

I M P O R T A N T

PLEASE READ THIS PAGE BEFORE OPERATING

YOUR

BOSE 1800 POWER AMPLIFIER

Your new Bose 1800 amplifier is designed to provide years of trouble free performance.

Observing these few precautions will insure proper operation.

. All connections should be made to the power amplifier with the power OFF.

Never connect the output of one channel to that of another.

. Connect the power cord to the proper voltage mains as indicated on the rear of the amplifier.

. Do not remove the amplifier's cover. Amplifiers may not be covered under warranty if they are tampered with.

Potentially lethal voltages exist within the amplifier.

Refer all service work to an authorized BOSE service station.

The BOSE 1800 amplifiers have individual power supplies for each channel. They combine an excellent solidity and reliability with an excellent performance and protection.

#### DESCRIPTION

The BOSE 1800 amplifier is designed with two low noise high speed op-amps per channel, followed by a heat sink mounted bias circuit, to provide precise temperature compensation; and a full complementary output stage, featuring ten 200 watt transistors in each channel (2000 watt total dissipation capability per channel).

The power and drive-transistors are mounted on two heatsinks with "SIL-PADS" for superior long life heat transmission.

The "SIL-PAD" is a new product, specially developed for this purpose and gives a better heat transmission and has a much longer life than the conventional method with mica-isolators and silicon paste.

Experience has proved, that after some time, by drying of silicone paste, the heat transmission reduces strongly and power devices are "blown" without even delivering maximum power.

The "SIL-PAD" prevents such a breakdown.

A 2-speed temperature operated ultra low noise fan is build in for optimal cooling. With specially designed alluminium profiles, the BOSE 1800 amplifier is very solid and really capable of handling heavy road conditions.

#### FRONT PANEL

The BOSE 1800 amplifier is provided with a led-indication, showing the cause of trouble or misuse in various situations.

Besides the usual clip-indication, each channel has a led for:

- a) heavy overload/speaker short-circuit,
- b) overheating.

In case, a or b, the leds illuminate, this also means that the specific protection is working and the amplifier delivers no power into the load until the situation is within acceptable limits again.

The BOSE 1800 amplifier also protects your (expensive) loudspeakersystem against switching peaks or D.C. current. Approximately 3-5 seconds after switching on the mains power, the load is coupled to the amplifier. When switching off mains, in case of mains-failure or D.C. at the output, the load is decoupled very quickly.

## REAR PANEL

On the rear panel you will find two inputs per channel.

- a) One three pin XLR for balanced and unbalanced mode.
- b) One phone jack, only for unbalanced mode.

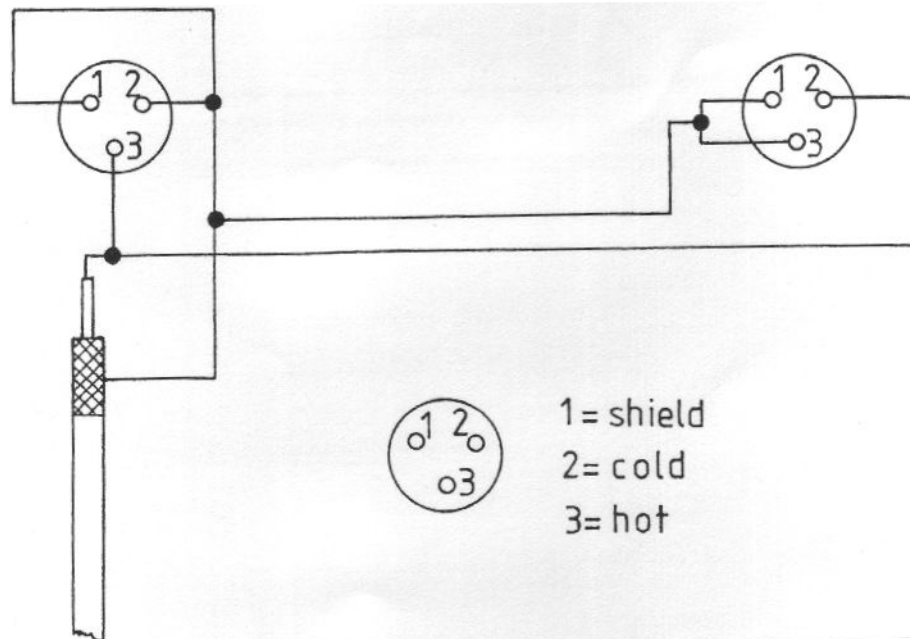
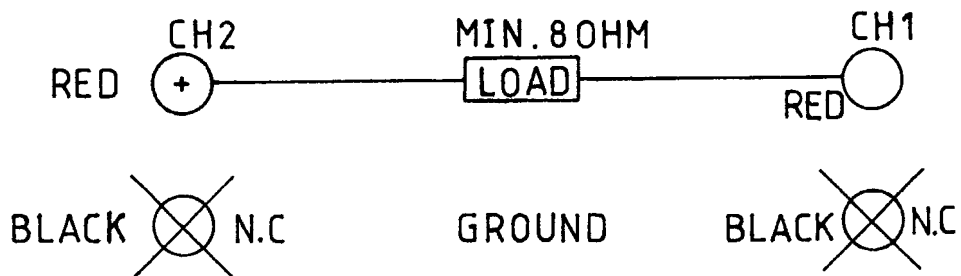
When using the phone jack, pin two of the XLR will automatically be connected to ground.

If desired, signal ground can be separated from chassis ground, by switching ground lift.

SPECIFICATIONS: BOSE 1800 AMPLIFIER.

Output power	-	2 x 280 W in 8 ohms 2 x 425 W in 4 ohms
Frequency range	-	10 Hz - 20 kHz, $\pm 1$ dB
T.H.D.	-	better than 0,08%. 30 V in 8 ohms 20 Hz - 20 kHz
I.M.D.	-	better than 0,03 %
Different frequency distortion	-	better than 0,03 %
Crosstalk	-	better than -90 dB
Input Impedance	-	15 kohms
Input sensitivity	-	1,55 V for max. output
Damping factor	-	better than 230:1, 1kHz in 8 ohms
Slew rate	-	better than 30V/usec.
Protection against	-	switching peaks, heavy overload, short circuit DC and overheating
Inputs	-	balanced XLR/unbalanced phone jack
Potmeters	-	Bourns conductive plastic
Cooling	-	2-speed temperature operated low noise fan
Power supplies	-	2 x 500 VA. toroidal transformers
Housing	-	19" rackmounting 13" deep 4 HE high

BOSE reserves the right to change specifications without prior notice.



BRIDGED MODE OPERATION.

OUTPUT:

Connect speakers across the two red binding posts.  
Channel II output is +.

DO NOT CONNECT THE SPEAKERS TO GROUND!

Minimum load impedance should be 8 ohms.

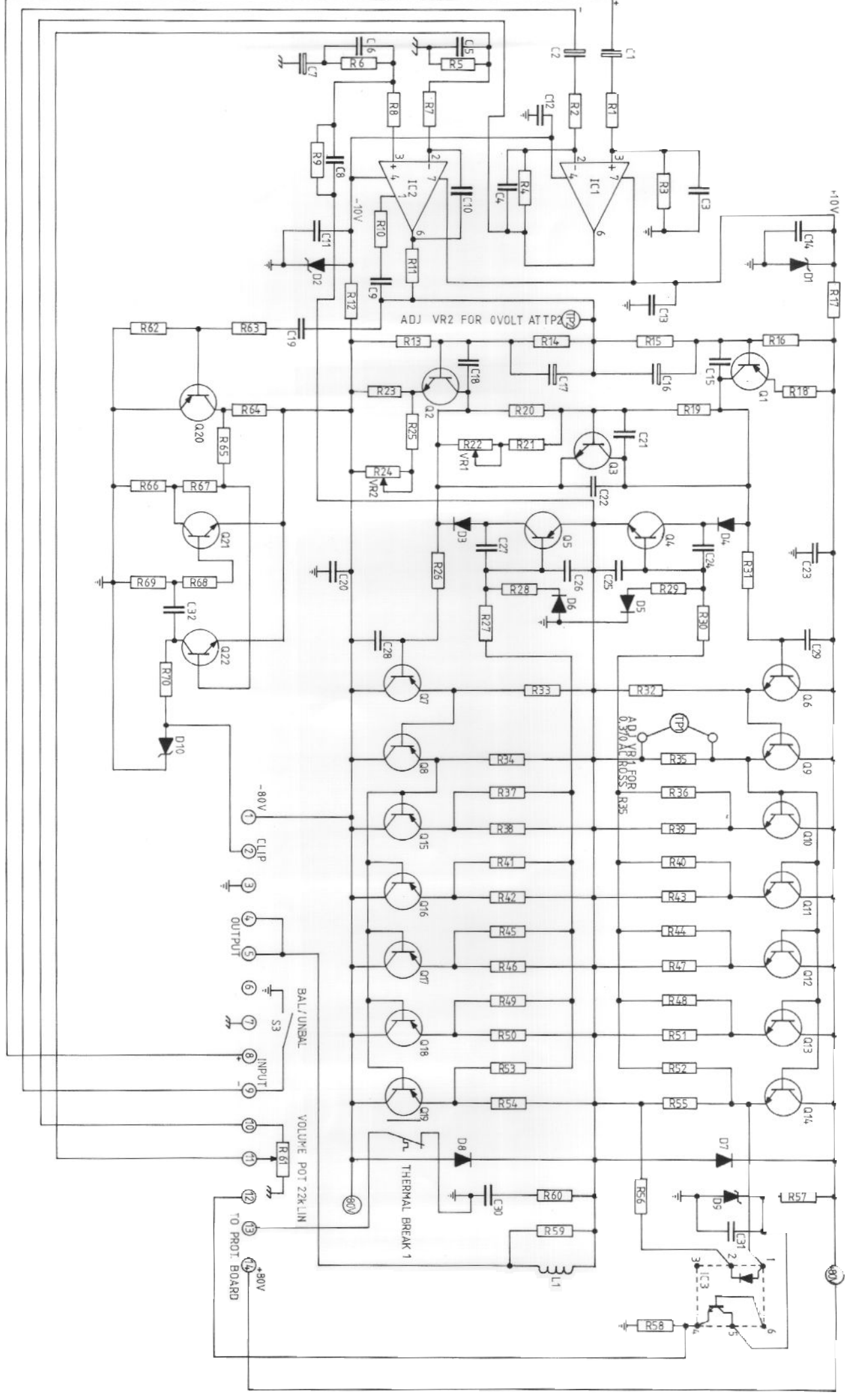
INPUT :

Connect input signal cord to pin 3 (hot) at input channel II and also to pin 2 (cold) at input channel I.

Connect shield of input signal cord to pin 1 and 2 of channel II and also to pin 1 and 3 of channel I.

Set ground lift "off".

Set both potentiometers at maximum volume.

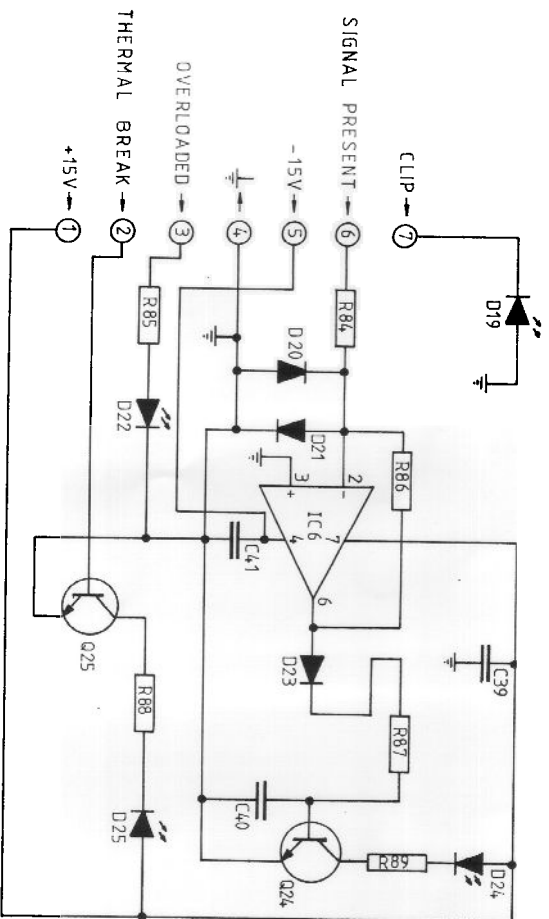


BOSE 1802		note:
AMPLIFIER BOARD		
designer: H. Schouten		
drawn: P.S. van Alphen		
date: 13-04-84	number: 1	

CAPACITORS		TRANSISTORS	
NO.		NO.	
C 1	10UF 35V TANTALUM	Q 1A	MPSA 43 NPN
C 2	10UF 35V TANTALUM	Q 2A	MPSA 93 PNP
C 3	33PF CERAMIC	Q 3	BD 235 NPNBIAS
C 4	33PF CERAMIC	Q 4	MPSA 43 NPN
C 5	220PF CERAMIC	Q 5	MPSA 93 PNP
C 7	1000UF 16V ELECTROLYTIC	Q 6	MJE 340 NPN
C 8	120PF CERAMIC	Q 7	MJE 350 PNP
C10	33PF CERAMIC	Q 8	25A 1494 PNP
C11	100NF 250V	Q 9	25C 3858 NPN
C12	100NF 250V	Q10	25C 3858 NPN
C13	100NF 250V	Q11	25C 3858 NPN
C14	100NF 250V	Q12	25C 3858 NPN
C18	22UF 100V ELECTROLYTIC	Q13	25C 3858 NPN
C19	120PF CERAMIC	Q14	25C 3858 NPN
C20	10UF 35V	Q15	25A 1494 PNP
C21	22UF 100V ELECTROLYTIC	Q16	25A 1494 PNP
C22	10U 16V TANTALUM	Q17	25A 1494 PNP
C23	10UF 35V	Q18	25A 1494 PNP
C24	47NF 250V	Q19	25A 1494 PNP
C25	15NF 400V	Q20	MPSA 93 PNP
C26	680NF 100V	Q21	MPSA 43NPN
C27	47NF 250V	Q22	MPSA 43NPN
C28	47PF CERAMIC		
C29	47PF CERAMIC		
C30	100NF 250V		
C31	100NF 250V		
C32	470NF 100V		
C33	33PF CERAMIC		
DIODES		RESISTORS	
NO.		NO.	
D 1	15V ZENER DIODE	R 1	15KO- 1%
D 2	15V ZENER DIODE	R 2	15KO- 1%
D 1	1N4148	R 3	14KO- 1%
D 4	1N4148	R 4	14KO- 1%
D 5	1N4148	R 5	22KI- 1%
D 6	1N4148	R 6	200E - 1%
D 7	1N4005	R 7	1KO - 1%
D 8	1N4005	R 8	JEO - 1%
D 9	16V ZENER DIODE	R 9	6K2 - 1%
D10	16V ZENER DIODE	R10	511E- 1%
D11	1N4005	R11	2K1 - 1%
		R12	3K9 - 2W
		R12A	5K POTMETER
		R13	100E- 1%
		R14	15KO-1%
		R15	15KO-1%
		R16	100E -1%
		R17	3KG -2W
		R18	681E -1%
		R19	365E -1%
		R20	681E -1%
		R21	150E -1%
		R22	100E POTMETER
		R23	681E <del>1%</del>
		R25	25K POTMETER
		R26	100E -1%
		R26A	100E
		R27	100E -1%
		R28	100E -1%
		R29	100E -1%
		R30	100E -1%
INTEGRATED CIRCUITS			
NO.			
IC1	NE5534N OP AMP.		
IC2	TL071CP OP AMP.		
IC3	4N26 OPTO COUPLER.		
INDUCTOR			
NO.			
1	0,5UH INDUCTOR		

NO.	RESISTORS	NO.	SWITCHES
131	.00E	S	THERMAL SWITCH 350°C.
131A	.00E		
132	.00E		
132A	.2E		
133	.00E		
133A	.2E		
134	.2E 2W		
134A	.7E		
135	.2E 2W		
135A	.7E		
136	.0E		
137	.0E		
138	.33E 5W		
138A	.7E		
139	.33E 5W		
139A	.7E		
140	.0E		
141	.0E		
142	.33e 5W		
142A	.7E		
143	.33E 5W		
143A	.7E		
144	.0E		
145	.0E		
146	.33E 5W		
146A	.7E		
147	.33E 5W		
147A	.7E		
148	.0E		
149	.0E		
150	.33E 5W		
150A	.7E		
151	.33E 5W		
151A	.7E		
152	.0E		
153	.0E		
154	.33e 1W		
155	.33E 1W		
156	5 POTMETER		
157	.7K		
158	.00K		
159	.E 2W		
160	.3E 5W		
162	.K0 -1%		
163	.9KI -1%		
164	.00K -1%		
165	.00K -1%		
166	.0K0 -1%		
167	.7K5 -1%		
168	.K75 -1%		
169	.00K -1%		
170	.5 kg-2W		
171	.K15 -1%		





SA 900 B / 5003 K		note:
LED BOARD		number:
designer: H. Schouten		3
drawn: P. S. van Alphen		date: 14-04-84

CAPACITORS

C39 - 100 nF 100 V. MkT  
C40 - 100 nF 100 V. MkT  
C41 - 100 nF 100 V. MkT

DIODES

D 19 - Led 5x5 mm. RED  
D 20 - 1N 4148  
D 21 - 1N 4148  
D 22 - Led 5x5 mm. RED  
D 23 - 1N 4148  
D 24 - Led 5x5 mm. GREEN  
D 25 - Led 5x5 mm. RED

INTEGRATED CIRCUITS

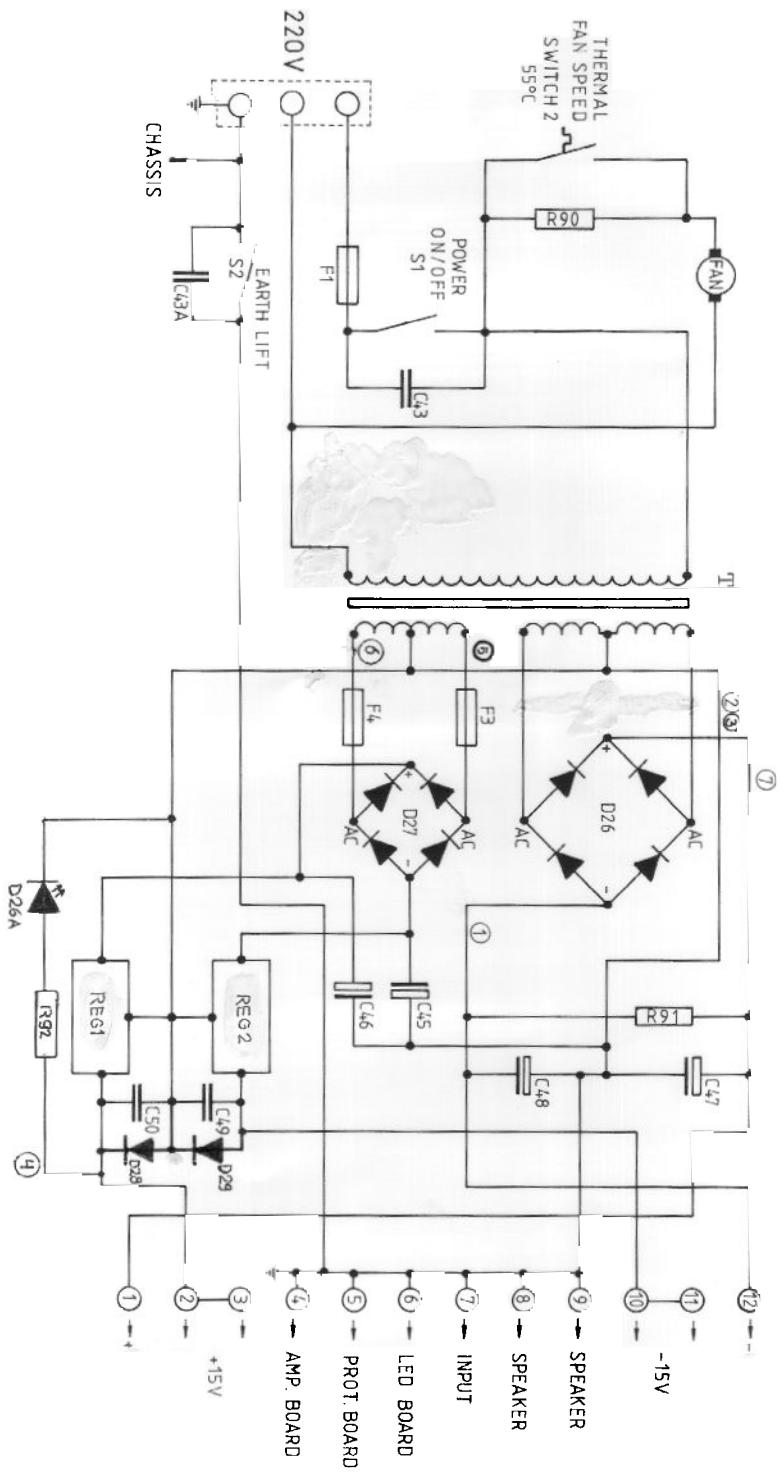
IC6 - TL 081

RESISTORS

R 84 - 10 KO	1%
R 85 - 470E	1%
R 86 - 47K5	1%
R 87 - 10 KO	1%
R 88 - 470E	1%
R 89 - 470E	1%

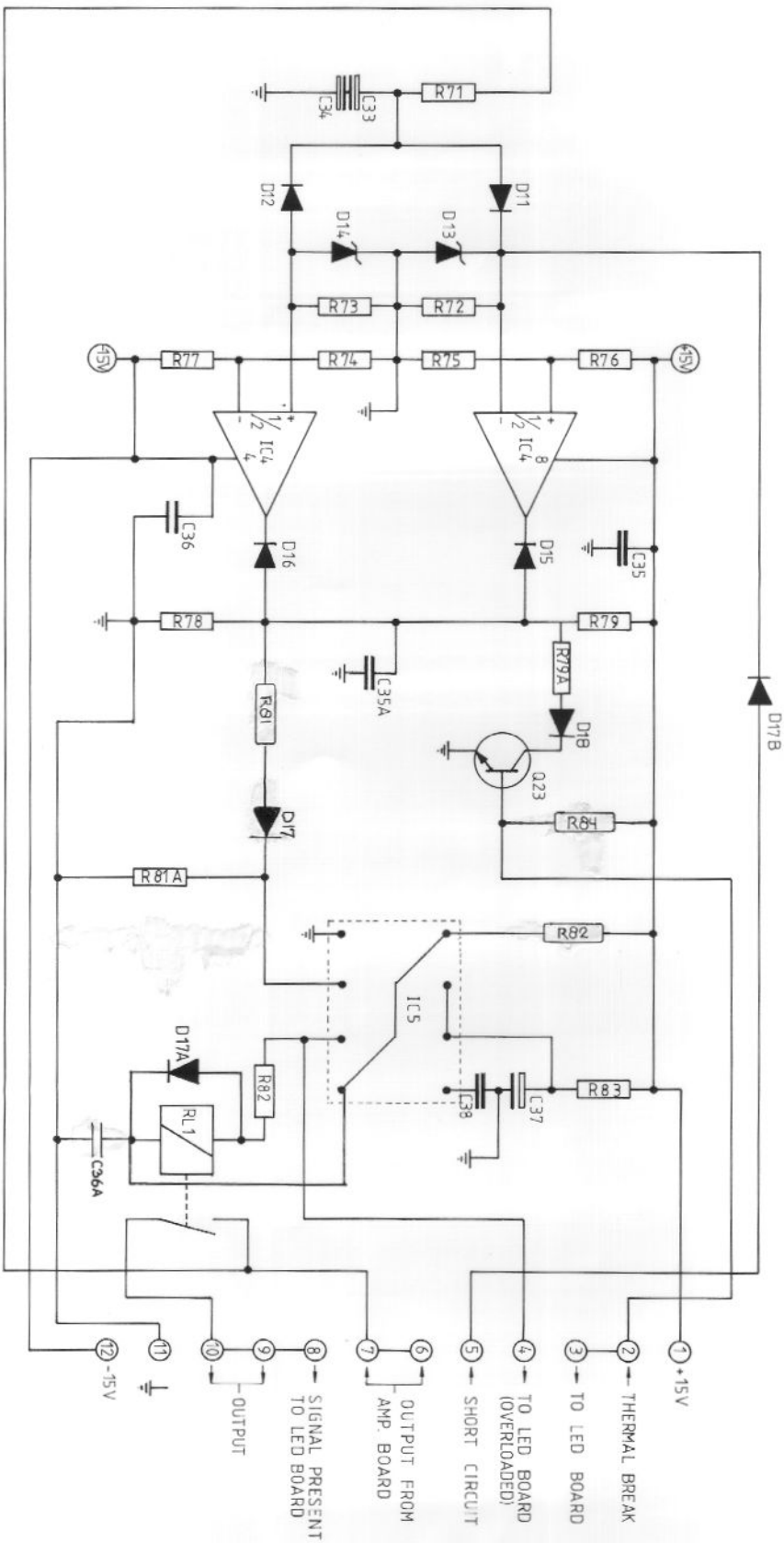
TRANSISTORS

Q 24 - BC 517  
Q 25 - BC 182/BC 547



SA 500/900	note
POWER SUPPLY BOARD	numbe:
designer: H.Schouten	A <sub>4</sub>
drawn: P.S van Alpen	4
	date: 14-06-8

NO.	CAPACITORS
C43	01UF 630V
C43A	100NF 250V
C45	220UF 25V ELECTROLYTIC
C46	220UF 25V ELECTROLYTIC
C47	10000UF 100V ELECTROLYTIC
C48	10000UF 100V ELECTROLYTIC
C49	100NF 100V MKT
C50	100NF 100V MKT
NO.	DIODES
D26	DIODE RECTIFIER KBPC 25-06
D27	DIODE RECTIFIER B80 C1500
D26A	LED 3 MM. RED
D28	IN4005
D29	IN4005
NO.	INTEGRATED CIRCUITS
REG 1	7815
REG 2	7915
NO.	FUSES
F1	FUSE 6,3A SLOW BLOW 5x20 MM.
F2	FUSE 1 A SLOW BLOW 5x20 MM.
F3	FUSE 1 A SLOW BLOW 5x20 MM.
NO.	RESISTORS
R90	1K5 9W 5%
R91	8K2 9W 5% (S4500)
R92	681E 1%
NO.	SWITCHES
S1	= POWER SWITCH C&K
S2	= GROUND LIFT SWITCH C&K 7101
S3	= THERMAL SWITCH 55°C.
NO.	TRANSFORMER
T1	= TOROIDAL TRANSFORMER 500 VA T.B.S.



SAF 02		note:	
PROTECTION BOARD		number:	
designer: H. Schouten		A <sub>4</sub>	
drawn: P.S. van Alphen		2	
		date: 13-04-84	

## NO. CAPACITORS

C33	10UF 35V ELECTROLYTIC
C34	10UF 35V ELECTROLYTIC
C35	100NF 100V
C35A	100NF 100V
C36	100NF 100V
C36A	100NF 100V
C37	47UF 25V ELECTROLYTIC
C38	100NF 100V MKT

## NO. DIODES

D11	1N4005
D12	1N4005
D13	10V ZENER DIODE
D14	10V ZENER DIODE
D15	1N4005
D16	1N4005
D17	1N4005
D17A	1N4005
D17B	1N4005
D18	1N4005

## NO. INTEGRATED CIRCUITS

Ic4	TL 072
Ic5	NE 555

## NO. TRANSISTORS

Q23	BC 547 B
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## NO. RESISTORS

R71	182K 1%
R72	100K 1%
R73	100K 1%
R74	22KI 1%
R75	22KI 1%
R76	100K 1%
R77	100K 1%
R78	100K 1%
R79	47K5 1%
R79A	22KI 1%
R81	47K5 1%
R81A	100K 1%
R82	100E 1%
R83	62KO 1%
R84	4K75 1%

## NO. RELAYS

RL1	RAPA 011.51-22-001
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NO.	CAPACITORS
C33	10UF 35V ELECTROLYTIC
C34	10UF 35V ELECTROLYTIC
C35	100NF 100V
C35A	100NF 100V
C36	100NF 100V
C36A	100NF 100V
C37	47UF 25V ELECTROLYTIC
C38	100NF 100V MKT

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NO.	DIODES
D11	1N4005
D12	1N4005
D13	10V ZENER DIODE
D14	10V ZENER DIODE
D15	1N4005
D16	1N4005
D17	1N4005
D17A	1N4005
D17B	1N4005
D18	1N4005

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NO.	INTEGRATED CIRCUITS
Ic4	TL 072
Ic5	NE 555

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NO.	TRANSISTORS
Q23	BC 547 B

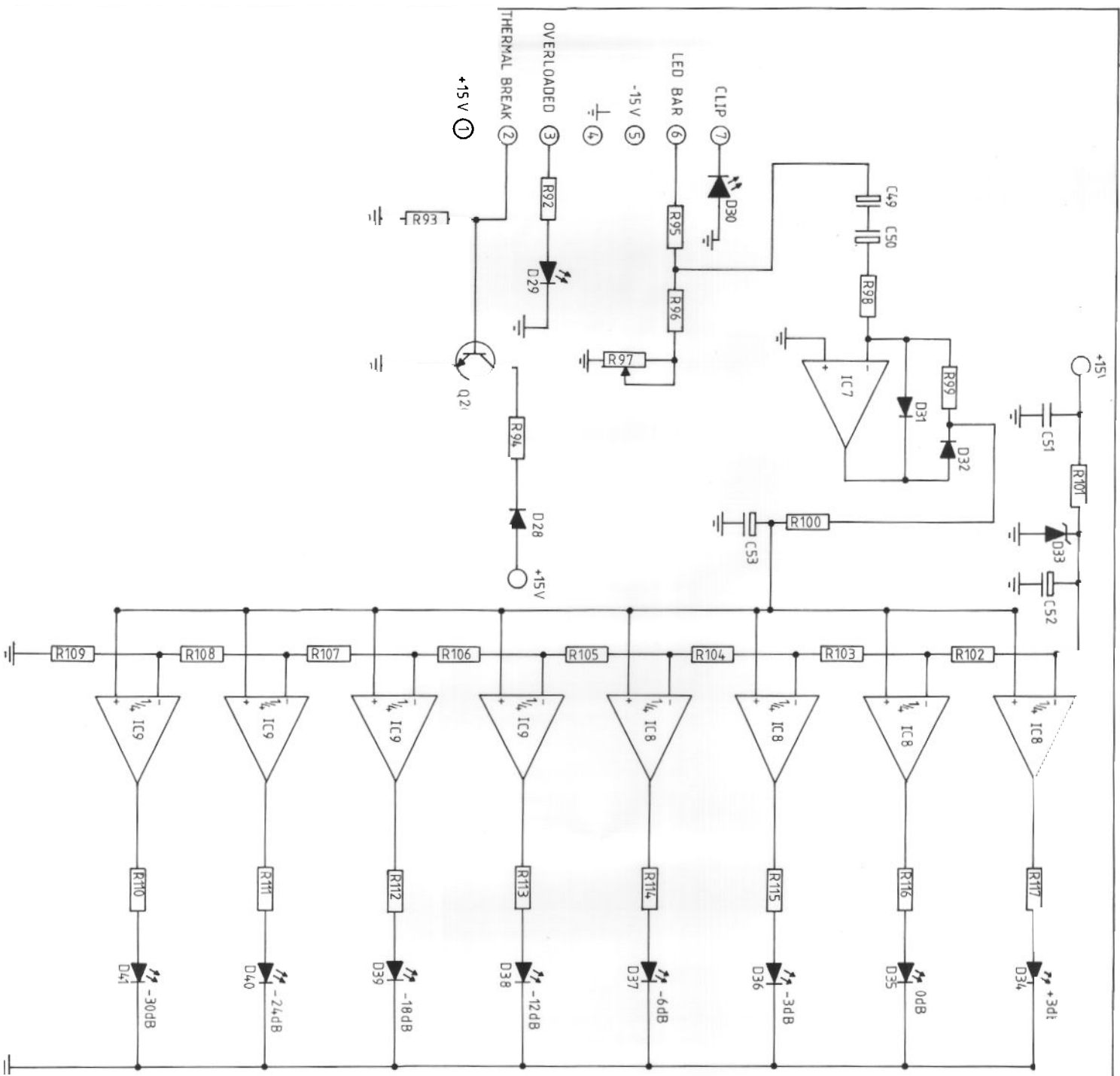
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NO.	RESISTORS
R71	182K 1%
R72	100K 1%
R73	100K 1%
R74	22KI 1%
R75	22KI 1%
R76	100K 1%
R77	100K 1%
R78	100K 1%
R79	47K5 1%
R79A	22KI 1%
R81	47K5 1%
R81A	100K 1%
R82	100E 1%
R83	62KO 1%
R84	4K75 1%

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NO.	RELAYS
RL1	RAPA 011.51-22-001

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BOSE 1802	note
PEAK LEVEL INDICATOR	numbr
designer: H.Schouten	A <sub>4</sub>
drawn: J.Buchner	date: 12-04-81



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**NO. CAPACITORS**

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C49 10UF 35V ELECTROLYTIC  
C50 10UF 35V ELEKTROLYTIC  
C51 100NF 100V ELECTROLYTIC  
C52 10UF 35V ELECTROLYTIC  
C53 1UF 35V TANTALUM

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**NO. DIODES**

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D28 LED 5MM. RED  
D29 LED 5MM. RED  
D30 2 LEDS 5MM. RED  
D31 1N 4148  
D32 1N 4148  
D33 5V1 ZENER DIODE  
D34 LED 5MM. RED  
D35 LED 5MM. RED  
D36 LED 5MM. RED  
D37 LED 5MM. RED  
D38 LED 5MM. RED  
D39 LED 5MM. RED  
D40 LED 5MM. RED  
D41 LED 5MM. RED

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**NO. INTEGRATED CIRCUITS**

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IC7 TL 071 OP AMP  
IC8 TL 084 QUAD OP AMP  
IC9 TL 084 QUAD OP AMP

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**NO. TRANSISTORS**

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Q26 BC 547 B

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**NO. RESISTORS**

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R 92 470 OHMS 1%  
R 93 100K 1%  
R 94 470 OHMS 1%  
R 95 100K 1%  
R 96 1K 1%  
R 97 1K POTMETER  
R 98 10K 1%  
R 99 100K 1%  
R100 1K 1%  
R101 4K7 1%  
R102 2K94 1%  
R103 2K15 1%  
R104 1K78 1%  
R105 1K4 1%  
R106 909 OHMS 1%  
R107 422 OHMS 1%  
R108 232 OHMS 1%  
R109 221 OHMS 1%  
R110 470 OHMS 1%  
R111 470 OHMS 1%  
R112 470 OHMS 1%  
R113 470 OHMS 1%  
R114 470 OHMS 1%  
R115 470 OHMS 1%  
R116 470 OHMS 1%  
R117 470 OHMS 1%