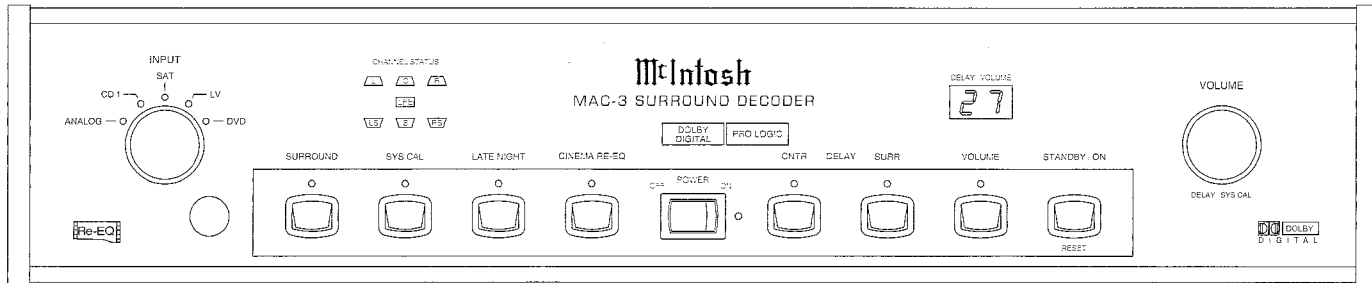


MAC-3

SURROUND DECODER



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McIntosh

SERVICE MANUAL

PERFORMANCE SPECIFICATIONS

Frequency Response

STEREO

Left and Right Small Speakers: 80Hz-20,000Hz
Subwoofer: 20Hz-80Hz

Left and Right Large Speakers: 20Hz-20,000Hz
Subwoofer: OFF

PRO LOGIC

Left, Center, Right, Small Speakers: 80Hz-20,000Hz
Surround Small Speakers: 20Hz-7kHz
Subwoofer: 20Hz-80Hz

Left, Center, Right, Large Speakers: 20Hz-20,000Hz
Surround Large Speakers: 20Hz-7kHz
Subwoofer: OFF

DOLBY DIGITAL

Left and Right Small Speakers: 80Hz-20,000Hz
Surround Small Speakers: 80Hz-20,000Hz
Subwoofer: 20Hz-80Hz

Left and Right Large Speakers: 20Hz-20,000Hz
Surround Large Speakers: 20Hz-20,000Hz
Subwoofer: 20Hz-80Hz

Rated Output

All Modes: 2.0VRMS for full bit. Digital Input.

Output Impedance

420 ohms at all outputs.

Maximum Output Voltage

8VRMS

Total Harmonic Distortion

0.005% at all outputs.

Sensitivity

Analog Input: 500mV for 2.0V output, (100mV IHF).

Signal To Noise Ratio-All Outputs

Greater than 90dB unweighted.
Greater than 100dB weighted.
Greater than 98dB CCIR

Maximum Input Signal

Analog Input: 8VRMS

Voltage Gain

Analog Input to Output: 12dB


Power Requirements

120Volts, 50/60Hz at 40 Watts.

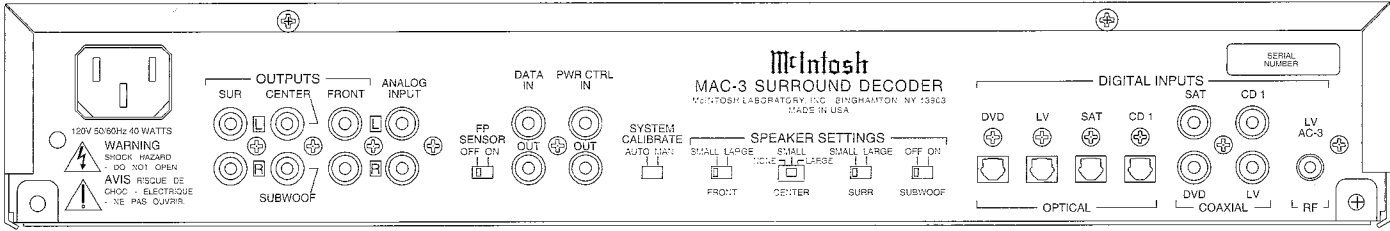
Dimensions

Front Panel: 17-1/2" (44.5cm) Wide, 3-9/16" (9cm) High.
Depth required behind mounting panel, including connectors: 17-1/2" (44.5cm). Knob clearance required in front of mounting panel: 1-3/8" (3.5cm).

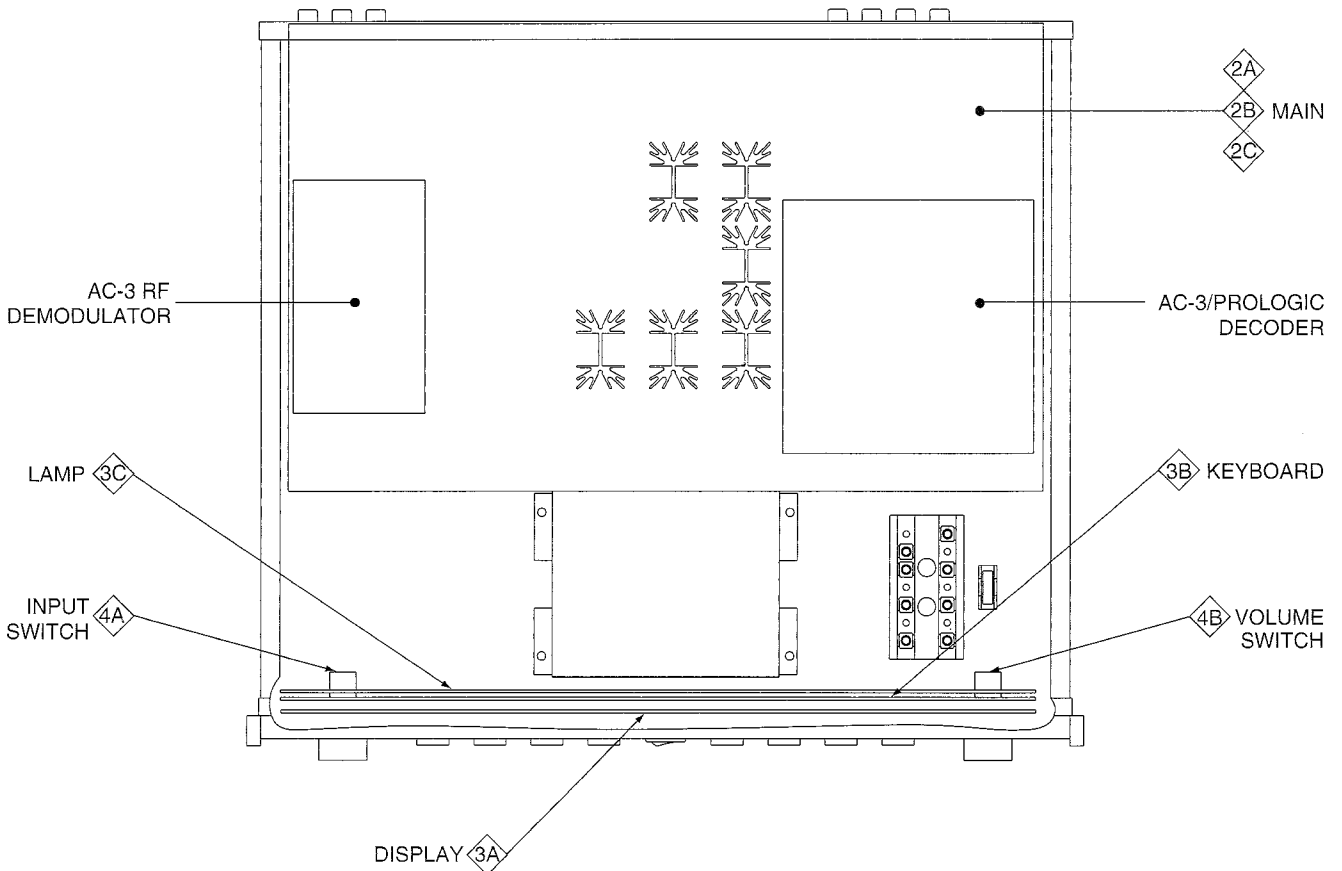
NOTES

1. The heavy lines on the schematics denote the primary signal path.
2. Unless otherwise noted, all voltages indicated on the schematics are measured under the following conditions:
 - a. AC input at 120Volts, 50/60Hz
 - b. All voltages are $\pm 10\%$ with respect to ground unless otherwise specified. A high impedance (10 megohm) voltmeter must be used.
3. Unless otherwise specified:
 - a. Resistor values are in ohms.
 - b. Capacitor values are in microfarads (μF).
 - c. Inductor values are in microhenries (μH).
4. On PC Board Drawings, Square Pad Indicates:
 - a. Polarized Capacitors—Positive
 - b. Diodes—Cathode
 - c. Others—Pin 1
5. **WARNING:** Parts marked with the symbol  have critical characteristics. Use ONLY replacement parts

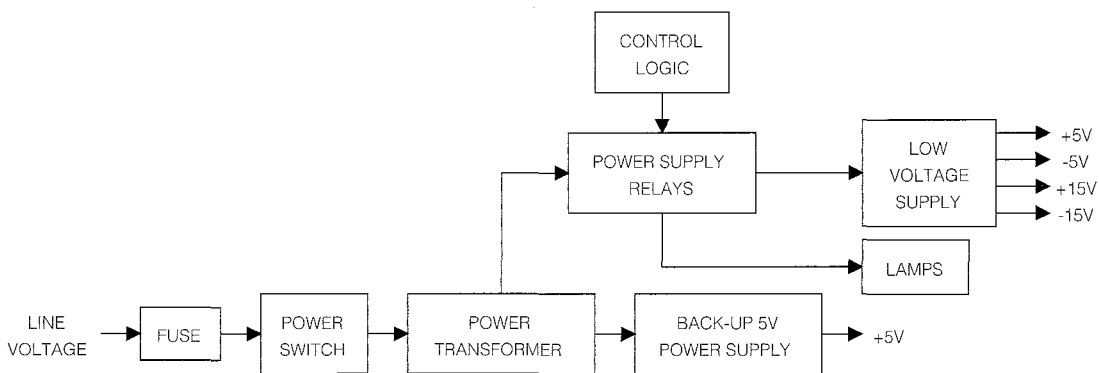
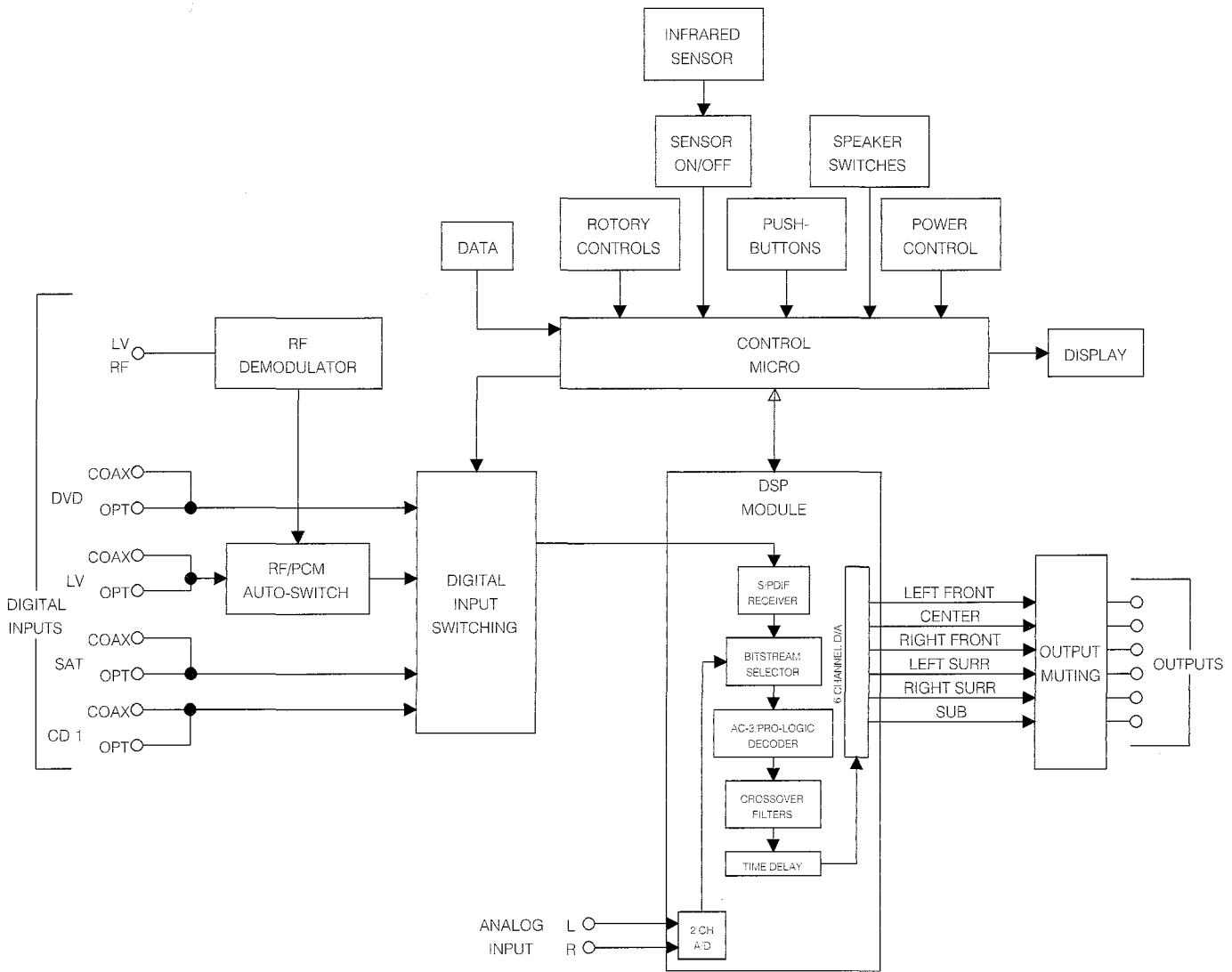
REAR PANEL



SECTION LOCATIONS

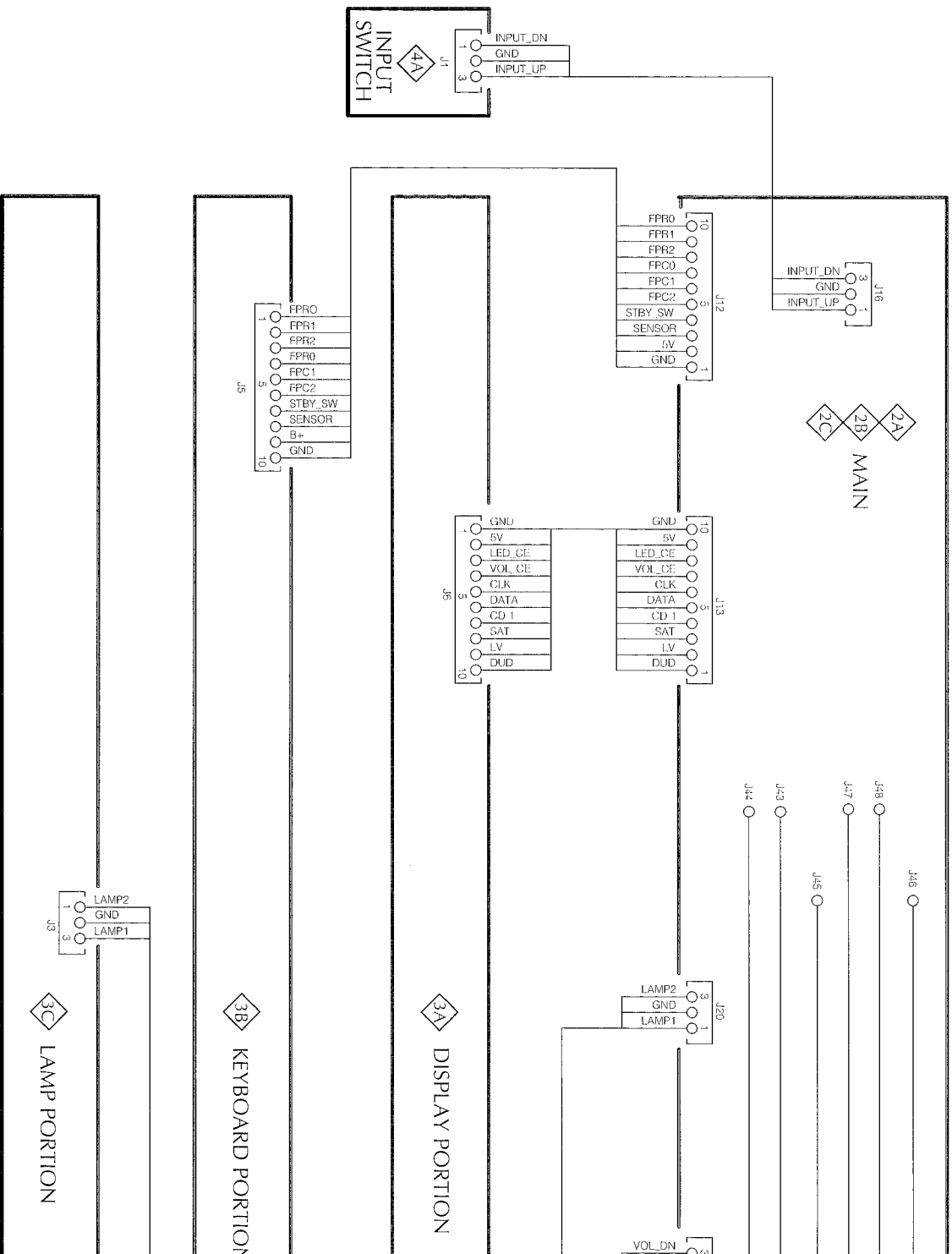


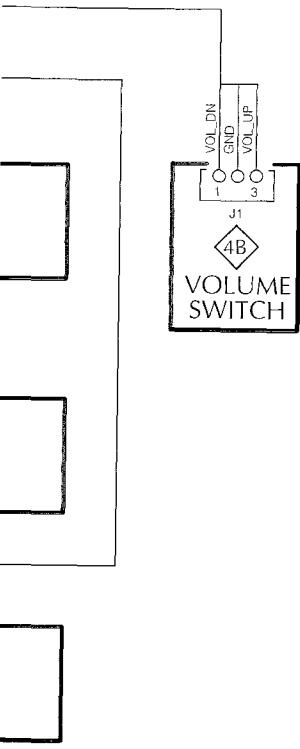
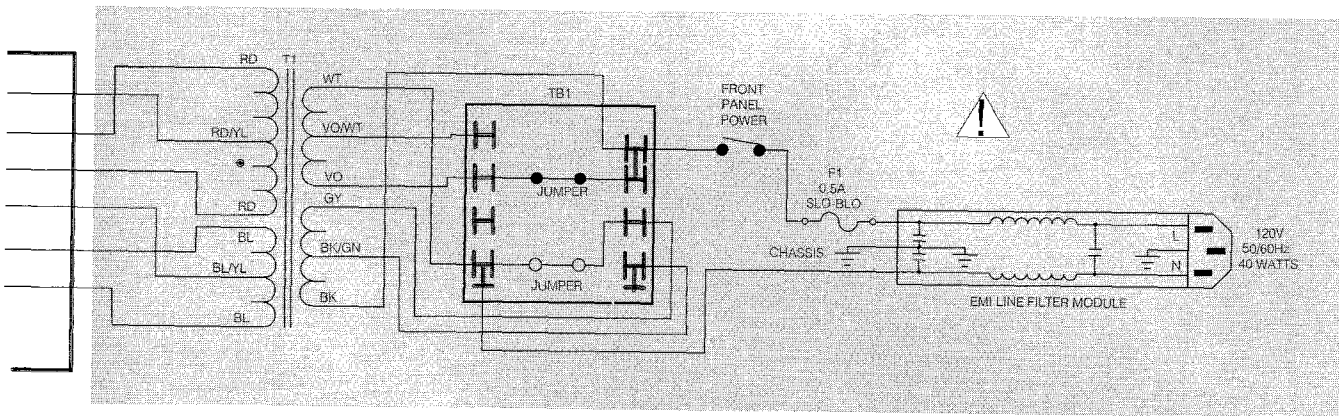
BLOCK DIAGRAM



1

INTERCONNECTION DIAGRAM

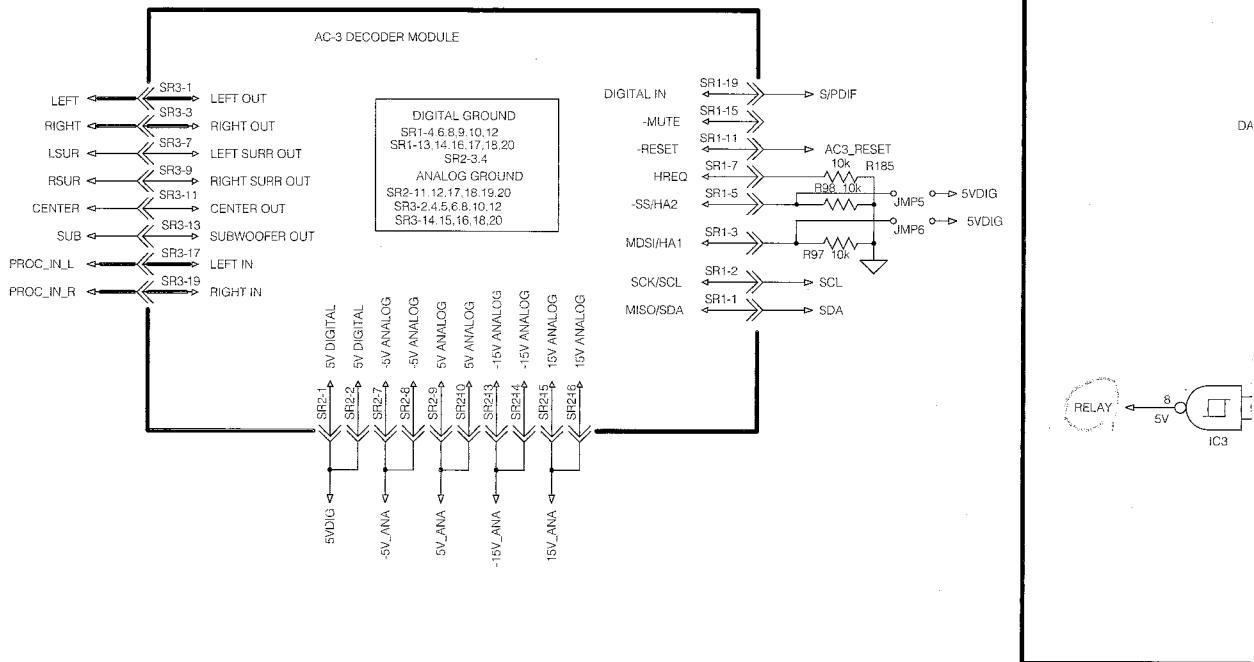
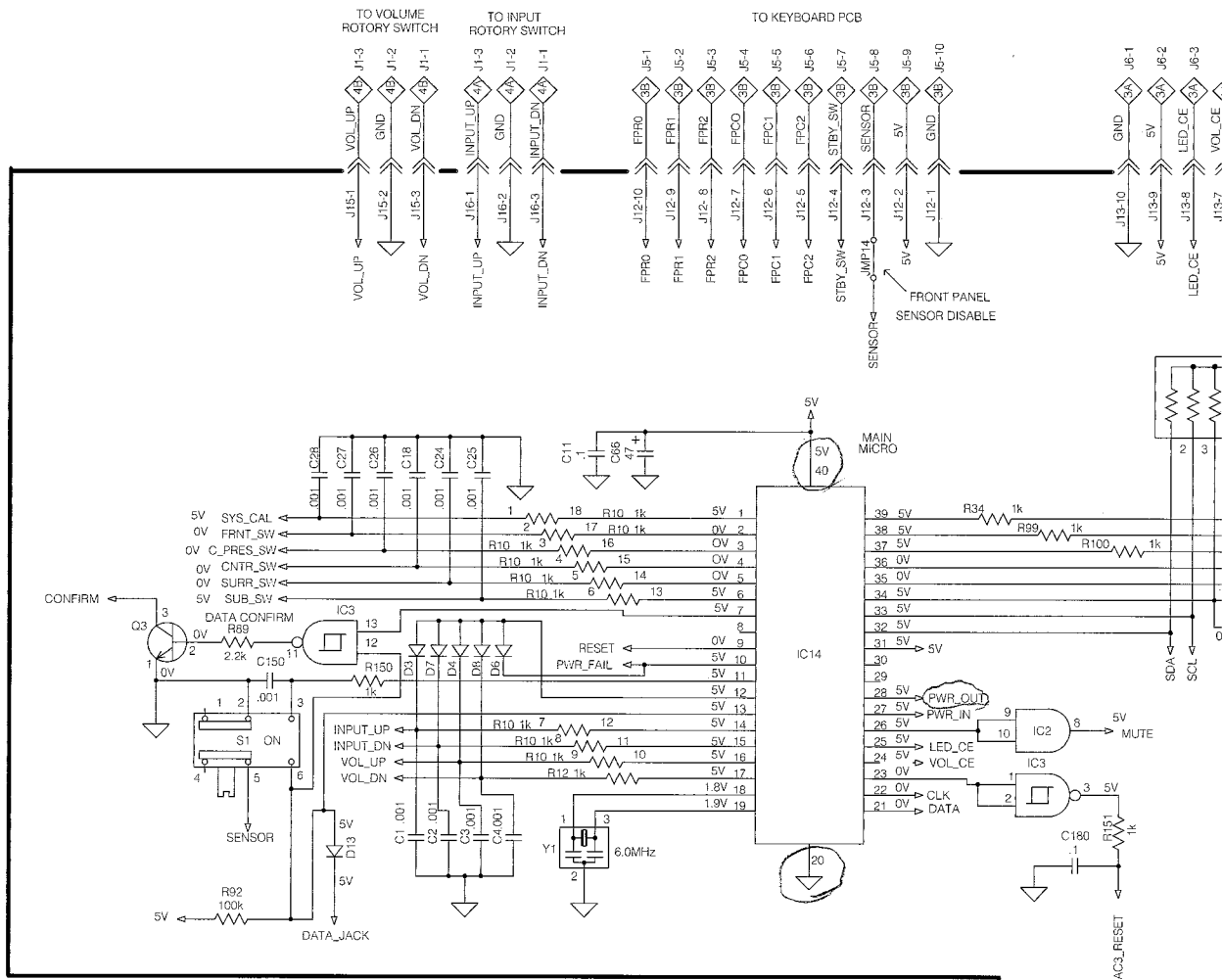


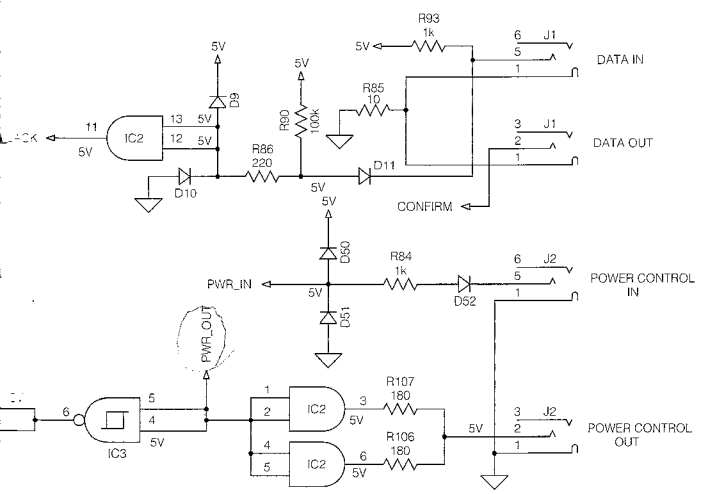
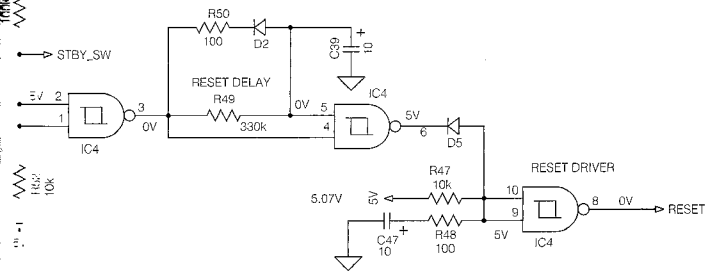
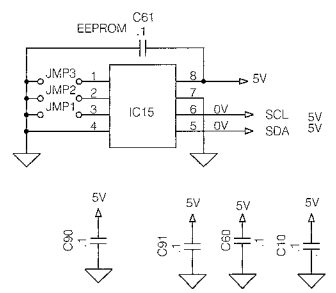
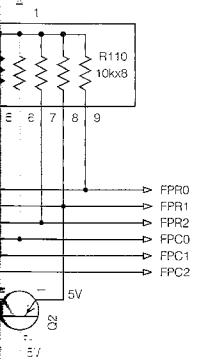
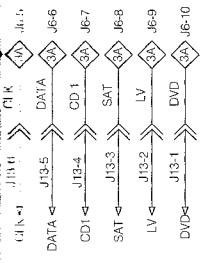


! **WARNING:** Parts located in the shaded area have critical characteristics. Use **ONLY** replacement parts recommended by the manufacturer.

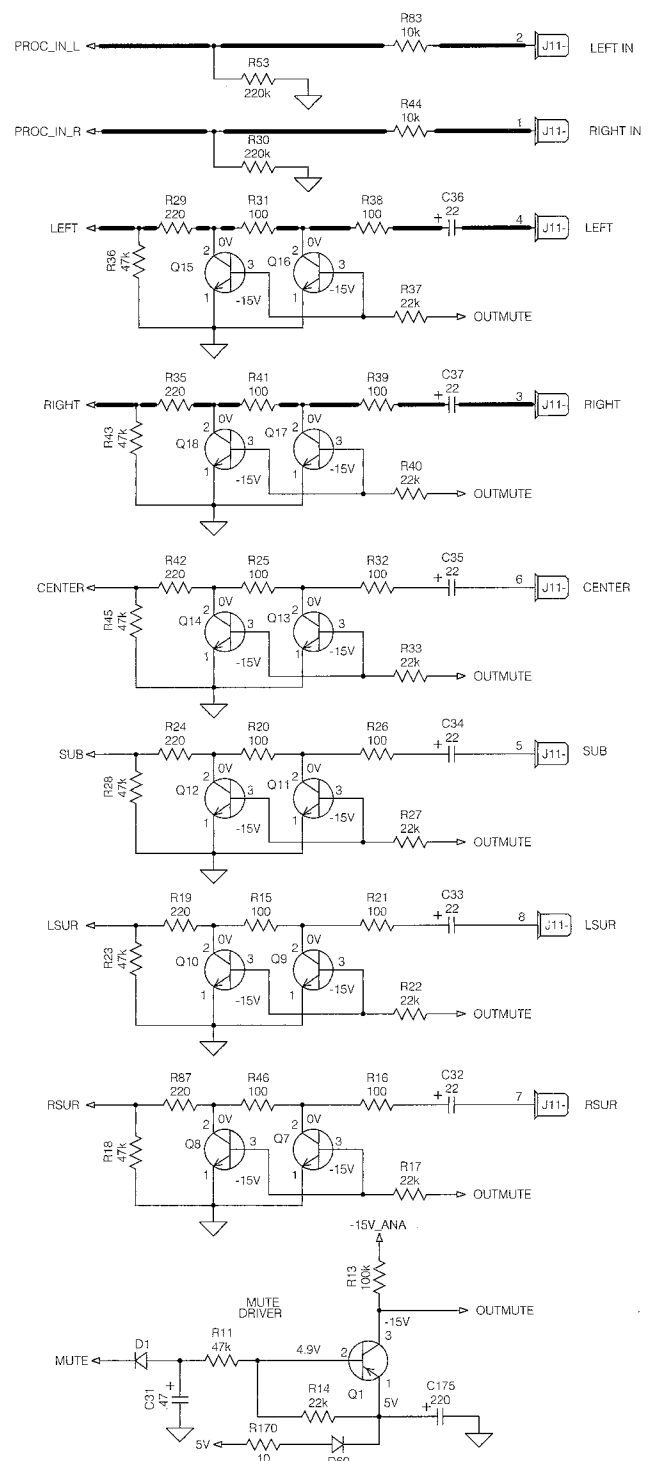
2A

MAIN/CONTROL 048942



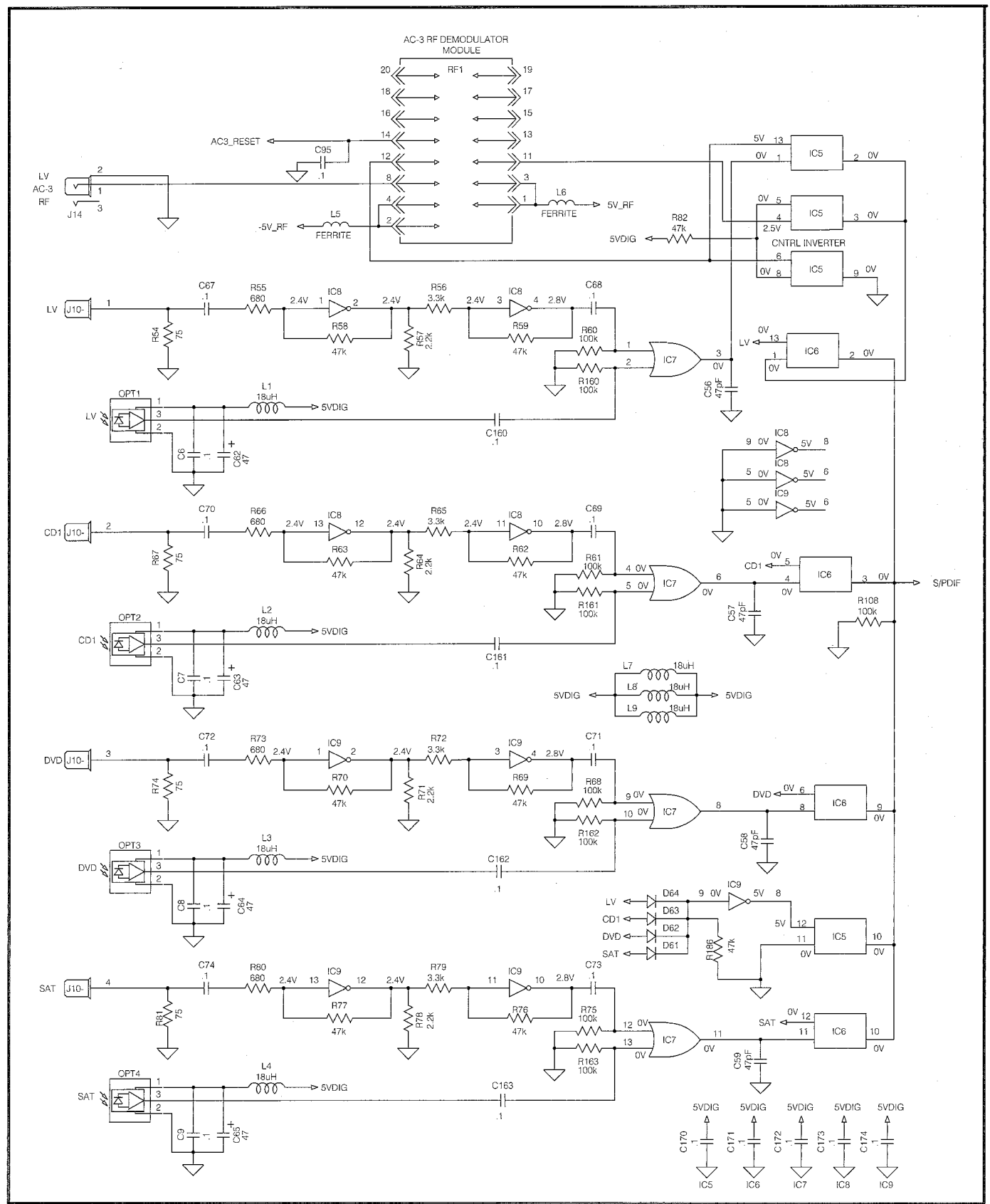


14 - +
7 - -

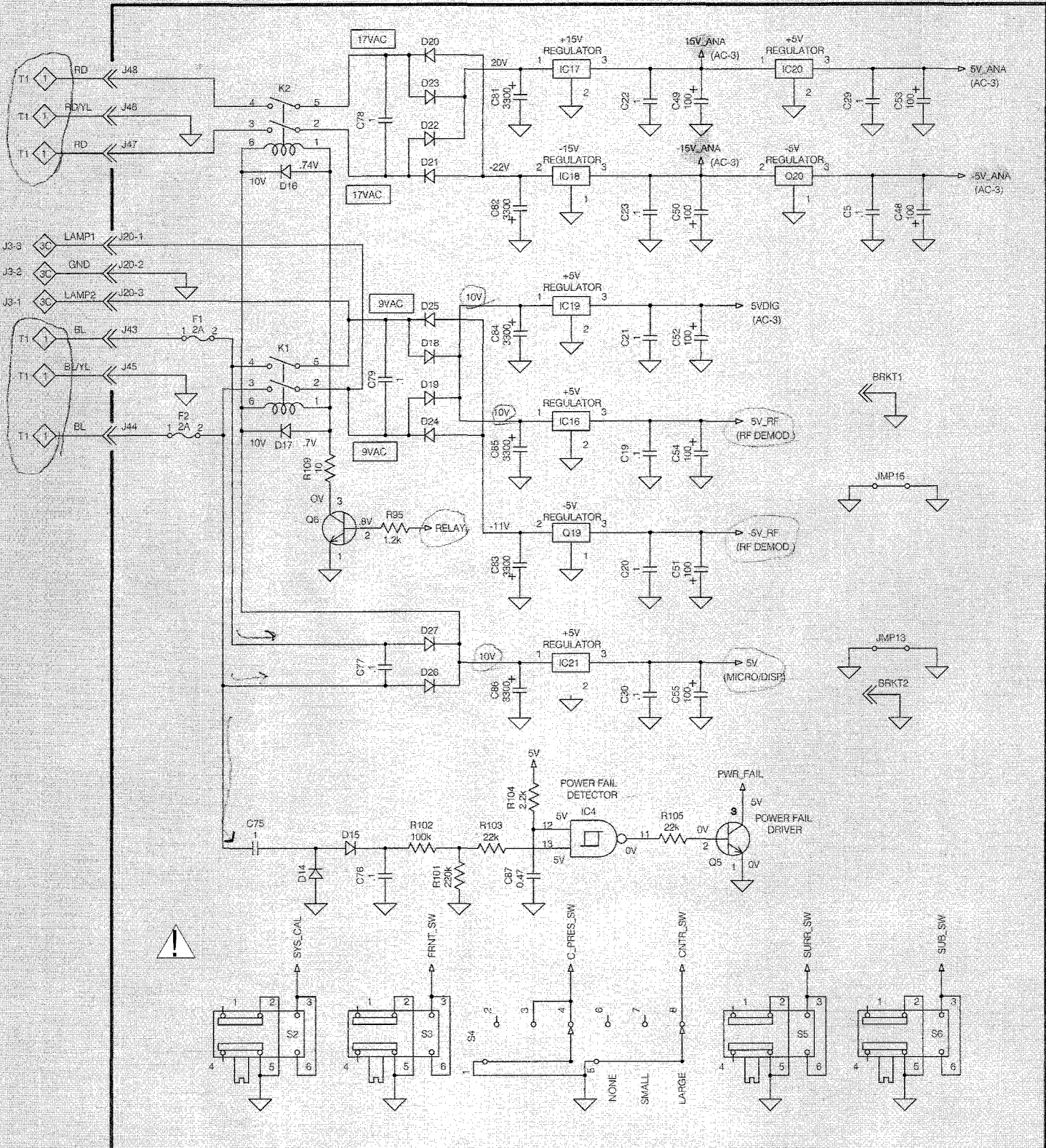


2B

MAIN/SWITCHING 048942



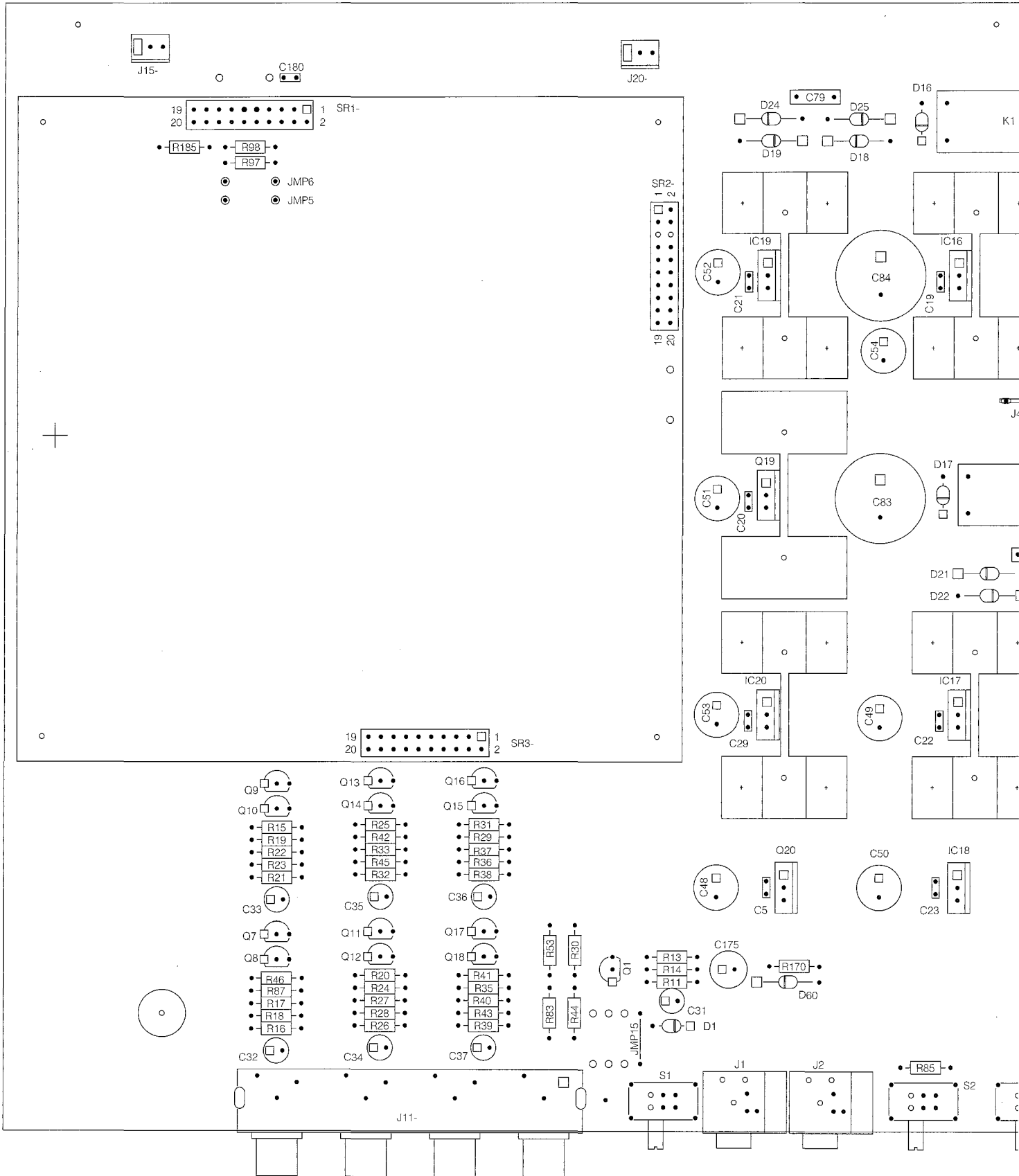
2C MAIN/POWER SUPPLY 048942



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

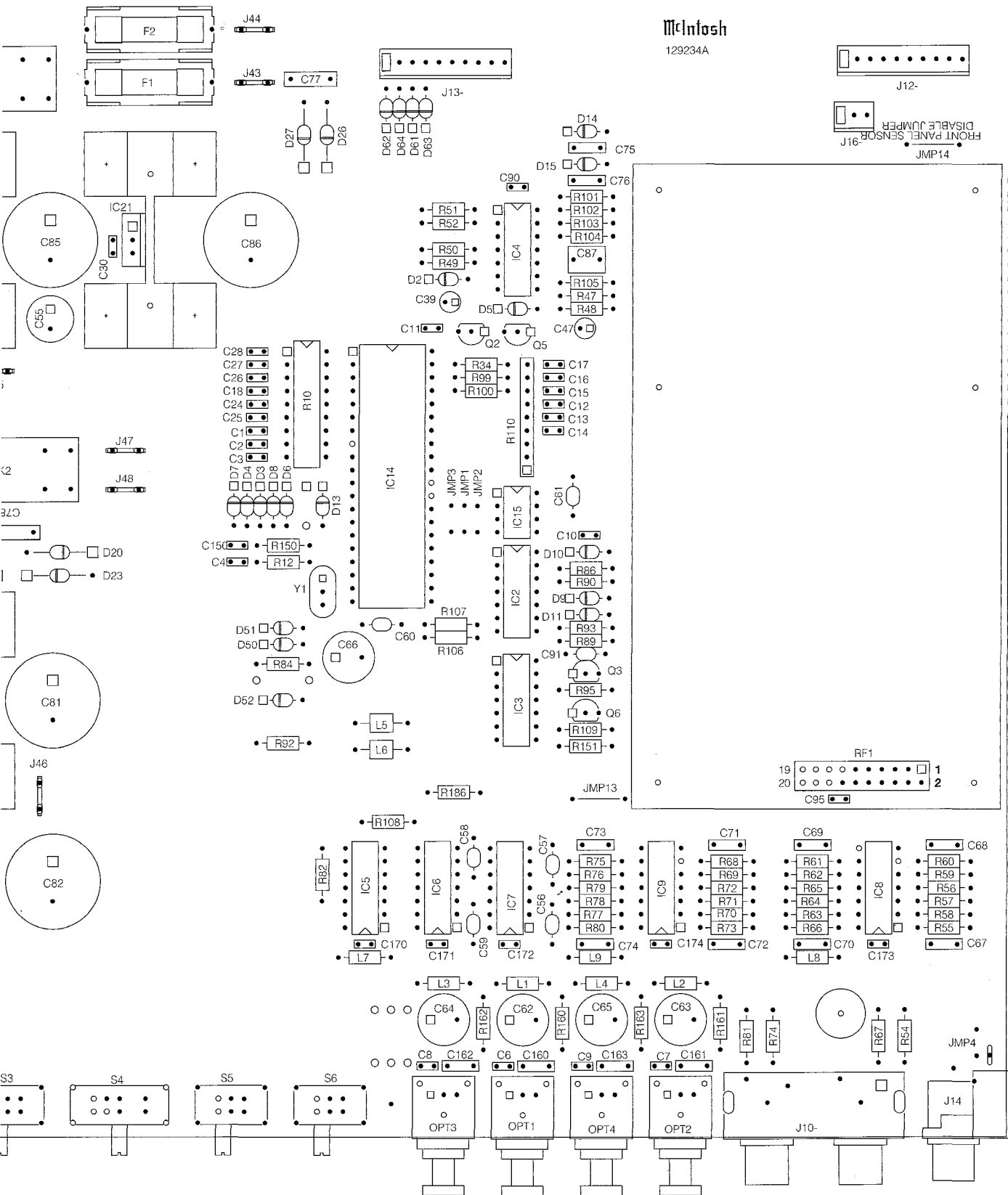
2

MAIN 048942

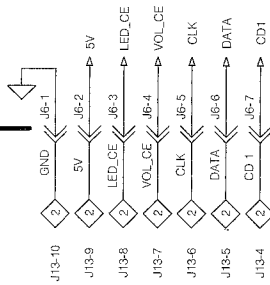
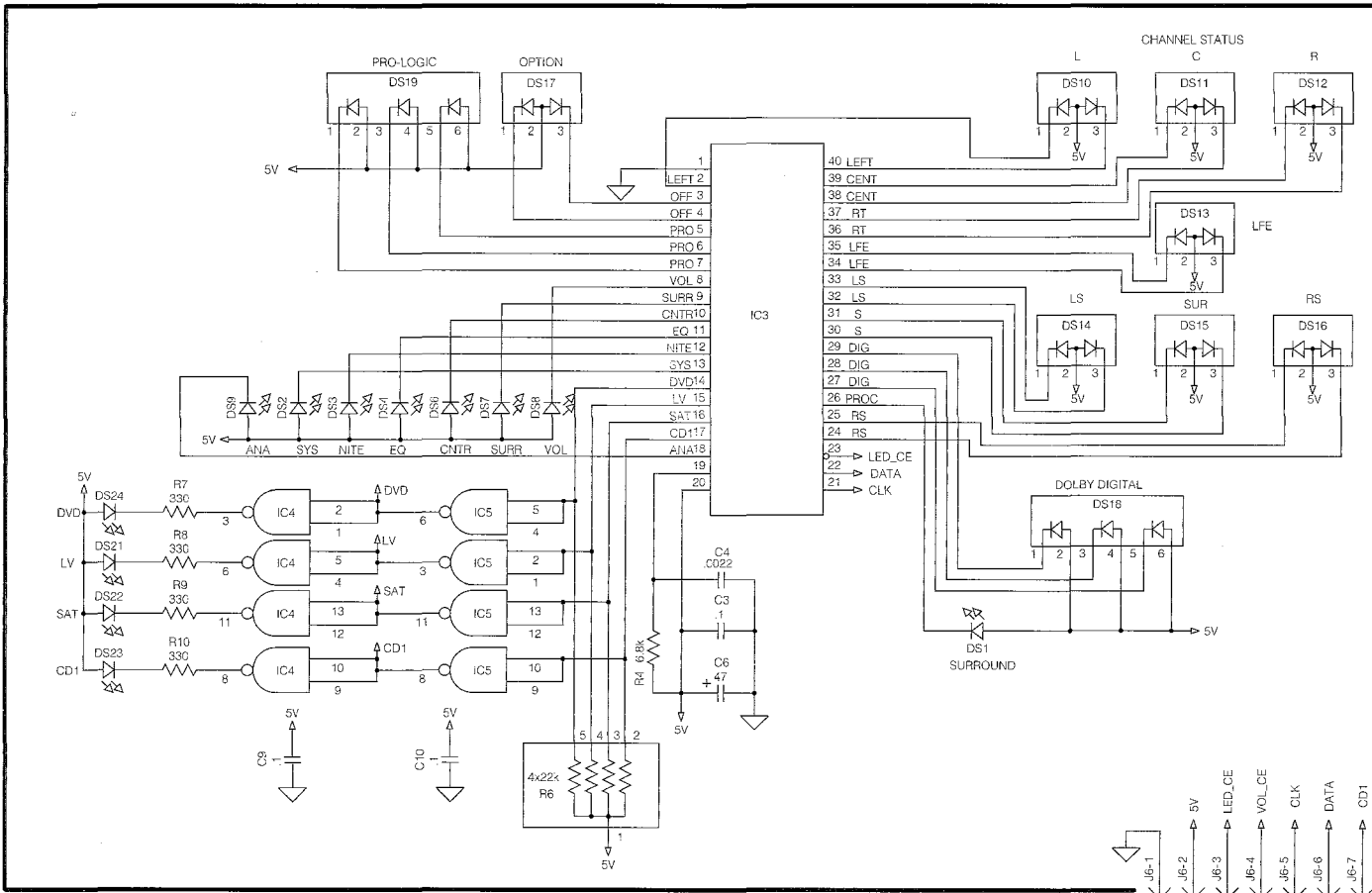


McIntosh

129234A

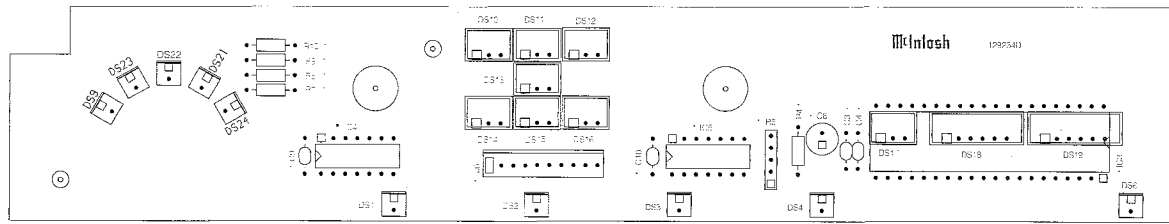


3A DISPLAY 048943

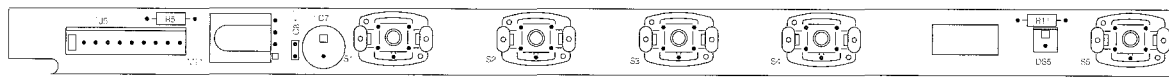


3 PCB 048943

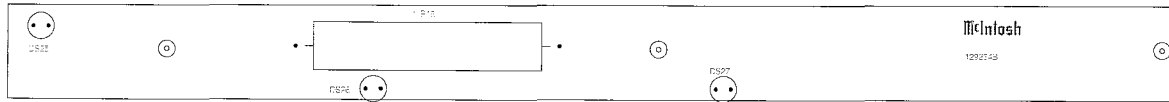
DISPLAY



KEYBOARD

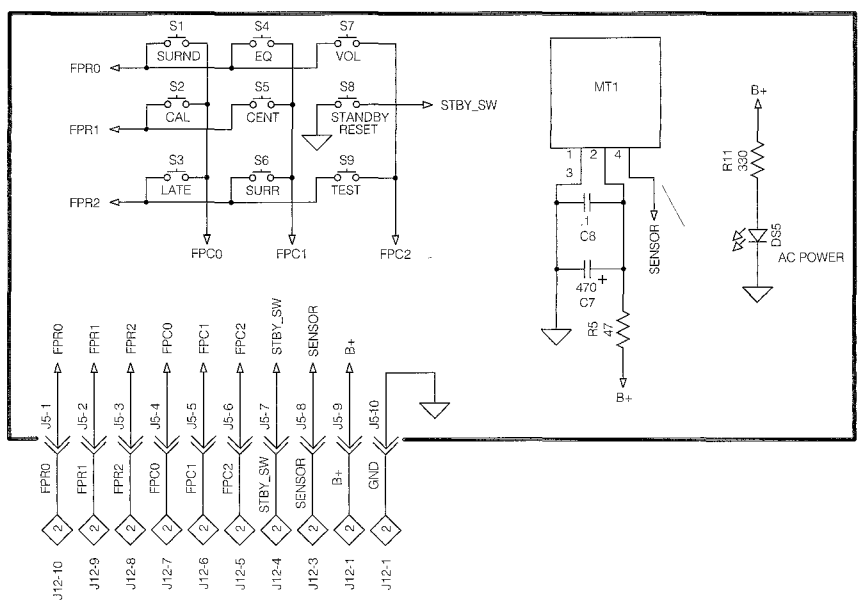
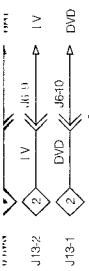
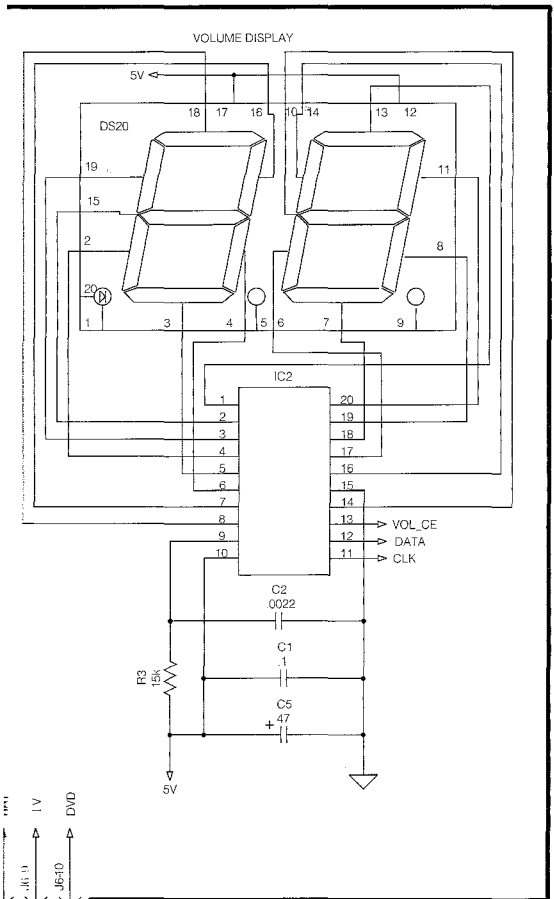


LAMP

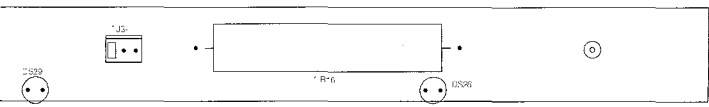
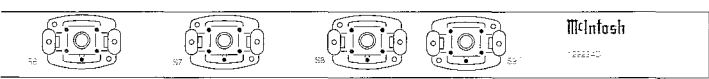
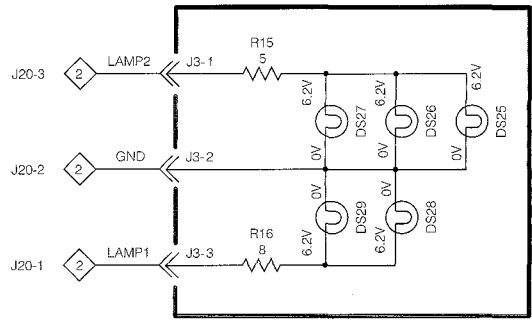
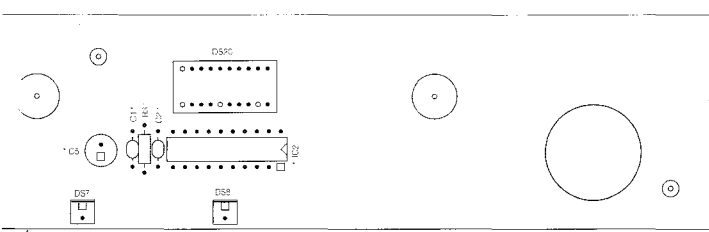


NOTE: * Denotes components on reverse side of board

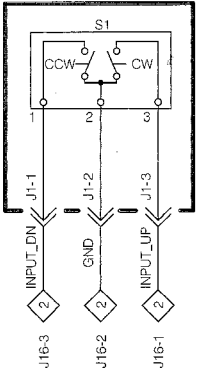
3B KEYBOARD 048943



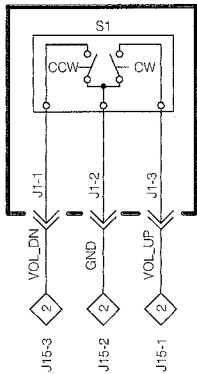
3C LAMP 048943



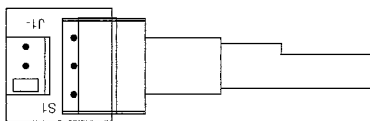
4A INPUT SWITCH 048776



4B VOLUME SWITCH 048776



4 PCB 048776



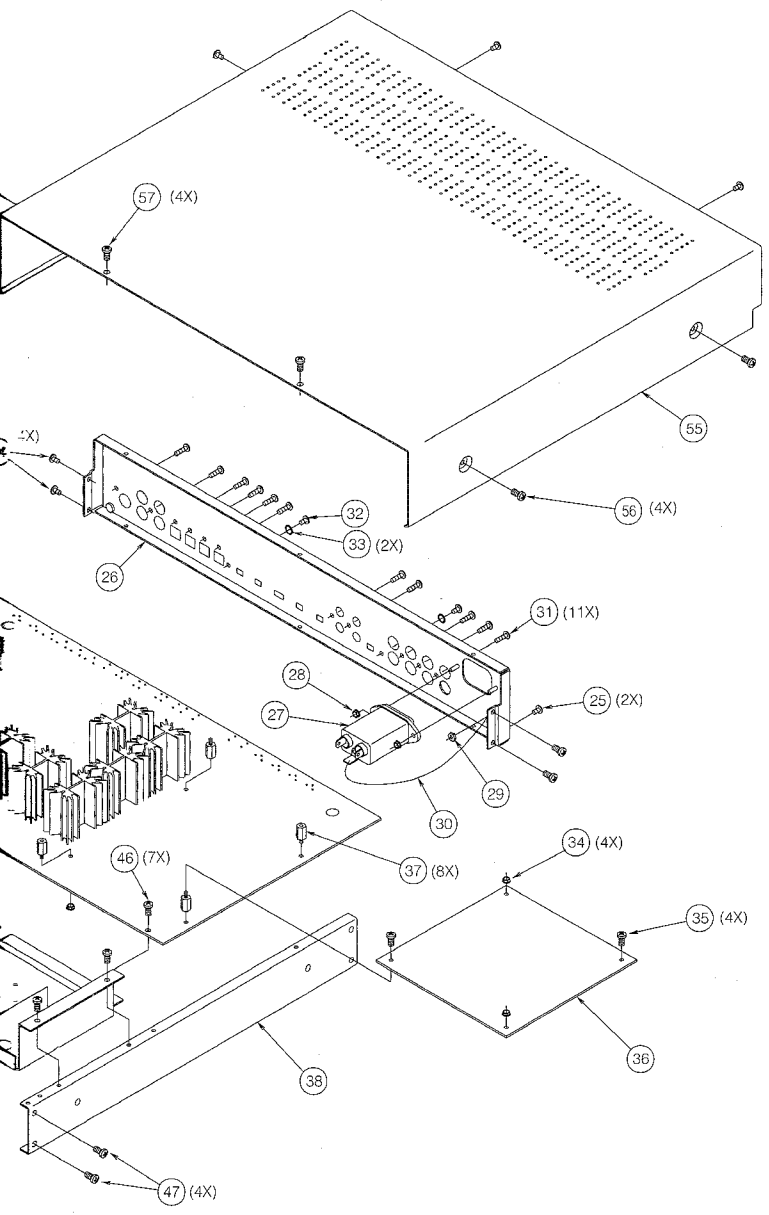
PARTS LIST

PART NO.	DESCRIPTION	REFERENCE N
INTERCONNECT		
074091	AC TERMINAL BLOCK	TB1
089090	0.5A 250V SLO-BLO	
	5X24mm FUSE	F1
117683	AC INPUT LINE FILTER	
159289	POWER TRANSFORMER	T1
171147	SWITCH CABLE ASSEMBLY	
048942 MAIN		
058144	FIBER OPTIC RECEIVER	OPT1 OPT2 OPT3 OPT4
061262	MONO CER 0.001MF 100V NPO	C1 C2 C3 C4 C C24 C25 C26 C C28 C150 C60 C61 C91
061268	MONO CAP .1UF 50V	
061272	MONO CAP 47PF 200V NPO 10%	C56 C57 C58 C
061277	MONO CAP 0.1MF 20% 50V	C5 C6 C7 C8 C C10 C11 C19 C C21 C22 C23 C C30 C90 C95 C C171 C172 C1 C174 C180
064325	M POLYESTER CAP .1UF 5% 63VDC	C67 C68 C69 C70 C71 C72 C73 C74 C75 C76 C160 C16 C162 C163 C87
064333	POLY CAP .47UF 5% 50V	C77 C78 C79
064338	POLY CAP 0.1MF	C48 C49 C50
066161	ELECT CAP 100MF 25V	C51 C52 C53 C54 C55
066240	ELECT CAP 22MF 25V ALUM	C32 C33 C34 C35 C36 C37
066244	ELECT CAP 0.47MF 50V ALUM	C31
066278	ELECT CAP 47MF 50V RADIAL	C62 C63 C64 C
066330	ELECT CAP 220MF 16V	C175
066360	ELECT CAP 3300MF 35V	C81 C82 C83 C84 C85 C86
066382	ELECT CAP 10MF 16V	C39 C47
066413	ELECT 47UF	C66
070047	SILICON DIODE 1N4148	D1 D2 D3 D4 D5 D6 D7 D8 D9 D10 D11 D13 D14 D15 D16 D17 D50 D51 D52 D61 D62 D63 D64 D18 D19 D20 D21 D22 D23 D24 D25 D26 D27 D60
070131	DIODE RECTIFIER	
076019	LEADED FERRITE BEADS	L5 L6
087059	RELAY	K1 K2
089089	FUSE	F1 F2
117214	MALE CONN 3-POS	J15- J16- J20
117219	MALE CONN 10 POS	J12- J13-

PART NO.	DESCRIPTION	REFERENCE NO.
117342	1/4" FASTON BLADE	J43 J44 J45 J46 J47 J48 J14
117451	PH/JACK GL PL BLK	J11-
117455	PHONO JACK 8P GOLD PLATED	J1 J2
117549	HEADPHONE JACK DUAL BLACK 1/8"	J10-
117561	PHONO JACK 4 POLE BLACK	SR1- SR2- SR3 RF1 L1 L2 L3 L4 L7 L8 L9
117642	.025 SQ SOCKET STRIP 20 PIN	Q1
122224	18UH 5% CHOKE	Q3 Q5 Q6
132172	TRANSISTOR: SI PNP MPSA55	Q2
132223	TRANSISTOR NPN MPS4124	Q7 Q8 Q9 Q10 Q11 Q12 Q13 Q14 Q15 Q16 Q17 Q18
132224	TRANSISTOR PNP SI MPS4126	IC17
132257	TRANSISTOR SI NPN	IC18
133086	IC REGULATOR +15 VOLT	Q19 Q20
133087	MC7915CT -15V REGULATOR	IC16 IC19 IC20 IC21
133088	MC7905.2CT 5-.2V REGULATOR	IC7
133108	IC +5V REGULATOR	IC8 IC9
133167	MC74HC32AN OR 2 INPUT X 4	IC2
133173	MC74HCU04N HEX UNBUF INVERTER	IC3 IC4
133175	MC74HC08 IC.AND 2 INPUT X 4	IC5
133192	IC NAND SCHMIT 2 INPUT X 4	IC5 IC6
133249	IC CMOS EPROM	IC14
133342	IC QUAD ANALOG SWITCH HI SPEED	R15 R16 R20 R21 R25 R26 R31 R32 R38 R39 R41 R46 R48 R50 R106 R107 R19 R24 R29 R35 R42 R86 R87 R55 R66 R73 R80 R12 R34 R84 R93 R99 R100 R150 R151
133353	PROGRAMMED MICRO AC-3 CONTROL	R95 R57 R64 R71 R78 R89 R104 R56 R65 R72 R79 R44 R47 R52 R83 R97 R98 R185 R14 R17 R22 R27 R33 R37 R40 R103 R105 R11 R18 R23 R28 R36 R43
141025	RES CF 100 5% 1/4W	
141031	RES CF 180 5% 1/4W	
141033	RES CF 220 5% 1/4W	
141045	RES CF 680 5% 1/4W	
141049	RES CF 1.0K 5% 1/4W T&R	
141051	RES CF 1.2K 5% 1/4W T&R	
141057	RES CF 2.2K 5% 1/4W T&R	
141060	RES CF 3.3K 5% 1/4W	
141072	RES CF 10K 5% 1/4W T&R	
141080	RES CF 22K 5% 1/4W T&R	
141088	RES CF 47K 5% 1/4W T&R	

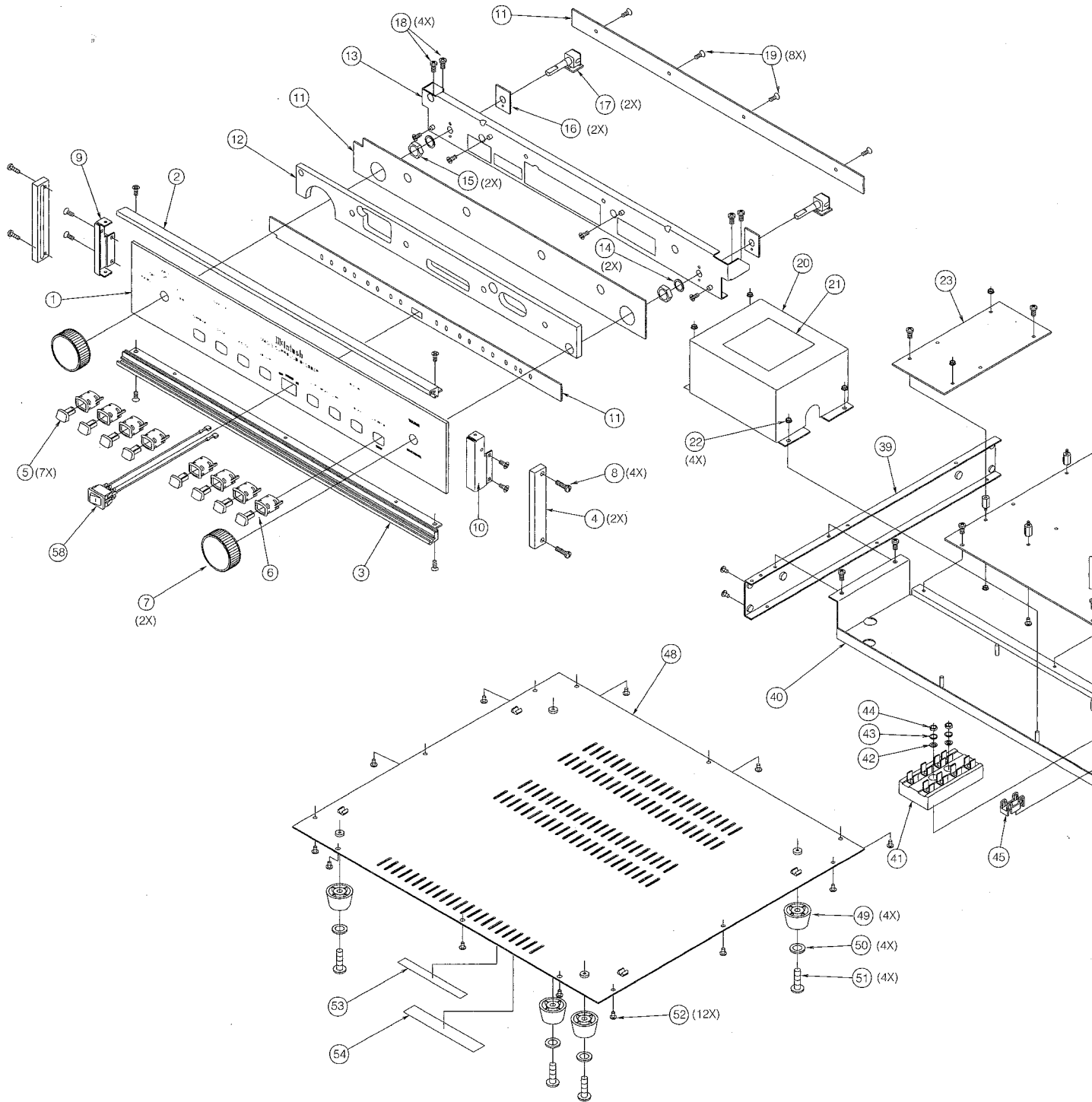
PART NO.	DESCRIPTION	REFERENCE NO.
		R45 R58 R59 R62 R63 R69 R70 R76 R77 R82 R186 R13 R51 R60 R61 R68 R75 R90 R92 R102 R108 R160 R161 R162 R163 R30 R53 R101 R49 R85 R109 R170 R54 R67 R74 R81
141096	RES CF 100K 5% 1/4W T&R	R110 R10 S1 S2 S3 S5 S6 S4 Y1
141104	RES CF 220K 5% 1/4W T&R	
141108	RES CF 330K 5% 1/4W T&R	
141136	RES CF 10A5% 1/4W	
141157	RES CF 75 5% 1/4W	
144253	RES NET 10K OHMS X 8 RES B	
144280	RES NET 9 X 1K ISOLATED	
148059	SLIDE SWITCH	
148060	SLIDE SWITCH	
180039	CERAM RESON 6.0MHZ W/CAP	
048943	DISPLAY	
058062	LAMP: 6.3V #7381 DS28 DS29	DS25 DS26 DS27
058109	LED SQUARE TYPE (RED)	DS1 DS2 DS3 DS4 DS5 DS6 DS7 DS8 DS9 DS21 DS22 DS23 DS24
058129	2 DIGIT LED NUM DISPLAY RED	DS20
058146	LED YELLOW BAR 2 SEG DS13 DS14 DS15	DS10 DS11 DS12
DS16 DS17		
058147	LED ARRAY YELLOW 3 SEG	DS18 DS19
061266	.0022MF 10% 100V AXIAL	C2 C4
061268	MONO CAP: .1UF 50V	C1 C3 C9 C10
061277	MONO CAP 0.1MF 20% 50V	C8
066215	ELECT CAP 47UF 16V	C5 C6
066327	ELECT CAP 470MF 10V	C7
117214	MALE CONN 3 POS	J3-
117219	MALE CONN 10 POS	J5- J6-
121031	IR SENSOR 38KHZ	MT1
133161	74HC00N NAND INPUT X 4	IC4 IC5
133211	IC LED DISPLAY DRIVER	IC2
133268	DISPLAY DRIVER 4 DIGIT LED	IC3
139126	WIRE RES: 8 OHM 5% 15W	R16
139149	WIRE WOUND 5 OHM 5% 15W	R15
141037	RES CF 330 5% 1/4W	R7 R8 R9 R10 R11
141068	RES CF 6.8K 5% 1/4W T&R	R4
141076	RES CF 15K 5% 1/4W T&R	R3
141152	RES CF 47 5% 1/4W	R5
144234	RES NETWORK 4 X 22K BUS	R6
150058	TACT SWITCH	S1 S2 S3 S4 S5 S6 S7 S8 S9
048776	INPUT/VOLUME SWITCH	
117214	MALE CONN 3-POS	J1-
146249	SWITCH PULSE ROTARY	S1

PARTS LIST

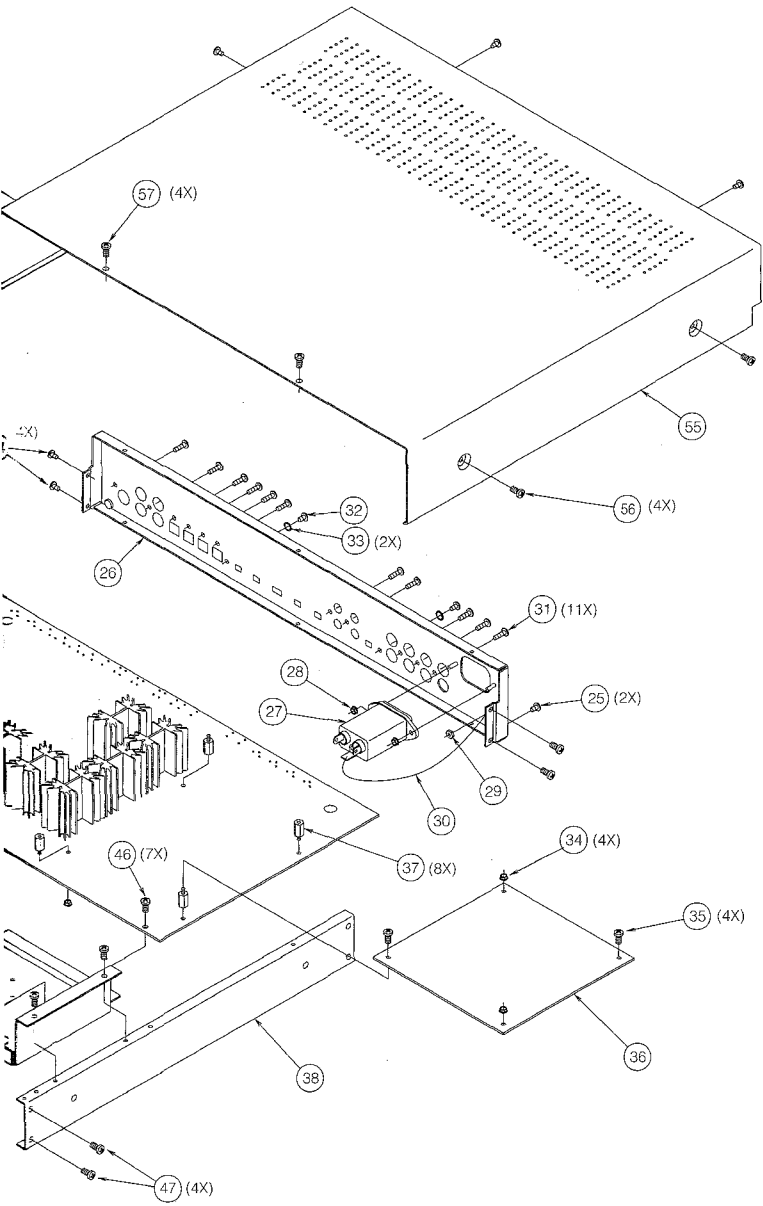


REF. NO.	PART NO.	DESCRIPTION
1	016381	FRONT PANEL GLASS
2	018411	TOP EXTRUSION
3	018457	BOTTOM EXTRUSION
4	018438	ENDCAP
5	017517	BLACK PUSHBUTTON
6	017531	RED PUSHBUTTON
7	090225	KNOB 25.5mm
8	101042	ST 4-40 X 1/2 FILL HD TYPE 1
9	004258	LEFT EXTRUSION BRACKET
10	004257	RIGHT EXTRUSION BRACKET
11	048943	DISPLAY/KEYBOARD PCB
12	017709	LIGHTING PLEXIGLAS
13	004763	SUBPANEL
14	104013	LOCK WASHER 5/16 INT TOOTH
15	110007	CONTROL NUT 7mm
16	004770	SWITCH SPACER PLATE
17	048776	SELECTOR SWITCH PCB
18	101054	ST 6-32 X 1/4 PHIL PAN BLK
19	100121	MS 4-40 X 1/4 PHIL PAN BLK
20	048949	TRANSFORMER ASSY
21	126267	TRANSFORMER DECAL
22	102045	KEP NUT 6-32
23	320075	RF DEMODULATOR PCB
24	101172	ST 6-32 X 1/4 FH PHIL U/C
25	100109	MS 6-32 X 5/16 PHIL PAN BLK
26	004769	REAR PANEL
27	117638	AC RECEPTACLE W/FILTER
28	102001	KEP NUT 4-40
29	102020	NUT 6-32 SELF LOCK
30	171040	GROUND CABLE
31	101114	SM #4 X 1/2 PHIL PAN BLK
32	100260	MS 4-40 X 1/4 PHIL PAN BLK
33	104142	LOCK WASHER 2.5mm INT
34	102001	KEP NUT 4-40
35	100121	MS 4-40 X 1/4 PHIL PAN BLK
36	320074	DECODER PCB
37	112084	STANDOFF 4-40 X 7/16 (M/F)
38	004767	RIGHT SIDE PANEL
39	004766	LEFT SIDE PANEL
40	004762	TRAY
41	074091	AC TERMINAL BLOCK
42	104001	FLAT WASHER #4
43	104004	LOCK WASHER #5 INT TOOTH
44	102022	NUT 4-40 X 3/16 X 1/16
45	178160	FUSE HOLDER 5 X 20
46	101054	ST 6-32 X 1/4 PHIL PAN BLK
47	101172	ST 6-32 X 1/4 FH PHIL U/C
48	004768	BOTTOM COVER
49	017218	PLASTIC FOOT
50	104080	FLAT WASHER #10 YELLOW
51	100159	MS 10-32 X 3/4 PHIL PAN BLK
52	101054	ST 6-32 X 1/4 PHIL PAN BLK
53	126285	DOLBY DECAL
54	126286	RE-EQ DECAL
55	004263	TOP COVER
56	100173	MS 8-32 X 1/4 PHIL PAN BLK
57	101054	ST 6-32 X 1/4 PHIL PAN BLK
58	171039	POWER SWITCH WITH CABLE

EXPLODED VIEW



PARTS LIST



REF. NO.	PART NO.	DESCRIPTION
1	016381	FRONT PANEL GLASS
2	018411	TOP EXTRUSION
3	018457	BOTTOM EXTRUSION
4	018438	ENDCAP
5	017517	BLACK PUSHBUTTON
6	017531	RED PUSHBUTTON
7	090225	KNOB 25.5mm
8	101042	ST 4-40 X 1/2 FILL HD TYPE 1
9	004258	LEFT EXTRUSION BRACKET
10	004257	RIGHT EXTRUSION BRACKET
11	048943	DISPLAY/KEYBOARD PCB
12	017709	LIGHTING PLEXIGLAS
13	004763	SUBPANEL
14	104013	LOCK WASHER 5/16 INT TOOTH
15	110007	CONTROL NUT 7mm
16	004770	SWITCH SPACER PLATE
17	048776	SELECTOR SWITCH PCB
18	101054	ST 6-32 X 1/4 PHIL PAN BLK
19	100121	MS 4-40 X 1/4 PHIL PAN BLK
20	048949	TRANSFORMER ASSY
21	126267	TRANSFORMER DECAL
22	102045	KEP NUT 6-32
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25	100109	MS 6-32 X 5/16 PHIL PAN BLK
26	004769	REAR PANEL
27	117638	AC RECEPTACLE W/FILTER
28	102001	KEP NUT 4-40
29	102020	NUT 6-32 SELF LOCK
30	171040	GROUND CABLE
31	101114	SM #4 X 1/2 PHIL PAN BLK
32	100260	MS 4-40 X 1/4 PHIL PAN BLK
33	104142	LOCK WASHER 2.5mm INT
34	102001	KEP NUT 4-40
35	100121	MS 4-40 X 1/4 PHIL PAN BLK
36	320074	DECODER PCB
37	112084	STANDOFF 4-40 X 7/16 (M/F)
38	004767	RIGHT SIDE PANEL
39	004766	LEFT SIDE PANEL
40	004762	TRAY
41	074091	AC TERMINAL BLOCK
42	104001	FLAT WASHER #4
43	104004	LOCK WASHER #5 INT TOOTH
44	102022	NUT 4-40 X 3/16 X 1/16
45	178160	FUSE HOLDER 5 X 20
46	101054	ST 6-32 X 1/4 PHIL PAN BLK
47	101172	ST 6-32 X 1/4 FH PHIL U/C
48	004768	BOTTOM COVER
49	017218	PLASTIC FOOT
50	104080	FLAT WASHER #10 YELLOW
51	100159	MS 10-32 X 3/4 PHIL PAN BLK
52	101054	ST 6-32 X 1/4 PHIL PAN BLK
53	126285	DOLBY DECAL
54	126286	RE-EQ DECAL
55	004263	TOP COVER
56	100173	MS 8-32 X 1/4 PHIL PAN BLK
57	101054	ST 6-32 X 1/4 PHIL PAN BLK
58	171039	POWER SWITCH WITH CABLE

REPACKING INSTRUCTIONS

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	033770	Shipping carton only
2	033771	Cushion pad
4	033772	Corner pad
1	033606	Inside carton only
1	003728	Toppad
1	033729	Bottom pad
4	017218	Plastic foot
4	100159	#10-32 x 3/4" screw
4	104080	#10 Flat washer
1	048082	Shipping carton complete with all the above parts

