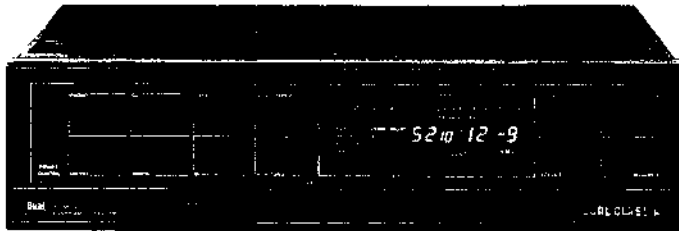


Dual

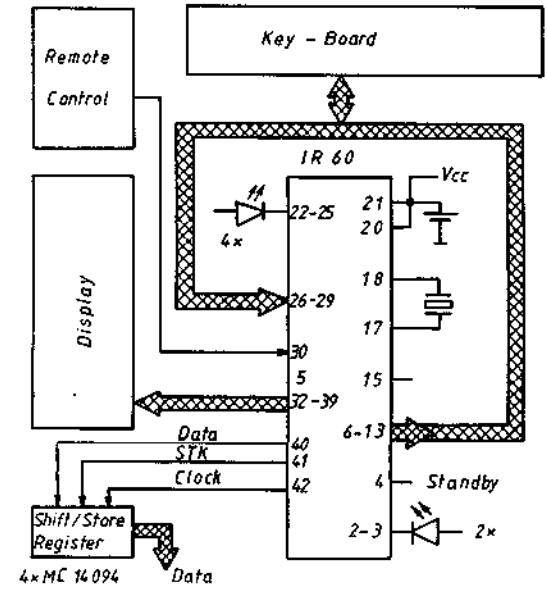
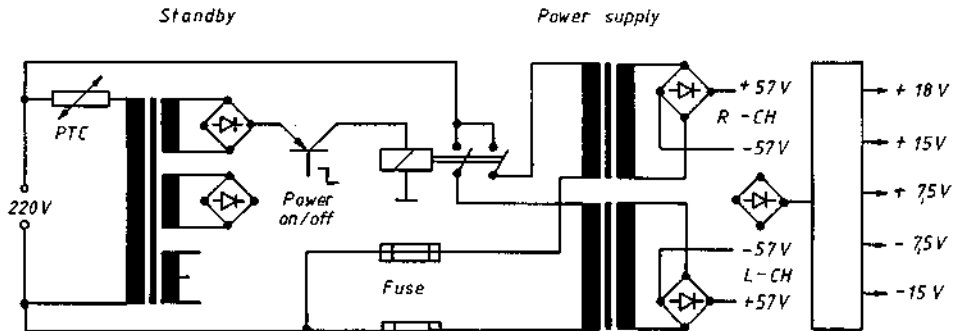
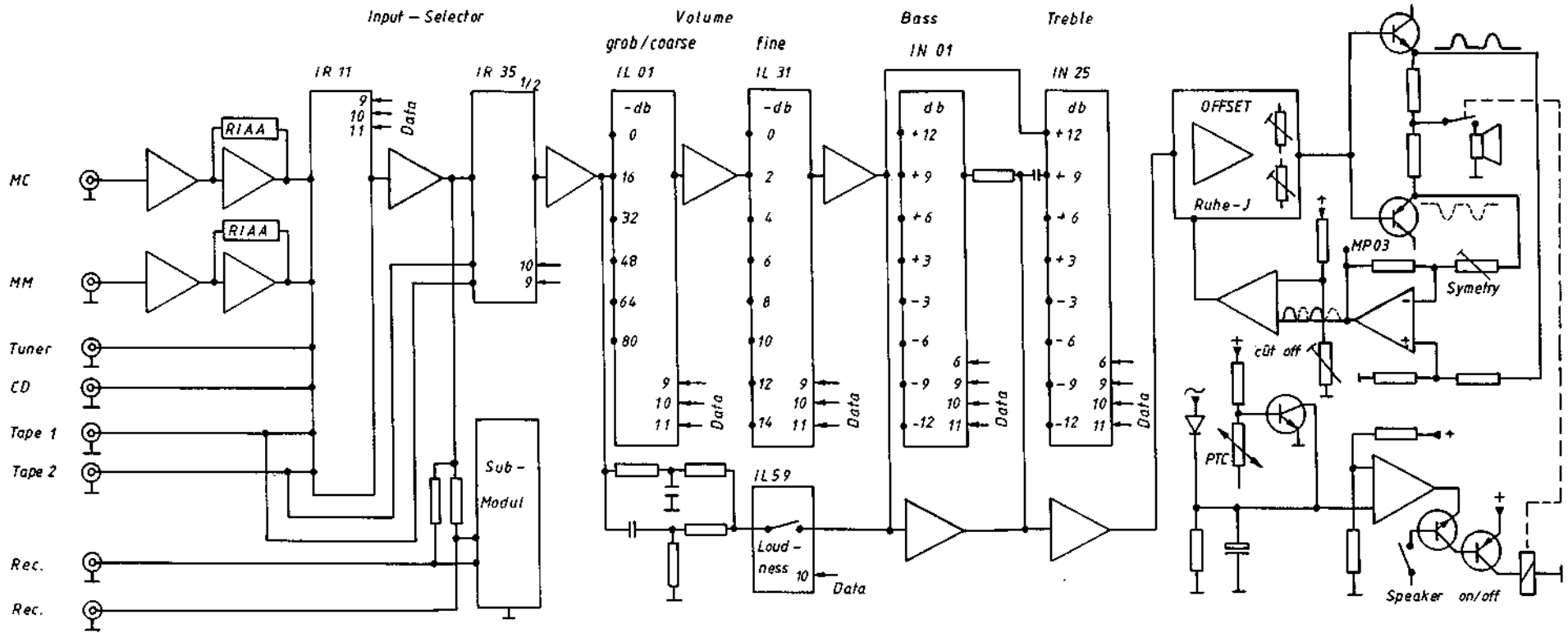
NEW
TECH

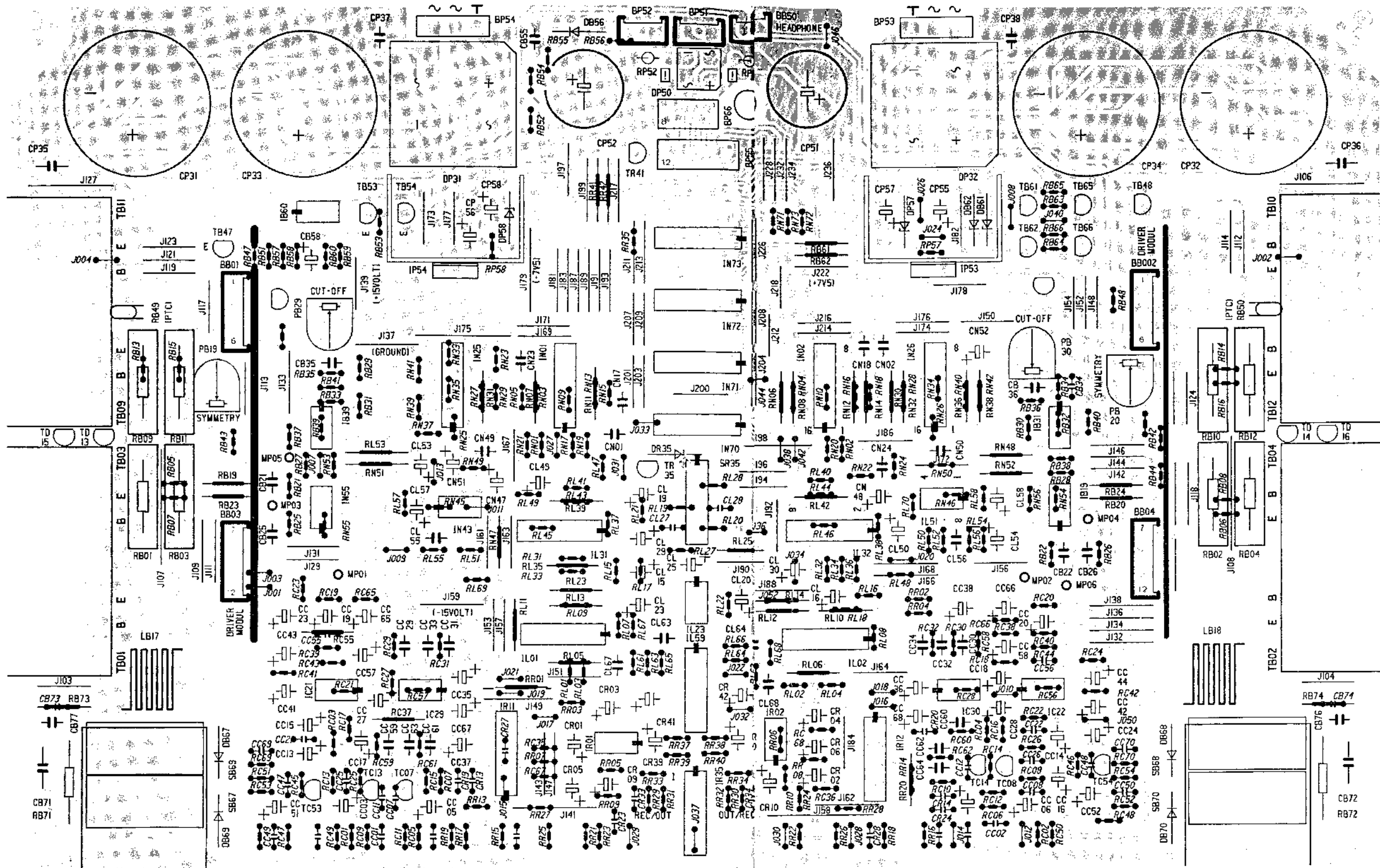
CV 440

Service-Anleitung
Service Manual
Instructions de Service

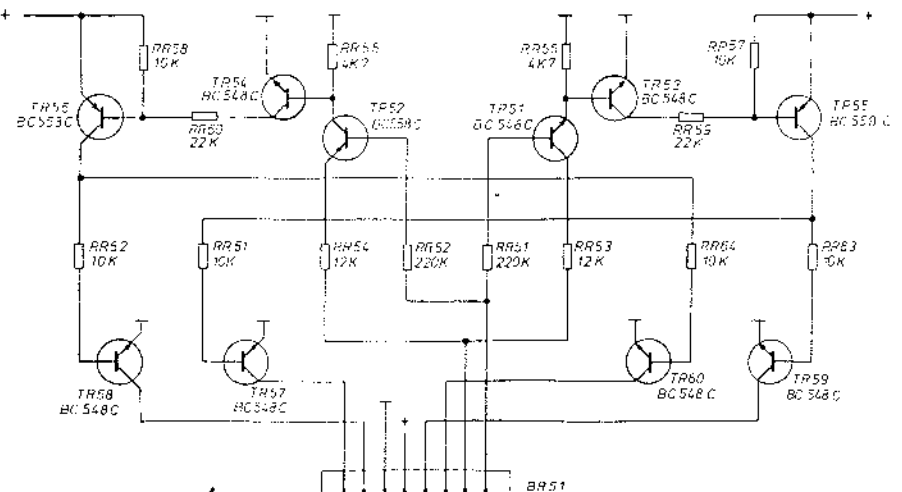
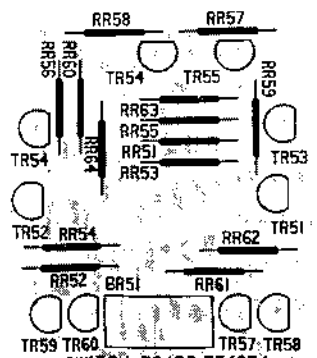
Technische Daten (typische Werte)	Technical Data (typical value)	Caractéristiques techniques (valeur caractéristiques)	
Ausgangsleistung (DIN) Musikleistung Sinus-Dauerleistung	Rated output (DIN) Music power Rms continuous power output	Puissance de sortie (DIN) Puissance musicale Puissance efficace	6 Ω 4 Ω 2×185 W 2×200 W 2×145 W 2×200 W
Klirrfaktor (bei Nennleistung - 6 dB) 20 Hz 1 kHz 20 kHz	Harmonic distortion (continuous power - 6 dB) 20 Hz 1 kHz 20 kHz	Taux de distorsion (puissance efficace - 6 dB) 20 Hz 1 kHz 20 kHz	0,003 % 0,003 % 0,006 %
Leistungsbandbreite (DIN 45500)	Power band width (DIN 45500)	Bande passante (DIN 45500)	5 Hz - 100 kHz
Übertragungsbereich 1 Watt-3 dB Tuner, CD, Tape, Video Phono MM/MC	Frequency response 1 Watt-3 dB Tuner, CD, Tape, Video Phono MM/MC	Bande passante 1 Watt-3 dB Tuner, CD, Tape, Video Phono MM/MC	3 Hz - 270 kHz 10 Hz - 50 kHz
Eingänge Tuner, CD, Tape 1, Tape 2/Video Phono MM Phono MC	Inputs Tuner, CD, Tape 1, Tape 2/Video Phono MM Phono MC	Entrées Tuner, CD, Tape 1, Tape 2/Video Phono MM Phono MC	280 mV/47 kΩ 3 mV/47 kΩ 250 μV/ 5 kΩ
Ausgänge Druckklemmen für zwei Laut- sprecherpaare, Ausgang 1 und Ausgang 2 schaltbar 1-Koaxialbuchse 1/4 inch für Kopfhörer 1-Line-Ausgang an Tape 1 1-Line-Ausgang an Tape 2/Video	Outputs Press-type terminal strips for two sets of speakers, output 1 and output 2 switched 1 coaxial jack 1/4 inch for headphone 1 Line output to Tape 1 1 Line output to Tape 2/Video	Sorties Barres a ressort pour deux paires de hauts-parleurs, sortie 1 et sortie 2 commutables 1 prise coaxiale de 1/4 inch le raccordement du casque-écouter 1 sortie Line sur la prise Tape 1 1 sortie Line sur la prise Tape 2/Video	8-16 Ohm 8-2000 Ohm 280 mV/2,5 kΩ 280 mV/2,5 kΩ
Fremdspannungsabstand (DIN 45500) bezogen auf Nennleistung Tuner, CD, Tape 1, Tape 2/Video Phono MM Phono MC bezogen auf 2×50 mW Tuner, CD, Tape 1, Tape 2, Monitor Phono MM Phono MC	Signal-to-Noise ratio (DIN 45500) related to nominal output Tuner, CD, Tape 1, Tape 2/Video Phono MM Phono MC related to 2×50 mW Tuner, CD, Tape 1, Tape 2, Monitor Phono MM Phono MC	Rapport/signal bruit (DIN 45500) rapporté à la nominale Tuner, CD, Tape 1, Tape 2/Video Phono MM Phono MC rapporté à 2×50 mW Tuner, CD, Tape 1, Tape 2, Monitor Phono MM Phono MC	100 dB 75 dB 62 dB 70 dB 68 dB 62 dB
Geräuschspannung Tuner, CD, Tape 1, Tape 2/Video Phono MM Phono MC	Noise voltage Tuner, CD, Tape 1, Tape 2/Video Phono MM Phono MC	Tension perturbatrice Tuner, CD, Tape 1, Tape 2/Video Phono MM Phono MC	103 dB 80 dB 70 dB
Übersprechdämpfung bei 1000 Hz zwischen den Kanälen zwischen den Eingängen	Cross-talk attenuation at 1.000 Hz between the channels between the inputs	Rapport de diaphonie à 1000 Hz entre les canaux entre les entrées	75 dB 75 dB
Dämpfungsfaktor (8 Ohm)	Damping factor (8 ohms)	Facteur d'amortissement (8 ohms)	2 kHz/16Ω 20 kHz/16Ω
Regelbereiche Volume (2 dB-Schritte) Pre Volume (2 dB-Schritte) Balance (2 dB-Schritte) Höhen (3 dB-Schritte) Bässe (3 dB-Schritte)	Control range Volume (2 dB steps) Pre Volume (2 dB steps) Balance (2 dB steps) Treble (3 dB steps) Bass (3 dB steps)	Plage de réglage Volume (pas de 2 dB) Pre Volume (pas de 2 dB) Balance (pas de 2 dB) Treble (pas de 3 dB) Bass (pas de 3 dB)	80 dB 20 dB 18 dB ± 12 dB ± 12 dB
Leistungsaufnahme Standby-Betrieb Nennleistung an 8 Ω	Power consumption Standby nominal power (8 Ω)	Consommation de puissance à vide puissance nominale (8 Ω)	ca. 5 W ca. 480 W
Netzspannungen	Line voltages	Tensions secteur	230 V

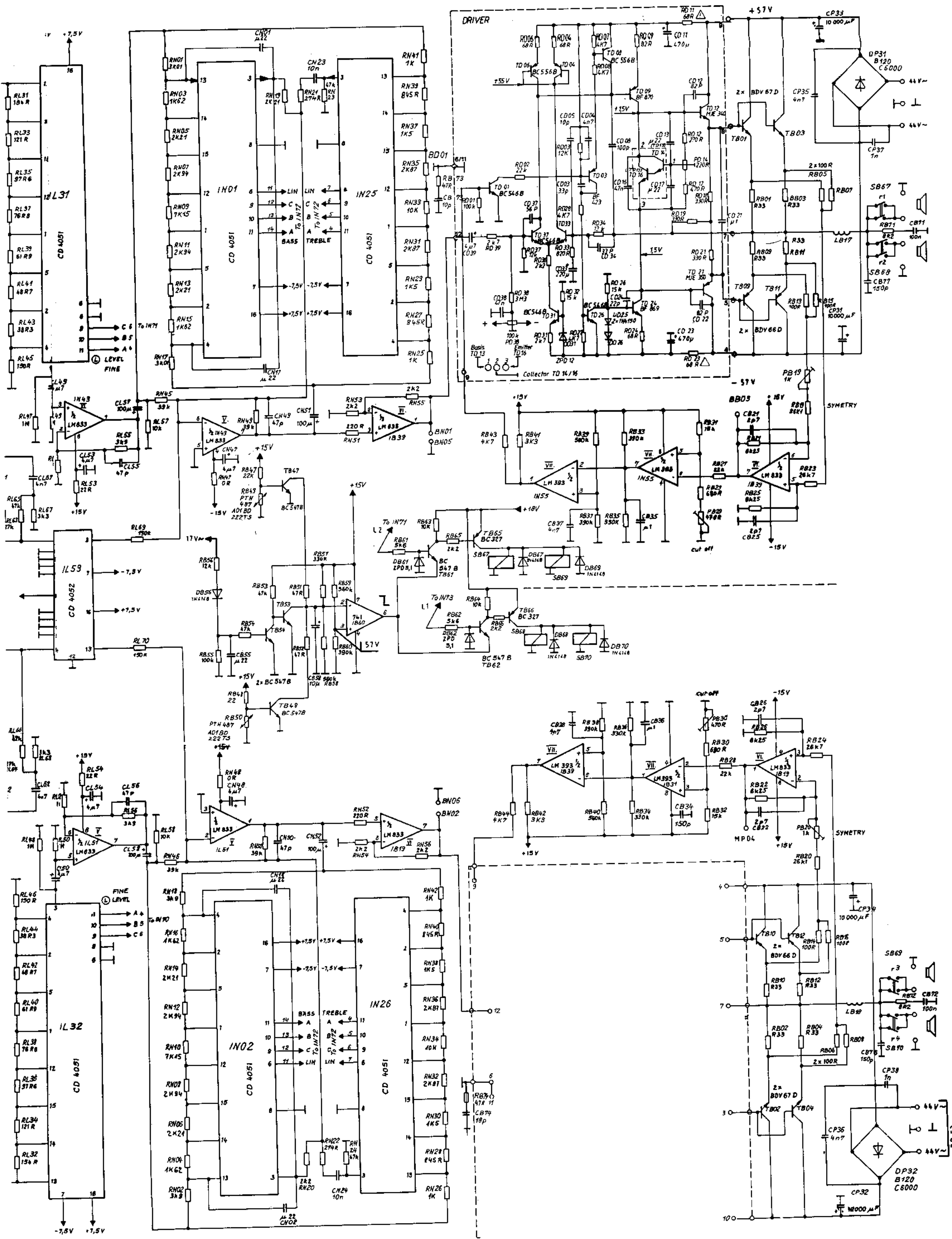
Dual GmbH · Postfach 1144 · 7742 St. Georgen/Schwarzwald

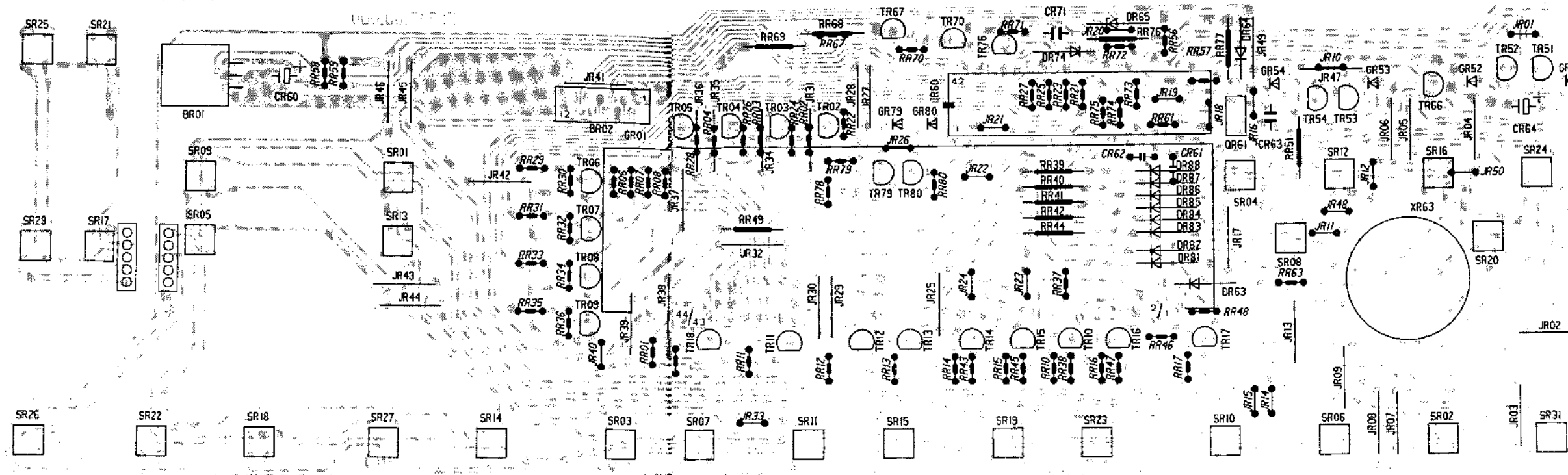




SUB RMB 1600 MD

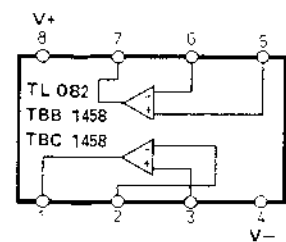
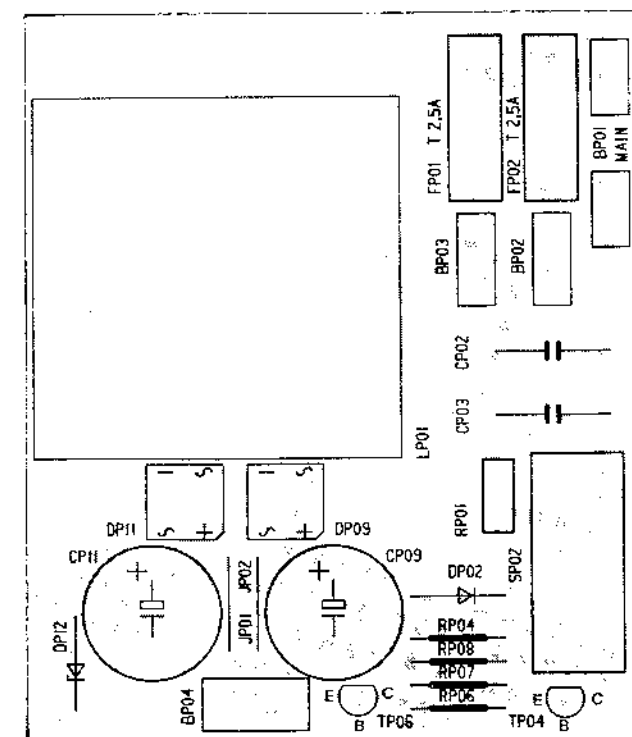
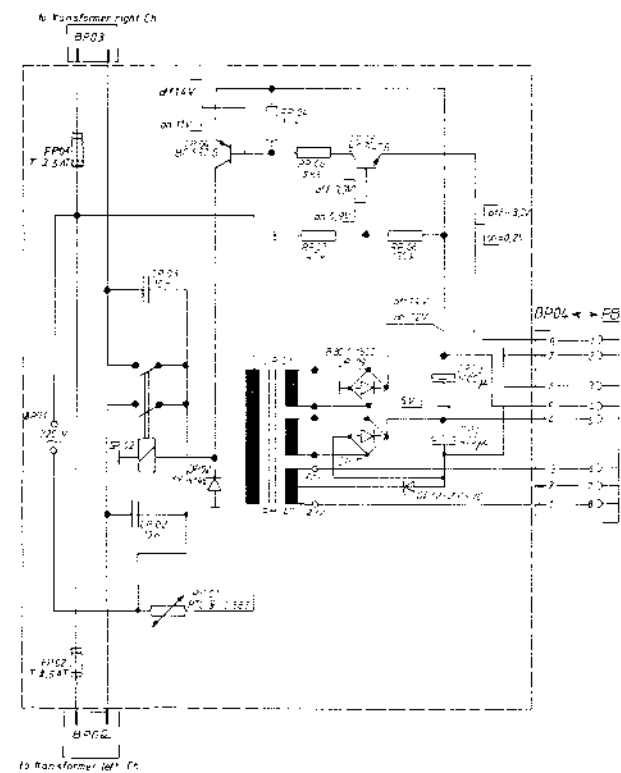
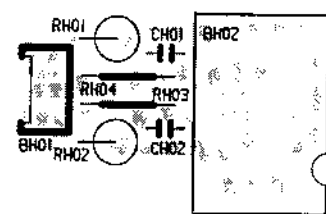
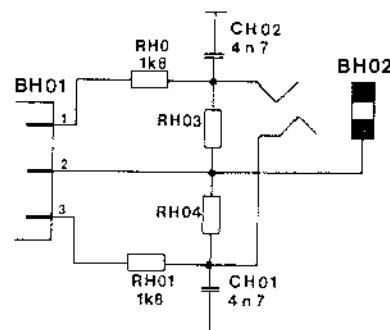




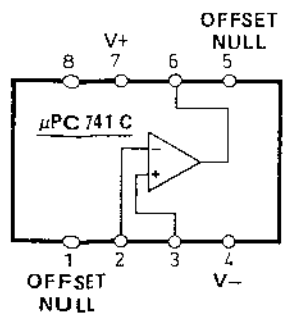


Stand-by-platte / Stand by board / Platine de secteur

Kopfhörerplatte / Head phone board / Platine de phones



LM 393
LM 833
RC 4558



MC 1741

LM 393
LM 833
RC 4558

MC 14051
MC 14052

HD 44840

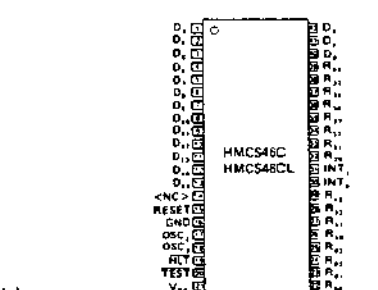
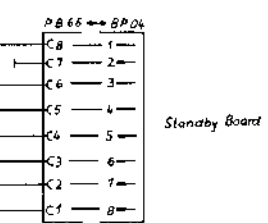
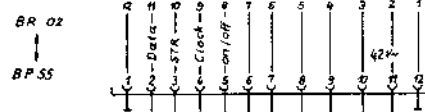
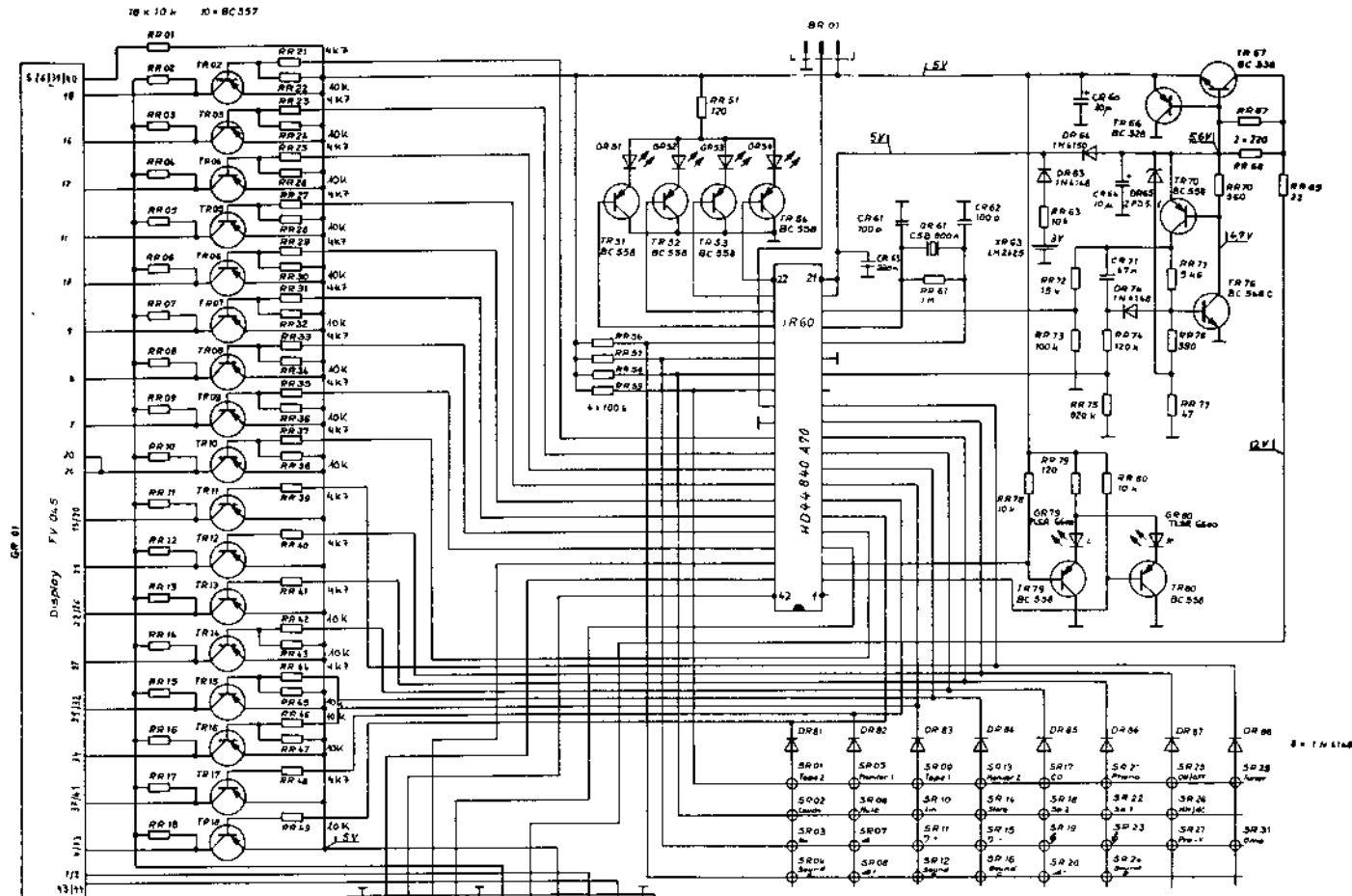
BC 327 BC 550
BC 328 BC 557
BC 338 BC 558
BC 546 BF 423
BC 547 BF 869
BC 548 BF 870

MC 7815

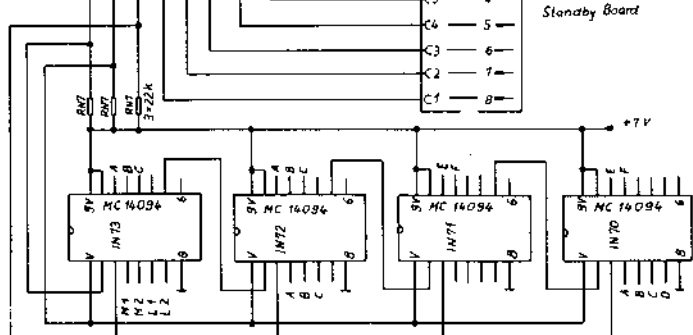
BF 869
BF 870

BDV 66 D
BDV 67 D

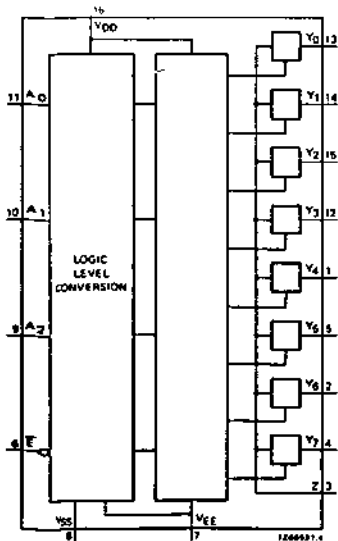
MJE 340
MJE 350



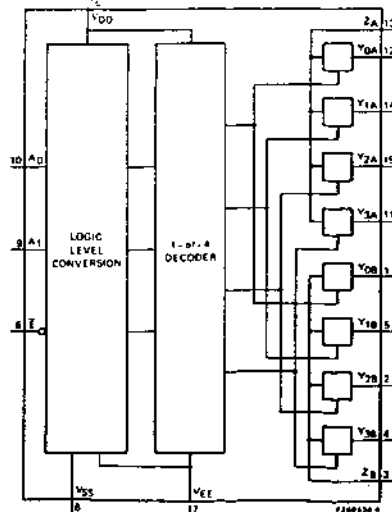
8-channel analogue multiplexer / demultiplexer



4-channel analogue multiplexer / demultiplexer



Input Pin			Input Channel Pin
9	10	11	13
L	L	L	14
L	L	H	15
L	H	H	12
H	L	L	1
H	L	H	5
H	H	L	2
H	H	H	4



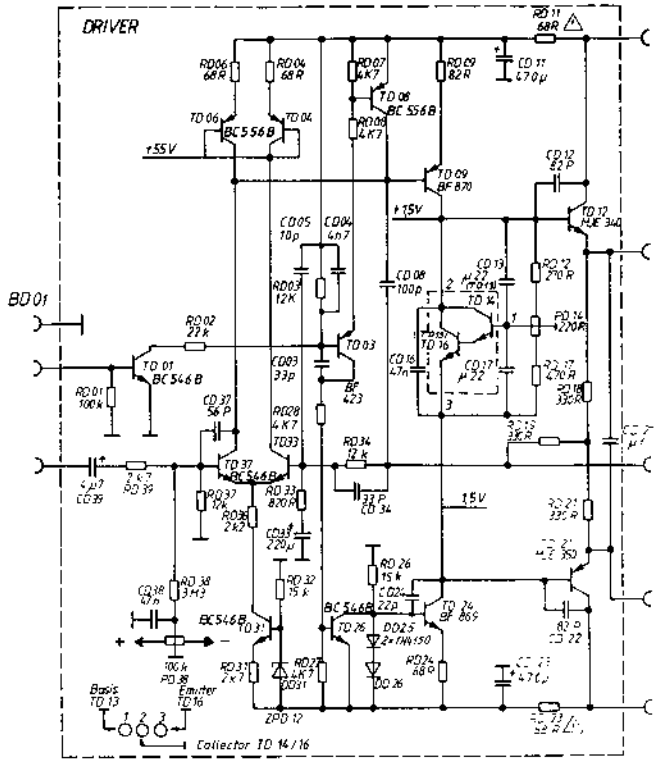
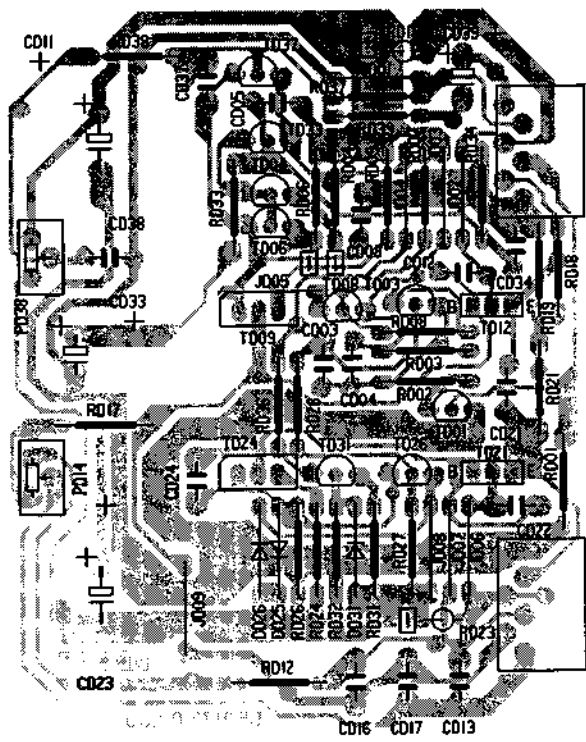
MC 14051

MC 14052

Abgleichanleitung CV 440 - Alignment Instruction CV 440

Signalquelle Signal source	Einstellung Signalquelle Signal source adjustment	Einstellung Gerät Unit adjustment	Anzeigergerät Anschluß Indicator connection	Abgleichposition Adjustment position	Abgleich, Bemerkung Alignment, Remarks
Ruhestrom - Quiescent Current					
		Power: On Tuner: On Volume: Minimum oder/ or Muting on - ohne Last-R - without load-R - kalter Zustand - cold-state	DC-Voltmeter an/to RB 71 Ermitter: ↑ TB 01 + TB 09 ↓ TB 03 + TB 11	PD 14 rechter Kanal (R-CH) right channel (R-CH)	15 mV 15 mV + 15 mV = 30 mV (Differenz ± 50 % - zwischen den - Transistoren - between transistors)
			RB 72 Ermitter: ↑ TB 02 + TB 10 ↓ TB 04 + TB 12	PD 14 linker Kanal (L-CH) left channel (L-CH)	
Offset					
		Power: On Tuner: On Volume: Minimum	DC-Voltmeter an/to Speaker output	PD 38 (L-CH) PD 38 (R-CH)	0 mV (± 5 mV)
Symmetrie und Strombegrenzung - Symmetry and Current Limiting					
NF/AF-Generator an/to Tuner	1 kHz ca. 300 mV	Power: On Tuner: On Volume: Maximum Speaker: 8 Ohm Lastwiderstand Load-resistor	Oscilloscope an/to: MP 03 (R-CH) MP 04 (L-CH) Speaker GND	PB 19 (R-CH) PB 20 (L-CH)	- auf gleich hohe Sinushalbwellen, - to same sinus- halfwave - (doppelte Frequenz) - (double frequency)
	0-200 mV	Speaker: 2 Ohm/100 W Lastwiderstand Load-resistor Kalter Zustand Cold-state	NF/AF-Voltmeter to Speaker output	PB 29 (R-CH) PB 30 (L-CH)	16 V - Strombegrenzung - gerade noch nicht abgeschaltet, - current limiting - just not switches off

Treiberplatte / Driver board / Platine de driver

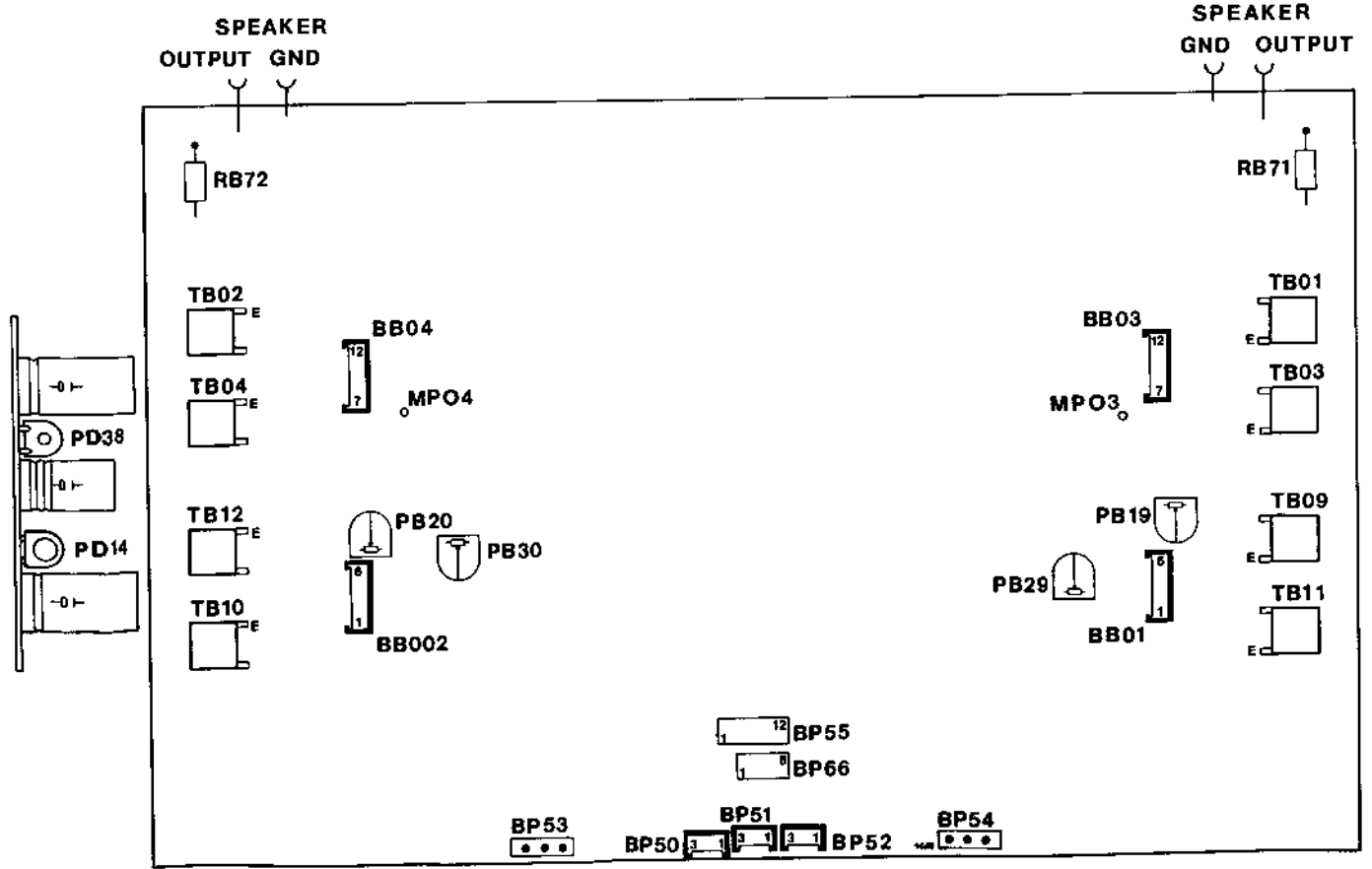
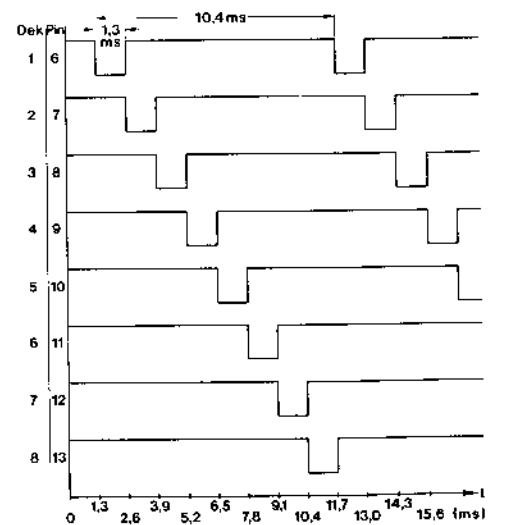


Prozessor HD 44840 A 70 (IR 60)- Pinbelegung - Pin arrangement

- | Pin | Signal |
|-----|----------------------------------------------------------------|
| 1 | No connection |
| 2 | Balance L-CH |
| 3 | Balance R-CH |
| 4 | ON = H, OFF = L |
| 5 | TR 10 Display |
| 6 | Pulse Dekade 1 |
| 7 | Pulse Dekade 2 |
| 8 | Pulse Dekade 3 |
| 9 | Pulse Dekade 4 |
| 10 | Pulse Dekade 5 |
| 11 | Pulse Dekade 6 |
| 12 | Pulse Dekade 7 |
| 13 | Pulse Dekade 8 |
| 14 | No connection |
| 15 | Reset |
| 16 | GND |
| 17 | Quarz |
| 18 | Quarz |
| 19 | HTL 5 V |
| 20 | +5 V V _{cc} |
| 21 | +5 V V _{cc} |
| 22 | TR 54 Sound 1 |
| 23 | TR 53 Sound 2 |
| 24 | TR 52 Sound 3 |
| 25 | TR 51 Sound 4 |
| 26 | Volume ±, Sound 1, 2, 3, 4 |
| 27 | Balance L/R-CH, Bass ±, Treble ±, Pre-Volume |
| 28 | Loudn., Mute, Lin, Store, Sp. 2, Sp. 1, MM/MC |
| 29 | Tape 2, Monitor 1, Tape 1, Monitor 2, CD, Phono, ON/OFF, Tuner |
| 30 | Remote Control |
| 31 | GND |
| 32 | TR 02 |
| 33 | TR 03 |
| 34 | TR 04 |
| 35 | TR 05 |
| 36 | TR 06 |
| 37 | TR 07 |
| 38 | TR 08 |
| 39 | TR 09 |
| 40 | Clock = Pin 3 |
| 41 | Data = Pin 2 |
| 42 | STR = Pin 1 |

- Bezeichnung - Signification:**
- 2 ← Input
 - 7 → Output
 - J Signal HIGH active
 - L Signal LOW active

Pulse Diagram



Ersatzteile - Replacement parts - Pièces détachées CV 440

Pos.	Art.-Nr.	Stck.	Bezeichnung
1	280 960	1	Frontblende
2	279 478	1	Fenster
3	279 481	1	Blende
5	279 480	1	Feder
6	280 852	1	Riegel
7	279 482	6	Knopf
8	279 483	9	Knopf
9	280 963	1	Klappe
10	279 486	1	Feder
11	279 896	4	Fuss kpl.
12	279 489	1	Gehäuseblech
13	279 474	1	Rückwand
14	279 472	2	Netztrafo
15	279 476	1	Netzbuchse
BH 2	279 479	1	Kopfhörerbuchse

rsatzteile · Replacement parts · Pièces détachées · CV 440

Pos.	Art.-Nr.	Stck	Bezeichnung
30	279475	1	Grundplatte
31	279510	5	Cinch-Buchsenleiste
32	279511	2	Anschlußklemme
CP 31	279495	4	Elyt.-Kondensator 10 MY/63 V
bis			
CP 34	279495	4	Elyt.-Kondensator 10 MY/63 V
DB 56	223906	5	Diode 1 N 4148
DB 61	279496	2	Diode ZPD 5V1
DB 62	279496	2	Diode ZPD 5V1
DB 67	223906	5	Diode 1 N 4148
bis			
DB 70	223906	5	Diode 1 N 4148
DP 21	279497	1	Gleichrichter B 80 C 1500
DB 23	279498	2	Diode ZPD 7V5
DP 27	279498	2	Diode ZPD 7V5
DP 31	279499	2	Gleichrichter D5 FB 20
DP 32	279499	2	Gleichrichter D5 FB 20
DP 50	279497	1	Gleichrichter B 80 C 1500
DP 57	279498	4	Diode ZPD 7V5
DP 58	279498	4	Diode ZPD 7V5
DR 35	223906	6	Diode 1 N 4148
IB 19	279500	7	IC LM 833
IB 31	268409	2	IC LM 393 P
IB 39	268409	2	IC LM 393 P
IB 60	279501	1	IC MC 1741 CP 1
IC 21	236299	4	IC RC 4558 D
IC 22	236299	4	IC RC 4558 D
IC 29	236299	4	IC RC 4558 D
IC 30	236299	4	IC RC 4558 D
IL 1	279502	8	IC MC 14051 BCP
IL 2	279502	8	IC MC 14051 BCP
IL 23	279500	7	IC LM 833
IL 31	279502	8	IC MC 14051 BCP
IL 32	279502	8	IC MC 14051 BCP
IL 51	279500	7	IC LM 833
IL 59	279503	2	IC MC 14052 BCP
IN 1	279502	10	IC MC 14051 BCP
IN 2	279502	10	IC MC 14051 BCP
IN 25	279502	10	IC MC 14051 BCP
IN 26	279502	10	IC MC 14051 BCP
IN 43	279500	7	IC LM 833
IN 55	279500	7	IC LM 833
IN 70	276039	4	IC MC 14094 BCP C-MOS
bis			
IN 73	276039	4	IC MC 14094 BCP C-MOS
IP 53	238347	3	IC MC 7815
IP 54	280491	1	IC MC 7915 CT
IR 1	279500	7	IC LM 833
IR 2	279500	7	IC LM 833
IR 11	279502	10	IC MC 14051 BCP
IR 12	279502	10	IC MC 14051 BCP
IR 35	279503	2	IC MC 14052 BCP
PB 19	279504	2	Steller 1 k Ω
PB 20	279504	2	Steller 1 k Ω
PB 29	279505	2	Steller 470 Ω
PB 30	279505	2	Steller 470 Ω
RB 49	279506	2	Thermoschalter
RB 50	279506	2	Thermoschalter
SB 67	279507	4	Relais AZ 732
SB 70	279507	4	Relais AZ 732
SR 35	279529	1	Relais
TB 1	279508	4	Transistor BDV 67 D
bis			
TB 4	279508	4	Transistor BDV 67 D
TB 9	279509	4	Transistor BDV 66 D
bis			
TB 12	279509	4	Transistor BDV 66 D
TB 48	244891	8	Transistor BC 547 B
TB 53	244891	8	Transistor BC 547 B
TB 54	244891	8	Transistor BC 547 B
TB 61	244891	8	Transistor BC 547 B
TB 62	244891	8	Transistor BC 547 B
TB 65	224729	2	Transistor BC 327
TB 66	224729	2	Transistor BC 327
TC 7	280964	6	Transistor BC 650 S
TC 8	280964	6	Transistor BC 650 S
TC 13	280964	6	Transistor BC 650 S
TC 14	280964	6	Transistor BC 650 S
TC 53	280964	6	Transistor BC 650 S
TC 54	280964	6	Transistor BC 650 S
TD 14	240782	2	Transistor BC 546 B
bis			
TD 16	240782	2	Transistor BC 546 B

Pos.	Art.-Nr.	Stck	Bezeichnung
TR 35	244 891	1	Transistor BC 547 B
TR 41	244 891	1	Transistor BC 547 B
TR 51	244 715	7	Transistor BC 548 C
TR 52	276 032	3	Transistor BC 558 C
TR 53	244 715	7	Transistor BC 548 C
TR 54	244 715	7	Transistor BC 548 C
TR 55	276 032	3	Transistor BC 558 C
TR 56	276 032	3	Transistor BC 558 C
TR 57	244 715	7	Transistor BC 548 C
bis			
TR 60	244 715	7	Transistor BC 548 C
40	279 484	1	Display/Tastenplatte
DR 63	223 906	10	Diode 1 N 4148
DR 64	279 521	1	Diode 1 N 4150
DR 65	279 496	1	Diode ZPD 5V1
DR 74	223 906	10	Diode 1 N 4148
DR 81	223 906	10	Diode 1 N 4148
bis			
DR 88	223 906	10	Diode 1 N 4148
GR 1	279 522	1	Display FV-045
GR 51	279 523	6	LED TLHR 6200
bis			
GR 54	279 523	6	LED TLHR 6200
GR 79	280 970	2	LED TLSR 5601
GR 80	280 970	2	LED TLSR 5601
IR 60	279 524	1	IC UP HD 44840 A70 HMSC 4
QR 61	279 525	1	Keramikfilter 800 kHz
SR 1	276 045	29	Schalter
bis			
SR 31	276 045	29	Schalter
TR 2	244 892	17	Transistor BC 557 B
bis			
TR 18	244 892	17	Transistor BC 557 B
TR 51	277 937	7	Transistor BC 558
bis			
TR 54	277 937	7	Transistor BC 558
TR 66	231 062	1	Transistor BC 328
TR 67	238 894	1	Transistor BC 338
TR 70	277 937	7	Transistor BC 558
TR 76	244 715	1	Transistor BC 548 C
TR 79	277 937	7	Transistor BC 558
TR 80	277 937	7	Transistor BC 558
XR 63	279 527	1	Akku LM 2425
50	279 473	1	Standby-Platte
DP 2	223 906	1	Diode 1 N 4148
DP 9	279 497	2	Gleichrichter B 80 C 1500
DP 11	279 497	2	Gleichrichter B 80 C 1500
DP 12	280 969	1	Diode ZPY 10/BZX 85/C10
DR 2	223 906	1	Diode 1 N 4148
FP 1	247 842	2	Sicherung 2,5 A/250 V T
FP 2	247 842	2	Sicherung 2,5 A/250 V T
LP 1	280 965	1	Trafo
RP 1	280 967	1	Kaltleiter C 883
SP 2	280 966	1	Relais 12 V
TP 4	244 892	2	Transistor BC 557 B
TP 6	244 891	1	Transistor BC 547 B
60	280 492	1	Treiberplatte
DD 25	279 521	2	Diode 1 N 4150
DD 26	249 521	2	Diode 1 N 4150
DD 31	249 857	1	Diode ZPD 12
PD 14	279 520	1	Steller 220 k Ω
PD 38	280 968	1	Steller 100 k Ω
TD 1	240 782	4	Transistor BC 546 B
TD 3	279 515	1	Transistor BF 423
TD 4	262 496	3	Transistor BC 556 B
TD 6	262 496	3	Transistor BC 556 B
TD 8	262 496	3	Transistor BC 556 B
TD 9	279 516	1	Transistor BF 870
TD 12	279 517	1	Transistor MJE 340
TD 21	279 518	1	Transistor MJE 350
TD 24	279 519	1	Transistor BF 869
TD 26	240 782	4	Transistor BC 546 B
TD 31	240 782	4	Transistor BC 546 B
TD 33	240 782	4	Transistor BC 546 B
TD 37	240 782	4	Transistor BC 546 B
70	279 490	1	IR-Empfänger
279 491		1	Netzkabel
279 830		1	Bedienungsanleitung CV 440
279 493		1	Faltscheitel
279 494		2	Seitentel

Änderungen vorbehalten! Subject to change! Sous réserve de modification!