

COMPONENT LIST:

Item	Quantity	Reference	Part	Description
1	1	C110	330p CF22	Capacitor Polypropylene
2	1	C57	1n CF22	Capacitor Polypropylene
3	1	C117	10n CF22	Capacitor Polypropylene
4	4	C50,C51,C61,C62	10n CF21	Capacitor Metalized Polyester
5	1	C47	22n CF21	Capacitor Metalized Polyester
6	2	C112,C118	47n CF21	Capacitor Metalized Polyester
7	3	C48,C58,C120	100n CF21	Capacitor Metalized Polyester
8	5	C79,C80,C82,C83,C122	330n CF22	Capacitor Metalized Polyester
9	4	C15,C106,C111,C131	470n CF22	Capacitor Metalized Polyester
10	1	C73	47n CF42	Capacitor Polyester Hi-Voltage
11	1	C105	220n CF63	Capacitor Polyester Hi-Voltage
12	1	C86	330n CF62	Capacitor Polyester Hi-Voltage
13	1	C9	10p CF21	Capacitor Ceramic
14	1	C13	100p CF21	Capacitor Ceramic
15	5	C46,C56,C97,C98,C126	22p C1206	SMD Capacitor Ceramic
16	7	C49,C55,C64,C102,C113,C121,C127	100p C1206	SMD Capacitor Ceramic
17	1	C101	470p C1206	SMD Capacitor Ceramic
18	2	C123,C124	1n C1206	SMD Capacitor Ceramic Multilayer
19	4	C59,C60,C63,C128	10n C1206	SMD Capacitor Ceramic Multilayer
20	1	C45	33n C1206	SMD Capacitor Ceramic Multilayer
21	5	C99,C100,C125,C129,C130	100n C1206	SMD Capacitor Ceramic Multilayer
22	2	CE18,CE20	1u/25V M3528	SMD Tantalum Capacitor
23	11	CE21,CE48,CE52,CE55,CE56,CE65,CE67,CE71,CE79,CE85,CE86	22u/35V RVJ63	SMD Capacitor Ellyt
24	2	CE81,CE82	22u/50V RVJ63	SMD Capacitor Ellyt
25	2	CE80,CE83	100u/6.3V RVJ63	SMD Capacitor Ellyt
27	2	CE41,CE84	10u/35V CES23	Capacitor Ellyt Standard
28	2	CE43,CE59	22u/35V CES23	Capacitor Ellyt Miniature
29	2	CE77,CE78	22u/50V CES23	Capacitor Ellyt Miniature
30	1	CE47	47u/40V CES24	Capacitor Ellyt Standard
31	1	CE60	47u/250V CES37	Capacitor Ellyt Hi Voltage
32	2	CE72,CE76	100u/250V CES37	Capacitor Ellyt Hi Voltage
33	4	CE31,CE32,CE34,CE35	470u/63V CES37	Capacitor Ellyt Standard
34	2	CE45,CE46	1000u/40V CES37	Capacitor Ellyt Standard
35	4	CE37,CE38,CE39,CE42	10000/63V PH058	Capacitor Ellyt Long Life
36	1	CX01	0.1u/400V CX01	Capacitor Hi-Voltage X-type
37	2	Q5,Q7	MPSA42	Transistor High Voltage NPN
38	5	Q8,Q9,Q10,Q11,Q12	MPSA92	Transistor High Voltage PNP
39	1	Q29	BC550C	Transistor Low Noise NPN
40	1	Q28	BC847B	SMD Transistor Small Signal NPN
41	4	Q16,Q25,Q26,Q27	PMBFJ112	SMD N-Ch Switch JFET
42	5	Q1,Q3,Q20,Q21,Q22	2SK2220/2221	Power MOSFET N-Ch 125W Hitachi
43	5	Q2,Q6,Q19,Q23,Q24	2SJ351/352	Power MOSFET P-Ch 125W Hitachi
44	1	Q14	MJE340	Power Transistor Hi Voltage NPN
45	1	Q13	MJE350	Power Transistor Hi Voltage PNP
46	1	U4	LM833N	Op Amp Dual Low Noise
47	2	U18,U20	LM833M	SMD Op Amp Dual Low Noise
48	2	U16,U19	NE5534M	SMD Op Amp Low Noise
49	1	U17	TL072D	SMD Op Amp Dual J-FET Low Noise
50	2	U13,U15	TL074D	SMD Op Amp Quad J-FET Low Noise
51	1	U1	7815	Voltage Regulator Positive 15V
52	1	U2	7915	Voltage Regulator Negative 15V
53	1	D15	LL4004	SMD Diode 1A 400V
54	4	D16,D17,D53,D59	BAS28	SMD Dual Diode Small Signal



ASSEMBLY SPECIFICATION
EBS Fafner – Tube Armed Bass Head

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2(2)

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Mats Kristoffersson

Date
2000-09-06

Doc.Name
fafner.doc

Revision
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55	4	D14, D55, D60, D61	BAS32	SMD Diode Small Signal
56	16	D5, D6, D22, D23, D26, D27, D40, D41, D44, D47, D48, D54, D56, D57, D62, D63¹⁾	1N4004	Diode 1A 400V
57	6	D33, D34, D35, D36, D37, D38	1N4148	Diode Small Signal
58	2	D24, D28	1N5060	Diode 1A 400V
59	2	D51, D52	13V BZX55	Diode Zener 13V 400mW
60	2	D3, D4	15V BZX55	Diode Zener 15V 400mW
61	1	D43	10V BZX85	Diode Power Zener 10V 1.5W
62	2	D49, D50	12V BZX85	Diode Power Zener 12V 1.5W
63	2	D25, D29	18V BZX85	Diode Power Zener 18V 1.5W
64	2	D42, D58	27V BZX85	Diode Power Zener 27V 1.5W
65	2	D45, D46	33V BZX85	Diode Power Zener 33V 1.5W
66	1	D39	KBPC35-02W	Rectifier 25A 400V PC-Mounted
67	2	LD1, LD2	SLH-34VR LED3	LED Red 3mm
68	2	LD3¹⁾, LD4¹⁾	EL1363 LED10	LED Red 10mm EL1363URC-3
70	1	LP1³⁾	E10/48 PCLAMP	Lamp 48V 4W E10 PC Mount
71	2	F1, F2	FUSE	Fuse T10A 5x20mm + Fuse Holder
72	1	R215	10 R400	Resistor Metal Film 0.6W 1%
73	3	R199, R200, R201	15 R400	Resistor Metal Film 0.6W 1%
74	3	R20, R313, R314²⁾	100 R400	Resistor Metal Film 0.6W 1%
75	2	R22, R208	680 R400	Resistor Metal Film 0.6W 1%
76	1	R205	1.5k R400	Resistor Metal Film 0.6W 1%
77	1	R249	1.8k R400	Resistor Metal Film 0.6W 1%
78	3	R203, R206, R250	3.3k R400	Resistor Metal Film 0.6W 1%
79	1	R204	5.6k R400	Resistor Metal Film 0.6W 1%
80	2	R266, R299	10k R400	Resistor Metal Film 0.6W 1%
82	1	R256	33k R400	Resistor Metal Film 0.6W 1%
83	3	R21, R38, R202	47k R400	Resistor Metal Film 0.6W 1%
84	2	R30, R40	470k R400	Resistor Metal Film 0.6W 1%
85	1	R31	1MEG R400	Resistor Metal Film 0.6W 1%
86	5	R3, R24, R196, R209, R210	470 R500	Resistor Metal Film 0.6W 1%
87	4	R1, R23, R197, R207	680 R500	Resistor Metal Film 0.6W 1%
88	1	R246	47k R600	Resistor Metal Film 1W 5%
89	1	R277	100k R600	Resistor Metal Film 1W 5%
90	4	R183, R184, R224, R225	10 R1206	SMD Resistor Metal Film 1%
91	1	R133	47 R1206	SMD Resistor Metal Film 1%
92	4	R289, R293, R307, R310	100 R1206	SMD Resistor Metal Film 1%
93	2	R137, R288	220 R1206	SMD Resistor Metal Film 1%
94	1	R309	470 R1206	SMD Resistor Metal Film 1%
95	7	R118, R144, R259, R287, R295, R297, R316	1k R1206	SMD Resistor Metal Film 1%
96	9	R115, R117, R123, R125, R134, R233, R254, R257, R308	1.5k R1206	SMD Resistor Metal Film 1%
97	4	R119, R120, R270, R306	2.2k R1206	SMD Resistor Metal Film 1%
98	3	R126, R140, R258	3.3k R1206	SMD Resistor Metal Film 1%
99	3	R234, R304, R305	4.7k R1206	SMD Resistor Metal Film 1%
100	4	R124, R265, R278, R298	5.6k R1206	SMD Resistor Metal Film 1%
101	14	R105, R107, R108, R109, R130, R131, R132, R139, R145, R286, R290, R294, R296, R318	10k R1206	SMD Resistor Metal Film 1%
102	4	R106, R135, R260, R281	15k R1206	SMD Resistor Metal Film 1%
103	5	R110, R111, R114, R116, R317	22k R1206	SMD Resistor Metal Film 1%
104	6	R121, R122, R216, R226, R282, R284	33k R1206	SMD Resistor Metal Film 1%
105	4	R261, R272, R301, R315	47k R1206	SMD Resistor Metal Film 1%
106	1	R283	75k R1206	SMD Resistor Metal Film 1%
107	15	R112, R113, R128, R129, R136, R138, R143, R227, R267, R268,	100k R1206	SMD Resistor Metal Film 1%

		R274, R291, R292, R300, R302		
108	1	R217	1MEG R1206	SMD Resistor Metal Film 1%
109	2	R280, R311	10MEG R1206	SMD Resistor Metal Film 1%
110	1	R312 ¹⁾	1k 2W	Power Resistor 2W 5%
111	2	R167, R168	1.5k 2W	Power Resistor 2W 5%
112	2	R255, R279	4.7k 2W	Power Resistor 2W 5%
113	2	R212, R213	470 4W_L	Power Resistor 4W 5%
114	1	R214	680 4W	Power Resistor 4W 5%
115	1	R211	2.2k 4W	Power Resistor 4W 5%
116	1	R253	220 9W	Power Resistor 9W 5%
117	1	P4	250 PNZ10	Potentiometer Trim Capsuled
118	2	P2, P9	50k PNZ10	Potentiometer Trim Capsuled
119	1	P20	47kA P160D	Potentiometer Dual Carbon Lin
120	3	P11, P12, P18	22kA P160	Potentiometer Carbon Lin
121	3	P14, P15, P16	22kA P160C	Potentiometer Carbon Lin c-click
122	1	P10	100kC P160D	Potentiometer Dual Carbon Antilog
123	1	P19	220kA P160	Potentiometer Carbon Log
124	1	RT2	5 OHM TH10	Thermistor NTC 7A
125	1	RT1	10k TH2	Thermistor NTC Standard
126	1	SW4, SW14	H8550VBBB	Switch Hi-Current 2-Pole 2-Way
127	7	SW8, SW9, SW10, SW13, SW15, SW16, SW17	D-TR06	Switch Push 2-Pole 2-Way
128	1	TR1	TOROID	Mains Transformer 2x42V 550VA
129	1	J64	XLR	XLR 3-Pole Male PC Neutrik NC3MG-H
130	2	J35, J58	SPEAKON	Neutrik SPEAKON Speaker Contact
131	2	J59, J60	S1SHBBB	Stacked Jack Stereo CLIFF CL1124
132	1	J4	S4BBB	Jack Stereo Plastic CLIFF CL1330
133	1	FAN1	F8025M-24	Temperature Controlled DC Fan 24V
134	1	J30	AC INLET	Mains Inlet EUR Class I
135	1	J69	LIST4	Connector Molex 4-Pole
136	2	J40, J46	LIST52	Screw Connector 2-Pole c-c 5 mm
137	1	V1	ECC83	Valve Dual Triode

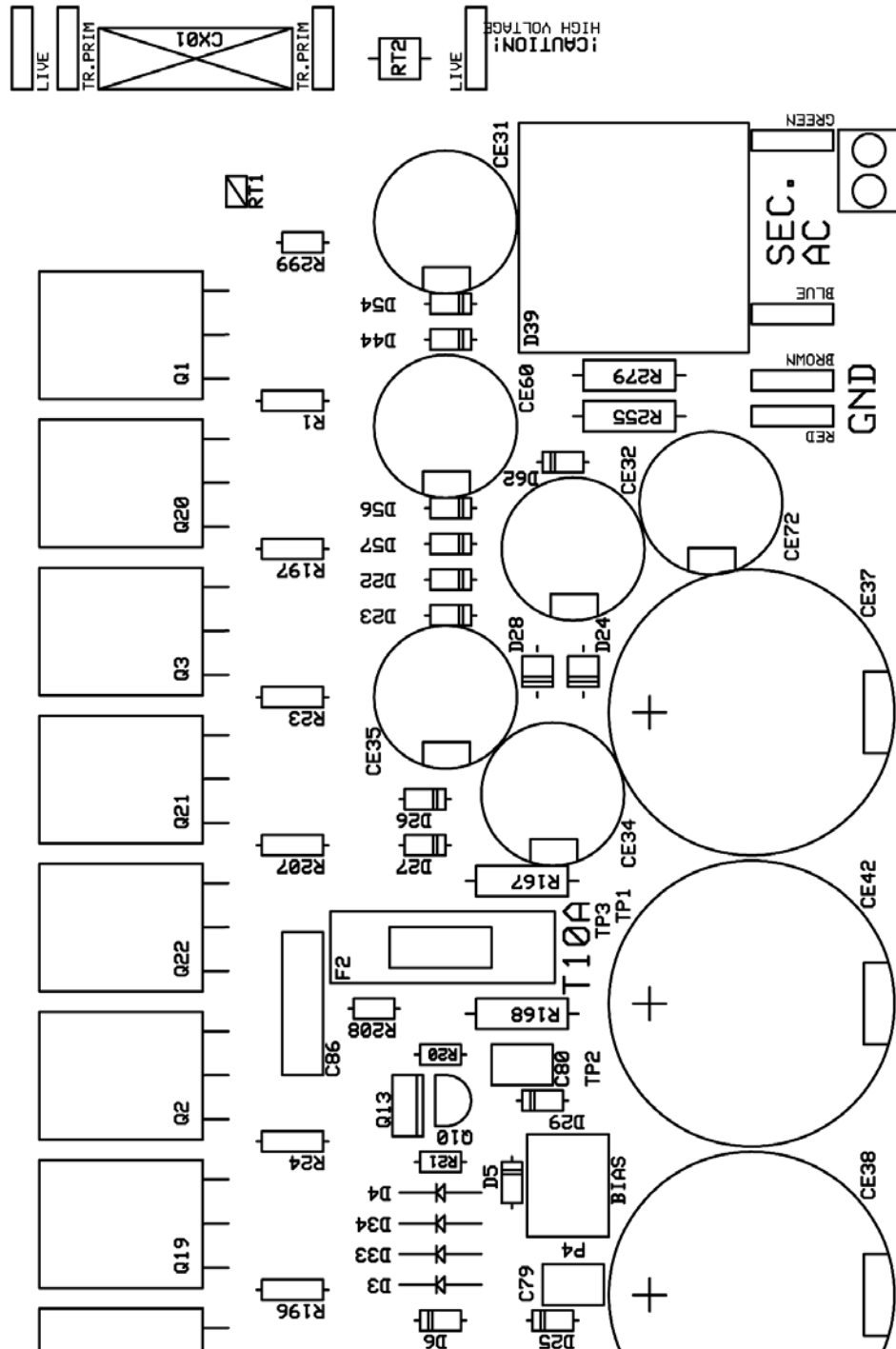
¹⁾ Mount only if LEDs are being used as indicator

²⁾ Do not assemble. Optional component.

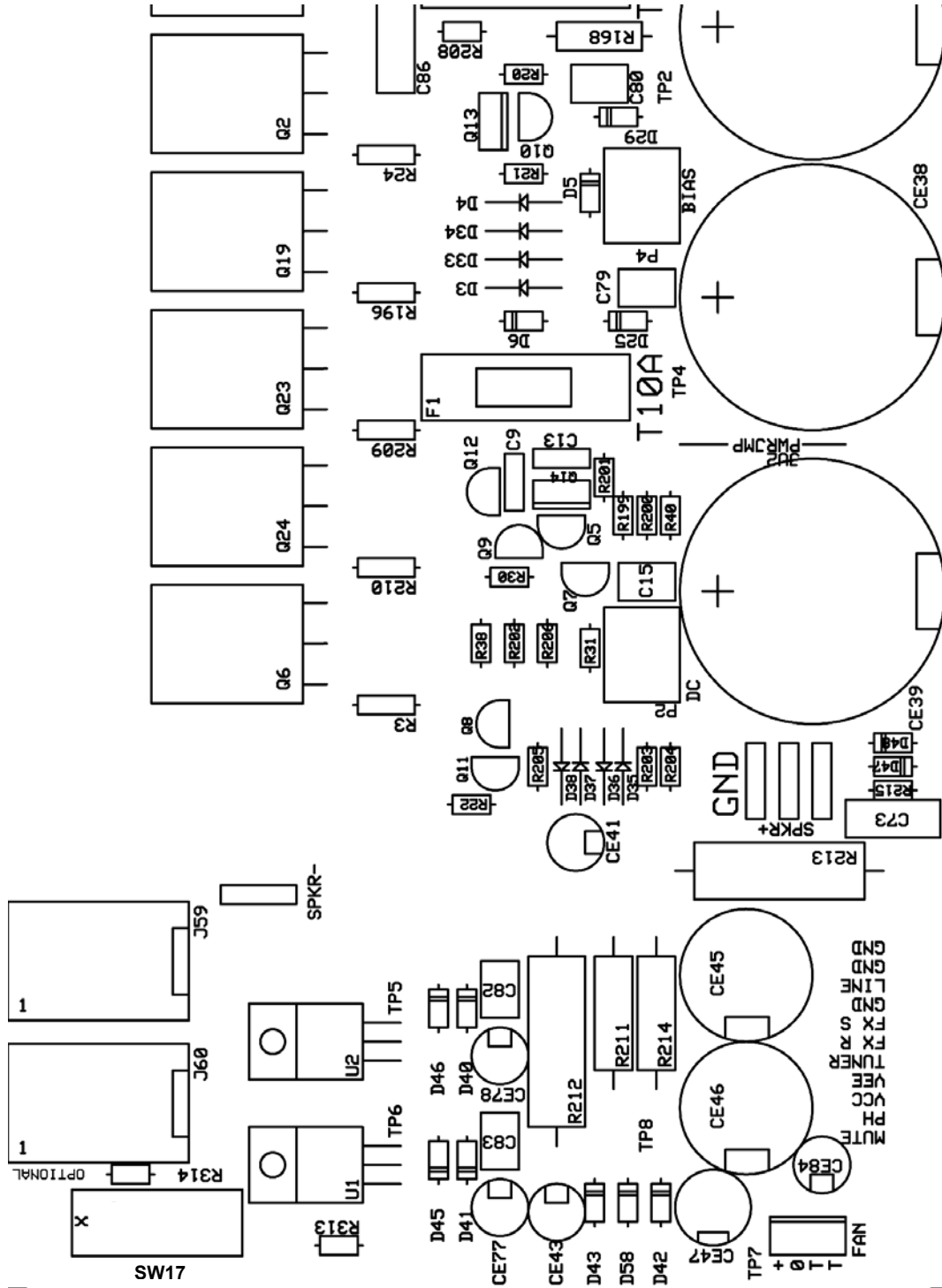
³⁾ Mount only if indicator lamp is being used.

Note: Option 1 or 3 must be used in assembly.

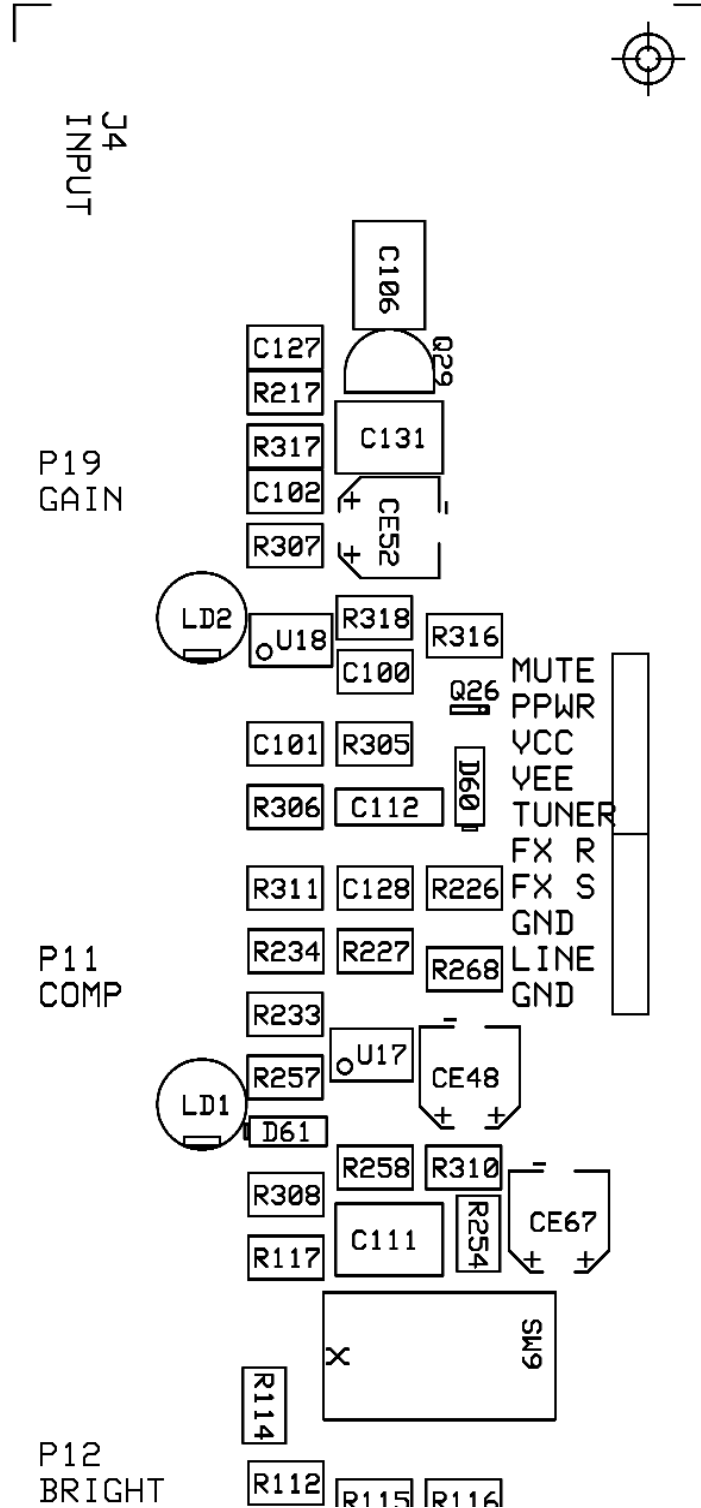
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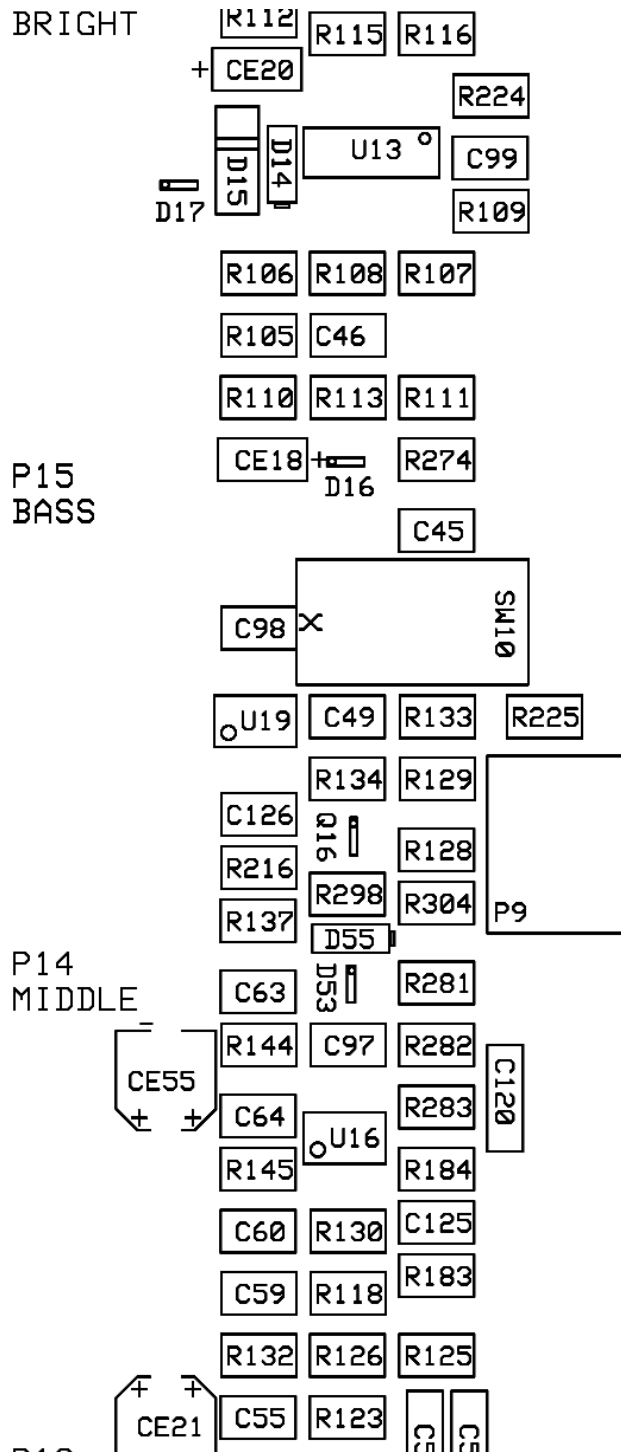
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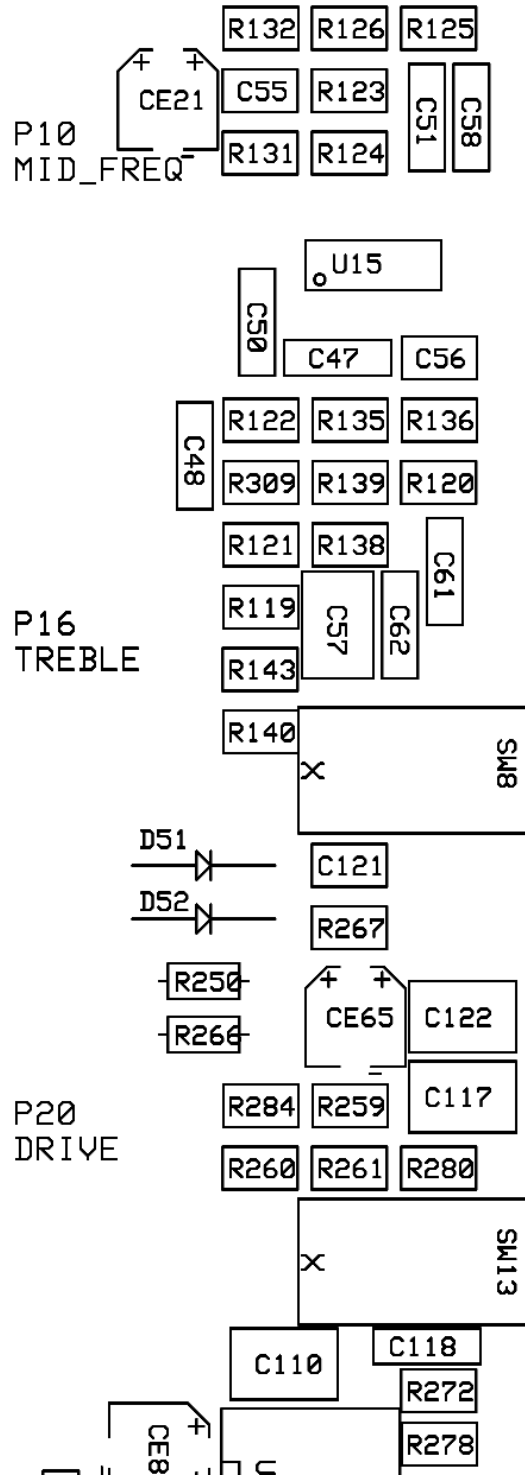
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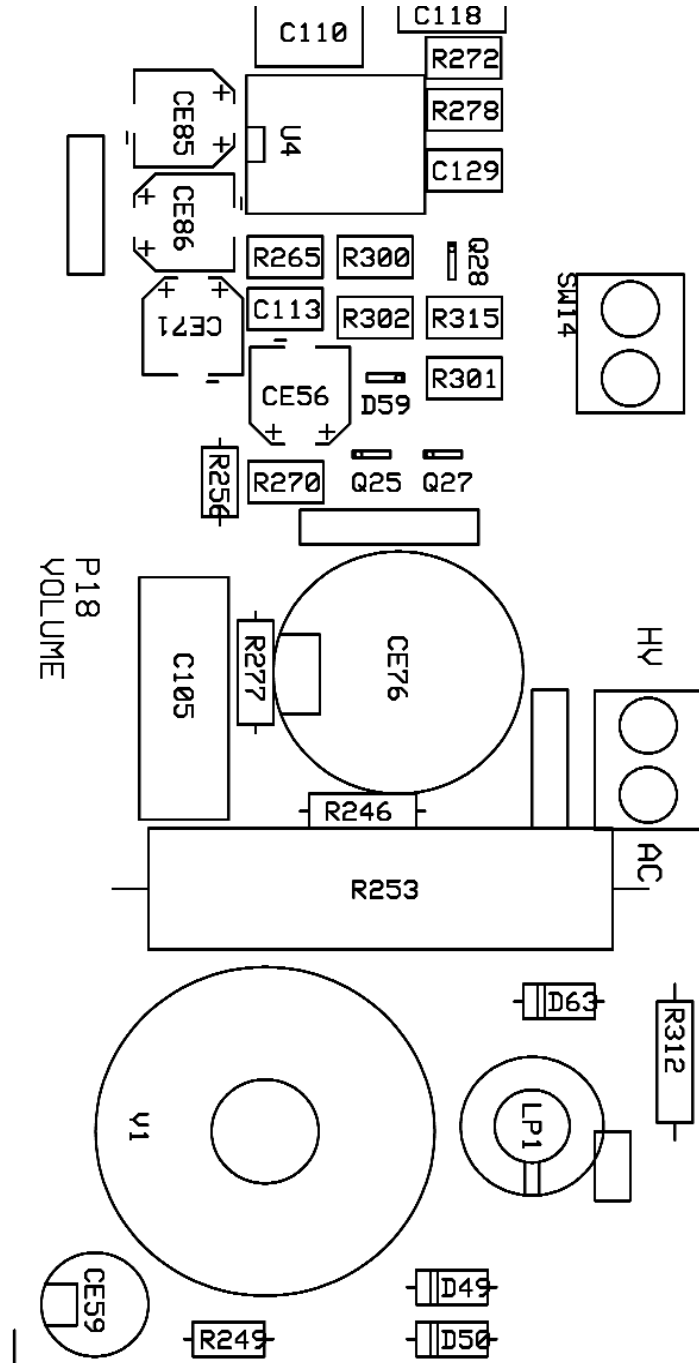
COMPONENT PLACEMENT PREAMP PCBs: (cont.)



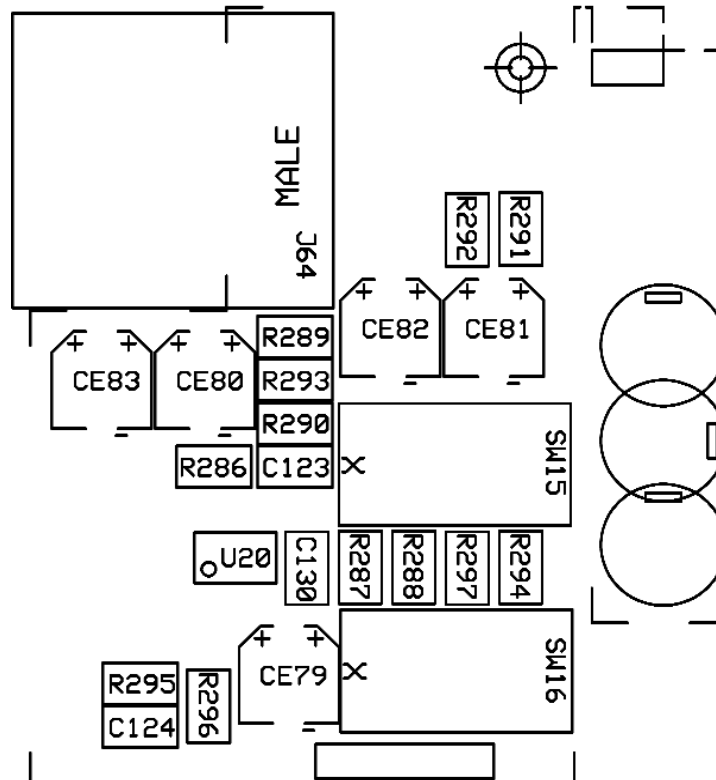
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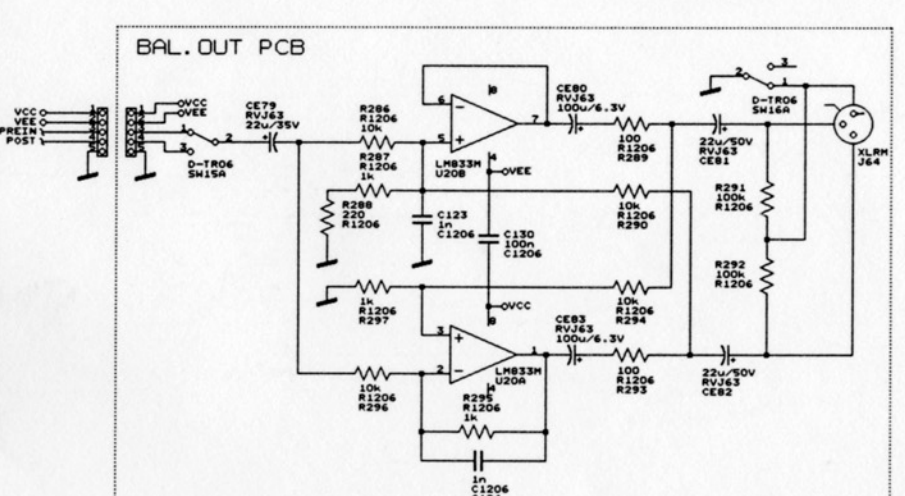
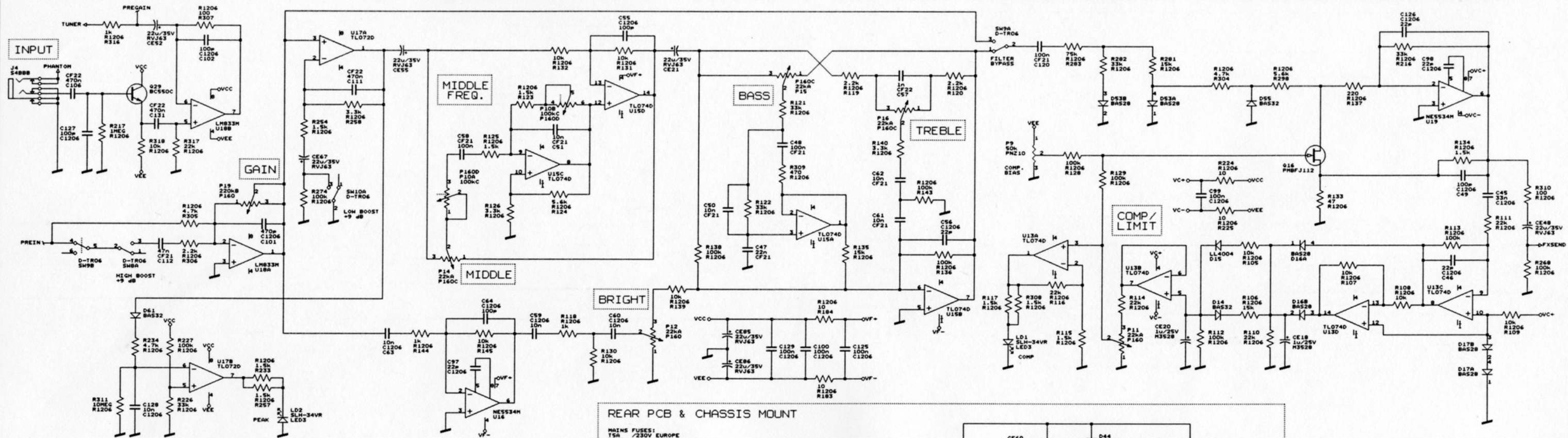


COMPONENT PLACEMENT PREAMP PCBs: (cont.)



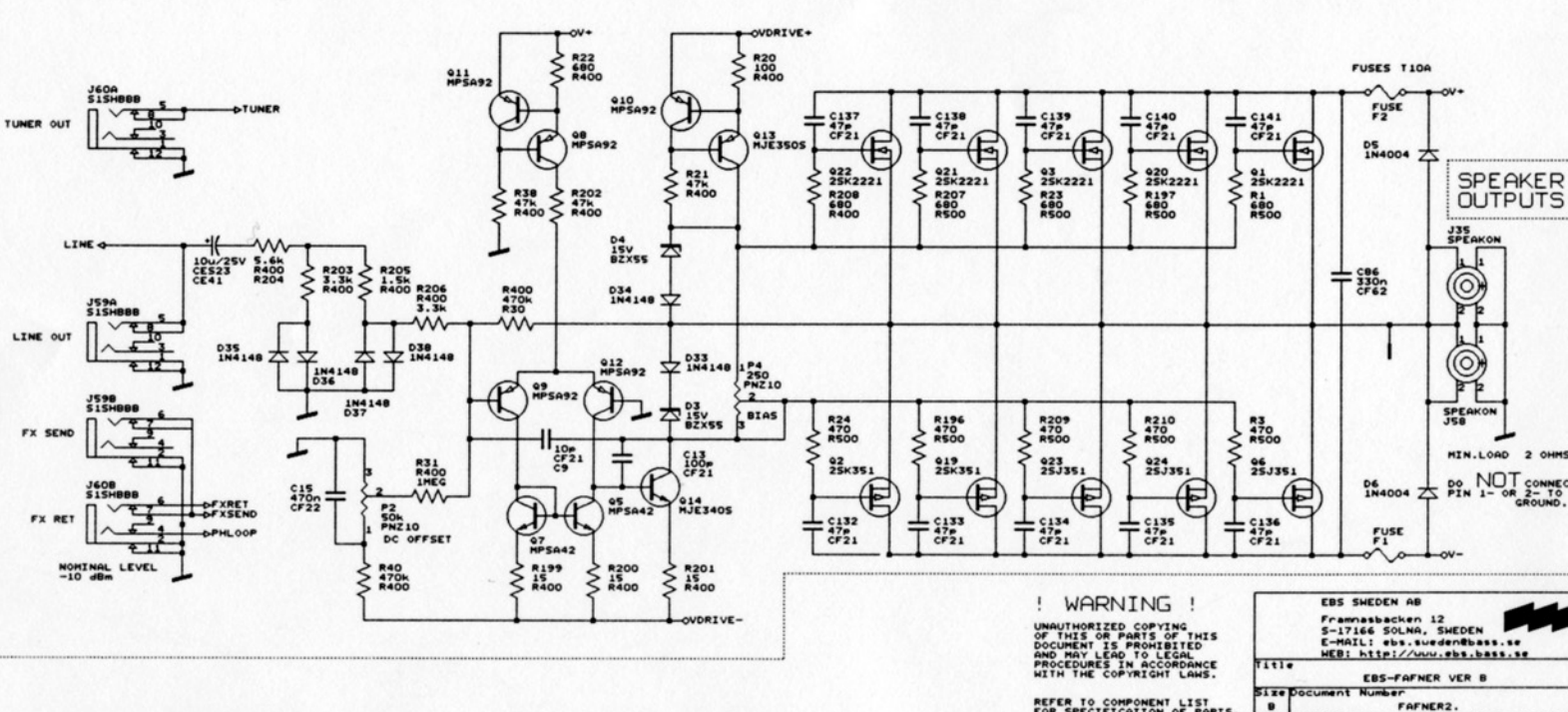
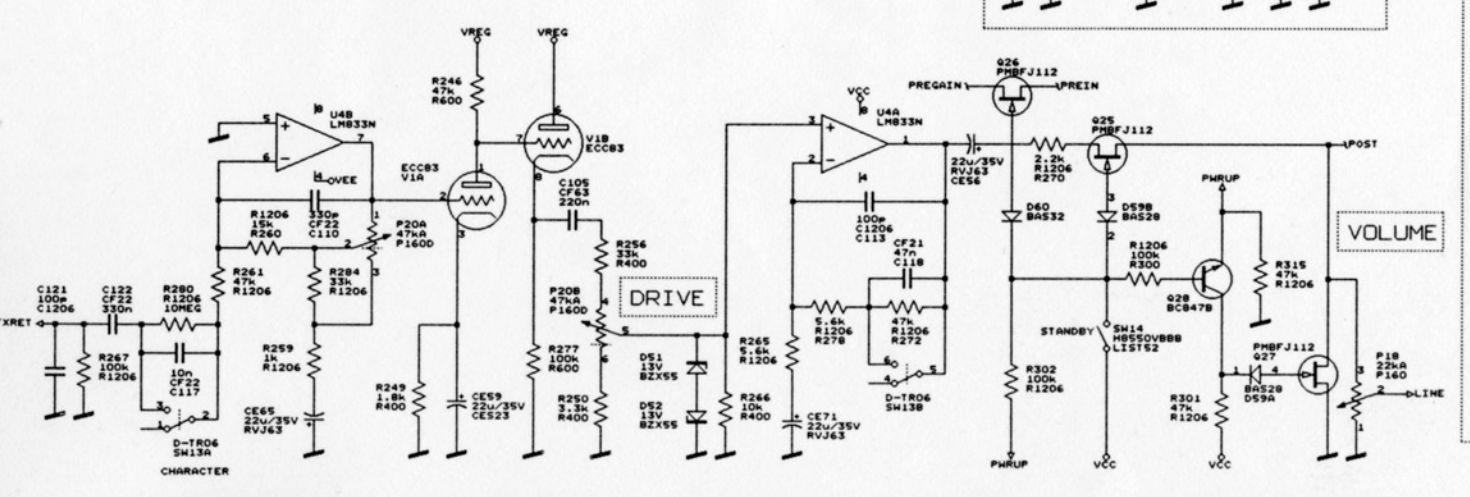
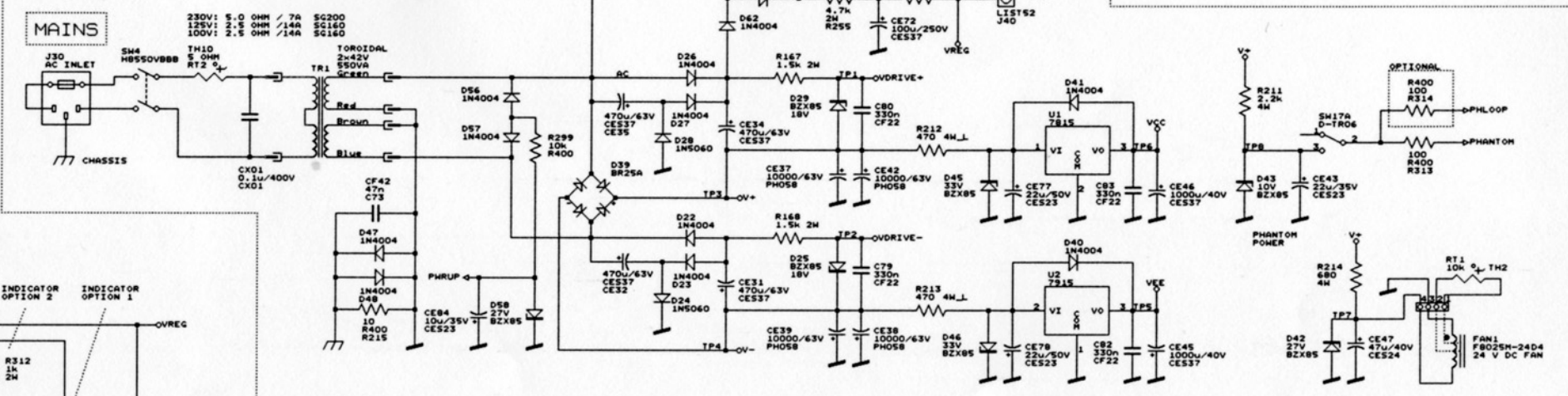
COMPONENT PLACEMENT PREAMP PCBs: (cont.)





REAR PCB & CHASSIS MOUNT

MAINS FUSES:
T5A / 230V EUROPE
T10A / 125V U.S.
T10A / 100V JAPAN



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Size Document Number: EBS-FARNER_VER B
Rev: 9 FARNER2
Date: September 6, 2000
1 of 1



PRODUCT UPDATE

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Mats Kristoffersson

Date
2000-03-17

Revision
A

Doc.No
EBSFAFRA-ENG

Product
EBS Fafner TD

Subject
Production update

Revision Type
Internal

Reference
RevfafTDA.doc

1. PRODUCT MODIFICATIONS

1.1. STANDARD COMPONENTS

<u>Component</u>	<u>Old Value</u>	<u>New Value</u>	<u>Comments</u>
P19	250kD	250kA	Potentiometer type PYU16
C112	47n	15n	

1.2. SURFACE MOUNT COMPONENTS (SMD)

<u>Component</u>	<u>Old Value</u>	<u>New Value</u>	<u>Comments</u>
R305	4k7	15k	
R306	2k2	6k8	

End of revision report 2000-03-17.



PRODUCT UPDATE

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Mats Kristoffersson

Date
2000-11-29

Revision
A1

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EBSFAFRA1-ENG

Product
EBS Fafner TD

Subject
Production update

Revision Type
Internal

Reference
RevfafTDA1.doc

1. PRODUCT MODIFICATIONS

1.1. STANDARD COMPONENTS

<u>Component</u>	<u>Old Value</u>	<u>New Value</u>	<u>Comments</u>
C112	15n	22n	

1.2. SURFACE MOUNT COMPONENTS (SMD)

<u>Component</u>	<u>Old Value</u>	<u>New Value</u>	<u>Comments</u>
R305	15k	10k	
R306	6k8	4k7	

End of revision report 2000-11-29.

Prepared
Mats KristofferssonDate
2000-09-06Revision
BDoc.No
EBSFAFRB-ENGProduct
EBS Fafner TDSubject
Mosfet substitutionRevision Type
ModificationReference
RevfaTDC.doc**1. DESCRIPTION**

Due to quality problems with the Exicon type mosfets used in the second production run, during early spring year 2000, this modification is necessary to avoid the power devices to fail. For this purpose EBS provides replacement devices free of charge while returning these obsolete ones.

2. PRODUCT MODIFICATIONS

The modification is done by replacing all the power devices and adding a 47pF capacitor to each device, as found on the schematics. As thermal conductor we recommend the use of a silicon pad with a thermal resistance of 0.4 deg C/W.

<u>Component</u>	<u>Old Value</u>	<u>New Value</u>	<u>Comments</u>
Q1, 3, 20, 21, 22	10N16	2SK2220/2221	
Q2, 6, 19, 23, 24	10P16	2SJ351/352	
C132-141	-	47 pF /500V	Mount on solder side

3. UNITS AFFECTED

All units between serial numbers #6585 and #6613. However, it is recommended that this modification also be done to earlier serial numbers in the Fafner TD series.

4. DOCUMENTS REVISED

Schematic file FAFNER2. revised to new date 2000-09-06 revision B.
Assembly specification change to revision E.

End of revision report 2000-09-06.



PRODUCT REVISION

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1(1)

Prepared
Mats Kristoffersson

Date
2002-06-04

Revision
D

Doc.No
EBSFAFRD-ENG

Product
EBS Fafner TD

Subject
Power on bump

Revision Type
Production

Reference
RevfaftDD.doc

1. DESCRIPTION

In order to avoid powerful bumps when power up, this document describes how to eliminate this unwanted affect, especially when the Output control AND the Bypass switch is not at zero.

2. CHECK POINTS

In prior to doing the modification, check the DC offset at the power amps' output. This DC level should be around +50mV at start up when the unit is cool. When the unit stabilized in temperature this DC level adjusts automatically. Incorrect DC setting may cause severe bumps to occur at power up and power down.

3. PRODUCT MODIFICATIONS

The modification is done by introducing an N-channel JFET in the post drive stage, thus attenuating the power up from the same stage. Connect Source and Drain across resistor R266, and connect the Gate to the Gate of Q27 on the front PCB.

<u>Component</u>	<u>Part/Value</u>	<u>Comments</u>
QX	J112	Can be replaced with any commercial N-channel switch JFET. Recommended $R_{ds_{on}} = 50 \text{ ohm}$.

4. UNITS AFFECTED

This modification was introduced late 2001, and has been in effect ever since.

End of revision report 2002-06-04.

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