



9442A and 9442A/SA

ANNIVERSARY SERIES
POWER AMPLIFIER

SERVICE INSTRUCTIONS

***** CAUTION *****

No user serviceable parts inside. hazardous voltage and currents may be encountered within the chassis. The servicing information contained within this document is for use only by ALTEC LANSING Corp. authorized warranty stations and qualified service personnel. To avoid electric shock, DO NOT perform any servicing other than that contained in the Operating Instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.

8.0 SERVICE INFORMATION

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NOTE

Modifications to ALTEC LANSING products are not recommended. Such modifications shall be at the sole expense of the person(s) or company responsible, and any damage resulting there from shall not be covered under warranty or otherwise.

Figure 6 is the main amplifier schematic. Two trimpots for each channel are provided for adjustment. Resistor R15 (and R115) adjusts the DC offset at the output of the amplifier, and resistor R27 (and R127) adjusts the bias. The minimum amount of test equipment required is a DC voltmeter capable of reading voltages in the millivolt range.

8.1 DC Offset Adjustment

The following procedures are recommended.

1. Make sure the amplifier is in the dual mode of operation (not bridge) and that the power is off. Rotate both input level controls fully counterclockwise.
2. Remove the 14 screws securing the top cover. Refer to Figure 1 for screw locations.
3. Connect a DC voltmeter across the output of channel 1 and apply power.
4. Carefully adjust R24 for a reading of less than 10 mV DC.
5. Turn power off and connect DC voltmeter across the output of channel 2.

6. Turn power on and adjust R124 for a reading of less than 10 mV DC. Turn power off.

8.2 Bias Adjustment

The bias may be adjusted by one of several methods.

8.2.1 Bias Adjustment Without the Use of Test Equipment

1. Turn power off and rotate both input level controls fully counterclockwise.
2. Remove the 14 screws securing the top cover. Refer to Figure 1 for screw locations.
3. Adjust R41 to its two o'clock position when looking at it from the front of the amplifier.
4. Adjust R127 to its two o'clock position when looking at it from the front of the amplifier.

NOTE

The bias is intentionally limited to prevent overbias. The clock positions in the preceding steps serve as a good compromise between low distortion and ease of adjustment.

8.2.2 Bias Adjustment Using a Distortion Analyzer

1. Turn power off. Rotate the input level controls fully clockwise.
2. Remove the 14 screws securing the top cover. Refer to Figure 1 for screw locations.
3. Connect the output of the oscillator to channel 1. Connect the output of channel 1 to an 8 Ω load with short pieces of 16-18 GA wire. Connect the input of the analyzer across the load.
4. Apply power and adjust the output level of the oscillator to read 28.3 vrms at 1 kHz across the load on the analyzer. Change the frequency of the oscillator to 20 kHz.
5. Adjust R41 for the lowest distortion reading.

tion reading.

6. Using the same setup, repeat the procedures for channel 2. Adjust R141 for the lowest distortion reading.

8.2.3 Bias Adjustment Using DC Voltmeter

1. Turn power off. Rotate the input level controls fully counterclockwise. If the DC voltmeter is ac powered, float the ac ground wire.
2. Remove the 14 screws securing the top cover. Refer to Figure 1 for screw locations.
3. Connect the voltmeter probes across R42 (270 Ω , 1 watt) and apply power.
4. Adjust R41 for a reading of 1.1 volts across the resistor. Turn power off.
5. Connect the voltmeter probes across R142 (270 Ω , 1 watt) and apply power.
6. Adjust R141 for a reading of 1.1 volts across the resistor. Turn power off.

8.2.4 Bias Adjustment by Averaging Emitter Resistor Voltage Drops

1. Turn power off. Rotate the input level controls fully counterclockwise. If the DC voltmeter is ac powered, float the ac ground wire.
2. Remove the 14 screws securing the top cover. Refer to Figure 1 for screw locations.
3. Apply power and sequentially measure the voltage drop across each emitter resistor (R49 and R52) while adjusting R41 for an average voltage drop of 5 mV DC. Turn power off.
4. Apply power and sequentially measure the voltage drop across each emitter resistor (R149 and R152) while adjusting R141 for an average voltage drop of mV

8.4 Factory Service

how used, etc.

If factory service is required, ship the unit prepaid to:

**ALTEC LANSING Customer
Service/Repair
10500 W. Reno
Oklahoma City, OK 73128 U.S.A.**

Enclosed a note describing the problem in as much detail as possible. Include other helpful information such as test conditions, where used,

For applications assistance or other technical information, call (405) 324-5311, Telex 160369, FAX (405) 324-8981, or write:

**ALTEC LANSING Technical
Assistance
P.O. Box 26105
Oklahoma City, OK 73126-0105
U.S.A.**



Reference Designator	Ordering Number	Name and Description
C2,3,4,5,8,10,11, 26,27,30,31,32, 33,126,127,130, 131,132,133	15-02-124808	Cap., 1 μ fd, 100 V
C6,7,9,24,25,106, 107,124,125	15-06-124440	Cap., 100 pfd, 630 V
C14,22,114,122	15-06-124806	Cap., 68 pfd, 630 V
C15,23,115,123	15-06-124809	Cap., .001 μ fd, 630 V
C16,35,116,135	15-01-107452	Cap., 10 μ fd, 50 V
C17,117,	15-06-124807	Cap., 56 μ fd, 630 V
C18,20,21,41,42, 118,120,121	15-06-124813	Cap., 47 μ fd, 50 V
C28, 128	15-06-100113	Cap., 1 μ fd, 250V
C36,37,38,39,136, 137,138,139	15-01-124501	Cap., 100 μ fd, 100 V
C40	15-01-124811	Cap., 1 μ fd, 50 V
C43	15-01-124812	Cap., 22 μ fd, 50 V
C44,45	15-01-124810	Cap., .47 μ fd, 50 V
C50,51	15-01-124815	Cap., 10,000 μ fd, 63 V
C52,53	15-01-124814	Cap., 470 μ fd, 63 V
C54,55,56,57	15-01-124503	Cap., 100 μ fd, 50 V
CR1,2,101,102	48-01-100876	Diode, 1N270
CR3,4,5,6,12,103, 104,105,106,112	48-01-122601	Diode, 1N4448
CR7,8,9,10,15,16 107,108,109,110	48-02-042787	Diode, 1N4004
CR13,17,22,113	39-01-124540	LED, red, 12" leads
CR20,21	48-01-108576	Zener, 15V, 2w, 5%, LMZ15A
F1	51-04-124848	Fuse, Series 314, 5 Amp/250 V
K1	45-01-124808	Relay, DPDT 326
L1, 101	56-01-026510	Choke, 1.5 μ H
Q1,2,3,4,9,22,101 102,103,104,109	48-03-124824	Trans., 2SC2240-BL
Q5,6,105,106	48-03-124819	Trans., KSA916-Y
Q7,8,107,108	48-03-124823	Trans., KSC2316-Y
Q10,24,110,	48-03-124474	Trans., 2SC2168-Y
Q11,25,111	48-03-124475	Trans., 2SA958-Y
Q12,112	48-03-120159	Trans., MPS-U10
Q13,20,113,120	48-03-120160	Trans., MPS-U60
Q14,16,114,116	48-03-124821	Trans., 2SC3281-O
Q15,17,115,117	48-03-124820	Trans., 2SA1302-O
R1,2,101,102	47-03-124805	Res., 7.5 k Ω , $\frac{1}{4}$ w, 1%
R3,4,5,6,13,14, 103,104,105,106	47-03-124484	Res., 15 k Ω , $\frac{1}{4}$ w, 1%
R7,107 (9442A)	47-06-124795	Pot., 2.5 k Ω
R7,107 (9442A/SA)	47-06-124578	Pot., 2.5 k Ω stepped atten.
R8,108	47-01-102030	Res., 10 Ω , $\frac{1}{4}$ w, 5%
R10,27,61,76,84, 110,127,161	47-01-102119	Res., 47 k Ω , $\frac{1}{4}$ w, 5%
R12,15,112	47-01-102119	Res., 47 Ω , $\frac{1}{4}$ w, 5%
R17, 18, 117, 118	47-01-123177	Res., 100 Ω , $\frac{1}{2}$ w, 5%
R19,22,25,28,29, 119,122,125, 128,129	47-01-102078	Res., 1 k Ω , $\frac{1}{4}$ w, 5%
R20,26,120,126	47-01-124841	Res., 15 k Ω , $\frac{1}{2}$ w, 5%
R21,32,72,121,132	47-01-102106	Res., 15 k Ω , $\frac{1}{4}$ w, 5%

Reference Designator	Ordering Number	Name and Description
R23,30,31,123,130,131	47-01-102102	Res., 10 k Ω , ¼w, 5%
R24,41,124,141	47-06-124483	Res., 1 k Ω trimpot
R33,133	47-03-124802	Res., 562 Ω , ¼w, 1%
R34,134	47-03-124617	Res., 19.1 k Ω , ¼w, 1%
R35,135	47-01-102050	Res., 68 Ω , ¼w, 5%
R36,136	47-01-102288	Res., 10 k Ω , ½w, 5%
R37,38,137,138	47-01-102062	Res., 220 Ω , ¼w, 5%
R39,40,85,95,139,140	47-01-102082	Res., 1.5 k Ω , ¼w, 5%
R42,142	47-01-124801	Res., 270 Ω , 1w, 5%
R43,44,143,144	47-01-124844	Res., 7.5 k Ω , ½w, 5%
R45,46,47,48,145,146,147,148	47-01-102264	Res., 1 k Ω , ½w, 5%
R49,50,51,52,149,150,151,152	470-02-108440	Res., .5 Ω , 5w, 5%
R54,154	47-01-124834	Res., 4.7 Ω , 3w, 5%
R60,160	47-01-102224	Res., 22 Ω , ½w, 5%
R62,162	47-01-102092	Res., 3.9 k Ω , ¼w, 5%
R63,163	47-01-102109	Res., 20 k Ω , ¼w, 5%
R64,164	47-01-124833	Res., 3.9 k Ω , 2w
R70,71,74,75,82	47-01-102121	Res., 56 k Ω , ¼w, 5%
R73,77	47-01-107043	Res., 220 k Ω , ¼w, 5%
R78	47-01-102110	Res., 22 k Ω , ¼w, 5%
R79	47-01-109390	Res., 560 Ω , 1w, 5%
R80	47-01-102108	Res., 18 k Ω , ¼w, 5%
R81	47-01-102114	Res., 33 k Ω , ¼w, 5%
R83	47-01-102127	Res., 100 k Ω , ¼w, 5%
R90	47-03-124444	Res., 4.7 k Ω , 2w, 5%
R91,92	47-01-124800	Res., 220 Ω , 3w, 5%
R93,94	47-01-102088	Res., 2.7 k Ω , ¼w, 5%
S1	51-02-124582	Switch, power
S2	51-02-124826	Switch, bridge
T1	56-08-026759	Transformer, power
TS1,2	53-01-124816	Thermostat, 190°F
U1,2	17-01-124583	IC, UPC4574
U3	17-01-124804	IC, TA7317
	21-01-013567	Jumper, octal socket
	24-04-124846	Knob, 18 tooth knurled