

SFX SATELLITE

p/n 022-2001-000 (120V)

SERVICE MANUAL

SFX SATELLITE

(This is the model name for warranty claims)

MAY 1998

IMPORTANT NOTICE:

The information contained herein is CONFIDENTIAL and PROPRIETARY to Fender Musical Instruments Corp. It is disclosed solely for use by qualified technicians for purposes of equipment maintenance and service. It is not to be disclosed to others without the expressed permission of Fender Musical Instruments Co. All specifications subject to change without notice.

For warranty repair service, only Fender specified part numbers are to be used. It is recommended they also be used for post-warranty maintenance and repair.

Parts marked with an asterisk (*) indicate the required use of that specific part. This is necessary for RELIABILITY and SAFETY requirements. **DO NOT USE A SUBSTITUTE!**

A coded naming convention is used in the description of certain parts. The codes and what they mean are as follows:



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CAPACITOR CODES

- CAP AE = Aluminum Electrolytic
- CAP CA = Ceramic Axial
- CAP CD = Ceramic Disk
- CAP MPF = Metalized Polyester Film
- CAP MY = Mylar
- CAP PFF = Polyester Film/Foil

HARDWARE CODES

- BLX = Black Oxide
- CR = Chrome Plated
- HWH = Hex Washer Head
- M = Machine Screw
- NI = Nickel Plated
- OHP = Oval Head Phillips
- PB = Particle Board
- PHP = Pan Head Phillips
- PHPS = Pan Head Phillips Sems
- SMA = Sheet Metal "A" Point
- SMB = Sheet Metal "B" Point
- SS = Stainless Steel
- TF = Thread Forming
- ZI = Zinc Plated

RESISTOR CODES

- RES CC = Carbon Comp
- RES CF = Carbon Film
- RES FP = Flame Proof
- RES MF = Metal Film
- RES WW = Wire Wound

SPECIFICATIONS

Product Release No.:	PR 378 <i>(This is not a model number)</i>	
Part Number:	120V Version	: 22-2001
	240V Aust	: 22-2031
	230V UK	: 22-2041
	230V	: 22-2061
	100V	: 22-2071
Input impedance:	18.2 k Ω (@ input jack)	
Output impedance:	1 k Ω (@ [preamp] output jack)	
Power output:	80 Watts into 4 ohms @ <1% THD	
Power Requirements:	100V Version:	100 VAC, 50/60 Hz, 360 W
	120V Version:	120 VAC, 60 Hz, 360 W
	230V Version:	230 VAC, 50 Hz, 360 W
	240V Version:	240 VAC, 50 Hz, 360 W
Speaker Complement:	One 4 Ohm Special Design 12" Speaker (P/N 048878)	
Dimensions:	Height: 19.6"	(39 cm)
	Width: 24.5"	(57 cm)
	Depth: 15.6"	(26 cm)
Weight:	55 lbs.	(25.2 kg)

Product specifications are subject to change without notice

CIRCUIT NOTES

POWER FOR DSP CARD

The +5 volts for the **DSP** card is supplied by +5V regulator **U150** (see power amp assembly schematic.) **C157** stores a voltage that is sufficient (approx. 8.5V) to keep the regulator adequately supplied. Components **D156** and **D157** through **Q150**, **Q151**, and **Q152** comprise a very efficient synchronous rectifier that keeps **C157** charged. The +5 volts leaves the supply through cable **H2-5, 6**.

INDEPENDENT TEST OF POWER AMP

One end of jumper **W40** on the preamp board connects directly to **H1-3**, which carries the preamp output signal to the power amp. Lift the opposite end of **W40**, and use the liberated end as a point to inject a signal to the power amp. (Remember to re-connect **W40** after testing.)

SELF - TEST OF DSP MODULE

***** PLEASE NOTE: THIS MODULE IS ESD SENSITIVE. USE ANTI - STATIC PRECAUTIONS *****

To initiate self - test of the **DSP** module, short **TP2** to **TP1** while turning power from off to on. Self - test pass is indicated when the yellow LED remains on continuously. Failure is indicated when the red LED blinks or the yellow LED fails to light. If a passing condition exists, the module will operate in the loopback mode until the power is cycled off - on with **TP2** not shorted to **TP1**. In the loopback mode the module's output (at **TP9** and **TP10**) will be a replica of the input signals (**TP6** and **TP8**).

[See **DSP** service manual; **TP2** is the inboard end of **R14**; **TP1** is ground, and is found on pins **2, 4**, and **6** of **P1** (also, the chassis)].

TESTING THE PREAMP

Ensure that the **DSP** module is in self - test mode (see above) before testing the preamp section (to avoid errors in readings - see note 6 on schematic)

PARTS LIST

NOTE: SHADED ITEMS ARE FOR REFERENCE ONLY

PREAMP PRINTED CIRCUIT BOARD ASSEMBLY

QTY	PART #	DESCRIPTION	REFERENCE DESIGNATION
1	040987	CABLE RIBBON 10 CKT 3.75"	J8
5	028463	CAP AE RDL 10uF 50V 20%	C216 - 217, C220 - 221, C225
4	028458	CAP AE RDL 1uF 50V 20%	C202, C206, C240 - 241
1	051408	CAP CD 47PF 500V 5%	C219
8	028467	CAP AE RDL 22uF 50V 20%	C201, C214 - 215, C222, C238 - 239, C250 - 251
1	028485	CAP AE RDL 470uF 16V 20%	C203
3	051405	CAP CD 120pF 500V 5%	C211, C237, C218
2	051459	CAP CD 560PF 500V 10%	C209, C212
8	034788	CAP CR .1UF 50V 20% .2" LS	C226 - 233
1	027278	CAP MPF .1UF 63V 10%	C204
1	028471	CAP AE RDL 47UF 50V 20%	C208
2	033477	CAP MPF .68UF 63V 10%	C205, C236
1	033578	CAP PFF RDL .001UF 100V 10%	C207
4	033591	CAP PFF RDL .033UF 100V 10%	C210, C213, C223 - 224
2	033592	CAP PFF RDL .047UF 100V 10%	C234 - 235
1	053497	CONTROL SNAPIN 50K B DUAL	R231
3	027941	CONTROL SNAPIN 50K B	R206, R242, R248
8	006260	DIODE 1N4448 SIGNAL LL	D201 - 208
1	030755	LED GREEN T-I 3MM DIFFUSE	D209
7	031611	IC OP-AMP DUAL PC4560	U201 - 207
2	051658	JACK MONO R/A	J202 - 203
1	053450	JACK STEREO R/A	J201
1	026549	RES CF 1/2W 5% 1.5K LL	R269
1	028861	RES CF 1/2W 5% 3.3K LL	R261
1	016953	RES MF 1/4W 1% 1.78K LL	R213
12	024997	RES CF 1/4W 5% 100K LL	R210, R214, R218 - 219, R249, R252, R255, R262, R264, R266, R268, R215
4	024952	RES CF 1/4W 5% 100OHM LL	R225, R230, R274 - 275
14	024981	RES CF 1/4W 5% 10K LL	R222 - 224, R228 - 229, R233, R236, R238, R240, R243, R245, R263, R265, R267
2	024991	RES CF 1/4W 5% 39K LL	R232, R235
1	029539	RES CF 1/4W 5% 13K LL	R258
1	024999	RES CF 1/4W 5% 150K LL	R216
2	025069	RES CF 1/4W 5% 1M LL	R270 - 271
4	024965	RES CF 1/4W 5% 1K LL	R241, R247, R256, R272
6	024987	RES CF 1/4W 5% 22K LL	R234, R237, R257, R280, R253, R239
1	024945	RES CF 1/4W 5% 33OHM LL	R212
1	025059	RES CF 1/4W 5% 220K LL	R281
1	024971	RES CF 1/4W 5% 2.2K LL	R217

PREAMP PRINTED CIRCUIT BOARD ASSEMBLY (cont)

QTY	PART #	DESCRIPTION	REFERENCE DESIGNATION
1	028549	RES CF 1/4W 5% 110K LL	R254
4	028990	RES CF 1/4W 5% 51K LL	R244, R246, R250 - 251
2	024994	RES CF 1/4W 5% 56K LL	R259 - 260
1	024963	RES CF 1/4W 5% 680OHM LL	R220
1	024999	RES CF 1/4W 5% 150K LL	R211
1	015581	RES MF 1/4W 1% 9.53K LL	R273
4	031818	RES MF 1/4W 1% 18.2K LL	R201 - 204
2	028091	SWITCH PUSH SLFLK SHORT STROKE	S201 - 202
3	016739	XSTR NPN 2N4401 TO-92	Q204, Q206 - 207
1	016742	XSTR PNP 2N4403 TO-92	Q205
3	014689	XSTR N-CH JFET J111 TO-92	Q201 - 203
1	036178	SPACER LED .5X.1 BROWN	@ D209
2	048451	BUTTON PUSH OFF WHITE	@ S201 - 202
	REF	INSTANCES NOT STUFFED	R221

POWER AMP PRINTED CIRCUIT BOARD ASSEMBLY

QTY	PART #	DESCRIPTION	REFERENCE DESIGNATION
2	050687	CABLE RIBBON .156 X 6	H1-2
1	038693	CAP AE AX 47UF 16V 20%	C158
2	049521	CAP AE AX 47UF 50V 20%	C154 -155
1	033605	CAP AE RDL .15UF 50V 20%	C101
1	028492	CAP AE RDL 1000UF 16V 20%	C157
3	028463	CAP AE RDL 10UF 50V 20%	C102, C112 -113
1	028467	CAP AE RDL 22UF 50V 20%	C140
2	031756	CAP AE RDL 4700UF 50V	C152 -153
2	028471	CAP AE RDL 47UF 50V 20%	C109-110
1	047195	CAP AE RDL 47UF 63V 20%	C156
2	051406	CAP CD 220PF 500V 10%	C105 -106
1	053860	CAP 0.1UF 250V 10%	C150
1	052003	CAP MPF .1UF 250V 10%	C151
1	033580	CAP PFF RDL .0022UF 100V	C100
3	030960	CAP PFF RDL .1UF 50V 5%	C107-108, C111
8	006260	DIODE 1N4448 SIGNAL LL	D100 -104, D111 -112, D140
2	025821	DIODE HV FDH400 SWITCHING	D105 -106
3	031729	DIODE ZEN 1N5231B 5.1V LL	D107 -108, D160
2	031635	DIODE ZEN 1N5240B 10V LL	D141 -142
2	028119	DIODE ZEN 1N5353B 16V 5W	D154 -155
5	064089	DIODE 1N4003 LL	D109 -110, D156 -157, D159
4	029045	DIODE 6A 400V 6A4	D150 -153
4	026000	FSTN TAB MALE .187X.032 PCB	P105, P111 -112, P115
13	025802	FSTN TAB MALE .250X.032 PCB	P101 -102, P104, P106 -110, P113 -114, P123 -125
2	020775	FUSE CLIP PCB 5MM	@ F1
1	041812	IC REGULATOR +5V MC7805CT	U150

**POWER AMP
PRINTED CIRCUIT BOARD ASSEMBLY (cont)**

QTY	PART #	DESCRIPTION	REFERENCE DESIGNATION
2	026549	RES CF 1/2W 5% 1.5K LL	R118, R121
1	027871	RES CF 1/2W 5% 1K LL	R156
1	024997	RES CF 1/4W 5% 100K LL	R142
1	024981	RES CF 1/4W 5% 10K LL	R143
2	024937	RES CF 1/4W 5% 100HM LL	R119 -120
1	024965	RES CF 1/4W 5% 1K LL	R100
2	024971	RES CF 1/4W 5% 2.2K LL	R113, R116
2	029455	RES CF 1/4W 5% 2.4K LL	R114 -115
1	029006	RES CF 1/4W 5% 20K LL	R141
1	024963	RES CF 1/4W 5% 680OHM LL	R154
1	024957	RES CF 1/4W 5% 270OHM LL	R155
2	024988	RES CF 1/4W 5% 27K LL	R101, R108
1	024977	RES CF 1/4W 5% 4.7K LL	R106
4	024961	RES CF 1/4W 5% 470OHM LL	R102 -103, R109 -110
1	024993	RES CF 1/4W 5% 47K LL	R144
5	024947	RES CF 1/4W 5% 47OHM LL	R104 -105, R111 -112, R145
1	028034	RES CF 1/4W 5% 5.1K LL	R107
2	037354	RES FILM 1W 5% 4.7K LL	R117, R122
3	036960	RES FUSE MF 1/4W 5% 47OHM	R123 -125
2	029870	RES MOX 2W 5% 1.5K LL	R152 -153
1	051417	RES MOX 2W 5% 22OHM LL	R130
2	027478	RES WW BT 5W 10% .22OHM	R128 -129
2	036940	RES WW BT 5W 10% 270OHM	R157-158
2	028037	RES WW BT 5W 10% 330OHM	R150 -151
1	051418	THERM SENSE PTC 100DEGC	RT101
1	028760	XSTR NPN 2SC4793/2SC3298B	Q108
1	051725	XSTR NPN MJW21192 TO-247	Q110
1	016739	XSTR NPN 2N4401 TO-92	Q102
3	025751	XSTR NPN 2SC2362K/2SC2389	Q100 -101, Q152
1	028759	XSTR PNP 2SA1306A TO-220	Q109
1	051724	XSTR PNP MJW21191 TO-247	Q111
2	016742	XSTR PNP 2N4403 TO-92	Q140 -141
1	025752	XSTR PNP 2SA1038STPS	Q103
2	051448	XSTR NPN 2SD1857	Q106, Q151
1	014867	XSTR NPN MPSW42 (TO-92)	Q105
2	051447	XSTR PNP 2SB1236	Q107, Q150
1	014866	XSTR PNP MPSW92 TO-226AE	Q104
3	050849	HEATSINK PCB LEVEL	@ Q108 -109, U150
1	053580	PLATE, HEATSINK SFX SAT	@ Q110 -111, MOUNTS TO PCB
2	040903	INSULATOR MICA T0-218	@ Q110 -111
2	032934	SCRW TF 4-40X1/2 HIHS ZI	@ Q110 -111
2	032908	SCRW TF 6-32X3/8 PHP ZI	ATTACHES HS PLATE TO PCB
3	039420	SCRW M 4-40X3/8 PHP ZI SS	@ Q108 -109, U150
3	097360	NUT HEX 4-40 EX LOCK	@ Q108 -109, U150
REF	INSTANCES NOT STUFFED	C104	

CHASSIS ASSEMBLY

QTY	PART #	DESCRIPTION	REFERENCE DESIGNATION
	053602	CHASSIS ASSY, SFX SATELLITE	DOM 120V
	053606	CHASSIS ASSY, SFX SATELLITE	JPN 100V
	053605	CHASSIS ASSY, SFX SATELLITE	AUS 240V
	053604	CHASSIS ASSY, SFX SATELLITE	UK 230V
	053603	CHASSIS ASSY, SFX SATELLITE	EUR 230V
1	053857	PCB ASSY, PWR AMP, SFX SATELLITE	
1	053460	PCB ASSY, PREAMP, SFX SATELLITE	
1	053874	PCB ASSY, DSP, SFX SATELLITE	
1	027668	XFMR PWR 120V 85W	120V UNITS ONLY
1	039357	XFMR PWR EXP DEL112/ROC PRO	EXPORT ONLY
1	028560	END BELL XFMR 85W	@ XFMR
4	028591	NUT ACORN 8-32	@ XFMR
1	053455	CHASSIS, SFX SATELLITE	
1	053440	PANEL, FRONT, SFX SATELLITE	
1	053441	PANEL, REAR, SFX SATELLITE	
1	026541	CABLE ASSY PWR W/.250 TAB 120V	120V UNITS ONLY
1	026038	BUSHING SR .625X.062X37/64 BLK	100V/120V UNITS ONLY
2	049650	CORD WRAP STYLE 2	
1	053617	WIRE SET, SFX SATELLITE	
	048332	LED RED PNL MT 7"	REF - DSP ASSY
1	027288	LENS, LED RED	PWR LED
1	039236	SWITCH ROCKER DPST PSEUDO-IEC	100V/120V UNITS ONLY
1	040582	SWITCH DPST .250 TAB GLOBAL	EXPORT 230V/240V ONLY
4	019798	KNOB ROTARY SS	@ POTS
1	053453	KNOB ROTARY SS W/ ARROW BLACK	@ DSP ASSY
9	051404	STANDOFF, NYLON BLACK	
3	028500	SCRW TF 8-32X3/4 HWH SLTD ZI	HEATSINK
2	037623	SCRW TC25 6X1/2 PHP ZI	CABLE WRAP
1	038900	SCRW TF 6-32X1/4 PHP ZI	CHS GND
1	033331	CABLE ASSY PWR 220/240V	EXPORT EUR 230V ONLY
1	038602	CABLE ASSY PWR AUST .250 TAB	EXPORT AUS 240V ONLY
1	040993	CABLE ASSY PWR 5A UK .250 TAB	EXPORT UK 230V ONLY
1	048463	CABLE ASSY PWR .250 100V	EXPORT JPN 100V ONLY
1	010401	BUSHING SR .625X.125X37/64 WHT	EXPORT 230V/240V ONLY
1	028499	HEATSINK BAR	
1	020797	FUSE QA 20MMX5MM 250V 4A	DOM/JPN
1	020794	FUSE QA 20MMX5MM 250V 2A	EXPORT 230V/240V ONLY
3	053479	NUT, HEX 7/16-20X1/8 NI	
3	053480	WASHER, FLAT .442 X .692 NI	
4	030007	WSHR LCK INTL 8X.330X.02 ZI	@ XFMR
1	012560	BUSHING SNAP 5/8X27/32 BLK	@ SPKR CABLE
2	9906900590	CLAMP CABLE NYL ADHESIVE	SAFETY WIRING

CABINET ASSEMBLY

QTY	PART #	DESCRIPTION	REFERENCE DESIGNATION
0.4	027882	PLYWOOD LAUAN 1/4" THICKNESS	
2.4	027503	PARTICLEBOARD 1/2" THICKNESS	
2.8	047792	PLYWOOD BALTIC BIRCH 5/8"	
12.	027502	PARTICLEBOARD 3/4" THICKNESS	
5.8	040677	PLYWOOD BALTIC BIRCH 3/4" 13 PLY	
2	032524	INSERT HANDLE	
2	027848	HANDLE ASSY 9.25" NO LOGO	
4	019279	HANDLE CAP 2 HOLE NICKEL	
12	021972	NUT - T 10-32X3/4 3 PRN BLX	
8	022244	SCREW M 10-32X1-1/8 OHP NI	
2	026566	CORNER 2 HOLE W/ TAB NI	
2	029071	CORNER NOTCHED NICKEL (FD)	
4	026571	SCREW SMAB 8X5/8 THP NI	
4	019276	GLIDE CAB 1.24 X .335 NI	
4	019275	INSERT GLIDE CUSHION 1.27 DIA	
4	026625	SCREW WOOD 8X1 FH	
9	037952	SCREW SMA #6X1 OHP NI	
9	037215	WSHR C'SINK #6 NI	
2	036782	SCREW SMAB 8X1/2 THP NI	
2.2	026570	TOLEX BLACK	
0.3	040046	CARPET BLACK	
.01	040004	TAPE ALUM 9" X 60 YD	
0.5	037788	GRILLE CLOTH BLACK SILVER	

FOOTSWITCH ASSEMBLY

QTY	PART #	DESCRIPTION	REFERENCE DESIGNATION
1	028109	HSG END CUP LEFT FTSW	
1	028143	HSG END CUP RIGHT FTSW	
8	028684	SCRW SMB 6x3/8 PH PHS BLX	
1	028781	PCB ASSY FT SW 1 BUTTON	
1	028891	HSG FTSW SNGL BUTTON	
1	028895	CABLE ASSY FTSW RT ANG 12'	
1	031899	WSHR NYL .485x.775x.150 TK	
1	053587	PLATE, TOP, FOOTSWITCH, SFX SATELLITE	

(Also, refer to Footswitches Service Manual)

UNIT ASSEMBLY

QTY	PART #	DESCRIPTION	REFERENCE DESIGNATION
1	052049	CAB ASSY, SFX SATELLITE	
1	053586	FOOTSWITCH ASSY, SFX SATELLITE	
1	048878	SPEAKER 12" 4 OHM 100W 12-4895	
2	053478	GRILLE, SIDE, SFX SATELLITE	
1	023192	NAMEPLATE FENDER '65 TWIN	
8	051098	TAPE VINYL NITRITE W/ ADHESIVE @ GRILLES	

UNIT ASSEMBLY (Cont)

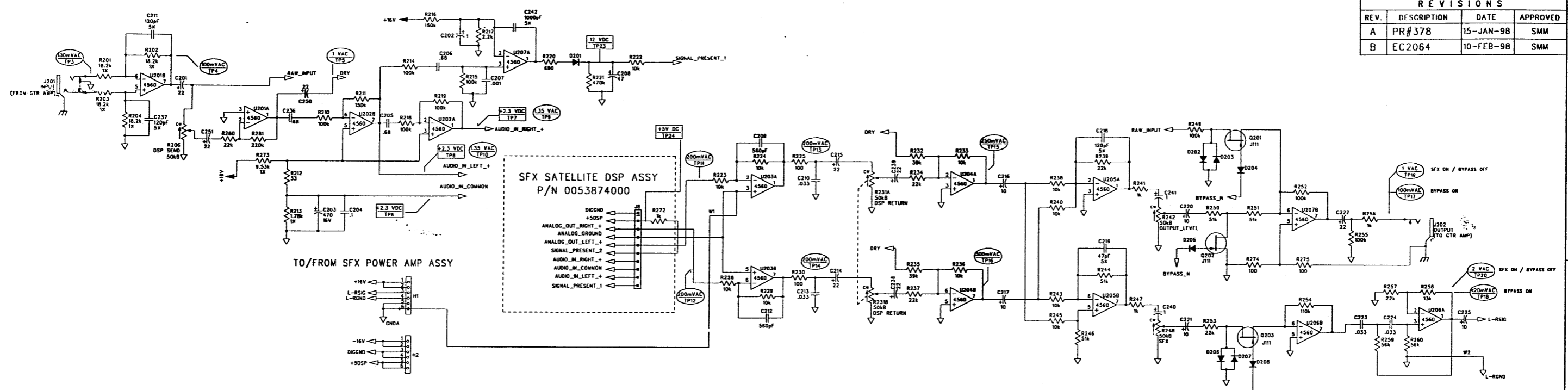
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22	029527	WSHR FNSH 8-5/8 FLNGD BLX WX	TOP/GRILLE
4	026577	SCRW M 10-32X1 PHP BLX	SPKR
6	036199	SCRW M 8-32X1-3/16 OHP BLX CP	TOP
2	036112	SCRW SMAB 6X1-1/4 OHP BLX w/ WS	FRNT GRILLE
16	016627	SCRW SMA 8X3/4 OHP BLX	SIDE GRILLE
3	037985	SCREW SMA 2X3/8 PHP BLX	FEND LOGO
1	053602	CHASSIS ASSY, 120V SFX SATELLITE	
1	053606	CHASSIS ASSY, 100V SFX SATELLITE	
1	053605	CHASSIS ASSY, 240V AUST SFX SATELLITE	
1	053604	CHASSIS ASSY, 230V UK SFX SATELLITE	
1	053603	CHASSIS ASSY 230V, SFX SATELLITE	

DSP ASSEMBLY

QTY	PART #	DESCRIPTION	REFERENCE DESIGNATION
	0053874000	PCB ASSEMBLY, DSP SFX SATELLITE	

(Please see SFX DSP Module Service Manual)

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	PR#378	15-JAN-98	SMM
B	EC2064	10-FEB-98	SMM

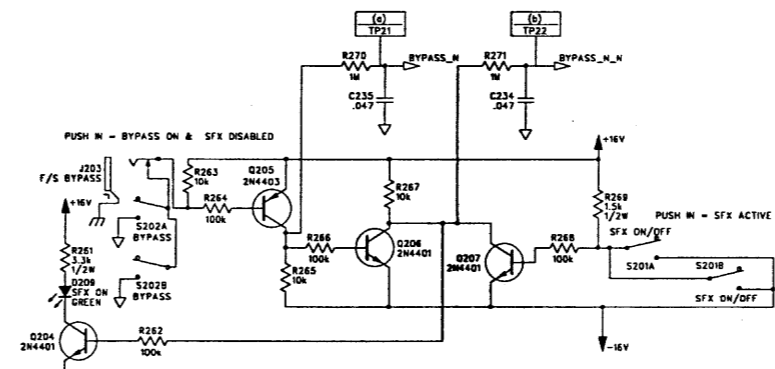
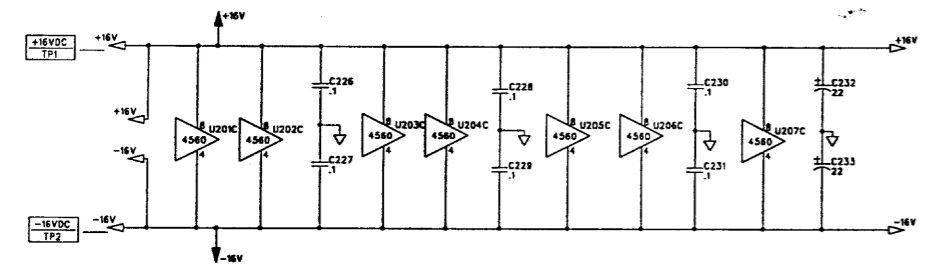


TO/FROM SFX POWER AMP ASSY

SFX SATELLITE DSP ASSY
P/N 0053874000

- DIGGND
- +5DSP
- ANALOG_OUT_RIGHT_+
- ANALOG_OUT_LEFT_+
- ANALOG_GROUND
- SIGNAL_PRESENT_2
- AUDIO_IN_RIGHT_+
- AUDIO_IN_COMMON
- AUDIO_IN_LEFT_+
- SIGNAL_PRESENT_1

PREAMP PCB POWER DISTRIBUTION & BYPASSING



SFX CONTROL CIRCUITRY ON PREAMP PCB

NOTE: USER CAN CONNECT FOOTSWITCH WITH STANDARD 1/4" GUITAR OR SPEAKER CABLE
NOTE: FOOTSWITCH OVERRIDES BYPASS BUTTON ON FRONT PANEL

S201 STATE	S202 STATE	OPERATIONAL STATE	(a)	(b)
IN	OUT	J202: SIGNAL W/ EFFECT, TP20: SFX SIGNAL ON	-15V	+14V
IN	IN	J201 SIGNAL TO J202, TP18: NO SIGNAL OUT	+15V	-16V
OUT	OUT	J201: SIGNAL W/ EFFECT, TP18: NO SIGNAL OUT	-15V	-16V
OUT	IN	J201 SIGNAL TO J202, TP18: NO SIGNAL OUT	+15V	-16V

7. TP1 & TP11 MEASUREMENTS ARE MADE WITH "BYPASS" BUTTON PUSHED IN
8. WHEN DSP ASSY IS NOT IN SELF TEST MODE: AC MEASUREMENTS TAKEN AT TP1-TP11 ARE AFFECTED BY DSP EFFECT AND SUGGESTED TP VALUE ABOVE IS FOR REFERENCE ONLY
9. AC AND DC VOLTAGES READ TO GROUND WITH A DVM UNDER THE FOLLOWING CONDITIONS: UNIT AT RATED LINE VOLTAGE SFX SATELLITE DSP ASSY CONNECTED AT J8 SET DSP ASSY IN SELF TEST MODE PER NOTE 7 ON SERVICE DIAGRAM (0053461000) CONNECT 4 OHM RESISTIVE LOAD TO SFX SATELLITE POWER AMP ASSY (0053867000) OUTPUT ALL POTS SET AT MAX EXCEPT SFX STARTING W/ SFX POT @ MIN (0) SET SFX POT FOR 20Vrms AT TP20 (ABOUT 3) NO FOOTSWITCH CONNECTED "SFX ON/OFF" BUTTON PUSHED IN "BYPASS" BUTTON SET TO OUT POSITION ALL DC MEASUREMENTS MADE WITH NO SIGNAL TO J201 ALL AC MEASUREMENTS MADE WITH SINEWAVE INPUT TO J201 @ 100mV RMS @ 1kHz
10. THIS SCHEMATIC FOR PCB FAB # 0053461000
11. INSTANCES NOT STUFFED: R221
12. LAST INSTANCES: R281, C251, D208, Q207, U207, J203, W58
13. INSTANCES NOT USED: C243-248, R205, R207-209, R226-227, R276-279, W56-57
14. ALL DIODES M4448.
15. ALL POLARIZED CAPACITORS IN uF: 25V MIN. 20%.
16. ALL UNPOLARIZED CAPACITORS IN nF: 50V MIN. 10% OR BETTER.
17. ALL RESISTORS IN OHMS: 1/4W, 5%.

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Fender MUSICAL INSTRUMENTS
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CHECKED BY: *SFH*
CK DATE: *2-19-98*

APPROVED BY: *SH*
AP DATE: *2-19-98*

DRAWN: SMM ENCR: SMM

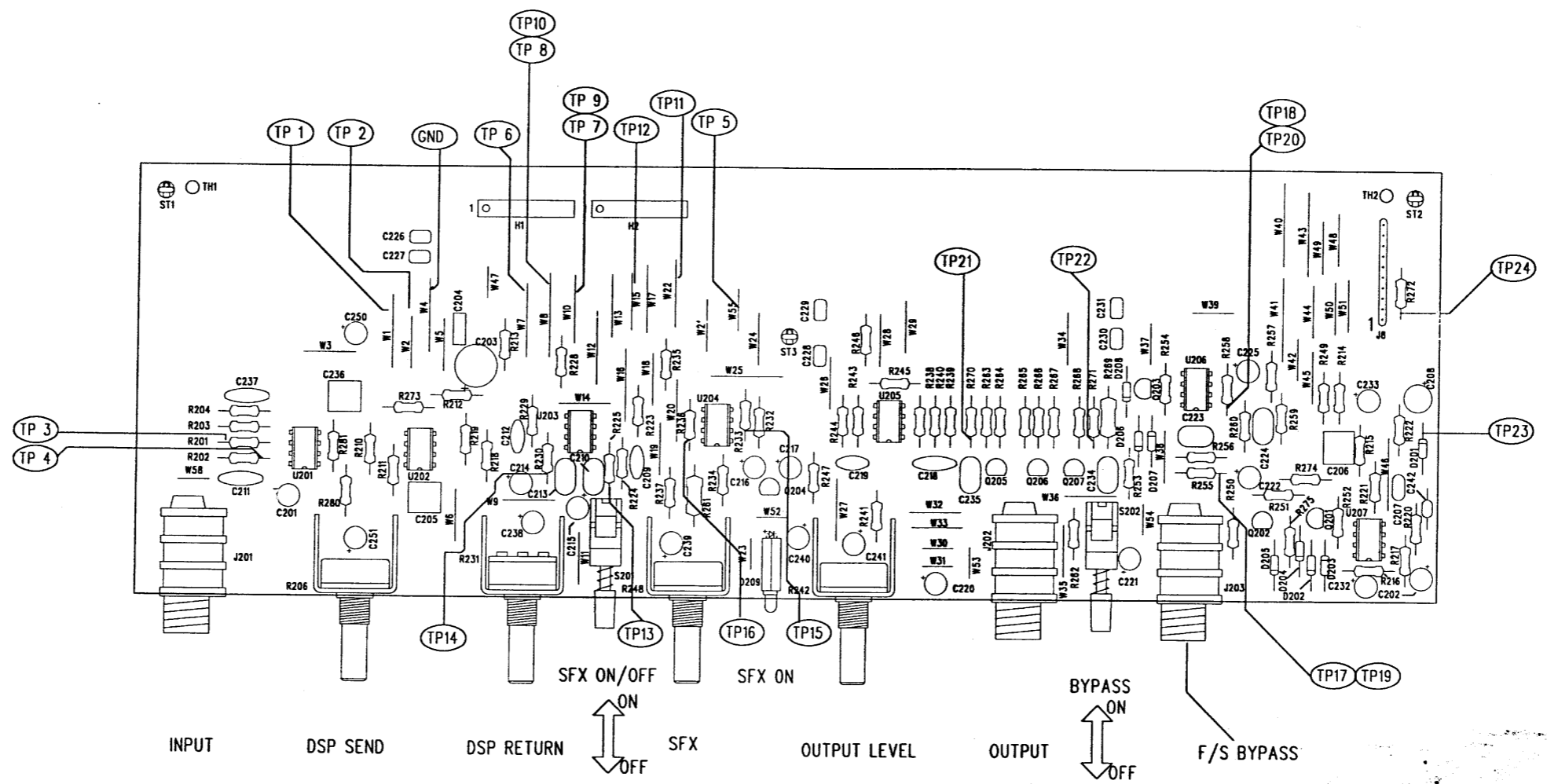
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TITLE: COMBINED SERVICE DIAGRAM, (Schematic)
PREAMP,
SFX SATELLITE

SIZE: D DRAWING NUMBER: 0053456000

RELEASE DATE: 10-FEB-98 SHEET: 1 OF 2

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	PR378	15-JAN-98	SMM
B	EC2064	10-FEB-98	SMM



FILM/DWG: SERVICE DIAGRAM
 DATABASE: Z378P1.PCB DATE: 10-FEB-98

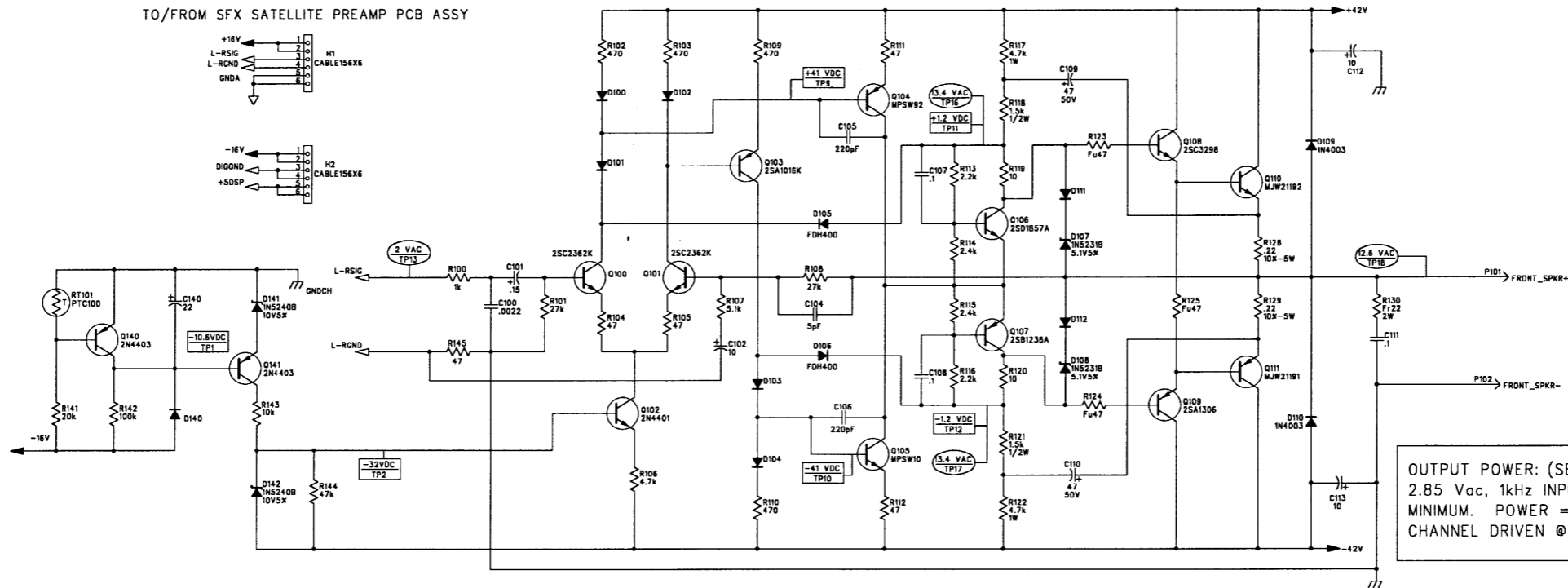
S201 STATE	S202 STATE	OPERATIONAL STATE
IN	OUT	J202: SIGNAL WITH EFFECT, TP20: SFX SIGNAL
IN	IN	J201 SIGNAL TO J202, TP18: NO SIGNAL OUT
OUT	OUT	J201: SIGNAL WITH EFFECT, TP18: NO SIGNAL OUT
OUT	IN	J201 SIGNAL TO J202, TP18: NO SIGNAL OUT

(NOTE: FOOTSWITCH OVERRIDES S202)

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CHECKED BY: <i>SPH</i> DATE: <i>2-19-98</i>		TITLE: COMBINED SERVICE DIAGRAM (PCB assy), PREAMP, SFX SATELLITE	
APPROVED BY: <i>SM-hall</i> DATE: <i>2-19-98</i>		SIZE: C	DRAWING NUMBER: 0053456000
DRAWN: S. HOSNER ENGR: S. MARSHALL DATABASE FILE: Z378P1.PCB		RELEASE DATE: 10-FEB-98	REV. B SHEET 2 OF 2

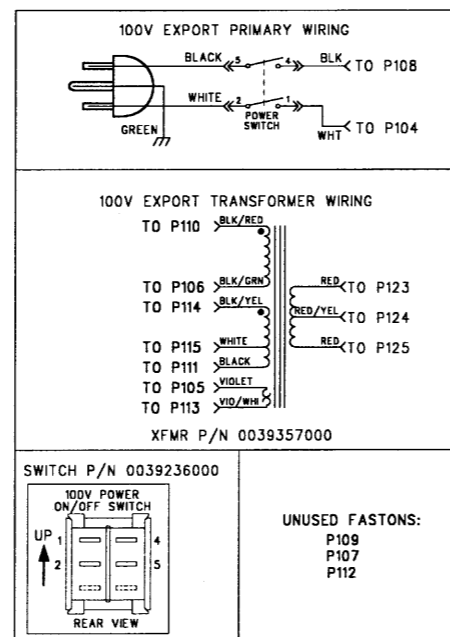
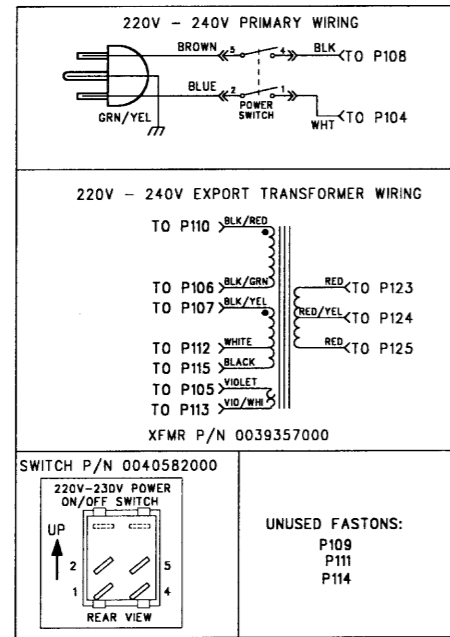
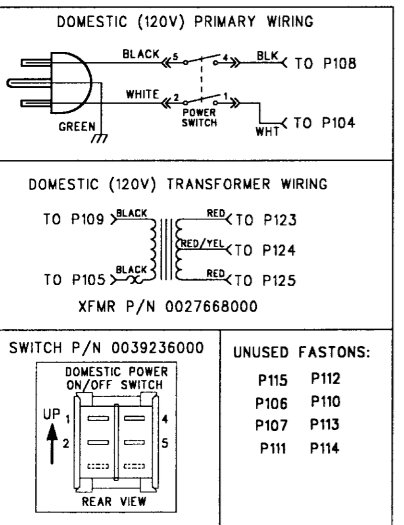
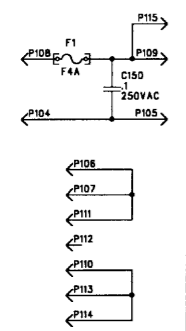
1. SEE SHEET 1 FOR TEST CONDITIONS AND TEST PT VALUES
 NOTES: (UNLESS OTHERWISE NOTED)

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	PR378/EC2059	28-JAN-98	S M M
B	EC 2064	18-FEB-98	S M M
C	EC 2077	17-MAR-98	S M M
D	EC 2118	14-MAY-98	S M M
E	EC 2153	14-SEP-98	S M M



OUTPUT POWER: (SEE NOTE 7 BELOW)
 2.85 Vac, 1kHz INPUT AT L-R SIG INPUT W/ L-R GND @ GROUND
 MINIMUM. POWER = 80W @ < 1% THD INTO 4 ohm RESISTIVE LOAD.
 CHANNEL DRIVEN @ RATED LINE VOLTAGE

100V	120V	220-240V
F4A	F4A	F2A
(250V)	(125V)	(250V)



- THIS SCHEMATIC FOR PCB FAB NO 0053658000
- INSTANCES NOT STUFFED: C104
- LAST INSTANCES: C158, D160, Q152, R158, RT101, U150, P125
- INSTANCES NOT USED: C114-C139, C141-C139, D113-D149, D143-D149, Q112-Q139, Q142-Q149, R126-R127, R131-R139, R146-R149, P103, P116-P122

- OUTPUT POWER TEST PERFORMED ON POWER AMP ASSY BY ITSELF. REMOVE W40 ON PREAMP ASSY TO PERFORM IN CHASSIS. REPLACE W40 ON PREAMP ASSY AFTERWARDS.
- WHEN DSP ASSY IS NOT IN SELF TEST MODE: AC MEASUREMENTS ARE AFFECTED BY DSP EFFECT AND SUGGESTED TP VALUES ABOVE ARE FOR REFERENCE ONLY. SUGGESTED SETTING: REVERSE / DELAY AT 1 CLICK CLOCKWISE PAST 6'O'CLOCK
- AC AND DC VOLTAGES ARE READ TO GROUND WITH A DVM UNDER THE FOLLOWING CONDITIONS:
 UNIT AT RATED LINE VOLTAGE
 SFX SATELLITE PREAMP AND DSP ASSY ARE CORRECTLY INTERCONNECTED WITH THIS ASSY
 ALL DC MEASUREMENTS MADE WITH NO AC SIGNAL TO PREAMP ASSY
 SET DSP ASSY IN SELF TEST MODE PER NOTE 7 ON SERVICE DIAGRAM (0053569000)
 SFX SATELLITE DSP & PREAMP ASSYS ARE SETUP PER NOMINAL CONDITIONS OUTLINED IN DWG NOS. 0053458000 & 0053569000
 PREAMP AND POWER AMP INTERCONNECTIONS ARE DEFINED BY H1 & H2
- ALL DIODES 1N4448.
- ALL POLARIZED CAPACITORS IN uF; 25V MIN. 20%.
 2. ALL UNPOLARIZED CAPACITORS IN uF; 50V MIN. 10% OR BETTER.
 1. ALL RESISTORS IN OHMS; 1/4W, 5%.
 NOTES: (UNLESS OTHERWISE NOTED)

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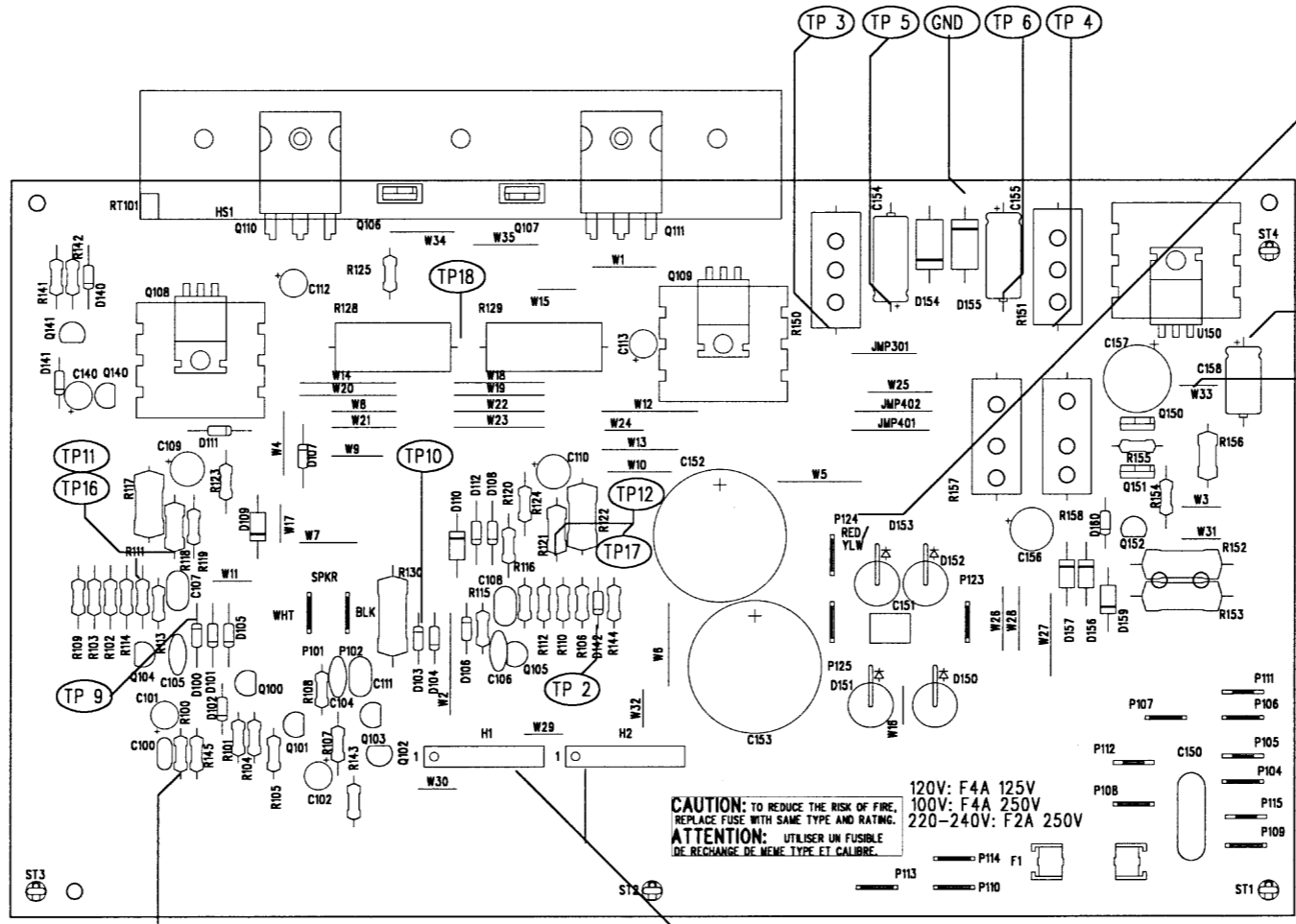
Fender MUSICAL INSTRUMENTS
 2621 Research Drive
 Corona, CA 91720 USA

CHECKED BY: *[Signature]*
 CK DATE: 22-SEP-98
 APPROVED BY: *[Signature]*
 AP DATE: 22-SEP-98
 DRAWN: S M M ENGR: S M M
 FILE: 237852.SCH

TITLE: COMBINED SERVICE DIAGRAM, (Schematic)
 POWER AMP, SFX SATELLITE

SIZE: D DRAWING NUMBER: 0053859000
 REV. E
 RELEASE DATE: 15-JAN-98 SHEET: 1 OF 2

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	PR378/EC2059	28-JAN-98	SMM
B	EC 2064	18-FEB-98	SMM
C	EC 2077	17-MAR-98	SMM
D	EC 2118	14-MAY-98	SMM
E	EC 2153	14-SEP-98	SMM



NOTE: CENTER TAP (RED/YELLOW WIRE) TO P124.

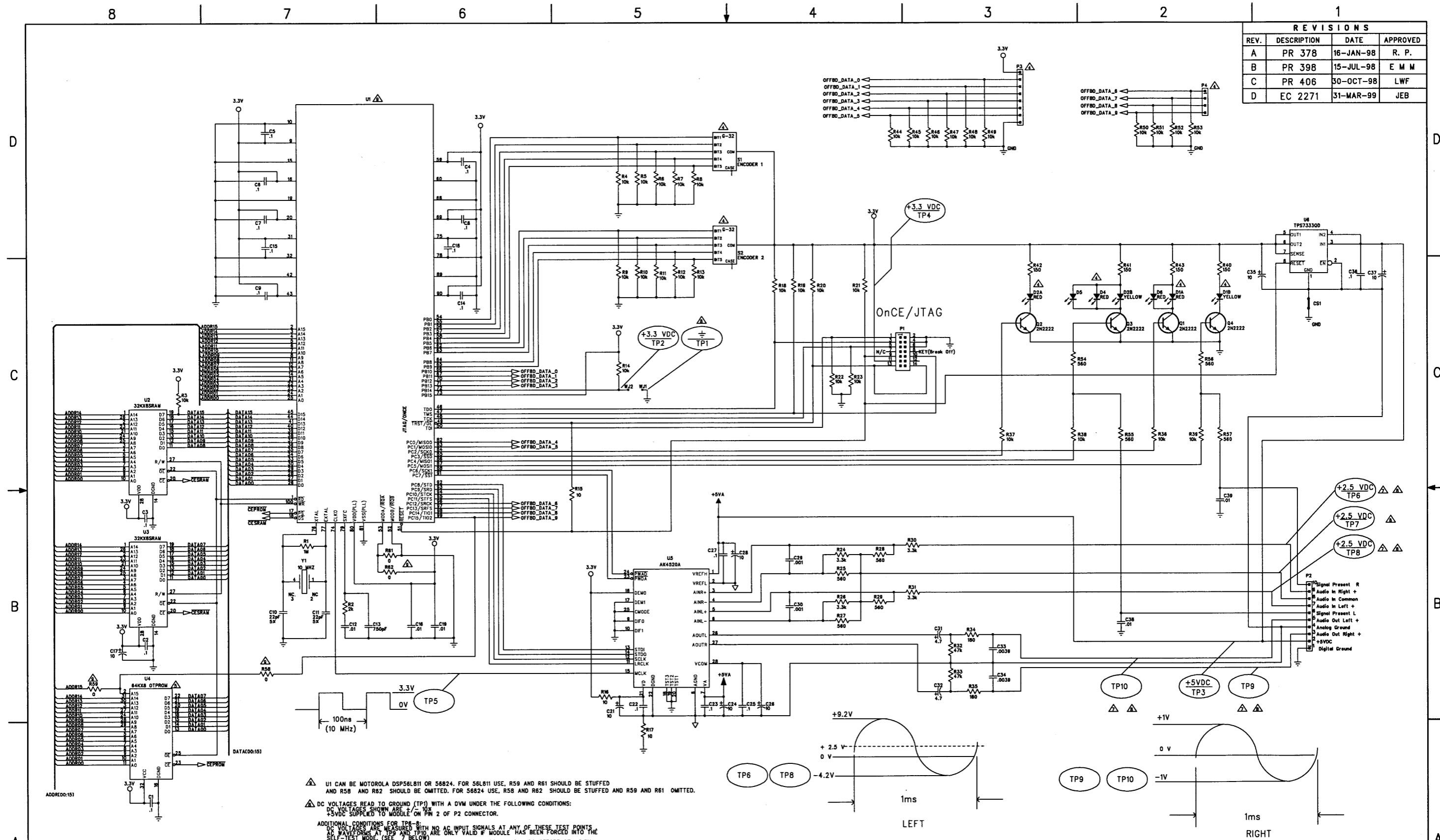
FILM/DWG: SERVICE DIAGRAM
 DATABASE: Z37BP2.PCB DATE: 14-MAY-98

NOTE: H1 & H2 ARE 6 CKT RIBBON CABLES (0050687000) TO SFX SAT PREAMP ASSY (0053460000)

1. SEE SHEET 1 FOR PRIMARY WINDING TEST CONDITIONS & TEST POINT VALUES
 NOTES: (UNLESS OTHERWISE NOTED)

THIS DOCUMENT CONTAINS INFORMATION OF A PROPRIETARY NATURE TO FENDER MUSICAL INSTRUMENTS AND IS SUBMITTED TO YOU IN CONFIDENCE AND SHALL NOT BE DISCLOSED OR TRANSMITTED TO OTHERS WITHOUT AUTHORIZATION FROM FENDER MUSICAL INSTRUMENTS.		MUSICAL INSTRUMENTS 2621 Research Drive Corona, CA 91720 USA	
CHECKED BY: <i>blaw</i>	TITLE: COMBINED SERVICE DIAGRAM (PCB ASSY), POWER AMP, SFX SATELLITE		
DATE: 27-SEP-98			
APPROVED BY: <i>Ed Hall</i>	SIZE: C	DRAWING NUMBER: 0053859000	REV. E
DATE: 22-SEP-98	ENGR: SMM	RELEASE DATE: 15-JAN-98	SHEET 2 OF 2
DRAWN: SMM	ENGR: SMM	DATABASE FILE: Z37BP2.PCB	

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	PR 378	16-JAN-98	R. P.
B	PR 398	15-JUL-98	E M M
C	PR 406	30-OCT-98	LWF
D	EC 2271	31-MAR-99	JEB



U1 CAN BE MOTOROLA DSP56L811 OR 56824. FOR 56L811 USE, R59 AND R61 SHOULD BE STUFFED AND R58 AND R62 SHOULD BE OMITTED. FOR 56824 USE, R58 AND R62 SHOULD BE STUFFED AND R59 AND R61 OMITTED.

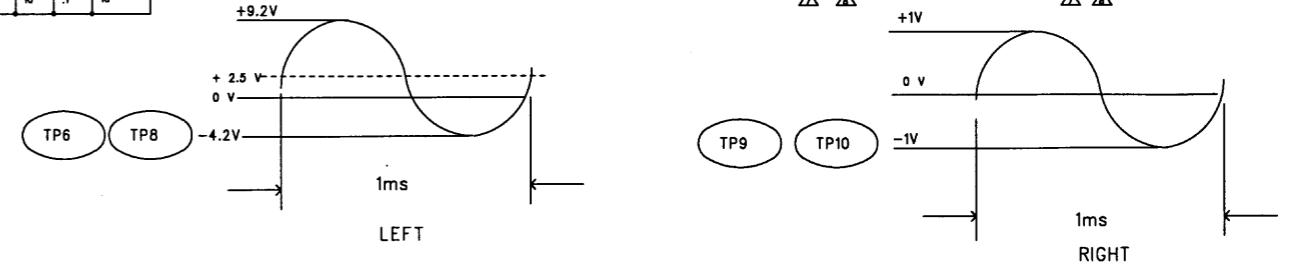
DC VOLTAGES READ TO GROUND (TP1) WITH A DVM UNDER THE FOLLOWING CONDITIONS:
 1. +3.3VDC SUPPLIED TO MODULE ON PIN 2 OF P2 CONNECTOR.
 2. SELF-TEST MODE IS ON.

ADDITIONAL CONDITIONS FOR TP6-8:
 DC VOLTAGES ARE MEASURED WITH NO AC INPUT SIGNALS AT ANY OF THESE TEST POINTS. AC WAVEFORMS AT TP9 AND TP10 ARE ONLY VALID IF MODULE HAS BEEN FORCED INTO THE SELF-TEST MODE (SEE ABOVE).
 WITH A 100mV SINEWAVE OF AMPLITUDE 13.4V PEAK-TO-PEAK AND A DC OFFSET OF +2.5V APPLIED TO TP6 AND TP8 AS SHOWN.

TO INITIATE SELF-TEST, SHORT WIP2 (TP2) TO W1 (TP1, GROUND) AND TURN POWER FROM OFF TO ON. IN UNITS WITH D1 FAILURE IS INDICATED BY THE RED LED BLINKS ON THE YELLOW LED FAILS TO LIGHT. IN PIN 32 REMAINS HIGH FAILURE IS INDICATED WHEN PIN 32 TURNS OFF OR WHEN U1 PIN 87 FAILS TO GO HIGH. IF PASSING CONDITION EXISTS, MODULE WILL OPERATE IN THE LOOKBACK MODE UNTIL THE POWER IS CYCLED OFF-ON. WITH TP2 NOT SHORTED TO TP1 IN THE LOOKBACK MODE THE MODULE'S OUTPUT (AT TP9 AND TP10) WILL BE A REPLICATION OF THE INPUT SIGNALS (TP6 AND TP8).

6. ESD PRECAUTIONS:
 THIS MODULE IS ESD SENSITIVE AND SHOULD ONLY BE SERVICED/HANDLED UNDER CONDITIONS WHICH PREVENT ANY ESD DISCHARGES INTO THIS MODULE. THE SERVICE WORK AREA SHOULD INCLUDE A PROPERLY INSTALLED ESD MAT SURFACES WHICH CONNECTS TO THE SERVICE PERSONNEL VIA AN ESD WRIST STRAP. THE ESD MAT SHOULD BE CONNECTED TO EARTH GROUND AND ALL HANDLING OF THE MODULE SHOULD BE DONE WEARING THE WRISTSTRAP.

EPROM INSERTION AND REMOVAL:
 THE REMOVAL OR INSTALLATION OF U4 MUST BE DONE WITH THE PROPER PLCC REMOVAL TOOL. FAILURE TO USE THE PROPER TOOL FOR THE DEVICE CAN RESULT IN DAMAGE TO U4, PCB, OR SOCKET.

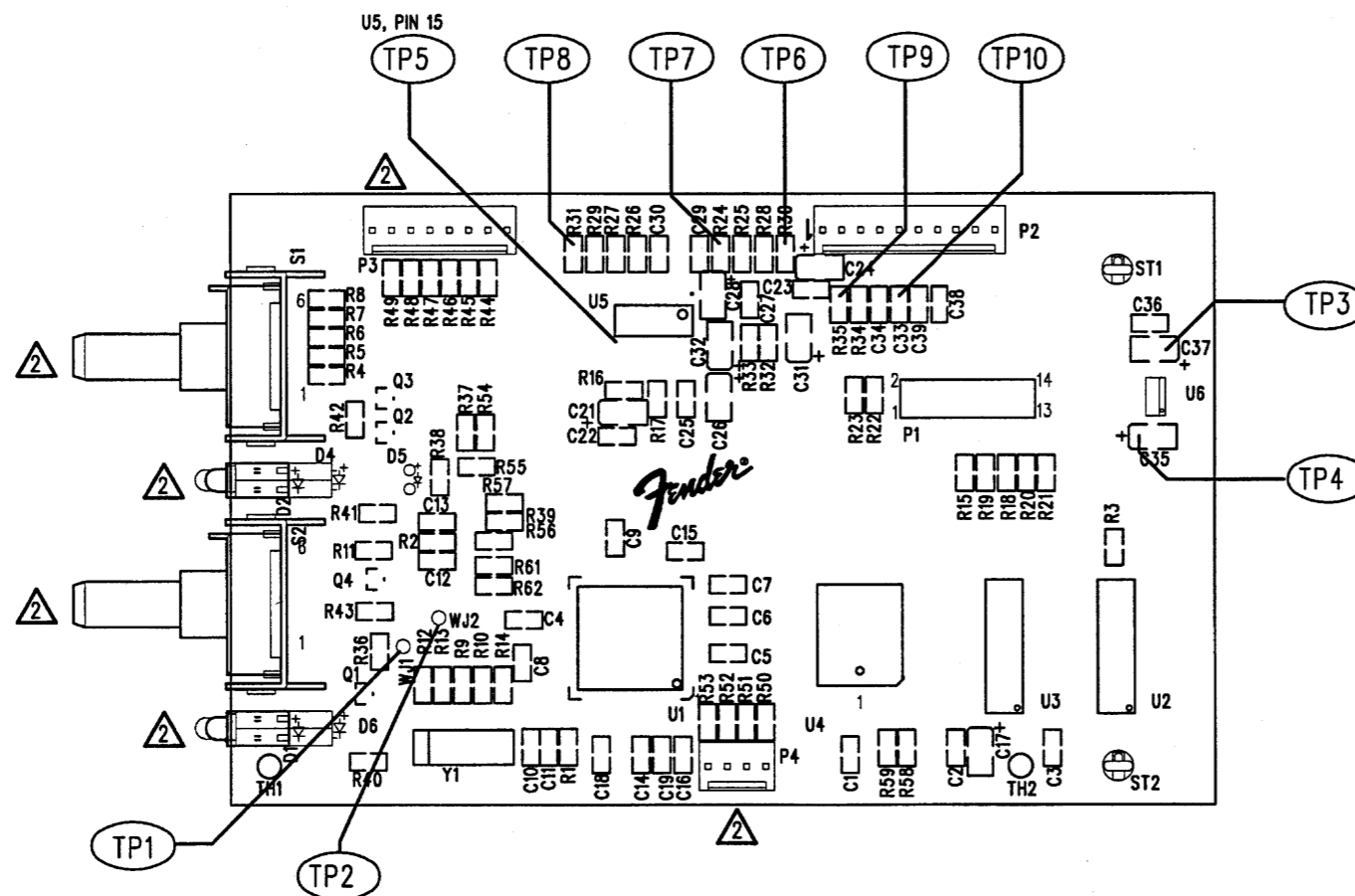


- NOTES: (UNLESS OTHERWISE NOTED)
- COMPONENTS D1, D2, D4, D5, D6, P3, P4, S1 & S2 ARE STUFFED ACCORDING TO INDIVIDUAL PRODUCT REQUIREMENTS.
 - ALL POLARIZED CAPACITORS IN uF, 20% 15V MINIMUM.
 - ALL UNPOLARIZED CAPACITORS IN uF, 10% OR BETTER; 25V MINIMUM.
 - ALL RESISTORS IN OHMS, 5% 1/10W.

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CHECKED BY: <i>B. Van</i>	DATE: <i>31-MAR-99</i>	TITLE: SERVICE DIAGRAM, COMBINED (schematic) DSP SFX SERIES	
APPROVED BY: <i>[Signature]</i>	DATE: <i>31-MAR-99</i>	SIZE: D	DRAWING NUMBER: 0053569000
DRAWN: S. HOSNER ENGR: POVMNMR		RELEASE DATE: 17-MAR-99	SHEET: 1 OF 2
DATABASE FILE: Z3695.SCH			

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	PR 378	16-JAN-98	R.P.
B	PR 398	15-JUL-98	E M M
C	PR 406	30-OCT-98	L W F
D	EC 2271	31-MAR-99	J E B

FILM/DWG: SERVICE DIAGRAM
 DATABASE: Z369P.PCB DATE: 31-MAR-99



3. TEST POINT LOCATIONS AND VALUES ARE VALID FOR ALL PRODUCT CONFIGURATIONS.

⚠ COMPONENTS D1, D2, D4, D5, D6, P3, P4, S1 & S2 ARE STUFFED ACCORDING TO INDIVIDUAL PRODUCT REQUIREMENTS. SEE SPECIFIC PRODUCT BILL OF MATERIALS TO DETERMINE WHICH COMPONENTS SHOULD BE PRESENT. REFERENCE MASTER ASSEMBLY DRAWING 0053567000

1. SEE SHEET 1 FOR TEST CONDITIONS AND TEST POINT VALUES.

NOTES: (UNLESS OTHERWISE NOTED)

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MUSICAL INSTRUMENTS
 2621 Research Drive
 Corona, CA 91720 USA

CHECKED BY: *B. V. M.*
 CK DATE: 31-MAR-99

APPROVED BY: *R. Povinmire*
 AP DATE: 30 MAR 99

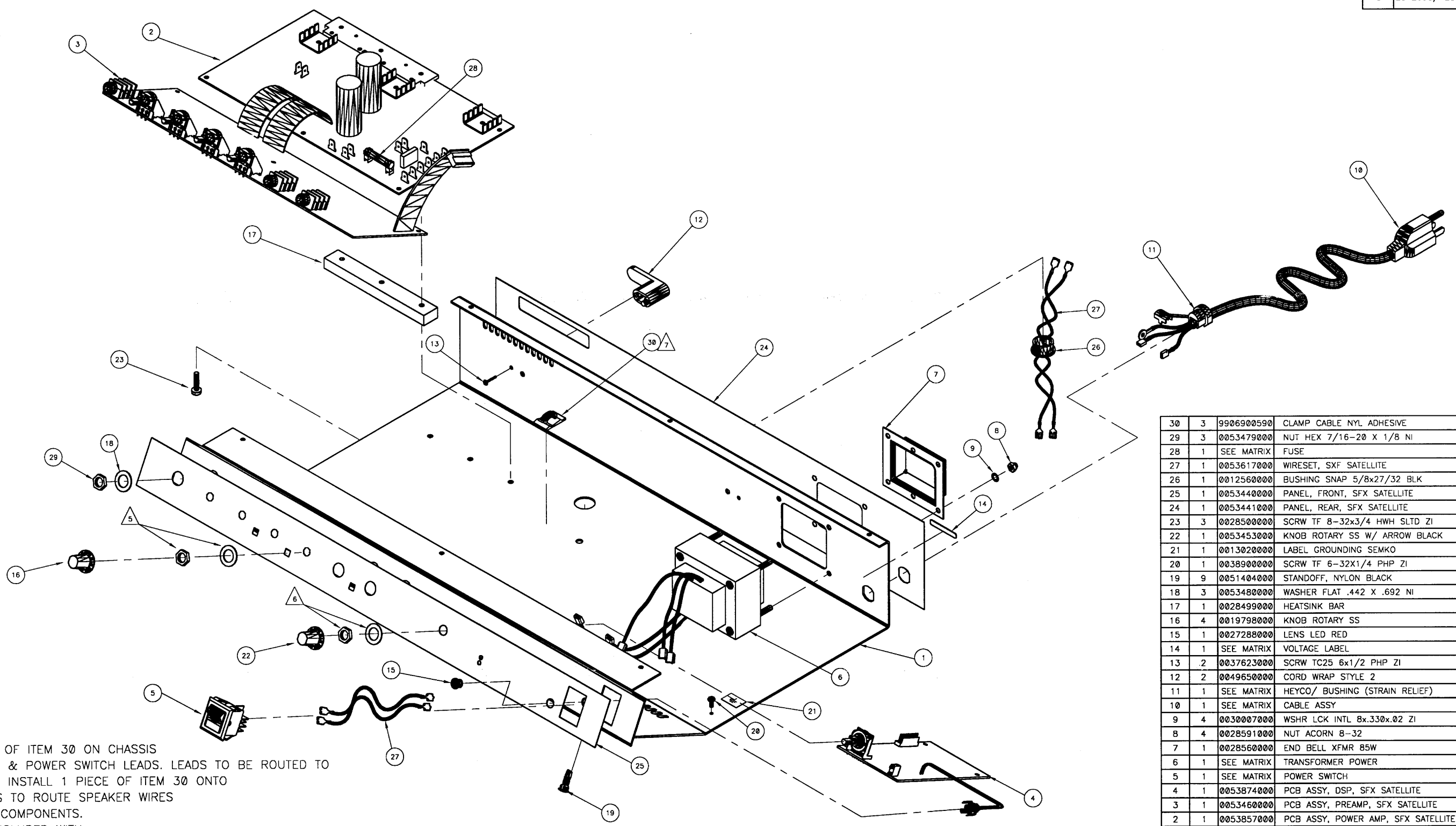
DRAWN: S. HOSNER ENGR: R. POVINMIRE
 DATABASE FILE: Z369P.PCB

TITLE: SERVICE DIAGRAM, COMBINED (PCB assy)
 DSP SFX SERIES

SIZE B	DRAWING NUMBER 0053569000	REV. D
RELEASE DATE: 16-JAN-98	SHEET 2 OF 2	

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REV	EC NUMBER	BY	DET/DATE
A	PR 378	HB	01-15-98
B	EC 2064	HB	02-17-98
C	EC 2098/ EC 2117	KD	05-15-98 ARCHIVE



△ INSTALL 2 PIECES OF ITEM 30 ON CHASSIS TO SECURE XFMR & POWER SWITCH LEADS. LEADS TO BE ROUTED TO POWER AMP PCB. INSTALL 1 PIECE OF ITEM 30 ONTO BACK OF CHASSIS TO ROUTE SPEAKER WIRES AWAY FROM HOT COMPONENTS.

△ NUT & WASHER INCLUDED WITH ENCODER ON ITEM 4.

△ NUT & WASHER INCLUDED WITH POTENTIOMETERS AS REFERENCED ON PCB ASSY.

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 3. - 3 - SAMPLES OF FIRST PARTS MUST BE APPROVED BY FENDER R&D BEFORE STARTING PRODUCTION.
 2. ALL DIMENSIONS ARE IN INCHES.
 1. DO NOT SCALE DRAWING.
- NOTES: UNLESS OTHERWISE NOTED

30	3	9906900590	CLAMP CABLE NYL ADHESIVE
29	3	0053479000	NUT HEX 7/16-20 X 1/8 NI
28	1	SEE MATRIX	FUSE
27	1	0053617000	WIRESET, SFX SATELLITE
26	1	0012560000	BUSHING SNAP 5/8x27/32 BLK
25	1	0053440000	PANEL, FRONT, SFX SATELLITE
24	1	0053441000	PANEL, REAR, SFX SATELLITE
23	3	0028500000	SCRW TF 8-32x3/4 HWH SLTD ZI
22	1	0053453000	KNOB ROTARY SS W/ ARROW BLACK
21	1	0013020000	LABEL GROUNDING SEMKO
20	1	0038900000	SCRW TF 6-32x1/4 PHP ZI
19	9	0051404000	STANDOFF, NYLON BLACK
18	3	0053480000	WASHER FLAT .442 X .692 NI
17	1	0028499000	HEATSINK BAR
16	4	0019798000	KNOB ROTARY SS
15	1	0027288000	LENS LED RED
14	1	SEE MATRIX	VOLTAGE LABEL
13	2	0037623000	SCRW TC25 6x1/2 PHP ZI
12	2	0049650000	CORD WRAP STYLE 2
11	1	SEE MATRIX	HEYCO/ BUSHING (STRAIN RELIEF)
10	1	SEE MATRIX	CABLE ASSY
9	4	0030007000	WSHR LCK INTL 8x.330x.02 ZI
8	4	0028591000	NUT ACORN 8-32
7	1	0028560000	END BELL XFMR 85W
6	1	SEE MATRIX	TRANSFORMER POWER
5	1	SEE MATRIX	POWER SWITCH
4	1	0053874000	PCB ASSY, DSP, SFX SATELLITE
3	1	0053460000	PCB ASSY, PREAMP, SFX SATELLITE
2	1	0053857000	PCB ASSY, POWER AMP, SFX SATELLITE
1	1	0053455000	CHASSIS, SFX SATELLITE
ITEM	QTY.	PART NO.	DESCRIPTION

ENGINEER
MARSHALL

DRAWN
H. BOWIE

DATE
10-24-97

DFT. ENG. ENG.
MHW EJC

DATE DATE DATE
5/18/98 5/15/98 5/18/98

APPROVED
M Marshall

DATE
5/18/98

TITLE
CHASSIS ASSY
SFX SATELLITE

SHEET 1/1
SCALE 1:2

SIZE D

DRAWING NUMBER 0053602000

REV. C
MASTER

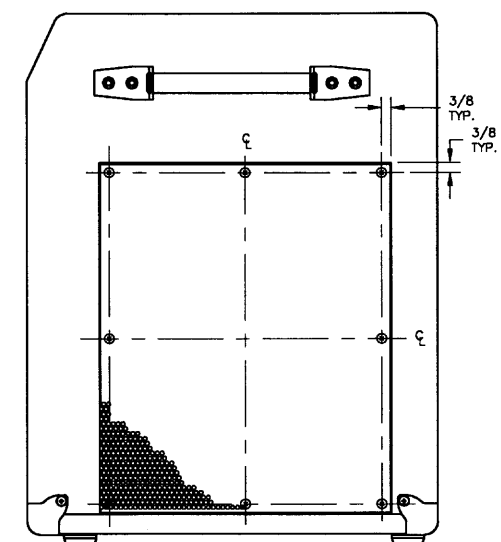
MATRIX

28	FUSE	0053884000	0020794000	0020794000	0020794000	0020797000
14	VOLTAGE LABEL	NONE	0050505000	0050505000	0050506000	0050507000
11	STRAIN RELIEF	0026038000	0010401000	0010401000	0010401000	0026038000
10	CABLE ASSY PWR	0026541000	0033331000	0040993000	0038602000	0048463000
6	XFMR, PWR	0027668000	0039357000	0039357000	0039357000	0039357000
5	SWITCH, PWR	0039236000	0040582000	0040582000	0040582000	0039236000
	CHASSIS ASSY	DOM 120V 0053602000	EUR 230V 0053603000	UK 230V 0053604000	AUS 240V 0053605000	JAPAN 100V 0053606000

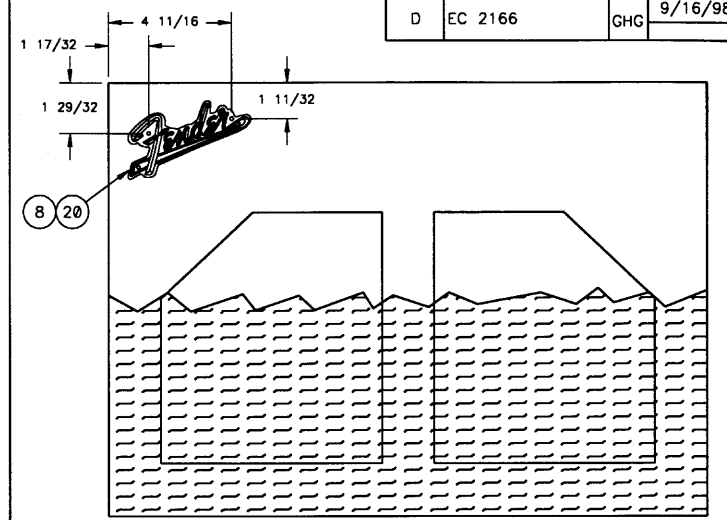
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REV	EC NUMBER	BY	DATE/AMEND
B	EC 2064	HB	02-17-98
C	EC 2117	KD	05-15-98
			ARCHIVE
D	EC 2166	GHG	9/16/98

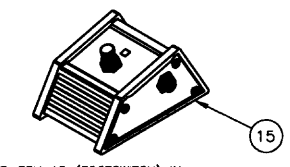
NOTE: PLACE SCREWS AS CLOSE TO CENTERLINE AS GRILLE HOLES ALLOW.



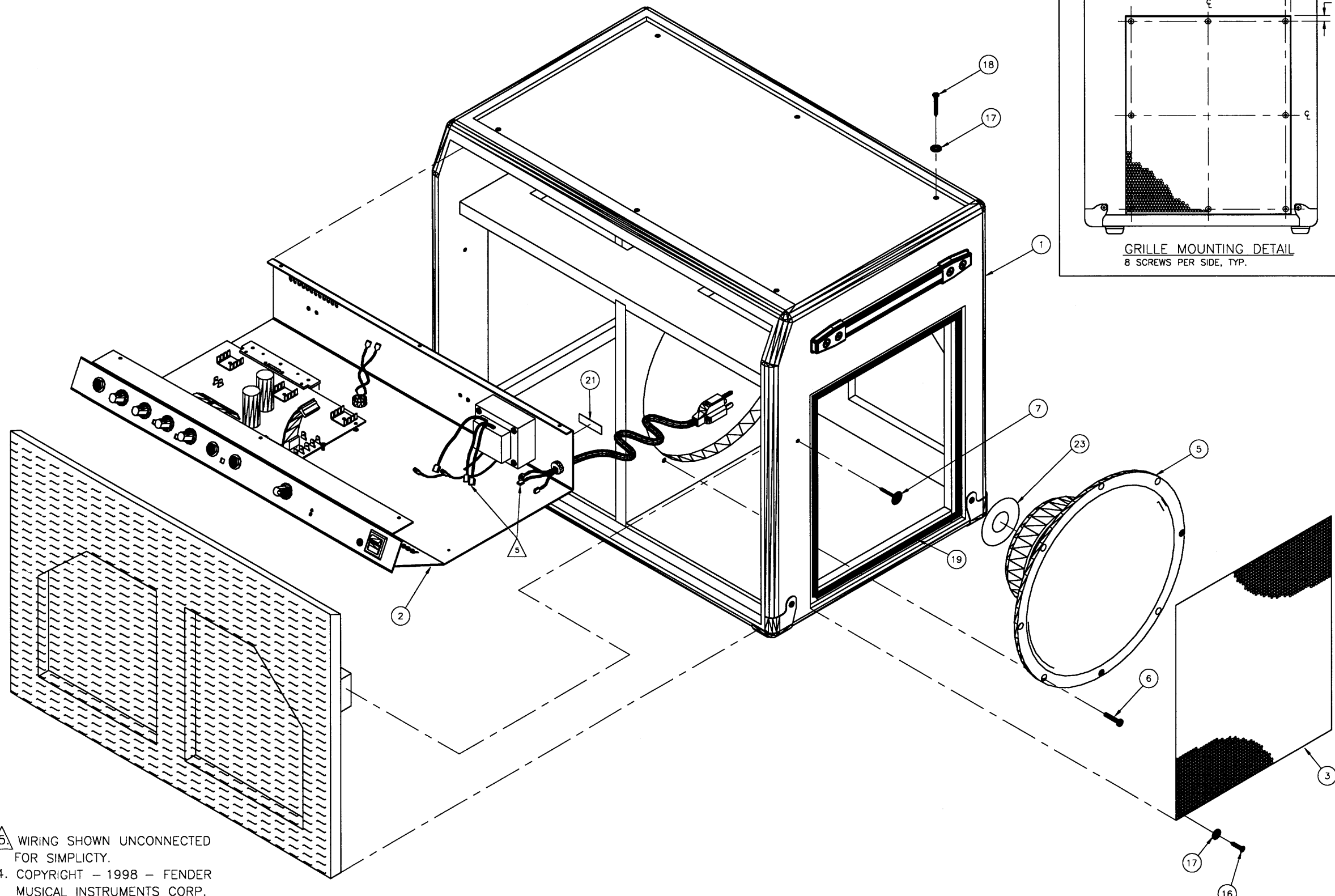
GRILLE MOUNTING DETAIL
8 SCREWS PER SIDE, TYP.



NAMEPLATE PLACEMENT DETAIL



NOTE: PLACE ITEM 15 (FOOTSWITCH) IN ITEM 10 (JIFFY BAG - NOT SHOWN). PACK WITH UNIT.



26	1	0053569000	COMB SVC DIAG, SFX SERIES, DSP ASSY (n.s.)
25	1	0053456000	COMB SVC DIAG, PREAMP, SFX SATELLITE (n.s.)
24	1	0053859000	COMB SVC DIAG, POWER AMP, SFX SATELLITE (n.s.)
23	1	0038299000	DECAL SPEAKER GLOBE ROUND
22	2	0053883000	FOAM TRAY INSERT, SFX SATELLITE (n.s.)
21	1	0029816000	LABEL SERIAL MEXICO
20	3	0037985000	SCRW SMA 2x3/8 PHP BLX
19	A/R	0051098000	TAPE VINYL NITRITE W/ ADHESIVE
18	6	0036199000	SCRW M 8-32x1-3/16 OHP BLX CP
17	22	0029527000	WSHR FNSH 8-5/8 FLNGD BLX WX
16	16	0016627000	SCRW SMA 8x3/4 OHP BLX
15	1	0053586000	FOOTSWITCH ASSY, SFX SATELLITE
14	1	0053412000	TAG WARRANTY 5 YR FENDER-NEW (n.s.)
13	1	0053458000	MANUAL, OWNERS SFX SATELLITE (n.s.)
12	1	0010032000	BAG POLY BOX BTM 23x17x40 .002 (n.s.)
11	1	0053459000	CARTON, SFX SATELLITE (n.s.)
10	2	9903311400	BAG JIFFY #1 7-1/4 x 12 (n.s.)
9	1	0053454000	STICKER BUMPER FEND SINCE 1946 (n.s.)
8	1	0023192000	NAMEPLATE FENDER 65 TWIN
7	2	0036112000	SCRW SMAB 6x1-1/4 OHP BLX w/WS
6	4	0026577000	SCRW M 10-32x1 PHP BLX
5	1	0048878000	SPEAKER 12"4 OHM 100W 12-4895
4	8	0041509000	FOAM CORNER 5x5x5 2" (n.s.)
3	2	0053478000	GRILLE, SIDE, SFX SATELLITE
2	1	SEE MATRIX	CHASSIS ASSY, SFX SATELLITE
1	1	0052049000	CABINET ASSY, SFX SATELLITE

5. WIRING SHOWN UNCONNECTED FOR SIMPLICITY.
4. COPYRIGHT - 1998 - FENDER MUSICAL INSTRUMENTS CORP.
3. - 3 - SAMPLES OF FIRST PARTS MUST BE APPROVED BY FENDER R&D BEFORE STARTING PRODUCTION.
2. ALL DIMENSIONS ARE IN INCHES.
1. DO NOT SCALE DRAWING.
- NOTES: UNLESS OTHERWISE NOTED

MODEL MATRIX

ITEM	CHASSIS ASSY	0053602000	0053603000	0053604000	0053605000	0053606000
	END ITEM	QTY 120V	QTY 230V EUR	QTY 230V UK	QTY 240V AUST	QTY 100V JAPAN
		0222001000	0222061000	0222041000	0222031000	0222071000

ENGINEER MARSHALL
DRAWN H. BOWIE
DATE 12-19-97

Fender
FENDER MUSICAL INSTRUMENTS CORP.
CORONA, CALIFORNIA 91720

TITLE END ITEM ASSY SFX SATELLITE

DFT. ENG. ENG. DATE DATE DATE
Gif smj 9-16-98
APPROVED [Signature] 9-16-98

SHEET 1/1	SIZE D	DRAWING NUMBER 0222001000	REV. D
SCALE N/A		ASSEMBLY/MASTER	