CYBER-TWIN HEAD

p/n 022-9002-000 (120V)

SERVICE MANUAL

CONTENTS:

Fender Musical Instruments Corp. 8860 E. Chaparral Road Suite 100 Scottsdale, AZ 85258

CYBER-TWIN HEAD

(This is the name to be used on warranty claims)

SERVICE MANUAL

JANUARY 2002

IMPORTANT NOTICE:

The information contained herein is CONFIDENTIAL and PROPRIETARY to Fender Musical Instruments Corp. It is disclosed solely for use by qualified technicians for purposes of equipment maintenance and service. It is not to be disclosed to others without the expressed permission of Fender Musical Instruments Co. All specifications subject to change without notice.

For warranty repair service, only Fender specified part numbers are to be used. It is recommended they also be used for post-warranty maintenance and repair.

Parts marked with an asterisk (*) indicate the required use of that specific part. This is necessary for RELIABILITY and SAFETY requirements. **DO NOT USE A SUBSTITUTE!**

A coded naming convention is used in the description of certain parts. The codes and what they mean are as follows:

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

CYBER-TWIN HEAD

SPECIFICATIONS

Product Release No.:	PR 502 *(This is not a model number)*
Part Number:	120V Version : 22-9002 110V TW : 22-9012 240V Aus : 22-9032 230V UK : 22-9042 230V Arg : 22-9052 230V Eur : 22-9062 100V Jpn : 22-9072 220V R.O.K. : 22-9092
Power Requirements:	360W
Power Output:	65 W (per channel, 130W total) @ 5% THD
Sensitivity:	Adjustable using trim control
Preamp Input impedance:	900kΩ
Effects Loop:	
Send impedance:	220kΩ
Return impedance:	20kΩ
Nominal level:	-10dBV/+4dbu (switchable)
SPDIF line out jack:	RCA jack, digital stereo
XLR output jacks:	0dBV, balanced, stereo/mono switchable
Impedance:	300Ω balanced
Tube complement:	Two Groove Tubes, 12AX7WA
Fuses: Primary:	100/120V: F4A 125V
Secondary:	Digital supply: F2A Analog supply: 2 x T1A
Footswitch:	Four-button (remote Quick Access key access) 5-pin MIDI type cord (p/n 0051894000)
Dimensions:	Height: 9-25/32" (25.8 cm) Width: 26 1/8" (66.4 cm) Depth: 11-5/16" (28.7 cm)
Weight:	30lbs. (13.6 kg)

Product specifications are subject to change without notice

CYBER-TWIN HEAD

Step by Step

Fender Cyber-Twin Troubleshooting Guide for Hardware Problems

NO AUDIO

Setup: Follow the instructions as stated under notes 8, on the Cyber-Twin Head Main Schematics (0057498000 Sheet 1).

1. Turn on the Power to the Cyber-Twin.
2. Does the Jewel LED come on?
   - 1.1 If the Jewel LED does not come on, but there is Audio, check the Jewel LED.
   - 1.2 If the Jewel LED does not come on and there is no Audio, check the Power Supplies.

2 Does the VFD (**V**acuum **F**lourescent **D**isplay) come on?
- 2.1 If the VFD does not come on, but there is Audio, check the VFD.
- 2.2 If the VFD does not come on and there is no Audio, check the Power Supplies.
  - 2.2.1 If the Power Supplies are OK then check the Ribbon cables.
  - 2.2.2 If the Ribbon cables are OK, swap the Host board.

3 If both the Jewel LED and the VFD come on, but there is no Audio, then check the speaker connections. Remove any rear panel audio connections (Headphones, FX etc).

4 If the Speakers are OK and there is no Audio, then check the Power Supplies.

5 If the Power Supplies are OK, check for Audio on Effects Send.
- 5.1 If there is no Audio on Effects Send.
  - 5.1.1 Check for Audio on U7 Pin1 on the Main PCB.
  - 5.1.2 If there is Audio on U7, then swap the Analog I/O PCB.
  - 5.1.3 If there is no Audio on U7, then check for Audio on P1B Pin 7 & 8 on the Host PCB.
  - 5.1.4 If there is no Audio on P1B Pin 7 & 8, then troubleshoot the Pre-amp section on the Main PCB.
  - 5.1.5 If there is Audio on P1B Pin 7 & 8, then check for Audio on P1B Pin 1 & 2 on the Host PCB.
  - 5.1.6 If there is no Audio on P1B Pin 1 & 2, then swap the Host PCB.
  - 5.1.7 If there is Audio on P1B Pin 1 & 2, then troubleshoot the Distortion section on the Main PCB.
- 5.2 If there is Audio on Effects Send.
  - 5.2.1 Check for Audio on P3B Pin 7 & 8 on the Analog PCB.
  - 5.2.2 If there is no Audio on P3B Pin 7 & 8, then swap the Analog I/O PCB.
  - 5.2.3 If there is Audio on P3B Pin 7 & 8, then check for Audio on P2B Pin 1 & 3 on the Host PCB.
  - 5.2.4 If there is no Audio on P2B Pin 1 & 3, then swap the Host PCB.
  - 5.2.5 If there is Audio on P2B Pin 1 & 3, then troubleshoot the Power Amp section on the Main PCB.

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MOTOR POT DOES NOT WORK

Setup: Follow the Motor Pot Test instructions described on the Motor Pot A/D Section Schematics (005749800 Sheet 4).

1. If the Motor Pots do not work then check if the Power Supplies are OK and troubleshoot if necessary.
2. If the Power Supplies are OK, check the voltage on the PW# Pins while running the Pot test.
3. If the correct voltage is present on the PW# Pins, then swap the damaged Motor Pots.
4. If there is no voltage present on the PW# Pins, then check for the correct voltage, specified on the Schematics, on Pin 1 & 3 of the BA6218 controllers.
5. If there is a voltage on the input of the BA6218 controllers, but the Motor Pot does not work, then swap the damaged BA6218.
6. If there is no Voltage present on Pin 1 & 3 of the BA6218 controllers, then proceed to the Digital Test described on the Motor Pot A/D Section Schematics (0057498000 Sheet 4).

MIDI IS NOT WORKING

Setup: Follow the Midi Test instructions described on the Digital I/O Board Section Schematics (0057498000 Sheet 3).

1. Check for Midi activity on the Midi test points.
2. Check for Midi activity on P5B Pin 1 & 3.
   2.1 If there is Midi activity on P5B Pin 1 & 3, then troubleshoot in the area around U33 and U34 or swap Digital I/O boards.
   2.2 If there is no Midi activity on P5B Pin 1 & 3, then check if ribbon cable on P5 is OK.
3 If the ribbon cable on P5 is OK, check the ribbon cable on P6, otherwise swap the ribbon cable on P5.
4 If the ribbon cable on P6 is OK, swap the Host PCB, otherwise swap the ribbon cable on P6.

NO AUDIO ON HEADPHONES JACK

Setup: Follow the instructions as stated under notes 8, on the Cyber-Twin Head Main Schematics (0057498000 Sheet1).

1. Check for Audio Output through the Speakers with Headphones unplugged.
2. If there is no Audio Output through the Speakers proceed to the previous troubleshooting section NO AUDIO.

NO AUDIO ON HEADPHONES JACK (cont)

3. If there is Audio Output through the Speakers, check if ribbon cable P3 is OK.
   3.1 If the ribbon cable is OK, then swap the Analog I/O PCB.
   3.2 If the ribbon cable is defective, then swap the cable.

FX KILL/ FOOTSWITCH IS NOT WORKING

Setup: See Footswitch Notes on the Digital I/O Board Section Schematics (0057498000 Sheet 3).

1. Check the Voltage on U26 Pins 4,5,10,11,12.
2. If the Voltages are not correct check the Power Supply.
   2.1. If the Power Supply is OK check the area around J3 and J5.
3. If the Voltages are correct check for Digital Activity on U26 Pins 7 & 15.
   3.1. If there is no Digital Activity on Pins 7 & 15 check the Ribbon Cable P4 and swap if necessary.
      3.1.1. If the Ribbon Cable on P4 is OK, check the Ribbon cable on P7. Swap if necessary, otherwise swap the Front Panel PCB (0055754000).
4. If there is Digital Activity on Pins 7 & 15, check for Digital Activity on U26 Pin 13.
   4.1. If there is no Digital Activity on Pin 13 swap U26, otherwise check the Ribbon Cable P4 and swap if necessary.
      4.1.1. If the Ribbon Cable on P4 is OK, check the Ribbon Cable on P7. Swap if necessary, otherwise swap the Front Panel PCB (0055754000).

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Fender Cyber-Twin Troubleshooting Guide for User Interface Problems

NO SOUND

What to check:

- The LED ladder is not coming on when hitting a string.
- The TRIM, GAIN, VOLUME or MASTER is turned to 1.
- Something is plugged into the L/MONO EFFECTS RETURN jack, or the HEADPHONES jack.

How to solve the problem:

- Turn up the guitar VOLUME or the amp TRIM controls so that green LED's turn on.
- Turn TRIM, GAIN, VOLUME or MASTER past 1.
- Unplug connector from L/MONO EFFECTS RETURN jack, or the HEADPHONES jack.

NO EFFECTS

What to check:

- The effects function in the FX Menu is turned to NONE.
- The effect output level is turned to 1.0.
- FX Kill switch is enabled.

How to solve the problem:

- Press the FX menu button and turn on an effect.
- Turn the effects level past 1.0 on the FX LEVEL knob.
- Use the FX Kill footswitch to disable the function.

DELAY TIME CHANGE SOUNDS ABRUPT

What to check:

- The DELAY TIME CHANGE function is set to STEP.

How to solve the problem:

- Press the FX menu button 7x to get to the DELAY TIME CHANGE function, and turn it to RAMP.

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NO REVERB

What to check:
- The REVERB control is turned to 1.
- The REVERB INPUT is turned to 1.0.
- FX Kill switch is enabled.

How to solve the problem:
- Turn the REVERB knob on the front panel past 1.
- Press the AMP menu button 6x to get to the REVERB INPUT function, and turn REVERB INPUT past 1.0.
- Use the FX Kill Footswitch to disable the function.

NO MIDI RECEPTION/ TRANSMISSION

What to check:

- The MIDI connection between the Cybertwin and another MIDI device is incorrect.
- The MIDI RECEIVE CHANNEL on the Cybertwin is set to a different channel than the transmitting MIDI device.
- The TRANSMIT CHANNEL on the Cybertwin is turned OFF.

How to solve the problem:

- Connect the MIDI cables as follows:
  Cybertwin MIDI IN → Device MIDI OUT
  Cybertwin MIDI OUT → Device MIDI IN
- Press the UTILITY menu button 5x to get to the MIDI RECEIVE CH function and set the RECEIVE CHANNEL to the same channel as the transmitting device or set the RECEIVE CHANNEL to OMNI.
- Press the UTILITY menu button 6x and turn the MIDI TRANSMIT CH to the desired channel.

AMP WILL NOT RECEIVE SysEx INFORMATION

What to check:

- The SysEx DEVICE ID is turned to a different value than when the SYSEX data dump was done.

How to solve the problem:

- Press the UTILITY menu button 7x to go to the SYSEX DEVICE ID function, and set the DEVICE ID to the same value as when the SYSEX data dump was completed or set the SYSEX DEVICE ID to OMNI.

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AMP DOES NOT LOAD PRESETS OR WILL NOT SAVE A PRESET

What to check:

- DEMO MODE is turned ON.
- MEMORY PROTECT is turned ON.

How to solve the problem:

- Press the UTILITY menu button 1x to go to the DEMO MODE function and turn DEMO MODE OFF.
- Press the UTILITY menu button 2x to go to the MEMORY PROTECT function and turn MEMORY PROTECT OFF.

LOW END IN SOUND IS MISSING

What to check:

- LINE/SPKR PHASE is set to RIGHT or LEFT REVERSE POLARITY.
- Speaker wiring has been switched.

How to solve the problem:

- Press the AMP menu button 11x to get to the LINE/SPKR PHASE function and turn it to STANDARD POLARITY.
- Connect the white cable to the positive speaker connection and the black cable to the negative speaker connection.

EXPRESSION PEDAL DOES NOT WORK

What to check:

- The expression pedal is plugged in incorrectly.
- The EXPRESSION PEDAL function is switched to an incorrect control parameter.

How to solve the problem:

- Plug expression pedal into the EXPRESSION PEDAL jack on the rear panel.
- Press the AMP menu button 15x to get to the EXPRESSION PEDAL function and turn it to the desired control parameter.

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MIDI FOOT-PEDAL DOES NOT WORK

What to check:

- The MIDI RECEIVE CHANNEL on the Cybertwin is set to a different channel than the transmitting MIDI device.
- The CONTINUOUS CONTROLLER on the Cybertwin is set to a different CONTINUOUS CONTOLLER value on the foot-pedal.
- The CONTINUOUS CONTROLLER is switched to an incorrect control parameter.

How to solve the problem:

- Press the UTILITY menu button 5x to get to the MIDI RECEIVE CH function and set the RECEIVE CHANNEL to the same channel as the transmitting device or set the RECEIVE CHANNEL to OMNI.
- Press the UTILITY menu button 4x to get to the CONTINUOUS CONTROLLER function and turn it to the same value as the foot-pedal.
- Press the AMP menu button 16x to get to the CONTINUOUS CONTROLLER function and turn it to the parameter you would like to control.

DRY GUITAR SIGNAL ON SPDIF OUTPUT

What to check:

- SPDIF PATCHING is switched to GUITAR DIRECT OUT.

How to solve the problem:

- Press the UTILITY menu button 3x to get to the SPDIF PATCHING function and turn it to AMP LINE OUT.

PROGRAM CHANGE DOES NOT WORK CORRECTLY

What to check:

- MIDI MAPPING is used incorrectly.

How to solve the problem:

- Press the UTILITY menu button 8x to get to the MIDI MAPPING function and map the correct preset to the desired program change value.

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FOOT CONTROLLER CHANGES WILL NOT RECORD IN SEQUENCER

What to check:

- The CC ECHO IN → OUT is turned OFF.

How to solve the problem:

- Press the UTILITY menu button 9x to get to the CC ECHO IN → OUT function and switch it to ON.

TAP BUTTON DOES NOT WORK

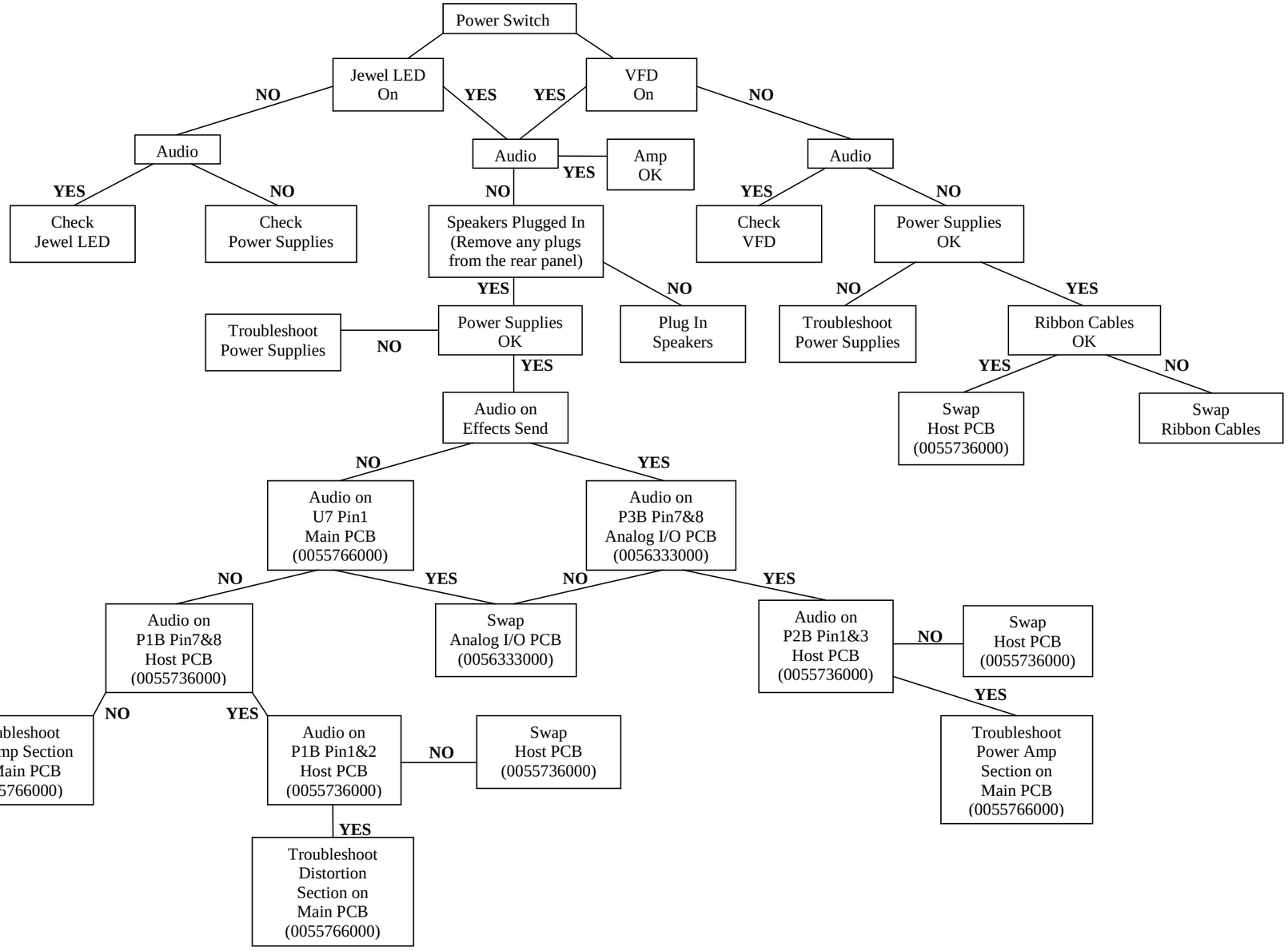
What to check:

- The effect in the FX menu is switched to NONE.
- An effect is selected that does not support the TAP button.
- The Min and Max FX times are exceeded.

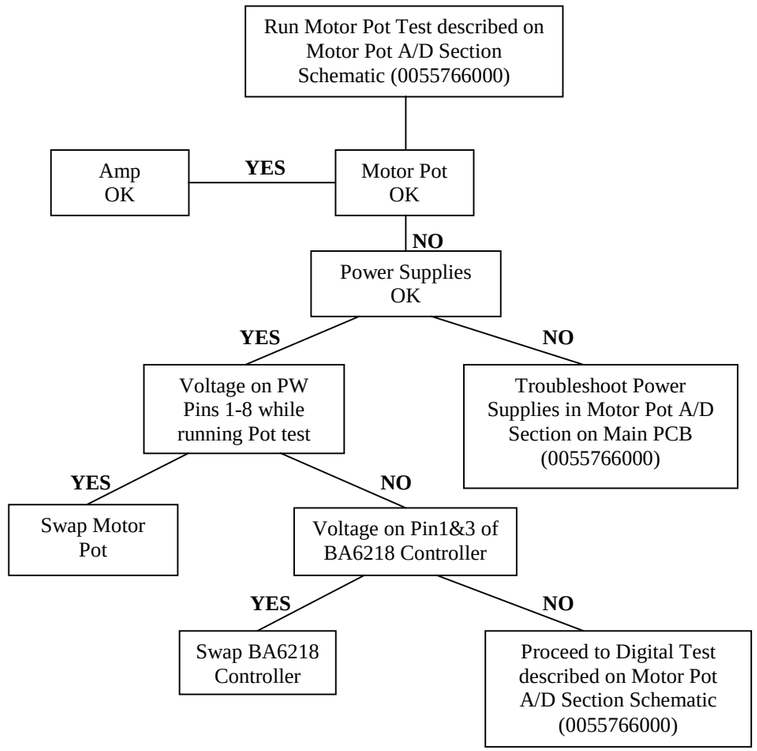
How to solve the problem:

- Press the FX menu button and select the desired effect.
- Press the FX menu button and select any desired effect other than PEDAL WAH, TOUCH WAH and PITCH SHIFT.
- The Min FX time is 30ms and the Max FX time is 1.45s.

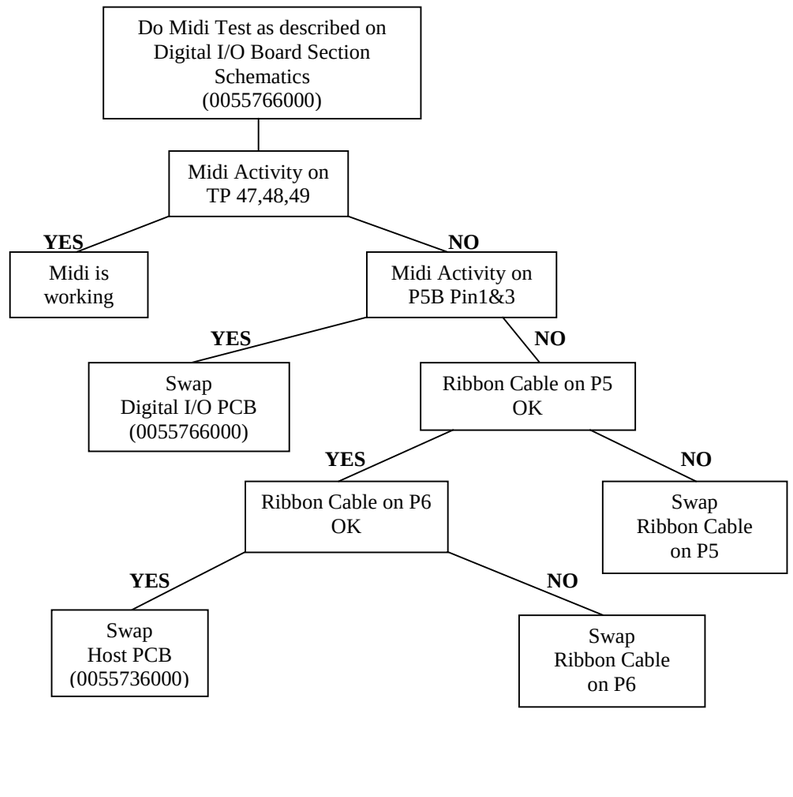
NO AUDIO


Power Switch
Jewel LED On
VFD On
NO
YES
YES
NO
Audio
Audio
Amp OK
Audio
YES
NO
YES
NO
YES
NO
Check Jewel LED
Check Power Supplies
Speakers Plugged In (Remove any plugs from the rear panel)
Check VFD
Power Supplies OK
YES
NO
NO
YES
Troubleshoot Power Supplies
Power Supplies OK
Plug In Speakers
Troubleshoot Power Supplies
Ribbon Cables OK
NO
YES
YES
NO
Audio on Effects Send
Swap Host PCB (0055736000)
Swap Ribbon Cables
NO
YES
Audio on U7 Pin1 Main PCB (0055766000)
Audio on P3B Pin7&8 Analog I/O PCB (0056333000)
NO
YES
NO
YES
Audio on P1B Pin7&8 Host PCB (0055736000)
Swap Analog I/O PCB (0056333000)
Audio on P2B Pin1&3 Host PCB (0055736000)
NO
Swap Host PCB (0055736000)
YES
NO
YES
Troubleshoot Pre-Amp Section on Main PCB (0055766000)
Audio on P1B Pin1&2 Host PCB (0055736000)
NO
Swap Host PCB (0055736000)
Troubleshoot Power Amp Section on Main PCB (0055766000)
YES
Troubleshoot Distortion Section on Main PCB (0055766000)

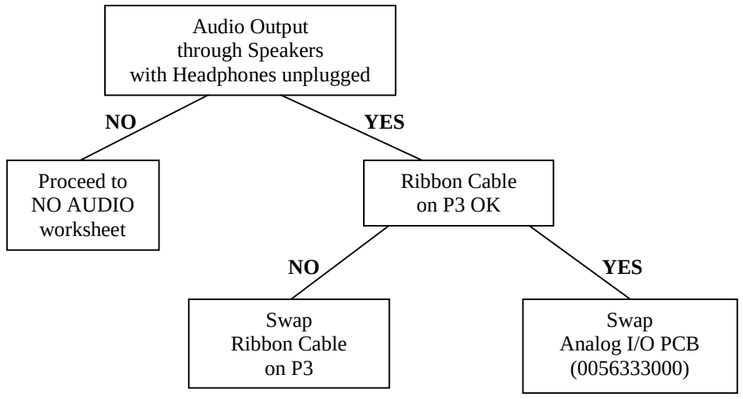
MOTOR POT DOES NOT WORK



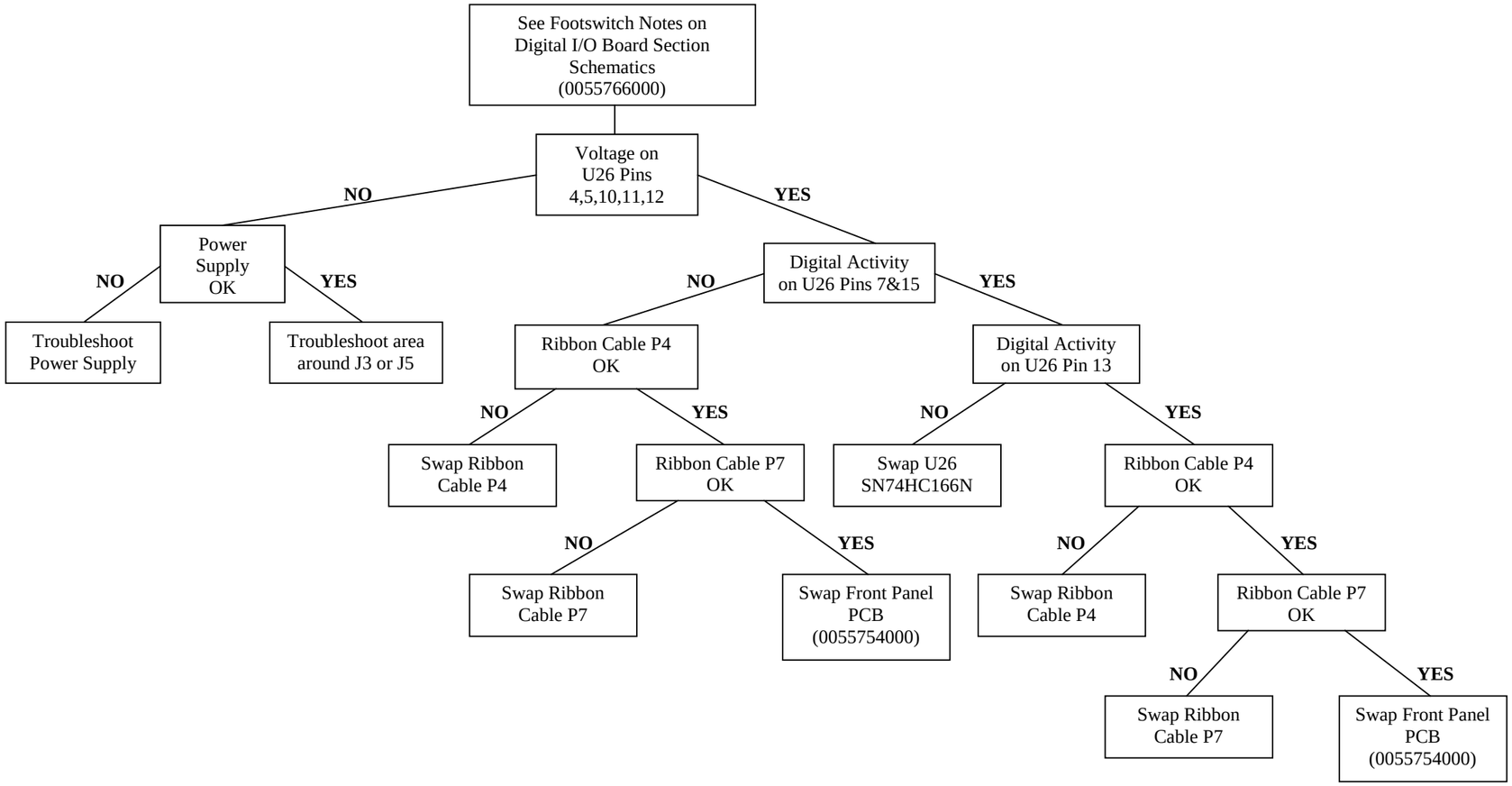
MIDI IS NOT WORKING



HEADPHONES ARE NOT WORKING



FX KILL/ FOOTSWITCH IS NOT WORKING



Cyber-Twin™

Your Amp Collection

35 of the Greatest Amp Circuits of All Time, the Way They Left the Factory.

(Stored in Permanent Memory)

Preset Number	Preset Name	Tone Stack and Location	Drive Circuitry	Effects
A00	Champ '49	Tweed - Pre	Tweed Tube 1	None
A01	Champ W P '53	Tweed - Pre	Tweed Tube 3	None
A02	Champ-Amp5C1 '55	Tweed - Pre	Tweed Tube 1	None
A03	Vibro Champ '68	Blackface - Pre	Blackface Tube 2	None
A04	Pro W P '53	Tweed - Pre	Tweed Tube 3	None
A05	Bassman N P '58	British - Pre	Tweed Tube 1	None
A06	Bassman N P '59	Tweed - Pre	Tweed Tube 1	None
A07	Deluxe W P '54	Blackface - Pre	Tweed Tube 2	None
A08	Deluxe N P '55	Blackface - Pre	Tweed Tube 3	None
A09	Deluxe Rvb '65 -	Blackface - Pre	Blackface Tube 1	None
A10	Deluxe Rvb '65 +	Blackface - Pre	Blackface Tube 3	None
A11	Tremolux N P '55	Tweed - Pre	Tweed Tube 2	Amp Tremolo
A12	Twin N P '59	Tweed - Pre	Tweed Tube 3	None
A13	Twin N P '60 Mod	Tweed - Pre	Tweed Tube 3	None
A14	Twin Reverb '65	Blackface - Pre	Blackface Tube 3	Amp Tremolo
A15	Bandmaster '60	Tweed - Pre	Blackface Tube 3	Amp Tremolo
A16	Vibrolux Rvb '64	Blackface - Pre	Blackface Tube 1	Amp Tremolo
A17	Super Reverb '66	Blackface - Pre	Blackface Tube 2	Amp Tremolo
A18	Princeton Rv '67	Blackface - Pre	Blackface Tube 2	None
A19	Princeton Ch '86	Modern - Pre	Blackface Tube 1	Triangle Chorus
A20	Sidekick 10 '83	Modern - Pre	Dyna-Touch 1	None
A21	Vibro King '93	Modern - Pre	Blackface Tube 2	Amp Tremolo
A22	Ultimate Ch '94	Modern - Pre	Blackface Tube 1	Triangle Chorus
A23	Prosonic '94	Modern - Post	HMB Tube 3	None
A24	HR Deville '96	Tweed - Pre	Hot Rod Tube 3	None
A25	Stage '99 -	Blackface - Post	Dyna-Touch 1	None
A26	Stage '99 +	Blackface - Post	Dyna-Touch 2	None
A27	Sunn Model T '98	Modern - Post	HMB Tube 3	None
A28	Dual Richter -	Modern - Post	HMB Tube 1	None
A29	Dual Richter +	Modern - Post	Dyna-Touch 4	None
A30	Amp Liverpool	British - Post	Hot Rod Tube 3	None
A31	Dirty Thirty	British - Post	HMB Tube 1	None
A32	Blues Combo	British - Pre	Tweed Tube 3	None
A33	Vintage Stack	British - Post	HMB Tube 1	None
A34	Modern Stack	British - Post	HMB Tube 3	None

Fender Custom Shop Presets

Premium Amp and Effects Combinations

(Stored in Permanent Memory)

Preset Number	Preset Name	Tone Stack and Location	Drive Circuitry	Effects
C00	Stadium Rock	British - Post	HMB Tube 3	Stereo Tape Delay
C01	High Voltage	British - Post	HMB Tube 2	None
C02	A Twin Reverb	Blackface - Pre	Blackface Tube 3	Amp Tremolo
C03	Morning Light	Blackface - Pre	Blackface Tube 1	Vibratone
C04	Nite Bob's Set	British - Post	HMB Tube 3	None
C05	Retro Supreme	Tweed - Pre	Tweed Tube 2	Amp Tremolo
C06	First Zep	Tweed - Pre	Tweed Tube 3	None
C07	Stolen Moment	Blackface - Post	Blackface Tube 1	None
C08	Cliffs	British - Post	Dyna-Touch 3	Tape Echo
C09	Rhythm Blues	Tweed - Post	Tweed Tube 1	None
C10	Cosmik Slime	Blackface - Post	Hot Rod Tube 1	Touch Wah
C11	Heavy Soul	Blackface - Post	Dyna-Touch 3	Tremolo
C12	Classic Desire	Blackface - Pre	Tweed Tube 2	Sine Flange
C13	Radioactive Fire	Modern - Post	HMB Tube 1	Phaser
C14	The Still Night	British - Post	Dyna-Touch 2	Triangle Chorus
C15	Peruvian Skies	Blackface - Pre	Blackface Tube 1	Delay + Phaser
C16	High Fly Zone	Blackface - Post	Dyna-Touch 4	Tape Echo
C17	No Name Streets	Blackface - Pre	Blackface Tube 1	Mono Delay
C18	One Panner	Tweed - Pre	Tweed Tube 1	Auto Pan
C19	Smokin'	British - Post	HMB Tube 3	Triangle Chorus
C20	BoDelay	Tweed - Pre	Tweed Tube 1	One E Da Delay
C21	Pink Brick	Tweed - Pre	Tweed Tube 1	Tape Echo
C22	Nite Bob Express	Modern - Post	Dyna-Touch 4	Sine Chorus
C23	Fuzzy Dice	Blackface - Pre	Tweed Tube 3	Mono Delay
C24	Texas Bar Room	Blackface - Pre	Blackface Tube 2	None
C25	Fifth Avenue	Tweed - Pre	Blackface Tube 1	None
C26	Reverb Bassman	Tweed - Pre	Tweed Tube 1	None
C27	Barracuda	British - Post	HMB Tube 3	Phaser
C28	Boogie Nights	Blackface - Pre	Blackface Tube 2	Touch Wah
C29	Shadows	Tweed - Pre	Tweed Tube 1	Tape Echo
C30	Southern Man	Blackface - Pre	Blackface Tube 1	Mono Delay
C31	Sick Calliope	Tweed - Pre	Tweed Tube 1	Pitch Shift
C32	Thrash Master	Modern - Post	Dyna-Touch 4	Sine Chorus
C33	Lucille	Blackface - Pre	Blackface Tube 2	Mono Delay
C34	Reel to Real	Blackface - Pre	Blackface Tube 1	Tape Echo
C35	Vaitality	Tweed - Post	HMB Tube 3	Delay + Chorus
C36	Harmonic Chimes	Blackface - Pre	Blackface Tube 1	Pitch Shift
C37	Route 66	Blackface - Pre	Blackface Tube 3	One E Da Delay
C38	Swell-ter	Blackface - Pre	Blackface Tube 1	Delay + Chorus
C39	Attic Bound Toy	British - Post	HMB Tube 1	Sine Chorus
C40	Tremassic	Tweed - Pre	Tweed Tube 3	Amp Tremolo
C41	B Movie	Tweed - Pre	Tweed Tube 1	Pitch Shift
C42	Nite Bob Stomps	British - Post	Dyna-Touch 4	Triangle Chorus
C43	Three Steps	Tweed - Pre	Hot Rod Tube 1	Triangle Chorus
C44	Red House	Tweed - Pre	Tweed Tube 3	Tape Echo
C45	Schools Out	Tweed - Post	Hot Rod Tube 1	None
C46	Subliminal Jimi	British - Post	HMB Tube 1	Backwards Delay
C47	Rockabilly	Tweed - Post	Tweed Tube 1	Stereo Flam Delay
C48	Big Wet Lead	Modern - Post	Dyna-Touch 3	Mono Delay
C49	Radio Rush	Blackface - Pre	Hot Rod Tube 2	Phaser
C50	Pull Me Under	Blackface - Pre	Blackface Tube 1	Ping Pong Delay
C51	Hocus Focus	Tweed - Pre	Hot Rod Tube 3	Tape Echo
C52	Twang Thang	Blackface - Pre	Blackface Tube 2	None
C53	Mississippi Head	Tweed - Pre	Dyna-Touch 1	Sine Chorus
C54	Jumpin' Jack	British - Post	Blackface Tube 2	Mono Delay
C55	Hang 10	Tweed - Pre	Tweed Tube 1	Tape Echo
C56	Vibro-Page	British - Post	Hot Rod Tube 1	Vibratone
C57	Think Floyd	British - Post	Tweed Tube 3	Ducking Delay
C58	Tex-Mex	Tweed - Pre	Tweed Tube 2	None
C59	Vintage Edge	Tweed - Post	Tweed Tube 2	Triangle Chorus
C60	Gonzos	British - Post	HMB Tube 2	None
C61	'59 & '63 Reverb	Tweed - Pre	Tweed Tube 2	None
C62	Road Mojo	Tweed - Pre	Blackface Tube 2	Dotted 8/16 Delay
C63	Brown Sound	British - Post	HMB Tube 3	Sine Chorus
C64	Rhapsody	British - Post	Hot Rod Tube 3	Triangle Flange
C65	Metal Lead	British - Post	Dyna-Touch 4	Triangle Chorus
C66	What You Are	British - Pre	Tweed Tube 1	Vibratone
C67	Trowerful	British - Post	HMB Tube 3	Delay + Chorus
C68	Fifth Above	British - Post	Dyna-Touch 4	Pitch Shift
C69	Detuned Slap	Tweed - Pre	Tweed Tube 1	Pitch Shift
C70	Chained Diver	British - Post	Dyna-Touch 4	Sine Chorus
C71	Voodoo Haze	British - Post	HMB Tube 3	Pedal Wah
C72	Mista Scary	British - Post	HMB Tube 3	Delay + Chorus
C73	Spirit Pad	Blackface - Pre	Blackface Tube 2	Phaser
C74	ZZ Tweed	British - Post	Tweed Tube 3	None
C75	Mystic	Blackface - Pre	Blackface Tube 3	Delay + Phaser
C76	Fender Vibratone	Tweed - Pre	Tweed Tube 2	Vibratone
C77	Lizard Crawl	Modern - Pre	HMB Tube 3	Triangle Flange
C78	Supernatural	British - Pre	HMB Tube 3	None
C79	Browner Sound	Blackface - Post	Dyna-Touch 3	Phaser
C80	Sixties Fuzz	Modern - Post	Dyna-Touch 4	None
C81	Shredder	British - Post	Dyna-Touch 4	Sine Chorus
C82	Alien Rock	British - Post	HMB Tube 3	Ring Mod + Delay
C83	Frankenstein	British - Post	Dyna-Touch 4	Pitch Shift
C84	Teen Grunge	British - Pre	HMB Tube 3	Triangle Chorus

PN 857179

Cyber-Twin™

Cyber-Twin Presets

CYBER-TWIN HEAD

PARTS LIST

NOTE: SHADED ITEMS ARE FOR REFERENCE ONLY

PRINTED CIRCUIT BOARD ASSEMBLY – MAIN

QTY	PART #	DESCRIPTION	REFERENCE DESIGNATION
1	0029719000	CABLE FLAT 5 CKT 10”	PW9A PW9B
2	0038689001	CAP AE AX .47uF 100V 20%	C52 C97
4	0038692001	CAP AE AX 10uF 35V 20%	C1 C42 C107 C109
2	0026517001	CAP AE AX 2.2uF 50V 20%	C49 C84
7	0009512001	CAP AE AX 22uF 25V 20%	C17 C27 C45 C55 C65 C303 C403
5	0038691001	CAP AE AX 4.7uF 50V 20%	C30 C39-40 C43-44
3	0038693001	CAP AE AX 47uF 16V 20%	C56 C114 C121
3	0028474003	CAP AE RDL 100uF 25V 20%	C14 C38 C91
1	0055991000	CAP AE RDL 2200uF 16V 20%	C144
2	0033607000	CAP AE RDL 2200uF 35V 20%	C132-133
4	0054204000	CAP AE RDL 22uF 450V 20%	C125 C127 C143 C148
3	0028467003	CAP AE RDL 22uF 50V 20%	C3 C304 C404
1	0055992000	CAP AE RDL 4700uF 16V 20%	C145
2	0031756000	CAP AE RDL 4700uF 50V +100%-20%	C130-131
8	0028485003	CAP AE RDL 470uF 16V 20%	C51 C64 C73 C79 C86 C95 C101 C103
6	0028471003	CAP AE RDL 47uF 50V 20%	C120 C126 C156-157 C160-161
4	0038699001	CAP CA 100pF 100V LL	C4 C10 C12 C29
5	0039259001	CAP CA 220pF 100V LL	C147 C307-308 C407-408
8	0038873001	CAP CA 22pF 100V LL	C105 C115 C117-118 C122-124 C128
5	0042001001	CAP CA 33pF 100V LL	C48 C54 C69 C99 C104
3	0038701001	CAP CA 470pF 50V LL	C60 C134 C146
2	0051459003	CAP CD 560pF 500V 10%	C32-33
1	0025995000	CAP CD 8200pF 1000V 20%	C149
39	0034788003	CAP CR .1uF 50V 20% .2” LS	C13 C16 C18 C22-23 C50 C58-59 C61-62 C67 C70 C72 C75-77 C80 C83 C85 C87-89 C92-93 C100 C102 C110-112 C116 C129 C135 C140-141 C151-155
2	0027255003	CAP MPF .001uF 100V 10%	C20 C53
2	0027257003	CAP MPF .0022uF 100V 10%	C301 C401
2	0027263003	CAP MPF .0082uF 100V 10%	C2 C6
3	0027265003	CAP MPF .015uF 100V 10%	C35 C37 C46
6	0027264003	CAP MPF .01uF 100V 10%	C28 C31 C158-159 C162-163
2	0027270003	CAP MPF .033uF 100V 10%	C302 C402
14	0027272003	CAP MPF .047uF 63V 10%	C7 C11 C34 C66 C68 C71
1	0027275003	CAP MPF .068uF 100V 10%	C9
1	0027280003	CAP MPF .15uF 63V 10%	C47
2	0052003003	CAP MPF .1uF 250V 10%	C138-139
1	0053860000	CAP MPF .1uF 250VAC 20%	C142
6	0027278003	CAP MPF .1uF 63V 10%	C63 C136-137 C150 C309 C409
2	0027281003	CAP MPF .22uF 63V 10%	C5 C57
4	0027283003	CAP MPF .33uF 63V 10%	C106 C108 C113 C119
2	0027285003	CAP MPF .39uF 63V 10%	C306 C406
2	0027286003	CAP MPF .47uF 63V 10%	C21 C26
3	0033477003	CAP MPF .68uF 63V 10%	C15 C19 C36
1	0024823000	CAP MPF RDL .01uF 400V 10%	C41

CYBER-TWIN HEAD

PRINTED CIRCUIT BOARD ASSEMBLY – MAIN (Cont)

QTY	PART #	DESCRIPTION	REFERENCE DESIGNATION
3	0024845000	CAP MPF RDL .047uF 400V 10%	C8 C24-25
4	0051931000	CONNECTOR DIN 5 PIN FEMALE	J3 J6-8
8	0055993000	CONTROL MOTORIZED 10kB	R80 R104 R123 R137 R144 R150 R162 R168 **(Gain Volume Treble Middle Bass Presence Reverb Master)**
1	0055994000	CONTROL SNAPIN 25k 30A	R35 **(Trim)**
1	0019994000	CONTROL T-POT 100k 20% PC MTG	R71 **(Comp. Offset Adjust)**
13	0064089001	DIODE 1N4003	D32 D34 D45 D64-65 D314-315 D414-415 D41-44
4	0026730001	DIODE 1N4006 800V 1A	D46-47 D52-53
55	0006260001	DIODE 1N4448 SIGNAL	D1-2 D4-16 D19-27 D29-30 D33 D35-36 D56-59 D62-63 D301-306 D308-310 D401-406 D408-410 D412-413
4	0020534000	DIODE 1N5402 RECTIFIER 200V C&F	D48-51
4	0029045000	DIODE 6A 400V 6A4 LEAD FORMED	D37-40
4	0025821001	DIODE HV FDH400 SWITCHING LL	D307 D311 D407 D411
4	0054210001	DIODE SCHOTTKY BAT85	D54-55 D60-61
6	0031729001	DIODE ZEN 1N5231B 5.1V 5% LL	Z1-6
2	0031635001	DIODE ZEN 1N5240B 10V 5% LL	D28 D31
18	0025802001	FASTON TAB, .250”	P5-18 P20A P21A P22A P23A
8	0051094003	FUSE CLIP PCB 5mm (EXPT)	F1-4
4	0027419000	HDR .1 CTR 10 CKT SQ PIN	P4A P4B P6A P7A
1	0027421000	HDR .1 CTR 12 CKT SQ PIN	P3A
2	0027413000	HDR .1 CTR 6 CKT SQ PIN	P5A P5B
2	0027416000	HDR .1 CTR 8 CKT SQ PIN	P1A P2A
1	0055995000	IC 1- OF-8 DECODER 74HC138	U16
1	0055996000	IC 8-BIT A/D TLC542	U10
4	0055997000	IC 8-BIT ADDR LATCH 74HC259	U11 U13 U17 U21
1	0055985000	IC 8-BIT SHIFT REG 74HC166	U26
1	0055999000	IC 8-BIT SHIFT REG 74HC595	U19
4	0026547000	IC COMPARATOR QUAD LM339	U8 U14 U20 U23
8	0056311000	IC MOTOR DRIVER BA6218	U5 U9 U12 U15 U18 U22 U24-25
1	0033281000	IC OP-AMP DUAL 5532	U3
2	0031611000	IC OP-AMP DUAL PC4560	U2 U4
2	0016795000	IC OP-AMP DUAL TL072	U6-7
1	0056323000	IC OPTOCOUPLER 6N138	U34
1	0027404000	IC OTA CA3080AE	U1
1	0051190000	IC QUAD 2-IN NAND GATE 74HC00	U33
1	0013562000	IC REGULATOR +15V MC7815CT	U30
1	0054380003	IC REGULATOR +5V 78L05ACPRA	U27
2	0041812000	IC REGULATOR +5V MC7805CT	U28 U31
1	0054380003	IC REGULATOR +5V MC78L05ACPRA	U29
1	0013564000	IC REGULATOR –15V MC7915CT	U32
2	0051658000	JACK MONO R/A	J4-5
1	0056325000	JACK RCA SINGLE HORIZ PCB MNT	J1
1	0053450000	JACK STEREO R/A	J2
1	0056326000	LED QUAD G/G/G/R HORIZ MNT	D3
2	0049948003	LED RED LONG LEAD LUMEX	D17-18
1	0056327000	OPTOISOLATOR LED/LDR NSL32S01	OP1
1	0036613000	RELAY DPDT DIP 24VOLT 8.3mA	K1
5	0026549001	RES CF 1/2W 5% 1.5k LL	R122 R224-225 R246-247
3	0025116001	RES CF 1/2W 5% 100k LL	R1 R18 R25

PRINTED CIRCUIT BOARD ASSEMBLY – MAIN (Cont)

QTY	PART #	DESCRIPTION	REFERENCE DESIGNATION
2	0025117001	RES CF 1/2W 5% 220k LL	R213-214
1	0031065001	RES CF 1/2W 5% 91k LL	R48
4	0028842001	RES CF 1/4W 5% 1.1k LL	R236-237 R420-421
2	0028862001	RES CF 1/4W 5% 1.3k LL	R62 R81
4	0024969001	RES CF 1/4W 5% 1.5k LL	R2 R22 R40 R45
1	0024970001	RES CF 1/4W 5% 1.8k LL	R106
2	0025074001	RES CF 1/4W 5% 1.8M LL	R53-54
9	0024997001	RES CF 1/4W 5% 100k LL	R17 R19 R21 R27 R49 R63 R89 R117 R181
19	0024952001	RES CF 1/4W 5% 100ohm LL	R171-172 R174 R176-180 R182-183 R186-188
40	0024981001	RES CF 1/4W 5% 10k LL	R10 R14-15 R24 R26 R30 R36 R42 R46 R125-126 R129 R131 R135-136 R142-143 R184-185 R194 R200 R206
7	0025084001	RES CF 1/4W 5% 10M LL	R16 R31 R43-44 R50 R90 R118
6	0024937001	RES CF 1/4W 5% 10ohm LL	R102 R130 R222-223 R244-245
2	0024953001	RES CF 1/4W 5% 120ohm LL	R230 R252
1	0024983001	RES CF 1/4W 5% 12k LL	R28
1	0028955001	RES CF 1/4W 5% 130k LL	R60
1	0029539001	RES CF 1/4W 5% 13k LL	R114
1	0024999001	RES CF 1/4W 5% 150k LL	R33
5	0024954001	RES CF 1/4W 5% 150ohm LL	R11-12 R83 R99 R116
4	0024985001	RES CF 1/4W 5% 15k LL	R82 R94 R110 R115
1	0025058001	RES CF 1/4W 5% 180k LL	R47
3	0024986001	RES CF 1/4W 5% 18k LL	R3 R9 R157
2	0024965001	RES CF 1/4W 5% 1k LL	R105 R146
12	0025069001	RES CF 1/4W 5% 1M LL	R23 R34 R65 R67 R91 R133 R140-141 R145 R147 R151 R156
11	0024971001	RES CF 1/4W 5% 2.2k LL	R86 R95 R119 R217 R219-221 R240-243
2	0029455001	RES CF 1/4W 5% 2.4k LL	R4 R8
2	0029006001	RES CF 1/4W 5% 20k LL	R84 R100
11	0025059001	RES CF 1/4W 5% 220k LL	R41 R52 R59 R108 R124 R127 R134 R138 R160 R163-164
12	0024956001	RES CF 1/4W 5% 220ohm LL	R87 R121 R128 R139 R149 R155 R166-167 R196 R204 R208-209
3	0024987001	RES CF 1/4W 5% 22k LL	R20 R32 R218
1	0029450001	RES CF 1/4W 5% 240k LL	R39
1	0025060001	RES CF 1/4W 5% 270k LL	R58
7	0024988001	RES CF 1/4W 5% 27k LL	R37 R96 R98 R312 R317 R412 R417
8	0029005001	RES CF 1/4W 5% 2k LL	R29 R51 R199 R211 R301 R308 R401 R408
2	0024973001	RES CF 1/4W 5% 3.3k LL	R7 R212
3	0024975001	RES CF 1/4W 5% 3.9k LL	R103 R311 R411
4	0028016001	RES CF 1/4W 5% 300k LL	R72-73 R75 R77
1	0024959001	RES CF 1/4W 5% 330ohm LL	R210
1	0029341001	RES CF 1/4W 5% 360ohm LL	R109
1	0025063001	RES CF 1/4W 5% 390k LL	R38
2	0024991001	RES CF 1/4W 5% 39k LL	R6 R13
2	0029610001	RES CF 1/4W 5% 3k LL	R313 R413
1	0029472001	RES CF 1/4W 5% 4.3k LL	R85
5	0024977001	RES CF 1/4W 5% 4.7k LL	R78-79 R158 R305 R405
2	0025065001	RES CF 1/4W 5% 470k LL	R107 R111
3	0024993001	RES CF 1/4W 5% 47k LL	R159 R302 R402
5	0024947001	RES CF 1/4W 5% 47ohm LL	R216 R304 R307 R404 R407
4	0024962001	RES CF 1/4W 5% 560ohm LL	R132 R161 R169 R205
2	0024994001	RES CF 1/4W 5% 56k LL	R64 R113
1	0024979001	RES CF 1/4W 5% 6.8k LL	R101

CYBER-TWIN HEAD

PRINTED CIRCUIT BOARD ASSEMBLY – MAIN (Cont)

QTY	PART #	DESCRIPTION	REFERENCE DESIGNATION
1	0026507001	RES CF 1/4W 5% 62k LL	R66
1	0028153001	RES CF 1/4W 5% 75k LL	R5
2	0029613001	RES CF 1/4W 5% 91k LL	R74 R76
4	0027349001	RES FILM 1W 5% 10k LL	R197-198 R202-203
2	0027627001	RES FILM 1W 5% 10ohm LL	R189 R191
4	0037354001	RES FILM 1W 5% 4.7k LL	R226-227 R248-249
1	0028030001	RES FILM 1W 5% 680ohm LL	R68
4	0015718001	RES MF 1/4W 1% 1.00k LL	R234-235 R422-423
8	0054208001	RES MF FUSE 1/4W 5% 470ohm LL	R303 R306 R309-310 R403 R406 R409-410
4	0036960001	RES MF FUSE 1/4W 5% 47ohm LL	R232-233 R253-254
4	0055932001	RES MOX 2W 5% .15ohm LL	R238-239 R425-426
1	0041268001	RES MOX 2W 5% 10k LL	R207
4	0051417001	RES MOX 2W 5% 22ohm LL	R69-70 R327 R427
6	0051040001	RES MOX FP 1/4W 5% 47ohm LL	R231 R318-319 R418-419 R424
2	0050814000	RES WW BT 5W 10% .15ohm	R328 R428
1	0051418003	THERMAL SENSOR PTC 100 DEG C	RT2
1	0028503000	THERMISTOR 10 ohm 5A C60-11	RT1
2	0056312000	TUBE SOCKET 9 PIN PCB W/COLLAR	V1-2
1	0056329000	XFMR SPDIF	T1
1	0014689003	XSTR N-CH JFET J111 TO-92	Q17
11	0041465003	XSTR N-CH JFET J113 TO-92	Q1-3 Q5-6 Q9 Q13-16 Q19
6	0016739003	XSTR NPN 2N4401 TO-92	Q4 Q12 Q21-22 Q26 Q408
10	0025751003	XSTR NPN 2SC2362K/2SC2389STPS	Q7-8 Q10-11 Q301-303 Q401-403
2	0054418000	XSTR NPN 2SC3263 MT-100	Q30 Q412
2	0028760000	XSTR NPN 2SC4793/2SC3298B	Q29 Q410
2	0051448003	XSTR NPN 2SD1857	Q24 Q32
2	0014867003	XSTR NPN MPSW42 TO-226AE	Q307 Q407
5	0016742003	XSTR PNP 2N4403 TO-92	Q18 Q20 Q23 Q27 Q409
2	0025752003	XSTR PNP 2SA1038STPS	Q304 Q404
2	0054417000	XSTR PNP 2SA1294 MT-100	Q31 Q413
2	0028759000	XSTR PNP 2SA1306A TO-220P	Q28 Q411
2	0051447003	XSTR PNP 2SB1236	Q25 Q33
2	0014866003	XSTR PNP MPSW92 TO-226AE	Q305 Q405
4	0051660000	BRACKET R/A PC MNT #6-32	BK1-4
8	0037985000	SCRW SMA 2x3/8 PHP BLX	@ DIN JACKS (2 EACH)
2	0013112000	FUSE TD 20mmx5mm 250V 1A	F2-3
1	0020794000	FUSE QA 20mmx5mm 250V 2A	F4
2	0025796000	HEATSINK TO-220	@ U30 U32
2	0050849000	HEATSINK PCB LEVEL 576012U	@ U28 U31
2	0039420000	SCRW M 4-40x3/8 PHP SS SEMS	@ U28 U31
2	0097360000	NUT HEX 4-40 EX LOCK	@ U28 U31
1	0055881000	HEATSINK PLT 4 POS ULTCHRS DSP	
3	0032908000	SCRW TF 6-32x3/8 PHP ZI	@ HEATSINK PLATE TO PCB
1	0057646000	PCB FAB CYBER TWIN HEAD MAIN	
4	0040903000	INSULATOR MICA TO-218	@ OUTPUT DEVICES
10	0027638000	SCRW TF 4-40x3/8 HWHS ZI .1"HD	@ OUTPUT DEVICES, DRIVERS, +/- 15V REGS
2	0031188000	SCRW M 4-40X1/4 PHPS ZI w/WSHR	@ TUBE SOCKETS
2	0097360000	NUT HEX 4-40 EX LOCK	@ TUBE SOCKETS
8	0032937000	WSHR CONE	@ OUTPUT DEVICES & DRIVERS

CYBER-TWIN HEAD

PRINTED CIRCUIT BOARD ASSEMBLY – HOST

QTY	PART #	DESCRIPTION	REFERENCE DESIGNATION
7	0053556004	CAP 0805 CER .01uF 16V 5%	C33-34 C37-39 C46 C51
40	0053554004	CAP 0805 CER .1uF 16V 5%	C2 C6-7 C11 C14 C17 C19 C23 C25-32 C35-36 C40-41 C43 C45 C47 C50 C52-55 C57 C62-64 C66 C69-71 C73 C75 C79 C83
4	0055951004	CAP 0805 CER .0022uF 25V 5%	C56 C67 C80 C90
1	0055952004	CAP 0805 CER .0047uF 25V 5%	C44
3	0055953004	CAP 0805 CER .33uF 25V 5%	C16 C48 C78
1	0055954004	CAP 0805 CER .47uF 15V 5%	C42
6	0055955004	CAP 0805 CER 330pF 25V NPO 5%	C96 C98-99 C103-105
13	0055956004	CAP 0805 CER 33pF 25V 5%	C1 C3 C5 C8-10 C12-13 C15 C18 C21-22 C24
3	0055957004	CAP 0805 CER 820pF 25V NPO 5%	C100-102
12	0056448004	CAP 1206 CER .1uF 50V 5%	C59-60 C72 C81-82 C86 C91 C94-95 C97 C106-107
2	0053560004	CAP 3528 TAN 4.7uF 15V 20%	C74 C77
14	0053561004	CAP 3528 TAN 10uF 15V 20%	C4 C20 C49 C61 C65 C68 C76 C84-85 C87-89 C92-93
1	0027419000	HDR .1 CTR 10 CKT SQ PIN	P6B
2	0027416000	HDR .1 CTR 8 CKT SQ PIN	P1B P2B
1	0055962005	IC EEPROM 4Kx8 24C32N-10SC	U9
1	0057055005	IC EPROM HOST CYBER-TWIN	U4
1	0057054005	IC EPROM DSP CYBER-TWIN	U8
1	0041812000	IC REGULATOR +5V MC7805CT	U5
2	0056861005	IC SMT CODEC AK4528	U20-21
1	0056950005	IC SMT DSP 24-BIT DSP56362PV120	U13
1	0056870005	IC SMT DUAL FLIP-FLOP 74HC74	U18
1	0055981005	IC SMT 3-TO-8 DECODER 74HC138	U16
6	0055966005	IC SMT OP AMP DUAL 4560	U19 U23 U25-28
1	0055973005	IC SMT OSC 11.2896MHz	U15
1	0055967005	IC SMT QUAD 2-IN NOR 74HC02	U2
1	0053541005	IC SMT VREG +3.3V W / RESET	U14
2	0055972005	IC SMT VREG +5V 100mA 78L05A	U22 U24
1	0056862005	IC SMT RESET TL7705B	U3
1	0056863005	IC SMT 12-BIT COUNTER 74HCT4040	U17
2	0053539005	IC SMT SOCKET 32PLCC	@ U4 U8
1	0056583005	IC SMT OCT TRAN LATCH 74FCT573	U6
3	0055969005	IC SMT SRAM 128Kx8 IDT71V124	U10-12
1	0055970005	IC SMT SRAM 32Kx8 CY7C199-35VC	U1
1	0055971005	IC SMT uCNTRLR 8-BIT 80C251G2	U7
REF	0055777004	RES 0805 MF 1/10W 5% 0 ohm	R18 R25 R29 R37 (NOT USED – OMITTED))
3	0053547004	RES 0805 MF 1/10W 5% 10 ohm	R33 R40 R43
6	0056430004	RES 0805 MF 1/10W 5% 47 ohm	R22-24 R26-27 R30
9	0053550004	RES 0805 MF 1/10W 5% 180 ohm	R13 R31-32 R41-42 R48-49 R59-60
1	0055974004	RES 0805 MF 1/10W 5% 240 ohm	R16
11	0053549004	RES 0805 MF 1/10W 5% 560 ohm	R1-3 R5-7 R9 R11-12 R14-15
14	0056401004	RES 0805 MF 1/10W 5% 1k	R34-36 R38 R44-46 R51 R53-55 R61-63
9	0053546004	RES 0805 MF 1/10W 5% 2k	R8 R10 R39 R52 R56-58 R64 R77
20	0055975004	RES 0805 MF 1/10W 5% 5.1k	R47 R50 R65-69 R71-76 R78-84
7	0053545004	RES 0805 MF 1/10W 5% 10k	R4 R17 R19-21 R28 R70
2	0055976000	SOCKET 10 CKTx.1”	P8B P9B
1	0055977004	XTAL SMT 12MHz VS6SSM2-18pF	Y1
1	0055735000	PCB FAB CYBER-TWIN HOST	
REF	0055736000	SERV DIAGRAM (CMB)CYBER-TWIN HOST	
1	0031188000	SCRW M4-40x1/4 PHPS ZI w/WSHR	@ U5
1	0097360000	NUT HEX 4-40 EX LOCK	@ U5

CYBER-TWIN HEAD

PRINTED CIRCUIT BOARD ASSEMBLY – FRONT PANEL

QTY	PART #	DESCRIPTION	REFERENCE DESIGNATION
14	0053554004	CAP CER 0805 .1uF 16V 10%	C8-15 C18 C20-24
1	0055953004	CAP CER 0805 .33uF 16V 5%	C27
9	0055956004	CAP CER 0805 33pF 25V 5%	C1-7 C16 C19
3	0053561004	CAP TAN 3528 10uF 16V 20%	C17 C25-26
4	0055983000	ENCODER 16-POS 4-BIT GRY CODE	S9-12
1	0027419000	HDR .1 CTR 10 CKT SQ PIN	P7B
1	0055959000	HDR .1 CTR 2x7 CKT SQ PIN	P1
2	0055984000	HDR 10 PIN VERT.	P8A P9A
1	0055978005	IC SMT 8-BIT ADDR LATCH 74HC259	U2
3	0055998005	IC SMT 8-BIT SHFT REG 74HC166	U3-4 U7
1	0055999005	IC SMT 8-BIT SHFT REG 74HC595	U5
1	0055987005	IC SMT OCTAL BUFFER 74HC244	U1
1	0055981005	IC SMT 3-TO-8 DECODER 74HC138	U6
1	0041812000	IC REGULATOR +5V MC7805CT	U8
8	0030755000	LED GREEN T-1 3mm DIFFUSED	D1-7 D10
2	0030754000	LED RED T-1 3mm DIFFUSED	D8-9
1	0053951000	LED RED T-1.75 CLR	D11
3	0055777004	RES 0805 MF 1/10W 5% 0 ohm	R51-53
9	0055974004	RES 0805 MF 1/10W 5% 240 ohm	R9-10 R12-13 R16-17 R20 R22-23
11	0053549004	RES 0805 MF 1/10W 5% 560 ohm	R1-7 R44-45 R54-55
32	0053545004	RES 0805 MF 1/10W 5% 10k	R8 R11 R14-15 R18-19 R21 R24-43 R46-50
1	0031188000	SCRW M4-40x1/4 PHPS ZI w/WSHR	@ U8
1	0097360000	NUT HEX 4-40 EX LOCK	@ U8
10	0054657000	SPACER LED .1x.040x.2 ORANGE	@ D1-10
12	0055988000	SWITCH PB MOMENTARY SPST	S1-8 S13-16
6	0053544004	XSTR SMT NPN 2N2222	Q2-4 Q6-7 Q9
3	0055990004	XSTR SMT PNP 2N4403	Q1 Q5 Q8
1	0055753000	PCB FAB CYBER-TWIN FRONT PANEL	
REF	0055754000	SERVICE DIAGRAM COMB.CYBER-TWIN FRONT PANEL	

PRINTED CIRCUIT BOARD ASSEMBLY – ANALOG I/O

QTY	PART #	DESCRIPTION	REFERENCE DESIGNATION
2	0048451000	BUTTON PUSH OFF WHITE	@ S1-2
14	0028467003	CAP AE RDL 22uF 50V 20%	C10 C13-14 C16-17 C23 C25 C27 C29 C31-33 C46-47
4	0051408003	CAP CD 47pF 500V 5%	C30 C34 C39 C42
16	0051457003	CAP CD 100pF 500V 5%	C1-4 C12 C15 C18-19 C26 C28 C35-36 C40-41 C45 C48
2	0051406003	CAP CD 220pF 500V 10%	C43-44
4	0034788003	CAP CR .1uF 50V 20% .2" LS	C5-6 C37-38
2	0027255003	CAP MPF .001uF 100V 10%	C9 C20
2	0027259003	CAP MPF .0033uF 100V 10%	C11 C22
4	0027283003	CAP MPF .33uF 63V 10%	C7-8 C21 C24
1	0027421000	HDR .1 CTR 12 CKT SQ PIN	P3B
6	0031611000	IC OP-AMP DUAL PC4560	U1-6
3	0053450000	JACK STEREO R/A	J4-6
1	0055595000	JACK STEREO R/A w/SL SHUNT	J3
2	0054261000	XLR CONNECTOR MALE RT ANGLE	J1-2

CYBER-TWIN HEAD

PRINTED CIRCUIT BOARD ASSEMBLY – ANALOG I/O (cont)

QTY	PART #	DESCRIPTION	REFERENCE DESIGNATION
8	0024947001	RES CF 1/4W 5% 47ohm LL	R5 R8 R10 R12 R15 R17 R28 R54
2	0024954001	RES CF 1/4W 5% 150ohm LL	R13 R16
4	0024956001	RES CF 1/4W 5% 220ohm LL	R55 R57 R60 R64
4	0029604001	RES CF 1/4W 5% 300ohm LL	R22 R27 R33 R36
2	0024975001	RES CF 1/4W 5% 3.9k LL	R38 R42
1	0028034001	RES CF 1/4W 5% 5.1k LL	R65
1	0024985001	RES CF 1/4W 5% 15k LL	R63
4	0028863001	RES CF 1/4W 5% 24k LL	R14 R18 R29-30
2	0024973001	RES CF 1/4W 5% 3.3k LL	R9 R31
7	0024997001	RES CF 1/4W 5% 100k LL	R19 R39 R48 R50-51 R53 R62
18	0015582001	RES MF 1/4W 1% 10.0k LL	R1-4 R11 R20-21 R23 R25 R32 R43 R45-47 R56 R58-59 R61
4	0016965001	RES MF 1/4W 1% 12.1k LL	R34-35 R37 R41
4	0031960001	RES MF 1/4W 1% 26.7k LL	R40 R44 R49 R52
4	0031820001	RES MF 1/4W 1% 49.9k LL	R6-7 R24 R26
1	0038828000	SWITCH 4P2T ALT/ACT PC MOUNT	S2
1	0028091000	SWITCH PUSH SLFLK SHORT STROKE	S1
1	0056334000	PCB FAB CYBER-TWIN ANALOG I/O	
REF	0056333000	SERVICE DIAGRAM COMB CYBER-TWIN ANALOG I/O	

PRINTED CIRCUIT BOARD ASSEMBLY – SPKR OUT

QTY	PART #	DESCRIPTION	REFERENCE DESIGNATION
2	0029175000	JACK PHONE 1/4" HI CURRENT PC	SPEAKER OUTPUT JACKS
1	0057655000	PCB FAB CYBER-TWIN HEAD SPKR OUT	

CHASSIS ASSEMBLY

QTY	PART #	DESCRIPTION	REFERENCE DESIGNATION
1	0056316000	BEZEL ASSY CYBER-TWIN	
1	0056526000	CABLE ASSY RIBBON 2x7 CKT 5.25"	
1	0056586000	CABLE ASSY RIBBON 6 CKT 6"	
2	0056587000	CABLE ASSY RIBBON 8 CKT 6"	
1	0056588000	CABLE ASSY RIBBON 10 CKT 6"	
1	0056589000	CABLE ASSY RIBBON 12 CKT 6"	
2	0056854000	CABLE ASSY RIBBON 10 CKT 4"	
3	0056339000	KNOB DATA WHEEL SMALL	
1	0056340000	KNOB DATA WHEEL LARGE	
9	0055856000	KNOB VINTAGE D-SHAFT	@ CONTROLS
1	0039236000	SWITCH ROCKER DPST PSEUDO-IEC	
REF	0040582000	SWITCH DPST .250 TAB GLOBAL	
REF	0020794000	FUSE QA 20mmX5mm 250V F2A	PRIMARY FUSE (220-240V)
1	0053884000	FUSE QA 20mmX5mm 125V4A ULCSA	PRIMARY FUSE (100-120V)
1	0054642000	CONNECTOR IEC SNAP IN	
1	0055737000	PCB ASSY CYBER-TWIN HOST	
1	0055755000	PCB ASSY CYBER-TWIN FRNT PNL	
1	0057645000	PCB ASSY CYBER-TWIN MAIN	
1	0056335000	PCB ASSY CYBER-TWIN ANALOG I/O	@ REAR PANEL

CYBER-TWIN HEAD

CHASSIS ASSEMBLY (cont)

QTY	PART #	DESCRIPTION	REFERENCE DESIGNATION
1	0057654000	PCB ASSY CYBER-TWIN SPKR OUT	@ REAR PANEL
1	0055849000	CHASSIS CYBER-TWIN	
1	0055949000	PANEL FRONT CYBER-TWIN	
1	0057496000	PANEL REAR CYBER-TWIN HEAD	
1	0057497000	PANEL REAR CYBER-TWIN HEAD R.O.K.	
1	0054798000	JEWEL ASSY LED	
6	0055732000	PUSH NUT 1/8” POST	@ BEZEL ASSY
2	0014999000	SCRW M 6-32x1/4 PHP BLX	@ REAR BREAK-AWAY
1	0028564000	END BELL XFMR STAGE 112SE	@ XFMR
4	0028591000	NUT ACORN 8-32	@ XFMR/END BELL
22	0028937000	SCRW TF 6-32x5/8 PHP ZI TAPTYT	@ PCB STANDOFFS
4	0030007000	WSHR LCK INTL 8x.330x.02 ZI	@ XFMR/END BELL
2	0031188000	SCRW M 4-40x1/4 PHPS ZI w/WSHR	@ LED BREAK-AWAY
1	0031625000	NUT HOLDER PILOT LIGHT 1/16-27	@ JEWEL ASSY
2	0021709000	BUSHING SR .437x.062x13/32 BLK	@ SPKR WIRES
2	0023598000	TUBE SHIELD (099-0723-000)	(BELTON TYPE ONLY) @ TUBES
22	0025936000	STANDOFF NYL PCB SNAP 3/8" NAT	FOR PCB MOUNT
5	0028500000	SCRW TF 8-32x3/4 HWH SLTD ZI	@ HEATSINK
1	0031726000	HEATSINK BAR	@ HEATSINK
1	0038900000	SCRW TF 6-32x1/4 PHP ZI	@ GND SCREW
10	0041595000	SCRW 6-32x3/16 PHP STL ZI SEMS	@ HOST/FRNT PNL/VFD
4	0051155000	SCRW SMB #4X3/8 PHP BLX	@ XLRS
7	0053479000	NUT HEX 7/16 20X1/8 NI	@ JACKS
7	0053480000	WASHER FLAT .442 x.692 NI	@ JACKS
4	0056495000	STANDOFF M/F 6-32x3/4 HEX AL	
2	0013341000	TUBE 7025/12AX7WA (RUSSIAN)	V1 V2
1	0055989000	VFD 20T202DA1J	VACUUM FLOURESCENT DISPLAY
REF	0056549000	WIRE SET CHS CYBER-TWIN	
1	0056317000	XFMR PWR CYBER-TWIN 120V	
REF	0056318000	XFMR PWR CYBER-TWIN 230V	
REF	0056319000	XFMR PWR CYBER-TWIN 100V	

CABINET ASSEMBLY

QTY	PART #	DESCRIPTION	REFERENCE DESIGNATION
4	0026566000	CORNER 2 HOLE w/TAB NI	@CAB BTM FRONT & TOP REAR
10	0026571000	SCRW SMAB 8X5/8 THP NI	BLACK SCREWS INTO CHASSIS
4	0029323000	FOOT RUBBER 1.0 DIA SMALL	1" RUBBER FEET
REF	0026570000	TOLEX BLACK	COVERING
REF	0037350000	TAPE ALUM 8"X60YDS	SHIELDING
4	0026625000	SCREW WOOD 8X1 FH	@RUBBER FEET
1	0027846000	HANDLE 9.25" NO LOGO	@HANDLE
1	0032524000	INSERT HANDLE	@HANDLE
2	0019279000	HANDLE CAP 2 HOLE NICKEL	@HANDLE
4	0021972000	NUT T 10-32x3/4 STR 3 PRNG BLX	@HANDLE
4	0022244000	SCRW M 10-32x1-1/8 OHP NI	@HANDLE
REF	0029086000	VELCRO STRIP HOOK 1.5"wd BLK	@CLEAT FOR GRILLE
2	0026568000	CORNER 3 HOLE NI	@ CAB BTM REAR

CYBER-TWIN HEAD

CABINET ASSEMBLY (Cont)

QTY	PART #	DESCRIPTION	REFERENCE DESIGNATION
REF	0029085000	VELCRO STRIP LOOP 1.5"wd BLK	@INSIDE CAB
REF	0029086000	VELCRO STRIP HOOK 1.5"wd BLK	@CLEAT FOR GRILLE
2	0031752000	RIBBON PULL TAB	@GRILLE
REF	0029085000	VELCRO STRIP LOOP 1.5"wd BLK	@GRILLE
REF	0037788000	CLOTH GRILLE BLACK/SILVER	

END ITEM

QTY	PART #	DESCRIPTION	REFERENCE DESIGNATION
1	0057394000	CABINET ASSEMBLY CYBER-TWIN HEAD	
1	0057640000	CHS ASSY CYBER-TWIN HEAD 120V	
REF	0057642000	CHS ASSY CYBER-TWIN HEAD 230V	
REF	0057644000	CHS ASSY CYBER-TWIN HEAD 100V JPN	
REF	0057641000	CHS ASSY CYBER-TWIN HEAD 220V R.O.K.	
REF	0057643000	CHS ASSY CYBER-TWIN HEAD 240V AUS	
1	0047248000	CORD PWR W/IEC CONN DOM	
REF	0047250000	CORD PWR W/IEC CONN 240V	
REF	0047249000	CORD PWR W/IEC CONN 230V UK	
REF	0047251000	CORD PWR W/IEC CONN 230V	
REF	0053997000	CORD PWR W/IEC CONN 100V JPN	
1	0057518000	COVER,DSP CYBER-TWIN HEAD	
1	0023192000	NAMEPLATE FNDR 65 TWIN(994093)	LOGO
8	0026577000	SCRW M 10-32x1 PHP BLX	@ SPEAKERS
10	0029527000	WSHR FNSH 8-5/8 FLNGD BLX WX	@ CHASSIS SCREWS
10	0036199000	SCRW M 8-32x1-3/16 OHP BLX CP	@ CHASSIS
3	0037985000	SCRW SMA 2x3/8 PHP BLX	@ NAMEPLATE
1	0051894000	FOOTSWITCH ASSY 4 BUTTON DSP	
1	0057172000	FOOTSWITCH ASSY 1 BUTTON	FX KILL
REF	0055736000	SVC DIAG COMB CYBER-TWIN HOST	
REF	0055754000	SVC DIAG COMB CYBR-TWN FNT PNL	
REF	0057498000	SVC DIAG COMB CYBER-TWIN HEAD MAIN	
REF	0056333000	SVC DIAG COMB CYBR-TWN ANLG IO	
REF	0056487000	MANUAL OWNERS CYBER-TWIN	
REF	0057653000	ADD MANUAL OWNERS CYBER-TWIN HEAD	
REF	0057179000	PRESET LIST CYBER-TWIN	

REVISIONS			
REV.	DESCRIPTION	DATE	[illegible]
A	PR502	08-SEP-01	ASE

COMPRESSOR OFFSET ADJUSTMENT:
PRESS EXIT BUTTON TO EXIT FIELD TEST MODE.
PRESS AMP BUTTON UNTIL "COMPRESSOR" IS DISPLAYED.
ROTATE LARGE DATA WHEEL UNTIL "EVEN HIGHER" IS DISPLAYED.
ADJUST R71 FOR 0.00VDC +/- 20mVDC AT TP24.

FIELD TEST	VALUE AT TEST POINT:								
	TP9	TP10	TP11	TP12	TP13	TP14	TP15	TP16	TP17
f1	2.8mVAC	85.2mVAC	889mVAC	10.6VAC	760mVAC	19.2mVAC	0.00VAC	0.00VAC	685mVAC
f2	2.8mVAC	81.6mVAC	1.41VAC	27.6VAC	886mVAC	19.2mVAC	0.00VAC	0.00VAC	788mVAC
f3	2.8mVAC	0.00VAC	0.00VAC	0.0VAC	0.00VAC	19.2mVAC	120mVAC	1.50VAC	2.62VAC
f4	2.8mVAC	0.00VAC	0.00VAC	0.0VAC	0.00VAC	19.2mVAC	34.3mVAC	1.75VAC	3.05VAC

TEST POINT CHART.

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 f1 TO f4 AS REQUIRED.
TO EXIT TEST MODE AT ANY TIME, PRESS THE "EXIT" BUTTON.

CONTROL LINE CHECK:
PLACE AMPLIFIER IN FIELD TEST MODE PER INSTRUCTIONS AT TEST POINT CHART, ABOVE RIGHT.
SCROLL THROUGH FIELD TESTS f1 THROUGH f4 USING THE LARGE DATA WHEEL ON THE FRONT PANEL.
SCROLLING THROUGH THE FIELD TESTS SHOULD CAUSE ACTIVITY AT U14 U20 U23 AS SHOWN AT LEFT AND BELOW.
THERE SHOULD BE NO ACTIVITY AT NC1 NC2 NC3 (CKT_CNTL14 CKT_CNTL17 CKT_CNTL15).

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 25V).
3. ALL POLARIZED CAPACITORS IN uF, 20%; 50V MINIMUM.
4. ALL DIODES ARE 1N4448.
5. THIS SCHEMATIC IS FOR PCB FABRICATION P/N 0050765000 AND PCB ASSEMBLY P/N 0050767000.
6. LAST REFERENCE DESIGNATORS: C406 C55 D415 F4 J8 K1 NC3 OP1 P18 PW8 Q413 R428 RT1 T2 U34 V2 W7 Z2.
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 f1, AND AT RATED LINE VOLTAGE. ALL VOLTAGES +/- 20%.
8. AC TESTPOINT VOLTAGES READ TO CHASSIS GROUND WITH A DVM OF AT LEAST 1M ohm INPUT IMPEDANCE UNDER THE FOLLOWING CONDITIONS:
   UNIT AT RATED LINE VOLTAGE.
   UNIT SET TO FIELD TEST f1 (SEE INSTRUCTIONS AT CHART ON SHEET 1).
   TRIM CONTROL SET TO 50% ROTATION (1-1/2").
   1kHz 4mVAC SINEWAVE INPUT AT J2 (TP1).
   8A RESISTIVE LOADS CONNECTED AT P20A/P21A AND P22A/P23A.
   FOOTSWITCH CONNECTED (ONLY REQ'D TO TEST FOOTSWITCH OPERATION).
   NO XLR CABLE(S) INSTALLED.
   NOTHING PLUGGED INTO HEADPHONE JACK.
   ALL AC VOLTAGES +/- 20%.
9. TEST POINT THIS PAGE: TP1-TP24,TP58.

Fender MUSICAL INSTRUMENTS
Corona, CA USA

CHECKED BY: [signature] DATE: 14-SEP-01
APPROVED BY: [signature] DATE: 9/14/01
DRAWN: STILLWELL ENGR: J.STILLWELL
DATABASE FILE: Z502SLSCH

TITLE: SERVICE DIAGRAM, COMBINED (schematic)
CYBER-TWIN HEAD MAIN
(PRE AMP AND CONTROL LINE SECTIONS)

SIZE D | DRAWING NUMBER 0057498000 | REV. A
RELEASE DATE: 08-SEP-01 | SHEET: 1 OF 5

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	PR502	08-SEP-01	J.C.S.

OUTPUT TEST:
85 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 EFFECTS LEVEL SET TO -10dBV.
OUTPUT: MEASURED DIFFERENTIALLY DIRECTLY BETWEEN P20A AND P21A (P22A AND P23A FOR THE RIGHT CHANNEL).

SPEAKER OUTPUT PCB
P20B WHT — LEFT
P21B BK
P22B RED — RIGHT
P23B BK
PCB ASSEMBLY # 005765400

BLACK WIRE

POWER SWITCH 100/120V
POWER SWITCH 230/240V
REAR VIEW

T2
GREEN — TO P17
GREEN — TO P18
BLUE — TO P15
BLUE — TO P16
BRN — TO P5
BRN/YEL — TO P6
BRN — TO P7
RED — TO P8
RED/YEL — TO P9
RED — TO P10
TO P11 WHITE
TO P12 BLACK
P/N 0056317000 120V
P/N 0056318000 230V
P/N 0056319000 100V

BLK, GRN/YEL, WHT — P13 — F1 F4A 100/120V F2A 230/240V — C142 .1 250VAC — P12
POWER
RT1 C60-11
P14 — P11

MEASURED WITH RESPECT TO THE GROUND SIDE OF R328 (NEAREST WJ1 ON PCB).
0.0VDC TP25
13.0mVAC TP25
L_OUT(+) TO SHEET 1 P2A PIN 1
SPKR_GNDL TO SHEET 1 P2A PIN 2
-31.7VDC TP43
MEASURED WITH RESPECT TO THE GROUND SIDE OF R328 (NEAREST WJ1 ON PCB).
1.21VAC TP28
P20A WHT +
TO LEFT SPEAKER
SPKR_GNDL
R328 .15 10K-5W WJ1 CS3 P21A BLK -

MEASURED WITH RESPECT TO THE GROUND SIDE OF R428 (NEAREST WJ2 ON PCB).
0.0VDC TP27
13.0mVAC TP27
R_OUT(+) TO SHEET 1 P2A PIN 3
SPKR_GNDR TO SHEET 1 P2A PIN 4
-31.7VDC TP44
MEASURED WITH RESPECT TO THE GROUND SIDE OF R428 (NEAREST WJ2 ON PCB).
1.21VAC TP28
P22A RED +
TO RIGHT SPEAKER
SPKR_GNDR
R428 .15 10K-5W WJ2 CS4 P23A BLK -

MUTE TO SHT 1 P3A PIN 1
0.0VDC TP28
-31.1VDC TP31
-10.5VDC TP30
-16V
-41V

P15 BLU
P16 BLU
+374VDC TP38
+309VDC TP39
+309VDC TP40
B+_1
B+_2

P8 RED
P9 RED/YEL
P10 RED
+41.0VDC TP32
-41.0VDC TP33
+41V
-41V

P5 BRN — F2 T1A 250V
P6 BRN/YEL
P7 BRN — F3 T1A 250V
+22.7VDC TP34
-22.7VDC TP36
+15.5VDC TP35
-15.5VDC TP37
+18V
-18V
R189 10 1W

P18 GRN — F4 F2A 250V
+11.9VDC TP41
+11.1VDC TP42
MOT_V+
DIG_V+
MOT_GND

1. TEST POINT THIS PAGE: TP25-TP44.
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 INSTRUCTIONS AT CHART ON SHEET 1).
TRIM CONTROL SET TO 50% ROTATION (~3-1/2").
1kHz 1mVAC SINEWAVE INPUT AT J2 (TP1).
8Ω RESISTIVE LOADS CONNECTED AT P20A/P21A AND P22A/P23A.
FOOTSWITCH CONNECTED (ONLY NEED TO TEST FOOTSWITCH OPERATION).
NO MIDI CABLE(S) INSTALLED.
NOTHING PLUGGED INTO HEADPHONE JACK.
ALL AC VOLTAGES +/- 20%.
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%.
6. LAST REFERENCE DESIGNATORS: C409 CS5 D415 F4 J8 K1 NC3 OP1 P18 PW8 Q413 R428 RT1 T2 U34 V2 W7 Z2
5. THIS SCHEMATIC IS FOR PCB FABRICATION P/N 0055765000 AND PCB ASSEMBLY P/N 0055767000.
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.

NOTES: (UNLESS OTHERWISE NOTED)

FENDER MUSICAL INSTRUMENTS
Corona, CA USA

CHECKED BY: [illegible]
DATE: 14-SEP-01
APPROVED BY: [illegible]
DATE: 9/14/01
DRAWN: STILLWELL ENGR: STILLWELL
FILE: Z502S1.SCH

TITLE: SERVICE DIAGRAM, COMBINED (schematic)
CYBER-TWIN HEAD MAIN
(POWER SUPPLY AND POWER AMP SECTIONS)

SIZE D | DRAWING NUMBER 0057498000 | REV. A
RELEASE DATE: 06-SEP-01 | SHEET: 2 OF 5

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	PR502	06-SEP-01	J.C.S.

TO MAIN PCB SHEET 4 P4A

P48: DIG_V+, GND, RP_DATA, GND, IO_CLK, GND, RP_LD, GND, EP-, EP+

+11.1VDC REF.

+5.00VDC TP45

U28 78L05

C113 .33 C112 .1 C107 35V 10

+5V

U26 SN74HC166N

R169 560 C104 33pF C111 .1

DIGITAL TEST FOR SPDIF:
OBSERVE WITH OSCILLOSCOPE, 1x PROBE, DC-COUPLED INPUT, 1mS/DIV HORIZ, 0.2V/DIV VERT. RETURN CONNECTED TO THE SHELL OF J1 SPDIF JACK.
DIGITAL ACTIVITY SHOULD BE PRESENT. APPROX. 0.8Vpp WITH NO LOAD, APPROX. 0.4Vpp WITH A 75 ohm LOAD.

SPDIF

J1 SPDIF OUTPUT

T1 t:1

R215 100 C151 .1 R216 47

P58: MIDI_TX, GNDCH, MIDI_RX, GNDCH, SPDIF_OUT, GNDCH

TO MAIN PCB SHEET 4 P5A

R205 560 C147 220pF

FOOTSWITCH NOTE:
+5.00VDC U26 FOOTSWITCH BUTTON UP
+90mVDC U26 FOOTSWITCH BUTTON PRESSED
TYPICAL FOR U26 PIN 4 5 10 11.

0V,+5V U26

DIGITAL TEST FOR U26:
DIGITAL ACTIVITY SHOULD BE PRESENT AT PINS 7 13 15.
OBSERVE WITH OSCILLOSCOPE, 1x PROBE, DC-COUPLED INPUT, 2mS/DIV HORIZ, 2V/DIV VERT. RETURN CONNECTED TO CHASSIS.

+5.00VDC U26 WITHOUT PLUG INSERTED AT J4 EXP PEDAL
90mVDC U26 WITH PLUG INSERTED AT J4 EXP PEDAL

+5.00VDC U28 WITHOUT SHORT AT J5
+90mVDC U28 WITH SHORT AT J5

FOOTSWITCH NOTES:
THIS AMPLIFIER USES FENDER PART NUMBER 0051894000 4-BUTTON FOOTSWITCH, WHICH USES FOUR "SHORT-TO-GROUND" MOMENTARY CONTACT SWITCHES.
WHEN THE AMP IS NOT IN TEST MODE, THE FOOTSWITCH OPERATES THE "QUICK ACCESS" FEATURE ON THE FRONT PANEL.

R173 10k R170 10k R175 10k R184 10k

FS1 FS2 FS3 FS4

FOOT SWITCH J3

R174 100 R176 100 R179 100 R177 100 C118 22pF C115 22pF R180 100 R178 100 C117 22pF C152 .1 R171 100 C105 22pF R172 100

SEE WAVEFORM AT MIDI TRANSMIT TEST AT RIGHT.

0V,+5V TP48

U33-C 74HC00AN

MIDI_TX MIDI_RX1

C146 470pF R206 10k

C140 .1 R211 2k

Q22 2N4401

J7 MIDI OUT

R204 220 R208 220

C153 .1

0V,+5V TP47

MIDI TRANSMIT TEST:
REFER TO OWNER'S MANUAL.
PRESS EXIT BUTTON TO EXIT TEST MODE.
SELECT A MIDI TRANSMIT CHANNEL.
QUICKLY ROTATE ONE OF THE MOTORIZED CONTROL KNOBS ON THE FRONT PANEL.
OBSERVE TEST POINT WITH OSCILLOSCOPE, 1x PROBE, DC-COUPLED INPUT, 10mS/DIV HORIZ, 2V/DIV VERT. RETURN CONNECTED TO CHASSIS.

+5V 0V 40mS

J4 EXP PEDAL

R185 10k C122 22pF R187 100 R186 100 R183 100 R182 100 C123 22pF R188 100 R190 100 R181 100k C124 22pF

J5 REV/FX BYPASS

R194 10k R193 100 R192 100 C128 22pF C155 .1

J6 MIDI IN

R201 100 D36 R185 100

U34 6N138

R212 3.3k R210 330

0V,+5V TP48

MIDI RECEIVE TEST:
REFER TO OWNER'S MANUAL.
PRESS EXIT BUTTON TO EXIT TEST MODE.
INSTALL MIDI CABLE FROM J7 MIDI OUT TO J6 MIDI IN JACK.
SELECT A MIDI TRANSMIT CHANNEL.
USE THE LARGE DATA WHEEL TO QUICKLY RUN THROUGH SOME AMP PRESETS.
OBSERVE TEST POINT WITH OSCILLOSCOPE, 1x PROBE, DC-COUPLED INPUT, 1mS/DIV HORIZ, 2V/DIV VERT. CONNECT RETURN TO CHASSIS.

+5V 0V 2.5mS

U33-A 74HC00AN

C134 470pF R200 10k

C141 .1 R198 2k

Q21 2N4401

J8 MIDI THRU

R196 220 R208 220

C154 .1

0V,+5V TP49

MIDI THRU TEST:
REFER TO OWNER'S MANUAL.
PRESS EXIT BUTTON TO EXIT TEST MODE.
INSTALL MIDI CABLE FROM J7 MIDI OUT TO J8 MIDI IN JACK.
SELECT A MIDI TRANSMIT CHANNEL.
USE THE LARGE DATA WHEEL TO QUICKLY RUN THROUGH SOME AMP PRESETS.
OBSERVE TEST POINT WITH OSCILLOSCOPE, 1x PROBE, DC-COUPLED INPUT, 1mS/DIV HORIZ, 2V/DIV VERT. CONNECT RETURN TO CHASSIS.

+5V 0V 2.5mS

U33-D 74HC00AN

U33-B 74HC00AN

U33-E 74HC00AN

C135 .1

9. TEST POINT THIS PAGE: TP45-TP48.
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 P1 (SEE INSTRUCTIONS AT CHART ON SHEET 1).
   TRIM CONTROL SET TO 50% ROTATION ("5-1/2").
   1kHz 4mVAC SINEWAVE INPUT AT J2 (TP1).
   8 Ω 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%.
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 P1, AND AT RATED LINE VOLTAGE. ALL VOLTAGES +/- 20%.
6. LAST REFERENCE DESIGNATORS: C409 CS5 D415 F4 J8 K1 NC3 OP1 P98 PW8 Q413 R428 RT1 T2 U34 V2 W7 Z2
5. THIS SCHEMATIC IS FOR PCB FABRICATION P/N 0055785000 AND PCB ASSEMBLY P/N 0055767000.
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.

NOTES: (UNLESS OTHERWISE NOTED)

Fender MUSICAL INSTRUMENTS
Corona, CA USA

CHECKED BY: BVan DATE: 9/14/01
APPROVED BY: DATE: 9/14/01
DRAWN: STILLWELL ENGR: STILLWELL
DATABASE FILE: Z502S1.SCH

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

SIZE D | DRAWING NUMBER 0057498000 | REV. A
RELEASE DATE: 06-SEP-01 | SHEET: 3 OF 5

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	PR502	06-SEP-01	J.C.S.

TO DIGITAL I/O BOARD SHEET 3 P5B

TO FRONT PANEL BOARD P7B

TO HOST/DSP BOARD P6B

TO DIGITAL I/O BOARD SHEET 3 P4B

TO SHEET 1

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 15-18.
OBSERVE WITH OSCILLOSCOPE, 1x PROBE, DC-COUPLED INPUT, .5mS/DIV HORIZ, 2V/DIV VERT.
RETURN CONNECTED TO CHASSIS.

TYPICAL FOR ALL BA6218 CONTROLLERS.

TYPICAL FOR ALL BA6218 CONTROLLERS.

TYPICAL FOR ALL MOTORIZED CONTOLS.

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".

TYPICAL FOR PW0-PW7.

TO TRIM CONTROL BRACKET

9. TEST POINT THIS PAGE: TP50-TP58.
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 INSTRUCTIONS AT CHART ON SHEET 1).
   TRIM CONTROL SET TO 50% ROTATION (~5-1/2").
   1kHz 4mVAC SINEWAVE INPUT AT J2 (TIP).
   8A 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%.
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%.
6. LAST REFERENCE DESIGNATORS: C409 C55 D415 F4 J8 K1 NC3 OP1 P16 PW8 Q413 R428 RT1 T2 U34 V2 W7 Z2
5. THIS SCHEMATIC IS FOR PCB FABRICATION P/N 0055765000 AND PCB ASSEMBLY P/N 0055767000.
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.

NOTES: (UNLESS OTHERWISE NOTED)

FENDER MUSICAL INSTRUMENTS
Corona, CA USA

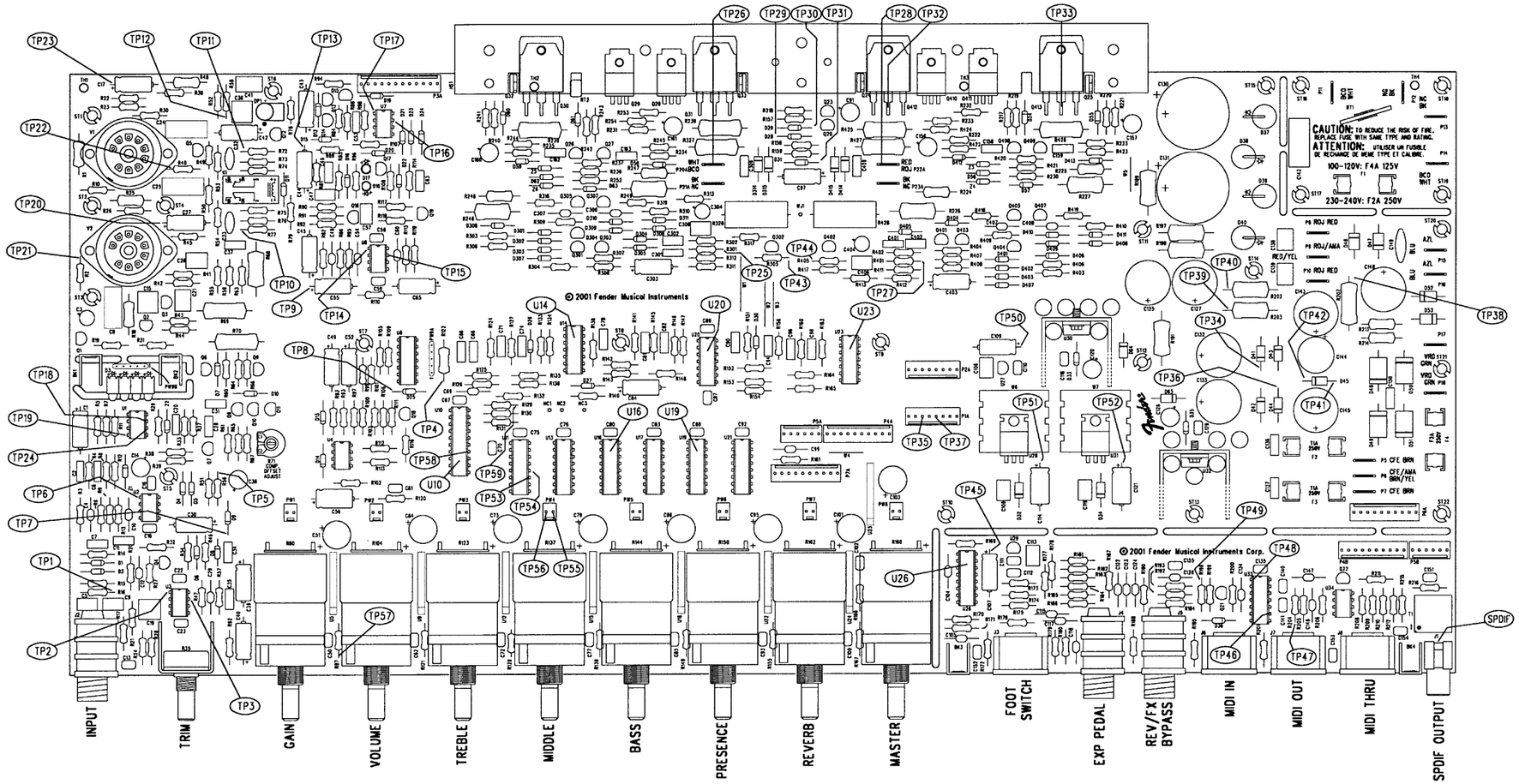
CHECKED BY: DATE: 14-SEP-01
APPROVED BY: DATE: 9/19/01
DRAWN: STILLWELL ENGR: STILLWELL
DATABASE FILE: Z502SLSCH

TITLE: SERVICE DIAGRAM, COMBINED (schematic)
CYBER-TWIN HEAD MAIN
(MOTOR POT A/D SECTIONS)

SIZE	DRAWING NUMBER	REV.
D	0057498000	A

RELEASE DATE: 06-SEP-01 SHEET: 4 OF 5

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	PR502	14-SEP-01	J.C.S.



FILM/DWG:	SERVICE DIAGRAM
DATABASE: Z502S1.PCB	DATE: 14-SEP-01

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. PWI-PWB NOT USED.

NOTES: (UNLESS OTHERWISE NOTED)

CHECKED BY: BTW
DATE: 14-SEP-01

APPROVED BY:
DATE: 9/14/01

DRAWN: DON FOX | ENGR: J. STILLWELL

DATABASE FILE: Z502S1.PCB

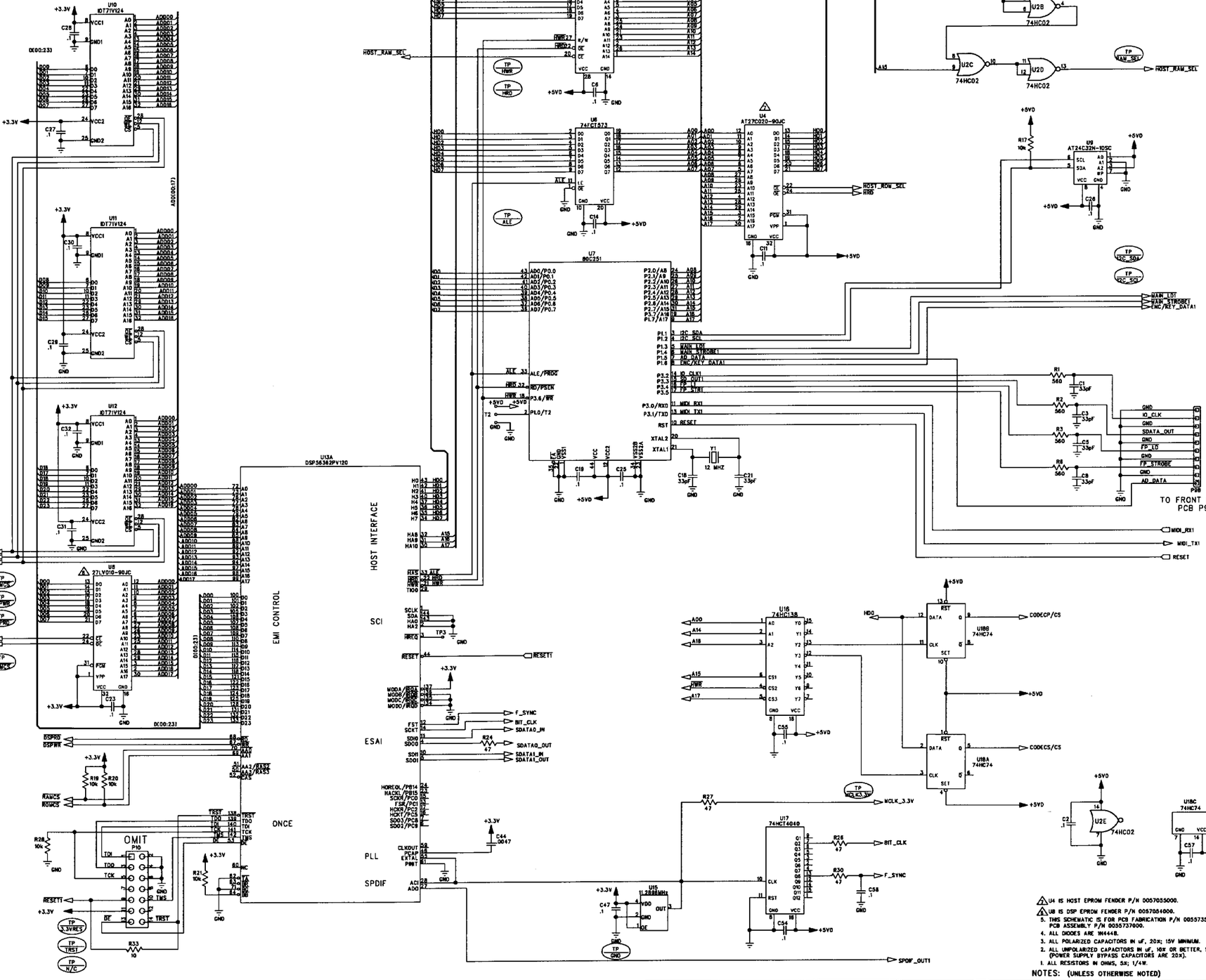
FENDER MUSICAL INSTRUMENTS
Corona, CA USA

TITLE: SERVICE DIAGRAM, COMBINED (PCB assy)
CYBER-TWIN HEAD
MAIN

SIZE	DRAWING NUMBER	REV.
D	0057498000	A

RELEASE DATE: 14-SEP-01 | SHEET 5 OF 5

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	PR393	12-JUN-00	MDW
B	EC 2554	29-SEP-00	MDW



⚠4 U4 IS HOST EPROM FENDER P/N 0057055000.

⚠5 U8 IS DSP EPROM FENDER P/N 0057054000.

5. TMS SCHEMATIC IS FOR PCB FABRICATION P/N 0055735000 AND PCB ASSEMBLY P/N 0055737000.
4. ALL DIODES ARE 1N4448.
3. ALL POLARIZED CAPACITORS IN uF, 20%; 15V MINIMUM.
2. ALL UNPOLARIZED CAPACITORS IN uF, 10% OR BETTER, 16V MINIMUM. (POWER SUPPLY BYPASS CAPACITORS ARE 20%).
1. ALL RESISTORS IN OHMS, 5%; 1/4W.

NOTES: (UNLESS OTHERWISE NOTED)

FENDER MUSICAL INSTRUMENTS
Corona, CA USA

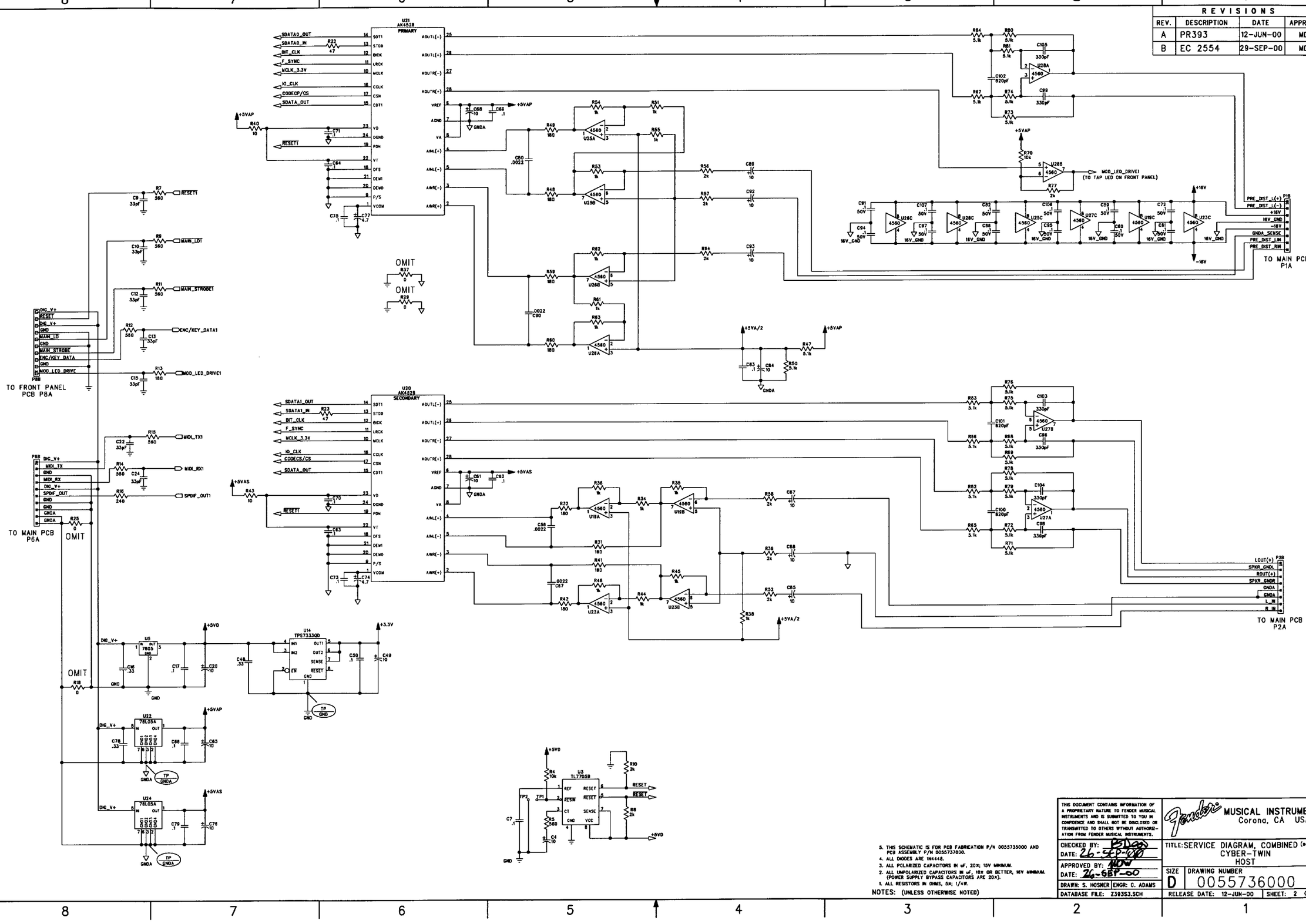
CHECKED BY:	BOOKS
DATE:	26-SEP-00
APPROVED BY:	MDW
DATE:	26-SEP-00
DRAWN: S. HOSNER	ENGR: C. ADAMS
DATABASE FILE:	Z393S3.SCH

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

SIZE	DRAWING NUMBER	REV.
D	0055736000	B

RELEASE DATE: 12-JUN-00 SHEET: 1 OF 3

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	PR393	12-JUN-00	MDW
B	EC 2554	29-SEP-00	MDW



5. THIS SCHEMATIC IS FOR PCB FABRICATION P/N 0055735000 AND PCB ASSEMBLY P/N 0055737000.
4. ALL DIODES ARE IN4448.
3. ALL POLARIZED CAPACITORS IN uF, 20%; 15V MINIMUM.
2. ALL UNPOLARIZED CAPACITORS IN uF, 10% OR BETTER, 16V MINIMUM. (POWER SUPPLY BYPASS CAPACITORS ARE 20%).
1. ALL RESISTORS IN OHMS, 5%; 1/4W.

NOTES: (UNLESS OTHERWISE NOTED)

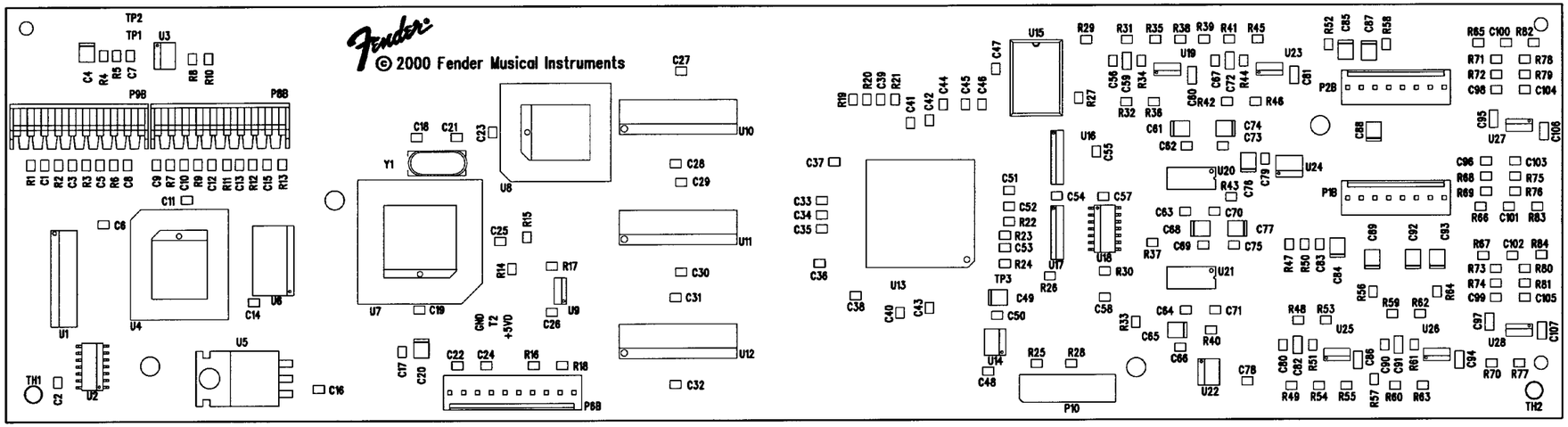
FENDER MUSICAL INSTRUMENTS
Corona, CA USA

CHECKED BY: BJ Gas
DATE: 26-SEP-00
APPROVED BY: MDW
DATE: 26-SEP-00
DRAWN: S. HOSNER ENGR: C. ADAMS
DATABASE FILE: Z3935J.SCH

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

SIZE D | DRAWING NUMBER 0055736000 | REV. B
RELEASE DATE: 12-JUN-00 | SHEET: 2 OF 3

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	PR 393	12-JUN-00	MDW
B	EC 2554	29-SEP-00	MDW



FILM/DWG:	SERVICE DIAGRAM
DATABASE: Z393P3.PCB	DATE: 29-SEP-00

2. P10 R18 R25 R29 R37 OMITTED.
1. SEE SHEETS 1 AND 2 FOR SCHEMATIC.

NOTES: (UNLESS OTHERWISE NOTED)

CHECKED BY: BDR
DATE: 26-SEP-00

APPROVED BY: M. Wilson
DATE: 26-SEP-00

DRAWN: S. HOSNER | ENGR: C. ADAMS

DATABASE FILE: Z393P3.PCB

Fender® MUSICAL INSTRUMENTS
Corona, CA USA

TITLE: SERVICE DIAGRAM, COMBINED (PCB assy)
CYBER-TWIN
HOST

SIZE	DRAWING NUMBER	REV.
B	0055736000	B

RELEASE DATE: 12-JUN-00 | SHEET 3 OF 3

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	PR393	12-JUN-00	MDW

TO DSP BOARD

TO VACUUM FLUORESCENT DISPLAY

TO DSP BOARD

TO MAIN PCB

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 IN4448.
5. THIS SCHEMATIC IS FOR PCB FABRICATION P/N 0055753000 AND PCB ASSEMBLY P/N 0055755000

CHECKED BY: GVDens
DATE: 13-JUN-00
APPROVED BY: MDW
DATE: 6/13/2000
DRAWN: S. HOSNER ENGR: C. ADAMS
DATABASE FILE: Z393S4.SCH

FENDER MUSICAL INSTRUMENTS
Corona, CA USA

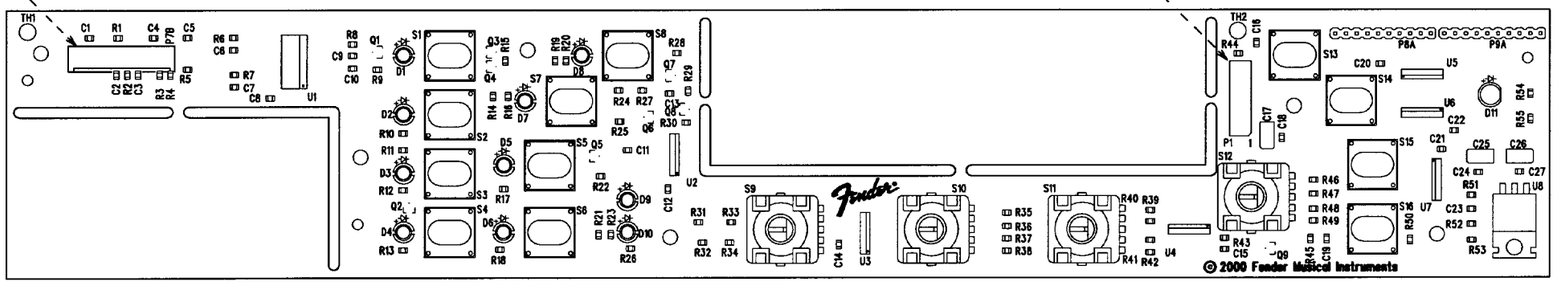
TITLE: SERVICE DIAGRAM, COMBINED (schematic)
CYBER-TWIN
FRONT PANEL

SIZE D | DRAWING NUMBER 0055754000 | REV. A
RELEASE DATE: 12-JUN-00 | SHEET: 1 OF 2

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	PR 393	12-JUN-00	MDW

P7B MOUNTS ON BACK SIDE OF PCB.

P1 MOUNTS ON BACK SIDE OF PCB.



FILM/DWG:	SERVICE DIAGRAM	
DATABASE:	Z393P4.PCB	DATE: 12-JUN-00

1. SEE SHEET 1 FOR SCHEMATIC.

NOTES: (UNLESS OTHERWISE NOTED)

CHECKED BY: PJ Dean
DATE: 13-JUN-00

APPROVED BY: M. Williams
DATE: 6/13/2000

DRAWN: S. HOSNER | ENGR: C. ADAMS

DATABASE FILE: Z393P4.PCB

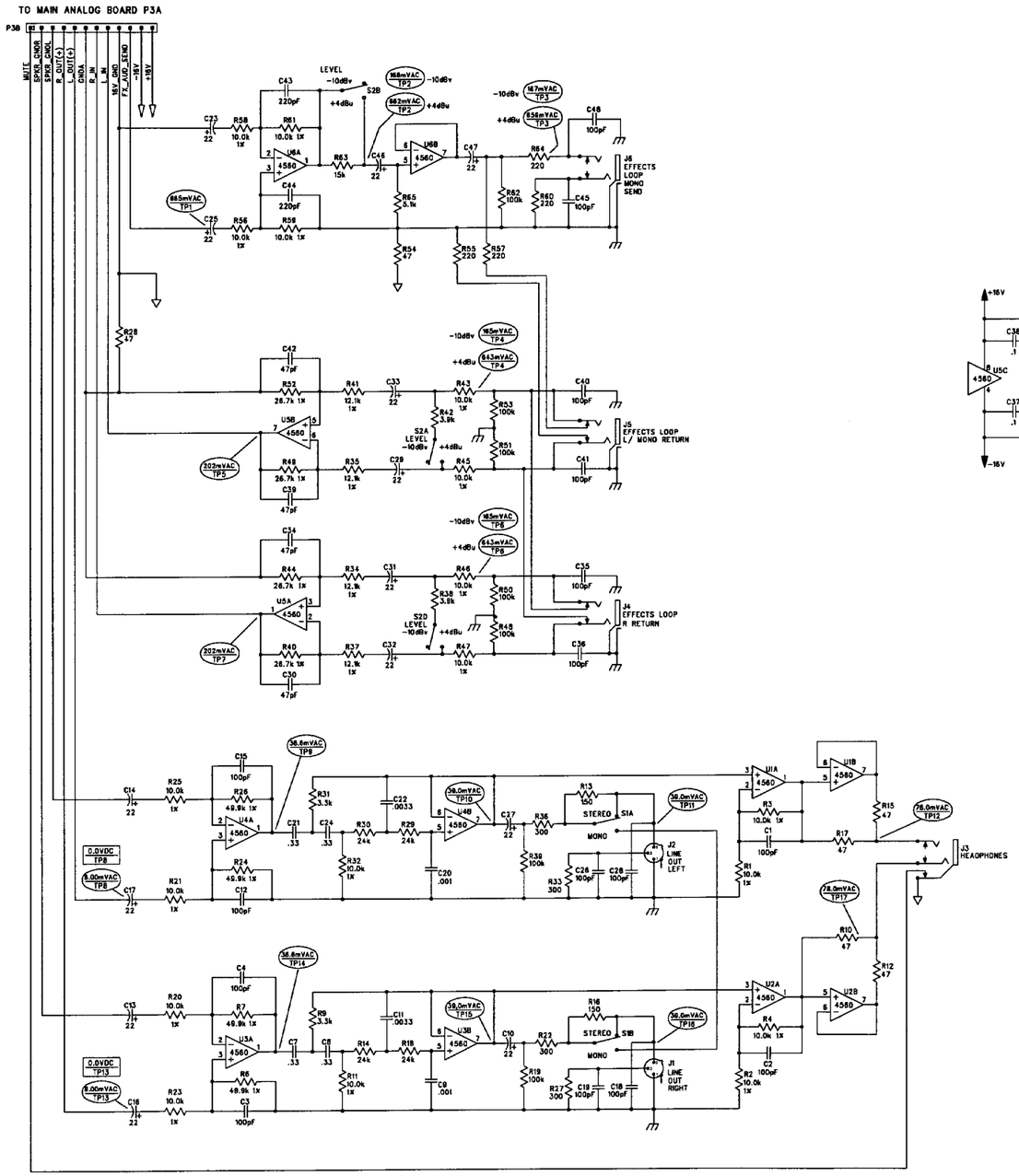
Fender MUSICAL INSTRUMENTS
Corona, CA USA

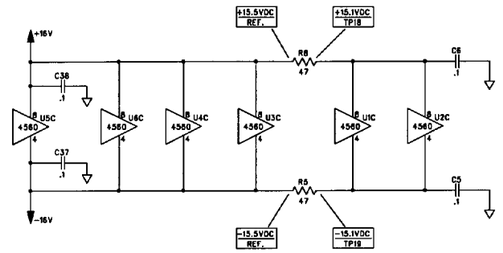
TITLE: SERVICE DIAGRAM, COMBINED (PCB assy)
CYBER-TWIN
FRONT PANEL

SIZE	DRAWING NUMBER	REV.
C	0055754000	A

RELEASE DATE: 12-JUN-00 | SHEET 2 OF 2

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	PR 393	12-JUN-00	MDW
B	EC 2540	12-SEP-00	MDW





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 0055786000 FOR INSTRUCTIONS).
   TRIM CONTROL SET TO 80% ROTATION (~8-1/2°).
   1kHz 4mVAC SINEWAVE INPUT AT J2 (TP1).
   8Ω RESISTIVE LOADS CONNECTED AT P1, P2 AND P3, P4.
   FOOTSWITCH CONNECTED (ONLY REQ'D TO TEST FOOTSWITCH OPERATION).
   NO MIDI CABLE(S) INSTALLED.
   NOTHING PLUGGED INTO HEADPHONE JACK.
   ALL AC VOLTAGES +/- 20%.
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 0055786000 FOR FIELD TEST INSTRUCTIONS.
6. LAST REFERENCE DESIGNATORS: C58 J6 P3B R85 S2 TP19 U6
5. THIS SCHEMATIC IS FOR PCB FABRICATION P/N 0056334000 AND PCB ASSEMBLY P/N 0056335000.
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.

NOTES: (UNLESS OTHERWISE NOTED)

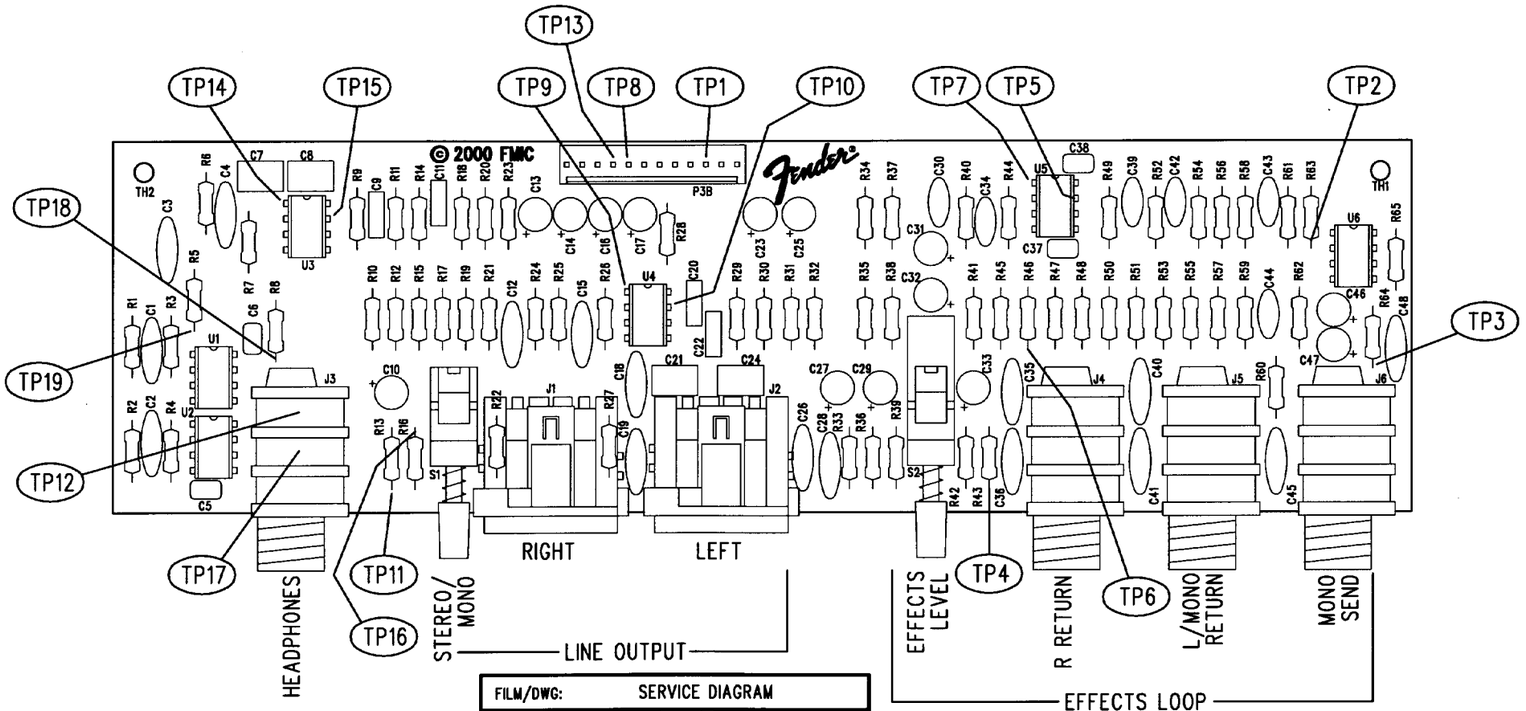
FENDER MUSICAL INSTRUMENTS
Corona, CA USA

CHECKED BY: B Dean
DATE: 14-SEP-00
APPROVED BY: MDW
DATE: 14-SEP-00
DRAWN: A. BARNAI | ENGR: M. WILKENS
DATABASE FILE: Z393S2.SCH

TITLE: SERVICE DIAGRAM, COMBINED (schematic)
CYBER-TWIN AMP
ANALOG I/O PCB

SIZE D | DRAWING NUMBER 0056333000 | REV. B
RELEASE DATE: 12-JUN-00 | SHEET: 1 OF 2

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	PR 393	12-JUN-00	MDW
B	EC 2540	15-SEP-00	MDW



FILM/DWG:	SERVICE DIAGRAM
DATABASE: Z393P2.PCB	DATE: 15-SEP-00

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

NOTES: (UNLESS OTHERWISE NOTED)

CHECKED BY: B Deas
DATE: 14-SEP-00

APPROVED BY: M. Wilkens
DATE: 14-SEP-2000

DRAWN: S. HOSNER | ENGR: M. WILKENS

DATABASE FILE: Z393P2.PCB

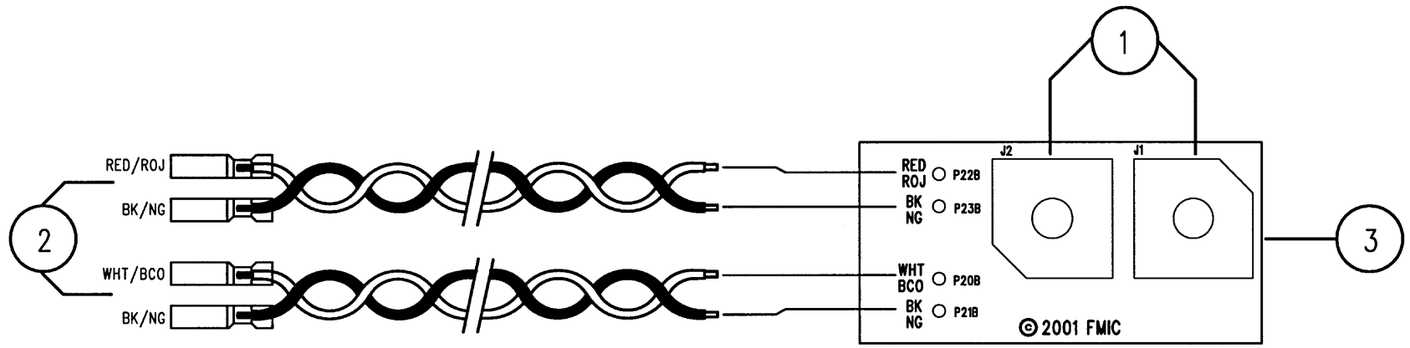
Fender® MUSICAL INSTRUMENTS
Corona, CA USA

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

SIZE	DRAWING NUMBER	REV.
B	0056333000	B

RELEASE DATE: 12-JUN-00 | SHEET 2 OF 2

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	PR502	06-SEP-01	J.C.S.



ITEM	QTY	FENDER PART NUMBER	DESCRIPTION
1	2	0029175000	JACK PHONE 1/4" HI CURRENT PC
2	1	0057657000	WIRE SET SPKR CYBER-TWIN HEAD
3	1	0057655000	PCB FAB CYBER-TWIN HEAD SPKR OUT

FILM/DWG:	PCB ASSEMBLY DRAWING
DATABASE: Z502P2.PCB	DATE: 06-SEP-01

NOTES: (UNLESS OTHERWISE NOTED)

CHECKED BY: B Dest
DATE: 13-SEP-01
APPROVED BY:
DATE: 9/13/01
DRAWN: DON FOX | ENGR: J. STILLWELL
DATABASE FILE: Z502P2.PCB

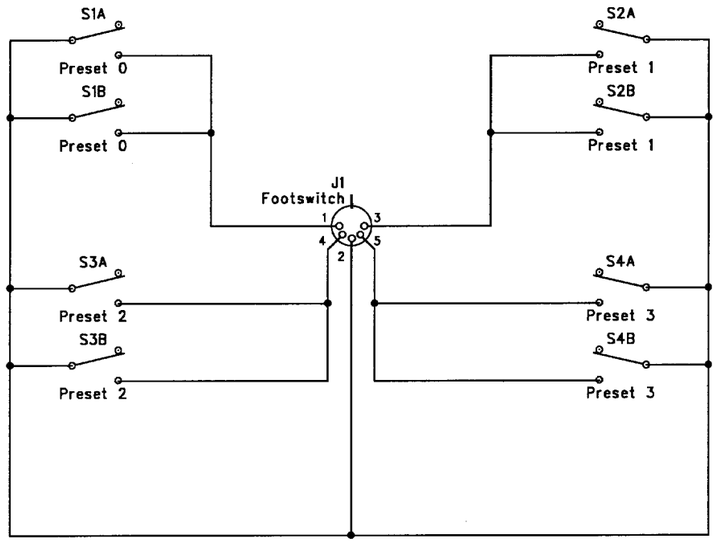
Fender® MUSICAL INSTRUMENTS
Corona, CA U.S.A.

TITLE: PCB ASSEMBLY, CYBER-TWIN HEAD SPEAKER OUT

SIZE	DRAWING NUMBER	REV.
B	0057654000	A

RELEASE DATE: 06-SEP-01 | SHEET 1 OF 1

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	PR328	26-OCT-98	R.B.H.



1. THIS SCHEMATIC IS FOR PCB FABRICATION P/N 0051929000 AND PCB ASSEMBLY P/N 0054773000.

NOTES: (UNLESS OTHERWISE NOTED)

CHECKED BY: BNori
DATE: 28-OCT-98

APPROVED BY: R.Haack
DATE: 10.28.98

DRAWN: R.MURRAY | ENGR: R.HAACK

DATABASE FILE: Z328S3.SCH

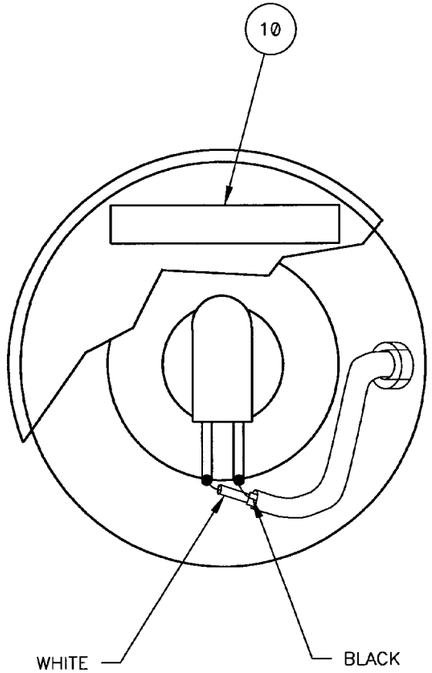
Fender® MUSICAL INSTRUMENTS
2621 Research Drive
Corona, CA 91720 USA

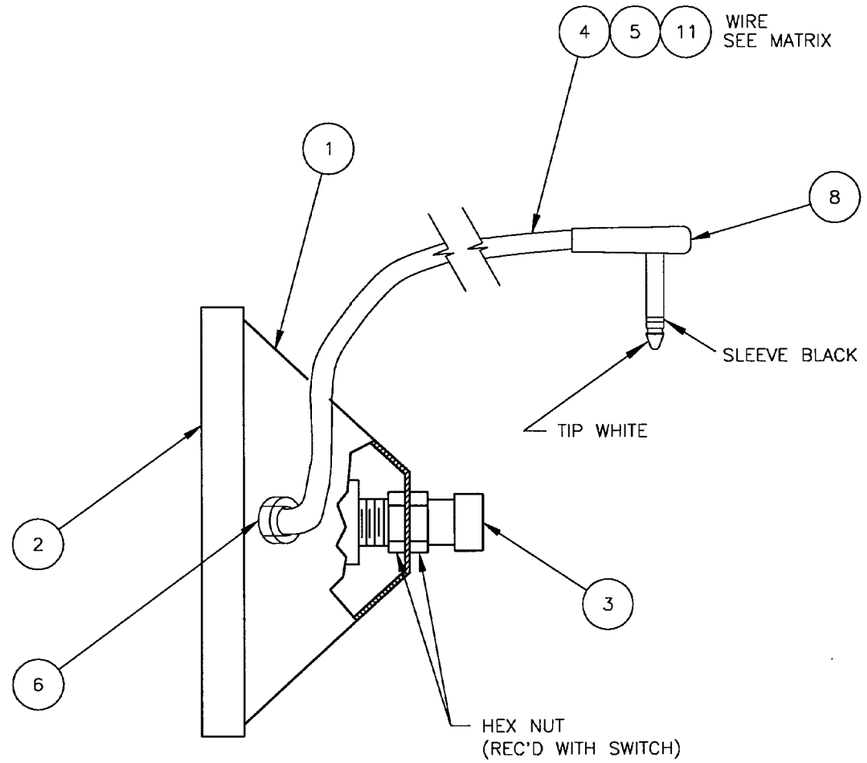
TITLE: SERVICE DIAGRAM, COMBINED (schematic)
ACOUSTASONIC PRO
DSP FOOTSWITCH

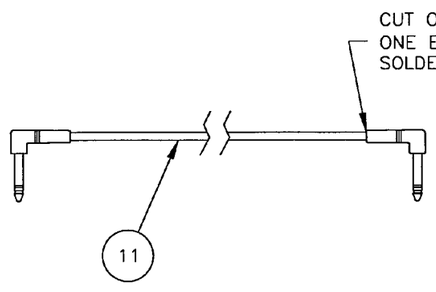
SIZE	DRAWING NUMBER	REV.
B	0054772000	A

RELEASE DATE: 26-OCT-98 | SHEET: 1 OF 1

REV	EC NUMBER	BY	DATE/APPROVE
C	EC 1209	TM	5/31/94
D	EC 2133	GHG	5/8/98
E	EC 2587 ADD ITEMS ADD DETAIL	JR	11/02/2000







CABLE DETAIL FOR 0057172000

ITEM	QTY.	PART NO.	DESCRIPTION
11	1	SEE MATRIX	CABLE ASSY FTSW RT ANG 12"
10	1	SEE MATRIX	LABEL FTSW ID "041228"
9	1	0054416000	LABEL "MADE IN MEXICO" △5
8	1	SEE MATRIX	PLUG PHONE RTANG SHIELDED
7	1	9903311400	BAG JIFFY #1 7-1/4x12
6	1	SEE MATRIX	BUSHING SR BLK
5	12 FT	SEE MATRIX	WIRE BLACK STRANDED 2 COND
4	20 FT	SEE MATRIX	CABLE BULK SV 18/2 BLACK
3	1	0024042000	SWITCH SPST PUSH BUTTON
2	1	0022657000	COVER CUP 1 BTTN FT. SW.
1	1	0049304000	CUP FTSW 1 BTTN VINT STYLE

MATRIX

(11) CABLE ASSY FTSW	–	–	0028895000
(10) LABEL FTSW ID	–	0050722000	–
(8) PLUG PHONE	0028195000	0028195000	–
(6) BUSHING SR	0021691000	0021691000	0026116000
(5) WIRE BLACK	0023861000	–	–
(4) CABLE BULK	–	0027930000	–
FOOT SWITCH ASSY.	0048458000	0041228000	0057172000

△5 LABEL TO BE AFFIXED TO BOTTOM OF ASSEMBLY.
4. COPYRIGHT – 2000 – FENDER MUSICAL INSTRUMENTS CORP.
3. – 3 – SAMPLES OF FIRST PARTS MUST BE APPROVED BY FENDER R&D BEFORE STARTING PRODUCTION.
2. ALL DIMENSIONS ARE IN INCHES.
1. DO NOT SCALE DRAWING.
NOTES: UNLESS OTHERWISE NOTED

ENGINEER ZINKY
DRAWN ALVAREZ
DATE 2/3/93
DFT. DATE 11/2/00
ENG. DATE
ENG. DATE
APPROVED
DATE 11/3/2000

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

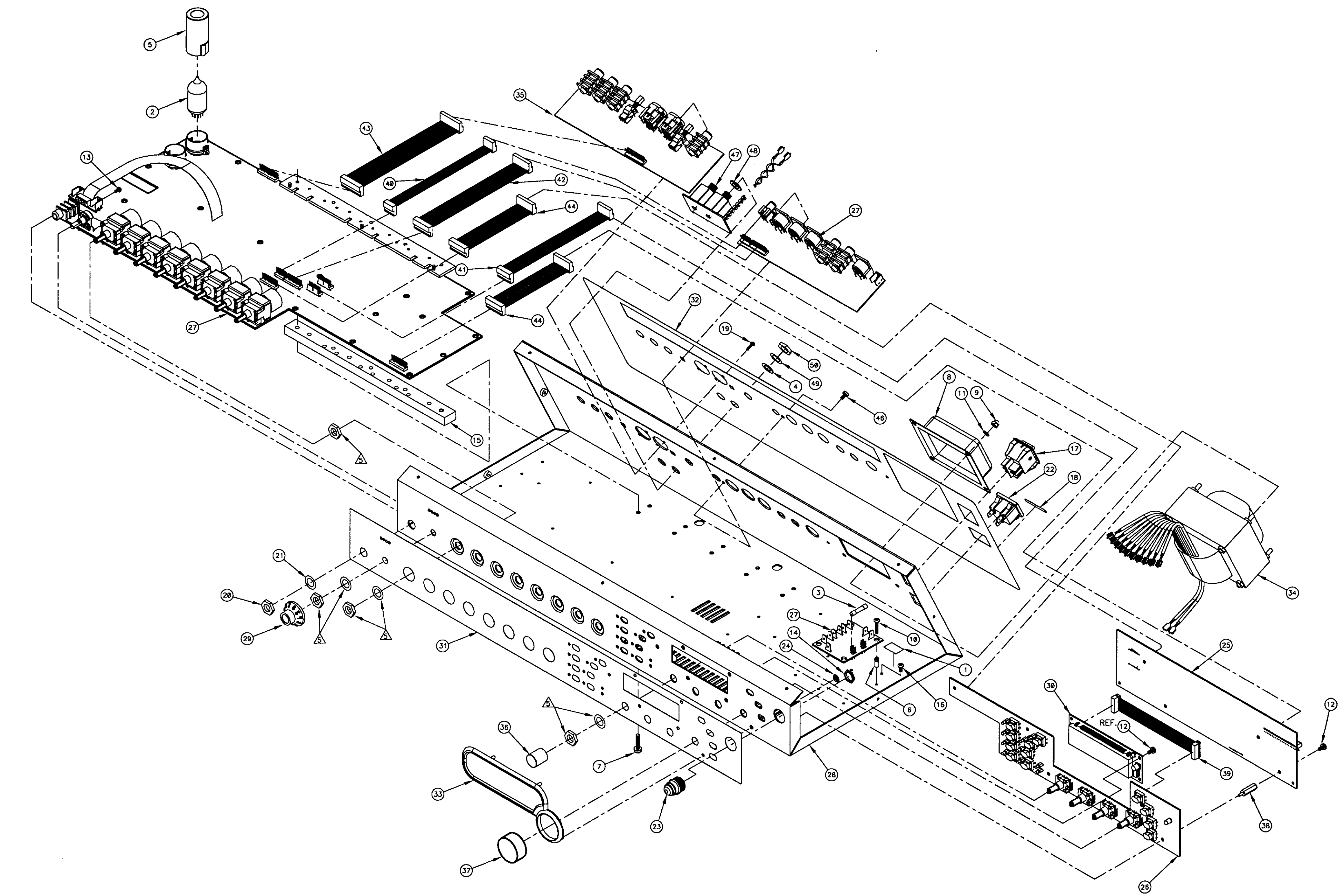
TITLE
FOOT SWITCH ASSEMBLY
1 BUTTON, VINTAGE STYLE

SHEET	SIZE	DRAWING NUMBER	REV.
1/1	D	0041228000 MASTER/ASSEMBLY	E
SCALE N/A			

8 7 6 5 4 3 2 1

D C B A

REV	EC NUMBER	BY	DATE/APPROVE
A	PR 502	JR	9/13/2001



(N.S.)=NOT SHOWN

ITEM	QTY.	PART NO.	DESCRIPTION
50	2	0016352000	NUT HEX 3/8-32x3/32 TK NI
49	2	0031153000	WSHR FLAT 3/8x.614 NI (049)
48	2	0026401000	WSHR SHLDR FIBER 3/8x5/8
47	1	0057654000	PCB ASSY CYBER-TWIN HEAD SPKR OUT
46	2	0014999000	SCRW M 6-32x1/4 PHP BLX
45	1	0057656000	WIRE SET CHS CYBER-TWIN HEAD (N.S.)
44	2	0056854000	CABLE ASSY RIBBON 10 CKT 4"
43	1	0056589000	CABLE ASSY RIBBON 12 CKT 6"
42	1	0056588000	CABLE ASSY RIBBON 10 CKT 6"
41	2	0056587000	CABLE ASSY RIBBON 8 CKT 6"
40	1	0056586000	CABLE ASSY RIBBON 6 CKT 6"
39	1	0056526000	CABLE ASSY RIBBON 2 x 7 CKT 5.25"
38	4	0056495000	STANDOFF M/F 6-32x3/4 HEX AL
37	1	0056340000	KNOB DATA WHEEL LARGE
36	3	0056339000	KNOB DATA WHEEL SMALL
35	1	0056335000	PCB ASSY CYBER-TWIN ANALOG I/O
34	1	SEE MATRIX	XFMR
33	1	0056316000	BEZEL ASSY CYBER-TWIN
32	1	SEE MATRIX	PANEL REAR CYBER-TWIN HEAD
31	1	0055949000	PANEL FRONT CYBER-TWIN
30	1	0055989000	VFD 20T202DA1J
29	9	0055856000	KNOB VINTAGE D-SHAFT
28	1	0055849000	CHASSIS CYBER-TWIN
27	1	0057645000	PCB ASSY CYBER-TWIN HEAD MAIN
26	1	0055755000	PCB ASSY CYBER-TWIN FRNT PNL
25	1	0055737000	PCB ASSY CYBER-TWIN HOST
24	6	0055732000	PUSH NUT 1/8" POST
23	1	0054798000	JEWEL ASSY LED
22	1	0054642000	CONNECTOR IEC SNAP IN
21	7	0053480000	WASHER FLAT .442 X.692 NI
20	7	0053479000	NUT HEX 7/16 20X1/8 NI
19	4	0051155000	SCRW SMB #4X3/8 PHP BLX
18	1	SEE MATRIX	LABEL VOLTAGE
17	1	SEE MATRIX	SWITCH DPST
16	1	0038900000	SCRW TF 6-32X1/4 PHP ZI
15	1	0031726000	HEATSINK BAR
14	1	0031625000	NUT HOLDER PILOT LIGHT 1/16-27
13	2	0031188000	SCRW M4-40x1/4 PHPS ZI w/WSHR
12	10	0041595000	SCRW 6-32x3/16 PHP STL ZI SEMS
11	4	0030007000	WSHR LCK INTL 8x.330x.02 ZI
10	22	0028937000	SCRW TF 6-32x5/8 PHP ZI TAPTYT
9	4	0028591000	NUT ACORN 8-32
8	1	0028564000	END BELL XFMR STAGE 112SE
7	5	0028500000	SCRW TF 8-32x3/4 HWH SLTD Z1
6	22	0025936000	STANDOFF NYL PCB SNAP 3/8" NAT
5	2	0023598000	TUBE SHIELD (099-0723-000)
4	2	0027520000	WSHR FLAT .380x.630 FIBER
3	1	SEE MATRIX	FUSE
2	2	0013341000	TUBE 7025/12AX7WA RUSSIAN MADE
1	1	0013020000	LABEL GROUNDING SEMKO

NOTES: UNLESS OTHERWISE NOTED
1. DO NOT SCALE DRAWING.
2. ALL DIMENSIONS ARE IN INCHES.
3. - 3 - SAMPLES OF FIRST PARTS MUST BE APPROVED BY FENDER R&D BEFORE STARTING PRODUCTION.
4. COPYRIGHT – 2001 – FENDER MUSICAL INSTRUMENTS CORP.
5 (in triangle). HARDWARE INCLUDED WITH PART.

MATRIX

ITEM	CHASSIS ASSEMBLY	CYBER-TWIN HEAD 120V DOM. 0057640000	CYBER-TWIN HEAD 220V R.O.K. 0057641000	CYBER-TWIN HEAD 230V 0057642000	CYBER-TWIN HEAD 240V AUS. 0057643000	CYBER-TWIN HEAD 100V JPN. 0057644000
34	XFMR	0056317000	0056318000	0056318000	0056318000	0056319000
32	PANEL REAR	0057496000	0057497000	0057496000	0057496000	0057496000
18	LABEL VOLTAGE	–	–	0050505000	0050506000	0050507000
17	SWITCH DPST	0039236000	0040582000	0040582000	0040582000	0039236000
3	FUSE	0053884000	0020794000	0020794000	0020794000	0053884000

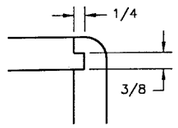
ENGINEER STILLWELL
DRAWN RICHARDS
DATE 8/28/2001
DFT R.B. | ENG. SP/H | ENG. SCS
DATE 9/13/01 | DATE 9/13/01 | DATE 9/13/01
APPROVED
DATE 9/13/01

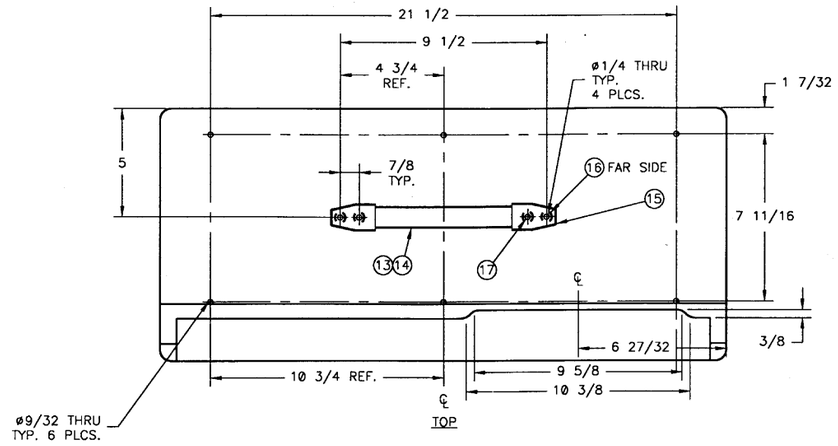
FENDER MUSICAL INSTRUMENTS CORP.
CORONA, CALIFORNIA U.S.A.

TITLE: CHASSIS ASSEMBLY CYBER-TWIN HEAD

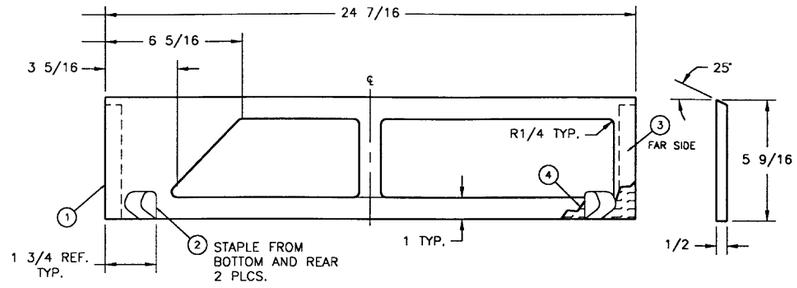
SHEET 1/1 | SIZE D | DRAWING NUMBER 0057640000 MASTER/ASSEMBLY | REV. A
SCALE N/A

REV	EC NUMBER	BY	DATE/APPROVAL
A	PR 502	JR	8/31/2001



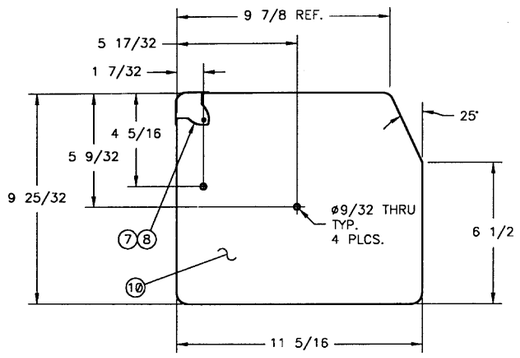


TOP

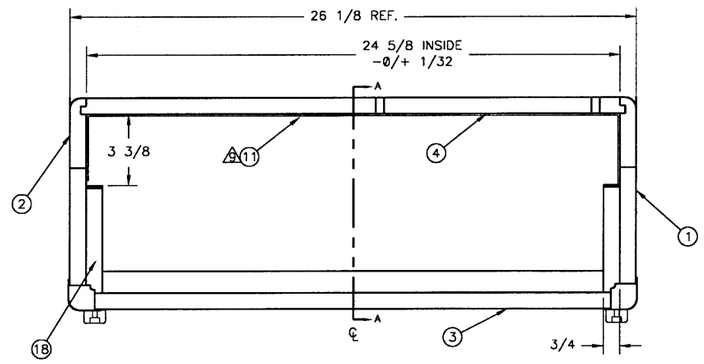


P/N 0057394008 GRILLE ASSEMBLY

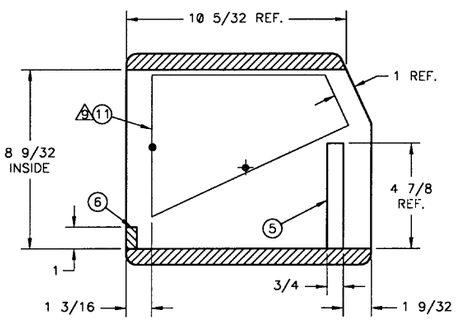
ITEM	QTY.	PART NO.	DESCRIPTION
4	A/R	0037788000	CLOTH GRILLE BLACK/SILVER
3	2@5"	0029085000	VELCRO STRIP LOOP 1.5"wd BLK
2	2	0031752000	RIBBON PULL-TAB
1	1	0057394007	GRILLE FRAME



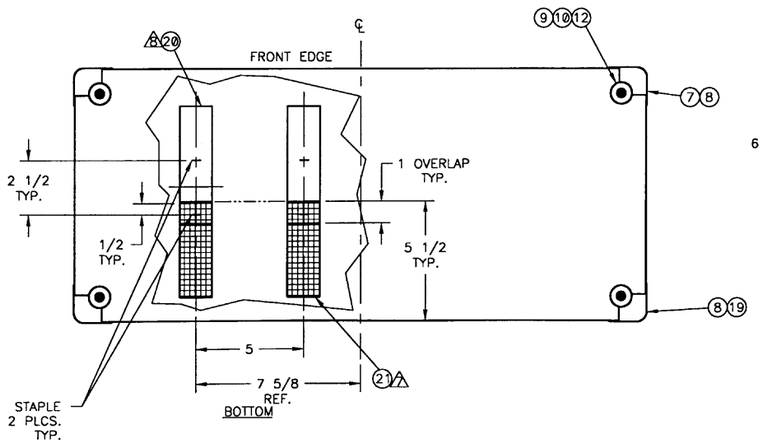
LEFT SIDE



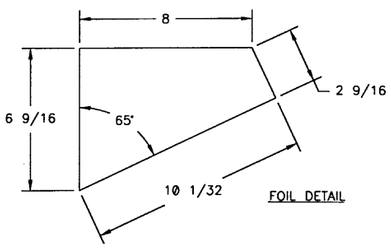
FRONT



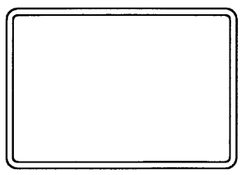
SECTION A-A



BOTTOM



FOIL DETAIL



TOLEX WRAP DETAIL
NO SCALE

11. FEET, HANDLE AND CORNERS NOT SHOWN IN ALL VIEWS FOR CLARITY.
10. TOLEX TO BE ONE PIECE WRAP.
9. STAPLE FOIL AT CORNERS AND MIDDLE.
8. LOOP SIDE ATTACHED TO CABINET.
7. BACKING SIDE ATTACHED TO CABINET.
6. ALL CORNER RADII 1/2".
5. ALL DIMS. FROM RADIUS CORNERS ARE FROM "THE POINT OF INTERSECTION" OR P.I.
4. COPYRIGHT – 2001 – FENDER MUSICAL INSTRUMENTS CORP.
3. – 3 – SAMPLES OF FIRST PARTS MUST BE APPROVED BY FENDER R&D BEFORE STARTING PRODUCTION.
2. ALL DIMENSIONS ARE IN INCHES.
1. DO NOT SCALE DRAWING.

NOTES: UNLESS OTHERWISE NOTED

ITEM	QTY.	PART NO.	DESCRIPTION
21	2@8"	0029086000	VELCRO STRIP HOOK 1.5"wd BLK
20	2@8"	0029085000	VELCRO STRIP LOOP 1.5"wd BLK
19	2	0026568000	CORNER 3 HOLE NI
18	2@4.5"	0029086000	VELCRO STRIP HOOK 1.5"wd BLK
17	4	0022244000	SCRW M 10-32x1-1/8 OHP NI
16	4	0021972000	NUT T 10-32x3/4 STR 3 PRNG BLK
15	2	0019279000	HANDLE CAP 2 HOLE NICKEL
14	1	0032524000	INSERT HANDLE
13	1	0027846000	HANDLE 9.25" NO LOGO
12	4	0026625000	SCRW WOOD 8x1 FH
11	A/R	0037350000	TAPE ALUM 8"x60YDS
10	A/R	0026570000	TOLEX "BRAVURA BLACK"
9	4	0029323000	FOOT RUBBER 1.0 DIA SMALL
8	10	0026571000	SCRW SMAB 8X5/8 THP NI
7	4	0026566000	CORNER 2 HOLE w/TAB NI
6	1	0057394006	CABINET, BACK (1/2 P.B.)
5	2	0057394005	CLEAT
4	1	0057394004	CABINET, TOP
3	1	0057394003	CABINET, BOTTOM
2	1	0057394002	CABINET, LEFT SIDE
1	1	0057394001	CABINET, RIGHT SIDE

MATERIAL
3/4 PLYWOOD 0027500000
1/2 P.B. 0027503000

FINISH
PAINT ALL EXPOSED AREAS BLACK

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.

ENGINEER: STILLWELL
DRAWN: RICHARDS
DATE: 12/20/2000

DEPT.	ENG.	ENG.
R.B.	JRS	
DATE 9/4/01	DATE 9/4/01	DATE

APPROVED
DATE 9/11/01

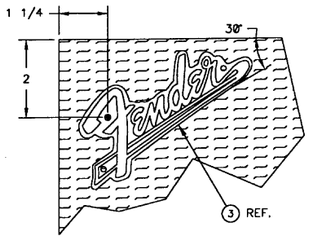
FENDER MUSICAL INSTRUMENTS CORP.
CORONA, CALIFORNIA U.S.A.

TITLE
CABINET ASSEMBLY
CYBER-TWIN HEAD

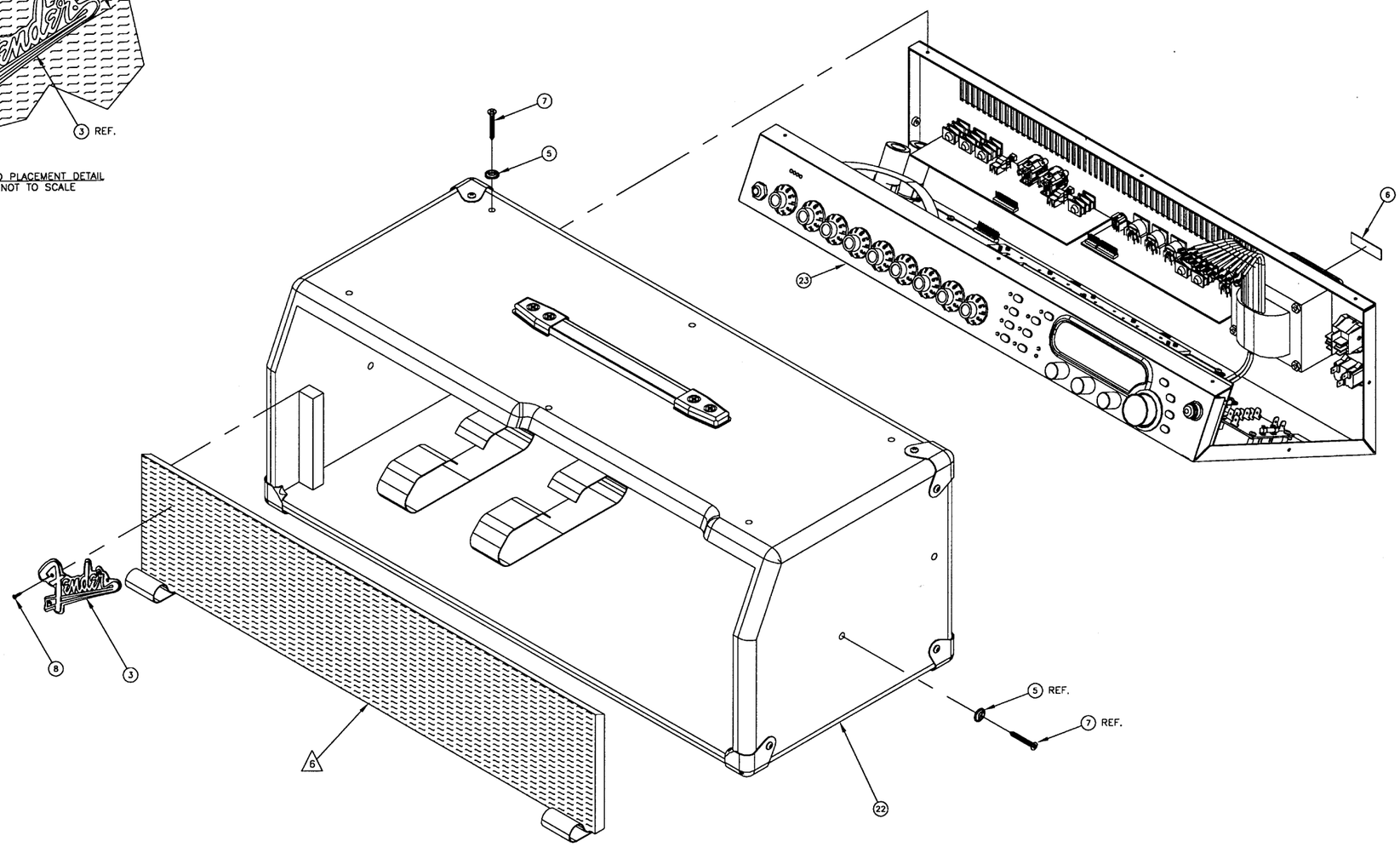
SHEET	SIZE	DRAWING NUMBER	REV.
1/1	D	0057394000 PART	A
SCALE N/A			

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

REV	EC NUMBER	BY	DATE/ANCHRC
A	PR 502	JR	9/13/2001



LOGO PLACEMENT DETAIL
NOT TO SCALE



(N.S.)=NOT SHOWN

ITEM	QTY.	PART NO.	DESCRIPTION
32	1	SEE MATRIX	CD ROM CYBER-TWIN (N.S.)
31	1	0053863000	HANG TAG GROOVE TUBE (N.S.)
30	1	0057652000	COVER DSP CYBER TWIN HEAD (N.S.)
29	1	0057037000	HANG TAG DSP (N.S.)
28	AR	9903320000	BAG POLY ZIP 10x13 2M (N.S.)
27	1	9903311400	BAG JIFFY #1 7-1/4x12 (N.S.)
26	1	0057647000	CARTON CYBER-TWIN HEAD (N.S.)
25	1	SEE MATRIX	MANUAL OWNERS CYBER-TWIN (N.S.)
24	1	0057172000	FTSW 1 BTN VINT UNSHLD (N.S.)
23	1	SEE MATRIX	CHASSIS ASSY.
22	1	0057394000	CABINET ASSEMBLY CYBER TWIN HEAD
21	1	SEE MATRIX	SVC DIAG COMB CYBER-TWIN ANLG I/O (N.S.)
20	1	SEE MATRIX	SVC DIAG COMB CYBER-TWIN HEAD MAIN (N.S.)
19	1	SEE MATRIX	SVC DIAG COMB CYBER-TWIN FNT PNL (N.S.)
18	1	SEE MATRIX	SVC DIAG COMB CYBER-TWIN HOST (N.S.)
17	AR	0055719000	INSTAMATE PACK FILM (N.S.)
16	AR	0055718000	FLEX FOAM PART "B" (N.S.)
15	AR	0055717000	FLEX FOAM PART "A" (N.S.)
14	1	SEE MATRIX	REGISTRATION CARD (N.S.)
13	1	0057179000	PRESET LIST CYBER-TWIN (N.S.)
12	1	0053454000	STICKER BUMPER FEND SINCE 1946 (N.S.)
11	1	SEE MATRIX	TAG WARRANTY 5 YR FENDER-NEW (N.S.)
10	1	0051894000	FTSW 4 BTN DSP (N.S.)
9	1	SEE MATRIX	CORD PWR W/IEC CONN (N.S.)
8	3	0037985000	SCRW SMA 2x3/8 PHP BLX
7	10	0036199000	SCRW M 8-32x1-3/16 OHP BLX CP
6	1	0029816000	LABEL SERIAL MEXICO
5	10	0029527000	WSHR FNSH 8-5/8 FLNGD BLX WX
4	AR	0057348000	CORROSEAL 50# 12" x 250' 19A012 (N.S.)
3	1	0023192000	NAMEPLATE FNDR 65 TWIN(994093)
2	1	SEE MATRIX	ADDENDUM MANUAL OWNERS CYBER-TWIN HEAD (N.S.)
1	1	00100320000	BAG POLY BOX BTM 23x17x40 .002 (N.S.)

MATRIX

⚠5	ITEM	END ITEM	CYBER-TWIN 120V DOM. 0229002000	CYBER-TWIN 110V TW. 0229012000	CYBER-TWIN 240V AUS. 0229032000	CYBER-TWIN 230V U.K. 0229042000	CYBER-TWIN 230V ARG. 0229052000	CYBER-TWIN 230V EUR. 0229062000	CYBER-TWIN 100V JPN. 0229072000	CYBER-TWIN 220V R.O.K. 0229092000
	32	CD ROM	0057208000	–	0057208000	0057208000	–	–	–	–
	25	OWNER'S MANUAL	0056487000	0056487000	0056487000	0056487000	0057077000 0056487000	0057077000	0057078000	0057077000
	23	CHASSIS ASSY.	0057640000	0057640000	0057643000	0057642000	0057642000	0057642000	0057644000	0057641000
	21	SVC DIA ANLG	–	0056333000	0056333000	0056333000	0056333000	0056333000	0056333000	–
	20	SVC DIA MAIN	–	0057498000	0057498000	0057498000	0057498000	0057498000	0057498000	–
	19	SVC DIA FNT PNL	–	0055754000	0055754000	0055754000	0055754000	0055754000	0055754000	–
	18	SVC DIA HOST	–	0055736000	0055736000	0055736000	0055736000	0055736000	0055736000	–
	14	REG. CARD	0054387000	–	–	–	–	–	–	–
	11	TAG	0053412000	–	–	–	–	–	–	–
	9	CORD	0047248000	0047248000	0047250000	0047249000	TBD	0047251000	0053997000	0047251000
	2	ADDENDUM MANUAL	0057653000	0057653000	0057653000	0057653000	0057653000	0057653000	0057653000	0057653000

⚠6 GRILLE ASSY (0057394008) IS PART OF CAB. ASSY. (0057394000).
⚠5 ADD CD-ROM TO LITERATURE PACK.
4. COPYRIGHT – 2001 – FENDER MUSICAL INSTRUMENTS CORP.
3. – 3 – SAMPLES OF FIRST PARTS MUST BE APPROVED BY FENDER R&D BEFORE STARTING PRODUCTION.
2. ALL DIMENSIONS ARE IN INCHES.
1. DO NOT SCALE DRAWING.
NOTES: UNLESS OTHERWISE NOTED

ENGINEER STILLWELL
DRAWN RICHARDS
DATE 8/29/2001
DFT. SPH DATE 9/4/01
ENG. JCS DATE 9/4/01
APPROVED DATE 9/4/01

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

TITLE
END ITEM
CYBER-TWIN HEAD

SHEET	SIZE	DRAWING NUMBER	REV.
1/1	D	0229002000 MASTER/ASSEMBLY	A

SCALE N/A

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