

Moog Modular IIIc Modules

901(x2)*

901A

901B(x8)

901C

902(x4)

903*

904*

905

910

911(x3)

912

914

950

955(x2)*

984

CP2*

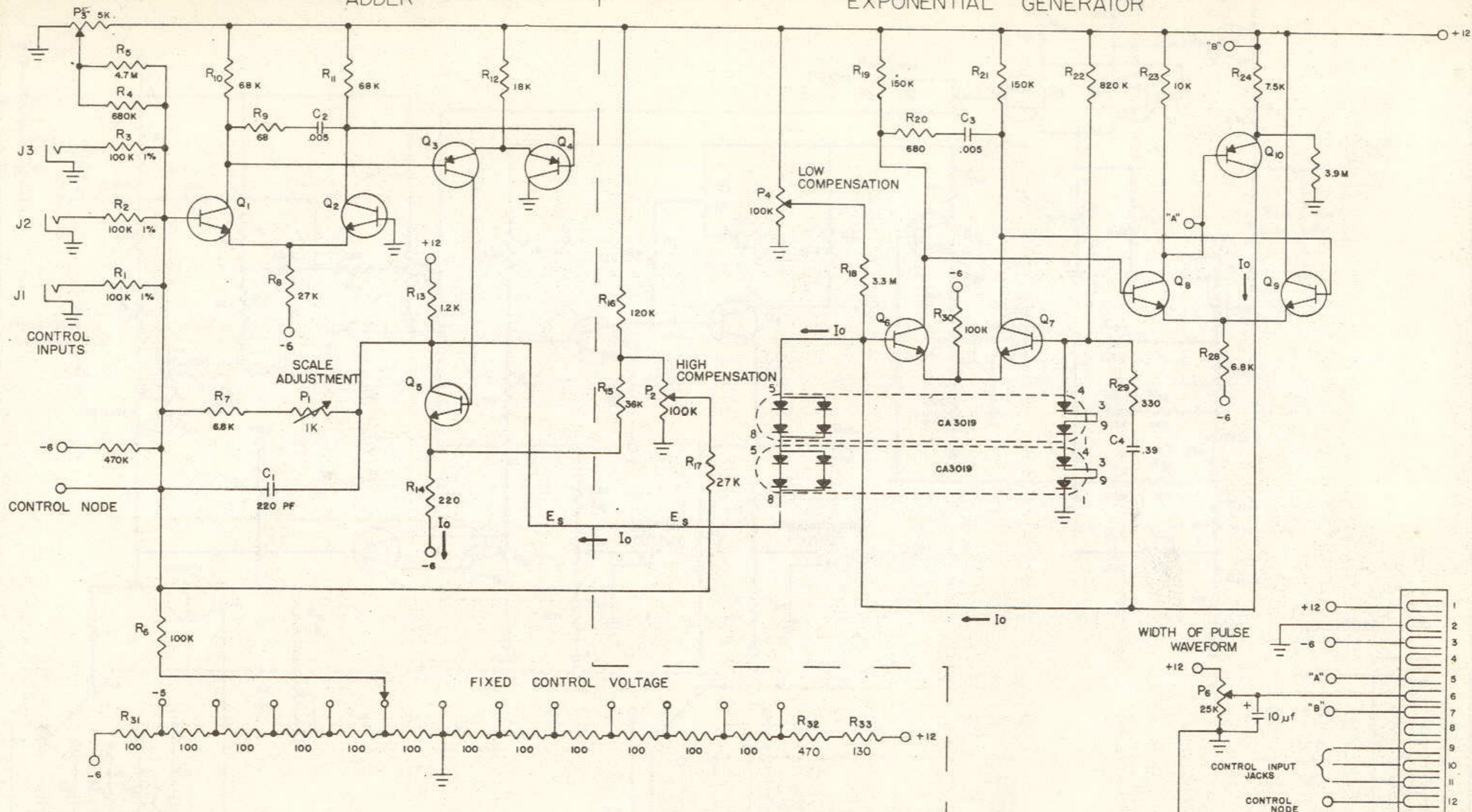
CP3

(* Doesn't appear in schematics)

FIXED CONTROL VOLTAGE

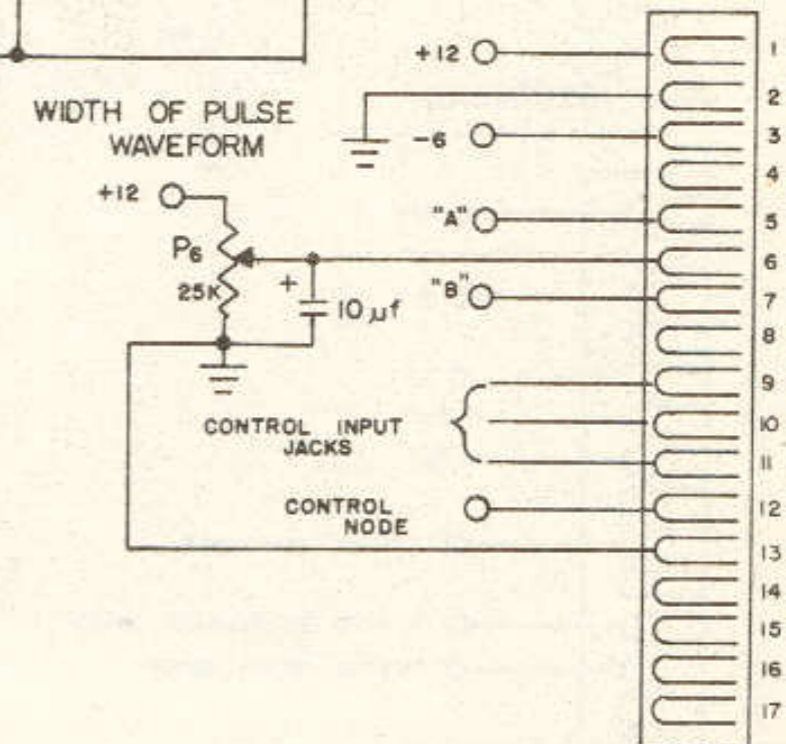
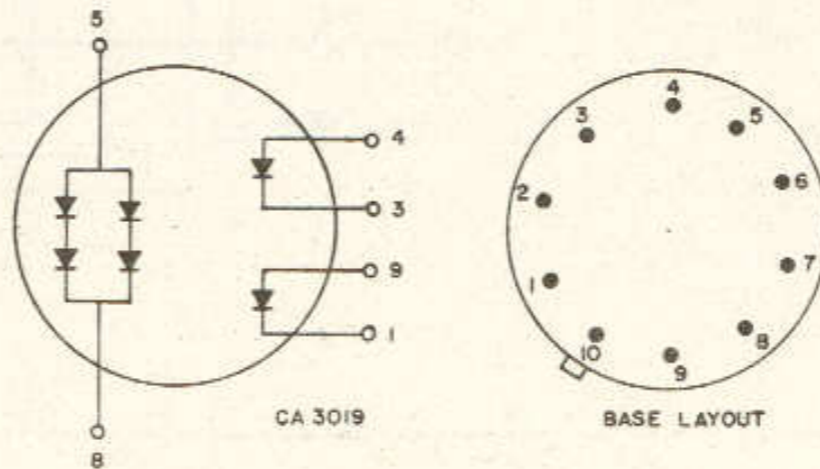
ADDER

EXPONENTIAL GENERATOR



NOTES :

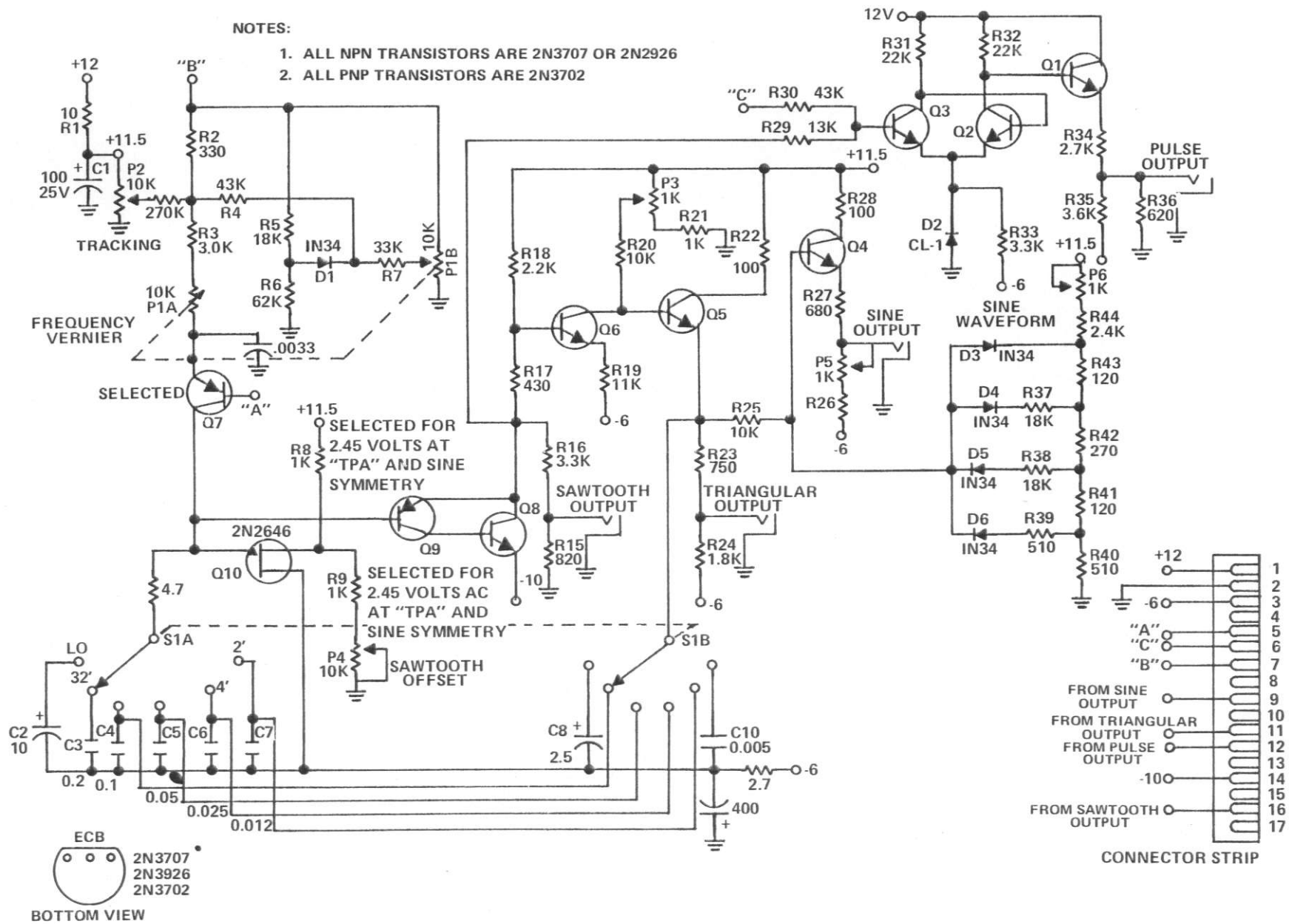
- 1 ALL NPN TRANSISTORS ARE 2N3391A OR 2N3392.
- 2 " PNP " " 2N4058.



OLD DWG. FILED OBSOLETE

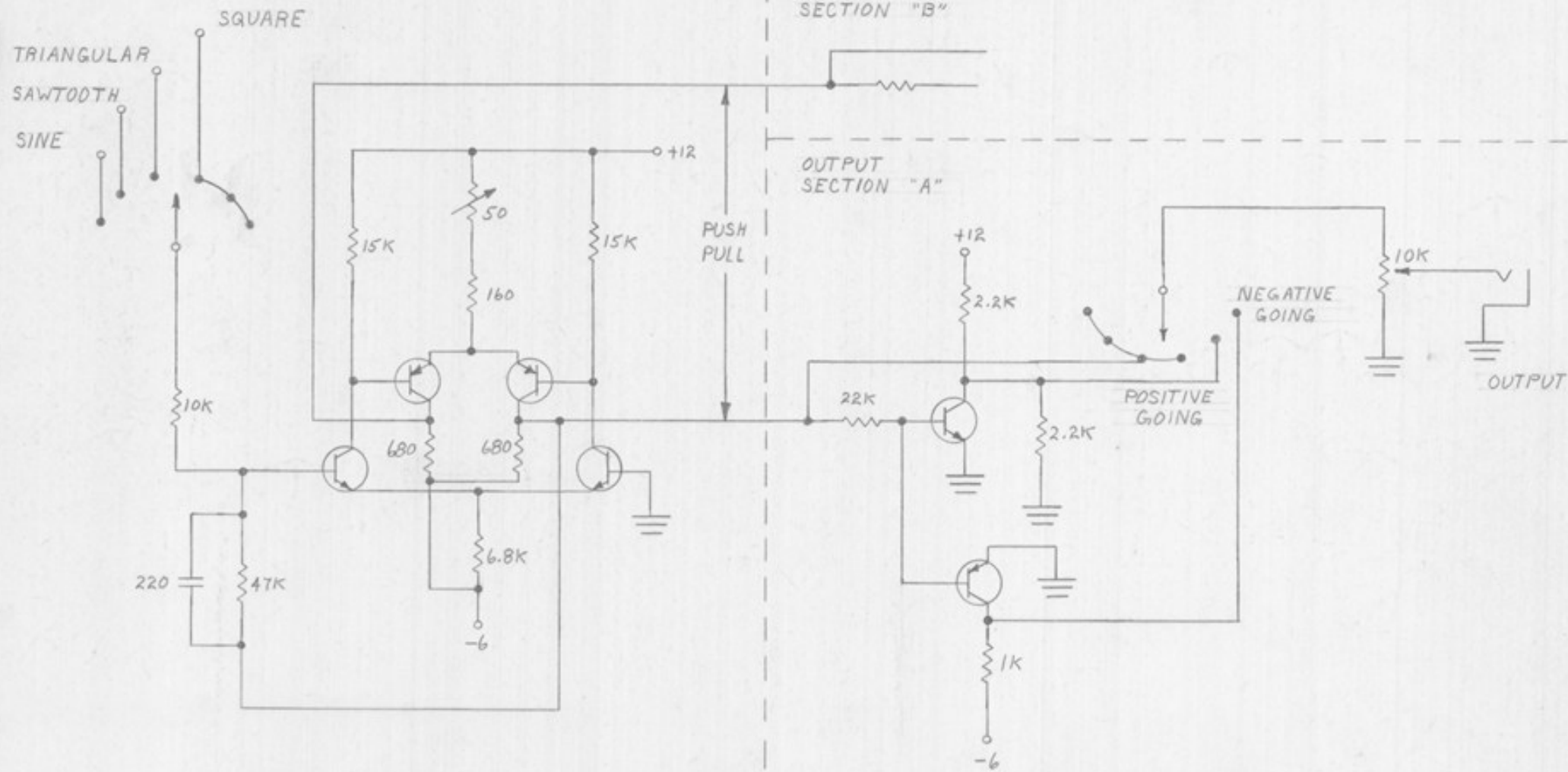
WRH 4-70

APPROVED FOR PRODUCTION WRH 4-70	
REVISIONS	R. A. MOOG CO. TRUMANSBURG, NEW YORK
REV A ECM 014	TITLE 901-A OSCILLATOR CONTROLLER
	SCALE _____ DR. BY JA DWG. NO.
	DATE 7-2-69 CK'D. BY _____ 1100



993-042646

FIGURE 7 OSCILLATOR 901B



901-C OUTPUT STAGE	
DRAWN BY B.S.	SCHEMATIC
APPR. BY	
DATE	DRAWING
2-14-67	NUMBER # 1126 REV. 1
R.A. MOOG CO.	
TRUMANSBURG, N.Y.	

902 VOLTAGE CONTROLLED AMPLIFIER TEST PROCEDURE

1. Connect dc voltmeter to TP-L (collector of Q5); low side to ground.
2. Turn FIXED CONTROL VOLTAGE pot to 6 and set CONTROL MODE switch to "EXP." DC voltage should read approximately zero.
3. Rotate FIXED CONTROL VOLTAGE pot to 0. DC voltage should read approximately +0.24V.
4. Set CONTROL MODE switch to LIN. DC voltage should read approximately +1.2V.
5. Rotate FIXED CONTROL VOLTAGE pot to 6. DC voltage should read approximately -4.8V.

NOTE

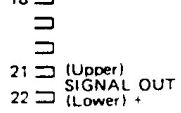
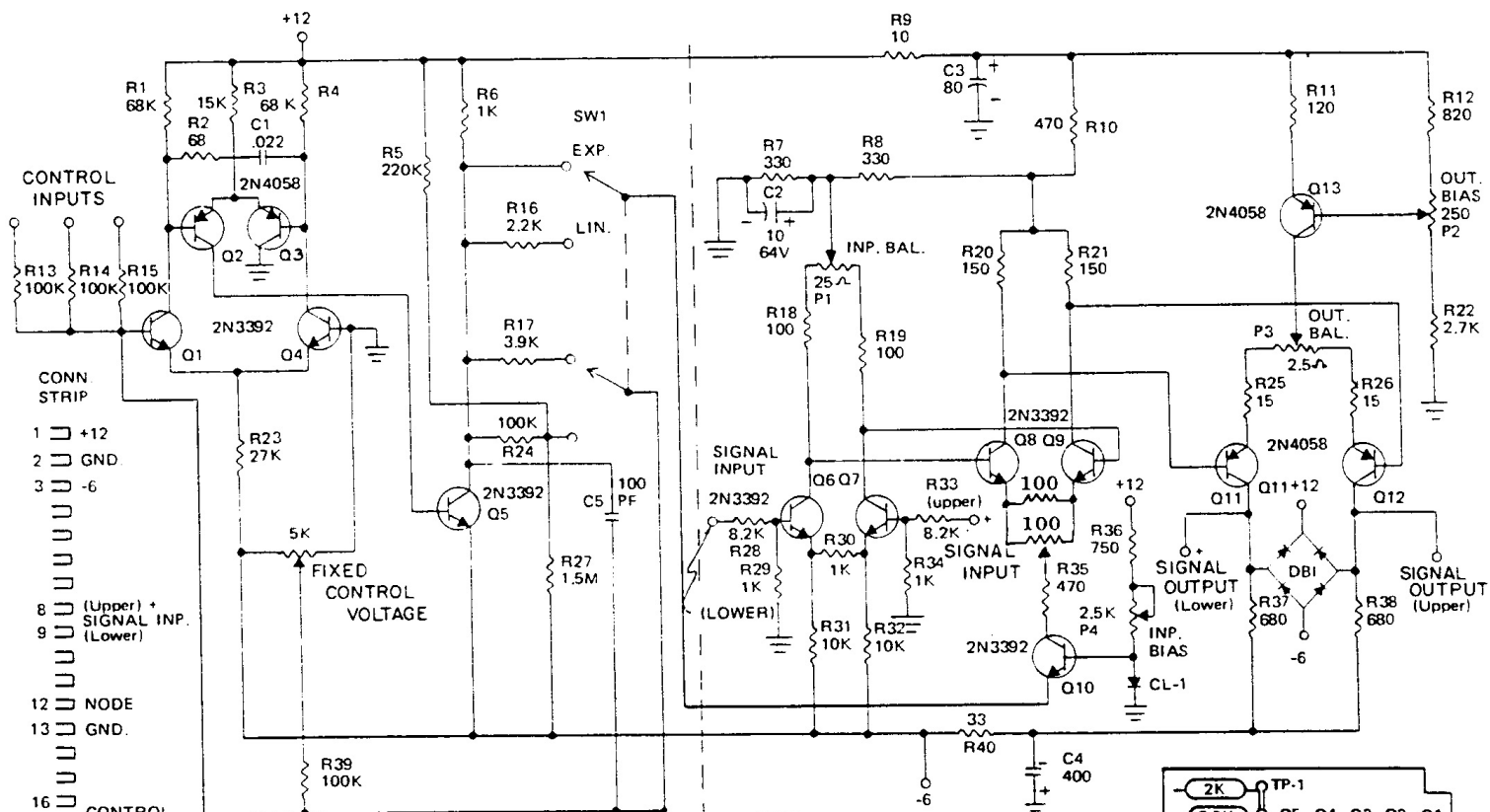
If the above voltages are observed, the adder section (Q1 thru Q5) is operating properly.

6. With FIXED CONTROL VOLTAGE in 6 and dc voltmeter connected between one of the SIGNAL OUTPUTS jacks and ground, adjust OUTPUT BIAS trimpot for zero volts.
7. Connect dc voltmeter across positive terminals of SIGNAL OUTPUTS jacks. Connect jumper between collectors of Q8 and Q9 and adjust OUTPUT BALANCE trimpot for 0 VDC.

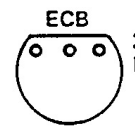
8. Remove jumper across collectors of Q8 and Q9 and connect across collectors of Q6 and Q7. Adjust Q8 and Q9 BALANCE trimpot for 0 VDC.
9. Remove jumper and adjust INPUT BALANCE trimpot for 0 VDC.
10. Turn FIXED CONTROL VOLTAGE pot and ascertain that there is no large offset. If necessary, repeat steps 7, 8 and 9.

11. Turn FIXED CONTROL VOLTAGE pot to 6. Apply 0db 1kHz sine wave to one of the SIGNAL INPUTS. Signal output should be approximately +5db to +7db.

12. Note the output level. Set the CONTROL MODE switch to "EXP." Adjust INPUT BIAS to obtain a level equal to that noted in the "LIN" position.



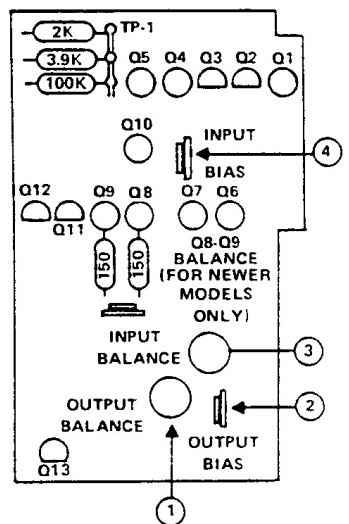
PNP TRANSISTORS 2N4058
NPN " 2N3392



BOTTOM VIEW

2N3392
2N4058
BASING DIAGRAMS

- 1 Adjusts + output balance for exponential dc voltages with FIXED CONTROL VOLTAGE control fully counterclockwise.
- 2 Adjusts zero output offset with FIXED CONTROL VOLTAGE control fully counterclockwise.
- 3 Adjusts zero output offset with FIXED CONTROL VOLTAGE control fully clockwise.
- 4 Adjusts amplitude level balance between linear and exponential mode with FIXED CONTROL VOLTAGE control full clockwise.



VOLTAGE CONTROLLED AMPLIFIER ALIGNMENT PROCEDURE AND ADJUSTMENT LOCATION DIAGRAM

MOOG MUSIC INC.

SCHMATIC, 902 VOLTAGE CONTROLLED AMPLIFIER

993-041813

1068

FIGURE 9 VOLTAGE CONTROLLED AMPLIFIER MODEL 902

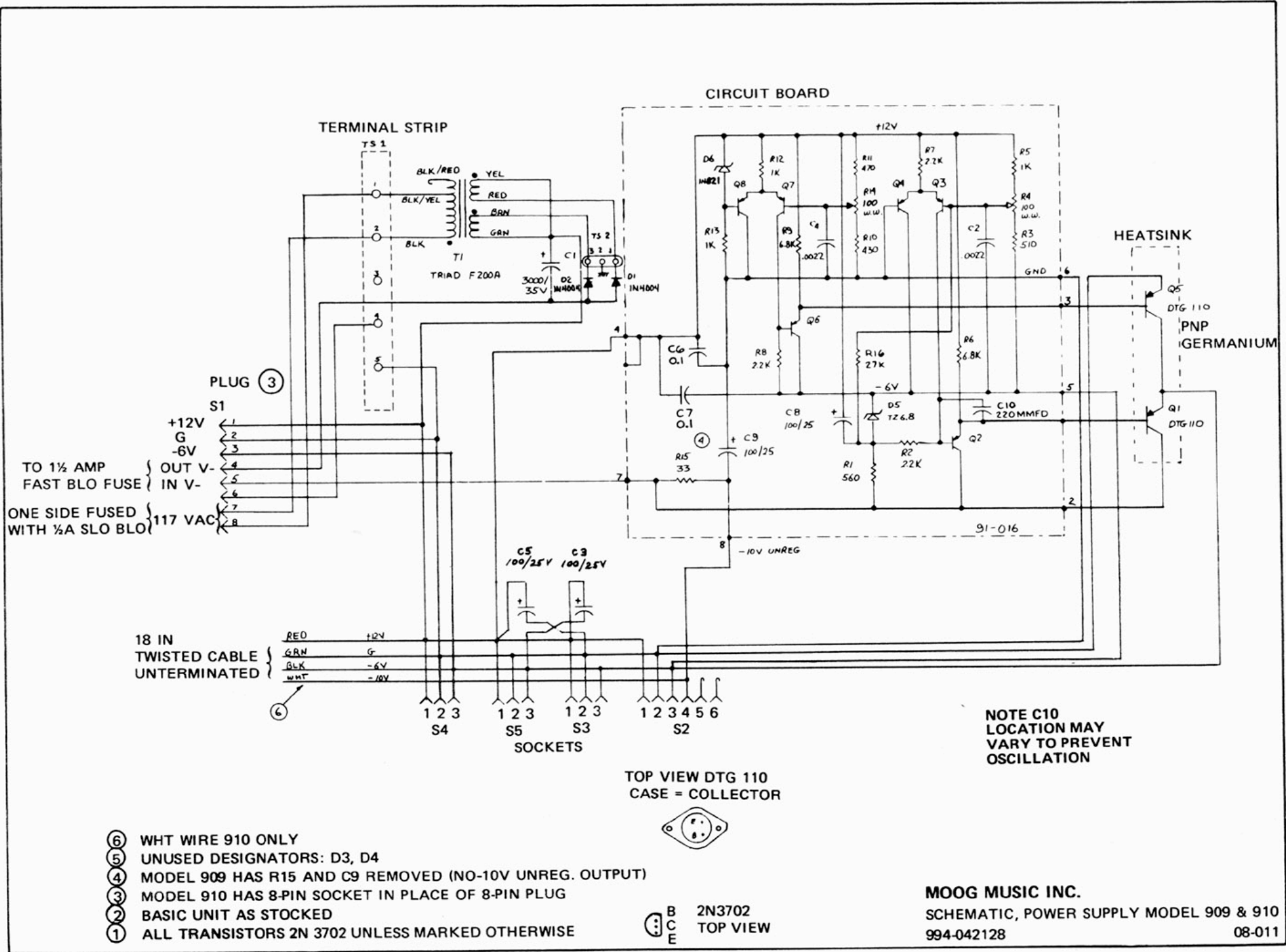
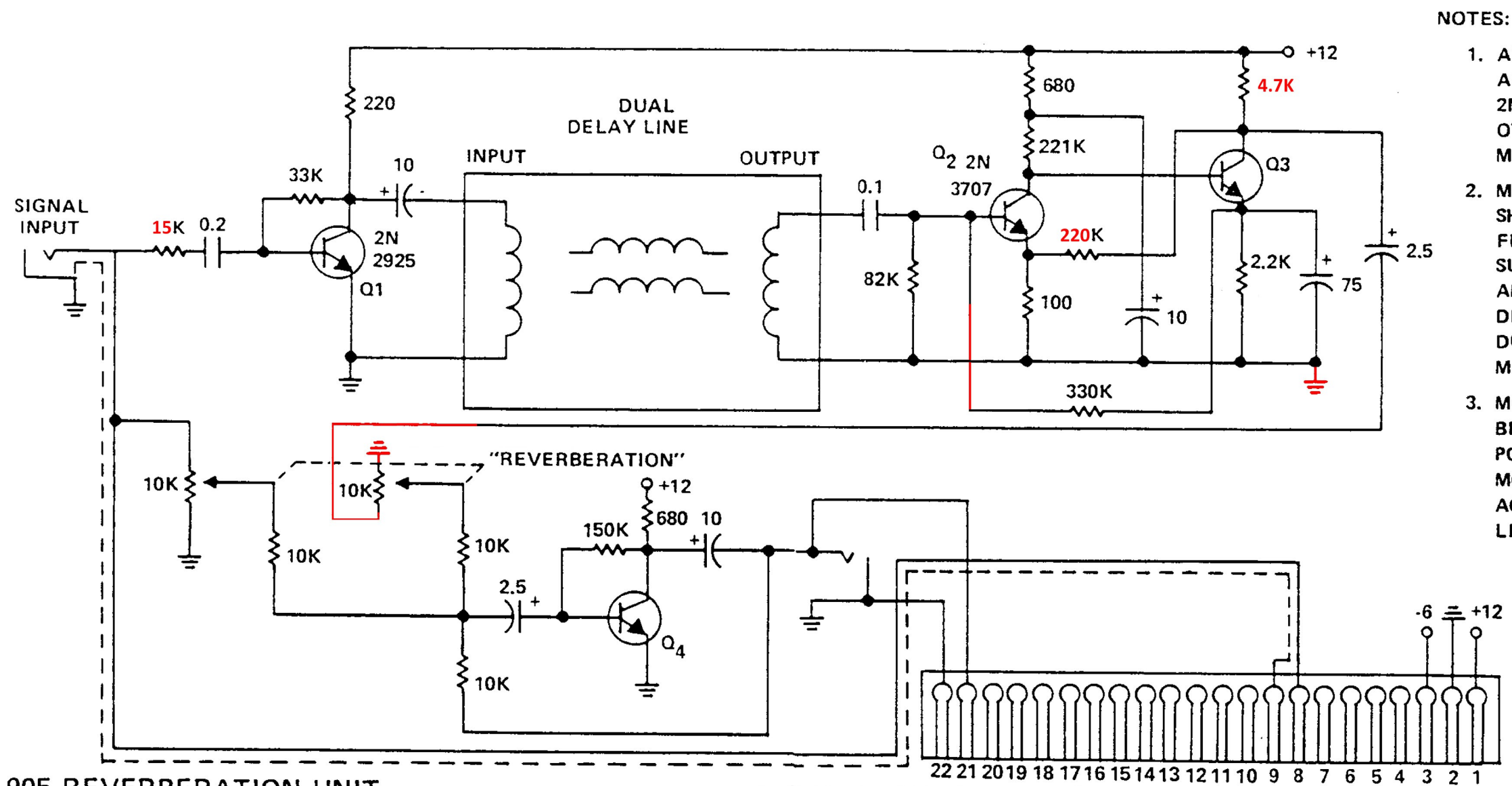


FIGURE 16 POWER SUPPLY MODELS 909 AND 910



- NOTES:
1. ALL TRANSISTORS ARE 2N2926 OR 2N3707 UNLESS OTHERWISE MARKED
 2. MOUNTING SHOULD BE AWAY FROM POWER SUPPLIES, MOTORS AND OTHER DEVICES PRODUCING STRONG MAGNETIC FIELDS
 3. MOUNTING SHOULD BE AS RIGID AS POSSIBLE TO AVOID MOVEMENT OF THE ACOUSTIC DELAY LINE

905 REVERBERATION UNIT

A. GENERAL

The 905 Reverberation Unit utilizes a dual spring-type acoustic delay line to produce a succession of decaying echoes of an audio signal. A single panel control determines the ratio between the amounts of reverberated and non-reverberated signals that appear at the output jack. The front panel control does not alter the characteristic decay time of the echoes, since this is a function of the delay line itself.

Instructions for mounting and connecting of power, and input and output characteristics, are the same as those which apply to all 900 series modules. However, special consideration in mounting the 905 must be observed. First, power supplies, motors and other devices producing

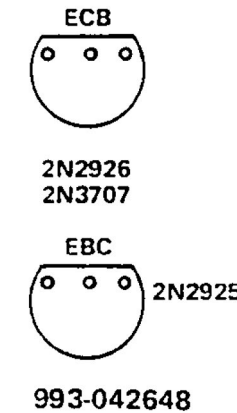
strong magnetic fields should be kept away from this instrument to avoid the pickup of power line frequency hum. Second, the mounting should be rigid to avoid shaking the acoustic delay line which would result in unwanted output signals. Third, monitor speakers should not be mounted close to the 905, as this would encourage acoustic feedback between speaker and delay line.

Before the 905 is installed, fittings and wrappings restricting the motion of the delay line should be removed. When the 905 is mounted vertically, the delay line bracket will be supported entirely by the suspension springs, and should not touch the chassis frame.

B. APPLICATIONS

When a dynamically varying signal is applied to the input of the 905, the output will consist of a series of closely spaced echoes, the subjected

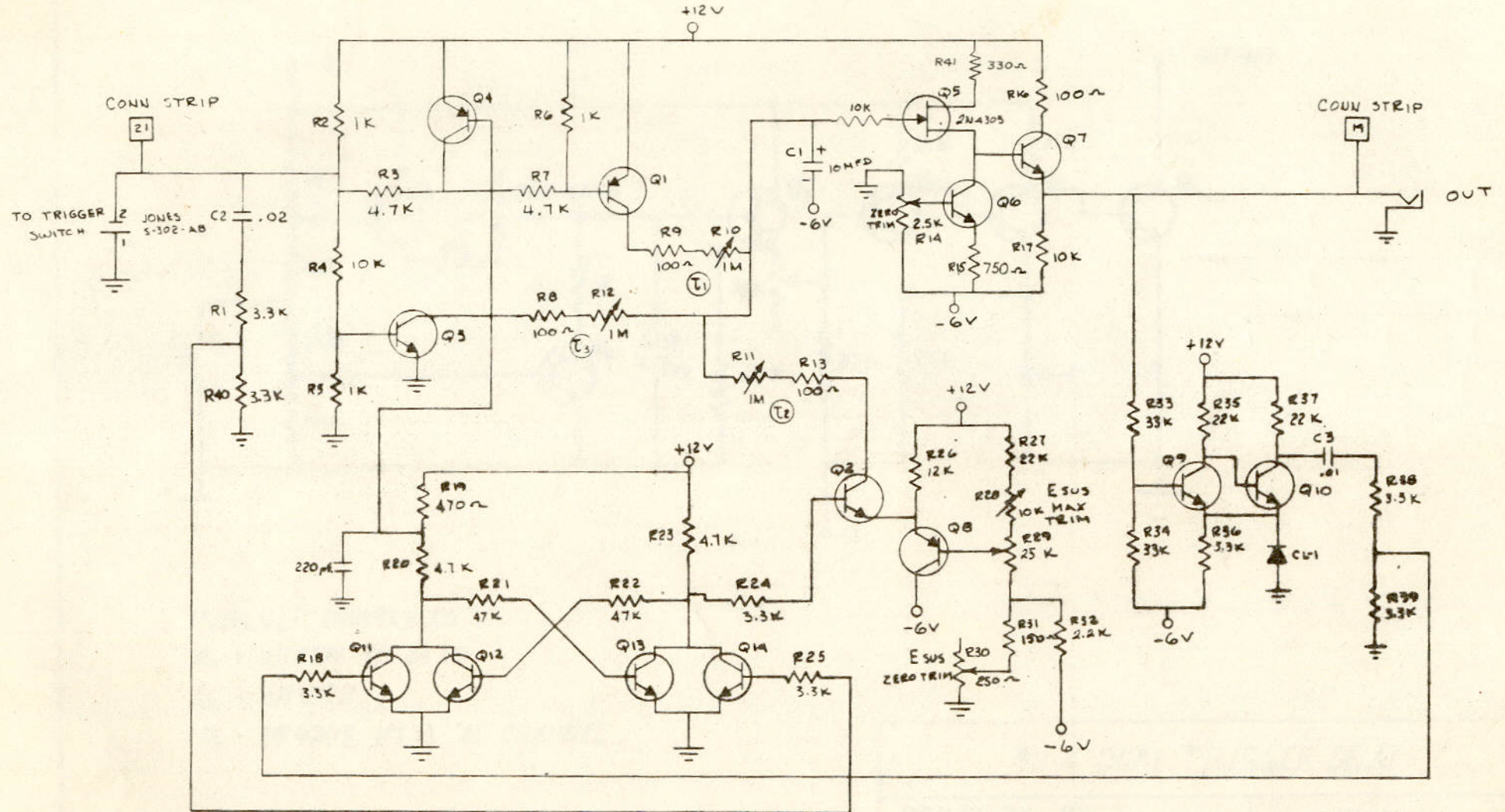
BOTTOM VIEW



effect of which is similar to that of reverberation of sound. If a small amount of "echo signal" is mixed with a larger amount of "direct signal" (REVERBERATION Control set slightly clockwise), the effect of a typical concert hall is obtained. If the echo signal only is passed (REVERBERATION Control set fully clockwise), an exaggerated echo suggesting a cave is obtained. The relative amount of echo signal and direct signal can be continuously changed from 100 percent direct signal to 100 percent echo signal.

When a static signal is applied to the input of the 905, the output will also be static. There will be no sensation of echo. Rather, the 905 will perform in this application like a formant filter, strongly coloring the timbre of any signal with appreciable harmonic content.

FIGURE 14 REVERBERATION UNIT MODEL 905

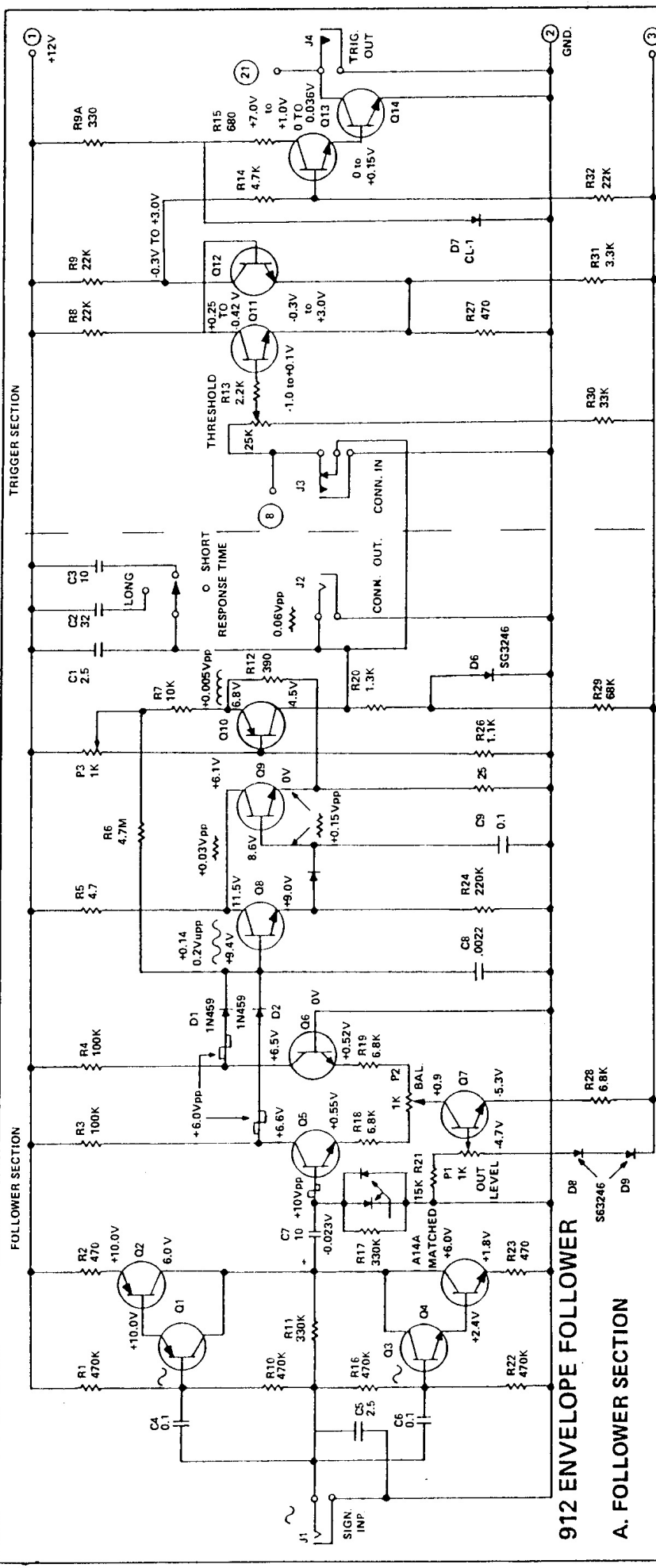


NOTES:

- I. ALL PNP TRANSISTORS ARE 2N4058
- II. ALL NPN TRANSISTORS ARE 2N3392

REPLACES DWG. 1103

WAR C-ECN-004 1-12-69 318	REVISIONS	R. A. MOOG CO. TRUMANSBURG, NEW YORK	
	A-R15 FROM 1.5K	TITLE	911 ENVELOPE GENERATOR
	To R20	SCALE	DR. BY RER
	A-R41 FROM Q5 To 25K	DATE 8-14-68 CK'D. BY	DWG. NO.
B-ECN-002			



A. FOLLOWER SECTION

1. Set P1 to mid-rotation.
2. Apply a 250Hz sine wave at -15db to the SIGNAL INPUT (J1).
3. Set P4 for 4.5 volts dc at the CONTROL OUTPUT (J2).
4. Adjust P3 to even the "TOPS" of the peaks of the sine wave, with response ON, as observed on oscilloscope connected at CONTROL OUTPUT (symmetry). Repeat steps 3 and 4 to maintain proper dc output. If necessary, change R21 from 15K to

B. TRIGGER SECTION

1. Apply a -42db signal to SIGNAL INPUT (J1).
2. Connect dc voltmeter across TRIGGER OUTPUT (J4). As THRESHOLD control (R13) is rotated counterclockwise, trigger output of approximately 50MV will occur at mid-range of rotation.

NOTE

Utilize a 912 Envelope Follower to trigger a 921, 902 and 911 setup to determine proper operation of trigger threshold.

NOTES: UNLESS OTHERWISE NOTED:

1. ALL RESISTORS IN OHMS
2. ALL CAPACITORS IN UF
3. ALL NPN TRANSISTORS = 2N3392
4. ALL PNP TRANSISTORS = 2N4058
5. ALL DC VOLTAGES ± 20% MEASURED WITH 250Hz ±5db SIGNAL AT SIGNAL INPUT
6. VOLTAGES READ WITH THRESHOLD CONTROL GOING FROM FULL CW TO FULL CCW
7. BASE LAYOUT FOR TRANSISTORS USED:

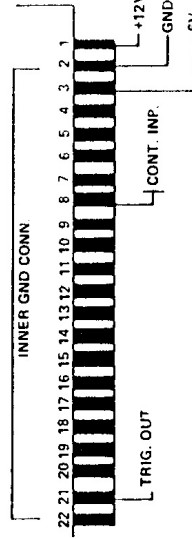
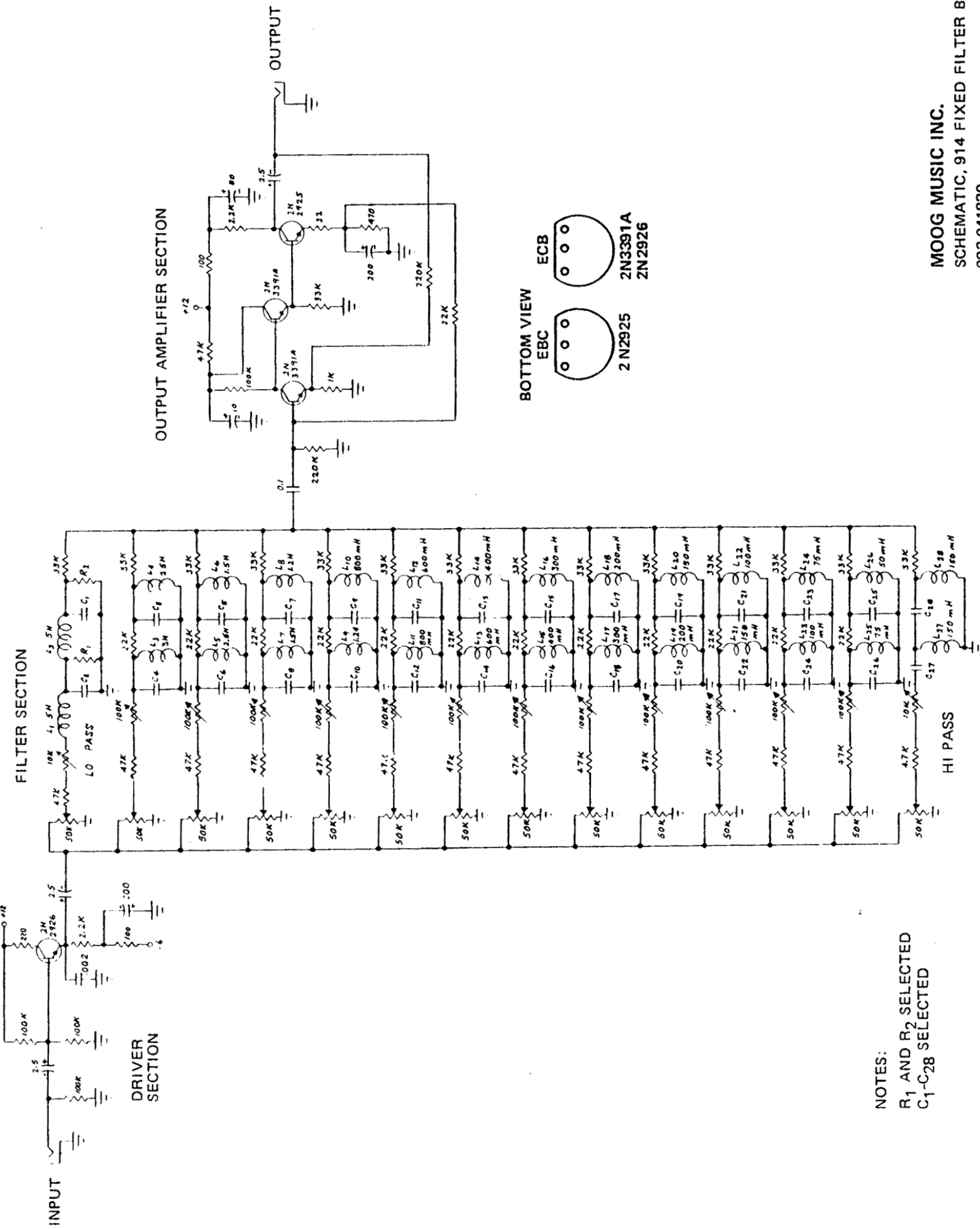
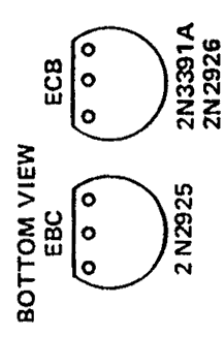


FIGURE 19 ENVELOPE FOLLOWER MODEL 912



NOTES:
 R₁ AND R₂ SELECTED
 C₁-C₂₈ SELECTED



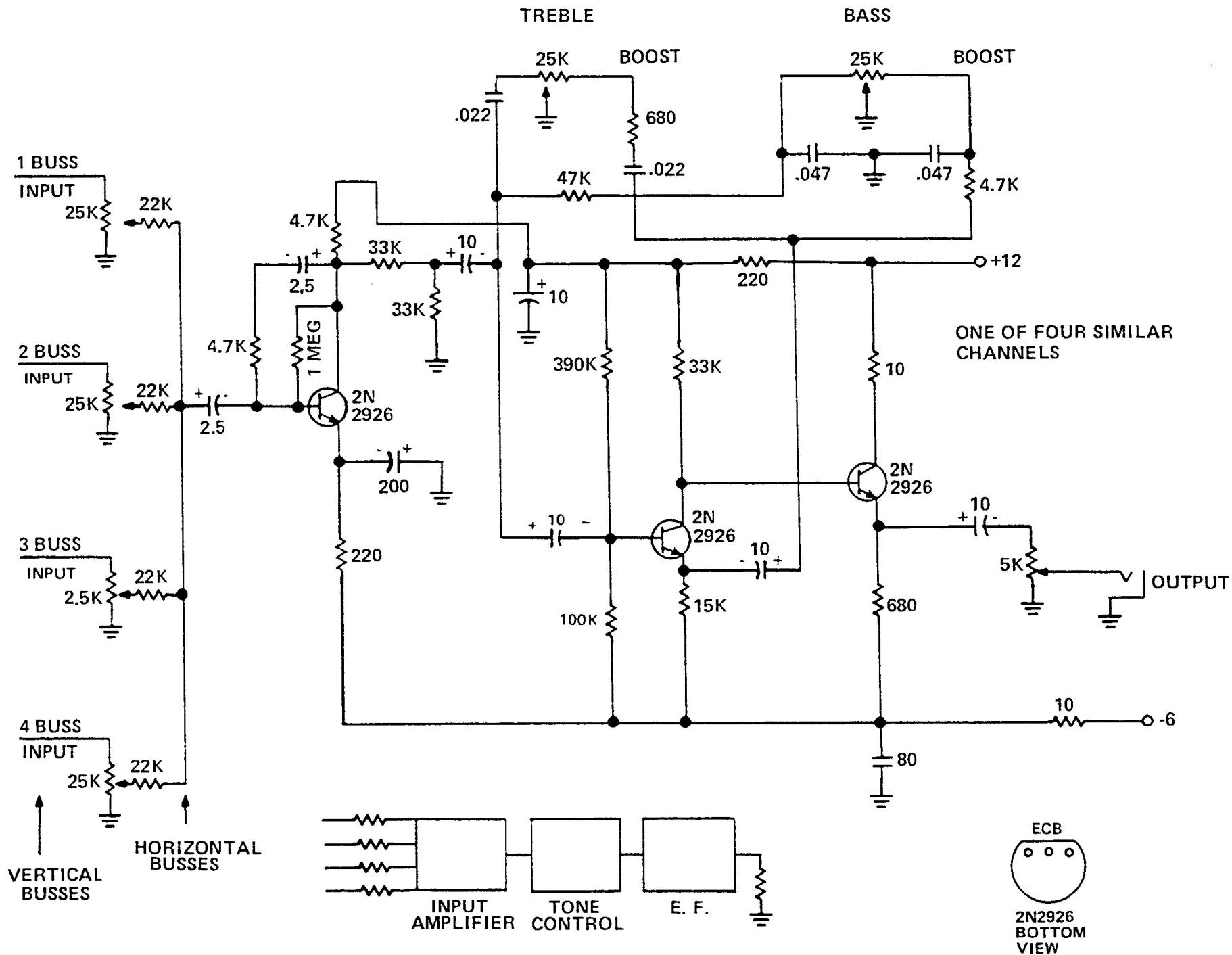
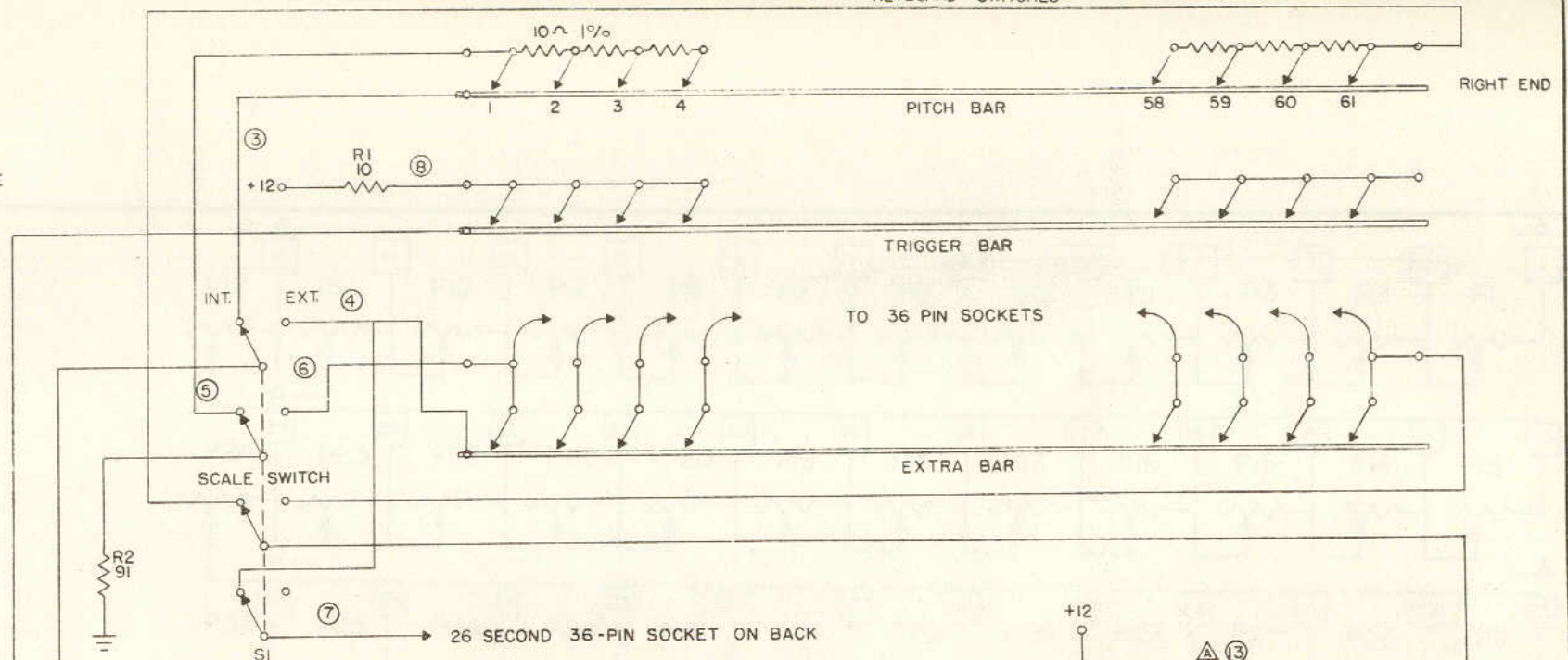


FIGURE 36 FOUR CHANNEL MIXER MODEL 984

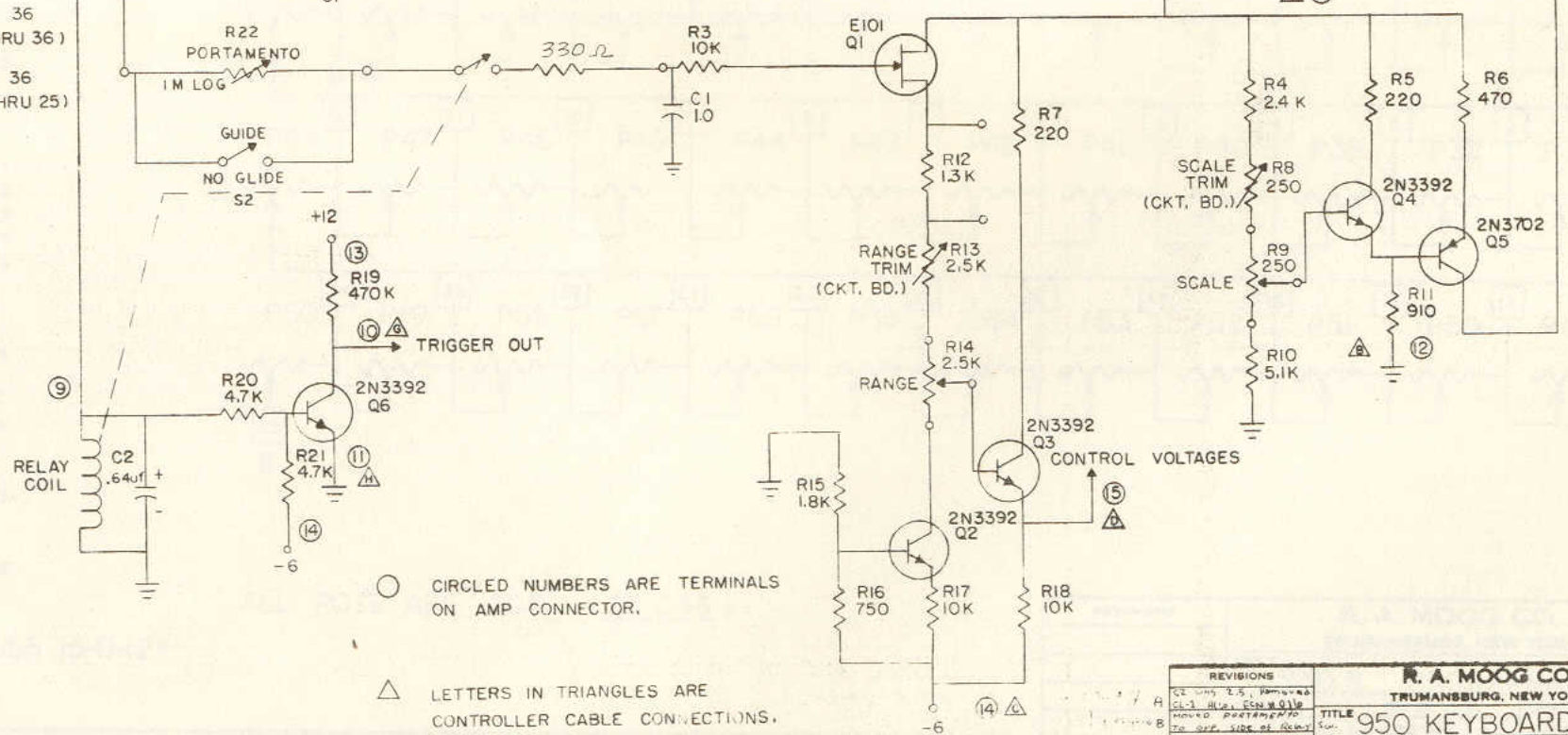
CONTROLLER CABLE

TERM.	FUNCTION	COLOR WIRE
A	+12	RED
B	GND	BLACK
C	-6	BLUE
D	CONTROL VOLTAGE	GRN
E	_____	_____
F	_____	_____
G	TRIGGER	BRN
H	TRIGGER GND	WHITE



KEYS 1 THRU 36 - (FIRST 36 PIN SOCKET, PINS 1 THRU 36)

KEYS 37 THRU 61 - (2ND 36 PIN SOCKET, PINS 1 THRU 25)



○ CIRCLED NUMBERS ARE TERMINALS ON AMP CONNECTOR.

△ LETTERS IN TRIANGLES ARE CONTROLLER CABLE CONNECTIONS.

REVISIONS		R. A. MOOG CO.	
02	Ans. E.S. removed	TRUMANSBURG, NEW YORK	
01	CL-3 Blue. ESN 9116	TITLE	
	MOVED PORTAMENTO TO opp. side of board	950 KEYBOARD	
SCALE		DR. BY JLA	DWG. NO.
DATE 4-25-65		CKD. BY	1266

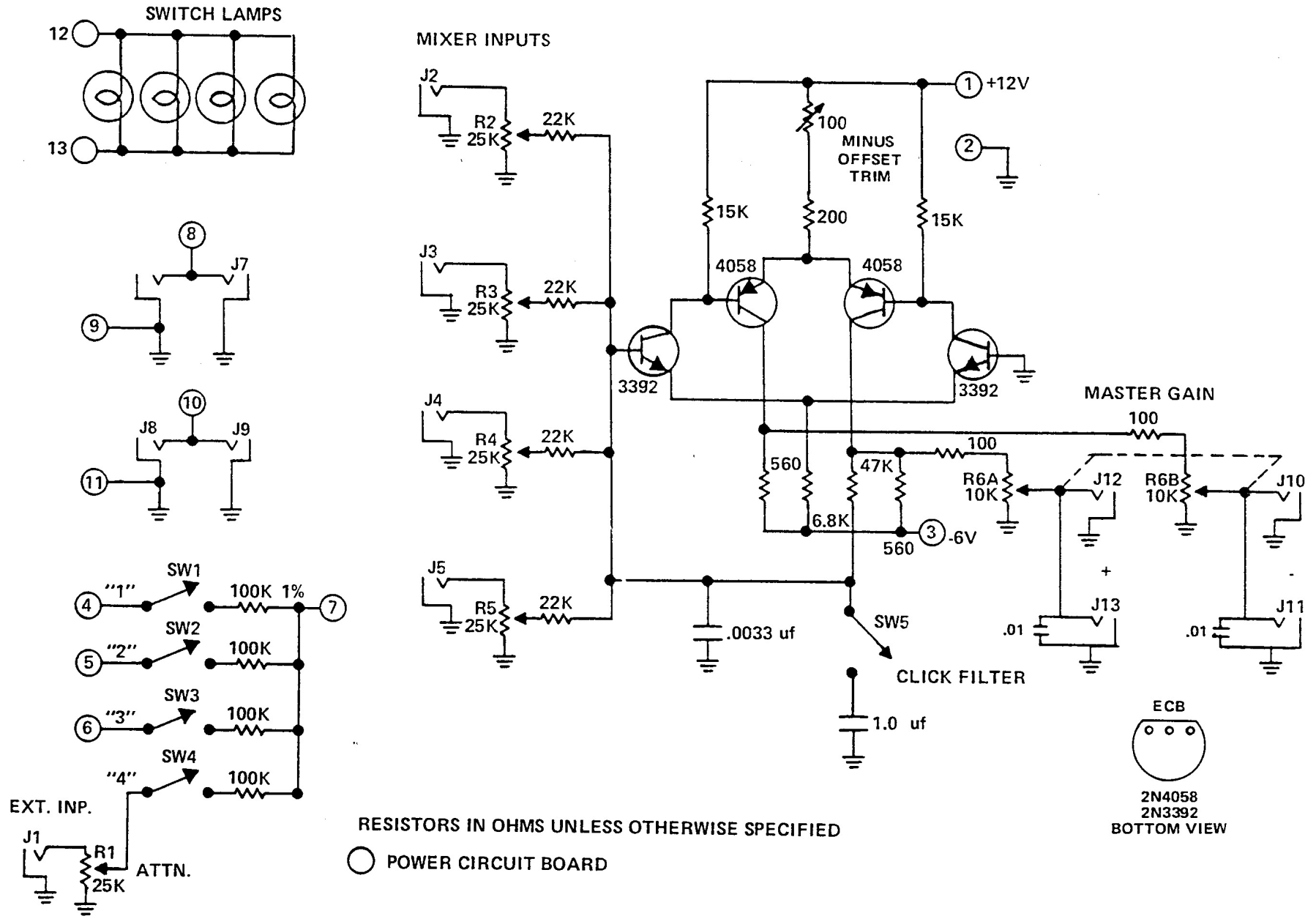


FIGURE 2 CONSOLE PANEL MODEL 3