

CLASSIC 2010
CLASSIC 2011
SERVICE - MANUAL

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Technische Daten

Grundausstattung:

Fest-Code 5-stellig; **Blinkdiode**
Easy To Control menügeführte **Softkey-Bedienung**

Anschluß:

DIN-ISO-Anschluß, 3-Kammer-**Steckverbindung**
Telefon-Mute, automatische **Stummschaltung bei Telefon**

Tuner:

RDS-System (nur 2010)

Auto-Best-Funktion (nur 2010)

Wellenbereiche:

Abstimmraster:
Suchlauf / Handabst.

FM 87,5 - 108,0 MHz (Typ 2010)	100kHz	100kHz
FM 87,5 - 108,0 MHz (Typ 2011)	50kHz	50kHz
MW 531 - 1620 (Typ 2010)	9kHz	9kHz
MW 531 - 1602 (Typ 2011)	9kHz	9kHz
LW 153 - 282kHz (nur 2011)	3kHz	3kHz

Stationspeicher:

4 x FM, 4 x TP, 4 x Fix, 4 x MW (Typ 2010)

5 x FM, 5 x MW, 5 X LW (Typ 2011)

Scan-Funktion (automatisches kurzes Anspielen der Sender)

Regionalfunktion ein,-ausschaltbar (nur 2010)

Verkehrsfunk (nur 2010):

Auswertung über RDS ,

Verkehrsfunk abschaltbar,

Durchsagekennung

TP-Anzeige im Display,

Verkehrsfunksuchlauf nach Aktivierung mit TP-Taste,

Last Function Memory

Verstärkerteil:

Klangeinstellung (Treble/Bass getrennt für alle Signalquellen)

Fader (Lautstärkebalance vorn/hinten)

Loudness (gehörrechtige Lautstärkeanpassung)

Ausgangsleistung: 4 x 15 Watt an 4 Ohm (Sinus 1kHz/10% Klirr)

Technical Data

Basic Equipment:

Anti theft System, five-digit code; Anti-Theft LED
Easy To Control menu driven Softkey-control

Connection:

DIN-ISO-connection, 3-block-connection
Telephone-Mute, automatic muting at telephone

Receiver:

RDS-System (only 2010)

Auto-Best (only 2010)

Wave bands:

Tuning steps:
Seek / Man. tuning

FM 87,5 - 108,0 MHz (type 2010)	100kHz	100kHz
FM 87,5 - 108,0 MHz (type 2011)	50kHz	50kHz
AM 531 - 1620 (type 2010)	9kHz	9kHz
AM 531 - 1602 (type 2011)	9kHz	9kHz
LW 153 - 282kHz (only 2011)	3kHz	3kHz

Presets:

4 x FM, 4 x TP, 4 x Fix, 4 x AM (type 2010)

5 x FM, 5 x AM, 5 X LW (only 2011)

Scan-Function automatic brief sampling of the stations

Regional function switchable on-off (only 2010)

Traffic radio part (only 2010):

Evaluation with RDS,

Traffic information switchable,

Information code,

TP is displayed,

Traffic radio station search after activating with the "TP"- key,

Last function memory

Amplifier:

Tone setting, treble/bass separately for all signal sources

Power-Fader, Fader front/rear

Loudness aurally compensated volume level adaption

Output: 4 x 15 Watt at 4 Ohm (RMS 1kHz/10% THD)

Cassettenteil, siehe getrennte Technische Information

For tape deck see separate technical information

Allgemeine Daten

General Data

Betriebsspannung
12V nach DIN 45324

Operating voltage
12V according to DIN 45324

Betriebsspannung intern
5 V stabilisiert
8,5 V stabilisiert

Operating voltage internal
5 V stabilized
8.5 V stabilized

Stromaufnahme
< 2 mA bei ausgeschaltetem System (nur an Kl. 30)
ca. 250 mA Radio aus (an Kl. 30 und 15)
ca. 700 mA bei Rundfunk-Leerlauf
ca. 6,5A bei Vollast

Current consumption
< 2 mA when system is switched off (only at terminal 30)
approx. 250 mA radio off (at terminal 30 and 15)
approx. 700 mA radio without modulation
approx. 6.5A at loud

Abmessungen
Einblock-Gerät nach DIN ISO 7737
B x H x T: 182 x 52 x 162 mm

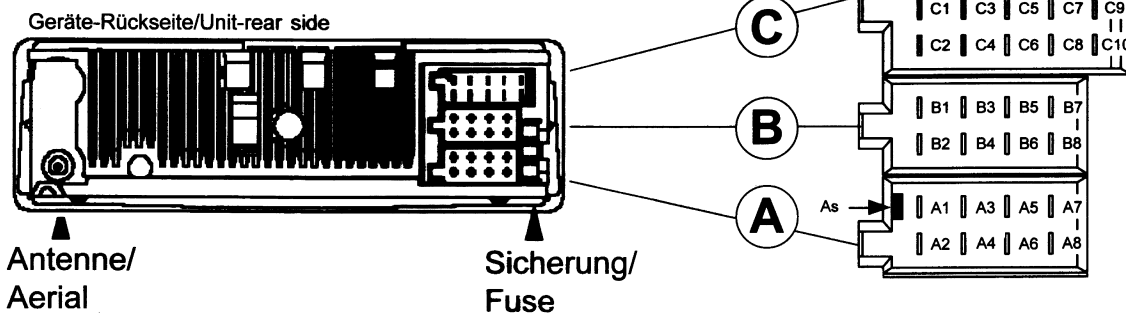
Dimensions
One-part radio according to DIN ISO 7736
Width x Height x Depth: 182 x 52 x 162 mm

Gewicht
1,6 kg

Weight
1.6 kg

Anschluß/Connections

Konnektor/Connector



A Spannungen. Sonderfunktionen

- A1.....frei
- A2.....frei
- A3.....Telefon-Mute
- A4.....Klemme 30, Batterie
- A5.....SteuerAusgang 12V
- A6.....Klemme 58, Beleuchtung
- A7.....Klemme 15, Zündung
- A8.....Klemme 31, Masse
- As.....Schalter für RAM-Schnellentladung

A Voltages. special functions

- A1.....n/c
- A2.....n/c
- A3.....Phone-Mute
- A4.....Terminal 30, Battery
- A5.....Control output 12V
- A6.....Terminal 58, Illumination
- A7.....Terminal 15, Ignition
- A8.....Terminal 31, Ground
- As.....Switch for quick RAM-discharging

B Lautsprecher

- B1.....Lautsprecher Heck rechts +
- B2.....Lautsprecher Heck rechts -
- B3.....Lautsprecher Front rechts +
- B4.....Lautsprecher Front rechts -
- B5.....Lautsprecher Front links +
- B6.....Lautsprecher Front links -
- B7.....Lautsprecher Heck links +
- B8.....Lautsprecher Heck links -

B Loudspeaker

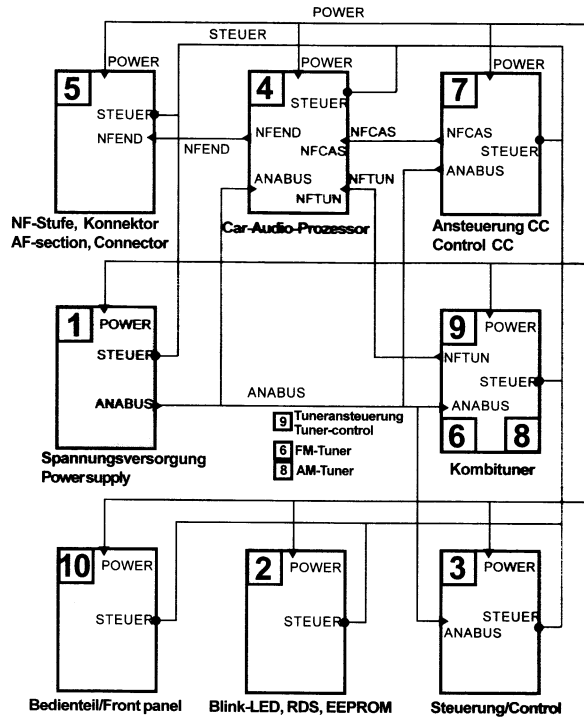
- B1.....Loudspeaker rear right +
- B2.....Loudspeaker rear right -
- B3.....Loudspeaker front right +
- B4.....Loudspeaker front right -
- B5.....Loudspeaker front left +
- B6.....Loudspeaker front left -
- B7.....Loudspeaker rear left +
- B8.....Loudspeaker rear left -

C Service Buchse

C Service socket

1

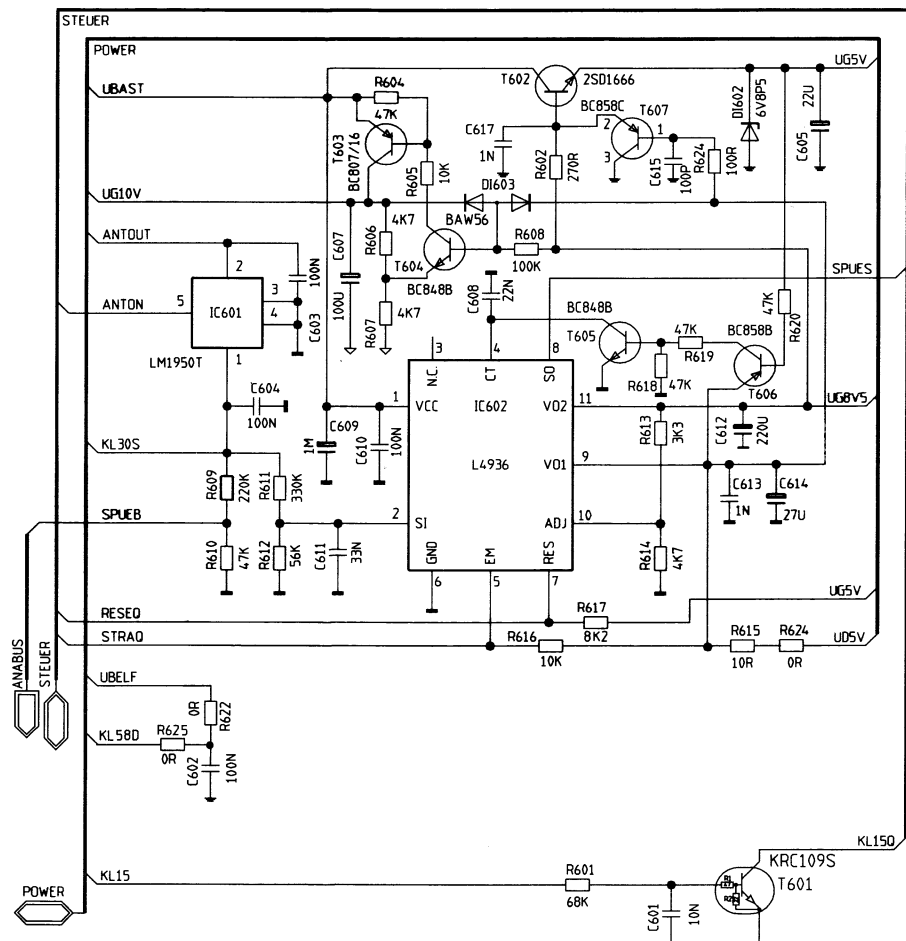
Spannungsversorgung / Power supply (aus Schaltungsplatte ..4010 / from P. C. board ..4010)



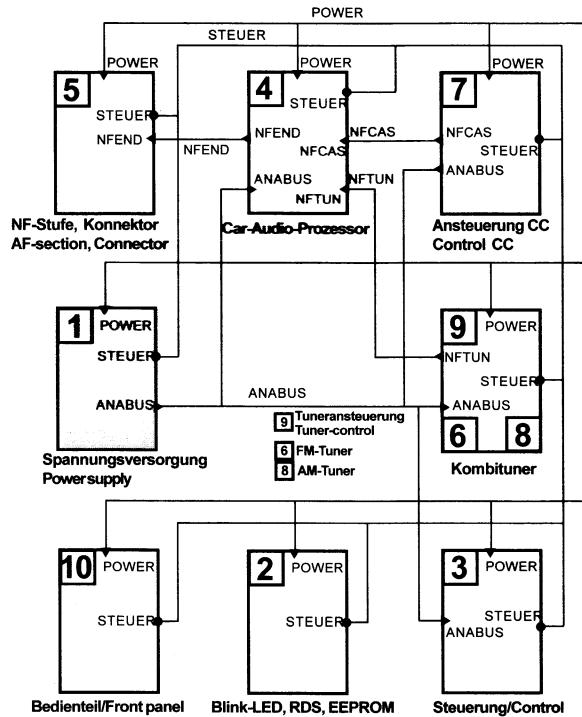
Kurzbezeichnungen / Abbreviations

- ANTOUT Steuerausgang **ANT**enne **OUT**/ Control output automatic antenna
- ANTON Steuerleitung **ANT**enne **ON**/ Control line automatic antenna
- KL15 Zündschloß **K**lemme **15** / CL15 Ignition
- KL30 Batteriespannung **K**lemme **30** / Supply voltage terminal 30
- KL30S Batteriespannung **K**lemme **30** nach **S**icherung / Supply voltage terminal 30 behind fuse
- RESEQ **RE**set, **Q**=LOW-aktiv / Reset, **Q**=LOW-active
- SPUEB **SP**annungs**UE**berwachung **B**atterie / Voltage monitoring Battery
- STRAQ **ST**uerung **R**adio **A**n, **Q**=LOW-aktiv / Control Radio on, **Q**=LOW-active
- UBAST **U**=Spannung **B**atterie **ST**abil / Battery voltage stabilized
- UBATT **U**=Spannung **B**ATTERie / Battery voltage
- UBELF **U**=Spannung **BE**leuchtung **F**ront / Illumination voltage front
- UD5V **U**=Spannung **D**auer **5**Volt / Permanent voltage 5 Volt
- UD5VS **U**=Spannung **D**auer **5**Volt, **S**tabilisiert / Permanent voltage 5 Volt, stabilized
- UG5TUN **U**=Spannung **G**eschaltet **5**Volt **TUN**er / switched 5 Volt Tuner
- UG5V **U**=Spannung **G**eschaltet **5**Volt / switched 5 Volt
- UG8V5 **U**=Spannung **G**eschaltet **8,5**V / switched 8,5 Volt
- UG8TUN **U**=Spannung **G**eschaltet **8,5**Volt **TUN**er / switched 8,5 Volt Tuner
- UG10V **U**=Spannung **G**eschaltet **10**Volt / switched 10 Volt

Layout siehe Seite 3 / Layout see page 3



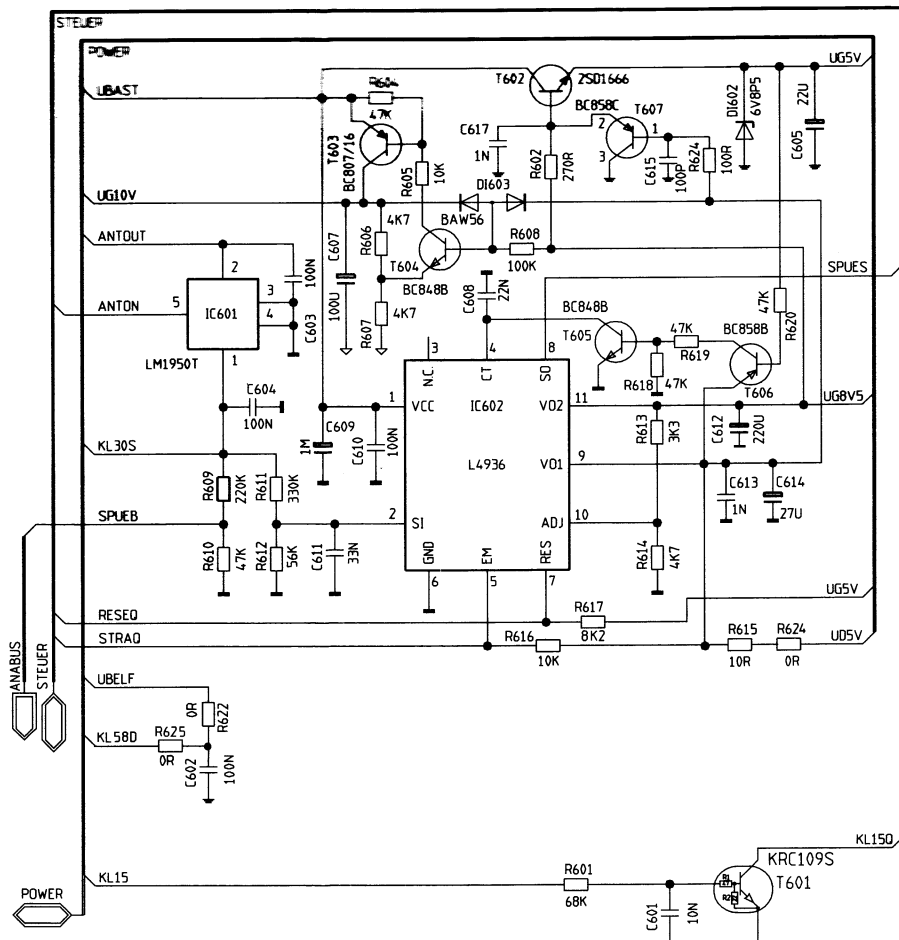
1 Spannungsversorgung / Power supply (aus Schaltungsplatte ..4010 / from P. C. board ..4010)

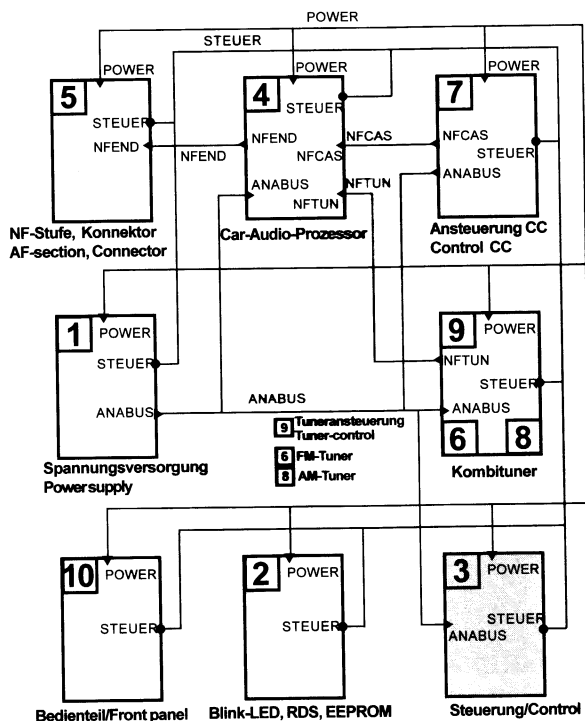


Kurzbezeichnungen / Abbreviations

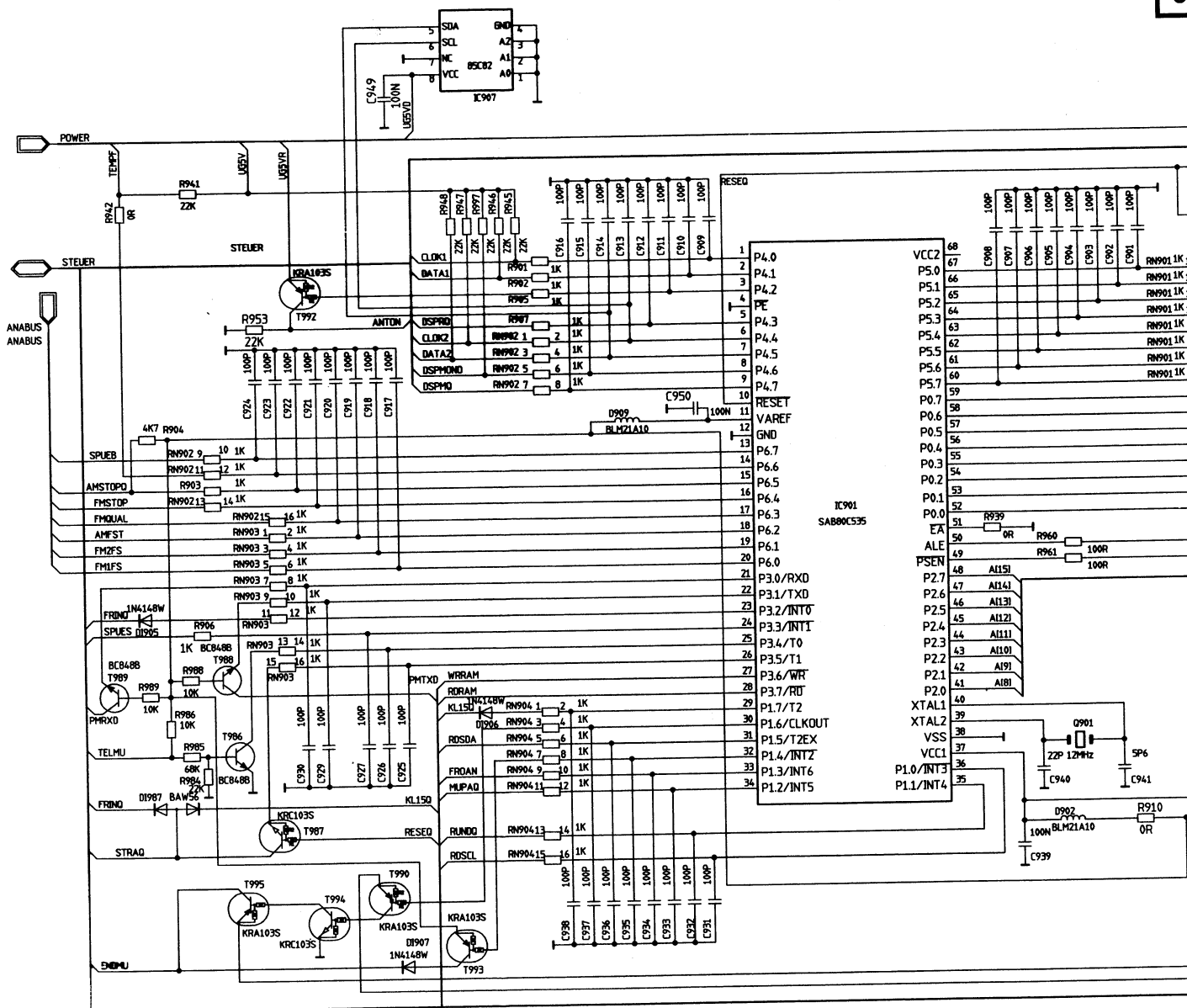
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- KL30 Batteriespannung **K**lemme **30** / Supply voltage terminal 30
- KL30S Batteriespannung **K**lemme **30** nach **S**icherung / Supply voltage terminal 30 behind fuse
- RESEQ **R**ESEt, **Q**=LOW-aktiv / Reset, Q=LOW-active
- SPUEB **S**Pannungs**UE**berwachung **B**atterie / Voltage monitoring Battery
- STRAQ **S**Tuerung **R**adio **A**n, **Q**=LOW-aktiv / Control Radio on, Q=LOW-active
- UBAST **U**=Spannung **B**atterie **S**Tabil / Battery voltage stabilized
- UBATT **U**=Spannung **B**ATTERie / Battery voltage
- UBELF **U**=Spannung **B**ELeuchtung **F**ront / Illumination voltage front
- UD5V **U**=Spannung **D**auer **5**Volt / Permanent voltage 5 Volt
- UD5VS **U**=Spannung **D**auer **5**Volt, **S**tabilisiert / Permanent voltage 5 Volt, stabilized
- UG5TUN **U**=Spannung **G**eschaltet **5**Volt **TUN**er / switched 5 Volt Tuner
- UG5V **U**=Spannung **G**eschaltet **5**Volt / switched 5 Volt
- UG8V5 **U**=Spannung **G**eschaltet **8,5**V / switched 8,5 Volt
- UG8TUN **U**=Spannung **G**eschaltet **8,5**Volt **TUN**er / switched 8,5 Volt Tuner
- UG10V **U**=Spannung **G**eschaltet **10**Volt / switched 10 Volt

Layout siehe Seite 3 / Layout see page 3





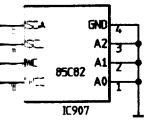
- ANABUS **AN**alog **BUS** / Analog bus
- ANTON Steuerleitung **ANT**enne **ON**/ Control line automatic antenna
- AMFST **AM**-Feld**ST**ärke zur Steuerung / AM Field-**ST**rength to control
- AMSTOPQ **AM**-**STOP**, **Q**=LOW-aktiv / AM-Stop, **Q**=low-active
- BELTA **BE**leuchtung **T**Astatur / Illumination keys
- CLOCK1 **CLOCK** für Datenbus 1 / Clock for Databus 1
- CLOCK2 **CLOCK** für Datenbus 2 / Clock for Databus 2
- CLOCKS **CLOCK** Schieberegister / Clock shift register
- CCIN Kompakt **C**assette **I**N=Einzug / Cassette draw in
- CCRLR Impuls Wickelteller rechts / Impulse Winding wheel right
- CCRLF Impuls Wickelteller links / Impulse Winding wheel left
- CCMOD **CC**-**MODE** (Mechanik-Position) / CC-Mode (mec. pos.)
- DATAS serielle **D**ATEN, Schieberegister / seriale Data, shift register
- DATA1 **D**ATenbus 1 / Data bus1
- DATA2 **D**ATenbus 2 / Data bus2
- DSPMQ Digital-Signal-Prozessor, **M**ute, **Q**=LOW-aktiv
- DSPRQ Digital-Signal-Prozessor, **R**eset, **Q**=LOW-aktiv
- ENDMU **END**stufen-**M**UTE / Amplifier Mute
- FM1FS **FM** Empf.1, Feld**ST**ärke / FM receiver 1, Field-**ST**rength
- FM2FS **FM** Empf.2, Feld**ST**ärke / FM receiver 2, Field-**ST**rength
- FMQUAL **FM** Empf., **Q**U**AL**itäts-Signal / FM receiver, Quality-Signal
- FMSTOP **FM** **S**TOP-Signal / FM stop
- FRINQ **FR**ont **I**nterrupt **Q**=Low aktiv / Front interrupt **Q**=low active
- KL15Q **KL**15 (Zündung), **Q**=LOW-aktiv / CL15 (ignition), **Q**=LOW-active
- MUPAQ **M**U**L**ti**P**ath-Signal, **Q**=LOW-aktiv / Multipath-Signal, **Q**=Low-active
- RESEQ **RE**set, **Q**=LOW-aktiv / Reset, **Q**=LOW-active
- RDSCL **RDS**-**C**lock
- RSDA **RDS**-**D**aten / RDS-Data



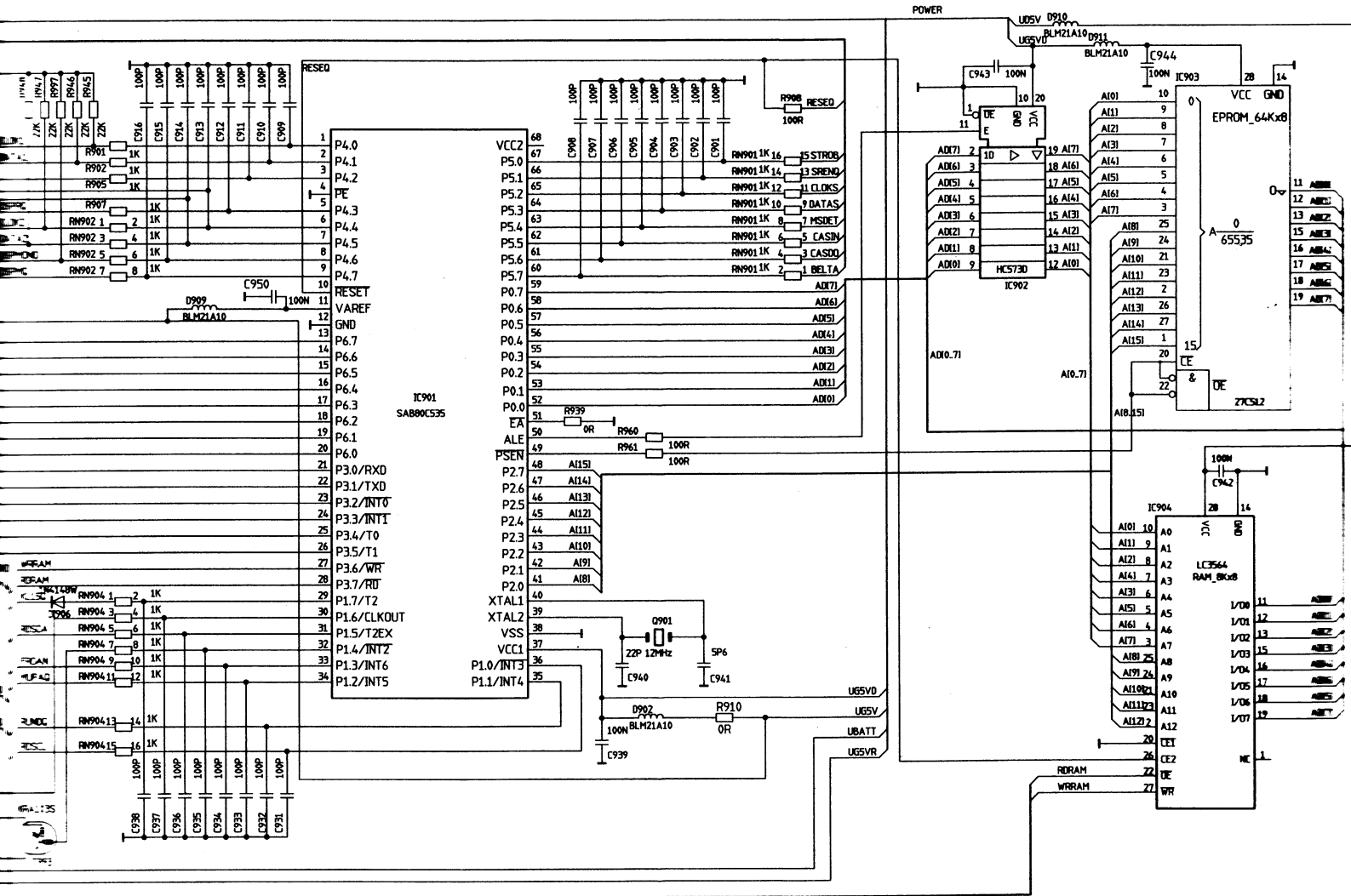
Kurzbezeichnungen Abbreviations

ANABUS	AN alog BUS / Analog bus
ANTON	Steuerleitung AN Tenne ON / Control line automatic antenna
AMFST	AM -Feld ST ärke zur Steuerung / AM Field- ST rength to control
AMSTOPQ	AM - STOP , Q =LOW-aktiv / AM - STOP , Q =low-activ
BELTA	BE leuchtung T astatur / BE llection keys
CLOK1	CLO ck für Datenbus 1 / CLO ck for D atabus 1
CLOK2	CLO ck für Datenbus 2 / CLO ck for D atabus 2
CLOKS	CLO ck Schieberegister / CLO ck shift register
CCIN	Kompakt CC assette IN =Einzug / CC assette draw in
CCRLR	Impuls Wickelteller rechts / Imp ulse W inding wheel right
CCRLF	Impuls Wickelteller links / Imp ulse W inding wheel left
CCMOD	CC - MO de (Mechanik-Position) / CC - MO de (mec. pos.)
DATAS	serielle D ATEN, Schieberegister / seriale D ata, shift register
DATA1	D ATenbus 1 / D ata bus1
DATA2	D ATenbus 2 / D ata bus2
DSPMQ	Digital-Signal-Prozessor, M ute, Q =LOW-aktiv
DSPRQ	Digital-Signal-Prozessor, R eset, Q =LOW-aktiv
ENDMU	EN Dstufen- M UTE / EN dstop Mute
FM1FS	FM Empf.1, F eld ST ärke / FM receiver 1, F ield- ST rength
FM2FS	FM Empf.2, F eld ST ärke / FM receiver 2, F ield- ST rength
FMQUAL	FM Empf., Q U AL itäts-Signal / FM receiver, Q uality-Signal
FMSTOP	FM STOP -Signal / FM stop
FRINQ	F ront I nterrupt Q =Low aktiv / F ront interrupt Q =low active
KL15Q	KL 15 (Zündung), Q =LOW-aktiv / CL 15 (ignition), Q =LOW-active
MUPAQ	M U L i P ath-Signal, Q =LOW-aktiv / M ultipath-Signal, Q =Low-active
RESEQ	R ESEt, Q =LOW-aktiv / R eset, Q =LOW-active
RDSCL	RDS - CL ock / RDS - C lock
RSDA	RDS - DA ten / RDS - D ata

SPUUB	SP annungs UE berwachung B atterie / V oltage monitoring B atter
SPUES	SP annungs UE berwachung ST euerung / V oltage monitoring ST euerung
STRAC	ST euerung R adio AN , Q =LOW-aktiv / C ontrol R adio on. Q =LOW-active
STROE	ST ROBE-Input / ST ROBE-input
SRENQ	Schiebe-Register EN able, Q =LOW-aktiv / S hift- R egister EN able Q =low-active
TELMU	TE LEfon- M UTE / TE lefon mute
UG5V	U =Spannung G eschaltet 5V olt / sw itched 5 Volt
UD5V	U =Spannung D auer 5V olt / P ermanent voltage 5 Volt
UG5VD	U =Spannung G eschaltet 5V olt, D auer / sw itched 5 Volt perma
UG5VR	U =Spannung G eschaltet 5V olt R eset / sw itched 5 Volt reset

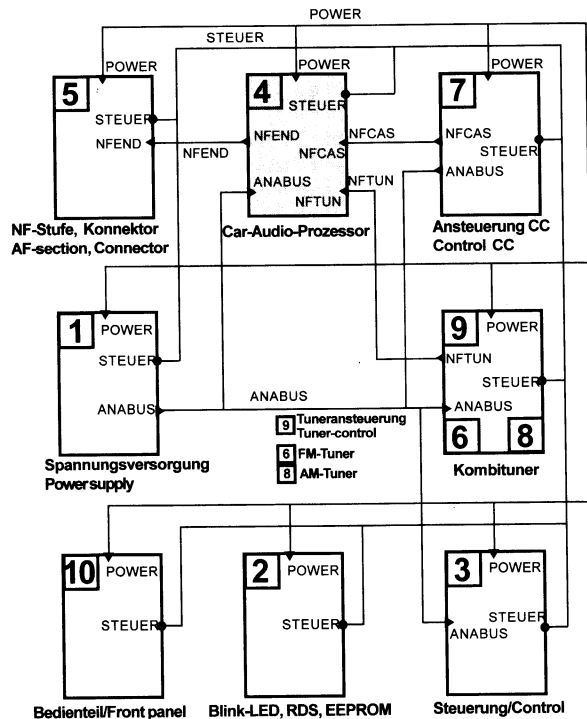


**3 Schaltplan Steuerung
Circuit diagram Control**
Layout siehe Seite 3 / Layout see page 3



4 Car-Audio-Prozessor (aus Schaltungsplatte ..4010 / from P. C. board ..4010)

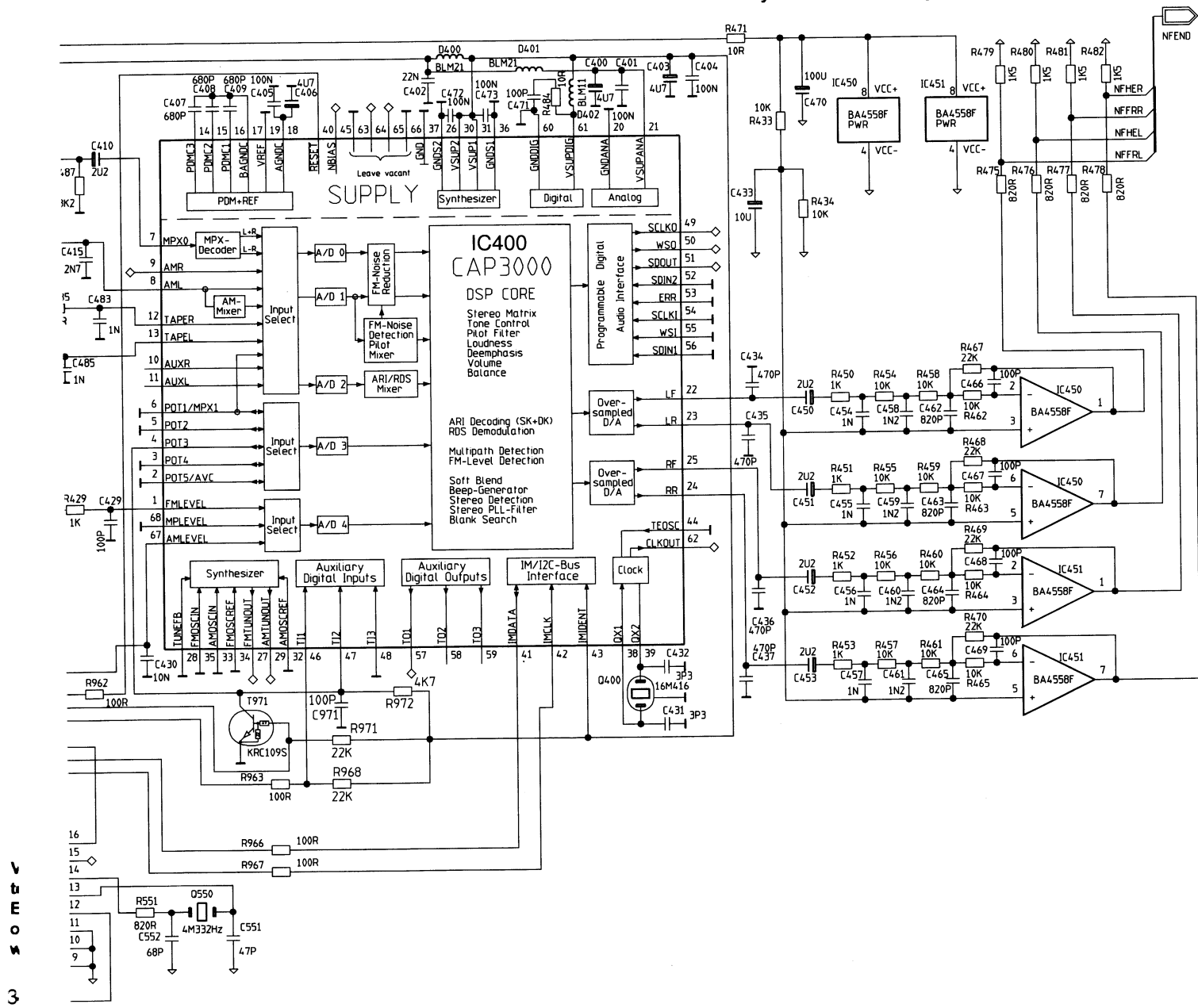
Kurzbezeichnungen Abbreviations



- AMFST **AM-Feld**Stärke zur Steuerung / AM Field-Strength to control
- CLOK2 **CLO**ck für Datenbus 2 /Clock for Databus 2
- DATA2 **DA**Tenbus 2 / Data bus 2
- DSPMQ **D**igital-**S**ignal-**P**rozessor, **M**ute, **Q**=LOW-aktiv / Digital-Signal-Processor, Mute, Q=low-activ
- DSPRQ **D**igital-**S**ignal-**P**rozessor, **R**eset, **Q**=LOW-aktiv / Digital-Signal-Processor, Reset, Q=low-activ
- FMCFS **FM-Cap-Feld**Stärke / FM-Cap-Field-Strength
- MPX **MPX**-Signal / MPX-Signal
- MUPAQ **MU**lti**PA**th-Signal, **Q**=LOW-aktiv / Multipath-Signal, Q=Low-active
- NFAM **NF-AM** / AF-AM
- NFCLL **NF-CC**-Links / AF tape left
- NFCCR **NF-CC**-Rechts / AF tape right
- NFCDL **NF-CD**-Links / AF-CD left
- NFCDR **NF-CD**-Rechts / AF-CD-Right
- RDSCL **RDS-C**Lock / RDS-Clock
- RSDSA **RDS-D**Aten / RDS-Data
- UG5V **U**=Spannung **G**eschaltet 5Volt / 5 Volt switched

4 Schaltplan Car-Audio-Prozessor Circuit diagram Car-Audio-Processor

Layout siehe Seite 3 / Layout see page 3

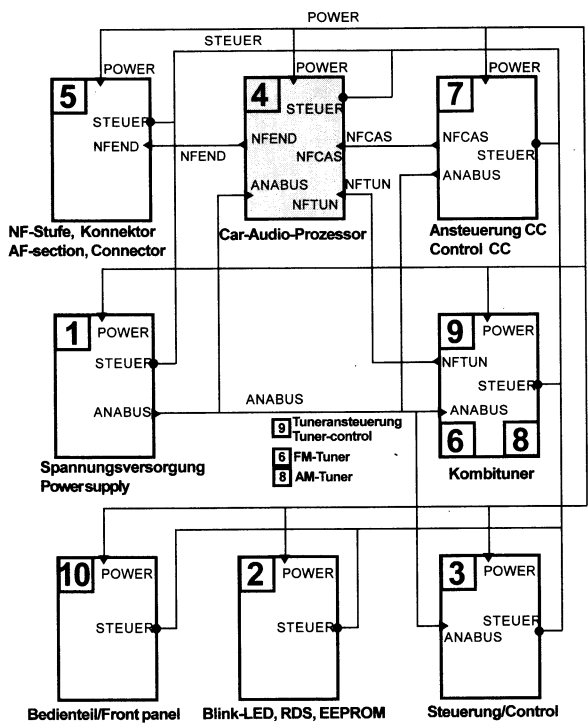


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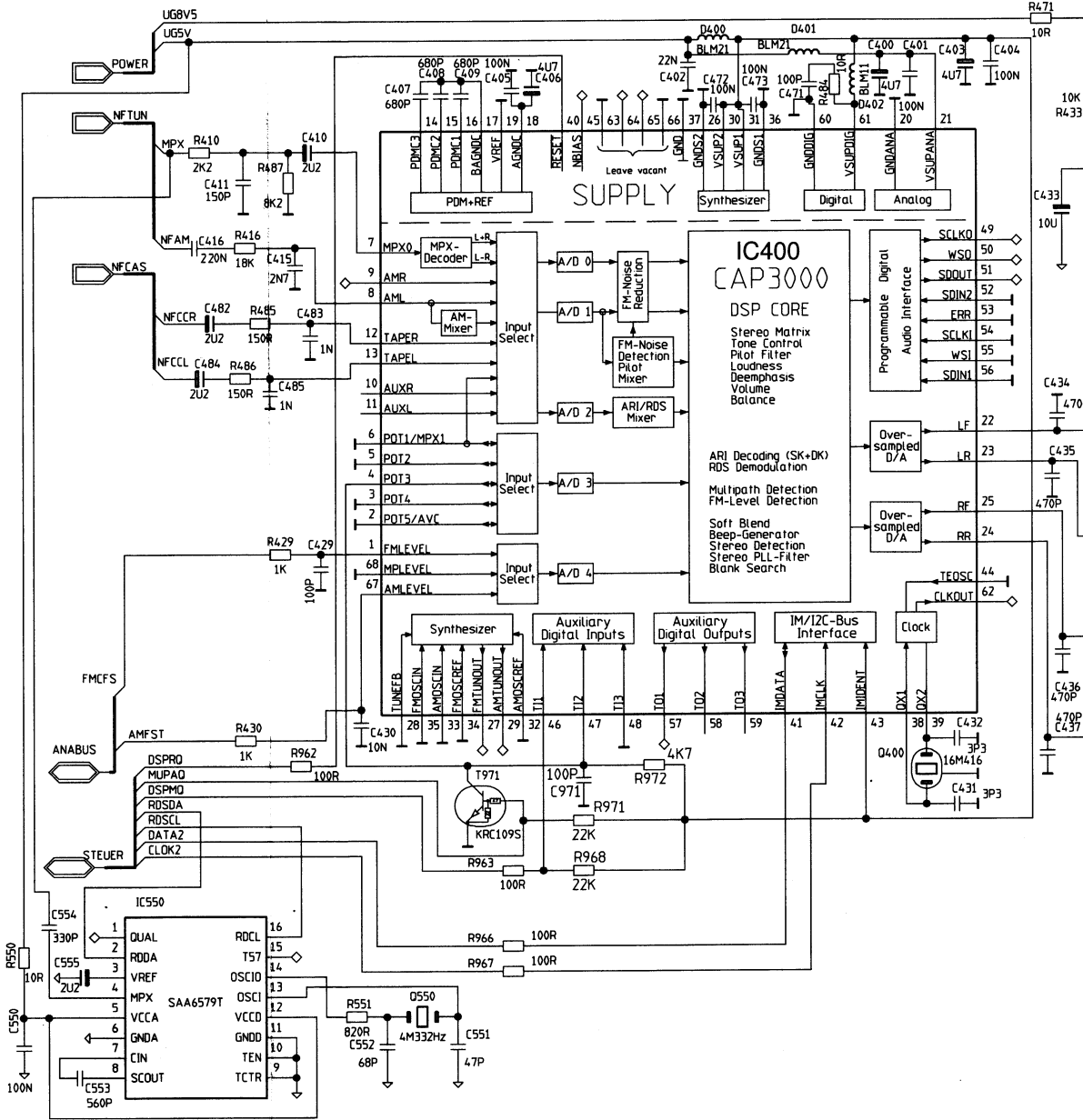
4 Car-Audio-Prozessor (aus Schaltungsplatte ..4010 / from P

Kurzbezeich



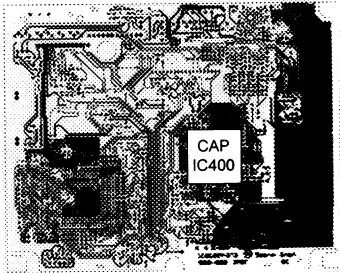
- AMFST AM
- cont
- CLOK2 CLO
- DATA2 DAT
- DSPMQ Digi
- Digi
- DSPRQ Digi
- Digi
- FMFCS FM
- MPX MP
- MUPAQ MU
- acti
- NFAM NF
- NFCCL NF
- NFCCR NF
- NFCCL NF
- NFCDL NF
- NFCDL NF
- NFCDL NF
- RDSCL RD
- RDSCL RD
- RDSCL RD
- RDSCL RD
- RDSCL RD
- UG5V U=5

4 Sc
Cin
Lay



Messungen an Schnittstelle: Car Audio Processor Measureings interface: Car Audio Processor

Mainboard 2010-4010 - Bestückungsseite/
mounting side -



Frontseite/front side

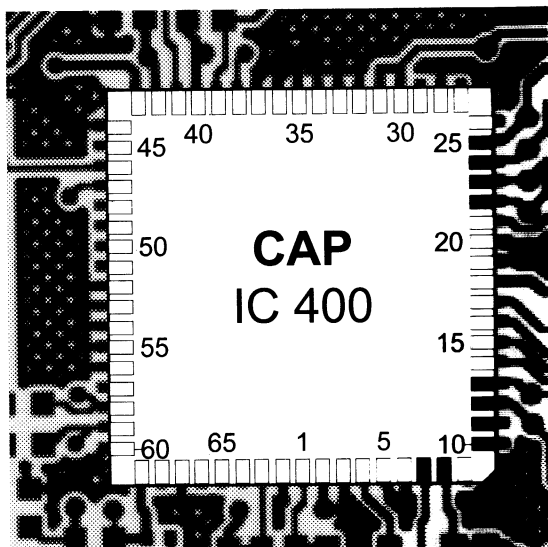
Meßbedingungen:

- Radioanschluß: 13,2V Dauerplus (KL30)
13,2V Zündung (KL15)
Minus an Masse (KL31)
- Bei Spannungsmessungen Minus an Masse
- Voltmeter $R_i > 1\text{M}\Omega$
- HF-Pegel in $\text{dB}\mu\text{V}$ am Antenneneingang

Measuring conditions:

- Radio connection: 13,2V perm. batt. (KL 30)
13,2V ignition (KL15)
Minus at ground (KL31)
- At voltage measuring minus at ground
- Voltmeter $R_i > 1\text{M}\Omega$
- RF-level in $\text{dB}\mu\text{V}$ at antenna input

NF-Ein-, Ausgänge / AF-In-, Outputs



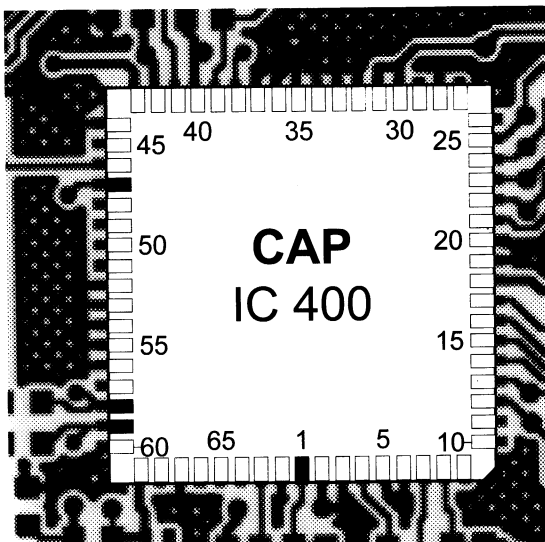
NF-Eingänge / AF-Inputs

- **7** $2,2V_{\text{DC}}$ to $2,7V_{\text{DC}}$; MPX-Signal max. $0,7V_{\text{eff}}$
- **8** $2,2V_{\text{DC}}$ to $2,7V_{\text{DC}}$; AM-Signal max. $1,1V_{\text{eff}}$
- **10** $2,2V_{\text{DC}}$ to $2,7V_{\text{DC}}$; NF-CDW rechts max. $1,1V_{\text{eff}}$
AF-CDC right max. $1,1V_{\text{eff}}$
- **11** $2,2V_{\text{DC}}$ to $2,7V_{\text{DC}}$; NF-CDW links max. $1,1V_{\text{eff}}$
AF-CDC left max. $1,1V_{\text{eff}}$
- **12** $2,2V_{\text{DC}}$ to $2,7V_{\text{DC}}$; NF/AF-CC rechts/right max. $1,6V_{\text{eff}}$
- **13** $2,2V_{\text{DC}}$ to $2,7V_{\text{DC}}$; NF/AF-CC links/lefts max. $1,6V_{\text{eff}}$

NF-Ausgänge / AF-Outputs

- **22** $2,2V_{\text{DC}}$ to $2,7V_{\text{DC}}$; links vorn/left front max. $0,7V_{\text{eff}}$
- **23** $2,2V_{\text{DC}}$ to $2,7V_{\text{DC}}$; links hinten/left rear max. $0,7V_{\text{eff}}$
- **24** $2,2V_{\text{DC}}$ to $2,7V_{\text{DC}}$; rechts hinten/right rear max. $0,7V_{\text{eff}}$
- **25** $2,2V_{\text{DC}}$ to $2,7V_{\text{DC}}$; rechts vorne/right front max. $0,7V_{\text{eff}}$

FM: RDS, Quality evaluation / FM: RDS, Qualitätsbewertung



FM-RDS

- **58 RDS-Daten/Data:** dynamisches/dynamic High/Low-Signal
Low: $<0,8V_{\text{DC}}$; High: $>2,2V_{\text{DC}}$
- **59 RDS-Clock:** High/Low-Signal
Low: $<0,8V_{\text{DC}}$; High: $>2,2V_{\text{DC}}$; $f = 1,18\text{kHz}$

FM-Level

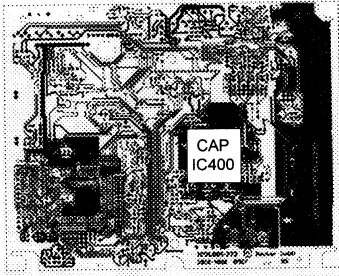
- **1 Meßpegel 1:** Meßsender: $98,1\text{MHz}/60\text{dB}\mu\text{V}/22,5\text{kHz}/1\text{kHz}$ NF
Meas. level 1: RF-generator: $98,1\text{MHz}/60\text{dB}\mu\text{V}/22,5\text{kHz}/1\text{kHz}$ NF
Meßpegel 2: Meßsender: $98,1\text{MHz}/60\text{dB}\mu\text{V}/22,5\text{kHz}/1\text{kHz}$ NF
Meas. level 2: RF-generator: $98,1\text{MHz}/40\text{dB}\mu\text{V}/22,5\text{kHz}/1\text{kHz}$ NF
Meas. level 1: $4V_{\text{DC}}$ to $4,6V_{\text{DC}}$;
Meas. level 2: $2,8V_{\text{DC}}$ to $3,3V_{\text{DC}}$

FM-Multi phase Erkennung / recognition

- **47 Mono-Blend active:** $<0,8V_{\text{DC}}$; Mono: $>2,2V_{\text{DC}}$

Messungen an Schnittstelle: Car Audio Prozessor Measurements at interface: Car Audio Processor

Mainboard 2010-4010 - Bestückungsseite/
mounting side -



Frontseite/front side

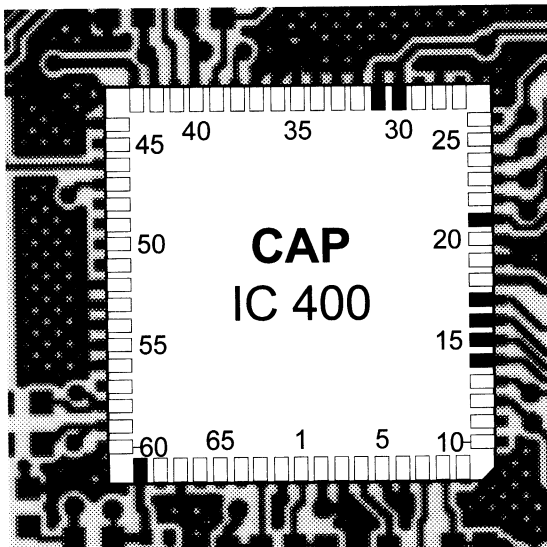
Meßbedingungen:

- Radioanschluß: 13,2V Dauerplus (KL30)
13,2V Zündung (KL15)
Minus an Masse (KL31)
- Bei Spannungsmessungen Minus an Masse
- Voltmeter $R_i > 1\text{M}\Omega$
- HF-Pegel in $\text{dB}\mu\text{V}$ am Antenneneingang

Measuring conditions:

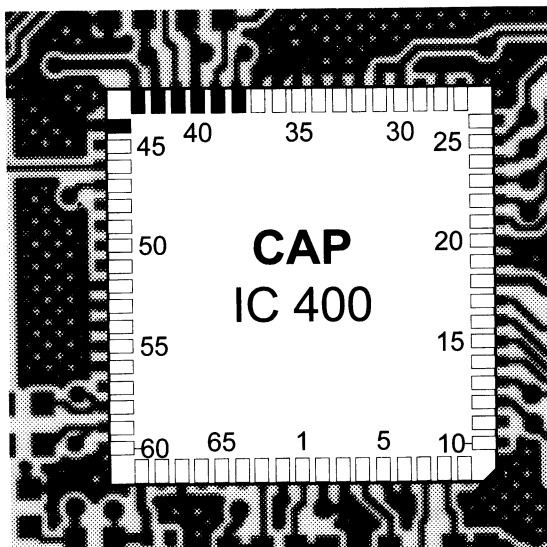
- Radio connection: 13,2V perm. batt. (KL 30)
13,2V ignition (KL15)
Minus at ground (KL31)
- At voltage measuring minus at ground
- Voltmeter $R_i > 1\text{M}\Omega$
- RF-level in $\text{dB}\mu\text{V}$ at antenna input

Spannungsversorgung / Power supply



- 14 $2,2V_{\text{DC}}$ to $2,7V_{\text{DC}}$;
- 15 $2,2V_{\text{DC}}$ to $2,7V_{\text{DC}}$; Ref.-Spannung A/D-Wandler
Ref.-voltage A/D-converter
- 16 $2,2V_{\text{DC}}$ to $2,7V_{\text{DC}}$;
- 17 $2,2V_{\text{DC}}$ to $2,7V_{\text{DC}}$;
- 21 $4,75V_{\text{DC}}$ to $5,25V_{\text{DC}}$; Spg.-Versorgung Analog-Teil
Power supply analog-section
- 30 $4,75V_{\text{DC}}$ to $5,25V_{\text{DC}}$; Spg.-Versorgung Synthesizer
Power supply Synthesizer
- 31 $4,75V_{\text{DC}}$ to $5,25V_{\text{DC}}$;
- 61 $4,75V_{\text{DC}}$ to $5,25V_{\text{DC}}$; Spg.-Versorgung Digital-Teil
Power supply digital-section

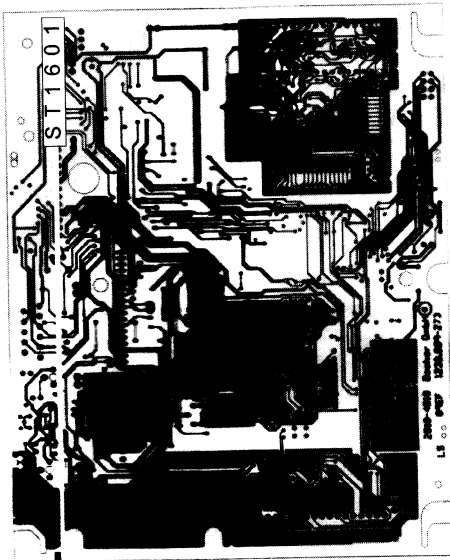
Takt/Steuerung / Clock / Control



- 38 *Oszilloscope, Tastkopf/Probe 10:1* 16,416 MHz ; Oszillator/Oscillator
- 39 *Oszilloscope, Tastkopf/Probe 10:1* 16,416 MHz ; Oszillator/Oscillator
- 40 *Reset inactive / active (μP -gesteuert/controlled)*
inactive: $>4,2V_{\text{DC}}$
active: $800\mu\text{s} / 0,8V_{\text{DC}}$
- 41 *keine Daten: High-level; Daten: dynamisch High/Low*
no Data: High-level; Data: dynamic High/Low
High: $>2V_{\text{DC}}$; Low: $<0,8V_{\text{DC}}$ I²C-BUS
- 42
- 43 $4,75V_{\text{DC}}$ to $5,25V_{\text{DC}}$; Spg.-Versorgung I²C-BUS-Interface
power supply I²C-BUS-Interface
- 44 Masse / ground

Messungen an Schnittstelle: NF-Platte 4020
Measurements interface: AF-board 4020

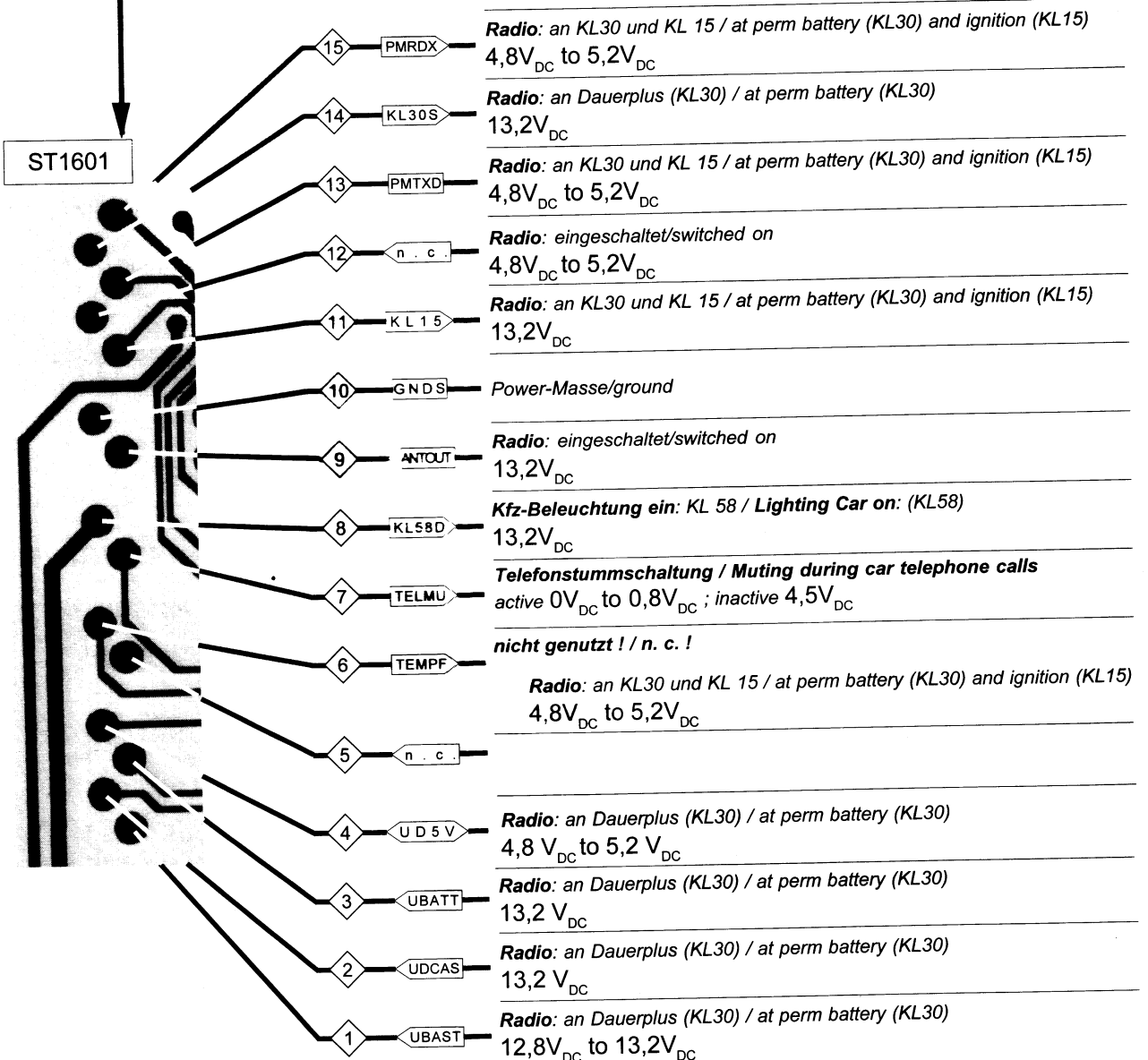
Mainboard 2010-4010 - Lötseite/soldering side -



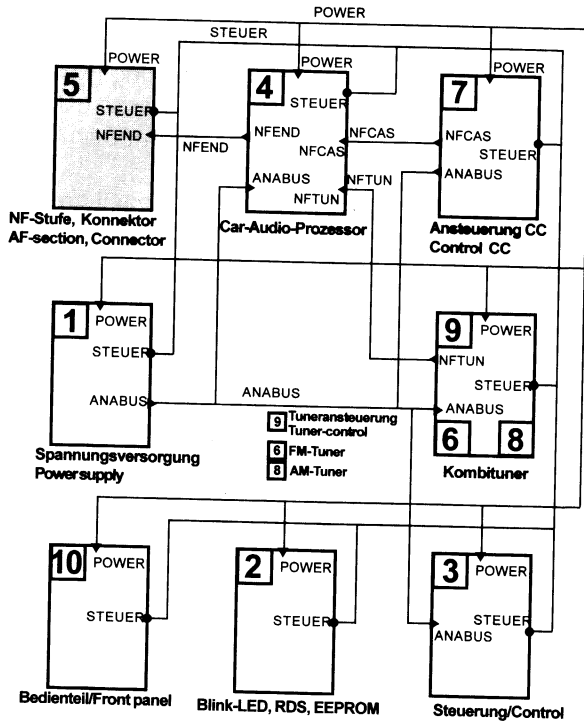
Frontseite/front side

Meßbedingungen:

- Radioanschluß: 13,2V Dauerplus (KL30)
13,2V Zündung (KL15)
Minus an Masse (KL31)
 - Radioeinstellung: Lautstärke max.
Höhen, Tiefen, Fader,
Balance in Mittelstellung
 - Bei Spannungsmessungen Minus an Masse
 - Voltmeter $R_i > 1\text{M}\Omega$
 - HF-Pegel in dB μ V am Antenneneingang
- Measuring conditions:**
- Radio connection: 13,2V perm. batt. (KL 30)
13,2V ignition (KL15)
Minus at ground (KL31)
 - Radio setting: Volume maximum
Treble, Bass, Fader,
Bal. in midrange setting
 - At voltage measuring minus at ground
 - Voltmeter $R_i > 1\text{M}\Omega$
 - RF-level in dB μ V at antenna input

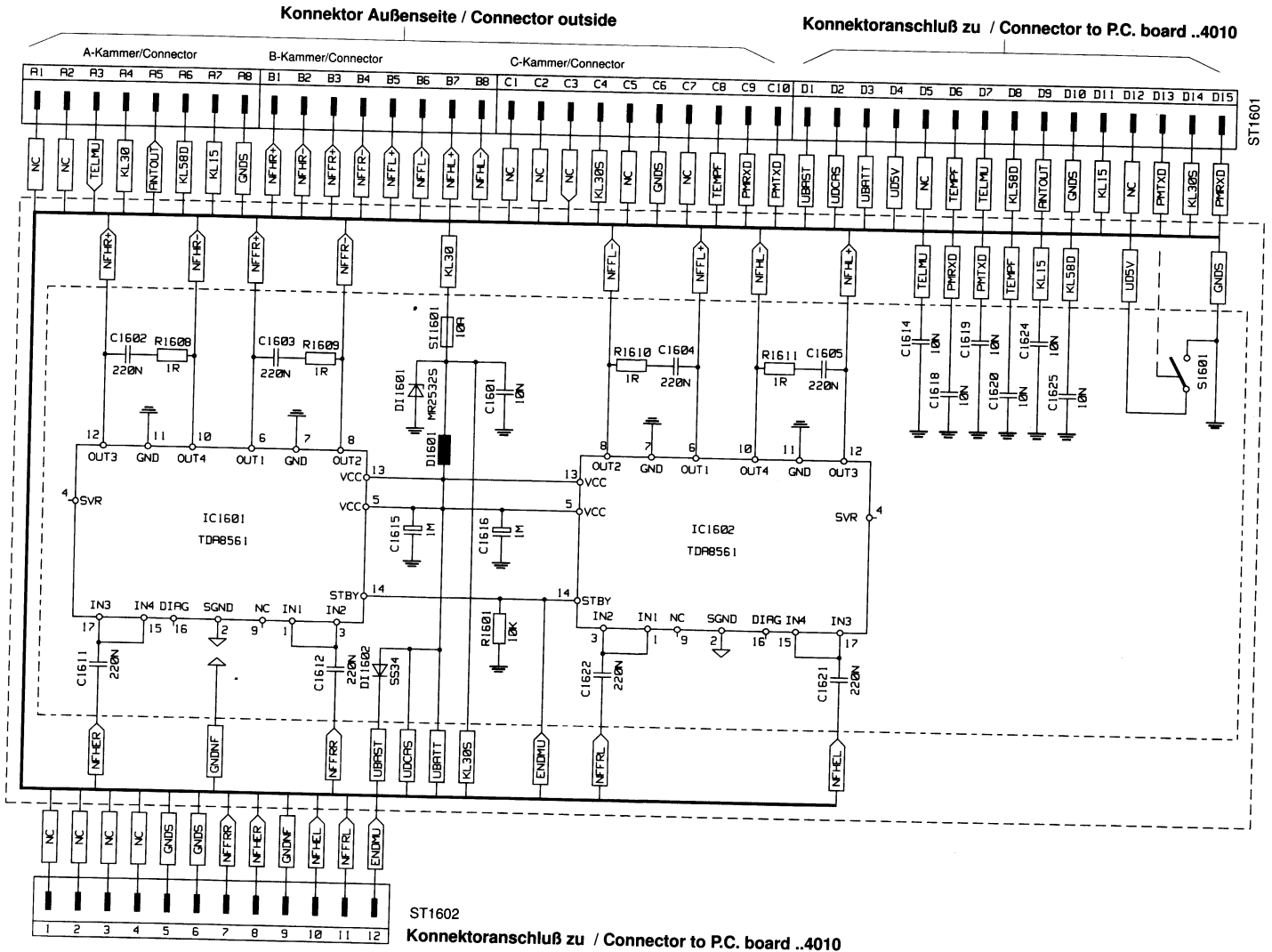


5 NF-Stufe. Konnektor / AF-section, Connector



5 Schaltplan NF-Stufe, Konnektor ..E4020 / Circuit diagram AF-section. Connector ..E 4020

Layout siehe Seite 34/ Layout see page 34

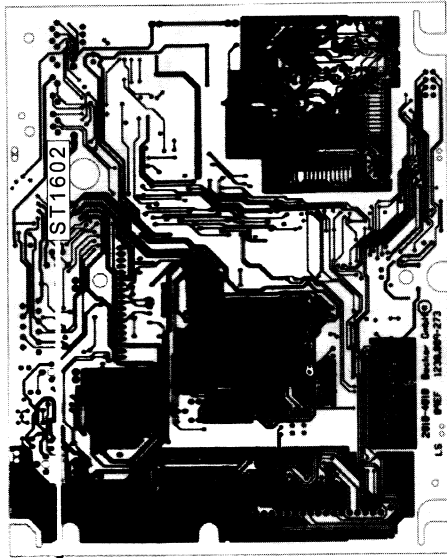


Messungen an Schnittstelle: NF-Platte 4020
Measureings interface: AF-board 4020

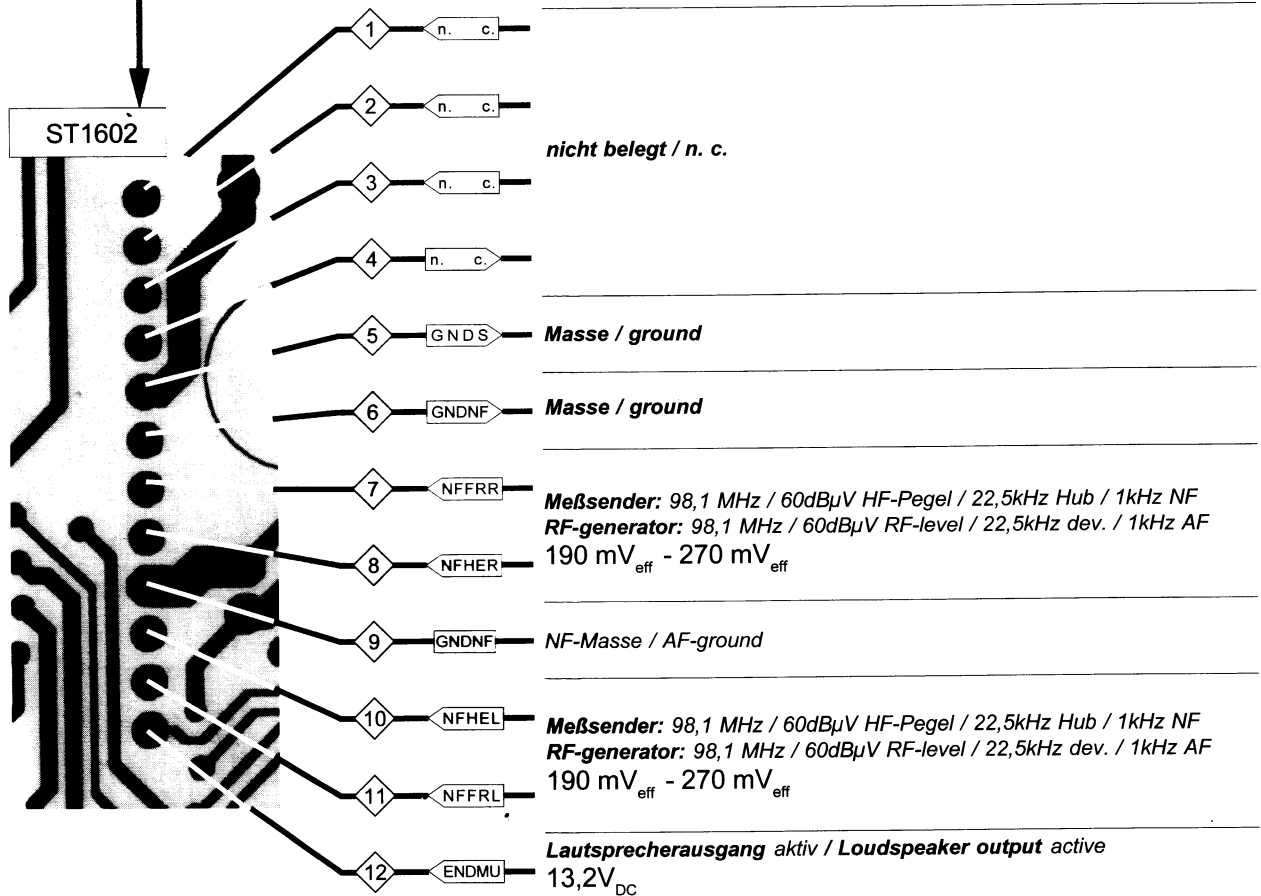
Kurzbezeichnungen Abbreviations

ENDMU	ENDstufen- M ute / Amplifier Mute
NFR+	NF-FR ont- R echts + / AF-Front-Right +
NFR-	NF-FR ont- R echts - / AF-Front-Right -
NFFRR	NF-FR ont- R echts / AF-Front-Right
NFFRL	NF-FR ont- L inks / AF-Front-Left
NFHER	NF-HE ck- R echts / AF-Rear-Right
NFHEL	NF-HE ck- L inks / AF-Rear-Left
NFHL+	NF-HE ck- L inks + / AF-Rear-Left +
NFHL-	NF-HE ck- L inks - / AF-Rear-Left -
NFL+	NF-FR ont- L inks + / AF-Front-Left +
NFL-	NF-FR ont- L inks - / AF-Front-Left -
UBATT	U=Spannung B ATTERie / U=voltage Battery
UG8V5	U=Spannung G eschaltet 8,5V / 8,5 Volt switched

Mainboard 2010-4010 - Lötseite/soldering side -



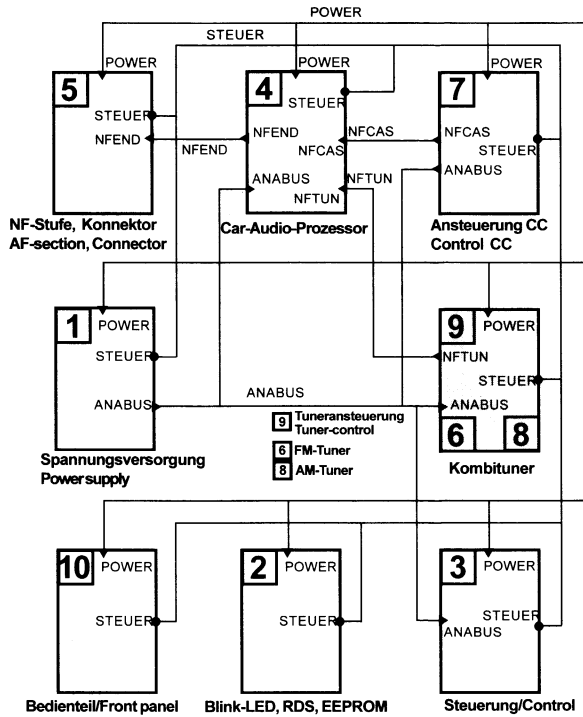
Frontseite/front side



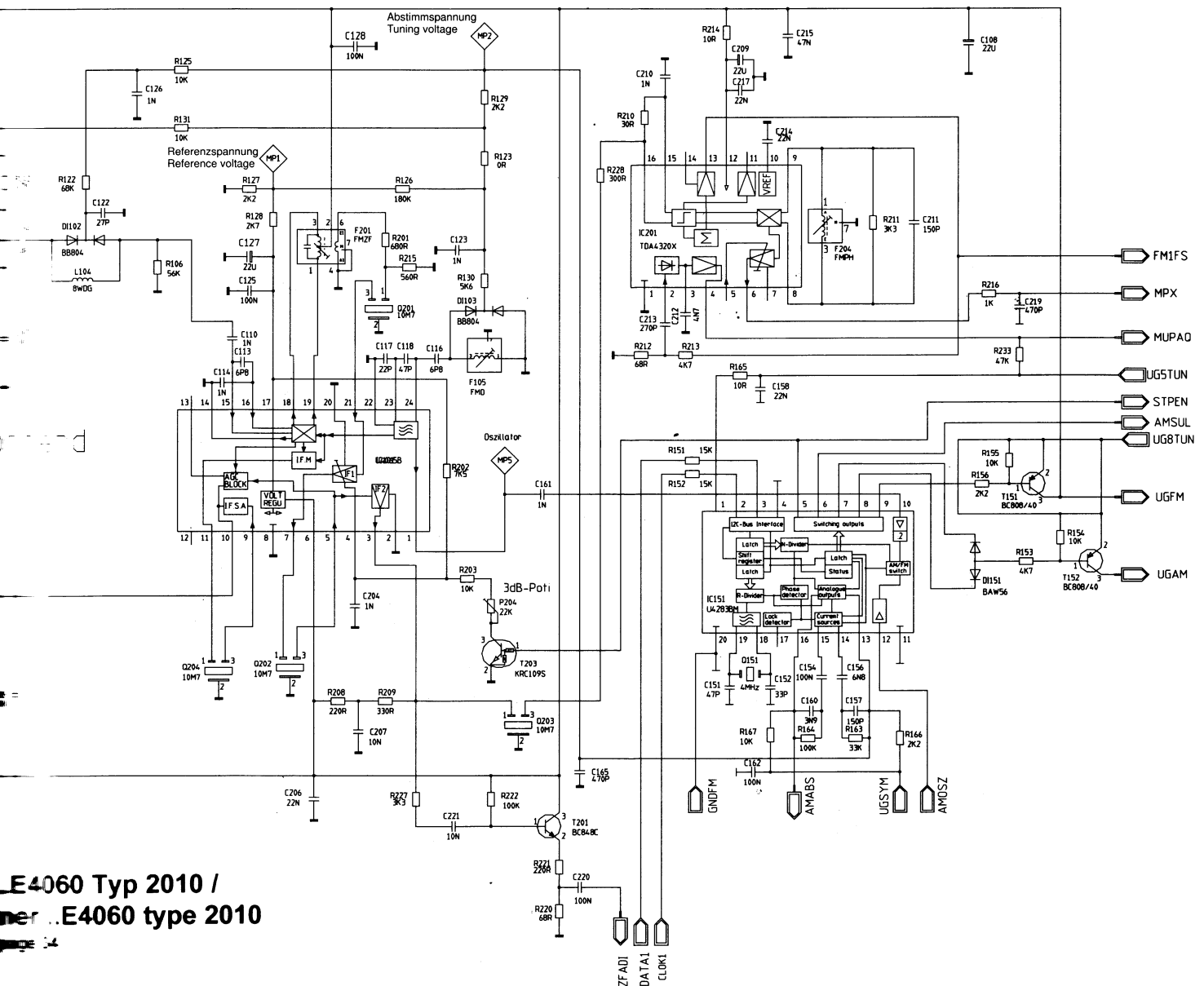
FM-Tuner Typ 2010

6

FM Field-Strength to
 low active
 Databus 1
 Power 1, Field-Strength
 Power 2, Field-Strength
 receiver, Quality signal
 FM
 coil set
 Multipath-Signal,
 Enable
 Tuner / switched 5 Volt
 TUNER / switched 8,5
 Voltage switched AM
 Voltage switched FM
 switched 10 Volt
 switched 10 Volt

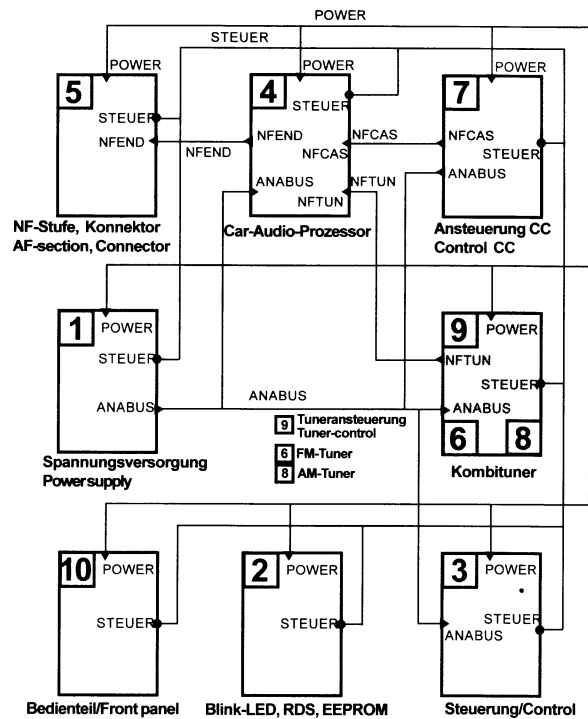


FM-Demodulator

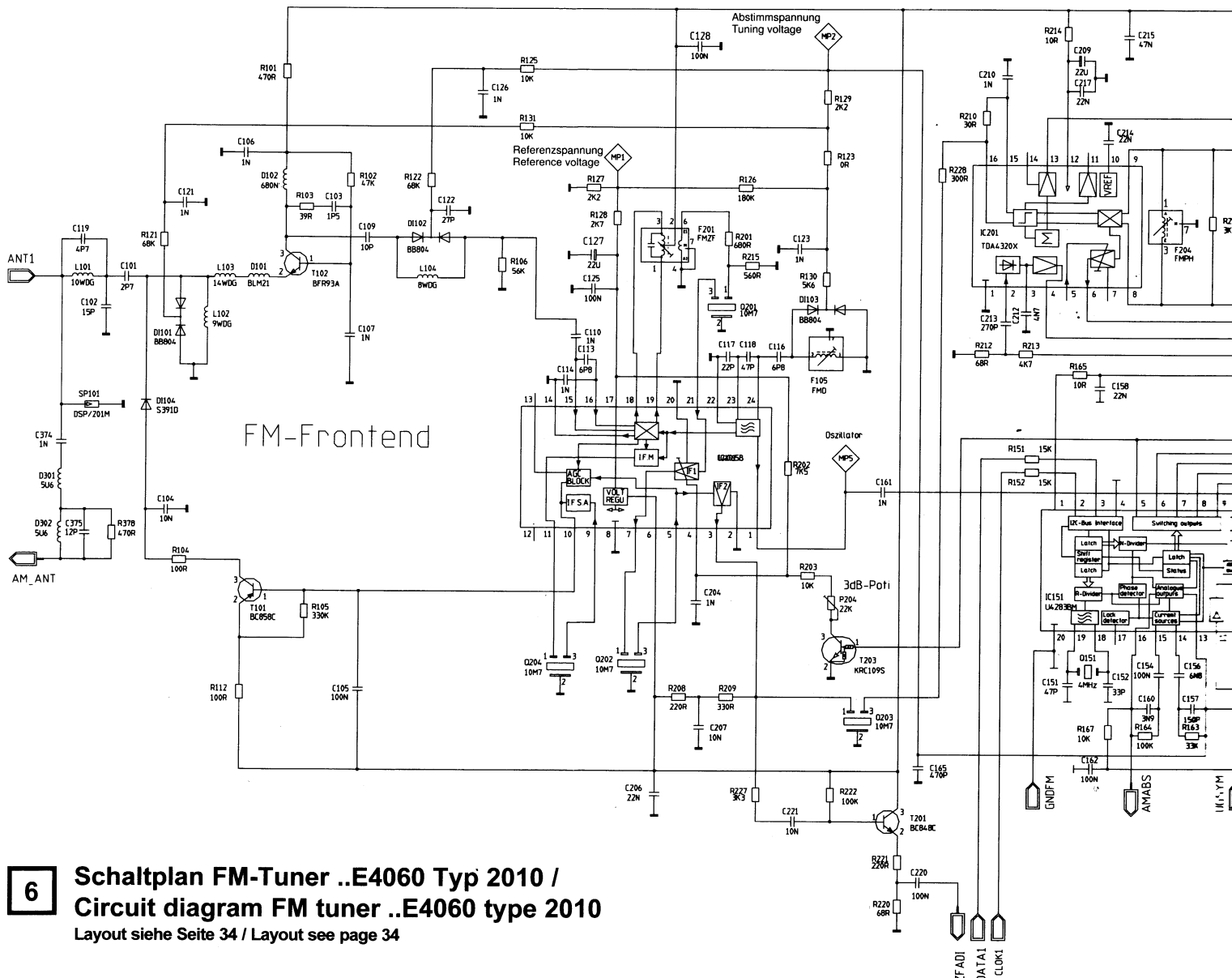


E406 Typ 2010 /
 E406 type 2010

- AMABS **AM-AB**stimmung / AM Tuning
- AMANT **AM-AN**Tenne / AM Antenna
- AMFST **AM-FeldSt**ärke zur Steuerung / AM Field-Strength to control
- AMSTOQ **AM-STOp Q**=low aktiv / AM stop Q=low active
- AMSUL **AM SÜ**chLauf / AM seek
- AMOSZ **AM OS**zillator / AM oscillator
- CLOK1 **CLO**ck für Datenbus 1 / Clock for Databus 1
- DATA1 **DA**Tenbus 1 / Data bus 1
- FM1FS **FM** Empf.1, **FeldSt**ärke / FM receiver 1, Field-Strength
- FM2FS **FM** Empf.2, **FeldSt**ärke / FM receiver 2, Field-Strength
- FMQAL **FM** Empf., **QuAl**itäts-Signal / FM receiver, Quality signal
- GNDFM **GrouND** (Masse) **FM** / GrouND FM
- LW **LangW**elle Spulensatz / Long wave coil set
- MUPAQ **MU**lti**PA**th-Signal, **Q**=LOW-aktiv / Multipath-Signal, Q=Low-active
- MPX **MPX** Signal / MPX-Signal
- MW **MitteW**elle Spulenset / AM coil set
- NFAM **NF-AM** / AF-AM
- STPEN **STOp EN**able (Freigabe) / STOp ENable
- UG5TUN **U**=Spannung **G**eschaltet **5**Volt **TUN**er / switched 5 Volt Tuner
- UG8TUN **U**=Spannung **G**eschaltet **8,5**Volt **TUN**er / switched 8,5 Volt Tuner
- UGAM **U**=Spannung **G**eschaltet **AM** / Voltage switched AM
- UGFM **U**=Spannung **G**eschaltet **UM** / Voltage switched FM
- UGSYM **U**=Spannung **G**eschaltet **10**Volt / switched 10 Volt
- UG10V **U**=Spannung **G**eschaltet **10**Volt / switched 10 Volt



FM-Demodula

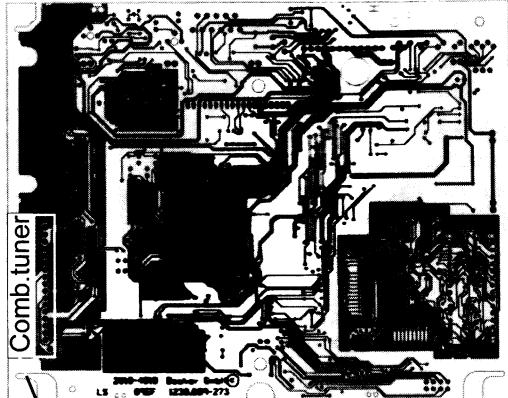


6 Schaltplan FM-Tuner ..E4060 Typ 2010 / Circuit diagram FM tuner ..E4060 type 2010
Layout siehe Seite 34 / Layout see page 34

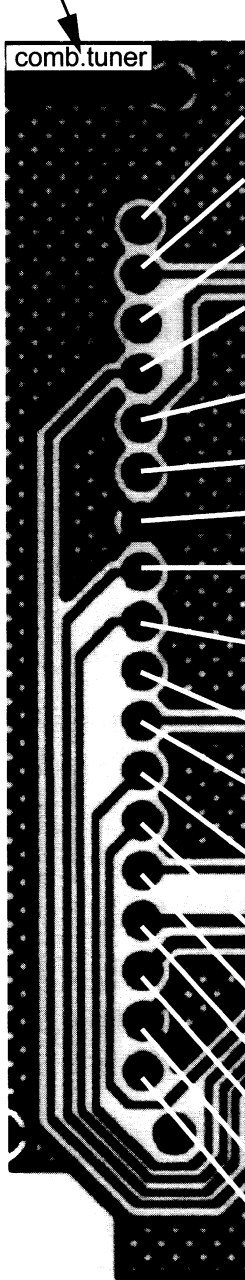
Messungen an Schnittstelle: Kombituner II

Measuring at interface: Combined tuner II

Mainboard 2010-4010 - Lötseite/soldering side -



Frontseite/front side



18	n. c.
17	Meßsender/RF-generator: 98,1MHz/60dBµV/75kHz/1kHz NF/AF 0,6V _{eff} to 0,8V _{eff} ; 4V _{DC} to 5V _{DC}
16	n. c.
15	Pegel/level 1 Meßs./RF-gener.: 98,1MHz/60dBµV/22,5kHz/1kHz NF/AF Pegel/level 2 Meßs./RF-gener.: 98,1MHz/40dBµV/22,5kHz/1kHz NF/AF Pegel/level 1: 4V _{DC} to 4,6V _{DC} ; Pegel/level 2: 2,8V _{DC} to 3,3V _{DC}
14	Multipath active Meßs./RF-gener.: 98,1MHz/60dBµV/95%AM/10kHz NF/AF Multipath inactive Meßs./RF-gener.: 98,1MHz/60dBµV/75kHz/10kHz NF/AF active: 0V _{DC} - 0,7V _{DC} ; inactive: 4V _{DC} - 5V _{DC}
13	FM ein/on: 7,5V _{DC} to 8,5V _{DC} ; FM aus/off: 0,1V _{DC} to 3V _{DC}
12	Tuner Masse/ground
11	Meßsender/RF-generator: 999kHz/35dBµV/30%AM/1kHz NF/AF; 0,8V _{DC} to 1,1V _{DC}
10	AM-Stop pulse active Meßs./RF-gener.: 999kHz/35dBµV/30%AM/1kHz AF AM-Stop pulse inactive Meßs./RF-gener.: 999kHz/15dBµV/30%AM/1kHz AF active: 0V _{DC} to 0,4V _{DC} ; inactive: 2,5V _{DC} to 5,2V _{DC}
9	AM ein/on: 8V _{DC} to 8,5V _{DC} ; AM aus/off: 0V _{DC}
8	Meßsender/RF-generator: 999kHz/60dBµV/30%AM/1kHz NF/AF; 0,2V _{eff} to 0,4V _{eff} ;
7	keine Daten/no Data: High-level; Daten/Data: High/Low dynamisch/dynamic High: 3V _{DC} to 5,25V _{DC} ; Low: 0V _{DC} to 1,5V _{DC}
6	keine Daten/no Data: High-level; Daten/Data: High/Low, unregelm. dyn. Signal/ irregular dyn. signal High: 3V _{DC} to 5,25V _{DC} ; Low: 0V _{DC} to 1,5V _{DC}
5	7,5V _{DC} to 9,5V _{DC}
4	8,75V _{DC} to 12V _{DC}
3	4,75V _{DC} to 5,25V _{DC}
2	AM-Antennenmasse/antenna ground
1	n. c.

Meßbedingungen:

- Radioanschluß: 13,2V Dauerplus (KL30)
13,2V Zündung (KL15)
Minus an Masse (KL31)

- Bei Spannungsmessungen Minus an Masse
- Voltmeter R_i > 1MΩ
- HF-Pegel in dBµV am Antenneneingang

Measuring conditions:

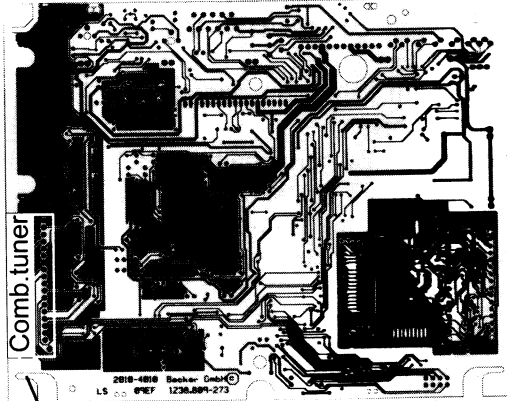
- Radio connection: 13,2V perm. batt. (KL 30)
13,2V ignition (KL15)
Minus at ground (KL31)

- At voltage measuring minus at ground
- Voltmeter R_i > 1MΩ
- RF-level in dBµV at antenna input

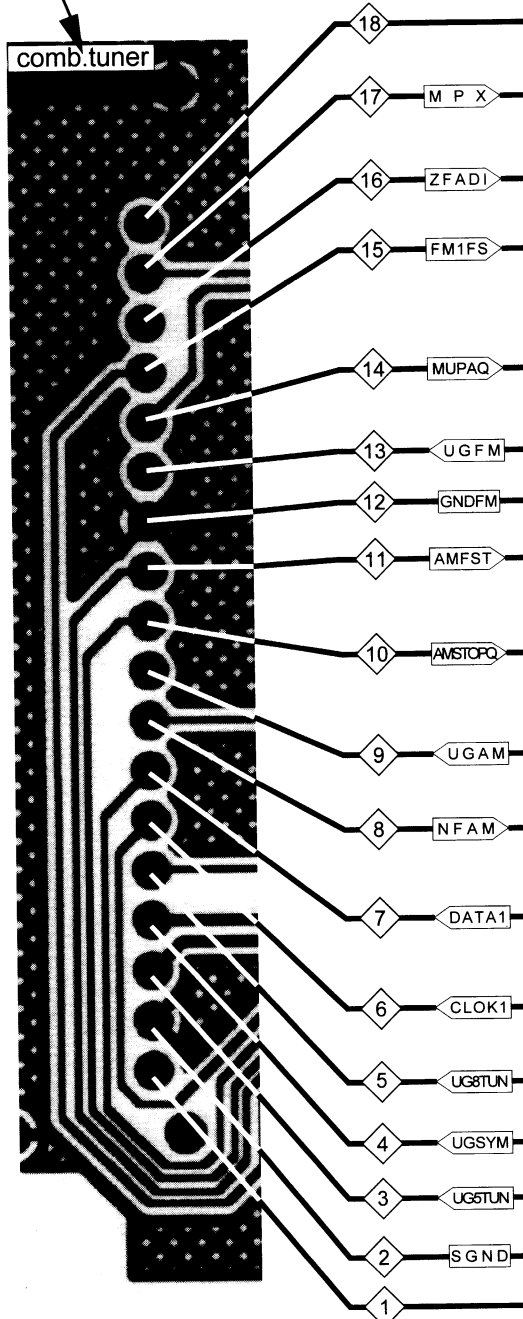
Messungen an Schnittstelle: Kombituner II

Measuring at interface: Combined tuner II

Mainboard 2010-4010 - Lötseite/soldering side -



Frontseite/front side



18	n. c.
17	M P X Meßsender/RF-generator: 98,1MHz/60dBµV/75kHz/1kHz NF/AF 0,6V _{eff} to 0,8V _{eff} ; 4V _{DC} to 5V _{DC}
16	ZFADI n. c.
15	FM1FS Pegel/level 1 Meßs./RF-gener.: 98,1MHz/60dBµV/22,5kHz/1kHz NF/AF Pegel/level 2 Meßs./RF-gener.: 98,1MHz/40dBµV/22,5kHz/1kHz NF/AF Pegel/level 1: 4V _{DC} to 4,6V _{DC} ; Pegel/level 2: 2,8V _{DC} to 3,3V _{DC}
14	MUPAQ Multipath active Meßs./RF-gener.: 98,1MHz/60dBµV/95%AM/10kHz NF/AF Multipath inactive Meßs./RF-gener.: 98,1MHz/60dBµV/75kHz/10kHz NF/AF active: 0V _{DC} - 0,7V _{DC} ; inactive: 4V _{DC} - 5V _{DC}
13	UGFM FM ein/on: 7,5V _{DC} to 8,5V _{DC} ; FM aus/off: 0,1V _{DC} to 3V _{DC}
12	GNDFM Tuner Masse/ground
11	AMFST Meßsender/RF-generator: 999kHz/35dBµV/30%AM/1kHz NF/AF; 0,8V _{DC} to 1,1V _{DC}
10	AMSTOPQ AM-Stop pulse active Meßs./RF-gener.: 999kHz/35dBµV/30%AM/1kHz AF AM-Stop pulse inactive Meßs./RF-gener.: 999kHz/15dBµV/30%AM/1kHz AF active: 0V _{DC} to 0,4V _{DC} ; inactive: 2,5V _{DC} to 5,2V _{DC}
9	UGAM AM ein/on: 8V _{DC} to 8,5V _{DC} ; AM aus/off: 0V _{DC}
8	NFAM Meßsender/RF-generator: 999kHz/60dBµV/30%AM/1kHz NF/AF; 0,2V _{eff} to 0,4V _{eff} ;
7	DATA1 keine Daten/no Data: High-level; Daten/Data: High/Low dynamisch/dynamic High: 3V _{DC} to 5,25V _{DC} ; Low: 0V _{DC} to 1,5V _{DC}
6	CLOCK1 keine Daten/no Data: High-level; Daten/Data: High/Low, unregelm. dyn. Signal/ irregular dyn. signal High: 3V _{DC} to 5,25V _{DC} ; Low: 0V _{DC} to 1,5V _{DC}
5	UG8TUN 7,5V _{DC} to 9,5V _{DC}
4	UGSYM 8,75V _{DC} to 12V _{DC}
3	UG5TUN 4,75V _{DC} to 5,25V _{DC}
2	SGND AM-Antennenmasse/antenna ground
1	n. c.

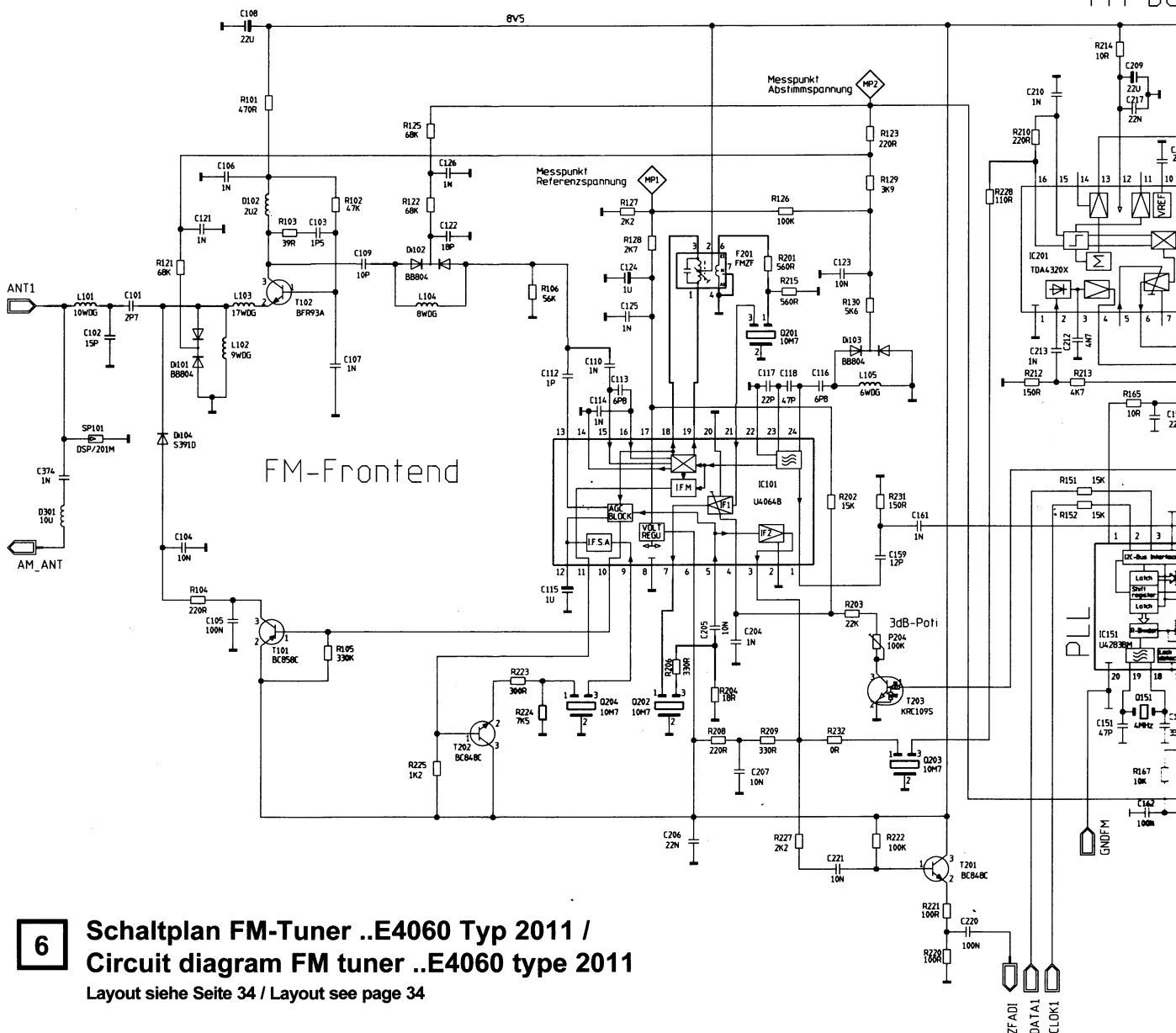
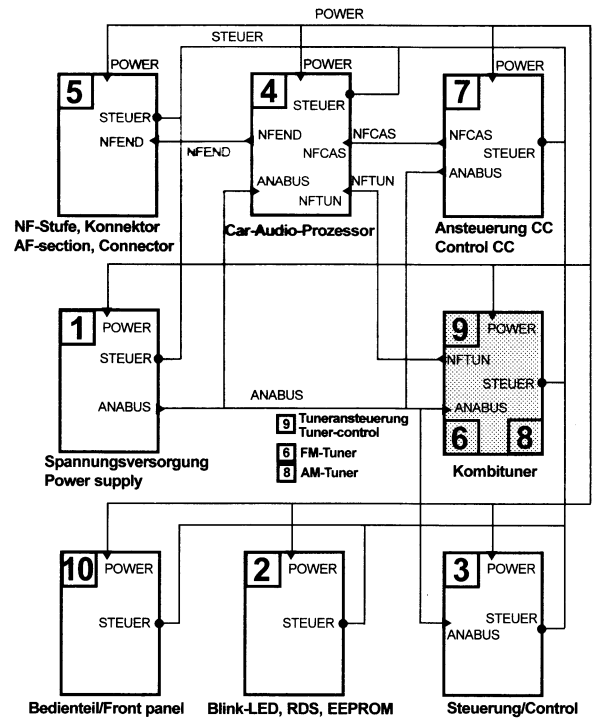
Meßbedingungen:

- Radioanschluß: 13,2V Dauerplus (KL30)
13,2V Zündung (KL15)
Minus an Masse (KL31)
- Bei Spannungsmessungen Minus an Masse
- Voltmeter R_i > 1MΩ
- HF-Pegel in dBµV am Antenneneingang

Measuring conditions:

- Radio connection: 13,2V perm. batt. (KL 30)
13,2V ignition (KL15)
Minus at ground (KL31)
- At voltage measuring minus at ground
- Voltmeter R_i > 1MΩ
- RF-level in dBµV at antenna input

AMABS	AM-AB stimmung / AM Tuning
AMANT	AM-AN Tenne / AM Antenna
AMFST	AM-FeldST ärke zur Steuerung / AM Field-Strength to control
AMSTOQ	AM-STOp Q =low aktiv / AM stop Q=low active
AMSUL	AM SÜ chlauf / AM seek
AMOSZ	AM OS zillator / AM oscillator
CLOK1	CLO ck für Datenbus 1 / Clock for Databus 1
DATA1	DAT enbus 1 / Data bus 1
FM1FS	FM Empf.1, Feld St ärke / FM receiver 1, Field-Strength
FM2FS	FM Empf.2, Feld St ärke / FM receiver 2, Field-Strength
FMQAL	FM Empf., Qu ALitäts-Signal / FM receiver, Quality signal
GNDFM	Grou ND (Masse) FM / Grou ND FM
LW	Lang Welle Spulensatz / Long wave coil set
MUPAQ	MU lti P ath-Signal, Q =LOW-aktiv / Multipath-Signal. Q=Low-active
MPX	MPX Signal / MPX-Signal
MW	Mittel Welle Spulensatz / AM coil set
NFAM	NF-AM / AF-AM
STPEN	STOp EN able (Freigabe) / STOp EN able
UG5TUN	U =Spannung G eschaltet 5V olt TUN er / switched 5 Volt Tuner
UG8TUN	U =Spannung G eschaltet 8,5V olt TUN er / switched 8.5 Volt Tuner
UGAM	U =Spannung G eschaltet AM / Voltage switched AM
UGFM	U =Spannung G eschaltet UM / Voltage switched FM
UGSYM	U =Spannung G eschaltet 10V olt / switched 10 Volt
UG10V	U =Spannung G eschaltet 10V olt / switched 10 Volt

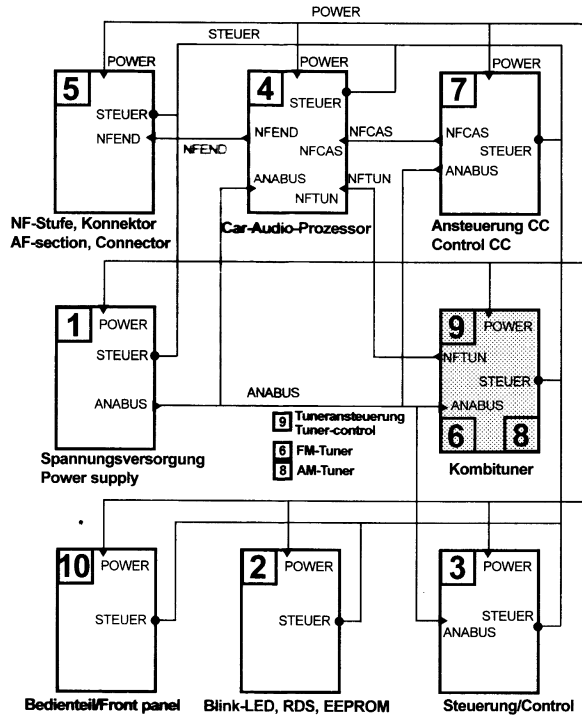


6 Schaltplan FM-Tuner ..E4060 Typ 2011 /
Circuit diagram FM tuner ..E4060 type 2011
Layout siehe Seite 34 / Layout see page 34

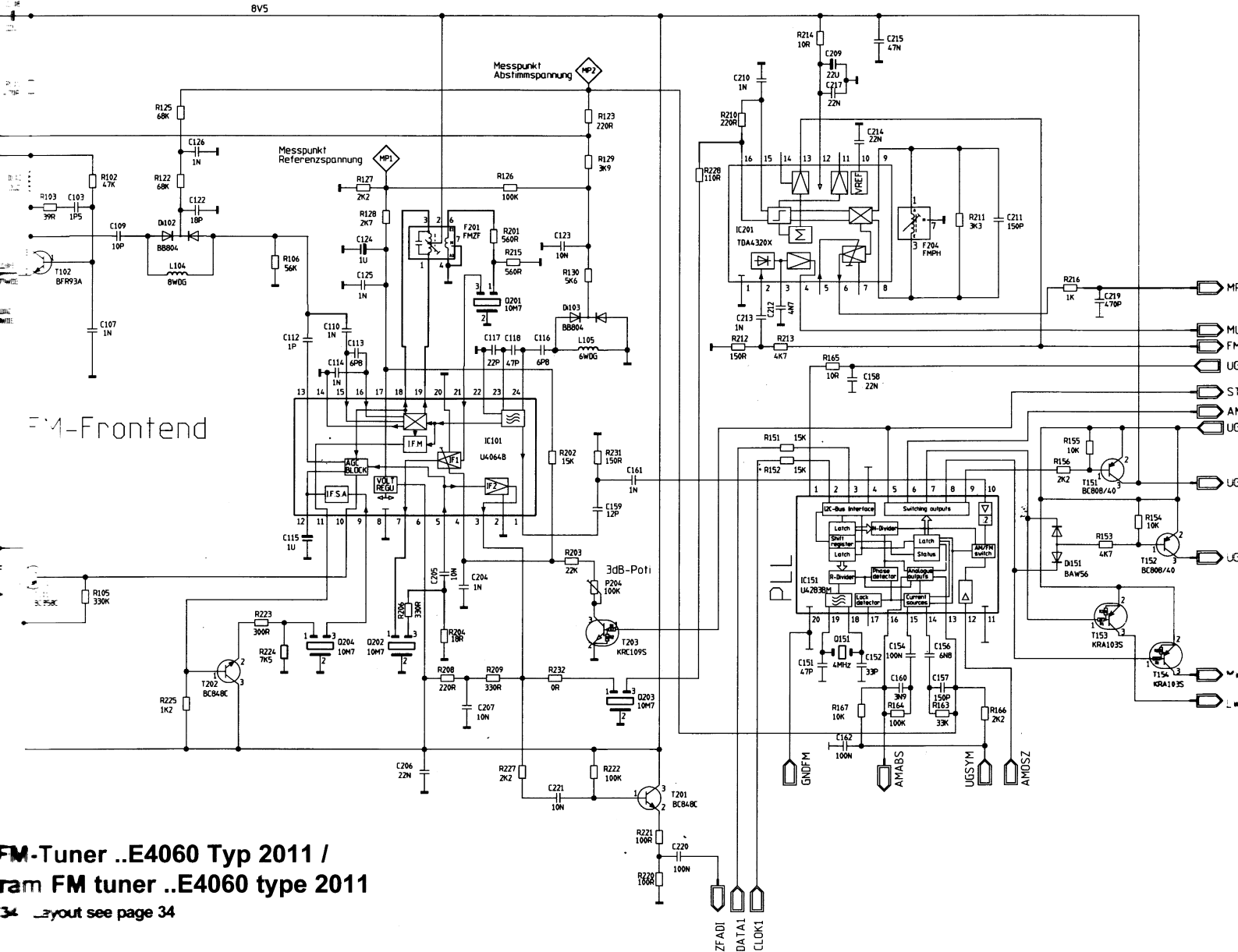
Abbreviations

- FM Tuning
- Antenna
- Steuerung / AM Field-Strength to
- aktiv / AM stop Q=low active
- seek
- FM oscillator
- bus 1 / Clock for Databus 1
- Data bus 1
- Stärke / FM receiver 1, Field-Strength
- Stärke / FM receiver 2, Field-Strength
- ats-Signal / FM receiver, Quality signal
- FM / GrouND FM
- ersatz / Long wave coil set
- Q=LOW-aktiv / Multipath-Signal,
- X-Signal
- erset / AM coil set
- Freigabe) / SToP ENable
- eschaltet 5Volt TUNer / switched 5 Volt
- eschaltet 8,5Volt TUNer / switched 8,5
- eschaltet AM / Voltage switched AM
- eschaltet UM / Voltage switched FM
- eschaltet 10Volt / switched 10 Volt
- eschaltet 10Volt / switched 10 Volt

FM-Tuner Typ 2011



FM-Demodulator



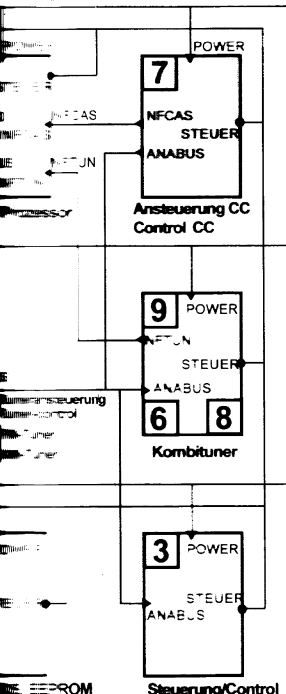
FM-Tuner ..E4060 Typ 2011 /
ram FM tuner ..E4060 type 2011

Layout see page 34

CC / Control CC

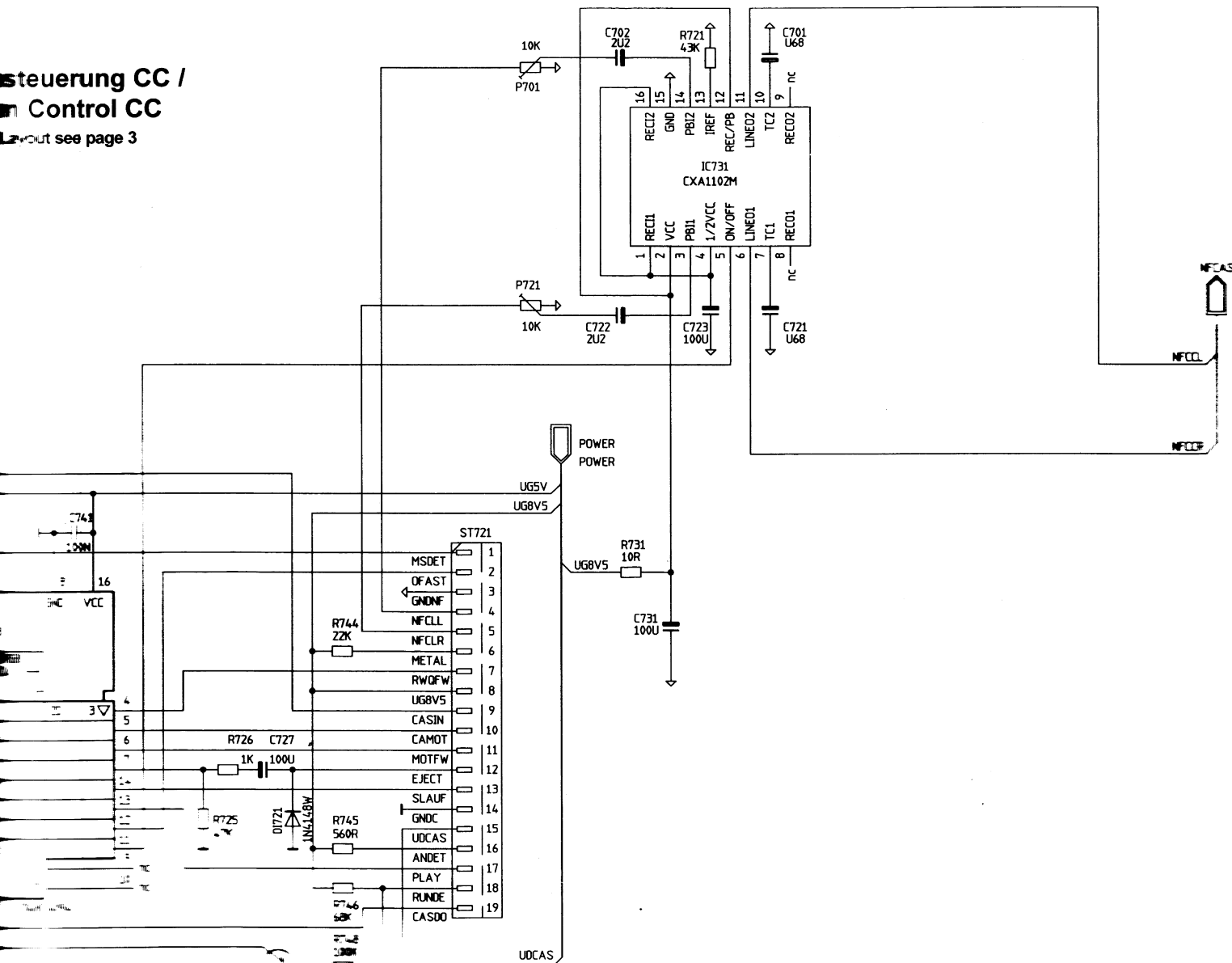
Kurzbezeichnungen Abbreviations

- ANDET **AN**ode **DET**ektor / Anode detection
- CASDO **CAS**sette **DO**wn
- CASIN **CAS**sette **IN** =Einzug / Cassette in IN=draw
- CCMOT **CC-MOT**or / CC-motor
- CLOKS **CLO**ck Shiftregister / **CLO**ck Shiftregister
- DATAS **DAT**en Shiftregister / **DAT**en Shiftregister
- EJEKT Cassettenauswurf / Cassette Ejekt
- GNDC Masse Cassette / Ground Cassette
- METAL Cassettenentzerrung / Cassette equalize
- MSDET Impuls zur Pausenerkennung / Impulse pause detection
- MOTFW Motor Drehrichtungsänderung / Motor change of rotation
- NFCLL **NF-CC-Links** / AF tape left
- NFCLR **NF-CC-Rechts** /AF tape right
- PLAY Cassettenwiedergabe / Cassette play
- RUNDE Impuls zur Bandlaufüberwachung / Impulse tape running control
- RWQFW Umschaltung Spur 1/2 / Switching track 1/2
- SLAUF Umschaltung: play-spulen / Switching: play-winding
- SRENQ Shift-Register, **EN**able, **Q**=LOW-aktiv / Shift-Register, Enable, Q=LOW-aktiv
- UDCAS **U**=Spg. Dauer **CAS**sette / **U**=voltage perm. Cassette
- UG8V5 **U**=Spannung **G**eschaltet **8,5V** / 8,5 Volt switched
- OFAS Musiksuchlauf / Music Title Search



Steuerung CC / Control CC

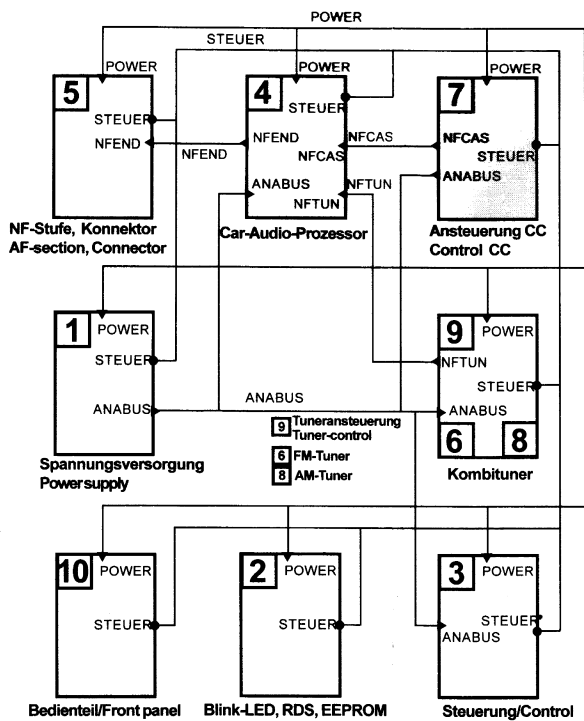
Layout see page 3



7 Ansteuerung CC / Control CC

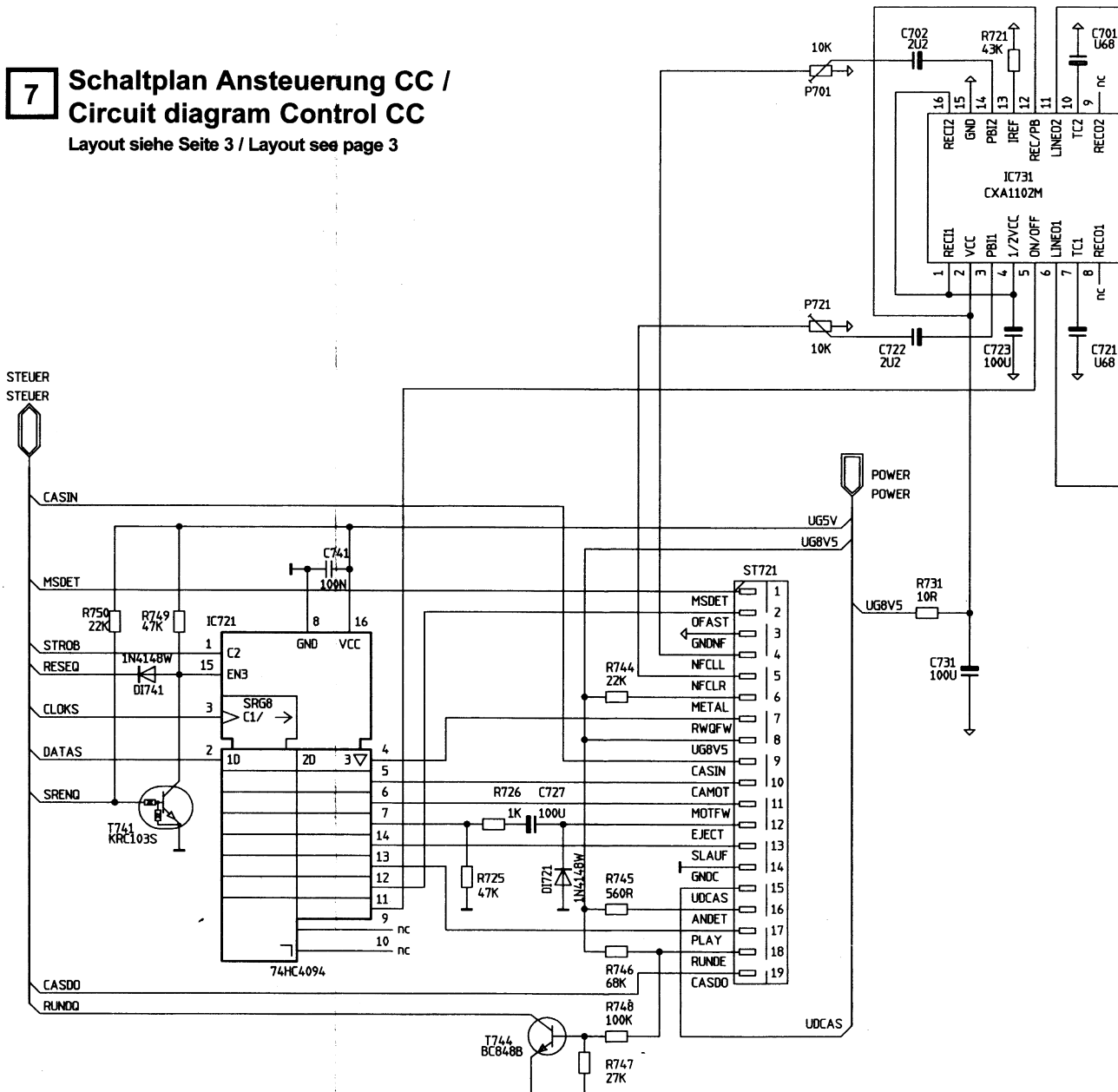
Kurzbezeichnungen Abbreviations

- ANDET ANode DETektor / Anode detection
- CASDO CASsette DOWn
- CASIN CASsette IN =Einzug / Cassette in IN=draw
- CCMOT CC-MOTor / CC-motor
- CLOKS CLOcK Shiftregister / CLOcK Shiftregister
- DATAS DATen Shiftregister / DATen Shiftregister
- EJEKT Cassettenauswurf / Cassette Ejekt
- GNDC Masse Cassette / Ground Cassette
- METAL Cassettenentzerrung / Cassette equalize
- MSDET Impuls zur Pausenerkennung / Impulse pause detection
- MOTFW Motor Drehrichtungsänderung / Motor change of rotation
- NFCLL NF-CC-Links / AF tape left
- NFCLR NF-CC-Rechts / AF tape right
- PLAY Cassettenwiedergabe / Cassette play
- RUNDE Impuls zur Bandlaufüberwachung / Impulse tape running control
- RWQFW Umschaltung Spur 1/2 / Switching track 1/2
- SLAUF Umschaltung: play-spulen / Switching: play-winding
- SRENQ Shift-Register, ENable, Q=LOW-aktiv / Shift-Register, Enable, Q=LOW-aktiv
- UDCAS U=Spg. Dauer CASsette / U=voltage perm. Cassette
- UG8V5 U=Spannung Geschaltet 8,5V / 8,5 Volt switched
- OFAST Musiksuchlauf / Music Title Search



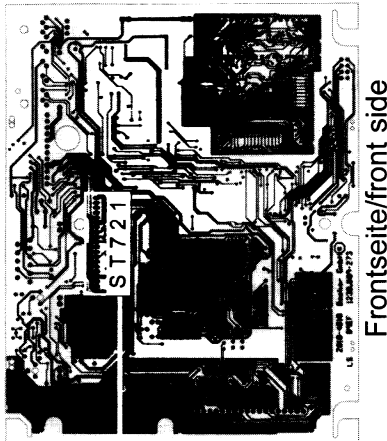
7 Schaltplan Ansteuerung CC / Circuit diagram Control CC

Layout siehe Seite 3 / Layout see page 3

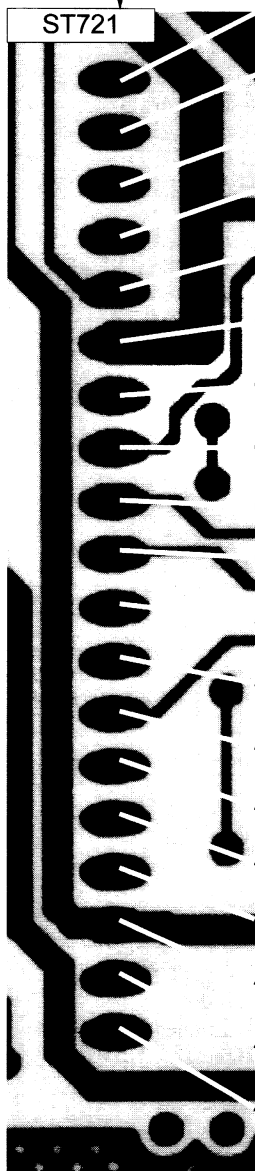


Messungen an Schnittstelle: Cassettenteil
Measurements at interface: Tape-section

Mainboard 2010-4010 - Lötseite/soldering side -



Frontseite/front side



Meßbedingungen:

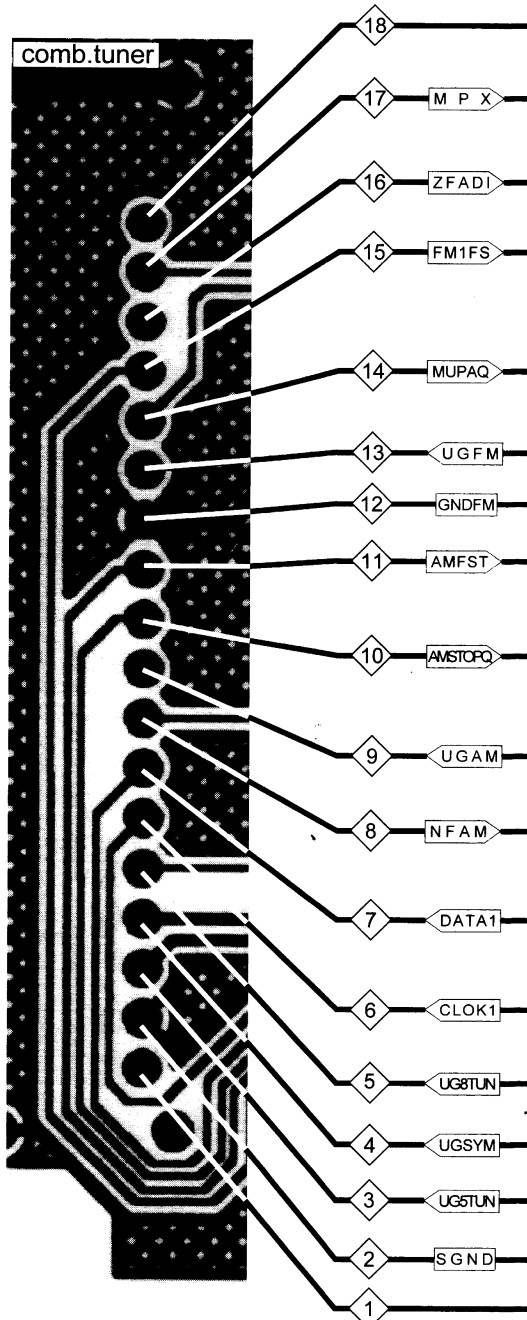
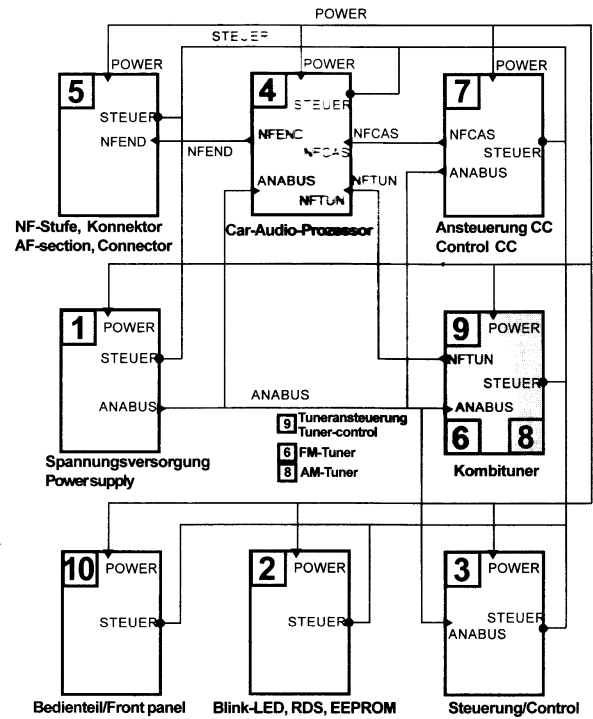
- Radioanschluß: 13,2V Dauerplus (KL30)
13,2V Zündung (KL15)
Minus an Masse (KL31)
- Bei Spannungsmessungen Minus an Masse
- Voltmeter $R_i > 1\text{M}\Omega$

Measuring conditions:

- Radio connection: 13,2V perm. batt. (KL 30)
13,2V ignition (KL15)
Minus at ground (KL31)
- At voltage measuring minus at ground
- Voltmeter $R_i > 1\text{M}\Omega$

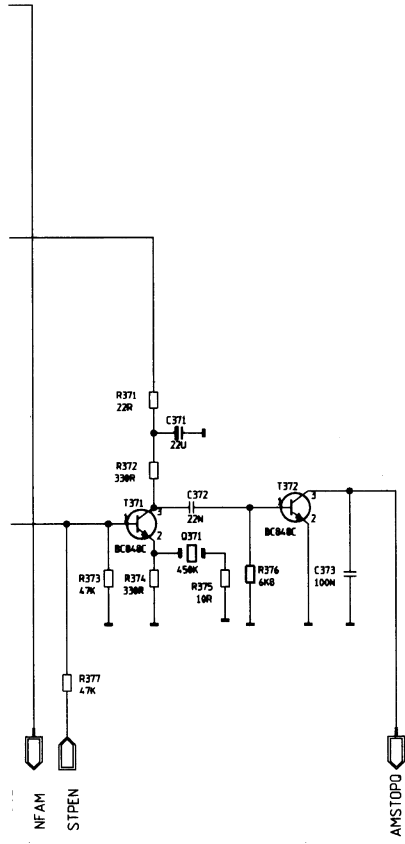
19 CASDO	Cassette geladen: $>4,7V_{DC}$ ohne Cassette: $0V_{DC}$ Cassette loaded: $>4,7V_{DC}$ without Cassette: $0V_{DC}$
18 RUNDE	Cassette Wiedergabe/play back - F1;(Cassette: C60) Schneller Vor-Rücklauf/Fast forward, rewind - F2;(Cassette: C60) Low: $<1V_{DC}$; High: $>4,7V_{DC}$; F1: 2 - 5Hz; F2: 45 - 65Hz
17 PLAY	CC Wiedergabe/play back: $>4,7V_{DC}$; in Ruhe/stand-by: $<0V_{DC}$
16 ANDET	Radio: an KL30 und KL 15 / at perm battery (KL30) and ignition (KL15) $1V_{DC}$ to $1,5V_{DC}$
15 UDCAS	Radio: an Dauerplus/at permanent battery (KL30) $13,2V_{DC}$
14 GNDC	Masse CC / ground CC
13 SLAUF	Cassette Wiedergabe/play back: $<1V_{DC}$ Schneller Vor-Rücklauf/Fast forward, rewind: $>2,4V_{DC}$
12 EJEKT	CC auswerfen/ejecting: $>4V_{DC}$ (300ms); Wiedergabe/play back: $0V_{DC}$
11 MOTFW	Motor-Laufrichtung Spur 1/Motor-drive track 1: $>2,4V_{DC}$ Motor-Laufrichtung Spur 2/Motor-drive track 2: $<1V_{DC}$
10 CAMOT	CC-Motor ein/on: $>2,4V_{DC}$ CC-Motor aus/off: $>1V_{DC}$
9 CASIN	Cassette geladen/loaded: $>4,8V_{DC}$ ohne Cassette/without cassette: $0V_{DC}$
8 UG8V5	Radio: an KL30 und KL 15 / at perm battery (KL30) and ignition (KL15) $7,5V_{DC}$ - $8,5V_{DC}$
7 RWQFW	Umschaltung Spur 1/Switching track 1: $>1V_{DC}$ Umschaltung Spur 2/Switching track 2: $<0,5V_{DC}$
6 METAL	Cassette Wiedergabe/play back Cr-/Me-Band/tape $70\mu s$: $7,5V_{DC}$ - $8,5V_{DC}$; Fe-Band/tape $120\mu s$: $0V_{DC}$
5 NFCLR	CC Wiedergabe rechts Dolbypegel 1kHz: $40mV_{eff}$ - $80mV_{eff}$ CC play back right Dolby-level 1kHz: $40mV_{eff}$ - $80mV_{eff}$
4 NFCLL	CC Wiedergabe links Dolbypegel 1kHz: $40mV_{eff}$ - $80mV_{eff}$ CC play back left Dolby-level 1kHz: $40mV_{eff}$ - $80mV_{eff}$
3 GNDNF	NF-Masse/AF-ground
2 OFAST	CC Wiedergabe/play back: $1V_{DC}$ Musiktitelsuchlauf / Music Title Search: $2,4V_{DC}$
1 MSDET	Titelerkennung im Musiksuchlauf: $>3V_{DC}$ Title detection at Music Title Search: $>3V_{DC}$

AMABS	AM-AB stimmung / AM Tuning
AMANT	AM-ANT enne / AM Antenna
AMFST	AM-E mpfänger, FeldST ärke / AM tuner, Field-St rength
AMSUL	AM SU chLauf / AM seek
AMSTOQ	AM-STOP Q=low aktiv / AM stop Q=low active
AMOSZ	AM OS zillator / AM oscillator
CLOK1	CLO ck für Datenbus 1 /Clock for Databus 1
DATA1	DAT enbus 1 / Data bus 1
FM1FS	FM 1 , FeldST ärke / FM 1, Field-St rength
FM2FS	FM 2 , FeldST ärke / FM 2, Field-St rength
FMQUAL	FM Empf., QuAL itäts-Signal / FM receiver, Quality-S ignal
FMQUAL	FM Empf., QuAL itäts-Signal / FM receiver, Quality-S ignal
GNDAM	GrouND AM / AM Ground
GNDFM	GrouND FM / FM Ground
MPX	MPX -Signal / MPX-Signal
MUPAQ	MU lti PA th-Signal, Q=LOW -aktiv / Multipath-Signal, Q=Low -activ
LW	Lang W elle Spulensatz / Long wave coil set
MW	Mittel W elle Spulensatz / AM coil set
NFAM	NF-AM / AF-AM
STPEN	SToP EN able (Freigabe) / SToP EN able
STEUER	STEUER -Bus / Control-bus
UGAM	U=Spannung G eschaltet AM / voltage switched AM
UGFM	U=Spannung G eschaltet FM / voltage switched FM
UG5TUN	U=Spannung G eschaltet 5Volt TUNER / switched 5 Volt Tuner
UG5V	U=Spannung G eschaltet 5Volt / 5 Volt switched
UG8V5	U=Spannung G eschaltet 8,5V / 8,5 Volt switched
UG8TUN	U=Spannung G eschaltet 8,5Volt TUNER / switched 8,5 Volt Tuner
UG10V	U=Spannung G eschaltet 10Volt / switched 10 Volt

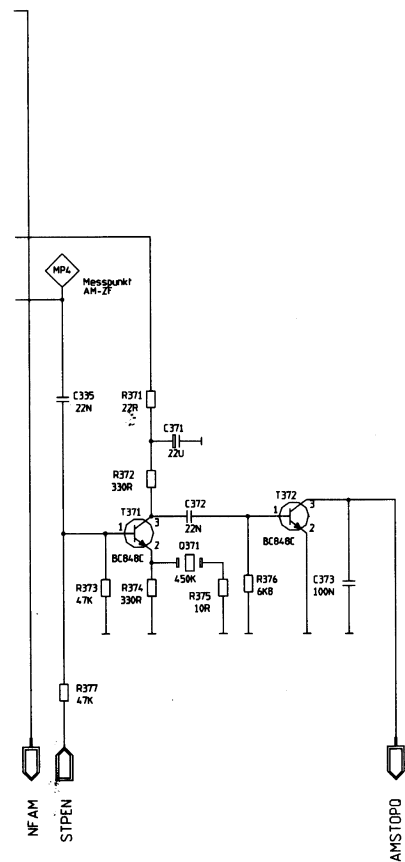


- 18 n. c.
- 17 **Meßsender/RF-generator:** 98,1MHz/60dBµV/75kHz/1kHz NF/AF
0,6V_{eff} to 0,8V_{eff} ;
4V_{DC} to 5V_{DC}
- 16 **ZFADI** n. c.
- 15 **Pegel/level 1 Meßs./RF-gener.:** 98,1MHz/60dBµV/22,5kHz/1kHz NF/AF
Pegel/level 2 Meßs./RF-gener.: 98,1MHz/40dBµV/22,5kHz/1kHz NF/AF
Pegel/level 1: 4V_{DC} to 4,6V_{DC}; **Pegel/level 2:** 2,8V_{DC} to 3,3V_{DC}
- 14 **Multipath active Meßs./RF-gener.:** 98,1MHz/60dBµV/95%AM/10kHz NF/AF
Multipath inactive Meßs./RF-gener.: 98,1MHz/60dBµV/75kHz/10kHz NF/AF
active: 0V_{DC}- 0,7V_{DC} ; **inactive:** 4V_{DC}- 5V_{DC}
- 13 **UGFM** **FM ein/on:** 7,5V_{DC} to 8,5V_{DC} ; **FM aus/off:** 0,1V_{DC} to 3V_{DC}
- 12 **GNDFM** Tuner Masse/ground
- 11 **AMFST** **Meßsender/RF-generator:** 999kHz/35dBµV/30%AM/1kHz NF/AF;
0,8V_{DC} to 1,1V_{DC}
- 10 **AM-Stop pulse active Meßs./RF-gener.:** 999kHz/35dBµV/30%AM/1kHz AF
AM-Stop pulse inactive Meßs./RF-gener.: 999kHz/15dBµV/30%AM/1kHz AF
active: 0V_{DC} to 0,4V_{DC} ; **inactive:** 2,5V_{DC} to 5,2V_{DC}
- 9 **UGAM** **AM ein/on:** 8V_{DC} to 8,5V_{DC} ; **AM aus/off:** 0V_{DC}
- 8 **NFAM** **Meßsender/RF-generator:** 999kHz/60dBµV/30%AM/1kHz NF/AF;
0,2V_{eff} to 0,4V_{eff} ;
- 7 **DATA1** **keine Daten/no Data:**High-level; **Daten/Data:**High/Low dynamisch/dynamic
High: 3V_{DC} to 5,25V_{DC} ; **Low:** 0V_{DC} to 1,5V_{DC}
- 6 **CLOK1** **keine Daten/no Data:**High-level; **Daten/Data:**High/Low, unregelm. dyn. Signal/
irregular dyn. signal **High:** 3V_{DC} to 5,25V_{DC} ; **Low:** 0V_{DC} to 1,5V_{DC}
- 5 **UG8TUN** 7,5V_{DC} to 9,5V_{DC}
- 4 **UGSYM** 8,75V_{DC} to 12V_{DC}
- 3 **UG5TUN** 4,75V_{DC} to 5,25V_{DC}
- 2 **SGND** AM-Antennenmasse/antenna ground
- 1 n. c.

8 Schaltplan AM-Tuner ..E4060 Typ 2011 /
Circuit diagram AM tuner ..E4060 type 2011
 Layout siehe Seite 34 / Layout see page 34

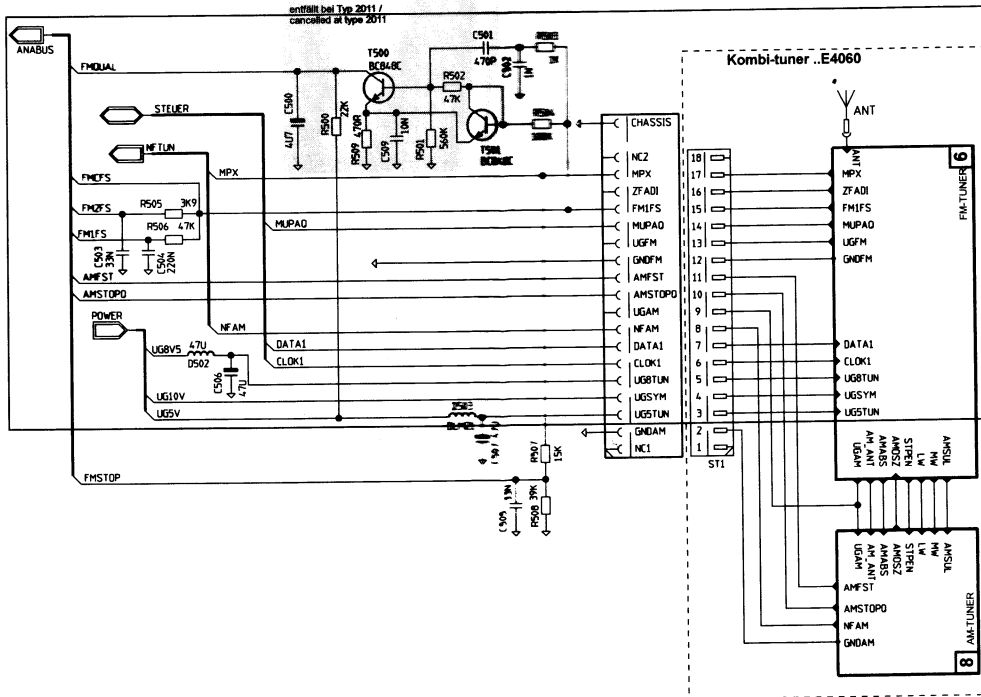


8 Schaltplan AM-Tuner ..E4060 Typ 2010 /
Circuit diagram AM tuner ..E4060 type 2010
 Layout siehe Seite 34 / Layout see page 34



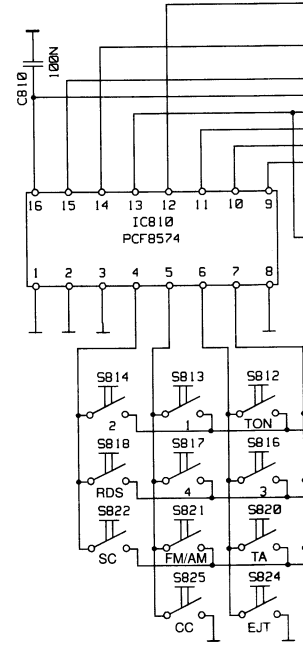
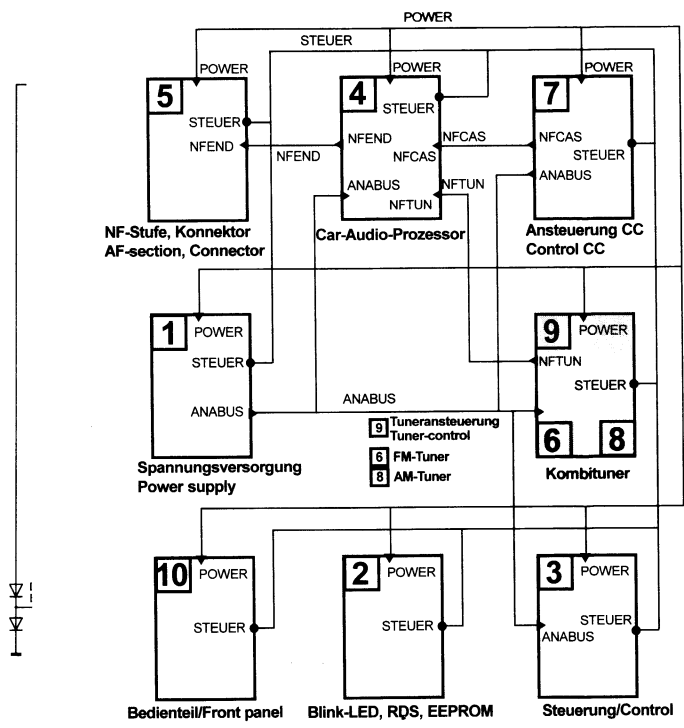
9 Kombituner-Ansteuerung / Combined tuner-control

Layout siehe Seite 3 / Layout see page 3

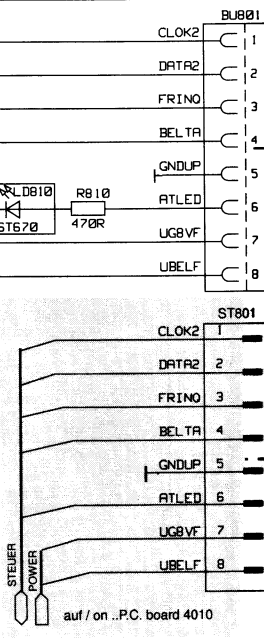
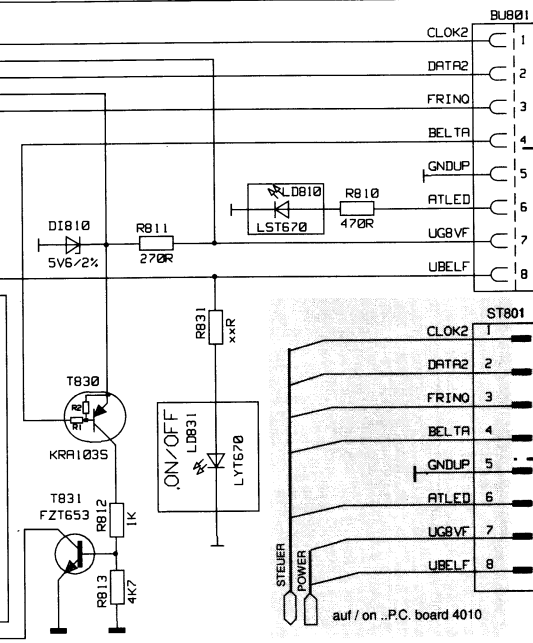
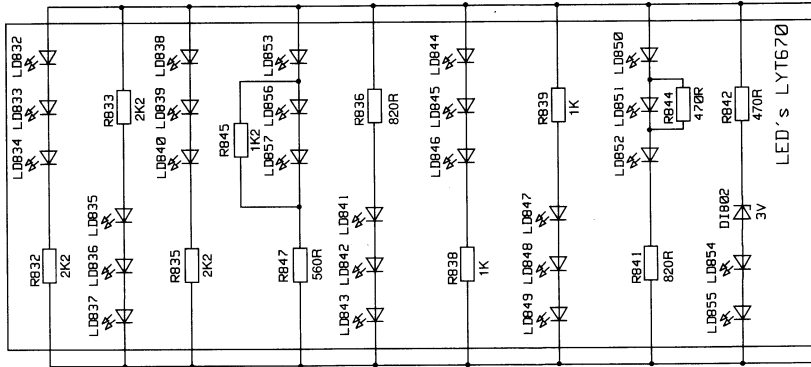
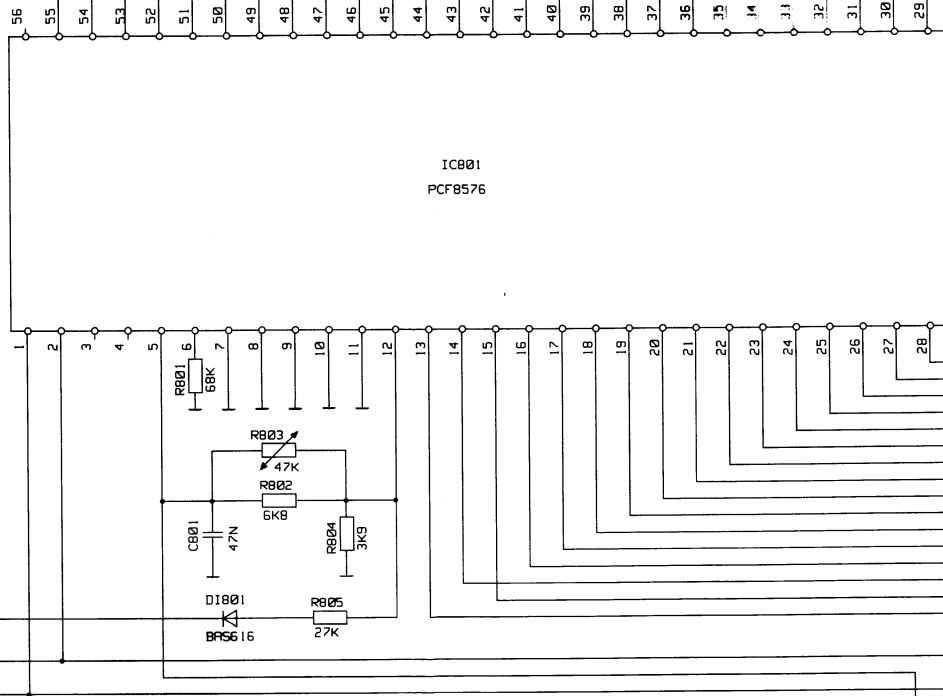


10 Schaltplan Front Circuit diagram

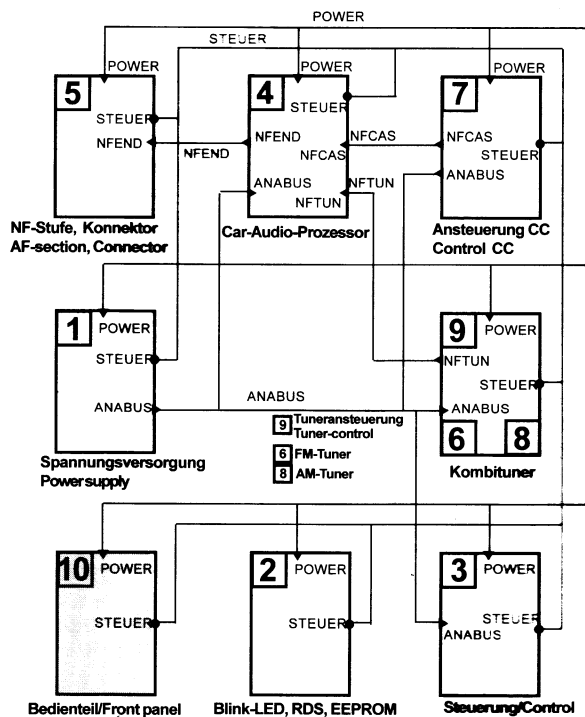
Layout siehe Seite 3



.E9090 /
front ..E9090
out see page 3



10 Bedienteil Escutcheon

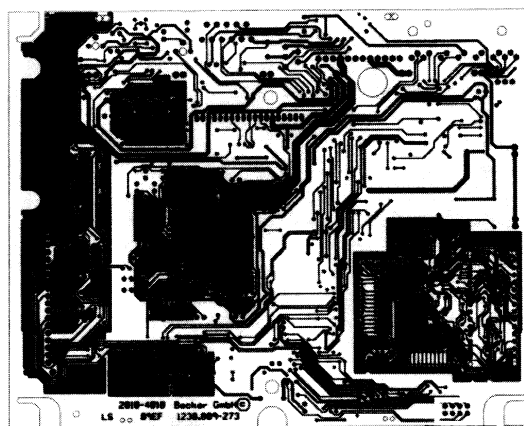


Kurzbezeichnungen Abbreviations

- ATLED Anti-Theft-LED
- BELTA BELeuchtung TAtatur / illumination keys
- CLOK2 CLOcK für Datenbus 2 / Clock for Databus 2
- DATA2 DATenbus 2 / Data bus 2
- FRINQ FRont INterrupt Q=Low aktiv / Front interrupt Q=low active
- GNDUP GrouND Masse UP / ground UP
- UBELF U=Spannung BELeuchtung Front / Illumination voltage front
- UG8VF U=Spannung Geschaltet 8V Front / 8 Volt switched, Front

Messungen an Schnittstelle: Front Measureings at interface: Front

Mainboard 2010-4010 - Lötseite/soldering side -



Frontseite/front side

inactive: keine Tastenbetätigung/no key operation

active: Tastenbetätigung/key operation

inactive: 3,5V_{DC} to 5,5V_{DC} ;

active: 0V_{DC} to 1,5V_{DC}

keine Daten/no Data: High-level;

Daten: unregelmäßiges dyn. signal

Data: irregular dyn. signal

High: 3,5V_{DC} to 5,5V_{DC} ;

Low: 0V_{DC} to 1,5V_{DC}

keine Daten/no Data: High-level;

Daten: unregelmäßiges dyn. signal

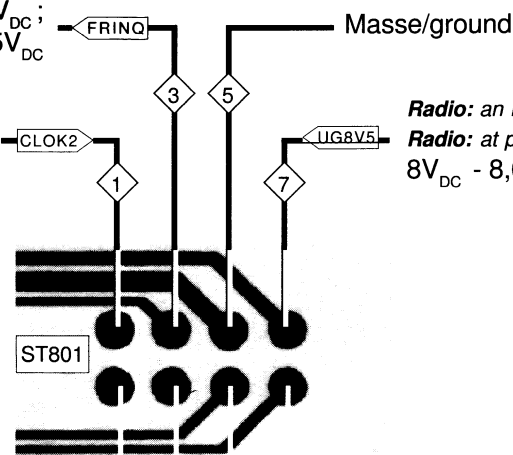
Data: irregular dyn. signal

High: 3,5V_{DC} to 5,5V_{DC} ;

Low: 0V_{DC} to 1,5V_{DC}

Radio ein/Radio on: <0,5V_{DC}

Radio aus/Radio off: >4V_{DC}



Radio: an Dauerplus (KL30) und Zündung (KL15)

Radio: at permanent battery (KL30) and ignition (KL15)

8V_{DC} - 8,6V_{DC}

Beleuchtung KL58 / Lighting KL58

13,2V_{DC}

Ansteuerung Anti-Theft-LED

Radio aus, Zündung (KL15) aus

T_{ein:40ms} =8V_{DC}

Control Anti-Theft-LED

Radio off, ignition (KL15) off

T_{ein:40ms} =8V_{DC}

Ersatzteile-Liste Spare Parts List

Lfd.Nr Item.No.	Benennung	Denomination	Pos.i.Schaltbild Diagram pos.	Artikel-Nr. Article No.	Best.-Nr. Part.No.
	Sonstiges	Other parts			
1	Kühlkörper	Heat sink			1216.317-296
2	Klammer (für IC602)	Clamp (to IC602)			1227.076-261
3	Klammer mit Hülse (für IC1601, 1602)	Clamp with tubing (to IC1601, 1602)			1229.915-261
4	Deckel (Chassis)	Cover (Chassis)			1222.155-284
5	Haltefeder (Radio)	Holding spring (Radio)			1156.209-246
	Schaltungsplatte Front	P.C. board cpl. Front		.. 9090	1229.338-373
	bestehend aus:	consisting of:			
1	Buchsenleiste 8pol. Tastschalter	Multipoint connector 8poles Switch	BU801 S810,812,813,814,815,816 817,818,820,821,822 824,825 811,815,819,823		1233.122-277 1230.239-278
2	Tastschalter	Switch			1158.491-278
3	LED, rot	LED, red	LD810		1158.767-304
4	LED, gelb	LED, yellow	LD831-857		1158.074-304
5	IC	IC	IC801	PHI PCF8576T/F2	0901.806-308
6	IC	IC	IC810	PHI PCF8574T	0573.728-308
7	Diode	Diode	DI801	BAW BAS616 1M4148W	1238.183-301
8	Diode	Diode	DI802	BAW 3V	1181.106-301
9	Diode	Diode	DI810	BAW 5V6	1076.353-301
10	Transistor	Transistor	T830	BAW KRA133S DTA124	1172.654-302
11	Transistor	Transistor	T831	ZEX FZ7653	1148.729-302
12	Kondensator	Capacitor	C801	47N	1182.943-315
13	Kondensator	Capacitor	C810	100N	1119.214-315
14	Widerstand	Resistor	R801	180K	1159.674-323
15	Widerstand	Resistor	R802	6K8	1159.402-323
16	NTC-Widerstand	NTC-Resistor	R803	47K	1044.907-323
17	Widerstand	Resistor	R804	3K9	1162.586-323
18	Widerstand	Resistor	R805	27K	1159.534-323
19	Widerstand	Resistor	R810,842	470R	1108.972-323
20	Widerstand	Resistor	R811	270R	1159.208-323
21	Widerstand	Resistor	R812	1K	1159.291-323
22	Widerstand	Resistor	R813	4K7	1159.380-323
23	Widerstand	Resistor	R831	1K5	1109.081-323
24	Widerstand	Resistor	R832,833,835	2K2	1109.111-323
25	Widerstand	Resistor	R836,841	820R	1109.022-323
26	Widerstand	Resistor	R838,839	1K	1109.049-323
27	Widerstand	Resistor	R844	470R	1159.267-323
28	Widerstand	Resistor	R845	1K2	1159.305-323
29	Widerstand	Resistor	R847	560R	1108.980-323
	Schaltungpl. (AUDIO)	P.C. Board (AUDIO)		..4020	1229.461-373
	bestehend aus:	consisting of:			
1	Konnektor 26pol.	Connector 26poles	ST1601		1216.325-277
2	Stiftleiste 12pol.	Pin ledge 12poles	ST1602		1224.786-277
3	Sicherung 10A	Fuse 10A	SI1601		1152.432-392
4	Drossel	Choke	D1601		1219.200-334
5	IC	IC	IC1601,1602	PHI TDA8561Q/N1	1217.577-308
6	Diode	Diode	DI1601	BAW MR2532S/ FR3228S	1243.683-301
7	Diode	Diode	DI1602	GIC SS34 Schottky	1220.403-301
8	Kondensator	Capacitor	C1601,1614,1618,1619, 1620,1624,1625	10N	1119.125-315
9	Kondensator	Capacitor	C1602-1605,1611,1612, 1621,1622	220N	1182.803-315
10	Elko	Elco	C1615,1616	1M	1229.230-312
11	Widerstand	Resistor	R1601	10K	1159.437-323
12	Widerstand	Resistor	R1608,1609,1610,1611	1R	1108.646-323

Ersatzteile-Liste Spare Parts List

Lfd.Nr Item.No.	Benennung	Denomination	Pos.i.Schaltbild Diagram pos.	Artikel-Nr. Article No.	Best.-Nr. Part.No.
	Schaltungspl. (MAINBOARD) (nicht als kpl.-Teil lieferbar)	P.C. board (MAINBOARD) (not available completely)		..4010	
1	Klammer mit Hülse (für IC1601, 1602)	Clamp with tubing (to IC1601, 1602)			1229.915-261
2	Kühlkörper	Heat sink			1216.317-296
3	Rückwand	Back part			1229.321-287
4	Stiftleiste 19pol.	Pin ledge 19poles	ST721		1158.041-277
5	Stiftleiste 8pol.	Pin ledge 8poles	ST801		1228.463-277
6	Schaltungspl. UM (Typ 2010)	P.C. board FM/AM (type 2010)		..E4060	1222.181-373
7	Schaltungspl. UML (Typ 2011)	P.C. board FM/AMLW (L.2011)		..E4060	1243.748-373
8	Schaltungspl. (AUDIO)	P.C. board (AUDIO)		..E4020	1229.461-373
9	Quarz (nur in Verbindung mit IC400 CAP3001 TC41)	Quartz (only in combination with IC400 CAP3001 TC41)	Q400	TQG TQX5428	1185.403-342
10	Quarz (nur in Verbindung mit IC400 CAP3001 TC46)	Quartz (only in combination with IC400 CAP3001 TC46)	Q400	TQG TQX5706	1238.906-342
11	Quarz (nur in Verbindung mit IC400 CAP3001 TC41)	Quartz (only in combination with IC400 CAP3001 TC41)	Q550		1182.511-342
12	Quarz	Quartz	Q901	12,000 MHZ	1179.640-342
13	IC (bei Austausch nur gleichen Typ verwenden)	IC (at exchange only use same type)	IC400	ITT CAP3001/TC41	1232.193-308
14	IC (bei Austausch nur gleichen Typ verwenden)	IC (at exchange only use same type)	IC400	ITT CAP3001/TC46	1241.184-308
15	IC	IC	IC450,451	ROH BA4558F-DX	1226.312-308
16	IC (nur in Verbindung mit IC400 CAP3001 TC41)	IC (only in combination with IC400 CAP3001 TC41)	IC550	SAA PHI 6579TV1	1155.431-308
17	IC	IC	IC601	NSC LM1950T LB03	1167.286-308
18	IC	IC	IC602	SGT L4936N	1236.611-308
19	IC	IC	IC721	BAW 74HC4094	1012.071-308
20	IC	IC	IC731	SOY CXA1102M	1050.141-308
21	IC	IC	IC901	SIE SAB80C535-N-T40/85	1060.171-308
22	IC	IC	IC902	PHI PC74HC573D	1185.616-308
23	IC (Typ 2010, nur in Verbindung mit IC400 CAP3001 TC41)	IC (type 2010, only in combination with IC400 CAP3001 TC41)	IC903	BAW 27C512-2010	1248.421-308
24	IC (Typ 2010, nur in Verbindung mit IC400 CAP3001 TC46)	IC (type 2010, only in combination with IC400 CAP3001 TC46)	IC903	BAW 27C512-2010	1249.843-308
25	IC (Typ 2011, nur in Verbindung mit IC400 CAP3001 TC41)	IC (type 2011, only in combination with IC400 CAP3001 TC41)	IC903	BAW 27C512-2011	1244.019-308
26	IC (Typ 2011, nur in Verbindung mit IC400 CAP3001 TC46)	IC (type 2011, only in combination with IC400 CAP3001 TC46)	IC903	BAW 27C512-2011	1244.027-308
27	IC	IC	IC904	SAY LC3564SM-10	1230.530-308
28	IC (auf Anfrage)	IC (on request)	IC907		
29	IC	IC	IC991	PHI ICM7555ID	1122.223-308
30	IC-Sockel 32pol.	IC-base 32poles			1230.964-267
31	Induktor	Inductor	D400,401,503,902,909,910,911		1237.705-347
32	Induktor	Inductor	D402		1227.221-347
33	Drossel	Choke	D502	47UH	1175.726-334
34	Diode	Diode	DI602	BAW 6V8	1118.757-301
35	Diode	Diode	DI603,987	BAW BAW56	1043.587-301
36	Diode	Diode	DI721,741,905,906,907,DI993,995	BAW BAS616/ 1N4148W	1238.183-301
37	Diode	Diode	DI991	BAW16	1042.084-301
38	Transistor	Transistor	T500,501	BAW BC848C	0659.622-302
39	Transistor	Transistor	T601,971	BAW KRC109S/ DTC144 S	1172.921-302
40	Transistor	Transistor	T602	SAY 2SD1666S	1221.671-302
41	Transistor	Transistor	T603	BAW BC807-16	1172.913-302
42	Transistor	Transistor	T604,605,744,986,991	BAW BC848B	0659.614-302
43	Transistor	Transistor	T606,952	BAW BC858B	0659.673-302
44	Transistor	Transistor	T607	BAW BC858C	1028.049-302
45	Transistor	Transistor	T741,951,987,994	BAW KRC103S/ DTC124 N	1172.646-302
46	Transistor	Transistor	T952	BAW BC858B	1224.735-302
47	Transistor	Transistor	T988,989	SIE BC848B/E6619	1215.711-302
48	Transistor	Transistor	T990,992,993,995,996	BAW KRA103S/ DTA124 P	1172.654-302
49	Elko	Elco	C400,403,406,500	4U7 25V	1173.278-312
50	Kondensator	Capacitor	C401,404,405,602,603,604,610,741,939,942,943,944,949,950,992	100N	1113.399-315
51	Kondensator	Capacitor	C402,608	22N	1113.399-315
52	Kondensator	Capacitor	C407,408,409	680P	1119.176-315
53	Elko	Elco	C410,450-453,482,484	2U2 25V	1173.261-312

Ersatzteile-Liste Spare Parts List

Lfd.Nr Item.No.	Benennung	Denomination	Pos.i.Schaltbild Diagram pos.	Artikel-Nr. Article No.	Best.-Nr. Part.No.
54	Kondensator	Capacitor	C411	150P	1073.516-315
55	Kondensator	Capacitor	C415	2N7	1119.079-315
56	Kondensator	Capacitor	C416,504	220N	1182.803-315
57	Kondensator	Capacitor	C429,466,467,468,469, 471,616,951-957,971	100P	1066.072-315
58	Kondensator	Capacitor	C430,509,601	10N	1119.125-315
59	Kondensator (nur in Verbindung mit IC400 CAP3001 TC41)	Capacitor (only in combination with IC400 CAP3001 TC41)	C431,432	3P3	1063.057-315
60	Kondensator (nur in Verbindung mit IC400 CAP3001 TC46)	Capacitor (only in combination with IC400 CAP3001 TC46)	C431,432	1P5	1062.621-315
61	Elko	Elco	C433	10U 16V	1020.242-312
62	Kondensator	Capacitor	C434,435,436,437	470P	1119.222-315
63	Kondensator	Capacitor	C454,455,456,457	1N	1173.324-315
64	Kondensator	Capacitor	C458,459,460,461	1N2	1083.910-315
65	Kondensator	Capacitor	C462,463,464,465	820P	1156.624-315
66	Elko	Elco	C470,607,723,727,731	100U 16V	1172.085-312
67	Kondensator	Capacitor	C472,473	100N	1188.178-315
68	Kondensator	Capacitor	C483,485,502,613	1N	1119.060-315
69	Kondensator	Capacitor	C501	470P	1066.110-315
70	Kondensator	Capacitor	C503,611	33N	1119.192-315
71	Kondensator	Capacitor	C505	33N	1113.364-315
72	Elko	Elco	C506,507	47U 16V	1172.050-312
73	Elko	Elco	C605	22U 16V	1172.018-312
74	Elko	Elco	C609	1M 16V	1229.230-312
75	Elko	Elco	C612	220U 10V	1187.813-312
76	Elko	Elco	C614	120U 16V	1251.694-312
77	Kondensator	Capacitor	C701,721	J6E	1238.639-313
78	Elko	Elco	C702,722	2UJ 50V	1171.895-312
79	Elko	Elco	C991	5UJ 15V	1171.951-312
80	Kondensator	Capacitor	C901-927,929-938	100P	1234.536-315
81	Kondensator	Capacitor	C940	22P	1066.031-315
82	Kondensator	Capacitor	C941	5P6	1063.073-315
83	Trimmer-Widerstand	Trimmer Resistor	P701,721	10K LIN C 10W	1232.071-329
84	Widerstand	Resistor	R410	2K2	1214.306-323
85	Widerstand	Resistor	R416	18K	1159.471-323
86	Widerstand	Resistor	R429,430,503,726,901, R902,903,905,906,907	1K	1159.291-323
87	Widerstand	Resistor	R433,434,605,616,986, R988,989	10K	1159.437-323
88	Widerstand	Resistor	R450,451,452,453	1K	1227.793-323
89	Widerstand	Resistor	R454-465	10K	1227.831-323
90	Widerstand	Resistor	R467,468,469,470,984	22K	1159.496-323
91	Widerstand	Resistor	R471,484,615,731	10R	1159.011-323
92	Widerstand	Resistor	R475,476,477,478	820R	1163.299-323
93	Widerstand	Resistor	R479,480,481,482	1K5	1159.313-323
94	Widerstand	Resistor	R485,486	150R	1159.143-323
95	Widerstand	Resistor	R487	8K2	1159.410-323
96	Widerstand	Resistor	R500,744,750,945,946, R947,948,951,953,968, R971,997	22K	1159.501-323
97	Widerstand	Resistor	R501	560K	1234.528-323
98	Widerstand	Resistor	R502,506,604,618,619, R620,725,749,952	47K	1159.577-323
99	Widerstand	Resistor	R504,608,748	100K	1159.631-323
100	Widerstand	Resistor	R505,996	3K9	1162.586-323
101	Widerstand	Resistor	R507	15K	1159.461-323
102	Widerstand	Resistor	R508	39K	1159.550-323
103	Widerstand	Resistor	R509	470R	1159.267-323
104	Widerstand	Resistor	R601,746	68K	1159.593-323
105	Widerstand	Resistor	R602	270R	1159.208-323
106	Widerstand	Resistor	R603,908,960-967	100R	1159.100-323
107	Widerstand	Resistor	R606,607,904,972	4K7	1159.380-323
108	Widerstand	Resistor	R609	220K	1215.647-323
109	Widerstand	Resistor	R610	47K	1159.569-323
110	Widerstand	Resistor	R611	330K	1215.655-323
111	Widerstand	Resistor	R612	56K	1173.091-323
112	Widerstand	Resistor	R613	3K3	1221.779-323
113	Widerstand	Resistor	R614	4K7	1159.372-323
114	Widerstand	Resistor	R617	8K2	1159.429-323
115	Widerstand	Resistor	R622,624,625,910,939, 942	0R	1018.302-323
116	Widerstand	Resistor	R721	43K	1229.303-323
117	Widerstand	Resistor	R745	560R	1065.432-323

Ersatzteile-Liste Spare Parts List

Lfd.Nr Item.No.	Benennung	Denomination	Pos.i.Schaltbild Diagram pos.	Artikel-Nr. Article No.	Best.-Nr. Part.No.
118	Widerstand	Resistor	R747	27K	1159.534-323
119	Widerstand	Resistor	R941	22K	1007.947-323
120	Widerstand	Resistor	R985	68K	1236.271-323
121	Widerstand	Resistor	R991	10R	1108.743-323
122	Widerstand	Resistor	R992	1K	1109.049-323
123	Widerstand	Resistor	R993	1K	1007.661-323
124	Widerstand	Resistor	R995	220K	1159.682-323
125	Widerstand	Resistor	R999	180K	1159.674-323
126	Widerstand-Netzwerk	Resistor network	RN901,902,903,904	1K	1189.451-323
	Schaltungspl. Kombi-Tuner	P.C. board combi-Tuner		.. 4060 (Typ 2010)	1222.181-373
	bestehend aus:	consisting of			
1	Abschirmrahmen	Screening frame			1216.236-288
2	Abschirmdeckel	Screening cover			1216.635-284
3	Filter	Filter	F201		1232.983-340
4	Filter	Filter	F204		1233.009-340
5	Filter, MW	Filter AM	F311		1163.868-341
6	Filter, MWZ	AM-interm. circ. filter	F312		1163.876-341
7	Filter, MWO	AM-osc. filter	F331		1163.884-341
8	Filter, AM-ZF	Filter AM/IF	F341		1181.955-341
9	Luftspule	Air coil	L101		1231.261-331
10	Luftspule	Air coil	L102		1231.278-331
11	Luftspule	Air coil	L103		1235.915-331
12	Luftspule	Air coil	L104		1231.294-331
13	Luftspule	Air coil	L105		1236.172-331
14	Quarz	Quartz	Q151	4,000 MHZ	1176.234-342
15	Keramik-Filter	Ceramic filter	Q201,202,204		1227.701-345
16	Keramik-Filter	Ceramic filter	Q204		1134.140-345
17	Keramik-Filter	Ceramic filter	Q301		1237.721-345
18	Keramik-Resonator	Ceramic resonator	Q371		1155.938-345
19	Stiftleiste	Pin ledge	ST1		1163.043-277
20	Überspannungsableiter	Arrester	SP101		1031.112-395
21	Inductor	Inductor	D101		1156.128-347
22	Drossel	Choke	D102	2,2UH	1178.237-334
23	Drossel	Choke	D301	5,6UH	1237.691-334
24	Diode	Diode	DI101,102,103	BAW BB804	0659.606-301
25	Diode	Diode	DI104	TEL S391D	1225.529-301
26	Diode	Diode	DI151	BAW BAW56	1043.587-301
27	Diode	Diode	DI301	BAW BA779-2/1 SV234/DPA05	1229.788-301
28	Diode	Diode	DI302,361	BAW BAS616/ 1N4148W	1238.183-301
29	Diode	Diode	DI311,312,331	SIE BB512	1152.092-301
30	IC	IC	IC101	TEL U4065B-AFL	1223.518-308
31	IC	IC	IC151	TEL U4283BM-BFS	1223.526-308
32	IC	IC	IC201	SIE TDA4320X	1220.357-308
33	IC	IC	IC301	TEL U4240B-AFS	1223.534-308
34	Transistor	Transistor	T101,361	BAW BC858C	1028.049-302
35	Transistor	Transistor	T102	BAW BFR93A NPN	1225.537-302
36	Transistor	Transistor	T151,152	BAW BC808-40	1018.280-302
37	Transistor	Transistor	T201,307,308,371,372	BAW BC848C	0659.622-302
38	Transistor	Transistor	T203	BAW KRC109S/DTC	1172.921-302
39	Transistor	Transistor	T301	PHI PMBFJ310 ON	1155.830-302
40	Transistor	Transistor	T305,316	PHI BF556A	1161.172-302
41	Transistor	Transistor	T309	BAW BC858B	0659.673-302
42	Trimmer-Kondensator	Trimmer capacitor	CT306,309	4P2/20P	1152.114-311
43	Trimmer-Kondensator	Trimmer capacitor	CT325	6P/50P	1177.753-311
44	Kondensator	Capacitor	C101	2P7	1223.917-315
45	Kondensator	Capacitor	C102	15P	1223.933-315
46	Kondensator	Capacitor	C103	1P5	1223.909-315
47	Kondensator	Capacitor	C104,123,205,207,221, 341	10N	1119.125-315
48	Kondensator	Capacitor	C105,125,154,162,302, 303,332,333,334,373	100N	1188.178-315
49	Kondensator	Capacitor	C106,107,110,114,121, 126,161,204,210,374	1N	1173.324-315
50	Elko	Elco	C108,209,330,340,371	22U	1172.018-312
51	Kondensator	Capacitor	C109	10P	1108.506-315
52	Kondensator	Capacitor	C113	6P8	1223.925-315
53	Kondensator	Capacitor	C116	8P2	1234.455-315
54	Kondensator	Capacitor	C117	22P	1223.951-315
55	Kondensator	Capacitor	C118,151	47P	1223.976-315
56	Kondensator	Capacitor	C122	18P	1223.941-315

Ersatzteile-Liste Spare Parts List

Lfd.Nr Item.No.	Benennung	Denomination	Pos.i.Schaltbild Diagram pos.	Artikel-Nr. Article No.	Best.-Nr. Part.No.
57	Kondensator	Capacitor	C152	33P	1223.968-315
58	Kondensator	Capacitor	C156	6N8	0356.417-314
59	Kondensator	Capacitor	C157	150P	1223.992-315
60	Kondensator	Capacitor	C158,206,214,217,331, 335,336,372	22N	1119.176-315
61	Kondensator	Capacitor	C159	12P	1066.005-315
62	Kondensator	Capacitor	C160	3N9	1162.403-315
63	Kondensator	Capacitor	C165	470P	1119.222-315
64	Kondensator	Capacitor	C212	4N7	1166.751-315
65	Kondensator	Capacitor	C213	270P	1162.209-315
66	Kondensator	Capacitor	C215	47N	1182.943-315
67	Kondensator	Capacitor	C219	470P	1066.110-315
68	Kondensator	Capacitor	C301,312	1N	1119.060-315
69	Kondensator	Capacitor	C311,338	220N	1182.803-315
70	Elko	Elco	C313	2U2	1173.261-312
71	Elko	Elco	C314	4U7	1173.278-312
72	Kondensator	Capacitor	C322	470P	1162.241-315
73	Kondensator	Capacitor	C323	47P	1238.558-315
74	Elko	Elco	C339	1U	1171.879-312
75	Trimmer-Widerstand	Trimmer resistor	P204	22K LIN	1233.963-329
76	Widerstand	Resistor	R101	470R	1223.666-323
77	Widerstand	Resistor	R102,126,233,312,333, 373,377	47K	1223.798-323
78	Widerstand	Resistor	R103	39R	1223.593-323
79	Widerstand	Resistor	R104,112	100R	1159.100-323
80	Widerstand	Resistor	R105	330K	1223.844-323
81	Widerstand	Resistor	R106	56K	1223.801-323
82	Widerstand	Resistor	R121,122,311	68K	1223.811-323
83	Widerstand	Resistor	R123	3K9	1226.061-323
84	Widerstand	Resistor	R125,131,154,155,167, 203,313	10K	1223.771-323
85	Widerstand	Resistor	R127,156,166,329,334, 341,351	2K2	1223.704-323
86	Widerstand	Resistor	R128,320,330	2K7	1223.712-323
87	Widerstand	Resistor	R129,208,221,228	220R	1223.623-323
88	Widerstand	Resistor	R130,310	5K6	1223.747-323
89	Widerstand	Resistor	R151,152	15K	1225.561-323
90	Widerstand	Resistor	R153,213	4K7	1223.739-323
91	Widerstand	Resistor	R163	33K	1223.781-323
92	Widerstand	Resistor	R164,222	100K	1223.836-323
93	Widerstand	Resistor	R165,375	10R	1223.550-323
94	Widerstand	Resistor	R201,204,215	680R	1232.975-323
95	Widerstand	Resistor	R202	7K5	1223.763-323
96	Widerstand	Resistor	R206,210	110R	1229.249-323
97	Widerstand	Resistor	R209,372,374	330R	1223.641-323
98	Widerstand	Resistor	R212,220	68R	1232.967-323
99	Widerstand	Resistor	R214	10R	1159.011-323
100	Widerstand	Resistor	R216	1K	1223.682-323
101	Widerstand	Resistor	R227,331	3K3	1223.720-323
102	Widerstand	Resistor	R231	150R	1223.615-323
103	Widerstand	Resistor	R232,304,317,337,338, 339,353,378	0R	1227.661-323
104	Widerstand	Resistor	R302,318	470K	1223.860-323
105	Widerstand	Resistor	R303	100R	1225.936-323
106	Widerstand	Resistor	R305,327,362,371	22R	1223.577-323
107	NTC-Widerstand	Resistor NTC	R321	10K	1061.046-325
108	Widerstand	Resistor	R322	820R	1227.671-323
109	Widerstand	Resistor	R328	1K2	1223.690-323
110	Widerstand	Resistor	R332	1K5	1226.071-323
111	Widerstand	Resistor	R335	560R	1223.674-323
112	Widerstand	Resistor	R376	6K8	1223.755-323

Ersatzteile-Liste Spare Parts List

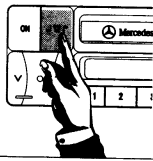
Lfd.Nr Item.No.	Benennung	Denomination	Pos.i.Schaltbild Diagram pos.	Artikel-Nr. Article No.	Best.-Nr. Part.No.
	Schaltungspl. Kombi-Tuner	P.C. board combi-Tuner		.. 4060 (Typ 2011)	1229.257-373
	bestehend aus:	consisting of			
1	Abschirmrahmen	Screening frame			1216.236-288
2	Abschirmdeckel	Screening cover			1216.635-284
3	Filter	Filter	F201		1232.983-340
4	Filter	Filter	F204		1233.009-340
5	Filter, MW	Filter AM	F311		1163.868-341
6	Filter, MWZ	AM-interm. circ. filter	F312		1163.876-341
7	Filter, LWZ	LW-interm. circ. filter	F315		1238.000-341
8	Filter, LWZ	LW-interm. circ. filter	F316		1238.019-341
9	Filter, MWO	AM-osc. filter	F331		1163.884-341
10	Filter, LWO	LW-osc. filter	F332		1224.514-341
11	Filter, AM-ZF	Filter AM/IF	F341		1181.955-341
12	Luftspule	Air coil	L101		1231.261-331
13	Luftspule	Air coil	L102		1231.278-331
14	Luftspule	Air coil	L103		1235.915-331
15	Luftspule	Air coil	L104		1231.294-331
16	Luftspule	Air coil	L105		1236.172-331
17	Quarz	Quartz	Q151	4,000 MHZ	1176.234-342
18	Keramik-Filter	Ceramic filter	Q203		1134.140-345
19	Keramik-Filter	Ceramic filter	Q301		1237.721-345
20	Keramik-Resonator	Ceramic resonator	Q371		1155.938-345
21	Keramik-Filter	Ceramic filter	Q201,202,204		1227.701-345
22	Übersp.-Ableiter	Arrester	SP101		1031.112-395
23	Stiftleiste	Pin ledge	ST1		1163.043-277
24	Inductor	Inductor	D101		1156.128-347
25	Drossel	Choke	D102	2,2UH	1178.237-334
26	Drossel	Choke	D301,302	5,6UH	1237.691-334
27	Diode	Diode	DI101,102,103	BAW BB804	0659.606-301
28	Diode	Diode	DI104	TEL S391D	1225.529-301
29	Diode	Diode	DI151	BAW BAW56	1043.587-301
30	Diode	Diode	DI301	BAW BA779-2/1 SV234/DPA05	1229.788-301
31	Diode	Diode	DI302,361	BAW BAS616/ 1N4148W	1238.183-301
32	Diode	Diode	DI311,312,331	SIE BB512	1152.092-301
33	IC	IC	IC101	TEL U4065B-AFL	1223.518-308
34	IC	IC	IC151	TEL U4283BM-BFS	1223.526-308
35	IC	IC	IC201	SIE TDA4320X	1220.357-308
36	IC	IC	IC301	TEL U4240B-AFS	1223.534-308
37	Transistor	Transistor	T101,361	BAW BC858C	1028.049-302
38	Transistor	Transistor	T102	BAW BFR93A NPN	1225.537-302
39	Transistor	Transistor	T151,152	BAW BC808-40	1018.280-302
40	Transistor	Transistor	T153,154	BAW KRA103S/DTA	1172.654-302
41	Transistor	Transistor	T201,307,308,321,322, 371,372	BAW BC848C	0659.622-302
42	Transistor	Transistor	T203	BAW KRC109S/DTC	1172.921-302
43	Transistor	Transistor	T301	PHI PMBFJ310 ON	1155.830-302
44	Transistor	Transistor	T305,316	PHI BF556A	1161.172-302
45	Transistor	Transistor	T309	BAW BC858B	0659.673-302
46	Transistor	Transistor	T311,312,313,318,325	BAW KRC105S/BCR	1172.662-302
47	Trimmer-Kondensator	Trimmer capacitor	CT306,309,342	4P2/20P	1152.114-311
48	Trimmer-Kondensator	Trimmer capacitor	CT325	6P/50P	1177.753-311
49	Kondensator	Capacitor	C101	2P7	1223.917-315
50	Kondensator	Capacitor	C102	15P	1223.933-315
51	Kondensator	Capacitor	C103	1P5	1223.909-315
52	Kondensator	Capacitor	C104,123,205,207,221, 328,329,341	10N	1119.125-315
53	Kondensator	Capacitor	C105,125,154,162,220, 302,303,332,333,334, 373	100N	1188.178-315
54	Kondensator	Capacitor	C106,107,110,114,121, 126,161,204,210,374	1N	1173.324-315
55	Elko	Elco	C108,209,330,340,371	22U	1172.018-312
56	Kondensator	Capacitor	C109	10P	1108.506-315
57	Kondensator	Capacitor	C113	6P8	1223.925-315
58	Kondensator	Capacitor	C116	8P2	1234.455-315
59	Kondensator	Capacitor	C117,317	22P	1223.951-315
60	Kondensator	Capacitor	C118,151	47P	1223.976-315
61	Kondensator	Capacitor	C122	18P	1223.941-315
62	Kondensator	Capacitor	C125,308	33P	1223.968-315
63	Kondensator	Capacitor	C156	6N8	0356.417-314
64	Kondensator	Capacitor	C157	150P	1223.992-315

Ersatzteile-Liste Spare Parts List

Lfd.Nr Item.No.	Benennung	Denomination	Pos.i.Schaltbild Diagram pos.	Artikel-Nr. Article No.	Best.-Nr. Part.No.
65	Kondensator	Capacitor	C158,206,214,217,331, 335,336,372	22N	1119.176-315
66	Kondensator	Capacitor	C159,	12P	1066.005-315
67	Kondensator	Capacitor	C160	3N9	1162.403-315
68	Kondensator	Capacitor	C165	470P	1119.222-315
69	Kondensator	Capacitor	C211	150P	1216.031-315
70	Kondensator	Capacitor	C212	4N7	1166.751-315
71	Kondensator	Capacitor	C213,301,312	1N	1119.060-315
72	Kondensator	Capacitor	C215	47N	1182.943-315
73	Kondensator	Capacitor	C219	470P	1066.110-315
74	Kondensator	Capacitor	C311,338	220N	1182.803-315
75	Elko	Elco	C313	2U2	1173.261-312
76	Elko	Elco	C314	4U7	1173.278-312
77	Kondensator	Capacitor	C322	470P	1162.241-315
78	Kondensator	Capacitor	C323	47P	1238.558-315
79	Elko	Elco	C339	1U	1171.879-312
80	Kondensator	Capacitor	C345	150P	1234.897-315
81	Kondensator	Capacitor	C351	470P	1234.900-315
82	Kondensator	Capacitor	C375	12P	1227.653-315
83	Trimmer-Widerstand	Trimmer resistor	P204	22K LIN	1233.963-329
84	Widerstand	Resistor	R101,378	470R	1223.666-323
85	Widerstand	Resistor	R102,126,233,312,333, 353,373,377	47K	1223.798-323
86	Widerstand	Resistor	R103	39R	1223.593-323
87	Widerstand	Resistor	R104,112	100R	1159.100-323
88	Widerstand	Resistor	R105	330K	1223.844-323
89	Widerstand	Resistor	R106	56K	1223.801-323
90	Widerstand	Resistor	R121,122,311	68K	1223.811-323
91	Widerstand	Resistor	R123	3K9	1226.061-323
92	Widerstand	Resistor	R125,131,154,155,167, 203,313	10K	1223.771-323
93	Widerstand	Resistor	R127,156,166,329,334, 341,351	2K2	1223.704-323
94	Widerstand	Resistor	R128,320,330	2K7	1223.712-323
95	Widerstand	Resistor	R129,208,221,228	220R	1223.623-323
96	Widerstand	Resistor	R130,310	5K6	1223.747-323
97	Widerstand	Resistor	R151,152	15K	1225.561-323
98	Widerstand	Resistor	R153,213	4K7	1223.739-323
99	Widerstand	Resistor	R163	33K	1223.781-323
100	Widerstand	Resistor	R164,222	100K	1223.836-323
101	Widerstand	Resistor	R165,375	10R	1223.550-323
102	Widerstand	Resistor	R201,204	680R	1232.975-323
103	Widerstand	Resistor	R202	7K5	1223.763-323
104	Widerstand	Resistor	R206,210	110R	1229.249-323
105	Widerstand	Resistor	R209,372,374	330R	1223.641-323
106	Widerstand	Resistor	R212,220	68R	1232.967-323
107	Widerstand	Resistor	R214	10R	1159.011-323
108	Widerstand	Resistor	R215,335	560R	1223.674-323
109	Widerstand	Resistor	R216	1K	1223.682-323
110	Widerstand	Resistor	R227,331	3K3	1223.720-323
111	Widerstand	Resistor	R231	150R	1223.615-323
112	Widerstand	Resistor	R232,304	0R	1227.661-323
113	Widerstand	Resistor	R302,316,317,318	470K	1223.860-323
114	Widerstand	Resistor	R303	100R	1225.936-323
115	Widerstand	Resistor	R305,327,371	22R	1223.577-323
116	Widerstand	Resistor	R306,309	820K	1223.879-323
117	NTC-Widerstand	Resistor NTC	R321	10K	1061.046-325
118	Widerstand	Resistor	R322	820R	1227.671-323
119	Widerstand	Resistor	R325,326,328	1K2	1223.690-323
120	Widerstand	Resistor	R332	1K5	1226.071-323
121	Widerstand	Resistor	R362	47K	1159.577-323
122	Widerstand	Resistor	R376	6K8	1223.755-323

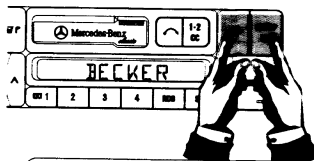
Testsoftware BECKER 1 aufrufen / selecting

1.) *Gerät einschalten / switch on the radio*



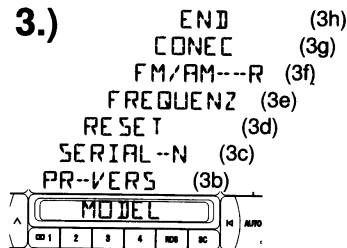
Klangmenü wählen /
Tone menu selecting

2.)



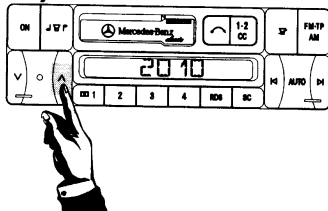
gleichzeitig drücken /
press simultaneously

3.)



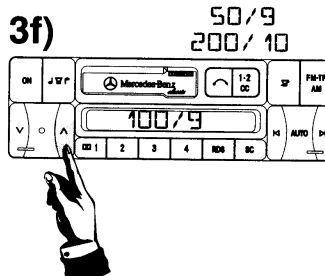
bis zum gewünschten Test wippen /
toggling up to the desired indication

3a)



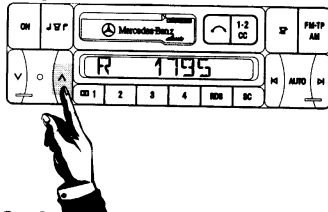
Modelnummer z. B.
Model number f. ex.
20 10

3f)



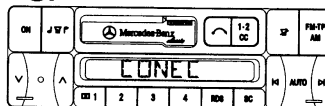
Suchlauf/Autom. search-Steps
Typ2010 FM: 100/200kHz
AM: 9/10kHz
Typ2011 FM: 50/100kHz
AM: 9/9kHz

3b)



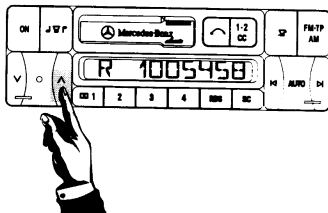
Programmversion
R 17 95
KW/week
Jahr/year

3g)



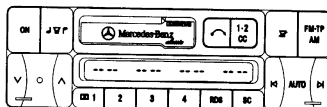
Konnektorblock-Codierung/
Connector-Code
Anzeige/Indication:
0 = Bose
1 = R129 Bose
2 = R129 Serie+Sound
3 = W140 Serie
4 = W202/124/210 Sound
5 = W124/210 Serie
6 = W202 linear
Anzeige 0-6 nur im eingebauten
Zustand bei MB-Fahrzeugen/
Indication 0-6, only if installed
at MB-cars
7 = Linear (Radio ausgebaut)
7 = Linear (Radio removed)

3c)



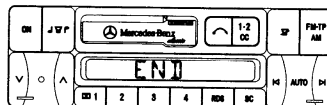
Seriennummer z. B.
Serial number f. ex.
R 1005458

3d)



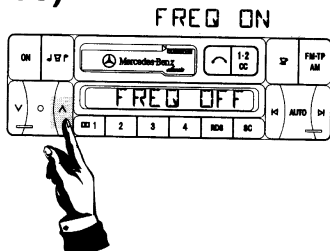
RESET ausgeführt /
finished

3h)



END - Testprogramm
beenden / Test
finished

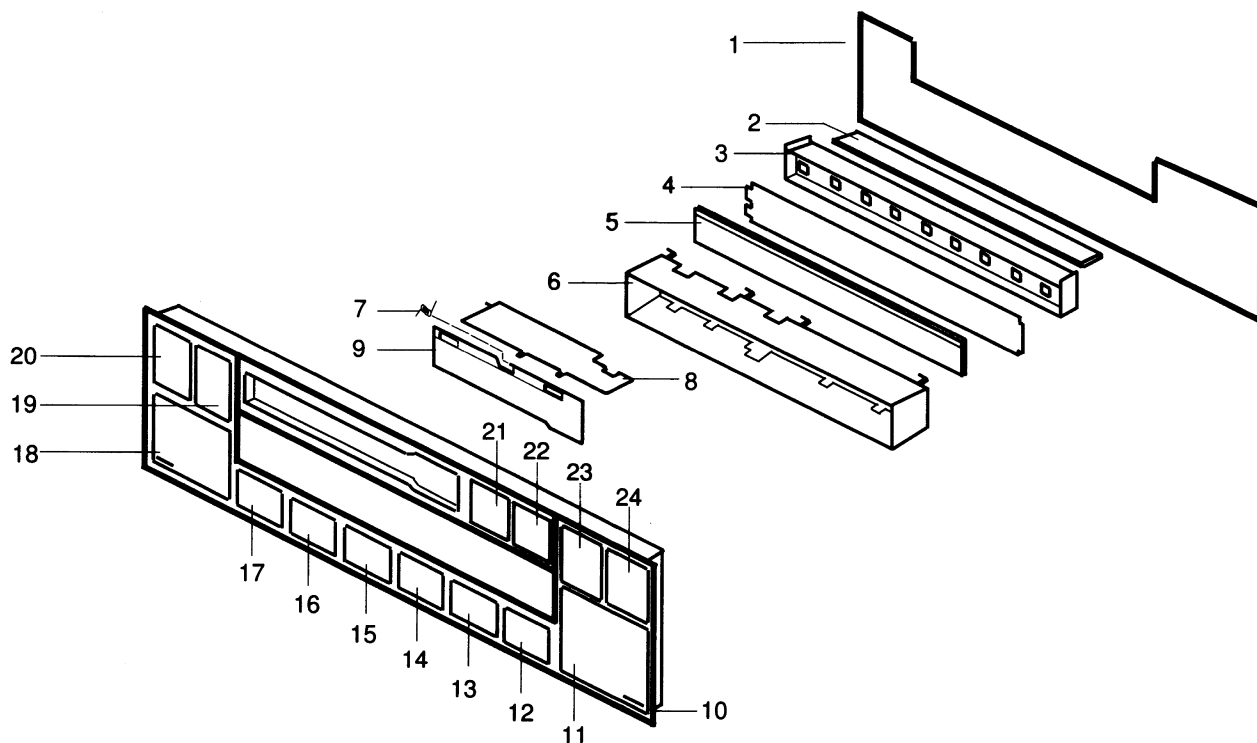
3e)



OFF = Sendername-Anzeige
= indication program name
ON = Frequenz-Anzeige
= indication frequency

NF/AF Tuner
4020, 4060

Bedienaufsatz
Operation escutcheon



Lfd.Nr Item.No.	Benennung	Denomi- nation	Pos.i.Zeichnung Diagram pos.	Best.-Nr. Part.No.
1	Bedienaufsatz kpl. (Typ 2010)	Operation escutcheon cpl. (2010)		1229.648-257
2	Bedienaufsatz kpl. (Typ 2011)	Operation escutcheon cpl. (2011)		1229.923-257
3	Schaltungsplatte kpl.	Wiring board cpl.	1	1229.338-373
4	Kontaktleiste	Contact ledge	2	1163.205-278
5	Reflektor	Reflector	3	1157.930-254
6	Streufolie	Reflector foil	4	1163.213-254
7	LCD	LCD	5	1223.471-304
8	Rahmen	Frame	6	1157.892-288
9	Feder	Spring	7	1225.049-245
10	Lichtleiter	Light conductor	8	1157.884-254
11	Verschlussklappe	Closing flap	9	1229.672-256
12	Zierblende kpl. (Typ 2010)	Trim plate cpl. (Type 2010)	10	1229.656-256
13	Zierblende kpl. (Typ 2011)	Trim plate cpl. (Type 2011)	10	1229.931-256
	bestehend aus:	consisting of:		
14	Taste AUTO	Button AUTO	11	1240.961-251
15	Taste SC	Button SC	12	1253.735-251
16	Taste RDS (Typ 2010)	Button RDS (Type 2010)	13	1240.935-251
17	Taste 5 (Typ 2011)	Button 5 (Type 2011)	13	1239.244-251
18	Taste 4	Button 4	14	1239.236-251
19	Taste 3	Button 3	15	1239.228-251
20	Taste 2	Button 2	16	1239.201-251
21	Taste 1	Button 1	17	1239.181-251
22	Lautstärketaste	Volume control	18	1240.994-251
23	Klangtaste	Tone button	19	1240.943-251
24	Tastenplatte ON	Key ON	20	1242.288-251
25	Taste Auswurf	Eject button	21	1239.392-251
26	Taste Spurumschaltung	Track switch-over button	22	1239.414-251
27	Taste Stummschaltung (Typ 2010)	Mute switch (Type 2010)	23	1240.919-251
28	Taste AM (Typ 2011)	Button AM (Type 2011)	23	1240.951-251
29	Taste FM TP AM (Typ 2010)	Button FM TP AM (Type 2010)	24	1241.001-251
30	Taste FM (Typ 2011)	Button FM (Type 2011)	24	1253.743-251