

AMP CAN

p/n 022-1200-000 (120V)

SERVICE MANUAL

AMP CAN
(This is the model name for warranty claims)

SERVICE MANUAL

JULY 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:



CONTENTS:

- Notices
- Specifications
- Parts lists:
 - PCB assembly
 - Unit assembly
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- Schematics
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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

PARTS LIST**SPECIFICATIONS**

Product Release No.:	PR 327 <i>(This is not a model number)</i>
Part Number:	120V Version: 22-1200 240V Aust : 22-1230 230V UK : 22-1240 230V : 22-1260 100V : 22-1270
Input impedance:	>1 MΩ both channels
Input Sensitivity Guitar:	500 μV @ 1 kHz - gain switch in 20 mV @ 1 kHz - gain switch out
Input Sensitivity Microphone:	5.7 mV @ 1 kHz
Power output:	13.5 Watts into 4 ohms @ 5% THD with fresh battery
Power Requirements:	Operates from battery (12 Vdc 4.5 Ah) Charges from A/C adaptor (15 Vdc, 400 mA)
Speaker Complement:	One 4 Ω / 30 W Special Design 6" Speaker (P/N 050543) w / 16 oz. magnet and paper coil former
Dimensions:	Height: 8.75" (22.3 cm) Width: 7.75" (19.7 cm) Depth: 6.75" (17.2 cm)
Weight:	13 lbs. (5.9 kg)

Product specifications are subject to change without notice

NOTE: SHADED ITEMS ARE FOR REFERENCE ONLY

PRINTED CIRCUIT BOARD ASSEMBLY

QTY	PART #	DESCRIPTION	REFERENCE	DESIGNATION
1	050532	SCHEMATIC AMP CAN	REF.	
1	050535	PCB FAB AMP CAN		
3	038694	CAP AE AX 100uF 16V 20%	C22 C24 C28	
2	026517	CAP AE AX 2.2uF 50V 20%	C18 C19	
2	038695	CAP AE AX 220uF 16V 20%	C23 C25	
1	038693	CAP AE AX 47uF 16V 20%	C21	
5	028458	CAP AE RDL 1uF 50V 20%	C3 C4 C10 C12 C16	
1	028463	CAP AE RDL 10uF 50V 20%	C30	
4	038699	CAP CA 100pF 100V 5% LL	C2 C5 C11 C15	
2	038703	CAP CA .1uF 50V 10% LL	C20 C29	
2	027278	CAP MPF .1uF 63V 10%	C26 C27	
2	027281	CAP MPF .22uF 63V 10%	C6 C8	
2	033579	CAP PFF .0015uF 100V 10%	C7 C13	
2	033578	CAP PFF .001uF 100V 10%	C1 C9	
1	033580	CAP PFF .0022uF 100V 10%	C17	
1	033590	CAP PFF .022uF 100V 10%	C14	
4	031266	CONTROL RTRY 50k 'B' TAPER	R8 R11 R16 R18	
2	064089	DIODE 1N4003 LL	D6 D7	
5	006260	DIODE 1N4448 SIGNAL LL	D1 D2 D3 D4 D5	
1	027329	DIODE ZEN 1N5228B 3.9V 5% LL	D9	
3	013528	IC DUAL OP AMP 4558	U1 U2 U3	
1	013562	IC REGULATOR +15V MC7815CT	U5	
1	050552	IC POWER AMP TDA2005M 20W	U4	
1	014171	SCRW M 4-40x3/8 PHP BLX	@ U4	
1	097360	NUT HEX 4-40 EX LOCK	@ U4	
1	050703	HEATSINK AMP CAN	@U4	
2	032908	SCRW TF 6-32x3/8 PHP ZI	@ HEATSINK	
1	051067	JACK POWER DC	J3	
2	051006	JACK PH DUAL TIP SW	J1 J2	
1	020888	JUMPER WIRE 22GA (.300")	W2	
2	020888	JUMPER WIRE 22GA (.400")	W4 W5	
4	020888	JUMPER WIRE 22GA (.500")	W1 W3 W6 W7	
1	020888	JUMPER WIRE 22GA (.800")	W8	
1	028098	LED 5x5mm GREEN SLB-55MG3	D8	
1	050553	LED RED/GREEN 5x5mm BI-POLAR	D10	
2	033276	SPACER RND NYL .120x.187x.500	@D8 @D10	
2	026505	RES CF 1/2W 5% 1 ohm LL	R31 R32	
1	028842	RES CF 1/4W 5% 1.1k LL	R27	
1	024969	RES CF 1/4W 5% 1.5k LL	R33	
2	024937	RES CF 1/4W 5% 10 ohm LL	R28 R29	
6	024997	RES CF 1/4W 5% 100k LL	R20 R21 R22 R25 R34 R35	
2	024981	RES CF 1/4W 5% 10k LL	R37 R38	
3	024965	RES CF 1/4W 5% 1k LL	R5 R26 R30	
2	025069	RES CF 1/4W 5% 1M LL	R2 R14	
3	024971	RES CF 1/4W 5% 2.2k LL	R15 R19 R23	
3	024987	RES CF 1/4W 5% 22k LL	R10 R17 R24	
3	024989	RES CF 1/4W 5% 33k LL	R1 R13 R36	

PARTS LIST

NOTE: SHADED ITEMS ARE FOR REFERENCE ONLY

PRINTED CIRCUIT BOARD ASSEMBLY(CONT)

QTY	PART #	DESCRIPTION	REFERENCE	DESIGNATION
1	024977	RES CF 1/4W 5% 4.7k LL	R7	
1	025065	RES CF 1/4W 5% 470k LL	R3	
2	024993	RES CF 1/4W 5% 47k LL	R4 R12	
2	024962	RES CF 1/4W 5% 560 ohm LL	R6 R39	
1	024979	RES CF 1/4W 5% 6.8k LL	R9	
1	051226	SW 2P2T ALT/ACTION	S1	
1	051203	BUTTON PUSH 7.4mm DIA RED	@S1	
1	051068	SW 1P2T PWR PCB	S2	
1	051472	WIRJMP-18-RED-AB-JA-BB-10.5	WJ3	
1	051473	WIRJMP-18-BLK-AB-JA-BB-10.5	WJ4	
1	051474	WIRJMP-18-WHT-AB-JA-CC-14.5	WJ1	
1	051475	WIRJMP-18-BLK-AB-JA-CC-14.5	WJ2	

UNIT ASSEMBLY

QTY	PART #	DESCRIPTION	REFERENCE	DESIGNATION
1	050541	Handle Assy. Amp Can		
1	050543	Speaker 6" 4 ohm 30W		
1	051485	Housing Assy. Amp Can		
1	050546	Grille Assy. Speaker 6"		
1	050547	Cover Bottom Amp Can		
1	050548	Battery 12VDC 4.5Ah		
1	050689	Label Bottom Amp Can		
1	050699	Bracket Battery Amp Can		
1	051444	Nut Cage 10-32 ZI		
1	050549	Adapter 15VDC 400mA 120V	120V UNITS ONLY	
1	051421	Adapter 15VDC 400mA 240V Aust.	240V AUST UNITS ONLY	
1	051422	Adapter 15VDC 400mA 230V UK	230V UK UNITS ONLY	
1	051423	Adapter 15VDC 400mA 230V CE	230V EUROPEAN UNITS ONLY	
1	051424	Adapter 15VDC 400mA 100V	100V UNITS ONLY	
1	051466	Sticker Safety Battey		
1	051479	Gasket Speaker Rear 6"		
4	012076	SCRW SMA 6x1-1/4 OHP BLX		
2	022285	Washer Split Lock 1/4x.493 ZI		
2	610434	Nut Hex 1/4x20		
2	021998	Nut Flex Lock 10-32 w/NYL IN		
2	036619	Scrw M 10-32x1-1/2 THP NI		
6	023190	Washer Flat 1/4x9/16 NI		
1	029683	Scrw M 10-32x1 THP BLX		
4	020912	PAD Standoff Rubber		
8	038567	Scrw HI-Lo 6x1/2 PHP BLX GIM		
1	051401	Panel Assy. Amp Can		

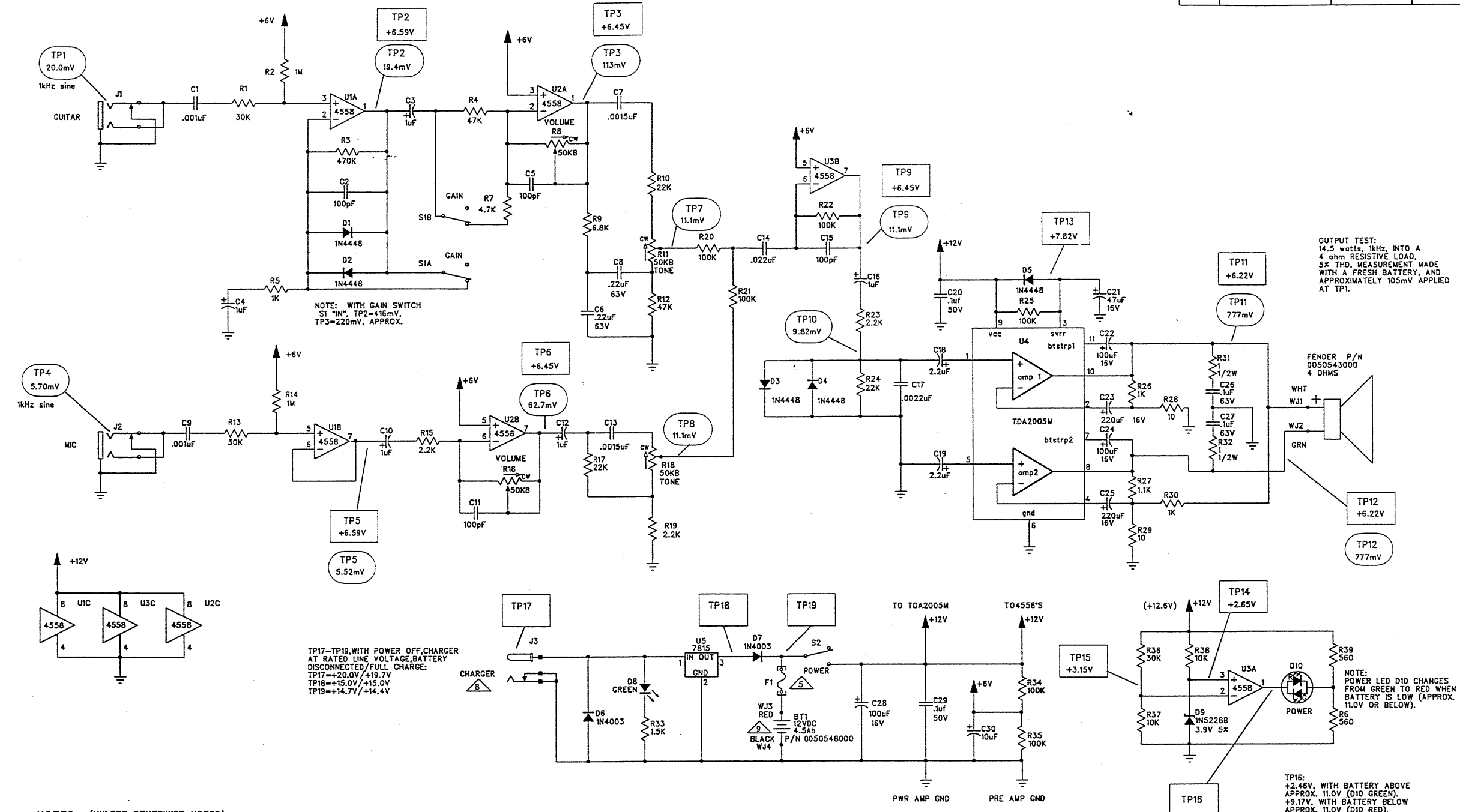
PARTS LIST

NOTE: SHADED ITEMS ARE FOR REFERENCE ONLY

FRONT PANEL ASSEMBLY

QTY	PART #	DESCRIPTION	REFERENCE	DESIGNATION
1	050537	Sticker Panel Front Amp Can		
1	050538	Panel Front Molded Amp Can		
1	050536	PCB Assy., Amp Can		
2	016352	Nut, Hex 3/8-32x1/2 TK NI		
4	019798	Knob, Rotary SS		
1	038567	Scrw Hi-Lo 6x1/2 PHP BLX GIM		

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	PR327	21-JAN-97	MDW
B	EC1923	14-MAY-97	MDW
C	ECCR124	24-JUL-97	MDW



OUTPUT TEST:
14.5 watts, 1kHz, INTO A
4 ohm RESISTIVE LOAD,
5% THD. MEASUREMENT MADE
WITH A FRESH BATTERY, AND
APPROXIMATELY 105mV APPLIED
AT TP1.

FENDER P/N
0050543000
4 OHMS

TP17-TP19, WITH POWER OFF, CHARGE
AT RATED LINE VOLTAGE, BATTERY
DISCONNECTED/FULL CHARGE:
TP17 = +20.0V / +19.7V
TP18 = +15.0V / +15.0V
TP19 = +14.7V / +14.4V

NOTE: POWER LED D10 CHANGES
FROM GREEN TO RED WHEN
BATTERY IS LOW (APPROX.
11.0V OR BELOW).

TP16:
+2.46V, WITH BATTERY ABOVE
APPROX. 11.0V (D10 GREEN).
+9.17V, WITH BATTERY BELOW
APPROX. 11.0V (D10 RED).

NOTES: (UNLESS OTHERWISE NOTED)

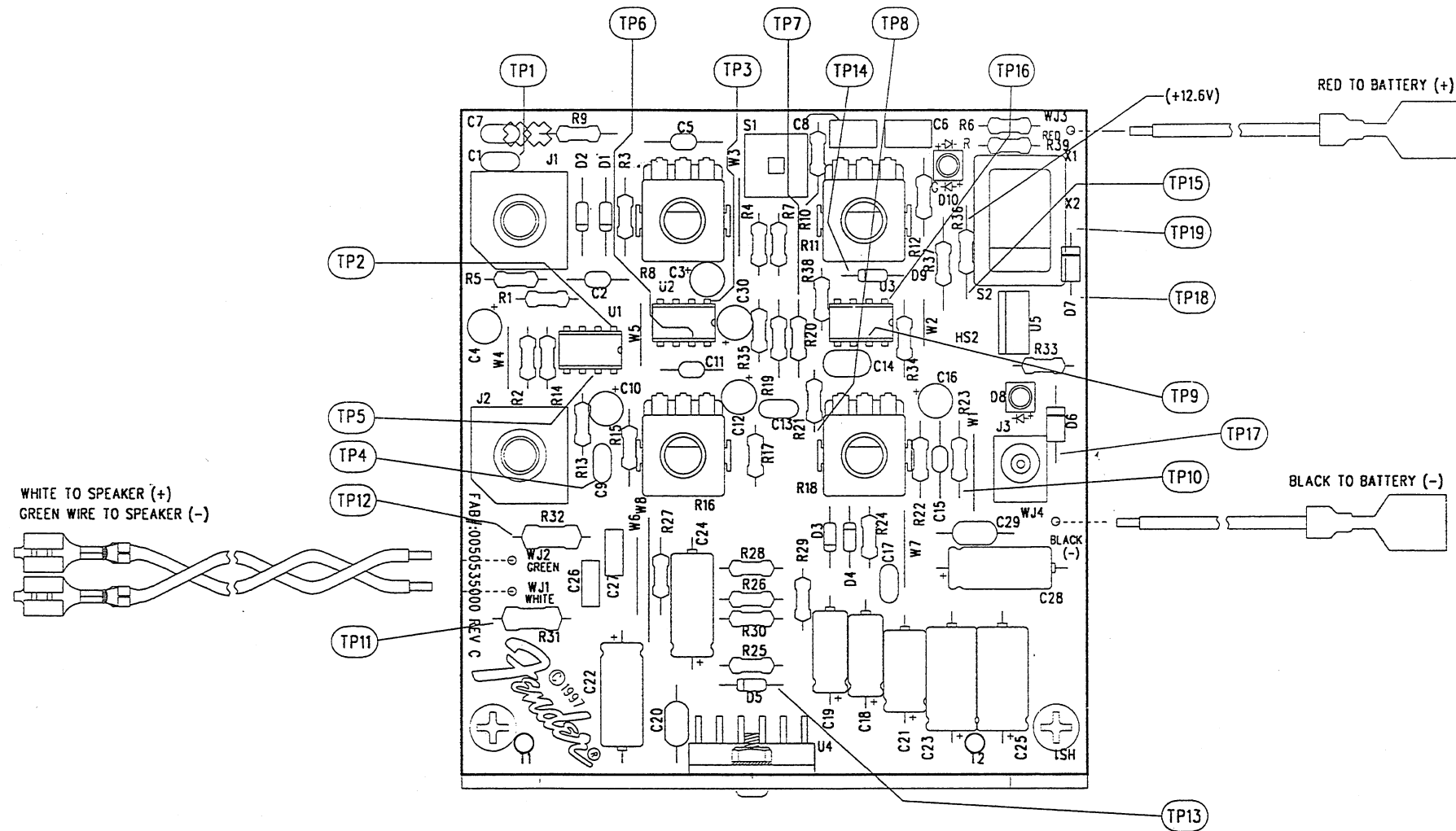
- ALL RESISTORS IN OHMS; 1/4W, 5%.
- ALL UNPOLARIZED CAPACITORS IN uF; 100V, 5%.
- ALL POLARIZED CAPACITORS IN uF; 50V, 20%.
- LAST REFERENCE DESIGNATORS USED:
BT1, C30, D10, FLJ3, R39, S2, U5, WJ4
- F1 IS A NARROWED TRACE IN THE PCB COPPER.
SHOULD TRACE BE BLOWN, REPLACE WITH 30 AWG BUS BAR.
- ALL VOLTAGE MEASUREMENTS MADE WITH RESPECT TO
GROUND USING A TRUE RMS DVM OF 1M ohm AC
INPUT IMPEDANCE AND 10M ohm DC INPUT IMPEDANCE.
VOLTAGES MAY VARY +/- 20%. TESTING CONDITIONS:
FRESH BATTERY (APPROX. 12.6VDC AT IDLE).
ALL DC MEASUREMENTS MADE WITH NO SIGNAL APPLIED.
ALL CONTROLS 50% ROTATION ("5-1/2").
GAIN SWITCH "OUT".
AC SIGNAL APPLIED AS SHOWN AT EITHER TP1 OR TP4, BUT NOT BOTH.

7. TEN-DIGIT PART NUMBERS ARE FENDER PART NUMBERS.

- IMPORTANT: ONLY USE CHARGER ADAPTER SUPPLIED WITH UNIT,
OR A HAZARDOUS CONDITION AND/OR PREMATURE BATTERY CAPACITY
LOSS MAY OCCUR.
- BATTERY MUST BE RECHARGED WHEN VOLTAGE FALLS TO 10.5V,
OR PREMATURE CAPACITY LOSS WILL OCCUR.
SHELF LIFE: 6 MONTHS, STARTING WITH A FRESH BATTERY.

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 AUTHORIZ- ATION FROM FENDER MUSICAL INSTRUMENTS.		Fender MUSICAL INSTRUMENTS 2621 Research Drive Corona, CA 91720 USA	
CHECKED BY: B.DESI CK DATE: 24-JUL-97		TITLE: SERVICE DIAGRAM, AMPCAN	
APPROVED BY: M.WILKENS AP DATE: 24-JUL-97		SIZE	DRAWING NUMBER
DRAWN: BRIAN ENGR: MATT		C	0050534000
FILE: Z327S.SCH		RELEASE DATE: 21-JAN-97	SHEET: 1 OF 2


REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	PR327	21-JAN-97	MDW
B	EC 1923	14-MAY-97	MDW
C	EC CR124	24-JUL-97	MDW



FILM/DWG: SERVICE DIAGRAM
 DATABASE: Z327P.PCB DATE: 24-JUL-97

1. LAST REFERENCE DESIGNATORS USED:
C30, D10, F1, J3, R39, S2, U5, W8, WJ4, TP19.
2. REF DES. F1 IS A NECKED-DOWN
(50 MIL) TRACE AT THE CATHODE OF D7.
SHOULD TRACE BE BLOWN, REPLACE WITH 30 AWG BUS BAR.
3. SEE SHEETS 2 AND 3
(A-SIZE) FOR BOM.

NOTES: (UNLESS OTHERWISE NOTED)

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CHECKED BY: B. DESI CK DATE: 24-JUL-97		TITLE: SERVICE DIAGRAM AMP CAN	
APPROVED BY: M.WILKENS AP DATE: 24-JUL-97		SIZE: B	DRAWING NUMBER: 0050534000
DRAWN: B.MAZZA ENGR: M.WILKENS		REV. C	
DATABASE FILE: Z327P.PCB		RELEASE DATE: 21-JAN-97	SHEET 2 OF 2

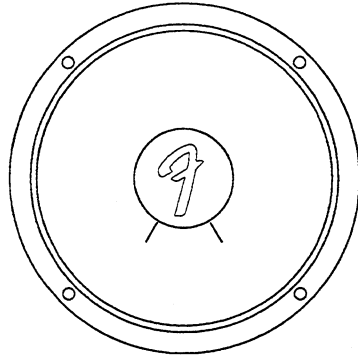
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CHART

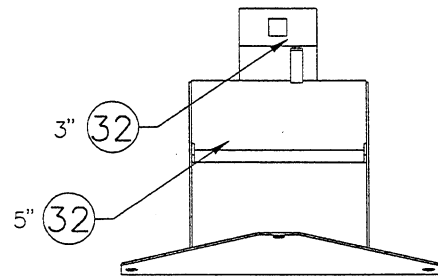
QTY.	DOM 120V 022-1200-000	NO ADAPTER 022-1210-000	100V 022-1270-000	U.K. 230V 022-1240-000	AUST 240V 022-1230-000	EUR 230V 022-1260-000	DESCRIPTION
1	0050549000	---	0051424000	0051422000	0051421000	0051423000	ADAPTER 15 VDC 400mA
1	0031893000	---	---	---	---	---	TAG WARRANTY 5 YR FENDER

REV	EC NUMBER	BY	DATE/ARCHIVE
F	MEC 097	KD	08-25-97
G	MEC 109	KD	10-15-97

FRONT



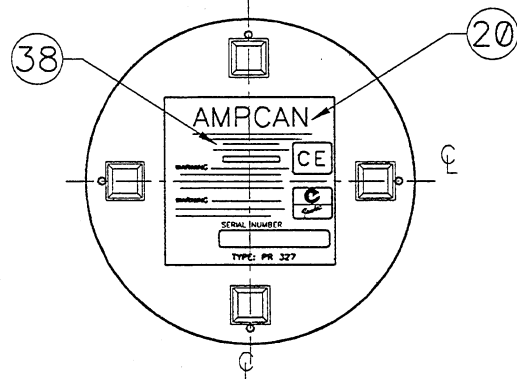
SPEAKER ORIENTATION DETAIL



FOAM TAPE PLACEMENT DETAIL

WHITE WIRE TO POSITIVE "+" TERMINAL ON SPEAKER.
(ALAMBRE BLANCO A TERMINO POSITIVO "+" DE LA BOCINA)
BLACK WIRE TO NEGATIVE "-" TERMINAL ON SPEAKER.
(ALAMBRE NEGRO A TERMINO NEGATIVO "-" DE LA BOCINA)

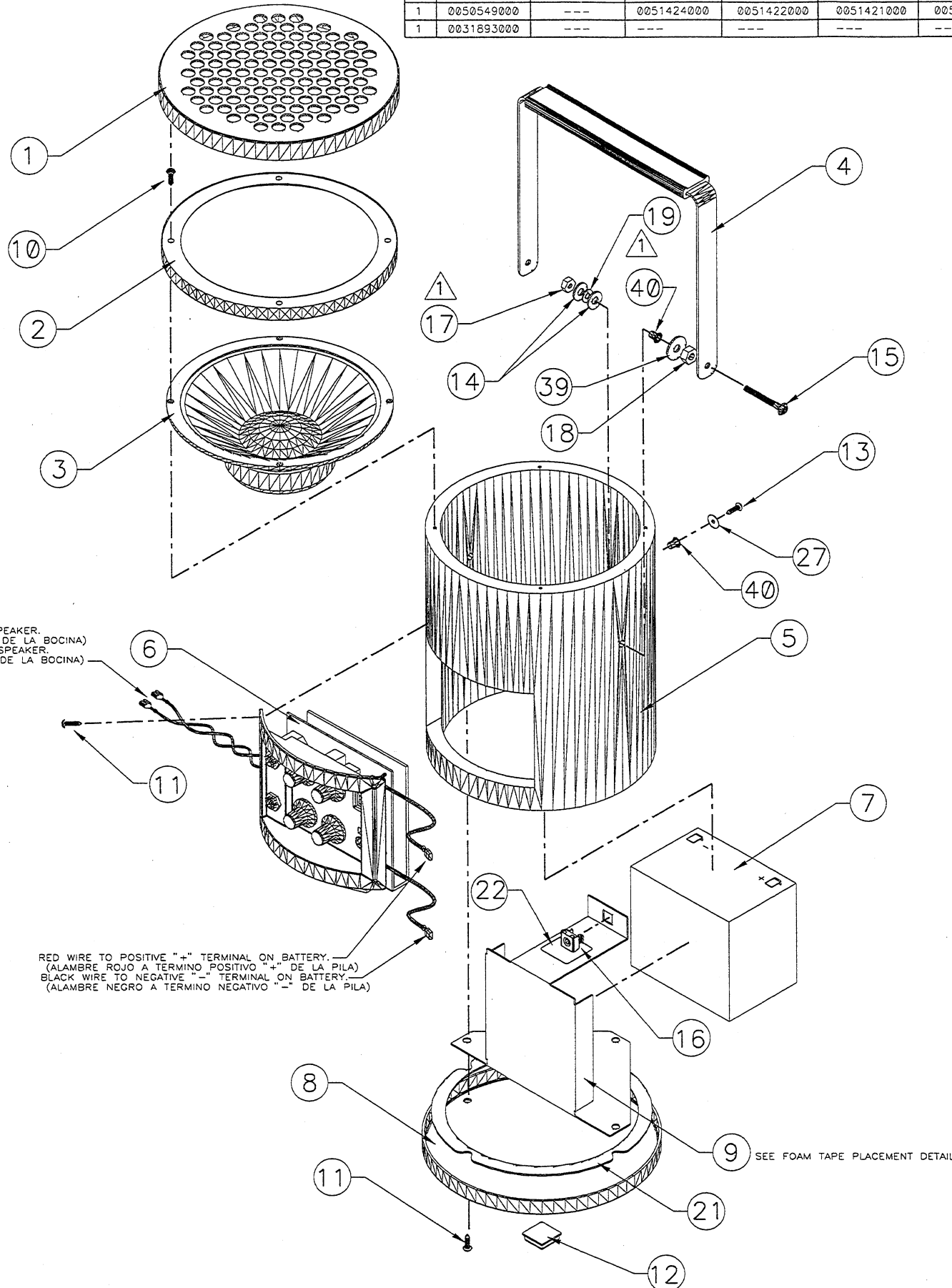
FRONT



LABEL & FEET PLACEMENT DETAIL

SCALE: 1/4

- ⚠️ ITEMS 1 & 2 ARE PART OF GRILLE ASSY, 6"; P/N 050546. 1 EA GRILLE ASSY REQ'D.
 - ⚠️ TIGHTEN NUT (ITEM 17) UNTIL SPLIT WASHER (ITEM 19) IS CRUSHED FLAT (2 PLCS).
 - 4. COPYRIGHT - 1997 - FENDER MUSICAL INSTRUMENTS CORP.
 - 3. - 3 - SAMPLES OF FIRST PARTS MUST BE APPROVED BY FENDER R&D BEFORE STARTING PRODUCTION.
 - 2. ALL DIMENSIONS ARE IN INCHES.
 - 1. DO NOT SCALE DRAWING.
- NOTES: UNLESS OTHERWISE NOTED



RED WIRE TO POSITIVE "+" TERMINAL ON BATTERY.
(ALAMBRE ROJO A TERMINO POSITIVO "+" DE LA PILA)
BLACK WIRE TO NEGATIVE "-" TERMINAL ON BATTERY.
(ALAMBRE NEGRO A TERMINO NEGATIVO "-" DE LA PILA)

40	3	0029821000	EYELET RFLNGD .215 OUTER DIA x .315L
39	2	9904300900	WASHER FLAT 1/4x1" STL BLX
38	1	0047951000	STICKER PATENT PENDING
37	1	0051865000	HANDLE CARTON AMP CAN (not shown)
36	1	0051741000	CARTON CHARGER AMP CAN (not shown)
35	1	0051740000	END CAP BOTTOM CARTON AMP CAN (not shown)
34	1	0051739000	END CAP TOP CARTON AMP CAN (not shown)
33	1	0051738000	CARTON ART AMP CAN (not shown)
32	.700	0051204000	FOAM TAPE 1/4" 1/16 3M4516 (/ft)
31	1	SEE CHART	TAG WARRANTY 5 YR FENDER
30	1	9903320000	BAG POLY ZIP 10x13 2M (not shown)
29	1	0032808000	STICKER BUMPER IMPORT (not shown)
28	1	0029816000	LABEL SERIAL MEXICO (not shown)
27	1	0022327000	WASHER FLAT 8x7/16 NI
26	1	SEE CHART	ADAPTER 15VDC 400mA
25	1	0050540000	OWNERS MANUAL (not shown)
24	1	0050539000	CARTON AMP CAN (not shown)
23	1	0050534000	SERVICE DIA. AMP CAN (not shown)
22	1	0051466000	STICKER SAFETY BATTERY
21	1	0052023000	GASKET BOTTOM AMP CAN
20	1	0050689000	LABEL BOTTOM AMP CAN
19	2	0022285000	WASHER SPLIT LOCK 1/4x.493 ZI
18	2	0051751000	NUT HEX 1/4-20x7/32 TK STL ZI (SPACER)
17	2	0021998000	NUT FLEX LOCK 10-32 W/NYL IN
16	1	0051444000	NUT CAGE 10-32 ZI
15	2	0036619000	SCREW M10-32x1-1/2 THP NI
14	4	0022319000	WASHER FLAT 1/4x9/16 NI
13	1	0029683000	SCREW M 10-32x1 THP BLX
12	4	0020912000	PAD STANDOFF RUBBER
11	8	0038567000	SCREW HI-LOW 6x1/2 PHP BLX GIM
10	4	0012076000	SCREW SMA 6x1-1/4 OHP BLX
9	1	0050699000	BRACKET BATTERY AMP CAN
8	1	0050547000	COVER BOTTOM AMP CAN
7	1	0050548000	BATTERY 12v 4.5Ah
6	1	0051401000	PANEL ASSY AMP CAN
5	1	0051485000	HOUSING ASSY AMP CAN
4	1	0050541000	HANDLE ASSY AMP CAN
3	1	0050543000	SPEAKER 6" 4 ohm 30W
2	1	0051490000	RETAINER RING SPEAKER 6"
1	1	0050545000	GRILLE SPEAKER 6"

ITEM	QTY	PART #	DESCRIPTION
ENGINEER SUNDA			
DRAWN T.GROENENBOOM			
DATE 02-19-96			
TITLE END ITEM ASSY. AMP CAN			
SHEET 1/1			
SCALE N/A			
PART/DRAWING NUMBER 0221200000			
REV. G			