Platinenabbildungen und Schaltpläne / Layout of the PCB and Circuit Diagrams

Bauteilhinweise / Note on Components

SPANNUNGEN MIT VOLTMETER (RI=10 MOHM), FALLS NICHT ANDERS ANGEGEBEN, GEGEN MASSE GEMESSEN. MESSWERTE GELTEN BEI 220V~ NETZSPANNUNG.

IF NOT OTHERWISE INDICATED ALL VOLTAGES ARE MEASURED AGAINST CHASSIS WITH A VOLTMETER(RI=10 MOHM). THE VALUES ARE VALID FOR 220V AC MAINS VOLTAGES.

SAUF INDICATION CONTAIRE; LES TENSIONS SONT MESUREES PAR RAPPORT AU CHASSIS AVEC UN VOLTMETRE (RI=10 MOHM) LES VALEURS SONT VALABLES POUR UNE TENSION SECTEUR DE 220V CA.

TENSIONI MISURATE CON VOLTMETRO (RI=10 MOHM). SALVE ALTRE INDICATIONI, RIFERITE A MASSA ! VALORI DI MISURA VALGONO CON TENSIONE DI RETE DI 220V.

LAS TENSIONES, SIEMPRE QUE NO SE INDIQUE OTRA COSA, SE MIDEN CON RESPECTO A MASA CON VOLTIMETRO (RI=10 MOHM). LOS VALORES DE MEDIDA SON VALIDOS CON 220V DE TENSION DE RED.

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

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

ABSOLUTELY NECESSAIRY FOR THE SAFETY OF THE SET.THESE COMPONENTS MEET THE SAFETY REQUIREMENT ACCORDING TO VDE OR IEC. MUST BE REPLACED BY PARTS OF SAME SPECIFICATION ONLY.

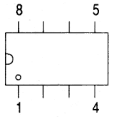
ABSOLUMENT NECESSAIRE POUR LA SECURITE DE L'APPAREIL ET CONFORME AUX REGULATIONS VDE ET IEC.EN CAS DE REPLACEMENT N'UTILISER QUE DE COMPOSANTS AVEC LES MEMES SPECIFICATION.

NECESSARI PER LA SICUREZZA DELL'APPARECHIO E SONO CONFORMI ALLE NORMI DI SICUREZZA VDE E IEC. IN CASA DI SOSTITUZIONE IMPIEGARE QUINDI SOLTANO PEZZI IN RICAMBO ORIGINALI.

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

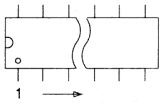
VON OBEN GESEHEN
TOP VIEW
VUE DE HAUT
VISTA DA SOPRA
VISTO DESDE ARRIBA

BC328
BC338
BC546
BC548
BC550
BC556
BC558
BC560

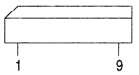


LM833
X24C00P

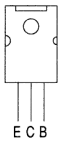
2SA949
2SC2229
2SA1145
2SC2705



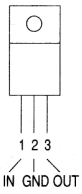
AN7062P
LC4966
LC7821
M68HC05-02



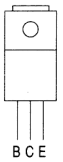
TA7317



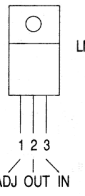
2SD1508



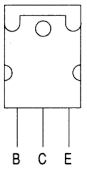
MC78M05



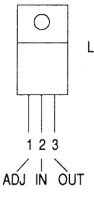
2SA1306
2SC3298



LM317T



2SA1265N
2SC3182N



LM337T

NF-SPANNUNGEN BEI 2 x 8W AN 8 OHM = 8V ~ AM AUSGANG, 1KHZ, LAUTSTAERKE VOLL AUF, DEFEAT EIN, BALANCE MITTE, LAUTSPRECHERRELAIS EIN.

AF VOLTAGES AT 2 x 8W INTO 8 OHM = 8V ~ AT OUTPUT, 1KHZ, VOLUME FULLY UP, DEFEAT ON, BALANCE IN CENTRE SETTING, LOUDSPEAKER SWITCHES ON.

TENSIONS BF POUR 2 x 8W SUR 8 OHM = 8V ~ A LA SORTIE, 1KHZ VOLUME AU MAXIMUM, DEFEAT EN SERVICE, REGLAGES DE BALANCE EN POSITION MEDIANE, COMMUTATEUR HAUT-PARLEURS EN SERVICE.

TENSIONI BF ALL'USCITA CON 2 x 8W E 8 OHM = 8V ~ 1KHZ, VOLUME AL MASSIMO, DEFEAT INSERITO, REGOLATORI DI BILANCIAMENTO AL CENTRO, COMMUTATORI DEGLI ALTOPARLANTI INSERITI.

BK=SCHWARZ
BLACK
NERO
NOIR
NEGRO

YE=GELB
YELLOW
JAUNE
GIALLO
AMARILLO

VT=VIOLETT
VIOLET
VIOLETTO
VIOLETA

RS=ROSA
PINK
ROSE

BN=BRAUN
BROWN
BRUN
MARRONE
MARRON

GN=GRUEN
GREEN
VERT
VERDE

GY=GRAU
GREY
GRIS
GRIGIO

OR=ORANGE
ARANCIONE
NARANJA

RD=ROT
RED
ROUGE
ROSSO
ROJO

BU=BLAU
BLUE
BLEU
BLU
AZUL

WH=WEISS
WHITE
BLANC
BIANCO
BLANCO

NF=NATURFARBEN
NATURAL COLOR
COLEUR NATURELLE
COLORI NATURALRE
COLOR NATURAL

KONDENSATOR/CAPACITOR
CONDENSATEUR/CONDENSATORE/CONDENSADOR

ELKO
ELECTROLYTIC
ELECTROLYTIQUE
ELETTROLITICO
ELECTROLITICO

TANTAL
TANTALUM ELEC.
ELEC.AU TANTALE
ELET. AL TANTALICO
ELEC. 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)

BIPOLAR

WIDERSTAND/RESISTOR
RESISTANCE/RESISTENCA

KSW 0204 DIN
MSW 0204 DIN
KSW 0207 DIN
MSW 0207 DIN
KSW 0411 DIN
KSW 0617 DIN
MSW 0309 DIN
NTC

DRAHT
WIRE
BOBINEE
A FILO

METALLOXYDSCHICHT
METAL OXYDE
A OXYDE METALLIQUE
AD OSSIDO METALICO

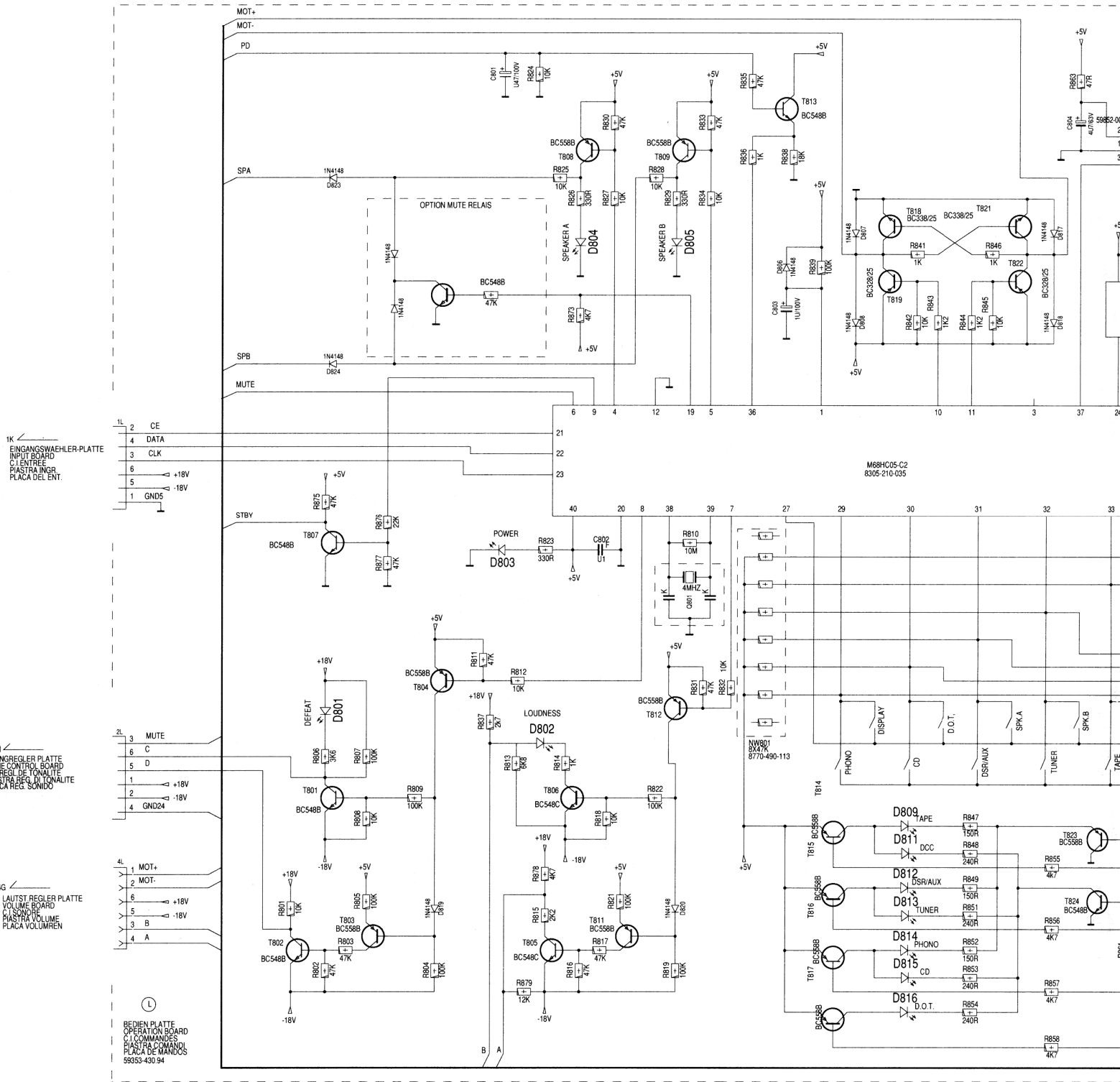
RAUSCHARM
LOW NOISE
A SOUFFLE REDUIT
A BASSO RUMORE

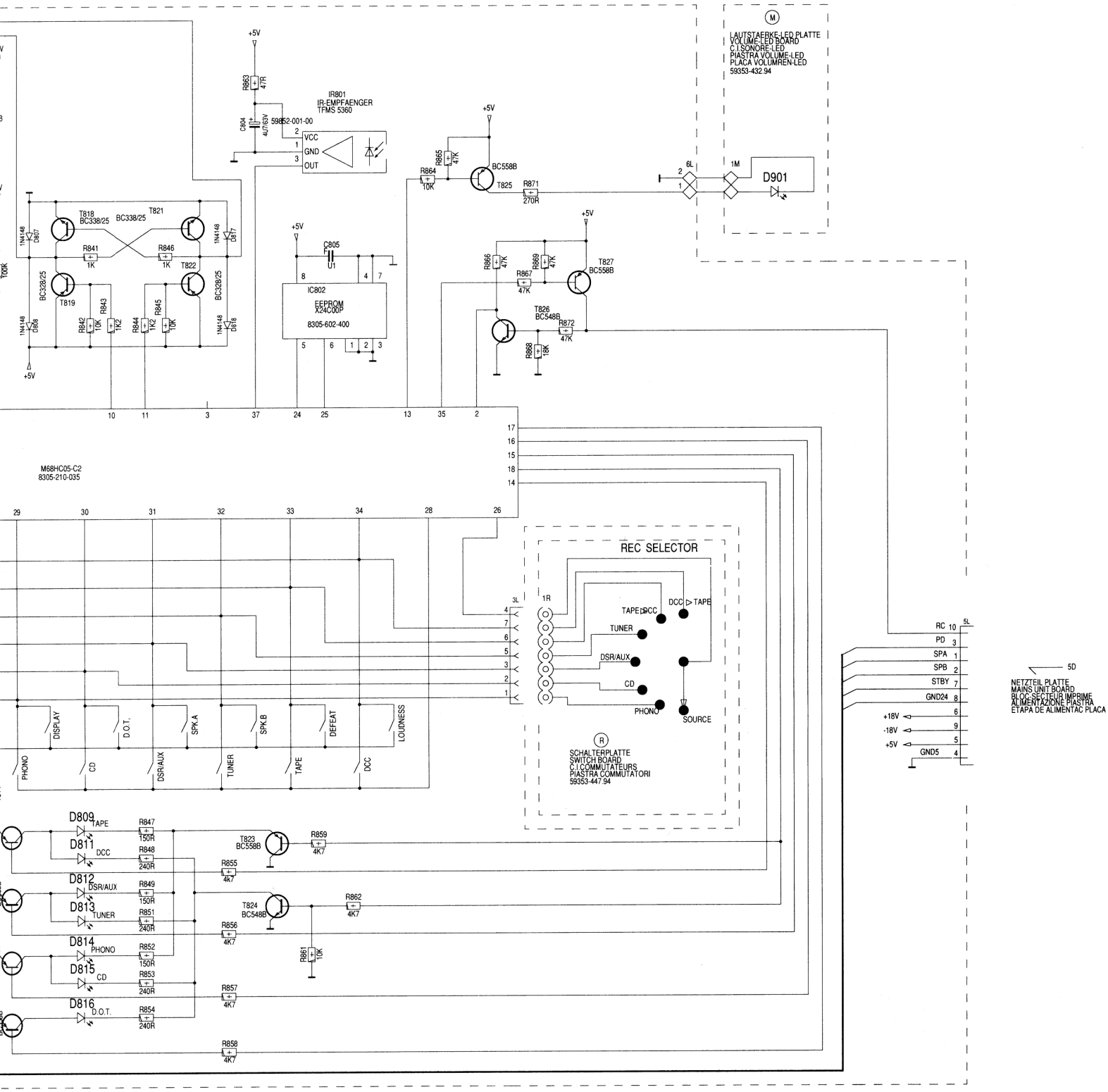
SCHWER ENTFLAMMBAR
LOW FLAMMABILITY
PEU INFLAMMABLE
A BASSA INFLAMMABILITA

SICHERUNGSWIDERSTAND
SAFETY RESISTOR
FUSIBLE
DI SICUREZZA

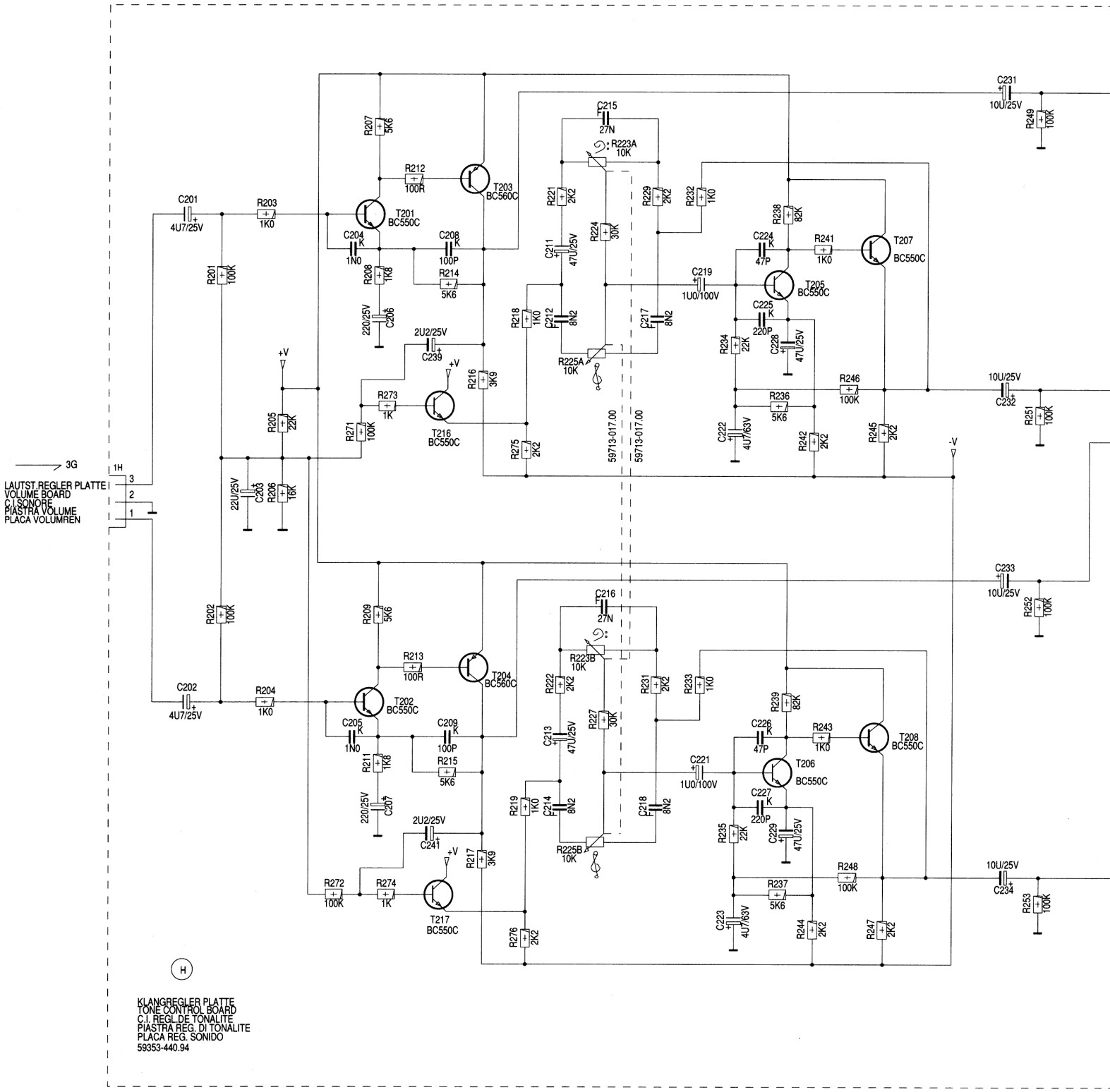
AENDERUNGEN VORBEHALTEN
SUBJECT TO ALTERATION
SOUS RESERVE DE MODOFIC
CON RISERVA DI MODIFICA
RES. EL DERECHO DE MODIFIC.

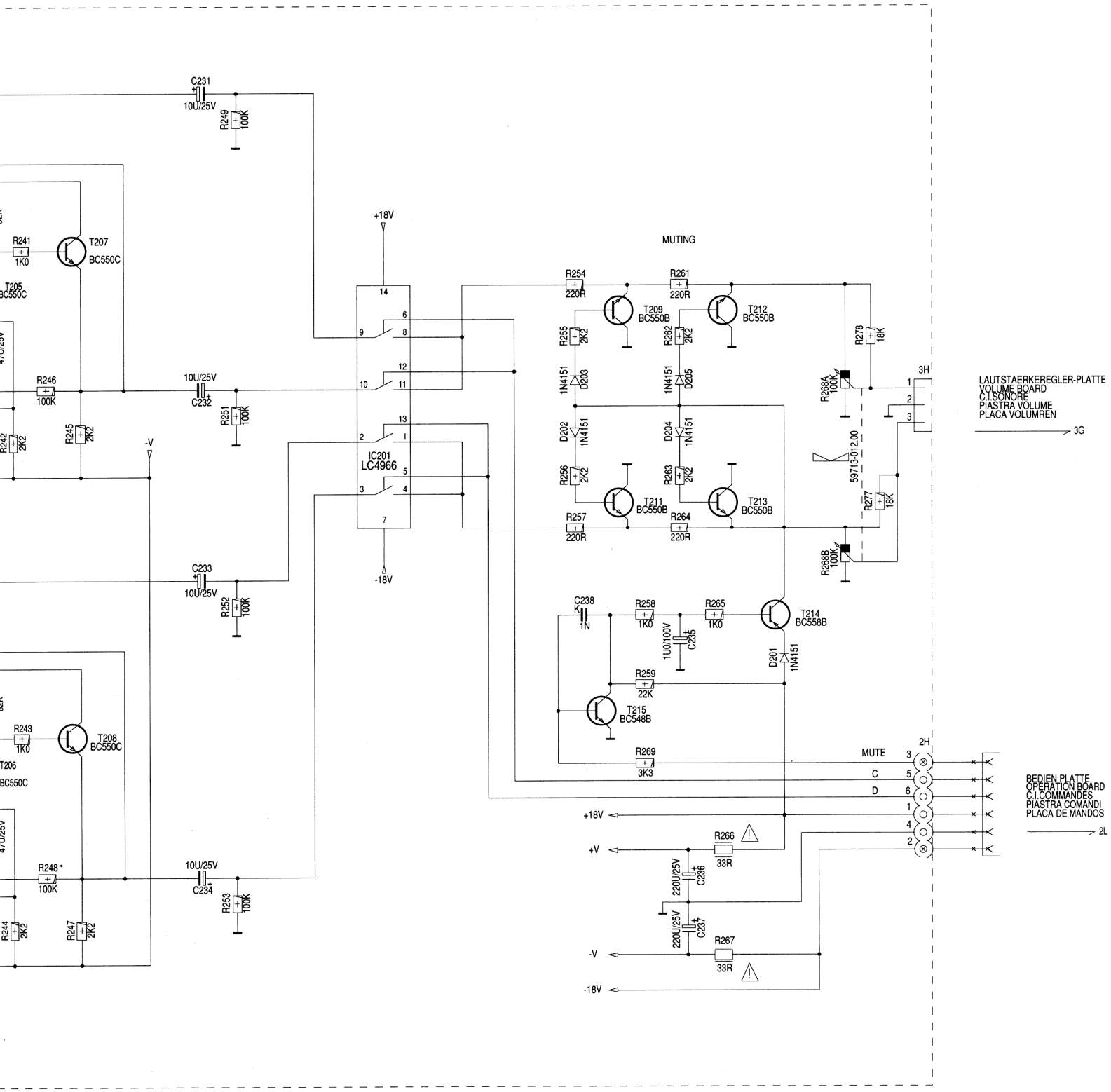
Schaltbild / Circuit Diagram: -Bedienplatte / Operation Board
-Schalterplatte / Switch Board
-Lautstärke-LED-Platte / Volume-LED Board




LAUTSTAERKE-LED PLATTE
VOLUME-LED BOARD
C.I SONORE-LED
PIASTRA VOLUME-LED
PLACA VOLUMEN-LED
59353-432.94
D901
IR801
IR-EMPFAENGER
TFMS 5360
59852-001-00
IC802
EEPROM
X24C00P
8305-602-400
M68HC05-C2
8305-210-035
REC SELECTOR
TAPE
DCC
TUNER
DSR/AUX
CD
PHONO
SOURCE
SCHALTERPLATTE
SWITCH BOARD
C.I COMMUTATEURS
PIASTRA COMMUTATORI
59353-447.94
NETZTEIL PLATTE
MAINS UNIT BOARD
BLOC SECTEUR IMPRIME
ALIMENTAZIONE PIASTRA
ETAPA DE ALIMENTAC PLACA
DISPLAY
D.O.T.
SPK.A
SPK.B
DEFEAT
LOUDNESS
PHONO
CD
DSR/AUX
TUNER
TAPE
DCC
RC
PD
SPA
SPB
STBY
GND24
+18V
-18V
+5V
GND5

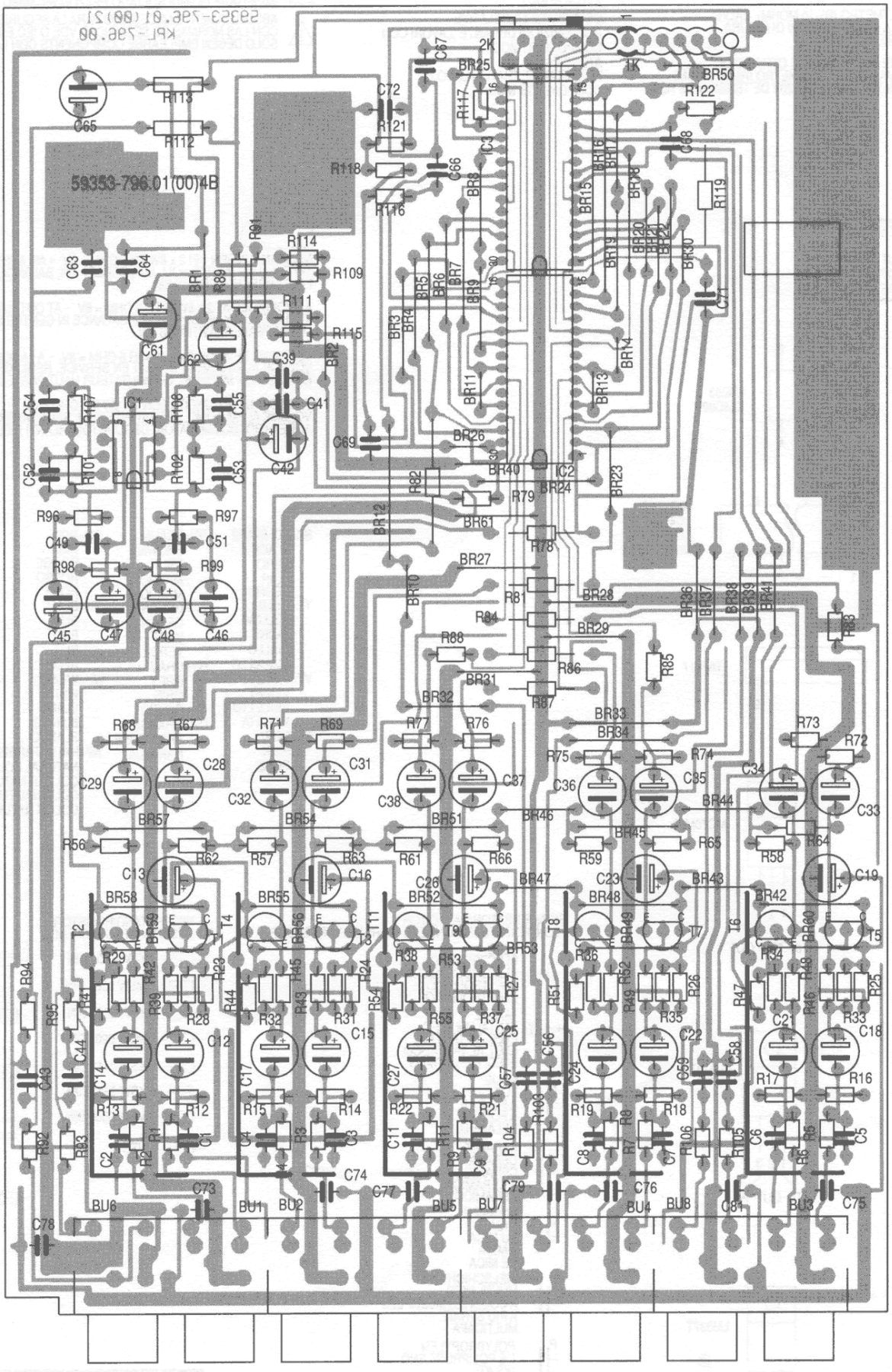
Schaltbild Klangreglerplatte / Circuit Diagram Tone Control Board



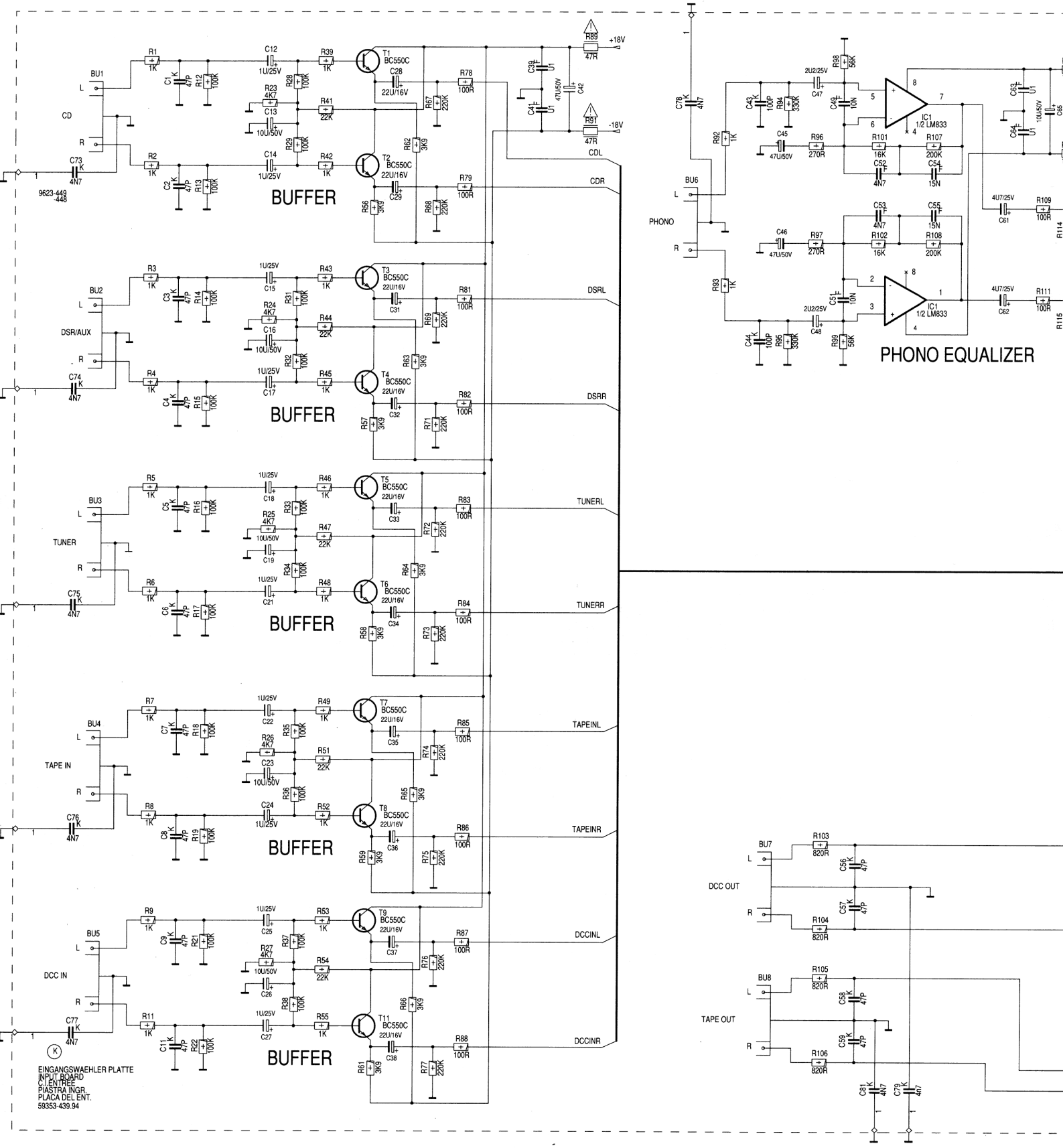

C231
10U/25V
R249
100K
R241
1K0
T207
BC550C
T205
BC550C
R246
100K
10U/25V
C232
R251
100K
R242
2K2
R245
2K2
-V
C233
10U/25V
R252
100K
R243
1K0
T208
BC550C
T206
BC550C
R248 *
100K
10U/25V
C234
R253
100K
R244
2K2
R247
2K2
+18V
-18V
IC201
LC4966
MUTING
R254
220R
R261
220R
T209
BC550B
T212
BC550B
R255
2K2
R262
2K2
1N4151
D203
1N4151
D205
D202
1N4151
D204
1N4151
R256
2K2
R263
2K2
T211
BC550B
T213
BC550B
R257
220R
R264
220R
R278
18K
R268A
100K
3H
LAUTSTAERKEREGLER-PLATTE
VOLUME BOARD
C.I.SONORE
PIASTRA VOLUME
PLACA VOLUMREN
3G
59713-012.00
R277
18K
R268B
100K
C238
1N
R258
1K0
R265
1K0
T214
BC558B
1U0/100V
C235
D201
1N4151
R259
22K
T215
BC548B
R269
3K3
MUTE
C
D
2H
BEDIEN.PLATTE
OPERATION BOARD
C.I.COMMANDES
PIASTRA COMANDI
PLACA DE MANDOS
2L
+18V
+V
R266
33R
220U/25V
C236
220U/25V
C237
R267
33R
-V
-18V

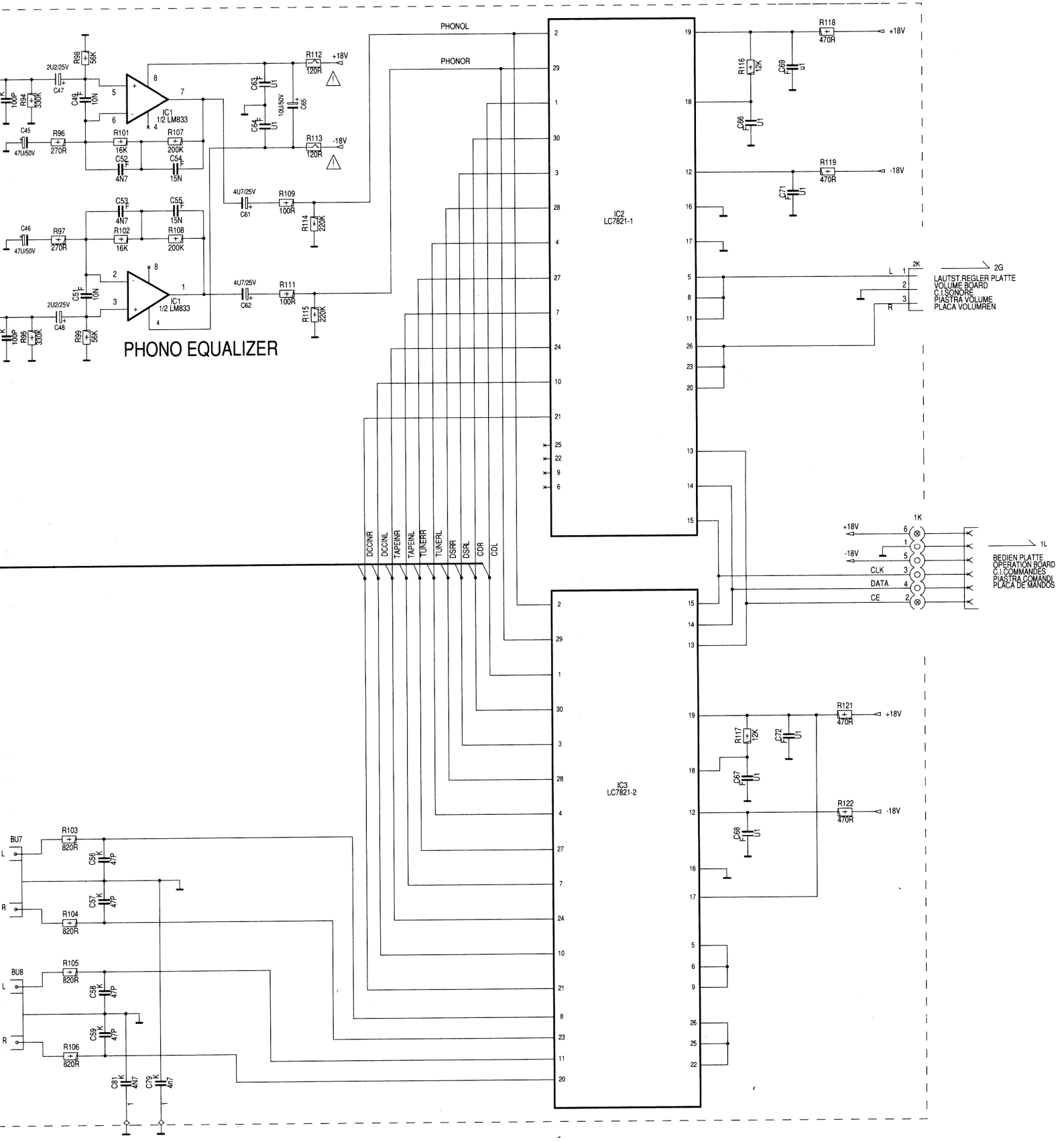
Eingangswählerplatte / Input Board

Ansicht von der Bestückungsseite / View of components side



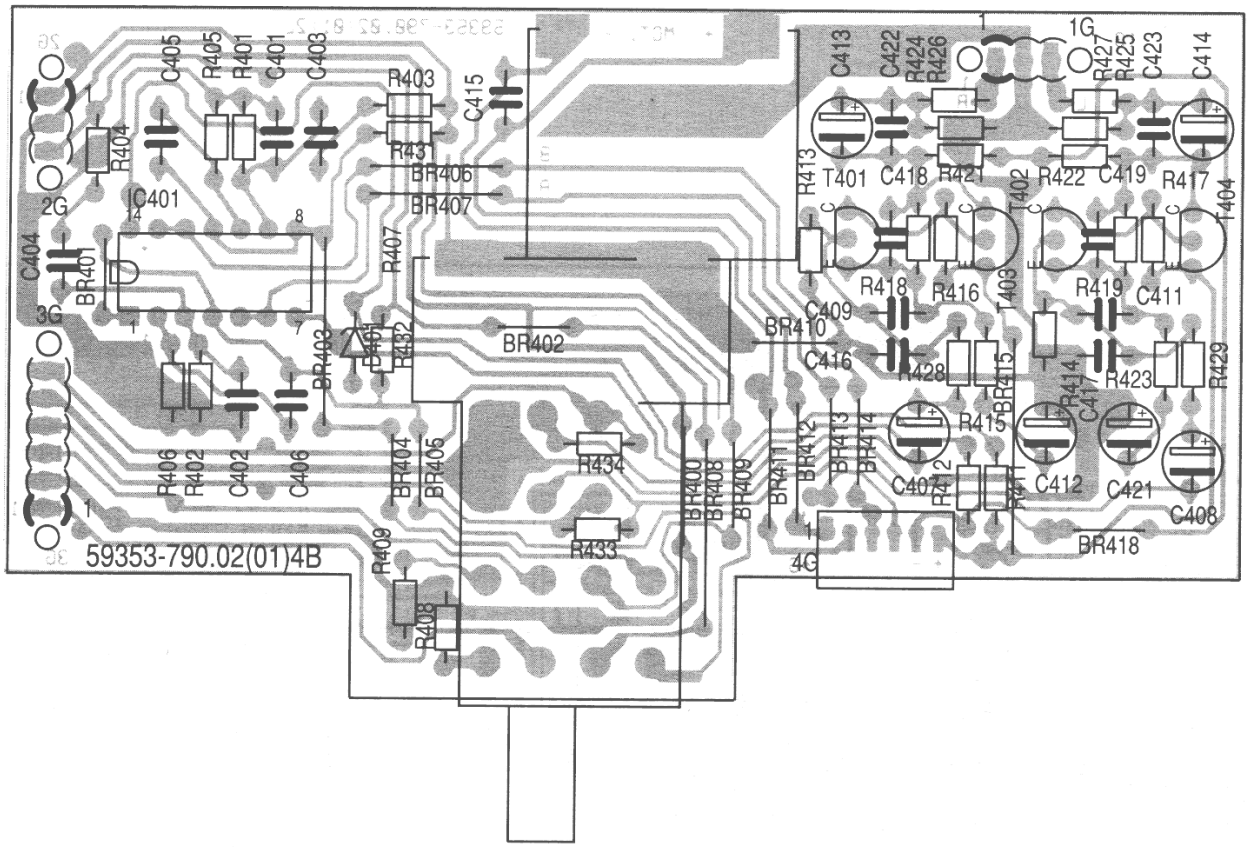
Schaltbild Eingangswählerplatte / Circuit Diagram Input Board



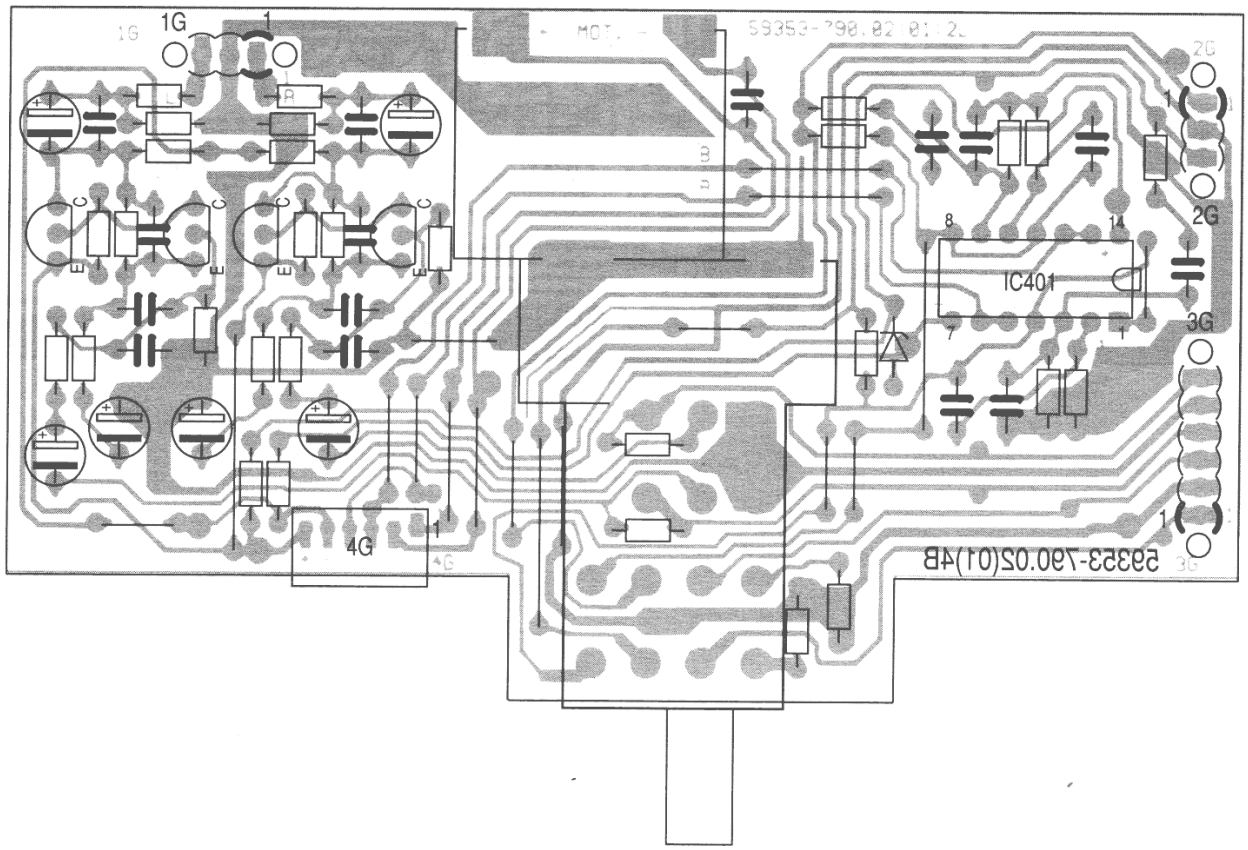

PHONO EQUALIZER
PHONOL
PHONOR
IC1 1/2 LM833
IC2 LC7821-1
IC3 LC7821-2
+18V
-18V
DCCINR
DCCINL
TAPEINR
TAPEINL
TUNERR
TUNERL
DSRR
DSRL
CDR
CDL
CLK
DATA
CE
2G
LAUTST.REGLER PLATTE
VOLUME BOARD
C.I.SONORE
PIASTRA VOLUME
PLACA VOLUMEN
1K
1L
BEDIEN.PLATTE
OPERATION BOARD
C.I.COMMANDES
PIASTRA COMANDI
PLACA DE MANDOS
BU7
BU8

Lautstärkereglerplatte / Volume Board

Ansicht von der Bestückungsseite / View of components side

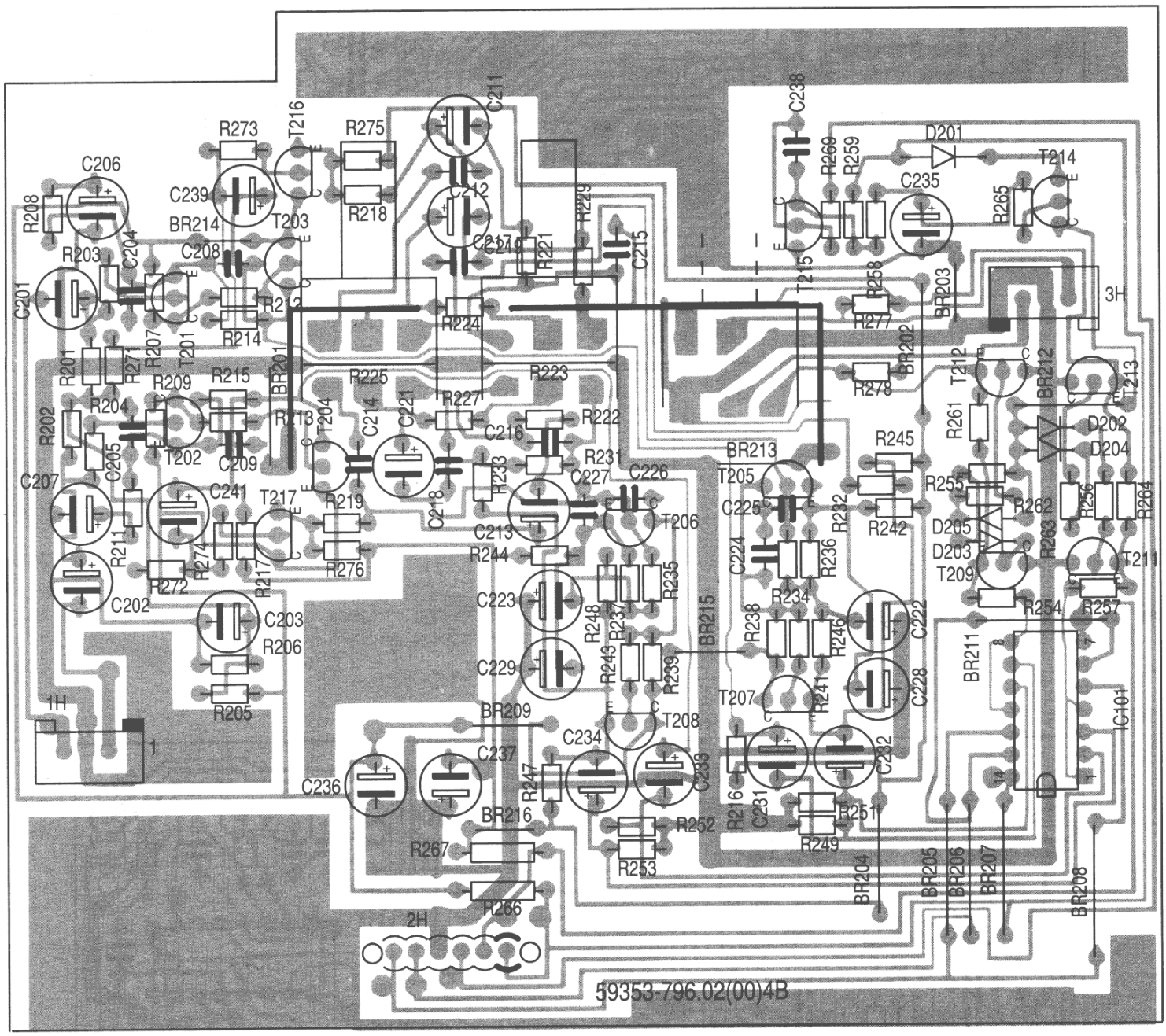


Ansicht von der Lötseite / View of solder side

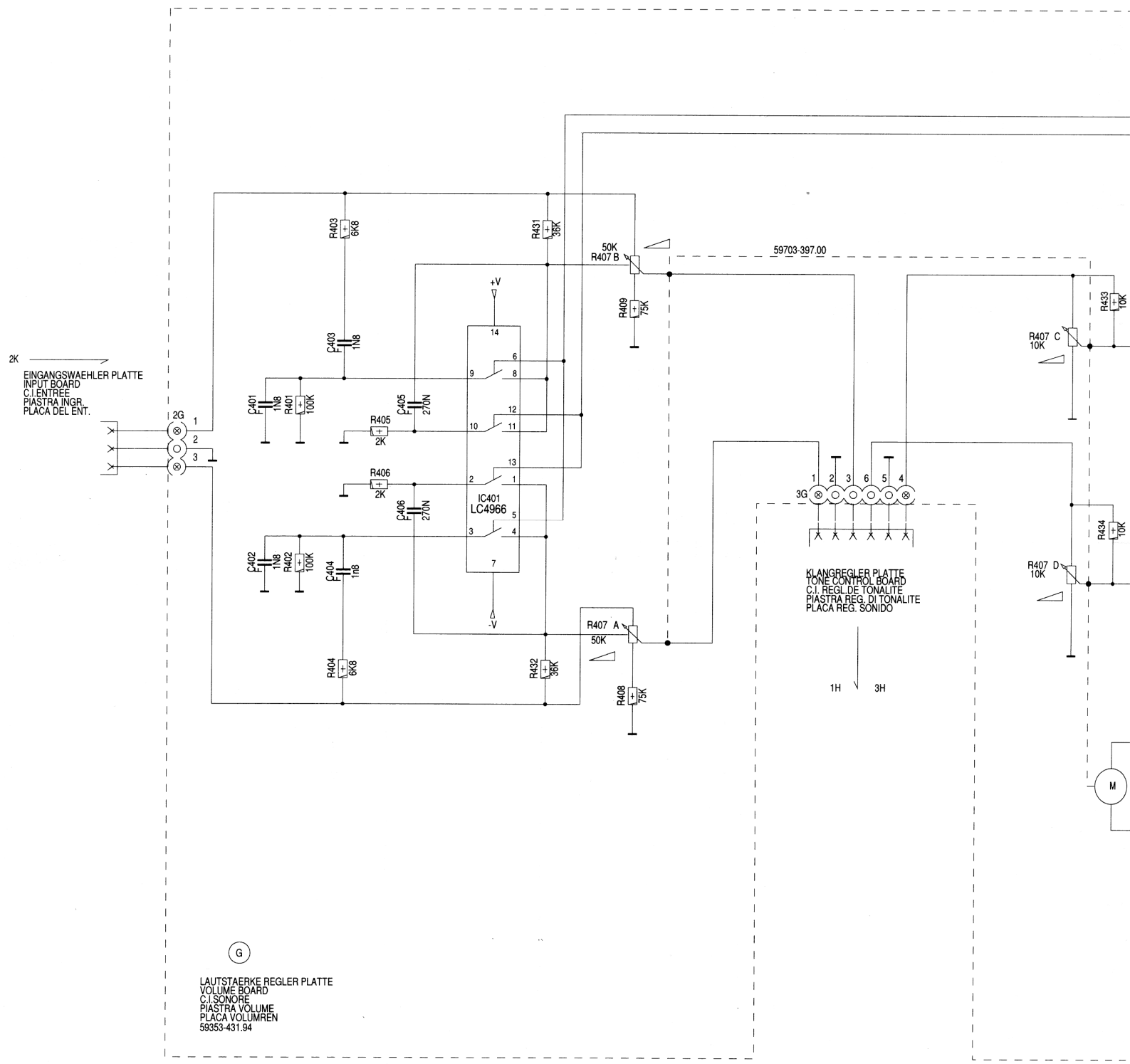


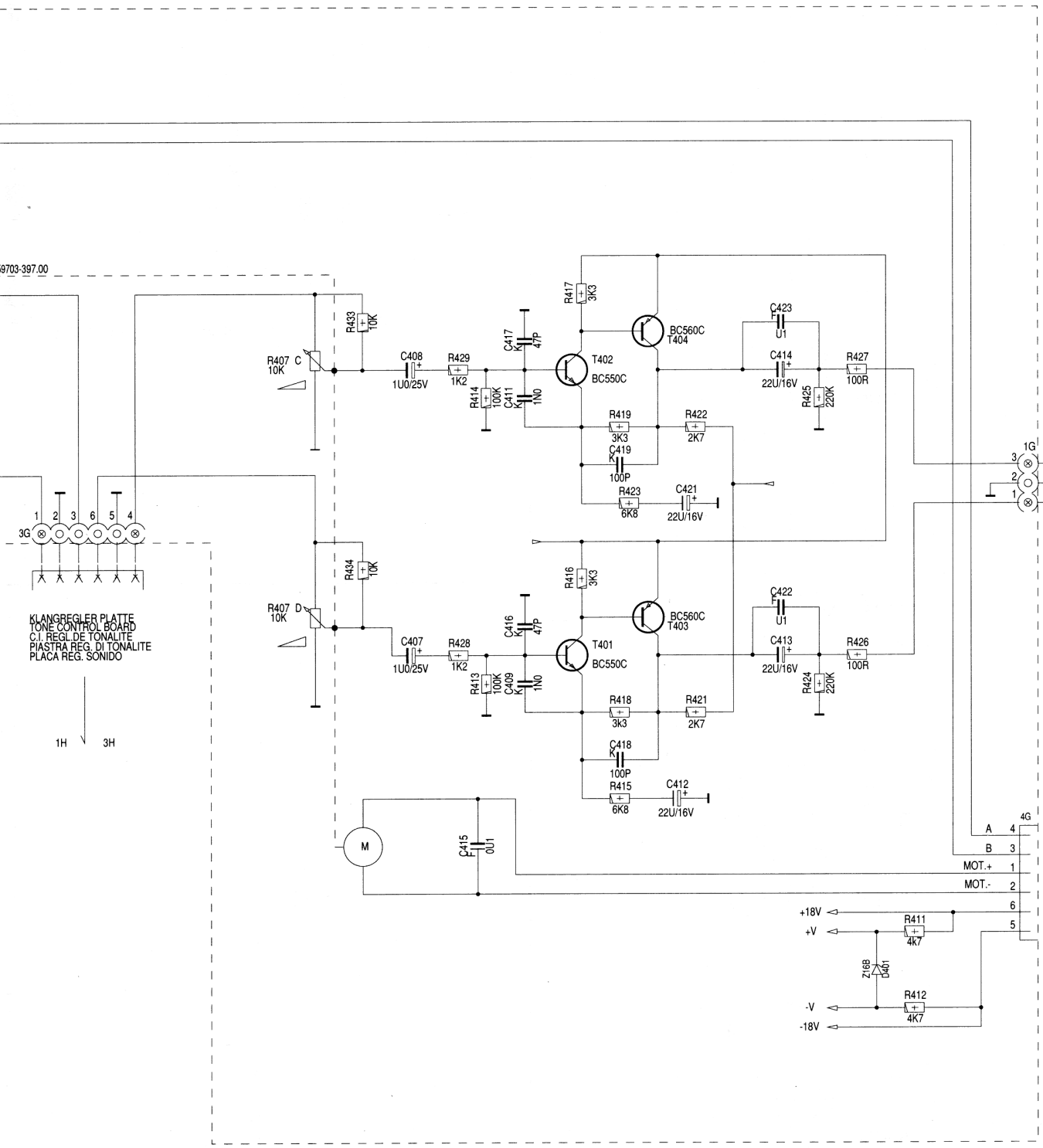
Klangreglerplatte / Tone Control Board

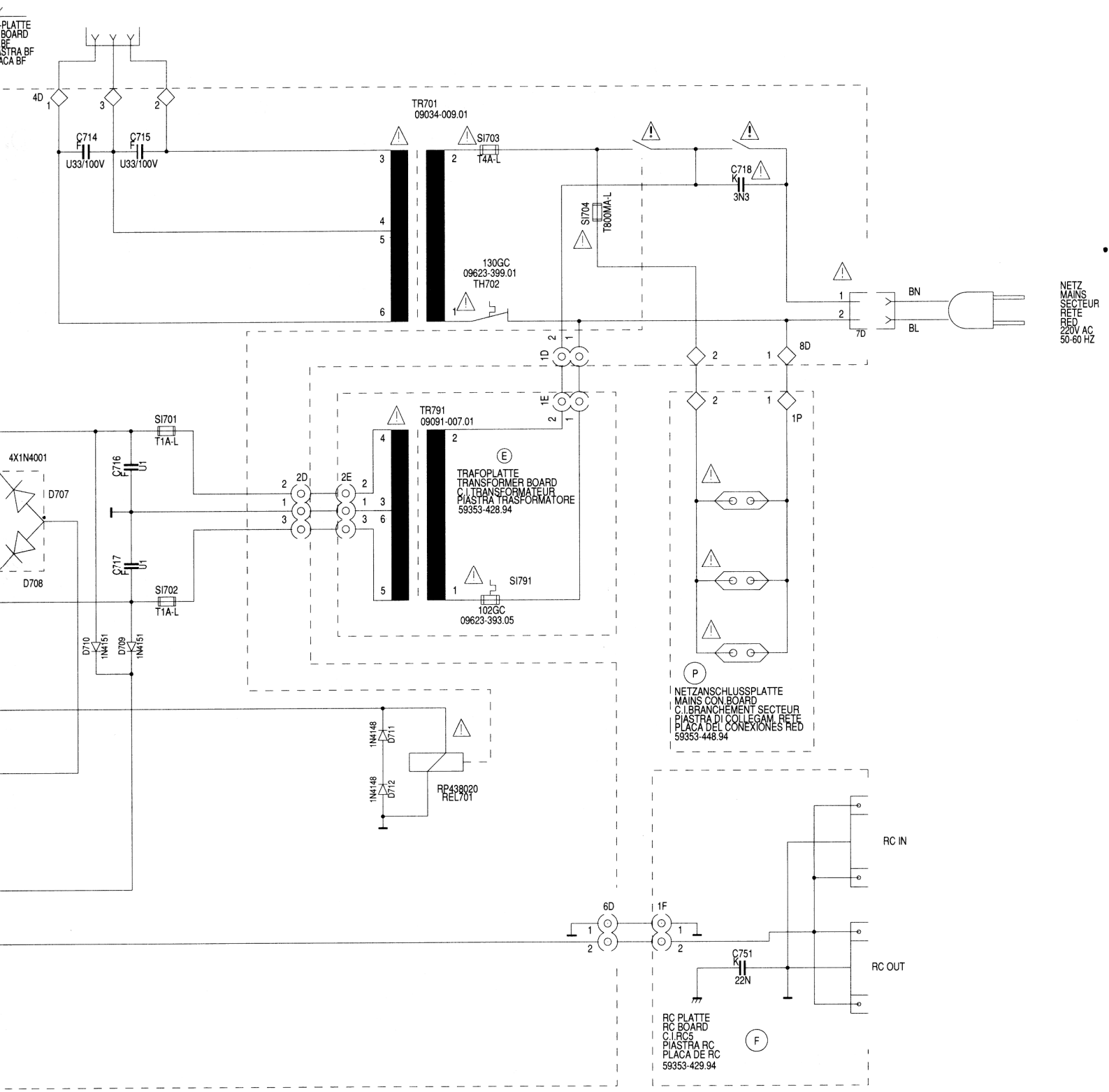
Ansicht von der Bestückungsseite / View of components side



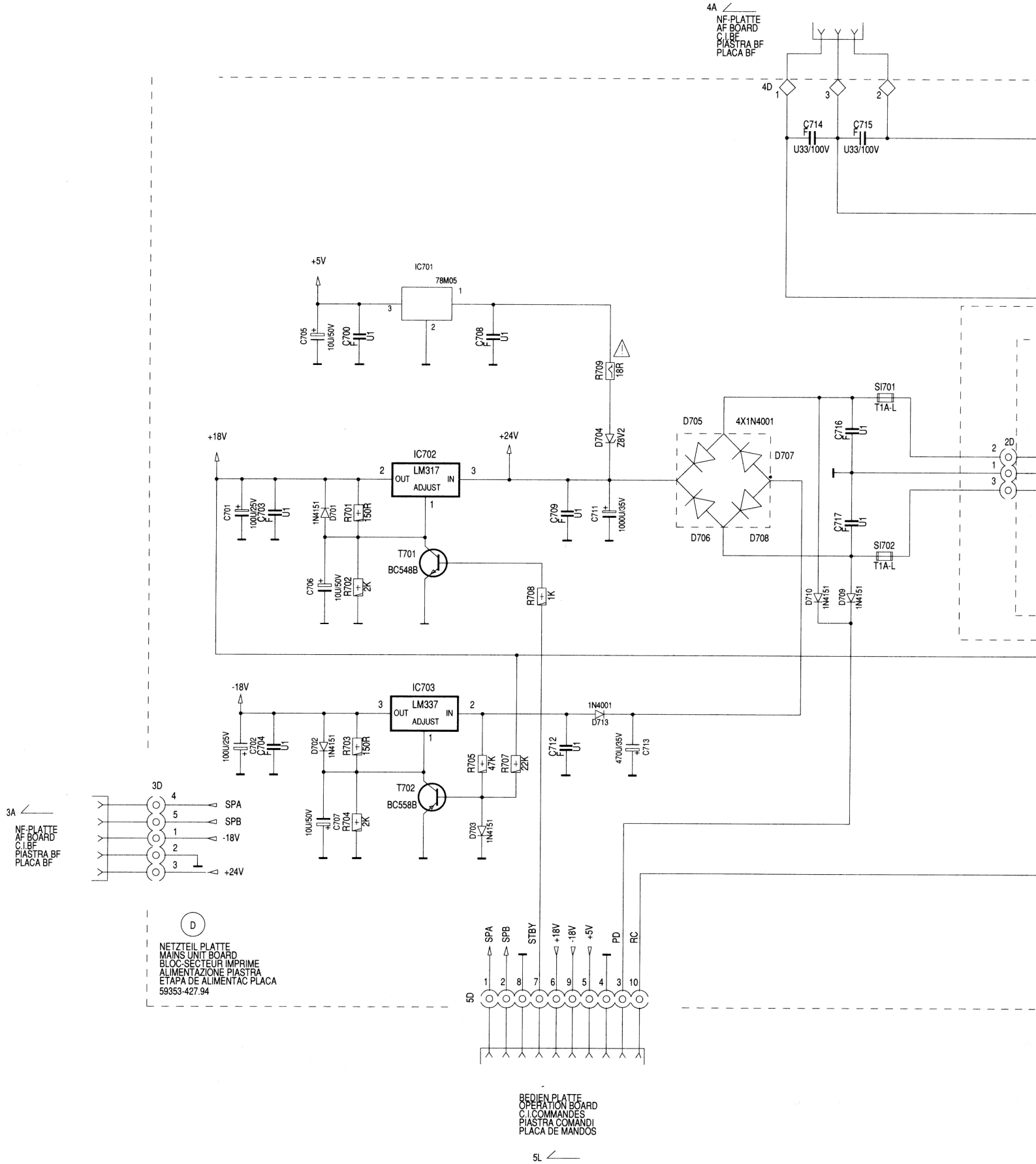
Schaltbild Lautstärkereglerplatte / Circuit Diagram Volume Board



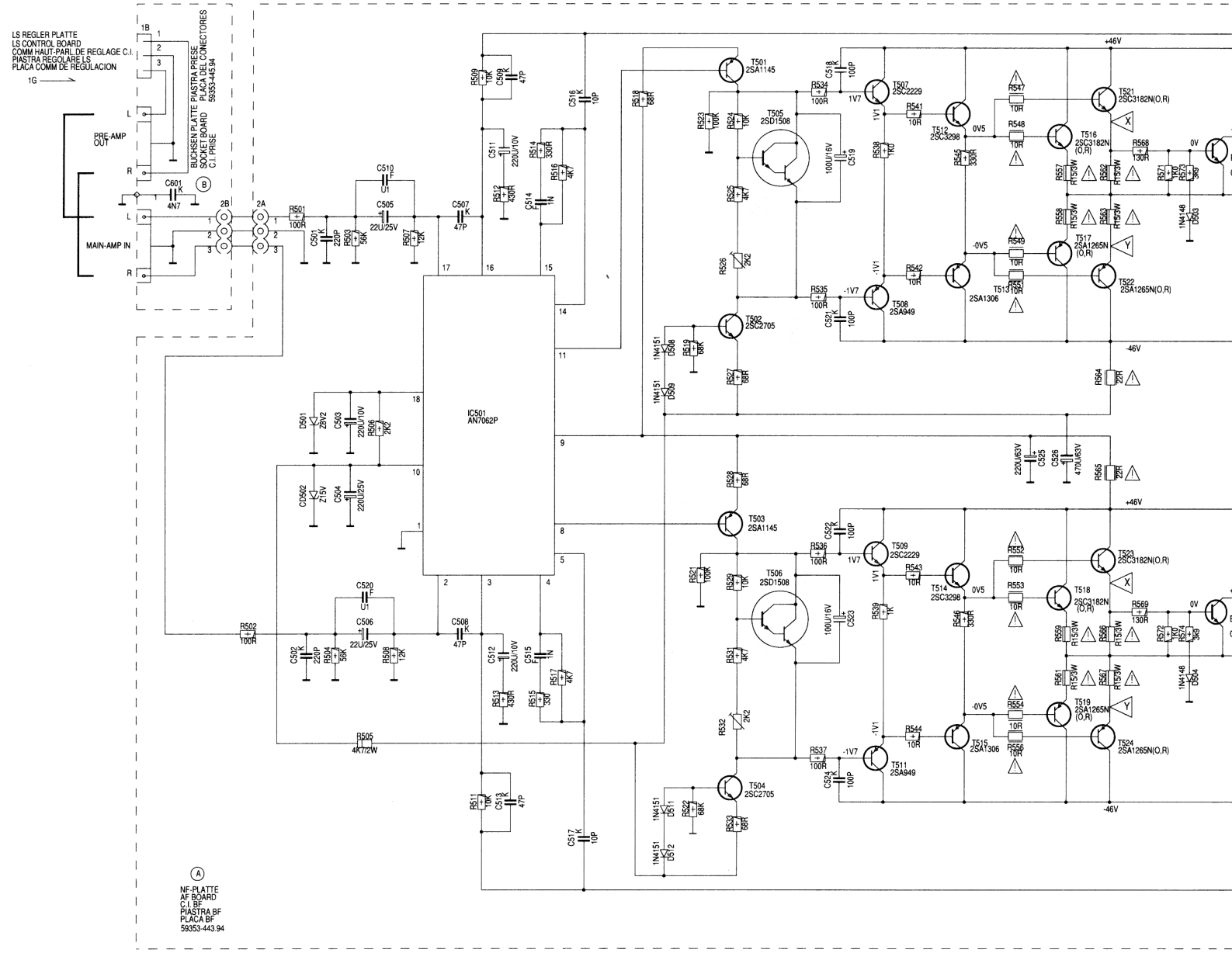

9703-397.00
3G
1 2 3 6 5 4
KLANGREGLER PLATTE
TONE CONTROL BOARD
C.I. REGL. DE TONALITE
PIASTRA REG. DI TONALITE
PLACA REG. SONIDO
1H
3H
R407 C 10K
R433 10K
C408 1U0/25V
R429 1K2
R414 100K
C411 K 1N0
C417 K 47P
R417 3K3
T402 BC550C
BC560C T404
C423 F U1
C414 22U/16V
R427 100R
R425 220K
R419 3K3
R422 2K7
C419 K 100P
R423 6K8
C421 22U/16V
R407 D 10K
R434 10K
C407 1U0/25V
R428 1K2
R413 100K
C409 K 1N0
C416 K 47P
R416 3K3
T401 BC550C
BC560C T403
C422 F U1
C413 22U/16V
R426 100R
R424 220K
R418 3k3
R421 2K7
C418 K 100P
R415 6K8
C412 22U/16V
M
C415 F 0U1
1G
3
2
1
BUCHSEN PLATTE
SOCKET BOARD
C.I. PRISE
PIASTRA PRESE
PLACA DEL CONECTO
1I
4G
A 4
B 3
MOT.+ 1
MOT.- 2
6
5
BEDIEN PLATTE
OPERATION BOARD
C.I. COMMANDES
PIASTRA COMANDI
PLACA DE MANDOS
4L
+18V
+V
R411 4k7
Z168 D401
-V
R412 4K7
-18V


-PLATTE
BOARD
RE
STRA BF
ACA BF
4D
1
3
2
C714
U33/100V
C715
U33/100V
TR701
09034-009.01
SI703
T4A-L
C718
3N3
SI704
T800MA-L
130GC
09623-399.01
TH702
BN
BL
NETZ
MAINS
SECTEUR
RETE
RED
220V AC
50-60 HZ
7D
8D
1D
1E
1P
SI701
T1A-L
4X1N4001
D707
D708
C716
C717
SI702
T1A-L
2D
2E
TR791
09091-007.01
TRAFOPLATTE
TRANSFORMER BOARD
C.I.TRANSFORMATEUR
PIASTRA TRASFORMATORE
59353-428.94
SI791
102GC
09623-393.05
D710
1N4151
D709
1N4151
1N4148
D711
1N4148
D712
RP438020
REL701
NETZANSCHLUSSPLATTE
MAINS CON.BOARD
C.I.BRANCHEMENT SECTEUR
PIASTRA DI COLLEGAM. RETE
PLACA DEL CONEXIONES RED
59353-448.94
6D
1F
RC IN
RC OUT
C751
22N
RC PLATTE
RC BOARD
C.I.RC5
PIASTRA RC
PLACA DE RC
59353-429.94

Schaltbild / Circuit Diagram: -Netzteilplatte / Mains Unit Board
-Trafoplatte / Transformer Board
-Netzanschlußplatte / Mains Con. Board
-RC-Platte / RC Board



Schaltbild / Circuit Diagram: -NF-Platte / AF Board
-Buchsenplatte / Socket Board
-Kopfhörerplatte / Headphone Board



RUHESTROMEINSTELLUNG: MIT R526/532 ZWISCHEN X UND Y 9MV +-0.5MV EINSTELLEN.
SETTING OF QUIESCENT CURRENT: ADJUST WITH R526/532 9MV +-0.5MV BETWEEN X AND Y
REGLAGE DU COURANT DE REPOS: REGLER AVEC R526/532 SUR 9MV +-0.5MV ENTRE X ET Y
REGOLAZIONE CORRENTE DI RIPOSO: TARARA CON R526/532 PER 9MV +-0.5MV FRA X E Y

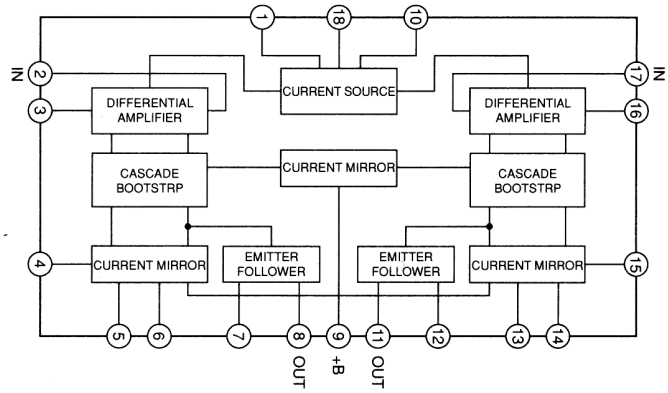
NF-SPANNUNGEN BEI 2 x 8W AN 8 OHM = 8V ~ AM AUSGANG,
1KHZ, LAUTSTAERKE VOLL AUF, DEFEAT EIN, BALANCE MITTE,
LAUTSPRECHERRELAIS EIN.

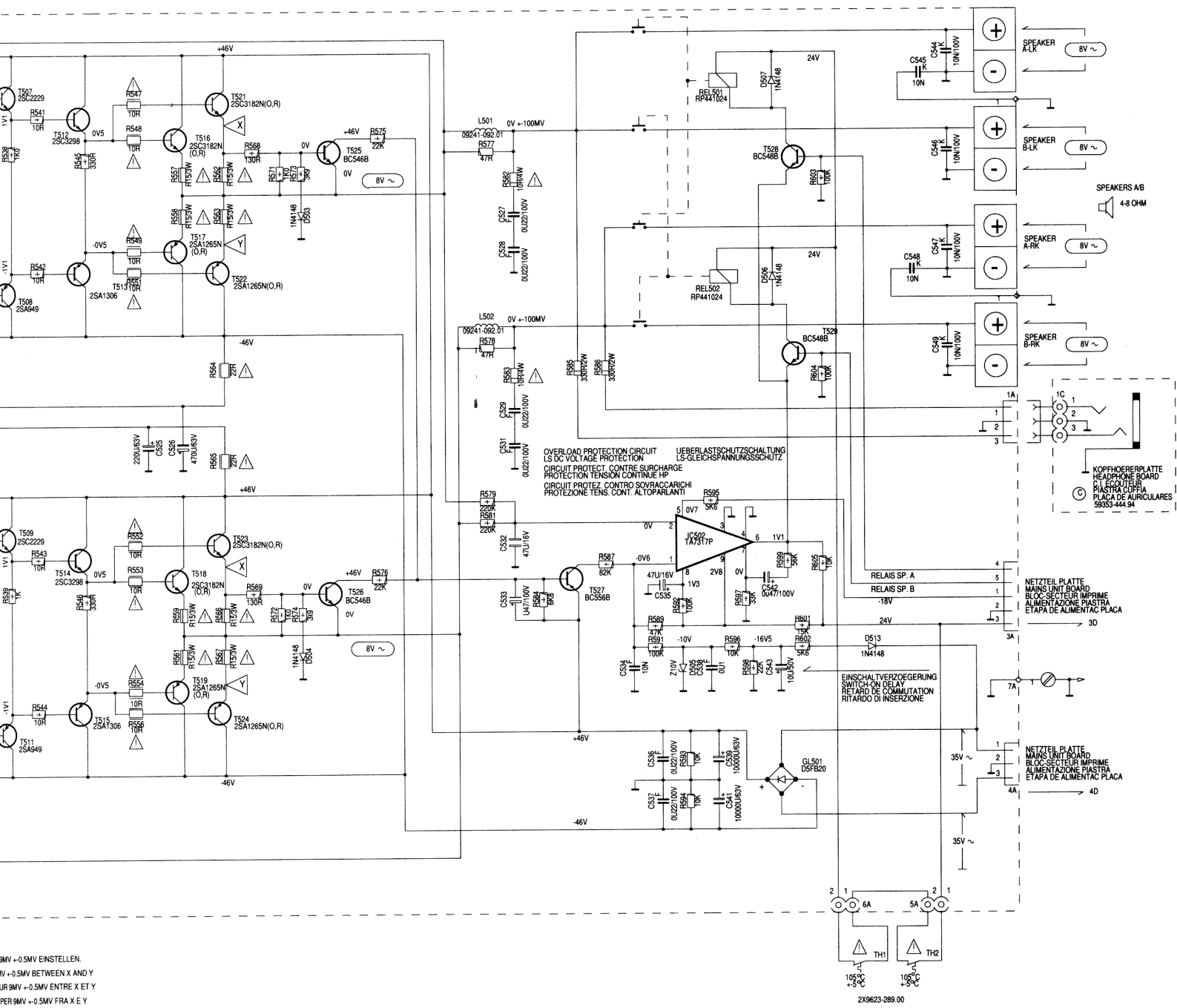
AF VOLTAGES AT 2 x 8W INTO 8 OHM = 8V ~ AT OUTPUT, 1KHZ,
VOLUME FULLY UP, DEFEAT ON, BALANCE IN CENTRE SETTING,
LOUDSPEAKER SWITCHES ON.

TENSIONS BF POUR 2 x 8W SUR 8 OHM = 8V ~ A LA SORTIE, 1KHZ
VOLUME AU MAXIMUM, DEFEAT EN SERVICE, REGLAGES DE BALANCE
EN POSITION MEDIANE, COMMUTATEUR HAUT-PARLEURS EN SERVICE.

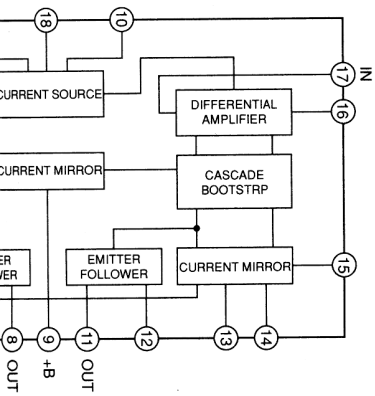
TENSIONI BF ALL'USCITA CON 2 x 8W E 8 OHM = 8V ~, 1KHZ,
VOLUME AL MASSIMO, DEFEAT INSERITO, REGOLATORI DI BILANCIAMENTO
AL CENTRO, COMMUTATORI DEGLI ALTOPARLANTI INSERITI.

IC 501 AN 7062 P

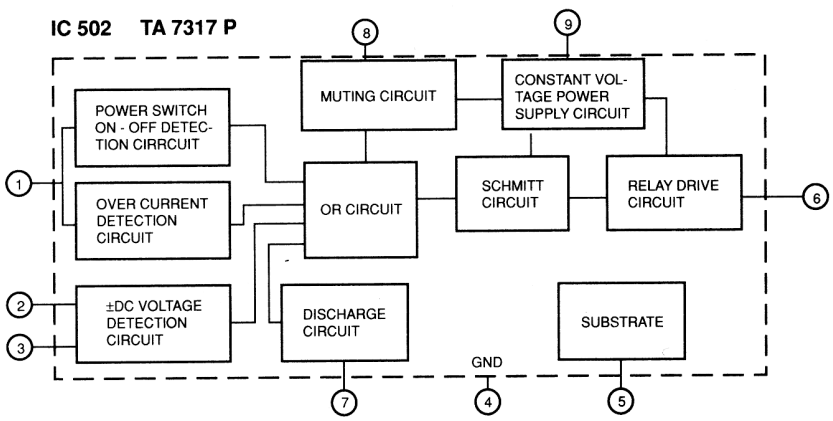




9MV +-0.5MV EINSTELLEN.
V +-0.5MV BETWEEN X AND Y
R 9MV +-0.5MV ENTRE X ET Y
PER 9MV +-0.5MV FRA X E Y

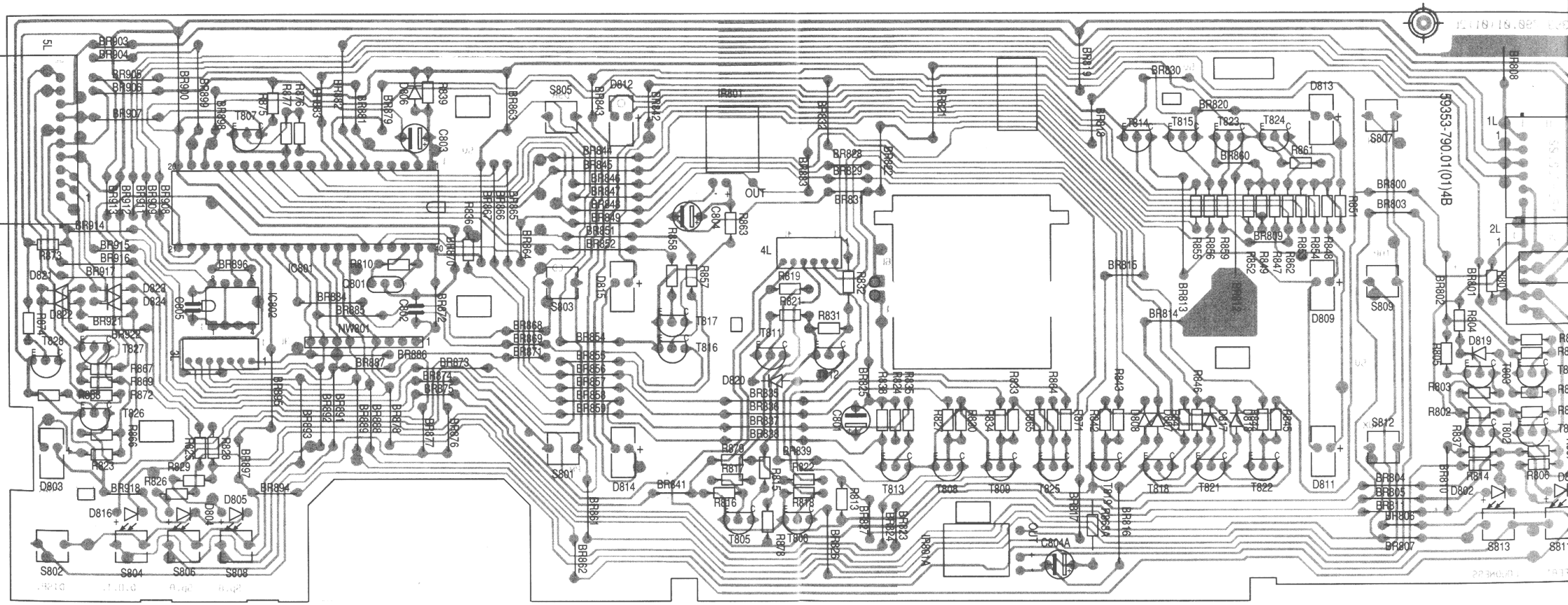


IC 502 TA 7317 P



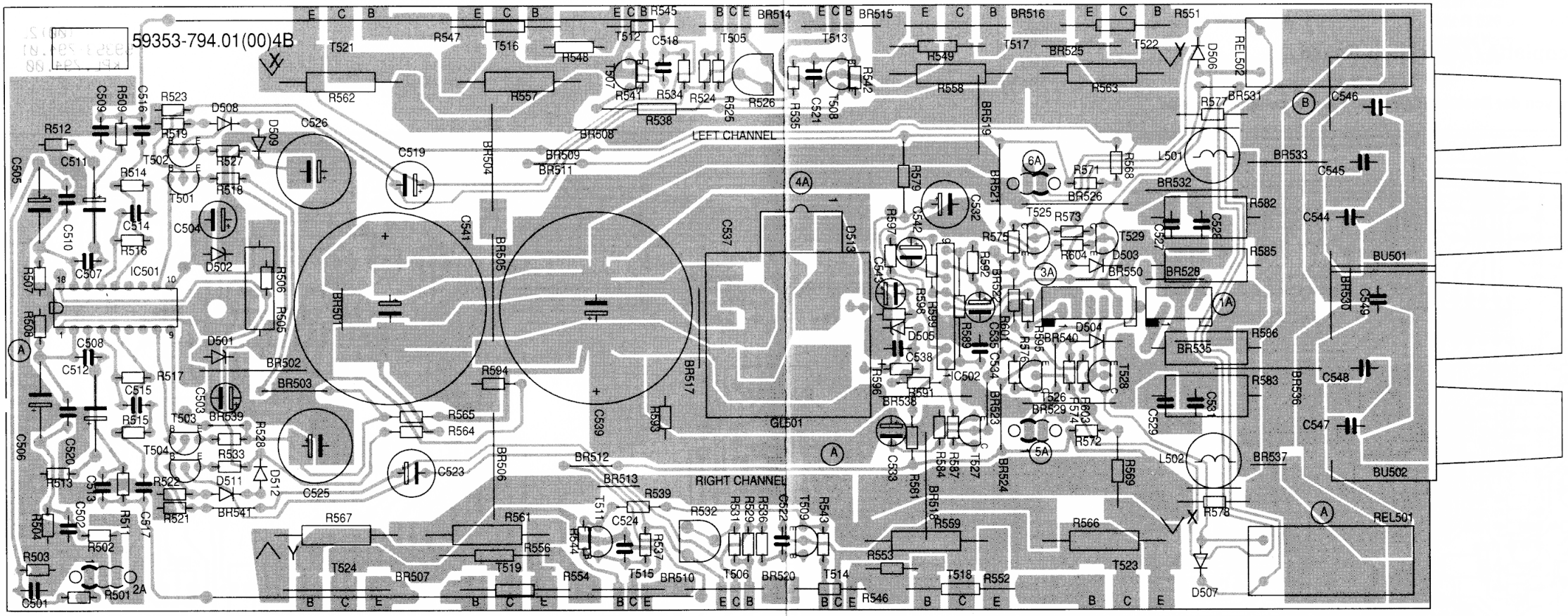
Bedienplatte / Operation Board

Ansicht von der Bestückungsseite / View of components side



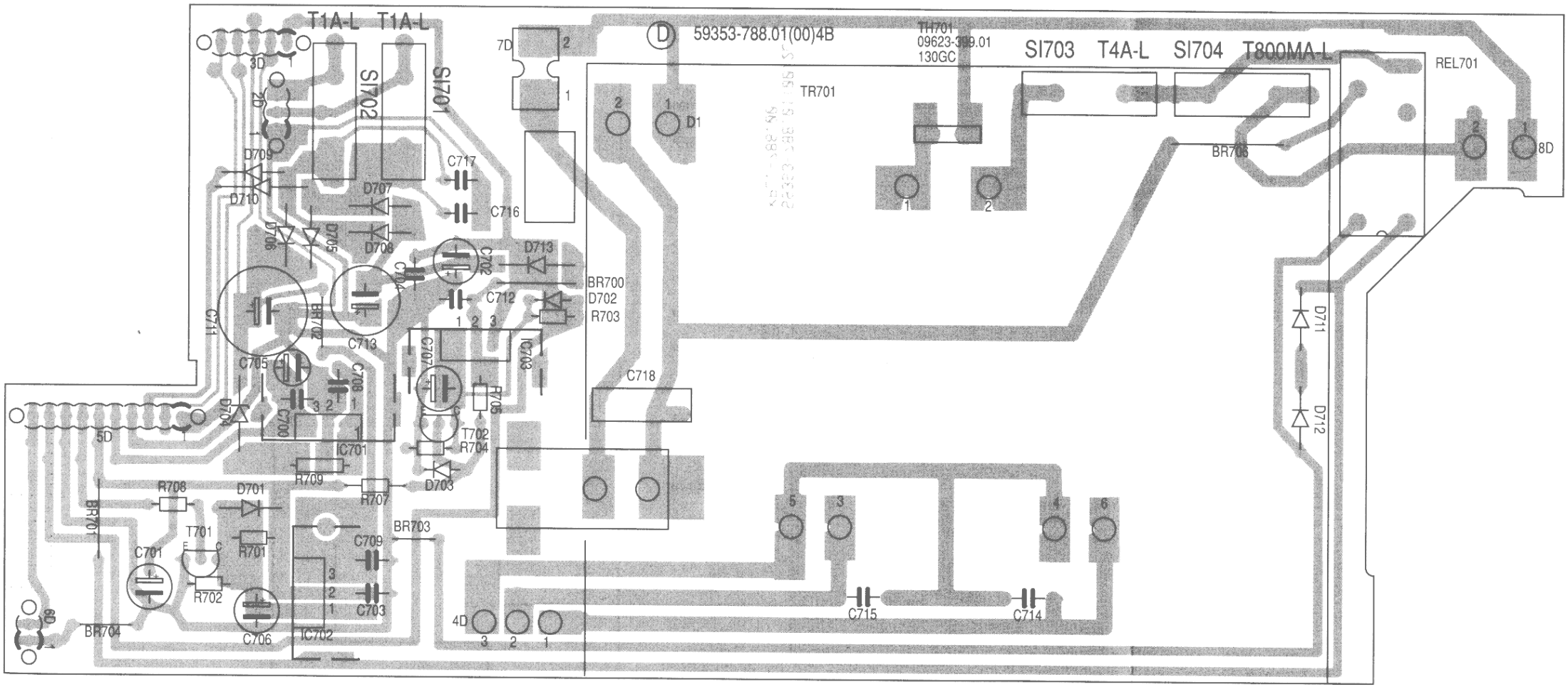
NF-Platte / AF Board

Ansicht von der Bestückungsseite / View of components side



Netzteilplatte / Mains Unit Board

Ansicht von der Bestückungsseite / View of components side



(D)

Abgleichvorschriften

Meßgeräte:
Digitalvoltmeter

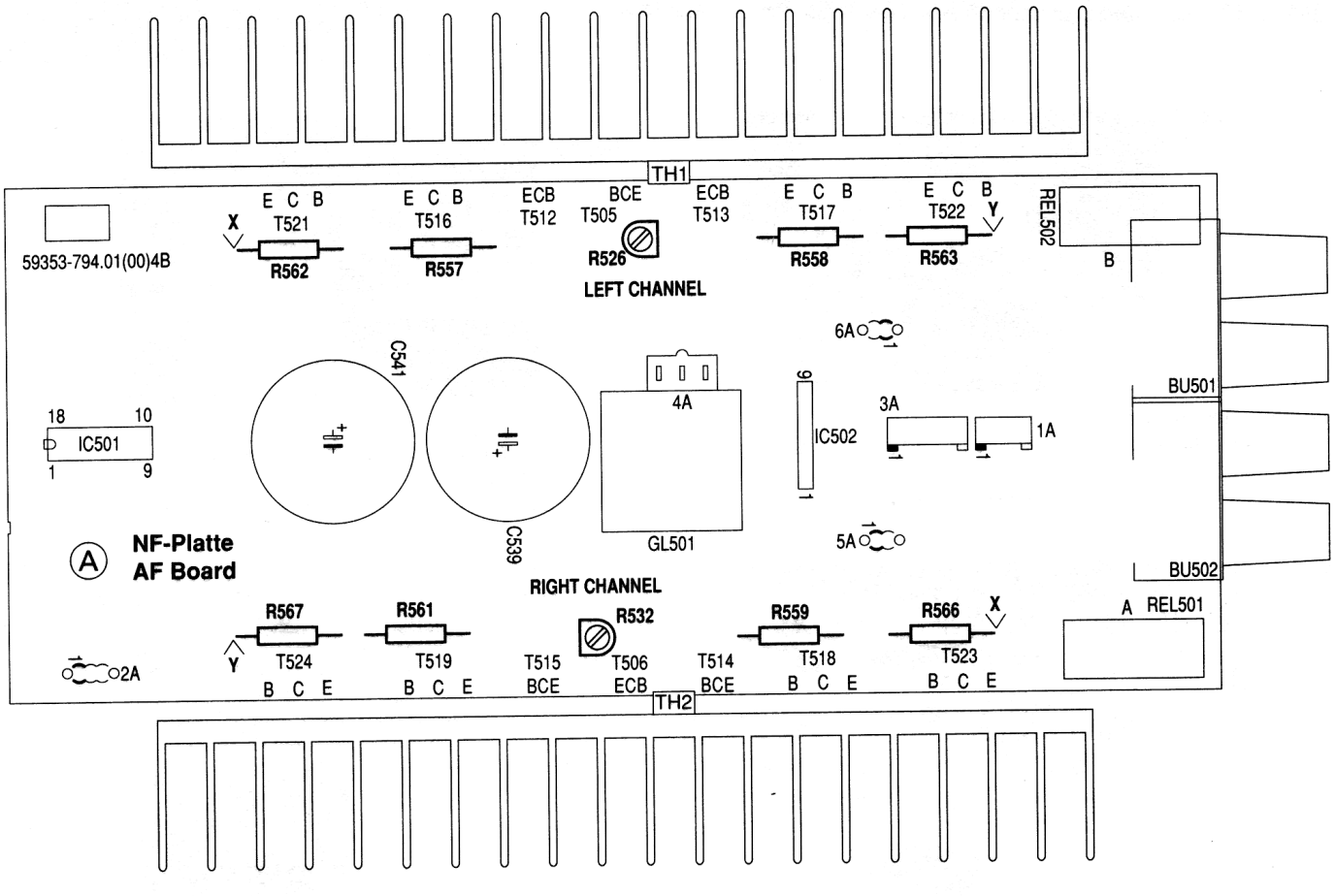
Abgleich	Vorbereitung	Abgleichprozedur
Ruhestrom	Kein Eingangssignal. Lautstärke auf Null. Gerät mindestens 2 min warmlaufen lassen. Linker Kanal: **Digitalvoltmeter zwischen Meßpunkte X und Y.** Rechter Kanal: **Digitalvoltmeter zwischen Meßpunkte X und Y.**	Linker Kanal: Mit **R 526** auf **9 mV ± 0,5 mV** einstellen. Rechter Kanal: Mit **R 532** auf **9 mV ± 0,5 mV** einstellen.

(GB)

Adjustment Procedures

Test equipment:
Digital voltmeter

Adjustment	Preperation	Adjustment Procedure
Quiescent current	No Input Signal. Volume to Minimum. Turn on the set for at least 2 minutes. Left channel: **Digitalvoltmeter between testpoints X and Y.** Right channel: **Digitalvoltmeter between testpoints X and Y.**	Left channel: Adjust with **R 526** for **9 mV ± 0.5 mV**. Right channel: Adjust with **R 532** for **9 mV ± 0.5 mV**.



10. Ausbau der Netzteil-, Trafo- und Netzanschlußplatte
- Die Frontplatte ausbauen (siehe Kapitel 2).
- Die Steckverbindung [M] abziehen (Abb. 2).
- Die 4 Schrauben (O) herausschrauben (Abb. 4).
- Die Schraube (P) herausschrauben (Abb. 2).
- Die 4 Schrauben (Q) herausschrauben (Abb. 6).
- Die 4 Schrauben (R) herausschrauben (Abb. 2).
- Die Netzteil-, Trafo- und Netzanschlußplatte kann jetzt nach vorne herausgenommen werden.

11. Zerlegen der Frontplatte:
- Die Frontplatte ausbauen (siehe Kapitel 2).

11a. Ausbau der Bedienplatte
- Die Lautstärkereglerplatte ausbauen (siehe Kapitel 9).
- Die 7 Schrauben (S) herausschrauben (Abb. 7).
- Die 6 Rastnasen (T) ausrasten (Abb. 7).
- Die Bedienplatte kann jetzt herausgenommen werden.

11b. Ausbau der Eingangswahltasten (Abb. 9)
- Mit einem kleinen Schraubendreher die Rastnase (U) ausrasten.
- Die Taste kann jetzt nach außen entnommen werden.

11c. Ausbau der Tasten (Abb. 10)
- Mit einem kleinen Schraubendreher die Taste heraushebeln.
- Ein Abbrechen der Nase (V) ist für die Funktion ohne Bedeutung.

11d. Ausbau des Fensters
- Die 6 Rastnasen (W) ausrasten (Abb. 8).
- Die Schraube (X) herausschrauben und LED-Platte entnehmen (Abb. 5).
- Das Fenster kann jetzt nach vorne herausgenommen werden.

10. Removing the power supply board, transformer board and the mains connecting board
- Remove the front panel (see para 2).
- Disconnect the plug-in connection [M] (Fig. 2).
- Undo the 4 screws (O) (Fig. 2).
- Undo screw (P) (Fig. 4).
- Undo the 4 screws (Q) (Fig. 2).
- Undo the 4 screws (R) (Fig. 4).
- The power supply board, transformer board and mains connecting board can now be removed.

11. Disassembling the front panel
- Remove the front panel (see para 2).

11a. Removing the operation board
- Remove the volume control board (see para 9).
- Undo the 7 screws (S) (Fig. 7).
- Disengage the 6 catches (T) (Fig. 7).
- The operation board can now be removed.

11b. Disassembling the input selection buttons (Fig. 9)
- Disengage the catch (U) with a small screw driver.
- The button can now be removed towards the outside.

11c. Disassembling the buttons (Fig. 10)
- Lift off the button with a small screw driver.
- Breaking the nose (V) does not affect the function.

11d. Removing the window
- Disengage the 6 catches (W) (Fig. 8).
- Undo screw (X) and remove the LED board (Fig. 5).
- The window board can now be removed towards the front.

Abb. 7
Fig. 7

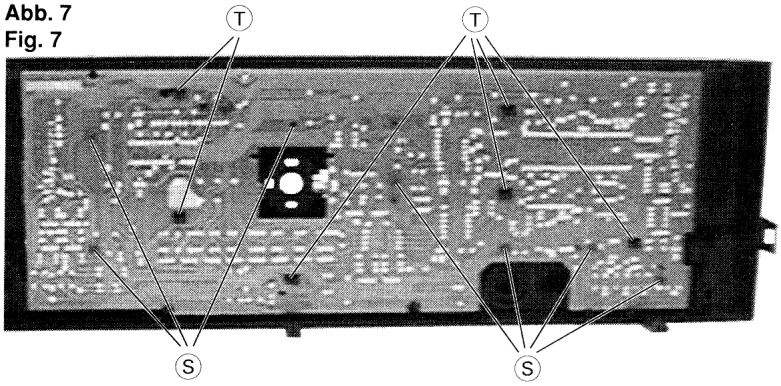


Abb. 8
Fig. 8

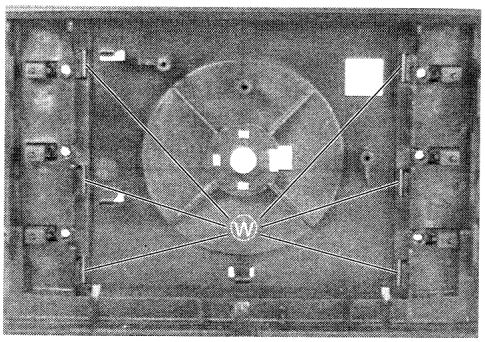


Abb. 9
Fig. 9

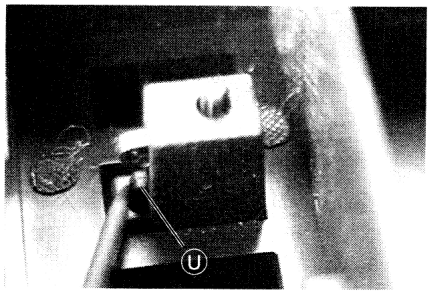
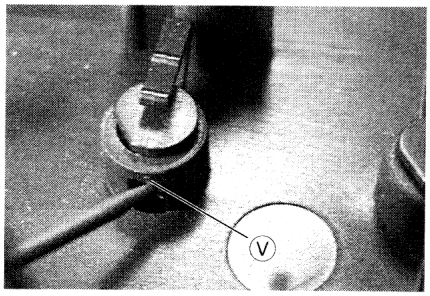


Abb. 10
Fig. 10



12. Ausbau des Fußes
- Mit einem Steckschlüssel (Größe 4,5 - 5,5) die Rastung (Y) durchdrücken.
- Beim Einsetzen des Fußes auf Rastnase (Z) achten!

12. Removing the foot
- Push the lock (Y) out of the bottom plate using a socket wrench (size 4.5 - 5.5).
- Take care of the catch (Z) when fitting the foot!

Abb. 11
Fig. 11

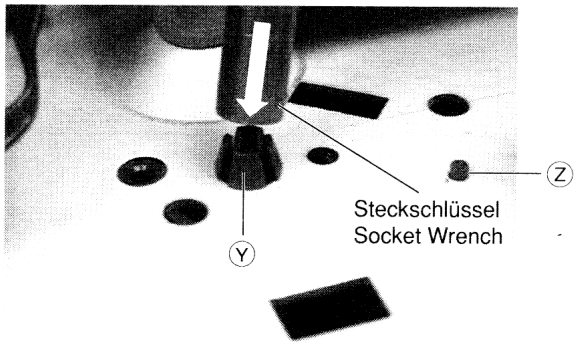


Abb. 12
Fig. 12