

Figure 1: Models 691A/692A

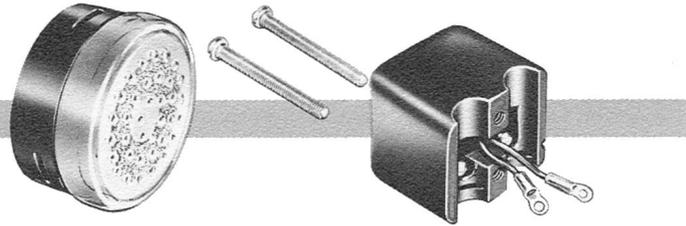


Figure 2: Models 693A/694A

SPECIFICATIONS:	<u>691A AND 693A</u>	<u>692A AND 694A</u>
FREQUENCY RESPONSE:	Essentially uniform, 70 - 6,000 cycles	Essentially uniform, 70 - 6,000 cycles
SENSITIVITY:	-3 dbm for 10 dynes/cm ² (Z _L =100Ω); -38 db ref. to 1v re: 1 dyne/cm ² (open circuit voltage)	-3 dbm for 10 dynes/cm ² (Z _L =470Ω); -38 db ref. to 1v re: 1 dyne/cm ² (open circuit voltage)
MAXIMUM OUTPUT:	1v (rms) at clipping level into 100Ω load; 3v (rms) at clipping level into 330Ω load.	2.25v (rms) at clipping level into 470Ω load; 4v (rms) at clipping level into 5000Ω load.
GAIN VARIATION:	<u>Fixed Load</u> (100Ω): With 5 to 18v supply, ±1 db; with 3.5v supply, -3 db. <u>Fixed Supply</u> (21v): With 200Ω to 1100Ω load, ±1 db; with 1500Ω load, -3 db.	<u>Fixed Load</u> (470Ω): With 30 to 48v supply, ±1 db. <u>Fixed Supply</u> (48v): With 470Ω to 10,000Ω load, ±1 db.
LOAD IMPEDANCE:	100Ω to infinity	470Ω to infinity
POWER SUPPLY REQ:	14vdc (max. term. voltage) @ 30 ma; 3.5vdc @ 15 ma.	40vdc (max. term. voltage) @ 16 ma; 26vdc @ 10 ma.
OPRNG TEMP RANGE:	To 45° centigrade	To 45° centigrade

DESCRIPTION:

Altec models 691A, 692A, 693A and 694A are designed as direct replacements for either the standard WE 52AW headsets, which utilize carbon transmitters, or the carbon units themselves, and are recommended for all switchboard or other telephone and communications applications. Each Altec model fulfills all requirements for a superior noise-cancelling dynamic microphone and transistor amplifier assembly, greatly increasing the intelligibility and signal-to-noise ratio between the desired voice transmission and the unwanted interference from surrounding ambient pickup. For this reason, the Altec 691A/692A and 693A/694A microphone-amplifier assemblies provide outstanding performance for PBX and other telephone intercommunication usage in areas of high noise levels -- often found in large offices, retail stores, transportation terminals and factories -- wherein the standard carbon transmitter proves virtually worthless because existing background noises interfere with the clarity of speech.

Figure 1 illustrates the complete 52AW-type headset with the Altec noise-cancelling dynamic microphone and transistor amplifier installed therein; this unit represents Altec models 691A or 692A, consisting of the headband, receiver, boom mount, dynamic microphone, transistor amplifier (encapsulated in the plug) and connecting cord. Figure 2 shows the 693A/694A microphone-amplifier kit, for installation in existing 52AW-type headsets to replace the carbon transmitter. With the exception of differing operating voltages, models 691A and 692A are identical, as are models 693A and 694A.

The 691A, 692A, 693A and 694A provide improved frequency response and articulation index over that of the conventional carbon unit. As the 691A and 692A are complete headset assemblies, they may be plugged in to existing circuitry designed for the 52AW headsets with carbon transmitters; in a like manner, the 693A and 694A are modification kits which directly replace the carbon units, permitting the conversion of a carbon-type 52AW headset to one utilizing a dynamic microphone. The in-line transistor amplifier is furnished as a part of the 693A and 694A kits (as well as, of course, the complete 691A and 692A headsets).

All models may be incorporated into circuitry other than that designed primarily for PBX and telephone intercom applications (wherein an existing carbon transmitter has been directly replaced) with minor provisions, as shown in 'Installation and Application.' In such instances, it is necessary to provide both a source of proper operating voltage (dependent on the requirements of the transistor amplifier, as stated under 'Specifications') and an impedance in series with this supply, across which the output signal is developed.

For use in applications where the above models directly replace a carbon unit, no circuit modifications are required.



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INSTALLATION (ELECTRICAL):

When used in a circuit other than one designed for a carbon transmitter, an additional series resistance may be required so that the maximum terminal voltage (as shown in the foregoing specifications under 'Power Supply Requirements') is not exceeded. Such resistance is calculated by measuring:

$$\text{Total Line } \Omega + \text{Total Power Supply } \Omega + \text{Total Load } \Omega$$

If the total resistance does not equal the minimum series resistance, as shown below, additional series resistance must be added so as to raise the total to the values stated for the various ranges of supply voltage. For the most commonly encountered values of power supply potential, the value of this resistance is as follows:

	DC Supply Voltage	Minimum Series Ω Required
691A	0 - 14	0 Ω
&	24	330 Ω
693A	48	1100 Ω
692A	0 - 40	0 Ω
&	48	470 Ω
694A	52	750 Ω

NOTE: When no series resistance is required, a minimum AC impedance must be inserted in series between the power supply and the transistor amplifier (the output signal is developed across this impedance) as follows:

691A & 693A	100 Ω to infinity
692A & 694A	470 Ω to infinity

When either of the units replaces a carbon transmitter, in a circuit designed for the latter, such impedance is already incorporated within the circuitry, hence no such modifications are required.

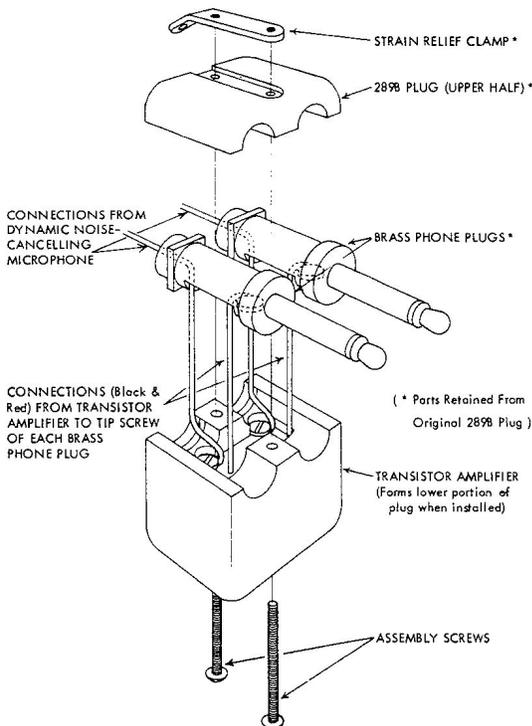


Figure 3: Exploded drawing of transistor amplifier and plug (after installation).

INSTALLATION (PHYSICAL; 693A & 694A):

TO INSTALL THE TRANSISTOR AMPLIFIER IN THE 289B PLUG (See Figures 3 and 4)

- 1: Disassemble the 289B plug by removing the two machine screws holding the two halves together (the strain relief bracket will be detached).
- 2: Retain the upper half of the 289B plug (the portion into which the strain relief bracket fits), together with both brass phone plugs.
- 3: Disconnect the transmitter lead from each phone plug by completely unscrewing the terminal screws nearest the tip ends of each. Do not remove the sleeve screws (not shown in Figure 3) within each plug.
- 4: Connect the two microphone leads to the two brass screws of the transistor amplifier.
- 5: Connect the two leads (black and red) from the transistor amplifier to the two vacated tip terminals of the brass phone plugs; either lead may be connected to either terminal, as polarity need not be observed.
- 6: Re-assemble the plug by nesting the two brass phone plugs in the top of the transistor amplifier (open side of plugs down, as shown), placing the upper half of the 289B plug over each, inserting the strain relief bracket in its proper slot and assembling, using the two long machine screws (6-40 X 1-5/16") furnished. Figure 4 illustrates the completed plug assembly.

TO INSTALL THE DYNAMIC MICROPHONE IN THE 52AW-TYPE HEADSET BOOM:

- 1: Unscrew the perforated lucite cap and remove the carbon transmitter from the mouthpiece housing.
- 2: Holding the Altec microphone assembly by the rear sound entrance adapter ring, screw the assembly into the boom mouthpiece housing; the unit is now ready for use.

NOTE: Figure 5 illustrates the disassembled 693A or 694A microphone and is shown for reference only. It is not necessary to disassemble the microphone for installation in the boom mouthpiece.

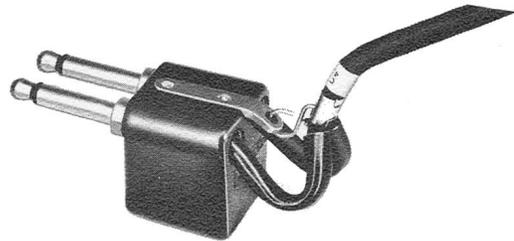


Figure 4: Transistor Amplifier, After Installation in Plug

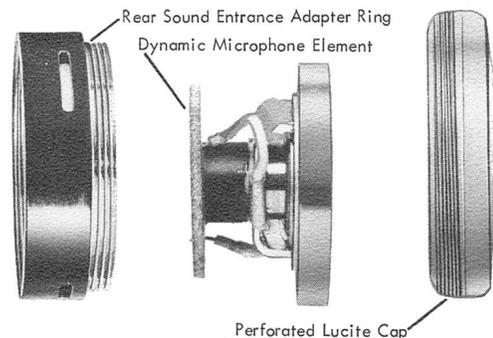


Figure 5: Disassembled Noise-Cancelling Dynamic Microphone