



# DELUXE™ 90 DSP

(This is the model name for warranty claims)

p/n 2267200030 (120V)

# SERVICE MANUAL



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June, 02

## IMPORTANT NOTICE

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specifications are subject to change without notice. This information and any copies produced electronically or otherwise must be surrendered upon demand of Fender Musical Instruments Corporation.

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

## PARTS LIST CODES

The description codes used in the itemized Parts Lists are defined below:

### 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



## SPECIFICATIONS

<b>Model Name:</b>	Deluxe 90 DSP
<b>Release Number:</b> <i>(Not a model number)</i>	PR 516
<b>Part Numbers</b>	(120V, 60Hz) US: 2268200030 (110V, 60Hz) TW: 2268201030 (240V, 50Hz) AUS: 2268203030 (230V, 50Hz) UK: 2268204030 (230V, 50Hz) ARG: 2268205030 (230V, 50Hz) EUR: 2268206030 (100V, 50/60Hz) JPN: 2268207030 (220V, 60Hz) ROK: 2268209030
<b>Power Requirement:</b>	360 W
<b>Power Output:</b>	90 W RMS into 4Ω @ 5 %THD
<b>Power Amp Sensitivity:</b>	840mV for 90W into 4Ω @ 5 %THD
<b>Impedances</b>	Input 1(Pre-Amp): 2.2 MΩ Input 2(Pre-Amp): 136 kΩ Pre Amp Out: 1 kΩ Pwr Amp In: 23 kΩ
<b>Speaker Complement:</b>	One (1) 12", 4Ω, Celestion G12T-100 (P/N 0054421000)
<b>Dimensions</b>	<b>Height:</b> 16.5 in (42 cm) <b>Width:</b> 20.6 in (52.63 cm) <b>Depth:</b> 9.0 in (30.5 cm)
<b>Weight:</b>	33 lbs (15 kg)

*Product specifications are subject to change without notice*



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### SERVICE NOTES

- 1. CHASSIS REMOVAL** is accomplished by detaching the speaker wires from the speaker, removing four (4) screws from the top of the cabinet and two (2) screws from the sides; then slide the Chassis toward the rear of the Cabinet.
- 2. uDSP PCB ASSEMBLY REMOVAL** is accomplished by disconnecting the ribbon cable on the PCB Assembly, releasing the tabs on each of the plastic stand-offs which the PCB assembly is mounted. Removal of the uDSP PCB assembly may be necessary should any of the Digital Effects operate improperly.
- 3. Deluxe 90 DSP MAIN PCB REMOVAL** is accomplished by first disconnecting the Speaker wires from P1 & P2. Disconnect the transformer leads from the PCB (@ P3-15). Disconnect the two (2) PCB wires (white & black @PW1-2) from the power switch. Disconnect the ribbon cable from P16. Gently pull the LED tulip from the jewel. Remove the following items: All knobs, twelve (12) washers and nuts at the front panel controls, two (2) nuts and washers at the Input Jacks, and three (3) screws at the Heatsink underneath the Chassis. Release the tabs on each of the six (6) stand-offs, and remove the PCB. The rear panel PCB card may be removed by removing the three (3) nuts at the rear panel jacks.

### PCB EXCHANGE POLICY

Parts marked with a single asterisk (\*) in the Part Lists (starting on page 11) are not field replaceable. If a failure due to one of these components is detected, please contact the Fender® Dealer

Customer Service Department to order the complete PCB Assembly.



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### CIRCUIT DESCRIPTION

This section provides an overview of any new or unusual circuitry incorporated into this amplifier model. The purpose is to aid the service technician by providing insight into the design areas most likely to present a challenge in troubleshooting. This overview is focused for the efficient use and security of Fender® proprietary information.

#### **PRE-AMPLIFIER**

The guitar input signal is fed into the high pass filter at U1–A before splitting into two signal paths. The normal channel signal path through U1–B is active until FETs Q5 and Q6 are turned on activating the drive channel signal path (U2–A to U3–B). FETs Q1, Q3, and Q4 activate the “More Drive” channel signal path for increased gain and sustain. Differential amp U4–B and inverting follower U5–B supplies the input to the DSP card with the appropriate gain, a differential input signal, and +1.65V DC bias. The preamp is in series with the digital effects card, therefore, disconnecting the card breaks the overall signal path. The low pass filter at U5–A recovers the signal from the uDSP card and sends it to the external effects loop and power amplifier.

#### **POWER AMPLIFIER**

The input signal is conditioned at filter U6–B. Differential amplifier Q11 and Q12 is fed by current source Q10, which is controlled by a thermal protection circuit comprised of Q8, Q9, and RT2. This circuit is also controlled by the MUTE signal (at the

base of Q9) to mute the power amplifier at turn-on, turn-off, and upon removal of all input jacks. The current turnaround at Q13 is used to feed the output of the differential amplifier stage to a voltage amplifier comprised by Q14 and Q15. Q16 and Q17 provide voltage multiplication for output bias. Q20 and Q21 are Darlington drivers for output devices Q22 and Q23. Q18 and Q19 provide over-current protection.

#### **POWER SUPPLY**

Standard bridge rectifier for the ±40V supply, with zener regulation (D50–51) for the ±16V supplies. U10 (7805 regulator) supplies +5V for the uDSP card and digital user–interface.

#### **DIGITAL USER INTERFACE**

The uDSP effects card generates clock signal HD1 which controls the 4053 CMOS switch to read pots R61, and R62. The DC level (0–5V) of the pots controls the effects level, and effects time/rate. The output of the 4–bit encoder, S3, determines the active effect algorithm (HD4–HD7).

#### **DIGITAL NOISE**

The DSP section of this amplifier produces some high frequency noise (>50 kHz). This noise is a normal byproduct of DSP processing. It is not audible, and does not affect the operation of the amplifier, but may be apparent when observing the output of the amplifier on an oscilloscope.



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PARTS LIST: <b>MAIN – PCB ASSEMBLY</b>			
QTY.	PART #	DESCRIPTION	REFERENCE DESIGNATION
1	0057484000	**PCB ASSY DELUXE 90 DSP	
REF	0057479000	SVC DIA, COMB. DLX 90 DSP	
1	*	PCB FABRICATION DELUXE 90 DSP	
1	0057788000	**WIRE SET PCB DLX 90 DSP	
3	0026517001	CAP AE AX 2.2uF 50V 20%	C18 C56 C61
1	0038692001	CAP AE AX 10uF 35V 20%	C71
7	0009512001	CAP AE AX 22uF 25V 20%	C10-11 C32-34 C46 C82
2	0033606003	CAP AE RDL .47uF 50V 20%	C17 C50
2	0028458003	CAP AE RDL 1uF 50V 20%	C15 C60
2	0028467003	CAP AE RDL 22uF 50V 20%	C68-69
3	0028471003	CAP AE RDL 47uF 50V 20%	C58 C66-67
2	0028476003	CAP AE RDL 100uF 50V 20%	C78-79
2	0031756000	CAP AE RDL 4700uF 50V +100%-20%	C74-75
1	0039255001	CAP CA 10pF 100V LL	C52
2	0039256001	CAP CA 68pF 100V 5%	C44-45
2	0038699001	CAP CA 100pF 100V LL	C9 C31
8	0039259001	CAP CA 220pF 100V LL	C24 C35-36 C47-48 C53 C62-63
3	0038701001	CAP CA 470pF 50V LL	C16 C43 C49
1	0039262001	CAP CA 680pF 50V LL	C51
4	0039263001	CAP CA 1000pF 50V LL	C4 C21 C27 C81
13	0034788003	CAP CR .1uF 50V 20% .2" LS	C1 C38 C76-77 C80 C83-90
1	0027255003	CAP MPF .001uF 100V 10%	C8
2	0027259003	CAP MPF .0033uF 100V 10%	C29-30
2	0027261003	CAP MPF .0047uF 100V 10%	C2-3
8	0027264003	CAP MPF .01uF 100V 10%	C39-42 C54-55 C64-65
1	0027267003	CAP MPF .022uF 100V 10%	C26
2	0027270003	CAP MPF .033uF 100V 10%	C13-14
7	0027272003	CAP MPF .047uF 63V 10%	C12 C25 C59 C92 C96 C99-100
1	0027275003	CAP MPF .068uF 100V 10%	C7
1	0052003003	CAP MPF .1uF 250V 10%	C73
1	0053860000	**CAP MPF .1uF 250VAC 20%	C72
2	0027278003	CAP MPF .1uF 63V 10%	C28 C70
6	0027281003	CAP MPF .22uF 63V 10%	C6 C19-20 C91 C93 C95
1	0027283003	CAP MPF .33uF 63V 10%	C57
4	0027286003	CAP MPF .47uF 63V 10%	C5 C94 C97-98
1	0030950003	CAP PFF RDL .022uF 50V 5%	C23
1	0030953003	CAP PFF RDL .039uF 50V 5%	C22
2	0027947000	CONTROL SNAPIN 100k 30C TAPER	R28 <b>DRIVE</b> R47 <b>DR CH TREBLE</b>
1	0027949000	CONTROL SNAPIN 250k 30C TAPER	R41 <b>DR CH BASS</b>
3	0027940000	CONTROL SNAPIN 50k 15A TAPER	R12 <b>CLN CH BASS</b> R18 <b>CLN VOL</b> R35 <b>DR VOL</b>
4	0027941000	CONTROL SNAPIN 50k B TAPER	R11 <b>CLN CH TREBLE</b> R44 <b>DR CH MID</b> R61-62 <b>EFX LEVEL &amp; TIME/RATE</b>
1	0054390000	CONTROL SNAPIN 5k 15A TAPER	R13 <b>CLN CH MID</b>

\* Non-serviceable part. Replace complete parent assembly. See PCB EXCHANGE POLICY on page 4.

Unique Fender® part. Order directly from the Fender® dealer Customer Service Department.

\*\* Safety Requirement part. Replacement must match *Safety Agency*...–*Value*, if specified –*Type*, if specified –*Approval Mark(s)* if on part.

\*\* Both a unique Fender® part and a Safety Requirement part as defined above.

**DELUXE™ 90 DSP**

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<b>PARTS LIST: MAIN – PCB ASSEMBLY (continued)</b>			
<b>QTY.</b>	<b>PART #</b>	<b>DESCRIPTION</b>	<b>REFERENCE DESIGNATION</b>
1	0041074000	ENCODER 16-POS 4-BIT BINARY	S3 EFX SELECT
3	0064089001	DIODE 1N4003 LL	D25 D44-45
45	0006260001	DIODE 1N4448 SIGNAL LL	D1-7 D10-21 D23-24 D27-33 D38-39 + D41 D43 D54-55 D59 D61-63 D67-73
4	0029045000	DIODE 6A 400V 6A4 LEAD FORMED	D46-49
2	0025821001	DIODE HV FDH400 SWITCHING	D34-35
2	0054210001	DIODE SCHOTTKY BAT85	D36-37
4	0027329001	DIODE ZEN 1N5228B 3.9V 5% LL	D56-58 D65
2	0031729001	DIODE ZEN 1N5231B 5.1V 5% LL	D40 D42
4	0031635001	DIODE ZEN 1N5240B 10V 5% LL	D22 D26 D60 D64
2	0028119060	DIODE ZEN 1N5353B 16V 5W 5%	D50-51
1	0057970000	DIODE ZEN 5W 1N5360B 25V	D53
4	0026000001	FASTON TAB, .187"	P6 P8 P11-12
11	0025802000	FASTON TAB, .250"	P1-5 P7 P9-10 P13-15
2	0051094003	FUSE CLIP PCB 5MM	@ F1
1	0048914000	CABLE RIBBON 8 CKT 7"	PW16
1	0027416000	HDR .1 CTR 8 CKT SQ PIN	P16
1	0057350000	HDR .1 CTR 8x2 CKT SQ PIN	P17
1	0028120000	IC 4053B TPL 2 CHAN ANLG SW	U9
6	0031611000	IC OP-AMP DUAL PC4560	U2-5 U7-8
2	0016795000	IC OP-AMP DUAL TL072	U1 U6
1	0041812000	IC REGULATOR +5V MC7805CT	U10
1	0025796000	HEATSINK TO-220	@ U10
1	0041261000	IC VOLT REF LM4040DIZ-10.0	D66
2	0051658000	JACK MONO R/A	J3 J5
3	0053450000	JACK STEREO R/A	J1-2 J4
54	0020888001	JUMPER WIRE 22 GA	W1-54
1	0040271000	LED RED/YELLOW	D74
1	0055812000	LED TULIP ASSEMBLY	D52
2	0049948000	LED, RED LONG LEAD LUMEX	D8-9
5	0024937001	RES CF 1/4W 5% 10ohm LL	R1-2 R80 R110 R115
2	0024947001	RES CF 1/4W 5% 47ohm LL	R102-103
1	0024953001	RES CF 1/4W 5% 120ohm LL	R118
2	0024954001	RES CF 1/4W 5% 150ohm LL	R124-125
2	0024960001	RES CF 1/4W 5% 390ohm LL	R126-127
3	0024961001	RES CF 1/4W 5% 470ohm LL	R42 R100-101
3	0024965001	RES CF 1/4W 5% 1k LL	R21 R77 R95
1	0024967001	RES CF 1/4W 5% 1.2k LL	R90
2	0024969001	RES CF 1/4W 5% 1.5k LL	R25 R149
8	0024971001	RES CF 1/4W 5% 2.2k LL	R19 R59-60 R65 R111-114
3	0024973001	RES CF 1/4W 5% 3.3k LL	R29 R159-160

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PARTS LIST: <b>MAIN – PCB ASSEMBLY</b> (continued)			
QTY.	PART #	DESCRIPTION	REFERENCE DESIGNATION
3	0024975001	RES CF 1/4W 5% 3.9k LL	R84 R88 R92
3	0024977001	RES CF 1/4W 5% 4.7k LL	R66 R97 R99
2	0028034001	RES CF 1/4W 5% 5.1k LL	R7 R26
1	0024979001	RES CF 1/4W 5% 6.8k LL	R8
2	0025942001	RES CF 1/4W 5% 7.5k LL	R16 R34
2	0024980001	RES CF 1/4W 5% 8.2k LL	R24 R82
12	0024981001	RES CF 1/4W 5% 10k LL	R27 R55-56 R63-64 R71-72 R140 + R142 R151 R153 R163
2	0024985001	RES CF 1/4W 5% 15k LL	R9 R81
1	0024986001	RES CF 1/4W 5% 18k LL	R94
7	0024987001	RES CF 1/4W 5% 22k LL	R10 R14 R22-23 R49 R93 R96
8	0024988001	RES CF 1/4W 5% 27k LL	R57-58 R73-76 R89 R91
4	0024989001	RES CF 1/4W 5% 33k LL	R30 R39 R83 R145
7	0024993001	RES CF 1/4W 5% 47k LL	R20 R33 R43 R45 R48 R50 R98
3	0024995001	RES CF 1/4W 5% 68k LL	R3-4 R40
12	0024997001	RES CF 1/4W 5% 100k LL	R46 R67-70 R78 R85-86 R155-157 162
2	0025058001	RES CF 1/4W 5% 180k LL	R15 R51
4	0025059001	RES CF 1/4W 5% 220k LL	R17 R32 R87 R148
2	0025061001	RES CF 1/4W 5% 330k LL	R144 R152
2	0025065001	RES CF 1/4W 5% 470k LL	R31 R139
2	0028018001	RES CF 1/4W 5% 510k LL	R5-6
7	0025069001	RES CF 1/4W 5% 1M LL	R79 R141 R143 R150 R154 R161 R164
4	0027632001	RES MF 1/4W 1% 2.43k LL	R36 R52-54
2	0015582001	RES MF 1/4W 1% 10.0k LL	R37 R147
1	0025816001	RES MF 1/4W 1% 20.0k LL	R146
1	0016971001	RES MF 1/4W 1% 33.2k LL	R38
5	0036960001	RES MF FUSE 1/4W 5% 47ohm LL	R106-107 R121-123
2	0054208001	RES MF FUSE 1/4 5% 470ohm	R104-105
1	0027872001	RES CF 1/2W 5% 1.2k LL	R158
2	0026549001	RES CF 1/2W 5% 1.5k LL	R109 R116
2	0031900001	RES CF 1/2W 5% 15k LL	R119-120
2	0037354001	RES FILM 1W 5% 4.7k LL	R108 R117
1	0041269001	RES MOX 2W 5% 1.2k LL	R138
1	0041258001	RES MOX 2W 5% 2.2k LL	R135
1	0051417001	**RES MOX 2W 5% 22ohm LL	R130
4	0027478000	RES WW 5W 10% .22ohm	R128-129 R131-132
2	0028037000	RES WW 5W 10% 330ohm	R133-134
1	0029670000	RES WW BT 5W 10% 150ohm	R136
2	0028091000	SWITCH PUSH SLFLK SHORT STROKE	S1-2
2	0048451000	BUTTON PUSH WHITE	@ S1-2
1	0051418000	THERMAL SENSOR PTC 100 DEG C	RT2

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<b>PARTS LIST: MAIN – PCB ASSEMBLY (continued)</b>			
<b>QTY.</b>	<b>PART #</b>	<b>DESCRIPTION</b>	<b>REFERENCE DESIGNATION</b>
1	0028503000	**THERMISTOR 10 ohm 5A C60-11	RT1
7	0014689003	XSTR N-CH JFET J111 TO-92	Q1-7
2	0016739003	XSTR NPN 2N4401 TO-92	Q18 Q25
2	0025751003	XSTR NPN 2SC2362K/2SC2389STPS	Q11-12
1	0051448003	XSTR NPN 2SD1857	Q16
2	0014867003	XSTR NPN MPSW42 (TO-92)	Q10 Q15
6	0016742003	XSTR PNP 2N4403 TO-92	Q8-9 Q19 Q24 Q26-27
1	0025752003	XSTR PNP 2SA1038STPS	Q13
1	0051447003	XSTR PNP 2SB1236	Q17
1	0014866003	XSTR PNP MPSW92 TO-226AE	Q14
1	0028760000	XSTR NPN 2SC4793/2SC3298B	Q20
1	0028759000	XSTR PNP 2SA1306A TO-220P	Q21
1	0054418000	XSTR NPN 2SC3263 MT-100	Q22
1	0054417000	XSTR PNP 2SA1294 MT-100	Q23
1	0055349000	HEATSINK PLATE, DELUXE 90	
2	0038815000	INSULATOR SILICONE TO-3P	
5	0032934000	SCRW TF 4-40x1/2 HIHS ZI	@ Q20-24 & U10

<b>PARTS LIST: uDSP – PCB ASSEMBLY</b>			
<b>QTY.</b>	<b>PART #</b>	<b>DESCRIPTION</b>	<b>REFERENCE DESIGNATION</b>
1	0057799008	**PCB ASSY uDSP DLX 90 DSP	
REF	0057283000	SVC DIAG COMB MICRO DSP	
1	*	IC OTP ROM DELUXE 90 DSP R1.0	
1	*	PCB Fab u-DSP	
2	*	CAP 0805 CER .001uF 25V 5%	
14	*	CAP 0805 CER .01uF 25V 5%	
10	*	CAP 0805 CER .1uF 25V 5%	
2	*	CAP 0805 CER 22pF 25V 5%	
2	*	CAP 0805 CER 750Pf 25v 5%	
3	*	CAP 3528 TAN 4.7uF 16V 20%	
6	*	CAP 3528 TAN 10uF 16V 20%	
5	*	DIODE SMT 1N4448 SIGNAL	
2	*	HDR .1 CTR 8x2 CKT SQ PIN	
4	*	RES 0805 MF 1/10W 5% 0ohm	
2	*	RES 0805 MF 1/10W 5% 100ohm	
4	*	RES 0805 MF 1/10W 5% 750ohm	
4	*	RES 0805 MF 1/10W 5% 1k	
1	*	RES 0805 MF 1/10W 5% 2k	
1	*	RES 0805 MF 1/10W 5% 3.3k	
2	*	RES 0805 MF 1/10W 5% 4.7k	
1	*	RES 0805 MF 1/10W 5% 15k	
1	*	RES 0805 MF 1/10W 5% 47k	
1	*	IC SMT SOCKET PLCC 44-TT	
1	*	IC SMT TLC549 AD	
1	*	IC SMT SRAM 64Kx16	
1	*	IC SMT COUNTER 74LV4040	
1	*	IC SMT HEX SCHMITT-T INV 74HC14	
1	*	IC SMT VREG +3.3V LM1117	
1	*	IC SMT CODEC TLC320AD77C	

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PARTS LIST: <b>uDSP – PCB ASSEMBLY</b> (continued)			
QTY.	PART #	DESCRIPTION	REFERENCE DESIGNATION
1	*	IC SMT DSP TMS320VC5402PGE	
1	*	IC SMT VREG +1.8V 150mA TPS76318	
1	*	IC SMT RESET 5V MC34064D-5	
1	*	XTAL 20MHz HC49SD	

PARTS LIST: <b>CHASSIS ASSEMBLY</b>			
QTY.	PART #	DESCRIPTION	REFERENCE DESIGNATION

1	*	CHASSIS DELUXE 90 DSP	
1	0057482000	PANEL FRONT DELUXE 90 DSP	
1	*	PANEL REAR DELUXE 90 DSP	
-	*	PANEL REAR DELUXE 90 DSP ROK	110 volt ROK model only
1	0057789000	WIRE SET CHASSIS DLX 90 DSP	
10	0051404000	STANDOFF NYLON BLK .375	
1	0057359000	2X8 RIBBON CABLE	
-	0020791000	**FUSE QA 20MMX5MM 250V 1.25A	220/230/240 volt models only
1	0053884000	**FUSE QA 20mmx5mm 125v 4A	100/110/120 volt models only
1	0025935000	**SWITCH DPST .187 TAB (DOM)	100/110/120 volt models only
-	0039287000	**SWITCH DPST .187 TAB GLOBAL	220/230/240 volt models only
1	0027668000	**XFMR PWR 120v 85W	110/120 volt models only
-	0039357000	**XFMR PWR EXP DEL112/ROC PRO	100 volt models only
-	0054824000	**XFMR PWR 65 WATT 230V	220/230/240 volt models only
1	0028560000	END BELL XFMR 85W	@Xfmr
4	0028591000	NUT ACORN 8-32	@Xfmr
4	0030007000	WSHR LCK INTL 8x.330x.02 ZI	@Xfmr
1	0054642000	**CONNECTOR IEC SNAP IN	
3	0028500000	SCRW TF 8-32x3/4 HWH SLTD ZI	@ Heatsink
1	0054318000	HEATSINK BAR, PRNCTN 65/ DLX 90	
1	0021709000	BUSHING SR .437x.062x13/32 BLK	@ spkr cable
1	0054798000	JEWEL ASSY . , LED	
1	0031625000	NUT HOLDER PILOT LIGHT 1/16-27	@jewel
1	0038900000	SCRW TF 6-32X1/4 PHP ZI	@Gnd Lug
2	0053479000	NUT HEX 7/16 20X1/8 NI	@ input jacks
2	0053480000	WASHER FLAT .442 X.692 NI	@ input jacks
3	0055838000	NUT PLASTIC BLK REAN JACK	@ rear panel jacks
11	0053986000	KNOB, ROTARY SS W/ CHR INSERT	
1	0057256000	KNOB ROTARY ARROW W/CHRM INSRT	@ FX Select Knob

\* Non-serviceable part. Replace complete parent assembly. See PCB EXCHANGE POLICY on page 4.

Unique Fender® part. Order directly from the Fender® dealer Customer Service Department.

\*\* Safety Requirement part. Replacement must match *Safety Agency*...–*Value*, if specified –*Type*, if specified –*Approval Mark(s)* if on part.

\*\* Both a unique Fender® part and a Safety Requirement part as defined above.



# DELUXE™ 90 DSP

(This is the model name for warranty claims)

PARTS LIST:		<b>CABINET ASSEMBLY</b>	
QTY.	PART #	DESCRIPTION	REFERENCE DESIGNATION
4	0019275000	INSERT GLIDE CUSHION 1.27	
4	0019276000	GLIDE CAB 1.24x.335 NI	
4	0026625000	SCRW WOOD 8x1 FH	@ feet
2	0019279000	HANDLE CAP 2 HOLE NICKEL	
4	0022244000	SCRW M 10-32x1-1/8 OHP NI	@ handle
1	0027846000	HANDLE 9.25" NO LOGO	
1	0032524000	INSERT HANDLE	
8	0021972000	NUT T 10-32x3/4 STR 3 PRNG BLX	handle & speaker mount
4	0026566000	CORNER 2 HOLE w/TAB NI	
2	0026568000	CORNER 3 HOLE NI	
10	0026571000	SCRW SMAB 8X5/8 THP NI	@ corners
1.2	0026570000	TOLEX BLACK	
0.014	0027648000	TAPE ALUM 6"x60YDS	
0.361	0029085000	VELCRO STRIP LOOP 1.5"wd B	@ grille & footswitch loop
0.361	0029086000	VELCRO STRIP HOOK 1.5"wd B	@ grille & footswitch loop
0.35	0037788000	CLOTH GRILLE BLACK/SILVER	grille

PARTS LIST:		<b>END ITEM ASSEMBLY</b>	
QTY.	PART #	DESCRIPTION	REFERENCE DESIGNATION
1	0055723000	CAB ASSY DLX 90	
1	0029906000	NAMEPLATE FENDER GENERIC SMALL	
2	0018113000	SCRW SMA 4x1/2 OHP BLX	@nameplate
1	0054421000	SPEAKER 12" 4 OHM G12T	
4	0026577000	SCRW M 10-32x1 PHP BLX	@speaker
6	0036199000	SCRW M 8-32x1-3/16 OHP BLX	chassis mount
6	0029527000	WSHR FNSH 8-5/8 FLNGD BLX WX	chassis mount
1	0047248000	**CORD PWR W/IEC CONN DOM	120V DOM version
1	0047249000	**CORD PWR W/IEC CONN 230V UK	230V UK version
1	0047250000	**CORD PWR W/IEC CONN 250V	240V AUS version
1	0047251000	**CORD PWR W/IEC CONN 230V	230V EUR & 220V ROK versions
1	0053997000	**CORD PWR W/IEC CONN 100V	100V JPN version
1	0057674000	**CORD PWR W/IEC CONN ARG	230V ARG version
1	0057473000	FOOTSWITCH 3 BTN DLX 90 DSP	
1	0057480000	MANUAL OWNERS DLX 90 DSP	

\* Non-serviceable part. Replace complete parent assembly. See PCB EXCHANGE POLICY on page 4.

Unique Fender® part. Order directly from the Fender® dealer Customer Service Department.

\*\* Safety Requirement part. Replacement must match *Safety Agency*...–*Value*, if specified –*Type*, if specified –*Approval Mark(s)* if on part.

\*\* Both a unique Fender® part and a Safety Requirement part as defined above.

**DELUXE™ 90 DSP**

(This is the model name for warranty claims)

PARTS LIST:		<b>FOOTSWITCH ASSY</b>	
QTY.	PART #	DESCRIPTION	REFERENCE DESIGNATION
1	0028895000	CABLE ASSY FTSW RT ANG 12	
1	*	HSG END CUP LEFT FTSW	
1	*	HSG FTSW 3 BUTTON	
1	*	HSG END CUP RIGHT FTSW	
8	*	SCRW SMB 6x3/8 PH PHS BLX	@ end cups
1	*	NUT HEX 12mmx1mm NI	@ jack
3	*	WSHR NYL .485x.775x.150 T	@ switches
1	*	PLATE FTSW 3 BTN DLX 90 DSP	
1	*	PCB FAB, 3 BTN FTSW, DLX 90 DSP	
4	*	DIODE 1N4448 SIGNAL LL	D1 D3 D7-8
2	*	DIODE ZEN 1N5228B 3.9V 5% LL	D4 D9
2	*	LED RED 5x5mm SLB-55VR3	D2 D5
3	*	SWITCH PUSH SPDT	S1-3
1	*	RES CF 1/4W 5% 75ohm LL	R1
1	*	LED BI-COLOR 5x5mm	D6
2	*	SPACER RND NYL .147x.250x.780	@D2 D5
1	*	JACK PCB MONO CA(099-0912-000)	J1
1	*	SPACER RND NYL .680x.250x.147	@D6

\* Non-serviceable part. Replace complete parent assembly. See PCB EXCHANGE POLICY on page 4.

Unique Fender® part. Order directly from the Fender® dealer Customer Service Department.

\*\* Safety Requirement part. Replacement must match *Safety Agency*...–*Value*, if specified –*Type*, if specified –*Approval Mark(s)* if on part.

\*\* Both a unique Fender® part and a Safety Requirement part as defined above.



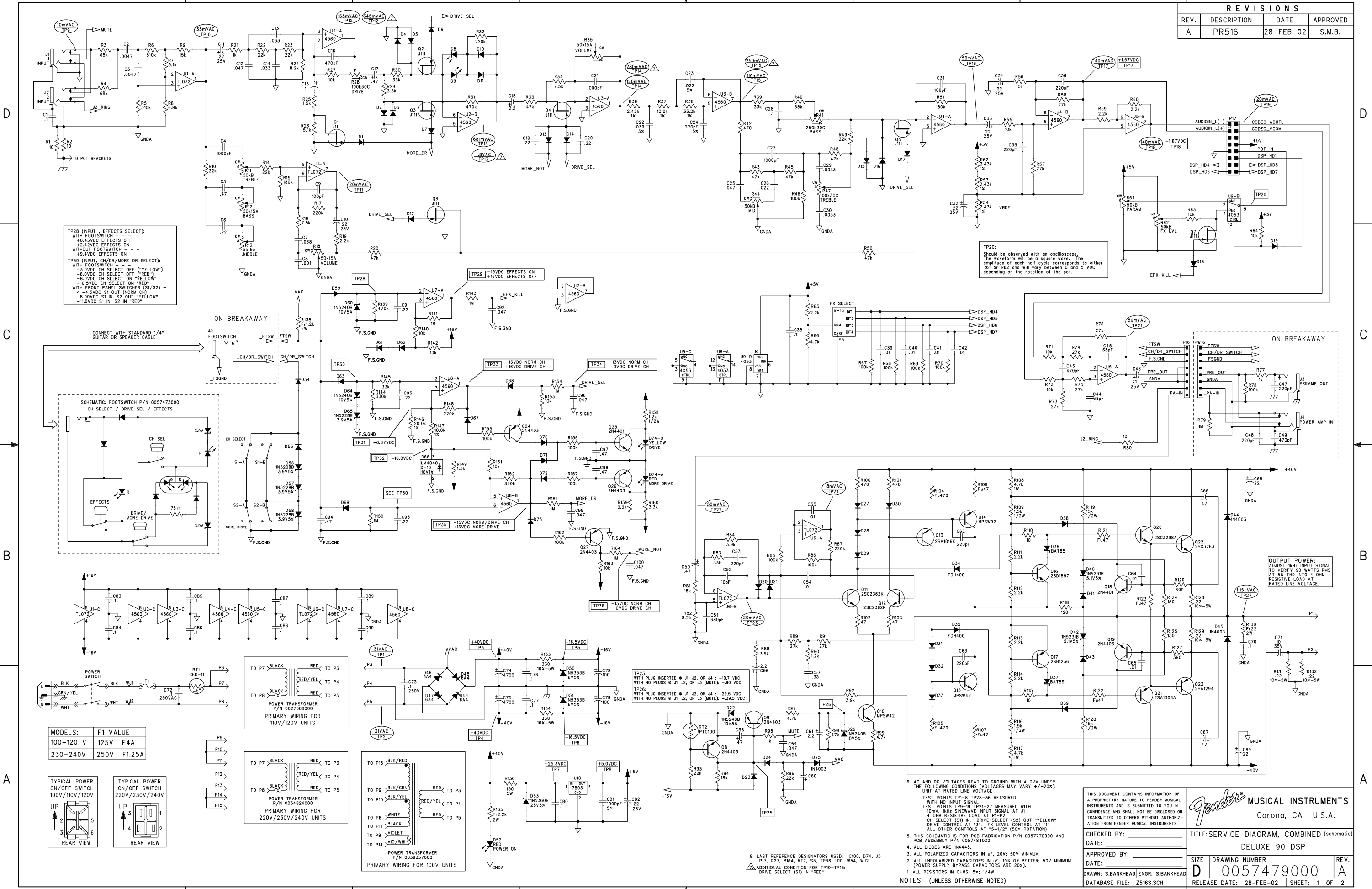
# DELUXE™ 90 DSP

(This is the model name for warranty claims)

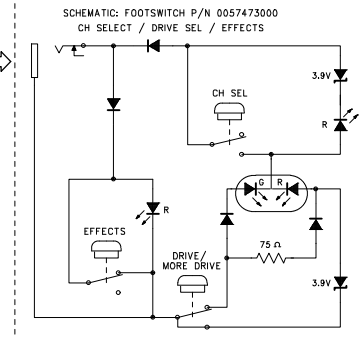
## **Schematics and Drawings**

Service Diagram (Schematic) .....	Deluxe 90 DSP
Service Diagram (PCB Assy) .....	Deluxe 90 DSP
Service Diagram (Schematic) .....	Micro DSP
Service Diagram (PCB Assy) .....	Micro DSP
Chassis Assy .....	Deluxe 90 DSP
End Item Assy .....	Deluxe 90 DSP
Assy .....	4-Button Footswitch

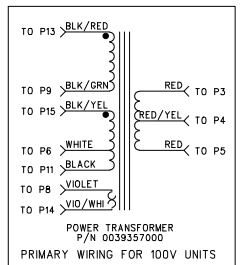
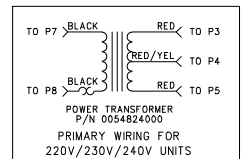
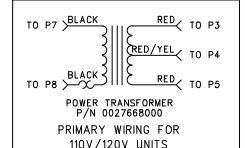
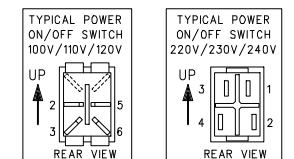
REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	PR516	28-FEB-02	S.M.B.



TP28 (INPUT EFFECTS SELECT):  
 WITH FOOTSWITCH -  
 +0.45VDC EFFECTS OFF  
 +2.4VDC EFFECTS ON  
 WITHOUT FOOTSWITCH -  
 +9.4VDC EFFECTS ON  
 WITH FOOTSWITCH -  
 -3.0VDC CH SELECT OFF ("YELLOW")  
 -8.0VDC CH SELECT OFF ("RED")  
 -8.0VDC CH SELECT ON "RED"  
 -10.0VDC CH SELECT ON "RED"  
 WITH FRONT PANEL SWITCHES (S1/S2) -  
 < -4.5VDC S1 OUT (NORM CH)  
 -8.0VDC S1 IN, S2 OUT "YELLOW"  
 -10.0VDC S1 IN, S2 IN "RED"



MODELS:	F1 VALUE
100-120 V	125V F4A
230-240V	250V F1.25A



TP25: WITH PLUG INSERTED @ J1, J2, OR J4: -10.7 VDC  
 WITH NO PLUGS @ J1, J2, OR J3 (MUTE): -9.0 VDC  
 TP26: WITH PLUG INSERTED @ J1, J2, OR J4: -29.5 VDC  
 WITH NO PLUGS @ J1, J2, OR J3 (MUTE): -39.5 VDC

8. LAST REFERENCE DESIGNATORS USED: C100, D74, J5  
 P17, Q27, R64, R72, S3, TP36, U10, W54, WJ2  
 ADDITIONAL CONDITION FOR TP10-TP13:  
 DRIVE SELECT (S1) IN "RED"

- AC AND DC VOLTAGES READ TO GROUND WITH A DVM UNDER THE FOLLOWING CONDITIONS (VOLTAGES MAY VARY +/-20%):  
 UNIT AT RATED LINE VOLTAGE  
 TEST POINTS TP1-8 TP29-36 MEASURED WITH NO INPUT SIGNAL  
 TEST POINTS TP9-19 TP21-27 MEASURED WITH 100mV, 1kHz SINEWAVE INPUT SIGNAL AT J1  
 4 OHM RESISTIVE LOAD AT P1-P2  
 CH SELECT (S1) IN, DRIVE SELECT (S2) OUT "YELLOW"  
 DRIVE CONTROL AT "3", FX LEVEL CONTROL AT "1"  
 ALL OTHER CONTROLS AT "5-1/2" (50% ROTATION)
- THIS SCHEMATIC IS FOR PCB FABRICATION P/N 0057770000 AND PCB ASSEMBLY P/N 0057484000.
- ALL DIODES ARE 1N4448.
- ALL POLARIZED CAPACITORS IN uF; 20% 50V MINIMUM.
- ALL UNPOLARIZED CAPACITORS IN uF; 10% OR BETTER; 50V MINIMUM. (POWER SUPPLY BYPASS CAPACITORS ARE 20%).
- ALL RESISTORS IN OHMS, 5% 1/4W.

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.

**Fender** MUSICAL INSTRUMENTS  
 Corona, CA U.S.A.

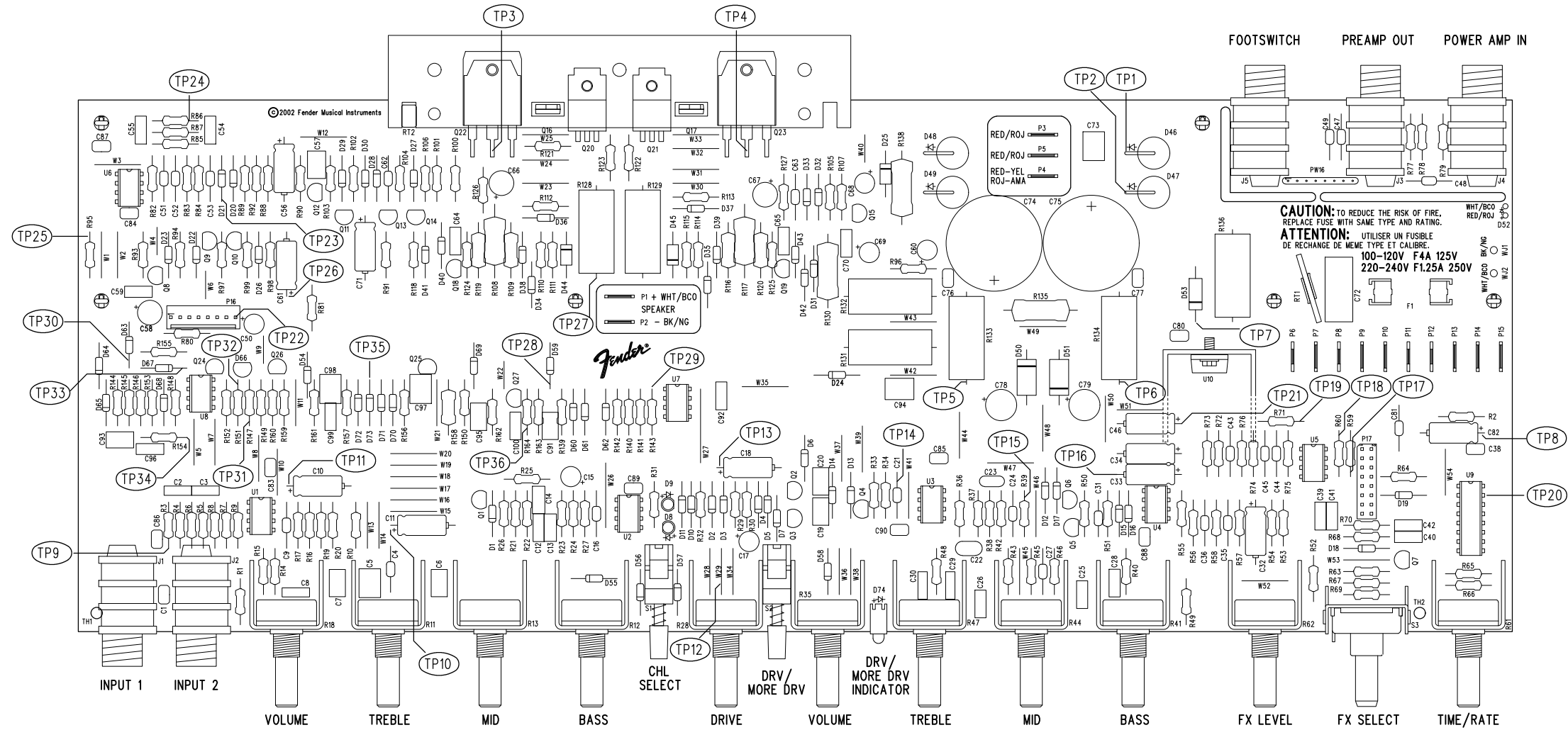
CHECKED BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
 TITLE: SERVICE DIAGRAM, COMBINED (schematic)  
 DELUXE 90 DSP

APPROVED BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
 SIZE: D DRAWING NUMBER: 0057479000 REV. A  
 DRAWN: S.BANKHEAD ENGR: S.BANKHEAD  
 DATABASE FILE: Z516S.SCH RELEASE DATE: 28-FEB-02 SHEET: 1 OF 2

8 7 6 5 4 3 2 1

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	PR516	28-FEB-02	S.M.B.

D  
C  
B  
A



FILM/DWG: SERVICE DIAGRAM  
 DATABASE: Z516P.PCB DATE: 28-FEB-02

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CHECKED BY: _____ DATE: _____		TITLE: SERVICE DIAGRAM, COMBINED (PCB assy) DELUXE 90 DSP	
APPROVED BY: _____ DATE: _____		SIZE <b>C</b>	DRAWING NUMBER 0057479000
DRAWN: S.Bankhead DATABASE FILE: Z516P.PCB	ENGR: S.Bankhead	RELEASE DATE: 28-FEB-02	REV. A SHEET 2 OF 2

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

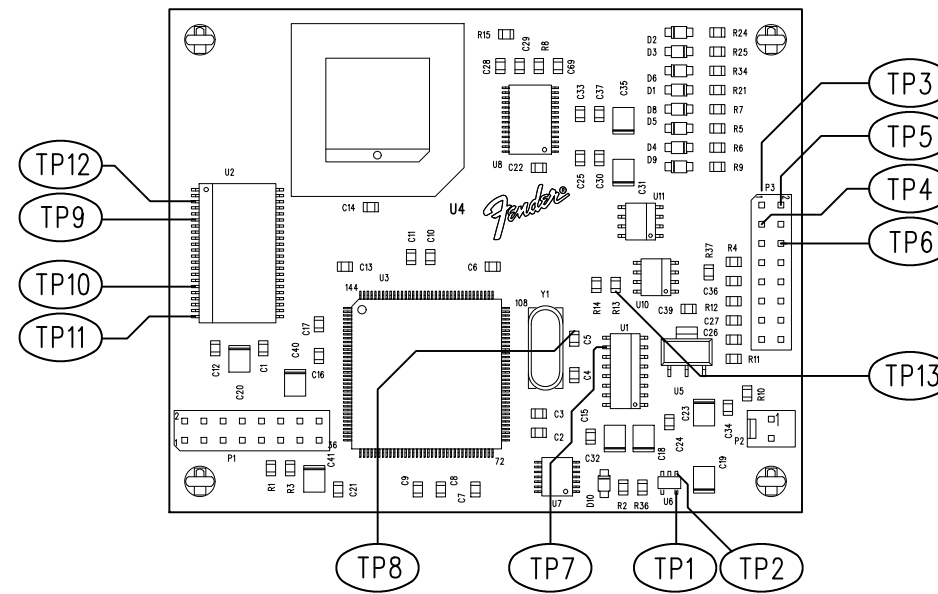
8 7 6 5 4 3 2 1





REVISIONS


REV.	DESCRIPTION	DATE	APPROVED
A	PR480	30-NOV-01	J T L
B	EC 2743	07-MAR-02	J T L

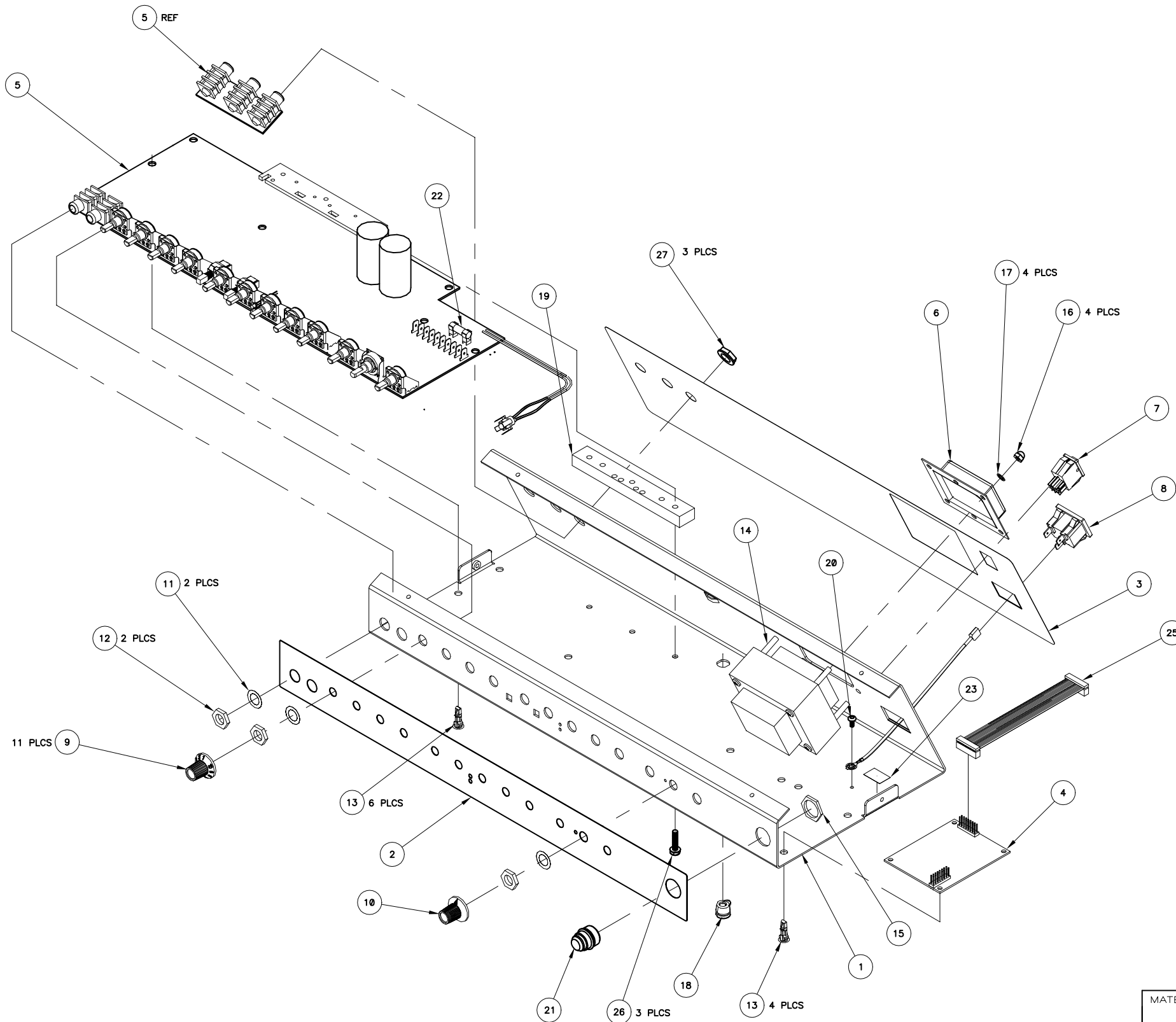


FILM/DWG: SERVICE DIAGRAM  
 DATABASE: Z481P.PCB DATE: 07-MAR-02

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

NOTES: (UNLESS OTHERWISE NOTED)

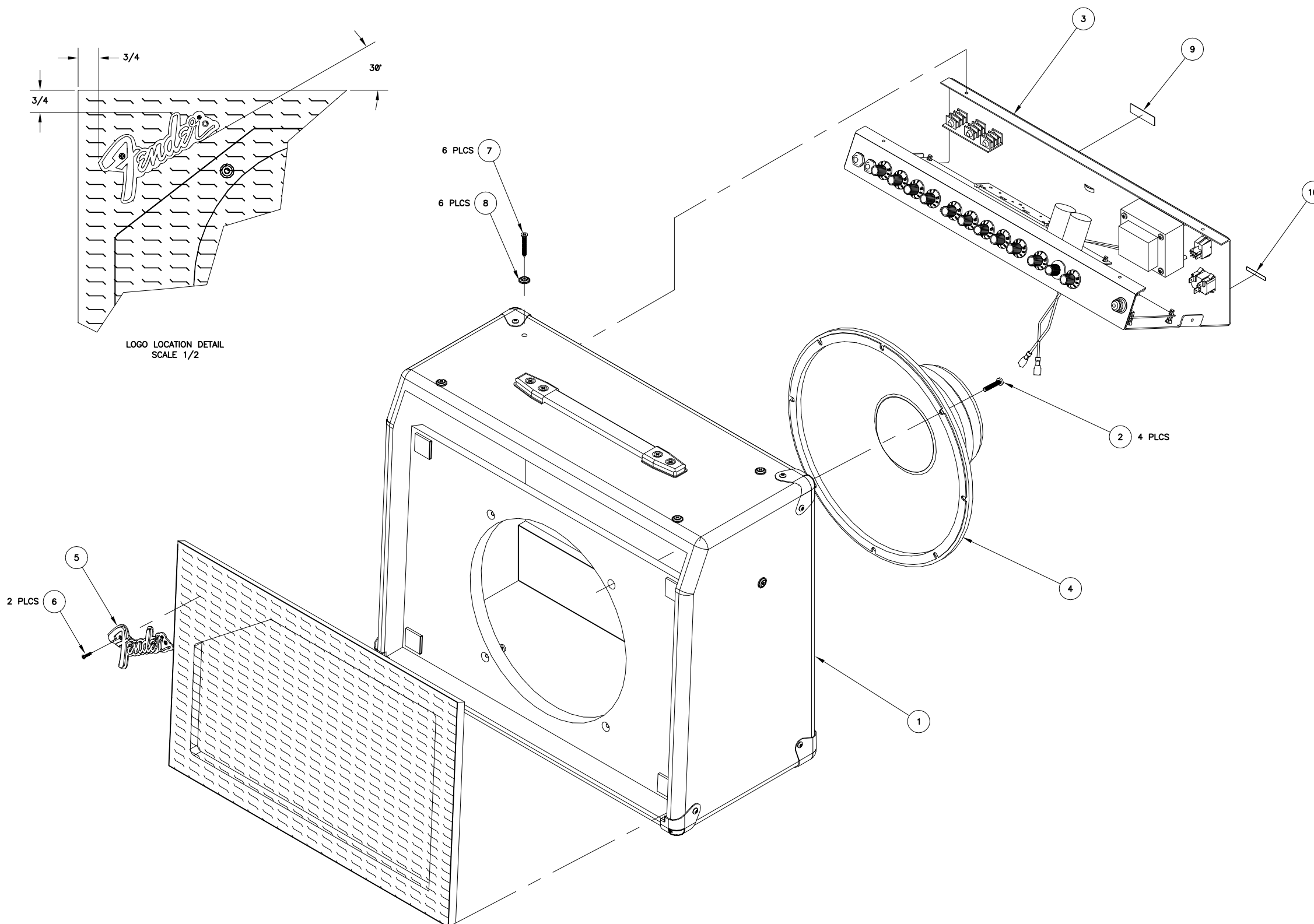
THIS DOCUMENT CONTAINS INFORMATION OF A PROPRIETARY NATURE TO FENDER MUSICAL INSTRUMENTS AND IS SUBMITTED TO YOU IN CONFIDENCE AND SHALL NOT BE DISCLOSED OR TRANSMITTED TO OTHERS WITHOUT AUTHORIZATION FROM FENDER MUSICAL INSTRUMENTS.		 MUSICAL INSTRUMENTS Corona, CA U.S.A.	
CHECKED BY: _____ DATE: _____		TITLE: SERVICE DIAGRAM, COMBINED (PCB assy) uDSP SERIES	
APPROVED BY: _____ DATE: _____		SIZE <b>B</b>	DRAWING NUMBER 0057283000
DRAWN: J. Jimenez	ENGR: J. Lamb	RELEASE DATE: 30-NOV-01	REV. <b>B</b>
DATABASE FILE: Z481P.PCB		SHEET 2 OF 2	2



(N.S.) = NOT SHOWN

ITEM	QTY	DESCRIPTION
27	3	NUT PLASTIC BLK REAN JACK
26	3	SCRW TF 8-32x3/4 HWH SLTD Z1
25	1	2x8 RIBBON CABLE
24	1	WIRE SET CHASSIS DELUXE 90 DSP (N.S.)
23	1	LABEL GROUNDING SEMKO
22	1	FUSE QA 20mmX5mm
21	1	JEWEL ASSY LED
20	1	SCRW TF 6-32X1/4 PHP Z1
19	1	HEATSINK BAR PRNCTON 65/DLX 90
18	1	BUSHING SR .437x.062x13/32 BLK
17	4	WSHR LCK INTL 8x.330x.02 Z1
16	4	NUT ACORN 8-32
15	1	NUT HOLDER PILOT LIGHT 1/16-27
14	1	XFMR PWR
13	10	STANDOFF NYLON BLK .375
12	2	NUT HEX 7/16 20X1/8 NI
11	2	WASHER FLAT .442 X.692 NI
10	1	KNOB ROTARY ARROW W/CHRM INSRT
9	11	KNOB ROTARY SS W/CHR INSERT
8	1	CONNECTOR IEC SNAP IN
7	1	SWITCH DPST .187 TAB (DOM)
6	1	END BELL XFMR 85w
5	1	PCB ASSY DELUXE 90 DSP
4	1	PCB ASSY uDSP (w/SRAM)
3	1	PANEL, REAR DELUXE 90 DSP
2	1	PANEL FRONT DELUXE 90 DSP
1	1	CHASSIS DELUXE 90 DSP

MATERIAL	N/A	 FENDER MUSICAL INSTRUMENTS CORP. CORONA, CALIFORNIA U.S.A.	
FINISH	N/A		
TOL. UNLESS NOTED		DATE	TITLE
FRACT.	+- 1/32	DFT. ENG. ENG.	CHASSIS ASSEMBLY DELUXE 90 DSP
.X	+- 0.050	DATE DATE DATE	SHEET 1/1
.XX	+- 0.010	APPROVED	SIZE D
.XXX	+- 0.010	DATE	DRAWING NUMBER 0057474000
ANGLES	+- 0.5 DEGREES	DATE	SCALE 1/2
HOLE DIA.	+0.005 - 0.001		REV. A
UNMARKED ANGLES	ARE 90 DEGREES.		MASTER/ASSEMBLY



ITEM	QTY	DESCRIPTION
24	1	SERVICE DIAGRAM, COMB. DLX 90 DSP (N.S.)
23	1	REGISTRATION CARD (N.S.)
22	1	FOOTSWITCH 3 BTN DLX 90 DSP (N.S.)
21	1	BAG POLY ZIP 10x13 2M (N.S.)
20	AR	CORROSEAL 50# (12"X 250' ROLL) (N.S.)
19	1	STICKER BUMPER FEND SINCE 1946 (N.S.)
18	1	CARTON DLX112/PRF650 (N.S.)
17	6	FOAM CORNER AMP (N.S.)
16	1	FOAM BLOCK FORMED RH 3/4" (N.S.)
15	1	FOAM BLOCK FORMED LH 3/4" (N.S.)
14	1	BAG POLY BOX BTM 23x17x40 (N.S.)
13	1	CORD PWR W/IEC CONN (N.S.)
12	1	TAG WARRANTY 5 YR FENDER-NEW (N.S.)
11	1	MANUAL OWNERS DLX 90 DSP (N.S.)
10	1	LABEL VOLTAGE W ON BLK
9	1	LABEL SERIAL MEXICO
8	6	WSHR FN5H 8-5/8 FLNGD BLX WX
7	6	SCRW M 8-32x1-3/16 OHP BLX CP
6	2	SCRW SMA 4x1/2 OHP BLX
5	1	NAMEPLATE FENDER GENERIC SMALL
4	1	SPEAKER 12" 4 OHM G12T 1897
3	1	CHS ASSY DELUXE 90 DSP
2	4	SCRW M 10-32x1 PHP BLX
1	1	CAB ASSY DLX 90

MATERIAL	N/A	DATE		2/13/2002		Fender® FENDER MUSICAL INSTRUMENTS CORP. CORONA, CALIFORNIA U.S.A.	
FINISH	N/A	DFT.	ENG.	ENG.	TITLE		
TOL. UNLESS NOTED		DATE	DATE	DATE	END ITEM		
FRACT. ----- +- 1/32		APPROVED		DATE		DELUXE 90 DSP	
.X ----- +- 0.050		SHEET		SIZE		DRAWING NUMBER	
.XX ----- +- 0.010		1/1		D		2267200030	
.XXX ----- +- 0.010		SCALE		NONE		REV.	
ANGLES ----- +- 0.5 DEGREES		DATE		NONE		A	
HOLE DIA. ----- +0.005 - 0.001		DATE		NONE		AMSSSEMBLY/MASTER	
UNMARKED ANGLES ARE 90 DEGREES.		DATE		NONE		AMSSSEMBLY/MASTER	