



TBP-1

(This is the model name for warranty claims)

p/n 2147000000 (120V)

SERVICE MANUAL



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• 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 CR = Ceramic Radial
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 MOX = Metal Oxide
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



(This is the model name for warranty claims)

SPECIFICATIONS

| | | | | |
|-----------------------------|--------------------------------------|--|--------------------------|------------|
| Model Name: | TBP-1 (Tube Bass Preamp) | | | |
| Release Number: | PR 611 (<i>Not a model number</i>) | | | |
| Part Numbers | (120V, 60Hz) US: | 2147000000 | (230V, 50Hz) ARG: | 2147005000 |
| | (110V, 60Hz) TW: | 2147001000 | (230V, 50Hz) EUR: | 2147006000 |
| | (240V, 50Hz) AUS: | 2147003000 | (100V, 50Hz) JPN: | 2147007000 |
| | (230V, 50Hz) UK: | 2147004000 | (220V, 60Hz) ROK: | 2147009000 |
| Power Requirement: | 25 W | | | |
| Preamp | Input Impedance: | 1MΩ | | |
| | Sensitivity: | 7.8mV @ 100Hz, 14.8mV @ 1kHz for +4dBu at Main output (-6dB Pad: out, Volume: 10, Bass: 10, Deep Boost: off, Mid: 10, Treble: 10, Tube Overdrive: disabled, Vari-Q™:disabled, Room Balance: flat, Master Volume: 10, Effects Trim: 0) | | |
| Tone Controls | Bass: | 9dB range @ 40Hz (Mid: 10, Treble: 2) | | |
| | Mid: | 13dB range @ 400Hz (Bass: 2, Treble: 2) | | |
| | Treble: | 9dB range @ 4kHz (Bass: 2, Mid: 10) | | |
| | Vari-Q™: | ±15dB @ 70Hz-2.0kHz sweepable | | |
| | Room balance: | ±7dB, center tilt frequency: 375Hz | | |
| Active Crossover | Response: | 3-pole (18 dB per octave) Butterworth | | |
| | Crossover frequency: | 100Hz-2.0kHz sweepable | | |
| Balanced Line Output | Maximum Output: | +19dBu minimum @ 20Hz, 600Ω | | |
| | Frequency Response: | ±0.1dB, 20Hz-20kHz | | |
| | Distortion (THD): | <0.05% @ 20Hz, +4dBu | | |
| Effects Loop | Send Impedance: | 800Ω balanced | | |
| | Return Impedance: | 10kΩ balanced | | |
| | Nominal Level: | -10dBV / +4dBu switchable | | |
| Tube Complement: | Two 12AX7WA (0013341000) | | | |
| Dimensions | Height: | 1.75 in (4.45 cm) | | |
| | Width: | 19 in (48.3 cm) | | |
| | Depth: | 11.9 in (30.2 cm) | | |
| Weight: | 11.5 lb (5.2 kg) | | | |

Product specifications are subject to change without notice



SERVICE NOTES

- 1. The CHASSIS** is opened by removing the top cover from the chassis. This is accomplished by removing eight (8) flat head Phillips screws, four (4) from the top and two (2) from each side.
- 2. TUBE REMOVAL** is accomplished by twisting the tube retainer shields slightly counter-clockwise to release and slide them off. The tubes can then be pulled out straight away from the PCB.
- 3. TBP-1 POWER SUPPLY BREAKAWAY PCB REMOVAL** is accomplished by disconnecting two (2) ribbon cables (P4, P5) and seven (7) transformer wire Fastons (P1-2, P6-10), and removing four (4) PCB mounting lockwasher screws. The PCB can then be lifted away enough for servicing. To remove completely, cut the plastic wire ties securing the black and white primary circuit wires, and disconnect them from the power switch. Note the use of shrink tubing for an extra layer of insulation around the switch (a safety requirement).
- 4. TBP-1 FRONT and TUBE BREAKAWAY PCB REMOVAL** is accomplished by disconnecting one (1) ribbon cable (P3) and removing the following items: all front panel knobs (11) including nuts and washers, one (1) input jack nut and washer, four (4) PCB mounting lockwasher screws, and three (3) flat head Phillips screws attached from the bottom of the chassis.
- 5. TBP-1 REAR BREAKAWAY PCB REMOVAL** is accomplished by removing all rear panel knobs (4) including nuts and washers, eight (8) ¼" jack nuts and washers, two PHP screws at the Balanced Line Output XLR jack (J9) and three (3) PCB mounting lockwasher screws. Exercise care when pulling off the "thumb-wheel" knob (Crossover Frequency) so as to not damage the triple-section potentiometer R143. Note the extra insulating washers used with the Rear Panel Input Jack (J1), required to maintain ground isolation at the rear panel for hum-free operation.

PCB EXCHANGE POLICY

Parts marked with a single asterisk (*) in the Part Lists are not field replaceable. If a failure due to one of these components is detected, please con-

tact the FMIC Customer Service Department to order the complete PCB Assembly.



CIRCUIT DESCRIPTION

This section provides concise information about new or unusual circuitry designs incorporated into this amplifier model. The purpose is to aid the service technician by providing insight into the design areas most likely to become obstacles in troubleshooting. Information is focused for its effective use while maintaining the security of Fender® proprietary information wherever possible.

PRE-AMPLIFIER

The Instrument signal flows from the input jack J1 on the rear panel (or J2 on the front that will override J1) directly to the first tube stage V1-B which presents a high-impedance to the instrument. Switch S1 allows for a -6dB cut in the first gain stage without affecting the load presented to the instrument. V1-B plate current is sensed by resistor R5 and amplified by U1-A in order to provide a Pre-EQ signal (for the Balanced Line Output) and Tuner Output without loading down the tube output. V1-B also drives a classic Fender tone stack EQ circuit, made up of potentiometers R19-21 and passive components C10, C11, C13 and R16. The switch section of potentiometer R19 connects C12 and R17 to change the tone stack response and provide additional bass boost when the Bass knob is pulled out. Pulling out the Treble knob activates a bright boost at mid Volume settings by connecting capacitor C14 which provides a high-frequency bypass path around Volume control R22. Tube stage V1-A provides necessary buffering and recovery gain following the Volume and “cut only” tone controls.

The tone stack signal is also presented to the Tube Overdrive section (V2 and associated components) via C17, R36 and Gain control R37. Relay K1 shunts this signal to ground when Overdrive is disabled. Front panel Gain switch S7 (or the Gain footswitch) controls Field Effect Transistors Q1-3 to select the desired signal path, ‘clean’ only (Q1 on) or a blend of clean and tube overdrive (Q2-3 on). Clamping is provided by diodes D5-6, D8-9 and D11-12 to assure proper operating levels for Q1-3 and Op-Amps U2 and U3. The clamp voltages are set by Zener diodes D67 and D68. U2-A provides the buffering needed to connect the clean path

high-impedance tube circuitry to subsequent lower impedance solid-state circuitry. Likewise, U3-A does the same for the tube overdrive path, but with an added low-frequency boost (due to C24-25 and R49-51) to make up for the high-pass frequency response of the overdrive circuit. U2-B and U3-B are set up differentially in order to cancel any hum caused by ground potential difference between the front panel (where the input jacks are referenced), and the rest of the circuitry. Note that U3-B provides a signal phase reversal to allow coherent blending of the clean and overdrive signals.

The clean and overdrive signal paths are summed by U4-A and presented to a tone shaping circuit (U4-B). U5, U6 and U7 make up Fender’s unique Vari-Q™ circuit, which is a state-variable parametric equalizer where the Q and Level parameters are controlled simultaneously by one knob (R79). Front panel Vari-Q™ switch S6 (or the Vari-Q™ footswitch) controls FETs Q4 and Q5 to select or bypass the Vari-Q™ equalizer circuit. U1-B provides a buffered output for the Effects Loop Send (J4), while U9-A buffers the Effects Loop Return (J5). Again differential circuits are used to isolate grounds for hum cancellation. S2 sets the nominal operating level for the Effects Loop (J4-5), while Trim control R115 (along with U9-B) provides a +/- 6dB range, used to compensate for an external effect’s volume loss or gain. The FX Loop footswitch controls FETs Q6 and Q7 to select or bypass the FX Loop circuitry.

The output of U11-B provides a Post-EQ (and Post-FX Loop) signal, and feeds the Room Balance circuit (U12-A), Master Volume circuit (U12-B) and finally, the Main Output (ground isolated and buffered by U13-A). For bi-amping, the Main Output is sent to a 3-pole Butterworth-response state-variable filter (U13-B, U14, U15-A). The Active Crossover Frequency is set by R143, a triple-ganged potentiometer (rear panel thumbwheel knob). U15-B and U16-B provide recovery gain for the Crossover Balance control (R155) and buffer the HF and LF Bi-amp Outputs (J7-8)

The Post-EQ signal is further shaped by a speaker cabinet simulation circuit (U11-A). U10-A provides phase reversal to put the Post-EQ signal in phase with the U1-A Pre-EQ signal, both of which are pre-



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sented to rear panel switch S3 for selection of the Balanced Line Output signal source. The level of this XLR output (J9) is controlled by R176 in the feedback loop of U10-B, whose output drives the Jensen Line Output transformer T1. C86 prevents any U10-B output DC offset from reaching T1 to assure extremely low unwanted distortion (THD). Diodes D28-29 clamp any excessive T1 kickback voltage transients to +/- 16VDC in order to protect U10-B's output. Front panel Mute switch S5 (or the Mute footswitch) controls FETs Q8 and Q9 to mute all outputs except the Tuner and FX Send. Activating the Mute function also enables the low-frequency oscillator (U18-B) to flash the front panel Mute LED (D48).

POWER SUPPLY

The power supply employs a low-profile power transformer having two secondary windings with a common center-tap. This tap connects directly to chassis ground through Faston tab P9 and the adjacent PCB mounting screw and PEM standoff. The Violet/Violet secondary winding is full-wave rectified by diodes D56 and D57 and filtered by C107-109 to provide a single-ended +265VDC plate supply for the tube circuitry. The fused low-voltage winding (RED/RED) is full-wave rectified by diodes D58-61 and regulated by 3-terminal voltage regulators U22-23 to provide +/-16VDC for the rest of the circuitry.

Heater voltage (24VDC for two series-connected 12AX7s in the preamp) is derived from the 32VDC (+/-16VDC) supply. Excess voltage is dropped across paralleled ballast resistors R240-242.

FOOTSWITCH CIRCUITRY

Low-voltage AC is supplied for the remote four-button footswitch at Footswitch Jack J10 via current-limiting resistor R181. Inside the footswitch, a combination of signal diodes, Zener diodes and the function-indicating LEDs themselves act as voltage references. Each phase (positive and negative) of the AC waveform present on the tip connection of J10 will be clipped to one of four unique levels, depending on which footswitches are open or closed. D31 allows comparators U17-A and U17-B to sense and decode the negative phase (smoothed out by C92), while D32 allows comparators U19-A and U19-B to sense and decode the positive phase (smoothed out by C93). References for the comparators are derived from Precision 10V Reference ICs U20-21 and their associated 1% resistors R186-195. When the footswitch is not connected or available, Zener diode D30 (connected to the tip shunt of J10) sets the comparator outputs appropriately for normal front-panel switching of the Gain, Vari-Q™ and Mute functions and for assuring that the FX loop is active.



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| PARTS LIST: | | MAIN – PCB ASSEMBLY | |
|-------------|------------|----------------------------------|--|
| QTY. | PART # | DESCRIPTION | REFERENCE DESIGNATION |
| 1 | 006471200x | **PCB ASSY TBP-1 | |
| REF | 0064710000 | SVC DIAG COMB TBP-1 | |
| 1 | * | PCB FAB TBP-1 | |
| 2 | 0050687000 | CABLE JMPR 6 CKT .156 ROUND | PW1-2 |
| 2 | 0054303000 | CABLE RIBBON 10 CKT 7.5" | PW3-4 |
| 1 | 0037805000 | CABLE RIBBON 6 CKT 2-1/4" | PW5 |
| 8 | 0028459003 | CAP AE RDL 2.2uF 50V 20% | C26-28 C49-50 C58 C83-84 |
| 22 | 0028467003 | CAP AE RDL 22uF 50V 20% | C7 C18 C21 C30 C36-42 C52-53 C57 C60 + C63 C72-73 C82 C119-120 C139 |
| 1 | 0036954003 | CAP AE RDL 22uF 63V 20% | C98 |
| 3 | 0054206000 | CAP AE RDL 47uF 350V 20% 85°C | C107-109 |
| 2 | 0028471003 | CAP AE RDL 47uF 50V 20% | C2 C15 |
| 4 | 0028474003 | CAP AE RDL 100uF 25V 20% | C86 C117-118 C140 |
| 2 | 0028494000 | CAP AE RDL 1000uF 35V 20% | C111-112 |
| 1 | 0051445003 | CAP CD 22pF 500V 5% | C56 |
| 9 | 0051408003 | CAP CD 47pF 500V 5% | C5-6 C47-48 C51 C59 C70-71 C85 |
| 1 | 0051405003 | CAP CD 120pF 500V 5% | C14 |
| 2 | 0051960003 | CAP CD 180pF 500V 10% | C19 C22 |
| 19 | 0051406003 | CAP CD 220pF 500V 10% | C8-9 C29 C43-46 C61-62 C64-65 C69 + C74-77 C87-89 |
| 1 | 0020917000 | CAP CD 250pF 1000V 10% | C10 |
| 1 | 0039261001 | CAP CA 330pF 100V LL | C81 |
| 22 | 0034788003 | CAP CR .1uF 50V 20% .2" LS | C113-116 C121-138 |
| 2 | 0027255003 | CAP MPF .001uF 100V 10% | C1 C90 |
| 2 | 0027259003 | CAP MPF .0033uF 100V 10% | C32-33 |
| 1 | 0027260003 | CAP MPF .0039uF 100V 10% | C80 |
| 1 | 0027261003 | CAP MPF .0047uF 100V 10% | C96 |
| 1 | 0027262003 | CAP MPF .0068uF 100V 10% | C31 |
| 3 | 0027265003 | CAP MPF .015uF 100V 10% | C66-68 |
| 2 | 0041903003 | CAP MPF .018uF 100V 10% | C54-55 |
| 2 | 0027267003 | CAP MPF .022uF 100V 10% | C34-35 |
| 7 | 0027272003 | CAP MPF .047uF 63V 10% | C97 C99-100 C102-105 |
| 1 | 0027277003 | **CAP MPF .082uF 100V 10% | C110 |
| 1 | 0053860000 | **CAP MPF .1uF 250VAC 20% | C106 |
| 2 | 0027278003 | CAP MPF .1uF 63V 10% | C24-25 |
| 2 | 0027281003 | CAP MPF .22uF 63V 10% | C92-93 |
| 6 | 0027286003 | CAP MPF .47uF 63V 10% | C78-79 C91 C94-95 C101 |
| 1 | 0037666002 | CAP PFF .001uF 400V 10% | C17 |
| 1 | 0024823000 | CAP MPF RDL .01uF 400V 10% | C20 |
| 1 | 0024845000 | CAP MPF RDL .047uF 400V 10% | C13 |
| 4 | 0024854000 | CAP MPF RDL .1uF 400V 10% | C11-12 C16 C23 |
| 2 | 0024862000 | CAP MPF RDL .22uF 400V 10% | C3-4 |
| 1 | 0064707000 | CONTROL SNAPIN 10k B DUAL w/DET | R79 |
| 1 | 0053929000 | CONTROL SNAPIN 10k B 250k B DUAL | R26 |
| 1 | 0056557000 | CONTROL SNAPIN 25k 30A TAPER | R20 |
| 3 | 0027942000 | CONTROL SNAPIN 50k 2B DETENT | R115 R125 R155 |
| 3 | 0027941000 | CONTROL SNAPIN 50k B TAPER | R46 R129 R176 |
| 1 | 0027945000 | CONTROL SNAPIN 100k B TAPER | R37 |
| 1 | 0031089000 | CONTROL SNAPIN 100k 10C DUAL | R74 |
| 1 | 0064846000 | CONTROL 100k 10C TRIPLE | R143 |
| 2 | 0064708000 | CONTROL 250k 30A w/DPDT | R19 R21 |
| 1 | 0039053000 | CONTROL SNAPIN 1MEG 30A TAPER | R22 |

**VARI-Q™ LEVEL
O.D. BLEND (MIX)
MID
R115 R125 R155 FX TRIM, ROOM BAL, X-OVER BAL
R46 R129 R176 O.D. VOL, MASTER VOL, L.O. LEVEL
R37 O.D. GAIN
R74 VARI-Q™ FREQUENCY
R143 X-OVER FREQUENCY
R19 R21 BASS (pull DEEP), TREBLE (pull BRIGHT)
R22 NORMAL VOLUME**

* Non-serviceable part. Replace complete parent assembly. See PCB EXCHANGE POLICY above.

Unique Fender® part. Order directly from the FMIC 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.



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| PARTS LIST: | | MAIN – PCB ASSEMBLY | |
|-------------|------------|--------------------------------|--|
| QTY. | PART # | DESCRIPTION | REFERENCE DESIGNATION |
| 4 | 0064089001 | DIODE 1N4003 | D58-61 |
| 2 | 0057351001 | DIODE 1400V 1.3A #BYD33V/EBT/R | D56-57 |
| 45 | 0006260001 | DIODE 1N4448 SIGNAL | D1-29 D31-32 D39-41 D43 D45-46 D49 + D52-53 D55 D62-65 |
| 3 | 0031017001 | DIODE ZEN 1N5223B 2.7V 5% LL | D47 D51 D54 |
| 2 | 0031729001 | DIODE ZEN 1N5231B 5.1V 5% LL | D30 D44 |
| 8 | 0031635001 | DIODE ZEN 1N5240B 10V 5% LL | D33-38 D67-68 |
| 7 | 0025802000 | FSTN TAB MALE .250x.032 PCB MT | P1-2 P6-10 |
| 6 | 0051094003 | **FUSE CLIP PCB 5mm (EXPT) | @ F1-3 |
| 2 | 0013111000 | **FUSE TD 20mmx5mm 250v 500mAT | F2-3 |
| 2 | 0027419000 | HDR .1 CTR 10 CKT SQ PIN | P3-4 |
| 1 | 0027413000 | HDR .1 CTR 6 CKT SQ PIN | P5 |
| 8 | 0031611000 | IC OP-AMP DUAL PC4560 | U1 U8 U10 U13 U15-18 |
| 11 | 0016795000 | IC OP-AMP DUAL TL072 | U2-7 U9 U11-12 U14 U19 |
| 2 | 0041261000 | IC VOLT REF LM4040DIZ-10.0 | U20-21 |
| 1 | 0013562000 | IC REGULATOR +15V MC7815CT | U22 |
| 1 | 0013564000 | IC REGULATOR -15V MC7915CT | U23 |
| 2 | 0050849000 | HEATSINK PCB LEVEL 576012U | @ U22-23 |
| 2 | 0039420000 | SCRW M 4-40X3/8 PHP SS SEMS | @ U22-23 |
| 2 | 0097360000 | NUT HEX 4-40 EX LOCK | @ U22-23 |
| 9 | 0059889000 | JACK STEREO R/A w/METAL BUSH | J1-8 J10 |
| 1 | 0030755000 | LED GREEN T-1 3mm DIFFUSED | D66 |
| 3 | 0049948000 | LED RED LONG LEAD LUMEX | D42 D48 D50 |
| 4 | 0036178000 | SPACER LED .5x.1 BRN A6192-1 | @ D42 D48 D50 D66 |
| 1 | 0036613000 | RELAY DPDT DIP 24VOLT 8.3mA | K1 |
| 3 | 0024942001 | RES CF 1/4W 22ohm 5% | R178-180 |
| 2 | 0024947001 | RES CF 1/4W 47ohm 5% | R57 R93 |
| 4 | 0024961001 | RES CF 1/4W 470ohm 5% | R78 R210 R238-239 |
| 10 | 0024965001 | RES CF 1/4W 1k 5% | R13-14 R99-100 R137-138 R160-163 |
| 8 | 0024969001 | RES CF 1/4W 1.5k 5% | R3 R23 R39 R42 R67 R184-185 R237 |
| 2 | 0024971001 | RES CF 1/4W 2.2k 5% | R64-65 |
| 1 | 0029455001 | RES CF 1/4W 2.4k 5% | R80 |
| 1 | 0024972001 | RES CF 1/4W 2.7k 5% | R220 |
| 2 | 0026504001 | RES CF 1/4W 3.6k 5% | R75-76 |
| 2 | 0024975001 | RES CF 1/4W 3.9k 5% | R97-98 |
| 1 | 0029472001 | RES CF 1/4W 4.3k 5% | R81 |
| 2 | 0024977001 | RES CF 1/4W 4.7k 5% | R77 R164 |
| 4 | 0024978001 | RES CF 1/4W 5.6k 5% | R66 R144-146 |
| 2 | 0024979001 | RES CF 1/4W 6.8k 5% | R206-207 |
| 59 | 0024981001 | RES CF 1/4W 10k 5% | R2 R5 R28-29 R31-35 R38 R47 R52-56 + R58-59 R68-73 R84-92 R103-104 + R117-119 R121-122 R132-135 + R147-154 R169-172 R202-203 R216 |
| 1 | 0024983001 | RES CF 1/4W 12k 5% | R165 |
| 2 | 0029539001 | RES CF 1/4W 13k 5% | R107-108 |
| 3 | 0024985001 | RES CF 1/4W 15k 5% | R128 R204-205 |
| 4 | 0029006001 | RES CF 1/4W 20k 5% | R139-142 |

* Non-serviceable part. Replace complete parent assembly. See PCB EXCHANGE POLICY above.

Unique Fender® part. Order directly from the FMIC 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: | | MAIN – PCB ASSEMBLY | |
|-------------|------------|--------------------------------|--|
| QTY. | PART # | DESCRIPTION | REFERENCE DESIGNATION |
| 6 | 0024987001 | RES CF 1/4W 22k 5% | R63 R113-114 R212 R225 R231 |
| 2 | 0028863001 | RES CF 1/4W 24k 5% | R156-157 |
| 2 | 0024988001 | RES CF 1/4W 27k 5% | R166-167 |
| 2 | 0028865001 | RES CF 1/4W 30k 5% | R61-62 |
| 4 | 0024989001 | RES CF 1/4W 33k 5% | R50-51 R123-124 |
| 4 | 0024993001 | RES CF 1/4W 47k 5% | R4 R8-9 R175 |
| 2 | 0028990001 | RES CF 1/4W 51k 5% | R105-106 |
| 27 | 0024997001 | RES CF 1/4W 100k 5% | R10-12 R16-17 R45 R60 R82-83 R94-96 + R101-102 R110 R116 R126-127 R131 + R136 R158-159 R168 R174 R196-197 R211 |
| 3 | 0024999001 | RES CF 1/4W 150k 5% | R27 R224 R230 |
| 5 | 0025059001 | RES CF 1/4W 220k 5% | R49 R222 R227 R229 R233 |
| 1 | 0025061001 | RES CF 1/4W 330k 5% | R48 |
| 10 | 0025065001 | RES CF 1/4W 470k 5% | R44 R111-112 R130 R177 R182-183 + R200-201 R217 |
| 1 | 0025066001 | RES CF 1/4W 560k 5% | R25 |
| 2 | 0025068001 | RES CF 1/4W 820k 5% | R198-199 |
| 18 | 0025069001 | RES CF 1/4W 1M 5% | R1 R6-7 R30 R36 R41 R109 R120 + R173 R208 R213 R215 R218-219 + R221 R226 R228 R232 |
| 2 | 0025075001 | RES CF 1/4W 2.2M 5% | R209 R214 |
| 1 | 0025084001 | RES CF 1/4W 10M 5% | R18 |
| 2 | 0016971001 | RES MF 1/4W 1% 33.2k | R190-191 |
| 2 | 0017191001 | RES MF 1/4W 1% 36.5k | R194-195 |
| 4 | 0017372001 | RES MF 1/4W 1% 51.1k | R186-189 |
| 2 | 0016979001 | RES MF 1/4W 1% 215k | R192-193 |
| 3 | 0026368001 | RES CF 1/2W 5% 100ohm | R240-242 |
| 1 | 0026493001 | RES CF 1/2W 5% 2.7k | R223 |
| 1 | 0031065001 | RES CF 1/2W 5% 91k | R15 |
| 2 | 0025116001 | RES CF 1/2W 5% 100k | R24 R40 |
| 1 | 0039186001 | RES CF 1/2W 5% 330k | R43 |
| 1 | 0029722001 | RES FILM 1W 5% 1k | R181 |
| 2 | 0057221083 | **RES MOX FP 1W 5% 2.2k CL | R234-235 |
| 1 | 0038828000 | SWITCH 4P2T ALT/ACT PC MOUNT | S2 |
| 6 | 0028091000 | SWITCH PUSH SLFLK SHORT STROKE | S1 S3-7 |
| 4 | 0028104000 | BUTTON PUSH SWITCH BLACK | @ S1 S5-7 |
| 3 | 0048451000 | BUTTON PUSH OFF WHITE | @ S2 S3-4 |
| 1 | 0064709000 | XFMR LINE OUT JENSEN JT-11 | T1 |
| 1 | 0054261000 | JACK XLR MALE RT ANGLE | J9 |
| 6 | 0014689003 | XSTR N-CH JFET J111 TO-92 | Q4-9 |
| 3 | 0041465003 | XSTR N-CH JFET J113 TO-92 | Q1-3 |
| 1 | 0016739003 | XSTR NPN 2N4401 TO-92 | Q10 |
| 4 | 0016742003 | XSTR PNP 2N4403 TO-92 | Q11-14 |
| 2 | 0056312000 | SOCKET TUBE 9 PIN W/COLLAR PCB | @ V1-2 |
| 3 | 0051660000 | BRACKET R/A PC MNT #6-32 | BK1-3 |
| 1 | 0065158000 | **WIRESET PCB TBP-1 | |
| 2 | 0020888001 | JUMPER WIRE 22 GA | W1-2 |

* Non-serviceable part. Replace complete parent assembly. See PCB EXCHANGE POLICY above.

Unique Fender® part. Order directly from the FMIC 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.



(This is the model name for warranty claims)

| PARTS LIST: | | CHASSIS ASSEMBLY | |
|-------------|------------|---------------------------------|--|
| QTY. | PART # | DESCRIPTION | REFERENCE DESIGNATION |
| 1 | * | CHASSIS TBP-1 | |
| 1 | 0064619000 | CHASSIS TOP, TBP-1 | |
| 1 | 0064617000 | PANEL FRONT, TBP-1 | |
| 2 | 0064847000 | HANDLE, RACK MNT PLATED 1 SPACE | |
| 4 | 0059644000 | SCRW CAP 6-32x3/8 HEX SKT NI | @ rack handles & front panel |
| 11 | 0014206000 | SCRW M 6-32x1/4 UFHP BLX | @ tube PCB & top to chassis |
| 1 | 0065585000 | **XFMR POWER TBP-1 120V | (120V model only) |
| - | 0065586000 | **XFMR POWER TBP-1 230V | (220/230/240V models) |
| - | 0065587000 | **XFMR POWER TBP-1 100V | (100V model only) |
| 4 | 0065601000 | SCRW M 8-32x1 PHP ZI ITLW | @ transformer |
| 1 | REF ONLY | **LABEL GROUNDING SEMKO | |
| - | * | LABEL VOLTAGE 230V | (230V models) |
| - | * | LABEL VOLTAGE 240V | (240V model only) |
| - | * | LABEL VOLTAGE 100V | (100V model only) |
| 1 | 0048388000 | **FUSE 250mA 20MMX5MM CSA UL | (100-120V models) |
| - | 0013106000 | **FUSE TD 20mmx5mm 250v 125mA | (220-240V models) |
| 11 | 0031188000 | SCRW M 4-40x1/4 PHP ZI ITLW | @ PCBs to chassis PEM standoffs |
| 9 | 0016352000 | NUT HEX 3/8-32x3/32 TK NI(049) | @ all 1/4" jacks |
| 9 | 0031153000 | WSHR FLAT 3/8x.614 NI (049) | @ all 1/4" jacks |
| 1 | 0026401000 | WSHR SHLDR FIBER 3/8x5/8 | @ rear input 1/4" jack only (inside of chassis) |
| 1 | 0027520000 | WSHR FLAT .380x.630 FIBER(049) | @ rear input 1/4" jack only (outside of chassis) |
| 2 | 0051155000 | SCRW SMB #4X3/8 PHP BLX | @ XLR jack |
| 14 | 0059907000 | KNOB SMALL 800 PRO | @ all pots (except rear panel X-OVER FREQ pot) |
| 1 | 0026790000 | KNOB CONTROL THUMB BLACK | rear panel X-OVER FREQ pot |
| 1 | 0054642000 | **CONNECTOR IEC SNAP IN | |
| 1 | 0025935000 | **SWITCH DPST .187 TAB (DOM) | |
| 1 | 0065159000 | **WIRESET CHASSIS TBP-1 | |
| 2 | 0038900000 | **SCRW TF 6-32X1/4 PHP ZI | |
| 2 | 0994005000 | TUBE 7025/12AX7WC RUSSIAN MADE | V1-2 |
| 2 | 0023598000 | TUBE SHIELD (099-0723-000) | @ V1-2 |
| 0.25 ft | REF ONLY | **TUBING SHRINK 1" BLACK | @ power switch |

| PARTS LIST: | | END ITEM ASSEMBLY | |
|-------------|------------|--------------------------------|--------------------------|
| QTY. | PART # | DESCRIPTION | REFERENCE DESIGNATION |
| 4 | 0065162000 | PAD STANDOFF, RUBBER SMALL | @ chassis bottom corners |
| 1 | 0047248000 | **CORD PWR W/IEC CONN DOM | (120V Dom model) |
| - | 0047251000 | **CORD PWR W/IEC CONN 230V | (230V Eur model) |
| - | 0047249000 | **CORD PWR W/IEC CONN 230V UK | (230V UK model) |
| - | 0047250000 | **CORD PWR W/IEC CONN 250V | (240V Aus model) |
| - | 0053997000 | **CORD PWR W/IEC CONN 100V JPN | (100V Jpn model) |
| 1 | 0064848000 | FTSW ASSY 4 BTN TBP-1 | |
| 1 | 0065157000 | MANUAL OWNERS TBP-1 | |

* Non-serviceable part. Replace complete parent assembly. See PCB EXCHANGE POLICY above.

Unique Fender® part. Order directly from the FMIC 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.



(This is the model name for warranty claims)

| PARTS LIST: | | FOOTSWITCH ASSY | |
|-------------|------------|--------------------------------|-----------------------|
| QTY. | PART # | DESCRIPTION | REFERENCE DESIGNATION |
| 1 | 0028895000 | CABLE ASSY FTSW RT ANG 12' | |
| 1 | * | HOUSING FTSW 4 BUTTON | |
| 1 | * | HSG END CAP LEFT FTSW | |
| 1 | * | HSG END CAP RIGHT FTSW | |
| 8 | * | SCRW SMB 6x3/8 PHP BLX | @ end caps |
| 1 | * | NUT HEX 12mmx1mm NI | @ J1 |
| 4 | * | WSHR NYL .485x.775x.150 TK | @ S1-4 |
| 1 | * | PLATE FTSW 4 BTN TBP-1 | |
| 1 | * | PCB ASSY,FTSW 4 BTN PRO TUBE | |
| 1 | * | PCB FAB FTSW 4BTN PROTUBE AMPS | |
| 4 | * | DIODE 1N4448 SIGNAL | D1, D4, D6, D9 |
| 2 | * | DIODE ZEN 1N5223B 2.7v 5% | D2, D7 |
| 4 | * | LED RED 5x5mm SLB-55VR3 | D3, D5, D8, D10 |
| 4 | * | SPACER RND NYL .147x.250x.780 | @ D3, D5, D8, D10 |
| 4 | * | SWITCH PUSH SPDT | S1-4 |
| 1 | * | JACK PCB MONO CA(099-0912-000) | J1 |

Service Diagram List

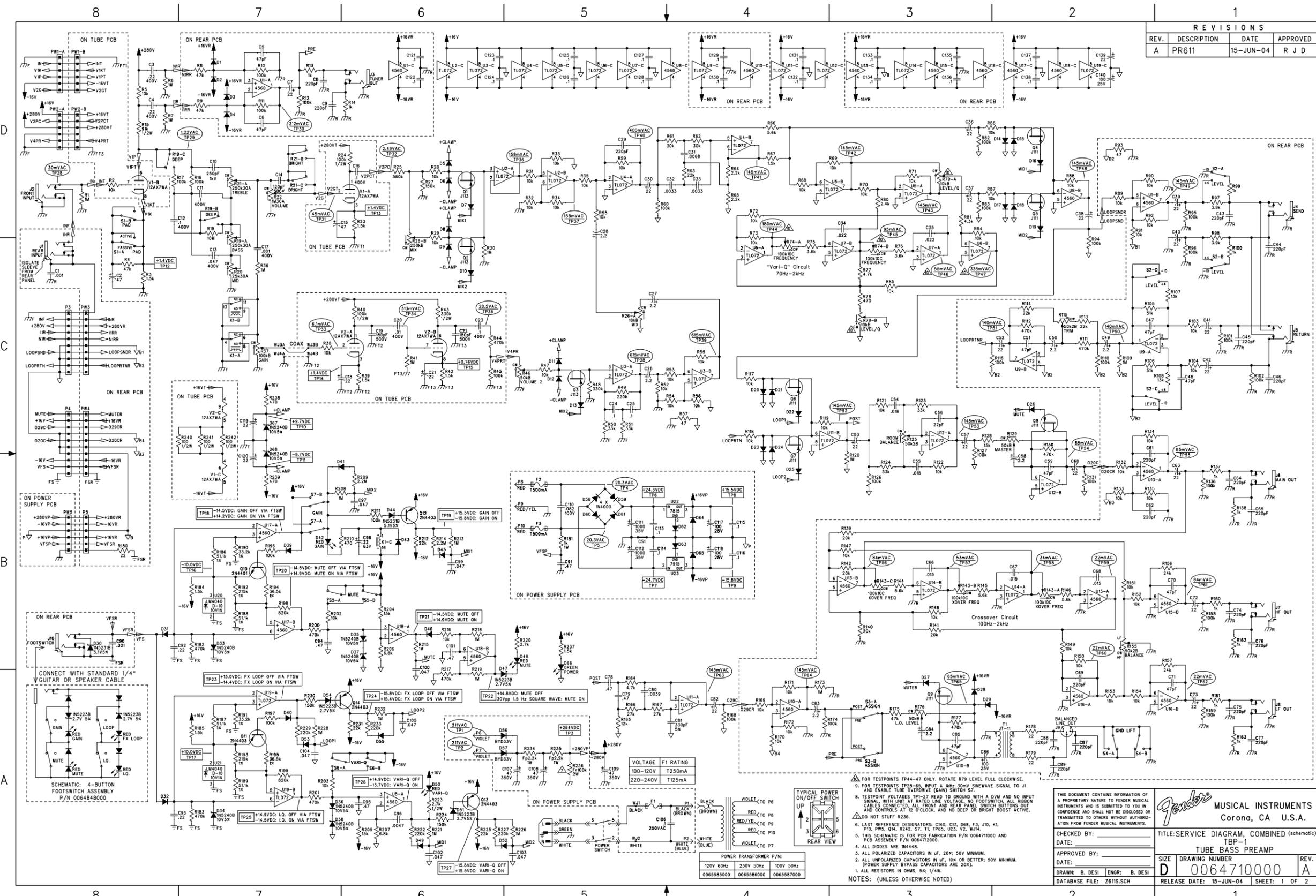
- Service Diagram (Schematic)TBP-1
- Service Diagram (PCB Assembly)TBP-1
- Chassis AssemblyTBP-1
- End Item AssemblyTBP-1
- Assembly4-Button Footswitch

* Non-serviceable part. Replace complete parent assembly. See PCB EXCHANGE POLICY above.

Unique Fender® part. Order directly from the FMIC 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.



| REVISIONS | | | |
|-----------|-------------|-----------|----------|
| REV. | DESCRIPTION | DATE | APPROVED |
| A | PR611 | 15-JUN-04 | R J D |

THIS DOCUMENT CONTAINS INFORMATION OF A PROPRIETARY NATURE TO FENDER MUSICAL INSTRUMENTS AND IS SUBMITTED TO YOU IN CONFERENCE AND SHALL NOT BE DISCLOSED OR TRANSMITTED TO OTHERS WITHOUT AUTHORIZATION FROM FENDER MUSICAL INSTRUMENTS.

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

CHECKED BY: _____
DATE: _____

APPROVED BY: _____
DATE: _____

SIZE: **D** DRAWING NUMBER: **0064710000** REV. **A**

TITLE: SERVICE DIAGRAM, COMBINED (schematic)
TUBE BASS PREAMP

RELEASE DATE: 15-JUN-04 SHEET: 1 OF 2

POWER TRANSFORMER P/N:
120V 60Hz 230V 50Hz 100V 50Hz
0065858000 0065586000 0065587000

VOLTAGE F1 RATING
100-120V 7250mA
220-240V 7125mA

REAR VIEW

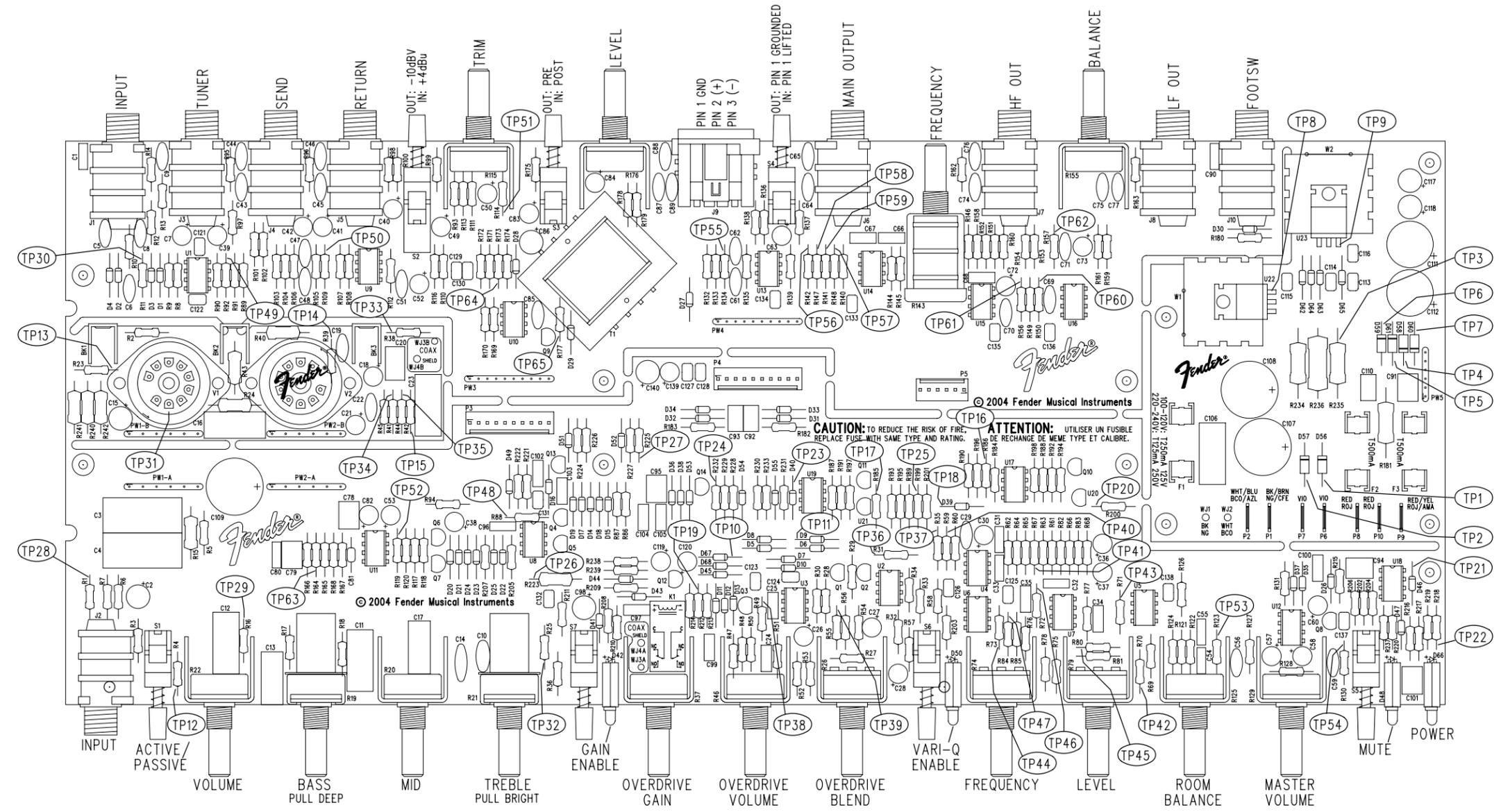
NOTES: (UNLESS OTHERWISE NOTED)

1. ALL RESISTORS IN OHMS, 5% 1/4W.
2. ALL UNPOLARIZED CAPACITORS IN uF, 10% OR BETTER, 50V MINIMUM. (POWER SUPPLY BYPASS CAPACITORS ARE 20%).
3. ALL POLARIZED CAPACITORS IN uF, 20%; 50V MINIMUM.
4. ALL DIODES ARE 1N4448.
5. THIS SCHEMATIC IS FOR PCB FABRICATION P/N 0064710000 AND PCB ASSEMBLY P/N 0064720000.
6. LAST REFERENCE DESIGNATORS: C140, C51, D68, F3, J10, K1, P10, P65, S4, R242, S7, T1, TP65, U23, W24.
7. TESTPOINT VOLTAGES TP1-27 READ TO GROUND WITH A DVM AND NO INPUT SIGNAL. WITH UNIT AT RATED LINE VOLTAGE, NO FOOTSWITCH, ALL RIBBON CABLES CONNECTED, ALL FRONT AND REAR PANEL SWITCH BUTTONS OUT AND CONTROLS AT 12 O'CLOCK, AND NO DEEP OR BRIGHT BOOST ACTIVE. DO NOT STUFF R236.
8. TESTPOINT VOLTAGES TP14-17 READ TO GROUND WITH A DVM AND NO INPUT SIGNAL. WITH UNIT AT RATED LINE VOLTAGE, NO FOOTSWITCH, ALL RIBBON CABLES CONNECTED, ALL FRONT AND REAR PANEL SWITCH BUTTONS OUT AND CONTROLS AT 12 O'CLOCK, AND NO DEEP OR BRIGHT BOOST ACTIVE. DO NOT STUFF R236.
9. FOR TESTPOINTS TP44-47 ONLY, ROTATE 979 LEVEL FULL CLOCKWISE.
10. FOR TESTPOINTS TP28-65, INPUT A 1kHz 30mV SINEWAVE SIGNAL TO J1 AND ENABLE TUBE OVERDRIVE (GAIN) SWITCH S7.

| REVISIONS | | | |
|-----------|-------------|-----------|----------|
| REV. | DESCRIPTION | DATE | APPROVED |
| A | PR611 | 15-JUN-04 | R J D |

D
C
B
A

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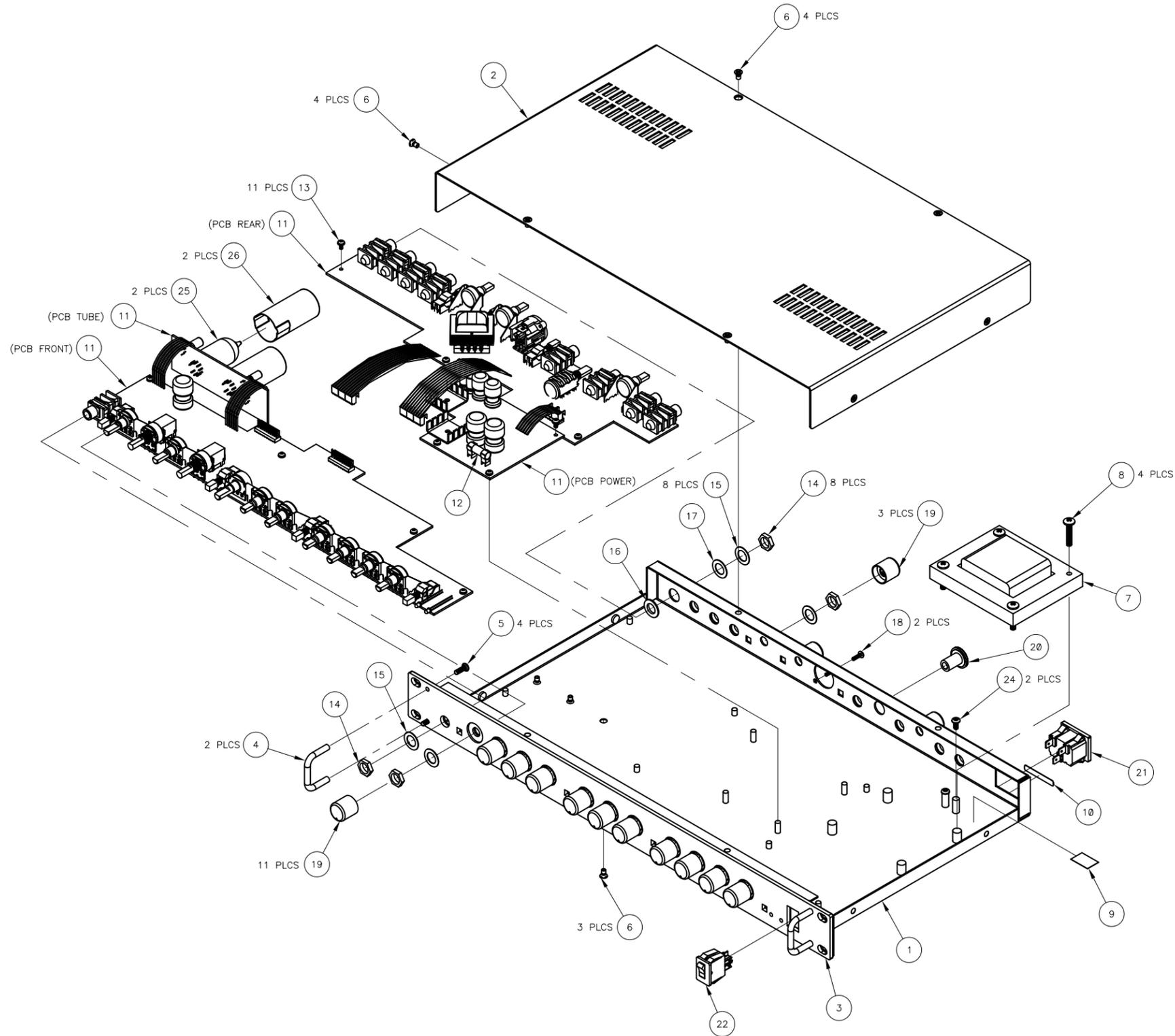


FILM/DWG: SERVICE DIAGRAM
 DATABASE: Z611P.PCB DATE: 15-JUN-04

1. SEE PAGE 1 FOR PRIMARY WIRING, TEST CONDITIONS AND TEST POINT VALUES.

NOTES: (UNLESS OTHERWISE NOTED)

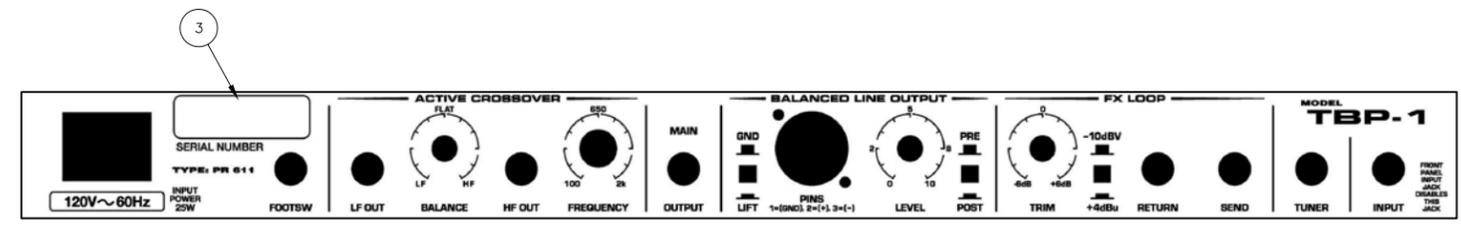
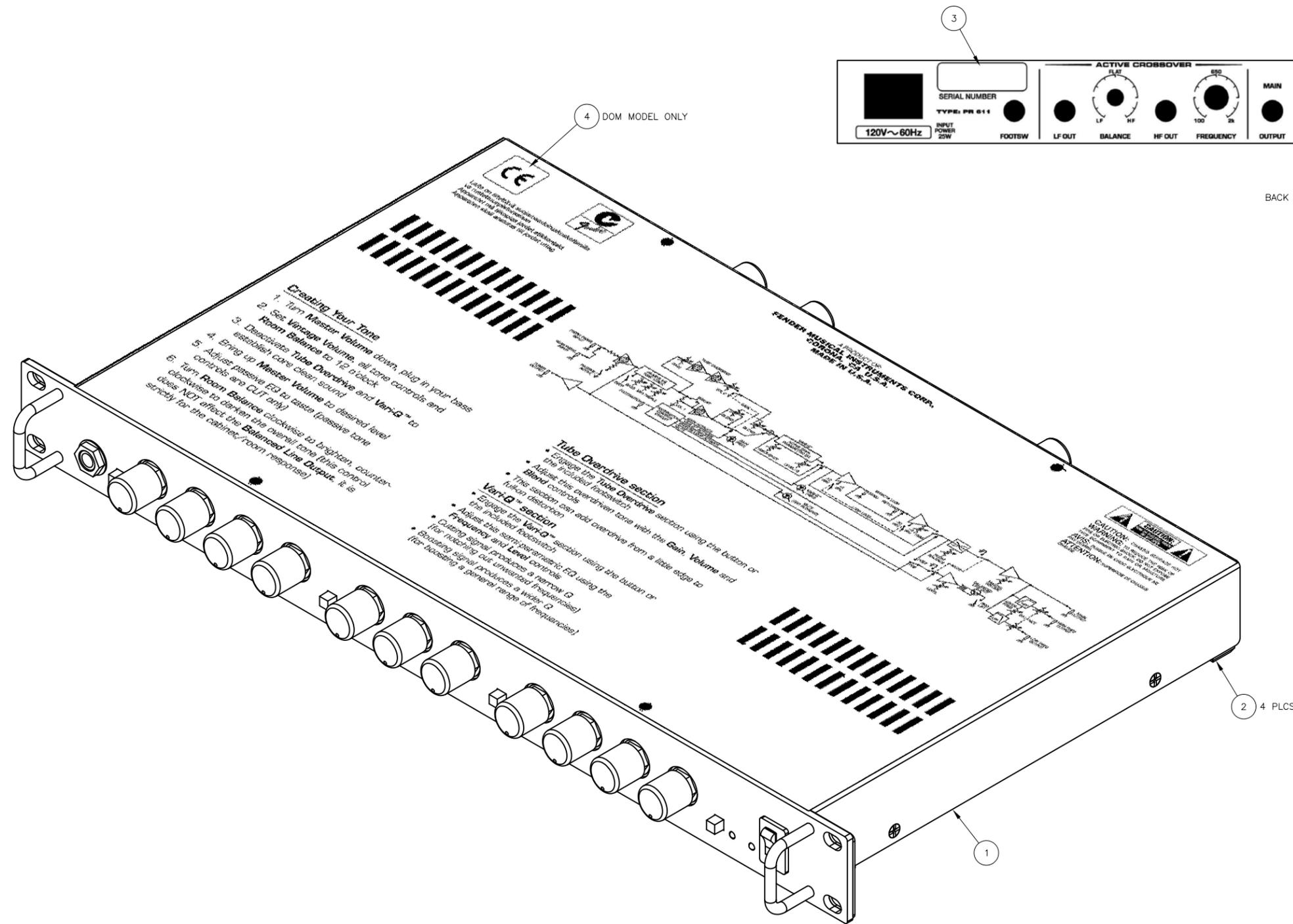
| | | | |
|---|---------------|--|------------------------------|
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| CHECKED BY: _____ DATE: _____ | | TITLE: SERVICE DIAGRAM, COMBINED (PCB assy) TBP-1 Tube Bass Preamp | |
| APPROVED BY: _____ DATE: _____ | | SIZE C | DRAWING NUMBER 0064710000 |
| DRAWN: B. Desi | ENGR: B. Desi | REV. A | |
| DATABASE FILE: Z611P.PCB | | RELEASE DATE: 15-JUN-04 | SHEET 2 OF 2 |



(N.S.) = NOT SHOWN

| ITEM | QTY | DESCRIPTION |
|------|-----|---------------------------------|
| 27 | | |
| 26 | 2 | TUBE SHIELD (099-0723-000) |
| 25 | 2 | TUBE 7025/12AX7WC RUSSIAN MADE |
| 24 | 2 | SCRW TF 6-32X1/4 PHP ZI |
| 23 | 1 | WIRESSET CHASSIS TBP-1 (N.S.) |
| 22 | 1 | SWITCH DPST .187 TAB |
| 21 | 1 | CONNECTOR IEC SNAP IN |
| 20 | 1 | KNOB CONTROL THUMB BLACK |
| 19 | 14 | KNOB SMALL 800 PRO |
| 18 | 2 | SCRW SMB #4X3/8 PHP BLX |
| 17 | 1 | WSHR FLAT .380x.630 FIBER |
| 16 | 1 | WSHR SHLDR FIBER 3/8x5/8 |
| 15 | 9 | WSHR FLAT 3/8x.614 NI (049) |
| 14 | 9 | NUT HEX 3/8-32x3/32 TK NI (049) |
| 13 | 11 | SCRW M 4-40x1/4 PHP ZI ITLW |
| 12 | 1 | FUSE 20MMX5MM |
| 11 | 1 | PCB ASSY TBP-1 |
| 10 | 1 | LABEL VOLTAGE |
| 9 | 1 | LABEL GROUNDING SEMKO |
| 8 | 4 | SCRW M 8-32x1 PHP ZI ITLW |
| 7 | 1 | XFMR POWER TBP-1 |
| 6 | 11 | SCRW M 6-32x1/4 UFHP BLX |
| 5 | 4 | SCRW CAP 6-32x3/8 HEX SKT NI |
| 4 | 2 | HANDLE RACK MT PLATED |
| 3 | 1 | PANEL FRONT, TBP-1 |
| 2 | 1 | CHASSIS TOP, TBP-1 |
| 1 | 1 | CHASSIS, TBP-1 |

| | | | | | |
|----------|--|------------|------|--|------|
| DATE | | 05/28/2004 | |  FENDER MUSICAL INSTRUMENTS CORP. CORONA, CALIFORNIA U.S.A. | |
| DFT. | | ENG. | ENG. | | |
| DATE | | DATE | DATE | CHASSIS ASSEMBLY TBP-1 | |
| APPROVED | | SHEET | SIZE | DRAWING NUMBER | REV. |
| DATE | | 1 of 1 | D | 0065152000 | A |
| | | SCALE | 1/1 | MASTER/ASSEMBLY | |



BACK OF CHASSIS

(N.S.) = NOT SHOWN

| 16 | | |
|------|-----|------------------------------|
| 15 | | |
| 14 | | |
| 13 | | |
| 12 | | |
| 11 | 1 | BAG POLY ZIP 10x13 2M (N.S.) |
| 10 | 1 | REGISTRATION CARD (N.S.) |
| 9 | | |
| 8 | | |
| 7 | | |
| 6 | 1 | FTSW ASSY 4 BTN TBP-1 (N.S.) |
| 5 | 1 | CORD PWR W/IEC CONN (N.S.) |
| 4 | 1 | LABEL CSA C/US |
| 3 | 1 | LABEL SERIAL (CORONA) |
| 2 | 4 | PAD STANDOFF, RUBBER SMALL |
| 1 | 1 | CHASSIS ASSEMBLY, TBP-1 |
| ITEM | QTY | DESCRIPTION |

Fender
FENDER MUSICAL INSTRUMENTS CORP.
CORONA, CALIFORNIA U.S.A.

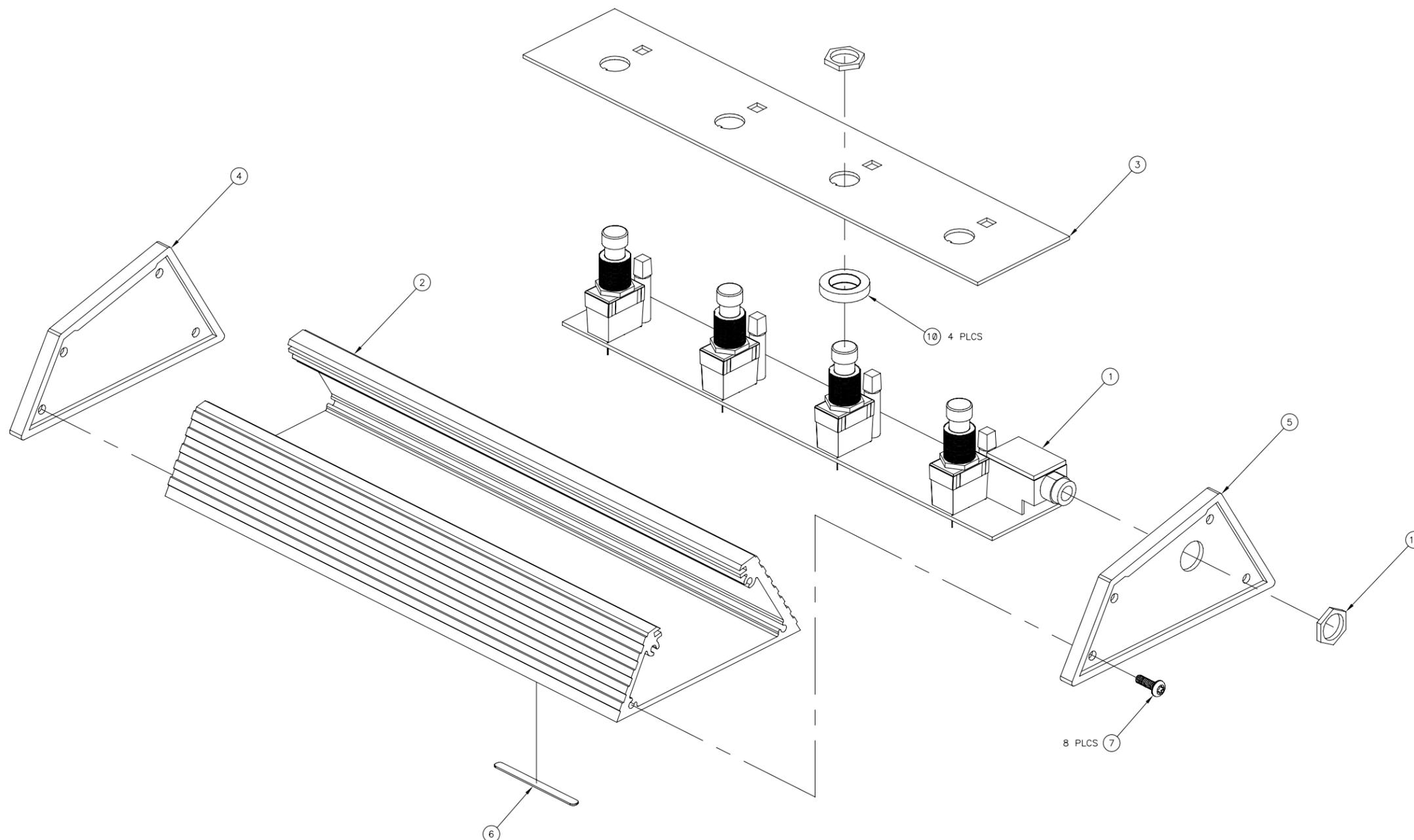
DATE: 06/03/2004

DFT. ENG. ENG. TITLE: END ITEM TBP-1

DATE DATE DATE

APPROVED SHEET 1 of 1 SIZE D DRAWING NUMBER 2147000000 REV. A

DATE SCALE 1/1 MASTER/ASSEMBLY



(N.S.) = NOT SHOWN

| ITEM | QTY. | DESCRIPTION |
|------|------|-----------------------------------|
| 11 | 1 | NUT HEX 12mmx1mm NI |
| 10 | 4 | WSHR NYL .485x.775x.150 TK |
| 9 | 1 | CABLE ASSY FTSW RT ANG 12' (N.S.) |
| 8 | | |
| 7 | 8 | SCRW SMB 6x3/8 PH PHS BLX |
| 6 | 1 | LABEL MADE IN MEXICO |
| 5 | 1 | HSG END CUP RIGHT FTSW |
| 4 | 1 | HSG END CUP LEFT FTSW |
| 3 | 1 | PLATE TOP FTSW 4 BTN |
| 2 | 1 | HOUSING FTSW 4 BUTTON |
| 1 | 1 | PCB ASSY FTSW 4 BTN |

| | | | | | |
|----------|--|-----------|--|--|--|
| DATE | | 6-12-2000 | |  FENDER MUSICAL INSTRUMENTS CORP. CORONA, CALIFORNIA U.S.A. | |
| DFT. | | ENG. | | | |
| DATE | | DATE | | TITLE | |
| DATE | | DATE | | FOUR BUTTON FOOTSWITCH ASSEMBLY, | |
| APPROVED | | SHEET | | DRAWING NUMBER | |
| DATE | | SCALE | | REV. | |
| | | 1/1 | | D 0057025000 D | |
| | | N/A | | MASTER/ASSEMBLY | |