

FRONTMAN 25R

p/n 022-1502-000 (120V)

SERVICE MANUAL

FRONTMAN 25

(This is the model name for warranty claims)

SERVICE MANUAL

FEBRUARY 1997

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

HARDWARE CODES

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

RESISTOR CODES

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

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- Parts lists:
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PARTS LIST**SPECIFICATIONS**

Product Release No.:	PR 356 <i>(This is not a model number)</i>		
Part Number:	120V Version:	22-1502-000	
	240V Aust:	22-1532-000	
	230V UK:	22-1542-000	
	230V Euro:	22-1562-000	
Power Specification:	120V Version: 120 V AC, 60 Hz, .92A max		
	230V Version: 230 V AC, 50 Hz, 0.5A max		
Input Impedance:	> 1 megohm		
Nominal Input Level:	100 mV		
Power Output:	25 Watts RMS		
Speaker:	One 8 Ω special design 10" speaker		
Dimensions:	Height:	15-1/2"	(39.4 cm)
	Width:	17"	(43.2 cm)
	Depth:	8-1/2"	(30.5 cm)
Weight:	25 lbs.	(11.4 kg)	

Product specifications are subject to change without notice

NOTE: SHADED ITEMS ARE FOR REFERENCE ONLY

PRINTED CIRCUIT BOARD

QTY	PART #	DESCRIPTION	REFERENCE	DESIGNATION
1	048352	PCB UNIT "CHAMP 110/FRNTMAN 25R"		
2	038689	CAP AE AX .47μF 100V 20%	C12,13	
4	026517	CAP AE AX 2.2μF 50V 20%	C4,33,35,38	
3	038691	CAP AE AX 4.7μF 50V 20%	C34,47,48	
1	038693	CAP AE AX 47μF 16V 20%	C37	
3	025960	CAP AE AX 22μF 16V 20%	C6,7,29	
2	028471	CAP AE RDL 47μF 50V 20%	C45,46	
2	033607	CAP AE RDL 2200μF 35V 20%	C43,44	
2	039255	CAP CA 10pF 100V 5%	C3,14	
1	038873	CAP CA 22pF 100V 5%	C24	
1	038698	CAP CA 47pF 100V 5%	C27	
2	038699	CAP CA 100pF 100V 5%	C22,36	
1	038701	CAP CA 470pF 50V 5%	C11	
1	038874	CAP CA 560pF 50V 5%	C15	
2	039268	CAP CA 4700pF 50V 5%	C1,2	
3	027278	CAP MPF RDL .1μF 63V 10%	C39,40,41	
1	033596	CAP MPF RDL .068μF 100V 10%	C26	
2	027286	CAP MPF RDL .47μF 63V 10%	C30,42	
2	033580	CAP PFF RDL .0022μF 100V 10%	C5,25	
1	033581	CAP PFF RDL .0033μF 100V 10%	C19	
1	033583	CAP PFF RDL .0047μF 100V 10%	C20	
1	036234	CAP PFF RDL .015μF 100V 10%	C28	
1	033590	CAP PFF RDL .022μF 100V 10%	C17	
4	033591	CAP PFF RDL .033μF 100V 10%	C9,10,23,31	
5	033592	CAP PFF RDL .047μF 100V 10%	C8,16,18,21,32	
2	034719	CONTROL SNAP IN 50KB	R30,42	
1	037323	CONTROL SNAP IN 50K 15A	R13	
3	037324	CONTROL SNAP IN 100K 30C	R20,24,29	
1	040552	CONTROL SNAP IN 250K 30C	R31	
1	028104	BUTTON PUSH SWITCH BLACK	(@ S1)	
11	006260	DIODE 1N4448 75PRV	CR1-11	
6	064089	DIODE 1N4003 200PRV	CR12-17	
2	009165	DIODE ZENER 1N4744 15V 1W 5%	CR18,19	
10	025802	FASTON TAB MALE .250x.032 PCB MT	CP1,2,3,5,6,8-12	
2	026000	FASTON TAB MALE .187x.032	CP4,CP7	
2	025996	FUSE CLIP PCB .250" & 5mm FUSE	(@ XF1)	
1	034889	FUSE QA 1-1/4"x1/4" 250V 1AMP	F1	
1	020786	FUSE QA 20mmX5mm 250V .5AMP	F1	
2	027408	HEADER .1 CTR 2 CKT SQ PIN	P5,6	
4	016795	IC DUAL OP AMP TLO72C	U1,2,3,4	
1	031611	IC DUAL OP AMP μPC4560	U5	
1	029912	IC μPC1188H 20W (POWER AMP)	U6	
1	031570	JACK PHONE PCB STEREO PREMIUM	J4	

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PRINTED CIRCUIT BOARD ASSEMBLY
CONTINUED

QTY	PART #	DESCRIPTION	REFERENCE DESIGNATION
3	037036	JACK PHONE PCB MONO PREMIUM	J1,2,3
13	020888	JUMPER WIRE 22GA .5x.175	W1-13
2	026043	JUMPER WIRE 18GA .8x.175	JP1,2
2	028039	LED 5x5mm RED SLB-55VR3	LD1,2
2	9902202281	LED RED LONG LEAD LUMEX CS02	LD3,4
1	040497	PCB FAB CHAMPION 110	
1	024942	RES CF 1/4W 22_ 5%	R45
1	029604	RES CF 1/4W 300_ 5%	R48
2	024961	RES CF 1/4W 470_ 5%	R71,72
1	024965	RES CF 1/4W 1K 5%	R7
1	024969	RES CF 1/4W 1.5K 5%	R73
1	024971	RES CF 1/4W 2.2K 5%	R12
1	024972	RES CF 1/4W 2.7K 5%	R47
3	024973	RES CF 1/4W 3.3K 5%	R19,21,40
2	024975	RES CF 1/4W 3.9K 5%	R57,63
1	028034	RES CF 1/4W 5.1K 5%	R5
1	024979	RES CF 1/4W 6.8K 5%	R3
1	025942	RES CF 1/4W 7.5K 5%	R11
1	024980	RES CF 1/4W 8.2K 5%	R18
3	024981	RES CF 1/4W 10K 5%	R39,49,51
3	024985	RES CF 1/4W 15K 5%	R1,6,35
5	024987	RES CF 1/4W 22K 5%	R8,16,17,33,44
3	024988	RES CF 1/4W 27K 5%	R56,59,60
5	024993	RES CF 1/4W 47K 5%	R27,28,32,34,55
1	026507	RES CF 1/4W 62K 5%	R64
2	029613	RES CF 1/4W 91K 5%	R14,15
1	024997	RES CF 1/4W 100K 5%	R68
1	025058	RES CF 1/4W 180K 5%	R9,
7	025059	RES CF 1/4W 220K 5%	R10,23,25,26,36,37,41
2	025065	RES CF 1/4W 470K 5%	R22,38
2	028018	RES CF 1/4W 510K 5%	R2,4
1	025067	RES CF 1/4W 680K 5%	R58
3	025069	RES CF 1/4W 1M 5%	R50,52,54
1	025073	RES CF 1/4W 1.5M 5%	R43
1	030737	RES CF 1/2W 5.6_ 5%	R61
1	026512	RES CF 1/2W 3.9K 5%	R53
1	039128	RES MF 1W 120_ 5%	R65
2	027344	RES MF 1W 270_ 5%	R69,70
2	028740	RES MF 1W 470_ 5%	R66,67
1	028029	RES MF 1W 1.5K 5%	R46

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PRINTED CIRCUIT BOARD ASSEMBLY
CONTINUED

QTY	PART #	DESCRIPTION	REFERENCE DESIGNATION
1	032958	RES WW BT 5W .33_ 5%	R62
2	027638	SCREW TF #4-40x3/8" HWH ZI	(U6 MOUNTING)
2	032908	SCREW TF #6-32x3/8" PHP ZI	(PCB TO HEATSINK MNT)
2	9904701440	SPACER LED .7x.125 BLUE	(@ LD1,2)
1	028091	SWITCH PUSH SLFLK DPDT PC MT	S1 (WITHOUT BUTTON)
2	014689	XSTR N-CH JFET J111 TO-92	Q1,2

CHASSIS ASSEMBLY

QTY	PART #	DESCRIPTION	REFERENCE DESIGNATION
1	051217	CHASSIS ASSY FRONTMAN 25R 120V	
1	021709	BUSHING SR .437x.062x13/32BLK	(@ SPEAKER CABLE)
1	026038	BUSHING SR .625x.062x37/64BLK 100/120V	(@ POWER CABLE)
1	010401	BUSHING SR .625x.125x37/64WHT 230V	(@ POWER CABLE)
7	033206	BUSHING KNOB SPACER	
1	051330	CABLE ASSY 120V 6 FT	(100/120V ONLY)
1	050725	CABLE ASSY PWR 230V W/.187 TABS	(PWR CABLE 230V EXPORT)
1	040992	CABLE ASSY PWR 5A U.K..187 TABS	(PWR CABLE 230V U.K.)
1	036479	CABLE ASSY POWER AUST.W/.187 TABS	(240V AUSTRALIA ONLY)
1	051070	CHASSIS FRONTMAN 25R	(RAW CHASSIS)
1	026016	FOAM STRIP 1/8"x1"x7"	(SPRING TO SLEEVE MOUNT)
1	026017	FOAM STRIP 3/8"x1-1/4"x8"DBL STK	(SLEEVE TO CHASSIS MOUNT)
1	034885	HEATSINK BAR RAD/HOT/JAM	(HEATSINK COUPLER)
7	026403	KNOB POINTERBLACK 180 DEG	
4	069393	NUT #6-32 HEX EXT LOCK	(TRANSFORMER MOUNT)
1	051071	PANEL FRONT FRONTMAN 25R	
1	051702	PANEL REAR FRONTMAN 25R	
1	041397	REVERB SPRING PAN 1BB2E4A	
2	028500	SCREW TF #8-32x3/4 HWH SLTD ZI(HEATSINK/	CHASSIS MOUNT)
3	028937	SCREW TF #6-32x5/8" PHP ZI ROLOK	(PCB MOUNTING)
1	038900	SCREW TF #6-32x1/4" PHP ZI	(@ GROUND LUG)
1	025954	SLEEVE REVERB PAN	(CARDBOARD)
3	025936	STAND OFF PCB PUSH ON NYL 3/8"L	(PCB MOUNT)
1	025935	SWITCH POWER DPST	(100/120V ONLY)
1	039287	SWITCH POWER DPST SEMKO	(230V EXPORT ONLY)
1	033613	XFMR POWER "CHAMPION 110" 120V	
1	040611	XFMR POWER "CHAMPION 110" 230V	

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CABINET ASSEMBLY

QTY	PART #	DESCRIPTION	REFERENCE DESIGNATION
1	051069	CABINET ASSY FRONTMAN 25R	(COMPLETE CABINET)
4	037344	CLIP SPEAKER	(SPEAKER MOUNT)
4	026566	CORNER 2 HOLE W/TAB NI	(BOTTOM FRONT, TOP REAR)
4	029071	CORNER NOTCHED NI	(BOTTOM REAR)
1	051073	GRILLE ASSY FRONTMAN 25R	
1	025883	HANDLE SHORT NO LOGO	(RUBBER ONLY. NO INSERT)
1	032524	HANDLE INSERT	(SPRING STEEL)
2	025395	HANDLE CAP 1 HOLE NI (DWG 17240)	(HANDLE MOUNT)
1	029906	NAMEPLATE FENDER GENERIC SMALL	(LOGO)
8	021972	NUT T #10-32x3/4" STR 3 PRNG BLX	(HANDLE/SPEAKER MOUNT)
4	022277	SCREW M #10-32x1-1/2 OHP NI	(HANDLE MOUNT)
2	018113	SCREW SMA #4x1/2" OHP BLX	(LOGO MOUNT)
4	026577	SCREW M #10-32x1" PHP BLX	(SPEAKER MOUNT)
2	026800	SCREW SMAB #8x1-3/4" OHP BLX	(GRILLE MOUNT)
4	036199	SCREW M #8-32x1-3/16" OHP BLX WX	(CHASSIS MOUNT)
14	026571	SCREW CORNER MOUNTING	
1	036502	SPEAKER 10" 8_	
4	029527	WASHER FNSH #8-5/8" FLNGD BLX WX	(CHASSIS/GRILLE MOUNT)

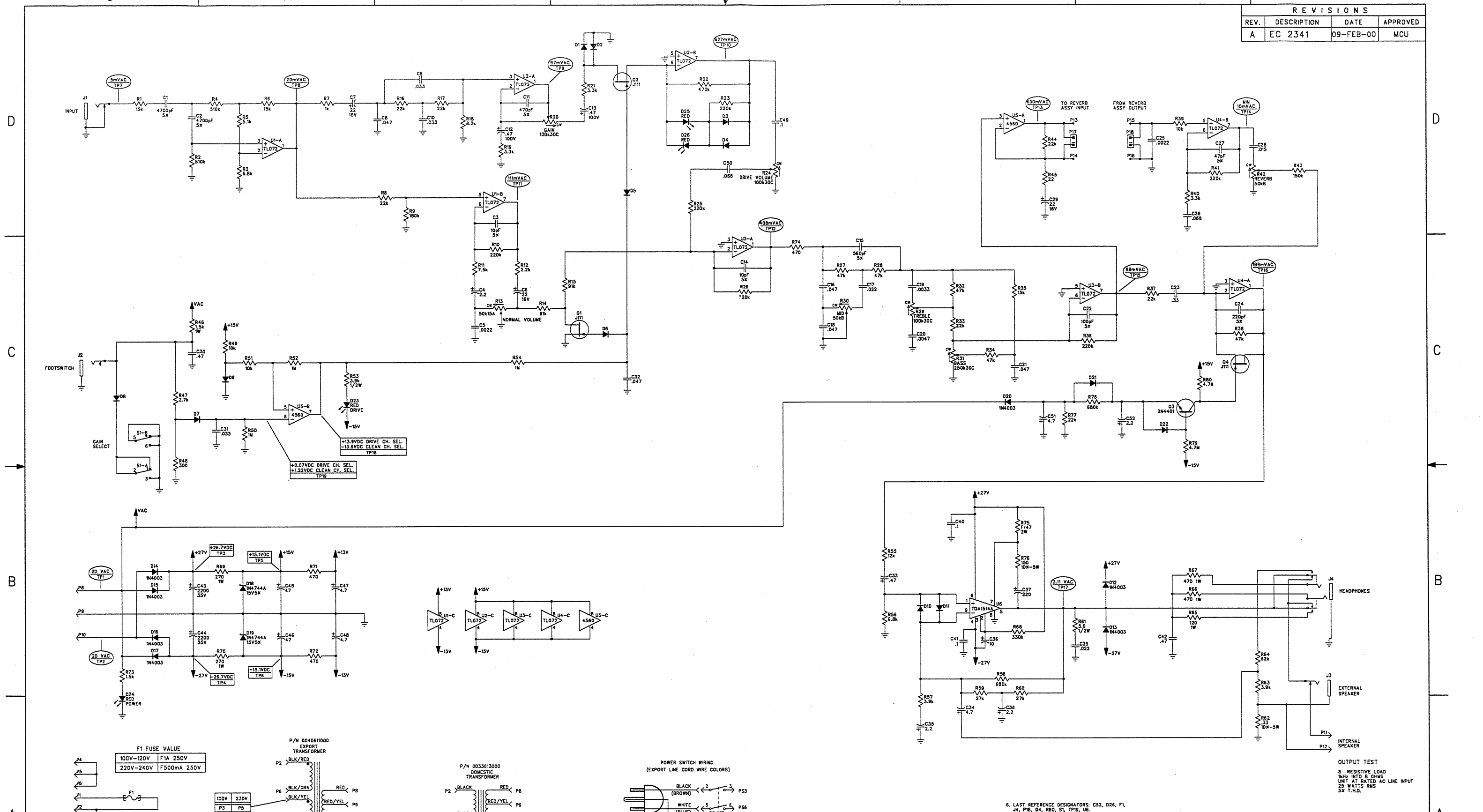
**FOOTSWITCH ASSEMBLY
(OPTIONAL)**

QTY	PART #	DESCRIPTION	REFERENCE DESIGNATION
1	028890	FOOTSWITCH ASSY 1 BUTTON F/LOGO	(COMPLETE FOOTSWITCH)
1	006260	DIODE 1N4448 75PRV	CR1
1	037036	JACK PHONE PCB MONO PREMIUM	J1
1	028039	LED 5x5mm RED SLB-55VR3	LD1
1	028714	SWITCH PUSH SPDT	S1

MISCELLANEOUS

QTY	PART #	DESCRIPTION	REFERENCE DESIGNATION
1	051154	OWNERS MANUAL FRONTMAN 25R	
1	040502	SCHEMATIC REDUCED CHAMPION 110/Frontman 25R W/SERVICE DIAGRAM	

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	EC 2341	09-FEB-00	MCU



F1 FUSE VALUE

100V-120V	F1A 250V
220V-240V	F500mA 250V

STAKE-ON FOR STORAGE ONLY

P/N 0040611000 EXPORT TRANSFORMER

100V	230V	P3	P5
100V	230V	P6	P8
220V	240V	P4	P6
220V	240V	P5	P7
220V	240V	P6	P8
220V	240V	P7	P9
220V	240V	P8	P10

EXPORT UNITS:
THE TRANSFORMER VIOLET WIRE CONNECTS TO P3.
THE TRANSFORMER VIOLET/WHITE WIRE CONNECTS TO P1.

P/N 0033613000 DOMESTIC TRANSFORMER

BLACK	RED	P8
BLACK	RED/YEL	P9
BLACK	RED	P10

DOMESTIC UNITS:
A WHITE WIRE CONNECTS P3 TO P1.

POWER SWITCH WIRING (EXPORT LINE CORD WIRE COLORS)

BLACK (BROWN) → 2 → PS3
WHITE (BLUE) → 5 → PS6
GREEN/YELLOW → 7 → PS6

6. LAST REFERENCE DESIGNATORS: C52, D26, F1, J4, P18, C4, R60, S1, TP8, U6

5. AC VOLTAGE READINGS TAKEN WITH DVM TO GROUND UNDER THE FOLLOWING CONDITIONS:
15Hz INPUT APPLIED AT J1
8Ω RESISTIVE LOAD CONNECTED AT P11, P12
NO FOOTSWITCH
SELECT "ON"
GAIN AT 9 O'CLOCK
REVERB "0"
ALL OTHER CONTROLS SET AT 12 O'CLOCK
REVERB PAN CONNECTED

4. DC VOLTAGES READ TO GROUND WITH A DVM, NO INPUT SIGNAL.

3. ALL POLARIZED CAPACITORS IN μF; 50V, 20X.
2. ALL UNPOLARIZED CAPACITORS IN μF; 50V, 5X.
1. ALL RESISTORS IN OHMS; 1/4W, 5X.

NOTES: (UNLESS OTHERWISE NOTED)

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CHECKED BY: *[Signature]*
DATE: 09-18-00

APPROVED BY: *[Signature]*
DATE: 09-FEB-00

DRAWN: MULRICH ENCR:SAMS/ULRICH
DATABASE FILE: Z356S.SCH

Fender MUSICAL INSTRUMENTS
2621 Research Drive
Corona, CA 91720 USA

TITLE: SERVICE DIAGRAM, COMBINED (schematic)
FRONTMAN 25R

SIZE DRAWING NUMBER
D 0056322000

REV. **A**

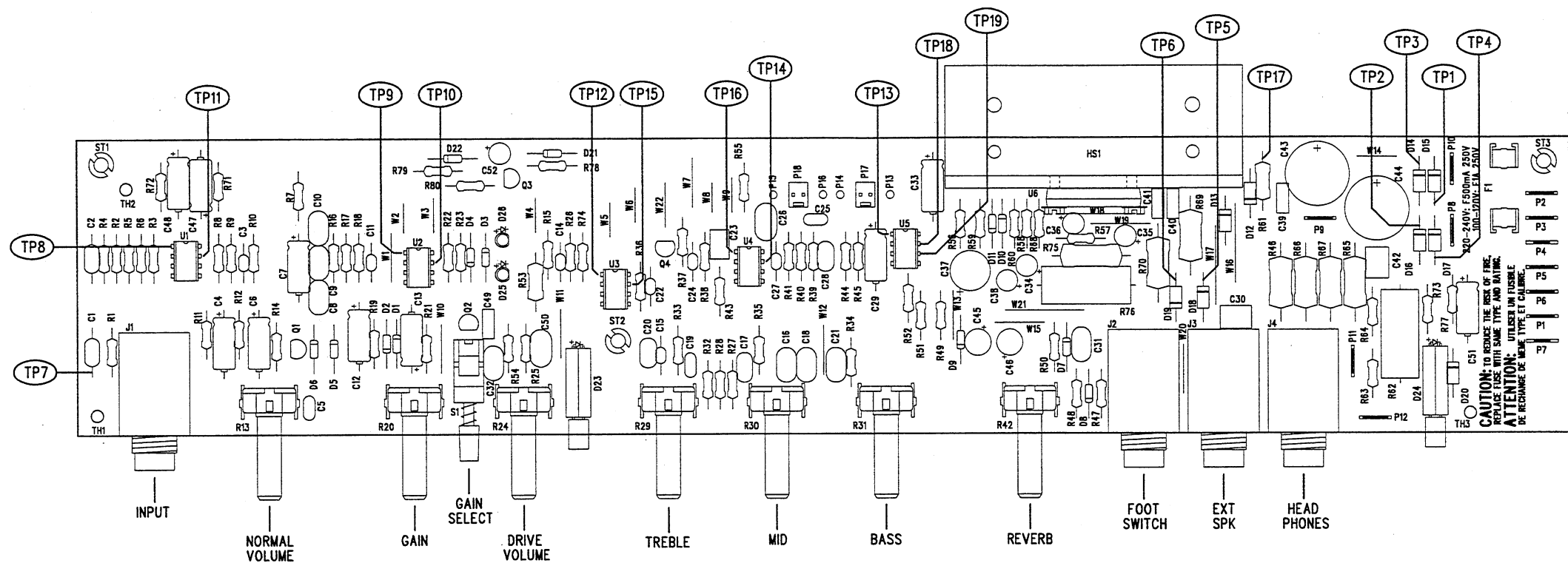
RELEASE DATE: 09-FEB-00 SHEET: 1 OF 2

OUTPUT TEST
8 RESISTIVE LOAD
1kHz INTO 8 OHMS
LIMIT AT RATED AC LINE INPUT
25 WATTS RMS
5X T.H.D.

8 7 6 5 4 3 2 1


REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	EC 2341	09-FEB-00	MCU

D
C
B
A



FILM/DWG: SERVICE DIAGRAM
 DATABASE: Z356P.PCB DATE: 09-FEB-00

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

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CHECKED BY: <u>B. Dem</u>	DATE: <u>09-FEB-00</u>	TITLE: SERVICE DIAGRAM, COMBINED (PCB assy) FRONTMAN 25R	
APPROVED BY: <u>MULRICH</u>	DATE: <u>09-FEB-00</u>	SIZE: C	DRAWING NUMBER: 0056322000
DRAWN: MULRICH	ENGR: MULRICH	RELEASE DATE: 09-FEB-00	SHEET 2 OF 2
DATABASE FILE: Z356P.PCB			REV. A

8 7 6 5 4 3 2 1