



BULLET® 15 DSP

(This is the model name for warranty claims)

p/n 2267700020 (120V)

SERVICE MANUAL



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June, 2002

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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

| | | |
|--|-------------------------|---|
| Model Name: | | Bullet 15 DSP |
| Release Number: (Not a model number) | | PR 241 |
| Part Numbers | (120V, 60Hz) US: | 2267700020 |
| | (110V, 60Hz) TW: | 2267701020 |
| | (240V, 50Hz) AUS: | 2267703020 |
| | (230V, 50Hz) UK: | 2267704020 |
| | (230V, 50Hz) ARG: | 2267705020 |
| | (230V, 50Hz) EUR: | 2267706020 |
| | (100V, 50/60Hz) JPN: | 2267707020 |
| | (220V, 60Hz) ROK: | 2267709020 |
| Power Requirement: | | 38W |
| Power Output: | | 15W RMS into 8 ohms @ 5%THD |
| Nominal Input Level: | | 100mV for 15W into 8 ohms @ 5%THD |
| Impedances | Input (Pre-Amp): | 1M ohms |
| | CD Input: | greater than 30k ohms |
| Speaker Complement: | | One (1) 8", 8 ohm, Fender Special Design Speaker (P/N 0025421000) |
| Dimensions | Height: | 12.4 in (31.4 cm) |
| | Width: | 13.25 in (33.7 cm) |
| | Depth: | 7.13 in (18.1 cm) |
| Weight: | | 15 lbs (6.8 kg) |

Product specifications are subject to change without notice

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SERVICE NOTES

- 1. CHASSIS REMOVAL** is accomplished by first removing four (4) screws from the Rear Cabinet Panel and two (2) screws from the top of the Cabinet; detach the speaker wires from the speaker and then slide the Chassis toward the rear of the Cabinet.
- 2. uDSP PCB ASSEMBLY REMOVAL** is accomplished by disconnecting the Ribbon cable on the uDSP PCB Assembly, releasing the tabs on each of the plastic Stand-offs which the uDSP PCB Assembly is mounted. Removal of the uDSP PCB Assembly may be necessary should any of the Digital Effects operate improperly.
- 3. BULLET 15 DSP MAIN PCB REMOVAL** is accomplished by removing the following items: All Knobs, one (1) screw at the CD Input Jack, two (2) nuts and washers at the Input and Headphone Jacks, two (2) screws at the Heatsink which attaches to the Chassis. Desolder the Transformer Leads at P1, P4, P5, P6 and P7. Disconnect the Yellow and Black wires at the Power Switch leading from P2 and P3. Disconnect the Ribbon Cable at P8.

PCB EXCHANGE POLICY

Parts marked with a single asterisk (*) in the Part Lists (starting on page 9) 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-B before splitting into two signal paths. The Normal Channel signal path (U1-A to U3-B) is active until the Drive Select switch is pushed "IN" to change the signal path from the Normal Channel to the Drive Channel (U2-B to U3-B). Differential amplifier U4-A and follower U4-B adjust the signal level and provides +1.65VDC bias voltage to the uDSP effects card. The preamp is in series with the digital effects card, therefore, disconnecting the card breaks the overall signal path. The signal from the uDSP card is recovered at U6-A. It is necessary to bring the signal back to its level prior to entering the uDSP card. This is accomplished by increasing the signal gain at U6-B. The signal is fed through the Passive Tone Control circuitry to the summing amplifier at U3-A, where it is mixed with the CD/Tape Input. The signal is fed through the Headphone buffer amplifier (U8-A and U8-B) and on to the Power Amplifier. FET Q2 is used to mute U6-A at power shutdown, preventing any uDSP card signal transients from getting through to the Power amplifier.

POWER AMPLIFIER

Current Feedback topology is used for the Power amplifier. The Power amplifier IC (U5) is configured as a non-inverting amplifier. Diodes D7 and D8 are used for common-mode protection of the amplifier. Current feedback is achieved by sampling current at the negative speaker terminal and feeding the signal back to the inverting node of the Power amplifier through R41 and series capacitor C25. The negative speaker terminal is referenced to ground through resistors R42 and R43. FET Q1 provides a mute function at the Power amplifier input.

POWER SUPPLY

Standard bridge rectifiers for high voltage (+/-22V), with zener regulation (D14-15) for the +/-15V supplies. +15V supplies U7, 7805 regulator for +5V supply for the uDSP card and digital user-interface.

DIGITAL USER INTERFACE

The uDSP Effects control (R65) is a linear pot that sets a DC level (0-5V), which is read by an A/D converter located on the uDSP card. These DC levels determine which desired Effect is selected.

DIGITAL NOISE

The uDSP effects card generates some high frequency noise (>50kHz), which is a normal product of DSP processing. This does not affect amplifier performance, but may be visible when observing the output of the amplifier on an oscilloscope.

**BULLET® 15 DSP**

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| PARTS LIST: MAIN – PCB ASSEMBLY | | | |
|--|---------------|--------------------------------|------------------------------|
| QTY. | PART # | DESCRIPTION | REFERENCE DESIGNATION |
| 1 | 0057257004 | PCB ASSY BULLET 15 DSP | |
| 1 | * | **PCB FAB BULLET 15 DSP | |
| 1 | * | HEATSINK BULLET 15 DSP | |
| REF | 0057259000 | SERV. DIA. COMB. BULLET 15 DSP | |
| | | | |
| 1 | * | CAP AE AX 22uF 35V 20% | C38 |
| 1 | * | CAP AE AX 4.7uF 50V 20% | C25 |
| 3 | * | CAP AE RDL .47uF 50V 20% | C12-13 C27 |
| 2 | * | CAP AE RDL 1uF 50V 20% | C26 C51 |
| 2 | * | CAP AE RDL 2.2uF 50V 20% | C6 C24 |
| 2 | * | CAP AE RDL 2200uF 35V 20% | C33-34 |
| 3 | * | CAP AE RDL 22uF 50V 20% | C7 CC48-49 |
| 2 | * | CAP AE RDL 47uF 50V 20% | C35-36 |
| 2 | * | CAP CD 120pF 500V 5% | C54-55 |
| 1 | * | CAP CA 100pF 100V 5% | C21 |
| 3 | * | CAP CA 220pF 100V 5% | C46 C52-53 |
| 1 | * | CAP CA 33pF 50V 5% | C20 |
| 2 | * | CAP CA 470pF 50V 5% | C11 C22 |
| 1 | * | CAP CA 47pF 100V 5% | C3 |
| 3 | * | CAP CA 560pF 50V 5% | C14 C29 C32 |
| 1 | * | CAP CA 68pF 100V 5% | C45 |
| 1 | * | **CAP MPF .1uF 250VAC 20% | C50 |
| 9 | * | CAP MPF .1uF 63V 10% | C23 C37 C39-44 C47 |
| 2 | * | CAP MPF .33uF 63V 10% | C30-31 |
| 1 | * | CAP PFF RDL .0022uF 100V 10% | C5 |
| 1 | * | CAP PFF RDL .0033uF 100V 10% | C17 |
| 3 | * | CAP PFF RDL .0047uF 100V 10% | C1-2 C18 |
| 1 | * | CAP PFF RDL .015uF 100V 10% | C4 |
| 2 | * | CAP PFF RDL .022uF 100V 10% | C15-16 |
| 2 | * | CAP PFF RDL .033uF 100V 10% | C9-10 |
| 3 | * | CAP PFF RDL .047uF 100V 10% | C8 C19 C28 |
| | | | |
| 3 | * | CONTROL 100K 30C SNAP IN | R20 R24 R34 |
| 1 | * | CONTROL 10KB | R65 |
| 1 | * | CONTROL 250K 30C | R35 |
| 1 | * | CONTROL 50KB SNAP IN | R33 |
| 1 | * | CONTROL SNAPIN 50K 15A | R13 |
| | | | |
| 7 | * | DIODE 1N4003 | D5-6 D10-13 D17 |
| 7 | * | DIODE 1N4448 SIGNAL | D3-4 D7-9 D18-19 |
| 2 | * | DIODE ZEN 1n4744a 15v 1w 5% | D14-15 |
| | | | |
| 1 | * | HEADER .1 8x2 | P8 |
| | | | |
| 2 | * | IC DUAL OP AMP TL072 | U2-3 |
| 4 | * | IC DUAL OPAMP PC4560 | U1 U4 U6 U8 |
| 1 | * | IC OP AMP PWR TDA2050V | U5 |
| 1 | * | IC REGULATOR +5V MC7805CT | U7 |
| | | | |
| 1 | * | JACK MONO R/A | J1 |
| 1 | * | JACK PHONO DUAL PC MTG | J3 |
| 1 | * | JACK STEREO R/A W/SL | J2 |

* 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.



BULLET® 15 DSP

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| PARTS LIST: MAIN – PCB ASSEMBLY (continued) | | | |
|--|--------|--------------------------------|------------------------|
| QTY. | PART # | DESCRIPTION | REFERENCE DESIGNATION |
| 3 | * | LED, RED LONG LEAD LUMEX | D1-2 D16 |
| 1 | * | SPACER LED .5x.1 BRN | @ D16 |
| 1 | * | RES CF 1/2W 1.5k 5% | R64 |
| 1 | * | RES CF 1/2W 5.6 ohm 5% | R44 |
| 2 | * | RES CF 1/4W 27k 5% | R50-51 |
| 3 | * | RES CF 1/4W 100k 5% | R38 R46-47 |
| 6 | * | RES CF 1/4W 10k 5% | R8 R37 R61 R67 R71 R73 |
| 3 | * | RES CF 1/4W 15k 5% | R1 R6 R32 |
| 1 | * | RES CF 1/4W 180k 5% | R36 |
| 4 | * | RES CF 1/4W 1k 5% | R7 R26 R54-55 |
| 2 | * | RES CF 1/4W 1M ohm 5% | R66 R76 |
| 4 | * | RES CF 1/4W 2.2k 5% | R12 R59 R69-70 |
| 5 | * | RES CF 1/4W 220k 5% | R10 R14-15 R23 R25 |
| 4 | * | RES CF 1/4W 22k 5% | R16-17 R31 R77 |
| 4 | * | RES CF 1/4W 30k 5% | R52-53 R56-57 |
| 5 | * | RES CF 1/4W 3.3k 5% | R19 R21 R49 R74-75 |
| 1 | * | RES CF 1/4W 4.7k 5% | R68 |
| 2 | * | RES CF 1/4W 470k 5% | R22 R48 |
| 5 | * | RES CF 1/4W 47k 5% | R11 R27-30 |
| 1 | * | RES CF 1/4W 5.1Kohm 5% | R5 |
| 2 | * | RES CF 1/4W 510Kohm 5% | R2 R4 |
| 3 | * | RES CF 1/4W 6.8k 5% | R3 R58 R72 |
| 1 | * | RES CF 1/4W 75k 5% | R60 |
| 1 | * | RES CF 1/4W 8.2k 5% | R18 |
| 1 | * | RES CF 1/4W 82k 5% | R9 |
| 2 | * | RES CF 1/4W 820ohm 5% | R41 R45 |
| 1 | * | RES CF 1/4W 120k 5% | R78 |
| 2 | * | RES FILM 1W .68 ohm 5% | R42-43 |
| 2 | * | RES FILM 1W 120 ohm 5% LL | R39-40 |
| 2 | * | RES FILM 1W 220ohm 5% | R62-63 |
| 2 | * | SCRW M 4-40x3/8 PHP BLX | @ U5 U7 |
| 2 | * | SCRW TF 6-32x3/8 PHP ZI | @ HEATSINK |
| 2 | * | NUT HEX 4-40 EX LOCK | @ U5 U7 |
| 1 | * | INSULATOR MICA TO-220 | @ U5 |
| 1 | * | SWITCH PUSH SLFLK SHORT STROKE | S1 |
| 1 | * | BUTTON PUSH OFF WHITE | @S1 |
| 1 | * | **PCB WIRE SET, BULLET 15 DSP | |
| 1 | * | WSHR SHLDR NYL 1/8x1/4 | @ U5 |
| 2 | * | XSTR N-CH JFET J111 TO-92 | Q1-2 |
| 2 | * | **FUSE CLIP PCB 5MM | F1 |
| 42 | * | JUMPER WIRE 22 GA | W1-21 W23-43 |

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

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PARTS LIST: **uDSP – PCB ASSEMBLY**

| QTY. | PART # | DESCRIPTION | REFERENCE DESIGNATION |
|------|------------|----------------------------------|-----------------------|
| 1 | 0057261008 | PCB ASSY uDSP BULLET 15 DSP | w/EPROM |
| REF | 0057283000 | SVC DIAG COMB MICRO DSP | |
| 1 | * | IC ROM BULLET 15 DSP V1.01 | |
| 1 | * | PCB FAB uDSP | |
| 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 | |
| 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: **CHASSIS ASSEMBLY**

| QTY. | PART # | DESCRIPTION | REFERENCE DESIGNATION |
|------|------------|----------------------------------|-----------------------------|
| 1 | * | CHASSIS BULLET 15 DSP AMP | |
| 1 | * | CLAMP CABLE NYL SCRW MNT 5/16 | @ 100V-120V PWR CORDS |
| - | 0041775000 | **XFMR PWR EXPORT 100v | 100V XFMR |
| 1 | 0025413000 | **XFMR PWR F1158UC MEX AMPS/BRNC | 120V XFMR |
| - | 0031634000 | **XFMR PWR FD15 230v | 220V-240V XFMR |
| 1 | 0025935000 | **SWITCH DPST .187 TAB (DOM) | POWER SWITCH, ALL MODELS |
| 6 | 0053986000 | KNOB RTRY SS W/CHR INSERT | @ R13 R20 R24 R33-35 |
| 1 | 0057256000 | KNOB RTRY ARROW W/CHR INS | @ R65 |
| 5 | 0026459000 | WSHR FLAT 6x3/8 ZI | @ XFMRs, HEATSINK, PWR CORD |
| 5 | 0028684000 | SCRW SMB 6x3/8 PH PHS BLX | @ XFMRs, HEATSINK, PWR CORD |
| 2 | 0053479000 | NUT HEX 7/16 20X1/8 NI | @J1-2 |
| 2 | 0053480000 | WASHER FLAT .442 X.692 NI | @J1-2 |
| 1 | 0038900000 | SCRW TF 6-32X1/4 PHP ZI | @ GND |
| 1 | 0048377000 | **FUZE QA 20mm X 5mm 250V .5A | 100V-120V FUZE |
| - | 0020781000 | **FUZE QA 20mmx5mm 250v .25A | 220V-240V FUZE |
| 1 | * | PANEL FRONT BULLET 15 DSP | |
| 1 | 0051330000 | **CABLE ASSY 120V 6 FT | |

* 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.

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| PARTS LIST: CHASSIS ASSEMBLY (continued) | | | |
|---|------------|----------------------------------|-----------------------|
| QTY. | PART # | DESCRIPTION | REFERENCE DESIGNATION |
| - | 0040992000 | **CABLE ASSY PWR 5A U.K..187 TAB | |
| - | 0026528000 | **CABLE ASSY PWR 230v .187 TAB | |
| - | 0036479000 | **CABLE ASSY PWR AUST .187 TABS | |
| - | 0048465000 | **CABLE ASSY PWR .187 100V | |
| - | 0057675000 | **CORD PWR ARG .187 TABS | |
| 1 | 0057359000 | CABLE RIBBON 16 CKT W/2 CONN | |
| 4 | 0051404000 | STANDOFF NYLON BLK .375 | @ uDSP |
| 1 | 0031868000 | SCRW PLASTITE 4x1/4 PHP BLX | @ J3 |
| - | * | CLAMP CABLE NYL SCRW MNT 1/4 | @ 230V-240V PWR CORDS |

| PARTS LIST: CABINET ASSEMBLY | | | |
|-------------------------------------|------------|----------------------------|-----------------------|
| QTY. | PART # | DESCRIPTION | REFERENCE DESIGNATION |
| 12 | 0026571000 | SCRW SMAB 8X5/8 THP NI | @ CORNERS |
| 4 | 0029071000 | CORNER NOTCHED NICKLE (FD) | |
| 0.910 | * | TOLEX "BRAVURA BLACK" | |
| 4 | 0029323000 | FOOT RUBBER 1.0 DIA SMALL | |
| 2 | 0026566000 | CORNER 2 HOLE w/TAB NI | |
| 0.003 | * | TAPE ALUM 5" x 60 YDS | |

| PARTS LIST: END ITEM ASSEMBLY | | | |
|--------------------------------------|------------|----------------------------------|-----------------------|
| QTY. | PART # | DESCRIPTION | REFERENCE DESIGNATION |
| 1 | 0025421000 | SPKR 8" PF8643 (099-4808-002) | |
| 5 | 0029828000 | SCRW PB 8x3/4 PHP ZI | @ SPKR & CABLE CLAMP |
| 1 | 0057262000 | MANUAL OWNERS BULLET 15 DSP | |
| 1 | 0057254000 | LABEL REAR BULLET 15 DSP | |
| - | 0057255000 | LABEL REAR ROK BULLET 15 DSP | |
| 1 | 0029906000 | NAMEPLATE FENDER GENERIC SMALL | @ BAFFLE ASSY |
| 2 | 0018113000 | SCRW SMA 4x1/2 OHP BLX | @ LOGO |
| 2 | 0025395000 | HANDLE CAP 1 HOLE NI (DWG 17420) | @ HANDLE |
| 1 | 0025883000 | HANDLE SHORT NO LOGO | |
| 2 | 0022277000 | SCRW M 10-32x1-1/2 OHP NI | @ HANDLE |
| 1 | 0057763000 | CAB ASSY BULLET 15 DSP | |
| 1 | 0050711000 | CAB BACK LAMTED BLK PB 3/8" | |
| 1 | 0040143000 | GRILLE ASSY BLK/SLVR X-15 '92 | |
| 4 | 0029677000 | SCRW SMA 6x1 THP BLX | @ CAB BACK |
| 1 | 0022491000 | CLAMP CABLE NYL SCRW MNT 5/16 | @ PWR CORD & CAB |
| 1 | 0022327000 | WSHR FLAT 8x7/16 NI | @ CABLE CLAMP |
| 2 | 0029527000 | WSHR FNSH 8-5/8 FLNGD BLX WX | @ CAB SIDE |
| 2 | 0026800000 | SCRW SMAB 8x1-3/4 OHP BLX | @ CAB SIDE |
| 0.2 | 0029085000 | VELCRO STRIP LOOP 1.5" WD BLK | @ CAB BACK |
| 0.2 | 0029086000 | VELCRO STRIP HOOK 1.5" WD BLK | @ CAB BACK |

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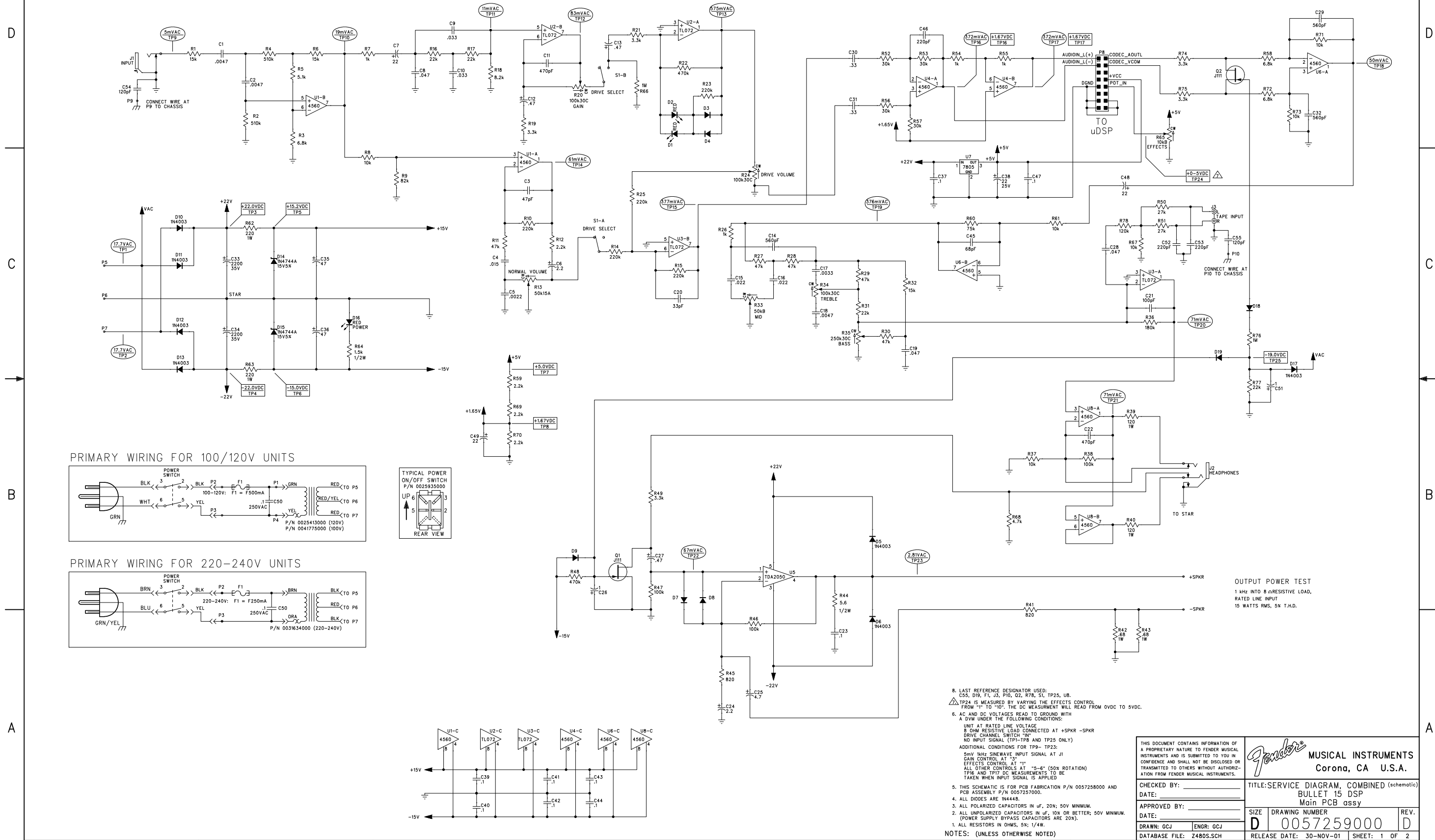
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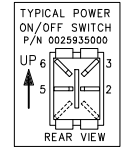
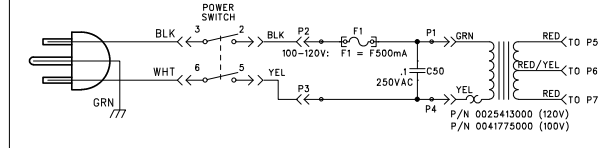
Schematics and Drawings

| | |
|-----------------------------------|---------------|
| Service Diagram (Schematic) | Bullet 15 DSP |
| Service Diagram (PCB Assy) | Bullet 15 DSP |
| Service Diagram (Schematic) | Micro DSP |
| Service Diagram (PCB Assy) | Micro DSP |
| Chassis Assy | Bullet 15 DSP |
| End Item Assy | Bullet 15 DSP |

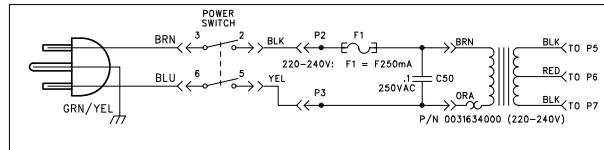
| REVISIONS | | | |
|-----------|-------------|-----------|----------|
| REV. | DESCRIPTION | DATE | APPROVED |
| A | PR480 | 30-NOV-01 | M C U |
| B | NO RELEASE | 06-MAR-02 | M C U |
| C | EC2736A | 06-MAR-02 | M C U |
| D | EC2756 | 20-MAR-02 | M C U |



PRIMARY WIRING FOR 100/120V UNITS



PRIMARY WIRING FOR 220-240V UNITS



- 8. LAST REFERENCE DESIGNATOR USED:
C55, D19, F1, J3, P10, Q2, R78, S1, TP25, U8.
- TP24 IS MEASURED BY VARYING THE EFFECTS CONTROL FROM "1" TO "10". THE DC MEASUREMENT WILL READ FROM 0VDC TO 5VDC.
- 6. AC AND DC VOLTAGES READ TO GROUND WITH A DVM UNDER THE FOLLOWING CONDITIONS:
UNIT AT RATED LINE VOLTAGE
8 OHM RESISTIVE LOAD CONNECTED AT +SPKR -SPKR
DRIVE CHANNEL SWITCH "M"
NO INPUT SIGNAL (TP1-TP5 AND TP25 ONLY)
- ADDITIONAL CONDITIONS FOR TP9 - TP23:
5mV 1kHz SINEWAVE INPUT SIGNAL AT J1
GAIN CONTROL AT "3"
EFFECTS CONTROL AT "1"
ALL OTHER CONTROLS AT "0-6" (50% ROTATION)
TP16 AND TP17 DC MEASUREMENTS TO BE TAKEN WHEN INPUT SIGNAL IS APPLIED
- 5. THIS SCHEMATIC IS FOR PCB FABRICATION P/N 0057258000 AND PCB ASSEMBLY P/N 0057257000.
- 4. ALL DIODES ARE 1N4448.
- 3. ALL POLARIZED CAPACITORS IN uF, 20% 50V MINIMUM.
- 2. ALL UNPOLARIZED CAPACITORS IN uF, 10% OR BETTER; 50V MINIMUM. (POWER SUPPLY BYPASS CAPACITORS ARE 20%).
- 1. ALL RESISTORS IN OHMS, 5% 1/4W.

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

CHECKED BY: _____
DATE: _____

APPROVED BY: _____
DATE: _____

DRAWN: GCJ ENGR: GCJ
DATABASE FILE: Z480S.SCH

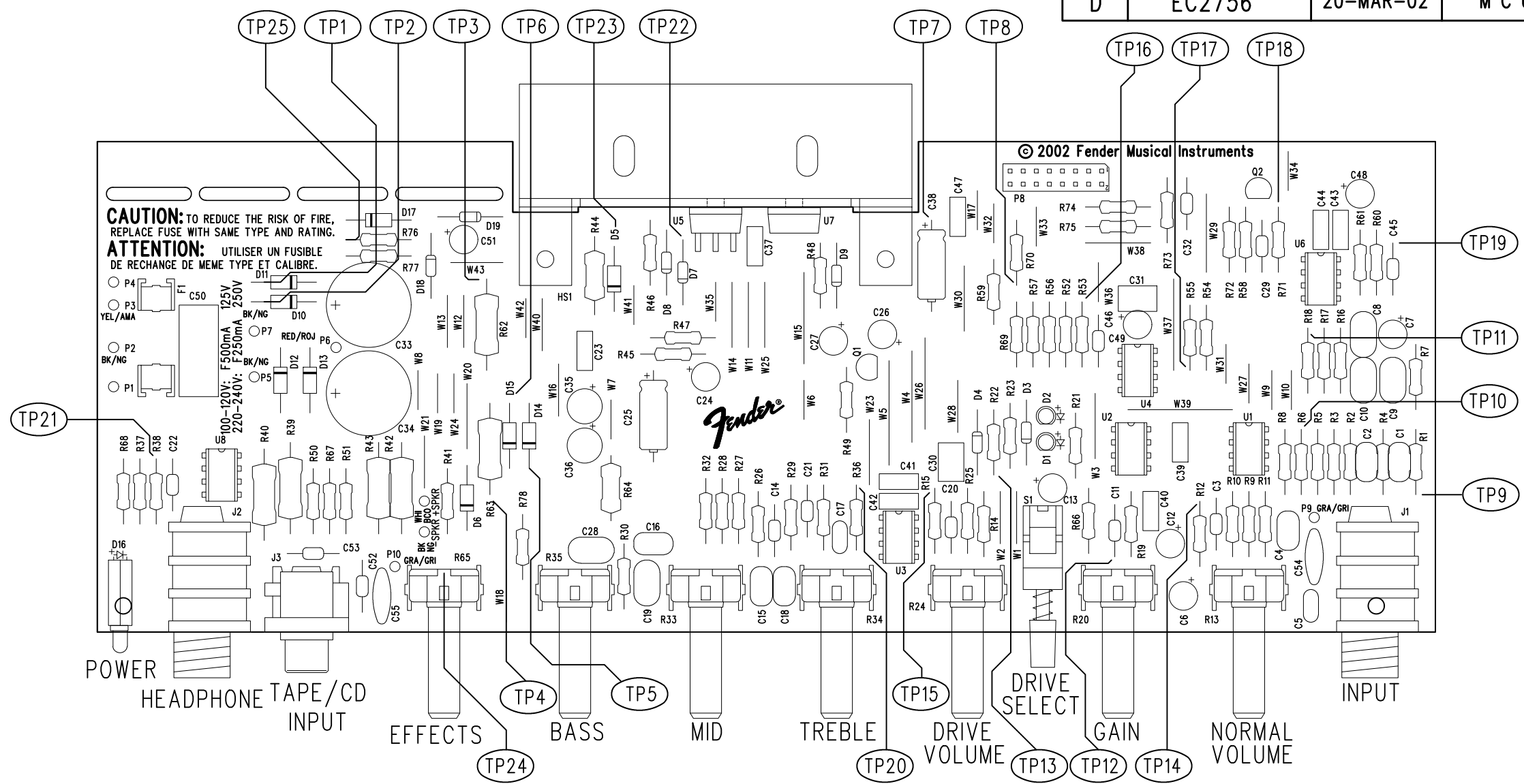
TITLE: SERVICE DIAGRAM, COMBINED (schematic)
BULLET 15 DSP
Main PCB assy

SIZE: D DRAWING NUMBER: 0057259000 REV. D

RELEASE DATE: 30-NOV-01 SHEET: 1 OF 2

OUTPUT POWER TEST
1 kHz INTO 8 OHM RESISTIVE LOAD,
RATED LINE INPUT
15 WATTS RMS, 5% T.H.D.

| REVISIONS | | | |
|-----------|-------------|-----------|----------|
| REV. | DESCRIPTION | DATE | APPROVED |
| A | PR480 | 30-NOV-01 | M C U |
| B | NO RELEASE | 06-MAR-02 | M C U |
| C | EC2736A | 06-MAR-02 | M C U |
| D | EC2756 | 20-MAR-02 | M C U |



FILM/DWG: SERVICE DIAGRAM
 DATABASE: Z480P.PCB DATE: 20-MAR-02

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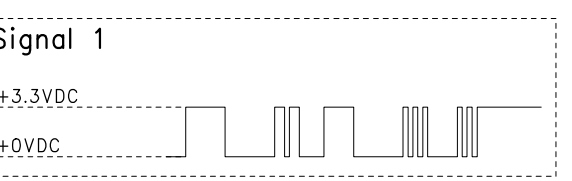
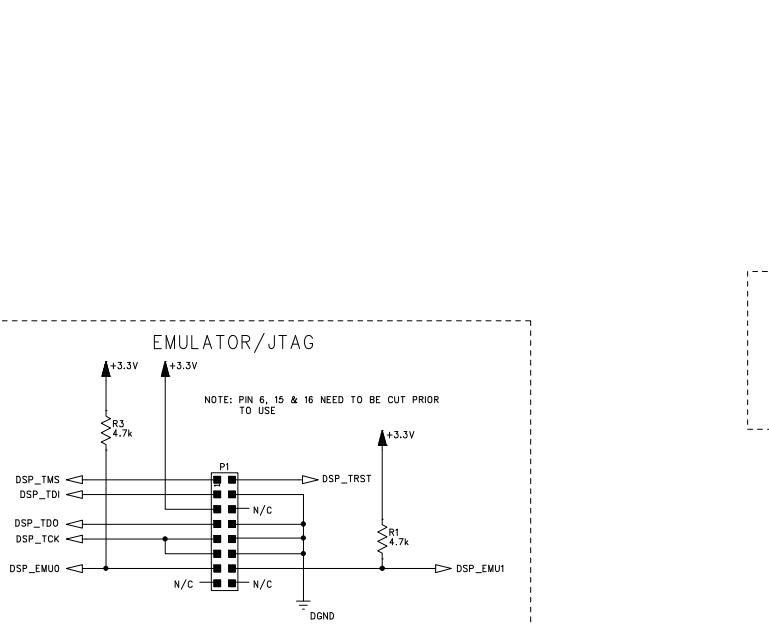
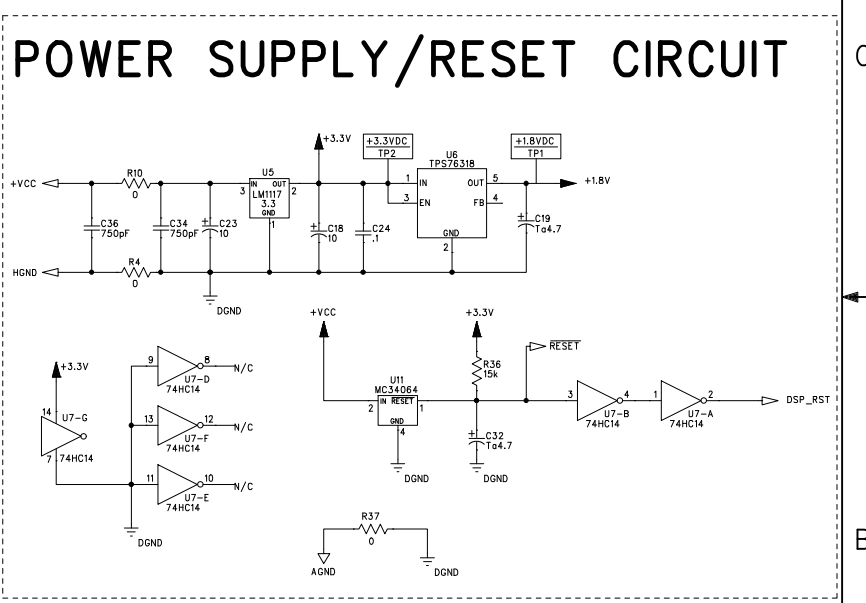
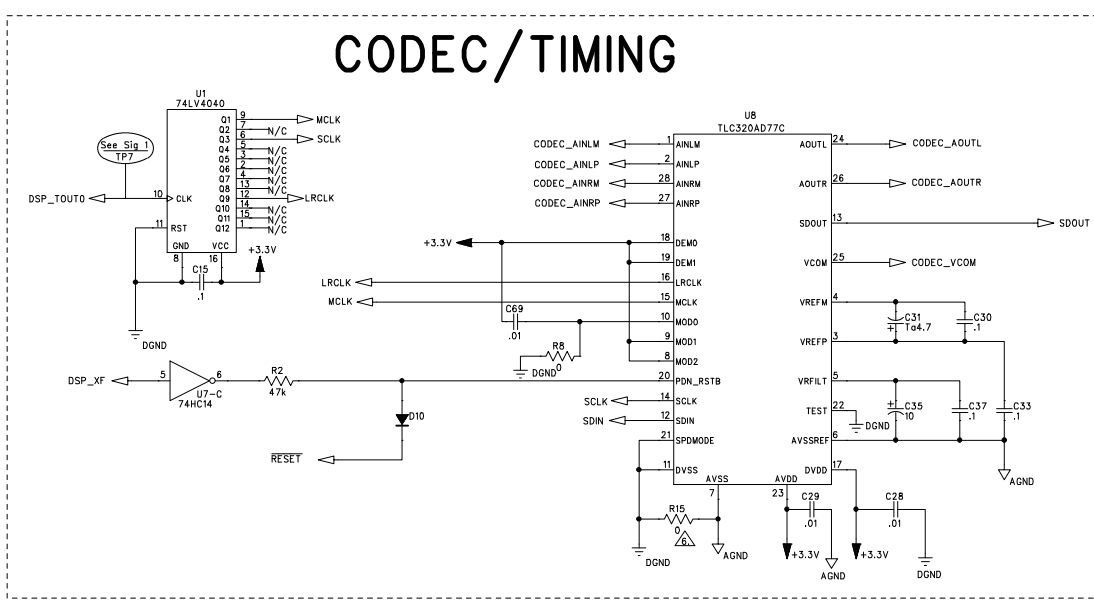
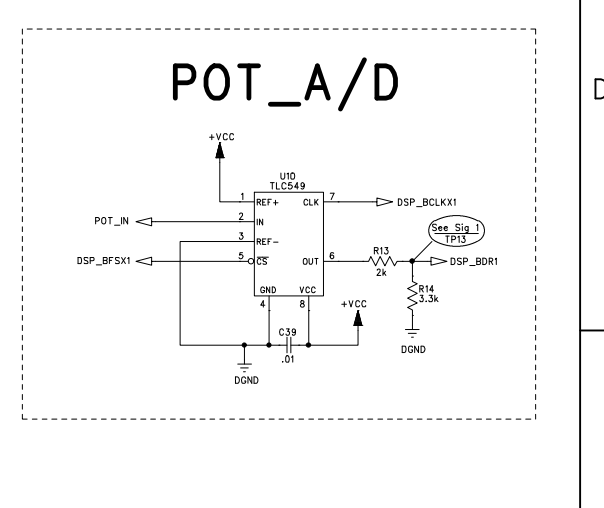
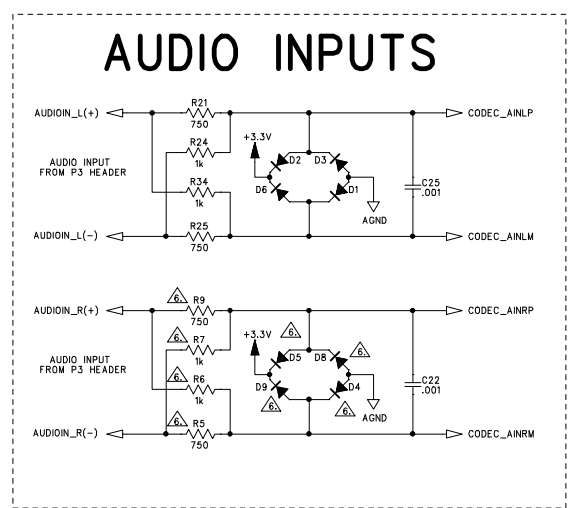
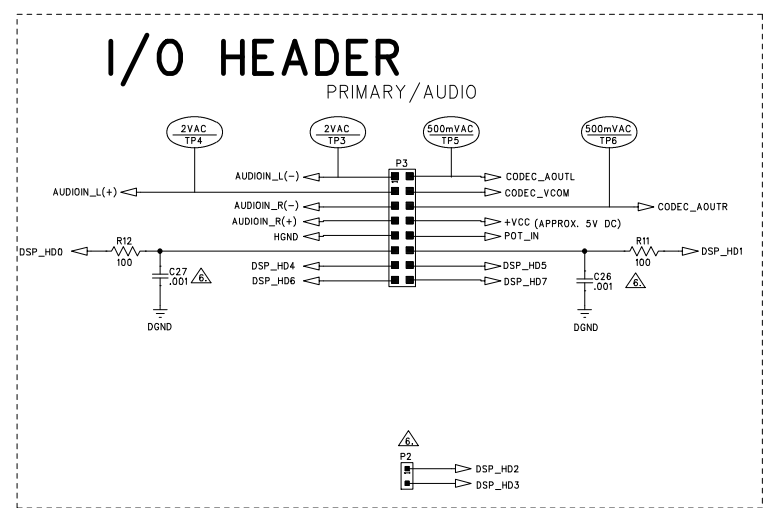
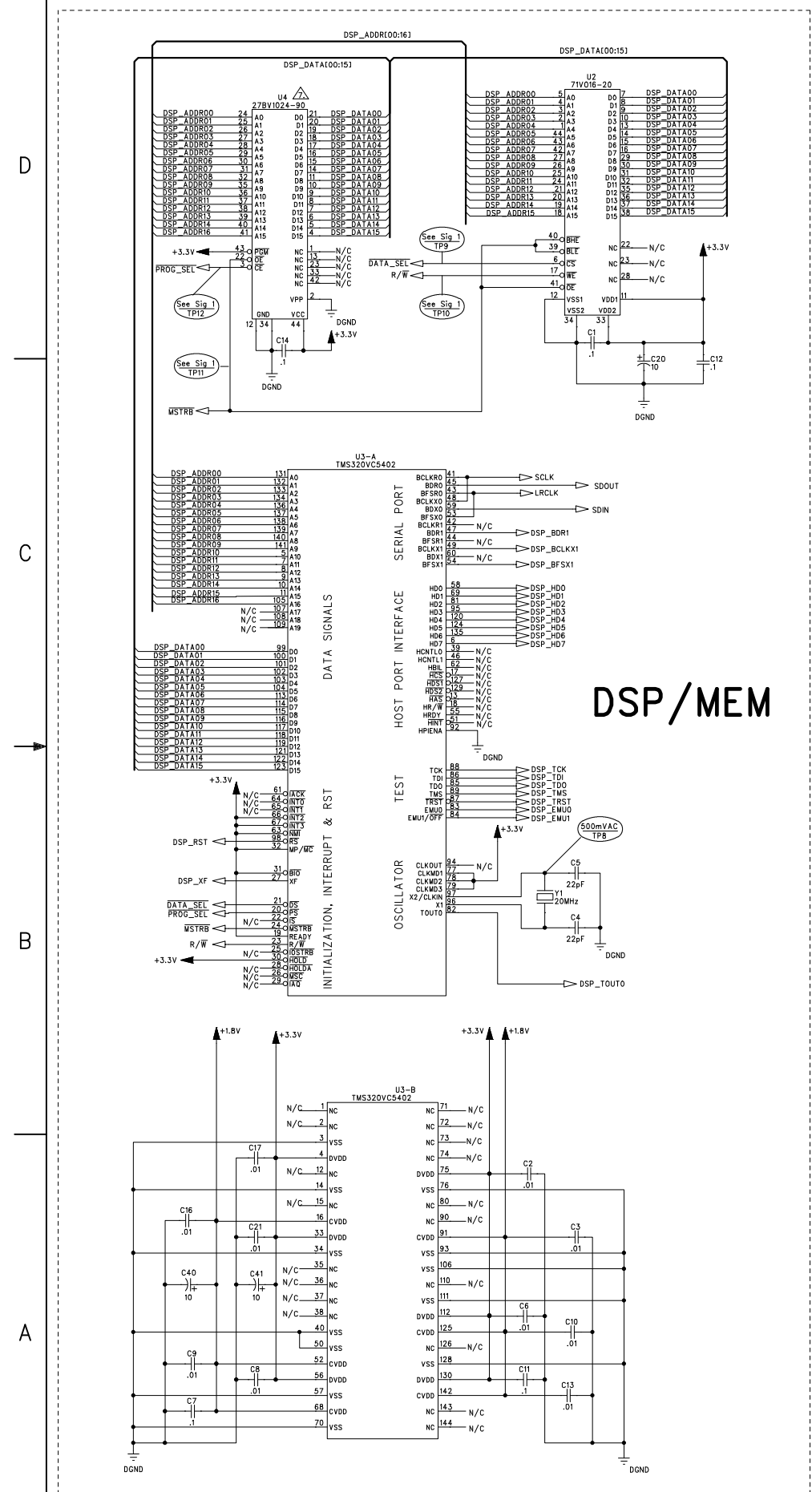
Fender MUSICAL INSTRUMENTS
 Corona, CA U.S.A.

CHECKED BY: _____
 DATE: _____
 APPROVED BY: _____
 DATE: _____
 DRAWN: J. JIMENEZ ENGR: M. ULRICH
 DATABASE FILE: Z480P.PCB

TITLE: SERVICE DIAGRAM, COMBINED (PCB assy)
 BULLET 15 DSP
 MAIN PCB assy
 SIZE **B** DRAWING NUMBER 0057259000 REV. **D**
 RELEASE DATE: 30-NOV-01 SHEET 2 OF 2

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

| REVISIONS | | | |
|-----------|-------------|-----------|----------|
| REV. | DESCRIPTION | DATE | APPROVED |
| A | PR480 | 29-NOV-01 | J T L |
| B | EC 2743 | 07-MAR-02 | J T L |



- NOTES: (UNLESS OTHERWISE NOTED)**
- INSTALL IC IN SOCKET. FENDER P/N 0056585005
 - DO NOT STUFF C26-27, D4-5, D8-9, P2, R5-7, R9, R15.
 - THIS SCHEMATIC IS FOR PCB FABRICATION P/N 0057284000 AND PCB ASSEMBLY P/N 0057285000.
 - ALL DIODES ARE 1N4448.
 - ALL POLARIZED CAPACITORS IN uF, 20% 15V MINIMUM.
 - ALL UNPOLARIZED CAPACITORS IN uF, 10% OR BETTER; 16V MINIMUM. (POWER SUPPLY BYPASS CAPACITORS ARE 20%).
 - ALL RESISTORS IN OHMS, 5% 1/10W.

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

CHECKED BY: _____
DATE: _____

APPROVED BY: _____
DATE: _____

DRAWN: J. Jimenez ENGR: J. Lamb
DATABASE FILE: Z481S.SCH

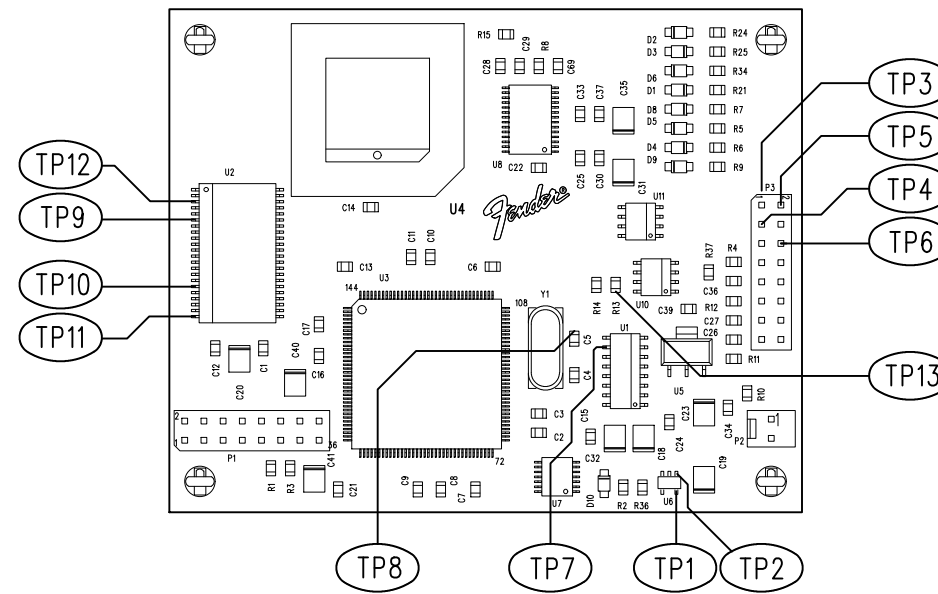
TITLE: SERVICE DIAGRAM, COMBINED (schematic) MICRO DSP

SIZE: D DRAWING NUMBER: 0057283000 REV: B

RELEASE DATE: 29-NOV-01 SHEET: 1 OF 2

REVISIONS


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

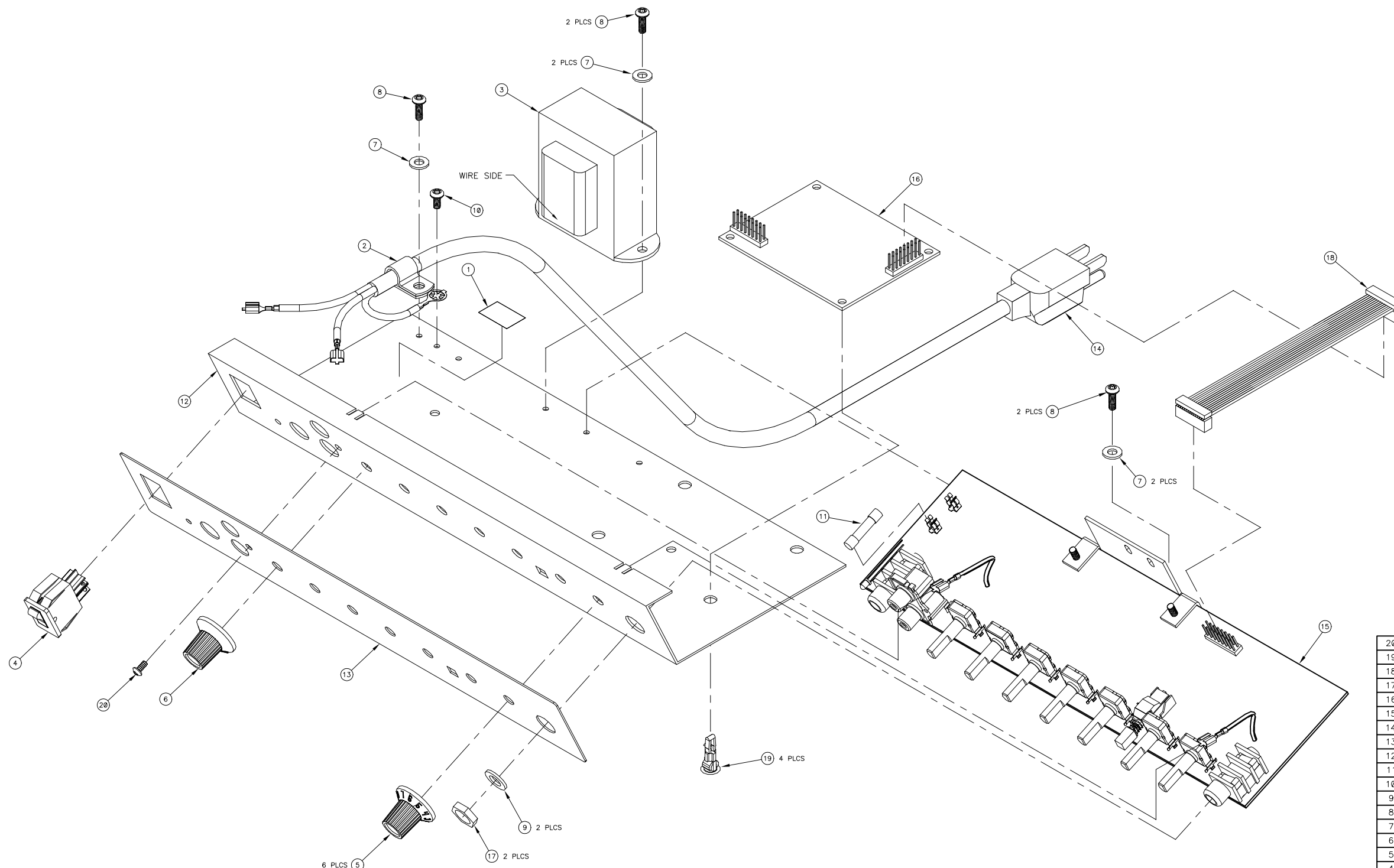


FILM/DWG: SERVICE DIAGRAM
 DATABASE: Z481P.PCB DATE: 07-MAR-02


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

NOTES: (UNLESS OTHERWISE NOTED)

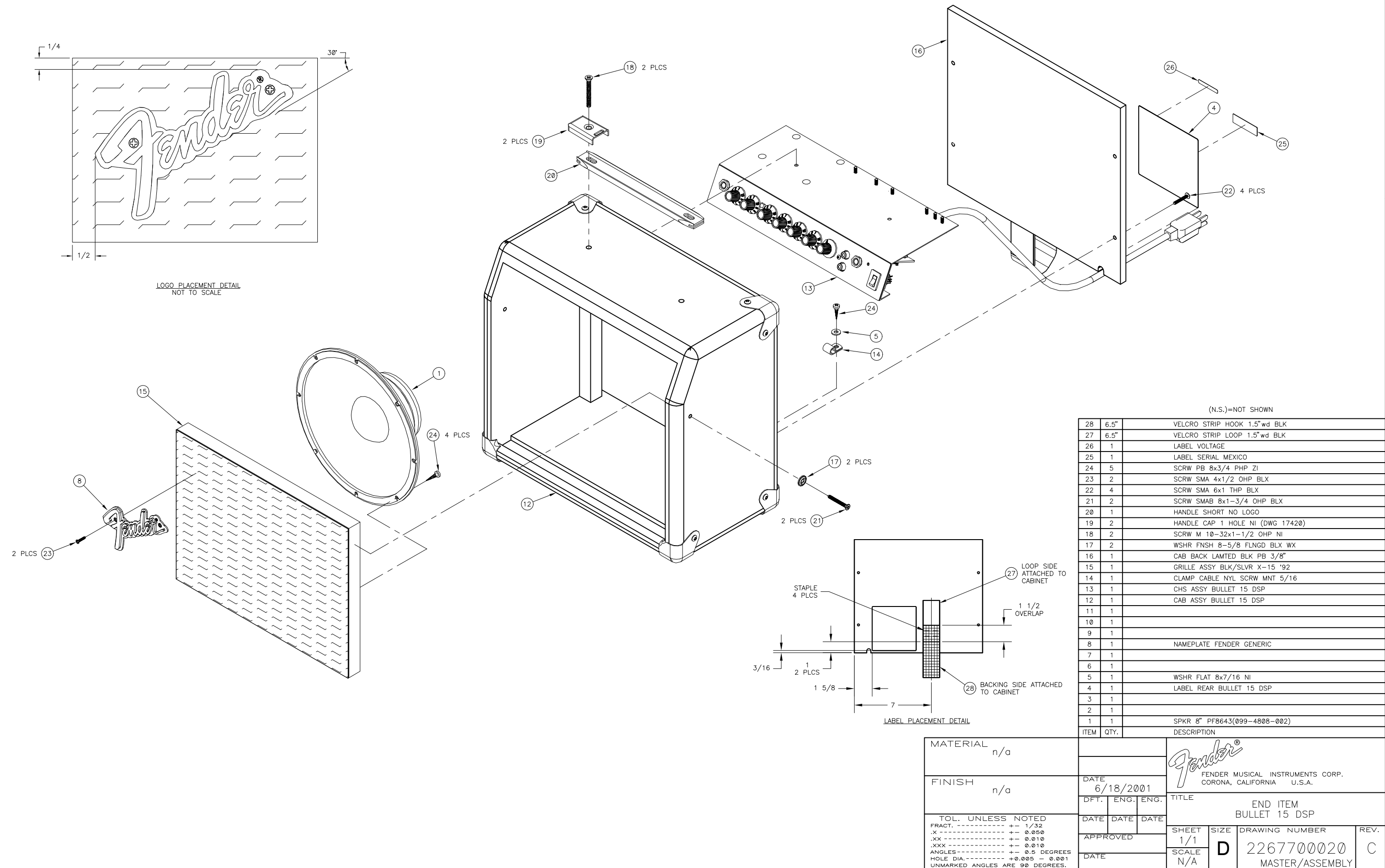
| | | | |
|---|---------------|--|------------------------------|
| THIS DOCUMENT CONTAINS INFORMATION OF A PROPRIETARY NATURE TO FENDER MUSICAL INSTRUMENTS AND IS SUBMITTED TO YOU IN CONFIDENCE AND SHALL NOT BE DISCLOSED OR TRANSMITTED TO OTHERS WITHOUT AUTHORIZATION FROM FENDER MUSICAL INSTRUMENTS.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



| | | |
|------|------|-------------------------------|
| 20 | 1 | SCRW PLASTITE 4x1/4 PHP BLX |
| 19 | 4 | STANDOFF NYLON BLK .375 |
| 18 | 1 | RIBBON CABLE 16 CKT W/2 CONN |
| 17 | 2 | NUT HEX 7/16 20X1/8 NI |
| 16 | 1 | PCB ASSY MICRO DSP |
| 15 | 1 | PCB ASSY BULLET DSP |
| 14 | 1 | POWER CABLE ASSY |
| 13 | 1 | PANEL FRONT BULLET 15 DSP |
| 12 | 1 | CHASSIS BULLET 15 DSP |
| 11 | 1 | FUSE |
| 10 | 1 | SCREW TF 6-32X1/4 PHP ZI |
| 9 | 2 | WASHER FLAT .442x.692 NI |
| 8 | 5 | SCRW SMB 6x3/8 PH PHS BLK |
| 7 | 5 | WSHR FLAT 6x3/8 ZI |
| 6 | 1 | KNOB RTRY ARROW W/CHR INS |
| 5 | 6 | KNOB ROTARY SS W/CHR INS |
| 4 | 1 | SWITCH DPST .187 TAB (DOM) |
| 3 | 1 | XFMR |
| 2 | 1 | CLAMP CABLE NYL SCRW MNT 5/16 |
| 1 | 1 | LABEL GROUNDING SEMKO |
| ITEM | QTY. | DESCRIPTION |

| | | | | | | |
|-------------------|------|---|---|---|------------------------------|-----------|
| | |  | | FENDER MUSICAL INSTRUMENTS CORP. CORONA, CALIFORNIA U.S.A. | | |
| DATE 6/14/2001 | | | | | | |
| DFT. | ENG. | ENG. | TITLE CHASSIS ASSEMBLY, BULLET 15 DSP | | | |
| DATE | DATE | DATE | SHEET 1/1 | SIZE D | DRAWING NUMBER 0057252000 | REV. B |
| APPROVED | | | SCALE 1:1 | MASTER/ASSEMBLY | | |
| DATE | | | | | | |

D
C
B
A



LOGO PLACEMENT DETAIL
NOT TO SCALE

LABEL PLACEMENT DETAIL

(N.S.)=NOT SHOWN

| ITEM | QTY. | DESCRIPTION |
|------|------|----------------------------------|
| 28 | 6.5" | VELCRO STRIP HOOK 1.5"wd BLK |
| 27 | 6.5" | VELCRO STRIP LOOP 1.5"wd BLK |
| 26 | 1 | LABEL VOLTAGE |
| 25 | 1 | LABEL SERIAL MEXICO |
| 24 | 5 | SCRW PB 8x3/4 PHP ZI |
| 23 | 2 | SCRW SMA 4x1/2 OHP BLX |
| 22 | 4 | SCRW SMA 6x1 THP BLX |
| 21 | 2 | SCRW SMAB 8x1-3/4 OHP BLX |
| 20 | 1 | HANDLE SHORT NO LOGO |
| 19 | 2 | HANDLE CAP 1 HOLE NI (DWG 17420) |
| 18 | 2 | SCRW M 10-32x1-1/2 OHP NI |
| 17 | 2 | WSHR FNSH 8-5/8 FLNGD BLX WX |
| 16 | 1 | CAB BACK LAMTED BLK PB 3/8" |
| 15 | 1 | GRILLE ASSY BLK/SLVR X-15 '92 |
| 14 | 1 | CLAMP CABLE NYL SCRW MNT 5/16 |
| 13 | 1 | CHS ASSY BULLET 15 DSP |
| 12 | 1 | CAB ASSY BULLET 15 DSP |
| 11 | 1 | |
| 10 | 1 | |
| 9 | 1 | |
| 8 | 1 | NAMEPLATE FENDER GENERIC |
| 7 | 1 | |
| 6 | 1 | |
| 5 | 1 | WSHR FLAT 8x7/16 NI |
| 4 | 1 | LABEL REAR BULLET 15 DSP |
| 3 | 1 | |
| 2 | 1 | |
| 1 | 1 | SPKR 8" PF8643(099-4808-002) |

| | |
|---|-----|
| MATERIAL | n/a |
| FINISH | n/a |
| TOL. UNLESS NOTED FRACT. ----- +- 1/32 .X ----- +- 0.050 .XX ----- +- 0.010 .XXX ----- +- 0.010 ANGLES ----- +- 0.5 DEGREES HOLE DIA. ----- +0.005 - 0.001 UNMARKED ANGLES ARE 90 DEGREES. | |

| | | | |
|------------------------------|------|---|------------------------------------|
| DATE 6/18/2001 | | FENDER MUSICAL INSTRUMENTS CORP. CORONA, CALIFORNIA U.S.A. | |
| DFT. | ENG. | ENG. | TITLE END ITEM BULLET 15 DSP |
| DATE | DATE | DATE | SHEET 1/1 |
| APPROVED | DATE | SCALE N/A | SIZE D |
| DRAWING NUMBER 2267700020 | | REV. C | MASTER/ASSEMBLY |