Service-Anleitung
Service Manual
Instructions de Service

# CD 100 RS


| **Technische Daten**<br>Meßwerte = typische Werte | **Technical data**<br>Measured values = typical values | **Caractéristiques techniques**<br>Valeurs mesurées = valeurs typiques | **Dati tecnici**<br>Valori di misuri = valori tipici | **Dual CD 100 RS** |
|---|---|---|---|---|
| **Frequenzbereich** | **Frequency response** | **Courbe de réponse** | **Banda do Frequenza** | 20–20 000 Hz ± 0,7 dB |
| **Geräuschspannungsabstand** | **Signal to noise ratio** | **Rapport signal/bruit** | **Rapporto segnale disturbo** | 103 dB |
| **Dynamikbereich** | **Dynamic range** | **Dynamique** | **Dinamica** | 96 dB |
| **Übersprechdämpfung (1 kHz)** | **Crosstalk (1 kHz)** | **Diaphonie (1 kHz)** | **Diafonia** | 92 dB |
| **Klirrfaktor (1 kHz)** | **Harmonic distortion (1 kHz)** | **Distorsion harmonique (1 kHz)** | **Distorsione atmonica** | < 0,01 % |
| **Gleichlaufschwankungen** | **Wow and flutter** | **Tolérance de vites** | **Toleranza di velocità** | < ± 0,001 % |
| **Ausgangsspannung** | **Output voltage** | **Tension de sortie** | **Tensione di uscita** | 2 V |
| **Max. programmierbare Musiktitel** | **Max. music title programming** | **Titres de musique au max. programmé** | **Programmazione di pezzi musicale** | 30 |
| **D/A Wandler** | **D/A Converter** | **D/A Convertisseur** | **Quantizzazione** | 18 Bit |
| **Abtastfrequenz** | **Sampling frequency** | **Fréquence de pick-up** | **Frequenza di campionatura** | 352,8 kHz |
| **Abtastsystem** | **Pick up** | **Pick up** | **Testina di lettura** | 3-Strahl-Laser<br>3-beam optical pick up |
| **Leistungsaufnahme** | **Power consumption** | **Consommation** | **Potenza assorbita** | 10 W |
| **Netzspannung**<br>Model Europa<br>Model USA/Kanada | **Mains voltage**<br>European model<br>US/Canadian model | **Voltage secteur**<br>Modèle Europe<br>Modèle USA/Canada | **Tensione di rete**<br>modello Europa<br>modello Stati Uniti/Canada | <br>230 V/50 Hz<br>115 V/60 Hz |

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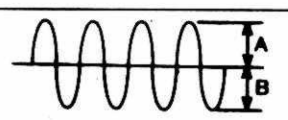
921 671 1092

# Abgleichanleitung CD 100 RS

Um in den Testmode zu gelangen, gehen Sie wie folgt vor:

1. Power aus
2. Testpunkte P 03 (Gnd) und P 05 (Test) kurzschließen
3. Power ein (alle Segmente im Display leuchten)
4. Kurzschluß trennen
5. Durch Drücken der Taste Play kann Testmode 1, 2, 3 eingestellt werden
6. Testmode verlassen: Power aus

| Signalquelle | Einstellung Gerät | Meßgeräteanschluß | Abgleichposition | Abgleichbemerkungen |
|---|---|---|---|---|
| | **PLL** | | | |
| | Testmode 1 | 1. Frequenzzähler an P 04 (PLCK)<br>2. P 02 und P 03 kurzschließen | VR 105 | 4,321 MHz |
| | | 3. Kurzschluß trennen | | |
| **Pillips 5 A** | **EF Balance** | | | |
| | Testmode 2<br>CD vorsichtig mit dem Finger drehen | Osci an P 07 | VR 101 |  A = B DC 0 V |
| | **Focus Balance** | | | |
| | Testmode 3 | Osci an P 01 (RF) | VR 102 | Sauberes EFM-Signal ca. 1,4 V SS |
| | **Focus Gain** | | | |
| | Testmode 3 | 1. Millivoltmeter AC an P 09<br>2. mit Generator 1,2 kHz 460 mV über 10 kΩ an P 09 | VR 104 | Maximum –3 dB |
| | **Tracking Gain** | | | |
| | Testmode 3 | AC-Voltmeter an P 08 | VR 103 | 10 mV AC |

Alle Spannungen werden gegen GnD (P 03) gemessen

Der integrierte CD-Spieler arbeitet mit unsichtbarem Laserlicht.

Nicht in den Strahl blicken und nicht dem Strahl aussetzen!

Vorsicht, Laserstrahlung im Inneren des Gerätes!

Zur Vermeidung von Strahlungsschäden darf das Gehäuse nur von qualifiziertem Fachpersonal geöffnet werden.

Informationsetikett auf der Geräterückseite (siehe Bild).

The integrated CD-Player works with invisible laser-light.

Do not look into this beam and don't abandon yourself to radiation.

Attention, Laser-radiation also inside of the unit!

To avoid damages of radiation unit should be opened only by qualified service personnel.

Information label on the rear of unit (see picture).

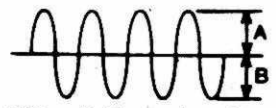
**VORSICHT!**
**UNSICHTBARE LASERSTRAHLUNG TRITT AUS, WENN DECKEL GEÖFFNET IST!**
**NICHT DEM STRAHL AUSSETZEN!**
**LASER KLASSE 1**

**CAUTION –**
**INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM**
**CLASS 1 LASER PRODUCT.**

# Tuning instructions CD 100 RS

Proceed as follows to enter the test mode:

1. Power OFF
2. Short-circuit test points P 03 GND to P 05
3. Power ON (all segments in Display are lighting)
4. Remove short circuit
5. Press the play key to set test mode 1, 2 or 3
6. To exit test mode: power OFF

| Signal source | Equipment setting | Connecting of measuring instrument | Item to be tuned | Tuning remarks |
|---|---|---|---|---|
| | **PLL** | | | |
| | Test mode 1 | 1. Frequency counter to P 04 (PLCK)<br>2. Short circuit P 02 to P 03 | VR 105 | 4,321 MHz |
| | | 3. Remove short circuit | | |
| **Pillips 5 A** | **EF balance** | | | |
| | Test mode 2 turn disc carefully with the fingers | Oscilloscope to P 07 | VR 101 |  DC = 0 V A = B |
| | **Focus balance** | | | |
| | Test mode 3 | Oscilloscope to P 01 (RF) | VR 102 | Clear EFM signal ca. 1,4 V SS |
| | **Focus gain** | | | |
| | Test mode 3 | 1. Millivoltmeter AC to P 09<br>2. with tone generator 1.2 kHz 460 mV via 10 kΩ to P 09 | VR 104 | Maximum –3 dB |
| | **Tracking gain** | | | |
| | Test mode 3 | AC-voltmeter to P 08 | VR 103 | 10 mV AC |

All voltages are measured against earth (P 03)

**Achtung:**
Vor Ausbau des Pick-up bezeichnete Anschlußpunkte durch Verlöten kurzschließen.
Nach Einbau des reparierten bzw. neuen Pick-up Kurzschluß wieder trennen.

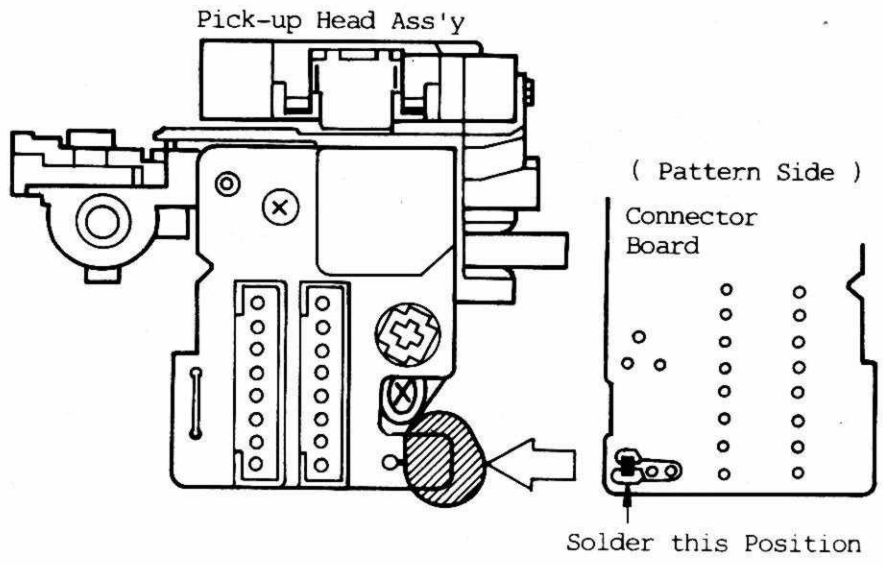
■ **Cautions when removing the laser pick-up for repairing.**
Before removing the laser pick-up, short-circuit the terminals by soldering.
This is to prevent damage to the pick-up during removal operation.

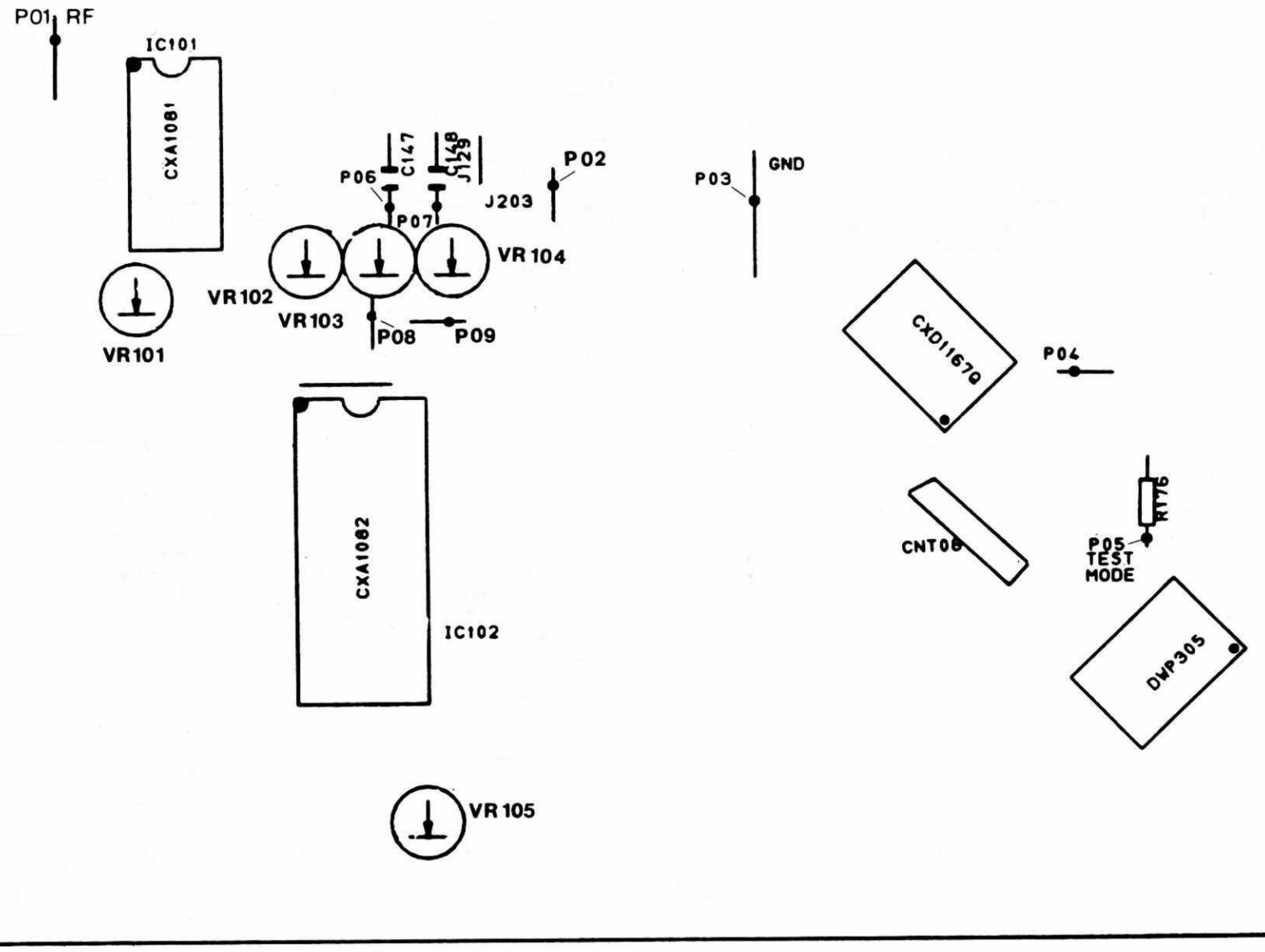
1. Solder the pick-up terminals.
2. Detach 2 lead connectors.

■ **Cautions when replacing the laser pick-up.**

1. Insert the 2 pick-up lead connectors into the connector PCB.
2. Detach the short-circuited pick-up terminal soldering.

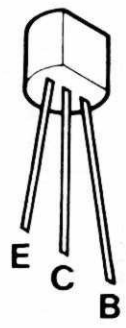
* The terminal is factory soldered for protection, so use the same procedure when replacing the pick-up when a new one.



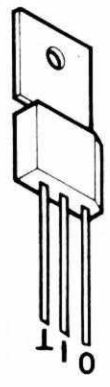




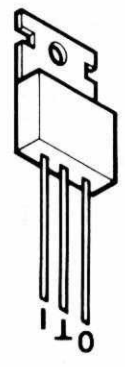
**MPS A06**
**MPS A56**



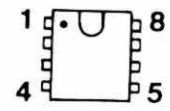

**KTA 966 A**
**KTA 1015 Y**
**KTC 1815 Y**
**2 SD 1302 T**



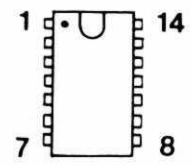

**MC 7905 CT**



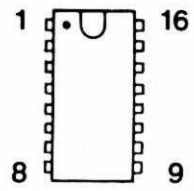

**GD 7805**



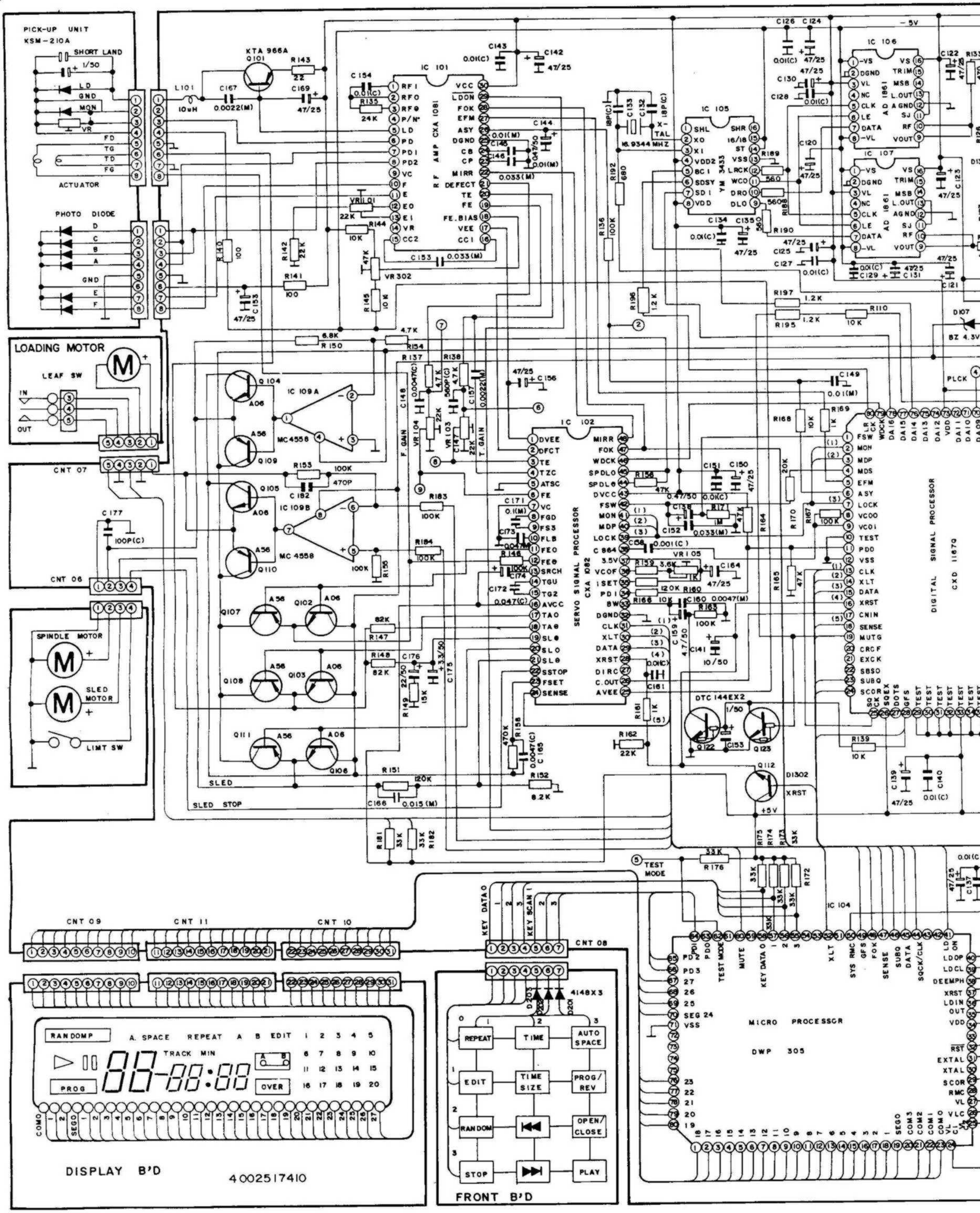

**RC 4558 D**

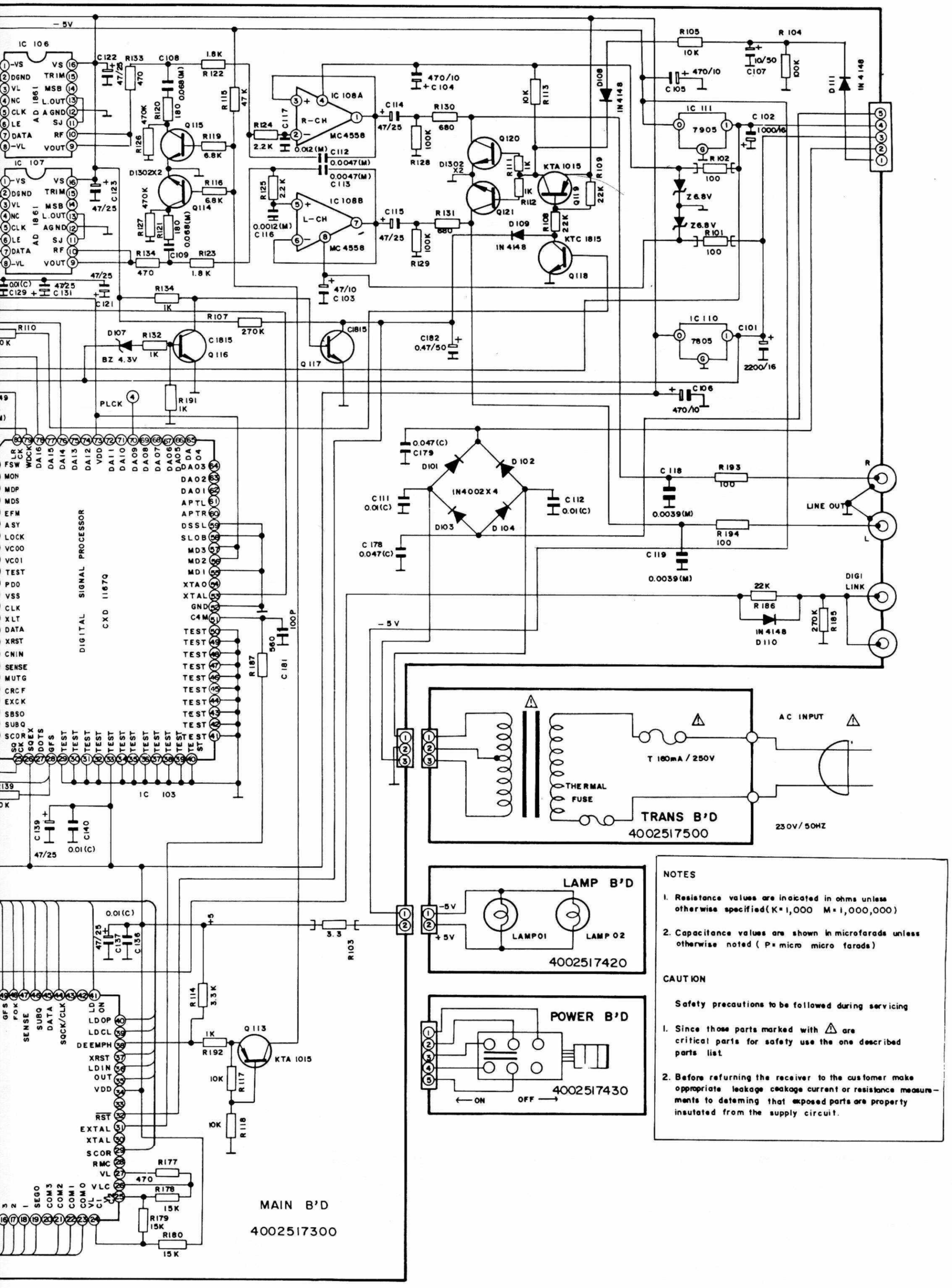



**AD 1856 N**
**GD 74 LS 20**




**YM 4113 B 3**
**YM 3433**


PICK-UP UNIT
KSM-210A
SHORT LAND
LD
GND
MON
VR
FD
TG
TD
FG
ACTUATOR
PHOTO DIODE
D
C
B
A
GND
E
F
KTA 966A
Q101
R143
22
L101
10uH
C167
0.0022(M)
C169
47/25
IC 101
RF AMP CXA 1081
C154
0.01(C)
R135
24K
C143
0.01(C)
C142
47/25
C144
0.01(M)
C145
C146
0.047/50
0.01(M)
0.033(M)
VR101
22K
R144
10K
R140
100
R142
22K
R141
100
C153
47/25
47K
VR302
R145
10K
C153
0.033(M)
6.8K
R150
4.7K
R154
R137
R138
4.7K
4.7K
0.0047(C)
560P(C)
C157
0.0022(M)
VR104
F. GAIN
C148
VR103
22K
C147
22K
T. GAIN
47/25
C156
IC 109A
MC4558
Q104
A06
A56
Q109
IC 109B
MC 4558
Q105
A06
A56
Q110
R153
100K
470P
C182
C177
100P(C)
R183
100K
R184
100K
R155
100K
CNT 07
CNT 06
SPINDLE MOTOR
SLED MOTOR
LIMT SW
LOADING MOTOR
LEAF SW
IN
OUT
Q107
A56
Q102
A06
82K
R147
R148
82K
C176
22/50
C175
+33/50
R149
15K
Q108
A56
Q103
A06
Q111
A56
A06
Q106
SLED
SLED STOP
R151
120K
C166
0.015 (M)
R181
33K
R182
33K
IC 102
SERVO SIGNAL PROCESSOR
CXA 1082
DVEE
DFCT
TE
TZC
ATSC
FE
VC
FGD
FS3
FLB
FEO
FE0
SRCH
TGU
TG2
AVCC
TAO
TA0
SL0
SL0
SL0
SSTOP
FSET
SENSE
C171
0.1(M)
C173
0.047(M)
R146
100K
C174
C172
0.047(C)
470K
R158
0.0047(C)
C165
R152
8.2K
MIRR
FOK
WDCK
SPDL0
SPDL0
DVCC
FSW
MON
MDP
LOCK
C 864
3.5V
VCOF
ISET
PDI
BW
DGND
CLK
XLT
DATA
XRST
DIRC
C. OUT
AVEE
C133
18P(C)
C132
18P(C)
X-TAL
16.9344 MHZ
IC 105
YM 3433
SHL
XO
XI
VDD2
BCI
SDSY
SDI
VDD
SHR
16/18
ST
VSS
LRCK
WCO
DRO
DLO
R189
560
R188
560
R190
560
R192
680
R136
100K
C134
0.01(C)
C135
47/25
R196
1.2K
C126
C124
0.01(C)
47/25
C130
47/25
C128
0.01(C)
C120
47/25
IC 106
IC 107
AD 1861
-VS
DGND
VL
NC
CLK
LE
DATA
-VL
VS
TRIM
MSB
L.OUT
AGND
SJ
RF
VOUT
-5V
C122
47/25
C123
47/25
C125
47/25
C127
0.01(C)
C129
0.01(C)
C131
47/25
C121
47/25
R197
1.2K
R195
1.2K
R110
10K
D107
BZ 4.3V
PLCK
C149
0.01(M)
R168
10K
R169
1K
LR CK
WDCK
DA16
DA15
DA14
DA13
DA12
VDD
DA11
DA10
DA09
FSW
MON
MDP
MDS
EFM
ASY
LOCK
VCOO
VCO1
TEST
PDO
VSS
CLK
XLT
DATA
XRST
CNIN
SENSE
MUTG
CRCF
EXCK
SBSO
SUBQ
SCOR
SQCK
SQSO
DOUT
GFS
TEST
DIGITAL SIGNAL PROCESSOR
CXD 1167Q
R151
120K
C166
0.015 (M)
R181
33K
R182
33K
R175
R174
R173
33K
R176
33K
R172
33K
C137
47/25
0.01(C
TEST MODE
IC 104
MICRO PROCESSOR
DWP 305
PDI
PDO
TEST MODE
MUTE
KEY DATA 0
SYS RMC
GFS
FOK
SENSE
SUBQ
DATA
SQCK/CLK
LD ON
LDOP
LDCL
DEEMPH
XRST
LDIN
OUT
VDD
RST
EXTAL
XTAL
SCOR
RMC
VL
VLC
SEGO
COM3
COM2
COM1
COMO
SEG 24
VSS
25
22
21
20
19
27
26
25
R162
22K
DTC 144EX2
Q122
Q123
C153
1/50
R139
10K
Q112
D1302
XRST
+5V
C139
47/25
C140
0.01(C)
R164
R165
R167
R170
20K
47K
100K
R166
10K
C160
0.0047(M)
R163
100K
C159
4.7/50
C141
10/50
R161
1K
C161
0.01(C)
C158
0.47/50
R171
1M
C152
0.033(M)
C151
C150
47/25
0.0(KC)
C156
0.001(C)
VR105
R159
3.6K
C164
47/25
R160
120K
CNT 09
CNT 11
CNT 10
CNT 08
KEY DATA 0
KEY SCAN 1
D203
D202
D201
4148X3
RANDOMP
A. SPACE
REPEAT
A B
EDIT
TRACK MIN
PROG
OVER
COMO
SEGO
DISPLAY B'D
4002517410
REPEAT
TIME
AUTO SPACE
EDIT
TIME SIZE
PROG/ REV
RANDOM
OPEN/ CLOSE
STOP
PLAY
FRONT B'D



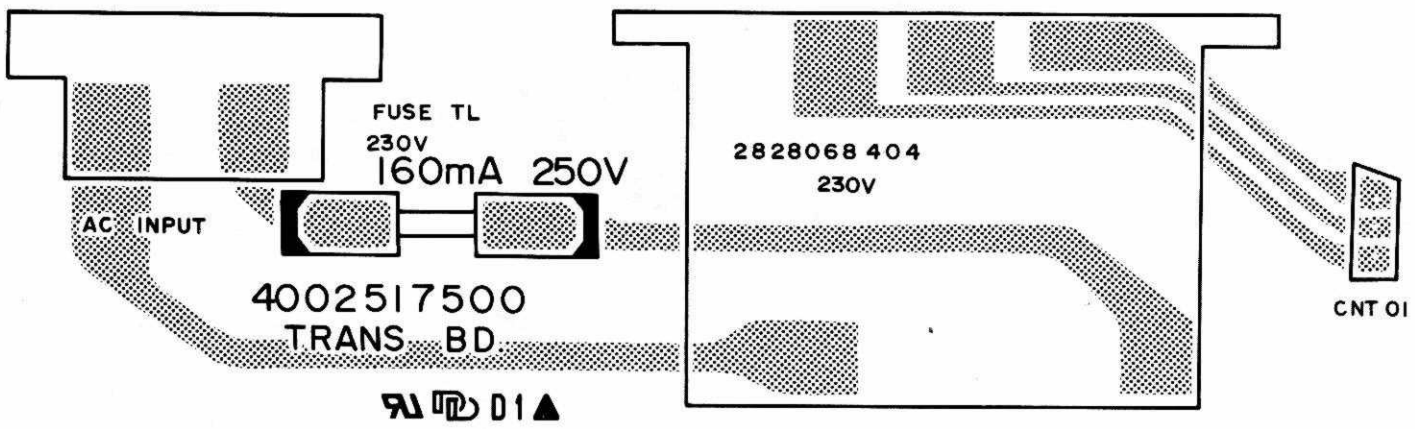

NOTES

1. Resistance values are indicated in ohms unless otherwise specified(K=1,000 M=1,000,000)
2. Capacitance values are shown in microfarads unless otherwise noted ( P=micro micro farads)

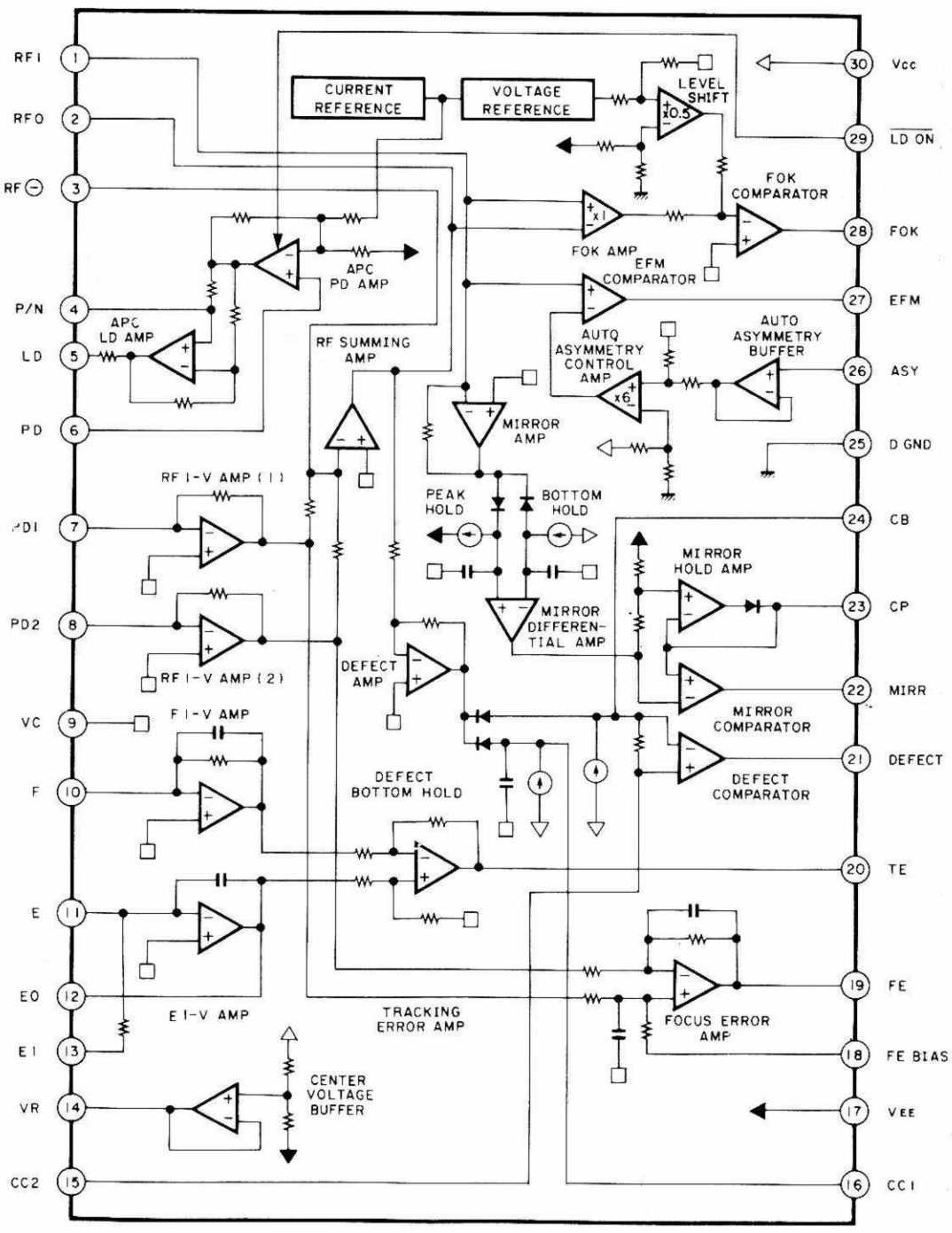
CAUTION

Safety precautions to be followed during servicing

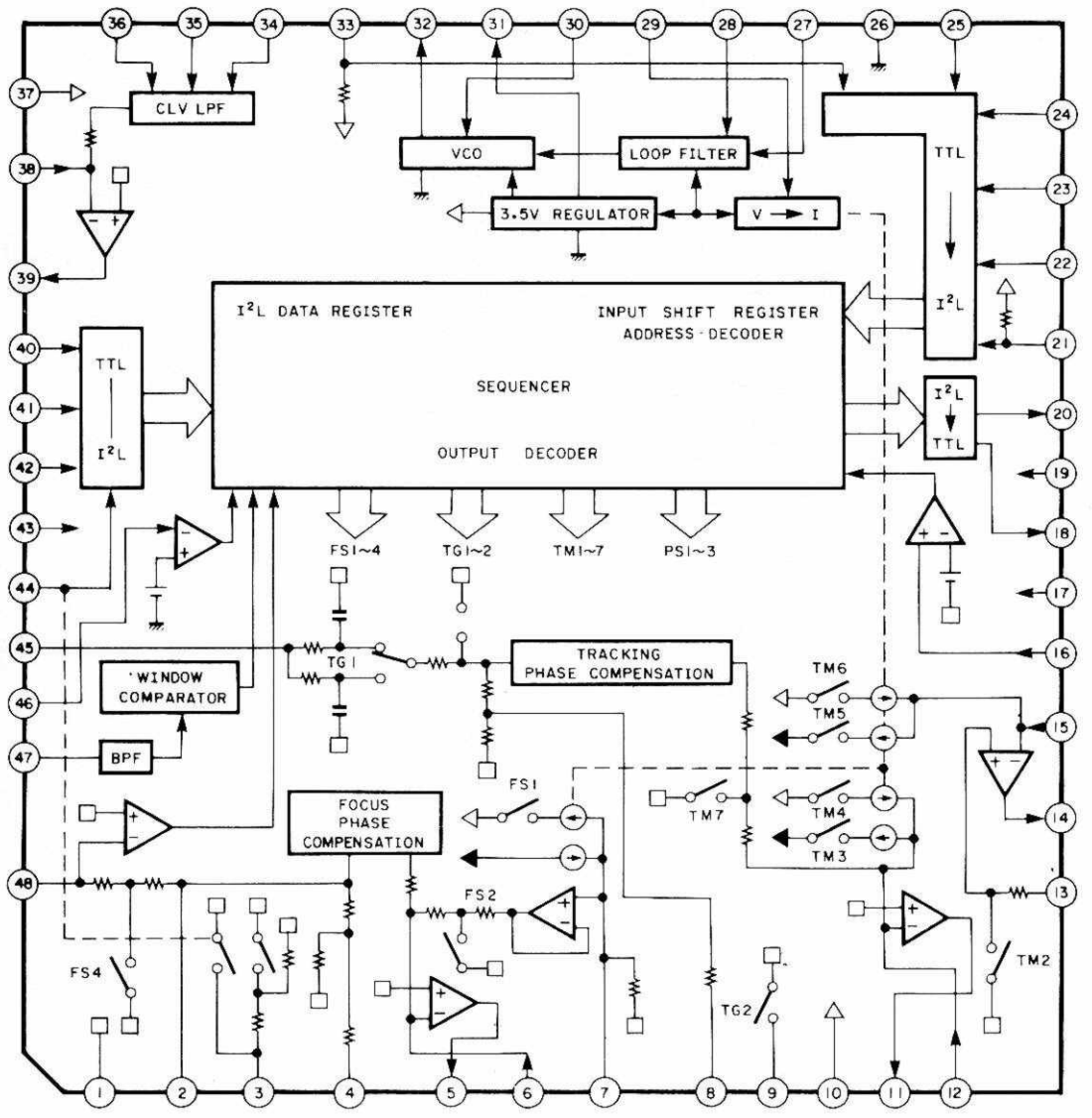
1. Since those parts marked with ⚠ are critical parts for safety use the one described parts list.
2. Before returning the receiver to the customer make oppropriate leakage ceakage current or resistance measurements to deteming that exposed parts are property insutated from the supply circuit.

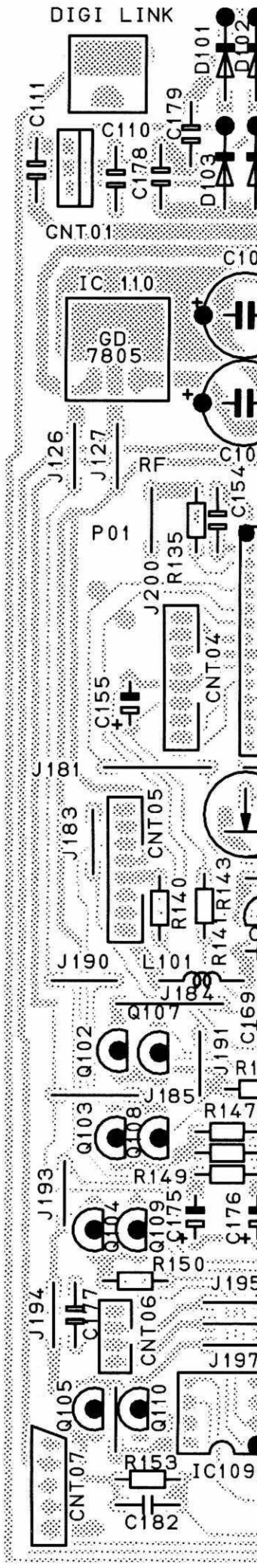



**CXA1081M**



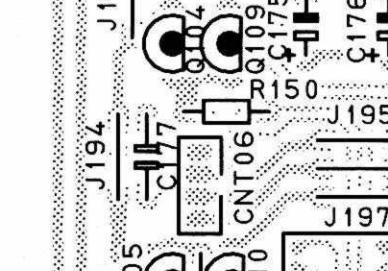

**CXA1082AQ**

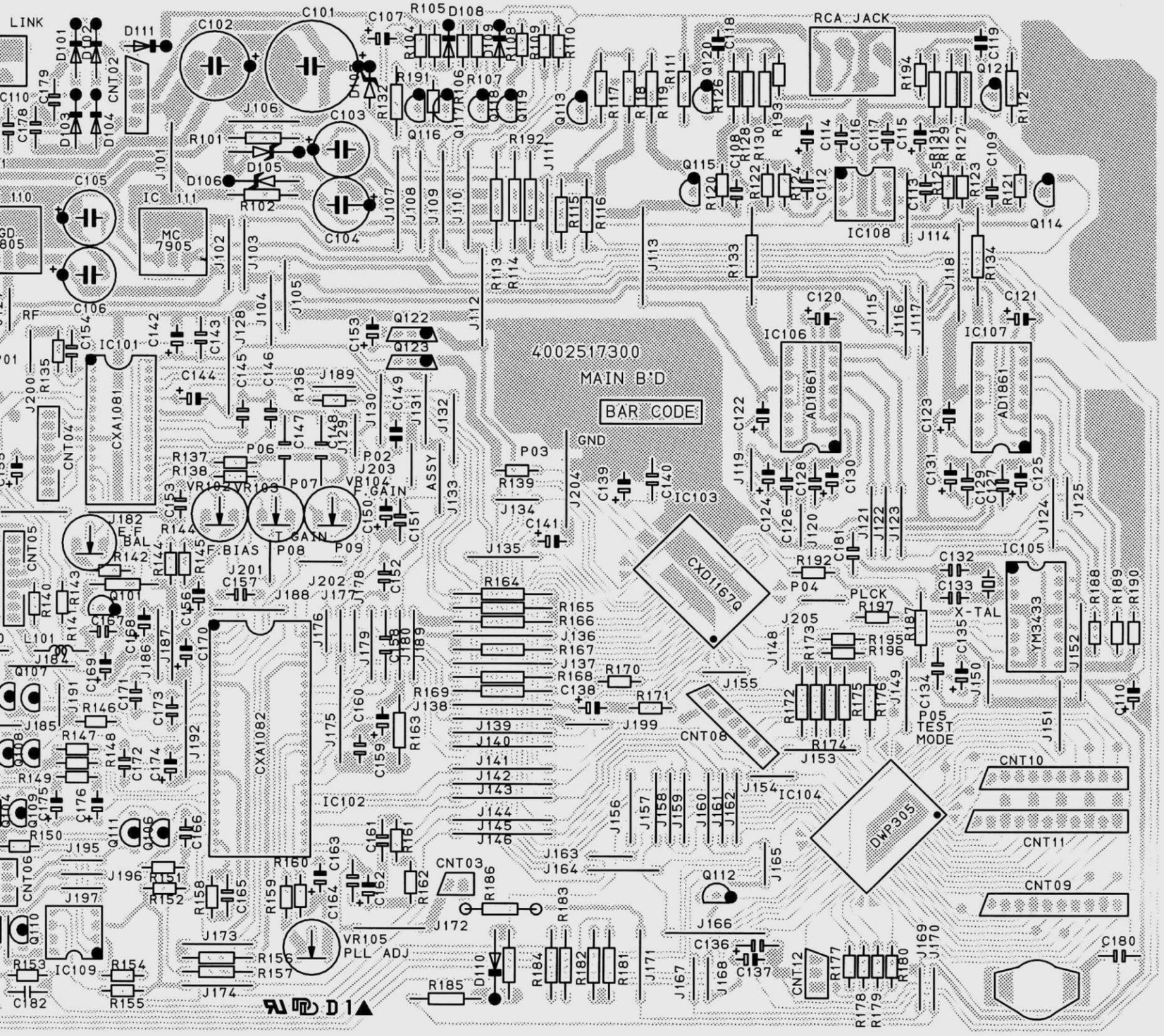


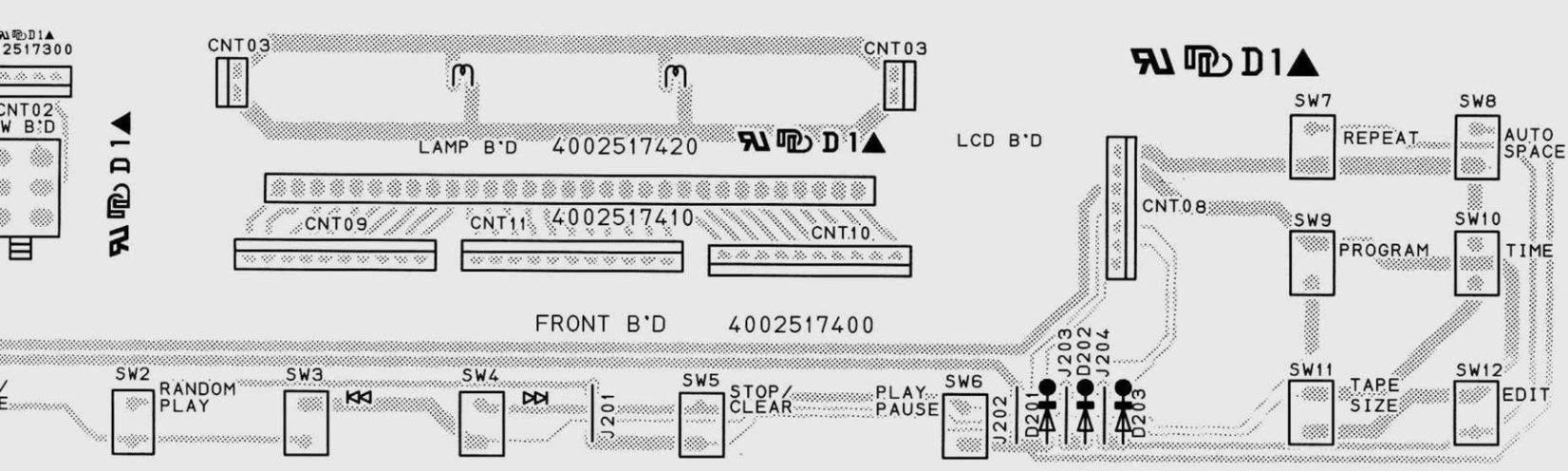



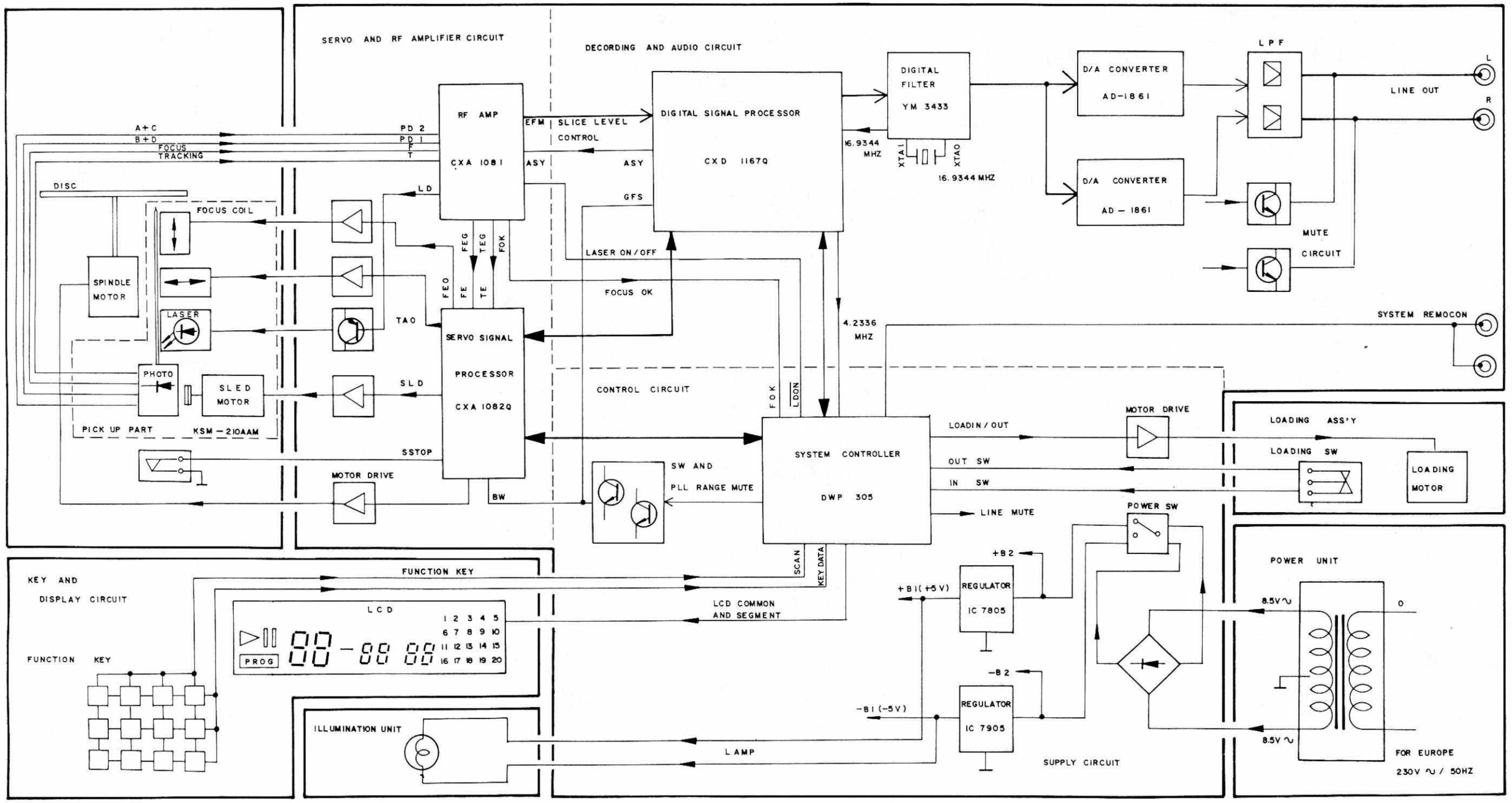


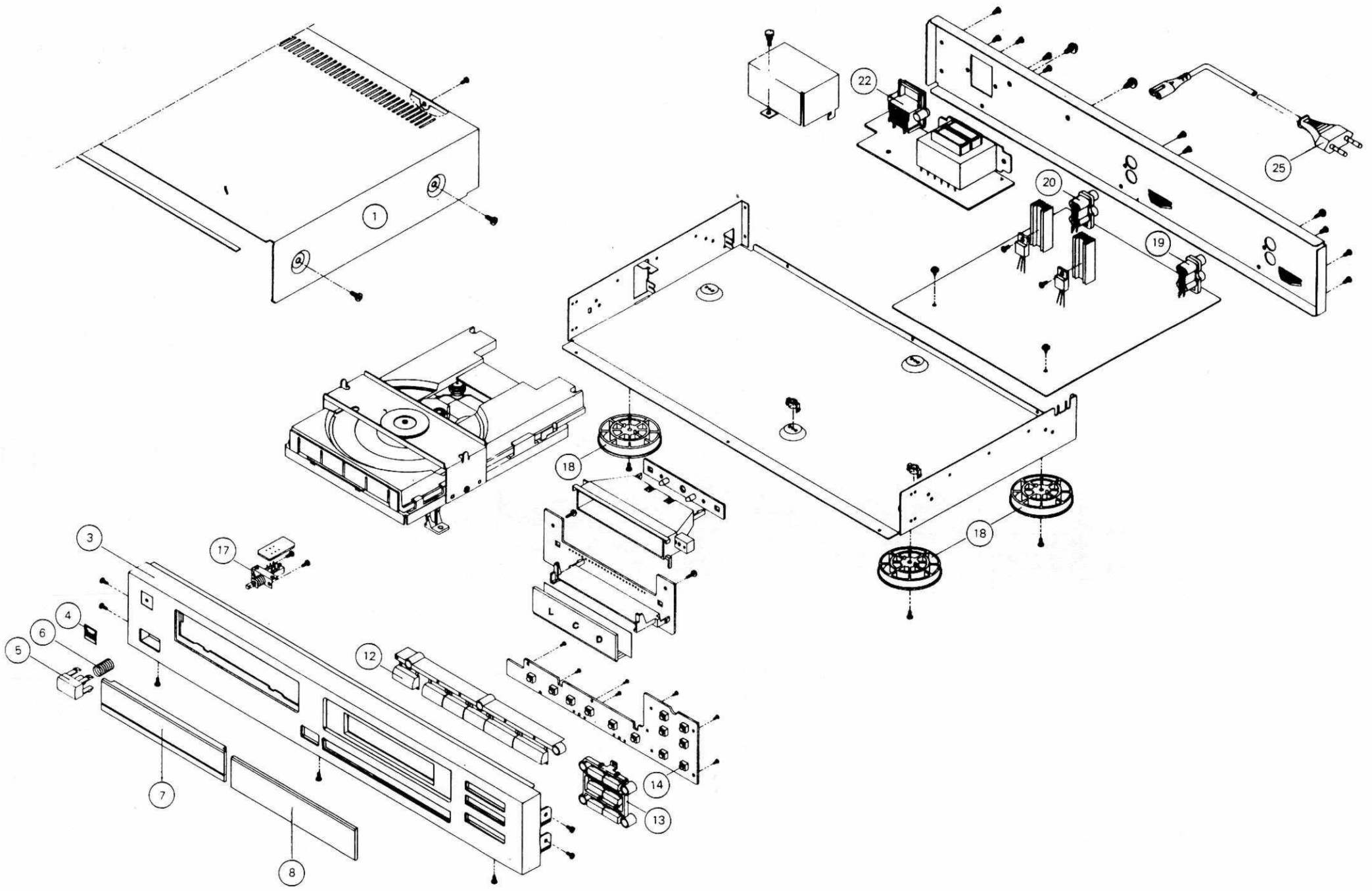





4002517300
MAIN B'D
BAR CODE
RCA JACK
IC101
CXA1081
IC102
CXA1082
IC103
CXD1167Q
IC104
DWP305
IC105
YM3433
IC106
AD1861
IC107
AD1861
IC108
MC 7905
IC109
CNT03
CNT04
CNT05
CNT06
CNT08
CNT10
CNT11
CNT12
CNT09
P03
GND
P04
PLCK
P05
TEST MODE
P06
P07
P08
P09
P02
VR101
VR102
VR103
VR104
VR105
PLL ADJ
F GAIN
T GAIN
F BIAS
F BAL
ASSY
X-TAL
LINK


LAMP B'D 4002517420
FRONT B'D 4002517400
LCD B'D
CNT03
CNT09
CNT11
CNT10
CNT08
SW2
RANDOM PLAY
SW3
SW4
SW5
STOP/ CLEAR
SW6
PLAY PAUSE
SW7
REPEAT
SW8
AUTO SPACE
SW9
PROGRAM
SW10
TIME
SW11
TAPE SIZE
SW12
EDIT


SERVO AND RF AMPLIFIER CIRCUIT
DECORDING AND AUDIO CIRCUIT
A+C
B+D
FOCUS
TRACKING
PD 2
PD 1
F
T
RF AMP
CXA 1081
EFM
SLICE LEVEL
CONTROL
ASY
ASY
DIGITAL SIGNAL PROCESSOR
CXD 1167Q
DIGITAL FILTER
YM 3433
16.9344 MHZ
XTAI
XTAO
16.9344 MHZ
D/A CONVERTER
AD-1861
D/A CONVERTER
AD-1861
LPF
LINE OUT
L
R
MUTE
CIRCUIT
DISC
LD
FOCUS COIL
SPINDLE MOTOR
LASER
PHOTO
SLED MOTOR
PICK UP PART
KSM-210AAM
SLD
SSTOP
MOTOR DRIVE
FEG
TEG
FOK
FEO
FE
TE
TAO
SERVO SIGNAL PROCESSOR
CXA 1082Q
BW
LASER ON/OFF
FOCUS OK
GFS
4.2336 MHZ
SYSTEM REMOCON
CONTROL CIRCUIT
FOK
LDON
SW AND
PLL RANGE MUTE
SYSTEM CONTROLLER
DWP 305
LOADIN/OUT
OUT SW
IN SW
LINE MUTE
MOTOR DRIVE
LOADING ASS'Y
LOADING SW
LOADING MOTOR
POWER SW
SCAN
KEY DATA
FUNCTION KEY
KEY AND
DISPLAY CIRCUIT
LCD
PROG
LCD COMMON
AND SEGMENT
FUNCTION KEY
+B2
+B1(+5V)
REGULATOR
IC 7805
-B2
-B1(-5V)
REGULATOR
IC 7905
SUPPLY CIRCUIT
POWER UNIT
8.5V~
0
8.5V~
FOR EUROPE
230V ~ / 50HZ
ILLUMINATION UNIT
LAMP


1
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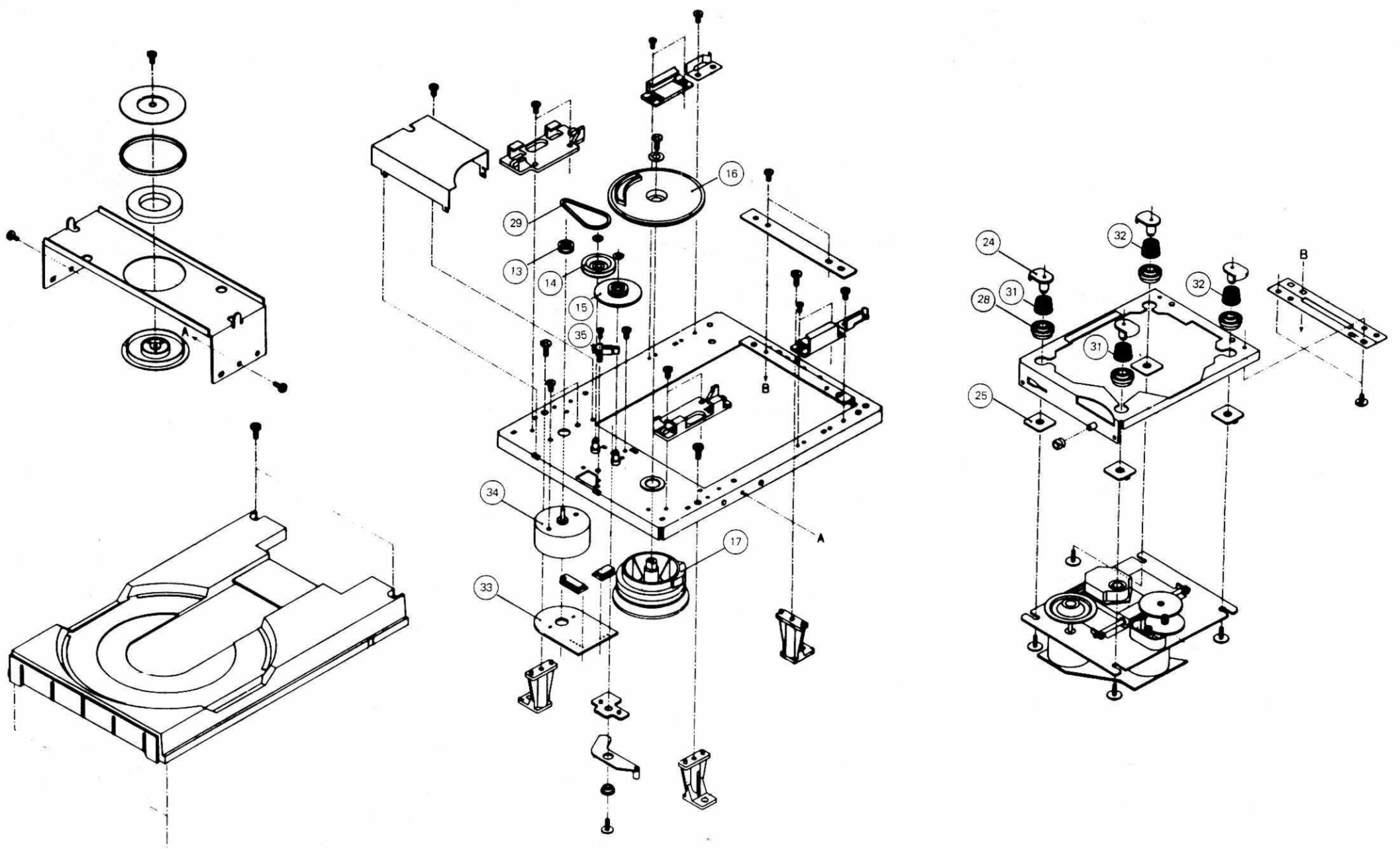
8

## Mechanik


16
29
13
14
15
35
B
A
34
17
33
24
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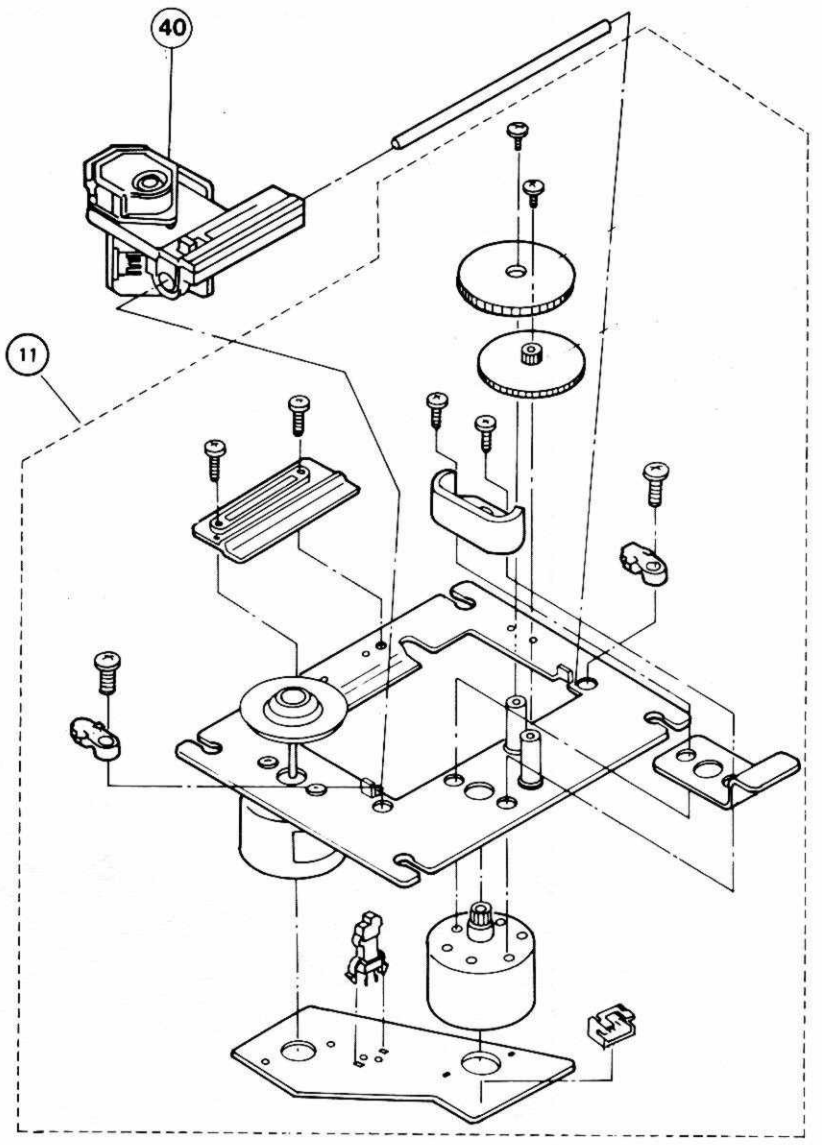
32
B
28
31
31
25




## Ersatzteile · Replacement parts · Pièces détachées · CD 100

| Pos. | Art.-Nr. | Bezeichnung |
|---|---|---|
| 1 | 289317 | Gehäuseblech |
| 3 | 289318 | Frontblende |
| 4 | 283750 | DUAL-Zeichen |
| 5 | 289244 | Taste POWER |
| 6 | 289295 | Druckfeder |
| 7 | 289308 | Abdeckung |
| 8 | 289319 | Fenster |
| 12 | 289320 | Tasten 6-fach |
| 13 | 289321 | Tasten 6-fach |
| 14 | 286901 | Schalter |
| 17 | 284318 | Schalter (Power) |
| 18 | 289322 | Fuß |
| 19 | 289302 | Cinchbuchse 2-fach |
| 20 | 286897 | REMOTE-Buchse |
| 21 | 286953 | RC-Kabel |
| 22 | 289266 | Netzbuchse |
| 26 | 279596 | Netzkabel Europa |
| | | **CD-Mechanik** |
| 11 | 289963 | Mechanik |
| 13 | 284805 | Antriebsrolle |
| 14 | 284806 | Antriebsrad |
| 15 | 284807 | Zahnrad |
| 16 | 284808 | Laderad |
| 17 | 284809 | Kurvenrad |
| 17 | 289712 | Netzschalterplatte |
| 24 | 284813 | Dämpferachse |
| 25 | 284814 | Halter |
| 28 | 284815 | Gummipuffer |
| 29 | 284315 | Riemen |
| 31 | 284817 | Feder V |
| 32 | 284818 | Feder M |
| 33 | 284819 | Motorplatte |
| 34 | 283709 | Motor (LOAD) |
| 35 | 283736 | Schalter |
| 40 | 286958 | Pick-up |
| | | **Elektronik** |
| D 101 bis D 104 | 226501 | Diode 1 N 4002 |
| D 105 | 283714 | Diode DZ 6,8 |
| D 106 | 283714 | Diode DZ 6,8 |
| D 107 | 282174 | Diode DZ 5,1 BM |

| Pos. | Art.-Nr. | Bezeichnung |
|---|---|---|
| D 108 bis D 111 | 223906 | Diode 1 N 4148 |
| IC 101 | 289324 | IC CXA 1081 |
| IC 102 | 289325 | IC CXA 1082 |
| IC 103 | 286923 | IC CXD 1167 Q |
| IC 104 | 289326 | IC DWP 305 |
| IC 105 | 286922 | IC YM 3433 |
| IC 106 | 289327 | IC AD 1861 |
| IC 107 | 289327 | IC AD 1861 |
| IC 108 | 282749 | IC NJM 4560 S |
| IC 109 | 236299 | IC RC 4558 D |
| IC 110 | 283727 | IC GD 7805 |
| IC 111 | 283142 | IC MC 7905 CT |
| Q 101 | 283436 | Transistor KTA 966 A |
| Q 102 bis Q 106 | 286904 | Transistor MPS A 06 |
| Q 107 bis Q 111 | 286905 | Transistor MPS A 56 |
| Q 112 | 284787 | Transistor KTD 1302 |
| Q 113 | 282077 | Transistor KTA 1015 Y |
| Q 114 | 284787 | Transistor KTD 1302 |
| Q 115 | 284787 | Transistor KTD 1302 |
| Q 116 bis Q 118 | 282076 | Transistor KTC 1815 Y |
| Q 119 | 282077 | Transistor KTA 1015 Y |
| Q 120 | 284787 | Transistor KTD 1302 |
| Q 121 | 284787 | Transistor KTD 1302 |
| Q 122 | 283729 | Transistor DTC 144 E |
| Q 123 | 283729 | Transistor DTC 144 E |
| L 101 | 284800 | Spule 10 UH |
| X-TAL | 289328 | Quartz 16,9344 MHz |
| D 201 bis D 203 | 223906 | Diode 1 N 4148 |
| LCD | 289329 | Display |
| | 283721 | Lampe 9,6 V 120 mA |
| | 283712 | Netztrafo |

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