

Service Manual

HiFi

V 21

Grundig Service

Holline Deutschland...
...Mo.-Fr. 8.00-16.30 Uhr

Technik:

TV/SAT	0180/52318-41
VCR/LiveCam	0180/52318-42
HiFi/Audio	0180/52318-43
Car Audio	0180/52318-44
Telekommunikation	0180/52318-45

Fax: 0180/52318-51

Ersatzteil-Bestellannahme:

Telefon:	0180/52318-40
Fax:	0180/52318-50



Zusätzlich erforderliche
Unterlagen für den Komplettservice

Additionally required
Service Manuals for the Complete Service

**Service
Manual**

V 21

Sach-Nr./Part No.
72010-755.45

**Service
Manual**

**Sicherheit
Safety**

Sach-Nr./Part No.
72010-800.00

Btx * 32700 #

Sachnummer
Part Number 72010-755.45

Änderungen vorbehalten
Subject to alteration

Printed in Germany
VK233 0997

Es gelten die Vorschriften und Sicherheitshinweise gemäß dem Service Manual "Sicherheit", Sach-Nummer 72010-800.00, sowie zusätzlich die eventuell abweichenden, landesspezifischen Vorschriften!



The regulations and safety instructions shall be valid as provided by the "Safety" Service Manual, part number 72010-800.00, as well as the respective national deviations.

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Allgemeiner Teil

Meßgeräte / Meßmittel

Digitalvoltmeter

Beachten Sie bitte das GRUNDIG Meßtechnik-Programm, das Sie unter folgender Adresse erhalten:

GRUNDIG Instruments
Test- und Meßsysteme GmbH
 Würzburger Str. 150, D-90766 Fürth/Bay
 Tel. 0911/703-4118, Fax 0911/703-4130

Technische Daten

Ausgangsleistung (acc. DIN 45500)	
Musikleistung 4Ω	2 x 95W
Sinusleistung 4Ω	2 x 50W
Sinusleistung 8Ω	2 x 40W
Eingangsempfindlichkeit/Impedanz	
Line in	180mV / 47kΩ
Phono MM	1,8mV / 4,7kΩ
Klirrfaktor Sinusleistung -1dB, 8Ω, 1kHz	≤ 0,01%
Geräuschspannungsabstand	≥ 94dB
Leistungsbandbreite	< 10Hz ... > 70kHz
Übertragungsbereich	
Line in (-3dB)	< 10Hz ... > 90kHz
Phono MM	20Hz ... 30kHz
Stereo crosstalk 10kHz	> 60dB
Dämpfungsfaktor 8Ω, 1kHz	≥ 50
Spannungsversorgung	
Betriebsspannung	230V~
Frequenz	50/60Hz
max. Leistungsaufnahme	< 250W
Leistungsaufnahme in Standby	ca. 1W
Abmessungen und Gewicht	
B x H x T	435 x 125 x 300mm
Gewicht	ca. 7kg

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General Section

Test Equipment / Aids

Digital voltmeter

Please note the Grundig Catalog "Test and Measuring Equipment" obtainable from:

GRUNDIG Instruments
Test- und Meßsysteme GmbH
 Würzburger Str. 150, D-90766 Fürth/Bay
 Tel. 0911/703-4118, Fax 0911/703-4130

Specifications

Output power (acc. DIN 45500)	
Music 4Ω	2 x 95W
Nominal 4Ω	2 x 50W
Nominal 8Ω	2 x 40W
Input sensitivity / impedance	
Line in	180mV / 47kΩ
Phono MM	1.8mV / 4.7kΩ
Distortion Nom. -1dB, 8Ω, 1kHz	≤ 0.01%
Signal-to-noise ratio	≥ 94dB
Power bandwidth	< 10Hz ... > 70kHz
Frequency response	
Line in (-3dB)	< 10Hz ... > 90kHz
Phono MM	20Hz ... 30kHz
Stereo crosstalk 10kHz	> 60dB
Damping factor 8Ω, 1kHz	≥ 50
Power supply	
Voltage	230V~
Frequenz	50/60Hz
Max. power consumption	< 250W
Standby power consumption	approx. 1W
Dimensions & weight	
W x H x D	435 x 125 x 300mm
Weight	approx. 7kg

Ausbauhinweise

1. Öffnen des Gehäuses

- Die 4 Schrauben (A) (Fig. 1) und die 2 Schrauben (B) (Fig. 2) herausschrauben.
- Den Deckel abheben.

2. Ausbau der Frontplatte

- Schraube (C) (Fig. 3) herausschrauben.
- Die Rastung (D) der Netztaсте ausrasten (Fig. 1).
- Die 2 Füße (E) (Fig. 3) abschrauben.
- Die 3 Rastnasen (F) (Fig. 3) ausrasten.
- Beim Zusammenbau auf richtigen Sitz des Steckverbinders (G) (Fig. 1) achten.

3. Ausbau der Hauptplatte

- Frontplatte ausbauen (Pkt. 2).
- Die 5 Schrauben (H) (Fig. 1) und die 7 Schrauben (J) (Fig. 2) herausschrauben.
- Die Platte herausheben, dabei Steckverbinder nach Bedarf öffnen.

4. Ausbau der Trafoplatte

- Die Rastung (D) der Netztaсте ausrasten (Fig. 1).
- Die 4 Schrauben (K) (Fig. 2) und die 5 Schrauben (L) (Fig. 3) herausschrauben.
- Trafoplatte mit AC-Outlet-Platte herausheben, Steckverbinder nach Bedarf öffnen.

Disassembly Instructions

1. Opening the Cabinet

- Undo the 4 screws (A) (Fig. 1) and the 2 screws (B) (Fig. 2).
- Remove the top of the cabinet.

2. Removing the Front Panel

- Undo screw (C) (Fig. 3).
- Disengage the mains button (D) (Fig. 1).
- Undo 2 feet (E) (Fig. 3).
- Disengage the 3 catches (F) (Fig. 1).
- When mounting the board, look for the correct position of connector (G) (Fig. 1).

3. Removing the Main Board

- Remove the Front Panel (para 2).
- Undo the 5 screws (H) (Fig. 1) and the 7 screws (J) (Fig. 2).
- The main board can now be removed. Open connectors if necessary.

4. Removing the Power Supply Board

- Disengage the mains button (D) (Fig. 1).
- Undo the 4 screws (K) (Fig. 2) and the 5 screws (L) (Fig. 3).
- Remove Power Supply Board together with the AC Outlet Board, open connectors if necessary

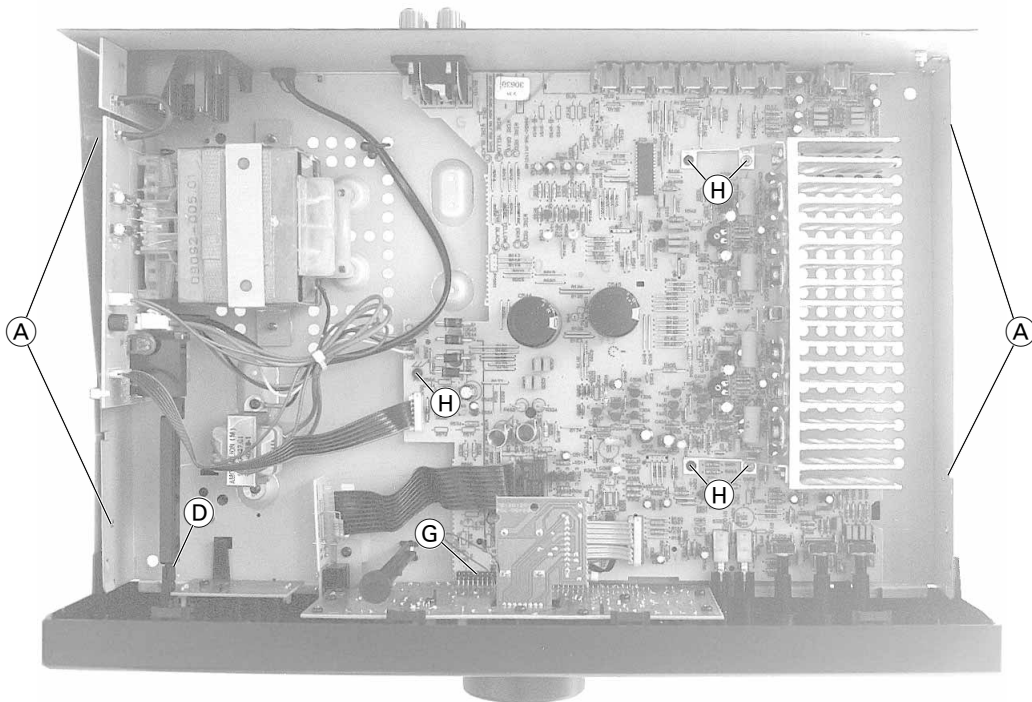


Fig. 1

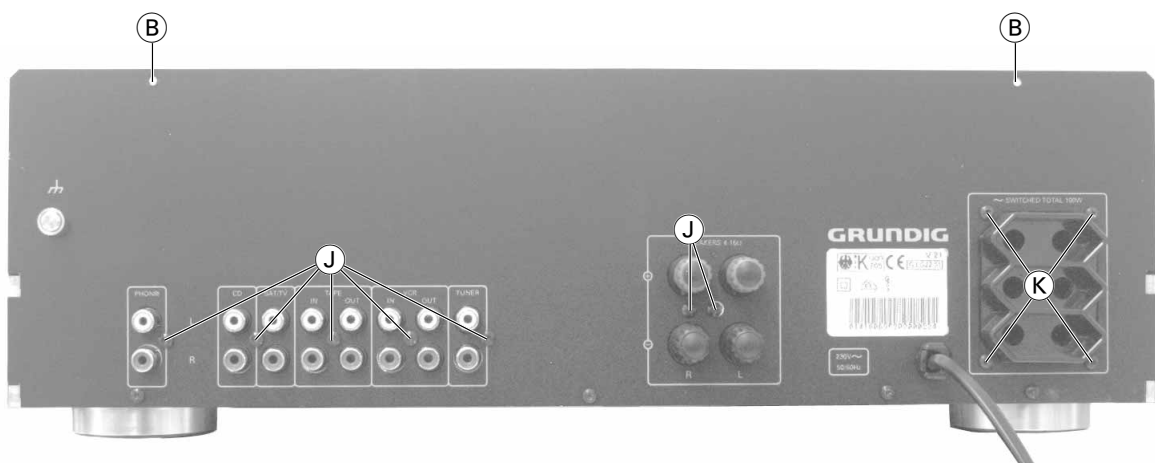


Fig. 2

5. Ausbau der Potiplatte (Fig. 4)

- Lautstärkeknohpf abziehen.
- Die Mutter (M) losschrauben.
- Die Potiplatte kann jetzt nach innen herausgezogen werden. Bei Bedarf die Kabel (N) ablöten.

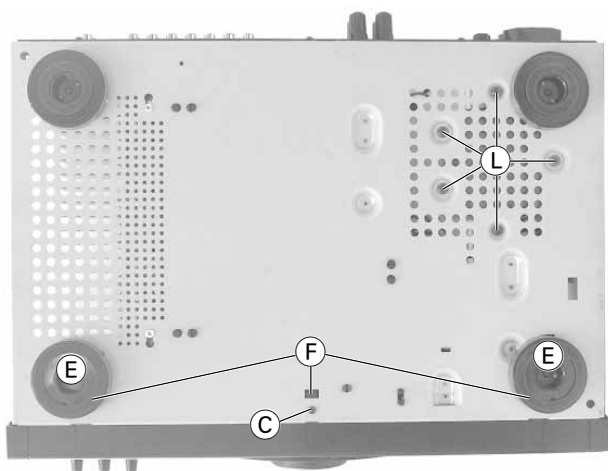


Fig. 3

5. Disassembling of the Potentiometer Board (Fig. 4)

- Pull off the volume knob.
- Disengage the nut (M).
- The PCB can now be removed. If necessary unsolder the wires (N).

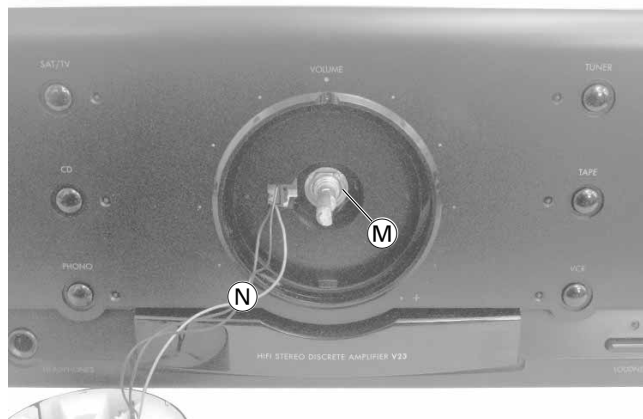


Fig. 4

6. Zerlegen der Frontplatte (Fig. 5)

- Frontplatte ausbauen (Pkt. 2).
- Potiplatte ausbauen (Pkt. 5).
- Die 9 Schrauben (O) (Fig. 5) herausschrauben.
- Die Leiterplatte (P) kann jetzt abgenommen werden.

6. Disassembling of the Front Panel (Fig. 5)

- Remove the Front Board (para 2).
- Remove the potentiometer board (para 5).
- Undo 9 screws (O) (Fig. 5).
- The PCB (P) can now be removed.

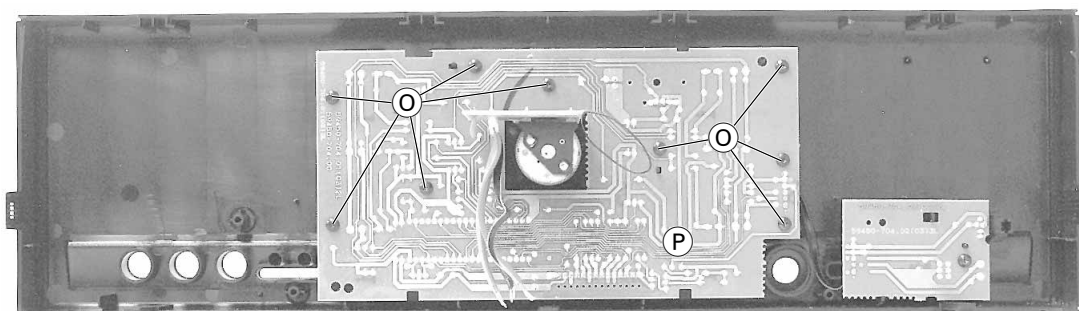


Fig. 5

7. Ausbau der Eingangswahltafsten (Fig. 6)

- Frontplatte zerlegen (Pkt. 6).
- Rastnase (R) austrasten und die Taste herausnehmen.

7. Disassemble the Input Selection Buttons (Fig. 6)

- Disassemble the front panel (para 6).
- Disengage the catch (R) and pull out the button.

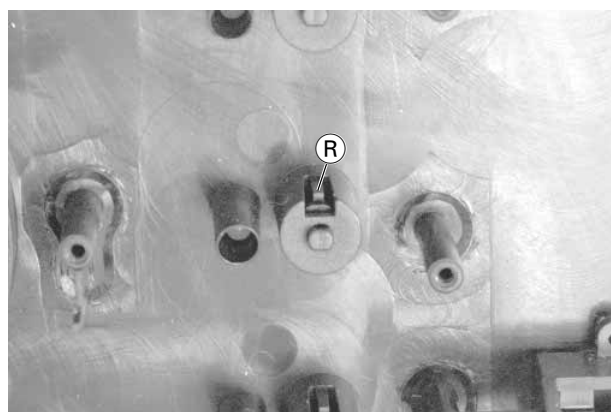
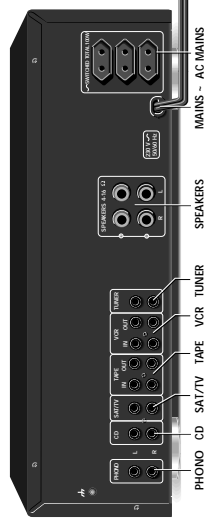


Fig. 6

Bedienhinweise

Dieses Kapitel enthält Auszüge aus der Bedienungsanleitung. Weitergehende Informationen entnehmen Sie bitte der gerätespezifischen Bedienungsanleitung, deren Sachnummer Sie in der entsprechenden Ersatzteilliste finden.

INSTALLATION



Anschluss der Programmquellen
Schließen Sie zum Anschließen der Signalquellen alle beteiligten Geräte aus. Achten Sie auf den richtigen Anschluss der Stereo-Kanäle: L: links (weiß), R: rechts (rot).

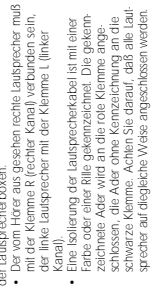
- PHONO Schließen Sie Ihren Analog Plattenspieler an die Buchsen PHONO an.
CD Schließen Sie Ihren CD-Spieler an die Buchsen CD an.
SAT/TV Weitere Signalquellen, wie Satellitenempfänger, Fernsehgerät, usw. schließen Sie an den Buchsen SAT/TV an.
TAPE Verbinden Sie die LINE IN-Buchsen Ihres Kassetendecks, Tonbandgerätes oder digitalen Aufnahmegeräts mit den Buchsen TAPE OUT.
VCR Verbinden Sie die LINE IN-Buchsen Ihres Videorecorders mit den Buchsen VCR OUT.
TUNER Schließen Sie Ihren Satellitentuner an, schließen Sie diesen an die Buchsen SAT/TV an.

BEDIENUNG



- Ein- und Ausschalten
Schalten Sie Ihr Gerät ein, indem Sie den Netzschalter POWER betätigen.
Stand-by-Betrieb
Wollen Sie die Anlage wieder einschalten, drücken Sie den Netzschalter ein.
Hinweise
Um den Stromverbrauch ungeliebt 1W zu halten, wurde ein Stand-By-Transformator in das Gerät eingebaut.
Batteriewechsel
Denken Sie beim Batteriewechsel daran: Batterien sind Sondermüll.

Anschließen der Lautsprecher
Um die Qualität der Wiedergabe und Leistung dieses Gerätes voll nutzen zu können, sind entsprechend belastbare und weite Lautsprecherboxen erforderlich.
Wichtig: Wichtig ist auch der serielle Anschluss der Lautsprecherboxen.

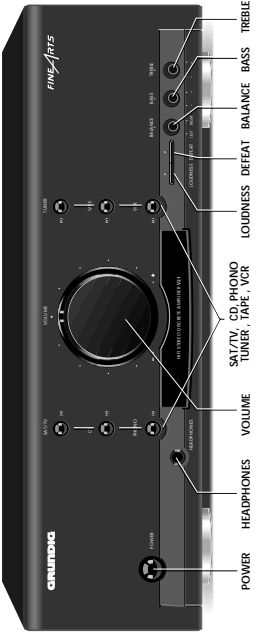


- Wahl der Programmquellen
Drücken Sie die entsprechende Taste am Gerät oder auf der Fernbedienung, um eine Programmquelle anzuwählen.
Wahl der Programmquellen
Drücken Sie die Taste, die die gewünschte Funktion auslöst.



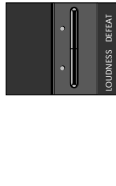
- Wahl der Programmquellen
Drücken Sie die Taste, die die gewünschte Funktion auslöst.
Wahl der Programmquellen
Drücken Sie die Taste, die die gewünschte Funktion auslöst.

BEDIENELEMENTE



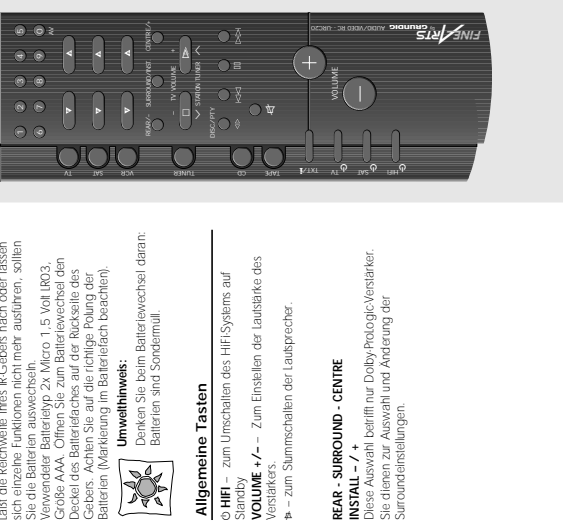
- Vorderseite des Verstärkers
Dieser Schalter wird zum Ein- und Ausschalten des Geräts verwendet.
HEADPHONES Hier können Sie einen handelsüblichen Stereokopfhörer mit dem Deckelanschluss verbinden.
DEFEAT Hiermit wird die Lautstärke des Verstärkers wiederhergestellt.
BALANCE Hiermit beeinflussen Sie die Verteilung des Klanges zwischen linken und rechten Kanal.
VOLUME Hiermit beeinflussen Sie den unteren Frequenzbereich.
TREBLE Hiermit beeinflussen Sie den oberen Frequenzbereich.

KLANGEINSTELLUNG



- BASS, TREBLE
Mit den Einstellern BASS und TREBLE können Sie den Klang des Geräts individuell verändern.
LOUDNESS
Die Funktion DEFEAT umgibt alle Klangabstimmungen und bringt die Musik unverändert an die Lautsprecher.
Hinweis: Bei DEFEAT nicht gleichzeitig aktiviert sein können.

SYSTEMFERNBEDIENUNG



- Batteriewechsel
Denken Sie beim Batteriewechsel daran: Batterien sind Sondermüll.
Allgemeine Tasten
VOLUME +/- Zum Einstellen der Lautstärke des Verstärkers.
REAR - SURROUND - CENTRE Diese Anlage verfügt über ein Surround-System.
INSTAL +/- Diese Anlage verfügt über ein Surround-System.
PHONO, CD, SAT/TV, TAPE, VCR, TUNER, SPEAKERS, MAINS - AC MAINS OUTPUTS

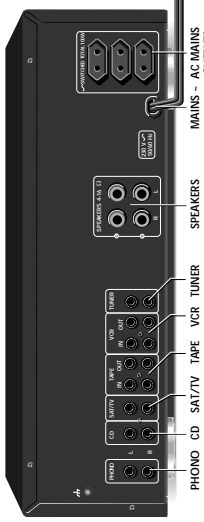
- TV
Zur Auswahl des Fernsehgerätes, fernm dieser an den SAT/TV-Eingang angeschlossen ist.
VCR
Zur Auswahl des Videorecorders, wenn dieser an den VCR-Eingang angeschlossen ist.

- Bedienung von Geräten anderer Firmen
Die zu diesem Gerät beigefügte Fernbedienung kann neben Geräten der Herstellerfamilie (Grundig) auch Fernbedienungen anderer Firmen (Sanyo, Philips, etc.) steuern.
Einstellung des zu Ihrem Fernsehgerät passenden Fernbedienungs-Codes

Operating Hints

This chapter contains excerpts from the operating instructions. For further particulars please refer to the appropriate user instructions the part number of which is indicated in the relevant spare parts list.

INSTALLATION



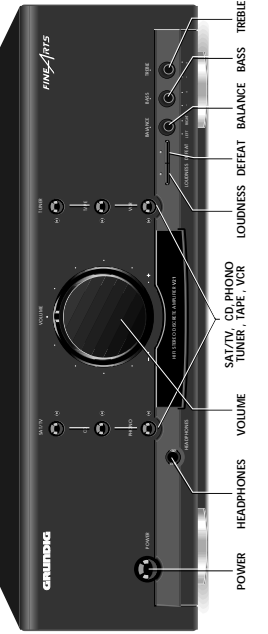
- Connecting programme sources
Before connecting any programme sources, always switch any other connected units off.
PHONO Connect your analog record player to the PHONO sockets.
CD Connect your CD player to the CD sockets.
TAPE Connect the LINE IN sockets of your cassette deck, tape recorder or DAT recorder to the sockets TAPE IN.

- Connecting the speakers
In order to take full advantage of your unit's superior playback quality and overall performance, only quality speakers with corresponding load ratings should be used.
Make sure that all loudspeakers are connected in the same way.

Front of the amplifier

- POWER For switching the amplifier on and off.
HEADPHONES This socket is for connecting standard stereo headphones with a 6.3 mm jack.
VOLUME Volume is adjusted with the rotary VOLUME knob.
BALANCE This control is used to adjust the sound balance between the left and right channels.
BASS This is to adjust the bass tones.
TREBLE This is to adjust the high tones.

OPERATING ELEMENTS



- LOUDNESS This switch is used during playback to adapt the volume level to individual hearing sensitivity.
DEFEAT This switch is used to bypass the BASS, TREBLE and LOUDNESS controls.
BALANCE This control is used to adjust the sound balance between the left and right channels.
BASS This is to adjust the bass tones.
TREBLE This is to adjust the high tones.

OPERATION



Switching on and off

- When you want to switch your amplifier on, press the **POWER** button.
- The yellow LED in the middle of the button indicates that the unit is on.
- To deactivate the amplifier, press the **POWER OFF** button next to the **POWER ON** button.
- The standby mode will be selected when the power is switched on.
- When you want to activate your amplifier, press the **POWER ON** button.
- When you want to deactivate your amplifier, press the **POWER OFF** button.
- The amplifier is muted for approximately 3 seconds when it is turned on in order to suppress disturbing initial signal noise.
- The units connected to the AC outputs are also provided with power when the amplifier is activated.
- To switch off the amplifier press the **POWER** button again.
- In standby mode or when you switch the amplifier off with **POWER**, all auxiliary units which are connected to the amplifier via the sockets are disconnected from the power supply.



Source selection

- To select a listening source, press either the corresponding button on the unit or the corresponding button on the remote control.
- The yellow LED next to the respective button on the amplifier comes on.

Stand by

- You can switch the system to **STAND BY** with the **o** button on the system remote control.
- This also disconnects any units connected to the AC outputs from the power supply. Active LED in the middle of the **POWER** button.
- When you want to switch your system on again, simply press one of the input selection buttons on the unit or on the remote control.



Note: In order to keep power consumption at about 1W a stand-by function has been built in. This is done for the sake of energy conservation. Consequence of Grundig's environmental policy targeting to reduce unnecessary power consumption.

SOUND CONTROL



VOLUME

- The volume can be adjusted with the rotary **VOLUME** knob.
- The volume can also be controlled via the remote control with the **VOLUME +/-** buttons.
- An illuminated dot in the **VOLUME** knob indicates the respective adjustment position.

MUTING

- The volume can be completely muted by pressing the **M** button on the remote control. This is useful, for example, if you want to take a break from the noise of the TV or the sound disrupted by music, news, etc., from your system.
- If the muting function is used when recording a tape, this has no effect on the subsequent recording volume level as only the speakers are muted.
- The click you hear when you press the **M** button comes from the relay which makes the speakers silent.
- The LED in the volume knob blinks when the **MUTING** function is active.
- The **MUTING** function can be deactivated by pressing the **M** button again or by pressing the **VOLUME +/-** button on the remote control or any one of the input selection buttons.

BASS, TREBLE

- The **BASS** and **TREBLE** controllers can be used to individually adjust the higher and lower frequencies of the sound emanating from the speakers. In this way, you can compensate for surrounding acoustic irregularities which may be caused, for example, by sound reflection behaviour on walls with relatively large, empty surface areas, or "damping" caused by furniture or other objects.
- Note:** These controls only function when "DEFEAT" is switched off.

BALANCE

- For effective stereo playback, it is important that the sound emanates equally from both speakers.
- Acoustic equilibrium can be distorted by furniture groups or the listener's position in a room, thus distorting the impression of stereo.
- The **BALANCE** controller can compensate for such situations.

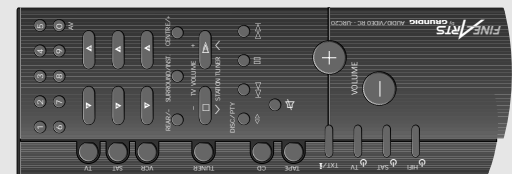
LOUDNESS

- Pressing the **LOUDNESS** button slightly accentuates the lower and higher frequencies during playback at a low volume.
- The effectiveness depends in part on the setting of the volume knob. The sound is thus optimally adapted to human hearing sensitivity, which is also dependent on the respective volume.
- If you have connected speakers which exhibit a great deal of bass, **LOUDNESS** should always remain off to achieve a more linear acoustic pattern. In this way, you compensate for the emphasis of the lower frequencies.

DEFEAT

- The **DEFEAT** function bypasses all tone controls bringing the sound unchanged to the speakers.
- This means that the influence of the **LOUDNESS**, **BASS** and **TREBLE** controls is removed from the signal path.
- Note: LOUDNESS and DEFEAT can not be switched on at the same time.**

SYSTEM REMOTE CONTROL



Changing the batteries

If the range of your infrared remote control seems to decrease, or if certain individual functions can no longer be carried out, the batteries may need to be replaced. To change the batteries, open the compartment on the back of the remote control. Ensure that the batteries are inserted properly (note the markings in the compartment).

In the interest of the environment: Remember that batteries must always be disposed of properly.

General controls

- o** HFI - To switch the HFI system to **STAND BY**.
- VOLUME +/-** - Controlling the volume of the amplifier.
- M** - Muting the speakers (provided the HFI-TV/VCR switch is in position HFI).

REAR - SURROUND - CENTRE INSTANT +/-

These controls are only used for Dolby Pro Logic amplifiers. For selecting and adapting the different surround modes.

TV

TV - For selecting the TV set (when connected to the SAT/TV input).

o TV - To switch the TV to **STAND BY**.

▲ ▼ - For selecting next or previous TV stations.

▶ ◀ - To select next or previous tracks on a CD.

▶ ◀ - To select next or previous tracks on a CD.

▶ ◀ - To select next or previous tracks on a CD.

▶ ◀ - To select next or previous tracks on a CD.

▶ ◀ - To select next or previous tracks on a CD.

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▶ ◀ - To select next or previous tracks on a CD.

▶ ◀ - To select next or previous tracks on a CD.

▶ ◀ - To select next or previous tracks on a CD.

SYSTEM REMOTE CONTROL

Operation of other brands

This remote control can be used to operate also other brands of TVs, Satellite receivers and Video recorders. The codes for these other brands have already been programmed into the remote control.

For TV sets you can select 5 different presets, for Satellite receivers 3 and for Video recorders 10 different presets.

How to select the right presets?

- Keep the TV button pressed and press one of the numeric keys 1...5 of the numeric keys for approx. 6 seconds.
- To control if you have selected the right code, press e.g. one of the **▲ ▼** buttons on the remote control. If you do not react to this command you have selected the right preset.
- If you TV does not react, try to select another preset.

for Satellite receivers

- Keep the SAT button pressed and press number 1, 2 or 3 of the numeric keys for approx. 6 seconds.
- To control if you have selected the right code, press e.g. one of the **▲ ▼** buttons.
- If your Satellite receiver reacts to this command you have selected the right preset.
- If you Satellite receiver does not react, try to select another preset.

for Video recorders

- Keep the VCR button pressed and press one of the numeric keys (1...0) for approx. 6 seconds.
- To control if you have selected the right code, press e.g. one of the **▲ ▼** buttons.
- If your VCR reacts to this command you have selected the right preset.
- If your VCR does not react, try to select another preset.

TV

TV - For selecting the TV set (when connected to the SAT/TV input).

o TV - To switch the TV to **STAND BY**.

▲ ▼ - For selecting next or previous TV stations.

▶ ◀ - To select next or previous tracks on a CD.

▶ ◀ - To select next or previous tracks on a CD.

▶ ◀ - To select next or previous tracks on a CD.

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▶ ◀ - To select next or previous tracks on a CD.

▶ ◀ - To select next or previous tracks on a CD.

▶ ◀ - To select next or previous tracks on a CD.

D

Abgleichvorschriften

Meßgeräte: Digitalvoltmeter

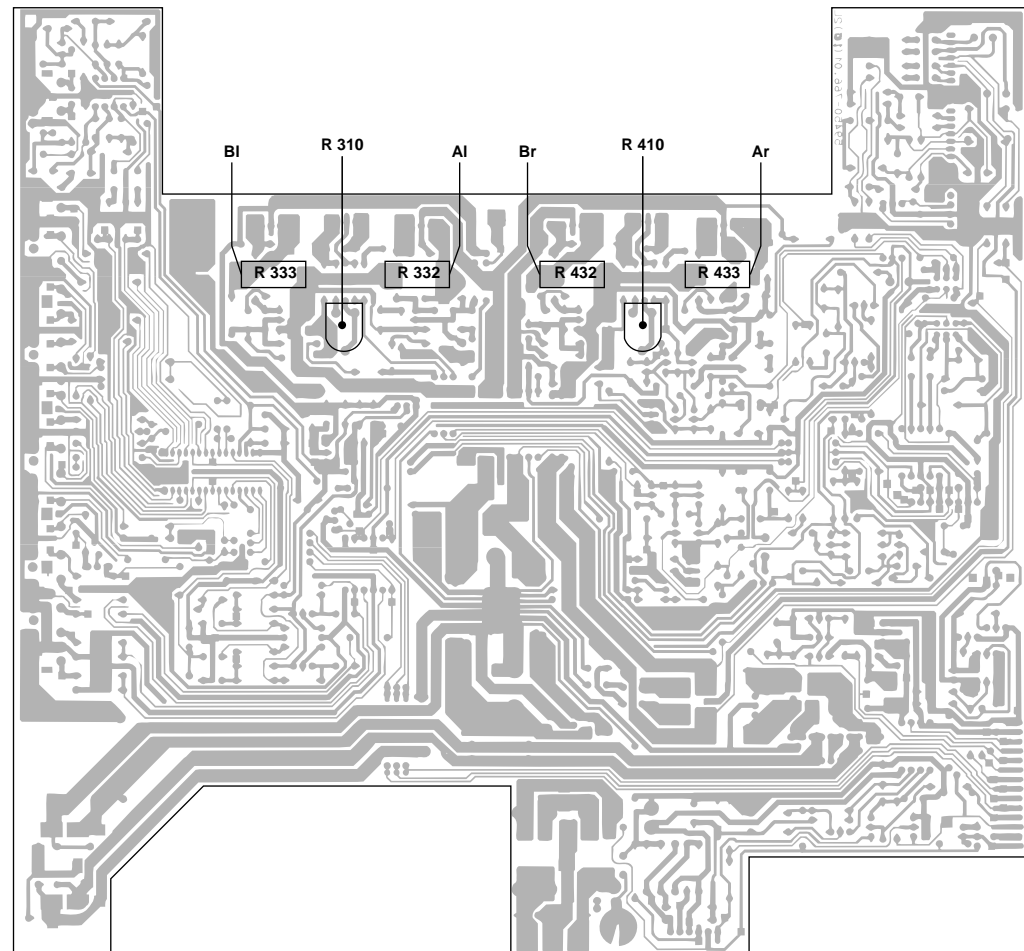
Abgleich	Vorbereitung	Abgleichprozedur
Ruhestrom	Kein Eingangssignal. Lautstärke auf Null. Gerät mindestens 2 min warmlaufen lassen. Linker Kanal: Digitalvoltmeter zwischen Meßpunkte Al und Bl. Rechter Kanal: Digitalvoltmeter zwischen Meßpunkte Ar und Br.	Linker Kanal: Mit R 310 auf 6,0mV ± 0,5mV einstellen. Rechter Kanal: Mit R 410 auf 6,0mV ± 0,5mV einstellen.

GB

Adjustment Procedures

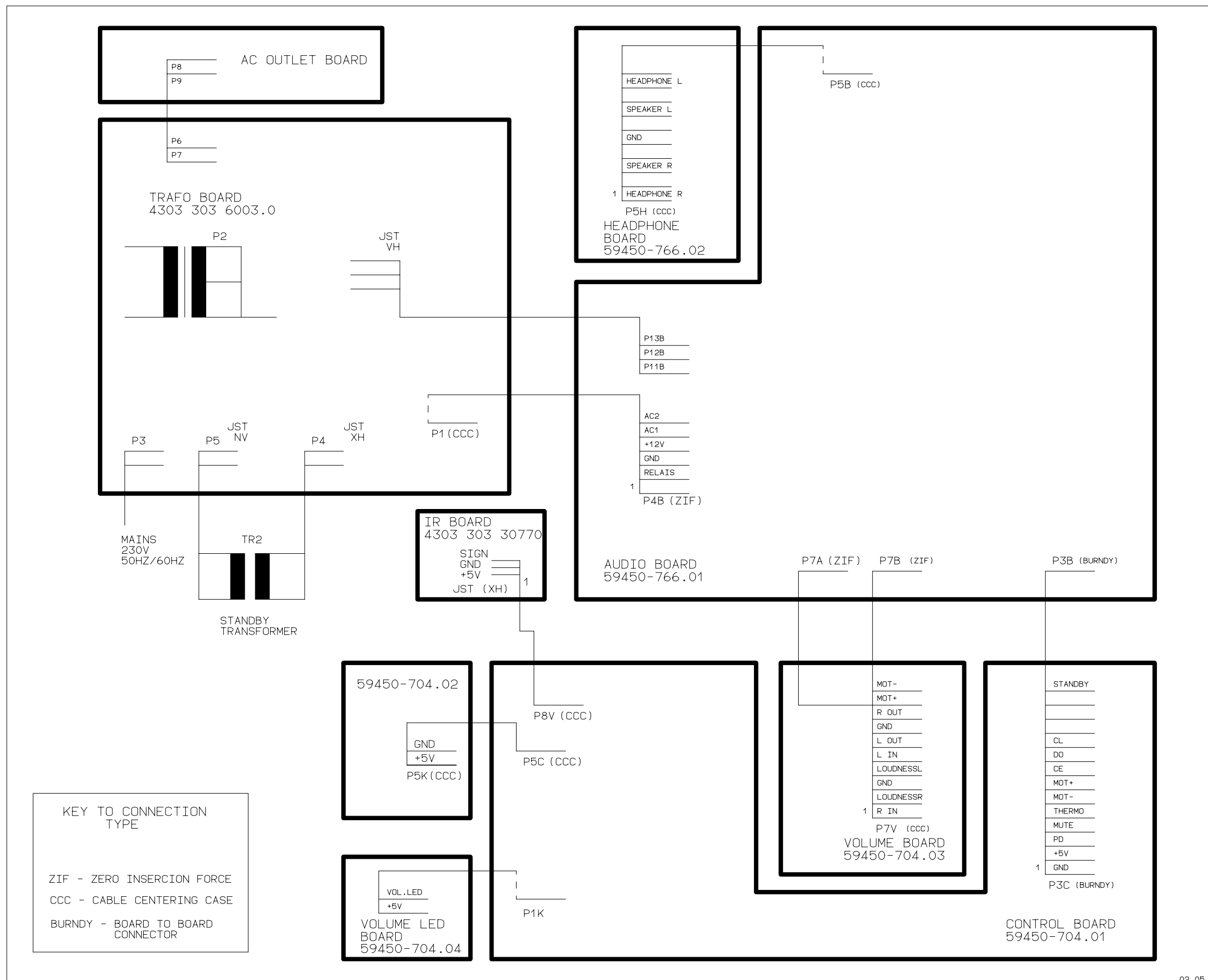
Test equipment: Digital voltmeter

Adjustment	Preparation	Adjustment Procedure
Quiescent current	No Input Signal. Volume to Minimum. Turn on the set for at least 2 minutes. Left channel: Digitalvoltmeter between testpoints Al and Bl. Right channel: Digitalvoltmeter between testpoints Ar and Br.	Left channel: Adjust with R 310 for 6.0mV ± 0.5mV . Right channel: Adjust with R 410 for 6.0mV ± 0.5mV .

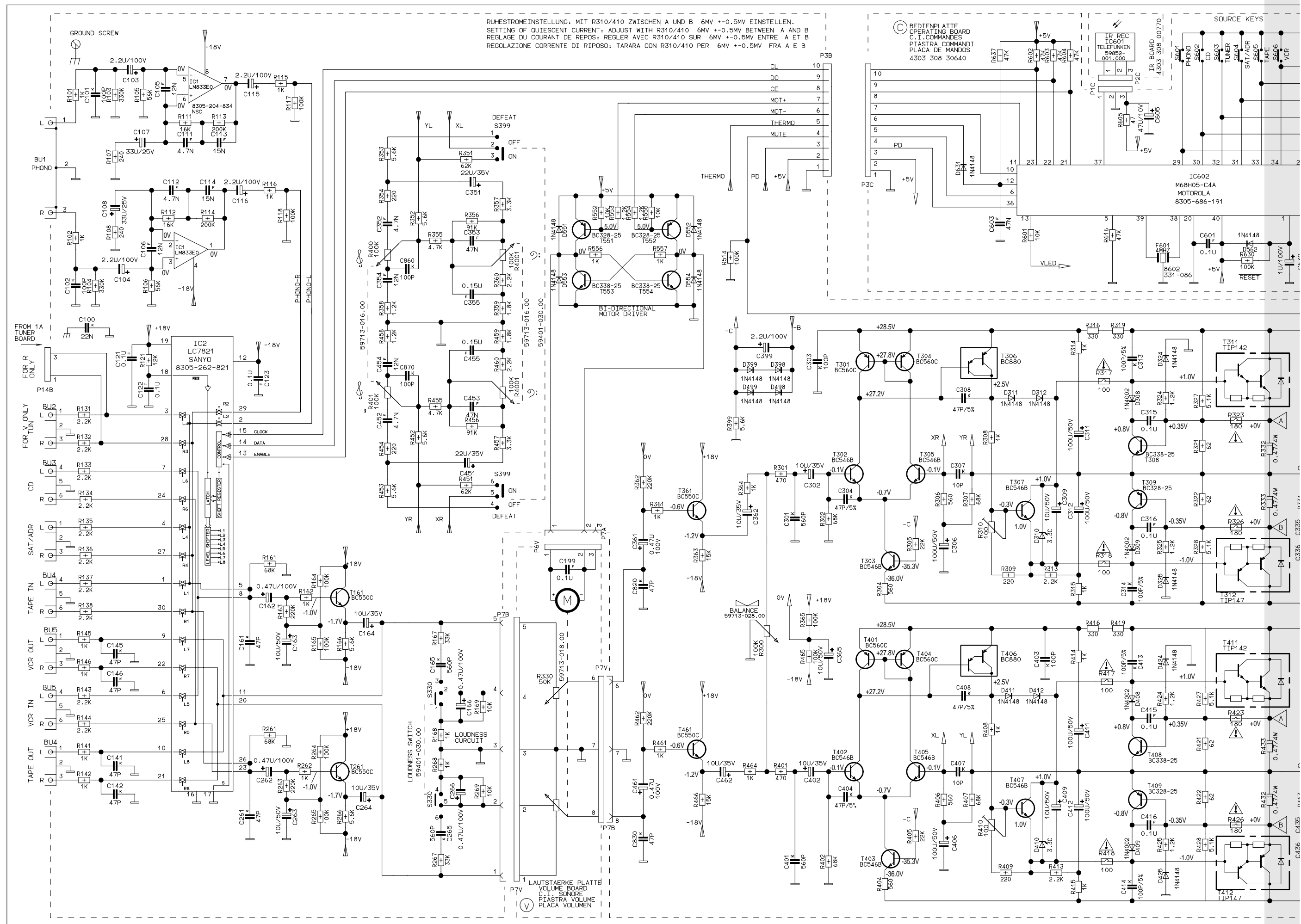


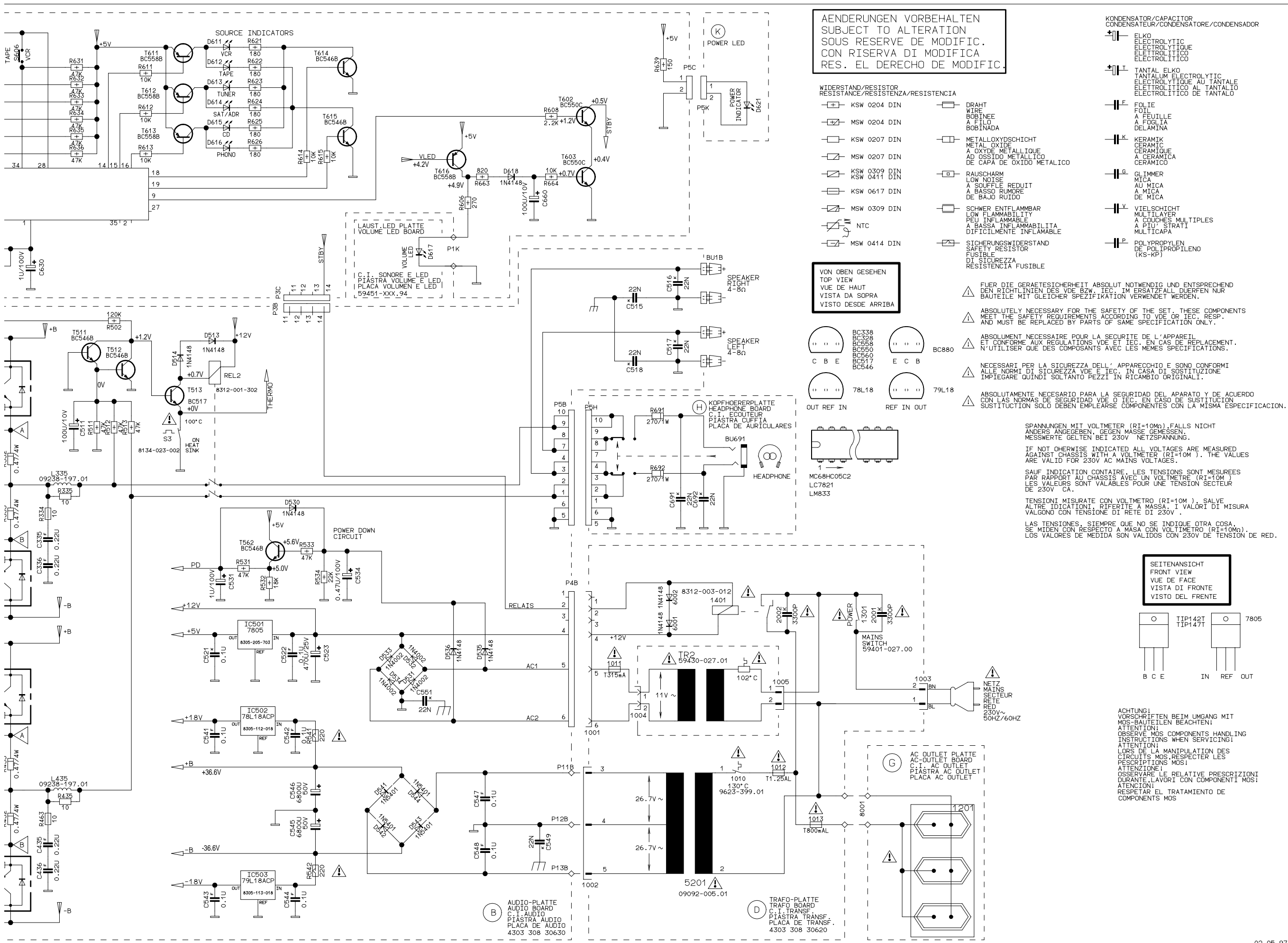
Schaltpläne und Druckplattenabbildungen / Circuit Diagrams and Layout of PCBs

Verdrahtungsplan / Wiring Diagram



02.05.97



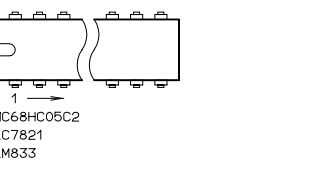
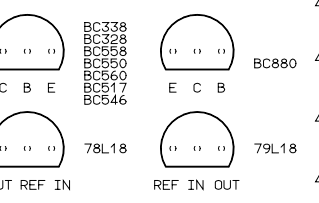


AENDERUNGEN VORBEHALTEN
 SUBJECT TO ALTERATION
 SOUS RESERVE DE MODIFIC.
 CON RISERVA DI MODIFICA
 RES. EL DERECHO DE MODIFIC.

- WIDERSTAND/RESISTOR
 RESISTANCE/RESISTENZA/RESISTENCIA
- ⊕ KSW 0204 DIN
 - ⊖ MSW 0204 DIN
 - ⊖ KSW 0207 DIN
 - ⊖ MSW 0207 DIN
 - ⊖ KSW 0309 DIN
 - ⊖ KSW 0411 DIN
 - ⊖ KSW 0617 DIN
 - ⊖ MSW 0309 DIN
 - ⊖ NTC
 - ⊖ MSW 0414 DIN
- DRAHT WIRE BOBINÉE A FILO BOBINADA
- METALLOXYDSCHICHT METAL OXIDE A OXYDE METALLIQUE AD OSSIDO METALLICO DE CAPA DE OXIDO METALICO
- RAUSCHARM LOW NOISE A SOUFFLE REDUIT A BASSO RUMORE DE BAJO RUIDO
- SCHWER ENTFLAMMBAR LOW FLAMMABILITY PEU INFLAMMABLE A BASSA INFLAMMABILITA DIFFICILMENTE INFLAMMABLE
- SICHERUNGSWIDERSTAND SAFETY RESISTOR FUSIBLE DI SICUREZZA RESISTENCIA FUSIBLE

- KONDENSATOR/CAPACITOR
 CONDENSATEUR/CONDENSATORE/CONDENSADOR
- ⊕ ELKO ELECTROLYTIC ELECTROLYTIQUE ELECTROLITICO
 - ⊕ TANTAL ELKO TANTALUM ELECTROLYTIC ELECTROLYTIQUE AU TANTALE ELETROLITICO AL TANTALIO ELECTROLITICO DE TANTALO
 - ⊖ FOLIE FOIL A FEUILLE A FOGLIA DELAMINA
 - ⊖ KERAMIK CERAMIC CERAMIQUE A CERAMICA CERAMICO
 - ⊖ GLIMMER MICA AU MICA A MICA DE MICA
 - ⊖ VIELSCHICHT MULTILAYER A COUCHES MULTIPLES A PIU' STRATI MULTICAPA
 - ⊖ POLYPROPYLEN DE POLIPROPILENO (KS-KP)

VON OBEN GESEHEN
 TOP VIEW
 VUE DE HAUT
 VISTA DA SOPRA
 VISTO DESDE ARRIBA



FUER DIE GERAETESICHERHEIT ABSOLUT NOTWENDIG UND ENTSPRECHEND DEN RICHTLINIEN DES VDE BZW. IEC. IM ERSATZFALL DUERFEN NUR BAUTEILE MIT GLEICHER SPEZIFIKATION VERWENDET WERDEN.

ABSOLUTELY NECESSARY FOR THE SAFETY OF THE SET. THESE COMPONENTS MEET THE SAFETY REQUIREMENTS ACCORDING TO VDE OR IEC RESP. AND MUST BE REPLACED BY PARTS OF SAME SPECIFICATION ONLY.

ABSOLUMENT NECESSAIRE POUR LA SECURITE DE L'APPAREIL ET CONFORME AUX REGULATIONS VDE ET IEC. EN CAS DE REMPLACEMENT, N'UTILISER QUE DES COMPOSANTS AVEC LES MEMES SPECIFICATIONS.

NECESSARI PER LA SICUREZZA DELL' APPARECCHIO E SONO CONFORMI ALLE NORME DI SICUREZZA VDE E IEC. IN CASA DI SOSTITUZIONE IMPIEGARE QUINDI SOLTANTO PEZZI IN RICAMBIO ORIGINALI.

ABSOLUTAMENTE NECESARIO PARA LA SEGURIDAD DEL APARATO Y DE ACUERDO CON LAS NORMAS DE SEGURIDAD DE O IEC. EN CASO DE SUSTITUCION SUSTITUCION SOLO DEBEN EMPLEARSE COMPONENTES CON LA MISMA ESPECIFICACION.

SPANNUNGEN MIT VOLTMETER (RI=10MΩ) FALLS NICHT ANDERS ANGEZEIGT, GEGEN MASSE GEMESSEN. MESSWERTE GELTEN BEI 230V NETZSPANNUNG.

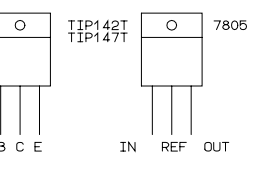
IF NOT OTHERWISE INDICATED ALL VOLTAGES ARE MEASURED AGAINST CHASSIS WITH A VOLTMETER (RI=10MΩ). THE VALUES ARE VALID FOR 230V AC MAINS VOLTAGES.

SAUF INDICATION CONTRAIRE, LES TENSIONS SONT MEASUREES PAR RAPPORT AU CHASSIS AVEC UN VOLTMETRE (RI=10MΩ). LES VALEURS SONT VALABLES POUR UNE TENSION SECTEUR DE 230V CA.

TENSIONI MISURATE CON VOLTMETRO (RI=10MΩ), SALVE ALTRE INDICAZIONI, RIFERITE A MASSA. I VALORI DI MISURA VALGONO CON TENSIONE DI RETE DI 230V.

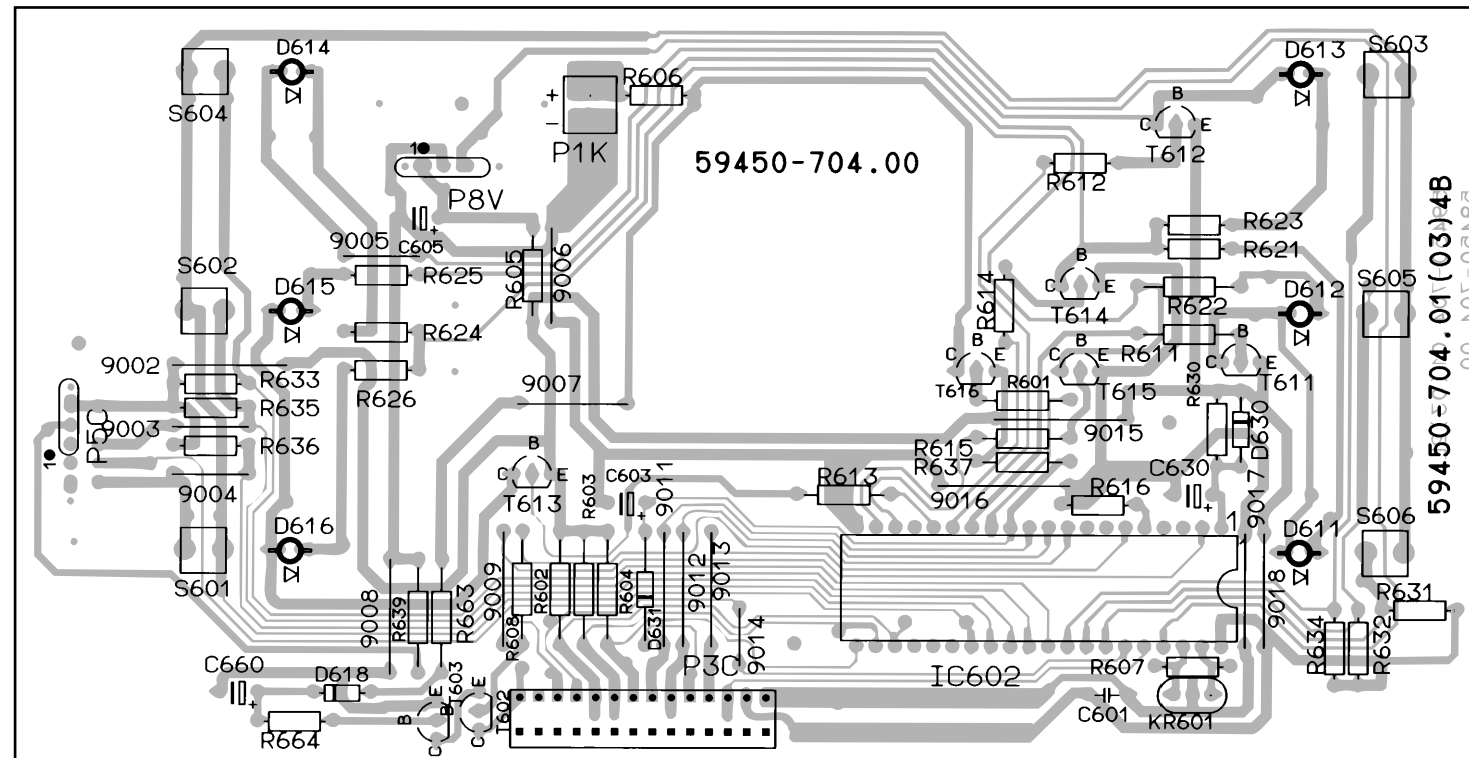
LAS TENSIONES, SIEMPRE QUE NO SE INDIQUE OTRA COSA, SE MIDEN CON RESPECTO A MASA CON VOLTMETRO (RI=10MΩ). LOS VALORES DE MEDIDA SON VALIDOS CON 230V DE TENSION DE RED.

SEITENANSICHT
 FRONT VIEW
 VUE DE FACE
 VISTA DI FRONTE
 VISTO DEL FRENTE

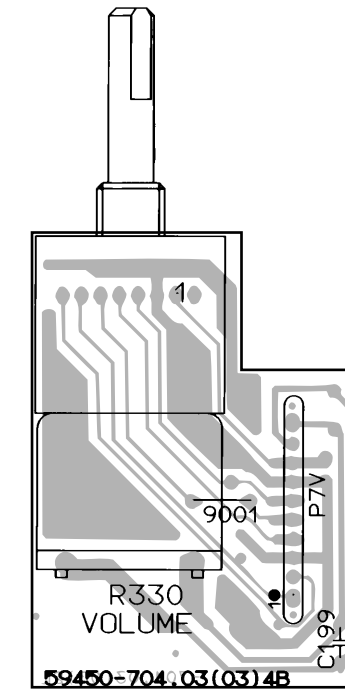


ACHTUNG! VORSCHRIFTEN BEIM UMGANG MIT MOS-BAUTEILEN BEACHTEN! ATTENTION! OBSERVE MOS COMPONENTS HANDLING INSTRUCTIONS WHEN SERVICING! ATTENTION! LORS DE LA MANIPULATION DES CIRCUITS MOS, RESPECTER LES PRESCRIPTIONS MOS! ATTENZIONE! OSSERVARE LE RELATIVE PRESCRIZIONI DURANTE I LAVORI CON COMPONENTI MOS! ATENCION! RESPETAR EL TRATAMIENTO DE COMPONENTS MOS

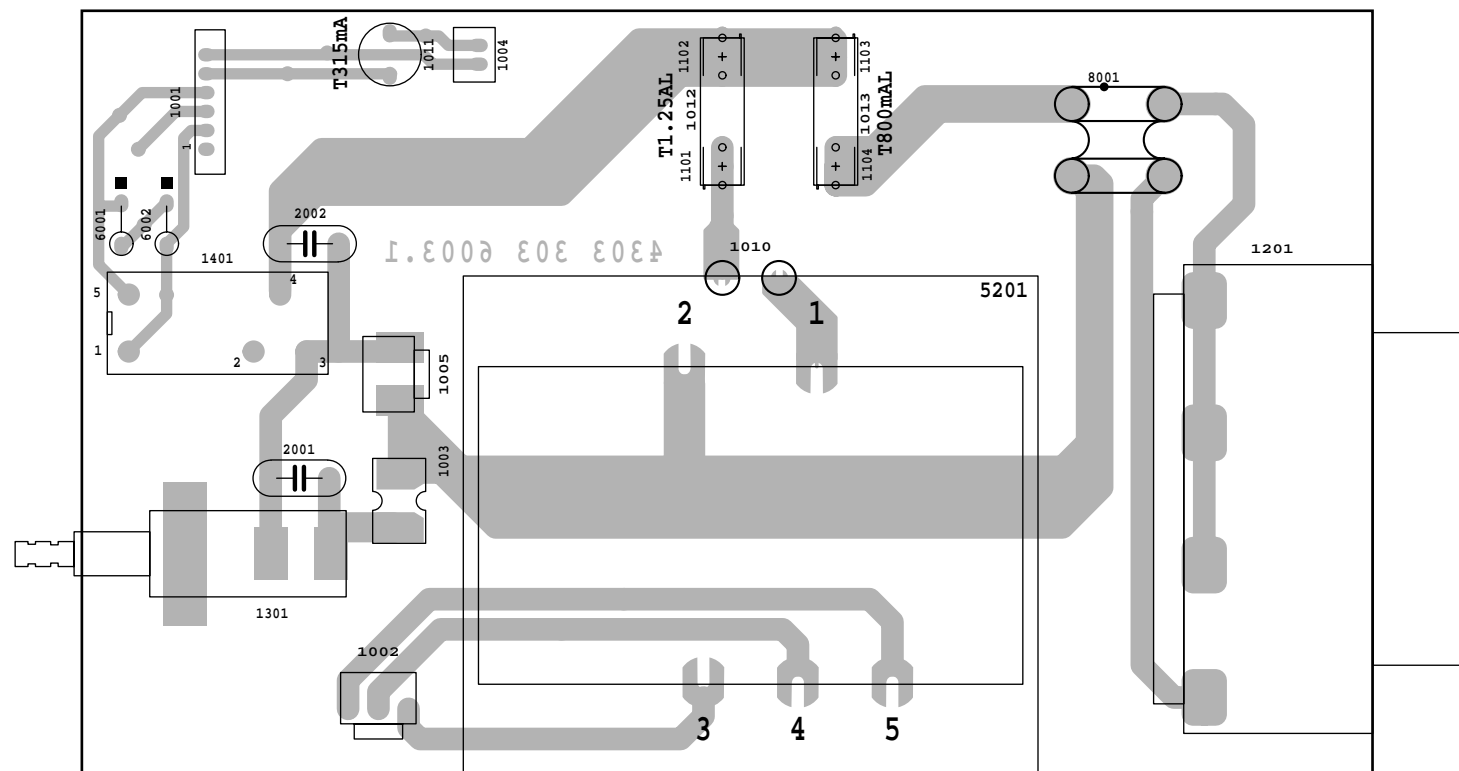
Bedienplatte / Operating Board



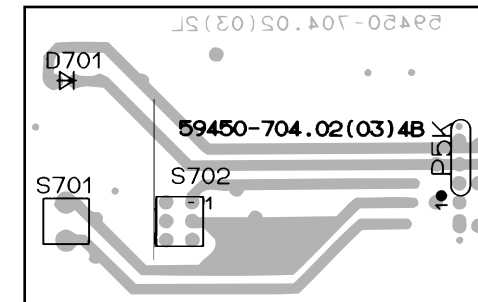
Lautstärke-Platte / Volume Board



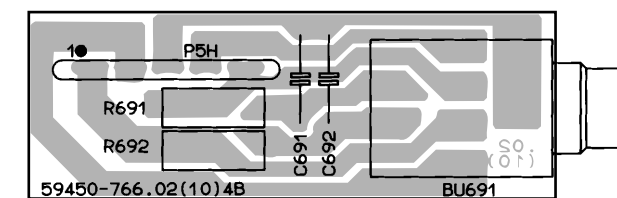
Trafo-Platte / Transformer Board



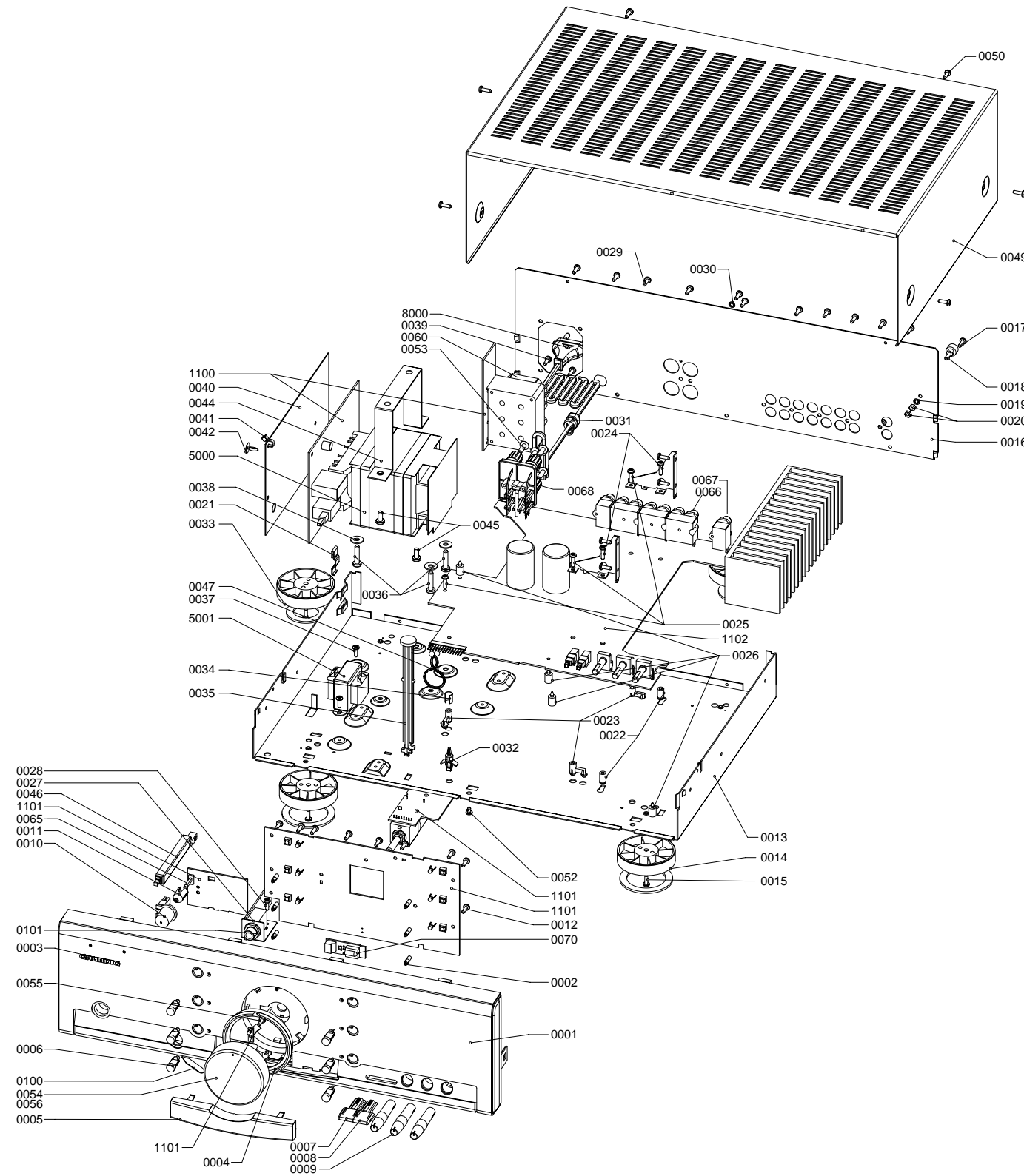
Tasten-Platte / Button Board



Kopfhörer-Platte / Headphone Board



Ersatzteilliste und Explosionszeichnung / Spare Parts List and Exploded View



GRUNDIG AUDIO/HIFI

V 21

Ersatzteilliste Spare Parts List

09 / 97

POS. NR. / PART NO.	ABB. / PART NO.	SACHNUMMER / ANZ. / PART NUMBER / QTY.	BEZEICHNUNG / DESCRIPTION
0001.000	75709-910.51	1	V 21 SCHWARZ FRONTLEINDE KPL.
0002.000	75954-068.12	1	LICHTLEITER
0003.000	75954-068.08	1	LOGO GRUNDIG
0004.000	75954-068.08	1	RING
0005.000	75954-068.13	1	FENSTER
0006.000	75954-068.04	1	KNOPF, FUNKTION
0007.000	75954-068.15	1	TASTE, LOUDNESS
0008.000	75954-068.11	1	TASTE, DEFFAT
0009.000	75954-068.11	3	KNOPF, BASS, TREBLE, BALANCE
0010.000	55301-210.00	1	NETZTASTE
0011.000	55301-250.00	1	LED-LINSE
0012.000	75954-068.09	2	FUSS, VORNE
0013.000	59852-007.00	1	KOPFHÖRERBUCHSE
0014.000	09866-451.00	1	ZUGENTLASTUNG NETZKABEL
0015.000	75954-068.10	2	FUSS, HINTEN
0016.000	55301-206.01	1	STOßESSEL
0017.000	55306-285.00	1	CLIP
0018.000	55306-510.00	1	DREHKNOPF KPL.
0019.000	28303-452.02	1	NETZSTECKER-UNTERTEIL KPL.
0020.000	09826-904.00	1	AC-BUCHSE 3-FACH
0021.000	8134-023-002	1	THERMOSCHALTER 100 GRAD C
0022.000	09823-395.01	3	CINCHBUCHSE 4-FACH
0023.000	09823-448.00	1	CINCHBUCHSE 2-FACH
0024.000	39672-060.04	1	IR-ABFANGER
0025.000	75954-068.24	1	IR-KONTAKTKLEMMLE
0026.000	55306-406.56	1	FERNBEDIENUNG
0027.000	55306-146.00	1	NETZTRAFO
0028.000	55302-025.01	1	TRAFEO, STAND BY
0029.000	59433-327.01	1	NETZKABEL KPL. GWN8.17 WF
0030.000	82300-991-275	1	BEDIENUNGSANLEITUNG D/GBE/PE/NU/DK/SFIN
0031.000	72010-756.00	1	SERVICE MANUAL
0032.000	72010-755.45	1	SERVICE MANUAL

Änderungen vorbehalten
Subject to alteration

Printed in Germany
VK 233 0997

Service Manual Sach-Nr. / Part No. 72010-755.45

POS. NR. / POS. NO.	SACHNUMMER / PART NUMBER	BEZEICHNUNG / DESCRIPTION
D 514	8309-215-148	DIODE 1 N 4148 WW.
D 530	8309-215-148	DIODE 1 N 4148 WW.
D 531	8309-215-104	DIODE 1 N 4002 <<< -GA
D 532	8309-215-104	DIODE 1 N 4002 <<< -GA
D 533	8309-215-104	DIODE 1 N 4002 <<< -GA
D 534	8309-215-104	DIODE 1 N 4002 <<< -GA
D 535	8309-215-148	DIODE 1 N 4148 WW.
D 536	8309-215-045	DIODE 1N4148
D 541	8309-215-401	DIODE 1 N 5401 G G1FAG
D 542	8309-215-401	DIODE 1 N 5401 G G1FAG
D 543	8309-215-401	DIODE 1 N 5401 G G1FAG
D 544	8309-215-401	DIODE 1 N 5401 G G1FAG
D 551	8309-215-148	DIODE 1 N 4148 WW.
D 552	8309-215-148	DIODE 1 N 4148 WW.
D 553	8309-215-148	DIODE 1 N 4148 WW.
D 554	8309-215-148	DIODE 1 N 4148 WW.
D 611	8309-944-411	LE DIODE TLHY 4405 B112Z
D 612	8309-944-411	LE DIODE TLHY 4405 B112Z
D 613	8309-944-411	LE DIODE TLHY 4405 B112Z
D 614	8309-944-411	LE DIODE TLHY 4405 B112Z
D 615	8309-944-411	LE DIODE TLHY 4405 B112Z
D 616	8309-944-411	LE DIODE TLHY 4405 B112Z
D 617	8309-944-411	LE DIODE TLHY 4405 B112Z
D 618	8309-215-148	DIODE 1 N 4148 WW.
D 630	8309-215-148	DIODE 1 N 4148 WW.
D 631	8309-215-148	DIODE 1 N 4148 WW.
D 701	8309-944-410	LE DIODE TLHY 4405 TFK
IC 501	8305-205-703	IC MC7805CT
IC 502	8305-112-018	IC MC78L18ACP
IC 503	8305-112-018	IC MC78L18ACP
IC 504	8305-262-821	IC LC7821 SANYO
IC 505	8305-204-834	IC LM833V ELL580 NSC
IC 702	75954-068.22	IC UP MAN MC68HC705-C4
K 601	8602-331-086	CER-RES.8613 C5T 4.0 MGW
L 355	09238-197.01	HF-DROSSSEL/CHOKO COIL
L 435	09238-197.01	HF-DROSSSEL/CHOKO COIL
R 300	59713-028.00	POTENTIOMETER, BALANCE
R 310	8790-009-036	ESTRS10100 OHM/RUHESTROM
R 317	8701-118-049	KSU SI B 100 OHM 5%
R 318	8701-118-049	KSU SI B 100 OHM 5%
R 323	8766-701-065	KSU SI A 180 OHM 5%
R 326	8766-701-065	KSU SI A 180 OHM 5%
R 330	59713-043.00	POTENTIOMETER LAUTST./VOLUME
R 332	8705-278-983	MOW 0822 0.47 OHM 10%
R 333	8705-278-983	MOW 0822 0.47 OHM 10%
R 400	59713-016.00	POTENTIOMETER, ALPS
R 401	59713-016.00	POTENTIOMETER, ALPS
R 410	8790-009-036	HOEHEN-BASS/TREBLE-BASS ESTRS10.100 OHM/RUHESTROM
R 417	8701-118-049	KSU SI B 100 OHM 5%
R 418	8701-118-049	KSU SI B 100 OHM 5%
R 423	8766-701-065	KSU SI A 380 OHM 5%
R 425	8766-701-065	KSU SI A 380 OHM 5%
R 432	8705-278-983	MOW 0822 0.47 OHM 10%
R 433	8705-278-983	MOW 0822 0.47 OHM 10%
R 434	8766-701-067	KSU SI A 220 OHM 5%
R 435	8766-701-067	KSU SI A 220 OHM 5%
RL 2	8312-001-302	RELAS V23037-A0002-A102
RL 1401	8312-003-012	RELAS GZR-1A 12V DC