REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	PR772	27-JUN-08	S M M
B	EC 4034	26-SEP-08	S M M
C	EC 4066	15-OCT-08	S M M
D	EC 4094	21-JAN-09	S M M

TUBE SUBASSY - PREAMP TUBE

REAR PANEL PCB - EFFECTS LOOP INTERFACE

REAR PANEL PCB - FOOTSWITCH INTERFACE

TUBE SUBASSY - POWER AMP

POWER SUPPLIES ON TUBE SUBASSY

DSP CARD: POWER

DSP CARD - I/O

FX PCB

FTSW PCB

FP PCB

FP PCB

FP PCB

TUBE PCB (POWER)

TUBE PCB (SIGNAL)

7. SEE PAGE 2 FOR TEST INFORMATION & ADDITIONAL NOTES (8 - 16).

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 0075478000 AND PCB ASSEMBLY P/N 0075479000.

DO NOT INSTALL C29, C57, C60, C68, C73, C76, C78, R151.

CHECKED BY:	B Rea
DATE:	23-JAN-09
APPROVED BY:	
DATE:	1/27/09
DRAWN: LE/GIT'LO	ENGR: GIT'LO
DATABASE FILE:	Z772S1.SCH

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

TITLE: SERVICE DIAGRAM, COMBINED (schematic)
<VM SERIES>
<MAIN PCB (TUBE/PREAMP/IO)>

SIZE	DRAWING NUMBER	REV.
D	0075480000	D

RELEASE DATE: 27-JUN-08 | SHEET: 1 OF 3

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	PR772	27-JUN-08	S M M
B	EC 4034	26-SEP-08	S M M
C	EC 4066	15-OCT-08	S M M
D	EC 4094	21-JAN-09	S M M

TABLE A: TP50 – TP62 DATA – CLEAN & DRIVE CHANNELS ⚠

TEST POINT	CLEAN CH – Vrms	DRIVE CH – Vrms	DRIVE CH – Vpp
TP53	90 mV	300 mV	1.0 V
TP54	90 mV	300 mV	1.0 V
TP55	160 mV	600 mV	1.9 V
TP56	160 mV	600 mV	1.9 V
TP57	250 mV	900 mV	3.0 V
TP58	250 mV	900 mV	3.0 V
TP59	100 mV	350 mV	1.0 V
TP60	1.2 V	4 V	11 V
TP61	1.2 V	4 V	11 V
TP62	7 V	18 V	45 V

TABLE B: FRONT PANEL SWITCH FUNCTION TESTS ⚠⚠

SWITCH CONDITION	TP41	TP42	TP43	LED CONDITION	OUTPUT/AUDIBLE CONDITION
DRIVE OUT	+16.1V	−16.1V	−16.1V	DRIVE LED OFF	CLEAN CHANNEL ENABLED
DRIVE IN	−16.1V	+16.1V	+16.1V	DRIVE LED ON	DRIVE CHANNEL ENABLED
DELAY OUT	X	X	X	DELAY LED OFF	DELAY EFFECT DISABLED
DELAY IN	X	X	X	DELAY LED ON	DELAY EFFECT ENABLED
CHORUS IN	X	X	X	CHORUS LED OFF	CHORUS EFFECT DISABLED
CHORUS OUT	X	X	X	CHORUS LED ON	CHORUS EFFECT ENABLED
EFFECTS ADJUST ⚠6	X	X	X	TOGGLES LEDS ABOVE SWITCH INDICATING WHICH EFFECT CAN BE ADJUSTED	1. DELAY ADJ ON: TIME/RATE, MIX, & DEPTH CONTROLS AFFECT DELAY RESPONSE 2. CHORUS ADJ ON: TIME/RATE, MIX, & DEPTH CONTROLS AFFECT CHORUS RESPONSE

⚠⚠ TABLE C: FOOTSWITCH FUNCTION TEST

FTSW LED CONDITION	TEST POINT DATA	OUTPUT/AUDIBLE CONDITION
DRIVE OFF	TP32 = 7.7V, TP33 = 3.3V	CLEAN CHANNEL ENABLED
DRIVE ON	TP32 = 2.5V, TP33 = 0V	DRIVE CHANNEL ENABLED
REVERB OFF	TP34 = 15.3V, TP35 = 3.3V	REVERB EFFECT DISABLED
REVERB ON	TP34 = 2.6V, TP35 = 0V	REVERB EFFECT ENABLED
DELAY OFF	TP36 = 15.3V, TP37 = 3.3V	DELAY EFFECT DISABLED
DELAY ON	TP36 = 2.6V, TP37 = 0V	DELAY EFFECT ENABLED
CHORUS OFF	TP38 = 15.3V, TP39 = 3.3V	CHORUS EFFECT DISABLED
CHORUS ON	TP38 = 2.6V, TP39 = 0V	CHORUS EFFECT ENABLED

⚠6 EFFECTS ADJUST SWITCH WILL ALLOW DELAY OR CHORUS ADJUSTMENT WHEN EFFECT IS ON OR OFF.

⚠5 INSTALLATION OF THE FOOTSWITCH TO J3 DISABLES ALL FRONT PANEL SWITCHES.

⚠4 FOOTSWITCH FUNCTION TESTS – REF: TABLE C. INSTALL FOOTSWITCH ASSY (0075485000) TO J3 USING FMIC SUPPLIED DIN CABLE (0059128000). EXERCISE FOOTSWITCHES PER CONDITIONS IN TABLE C.

⚠3 FRONT PANEL SWITCH FUNCTION TESTS – REF: TABLE B. EXERCISE FRONT PANEL SWITCHES PER CONDITIONS IN TABLE B.

⚠2 SIGNALS FOR TP53 THROUGH TP62 CAN BE CLEAN OR DISTORTED. CLEAN = DRIVE BUTTON OUT. DISTORTED = DRIVE BUTTON IN. LED ABOVE THE DRIVE BUTTON SHOULD ILLUMINATE WHEN THE BUTTON IS IN. SEE TABLE A FOR CLEAN AND DISTORTED MEASUREMENTS FOR TP53 – TP62.

⚠1 MAXIMUM POWER TEST: INJECT 12.5mV INTO INPUT. SELECT CLEAN CHANNEL WITH ALL CHANNEL CONTROLS AT MAX. ALL EFFECTS ARE OFF & EFFECTS CONTROLS AT MIN. TYPICAL MAXIMUM OUTPUT POWER AT 10% THD IS 39 WATTS INTO AN 8 OHM LOAD INSTALLED PER NOTE 8.

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 0075478000 AND PCB ASSEMBLY P/N 0075479000.

⚠6 DO NOT INSTALL C29, C57, C60, C68, C73, C76, C78, R151.

7. (NO NOTE)
8. AC AND DC VOLTAGES READ TO GROUND WITH A DVM.
   CONFIGURE VM SERIES PRODUCT AS FOLLOWS:
   UNIT IS AT RATED LINE VOLTAGE.
   ALL HARDWARE IS INSTALLED IN CHASSIS ASSEMBLY.
   THE DSP CARD (0075462000) IS INSTALLED ON THE CONTROL SUBASSY AT P15 AND P16.
   DELUXE VM: INSTALL 8 OHM LOAD TO "INT. SPKR." JACK.
   BANDMASTER VM: INSTALL 8 OHM LOAD TO "MAIN" SPEAKER JACK.
   NO FOOTSWITCH INSTALLED EXCEPT WHERE NOTED.
   ALL FRONT PANEL SWITCHES OUT EXCEPT WHERE NOTED.
   SET THE FOLLOWING CONTROLS TO MINIMUM:
   REVERB, TIME/RATE, MIX, DEPTH.
   SET ALL OTHER CONTROLS TO MAXIMUM.
   DC TEST (TP = SQUARE BOX):
   NO INPUT SIGNAL APPLIED
   AC TEST (TP = OVAL):
   INJECT A 5mV RMS, 1 kHz SINE WAVE INTO THE INPUT JACK (J4).
9. BIAS IS SET WITH DVM MEASURING TP26 BETWEEN WJ15 & WJ16. NO SIGNAL SHOULD BE APPLIED. TUBES SHOULD BE WARMED UP. SET DVM TO mV RANGE. SET BIAS CURRENT BY ADJUSTING BIAS CONTROL (R71) SO TP26 VOLTAGE IS 54 mV.
   TYPICAL NEGATIVE BIAS VOLTAGE (TP25) IS −48VDC.
10. FOR TUBE SUBASSY TEST POINT ACCESS:
    REAR PANEL IO SUBASSY AND SHIELDING CARD MAY NEED TO BE REMOVED. LEAVE THE INTERCONNECTIONS ATTACHED.
    INSULATE ANY METAL SURFACES THAT THE IO SUBASSY RESTS AGAINST.

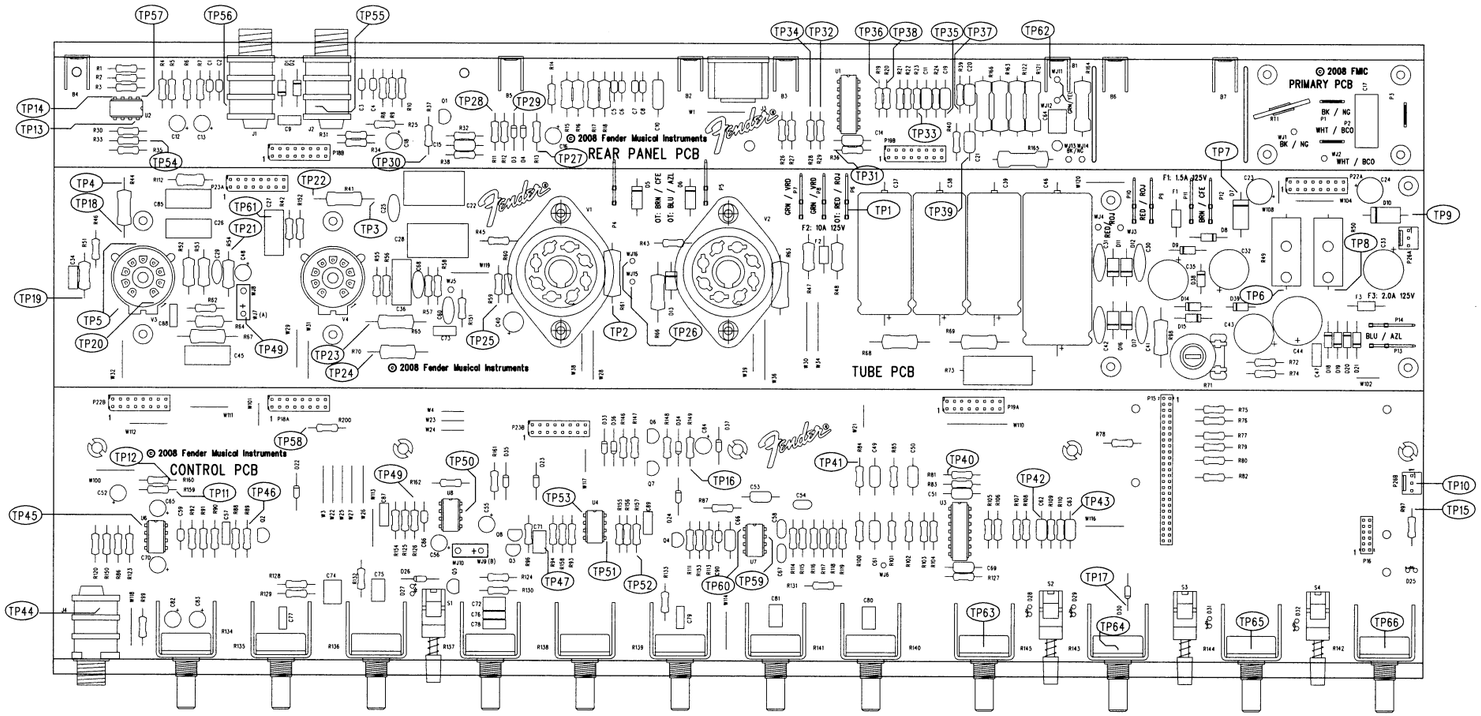
CHECKED BY: BTW
DATE: 23-JAN-09
APPROVED BY: [signature]
DATE: 1/27/09
DRAWN: LE/GIT'LO ENGR: GIT'LO
DATABASE FILE: Z772S1.SCH

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

TITLE: SERVICE DIAGRAM, COMBINED (schematic)
<VM SERIES>
<MAIN PCR (TUBE / PREAMP / IO)>

SIZE D | DRAWING NUMBER 0075480000 | REV. D
RELEASE DATE: 27-JUN-08 | SHEET: 2 OF 3

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	PR772	27-JUN-08	S M M
B	EC4034	04-AUG-08	S M M
C	EC4066	15-OCT-08	S M M
D	EC4094	21-JAN-09	S M M



FILM/DWG:	SERVICE DIAGRAM
DATABASE: Z772P1.PCB	DATE: 15-OCT-08

SEE SHEET 1 AND 2 FOR NOTES.

NOTES: (UNLESS OTHERWISE NOTED)

CHECKED BY:	
DATE:	23-JAN-09
APPROVED BY:	
DATE:	1/27/09
DRAWN: HAN LE	ENGR: S. MARSHALL
DATABASE FILE:	Z772P1.PCB

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

TITLE: SERVICE DIAGRAM, COMBINED
VM SERIES
MAIN PCB (TUBE/PREAMP/IO)

SIZE	DRAWING NUMBER	REV.
D	0075480000	D

RELEASE DATE: 27-JUN-08 | SHEET 3 OF 3