

service
manual

18

marantz

model eighteen

Stereophonic Receiver

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INTRODUCTION

This service manual was prepared for use by Authorized Warranty Stations and contains service data for the Marantz Model 18 Stereophonic Receiver.

Servicing information and voltage data included in this manual are intended for use by the knowledgeable and experienced technician only. All instructions should be read carefully. No attempt should be made to proceed without a good understanding of the operation of the Receiver. A brief functional description and associated block diagram, furnished in the Operating Instruction Manual for the Model 18 Receiver, provides functional data about the Receiver as an aid in this understanding.

The parts list furnishes information by which replacement parts may be ordered from the Marantz Company. A description is included for parts which can usually be obtained through local suppliers.

SERVICE NOTES

The Service Notes that follow identify some of the servicing problems that have been encountered in the field and their remedies. In most cases, the remedies consist of a modification to the Model 18 Receiver which has already been implemented in the normal production of the receiver. As a normal routine, all Model 18 Receivers requiring service should be inspected to determine if the modifications have been implemented and if not, the receiver should be modified in accordance with the Service Note.

PROLONGING CRT LIFE

Maintaining the display on the screen of the cathode ray tube for prolonged or excessive periods or with excessive brightness will eventually cause the phosphor coating on the face of the CRT to develop burned areas. To extend the life of the CRT it is recommended that the trace is removed from the screen when not actually being viewed. This may be accomplished easily by offsetting the trace with vertical centering control.

LOOSE SUBASSEMBLY CONNECTING PLUGS

The phono plugs which are used to make the input and output signal connections to the Antenna Strip, FM Front End, IF, Limiter, and Detector subassemblies have been found to come loose occasionally during shipment of the receiver. This will cause a loss of FM operation. Check these phono plugs when unpacking the receiver. To prevent their coming loose, apply a small spot of solder to the plug shield to hold it securely in its socket while still permitting easy removal.

LOCATION OF PHONO INPUT GROUND WIRE

Inspect the underside of the main chassis at the PHONO jacks to determine if the black phono ground wire runs inside the lip of the back panel near the ac cord and fuseholder. If it does, cut the wire at the ground bus and re-dress the lead close to the chassis and away from the ac cord. Re-solder the ground wire to the ground bus.

REPLACEMENT OF 12-VOLT ZENER REGULATORS

In early units Zener diodes CR10 and CR11 were prone to an internal breakdown. For improved reliability and performance they should be replaced. Failure of these diodes will result in loss of FM operation, scope display, or if the failure is in the +12-volt supply (CR10), a loss of output on both channels.

The old type Zener diodes are identified by a blue band, and are wired to a terminal strip adjacent to the power transformer on the top of the main chassis. Replace these diodes with the new type (identified by a grey band) and re-locate them to the terminal strip adjacent to the limiter assembly and on bottom of the main chassis. (This is electrically the same point.)

REPLACEMENT OF POWER AMPLIFIER REFERENCE DIODES

For improved reliability reference diodes CR17 and CR18 should be replaced with a new type. The new diodes are identified by the manufacturer's name (B & T) printed on them and by their larger size 5/32 X 1/2 X 1/2 inch). These diodes are located in the power amplifier section adjacent to Bias adj pots R26 and R27. (Refer to figure 3.) After installing the new diodes. Readjust the power amplifier bias as described in the adjustment procedures.

LOW FILTER 'POPS'

Some receivers develop a loud 'Pop' in the loudspeakers when the LO FILTER button is operated. This 'Pop' is not affected by the VOLUME control setting. To correct this, install two (2) 100K, 10%, 1/4 watt resistors (Marantz Part No. 26-1055), one between pins 9H and 9L, the other between pins 9C and 9W on the Hi-Lo Filter board (figure 20).

The above procedure should reduce the 'Pop' to a tolerable level. If it does not, replace capacitors C810 and C814 located on the Tone Amplifier board (figure 18) in addition to the installation of the above resistors.

Note

Inspect the Tone Amplifier board for cracked solder connections at the BASS and TREBLE control terminals. These can result in intermittent operation of the receiver.

When re-assembling the Tone Amplifier board on the main chassis, do not re-install the screw removed from the rear of the board.

CORRECTION OF POINTER SPRING-BACK

Problems of pointer spring-back or mechanical calibration shift may be evidenced in some receivers. This can be corrected by providing a solid reference for mechanical zero in the dial assembly. Restring the dial assembly as shown in figure 1. Eliminate the START spring and anchor the dial cord directly to the hub using a noose. This provide the reference that is required.

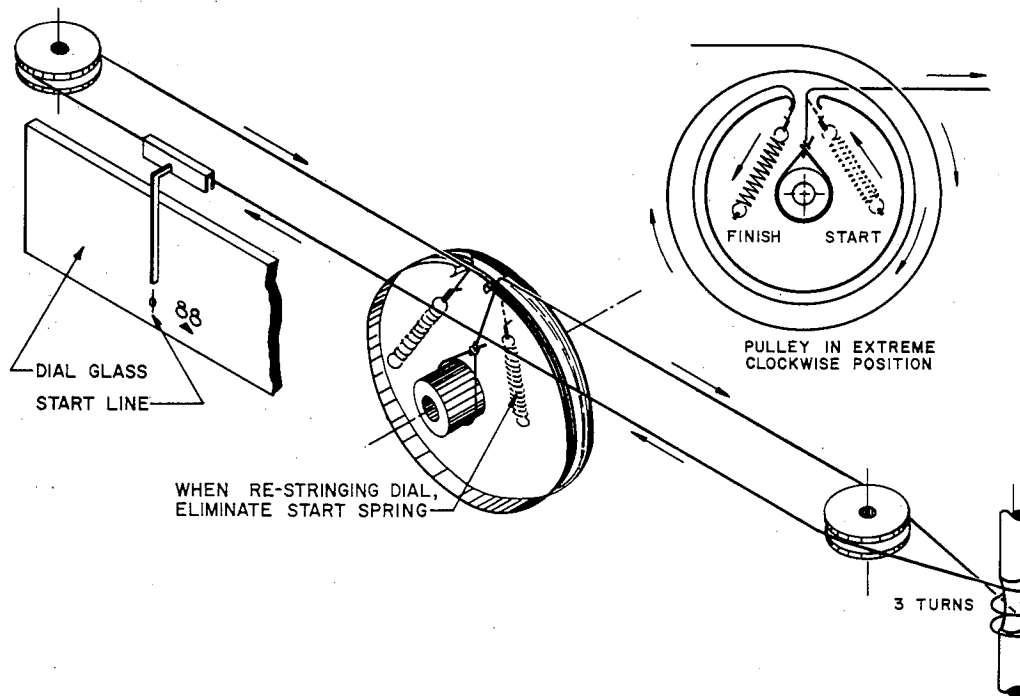
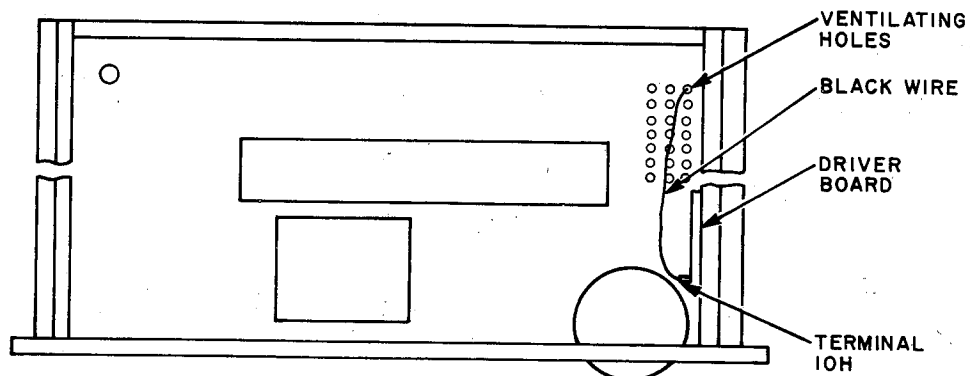


Figure 1. Dial Stringing Diagram

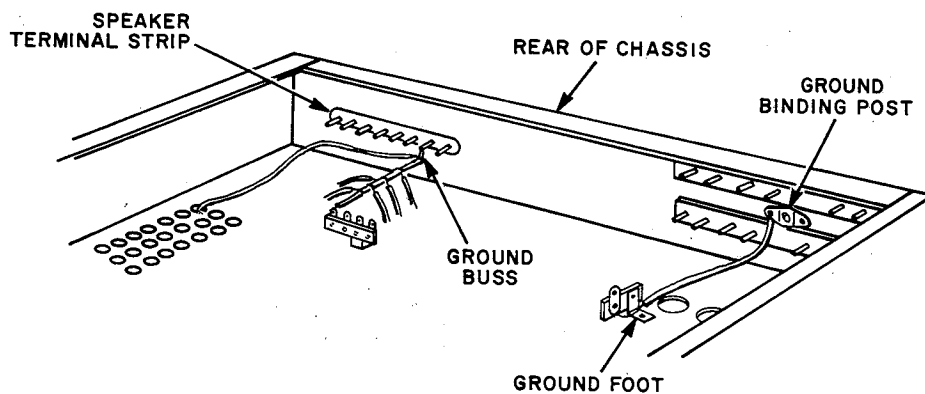
ULTRASONIC OSCILLATION

Problems of ultrasonic oscillation in the audio section may be evidenced in some receivers. A modification to correct this condition can be identified by inspecting the black ground wire connected to terminal 10H of the right-hand side driver board. The modification has been implemented if this wire runs along the right-hand side of the main chassis (looking at the top of the chassis with the front panel facing you). If the black ground wire runs toward the left and along the front of the main chassis, the modification is required.

1. Locate the grounded end of the black wire at the bottom of the main chassis. The grounding point will be near the signal input jacks on the left rear of the chassis.
2. Disconnect this wire from ground and pull it out back to terminal 10H at the driver board.
3. Run this wire along the right side of the chassis to the rear and pass it through one of the ventilating holes to the bottom of the main chassis. (See A, figure 2.) Cut off the excess wire and solder it to the ground bus at the ground wire connection to the speaker terminal strip. (See B, figure 2.)
4. Connect a wire from the lug underneath the ground binding post (B, figure 2) to the grounded foot of the terminal strip just in front. This completes the modification. Install the covers.



A. Main Chassis Top View



B. Main Chassis Bottom View

Figure 2. Ultrasonic Oscillation Modification Wiring

ADJUSTMENTS

Note

Before proceeding with the following adjustments:

1. Make sure the dial pointer coincides with the index mark below 88 MHz on the dial.
2. The scope display should be calibrated. To do so, depress the TAPE MONITOR and AUDIO DISPLAY push button switches. Note that the scope trace will be reduced to a dot. Adjust the centering controls to bring the dot to the center of the small circle. Release the TAPE MONITOR and AUDIO DISPLAY push button switches. The oscilloscope is now properly calibrated for use as an accurate tuning indicator.

FM FRONT END LOCAL OSCILLATOR ADJUSTMENTS. (See figure 3.)

1. Set FM signal generator to 106 MHz. Tune receiver to the same frequency and adjust high end adj trimmer C114 until the dial pointer coincides with the 106 marking on the dial.
2. Set FM signal generator to 90 MHz. Tune receiver to the same frequency and adjust low end adj coil L108 until the dial pointer coincides with the 90 MHz marking on the dial.
3. Repeat procedure until no further improvement can be made between the low end and the high end.

IF ALIGNMENT

Alignment of the IF Assembly should not be attempted in the field. If improper alignment is suspected, replace the assembly and return the defective assembly to the factory.

NOISE LEVEL DISPLAY ADJUSTMENT. (See figure 3.)

The scope should display the interstation noise just above and almost touching the bottom horizontal indicator line. If not, adjust the noise level adj R327. Note that the noise level control when rotated will move the interstation noise vertically up or down.

VERTICAL GAIN ADJUSTMENT. (See figure 3.)

Connect the FM generator to the FM ANTENNA terminal strip. Set the generator to 106 MHz. Tune the receiver to the same frequency. Adjust the output of the generator to provide 100,000 microvolts. The tuning trace should reach the top horizontal line of the scope tuning indicator. If the trace is too high or too low, adjust the vertical gain adj R325. Alternately repeat the noise level display and vertical gain adjustments until no further adjustment is required (both fall into their proper place).

MUTING CONTROL ADJUSTMENT. (See figure 3.)

Set the FM signal generator to 106 MHz. Tune the receiver to the same frequency. Reduce the output of the generator to provide 10 microvolts at the receiver, using a 400 Hz modulation. Adjust muting control R328 until muting is achieved at the 10-microvolt level. This may also be monitored on the oscilloscope of the receiver by depressing the AUDIO DISPLAY button. When muting occurs the audio display will be reduced on the oscilloscope.

DETECTOR ALIGNMENT

Alignment of the Detector Assembly should not be attempted in the field. If improper alignment is suspected, replace the assembly and return the defective assembly to the factory.

MPX OSC AND MATRIX ADJUSTMENTS. (See figures 3 and 12.)

Note

A proper stereo multiplex and RF FM signal generator is required to make the separation adjustments on the MPX Oscillator and Matrix boards. Perform the following adjustments in the sequence given.

1. Adjust STEREO SEP control R517 on MPX oscillator board at 500 Hz for maximum separation.
2. Adjust coil L503 on the MPX oscillator board at 15 KHz for maximum separation.
3. Adjust STEREO SEP control R621 on multiplex matrix board at 15 KHz for maximum separation.
4. Repeat all three (3) adjustments until no further improvement in separation can be made.

HORIZONTAL GAIN ADJUSTMENT. (See figures 3 and 12.)

Tune the receiver off station until only interstation noise is heard. The noise trace should just barely be touching the top of the base line of the scope. Adjust the horizontal gain control R505 until the trace is approximately a half inch wide.

STEREO THRESHOLD ADJUSTMENT. (See figures 3 and 12.)

If a stereo Multiplex generator is available, STEREO THRESHOLD control R512 is adjusted so that the stereo switch is triggered at 6% pilot level. To adjust the STEREO THRESHOLD control without special test equipment, adjust STEREO THRESHOLD control R512 until the stereo indicator light on the front panel turns on. When tuning off a stereo station the stereo indicator light should go off.

SCOPE DISPLAY ADJUSTMENTS. (See figures 3 and 24.)

The only adjustments that may be required on the scope display board are the FOCUS and INTENSITY controls. To adjust focus, depress the TAPE MONITOR and AUDIO DISPLAY push buttons and adjust focus adj control R1216 until the dot is at its sharpest point. With the TAPE MONITOR and AUDIO DISPLAY push buttons depressed, adjust intensity adj control R1223 until the dot is barely visible in a normally lit room.

PHONO AMPLIFIER BIAS ADJUSTMENTS. (See figures 3 and 16.)

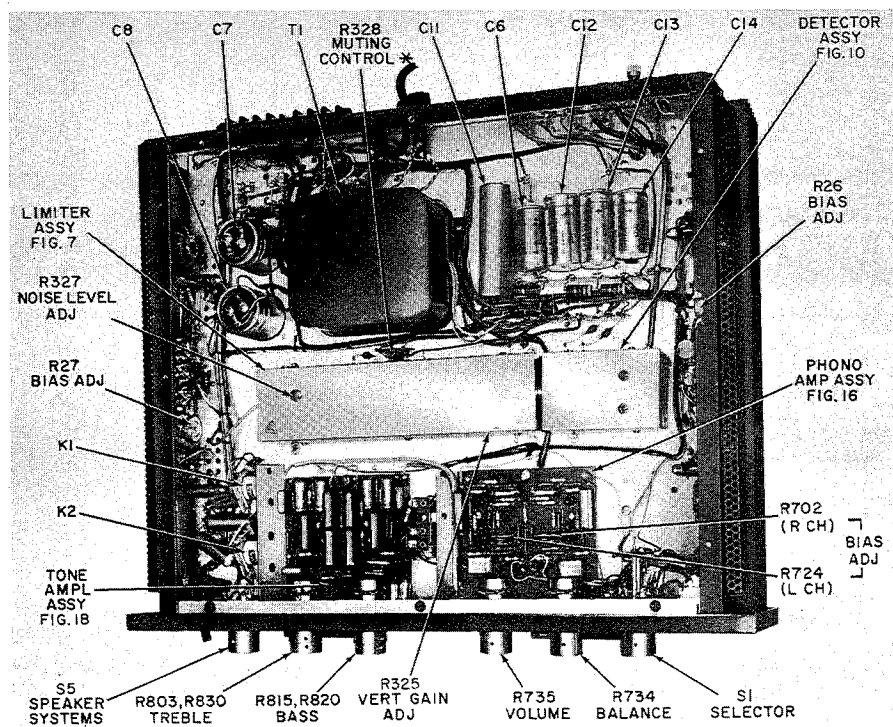
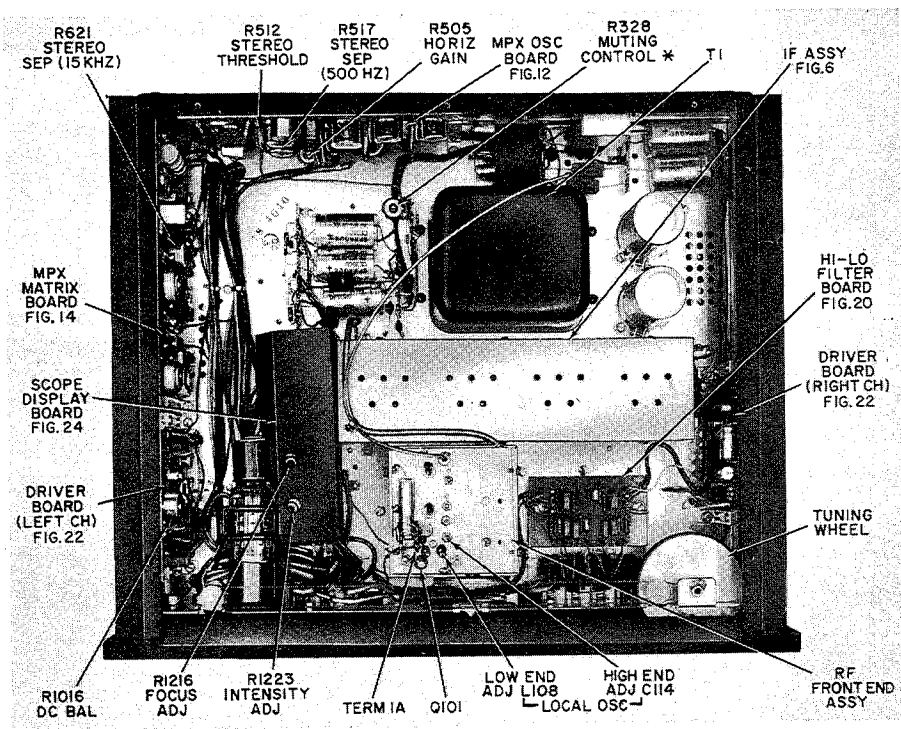
To adjust BIAS control R702, connect a VTVM across resistor R716. Adjust the bias control until the meter reads between 17 and 19 volts dc. To adjust BIAS CONTROL R724 repeat the above procedure but connect the VTVM across resistor R721. The reading across R721 should be between 17 and 19 volts dc.

DRIVER DC BALANCE ADJUSTMENT. (See figures 3 and 22.)

Connect a VTVM across the SPEAKER SYSTEMS terminal output for the channel being tested. Set the voltage range on VTVM to the lowest scale possible, preferably 1.5v full scale deflection. Adjust the DC BALANCE control R1016 until there is zero dc voltage at the speaker terminal strip. Repeat the procedure for the alternate channel.

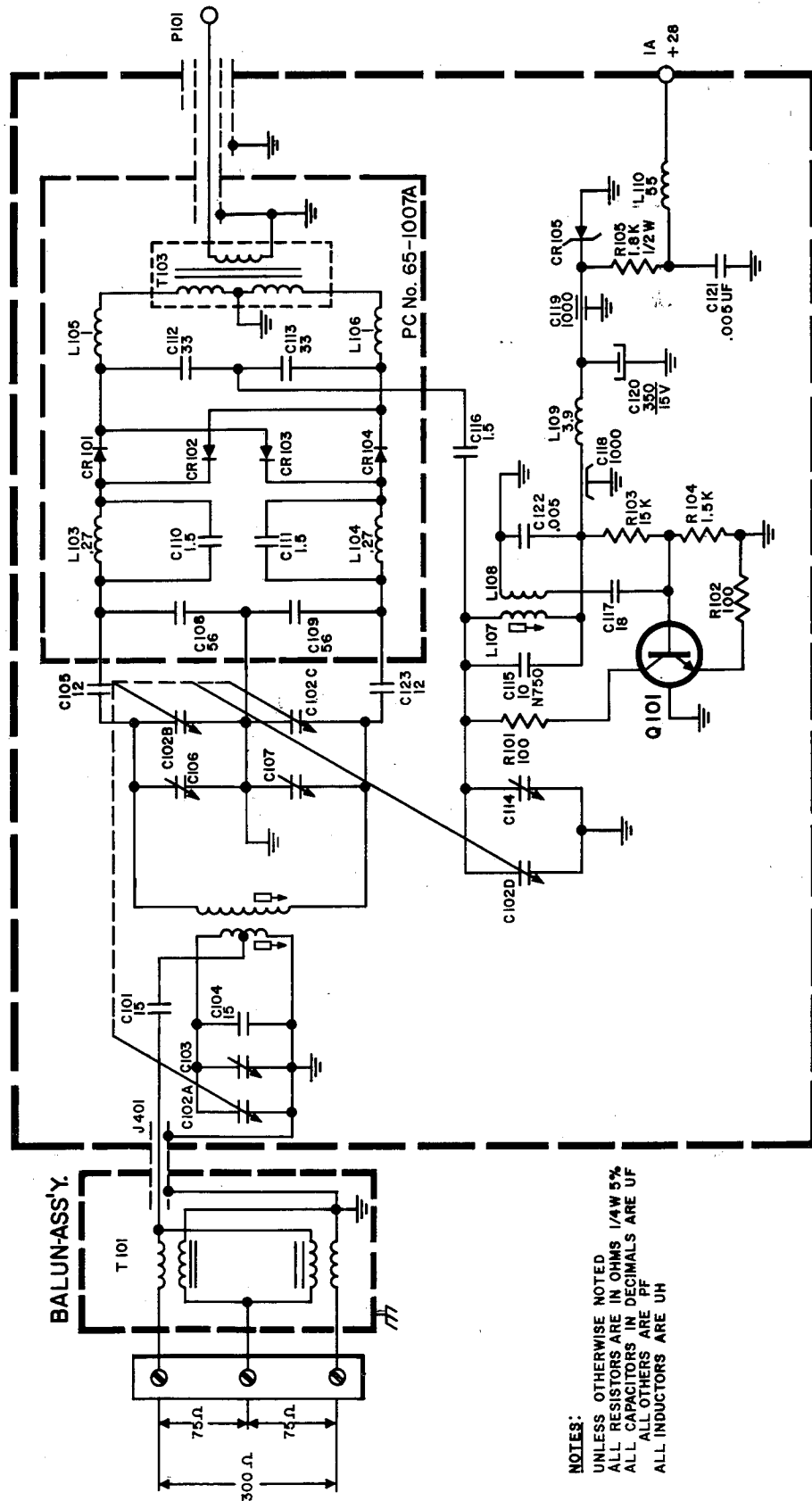
POWER AMPLIFIER BIAS ADJUSTMENT. (See figure 3.)

To adjust the left channel BIAS adj control R26 connect a volt meter across resistor R28. Adjust the BIAS until the meter reads 80 millivolts (.08v). To adjust the right channel BIAS control, connect the meter across R43 and adjust BIAS adj control R27. The reading here should be the same as for the left channel



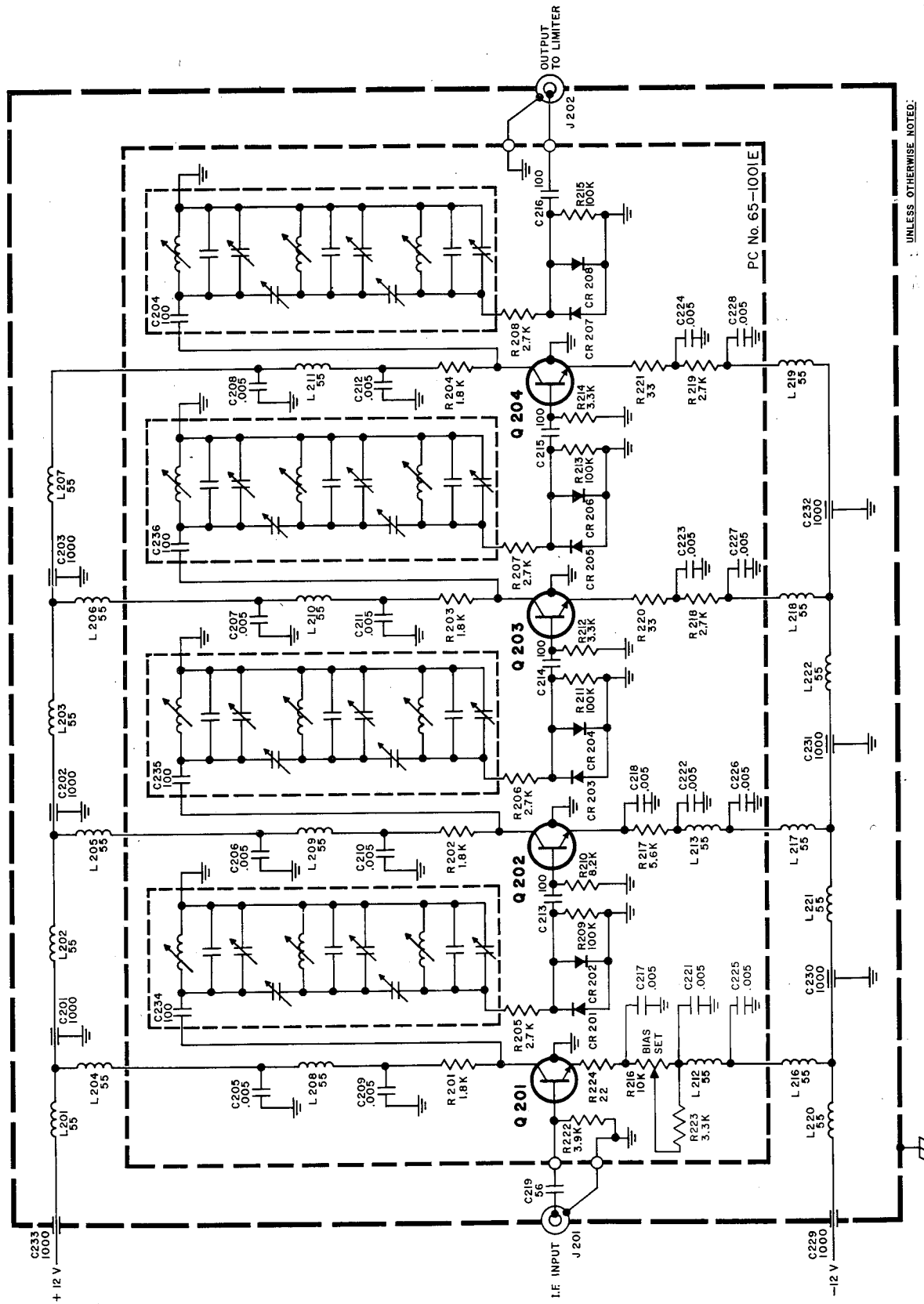
*on early units R328 on Limiter Assy; on later units R328 on top of chassis.

Figure 3. Main Chassis Adjustment and Component Locations



NOTES:
 UNLESS OTHERWISE NOTED
 ALL RESISTORS ARE IN OHMS 1/4W 5%
 ALL CAPACITORS IN DECIMALS ARE UF
 ALL OTHERS ARE PF
 ALL INDUCTORS ARE UH

Figure 4. FM Front End Assembly 11-1020, Schematic Diagram



UNLESS OTHERWISE NOTED:
ALL RESISTORS ARE IN OHMS 1/4W 5%
ALL CAPACITORS IN DECIMALS ARE UF
ALL CAPACITORS IN WHOLE NUMBERS ARE UF
ALL INDUCTORS ARE UH

Figure 5. IF Assembly 11-1021, Schematic Diagram

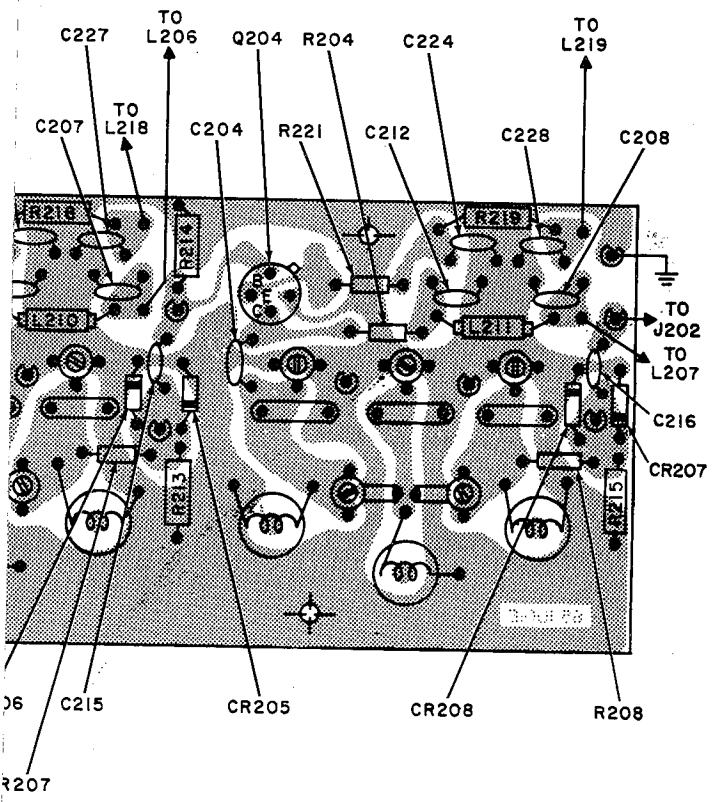
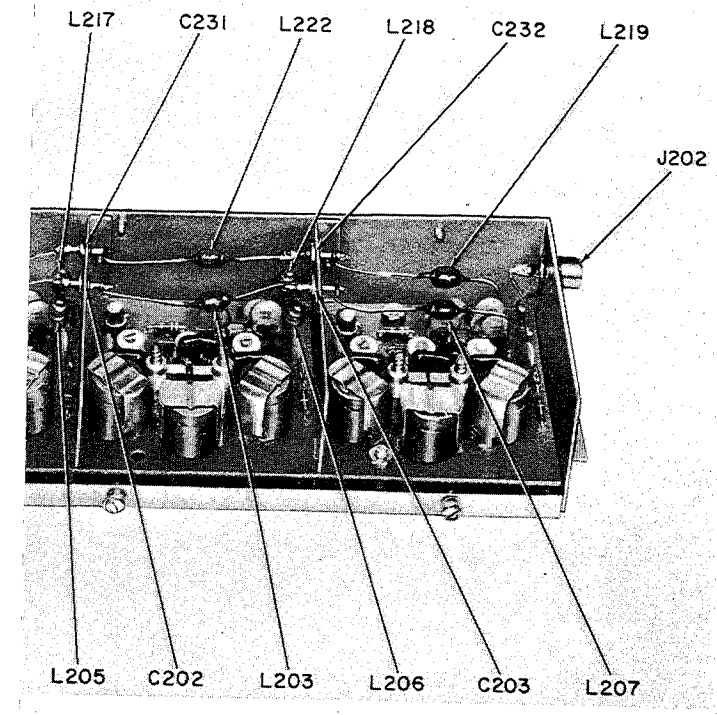


Figure 6. IF Assembly 11-1021, Component Locations

	B	E	C
Q201	-0.2	-1	5.5
Q202	-0.7	-1	9
Q203	-0.2	-1.2	4.5
Q204	-0.4	-1.3	5

Voltages are:

1. Dc $\pm 10\%$
2. Measured using VTVM
3. Measured with 117-volt line
4. Measured with respect to chassis
5. Measured with no signal (ant terminals shorted), volume at zero, Muting out, Bass and Treble flat, Dot on scope centered, Audio display out.

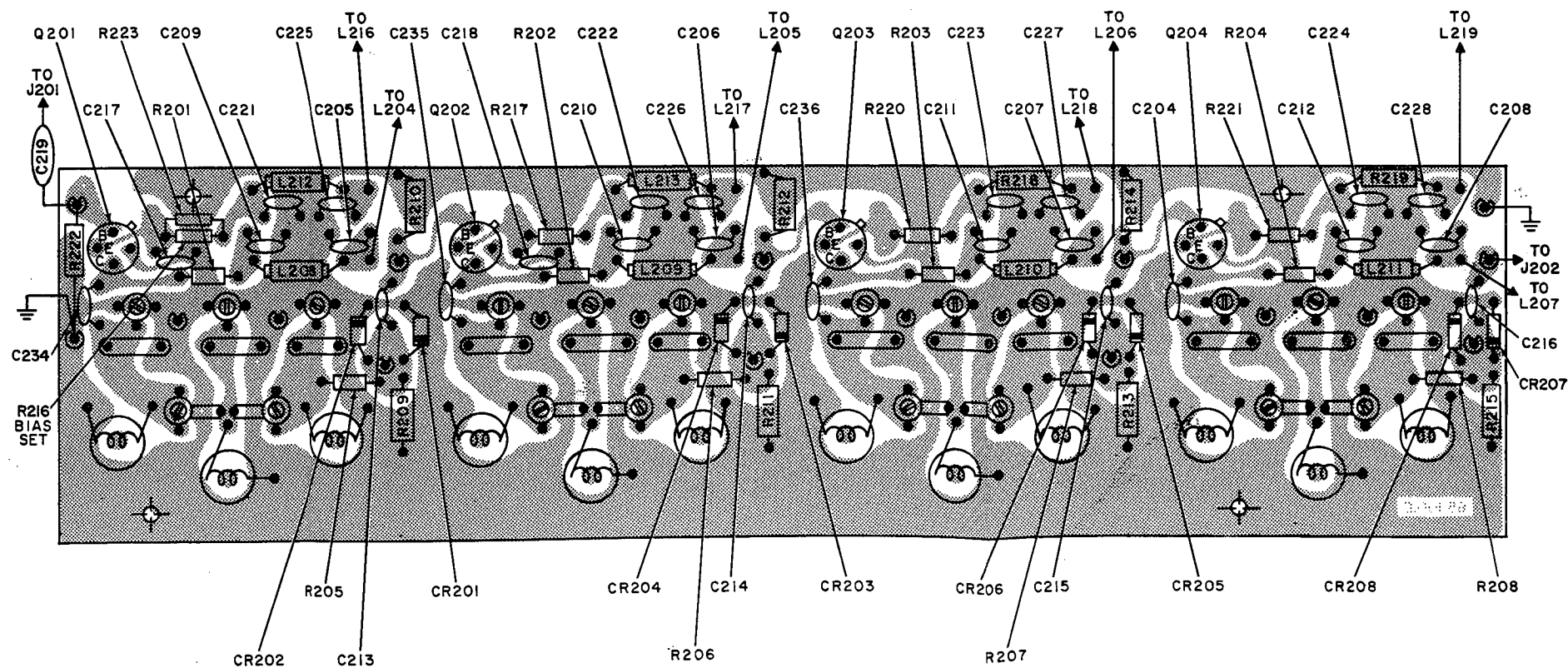
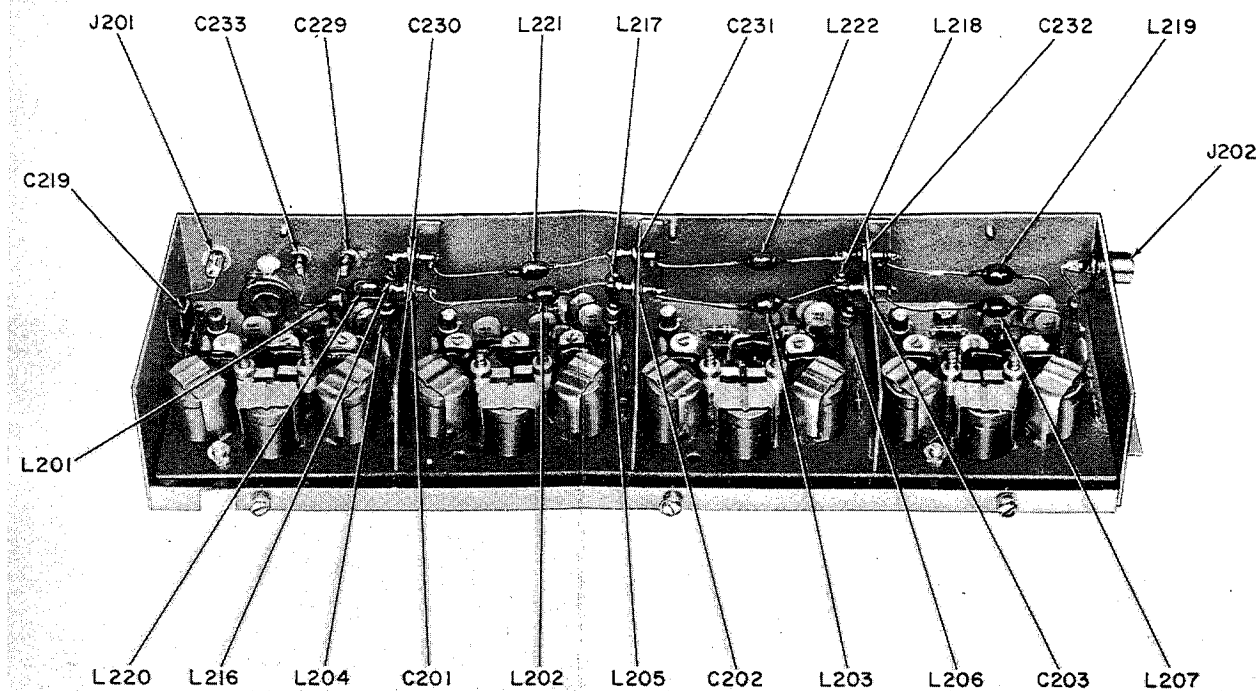


Figure 6. IF Assembly 11-1021,
Component Locations

	B	E	C
Q301	-3	-4	12
Q302	-0.45	-1.1	12
Q303	-0.45	-1.2	12
Q304	-0.2	-0.3	12
Q305	-0.5	12	-12

Voltages are:

1. Dc $\pm 10\%$
2. Measured using VTVM
3. Measured with 117-volt line
4. Measured with respect to chassis
5. Measured with no signal (ant terminals shorted), volume at zero, Muting out, Bass and Treble flat, Dot on scope centered, Audio display out.

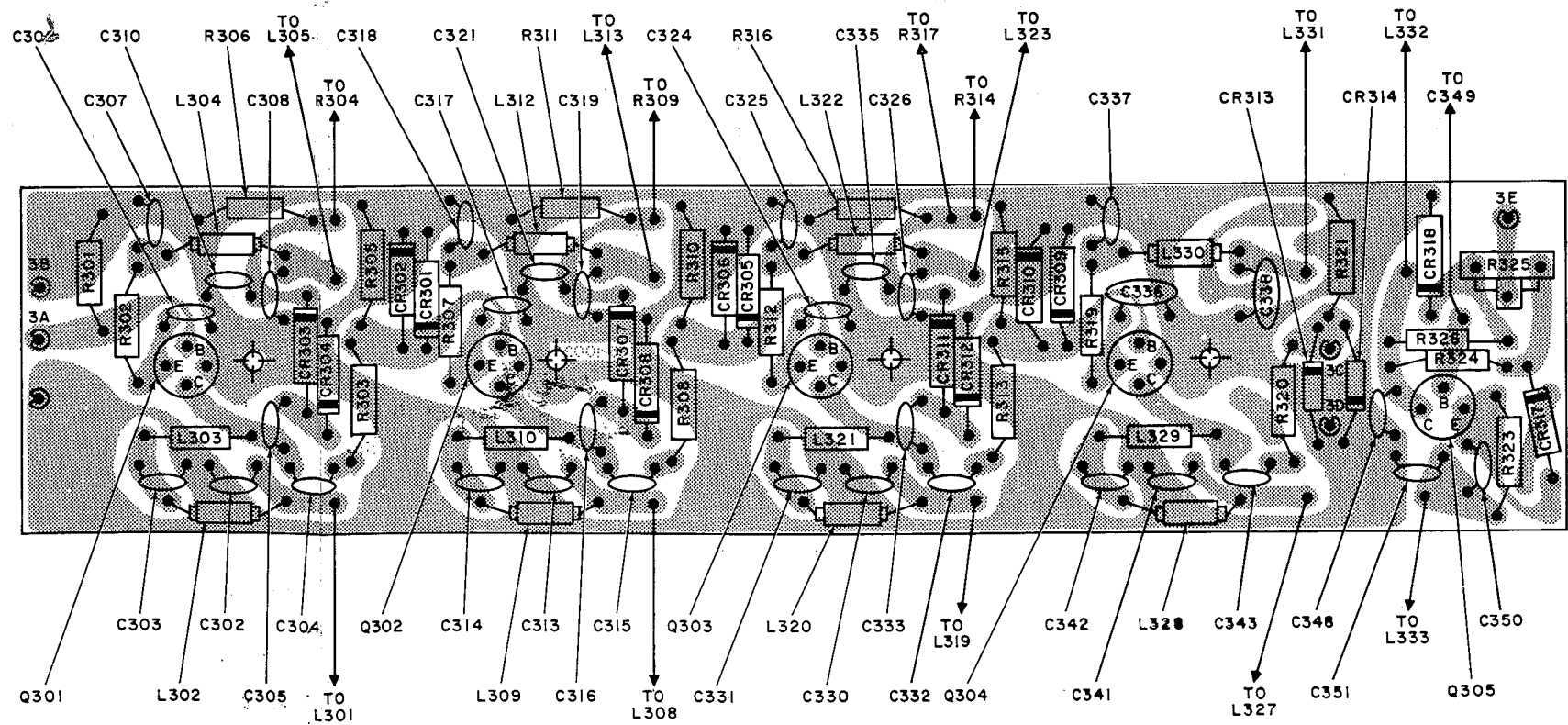
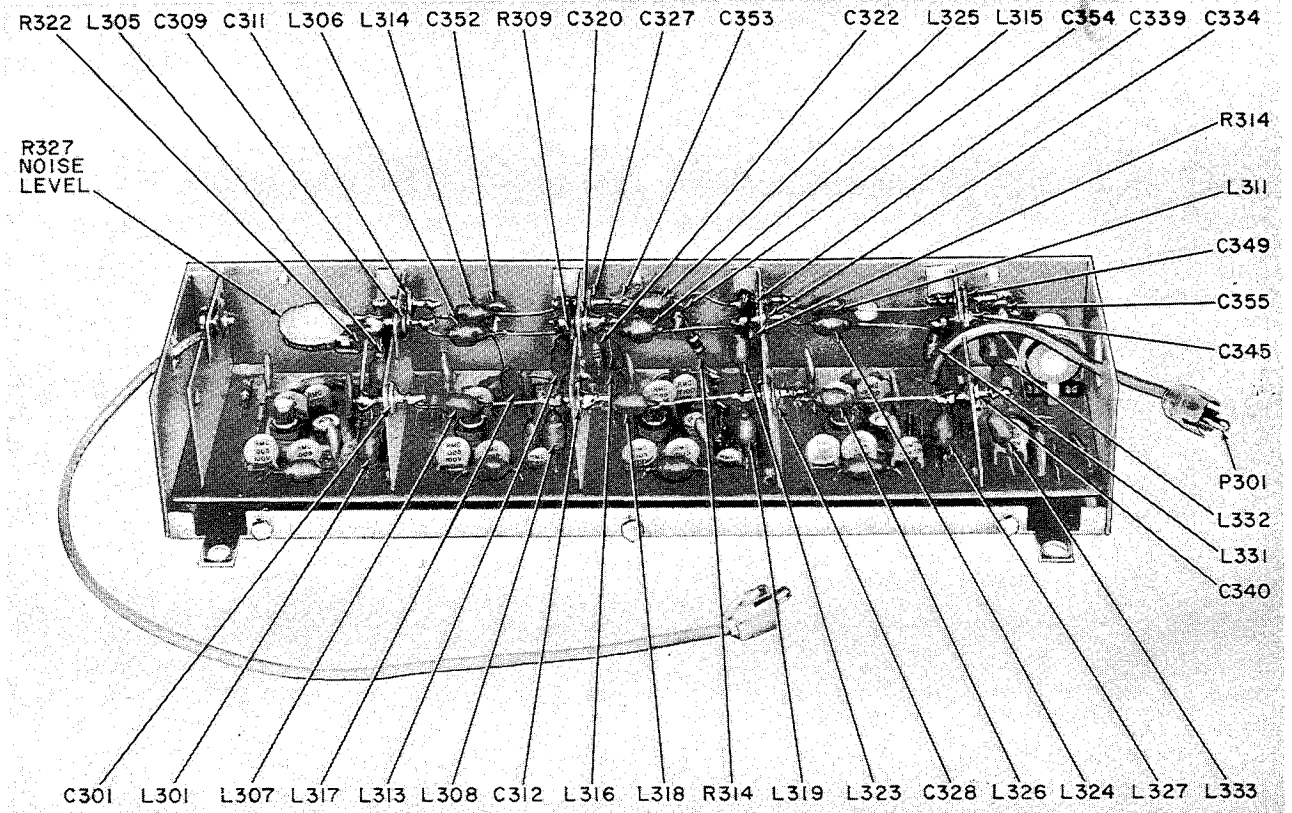
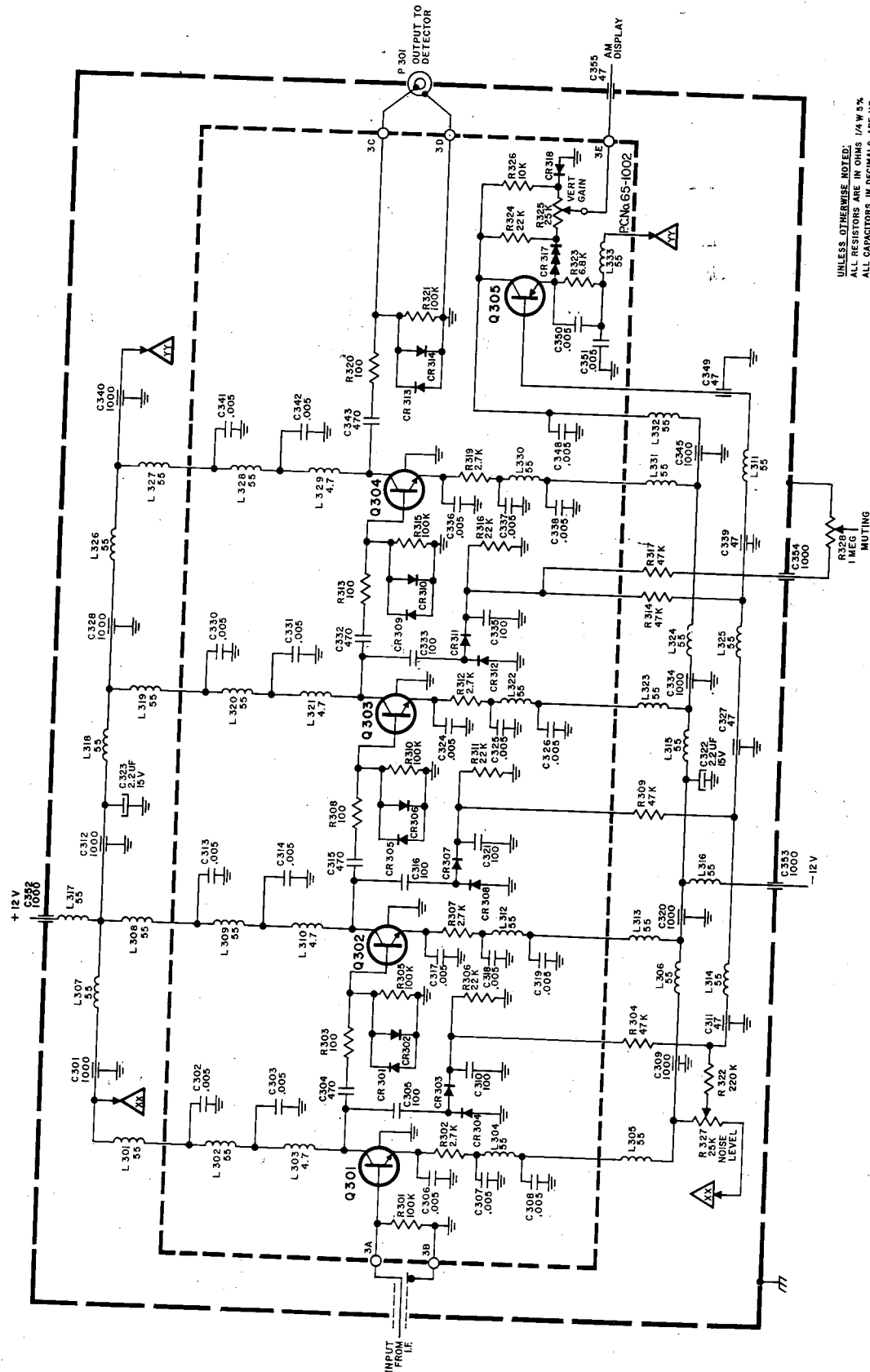
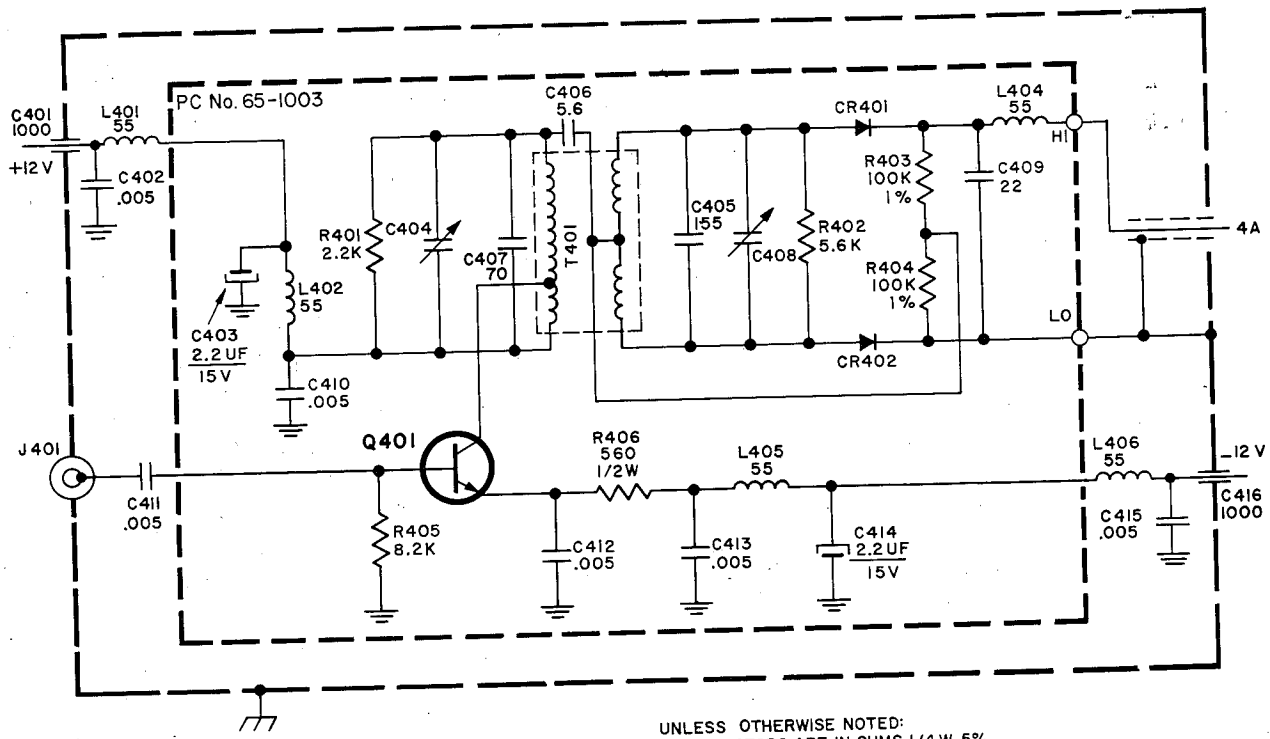


Figure 7. Limiter Assembly 11-1022, Component Locations



UNLESS OTHERWISE NOTED:
 ALL RESISTORS ARE IN OHMS 1/4 W 5%
 ALL CAPACITORS IN DECIMALS ARE UF
 ALL OTHERS ARE P.F.
 ALL INDUCTORS ARE UH

Figure 8. Limiter Assembly 11-1022, Schematic Diagram



UNLESS OTHERWISE NOTED:
 ALL RESISTORS ARE IN OHMS 1/4W 5%
 ALL CAPACITORS IN DECIMALS ARE UF
 ALL OTHERS ARE PF
 ALL INDUCTORS ARE UH

	B	E	C
Q401	-1.5	-1.4	12

Voltage is:

1. Dc $\pm 10\%$
2. Measured using VTVM
3. Measured with 117-volt line
4. Measured with respect to chassis
5. Measured with no signal (ant terminals shorted), volume at zero, Muting out, Bass and Treble flat, Dot on scope centered, Audio display out.

Figure 9. Detector Assembly 11-1023, Schematic Diagram

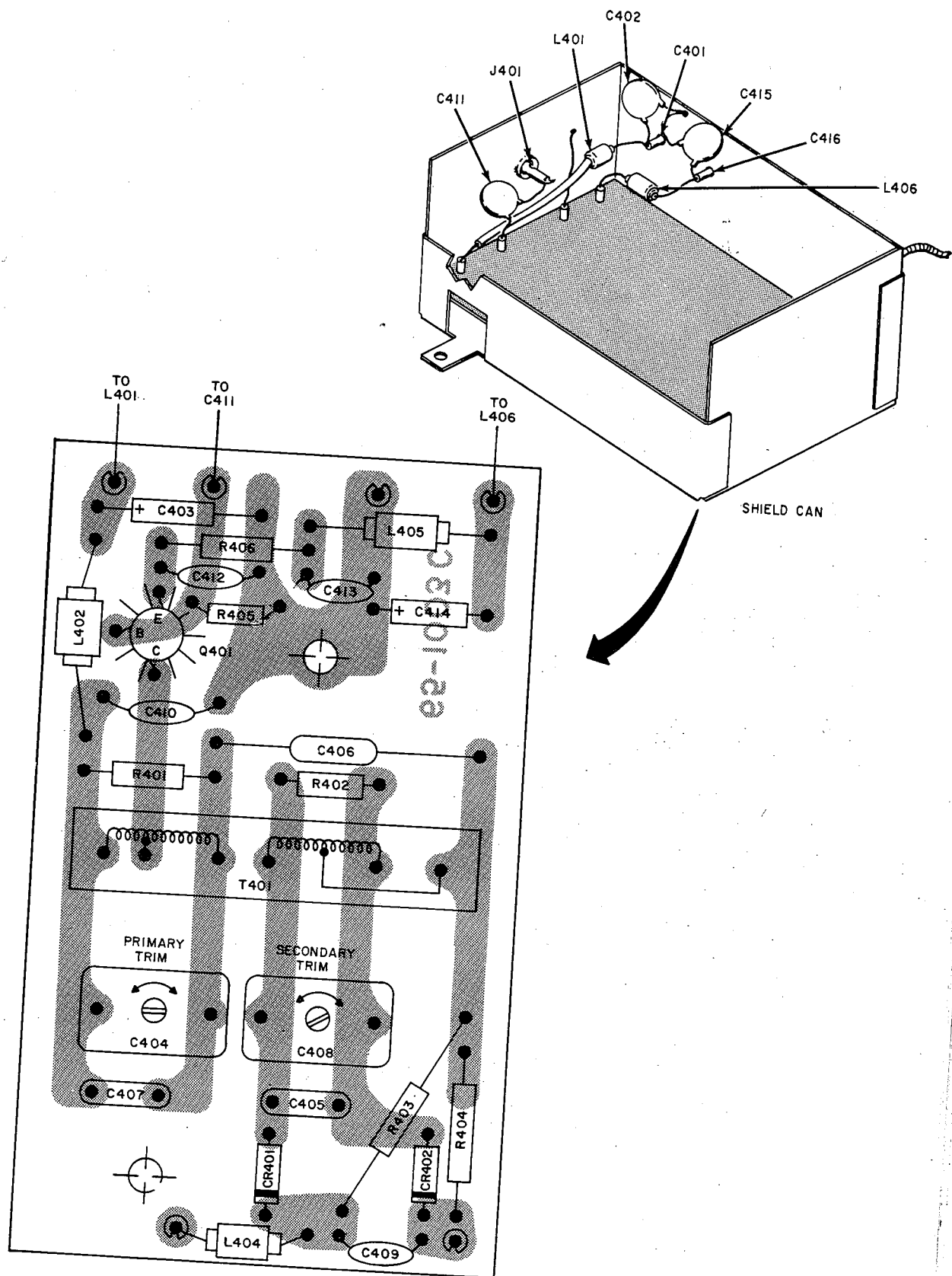
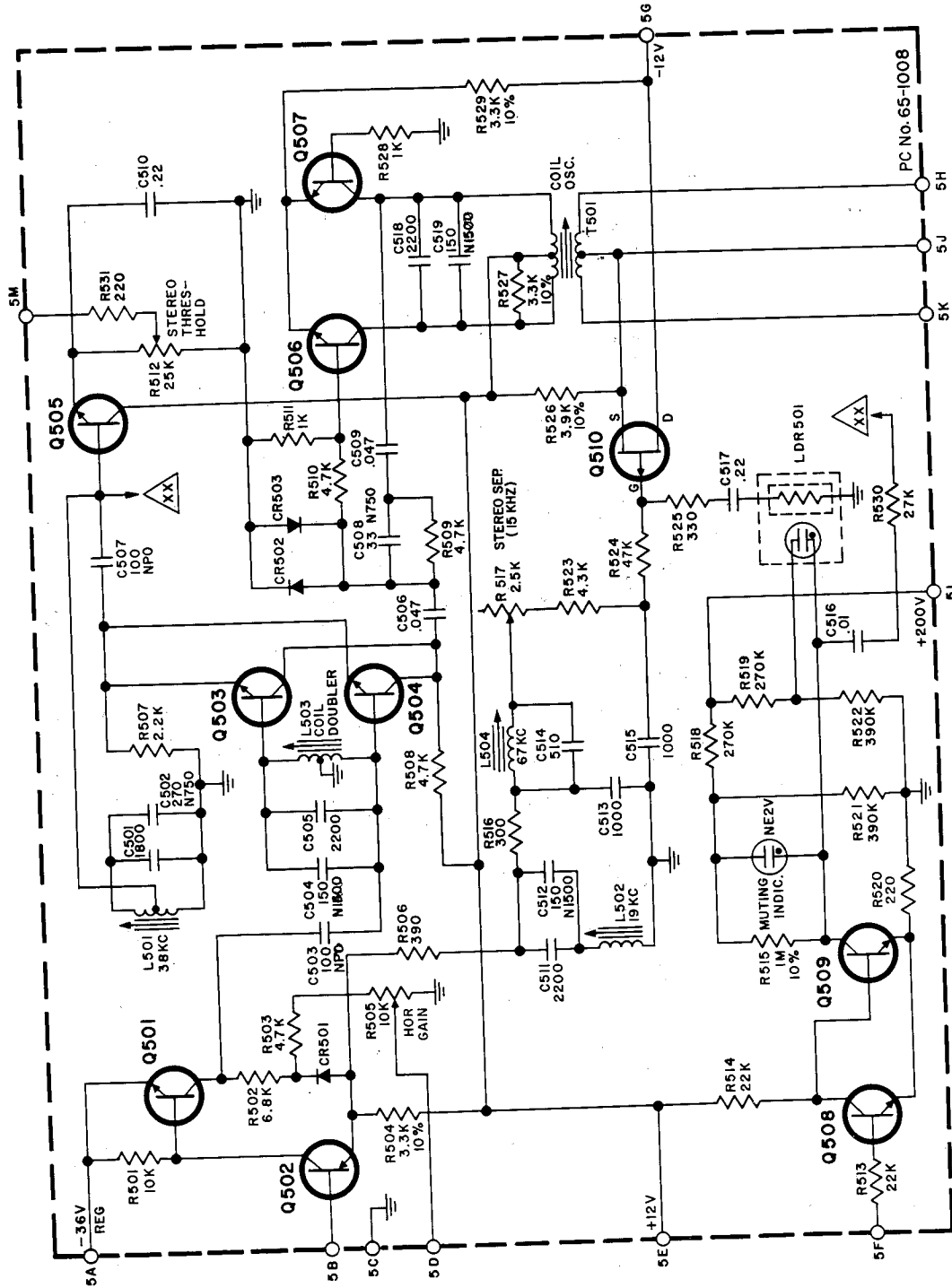
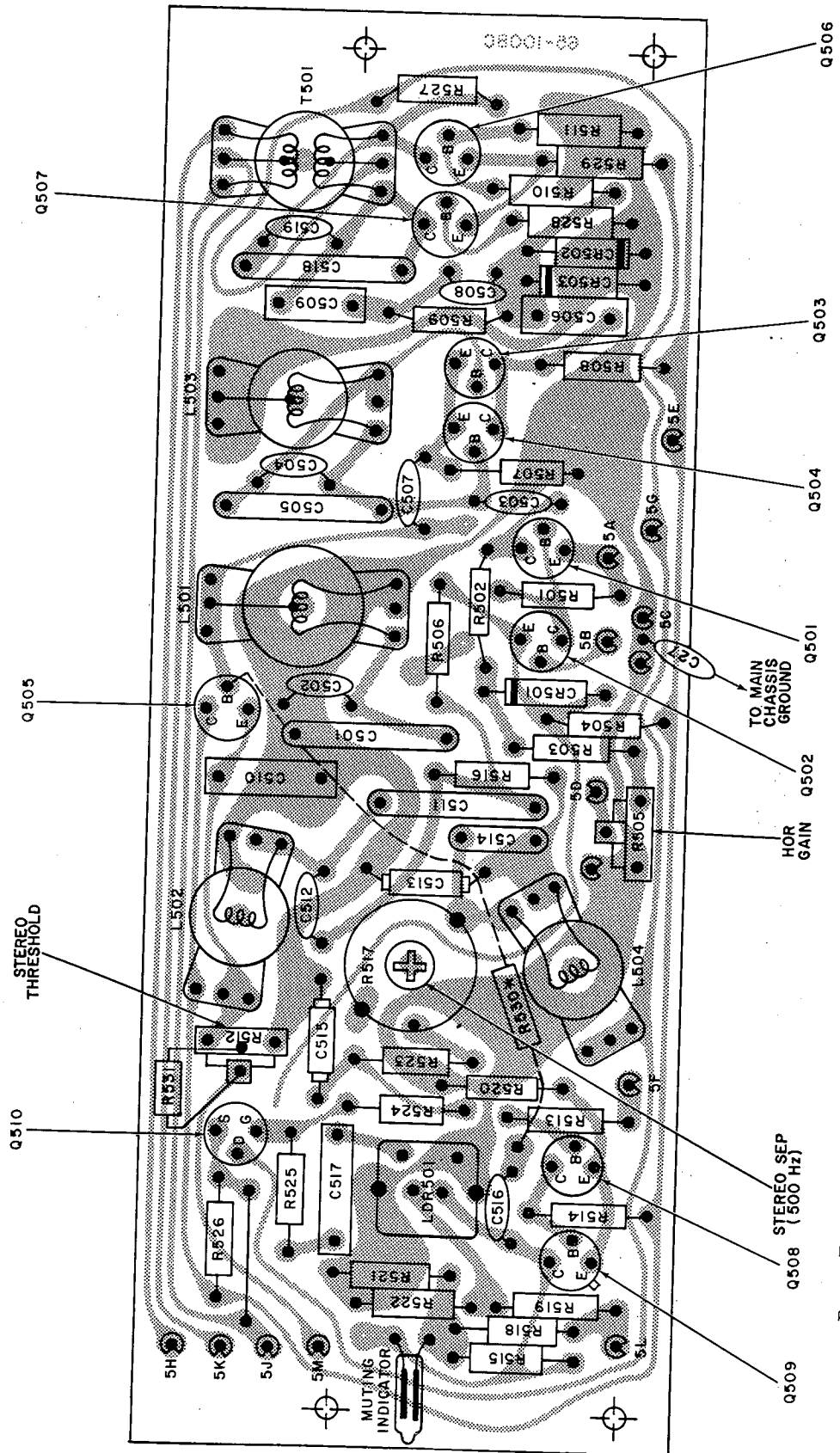


Figure 10. Detector Assembly 11-1023, Component Locations



UNLESS OTHERWISE NOTED:
 ALL RESISTORS ARE IN OHMS 1/4 W 5%
 ALL CAPACITORS IN DECIMALS ARE UF
 ALL OTHERS ARE PF

Figure 11. MPX Oscillator Board 11-1004, Schematic Diagram

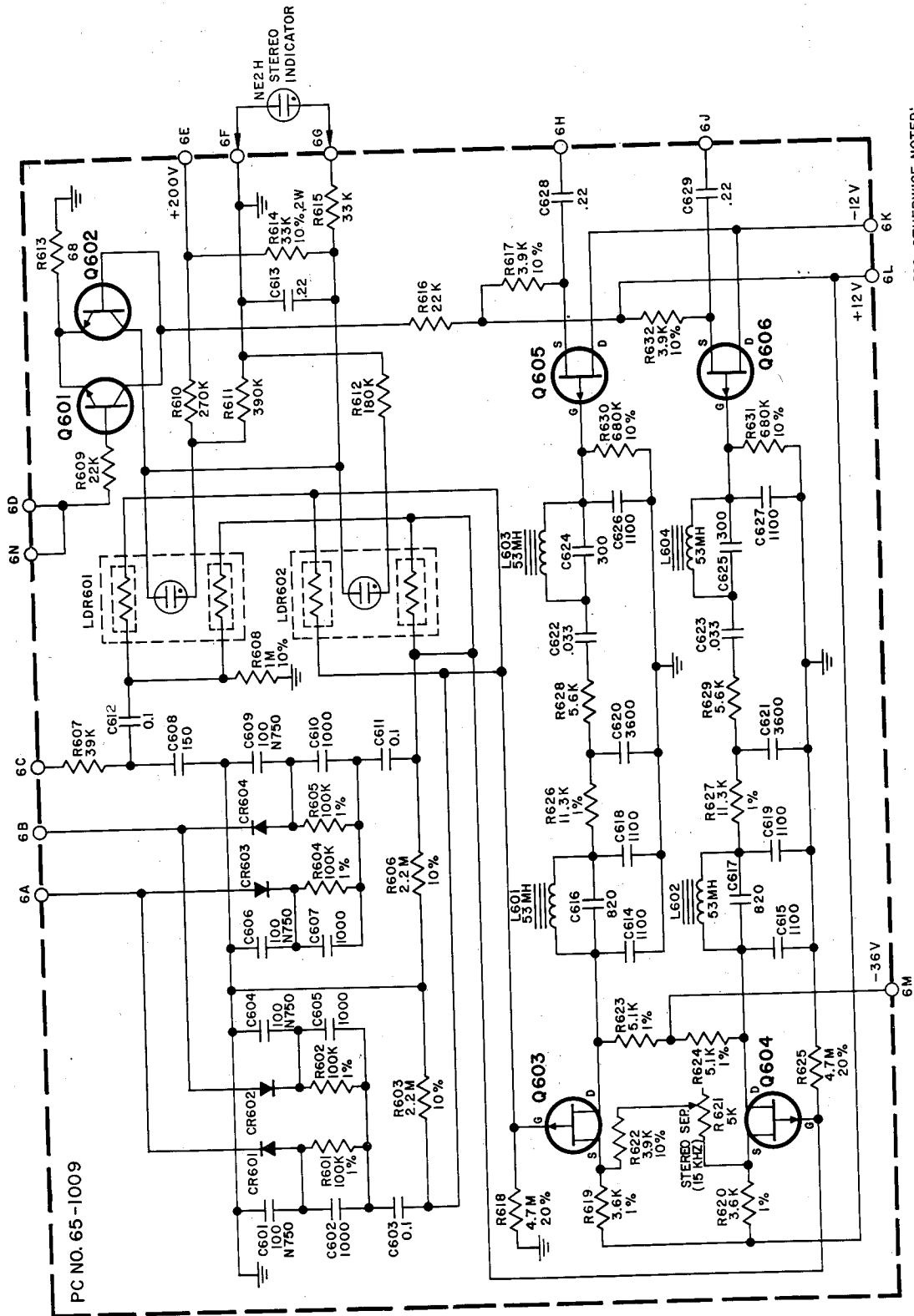


Voltages are:

1. Dc $\pm 10\%$
2. Measured using VTVM
3. Measured with 117-volt line
4. Measured with respect to chassis
5. Measured with no signal (ant terminals shorted), volume at zero, Muting out, Bass and Treble flat, Dot on scope centered, Audio display out.

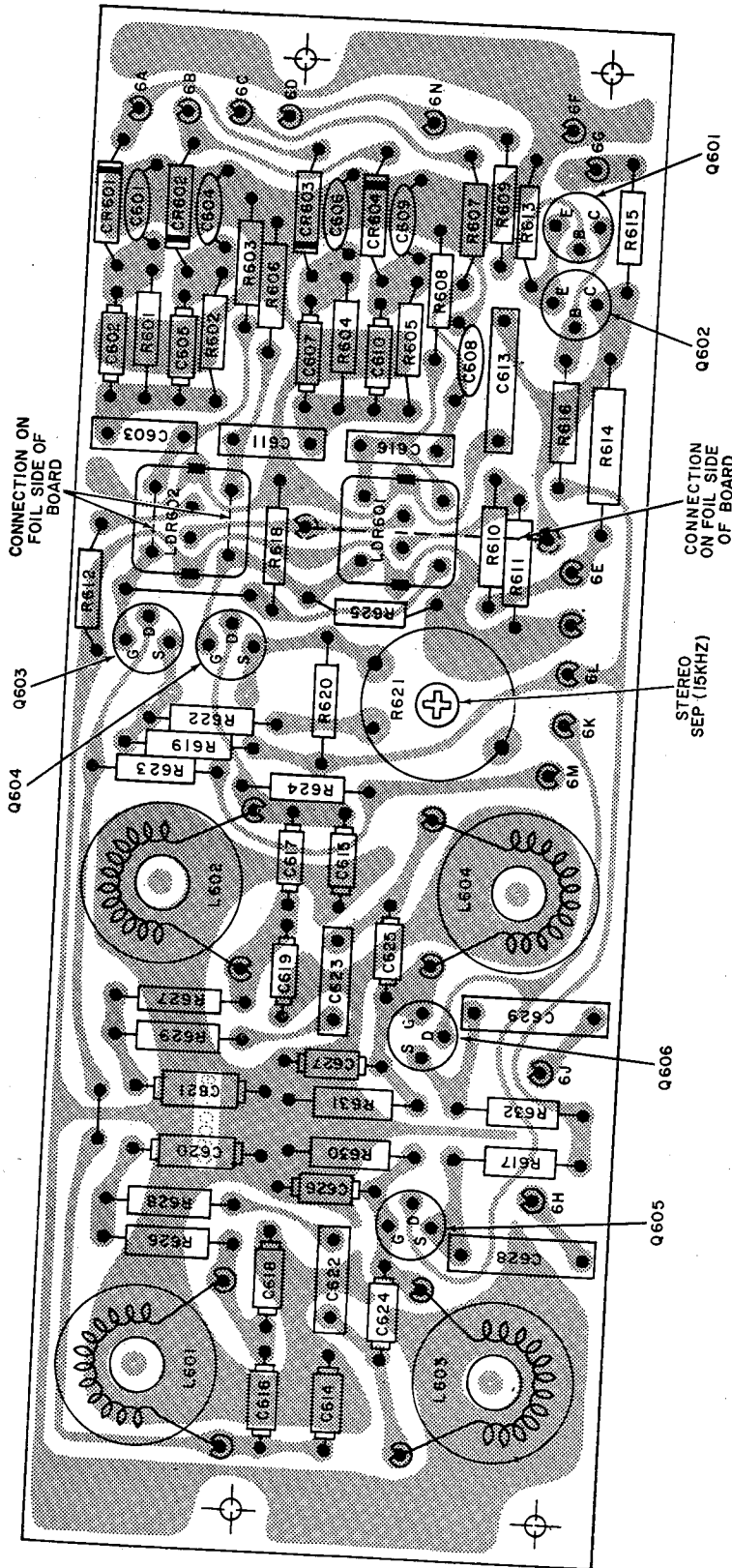
	B	E	C
Q501	-36	-36	-23
Q502	0	0.4	-36
Q503, Q504	0	0.8	10
Q505	0	1.1	12
Q506, Q507	0	-0.6	12
Q508	0.8	0.3	0.9
Q509	0.9	0.3	0.4
Q510	(D)-12	(G) 0.4	(S)-0.7

Figure 12. MPX Oscillator Board 11-1004, Component Locations



UNLESS OTHERWISE NOTED:
ALL RESISTORS ARE IN OHMS 1/4 W 5%
ALL CAPACITORS IN DECIMALS ARE UF
ALL OTHERS ARE PF
ALL 1% RESISTORS PRECISION FILM

Figure 13. MPX Matrix 11-1003, Schematic Diagram

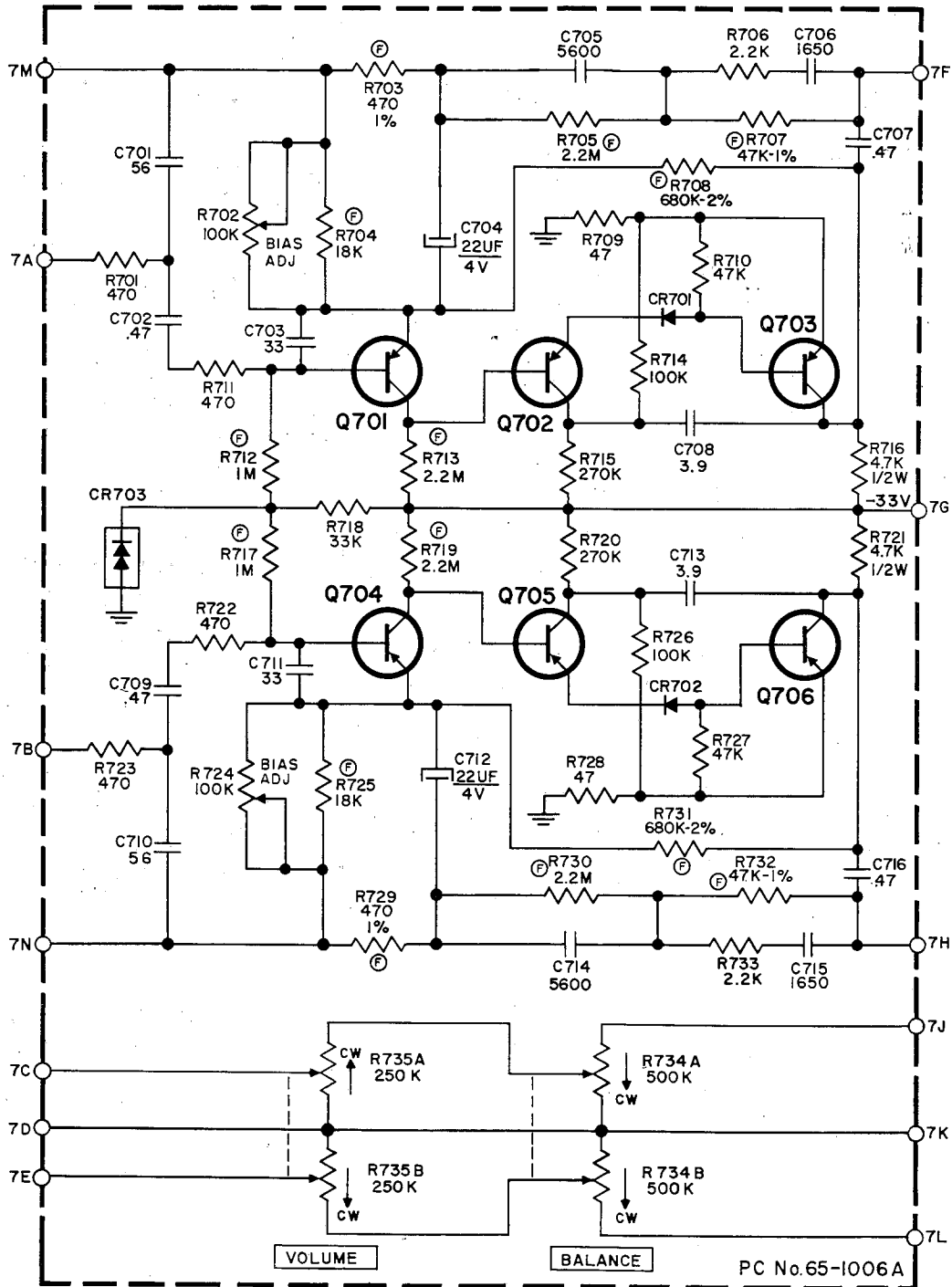


Voltages are:

1. Dc $\pm 10\%$
2. Measured using VTVM
3. Measured with 117-volt line
4. Measured with respect to chassis
5. Measured with no signal (ant terminals shorted), volume at zero, Muting out, Bass and Treble flat, Dot on scope centered, Audio display out.

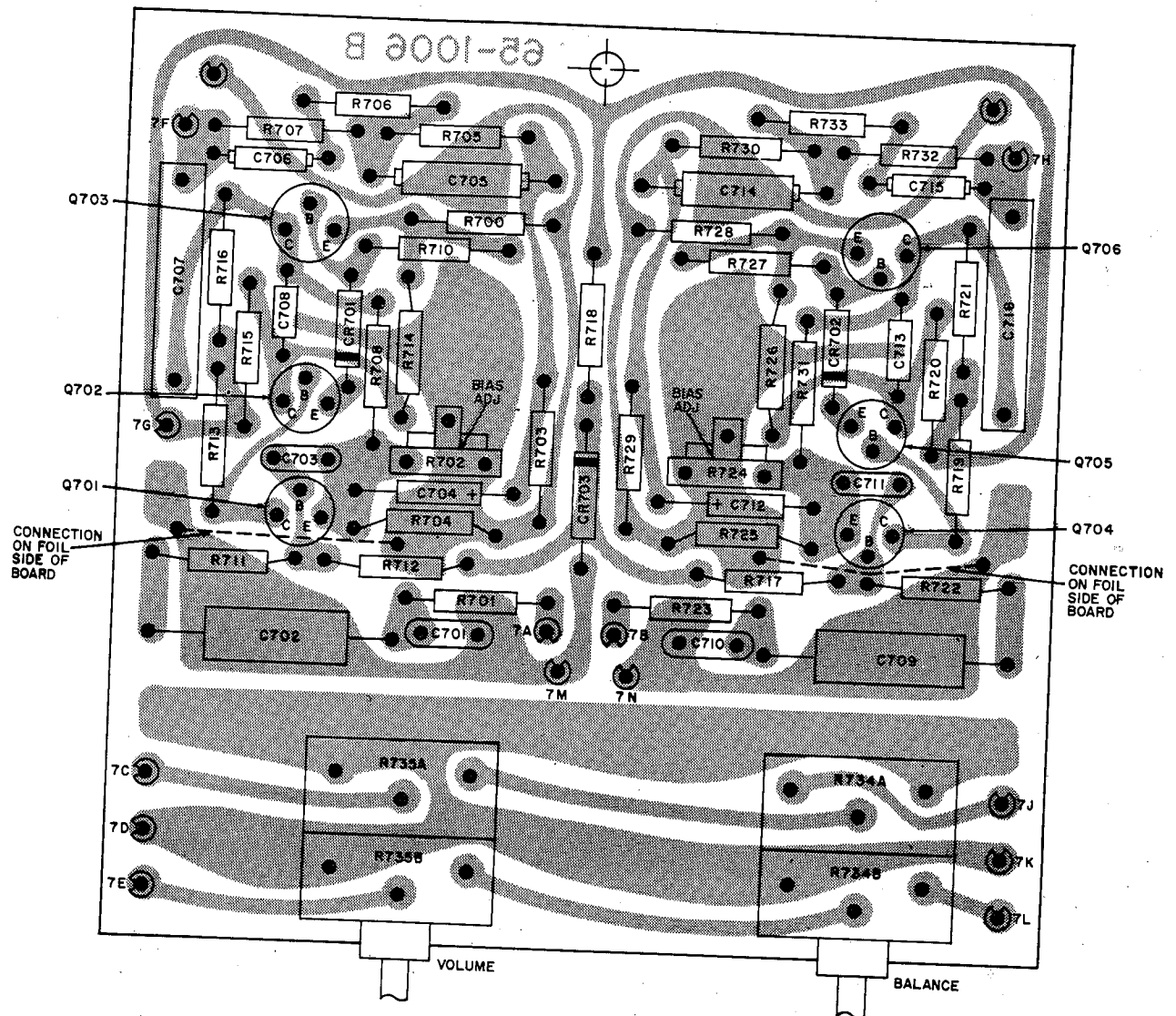
	B	E	C
Q601	0.15	0.4	1.1
Q602	1.1	0.4	0.7
Q603	(D)-19	(G) 0	(S)-1.2
Q604	(D)-19	(G) 0	(S)-1.3
Q605	(D)-12	(G) 0	(S)-1.4
Q606	(D)-12	(G) 0	(S)-1.6

Figure 14. MPX Matrix 11-1003, Component Locations



UNLESS OTHERWISE NOTED:
 ALL RESISTORS ARE IN OHMS 1/4W 5%
 ALL CAPACITORS IN DECIMALS ARE UF
 ALL OTHERS ARE PF
 Ⓡ DENOTES PRECISION FILM RESISTOR

Figure 15. Phono Amplifier Board 11-1006, Schematic Diagram

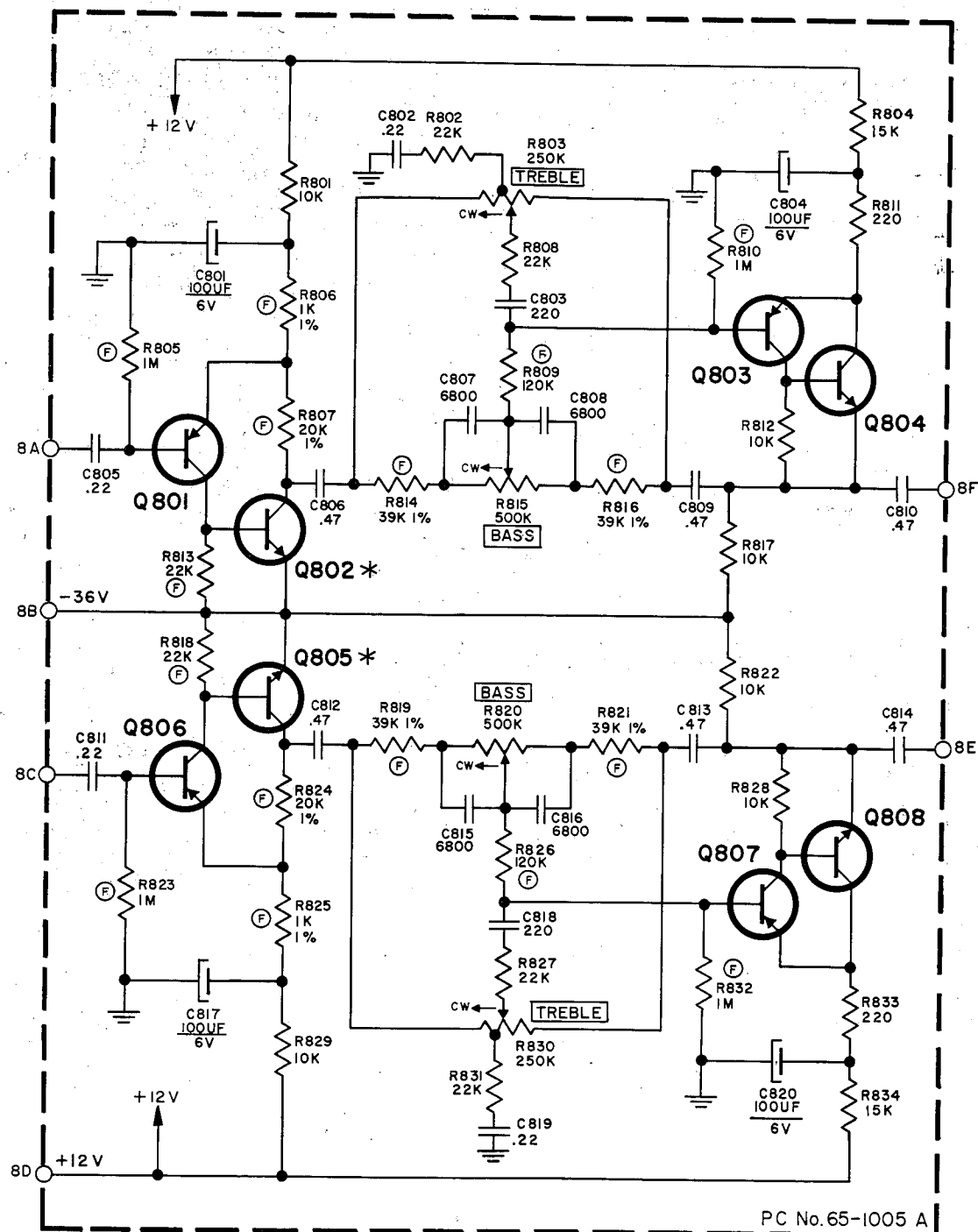


	B	E	C
Q701, Q704	0	-0.6	-2
Q702, Q705	-2	-1.4	-7
Q703, Q706	-0.9	-0.2	-20

Voltages are:

1. Dc $\pm 10\%$
2. Measured using VTVM
3. Measured with 117-volt line
4. Measured with respect to chassis
5. Measured with no signal (ant terminals shorted), volume at zero, Muting out, Bass and Treble flat, Dot on scope centered, Audio display out.

Figure 16. Phono Amplifier Board 11-1006, Component Locations



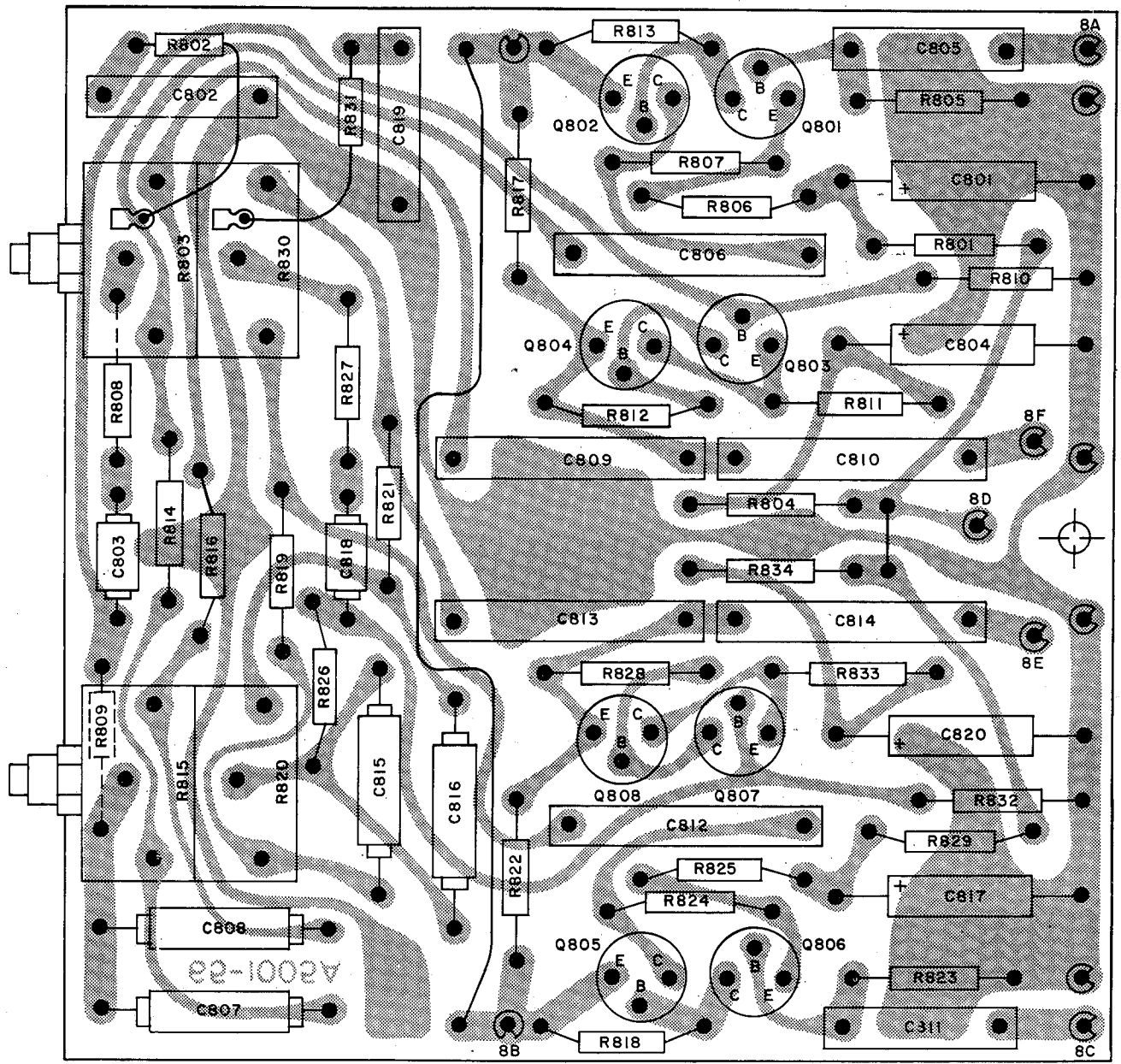
PC No. 65-1005 A

UNLESS OTHERWISE NOTED:

ALL RESISTORS ARE IN OHMS 1/4W 5%
 ALL CAPACITORS IN DECIMALS ARE UF
 ALL OTHERS ARE PF
 (F) DENOTES PRECISION FILM RESISTORS

* Q802, Q805 TYPE 34-1031
 (FORMERLY 34-1010 or 34-1011)

Figure 17. Tone Amplifier Board 11-1007, Schematic Diagram

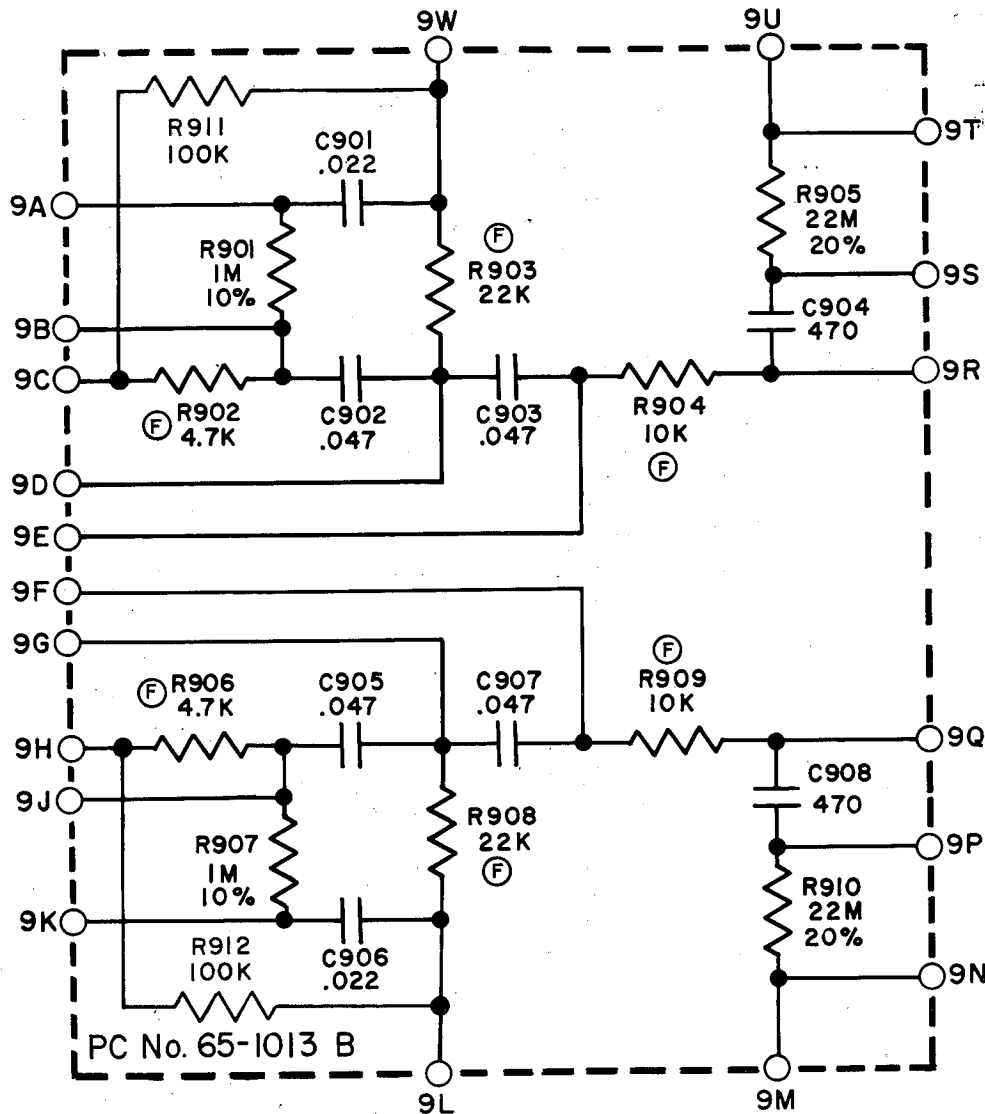


	B	E	C
Q801, Q806	0.2	0.6	-39
Q802, Q805	-39	-36	-21
Q803, Q807	1	12	-31
Q804, Q808	-31	0.7	12

Voltages are:

1. Dc $\pm 10\%$
2. Measured using VTVM
3. Measured with 117-volt line
4. Measured with respect to chassis
5. Measured with no signal (ant terminals shorted), volume at zero, Muting out, Bass and Treble flat, Dot on scope centered, Audio display out.

Figure 18. Tone Amplifier Board 11-1007, Component Locations



UNLESS OTHERWISE NOTED:
 ALL RESISTORS ARE IN OHMS 1/4 W 1%
 ALL CAPACITORS IN DECIMALS ARE UF
 ALL OTHERS ARE PF
 (F) DENOTES PRECISION FILM RESISTOR

Figure 19. Hi-Lo Filter Board 11-1008, Schematic Diagram

e2-1013 B

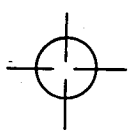
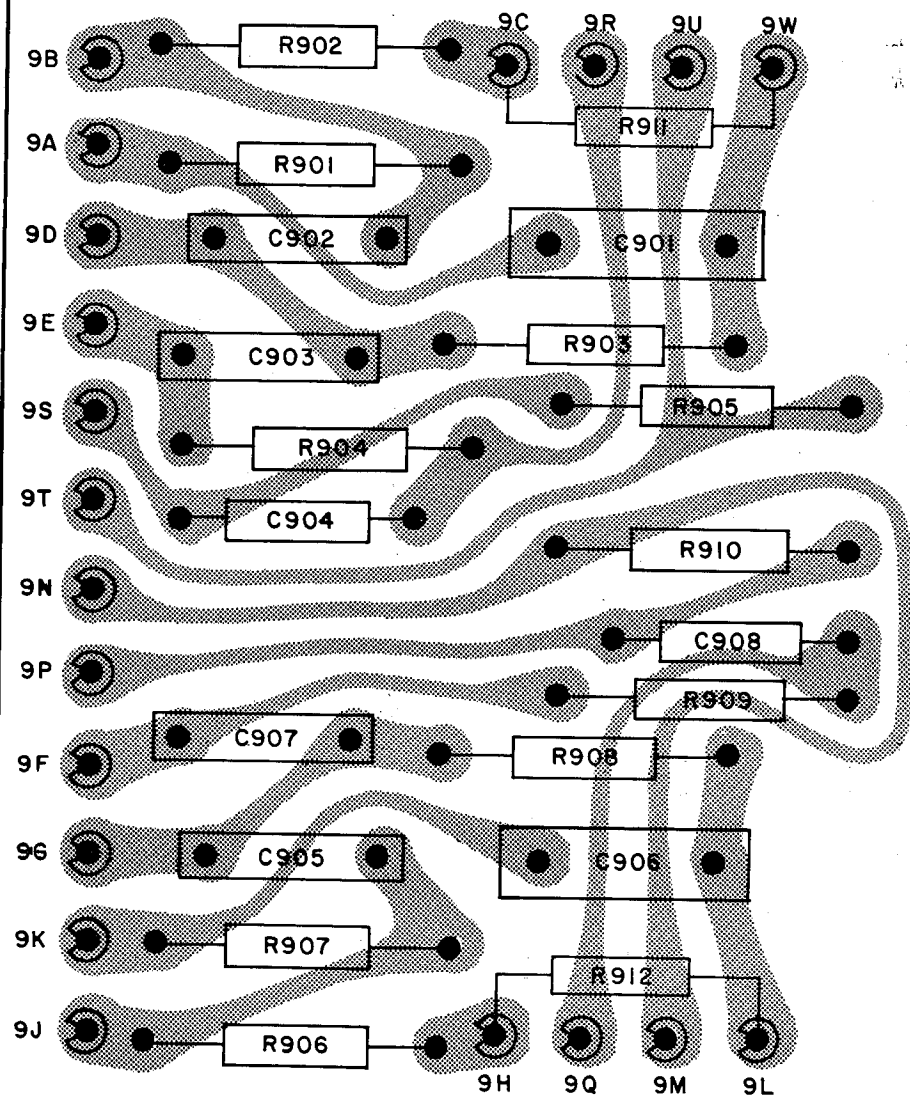
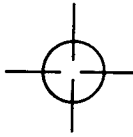
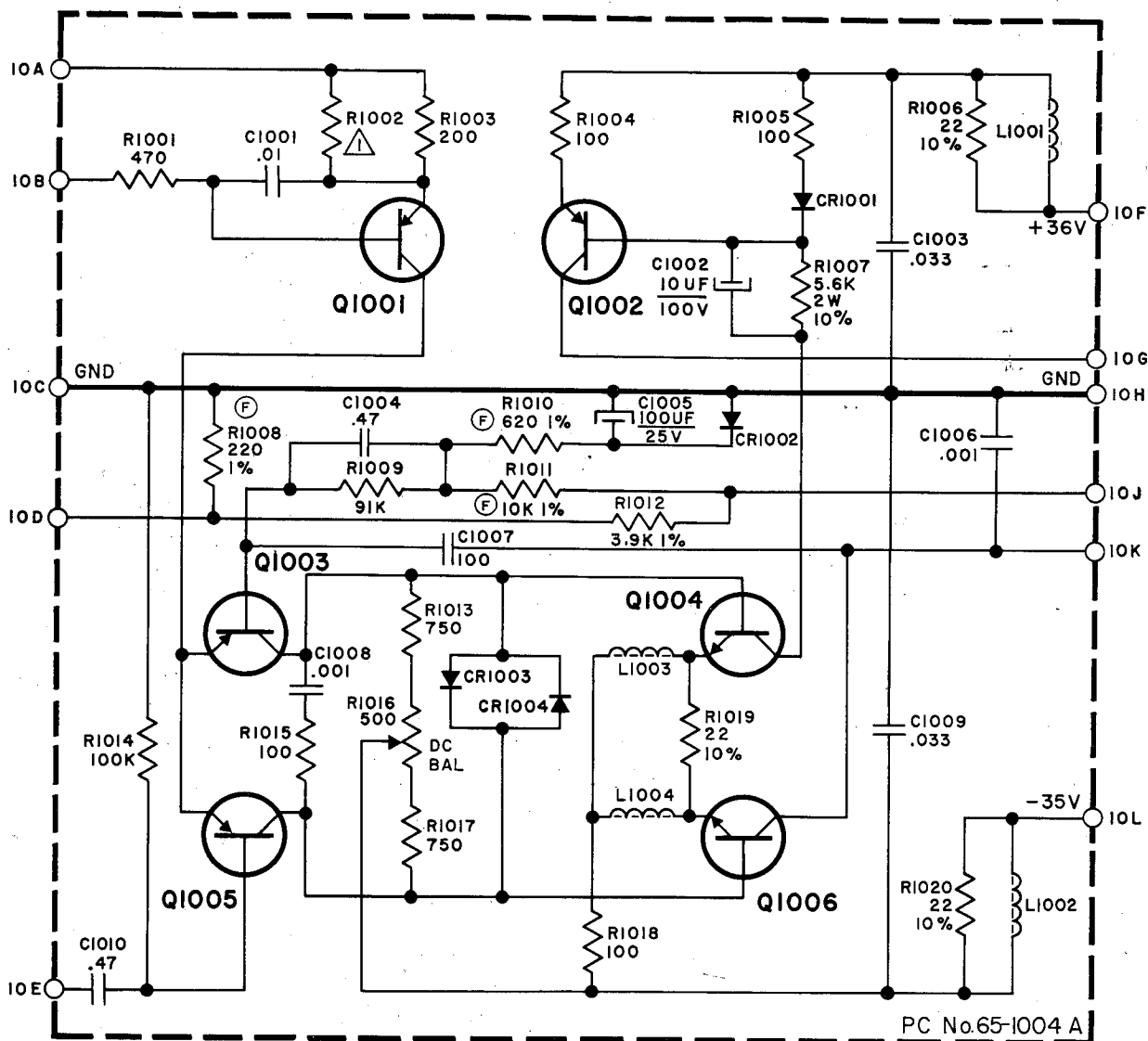


Figure 20. Hi Lo Filter Board 11-1008, Component Locations



UNLESS OTHERWISE NOTED:
 ALL RESISTORS ARE IN OHMS 1/4 W 5%
 ALL CAPACITORS IN DECIMALS ARE UF
 ALL OTHERS ARE PF
 (F) DENOTES PRECISION FILM RESISTORS
 (Δ) SELECTED FOR OPTIMUM VALUE

	B	E	C
Q1001	28	29	1.1
Q1002	39	40	1.3
Q1003	0.45	1.1	-40
Q1004	-40	-38	4
Q1005	0.55	1.1	-37
Q1006	-37	-38	-1.3

Voltages are:

1. Dc ±10%
2. Measured using VTVM
3. Measured with 117-volt line
4. Measured with respect to chassis
5. Measured with no signal (ant terminals shorted), volume at zero, Muting out, Bass and Treble flat, Dot on scope centered, Audio display out.

Figure 21. Driver Board 11-1002, Schematic Diagram

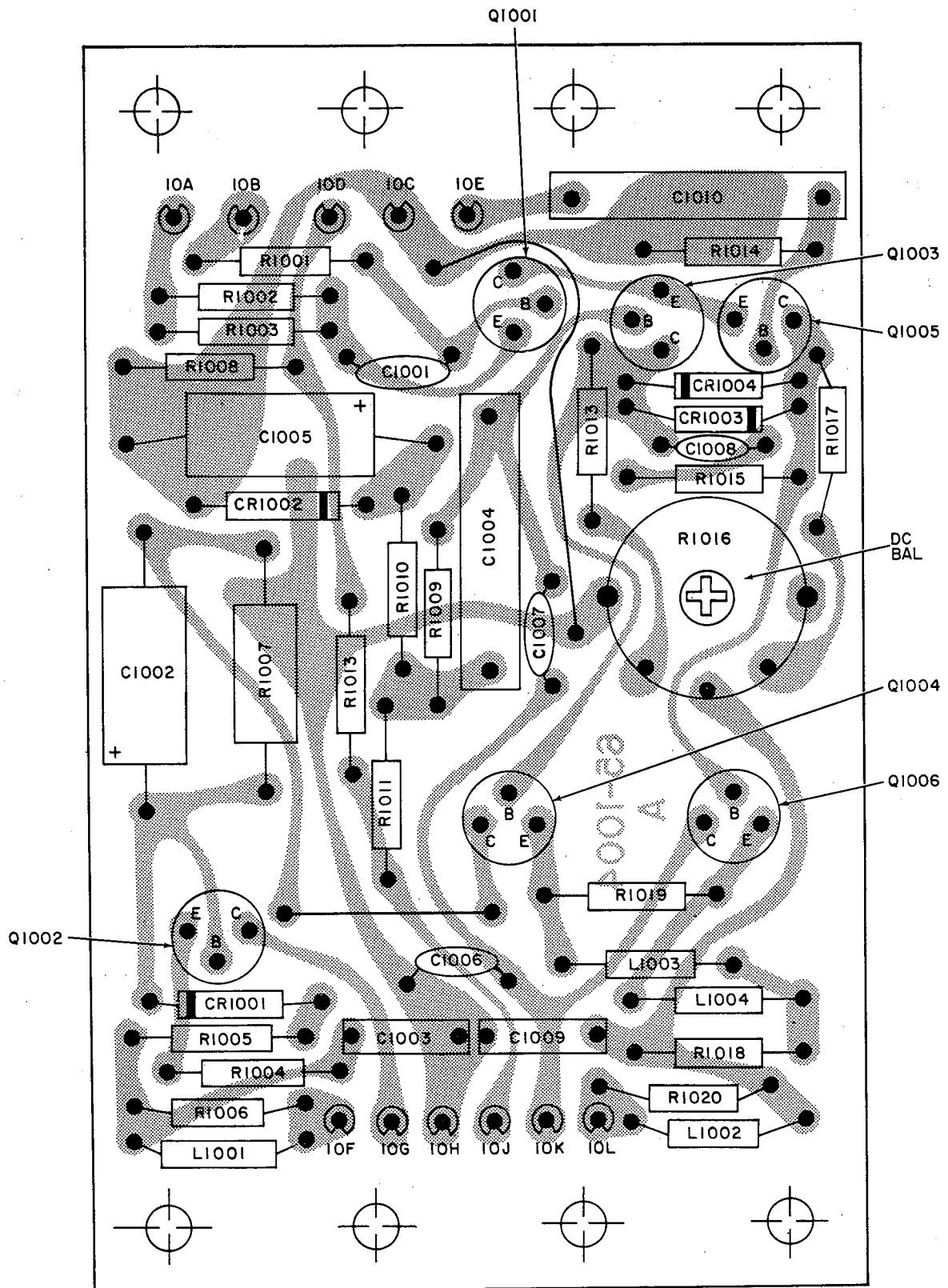
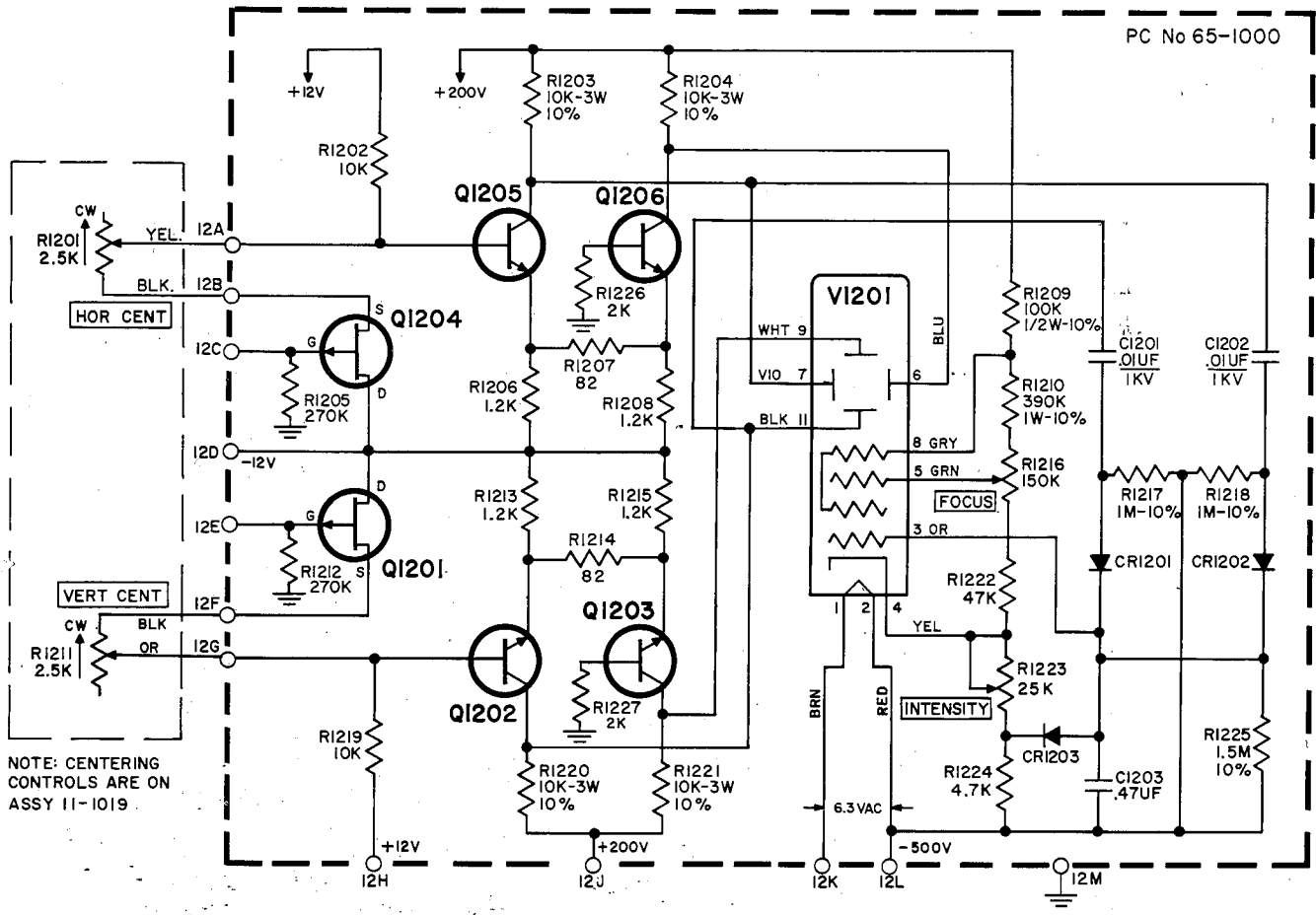


Figure 22. Driver Board 11-1002, Component Locations



NOTE: CENTERING CONTROLS ARE ON ASSY 11-1019.

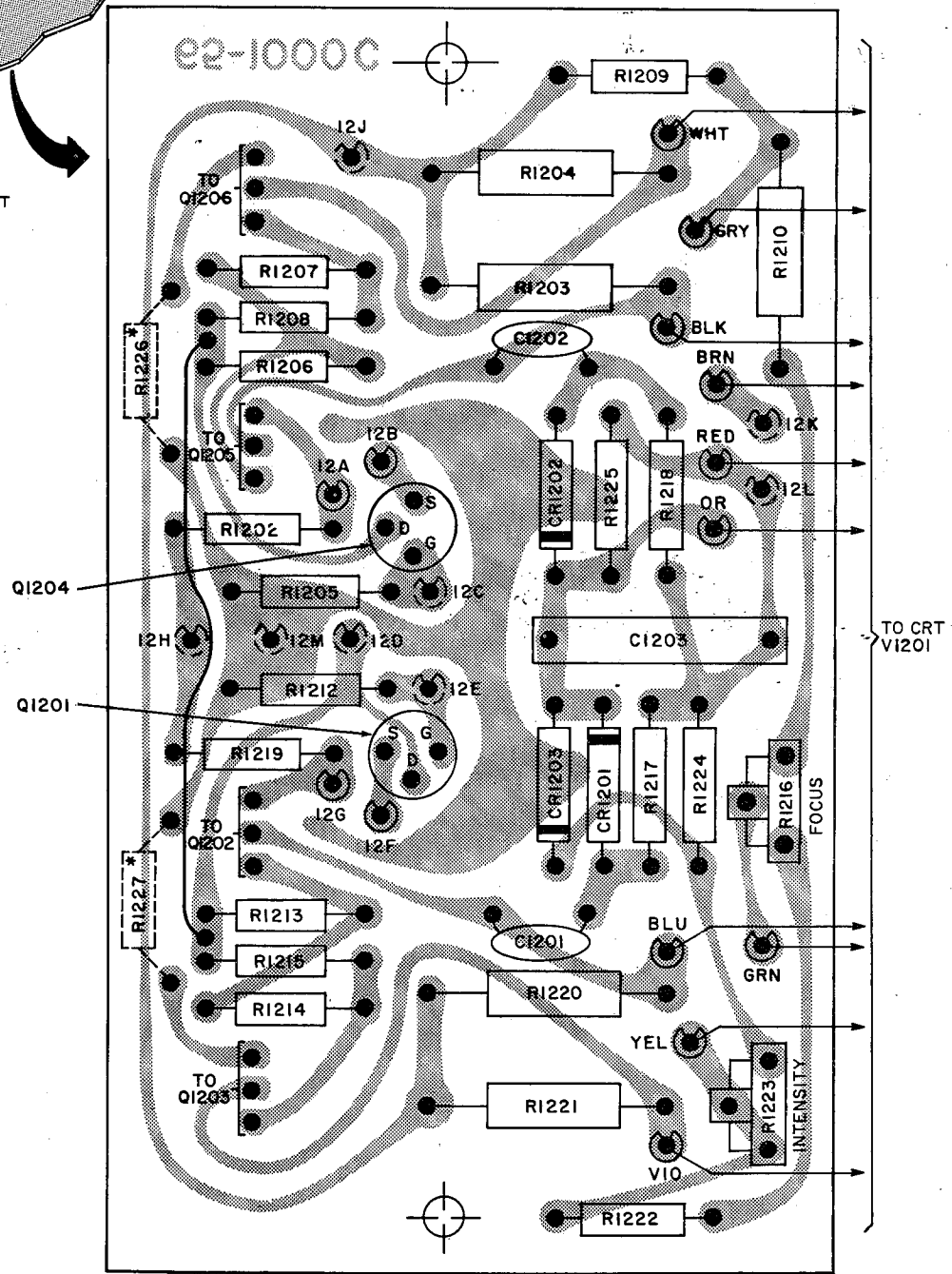
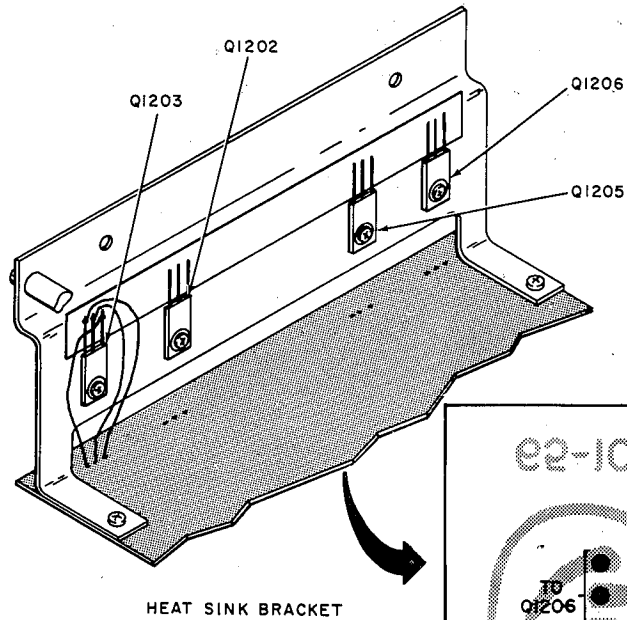
UNLESS OTHERWISE NOTED:
ALL RESISTORS ARE IN OHMS 1/4W 5%

	B	E	C
Q1201	(D)-12 (G) 0	(S)-1.6	
Q1202	-0.6	-1.1	150
Q1203	-0.5	-1.1	130
Q1204	(D)-12 (G) 0	(S)-1.7	
Q1205	-0.3	-0.85	120
Q1206	-0.4	0.95	135

Voltages are:

1. Dc ±10%
2. Measured using VTVM
3. Measured with 117-volt line
4. Measured with respect to chassis
5. Measured with no signal (ant terminals shorted), volume at zero, Muting out, Bass and Treble flat, Dot on scope centered, Audio display out.

Figure 23. Scope Display Board 11-1005, Schematic Diagram



* MOUNTED ON FOIL SIDE OF BOARD

Figure 24. Scope Display Board 11-1005, Component Locations

PARTS LIST

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION	REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
BOARD SUBASSEMBLIES					
--			C204	14-1021	100 pf, 10%, Ceramic
--	11-1002	Amplifier Driver Board Assy	C205,	14-1014	.005 uf, +80 -20 pf, Ceramic
--	11-1003	Multiplex Matrix Board Assy	C206		
--	11-1004	Multiplex Oscillator Board Assy	C212	14-1014	.005 uf, +80 -20 pf, Ceramic
--	11-1005	Scope Display Board Assy	C213	14-1021	100 pf, 10%, Ceramic
--	11-1006	Phono Amplifier Board Assy	thru		
--	11-1007	Tone Amplifier Board Assy	C216		
--	11-1008	Hi-Lo Filter Board Assy	C217,	14-1014	.005 uf, +80 -20 pf, Ceramic
--	11-1020	Front End Assy	C218		
--	11-1021	IF Assy	C219	14-1039	56 pf, 5%, Ceramic
--	11-1022	Limiter Board Assy	C220		Not Used
--	11-1023	Detector Board Assy	C221	14-1014	.005 uf, +80 -20 pf, Ceramic
COMPONENT PARTS					
C1	14-1012	4700 pf, 20%, Ceramic	thru		
C2,	14-1014	.005 uf, +80 -20 pf, Ceramic	C228		
C3			C229	22-1000	1000 pf, 20%, Feed-thru
C4,	14-1016	.002 uf, 20%, 150 VAC/1.4K	thru		
C5		VDC, Ceramic	C233		
C6	19-1007	20-20 uf, 250V, Elect (pigtail)	C234	14-1021	100 pf, 10%, Ceramic
C7,	18-1000	5450 uf, 50V, Elect (terminal)	thru		
C8			C236		
C9,	19-1001	350 uf, 50V, Elect (pigtail)	C301	22-1000	1000 pf, 20%, Feed-thru
C10			C302,	14-1014	.005 uf, +80 -20 pf, Ceramic
C11	19-1006	10 uf, 575V, Elect (pigtail)	C303		
C12,	19-1000	250 uf, 80V, Elect (pigtail)	C304	14-1013	47 pf, 10%, Ceramic
C13			C305	14-1021	100 pf, 10%, Ceramic
C14	19-1001	350 uf, 50V, Elect (pigtail)	C306	14-1014	.005 uf, +80 -20 pf, Ceramic
C15,	19-1002	350 uf, 15V, Elect (pigtail)	thru		
C16			C308		
C17	19-1001	350 uf, 50V, Elect (pigtail)	C309	22-1000	1000 pf, 20%, Feed-thru
C18,	14-1014	.005 uf, +80 -20 pf, Ceramic	C310	14-1021	100 pf, 10%, Ceramic
C19			C311	22-1001	47 pf, 20%, Feed-thru
C20	19-1001	350 uf, 50V, Elect (pigtail)	C312	22-1000	1000 pf, 20%, Feed-thru
thru			C313,	14-1014	.005 uf, +80 -20 pf, Ceramic
C22			C314		
C23	13-1007	.22 uf, 10%, 250V, Mylar	C315	14-1013	47 pf, 10%, Ceramic
C24	14-1012	4700 pf, 20%, Ceramic	C316	14-1021	100 pf, 10%, Ceramic
C25	13-1007	.22 uf, 10%, 250V, Mylar	C317	14-1014	.005 uf, +80 -20 pf, Ceramic
C26	14-1012	4700 pf, 20%, Ceramic	thru		
C27	14-1014	.005 uf, +80 -20 pf, Ceramic	C319		
C28,	14-1013	47 pf, 10%, Ceramic	C320	22-1000	1000 pf, 20%, Feed-thru
C29			C321	14-1021	100 pf, 10%, Ceramic
C30	13-1007	.22 uf, 10%, 250V, Mylar	C322,	16-1001	2.2 uf, 15V, Tant
thru			C323		
C32			C324	14-1014	.005 uf, +80 -20 pf, Ceramic
C33	19-1010	200 uf, 15V, Elect (pigtail)	thru		
C34	13-1007	.22 uf, 10%, 250V, Mylar	C326		
C35	19-1010	200 uf, 15V, Elect (pigtail)	C327	22-1001	47 pf, 20%, Feed-thru
*C36	13-1007	.22 uf, 10%, 250V, Mylar	C328	22-1000	1000 pf, 20%, Feed-thru
thru			C330,	14-1014	.005 uf, +80 -20 pf, Ceramic
C39			C331		
C201	22-1000	1000 pf, 20%, Feed-thru	C332	14-1013	47 pf, 10%, Ceramic
thru			C333	14-1021	100 pf, 10%, Ceramic
C203			C334	22-1000	1000 pf, 20%, Feed-thru
			C335	14-1021	100 pf, 10%, Ceramic
			C336	14-1014	.005 uf, +80 -20 pf, Ceramic
			thru		
			C338		

*C36 thru C39 installed during test, if required.

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION	REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
C339	22-1001	47 pf, 20%, Feed-thru	C612		Not Used
C340	22-1000	1000 pf, 20%, Feed-thru	C613	13-1001	.22 uf, 10%, 25V, Mylar
C341,	14-1014	.005 uf, +80 -20 pf, Ceramic	C614,	15-1004	1100 pf, 2 1/2%, 125V, Poly
C342			C615		
C343	14-1013	47 pf, 10%, Cer Disc	C616	13-1002	.1 uf, 10%, 250V, Mylar
C344	14-1021	100 pf, 10%, Ceramic	C617	15-1006	820 pf, 2 1/2%, 125V, Poly
C345	22-1000	1000 pf, 20%, Feed-thru	C618,	15-1004	1100 pf, 2 1/2%, 125V, Poly
C346	14-1021	100 pf, 10%, Ceramic	C619		
C347		Not Used	C620,	15-1002	3600 pf, 2 1/2%, 125V, Poly
C348	14-1014	.005 uf, +80 -20 pf, Ceramic	C621		
C349	22-1001	47 pf, 20%, Feed-thru	C622,	13-1005	.033 uf, 10%, 250V, Mylar
C350,	14-1014	.005 uf, +80 -20 pf, Ceramic	C623		
C351			C624,	15-1008	300 pf, 2 1/2%, 125V, Poly
C352	22-1000	1000 pf, 20%, Feed-thru	C625		
thru			C626,	15-1004	1100 pf, 2 1/2%, 125V, Poly
C354			C627		
C355	22-1001	47 pf, 20%, Feed-thru	C628,	13-1001	.22 uf, 10%, 25V, Mylar
C401	22-1000	1000 pf, 20%, Feed-thru	C629		
C402	14-1014	.005 uf, +80 -20 pf, Ceramic	C701	17-1001	56 pf, 10%, Mica
C403	16-1001	2.2 uf, 15V, Tant	C702	13-1006	.47 uf, 10%, 250V, Mylar
C404	21-1000	1-18 pf, Trimmer	C703	17-1000	33 pf, 5%, Mica
C405	17-1005	155 pf, 2%, Mica	C704	16-1000	22 uf, 4V, Tant
C406	17-1003	5.6 pf, 5%, Mica	C705	15-1001	5600 pf, 2 1/2%, 125V, Poly
C407	17-1004	70 pf, 1%, Mica	C706	15-1003	1650 pf, 2 1/2%, 125V, Poly
C408	21-1000	1-18 pf, Trimmer	C707	13-1000	.47 uf, 10%, 25V, Mylar
C409	14-1015	22 pf, 10%, Ceramic	C708	14-1011	3.9 pf, Gimmick
C410	14-1014	.005 uf, +80 -20 pf, Ceramic	C709	13-1006	.47 uf, 10%, 250V, Mylar
thru			C710	17-1001	56 pf, 10%, Mica
C413			C711	17-1000	33 pf, 5%, Mica
C414	16-1001	2.2 uf, 15V, Tant	C712	16-1000	22 uf, 4V, Tant
C415	14-1014	.005 uf, +80 -20 pf, Ceramic	C713	14-1011	3.9 pf, Gimmick
C416	22-1000	1000 pf, 20%, Feed-thru	C714	15-1001	5600 pf, 2 1/2%, 125V, Poly
C501	17-1018	1800 pf, 1%, Mica	C715	15-1003	1650 pf, 2 1/2%, 125V, Poly
C502	14-1022	270 pf, 5%, Ceramic	C716	13-1000	.47 uf, 10%, 25V, Mylar
C503	14-1006	100 pf, 5%, Ceramic	C801	19-1005	100 uf, 6V, Elect (pigtail)
C504	14-1005	150 pf, 5%, Ceramic	C802	13-1001	.22 uf, 10%, 25V, Mylar
C505	17-1017	2200 pf, 1%, Mica	C803	15-1009	220 pf, 2 1/2%, 125V, Poly
C506	13-1004	.047 uf, 5%, 250V, Mylar	C804	19-1005	100 uf, 6V, Elect (pigtail)
C507	14-1006	100 pf, 5%, Ceramic	C805	13-1001	.22 uf, 10%, 25V, Mylar
C508	14-1009	33 pf, 5%, Ceramic	C806	13-1000	.47 uf, 10%, 25V, Mylar
C509	13-1004	.047 uf, 5%, 250V, Mylar	C807,	15-1000	6800 pf, 2 1/2%, 125V, Poly
C510	13-1001	.22 uf, 10%, 25V, Mylar	C808		
C511	17-1017	2200 pf, 1%, Mica	C809,	13-1000	.47 uf, 10%, 25V, Mylar
C512	14-1005	150 pf, 5%, Ceramic	C810		
C513	15-1005	1000 pf, 2 1/2%, 125V, Poly	C811	13-1001	.22 uf, 10%, 25V, Mylar
C514	17-1002	510 pf, 2%, Mica	C812	13-1000	.47 uf, 10%, 25V, Mylar
C515	15-1005	1000 pf, 2 1/2%, 125V, Poly	thru		
C516	14-1003	.01 uf, 20%, Ceramic	C814		
C517	13-1001	.22 uf, 10%, 25V, Mylar	C815,	15-1000	6800 pf, 2 1/2%, 125V, Poly
C518	17-1017	2200 pf, 1%, Mica	C816		
C519	14-1005	150 pf, 5%, Ceramic	C817	19-1005	100 uf, 6V, Elect (pigtail)
C601	14-1007	100 pf, 5%, N750, Ceramic	C818	15-1009	220 pf, 2 1/2%, 125V, Poly
C602	15-1005	1000 pf, 2 1/2%, 125V, Poly	C819	13-1001	.22 uf, 10%, 25V, Mylar
C603	13-1002	.1 uf, 10%, 250V, Mylar	C820	19-1005	100 uf, 6V, Elect (pigtail)
C604	14-1007	100 pf, 5%, Ceramic	C901	13-1008	.022 uf, 10%, 250V, Mylar
C605	15-1005	1000 pf, 2 1/2%, 125V, Poly	C902,	13-1004	.047 uf, 5%, 250V, Mylar
C606	14-1007	100 pf, 5%, Ceramic	C903		
C607	15-1005	1000 pf, 2 1/2%, 125V, Poly	C904	15-1010	470 pf, 2 1/2%, 125V, Poly
C608	14-1005	150 pf, 5%, Ceramic	C905	13-1004	.047 uf, 5%, 250V, Mylar
C609	14-1007	100 pf, 5%, Ceramic	C906	13-1008	.022 uf, 10%, 250V, Mylar
C610	15-1005	1000 pf, 2 1/2%, 125V, Poly	C907	13-1004	.047 uf, 5%, 250V, Mylar
C611	13-1002	.1 uf, 10%, 250V, Mylar			

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION	REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
C908	15-1010	470 pf, 2 1/2%, 125V, Poly	CR703	35-1001	Diode, Reference
C1001	14-1003	.01 uf, 20%, Ceramic	CR1001	35-1000	Diode, Reference
C1002	19-1003	10 uf, 100V, Elect (pigtail)	CR1002	35-1014	Diode, Reference
C1003	13-1005	.033 uf, 10%, 250V, Mylar		thru	
C1004	13-1000	.47 uf, 10%, 25V, Mylar	CR1004		
C1005	19-1004	100 uf, 25V, Elect (pigtail)	CR1201,	35-1004	Diode
C1006	14-1010	.001 uf, 5%, Ceramic	CR1202		
C1007	14-1007	100 pf, 5%, N750, Ceramic	CR1203	35-1014	Diode, Reference
C1008	14-1010	.001 uf, 5%, Ceramic	J1	69-1003	Jack, Phono (Dubbing Out)
C1009	13-1005	.033 uf, 10%, 250V, Mylar	J2	69-1002	Jack, Phono (Dubbing In)
C1010	13-1000	.47 uf, 10%, 25V, Mylar	J3	69-1004	Jack, Phono (Stereophones)
C1201,	14-1002	.01 uf, 10%, 2KV, Ceramic	K1,	56-1000	Relay
C1202			K2		
C1203	13-1000	.47 uf, 10%, 25V, Mylar	L1 thru	55-1009	Coil, Choke, 55 uh
CR1,	35-1003	Diode, Rectifier	L6		
CR2	35-1004	Diode, Rectifier	L7,	55-1007	Coil, Toroid
CR3,	35-1004	Diode, Rectifier	L8		
CR4			L201	55-1009	Coil, Choke, 55 uh
CR5	35-1015	Diode, Rectifier	thru		
CR6	35-1009	Diode, Rectifier	L222		
CR7	35-1008	Diode, Rectifier	L301,	55-1009	Coil, Choke, 55 uh
CR8	35-1009	Diode, Rectifier	L302		
CR9	35-1008	Diode, Rectifier	L303	55-1019	Coil, Choke, 4.7 uh
CR10,	35-1012	Diode, Zener	L304	55-1009	Coil, Choke, 55 uh
CR11			thru		
CR12	35-1013	Diode, Zener	L309		
CR13	35-1010	Diode	L310	55-1019	Coil, Choke, 4.7 uh
CR14	35-1000	Diode, Reference	L311	55-1009	Coil, Choke, 55 uh
CR15	35-1014	Diode, Reference	thru		
CR16	35-1005	Diode	L320		
CR17,	35-1002	Diode, Reference	L321	55-1019	Coil, Choke, 4.7 uh
CR18			L322	55-1009	Coil, Choke, 55 uh
CR19	35-1006	Diode, Rectifier	thru		
CR20	35-1007	Diode, Rectifier	L328		
CR21			L329	55-1019	Coil, Choke, 4.7 uh
CR22	35-1006	Diode, Rectifier	L330	55-1009	Coil, Choke, 55 uh
CR201	35-1019	Diode	thru		
thru			L333		
CR208			L401,	55-1009	Coil, Choke, 55 uh
CR301,	35-1033A	Diode, Limiting	L402		
CR302			L404	55-1009	Coil, Choke, 55 uh
CR303,	35-1017	Diode	thru		
CR304			L406		
CR305,	35-1033A	Diode, Limiting	L501	11-1014	Coil Assy, 38KC
CR306			L502	11-1015	Coil Assy, 19KC
CR307,	35-1017	Diode	L503	11-1013	Coil Assy, Doubler
CR308			L504	11-1016	Coil Assy, 67KC
CR309,	35-1033A	Diode, Limiting	L601	11-1017	Coil Assy, Low Pass Filter,
CR310			thru		53 mh
CR311,	35-1017	Diode	L604		
CR312			L1001	55-1008	Rod, Inductor
CR313,	35-1033A	Diode, Limiting	thru		
CR314			L1004		
CR315,	35-1017	Diode	LDR	11-1010	Light Cell Assy, Single
CR316			501		(Muting)
CR317	35-1029	Diode, Reference	LDR	11-1011	Light Cell Assy, Double
CR401,	35-1017	Diode	601, 602		(Mono Stereo)
CR402			Q1,	34-1014	Transistor
CR501	35-1000	Diode, Reference	Q2		
CR502,	35-1016	Diode, Signal	Q3	34-1013	Transistor
CR503			Q4,	34-1014	Transistor
CR701,	35-1014	Diode, Reference	Q5		
CR702					

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION	REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
Q6	34-1013	Transistor	R9,	270K, 5%, 1/4W, Dep Carb	
Q8,	34-1002	Transistor	R10		
Q9			R11	26-1014	220 ohm, 10%, 2W, Carb Comp
Q11	34-1000	Transistor	R12,	29-1010	80 ohm, 5%, 5W, WW
Q12,	34-1001	Transistor	R13		
Q13			R14	26-1015	430 ohm, 5%, 2W, Carb Comp
Q14	34-1000	Transistor	R15,	29-1010	80 ohm, 5%, 5W, WW
Q201	34-1018	Transistor	R16		
thru			R17	26-1015	430 ohm, 5%, 2W, Carb Comp
Q204			R18	27-1055	220 ohm, 5%, 1/4W, Dep Carb
Q301	34-1018	Transistor	R19	26-1016	1.5K, -10%, 2W, Carb Comp
thru			R20	27-1063	18K, 5%, 1/4W, Dep Carb
Q304			R21	27-1062	15K, 5%, 1/4W, Dep Carb
Q305	34-1008	Transistor	R22	26-1018	120 ohm, 10%, 1/2W, Carb Comp
Q501	34-1010	Transistor	R23	27-1023	39K, 5%, 1/4W, Dep Carb
Q502	34-1008	Transistor	R24,	26-1017	68 ohm, 10%, 1/2W, Carb Comp
Q503	34-1009	Transistor	R25		Not Used
thru			R26,	33-1012	2.5K, WW (Bias)
Q505			R27		
Q506,	34-1010	Transistor	R28	29-1000	.47 ohm, 5%, 5W, WW
Q507			R29	27-1034	100 ohm, 10%, 1/4W, Dep Carb
Q508	34-1009	Transistor	R30	27-1036	1K, 5%, 1/4W, Dep Carb
Q509	34-1017	Transistor	R31,	27-1035	33 ohm, 10%, 1/4W, Dep Carb
Q510	34-1012	FET	R32		
Q601	34-1009	Transistor	R33	27-1036	1K, 5%, 1/4W, Dep Carb
Q602	34-1017	Transistor	R34	27-1034	100 ohm, 10%, 1/4W, Dep Carb
Q603	34-1012	FET	R35,	29-1000	.47 ohm, 5%, 5W, WW
thru			R36		
Q606			R37	27-1034	100 ohm, 10%, 1/4W, Dep Carb
Q701,	34-1008	Transistor	R38	27-1036	1K, 5%, 1/4W, Dep Carb
Q702			R39,	27-1035	33 ohm, 10%, 1/4W, Dep Carb
Q703	34-1011	Transistor	R40		
Q704,	34-1008	Transistor	R41	27-1036	1K, 5%, 1/4W, Dep Carb
Q705			R42	27-1034	100 ohm, 10%, 1/4W, Dep Carb
Q706	34-1011	Transistor	R43	29-1000	.47 ohm, 5%, 5W, WW
Q801	34-1008	Transistor	R44	29-1001	.13 ohm, 5%, 5W, WW
**Q802	34-1031	Transistor	R45	26-1005	2.2 ohm, 10%, 1W Carb Comp
Q803	34-1008	Transistor	R46	29-1001	.13 ohm, 5%, 5W, WW
Q804	34-1010	Transistor	R47	26-1005	2.2 ohm, 10%, 1W, Carb Comp
**Q805	34-1031	Transistor	R48	29-1005	400 ohm, 5%, 5W, WW
Q806,	34-1008	Transistor	R49,	29-1004	330 ohm, 5%, 5W, WW
Q807			R50		
Q808	34-1010	Transistor	R51	29-1005	400 ohm, 5%, 5W, WW
Q1001	34-1007	Transistor	R52,	26-1019	33 ohm, 5%, 1/2W, Carb Comp
Q1002	34-1005	Transistor	R53		
Q1003	34-1007	Transistor	*R54,		1 to 10 ohm, 10%, 1W Carb Comp
Q1004	34-1004	Transistor	R55		
Q1005	34-1007	Transistor	R201	26-1025	1.8K, 5%, 1/4W, Carb Comp
Q1006	34-1004	Transistor	thru		
Q1201	34-1030	FET	R204		
Q1202,	34-1006	Transistor	R205	26-1026	2.7K, 5%, 1/4W, Carb Comp
Q1203			thru		
Q1204	34-1030	FET	R208		
Q1205,	34-1006	Transistor	R209	26-1029	100K, 5%, 1/4W, Carb Comp
Q1206			R210	26-1028	8.2K, 5%, 1/4W, Carb Comp
R1	27-1022	47K, 5%, 1/4W, Dep Carb	R211	26-1029	100K, 5%, 1/4W, Carb Comp
thru			R212	26-1027	3.3K, 5%, 1/4W, Carb Comp
R4			R213	26-1029	100K, 5%, 1/4W, Carb Comp
R5	27-1049	4.7K, 5%, 1/4W, Dep Carb	R214	26-1027	3.3K, 5%, 1/4W, Carb Comp
thru			R215	26-1029	100K, 5%, 1/4W, Carb Comp
R9			R216	33-1005	10K Pot (Bias Set)
			R217	26-1036	5.6K, 5%, 1/4W, Carb Comp

*Value selected for optimum performance
** 34-1010 or 34-1011 may have been used in production

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION	REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
R218, R219	26-1026	2.7K, 5%, 1/4W, Carb Comp	R521, R522	27-1040	390K, 5%, 1/4W, Dep Carb
R220, R221	26-1004	33 ohm, 5%, 1/4W, Carb Comp	R523, R524	27-1050, 27-1022	4.3K, 5%, 1/4W, Dep Carb, 47K, 5%, 1/4W, Dep Carb
R222	26-1113	3.9K, 5%, 1/4W, Carb Comp	R525, R526	27-1053, 27-1047	330 ohm, 5%, 1/4W, Dep Carb, 3.9K, 10%, 1/4W, Dep Carb
R223	26-1027	3.3K, 5%, 1/4W, Carb Comp	R527, R528	27-1006, 27-1036	3.3K, 10%, 1/4W, Dep Carb, 1K, 5%, 1/4W, Dep Carb
R224	26-1111	22 ohm, 5%, 1/4W, Carb Comp	R529, R530	27-1006, 26-1108	3.3K, 10%, 1/4W, Dep Carb, 27K, 10%, 1/4W, Carb Comp
R301	26-1029	100K, 5%, 1/4W, Carb Comp	R531, R601, R602	27-1055, 30-1023, R602	220 ohm, 5%, 1/4W, Carb Comp, 100K, 1%, 1/4W
R302	26-1026	2.7K, 5%, 1/4W, Carb Comp	R603, R604, R605	27-1048, 30-1023, R605	2.2M, 10%, 1/4W, Dep Carb, 100K, 1%, 1/4W
R303	26-1007	100 ohm, 5%, 1/4W, Carb Comp	R606, R607	27-1048, 27-1023	2.2M, 10%, 1/4W, Dep Carb, 39K, 5%, 1/4W, Dep Carb
R304	26-1037	47K, 5%, 1/4W, Carb Comp	R608, R609	27-1001, 27-1027	1M, 10%, 1/4W, Dep Carb, 22K, 5%, 1/4W, Dep Carb
R305	26-1029	100K, 5%, 1/4W, Carb Comp	R610, R611	27-1041, 27-1040	270K, 5%, 1/4W, Dep Carb, 390K, 5%, 1/4W, Dep Carb
R306	26-1030	22K, 5%, 1/4W, Carb Comp	R612, R613	27-1042, 27-1045	180K, 5%, 1/4W, Dep Carb, 68 ohm, 5%, 1/4W, Dep Carb
R307	26-1026	2.7K, 5%, 1/4W, Carb Comp	R614, R615	26-1009, 27-1043	33K, 10%, 2W, Carb Comp, 33K, 5%, 1/4W, Dep Carb
R308	26-1007	100 ohm, 5%, 1/4W, Carb Comp	R616, R617	27-1027, 27-1047	22K, 5%, 1/4W, Dep Carb, 3.9K, 10%, 1/4W, Dep Carb
R309	26-1037	47K, 5%, 1/4W, Carb Comp	R618, R619, R620	26-1010, 30-1026, R620	4.7M, 20%, 1/4W, Dep Comp, 3.6K, 1%, 1/4W
R310	26-1029	100K, 5%, 1/4W, Carb Comp	R621, R622	33-1009, 27-1047	5K, Pot, WW, 3.9K, 10%, 1/4W, Dep Carb
R311	26-1030	22K, 5%, 1/4W, Carb Comp	R623, R624	30-1025, R624	5.1K, 1%, 1/4W
R312	26-1026	2.7K, 5%, 1/4W, Carb Comp	R625, R626, R627	26-1010, 30-1024, R627	4.7M, 20%, 1/4W, Carb Comp, 11.3K, 1%, 1/4W
R313	26-1007	100 ohm, 5%, 1/4W, Carb Comp	R628, R629	27-1044, R629	5.6K, 5%, 1/4W, Dep Carb
R314	26-1037	47K, 5%, 1/4W, Carb Comp	R630, R631	27-1046, R631	680K, 10%, 1/4W, Dep Carb
R315	26-1029	100K, 5%, 1/4W, Carb Comp	R632, R701	27-1047, 27-1026	3.9K, 10%, 1/4W, Dep Carb, 470 ohm, 5%, 1/4W, Dep Carb
R316	26-1030	22K, 5%, 1/4W, Carb Comp	R702, R703	33-1007, 30-1017	100K Pot (Bias), 470 ohm, 1%, 1/4W
R317	26-1037	47K, 5%, 1/4W, Carb Comp	R704, R705	27-1060, 27-1029	18K, 5%, 1/4W, 2.2M, 5%, 1/4W
R318		Not Used	R706, R707	27-1051, 30-1016	2.2K, 5%, 1/4W, Dep Carb, 47K, 1%, 1/4W
R319	26-1026	2.7K, 5%, 1/4W, Carb Comp	R708, R709	30-1002, 27-1059	680K, 2%, 1/4W, 47 ohm, 5%, 1/4W, Dep Carb
R320	26-1007	100 ohm, 5%, 1/4W, Carb Comp	R710, R711	27-1022, 27-1026	47K, 5%, 1/4W, Dep Carb, 470 ohm, 5%, 1/4W, Dep Carb
R321	26-1029	100K, 5%, 1/4W, Carb Comp	R712, R713	27-1030, 27-1029	1M, 5%, 1/4W, 2.2M, 5%, 1/4W
R322	26-1109	220K, 5%, 1/4W, Carb Comp	R714, R715	27-1021, 27-1041	100K, 5%, 1/4W, Dep Carb, 270K, 5%, 1/4W, Dep Carb
R323	26-1041	6.8K, 5%, 1/4W, Carb Comp	R716, R717	26-1002, 27-1030	4.7K, 5%, 1/2W, Carb Comp, 1M, 5%, 1/4W
R324	26-1030	22K, 5%, 1/4W, Carb Comp	R718	27-1043	33K, 5%, 1/4W, Dep Carb
R325	33-1006	25K Pot (Vert Gain)			
R326	26-1042	10K, 5%, 1/4W, Carb Comp			
R327	33-1006	25K Pot (Noise Level)			
R328	33-1026	1M Pot (Muting)			
R401	26-1104	2.2K, 5%, 1/4W, Carb Comp			
R402	26-1036	5.6K, 5%, 1/4W, Carb Comp			
R403, R404	30-1023	100K, 1%, 1/4W			
R405	26-1028	8.2K, 5%, 1/4W, Carb Comp			
R406	26-1098	560 ohm, 5%, 1/2W, Carb Comp			
R501	27-1024	10K, 5%, 1/4W, Dep Carb			
R502	27-1003	6.8K, 5%, 1/4W, Dep Carb			
R503	27-1049	4.7K, 5%, 1/4W, Dep Carb			
R504	27-1006	3.3K, 10%, 1/4W, Dep Carb			
R505	33-1005	10K Pot			
R506	27-1052	390 ohm, 5%, 1/4W, Dep Carb			
R507	27-1051	2.2K, 5%, 1/4W, Dep Carb			
R508	27-1049	4.7K, 5%, 1/4W, Dep Carb			
thru R510					
R511	27-1036	1K, 5%, 1/4W, Dep Carb			
R512	33-1006	25K Pot			
R513, R514	27-1027	22K, 5%, 1/4W, Dep Carb			
R515	27-1001	1M, 10%, 1/4W, Dep Carb			
R516	27-1054	300 ohm, 5%, 1/4W, Dep Carb			
R517	33-1010	2.5K, Pot, WW			
R518, R519	27-1041	270K, 5%, 1/4W, Dep Carb			
R520	27-1055	220 ohm, 5%, 1/4W, Dep Carb			

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
R719	27-1029	2.2M, 5%, 1/4W
R720	27-1041	270K, 5%, 1/4W, Dep Carb
R721	26-1002	4.7K, 5%, 1/2W, Carb Comp
R722,	27-1026	470 ohm, 5%, 1/4W, Dep Carb
R723		
R724	33-1007	100K, Pot (Bias)
R725	27-1060	18K, 5%, 1/4W
R726	27-1021	100K, 5%, 1/4W, Dep Carb
R727	27-1022	47K, 5%, 1/4W, Dep Carb
R728	27-1059	47 ohm, 5%, 1/4W, Dep Carb
R729	30-1017	470 ohm, 1%, 1/4W
R730	27-1029	2.2M, 5%, 1/4W
R731	30-1002	680K, 2%, 1/4W
R732	30-1016	47K, 1%, 1/4W
R733	27-1051	2.2K, 5%, 1/4W, Dep Carb
R734	33-1001	500K, Pot (Balance)
R735	33-1000	250K, Pot (Volume)
R801	27-1024	10K, 5%, 1/4W, Dep Carb
R802	27-1027	22K, 5%, 1/4W, Dep Carb
R803	33-1003	250K, Pot (Treble)
R804	27-1062	15K, 5%, 1/4W, Dep Carb
R805	27-1030	1M, 5%, 1/4W, Dep Carb
R806	30-1029	1K, 1%, 1/4W
R807	30-1028	20K, 1%, 1/4W
R808	27-1027	22K, 5%, 1/4W, Dep Carb
R809	27-1061	120K, 5%, 1/4W, Dep Carb
R810	27-1030	1M, 5%, 1/4W, Dep Carb
R811	27-1055	220 ohm, 5%, 1/4W, Dep Carb
R812	27-1024	10K, 5%, 1/4W, Dep Carb
R813	27-1033	22K, 5%, 1/4W, Dep Carb
R814	30-1027	39K, 1%, 1/4W
R815	33-1002	500K, Pot (Bass)
R816	30-1027	39K, 1%, 1/4W
R817	27-1024	10K, 5%, 1/4W, Dep Carb
R818	27-1033	22K, 5%, 1/4W, Dep Carb
R819	30-1027	39K, 1%, 1/4W
R820	33-1002	500K, Pot (Bass)
R821	30-1027	39K, 1%, 1/4W
R822	27-1024	10K, 5%, 1/4W, Dep Carb
R823	27-1030	1M, 5%, 1/4W, Dep Carb
R824	30-1028	20K, 1%, 1/4W
R825	30-1029	1K, 1%, 1/4W
R826	27-1061	120K, 5%, 1/4W, Dep Carb
R827	27-1027	22K, 5%, 1/4W, Dep Carb
R828,	27-1024	10K, 5%, 1/4W, Dep Carb
R829		
R830	33-1003	250K, Pot (Treble)
R831	27-1027	22K, 5%, 1/4W, Dep Carb
R832	27-1030	1M, 5%, 1/4W, Dep Carb
R833	27-1055	220 ohm, 5%, 1/4W, Dep Carb
R834	27-1062	15K, 5%, 1/4W, Dep Carb
R901	27-1001	1M, 10%, 1/4W, Dep Carb
R902	30-1032	4.7K, 1%, 1/4W
R903	30-1030	22K, 1%, 1/4W
R904	30-1019	10K, 1%, 1/4W
R905	26-1004	22M, 20%, 1/4W, Carb Comp
R906	30-1032	4.7K, 1%, 1/4W
R907	27-1001	1M, 10%, 1/4W, Dep Carb
R908	30-1030	22K, 1%, 1/4W
R909	30-1019	10K, 1%, 1/4W
R910	26-1004	22M, 20%, 1/4W, Carb Comp

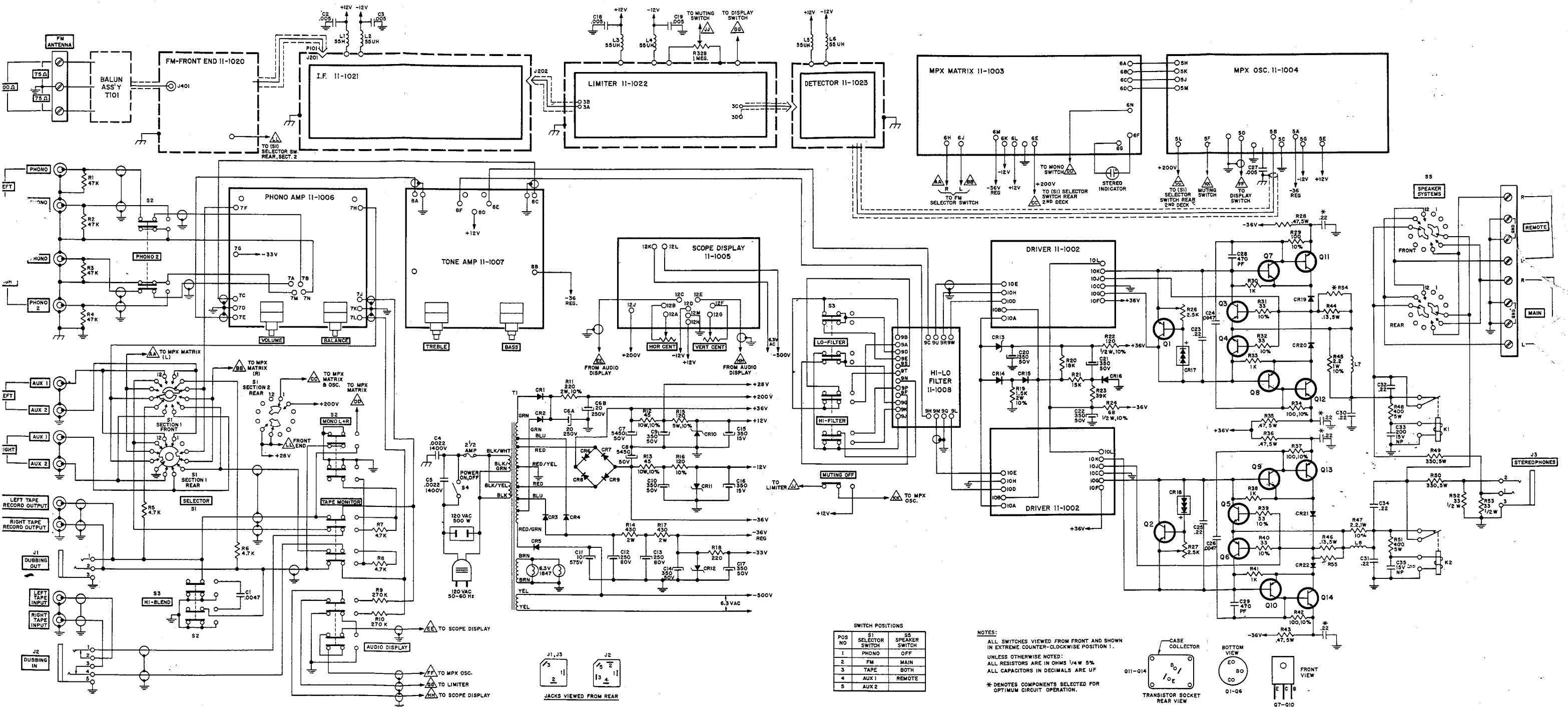
REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
R911,	26-1055	100K, 10%, 1/4W, Carb Comp
R912		
R1001	27-1026	470 ohm, 5%, 1/4W, Dep Carb
*R1002		820 ohm to 3.9K, 10%, 1/4W
R1003	27-1039	200 ohm, 5%, 1/4W, Dep Carb
R1004,	26-1007	100 ohm, 5%, 1/4W, Carb Comp
R1005		
R1006	26-1008	22 ohm, 10%, 1/4W, Carb Comp
R1007	26-1006	5.6K, 10%, 1/2W, Carb Comp
R1008	30-1022	220 ohm, 1%, 1/4W
R1009	27-1037	91K, 5%, 1/4W, Dep Carb
R1010	30-1021	620 ohm, 1%, 1/4W
R1011	30-1019	10K, 1%, 1/4W
R1012	30-1020	3.9K, 1%, 1/4W
R1013	27-1038	750 ohm, 5%, 1/4W, Dep Carb
R1014	27-1021	100K, 5%, 1/4W, Dep Carb
R1015	26-1007	100 ohm, 5%, 1/4W, Carb Comp
R1016	33-1011	500 ohm, Pot (DC Balance)
R1017	27-1038	750 ohm, 5%, 1/4W, Dep Carb
R1018	26-1007	100 ohm, 5%, 1/4W, Carb Comp
R1019	26-1008	22 ohm, 10%, 1/4W, Carb Comp
R1020	26-1008	22 ohm, 10%, 1/4W, Carb Comp
R1201	33-1004	2.5K, Pot (Horiz Centering)
R1202	27-1024	10K, 5%, 1/4W, Dep Carb
R1203,	27-1076	10K, 10%, 3W, Dep Carb
R1204		
R1205	27-1041	270K, 5%, 1/4W, Dep Carb
R1206	27-1057	1.2K, 5%, 1/4W, Dep Carb
R1207	27-1058	82 ohm, 5%, 1/4W, Dep Carb
R1208	27-1057	1.2K, 5%, 1/4W, Dep Carb
R1209	26-1013	100K, 10%, 1/2W, Carb Comp
R1210	26-1012	390K, 10%, 1W, Carb Comp
R1211	33-1004	2.5K, Pot (Vert Centering)
R1212	27-1041	270K, 5%, 1/4W, Dep Carb
R1213	27-1057	1.2K, 5%, 1/4W, Dep Carb
R1214	27-1058	82 ohm, 5%, 1/4W, Dep Carb
R1215	27-1057	1.2K, 5%, 1/4W, Dep Carb
R1216	33-1008	150K, Pot (Focus)
R1217,	27-1001	1M, 10%, 1/4W, Dep Carb
R1218		
R1219	27-1024	10K, 5%, 1/4W, Dep Carb
R1220,	27-1076	10K, 10%, 3W, Dep Carb
R1221		
R1222	27-1022	47K, 5%, 1/4W, Dep Carb
R1223	33-1006	25K, Pot (Intensity)
R1224	27-1049	4.7K, 5%, 1/4W, Dep Carb
R1225	27-1056	1.5M, 10%, 1/4W, Dep Carb
R1226,	27-1081	2K, 5%, 1/4W, Dep Carb
R1227		
S1	46-1000	Switch, Rotary (SELECTOR)
S2	48-1000	Switch-Assy, 4-section, pushbutton (PHONO 2, MONO L & R, TAPE MONITOR, AUDIO DISPLAY)
S3	48-1000	Switch Assy, Pushbutton, 4-section (HI-BLEND, HI FILTER, LOW FILTER, MUTING OFF)
S4	48-1004	Switch, Power
S5	46-1001	Switch, Rotary (SPEAKER SYSTEMS)

*Value selected for optimum performance.

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION	REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
T1	52-1000	Transformer, Power		11-1000	Knob Assy (Tuning)
T101	55-1020	Transformer, Balun Assy (Input)		60-1007	Knob, Front (Bass, Treble)
T401	55-1001	Coil, Detector		60-1078	Knob, Pushbutton (for S2, S3)
T501	11-1012	Coil Assy, Oscillator		60-1006	Knob, Rear (Bass, Treble)
V1201	37-1000	CRT		40-1003	Lamp, Panel, Type 1847
	87-1002	Binding Post (Ground)		40-1007	Lamp, Stereo, Type NE2H
	90-1018	Foot, Rubber		40-1000	Lamp, Muting, Type NE2V
	61-1000	Glass, Dial		62-1000	Pointer, Dial
	60-1028	Knob (Centering)		87-1000	Terminal Block (Speaker)
	60-1005	Knob (Volume, Balance, Speaker Systems, Selector)		87-1001	Terminal Block (Antenna)

NOTES:

- Elect = Electrolytic
- Tant = Tantalum
- Poly = Polystyrene
- Carb Comp = Carbon Composition
- Dep Carb = Deposited Carbon
- WW = Wire Wound



SWITCH POSITIONS

POS NO	S1 SELECTOR SWITCH	S5 SPEAKER SWITCH
1	PHONO	OFF
2	FM	MAIN
3	TAPE	BOTH
4	AUX 1	REMOTE
5	AUX 2	

NOTES:
 ALL SWITCHES VIEWED FROM FRONT AND SHOWN IN EXTREME COUNTER-CLOCKWISE POSITION 1.
 UNLESS OTHERWISE NOTED:
 ALL RESISTORS ARE IN OHMS 1/4W 5%
 ALL CAPACITORS IN DECIMALS ARE UF
 * DENOTES COMPONENTS SELECTED FOR OPTIMUM CIRCUIT OPERATION.

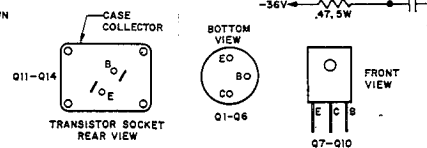


Figure 25. Model 18 Stereophonic Receiver Schematic Diagram

	B	E	C
Q1,Q2	0.6	-1.3	1.3
Q3,Q6	0	0	-1.3
Q4,Q5	0	0	1.3
Q7,Q10	-1.3	-0.75	-36
Q8,Q9	1.3	0.7	36
Q11,Q14	-36	-36	-0.75
Q12,Q13	36	36	0.7

Voltages are:

1. Dc $\pm 10\%$
2. Measured using VTVM
3. Measured with 117-volt line
4. Measured with respect to chassis
5. Measured with no signal (ant terminals shorted), volume at zero, Muting out, Bass and Treble flat, Dot on scope centered, Audio display out.

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
T1	52-1000	Transformer, Power
T101	55-1020	Transformer, Balun Assy (Input)
T401	55-1001	Coil, Detector
T501	11-1012	Coil Assy, Oscillator
V1201	37-1000	CRT
	87-1002	Binding Post (Ground)
	90-1018	Foot, Rubber
	61-1000	Glass, Dial
	60-1028	Knob (Centering)
	60-1005	Knob (Volume, Balance, Speaker Systems, Selector)

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
	11-1000	Knob Assy (Tuning)
	60-1007	Knob, Front (Bass, Treble)
	60-1078	Knob, Pushbutton (for S2, S3)
	60-1006	Knob, Rear (Bass, Treble)
	40-1003	Lamp, Panel, Type 1847
	40-1007	Lamp, Stereo, Type NE2H
	40-1000	Lamp, Muting, Type NE2V
	62-1000	Pointer, Dial
	87-1000	Terminal Block (Speaker)
	87-1001	Terminal Block (Antenna)

NOTES:

- Elect = Electrolytic
- Tant = Tantalum
- Poly = Polystyrene
- Carb Comp = Carbon Composition
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- WW = Wire Wound



marantz

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