

# TECHNICAL SERVICE MANUAL for



Model MFZ-1

2500 Walden Ave.  
Buffalo, N.Y. 14225

**Norlin**<sup>™</sup>  
NORLIN MUSIC, INC.  
(716) 681-7242

## INTRODUCTION

This manual provides servicing and parts information for Maestro Model MFZ-1 Fuzz, manufactured by Norlin Music, Inc., 2500 Walden Avenue, Buffalo, New York 14225. The Maestro Fuzz generates low order harmonic distortion for guitar, bass and other electroacoustical music signals. Specifications for the Maestro Fuzz include:

Input Impedance . . . . .	1 megohm
Maximum Recommended	
Input Level . . . . .	0dBm
Output Impedance . . . . .	20K ohms (maximum)
Maximum Output Level . . .	+5dBm
Equivalent Input Noise . . .	-100dBm
Type of Distortion . . . . .	Low order odd harmonic
Power Requirements . . . . .	9.0 VDC at 250 microamperes
Recommended Battery	
Type . . . . .	NEDA 1604
Estimated Battery Life . . .	3 months

## CIRCUIT DESCRIPTION

The Maestro Fuzz, powered by an internal 9 volt battery, generates low order odd harmonic distortion by using silicon diodes in the feedback circuit of an operational amplifier. Refer to Figure 3 for the schematic diagram.

Either the fuzz mode or straight guitar is selected by foot switch SW1. In the fuzz mode, the input signal from AXE jack J2 is a-c coupled to inverter IC1A, the output of which feeds DRIVE pot R6. Since the distortion circuit following R6 is level sensitive, R6 acts as a distortion amount control. The distortion circuit consists of IC1B, CR2 and CR3. Diodes CR2 and CR3 in the feedback path of IC1B cause symmetrical clipping of the input waveform generating the desired distortion. The distorted signal is a-c coupled to VOLUME pot R9 which controls the Maestro Fuzz output level. In the straight mode, SW1 shorts the Maestro Fuzz output to ground minimizing fuzz circuit bleed-thru and the input signal is connected directly from AXE jack J2 to AMP jack J1.

## DISASSEMBLY

a) Pull out plungers on battery holder assembly (1, Figure 1) and remove battery holder assembly. Disconnect battery (2) if present and remove.

b) Loosen setscrews (3) securing dial assemblies (4 and 5) by inserting a 1/16 inch Allen wrench through holes in dial assemblies and remove dial assemblies.

c) Remove nut (6) using a half inch nut driver, lock washer (7), three screws (8) and screw (9) from each end cap (10) and remove both end caps.

### CAUTION

Do not set Maestro Fuzz on its side when removing second end cap as damage to rotary pot shaft may result.

d) Position Maestro Fuzz face down and carefully slide hinge assembly (11) out of housing assembly (26) making certain spring (12) around push switch assembly (17) does not fly off and remove spring.

e) Disconnect three pin connector on printed circuit board assembly (15) noting black wire on left side of connector.

f) Remove nuts (13) using a half inch nut driver and flat washers (14) from AXE and AMP jacks and carefully remove printed circuit board assembly (15).

g) Remove screw (16), hex nut (18), lock washer (19) and flat washer (20) and slide out push switch (22), lock washer and hex ring.

h) Slide foot pads out of their channels if replacement is required.

## TEST AND TROUBLESHOOTING

The Maestro Fuzz requires no tuning or internal adjustments. When troubleshooting, refer to the circuit description, schematic diagram, and replacement part lists.

a) Visually inspect unit for broken wires, damaged components, loose connections and other obvious defects.

b) Make certain unit is connected and operated according to Owners Manual or instruction label located on bottom of unit. If possible, check associated equipment such as cables, battery or amplifier used with the unit.

c) Connect 9 volt dc power source to battery clip and turn DRIVE and VOLUME pots to maximum output level.

d) Apply a 200 millivolt peak-to-peak sine wave at a frequency of 500 Hz to AXE jack J2 and observe dc voltage levels and ac signal levels as shown on the schematic diagram using an oscilloscope.

#### NOTE

A high impedance voltmeter (1 megohm per volt or higher) may be used to measure dc voltage levels. Note that voltage levels and waveforms displayed on the schematic diagram are not absolute values as readings may vary between units.

e) Once the problem is localized, check the suspected part by direct substitution if possible. Otherwise use a voltmeter or oscilloscope to determine the malfunctioning part.

#### NOTE

All replacement parts may be obtained from Norlin Music, Inc. However, many standard electronic parts may be obtained locally in less time than is required to receive them from Norlin. When purchasing replacement parts locally, check the parts list for proper value, tolerance and rating.

### REASSEMBLY

a) Reassemble Maestro Fuzz in reverse order of disassembly referring to the exploded view (Figure 1) and noting the following additions.

b) Finger tighten nuts (13) securing printed circuit board assembly (15) to housing assembly (26) to allow printed circuit board assembly to fit into slots of end caps (10). After both end caps are installed, tighten nuts (13).

c) Connect three pin connector (24) to printed circuit board assembly (15) making certain black wire (pin 1) is on left side of connector at bottom of printed circuit board.

d) Slip dial assemblies (4 and 5) on rotary pot shafts (left dial assembly (4) marked "L" between "9" and "0" and right dial assembly (5) marked "R" between "9" and "0") and turn each dial assembly full counterclockwise and then clockwise.

e) Turn right dial assembly full counterclockwise. Holding dial assembly steady at "0," insert small screwdriver in hole at center of dial assembly and turn pot shaft full counterclockwise, then approximately five degrees clockwise to relieve strain on pot shaft. Tighten setscrew (3).

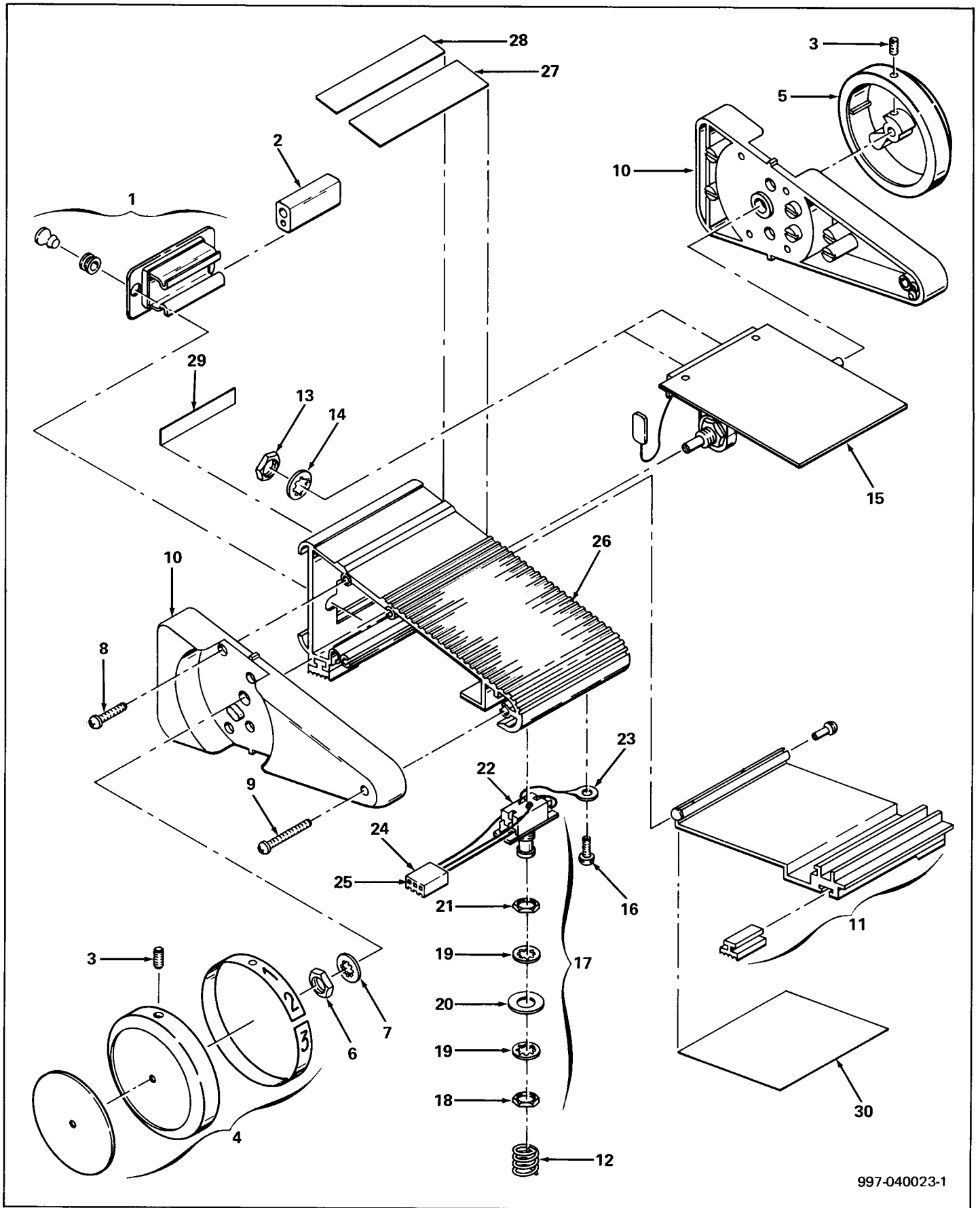
f) Turn left dial assembly full clockwise. Holding dial assembly steady at "0," insert small screwdriver in hole at center of dial assembly and turn pot shaft full clockwise, then five degrees counterclockwise to relieve strain on pot shaft. Tighten setscrew (3).

g) Rotate both dial assemblies making certain their range is from "0" to "9."

### REPLACEMENT PART LISTS

#### ORDERING

The following lists specify parts available from Norlin Music, Inc., Customer Service Department, 2500 Walden Avenue, Buffalo, New York 14225, (716) 681-7242. Please specify the unit name, model, serial number, part description, electrical reference designator if applicable and part number when ordering.



997-040023-1

FIGURE 1 MAESTRO FUZZ EXPLODED VIEW

**MAESTRO FUZZ REPLACEMENT PARTS LIST**

INDEX NO.	PART NUMBER	DESCRIPTION	QTY
Figure 1	997-040023-1	Maestro Fuzz . . . . .	—
1	997-040040-1	Battery Holder Assembly, consisting of: . . . . .	1
	964-040004	Battery Holder . . . . .	1
	930-040044	Plunger . . . . .	2
	930-040043	Grommet. . . . .	2
2		Battery, 9 Volt, NEDA 1604 . . . . .	Ref
3	88-659-1	Setscrew, No. 6-32 x 5/16 lg, Cup Point (Clad Plate) . . . . .	2
4	997-040041-001	Dial Assembly, Left Side, consisting of: . . . . .	1
	964-040020	Dial . . . . .	1
	913-040022-001	Decal, Dial, Left Side . . . . .	1
	913-040046	Decal, Disc . . . . .	1
5	997-040041-003	Dial Assembly, Right Side, consisting of: . . . . .	1
	964-040020	Dial . . . . .	1
	913-040022-003	Decal, Dial, Right Side . . . . .	1
	913-040046	Decal, Disc . . . . .	1
6	88-256-1	Nut, 3/8-32 . . . . .	2
7	88-362-1	Lock Washer, 3/8 Int. . . . .	2
8	88-063-1	Screw, Self Tapping, No. 6A x 5/8 lg . . . . .	6
9	811-040032-16	Screw, Self Tapping, No. 6A x 1 lg . . . . .	2
10	968-040009	End Cap, Die Cast . . . . .	2
11	997-040039-1	Hinge Assembly, consisting of: . . . . .	1
	968-040014-001	Hinge Extrusion . . . . .	1
	916-040021	Foot Pad . . . . .	2
	905-040045	Rivet, Nylon . . . . .	2
12	975-040128	Spring, Compression . . . . .	1
13	88-256-1	Nut, 3/8-32 . . . . .	2
14	88-365-1	Flat Washer, 3/8 . . . . .	2
15	996-040017-1	Printed Circuit Board Assembly (Refer to Figure 2) . . . . .	1
16	88-063-1	Screw, Self Tapping, No. 6A x 5/8 lg . . . . .	1
17	997-040037-1	Push Switch Assembly, consisting of: . . . . .	1
18	88-271-1	Hex Nut (15/32 Bushing) . . . . .	1 Ref
19	904-040049	Lock Washer (15/32 Bushing) Int. Tooth . . . . .	2
20	904-040091	Flat Washer (15/32 Bushing) . . . . .	1
21	88-272-1	Hex Ring (15/32 Bushing) . . . . .	1 Ref
22	960-040042	Push Switch, DPDT . . . . .	1
23	911-040189	Lug (No. 6 Screw) . . . . .	1
24	55-452-1	Housing, Terminal, 3 Position . . . . .	1
25	55-405-1	Pin . . . . .	3
26	997-040038-1	Housing Assembly, consisting of: . . . . .	1
	968-040013-001	Housing Extrusion . . . . .	1
	916-040021	Foot Pad . . . . .	2
	997-040037-1	Push Switch Assembly (See 17, Figure 1) . . . . .	Ref
	997-040039-1	Hinge Assembly (See 11, Figure 1) . . . . .	Ref
27	913-040048	Decal, DRIVE-VOLUME . . . . .	1
28	913-040047	Decal, MAESTRO FUZZ . . . . .	1
29	913-040050	Decal, AXE-AMP . . . . .	1
30	913-040052	Instruction Label . . . . .	1
	993-040417	Owners Manual . . . . .	1

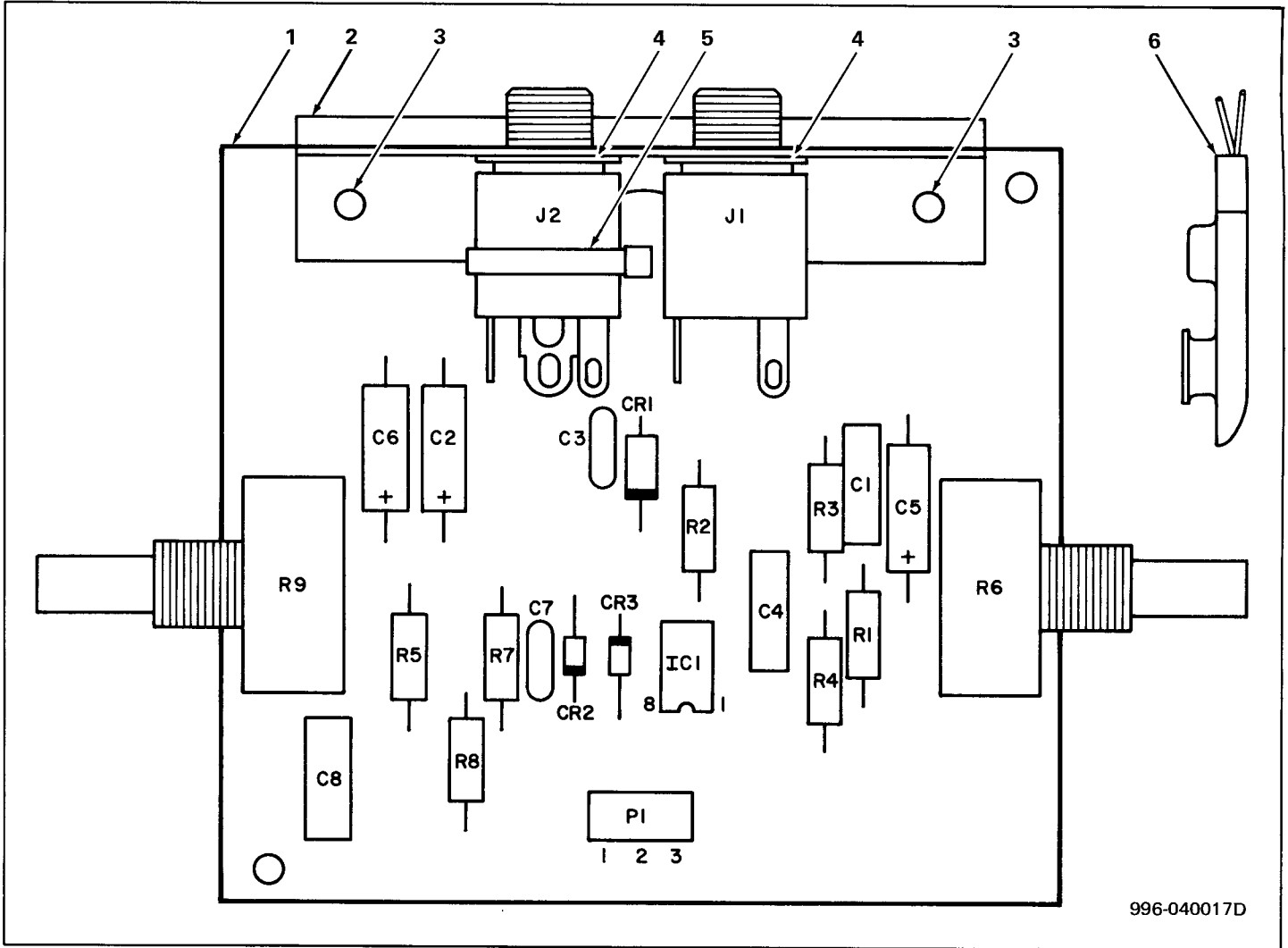


FIGURE 2 PRINTED CIRCUIT BOARD ASSEMBLY

PRINTED CIRCUIT BOARD ASSEMBLY REPLACEMENT PARTS LIST

INDEX NO. OR REF DESIG	PART NUMBER	DESCRIPTION	QTY
Figure 2	996-040017-1	Printed Circuit Board Assembly, consisting of: . . . . .	—
1	980-040016	Printed Circuit Board . . . . .	1
2	967-040019	Angle Bracket. . . . .	1
3	88-606-1	Pop Rivet, 1/8 Dia. . . . .	2
4	88-362-1	Lock Washer, 3/8 Int. . . . .	2
5	75-033-1	Cable Tie, Small . . . . .	1
6	59-010-1	Battery Clip, 9 Volt. . . . .	1
C1	946-026037-103	Capacitor, Polyester, 0.01 uf . . . . .	1
C2, C5, C6	37-030-1	Capacitor, Aluminum, Electrolytic, 2.2 uf / 50 V . . . . .	3
C3	31-648-1	Capacitor, Disc, 0.01 uf . . . . .	1
C4	946-026037-104	Capacitor, Polyester, 0.1 uf . . . . .	1
C7	31-510-1	Capacitor, Disc, 100 pf . . . . .	1
C8	946-040123-224	Capacitor, Polyester, 0.22 uf . . . . .	1

PRINTED CIRCUIT BOARD ASSEMBLY REPLACEMENT PARTS LIST (Cont.)

INDEX NO. OR REF DESIG	PART NUMBER	DESCRIPTION	QTY
CR1	61-112-1	Diode, 1N4004 . . . . .	1
CR2,CR3	61-211-1	Diode, 1N4148, Alt. 1N914 . . . . .	2
IC1	63-885-1	Integrated Circuit, SN72LO22P . . . . .	1
J1	54-105-1	Jack, Phone, 1 Circuit . . . . .	1
J2	54-107-1	Jack, Phone, 2 Circuit . . . . .	1
P1	55-453-1	Connector, Straight, 3 Position . . . . .	1
R1,R4,R7	22-105-1	Resistor, 1 Megohm, $\pm 5\%$ , 1/4 W . . . . .	3
R2,R3	22-225-1	Resistor, 2.2 Megohms, $\pm 5\%$ , 1/4 W . . . . .	2
R5	22-222-1	Resistor, 2.2K Ohms, $\pm 5\%$ , 1/4 W . . . . .	1
R6	925-040033	Resistor, Rotary Pot, Linear, 100K Ohms . . . . .	1
R8	22-103-1	Resistor, 10K Ohms, $\pm 5\%$ , 1/4 W . . . . .	1
R9	925-040032	Resistor, Rotary Pot, Audio, 25K Ohms . . . . .	1

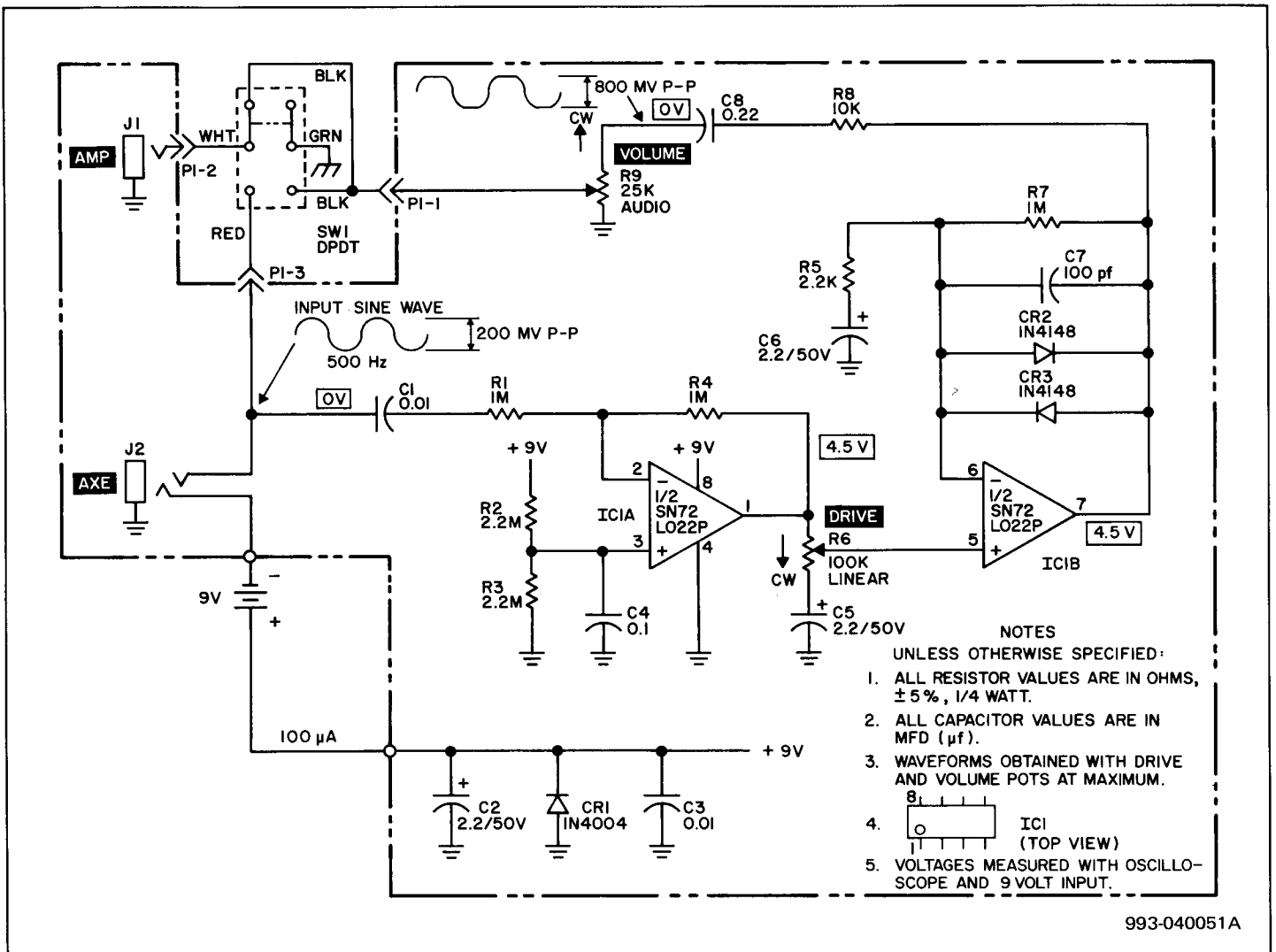
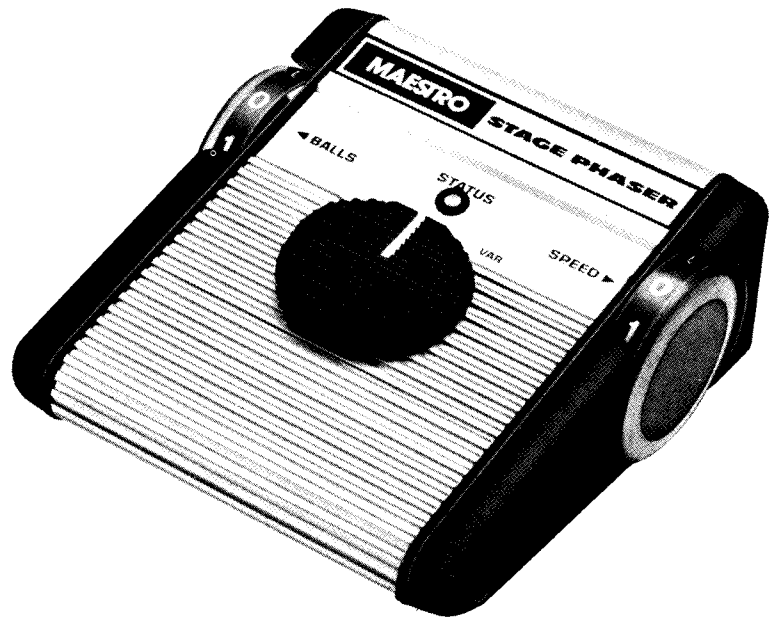


FIGURE 3 MAESTRO FUZZ SCHEMATIC DIAGRAM



MAESTRO PHASER  
MODEL MP-1  
MANUAL NO. 993-040658



MAESTRO STAGE PHASER  
MODEL MSP-1  
MANUAL NO. 993-040660



MAESTRO FUZZTAIN  
MODEL MFZT-1  
MANUAL NO. 993-040659