

## Moog Model 10 Modules

**901\***

**901A**

**901B(x2)**

**902**

**903A**

**904A**

**907**

**910**

**911(x2)**

**951**

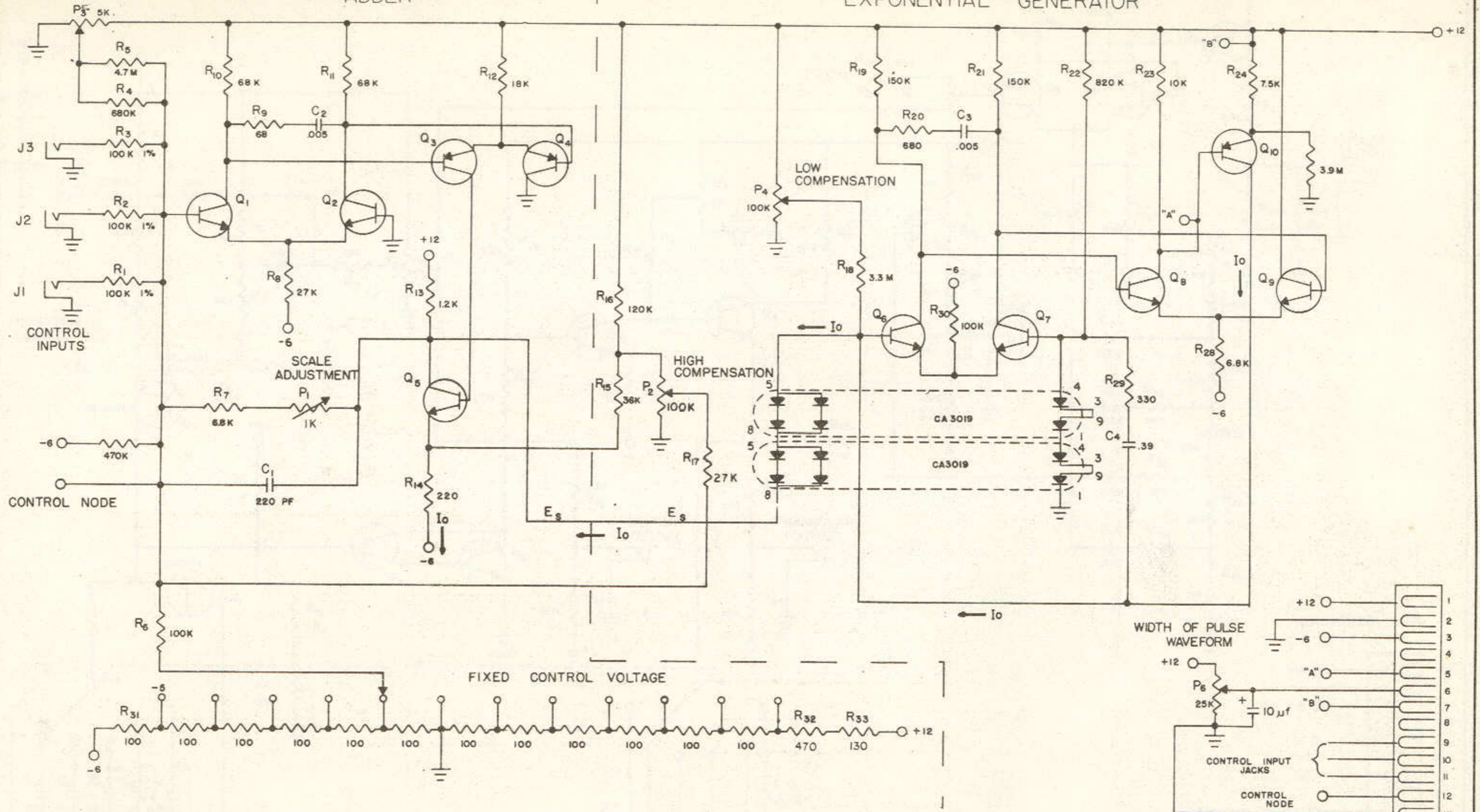
**CP11\***

**(\* Doesn't appear in schematics)**

FIXED CONTROL VOLTAGE

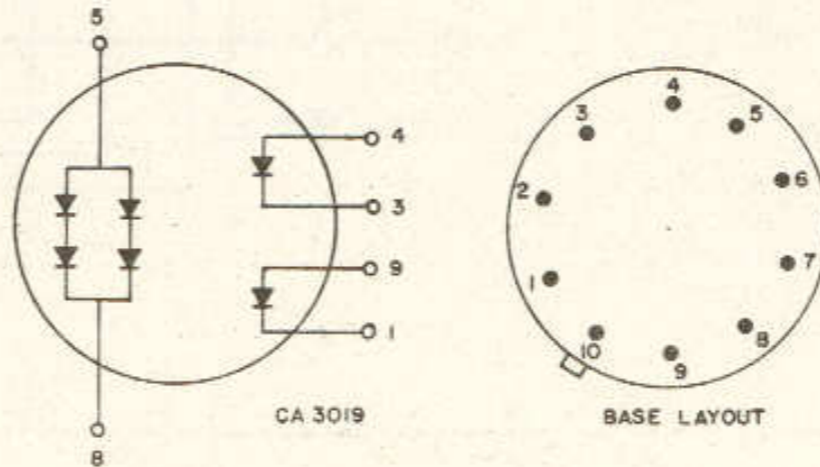
### ADDER

### EXPONENTIAL GENERATOR



#### NOTES :

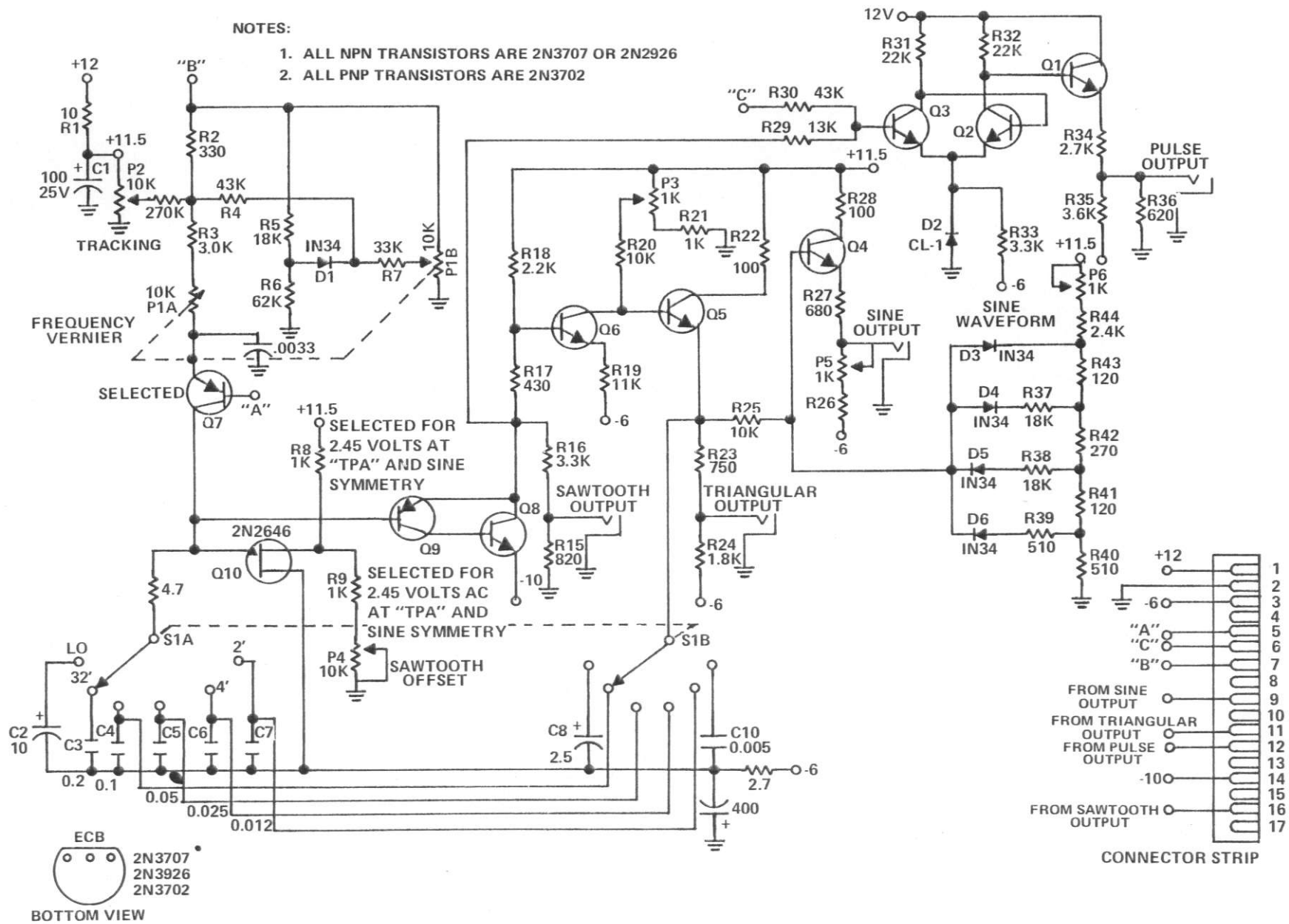
- 1 ALL NPN TRANSISTORS ARE 2N3391A OR 2N3392.
- 2 " PNP " " 2N4058.



APPROVED FOR PRODUCTION WRH 4-70

REVISIONS		<b>R. A. MOOG CO.</b>	
REV A ECM 014		TRUMANSBURG, NEW YORK	
TITLE		901-A OSCILLATOR CONTROLLER	
SCALE		DR. BY JA	
DATE 7-2-69		CK'D. BY	
		DWG. NO. 1100	

OLD DWG. FILED OBSOLETE



993-042646

FIGURE 7 OSCILLATOR 901B

## 902 VOLTAGE CONTROLLED AMPLIFIER TEST PROCEDURE

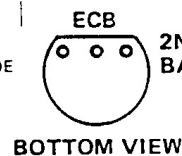
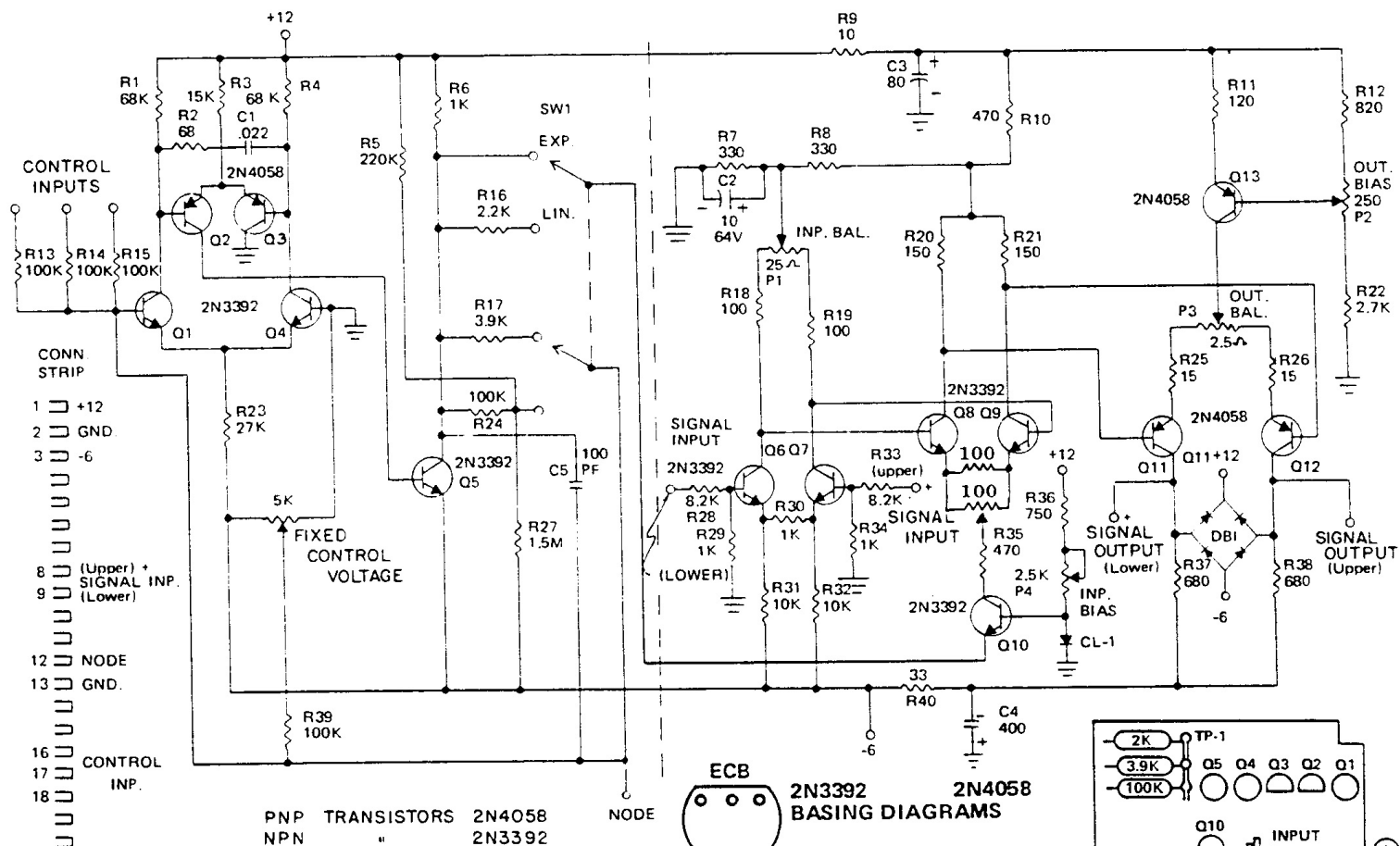
1. Connect dc voltmeter to TP-L (collector of Q5); low side to ground.
2. Turn FIXED CONTROL VOLTAGE pot to 6 and set CONTROL MODE switch to "EXP." DC voltage should read approximately zero.
3. Rotate FIXED CONTROL VOLTAGE pot to 0. DC voltage should read approximately +0.24V.
4. Set CONTROL MODE switch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

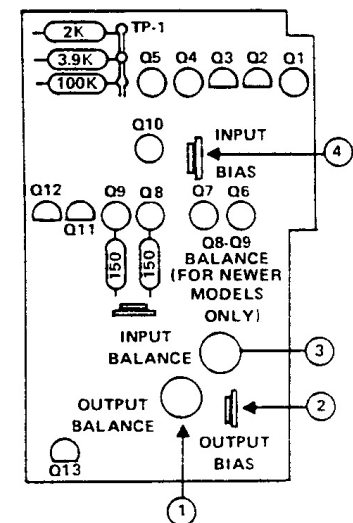
6. With FIXED CONTROL VOLTAGE in 6 and dc voltmeter connected between one of the SIGNAL OUTPUTS jacks and ground, adjust OUTPUT BIAS trimpot for zero volts.
7. Connect dc voltmeter across positive terminals of SIGNAL OUTPUTS jacks. Connect jumper between collectors of Q8 and Q9 and adjust OUTPUT BALANCE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



BOTTOM VIEW

- 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.



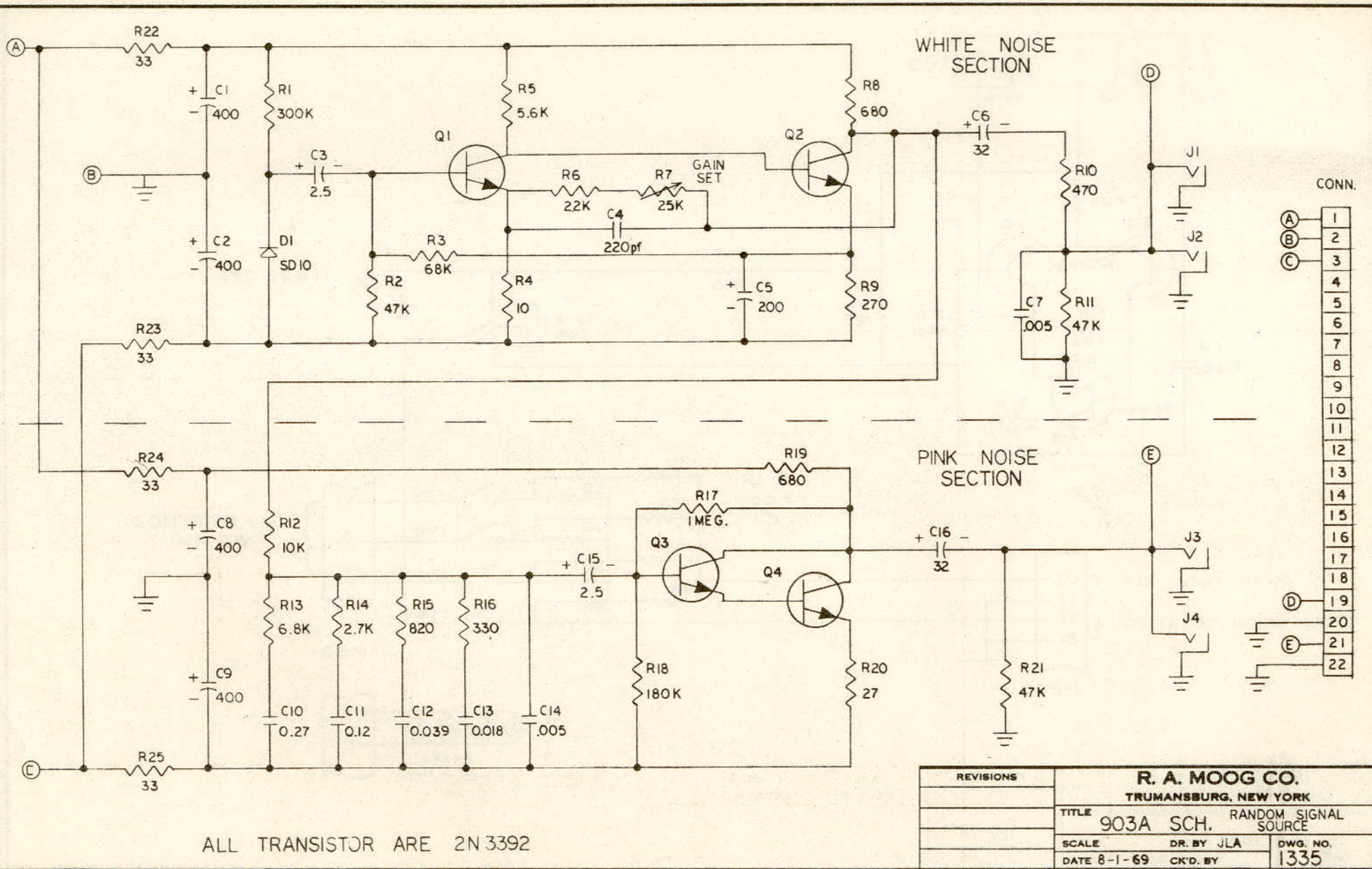
VOLTAGE CONTROLLED AMPLIFIER ALIGNMENT PROCEDURE AND ADJUSTMENT LOCATION DIAGRAM

MOOG MUSIC INC.

SCHMATIC, 902 VOLTAGE CONTROLLED AMPLIFIER  
993-041813

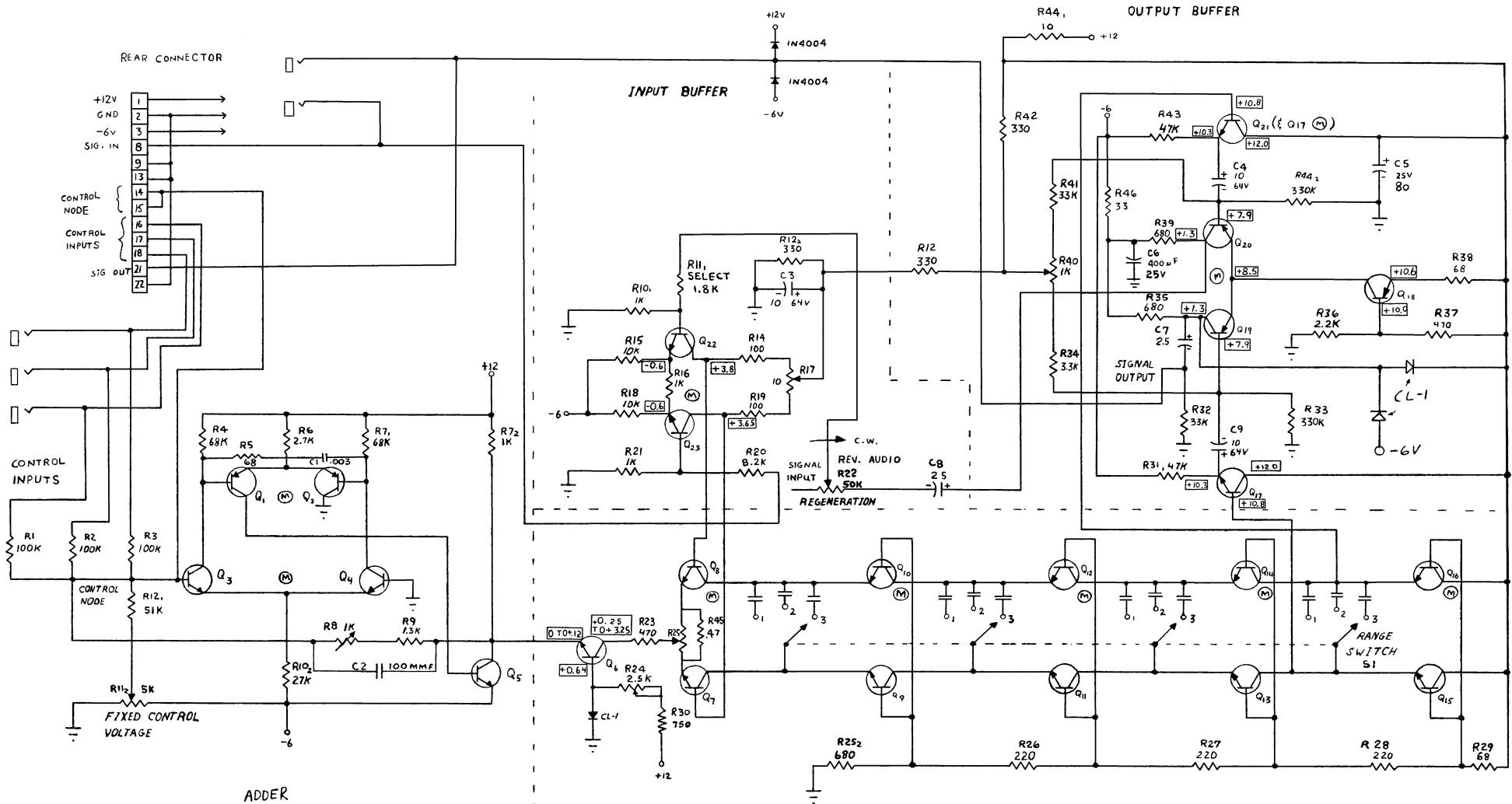
1068

FIGURE 9 VOLTAGE CONTROLLED AMPLIFIER MODEL 902



ALL TRANSISTOR ARE 2N 3392

REVISIONS		R. A. MOOG CO.	
		TRUMANSBURG, NEW YORK	
		TITLE	903A SCH. RANDOM SIGNAL SOURCE
		SCALE	DR. BY JLA DWG. NO. 1335
		DATE 8-1-69	CK'D. BY



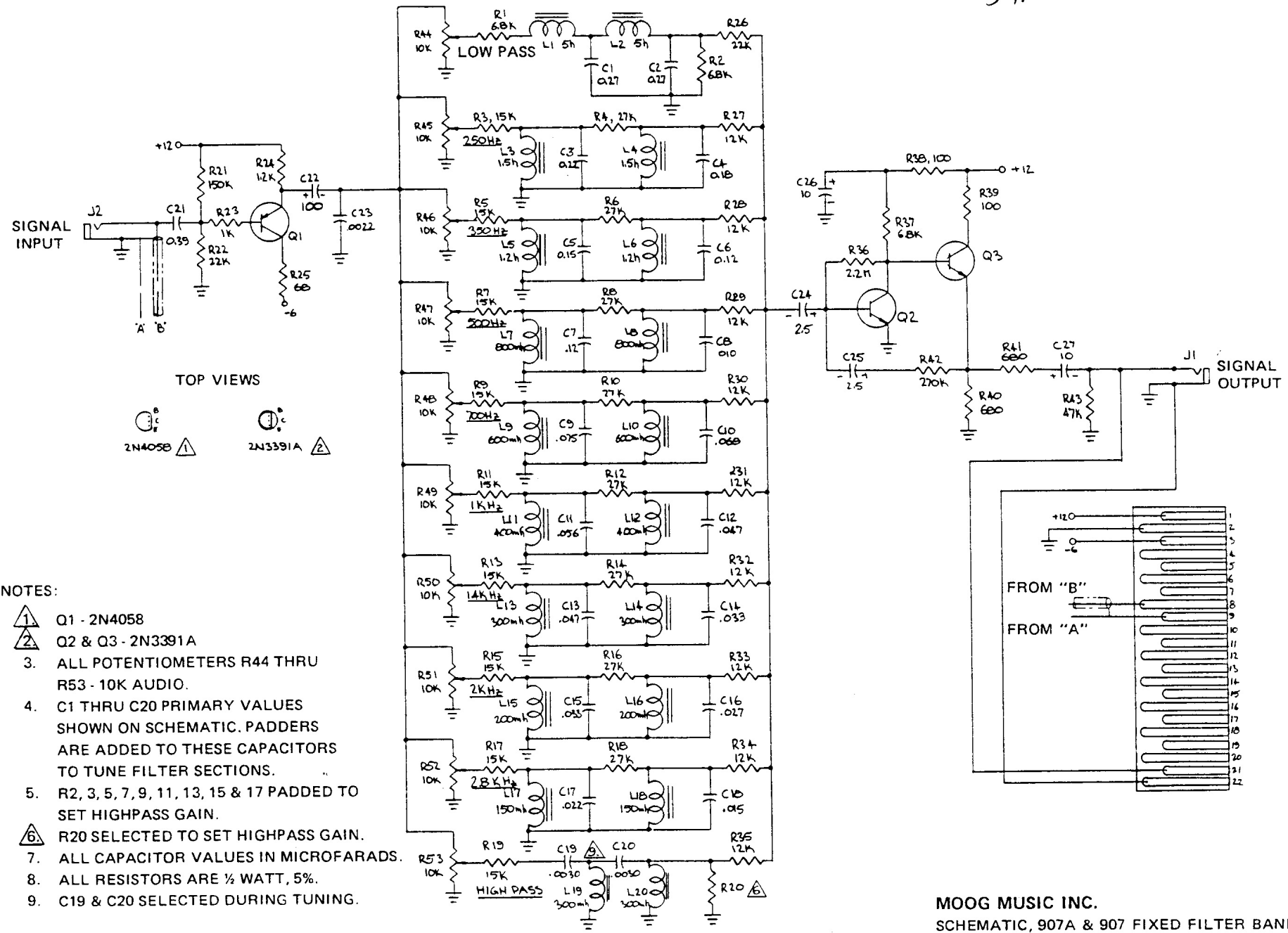
- NOTES:
1. ALL NPN TRANSISTORS: 2N 3392
  2. ALL PNP TRANSISTORS: 2N 4058
  3. (M) ⇒ MATCHED PAIR
  4. RANGE CAPACITOR SIZES
 

1	1.2 $\mu$ F
2	0.3 $\mu$ F
3	0.075 $\mu$ F

REV. C 11/10/70 w/gs		REV. E 12-19-69		904-A VOLTAGE CONTROLLED LOW PASS FILTER	
REV. A 9-8-69 - JLA		REV. D 12-19-69		DRAWN BY PY.	
REV. B 9-8-69 - JLA		REV. B - ECN-003		APPR. BY	
				DATE 7-25-67	
				DRAWING NUMBER SUPERCEDES NO. 1039	
				1149	
				R. A. MOOG CO. TAUMANSBURG, N. Y.	

INDUCTORS 10mm x 5mm Body

SH



NOTES:

- 1. Q1 - 2N4058
- 2. Q2 & Q3 - 2N3391A
- 3. ALL POTENTIOMETERS R44 THRU R53 - 10K AUDIO.
- 4. C1 THRU C20 PRIMARY VALUES SHOWN ON SCHEMATIC. PADDERS ARE ADDED TO THESE CAPACITORS TO TUNE FILTER SECTIONS.
- 5. R2, 3, 5, 7, 9, 11, 13, 15 & 17 PADDED TO SET HIGHPASS GAIN.
- 6. R20 SELECTED TO SET HIGHPASS GAIN.
- 7. ALL CAPACITOR VALUES IN MICROFARADS.
- 8. ALL RESISTORS ARE 1/2 WATT, 5%.
- 9. C19 & C20 SELECTED DURING TUNING.

MOOG MUSIC INC.  
SCHEMATIC, 907A & 907 FIXED FILTER BANK  
993-041838 08-028

FIGURE 15 FIXED FILTER BANK MODELS 907 AND 907A

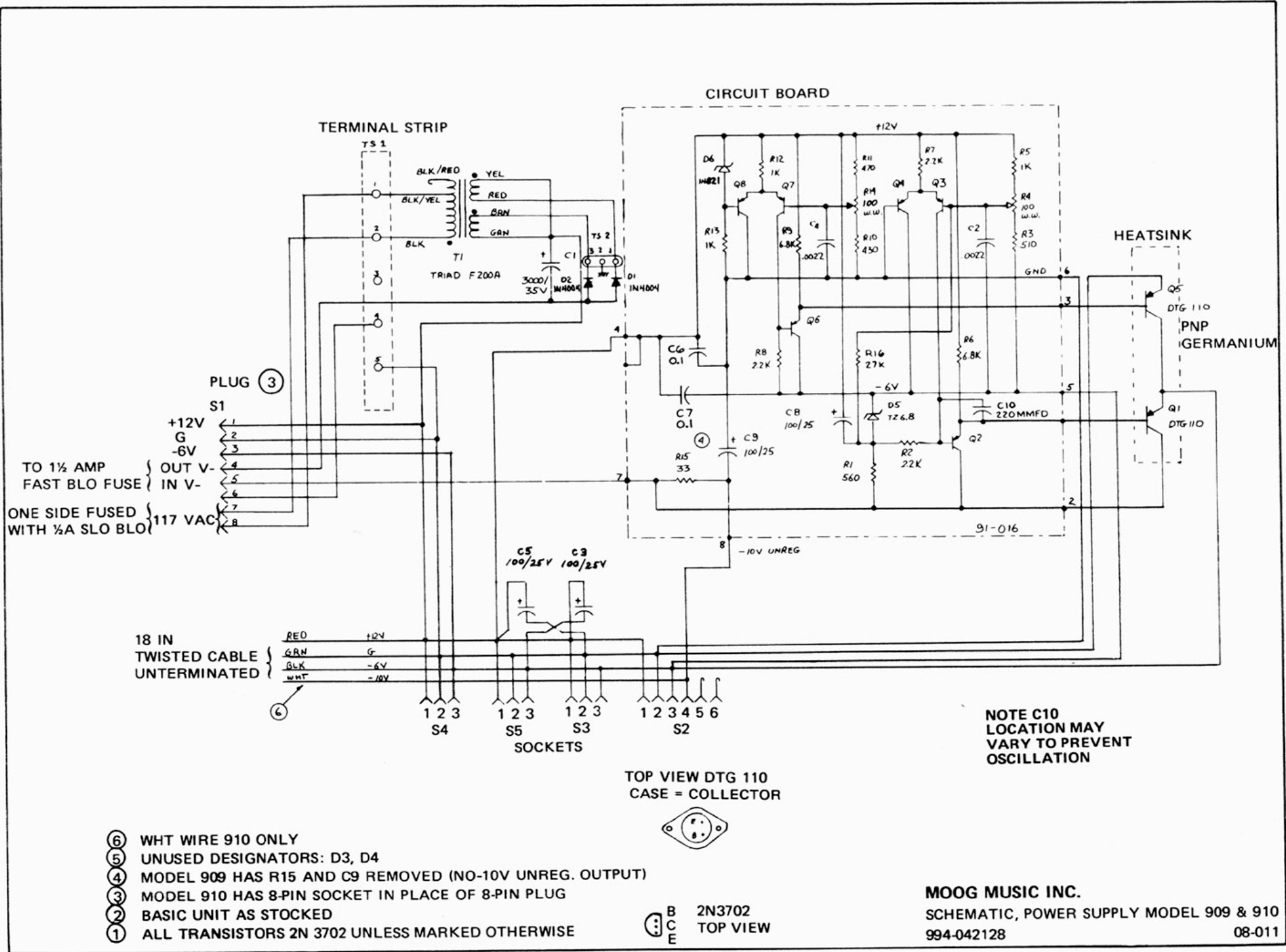
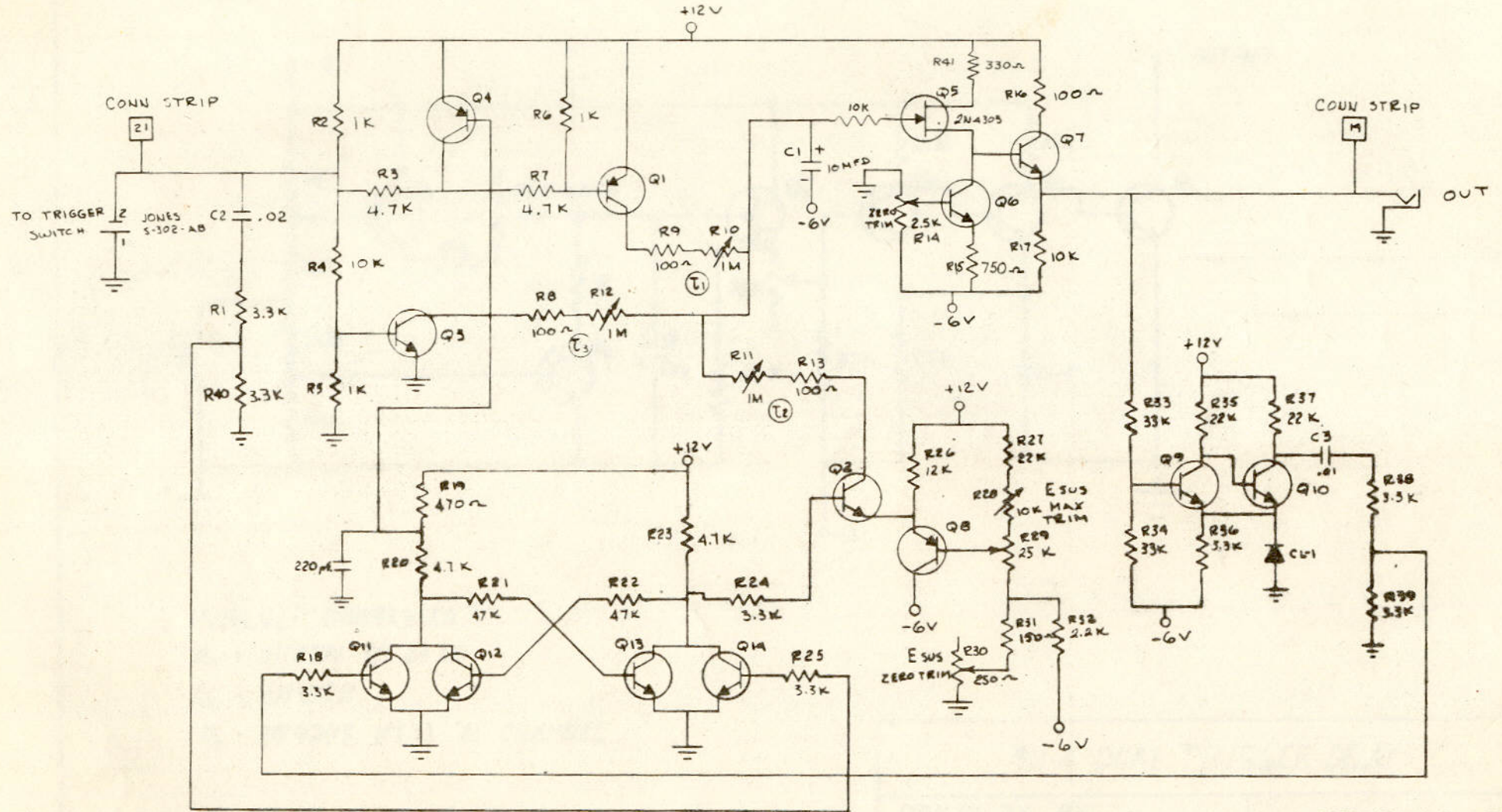


FIGURE 16 POWER SUPPLY MODELS 909 AND 910



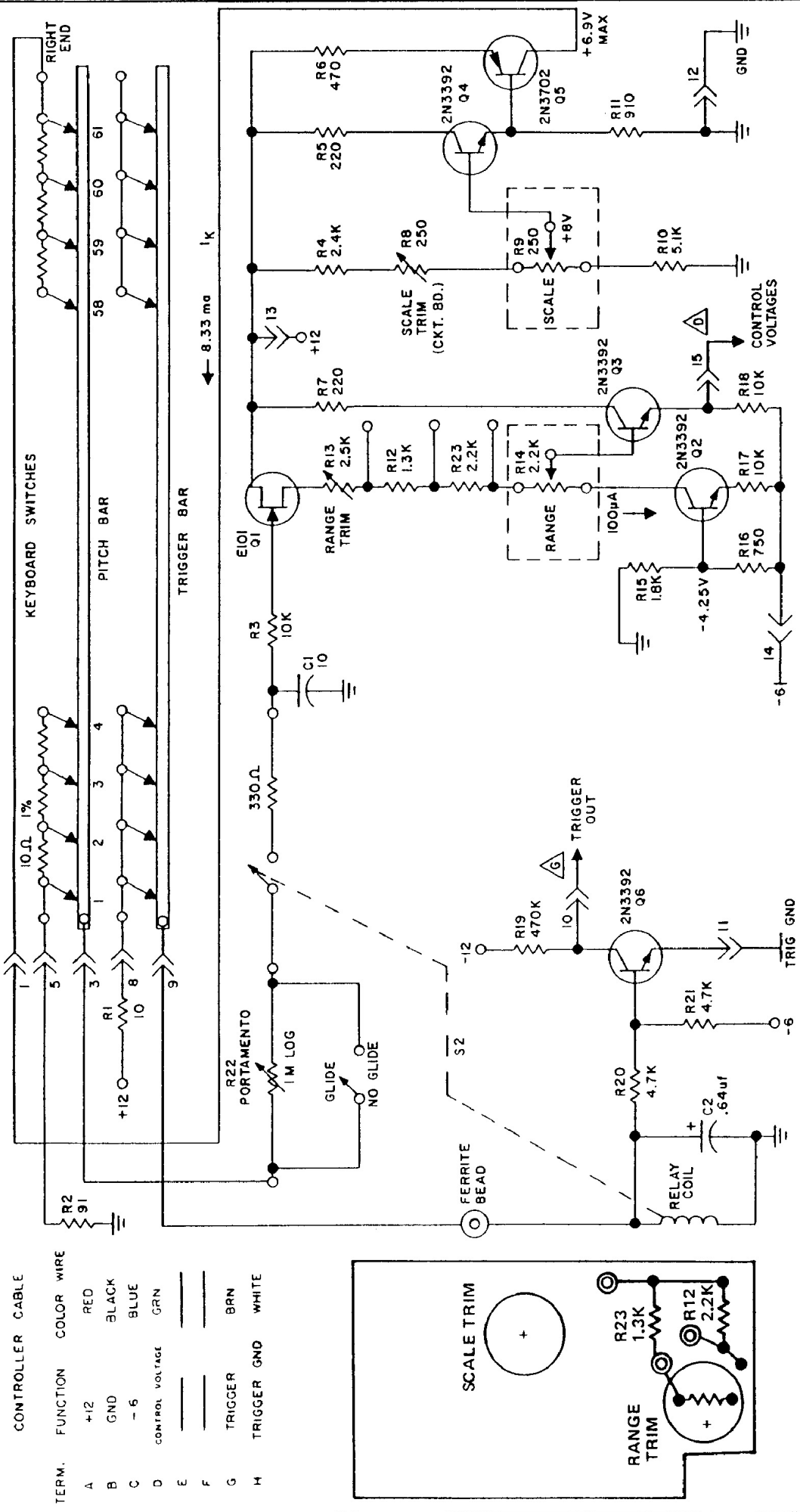


NOTES:

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

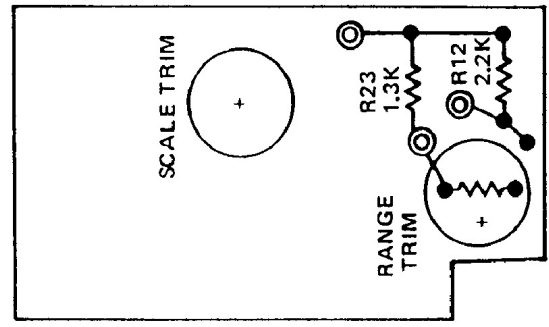
REPLACES DWG. 1103

C-ECN-004 1-12-69 318		REVISIONS		R. A. MOOG CO.	
		A-R15 FROM 1.5K		TRUMANSBURG, NEW YORK	
		To R20		TITLE 911 ENVELOPE GENERATOR	
		A-R41 FROM Q5		SCALE DR. BY RER	
		To 25K		DATE 8-14-68 CK'D. BY	
		B-ECN-002		DWG. NO. 1220	



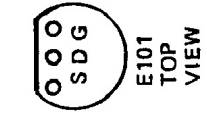
**CONTROLLER CABLE**

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



### 951 KEYBOARD TUNING

1. The keyboard has two adjustments to be made. The scale adjustment adjusts the current source so that the total drop across the resistor string is 5.000 volts. The range adjustment fixes the lowest key at zero volts. Adjustments are made with the external range and scale controls on the five mark.
2. Adjust the range setting with the trimpot. If adjustment cannot be made within the range of the trimpot, it may be necessary to short one or both of the two resistors in series with it.
3. Adjust the scale trimmer so that the keyboard spans five volts. If zero shifts, for example to .04, then adjust the top for 5.04. That is, always adjust for a five volt span.
4. Now readjust range trim so that first key is zero. Check to see that scale still gives 0 to 5.000 volts.



2N3702  
2N3392  
BOTTOM VIEW

E101  
TOP VIEW

MOOG MUSIC INC.

SCHEMATIC, 951, KEYBOARD  
993-041831 1266

FIGURE 28 KEYBOARD MODEL 951