

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

1. GENERAL

1.01 The 238A, 276A, and 277A amplifiers are single stage circuits. Each circuit consists of a transistor, an inductor, a capacitor, resistors (and in the case of the 277A, a polarity guard) all mounted on a printed circuit board and attached to a special transmitter cup (Fig. 1, 2, and 3).

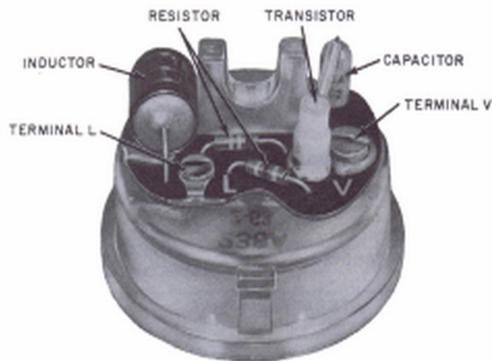


Fig. 1—238A Amplifier, Showing Terminal Locations

1.02 This section is reissued to add information for the 276A and 277A amplifiers. Since this reissue covers a general revision, arrows ordinarily used to indicate changes have been omitted.

2. IDENTIFICATION

(a) **Purpose**—Amplifies station carbon transmitter output for long loops.

(b) **Application**—(See Table A)

(c) **Ordering Guide**—

Amplifier, 238A

Amplifier, 276A

Amplifier, 277A

Note: An identification label is shipped with each amplifier. It reads for example: EQUIPPED WITH 238A AMPLIFIER.

(d) **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 **more** than 24 ma or **less** than 15 ma, the 238A amplifier will not give satisfactory service and should not be used. For higher currents use 276A 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 (pink)

Caution: 238A or 276A amplifier—Ensure that positive voltage (+) wire is connected

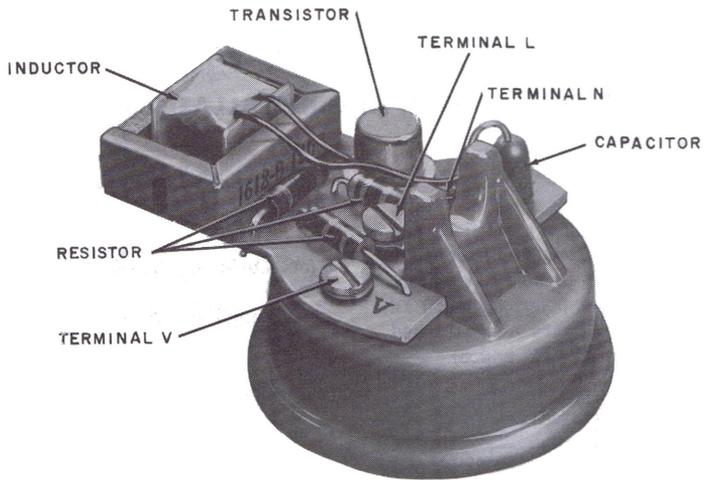


Fig. 2—276A Amplifier, Showing Terminal Locations

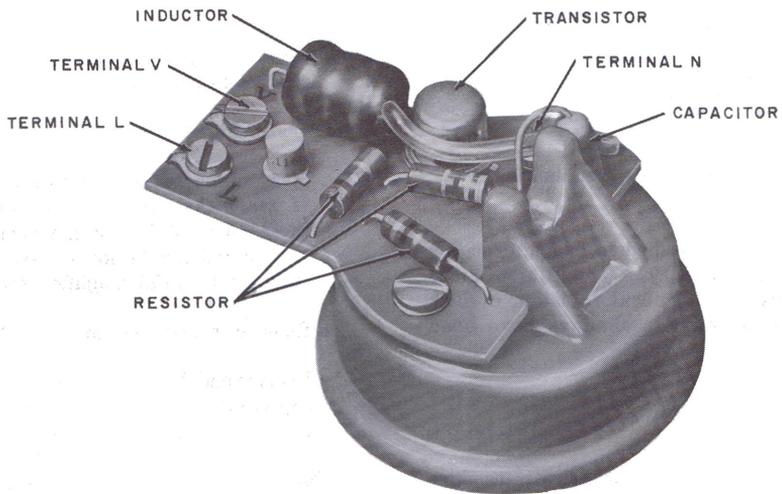


Fig. 3—277A Amplifier, Showing Terminal Locations

TABLE A

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		✓	✓

TABLE B

AMPLIFIER			DESIGN FEATURE
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

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 it. Sidetone will not be heard in handset if polarity is incorrect.

3.03 Connect handset cord to amplifier terminals (Fig. 1, 2, or 3) as follows:

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

- Tip party: R to V, BK to L (Fig. 4, 5, or 6)
- 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

Caution: 276A or 277A amplifier—Insulate cord stay band with tape to prevent possible shorting of amplifier elements.

3.04 Complete installation as follows:

- Be sure screw on terminal N is tight before replacing transmitter (Fig. 7)
- Place amplifier assembly cup in handset
- Replace transmitter and cap
- Attach identification adhesive label to telephone set base (Fig. 8)

Note: The label must be attached to a clean surface.

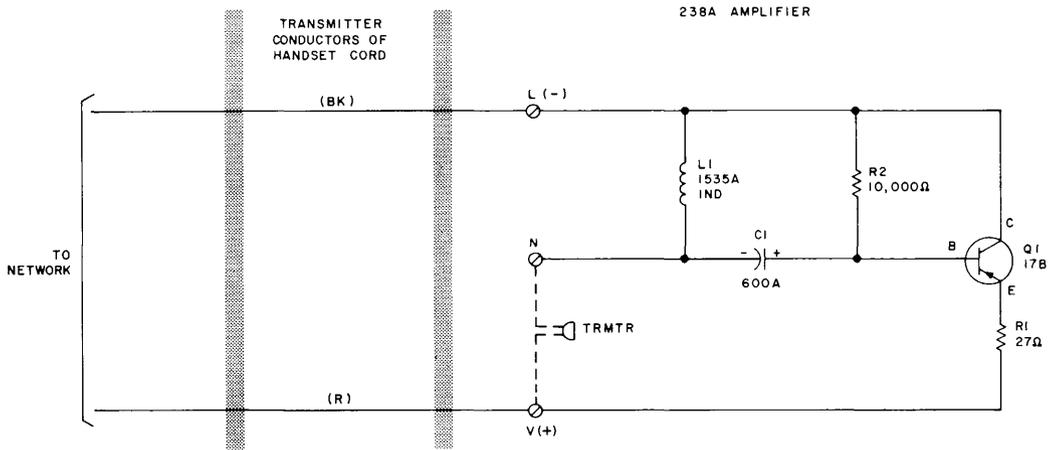


Fig. 4—238A Amplifier Schematic, Typical Connections

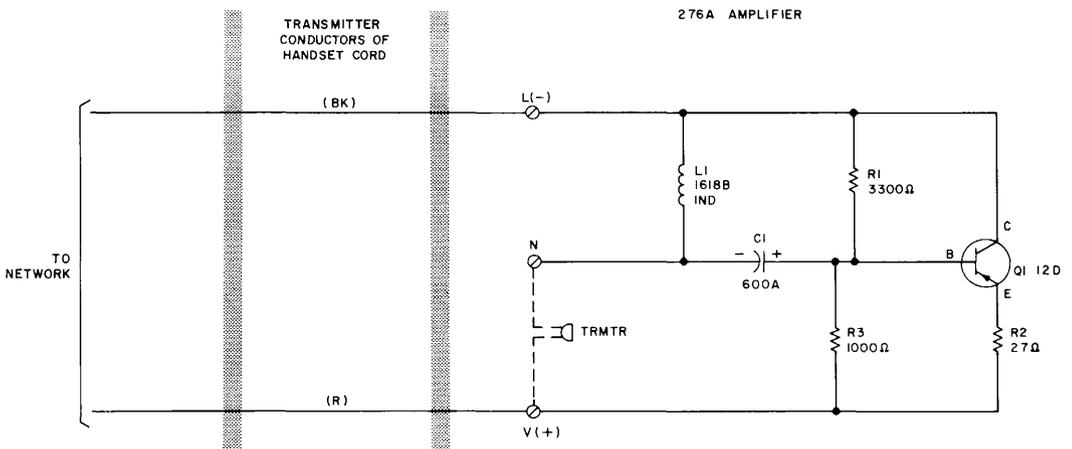


Fig. 5—276A Amplifier Schematic, Typical Connections

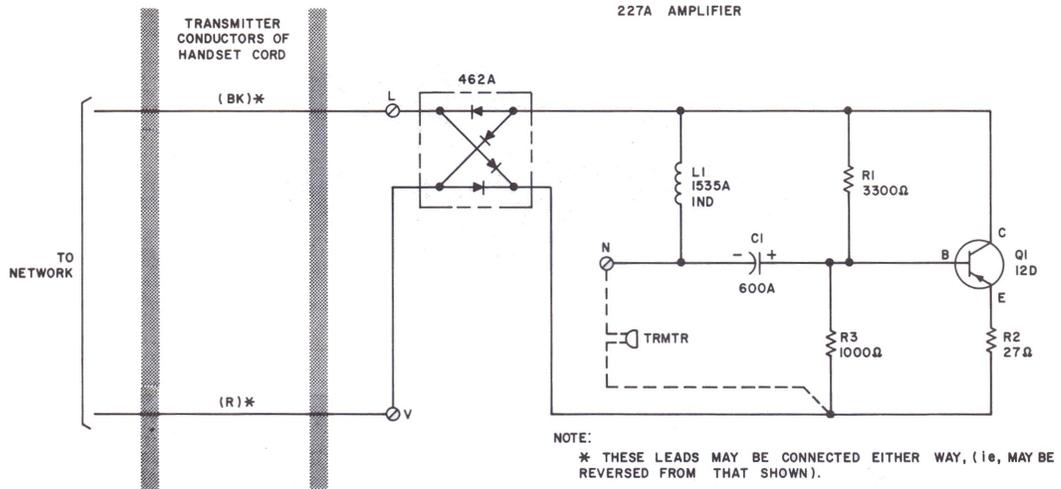


Fig. 6—277A Amplifier Schematic, Typical Connections

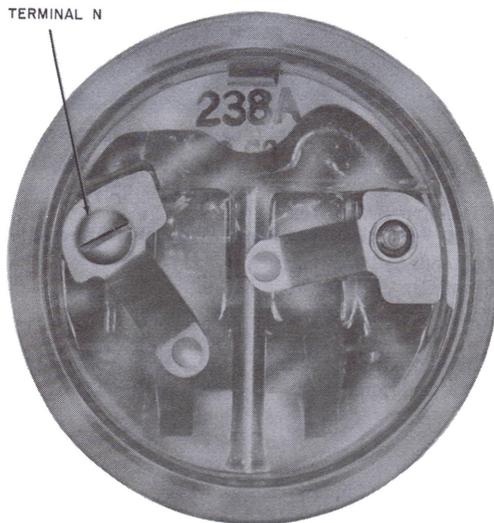
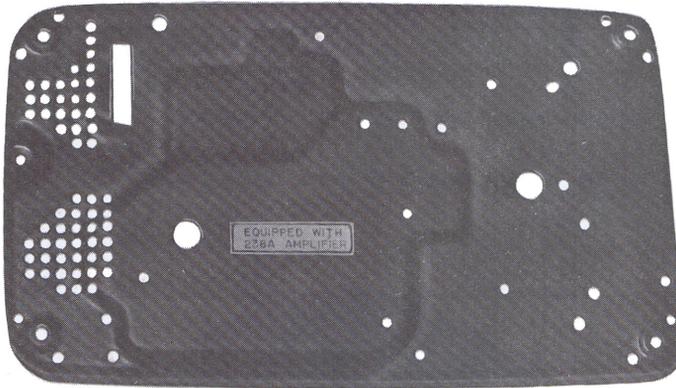


Fig. 7—238A Amplifier Showing Typical Terminal N Location



700- AND 1700-TYPE TELEPHONE, BASE PLATE



500- AND 1500-TYPE TELEPHONE, BASE PLATE

Fig. 8—Typical Base Plates With Label Attached