292A AND 292B AMPLIFIERS

DESCRIPTION

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1. GENERAL

1.01 The 292A ▶(Manufacture Discontinued) and 292B◀ amplifiers (Fig. 1) are intended for use in conjunction with a head telephone set for operators with impaired hearing. The amplifiers are to be used only where a real need exists, such as in cases where their use would permit the continued effective employment of operators whose hearing losses interfere with their job performances.

1.02 This section is reissued to include information on the 292B and to expand the coverage presented. Revision arrows are used to emphasize the more significant changes. Equipment Test Lists are not affected. The following are the specific reasons for this reissue.

(a) to rate the 292A "MD"

(b) to add new paragraphs 1.02, 1.03, and 1.09 and renumber the remaining paragraphs

(c) to revise 1.05, 1.08, and add Table A

(d) to revise Figs. 1 and 3

(e) to add Fig. 2.

1.03 ▶The 292A (MD) amplifier was manufactured in two versions. Fig. 2 illustrates the difference between the two. The earlier version, which was manufactured before July 1975, is not mechanically compatible with the series 20 through 150 PBX consoles while the later version is compatible.

1.04 The 292B amplifier is the same as the later version of the 292A (MD) and is mechanically compatible with the series 20 through 150 PBX consoles. However, both versions of the amplifiers are mechanically incompatible with early DIMENSION® consoles and require a M4AY cord when used with these consoles.◀

1.05 The 292A (MD) ▶and 292B◀ amplifiers can be used with the 60, 61, KS-19796, and KS-20778 lightweight head telephone sets on both operator telephone circuits and on 425- ▶and 4228-◀ type network circuits. ▶However, these amplifiers are not designed for parallel use on 425- and 4278-type network circuits. Parallel operation of the amplifiers is permitted only in positions where nominal local battery supply is 100 milliamps.◀ The amplifiers are also designed for use with 52- and 53-type head telephone sets on operator telephone circuits only. The amplifiers can also be used at positions with monitor keys and may be used with push-to-talk headsets and handsets.▶Table A shows the electrical compatibility of the 292-type amplifiers when used with various combinations of headsets, telephone sets, and operator positions.◀

1.06 ▶The amplifiers can be used in place of the 153B(MD) amplifier in all applications for which the 153B(MD) amplifier has been approved◀ and is not subject to the restrictions given for the 153B(MD) amplifier in Section 024-108-100, paragraph 3.03.

1.07 The amplifiers provide up to 20 dB of operator-controlled receive gain.

1.08 These amplifiers should not be used for correcting any inadequate transmission due to excessive trunk or loop loss. Persons with normal hearing using the amplifier in such cases will hear excessive side tone which will result in a reduction of speech volume and thereby degrade an already unsatisfactory transmission condition.

TABLE A

HEADSET OPERATION WITH 292-TYPE AMPLIFIER

HEADSET	INDUCTION COIL POSITION (NOTE 1)	TELEPHONE NETWORK POSITION (NOTE 2)
52-, 53-type	A	B
60-, 61-type	A	A
KS-21118	A	A
KS-19796	C-D	D
KS-20778 L1 through L15	C	A
KS-20778 L1A through L15A	A	A
KS-20778 L1B-L16B	A	A
KS-20778 L17B, L18B	A*	A*

* Quick Disconnect—Not to be used with Bell System Commercial Automatic Call Distributor Systems or Operator Services Offices.

Key to Symbols

A — Acceptable transmission; meets Bell System objectives. Recommended combination.

B — Acceptable on short loops only. If used on long loops or on medium loops with bridging extension sets, totally unacceptable performance could result.

C — Will function, but normal transmit levels do not meet Bell System objectives.

D — No voice switching; use with caution where adjacent operator pick-up could be objectionable.

Note 1: *Induction Coil Positions* reliably provide greater than 30 mA direct current to a headset. Typically, but not always, they are associated with 181B induction coils, 274-type inductors, and a local power supply, or the equivalent. Examples of positions in this category are as follows:

Toll Switchboards
Information Desks
Operating Room Desks
100A Traffic Service Position
100B Traffic Service Position System
300- and 301-type Switching Systems
3A, 4A, 8A and 9A Consoles
Auxiliary Services Positions.

Note 2: *Telephone Network Positions* usually provide less than 30 mA direct current to a headset. Their operating power comes from a central office battery through a telephone speech network and an associated transmit amplifier. Examples of positions in this category include all consoles except the 3A, 4A, 8A, and 9A types, and all jack-equipped telephone sets, subscriber sets, CALL DIRECTOR® sets and card dialers.

1.09 ◗In applications such as Automatic Call Director (ACD), transmit current is applied at the same time the alerting tone is transmitted. Since the 292-type amplifier is powered by the transmit current, reception is withheld for about 20 milliseconds. This may cause the alerting tone to be missed.◖

1.10 When in use, the plugs of the amplifier are inserted into the jacks of the telephone circuit and the head telephone set is plugged into the jacks of the amplifier (Fig. 1).

2. DESCRIPTION

2.01 The 292A(MD) ◗and 292B◖ amplifiers consist of a printed circuit board with a polarity guard, input isolating transformer, frequency shaping network, and a three-stage transistor amplifier. The units are encased in an ivory molded plastic housing with overall dimensions of approximately 1-1/2 inches wide, 2-1/4 inches high and 5-1/2 inches long. The two plugs on the front are for plugging into the telephone jacks. The pair of jacks provided on the back of the amplifier accept the plug of a head telephone set.

2.02 A thumbwheel is provided on the back of the amplifier to control the receive gain from zero gain at maximum clockwise position to approximately 20 dB gain at the maximum counterclockwise position.

2.03 Protection against acoustic shock is provided by varistors and also by the overload characteristics of the amplifier. A schematic of the amplifier is given in Fig. 3.

3. MAINTENANCE

3.01 Normal maintenance procedures and practices for the plugs and jacks of the amplifier should be applied when these parts require maintenance. If trouble develops in the amplifier circuit, the amplifier should be returned to the Western Electric Company for repair.

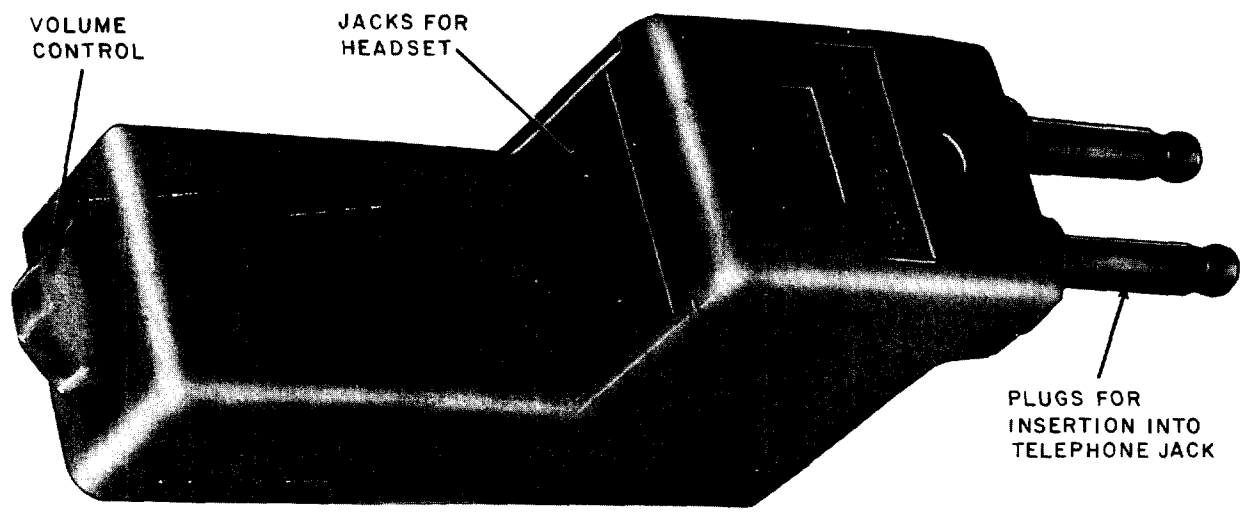

Fig. 1—292-Type Amplifier

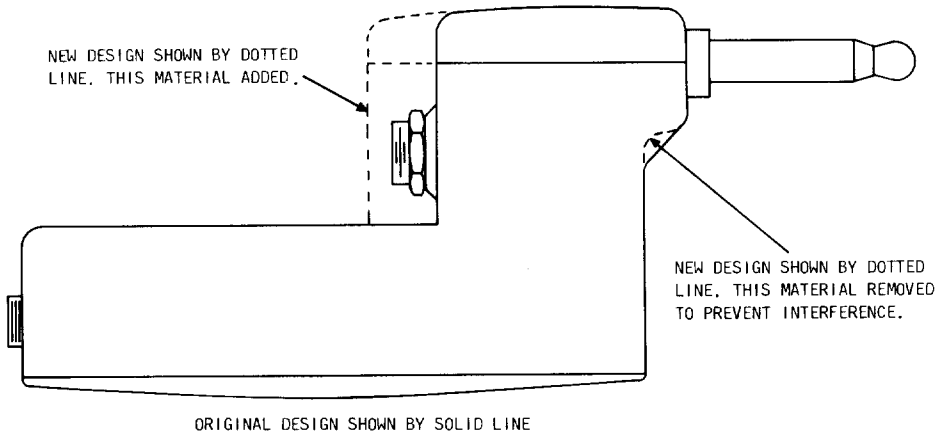

Fig. 2—292-Type Amplifier Showing Difference Between Earlier and Later Models

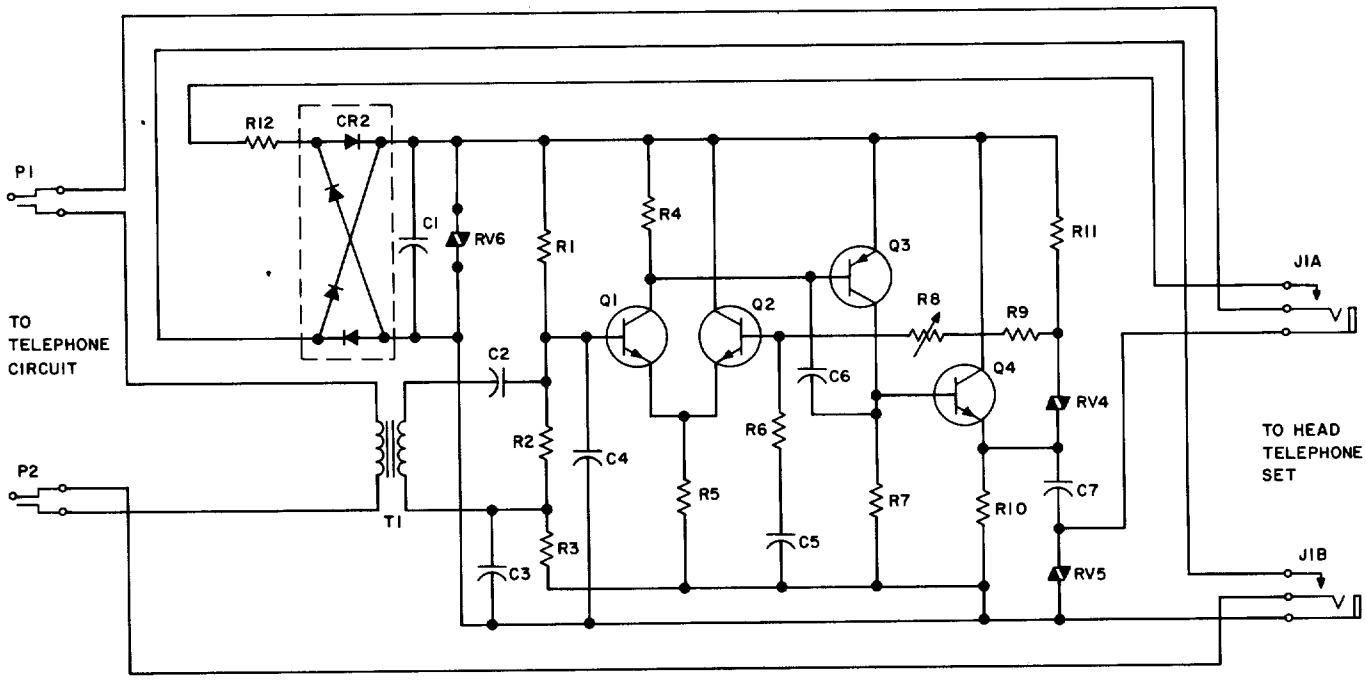

Fig. 3—292-Type Amplifier—Schematic