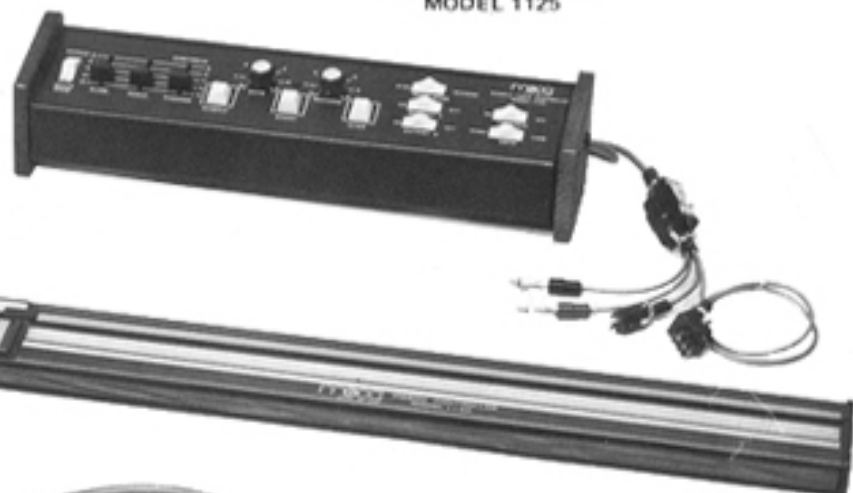


# SERVICE MANUAL for

**moog**

**ACCESSORIES**

SAMPLE AND HOLD  
MODEL 1125



RIBBON CONTROLLER  
MODEL 1150



FOOT SWITCH  
MODEL 1121



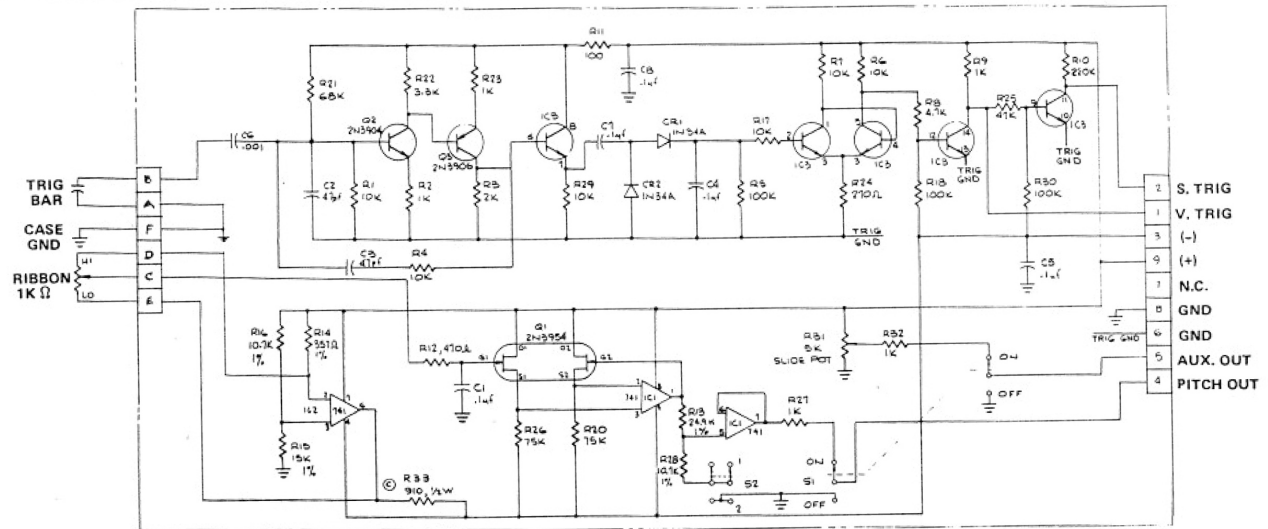
PERCUSSION CONTROLLER  
MODEL 1130



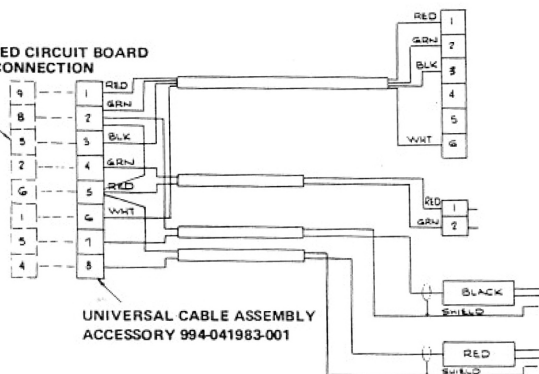
FOOT PEDAL CONTROLLER  
MODEL 1120

**Norlin™**

CONTENTS	PAGE NO.
EXTERNAL SYNTHESIZER COUPLING .....	iii
RIBBON CONTROLLER (MODEL 1150) SCHEMATIC DIAGRAM .....	1
RIBBON CONTROLLER (MODEL 1150) PRINTED CIRCUIT BOARD .....	2
RIBBON CONTROLLER (MODEL 1150) TEST PROCEDURE .....	2
RIBBON CONTROLLER (MODEL 1150) PRINTED CIRCUIT BOARD REPLACEMENT PARTS LIST .....	4
PERCUSSION CONTROLLER (MODEL 1130) SCHEMATIC DIAGRAM .....	5
PERCUSSION CONTROLLER (MODEL 1130) PRINTED CIRCUIT BOARD .....	6
PERCUSSION CONTROLLER (MODEL 1130) PRINTED CIRCUIT BOARD REPLACEMENT PARTS LIST .....	7
PERCUSSION CONTROLLER (MODEL 1130) TEST PROCEDURE.....	8
PERCUSSION CONTROLLER (MODEL 1130) CABLE ASSEMBLY.....	9
SAMPLE AND HOLD (MODEL 1125) BLOCK DIAGRAM .....	10
SAMPLE AND HOLD (MODEL 1125) SCHEMATIC DIAGRAM .....	11
SAMPLE AND HOLD (MODEL 1125) PRINTED CIRCUIT BOARD.....	12
SAMPLE AND HOLD (MODEL 1125) PRINTED CIRCUIT BOARD REPLACEMENT PARTS LIST .....	13
SAMPLE AND HOLD (MODEL 1125) TEST PROCEDURE .....	15
FOOT PEDAL CONTROLLER ASSEMBLY (MODEL 1120) .....	17
FOOT PEDAL CONTROLLER (MODEL 1120) SCHEMATIC DIAGRAM AND REPLACEMENT PARTS LIST .....	18
FOOT SWITCH ASSEMBLY (MODEL 1121) AND REPLACEMENT PARTS LIST .....	19

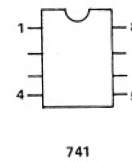
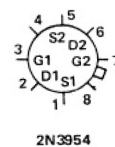


**PRINTED CIRCUIT BOARD CONNECTION**



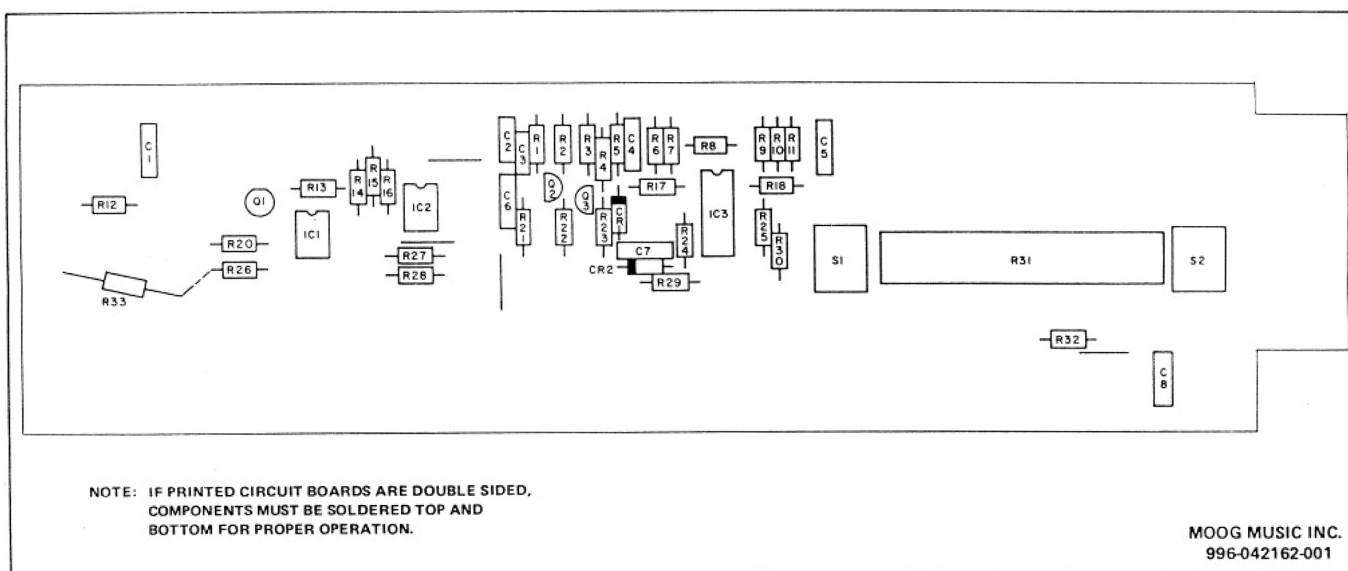
**CAUTION:** REPLACEMENT OF ANY COMPONENT MUST INCLUDE REMOVAL OF ALL SOLDER FLUX TO AVOID LEAKAGE OF HIGH IMPEDENCE CIRCUITS. COMPONENTS SHOULD BE MOUNTED AS CLOSE TO THE BOARD AS POSSIBLE TO INSURE EASY ASSEMBLY AND DISASSEMBLY OF THE PRINTED CIRCUIT BOARD.

**COMPONENT BASING (TOP VIEWS)**



MOOG MUSIC INC.  
993-042159-001

RIBBON CONTROLLER (MODEL 1150) SCHEMATIC DIAGRAM



RIBBON CONTROLLER (MODEL 1150) PRINTED CIRCUIT BOARD

## RIBBON CONTROLLER (MODEL 1150) TEST PROCEDURE

### DESCRIPTION

The Ribbon Controller produces a variable control voltage in accordance with the position to which the operator slides his finger on the top surface of a taught band. "S" and "V" triggers are generated by touching an etched trace on the fret board. Shorting trigger (S-TRIG) is at the positive supply potential until actuated and then decreases to zero volts. The voltage trigger

(V-TRIG) is at zero volts and rises to the positive supply potential when actuated. An auxiliary slide potentiometer provides a second variable control voltage. Control voltages (CV1) are available on the red phone plug. The tests described herein are accomplished with the aid of a Moog Synthesizer such as a Sonic VI, Minimoog or Multimoog.



RIBBON CONTROLLER (MODEL 1150)  
TEST PROCEDURE (Continued)

PRELIMINARY

1. Connect the Ribbon Controller to an Oscilloscope and Digital Voltmeter (DVM). Verify S-Trigger output by connecting the Oscilloscope probe to the two (2) prong Cinch-Jones connector and connecting the six (6) prong Cinch-Jones connector to the accessory outlet on the Synthesizer.

**NOTE**

The S-TRIG is derived from the V-TRIG. Therefore, verifying the S-TRIG output assures that the V-TRIG is operating. The V-TRIG is available at pin 6 of the eight (8) pin Cinch-Jones connector.

2. Set controls on the Ribbon Controller as follows:

SCALE	POSITION 1
AUX CONTROL	0
OUTPUT SWITCH	ON

TEST PROCEDURE

1. Check for S-TRIG generation by placing a finger across the gap between the narrow and wide printed traces on the fret board.
2. Check the operation of the ribbon for compliance with the following for Synthesizers that provide a +15VDC accessory supply voltages. For Synthesizers with accessory voltages of  $\pm 10$ VDC, observed output voltages will be reduced by 33 percent.

<u>Ribbon Depressed At</u>	<u>Output</u>	<u>Drift At All Points</u>
Center*	$0.0 \pm 0.5$ V	Must not
Left End	$-8.0 \pm 1.0$ V	Exceed
Right End	$+8.0 \pm 1.0$ V	1mv/sec.

\* Center of ribbon is defined as a point directly above the letter "R" in the word "RIBBON".

3. Check the operation of the ribbon for compliance with the following for Synthesizers that provide a +10V DC accessory supply voltage:

<u>Ribbon Depressed At</u>	<u>Output</u>	<u>Drift At All Points</u>
Center*	$0.0 \pm 0.3$ V	Must not
Left Hand	$-1.6 \pm 1.0$ V	Exceed
Right Hand	$+1.6 \pm 1.0$ V	1mv/sec.

\* Center of ribbon is defined as a point directly above the letter "R" in the word "RIBBON".

4. Operate the AUX CONTROL and verify that the output is 0.0 volts at minimum and +10 volts at maximum.
5. Set the OUTPUT switch to the OFF position and check that no output voltage is present on the red (CV1) or black (CV2) jacks.

**NOTE**

Triggers are not affected by the ON-OFF switch.

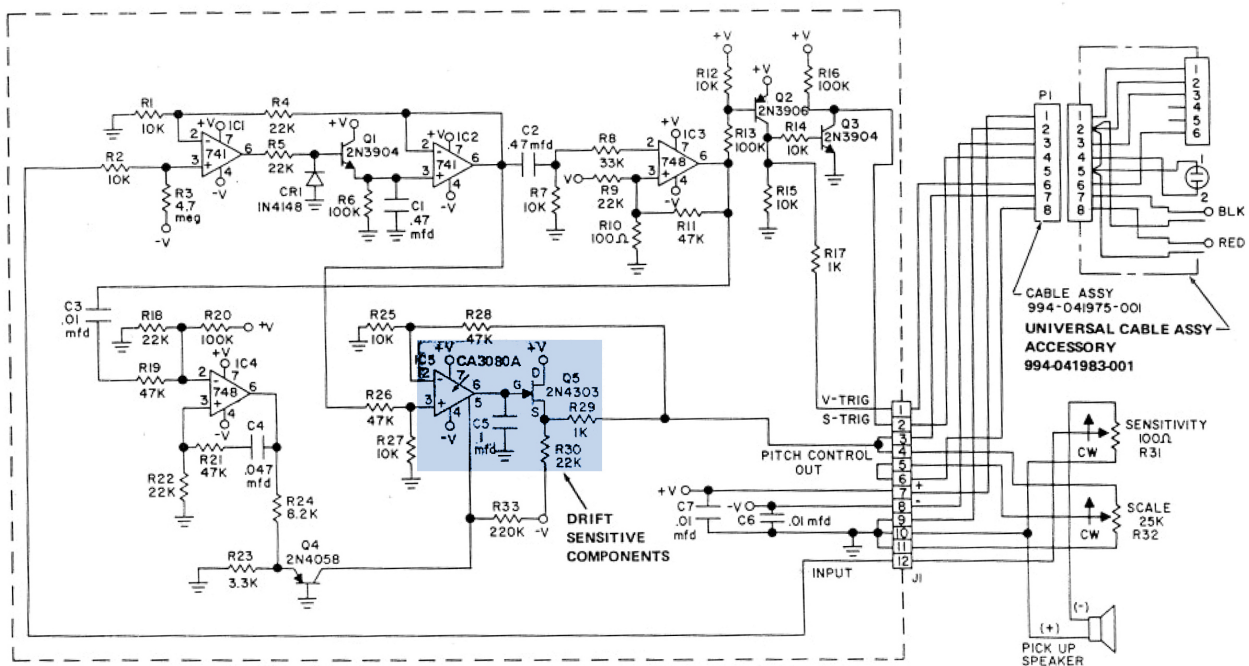
6. Connect the remaining cables to the Synthesizer and check that the Ribbon Controller functions according to the Owners Manual and the instructions on the rear of the Ribbon Controller.

**RIBBON CONTROLLER (MODEL 1150) PRINTED CIRCUIT BOARD  
REPLACEMENT PARTS LIST**

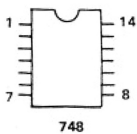
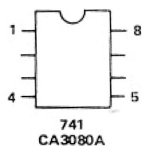
REF DESIG	PART NUMBER	DESCRIPTION	QTY
C1,C4, C5,C7, C8 C2,C3 C6 CR1,CR2 IC1 IC2 IC3 Q1 Q2 Q3 R1,R4, R6,R7, R17,R29 R2,R3, R9,R23, R27,R32 R5,R18, R30 R8	996-042162-003	Printed Circuit Board Assembly consisting of:	
	980-041233-001	Printed Circuit Board	1
	946-041978-104	Capacitor, Film, 0.1uf	5
	947-042020-470	Capacitor, Ceramic, 47Pf	2
	947-042020-102	Capacitor, Ceramic, .001uf	1
	919-041075-001	Diode, Signal, 1N4148	2
	991-041101-001	Integrated Circuit, Operational Amplifier, Dual, 741	1
	991-041102-001	Integrated Circuit, Operational Amplifier, General Purpose, 1458	1
	991-041104-001	Integrated Circuit, TRANS ARRAY, 5NPN Devices, SG3821 or CA3046	1
	991-041054-001	Transistor, Fet, Dual N-Channel, Junction, 2N3954 or E402	1
	991-041051-001	Transistor, PNP Small Signal, 60VCE, 200ma, 2N3904	1
	991-041052-001	Transistor, PNP Small Signal, 40VCE, 200ma, 2N3906	1
	852-312103-001	Resistor, Fixed, Carbon Film, 10K Ohms, $\pm 5\%$ , 1/4W	6
	852-312102-001	Resistor, Fixed, Carbon Film, 1K Ohms, $\pm 5\%$ , 1/4W	6
	852-312104-001	Resistor, Fixed, Carbon Film, 100K Ohms, $\pm 5\%$ , 1/4W	3
	852-312472-001	Resistor, Fixed, Carbon Film, 4.7K Ohms, $\pm 5\%$ , 1/4W	1

**RIBBON CONTROLLER (MODEL 1150) PRINTED CIRCUIT BOARD  
REPLACEMENT PARTS LIST (Continued)**

REF DESIG	PART NUMBER	DESCRIPTION	QTY
R10	852-312224-001	Resistor, Fixed, Carbon Film, 220K Ohms, $\pm 5\%$ , 1/4W	1
R11	852-312101-001	Resistor, Fixed, Carbon Film, 100 Ohms, $\pm 5\%$ , 1/4W	1
R12	852-312471-001	Resistor, Fixed, Carbon Film, 470 Ohms, $\pm 5\%$ , 1/4W	1
R13	853-222492-021	Resistor, Fixed, Metal Film, 24.9K Ohms, $\pm 1\%$ , 1/8W	1
R14	853-223570-021	Resistor, Fixed, Metal Film, 357 Ohms, $\pm 1\%$ , 1/8W	1
R15	853-221502-021	Resistor, Fixed, Metal Film, 15K Ohms, $\pm 1\%$ , 1/8W	1
R16	853-221072-021	Resistor, Fixed, Metal Film, 10.7K Ohms, $\pm 1\%$ , 1/8W	1
R20,R26	852-312753-001	Resistor, Fixed, Carbon Film, 75K Ohms, $\pm 5\%$ , 1/4W	2
R21	852-312683-001	Resistor, Fixed, Carbon Film, 68K Ohms, $\pm 5\%$ , 1/4W	1
R22	852-312332-001	Resistor, Fixed, Carbon Film, 3.3K Ohms, $\pm 5\%$ , 1/4W	1
R24	852-312271-001	Resistor, Fixed, Carbon Film, 270 Ohms, $\pm 5\%$ , 1/4W	1
R25	852-312473-001	Resistor, Fixed, Carbon Film, 47K Ohms, $\pm 5\%$ , 1/4W	1
R28	925-040291-001	Resistor, Potentiometer, 10.7K Ohms, $\pm 1\%$ , 1/4W	1
R31	853-421072-031	Resistor, Potentiometer, 5K Ohms, Slide	1
R33	852-512911-001	Resistor, Fixed, Carbon Film, 910 Ohms, $\pm 5\%$ , 1/2W	1



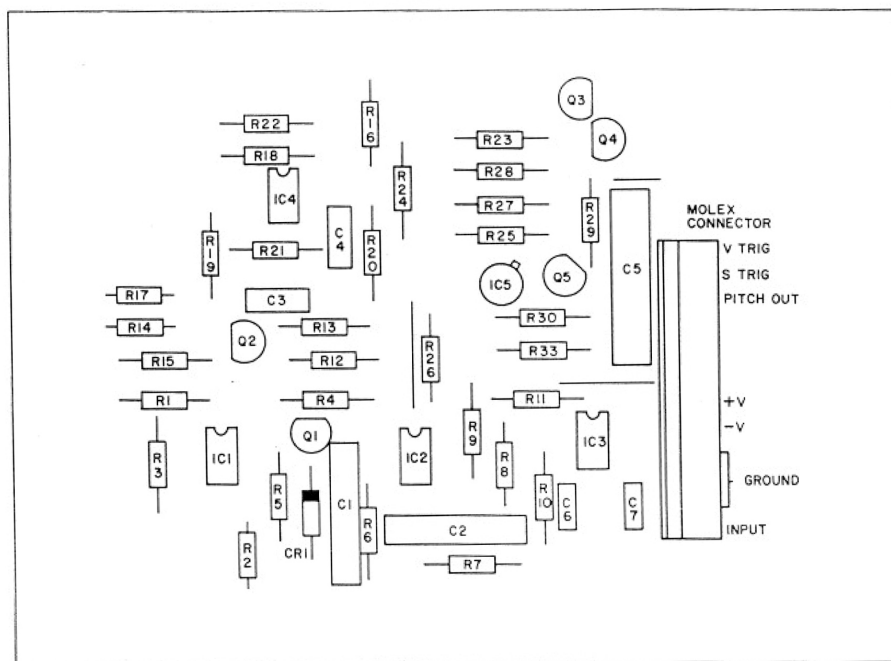
COMPONENT BASING  
(TOP VIEWS)



NOTE: SOME VERSIONS OF THIS SCHEMATIC MAY VARY  
SLIGHTLY FROM THAT SHOWN HERE.

MOOG MUSIC INC.  
993-041975-001

PERCUSSION CONTROLLER (MODEL 1130) SCHEMATIC DIAGRAM



NOTE: IF PRINTED CIRCUIT BOARDS ARE DOUBLE SIDED,  
COMPONENTS MUST BE SOLDERED TOP AND  
BOTTOM FOR PROPER OPERATION.

MOOG MUSIC INC.  
996-041977-001

PERCUSSION CONTROLLER (MODEL 1130) PRINTED CIRCUIT BOARD  
REPLACEMENT PARTS LIST

REF DESIG	PART NUMBER	DESCRIPTION	QTY
	996-041977-001	Printed Circuit Board Assembly consisting of:	
	910-041719-012	Connector, Locking, 12 Pin . . . . .	1
C1,C2	946-040190-474	Capacitor, Mylar, 0.47uf . . . . .	2
C3	946-041978-103	Capacitor, Polyester, 0.01uf . . . . .	1
C4	946-041978-473	Capacitor, Polyester, 0.047uf . . . . .	1
C5	946-040226-105	Capacitor, Polyester, 1uf . . . . .	1
C6,C7	947-040200-103	Capacitor, Ceramic, 0.01uf, 50V . . . . .	2
CR1	919-041075-001	Diode, Signal, 1N4148 . . . . .	1
IC1,IC2	991-041101-001	Integrated Circuit, Operational Amplifier, General Purpose ,741 . . . . .	2
IC3,IC4	991-041115-001	Integrated Circuit, Operational Amplifier,General, Uncompensated, 748 . . . . .	2
IC5	991-041089-001	Integrated Circuit, 3080A, TO-5 . . . . .	1
R1,R2, R7,R12, R14,R15, R25,R27	852-512103-001	Resistor, Carbon Film, 10K, ± 5%, 1/2W . . . . .	8
R3	852-513475-005	Resistor, Carbon Film, 4.7 Megohm, ± 10%, 1/2W . . . . .	1
R4,R5, R9,R18, R22,R30	852-512223-001	Resistor, Carbon Film, 22K Ohms, ± 5%, 1/2W . . . . .	6
R6,R13, R16,R20	852-512104-001	Resistor, Carbon Film, 100K Ohms, ± 5%, 1/2W . . . . .	4
R8	852-512333-001	Resistor, Carbon Film, 33K Ohms, ± 5%, 1/2W . . . . .	1
R10	852-512101-001	Resistor, Carbon Film, 100 Ohms, ± 5%, 1/2W . . . . .	1

PERCUSSION CONTROLLER (MODEL 1130) PRINTED CIRCUIT BOARD  
REPLACEMENT PARTS LIST (Continued)

REF DESIG	PART NUMBER	DESCRIPTION	QTY
R11,R19, R21,R26, R28	852-512473-001	Resistor, Carbon Film, 47K Ohms, ± 5%, 1/2W . . . . .	5
R17,R29	852-512102-001	Resistor, Carbon Film, 1K Ohms, ± 5%, 1/2W . . . . .	2
R23	852-512332-001	Resistor, Carbon Film, 3.3K Ohms, ± 5%, 1/2W . . . . .	1
R24	852-512823-001	Resistor, Carbon Film, 8.2K Ohms, ± 5%, 1/2W . . . . .	1
R33	852-512224-001	Resistor, Carbon Film, 220K Ohms, ± 5%, 1/2W . . . . .	1

## PERCUSSION CONTROLLER (MODEL 1130) TEST PROCEDURE

### DESCRIPTION

The Percussion Controller is a modified drum that produces two control voltages and two triggers, "S" and "V". The tests described herein are accomplished with the aid of a Moog Synthesizer such as a Minimoog, Micromoog, Multimoog or Sonic VI.

### PRELIMINARY

1. Connect DC Oscilloscope and Digital Voltmeter (DVM) to the control output voltage (CV No. 1) output jack of the Percussion Controller.
2. Connect the six (6) pin Cinch-Jones connector to the accessory outlet on any Moog Synthesizer.

### TEST PROCEDURE

1. Set SCALE and SENSITIVITY controls on Percussion Controller to "10" (fully clockwise).
2. Strike drum head and note reading on DVM. Slowly rotate the SCALE control toward "0" (counterclockwise). Output voltage should decrease to zero.

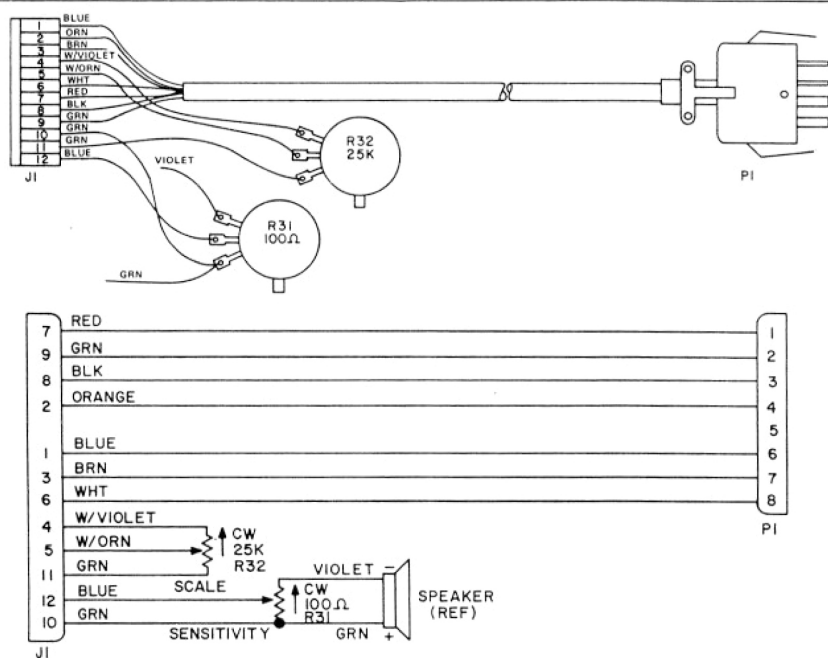
3. Set SCALE control to "10" (fully clockwise). With Moog Synthesizer operating at +15 volts, check output voltage for compliance with the following:

LIGHT TAP	50 to 200mV
HARD STRIKE	5 to 8.5 volts

#### NOTE

Allow a 33% reduction in these voltages if the Synthesizer has a 10VDC power supply.

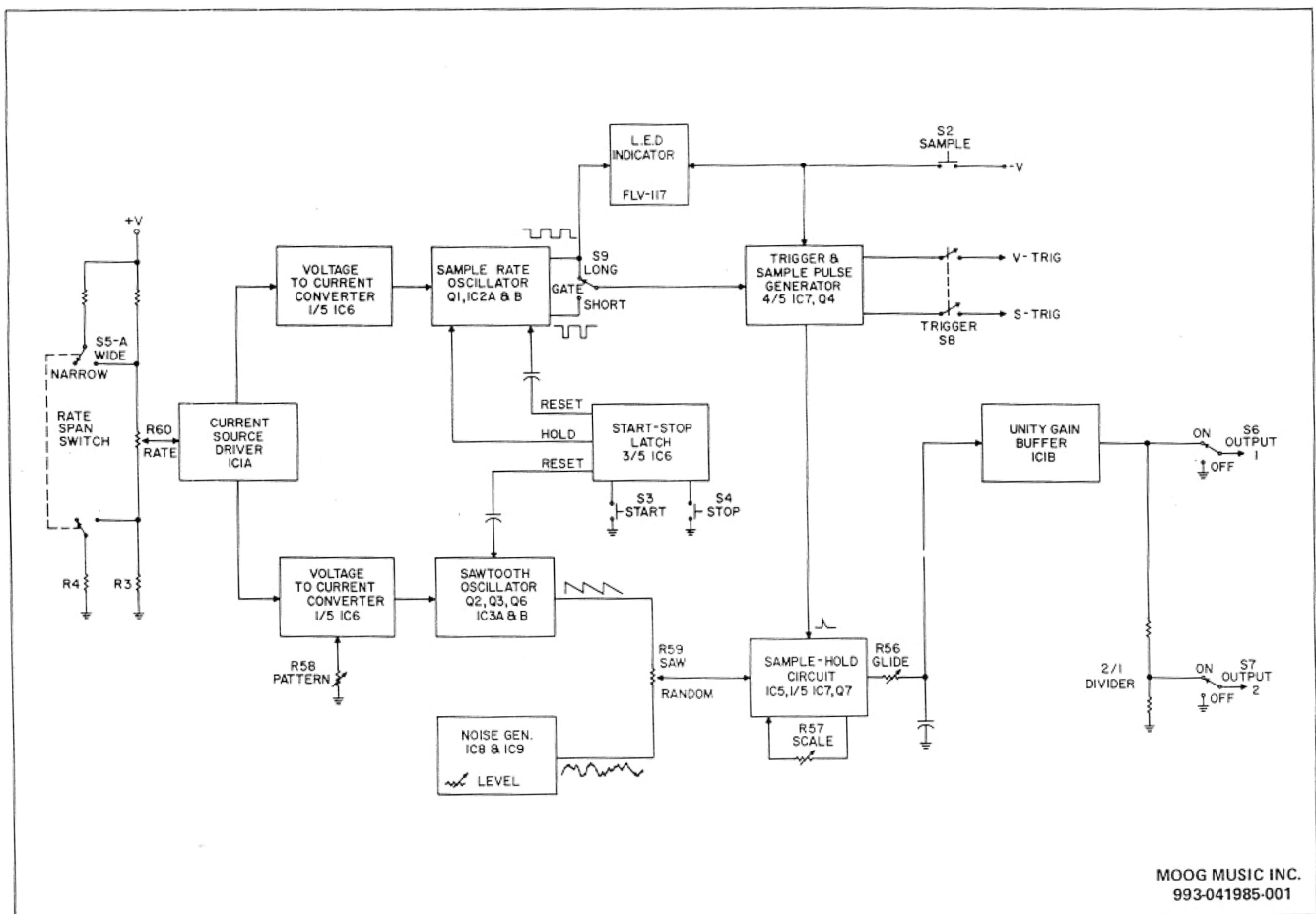
4. Place oscilloscope, alternately, on "S" and "V" TRIGGER outputs. Strike drum head and observe that a trigger signal is present.
5. Strike drum head repeatedly while reducing the setting of the SENSITIVITY control. Note the increase of strike force required to produce a trigger. No trigger should be produced with SENSITIVITY control at "0".
6. Repeat the above procedural steps for control output voltage No. 2.
7. Disconnect the Oscilloscope and Digital Voltmeter and connect the output of the Percussion Controller to the Synthesizer and check the response in accordance with the owners manual.



# REPLACEMENT PARTS LIST

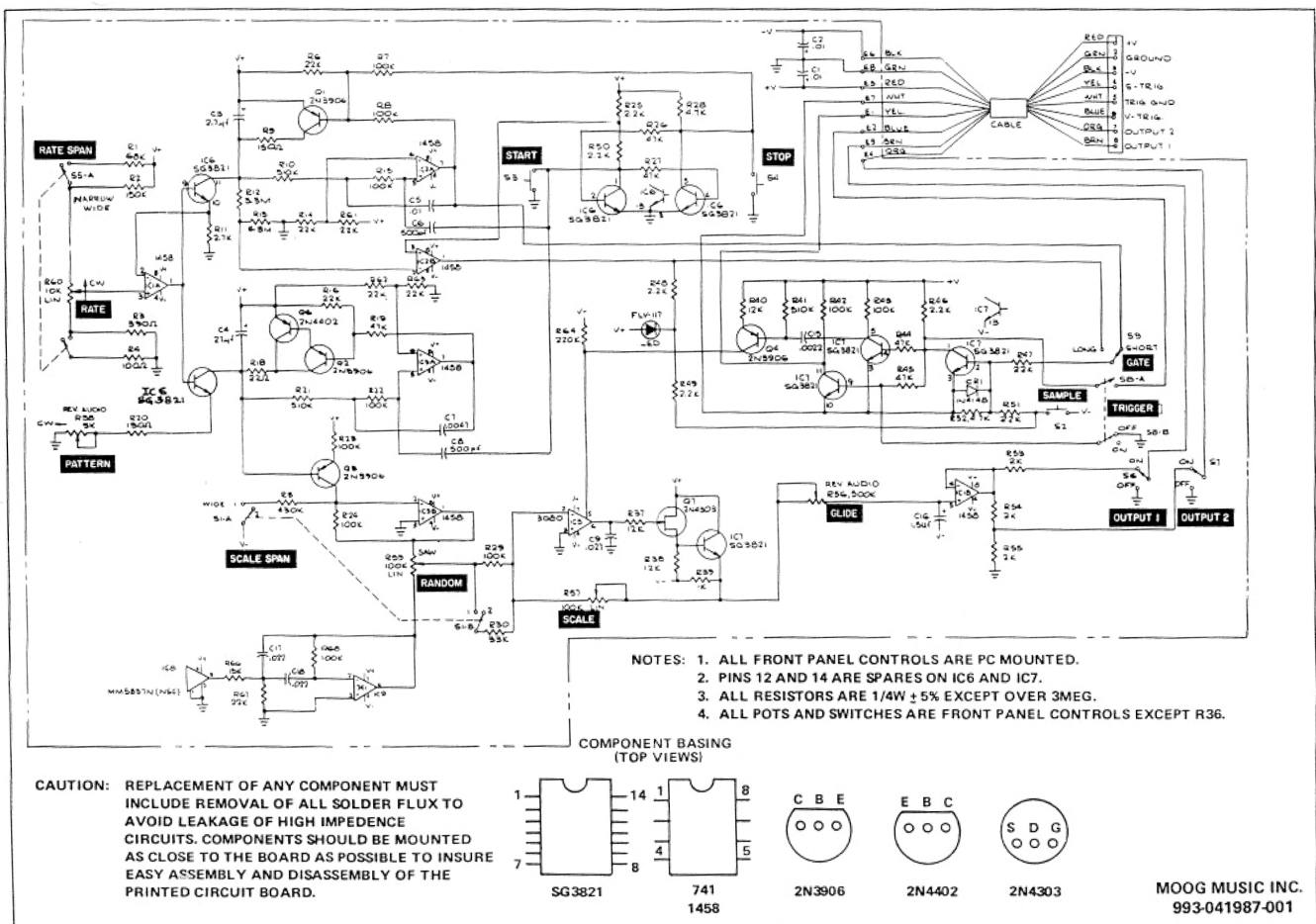
REF DESIG	PART NUMBER	DESCRIPTION	QTY
J1	994-041974-001	Cable Assembly consisting of:	
P1	910-041718-012	Connector, 12 Pin	1
R31	910-041709-008	Connector, 8 Pin	1
R32	925-040294-006	Resistor, Variable, 100 Ohm	1
	925-040294-001	Resistor, Variable, 25K Ohm	1

MOOG MUSIC INC.  
994-041974-001

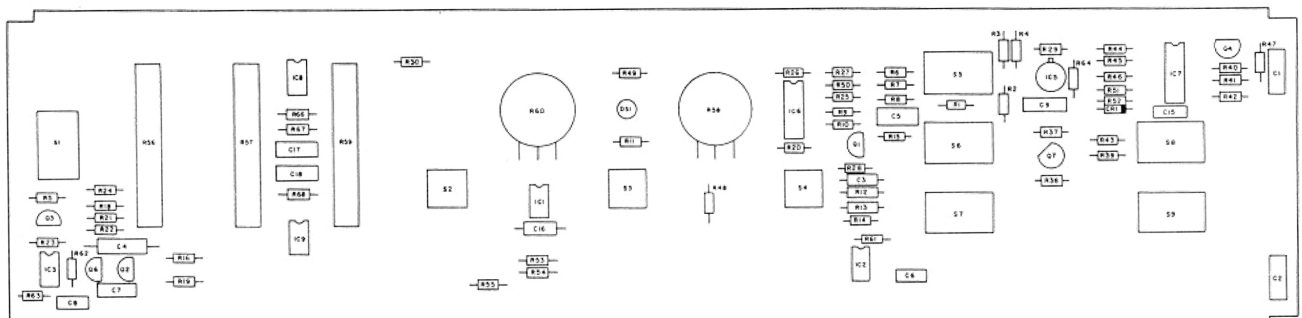
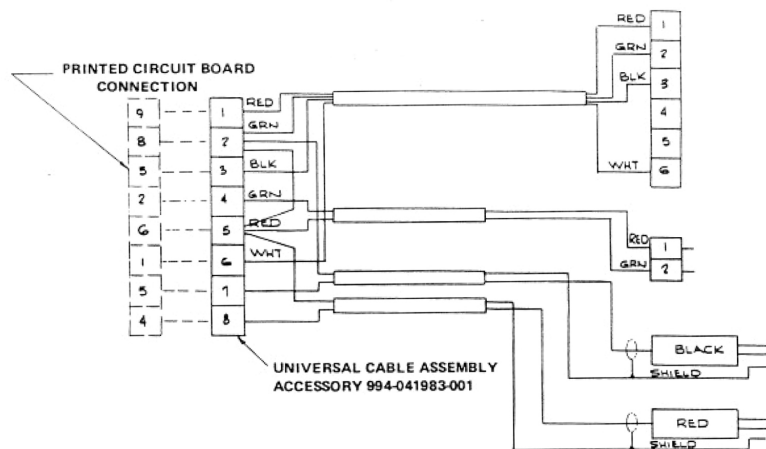


SAMPLE AND HOLD (MODEL 1125) BLOCK DIAGRAM





SAMPLE AND HOLD (MODEL 1125) SCHEMATIC DIAGRAM



NOTE: IF PRINTED CIRCUIT BOARDS ARE DOUBLE SIDED,  
COMPONENTS MUST BE SOLDERED TOP AND  
BOTTOM FOR PROPER OPERATION.

MOOG MUSIC INC.  
996-041989-001

**SAMPLE AND HOLD (MODEL 1125) PRINTED CIRCUIT BOARD  
REPLACEMENT PARTS LIST**

REF DESIG	PART NUMBER	DESCRIPTION	QTY
	996-041989-001	Sample and Hold Printed Circuit Board Assembly consisting of:	
C1,C2, C5	946-041978-103	Capacitor, Film, .01uf	3
C3	946-040231-005	Capacitor, Film, 2.7uf	1
C4	946-040231-006	Capacitor, Film, 27uf	1
C6,C8	947-042020-501	Capacitor, Ceramic, 500Pf	2
C7	946-041978-472	Capacitor, Film, .0047uf	1
C9	946-041978-273	Capacitor, Film, .027uf	1
C15	947-040194-222	Capacitor, Ceramic, .0022uf	1
C16	946-040231-001	Capacitor, Film, 1.5uf	1
C17,C18	947-040194-223	Capacitor, Ceramic, .022uf	2
CR1	919-041075-001	Diode, Signal, 1N4148	1
CR2	919-041076-001	Diode, Zener, 15V, 1N965A	1
DS1	939-040920-001	Light Emitting Diode (LED), Fairchild FLV-117	1
IC1,IC2, IC3	991-041102-001	Integrated Circuit, Dual, Operational Amplifier, General Purpose, MC1458CP-1	3
IC5	991-041089-001	Integrated Circuit, Operational Amplifier, TO-5, CA3080	1
IC6,IC7	991-041104-001	Integrated Circuit, Trans Array, 5NPN Devices, 3046	2
IC8	991-042016-001	Integrated Circuit, Digital, Noise Generator, 5837N	1
IC9	991-041101-001	Integrated Circuit, Operational Amplifier, General Purpose, 741	1
Q1 thru Q4	991-041052-001	Transistor, PNP Small Signal, 40VCE, 200ma, 2N3906	4
Q6	991-041063-001	Transistor, PNP Small Signal, 40VCE, 600ma, 2N4402	1
Q7	991-041064-001	Transistor, FET, N-Channel Junction, 2N4303	1

**SAMPLE AND HOLD (MODEL 1125) PRINTED CIRCUIT BOARD  
REPLACEMENT PARTS LIST (Continued)**

REF DESIG	PART NUMBER	DESCRIPTION	QTY
R1	852-312683-001	Resistor, Carbon Film, 68K Ohms, ± 5%, 1/4W	1
R2	852-312154-001	Resistor, Carbon Film, 150K Ohms, ± 5%, 1/4W	1
R3	852-312391-001	Resistor, Carbon Film, 390 Ohms, ± 5%, 1/4W	1
R4	852-312101-001	Resistor, Carbon Film, 100 Ohms, ± 5%, 1/4W	1
R5	852-312434-001	Resistor, Carbon Film, 430K Ohms, ± 5%, 1/4W	1
R6,R14, R16,R47, R51,R61, R63,R63, R67	852-312223-001	Resistor, Carbon Film, 22K Ohms, ± 5%, 1/4W	9
R7,R8, R15,R22, R23,R24, R29,R42, R43,R68	852-312104-001	Resistor, Carbon Film, 100K Ohms, ± 5%, 1/4W	10
R9	852-312151-001	Resistor, Carbon Film, 150 Ohms, ± 5%, 1/4W	1
R10,R21, R41	852-312514-001	Resistor, Carbon Film, 510K Ohms, ± 5%, 1/4W	3
R11	852-312272-001	Resistor, Carbon Film, 2.7K Ohms, ± 5%, 1/4W	1
R12	852-512335-001	Resistor, Carbon Film, 3.3 Megohms, ± 5%, 1/2W	1
R13	852-512685-001	Resistor, Carbon Film, 6.8 Megohms, ± 5%, 1/2W	1

**SAMPLE AND HOLD (MODEL 1125) PRINTED CIRCUIT BOARD  
REPLACEMENT PARTS LIST (Continued)**

REF DESIG	PART NUMBER	DESCRIPTION	QTY
R18	852-312220-001	Resistor, Carbon Film, 22 Ohms, $\pm 5\%$ , 1/4W .....	1
R19,R26, R27,R44, R45	852-312473-001	Resistor, Carbon Film, 47K Ohms, $\pm 5\%$ , 1/4W .....	5
R20	852-312131-001	Resistor, Carbon Film, 130 Ohms, $\pm 5\%$ , 1/4W .....	1
R25,R46, R48,R49, R50	852-312222-001	Resistor, Carbon Film, 2.2K Ohms, $\pm 5\%$ , 1/4W .....	5
R28,R52	852-312472-001	Resistor, Carbon Film, 4.7K Ohms, $\pm 5\%$ , 1/4W .....	2
R30	852-312333-001	Resistor, Carbon Film, 33K Ohms, $\pm 5\%$ , 1/4W .....	1
R31	852-312164-001	Resistor, Carbon Film, 160K Ohms, $\pm 5\%$ , 1/4W .....	1
R37,R38, R40	852-312123-001	Resistor, Carbon Film, 12K Ohms, $\pm 5\%$ , 1/4W .....	3
R39,R65	852-312102-001	Resistor, Carbon Film, 1K Ohms, $\pm 5\%$ , 1/4W .....	2
R53,R54, R55	852-312202-001	Resistor, Carbon Film, 2K Ohms, $\pm 5\%$ , 1/4W .....	3
R56	925-040270-003	Resistor, Variable, 500K Ohms, GLIDE .....	1
R57,R59	925-040270-001	Resistor, Variable, 100K Ohms, SCALE and RANDOM .....	2
R58	925-040264-002	Resistor, Variable, Reverse Audio, 5K Ohms, PATTERN .....	1
R60	925-040264-001	Resistor, Variable, Linear, 10K Ohms, RATE .....	1

**SAMPLE AND HOLD (MODEL 1125) PRINTED CIRCUIT BOARD  
REPLACEMENT PARTS LIST (Continued)**

REF DESIG	PART NUMBER	DESCRIPTION	QTY
R64	852-312224-001	Resistor, Carbon Film, 220K Ohms, $\pm 5\%$ , 1/4W .....	1
R66	852-312153-001	Resistor, Carbon Film, 15K Ohms, $\pm 5\%$ , 1/4W .....	1
S1,S5 thru S9	960-041763-001	Switch, Slide, SCALE SPAN, RATE SPAN, OUTPUT 1, OUTPUT 2, TRIGGER and GATE .....	6
S2,S3, S4	960-041762-001	Switch, Pushbutton, SAMPLE, START, STOP .....	3

## SAMPLE AND HOLD (MODEL 1125) TEST PROCEDURE

### DESCRIPTION

The Sample and Hold is a random voltage producing device that samples, at a given rate, either a sawtooth or noise source or any ratio mixture of the two. The rate of sample is variable and depends upon a "Sample Rate Oscillator". Two (2) outputs are provided, with output 2 having 50% the amplitude of output 1. This unit also produces "V" and "S" triggers. The tests described herein are accomplished with the aid of a Moog Synthesizer such as a Minimoog, Sonic VI, Micromoog or Multimoog. All output voltage readings are based on accessory voltages of  $\pm 15\text{VDC}$ . For  $\pm 10\text{VDC}$  accessory voltages, outputs will be reduced by 33 percent.

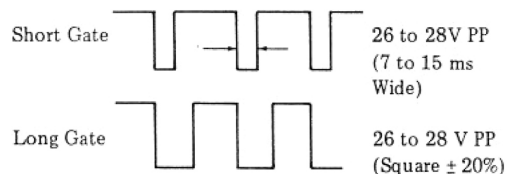
### PRELIMINARY

1. Connect the Sample and Hold to the Moog Synthesizer following directions from the Owners Manual and instructions on the bottom of the unit.
2. Connect the six (6) pin Cinch-Jones connector to the accessory outlet and the output to a DC Oscilloscope and Digital Voltmeter (DVM) as required.
3. Set Sample and Hold controls as follows and measure the output at the red phone plug (CV1):

SCALE SPAN . . . . . WIDE (DOWN)	RATE . . . . . MAXIMUM (CW)	OUTPUT 2 . . . . ON (LEFT)
GLIDE . . . . . MINIMUM (DOWN)	PATTERN . . . . MAXIMUM (CW)	TRIGGER . . . . ON (LEFT)
SCALE . . . . . MAXIMUM (UP)	RATE SPAN . . . WIDE (LEFT)	GATE . . . . . SHORT (LEFT)
SAWTOOTH/RANDOM . . SAWTOOTH (UP)	OUTPUT 1 . . . . ON (LEFT)	

### TEST PROCEDURE

1. Connect an Oscilloscope to the wiper of GATE switch S9.
2. Depress the START pushbutton and insure waveforms comply with the following:



### TEST PROCEDURE (Continued)

7. Connect the Oscilloscope to the bottom of the SAWTOOTH RANDOM control. Observe noise, checking for symmetry and quality (lack of popping, etc.)
8. Adjust NOISE LEVEL trimpot (R36) for 5.0 volts peak-to-peak (+3 to +5). In later versions R36 is eliminated.
9. Set controls as follows:

SAWTOOTH/RANDOM . . SAWTOOTH (UP)
RATE . . . . . MAXIMUM (CW)

3. Connect a Frequency Counter to the wiper of GATE switch S9.

4. Check the frequency range of the "Sample Rate Oscillator" for compliance with the following:

a. RATE SPAN switch to WIDE.

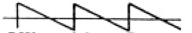
Maximum Rate 24 to 36Hz (27 to 39 ms)

Minimum Rate 0.4 to 0.6Hz (1.6 to 2.4 sec.)

b. RATE SPAN switch to NARROW.

Maximum Rate 13 to 19Hz (50 to 74 ms)

Minimum Rate 0.56 to 0.84Hz (1.1 to 1.7 sec.)

5. Connect the Oscilloscope (set for DC) and Frequency Counter to the top end of the SAWTOOTH/RANDOM control (R59). Observe the sawtooth amplitude for 6.3 to 7.7 volts peak-to-peak about zero.  0. Set SCALE SPAN switch to NARROW position. Output amplitude should remain and sawtooth waveform should be below zero.



6. Set SCALE SPAN switch to WIDE position. Check the frequency range of the "Sawtooth Oscillator" for compliance with the following:

a. Set RATE SPAN switch to WIDE position, RATE control to maximum and PATTERN control to minimum. Frequency should be 48 to 72Hz (13 to 19 ms).

b. Set PATTERN control to minimum. Frequency should be 2.4 to 3.6Hz (0.27 to 0.39 second).

c. Set RATE control to minimum. Frequency should be 0.058 to 0.072Hz (22 to 29 seconds).

PATTERN ..... MINIMUM (CCW)  
GLIDE ..... MINIMUM (DOWN)  
SCALE ..... MAXIMUM (UP)

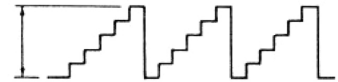
10. Check output amplitude for compliance with the following:

CV1 (Red)

22 to 28 V PP

CV2 (Black)

11 to 14 V PP



11. Depress STOP pushbutton.

12. Depress and release SAMPLE pushbutton. Observe that reading on DVM should not drift more than 1.0 mv/sec. Also, insure that both "V" and "S" trigger operate when SAMPLE pushbutton is depressed.

13. Set RATE control to mid-position. Check operation of START and STOP pushbuttons. Cycle should start at the same point each time the START pushbutton is depressed.

14. Insure that the LED indicator flashes each time the unit samples, and stays on while the SAMPLE pushbutton is held depressed.

15. Set the GLIDE control to mid-position. Glide should be observed while repeatedly depressing the SAMPLE pushbutton.

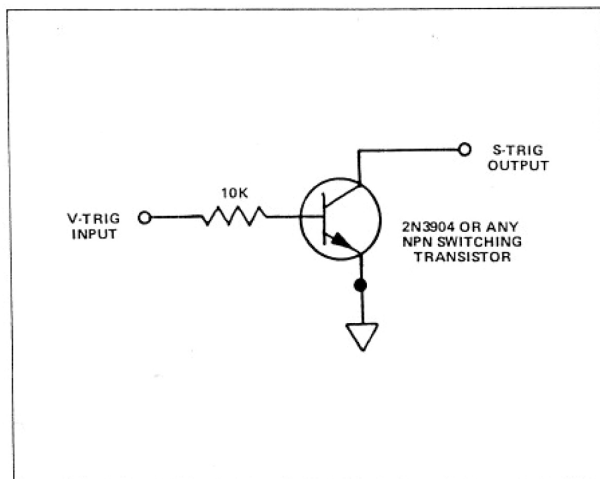
16. Connect the outputs to the Synthesizer and check the instrument according to the Owners Manual.

#### NOTE

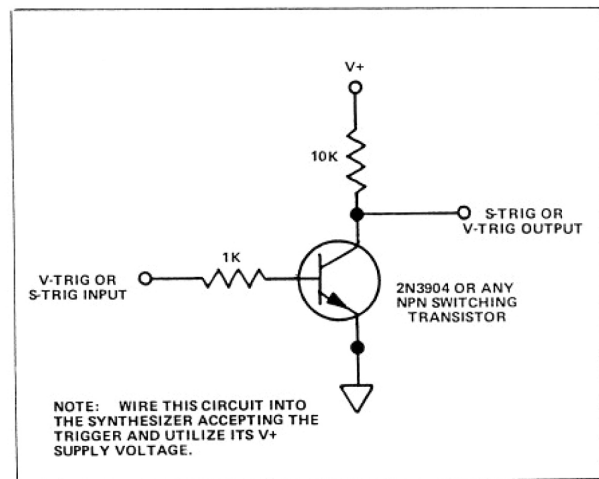
Minimoog power supply is  $\pm 10V$  DC and Sonic VI is  $\pm 15V$  DC.

### EXTERNAL SYNTHESIZER COUPLING

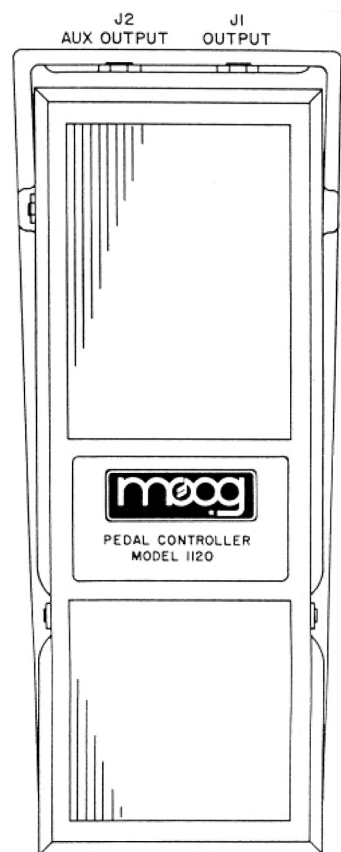
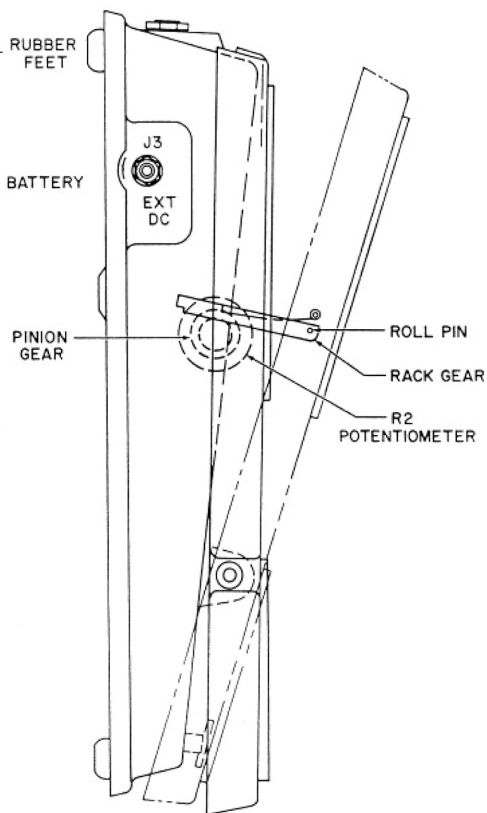
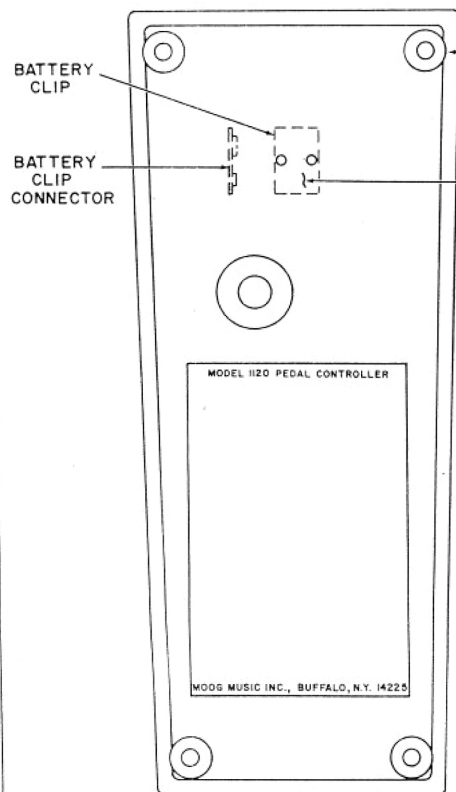
For external synthesizer coupling of accessories, conversion of voltage and shorting triggers are illustrated below as a convenience to users and service technicians who are interfacing various components. V-Trig and S-Trig outputs are available on the Moog accessories, but may need conversion circuitry when coupling to synthesizers provided by other manufacturers.



V-TRIG TO S-TRIG CIRCUIT FOR CABLE USE



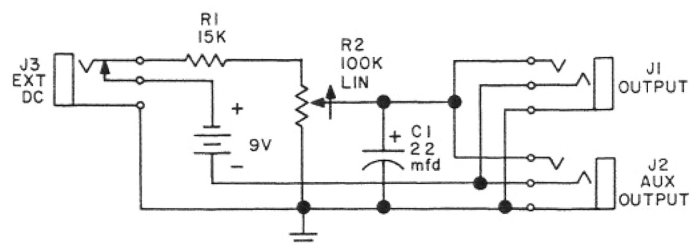
V-TRIG TO S-TRIG CIRCUIT - S-TRIG TO V-TRIG CIRCUIT



NOTE: SOME VERSIONS OF THIS FOOT PEDAL MAY VARY FROM THAT SHOWN HERE.

MOOG MUSIC INC.  
935-042222-001



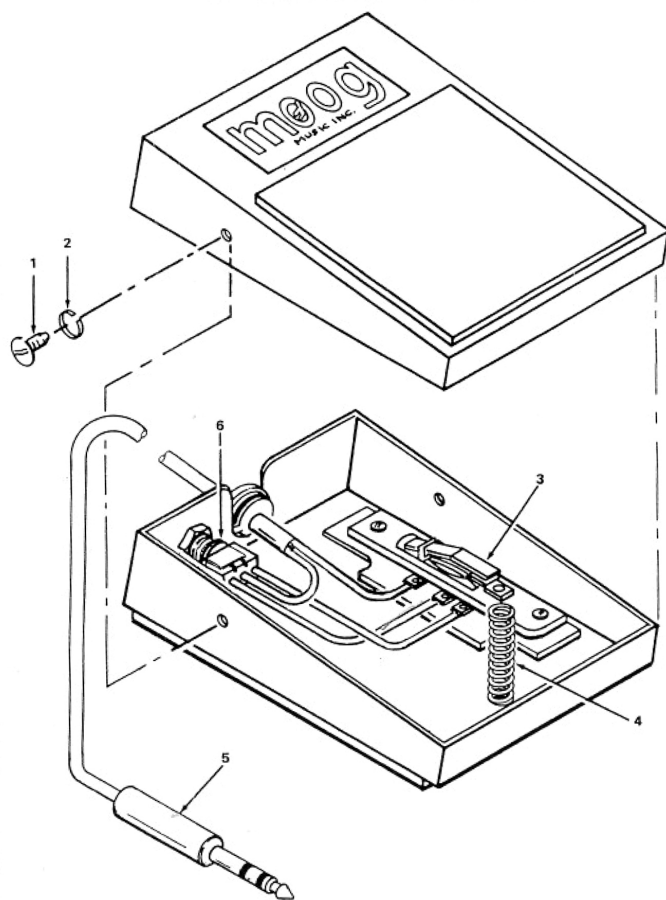


- NOTES:
1. OUTPUT VOLTAGE: 0-4.5VDC.
  2. POWER SOURCE: 9 VOLT BATTERY, NEDA 1604

#### REPLACEMENT PARTS LIST

REF DESIG	PART NUMBER	DESCRIPTION	QTY
	935-042222-001	Foot Pedal Controller consisting of:	
C2	945-040209-014	Capacitor, Electrolytic, 2.2uf, 25 Volt . . . .	1
R1	852-512153-001	Resistor, Carbon, 15K Ohm, $\pm 5\%$ , 1/2W . . .	1
R2	925-043403-001	Potentiometer, 100K, Linear, Allen Bradley JAIN05651040A . . . . .	1
J1,J2	910-041306-004	Jack, Phone, .250 Inch 3 Conductor, Open Circuit . . . . .	2
J3	910-040109-001	Jack, Phone, .14 Inch 2 Conductor, Closed Circuit . . . . .	1
		Battery, 9 Volt, NEDA1604 (Not Supplied) .	
	935-041601-001	Connector, Battery Clip. . . . .	1
	964-040196-001	Gear, Rack, 32 Pitch, 18 Tooth . . . . .	1
	964-040195-002	Gear, Pinion, 32 Pitch, 16 Tooth. . . . .	1
	976-040198-001	Pin, Roll, .063 Inch x .5 Inch . . . . .	1
	916-043404-001	Foot, Rubber, 5/8 Inch, Diameter . . . . .	4

MOOG MUSIC INC.  
993-042223-001



REPLACEMENT PARTS LIST

INDEX NO.	PART NUMBER	DESCRIPTION	QTY
1	903-043405-001	Screw, Hinge . . . . .	2
2	904-043406-001	Washer, Screw, Hinge . . . . .	2
3	960-043408-001	Switch, Leaf, SPDT . . . . .	1
4	975-043407-001	Spring, Return . . . . .	1
5	910-042127-001	Plug, Phone, 3 Conductor, .206 Inch . . . . .	1
6	960-041766-002	Switch, Toggle, 1P2T, Miniature 125V, 6A, Short Handle . . . . .	1

MOOG MUSIC INC.  
997-041844-001

## **MOOG ACCESSORIES**

Another Quality Product from Norlin

### **MOOG MUSIC INC.**

2500 Walden Avenue, Buffalo, New York 14225

### **NORLIN MUSIC**

7373 N. Cicero Avenue, Lincolnwood, Illinois 60466

### **NORLIN MUSIC INSTRUMENTS LIMITED**

51 Nantucket Blvd., Scarborough, Ontario, Canada M1P 2N6

### **NORLIN MUSIC LIMITED**

114 Charing Cross Road, London, England

### **NORLIN MUSIC SERVICES B.V.**

Waalhaven ZUIDZIJDE 48, 3088 H.J., Rotterdam, The Netherlands



PRINTED IN U.S.A.  
993-043290-001  
T.G. - 1/79 - 1M

COPYRIGHT - 1979  
MOOG MUSIC INC.

These drawings and specifications  
are the property of Moog Music  
Inc., and shall not be reproduced  
or copied in whole or in part as  
the basis for manufacture or sale  
of the items.