ALTEC

1570B AMPLIFIER

OPERATING INSTRUCTIONS

SPECIFICATIONS

Type:	Power amplifier
Gain:	72 dB
Input Sensitivity:	1.0 V rms for rated output
Power Output:	175 watts at less than 5% THD, 65–20,000 Hz 165 watts at less than 3% THD, 70–10,000 Hz
Frequency Response:	±1.0 dB, 10–50,000 Hz
Input Impedance:	70,000 ohms
Source Impedance:	150/600 ohms with 15095 Line Transformer
Load Impedance:	8, 16, 32 ohms
Load Voltage:	35V, 50V, 70V

Output Impedance:	Less than 10% of nominal load impedance
Noise Level:	Output noise – 25 dBm; 77 dB below rated output
Controls:	Volume control, continuously variable
Power Supply:	105–130 volts, 60 Hz, 350 watts
Tubes:	1-12 AX7, 1-6SN7GTB, 2-6W6GT, 2-811-A, 4-5R4GY
Dimensions:	10-1/2"H, 19"W, 13-1/2"D
Color:	ALTEC green
Weight:	59 pounds
Accessories:	ALTEC 15095 Line Transformer ALTEC 10399 Panel

Specifications and components subject to change without notice. Overall performance will be maintained or improved.

ALTEC

1515 S. Manchester Ave., Anaheim, Calif. 92803

42-02-012969-03

Litho in USA CP-572-2.5K

DESCRIPTION

The 1570B Amplifier is a compact, high-quality, 165-watt power amplifier designed for public address applications, either shelf or rack mount. Rack mounting occupies six units (10-1/2") of rack space. Negative feedback is carried around all stages from a tertiary winding on the heavy-duty output transformer, permitting the output to feed an ungrounded load or a load with one side grounded. This amplifier is designed for stable 70-volt line operation under all output load conditions without impairment of program quality. The power switch, pilot light and volume control are located on the front of the amplifier and the input and output terminals (in the form of barrier-type terminal blocks) are mounted on the rear. A six-foot, three-wire power cord, terminating in a three-pin cap, is standard equipment with this amplifier.

A special protective device is incorporated in the 1570B in the form of a thermal circuit breaker shunted by a power resistor, the combination being in series with one side of the power-transformer primary. The breaker is fastened to the amplifier chassis so heat from the chassis is transferred to the breaker thermal element. AC line current through the breaker also heats the thermal element. Abnormal heating of the chassis and abnormal line current will make the breaker contacts open, inserting the power resistor in series with the power transformer primary reducing the voltage to it. Program service is thus maintained at reduced power. Because the breaker is an automatic reset type, reduction in line current and chassis temperature will allow it to close and restore full line voltage to the power transformer. Cycling will continue until the abnormal condition is corrected. Locating the amplifier in an inadequately ventilated, high ambient temperature zone will result in excessive heating. Overdriving the amplifier, due to a mismatch of load-to-amplifier output, will result in abnormal line current.

INSTALLATION

When mounting 1570B Amplifiers in a standard rack or cabinet rack, use a minimum of one rack unit (1-3/4") spacing between amplifiers and fill space with the 10399 perforated panel. When cabinet racks are used, a blower of approximately 40 cfm capacity should be installed on top of the cabinet to exhaust hot air from within the cabinet. Fresh air is thus drawn into the amplifier chassis through the front grill openings.

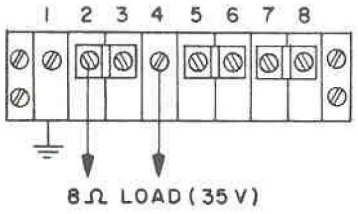
INPUT CONNECTIONS

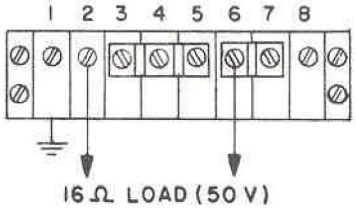
Two pairs of input terminals are provided. Terminals 1 and 2, which connect directly to the input potentiometer, are provided for unbalanced high-impedance sources or for bridging unbalanced low-impedance lines having a signal voltage of 1 volt or more. Terminals 3 and 4 connect to a standard octal socket which permits low-impedance input from balanced or unbalanced lines of 150 or 600 ohms with the accessory 15095 (plug-in) Line Transformer. The socket is connected for 600-ohm operation as shipped. The 150-ohm input is obtained by strapping the socket terminals as shown on the schematic. Both inputs may be used simultaneously, provided the input to 1 and 2 is built out with a 100,000-ohm resistor in series with the high side of the line to prevent excessive loading or short circuiting of the low-impedance input.

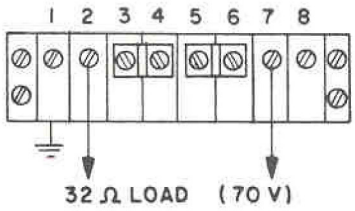
> **NOTE**
>
> When using transformer input, add 18K ohms between pins 7 and 8 of transformer socket for 600/150 ohms input impedance.

OUTPUT CONNECTIONS

Output taps for nominal loads of 8, 16, and 32 ohms (70 volt line) are provided. Connections and strapping are shown below.





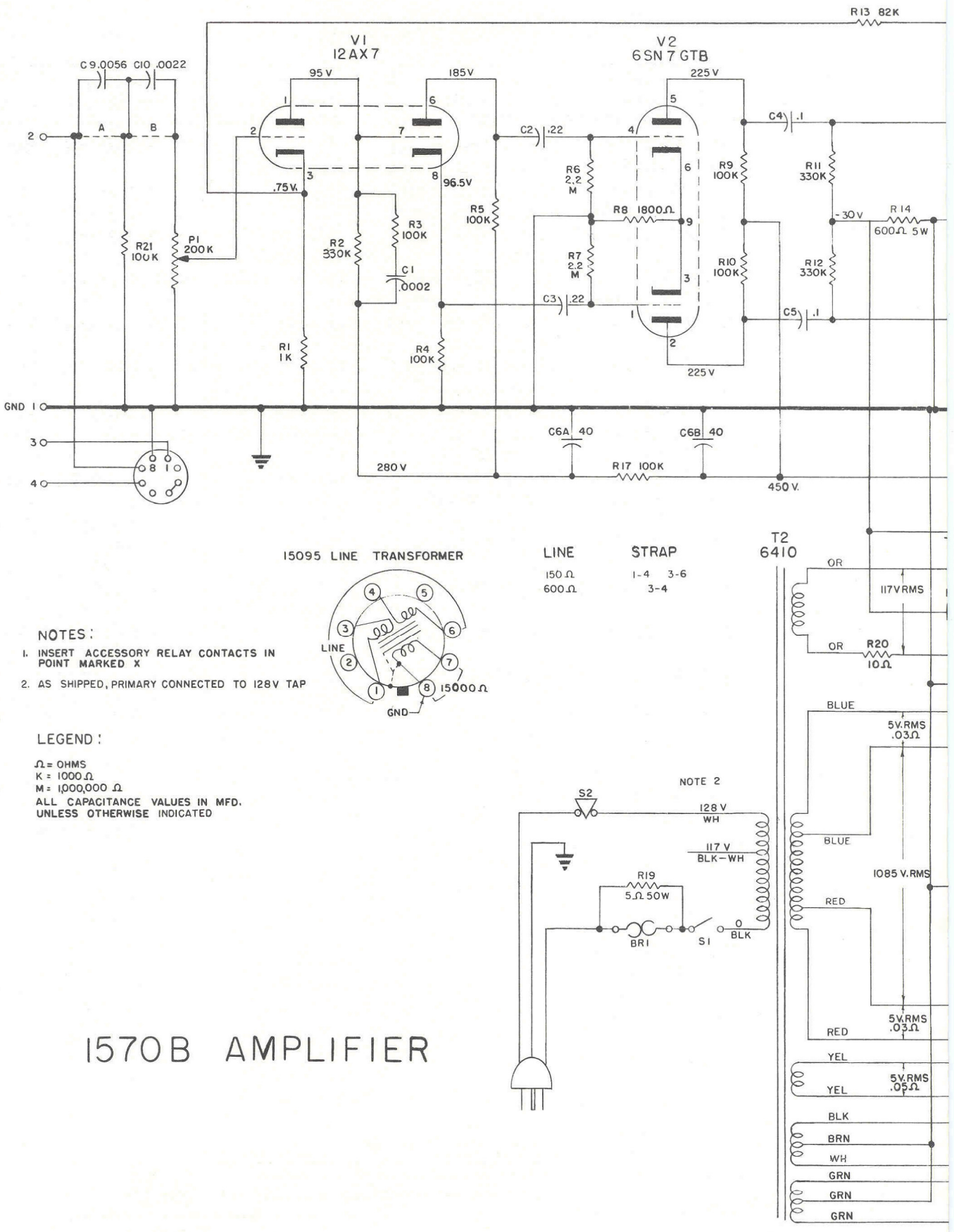


Speaker Matching

Use the output tap which most nearly equals the total speaker impedance. If the load impedance falls between two output tap values, use the lower tap.

70-Volt Line

The constant-voltage distribution system (70-volt line) permits connection of a large number of speakers, each



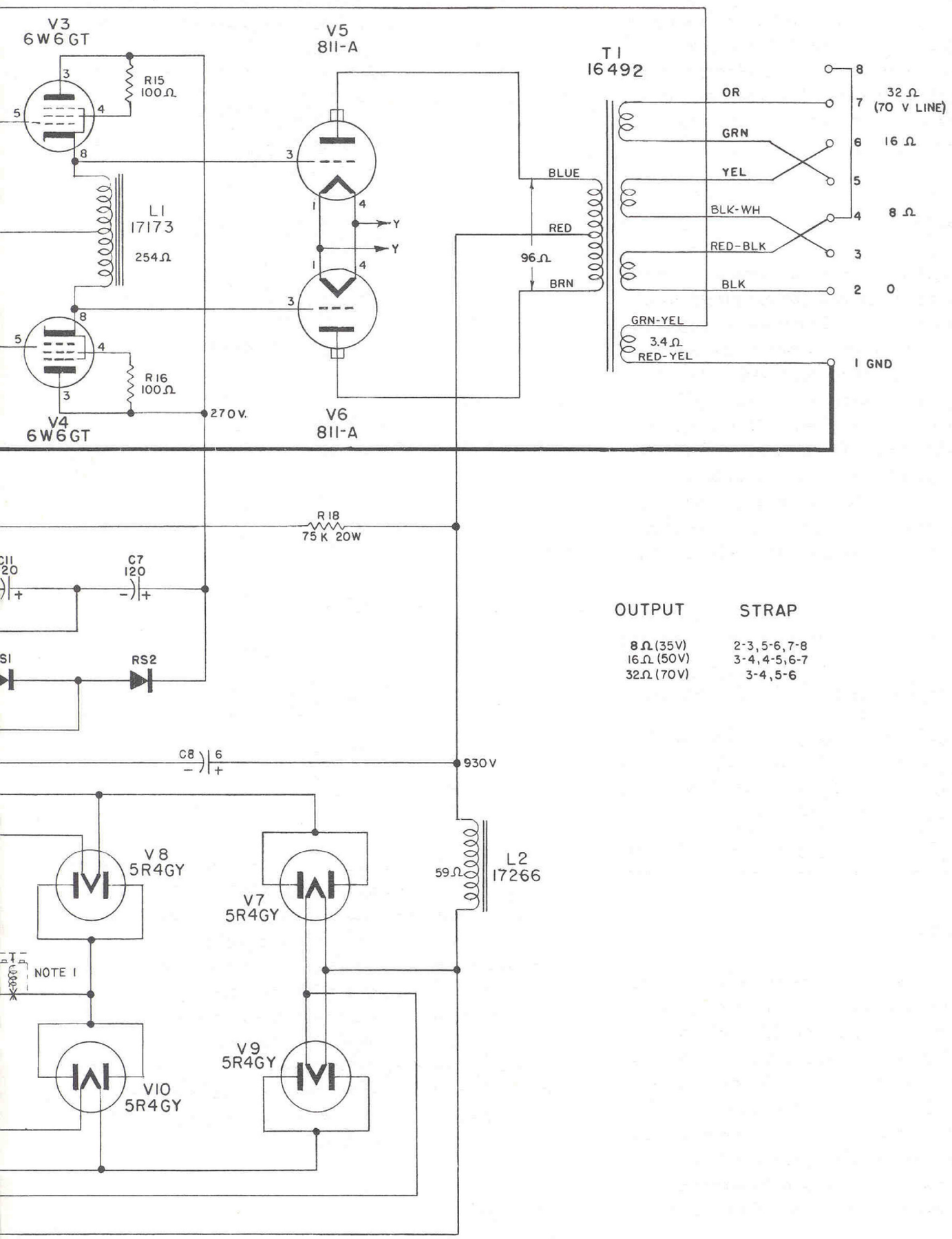
NOTES:

1. INSERT ACCESSORY RELAY CONTACTS IN POINT MARKED X
2. AS SHIPPED, PRIMARY CONNECTED TO 128V TAP

LEGEND:

Ω = OHMS
K = 1000Ω
M = 1,000,000 Ω
ALL CAPACITANCE VALUES IN MFD. UNLESS OTHERWISE INDICATED

1570B AMPLIFIER



OUTPUT	STRAP
8Ω (35V)	2-3, 5-6, 7-8
16Ω (50V)	3-4, 4-5, 6-7
32Ω (70V)	3-4, 5-6

FIRST MADE FOR 1570 B AMPLIFIER

TOLERANCES EXCEPT AS NOTED: FRACT. ± 1/64" DEC. ± .005" HOLE SIZES 0 TO 1/2" ± .001 OVER 1/2" ± .005 ANGULAR ± 1/2°

ISSUE	APPR'D	DATE	CHANGE
1		9-4-58	
2		7-14-61	R2 WAS 240K

ALTEC LANSING CORPORATION
ANAHEIM, CALIFORNIA

SCHEMATIC
1570 B AMPLIFIER

DR. BY ED GOLKA | 6697-2

to operate at the power level desired, without regard for the impedance involved. In this system, each speaker is equipped with a transformer which has a number of taps rated in terms of power and the tap is selected which gives the desired speaker power. The total power required for the speakers should be equal to or less than the amplifier power rating.

Protection of Horn-Loaded Drivers

In industrial paging systems, stadium, arena or other voice reinforcing systems which require excellent intelligibility over high noise levels; diaphragm-type driver units coupled to horns are used. When these are used without loudspeaker dividing networks (used in two-way speaker systems), the low-frequency energy applied to the driver voice coils must be limited. This protection is provided in the 1570B Amplifier by means of an R-C highpass filter in V-1 grid circuit (see schematic). As shipped, capacitors C9 and C10 are strapped out. By cutting one or both of these straps, attenuation is introduced as shown in the table, depending on the impedance of the source.

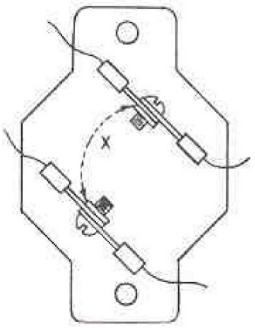
Source Impedance	Cut Strap	Hz			
		250	500	1000	2000
100,000 ohms	B	- 4.0	-1.5	-0.5	-0.2
	A	- 3.0	-1.0	-0.3	-0.2
	A and B	- 7.0	-2.5	-0.8	-0.3
Low (Appx. correct to 15,000 ohms)	B	- 5.2	-2.0	-0.7	-0.2
	A	- 8.5	-4.0	-1.5	-0.5
	A and B	-12.5	-6.2	-2.5	-0.7

POWER CONNECTIONS

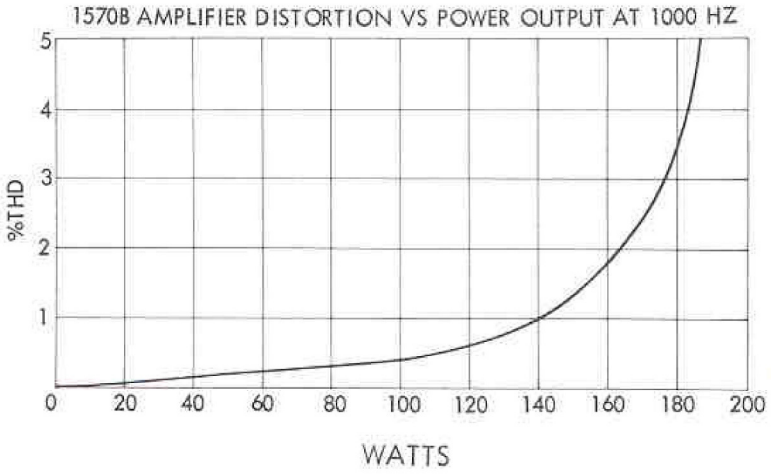
The power transformer of the 1570B Amplifier has primary taps for 117 and 128 volts and is shipped with the 128-volt tap (white lead) connected. Use of the 128-volt tap for all line conditions will extend component and tube life, reducing maintenance to a minimum. Do not connect the 117-volt tap unless 24-hour line checks show that the line does not exceed 117 volts. For your convenience, these two leads are equipped with ring-type terminals, the one in use being connected to one terminal of the interlock microswitch and the unused terminal insulated with plastic tubing.

POWER OUTPUT

When making power output measurements, connect a jumper across the terminals of the thermal breaker. If the jumper is not used, continuous sine wave output in the full power range may operate the breaker and give false readings. In motor drive or other applications which require continuous sine wave full power output of the 1570B, the thermal breaker should likewise be bridged out of the circuit.



X-Shorting Jumper



CONTROLS

Two controls are provided: Volume control and AC power switch. Provision has been made for mounting an accessory relay to provide plate keying by remote control. The mounting holes are located near the center of the chassis and are suitable for a Potter-Brumfield type PR-3 relay, or equal, which should be mounted under the chassis. Select a relay having the desired coil voltage. If control wiring and microphone lines are carried in the same conduit, use a DC type relay. The white wire from the cable form to terminal 6 on V-9 tube socket should be transferred from this terminal to one contact on the relay. Connect the other relay contact to terminal 6, V-9 socket.

SERVICING

When the top cover is removed for tube replacement, etc., an interlock switch interrupts the AC line voltage to the power transformer. Do not attempt service work on this amplifier with AC line voltage on, as approximately 1,000-volt potentials occur at various points. Discharge all filter condensers before making continuity or resistance measurements. Routine servicing may then be done using the schematic for pertinent data reference. If high-voltage measurements must be made, proceed with caution.

PARTS LIST

Reference Designator	Ordering Number	Name and Description
BR1	51-03-100356-01	Circuit breaker
C1	15-02-100025-01	Cap., 200 pF ±10%
C2,3	15-06-100133-01	Cap., 0.22 μF, 400V
C4,5	15-06-100118-01	Cap., 0.1 μF, 600V
C6	15-01-100222-01	Cap., 40-40 μF 500V
C7,11	15-01-100262-01	Cap., 120 μF, 200V
C8	15-07-100194-01	Cap., 6 μF, 1000V
C9	15-02-100065-01	Cap., 0.0056 μF ±10%, 500V
C10	15-02-100058-01	Cap., 0.0022 μF ±10%, 500V
L1	56-01-017173-08	Choke, audio
L2	56-01-017266-13	Choke, filter
P1	47-06-012435-02	Pot., 200K Ω
PL1	39-01-100535-01	Lamp, pilot
R1	47-01-102355-01	Res., 1K Ω ±10%, 1/2W
R2	47-01-100670-01	Res., 330KΩ±10%, 1W
R3,21	47-01-102379-01	Res., 100KΩ±10%, 1/2W
R4,5,9,10,17	47-01-100666-01	Res., 100KΩ±10%, 1W
R6,7	47-01-100626-01	Res., 2.2MΩ±10%, 1/2W
R8	47-01-102358-01	Res., 1.8KΩ ±10%, 1/2W
R11,12	47-01-100616-01	Res., 330K Ω±10%, 1/2W
R13	47-01-102378-01	Res., 82K Ω ±10%, 1/2W
R14	47-02-100719-01	Res., 600 Ω 5W
R15,16	47-01-102342-01	Res., 100Ω ±10%, 1/2W
R18	47-02-100730-01	Res., 75K Ω ±5%, 20W
R19	47-02-100731-01	Res., 5Ω, 50W
R20	47-01-102330-01	Res., 10Ω ±10%, 1/2W
RS1,2	48-02-100888-01	Rectifier, 1N1695, 400PIV
S1	51-01-012763-01	Switch
S2	51-02-100980-01	Switch
T1	56-07-016492-16	Transformer
T2	56-08-100980-20	Transformer
V1	57-01-101127-01	Tube, 12AX7
V2	57-01-101124-01	Tube, 65N7GTB
V3,4	57-01-101126-01	Tube, 6W6GT
V5,6	57-01-101132-01	Tube
V7,8,9,10	57-01-101115-01	Tube, 5R4GYA