

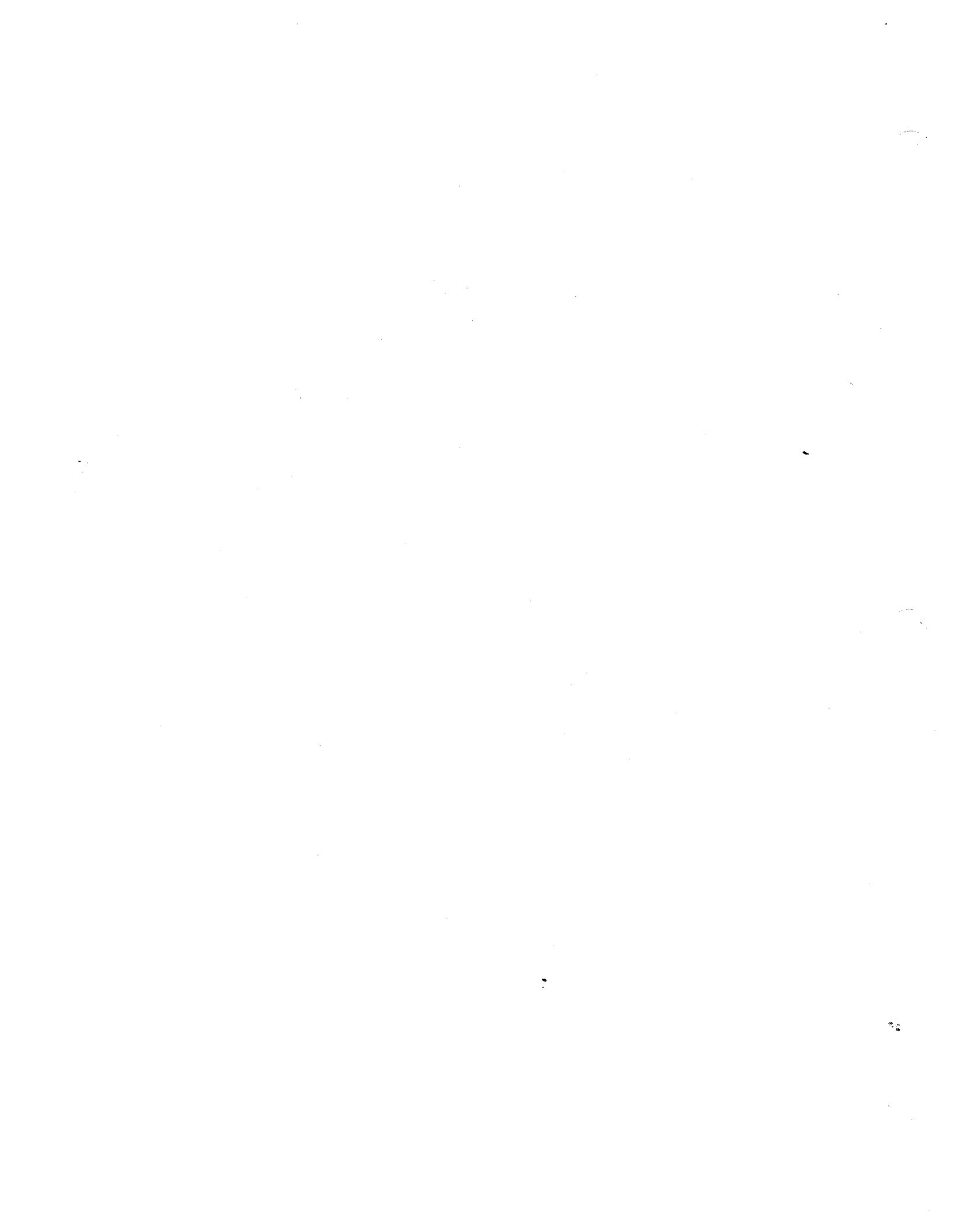


Fender Musical Instruments Corp.

SERVICE MANUAL

Performer 650 Guitar Amplifier







PERFORMER 650

GUITAR AMPLIFIER SERVICE MANUAL

TYPE: PR 242

NOVEMBER 1993 REV A.

NOTICE:

The information contained herein is CONFIDENTIAL and PROPRIETARY to Fender Musical Instruments. 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. All specifications subject to change without notice.

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

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

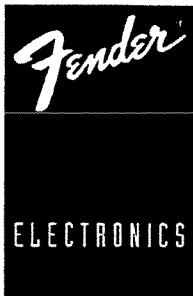
RES CC = Carbon Comp
 RES CF = Carbon Film
 RES FP = Flame Proof
 RES MF = Metal Film
 RES WW = Wire Wound

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 Plating

NOTICE:

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!

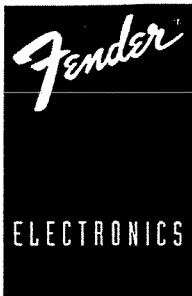


PERFORMER 650

PARTS LIST

PRINTED CIRCUIT BOARD ASSEMBLY

QTY	PART #	DESCRIPTION	REFERENCE	DESIGNATION
1	041481	PCB ASSY PERFORMER 650 ALL V'S	(STUFFED)	
1	028104	BUTTON PUSH SWITCH BLACK	(@ S2)	
1	028577	CABLE ASSY REVERB 30"	(@ P1-4)	
2	029719	CABLE FLAT 5 CKT 10"	(@ P5,6)	
4	038689	CAP AE AX .47 μ F 100V 20%	C16,17,33,37	
4	026517	CAP AE AX 2.2 μ F 50V 20%	C9,41,42,44	
1	038691	CAP AE AX 4.7 μ F 50V 20%	C43	
1	038692	CAP AE AX 10 μ F 35V 20%	C61	
7	025960	CAP AE AX 22 μ F 16V 20%	C4,10,32,34,47,48,60	
2	028471	CAP AE RDL 47 μ F 50V 20%	C45,46	
2	028492	CAP AE RDL 1000 μ F 16V 20%	C53,54	
2	028042	CAP AE RDL 2200 μ F 50V	C51,52	
1	038873	CAP CA 22PF 100V 5%	C40	
1	039256	CAP CA 68PF 100V 5%	C31	
3	038699	CAP CA 100PF 100V 5%	C8,18,36	
1	039260	CAP CA 270PF 100V 5%	C7	
3	038701	CAP CA 470PF 50V 5%	C15,26,28	
1	038874	CAP CA 560PF 50V 5%	C22	
1	039263	CAP CA 1000PF 50V 5%	C21	
1	039265	CAP CA 2200PF 100V 5%	C35	
1	039266	CAP CA 3300PF 100V 5%	C11	
2	039268	CAP CA 4700PF 50V 5%	C2,3	
3	027278	CAP MPF .1 μ F 63V 10%	C27,49,50	
2	027281	CAP MPF .22 μ F 63V 10%	C6,30	
3	027286	CAP MPF .47 μ F 63V 10%	C5,29,55	
1	036234	CAP PFF RDL .015 μ F 100V 10%	C38	
7	033591	CAP PFF RDL .033 μ F 100V 10%	C12,13,14,25,39,56,58	
8	033592	CAP PFF RDL .047 μ F 100V 10%	C1,19,20,23,24,57,59,62	
1	027937	CONTROL SNAPIN 2K 15A TAPER	R12	
3	027940	CONTROL SNAPIN 50K 15A TAPER	R10,11,53	
4	027941	CONTROL SNAPIN 50K B TAPER	R19,44,52,75	
1	027943	CONTROL SNAPIN 50K 30C TAPER	R28	
1	027945	CONTROL SNAPIN 100K B TAPER	R47	
25	006260	DIODE 1N4448 75PRV	CR1-3,6-14,19,21,31,32-37,39-42	
4	020534	DIODE 1N5402 RECTIFER 200PRV 3AMP C&F	CR25-28	
2	064089	DIODE 1N4003 200PRV 1AMP	CR23,24	
4	028776 *	DIODE BIAS BYV26D LEAD FORMED	CR15-18	
2	027329	DIODE ZEN 1N5228B 3.9V .5W5%	CR20,22	
2	028119	DIODE ZEN 1N5353B 16V 5W 5%	CR29,30	
2	041320	DIODE ZEN 1N5341B 6.2V 5W 5%	CR4,5	
10	025802	FSTN TAB MALE .250X.032 PCB MT	CP1-5,7-11	
2	026000	FSTN TAB MALE PCB MT .187X.032	CP6,12	
2	025996	FUSE CLIP PCB .250 & 5MM FUSE	XF1	
1	048827	FUSE QA 1-1/4X1/4 250V 2AMP	F1	(100V/120V ONLY)
1	020789	FUSE QA 20mmX5mm 250V 1AMP	F1	(EXPORT 230V ONLY)

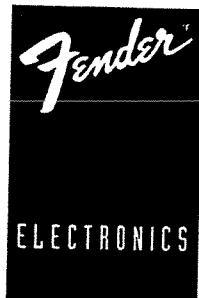


PERFORMER 650

PARTS LIST

PRINTED CIRCUIT BOARD ASSEMBLY
CONTINUED

QTY	PART #	DESCRIPTION	REFERENCE	DESIGNATION
1	028497	HEATSINK PLATE	(TRANSISTOR MOUNT)	
7	016795	IC DUAL OP AMP TL072	U1-6,8	
1	028047	IC OP AMP MC1436/SG1436Y	U7	
2	040903	INSULATOR MICA TO-218	(@ Q5,6)	
3	031570	JACK PHONE PCB STEREO PREMIUM	J1,3,5	
2	037036	JACK PHONE PCB MONO CA PREMIUM	J2,4	
25	020888	JUMPER WIRE 22GA .5X.175	W1-25	
1	025926	LED RED PC MOUNT 3MM	LD1	
1	040270	LED RED 5MM ROUND PC MT	LD2	
1	041480	PCB FAB PERFORMER 650	(RAW PCB)	
1	025818	RES CF 1/4W 5% 4.7Ω	R133	
1	024947	RES CF 1/4W 5% 47Ω	R71	
2	024956	RES CF 1/4W 5% 220Ω	R36,37	
1	029604	RES CF 1/4W 5% 300Ω	R13	
2	029451	RES CF 1/4W 5% 430Ω	R54,59	
1	029609	RES CF 1/4W 5% 910Ω	R127	
5	024965	RES CF 1/4W 5% 1K	R22,42,46,63,112	
1	028842	RES CF 1/4W 5% 1.1K	R60	
1	024967	RES CF 1/4W 5% 1.2K	R58	
3	024969	RES CF 1/4W 5% 1.5K	R35,38,74	
4	024971	RES CF 1/4W 5% 2.2K	R18,48,94,95	
1	024972	RES CF 1/4W 5% 2.7K	R61	
2	024973	RES CF 1/4W 5% 3.3K	R26,29	
1	026504	RES CF 1/4W 5% 3.6K	R41	
2	024975	RES CF 1/4W 5% 3.9K	R83,99	
1	024977	RES CF 1/4W 5% 4.7K	R70	
2	028034	RES CF 1/4W 5% 5.1K	R6,65	
1	024979	RES CF 1/4W 5% 6.8K	R8	
1	025942	RES CF 1/4W 5% 7.5K	R17	
1	024980	RES CF 1/4W 5% 8.2K	R25	
8	024981	RES CF 1/4W 5% 10K	R68,72,111,114,115,121,122,125	
1	029539	RES CF 1/4W 5% 13K	R67	
2	024985	RES CF 1/4W 5% 15K	R3,5	
6	024987	RES CF 1/4W 5% 22K	R9,14,23,24,40,49	
2	024988	RES CF 1/4W 5% 27K	R84,86	
7	024993	RES CF 1/4W 5% 47K	R27,43,45,51,80,81,82	
1	028990	RES CF 1/4W 5% 51K	R66	
1	026507	RES CF 1/4W 5% 62K	R50	
2	029613	RES CF 1/4W 5% 91K	R20,21	
5	024997	RES CF 1/4W 5% 100K	R31,57,64,69,128	
2	025058	RES CF 1/4W 5% 180K	R15,30	
4	025059	RES CF 1/4W 5% 220K	R16,55,73,78	
3	025065	RES CF 1/4W 5% 470K	R56,79,130	
2	028018	RES CF 1/4W 5% 510K	R4,7	
2	025067	RES CF 1/4W 5% 680K	R85,132	
1	029617	RES CF 1/4W 5% 750K	R1	



PERFORMER 650

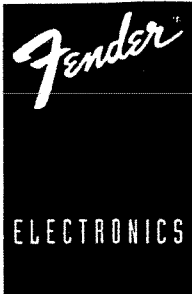
PARTS LIST

PRINTED CIRCUIT BOARD ASSEMBLY CONTINUED

QTY	PART #	DESCRIPTION	REFERENCE	DESIGNATION
14	025069	RES CF 1/4W 5% 1M	R2,39,76,77,113,116-119,123,124,131,134,135	
1	025084	RES CF 1/4W 5% 10M	R129	
3	031767	RES CF 1/2W 5% 15Ω	R62,103,104	
1	026493	RES CF 1/2W 5% 2.7K	R126	
1	026549	RES CF 1/2W 5% 1.5K	R109	
1	028045	RES FILM 1W 5% 220Ω	R87	
2	028030	RES FILM 1W 5% 680Ω	R88,89	
1	029722	RES FILM 1W 5% 1K	R110	
3	027346	RES FILM 1W 5% 1.2K	R100,101,102	
2	028029	RES FILM 1W 5% 1.5K	R90,91	
2	037354	RES CF 1W 5% 4.7K	R92,93	
1	027478	RES WW BT 5W 10% .22Ω	R98	
2	028028	RES WW BT 5W 10% .47Ω	R96,97	
7	041256	RES WW 5W 10% 470Ω	R32-34,105-108	
2	027638	SCRW TF 4-40X3/8 HWHS ZI	(@ Q5,6)	
2	032908	SCRW TF 6-32X3/8 PHP ZI	(HEATSINK TO PCB MOUNT)	
1	029167	SOCKET TUBE 9 PIN PCB MOUNT	XV1	
1	028091	SWITCH PUSH SLFLK SHORT STROKE DPDT	S2	
1	038652	SWITCH SLIDE 4P3T	S1	
1	028503 *	THERMISTOR 10Ω 5AMP C60-11	TH1	
1	013341	TUBE VACUUM 7025/12AX7	V1	
2	028169	WSHR SHLDR NYL 5/32X1/4	(@ Q5,6)	
1	041465	XSTR N-CHNL J-FET J113 TO-92	Q3	
3	014689	XSTR N-CHNL J-FET J111 TO-92	Q1,2,4	
1	016739	XSTR NPN 2N4401 TO-92	Q7	
1	028114 *	XSTR NPN TIP142 TO-218AC	Q5	
1	028115 *	XSTR PNP TIP147 TO-218AC	Q6	

CHASSIS ASSEMBLY

QTY	PART #	DESCRIPTION	REFERENCE	DESIGNATION
1	041486	CHS ASSY PERFORMER 650 120V	(COMPLETE CHASSIS)	
1	021709	BUSHING SR .437X.062X13/32 BLK	(@ SPEAKER CABLE)	
1	026038	BUSHING SR .625X.062X37/64 BLK	(@ POWER CABLE 100V/120V)	
1	010401	BUSHING SR .625X.125X37/64WHT 230V	(@ POWER CABLE 230V)	
1	026116	BUSHING SR .500X.063X7/16 BLK	(@ REVERB CABLE)	
1	026527	CABLE ASSY POWER W/.187 TABS	(100V/120 ONLY)	
1	026528	CABLE ASSY POWER 230V W/.187 TABS	(PWR CABLE 230V EXPORT)	
1	036479	CABLE ASSY POWER AUST.W/.187 TABS	(240V AUSTRALIA ONLY)	
1	028560	END BELL XFMR 85W		
1	028499	HEATSINK BAR	(COUPLER TO CHASSIS)	



PERFORMER 650

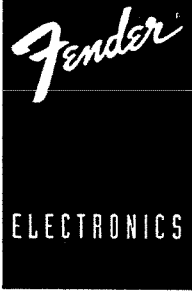
PARTS LIST

CHASSIS ASSEMBLY CONTINUED

QTY	PART #	DESCRIPTION	REFERENCE	DESIGNATION
10	019798	KNOB ROTARY SS		
4	028591	NUT ACORN 8-32	(TRANSFORMER MOUNT)	
1	041482	PANEL FRONT PERFORMER 650		
1	041483	PANEL REAR PERFORMER 650		
3	028500	SCRW TF 8-32X3/4 HWH SLTD ZI	(CHASSIS TO HEATSINK MOUNT)	
4	028937	SCRW TF 6-32X5/8 PHP ZI ROLOK	(PCB TO CHASSIS MOUNT)	
1	038900	SCRW TF 6-32X1/4 PHP ZI	(@ GROUND LUG)	
4	025936	STAND OFF PCB PUSH ON NY 3/8L	(PCB TO CHASSIS MOUNT)	
1	025935	SWITCH POWER DPST	120V DOMESTIC ONLY)	
1	039287	SWITCH POWER DPST .187 TAB GLOBAL	(EXPORT ONLY)	
.104	016420	TUBING SHRINK 1-1/2 BLK	(VACUUM TUBE MOUNT)	
4	030007	WSHR LCK INTL 8X.330X.02 ZI	(TRANSFORMER MOUNT)	
1	027668	XFMR PWR 120V 85A	(120V DOMESTIC ONLY)	
1	039357	XFMR PWR EXP 230V	(100V/230V EXPORT ONLY)	

CABINET ASSEMBLY

QTY	PART #	DESCRIPTION	REFERENCE	DESIGNATION
1	041485	CAB ASSY PERFORMER 650	(COMPLETE CABINET)	
1	022491	CLAMP CABLE NYL SCRW MNT 5/16	(@ REVERB CABLE)	
4	026566	CORNER 2 HOLE W/TAB NI		
2	026568	CORNER 3 HOLE NI		
4	029821	EYELET RFLNGD .215 OD X.315 L	(@ REVERB PAN)	
4	019276	GLIDE CAB 1.24X.335 NI	(STEEL ONLY. NO INSERT)	
4	019275	GLIDE CUSHION INSERT	(RUBBER ONLY)	
1	040051	GRILLE ASSY DELUXE 112	(COMPLETE GRILLE)	
1	027846	HANDLE 9.25" NO LOGO	(RUBBER ONLY. NO INSERT)	
2	019279	HANDLE CAP 2-3/16 NI	(HANDLE MOUNT)	
1	032524	INSERT HANDLE	(SPRING STEEL)	
1	011298	NAMEPLATE FENDER SMALL		
8	021972	NUT T 10-32X3/4 STR 3 PRNG BLX	(HANDLE/SPEAKER MOUNT)	
1	028055	REVERB UNIT 800 OHM 8EB2C1B DN		
10	026571	SCRW CORNER MOUNTING		
4	022244	SCRW M 10-32X1-1/8 OHP NI	(HANDLE MOUNT)	
4	026577	SCRW M 10-32X1 PHP BLX	(SPEAKER MOUNT)	
6	036199	SCRW M 8-32X1-3/16 OHP BLX WX	(CHASSIS MOUNT)	
5	029828	SCRW PB 8X3/4 PHP ZI	(REVERB PAN MOUNT)	
2	011678	SCRW SMA 8X1-1/2 OHP BLX	(GRILLE/BAFFLE MOUNT)	
2	018113	SCRW SMA 4X1/2 OHP BLX	(LOGO MOUNT)	
4	026625	SCRW WOOD 8X1 FH	(GLIDE MOUNT)	
1	025923	SPEAKER 12" 8 OHM 75 WATT		
8	029527	WSHR FNSH 8-5/8 FLNGD BLX WX	(CHASSIS/GRILLE MOUNT)	



PERFORMER 650

PARTS LIST

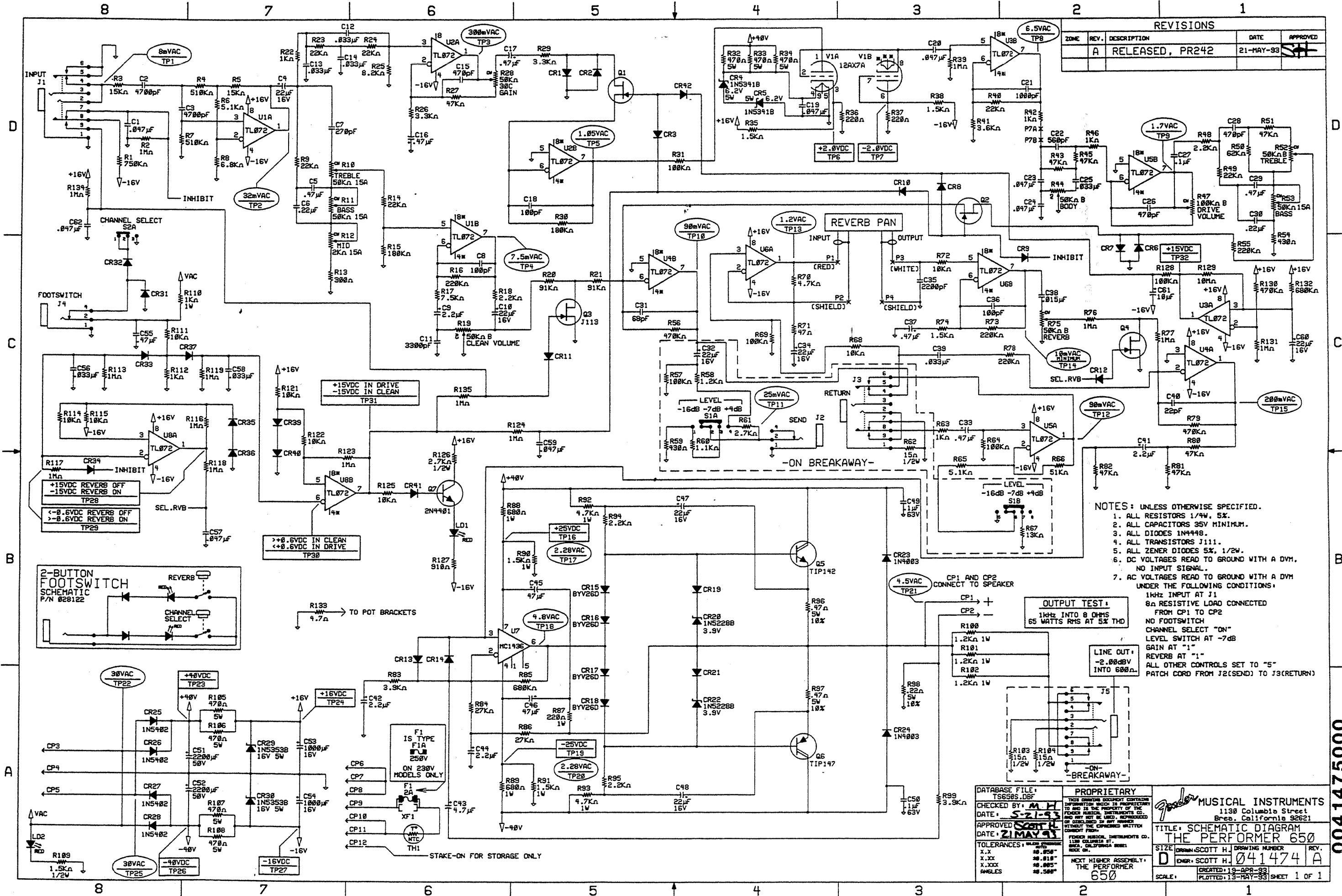
FOOTSWITCH ASSEMBLY

QTY	PART #	DESCRIPTION	REFERENCE	DESIGNATION
1	028122	FTSW ASSY 2 BTTN REVERB F/LOGO		(COMPLETE FOOTSWITCH)
1	028895	CABLE ASSY FTSW RT ANG 12'		
2	006260	DIODE 1N4448 SIGNAL BENT	CR1,2	
1	037036	JACK PHONE PCB MONO CA PREMIUM	J1	
2	028039	LED RED 5X5MM SLB-55VR3	LD1,2	
1	028448	PCB ASSY FTSW 2 BUTTON		
8	028889	SCRW SMB 6X1/4 PHP		(END CAP MOUNT)
2	034921	SPACER RND NYL .147X.250X.780		
2	028714	SWITCH PUSH SPDT	S1,2	
2	031899	WSHR NYL .485X.775X.150 TK		

MISCELLANEOUS

QTY	PART #	DESCRIPTION	REFERENCE	DESIGNATION
1	041491	MANUAL OWNERS "PERFORMER 650"		
1	041475	SCHEM REDU W/SVC "PERFORMER 650"		

REVISIONS			
ZONE	REV.	DESCRIPTION	DATE
	A	RELEASED, PR242	21-MAY-93



NOTES: UNLESS OTHERWISE SPECIFIED.

1. ALL RESISTORS 1/4W, 5%.
2. ALL CAPACITORS 35V MINIMUM.
3. ALL DIODES 1N4448.
4. ALL TRANSISTORS J111.
5. ALL ZENER DIODES 5%, 1/2W.
6. DC VOLTAGES READ TO GROUND WITH A DVM. NO INPUT SIGNAL.
7. AC VOLTAGES READ TO GROUND WITH A DVM UNDER THE FOLLOWING CONDITIONS:
 1kHz INPUT AT J1
 8Ω RESISTIVE LOAD CONNECTED FROM CP1 TO CP2
 NO FOOTSWITCH
 CHANNEL SELECT "ON"
 LEVEL SWITCH AT -7dB
 GAIN AT "1"
 REVERB AT "1"
 ALL OTHER CONTROLS SET TO "5"
 PATCH CORD FROM J2(SEND) TO J3(RETURN)

DATABASE FILE: TS658S.DBF CHECKED BY: M.H. DATE: 5-21-93 APPROVED: Scott H. DATE: 21 MAY 93 TOLERANCES: UNLESS OTHERWISE SPECIFIED: X.X .5% X.XX .1% X.XXX .05% ANGLES .500°	PROPRIETARY THIS 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., 1150 COLUMBIA ST., BREA, CALIFORNIA 92621.	FENDER MUSICAL INSTRUMENTS 1150 Columbia Street Brea, California 92621 TITLE: SCHEMATIC DIAGRAM THE PERFORMER 650 SIZE: D DRAWN: SCOTT H. ENGR: SCOTT H. NEXT HIGHER ASSEMBLY: THE PERFORMER SCALE: 650 CREATED: 19-APR-93 PLOTTED: 13-MAY-93 SHEET 1 OF 1
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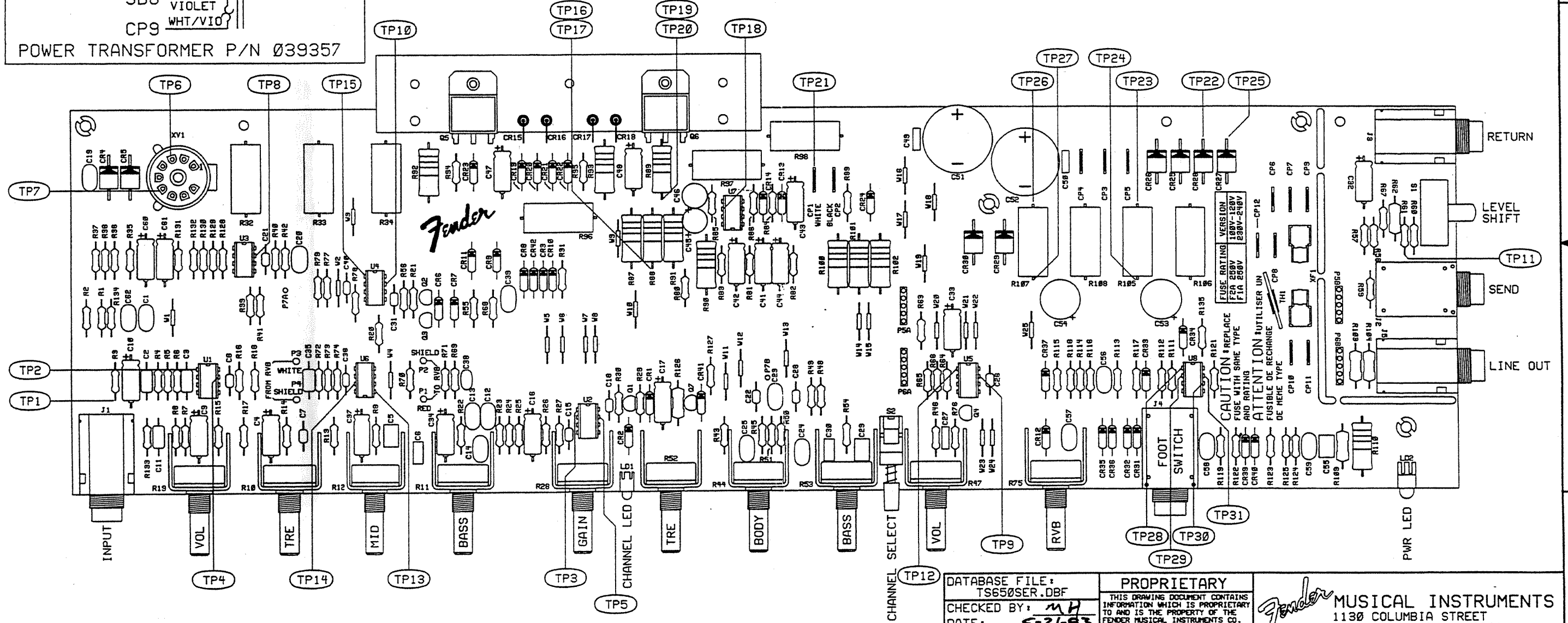
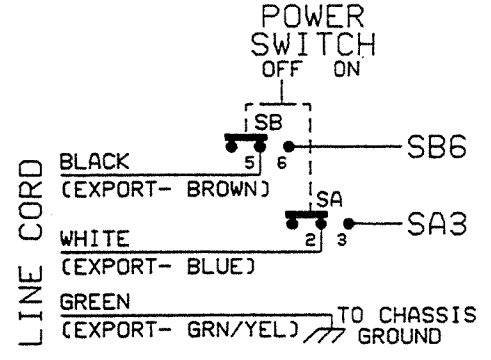
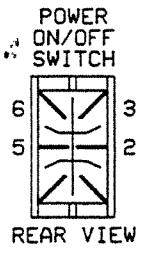
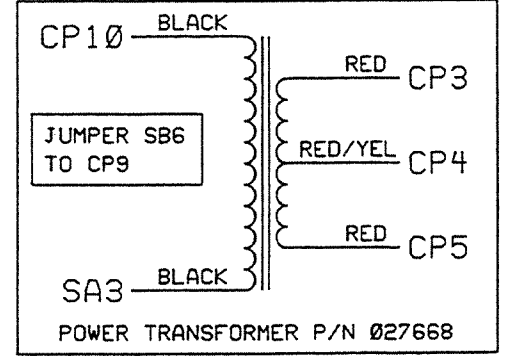
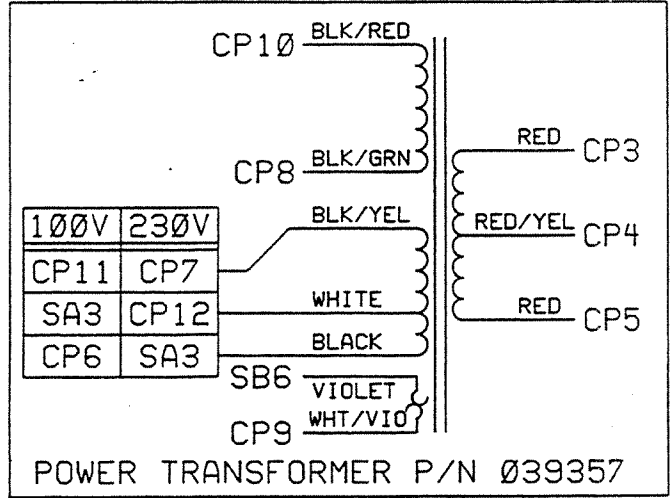
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EXPORT MODELS

DOMESTIC MODEL

REVISIONS

ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	RELEASED, PR242	21-MAY-93	SH



FILM/DWG: SERVICE DIAGRAM
 DATABASE: TS650SER.DBF DATE: 24-MAY-93
 LAYERS PLOTTED: 1 2 3 4 10 15 19

DATABASE FILE: TS650SER.DBF
 CHECKED BY: MH
 DATE: 5-21-93
 APPROVED: Scott H.
 DATE: 21 MAY 93

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 FENDER MUSICAL INSTRUMENTS CO.
 1138 COLUMBIA ST.
 BREA, CALIFORNIA 92621
 NEXT HIGHER ASSEMBLY:
 PERFORMER 650

MUSICAL INSTRUMENTS
 1138 COLUMBIA STREET
 BREA, CALIFORNIA 92621
 TITLE: SERVICE DIAGRAM THE PERFORMER 650
 SIZE: B
 DRAWN: SCOTT H.
 ENGR: SCOTT H.
 DRAWING NUMBER: 041479
 REV. A
 CREATED: 08-MAY-93
 PLOTTED: 24-MAY-93
 SHEET 1 OF 1

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