



C45

AUDIO CONTROL CENTER

SERIAL NO. XF1001 And Above



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McIntosh®

SERVICE MANUAL

Serial Number XF1001 And Above

PERFORMANCE SPECIFICATIONS

Frequency Response

+0, -0.5dB from 20Hz to 20,000Hz

Total Harmonic Distortion

0.002% maximum from 20Hz to 20,000Hz at rated output

Signal To Noise Ratio

Phono: 86dB below 10mV input (A Weighted)

High Level: 96dB below rated output (A Weighted)

Rated Output Voltage

2.5V Unbalanced Outputs (Main)

5.0V Balanced Outputs (Main)

Maximum Voltage Output

8V Unbalanced

16V Balanced

Output Impedance

250 ohms Unbalanced

500 ohms Balanced

Input Impedance

Phono: 47k ohms, 65pf

High Level: 22k ohms Unbalanced, 50k ohms Balanced

Sensitivity for Rated Output

Phono: 4.5mV

High Level: 450mV Unbalanced, 900mV Balanced

Maximum Input Signal

Phono: 50mV

High Level: 5V Unbalanced, 10V Balanced

Voltage Gain

Phono to Tape/VCR Out: 40dB

Phono to Output (Main): 55dB

High Level to Tape/VCR Out: 0dB

High Level to Output (Main): 15dB

Tone Controls

Bass Control: ± 12 dB at 30Hz

Treble Control: ± 12 dB at 10,000Hz

Power Requirements

100 Volts 50/60Hz, 35 watts

110 Volts 50/60Hz, 35 watts

120 Volts 50/60Hz, 35 watts

220 Volts 50/60Hz, 35 watts

230 Volts 50/60Hz, 35 watts

240 Volts 50/60Hz, 35 watts

Note: Refer to the rear panel of the C45 for the correct voltage.

Overall Dimensions

17-1/2 inches (44.45cm) W, 6 inches (15.24cm) H, including feet, 16-1/2 inches (41.91cm) D, including clearance for knobs and connectors.

Weight

21 pounds (9.53kg) net, 35 pounds (15.88kg) in shipping carton

OPTIONAL TMI TUNER

FM Tuner

Useable Sensitivity

14dBf which is 1.4uV across 75 ohms

50dB Quieting Sensitivity

Mono: 19dBf which is 2.4uV across 75 ohms

Stereo: 35dBf which is 15uV across 75 ohms

Signal To Noise Ratio

Mono: 75dB

Stereo: 70dB

Frequency Response

Mono: +0, -1dB from 20Hz to 15,000Hz

Stereo: +0, -1dB from 20Hz to 15,000Hz

Harmonic Distortion

Mono: 0.3% at 100Hz, 0.3% at 1,000Hz, 0.3% at 10,000Hz

Stereo: 0.45% at 100Hz, 0.45% at 1,000Hz at 1000Hz, 0.65% at 10,000Hz

Intermodulation Distortion

Mono: 0.25%

Stereo: 0.45%

Capture Ratio

1.2dB

Alternate Channel Selectivity

75dB

Spurious Response

100dB

Image Response

75dB

RF Intermodulation

65dB

PERFORMANCE SPECIFICATIONS *con't*

Stereo Separation

45dB at 100Hz
45dB at 1,000Hz
35dB at 10,000Hz

SCA Rejection

65dB

AM Tuner

Sensitivity

20uV External Antenna Input

Signal To Noise Ratio

48dB at 30% modulation
58dB at 100% modulation

Harmonic Distortion

0.5% maximum at 50% modulation

Frequency Response

50Hz to 6kHz NRSC

Adjacent Channel Selectivity

45dB minimum IHF


Image Rejection

65dB minimum from 540Hz to 1,600kHz

IF Rejection

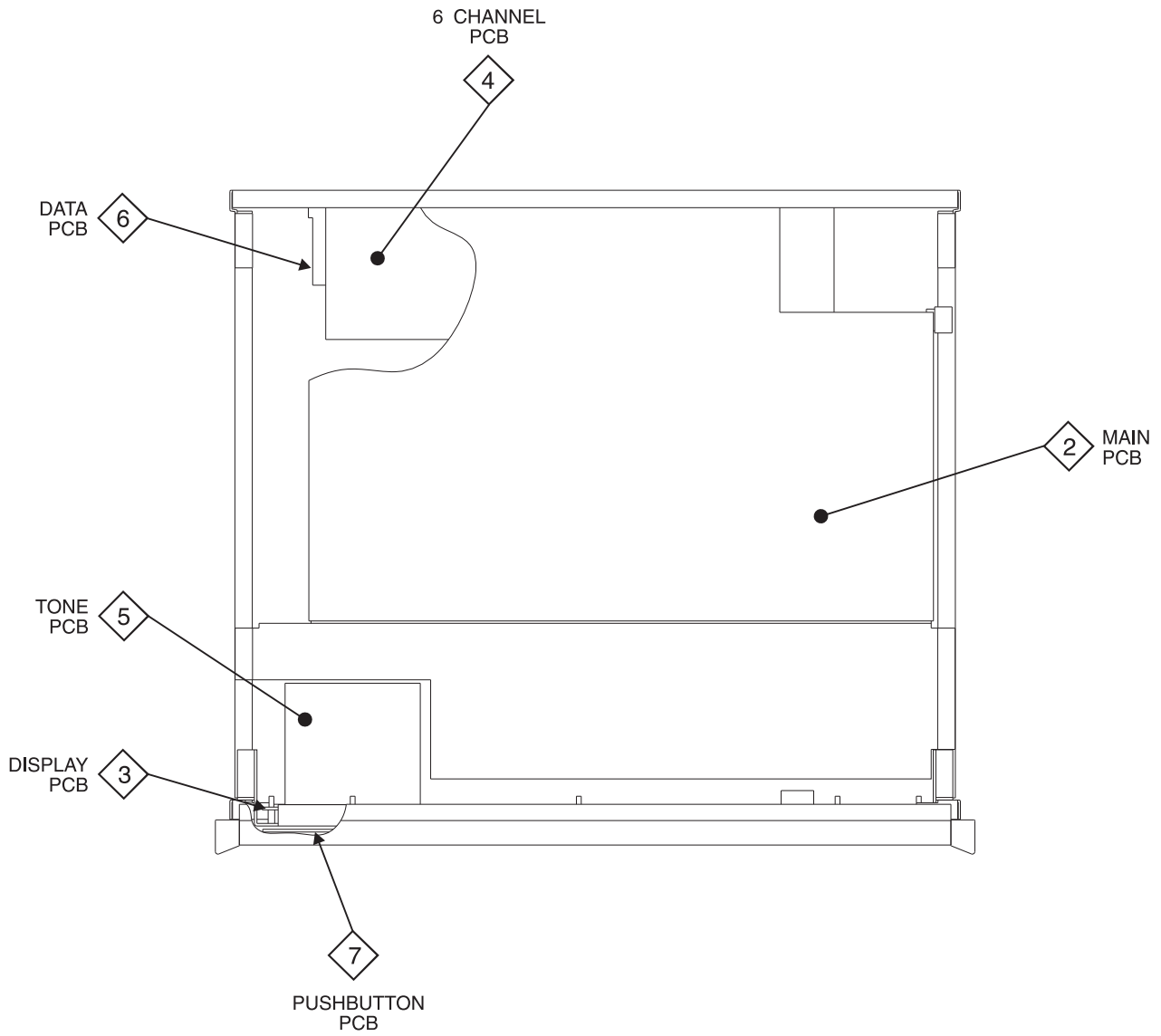
80dB minimum

NOTES

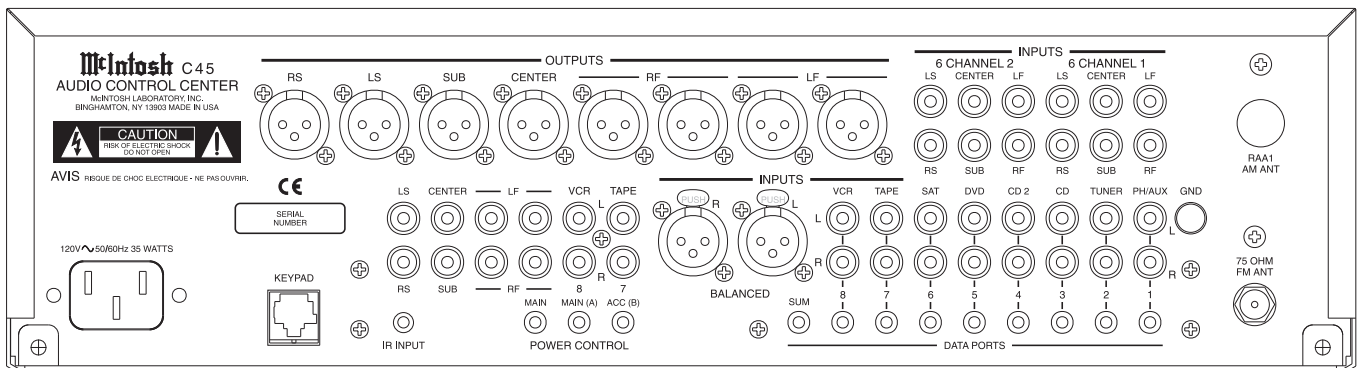
- The heavy notes on the schematic denote the primary signal path.
- Unless otherwise noted, all voltages indicated on the schematics are measured under the following conditions:
 - AC input at 120 volts, 50/60Hz.
 - All voltages are +/-10% with respect to ground. A high impedance (10 megaohm) voltmeter must be used.
- Unless otherwise specified:
 - Resistor values are in ohms.
 - Capacitor values are microfarads (uF).
 - Inductor values are in microhenries (uH).
- On PC board drawings, Square pad indicates:
 - Polarized Capacitors - Positive
 - Diodes - Cathode
 - Others - Pin 1
- WARNING**
Parts marked with the symbol  have critical characteristics. Use only replacement parts recommended by the manufacturer.

SECTION LOCATION

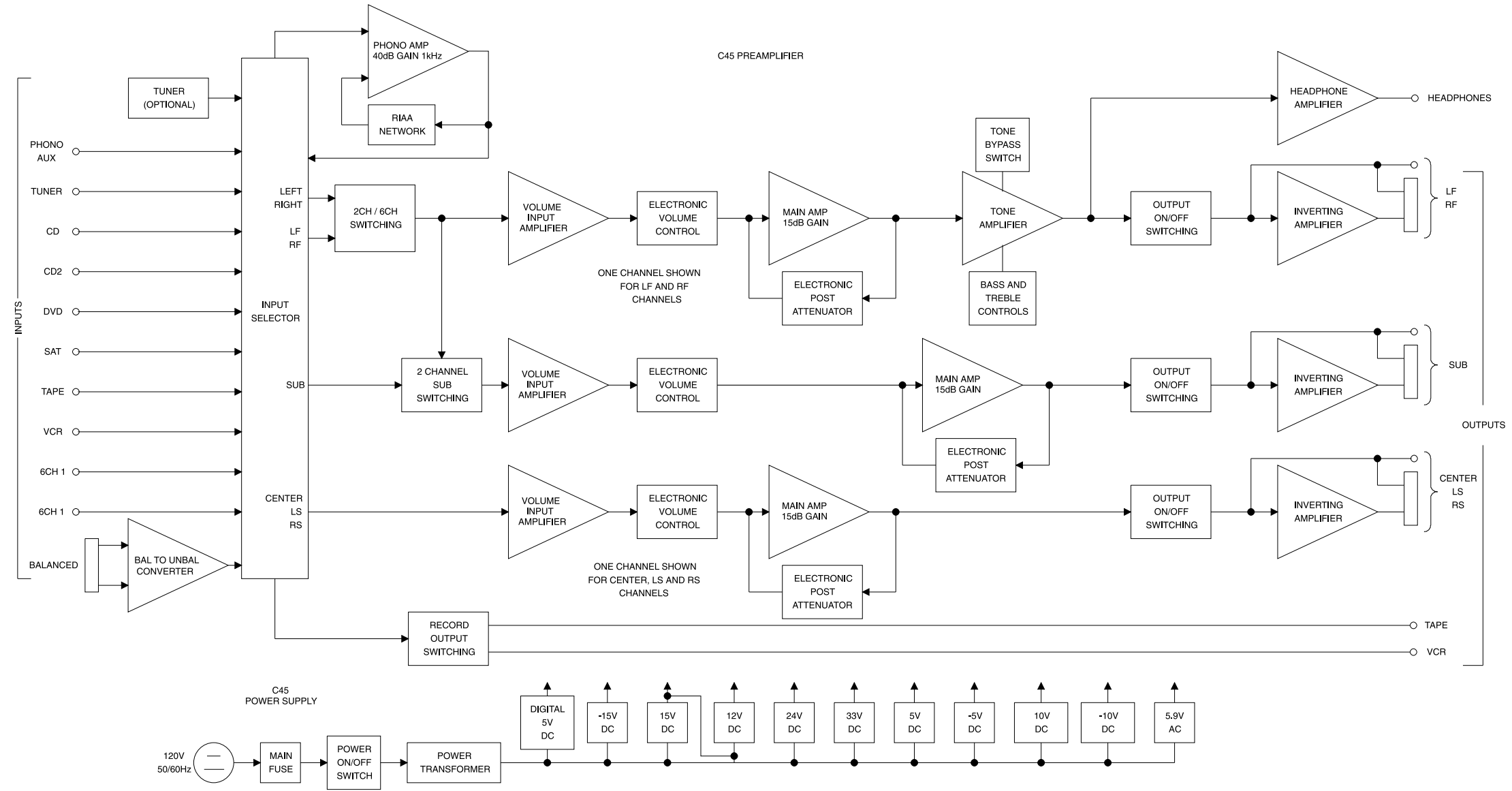
TOP VIEW WITH COVER REMOVED



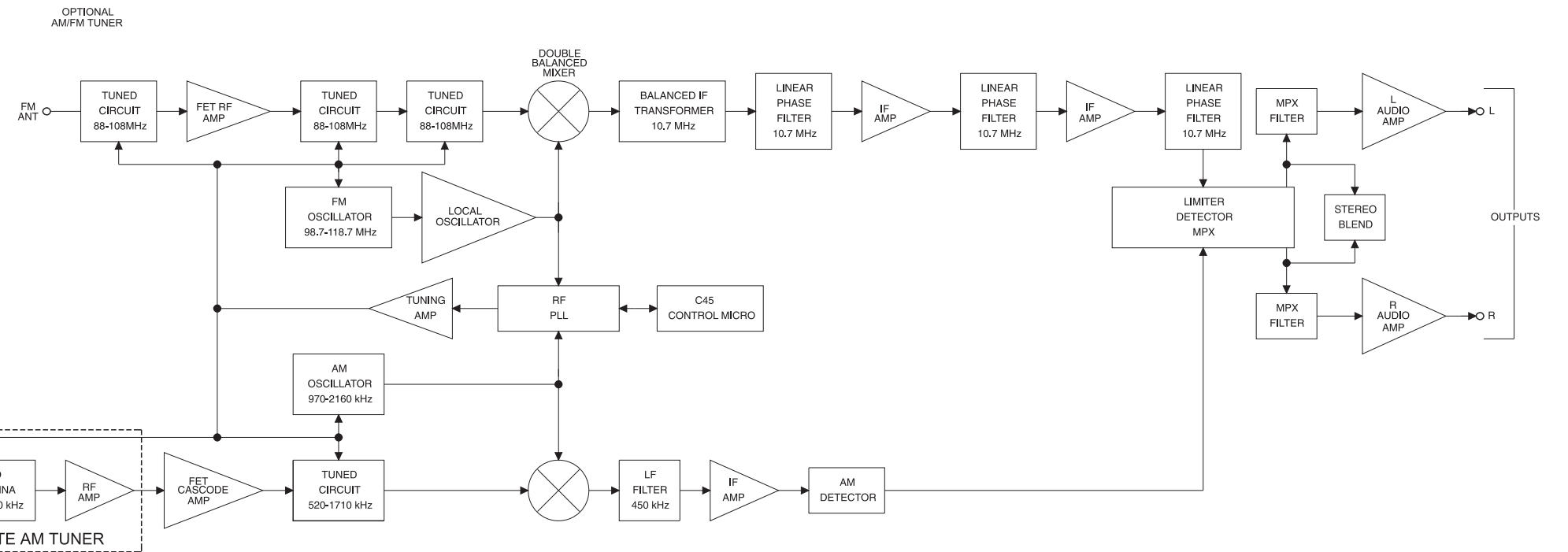
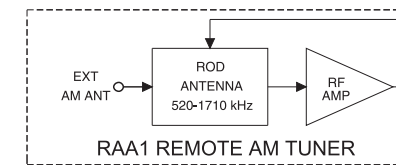
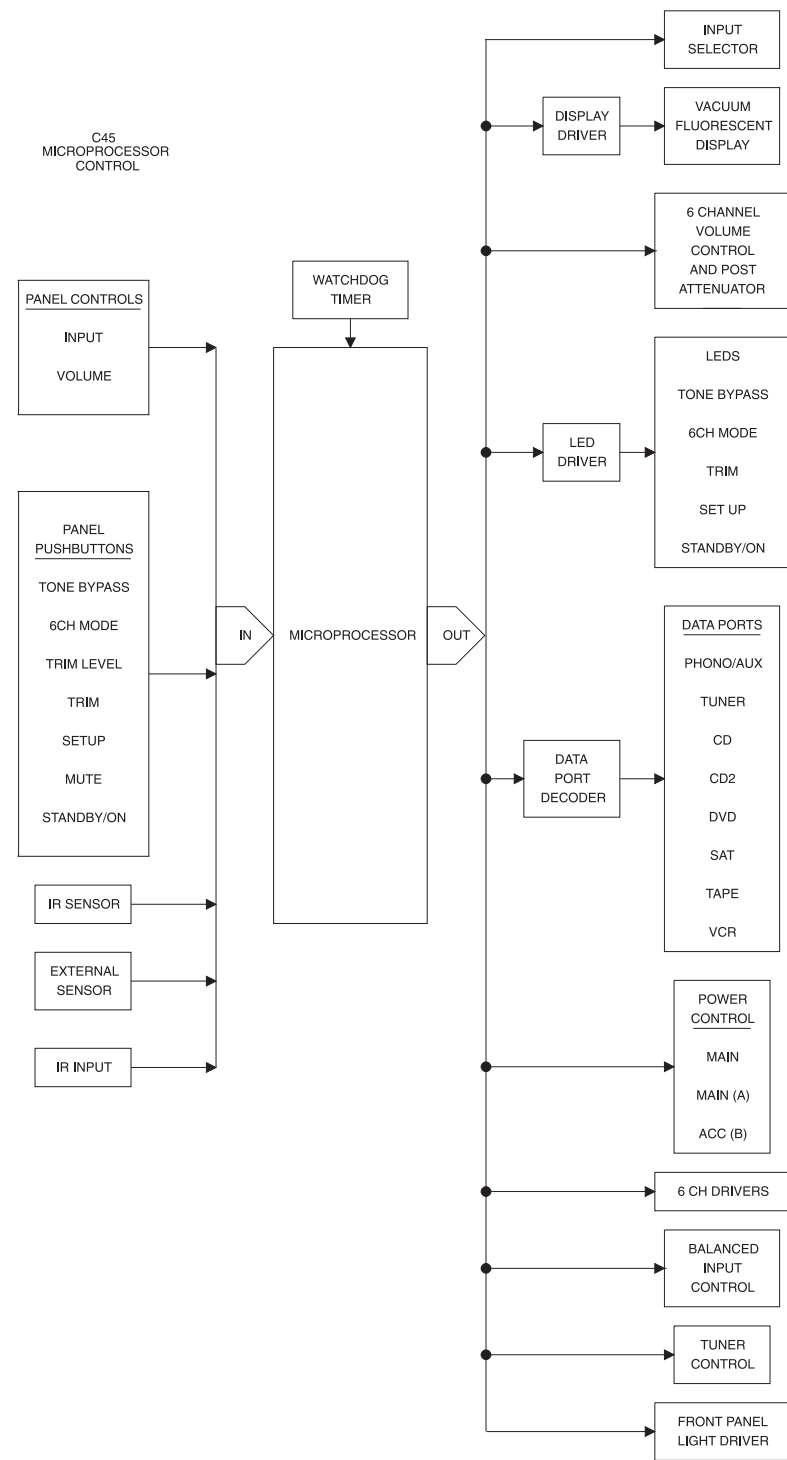
REAR VIEW



BLOCK DIAGRAM

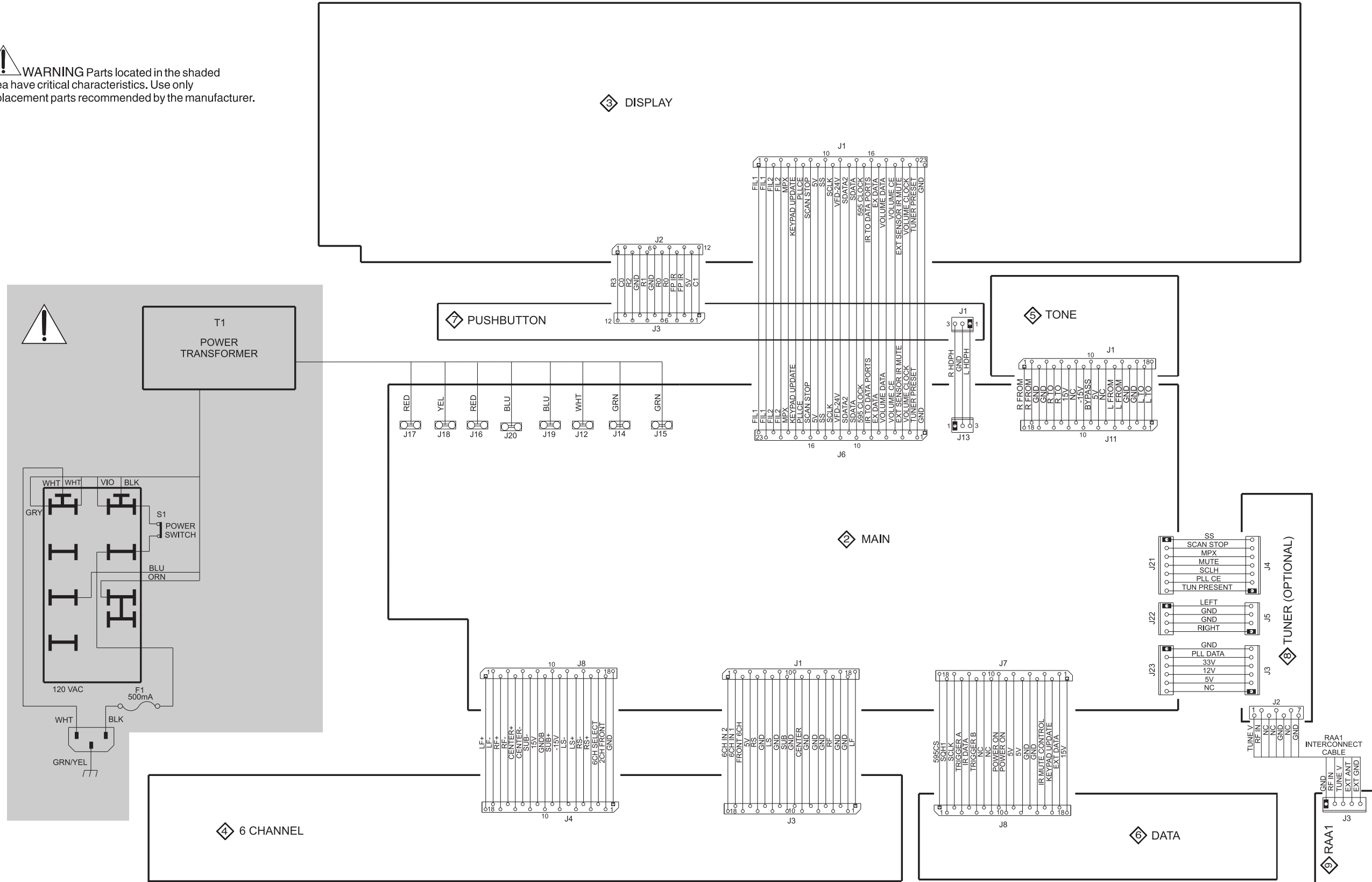


BLOCK DIAGRAM con't

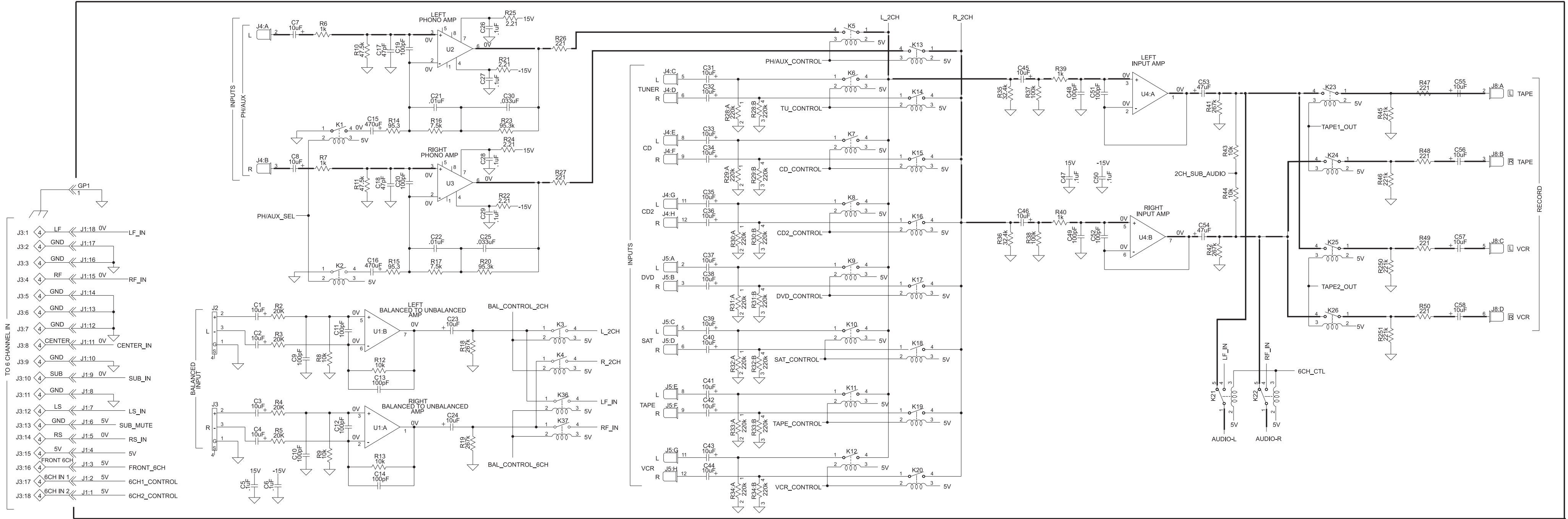


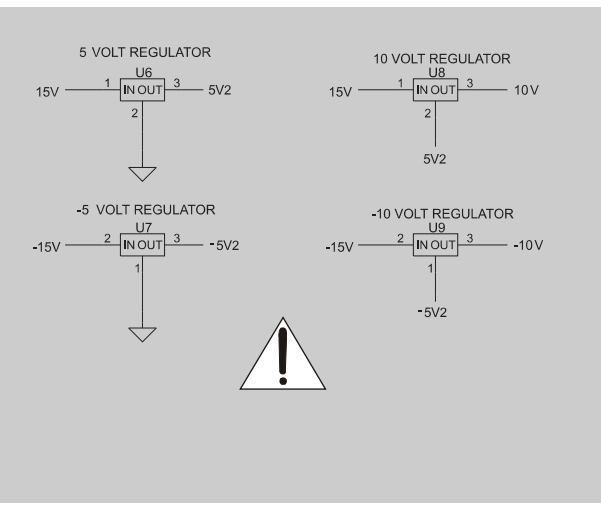
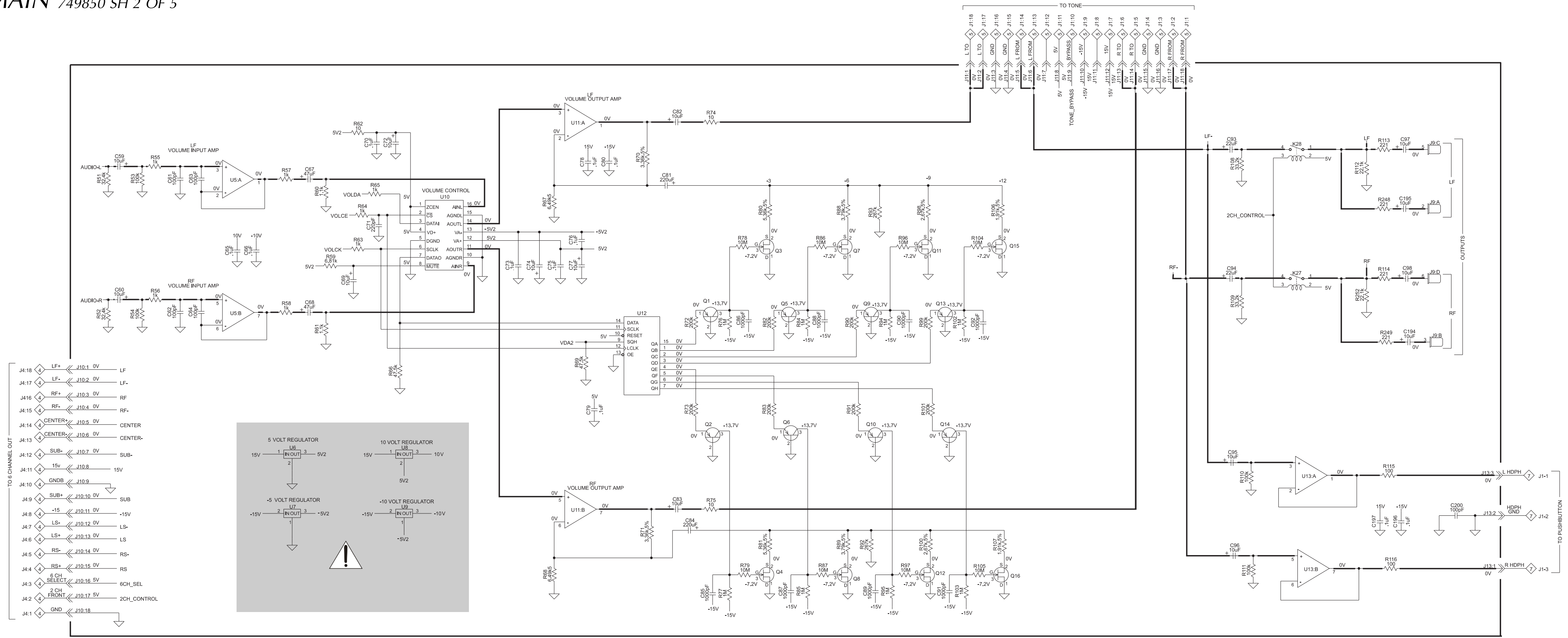
1 INTERCONNECT

! WARNING Parts located in the shaded area have critical characteristics. Use only replacement parts recommended by the manufacturer.

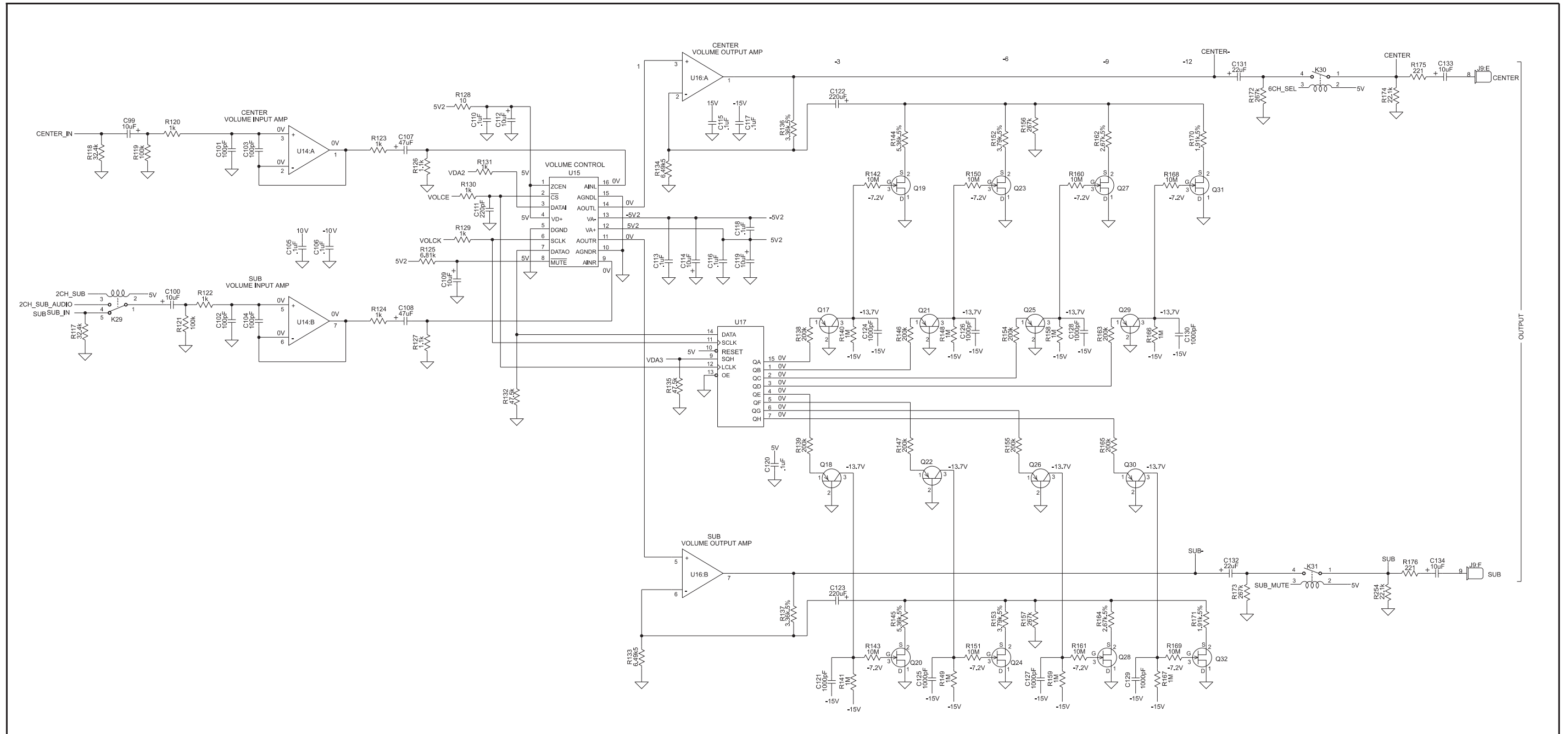


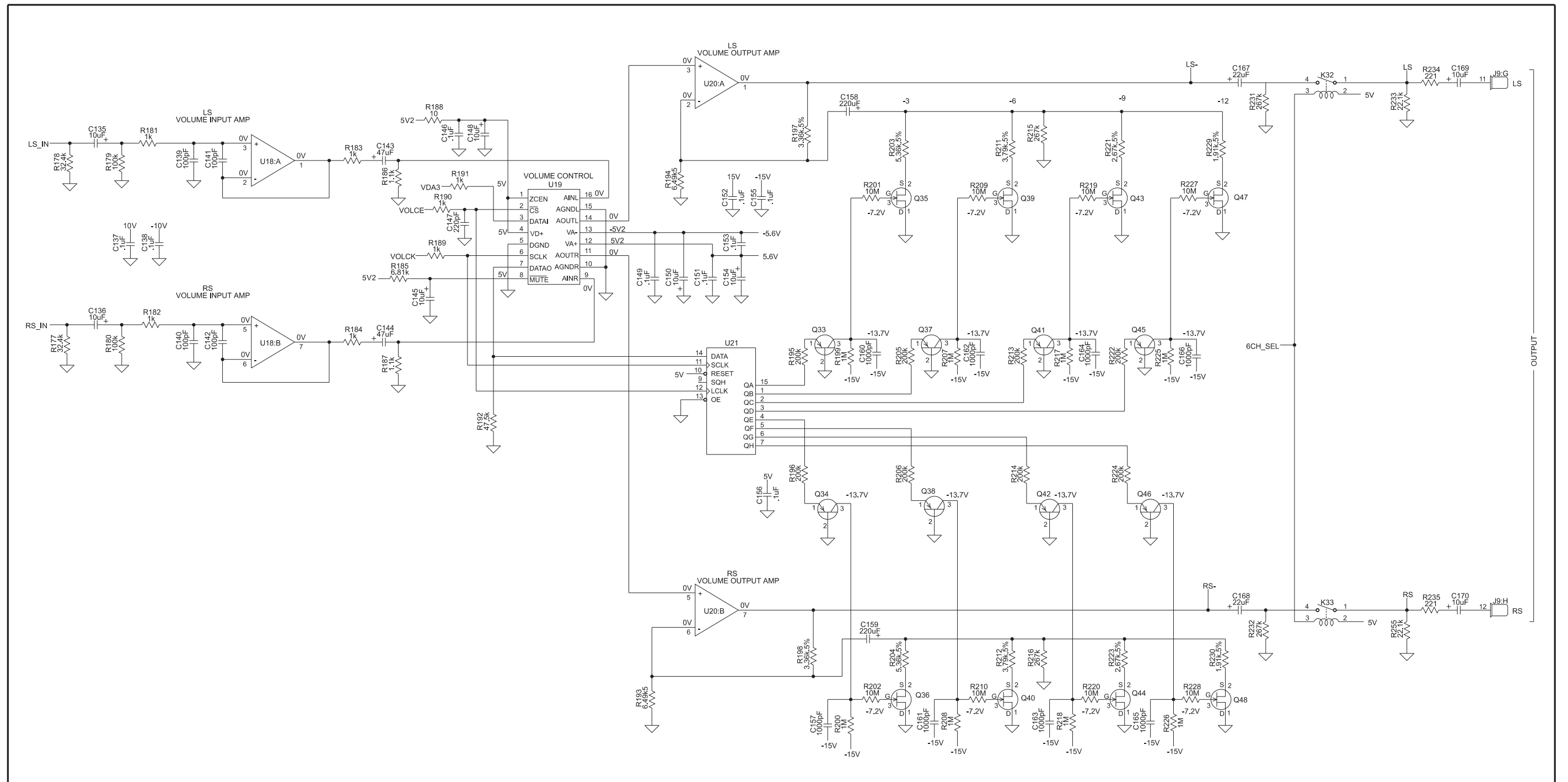
NOTES



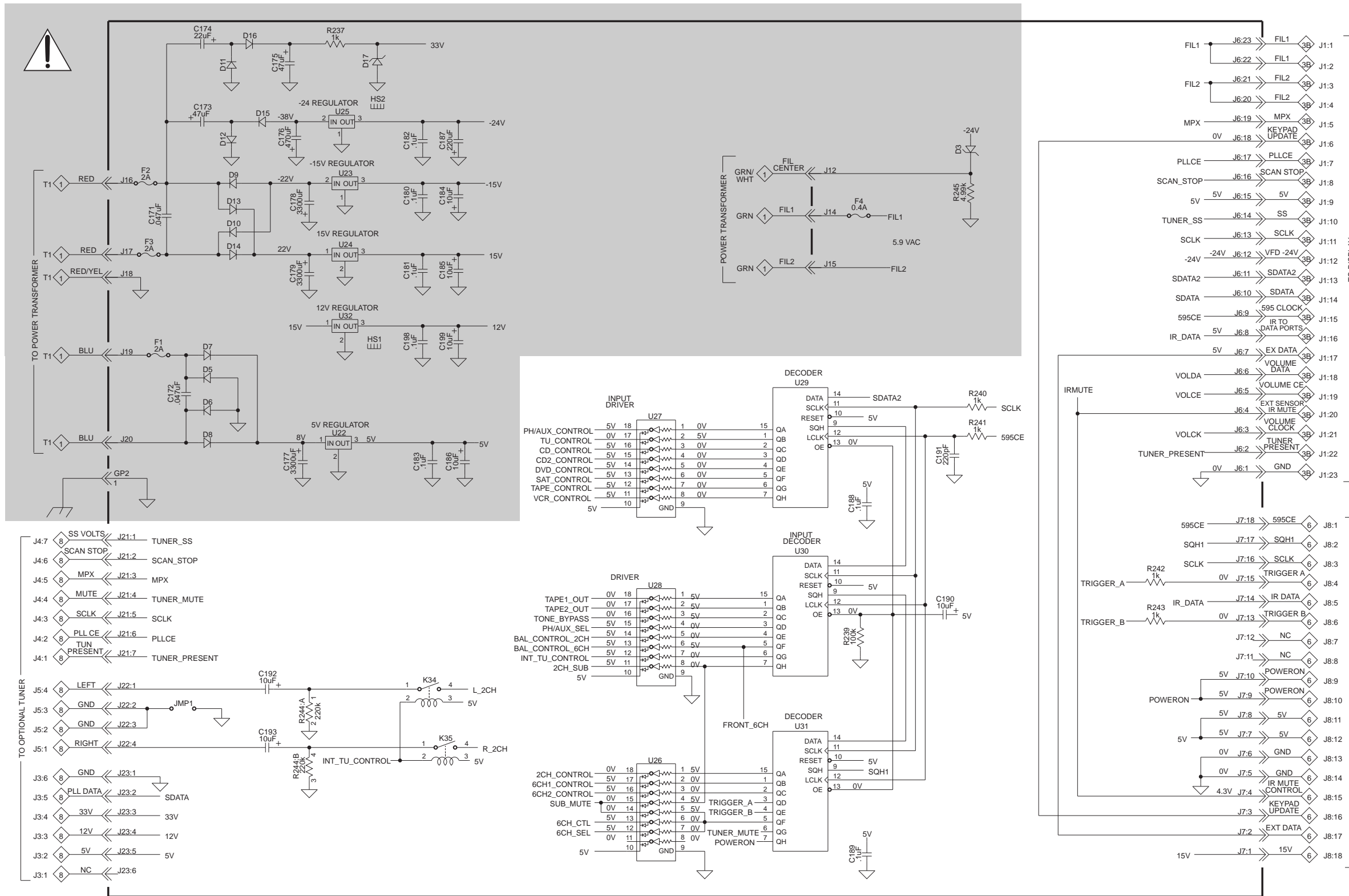


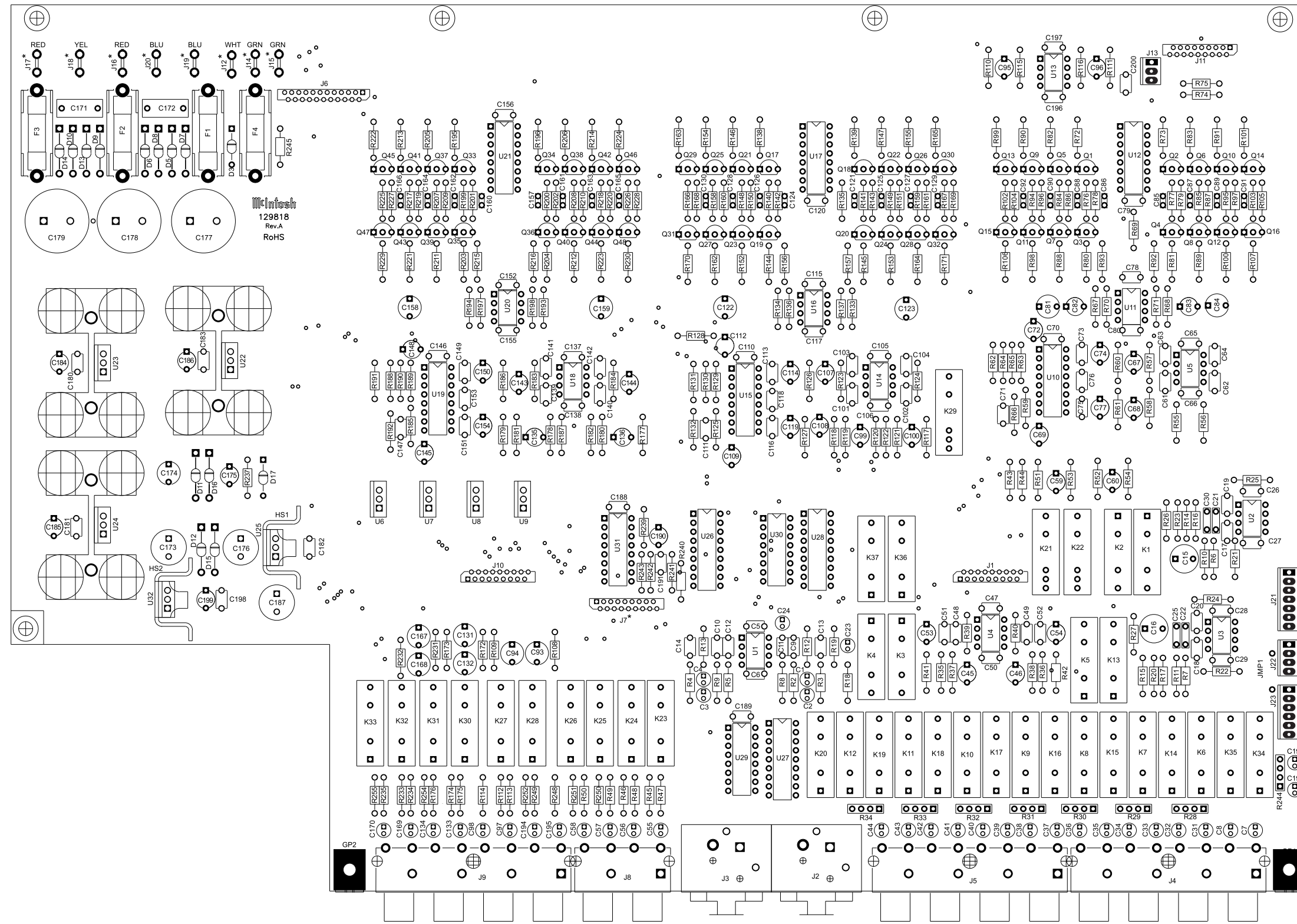
WARNING Parts located in the shaded area have critical characteristics. Use only replacement parts recommended by the manufacturer.





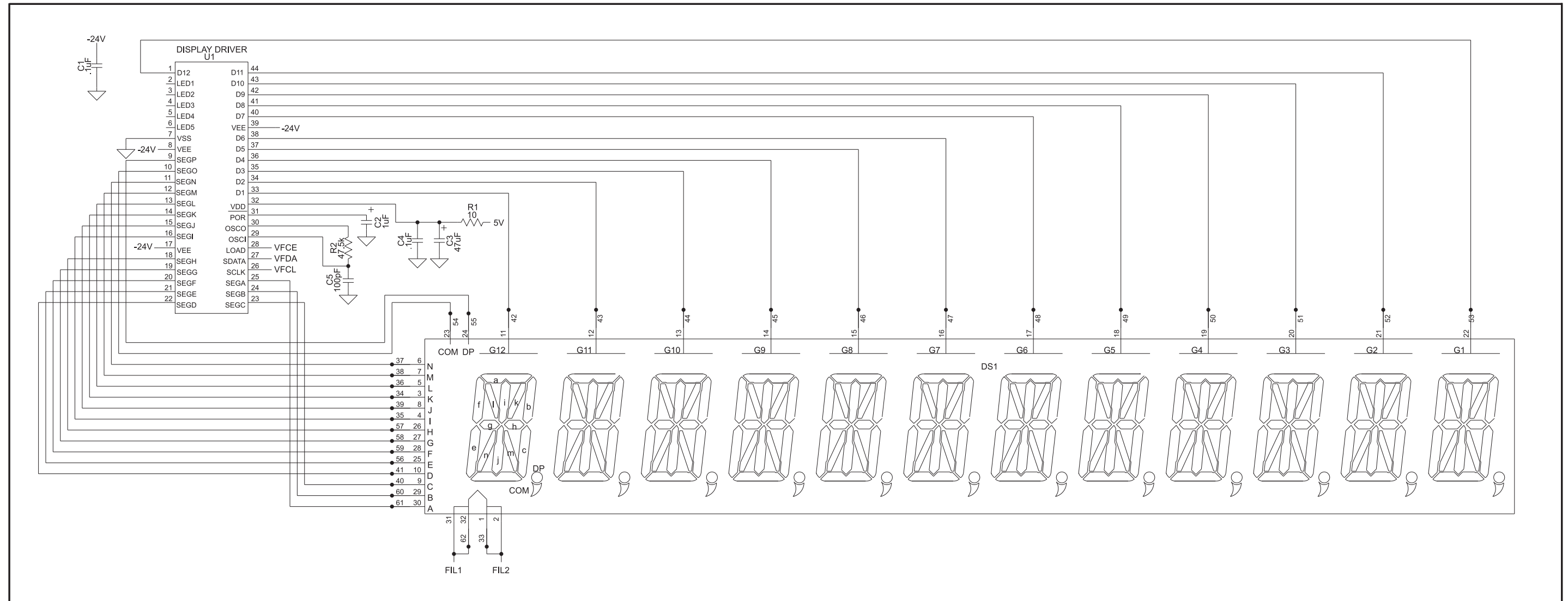
! WARNING Parts located in the shaded area have critical characteristics. Use only replacement parts recommended by the manufacturer.



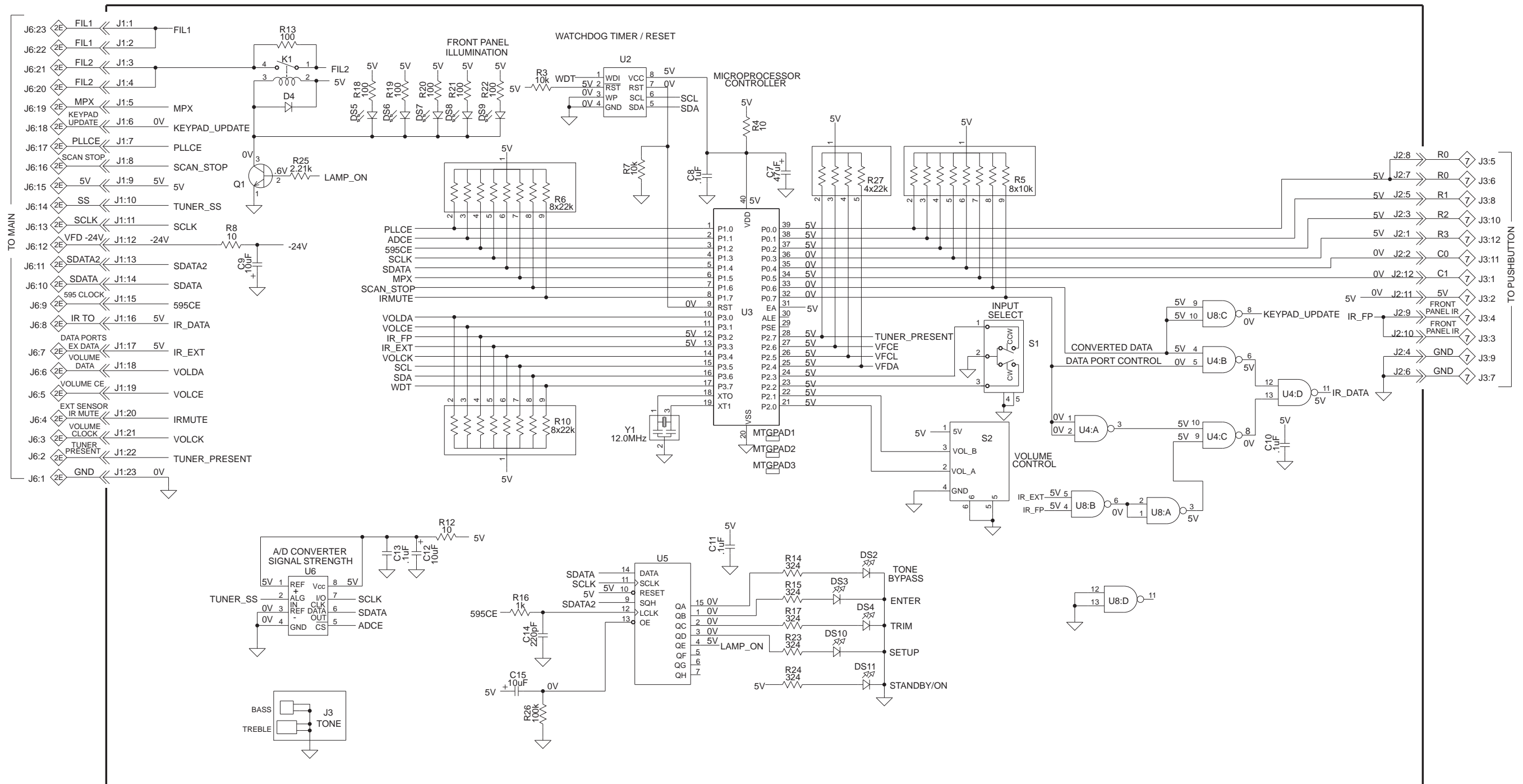


* DENOTES COMPONENTS ON FARSIDE OF PCB

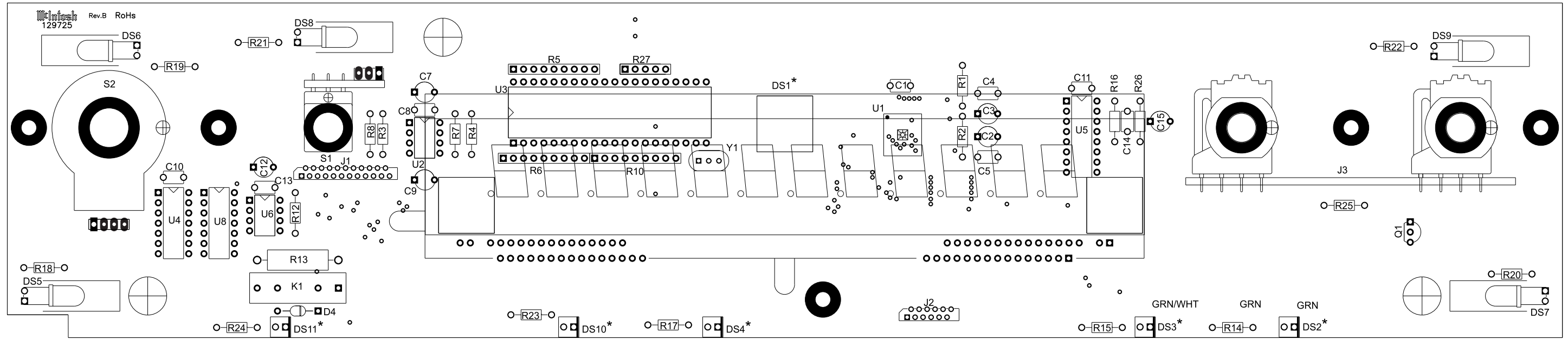
3A DISPLAY 749851 SH 1 OF 2



3B DISPLAY 749851 SH 2 OF 2

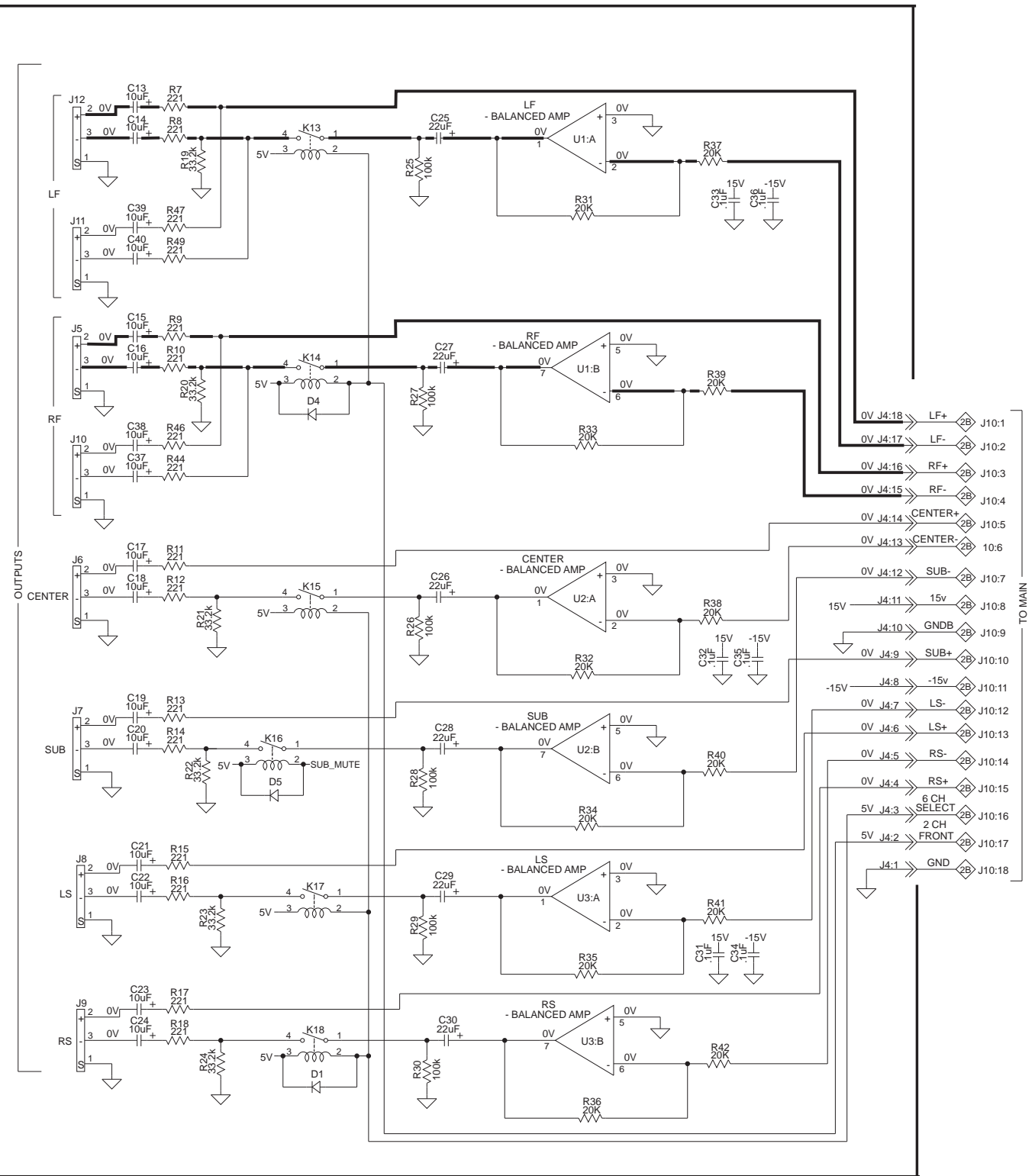
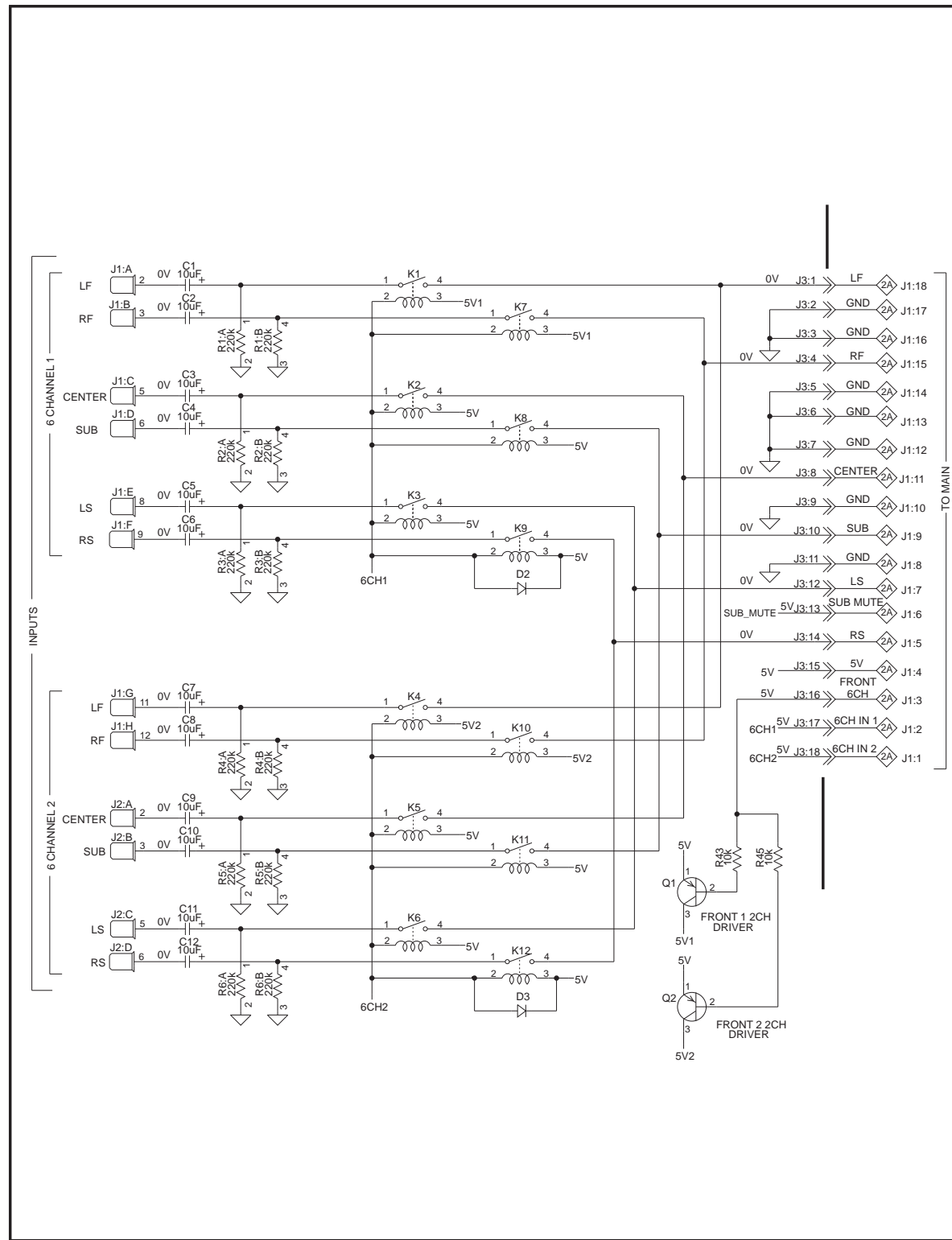


3 DISPLAY 749851 PCB

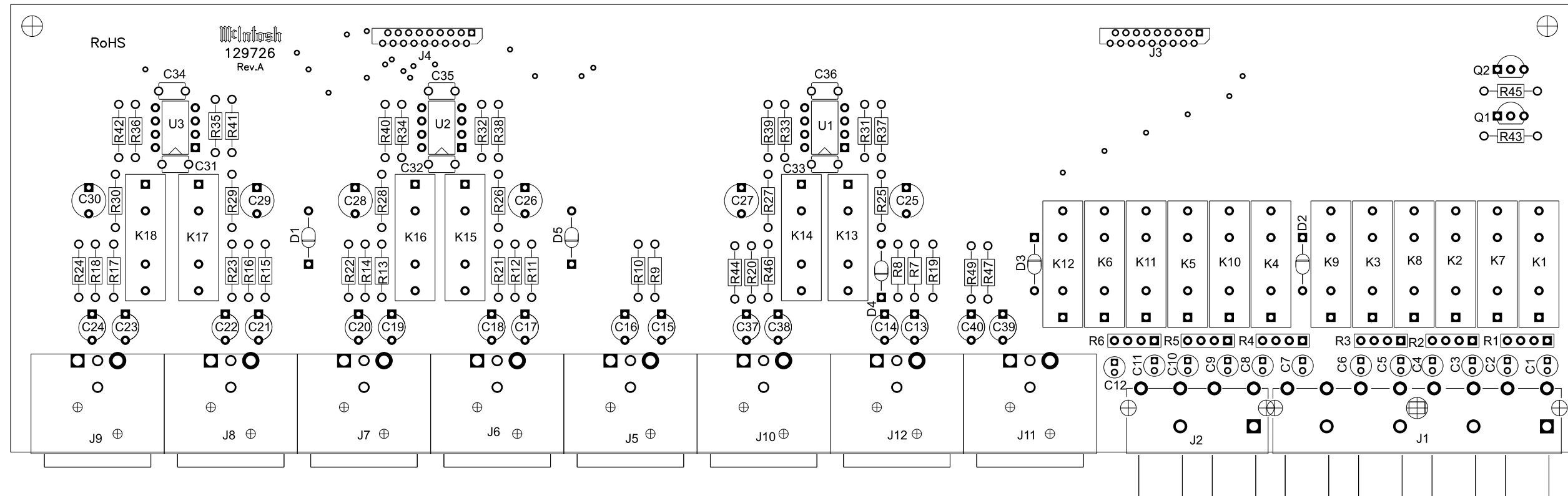


* DENOTES COMPONENTS ON FAR SIDE OF PCB

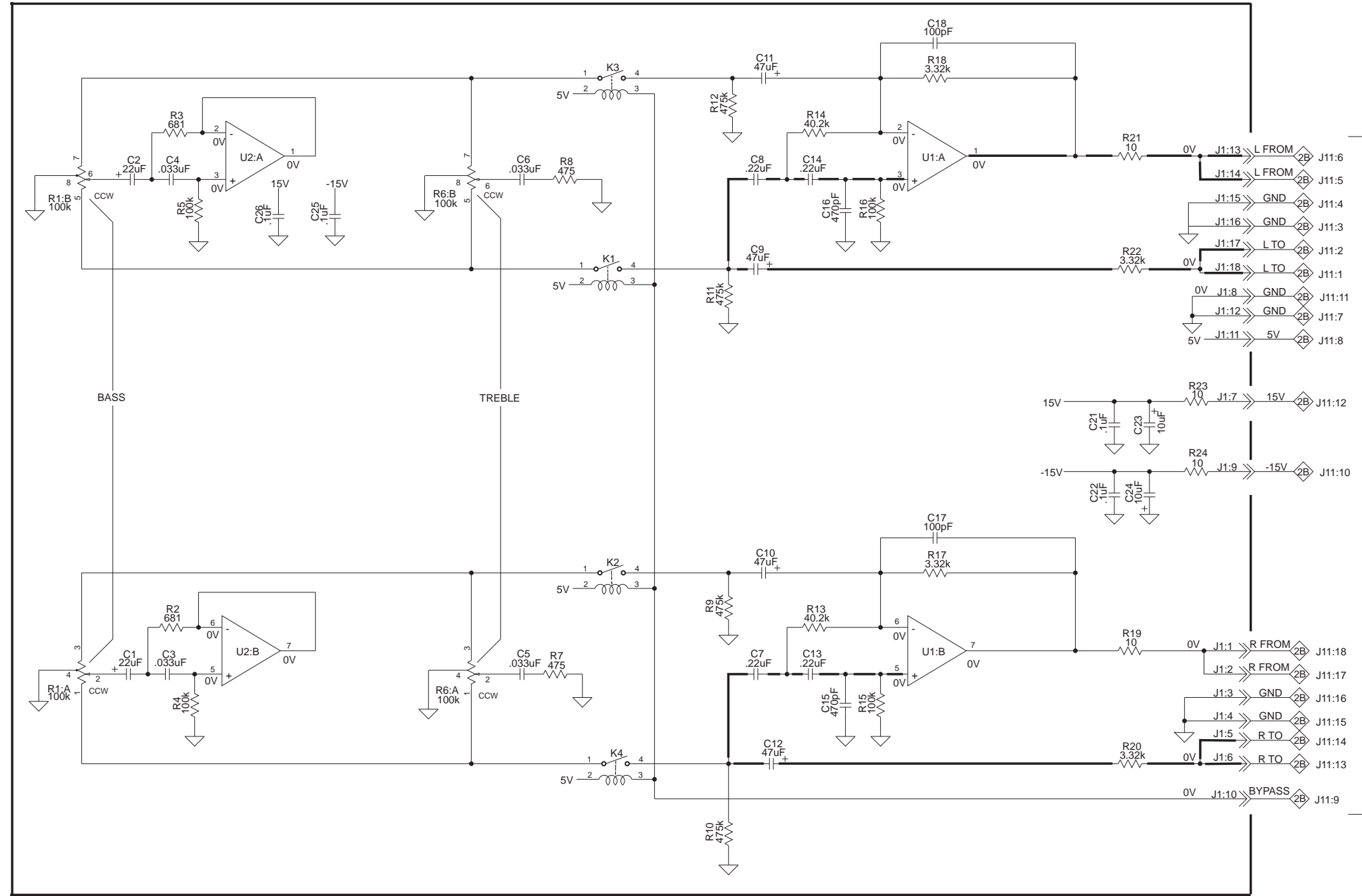
4 6 CHANNEL 749852 SCH



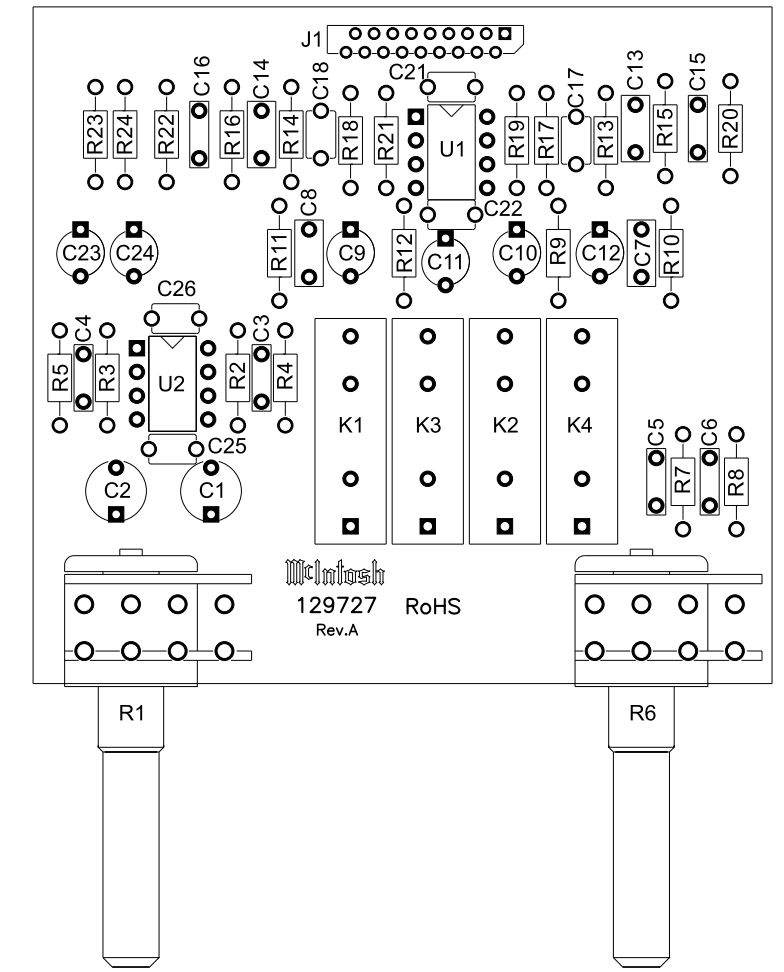
4 6 CHANNEL 749852 PCB



5 TONE 749853 SCH and PCB

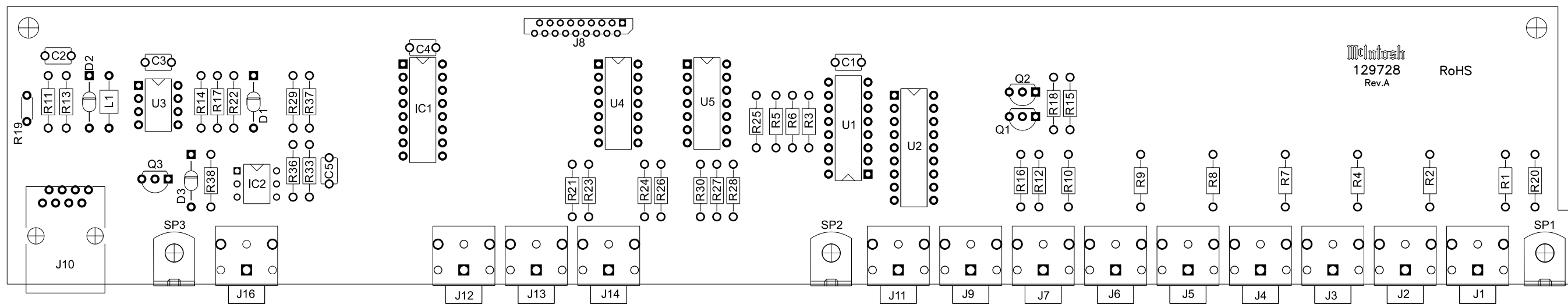
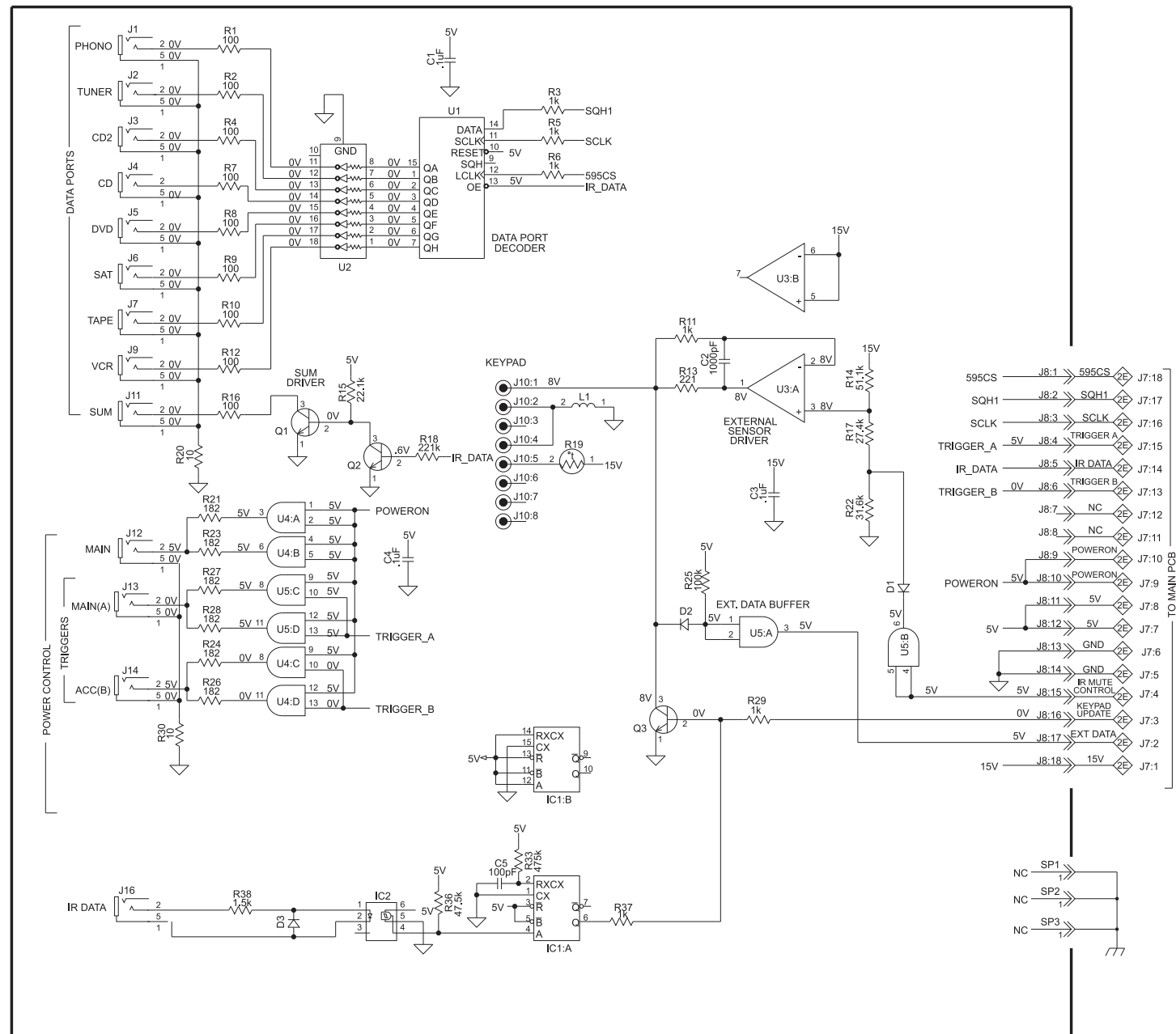


TO MAIN

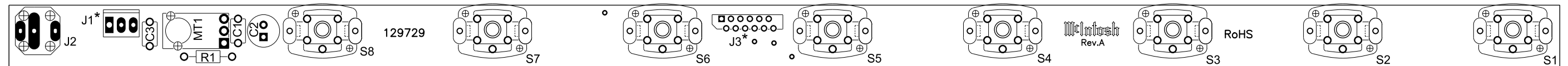
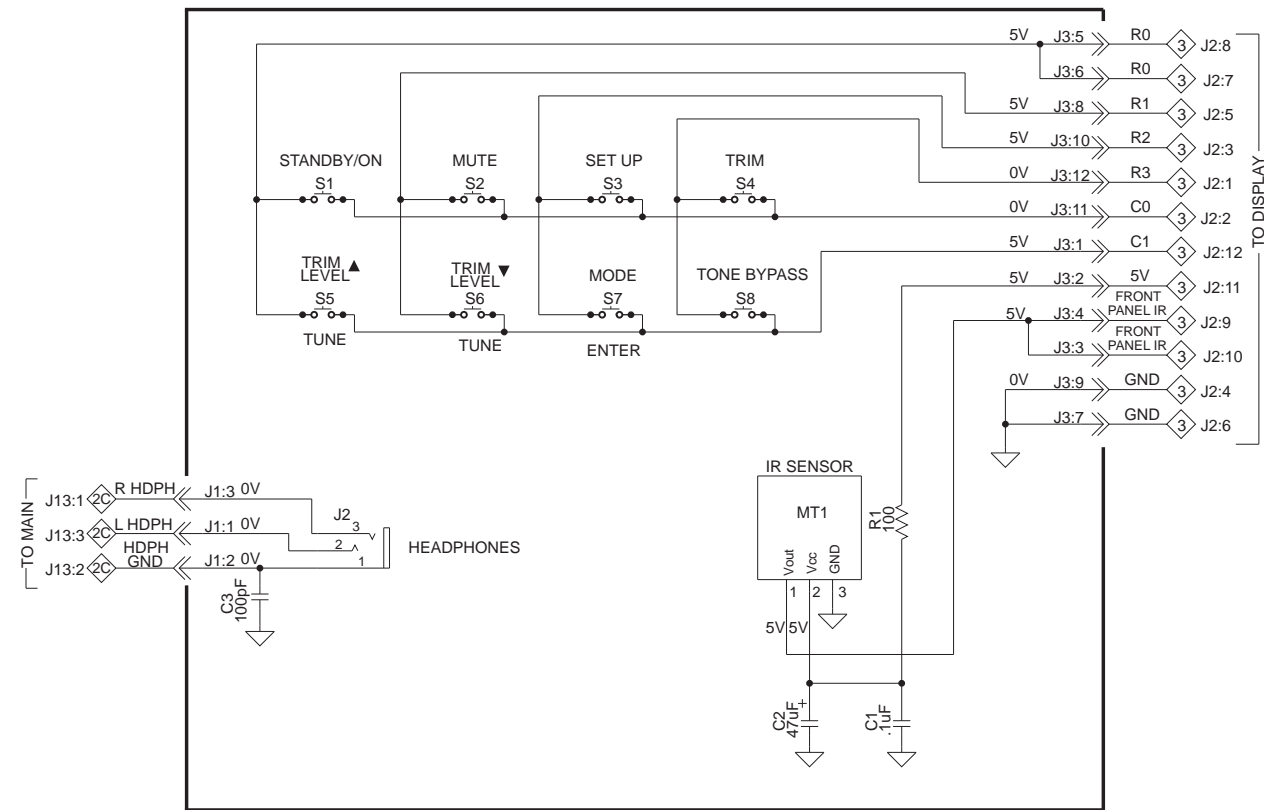


6 DATA 749854 SCH and PCB

C45

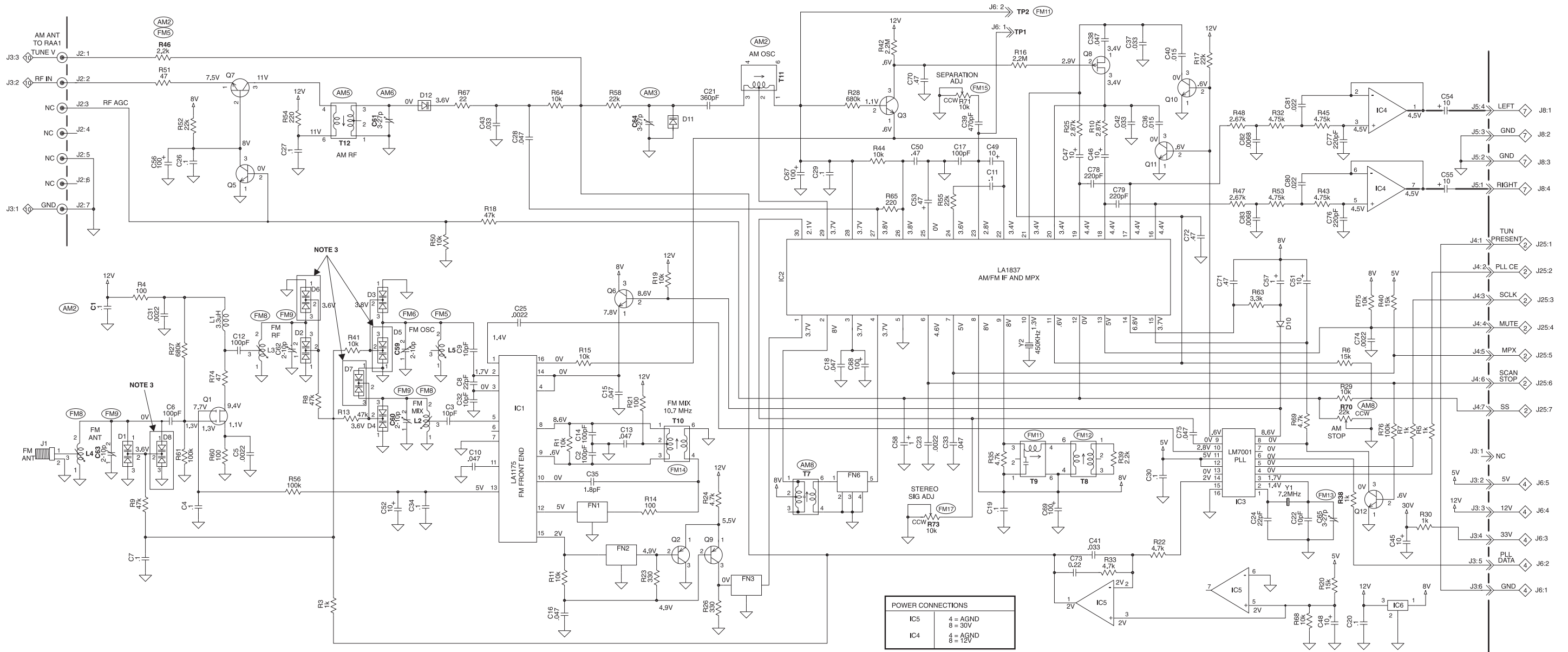


7 PUSHBUTTON 749855 SCH and PCB

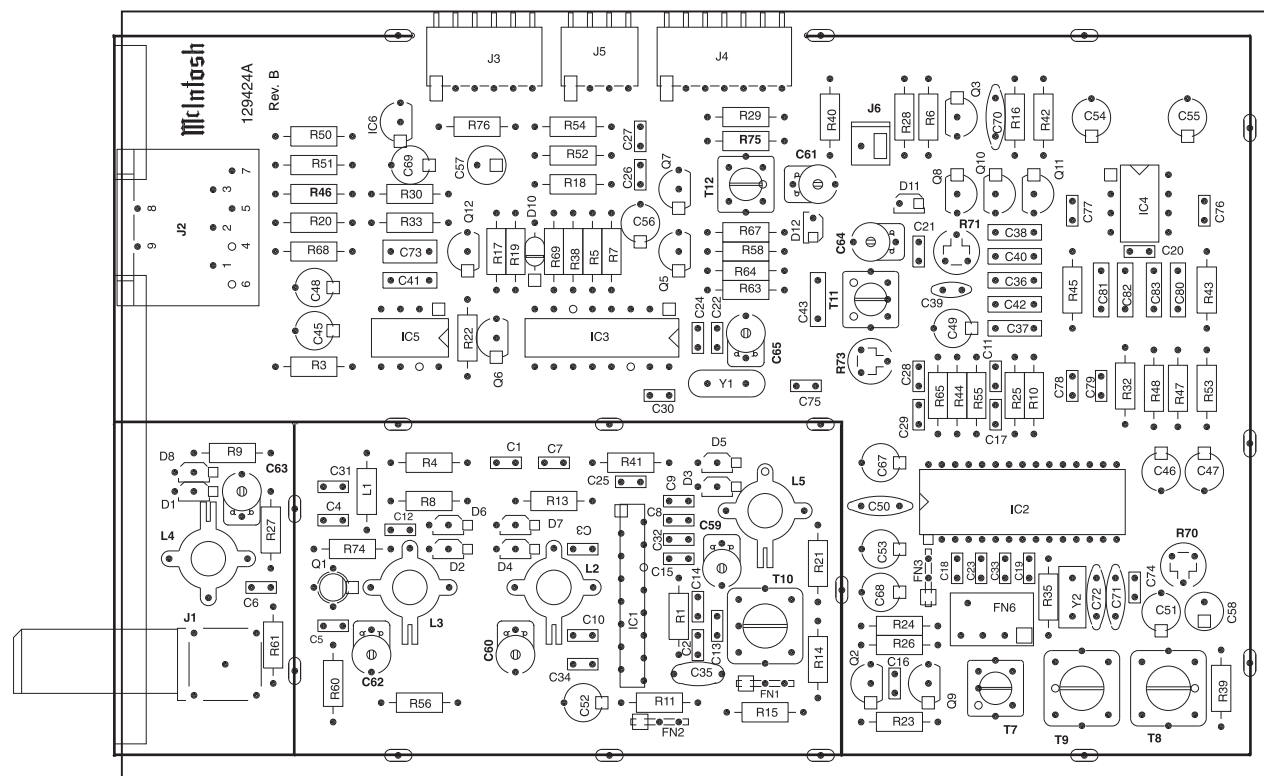


*DENOTES COMPONENTS ON FAR SIDE OF PCB

8 TUNER 049084 SCH

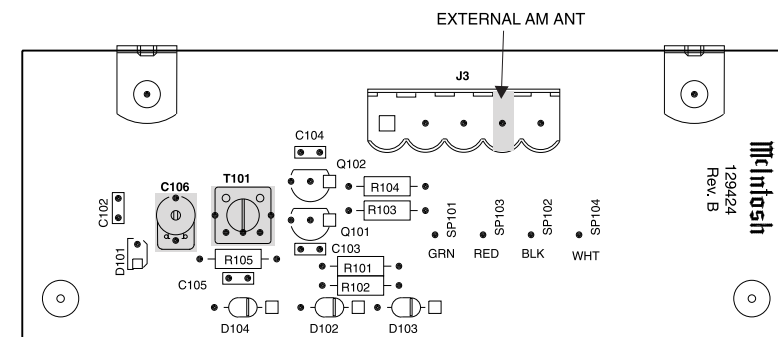
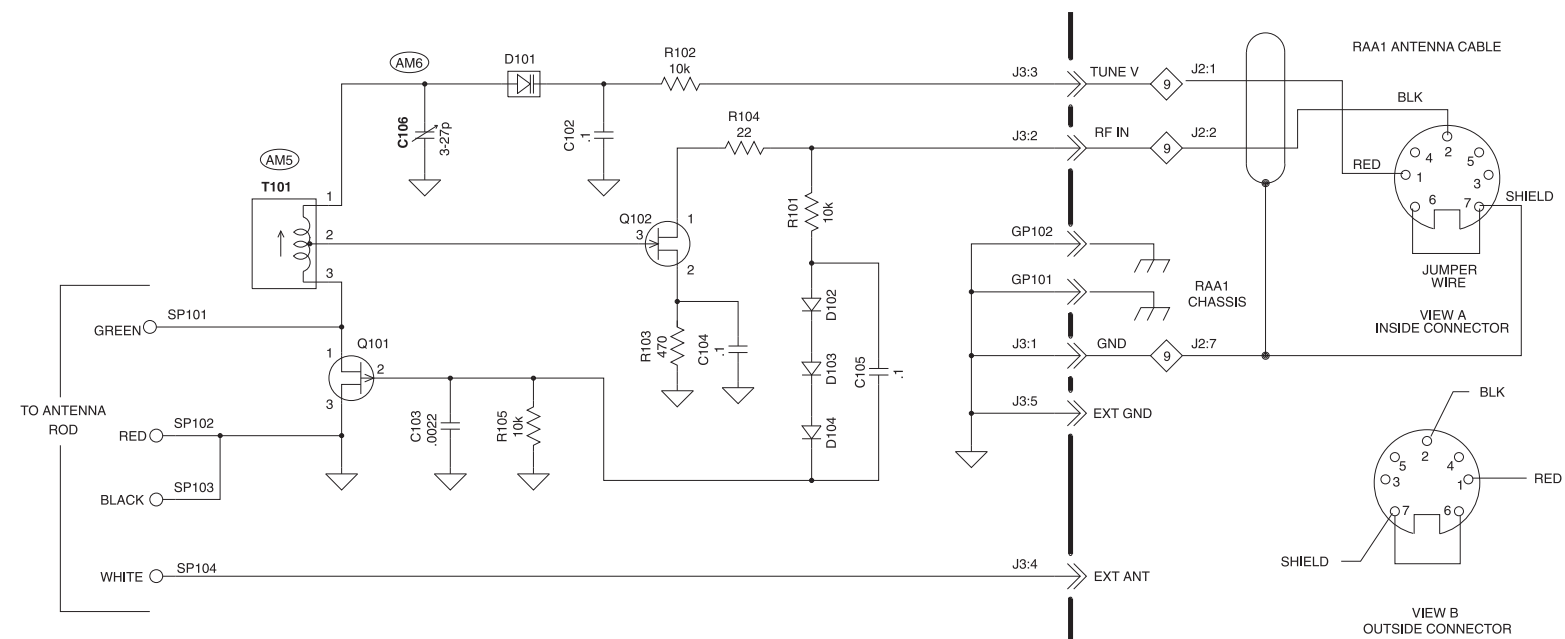


8 TUNER 049084 PCB



NOTE: SEE PAGE 47 - 48 FOR TUNER ALIGNMENT PROCEDURE.

9 RAA1 SECTION



TUNER ALIGNMENT PROCEDURE

Note: Refer to Figure 1 while reading the below procedure.

C45 Tuner: FM ALIGNMENT PROCEDURE

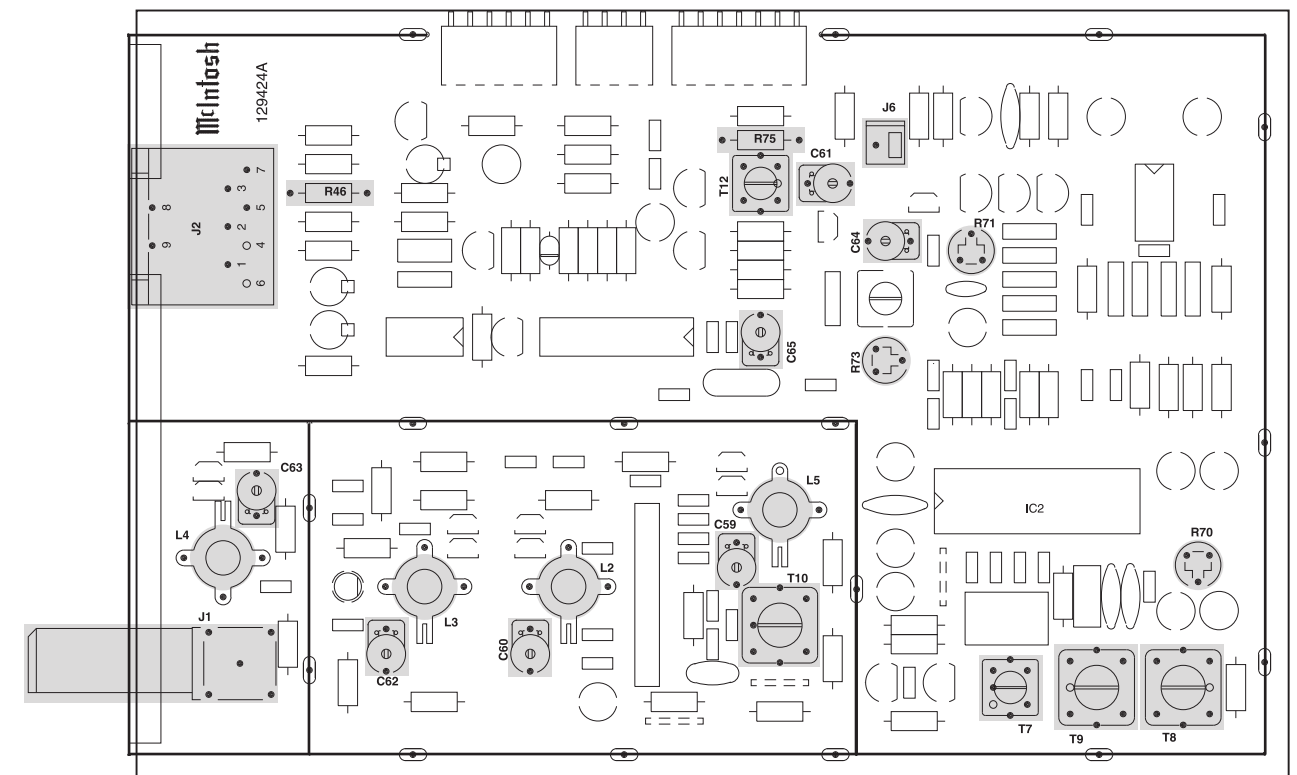
1. Connect an FM Signal Generator to Antenna Input.
2. Connect Distortion Analyzer to the TUNER IN/OUT RCA jacks.
3. Remove Top Cover and AM/FM TUNER Cover. Turn On the AC rocker switch. Press the red Standby button to turn the unit On.
4. Select Tuner with the Zone A selector knob. Put Tuner into FM mode and tune to 87.5MHz.
5. Adjust L5 (FM OSC Coil) for 3.5VDC at R46.
6. Tune to 108.5MHz and adjust C59 (FM OSC Trimmer Capacitor) for 24.5VDC at R46.
7. Repeat steps 4, 5 and 6 as necessary for a tuning range of 3.5VDC to 24.5VDC at R46.
8. Tune the Generator and Tuner to 90MHz and adjust Coils: L2 (FM MIX), L3 (FM RF) and L4 (FM ANT) for best sensitivity.
9. Tune the Generator and Tuner to 104MHz and adjust Trimmer Capacitors: C60 (FM MIX), C62 (FM RF) and C63 (FM ANT) for best sensitivity.
10. Repeat 8 and 9 until no improvement in sensitivity is noted.
11. Tune Tuner to 90MHz with no RF Input and adjust T9 (FM DETector Primary) for zero volts between TP1 and TP2 relative (connector J6).
12. Tune the Generator to 90MHz and adjust the RF Output to 1000uV and 100% MONO modulation at 1000Hz. Then adjust T8 (FM DETector SECondary) for lowest distortion.
13. Reduce the Generator Output to minimum and detune the Generator so the Receiver picks up only noise, then recheck the voltage between TP1 and TP2 (connector J6). Adjust T8 and C65 if needed.
If it is not 0+/- 0.2VDC, repeat steps 11 and 12. If there is interference from a station on this frequency, tune the Tuner to a nearby frequency free from interference for this measurement.
14. Tune the Generator to 90MHz with a 1000uV output. Then switch the Generator to stereo (left only) and adjust T10 (FM IF Transformer) for the lowest distortion at the TUNER IN/OUT RCA jacks.
15. Switch the Analyzer to the right channel TUNER IN/OUT jack and adjust R71 (MPX SEParation Pot) for best separation (minimum output).
16. Switch the Generator to the Right Channel and the Analyzer to the Left Channel. Adjust R71 (MPX SEParation Pot) and check for best separation (minimum output).
17. Disconnect voltmeter from TP1 and TP2 (J6). Reduce the generator output to 5uV and adjust R73 (STEREO SWITCH Pot) so the MPX light (Dot next to Signal Strength number) just comes on.

C45 Tuner: AM ALIGNMENT PROCEDURE

1. Connect an AM Signal Generator to the RAA1 "EXT ANT" pin of the 5 pin connector. Connect a Distortion Analyzer to the C45 rear panel TUNER IN/OUT RCA jacks.
2. Tune to bottom of band, and adjust T11 (AM OSC Coil) for 3.0VDC at R46.
3. Tune to top of band and adjust C64 (AM OSC Trimmer Capacitor) for 26.0VDC at Connector R46.
4. Repeat steps 4 and 5 as necessary for a Tuning Voltage Range of 3.0 to 26.0VDC.
5. Tune the Generator and Tuner to 600kHz, then adjust Coils: T101 (AM ANT) and T12 (AM RF) for best sensitivity.
Note: Coil T101 (AM ANT) is located on the RAA1. It is labeled "L1".
6. Tune the Generator and Tuner to 1400kHz, then adjust Trimmer Capacitors: C106 (AM ANT) and C61 (AM RF) for best sensitivity. *Note: Trimmer Capacitor C106 (AM AMT) is located on the RAA1. It is labeled "C1".*
7. Repeat 8 and 9 until no improvement in sensitivity is noted.

8. Note the initial position of R70, and then adjust R70 fully counter clockwise. Tune the Generator and Tuner to 1400kHz (20uV, 30% modulation), then Adjust T7 (AM IF) for maximum signal.
9. Tune the Generator and Tuner to 1400kHz (100mV, 30% modulation). Slowly adjust R70 clockwise until the C45 front panel signal strength display reads "9".
10. Check both channels for signal to noise performance, and re-adjust R70 and as needed.

Figure 1



NOTES

PARTS LIST

① INTERCONNECT

Ref. No.	Description	Part No.
F1	FUSE .5A SLO-BLO 5X20	089126
S1	POWER SWITCH	171026
T1	POWER TRANSFORMER	159340

② MAIN PCB 749850

C1	CAP ELECT 10UF 16V	066580
C2	CAP ELECT 10UF 16V	066580
C3	CAP ELECT 10UF 16V	066580
C4	CAP ELECT 10UF 16V	066580
C5	CAP MONO .1UF 50V 20% Z5U	061346
C6	CAP MONO .1UF 50V 20% Z5U	061346
C7	CAP ELECT 10UF 16V	066580
C8	CAP ELECT 10UF 16V	066580
C9	CAP MONO 100PF 100V 10% NPO	061341
C10	CAP MONO 100PF 100V 10% NPO	061341
C11	CAP MONO 100PF 100V 10% NPO	061341
C12	CAP MONO 100PF 100V 10% NPO	061341
C13	CAP MONO 100PF 100V 10% NPO	061341
C14	CAP MONO 100PF 100V 10% NPO	061341
C15	CAP ELECT 470UF 16V	066508
C16	CAP ELECT 470UF 16V	066508
C17	CAP MONO 47PF 200V 10% NPO	061340
C18	CAP MONO 47PF 200V 10% NPO	061340
C19	CAP MONO 100PF 100V 10% NPO	061341
C20	CAP MONO 100PF 100V 10% NPO	061341
C21	CAP MPF 0.01UF 5% 63VDC	064312
C22	CAP MPF 0.01UF 5% 63VDC	064312
C23	CAP ELECT 10UF 16V	066580
C24	CAP ELECT 10UF 16V	066580
C25	CAP MPF 0.033UF 5% 63VDC	064318
C26	CAP MONO .1UF 50V 20% Z5U	061346
C27	CAP MONO .1UF 50V 20% Z5U	061346
C28	CAP MONO .1UF 50V 20% Z5U	061346
C29	CAP MONO .1UF 50V 20% Z5U	061346
C30	CAP MPF 0.033UF 5% 63VDC	064318
C31	CAP ELECT 10UF 16V	066580
C32	CAP ELECT 10UF 16V	066580
C33	CAP ELECT 10UF 16V	066580
C34	CAP ELECT 10UF 16V	066580
C35	CAP ELECT 10UF 16V	066580
C36	CAP ELECT 10UF 16V	066580
C37	CAP ELECT 10UF 16V	066580
C38	CAP ELECT 10UF 16V	066580
C39	CAP ELECT 10UF 16V	066580
C40	CAP ELECT 10UF 16V	066580
C41	CAP ELECT 10UF 16V	066580
C42	CAP ELECT 10UF 16V	066580
C43	CAP ELECT 10UF 16V	066580
C44	CAP ELECT 10UF 16V	066580
C45	CAP ELECT 10UF 50V	066445
C46	CAP ELECT 10UF 50V	066445
C47	CAP MONO .1UF 50V 20% Z5U	061346
C48	CAP MONO 100PF 100V 10% NPO	061341
C49	CAP MONO 100PF 100V 10% NPO	061341
C50	CAP MONO .1UF 50V 20% Z5U	061346
C51	CAP MONO 100PF 100V 10% NPO	061341
C52	CAP MONO 100PF 100V 10% NPO	061341
C53	CAP ELECT 47UF 35V	066446
C54	CAP ELECT 47UF 35V	066446

Ref. No.	Description	Part No.
C55	CAP ELECT 10UF 16V	066580
C56	CAP ELECT 10UF 16V	066580
C57	CAP ELECT 10UF 16V	066580
C58	CAP ELECT 10UF 16V	066580
C59	CAP ELECT 10UF 50V	066445
C60	CAP ELECT 10UF 50V	066445
C69	CAP ELECT 10UF 50V	066445
C61	CAP MONO 100PF 100V 10% NPO	061341
C62	CAP MONO 100PF 100V 10% NPO	061341
C63	CAP MONO 100PF 100V 10% NPO	061341
C64	CAP MONO 100PF 100V 10% NPO	061341
C65	CAP MONO .1UF 50V 20% Z5U	061346
C66	CAP MONO .1UF 50V 20% Z5U	061346
C67	CAP ELECT 47UF 35V	066446
C68	CAP ELECT 47UF 35V	066446
C70	CAP MONO .1UF 50V 20% Z5U	061346
C71	CAP MONO 220PF 200V 10% NPO	061342
C72	CAP ELECT 10UF 50V	066445
C73	CAP MONO .1UF 50V 20% Z5U	061346
C74	CAP ELECT 10UF 50V	066445
C75	CAP MONO .1UF 50V 20% Z5U	061346
C76	CAP MONO .1UF 50V 20% Z5U	061346
C77	CAP ELECT 10UF 50V	066445
C78	CAP MONO .1UF 50V 20% Z5U	061346
C79	CAP MONO .1UF 50V 20% Z5U	061346
C80	CAP MONO .1UF 50V 20% Z5U	061346
C81	CAP ELECT 220UF 25V	066507
C82	CAP ELECT 10UF 50V	066445
C83	CAP ELECT 10UF 50V	066445
C84	CAP ELECT 220UF 25V	066507
C85	CAP MONO 0.001UF 100V NPO	061322
C86	CAP MONO 0.001UF 100V NPO	061322
C87	CAP MONO 0.001UF 100V NPO	061322
C88	CAP MONO 0.001UF 100V NPO	061322
C89	CAP MONO 0.001UF 100V NPO	061322
C90	CAP MONO 0.001UF 100V NPO	061322
C91	CAP MONO 0.001UF 100V NPO	061322
C92	CAP MONO 0.001UF 100V NPO	061322
C93	CAP ELECT 22UF 100V	066574
C94	CAP ELECT 22UF 100V	066574
C95	CAP ELECT 10UF 50V	066445
C96	CAP ELECT 10UF 50V	066445
C97	CAP ELECT 10UF 16V	066580
C98	CAP ELECT 10UF 16V	066580
C99	CAP ELECT 10UF 50V	066445
C100	CAP ELECT 10UF 50V	066445
C101	CAP MONO 100PF 100V 10% NPO	061341
C102	CAP MONO 100PF 100V 10% NPO	061341
C103	CAP MONO 100PF 100V 10% NPO	061341
C104	CAP MONO 100PF 100V 10% NPO	061341
C105	CAP MONO .1UF 50V 20% Z5U	061346
C106	CAP MONO .1UF 50V 20% Z5U	061346
C107	CAP ELECT 47UF 35V	066446
C108	CAP ELECT 47UF 35V	066446
C109	CAP ELECT 10UF 50V	066445
C110	CAP MONO .1UF 50V 20% Z5U	061346
C111	CAP MONO 220PF 200V 10% NPO	061342
C112	CAP ELECT 10UF 50V	066445
C113	CAP MONO .1UF 50V 20% Z5U	061346
C114	CAP ELECT 10UF 50V	066445
C115	CAP MONO .1UF 50V 20% Z5U	061346
C116	CAP MONO .1UF 50V 20% Z5U	061346
C117	CAP MONO .1UF 50V 20% Z5U	061346

PARTS LIST *Cont'd.*

MAIN PCB 749850 (Cont'd.)

Ref. No.	Description	Part No.
C118	CAP MONO .1UF 50V 20% Z5U	061346
C119	CAP ELECT 10UF 50V	066445
C120	CAP MONO .1UF 50V 20% Z5U	061346
C121	CAP MONO 0.001UF 100V NPO	061322
C122	CAP ELECT 220UF 25V	066507
C123	CAP ELECT 220UF 25V	066507
C124	CAP MONO 0.001UF 100V NPO	061322
C125	CAP MONO 0.001UF 100V NPO	061322
C126	CAP MONO 0.001UF 100V NPO	061322
C127	CAP MONO 0.001UF 100V NPO	061322
C128	CAP MONO 0.001UF 100V NPO	061322
C129	CAP MONO 0.001UF 100V NPO	061322
C130	CAP MONO 0.001UF 100V NPO	061322
C131	CAP ELECT 22UF 100V	066574
C132	CAP ELECT 22UF 100V	066574
C133	CAP ELECT 10UF 16V	066580
C134	CAP ELECT 10UF 16V	066580
C135	CAP ELECT 10UF 50V	066445
C136	CAP ELECT 10UF 50V	066445
C137	CAP MONO .1UF 50V 20% Z5U	061346
C138	CAP MONO .1UF 50V 20% Z5U	061346
C139	CAP MONO 100PF 100V 10% NPO	061341
C140	CAP MONO 100PF 100V 10% NPO	061341
C141	CAP MONO 100PF 100V 10% NPO	061341
C142	CAP MONO 100PF 100V 10% NPO	061341
C143	CAP ELECT 47UF 35V	066446
C144	CAP ELECT 47UF 35V	066446
C145	CAP ELECT 10UF 50V	066445
C146	CAP MONO .1UF 50V 20% Z5U	061346
C147	CAP MONO 220PF 200V 10% NPO	061342
C148	CAP ELECT 10UF 50V	066445
C149	CAP MONO .1UF 50V 20% Z5U	061346
C150	CAP ELECT 10UF 50V	066445
C151	CAP MONO .1UF 50V 20% Z5U	061346
C152	CAP MONO .1UF 50V 20% Z5U	061346
C153	CAP MONO .1UF 50V 20% Z5U	061346
C154	CAP ELECT 10UF 50V	066445
C155	CAP MONO .1UF 50V 20% Z5U	061346
C156	CAP MONO .1UF 50V 20% Z5U	061346
C157	CAP MONO 0.001UF 100V NPO	061322
C158	CAP ELECT 220UF 25V	066507
C159	CAP ELECT 220UF 25V	066507
C160	CAP MONO 0.001UF 100V NPO	061322
C161	CAP MONO 0.001UF 100V NPO	061322
C162	CAP MONO 0.001UF 100V NPO	061322
C163	CAP MONO 0.001UF 100V NPO	061322
C164	CAP MONO 0.001UF 100V NPO	061322
C165	CAP MONO 0.001UF 100V NPO	061322
C166	CAP MONO 0.001UF 100V NPO	061322
C167	CAP ELECT 22UF 100V	066574
C168	CAP ELECT 22UF 100V	066574
C169	CAP ELECT 10UF 16V	066580
C170	CAP ELECT 10UF 16V	066580
C171	CAP POLYPROP .047UF 10% 250VDC	064364
C172	CAP POLYPROP .047UF 10% 250VDC	064364
C173	CAP ELECT 47UF 50V	066215
C174	CAP ELECT 22UF 100V	066574
C175	CAP ELECT 47UF 35V	066446
C176	CAP ELECT 470UF 50V	066469

Ref. No.	Description	Part No.
C177	CAP ELECT 3300UF 35V	066509
C178	CAP ELECT 3300UF 35V	066509
C179	CAP ELECT 3300UF 35V	066509
C180	CAP MONO .1UF 50V 20% Z5U	061346
C181	CAP MONO .1UF 50V 20% Z5U	061346
C182	CAP MONO .1UF 50V 20% Z5U	061346
C183	CAP MONO .1UF 50V 20% Z5U	061346
C184	CAP ELECT 10UF 50V	066445
C185	CAP ELECT 10UF 50V	066445
C186	CAP ELECT 10UF 50V	066445
C187	CAP ELECT 220UF 50V 20%	066254
C188	CAP MONO .1UF 50V 20% Z5U	061346
C189	CAP MONO .1UF 50V 20% Z5U	061346
C190	CAP ELECT 10UF 50V	066445
C191	CAP MONO 220PF 200V 10% NPO	061342
C192	CAP ELECT 10UF 16V	066580
C193	CAP ELECT 10UF 16V	066580
C194	CAP ELECT 10UF 16V	066580
C195	CAP ELECT 10UF 16V	066580
C196	CAP MONO .1UF 50V 20% Z5U	061346
C197	CAP MONO .1UF 50V 20% Z5U	061346
C198	CAP MONO .1UF 50V 20% Z5U	061346
C199	CAP ELECT 10UF 50V	066445
D3	DIODE ZENER 6.2V 5% 500MW	070184
D5	DIODE SIL 400 PIV @ 1.5A	070031
D6	DIODE SIL 400 PIV @ 1.5A	070031
D7	DIODE SIL 400 PIV @ 1.5A	070031
D8	DIODE SIL 400 PIV @ 1.5A	070031
D9	DIODE SIL 400 PIV @ 1.5A	070031
D10	DIODE SIL 400 PIV @ 1.5A	070031
D11	DIODE RECTIFIER	070175
D12	DIODE RECTIFIER	070175
D13	DIODE SIL 400 PIV @ 1.5A	070031
D14	DIODE SIL 400 PIV @ 1.5A	070031
D15	DIODE RECTIFIER	070175
D16	DIODE RECTIFIER	070175
D17	DIODE ZENER 33V 5% 1/2W	070182
GP1	BRACKET PCB CARD MOUNTING	003611
GP2	BRACKET PCB CARD MOUNTING	003611
HS1	HEATSINK T0220	080014
HS2	HEATSINK T0220	080014
J1	CONN 18 PIN FFC	117908
J2	CONN XLR FEM HORIZ PCB LATCH	117814
J3	CONN XLR FEM HORIZ PCB LATCH	117814
J4	JACK RCA 4X2 WHT/RED 14MM	117791
J5	JACK RCA 4X2 WHT/RED 14MM	117791
J6	CONN 23 PIN FFC	117906
J7	CONN 18 PIN FFC	117908
J8	JACK RCA 2X2 WHT/RED 14MM	117789
J9	JACK RCA 4X2 WHT/RED 14MM	117791
J10	CONN 18 PIN FFC	117908
J11	CONN 18 PIN FFC	117908
J12	BLADE FASTON W/FEET	117708
J13	CONN 3 POS MALE MTS100 NORMAL	117214
J14	BLADE FASTON W/FEET	117708
J15	BLADE FASTON W/FEET	117708
J16	BLADE FASTON W/FEET	117708
J17	BLADE FASTON W/FEET	117708
J18	BLADE FASTON W/FEET	117708
J19	BLADE FASTON W/FEET	117708
J20	BLADE FASTON W/FEET	117708
J21	CONN MALE 7 PIN	117217
J22	CONN 4 PIN	117215

PARTS LIST *Cont'd.*

MAIN PCB 749850 (Cont'd.)

Ref. No.	Description	Part No.
J23	CONN MALE 6 POS FRICTION LOCK	117218
K1	RELAY REED FORM 1A 5V 500 OHMS	087050
K2	RELAY REED FORM 1A 5V 500 OHMS	087050
K3	RELAY REED FORM 1A 5V 500 OHMS	087050
K4	RELAY REED FORM 1A 5V 500 OHMS	087050
K5	RELAY REED FORM 1A 5V 500 OHMS	087050
K6	RELAY REED FORM 1A 5V 500 OHMS	087050
K7	RELAY REED FORM 1A 5V 500 OHMS	087050
K8	RELAY REED FORM 1A 5V 500 OHMS	087050
K9	RELAY REED FORM 1A 5V 500 OHMS	087050
K10	RELAY REED FORM 1A 5V 500 OHMS	087050
K11	RELAY REED FORM 1A 5V 500 OHMS	087050
K12	RELAY REED FORM 1A 5V 500 OHMS	087050
K13	RELAY REED FORM 1A 5V 500 OHMS	087050
K14	RELAY REED FORM 1A 5V 500 OHMS	087050
K15	RELAY REED FORM 1A 5V 500 OHMS	087050
K16	RELAY REED FORM 1A 5V 500 OHMS	087050
K17	RELAY REED FORM 1A 5V 500 OHMS	087050
K18	RELAY REED FORM 1A 5V 500 OHMS	087050
K19	RELAY REED FORM 1A 5V 500 OHMS	087050
K20	RELAY REED FORM 1A 5V 500 OHMS	087050
K21	RELAY REED FORM 1C 5V 125 OHM	087056
K22	RELAY REED FORM 1C 5V 125 OHM	087056
K23	RELAY REED FORM 1A 5V 500 OHMS	087050
K24	RELAY REED FORM 1A 5V 500 OHMS	087050
K25	RELAY REED FORM 1A 5V 500 OHMS	087050
K26	RELAY REED FORM 1A 5V 500 OHMS	087050
K27	RELAY REED FORM 1A 5V 500 OHMS	087050
K28	RELAY REED FORM 1A 5V 500 OHMS	087050
K29	RELAY REED FORM 1C 5V 125 OHM	087056
K30	RELAY REED FORM 1A 5V 500 OHMS	087050
K31	RELAY REED FORM 1A 5V 500 OHMS	087050
K32	RELAY REED FORM 1A 5V 500 OHMS	087050
K33	RELAY REED FORM 1A 5V 500 OHMS	087050
K34	RELAY REED FORM 1A 5V 500 OHMS	087050
K35	RELAY REED FORM 1A 5V 500 OHMS	087050
K36	RELAY REED FORM 1A 5V 500 OHMS	087050
K37	RELAY REED FORM 1A 5V 500 OHMS	087050
F1	FUSE 2A 250V SLO-BLO 5X20 IEC	089123
(F1)	HOLDER FUSE 5X20MM PCB MOUNT	178159
F2	FUSE 2A 250V SLO-BLO 5X20 IEC	089123
(F2)	HOLDER FUSE 5X20MM PCB MOUNT	178159
F3	FUSE 2A 250V SLO-BLO 5X20 IEC	089123
(F3)	HOLDER FUSE 5X20MM PCB MOUNT	178159
F4	FUSE T 0.4A 250V	089133
(F4)	HOLDER FUSE 5X20MM PCB MOUNT	178159
	WASHER SHLDR #10 BLK NYLN INS	104101
PCB1	PC BD MAIN	129818
Q1	TRANSISTOR PNP SILICON	132304
Q2	TRANSISTOR PNP SILICON	132304
Q3	TRANSISTOR N JFET	132319
Q4	TRANSISTOR N JFET	132319
Q5	TRANSISTOR PNP SILICON	132304
Q6	TRANSISTOR PNP SILICON	132304
Q7	TRANSISTOR N JFET	132319
Q8	TRANSISTOR N JFET	132319
Q9	TRANSISTOR PNP SILICON	132304
Q10	TRANSISTOR PNP SILICON	132304
Q11	TRANSISTOR N JFET	132319

Ref. No.	Description	Part No.
Q12	TRANSISTOR N JFET	132319
Q13	TRANSISTOR PNP SILICON	132304
Q14	TRANSISTOR PNP SILICON	132304
Q15	TRANSISTOR N JFET	132319
Q16	TRANSISTOR N JFET	132319
Q17	TRANSISTOR PNP SILICON	132304
Q18	TRANSISTOR PNP SILICON	132304
Q19	TRANSISTOR N JFET	132319
Q20	TRANSISTOR N JFET	132319
Q21	TRANSISTOR PNP SILICON	132304
Q22	TRANSISTOR PNP SILICON	132304
Q23	TRANSISTOR N JFET	132319
Q24	TRANSISTOR N JFET	132319
Q25	TRANSISTOR PNP SILICON	132304
Q26	TRANSISTOR PNP SILICON	132304
Q27	TRANSISTOR N JFET	132319
Q28	TRANSISTOR N JFET	132319
Q29	TRANSISTOR PNP SILICON	132304
Q30	TRANSISTOR PNP SILICON	132304
Q31	TRANSISTOR N JFET	132319
Q32	TRANSISTOR N JFET	132319
Q33	TRANSISTOR PNP SILICON	132304
Q34	TRANSISTOR PNP SILICON	132304
Q35	TRANSISTOR N JFET	132319
Q36	TRANSISTOR N JFET	132319
Q37	TRANSISTOR PNP SILICON	132304
Q38	TRANSISTOR PNP SILICON	132304
Q39	TRANSISTOR N JFET	132319
Q40	TRANSISTOR N JFET	132319
Q41	TRANSISTOR PNP SILICON	132304
Q42	TRANSISTOR PNP SILICON	132304
Q43	TRANSISTOR N JFET	132319
Q44	TRANSISTOR N JFET	132319
Q45	TRANSISTOR PNP SILICON	132304
Q46	TRANSISTOR PNP SILICON	132304
Q47	TRANSISTOR N JFET	132319
Q48	TRANSISTOR N JFET	132319
R2	RES MF 20K 1% 1/4W	144524
R3	RES MF 20K 1% 1/4W	144524
R4	RES MF 20K 1% 1/4W	144524
R5	RES MF 20K 1% 1/4W	144524
R6	RES MF 1K 1% 1/4W	144513
R7	RES MF 1K 1% 1/4W	144513
R8	RES MF 10K 1% 1/4W	144504
R9	RES MF 10K 1% 1/4W	144504
R10	RES MF 47.5K 1% 1/4W	144526
R11	RES MF 47.5K 1% 1/4W	144526
R12	RES MF 10K 1% 1/4W	144504
R13	RES MF 10K 1% 1/4W	144504
R14	RES MF 95.3 OHM 1% 1/4W	144572
R15	RES MF 95.3 OHM 1% 1/4W	144572
R16	RES MF 7.5K 1% 1/4W	144571
R17	RES MF 7.5K 1% 1/4W	144571
R18	RES MF 267K 1% 1/4W	144532
R19	RES MF 267K 1% 1/4W	144532
R20	RES MF 95.3K 1% 1/4W	144538
R21	RES MF 2.21 OHM 1% 1/4W	144607
R22	RES MF 2.21 OHM 1% 1/4W	144607
R23	RES MF 95.3K 1% 1/4W	144538
R24	RES MF 2.21 OHM 1% 1/4W	144607
R25	RES MF 2.21 OHM 1% 1/4W	144607
R26	RES MF 221 OHM 1% 1/4W	144559
R27	RES MF 221 OHM 1% 1/4W	144559

PARTS LIST *Cont'd.*

MAIN PCB 749850 (Cont'd.)

Ref. No.	Description	Part No.
R28	RES NETWORK 2 X 220K ISO	144678
R29	RES NETWORK 2 X 220K ISO	144678
R30	RES NETWORK 2 X 220K ISO	144678
R31	RES NETWORK 2 X 220K ISO	144678
R32	RES NETWORK 2 X 220K ISO	144678
R33	RES NETWORK 2 X 220K ISO	144678
R34	RES NETWORK 2 X 220K ISO	144678
R35	RES MF 32.4K 1% 1/4W	144542
R36	RES MF 32.4K 1% 1/4W	144542
R37	RES MF 100K 1% 1/4W	144528
R38	RES MF 100K 1% 1/4W	144528
R39	RES MF 1K 1% 1/4W	144513
R40	RES MF 1K 1% 1/4W	144513
R41	RES MF 267K 1% 1/4W	144532
R42	RES MF 267K 1% 1/4W	144532
R43	RES MF 10K 1% 1/4W	144504
R44	RES MF 10K 1% 1/4W	144504
R45	RES MF 221K 1% 1/4W	144629
R46	RES MF 221K 1% 1/4W	144629
R47	RES MF 221 OHM 1% 1/4W	144559
R48	RES MF 221 OHM 1% 1/4W	144559
R49	RES MF 221 OHM 1% 1/4W	144559
R50	RES MF 221 OHM 1% 1/4W	144559
R51	RES MF 32.4K 1% 1/4W	144542
R52	RES MF 32.4K 1% 1/4W	144542
R53	RES MF 100K 1% 1/4W	144528
R54	RES MF 100K 1% 1/4W	144528
R55	RES MF 1K 1% 1/4W	144513
R56	RES MF 1K 1% 1/4W	144513
R57	RES MF 1K 1% 1/4W	144513
R58	RES MF 1K 1% 1/4W	144513
R59	RES MF 6.81K 1% 1/4W	144583
R60	RES MF 1.1K 1% 1/4W	144514
R61	RES MF 1.1K 1% 1/4W	144514
R62	RES MF 10 OHM 1% 1/4W	144553
R63	RES MF 1K 1% 1/4W	144513
R64	RES MF 1K 1% 1/4W	144513
R65	RES MF 1K 1% 1/4W	144513
R66	RES MF 47.5K 1% 1/4W	144526
R67	RES MF 6.49K .5% 1/4W	144617
R68	RES MF 6.49K .5% 1/4W	144617
R69	RES MF 47.5K 1% 1/4W	144526
R70	RES MF 3.36K .5% 1/4W	144616
R71	RES MF 3.36K .5% 1/4W	144616
R72	RES MF 200K 1% 1/4W	144531
R73	RES MF 200K 1% 1/4W	144531
R74	RES MF 10 OHM 1% 1/4W	144553
R75	RES MF 10 OHM 1% 1/4W	144553
R76	RES MF 1M 1% 1/4W	144577
R77	RES MF 1M 1% 1/4W	144577
R78	RES MF 10M 1% 1/4W	144575
R79	RES MF 10M 1% 1/4W	144575
R80	RES MF 5.36K .5% 1/4W	144615
R81	RES MF 5.36K .5% 1/4W	144615
R82	RES MF 200K 1% 1/4W	144531
R83	RES MF 200K 1% 1/4W	144531
R84	RES MF 1M 1% 1/4W	144577
R85	RES MF 1M 1% 1/4W	144577
R86	RES MF 10M 1% 1/4W	144575

Ref. No.	Description	Part No.
R87	RES MF 10M 1% 1/4W	144575
R88	RES MF 3.79K .5% 1/4W	144711
R89	RES MF 3.79K .5% 1/4W	144711
R90	RES MF 200K 1% 1/4W	144531
R91	RES MF 200K 1% 1/4W	144531
R92	RES MF 267K 1% 1/4W	144532
R93	RES MF 267K 1% 1/4W	144532
R94	RES MF 1M 1% 1/4W	144577
R95	RES MF 1M 1% 1/4W	144577
R96	RES MF 10M 1% 1/4W	144575
R97	RES MF 10M 1% 1/4W	144575
R98	RES MF 2.67K .5% 1/4W	144614
R99	RES MF 200K 1% 1/4W	144531
R100	RES MF 2.67K .5% 1/4W	144614
R101	RES MF 200K 1% 1/4W	144531
R102	RES MF 1M 1% 1/4W	144577
R103	RES MF 1M 1% 1/4W	144577
R104	RES MF 10M 1% 1/4W	144575
R105	RES MF 10M 1% 1/4W	144575
R106	RES MF 1.91K .5% 1/4W	144613
R107	RES MF 1.91K .5% 1/4W	144613
R108	RES MF 33.2K 1% 1/4W	144694
R109	RES MF 33.2K 1% 1/4W	144694
R110	RES MF 100K 1% 1/4W	144528
R111	RES MF 100K 1% 1/4W	144528
R112	RES MF 22.1K 1% 1/4W	144564
R113	RES MF 221 OHM 1% 1/4W	144559
R114	RES MF 221 OHM 1% 1/4W	144559
R115	RES MF 100 OHM 1% 1/4W	144568
R116	RES MF 100 OHM 1% 1/4W	144568
R117	RES MF 32.4K 1% 1/4W	144542
R118	RES MF 32.4K 1% 1/4W	144542
R119	RES MF 100K 1% 1/4W	144528
R120	RES MF 1K 1% 1/4W	144513
R121	RES MF 100K 1% 1/4W	144528
R122	RES MF 1K 1% 1/4W	144513
R123	RES MF 1K 1% 1/4W	144513
R124	RES MF 1K 1% 1/4W	144513
R125	RES MF 6.81K 1% 1/4W	144583
R126	RES MF 1.1K 1% 1/4W	144514
R127	RES MF 1.1K 1% 1/4W	144514
R128	RES MF 10 OHM 1% 1/4W	144553
R129	RES MF 1K 1% 1/4W	144513
R130	RES MF 1K 1% 1/4W	144513
R131	RES MF 1K 1% 1/4W	144513
R132	RES MF 47.5K 1% 1/4W	144526
R133	RES MF 6.49K .5% 1/4W	144617
R134	RES MF 6.49K .5% 1/4W	144617
R135	RES MF 47.5K 1% 1/4W	144526
R136	RES MF 3.36K .5% 1/4W	144616
R137	RES MF 3.36K .5% 1/4W	144616
R138	RES MF 200K 1% 1/4W	144531
R139	RES MF 200K 1% 1/4W	144531
R140	RES MF 1M 1% 1/4W	144577
R141	RES MF 1M 1% 1/4W	144577
R142	RES MF 10M 1% 1/4W	144575
R143	RES MF 10M 1% 1/4W	144575
R144	RES MF 5.36K .5% 1/4W	144615
R145	RES MF 5.36K .5% 1/4W	144615
R146	RES MF 200K 1% 1/4W	144531
R147	RES MF 200K 1% 1/4W	144531
R148	RES MF 1M 1% 1/4W	144577
R149	RES MF 1M 1% 1/4W	144577

PARTS LIST *Cont'd.*

MAIN PCB 749850 (Cont'd.)

Ref. No.	Description	Part No.
R150	RES MF 10M 1% 1/4W	144575
R151	RES MF 10M 1% 1/4W	144575
R152	RES MF 3.79K .5% 1/4W	144711
R153	RES MF 3.79K .5% 1/4W	144711
R154	RES MF 200K 1% 1/4W	144531
R155	RES MF 200K 1% 1/4W	144531
R156	RES MF 267K 1% 1/4W	144532
R157	RES MF 267K 1% 1/4W	144532
R158	RES MF 1M 1% 1/4W	144577
R159	RES MF 1M 1% 1/4W	144577
R160	RES MF 10M 1% 1/4W	144575
R161	RES MF 10M 1% 1/4W	144575
R162	RES MF 2.67K .5% 1/4W	144614
R163	RES MF 200K 1% 1/4W	144531
R164	RES MF 2.67K .5% 1/4W	144614
R165	RES MF 200K 1% 1/4W	144531
R166	RES MF 1M 1% 1/4W	144577
R167	RES MF 1M 1% 1/4W	144577
R168	RES MF 10M 1% 1/4W	144575
R169	RES MF 10M 1% 1/4W	144575
R170	RES MF 1.91K .5% 1/4W	144613
R171	RES MF 1.91K .5% 1/4W	144613
R172	RES MF 267K 1% 1/4W	144532
R173	RES MF 267K 1% 1/4W	144532
R174	RES MF 22.1K 1% 1/4W	144564
R175	RES MF 221 OHM 1% 1/4W	144559
R176	RES MF 221 OHM 1% 1/4W	144559
R177	RES MF 32.4K 1% 1/4W	144542
R178	RES MF 32.4K 1% 1/4W	144542
R179	RES MF 100K 1% 1/4W	144528
R180	RES MF 100K 1% 1/4W	144528
R181	RES MF 1K 1% 1/4W	144513
R182	RES MF 1K 1% 1/4W	144513
R183	RES MF 1K 1% 1/4W	144513
R184	RES MF 1K 1% 1/4W	144513
R185	RES MF 6.81K 1% 1/4W	144583
R186	RES MF 1.1K 1% 1/4W	144514
R187	RES MF 1.1K 1% 1/4W	144514
R188	RES MF 10 OHM 1% 1/4W	144553
R189	RES MF 1K 1% 1/4W	144513
R190	RES MF 1K 1% 1/4W	144513
R191	RES MF 1K 1% 1/4W	144513
R192	RES MF 47.5K 1% 1/4W	144526
R193	RES MF 6.49K .5% 1/4W	144617
R194	RES MF 6.49K .5% 1/4W	144617
R195	RES MF 200K 1% 1/4W	144531
R196	RES MF 200K 1% 1/4W	144531
R197	RES MF 3.36K .5% 1/4W	144616
R198	RES MF 3.36K .5% 1/4W	144616
R199	RES MF 1M 1% 1/4W	144577
R200	RES MF 1M 1% 1/4W	144577
R201	RES MF 10M 1% 1/4W	144575
R202	RES MF 10M 1% 1/4W	144575
R203	RES MF 5.36K .5% 1/4W	144615
R204	RES MF 5.36K .5% 1/4W	144615
R205	RES MF 200K 1% 1/4W	144531
R206	RES MF 200K 1% 1/4W	144531
R207	RES MF 1M 1% 1/4W	144577
R208	RES MF 1M 1% 1/4W	144577

Ref. No.	Description	Part No.
R209	RES MF 10M 1% 1/4W	144575
R210	RES MF 10M 1% 1/4W	144575
R211	RES MF 3.79K .5% 1/4W	144711
R212	RES MF 3.79K .5% 1/4W	144711
R213	RES MF 200K 1% 1/4W	144531
R214	RES MF 267K 1% 1/4W	144532
R214	RES MF 200K 1% 1/4W	144531
R216	RES MF 267K 1% 1/4W	144532
R217	RES MF 1M 1% 1/4W	144577
R218	RES MF 1M 1% 1/4W	144577
R219	RES MF 10M 1% 1/4W	144575
R220	RES MF 10M 1% 1/4W	144575
R221	RES MF 2.67K .5% 1/4W	144614
R222	RES MF 200K 1% 1/4W	144531
R223	RES MF 2.67K .5% 1/4W	144614
R224	RES MF 200K 1% 1/4W	144531
R225	RES MF 1M 1% 1/4W	144577
R226	RES MF 1M 1% 1/4W	144577
R227	RES MF 10M 1% 1/4W	144575
R228	RES MF 10M 1% 1/4W	144575
R229	RES MF 1.91K .5% 1/4W	144613
R230	RES MF 1.91K .5% 1/4W	144613
R231	RES MF 267K 1% 1/4W	144532
R232	RES MF 267K 1% 1/4W	144532
R233	RES MF 22.1K 1% 1/4W	144564
R234	RES MF 221 OHM 1% 1/4W	144559
R235	RES MF 221 OHM 1% 1/4W	144559
R237	RES MF 1K 1% 1/4W	144513
R239	RES MF 100K 1% 1/4W	144528
R240	RES MF 2.21 OHM 1% 1/4W	144607
R241	RES MF 1K 1% 1/4W	144513
R242	RES MF 1K 1% 1/4W	144513
R243	RES MF 1K 1% 1/4W	144513
R244	RES NETWORK 2 X 220K ISO	144678
R245	RES MF 4.99K 1% 1/4W	144521
R248	RES MF 221 OHM 1% 1/4W	144559
R249	RES MF 221 OHM 1% 1/4W	144559
R250	RES MF 221K 1% 1/4W	144629
R251	RES MF 221K 1% 1/4W	144629
R252	RES MF 22.1K 1% 1/4W	144564
R254	RES MF 22.1K 1% 1/4W	144564
R255	RES MF 22.1K 1% 1/4W	144564
U1	IC DUAL OPERATIONAL AMPLIFIER	133578
U2	IC OPERATIONAL AMP LOW NOISE	133565
U3	IC OPERATIONAL AMP LOW NOISE	133565
U4	IC DUAL OPERATIONAL AMPLIFIER	133578
U5	IC DUAL OPERATIONAL AMPLIFIER	133578
U6	IC REGULATOR 5V	133597
U7	IC REGULATOR -5V	133598
U8	IC REGULATOR 5V	133597
U9	IC REGULATOR -5V	133598
U10	IC STEREO DGTL VOLUME CONTROL	133637
U11	IC DUAL OPERATIONAL AMPLIFIER	133578
U12	IC SHFT REG SER-PAR	133594
U13	IC DUAL OPERATIONAL AMPLIFIER	133578
U14	IC DUAL OPERATIONAL AMPLIFIER	133578
U15	IC STEREO DGTL VOLUME CONTROL	133637
U16	IC DUAL OPERATIONAL AMPLIFIER	133578
U17	IC SHFT REG SER-PAR	133594
U18	IC DUAL OPERATIONAL AMPLIFIER	133578
U19	IC STEREO DGTL VOLUME CONTROL	133637
U20	IC DUAL OPERATIONAL AMPLIFIER	133578
U21	IC SHFT REG SER-PAR	133594

PARTS LIST *Cont'd.*

MAIN PCB 749850 (Cont'd.)

Ref. No.	Description	Part No.
U22	IC 5V 1.5A REGULATOR LOW DROP	133610
(U22)	HEATSINK TO-218	080020
U23	IC REGULATOR -15V	133588
(U23)	HEATSINK TO-218	080020
U24	IC REGULATOR 15V	133589
(U24)	HEATSINK TO-218	080020
U25	IC REGULATOR 24V NEG	133600
U26	IC OCTAL DARLNGTON TRANS ARRAY	133629
(U26)	IC SOCKET 18 PIN DIP	178184
U27	IC OCTAL DARLNGTON TRANS ARRAY	133629
(U27)	IC SOCKET 18 PIN DIP	178184
U28	IC OCTAL DARLNGTON TRANS ARRAY	133629
(U28)	IC SOCKET 18 PIN DIP	178184
U29	IC SHFT REG SER-PAR	133594
U30	IC SHFT REG SER-PAR	133594
U31	IC SHFT REG SER-PAR	133594
U32	IC REGULATOR 12V	133590
	INSULATOR ISOSTRATE TO 220	084133
	SCR MS 4-40 X 1/4 PH PN BLK	400121

③ DISPLAY PCB 749851

C1	CAP MONO .1UF 50V 20% Z5U	061346
C2	CAP ELECT 1UF 50V	066510
C3	CAP ELECT 47UF 35V	066446
C4	CAP MONO .1UF 50V 20% Z5U	061346
C5	CAP MONO 100PF 100V 10% NPO	061341
C7	CAP ELECT 47UF 35V	066446
C8	CAP MONO .1UF 50V 20% Z5U	061346
C9	CAP ELECT 10UF 50V	066445
C10	CAP MONO .1UF 50V 20% Z5U	061346
C11	CAP MONO .1UF 50V 20% Z5U	061346
C12	CAP ELECT 10UF 50V	066445
C13	CAP MONO .1UF 50V 20% Z5U	061346
C14	CAP MONO 220PF 200V 10% NPO	061342
C15	CAP ELECT 10UF 50V	066445
D4	DIODE SILICON	070174
	TUBING SHRINK 1/4ID BLK	077041
DS1	DISPLAY VFD 12 CHARACTER	058182
DS2	LED SQUARE RED	058109
(DS2)	LED SPACER .220 LENGTH	163001
DS3	LED SQUARE RED	058109
(DS3)	LED SPACER .220 LENGTH	163001
DS4	LED SQUARE RED	058109
(DS4)	LED SPACER .220 LENGTH	163001
DS5	LED GRN 5MM HI-INTENSITY	058165
(DS5)	SPACER LED	112108
DS6	LED GRN 5MM HI-INTENSITY	058165
(DS6)	SPACER LED	112108
DS7	LED GRN 5MM HI-INTENSITY	058165
(DS7)	SPACER LED	112108
DS8	LED GRN 5MM HI-INTENSITY	058165
(DS8)	SPACER LED	112108
DS9	LED GRN 5MM HI-INTENSITY	058165
(DS9)	SPACER LED	112108
DS10	LED SQUARE RED	058109
(DS10)	LED SPACER .220 LENGTH	163001
DS11	LED SQUARE RED	058109

Ref. No.	Description	Part No.
(DS11)	LED SPACER .220 LENGTH	163001
J1	CONN 23 PIN FFC	117906
J2	CONN 12 PIN FFC	117907
K1	RELAY REED FORM 1A 5V 500 OHMS	087050
MTG PAD1	DOUBLE COATED MTG-TAPE 1/16 TK	094409
MTG PAD2	DOUBLE COATED MTG-TAPE 1/16 TK	094409
MTG PAD3	DOUBLE COATED MTG-TAPE 1/16 TK	094409
PCB1	PC BD DISPLAY	129725
Q1	TRANSISTOR NPN SILICON	132317
R1	RES MF 10 OHM 1% 1/4W	144553
R2	RES MF 47.5K 1% 1/4W	144526
R3	RES MF 10K 1% 1/4W	144504
R4	RES MF 10 OHM 1% 1/4W	144553
R5	RES NET 10K X 8 RES BUSSED	144675
R6	RES NETWORK 9X-1-223	144498
R7	RES MF 10K 1% 1/4W	144504
R8	RES FP 10 OHM 5% 1/4W	137105
R10	RES NETWORK 9X-1-223	144498
R12	RES MF 10 OHM 1% 1/4W	144553
R13	RES WW 100 OHM 10% 2W BWH	139134
R14	RES MF 324 OHM 1% 1/4W	144597
R15	RES MF 324 OHM 1% 1/4W	144597
R16	RES MF 1K 1% 1/4W	144513
R17	RES MF 324 OHM 1% 1/4W	144597
R18	RES MF 100 OHM 1% 1/4W	144568
R19	RES MF 100 OHM 1% 1/4W	144568
R20	RES MF 100 OHM 1% 1/4W	144568
R21	RES MF 100 OHM 1% 1/4W	144568
R22	RES MF 100 OHM 1% 1/4W	144568
R23	RES MF 324 OHM 1% 1/4W	144597
R24	RES MF 324 OHM 1% 1/4W	144597
R26	RES MF 100K 1% 1/4W	144528
R25	RES MF 2.21K 1% 1/4W	144584
R27	RES NETWORK 4 X 22K BUSSED	144668
S1	SWITCH ROT PULSE	146258
(S1)	CONN 3 PIN RIGHT ANGLE	117922
(S1)	PC BD SWITCH	129668
S2	ENCODER OPTICAL ROTARY	146260
U1	IC DRVR VFD 12CHAR X 16SEG QFP	133446
U2	IC SUPERVISOR WITH EEPROM	133468
(U2)	SOCKET IC 8 POS	178183
U3	IC PROGRAMMED V1.02 C45	133617
(U3)	SOCKET IC 40-PIN	178133
U4	IC NAND 2 INPUT X 4	133575
U5	IC SHFT REG SER-PAR	133594
(U5)	SOCKET IC DIP 16 PIN DUAL	178182
U6	IC 8 BIT A/D SERIAL OUTPUT	133366
U8	IC NAND 2 INPUT X 4	133575
Y1	CERAMIC RESONATOR 12MHZ	180059
	NUT 3/8-32 HEX BRASS NICKEL PL	402008
	WASHER LOCK INT STAR 5/16IN	404013
	WASHER INT STAR-3/8IN	404014
	NUT CONTROL M7 X .75	410004

④ 6 CHANNEL PCB 749852

C1	CAP ELECT 10UF 16V	066382
C2	CAP ELECT 10UF 16V	066382
C3	CAP ELECT 10UF 16V	066382
C4	CAP ELECT 10UF 16V	066382
C5	CAP ELECT 10UF 16V	066382
C6	CAP ELECT 10UF 16V	066382
C7	CAP ELECT 10UF 16V	066382

PARTS LIST *Cont'd.*

6 CHANNEL PCB 749852 (Cont'd.)

Ref. No.	Description	Part No.	Ref. No.	Description	Part No.
C8	CAP ELECT 10UF 16V	066382	K10	RELAY REED FORM 1A 5V 500 OHMS	087050
C9	CAP ELECT 10UF 16V	066382	K11	RELAY REED FORM 1A 5V 500 OHMS	087050
C10	CAP ELECT 10UF 16V	066382	K12	RELAY REED FORM 1A 5V 500 OHMS	087050
C11	CAP ELECT 10UF 16V	066382	K13	RELAY REED FORM 1A 5V 500 OHMS	087050
C12	CAP ELECT 10UF 16V	066382	K14	RELAY REED FORM 1A 5V 500 OHMS	087050
C13	CAP ELECT 10UF 50V	066445	K15	RELAY REED FORM 1A 5V 500 OHMS	087050
C14	CAP ELECT 10UF 50V	066445	K16	RELAY REED FORM 1A 5V 500 OHMS	087050
C15	CAP ELECT 10UF 50V	066445	K17	RELAY REED FORM 1A 5V 500 OHMS	087050
C16	CAP ELECT 10UF 50V	066445	K18	RELAY REED FORM 1A 5V 500 OHMS	087050
C17	CAP ELECT 10UF 50V	066445	PCB1	PC BD 6 CHANNEL	129726
C18	CAP ELECT 10UF 50V	066445	Q1 Q2	TRANSISTOR PNP SILICON	132304
C19	CAP ELECT 10UF 50V	066445	R1	RES NETWORK 2 X 220K ISO	144678
C20	CAP ELECT 10UF 50V	066445	R2	RES NETWORK 2 X 220K ISO	144678
C21	CAP ELECT 10UF 50V	066445	R3	RES NETWORK 2 X 220K ISO	144678
C22	CAP ELECT 10UF 50V	066445	R4	RES NETWORK 2 X 220K ISO	144678
C23	CAP ELECT 10UF 50V	066445	R5	RES NETWORK 2 X 220K ISO	144678
C24	CAP ELECT 10UF 50V	066445	R6	RES NETWORK 2 X 220K ISO	144678
C25	CAP ELECT 22UF 100V	066574	R7	RES MF 221 OHM 1% 1/4W	144559
C26	CAP ELECT 22UF 100V	066574	R8	RES MF 221 OHM 1% 1/4W	144559
C27	CAP ELECT 22UF 100V	066574	R9	RES MF 221 OHM 1% 1/4W	144559
C28	CAP ELECT 22UF 100V	066574	R10	RES MF 221 OHM 1% 1/4W	144559
C29	CAP ELECT 22UF 100V	066574	R11	RES MF 221 OHM 1% 1/4W	144559
C30	CAP ELECT 22UF 100V	066574	R12	RES MF 221 OHM 1% 1/4W	144559
C31	CAP MONO .1UF 50V 20% Z5U	061346	R13	RES MF 221 OHM 1% 1/4W	144559
C32	CAP MONO .1UF 50V 20% Z5U	061346	R14	RES MF 221 OHM 1% 1/4W	144559
C33	CAP MONO .1UF 50V 20% Z5U	061346	R15	RES MF 221 OHM 1% 1/4W	144559
C34	CAP MONO .1UF 50V 20% Z5U	061346	R16	RES MF 221 OHM 1% 1/4W	144559
C35	CAP MONO .1UF 50V 20% Z5U	061346	R17	RES MF 221 OHM 1% 1/4W	144559
C37	CAP ELECT 10UF 50V	066445	R18	RES MF 221 OHM 1% 1/4W	144559
C38	CAP ELECT 10UF 50V	066445	R19	RES MF 33.2K 1% 1/4W	144694
C39	CAP ELECT 10UF 50V	066445	R20	RES MF 33.2K 1% 1/4W	144694
C36	CAP MONO .1UF 50V 20% Z5U	061346	R21	RES MF 33.2K 1% 1/4W	144694
C40	CAP ELECT 10UF 50V	066445	R22	RES MF 33.2K 1% 1/4W	144694
D1	DIODE SILICON	070174	R23	RES MF 33.2K 1% 1/4W	144694
D2	DIODE SILICON	070174	R24	RES MF 33.2K 1% 1/4W	144694
D3	DIODE SILICON	070174	R25	RES MF 100K 1% 1/4W	144528
D4	DIODE SILICON	070174	R26	RES MF 100K 1% 1/4W	144528
D5	DIODE SILICON	070174	R27	RES MF 100K 1% 1/4W	144528
J1	JACK RCA 4X2 WHT/RED 14MM	117791	R28	RES MF 100K 1% 1/4W	144528
J2	JACK RCA 2X2 WHT/RED 14MM	117789	R29	RES MF 100K 1% 1/4W	144528
J3	CONN 18 PIN FFC	117908	R30	RES MF 100K 1% 1/4W	144528
J4	CONN 18 PIN FFC	117908	R31	RES MF 20K 1% 1/4W	144524
J5	RECEPTACLE XLR MALE	117686	R32	RES MF 20K 1% 1/4W	144524
J6	RECEPTACLE XLR MALE	117686	R33	RES MF 20K 1% 1/4W	144524
J7	RECEPTACLE XLR MALE	117686	R34	RES MF 20K 1% 1/4W	144524
J8	RECEPTACLE XLR MALE	117686	R35	RES MF 20K 1% 1/4W	144524
J9	RECEPTACLE XLR MALE	117686	R36	RES MF 20K 1% 1/4W	144524
J10	RECEPTACLE XLR MALE	117686	R37	RES MF 20K 1% 1/4W	144524
J11	RECEPTACLE XLR MALE	117686	R38	RES MF 20K 1% 1/4W	144524
J12	RECEPTACLE XLR MALE	117686	R39	RES MF 20K 1% 1/4W	144524
K1	RELAY REED FORM 1A 5V 500 OHMS	087050	R40	RES MF 20K 1% 1/4W	144524
K2	RELAY REED FORM 1A 5V 500 OHMS	087050	R41	RES MF 20K 1% 1/4W	144524
K3	RELAY REED FORM 1A 5V 500 OHMS	087050	R42	RES MF 20K 1% 1/4W	144524
K4	RELAY REED FORM 1A 5V 500 OHMS	087050	R43	RES MF 10K 1% 1/4W	144504
K5	RELAY REED FORM 1A 5V 500 OHMS	087050	R44	RES MF 221 OHM 1% 1/4W	144559
K6	RELAY REED FORM 1A 5V 500 OHMS	087050	R45	RES MF 10K 1% 1/4W	144504
K7	RELAY REED FORM 1A 5V 500 OHMS	087050	R46	RES MF 221 OHM 1% 1/4W	144559
K8	RELAY REED FORM 1A 5V 500 OHMS	087050	R47	RES MF 221 OHM 1% 1/4W	144559
K9	RELAY REED FORM 1A 5V 500 OHMS	087050	R49	RES MF 221 OHM 1% 1/4W	144559
			U1	IC DUAL OPERATIONAL AMPLIFIER	133578
			U2	IC DUAL OPERATIONAL AMPLIFIER	133578
			U3	IC DUAL OPERATIONAL AMPLIFIER	133578
				ASSY INSERTION PCB 6 CHANNEL	702001

PARTS LIST *Cont'd.*

5 TONE PCB 749853		
Ref. No.	Description	Part No.
C1	CAP ELECT 22UF 100V	066574
C2	CAP ELECT 22UF 100V	066574
C3	CAP MPF 0.033UF 5% 63VDC	064318
C4	CAP MPF 0.033UF 5% 63VDC	064318
C5	CAP MPF 0.033UF 5% 63VDC	064318
C6	CAP MPF 0.033UF 5% 63VDC	064318
C7	CAP MPF 0.22UF 5% 63VDC	064329
C8	CAP MPF 0.22UF 5% 63VDC	064329
C9	CAP ELECT 47UF 35V	066446
C10	CAP ELECT 47UF 35V	066446
C11	CAP ELECT 47UF 35V	066446
C12	CAP ELECT 47UF 35V	066446
C13	CAP MPF 0.22UF 5% 63VDC	064329
C14	CAP MPF 0.22UF 5% 63VDC	064329
C15	CAP PF 470PF 5% 160VDC	064296
C16	CAP PF 470PF 5% 160VDC	064296
C17	CAP MONO 100PF 100V 10% NPO	061341
C18	CAP MONO 100PF 100V 10% NPO	061341
C21	CAP MONO .1UF 50V 20% Z5U	061346
C22	CAP MONO .1UF 50V 20% Z5U	061346
C23	CAP ELECT 10UF 50V	066445
C24	CAP ELECT 10UF 50V	066445
C25	CAP MONO .1UF 50V 20% Z5U	061346
C26	CAP MONO .1UF 50V 20% Z5U	061346
J1	CONN 18 PIN FFC	117908
K1	RELAY REED FORM 1A 5V 500 OHMS	087050
K2	RELAY REED FORM 1A 5V 500 OHMS	087050
K3	RELAY REED FORM 1A 5V 500 OHMS	087050
K4	RELAY REED FORM 1A 5V 500 OHMS	087050
PCB1	PC BD TONE	129727
R1	POT EQUAL	134509
R2	RES MF 681 OHM 1% 1/4W	144567
R3	RES MF 681 OHM 1% 1/4W	144567
R4	RES MF 100K 1% 1/4W	144528
R5	RES MF 100K 1% 1/4W	144528
R6	POT EQUAL	134509
R7	RES MF 475 OHM 1% 1/4W	144509
R8	RES MF 475 OHM 1% 1/4W	144509
R9	RES MF 475K 1% 1/4W	144604
R10	RES MF 475K 1% 1/4W	144604
R11	RES MF 475K 1% 1/4W	144604
R12	RES MF 475K 1% 1/4W	144604
R13	RES MF 40.2K 1% 1/4W	144525
R14	RES MF 40.2K 1% 1/4W	144525
R15	RES MF 100K 1% 1/4W	144528
R16	RES MF 100K 1% 1/4W	144528
R17	RES MF 3.32K 1% 1/4W	144518
R18	RES MF 3.32K 1% 1/4W	144518
R19	RES MF 10 OHM 1% 1/4W	144553
R20	RES MF 3.32K 1% 1/4W	144518
R21	RES MF 10 OHM 1% 1/4W	144553
R22	RES MF 3.32K 1% 1/4W	144518
R23	RES MF 10 OHM 1% 1/4W	144553
R24	RES MF 10 OHM 1% 1/4W	144553
U1	IC DUAL OPERATIONAL AMPLIFIER	133578
U2	IC DUAL AMP ASSY INSERTION PCB TONE	133259 702003

6 DATA PCB 749854		
Ref. No.	Description	Part No.
C1	CAP MONO .1UF 50V 20% Z5U	061346
C2	CAP MONO 1000PF 50V 10% NPO	061344
C3	CAP MONO .1UF 50V 20% Z5U	061346
C4	CAP MONO .1UF 50V 20% Z5U	061346
C5	CAP MONO 100PF 100V 10% NPO	061341
D1	DIODE SILICON	070174
D2	DIODE SILICON	070174
D3	DIODE SILICON	070174
IC1	IC MONOSTB MULTIVIB X 2	133593
IC2	COUPLER OPTICAL SCHMITT OUTPUT	131030
J1	JACK HEADPHONE STEREO 1/8IN	117945
J2	JACK HEADPHONE STEREO 1/8IN	117945
J3	JACK HEADPHONE STEREO 1/8IN	117945
J4	JACK HEADPHONE STEREO 1/8IN	117945
J5	JACK HEADPHONE STEREO 1/8IN	117945
J6	JACK HEADPHONE STEREO 1/8IN	117945
J7	JACK HEADPHONE STEREO 1/8IN	117945
J9	JACK HEADPHONE STEREO 1/8IN	117945
J8	CONN 18 PIN FFC	117908
J10	JACK RJ45	117898
J11	JACK HEADPHONE STEREO 1/8IN	117945
J12	JACK HEADPHONE STEREO 1/8IN	117945
J13	JACK HEADPHONE STEREO 1/8IN	117945
J14	JACK HEADPHONE STEREO 1/8IN	117945
J16	JACK HEADPHONE STEREO 1/8IN	117945
L1	BEADS FERRITE LEADED	076023
PCB1	PC BD DATA	129728
Q1	TRANSISTOR NPN SILICON	132317
Q2	TRANSISTOR NPN SILICON	132317
Q3	TRANSISTOR NPN SILICON	132317
R1	RES MF 100 OHM 1% 1/4W	144568
R2	RES MF 100 OHM 1% 1/4W	144568
R3	RES MF 1K 1% 1/4W	144513
R4	RES MF 100 OHM 1% 1/4W	144568
R5	RES MF 1K 1% 1/4W	144513
R6	RES MF 1K 1% 1/4W	144513
R7	RES MF 100 OHM 1% 1/4W	144568
R8	RES MF 100 OHM 1% 1/4W	144568
R9	RES MF 100 OHM 1% 1/4W	144568
R10	RES MF 100 OHM 1% 1/4W	144568
R11	RES MF 1K 1% 1/4W	144513
R12	RES MF 100 OHM 1% 1/4W	144568
R13	RES MF 221 OHM 1% 1/4W	144559
R14	RES MF 51.1K 1% 1/4W	144551
R15	RES MF 22.1K 1% 1/4W	144564
R16	RES MF 100 OHM 1% 1/4W	144568
R17	RES MF 27.4K 1% 1/4W	144545
R20	RES MF 10 OHM 1% 1/4W	144553
R21	RES MF 182 OHM 1% 1/4W	144579
R22	RES MF 31.6K 1% 1/4W	144547
R23	RES MF 182 OHM 1% 1/4W	144579
R24	RES MF 182 OHM 1% 1/4W	144579
R25	RES MF 100K 1% 1/4W	144528
R26	RES MF 182 OHM 1% 1/4W	144579
R27	RES MF 182 OHM 1% 1/4W	144579
R29	RES MF 1K 1% 1/4W	144513
R30	RES MF 10 OHM 1% 1/4W	144553
R37	RES MF 1K 1% 1/4W	144513
R36	RES MF 47.5K 1% 1/4W	144526
R38	RES MF 1.5K 1% 1/4W	144539
R28	RES MF 182 OHM 1% 1/4W	144579

PARTS LIST *Cont'd.*

DATA PCB 749854 (Cont'd.)

Ref. No.	Description	Part No.
R33	RES MF 475K 1% 1/4W	144604
R18	RES MF 221K 1% 1/4W	144629
R19	RES POLYSWITCH RXE030	144670
SP1	BRACKET PCB CARD MOUNTING	003611
SP2	BRACKET PCB CARD MOUNTING	003611
SP3	BRACKET PCB CARD MOUNTING	003611
U1	IC SHFT REG SER-PAR	133594
U2	IC 8 LN DRIVER ARRAY	133180
U3	IC OPERATIONAL AMPLIFIER	133626
U4	IC AND 2 INPUT X 4	133577
U5	IC AND 2 INPUT X 4	133577

7 PUSHBUTTON PCB 749855

Ref. No.	Description	Part No.
	SPACER HEADPHONE	017746
C1	CAP MONO .1UF 50V 20% Z5U	061346
C2	CAP ELECT 47UF 16V	066380
C3	CAP MONO 100PF 100V 10% NPO	061341
J1	CONN 3 POS MALE MTS100 NORMAL	117214
J2	JACK PHONO 1/8 STEREO VER	117462
J3	CONN 12 PIN FFC	117907
MT1	SENSOR IR 38KHZ	121046
R1	RES MF 100 OHM 1% 1/4W	144568
S1	SWITCH TACT	150058
S2	SWITCH TACT	150058
S3	SWITCH TACT	150058
S4	SWITCH TACT	150058
S5	SWITCH TACT	150058
S6	SWITCH TACT	150058
S7	SWITCH TACT	150058
S8	SWITCH TACT	150058
	PCB PUSHBUTTON	129729

8 9 TUNER/RAA1 SECTION PCB 049084

C1	CAP MONO 0.1UF 20% 50V	061328
C2	MONO CAP 100PF 5% 100V NPO	061327
C3	CAP MONO 10PF 10% 100V	061336
C4	CAP MONO 0.1UF 20% 50V	061328
C5	MONO CAP .0022UF 10% 50V	061335
C6	MONO CAP 100PF 5% 100V NPO	061327
C7	CAP MONO 0.1UF 20% 50V	061328
C8	22PF 10% 100V CAPACITOR	061331
C9	CAP MONO 10PF 10% 100V	061336
C10	CAP MONO .047UF 10% 50V X7R	061334
C11	CAP MONO 0.1UF 20% 50V	061328
C12	CAP MONO 100PF 5% 100V NPO	061327
C13	CAP MONO .047UF 10% 50V X7R	061334
C14	CAP MONO 100PF 5% 100V NPO	061327
C15	CAP MONO .047UF 10% 50V X7R	061334
C16	CAP MONO .047UF 10% 50V X7R	061334
C17	CAP MONO 100PF 5% 100V NPO	061327
C18	CAP MONO .047UF 10% 50V X7R	061334
C19	CAP MONO 0.1UF 20% 50V	061328
C20	CAP MONO 0.1UF 20% 50V	061328
C21	CAP MONO CER 360PF 5% 100V	061354
C22	CAP MONO 10PF 10% 100V	061336
C23	MONO CAP .0022UF 10% 50V	061335
C25	MONO CAP .0022UF 10% 50V	061335
C24	22PF 10% 100V CAPACITOR	061331

Ref. No.	Description	Part No.
C25	CAP MONO .0022UF 5% 100V NPO	061335
C26	CAP MONO 0.1UF 20% 50V	061328
C27	CAP MONO 0.1UF 20% 50V	061328
C28	CAP MONO .047UF 10% 50V X7R	061334
C29	CAP MONO 0.1UF 20% 50V	061328
C30	CAP MONO 0.1UF 20% 50V	061328
C31	CAP MONO .0022UF 5% 100V NPO	061335
C32	CAP MONO 10PF 10% 100V	061336
C33	CAP MONO .047UF 10% 50V X7R	061334
C34	CAP MONO 0.1UF 20% 50V	061328
C35	DISC CAP 1.8PF +/- .25PF NPO	061356
C36	M POLY CAP .015UF 5% 63V DC	064314
C37	M POLY CAP .033UF 5% 63V DC	064318
C38	CAP MONO .47UF 50V	064320
C39	M CAP .470PF 5% 100V	061321
C40	M POLY CAP .015UF 5% 63V DC	064314
C41	M POLY CAP .033UF 5% 63V DC	064318
C42	M POLY CAP .033UF 5% 63V DC	064318
C43	M POLY CAP .033UF 5% 63V DC	064318
C45	ELECT CAP 10UF 50V	066445
C46	ELECT CAP 10UF 50V	066445
C47	ELECT CAP 10UF 50V	066445
C48	ELECT CAP 10UF 50V	066445
C49	ELECT CAP 10UF 50V	066445
C50	CAP MONO .47UF 50V	061320
C51	ELECT CAP 10UF 50V	066445
C52	ELECT CAP 10UF 50V	066445
C53	ELECT CAP 47UF 35V	066446
C54	ELECT CAP 10UF 50V	066445
C55	ELECT CAP 10UF 50V	066445
C56	ELECT CAP 100UF 25V	066573
C57	CAP ELECT 1UF 10% 50V	066562
C58	CAP ELECT 1UF 10% 50V	066562
C59	TRIM CAP 2-10PF	060039
C60	TRIM CAP 2-10PF	060039
C61	3-27PF TRIMMER CAPACITOR	060029
C62	TRIM CAP 2-10PF	060039
C63	TRIM CAP 2-10PF	060039
C64	3-27PF TRIMMER CAPACITOR	060029
C65	3-27PF TRIMMER CAPACITOR	060029
C67	ELECT CAP 100UF 25V	066573
C68	ELECT CAP 100UF 25V	066573
C69	ELECT CAP 100UF 25V	066573
C70	CAP MONO .47UF 50V	061320
C71	CAP MONO .47UF 50V	061320
C72	CAP MONO .47UF 50V	061320
C73	M POLY CAP 0.22UF 5%	064329
C74	CAP MONO .0022UF 5% 100V NPO	061335
C75	CAP MONO .047UF 10% 50V X7R	061334
C76	CAP MONO 220PF 5% 100V NPO	061326
C77	CAP MONO 220PF 5% 100V NPO	061326
C78	CAP MONO 220PF 5% 100V NPO	061326
C79	CAP MONO 220PF 5% 100V NPO	061326
C80	M POLY CAP .022UF 5% 63V DC	064316
C81	M POLY CAP .022UF 5% 63V DC	064316
C82	CAP MPF 0.0068UF 10% 63VDC	064310
C83	CAP MPF 0.0068UF 10% 63VDC	064310
C102	CAP MONO 0.1UF 20% 50V	061328
C103	CAP MONO .0022UF 5% 100V NPO	061335
C104	CAP MONO 0.1UF 20% 50V	061328
C105	CAP MONO 0.1UF 20% 50V	061328
C106	3-27PF TRIMMER CAPACITOR	060029
D1	DIODE TUNING	070122

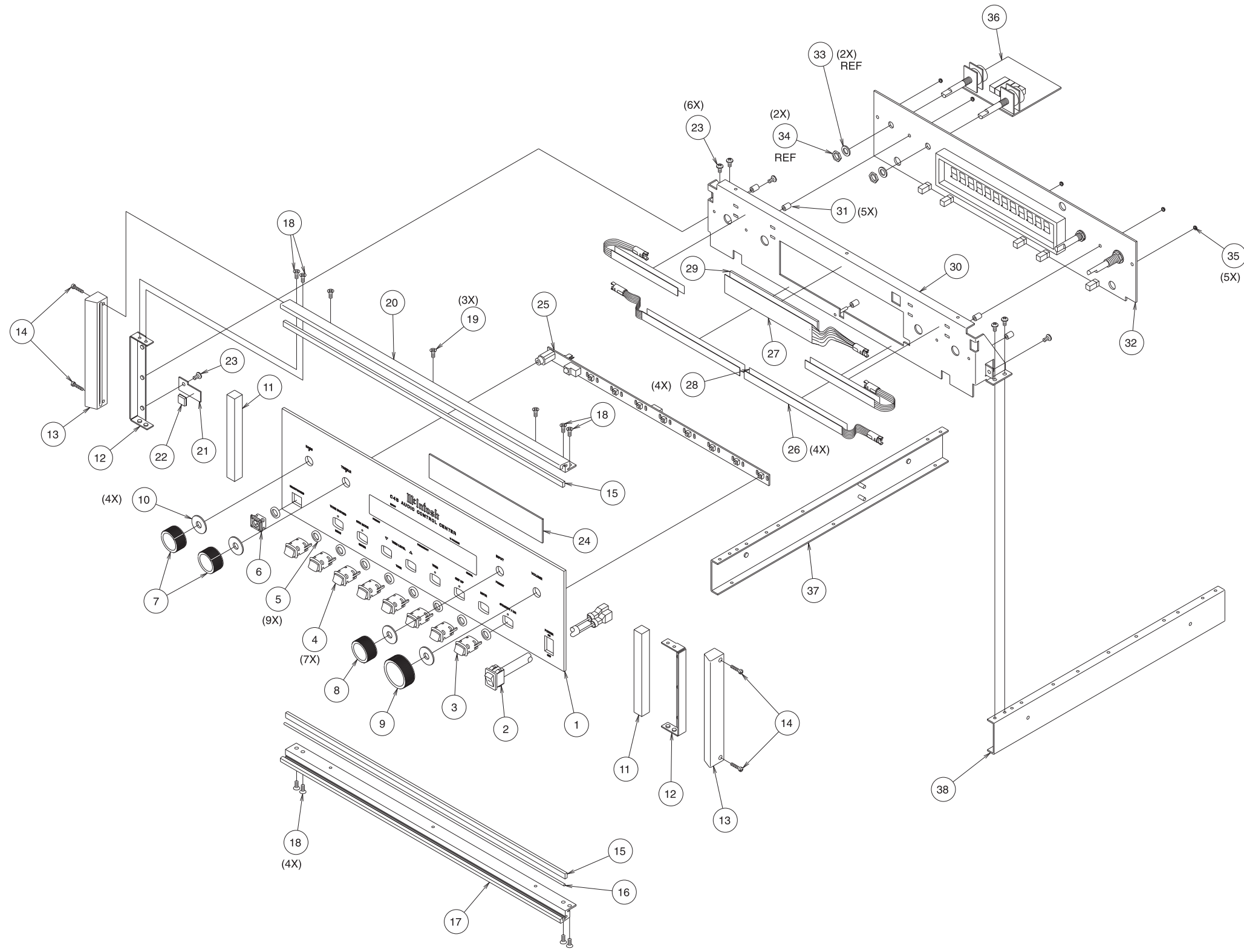
PARTS LIST *Cont'd.*

TUNER/RAA1 SECTION PCB 049084 (Cont'd.)

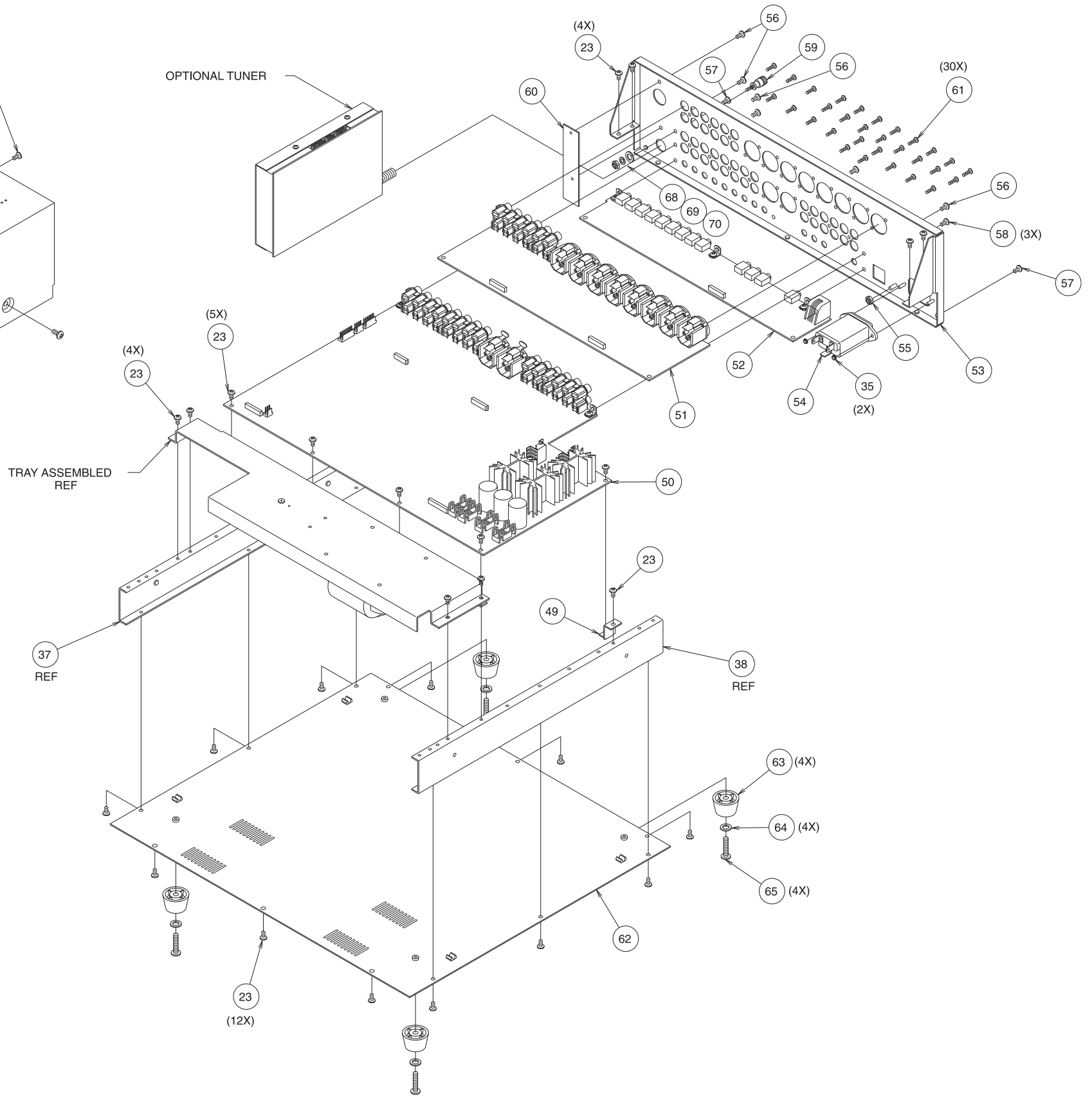
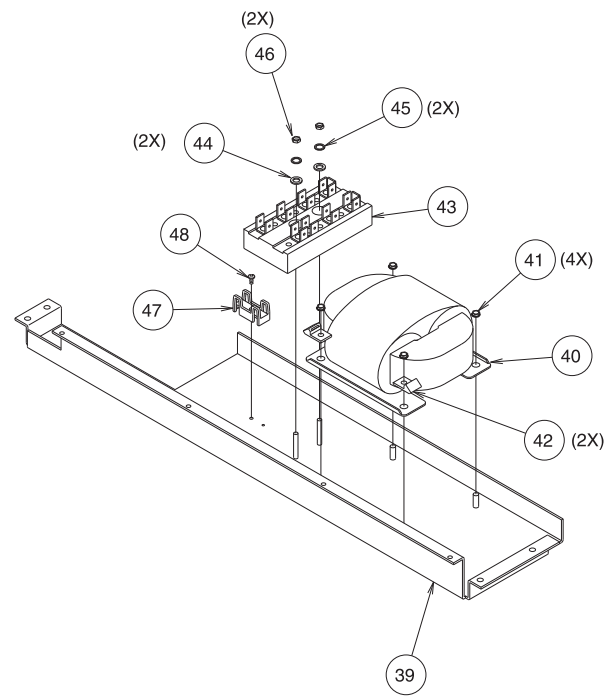
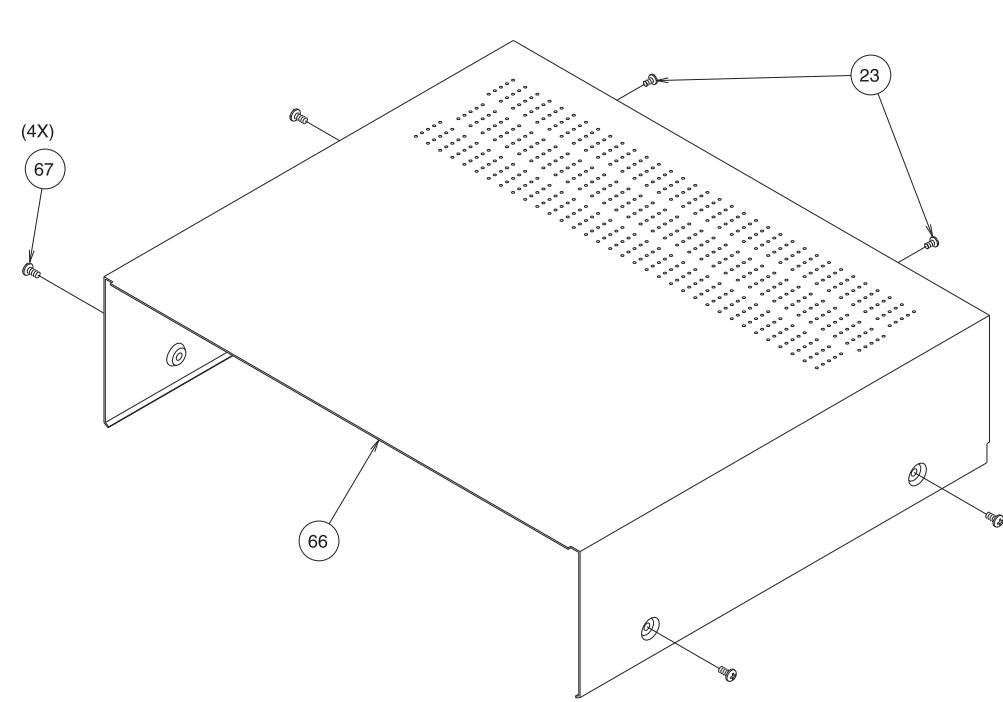
Ref. No.	Description	Part No.
D2	DIODE TUNING	070122
D3	DIODE TUNING	070122
D4	DIODE TUNING	070122
(D5)	ALL 8 DIODES USED ON JAPANESE VERSION	
(D6)	ALL 8 DIODES USED ON JAPANESE VERSION	
(D7)	ALL 8 DIODES USED ON JAPANESE VERSION	
(D8)	ALL 8 DIODES USED ON JAPANESE VERSION	
D10	SILICONE DIODE	070174
D11	TUNING DIODE	070125
D12	TUNING DIODE	070125
D101	TUNING DIODE	070125
D102	SILICONE DIODE	070174
D103	SILICONE DIODE	070174
D104	SILICONE DIODE	070174
FN1	FILTER CERAMIC 10.7MHZ	180056
FN2	FILTER CERAMIC 10.7MHZ	180056
FN3	FILTER CERAMIC 10.7MHZ	180056
FN6	FILTER 450KHZ	180055
IC1	IC FM FRONT END	133231
IC2	AM-FM MPX TUNER IC	133621
IC3	IC DIRECT PLL FREQ SYNTHESIZER	133270
IC4	IC OPERATIONAL AMPLIFIER	133626
IC5	IC OPERATIONAL AMPLIFIER	133626
IC6	IC +8V VOLTAGE REGULATOR	133573
J1	GOLD F CONNECTOR RIGHT ANGLE	117661
J2	CONN 7-PIN DIN	117383
J3	MALE CONN 6 PIN RT ANGLE	117223
J4	CONN RT ANGLE 7 POS	117319
J5	CONNECTOR 4 PIN RT ANGLE	117240
J6	CONNECTOR 2-PIN MALE	117213
J101-	HEADER 5 PIN	117677
L1	RF CHOKE 3.3UH 10%	122229
L2	MIXER COIL	122250
L3	MIXER COIL	122250
L4	ANT COIL	122249
L5	ANT COIL	122249
	PCB1 PC BD TUNER	129424
Q1	TRANSISTOR "D" MOS FET	132327
Q2	TRANSISTOR PNP	132304
Q3	TRANSISTOR NPN	132317
Q5	TRANSISTOR NPN	132317
Q6	TRANSISTOR NPN	132317
Q7	TRANSISTOR NPN	132317
Q8	TRANSISTOR P FET 1-4PO 250 OHM	132220
Q9	TRANSISTOR PNP	132304
Q10	TRANSISTOR NPN	132317
Q11	TRANSISTOR NPN	132317
Q12	TRANSISTOR NPN	132317
Q101	TRANSISTOR P FET 1-4PO 250 OHM	132220
Q102	TRANSISTOR RF FET J-310 FET	132305
R1	RES MF 10K 1% 1/4W	144504
R3	RES MF 1K 1% 1/4W	144513
R4	RES MF 100 OHM 1% 1/4W	144568
R5	RES MF 1K 1% 1/4W	144513
R6	RES MF 15K 1% 1/4W	144623
R7	RES MF 1K 1% 1/4W	144513
R8	RES MF 47.5K 1% 1/4W	144526
R9	RES MF 47.5K 1% 1/4W	144526
R10	METAL FILM RES 2.87K 1% 1/4W	144546
R11	RES MF 10K 1% 1/4W	144504
R13	RES MF 47.5K 1% 1/4W	144526

Ref. No.	Description	Part No.
R14	RES MF 100 OHM 1% 1/4W	144568
R15	RES MF 10K 1% 1/4W	144504
R16	RES MF 2.21M 1% 1/4W	144576
R17	RES MF 22.1K 1% 1/4W	144564
R18	RES MF 47.5K 1% 1/4W	144526
R19	RES MF 10K 1% 1/4W	144504
R20	RES MF 15K 1% 1/4W	144623
R21	RES MF 100 OHM 1% 1/4W	144568
R22	RES MF 4.75K 1% 1/4W	144520
R23	RES MF 324 OHM 1% 1/4W	144597
R24	RES MF 4.75K 1% 1/4W	144520
R25	METAL FILM RES 2.87K 1% 1/4W	144546
R26	RES MF 324 OHM 1% 1/4W	144597
R27	RES MF 681K 1% 1/4W	144643
R28	RES MF 681K 1% 1/4W	144643
R29	RES MF 10K 1% 1/4W	144504
R30	RES MF 1K 1% 1/4W	144513
R32	METAL FILM RES 4.75K 1% 1/4W	144520
R33	RES MF 4.75K 1% 1/4W	144520
R35	RES MF 4.75K 1% 1/4W	144520
R38	RES MF 1K 1% 1/4W	144513
R39	RES MF 2.21K 1% 1/4W	144584
R40	RES MF 15K 1% 1/4W	144623
R41	RES MF 10K 1% 1/4W	144504
R42	RES MF 2.21M 1% 1/4W	144576
R44	RES MF 10K 1% 1/4W	144504
R46	RES MF 2.21K 1% 1/4W	144584
R47	METAL FILM RES 2.67K 1% 1/4W	144534
R48	METAL FILM RES 2.67K 1% 1/4W	144534
R50	RES MF 10K 1% 1/4W	144504
R51	RES MF 47.5 OHM 1% 1/4W	144642
R52	RES MF 22.1K 1% 1/4W	144564
R54	RES MF 221 OHM 1% 1/4W	144559
R55	RES MF 22.1K 1% 1/4W	144564
R56	RES MF 100K 1% 1/4W	144528
R58	RES MF 22.1K 1% 1/4W	144564
R60	RES MF 100 OHM 1% 1/4W	144568
R61	RES MF 100K 1% 1/4W	144528
R63	RES MF 3.32K 1% 1/4W	144518
R64	RES MF 10K 1% 1/4W	144504
R65	RES MF 221 OHM 1% 1/4W	144559
R67	RES MF 22.1 OHM 1% 1/4W	144554
R68	RES MF 10K 1% 1/4W	144504
R69	RES MF 4.75K 1% 1/4W	144520
R70	TRIMPOT 22K	134406
R71	POTENTIOMETER 10K OHM	134414
R73	POTENTIOMETER 10K OHM	134414
R74	RES MF 47.5 OHM 1% 1/4W	144642
R75	RES MF 10K 1% 1/4W	144504
R76	RES MF 100K 1% 1/4W	144528
R101	RES MF 10K 1% 1/4W	144504
R102	RES MF 10K 1% 1/4W	144504
R103	RES MF 475 OHM 1% 1/4W	144509
R104	RES MF 22.1 OHM 1% 1/4W	144554
R105	RES MF 10K 1% 1/4W	144504
T7	TRANSFORMER (MATCHING)	162113
T8	TRANSFORMER QUAD DET SEC	162103
T9	TRANSFORMER QUAD DET PRIM	162102
T10	10.7MHZ MIXER TRANSFORMER	162114
T11	AM OSC COIL	162115
T12	AM RF TRANSFORMER	162117
T101	AM OSC COIL	162115
Y1	CRYSTAL 7.2MHZ	180077
Y2	CERAMIC RESONATOR 450KHZ ASSY INSERTION PCB TUNER	180069 701008

EXPLODED VIEW



EXPLODED VIEW con't



EXPLODED VIEW PARTS LIST

Ref No.	Part No.	Description
1	016496	GLASS
2	171026	CABLE ASSY PWR SWITCH
3	017531	PUSHBUTTON ASSY RED
4	017517	PUSHBUTTON ASSY BLK
5	078033	O-RING
6	017854	BEZEL HEADPHONE
7	749725	ASSY KNOB 25.5 INDEX METRIC
8	749724	ASSY KNOB 25.5 NO INDEX METRIC
9	749726	ASSY KNOB 34 NO INDEX AMERICAN
10	104017	WASHER FELT BLK 3/4 X 1/4 X 1/16
11	094360	TAPE FOAM 1/2 X 1/2
12	004946	BRACKET EXTRUSION
13	018611	ENDCAP 5"
14	401042	SCREW TS 4-40 X 1/2 SLOT FILLISTER
15	094016	TAPE FOAM 1/4 X 1/8
16	098113	CORD DIAL .027 BLACK BRAID SILK
17	018707	EXTRUSION BOTTOM
18	400149	SCREW MACH 6-32 X 1/4 FL U/H ST
19	401172	SCREW TC 6-32 X 1/4 PH FL U/C
20	018705	EXTRUSION TOP
21	005340	BRACE PCB
22	017191	BUMPER BUTTON
23	401054	SCREW TAPTITE 6-32 X 1/4 PH PN BLK
24	017738	PLEXI FILTER
25	749855	ASSY PUSHBUTTON PCB
26	163026	TITLE/PUSHBUTTON BACKLIGHT
27	163027	LOGO PUSHBUTTON BACKLIGHT
28	094489	TAPE FOAM WHT 3/8 WIDE X 1/32 THK
29	094430	TAPE FOAM WHT 1/2 WIDE X 1/8 THK
30	005338	SUBPANEL
31	412060	SPACER #4 X 5/16 STEEL
32	749851	ASSY DISPLAY PCB
33	404013	WASHER LOCK 5/16 X .435 X .002
34	410004	NUT CONTROL M7 X .75 HEX
35	402001	NUT KEP 4-40 CADMIUM PLATE
36	749853	ASSY TONE PCB
37	005214	PANEL SIDE LEFT
38	005213	PANEL SIDE RIGHT
39	005337	CHASSIS TRAY
40	159340	TRANSFORMER R-CORE POWER
41	402045	NUT KEP 6-32 SPECIAL
42	017160	TAB MOUNTING .140 DIA
43	074091	TERMINAL BLOCK AC
44	404001	WASHER FLAT STEEL 4 X 9/32 X .025
45	404142	WASHER LOCK 2.5mm INT STAR ZINC
46	402022	NUT MACH 4-40 X 3/16 X 1/16
47	178160	HOLDER FUSE 5 X 20 CHASSIS MOUNT
48	400354	SCREW SEMS 2-56 X 3/16 PH PN
49	005341	BRACKET PCB
50	749850	ASSY MAIN PCB
51	749852	ASSY 6 CHANNEL PCB
52	749854	ASSY DATA PCB
53	005689	REAR PANEL
54	117946	RECEPTACLE INPUT & LINE FILTER
55	402003	NUT MACH 6-32 SELF-LOCK
56	400250	SCREW MACH SEMS 6-32 X 1/4 PH PN
57	401109	SCREW TAP 6-32 X 5/16 PH PN BLK
58	400157	SCREW MACH 6-32 X 1/4 PH PN BLK
59	084217	GROUND POST-KEYED
60	005078	REAR PANEL PLUG
61	101197	SCREW HI-LO 4-24 X 3/8 PH RD BLK
62	005147	BOTTOM COVER
63	017218	FOOT PLASTIC BLACK
64	404080	WASHER FLAT #10 CLEAR ZINC
65	400159	SCREW MACH 10-32 X 3/4 PH PN BLK
66	005592	TOP COVER
67	401078	SCREW TAP 8-32 X 5/16 PH PN BLK
68	410015	NUT M4X0.7 SS
69	404072	WSHRLK 1/4 IDX.408-.396 ODX.18
70	404078	WASHER #8 INT STAR LOCK

NOTES

REPACKING INSTRUCTION

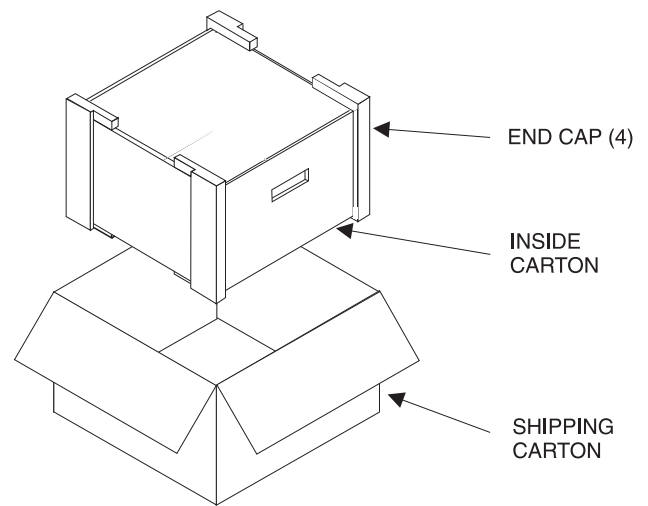
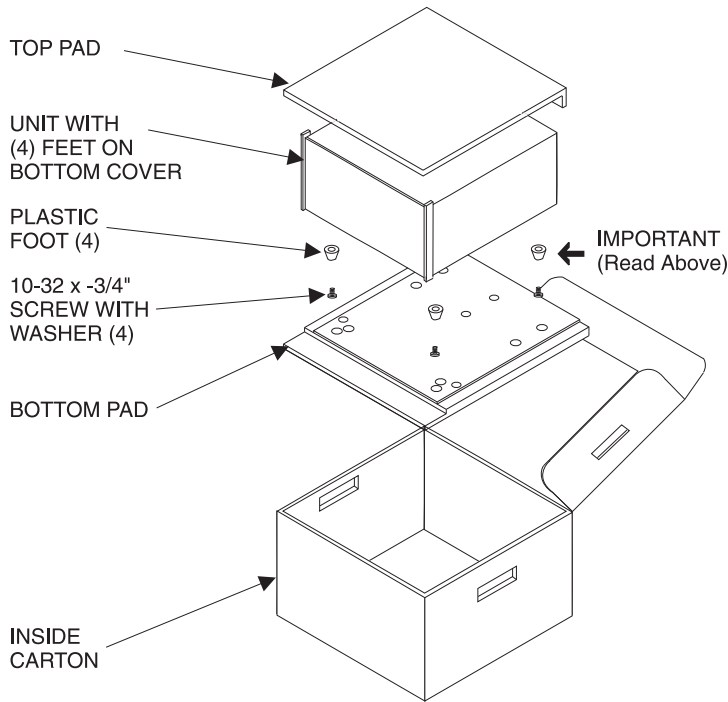
In the event it is necessary to repack the unit for shipment, the unit must be packed exactly as shown below.

IMPORTANT - The four plastic feet must be attached to the bottom of the unit so they will locate in the four holes of the bottom pad. Failure to do this will result in shipping damage.

If a shipping carton or any of the interior parts is needed, please call or write the Customer Service Department of McIntosh Laboratory. Order parts from the accompanying list by part number.

Use the original shipping carton and interior parts only if they are in good serviceable condition.

Qty.	Part No.	Description
1	033838	Shipping carton only
4	033837	Foam end cap
1	033836	Inside carton only
1	033725	Top pad
1	034194	Bottom pad
4	017218	Plastic foot
4	400159	#10-32 x 3/4" Machine screw
4	404080	#10 x 7/16" Flat washer



C45

AUDIO CONTROL CENTER

SERVICE MANUAL

SERIAL NO. XF1001 And Above



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