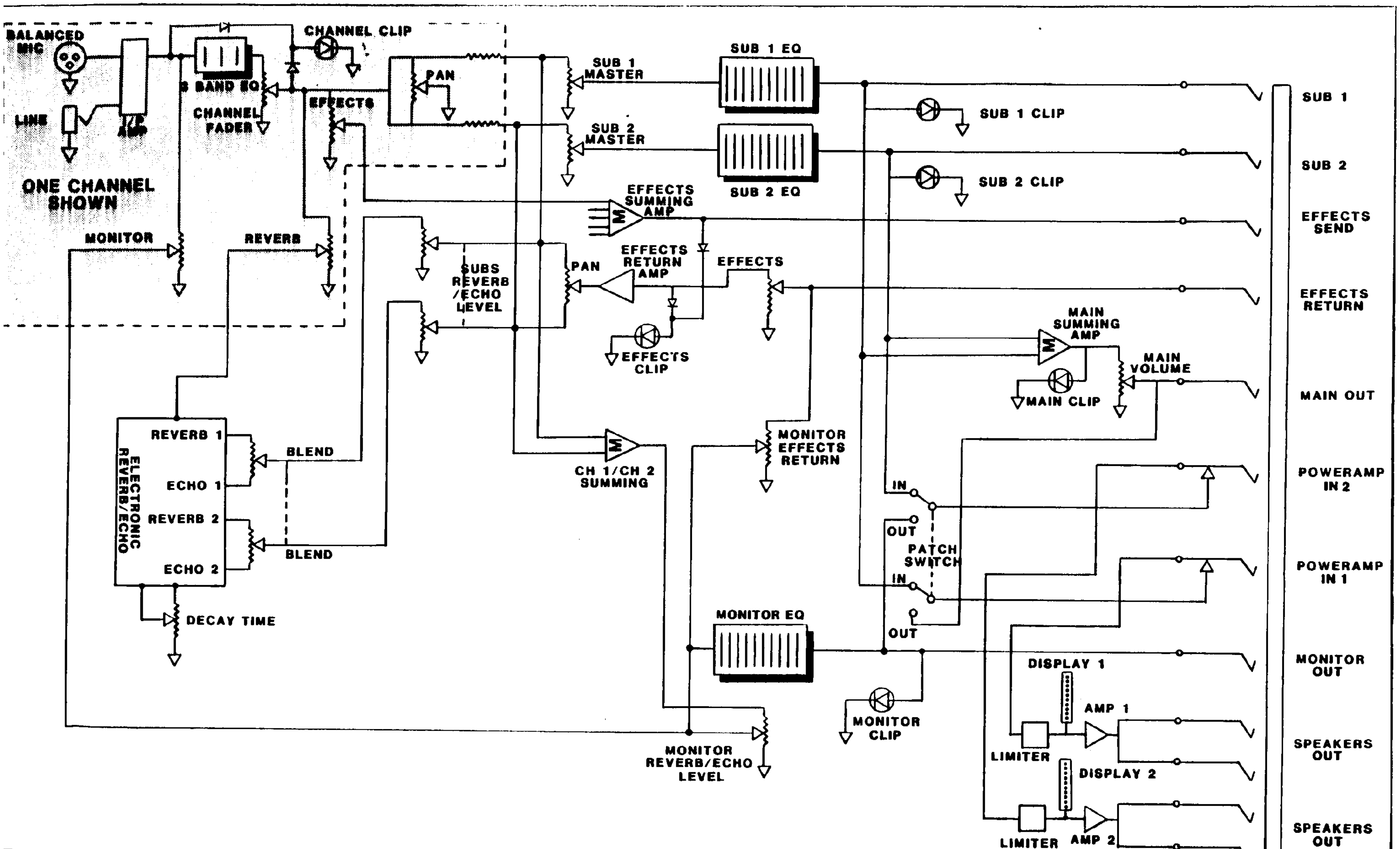
AUDIOPRO

MICROMIX SP8/12

SERVICE MANUAL

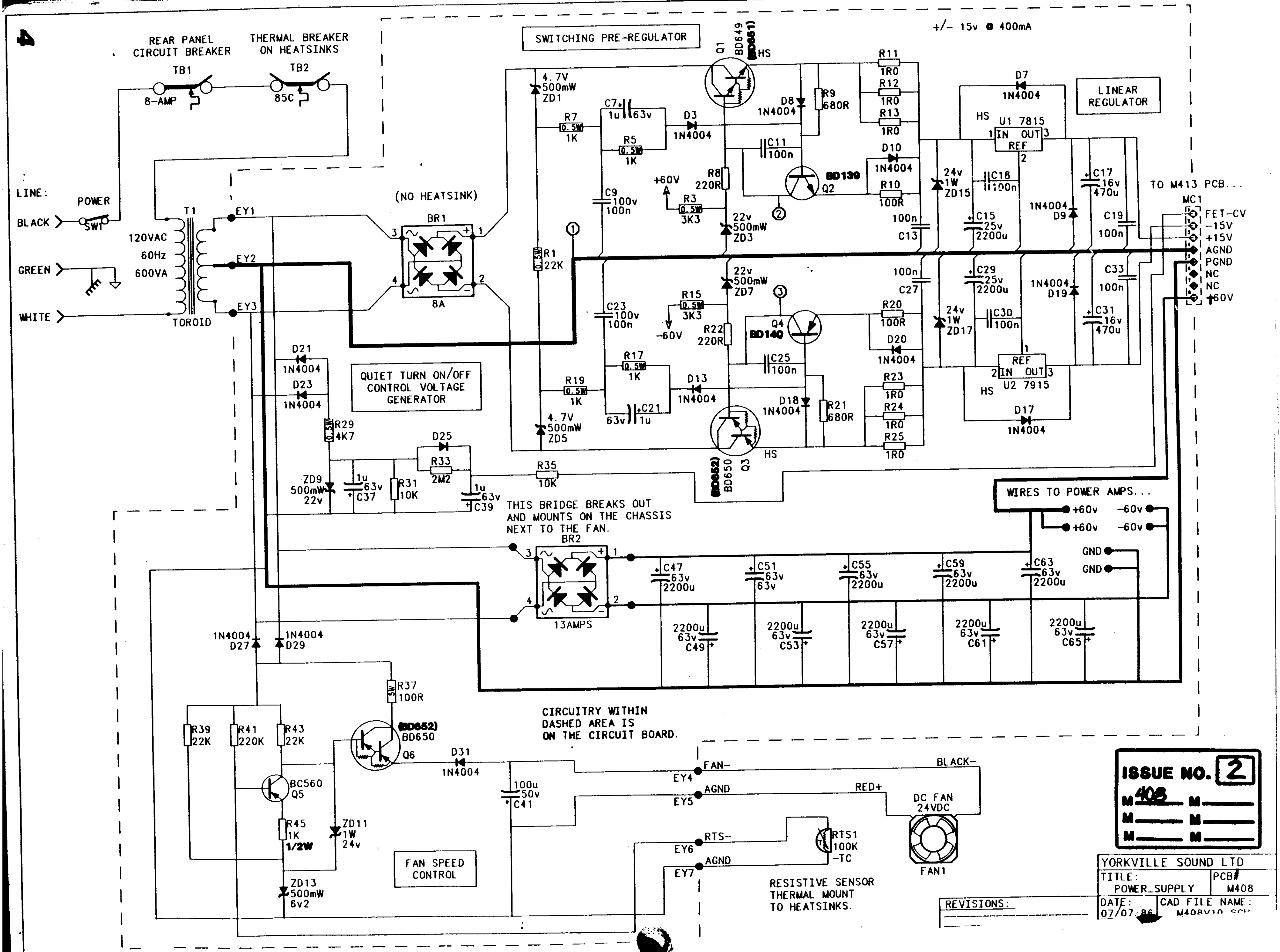
MAY 29, 1987

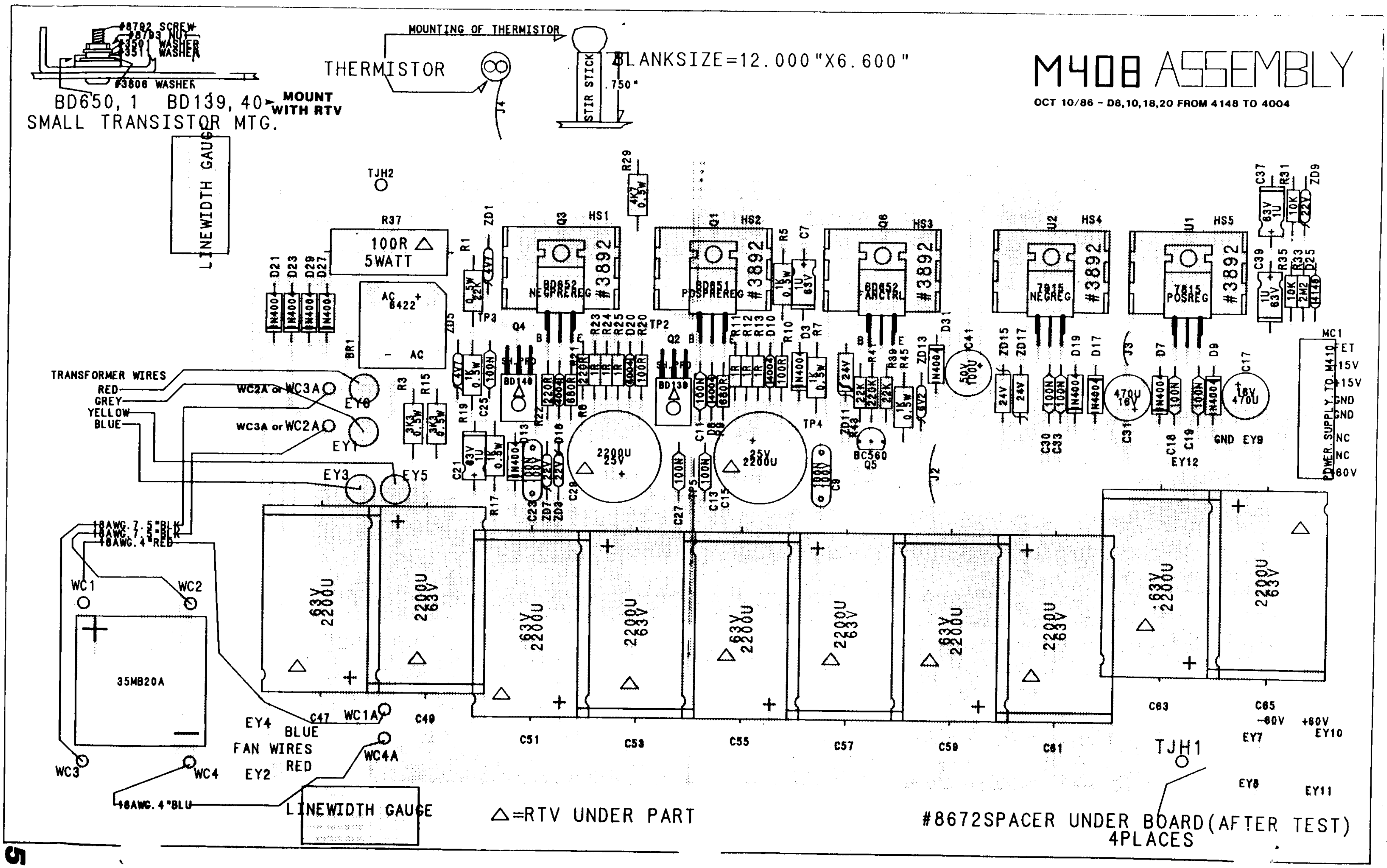
TABLE OF CONTENTS

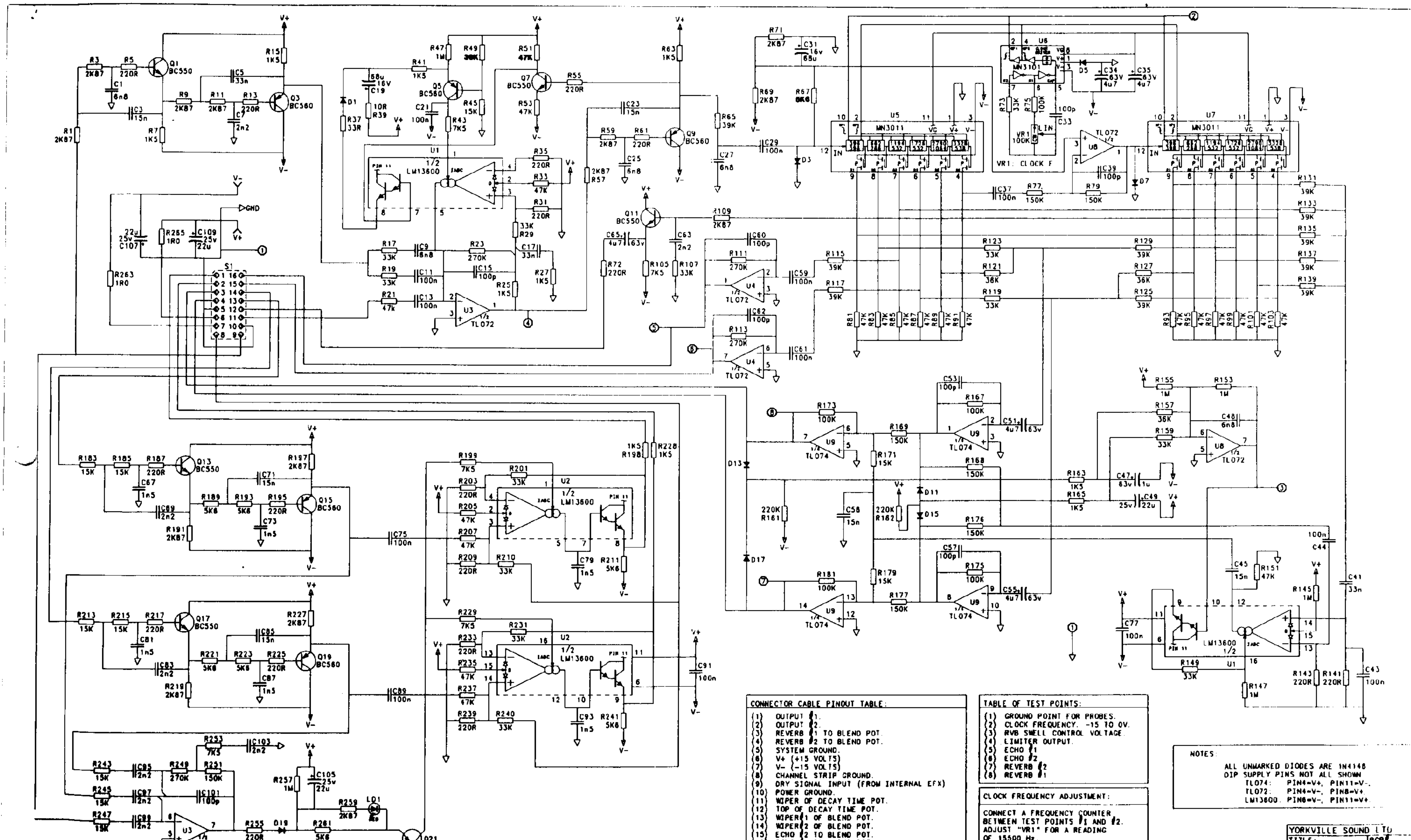


AUDIOPRO MICROMIX SP-SERIES BLOCK DIAGRAM

DRAWN: A.POLLARD SEPT.15, 86


REAR PANEL CIRCUIT BREAKER
TB1
8-AMP
THERMAL BREAKER ON HEATSINKS
TB2
85C
LINE:
BLACK
GREEN
WHITE
POWER
SW1
T1
120VAC
60Hz
600VA
TOROID
EY1
EY2
EY3
(NO HEATSINK)
BR1
8A
SWITCHING PRE-REGULATOR
+/- 15v @ 400mA
LINEAR REGULATOR
Q1 BD649 (BD651) HS
Q2 BD139
Q3 BD650 (BD652) HS
Q4 BD140
U1 7815
U2 7915
TO M413 PCB...
MC1
FET-CV
-15V
+15V
AGND
PGND
NC
NC
+60V
QUIET TURN ON/OFF CONTROL VOLTAGE GENERATOR
WIRES TO POWER AMPS...
+60v
+60v
-60v
-60v
GND
GND
THIS BRIDGE BREAKS OUT AND MOUNTS ON THE CHASSIS NEXT TO THE FAN.
BR2
13AMPS
CIRCUITRY WITHIN DASHED AREA IS ON THE CIRCUIT BOARD.
FAN SPEED CONTROL
Q6 BD650 (BD652)
Q5 BC560
DC FAN 24VDC
FAN1
BLACK-
RED+
FAN-
AGND
RTS-
AGND
EY4
EY5
EY6
EY7
RTS1 100K -TC
RESISTIVE SENSOR THERMAL MOUNT TO HEATSINKS.
ISSUE NO. 2
M 408
REVISIONS:
YORKVILLE SOUND LTD
TITLE: POWER_SUPPLY
PCB# M408
DATE: 07/07/86
CAD FILE NAME: M408V10.SCH


M408 ASSEMBLY
OCT 10/86 - D8,10,18,20 FROM 4148 TO 4004
BLANKSIZE=12.000"X6.600"
#8792 SCREW
#8793 NUT
#3501 WASHER
#3511 WASHER
#3806 WASHER
BD650,1 BD139,40 MOUNT WITH RTV
SMALL TRANSISTOR MTG.
THERMISTOR
MOUNTING OF THERMISTOR
STIR STICK
.750"
LINEWIDTH GAUGE
TJH2
R37
100R 5WATT
TRANSFORMER WIRES
RED
GREY
YELLOW
BLUE
WC2A or WC3A
WC3A or WC2A
18AWG.7.5"BLK
18AWG.7.5"BLK
18AWG.4"RED
WC1
WC2
WC3
WC4
35MB20A
18AWG.4"BLU
EY4 BLUE
FAN WIRES
EY2 RED
WC1A
WC4A
LINEWIDTH GAUGE
△=RTV UNDER PART
#8672SPACER UNDER BOARD(AFTER TEST)
4PLACES
TJH1
POWER SUPPLY TO M410
MC1
ET
+15V
+15V
GND
GND
NC
NC
60V
C47
C49
C51
C53
C55
C57
C59
C61
C63
C65
-60V
+60V
EY7
EY10
EY8
EY11
2200U 63V
HS1
HS2
HS3
HS4
HS5
#3892
BD652 NEGPREREG
BD651 POSPREREG
BD652 FANCTRL
7815 NEGREG
7815 POSREG
BD140
BD139
BC560
2200U 25V
470U 16V
100U 50V
GND EY9
EY12



CONNECTOR CABLE PINOUT TABLE:	
(1)	OUTPUT #1.
(2)	OUTPUT #2.
(3)	REVERB #1 TO BLEND POT.
(4)	REVERB #2 TO BLEND POT.
(5)	SYSTEM GROUND.
(6)	V+ (+15 VOLTS)
(7)	V- (-15 VOLTS)
(8)	CHANNEL STRIP GROUND.
(9)	DRY SIGNAL INPUT (FROM INTERNAL EFX)
(10)	POWER GROUND.
(11)	WIPER OF DECAY TIME POT.
(12)	TOP OF DECAY TIME POT.
(13)	WIPER #1 OF BLEND POT.
(14)	WIPER #2 OF BLEND POT.
(15)	ECHO #2 TO BLEND POT.
(16)	ECHO #1 TO BLEND POT.

TABLE OF TEST POINTS:	
(1)	GROUND POINT FOR PROBES.
(2)	CLOCK FREQUENCY. -15 TO 0V.
(3)	RVB SWELL CONTROL VOLTAGE.
(4)	LIMITER OUTPUT.
(5)	ECHO #1
(6)	ECHO #2
(7)	REVERB #2
(8)	REVERB #1

CLOCK FREQUENCY ADJUSTMENT:

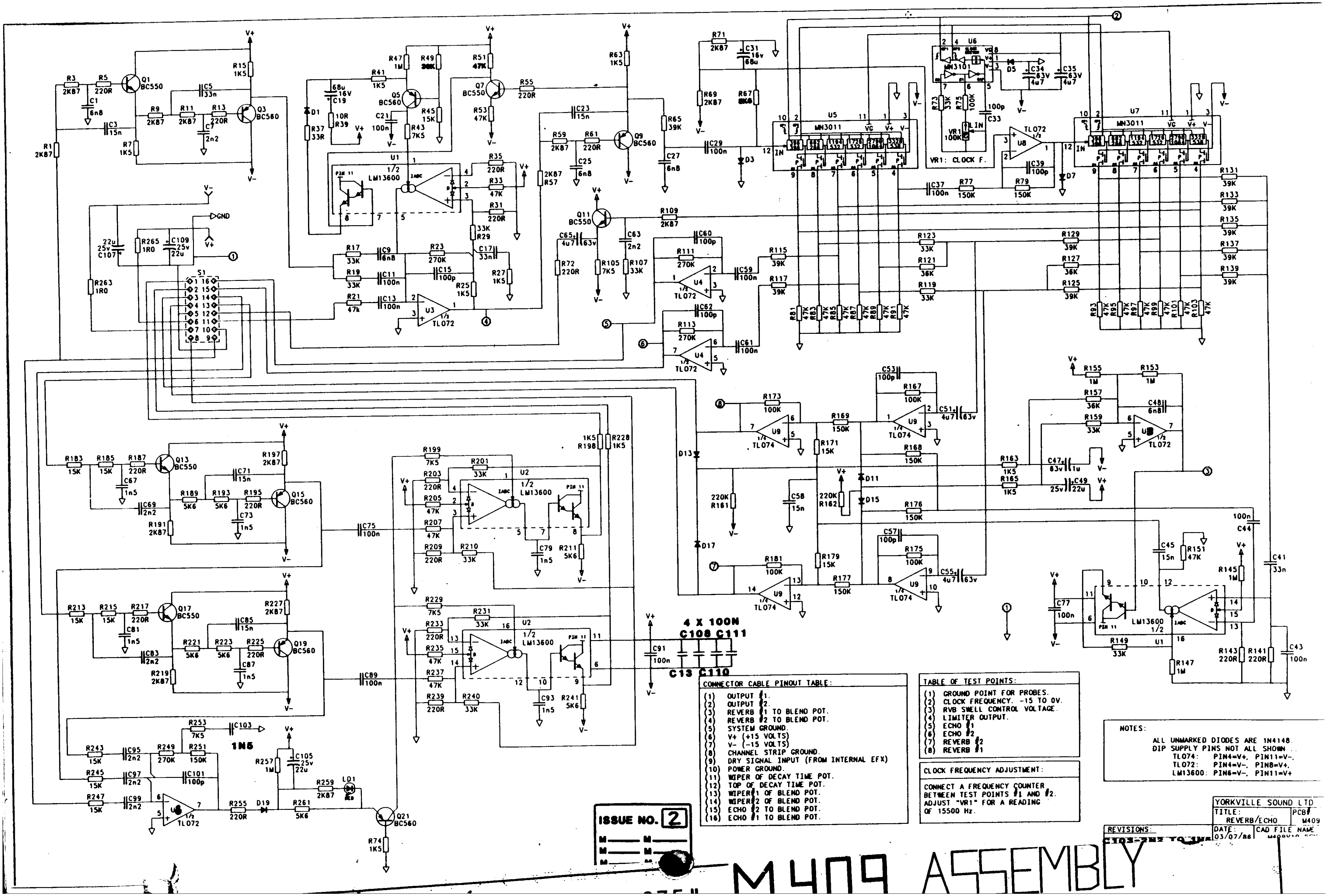
CONNECT A FREQUENCY COUNTER BETWEEN TEST POINTS #1 AND #2. ADJUST "VR1" FOR A READING OF 15500 Hz.

NOTES:

ALL UNMARKED DIODES ARE 1N4148
DIP SUPPLY PINS NOT ALL SHOWN
TL074: PIN4=V+, PIN11=V-.
TL072: PIN4=V-, PIN8=V+.
LM13600: PIN6=V-, PIN11=V+.

REVISIONS:

YORKVILLE SOUND LTD	
TITLE: REVERB/ECHO	PCB# M409
DATE: 03/07/86	CAD FILE NAME: M409V10 SCH
DESIGNED BY: P. IERYMENKO	CAPTURE BY: SAME
FOR MODEL(S): ALL MICROMIX	VERSION# 1.0



CONNECTOR CABLE PINOUT TABLE:

(1) OUTPUT #1.
(2) OUTPUT #2.
(3) REVERB #1 TO BLEND POT.
(4) REVERB #2 TO BLEND POT.
(5) SYSTEM GROUND.
(6) V+ (+15 VOLTS)
(7) V- (-15 VOLTS)
(8) CHANNEL STRIP GROUND.
(9) DRY SIGNAL INPUT (FROM INTERNAL EFX)
(10) POWER GROUND.
(11) WIPER OF DECAY TIME POT.
(12) TOP OF DECAY TIME POT.
(13) WIPER #1 OF BLEND POT.
(14) WIPER #2 OF BLEND POT.
(15) ECHO #2 TO BLEND POT.
(16) ECHO #1 TO BLEND POT.

TABLE OF TEST POINTS:

(1) GROUND POINT FOR PROBES.
(2) CLOCK FREQUENCY. -15 TO 0V.
(3) RVB SWELL CONTROL VOLTAGE.
(4) LIMITER OUTPUT.
(5) ECHO #1
(6) ECHO #2
(7) REVERB #2
(8) REVERB #1

CLOCK FREQUENCY ADJUSTMENT:

CONNECT A FREQUENCY COUNTER BETWEEN TEST POINTS #1 AND #2. ADJUST "VR1" FOR A READING OF 15500 Hz.

NOTES:

ALL UNMARKED DIODES ARE 1N4148.
DIP SUPPLY PINS NOT ALL SHOWN.
TL074: PIN4=V+, PIN11=V-.
TL072: PIN4=V-, PIN8=V+.
LM13600: PIN6=V-, PIN11=V+

ISSUE NO. 2

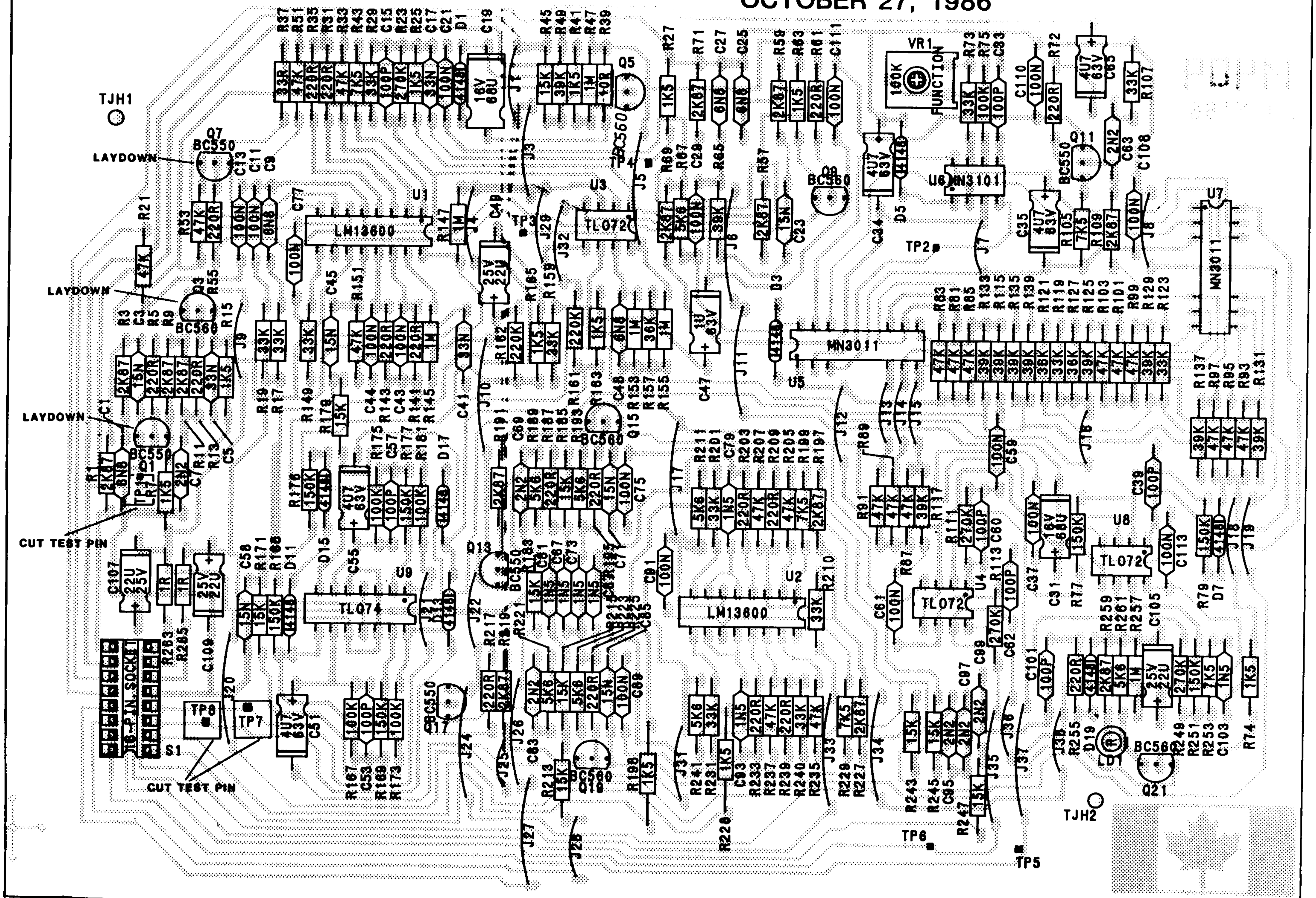
YORKVILLE SOUND LTD
TITLE: REVERB/ECHO
PCB# M409
DATE: 03/07/86
CAD FILE NAME
REVISIONS:

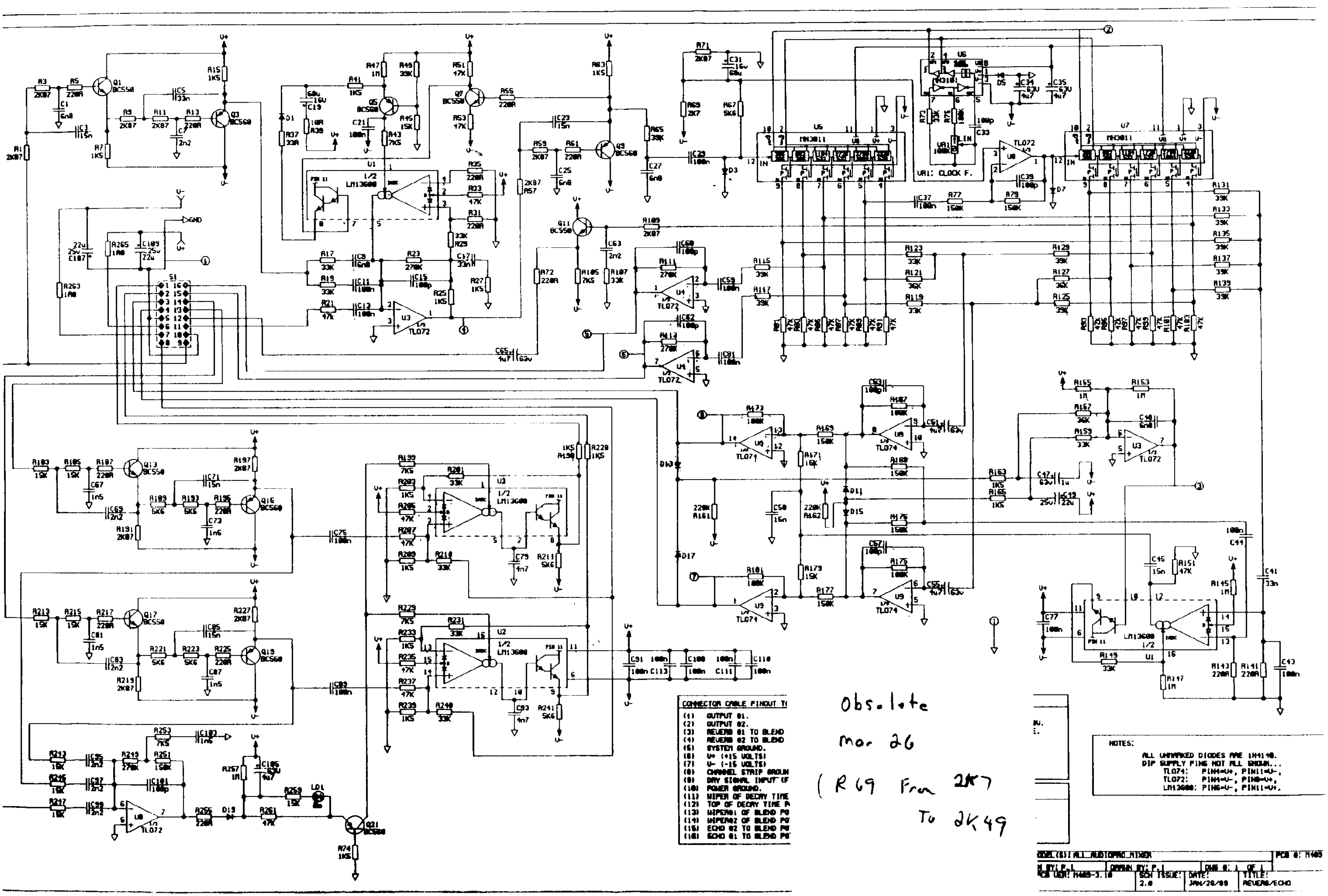
M409 ASSEMBLY

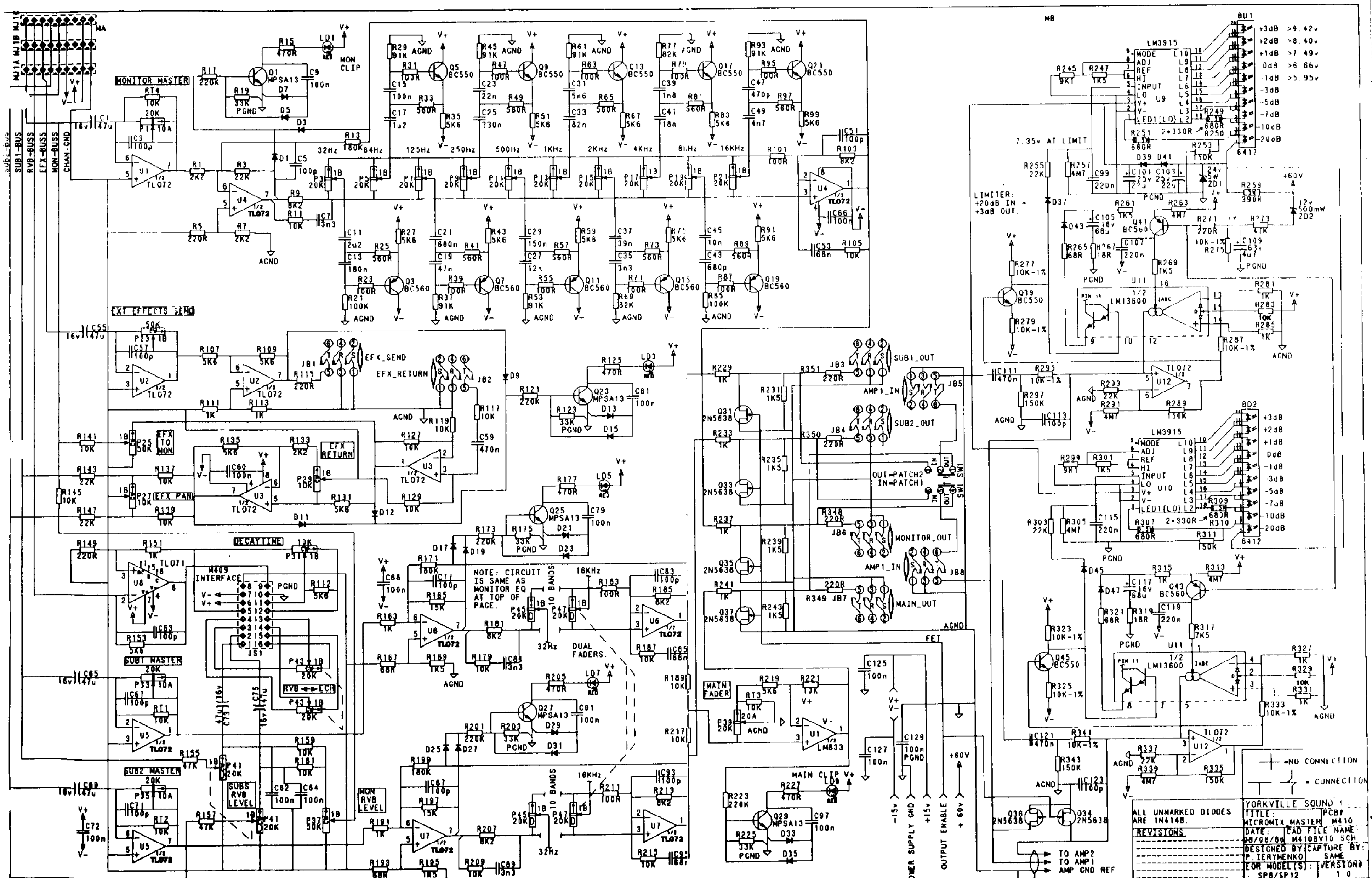
BLANK. SIZE=9.500"X13.875"

M409 ASSEMBLY

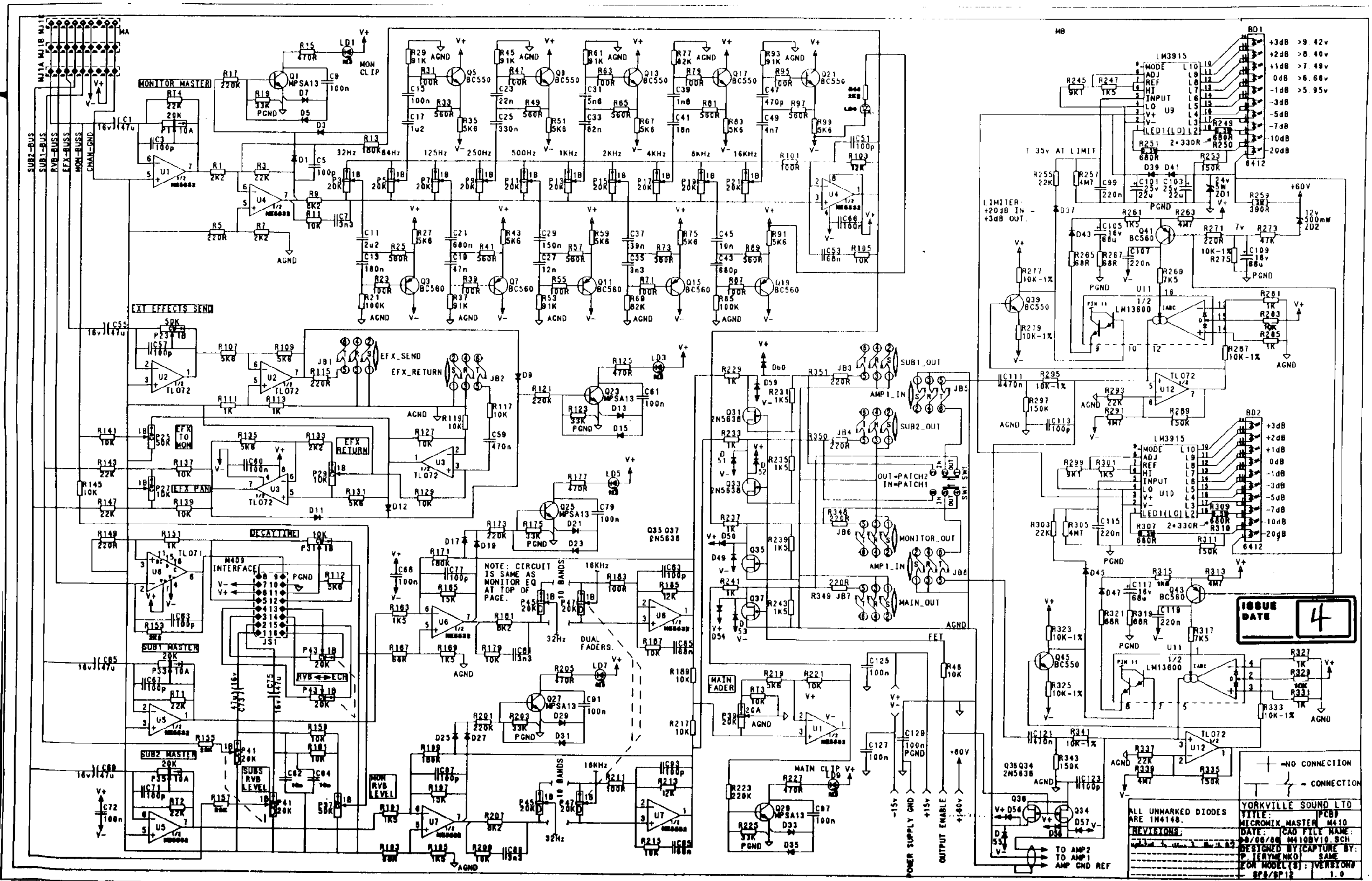
OCTOBER 27, 1986



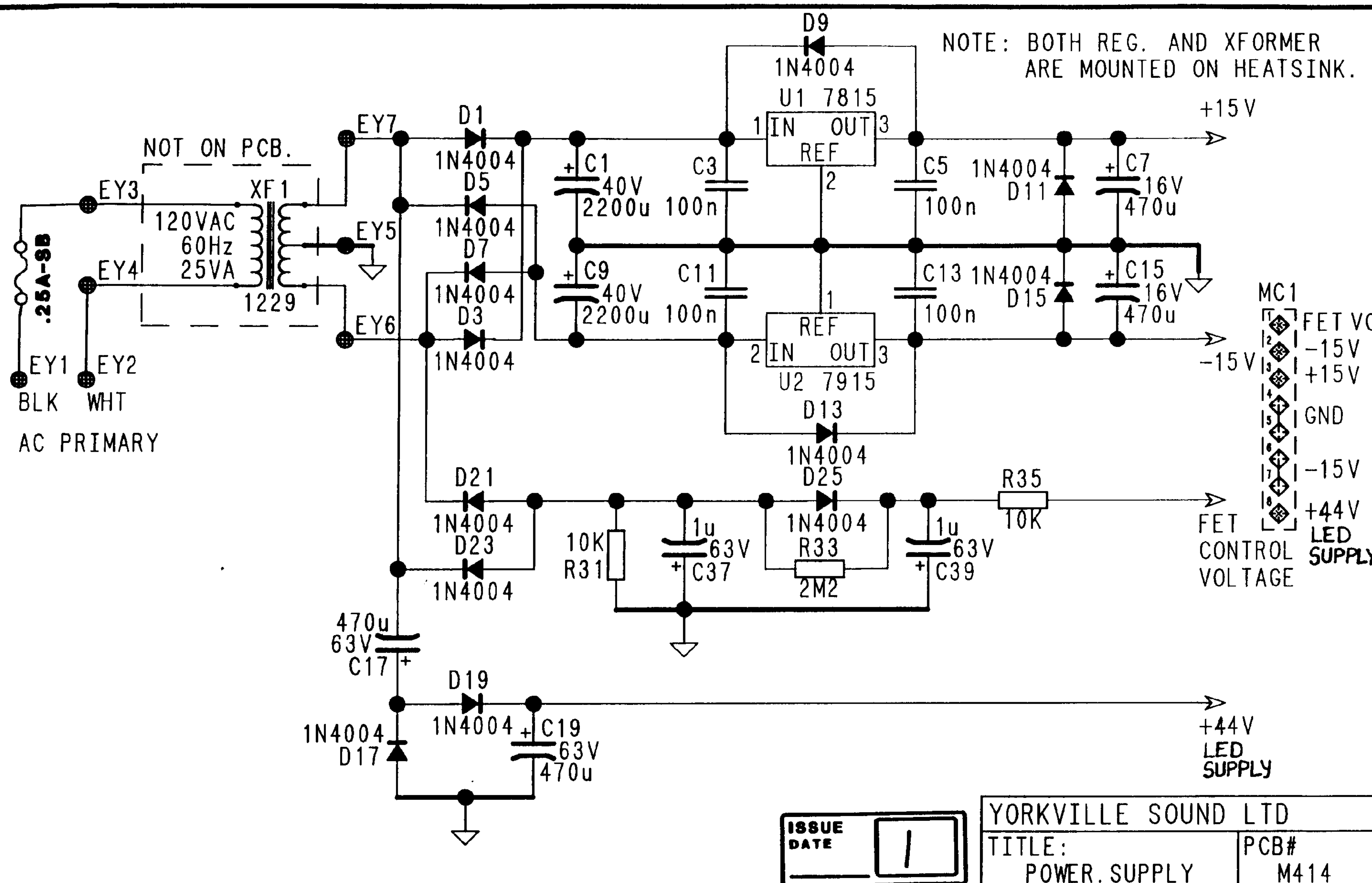

CONNECTOR CABLE PINOUT T
(1) OUTPUT #1.
(2) OUTPUT #2.
(3) REVERB #1 TO BLEND
(4) REVERB #2 TO BLEND
(5) SYSTEM GROUND.
(6) V+ (+15 VOLTS)
(7) V- (-15 VOLTS)
(8) CHANNEL STRIP GROUN
(9) DRY SIGNAL INPUT (F
(10) POWER GROUND.
(11) WIPER OF DECAY TIME
(12) TOP OF DECAY TIME P
(13) WIPER#1 OF BLEND PO
(14) WIPER#2 OF BLEND PO
(15) ECHO #2 TO BLEND PO
(16) ECHO #1 TO BLEND PO
NOTES:
ALL UNMARKED DIODES ARE 1N4148.
DIP SUPPLY PINS NOT ALL SHOWN...
TL074: PIN4=V+, PIN11=V-,
TL072: PIN4=V-, PIN8=V+,
LM13600: PIN6=V-, PIN11=V+.
MODEL(S): ALL_AUDIOPRO_MIXER
PCB #: M489
N BY: P.L
DRAWN BY: P.L
DWG #: 1 OF 1
PCB VER: M489-3.10
SCH ISSUE: 2.0
DATE: JAN/28/89
TITLE: REVERB/ECHO
Obsolete
nov 26
(R69 From 2K7
To 2K49



MONITOR MASTER
MON CLIP
EXT EFFECTS SEND
EFX_SEND
EFX_RETURN
EFX TO MON
EFX RETURN
EFX PAN
DECAYTIME
M409 INTERFACE
SUB1 MASTER
SUB2 MASTER
SUBS RVB LEVEL
MON RVB LEVEL
RVB ◄► ECH
CHAN-GND
MON-BUSS
EFX-BUSS
RVB-BUSS
SUB1-BUSS
SUB2-BUSS
32Hz
64Hz
125Hz
250Hz
500Hz
1KHz
2KHz
4KHz
8KHz
16KHz
NOTE: CIRCUIT IS SAME AS MONITOR EQ AT TOP OF PAGE.
10 BANDS
DUAL FADERS.
MAIN FADER
MAIN CLIP
SUB1_OUT
SUB2_OUT
AMP1_IN
OUT=PATCH2
IN=PATCH1
MONITOR_OUT
MAIN_OUT
FET
-15v
POWER SUPPLY GND
+15v
OUTPUT ENABLE
+ 60v
TO AMP2
TO AMP1
AMP GND REF
LIMITER: +20dB IN = +3dB OUT
7.35v AT LIMIT
LM3915
LM13600
+3dB >9.42v
+2dB >8.40v
+1dB >7.49v
0dB >6.66v
-1dB >5.95v
-3dB
-5dB
-7dB
-10dB
-20dB
+NO CONNECTION
= CONNECTION
ALL UNMARKED DIODES ARE 1N4148.
REVISIONS
YORKVILLE SOUND
TITLE: MICROMIX MASTER
PCB# M410
DATE: 08/08/86
CAD FILE NAME: M410BV10 SCH
DESIGNED BY: P. IERYMENKO
CAPTURE BY: SAME
FOR MODEL(S): SP8/SP12
VERSION# 1.0

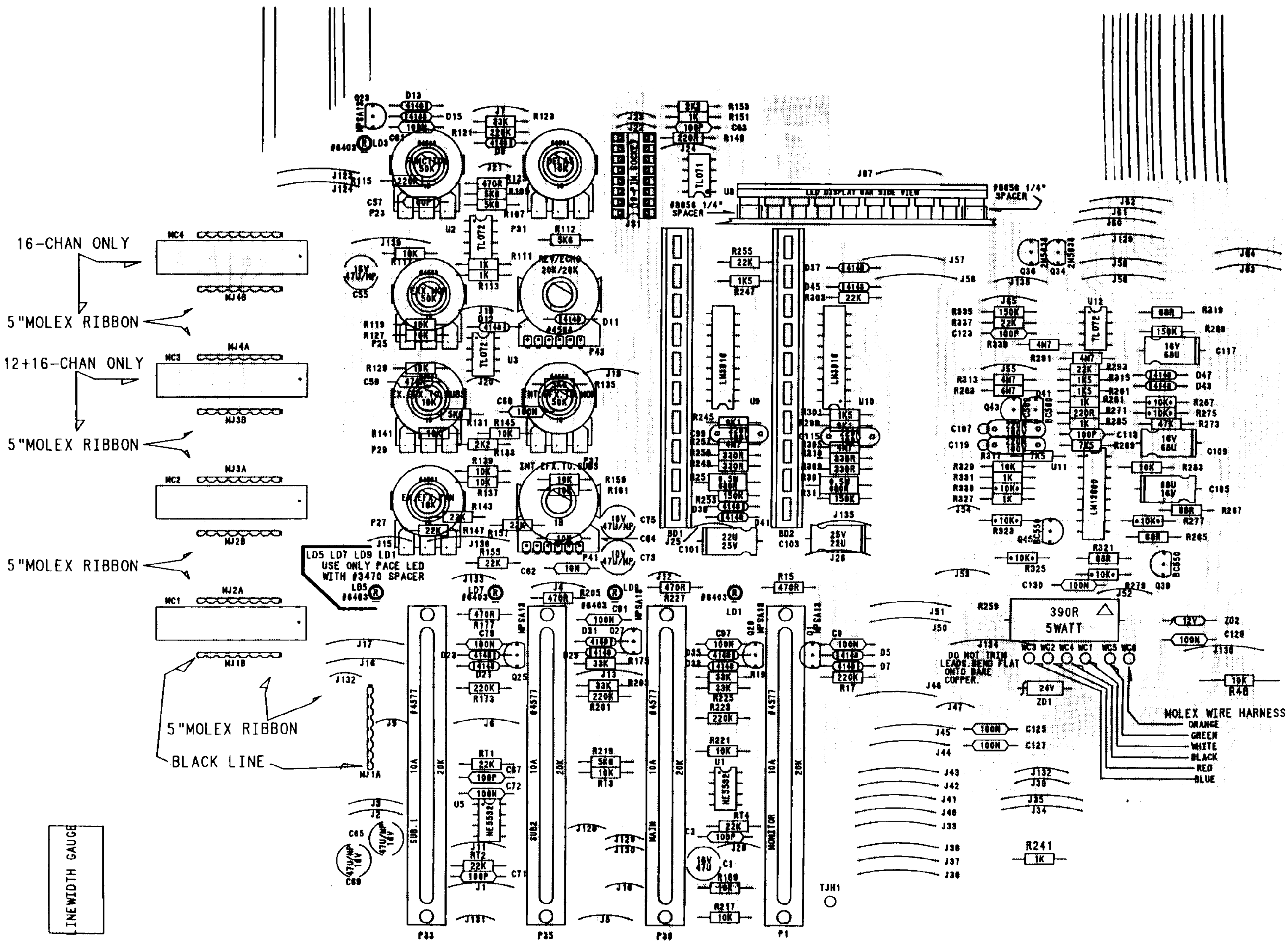

MONITOR MASTER
MON CLIP
EXT EFFECTS SEND
EFX_SEND
EFX_RETURN
EFX TO MON
EFX RETURN
EFX PAN
DECAYTIME
M409 INTERFACE
SUB1 MASTER
SUB2 MASTER
RVB ↔ ECH
SUBS RVB LEVEL
MON RVB LEVEL
SUB2-BUS
SUB1-BUS
RVB-BUSS
EFX-BUSS
MON-BUSS
CHAN-GND
NOTE: CIRCUIT IS SAME AS MONITOR EQ AT TOP OF PAGE.
10 BANDS
DUAL FADERS.
MAIN FADER
MAIN CLIP
SUB1_OUT
SUB2_OUT
AMP1_IN
OUT-PATCH2
IN-PATCH1
MONITOR_OUT
MAIN_OUT
LIMITER +20dB IN - +3dB OUT.
7.35v AT LIMIT
-15v
POWER SUPPLY GND
+15v
OUTPUT ENABLE
+80v
TO AMP2
TO AMP1
AMP GND REF
ISSUE DATE
4
—NO CONNECTION
— CONNECTION
ALL UNMARKED DIODES ARE 1N4148.
REVISIONS:
YORKVILLE SOUND LTD
TITLE: MICROMIX MASTER
PCB# M410
DATE: 09/08/98
CAD FILE NAME: M410BV10.SCH
DESIGNED BY: P. IERYMENKO
CAPTURE BY: SAME
FOR MODEL(S): SP8/SP12
VERSION# 1.0

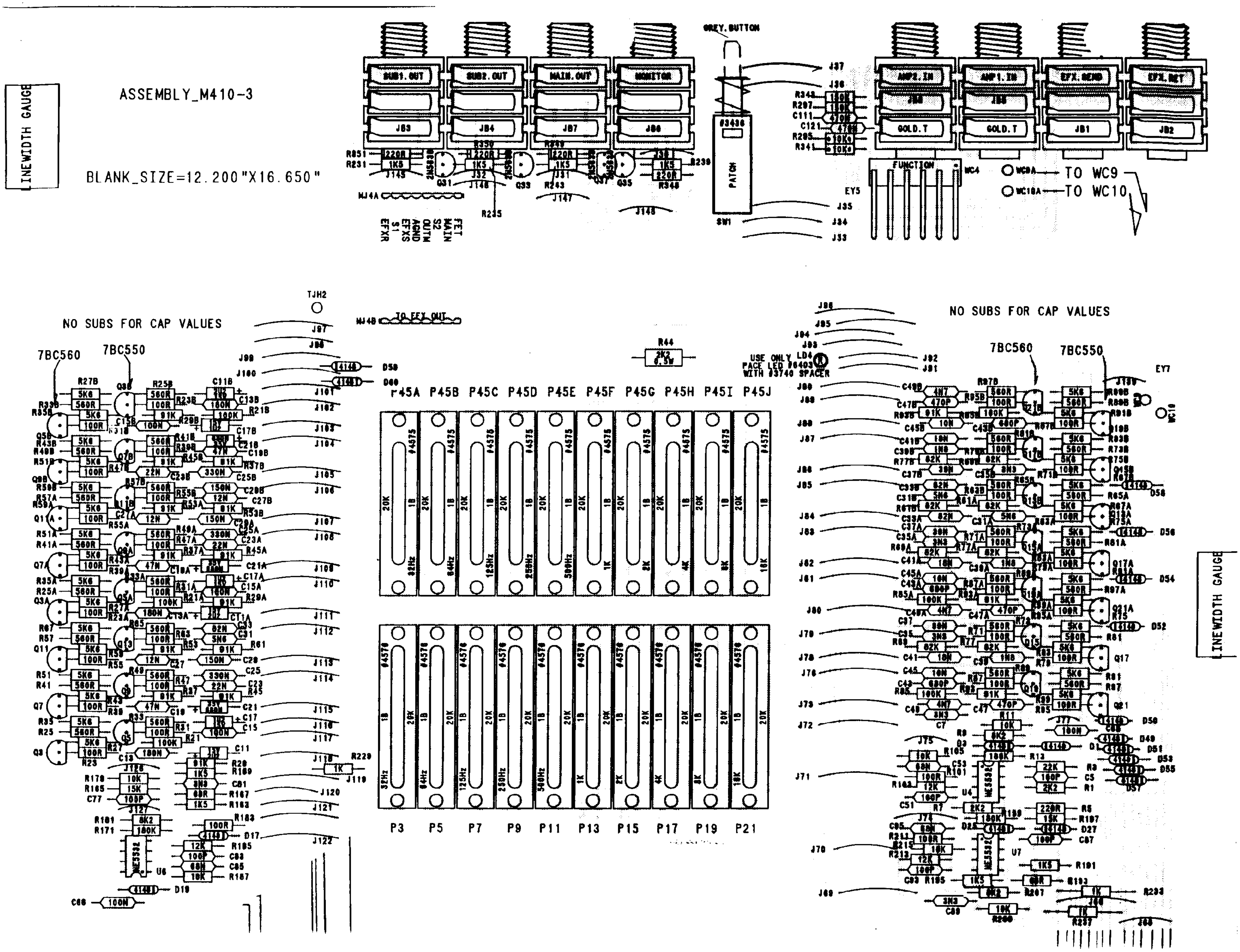
S-SERIES ONLY



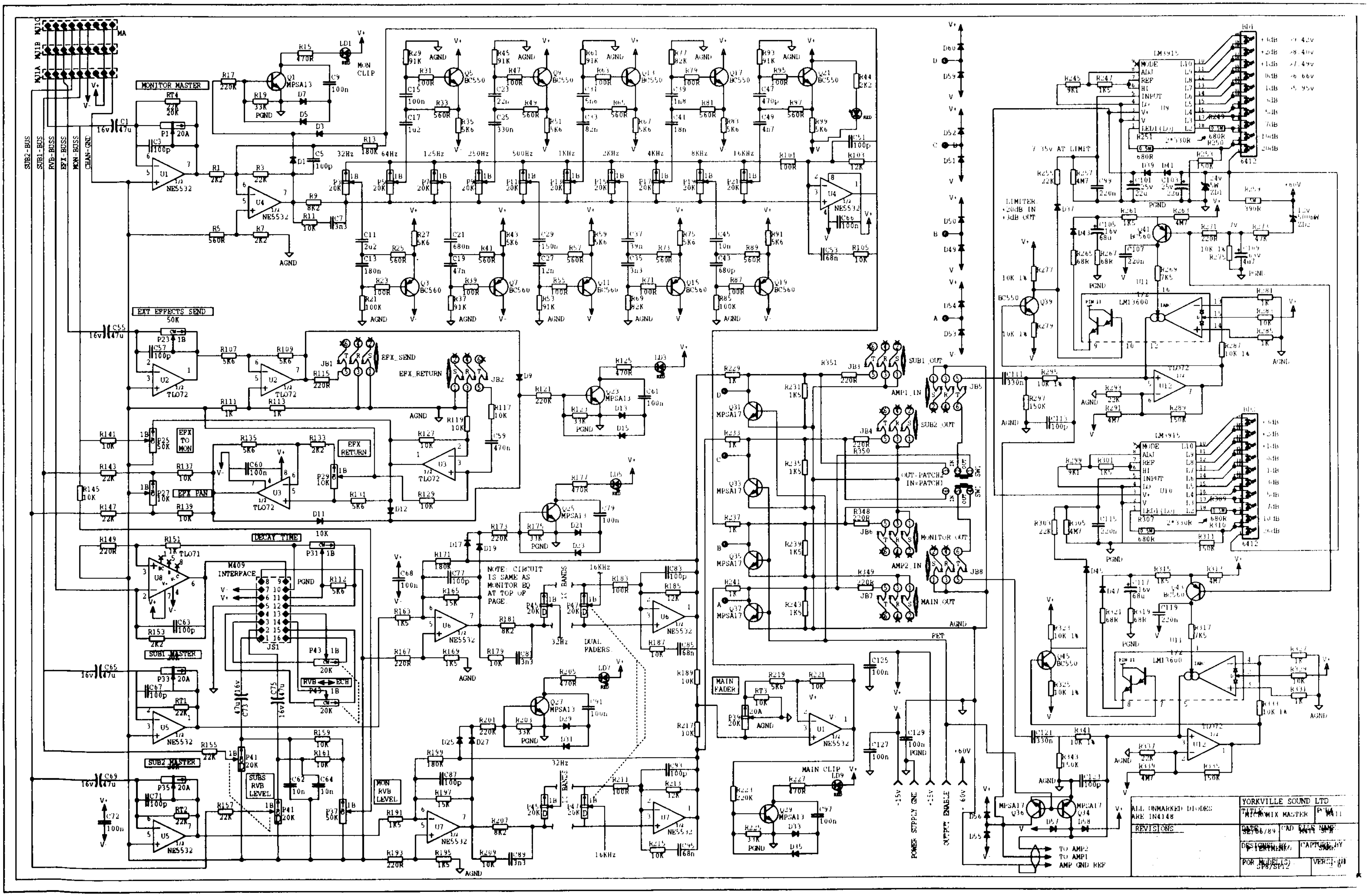
REVISIONS:

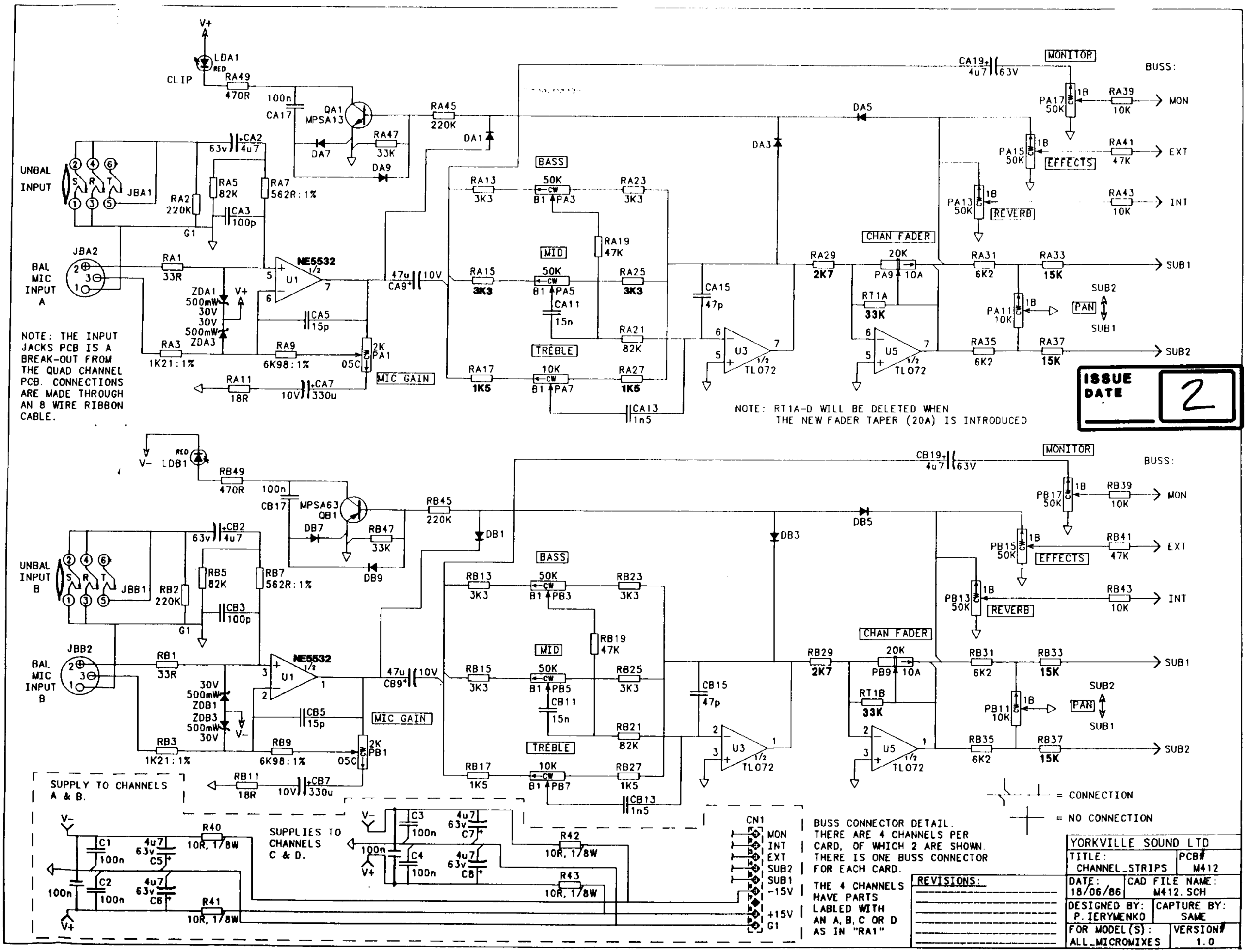
YORKVILLE SOUND LTD	
TITLE: POWER.SUPPLY	PCB# M414
DATE: 18/03/87	CAD FILE NAME: M414V10.SCH
DESIGNED BY: PFI.&.C.P.	CAPTURE BY: R.PARENTEAU
FOR MODEL(S): S8/S12/S16	VERSION# 1.0

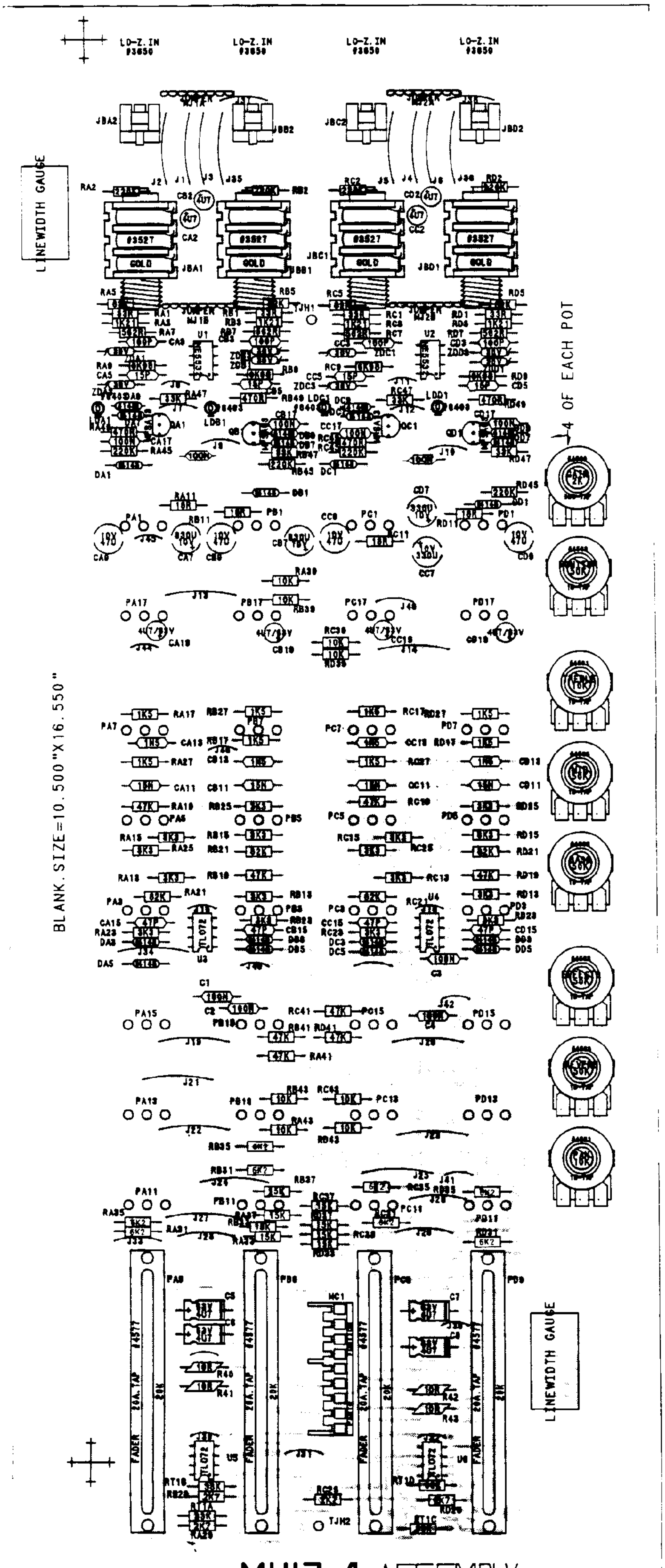

16-CHAN ONLY
5"MOLEX RIBBON
12+16-CHAN ONLY
5"MOLEX RIBBON
5"MOLEX RIBBON
5"MOLEX RIBBON
BLACK LINE
LINEWIDTH GAUGE
LD5 LD7 LD9 LD1
USE ONLY PACE LED
WITH #3470 SPACER
LED DISPLAY BAR SIDE VIEW
#8056 1/4" SPACER
SUB.1
SUB2
MAIN
MONITOR
390R
5WATT
DO NOT TRIM
LEADS.BEND FLAT
ONTO BARE
COPPER.
MOLEX WIRE HARNESS
ORANGE
GREEN
WHITE
BLACK
RED
BLUE
R241
R48



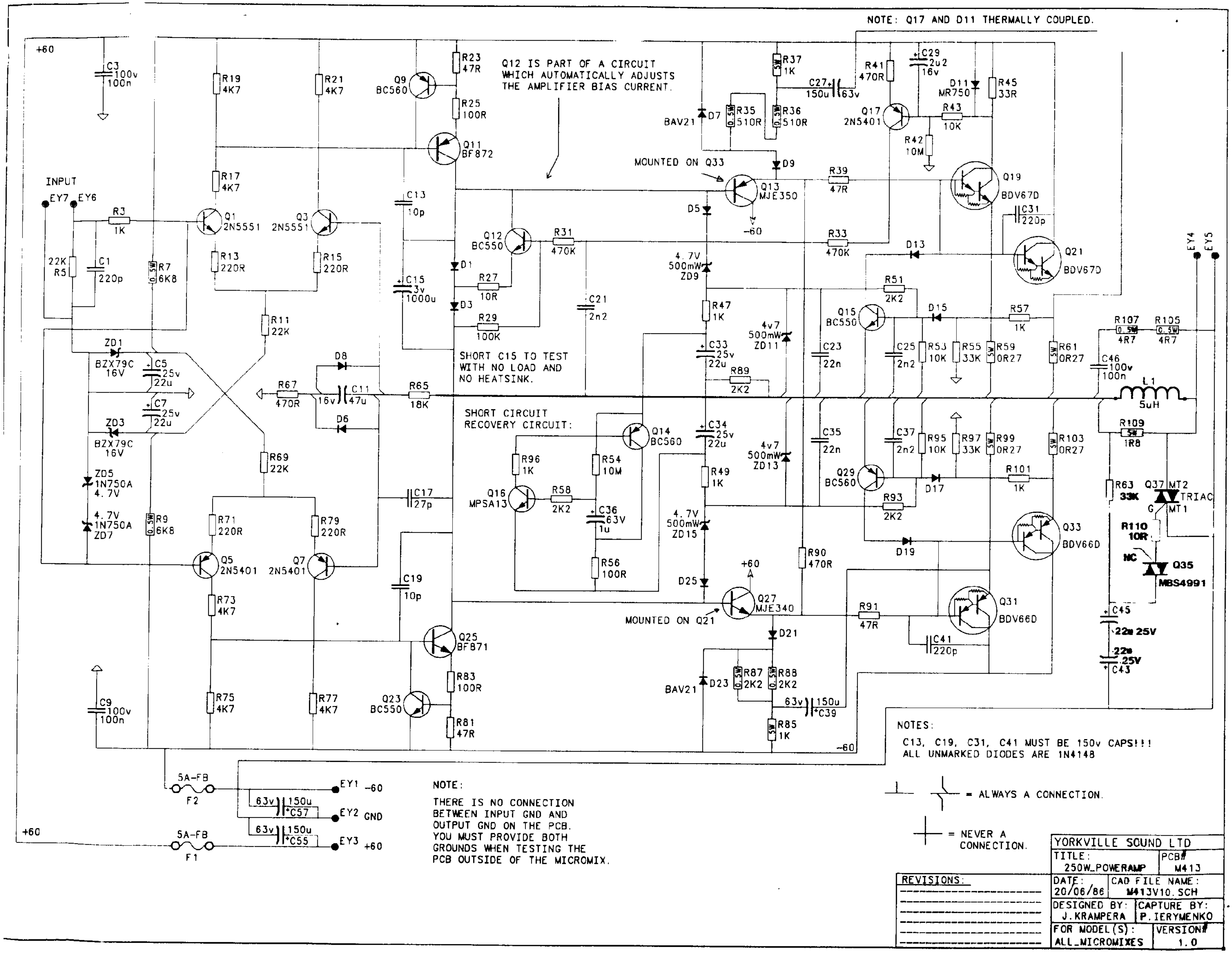
LINEWIDTH GAUGE
ASSEMBLY_M410-3
BLANK_SIZE=12.200"X16.650"
SUB1.OUT
SUB2.OUT
MAIN.OUT
MONITOR
GREY.BUTTON
PATCH
AMP2.IN
AMP1.IN
EFX.SEND
EFX.RET
FUNCTION
TO WC9
TO WC10
NO SUBS FOR CAP VALUES
7BC560
7BC550
TO EFX OUT
USE ONLY LD4
PACE LED #6403
WITH #3740 SPACER
P45A P45B P45C P45D P45E P45F P45G P45H P45I P45J
P3 P5 P7 P9 P11 P13 P15 P17 P19 P21
NO SUBS FOR CAP VALUES
7BC560
7BC550
LINEWIDTH GAUGE

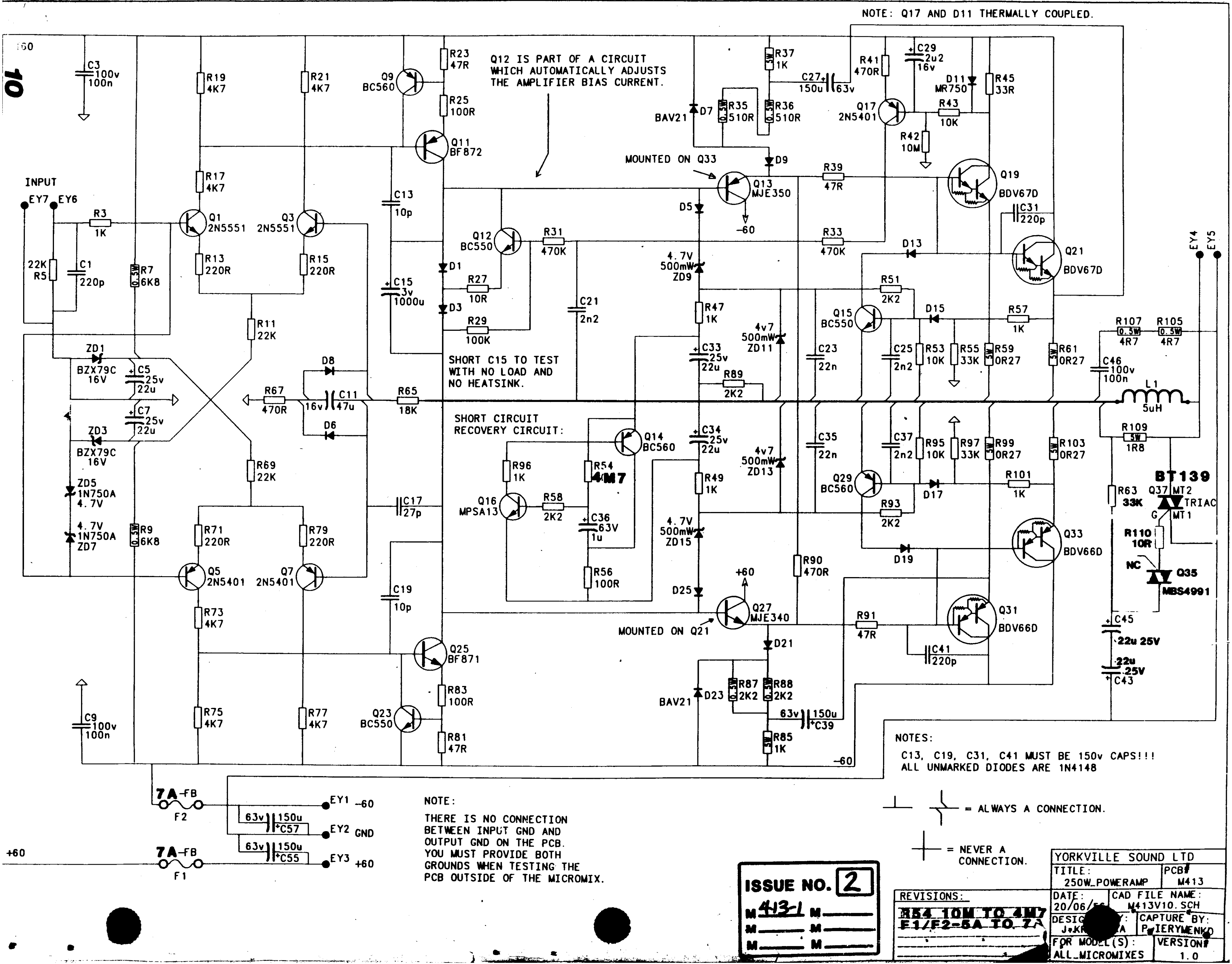

YORKVILLE SOUND LTD
MICROMIX MASTER
ALL UNMARKED DIODES ARE 1N4148
REVISIONS
NOTE: CIRCUIT IS SAME AS MONITOR EQ AT TOP OF PAGE.
MONITOR MASTER
EXT EFFECTS SEND
DECAY TIME
M409 INTERFACE
SUB1 MASTER
SUB2 MASTER
SUBS RVB LEVEL
MON RVB LEVEL
MAIN FADER
MAIN CLIP
MON CLIP
DUAL FADERS
LIMITER: +20dB IN +3dB OUT
7.35v AT LIMIT
EFX SEND
EFX RETURN
EFX TO MON
EFX PAN
SUB1 OUT
SUB2 OUT
AMP1 IN
AMP2 IN
MONITOR OUT
MAIN OUT
OUT-PATCH2
IN-PATCH1
POWER SUPPLY GND
OUTPUT ENABLE
TO AMP2
TO AMP1
AMP GND REF
SUB2-BUS
SUB1-BUS
RVB-BUSS
EFX-BUSS
MON-BUSS
CHAN-GND

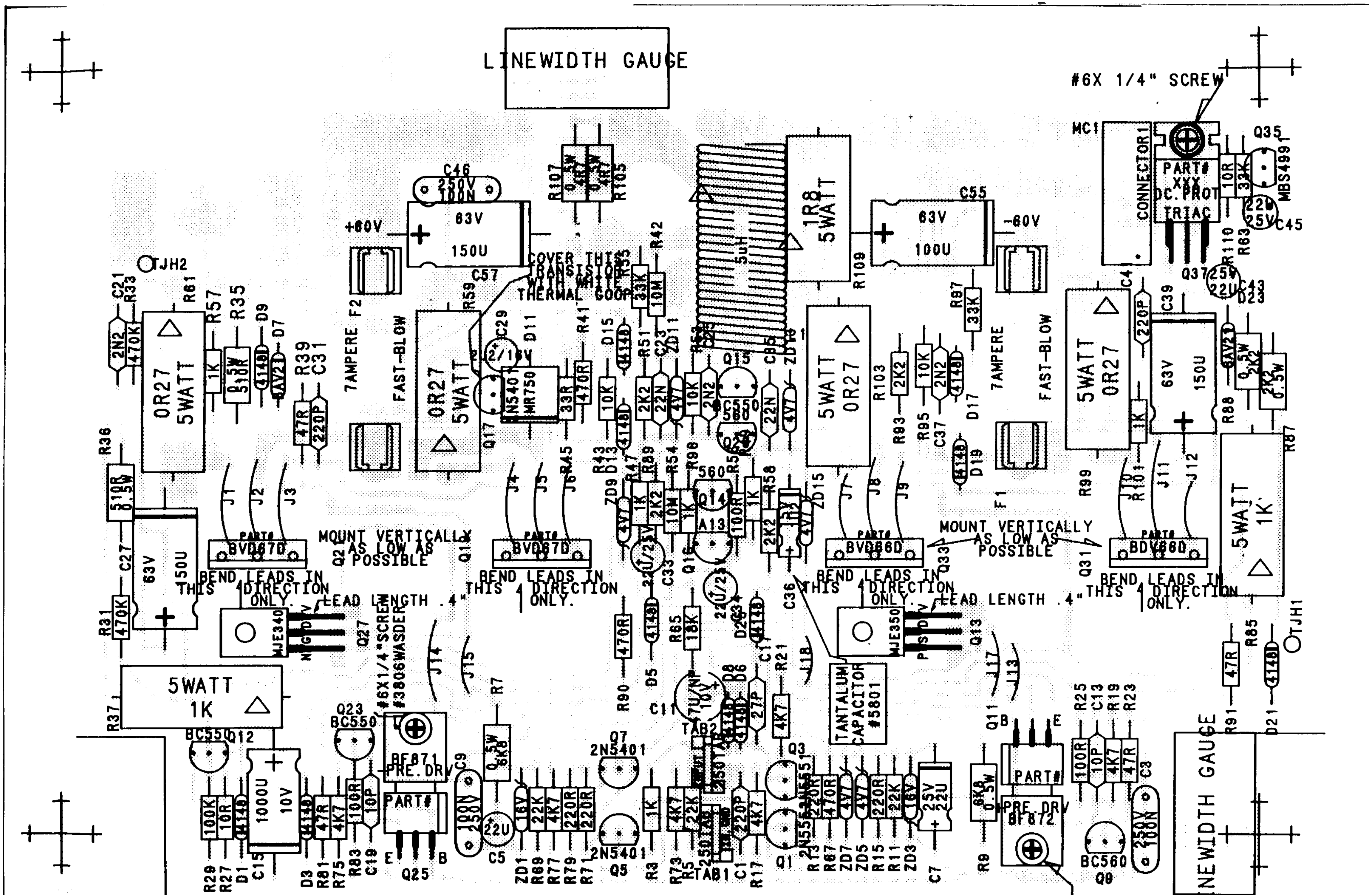

NOTE: THE INPUT JACKS PCB IS A BREAK-OUT FROM THE QUAD CHANNEL PCB. CONNECTIONS ARE MADE THROUGH AN 8 WIRE RIBBON CABLE.
NOTE: RT1A-D WILL BE DELETED WHEN THE NEW FADER TAPER (20A) IS INTRODUCED
ISSUE 2
DATE
BUSS CONNECTOR DETAIL. THERE ARE 4 CHANNELS PER CARD, OF WHICH 2 ARE SHOWN. THERE IS ONE BUSS CONNECTOR FOR EACH CARD.
THE 4 CHANNELS HAVE PARTS LABLED WITH AN A, B, C OR D AS IN "RA1"
= CONNECTION
= NO CONNECTION
SUPPLY TO CHANNELS A & B.
SUPPLIES TO CHANNELS C & D.
UNBAL INPUT
BAL MIC INPUT A
UNBAL INPUT B
BAL MIC INPUT B
BUSS:
MON
EXT
INT
SUB1
SUB2
MONITOR
EFFECTS
REVERB
CHAN FADER
PAN
BASS
MID
TREBLE
MIC GAIN
CLIP
REVISIONS:
YORKVILLE SOUND LTD
TITLE: CHANNEL_STRIPS
PCB# M412
DATE: 18/06/86
CAD FILE NAME: M412.SCH
DESIGNED BY: P.IERYMENKO
CAPTURE BY: SAME
FOR MODEL(S): ALL_MICROMIXES
VERSION# 1.0



M412-4 ASSEMBLY

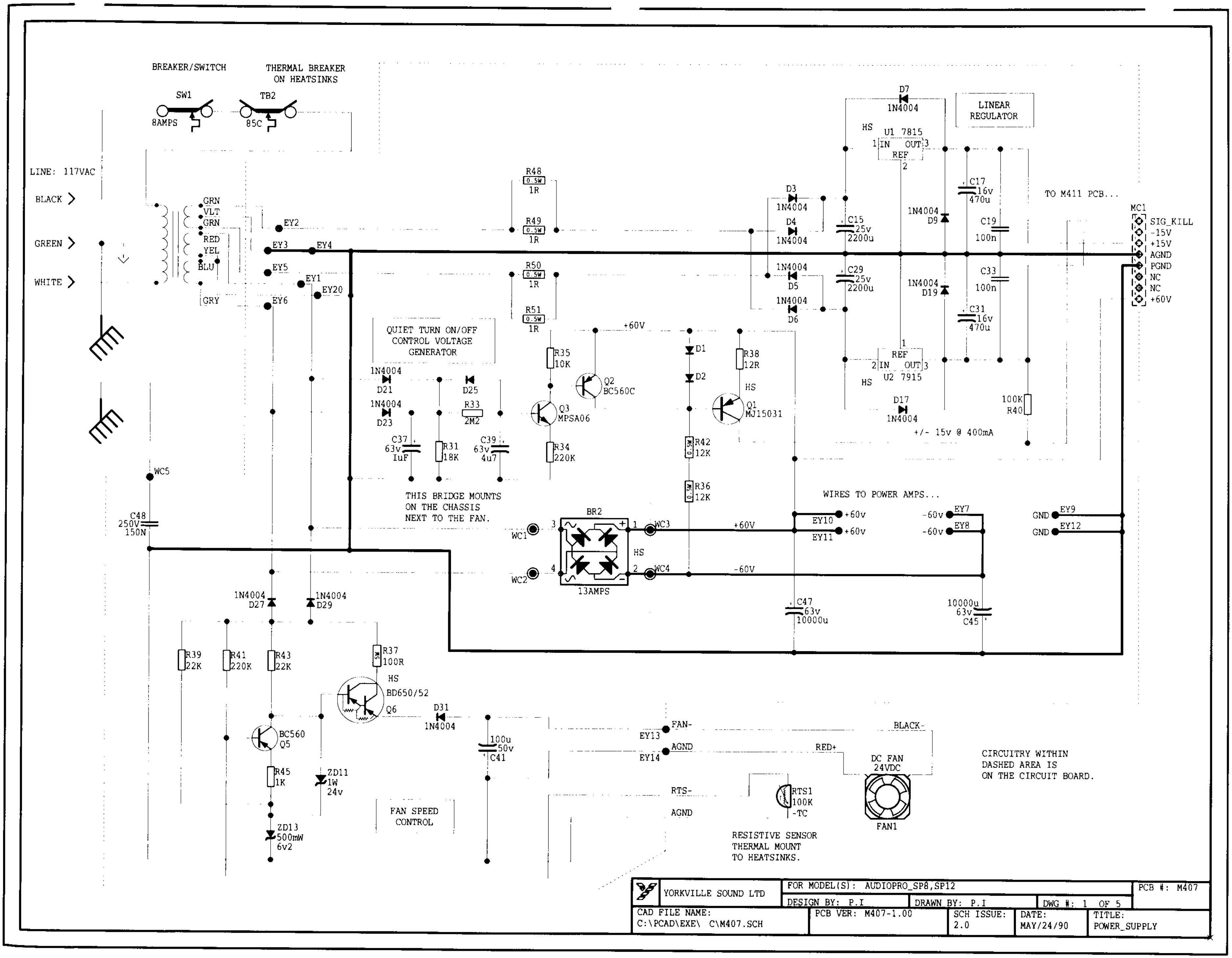

NOTE: Q17 AND D11 THERMALLY COUPLED.
Q12 IS PART OF A CIRCUIT WHICH AUTOMATICALLY ADJUSTS THE AMPLIFIER BIAS CURRENT.
MOUNTED ON Q33
MOUNTED ON Q21
SHORT C15 TO TEST WITH NO LOAD AND NO HEATSINK.
SHORT CIRCUIT RECOVERY CIRCUIT:
INPUT
EY1 -60
EY2 GND
EY3 +60
NOTE:
THERE IS NO CONNECTION BETWEEN INPUT GND AND OUTPUT GND ON THE PCB.
YOU MUST PROVIDE BOTH GROUNDS WHEN TESTING THE PCB OUTSIDE OF THE MICROMIX.
NOTES:
C13, C19, C31, C41 MUST BE 150v CAPS!!!
ALL UNMARKED DIODES ARE 1N4148
= ALWAYS A CONNECTION.
= NEVER A CONNECTION.
REVISIONS:
YORKVILLE SOUND LTD
TITLE: 250W_POWERAMP
PCB# M413
DATE: 20/06/86
CAD FILE NAME: M413V10.SCH
DESIGNED BY: J.KRAMPERA
CAPTURE BY: P.IERYMENKO
FOR MODEL(S): ALL_MICROMIXES
VERSION# 1.0


NOTE: Q17 AND D11 THERMALLY COUPLED.
Q12 IS PART OF A CIRCUIT WHICH AUTOMATICALLY ADJUSTS THE AMPLIFIER BIAS CURRENT.
MOUNTED ON Q33
MOUNTED ON Q21
SHORT C15 TO TEST WITH NO LOAD AND NO HEATSINK.
SHORT CIRCUIT RECOVERY CIRCUIT:
INPUT
EY7
EY6
EY4
EY5
EY1 -60
EY2 GND
EY3 +60
+60
-60
7A-FB
F1
F2
BT139
Q37 MT2
TRIAC
MT1
Q35
MBS4991
L1
5uH
NOTES:
C13, C19, C31, C41 MUST BE 150v CAPS!!!
ALL UNMARKED DIODES ARE 1N4148
= ALWAYS A CONNECTION.
= NEVER A CONNECTION.
NOTE:
THERE IS NO CONNECTION BETWEEN INPUT GND AND OUTPUT GND ON THE PCB. YOU MUST PROVIDE BOTH GROUNDS WHEN TESTING THE PCB OUTSIDE OF THE MICROMIX.
ISSUE NO. 2
M 413-1
REVISIONS:
R54 10M TO 4M7
F1/F2-5A TO 7A
YORKVILLE SOUND LTD
TITLE:
250W_POWERAMP
PCB#
M413
DATE:
20/06/
CAD FILE NAME:
M413V10.SCH
CAPTURE BY:
P. IERYMENKO
FOR MODEL(S):
ALL_MICROMIXES
VERSION#
1.0

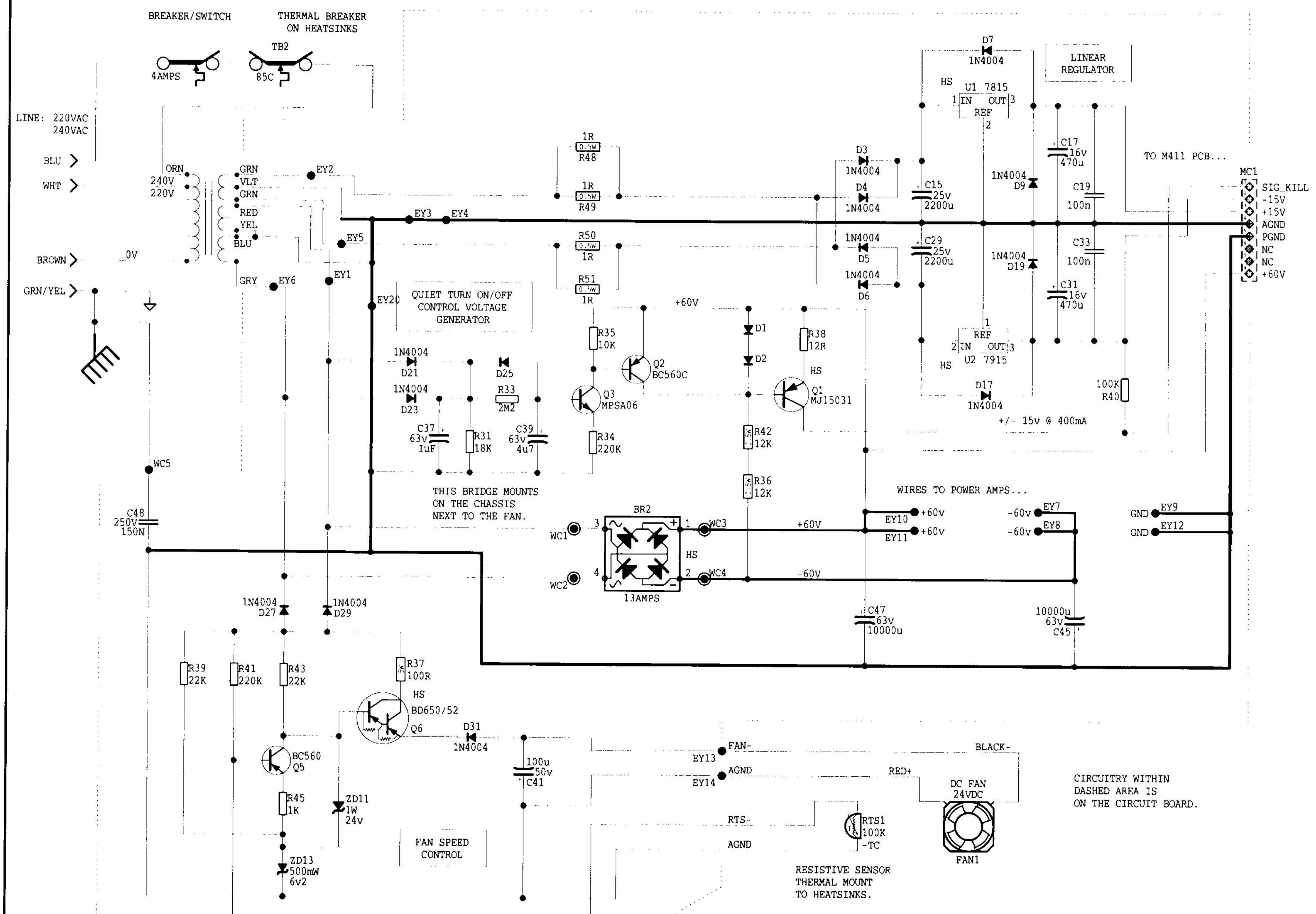


BLANK_SIZE=16.000"X11.800"

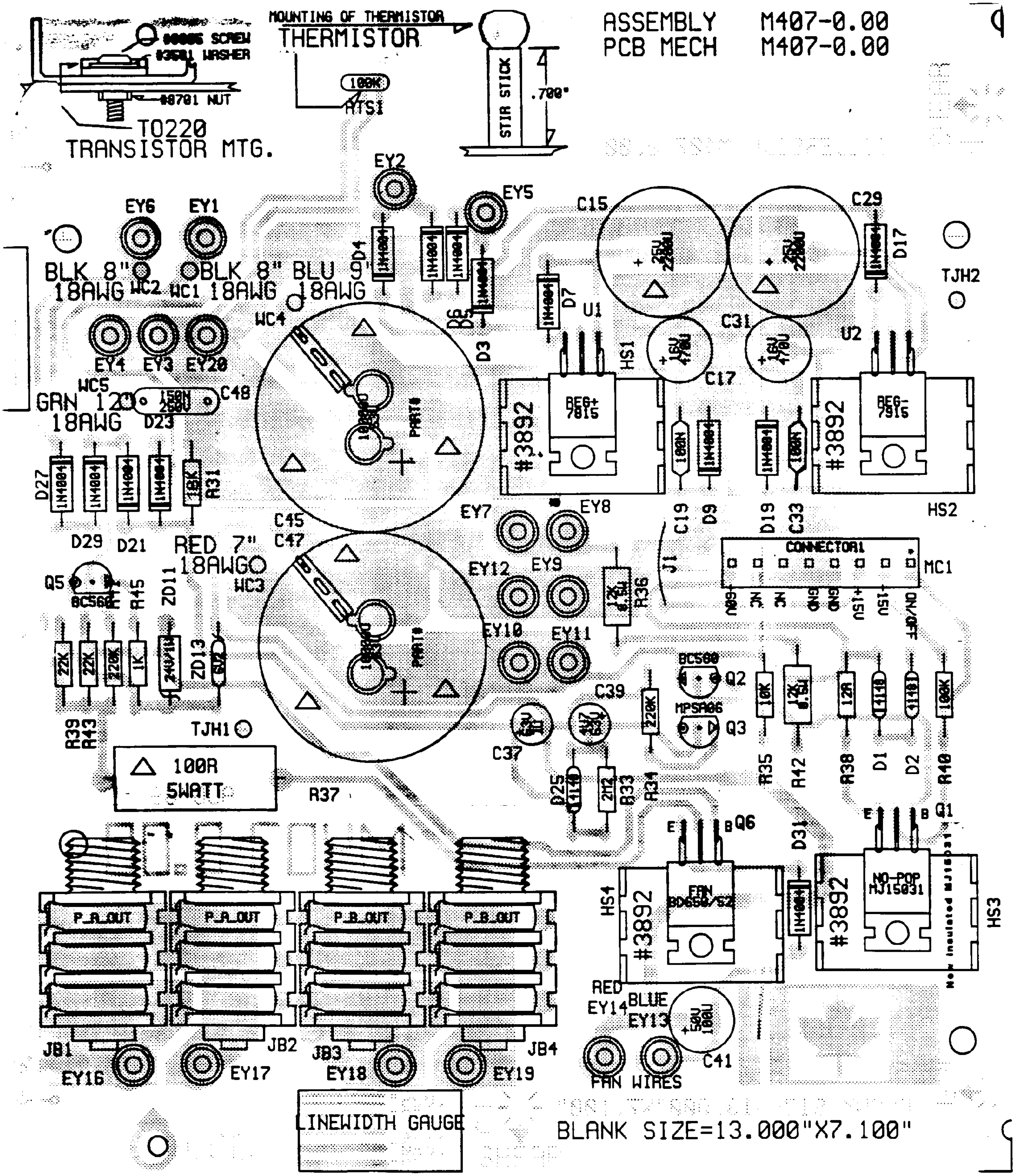
M413-3 ASSEMBLY



BREAKER/SWITCH
SW1
8AMPS
THERMAL BREAKER
ON HEATSINKS
TB2
85C
LINE: 117VAC
BLACK
GREEN
WHITE
GRN
VLT
GRN
RED
YEL
BLU
GRY
EY1 EY2 EY3 EY4 EY5 EY6 EY20
WC5
C48 250V 150N
R48 0.5W 1R
R49 0.5W 1R
R50 0.5W 1R
R51 0.5W 1R
QUIET TURN ON/OFF
CONTROL VOLTAGE
GENERATOR
1N4004 D21
1N4004 D23
D25
R33 2M2
C37 63v 1uF
R31 18K
C39 63v 4u7
R35 10K
Q3 MPSA06
R34 220K
Q2 BC560C
+60V
D1
D2
R42 12K
R36 12K
R38 12R
HS
Q1 MJ15031
THIS BRIDGE MOUNTS
ON THE CHASSIS
NEXT TO THE FAN.
BR2
13AMPS
WC1 WC2 WC3 WC4
+60V
-60V
D7 1N4004
LINEAR
REGULATOR
HS
U1 7815
IN OUT
REF
D3 1N4004
D4 1N4004
1N4004 D5
1N4004 D6
C15 25v 2200u
C29 25v 2200u
1N4004 D9
1N4004 D19
C17 16v 470u
C31 16v 470u
C19 100n
C33 100n
U2 7915
D17 1N4004
+/- 15v @ 400mA
100K R40
TO M411 PCB...
MC1
SIG_KILL
-15V
+15V
AGND
PGND
NC
NC
+60V
WIRES TO POWER AMPS...
EY10 +60v
EY11 +60v
EY7 -60v
EY8 -60v
EY9 GND
EY12 GND
C47 63v 10000u
10000u 63v C45
1N4004 D27
1N4004 D29
R39 22K
R41 220K
R43 22K
R37 100R
HS
BD650/52
Q6
BC560 Q5
R45 1K
ZD11 1W 24v
ZD13 500mW 6v2
D31 1N4004
100u 50v C41
FAN SPEED
CONTROL
EY13 FAN-
EY14 AGND
RTS-
AGND
BLACK-
RED+
DC FAN
24VDC
FAN1
RTS1 100K -TC
RESISTIVE SENSOR
THERMAL MOUNT
TO HEATSINKS.
CIRCUITRY WITHIN
DASHED AREA IS
ON THE CIRCUIT BOARD.
YORKVILLE SOUND LTD
FOR MODEL(S): AUDIOPRO_SP8,SP12
PCB #: M407
DESIGN BY: P.I
DRAWN BY: P.I
DWG #: 1 OF 5
CAD FILE NAME:
C:\PCAD\EXE\ C\M407.SCH
PCB VER: M407-1.00
SCH ISSUE: 2.0
DATE: MAY/24/90
TITLE: POWER_SUPPLY



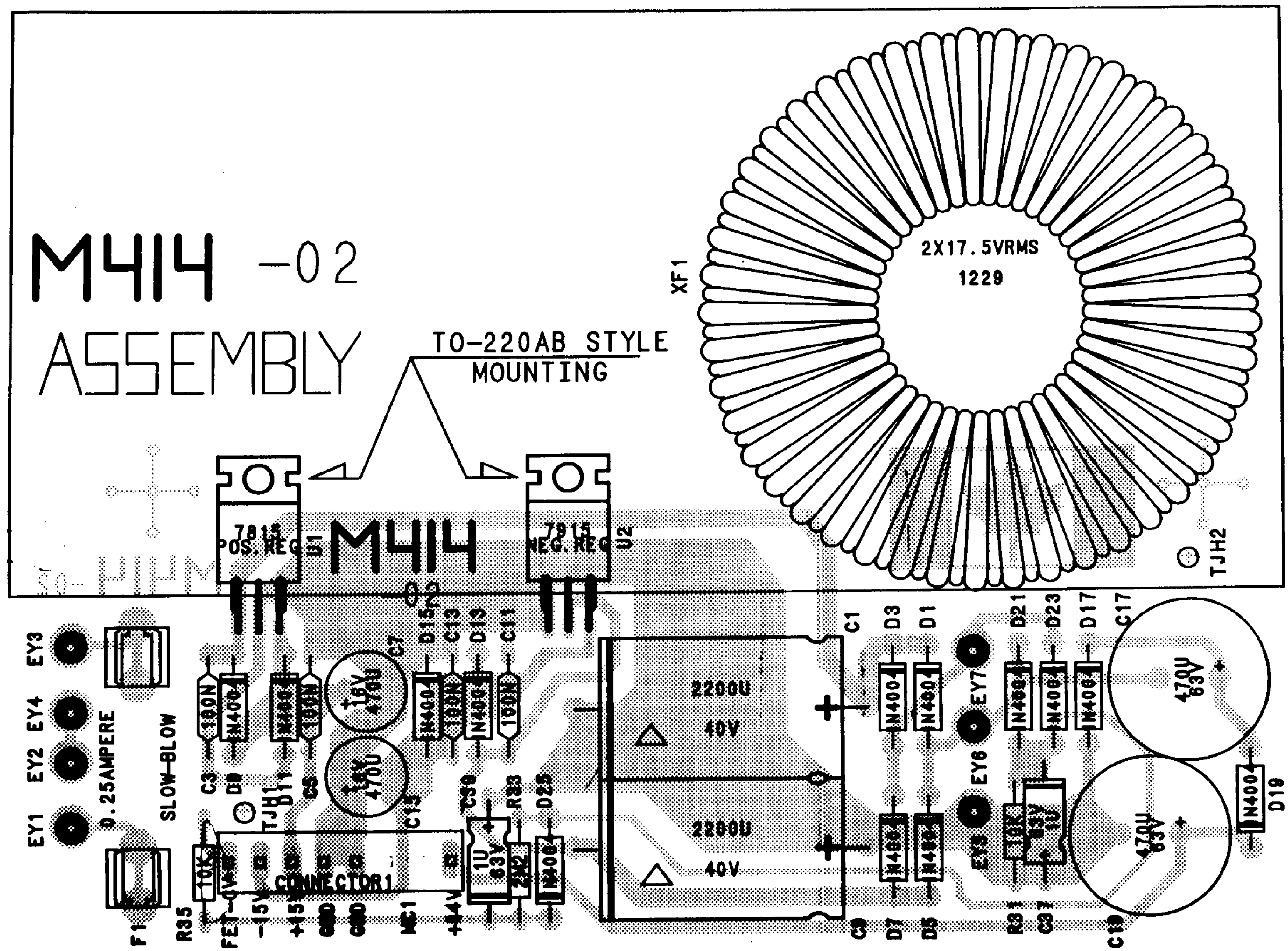
YORKVILLE SOUND LTD	FOR MODEL(S): AUDIOPRO_SP8,SP12 (E)				PCB #: M407
	DESIGN BY: P.I	DRAWN BY: P.I	DWG #: 1 OF 5		
CAD FILE NAME: C:\PCAD\EXE\ C\M407E.SCH	PCB VER: M407-1.00	SCH ISSUE: 2.0	DATE: MAR/24/90	TITLE: POWER_SUPPLY	



ASSEMBLY M407-0.00
PCB MECH M407-0.00
MOUNTING OF THERMISTOR
THERMISTOR
100K
RTS1
STIR STICK
.700"
SCREW
WASHER
NUT
TO220
TRANSISTOR MTG.
EY2
EY5
EY6
EY1
C15
C29
BLK 8"
BLK 8"
BLU 9"
18AWG
18AWG
18AWG
WC2
WC1
D4
D7
D17
TJH2
WC4
U1
C31
U2
EY4
EY3
EY20
HS1
C17
WC5
GRN 12"
18AWG
C48
D23
REG+ 7815
REG- 7915
#3892
#3892
D27
D29
D21
R31
EY7
EY8
C19
D9
D19
C33
HS2
C45
C47
RED 7"
18AWG
WC3
CONNECTOR1
MC1
J1
Q5
BC560
R45
ZD11
EY12
EY9
R36
EY10
EY11
BC560
Q2
MPSA06
Q3
R39
R43
ZD13
TJH1
C39
C37
100R
5WATT
R37
D25
R33
R34
R35
R42
R38
D1
D2
R40
Q6
Q1
D31
HS4
FAN BD650/S2
NO-POP MJ15031
HS3
P_A_OUT
P_A_OUT
P_B_OUT
P_B_OUT
RED
EY14
BLUE
EY13
C41
JB1
JB2
JB3
JB4
EY16
EY17
EY18
EY19
FAN WIRES
LINEWIDTH GAUGE
BLANK SIZE=13.000"X7.100"

S-SERIES ONLY

TIE HERE



BLANK.SIZE=13.700"X6.400"

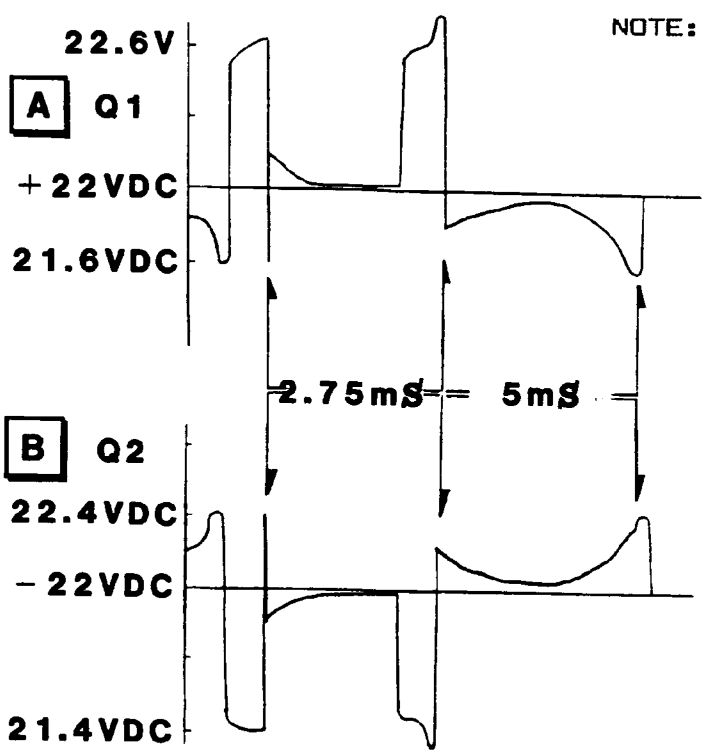
MICROMIX SP8 AND SP12 TEST PROCEDURE

INITIAL PROCEDURES

1. Open up unit and lay flat.
2. Remove Power Amplifier fuses.

POWER SUPPLY

1. Remove molex cable connected to power supply board.
2. Connect a 390R, 1 watt resistor from +15V to ground and -15V to ground. (Solder the 390R resistors to a molex connector to be plugged into the board.)
3. Place a DC meter (ground to TP1, positive to R12), variac unit up to variac '10'. The meter should read between 3 to 5V. Now check between TP1 and R25 for the same voltage but in opposite polarity.
4. Turn variac up to '50', the same test points should read ±20V ±21V respectively. Power unit up to 120VAC. NOTE: If these voltages do not appear, confirm a rectified waveform out of BR1. If BR1 is operating, check Q1 and its associated circuitry for the positive rail, Q2 (and its associated circuitry) for the negative rail.
5. Connect a scope lead to TP2, you should observe waveform "A" and then at TP3 waveform "B". This proves that Q1 and Q3 are switching. CAUTION: This step must be completed because Q1 and Q3 can run in linear mode and supply ± 20VDC but at a too high heat dissipation, which will cause failure!
6. Connect a DC meter to the ±15V rails, the reading should be between ±14.5V to ±15.5V.

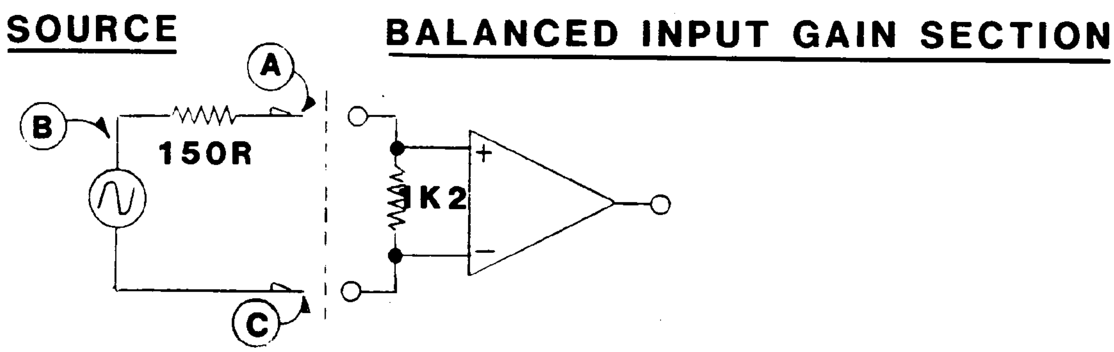


NOTE: The ± 22VDC reference is derived from ZD3 or ZD7. The transistors are only on during the 600mV peaks.

7. Connect a DVM (Fluke 80.. series) to the FET-CV terminal of the molex connector. Due to the high impedance at this point, your DVM will discharge C39 so reading -17VDC must be done as soon as your probe touches the circuit.
8. Place a DVM across the fan, it should read -6VDC. Place a soldering iron on the thermal sensor located on the heatsink. After 10 seconds, the reading will now be minus 22VDC(±1V).

MIXER SECTION

NOTE: In order to test the inputs to the channel strip section, a generator is needed that provides a signal source balanced and unbalanced with a source impedance less than 150R. (The unit used for these tests was a Neutrik plotter with a source impedance of 0.1 ohms.)



If your generator has a source impedance of 1K2 then the actual input signal at "A" is 1/2(-6dB) of the source voltage "B". Therefore input signal measurements should be taken from point "A" to "C".

It would be best to run a generator through a 1K single ended to 150R balanced transformer and measure input signal levels from points "A" to "C" with the source connected to the input of the mixer's channel.

NOTE: Input signal levels are critical.

1. SET-UP - Set the EQs flat.
   - All channels' monitor, EFX internal, EFX external to maximum.
   - Tone controls flat.
   - Input channel gain potentiometers to maximum.
   - Pan potentiometers centered.
   - Channel sliders at OdB.
   - SUB 1,2, main, monitor sliders at OdB.
   - Reconnect the molex connector to the power supply.
   - Patch switch pushed in.
   - Disconnect and insulate the 16 pin connector from the reverb board.

2. Connect a scope lead to SUB 1 and SUB 2 outputs with an AC DVM connected to either output. Apply a 1KHz unbalanced 6mV RMS signal to the input of each channel and observe the output. The meter should read between 200mV to 350mV RMS on the one output and the scope will show that the other output is equal to the output being read by the meter. Test channels 1 through 8/12. If one channel fails do not pull the unit apart until after test (3).

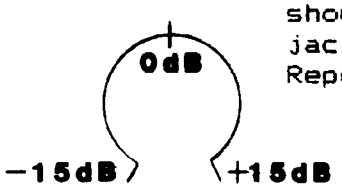
3. Apply a balanced signal of 6mV RMS (pin 2 to pin 3) consecutively to the input of the 8/12 channels. The meter should read between 1.3 V to 2.0 V RMS, and the channel clip LED should light but the signal out observed should not be clipped. The bar graph displays should illuminate between -3dB and 0dB depending on tolerance differences between channels.

4. Push the SUB sliders up until the bar graph displays are fully lit. Pushing the SUB sliders just beyond this point should cause the SUB clip LEDs to illuminate, but the SUB out signals should not be clipped. Pushing the sliders full-up will cause the signal to be slightly clipped. Return the SUB sliders to 0dB.

TONE CONTROLS

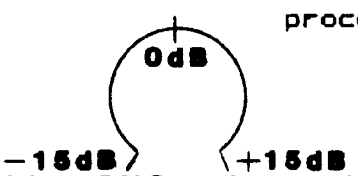
1. Apply an unbalanced 6mV signal to channel one's input with the tone controls flat.

HIGH - Adjust the generator's frequency to 8KHz, an AC DVM should read the following voltages on the SUB out jacks.
Repeat measurements for channels 2 to 8/12.



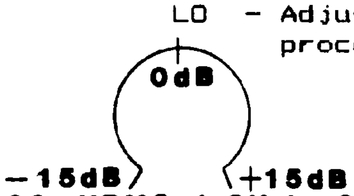
30mV to 55mVRMS 1.3V to 1.8VRMS

MID - Adjust generator frequency to 400Hz, repeat high procedure.



40mV to 60mVRMS 1.3V to 1.7VRMS

LO - Adjust generator frequency to 50 Hz, repeat high procedure.



40mV to 60mVRMS 1.8V to 2.2VRMS

Return tone controls to the 0dB position.

EQUALIZERS

1. Adjust the input gain controls to the 12 o'clock position and provide an unbalanced 60mV RMS signal at 1KHz to channel 1's input. Connect a scope and an AC DVM to SUB 1 output.
2. The meter will display 180 to 270 mV RMS. Now move the main equalizer's bands to +12dB, and sweep the generator from 20Hz to 20KHz. The meter's reading should vary from 1.2 V to 2.0 V RMS. Move all of the bands to -12dB and sweep from 20Hz to 20KHz. The meter should read between 50 to 80mV RMS. If the voltage varies beyond these limits, the filter at that frequency is suspect.
3. Repeat #2 but observe SUB 2's output.
   Return the equalizer's sliders to 0dB.
4. Move the DVM and scope to the monitor output. With the monitor EQ flat inject the signal into each channel noting the signal's appearance and that the output voltage does not vary beyond 1 V to 1.5 V RMS. Leaving the input signal on channel 8/12 move all of the MON EQ bands to +12dB. Sweep 20Hz to 20 KHz and observe that the signal does not vary beyond 3V RMS to 6V RMS. Move all of the bands to -12dB, and sweep. The meter should read between 150mV to 400mV RMS. Return the equalizer's sliders to 0dB.
   NOTE: The monitor slider clip LED should illuminate when the EQ is at the +12dB position.

   NOTE: The Neutrix Plotter will provide the same test with more accuracy in less time, and will show the resonant frequency of each band. (The PCB test jig should provide the fc measurement.)

EFX IN/OUT

1. Maintaining a 60mV RMS 1KHz unbalanced signal on channel one's input, connect a scope and an AC DVM to the effects out jack. With each channel EXT EFX potentiometer turned up to 10 and the EFX send potentiometer up to 10, the DVM should read 1 to 2.0V RMS. Repeat the measurement for channels 2 to 8/12. On channel 8/12 turn the input gain potentiometer to 10. The EFX clip LED should illuminate.
2. Turn the effects return controls (SUBs and MON) to 10 and the pan potentiometer to 12 o'clock. Apply a 1KHz 3.5V RMS signal to the 'EFX IN' jack and connect a scope and an AC DVM to the SUB 1 output jack. The meter should read about 1.5 V to 2 V RMS. Repeat for SUB 2. Now measure the Monitor output jack (approx. 3 to 4V RMS), and the MAIN output jack (approx. 2 V RMS). The EFX clip LED should illuminate under these conditions.

INTERNAL EFX - REVERB/ECHO

1. With the mixer off, plug the ribbon cable into the Reverb board. Turn the unit on and check the 15V DC rails on pin 6 and 7 of the ribbon cable connector. Place a scope lead and frequency counter on TP2 where a zero to minus 15V square wave should be seen. If the frequency is not equal to 15.5KHz, adjust VR1.
2. Apply a 10mV RMS 1KHz signal into the unbalanced input of channel 1, with the channel input gain at 12 o'clock and the internal EFX potentiometer at 10. Place a scope lead on TP4, with an AC DVM on the 10mV RMS source signal. While observing the signal on the scope, increase the amplitude of the source signal to 50mV RMS. The limiter will now limit an incoming signal up to 400mV RMS where the input of the mixer will now clip. Lower the signal source to 100mV RMS and observe TP4 while sweeping the signal from 100Hz to 15KHz. The signal should gradually rise to a peak at 7KHz then roll-off to less than 200mV peak at 15KHz.
3. Place a scope lead on TP7 and TP8. Sweep the generator from 100Hz to 5KHz. The signal will vary in amplitude due to the addition of several delay taps (at different phases), so measure the peaks to be approx. 5V peak. The overall signal should roll-off at 5KHz.

4. Move the probes to TP5 and TP6. Repeat step (3) but notice that the signal will not vary in amplitude because its source comes from one single tap. The signal will appear as 5V peak (3.5V RMS) and will roll-off at 5KHz. NOTE: The stepped look of the signal is due to the sampling of the delay I.C.'s and will be filtered out later in the circuit.
5. Place a scope lead and a DC DVM on TP3 with the other scope probe on TP7 or TP8.
The meter should read between -1 to -13VDC. Place a unbalanced 1KHz signal into CHAN 1 and increase signal amplitude on TP7, TP8 to 3V peak. The voltage on TP3 will slowly increase more positively as signal increases. Now decrease signal rapidly to DV. The voltage at TP3 will increase positively to a max of +13VDC then return its no signal condition (a negative voltage).
6. Rotate the blend knob to ECHO, place a unbalanced 100mV RMS 100Hz signal into channel 1, and place a scope lead on pin 8 and pin 9 of U2. LD1 should not be lit. Increase the frequency to 1KHz, now LD1 should be lit. Sweep the generator from 100Hz to 4.5KHz, the signal on the output of U2 should remain at approx. 2V peak and roll-off at 5KHz. Rotate the blend knob to Reverb, and repeat step (6). The output will vary in amplitude relative to frequency, and will have peaks at approx. 3V. The overall frequency response will roll off at 5KHz.

★ CONNECT THE DVM-DC BETWEEN THE TRANSFORMER CENTER TAP AND HEATSINK. YOU SHOULD MEASURE 0 V. IF NOT, THE HEATSINK IS HOT. (PROBABLY A OUTPUT DEVICE IS MAKING DIRECT CONTACT TO THE HEATSINK). IF YOU READ 0 V, THEN CONNECT A JUMPER BETWEEN THE POWER SUPPLY GROUND AND CHASSIS GROUND. LEAVE IT THERE UNTIL ALL THE TESTS ARE OVER.

POWER AMPLIFIER

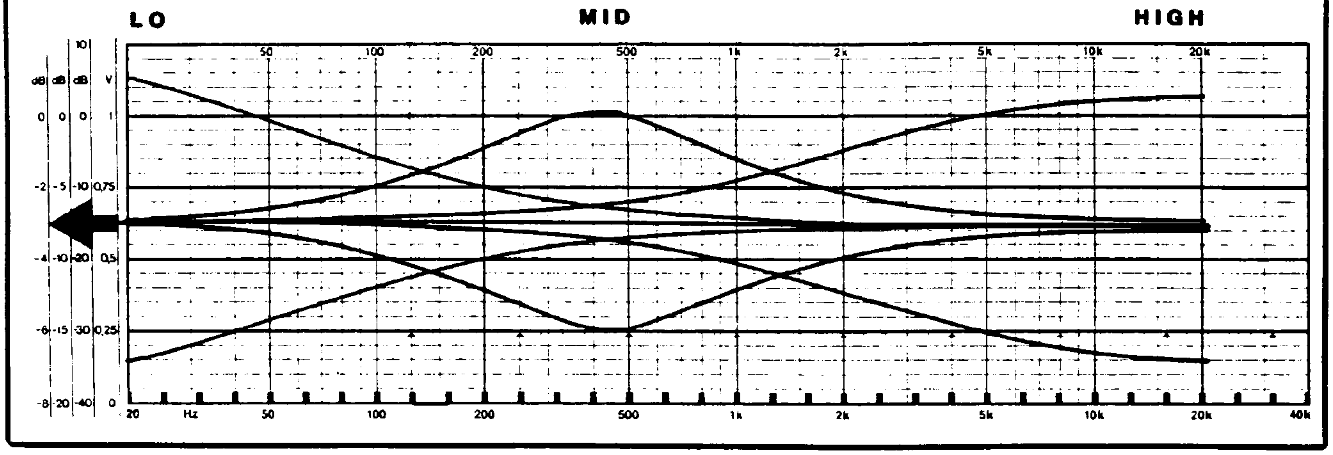
1. With the unit down,
   Place the 7 amp fuses back into one amplifier module. Connect a DC DVM across R61 and R103 with a scope probe on the amplifier's output, and no signal on the input of the amplifier. This amplifier features an auto-quiescent current circuit which does not require any adjustment, except an initial observation. Variac the unit up to number 50, while observing the DVM. The voltage may climb to 150mV but will drop to between 8 to 12mV before you reach variac number 50. If there isn't any offset on the output, variac the unit up to 120VAC.★Move the DVM probes over to R59 and R99. The voltage reading should be between 8 to 12mV. Apply a 1KHz signal to the input of the mixer, and increase the signal to the point of limiting. The limiter should kick in at the point of clipping, preventing the amplifier from becoming heavily clipped. Connect an 8 ohm load and check with a signal up to limiting. If it is okay go to 4 ohms and repeat. Sweep 20Hz to 20KHz for a flat response ($\pm$3dB). At 4 ohms the amplifier should enter 'soft' clipping at 0dB on the bar graph display ($\pm$1dB), and an AC DVM on the speaker output would measure approx. 30V RMS. Apply a short to the output of the amplifier. The amplifier will now enter current limit protection and will sample the condition on the output every second. The instantanious sampled peaks can be seen on the scope, amplitude depending on your short's resistance.
2. Repeat for amplifier #2.
   NOTE: The signal on the amlifier's output during a no load condition may appear slightly unsymetrical, especially during clipping.

NOISE MEASUREMENT

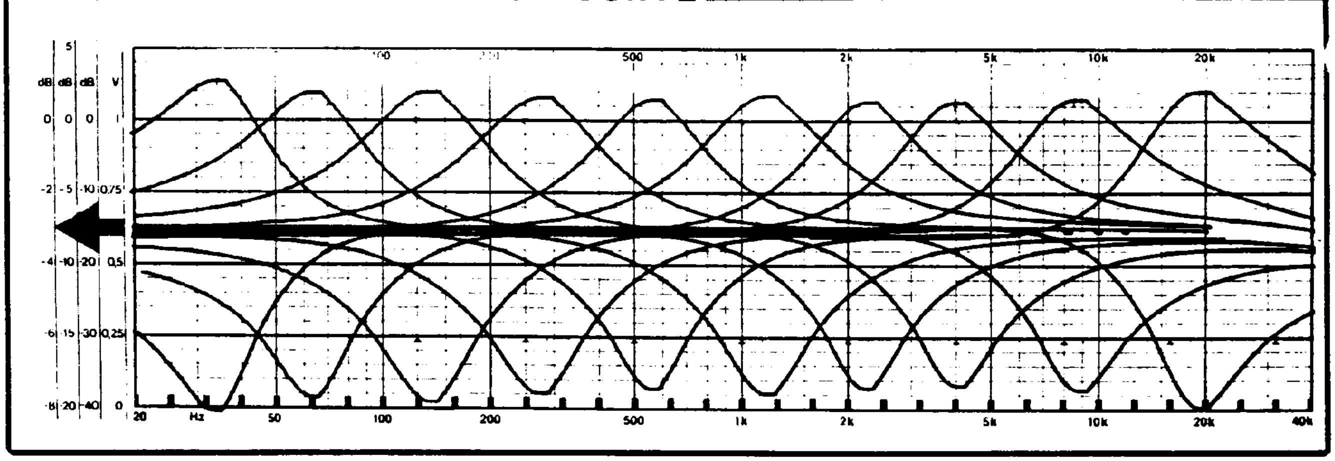
Under the following settings, (using a true RMS AC DVM) less than 5mVRMS should be measured on either speaker output jack (with no load connected) with the patch switch pushed in.

1) All channel input gain pots @ full
2) Tone controls flat
3) Pan pots centered
4) Channel and subs sliders @ 0dB
5) Efx return @ min
6) Reverb return @ min
7) EQ's flat @ 0dB

TONE CONTROLS RESPONSE CURVE



EQUALIZATION RESPONSE CURVE



HOW TO CHANGE A FADER IN A SP-SERIES MIXER

1) REMOVE THREE SCREWS PER GABLE. (TOTAL 6)

2) REMOVE 3 #6 SCREWS FROM THE FRONT OF THE CHASSIS AND 3 FROM BACK OF CHASSIS.

3) REMOVE KNOBS FROM 4 CHANNELS (IE 1-4 OR 5-8) DEPENDING ON WHAT CHANNEL BROKEN POT IS ON.

4) REMOVE THE 4 NUTS FROM 1/4" JACKS ON CHANNELS AFFECTED.

5) REMOVE TOP HALF OF MIXER AND FLIP OVER TOWARD THE RIGHT.

6) REMOVE 4 SCREWS AND CABLE THAT HOLD PCB MOUNTED ON THE SHIELD.

7) REMOVE 2 #6 SCREWS NEAR THE CENTER LINE OF SHIELD.

8) REMOVE ADAPTERS AND 2 PCBS FROM MIC JACKS (FOUR).

9) REMOVE BUSS CONNECTORS.

10) LIFT OUT CHANNEL BOARD.

****

11) DESOLDER MOUNTING PINS(4) AND ELECTRICAL PINS ON BAD POT.

12) REPLACE WITH NEW ONE AND RESOLDER ALL CONNECTIONS.

13) REASSEMBLE UNIT IN REVERSE ORDER.

SERVICE INFORMATION FOR 10A TAPER AND 20A TAPER SLIDE POTS   MAY 4, 1987

M410 MASTER PCB		
REFERENCE NUMBERS	10A TAPER SLIDE POT	20A TAPER SLIDE POT
RT1, RT2, RT4	10K	22K
R163, R191	1K	1K5

M412 CHANNEL STRIP PCB		
REFERENCE NUMBERS	10A TAPER SLIDE POT	20A TAPER SLIDE POT
RA29, RB29, RC29, RD29	2K2	2K7
RT1A, RT1B, RT1C, RT1D	10K	33K
RA35, RB35, RC35, RD35	10K	6K2
RA33, RB33, RC33, RD33	22K	15K
RA37, RB37, RC37, RD37	22K	15K

MECHANICAL PARTS LIST

3495	1/8" HEATSHRINK POLYOLEFIN	.420	FT
3513	3/16" HEATSHRINK POLYOLEFIN	.250	FT
3516	CONNECTOR COVER B36C ZIERICK	4.000	EA
3524	MOLEX 2 PIN 03091023/1545	1.000	EA
3535	TERM MALE 02092103/1190	1.000	EA
3536	TERM FEMALE 02091103/1189	2.000	EA
3548	AMP SPEAKER CLIP 41772-0	4.000	EA
3549	MOLEX T-REEL 08500187/6838	12.000	EA
3559	MOLEX 8P F- 26034081/6442	1.000	EA
3564	MOLEX 6P-F 26034061/6442	1.000	EA
3810	3" CABLE TIE T18R TYTON	21.000	EA
3929	22AWG 2 COND 33642	3.200	FT
1230	TOROIDAL XFORMER #8YOR287 600VA	1.000	EA
2457	8A C.BREAKER ETA 41-06-P30-88	1.000	EA
3407	THERMAL BREAKER BETA800/MOS500,1200	1.000	EA
3482	3/16 AWG SJT LINE CORD 3 PRONG	1.000	EA
3495	1/8" HEATSHRINK POLYOLEFIN	.170	FT
3525	MOLEX 2 PIN 03092022/1545	1.000	EA
3556	XSISTOR HOLD SPRING-BAR (PLATED)	4.000	EA
3535	TERM MALE 02092103/1190	1.000	EA
3632	FAN GUARD #A-60 FOR TFDD6024RXA	1.000	EA
3659	FEMALE XLR PLASTIC NC3FPP NEUTRIX	8.000	EA
3673	CABLE ASSEMBLY 5370-16BT MOLEX	1.000	EA
3696	BLK BLK ROCKER SWITCH RA911RBBON	1.000	EA
3795	#8 GROUND LUG ZIERICK 505-169	4.000	EA
3800	BELLY BUTTON #BB1 CORDS CANADA	12.000	EACH
3802	CONTINUOUS GROMMET STRIP BLACK	.790	FT
3810	3" CABLE TIE T18R TYTON	8.000	EA
3812	WECO TERM BLOCK 34-822-008	1.000	EA
3821	SR-6N3-4 STRAIN RELIEF	1.000	EA
3830	TO218 MICA THERMAL CONDUCTOR 56782	8.000	EA
3844	FAN TFDD6024RXA 20CFM-24VDC (SP8)	1.000	EA
6405	RED LED CQW54-5 PHILIPS	14.000	EA
8448	SERIAL NUMBER DAT 19-607 IRWIN	1.000	EACH
8470	CUPWASHER FOR #1230 XFORMER	1.000	EA
8485	#6 SPLIT WASHER ZINC	2.000	EA
8543	RUBBER FEET #4055	4.000	EA
8559	MICROMIX GABLE	1.000	SET
8595	1/8 X 10 X 12 ETHAFOAM 221 PRECUT	1.000	EA
8629	10 X 1/4 SPACER 608-0708 BO	8.000	EA
8630	10-32X1/2 TRUSS HD MS BO	4.000	EA
8656	.171 X 1/4 PLASTIC SPACER	5.000	EA
8665	#6 X 1/2 ROUND STEEL SPACER	5.000	EA
8683	1/4-20 NYLON INSERT NUT ZINC	1.000	EA
8684	MICROMIX ROTARY KNOB BLUE	25.000	EA
8685	MICROMIX ROTARY KNOB MAUVE	8.000	EA
8686	MICROMIX ROTARY KNOB GREEN	10.000	EA
8687	MICROMIX ROTARY KNOB ORANGE	19.000	EA
8688	MICROMIX ROTARY KNOB PEACH	10.000	EA
8689	BLUE EQ KNOB LANAR	20.000	EA
8690	BLACK FADER KNOB - MICROMIX	12.000	EA
8701	4-40 KEPS NUT ZINC	16.000	EA
8745	6-32 X 3/4" HH MS UD ZINC	8.000	EA
8747	6-32X1/2 HH UD MS ZC USEUP GOTO8745	2.000	EA
8763	8-32 X 1/2 PN PH MS BO	2.000	EA
8765	1/4-20 X 2.5" PN PH MS ZINC	1.000	EA
8783	10-32 X 7/8 PN PH MS BO	3.000	EA

8800	6-32 KEPS NUT ZINC	16.000	EA
8801	6-32X3/8 PH PH THDROLL BO	4.000	EA
8821	6-32X1 1/4 PN PH MS ZINC	4.000	EA
8830	6-32 X 7/8 PAN HEAD PH MS BO	1.000	EA
8832	6-32 X 1/4 ROUND HEAD PH MS BO	5.000	EA
8837	6-32 X 1/2 ROUND HEAD PH MS BO	10.000	EA
8854	6-32 X 1/4 HEX NUT ZINC	16.000	EA
8861	4-40 X 3/8 PN PH MS BO	24.000	EA
657	SP-8 CARTON	1.000	EA
658	SP-8/SP-12 FOAM ENDCAPS SMITH PKG	1.000	SET
8498	6-32 X 3/8 STEEL PEM STUD	1.000	EA
8800	6-32 KEPS NUT ZINC	2.000	EA
8801	6-32X3/8 PH PH THDROLL BO	8.000	EA
8806	4-40 X 3/4 PN PD MS ZN	2.000	EA
8900	YORKVILLE SOUND WARRANTY CARD	1.000	EA
8958	SP-8 SCHEMATIC	1.000	EA
8959	SP-8 MANUAL	1.000	EA

M408 POWER SUPPLY PCB

3519	MOLEX PCB PIN 08-50-0415	10.000	EA
3539	SE34 EYELET UNPLATED RE AS M996P	2.000	EA
3542	SE44 EYELET TIN PLATED	10.000	EA
4599	WIRE JUMPER T&R	2.000	EA
4623	1K 5% 1/2 WATT RESISTOR T&R	5.000	EA
4626	3K3 5% 1/2 WATT RESISTOR T&R	2.000	EA
4627	4K7 5% 1/2 WATT RESISTOR T&R	1.000	EA
4632	22K 5% 1/2 WATT RESISTOR T&R	1.000	EA
4829	10K 5% 1/4 WATT RESISTOR T&R	2.000	EA
4832	22K 5% 1/4 WATT RESISTOR T&R	2.000	EA
4841	220K 5% 1/4 WATT RESISTOR T&R	1.000	EA
4845	2M2 5% 1/4 WATT RESISTOR T&R	1.000	EA
4852	100 OHM 5% 1/4 WATT RESISTOR T&R	2.000	EA
4857	220 OHM 5% 1/4 WATT RESISTOR T&R	2.000	EA
4873	680 OHM 5% 1/4 WATT RESISTOR T&R	2.000	EA
4877	1 OHM 1/4 WATT 5% RESISTOR T&R	6.000	EA
5314	100N/50VBEAD SA305C104KAA YORK	8.000	EA
5876	1UF/63V AXIAL CAP 03028108	4.000	EA
6436	IN753A/BZX79C6V2 6V2 500MW 5% DIODE	1.000	EA
6438	1N4004 400V 1AMP DIODE YORK	11.000	EA
6440	BZX79C4V7 OR APPROVED NA CAT	2.000	EA
6463	BZX79B22 22V/500MW 2% ZENER DIODE	3.000	EA
6825	1N4148 75V 450MA DIODE	5.000	EA
8672	4-40 X 3/16 SWAGE SPACER 1790-2	4.000	EA
	----------------------------------	1.000	----
5624	470U/16V ELEC RAD 03555471	2.000	EA
5865	.1UF/250V CAP 36845104	2.000	EA
5914	100UF/50V RAD CAP 03590019	1.000	EA
6771	BC560C PNP SS TRANS TO92E	1.000	EA
6774	BD139 NPN TRANS TO126	1.000	EA
	----------------------------------	1.000	----
3501	B52200F006 COMP WASH #4 SMALL	5.000	EA
3511	#6 FLAT WASHER NYLON	2.000	EA
3806	B09002A001 RECT WASHER	5.000	EA
3892	AAVID 5307B-14 3FIN HEATSINK BO	5.000	EA
4692	100 OHM 5 WATT RESISTOR	1.000	EA
5888	2200UF/25V ELECTRO CAP RD	2.000	EA
5916	2200U/63V ELEC AXIAL 02118222	10.000	EA
6422	KBPC802 8AMP PC MOUNT BRIDGE	1.000	EA

6423	MDA3502 BRIDGE 35 AMP	1.000 EA
6467	100K THERMISTOR 642/62104	1.000 EA
6871	MC7915T NEG REGULATOR	1.000 EA
6872	MC7815T POS REGULATOR	1.000 EA
6875	1N5359 24V 5WATT 5% ZENER DIODE	3.000 EA
6921	BD651 NPN DARL TRANS. TO220	1.000 EA
6922	BD652 PNP DARL TRANS TO220	2.000 EA
6926	BD140 PNP TRANS TO126	1.000 EA
8792	4-40 X 1/2 PN PH MS ZN	5.000 EA
8793	4-40 HEX NUT ZINC	5.000 EA
8870	4 X 1/4 PN PH TYPE A ZN	2.000 EA

M409 REVERB PCB

3519	MOLEX PCB PIN 08-50-0415	8.000 EA
4599	WIRE JUMPER T&R	35.000 EA
4805	2K87 1% 1/4 WATT RESISTOR T&R	14.000 EA
4816	33 OHM 1/4 WATT 5% RESISTOR T&R	1.000 EA
4824	1K5 5% 1/4 WATT RESISTOR T&R	11.000 EA
4830	15K 5% 1/4 WATT RESISTOR T&R	10.000 EA
4834	47K 5% 1/4 WATT RESISTOR T&R	21.000 EA
4838	100K 5% 1/4 WATT RESISTOR T&R	5.000 EA
4839	150K 5% 1/4 WATT RESISTOR T&R	7.000 EA
4840	33K 5% 1/4 WATT RESISTOR T&R	13.000 EA
4841	220K 5% 1/4 WATT RESISTOR T&R	2.000 EA
4844	1M 5% 1/4 WATT RESISTOR T&R	6.000 EA
4853	39K 5% 1/4 WATT RESISTOR T&R	11.000 EA
4857	220 OHM 5% 1/4 WATT RESISTOR T&R	18.000 EA
4862	5K6 5% 1/4 WATT RESISTOR T&R	8.000 EA
4868	36K 5% 1/4 WATT RESISTOR	3.000 EA
4875	10 OHM 1/4 WATT 5% RESISTOR T&R	1.000 EA
4877	1 OHM 1/4 WATT 5% RESISTOR T&R	2.000 EA
4879	270K 5% 1/4 WATT RESISTOR T&R	4.000 EA
4887	7K5 5% 1/4 WATT RESISTOR T&R	5.000 EA
5306	33N/50V BEAD CAP SA205C333KAA	3.000 EA
5314	100N/50VBEAD SA305C104KAA YORK	17.000 EA
5376	6N8/50V/5% BEAD CAP 401EM50AD682J	5.000 EA
5380	15N/50V/5% BEAD CAP C401C153J5R5CA	6.000 EA
5410	100PF/100V TUB CAP UP125SL101J	8.000 EA
5424	1N5/50V TUB CAP 56150152 Y5P	7.000 EA
5426	2N2/50V TUB CAP 56151222 Y5F	7.000 EA
5846	22UF/25V AX CAP 03026229	4.000 EA
5861	4.7UF/63V AX CAP 03028478	5.000 EA
5876	1UF/63V AXIAL CAP 03028108	1.000 EA
6825	1N4148 75V 450MA DIODE	9.000 EA
	----------------------------------	1.000 ----
6745	LM13600 IC	2.000 EA
6771	BC560C PNP SS TRANS TO92E	6.000 EA
6786	BC550C NPN SS TRANS TO92E	5.000 EA
6882	TL072 DUAL OP AMP YORK	3.000 EA
6889	TL074 QUAD OP AMP YORK	1.000 EA
	----------------------------------	1.000 ----
3562	16 PIN SOCKET W3116T WINSLOW	1.000 EA
4513	100KENCL TRIMPOT 48375104	1.000 EA
5943	68UF/16V AX CAP 03025689	2.000 EA
6420	BRT RED LED SAR5731 1.7V 20MA YORK	1.000 EA
6748	MN3011 ANALOG DELAY PANASONIC	2.000 EA
6749	MN3101 DELAY CLOCK DRIVER PANASONIC	1.000 EA

M410 MASTER PCB

3519	MOLEX PCB PIN 08-50-0415	20.000	EA
3539	SE34 EYELET UNPLATED RE AS M996P	2.000	EA
3541	MOLEX 6P 90"/09661061/2373	1.000	EA
3542	SE44 EYELET TIN PLATED	4.000	EA
4596	24 AWG SOLDER COATED JUMPER	144.000	EA
4647	2K2 5% 1/2 WATT RESISTOR T&R	1.000	EA
4673	680 OHM 1/2 WATT RESISTOR	2.000	EA
4800	10K 1% 1/4 WATT RESISTOR T&R	10.000	EA
4810	9K1 5% 1/4 WATT RESISTOR T&R	2.000	EA
4811	68 OHM 5% 1/4 WATT RESISTOR T&R	6.000	EA
4821	470 OHM 5% 1/4 WATT RESISTOR T&R	5.000	EA
4823	1K 5% 1/4 WATT RESISTOR T&R	11.000	EA
4824	1K5 5% 1/4 WATT RESISTOR T&R	9.000	EA
4829	10K 5% 1/4 WATT RESISTOR T&R	22.000	EA
4830	15K 5% 1/4 WATT RESISTOR T&R	2.000	EA
4832	22K 5% 1/4 WATT RESISTOR T&R	10.000	EA
4834	47K 5% 1/4 WATT RESISTOR T&R	1.000	EA
4837	82K 5% 1/4 WATT RESISTOR T&R	8.000	EA
4838	100K 5% 1/4 WATT RESISTOR T&R	6.000	EA
4839	150K 5% 1/4 WATT RESISTOR T&R	6.000	EA
4840	33K 5% 1/4 WATT RESISTOR T&R	5.000	EA
4841	220K 5% 1/4 WATT RESISTOR T&R	5.000	EA
4847	2K2 5% 1/4 WATT RESISTOR T&R	4.000	EA
4849	180K 5% 1/4 WATT RESISTOR T&R	3.000	EA
4852	100 OHM 5% 1/4 WATT RESISTOR T&R	33.000	EA
4855	330 OHM 5% 1/4 WATT RESISTOR T&R	4.000	EA
4856	12K 5% 1/4 WATT RESISTOR T&R	3.000	EA
4857	220 OHM 5% 1/4 WATT RESISTOR T&R	8.000	EA
4862	5K6 5% 1/4 WATT RESISTOR T&R	36.000	EA
4863	8K2 5% 1/4 WATT RESISTOR T&R	3.000	EA
4871	560 OHM 5% 1/4 WATT RESISTOR T&R	30.000	EA
4887	7K5 5% 1/4 WATT RESISTOR T&R	2.000	EA
4888	4M7 5% 1/4 WATT RESISTOR T&R	6.000	EA
4898	91K 5% 1/4 WATT RESISTOR T&R	16.000	EA
5300	10N/50V BEAD C410C103K5R5CA	5.000	EA
5301	12N/50V BEAD CAP C410C123K5R5CA	3.000	EA
5303	18N/50V BEAD C410C183K5R5CA	3.000	EA
5304	22N/50V BEAD C410C223K5R5CA	3.000	EA
5307	39N/50V BEAD CAP 403M50AD393K	3.000	EA
5308	47N/50V BEAD C410C473K5R5CA	3.000	EA
5310	68N/50V BEAD CAP SA305C683KAA	3.000	EA
5312	82N/50V BEAD CAP 403EM50AD823K	3.000	EA
5314	100N/50V BEAD C420C104K5R5CA	16.000	EA
5316	150N/50V BEAD CAP 404EM50AD154K	3.000	EA
5317	180N/50V BEAD	3.000	EA
5320	330N/50V BEAD C440C334K5R5CA	3.000	EA
5322	470N/50V BEAD C410C471K1R5CA	3.000	EA
5410	100PF/100V TUB CAP UP125SL101J	13.000	EA
5416	470PF TUB 50V 56150471 5818	3.000	EA
5420	680PF TUB 50V 56150681 5817	3.000	EA
5425	1N8/50V BEAD C410C182K1R5CA	3.000	EACH
5428	3N3/50V TUB CAP 56151332 Y5F	6.000	EA
5432	4N7/50V TUB CAP 56151472 Y5F	3.000	EA
5433	5N6/50V BEAD C410C562K1R5CA	3.000	EA
5846	22UF/25V AX CAP 03026229	2.000	EA
6450	1N5242A 12V 500MW ZENER DIODE	1.000	EA
6825	IN4148 75V 450MA DIODE(IN914)	37.000	EA

3562	16 PIN SOCKET W3116T WINSLOW	3.00	1.000	EA
5600	220N 100V CAP 36825224	3.00	4.000	EA
5627	47UF/10V NP ELEC RAD #10NW47	3.00	6.000	EA
5943	68UF/16V AX CAP 03025689	3.00	3.000	EA
6745	LM13600 TRANSCONDUCTANCE AMP IC	3.00	1.000	EA
6771	BC560C PNP SS TRANS T092E	3.00	17.000	EA
6786	BC550C NPN SS TRANS T092E	3.00	17.000	EA
6851	2N5638 N CHAN FET SS TRANS T092	3.00	6.000	EA
6878	TL071CP FET OP AMP	3.00	1.000	EA
6882	TL072 DUAL OP AMP YORK	3.00	5.000	EA
6884	NE5532 FE OP AMP SIGNETICS	3.00	3.000	EA
6887	MPSA13 NPN DARL SS TRANS T092	3.00	5.000	EA
6894	LM3916 LED DISPALY DRIVER	3.00	2.000	EA
	------------------------------------		1.000	----
3436	SPST PUSH SHADOW SW F2UEESE-B.B.M.	3.00	1.000	EA
3498	M203-92 PLAIN PC MNT JK SKT	3.00	10.000	EA
3523	M203-92A GOLD TIP PC MNT JK SKT	3.00	2.000	EA
3526	MOLEX 2 PIN TOP ENTRY SOCKET	3.00	4.000	EA
3677	5" MOLEX JUMP 8 POS-26AWGX19#24369	3.00	3.000	EA
3740	.4" LEAD SPACER OD-.085 #901-400	3.00	12.000	EA
3944	ORANGE 22 AWG STRANDED WIRE	3.00	.500	FT
3946	YELLOW 22 AWG STRANDED WIRE	3.00	.500	FT
4561	10K POT 1B TAP V016L8-2PVBN30F(BC)	3.00	3.000	EA
4563	50K POT 1B TAP V016L8-2PVBN30F(BC)	3.00	3.000	EA
4564	20K STER.POT 1B TAP V0161GPVB30F-	3.00	2.000	EA
4575	20K 30MM STER,SLID VJ3013-2GPVN15C	3.00	10.000	EA
4576	20K 30MM MON SLID VJ3013-2PVN15C-1B	3.00	10.000	EA
4577	20K 60MM MON.SLID VJ6023-1PVN15CP	3.00	4.000	EA
4736	390 OHM 5 WATT RESISTOR	3.00	1.000	EA
5800	680N/35V/10% AX TANT T110A684K035AS	3.00	3.000	EA
5801	1U2/15V/10% AX TANT T110A125K015AS	3.00	3.000	EA
5802	2U2/15V/10% AX TANT T110A225K015AS	3.00	3.000	EA
6403	ORANGE LED 3MM #202ED	3.00	6.000	EA
6412	10 SEG. LED DISPLAY 42B-10-3ID/7YD	3.00	2.000	EA
6875	1N5359 24V 5WATT 5% ZENER DIODE	3.00	1.000	EA
8656	.171 X 1/4 NYLON SPACER #SP42	3.00	4.000	EA

M412 CHANNEL STRIP PCB

3519	MOLEX PCB PIN 08-50-0415	3.00	3.000	EA
4596	24 AWG SOLDER COATED JUMPER	3.00	46.000	EA
4605	10 OHM 1/8 WATT 5% RESISTOR	3.00	4.000	EA
4799	562 OHM 1% 1/4 WATT RESISTOR T&R	3.00	4.000	EA
4801	6K98 1% 1/4 WATT RESISTOR T&R	3.00	4.000	EA
4802	1K21 1% 1/4 WATT RESISTOR T&R	3.00	4.000	EA
4812	18 OHM 1/4 WATT 5% RESISTOR T&R	3.00	4.000	EA
4816	33 OHM 1/4 WATT 5% RESISTOR T&R	3.00	4.000	EA
4821	470 OHM 5% 1/4 WATT RESISTOR T&R	3.00	4.000	EA
4824	1K5 5% 1/4 WATT RESISTOR T&R	3.00	8.000	EA
4826	3K3 5% 1/4 WATT RESISTOR T&R	3.00	16.000	EA
4829	10K 5% 1/4 WATT RESISTOR T&R	3.00	8.000	EA
4830	15K 5% 1/4 WATT RESISTOR T&R	3.00	8.000	EA
4834	47K 5% 1/4 WATT RESISTOR T&R	3.00	8.000	EA
4837	82K 5% 1/4 WATT RESISTOR T&R	3.00	8.000	EA
4840	33K 5% 1/4 WATT RESISTOR T&R	3.00	8.000	EA
4841	220K 5% 1/4 WATT RESISTOR T&R	3.00	8.000	EA
4864	2K7 5% 1/4 WATT RESISTOR T&R	3.00	4.000	EA
4870	6K2 5% 1/4 WATT RESISTOR T&R	3.00	8.000	EA
5302	15N/50V BEAD C410C153K5R5CA	3.00	4.000	EA
5314	100N/50V BEAD C420C104K5R5CA	3.00	9.000	EA
5402	15PF/100V TUB CAP UP125NP0150J	3.00	4.000	EA

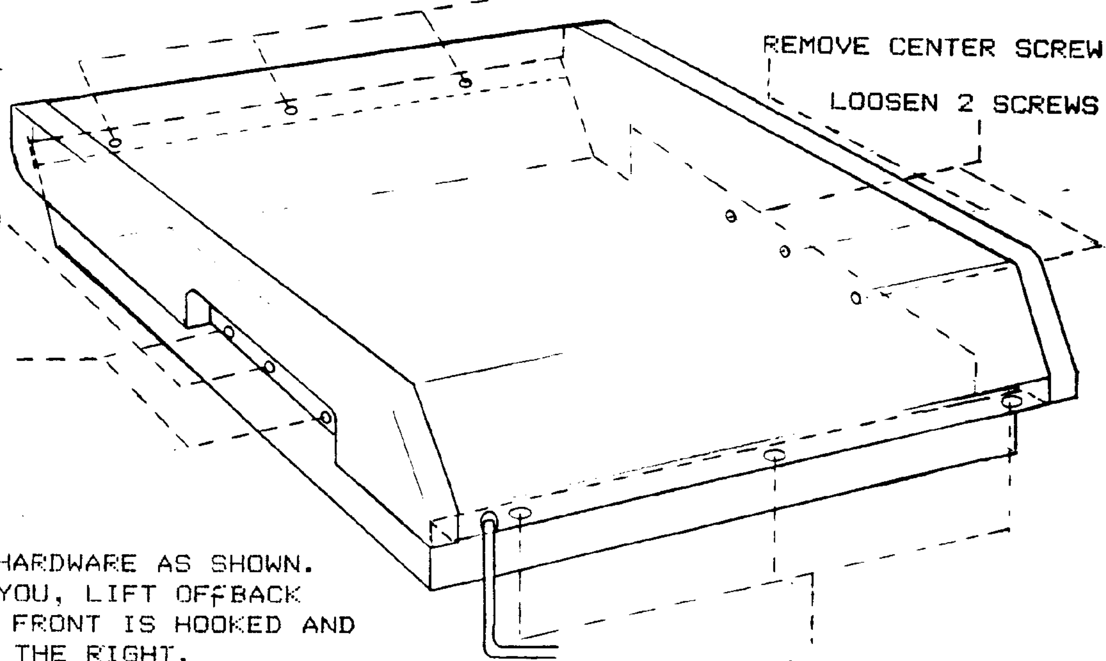
5408	47PF/100V TUB CAP UP125SL470J	3.00	4.000	EA
5410	100PF/100V TUB CAP UP125SL101J	3.00	4.000	EA
5424	1N5/50V TUB CAP 56150152 Y5P	3.00	4.000	EA
5861	4.7UF/63V AX CAP 03028478	3.00	4.000	EA
6466	1N5256B 30V/500NW ZENER (BZX79C30)	3.00	8.000	EA
6825	IN4148 75V 450MA DIODE(IN914)	3.00	20.000	EA
	----------------------------------		1.000	----
5625	330U/10V ELEC RAD. 03554331	3.00	4.000	EA
5627	47UF/10V NP ELEC RAD #10NW47	3.00	4.000	EA
5875	4.7UF/63V RAD 03558478 YORK	3.00	8.000	EA
6834	MPSA63 PNP DARL SS TRANS TO92	3.00	2.000	EA
6882	TL072 DUAL OP AMP YORK	3.00	4.000	EA
6884	NE5532 FE OP AMP SIGNETICS	3.00	2.000	EA
6887	MPSA13 NPN DARL SS TRANS TO92	3.00	2.000	EA
	----------------------------------		1.000	----
3527	M203-92B GOLD SLV PC MNT JK SKT	3.00	4.000	EA
3631	MOLEX 9 PIN CONNECTOR F #2145B	3.00	1.000	EA
3650	NCPPCB-H XLR PCB ADAPTOR	3.00	4.000	EA
3677	5" MOLEX JUMP 8 POS-26AWGX19#24369	3.00	2.000	EA
3740	.4" LEAD SPACER OD-.085 #901-400	3.00	8.000	EA
4560	2K POT 05C TAP V016L8-2PVBN30F(BC)	3.00	4.000	EA
4561	10K POT 1B TAP V016L8-2PVBN30F(BC)	3.00	8.000	EA
4563	50K POT 1B TAP V016L8-2PVBN30F(BC)	3.00	20.000	EA
4577	20K 60MM MON.SLID VJ6023-1PVN15CP	3.00	4.000	EA

M413 POWER AMP PCB

3539	SE34 EYELET UNPLATED RE AS M996P	2.000	EA
3542	SE44 EYELET TIN PLATED	5.000	EA
4599	WIRE JUMPER T&R	18.000	EA
4628	6K8 5% 1/2 WATT RESISTOR T&R	2.000	EA
4647	2K2 5% 1/2 WATT RESISTOR T&R	2.000	EA
4666	4.7 OHM 1/2 WATT 5% RESISTOR T&R	2.000	EA
4670	510 OHM 5% 1/2 WATT RESISTOR T&R	2.000	EA
4809	10M 5% 1/4 WATT RESISTOR T&R	1.000	EA
4816	33 OHM 1/4 WATT 5% RESISTOR T&R	1.000	EA
4817	47 OHM 1/4 WATT 5% RESISTOR T&R	3.000	EA
4821	470 OHM 5% 1/4 WATT RESISTOR T&R	3.000	EA
4823	1K 5% 1/4 WATT RESISTOR T&R	6.000	EA
4827	4K7 5% 1/4 WATT RESISTOR T&R	6.000	EA
4829	10K 5% 1/4 WATT RESISTOR T&R	3.000	EA
4831	18K 5% 1/4 WATT RESISTOR T&R	1.000	EA
4832	22K 5% 1/4 WATT RESISTOR T&R	3.000	EA
4838	100K 5% 1/4 WATT RESISTOR T&R	1.000	EA
4840	33K 5% 1/4 WATT RESISTOR T&R	3.000	EA
4843	470K 5% 1/4 WATT RESISTOR T&R	2.000	EA
4847	2K2 5% 1/4 WATT RESISTOR T&R	4.000	EA
4852	100 OHM 5% 1/4 WATT RESISTOR T&R	3.000	EA
4857	220 OHM 5% 1/4 WATT RESISTOR T&R	4.000	EA
4875	10 OHM 1/4 WATT 5% RESISTOR T&R	2.000	EA
4888	4M7 5% 1/4 WATT RESISTOR T&R	1.000	EA
5304	22N/50V BEAD CAP SA205C223KAA	2.000	EA
5340	10P/200V BEAD CAP 401E0200AD100	2.000	EA
5358	220P/200V BEAD CAP 401E0200AD22	3.000	EA
5404	27PF/100V TUB CAP UP125NP0270J	1.000	EA
5426	2N2/50V TUB CAP 56151222 Y5F	3.000	EA
5846	22UF/25V AX CAP 03026229	2.000	EA
6425	BAV21 200V 250MA DIODE	2.000	EA
6440	BZX79C4V7 OR APPROVED NA CAT	6.000	EA
6824	1N5246B/BZX79C16 16V 500MW 5%	2.000	EA
6825	1N4148 75V 450MA DIODE	12.000	EA

5627	47UF/10V NP ELEC RAD #10NW47	1.000 EA
5847	1UF/63V CAP 03558108 RAD	1.000 EA
5865	.1UF/250V CAP 36845104	3.000 EA
5871	22UF/25V ELECTRO CAP RD (NA CAT)	4.000 EA
5947	2.2UF/63V RADIAL CAP 0358228	1.000 EA
6448	BT139 TRIAC T0220	1.000
6456	BF872 PNP TRANS T0202	1.000 EA
6457	BF871 NPN TRANS T0202	1.000 EA
6458	2N5551 NPN SS TRANS T092	2.000 EA
6459	2N5401 PNP SS TRANS T092	3.000 EA
6462	MBS-4991 DIAC	1.000 EA
6771	BC560C PNP SS TRANS T092E	2.000 EA
6786	BC550C NPN SS TRANS T092E	3.000 EA
6873	MJE340 NPN TRANS T0126	1.000 EA
6874	MJE350 PNP TRANS T0126	1.000 EA
6887	MPSA13 NPN DARL SS TRANS T092	1.000 EA
	----------------------------------	1.000 ----
3418	PC MNT FUSE CLIP#3529	4.000 EA
3501	B52200F006 COMP WASH #4 SMALL	3.000 EA
3692	HEATSINK THERMALOY 6079-PB	1.000 EA
3806	B09002A001 RECT WASHER	3.000 EA
3824	5UH 13AMP INDUCTOR AIR CORE	1.000 EA
4694	1.8 OHM 5 WATT RESISTOR	1.000 EA
4726	1K 5 WATT RESISTOR	2.000 EA
4729	.27 OHM 5 WATT RESISTOR	4.000 EA
5626	1000U/10V ELEC AX 02134102	1.000 EA
5813	150UF/63V CAP AX	4.000 EA
6739	MR750 RECTIFIER 50V/6A	1.000 EA
6772	BDV66D PNP TRANSISTOR SOT93	2.000 EA
6773	BDV67D NPN TRANSISTOR SOT93	2.000 EA
8789	6 X 1/4 PP TYPE ZN	2.000 EA
8792	4-40 X 1/2 PN PH MS ZN	1.000 EA
8793	4-40 HEX NUT ZINC	1.000 EA
	----------------------------------	1.000 ----
2465	7AMP FAST-BLO (1/4" X 1 1/4") FUSE	2.000 EA
8443	FUSE LABEL BLANK (DAT-26-607)	1.000 EA

HOW TO TAKE A SP-SERIES MIXER APART.

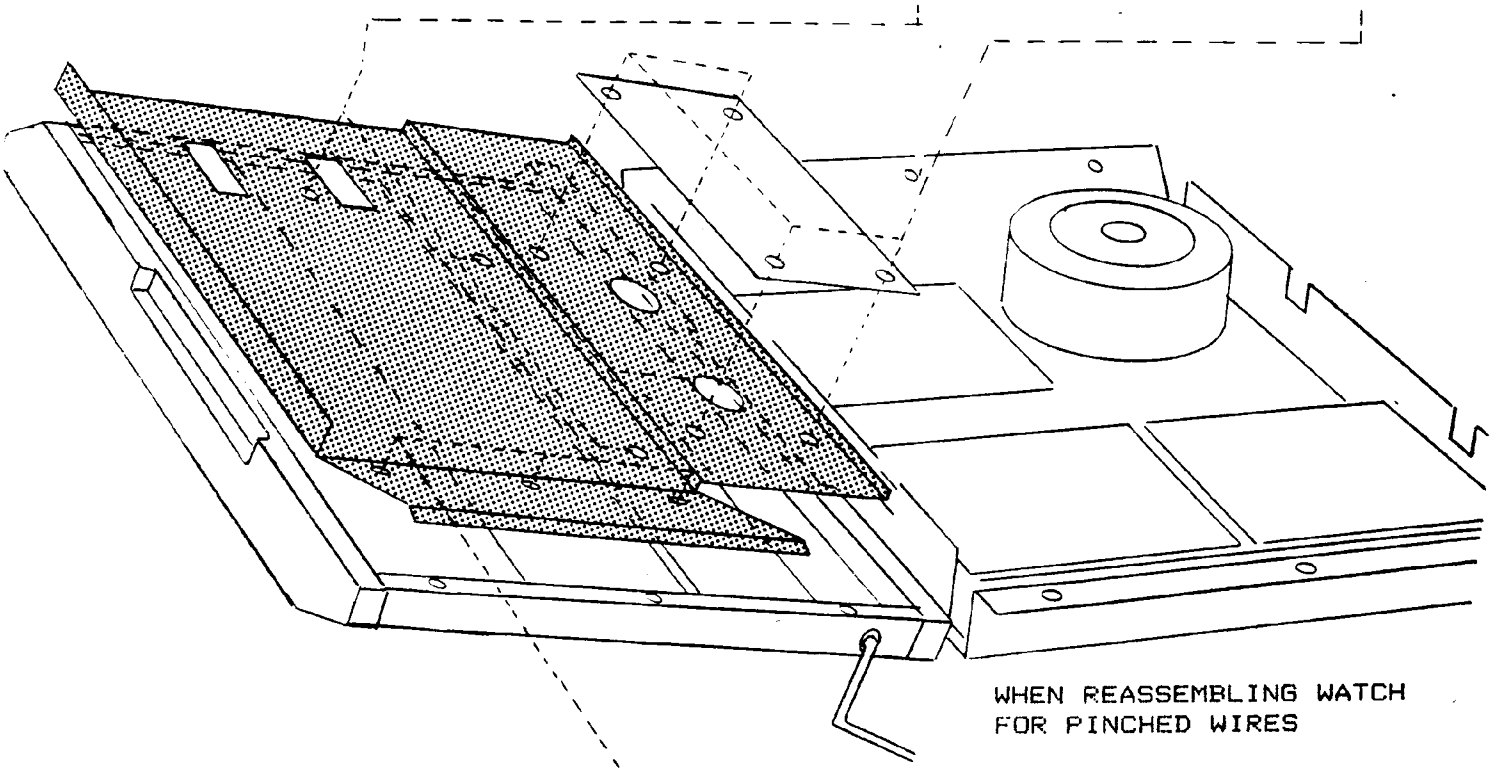


INSTRUCTIONS:

1) REMOVE OR LOOSEN HARDWARE AS SHOWN.
2) WITH UNIT FACING YOU, LIFT OFF BACK FIRST, BECAUSE THE FRONT IS HOOKED AND FLIP UNIT OVER TO THE RIGHT.

NOTE: WHEN REASSEMBLING THE UNIT CHECK THAT THE MOLEX HAS BEEN REHOOKED UP.

TO WORK ON ANY OF THE PCBS REMOVE M409 PCB AND THEN SHIELD.



WHEN REASSEMBLING WATCH FOR PINCHED WIRES

TO WORK ON INPUTS YOU NEED ONLY REMOVE THIS SHIELD

Warranty

This Yorkville Sound Product is FULLY warranteed for a period of TWO YEARS from the date of purchase.

This warranty will REMAIN in effect until the original expiration date, REGARDLESS of whether or not the product is re-sold in the interim.
Furthermore, it is not required that you (the owner) fill in a form of warranty registration. We would, however, recommend that the dated proof of original purchase be retained throughout the warranty period.

Two conditions void this warranty:

1) Mismatched amplifiers and speakers. Use our recommended combinations to be sure.

2) Modifications made without our prior written consent. We are not responsible for incidental or consequential damage when a unit fails. In the U.S.A., some states do not permit such an exemption, in which case the warranty coverage for incidental or consequential damage will be 30 days from orginal date of purchase.
To service our warranty, we agree to supply all PARTS and be responsible for all LABOUR on authorized repairs. You (the owner) are responsible for all transportation should it be needed.
If this product fails while under warranty, contact the authorized Yorkville Sound Dealer from whom it was originally purchased. Repairs may be made by the store or by its authorized warranty station or, if you are on the road, by the NEAREST authorized Yorkville Sound warranty station. If you cannot locate any of the above, contact the appropriate service department listed below. We will not assume responsibility for the cost of repairs performed by a non-authorized person unless we have previously agreed to do so in writing.
If you are ever dissatisfied with the service you receive, contact the appropriate service department listed below. We will first try to correct the problem through the dealer. If this proves unsuccessful, we will authorize you to return the product to us for factory service.
In the U.S.A. this warranty gives you specific legal rights. You may have other rights which vary from state to state. While we have never needed to establish an arbitration service, we are willing to participate in such a service.

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Your factory service departments are:

In Canada:
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