

# SFX KEYBOARD 200

p/n 022-8503-000 (120V)

## SERVICE MANUAL

SFX KEYBOARD 200  
(This is the model name for warranty claims)

## SERVICE MANUAL

JUNE 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:

#### CAPACITOR CODES

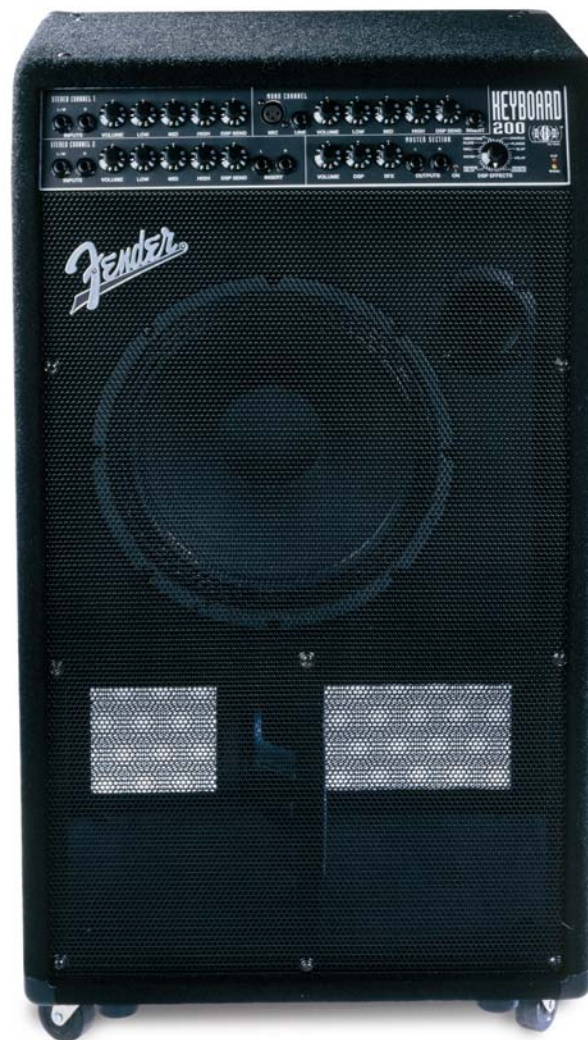
CAP AE	=	Aluminum Electrolytic
CAP CA	=	Ceramic Axial
CAP CD	=	Ceramic Disk
CAP MPF	=	Metalized Polyester Film
CAP MY	=	Mylar
CAP PFF	=	Polyester Film/Foil

#### RESISTOR CODES

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

#### 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



### CONTENTS:

- Notices
- Specifications
- Parts lists
  - Preamp PCB assy
  - Power amp PCB assy
  - Cabinet assembly
  - Chassis assembly
  - Unit assembly
- Schematics/ Service diagrams

SFX KEYBOARD 200

**SPECIFICATIONS**

<b>Product Release No.:</b>	PR 372 <i>(This is not a model number)</i>		
<b>Part Number:</b>	120V Version :	22-8503	
	240V Aus :	22-8533	
	230V UK :	22-8543	
	230V Eur :	22-8563	
	100V :	22-8573	
<b>Power Requirements:</b>	100V Version :	100 VAC 50/60 Hz, 450W	
	120V :	120 VAC 60 Hz, 450W	
	230V :	230 VAC 50 Hz, 450W	
	240V :	240 VAC 50 Hz, 450W	
<b>Power Amp Section</b>			
<b>Power Output:</b>	80 Watts RMS per channel, (160W RMS total) into 8 Ω @ <0.18% THD, both channels driven		
<b>Sensitivity:</b>	0.965V (both channels)		
<b>Preamp Section</b>			
<b>Input impedance:</b>	18.2kΩ (line)	1.82kΩ (mic)	
<b>Sensitivity For Full Power:</b>	2.1 V (line)	210 mV (mic)	Nominal controls
	23 mV (line)	2.3 mV (mic)	Maximum controls
<b>Tone Controls:</b>	Treble: +/- 15 dB @ 15 kHz Mid: +/- 15 dB @ 750 Hz Bass: +/- 15 dB @ 30 Hz		
<b>Speaker Complement:</b>	One 8 Ω Fender Special Design 12" Speaker (P/N 047539) One 8 Ω Fender Special Design 10" Speaker (P/N 053614) One Single Piezo Horn (P/N 049260)		
<b>Dimensions:</b>	Height: 33"	(83.8 cm)	
	Width: 19.5"	(49.5 cm)	
	Depth: 13.5"	(34.3 cm)	
<b>Weight:</b>	82 lbs.	(37.3 kg)	

*Product specifications are subject to change without notice*

SFX KEYBOARD 200

**PARTS LIST**

*NOTE: SHADED ITEMS ARE FOR REFERENCE ONLY*

<b>PREAMP</b>			
<b>PRINTED CIRCUIT BOARD ASSEMBLY</b>			
<b>QTY</b>	<b>PART #</b>	<b>DESCRIPTION</b>	<b>REFERENCE DESIGNATION</b>
2	040987	CABLE RIBBON 10 CKT 3.75"	PW1-2
1	048914	CABLE RIBBON 8 CKT 7"	PW3
2	051445	CAP CD 22pF 500V 5%	C70-71
7	051408	CAP CD 47pF 500V 5%	C12 C32-33 C64-65 C75 C102
17	051457	CAP CD 100pF 500V 5%	C3-4 C18-21 C46-49 C78-79 C86-87 C92-93 C97
2	051406	CAP CD 220pF 500V 10%	C95 C100
5	051407	CAP CD 390pF 500V 10%	C8 C28-29 C56-57
1	051459	CAP CD 560pF 500V 10%	C76
1	027259	CAP MPF .0033uF 100V 10%	C96
5	027262	CAP MPF .0068uF 100V 10%	C7 C26-27 C54-55
6	027269	CAP MPF .033uF 63V 10%	C80-81 C94 C98 C103-104
22	034788	CAP CR .1uF 50V 20% .2" LS	C36-41 C73-74 C108-121
2	033477	CAP MPF .68uF 63V 10%	C68-69
6	028458	CAP AE RDL 1uF 50V 20%	C6 C24-25 C52-53 C101
10	028459	CAP AE RDL 2.2uF 50V 20%	C14-17 C42-45 C90-91
33	028467	CAP AE RDL 22uF 50V 20%	C1-2 C5 C9-11 C13 C22-23 C30-31 C34-35 C50-51 C58-63 C66-67 C82-85 C88-89 C99 C105-107
1	028471	CAP AE RDL 47uF 50V 20%	C77
1	028485	CAP AE RDL 470uF 16V 20%	C72
2	028490	CAP AE RDL 1000uF 6.3V 20%	C122-123
2	053563	CONTROL SNAPIN 50k 30C DUAL	R62 R108
2	027943	CONTROL SNAPIN 50k 30C TAPER	R23 R168
10	053497	CONTROL SNAPIN 50k B DUAL	R41-43 R65 R81-83 R111 R136 R149
4	027941	CONTROL SNAPIN 50k B TAPER	R8-10 R25
1	006260	DIODE 1N4448 SIGNAL LL	D1
1	027416	HDR .1 CTR 8 CKT SQ PIN	P3
14	031611	IC OP-AMP DUAL PC4560	U1 U3 U5-7 U9-17
3	016795	IC OP-AMP DUAL TL072	U2 U4 U8
10	053450	JACK STEREO R/A	J2-11
1	049948	LED, RED LONG LEAD LUMEX	D2
1	024945	RES CF 1/4W 5% 33ohm LL	R120
3	024947	RES CF 1/4W 5% 47ohm LL	R30 R70 R116
3	024952	RES CF 1/4W 5% 100ohm LL	R127 R134-135
9	024965	RES CF 1/4W 5% 1k LL	R16 R94-95 R143-146 R162 R175
17	024971	RES CF 1/4W 5% 2.2k LL	R7 R11 R22 R39-40 R44-45 R60-61 R79-80 R84-85 R106-107 R126 R157
1	024972	RES CF 1/4W 5% 2.7k LL	R176
1	024977	RES CF 1/4W 5% 4.7k LL	R155
1	028034	RES CF 1/4W 5% 5.1k LL	R156
31	024981	RES CF 1/4W 5% 10k LL	R18-21 R52-59 R98-105 R128-131 R152-154 R163-166

SFX KEYBOARD 200

PREAMP

PRINTED CIRCUIT BOARD ASSEMBLY (CONT)

QTY	PART #	DESCRIPTION	REFERENCE DESIGNATION
1	029539	RES CF 1/4W 5% 13k LL	R173
2	024986	RES CF 1/4W 5% 18k LL	R158-159
15	024987	RES CF 1/4W 5% 22k LL	R26-27 R66-67 R112-113 R137-140 R147-148 R160 R167 R172
10	024993	RES CF 1/4W 5% 47k LL	R28-29 R68-69 R114-115 R132-133 R150-151
2	024994	RES CF 1/4W 5% 56k LL	R170-171
17	024997	RES CF 1/4W 5% 100k LL	R13 R15 R17 R48-49 R88-89 R92-93 R96-97 R122-123 R141-142 R161 R174
6	024999	RES CF 1/4W 5% 150k LL	R14 R50-51 R90-91 R125
2	025059	RES CF 1/4W 5% 220k LL	R117-118
12	025065	RES CF 1/4W 5% 470k LL	R12 R24 R46-47 R63-64 R86-87 R109-110 R124 R169
1	016953	RES MF 1/4W 1% 1.78k LL	R121
2	031819	RES MF 1/4W 1% 1.82k LL	R1-2
1	015581	RES MF 1/4W 1% 9.53k LL	R119
20	031818	RES MF 1/4W 1% 18.2k LL	R3-6 R31-38 R71-78
1	051019	XLR CONNECTOR FEMALE RT ANGLE	J1
1	053437	PCB FAB PREAMP SFX KEYBOARD 200	
1	036178	SPACER LED .5x.1 BRN	AT D2

POWER AMP

PRINTED CIRCUIT BOARD ASSEMBLY

QTY	PART #	DESCRIPTION	REFERENCE DESIGNATION
4	051409	CAP CD 68pF 500V 5%	C109 C111 C209 C211
2	051405	CAP CD 120pF 500V 5%	C105 C205
7	027257	CAP MPF .0022uF 100V 10%	C28 C106 C115-116 C206 C215-216
1	027265	CAP MPF .015uF 100V 10%	C26
1	027271	CAP MPF .039uF 100V 10%	C27
16	034788	CAP CR .1uF 50V 20% .2" LS	C8-11 C17-18 C20-23 C29-30 C112-113 C212-213
6	027278	CAP MPF .1uF 63V 10%	C118-120 C218-220
2	052003	CAP MPF .1uF 250V 10%	C2-3
1	053860	CAP MPF .1uF 250VAC 20%	C1
1	037943	CAP AE RDL .33uF 50V 20%	C14
9	028459	CAP AE RDL 2.2uF 50V 20%	C25 C101-104 C201-204
1	041501	CAP MPF AX 2.2uF 100V 10%	C121
5	028463	CAP AE RDL 10uF 50V 20%	C31 C107-108 C207-208
1	028467	CAP AE RDL 22uF 50V 20%	C24
7	028471	CAP AE RDL 47uF 50V 20%	C12-13 C15 C114 C117 C214 C217
1	028490	CAP AE RDL 1000uF 6.3V 20%	C19
1	028492	CAP AE RDL 1000uF 16V 20%	C16
2	028494	CAP AE RDL 1000uF 35V 20%	C6-7
2	037182	CAP AE RDL 6800uF 63V 20%	C4-5
11	064089	DIODE 1N4003 LL	D5-8 D13-15 D125-126 D225-226
43	006260	DIODE 1N4448 SIGNAL LL	D9-12 D17 D102-116 D119-121 D124 D202-216 D219-221 D224
4	029045	DIODE 6A 400V 6A4 LEAD FORMED	D1-4
4	025821	DIODE HV FDH400 SWITCHING	D117-118 D217-218
2	027329	DIODE ZEN 1N5228B 3.9V 5% LL	D101 D201
5	031729	DIODE ZEN 1N5231B 5.1V 5% LL	D16 D122-123 D222-223

SFX KEYBOARD 200

POWER AMP

PRINTED CIRCUIT BOARD ASSEMBLY (CONT)

QTY	PART #	DESCRIPTION	REFERENCE DESIGNATION
2	031635	DIODE ZEN 1N5240B 10V 5% LL	D18-19
2	026000	FASTON TAB, .187"	P7 P10
14	025802	FASTON TAB, .250"	P2-6 P8-9 P11-17
1	027419	HDR .1 CTR 10 CKT SQ PIN	P1
1	031611	IC OP-AMP DUAL PC4560	U1
2	027404	IC OTA CA3080AE	U101 U201
1	041812	IC REGULATOR +5V MC7805CT	U4
1	013562	IC REGULATOR +15v MC7815CT	U2
1	013564	IC REGULATOR -15V MC7915CT	U3
1	053450	JACK STEREO R/A	J1
4	024937	RES CF 1/4W 5% 10ohm LL	R141-142 R241-242
9	024947	RES CF 1/4W 5% 47ohm LL	R18 R119 R123 R125 R128 R219 R223 R225 R228
3	024952	RES CF 1/4W 5% 100ohm LL	R13 R112 R212
1	024969	RES CF 1/4W 5% 1.5k LL	R2
17	024965	RES CF 1/4W 5% 1k LL	R3 R16-17 R102 R116 R124 R127 R131 R147-148 R202 R216 R224 R227 R231 R247-248
4	024971	RES CF 1/4W 5% 2.2k LL	R135 R138 R235 R238
4	029455	RES CF 1/4W 5% 2.4k LL	R136-137 R236-237
6	024972	RES CF 1/4W 5% 2.7k LL	R105 R149-150 R205 R249-250
2	024975	RES CF 1/4W 5% 3.9k LL	R113 R213
2	024977	RES CF 1/4W 5% 4.7k LL	R126 R226
13	024981	RES CF 1/4W 5% 10k LL	R7 R9 R14 R103 R107 R111 R115 R118 R203 R207 R211 R215 R218
2	024985	RES CF 1/4W 5% 15k LL	R117 R217
1	029006	RES CF 1/4W 5% 20k LL	R5
2	024987	RES CF 1/4W 5% 22k LL	R104 R204
4	024988	RES CF 1/4W 5% 27k LL	R122 R132 R222 R232
2	024989	RES CF 1/4W 5% 33k LL	R106 R206
1	024993	RES CF 1/4W 5% 47k LL	R8
8	028990	RES CF 1/4W 5% 51k LL	R108-110 R114 R208-210 R214
3	026507	RES CF 1/4W 5% 62k LL	R10-12
6	024997	RES CF 1/4W 5% 100k LL	R6 R15 R120-121 R220-221
2	024998	RES CF 1/4W 5% 120k LL	R101 R201
4	026549	RES CF 1/2W 5% 1.5k LL	R140 R143 R240 R243
2	029722	RES FILM 1W 5% 1k LL	R1 R4
4	037354	RES FILM 1W 5% 4.7k LL	R139 R144 R239 R244
4	031628	RES MOX 2W 5% .22ohm LL	R152-153 R252-253
2	051417	RES MOX 2W 5% 22ohm LL	R154 R254
1	048467	RES WW 5W 10% 39ohm	R156
1	048468	RES WW 10W 5% 47ohm	R155
6	036960	RES MF FUSE 1/4W 5% 47ohm LL	R145-146 R151 R245-246 R251
4	027750	RES MF FUSE 1/4W 5% 100ohm LL	R133-134 R233-234
4	051731	RES MF FUSE 1/4W 5% 1k LL	R129-130 R229-230
1	051418	THERMAL SENSOR PTC 100 DEG C	RT1
5	016739	XSTR NPN 2N4401 TO-92	Q6 Q102 Q114 Q202 Q214
9	025751	XSTR NPN 2SC2362K/2SC2389STPS	Q1 Q104-106 Q109 Q204-206 Q209
2	028760	XSTR NPN 2SC4793/2SC3298B	Q116 Q216
3	051448	XSTR NPN 2SD1857	Q2 Q112 Q212

SFX KEYBOARD 200

POWER AMP

PRINTED CIRCUIT BOARD ASSEMBLY (CONT)

QTY	PART #	DESCRIPTION	REFERENCE DESIGNATION
2	051725	XSTR NPN MJW21192 TO 247	Q118 Q218
2	014867	XSTR NPN MPSW42 (TO-92)	Q111 Q211
6	016742	XSTR PNP 2N4403 TO-92	Q4-5 Q103 Q115 Q203 Q215
4	025752	XSTR PNP 2SA1038STPS	Q107-108 Q207-208
2	028759	XSTR PNP 2SA1306A TO-220P	Q117 Q217
3	051447	XSTR PNP 2SB1236	Q3 Q113 Q213
2	014408	XSTR PNP DARLNGTN MPSA63 TO-92	Q101 Q201
2	051724	XSTR PNP MJW21191 TO 247	Q119 Q219
2	014866	XSTR PNP MPSW92 TO-226AE	Q110 Q210
6	051094	FUSE CLIP PCB 5MM (EXPT)	AT F1-3
1	053435	PCB FAB POWER AMP SFX KEYBRD	
1	053575	HEATSINK PLATE 160W AMPS	HS1
2	050849	HEATSINK PCB LEVEL	AT U2-3
4	038815	INSULATOR SILICONE TO-3P	AT Q118-119 Q218-219
8	027638	SCRW TF 4-40x3/8 HWHS ZI .1"HD	AT Q116-119 Q216-219
5	032908	SCRW TF 6-32x3/8 PHP ZI	AT HS1
2	039420	SCRW M 4-40X3/8 PHP SS SEMS	AT U2-3
2	097360	NUT HEX 4-40 EX LOCK	AT U2-3

CABINET ASSEMBLY

QTY	PART #	DESCRIPTION	REFERENCE DESIGNATION
2	048958	HANDLE RECESSED KXR/BXR	
2	031867	CORNER 2 HOLE w/NOTCH BLK PWDR	
4	031838	CORNER 2 HOLE w/TAB BLK PWDRD	
2.00	040046	CARPET BLACK	
4	023505	MTG PLATE - SWIVEL CASTER	
4	051049	FOOT RUBBER 1.5 DIA	
8	021972	NUT T 10-32x3/4 STR 3 PRNG BLX	
12	026576	SCRW SMA 8x5/8 THP BLACK	
16	027199	SCRW SMAB 10x3/4 PHP NI	
8	016627	SCRW SMA 8x3/4 OHP BLX	
4	026625	SCRW WOOD 8x1 FH	
0.02	040004	TAPE ALUM 9"x60YDS	

CHASSIS ASSEMBLY

QTY	PART #	DESCRIPTION	REFERENCE DESIGNATION
1	053436	PCB ASSY SFX KEYBOARD 200 PREAMP	
1	053434	PCB ASSY AMP SFX KEYBOARD 200 POWER	
1	053875	PCB ASSY DSP SFX KEYBRD 200	
1	053415	CHASSIS SFX KEYBRD 200	
1	053442	PANEL FRONT SFX KEYBRD 200	
1	053443	PANEL REAR SFX KEYBRD 200	
1	048974	HEATSINK EXTRUDED BXR 200	
	051897	XFMR PWR 160W 120V	120 VOLT DOMESTIC ONLY
	051898	XFMR PWR 160W 230V	220/240 VOLT ONLY
	053405	XMFR PWR 160W 100V	100 VOLT ONLY
	053885	FUSE QA 20MMX5MM 125V 5A ULCSA	F5A 100/120 VOLT
	020795	FUSE QA 20mmx5mm 250v 2.5A	F2.5A 220/240 VOLT
	013112	FUSE TD 20mmx5mm 250v 1A	T1A
	026541	CABLE ASSY PWR W/.250 TAB 120V	DOMESTIC UNITS

SFX KEYBOARD 200

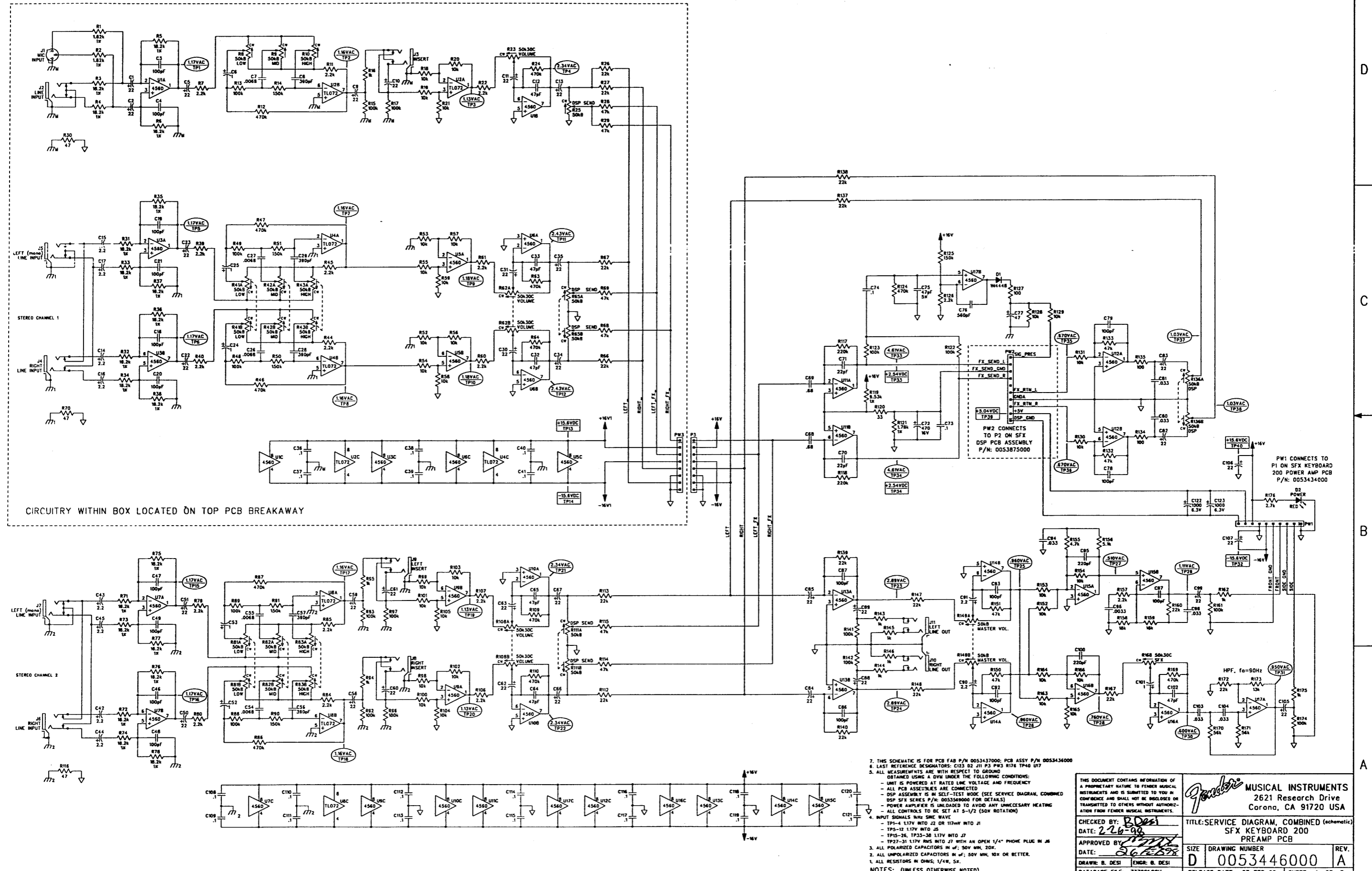
CHASSIS ASSEMBLY (CONT)

QTY	PART #	DESCRIPTION	REFERENCE DESIGNATION
	033331	CABLE ASSY PWR 220/240 V	EUROPEAN UNITS
	038602	CABLE ASSY PWR AUST .250 TAB	AUSTRALIAN UNITS
	040993	CABLE ASSY PWR 5A UK .250 TAB	U.K. UNITS
	048463	CABLE ASSY PWR .250 100v	JAPANESE UNITS
	026038	BUSHING SR .625X.062X37/64 BLK	100/120 VOLT
	010401	BUSHING SR .625X.125X37/64 WHT	220/240 VOLT
	039236	SWITCH ROCKER DPST PSEUDO-IEC	100/120 VOLT
	040582	SWITCH DPST .250 TAB GLOBAL	220/240 VOLT
18	019798	KNOB ROTARY SS	POTS
1	053453	KNOB ROTARY SS W/ ARROW BLK	ENCODER
2	051155	SCRW #4 HI LO	XLR
1	038900	SCRW TF 6-32X1/4 PHP ZI	GND
6	017716	SCRW 8-32x1/2 PHP BLX	HEATSINK
9	027636	SCRW TF 8-32x5/8 HWH BLX	XFMR,S-BAR
6	031184	SCRW M6-32x1/4 PHPS BLX ITLW	REAR STOFF
1	012560	BUSHING SNAP 5/8x27/32 BLK	
5	051404	STANDOFF, NYLON BLACK	FRONT BTM
3	016440	STNDOFF RND AL 6-32x1x1/4	REAR STOFF

UNIT ASSEMBLY

QTY	PART #	DESCRIPTION	REFERENCE DESIGNATION
1	052057	CAB ASSY SFX KEYBRD 200	
1	053465	GRILLE, FRONT SFX KEYBOARD 200	FRONT
1	053467	GRILLE, REAR SFX KEYBOARD 200	REAR
2	053466	GRILLE, SIDE SFX KEYBOARD 200	SIDE
1	047539	SPEAKER 12" 8 ohm 75W BXR 60	FRONT
1	049260	HORN CERAMIC PIEZO KXR 60	FRONT
1	053614	SPEAKER 10" 8 OHM	SIDE
8	026577	SCRW M 10-32x1 PHP BLX	SPKR, F,S
4	9904101110	SCREW PB 8x5/8 PHP BLX	HORN
6	053487	SCRW TF 8-32X1 3/8 #6 OH BLX	CHASSIS
22	016627	SCRW SMA 8x3/4 OHP BLX	GRILLES
22	029527	WSHR FNSH 8-5/8 FLNGD BLX WX	GRILLES
4	023513	CASTER SWIVEL	
1	050850	NAMEPLATE VINTAGE PLASTIC SMAL	FENDER
2	050311	NUT 2-56 NYLON INSERT 2CNME-Z	FENDER
2	050312	SCRW 2-56X3/8 FHP NI	FENDER
	053607	CHASSIS ASSY SFX KEYBRD 200 120V DOM	
	053611	CHASSIS ASSY SFX KEYBRD 200 100V JPN	
	053610	CHASSIS ASSY SFX KEYBRD 200 240V AUS	
	053609	CHASSIS ASSY SFX KEYBRD 200 230V UK	
	053608	CHASSIS ASSY SFX KEYBRD 200 230V EUR	

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	PR372	27-FEB-98	E M M



CIRCUITRY WITHIN BOX LOCATED ON TOP PCB BREAKAWAY

- THIS SCHEMATIC IS FOR PCB FAB P/N 0053437000; PCB ASSY P/N 0053436000
  - LAST REFERENCE DESIGNATORS: C123 D2 J11 P3 PW3 R176 TP40 U17
  - ALL MEASUREMENTS ARE WITH RESPECT TO GROUND
  - UNIT IS POWERED AT RATED LINE VOLTAGE AND FREQUENCY:
    - U1H1 IS POWERED AT RATED LINE VOLTAGE AND FREQUENCY
    - ALL PCB ASSEMBLIES ARE CONNECTED
    - DSP ASSEMBLY IS IN SELF-TEST MODE (SEE SERVICE DIAGRAM, COMBINED DSP SFX SERIES P/N: 005338000 FOR DETAILS)
    - POWER AMPLIFIER IS UNLOADED TO AVOID ANY UNNECESSARY HEATING
    - ALL CONTROLS TO BE SET AT 5-1/2 (50% ROTATION)
  - INPUT SIGNALS:
    - TP1-4 117V INTO J2 OR 117V INTO J1
    - TP5-12 117V INTO J5
    - TP15-26, TP33-38 117V INTO J7
    - TP27-31 117V INTO J7 WITH AN OPEN 1/4" PHONE PLUG IN J8
  - ALL POLARIZED CAPACITORS IN  $\mu$ F; 50V MIN. 25%.
  - ALL UNPOLARIZED CAPACITORS IN  $\mu$ F; 50V MIN. 10% OR BETTER.
  - ALL RESISTORS IN OHMS; 1/4W, 5%.
- NOTES: (UNLESS OTHERWISE NOTED)

THIS DOCUMENT CONTAINS INFORMATION OF A PROPRIETARY NATURE TO FENDER MUSICAL INSTRUMENTS AND IS SUBMITTED TO YOU IN CONFERENCE AND SHALL NOT BE DISCLOSED OR TRANSMITTED TO OTHERS WITHOUT AUTHORIZATION FROM FENDER MUSICAL INSTRUMENTS.

**Fender** MUSICAL INSTRUMENTS  
2621 Research Drive  
Corona, CA 91720 USA

CHECKED BY: *B. Desi*  
DATE: 2-26-98

APPROVED BY: *[Signature]*  
DATE: 2-26-98

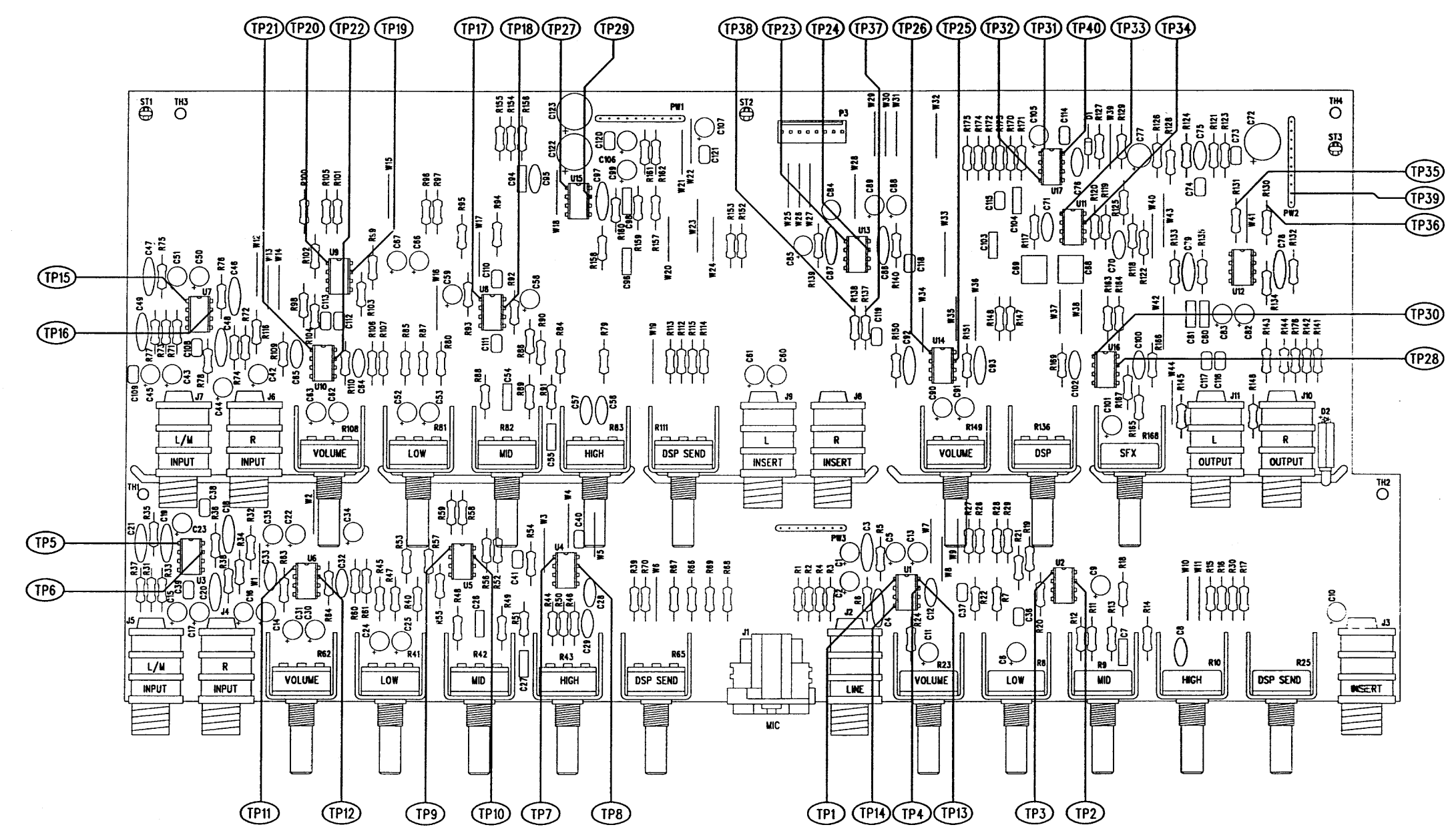
DRAWN: B. DESI  
DATABASE FILE: 237251.SCH

TITLE: SERVICE DIAGRAM, COMBINED (schematic)  
SFX KEYBOARD 200  
PREAMP PCB

SIZE: D  
DRAWING NUMBER: 0053446000  
RELEASE DATE: 27-FEB-98

REV. A  
SHEET: 1 OF 2

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	PR372	27-FEB-98	E M M



FILM/DWG: SERVICE DIAGRAM  
 DATABASE: Z372PLPCB DATE: 27-FEB-98

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CHECKED BY: *[Signature]*  
 DATE: 2-26-98

APPROVED BY: *[Signature]*  
 DATE: 26 FEB 98

DRAWN: B. DESI ENGR: B. DESI  
 DATABASE FILE: Z372PLPCB

**Fender** MUSICAL INSTRUMENTS  
 2621 Research Drive  
 Corona, CA 91720 USA

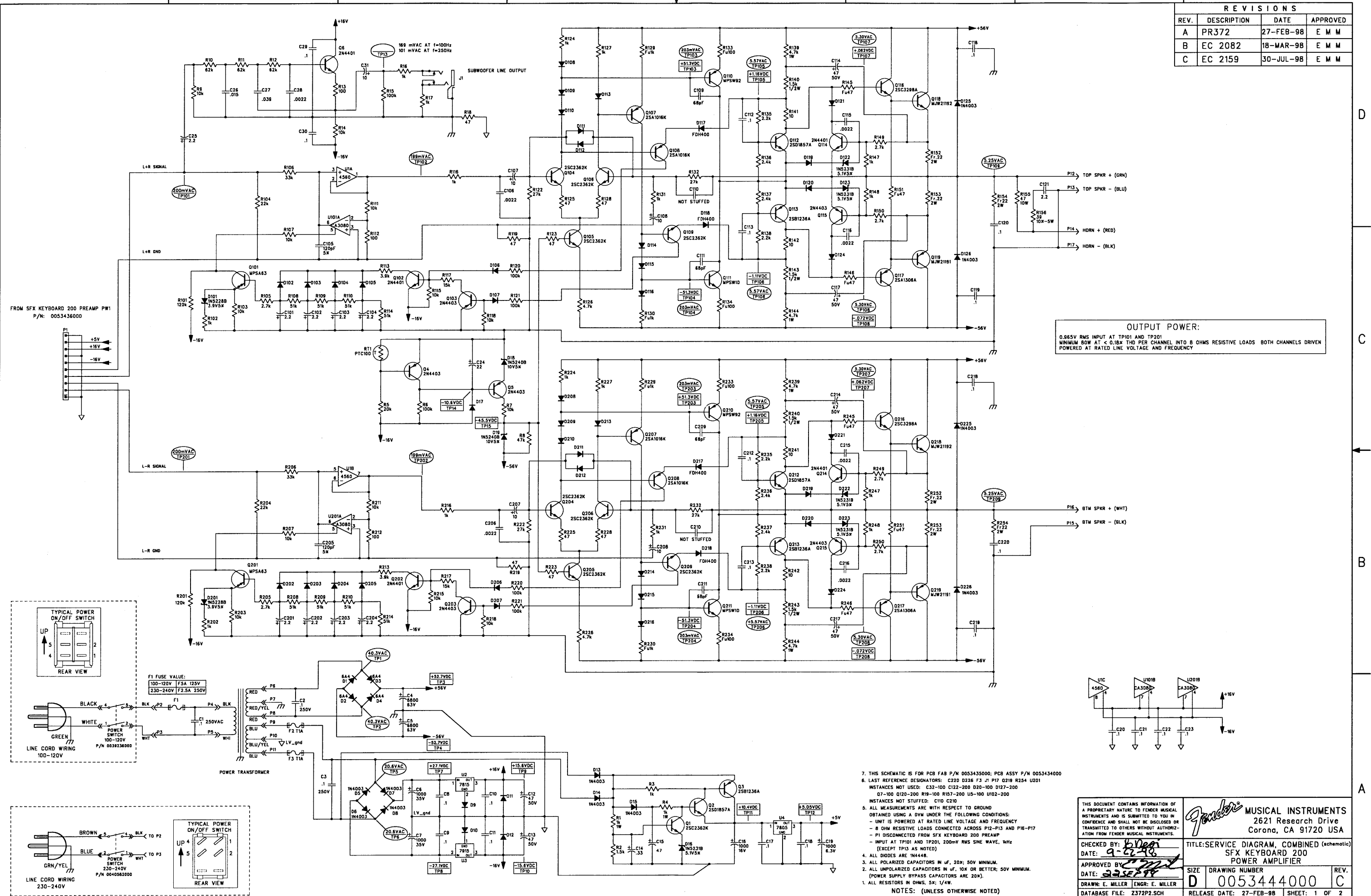
TITLE: SERVICE DIAGRAM, COMBINED (PCB assy)  
 SFX KEYBOARD 200  
 PRE AMPLIFIER

SIZE	DRAWING NUMBER	REV.
C	0053446000	A

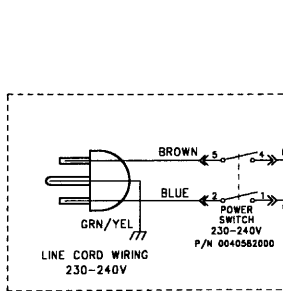
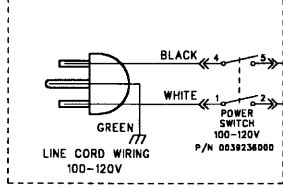
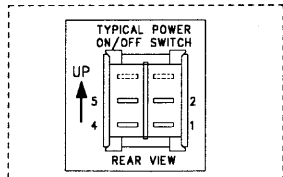
RELEASE DATE: 27-FEB-98 SHEET 2 OF 2

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

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	PR372	27-FEB-98	E M M
B	EC 2082	18-MAR-98	E M M
C	EC 2159	30-JUL-98	E M M



**OUTPUT POWER:**  
 0.855V RMS INPUT AT TP101 AND TP201  
 MINIMUM 80W AT < 0.18X THD PER CHANNEL INTO 8 OHMS RESISTIVE LOADS BOTH CHANNELS DRIVEN  
 POWERED AT RATED LINE VOLTAGE AND FREQUENCY



F1 FUSE VALUE:  
 100-120V F5A 125V  
 230-240V F2.5A 250V

- THIS SCHEMATIC IS FOR PCB FAB P/N 0053435000; PCB ASSY P/N 0053434000
  - LAST REFERENCE DESIGNATORS: C220 D226 F3 J1 P17 Q219 R254 U201  
 INSTANCES NOT USED: C32-100 C122-200 D20-100 D127-200  
 Q7-100 Q120-200 R19-100 R157-200 U5-100 U102-200  
 INSTANCES NOT STUFFED: C10 C210
  - ALL MEASUREMENTS ARE WITH RESPECT TO GROUND
  - OBTAINED USING A DVN UNDER THE FOLLOWING CONDITIONS:  
 - UNIT IS POWERED AT RATED LINE VOLTAGE AND FREQUENCY  
 - 8 OHM RESISTIVE LOADS CONNECTED ACROSS P12-P13 AND P16-P17  
 - P1 DISCONNECTED FROM SFX KEYBOARD 200 PREAMP  
 - INPUT AT TP101 AND TP201, 200mV RMS SINE WAVE, 1kHz  
 (EXCEPT TP13 AS NOTED)
  - ALL DIODES ARE 1N4003.
  - ALL POLARIZED CAPACITORS IN uF, 20X; 50V MINIMUM.
  - ALL UNPOLARIZED CAPACITORS IN uF, 10X OR BETTER; 50V MINIMUM.  
 (POWER SUPPLY BYPASS CAPACITORS ARE 20X).
  - ALL RESISTORS IN OHMS, 5X; 1/W.
- NOTES: (UNLESS OTHERWISE NOTED)

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**Fender** MUSICAL INSTRUMENTS  
 2621 Research Drive  
 Corona, CA 91720 USA

CHECKED BY: *[Signature]*  
 DATE: 9-22-98  
 APPROVED BY: *[Signature]*  
 DATE: 2-25-99  
 DRAWN: E. MILLER ENGR: E. MILLER  
 DATABASE FILE: Z372P2.SCH

TITLE: SERVICE DIAGRAM, COMBINED (schematic)  
 SFX KEYBOARD 200  
 POWER AMPLIFIER

SIZE: D  
 DRAWING NUMBER: 0053444000  
 REV. C

RELEASE DATE: 27-FEB-98  
 SHEET: 1 OF 2

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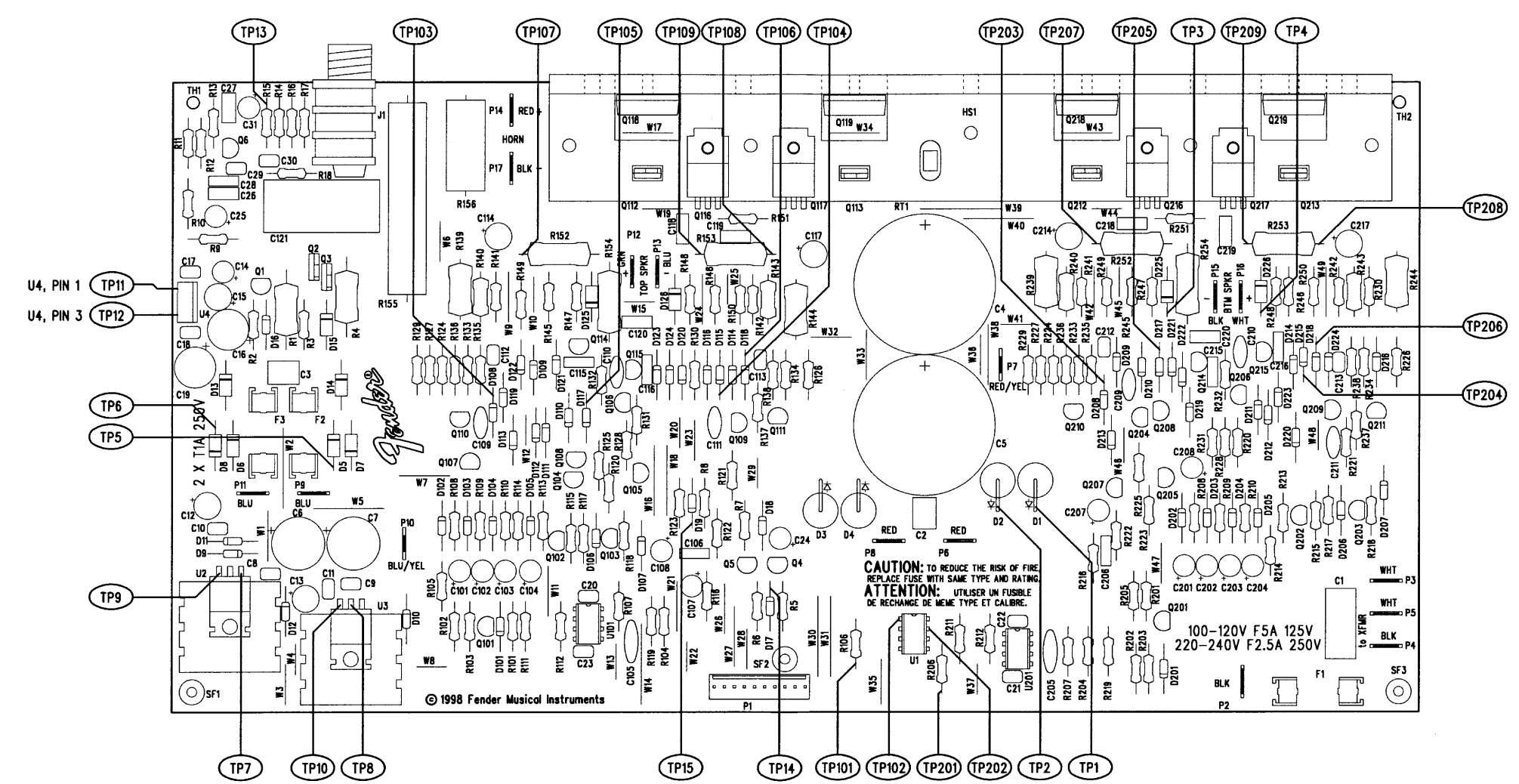
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REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	PR372	27-FEB-98	E M M
B	EC 2082	18-MAR-98	E M M
C	EC 2159	30-JUL-98	E M M



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FILM/DWG: SERVICE DIAGRAM  
 DATABASE: Z372P2.PCB DATE: 18-MAR-98

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CHECKED BY: <i>B. Davis</i>	TITLE: SERVICE DIAGRAM, COMBINED (PCB assy)		
DATE: 9-22-98	SFX KEYBOARD 200		
APPROVED BY: <i>[Signature]</i>	POWER AMPLIFIER		
DATE: 22 SEP 98	SIZE: C	DRAWING NUMBER: 0053444000	REV. C
DRAWN: E. MILLER	ENGR: E. MILLER	RELEASE DATE: 27-FEB-98	SHEET 2 OF 2
DATABASE FILE: Z372P2.PCB			

2. COMPONENTS NOT STUFFED: C10 C210  
 1. SEE SHEET 1 FOR TEST CONDITIONS AND TEST POINT VALUES  
 NOTES: (UNLESS OTHERWISE NOTED)

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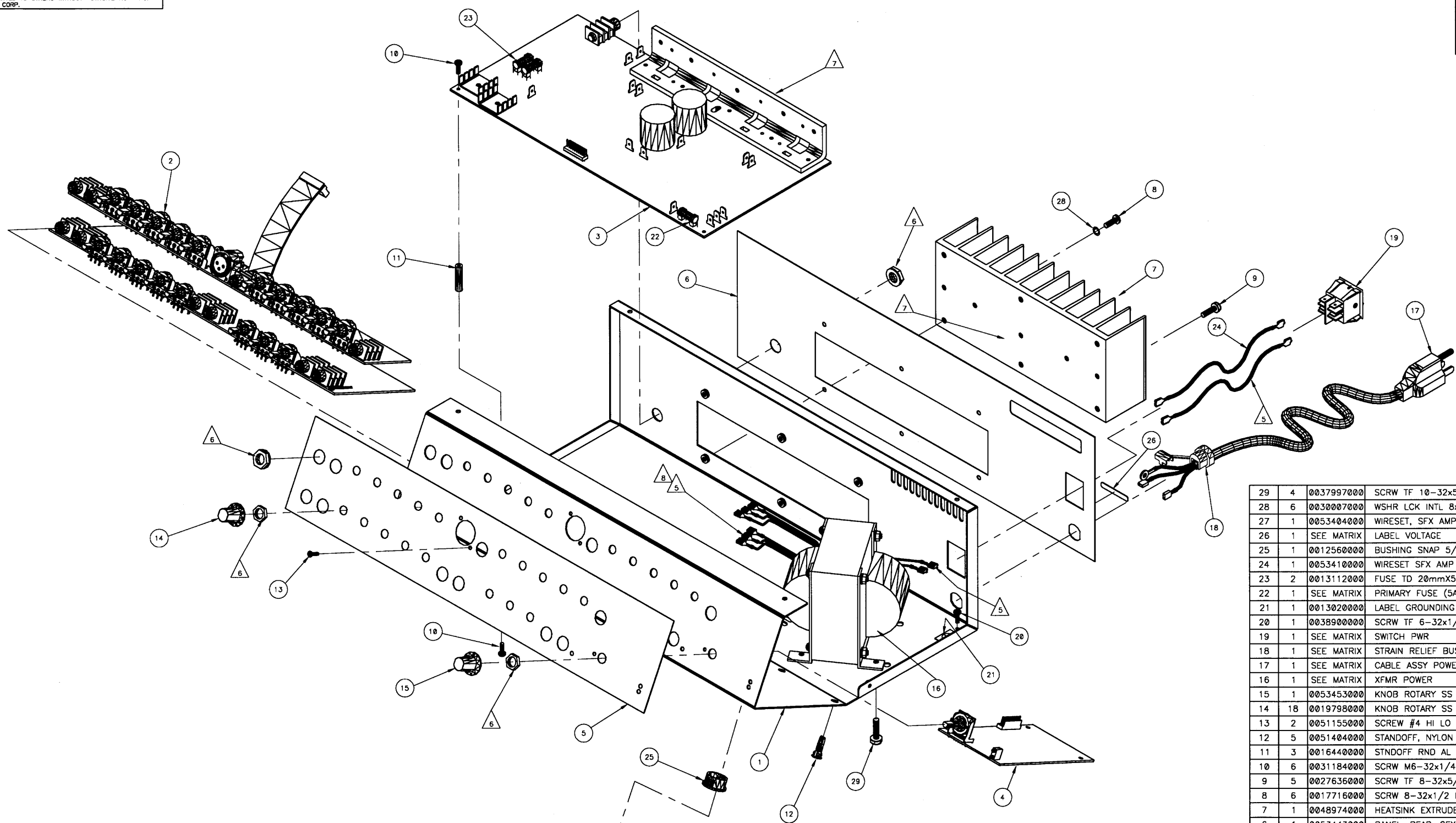
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REV	EC NUMBER	BY	DATE/ARCHIVE
A	PR 372	HB	02-25-98 ARCHIVE
B	EC 2159	CHG	8/19/98 ARCHIVE
C	EC 2213- CHG XFMR, ADD NEW SCRW ITEM29, CHG QTY FOR ITEM 9 FROM 8 TO 5	BS	11/30/98



- ⚠ SECURE SPEAKER WIRESET TO XFMR SECONDARY LEADS WITH TIE WRAP.
  - ⚠ ADD THERMAL GREASE BETWEEN HEATSINK(ITEM 7) AND PWR AMP HEATSINK PLATE.
  - ⚠ HARDWARE INCLUDED WITH PART.
  - ⚠ TWIST WIRE GROUPS TOGETHER.
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

29	4	0037997000	SCRW TF 10-32x5/8 HWHS BLX
28	6	0030007000	WSHR LCK INTL 8x.330x.02 ZI
27	1	0053404000	WIRESET, SFX AMPS, SPKR
26	1	SEE MATRIX	LABEL VOLTAGE
25	1	0012560000	BUSHING SNAP 5/8x27/32 BLK
24	1	0053410000	WIRESET SFX AMP CHS
23	2	0013112000	FUSE TD 20mmX5mm 250V 1A
22	1	SEE MATRIX	PRIMARY FUSE (5A DOM., 2.5A EXP.)
21	1	0013020000	LABEL GROUNDING SEMKO
20	1	0038900000	SCRW TF 6-32x1/4 PHP ZI
19	1	SEE MATRIX	SWITCH PWR
18	1	SEE MATRIX	STRAIN RELIEF BUSHING
17	1	SEE MATRIX	CABLE ASSY POWER
16	1	SEE MATRIX	XFMR POWER
15	1	0053453000	KNOB ROTARY SS W/ARROW BLK
14	18	0019798000	KNOB ROTARY SS
13	2	0051155000	SCREW #4 HI LO
12	5	0051404000	STANDOFF, NYLON BLACK
11	3	0016440000	STNDOFF RND AL 6-32x1x1/4
10	6	0031184000	SCRW M6-32x1/4 PHPS BLX ITLW
9	5	0027636000	SCRW TF 8-32x5/8 HWH BLX
8	6	0017716000	SCRW 8-32x1/2 PHP BLX
7	1	0048974000	HEATSINK EXTRUDED BXR200
6	1	0053443000	PANEL, REAR, SFX KEYBRD 200
5	1	0053442000	PANEL, FRONT, SFX KEYBRD 200
4	1	0053875000	PCB ASSY DSP SFX KEYBRD 200
3	1	0053434000	PCB ASSY POWER AMP SFX KEYBRD 200
2	1	0053436000	PCB ASSY PREAMP SFX KEYBRD 200
1	1	0053415000	CHASSIS SFX KEYBRD 200

MATRIX

ITEM	DESCRIPTION	120V DOM.	230V EUR.	230V UK	240V AUS	100V JPN
26	LABEL VOLTAGE	NONE	0050505000	0050505000	0050506000	0050507000
22	PRIMARY FUSE	0053885000	0020795000	0020795000	0020795000	0053885000
19	SWITCH PWR	0039236000	0040582000	0040582000	0040582000	0039236000
18	STRAIN RELIEF	0026038000	0010401000	0010401000	0010401000	0026038000
17	CABLE ASSY PWR	0026541000	0033331000	0040993000	0038602000	0048463000
16	XFMR, PWR	0053886000	0053888000	0053888000	0053888000	0053887000

ENGINEER  
DESI

DRAWN  
H. BOWIE

DATE  
11-06-97

DFT. ENG. ENG.  
DATE DATE DATE  
11/20/97 11/20/97 11/20/97

APPROVED  
*[Signature]*  
DATE  
02 DEC 98

TITLE  
CHASSIS ASSY  
SFX KEYBOARD 200

SHEET 1/1  
SCALE 1:2

SIZE D

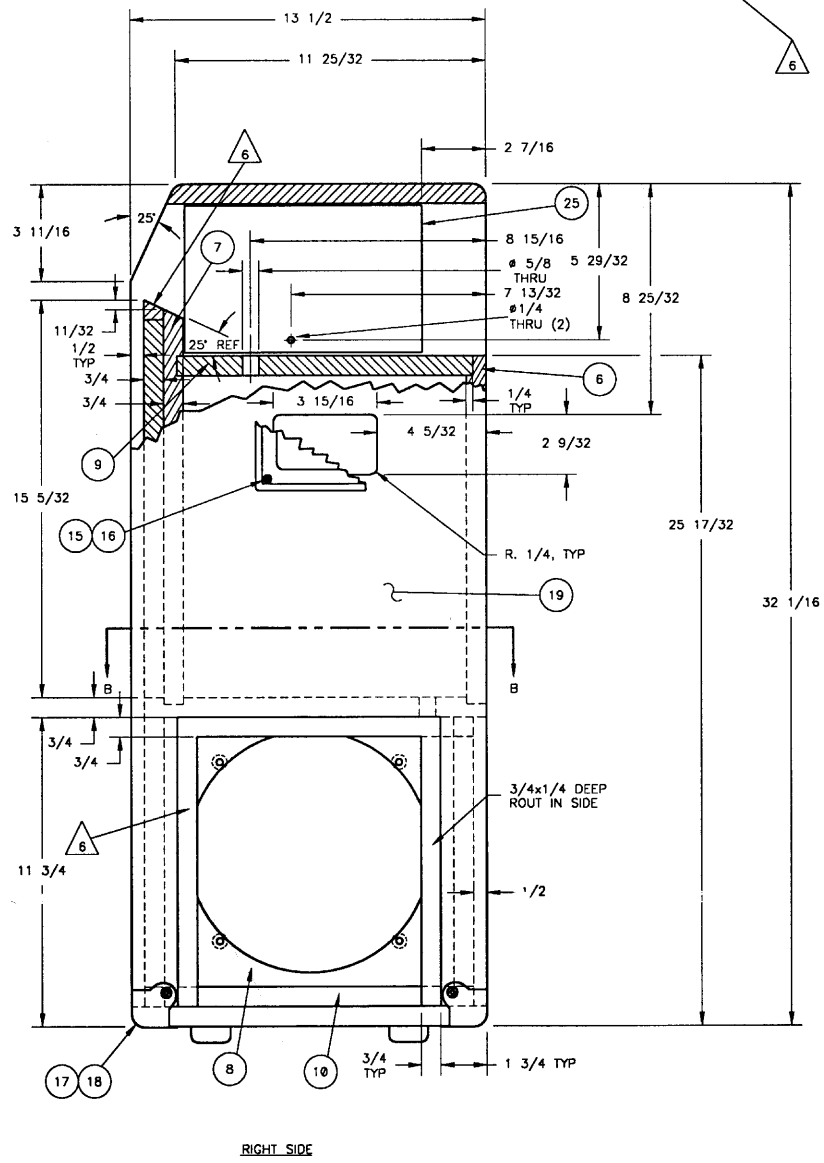
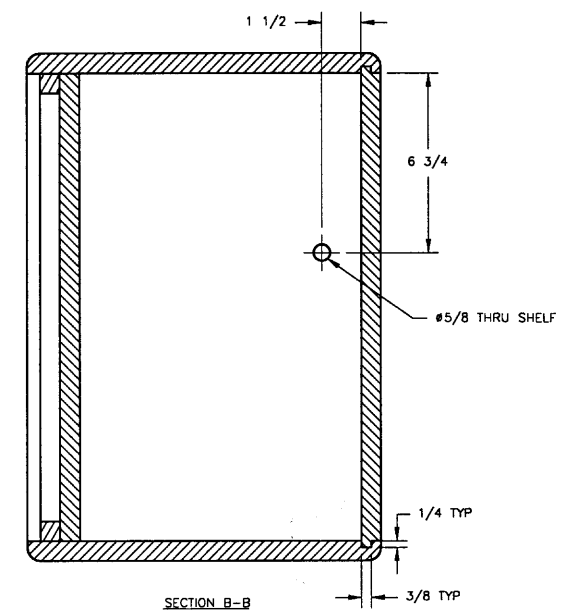
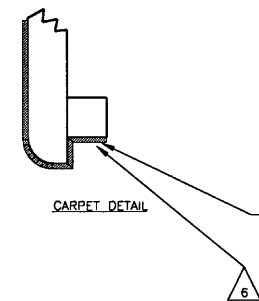
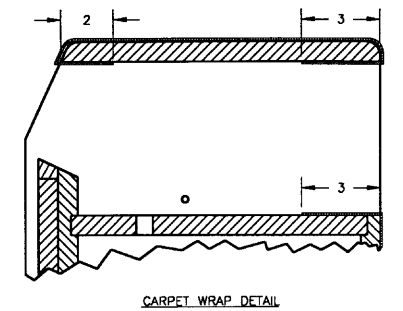
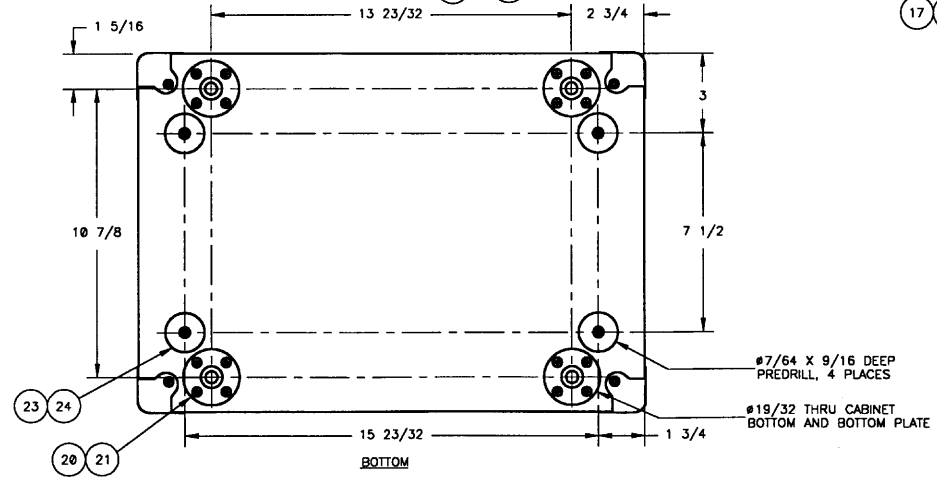
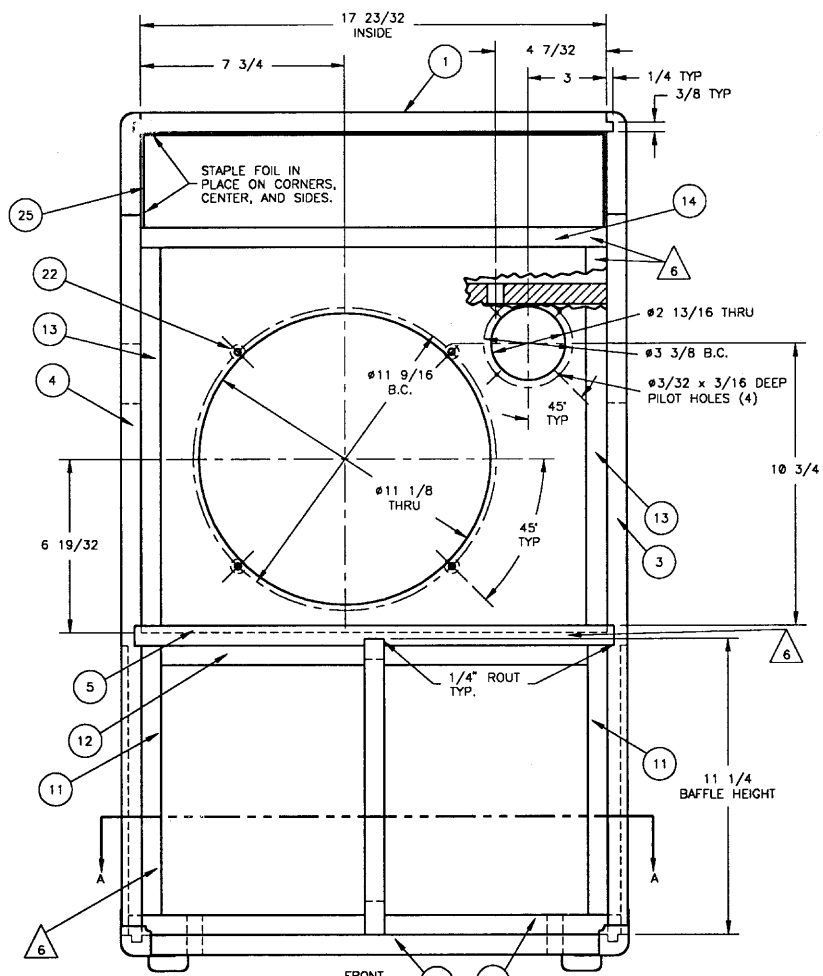
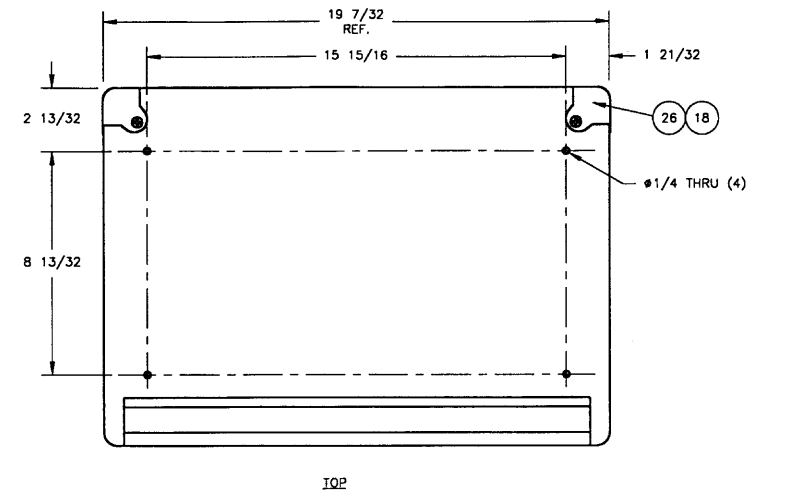
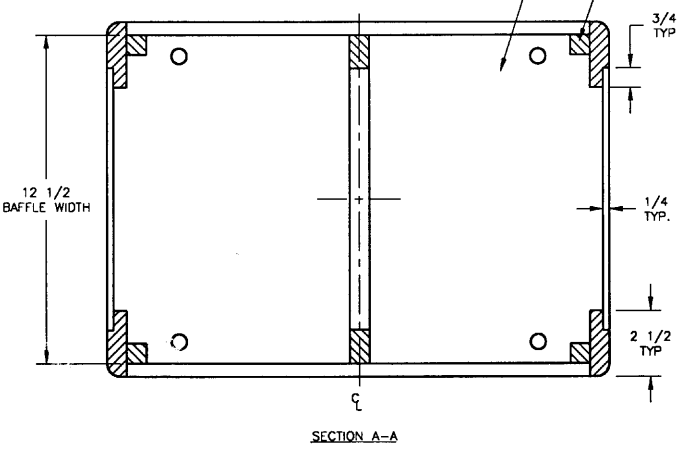
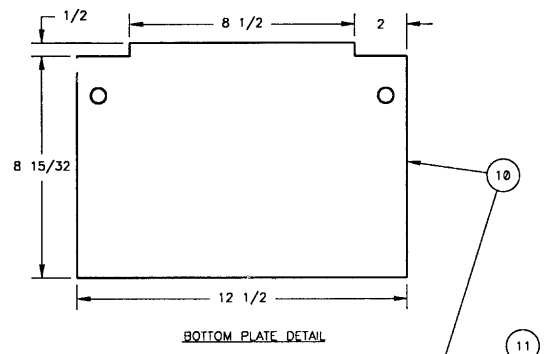
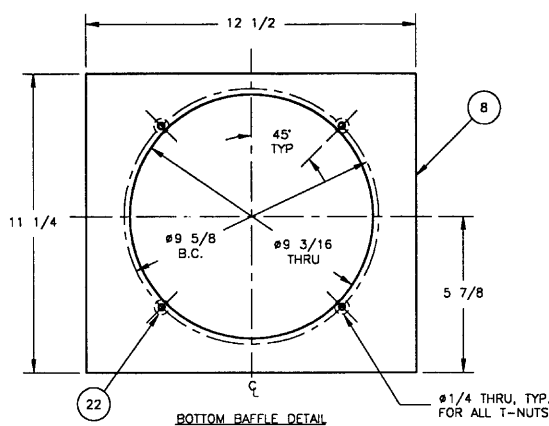
DRAWING NUMBER  
0053607000

REV. C

MASTER

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REV	EC NUMBER	BY	DATE/ISSUE
A	PR 372	HB	02-24-98
B	EC 2121	HB	05-13-98
			ARCHIVE



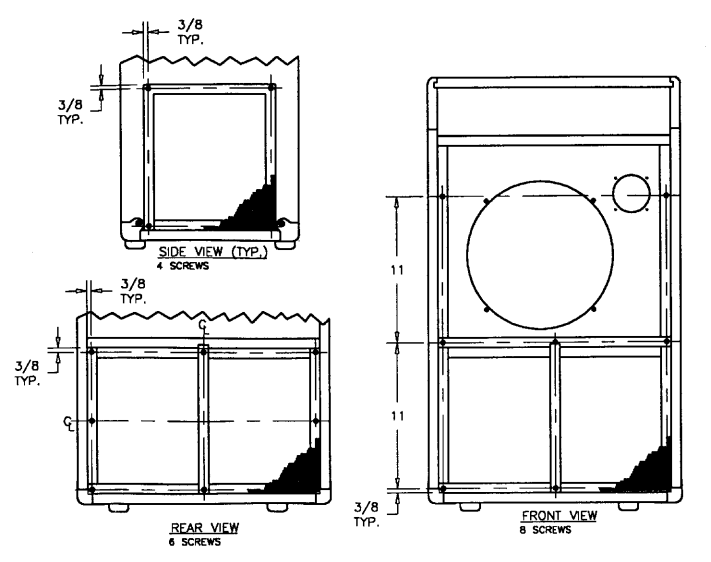
- 8 MAT'L: PARTICLE BOARD (PN#0027502000)
  - 7 MAT'L: 3/4" PLYWOOD (PN#0040677000)
  - 6 CARPET TO COVER ALL GRILLE MOUNTING SURFACES.
  - 5. ALL CORNER RADIUS TO BE 1/2" TYP.
  - 4. COPYRIGHT - 1998 - FENDER MUSICAL INSTRUMENTS CORP.
  - 3. - 3 - SAMPLES OF FIRST PARTS MUST BE APPROVED BY FENDER R&D BEFORE STARTING PRODUCTION.
  - 2. ALL DIMENSIONS ARE IN INCHES.
  - 1. DO NOT SCALE DRAWING.
- NOTES: UNLESS OTHERWISE NOTED

ITEM	QTY.	PART NO.	DESCRIPTION
26	2	0031867000	CORNER 2 HOLE w/NOTCH BLK PWDR
25	A/R	0040004000	TAPE ALUM 9"X60YDS
24	4	0026625000	SCRW WOOD 8x1 FH
23	4	0051049000	FOOT RUBBER 1.5 DIA
22	8	0021972000	NUT T 10-32x3/4 STR 3 PRNG BLX
21	16	0027199000	SCRW SMAB 10x3/4 PHP NI
20	4	0023505000	MTG PLATE - SWIVEL CASTER
19	A/R	0040046000	CARPET BLACK
18	12	0026576000	SCRW SMA 8x5/8 THP BLACK
17	4	0031838000	CORNER 2 HOLE w/TAB BLK PWDR
16	8	0016627000	SCRW SMA 8x3/4 OHP BLX
15	2	0048958000	HANDLE RECESSED KXR/BXR
14	1	0052057014	CLEAT BEVELED 3/4x3/4x17-23/32
13	2	0052057013	CLEAT 3/4x3/4x14-13/32
12	4	0052057011	CLEAT 3/4x3/4x7-23/32
11	4	0052057010	CLEAT 3/4x3/4x10-1/4
10	2	0052057009	BOTTOM PLATE
9	1	0052057008	CABINET SHELF
8	1	0052057007	CABINET BAFFLE BOTTOM
7	1	0052057006	CABINET BAFFLE TOP
6	1	0052057015	CABINET BACK
5	1	0052057005	CABINET MIDDLE
4	1	0052057004	CABINET LEFT SIDE
3	1	0052057003	CABINET RIGHT SIDE
2	1	0052057002	CABINET BOTTOM
1	1	0052057001	CABINET TOP

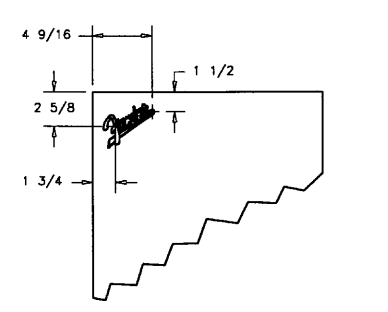
MATERIAL AS NOTED	ENGINEER MILLER/DESI	FENDER MUSICAL INSTRUMENTS CORP. CORONA, CALIFORNIA 91720	TITLE CABINET ASSY SFX KEYBOARD 200
FINISH PAINT ALL EXPOSED SURFACES BLACK.	DRAWN BOWIE		SHEET 1/1
TOL. UNLESS NOTED FRACT. ----- +- 1/32 .X ----- +- 0.050 .XX ----- +- 0.010 .XXX ----- +- 0.005 ANGLES ----- +- 0.5 DEGREES HOLE DIA. ----- +0.005 - 0.001 UNMARKED ANGLES ARE 90 DEGREES.	DATE 07-09-97	DATE 5/13/98	SCALE 1:4
	DATE 13 MAY 98	D	0052057000
			B

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REV	EC NUMBER	BY	DATE/ARCHIVE
A	PR 372	HB	02-25-98 ARCHIVE
B	EC 2159	GHG	8/18/98 ARCHIVE
C	EC 2213 - SHOWED NEW XFMR MOUNTING	BS	11/30/98

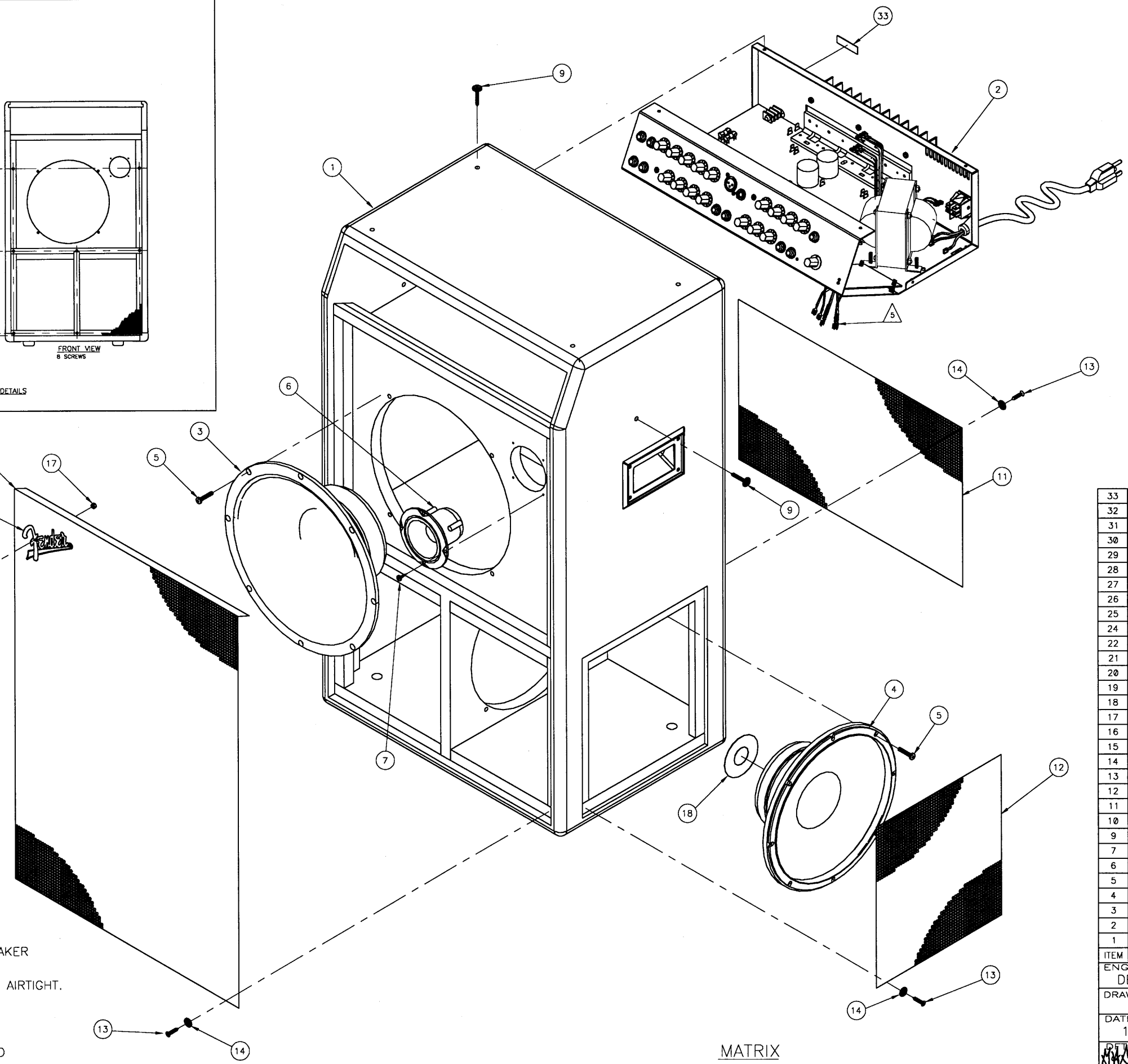


SCREW PLACEMENT DETAILS



NAMEPLATE PLACEMENT DETAILS  
GET AS CLOSE TO DIMENSIONS AS  
GRILLE HOLES WILL ALLOW.

- △ LEAVE SERVICE LOOP TO ALLOW SPEAKER AND CHASSIS REMOVAL.  
HOLES IN MAIN BODY TO BE SEALED AIRTIGHT.
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.
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- NOTES: UNLESS OTHERWISE NOTED



MATRIX

(N.S. = NOT SHOWN)

ITEM	QTY.	PART NO.	DESCRIPTION
33	1	0029816000	LABEL SERIAL MEXICO
32	2	0053961000	CARTON INSERT SFX KEYBOARD 200 (n.s.)
31	1	0053454000	STICKER BUMPER FEND SINCE 1946 (n.s.)
30	1	SEE MATRIX	TAG WARRANTY 5 YR FENDER- NEW (n.s.)
29	1	0010526000	TAB CASTER REMOVAL NOTICE (n.s.)
28	1	0053569000	SVC DIA COMB DSP SFX SERIES (n.s.)
27	1	0053444000	SVC DIA COMB PWR SFX KEYBRD (n.s.)
26	1	0053446000	SVC DIA COMB PRE SFX KEYBRD (n.s.)
25	1	0053448000	MANUAL OWNER'S SFX KEYBOARD 200 (n.s.)
24	1	9903320000	BAG POLY ZIP 10x13 2M (n.s.)
22	1	0029757000	BAG POLY 35x22x52 .0015 (n.s.)
21	1	0053449000	CARTON SFX KEYBOARD 200 (n.s.)
20	2	9903311400	BAG JIFFY #1 7-1/4x12 (n.s.)
19	4	0023513000	CASTER SWIVEL (n.s.)
18	1	0038299000	DECAL SPEAKER GLOBE ROUND
17	2	0050311000	NUT 2-56 NYLON INSERT 2CNME-Z
16	2	0050312000	SCRW 2-56X3/8 FHP NI
15	1	0050850000	NAMEPLATE VINTAGE PLASTIC SMAL
14	22	0029527000	WSHR FNSH 8-5/8 FLNGD BLX WX
13	22	0016627000	SCRW SMA 8x3/4 OHP BLX
12	2	0053466000	GRILLE, SIDE, SFX KEYBOARD 200
11	1	0053467000	GRILLE, REAR, SFX KEYBOARD 200
10	1	0053465000	GRILLE, FRONT, SFX KEYBOARD 200
9	6	0053487000	SCRW TF 8-32x1 3/8 #6 OH BLX
7	4	9904101110	SCRW PB 8x5/8 PHP BLX
6	1	0049260000	HORN CERAMIC PIEZO KXR 60
5	8	0026577000	SCRW M 10-32x1 PHP BLX
4	1	0053614000	SPEAKER 10" 8 OHM
3	1	0047539000	SPEAKER 12" 8 ohm 75W BXR 60
2	1	SEE MATRIX	CHASSIS ASSY, SFX KEYBOARD 200
1	1	0052057000	CABINET ASSY, SFX KEYBOARD 200

ENGINEER DESI/MILLER	Fender FENDER MUSICAL INSTRUMENTS CORP. CORONA, CALIFORNIA 91720
DRAWN H. BOWIE	
DATE 12-01-97	TITLE END ITEM ASSY SFX KEYBOARD 200
DATE 11/20/98	SHEET 1/1
DATE 02 DEC 98	SCALE N/A
DATE	SIZE D
DATE	DRAWING NUMBER 0228503000
DATE	REV. C

ITEM	DESCRIPTION	120V DOM.	230V EUR.	230V UK	240V AUS.	100V JPN
30	TAG WARR. 5 YR FENDER- NEW	0053412000	-	-	-	-
2	CHASSIS ASSY	0053607000	0053608000	0053609000	0053610000	0053611000
		0228503000	0228563000	0228543000	0228533000	0228573000