

PX-2200 SERIES

POWERED MIXING CONSOLES

SERVICE MANUAL

PX-2208, PX-2208D, PX-2212D, PX-2216D
(These are the model names for warranty claims)

OCTOBER 1994 REV A

PX-2208 p/n 071-2208-000 (120V)
PX-2208D p/n 071-2208-000 (120V)
PX-2212D p/n 071-2208-000 (120V)
PX-2216D p/n 071-2208-000 (120V)



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IMPORTANT NOTICE:

The information contained herein is CONFIDENTIAL and PROPRIETARY to Fender Musical Instruments Co. 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 asterick (*) 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		HARDWARE CODES	
CAP AE	= Aluminum Electrolytic	BLX	= Black Oxide
CAP CA	= Ceramic Axial	CR	= Chrome Plated
CAP CD	= Ceramic Disk	HWH	= Hex Washer Head
CAP MPF	= Metalized Polyester Film	M	= Machine Screw
CAP MY	= Mylar	NI	= Nickel Plated
CAP PFF	= Polyester Film/Foil	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

When we use the term dB to indicate a voltage amplification factor (gain), no reference is implied. 101 dB of Voltage Amplification means that if you take 20 times the Log (base 10) of the output voltage divided by the input voltage. The answer will be 101 dB.

When we use the term dB to indicate a voltage *level*, we are implying a 0.775 volt *reference* voltage level. Thus, a voltage level expressed as +4 dB was calculated by taking 20 times the Log (base 10) of the actual voltage (1.23 volts) divided by the reference voltage (0.775 volts).

The choice of a 0.775 volt reference was not arbitrary. dBm is a common method of rating power levels (as opposed to our voltage level ratings). The 0 dBm reference is one milliwatt (1/1000th watt). If a mixer produces 0 dBm into exactly 600 ohms, the voltage level is 0.775 volts. Thus, for true 600 ohm lines, the dBm power terminology and our dB voltage terminology are equivalent.

Specifications are subject to change without notice.

MIXER SECTION:

Frequency Response:	20Hz. to 40kHz. ± 1dB
Distortion:	< .025%, 20 to 20Hz. to 20kHz. (Mic input to any line level mixer output)
Signal to Noise Ratio:	> 90 dBu (ref. +4 dBu), all channels assigned and at unity gain
Microphone Equivalent Input Noise:	-133.8 dBv input shorted, -131.5 dBv 150 ohms
Max. Output Level:	+22 dBu (Line Level)
Max. Gain:	84 dB (Mic input to unbalanced main output)
Dynamic Range:	116 dB (20 Hz. to 20 kHz.)
Adjacent Channel Crosstalk:	-85 dB
Mic Input Gain:	48 dB
Channel Fader Gain:	10 dB
Channel Fader Attenuation:	106 dB

SPECIFICATIONS CONT.

POWER AMPLIFIER SECTION:

Output Power:	150 Watts per channel @ 4 Ohms (PX-2208, PX2208D) 300 Watts per channel @ 4 Ohms (PX- 2212D, PX-2216D) and 150 Watts per channel @ 8 Ohms, continuous sine wave output power, both channels driven, with 120 volt AC line, ±1 dB	
Power Bandwidth:	10 Hz. to 68 kHz. (3 dB down points from rated power at less than .01% THD)	
Frequency Response:	5 Hz. to 68 kHz. (+0 -3 dB; @ rated power, 8 Ohms)	
Rise Time:	Less than 5.2 µSeconds	
Slew Rate:	Greater than 13.5 Volts per µSecond	
Total Harmonic Distortion:	<0.03% @ rated power, 4 Ohms, 20 Hz. to 20 kHz.	
Hum and Noise:	95 dB below rated output, 4 ohms, 20 Hz. to 20 kHz., broad band IEC A weighted 102 dB	
Damping Factor:	Ref. 8 Ohms, 5 Hz. to 20 kHz., >30. @ 1 kHz. >175	
Power Amplifier Input Impedance:	33 K Ohms	
Separation:	>65 dB @ 1 kHz.	
Sensitivity:	1.8 dBv for rated power @ 1 kHz.	
DIMENSIONS: Road Case Closed:	Heigth Width Depth	6-1/8" PX2208 20-1/8", PX2212 24-3/8",PX2216 28-5/8" 34-3/8"
Weight:	72lbs 77lbs 80lbs	PX2208 & PX2208D PX2212D PX2216D

THEORY OF OPERATION

MIXER SECTION

Theory of operation information for the mixer section was intentionally left out as the mixer is made up of simple op-amp circuits.

POWER AMPLIFIER

The unbalanced signal from the left and right mixer outputs is normalled through the POWER AMP IN jacks and feeds the first opamp stage (U100B) in the power amplifier. U100B provides a Gain of One, and will accept a Balanced input signal if injected at the POWER AMP IN jacks.

U100A contains a closed loop negative feedback path, along with positive feedback through the inverting Operational Transconductance Amplifier (OTA) U101. U100A and U101 make up the gain reduction circuit for the Delta Comp™ clip protection feature. The attack and release circuit for the Delta Comp™ is made up by the Diode, Resistor, and Capacitor network which drives the Base of Q101. Comparator U102A senses the voltage from the Collectors of Q107 & Q108. When the amplifier approaches clipping, U102A provides a negative voltage to Comparator U102B (which drives the Clip Led) and to the attack/release circuit. The negative voltage drives through Diodes CR102-CR105, and charges Capacitors C108-C111 all at once in parallel as a one pole filter through a single time constant of $R120 \times C108-C111$ or $3.9K \times 8.8\mu F$ or 34.3mSec. As they charge, Q101 turns on and provides current to pin 5 of the OTA (U101). The current controls the output amplitude of U101. The inverted signal from U101 mixes with the input to U100A providing a cancelation affect which reduces the input to the power amplifier. This prevents the amplifier from clipping. When the output of the power amplifier is reduced the Comparator toggles back and removes the negative control voltage from the attack/release circuit. The blocking action of Diodes CR102-CR105 force Capacitors C108-C111 to discharge (Release) through a 4-pole filter with different time constants through Resistor R119.

JFET Q100 and associated components provide a 2-3 second turn-on delay for the audio input to the power amplifier. When the power is switched on, Capacitor C106 charges through Resistor R109. The negative voltage pinches off the JFET, removing the ground from the input of the amplifier. When the power is switched off, C106 immediately discharges through Diode CR100, grounding the input of the amplifier. **TROUBLESHOOTING TIP:** Check for proper operation of this circuit when experiencing excessive turn-on or turn off "Pops", or no output when signal applied to the input. Many times the JFET itself can be the culprit. **NOTE:** Excessive turn-off "Pops" can also be caused by uneven discharge of the +/- power supplies. Usually a mismatch in the Filter Capacitors will cause this problem. Its easy to look at both supplies on an oscilloscope. Invert one scope input and check for even discharge to zero volts.

Q104 is the current source for the Differential Amplifier (Q102,Q103). For the Diff amp to work properly, one half of the current from the current source must flow through each leg of the Diff amp. If the same amount of current flows through each leg of the Diff amp, the voltage drop across resistors R134 & R135 must be the same. If not, there will be a DC offset at the output of the amplifier. The overall gain of the amplifier is set up around the Diff amp. $R141 (27K)$ is the feedback resistor and $R140 (1K)$ is the pull-down resistor. $R_{fb} + R_{pd} \div R_{pd} = A$. Therefore $27K + 1K \div 1K = 28K \div 1K = 28$.

Q109 & Q110 make up the last voltage amplification stage. Again, to operate properly, the same amount of current must flow through these transistors. Thus the voltage drop across R144 & R145 must be the same.

THEORY OF OPERATION

POWER AMPLIFIER CONTINUED

Diodes CR125-CR128 (BYV26D) make up the Fixed Bias circuit for the output transistors. The body of the Diodes is mounted through the heatsink to properly track the temperature of the transistors. These Diodes were selected because they exhibit a 2mV decrease in Knee Voltage for every 1 degree (Celsius) increase in temperature. The Collectors of Q109 & Q110 are at 0 volts. Therefore the Bias Diodes provide 2 voltage drops (1.2volts) to the Base of Driver Transistors Q113 & Q114. One Diode drop (0.6volts) Biases on the Driver Transistors. The remaining 0.6 volts drops across the output transistors in parallel, Biasing them on.

Transistors Q111, Q112, and associated components comprise the Current Limiting or Short Proof protection circuit. There are usually two conditions which demand excessive output current from the amplifier. A shorted speaker cable, or a load impedance which is below the minimum rating of the amplifier. If these conditions occur, the voltage drop across the Emitter Resistors ($.33\Omega$ 5 Watt) will dramatically increase. This will cause Q111 & Q112 to turn on. This limits the amount of signal which is available to the Base of the Driver Transistors (Q113 & Q114). CR131 & CR133 sense the signal through R152 and ensure that Q111 turns on hard in conduction.

The output section also contains a Crowbar protection circuit. Triac TR101 will clamp the output to ground if excessive DC (1-2 volts) appears on the output. This is a one shot circuit. If engaged, the Triac will have to be replaced.

PARTS LIST

NOTE:

AN "X" IN A REFERENCE DESIGNATOR REFERS TO CHANNELS 1 THROUGH 12
QUANTITIES LISTED ARE FOR THE 8 CHANNEL VERSION

INPUT (8 CH & 12 CH)
PRINTED CIRCUIT BOARD ASSEMBLY

QTY	PART #	DESCRIPTION	REFERENCE	DESIGNATION
2	028474	CAP AE RDL 100µF 25V 20%	C31,32	
8	028459	CAP AE RDL 2.2µF 50V 20%	CX24	
24	028465	CAP AE RDL 22µF 25V 20%	CX10,X17,X19,X22,X23	
2	036954	CAP AE RDL 22µF 63V 20%	C1,4	
16	028460	CAP AE RDL 4.7µF 50V 20%	CX05,X06	
18	028471	CAP AE RDL 47µF 50V 20%	C2,5,CX03,X04	
34	038703	CAP CA .1µF 50V	C3,6-30,CX20	
16	039263	CAP CA 1000PF 100V	CX01,X02	
8	038699	CAP CA 100PF 100V	CX16	
16	039255	CAP CA 10PF 100V	CX09,X18	
16	039256	CAP CA 68PµF 100V	CX07,X08	
16	041904	CAP MPF .012µF 63V 10%	CX15,X21	
16	041903	CAP MPF .018µF 63V 10%	CX11,X12	
16	027269	CAP MPF .033µF 63V 10%	CX13,X14	
8	041085	CONTROL SLIDE 60MM 50K	RX26	(FADERS)
16	041081	CONTROL VERT 10K 15A	RX32,X34	(AUX, EFFECTS)
8	041080	CONTROL VERT 10K B W/DETENT	RX29	(PAN)
8	041083	CONTROL VERT 50K 15A	RX10	(TRIM)
16	041806	CONTROL VERT 50K B	RX36,X38	(MONITOR 1,2)
24	041082	CONTROL VERT 50K B W/DETENT	RX12,X15,X19	(HIGH, MID, LOW)
24	006260	DIODE 1N4448/1N914B SIGNAL	CRX01-X03	
2	027329	DIODE ZEN 1N5228B 3.9V .5W 5%	CR1,2	
6	041808	HEADER 8 CKT X.1" LO	P1-6	
12	016795	IC DUAL OP AMP TL072	U2-4,7-9,11-13,16-18	
4	033281	IC OP-AMP DUAL 5532	U1,6,10,15	
2	026547	IC QUAD COMPARATOR LM339	U5,14	
8	016917	JACK 1/4 PCB 3/CD DCC	JX03	(CHANNEL INSERT)
8	030987	JACK 1/4 PCB 3/CD DOC	JX02	(LINE INPUT)
8	030762	JACK XLR FM PC VERT MT (A/D)	JX01	(MICROPHONE INPUT)
8	030754	LED RED T-1 3MM DIFFUSED	LDX01	(PEAK INDICATOR)
1	041863	PCB ASSY 8 CH INPUT PX2208/16D	(STUFFED)	
1	041898	PCB ASSY 12 CH INPUT PX2212D	(STUFFED)	
1	041861	PCB FAB 8 CH INPUT PX2208D/16D	(RAW BOARD)	
1	041896	PCB FAB 12 CH INPUT PX2212D	(RAW BOARD)	

PARTS LIST

INPUT (8 CH & 12 CH)
PRINTED CIRCUIT BOARD ASSEMBLY
CONTINUED

QTY	PART #	DESCRIPTION	REFERENCE	DESIGNATION
8	041847	RES CF 1/6W 5% 10Ω	RX23	
2	041850	RES CF 1/6W 5% 820Ω	R2,4	
16	041851	RES CF 1/6W 5% 910Ω	RX14,X16	
8	041852	RES CF 1/6W 5% 1K	RX21	
8	041853	RES CF 1/6W 5% 1.1K	RX13	
8	041854	RES CF 1/6W 5% 1.3K	RX17	
16	041855	RES CF 1/6W 5% 3.3K	RX09,X11	
24	041856	RES CF 1/6W 5% 5.1K	RX25,X37,X39	
16	041857	RES CF 1/6W 5% 6.8K	RX18,X20	
8	041848	RES CF 1/6W 5% 10K	RX45	
16	041858	RES CF 1/6W 5% 18K	RX27,X28	
32	041859	RES CF 1/6W 5% 24K	RX30,X31,X33,X35	
8	041819	RES CF 1/6W 5% 27K	RX22	
32	041820	RES CF 1/6W 5% 100K	RX24,X40,X43,X44	
8	041821	RES CF 1/6W 5% 330K	RX41	
2	024942	RES CF 1/4W 5% 22Ω	R1,3	
16	016951	RES MF 1/4W 1% 1.21K	RX01,X02	
8	024970	RES CF 1/4W 5% 1.8K	RX42	
32	016965	RES MF 1/4W 1% 12.1K	RX05-X08	
16	047173	RES MF 1/2W 1% 6.81K	RX03,X04	
4	039420	SCRW M 4-40X3/8 PHP SS SEMS	(STANDOFF TO PCB MOUNT)	
8	033276	SPACER RND NYL .120X.187X.500	@LDX01	
4	033275	STANDOFF 4X5/8" RND AL		
8	041079	SWITCH DPDT ALT-ACT	SX01	

PARTS LIST

OUTPUT PRINTED CIRCUIT BOARD ASSEMBLY

QTY	PART #	DESCRIPTION	REFERENCE	DESIGNATION
1	038534	CABLE JMPR 3CKT .1X3.0	@P302A,302B	
7	028458	CAP AE RDL 1μF 50V 20%	C305-311	
2	028459	CAP AE RDL 2.2μF 50V 20%	C101,156	
6	028461	CAP AE RDL 10μF 35V 20%	C209,210,316,317,334,335	
33	028465	CAP AE RDL 22μF 25V 20%	C2,4,5,9,12,14,15,26,28,29,52-55, 91,92,202,204-206,211,218,219, 312,313,319,323,330,331,350-353	
2	028471	CAP AE RDL 47μF 50V 20%	C95,215	
3	038694	CAP AE AX 100μF 16V	C93,94,399	
2	028485	CAP AE RDL 470μF 16V 20%	C328,329	
5	042000	CAP CA 18PF 100V	C18,20,23,25,27	
2	038873	CAP CA 22PF 100V	C320,324	
2	042001	CAP CA 33PF 100V	C1,3	
16	038698	CAP CA 47PF 100V	C16,21,102-105,125-128,214,216, 217,314,315,339	
1	039256	CAP CA 68PF 100V	C302	
10	038699	CAP CA 100PF 100V	C17,19,22,207,208,212,303,304,332, 333	
18	038703	CAP CA .1μF 50V	C6,7,10,13,24,96-99,213,296-299, 326,327,396,397	
1	027281	CAP MPF .22μF 63V	C301	
1	041096	CONNECTOR BNC VERT	J12	
2	041807	CONTROL VERT 100K 15A DUAL	R54,364	
3	041086	CONTROL VERT 10K 15A DUAL	R236,353,375	
18	031936	CONTROL SLIDE 20MM 50KW	R103-107,110-113,136-140,143-146	
5	041085	CONTROL SLIDE 60MM 50K	R6,14,22,30,46	
3	041080	CONTROL VERT 10K B W/DETENT	R238,310,355	
2	041083	CONTROL VERT 50K 15A	R206,218	
4	041806	CONTROL VERT 50K B	R228,232,345,349	
7	006260	DIODE 1N4448/1N914B SIGNAL	CR1,2,3,5,6,8,302,310,311	
2	027329	DIODE ZEN 1N5228B 3.9V .5W 5%	CR4,206	
1	027327	DIODE ZEN 1N5234B 6.2V .5W 5%	CR205	
2	031635	DIODE ZEN 1N5240B 10V .5W 5%	CR312,313	
1	031041	FSTN TAB ML RTANG PCB .25X.032	CP1	
9	041808	HEADER 8 CKTX.1" LO	P1-5,101-103,201	
1	041823	IC COMPARATOR DUAL LM2903	U9	
8	016795	IC DUAL OP AMP TL072	U3,4,7,10,203,301,302,304	
8	031611	IC DUAL OPAMP PC4560	U1,2,101,111,204,206,303,307	
2	041091	IC LED DRIVER 12 SEG LB1412	U305,306	

PARTS LIST

OUTPUT PRINTED CIRCUIT BOARD ASSEMBLY CONTINUED

QTY	PART #	DESCRIPTION	REFERENCE	DESIGNATION
1	028047	IC OP AMP MC1436/SG1436Y	U205	
1	026547	IC QUAD COMPARATOR LM339	U8	
18	030771	JACK 1/4 PCB 2/CD SCC	J1-8,10,201-207,301,302	
2	016917	JACK 1/4 PCB 3/CD DCC	J9,11	
1	030987	JACK 1/4 PCB 3/CD DOC	J303	
2	040181	JACK PHONO DUAL VERT PC MOUNT	J13,304	
8	020888	JUMPER WIRE 22 GA		
2	041090	LED ARRAY 12 SEG	LD302,303	
1	030755	LED GREEN T-1 3MM DIFFUSED	LD6	
7	030754	LED RED T-1 3MM DIFFUSED	LD1-5,203,301	
1	041868	PCB ASSY OUTPUT PX22XX	(STUFFED)	
1	041866	PCB FAB OUTPUT PX22XX	(RAW BOARD)	
1	024942	RES CF 1/4W 5% 22Ω	R99	
5	024947	RES CF 1/4W 5% 47Ω	R61,63,64,255,256	
3	024952	RES CF 1/4W 5% 100Ω	R252,367,368	
2	024954	RES CF 1/4W 5% 150Ω	R300,393	
1	024961	RES CF 1/4W 5% 470Ω	R248	
12	024963	RES CF 1/4W 5% 680Ω	R115,148,320-324,337-341	
1	024964	RES CF 1/4W 5% 820Ω	R34,392,394	
10	024965	RES CF 1/4W 5% 1K	R7,15,23,31,47,56,58,210,222,301	
1	024969	RES CF 1/4W 5% 1.5K	R247	
3	024970	RES CF 1/4W 5% 1.8K	R35,40,52,307	
3	024971	RES CF 1/4W 5% 2.2K	R304,314,332	
2	029610	RES CF 1/4W 5% 3K	R316,333	
15	024977	RES CF 1/4W 5% 4.7K	R229,230,233,234,237,240,302,346, 347,350,351,354,357,396,398	
6	028034	RES CF 1/4W 5% 5.1K	R5,13,227,231,344,348	
5	024980	RES CF 1/4W 5% 8.2K	R27,109,114,142,147	
28	024981	RES CF 1/4W 5% 10K	R3,4,11,12,20,53,60,62,102,108, 135,141,235,239,250,254,318, 328, 329,335,352,356,376-381	
2	024983	RES CF 1/4W 5% 12K	R313,331	
2	024985	RES CF 1/4W 5% 15K	R317,334	
1	024986	RES CF 1/4W 5% 18K	R65	
2	029006	RES CF 1/4W 5% 20K	R18,19	
8	024987	RES CF 1/4W 5% 22K	R101,134,241-246	
16	024988	RES CF 1/4W 5% 27K	R2,10,225,226,258,305,309,311,312, 325,326,342,343,373,374,387	

PARTS LIST

**OUTPUT
PRINTED CIRCUIT BOARD ASSEMBLY
CONTINUED**

QTY	PART #	DESCRIPTION	REFERENCE	DESIGNATION
2	028865	RES CF 1/4W 5% 30K	R319,336	
1	024989	RES CF 1/4W 5% 33K	R303	
1	028956	RES CF 1/4W 5% 43K	R251	
4	024993	RES CF 1/4W 5% 47K	R358-361	
2	024995	RES CF 1/4W 5% 68K	R327,330	
7	024996	RES CF 1/4W 5% 82K	R17,36,48,212,224,257,386	
20	024997	RES CF 1/4W 5% 100K	R8,16,24,32,37,38,49,50,55,57,211, 223,259,260,306,382,388-391	
2	025058	RES CF 1/4W 5% 180K	R244,246	
5	025061	RES CF 1/4W 5% 330K	R33,39,51,249,315	
3	025069	RES CF 1/4W 5% 1M	R385,395,397	
1	030737	RES CF 1/2W 5% 5.6Ω	R399	
3	025937	RES CF 1/2W 5% 22Ω	R253,371,372	
1	025941	RES CF 1/2W 5% 560Ω	R59	
2	039128	RES FILM 1W 5% 120Ω	R369,370	
6	039420	SCRW M 4-40X3/8 PHP SS SEMS	(EQ, DIGITAL REVERB MOUNT)	
2	047810	SCRW TF 2-56X1/4 PHP ZN	@ J12	
8	033276	SPACER RND NYL .120X.187X.500	@LD1-6,203,301	
6	041824	SPACER ROUND .187X.350	@LD302,303	
1	040533	STANDOFF 4-40X.937	(@ BNC CONNECTOR)	
5	033275	STANDOFF 4X5/8" RND AL	(PCB TO TOP PANEL MOUNT)	
9	041079	SWITCH DPDT ALT-ACT	S3-5,201-205,301	
2	041077	SWITCH SLIDE 2P3T	S1,2	
2	014689	XSTR N-CH JFET J111 TO-92	Q301,302	
1	028760	XSTR NPN 2SC3298A TOP-220	Q201	
2	014867	XSTR NPN MPSU10 TO-202	Q304,306	
2	014866	XSTR PNP MPS U60	Q305,307	

PARTS LIST

**DIGITAL REVERB CONTROL
PRINTED CIRCUIT BOARD ASSEMBLY**

QTY	PART #	DESCRIPTION	REFERENCE	DESIGNATION
1	041092	PCB UNIT DSP REVERB	(DIGITAL EFFECTS UNIT W/OUT CONTROL BOARD)	
2	041818	BRACKET RT ANGLE	(DIG REV CONTROL BOARD MNT)	
1	041814	CABLE 10CKT X 101MM W/CONNECT	@P3	
1	041815	CABLE 12CKT X 101MM W/CONNECT	@P2	
2	038703	CAP CA .1μF 50V	C4,5	
1	027278	CAP MPF .1μF 63V 10%	C11	
1	027281	CAP MPF .22μF 63V	C7	
3	028461	CAP AE RDL 10μF 35V 20%	C1,2,3	
4	028465	CAP AE RDL 22μF 25V 20%	C6,8-10	
8	006260	DIODE 1N4448/1N914B SIGNAL	CR1-8	
2	041074	ENCODER 16 POS BI	S1,2	
1	041816	HEADER 8CKT RT ANG	P1	
1	028120	IC 4053B TPL 2 CHAN ANLG SW	U5	
1	031611	IC DUAL OP AMP PC4560	U4	
2	041812	IC REGULATOR +5V MC7805CT	U1,2	
1	041813	IC REGULATOR -5V MC7905CT	U3	
8	020888	JUMPER WIRE 22GA .5X.175	W1-8	
1	041878	PCB ASSY DIG REV CONTROL PX22	(STUFFED)	
1	041876	PCB FAB DIGITAL REV CONTROL	(RAW BOARD)	
3	024965	RES CF 1/4W 5% 1K	R1,2,15	
1	024971	RES CF 1/4W 5% 2.2K	R4	
2	024977	RES CF 1/4W 5% 4.7K	R3,11	
6	024981	RES CF 1/4W 5% 10K	R6,7,8,9,13,14	
2	024987	RES CF 1/4W 5% 22K	R5,10	
1	025081	RES CF 1/4W 5% 5.6M	R12	
4	032908	SCRW TF 6-32X3/8 PHP ZI	(PCB MOUNT)	
3	016742	XSTR PNP 2N4403 TO-92	Q1-3	

PARTS LIST

**SPRING REVERB PRINTED CIRCUIT BOARD ASSEMBLY
(PX-2208 ONLY)**

QTY	PART #	DESCRIPTION	REFERENCE	DESIGNATION
1	041818	BRACKET RIGHT ANGLE		
1	028577	CABLE REVERB 30"		
1	039259	CAP CA 220pF 100V 5%	C6	
1	039266	CAP CA 3300pF 100V 5%	C1	
2	028459	CAP AE RDL 2.2µF 50V 20%	C2,3	
2	028479	CAP AE RDL 220µF 25V 20%	C4,5	
1	041816	CONNECTOR 8 CKT RT ANGLE	P1	
1	016795	IC DUAL OP AMP TLO72	U1	
1	041893	PCB ASSY SPRING REVERB PX 2208	(STUFFED)	
3	024942	RES CF 1/4W 22Ω 5%	R2,8,9	
2	024965	RES CF 1/4W 1K 5%	R4,7	
2	024971	RES CF 1/4W 2.2K 5%	R1,11	
2	024993	RES CF 1/4W 47K 5%	R3,10	
1	024997	RES CF 1/4W 100K 5%	R6	
1	028995	RES CF 1/4W 130K 5%	R5	
1	020489	REVERB UNIT 4 SPRING 4BB3C1B	(PAN)	

PARTS LIST

MIXER TOP PANEL CHASSIS ASSEMBLY

QTY	PART #	DESCRIPTION	REFERENCE	DESIGNATION
15	041832	BUTTON SWITCH 5.5X10MM GRAY	(@ SOLO SWITCHES)	
2	041831	BUTTON SWITCH 5.5X5.5MM GRAY	(@ PHANTOM PWR, REVERB DEF)	
3	041817	CABLE RIBBON 8 CKT 5"	(INPUT / MASTER INTERCONNECT)	
1	047930	CHS ASSY TOP PNL PX2208D		
1	040888	CHS ASSY TOP PNL PX2208		
1	047929	CHS ASSY TOP PNL PX2212D		
1	047766	CHS ASSY TOP PNL PX2216D		
1	039094	HANDLE	(ON TOP PANEL)	
10	041837	KNOB CTL CUSTOM DBL GRY/DK GRY	(@ BALANCE/PAN)	
6	041836	KNOB CTL CUSTOM DBL GRY/BLACK	(@ AUX/EFFECTS RETURNS)	
36	041835	KNOB CTL CUSTOM DBL GRY/BLUE	(@ AUX/EFF/MON/DIG REVERB)	
24	041834	KNOB CTL CUSTOM DBL GRY/GREEN	(@ HIGH/MID/LOW)	
12	041833	KNOB CTL CUSTOM DBL GRY/WHT	(@ TRIM/TAPE IN/OUT,SOLO/HEAD)	
2	041070	KNOB SLIDER 15MM BLUE/BLACK	(@ MONITOR MASTERS)	
8	041069	KNOB SLIDER 15MM LT GRAY/BLACK	(@ CHANNEL FADERS)	
3	041071	KNOB SLIDER 15MM WHITE/BLACK	(@ MAIN/MONO)	
34	038537	NUT JAM 3/8-32 BLK NYL	(@ ALL 1/4" JACKS)	
1	047494	O RING	(@ BNC LAMP CONNECTOR)	
1	049138	PANEL TOP PX2208 & 2208D I/O		
1	049140	PANEL TOP PX2208 CONTROL		
1	041390	PANEL TOP PX2208D CONTROL		
1	049136	PANEL TOP PX2212D I/O		
1	049137	PANEL TOP PX2212D CONTROL		
1	049031	PANEL TOP PX2216D I/O		
1	049032	PANEL TOP PX2216D CONTROL		
1	041092	PCB UNIT DSP REVERB	(DIGITAL EFFECTS UNIT W/OUT-CONTROL BOARD)	
42	9904101070	SCRW M 3X5MM PHIL PANM/S B/O	(FADER TO TOP PANEL MOUNT)	
10	014171	SCRW M 4-40X3/8 PHP BLX	(TOP PANEL TO PCB MOUNT)	
3	039420	SCRW M 4-40X3/8 PHP SS SEMS	(DIGITAL REVERB MOUNT)	
2	031184	SCRW M 6-32X1/4 PHPS BLX	(REVERB CONTROL PCB MOUNT)	
20	017439	SCRW SMA 6X1/2 PHP BLX	(TOP PANEL TO ROAD CASE MNT)	
18	031868	SCRW PLASTITE 4X1/4	(@ XLR & RCA JACKS)	
4	047288	STANDOFF DBL SNAPIN NYLON .750	(@ DIGITAL REVERB PCB)	
34	038538	WSHR FLAT 3/8X5/8X3/32 BLK NYL	(@ ALL 1/4" JACKS)	
1	026401	WSHR SHLDR FIBER 3/8X5/8	(@ HEADPHONE JACK)	

PARTS LIST

POWER AMP 600 & 300 WATT
AND GRAPHIC EQUALIZER GYRATOR
PRINTED CIRCUIT BOARD ASSEMBLY

NOTE:

The PX2208 & PX2208D use the 300 watt power amp. The PX2212D & PX2216D use the 600 watt power amp.
The 600 & 300 watt power amplifiers are nearly identical. The difference is as follows:

- The number of installed output transistors, base and emitter resistors.
- The value of resistors in the bias circuit.
- The value of the main filter capacitors.
- The value of the zener diode in the phantom power circuit.
- The power transformer.

In the following parts list, the shaded areas indicate the differences.

QTY	PART #	DESCRIPTION	REFERENCE	DESIGNATION
1	041873	PCB ASSY PWR AMP 600W PX22XX	OLD	(P/N ON PCB 041871)
1	048517	PCB ASSY PWR AMP 600W PX22XX	NEW	(P/N ON PCB 048515)
1	041874	PCB ASSY PWR AMP 300W PX2208	OLD	(P/N ON PCB 041871)
1	048516	PCB ASSY PWR AMP 300W PX2208/D	NEW	(P/N ON PCB 048515)
20	028459	CAP AE RDL 2.2µF 50V 20%	C100,101,103,104,108-112,116,200,201,203,204,208-212,216	
2	028460	CAP AE RDL 4.7µF 50V 20%	C106,206	
1	031069	CAP AE RDL 10µF 100V 20%	C15	
6	028471	CAP AE RDL 47µF 50V 20%	C7,10,123,124,223,224	
8	025787	CAP AE RDL MINI 100µF 16V NP	C117,121,122,126,217,221,222,226	
1	041809	CAP AE RDL 3300µF 100V 20%	C13	
4	029654	CAP AE 4700µF 35V	C1-4	
2	037182	CAP AE RDL 6800µF 63V 20%	C11,12	(300W ONLY)
2	038898	CAP AE RDL 10000µF 80V 20%	C11,12	(600W ONLY)
2	025970	CAP CD 5PF 1000V 10%	C118,218	
4	038873	CAP CA 22PF 100V	C127,128,227,228	
4	020909	CAP CD 47PF 1000V 10%	C119,120,219,220	
2	039259	CAP CA 220PF 100V	C514,537	
2	038701	CAP CA 470PF 50V	C522,545	
5	038703	CAP CA .1µF 50V	C14,547-550	
2	027263	CAP MPF .0082µF 100V	C513,536	
10	027278	CAP MPF .1µF 63V 10%	C5,6,8,9,113-115,213-215	
2	024854	CAP MPF RDL .1µF 400V 10%	C125,225	

PARTS LIST

POWER AMP 600 & 300 WATT
AND GRAPHIC EQUALIZER GYRATOR
PRINTED CIRCUIT BOARD ASSEMBLY
CONTINUED

QTY	PART #	DESCRIPTION	REFERENCE	DESIGNATION
2	027280	CAP MPF .15µF 63V	C509,532	
2	027283	CAP MPF .33µF 63V	C517,540	
2	027286	CAP MPF .47µF 63V	C507,530	
6	033578	CAP PFF RDL .001µF 100V 10%	C512,520,535,543	
2	033579	CAP PFF RDL .0015µF 100V 10%	C510,533	
2	033580	CAP PFF RDL .0022µF 100V 10%	C105,205,515,538	
2	033581	CAP PFF RDL .0033µF 100V 10%	C518,541	
2	033582	CAP PFF RDL .0039µF 100V 10%	C508,531	
2	033583	CAP PFF RDL .0047µF 100V 10%	C523,546	
2	033588	CAP PFF RDL .01µF 100V 10%	C516,539	
2	036234	CAP PFF RDL .015µF 100V 10%	C521,544	
2	033590	CAP PFF RDL .022µF 100V 10%	C506,529	
4	033591	CAP PFF RDL .033µF 100V 10%	C107,207,511,534	
2	033596	CAP PFF RDL .068µF 100V 10%	C519,542	
11	064089	DIODE 1N4003	CR1-8,10,12,13	
50	006260	DIODE 1N4448/1N914B SIGNAL	CR9,11,14,15,100,102-106,109-117,119-122,129-132,200,202-206,209-217,219-222,229-232	
4	020534	DIODE 1N5402 RECTIFIER 200V C&F	CR137,138,237,238	
8	028776 *	DIODE BIAS BYV26D	CR125-128,225-228	
8	025821	DIODE HV FDH-400 SWITCHING	CR123,124,135,136,223,224,235,236	
2	027329	DIODE ZEN 1N5228B 3.9V 5%	CR101,201	
4	027327	DIODE ZEN 1N5234B 6.2V 5%	CR133,134,233,234	
4	031635	DIODE ZEN 1N5240B 10V 5%	CR107,108,207,208	
2	031019	DIODE ZEN 1N5245B.5W 15V 5%	CR118,218	
1	047482	DIODE ZEN 1N5366B 39V 5W 5%	CR16 (300 WATT VERSION ONLY)	
1	041811	DIODE ZEN 1N5368B 47V 5W 5%	CR16 (600 WATT VERSION ONLY)	
31	025802	FSTN TAB MALE.250X.032 PCB MT	CP1-23,100-103,200-203	
2	025996	FUSE CLIP PCB .250&5MM FUSE	XF1	
16	020775	FUSE HOLDER CLIP PCB 5MM	XF2-6,100,101,200,201	
1	018677	FUSE QA 1-1/4X1/4 250V 8AMP	F1 (100/120V 300 WATT AMP)	
1	020797	FUSE QA 20mmX5mm 250V 4AMP	F1 (230V EXP 300 WATT AMP)	
1	047220	FUSE QA 1-1/4X1/4 250V 15AMP	F1 (100/120V 600 WATT AMP)	
1	020801	FUSE QA 20mmX5mm 250V 8AMP	F1 (230V EXP 600 WATT AMP)	
4	020794	FUSE QA 20mmX5mm 250V 2AMP	F2-5	
4	020801	FUSE QA 20mmX5mm 250V 8AMP	F100,101,200,201	

PARTS LIST

PARTS LIST

POWER AMP 600 & 300 WATT
AND GRAPHIC EQUALIZER GYRATOR
PRINTED CIRCUIT BOARD ASSEMBLY
CONTINUED

POWER AMP 600 & 300 WATT
AND GRAPHIC EQUALIZER GYRATOR
PRINTED CIRCUIT BOARD ASSEMBLY
CONTINUED

QTY	PART #	DESCRIPTION	REFERENCE	DESIGNATION
1	041800	HDR 18 CKT LOCK	P1	
3	041825	HEADER 8 PIN VERT.	P501,502,503	
1	038837	HEATSINK	(MAIN HEATSINK)	
2	025796	HEATSINK TO-220		
2	027404	IC CA3080AE 0TA	U101,201	
9	031611	IC DUAL OP AMP PC4560	U502-510	
4	016795	IC DUAL OP AMP TLO72	U100,102,200,202	
1	013562	IC REGULATOR +15V MC7815CT	U1	
1	013564	IC REGULATOR -15V MC7915CT	U2	
2	027387	INDUCTOR AIR CORE RDL 2.5UH	L100,200	
8	038815	INSULATOR SILICONE TO-3P	Q115,116,119,120,215,216,219,220	
4	029175	JACK PHONE 1/4" HI CURRENT PC	J100,101	
40	020888	JUMPER 22GA	W1-12,14-34,36-38,52-54	
4	097360	NUT HEX 4-40 EX LOCK	(@	
1	041871	PCB FAB PX22XX POWER AMP	(OLD)	
1	048515	PCB FAB PX22XX POWER AMP	(NEW)	
12	031693 *	RES MF FUSE 1/4W 5% 4.7Ω	R157,159,162,165,170,175,257,259,262,265,270,275	
1	024937	RES CF 1/4W 5% 10Ω	R2	
4	033205 *	RES MF FUSE 1/4W 5% 15Ω	R150,151,250,251	
2	027749 *	RES MF FUSE 1/4W 5% 22Ω	R158,258	
4	024947	RES CF 1/4W 5% 47Ω	R136,137,236,237	
1	036960 *	RES MF FUSE 1/4W 5% 47Ω	R6	
1	024948	RES CF 1/4W 5% 56Ω	R3	
2	024952	RES CF 1/4W 5% 100Ω	R111,211	
4	038814 *	RES MF FUSE 1/4W 5% 220Ω	R144,145,244,245	
4	024961	RES CF 1/4W 5% 470Ω	R153,154,253,254	
12	024965	RES CF 1/4W 5% 1K	R113,128,132,140,152,183,213,228,232,240,252,283	
2	024969	RES CF 1/4W 5% 1.5K	R131,231	
2	029005	RES CF 1/4W 5% 2K	R523,556	
24	024971	RES CF 1/4W 5% 2.2K	R134,135,142,143,234,235,242,243,517,519,521,525,527,529,531,533,550,552,554,558,560,562,564,566	
12	024972	RES CF 1/4W 5% 2.7K	R160,161,166,169,171,174,260,261,266,269,271,274	
2	024975	RES CF 1/4W 5% 3.9K	R120,220	

QTY	PART #	DESCRIPTION	REFERENCE	DESIGNATION
2	024977	RES CF 1/4W 5% 4.7K	R115,215	
2	025942	RES CF 1/4W 5% 7.5K	R138,238	
8	024981	RES CF 1/4W 5% 10K	R7,8,105,110,114,205,210,214	
2	015582	RES MF 1/4W 1% 10K	R179,279	
2	024985	RES CF 1/4W 5% 15K	R129,229	
2	016968	RES MF 1/4W 1% 21.5K	R180,280	
2	024987	RES CF 1/4W 5% 22K	R182,282	
8	024988	RES CF 1/4W 5% 27K	R133,141,155,156,233,241,255,256	
13	024989	RES CF 1/4W 5% 33K	R100-104,122,222,200-204,567	
8	028990	RES CF 1/4W 5% 51K	R116-119,216-219	
2	024995	RES CF 1/4W 5% 68K	R124,224	
4	029613	RES CF 1/4W 5% 91K	R524,532,557,565	
12	024997	RES CF 1/4W 5% 100K	R123,125-127,130,223	
2	024998	RES CF 1/4W 5% 120K	R112,212	
2	025058	RES CF 1/4W 5% 180K	R530,563	
6	025059	RES CF 1/4W 5% 220K	R121,221,520,528,553,561	
4	029450	RES CF 1/4W 5% 240K	R516,526,549,559	
2	025061	RES CF 1/4W 5% 330K	R518,551	
4	025069	RES CF 1/4W 5% 1M	R108,109,208,209	
4	026549	RES CF 1/2W 5% 1.5K	R147,148,247,248 (300W ONLY)	
4	036926	RES CF 1/2W 5% 4.7K	R147,148,247,248 (600W ONLY)	
2	031900	RES CF 1/2W 5% 15K	R139,239	
2	027627	RES FILM 1W 5% 10Ω	R178,278	
4	037354	RES FILM 1W 5% 4.7K	R146,149,246,249	
4	027628	RES FILM 2W 5% 47Ω	R176,177,276,277	
1	041810	RES FILM 2W 5% 6.8K	R4	
12	032958	RES WW BT 5W 10% .33Ω	R163,164,167,168,172,173,263,264,267,268,272,273	
1	032905	RES WW BT 10W 10% 400Ω	R1	
4	031077	SCRW 4-40X1/4 TF HX/W SLT SS	@TS1,2	
15	032934	SCRW TF 4-40X1/2 HIHS ZI	@Q113-116,119,120,213-216,219,220	
2	027638	SCRW TF 4-40X3/8 HWHS ZI	(@ U1,2)	
8	038784	SLEEVING TEFLON 18GA 5/8"	@CR125-128,225-228	
2	031522	SWITCH BIDIRECT MBS4993 TO-92	TR100,200	
1	037037 *	SWITCH FAN	TS2	
1	038533 *	SWITCH THERMAL SENSOR	TS1	

PARTS LIST

POWER AMP 600 & 300 WATT
AND GRAPHIC EQUALIZER GYRATOR
PRINTED CIRCUIT BOARD ASSEMBLY
CONTINUED

QTY	PART #	DESCRIPTION	REFERENCE	DESIGNATION
1	026411 *	THERMISTOR 2.5Ω 8A C30-19	TH1	(300 WATT VERSION ONLY)
2	025794	THYRISTOR TRIAC MAC15-4	TR101,201	
8	032937	WSHR CONE	@Q115,116,119,120,215,216, 219,220	
2	014689	XSTR N-CH JFET J111 TO-92	Q100,200	
2	016739	XSTR NPN 2N4401 TO-92	Q111,211	
8	025751	XSTR NPN 2SC2362K/2SC2389	Q102-104,108,202-204,208	
4	028763	XSTR NPN 2SC3281 TOP-3L	Q115,117,119,215,217,219	
3	028760	XSTR NPN 2SC3298A TOP-220	Q1,113,213	
2	014867	XSTR NPN MPSU10 TO-202	Q110,210	
2	016742	XSTR PNP 2N4403 TO-92	Q112,212	
7	025752	XSTR PNP 2SA1016K TO-92	Q2,105,106,107,205,206,207	
4	028762	XSTR PNP 2SA1302 TOP-3L	Q116,118,120,216,218,220	
2	028759	XSTR PNP 2SA1306A TOP-220	Q114,214	
2	014866	XSTR PNP MPS-U60 TO-202	Q109,209	
2	014408	XSTR PNP MPSA63 TO-92	Q101,201	

PARTS LIST

POWER AMP 600 & 300 WATT
CHASSIS ASSEMBLY

QTY	PART #	DESCRIPTION	REFERENCE	DESIGNATION
1	041063	BAFFLE AIR PWR AMP		
1	026038	BUSHING SR .625X.062X37/64 BLK		(@ POWER CABLE)
1	026541	CABLE ASSY PWR W/.250 TAB 120V		
1	041059	CHASSIS BOTTOM PWR AMP PX22XX		OLD (USED WITH OLD PCB ASSY)
1	048756	CHASSIS BOTTOM PWR AMP PX22XX		NEW (USED WITH NEW PCB ASSY)
1	041061	CHASSIS TOP PWR AMP PX2208 300W		
1	047465	CHASSIS TOP PWR AMP PX2212/16		
1	012473	FAN 115V 4-1/8"		
1	033576	GASKET FAN 4.9X4.9		(@ FAN)
9	069393	NUT HEX 6-32 EXT LOCK		(@ FAN,BAFFLE,GND LUGS)
1	022004	NUT KEPS #8-32 ZINC		(RECTIFIER MOUNT)
4	025819	NUT KEPS 10-32 ZINC		(TRANSFORMER MOUNT)
4	016352	NUT HEX 3/8-32X3/32 TK NI		(@ SPEAKER OUTPUT JACKS)
1	032925	RECTIFIER BRIDGE DIODE 35 AMP		
4	032806	SCRW TF 6-32X1/4 PHP BLX		(PWR AMP TOP PANEL MOUNT)
8	9904101500	SCRW M 6-32X3/8 PHPS BLX		(BAFFLE, GND LUG MOUNT)
6	034857	SCRW M 6-32X5/8 RHP BLX		(FAN MOUNT)
1	040582	SWITCH DPST .250 TAB GLOBAL		(POWER SWITCH)
4	9904300100	WASHER LCK INTL 3/8X.681X.032		(@ SPEAKER OUTPUT JACKS)
4	9904300150	WASHER FLAT 3/8X.375X.613 NI		(@ SPEAKER OUTPUT JACKS)
1	041097	XFMR POWER PX2208/2208D 120V	T1	(120V, 300 WATT PWR AMP)
1	041098	XFMR EXPORT PX2208/2208D	T1(100/115/230V	300 WATT PWR AMI
1	041099	XFMR POWER PX2212D/2216D 120V	T1	(120V, 600 WATT PWR AMP)
1	041100	XFMR EXPORT PX2212D/2216D	T1(100/115/230V	600 WATT PWR AMI

PARTS LIST

ROADCASE ASSEMBLY

QTY	PART #	DESCRIPTION	REFERENCE	DESIGNATION
2	047142	ANGLE HOLDER	(PROVIDES LIP FOR ROAD CASE TOP TO SLIDE UNDER)	
2	047513	BRACKET "L" REINFORCEMENT	(@ PIVOT MOUNT)	
1	047127	BOLT SPRING RELEASE LEFT	(@ TOP PANEL)	
1	047128	BOLT SPRING RELEASE RIGHT	(@ TOP PANEL)	
1	041067	BUSHING PIVOT EXTRUDED		
1	047116	CHANNEL SIDE LEFT PX22XX		
1	047144	CHANNEL SIDE RIGHT PX22XX		
2	031867	CORNER 2 HOLE W/NOTCH BLK PWDR		
2	031840	CORNER 3 HOLE BLK PWDRD		
4	027849	GLIDE CAB 1.24X.335 BLX WAX	(NO INSERT)	
2	027846	HANDLE 9.25" NO LOGO	(NO INSERT)	
4	031845	HANDLE CAP 2 HOLE BLK PWDRD	(HANDLE MOUNTING)	
4	019275	INSERT GLIDE CUSHION 1.27 DIA	(RUBBER ONLY)	
2	032524	INSERT HANDLE	(SPRING STEEL)	
1	047126	KEEPER PX22XX W/O LATCH	(MATE FOR TOP LATCH)	
1	047125	LATCH PX22XX W/O KEEPER	(MATE FOR TOP KEEPER)	
1	047678	NAMEPLATE FENDER ELEC 6"X3.5"		
4	023544	NUT 1/4-20 NYL INSERT	(PIVOT MOUNT)	
4	064162	NUT T 8-32X1/2 STR 3 PRNG BLX	(BOLT SPRING MOUNT)	
12	021972	NUT T 10-32X3/4 STR 3 PRNG BLX		
1	047397	ROAD CASE ASSY PX2208/D	(8 CHANNEL, W/TOP)	
1	047398	ROAD CASE ASSY PX2212D	(12 CHANNEL, W/TOP)	
1	047399	ROAD CASE ASSY PX2216D	(16 CHANNEL, W/TOP)	
1	041840	ROAD CASE TOP PX2208D	(TOP ONLY)	
1	041843	ROAD CASE TOP PX2212D	(TOP ONLY)	
1	041846	ROAD CASE TOP PX2216D	(TOP ONLY)	
6	037985	SCRW SMA 2X3/8 PHP BLX	(NAMEPLATE MOUNT)	
8	048539	SCRW SMA 6X1" FHP BLK	(CHANNEL MOUNT)	
4	017439	SCRW SMA 6X1/2 PHP BLX	(@ BRACKET "L", PIVOT MOUNT)	
2	030957	SCRW SMA 6X1/2 RHP NI	(KEEPER MOUNT)	
14	026576	SCRW SMA 8X5/8 TH BLACK	(CORNER MOUNT)	
4	037667	SCRW SM 8X3/4 FHP NI	(GLIDE MOUNT)	
4	026419	SCRW M 8-32X1 PHP STL NI	(BOLT SPRING MOUNT)	
2	048486	SCRW M 8-32X4-1/2 THP STL BLK	(INSTALLED THROUGH WOOD TO HANDLE ON MIXER PANEL)	
8	048471	SCRW M 10-32X1 OHP STL BLX	(HANDLE MOUNT)	
2	029683	SCRW M 10-32X1 THP BLX		
2	047466	SCRW 1/4-20X4 THP STL BLX	(PIVOT MOUNT)	
2	047138	SPACER STOP PX22XX	(@ BOLT SPRING)	

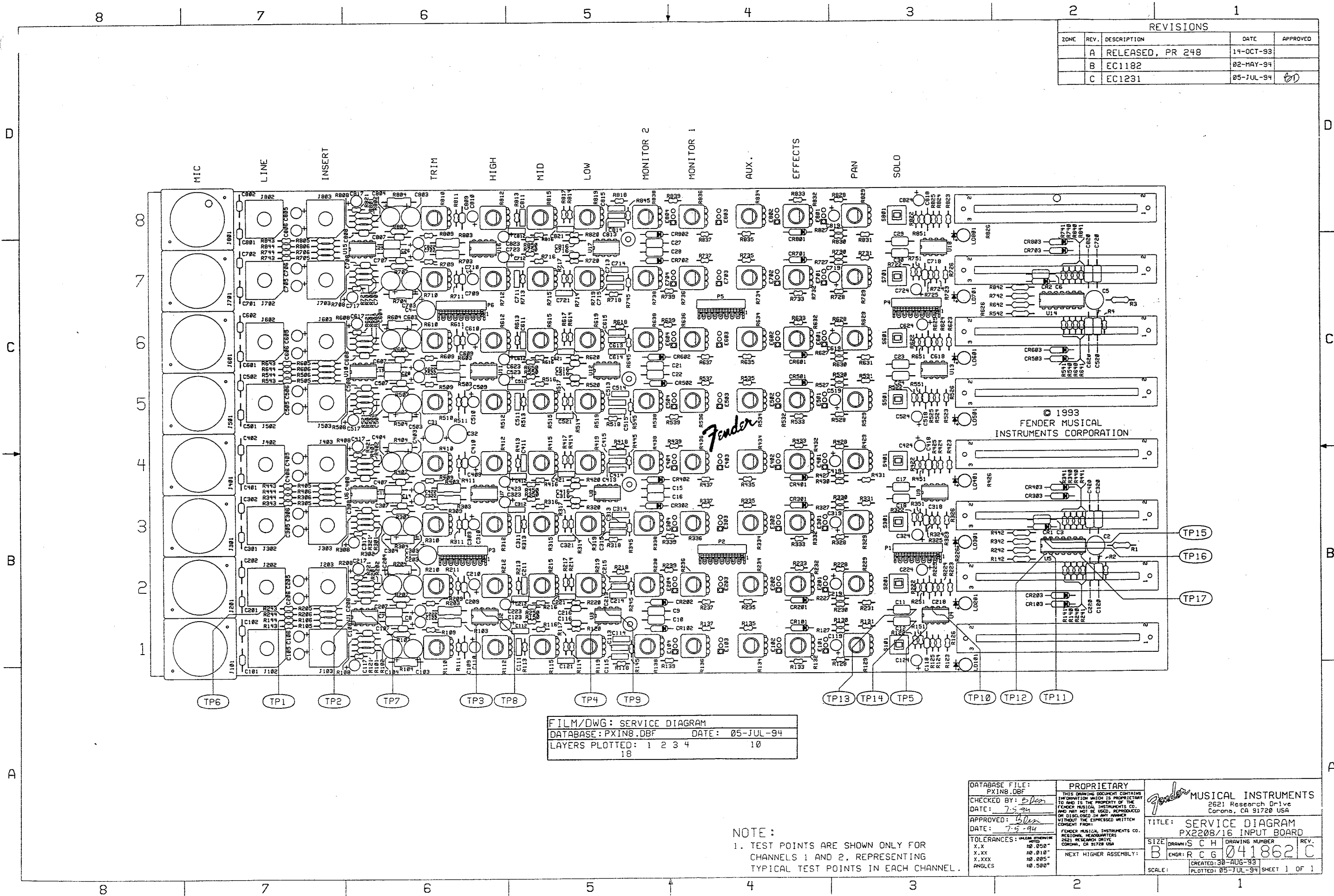
PARTS LIST

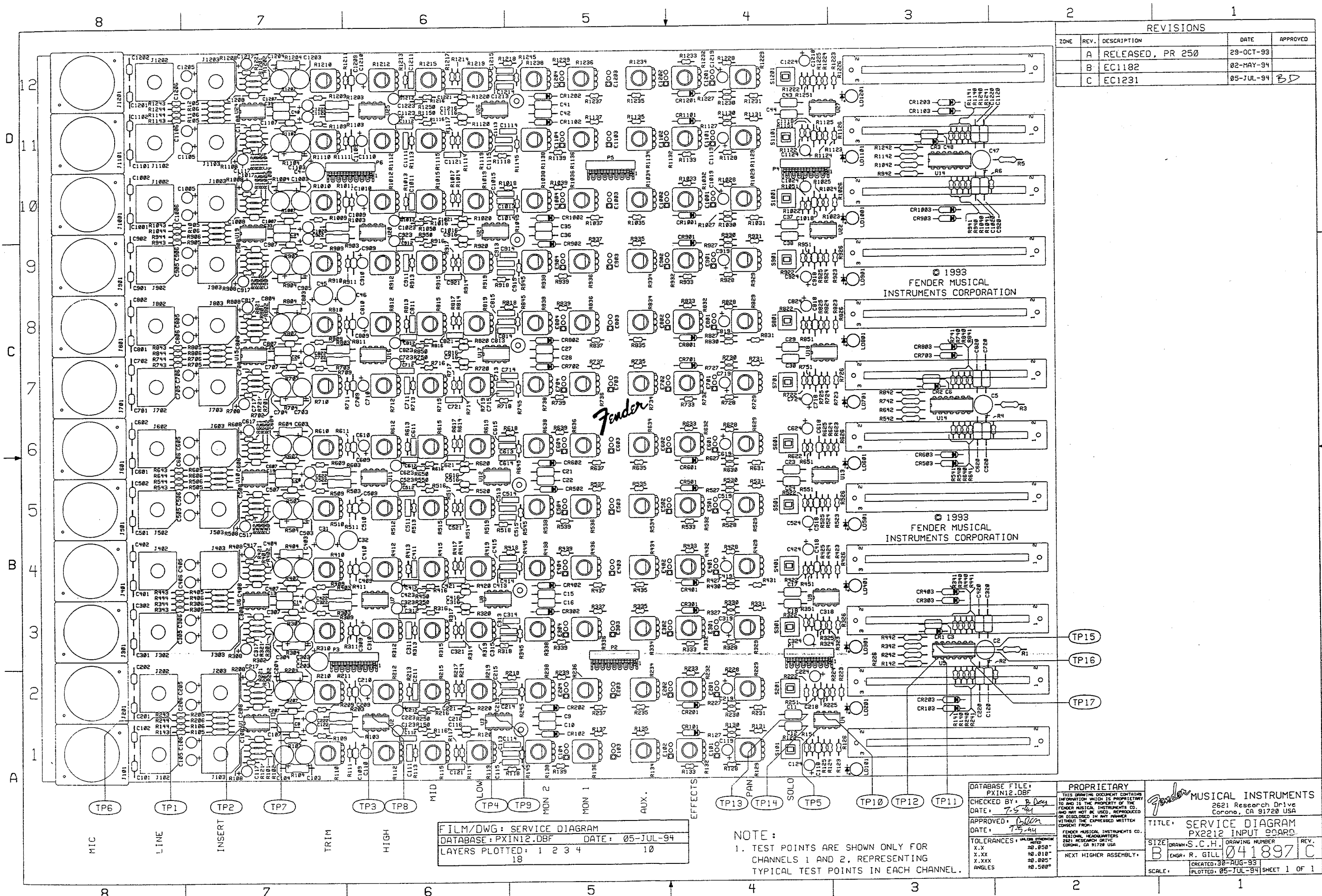
**ROADCASE ASSEMBLY
CONTINUED**

QTY	PART #	DESCRIPTION	REFERENCE	DESIGNATION
2	047463	SPACER BLOCK PX22XX	(@ BOLT SPRING)	
2	016451	WASHER LOCK INTERNAL TOOTH 1/4	(PIVOT MOUNT)	
2	047143	WASHER SPACER PIVOT PX22XX	(PIVOT MOUNT)	

MISCELLANEOUS

QTY	PART #	DESCRIPTION	REFERENCE	DESIGNATION
1	047476	MANUAL OWNERS PX2200 SERIES		
1	041864	SCHEM REDUCED PX22XX 8CHANNEL		
1	041879	SCHEM REDUCED PX22XX DIG REVB		
1	041934	SCHEM REDUCED PX22XX PWR AMP		
1	041869	SCHEM REDUCED PX22XX OUTPUT		



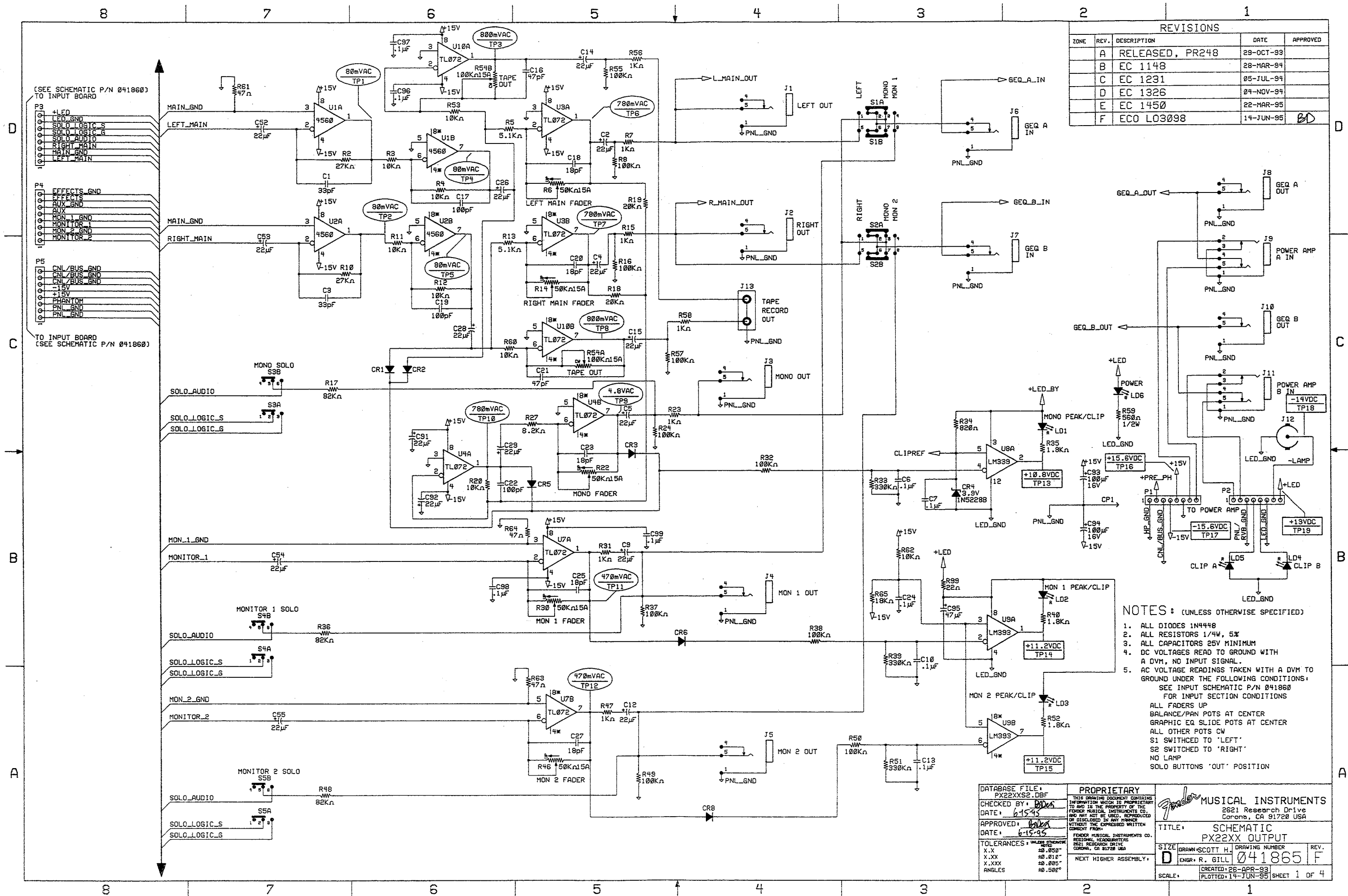


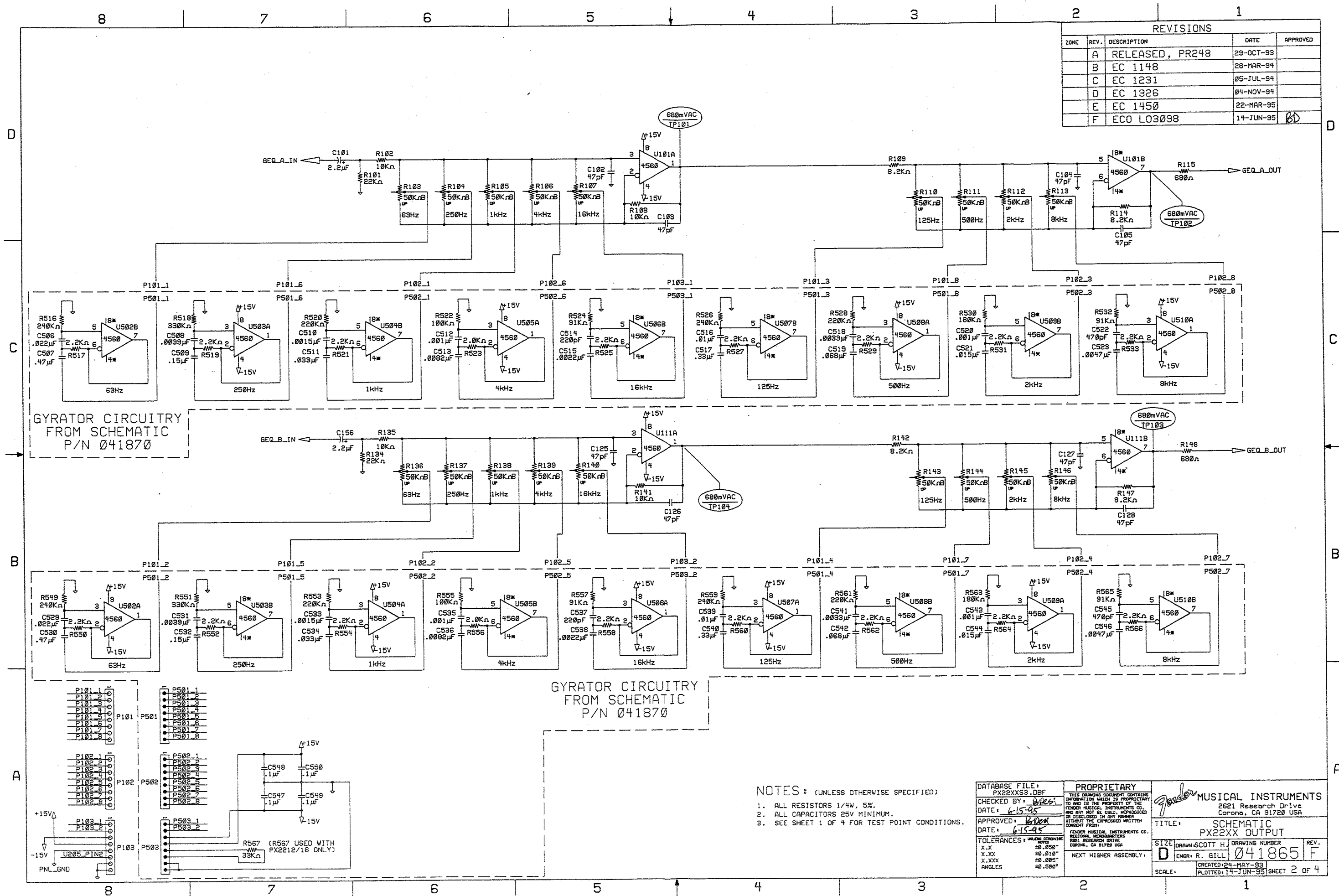
REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	RELEASED, PR 250	29-OCT-93	
	B	EC1182	02-MAY-94	
	C	EC1231	05-JUL-94	B.D.

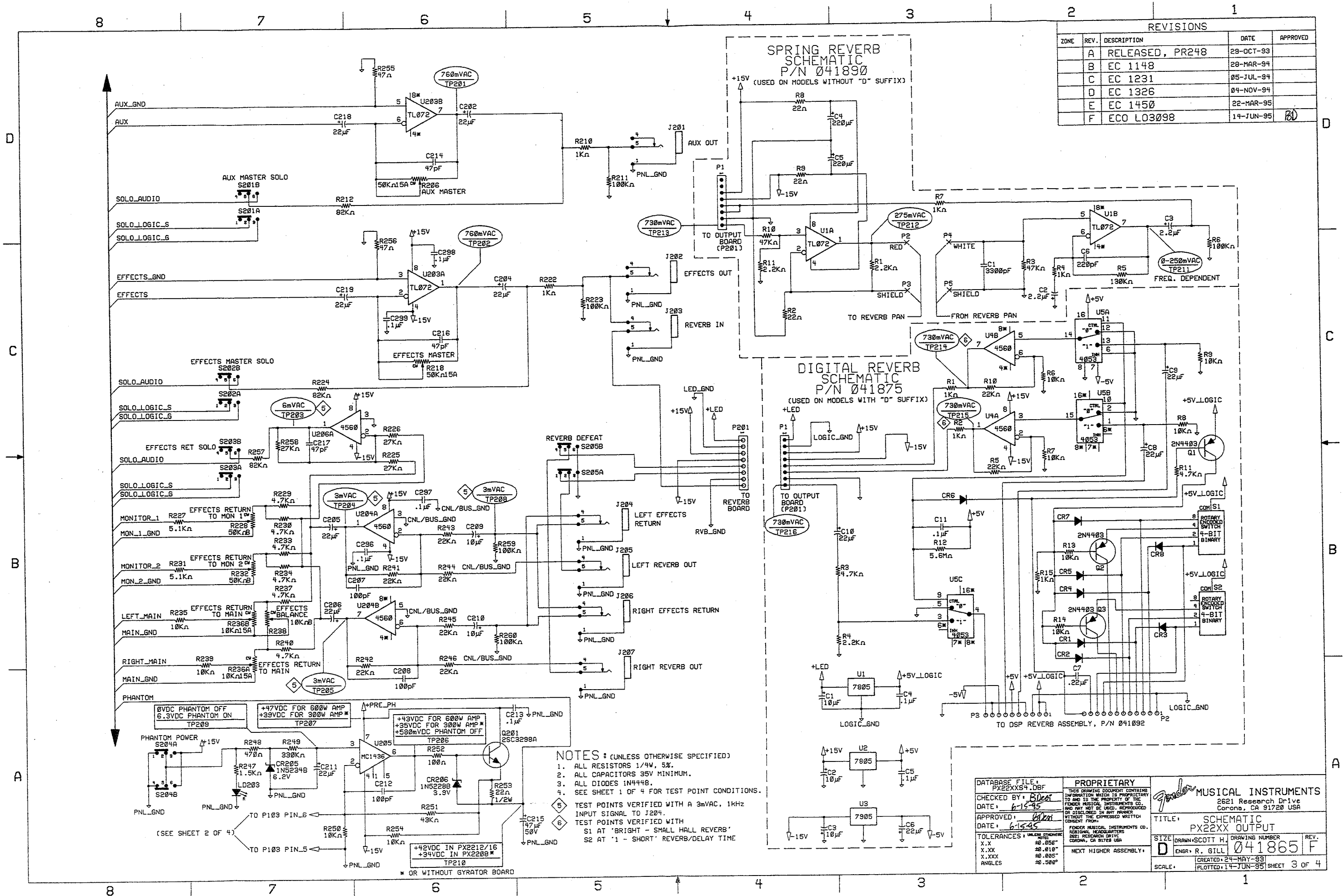
NOTE:
1. TEST POINTS ARE SHOWN ONLY FOR CHANNELS 1 AND 2, REPRESENTING TYPICAL TEST POINTS IN EACH CHANNEL.

FILM/DWG: SERVICE DIAGRAM
DATABASE: PXIN12.DBF
LAYERS PLOTTED: 1 2 3 4 10 18
DATE: 05-JUL-94

DATABASE FILE: PXIN12.DBF CHECKED BY: B. Day DATE: 7-5-94 APPROVED: [Signature] DATE: 7-5-94 TOLERANCES: UNLESS OTHERWISE SPECIFIED: X.X .050" X.XX .010" X.XXX .005" ANGLES .500°	PROPRIETARY THIS DRAWING DOCUMENT CONTAINS INFORMATION WHICH IS PROPRIETARY TO AND IS THE PROPERTY OF THE FENDER MUSICAL INSTRUMENTS CO. AND MAY NOT BE USED, REPRODUCED OR DISCLOSED IN ANY MANNER WITHOUT THE EXPRESSED WRITTEN CONSENT FROM: FENDER MUSICAL INSTRUMENTS CO. REGIONAL HEADQUARTERS 3251 RESEARCH DRIVE CORONA, CA 91720 USA NEXT HIGHER ASSEMBLY:	 FENDER MUSICAL INSTRUMENTS 2621 Research Drive Corona, CA 91720 USA TITLE: SERVICE DIAGRAM PX2212 INPUT BOARD SIZE: DRAWN: S.C.H. DRAWING NUMBER: B ENGR: R. GILL 041897 REV. C CREATED: 30-AUG-93 PLOTTED: 05-JUL-94 SHEET 1 OF 1
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REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	RELEASED, PR248	29-OCT-93	
	B	EC 1148	28-MAR-94	
	C	EC 1231	05-JUL-94	
	D	EC 1326	04-NOV-94	
	E	EC 1450	22-MAR-95	
	F	ECO L03098	14-JUN-95	

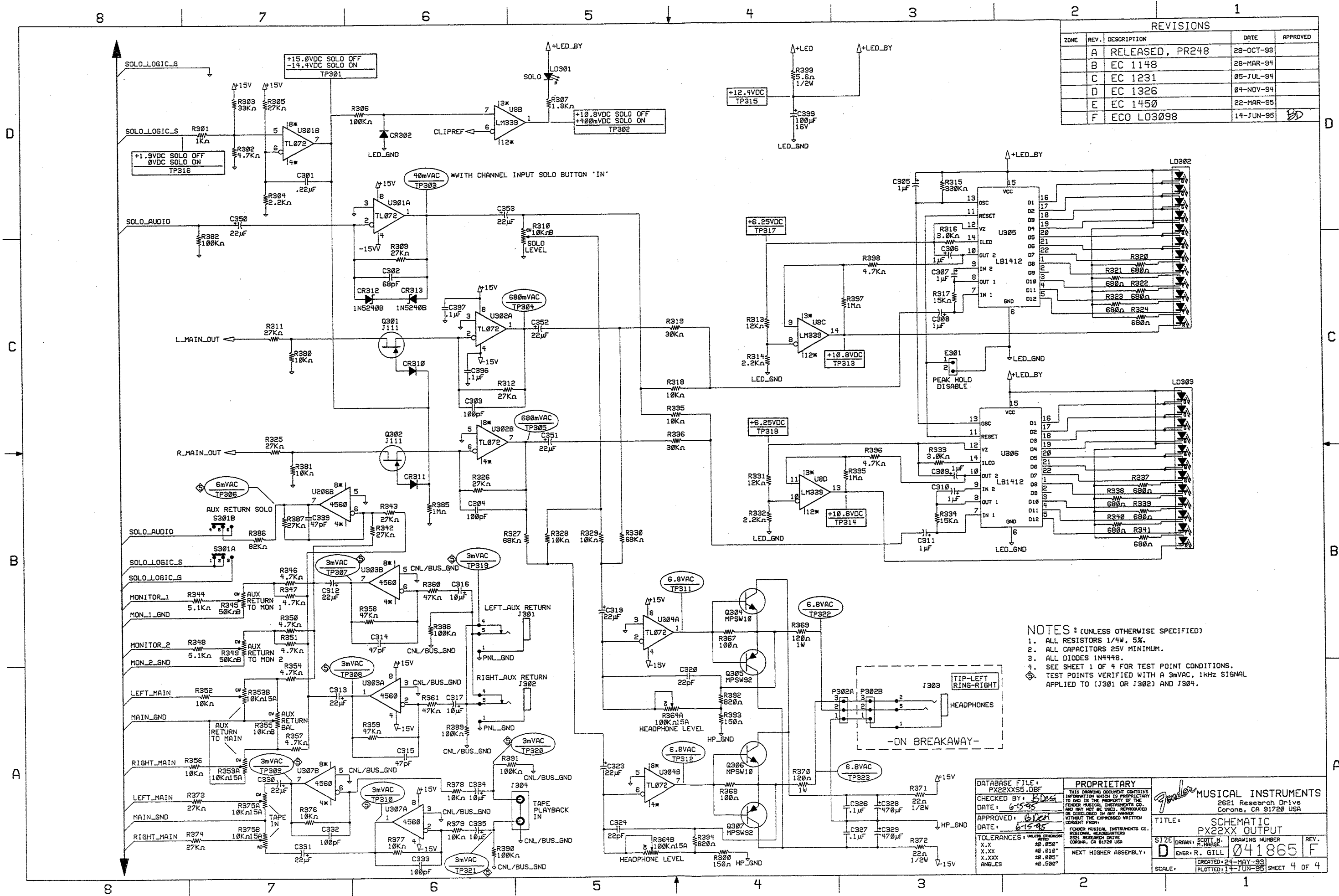
NOTES: (UNLESS OTHERWISE SPECIFIED)

1. ALL RESISTORS 1/4W, 5%.
2. ALL CAPACITORS 35V MINIMUM.
3. ALL DIODES 1N4448.
4. SEE SHEET 1 OF 4 FOR TEST POINT CONDITIONS.

TEST POINTS VERIFIED WITH A 3mVAC, 1KHz INPUT SIGNAL TO J204.

TEST POINTS VERIFIED WITH S1 AT 'BRIGHT - SMALL HALL REVERB' S2 AT '1 - SHORT' REVERB/DELAY TIME

DATABASE FILE: PX22XXS4.DBF CHECKED BY: B. DEAR DATE: 6-15-95 APPROVED: [Signature] DATE: 6-15-95 TOLERANCES: UNLESS OTHERWISE SPECIFIED: X.X .05" X.XX .01" X.XXX .005" ANGLES .500°	PROPRIETARY THIS DRAWING DOCUMENT CONTAINS INFORMATION WHICH IS PROPRIETARY TO AND IS THE PROPERTY OF THE FENDER MUSICAL INSTRUMENTS CO. AND MAY NOT BE USED, REPRODUCED OR DISCLOSED IN ANY MANNER WITHOUT THE EXPRESSED WRITTEN CONSENT FROM: FENDER MUSICAL INSTRUMENTS CO. REGIONAL HEADQUARTERS 2621 Research Drive Corona, CA 91728 USA	
	TITLE: SCHEMATIC PX22XX OUTPUT SIZE: D DRAWN: SCOTT H. ENGR: R. GILL CREATED: 24-MAY-93 PLOTTED: 14-JUN-95	REV. 3 OF 4 SHEET 3 OF 4



REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A	RELEASED, PR248		29-OCT-93	
B	EC 1148		28-MAR-94	
C	EC 1231		05-JUL-94	
D	EC 1326		04-NOV-94	
E	EC 1450		22-MAR-95	
F	ECO L03098		14-JUN-95	BD

NOTES: (UNLESS OTHERWISE SPECIFIED)

1. ALL RESISTORS 1/4W, 5%.
2. ALL CAPACITORS 25V MINIMUM.
3. ALL DIODES 1N4448.
4. SEE SHEET 1 OF 4 FOR TEST POINT CONDITIONS.

TEST POINTS VERIFIED WITH A 3mVAC, 1KHz SIGNAL APPLIED TO (J301 OR J302) AND J304.

DATABASE FILE:
PX22XXSS.DBF

CHECKED BY: *B. Dea*

DATE: *6-15-95*

APPROVED: *B. Dea*

DATE: *6-15-95*

TOLERANCES: UNLESS OTHERWISE SPECIFIED:
X.X .005"
X.XX .010"
X.XXX .005"
ANGLES .500°

PROPRIETARY

THIS DRAWING DOCUMENT CONTAINS INFORMATION WHICH IS PROPRIETARY TO AND IS THE PROPERTY OF THE FENDER MUSICAL INSTRUMENTS CO. AND MAY NOT BE USED, REPRODUCED OR DISCLOSED IN ANY MANNER WITHOUT THE EXPRESSED WRITTEN CONSENT FROM:
FENDER MUSICAL INSTRUMENTS CO.
2621 RESEARCH DRIVE
CORONA, CA 91726 USA

NEXT HIGHER ASSEMBLY:

Fender MUSICAL INSTRUMENTS
2621 Research Drive
Corona, CA 91726 USA

TITLE:
SCHEMATIC
PX22XX OUTPUT

SIZE: *D* DRAWN: SCOTT H. ENGR: R. GILL

DRAWING NUMBER:
041865

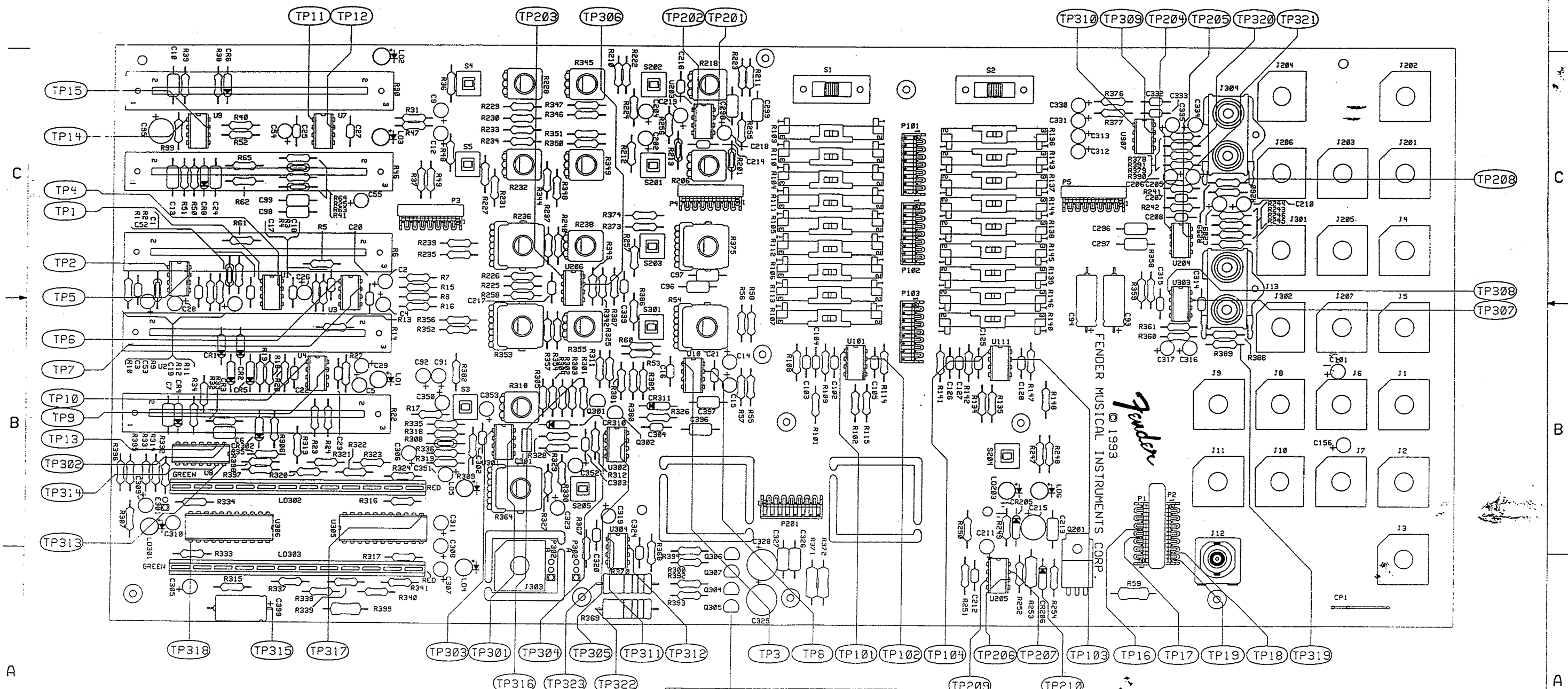
REV. *F*

SCALE:
CREATED: 24-MAY-93
PLOTTED: 14-JUN-95

SHEET 4 OF 4

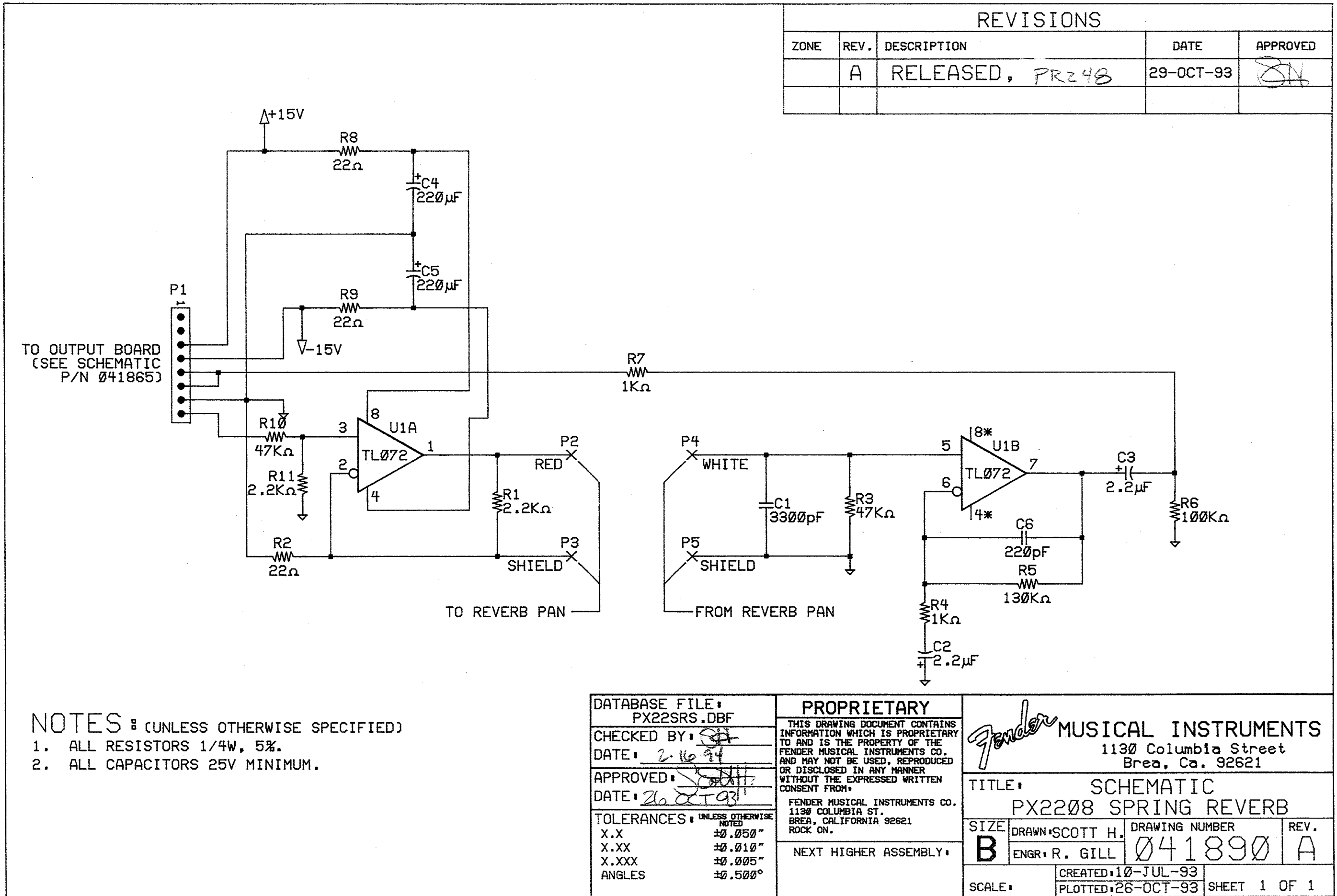
FILM/DWG: SERVICE DIAGRAM
DATABASE: PXOUTP.DBF DATE: 14-JUN-95
LAYERS PLOTTED: 1 2 3 4 10 18

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	RELEASED, PR248	15-OCT-93	
	B	EC 1205	24-MAY-94	
	C	EC 1231	01-JUL-94	
	D	ECO L03098	14-JUN-95	85



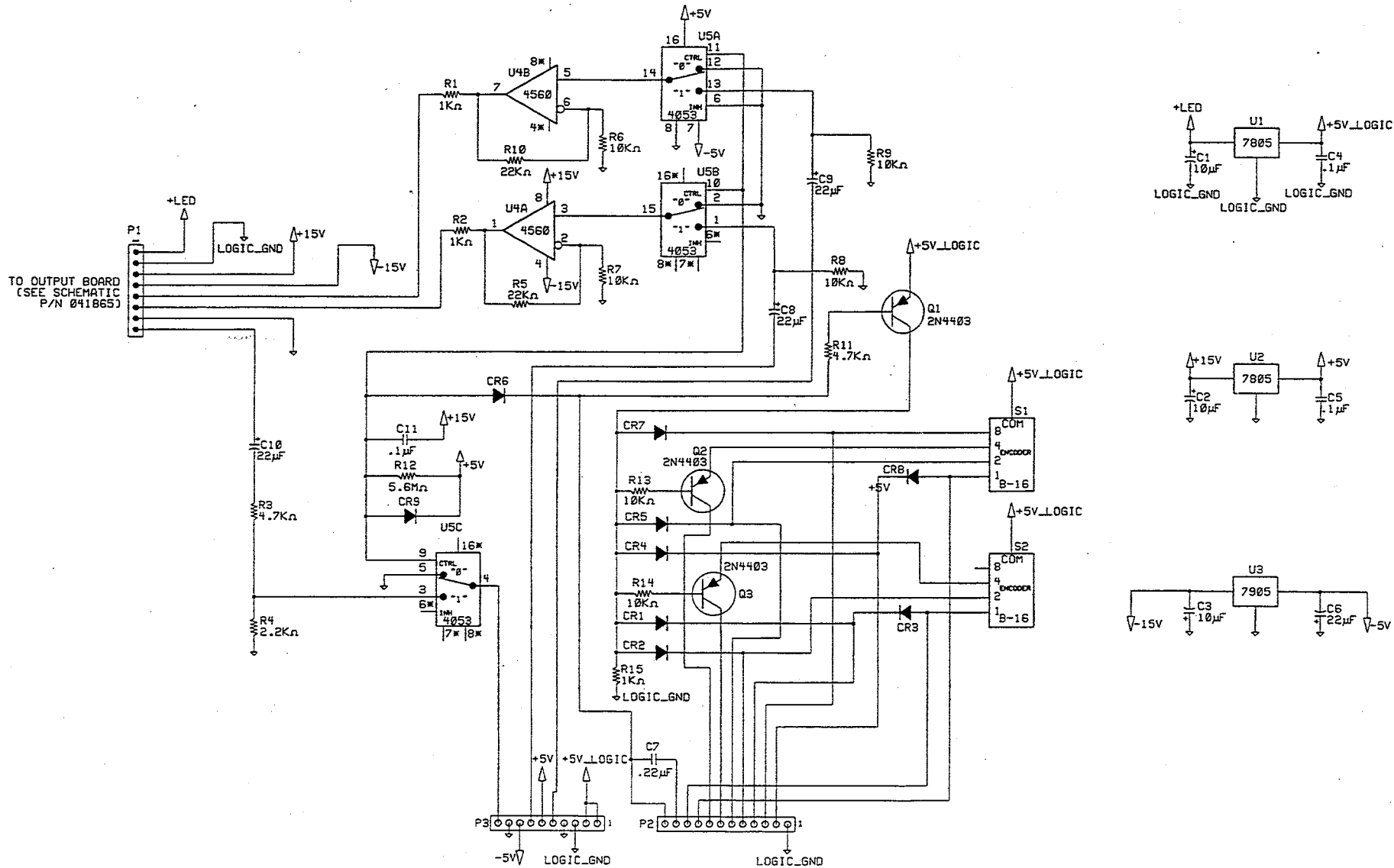
NOTE: ALTERNATE TRANSISTOR CASE
STYLES MAY BE USED (4 PLACES).
NEW TYPE OLD TYPE
MPSW10: Q304, Q306 (WAS MPS-U10)
MPSW92: Q305, Q307 (WAS MPS-U60)

DATABASE FILE: PXOUTP.DBF		PROPRIETARY	
CHECKED BY: DATE:	6/15/95	THIS DRAWING DOCUMENT CONTAINS INFORMATION WHICH IS PROPRIETARY TO AND IS THE PROPERTY OF THE FENDER MUSICAL INSTRUMENTS CO. AND MAY NOT BE USED, REPRODUCED OR DISCLOSED IN ANY MANNER WITHOUT THE WRITTEN CONSENT OF FENDER.	
APPROVED: DATE:	6/15/95	FENDER MUSICAL INSTRUMENTS CO. REGIONAL HEADQUARTERS 2621 RESEARCH DRIVE CORONA, CA 91720 USA	
TOLERANCES:		NEXT HIGHER ASSEMBLY:	
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REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	RELEASED, PR248	15-OCT-93	
	B	EC 1148	28-MAR-94	
	C	ECO L02929	15-AUG-94	
	D	EC 1587	05-OCT-95	MA



- NOTES: (UNLESS OTHERWISE SPECIFIED)
1. ALL RESISTORS CARBON FILM, $\pm 5\%$, 1/4W.
 2. ALL DIODES 1N4448.
 3. ALL CAPACITORS 25V MINIMUM.
 4. FOR TEST POINTS, SEE SCHEMATIC P/N 041865, SHEET 3 OF 4.

DATABASE FILE: PX22DRS.DBF		PROPRIETARY	
CHECKED BY: MA	DATE: 1-18-96	FENDER MUSICAL INSTRUMENTS CO. 2621 RESEARCH DRIVE CORONA, CA 91720 USA	
APPROVED: MA	DATE: 1-18-96	FENDER MUSICAL INSTRUMENTS CO. 2621 RESEARCH DRIVE CORONA, CA 91720 USA	
TOLERANCES: UNLESS OTHERWISE NOTED		NEXT HIGHER ASSEMBLY:	
X.X	$\pm 0.050"$		
X.XX	$\pm 0.010"$		
X.XXX	$\pm 0.005"$		
ANGLES	$\pm 0.500^\circ$		
TITLE: SCHEMATIC PX22XX DIGITAL REVERB		FENDER MUSICAL INSTRUMENTS CO. 2621 RESEARCH DRIVE CORONA, CA 91720 USA	
SIZE: D	DRAWN: SCOTT H.	DRAWING NUMBER: 041875	REV: D
ENGR: R. GILL		CREATED: 04-11-93	

SHEET 0041879000

8

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NOTES: (UNLESS OTHERWISE SPECIFIED)

1. ALL RESISTORS CARBON FILM, 1/4W, ±5%.
2. ALL CAPACITORS 35 VOLT MINIMUM.
3. DC VOLTAGES READ TO GROUND WITH A D.V.M., NO SIGNAL APPLIED, AT RATED LINE VOLTAGE.
4. AC VOLTAGE READINGS TAKEN WITH A D.V.M., REFERENCED TO GROUND, UNDER THE FOLLOWING CONDITIONS:
 - 4.1 1kHz INPUT SIGNAL.
 - 4.2 A 4Ω RESISTIVE LOAD CONNECTED FROM CP100 TO CP101 FOR CHANNEL A, AND CP200 TO CP201 FOR CHANNEL B.
5. ALL DIODES ARE 1N4448.
6. VOLTAGES AT TP6 AND TP7 ARE WITH OUTPUT BELOW CLIPPING.
7. ALL INSTANCE NUMBERS 1XX REPRESENT A PART INCLUDED IN BOTH CHANNEL A AND B. ONLY CHANNEL A IS SHOWN.
- 7.1 CHANNEL B CIRCUITRY IS IDENTICAL TO CHANNEL A.
- 7.2 CHANNEL A INSTANCES BEGIN WITH 100, CHANNEL B INSTANCES BEGIN WITH 200.
8. NUMBERS IN PARENTHESES INDICATE PIN NUMBERS OR INSTANCE NUMBERS WHICH ARE PARTICULAR TO CHANNEL B.

9. IN 300W VERSION:

- 9.1 PARTS NOT STUFFED:
Q117, Q118, R162, R165-169, Q217, Q218, R262, R265-269, R567
- 9.2 PART CHANGES:
CR16 FROM 1N53688 (47V) TO 1N53688 (39V)
R147, R148, R247, R248 FROM 4.7KΩ TO 1.5KΩ
C11, C12 FROM 1000μF TO 6800μF
- 9.3 ±59V CHANGES TO ±58V.
+47V CHANGES TO +39V.

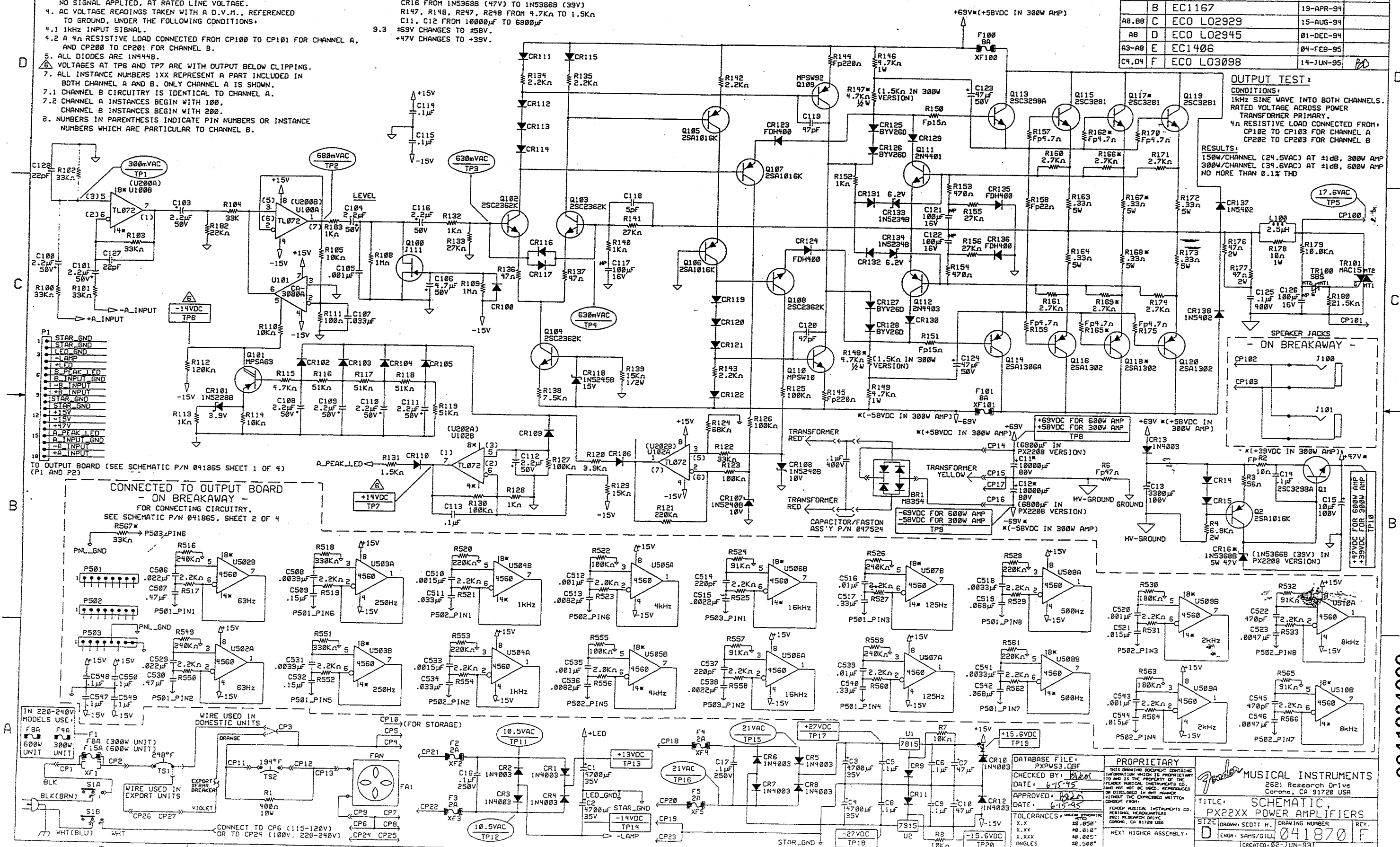
REVISIONS

ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	RELEASED, PR248	22-OCT-93	
	B	EC1167	19-APR-94	
A8, B8	C	ECO L02929	15-AUG-94	
A8	D	ECO L02945	01-DEC-94	
A3-A8	E	EC1406	04-FEB-95	
C4, D4	F	ECO L03098	14-JUN-95	PD

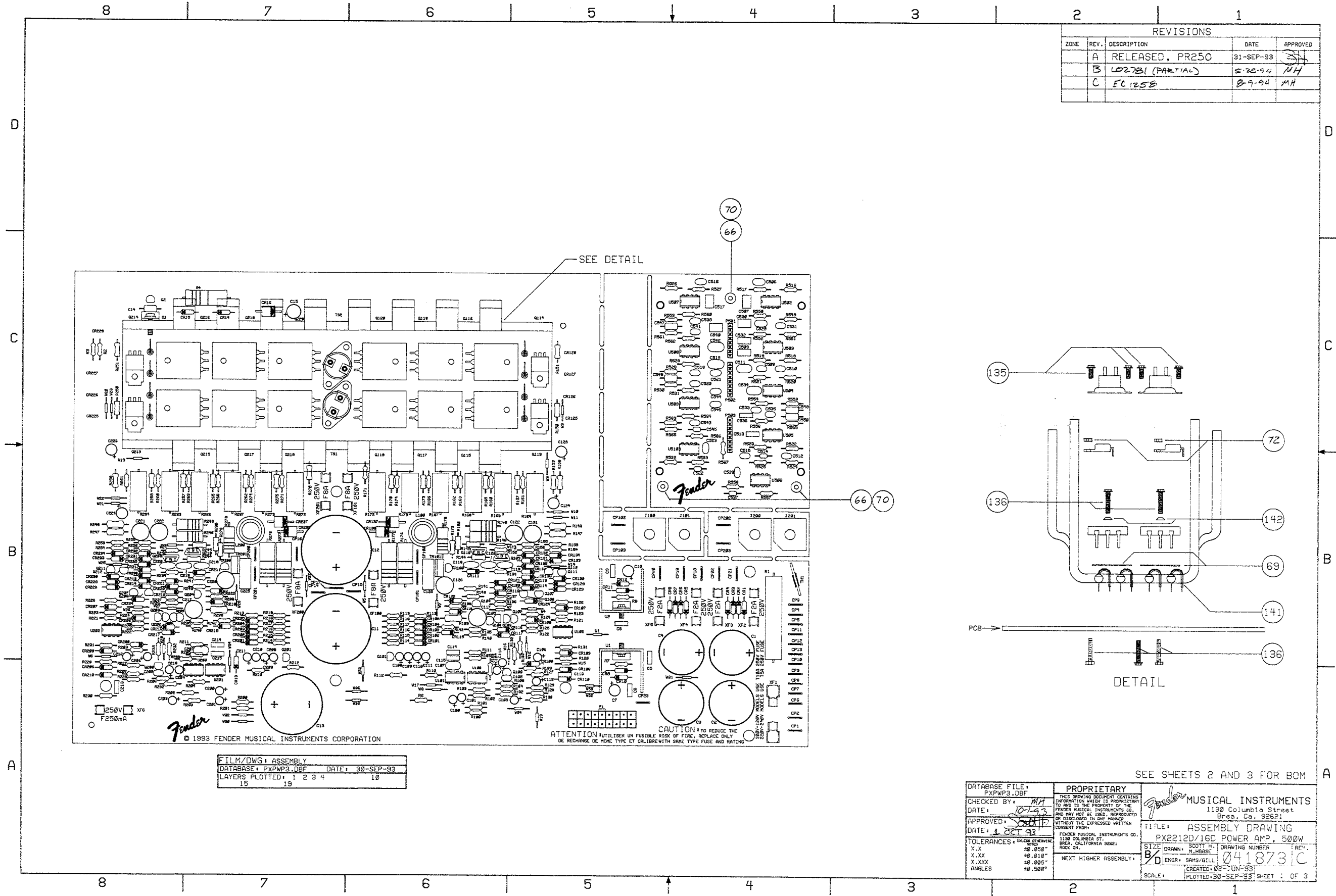
OUTPUT TEST:

CONDITIONS:
1KHz SINE WAVE INTO BOTH CHANNELS.
RATED VOLTAGE ACROSS POWER
TRANSFORMER PRIMARY.
4Ω RESISTIVE LOAD CONNECTED FROM:
CP102 TO CP103 FOR CHANNEL A
CP202 TO CP203 FOR CHANNEL B

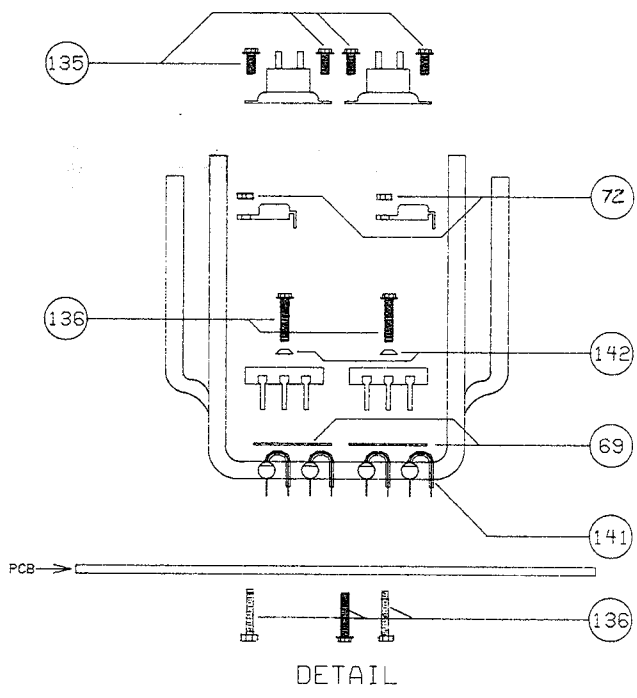
RESULTS:
150W/CHANNEL (24.5VAC) AT ±1dB, 300W AMP
300W/CHANNEL (34.6VAC) AT ±1dB, 600W AMP
NO MORE THAN 0.1% THD



0041934000



REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	RELEASED, PR250	31-SEP-93	[Signature]
	B	LO2781 (PARTIAL)	5-20-94	MH
	C	FL 1255	8-9-94	MH

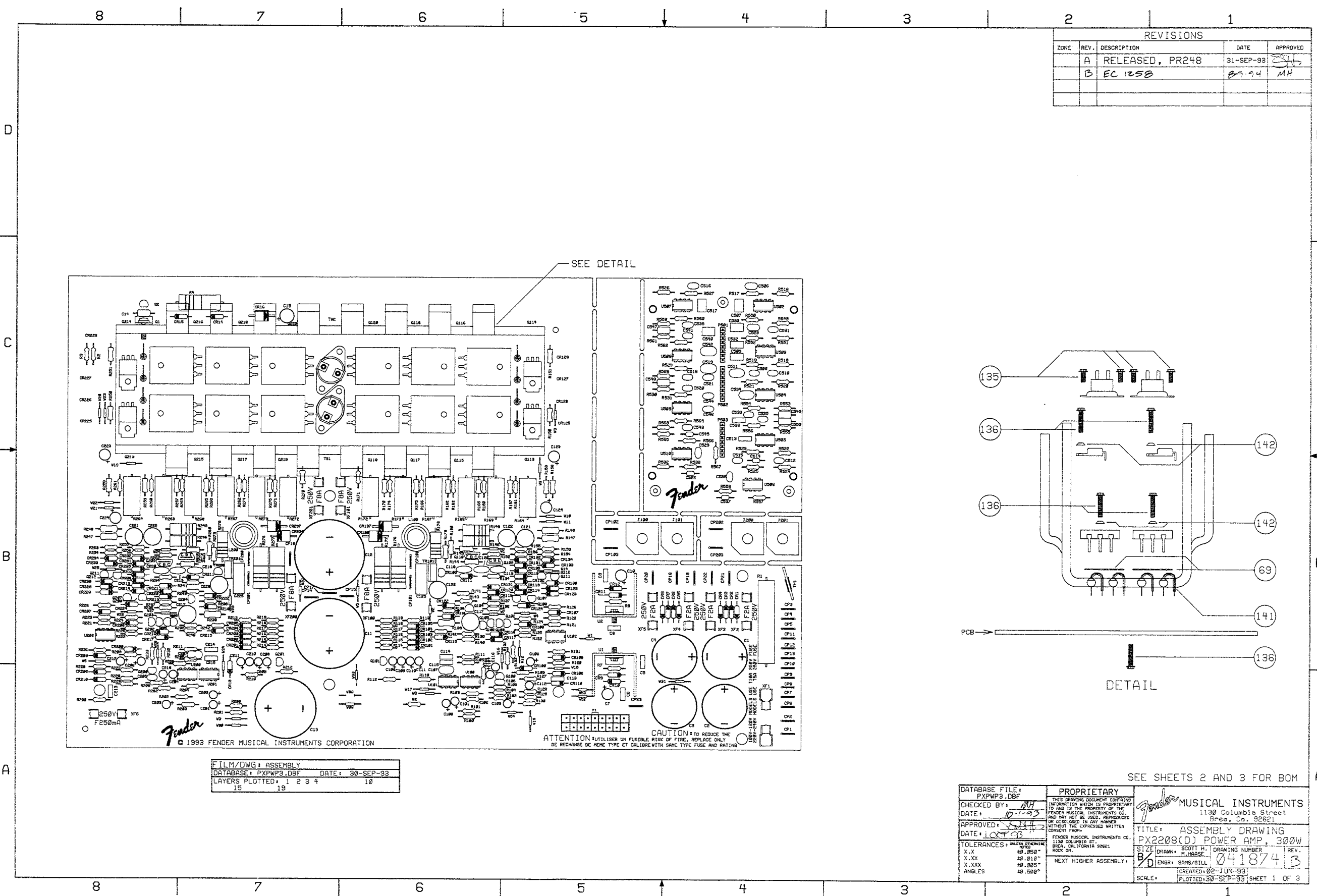


FILM/DWG: ASSEMBLY	DATE: 30-SEP-93
DATABASE: PXPWP3.DBF	
LAYERS PLOTTED: 1 2 3 4	10
15	19

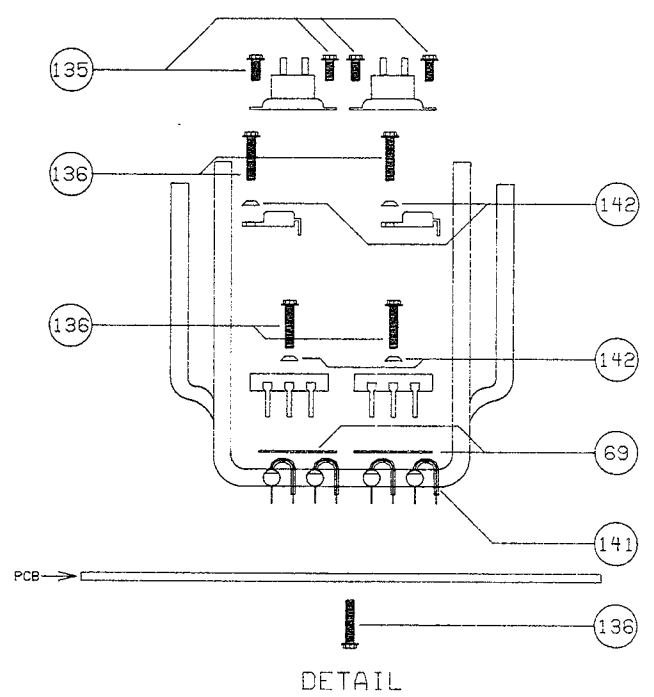
DATABASE FILE: PXPWP3.DBF		PROPRIETARY	
CHECKED BY: MH		THIS DRAWING CONTAINS INFORMATION WHICH IS PROPRIETARY TO AND IS THE PROPERTY OF THE FENDER MUSICAL INSTRUMENTS CO. AND MAY NOT BE USED, REPRODUCED OR DISCLOSED IN ANY MANNER WITHOUT THE EXPRESSED WRITTEN CONSENT FROM:	
DATE: 10-7-93		FENDER MUSICAL INSTRUMENTS CO. 1130 COLUMBIA ST. BREA, CALIFORNIA 92621	
APPROVED: [Signature]		TITLE: ASSEMBLY DRAWING	
DATE: 1 OCT 93		PX2212D/16D POWER AMP, 500W	
TOLERANCES: UNLESS OTHERWISE SPECIFIED:		SIZE: 8 1/2" ENGR: SAHS/GILL	
X.X .050"		DRAWING NUMBER: 041873	
X.XX .010"		REV: C	
X.XXX .005"		NEXT HIGHER ASSEMBLY:	
ANGLES .0005°		SCALE: 1"=1"	
		CREATED: 02-JUN-93	
		PLOTTED: 30-SEP-93	
		SHEET: 1 OF 3	

CAUTION: TO REDUCE THE RISK OF FIRE, REPLACE ONLY WITH SAME TYPE FUSE AND RATING.

SEE SHEETS 2 AND 3 FOR BOM




REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	RELEASED, PR248	31-SEP-93	
	B	EC 1258	09-94	MH



FILM/DWG: ASSEMBLY	DATE: 30-SEP-93
DATABASE: PXPWP3.DBF	
LAYERS PLOTTED: 1 2 3 4	10
15	19

CAUTION: TO REDUCE THE RISK OF FIRE, REPLACE ONLY WITH SAME TYPE AND RATING FUSE.

DATABASE FILE: PXPWP3.DBF		PROPRIETARY	
CHECKED BY: <i>MH</i>		 FENDER MUSICAL INSTRUMENTS 1130 Columbia Street Brea, Ca. 92621	
DATE: <i>01-93</i>			
APPROVED: <i>[Signature]</i>			
DATE: <i>01-93</i>			
TOLERANCES: UNLESS OTHERWISE SPECIFIED			
X.X	.005"		
X.XX	.010"		
X.XXX	.005"		
ANGLES	.500"		
THIS DRAWING CONTAINS PROPRIETARY INFORMATION WHICH IS PROPRIETARY TO FENDER MUSICAL INSTRUMENTS CO. IT MAY NOT BE USED, REPRODUCED OR DISCLOSED IN ANY MANNER WITHOUT THE EXPRESSED WRITTEN CONSENT FROM FENDER MUSICAL INSTRUMENTS CO. 1130 COLUMBIA STREET BREA, CALIFORNIA 92621 ROCK ON.			
NEXT HIGHER ASSEMBLY:			
TITLE: ASSEMBLY DRAWING PX2208(D) POWER AMP. 300W			
SIZE: DRAWN: <i>SCOTT H.</i> DRAWING NUMBER: <i>041874</i> REV. <i>1</i>			
B/D ENGR: <i>SAMS/GILL</i>			
SCALE: <i>CREATED: 02-JUN-93</i> <i>PLOTTED: 30-SEP-93</i> SHEET 1 OF 3			