

AMPLIFIERS—238, 276, AND 277 TYPES IDENTIFICATION AND INSTALLATION

1. GENERAL

1.01 This section contains information for the 238A (MD), 276A (MD), and 277A (MD) amplifiers which are single stage circuits. Each circuit consists of a transistor, an inductor, a capacitor, resistors, and in the case of the 277A (MD), a polarity guard all mounted on a printed circuit board and attached to a special transmitter cup (Fig. 1, 4, and 6). Information in this section is retained for existing installations only.

1.02 This section is reissued to show the 238A, 276A, and 277A amplifiers MD.

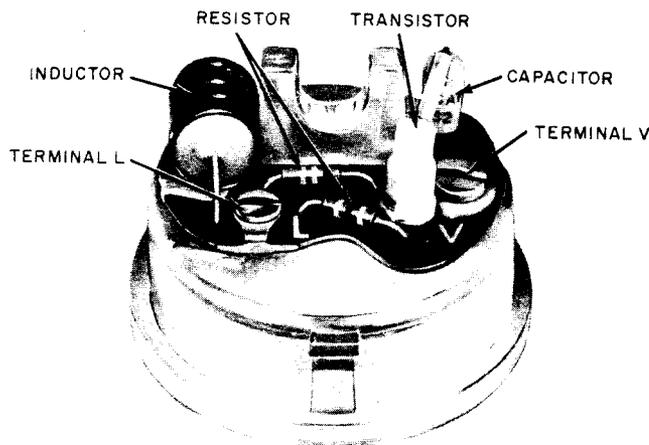


Fig. 1—238A (MD) Amplifier, Showing Terminal Locations

2. IDENTIFICATION

- (a) **Purpose:** Amplifies station carbon transmitter output for long loops.
- (b) **Application:** (See Table A.)

Note: An identification label is shipped with each amplifier and should be attached to the

telephone set base as shown in Fig. 8. It reads for example: EQUIPPED WITH 238A AMPLIFIER.

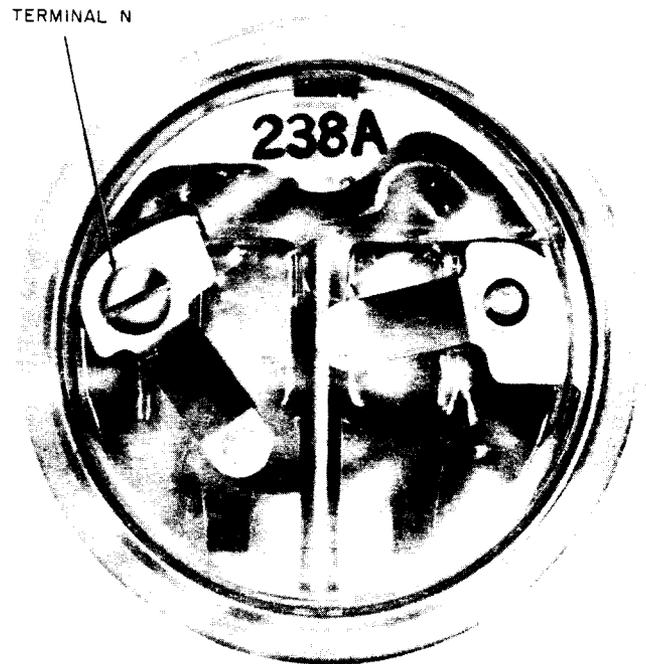


Fig. 2—238A (MD) Amplifier, Showing Typical Terminal N Location

(c) **Design Features:** (See Table B.)

3. INSTALLATION

3.01 Connect telephone set according to appropriate connection section.

3.02 **Installing Amplifier:**

- Measure the line current (transmitter current). If the current measures 15 to 24 ma use the 238A (MD) or 277A (MD) amplifier. If line is subject to polarity reversals, use the 277A (MD) amplifier. If current measures

NOTICE

Not for use or disclosure outside the Bell System except under written agreement

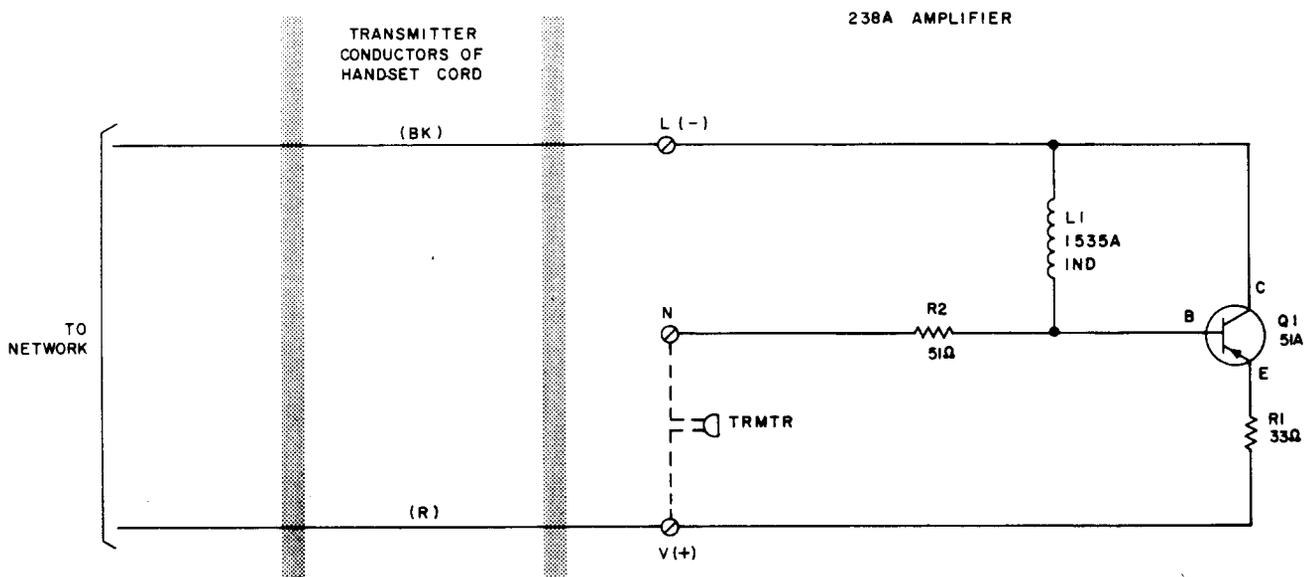


Fig. 3—238A (MD) Amplifier Schematic, Typical Connections

more than 24 ma use the 276A (MD) amplifier (see Table A).

- Remove transmitter cap and transmitter
- Remove and disconnect the plastic transmitter cup (white) and replace with the amplifier plastic transmitter cup (red).

Caution: 238A (MD) or 276A (MD) amplifier— Ensure that positive voltage (+) wire is connected to amplifier terminal V and negative voltage (-) wire is connected to amplifier terminal L. Wrong polarity will prevent the unit from functioning and may damage the amplifier. Sidetone will not be heard in handset if polarity is incorrect.

3.03 Connect transmitter leads to amplifier terminals (Fig. 1, 4, or 6) as follows:

For Long Line Circuit SD-26129-01 or SD-96588-01

- Tip party: (R) to V, (BK) to L (Fig. 3, 5, or 7)

- Individual, or ring party: (R) to L, (BK) to V.

For All Other Long Line Circuits

- Tip party: (R) to L, (BK) to V
- Individual, or ring party: (R) to V, (BK) to L.

3.04 Complete installation as follows:

- Be sure screw on terminal N is tight before replacing transmitter (Fig. 2)
- Place amplifier assembly cup in handset
- Replace transmitter and cap
- Attach identification adhesive label to telephone set base (Fig. 8).

Note: Surface must be clean before label is attached.

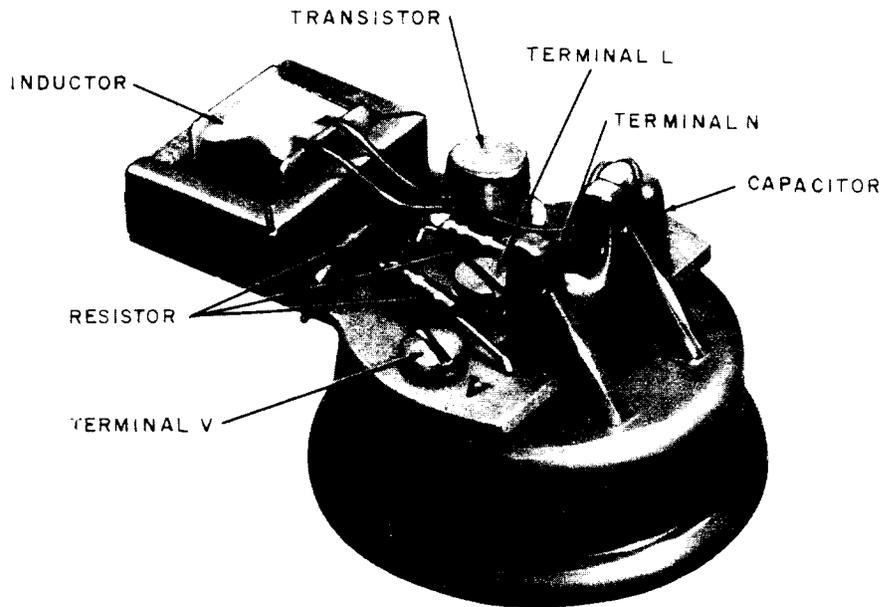


Fig. 4—276A (MD) Amplifier, Showing Terminal Locations

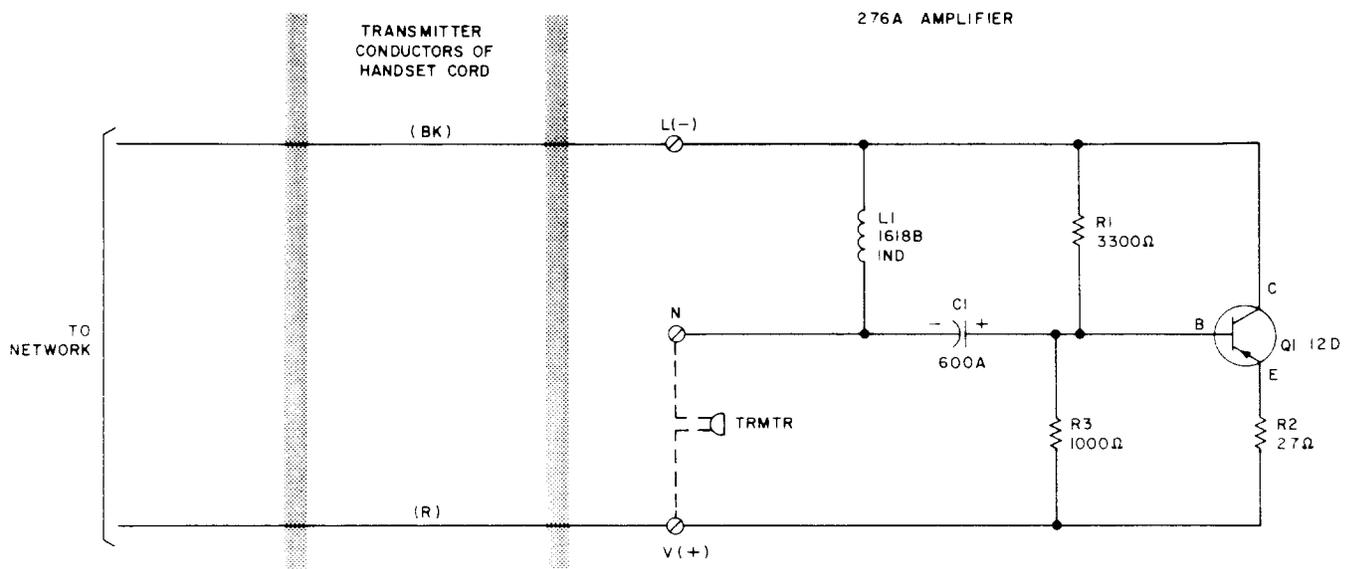


Fig. 5—276A (MD) Amplifier Schematic, Typical Connections

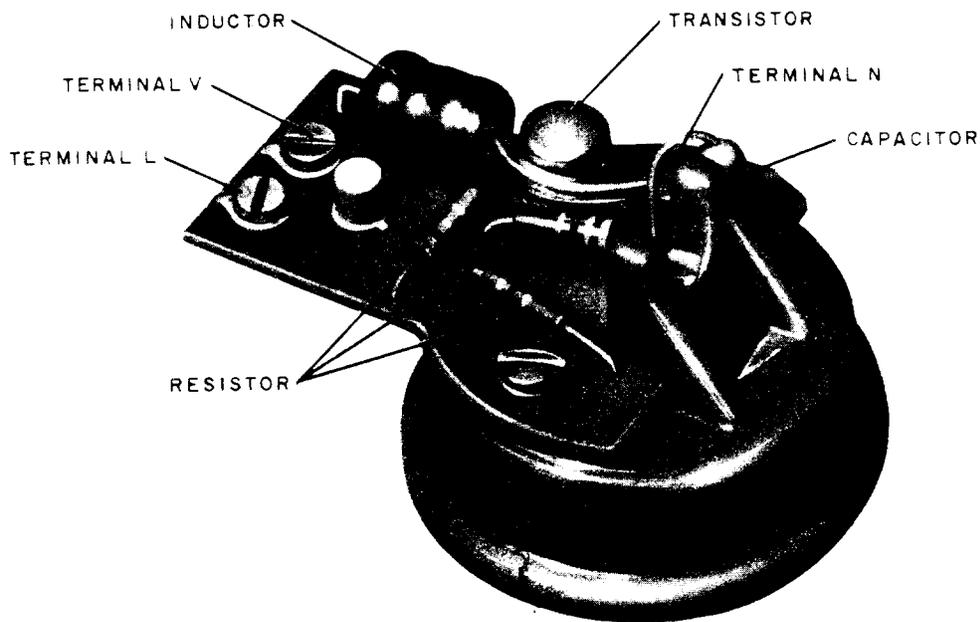


Fig. 6—277A (MD) Amplifier, Showing Terminal Locations

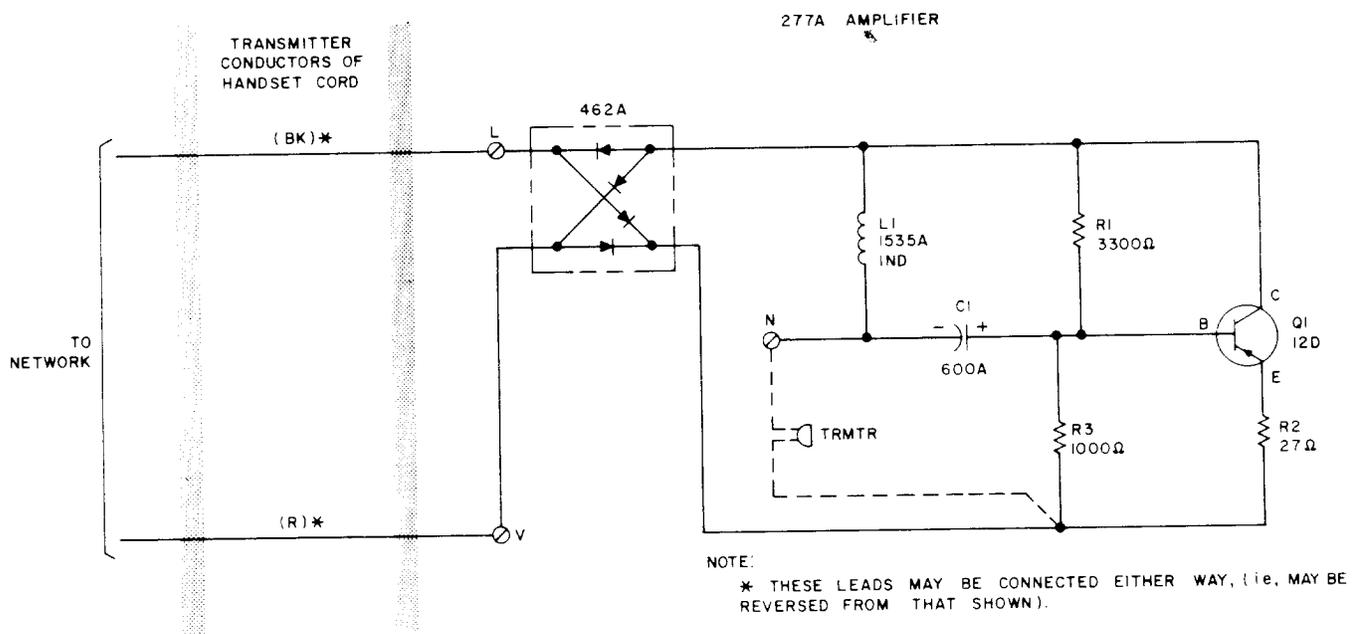
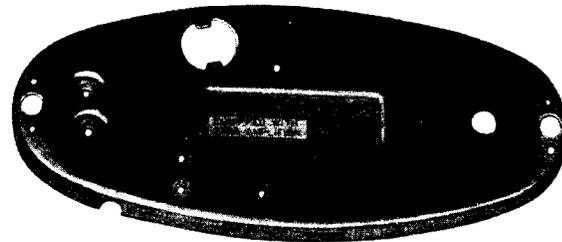


Fig. 7—277A (MD) Amplifier Schematic, Typical Connections



700-AND 2700-TYPE TELEPHONE, BASE PLATE



500-AND 2500-TYPE TELEPHONE, BASE PLATE

Fig. 8—Typical Base Plates With Label Attached

♦TABLE A♦
AMPLIFIER APPLICATIONS

APPLICATION	AMPLIFIER		
	238A*	276A*	277A*
Long Line Equipment loops where polarity of line voltage is maintained constant	✓	✓	
Long loops where line is subject to polarity reversals			✓
Step-by-step areas where range extenders are used			✓
Farm interphone service*		✓	
G-type handsets except G3N3, G3P, G3R, G3S, G3T, G6AR, G7AR, G8A, and handles having molded cord retainer posts	✓		
G-type handsets except G1, G3N3, G3P, G3R, G3S, G3T, G6AR, G7AR, G8A, and handles having molded cord retainer posts		✓	✓

*MD.

♦TABLE B♦
AMPLIFIER DESIGN FEATURES

DESIGN FEATURE	AMPLIFIER		
	238A*	276A*	277A*
Provides approximately 7 db gain	✓	✓	✓
Input and output impedances approximately 500 and 1000 ohms, respectively	✓	✓	✓
Has larger inductor and handles higher currents		✓	
Has a polarity guard			✓
Does not have a polarity guard	✓	✓	

*MD.