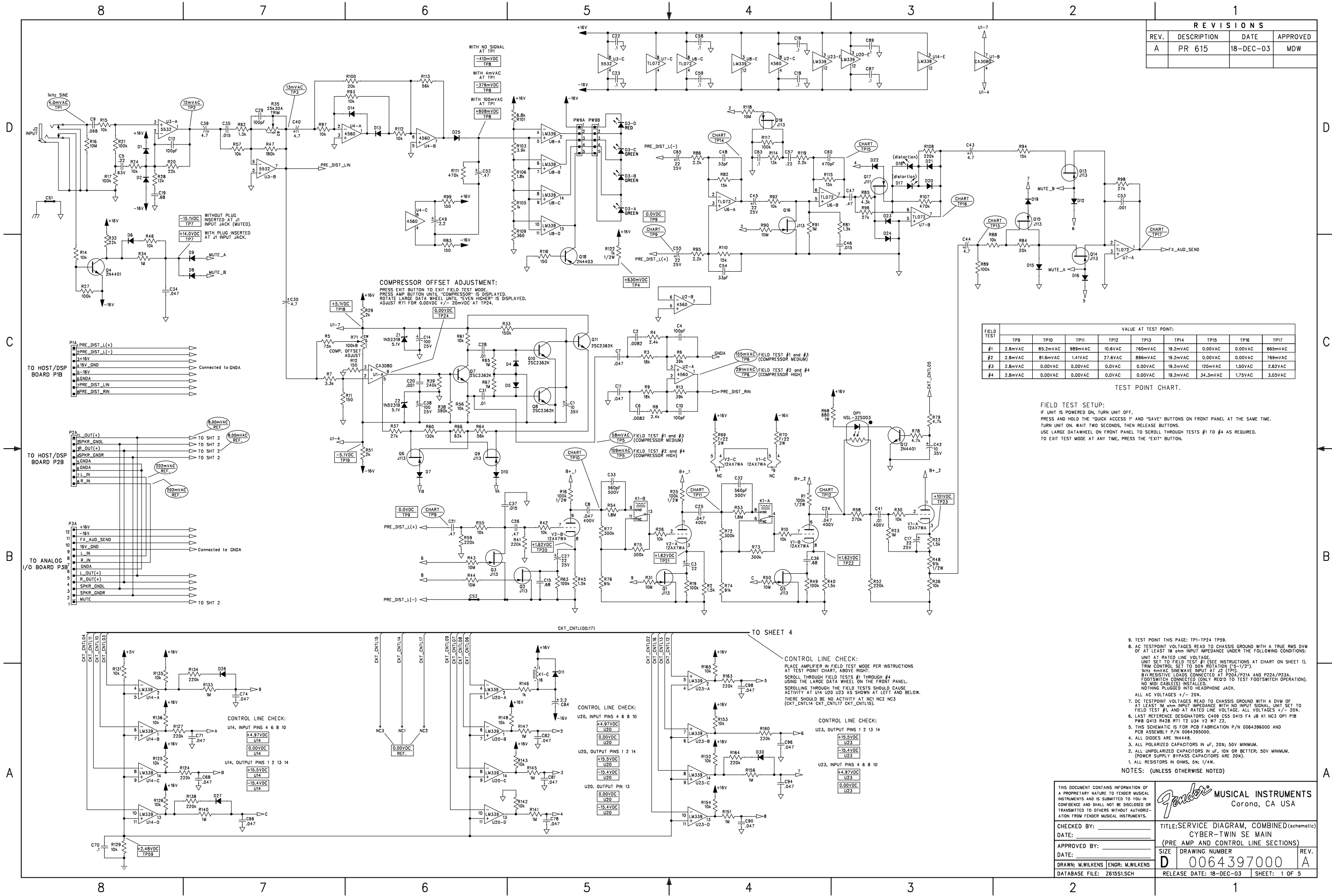


REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	PR 615	18-DEC-03	MDW



FIELD TEST	VALUE AT TEST POINT:						
	TP9	TP10	TP11	TP12	TP13	TP14	TP15
#1	2.8mVAC	85.2mVAC	989mVAC	10.6VAC	760mVAC	19.2mVAC	0.00VAC
#2	2.8mVAC	81.6mVAC	1.41VAC	27.6VAC	886mVAC	19.2mVAC	0.00VAC
#3	2.8mVAC	0.00VAC	0.00VAC	0.0VAC	0.00VAC	19.2mVAC	120mVAC
#4	2.8mVAC	0.00VAC	0.00VAC	0.0VAC	0.00VAC	19.2mVAC	34.3mVAC

**FIELD TEST SETUP:**  
 IF UNIT IS POWERED ON, TURN UNIT OFF.  
 PRESS AND HOLD THE "QUICK ACCESS 1" AND "SAVE" BUTTONS ON FRONT PANEL AT THE SAME TIME.  
 TURN UNIT ON, WAIT TWO SECONDS, THEN RELEASE BUTTONS.  
 USE LARGE DATAWHEEL ON FRONT PANEL TO SCROLL THROUGH TESTS #1 TO #4 AS REQUIRED.  
 TO EXIT TEST MODE AT ANY TIME, PRESS THE "EXIT" BUTTON.

- TEST POINT THIS PAGE: TP1-TP24 TP59.
- AC TESTPOINT VOLTAGES READ TO CHASSIS GROUND WITH A TRUE RMS DVM OF AT LEAST 1M OHM INPUT IMPEDANCE UNDER THE FOLLOWING CONDITIONS:  
 UNIT AT RATED LINE VOLTAGE.  
 UNIT SET TO FIELD TEST #1 (SEE INSTRUCTIONS AT CHART ON SHEET 1).  
 TRIM CONTROL SET TO 50% ROTATION ("5-1/2").  
 14Hz 4mVAC SINEWAVE INPUT AT J2 (TP1).
- LAST REFERENCE DESIGNATORS: C409 C55 D415 F4 JB K1 NC3 OPI P18 PWB Q413 R428 R11 T2 U34 U4 V2 W7 Z2.
- THIS SCHEMATIC IS FOR PCB FABRICATION P/N 0064396000 AND PCB ASSEMBLY P/N 0064395000.
- ALL DIODES ARE 1N4148.
- ALL POLARIZED CAPACITORS IN uF, 20% 50V MINIMUM.
- ALL UNPOLARIZED CAPACITORS IN uF, 10% OR BETTER; 50V MINIMUM. (POWER SUPPLY BYPASS CAPACITORS ARE 20%).
- ALL RESISTORS IN OHMS, 5% 1/4W.

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.

**Fender** MUSICAL INSTRUMENTS  
 Corona, CA USA

CHECKED BY: \_\_\_\_\_  
 DATE: \_\_\_\_\_

APPROVED BY: \_\_\_\_\_  
 DATE: \_\_\_\_\_

DRAWN: M.WILKENS ENGR: M.WILKENS  
 DATABASE FILE: Z61951.SCH

TITLE: SERVICE DIAGRAM, COMBINED (schematic) CYBER-TWIN SE MAIN (PRE AMP AND CONTROL LINE SECTIONS)  
 SIZE: DRAWING NUMBER  
 D 0064397000  
 RELEASE DATE: 18-DEC-03 SHEET: 1 OF 5

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	PR 615	18-DEC-03	MDW

D

D

C

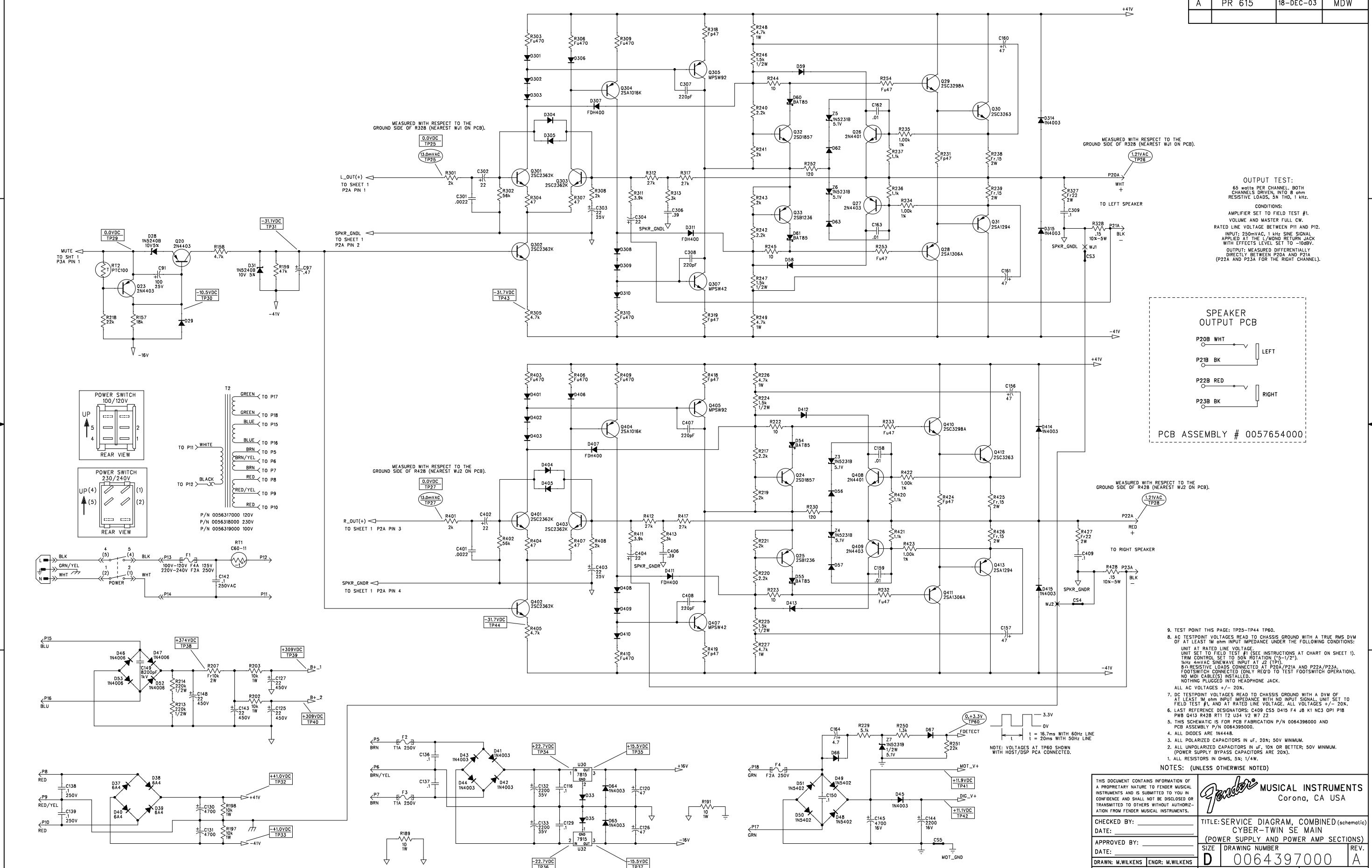
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B

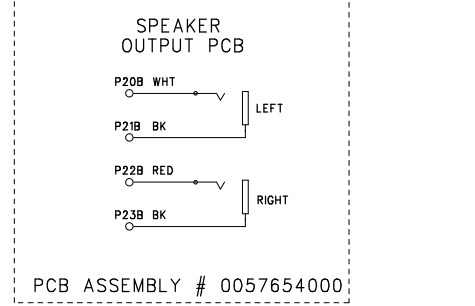
B

A

A



**OUTPUT TEST:**  
 65 watts PER CHANNEL, BOTH CHANNELS DRIVEN, INTO 8 ohm RESISTIVE LOADS, 5% THD, 1 KHZ.  
**CONDITIONS:**  
 AMPLIFIER SET TO FIELD TEST #1. VOLUME AND MASTER FULL CW. RATED LINE VOLTAGE BETWEEN P11 AND P12. INPUT: 250mVAC, 1 kHz SINE SIGNAL APPLIED AT THE L/MONO RETURN JACK WITH EFFECT'S LEVEL SET TO -10dBV. OUTPUT: MEASURED DIFFERENTIALLY DIRECTLY BETWEEN P20A AND P21A (P22A AND P23A FOR THE RIGHT CHANNEL).



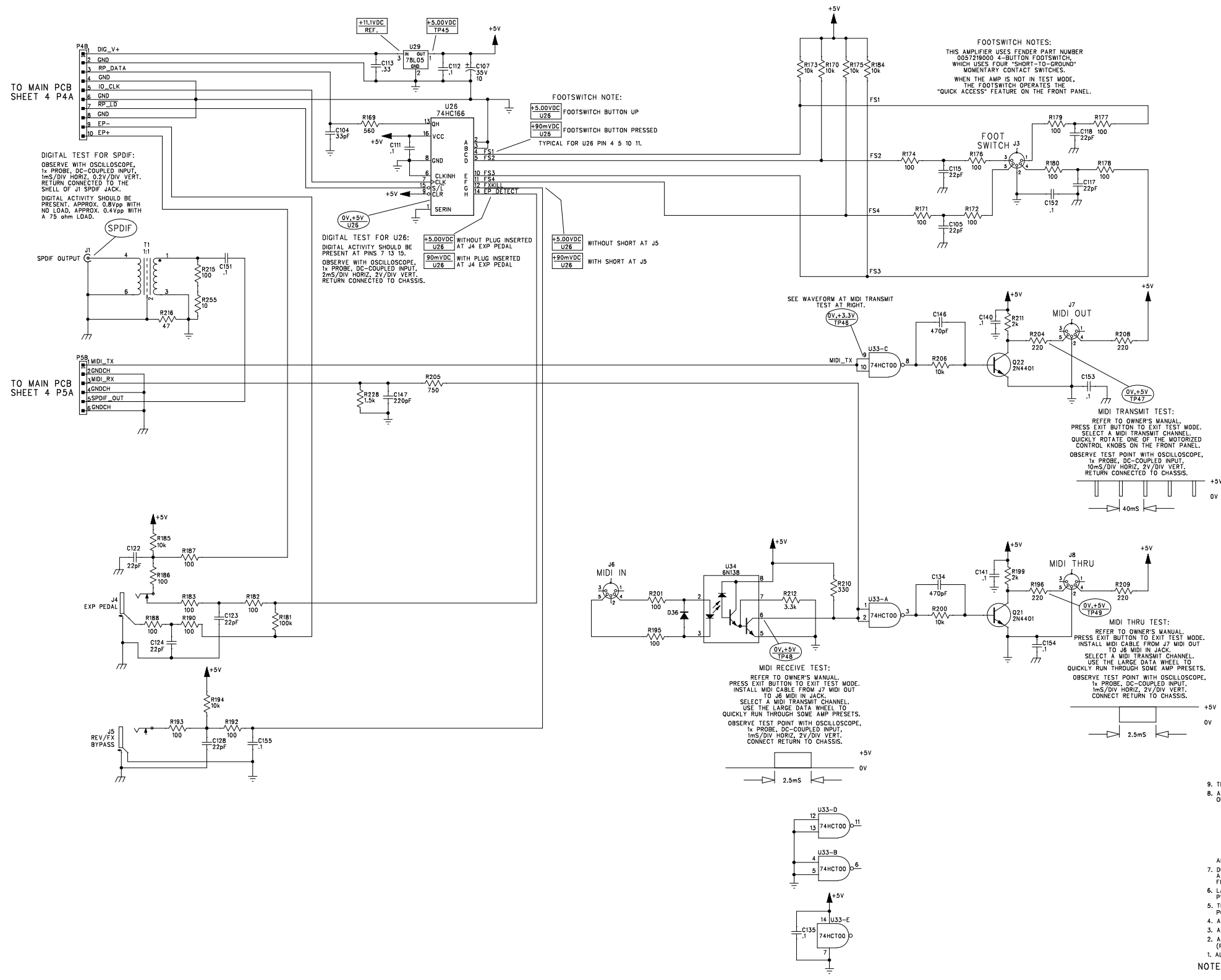
- TEST POINT THIS PAGE: TP25-TP44 TP60.
- AC TESTPOINT VOLTAGES READ TO CHASSIS GROUND WITH A TRUE RMS DVM OF AT LEAST 1M ohm INPUT IMPEDANCE UNDER THE FOLLOWING CONDITIONS:  
 UNIT AT RATED LINE VOLTAGE.  
 UNIT SET TO FIELD TEST #1 (SEE INSTRUCTIONS ON CHART ON SHEET 1). TRIM CONTROL SET TO SOFT ROTATION (1/2").  
 1kHz 4mVAC SINEWAVE INPUT AT J2 (TP1).  
 8-ohm RESISTIVE LOADS CONNECTED AT P20A/P21A AND P22A/P23A. FOOTSWITCH CONNECTED (ONLY REQ'D TO TEST FOOTSWITCH OPERATION). NO MID CABLE(S) INSTALLED.  
 NOTHING PLUGGED INTO HEADPHONE JACK.  
 ALL AC VOLTAGES +/- 20%.
- DC TESTPOINT VOLTAGES READ TO CHASSIS GROUND WITH A DVM OF AT LEAST 1M ohm INPUT IMPEDANCE WITH NO INPUT SIGNAL. UNIT SET TO FIELD TEST #1 AND AT RATED LINE VOLTAGE. ALL VOLTAGES +/- 20%.
- LAST REFERENCE DESIGNATORS: C409 C55 D415 F4 JB K1 NCS OP1 P18 PWB Q413 R428 RT1 T2 U34 V2 W7 Z2
- THIS SCHEMATIC IS FOR PCB FABRICATION P/N 0064398000 AND PCB ASSEMBLY P/N 0064395000.
- ALL DIODES ARE 1N4448.
- ALL POLARIZED CAPACITORS IN uF, 20%; 50V MINIMUM.
- ALL UNPOLARIZED CAPACITORS IN uF, 10% OR BETTER; 50V MINIMUM. (POWER SUPPLY BYPASS CAPACITORS ARE 20%).
- ALL RESISTORS IN OHMS, 5%; 1/4W.

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**Fender** MUSICAL INSTRUMENTS  
 Corona, CA USA

CHECKED BY: _____	TITLE: SERVICE DIAGRAM, COMBINED (schematic)
DATE: _____	CYBER-TWIN SE MAIN
APPROVED BY: _____	(POWER SUPPLY AND POWER AMP SECTIONS)
DATE: _____	SIZE: DRAWING NUMBER
DRAWN: M.WILKENS ENGR: M.WILKENS	<b>D</b> 0064397000
DATABASE FILE: Z615S1.SCH	RELEASE DATE: 18-DEC-03 SHEET: 2 OF 5

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	PR 615	18-DEC-03	MDW



- TEST POINT THIS PAGE: TP45-TP48.
  - AC TESTPOINT VOLTAGES READ TO CHASSIS GROUND WITH A TRUE RMS DVM OF AT LEAST 1M ohm INPUT IMPEDANCE UNDER THE FOLLOWING CONDITIONS:  
UNIT AT RATED LINE VOLTAGE.  
UNIT SET TO FIELD TEST #1 (SEE INSTRUCTIONS AT CHART ON SHEET 1).  
TRIM CONTROL SET TO 90x ROTATION (5-1/2').  
1kHz 4mVAC SINEWAVE INPUT AT J2 (TP1).  
8.0 RESISTIVE LOADS CONNECTED AT P201/P21A AND P22A/P23A.  
FOOTSWITCH CONNECTED (ONLY REQ'D TO TEST FOOTSWITCH OPERATION).  
NO MIDI CABLE(S) INSTALLED.  
NOTHING PLUGGED INTO HEADPHONE JACK.
  - ALL AC VOLTAGES +/- 20%.
  - DC TESTPOINT VOLTAGES READ TO CHASSIS GROUND WITH A DVM OF AT LEAST 1M ohm INPUT IMPEDANCE WITH NO INPUT SIGNAL, UNIT SET TO FIELD TEST #1 AND AT RATED LINE VOLTAGE. ALL VOLTAGES +/- 20%.
  - LAST REFERENCE DESIGNATORS: C409 C55 D415 F4 J8 K1 NC3 OP1 P18 PWB Q413 R428 R71 T2 U34 V2 R7 Z2
  - THIS SCHEMATIC IS FOR PCB FABRICATION P/N 0064396000 AND PCB ASSEMBLY P/N 0064395000.
  - ALL DIODES ARE IN4448.
  - ALL POLARIZED CAPACITORS IN uF, 20% 50V MINIMUM.
  - ALL UNPOLARIZED CAPACITORS IN uF, 10K OR BETTER; 50V MINIMUM. (POWER SUPPLY BYPASS CAPACITORS ARE 20x).
  - ALL RESISTORS IN OHMS, 5% 1/4W.
- NOTES: (UNLESS OTHERWISE NOTED)

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Corona, CA USA

CHECKED BY: \_\_\_\_\_  
DATE: \_\_\_\_\_

APPROVED BY: \_\_\_\_\_  
DATE: \_\_\_\_\_

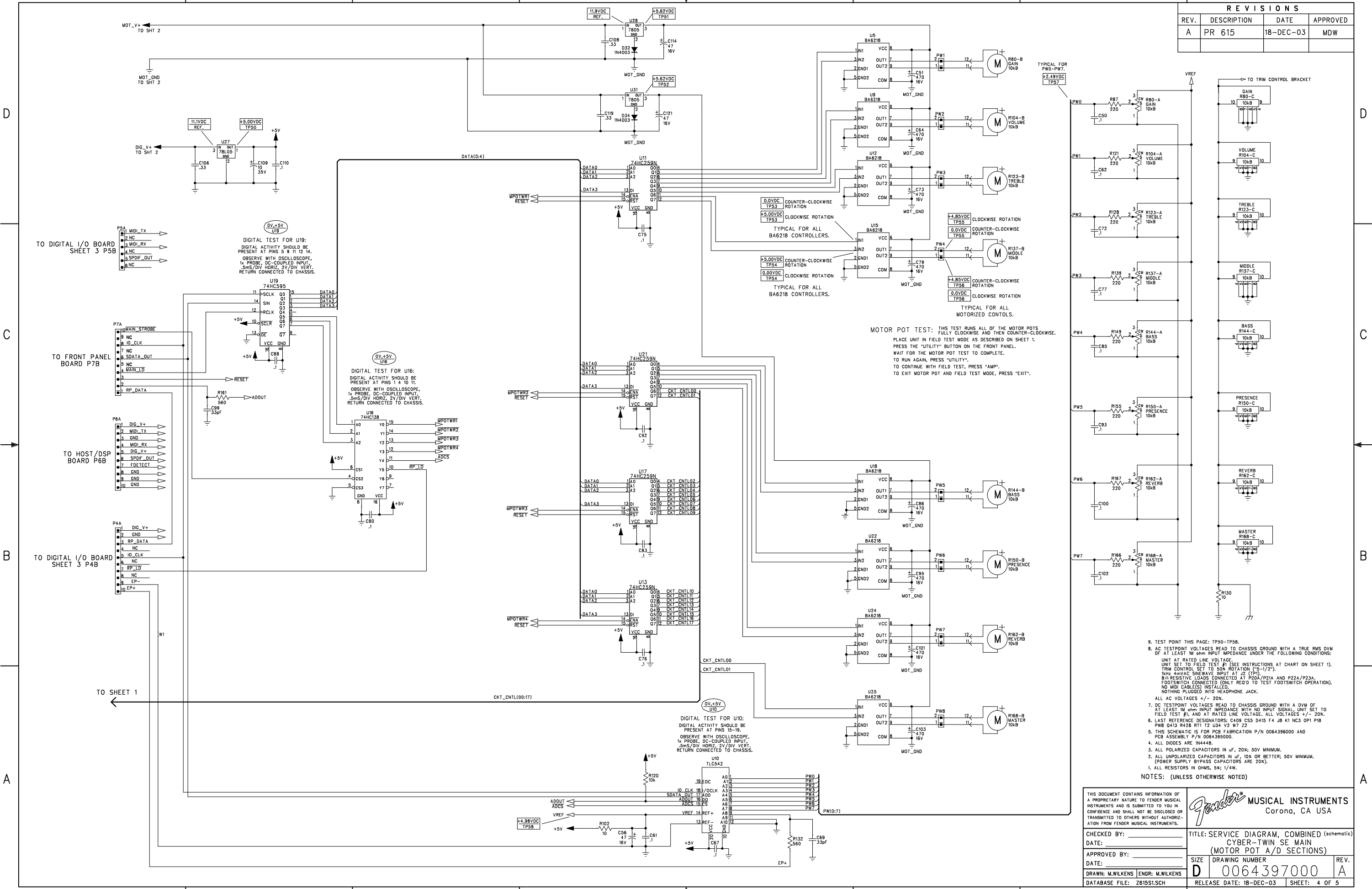
DRAWN: M.WILKENS ENGR: MWILKENS  
DATABASE FILE: Z615S1.SCH

TITLE: SERVICE DIAGRAM, COMBINED (schematic) CYBER-TWIN SE MAIN (DIGITAL I/O BOARD SECTION)

SIZE: D  
DRAWING NUMBER: 0064397000  
RELEASE DATE: 18-DEC-03

REV. A  
SHEET: 3 OF 5

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	PR 615	18-DEC-03	MDW



DIGITAL TEST FOR U19:  
DIGITAL ACTIVITY SHOULD BE PRESENT AT PINS 5, 9, 11, 12, 14. OBSERVE WITH OSCILLOSCOPE. 1x PROBE, DC-COUPLED INPUT. 5MS/DIV HORIZ, 2V/DIV VERT. RETURN CONNECTED TO CHASSIS.

DIGITAL TEST FOR U16:  
DIGITAL ACTIVITY SHOULD BE PRESENT AT PINS 1, 4, 10, 11. OBSERVE WITH OSCILLOSCOPE. 1x PROBE, DC-COUPLED INPUT. 5MS/DIV HORIZ, 2V/DIV VERT. RETURN CONNECTED TO CHASSIS.

DIGITAL TEST FOR U10:  
DIGITAL ACTIVITY SHOULD BE PRESENT AT PINS 15-19. OBSERVE WITH OSCILLOSCOPE. 1x PROBE, DC-COUPLED INPUT. 5MS/DIV HORIZ, 2V/DIV VERT. RETURN CONNECTED TO CHASSIS.

MOTOR POT TEST: THIS TEST RUNS ALL OF THE MOTOR POTS FULLY CLOCKWISE AND THEN COUNTER-CLOCKWISE. PLACE UNIT IN FIELD TEST MODE AS DESCRIBED ON SHEET 1. PRESS THE "UTILITY" BUTTON ON THE FRONT PANEL. WAIT FOR THE MOTOR POT TEST TO COMPLETE. TO RUN AGAIN, PRESS "UTILITY". TO CONTINUE WITH FIELD TEST, PRESS "AMP". TO EXIT MOTOR POT AND FIELD TEST MODE, PRESS "EXIT".

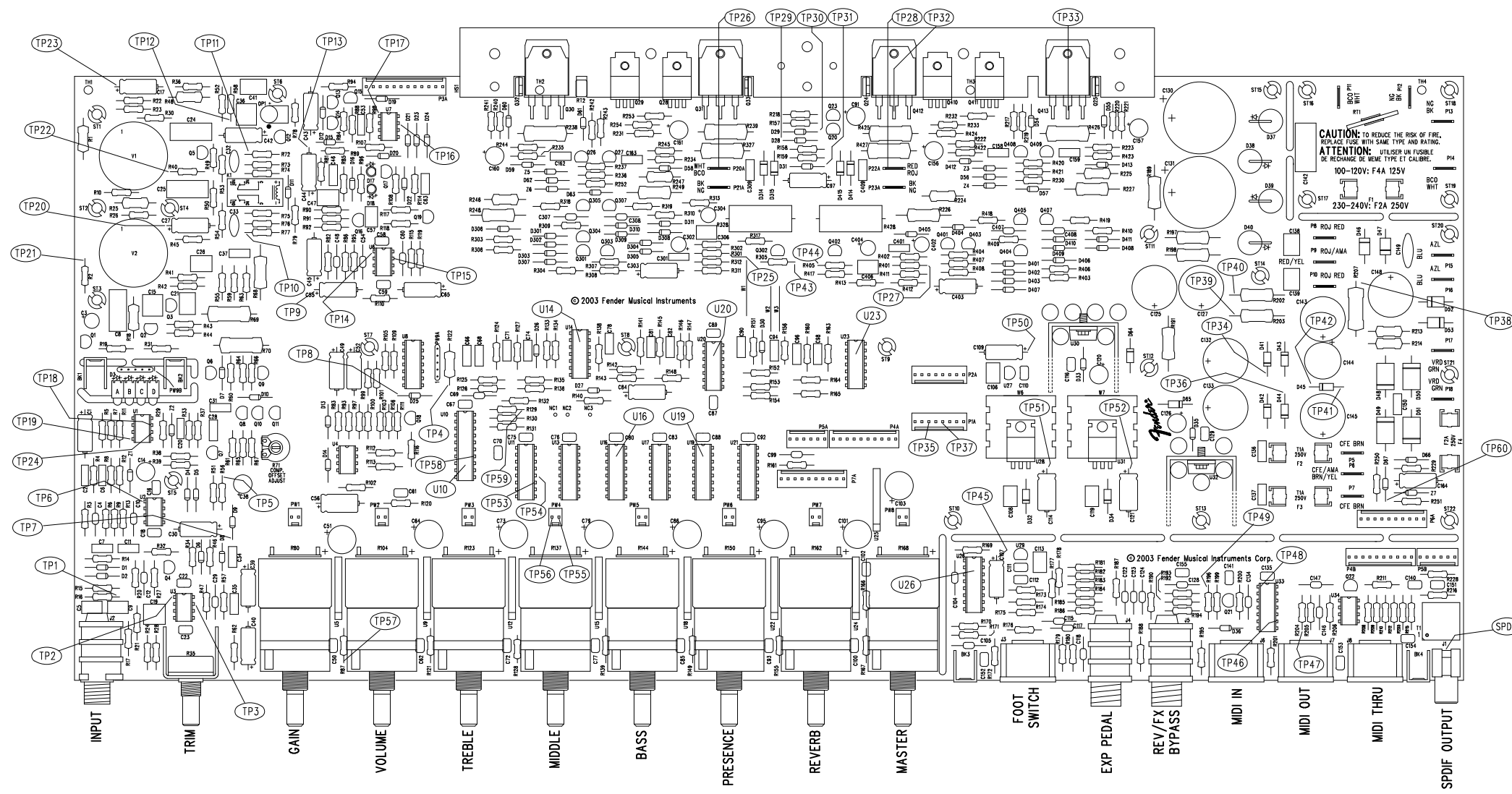
- TEST POINT THIS PAGE: TP50-TP58.
- AC TESTPOINT VOLTAGES READ TO CHASSIS GROUND WITH A TRUE RMS DVM OF AT LEAST 1M ohm INPUT IMPEDANCE UNDER THE FOLLOWING CONDITIONS:  
UNIT AT RATED LINE VOLTAGE.  
UNIT SET TO FIELD TEST #1 (SEE INSTRUCTIONS AT CHART ON SHEET 1).  
TRIM CONTROL SET TO 50% ROTATION (5-1/2").  
100V 40VAC SINEWAVE INPUT AT 12 (TP1).
- RESISTIVE LOADS CONNECTED AT P20A/P21A AND P22A/P23A.  
FOOTSWITCH CONNECTED (ONLY REQ'D TO TEST FOOTSWITCH OPERATION).  
NO MIDI CABLE(S) INSTALLED.  
NOTHING PLUGGED INTO HEADPHONE JACK.
- ALL AC VOLTAGES +/- 20%.
- DC TESTPOINT VOLTAGES READ TO CHASSIS GROUND WITH A DVM OF AT LEAST 1M ohm INPUT IMPEDANCE WITH NO INPUT SIGNAL. UNIT SET TO FIELD TEST #1, AND AT RATED LINE VOLTAGE. ALL VOLTAGES +/- 20%.
- LAST REFERENCE DESIGNATORS: C409 C55 D415 F4 JB K1 NCS OP1 P18 PWB Q413 R428 R11 U34 V2 W7 Z2
- THIS SCHEMATIC IS FOR PCB FABRICATION P/N 0064396000 AND PCB ASSEMBLY P/N 0064395000.
- ALL DIODES ARE 1N4448.
- ALL POLARIZED CAPACITORS IN uF, 20%; 50V MINIMUM.
- ALL UNPOLARIZED CAPACITORS IN uF, 10% OR BETTER; 50V MINIMUM. (POWER SUPPLY BYPASS CAPACITORS ARE 20%).
- ALL RESISTORS IN OHMS, 5%; 1/4W.

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**Fender** MUSICAL INSTRUMENTS  
Corona, CA USA

CHECKED BY:	TITLE: SERVICE DIAGRAM, COMBINED (schematic) CYBER-TWIN SE MAIN (MOTOR POT A/D SECTIONS)
DATE:	
APPROVED BY:	
DATE:	
DRAWN: M.WILKENS ENGR: M.WILKENS	SIZE: DRAWING NUMBER
DATABASE FILE: Z615S1.SCH	D 0064397000
	RELEASE DATE: 18-DEC-03 SHEET: 4 OF 5

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	PR 615	18-DEC-03	MDW

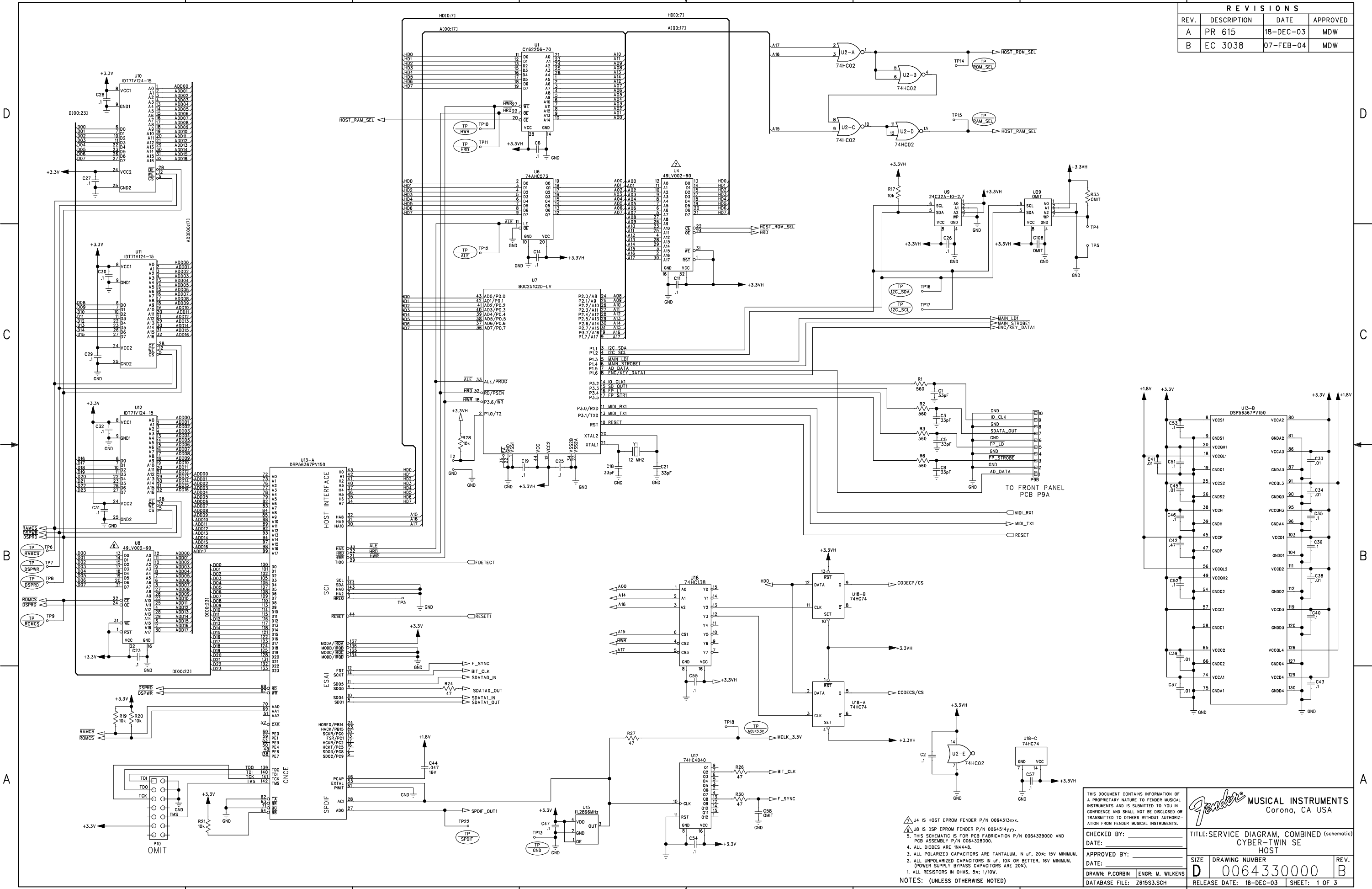


FILM/DWG: SERVICE DIAGRAM  
 DATABASE: Z615P1.PCB DATE: 18-DEC-03

- 5. SEE SHEET 2 FOR PRIMARY WIRING.
  - 4. SEE SHEETS 1-4 FOR TEST CONDITIONS AND TEST POINT VALUES.
  - 3. WIRES NOT SHOWN FOR CLARITY.
  - 2. PCB ASSEMBLY SHOWN AS FABRICATED.
  - 1. PW1-PW8 NOT USED.
- NOTES: (UNLESS OTHERWISE NOTED)

<p>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.</p>		<p><b>Fender</b> MUSICAL INSTRUMENTS Corona, CA USA</p>	
<p>CHECKED BY: _____ DATE: _____</p>		<p>TITLE: SERVICE DIAGRAM, COMBINED (PCB assy) CYBER-TWIN SE MAIN</p>	
<p>APPROVED BY: _____ DATE: _____</p>		<p>SIZE: <b>D</b></p>	<p>DRAWING NUMBER: <b>0064397000</b></p>
<p>DRAWN: M.WILKENS ENGR: M.WILKENS DATABASE FILE: Z615P1.PCB</p>		<p>RELEASE DATE: 18-DEC-03</p>	<p>REV. <b>A</b> SHEET 5 OF 5</p>

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	PR 615	18-DEC-03	MDW
B	EC 3038	07-FEB-04	MDW



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**Fender** MUSICAL INSTRUMENTS  
Corona, CA USA

CHECKED BY: \_\_\_\_\_ TITLE: SERVICE DIAGRAM, COMBINED (schematic)  
DATE: \_\_\_\_\_ CYBER-TWIN SE  
HOST

APPROVED BY: \_\_\_\_\_ SIZE: \_\_\_\_\_ DRAWING NUMBER: \_\_\_\_\_ REV: \_\_\_\_\_  
DATE: \_\_\_\_\_ D 0064330000 B

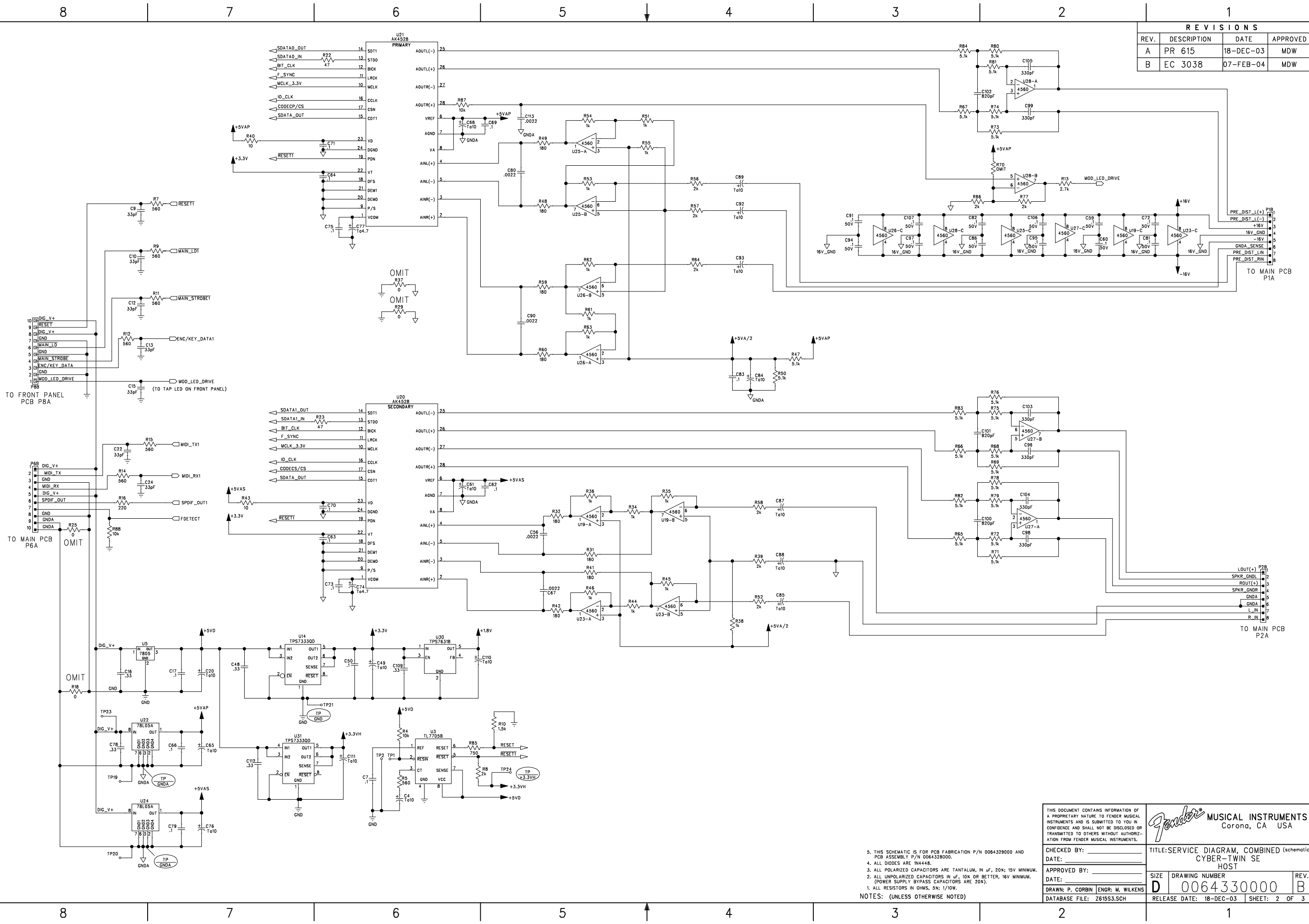
DRAWN: P.CORBIN ENGR: M. WILKENS  
DATABASE FILE: Z619S3.SCH RELEASE DATE: 18-DEC-03 SHEET: 1 OF 3

- NOTES: (UNLESS OTHERWISE NOTED)
- U4 IS HOST EPROM FENDER P/N 0064513xxx.
  - U8 IS DSP EPROM FENDER P/N 0064514yyy.
  - THIS SCHEMATIC IS FOR PCB FABRICATION P/N 0064328000 AND PCB ASSEMBLY P/N 0064328000.
  - ALL DIODES ARE 1N4448.
  - ALL POLARIZED CAPACITORS ARE TANTALUM, 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.

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	PR 615	18-DEC-03	MDW
B	EC 3038	07-FEB-04	MDW

D  
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C  
B  
A



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**Fender** MUSICAL INSTRUMENTS  
Corona, CA USA

CHECKED BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
 APPROVED BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
 DRAWN: P. CORBIN ENGR: M. WILKENS  
 DATABASE FILE: Z619S3.SCH

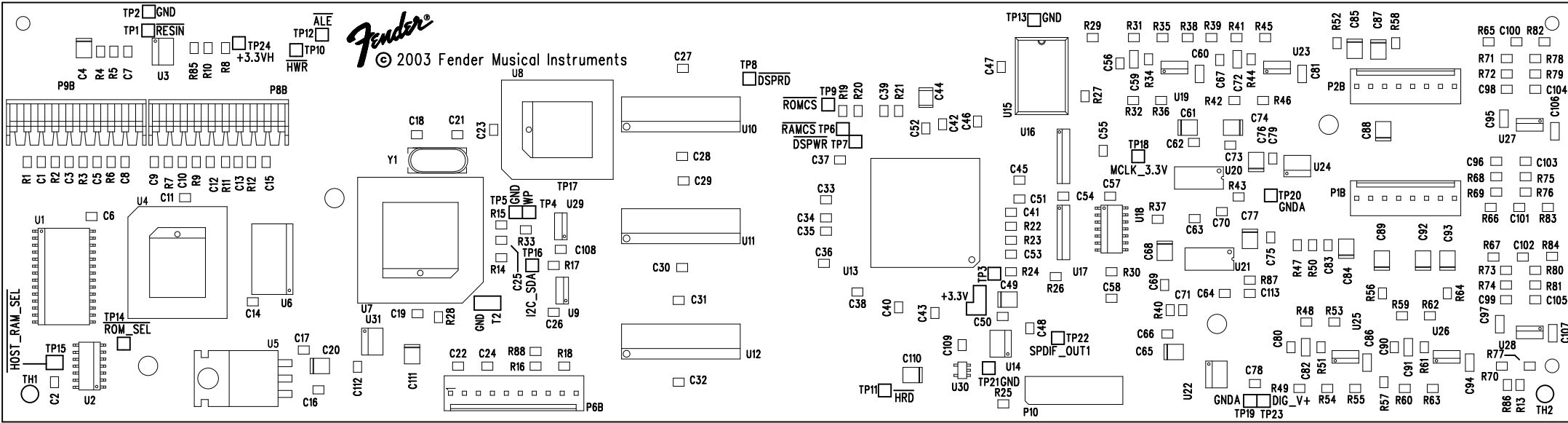
TITLE: SERVICE DIAGRAM, COMBINED (schematic)  
CYBER-TWIN SE  
HOST

SIZE	DRAWING NUMBER	REV.
D	0064330000	B

RELEASE DATE: 18-DEC-03 SHEET: 2 OF 3

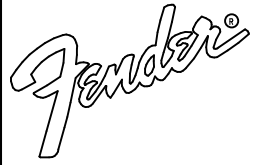
- THIS SCHEMATIC IS FOR PCB FABRICATION P/N 0064328000 AND PCB ASSEMBLY P/N 0064328000.
  - ALL DIODES ARE 1N4448.
  - ALL POLARIZED CAPACITORS ARE TANTALUM, IN  $\mu$ F, 20%; 15V MINIMUM.
  - ALL UNPOLARIZED CAPACITORS IN  $\mu$ F, 10% OR BETTER, 16V MINIMUM. (POWER SUPPLY BYPASS CAPACITORS ARE 20%).
  - ALL RESISTORS IN OHMS, 5%; 1/10W.
- NOTES: (UNLESS OTHERWISE NOTED)

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	PR 615	18-DEC-03	MDW
B	EC 3038	07-FEB-04	MDW



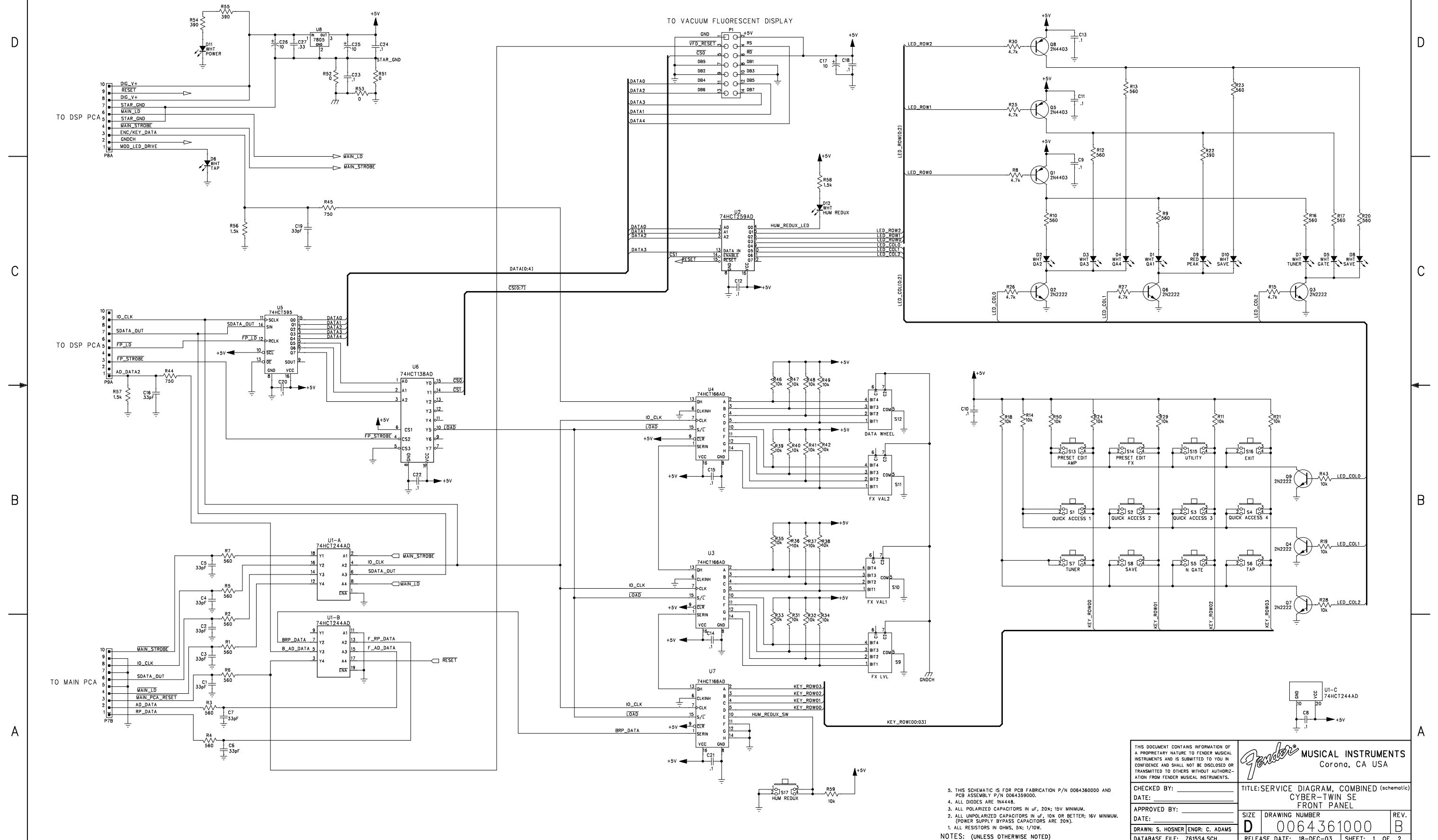
FILM/DWG:	SERVICE DIAGRAM
DATABASE:	Z615P3.PCB DATE: 07-FEB-04

2. C58 C108 P10 R18 R25 R29 R33 R37 R70 U29 OMITTED.  
 1. SEE SHEETS 1 AND 2 FOR SCHEMATIC.  
 NOTES: (UNLESS OTHERWISE NOTED)

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CHECKED BY: _____ DATE: _____		TITLE: SERVICE DIAGRAM, COMBINED (PCB assy) CYBER-TWIN SE HOST	
APPROVED BY: _____ DATE: _____		SIZE <b>B</b>	DRAWING NUMBER <b>0064330000</b>
DRAWN: P. CORBIN ENGR: M. WILKENS		REV. <b>B</b>	
DATABASE FILE: Z615P3.PCB		RELEASE DATE: 18-DEC-03	SHEET 3 OF 3



REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	PR 615	18-DEC-03	MDW
B	EC 3038	07-FEB-04	MDW



5. THIS SCHEMATIC IS FOR PCB FABRICATION P/N 0064360000 AND PCB ASSEMBLY P/N 0064359000.
4. ALL DIODES ARE 1N4448.
3. ALL POLARIZED CAPACITORS IN  $\mu$ F, 20%; 15V MINIMUM.
2. ALL UNPOLARIZED CAPACITORS IN  $\mu$ F, 10% OR BETTER; 16V MINIMUM. (POWER SUPPLY BYPASS CAPACITORS ARE 20%).
1. ALL RESISTORS IN OHMS, 5%; 1/10W.
- NOTES: (UNLESS OTHERWISE NOTED)

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**Fender** MUSICAL INSTRUMENTS  
Corona, CA USA

CHECKED BY: \_\_\_\_\_ DATE: \_\_\_\_\_

APPROVED BY: \_\_\_\_\_ DATE: \_\_\_\_\_

DRAWN: S. HOSNER ENGR: C. ADAMS DATABASE FILE: Z619S4.SCH

TITLE: SERVICE DIAGRAM, COMBINED (schematic)  
CYBER-TWIN SE FRONT PANEL

SIZE	DRAWING NUMBER	REV.
D	0064361000	B

RELEASE DATE: 18-DEC-03 SHEET: 1 OF 2

8 | 7 | 6 | 5 | 4 | 3 | 2 | 1

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	PR 615	18-DEC-03	MDW
B	EC 3038	07-FEB-04	MDW

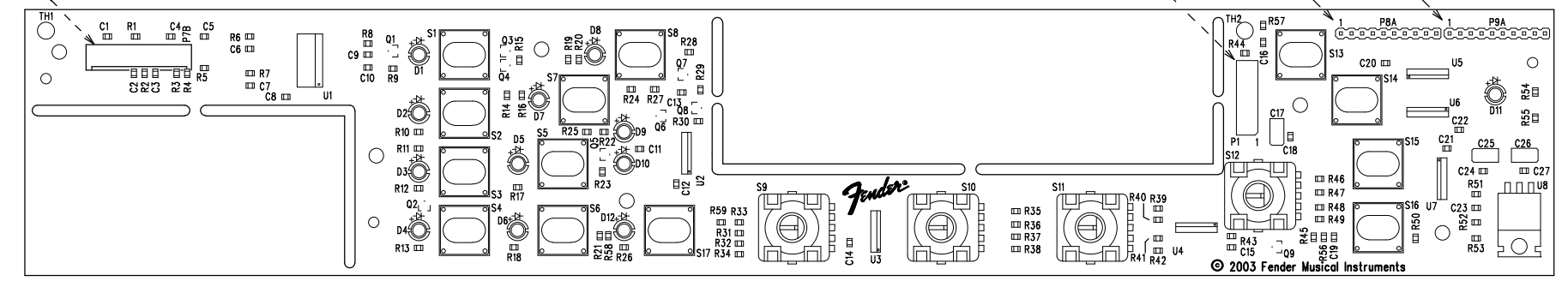
D  
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A

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B  
A

P7B MOUNTS ON BACK SIDE OF PCB.

P1 MOUNTS ON BACK SIDE OF PCB.

P8A AND P9A MOUNT ON BACK SIDE OF PCB.



FILM/DWG: SERVICE DIAGRAM  
 DATABASE: Z615P4.PCB DATE: 07-FEB-04

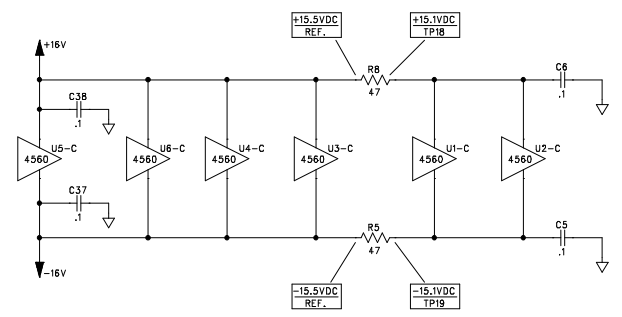
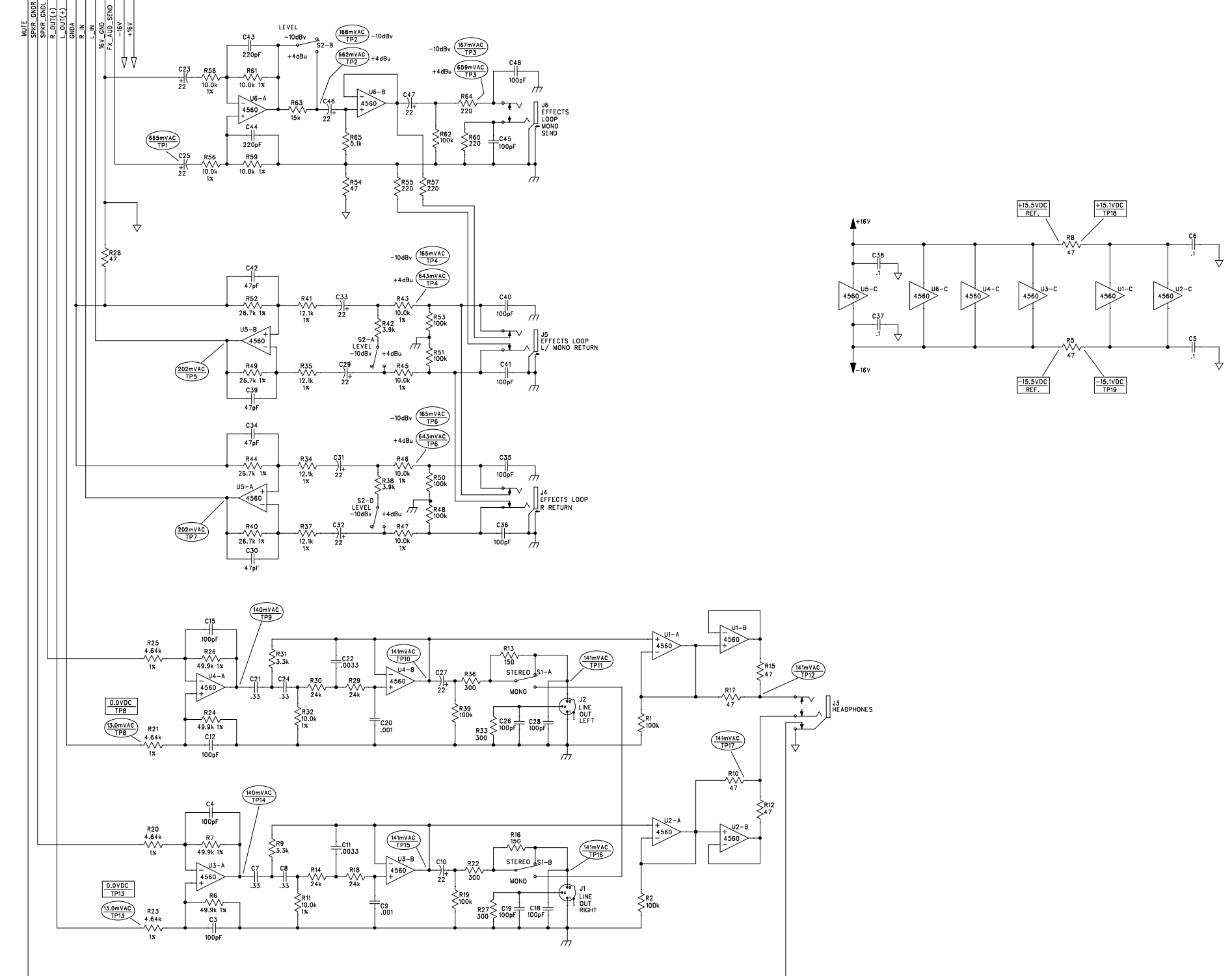
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CHECKED BY: _____ DATE: _____		TITLE: SERVICE DIAGRAM, COMBINED (PCB assy) CYBER-TWIN SE FRONT PANEL	
APPROVED BY: _____ DATE: _____		SIZE <b>C</b>	DRAWING NUMBER <b>0064361000</b>
DRAWN: P. CORBIN	ENGR: M. WILKENS	RELEASE DATE: 18-DEC-03	REV. <b>B</b> SHEET 2 OF 2
DATABASE FILE: Z615P4.PCB			

1. SEE SHEET 1 FOR SCHEMATIC.  
 NOTES: (UNLESS OTHERWISE NOTED)

8 | 7 | 6 | 5 | 4 | 3 | 2 | 1

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	PR 615	18-DEC-03	MDW

TO MAIN ANALOG BOARD P3A

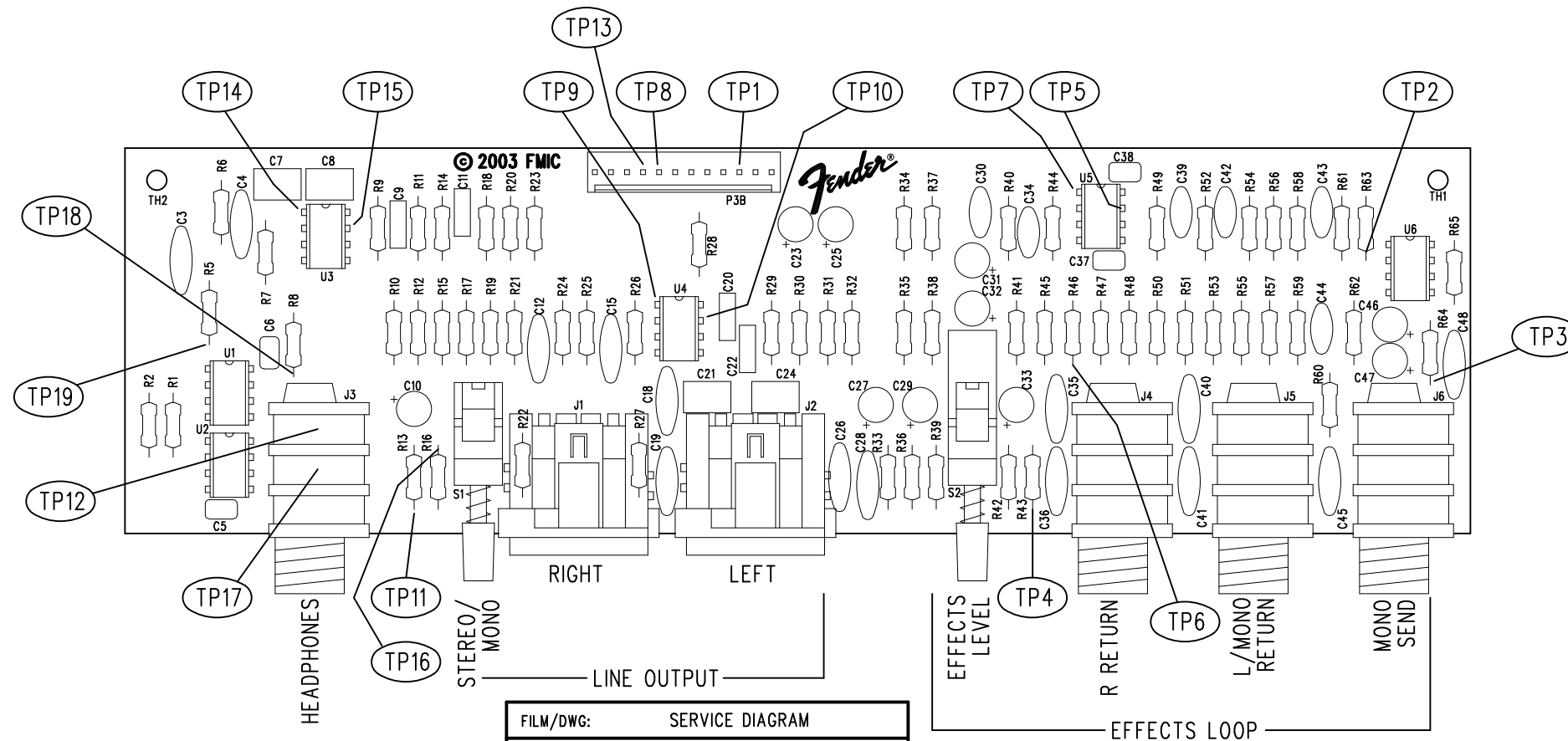


- NOTES: (UNLESS OTHERWISE NOTED)
1. ALL RESISTORS IN OHMS, 5%; 1/4W.
  2. ALL UNPOLARIZED CAPACITORS IN uF, 10% OR BETTER; 50V MINIMUM. (POWER SUPPLY BYPASS CAPACITORS ARE 20%).
  3. ALL POLARIZED CAPACITORS IN uF, 20%; 50V MINIMUM.
  4. ALL DIODES ARE 1N4448.
  5. THIS SCHEMATIC IS FOR PCB FABRICATION P/N 0064450000 AND PCB ASSEMBLY P/N 0064450000.
  6. LAST REFERENCE DESIGNATORS: C58 J6 P38 R65 S2 TP19 U6
  7. DC TESTPOINT VOLTAGES READ TO CHASSIS GROUND WITH A DVM OF AT LEAST 1M ohm INPUT IMPEDANCE WITH NO INPUT SIGNAL. UNIT SET TO FIELD TEST #1 AND AT RATED LINE VOLTAGE. ALL VOLTAGES +/- 20%. SEE SERVICE DIAGRAM 0055766000 FOR FIELD TEST INSTRUCTIONS.
  8. AC TESTPOINT VOLTAGES READ TO CHASSIS GROUND WITH A TRUE RMS DVM OF AT LEAST 1M ohm INPUT IMPEDANCE UNDER THE FOLLOWING CONDITIONS:  
 UNIT AT RATED LINE VOLTAGE.  
 UNIT SET TO FIELD TEST #1 (SEE SVC DIAG 0064397000 FOR INSTRUCTIONS).  
 TRM CONTROL SET TO 50% ROTATION (15-1/2").  
 1kHz 4mVAC SINEWAVE INPUT AT J2 (TP1).  
 8Ω RESISTIVE LOADS CONNECTED AT P20A, P21A AND P22A, P23A.  
 FOOTSWITCH CONNECTED (ONLY READ TO TEST FOOTSWITCH OPERATION).  
 NO MIDI CABLE(S) INSTALLED.  
 NOTHING PLUGGED INTO HEADPHONE JACK.
  9. INSTANCES NOT USED: C1 C2 C13 C14 C16 C17 R3 R4.

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CHECKED BY: _____	TITLE: SERVICE DIAGRAM, COMBINED (schematic) CYBER-TWIN SE ANALOG I/O PCB		
DATE: _____	APPROVED BY: _____	SIZE: <b>D</b>	DRAWING NUMBER: <b>0064451000</b>
APPROVED BY: _____	DATE: _____	RELEASE DATE: 18-DEC-03	REV. <b>A</b>
DRAWN: M.WILKENS ENGR: M.WILKENS	DATABASE FILE: Z615S2.SCH	SHEET: 1 OF 2	

REVISIONS

REV.	DESCRIPTION	DATE	APPROVED
A	PR 615	18-DEC-03	MDW



FILM/DWG: SERVICE DIAGRAM  
 DATABASE: Z615P2.PCB DATE: 18-DEC-03

1. SEE SHEET 1 FOR TEST CONDITIONS AND TESTPOINT VALUES.  
 NOTES: (UNLESS OTHERWISE NOTED)

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CHECKED BY: \_\_\_\_\_  
 DATE: \_\_\_\_\_

APPROVED BY: \_\_\_\_\_  
 DATE: \_\_\_\_\_

DRAWN: M. WILKENS ENGR: M. WILKENS

DATABASE FILE: Z615P2.PCB

**Fender** MUSICAL INSTRUMENTS  
 Corona, CA USA

TITLE: SERVICE DIAGRAM, COMBINED (PCB assy)  
 CYBER-TWIN SE  
 ANALOG I/O BOARD

SIZE <b>B</b>	DRAWING NUMBER 0064451000	REV. A
RELEASE DATE: 18-DEC-03		SHEET 2 OF 2