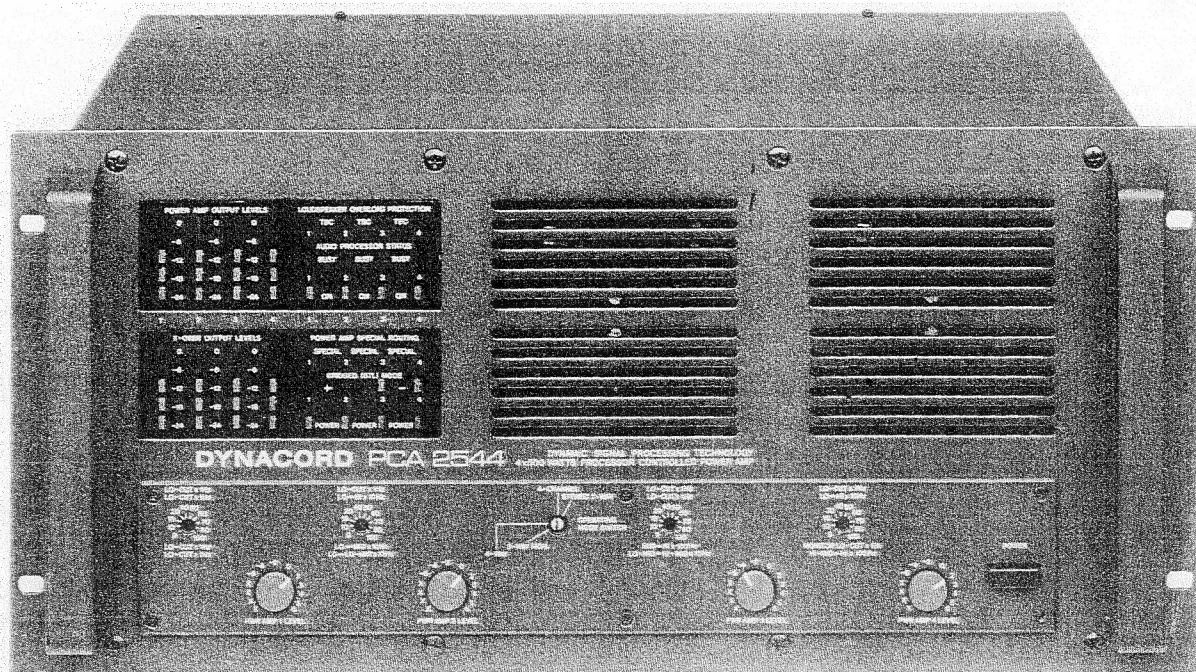


DYNACORD

Service Manual

Mai 1990



4 x 500 WATTS
PROCESSOR CONTROLLED POWER AMP

PCA 2544

PCA 2544

SICHERHEITSVORSCHRIFTEN

Bei Reparaturarbeiten im Gerät sind die Sicherheitsbestimmungen gemäß VDE 0860/ IEC 65 zu beachten und einzuhalten.

Auf der Primärseite sind die geforderten Luft- und Kriechwege unbedingt einzuhalten:

1. Mindestabstand zwischen netzspannungsführenden Teilen und berührbaren Metallteilen (Metallgehäuse usw.) 6 mm.
2. Mindestabstand zwischen den Netzpolen: 3 mm.

Ergänzend möchten wir hierzu erwähnen, daß spezielle Bauteile in den Geräten aufgrund ihres Aufbaues nur durch Originalteile ersetzt und keine eigenmächtigen Schaltungsänderungen vorgenommen werden dürfen.

Außerdem sind die am Reparaturort gültigen Schutzbestimmungen der Berufsgenossenschaften beim Umgang mit diesen Geräten einzuhalten.

Hierzu gehört auch die Beschaffenheit des Arbeitsplatzes.

Die Kenntnis dieser Vorschriften ist die Voraussetzung, um einen fachgemäßen Service dieser Geräte durchführen zu können.

MOS - Vorschriften beim Umgang mit MOS - Bauteilen beachten!

SAFETY REGULATIONS

When carrying out repair work on the appliance the safety regulations in accordance with VDE 0860/ IEC 65 are to be noted and observed.

The specified air gaps and creeping distances on the primary windings are to be observed by all means:

1. The minimum distance between voltage carrying and metal parts (e.g. chassis) is 6 mm.
2. The minimum distance between the mains terminals is 3 mm.

In addition we would like to point out that because of their construction special components must only be replaced by original parts and no alterations to the wiring should be undertaken.

Furthermore the safety regulations of the professional associations concerning the handling of these appliances are to be observed at the workshop where repairs are carried out. Included here are the features of the place of work.

Knowledge of these regulations is a pre-requisite for proper servicing of these appliances.

Observe **MOS** components handling instructions when servicing!

AUSBAUHINWEISE

Öffnen des Gerätes:

1. Schrauben (A) am Oberteil (Unterteil) herausdrehen.
2. Deckel abnehmen.
3. Senkschrauben (B) herausdrehen.
4. Senkschrauben (C) leicht öffnen (nicht herausdrehen).
5. Endstufen-Rahmen aufklappen. (siehe Fig.2)

DISMANTLING INSTRUCTION

To open the appliance:

1. Remove screws (A) on upper (bottom) part.
2. Remove cover.
3. Remove screws (B).
4. Loosen screws (C) slightly but to not unscrew fully.
5. Open power stage frame (see ill 2).

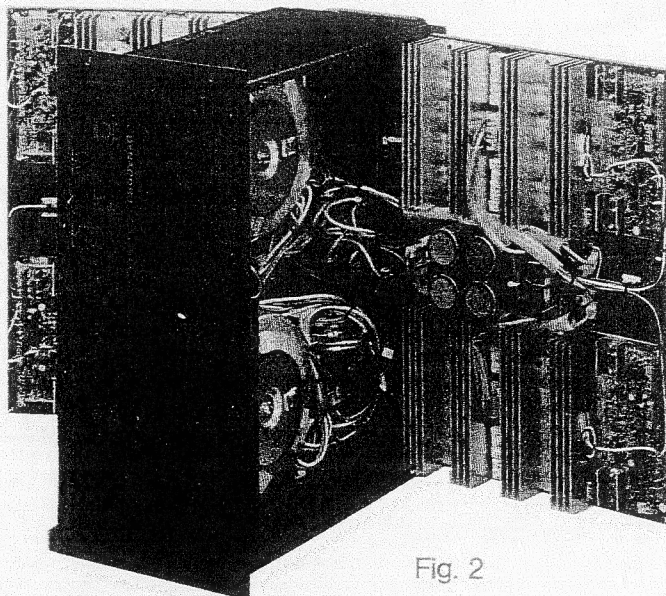
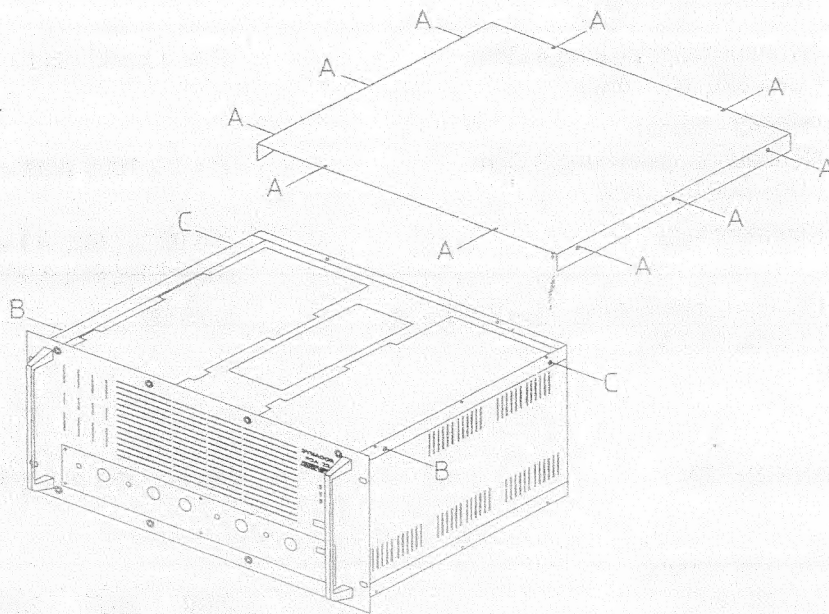


Fig. 2

MESSDATEN PCA 2544 Gerät kpl.

GRUNDEINSTELLUNGEN :

Alle "PWR AMP Level" Steller - Rechtsanschlag; alle "X-Over" Steller Linksanschlag; Betriebsartenschalter in Stellung "4-Channel"; alle "TBC" Schalter in Stellung 500 W; "ROUTING" Schalter 1 in Stellung 1 "ROUTING" Schalter 2 in Stellung 2 usw.; "BRIDGED-MODE" in St."OFF"

Messungen jeweils 1 Kanal, falls nicht anders angegeben!

1.0	Betriebsspannung	U = 220 V AC 50 Hz
	Meßfrequenz	f = 1 kHz
	Eingangsspannung	U _e = 870 mV (10%)
	Lastwiderstand	R _L = 4 Ohm
1.1	Nennausgangsleistung 8 Ohm (U _e = 950 mV 10%)	P = 4 x 300 Watt = 49 V
1.2	Nennausgangsleistung 4 Ohm (U _e = 870 mV 10%)	P = 4 x 500 Watt = 44,7 V
1.3	Bridged - Mode: Nennausgangsleistung 8 Ohm (U _e = 800 mV 10%)	P = 2 x 1000 Watt = 89.5 V
2.0	Klirrfaktor k _{ges}	≤ 0,03 % (8Ω, 49 V, 1 kHz) ≤ 0,04 % (8Ω, 4,9 V, 1 kHz)
3.1	Übersprechdämpfung 1 > 2 > 3 > 4 (1 kHz, 44,7 V)	≤ 70 dB

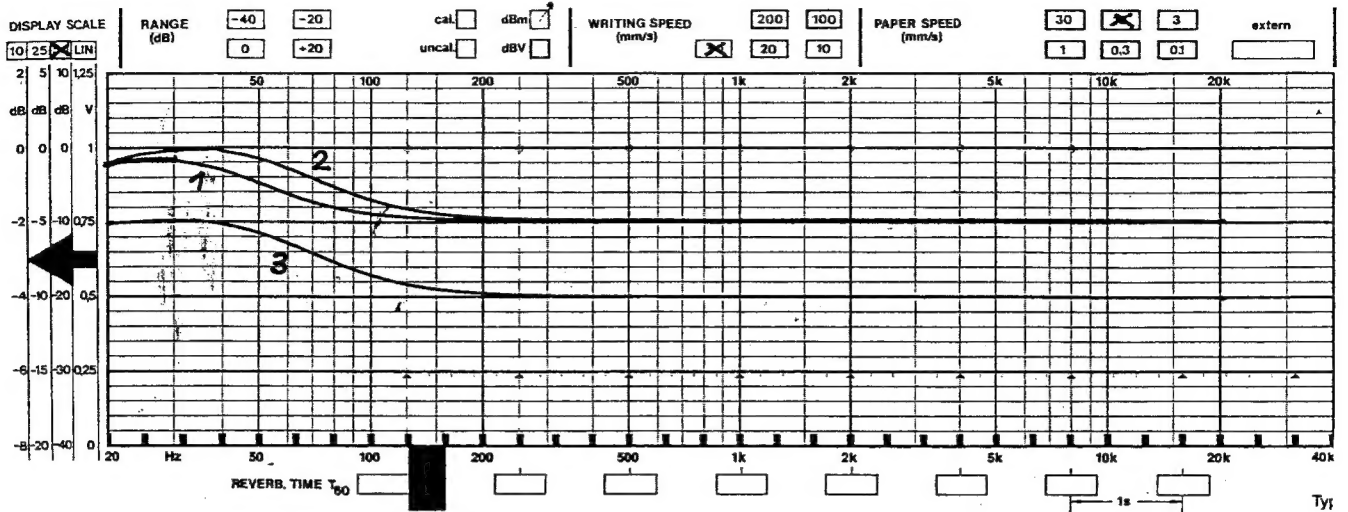
STÖRSPANNUNGEN :

	CH.1	CH.2	CH.3	CH.4
4.1	Fremdspannung (Levelst.auf)			
	2mV	2mV	2mV	2mV
4.2	Geräuschspg. CCIR 468 (Levelst.auf)"Spitze"			
	6mV	6mV	6mV	6mV
4.3	Geräuschspg. "A" RMS (Levelst.auf)			
	1mV	1mV	1mV	1mV
4.4	Geräuschspg. "A" RMS (Levelst.zu)			
	400μV	400μV	400μV	400μV
5.0	Frequenzgänge siehe Seite 5-8			

FREQUENZGANG GERÄT KPL.

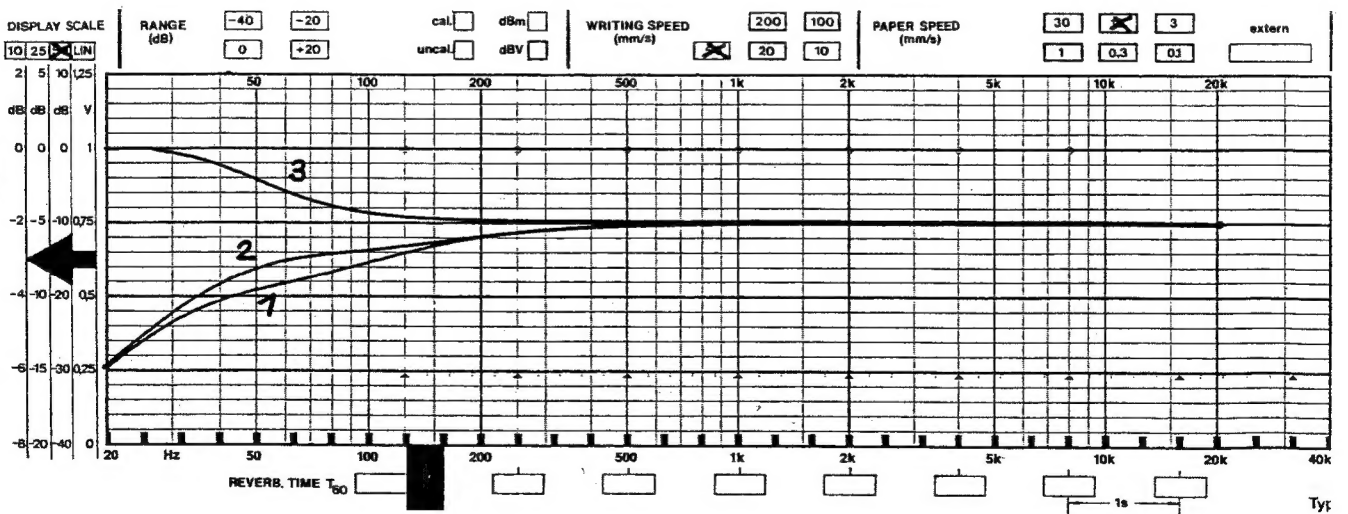
Betriebsart 4-CHANNEL, LO-CUT Regler : Linksanschlag

- 1 = Schalterstellung 1 = Bassentzerrung Studiomonitore
- 2 = Schalterstellung 2 = Bassentzerrung PA Systeme
- 3 = Schalterstellung 2, SPECIAL ROUTING in Stellung "D" (-10 dB)



Betriebsart 4-CHANNEL, LO - CUT Regler : Rechtsanschlag

- 1 = Schalterstellung 1 = Bassentzerrung Studiomonitore
- 2 = Schalterstellung 2 = Bassentzerrung PA Systeme
- 3 = Schalterstellung 1, SPECIAL ROUTING in Stellung "D"

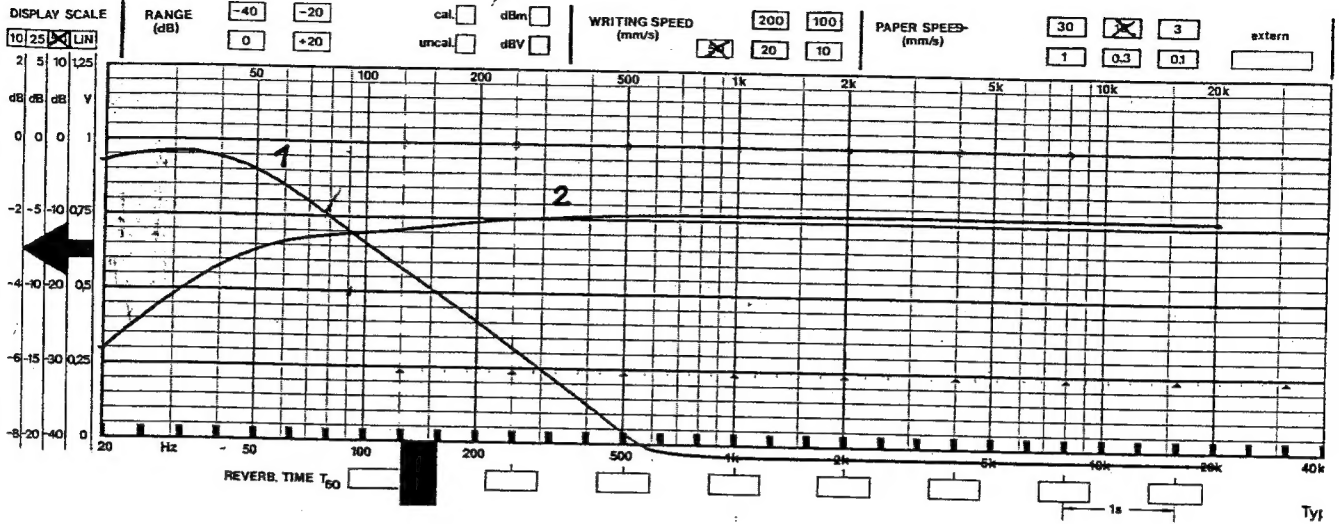


2-WAY STEREO

Betriebsartenschalter in Stellung 2-WAY, Eingangsspannung $U_e = 100\text{mV}$

Eingang Ch. 1/2 = B 002 ; Eingang Ch. 3/4 = B 004 ; X-Over Regler : Linksanschlag

1 = Output LO, 2 = Output HI, LO-CUT Regler : Linksanschlag

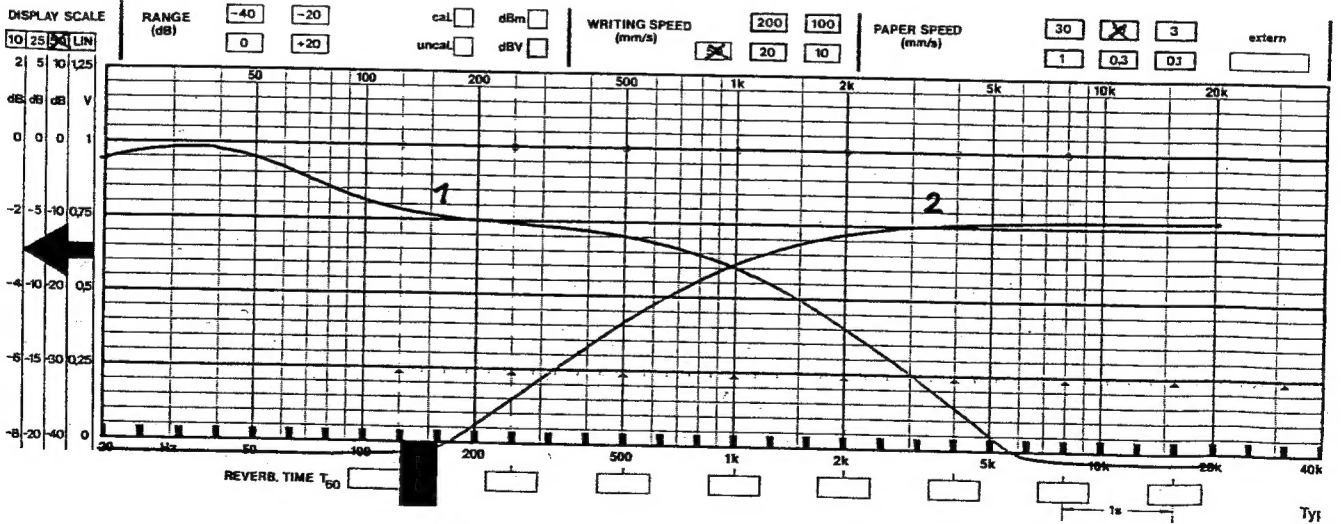


2-WAY STEREO

Betriebsartenschalter in Stellung 2-WAY, Eingangsspannung $U_e = 100\text{mV}$

Eingang Ch. 1/2 = B 002 ; Eingang Ch. 3/4 = B 004 ; X-Over Regler : Rechtsanschlag

1 = Output LO, 2 = Output HI, LO-CUT Regler : Linksanschlag

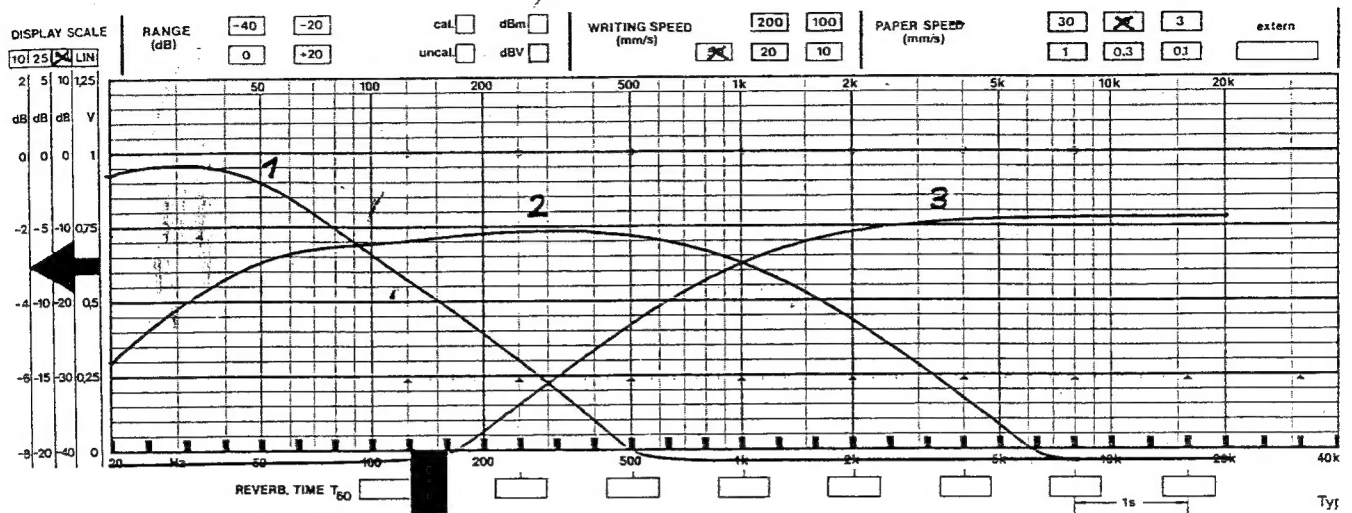


3-WAY / MONITOR

Betriebsartenschalter in Stellung 3-WAY, Eingangsspannung $U_e = 100\text{mV}$

Eingang Ch. 1/2/3 = B 003 ; Eingang Monitor = B 004 ; LO-CUT Regler : Linksanschlag

1 = Output LO, 2 = Output MID, 3 = Output HI X-Over Regler : Linksanschlag

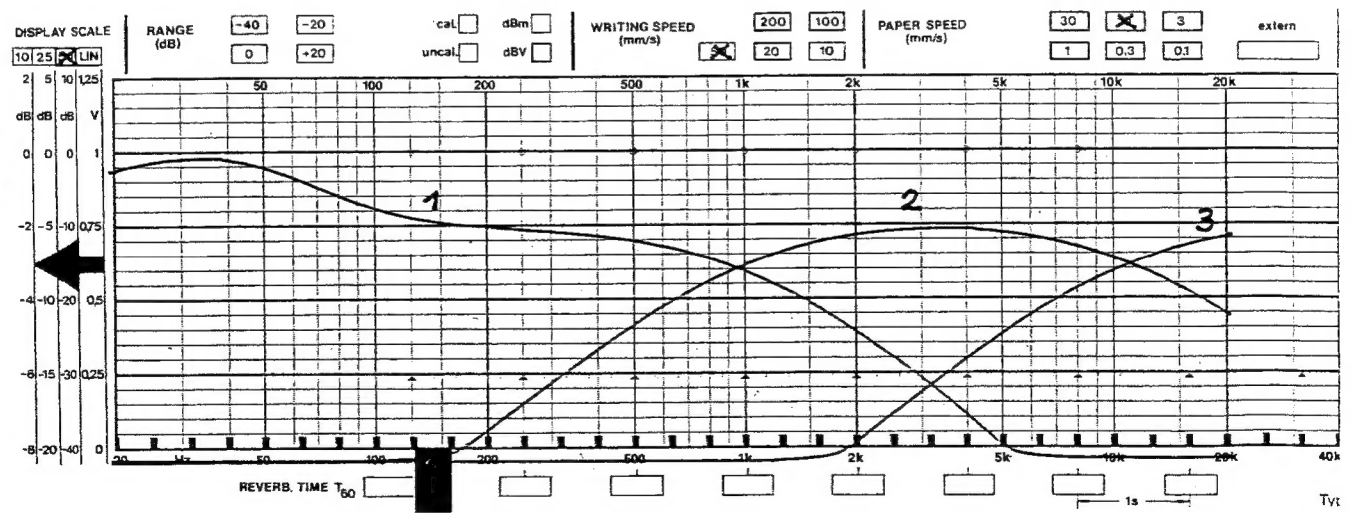


3-WAY / MONITOR

Betriebsartenschalter in Stellung 3-WAY, Eingangsspannung $U_e = 100\text{mV}$

Eingang Ch. 1/2/3 = B 003 ; Eingang Monitor = B 004 ; LO-CUT Regler : Linksanschlag

1 = Output LO, 2 = Output MID, 3 = Output HI X-Over Regler : Rechtsanschlag

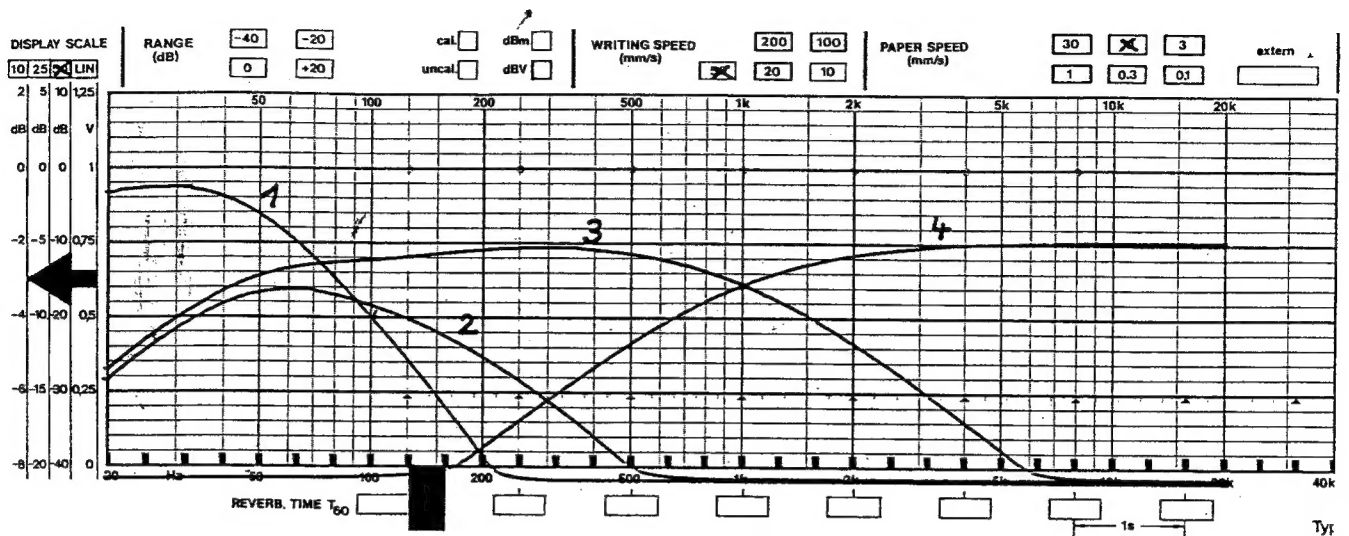


4-WAY

Betriebsartenschalter in Stellung 4-WAY, Eingangsspannung $U_e = 100\text{mV}$

Eingang Ch. 1/2/3/4 = B 004 ; LO-CUT Regler : Linksanschlag, X-Over Regler : Linksanschlag

1 = Output LO, 2 = Output LO-MID, 3 = Output HI -MID, 4 = Output HI

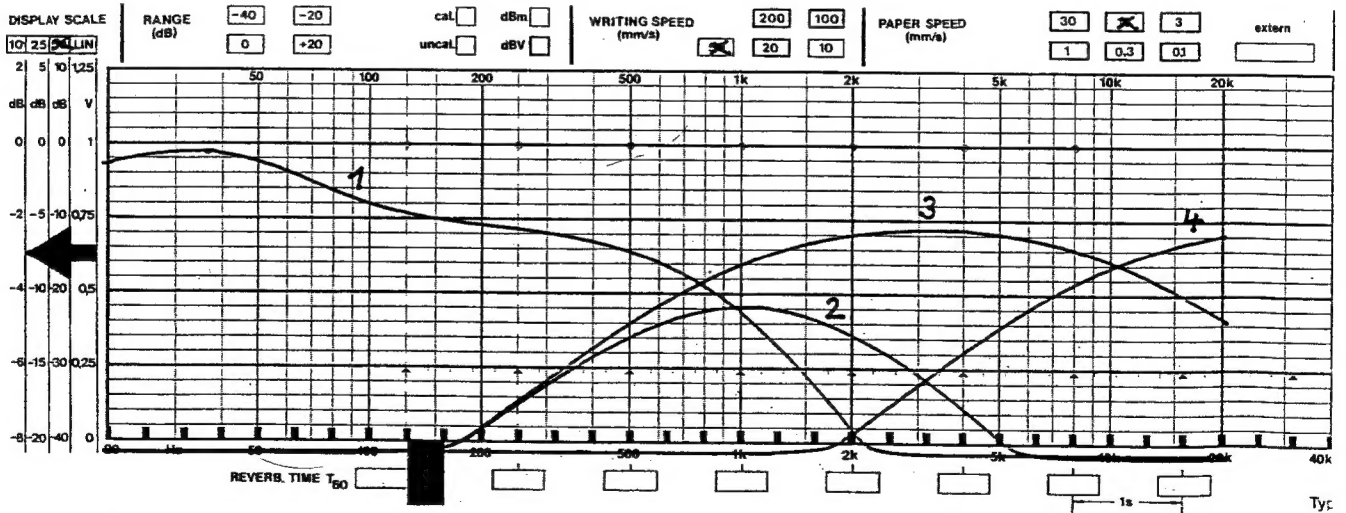


4-WAY

Betriebsartenschalter in Stellung 4-WAY, Eingangsspannung $U_e = 100\text{mV}$

Eingang Ch. 1/2/3/4 = B 004 ; LO-CUT Regler : Linksanschlag, X-Over Regler : Rechtsanschlag

1 = Output LO, 2 = Output LO-MID, 3 = Output HI -MID, 4 = Output HI



EINSTELLUNGEN UND JUSTIERUNGEN

1. RUHESTROM (Endstufenplatine 84108)

In + oder - Leitung der Leistungstransistoren 0,01 Ohm Widerstand einfügen. Spannungsabfall an 0,01 Ohm Widerstand mit R 071 auf ca. 1,5 mV (150 mA) einstellen. Ruhestrom wandert nach Erwärmung ca. 15 % nach oben.

2. AUSGANGSOFFSET (Endstufenplatine 84108)

Oszillograph oder Millivoltmeter an TP 1 auf Platine 84108 anschließen. Mit R 075 Spannung auf ca. 0 V einstellen.

3. PROZESSORJUSTIERUNG (Prozessorprintplatte 88111)

Kanal 1 - 4 jeweils bis 22 V aussteuern, Serviceschalter S 005, S 006, S 007 und S 008 schließen. Mit R 039 - Kanal 4, R 042 - Kanal 3, R 045 - Kanal 2 und R 048 - Kanal 1, Ausgangsspannung auf Minimum justieren. $f = 1$ kHz, Dämpfung 40 dB, UA 220 mV

4. PROZESSOR OFFSET (Levelsteller zu)

Serviceschalter S 005 - S 008 rhythmisch öffnen und schließen, mit R 033 - Kanal 4, R 034 - Kanal 3, R 035 - Kanal 2 und R 036 Kanal 1 auf minimalen Offset am Endstufenausgang justieren.

5. PROZESSORTEST

Kanal 1 - 4 bis UA = 45 V aussteuern. Eingangsspannung um 10 dB erhöhen. BUSY - LED leuchtet auf; Ausgangsspannung steigt um ca 1,5 dB auf 52 Volt.

6. ANZEIGEJUSTIERUNG

Bei Ausgangsspannung UA = 22 V Ausgangsanzeige so justieren, daß vorletzte LED pro Kette gerade verlöscht. (Kanal 1 = R 001 Kanal 2 = R 006, Kanal 3 = R 011 und Kanal 4 = R 016 auf Anzeigepprintplatte 87105) Bei Ausgangsspannung UA = 22 V Eingangsanzeige so justieren, daß vorletzte LED pro Kette gerade verlöscht. (Kanal 1 = R 024 Kanal 2 = R 023, Kanal 3 = R 022 und Kanal 4 = R 021 auf Prozessorprintplatte 88111)

7. KURZSCHLUSSTEST

Alle Kanäle einzeln bis 45 Volt an 4 Ohm aussteuern und 1 Ohm Widerstand parallelschalten. Die Leistungsaufnahme steigt auf ca 1800 VA und sinkt anschließend kontinuierlich auf 1200 VA zurück. (ca 30 sec.) BUSY LED leuchtet.

8. LÜFTERSTEUERUNG

Beide Lüfter laufen generell "slow". Hochschalten von "slow" auf "fast" bei 90° C, Rückschalten von "fast" auf "slow" bei 70° C.

9. EINSCHALTVERZÖGERUNG

Strombegrenzungs-Relais E 001 und E 002 auf Netzteilprintplatte 85201 ziehen sofort; Lautsprecher-schutzrelais E 001 und E 002 auf beiden Relaisprintplatten 85181 ziehen nach ca 2 sec. an!

10. TBC - TEST

Gerät abschalten. Nach ca 10 sec. (TBC Schaltung ist entleert) Gerät mit Ue +10 dB wieder einschalten. BUSY LED leuchtet auf; Nach ca 20 sec. spricht die TBC Schutzschaltung an und reduziert die Ausgangsspannung auf ca 41 V. TBC LED leuchtet dabei auf. Anschließend TBC Schalter auf 250 W schalten. Die Ausgangsspannung sinkt nach ca 15sec. auf 30 V. TBC Schalter auf 125 W schalten.

Die Ausgangsspannung sinkt nach ca 8sec. auf 23V.
Auslieferungszustand TBC1-TBC4 In Stellung 500 Watt.

11. SPECIAL ROUTING

Alle 4 Endstufen können wahlweise allen 4 X-Over Ausgängen zugeordnet werden. Ebenso können die X-Over pro Kanal überbrückt werden und das Eingangssignal direkt den Endstufen zugeführt werden. (D) Grundeinstellung : TO AMP 1 - Stellung 1, TO AMP 2 - Stellung 2, TO AMP 3 - Stellung 3 und TO AMP 4 - Stellung 4

In dieser Einstellung leuchtet keine der 4 SPECIAL ROUTING LED's. Jede von dieser Grundeinstellung abweichende Schalterstellung wird von den SPECIAL ROUTING LED's angezeigt.

12. BRIDGED - MODE

Stellung 1 = OFF: kein Brückenbetrieb. Stellung 2 = 1+3 BTL : Endstufe 1 und 3 arbeiten im Brückenbetrieb, Endstufe 2 und 4 in normaler Betriebsart. BRIDGED - MODE LED's 1 und 3 leuchten. Stellung 3 = 1+3 und 2+4 BTL : Endstufe 1 und 3, sowie Endstufe 2 und 4 arbeiten im Brückenbetrieb. BRIDGED - MODE LED's 1 und 3 sowie 2 und 4 leuchten auf. Grundeinstellung = Auslieferungszustand : BRIDGED - MODE OFF !

TECHNISCHE DATEN

Eingangsspannung XLR	720 mV - 5V
Eingangsimpedanz	10 k (20 k symm.)
Musikleistung 8 Ohm	4 x 360 Watt
Musikleistung 4 Ohm	4 x 600 Watt
Nennleistung 8 Ohm	4 x 300 Watt
Nennleistung 4 Ohm	4 x 500 Watt
Nennleistung 8 Ohm BRIDGED - MODE	2 x 1000 Watt
Min. Lastimpedanz	3 Ohm pro Kanal
Übertragungsbereich (-3 dB)	3,5 Hz - 70 kHz
Klirrfaktor bei Nennleistung	< 0,03%
Übersprechdämpfung bei 1 kHz	> 70 dB
Rauschabstand (A, RMS)	> 101 dB
Slew - Rate (intern)	> 100 V/μsec
Rise - Time (intern)	< 2 μsec/V
Dämpfungsfaktor (intern)	> 300
Leistungsaufnahme	3700 VA
Leistungsaufnahme (1/8 PN VDE Rauschen)	1400 VA
Betriebsspannung	220 V ± 10 % 50-60 Hz
Ausgangsleistungsbegrenzung	500 W, 250 W, 125 W
Abmessungen (B x H x T)	483 x 221,4 x 452 mm H = 228 mm incl. Gummifüßen !
Einschaltverzögerung	ja
Schutzklasse	I
Nachrüstsatz (Eingang Symmetrisch)	Extern !
Gewicht	38 kg

Overall TEST DATA PCA 2544

BASIC SETTINGS:

All "PWR AMP Level" Controllers fully clockwise (max.); all "X-Over" Controllers fully anticlockwise (min.); mode selector into position "4-Channel"; all "TBC" switches into position 500 W; "ROUTING" Switch 1 into position 1 "ROUTING"; switch 2 into position 2 etc.; "BRIDGED MODE" to "OFF".

Perform measurements only on one channel if nothing else is specified.

1.0	Operating voltage	E = 220 V AC 50 Hz
	Test frequency	f = 1 kHz
	Input voltage	E _{in} = 870 mV (± 10%)
	Load impedance	R _L = 4 ohms
1.1	Rated power output at 8 ohms (E _{in} = 950 mV ± 10 %)	P = 4 x 300 watts = 49 W
1.2	Rated power output at 4 ohms (E _{in} = 950 mV ± 10 %)	P = 4 x 500 watts = 44.7 W
1.3	Bridged mode: Rated power output at 8 ohms (E _{in} = 950 mV ± 10 %)	P = 2 x 1000 watts = 89.5 W
2.0	Total harmonic distortion	≤ 0,03 % (8 ohms, 49 V, 1 kHz) ≤ 0,04 % (8 ohms, 4.9 V, 1 kHz)
3.1	Crosstalk 1 > 2 > 3 > 4 (1kHz, 44,7 V)	≤ 70 dB

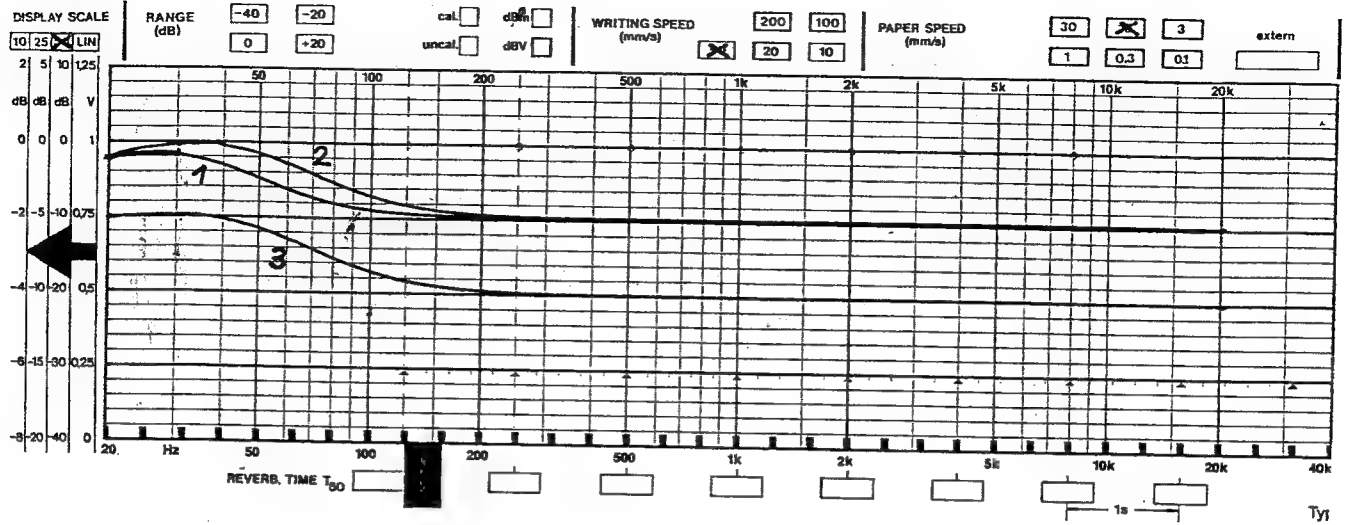
NOISE VOLTAGES:

	CH.1	CH.2	CH.3	CH.4
4.1	Weighted noise (DIN 45500 part 4) (Level controls turned up)			
	2mV	2mV	2mV	2mV
4.2	Weighted noise CCIR 468 "peak" (Level controls turned up)			
	6mV	6mV	6mV	6mV
4.3	Weighted noise (A) RMS (Level controls turned up)			
	1mV	1mV	1mV	1mV
4.3	Weighted noise (A) RMS (Level controls turned down)			
	400μV	400μV	400μV	400μV
5.0	Frequency responses see pages 12-15			

FREQUENCY RESPONSE FOR COMPLETE UNIT

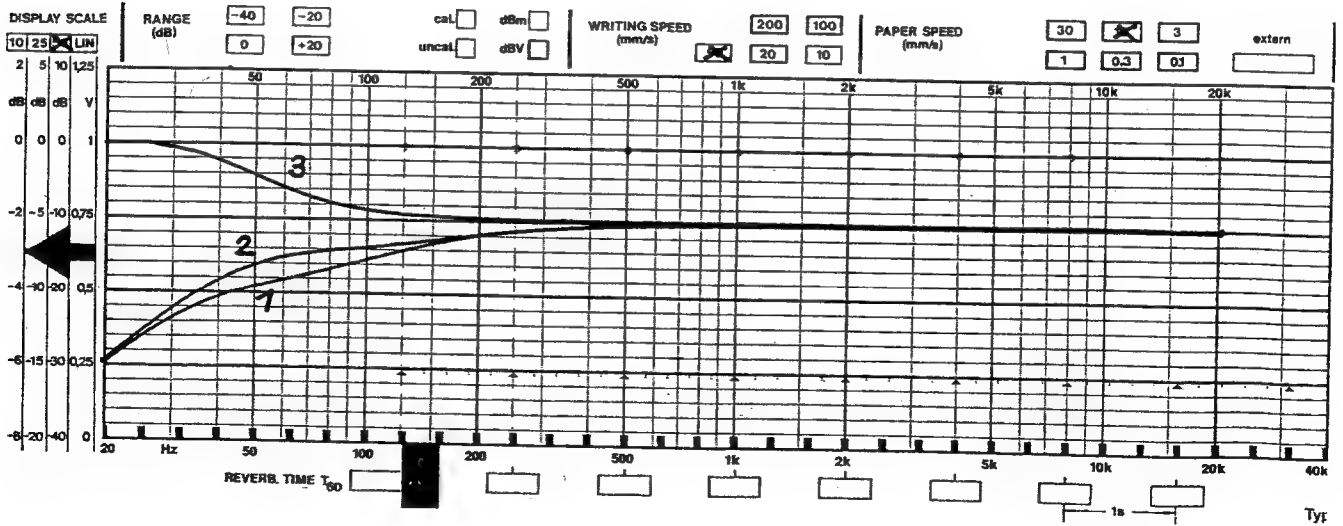
Operating mode 4-CHANNEL, LO-CUT Control: CCW (min.)

- 1 = switch position 1 = bass equalisation studio monitors
- 2 = switch position 2 = bass equalisation PA systems
- 3 = switch position 2, SPECIAL ROUTING in position "D" (-10 dB)



Operating mode 4-CHANNEL, LO-CUT Control: CW (max.)

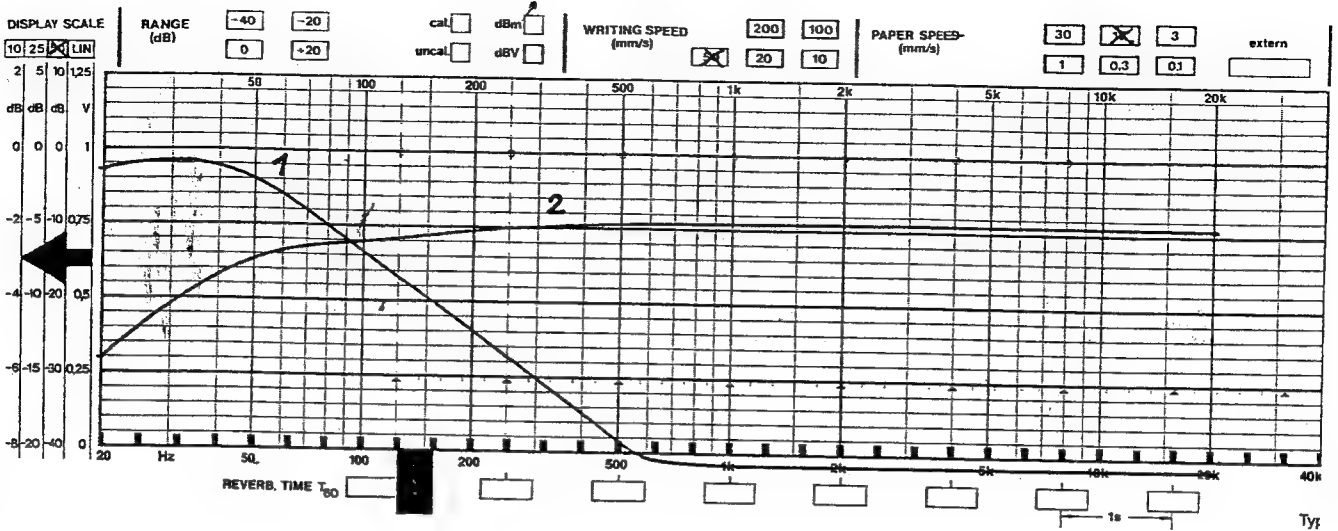
- 1 = switch position 1 = bass equalisation studio monitors
- 2 = switch position 2 = bass equalisation PA systems
- 3 = switch position 2, SPECIAL ROUTING in position "D"



FREQUENCY RESPONSE 2-WAY STEREO

Mode switch in position 2-WAY, Input voltage $E_{in} = 100 \text{ mV}$
 Input Ch.1/2 = B 002; Input Ch.3/4 = B 004, X-Over control: CCW (min.)

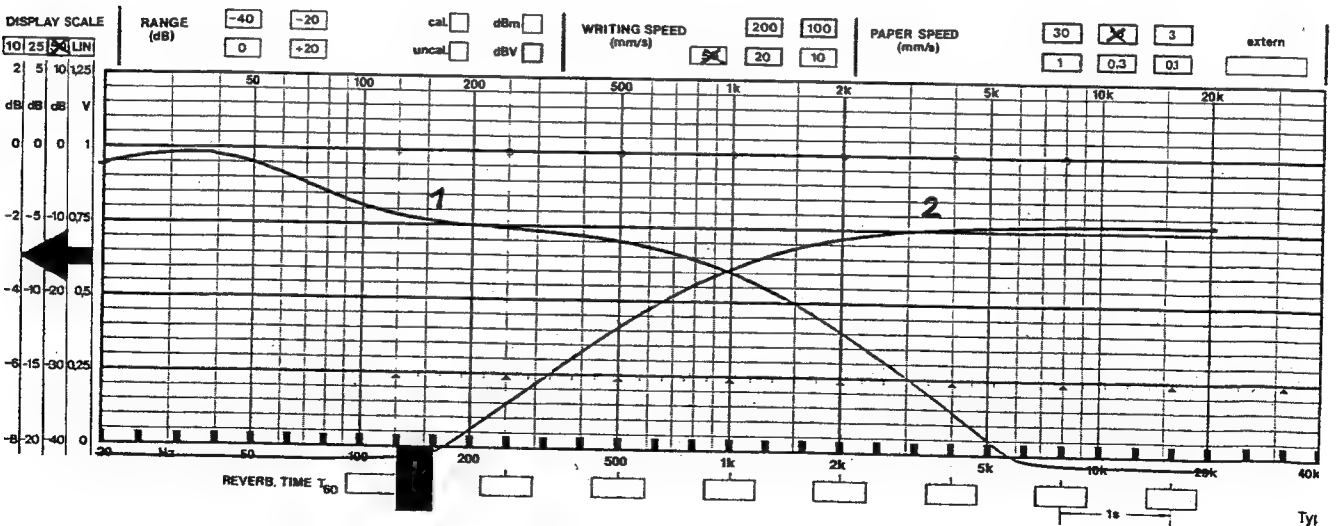
1 = Output LO, 2 = Output HI LO-CUT Control : CCW



FREQUENCY RESPONSE 2-WAY STEREO

Mode switch in position 2-WAY, Input voltage $E_{in} = 100 \text{ mV}$
 Input Ch.1/2 = B 002; Input Ch.3/4 = B 004, X-Over control: CW (max.)

1 = Output LO, 2 = Output HI LO-CUT Control : CCW

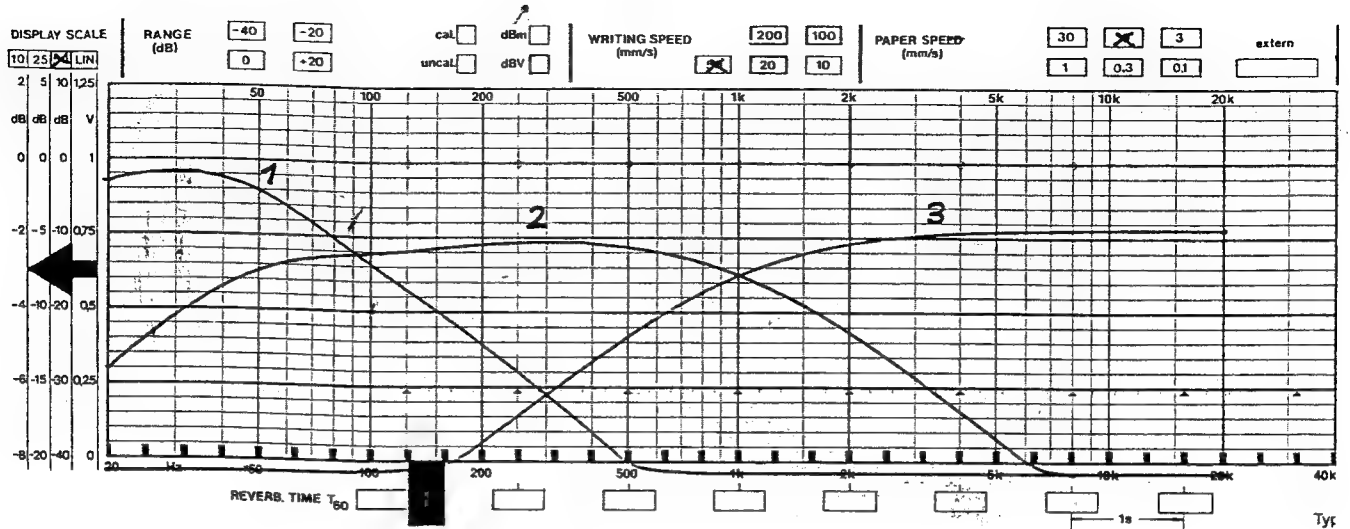


FREQUENCY RESPONSE 3-WAY / MONITOR

Mode switch in position 3-WAY, Input voltage $E_{in} = 100\text{ mV}$

Input Ch.1/2/3 = B 003; Input Monitor = B 004, LO-CUT control: CCW (min.)

1 = Output LO 2 = Output MID 3 = Output HI X-Over Control : CCW

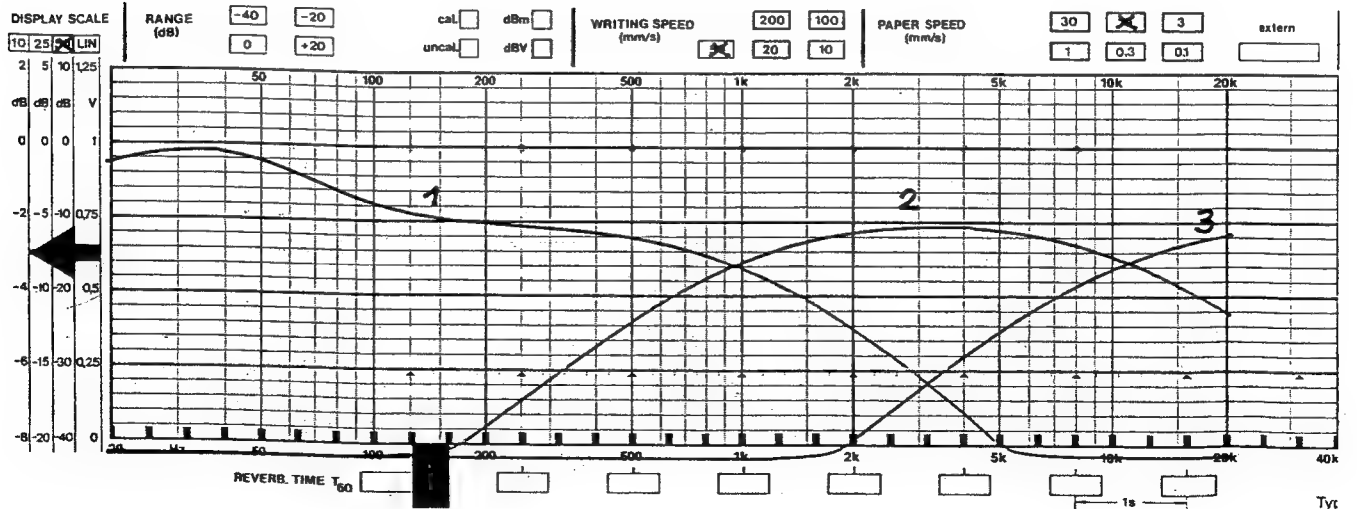


FREQUENCY RESPONSE 3-WAY / MONITOR

Mode switch in position 3-WAY, Input voltage $E_{in} = 100\text{ mV}$

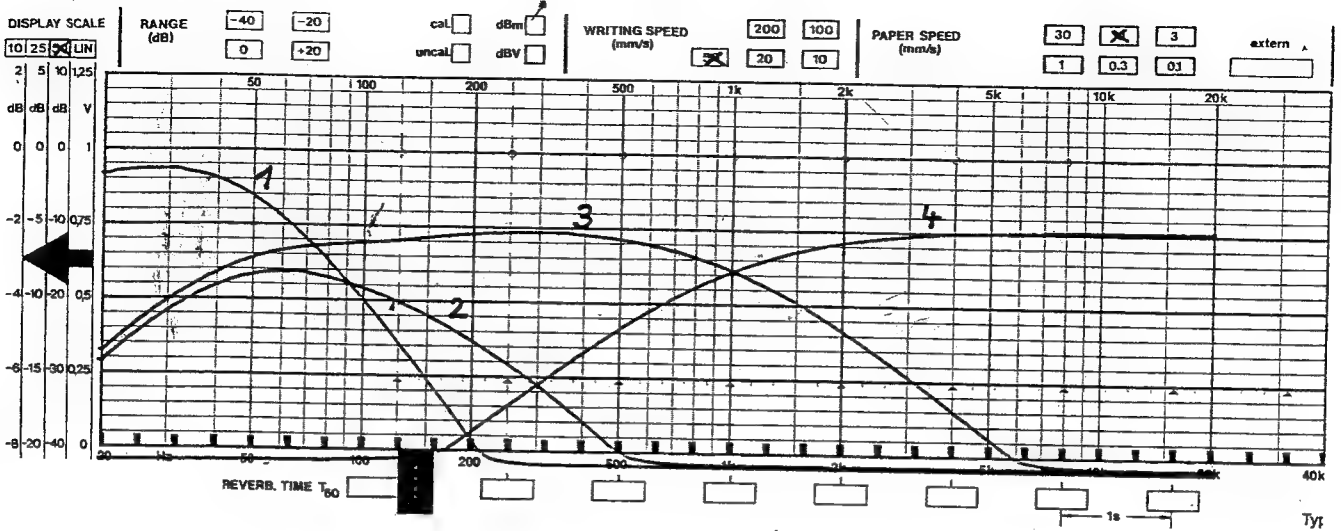
Input Ch.1/2/3 = B 003; Input Monitor = B 004, LO-CUT control: CCW (min.)

1 = Output LO 2 = Output MID 3 = Output HI X-Over Control : CW



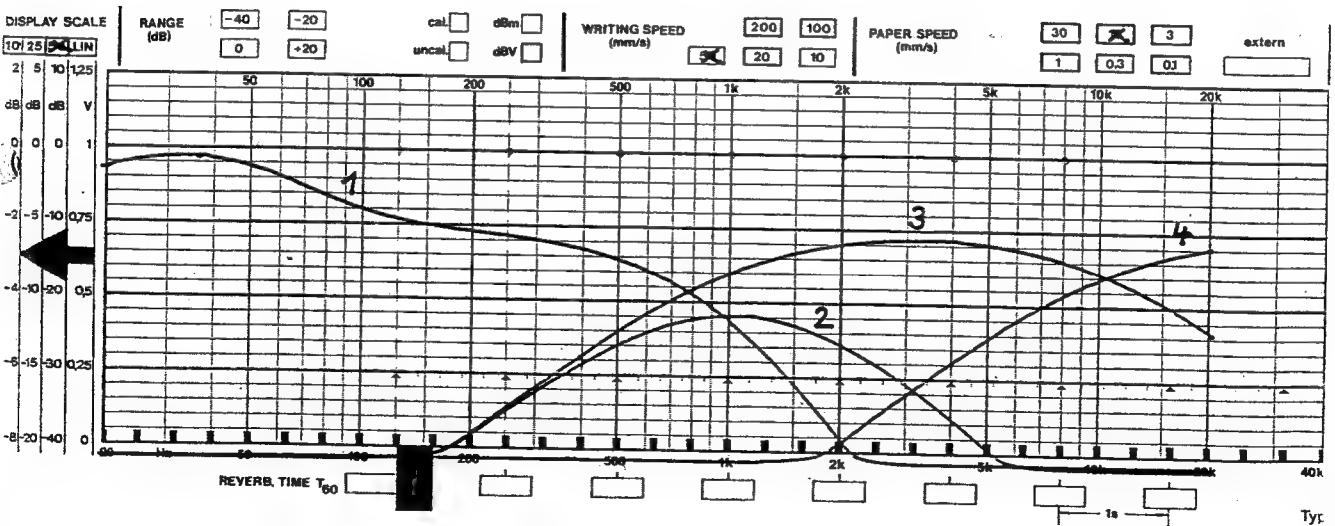
FREQUENCY RESPONSE 4-WAY

Mode switch in position 4-WAY, Input voltage $E_{in} = 100 \text{ mV}$
 Input Ch.1/2/3/4 = B 004; LO-CUT control: CCW, X-Over control: CCW
 1 = Output LO 2 = Output LO-MID 3 = Output HI-MID 4 = Output HI



FREQUENCY RESPONSE 4-WAY

Mode switch in position 4-WAY, Input voltage $E_{in} = 100 \text{ mV}$
 Input Ch.1/2/3/4 = B 004; LO-CUT control: CCW, X-Over control: CW
 1 = Output LO 2 = Output LO-MID 3 = Output HI-MID 4 = Output HI



11. SPECIAL ROUTING

All four amps can be assigned freely to all four X-Over outputs. The X-Overs can be bypassed for each channel and the input signal is fed directly to the amps. (D) Basic setting: TO AMP 1 - position 1, TO AMP 2 - position 2, TO AMP 3 - position 3 and TO AMP 4 - position 4.

With this setting none of the 4 SPECIAL ROUTING LED's is lit. Each other setting is displayed by the SPECIAL ROUTING LED's.

12. BRIDGED MODE

Position 1 = OFF: no bridged operation. Position 2 = 1 + 3 BTL: amp 1 and 3 work in bridged mode, amp 2 and 4 in normal mode. BRIDGED MODE LED's 1 and 3 are lit. Position 3 = 1 + 3 and 2 + 4 BTL: amp 1 and 3 as well as amp 2 and 4 work in bridged mode. BRIDGED MODE LED's 1 and 3 as well as 2 and 4 are lit. Basic position = factory preset: BRIDGED MODE OFF!

SPECIFICATIONS

Input voltage XLR	720 mV - 5 V
Input impedance	10 kohms (20 kohms bal.)
Music power 8 ohms	4 x 360 watts
Music power 4 ohms	4 x 600 watts
Rated power 8 ohms	4 x 300 watts
Rated power 4 ohms	4 x 500 watts
Rated power 8 ohms BRIDGED MODE	2 x 1000 watts
Min. load impedance	3 ohms per channel
Frequency range (-3 dB)	3.5 Hz - 70 kHz
THD at rated power	< 0.03 %
Crosstalk (1 kHz)	> 70 dB
S/N ratio (A weighted, RMS)	> 101 dB
Slew rate (internal)	> 100 V/ μ s
Rise time (internal)	< 2 μ sec/V
Damping factor (internal)	> 300
Power consumption	3700 watts
Power consumption (1/8 PN IEC shaped noise)	1400 watts
Mains voltage	220 V \pm 10 %, 50 - 60 Hz
Output power limitation	500 watts, 250 watts, 125 watts
Dimensions (W x H x D)	483 x 221.4 x 452 mm (H = 228 mm incl. rubber feet)
Power on delay	yes
Safety class	I
Transformer balanced inputs	(optional)
Weight	38 kg (83.7 lbs)

Settings and adjustments

1. IDLE CURRENT (power amp pcb 84108)

Insert a 0.01 ohms resistor into the + or - line of the power transistors. Adjust voltage drop with R 071 to approx. 1.5 mV (150 mA). Idle current increases about 15 % after warming up

2. OUTPUT OFFSET (power amp pcb 84108)

Connect an oscilloscope or a millivoltmeter to TP 1 on pcb 84108. Adjust voltage with R 075 to approx. 0 V.

3. PROCESSOR ADJUSTMENT (processor pcb 88111)

Adjust channels 1 - 4 until $E_{out} = 22$ V, close service switches S 005, S 006, S 007 and S 008. Adjust output voltage to minimum with R 039 - channel 4, R 042 - channel 3, R 045 - channel 2 and R 048 - channel 1. $f = 1$ kHz, attenuation 40 dB, $E_{out} = 220$ mV.

4. PROCESSOR OFFSET (level controls turned down)

Alternately open and close service switches S 005 - S 008; using R 033 - channel 4, R 034 - channel 3, R 035 - channel 2 and R 036 - channel 1 adjust to minimum offset at power amplifier output.

5. PROCESSOR TEST

Increase input signal to channels 1 - 4 until $E_{out} = 45$ V. Increase input voltage by 10 dB -- BUSY LED lights up; output voltage will rise by approx. 1.5 dB to 52 V.

6. INDICATOR ADJUSTMENT

With an output voltage of $E_{out} = 22$ V, adjust output indicator in such a way that penultimate LED in each array just starts to go out. (Channel 1 = R 001, channel 2 = R 006, channel 3 = R 011 and channel 4 = R 016 on meter pcb 87105). With an output voltage of $E_{out} = 22$ V, adjust input indicator in such a way that penultimate LED in each array just starts to go out. (Channel 1 = R 024, channel 2 = R 023, channel 3 = R 022 and channel 4 = R 021 on processor pcb 88111).

7. SHORT-CIRCUIT TEST

Drive all channels individually until 45 V output voltage at 4 ohms is reached and connect an 1 ohm resistor in parallel. The mains power input will increase to approx. 1800 watts and then continually fall back to 1200 watts (approx. 30 sec.) BUSY LED will light up.

8. FAN CONTROL

Both fans generally run "slow". Switching from "slow" to "fast" at 90°C, switching back from "fast" to "slow" at 70°C.

9. POWER ON DELAY

Current limiting relays E 001 and E 002 on power supply pcb draw immediately; speaker protection relays E 001 and E 002 on both relay pcb's 85181 will draw after approx. 2 sec.

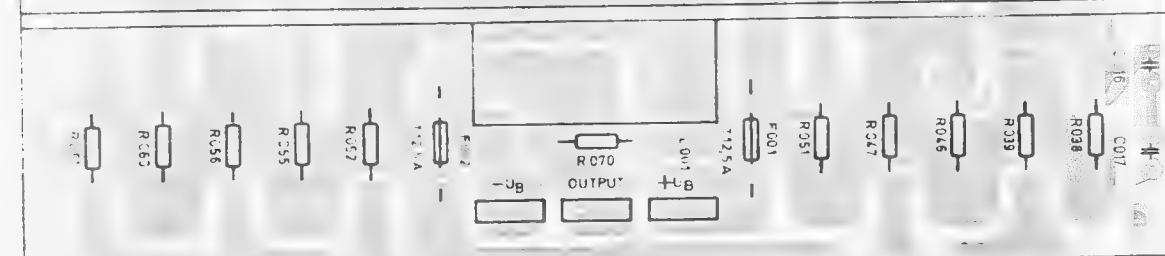
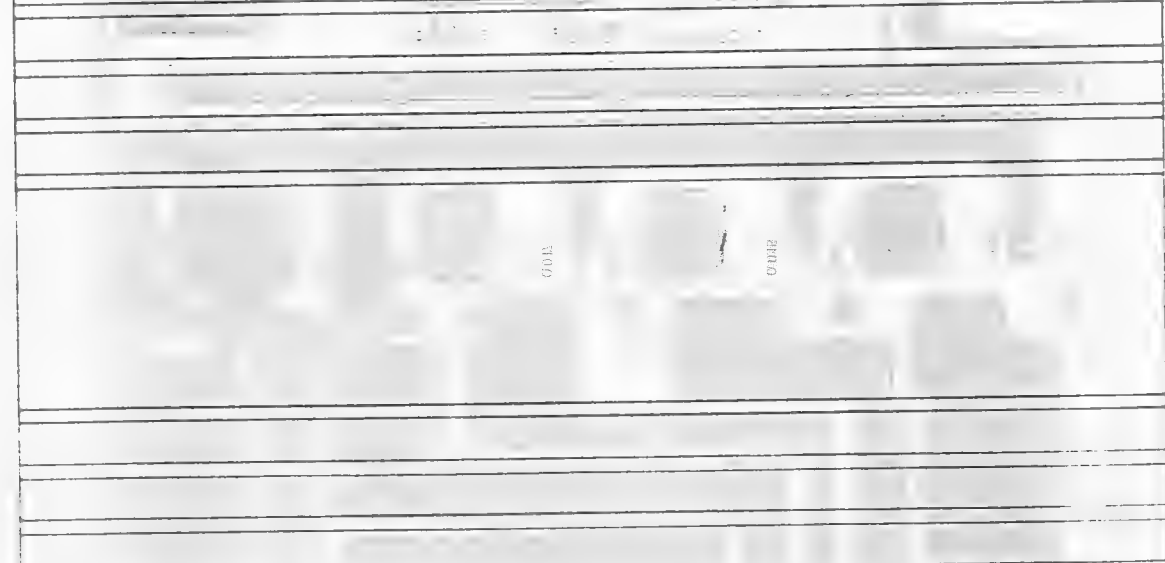
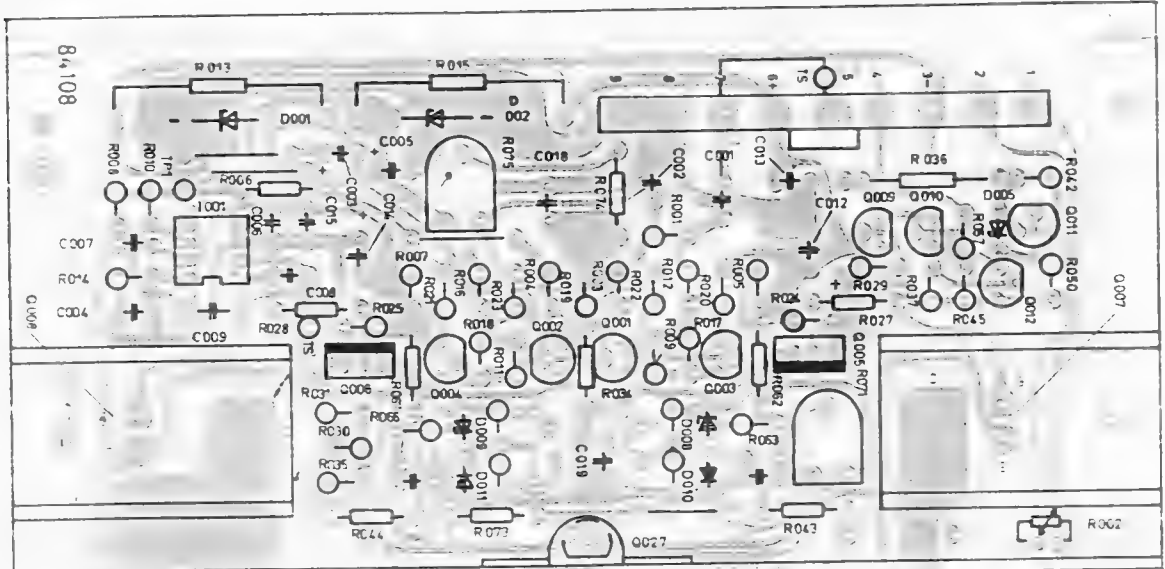
10. TBC - TEST

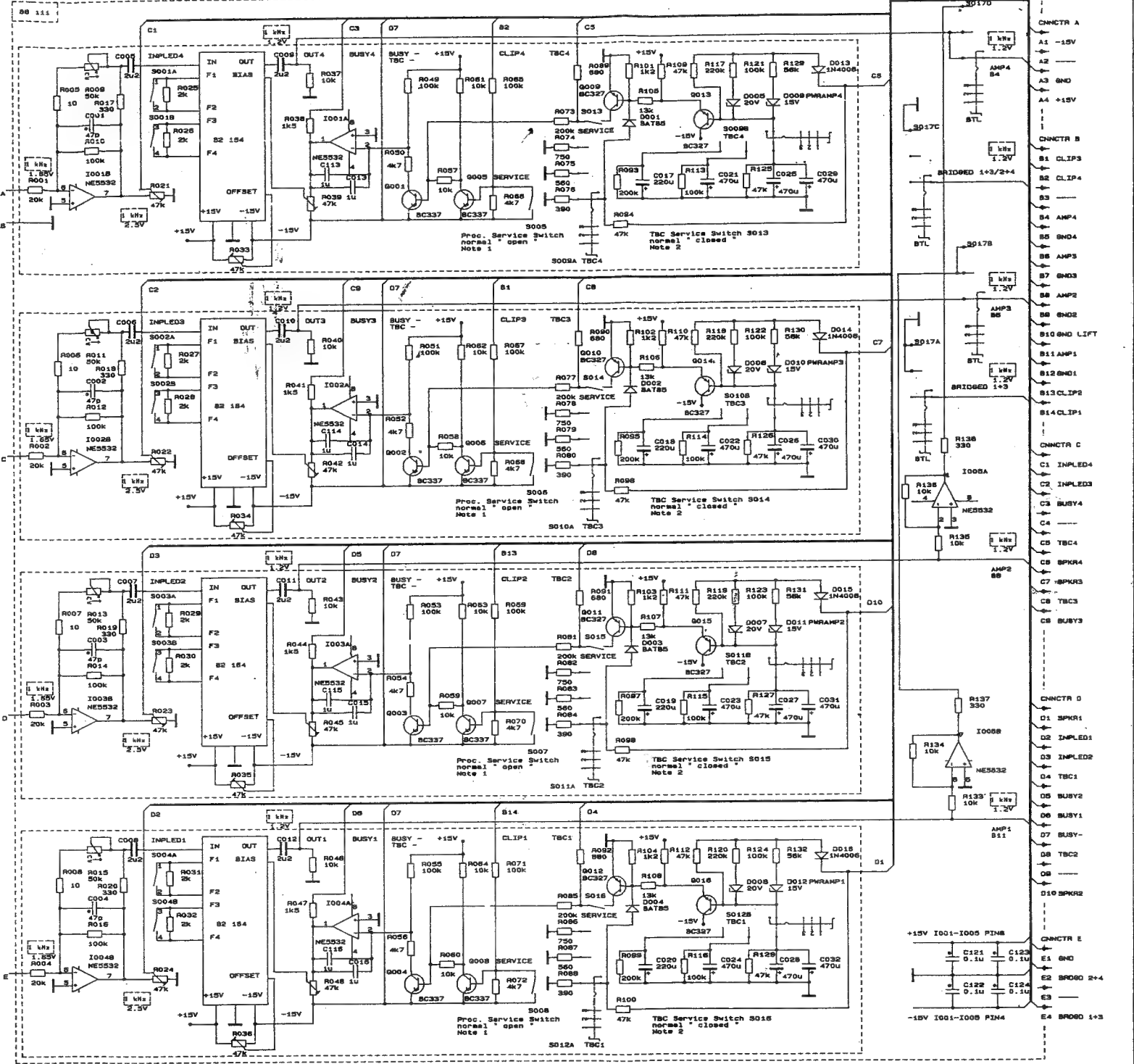
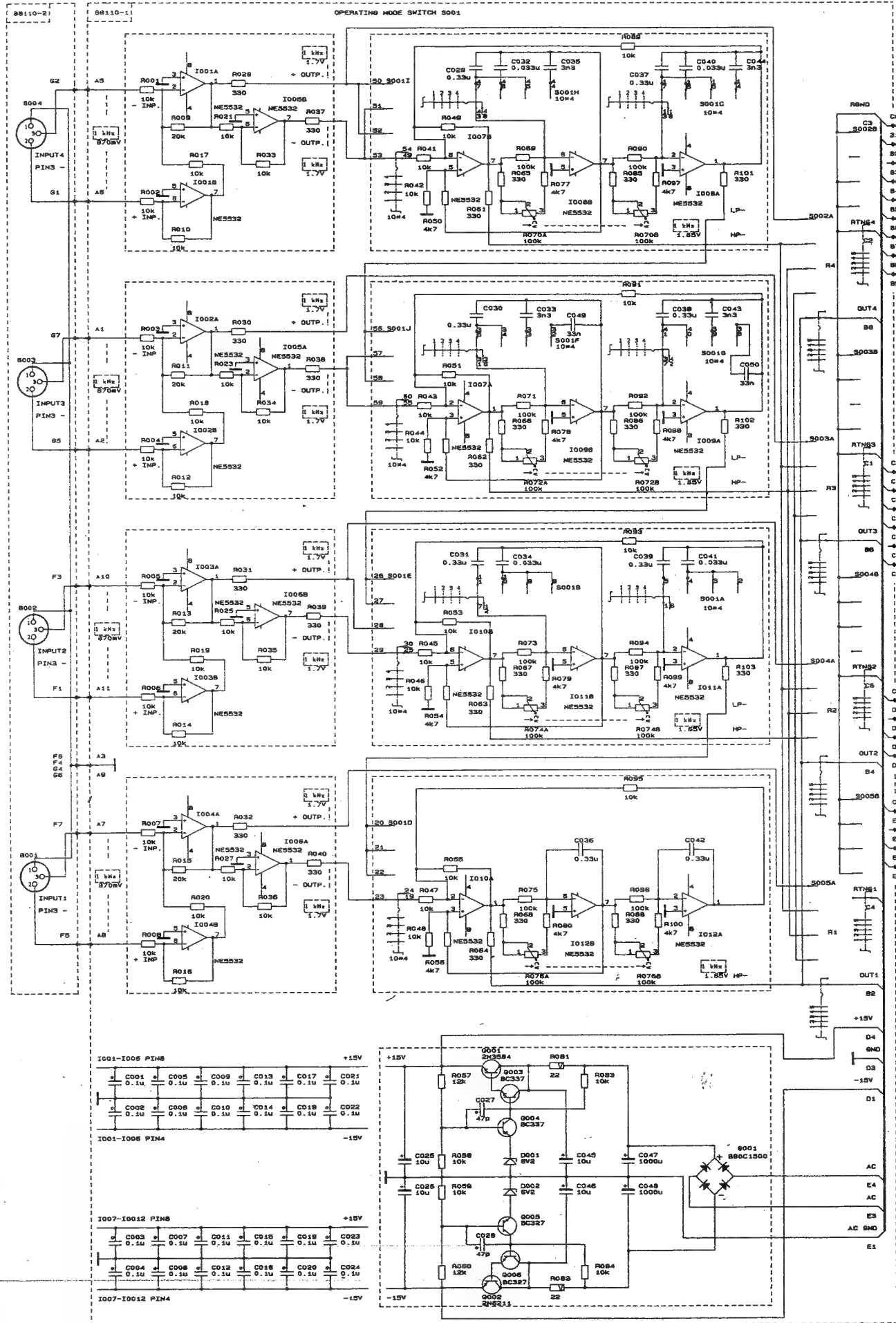
Switch unit off. After approx. 10 sec. (TBC circuit is discharged) turn unit on again with E_{in} 10 dB higher. BUSY LED will light up. The TBC protective circuit will respond after approx. 20 sec and reduce the output voltage to approx. 41 V. The TBC LED will light up. Afterwards turn TBC switch into position 250 W. The output voltage drops after approx. 15 sec to 30 V. Turn TBC switch into position 125 W and the output voltage will drop after approx. 8 sec to 23 V.

Factory Preset for TBC 1 - TBC 4 is position 500 watts!

84108

Bestückungsseite
component side





1001-1006 PINs

C001	C005	C009	C013	C017	C021
0.1u	0.1u	0.1u	0.1u	0.1u	0.1u
C002	C006	C010	C014	C018	C022
0.1u	0.1u	0.1u	0.1u	0.1u	0.1u

1001-1006 PINs

C003	C007	C011	C015	C019	C023
0.1u	0.1u	0.1u	0.1u	0.1u	0.1u
C004	C008	C012	C016	C020	C024
0.1u	0.1u	0.1u	0.1u	0.1u	0.1u

1007-10012 PINs

C005	C009	C013	C017	C021	C025
0.1u	0.1u	0.1u	0.1u	0.1u	0.1u
C006	C010	C014	C018	C022	C026
0.1u	0.1u	0.1u	0.1u	0.1u	0.1u

1007-10012 PINs

C007	C011	C015	C019	C023	C027
0.1u	0.1u	0.1u	0.1u	0.1u	0.1u
C008	C012	C016	C020	C024	C028
0.1u	0.1u	0.1u	0.1u	0.1u	0.1u

MIKRO BEHÖR: STROMLAUFPLAN ANZEIGEDRUCKPLATTE 341 837 2-
 STROMLAUFPLAN ENDSTUFEN - NETZTEILE 341 828 1-

NETZKREIS

KLEINSIGNALTEIL

STROMLAUFPLAN

341 837
 PCA 2544

A5 87100
AMP4 LEOS - TBC4 DRIVE
A3 87100
AMP2 LEOS - TBC2 DRIVE

B2 88111
CLTP4
B4 88111
AMP4
B5 88111
GND4

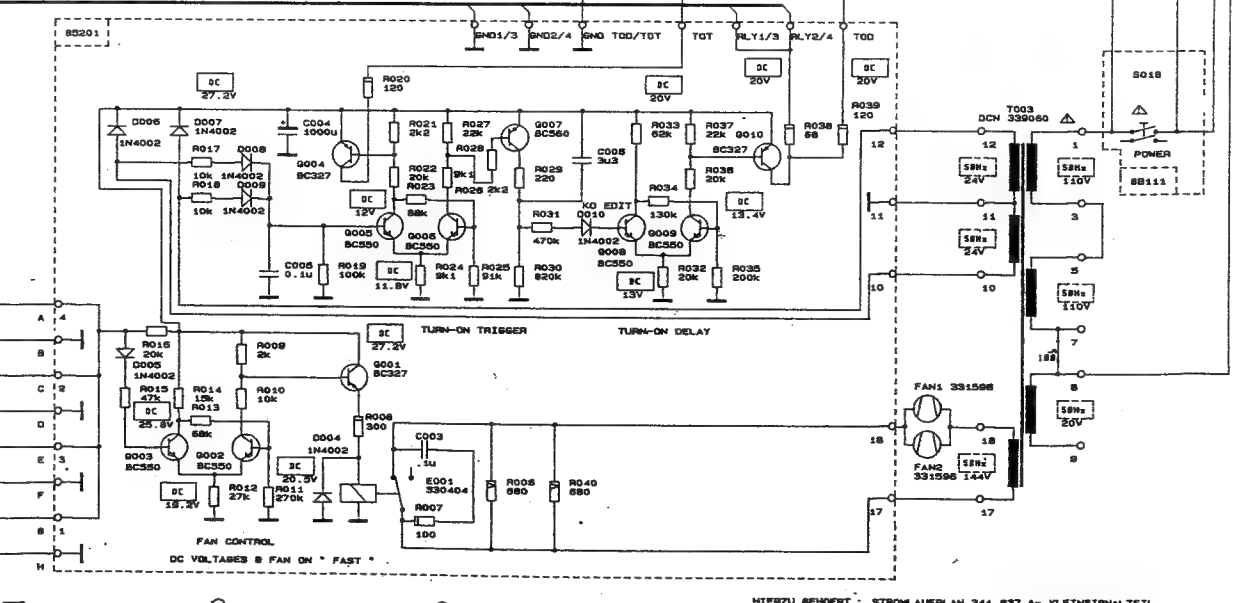
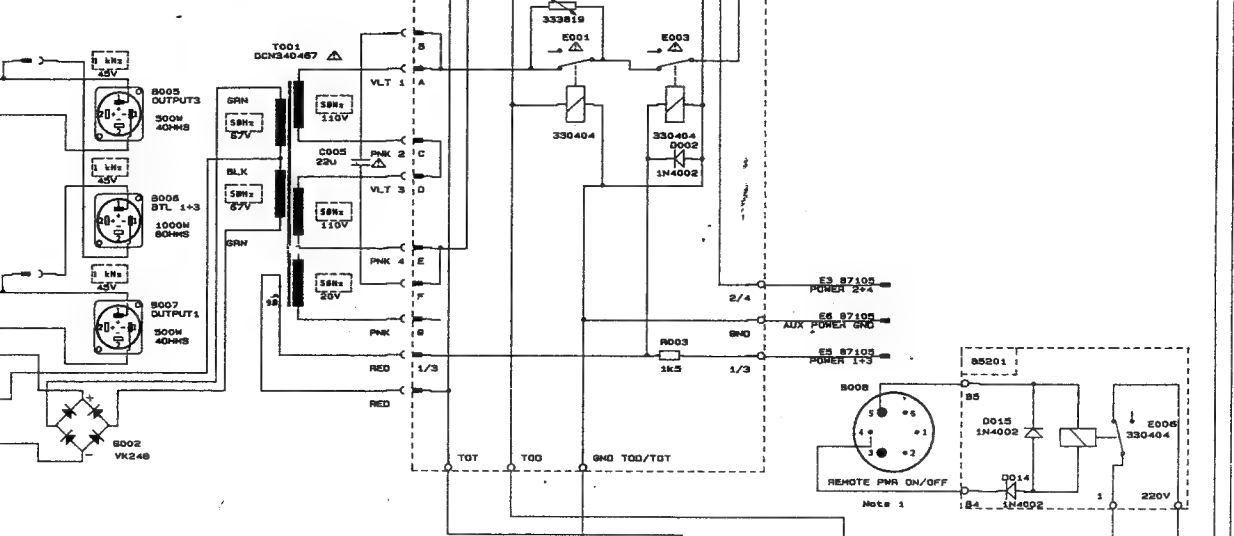
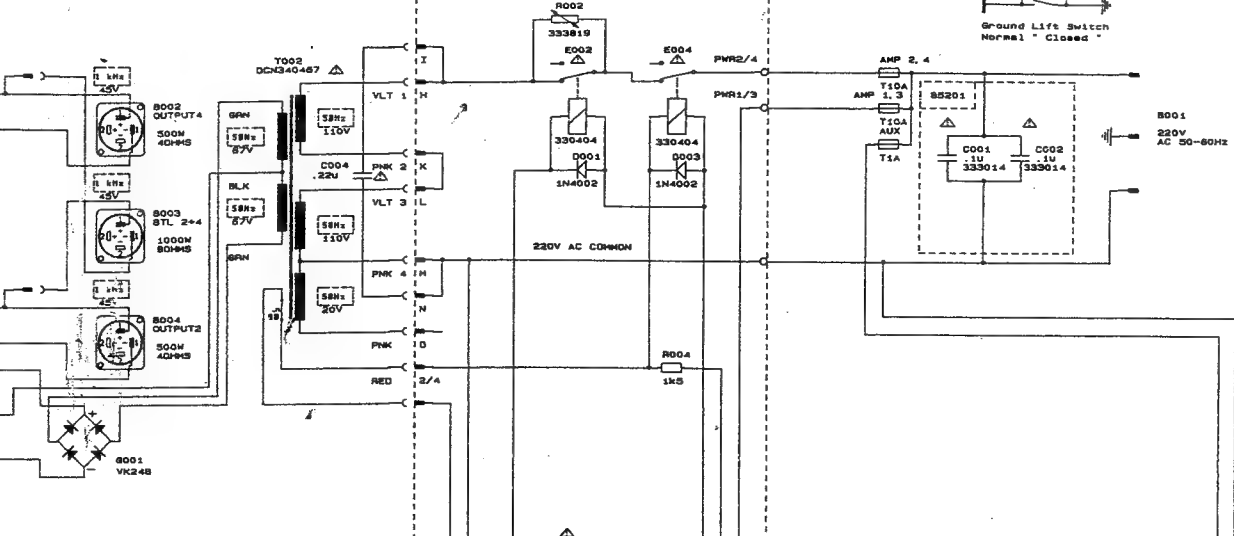
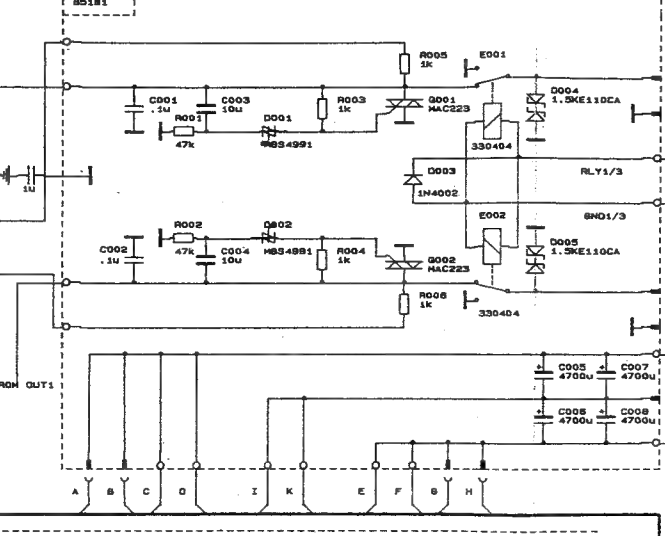
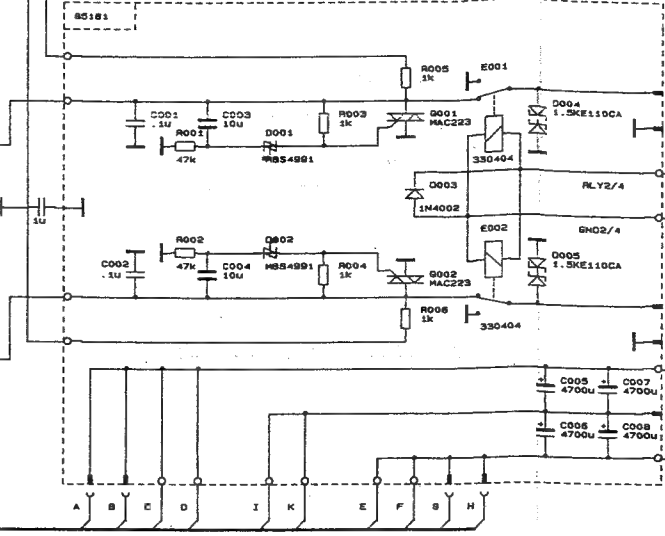
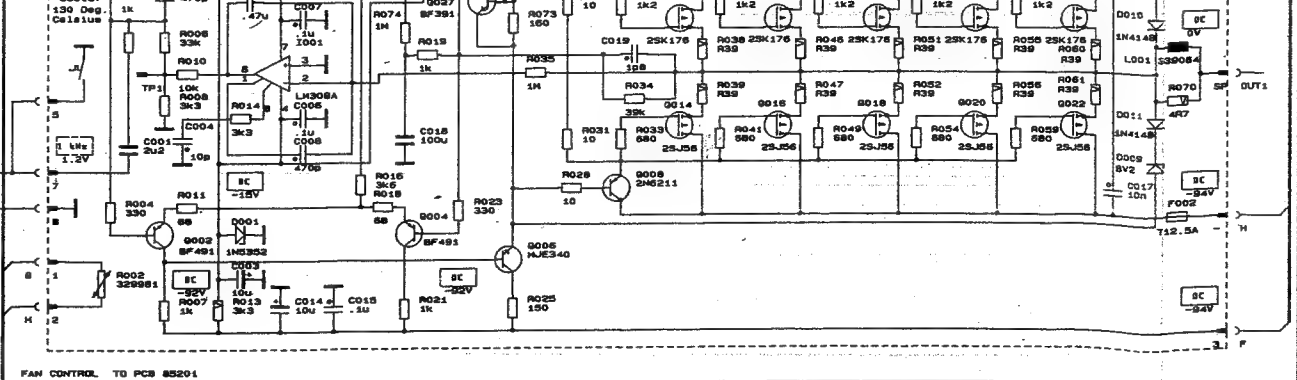
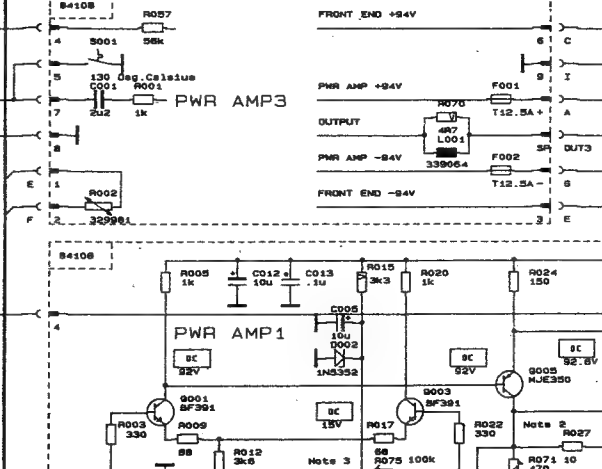
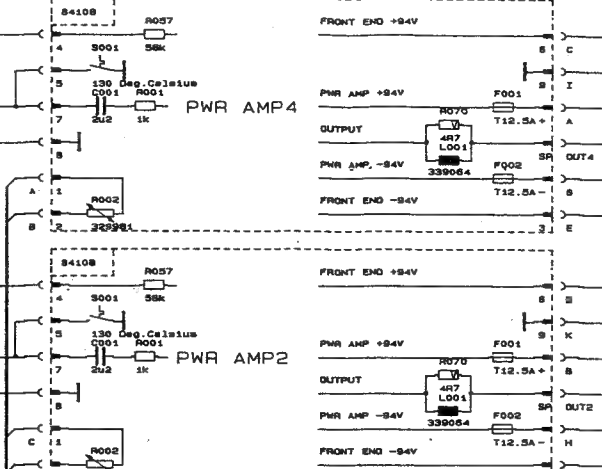
B13 88111
CLTP2
B6 88111
AMP2
B8 88111
GND2

E3 88111
AC 24V
E1 88111
AC GND
E4 88111
AC 24V
E7 87100
AC IN
E8 87100
AC IN

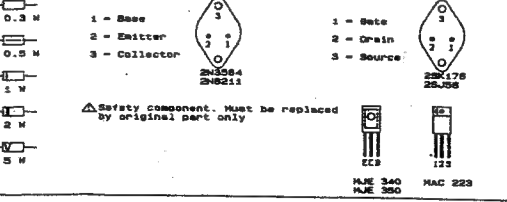
A8 87100
AMP3 LEOS - TBC3 DRIVE
A1 87100
AMP1 LEOS - TBC1 DRIVE
B1 88111
CLTP3
B6 88111
AMP3
B7 88111
GND3

B14 88111
CLTP1

B11 88111
AMP1
B12 88111
GND1



Notes:
Note 1: Remote Power On/Off Jack. Set main switch to "OFF" position.
Note 2: Idle current adjustment. Replace fuse with a .01 Ohm resistor. Adjust voltage across the resistor to approx. 1.5mV (100mA idle current).
Note 3: Connect scope to TP1. Adjust voltage at TP1 to 0V (+5mV) with R075



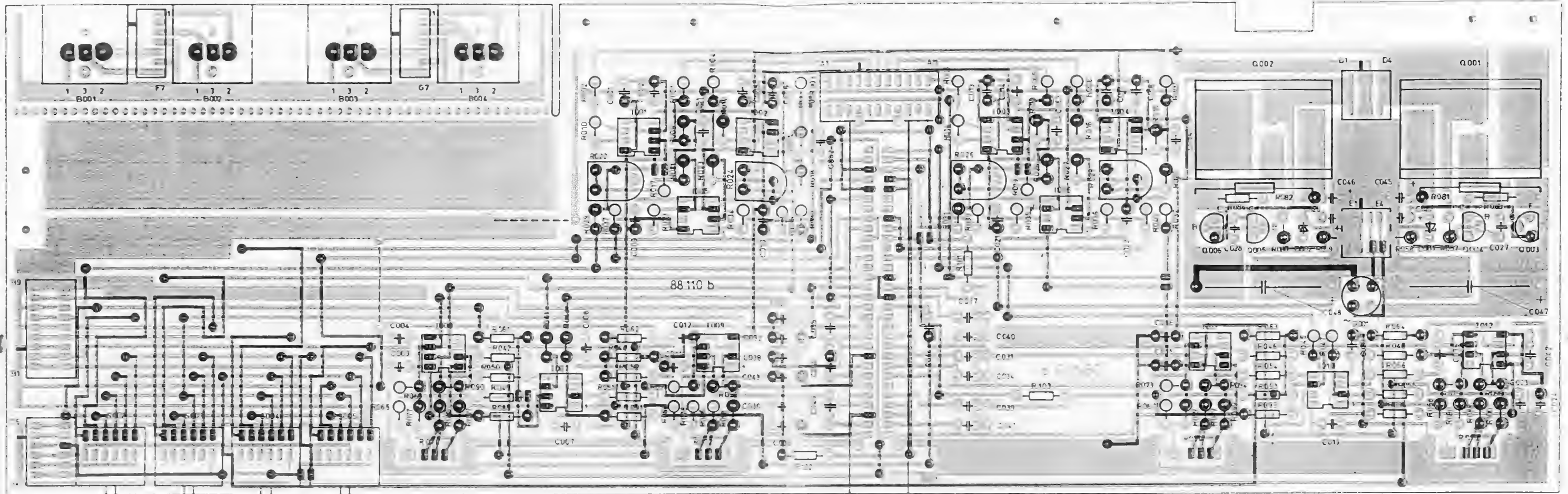
Endstufen - Netzteile

Stromlaufplan

DYNACORD
341 829
PCA 2544

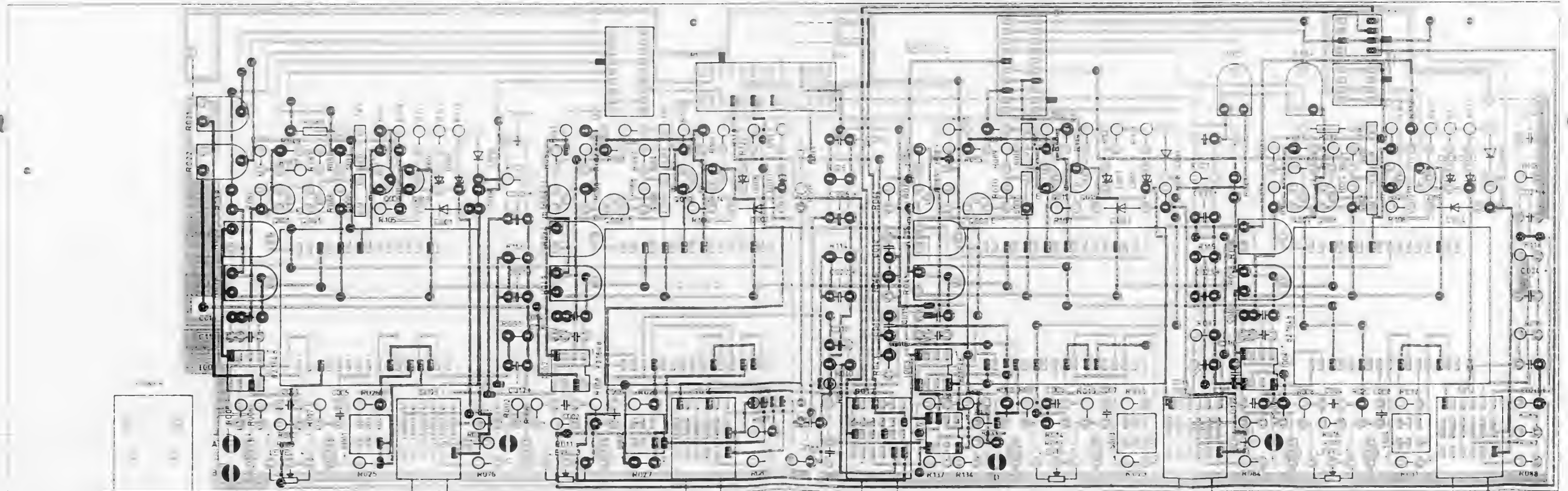
88110

Bestückungsseite
component side



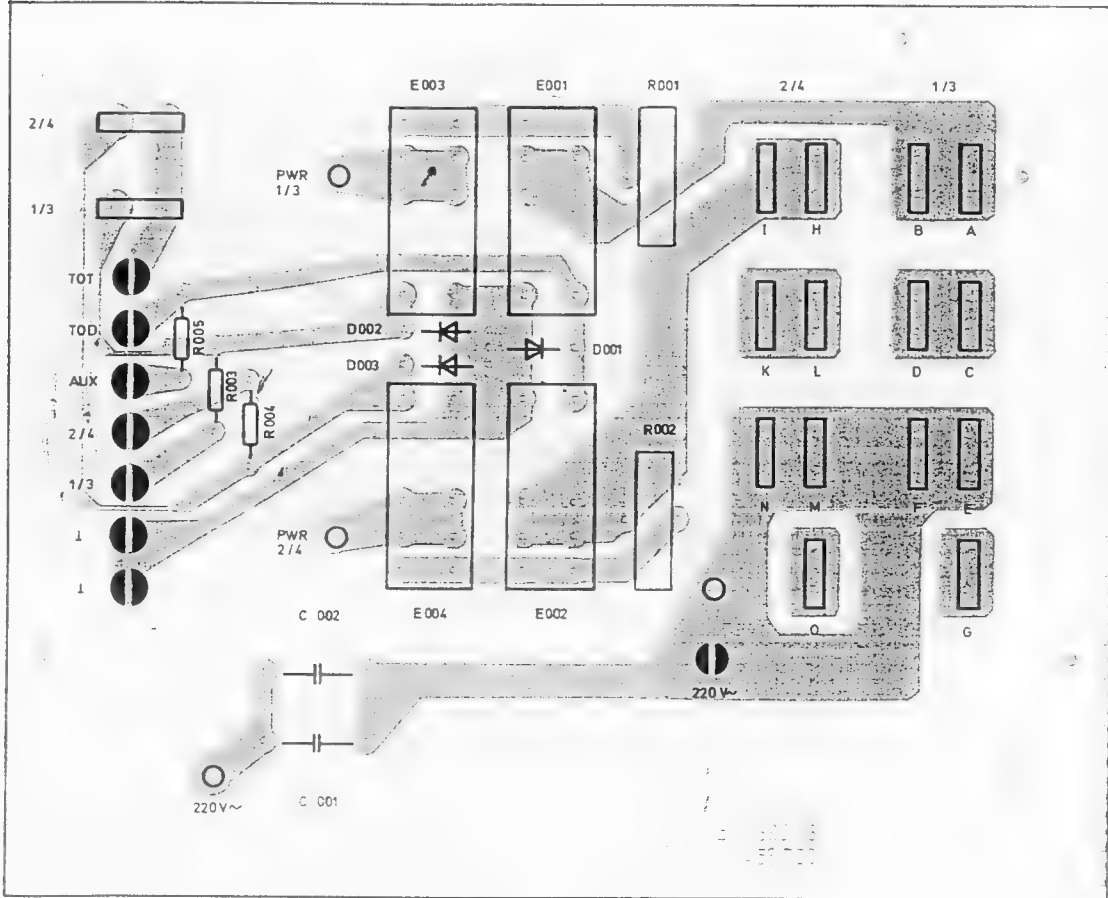
88111

Bestückungsseite
component side



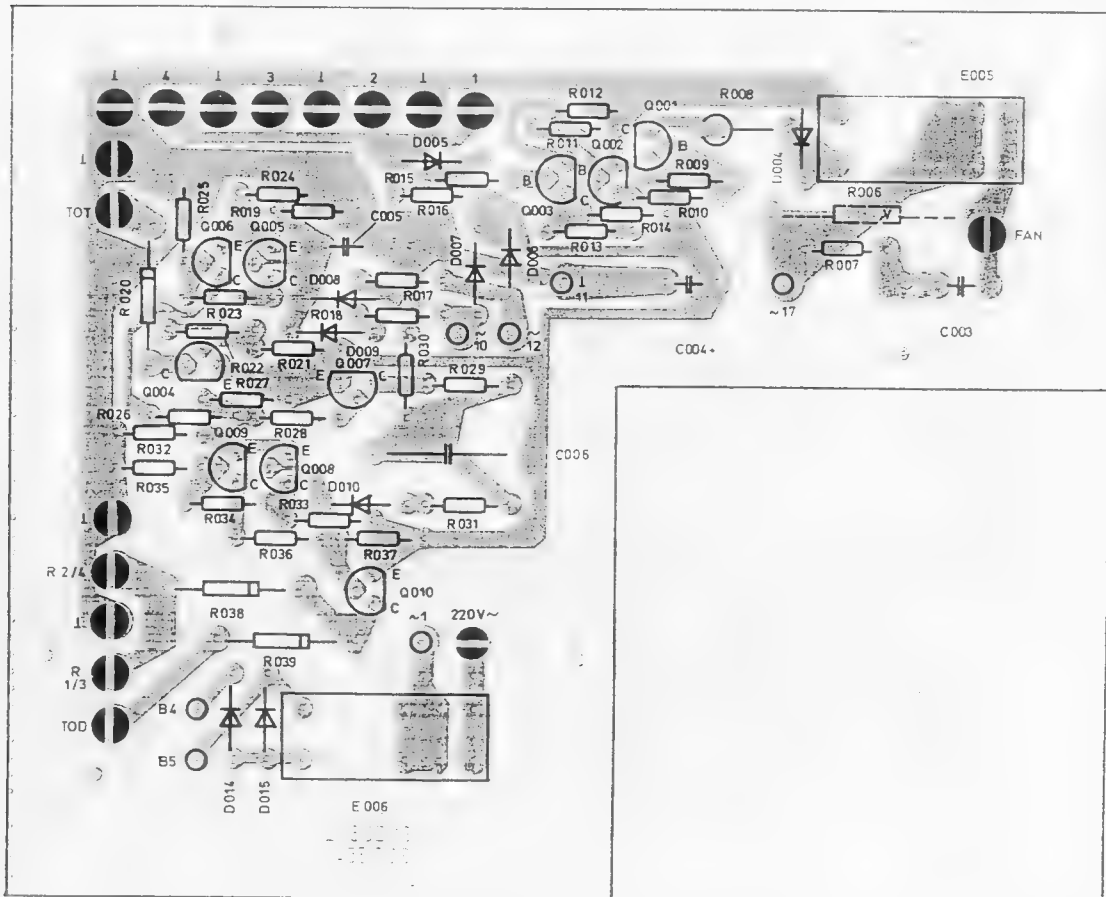
85201.1

Bestückungsseite
component side



85201.2

Bestückungsseite
component side



Pos. im Schaltbild Pos. in diagram	Bezeichnung	description	Best.Nr. Part-No.
B 001	STECKER-KALTGERÄTE	connector	307052
B 002	BUCHSE-LAUTSPR.-4-POL.	speaker socket 4pol.	341343
B 003	BUCHSE-LAUTSPR.-4-POL.	speaker socket 4pol.	341343
B 004	BUCHSE-LAUTSPR.-4-POL.	speaker socket 4pol.	341343
B 005	BUCHSE-LAUTSPR.-4-POL.	speaker socket 4pol.	341343
B 006	BUCHSE-LAUTSPR.-4-POL.	speaker socket 4pol.	341343
B 007	BUCHSE-LAUTSPR.-4-POL.	speaker socket 4pol.	341343
B 008	BUCHSE	socket	303105
C 004	KO-SO 0.22MF/250V 20% MKT	capacitor SO 0,22 MF/250V	339970
C 005	KO-SO 0.22MF/250V 20% MKT	capacitor SO 0,22 MF/250V	339970
S 002	SCHALTER-SCHIEBE 2XUM	sliding switch	335941
Z 080	FUSS-GUMMI SJ 5009 SW	rubber foot	335589
00020	PLEXI-BLENDE OBEN PCA 2544	upper plexiglass cover	341268
00030	PLEXI-BLENDE UNTEN PCA 2544	lower plexiglass cover	341269
00050	KNOPF-DREH SCHW 16 STRICH	rotary knob black 16	342120
00110	GRIFF 180 MM ANTHRAZ. 5HE	handle 180mm 5HE	341263
00160	KNOPF-TASTE SCHWARZ 20 X 8	power button black	341382
00410	GRIFF 120 MM ANTHR. R4HE	handle 120mm 4HE	337088
00900	SICHERUNGSHALTER	fuseholder	330605
00910	SICHERUNGSHALTER-KAPPE	cap of fuse holder	330632
G 001	GLRI MDA 3502	rectifier MDA 3502	301206
00010	PRINTBEST PCA 2344/2544		851818
C005	KO-EL 4700.000MF 100V	KO-EL 4700.000MF 100V	340437
C006	KO-EL 4700.000MF 100V	KO-EL 4700.000MF 100V	340437
C007	KO-EL 4700.000MF 100V	KO-EL 4700.000MF 100V	340437
C008	KO-EL 4700.000MF 100V	KO-EL 4700.000MF 100V	340437
D001	DIODE MBS 4991 TRIGGER	diode MBS 4991	338875
D002	DIODE MBS 4991 TRIGGER	diode MBS 4991	338875
D003	DIODE 1N 4002	diode 1N 4002	304360
D004	DIODZ MOSORB TYP 1,5KE120CA	break down diode 1,5 KE110	339061
D005	DIODZ MOSORB TYP 1,5KE120CA	break down diode 1,5 KE110	339061
E001	RELAIS RP 310024	relay RP 310 024	330404
E002	RELAIS RP 310024	relay RP 310 024	330404
Q001	TRIAC MAC 223 A6	triac MAC 223-6	338876
Q002	TRIAC MAC 223 A6	triac MAC 223-6	338876
00020	PRINTBEST PCA 2344/2544		841088
D001	DIODZ 1N 5352B 5%	diode 1N 5352B RL	331422
D002	DIODZ 1N 5352B 5%	diode 1N 5352B RL	331422
D005	DIODZ ZPD 12V 0.5 W	break down diode ZPD 12	305738
D008	DIODZ ZPD 8V2 0.50W	break down diode ZPD 8V2	309403
D009	DIODZ ZPD 8V2 0.50W	break down diode ZPD 8V2	309403
D010	DIODE 1N 4148	diode 1N 4148	301254
D011	DIODE 1N 4148	diode 1N 4148	301254
I001	IC LM 308 A	IC LM 308 A	338359
L001	DROSSEL-SPULE DCN 339064	coil 339064	339064
Q001	TRANS BF 391	trans. BF 391	307911
Q002	TRANS BF 491	trans. BF 491	307912
Q003	TRANS BF 391	trans. BF 391	307911
Q004	TRANS BF 491	trans. BF 491	307912
Q005	TRANS MJE 350 PNP	trans. MJE 350	338869
Q006	TRANS MJE 340 NPN	trans. MJE 340	338868

SERVICE - LIST OF SPARE PARTS

Pos. im Schaltbild Pos. in diagram	Bezeichnung		description	Best.Nr. Part-No.
Q007	TRANS 2N	3584	trans. 2N 3584	331424
Q008	TRANS 2N	6211	trans. 2N 6211	331425
Q009	TRANS BC	337-25	trans. BC 337-25	307150
Q010	TRANS BC	337-25	trans. BC 337-25	307150
Q011	TRANS BF	391	trans. BF 391	307911
Q012	TRANS BF	491	trans. BF 491	307912
Q013	TRANS 2SK	176	N-CH.-FET trans. 2SK 176	337637
Q014	TRANS 2SJ	56	P-CH.-FET trans. 2SJ 56	337636
Q015	TRANS 2SK	176	N-CH.-FET trans. 2SK 176	337637
Q016	TRANS 2SJ	56	P-CH.-FET trans. 2SJ 56	337636
Q017	TRANS 2SK	176	N-CH.-FET trans. 2SK 176	337637
Q018	TRANS 2SJ	56	P-CH.-FET trans. 2SJ 56	337636
Q019	TRANS 2SK	176	N-CH.-FET trans. 2SK 176	337637
Q020	TRANS 2SJ	56	P-CH.-FET trans. 2SJ 56	337636
Q021	TRANS 2SK	176	N-CH.-FET trans. 2SK 176	337637
Q022	TRANS 2SJ	56	P-CH.-FET trans. 2SJ 56	337636
Q027	TRANS BF	391	trans. BF 391	307911
R002	WI-SO	NTC 2322 640 98005	safety resistor	329981
R013	WI-DR	3.30 KOHM 5.00W 5%	wire-wound resistor 3,3 k	304981
R015	WI-DR	3.30 KOHM 5.00W 5%	wire-wound resistor 3,3 k	304981
R038	WI-DR	0.39 OHM 5.00W10%	wire-wound resistor 0,39	336401
R039	WI-DR	0.39 OHM 5.00W10%	wire-wound resistor 0,39	336401
R046	WI-DR	0.39 OHM 5.00W10%	wire-wound resistor 0,39	336401
R047	WI-DR	0.39 OHM 5.00W10%	wire-wound resistor 0,39	336401
R051	WI-DR	0.39 OHM 5.00W10%	wire-wound resistor 0,39	336401
R052	WI-DR	0.39 OHM 5.00W10%	wire-wound resistor 0,39	336401
R055	WI-DR	0.39 OHM 5.00W10%	wire-wound resistor 0,39	336401
R056	WI-DR	0.39 OHM 5.00W10%	wire-wound resistor 0,39	336401
R060	WI-DR	0.39 OHM 5.00W10%	wire-wound resistor 0,39	336401
R061	WI-DR	0.39 OHM 5.00W10%	wire-wound resistor 0,39	336401
R070	WI-DR	4.70 OHM 5.00W 5%	wire-wound resistor 4,70	337642
R071	WI-TRI	470.00 OHM LIN	min.pre set 470 ohm lin	331427
R075	WI-TRI	100.00 KOHM LIN	min.pre.set. 100kohm lin	308691
S001	SCHALTER-THERMO	BEARBEITET	thermal cut out switch	339137
0035	SICHER-HALTEFEDER	RFS 5602	fuse holder RFS 5602	303576
0040	HLZ-IC-FASS	8POL	IC socket 8pol	309354
00010	FRONTBL-BED	PCA 2544	front panel PCA 2544	341301
00130	LUFTER, GEBOHLT	PAA	fan	331596
T 001	NETZTRAFO-RINGKERN		mains transformer	340467
00080	SCHALTER-THERMO	UP62 90C10%	switch thermo UP6 90C	332753
T 002	NETZTRAFO-RINGKERN		mains transformer	340467
00080	SCHALTER-THERMO	UP62 90C10%	switch thermo UP6 90C	332753
T 003	NETZTRAFO	DCN 339060	mains transformer	339060
00015	PRINTBEST	PCA 2544		852018
C001	KO-SO	0.10MF/250V 20% MKT	safety component	341714
C002	KO-SO	0.10MF/250V 20% MKT	safety component	341714
D001	DIODE 1N	4002	diode 1N 4002	304360
D002	DIODE 1N	4002	diode 1N 4002	304360
D003	DIODE 1N	4002	diode 1N 4002	304360
D004	DIODE 1N	4002	diode 1N 4002	304360
D005	DIODE 1N	4002	diode 1N 4002	304360
D006	DIODE 1N	4002	diode 1N 4002	304360

SERVICE - LIST OF SPARE PARTS

Pos. im Schaltbild Pos. in diagram	Bezeichnung	description	Best.Nr. Part-No.
D007	DIODE 1N 4002	diode 1N 4002	304360
D008	DIODE 1N 4002	diode 1N 4002	304360
D009	DIODE 1N 4002	diode 1N 4002	304360
D010	DIODE 1N 4002	diode 1N 4002	304360
D014	DIODE 1N 4002	diode 1N 4002	304360
D015	DIODE 1N 4002	diode 1N 4002	304360
E001	RELAIS RP 310024	relay RP 310 024	330404
E002	RELAIS RP 310024	relay RP 310 024	330404
E003	RELAIS RP 310024	relay RP 310 024	330404
E004	RELAIS RP 310024	relay RP 310 024	330404
E005	RELAIS RP 310024	relay RP 310 024	330404
E006	RELAIS RP 310024	relay RP 310 024	330404
Q001	TRANS BC 327-25	trans. BC 327-25	307430
Q002	TRANS BC 550 B	trans. BC 550 B	301184
Q003	TRANS BC 550 B	trans. BC 550 B	301184
Q004	TRANS BC 327-25	trans. BC 327-25	307430
Q005	TRANS BC 550 B	trans. BC 550 B	301184
Q006	TRANS BC 550 B	trans. BC 550 B	301184
Q007	TRANS BC 560 B	trans BC 560 B	306928
Q008	TRANS BC 550 B	trans. BC 550 B	301184
Q009	TRANS BC 550 B	trans. BC 550 B	301184
Q010	TRANS BC 327-25	trans. BC 327-25	307430
RO01	WI-SO NTC 2322 644 90013	safety component	333819
RO02	WI-SO NTC 2322 644 90013	safety component	333819
RO06	WI-DR 680.00 OHM 5.00W10%	wire-wound resistor 680 ohm	306052
RO40	WI-DR 680.00 OHM 5.00W10%	wire-wound resistor 680 ohm	306052
00020	PRINTBEST PCA 2544		881108
B 001	BUCHSE-FL. XLR 3POL SW PR	XLR socket male chassis	330607
B 002	BUCHSE-FL. XLR 3POL SW PR	XLR socket male chassis	330607
B 003	BUCHSE-FL. XLR 3POL SW PR	XLR socket male chassis	330607
B 004	BUCHSE-FL. XLR 3POL SW PR	XLR socket male chassis	330607
D 001	DIODZ ZPD 6V2 0.50W	break down diode ZPD 6V2	301276
D 002	DIODZ ZPD 6V2 0.50W	break down diode ZPD 6V2	301276
G 001	GLRI B 80 C1500 M	rectifier B 80 C1500 M	340791
I 001	IC NE 5532 P 2FACH OP	IC NE 5532 N	327197
I 002	IC NE 5532 P 2FACH OP	IC NE 5532 N	327197
I 003	IC NE 5532 P 2FACH OP	IC NE 5532 N	327197
I 004	IC NE 5532 P 2FACH OP	IC NE 5532 N	327197
I 005	IC NE 5532 P 2FACH OP	IC NE 5532 N	327197
I 006	IC NE 5532 P 2FACH OP	IC NE 5532 N	327197
I 007	IC NE 5532 P 2FACH OP	IC NE 5532 N	327197
I 008	IC NE 5532 P 2FACH OP	IC NE 5532 N	327197
I 009	IC NE 5532 P 2FACH OP	IC NE 5532 N	327197
I 010	IC NE 5532 P 2FACH OP	IC NE 5532 N	327197
I 011	IC NE 5532 P 2FACH OP	IC NE 5532 N	327197
I 012	IC NE 5532 P 2FACH OP	IC NE 5532 N	327197
Q 001	TRANS 2N 3584	trans. 2N 3584	331424
Q 002	TRANS 2N 6211	trans. 2N 6211	331425
Q 003	TRANS BC 337-25	trans. BC 337-25	307150
Q 004	TRANS BC 337-25	trans. BC 337-25	307150
Q 005	TRANS BC 327-25	trans. BC 327-25	307430
Q 006	TRANS BC 327-25	trans. BC 327-25	307430

SERVICE - LIST OF SPARE PARTS

Pos. im Schaltbild Pos. in diagram	Bezeichnung		description	Best.Nr. Part-No.
R 070	P-DREH 2X100KOHM LOG NEG		potentiometer 2x100kohm log	333801
R 072	P-DREH 2X100KOHM LOG NEG		potentiometer 2x100kohm log	333801
R 074	P-DREH 2X100KOHM LOG NEG		potentiometer 2x100kohm log	333801
R 076	P-DREH 2X100KOHM LOG NEG		potentiometer 2x100kohm log	333801
R 081	WI-DR 22.00 OHM 5.00W10%		wire-wound resistor 22 ohm	301726
R 082	WI-DR 22.00 OHM 5.00W10%		wire-wound resistor 22 ohm	301726
S 001	SCHALTER-DREH SRRZSA		rotary switch	341731
S 002	SCHALTER-DREH 5X2 EB.PRINT		rotary switch 5x2	335543
S 003	SCHALTER-DREH 5X2 EB.PRINT		rotary switch 5x2	335543
S 004	SCHALTER-DREH 5X2 EB.PRINT		rotary switch 5x2	335543
S 005	SCHALTER-DREH 5X2 EB.PRINT		rotary switch 5x2	335543
00005	HLZ-IC-FASS 8POL		IC socket 8pol	309354
00020	FEDERLEISTE 2,5MM 0 6POL		connector 6pol	306840
00025	FEDERLEISTE 2,5MM 0 9POL		connector 9pol	306446
00060	KODIERSTIFT		shorting plug	306397
00025	PRINTBEST PCA 2544			881118
D 001	DIODE BAT 85		diode BAT 85	301297
D 002	DIODE BAT 85		diode BAT 85	301297
D 003	DIODE BAT 85		diode BAT 85	301297
D 004	DIODE BAT 85		diode BAT 85	301297
D 005	DIODZ ZPD 20V 0.50W		break down diode ZPD 20V	301310
D 006	DIODZ ZPD 20V 0.50W		break down diode ZPD 20V	301310
D 007	DIODZ ZPD 20V 0.50W		break down diode ZPD 20V	301310
D 008	DIODZ ZPD 20V 0.50W		break down diode ZPD 20V	301310
D 009	DIODZ BZX 55C 15V 0.50W		break down diode ZPD 15V	309450
D 010	DIODZ BZX 55C 15V 0.50W		break down diode ZPD 15V	309450
D 011	DIODZ BZX 55C 15V 0.50W		break down diode ZPD 15V	309450
D 012	DIODZ BZX 55C 15V 0.50W		break down diode ZPD 15V	309450
D 013	DIODE 1N 4006		diode 1N 4006	305739
D 014	DIODE 1N 4006		diode 1N 4006	305739
D 015	DIODE 1N 4006		diode 1N 4006	305739
D 016	DIODE 1N 4006		diode 1N 4006	305739
I 001	IC NE 5532 P 2FACH OP		IC NE 5532 N	327197
I 002	IC NE 5532 P 2FACH OP		IC NE 5532 N	327197
I 003	IC NE 5532 P 2FACH OP		IC NE 5532 N	327197
I 004	IC NE 5532 P 2FACH OP		IC NE 5532 N	327197
I 005	IC NE 5532 P 2FACH OP		IC NE 5532 N	327197
Q 001	TRANS BC 337-25		trans. BC 337-25	307150
Q 002	TRANS BC 337-25		trans. BC 337-25	307150
Q 003	TRANS BC 337-25		trans. BC 337-25	307150
Q 004	TRANS BC 337-25		trans. BC 337-25	307150
Q 005	TRANS BC 337-25		trans. BC 337-25	307150
Q 006	TRANS BC 337-25		trans. BC 337-25	307150
Q 007	TRANS BC 337-25		trans. BC 337-25	307150
Q 008	TRANS BC 337-25		trans. BC 337-25	307150
Q 009	TRANS BC 327-25		trans. BC 327-25	307430
Q 010	TRANS BC 327-25		trans. BC 327-25	307430
Q 011	TRANS BC 327-25		trans. BC 327-25	307430
Q 012	TRANS BC 327-25		trans. BC 327-25	307430
Q 013	TRANS BC 327-25		trans. BC 327-25	307430
Q 014	TRANS BC 327-25		trans. BC 327-25	307430
Q 015	TRANS BC 327-25		trans. BC 327-25	307430

SERVICE - LIST OF SPARE PARTS

Pos. im Schaltbild Pos. in diagram	Bezeichnung		description	Best.Nr. Part-No.
Q 016	TRANS BC 327-25		trans. BC 327-25	307430
R 009	P-DREH 50KOHM LIN	B	potentiometer 50kohm lin	331230
R 011	P-DREH 50KOHM LIN	B	potentiometer 50kohm lin	331230
R 013	P-DREH 50KOHM LIN	B	potentiometer 50kohm lin	331230
R 015	P-DREH 50KOHM LIN	B	potentiometer 50kohm lin	331230
R 021	WI-TRI 47.00 KOHM LIN		min. pre.set 47 kohm lin	307602
R 022	WI-TRI 47.00 KOHM LIN		min. pre.set 47 kohm lin	307602
R 023	WI-TRI 47.00 KOHM LIN		min. pre.set 47 kohm lin	307602
R 024	WI-TRI 47.00 KOHM LIN		min. pre.set 47 kohm lin	307602
R 033	WI-TRI 47.00 KOHM LIN		min. pre.set 47 kohm lin	307602
R 034	WI-TRI 47.00 KOHM LIN		min. pre.set 47 kohm lin	307602
R 035	WI-TRI 47.00 KOHM LIN		min. pre.set 47 kohm lin	307602
R 036	WI-TRI 47.00 KOHM LIN		min. pre.set 47 kohm lin	307602
R 039	WI-TRI 47.00 KOHM LIN		min. pre.set 47 kohm lin	307602
R 042	WI-TRI 47.00 KOHM LIN		min. pre.set 47 kohm lin	307602
R 045	WI-TRI 47.00 KOHM LIN		min. pre.set 47 kohm lin	307602
R 048	WI-TRI 47.00 KOHM LIN		min. pre.set 47 kohm lin	307602
S 001	SCHALTER-SCHIEBE C42315		sliding switch	305412
S 002	SCHALTER-SCHIEBE C42315		sliding switch	305412
S 003	SCHALTER-SCHIEBE C42315		sliding switch	305412
S 004	SCHALTER-SCHIEBE C42315		sliding switch	305412
S 005	SCHALTELEMENT C42315A1347A2		control element on/off	327947
S 006	SCHALTELEMENT C42315A1347A2		control element on/off	327947
S 007	SCHALTELEMENT C42315A1347A2		control element on/off	327947
S 008	SCHALTELEMENT C42315A1347A2		control element on/off	327947
S 009	SCHALTER-DREH 3X4 EB.PRINT		rotary switch 3x4	335542
S 010	SCHALTER-DREH 3X4 EB.PRINT		rotary switch 3x4	335542
S 011	SCHALTER-DREH 3X4 EB.PRINT		rotary switch 3x4	335542
S 012	SCHALTER-DREH 3X4 EB.PRINT		rotary switch 3x4	335542
S 013	SCHALTELEMENT C42315A1347A2		control element on/off	327947
S 014	SCHALTELEMENT C42315A1347A2		control element on/off	327947
S 015	SCHALTELEMENT C42315A1347A2		control element on/off	327947
S 016	SCHALTELEMENT C42315A1347A2		control element on/off	327947
S 017	SCHALTER-DREH 3X4 EB.PRINT		rotary switch 3x4	335542
S 018	SCHALTER-NETZ SDDSA3138A		mains switch	331175
00010	HLZ-IC-FASS 8POL		IC socket 8pol	309354
00050	PRINTBEST PCA MODUL KPL.		PCA Modul kompl.	821648
00030	PRINTBEST PCA 2544			871058
D 001	LED GRÜN 2.5X5MM		LED green 2,5x5mm	334693
D 002	LED GRÜN 2.5X5MM		LED green 2,5x5mm	334693
D 003	LED GRÜN 2.5X5MM		LED green 2,5x5mm	334693
D 004	LED GRÜN 2.5X5MM		LED green 2,5x5mm	334693
D 005	LED GRÜN 2.5X5MM		LED green 2,5x5mm	334693
D 006	LED GRÜN 2.5X5MM		LED green 2,5x5mm	334693
D 007	LED GRÜN 2.5X5MM		LED green 2,5x5mm	334693
D 008	LED GRÜN 2.5X5MM		LED green 2,5x5mm	334693
D 009	LED GRÜN 2.5X5MM		LED green 2,5x5mm	334693

SERVICE - LIST OF SPARE PARTS

Pos. im Schaltbild Pos. in diagram	Bezeichnung	description	Best.Nr. Part-No.
D 010	LED GRÜN 2.5X5MM	LED green 2,5x5mm	334693
D 011	LED GRÜN 2.5X5MM	LED green 2,5x5mm	334693
D 012	LED GRÜN 2.5X5MM	LED green 2,5x5mm	334693
D 013	LED GRÜN 2.5X5MM	LED green 2,5x5mm	334693
D 014	LED GRÜN 2.5X5MM	LED green 2,5x5mm	334693
D 015	LED GRÜN 2.5X5MM	LED green 2,5x5mm	334693
D 016	LED GRÜN 2.5X5MM	LED green 2,5x5mm	334693
D 017	LED GRÜN 2.5X5MM	LED green 2,5x5mm	334693
D 018	LED GRÜN 2.5X5MM	LED green 2,5x5mm	334693
D 019	LED GRÜN 2.5X5MM	LED green 2,5x5mm	334693
D 020	LED GRÜN 2.5X5MM	LED green 2,5x5mm	334693
D 021	LED GRÜN 2.5X5MM	LED green 2,5x5mm	334693
D 022	LED GRÜN 2.5X5MM	LED green 2,5x5mm	334693
D 023	LED GRÜN 2.5X5MM	LED green 2,5x5mm	334693
D 024	LED GRÜN 2.5X5MM	LED green 2,5x5mm	334693
D 025	LED GRÜN 2.5X5MM	LED green 2,5x5mm	334693
D 026	LED GRÜN 2.5X5MM	LED green 2,5x5mm	334693
D 027	LED GRÜN 2.5X5MM	LED green 2,5x5mm	334693
D 028	LED GRÜN 2.5X5MM	LED green 2,5x5mm	334693
D 029	LED GRÜN 2.5X5MM	LED green 2,5x5mm	334693
D 030	LED GRÜN 2.5X5MM	LED green 2,5x5mm	334693
D 031	LED GRÜN 2.5X5MM	LED green 2,5x5mm	334693
D 032	LED GRÜN 2.5X5MM	LED green 2,5x5mm	334693
D 033	LED GRÜN 2.5X5MM	LED green 2,5x5mm	334693
D 034	LED GRÜN 2.5X5MM	LED green 2,5x5mm	334693
D 035	LED GRÜN 2.5X5MM	LED green 2,5x5mm	334693
D 036	LED GRÜN 2.5X5MM	LED green 2,5x5mm	334693
D 037	LED GRÜN 2.5X5MM	LED green 2,5x5mm	334693
D 038	LED GRÜN 2.5X5MM	LED green 2,5x5mm	334693
D 039	LED GRÜN 2.5X5MM	LED green 2,5x5mm	334693
D 040	LED GRÜN 2.5X5MM	LED green 2,5x5mm	334693
D 041	LED ROT 2.5X5 MM	LED red 2,5x5mm	334694
D 042	LED ROT 2.5X5 MM	LED red 2,5x5mm	334694
D 043	LED GRÜN 2.5X5MM	LED green 2,5x5mm	334693
D 044	LED ROT 2.5X5 MM	LED red 2,5x5mm	334694
D 045	LED ROT 2.5X5 MM	LED red 2,5x5mm	334694
D 046	LED GRÜN 2.5X5MM	LED green 2,5x5mm	334693
D 047	LED ROT 2.5X5 MM	LED red 2,5x5mm	334694
D 048	LED ROT 2.5X5 MM	LED red 2,5x5mm	334694
D 049	LED GRÜN 2.5X5MM	LED green 2,5x5mm	334693
D 050	LED ROT 2.5X5 MM	LED red 2,5x5mm	334694
D 051	LED ROT 2.5X5 MM	LED red 2,5x5mm	334694
D 052	LED GRÜN 2.5X5MM	LED green 2,5x5mm	334693
D 053	LED ROT 2.5X5 MM	LED red 2,5x5mm	334694
D 054	LED ROT 2.5X5 MM	LED red 2,5x5mm	334694
D 055	LED GRÜN 2.5X5MM	LED green 2,5x5mm	334693
D 056	LED ROT 2.5X5 MM	LED red 2,5x5mm	334694
D 057	LED GRÜN 2.5X5MM	LED green 2,5x5mm	334693
D 058	LED GRÜN 2.5X5MM	LED green 2,5x5mm	334693
D 059	LED ROT 2.5X5 MM	LED red 2,5x5mm	334694
D 060	LED ROT 2.5X5 MM	LED red 2,5x5mm	334694
D 061	LED GRÜN 2.5X5MM	LED green 2,5x5mm	334693
D 062	LED ROT 2.5X5 MM	LED red 2,5x5mm	334694

SERVICE - LIST OF SPARE PARTS

Pos. im Schaltbild Pos. in diagram	Bezeichnung	description	Best.Nr. Part-No.
D 063	LED GRUN 2.5X5MM	LED green 2,5x5mm	334693
D 064	LED GRUN 2.5X5MM	LED green 2,5x5mm	334693
G 001	GLRI B 80 C1500 M	rectifier B 80 C1500 M	340791
I 001	IC BA 6144 5LED-VU-MET	IC BA 6144	338606
I 002	IC BA 6144 5LED-VU-MET	IC BA 6144	338606
I 003	IC BA 6144 5LED-VU-MET	IC BA 6144	338606
I 004	IC BA 6144 5LED-VU-MET	IC BA 6144	338606
I 005	IC BA 6144 5LED-VU-MET	IC BA 6144	338606
I 006	IC BA 6144 5LED-VU-MET	IC BA 6144	338606
I 007	IC BA 6144 5LED-VU-MET	IC BA 6144	338606
I 008	IC BA 6144 5LED-VU-MET	IC BA 6144	338606
R 001	WI-TRI 10.00 KOHM LIN	min.pre set 10 kohm lin	306324
R 006	WI-TRI 10.00 KOHM LIN	min.pre set 10 kohm lin	306324
R 011	WI-TRI 10.00 KOHM LIN	min.pre set 10 kohm lin	306324
R 016	WI-TRI 10.00 KOHM LIN	min.pre set 10 kohm lin	306324