OUTPUT CONNECTIONS

Output connections for the speakers may be made directly to the terminal strip on the rear of the amplifier. The output of the amplifier is transformerless and therefore one side of the output is at ground potential except when the 70-volt output is used.

70-volt Transformer:

The 16660 70-volt transformer is available as an accessory to provide the standard 70-volt speaker distribution system. The 16660 mounts on the rear of the amplifier without soldering. See figure 5. Remove the small panel mounted on the rear plate of the amplifier and replace with the 16660 transformer using the same screws that held the small panel in place. The connecting links on the bottom of the 16660 transformer connect to the speaker terminals. The 70-volt line terminal strip will be to the top of the amplifier.

NOTE: The total power required by all the speakers of the 70-volt distribution system must not exceed the power rating of the **361B** mixer/power amplifier.

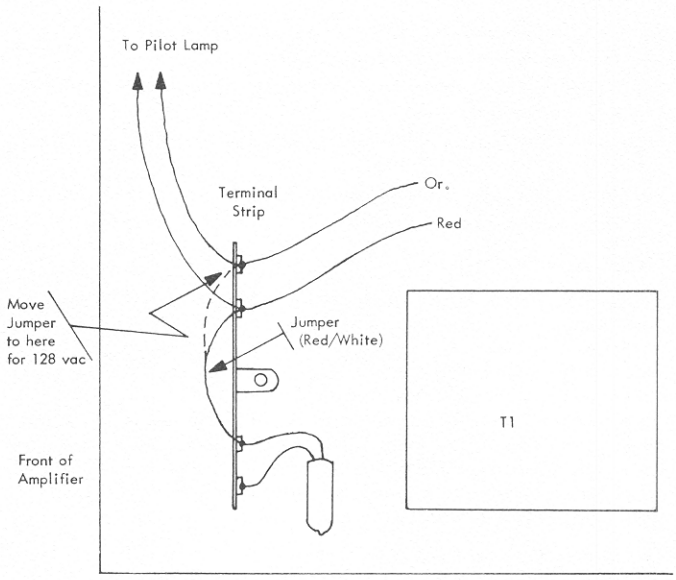


Figure 10

GROUND CONNECTIONS

It is recommended that a connection (#16 or heavier wire) be made between one of the ground (G) terminals and an earth ground such as a water pipe. Where earth grounds are not practical, make certain that the system is not susceptible to inaudible high-frequency oscillation which may damage the output transistors. If such oscillation is detected, it usually may be eliminated by use of balanced input devices, or by grounding.

OPERATION

Normal operating level of the **361B** mixer/power amplifier will be determined by the conditions at each installation. In general, the tone control will help prevent acoustical feedback in the region above 1 kc. See tone control curve, figure 11. With the 14678A compressor assembly installed, approximate power levels can be maintained with the Compressor Range Switch on the rear of the unit.

To acommodate elevated line voltages, the power transformer, (T1), is equipped with a 117 vac and a 128 vac tap. As shipped from the factory the **361B** is wired for 117 vac. If the line voltage at the installation is on the order of 128 vac, the higher voltage tap should be used. An internal connection must be changed to accomplish this and is diagramed in figure 10.

SERVICING

In the event of a failure, the trouble can be localized by substitution or voltage checking. The cover of the amplifier is held in place with six screws, three in each end of the amplifier. The output transistors, Q7 and Q8, are mounted in sockets on the face of the front panel and may be checked or replaced without removing the cover from the amplifier. Simply remove the small black panel attached to the front panel and remove the screws from the transistors. The transistors may then be pulled from their sockets.

NOTE: If an output transistor is changed, be sure that the power is first turned off. When replacing transistors apply silicon oil or grease on each side of the mica insulating washer supplied with the transistor.

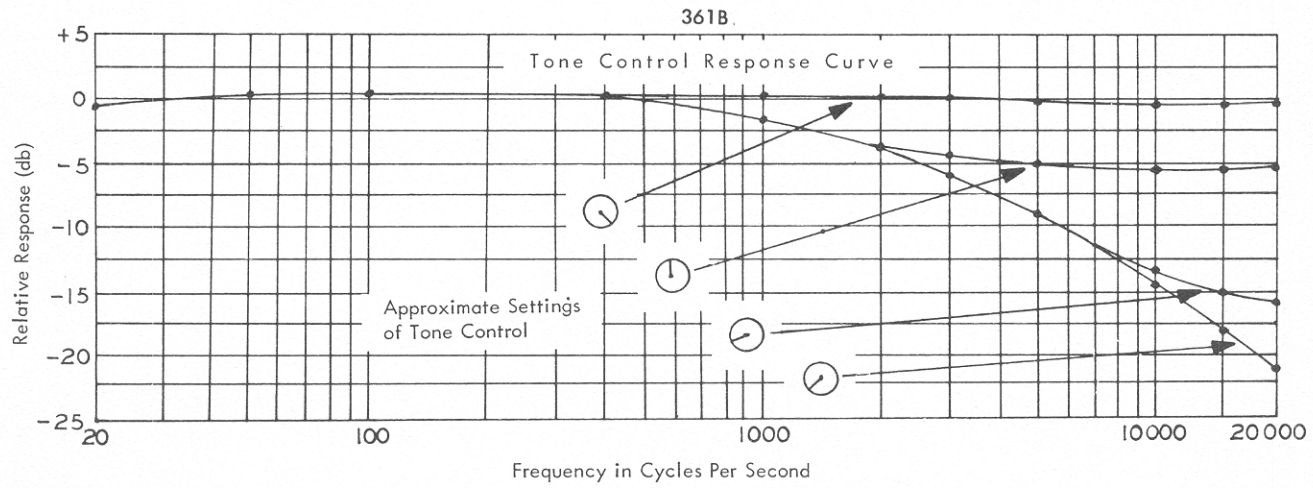


Figure 11

POWER TRANSISTORS

When replacing power transistors, be sure that —

(1) The mica insulator is not damaged,

(2) No grit or metal particles are lodged between the transistor and the heat sink,

(3) Both sides of mica insulator are covered with silicone grease or fluid,

(4) Mounting screws are tight, and

(5) The protective cover is in place.

Transistor Testing

Transistors should be checked with a transistor tester. If one is not available, an ohmmeter may be used inasmuch as most transistor failures result in a collector-to-emitter short or open circuit. Remove the suspected transistor from the circuit. Connect the ohmmeter leads to the collector and the emitter (see Figure 12 for pin or lead configurations) and read on the low-ohm range. If the low reading is virtually the same when the ohmmeter connections are reversed, the transistor is shorted. If the ohmmeter (on high megohm range) shows no reading for both connections of the ohmmeter, the transistor is open.

Servicing Etched Circuit Boards

Before removing or replacing components on etched circuit boards, read and observe the following precautions.

(1) Use a small soldering iron with an ⅛" diameter chisel tip, and use small diameter, high tin content solder.

(2) Components may be removed by placing the soldering iron on the component lead on the conductor side of the board and pulling out the lead. Avoid overheating the conductor.

(3) If the component is obviously faulty or damaged, clip the leads close to the component and then unsolder the leads from the board. Withdraw them from the component side.

(4) Large components such as potentiometers and sockets may be removed by rotating the soldering iron from lead to lead and applying steady pressure to lift the part free. If the part is to be replaced with a new one, follow the procedure outlined in (3) above.

(5) Since the conductor part of the etched circuit board is a metal-plated surface covered with solder, use care to avoid overheating and lifting the conductor from the board. A method for repair is to solder a section of good conducting wire along the damaged area.

(6) Clear the solder from the circuit board holes before inserting the leads of the new component. Heat the solder in the hole, remove the iron and quickly insert a pointed non-metallic object (such as a toothpick) from the conductor side.

(7) Shape the new component leads and clip them to the proper length. Insert the leads in the holes, observing the same polarity or orientation as that of the removed component. Apply heat and solder on the conductor side.

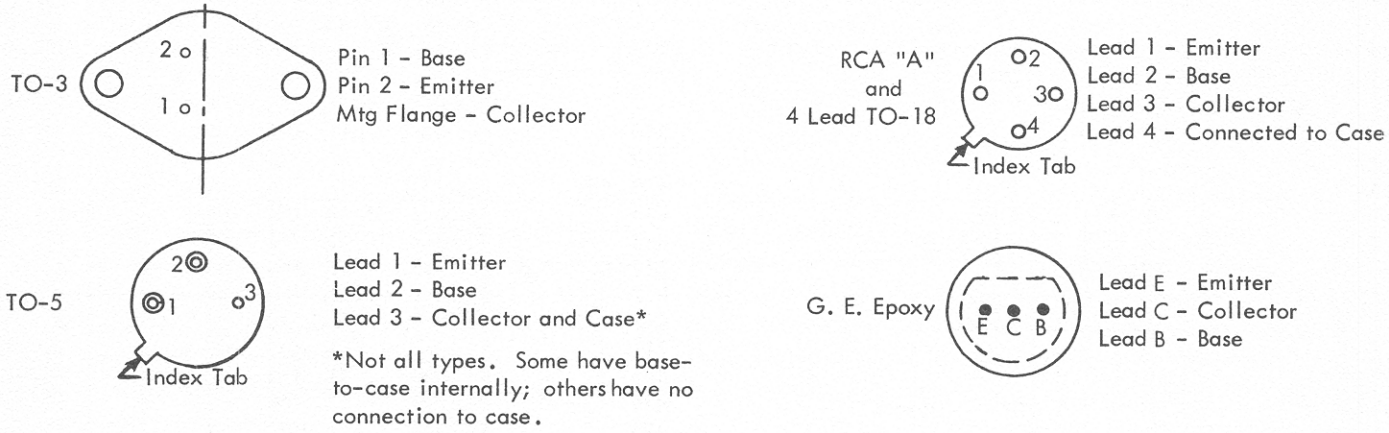


Figure 12: Transistor Packages, Bottom View of Lead or Pin Configuration

PROTECTION

Transistors can be damaged by excessive heat. When removing or replacing a transistor soldered to tie points or to an etched circuit board, use a small soldering iron with an 1/8" diameter chisel tip.

Use small diameter, high tin content solder.

On etched circuit boards, use a toothpick inserted from the conductor side to clean out the holes before inserting the new transistor. High head reduces conductor-to-board bonding. Pressure applied from the component side may cause the hole pad and conductor to be torn away from the board.

ORIENTATION

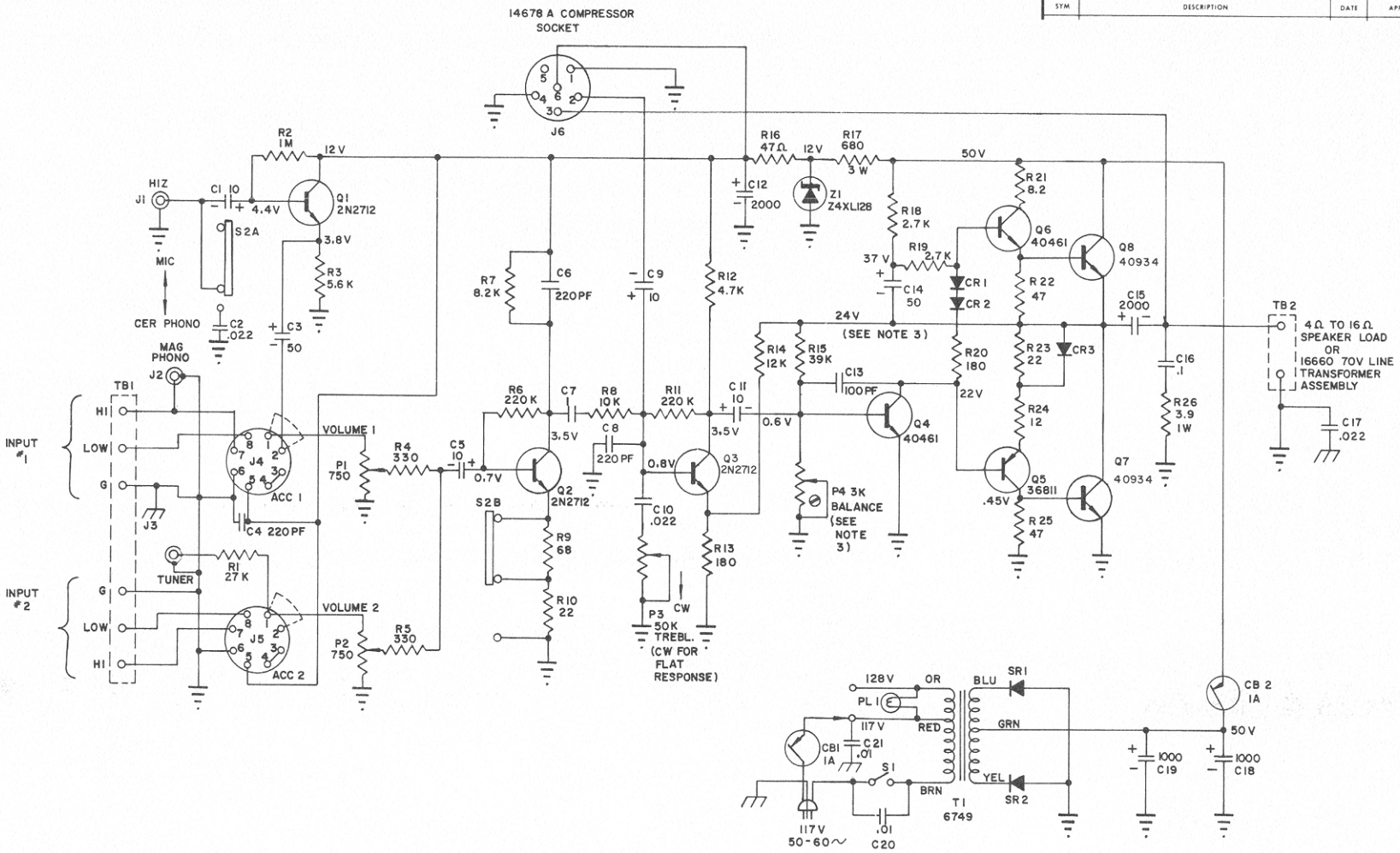
Transistors are packaged in various case sizes and types with various lead configurations. (See Figure 12 for typical packages.) Before removing a transistor from an etched circuit board or tie points, make a sketch of the orientation of the transistor leads with respect to the circuit board or tie points. Forming the leads on the new transistor to conform with the leads on the one being replaced also will aid in making proper connections.

Before removing small 'plug-in' transistors, note the position of the index tab with respect to the socket. Cut the leads on the new transistor to the required length and insert into the socket properly indexed.

PARTS LIST

Reference Designator	Description	Number Required
C1,C5,C9,C11	Capacitor, 10 μF, 25 v (Ducati #12.32.31)	4
C2, C10, C17	Capacitor, .022 μF, ±10% Disc Cer. PM4S22	3
C3	Capacitor, 50 μF, 12 v (Ducati #12.32.25)	1
C4, C6, C8	Capacitor, .00022 μF, ±10% Disc Cer.	3
C7	Capacitor, 1 μF, 10%, 100 v Disc Cer. WMF 1W1	1
C12, C15	Capacitor, 2000 μF, 25 v (Ducati #12.04.17)	2
C13	Capacitor, .0001 μF, 500 v	1
C14	Capacitor, 50 μF, 25 v (Ducati #12.37.33)	1
C16	Capacitor, .1 μF, ±10%, 200 v (CD DPMS201)	1
C18, C19	Capacitor, 1000 μF, 50 v (Ducati #12.04.23)	2
C20	Capacitor, .01 μF, ±20% 500 v Disc Cer.	1
C21	Capacitor, line bypass, .01 μF	1
CB1, CB2	Circuit breaker, 1 amp Sylvania MB315	2
S1	Switch, rotary (Altec 14863	1
S2A, S2B	Switch, slide, DPDT	1
T1	Transformer, power (Peerless 6749)	1
PL1	Pilot lamp, 1815	1
J1, J2, J3	Jack, pin (National Tel-Tronics 326)	3
J4, J5	Socket, octal (Cinch #9829)	2
J6	Socket, 6-pin (Amphenol #78 S6S)	1

Reference Designator	Description	Number Required
P1, P2	Potentiometer, 750 Ω, (Altec 14864)	2
P3	Potentiometer, 50 kΩ, (Altec 14865)	1
P4	Potentiometer, 3000 Ω, (Melrain FFF1)	1
R1	Resistor, 27kΩ, ±10%, 1/4 W	1
R2	Resistor, 1 Meg. Ω ±10%, 1/4 W	1
R3	Resistor, 5.6 kΩ, 10%, 1/4 W	1
R4, R5	Resistor, 330 Ω, 10 %, 1/4 W	2
R6, R11	Resistor, 220 kΩ, 10%, 1/4 W	2
R7	Resistor, 8.2 kΩ, 10%, 1/4 W	1
R8	Resistor, 10 kΩ, 10%, 1/4 W	1
R9	Resistor, 68 Ω, 10%, 1/4 W	1
R10	Resistor, 22 Ω, 10%, 1/4W	1
R12	Resistor, 4.7 kΩ, 10%, 1/4 W	1
R13, R20	Resistor, 180 Ω, 10%, 1/4 W	2
R14	Resistor, 12 kΩ, 10%, 1/4 W	1
R15	Resistor, 39 kΩ, 10%, 1/4 W	1
R16, R22, R25	Resistor, 47 Ω, 10%, 1/2 W	3
R17	Resistor, 680 Ω, 10%, 3 W, WW	1
R18, R19	Resistor, 2.7 k Ω, 10%, 1/4 W	2
R21	Resistor, 8.2 Ω, 10%, 1/2 W	1
R23	Resistor, 22 Ω, 10%, 1/2 W	1
R24	Resistor, 12 Ω, 10%, 1/2 W	1
R26	Resistor, 3.9 Ω, 10%, 1 W	1
Q1, Q2, Q3	Transistor, 2N2712	3
Q4, Q6	Transistor, 40461-1	2
Q5	Transistor, 36811	1
Q7, Q8	Transistor, 40934-1	2
SR1, SR2	Rectifier, 4JA10B	2
CR1, 2, 3	Rectifier, (diode) 1N3754	3
Z1	Diode, zenner, GE Z4 XL 12B	1



NOTES

1.) ALL CAPACITANCE VALUES IN MFD UNLESS OTHERWISE INDICATED.

2.) ALL RESISTANCE VALUES IN OHMS
1/4 W ± 10% UNLESS OTHERWISE INDIC.
K = 1,000 OHMS
M = 1,000,000 OHMS

3.) IF OUTPUT TRANSISTORS ARE REPLACED ADJUST P4 (INTERNAL) FOR EVEN CLIPPING AT FULL OUTPUT, 8 OHM LOAD (MIDPOINT VOLTAGE VARIES WITH P4 SETTING)

4.) VOLTAGES SHOWN UNDERSCORED ARE DC VOLTAGES WITH 117 V AC LINE AND ZERO INPUT SIGNAL.

5.) CHASSIS GROUND, CIRCUIT GROUND.

THE FOLLOWING ACCESSORIES MAY BE USED

1578 A MIC PREAMPLIFIER	USED AT J4 OR J5
1588 A MIC PREAMPLIFIER	" " " " "
1579 A EQUALIZED AMP (PHONO)	" " " " "
15095 LINE TRANSFORMER	" " " " "
14678 A COMPRESSOR	" " J6
16660 70V LINE TRANSFORMER	" " TB2

WHEN USING J1, INSERT A 13567 STRAP BETWEEN PINS 1 & 2 ON J4. INPUT 1 AND J2 ARE THEN INOPERATIVE.

UNLESS OTHERWISE SPECIFIED	DIMENSIONS ARE IN INCHES TOLERANCES ON FRACT. 2 PLACE DEC. 3 PLACE DEC.
NEXT ASSY	USED ON
APPLICATION	
ORIGINAL DATE OF DRAWING	2-4-66
DR. BY	
CHKD.	
ENGR.	
ENGR.	
APPRD.	

SCHEMATIC
361 B AMPLIFIER

ALTEC LANSING
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