTING POSITION	RACK MOUNTING MATERIAL REQUIRED
VARIATION 6		 MOUNTING INSTRUCTION C,F	1 - CABINET, ITEM 2 2 - 116B AMPLIFIERS 2 - POTENTIOMETERS, ITEM 4 2 - 20,000ω, 1/2 WATT RESISTORS 2 - KNOBS, ITEM 10 1 - BRACKET, ITEM 9 (OR 14) 2 - 1612 VACUUM TUBES	 MOUNTING INSTRUCTION A,C,F	1 - PANEL, ITEM 3 2 - 116B AMPLIFIERS 2 - POTENTIOMETERS, ITEM 5 2 - 20,000ω, 1/2 WATT RESISTORS 2 - KNOBS, ITEM 10 2 - BL-148185 DESIGNATION PLATES 2 - 1612 VACUUM TUBES 2 - BUSHINGS, ITEM 15
VARIATION 7		 MOUNTING INSTRUCTION E,H	1 - CABINET, ITEM 2 1 - 618C INPUT TRANSFORMER 1 - 20,000ω, 1/2 WATT RESISTOR 1 - 300ω, 1/2 WATT RESISTOR 1 - ATTENUATOR, ITEM 11 1 - BRACKET, ITEM 9 (OR 14) 1 - KNOB, ITEM 10	 MOUNTING INSTRUCTION A,E,H	1 - PANEL, ITEM 3 1 - 618C INPUT TRANSFORMER 1 - 20,000ω, 1/2 WATT RESISTOR 1 - 300ω, 1/2 WATT RESISTOR 1 - ATTENUATOR, ITEM 12 1 - BUSHING, ITEM 15 1 - KNOB, ITEM 10
VARIATION 8 (VARIATION 5 PLUS VARIATION 2,3,OR 4)		 MOUNTING INSTRUCTION C,E,F,G	1 - SET OF EQUIPMENT LISTED FOR VARIATION 5 1 - SET OF EQUIPMENT LISTED FOR VARIATION 2,3,OR 4, LESS CABINET	 MOUNTING INSTRUCTION A,C,E,F,G	1 - SET OF EQUIPMENT LISTED FOR VARIATION 5 1 - SET OF EQUIPMENT LISTED FOR VARIATION 2,3,OR 4, LESS PANEL
VARIATION 9 (VARIATION 1 PLUS VARIATION 2,3,OR 4 PLUS POTENTIOMETER AND SWITCH)		 MOUNTING INSTRUCTION J	SEE MOUNTING INSTRUCTION J	 MOUNTING INSTRUCTION J	SEE MOUNTING INSTRUCTION J

NOTE 1: ALL NUMBERED TERMINALS ARE ON THE 142-TYPE AMPLIFIER, EXCEPT THOSE INDICATED ON THE 141A AMPLIFIER.

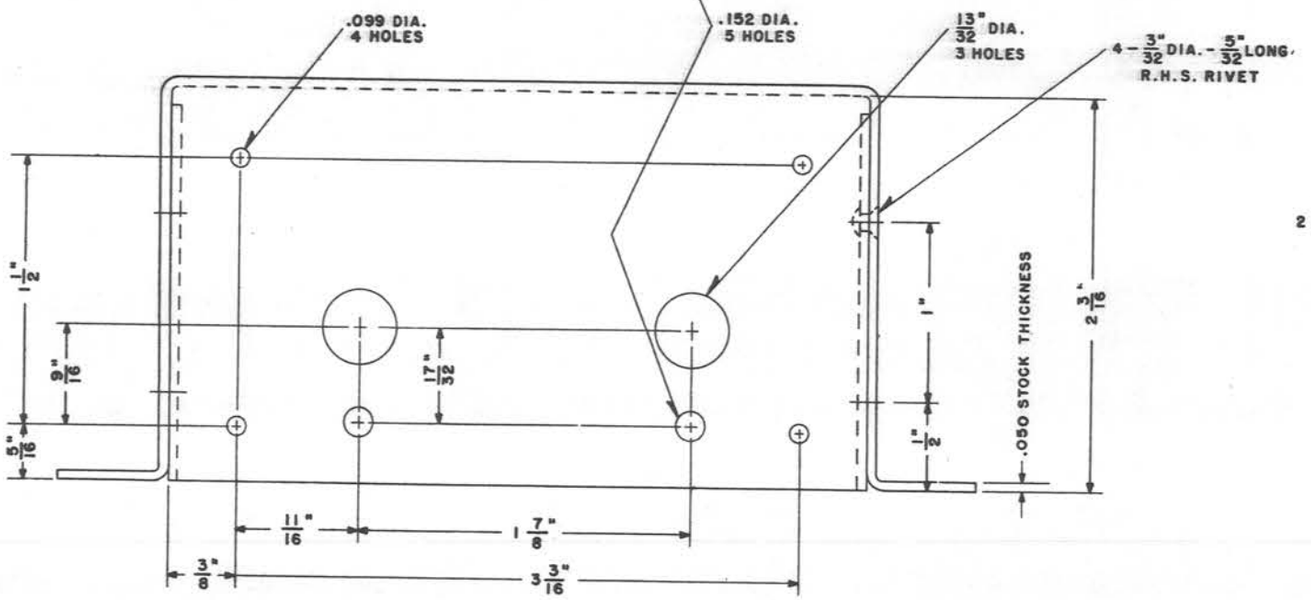
Fig. 1B—142 Type Amplifier Input Circuit Variations (Sheet 2)

NOTES:

1. ALL BENDING RADII 1/16 INCH.
2. LOCATE CHARACTERS CENTRALLY APPROXIMATELY AS SHOWN.
3. EXCEPT FOR SIZE OF RAW MATERIAL, LIMITS ARE AS FOLLOWS: DECIMALS AND FRACTIONS ±.010, ANGULAR ± 1°

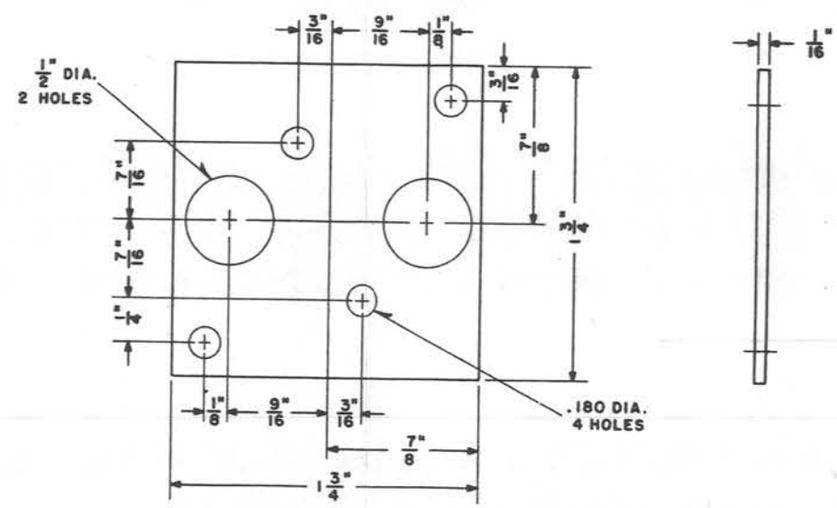


TOP VIEW



FRONT VIEW
CHASSIS

MATERIAL: COLD ROLLED STEEL



PLATE

MATERIAL: COLD ROLLED STEEL

Fig. 2 - 142A Amplifier Special Chassis and Adapter Plate

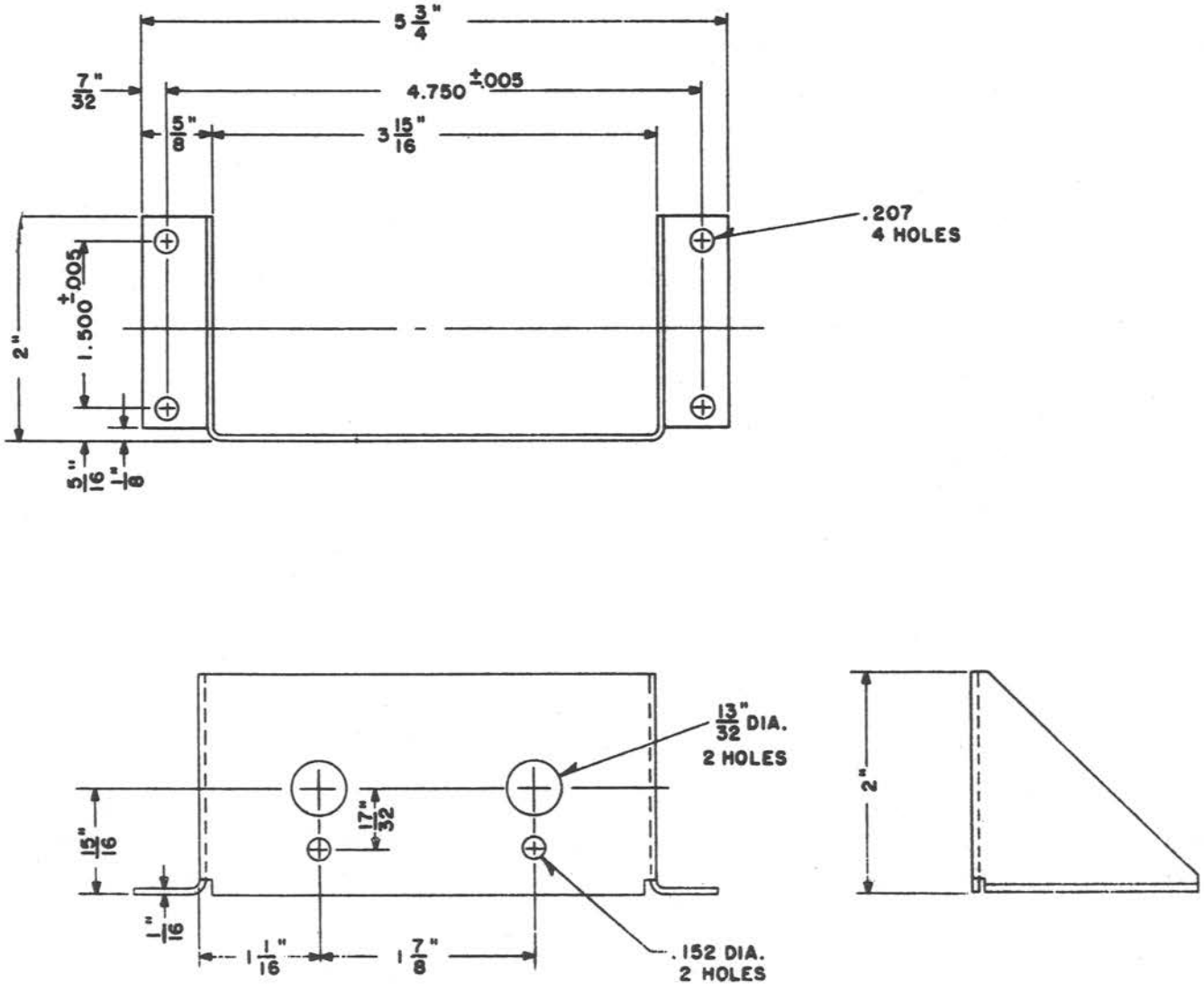


Fig. 3 - 142A Amplifier Special Potentiometer and Switch Bracket