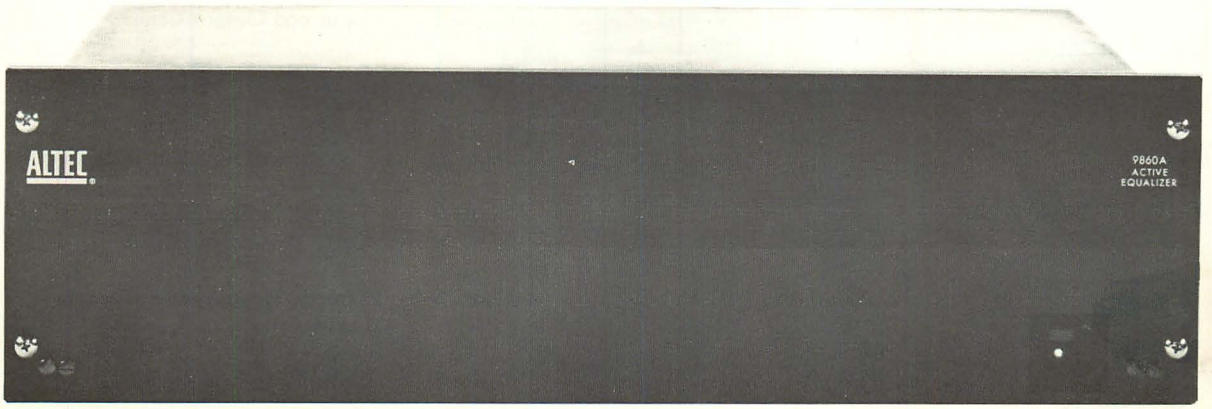
ALTEC®

9860A ACTIVE EQUALIZER

OPERATING INSTRUCTIONS



NOTICE

Read this manual before operating the ALTEC 9860A Active Equalizer.

FEATURES

- 26 Band-Rejection Filters — 1/3 Octave, ISO Center Frequencies (40 Hz to 12.5 kHz)
- High-Pass and Low-Pass Filters with Controls
- Front Panel Gain Control
- Transformer-Coupled Inputs and Outputs
- Hinged Front Cover Prevents Tampering with Controls
- Bypass Switch
- AC or Battery Operation
- Modular PCB Construction
- Underwriters' Laboratories Listed

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

ALTEC®
SOUND PRODUCTS DIVISION

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

DATA CONTENTS

SPECIFICATIONS

Type:	Active 1/3-octave equalizer with 26 band-rejection filters
Operating Gain:	-3 dB
Available Gain:	20 dB (to restore equalization loss)
Input Level:	+18 dBm maximum
Power Output:	+15 dBm
Frequency Response:	±1 dB from 20 Hz to 20 kHz
Distortion:	Less than 0.5% total harmonic distortion (THD) at rated output and restored gain
Input Impedance:	150Ω or 600Ω, balanced input
Load Impedance:	150Ω or 600Ω, balanced output
Noise Level:	82 dB below rated output
Controls:	26 detented linear slide filter controls on 1/3-octave ISO centers 40 Hz through 12.5 kHz. 15 dB depth each center frequency, combining with adjacent filters at -7 dB.

Controls (continued):	1 detented linear slide reinsertion GAIN control
	2 four-position interlocked pushbutton switches: HIGH PASS; OFF/40 Hz/80 Hz/160 Hz; 18 dB/octave rolloff LOW PASS; OFF/6 kHz/12.5 kHz/16 kHz; 18 dB/octave rolloff
	1 push/push BYPASS switch
Pilot Indicator:	Light-emitting diode
Power Requirements:	120/240V ac, 50/60 Hz, 35W -or- 24/28V dc at 1A
Operating Temperature Range:	Up to 50°C (122°F)
Dimensions:	5-1/4"H x 19"W x 8"D
Weight:	17 pounds
Color:	ALTEC Green on panel cover, black matte finish on inner panel

DESCRIPTION

The ALTEC 9860A Active Equalizer is an Acousta-Voicing® * filter set equipped with 26 active, band-rejection filters and additional high/low pass filter selection to accurately equalize the entire audio spectrum of one sound system channel. The 9860A enables adjustment of the sound system so that the loudspeaker and enclosed-room environment provide a flat acoustical response for the listener's ear. Internal gain correction restores the equalized output to the original input level.

Typical response curves for various filter settings are shown in Figure 1.

MODIFYING THE 9860A ACTIVE EQUALIZER FOR LOW-LEVEL SIGNAL APPLICATIONS

The 9860A Active Equalizer is designed to operate with a nominal input level of about +4 dBm. In many studio monitoring situations, however, levels as low as -12 or -14 dBm are encountered at the monitor bus outputs, and driving the 9860A at those levels degrades the signal-to-noise capabilities of the device.

The 9860A is equipped with 15356A input and output transformers. These are 600/600-ohm devices and are used for isolation only. If the 15095A transformers are used instead, the 600/15,000-ohm impedance transformation provides a 13 dB voltage advantage going into the equalizer circuitry, and consequently that much more signal-to-noise ratio.

Refer to Appendix A for the necessary modification procedure.

NOTE

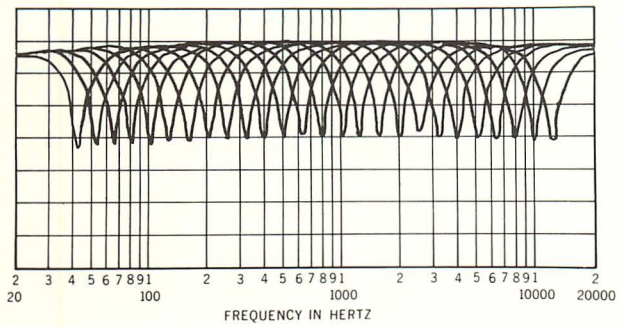
After modification, clipping of input signal will result for input levels exceeding approximately +5 dBm.

MODIFYING THE 9860A ACTIVE EQUALIZER FOR USE WITH 8080A PINK NOISE GENERATOR

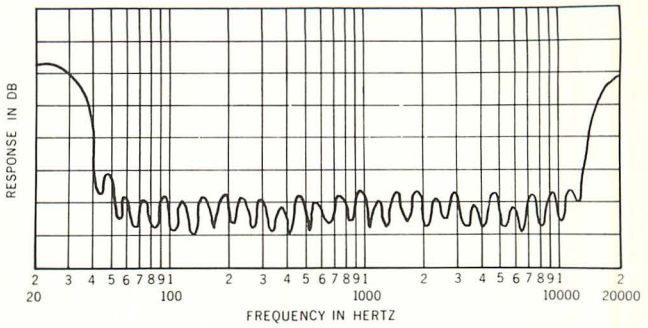
Substitution of the 8080A Pink Noise Generator for the normal input transformer of the 9860A provides great flexibility in tailoring a noise source to the desired spectrum in a wide range of environments.

Refer to Appendix B for the necessary modification procedure.

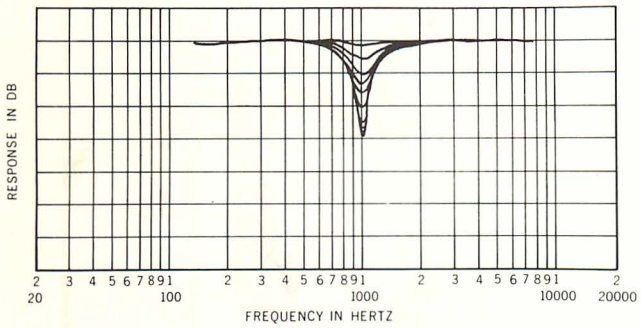
*The exclusive Altec Acousta-Voicing® process is patented under Pat. No. 3,624,298.



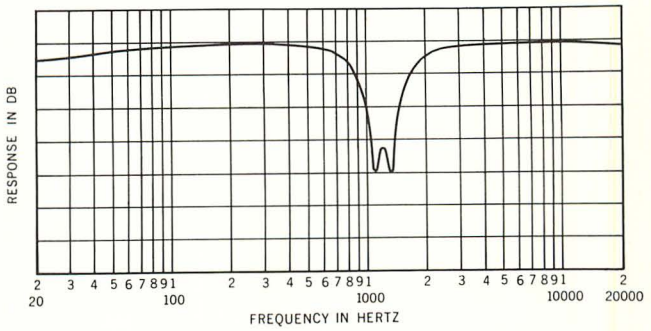
26 1/3 Octave-Centered Filters at Maximum Attenuation (-14 dB). Each Section Plotted Independently



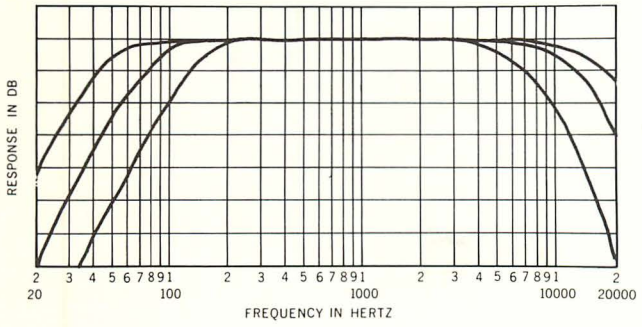
All Filter Sections Set for Full Attenuation



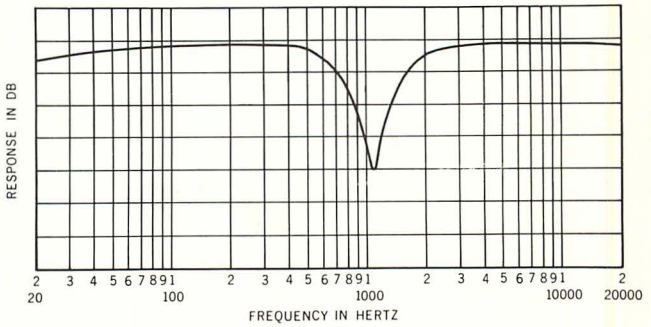
Single Filter, 1 kHz, Shown in Each Detented Position of Attenuation



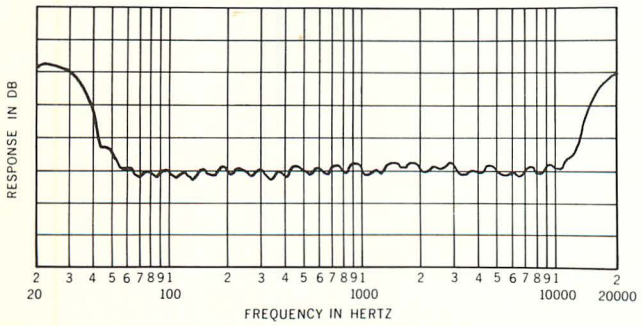
Two Adjacent Filters, 1 kHz and 1250 Hz, Set for Full Attenuation



High-Pass and Low-Pass Functions (18 dB/oct) Plotted Independently



1 kHz Filter Set at -14 dB, 800 and 1250 Hz Filters Set at -8 dB



All Filter Sections Set at -7 dB Attenuation Illustrating Slight Degree of "Ripple" (±1/2 dB) Characteristic of Proper Interaction Between Sections

Figure 1. Typical Response Curves for Various Filter Settings

INSTALLATION

MECHANICAL

The 9860A may be mounted in a standard 19-inch equipment rack. Vertical rack space required is 5-1/4 inches. Use the following procedure:

Step 1. Remove four screws securing front cover; open and lower cover.

Step 2. Install 9860A in equipment rack with appropriate four screws supplied with unit.

Step 3. Close front cover and secure with four screws previously removed.

VENTILATION

The 9860A generates minimal heat during normal use. Although the amount of heat is relatively low, the unit must be ventilated to prevent excessive temperature rise. Because transistors are heat sensitive, the 9860A should not be placed adjacent to heat-generating equipment or in areas where ambient temperature exceeds 50°C (122°F).

If the 9860A is mounted in an equipment rack or cabinet with other heat-producing equipment mounted above and/or below (two or more 9860A's or one 9860A with real time analyzer, oscilloscope, etc.), space must be provided between the units or the 9860A may become too warm. A 1-3/4" perforated panel is recommended for this purpose.

When several 9860A's or other heat-producing units are mounted in a single rack or cabinet, acceptable air temperature may be in doubt. To determine temperature conditions, operate the system until temperatures stabilize, then measure air temperature with a bulb-type thermometer held at the bottom of the uppermost 9860A. Do not let the thermometer bulb touch metal because the metal will probably be hotter than the ambient air. If air temperature could exceed 50°C, the equipment should be spaced further apart or a blower should be installed to ventilate the cabinet.

ELECTRICAL

120V ac, 50/60 Hz Power Connections

Equipment supplied for domestic use is provided with the power transformer strapped for 120 volts (terminals 2 to 3 and 4 to 5 on TB4). The power input nameplate on the chassis adjacent to the power cord is mounted to show the appropriate side specifying the connections (see Figure 2). Verify that line voltage is in accordance with the voltage rating before connecting the 9860A to line power.

240V ac, 50/60 Hz Power Connections

Export equipment, specified, is provided with the power transformer strapped for 240 volts (terminals 3 to 4 on TB4). The power input nameplate on the chassis adjacent to the power cord is mounted to show the appropriate side specifying the connections. Use the following procedure to change a unit strapped for 120V operation to 240V operation:

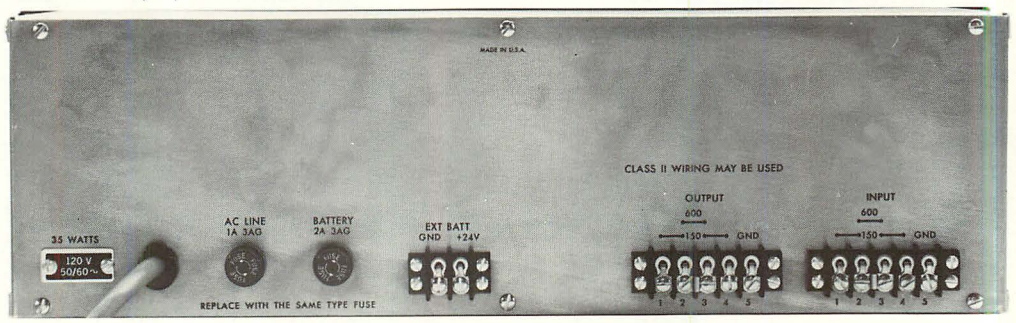


Figure 2. Electrical Connections

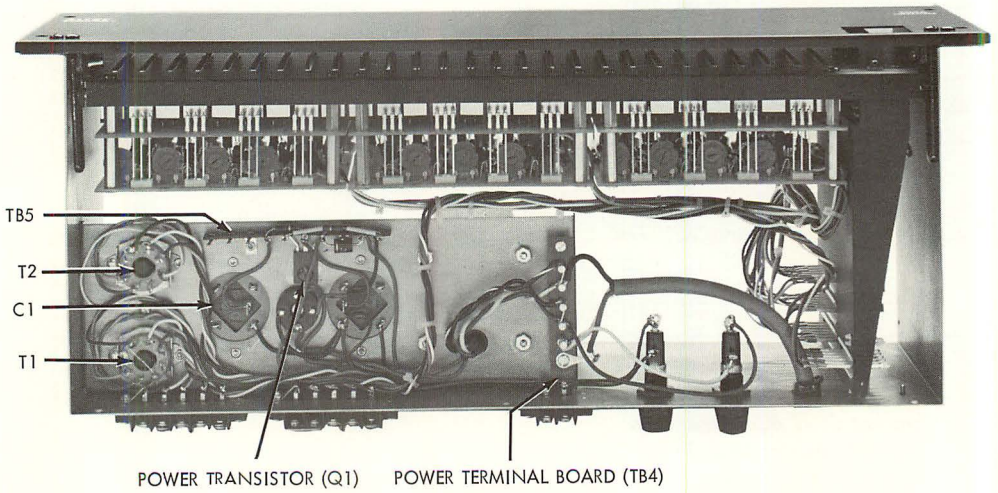


Figure 3. Bottom View 9860A, Cover Removed

240V ac, 50/60 Hz Power Connections (continued)

Step 1. Remove seven screws securing bottom cover; lift off cover.

Step 2. Locate terminal board TB4 beneath power transformer T3.

Step 3. Remove strap "A" connecting terminals 2 and 3, and remove strap "B" connecting terminals 4 and 5; then solder strap "C" to terminals 3 and 4 (see Figures 3 and 4).

Step 4. Remove voltage rating nameplate from chassis, reverse and reinstall to show 240V rating.

Step 5. Replace bottom cover and secure with seven screws previously removed.

Step 6. Change ac line fuse (F1) from the existing 1A fuse to a 1/2A fuse (see Figure 2). Place a 1/2A ac line rating tag on tag on the back of the 9860A, above the AC LINE fuse.

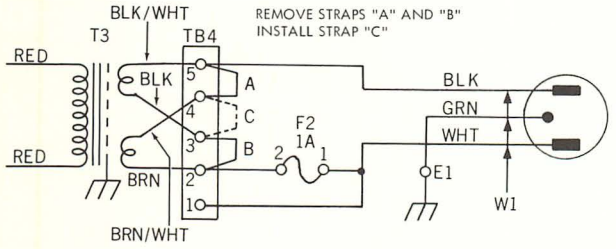


Figure 4. Converting to 240V ac, 50/60 Hz Power

Battery Connections

If desired, the 9860A may be connected to an external 24/28V battery with minus (-) as ground. Terminals for the dc power connections are on TB3 (see Figures 2 and 11). If ac power fails, transfer to dc power is instantaneous, automatic and silent.

Input Connections

Input to the 9860A is connected to the INPUT terminal board (TB1) on the rear panel of the chassis (see Figures 2, 5 and 11). Connections to ALTEC power amplifiers must be made with two-conductor, twisted and shielded cable, such as Belden 8450 or 8451 cable.

> **NOTE**
> For amplifier connections, refer to operating instructions for associated ALTEC amplifier.

For 600-ohm balanced input applications with 9860A, connect amplifier to terminals 1 and 4 of TB1 and strap terminals 2 and 3 (see Figure 5). Terminals 4 (common) and 5 (ground) may also be strapped to prevent interference from stray electrostatic radiation.

For 150-ohm balanced input applications with the 9860A, connect amplifier to terminals 1 and 4 of TB1 and strap terminals 1 to 2 and 3 to 4 (see Figure 5). Terminals 4 and 5 may also be strapped to prevent interference from stray electrostatic radiation.

Output Connections

Output from the 9860A is connected to the OUTPUT terminal board (TB2) on the rear panel of the chassis (see Figures 2, 5 and 11). Terminal connections and cable requirements are the same as described for input connections.

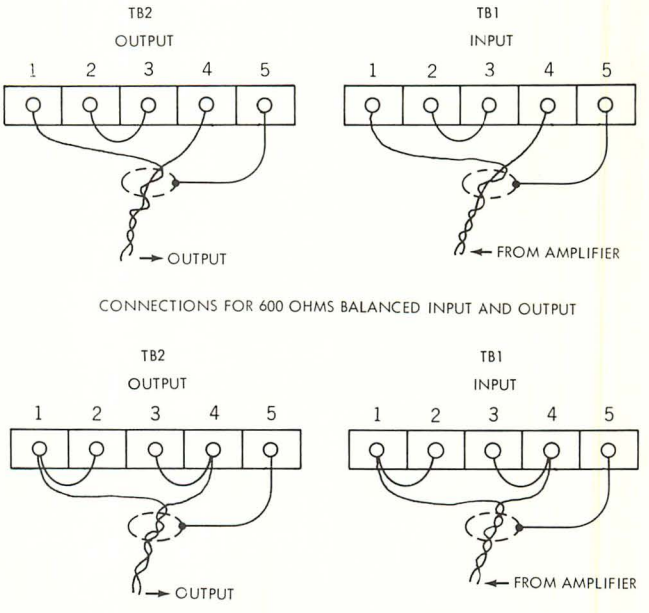


Figure 5. Input and Output Connections

OPERATION

CONTROLS AND INDICATORS

The pilot indicator and all operating controls are on the front panel (see Figure 6). Their functions are described in Table I. A hinged cover prevents inadvertent control changes. When the hinged cover is secured, only the BYPASS switch and pilot indicator are exposed.

Use of Equalizer Controls

Although the filter controls are continuously variable slide potentiometers, they are detented in increments of 1-1/2 dB. ALTEC strongly recommends that only the detented positions be used to guarantee precision resetting of the controls. Typical sound system response curves before and after equalization are shown in Figures 7 and 8. A convenient method of recording filter control settings for future resetting of controls for different installations or applications is shown in Figure 9.

Only one pushbutton at a time should be pressed on the HIGH PASS selector or LOW PASS selector. Two pushbuttons will lock in for either selector but an error in filter frequency insertion will result.

The first attempt to smooth the house curve should be limited to one or two of the greatest peaks or valleys. After this initial smoothing, run a new house curve to check results. Continue adjusting one or two sections at a time, replotting the frequency response each time, until the desired uniformity of response is achieved or until the correction capability of the 9860A is exceeded.

After the best obtainable house curve is achieved with the 9860A filter controls, adjust the GAIN control to provide an equalized output level as high as the unequalized input level. The GAIN control is detented in increments of 2 dB and has a reinsertion range of +20 dB.

Table I. Control and Indicator Functions

Name	Function/Description
Filter Controls	Twenty six detented, linear slide controls, continuously variable, graduated from 0 to -15 dB. Each control adjusts a 1/3-octave band-rejection filter. ISO center frequencies range from 40 to 12,500 Hz. Filter depth is -15 dB on each center frequency, combining with adjacent filters at -7 dB.
HIGH PASS Selector	Four interlocked pushbutton switches for OFF, 40 Hz, 80 Hz and 160 Hz. Selects high pass filter to shape low-frequency audio spectrum. Inserts -18 dB/octave rolloff at the selected corner frequency.
LOW PASS Selector	Four interlocked pushbutton switches for OFF, 6 kHz, 12.5 kHz and 16 kHz. Selects low pass filter to shape high-frequency audio spectrum. Inserts -18 dB/octave rolloff at the selected corner frequency.
GAIN Control	Detented, linear slide control, continuously variable over a 20 dB range. Adjusts level of equalized program to match level of unequalized program.
BYPASS Switch	Pushbutton switch for A/B comparison or bypassing 9860A. Options of momentary action or push-and-lock.
Pilot Indicator	Light-emitting diode. Continuously lit when equalizer is in operation. Periodically flashes in bypass mode.

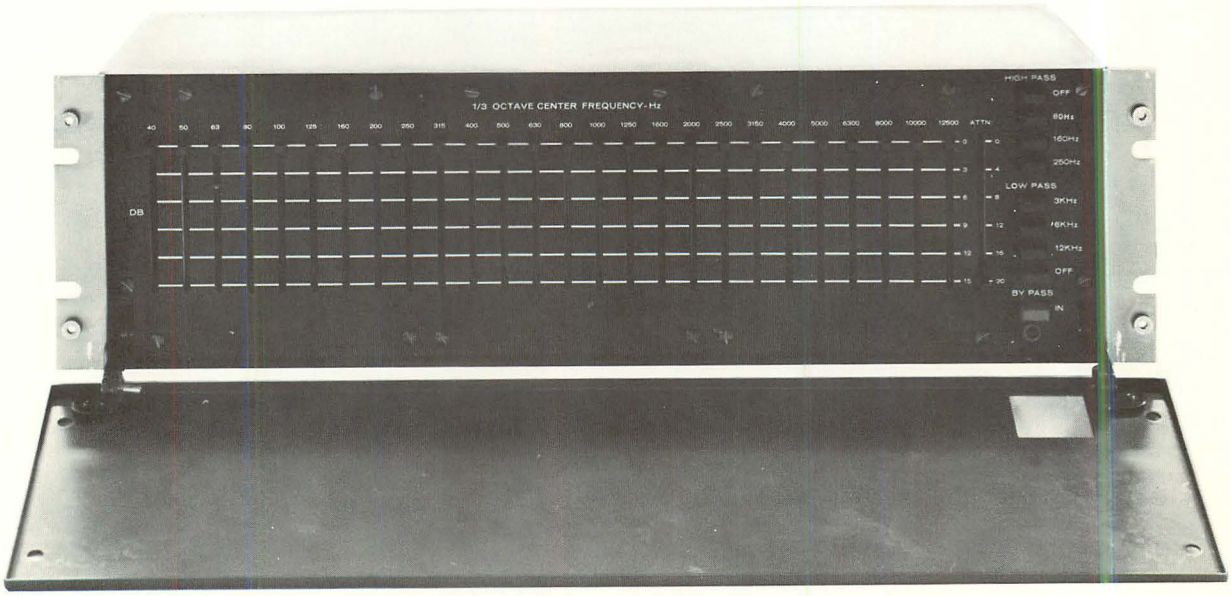


Figure 6. Front View 9860A, Hinged Panel Cover Open

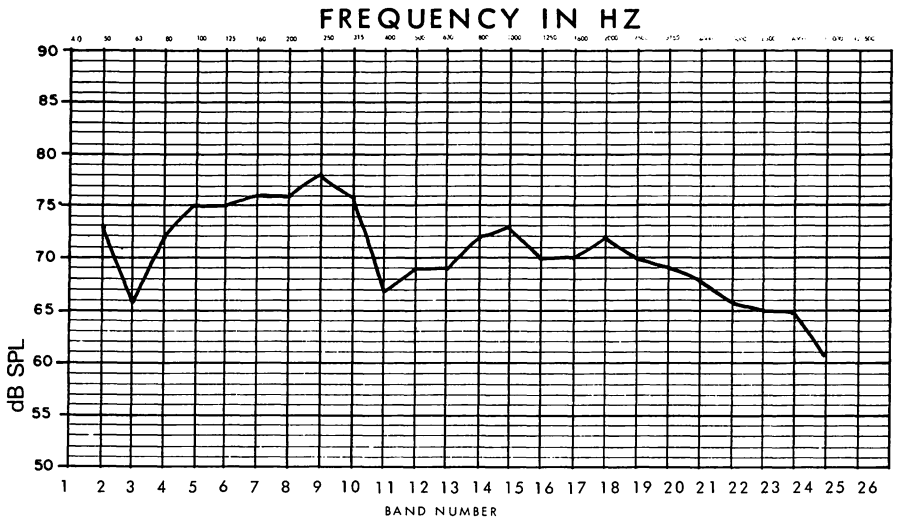


Figure 7. Typical Sound System Response Curve Before Equalization

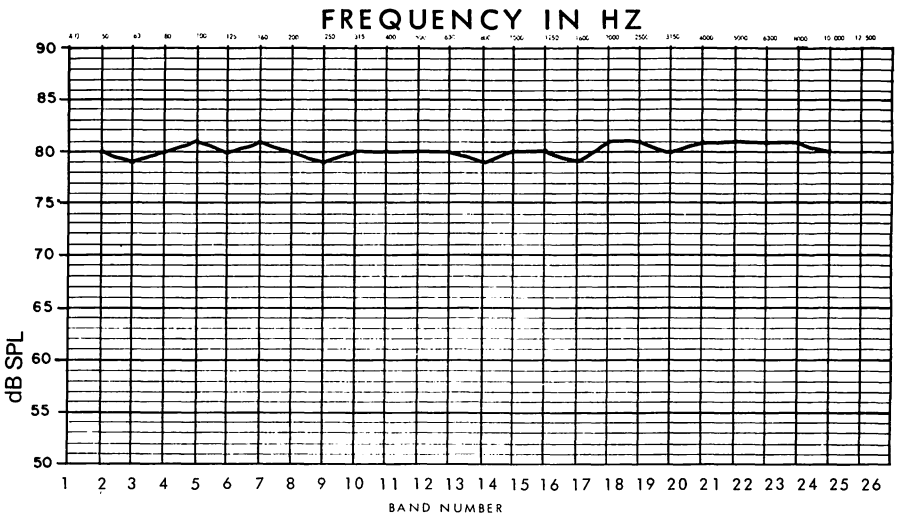


Figure 8. Typical Sound System Response Curve After Equalization

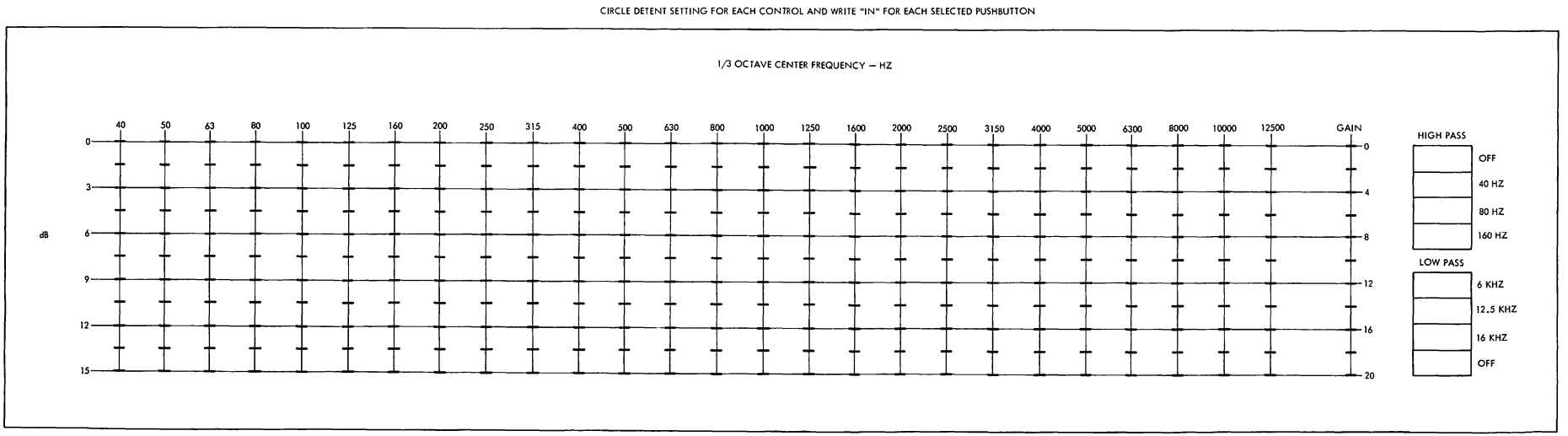


Figure 9. Control Settings Record

SERVICE

If a malfunction occurs, service should be performed by an ALTEC Qualified Service Representative. For factory service, ship the 9860A prepaid to:

Customer Service
ALTEC
131 West Katella Avenue
Anaheim, California 92803

For additional information or technical assistance, call (714) 774-2900, or Telex 65-5415.

ACCESS

Obtain access to the chassis interior by removing the top and bottom covers and/or the control panel assembly.

Cover Removal

Remove seven screws securing each cover and lift off cover. Figure 3 shows interior with bottom cover removed and Figure 10 shows interior with top cover removed.

Control Panel Assembly Removal

Use the following procedure to remove the control panel assembly:

Step 1. Remove four screws securing hinged control panel cover and lower cover.

Step 2. Remove only two screws from each side of control panel, above hinge (see Figure 6), to free control panel assembly from chassis enclosure.

Step 3. Carefully withdraw control panel assembly from enclosure to the extent permitted by power cable.

PARTS REPLACEMENT

Fuse Replacement

Fuses for ac line power (F2) and battery power (F1) are mounted on the rear of the chassis (see Figure 2). If replacement is required, determine and correct any cause of failure before replacing fuse. Install an identical fuse (see **PARTS LIST**) by unscrewing fuse holder, replacing fuse and resecuring fuse holder.

CAUTION

Be sure to replace the ac line fuse of a unit operating on 240V line power with a fuse rated for 1/2 ampere.

Input and Output Transformer Replacement

The input (T1) and output (T2) transformers are plug-in modules located within the chassis (see Figure 10). Use the following procedure to replace either transformer:

Step 1. Remove seven screws securing top cover and lift off cover.

Step 2. Remove screw, nut, washer and clamp plate securing transformers.

Step 3. Replace T1 or T2, as applicable, with identical module (see **PARTS LIST**).

Step 4. Install clamp plate and attaching hardware previously removed.

Step 5. Replace top cover and secure with seven screws previously removed.

Pilot Indicator Replacement

Use the following procedure to replace the pilot indicator:

Step 1. Remove control panel assembly.

Step 2. Remove pilot indicator from clip-ring mounting by pressing it through from the front side of panel.

Step 3. Press replacement pilot indicator (see **PARTS LIST**) into the clip-ring mounting.

Step 4. Unsolder old pilot indicator and solder leads to replacement pilot indicator, observing proper polarity.

Step 5. Replace control panel assembly by reversing steps of removal procedure.

Power Transistor Replacement

The power transistor (Q1) is located on the bottom chassis subassembly (see Figures 3 and 11). Use the following procedure to replace it:

Step 1. Remove seven screws securing bottom cover and lift off cover.

Step 2. Unsolder transistor leads from terminals 4, 5 and 6 of terminal board TB5.

Step 3. Remove mounting screw and lift Q1 from chassis.

Step 4. Be sure the following conditions exist when replacing Q1:

a. Mica insulator is not damaged; if damaged, replace with new insulator.
b. No grit or metal particles are lodged between Q1 and chassis.
c. Both sides of mica insulator are covered with silicone grease or fluid.
d. Mounting screw is tight.

Step 5. Solder Q1 leads to terminals 4, 5 and 6 of TB5 in accordance with lead configuration shown in Figures 3 and 11.

Step 6. Replace bottom cover and secure with hardware previously removed.

Printed Circuit Board (PCB) Replacement

Three potentiometer PCB's, three filter PCB's and one control PCB are located within the chassis (see Figures 10 and 11). Repair or component replacement for any PCB should be made only at factory service.

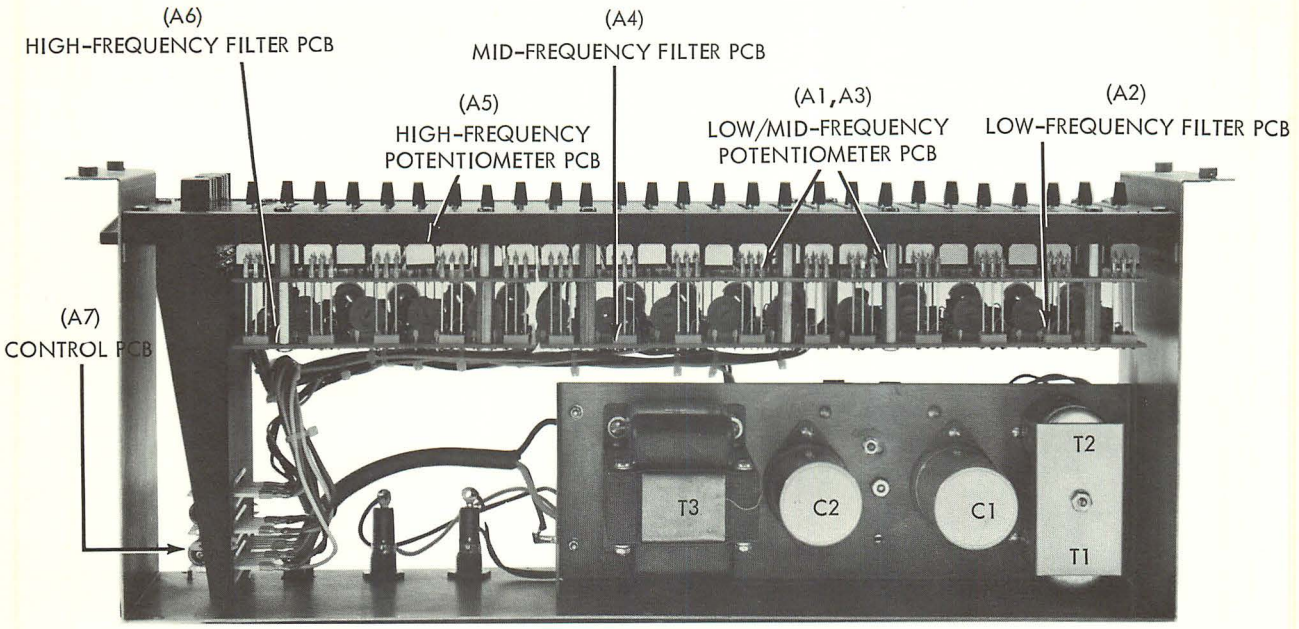


Figure 10. Top View 9860A, Cover Removed

> **CAUTION**
>
> Filter PCB's have several factory-adjusted potentiometers. Their adjustments must not be disturbed because any changes result in misalignment of the corresponding band-reject filters. Adjustment of these potentiometers should be done only at factory service.

A new or repaired PCB may replace a failed PCB to restore operation. Remove the control panel assembly, then use the applicable replacement procedure for the failed PCB.

> **CAUTION**
>
> When removing and replacing any PCB, do not warp, bend or twist the board or conductor may fracture.

1. Control PCB Replacement

   Step a. Remove two screws at front end of PCB which secure it to spacers on chassis.

   Step b. Carefully lift rear of PCB to free connector pins. Take care that control buttons do not bind in control panel while removing board.

   Step c. Insert control buttons of replacement PCB through appropriate holes in control panel and position connector pins of replacement PCB over receptacle. Verify that all PCB connector pins mate properly with receptacle, then press PCB firmly into receptacle. Be careful not to warp, bend or twist the board.

   Step d. Align PCB mounting holes with spacers on chassis and secure PCB with two screws previously removed.

   Step e. Replace control panel assembly by reversing steps of removal procedure.

2. Filter PCB Replacement

   Step a. Remove four screws from rear of board which secure it to spacers on potentiometer PCB.

   Step b. Carefully lift PCB to free connector pins; if necessary, remove plastic cable clamps from cable harness.

   Step c. Carefully remove all wire connections from PCB, tagging each connector as removed with wire color/relationship.

   Step d. Attach wire connectors to replacement PCB in accordance with tagging (see Step c).

   Step e. Position connector pins of replacement PCB over receptacle, then press PCB firmly into receptacle. Be careful not to warp, bend or twist the board.

   Step f. Align PCB mounting holes with spacers on potentiometer PCB and secure it with four screws previously removed.

   Step g. Replace any cable clamps removed in Step b.

   Step h. Replace control panel assembly by reversing steps of removal procedure.

3. Potentiometer PCB Replacement

   Step a. Remove nine plastic slider tips from filter controls of PCB being replaced; the tips are press-fitted and may be pulled free.

Step b. Remove four screws securing PCB assembly to front panel.

Step c. Remove four threaded spacers securing potentiometer PCB to filter PCB.

Step d. Carefully lift PCB to free connector pins.

Step e. Position connector pins of replacement PCB over receptacle. Verify that all PCB connector pins mate properly with receptacle, then press PCB firmly into receptacle. Be careful not to warp, bend or twist the board.

Step f. Secure potentiometer PCB to filter PCB with four threaded spacers previously removed.

Step g. Align spacer mounting holes with holes in front panel and secure PCB with four screws previously removed.

Step h. Press nine plastic slider tips, previously removed, onto filter controls.

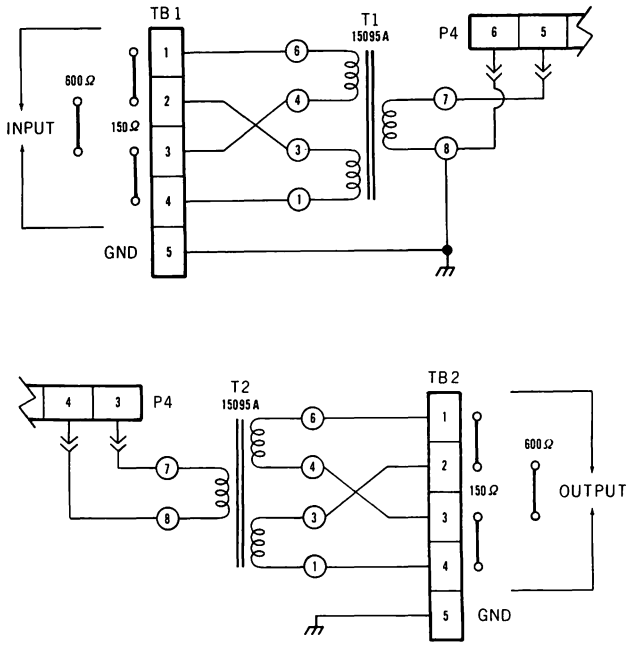
Step i. Replace control panel assembly by reversing steps of removal procedure.

APPENDIX A

PROCEDURE TO MODIFY 9860A FOR LOW-LEVEL SIGNAL APPLICATIONS

Step 1. Remove top and bottom covers of 9860A.

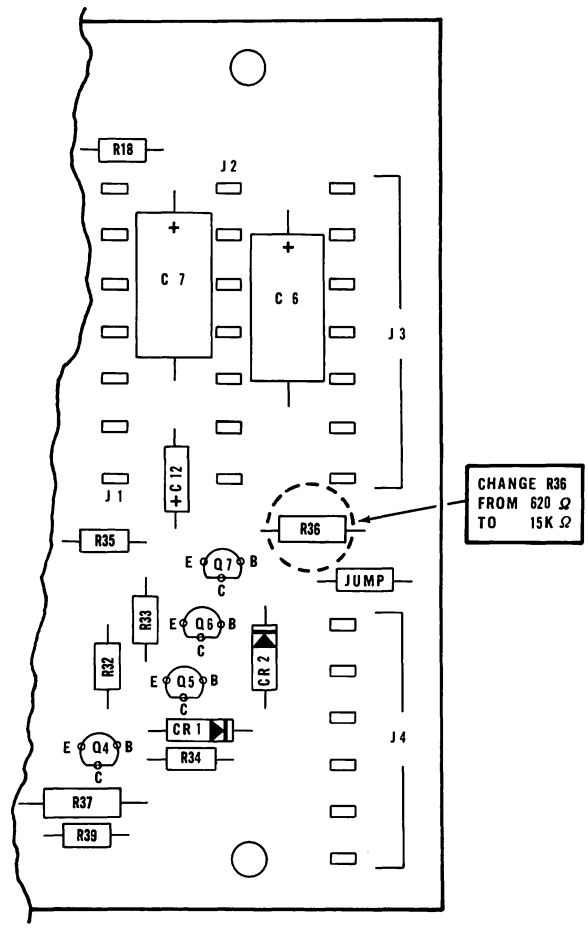
Step 2. Rewire sockets of transformers T1 and T2 to accommodate 15095A transformers in accordance with the following wiring diagrams.



Step 3. Complete procedure for Control Panel Assembly Removal given on page 10. Remove Control PCB assembly (see Figure 10 and procedure for Control PCB Replacement given on page 11).

Step 4. Locate R36 on Control PCB assembly as shown below, and replace R36 with a 15KΩ resistor.

Step 5. Replace Control PCB assembly in 9860A (reverse procedure given on page 11). Replace Control Panel Assembly in 9860A (reverse procedure given on page 10).



Step 6. Install 15095A transformers in sockets for T1 and T2 (see Figure 10 and procedure for Input and Output Transformer Replacement given on page 10.

Step 7. Install Control Panel Assembly top and bottom covers on 9860A (reverse sequence of Step 1).

APPENDIX B

PROCEDURE TO MODIFY 9860A FOR USE WITH 8080A PINK NOISE GENERATOR

Step 1. Remove top and bottom covers of 9860A.

Step 2. Install a 510Ω, 1/2-watt resistor from pin 7 to pin 1 on TB5 (see Figures 3 and 11).

Step 3. Install a jumper wire from pin 1 of TB5 to pin 5 on transformer T1 socket.

Step 4. Install a 1500 μF, 25V dc capacitor between pin 1 of TB5 and ground lug of capacitor C1 (negative side of capacitor is ground).

Step 5. Replace transformer T1 with 8080A (see Figure 10 and procedure for Input and Output Transformer Replacement, page 10).

Step 6. Install top and bottom covers of 9860A.

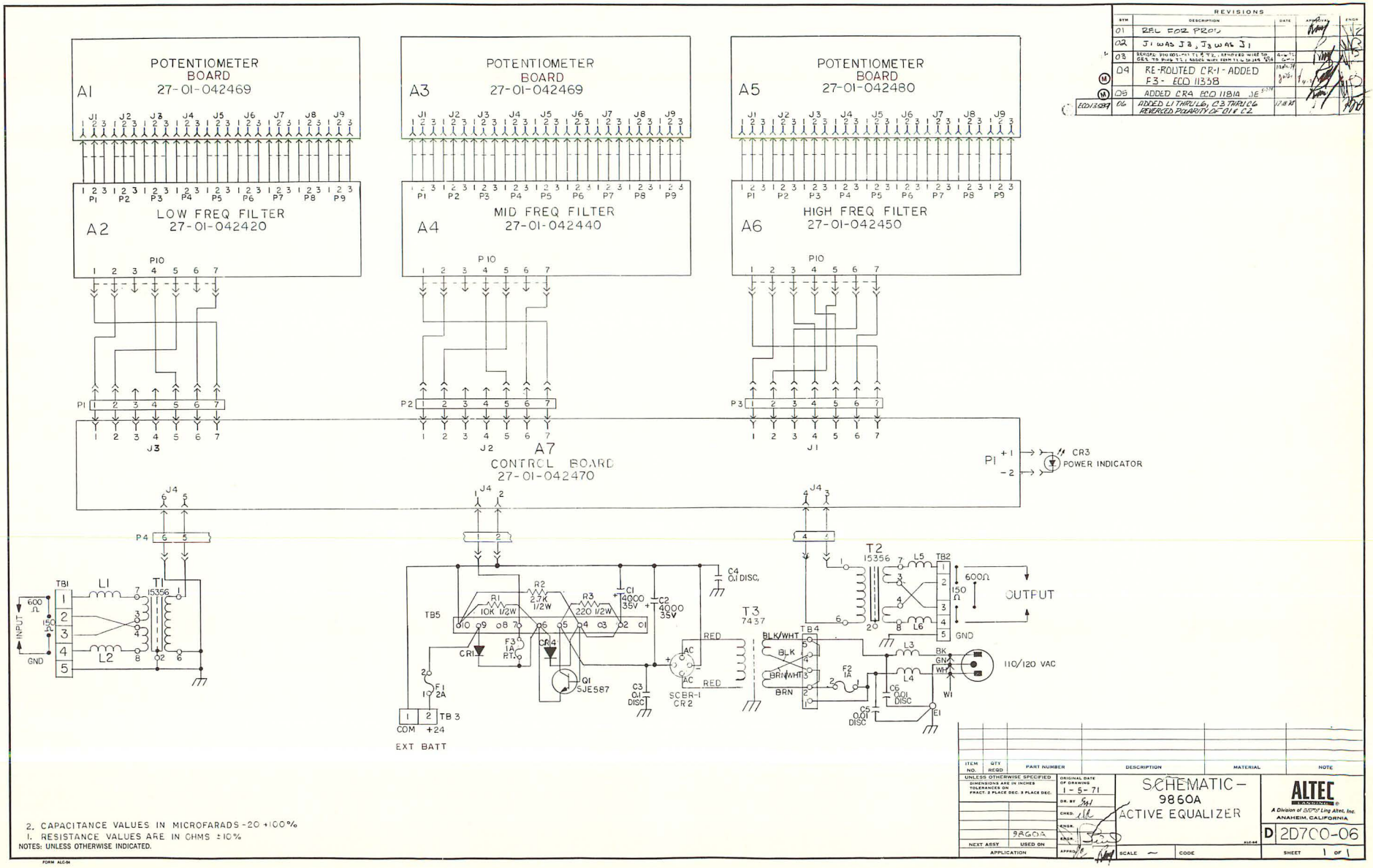


Figure 11. Schematic (2D700-6), 9860A Active Equalizer

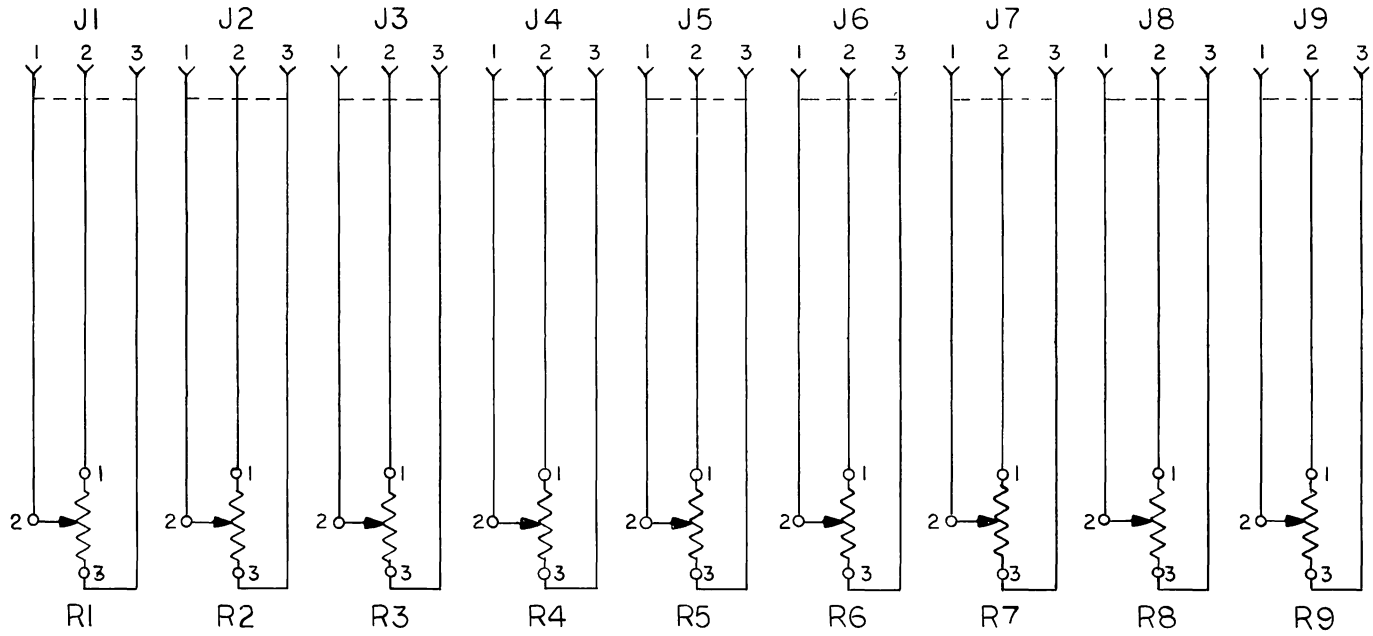


Figure 12. Schematic (2C693-1), Low/Mid Frequency Potentiometer PCB Assembly (A1, A3)

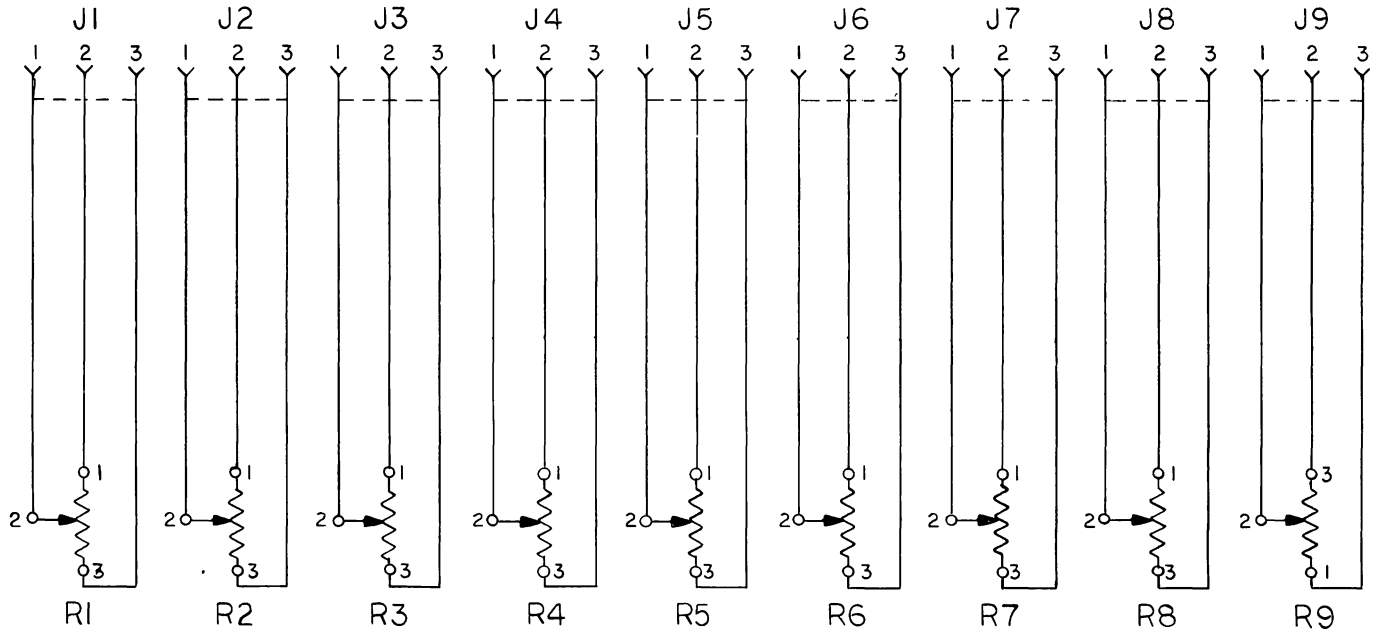


Figure 13. Schematic (2C694-1), High Frequency Potentiometer PCB Assembly (A5)

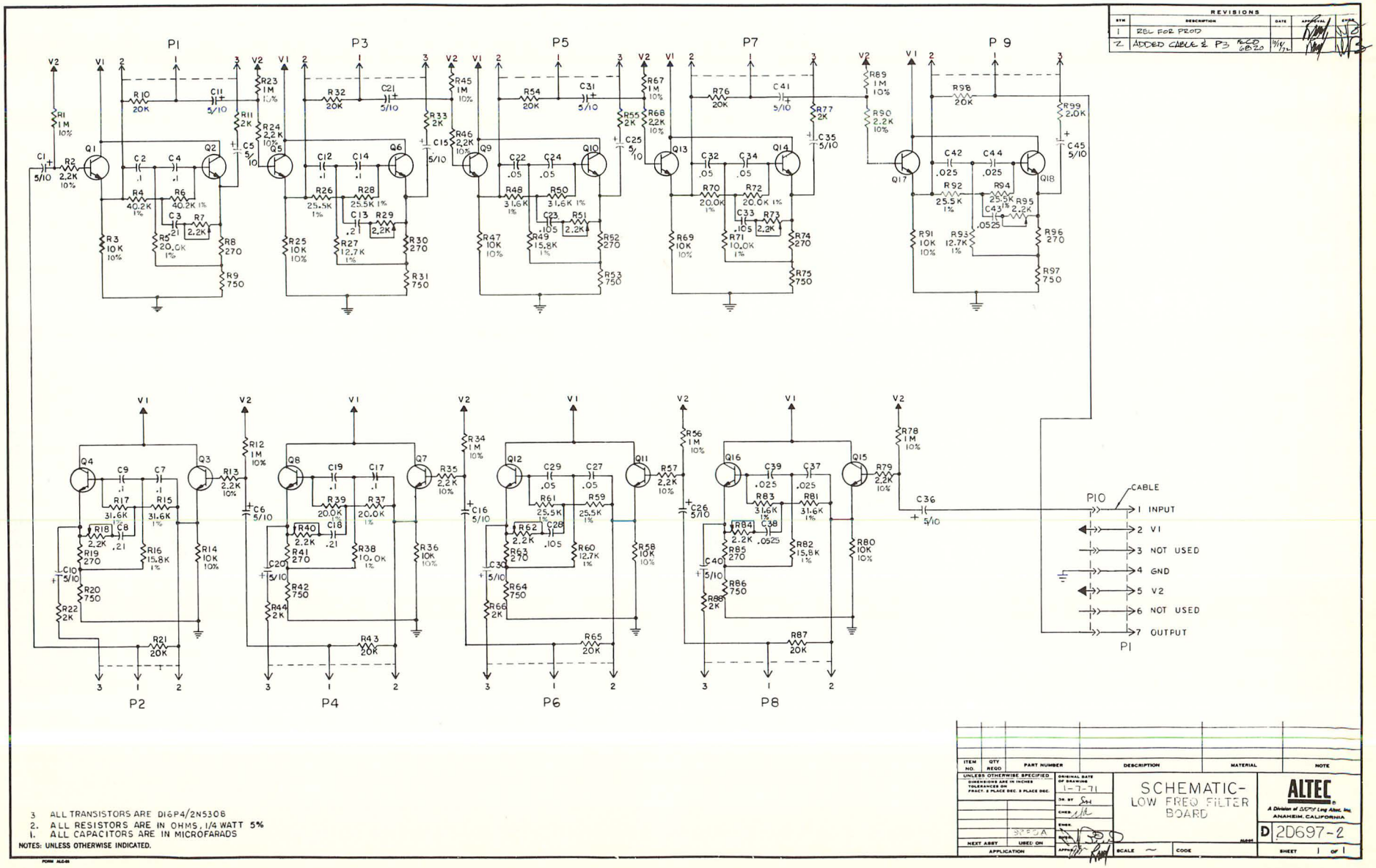


Figure 14. Schematic (2D697-2), Low Frequency Filter PCB Assembly (A2)

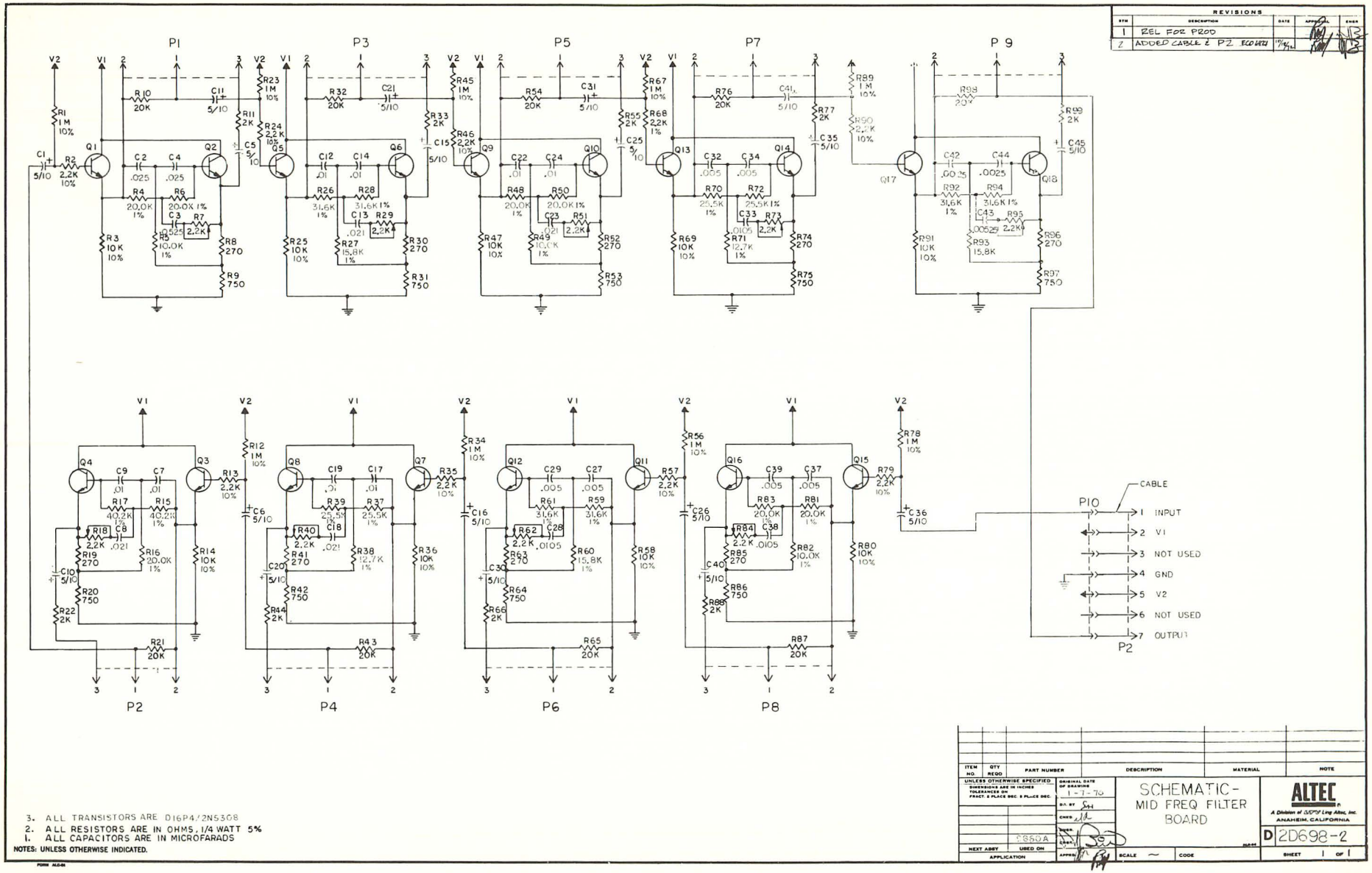


Figure 15. Schematic (2D698-2), Mid Frequency Filter PCB Assembly (A4)

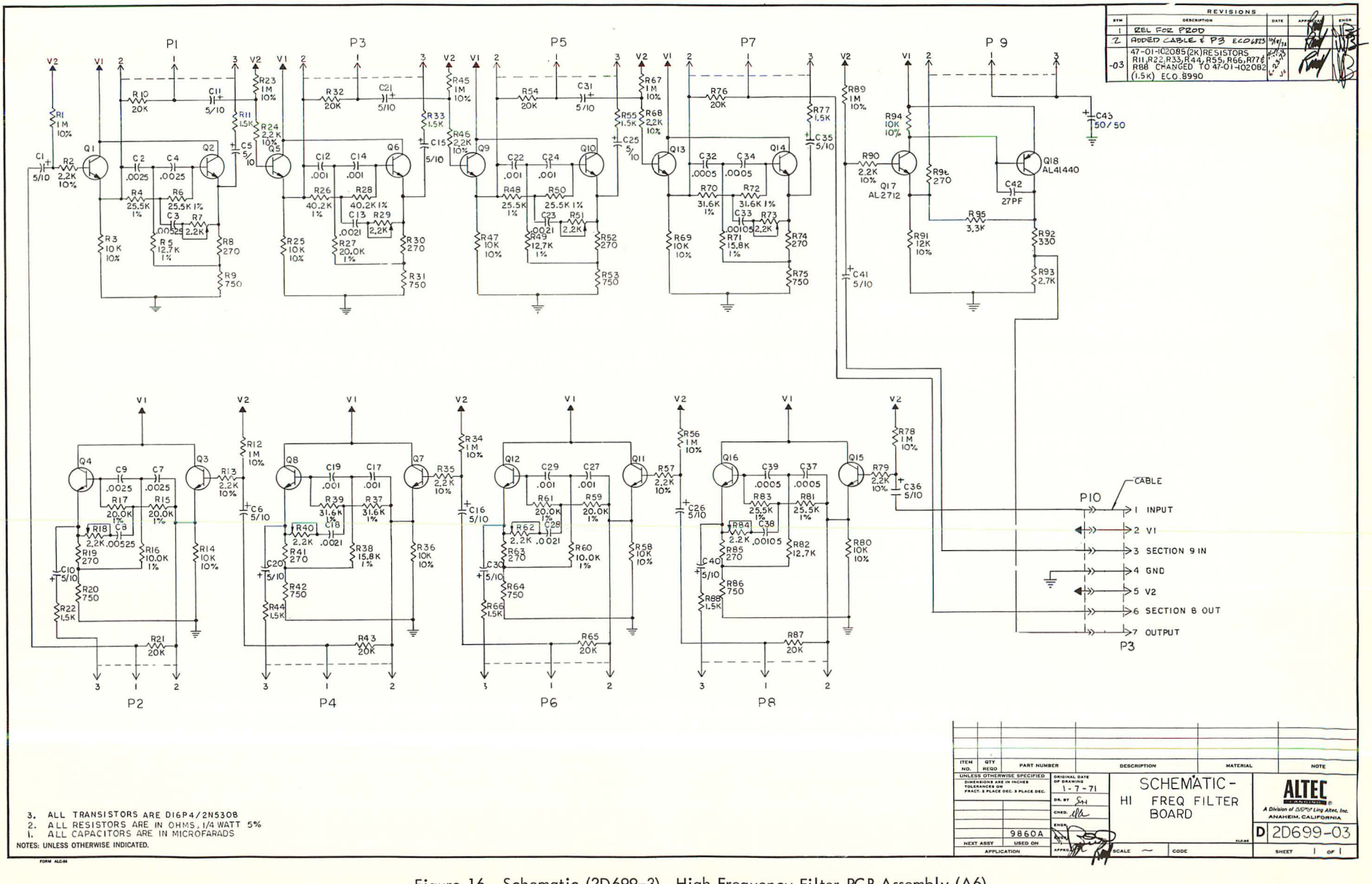
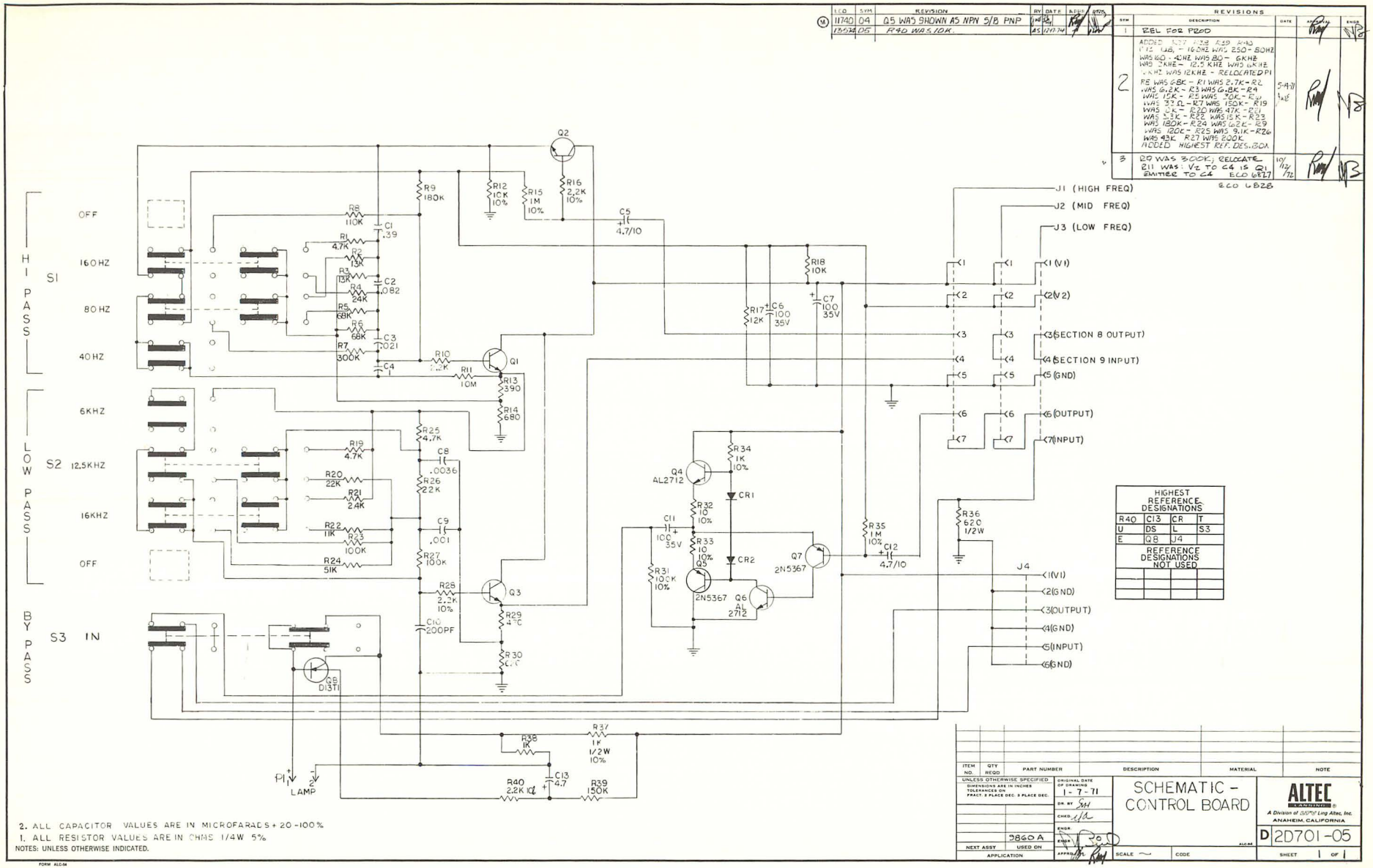


Figure 16. Schematic (2D699-3), High Frequency Filter PCB Assembly (A6)



HIGHEST REFERENCE DESIGNATIONS			
R40	C13	CR	T
U	DS	L	S3
E	Q8	J4	

REFERENCE DESIGNATIONS NOT USED			

REVISIONS				
SYM	DESCRIPTION	DATE	APPROVED	ENGR
1	REL FOR PROD			
2	ADDED R37 R38 R39 R40 C12 C13 CR1 CR2 Q5 Q6 Q7 Q8 J4 - 160HZ WAS 250 - 80HZ WAS 60 - 40HZ WAS 80 - 6KHZ WAS 3KHZ - 12.5 KHZ WAS 6KHZ - 16KHZ WAS 12KHZ - RELOCATED P1 R5 WAS 68K - R1 WAS 2.7K - R2 WAS 6.2K - R3 WAS 6.8K - R4 WAS 15K - R5 WAS 30K - R6 WAS 33K - R7 WAS 150K - R19 WAS 6K - R20 WAS 47K - R21 WAS 7.5K - R22 WAS 15K - R23 WAS 180K - R24 WAS 62K - R25 WAS 120K - R26 WAS 9.1K - R27 WAS 200K MODED HIGHEST REF. DES. 30A	5-4-71		
3	R9 WAS 300K; RELOCATE R11 WAS: V2 TO C4 TO Q1 EMITTER TO C4 ECO 6827	10/1/72		

ECO 6828

LCO	SYM	REVISION	BY	DATE	APPD
11740	04	Q5 WAS SHOWN AS NPN S/B PNP			
13574	05	R40 WAS 10K.			

ITEM NO.	QTY REQD	PART NUMBER	DESCRIPTION	MATERIAL	NOTE

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES. TOLERANCES ON FRACT. ± PLACE DEC. ± PLACE DEC.

ORIGINAL DATE OF DRAWING 1-7-71
DR. BY SH
CHKD. [illegible]
ENGR. [illegible]
APPROVED [illegible]

NEXT ASSY 9860A
USED ON
APPLICATION

SCHEMATIC - CONTROL BOARD

SCALE — CODE

ALTEC LANSING
A Division of LTV Ling Altec, Inc.
ANAHEIM, CALIFORNIA

D 2D701-05

SHEET 1 OF 1

NOTES: UNLESS OTHERWISE INDICATED.
1. ALL RESISTOR VALUES ARE IN OHMS 1/4W 5%
2. ALL CAPACITOR VALUES ARE IN MICROFARADS + 20 -100%

FORM ALC-54

Figure 17. Schematic (2D701-5), Control PCB Assembly (A7)

PARTS LIST

MAIN CHASSIS

Reference Designator	Ordering Number	Name and Description
A1,3	27-01-042469-01	PCB assembly, low/mid frequency, potentiometer
A2	27-01-042420-02	PCB assembly, low frequency, filter
A4	27-01-042440-01	PCB assembly, mid frequency, filter
A5	27-01-042480-01	PCB assembly, high frequency, potentiometer
A6	27-01-042450-02	PCB assembly, high frequency, filter
A7	27-01-042470-03	PCB assembly, control
C1,2	15-01-107430-01	Cap., 4000 μF, 35V
C3,4	15-02-100110-01	Cap., 0.1 μF, 100V
C5,6	15-02-100089-01	Cap., 0.01 μF, 1400V ±20%
CR1	48-02-100835-01	Diode, rectifier, 3A100, 3A, 100V PIV
CR2	48-02-108577-01	Diode, bridge, SCBR/BERB11, 1.5A, 100V PIV
CR3	39-01-112201-01	Lamp, solid-state, 1.8V, 20 mA
CR4	48-02-042787-01	Diode, rectifier, silicon, 1A, 400V PIV
F1	51-04-110782-01	Fuse, slo-blo, 2A, 3AG, 250V
F2	51-04-100464-01	Fuse, 1A, 3AG
F2 (optional 240V)	51-04-100463-01	Fuse, 0.5A, 3AG

Reference Designator	Ordering Number	Name and Description
F3	51-04-119088-01	Fuse, 1A, 3AG, pigtail
L1,2,5,6	56-01-043100-01	Choke, ferrite bead
L3,4	56-01-044110-01	Choke, ferrite bead
P1,2,3	21-01-110991-01	Plug, 7-pin, slot, snap-in
P4	21-01-107445-01	Plug, 6-pin, slot, snap-in
Q1	48-03-109715-04	Transistor, power, MJE 3055, selected
R1	47-01-102367-01	Res., 10KΩ ±10%, 1/2W
R2	47-01-102360-01	Res., 2.7KΩ±10%, 1/2W
R3	47-01-102346-01	Res., 220Ω ±10%, 1/2W
T1,2	10-05-01-042	Transformer, line matching (Model 15356A)
T3	56-08-007437-01	Transformer, power
TB1,2	21-04-101057-01	Terminal board, barrier, 5-terminal
TB3	21-04-101034-01	Terminal board, barrier, 2-terminal
TB4	21-04-101033-01	Terminal board, 5-terminal
TB5	21-04-101013-01	Terminal board, 10-terminal
W1	60-06-012636-04	Cable, 18GA, 3-conductor, 6 ft w/plug

LISTED
209J

42-02-042624-04
Litho in USA CP-875-1K