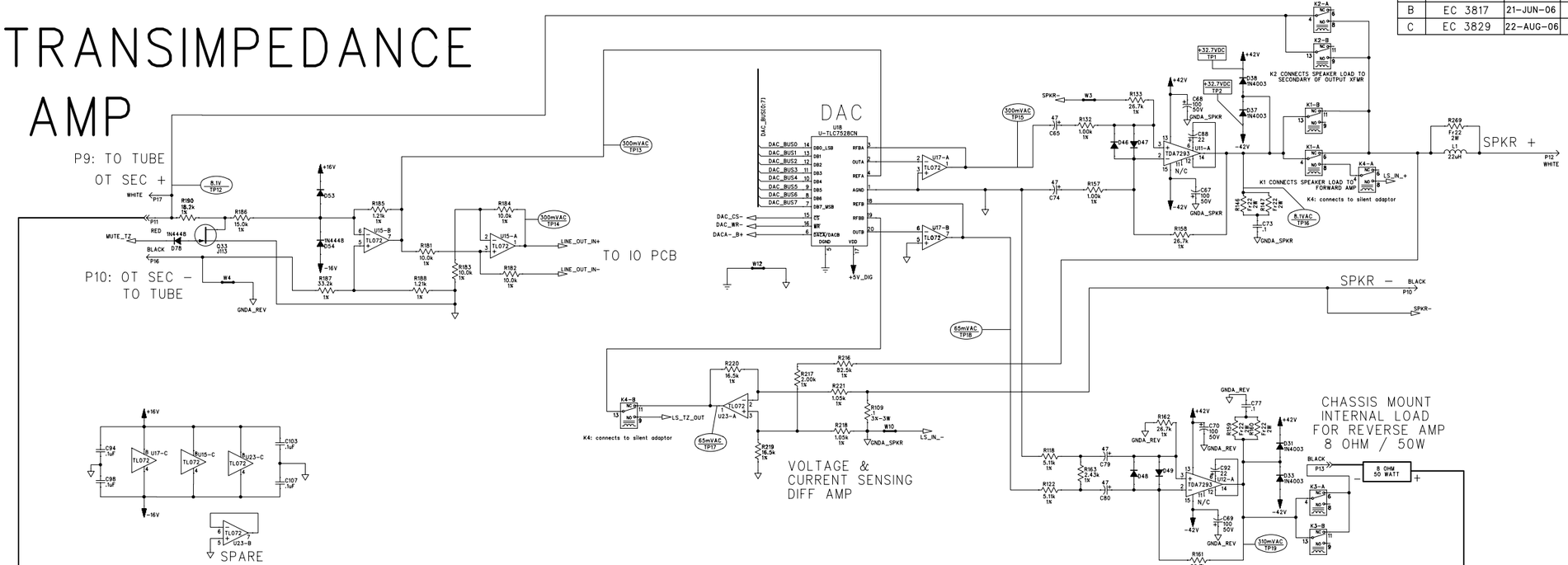
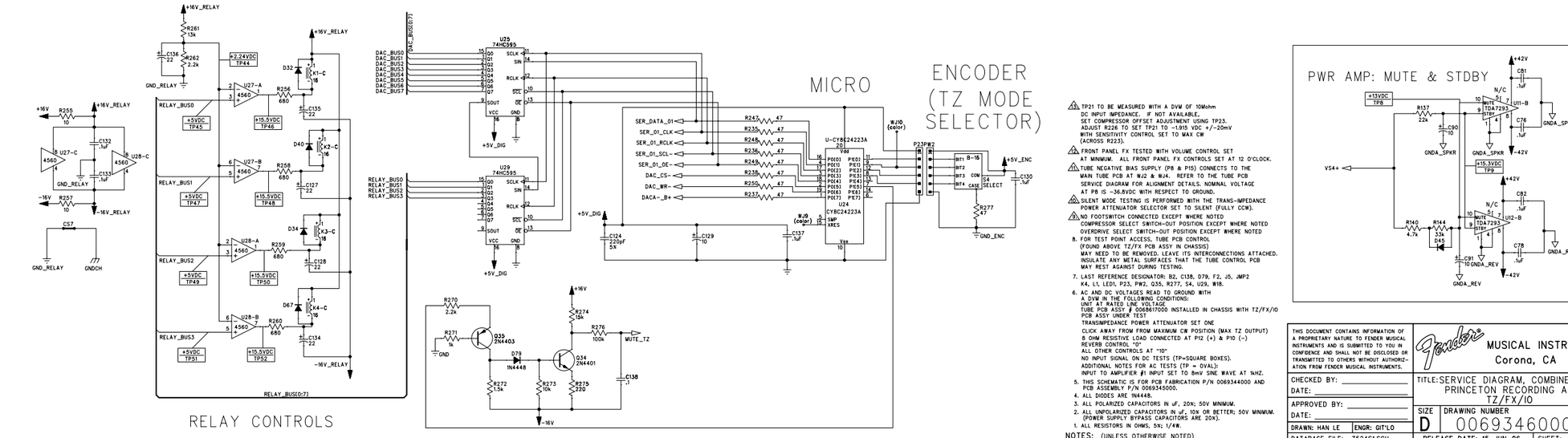
REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	PR524	11-MAY-06	S M M
B	EC 3817	21-JUN-06	S M M
C	EC 3829	22-AUG-06	S M M

TRANSIMPEDANCE AMP





NOTES: (UNLESS OTHERWISE NOTED)

1. ALL RESISTORS IN OHMS, 5%; 1/4W.
2. ALL UNPOLARIZED CAPACITORS IN uF, 20%; 50V MINIMUM. (POWER SUPPLY BYPASS CAPACITORS ARE 20%).
3. ALL POLARIZED CAPACITORS IN uF, 20%; 50V MINIMUM.
4. ALL DIODES ARE IN4448.
5. THIS SCHEMATIC IS FOR PCB FABRICATION P/N 0069344000 AND PCB ASSEMBLY P/N 0069345000.
6. AC AND DC VOLTAGES READ TO GROUND WITH A DVM IN THE FOLLOWING CONDITIONS: UNIT AT RATED LINE VOLTAGE TUBE PCB ASSY # 0068617000 INSTALLED IN CHASSIS WITH TZ/FX/IO PCB ASSY UNDER TEST TRANSIMPEDANCE POWER ATTENUATOR SET ONE CLICK AWAY FROM FROM MAXIMUM CW POSITION (MAX TZ OUTPUT) 8 OHM RESISTIVE LOAD CONNECTED AT P12 (+) & P10 (–) REVERB CONTROL "0" ALL OTHER CONTROLS AT "10" NO INPUT SIGNAL ON DC TESTS (TP=SQUARE BOXES). ADDITIONAL NOTES FOR AC TESTS (TP = OVAL): INPUT TO AMPLIFIER #1 INPUT SET TO 8mV SINE WAVE AT 1kHZ.
7. LAST REFERENCE DESIGNATOR: B2, C138, D79, F2, J5, JMP2 K4, L1 LED1, P23, PW2, Q35, R277, S4, U29, W18.
8. FOR TEST POINT ACCESS, TUBE PCB CONTROL (FOUND ABOVE TZ/FX PCB ASSY IN CHASSIS) MAY NEED TO BE REMOVED. LEAVE ITS INTERCONNECTIONS ATTACHED. INSULATE ANY METAL SURFACES THAT THE TUBE CONTROL PCB MAY REST AGAINST DURING TESTING.

⚠2 SILENT MODE TESTING IS PERFORMED WITH THE TRANS-IMPEDANCE POWER ATTENUATOR SELECTOR SET TO SILENT (FULLY CCW).

⚠3 NO FOOTSWITCH CONNECTED EXCEPT WHERE NOTED COMPRESSOR SELECT SWITCH-OUT POSITION EXCEPT WHERE NOTED OVERDRIVE SELECT SWITCH-OUT POSITION EXCEPT WHERE NOTED

⚠4 TP21 TO BE MEASURED WITH A DVM OF 10Mohm DC INPUT IMPEDANCE. IF NOT AVAILABLE, SET COMPRESSOR OFFSET ADJUSTMENT USING TP23, ADJUST R226 TO SET TP21 TO –1.915 VDC +/–20mV WITH SENSITIVITY CONTROL SET TO MAX CW (ACROSS R223).

⚠5 FRONT PANEL FX TESTED WITH VOLUME CONTROL SET AT MINIMUM. ALL FRONT PANEL FX CONTROLS SET AT 12 O'CLOCK.

⚠6 TUBE NEGATIVE BIAS SUPPLY (P8 & P15) CONNECTS TO THE MAIN TUBE PCB AT WJ2 & WJ4. REFER TO THE TUBE PCB SERVICE DIAGRAM FOR ALIGNMENT DETAILS. NOMINAL VOLTAGE AT P8 IS –36.8VDC WITH RESPECT TO GROUND.

CHECKED BY:			
DATE:			
APPROVED BY:			
DATE:			
DRAWN: HAN LE	ENGR: GIT'LO		
DATABASE FILE: Z524S1.SCH			

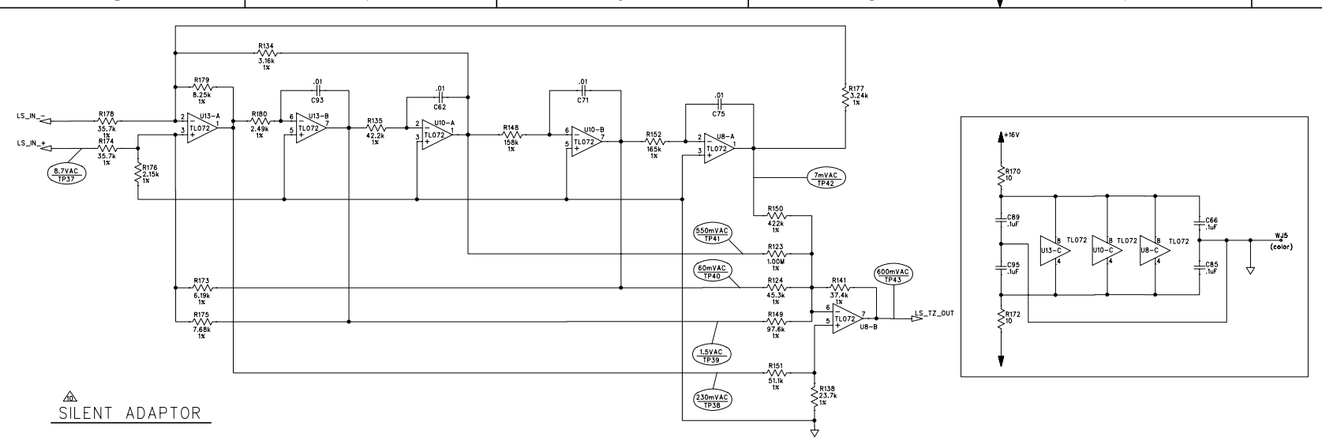
Fender® MUSICAL INSTRUMENTS
Corona, CA U.S.A.

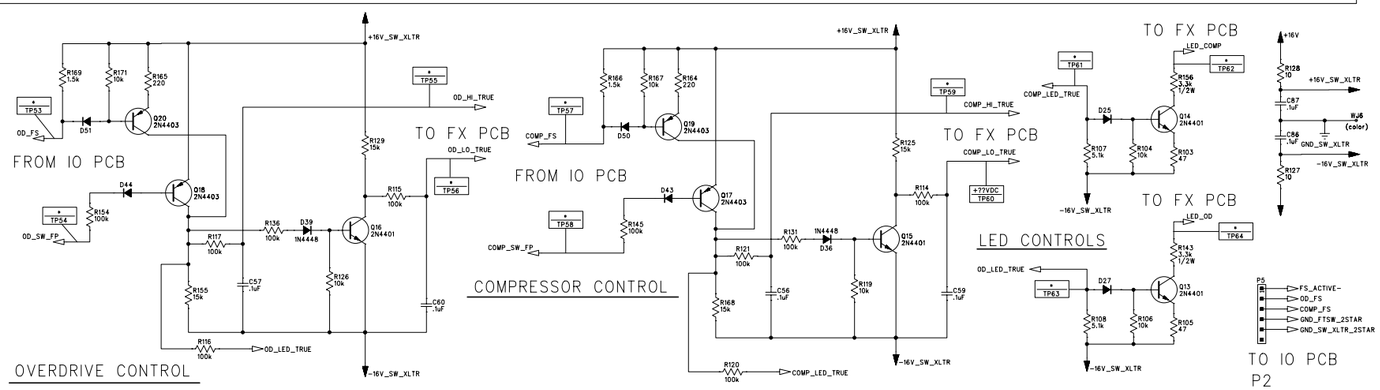
TITLE: SERVICE DIAGRAM, COMBINED (schematic)
PRINCETON RECORDING AMP
TZ/FX/IO

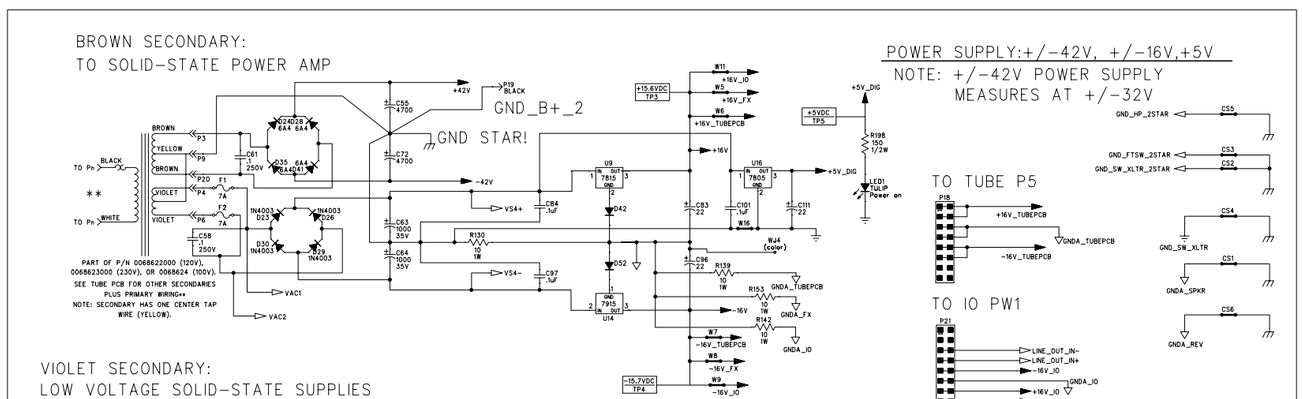
SIZE	DRAWING NUMBER	REV.
D	0069346000	C

RELEASE DATE: 15-JUN-06 SHEET: 1 OF 5

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	PR524	11-MAY-06	S M M
B	EC 3817	21-JUN-06	S M M
C	EC 3829	22-AUG-06	S M M

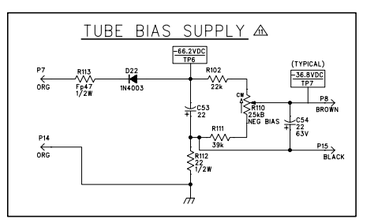






TEST POINT	WITH FOOT SWITCH		WITHOUT FOOT SWITCH		FUNCTION
	ON	OFF	ON	OFF	
TP53	+13.8	+15.6	+15.5	-15.6	OD
TP54	+14.5	+14.6	-15.7	+14.6	OD
TP55	+14.7	-15.7	+15.4	-15.7	OD
TP56	-15.7	+0.7	-15.7	+0.7	OD
TP57	+13.8	+15.6	+15.5	+15.6	COMP
TP58	+14.5	+14.6	-15.8	+14.6	COMP
TP59	+14.8	-15.8	+15.4	-15.8	COMP
TP60	-15.7	+15.5	-15.7	+15.5	COMP
TP61	-14.8	-15.9	-14.8	-15.9	COMP LED
TP62	+13.7	+14.1	+13.7	+14.1	COMP LED
TP63	-14.8	-15.9	-14.8	-15.9	OD LED
TP64	+13.7	+14.1	+13.7	+14.1	OD LED

TABLE A –
"*" CONTROL TEST POINT DATA
(ALL VDC MEASUREMENTS)



SEE PAGE 1
NOTES: (UNLESS OTHERWISE NOTED)

CHECKED BY: _____
DATE: _____
APPROVED BY: _____
DATE: _____
DRAWN: HAN LE ENGR: GIT'LO
DATABASE FILE: Z524S1.SCH

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

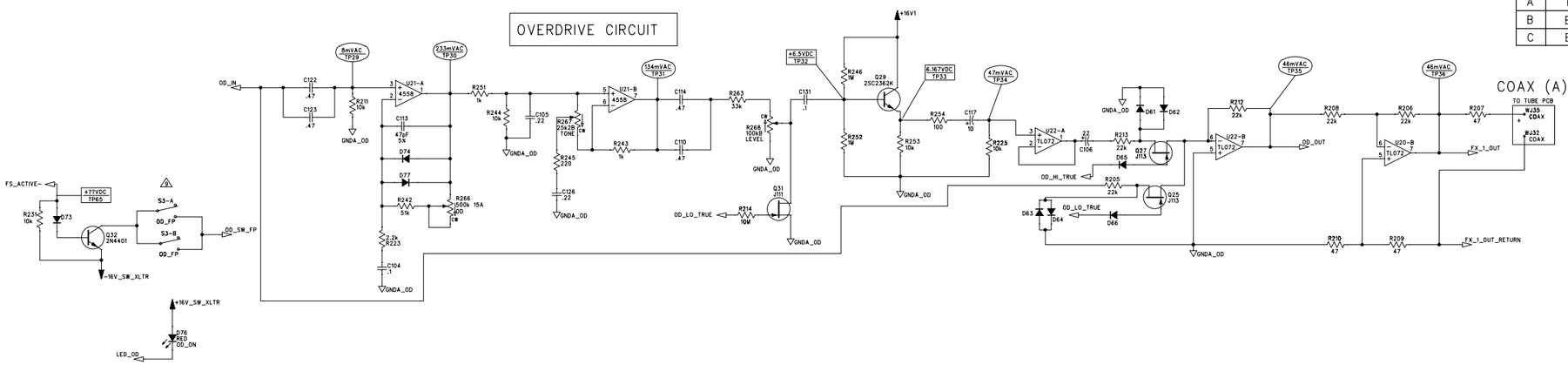
TITLE: SERVICE DIAGRAM, COMBINED (schematic)
PRINCETON RECORDING AMP
TZ/FX/IO

SIZE	DRAWING NUMBER	REV.
D	0069346000	C

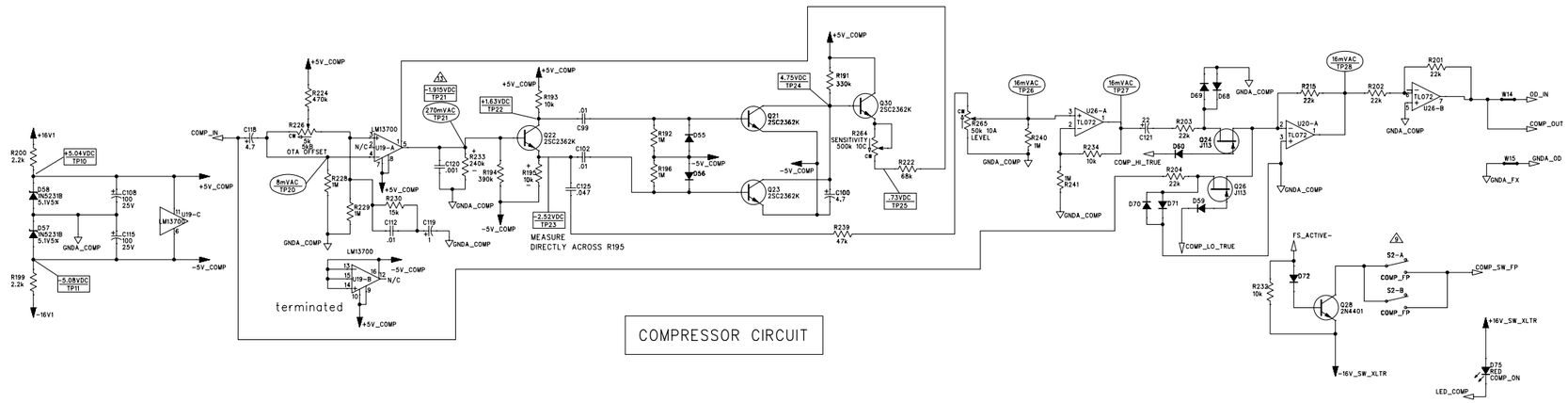
RELEASE DATE: 15-JUN-06 SHEET: 2 OF 5

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	PR524	11-MAY-06	S M M
B	EC 3817	21-JUN-06	S M M
C	EC 3829	22-AUG-06	S M M

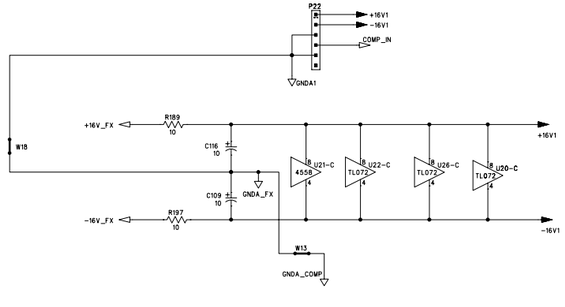
OVERDRIVE CIRCUIT



COMPRESSOR CIRCUIT



12 FRONT PANEL FX



SEE PAGE 1

NOTES: (UNLESS OTHERWISE NOTED)

CHECKED BY: _____
DATE: _____
APPROVED BY: _____
DATE: _____
DRAWN: HAN LE | ENGR: GIT'LO
DATABASE FILE: Z524S1.SCH

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

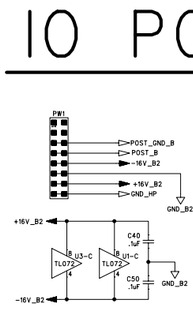
TITLE: SERVICE DIAGRAM, COMBINED (schematic)
PRINCETON RECORDING AMP
TZ/FX/IO

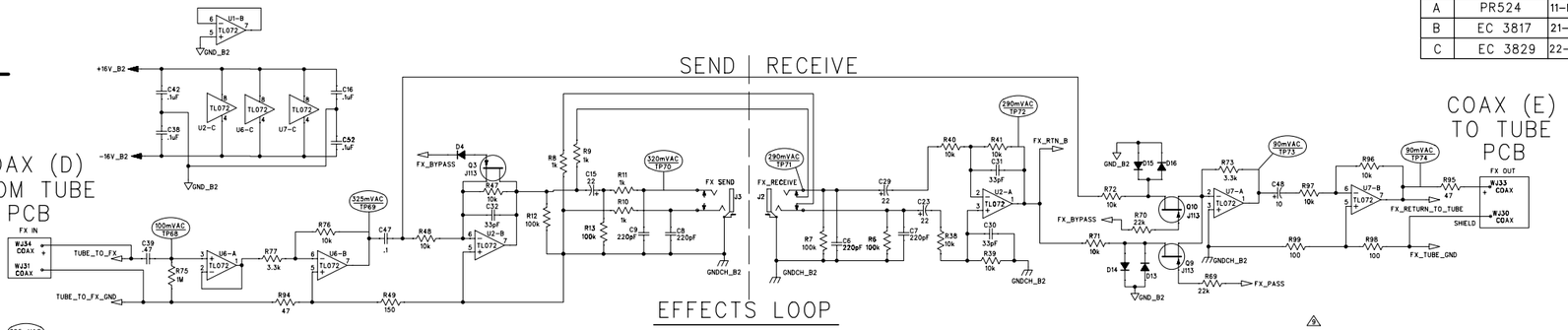
SIZE	DRAWING NUMBER	REV.
D	0069346000	C

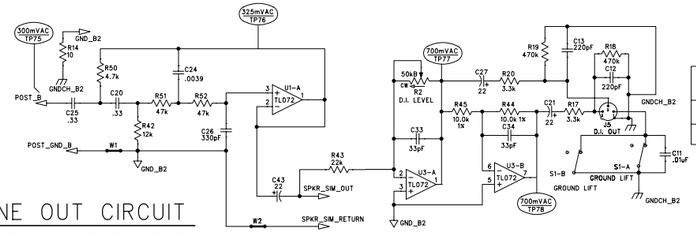
RELEASE DATE: 15-JUN-06 | SHEET: 3 OF 5

IO PCB

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	PR524	11-MAY-06	S M M
B	EC 3817	21-JUN-06	S M M
C	EC 3829	22-AUG-06	S M M



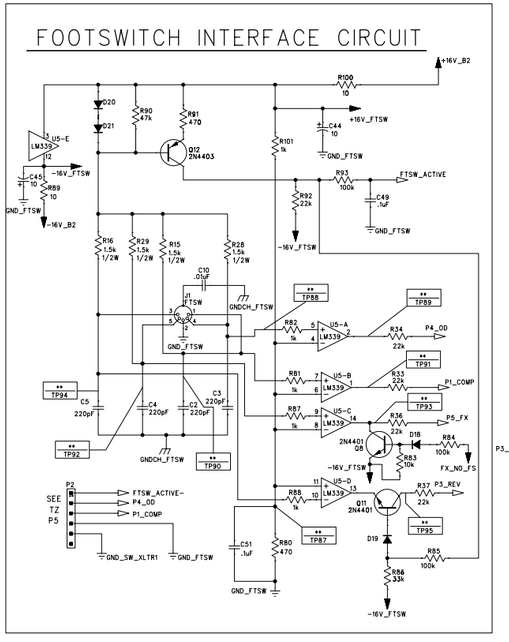


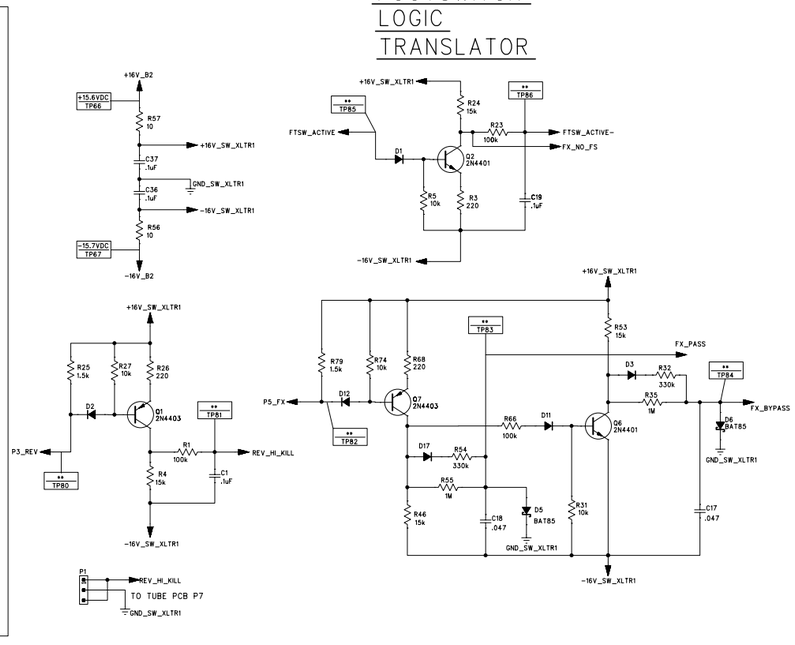


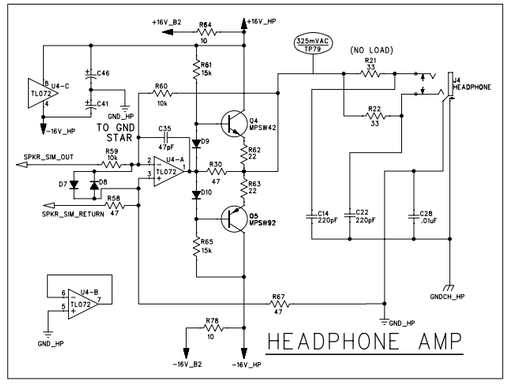
GND LIFT SWITCH CONTINUITY CHECK	
OUT	J5–P1 = SHORT TO CHASSIS
IN	J5–P1 = OPEN TO CHASSIS

TEST POINT	WITH FOOT SWITCH		WITHOUT FOOT SWITCH		FUNCTION
	ON	OFF	ON	OFF	
TP80	+15.6	+13.9	+15.5	+15.5	REVERB
TP81	–15.7	+14.7	–15.7	–15.7	REVERB
TP82	+13.8	+15.5	+13.8	+13.8	FX LOOP
TP83	+0.1	12.9	+0.1	+0.1	FX LOOP
TP84	–13.0	+0.1	–13.0	–13.0	FX LOOP
TP85	–14.2	–14.2	–15.7	–15.7	FTSW SENSE
TP86	–15.9	–15.9	–15.0	–15.0	FTSW SENSE
TP87	+5.0	+5.0	+5.0	+5.0	COMP REF
TP88	+2.5	+7.1	+15.4	+15.4	OD
TP89	–15.8	+15.6	+15.6	+15.6	OD
TP90	+2.7	+14.1	+15.4	+15.4	COMP
TP91	–15.8	+15.6	+15.6	+15.6	COMP
TP92	+2.7	+14.1	+15.4	+15.4	FX LOOP
TP93	–15.8	+15.5	–15.8	–15.8	FX LOOP
TP94	+2.7	+14.1	+15.4	+15.4	REVERB
TP95	+15.5	–15.8	+15.5	+15.5	REVERB

TABLE B –
''**'' CONTROL TEST POINT DATA
(ALL VDC MEASUREMENTS)







SEE PAGE 1
NOTES: (UNLESS OTHERWISE NOTED)

CHECKED BY: _____ DATE: _____
APPROVED BY: _____ DATE: _____
DRAWN: HAN LE ENGR: GIT'LO
DATABASE FILE: Z524S1.SCH

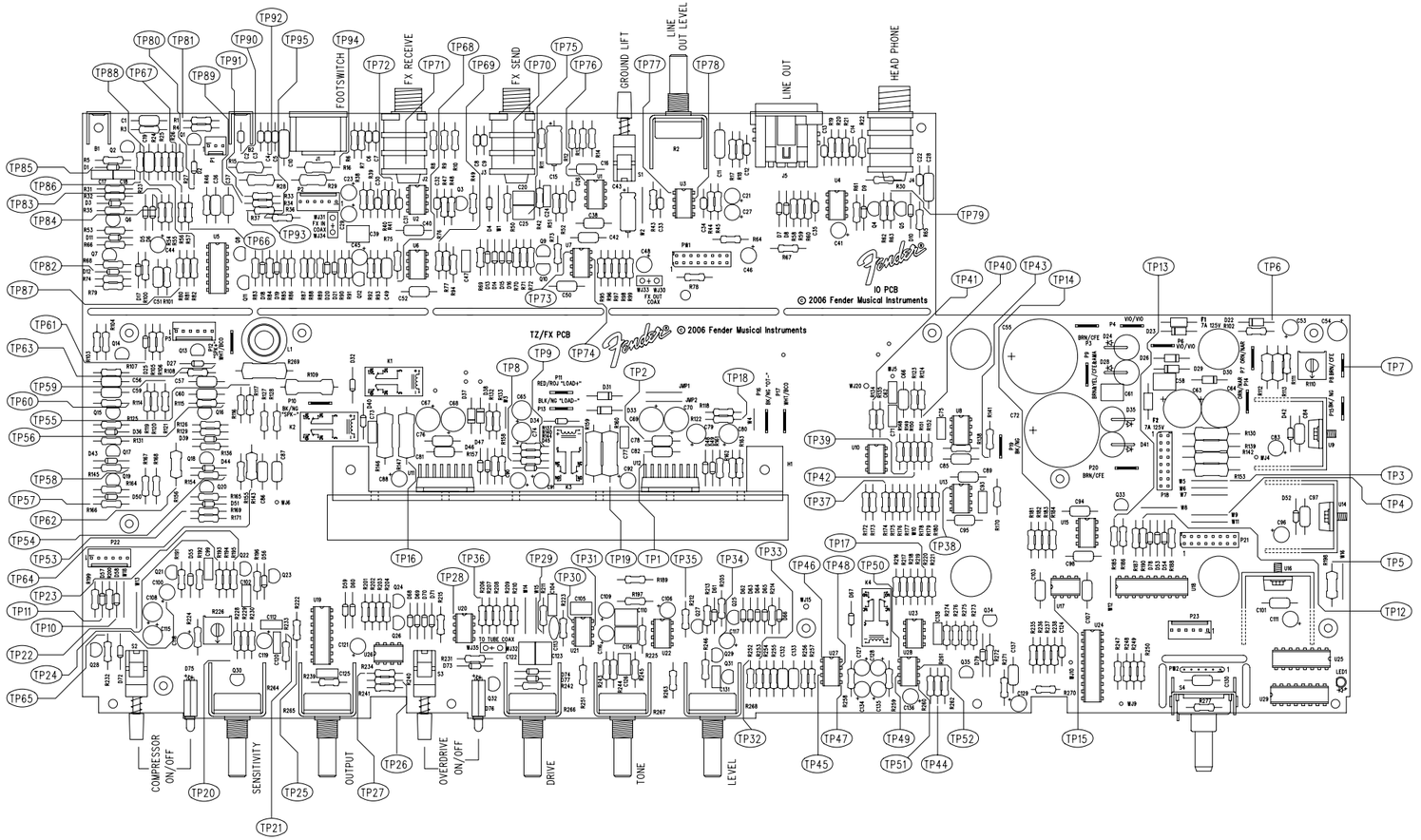
Fender® MUSICAL INSTRUMENTS
Corona, CA U.S.A.

TITLE: SERVICE DIAGRAM, COMBINED (schematic)
PRINCETON RECORDING AMP
TZ/FX/IO

SIZE	DRAWING NUMBER	REV.
D	0069346000	C

RELEASE DATE: 15-JUN-06 SHEET: 4 OF 5

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	PR524	11-MAY-06	S M M
B	EC3817	21-JUN-06	S M M
C	EC3829	22-AUG-06	S M M



FILM/DWG:	SERVICE DIAGRAM
DATABASE:	Z524P1.PCB DATE: 22-AUG-06

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

NOTES: (UNLESS OTHERWISE NOTED)

CHECKED BY: _____ DATE: _____

APPROVED BY: _____ DATE: _____

DRAWN: HAN LE ENGR: GIT'LO

DATABASE FILE: Z524P1.PCB

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

TITLE: SERVICE DIAGRAM, COMBINED (PCB assy)
PRINCETON RECORDING AMP
TZ/FX/IO

SIZE	DRAWING NUMBER	REV.
D	0069346000	C

RELEASE DATE: 11-MAY-06 SHEET 5 OF 5

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	PR524	27-APR-06	S M M
B	EC 3817	09-MAY-06	S M M
C	EC 3828	21-JUN-06	S M M
D	EC 3829	21-AUG-06	S M M

MAX POWER
15W INTO 8 OHMS AT
10% THD
(10.5Vrms OUT @11.5mV IN/1KHZ)
NOTE: CONTROLS AT MAX EXCEPT REVERB AT MIN

TUBE SOCKETS
V1-V4: 029167
V5-V6: 057238

SERVICE	POWER XFMR	FUSE
120V/60HZ	0068622000	0037588000
100V/50HZ	0068624000	0020795000
220V-240V/50HZ	0068623000	0037588000

NOTE: EXTERNAL FUSE IN FUSE CARRIER

NOTE: 3 MORE SECONDARIES ARE USED FOR SOLID STATE HARDWARE SUPPLIES

NOTE: TP1-4 ARE MEASURED ON THE MAIN PCB.

NOTE: THERE ARE 4 SECTIONS (BREAKAWAY) TO THIS ASSY.
SUBASSYS ARE : 1) POWER SUPPLY PCB, 2) CONTROL PCB
3) PRIMARY PCB
ITEMS NOT MARKED AS SUBASSYS ARE PART OF MAIN TUBE PCB.

12. LAST REFERENCE DESIGNATORS: C29, D9, F1, J2, P28, Q2, R56, RT1, TP39, U1, V6, W8, WJ49.
11. FOR TEST POINT ACCESS, IO PCB (FOUND ABOVE TUBE PCB ASSY IN CHASSIS) MAY NEED TO BE REMOVED. LEAVE ITS INTERCONNECTIONS ATTACHED, INSULATE ANY METAL SURFACES THAT THE IO PCB MAY REST AGAINST DURING TESTING.
10. AC AND DC VOLTAGES READ TO GROUND WITH A DVM UNDER THE FOLLOWING CONDITIONS:
UNIT AT RATED LINE VOLTAGE
TZ/FX/IO PCB ASSY 0069345000 INSTALLED
IN CHASSIS WITH TUBE PCB ASSY UNDER TEST
TRANSIMPEDANCE POWER ATTENUATOR SET TO MAXIMUM CW POSITION (TUBE ONLY MODE)
REVERB P/N 0064063000 CONNECTED AT WJ20-23
8 OHM RESISTIVE LOAD CONNECTED AT SPEAKER JACK
NO FOOTSWITCH CONNECTED
COMPRESSOR SELECT SWITCH - OUT POSITION ALL TESTS
OVERDRIVE SELECT SWITCH - OUT POSITION ALL TESTS
REVERB CONTROL AT "0" EXCEPT TP35
(MAX CW FOR THIS TEST ONLY)
ALL OTHER CONTROLS AT "10"
NO INPUT SIGNAL ON DC TESTS (TP = SQUARE BOXES).
ADDITIONAL NOTES FOR AC TESTS (TP = OVAL):
INPUT TO J2 SET TO 8mV SINE WAVE AT 1 KHZ.
9. INTENTIONALLY LEFT BLANK.
⚠8 BIAS IS SET BY MEASURING VOLTAGE BETWEEN WJ1 & WJ3 (WITH NO SIGNAL APPLIED & TUBES WARMED UP). SET VOLTMETER TO mV RANGE. SET 6V6 BIAS CURRENT BY ADJUSTING BIAS CONTROL POT ON TZ PCB. SPECIFIED VOLTAGE BETWEEN WJ1 & WJ3 IS 40mV (TP39). TYPICAL NEGATIVE BIAS VOLTAGE (WJ2 TO CHS) IS -36.8VDC.
7. WJ ITEMS NOTED AS (J) - (Z) ARE WIRE CONNECTIONS PER WIRESET DWG 0068620000.
6. WJ ITEMS NOTED AS (A) - (G) ARE COAX CONNECTIONS PER WIRESET DWG 0068620000.
WJ ITEMS NOTED AS "+" ARE COAX CENTER CONDUCTORS.
WJ ITEMS NOTED AS "-" ARE COAX SHIELDS.
5. THIS SCHEMATIC IS FOR PCB FABRICATION P/N 0068616000 AND PCB ASSEMBLY P/N 0068617000.
4. ALL DIODES ARE IN4448.
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.
NOTES: (UNLESS OTHERWISE NOTED)

CHECKED BY: _____
DATE: _____
APPROVED BY: _____
DATE: _____
DRAWN: GITLO ENGR: GITLO
DATABASE FILE: Z5245 2.SCH

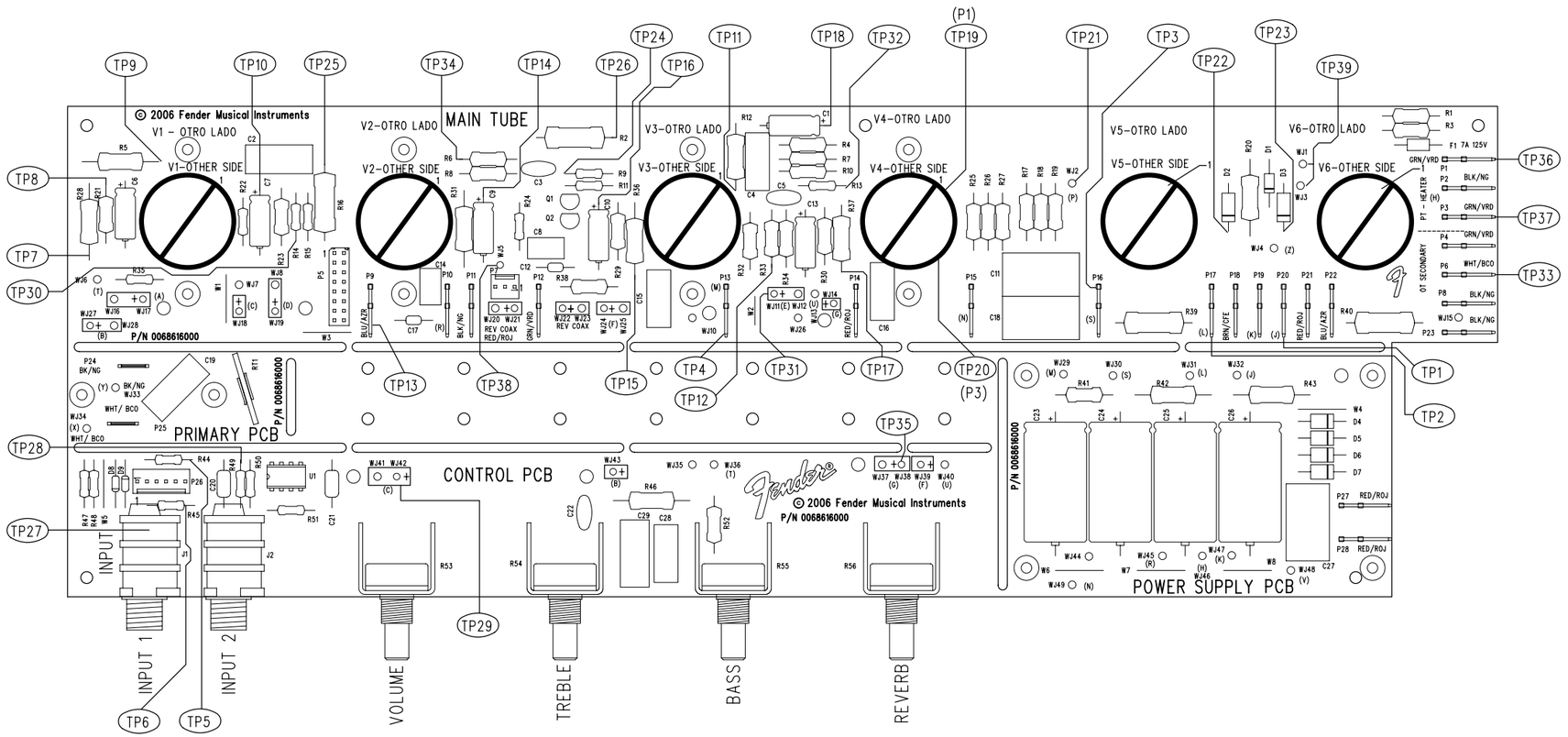
Fender® MUSICAL INSTRUMENTS
Corona, CA U.S.A.

TITLE: SERVICE DIAGRAM, COMBINED (schematic)
PRINCETON RECORDING AMP
TUBE

SIZE	DRAWING NUMBER	REV.
D	0068618000	D

RELEASE DATE: 27-APR-06 SHEET: 1 OF 2

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	PR524	27-APR-06	S M M
B	EC 3817	09-MAY-06	S M M
C	EC 3828	21-JUN-06	S M M
D	EC 3829	21-AUG-06	S M M



FILM/DWG:	SERVICE DIAGRAM
DATABASE: Z524P2.PCB	DATE: 21-JUN-06

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

NOTES: (UNLESS OTHERWISE NOTED)

CHECKED BY: _____
DATE: _____

APPROVED BY: _____
DATE: _____

DRAWN: HAN LE | ENGR: GIT'LO

DATABASE FILE: Z524P2.PCB

MUSICAL INSTRUMENTS
Corona, CA U.S.A.

TITLE: SERVICE DIAGRAM, COMBINED (PCB assy)
PRINCETON RECORDING AMP
TUBE

SIZE	DRAWING NUMBER	REV.
C	0068618000	D

RELEASE DATE: 27-APR-06 | SHEET 2 OF 2