Moog Model 12

Modules

902
903A
904A
907
910
911(x2)
921
921A
921B(x2)
952
CP11*

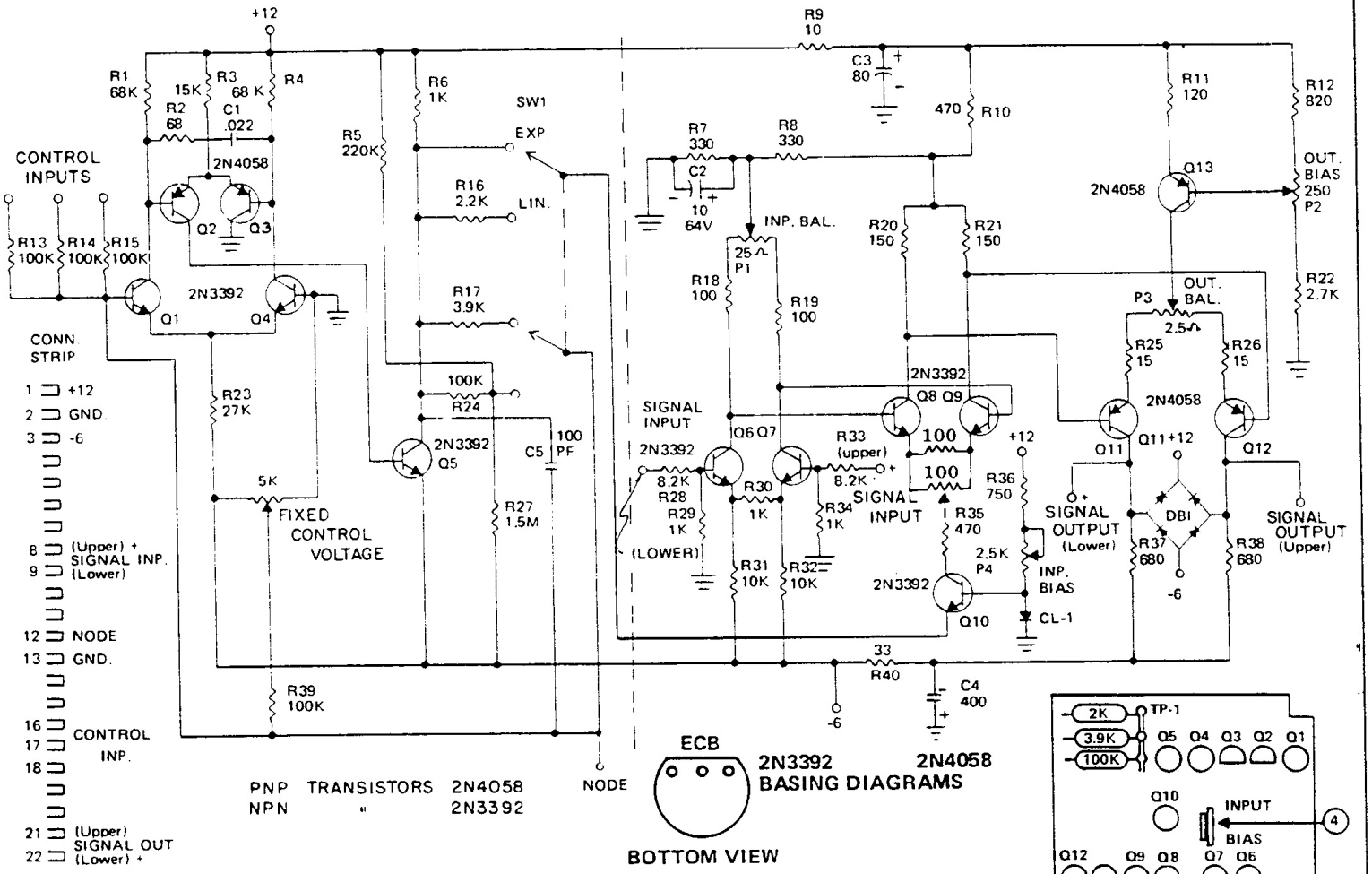
(*) Doesn't appear in schematics

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.
13. Slowly turn FIXED CONTROL VOLTAGE pot from 6 to 0 and check for linear action in the LIN mode and exponential action in the EXP mode. At 0, signal output should be -60db maximum.
14. Turn FIXED CONTROL VOLTAGE pot to 6. With a dc bias, check each control input for proper voltage control. 0 volts should have no effect, -6 volts should cut the amplifier off completely.
15. With no signal input and FIXED CONTROL VOLTAGE set at 6, output noise should be -60db maximum.



(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.

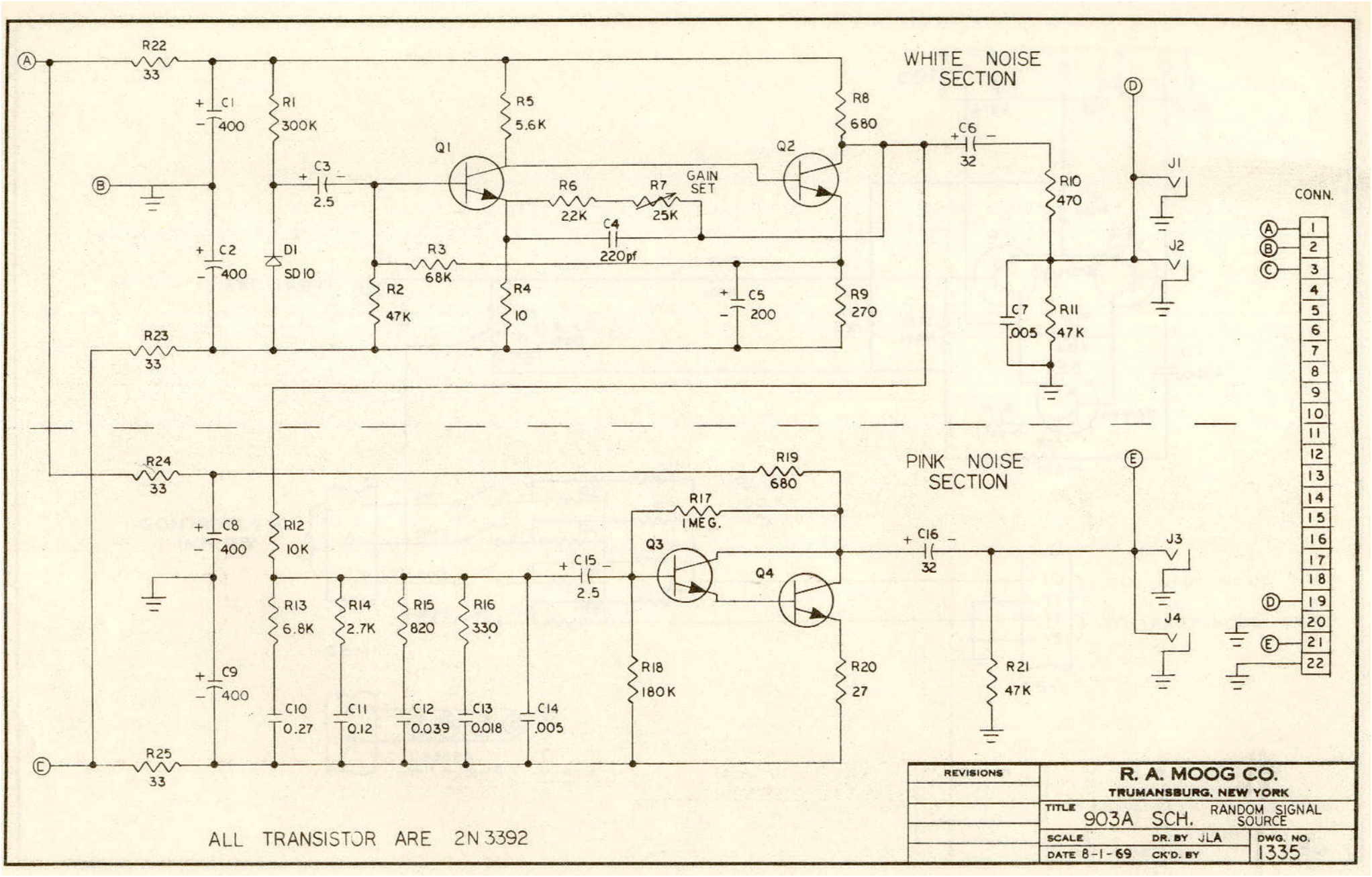
(3) Adjusts zero output offset with FIXED CONTROL VOLTAGE control fully clockwise.

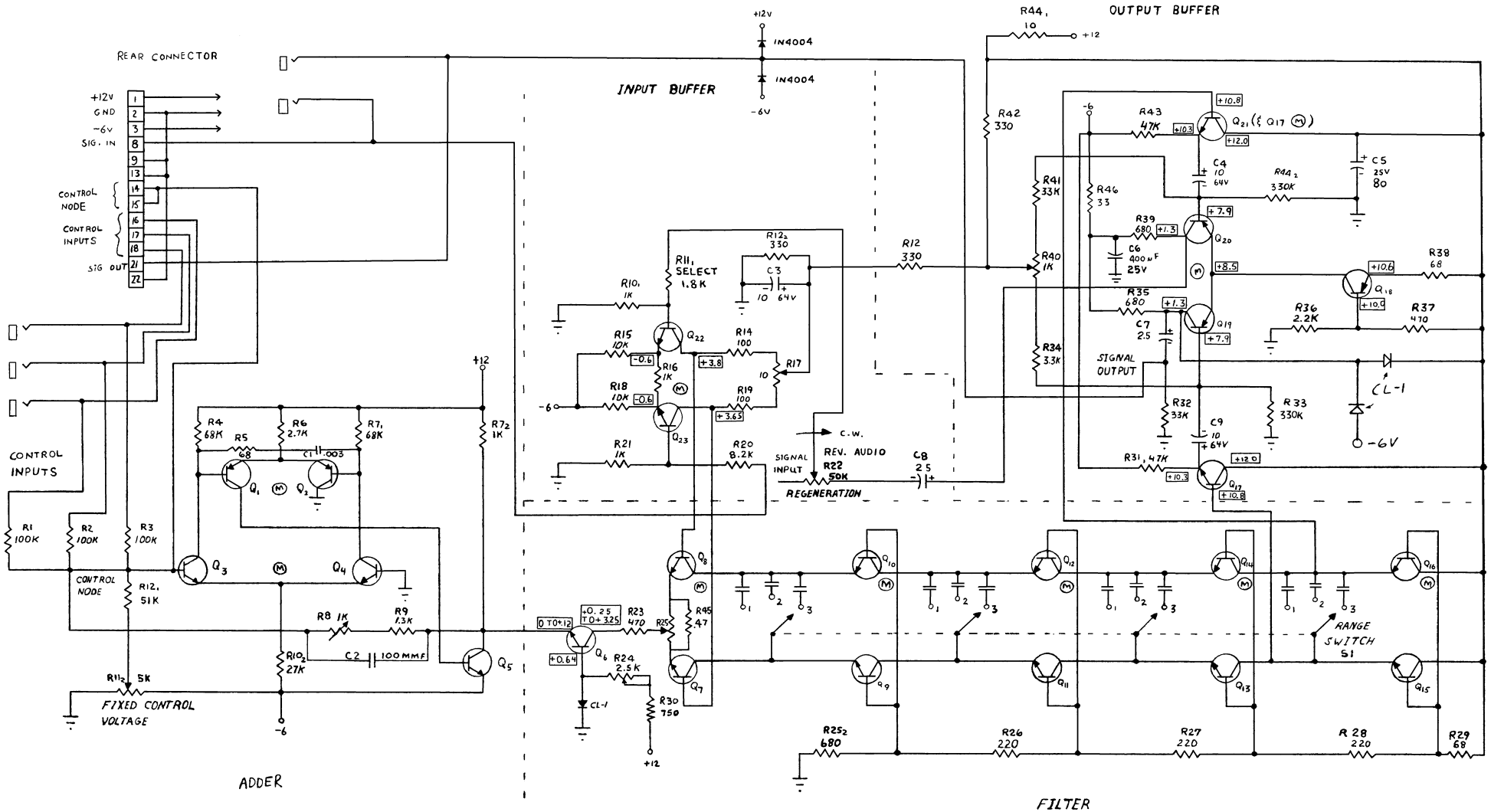
(4) Adjusts amplitude level balance between linear and exponential mode with FIXED CONTROL VOLTAGE control full clockwise.

VOLTAGE CONTROLLED AMPLIFIER ALIGNMENT PROCEDURE AND ADJUSTMENT LOCATION DIAGRAM

MOOG MUSIC INC.
SCHEMATIC, 902 VOLTAGE CONTROLLED AMPLIFIER
993-041813 1068

FIGURE 9 VOLTAGE CONTROLLED AMPLIFIER MODEL 902


WHITE NOISE SECTION
PINK NOISE SECTION
R22 33
C1 400
R1 300K
C3 2.5
Q1
R5 5.6K
R6 22K
R7 GAIN SET 25K
C4 220pf
Q2
R8 680
C6 32
R10 470
J1
J2
CONN.
C2 400
D1 SD10
R3 68K
R2 47K
R4 10
C5 200
R9 270
C7 .005
R11 47K
R23 33
R24 33
R19 680
R17 1 MEG.
C8 400
R12 10K
C15 2.5
Q3
Q4
C16 32
J3
J4
R13 6.8K
R14 2.7K
R15 820
R16 330
C9 400
C10 0.27
C11 0.12
C12 0.039
C13 0.018
C14 .005
R18 180K
R20 27
R21 47K
R25 33
ALL TRANSISTOR ARE 2N3392
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

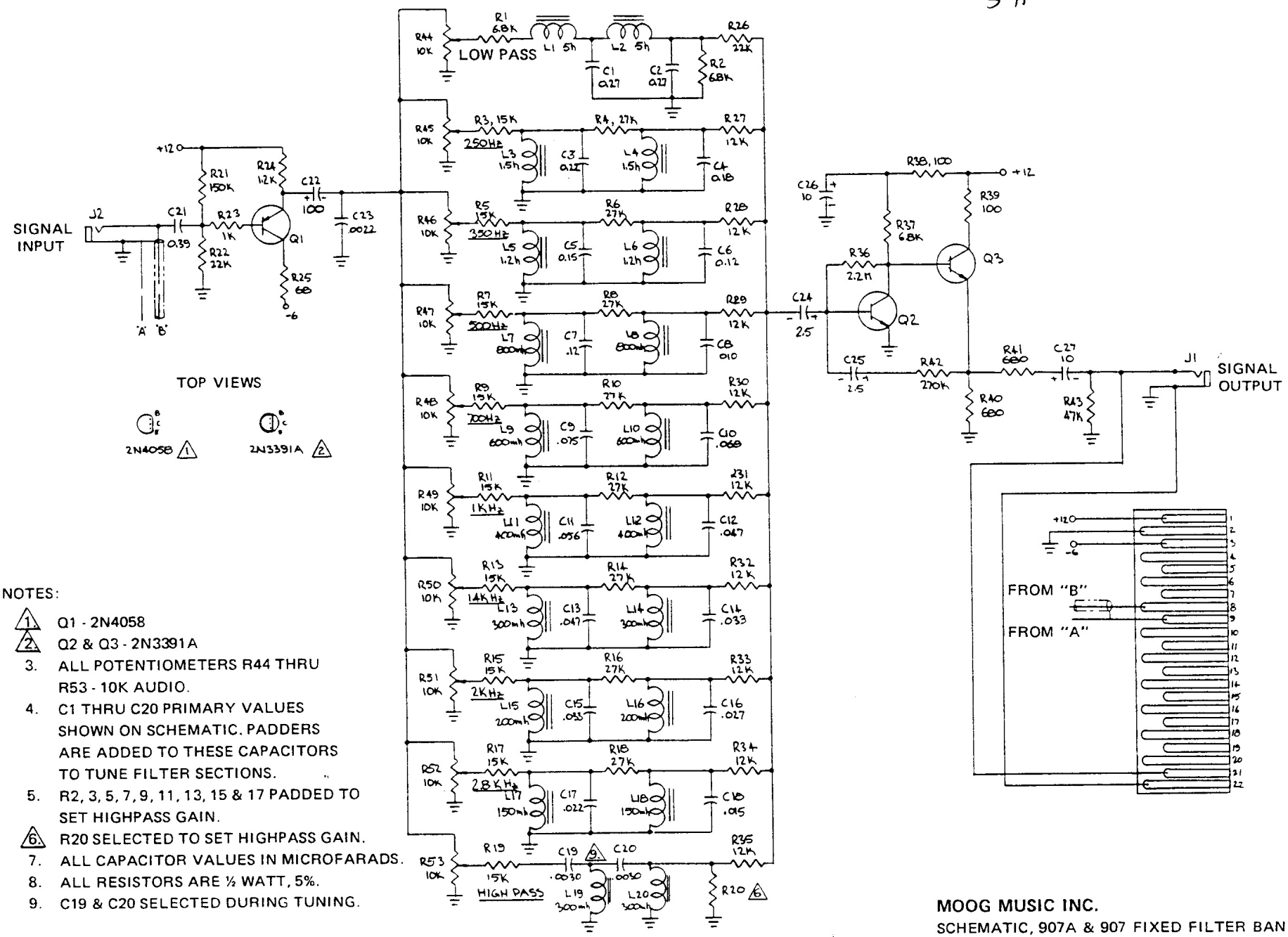
1	1.2 μF
2	0.3 μF
3	0.075 μF

904-A VOLTAGE CONTROLED LOW PASS FILTER		
DRAWN BY P.Y.		SCHEMATIC
APPR. BY		
DATE 7-25-67	DRAWING NUMBER SUPERCEDES NO. 1089	1149
A. A. MOOG CO. TRUMANSBURG, N.Y.		

REV. E	
REV. D	
REV. C 11/10/70 W/GS	REV.-B ~ECN-003 12-19-69
REV. A 9-8-69 - JLA	

INDUCTORS 10mm x 5mm Body

5H



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 ½ 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

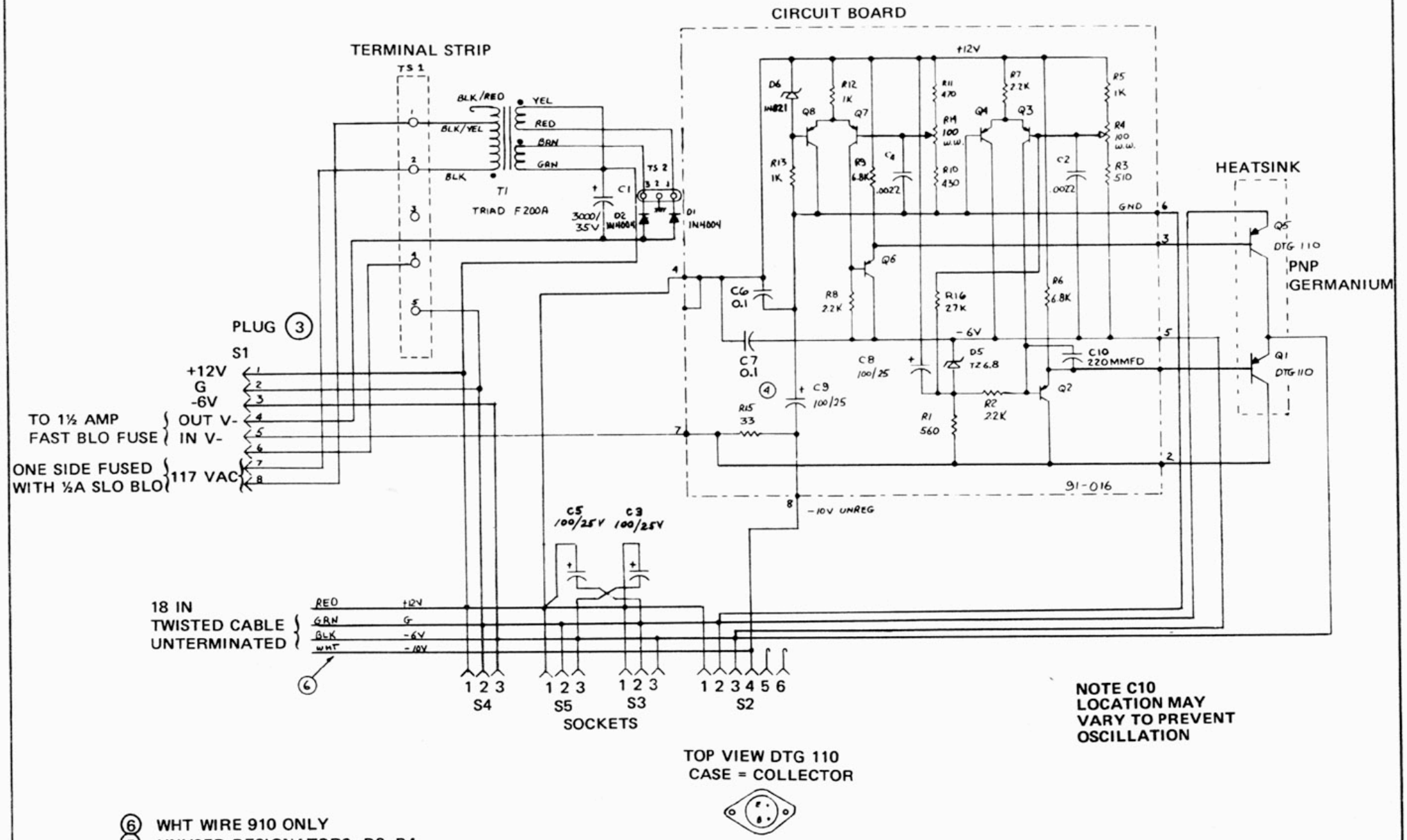
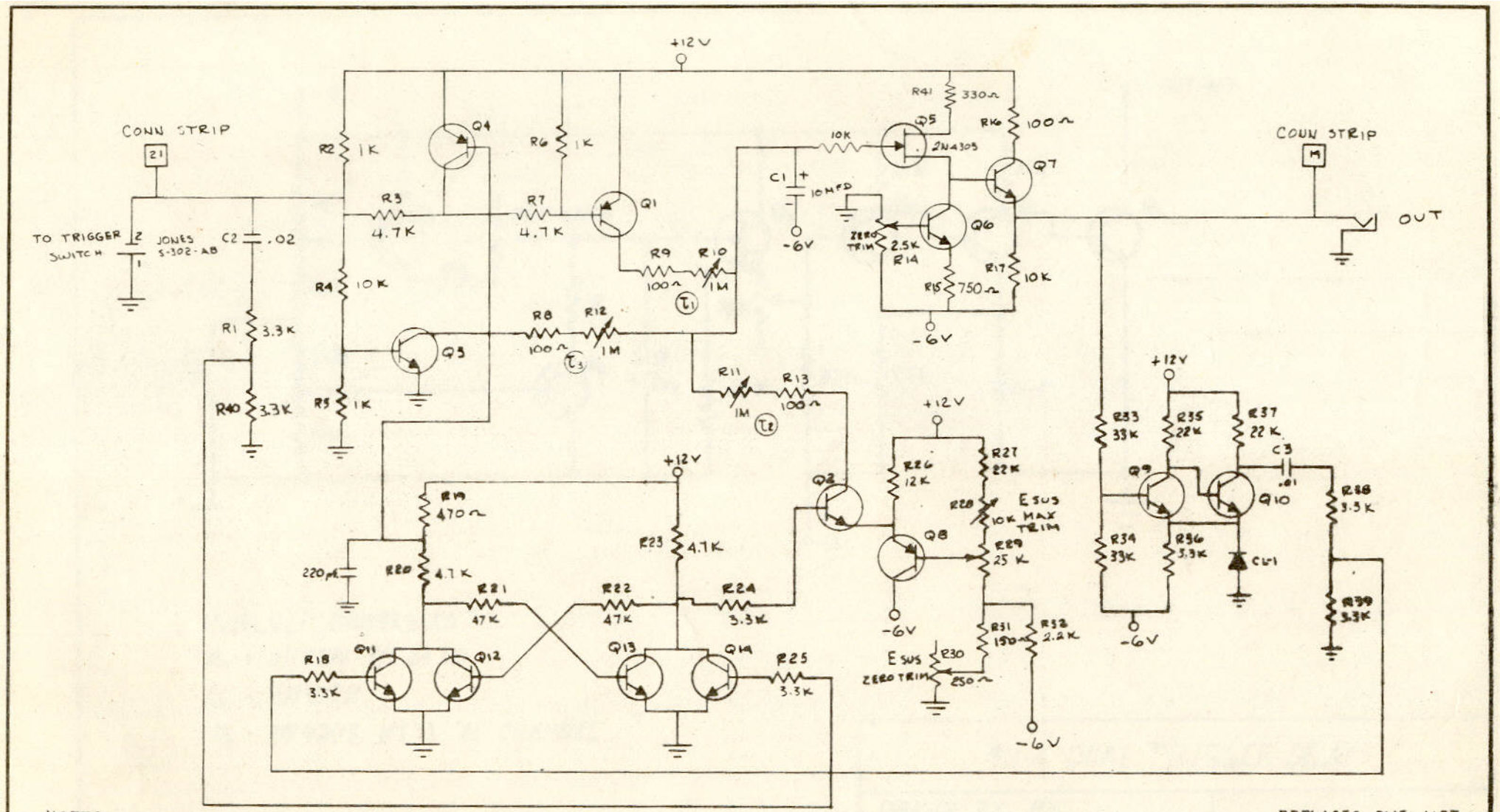


FIGURE 16 POWER SUPPLY MODELS 909 AND 910



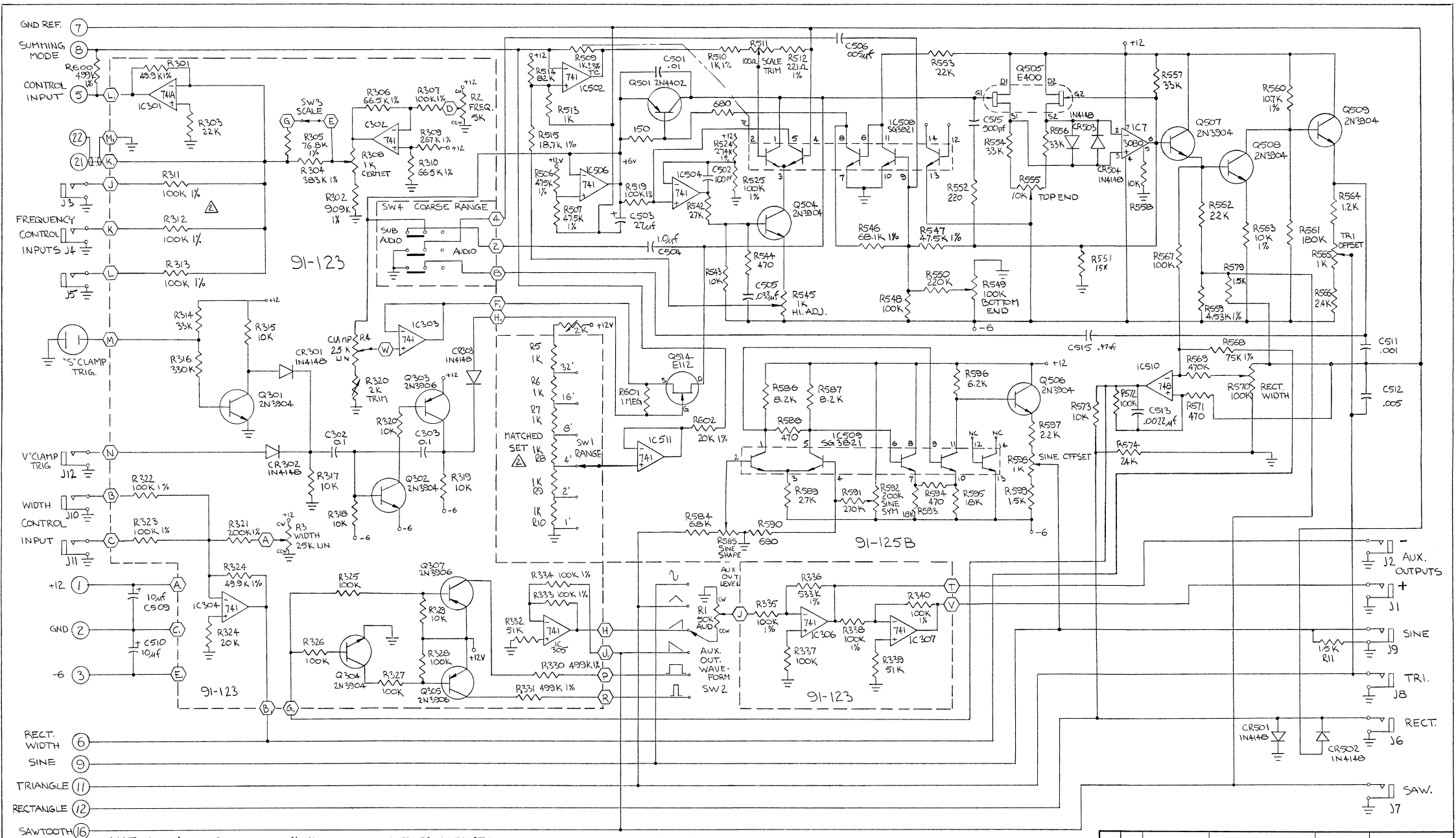
NOTES:

I. ALL PNP TRANSISTORS ARE 2N4058

II. ALL NPN TRANSISTORS ARE 2N3392

REPLACES DWG 1103

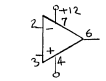
C-ECN-004 1-12-69 WRH	REVISIONS	R. A. MOOG CO.
	A- R15 From 1.5K To 820Ω	TRUMANSBURG, NEW YORK
	A- R41 FROM Q5 TO 6.2K	TITLE 911 ENVELOPE GENERATOR
	B - ECN-002	SCALE DR. BY RER DWG. NO. 1220
		DATE 8-14-68 CK'D. BY



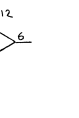
NOTES:

1. ALL RESISTORS 5%, ½ WATT UNLESS OTHERWISE NOTED
2. 1% RESISTORS MATCHED TO 0.1%
3. (X) DESIGNATES REAR CONNECTOR NUMBER (PCB 91-125)
4. (X) DESIGNATES P/C BOARD INTERCONNECTIONS

TYP. 741/748 IC



TRANSISTOR TOP VIEWS



E 400

E 112

2N3904, 2N3906

COMPONENT DESIGNATORS

NO PREFIX → FRONT PANEL
3XX → 93-123 PCB ASST
5XX, 6XX → 93-125 PCB ASST

ITEM	PART NUMBER	DESCRIPTION	MATERIAL

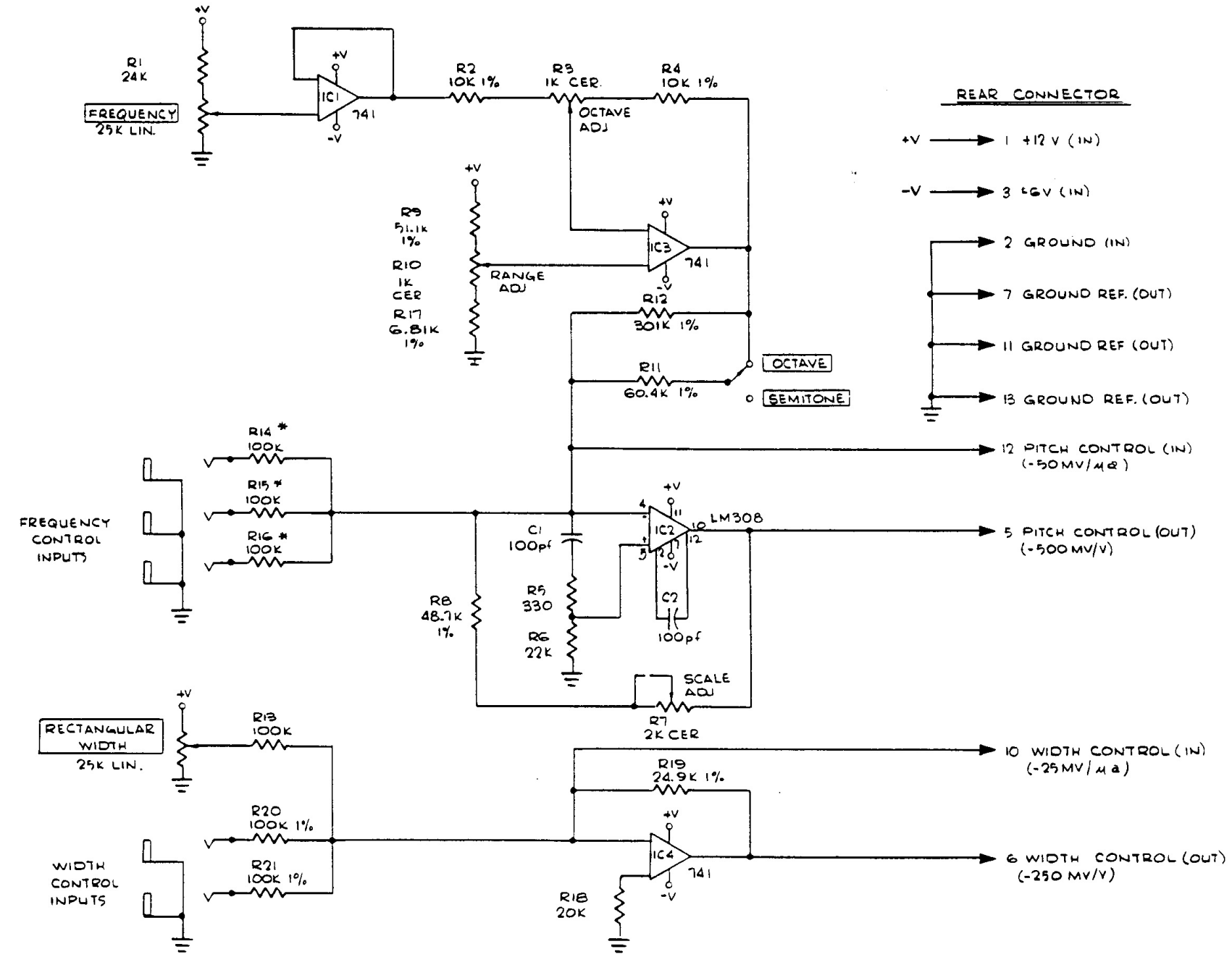
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCE FRACTIONS ± 1/64. ANGLES ± 1°. 2 PLACE DECIMALS ± .01. 125 FINISH ON ALL SURFACES. DRILLED HOLE TOL .040 – .125 DIA ±.002 TOL; .126 – .228 DIA ±.003 TOL; .229 – .500 DIA ±.004 TOL; .501 – .750 DIA ±.005 TOL

DRAWN BY	JRB 7/11/74
CHECK	
GRP ENGR.	
REVIEW QC.	
SUPERVISOR	

moog MUSIC INC. WILLIAMSVILLE, NEW YORK

921 OSCILLATOR SCHEMATIC DIAGRAM

NEXT ASSY	MODEL NO.	SIZE	CODE IDENT	
	921	C		08-036
APPLICATION		SCALE ——	WT.	SHEET 1 OF 1



NOTES:

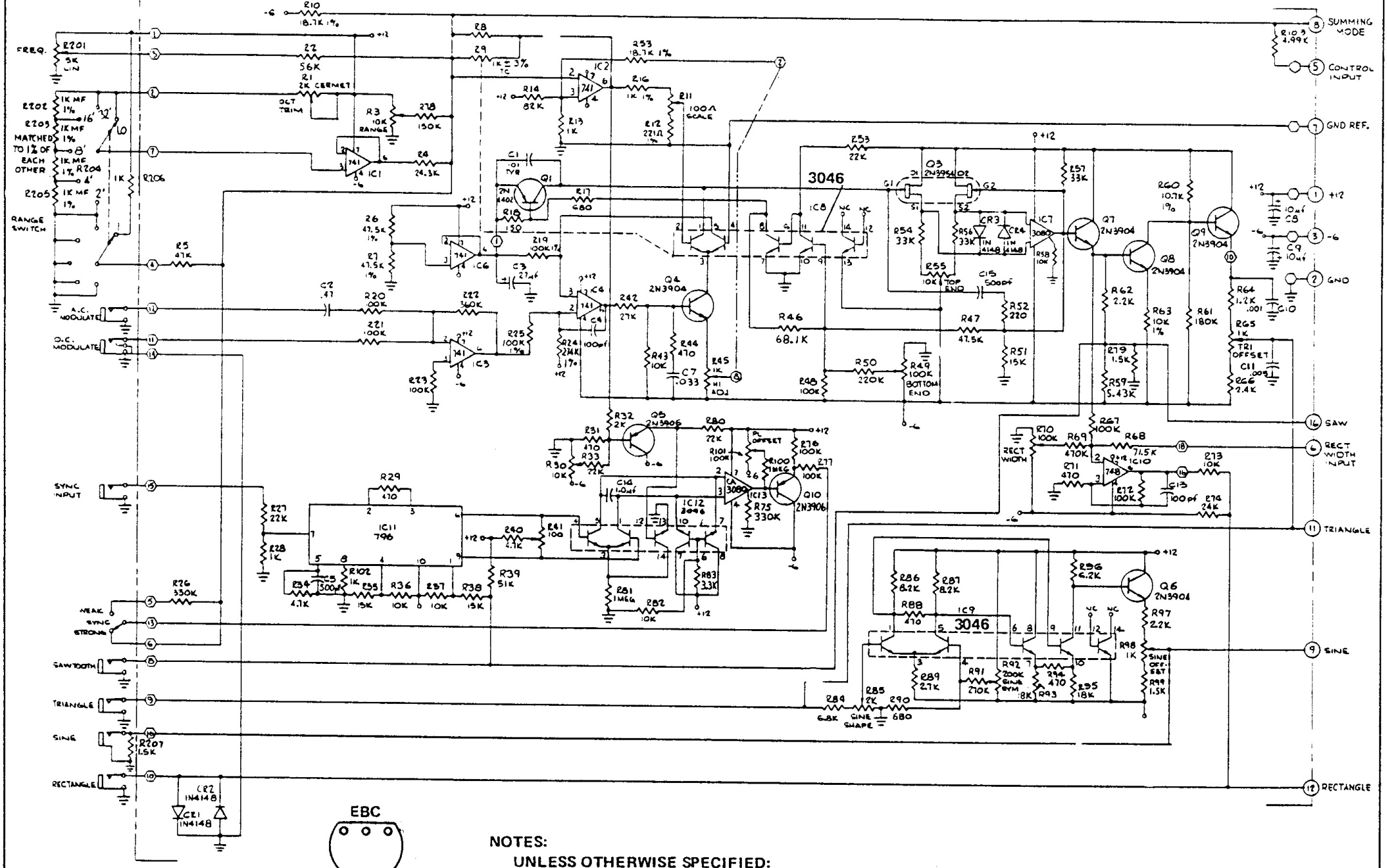
1. UNLESS OTHERWISE SPECIFIED ALL RESISTORS ARE ±5%, 1/2 W.
2. ALL 1% RESISTORS ARE 1/4 W.
3. * MATCHED TO 0.1%

MOOG MUSIC INC.

SCHEMATIC, 921A-OSCILLATOR DRIVER

993-041835 08-009

FIGURE 22. OSCILLATOR DRIVER MODEL 921A



EBC

BOTTOM VIEW
2N3904
2N4402
2N3906

NOTES:

UNLESS OTHERWISE SPECIFIED:

1. ALL RESISTOR VALUES IN OHMS, 1/4 OR 1/2W
2. ALL CAPACITOR VALUES IN MFD.
3. ⬡ DESIGNATES PLUG PIN
4. ○ DESIGNATES REAR CONNECTOR FINGER

MOOG MUSIC INC.
SCHEMATIC, OSCILLATOR 921B
993-041875 08-013

FIGURE 23. OSCILLATOR MODEL 921B

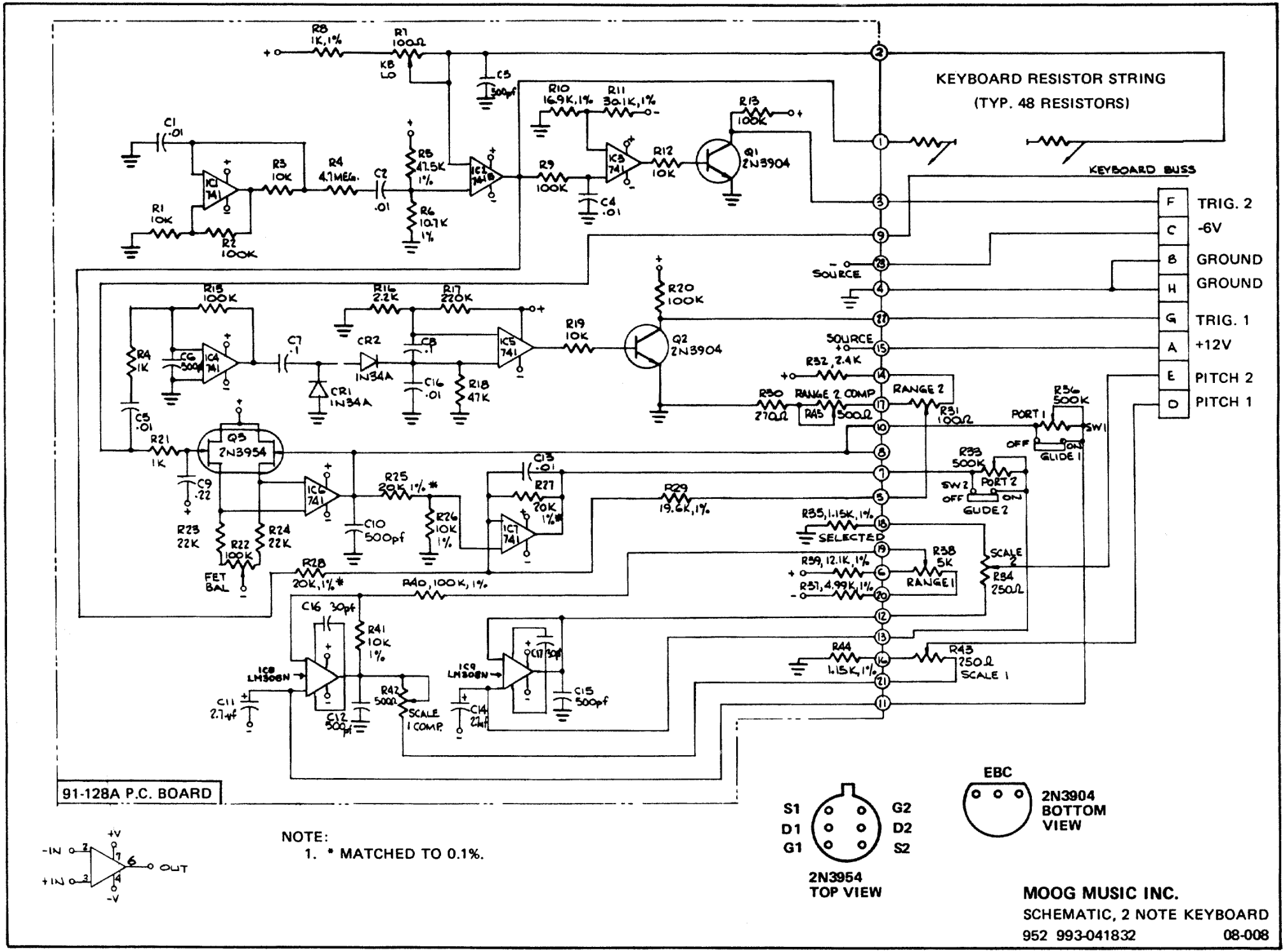


FIGURE 29 TWO NOTE KEYBOARD MODEL 952