BANG & OLUFSEN
DK – 7600 STRUER
DENMARK

TELEPHONE 97851122*
CABLE ADRESS BANGOLUF
TELEFAX 97853912

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Bang & Olufsen

Beocenter 2300

Type 2611, 2612, 2613, 2614
2615, 2616, 2617, 2618,
2619, 2620

Corrections included

CD

New Version, CDM12

Beosystem 2500

Type 2701, 2702, 2703, 2704
2705, 2706, 2707, 2708,
2709, 2710

Beocenter 2500

Type 2601, 2602, 2603, 2604,
2605, 2606, 2607, 2608,
2609, 2610

Beolab 2500

Type 6201, 6202, 6203, 6204,
6205

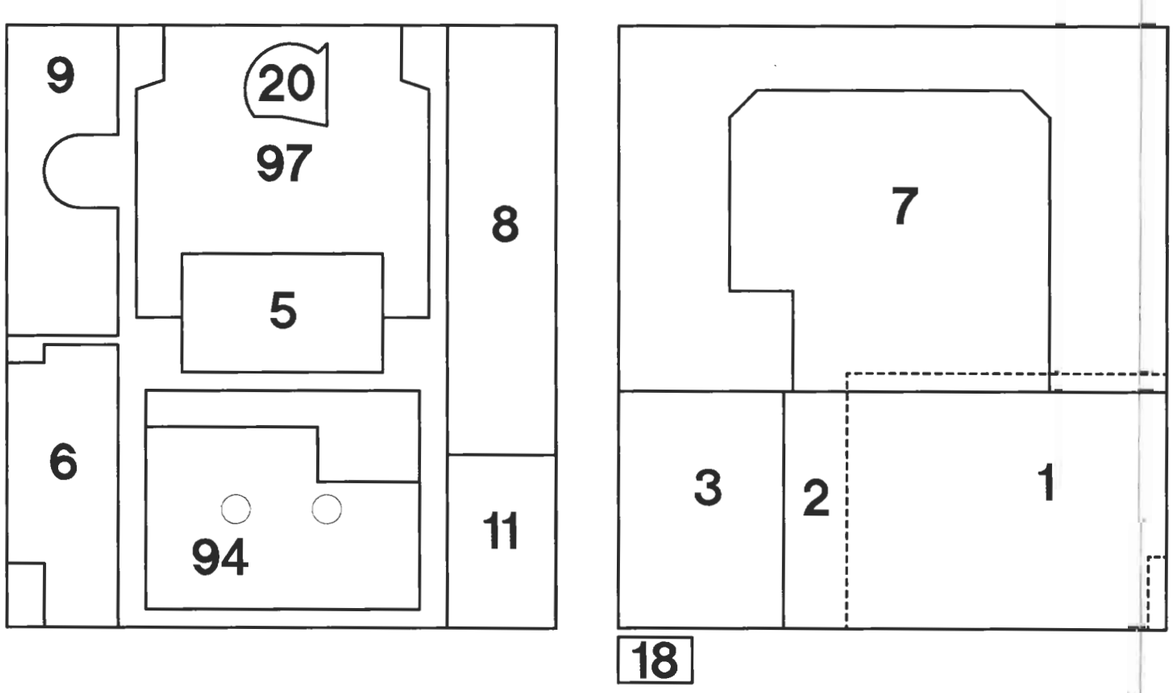
SERVICEANVISNING
SERVICE MANUAL

Bang&Olufsen

INDHOLD

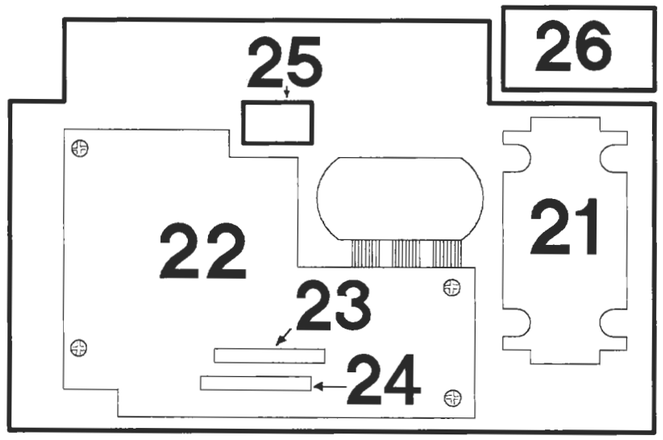
CONTENTS

Bang&Olufsen



Beocenter 2500

1-1



Beolab 2500

1-2

1-2

Bang&Olufsen

TECHNICAL SPECIFICATIONS

Beocenter 2500

With FM range	Type 2601 (EU), 2602 (GB),
	2603 (USA-CDN), 2604 (JAP), 2605 (AUS)
With FM and AM range	Type 2606 (EU), 2607 (GB),
	2608 (USA-CDN), 2609 (JAP), 2610 (AUS)
Operation	Direct keypad
Recommended terminal	Beolink 5000, two-way
	Beolink 7000, two-way, interactive
	Beolink 1000, one-way
Finish	Black, aluminium, light grey
Amplifier	Power amplifier in Beolab 2500
	Refer to tech. spec. on Beolab 2500

Preamplifier section:

Total harmonic distortion IHF	<0.1%/1 kHz
Response vs. frequency:	
AUX in	10-20,000 Hz ±1 dB
Input sensitivity/impedance:	
AUX	100 mV
Input impedanc, AUX	110 kΩ
Max. input signal, AUX	2.5 V
Signal-to-noise ratio:	
AUX, A-weighted	>80 dB
Channel separation 10 kHz, AUX	>60 dB
Output:	
Headphones	Max. 10 V/220 Ω
Bass control at 40 Hz	±10 dB
Treble control at 12,500 Hz	±8 dB

Tuner, FM section:

FM range	87.5-108 MHz
FM aerial impedance	75 Ω
Usable sensitivity mono	14 dBf-1.4µV
Usable sensitivity stereo	19 dBf-2.5µV
50 dB quieting sensitivity mono	19 dBf-2.5µV
50 dB quieting sensitivity stereo	40 dBf-28µV
Signal-to-noise ratio 65 dBf mono	75 dB
Signal-to-noise ratio 65 dBf stereo	70 dB
Frequency response, stereo	30-15,000 Hz +1/-3 dB
Distortion at 65 dBf mono	0.3%
Distortion at 65 dBf stereo	0.3%
Intermodulation mono	0.1%
Intermodulation stereo	0.1%
Capture ratio	1.7 dB
Adjacent channel selectivity	6 dB
Alternate channel selectivity	62 dB
Spurious response	100 dB
Image response ratio	80 dB
IF response ratio	80 dB
AM suppression	57 dB
Stereo channel separation	40 dB
Subcarrier product rejection	50 dB, stereo

Tuner, AM section:

AM range	LW 150-350 kHz
	MW 520-1610 kHz
LW sensitivity 20 dB S/N ratio	80 µV/200 kHz
MW sensitivity 20 dB S/N ratio	60 µV/1000 kHz
Number of programmes	2x20

Tape recorder section:

Compact cassette	C46-C120
Tape recording system	HX PRO
Tape transport	Auto Reverse
Search system	Auto Track
Record level	Auto Record Level
Noise reduction	Dolby B
Tape switch	Auto ferro/chrome/metal
Tape head	Amorphous
Wow and flutter, DIN	<0.15%
Wow and flutter, WRMS	<0.09%
Speed deviation	<±1.5%
Fast forward and rewind	95 sec./C60
Frequency range chrome	30-16,000 Hz ±3 dB
Signal-to-noise ratio IEC/DIN:	
Metal	>54 dB
Chroms	>56 dB
Ferro	>54 dB
Driveability 10,000 Hz, metal	0 dB
Driveability 10,000 Hz, chrome/ferro	-7 dB
Distortion, ferro	<2%
Channel separation	>45 dB
Erasure	>70 dB
Erasure frequency	98 kHz

CD player:

CD, disc types	12 cm (5"), 8 cm (3")
Frequency range	20-20,000 Hz ±0.2 dB
Signal-to-noise ratio	>95 dB/110 dB A-weighted
Dynamic range	>98 dB
Harmonic distortion	0.0025% at 0 dB
Channel separation	>100 dB
Channel difference	<0.1 dB
Converter system	2 x 16 bit, 4 x oversampling
Low pass filter analog	Bessel
Damping >20,000 Hz	>60 dB
Phase error between L and R	0 degree at 20-20,000 Hz

Connections:

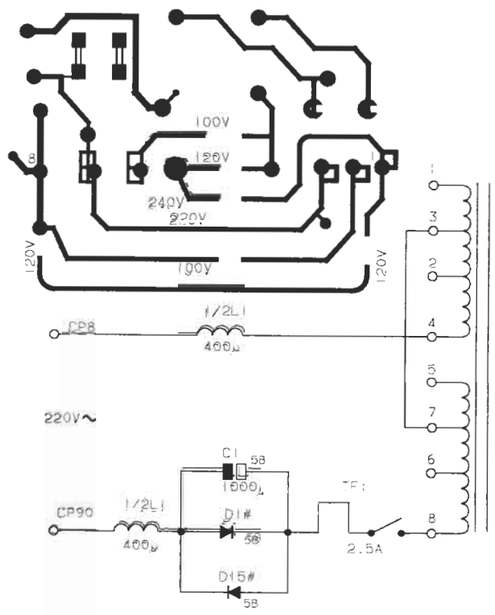
Audio Link	AUX
Power Link	Beolab speakers, 2 sockets 8-pin
Master Control Link	Via MCL 2P
Power supply	220 volts
Power frequency	50-60 Hz
Power consumption	Max. 35 watts
Dimensions W x H x D	31 x 36 x 16 cm
Weight	6.9 kg

TECHNICAL SPECIFICATIONS

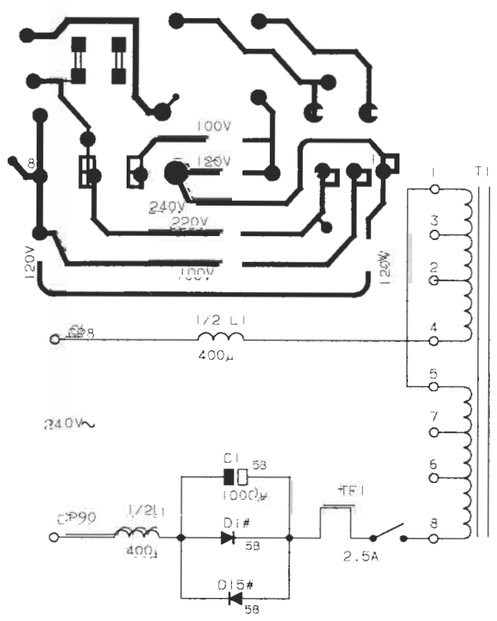
Beolab 2500	Type 6201 (EU), 6202 (GB), 6203 (USA-CDN), 6204 (JAP), 6205 (AUS)
System data:	
Frequency response	55-20,000 Hz +4-8 dB
	70-20,000 Hz ±2 dB
Sound Pressure Level	103 dB weighted noise (IEC 268-5)
	1 m/stereo/room
Input impedance	≥47 kΩ
Harmonic distortion	<1%/94 dB SPL, 1 m, 250-5,000 Hz
Electronics:	
Amplifier signal-to-noise ratio	>96 dB
Active crossover network	24 dB/octave, Linkwitz/Riley
High pass filter	30 dB/octave, 50 Hz
Low frequency equalization	40-350 Hz/11 dB
Acoustics and cabinet:	
Cabinet principle	Bass Reflex
Woofer	4½" - 11 cm
Tweeter	1"-2.5 cm
Crossover frequency	2,500 Hz
Net volume	2.8 litres
Power amplifier:	
Frequency range	40-20,000 Hz +0 -1 dB
Signal-to-noise ratio	>96 dB A-weighted, max. power
Input sensitivity/impedance:	
Power Link sockets	1 V/47 kΩ
Power Link channel separation	>55 dB/10,000 Hz
Stand by function	Automatic ON-OFF
Connections:	
Power Link	8-pin socket
AC in	Male, 2-pin
AC out	Female, 2-pin, max. 2A
Power supply	220 volts
Power consumption	Max. 100 watts
Stand by	<2 watts
Total dimensions W x H x D	26 x 36 x 12 cm
Weight	6 kg
Optional accessories:	
Bracket 2500	Type 2087
RDS kit	Type 2201
Front cover, Beolab 2500	Cobalt 1603678
	Grey 1603679
	Black 1603676
	White 1603675
	Cerise 1603674
	Jade 1603673

Subject to change without notice

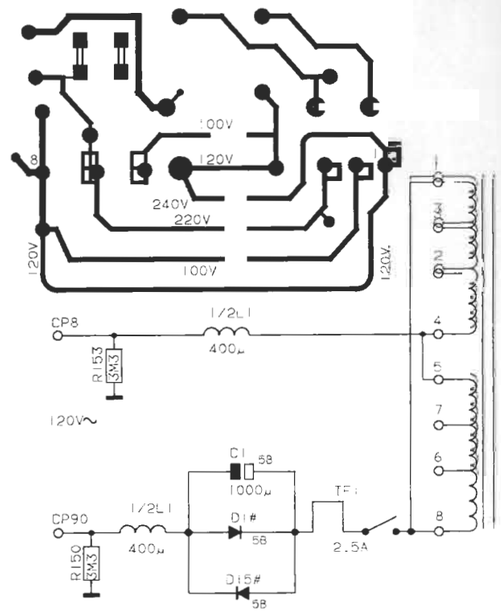
WIRING OF TRANSFORMER
Beocenter 2500, PCB 2
Type 2601, 2606
EU 220 V~



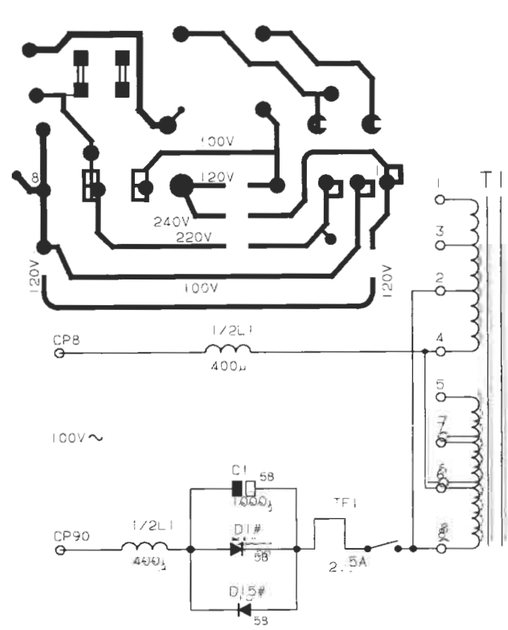
Type 2602, 2605, 2607, 2610
GB, AUS 240 V~



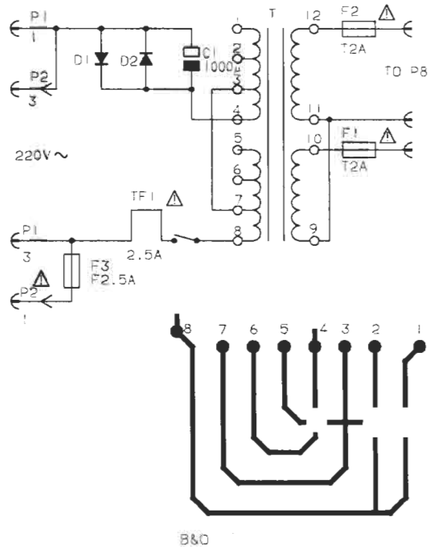
Type 2603, 2608
CND, USA 120 V~



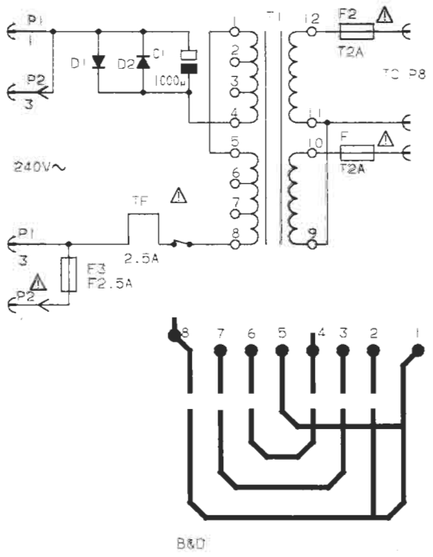
Type 2604, 2609
JPN 100 V~



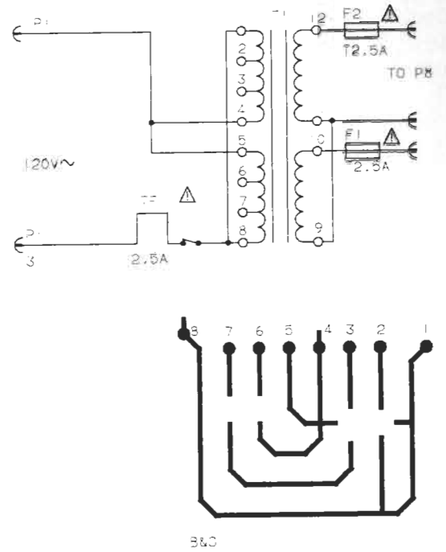
TRANSFORMER WIRING
BEOLAB 2500, PCB 11
Type 6201
EU 220 V~



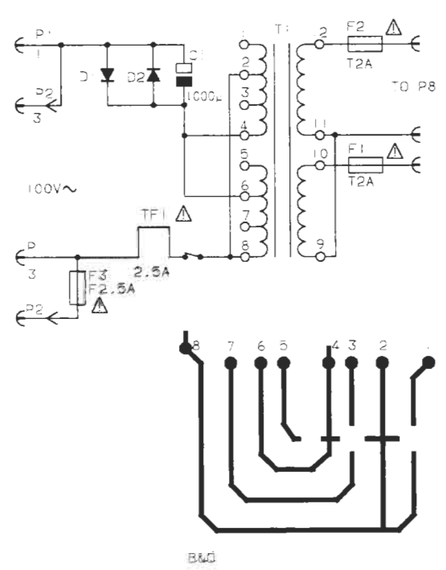
Type 6202, 6205
GB, AUS 240 V~



Type 6203
CND, USA 120 V~



Type 6204
JPN 100 V~



DIAGRAMFORKLARING

På diagrammerne er der angivet typenumre på transistorer og IC'er. Hvis positionsnummeret er efterfulgt af en stjerne, skal reservedelsnummeret altid benyttes, da denne komponent er specielt udvalgt, f.eks. TR102*.

Komponenttryk og koordinatsystem

De største printplader er forsynet med komponenttryk og et koordinatsystem på både print- og komponentside.
På diagrammerne er enhver komponent forsynet med et koordinatnummer. Dette fortæller i hvilket koordinat på printpladen, komponenten er placeret. Koordinatnumrene er angivet med mindre skrifttype end positionsnumrene.

Styrekredsløb

I visse styrekredsløb er den aktive tilstand angivet med en funktions- eller bogstavsangivelse. Denne kan eksempelvis være $\overline{\text{ST.BY.}}$ = »low« i stand-by-stilling eller ST.BY. = »high« i stand-by-stilling.

Ledningsforbindelser

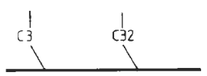
Ledningsforbindelserne på diagrammerne er samlet i »bundter«. De enkelte ledninger er forsynet med en af følgende koder:

INTERN FORBINDELSE PÅ EN DIAGRAMSIDE

Interne forbindelser på en diagramside angives med et tal. Knækket på ledningen viser, i hvilken retning, den anden ende af ledningen findes.

FORBINDELSE TIL EN ANDEN DIAGRAMSIDE

DIAGRAM A



Forbindelsen til en anden diagramside angives med et tal samt et bogstav for det diagram, forbindelsen går til.

EXPLANATION OF DIAGRAM

Type numbers of transistors and ICs are indicated on the diagrams.
If the position number is followed by an asterisk the spare part number must always be used because the component in question has been specially selected, e.g. TR102*.

Component print and coordinate system

The largest PCBs have component prints and a coordinate system on both the print and the component side.
On the diagrams every component has a coordinate number. This indicates in which coordinate on the PCB the component is situated. The coordinate numbers are written in smaller print types than the position numbers.

Control Circuit

In certain control circuits the active mode is indicated by a function term or by an abbreviation. This may be e.g. $\overline{\text{ST.BY.}}$ = low in the stand-by mode or ST.BY. = high in the stand-by mode.

Wiring Connections

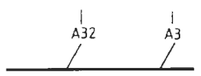
The wiring connections on the diagrams are assembled in 'bundles'. The individual wires are provided with one of the following codes:

INTERNAL CONNECTION ON ONE DIAGRAM PAGE

Internal connections on a diagram page are indicated by a number. The bend of the wire indicates in which direction the other end of the wire is found.

CONNECTION TO ANOTHER DIAGRAM PAGE

DIAGRAM C



A connection to another diagram page is indicated by a number as well as by a letter of the diagram to which the connection leads.

Supply Voltages

All supply voltages in the diagrams are indicated by an arrow and a voltage indication.

Example:
"7 CON.". This means that the supply voltage in question goes to 7 different places on the diagram page in question (7 CON. = 7 connections).

Stelsymboler

Der anvendes fire forskellige stelsymboler i apparatet.

= Stel
= Signalstel
= Chassis
= Grov stel

Ground Symbols

Four different ground symbols are used in the set.

= Ground
= Signal ground
= Chassis
= Coarse ground

SYMBOL FOR SIKKERHEDSKOMPONENTER

Ved udskiftning af komponenter med dette symbol skal der anvendes komponenter med samme reservedelsnummer. Den nye komponent skal monteres på samme måde som den udskiftede.

MÅLEBETINGELSER

Alle DC-spændinger er målt i forhold til stel med et voltmeter med en indgangsimpedans på 10 Mohm.

DC-spændingerne er opgivet i volt (V), f.eks. 0,7 V.

Alle oscillogrammer og AC-spændinger er målt i forhold til stel med et oscilloskop eller et voltmeter med en indgangsmodstand på 1 Mohm.

AC-spændingerne er opgivet i millivolt (mV), f.eks. 660 mV.

Advarsel

CLASS 1
LASER PRODUCT

COMPACT disc DIGITAL AUDIO

Det gule og sorte mærkat på CD-afspilleren er en advarsel om, at apparatet indeholder et lasersystem og er klassificeret som et klasse 1 laserprodukt. Apparatet må kun åbnes af fagteknikere.

CD laserdiode:

Bølgelængde	780 mm ±20 nm, 30°C
Effekt	2 mW ±0,1 mW, 30°C

SYMBOL OF SAFETY COMPONENTS

When replacing components with this symbol, components with identical part numbers must be used. The new component must be mounted in the same way as the one replaced.

MEASURING CONDITIONS

All DC voltages have been measured in relation to ground with a voltmeter with an input impedance of 10 Mohms.

The DC voltages are stated in volts (V), e.g. 0.7 V.

All oscillograms and AC voltages have been measured in relation to ground with an oscilloscope or a voltmeter with an input resistance of 1 Mohm.

AC voltages are stated in millivolts (mV), e.g. 660 mV.

Caution

The use of any controls, adjustments or procedures other than those specified herein may result in hazardous radiation exposure.

CLASS 1
LASER PRODUCT

COMPACT disc DIGITAL AUDIO

The black and yellow label on the compact disc player serves as a warning that the apparatus contains a laser system and is classified as a class 1 laser product. The apparatus must be opened by qualified servicemen only.

CD laserdiode:

Wavelength	780 mm ±20 nm, 30°C
Effect	2 mW ±0.1 mW, 30°C

ADVARSEL VED LITHIUM-BATTERIER

WARNING LITHIUM BATTERIES

ADVARSEL!
LITHIUMBATTERI – EKSPLOSIONSFARE
UDSKIFTNING MA KUN FORETAGES AF EN SAGKYNDIG. OG SOM BESKREVET I SERVICE MANUAL

WARNING!
LITHIUM BATTERY – RISK OF EXPLOSION
TO BE REPLACED BY QUALIFIED SERVICEMAN ONLY AND AS DESCRIBED IN THE SERVICE MANUAL.

Kortslutning og overopladning af visse typer lithium-batterier kan medføre en voldsom eksplosion.

Ved udskiftning af lithium-batteriet i dette apparat må der kun anvendes et batteri af det fabrikat og den type, der er angivet i denne serviceanvisning (se side 3-5).

Batteriet skal monteres nøjagtigt som det originale batteri.

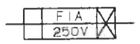
Short-circuit and overcharging of some types of lithium batteries may result in a violent explosion.

When replacing the lithium battery in this set, use only batteries of the make and type mentioned in this service manual (see page 3-5).

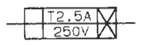
Fit the battery exactly like the old one.

Explanation of the fuse symbols used in the set

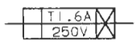
Replace with the same type 1 ampere 250 volts quick acting fuse.



Replace with the same type 2.5 ampere 250 volts slow acting fuse.

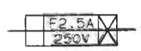


Replace with the same type 1.6 ampere 250 volts slow acting fuse.



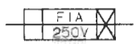
Replace with the same type 2 ampere 250 volts slow acting fuse.

Replace with the same type 2.5 ampere 250 volts quick acting fuse.

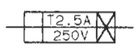


Explanation des symboles de fusible utilisés dans l'appareil

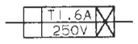
Remplacer par un fusible rapide de même type et de 1 ampères 250 volts.



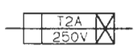
Remplacer par un fusible retardè de même type et de 2.5 ampères 250 volts.



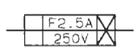
Remplacer par un fusible retardè de même type et de 1.6 ampères 250 volts.



Remplacer par un fusible retardè de même type et de 2 ampères 250 volts.

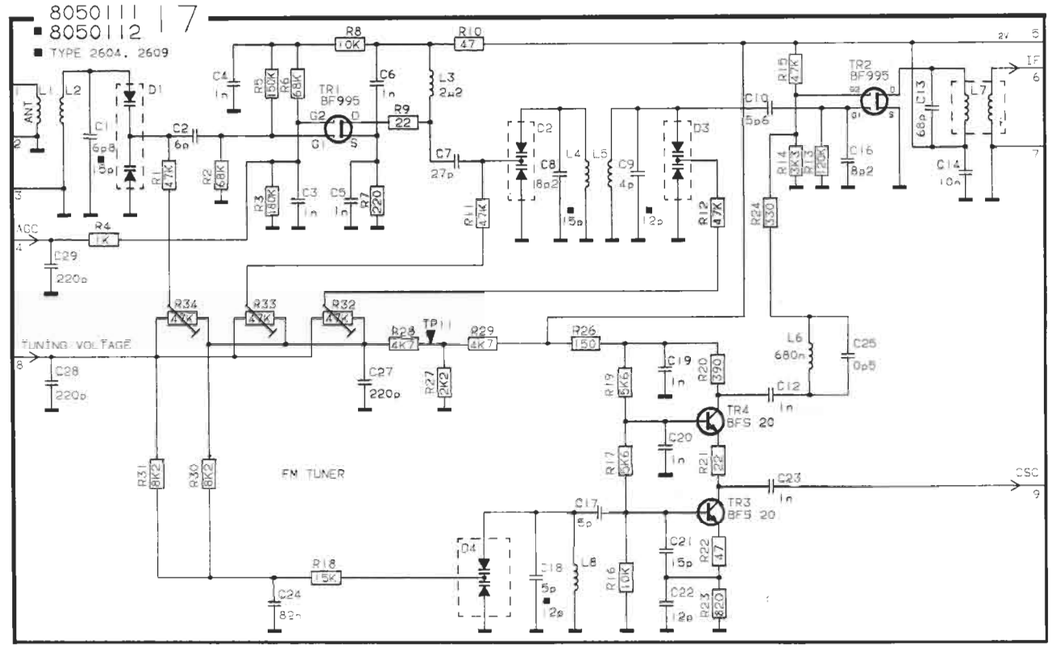


Remplacer par un fusible rapide de même type et de 2.5 ampères 250 volts.



1-11

FM TUNER



The FM TUNER is a single unit.
With failure in this unit we recommend replacing the Whole unit.
However the part nos. of semi-conductors are in the list of semi-conductors.

1-11

Wiring diagram

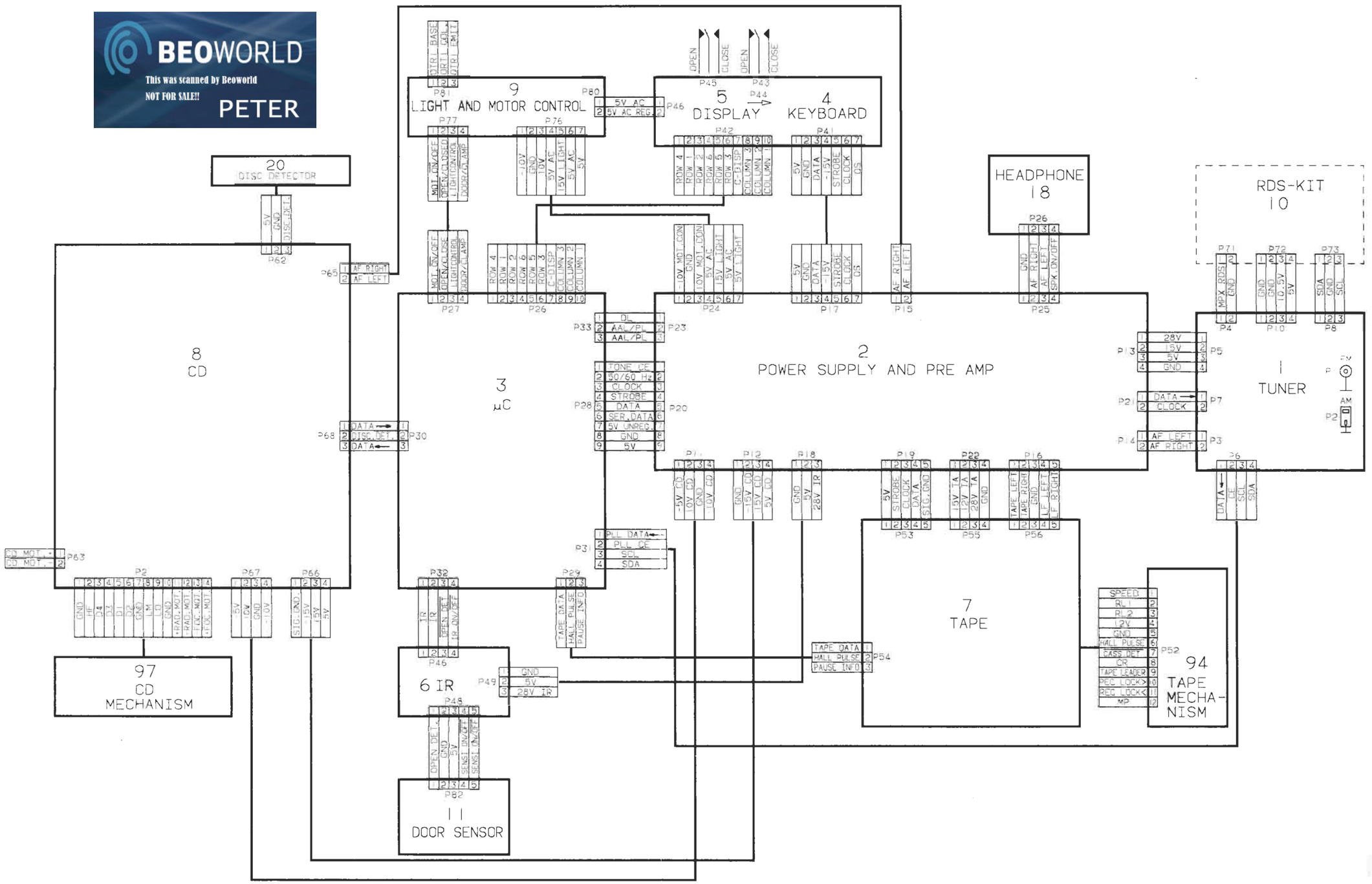


DIAGRAM A FM/AM, RF, IF decoder (for new versions, see diagram on page 10-1 (BC 2300))

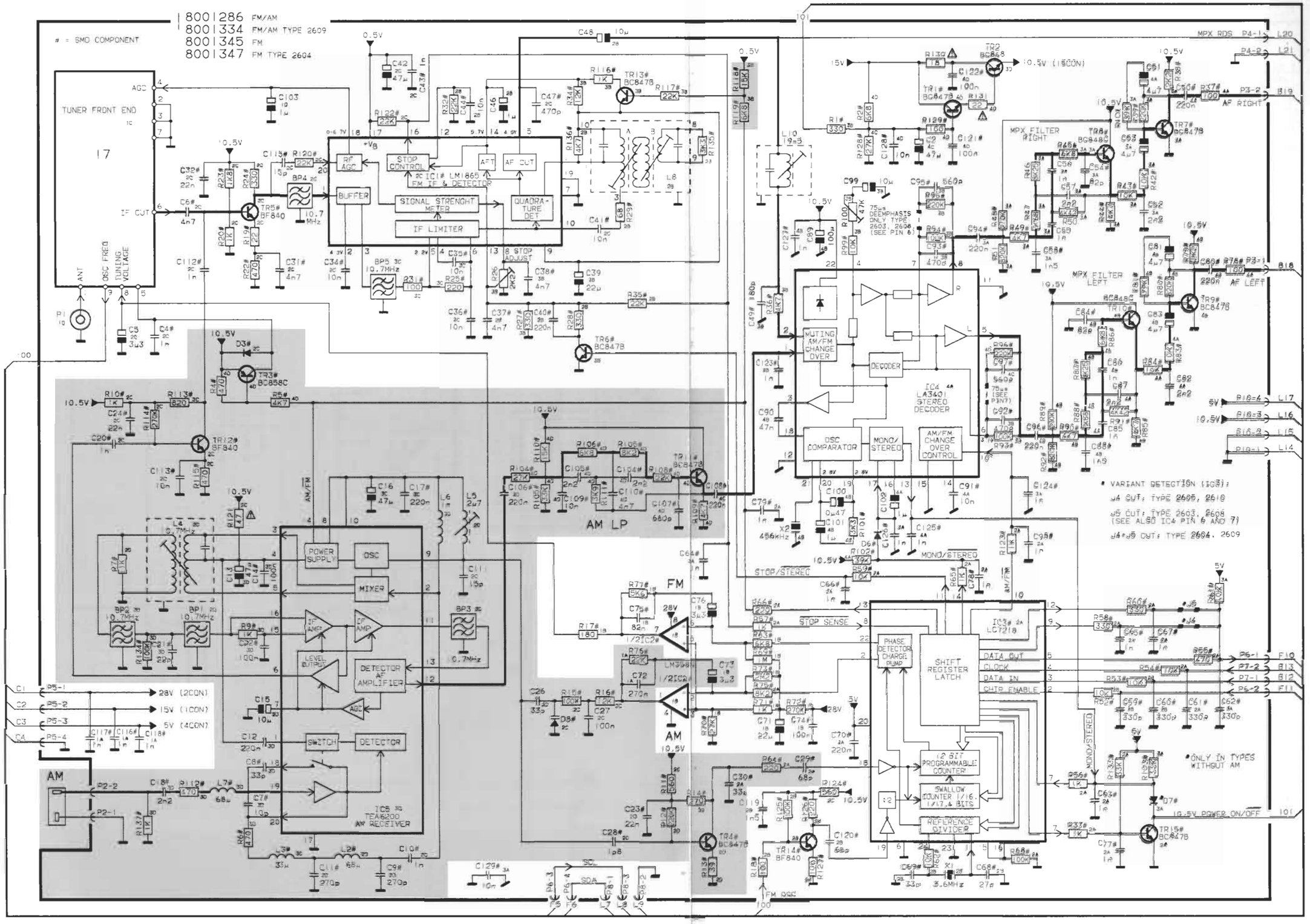


DIAGRAM B PRE AMPLIFIER

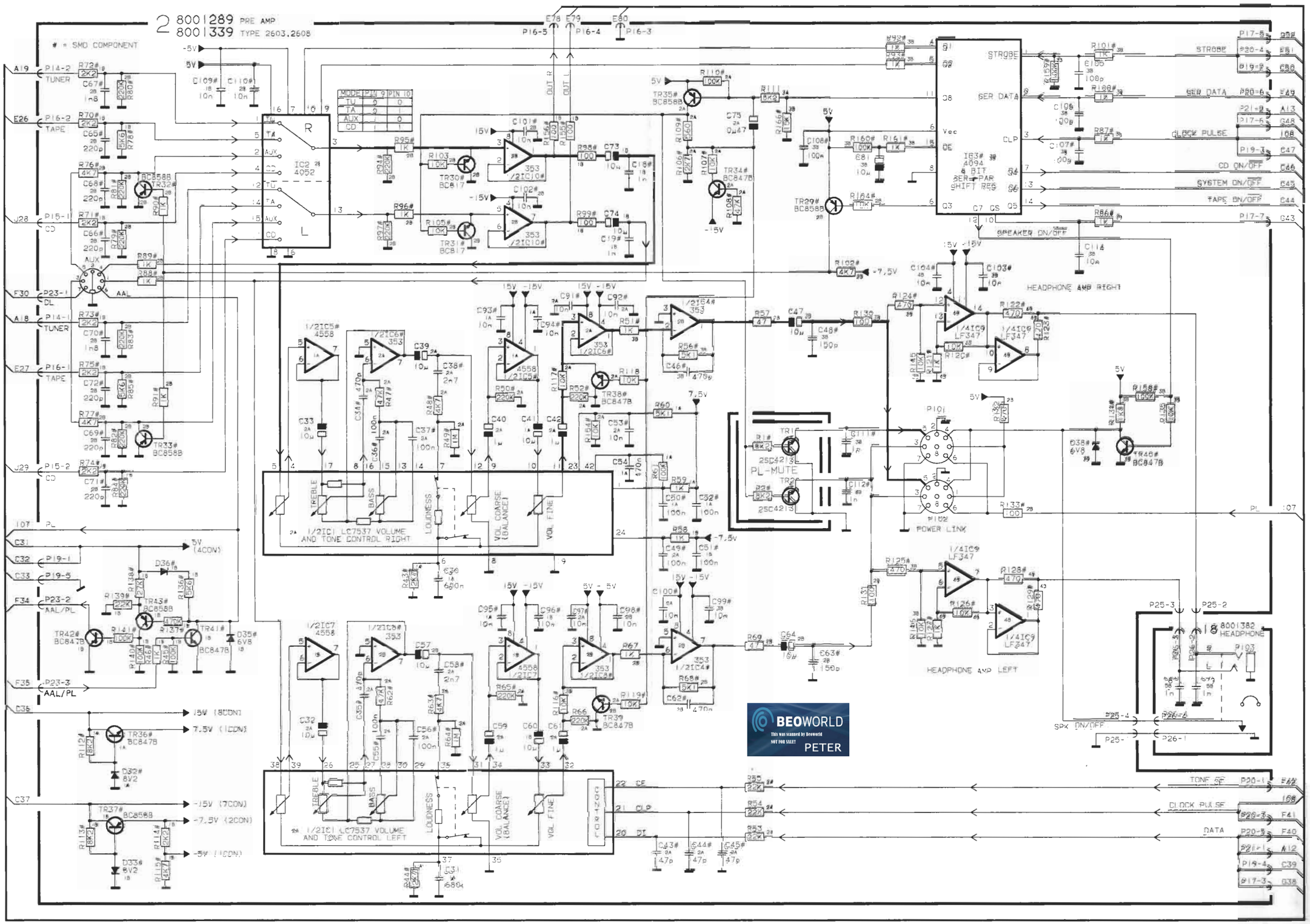


DIAGRAM C POWER SUPPLY, TAPE DATA CONTROL

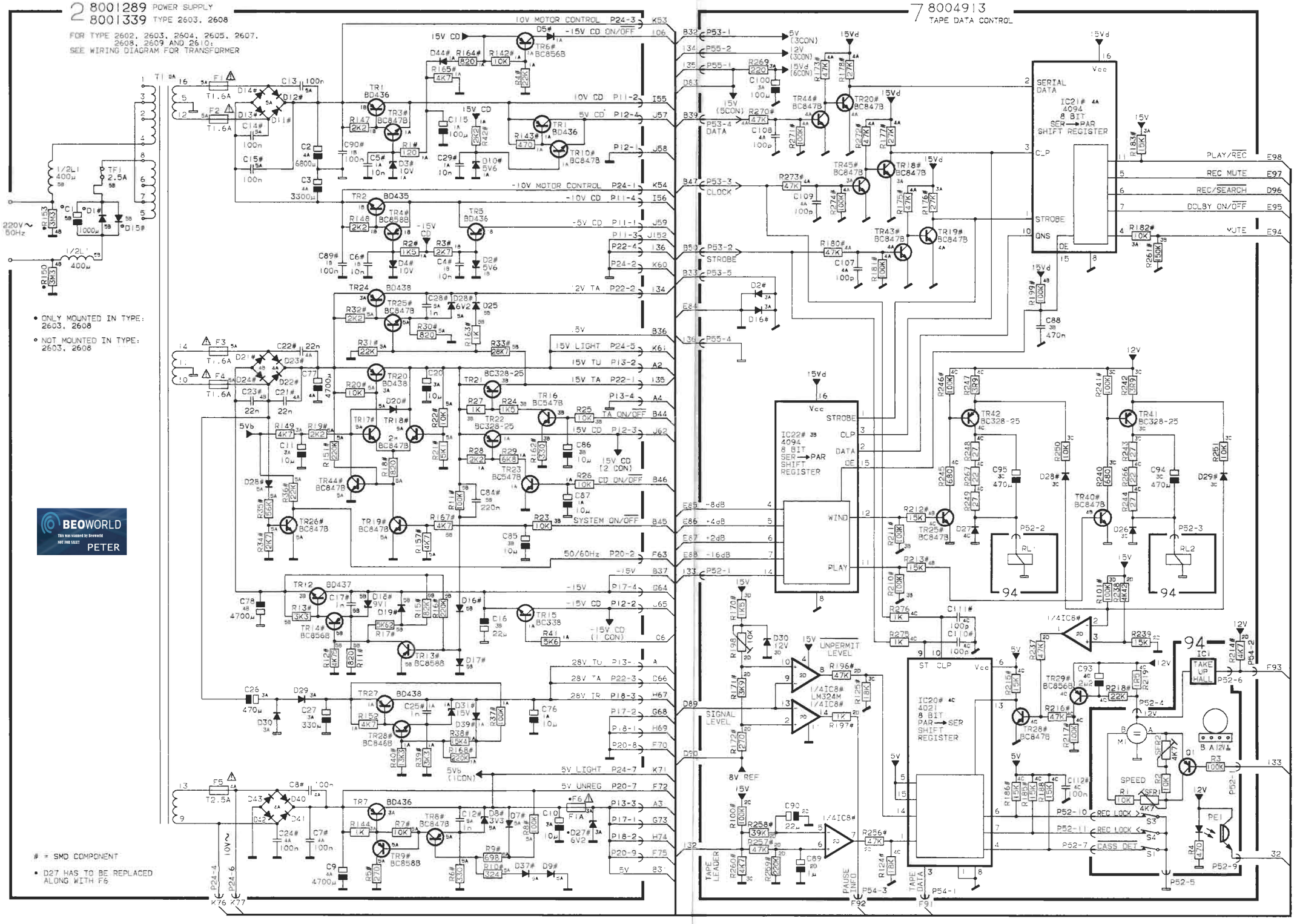


DIAGRAM D TAPE AF AND CONTROL

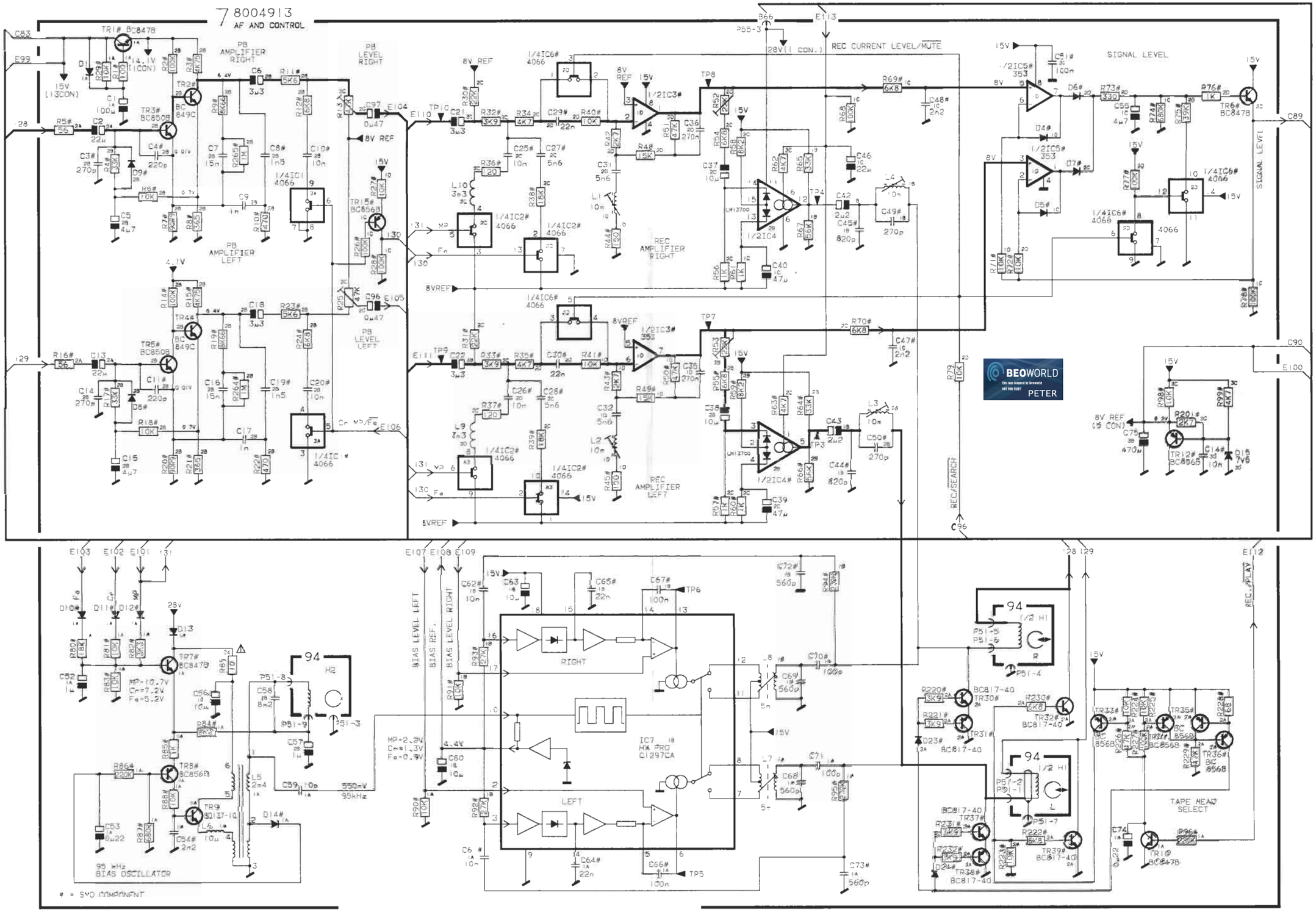


DIAGRAM E DOLBY NR AND TAPE TYPE LOGIC

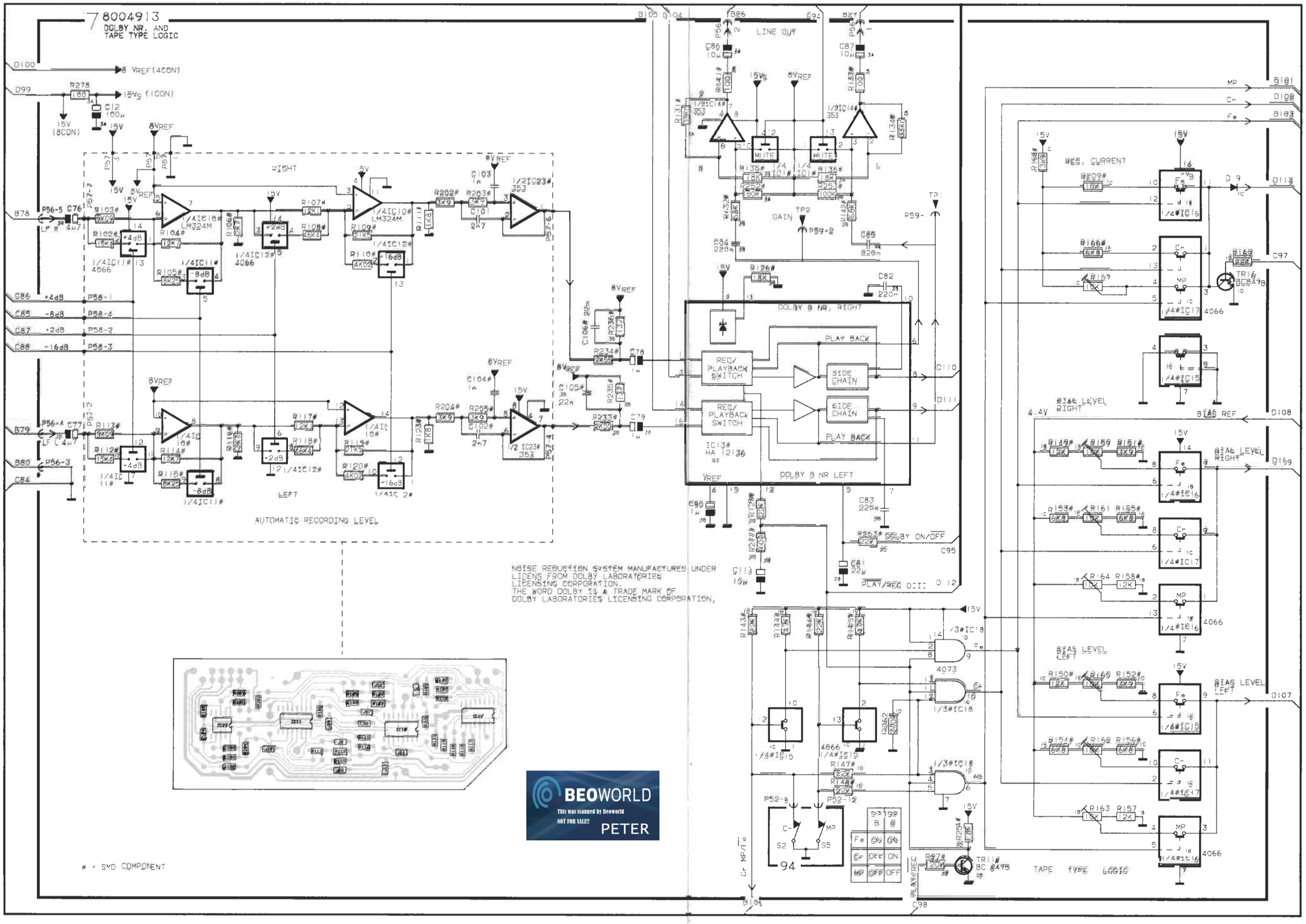


DIAGRAM F MICROCOMPUTER

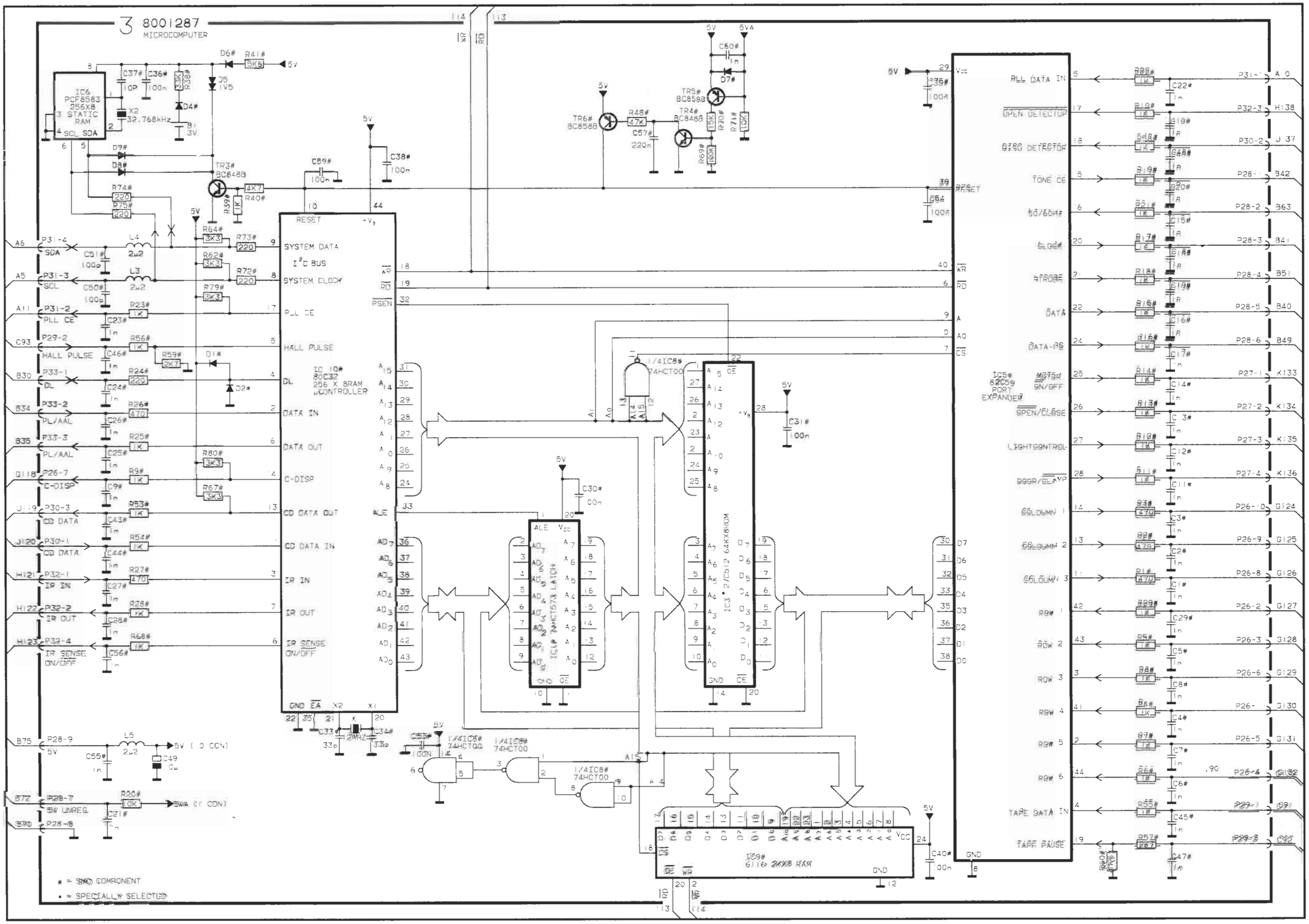


DIAGRAM G DISPLAY AND KEYBOARD

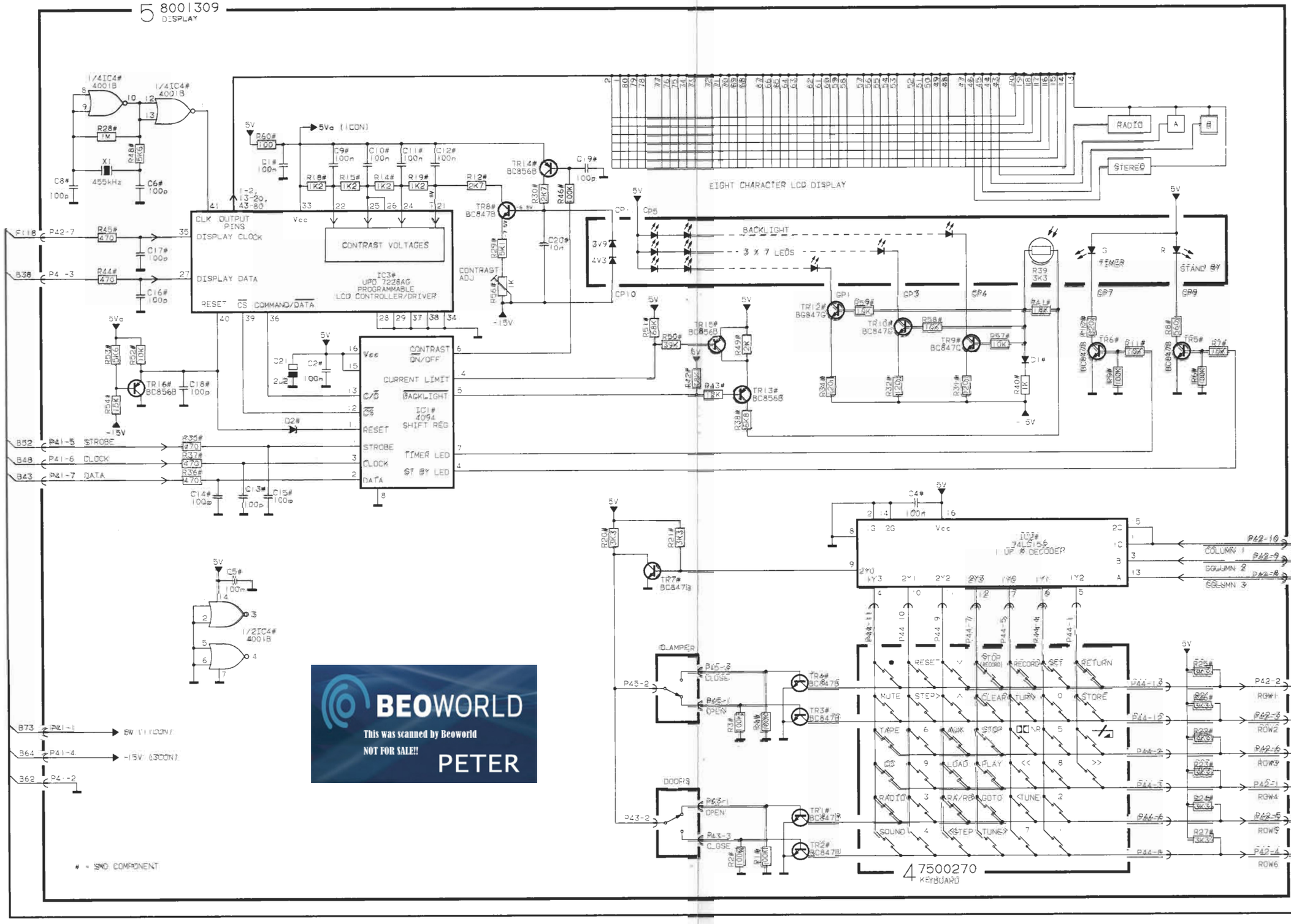


DIAGRAM H IR TRANSCEIVER AND DOOR SENSORS

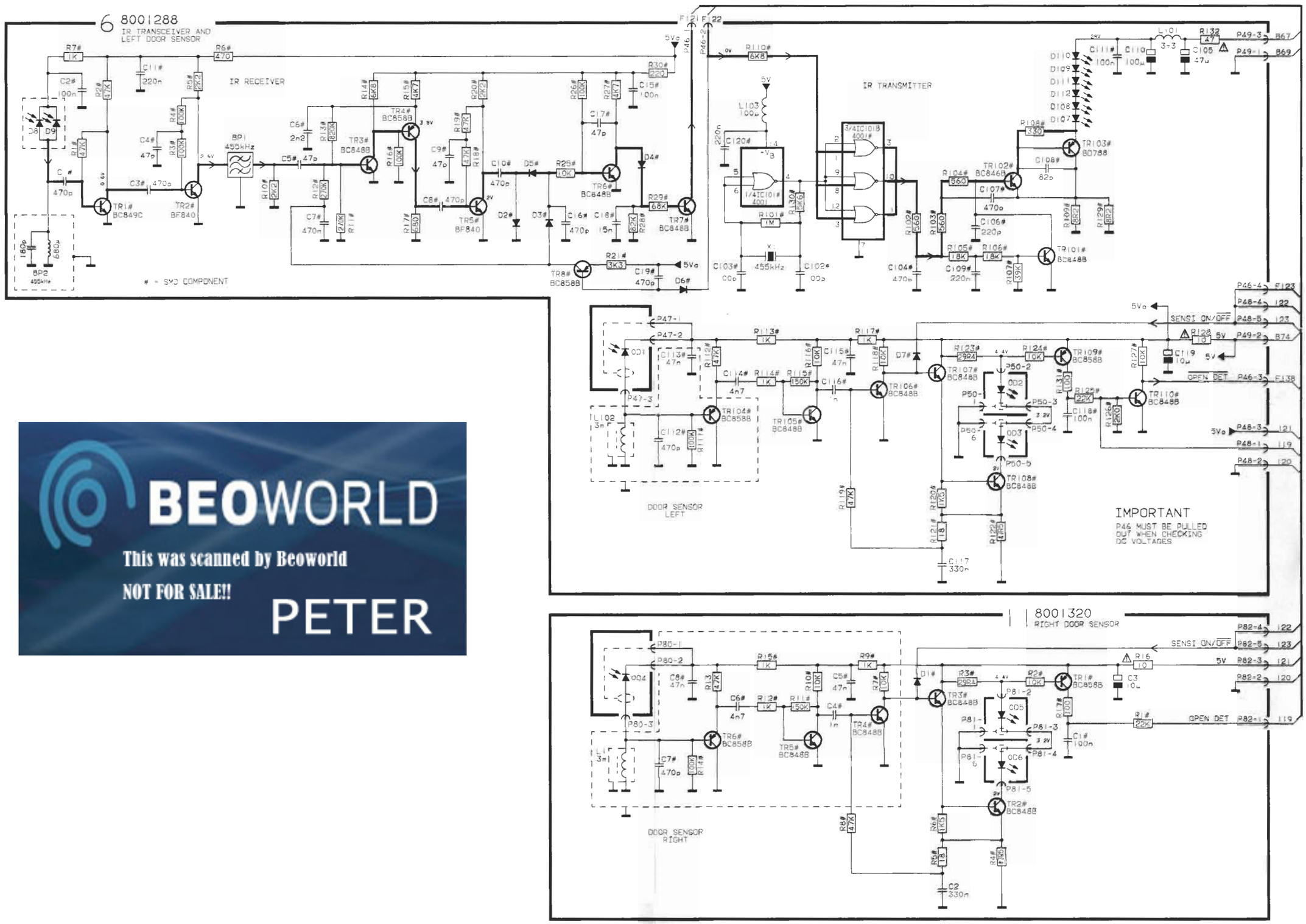


DIAGRAM I CD SERVO MOTOR SYSTEM AND DISC DETECTOR

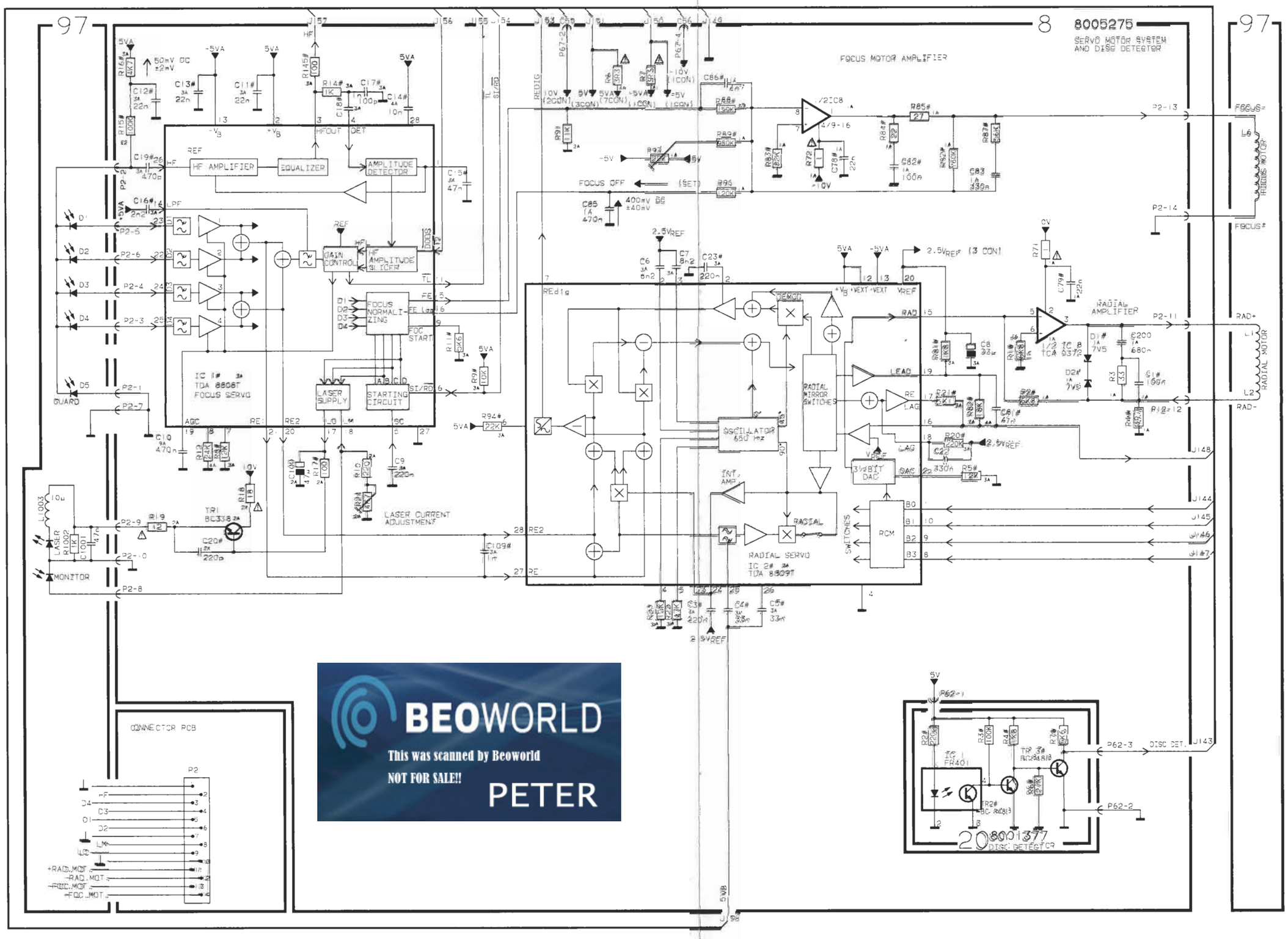


DIAGRAM J CD DECODER

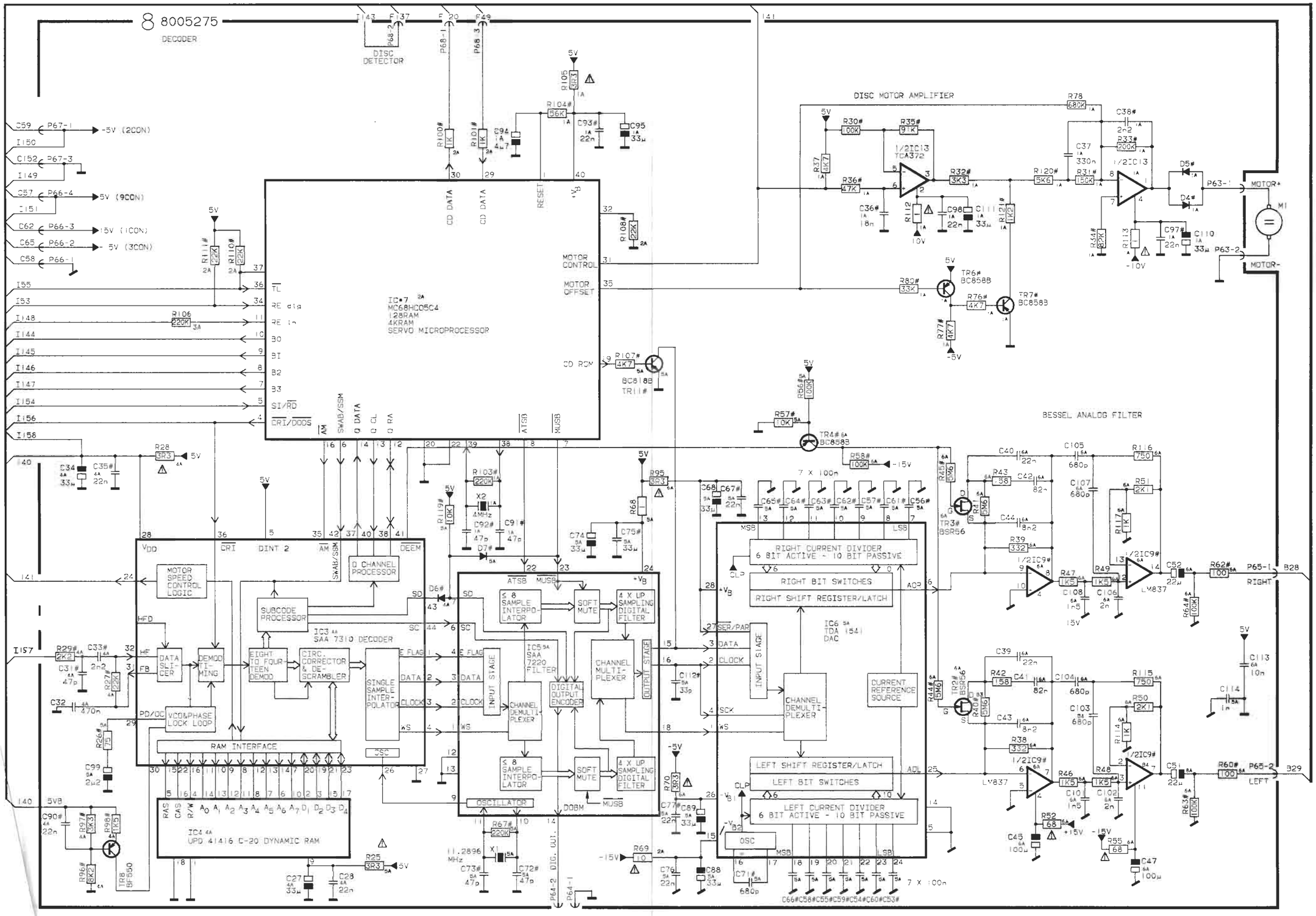
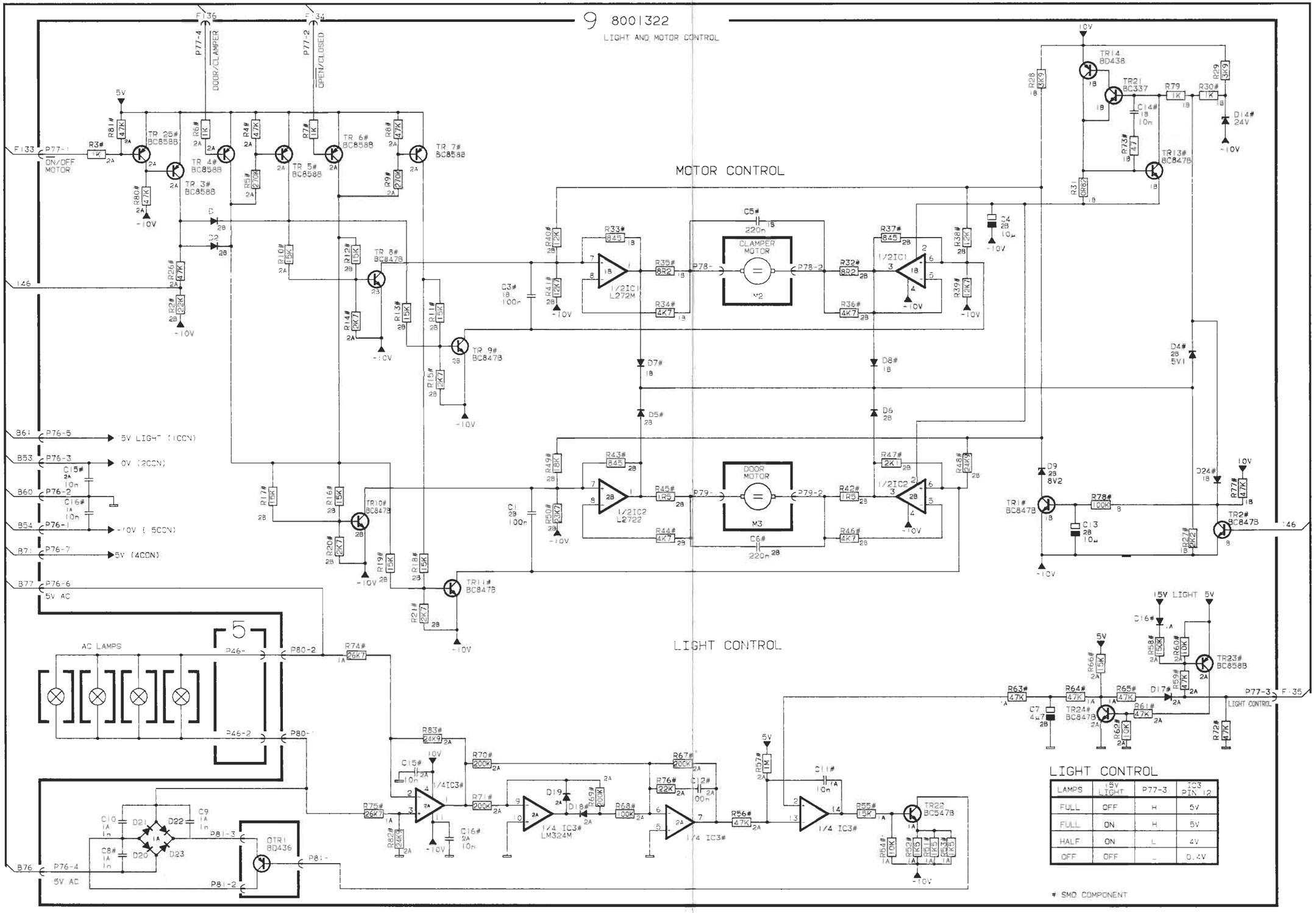


DIAGRAM K LIGHT AND MOTOR CONTROL

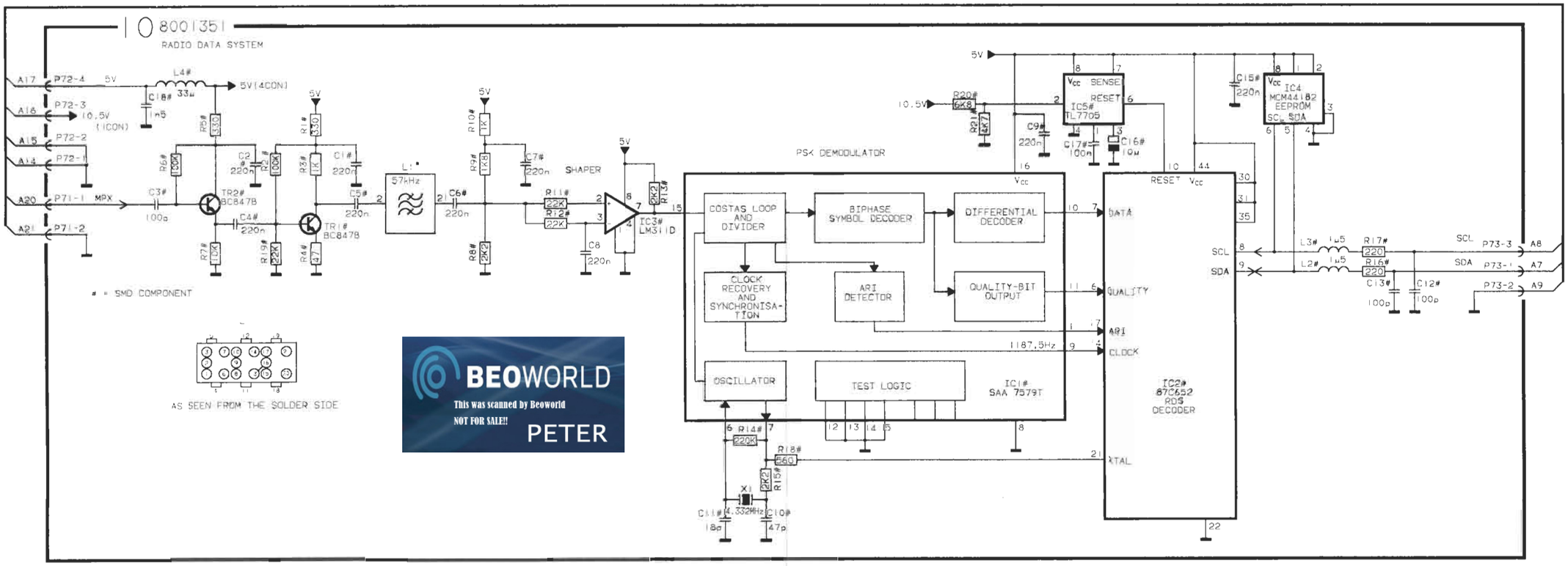


LIGHT CONTROL

LAMPS	5V LIGHT	P77-3	IC3 PIN 12
FULL	OFF	H	5V
FULL	ON	H	5V
HALF	ON	L	4V
OFF	OFF	_	0.4V

\# SMD COMPONENT

DIAGRAM L RADIO DATA SYSTEM



RADIO DATA SYSTEM (New version)

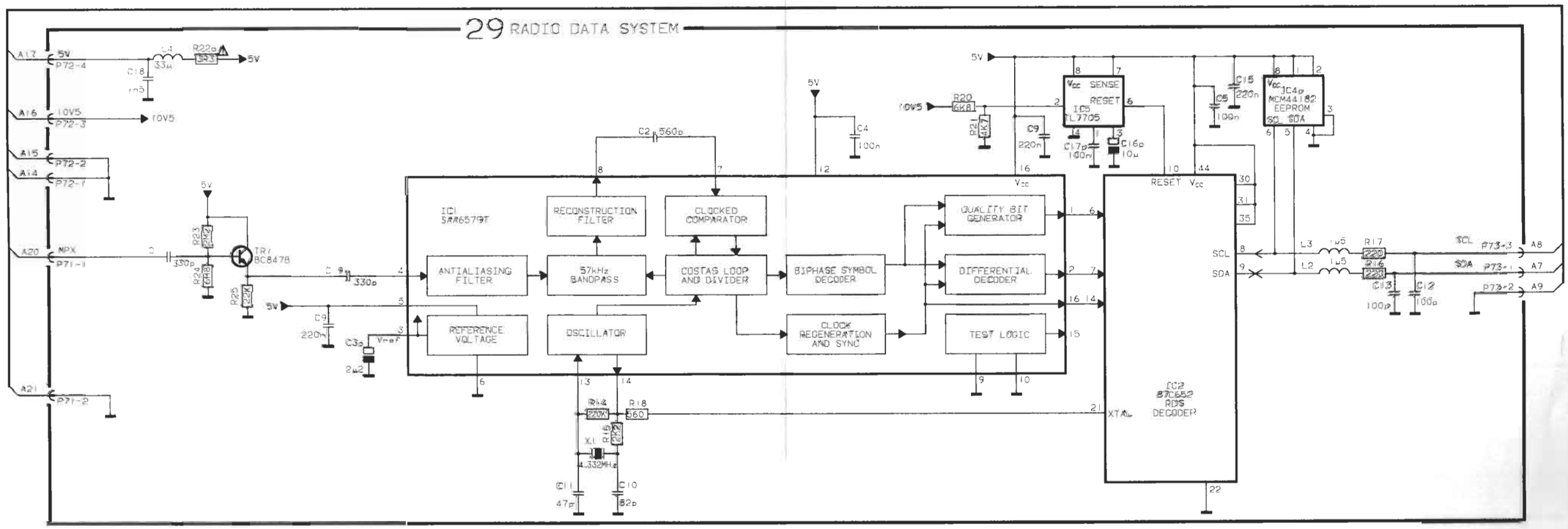
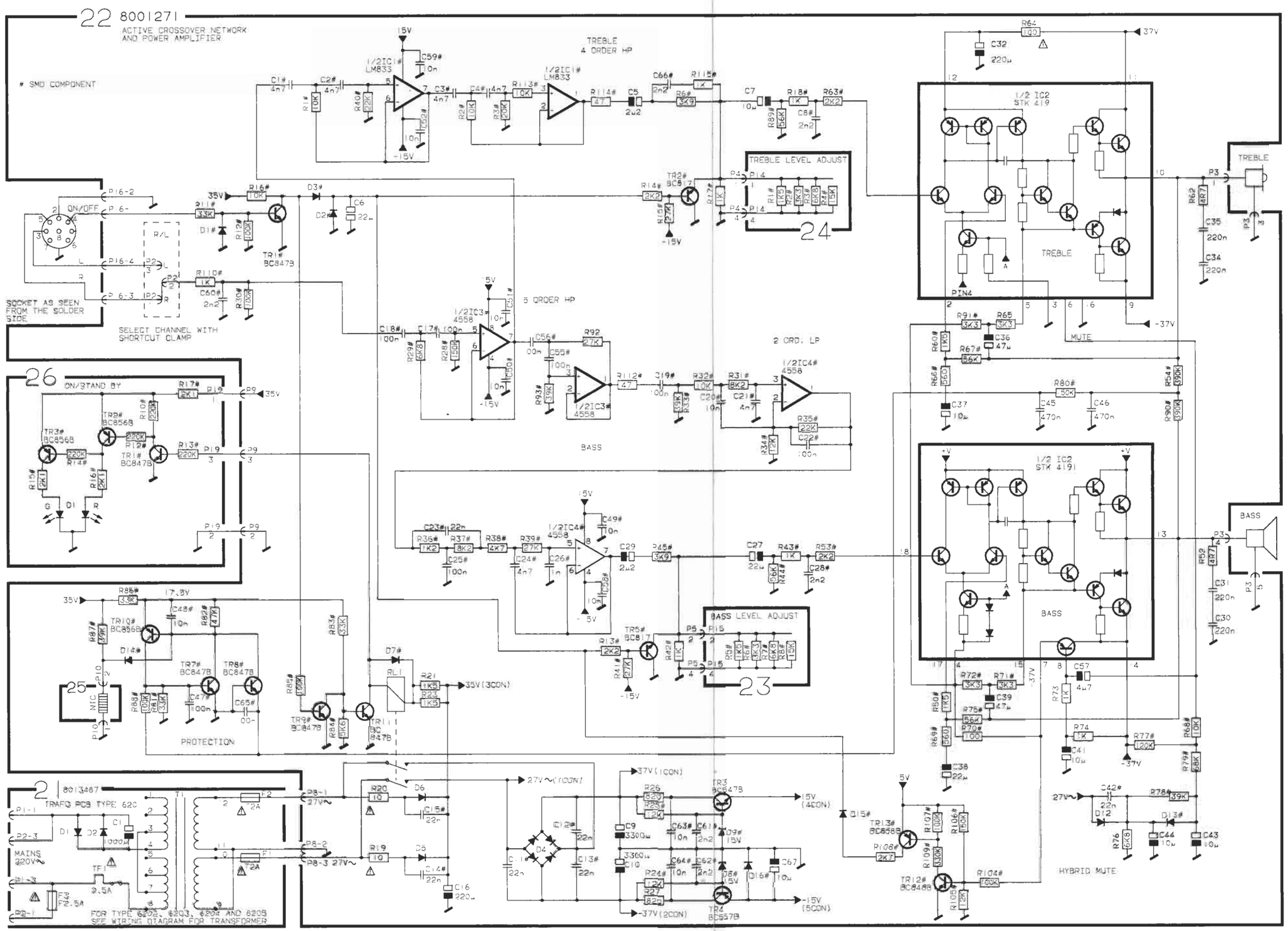


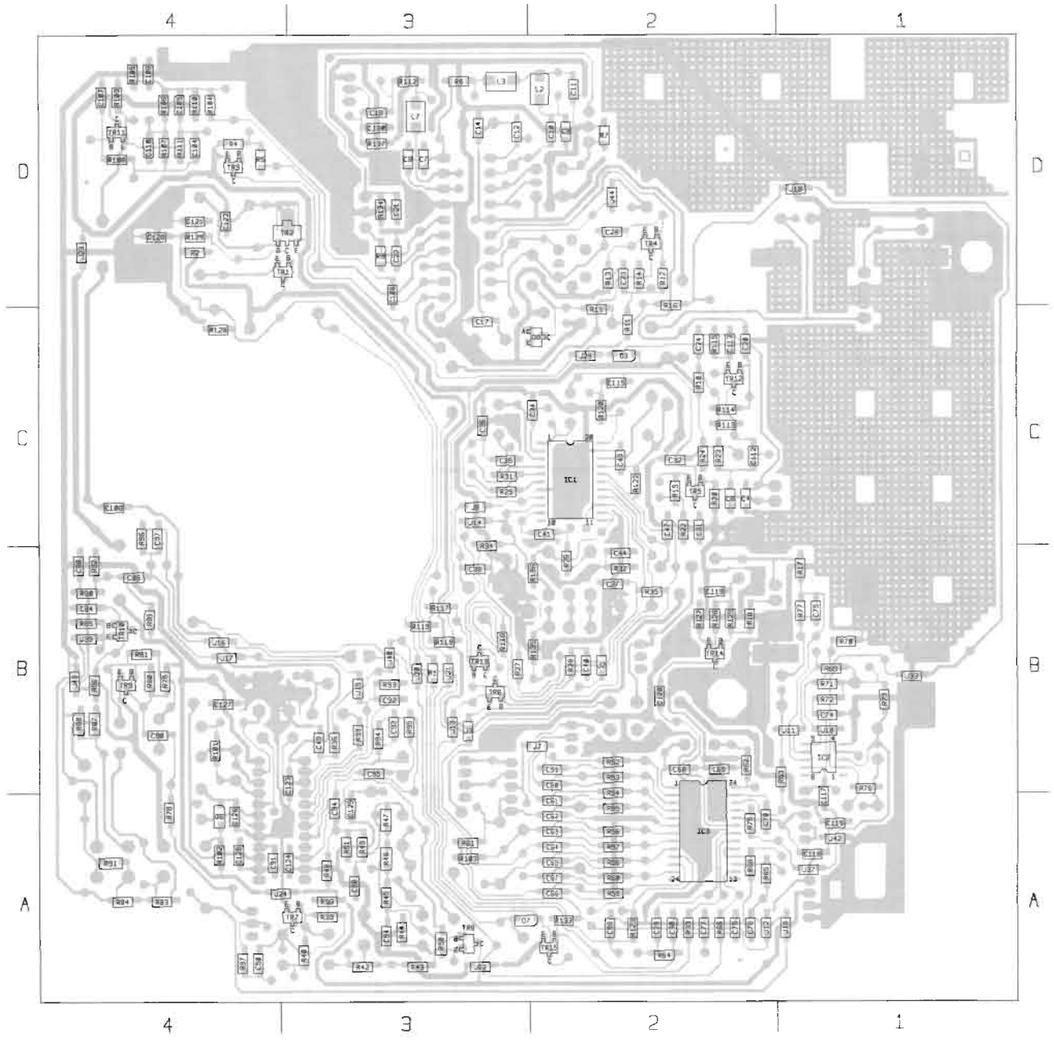
DIAGRAM M BEOLAB 2500 ACTIVE CROSSOVER NETWORK AND POWER AMPLIFIER



2-15

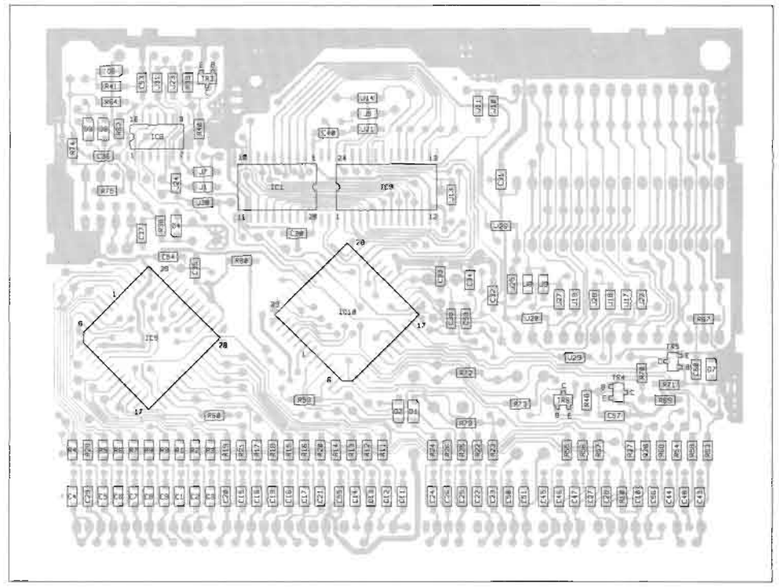
SMD Survey

PCB 1, Tuner and IF System

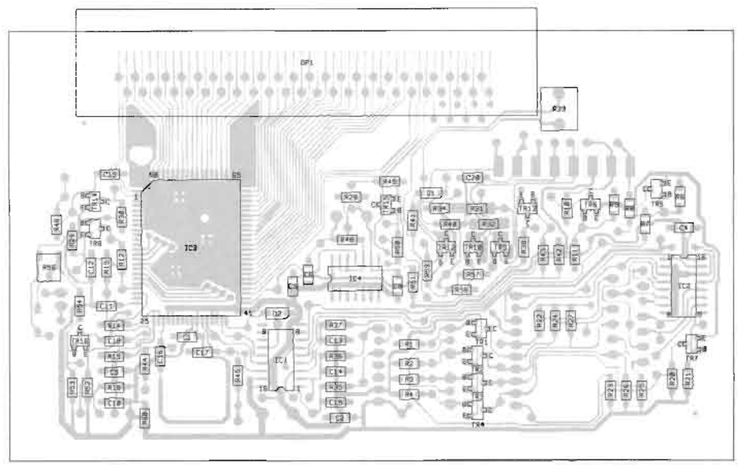


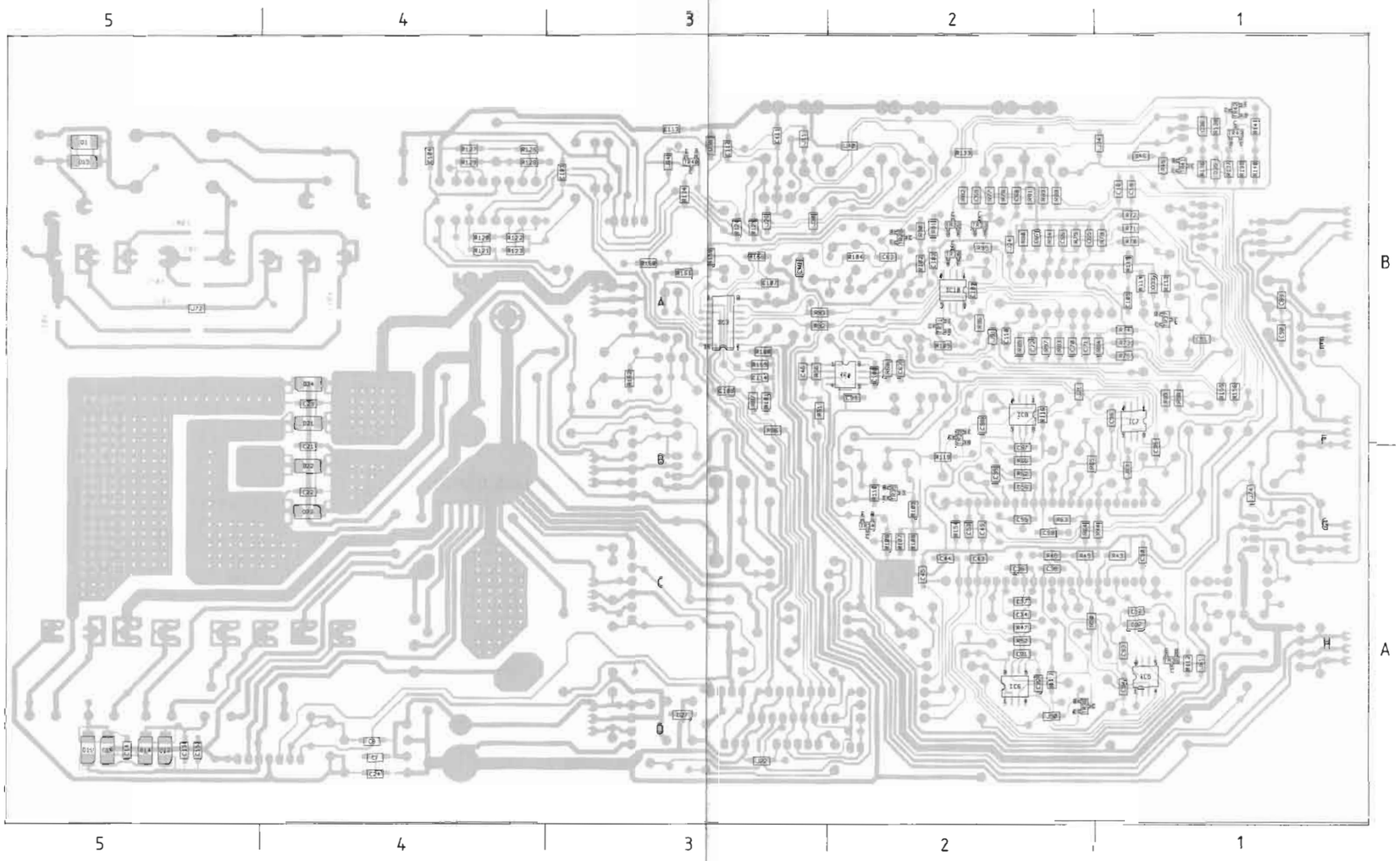
2-15

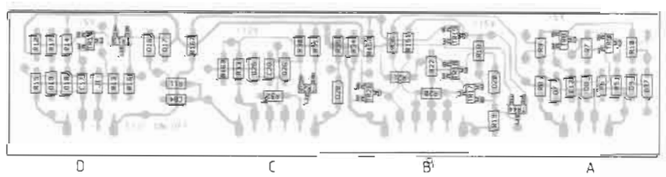
PCB 3, Microcomputer

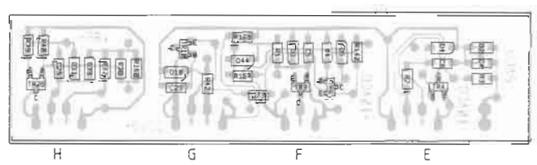


PCB 5, Display



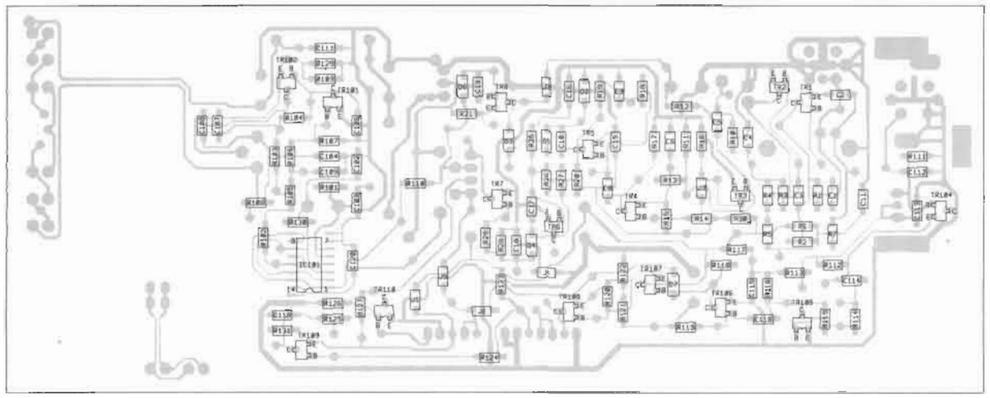

5
4
3
2
1
A
B
C
D
E
F
G
H


D
C
B
A

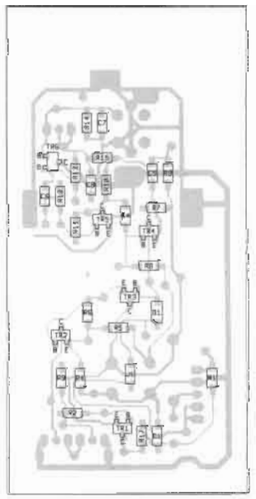

H
G
F
E

2-17

PCB 6, IR Transceiver and left door sensor

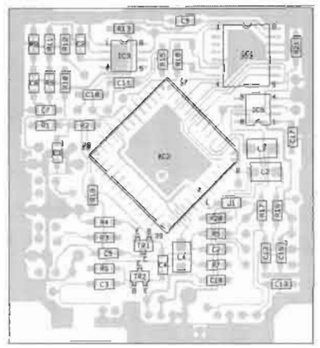


PCB 11, Right door sensor

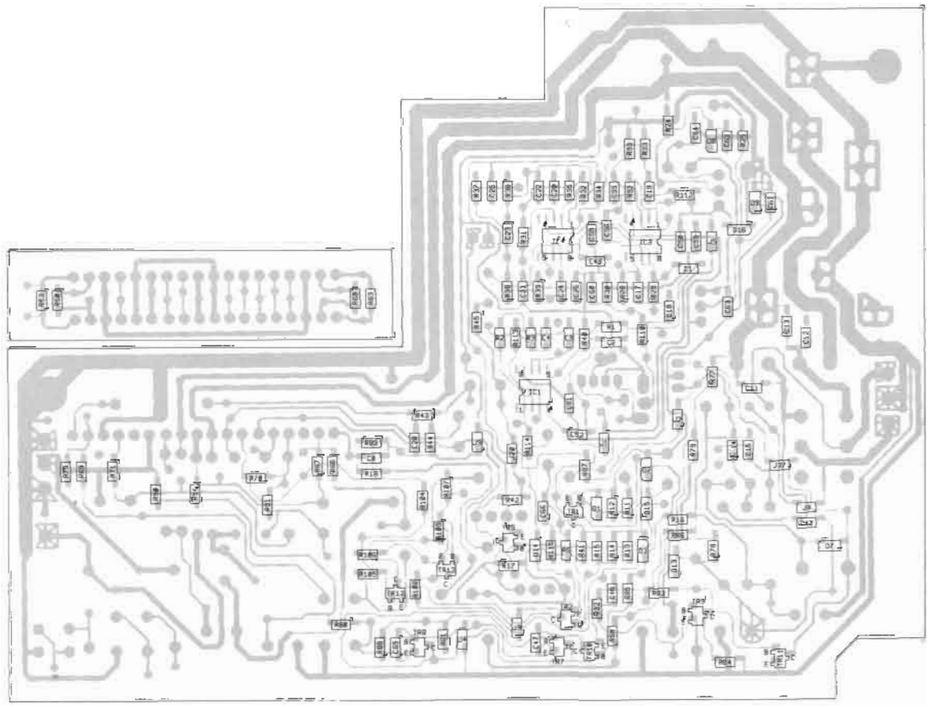


2-17

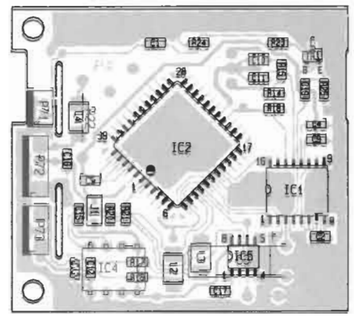
PCB 10, RDS-kit



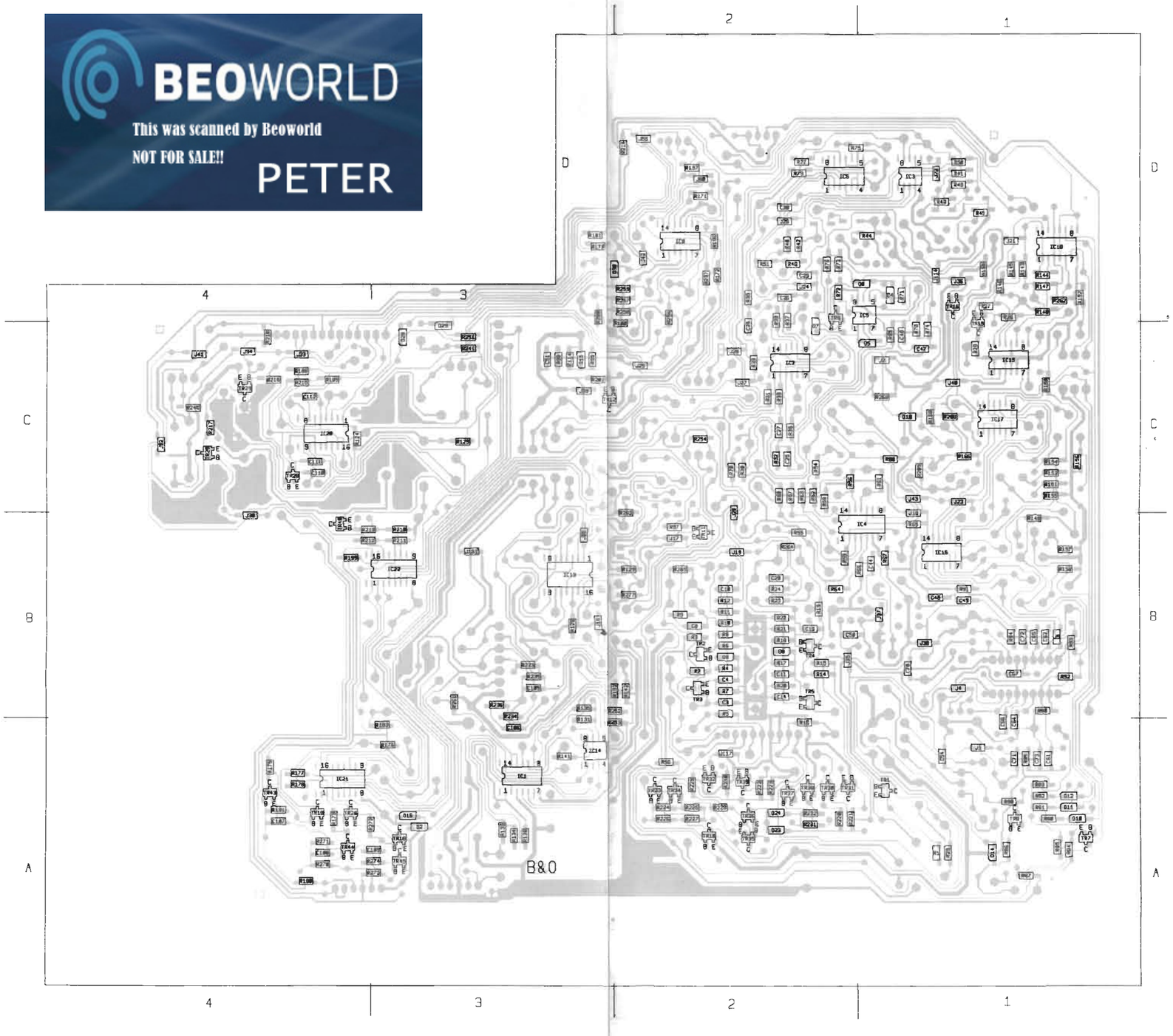
PCB 22, Beolab 2500



PCB 29, RDS-kit

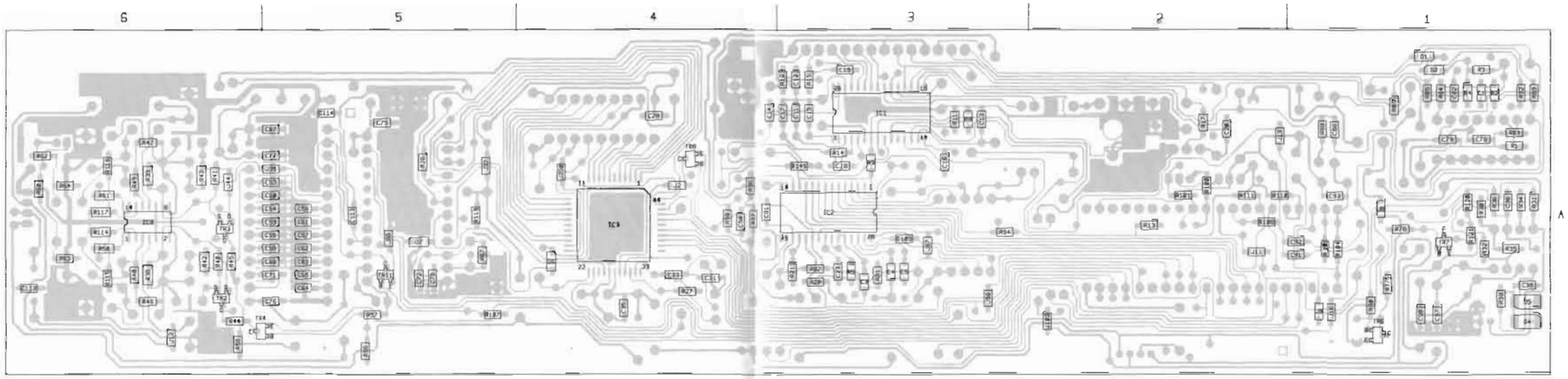


PCB 7, Tape

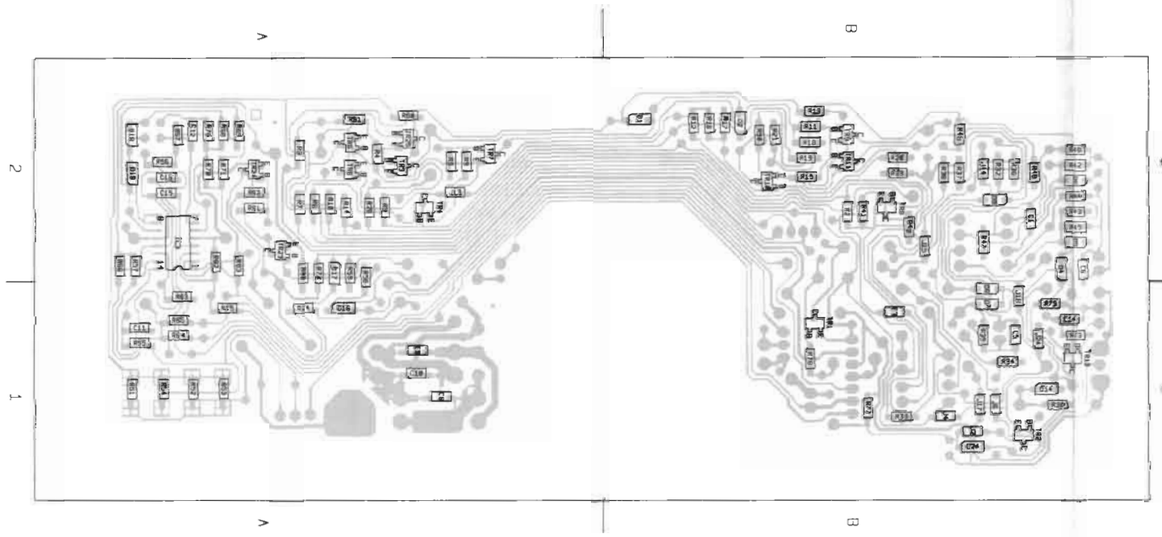


2-19 2-19

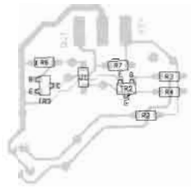
PCB 8, CD



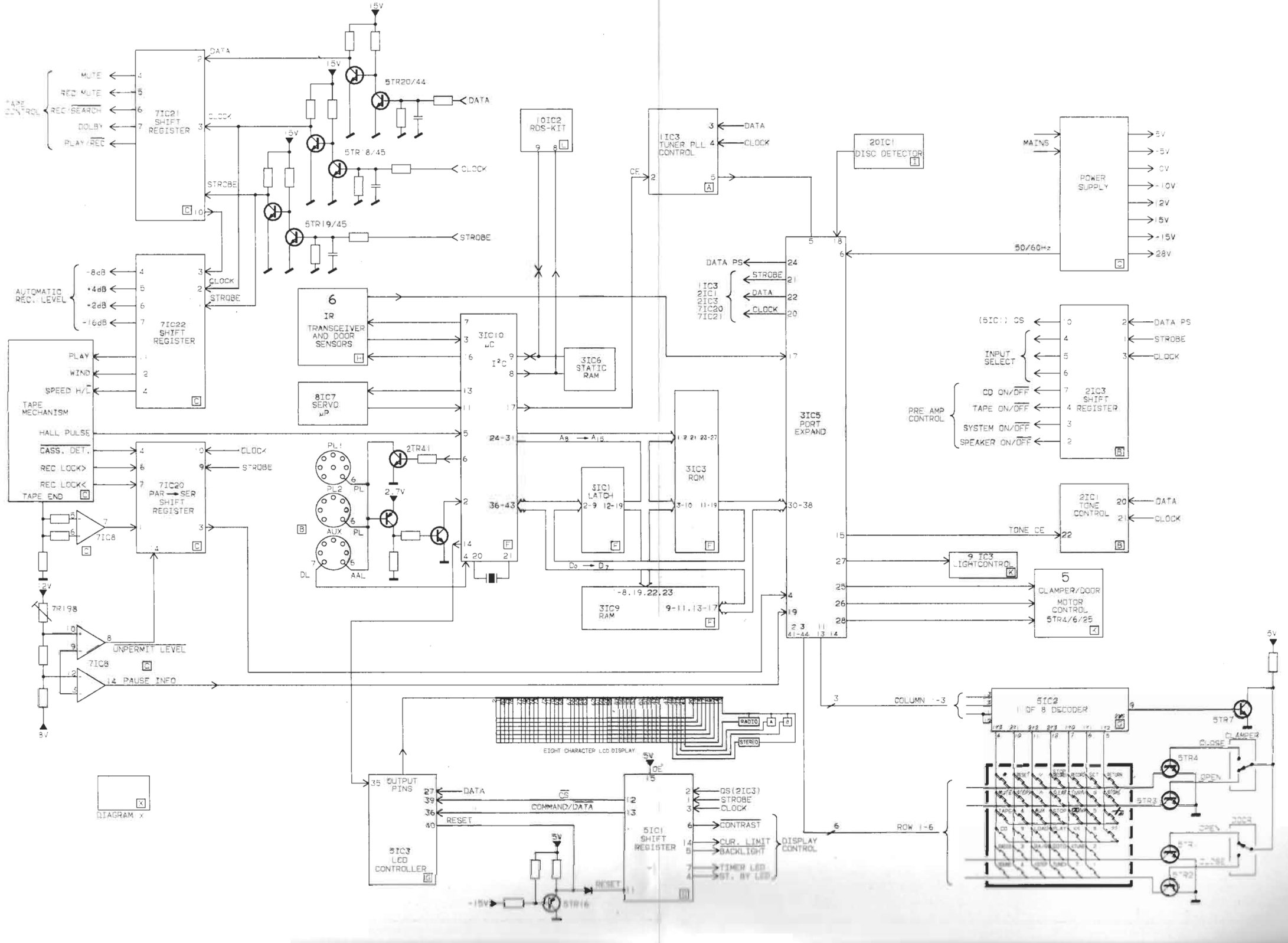
PCB 9, Light and motor control



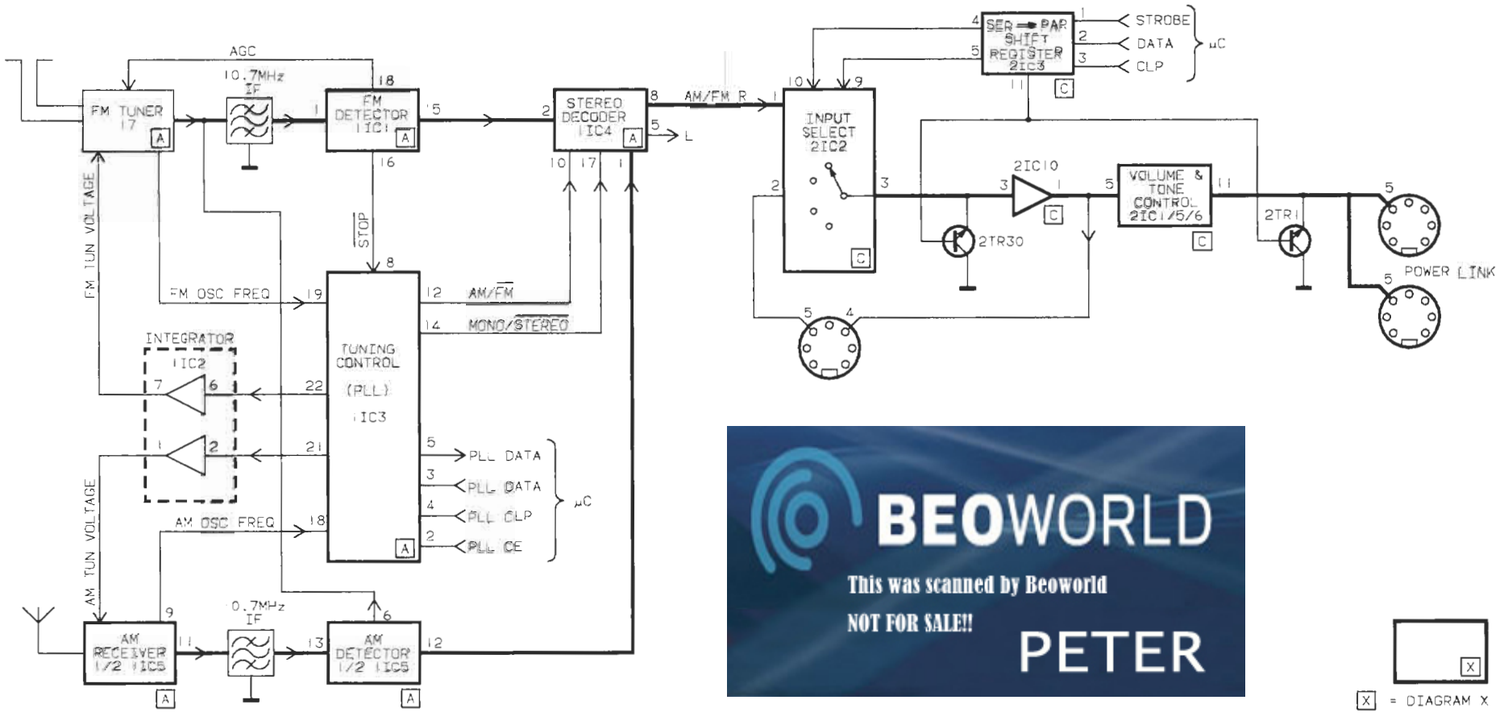
PCB 20, Disc detector



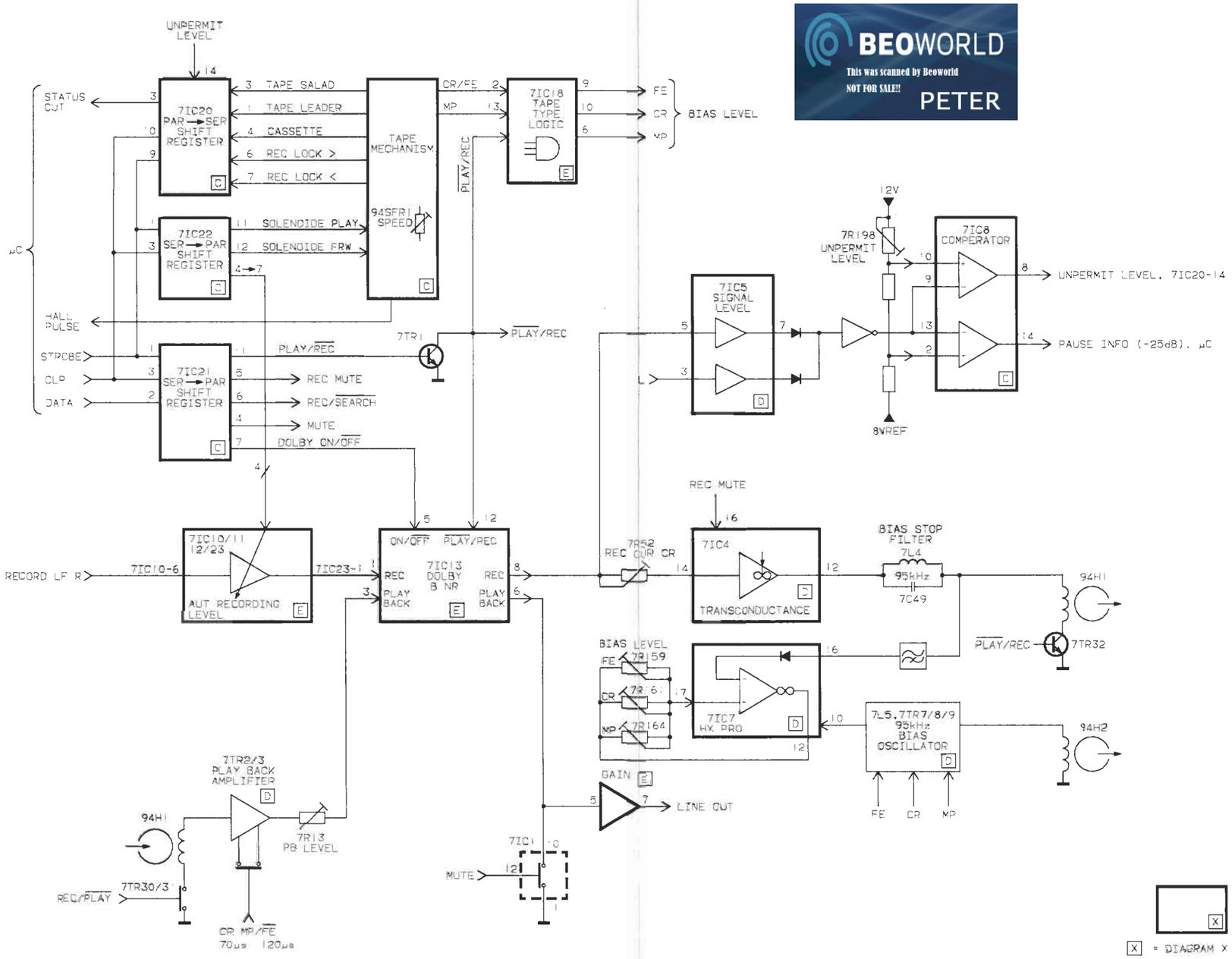
BLOCK DIAGRAM SYSTEM CONTROL



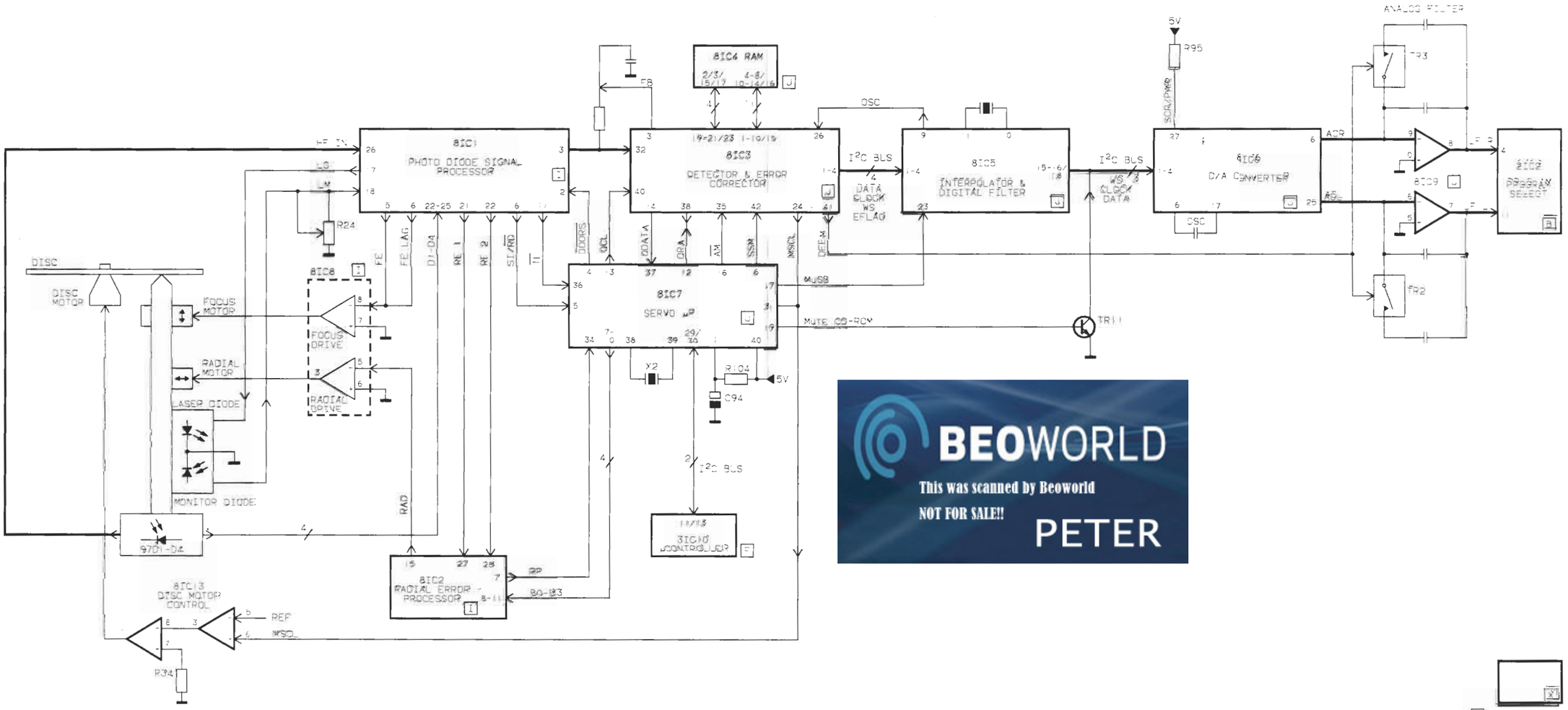
BLOCK DIAGRAM TUNER

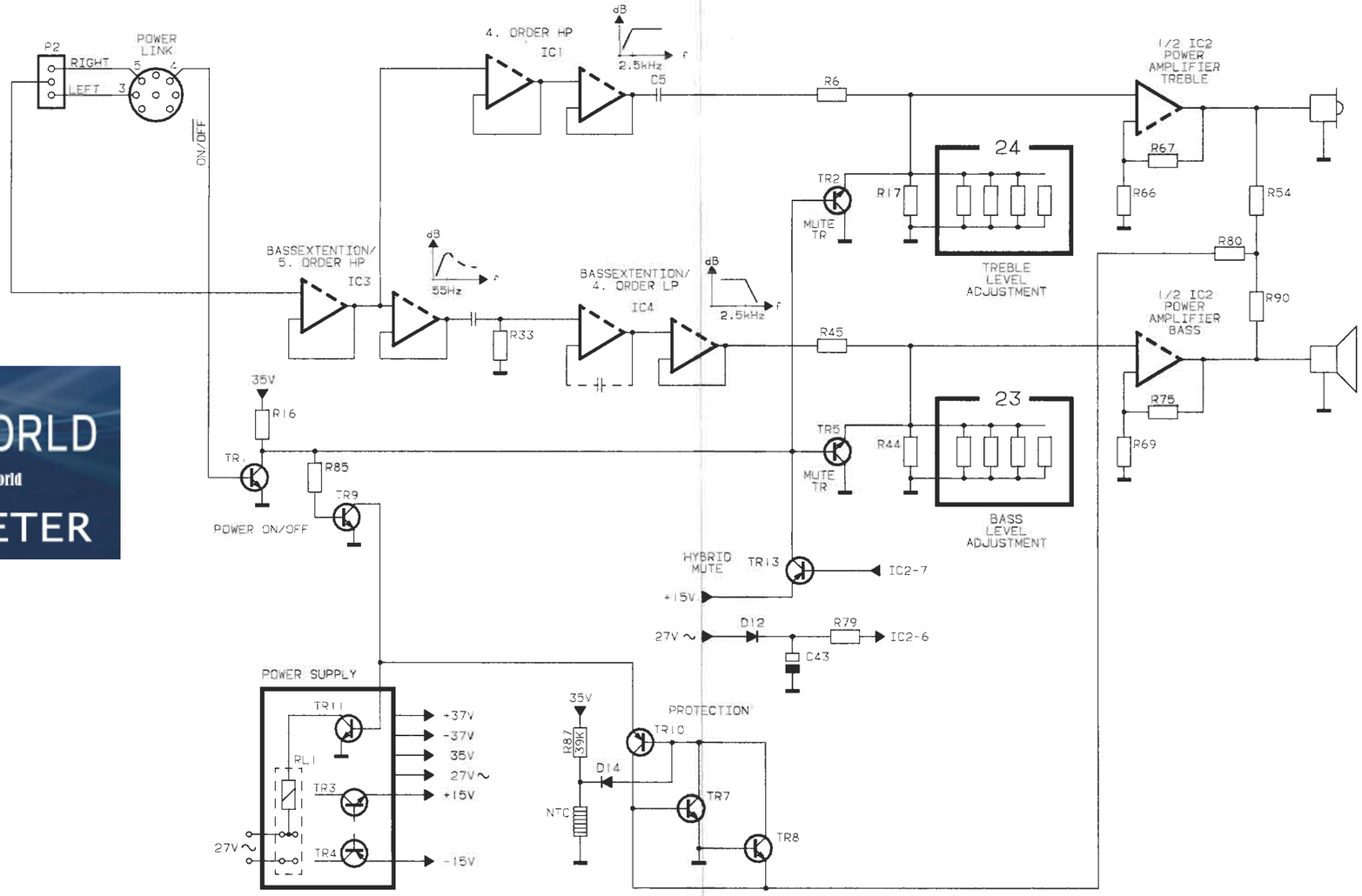


BLOCK DIAGRAM TAPE



BLOCK DIAGRAM CD





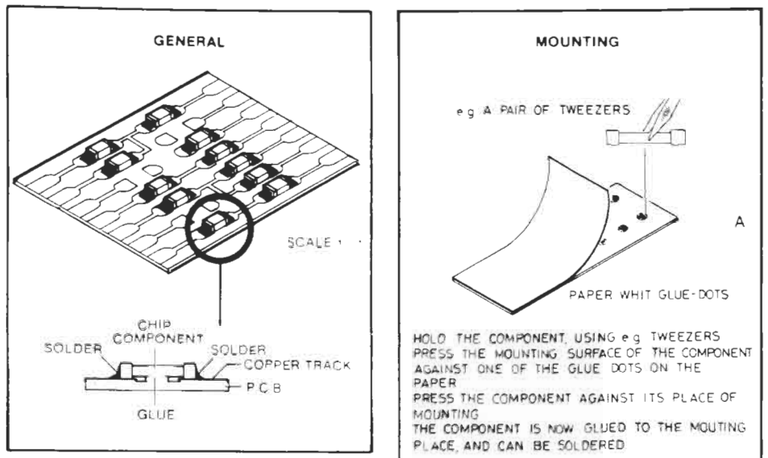
3-1

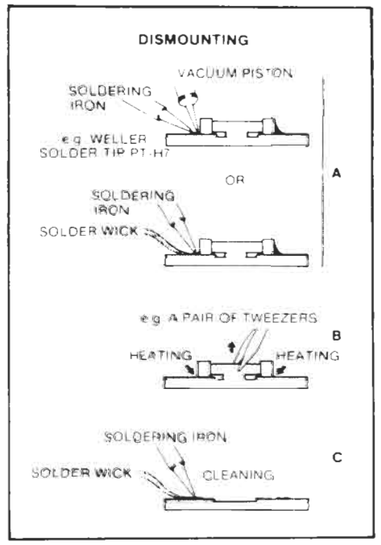
3-1

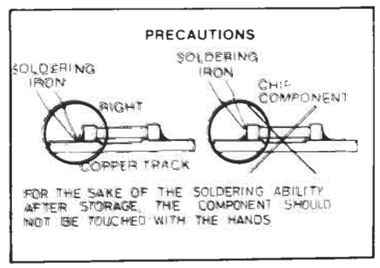
Bang&Olufsen

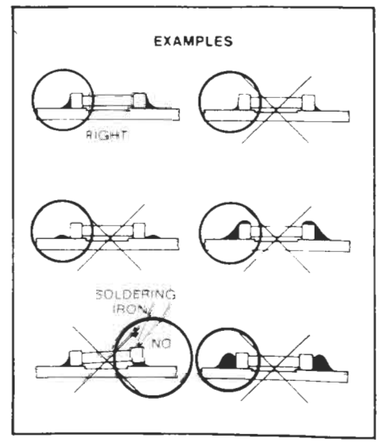
LIST OF ELECTRICAL PARTS

In the player chip components have been applied. For insertion and removal of chip components see the figure below.

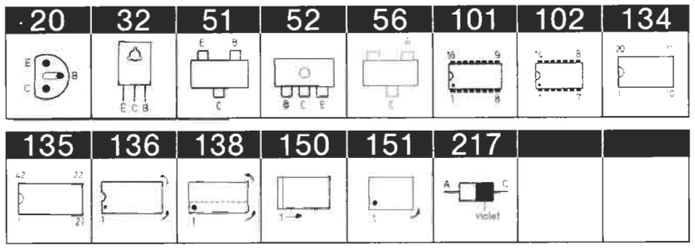








PCB 01
8001413 FM/AM
8001415 FM/AM, type 2609



Resistors not referred to are standard, see page 3-12

△ indicates that static electricity may destroy the component.

* Specially selected or adapted sample.

IC1△	8340995	**134**	LM1865	IC4△	8340758	**136**	LA3401
IC2△	8341098	**150**	LM358	IC5△	8341410	**134**	TEA6200
IC3△	8341409	**151**	LC7218M				

TR1	8320755	**051**	BC847B	TR9	8320755	**051**	BC847B
TR2	8320723	**052**	BC868	TR10	8320747	**051**	BC848C
TR3	8320616	**051**	BC858B	TR11	8320755	**051**	BC847B
TR4	8320755	**051**	BC847B	TR12	8320740	**051**	BF840
TR5	8320740	**051**	BF840	TR13	8320755	**051**	BC847B
TR6-	8320755	**051**	BC847B	TR14	8320740	**051**	BF840
TR7				TR15	8320755	**051**	BC847B
TR8	8320747	**051**	BC848C	TR20	8320755	**051**	BC847B

D3	8300482	**217**	BAS 32	D7			
D6-	8300482	**217**	BAS 32	D8	8300728	**056**	BBY40

R26	5370402	2.2kΩ 30% 0.3W		R91	5011857	4.42kΩ 1% 1/4W	
R46	5011859	8.25kΩ 1% 1/4W		R100	5370382	47kΩ 30% 0.1W	
R47	5011858	7.68kΩ 1% 1/4W		R121	5021017	47Ω 5% 0.14W	
R50	5011857	4.42kΩ 1% 1/4W		R130	5020727	18Ω 5% 1W	
R87	5011859	8.25kΩ 1% 1/4W		R131	5020881	22Ω 10% 0.3W	
R88	5011858	7.68kΩ 1% 1/4W					

C2	4201090	47µF 20% 16V		C37-	4010173	4.7nF 10% 50V	
C4	4010132	1nF 10% 50V		C38			
C5	4200625	3.3µF 20% 50V		C39	4200525	22µF 20% 10V	
C6	4010173	4.7nF 10% 50V		C40	4000287	220nF -20+80% 25V	
C7	4000219	10pF 50V		C41	4010157	10nF 10% 50V	
C8	4000239	33pF 5% 50V		C42	4201090	47µF 20% 16V	
C9	4000283	270pF 5% 50V		C43	4010132	1nF 10% 50V	
C10	4010132	1nF 10% 50V		C44	4010157	10nF 10% 50V	
C11	4000283	270pF 5% 50V		C46	4200512	1µF 20% 50V	
C12	4000287	220nF -20+80% 25V		C47	4000286	470pF 5% 50V	
C13	4201090	47µF 20% 16V		C48	4200510	10µF 20% 16V	
C14	4010166	100nF -20+80% 50V		C49	4000282	180pF 5% 50V	
C15-	4201090	47µF 20% 16V		C50	4000287	220nF -20+80% 25V	
C16				C51	4200515	4.7µF 20% 25V	
C17	4000287	220nF -20+80% 25V		C52	4100260	2.2nF 2.5% 63V	
C18	4010170	2.2nF 10% 50V		C53	4200515	4.7µF 20% 25V	
C20	4010132	1nF 10% 50V		C54	4000281	82pF 5% 50V	
C21	4000277	22pF 5% 50V		C55-	4100301	1nF 2.5% 63V	
C22	4010166	100nF -20+80% 50V		C56			
C23-	4010177	22nF -20+80% 50V		C57	4100260	2.2nF 2.5% 63V	
C24				C58	4000351	1.5nF 5% 50V	
C26	4000138	33pF 5% 63V		C59-	4000323	330pF 5% 50V	
C27	4130306	100nF 10% 63V		C62			
C28	4000357	1.8pF ±0.25pF 50V		C63-	4010132	1nF 10% 50V	
C29	4000280	68pF 5% 50V		C67			
C30	4000239	33pF 5% 50V		C68	4000278	27pF 5% 50V	
C31	4010173	4.7nF 10% 50V		C69	4000239	33pF 5% 50V	
C32	4010177	22nF -20+80% 50V		C70	4000287	220nF -20+80% 25V	
C34-	4010157	10nF 10% 50V		C71	4200525	22µF 20% 10V	
C36				C72	4130379	270nF 10% 63V	

C73	4200625	3.3nF 20% 50V	C99	4200510	10µF 20% 16V
C74	4010166	100nF -20+80% 50V	C100	4200523	0.47µF 20% 50V
C75	4010208	82nF 10% 50V	C101-	4200512	1µF 20% 50V
C76	4200625	3.3µF 20% 50V	C103		
C77-	4010132	1nF 10% 50V	C104-	4010170	2.2nF 10% 50V
C79			C105		
C80	4000287	220nF -20+80% 25V	C106	4000287	220nF -20+80% 25V
C81	4200515	4.7µF 20% 25V	C107	4000326	680pF 5% 50V
C82	4100260	2.2nF 2.5% 63V	C108	4000287	220nF -20+80% 25V
C83	4200515	4.7µF 20% 25V	C109	4010157	10nF 10% 50V
C84	4000281	82pF 5% 50V	C110	4010173	4.7nF 10% 50V
C85-	4100301	1nF 2.5% 63V	C111	4000224	15pF 5% 63V
C86			C112	4010132	1nF 10% 50V
C87	4100260	2.2nF 2.5% 63V	C113	4010157	10nF 10% 50V
C88	4000351	1.5nF 5% 50V	C115	4000275	15pF 5% 50V
C89	4200129	100µF 20% 16V	C116-	4010132	1nF 10% 50V
C90	4130240	47nF 10% 63V	C118		
C91	4010157	10nF 10% 50V	C119	4000351	1.5nF 5% 50V
C92-	4000286	470pF 5% 50V	C120	4000280	68pF 5% 50V
C93			C121-	4010166	100nF -20+80% 50V
C94	4000287	220nF -20+80% 25V	C122		
C95	4000325	560pF 5% 50V	C123-	4010132	1nF 10% 50V
C96	4000287	220nF -20+80% 25V	C127		
C97	4000325	560pF 5% 50V	C128-	4010157	10nF 10% 50V
C98	4010132	1nF 10% 50V	C129		

L2	8020714	Coil 68µH 10%	L6	8020747	Coil 1mH 10%
L3	8020817	Coil 33µH	L7	8020772	Coil 10µH 20%
L4	8020803	Coil 10.7MHz	L8	8022327	Coil 10.7MHz
L5	8020802	Coil 10.7MHz	L10	8022240	Coil 19.5mH 2%

P1	7210612	Socket FM antenne	P6		
P2	7220724	Plug 2 pol	P7	7220709	Plug 2 pol
P3-	7220709	Plug 2 pol	P8	7220710	Plug 3 pol
P4			P10	7220711	Plug 4 pol
P5-	7220711	Plug 4 pol			

BP1-BP2	8030219	Crystal 10.7MHz	BP3-BP5	8030090	Ker filter 10.7MHz

X1	8090076	Crystal 3.6MHz	X2	8030087	Crystal 456 kHz

TU1	8050111	Tuner
	8050112	Tuner, type 2604, 2609

PCB 02
8001289, Power Supply
8001378 – LF 28 V
8001379 – LF 15 V
8001385 – Power link

IC1△	8341040	**135**	LC7537	IC6△	8341033	**138**	LF353
IC2△	8340602	**101**	4052	IC7△	8341022	**138**	4558
IC3△	8341025	**138**	4094	IC8△	8341033	**138**	LF353
IC4△	8341033	**138**	LF353	IC9△	8340205	**102**	LF347
IC5△	8341022	**138**	4558	IC10△	8341033	**138**	LF353

TR1	8320425	**032**	BD436	TR22			
TR2	8320429	**032**	BD435	TR23	8320509	**020**	BC548B
TR3	8320755	**051**	BC847B	TR24	8320428	**032**	BD428
TR4	8320616	**051**	BC858B	TR25-	8320755	**051**	BC847B
TR5	8320425	**032**	BD436	TR26			
TR6	8320753	**051**	BC856	TR27	8320428	**032**	BD438
TR7	8320425	**032**	BD435	TR28	8320755	**051**	BC847B
TR8	8320755	**051**	BC847B	TR29	8320616	**051**	BC858B
TR9	8320616	**051**	BC858B	TR30-	8320759	**051**	BC817-25
TR10	8320755	**051**	BC847B	TR31			
TR11	8320425	**032**	BD436	TR32-	8320616	**051**	BC858B
TR12	8320427	**032**	BD437	TR33			
TR13	8320616	**051**	BC858B	TR34	8320755	**051**	BC847B
TR14	8320753	**051**	BC856B	TR35	8320616	**051**	BC858B
TR15	8320512	**020**	BC338-25	TR36	8320755	**051**	BC847B
TR16	8320509	**020**	BC548B	TR37	8320616	**051**	BC858B
TR17-	8320755	**051**	BC847B	TR38-	8320755	**051**	BC847B
TR19				TR42			
TR20	8320428	**032**	BD438	TR43	8320616	**051**	BC858B
TR21-	8320523	**020**	BC328-25	TR44	8320755	**051**	BC847B

51	103	125	134	138	150	152	209
							

250


Resistors not referred to are standard, see page 3-12

△ indicates that static electricity may destroy the component.

* Specially selected or adapted sample.

D1	8300557	**250**	BYM10 100V	D25	8300482	**250**	4148 75V
D2	8300562	**250**	Z5.6V 2%	D26-	8300644	**250**	Z6.2V 2%
D3-	8300605	**250**	Z10V 5%	D27			
D4				D28	8300482	**250**	4148 75V
D5	8300482	**250**	4148 75V	D29-	8300023	**209**	1N4002
D7	8300606	**250**	LL4448	D30			
D8	8300645	**250**	Z3.3V 2%	D31	8300773	**250**	15.0V 2%
D9	8300606	**250**	LL4448	D32-	8300723	**250**	Z8.2V 2%
D10	8300562	**250**	Z5.6V 2%	D33			
D11-	8300557	**250**	BYM10 100V	D35	8300520	**250**	Z6.8V 5%
D15				D36	8300482	**250**	4148 75V
D16-	8300482	**250**	4148 75V	D37	8300606	**250**	LL4448
D17				D38	8300520	**250**	Z6.8V
D18	8300762	**250**	9.1V 2%	D39	8300606	**250**	LL4448
D19-	8300482	**250**	4148 75V	D40-	8300023	**209**	1N4002
D20				D43			
D21-	8300557	**250**	BYM10 100V	D44	8300482	**250**	BAS 32
D24							

R9	5011982	698Ω 1% 1/8W	R40	5011985	13.3kΩ 1% 1/8W
R10	5011983	324Ω 1% 1/8W	R120	5011557	10kΩ 1% 1/8W
R12	5011792	4.75kΩ 1% 1/8W	R126	5011557	10kΩ 1% 1/8W
R17	5011984	5.62kΩ 1% 1/8W	R150	5000194	3.3MΩ 10% 1/2W. only type 2603, 2608
R21	5011914	5.1kΩ 1% 1/8W			
R22	5011557	10kΩ 1% 1/8W			
R31	5011988	22kΩ 1% 1/8W	R153	5000194	3.3MΩ 10% 1/2W. only type 2603, 2608
R33	5011987	28.7kΩ 1% 1/8W			
R38	5011986	15.4kΩ 1% 1/8W			

C1	4200821	1000µF -20+50% 6.3V	C30- C31	4130311	680nF 10% 63V
C2	4201111	6800µF 20% 16V	C32-	4200524	10µF 20% 25V
C3	4200991	3300µF 20% 16V	C33		
C4- C6	4010176	10nF -20+80% 50V	C34- C35	4000286	470pF 5% 50V
C7- C8	4010166	100nF -20+80% 50V	C36- C37	4010220	100nF 10% 50V
C9	4200992	4700µF 20% 16V	C38	4010195	2.7nF 5% 50V
C10- C11	4200510	10µF 20% 16V	C39	4200524	10µF 20% 25V
			C40	4200512	1µF 20% 50V
C12	4010132	1nF 10% 50V	C41	4200524	10µF 20% 25V
C13- C15	4010166	100nF -20+80% 50V	C42	4200512	1µF 20% 50V
			C43- C45	4000234	47pF 5% 50V
C16	4200488	22µF 20% 25V	C46	4000286	470pF 5% 50V
C17- C19	4010132	1nF 10% 50V	C47	4200524	10µF 20% 25V
C20	4200524	10µF 20% 25V	C48	4000229	150pF 5% 50V
C21- C23	4010216	22nF 10% 100V	C49- C52	4010166	100nF -20+80% 50V
C24	4010166	100nF -20+80% 50V	C53	4010157	10nF 10% 50V
C25	4010132	1nF 10% 50V	C54	4130234	470nF 10% 63V
C26	4200993	470µF 20% 50V	C55- C56	4010220	100nF 10% 50V
C27	4201105	330µF 20% 63V			
C28	4010132	1nF 10% 50V	C57	4200524	10µF 20% 25V
C29	4010176	10nF -20+80% 50V	C58	4010195	2.7nF 5% 50V

PCB 03, 8001287
Microcomputer

C59	4200512	1µF 20% 50V	C77- C78	4201098	4700µF 20% 35V
C60	4200524	10µF 20% 25V	C79- C80	4010105	1nF 10% 50V
C61	4200512	1µF 20% 50V	C81	4200510	10µF 20% 16V
C62	4000286	470pF 5% 50V	C84	4000287	220nF -20+80% 25V
C63	4000229	150pF 5% 50V	C85- C87	4200510	10µF 20% 16V
C64	4200524	10µF 20% 25V	C89- C90	4010166	100nF -20+80% 50V
C65- C66	4000233	220pF 5% 50V	C91- C104	4010157	10nF 10% 50V
C67	4010196	1.8nF 5% 50V	C105- C106	4000204	100pF 5% 63V
C68- C69	4000233	220pF 5% 50V	C107	4000241	100pF 5% 50V
C70	4010196	1.8nF 5% 50V	C108	4010166	100nF -20+80% 50V
C71- C72	4000233	220pF 5% 50V	C109- C110	4010157	10nF 10% 50V
C73- C74	4200510	10µF 20% 16V			
C75	4200523	0.47µF 20% 50V			
C76	4200561	10µF 20% 50V			

F1- F4	6600065	1.6A 250V	F6	6604009	1A 250V
			TF1	6609040	2.5A Termo
F5	6600067	2.5A 250V			

L1	8022296	Coil 2x0.4mH

P11- P13	7220711	Plug 4 pol	P21	7220709	Plug 2 pol
			P22	7220711	Plug 4 pol
P14- P15	7220709	Plug 2 pol	P23	7220710	Plug 3 pol
			P24	7220714	Plug 7 pol
P16	7220712	Plug 5 pol	P25- P26	7220711	Plug 4 pol
P17	7220714	Plug 7 pol			
P18	7220710	Plug 3 pol	P100	7210418	Socket 7 pol
P19	7220712	Plug 5 pol	P101- P102	7210689	Plug 8 pol
P20	7220716	Plug 9 pol			

CP1	7220564	Plug pin 1 pol

T1	8013457	Transformer

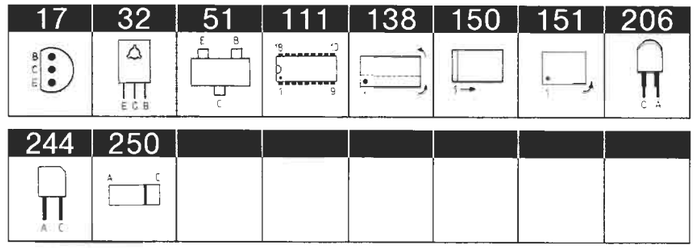
IC1△	8341217	**134**	74HCT573	IC8△	8341419	**150**	74HCT00
IC3*△	8341481	**125**	27C512	IC9△	8341276	**138**	6116
IC5△	8341437	**152**	82C55A	IC10△	8341218	**152**	80C32
IC6△	8341105	**103**	PCF8583				

TR3- TR4	8320615	**051**	BC848B	TR5- TR6	8320616	**051**	BC858B

D1- D2	8300482	**250**	4148	D5	8300056	**209**	1.5V 10%
				D6- D9	8300482	**250**	4148
D4	8300482	**250**	4148				

C1- C29	4010132	1nF 10% 50V	C43- C48	4010132	1nF 10% 50V
C30- C32	4010166	100nF -20+80% 50V	C49	4200431	10µF 20% 16V
			C50- C51	4000241	100pF 5% 50V
C33- C34	4000361	33pF 5% 50V	C53- C54	4010166	100nF -20+80% 25V
C35- C36	4010166	100nF -20+80% 50V	C55- C56	4010132	1nF 10% 50V
C37	4000219	10pF 0.5pF 50V			
C38	4010166	100nF -20+80% 50V	C57	4000287	220nF -20+80% 25V
C40	4010166	100nF -20+80% 50V	C59	4010166	100nF -20+80% 50V

L3- L5	8020552	Coil 10µH



Resistors not referred to are standard, see page 3-12

△ indicates that static electricity may destroy the component.

* Specially selected or adapted sample.

P26	7220717	Plug 10 pol	P30		
P27	7220711	Plug 4 pol	P31-	7220711	Plug 4 pol
P28	7220716	Plug 9 pol	P32		
P29-	7220710	Plug 3 pol	P33	7220710	Plug 3 pol

X1	8090075	Crystal 12.0 MHz	X2	8090078	Crystal 32.768 kHz

B1	8700027	Lithium battery			

PCB 05, 8001309
Display

IC1△	8341025	**150** 4094	IC3△	8341079	**147** μPD7223
IC2△	8341418	**138** 74LS156	IC4△	8341226	**150** 4001B

TR1-TR8	8320755	**051** BC847B	TR12	8320936	**051** BC847C
TR9-TR10	8320936	**051** BC847C	TR13-TR16	8320753	**051** BC856B

D1-D2	8300482	**250** BAS 32			

R14-R15	5011912	1.2kΩ 1% 1/8W	R29	5011530	5.6kΩ 1% 1/8W
R18-R19	5011912	1.2kΩ 1% 1/8W	R49	5012069	2.0kΩ 1% 1/8W
			R56	5370435	1kΩ 25% 0.1W

C1-C2	4010166	100nF -20+80% 50V	C8	4000241	100pF 5% 50V
C4-C5	4010166	100nF -20+80% 50V	C9-C12	4010166	100nF -20+80% 50V
C6	4000241	100pF 5% 50V	C13-C18	4000241	100pF 5% 50V

X1	8030221	455KHz			

8001383, Backlight

R39	5210006	3.3kΩ 33% foto			

D1-D13	8330271	LED yellow	D25	8330275	LED green
			D26	8330246	LED red
D17-D24	8330271	LED yellow	D27	8300577	**250** Z3.9V 2%
			D28	8300661	**250** Z4.3V 2%

PCB 06, 8001288
IR Transceiver and left door sensor

IC101△	8341226	**150** 4001B			

TR1	8320769	**051** BC849C	TR6-	8320615	**051** BC848B
TR2	8320740	**051** BF840	TR7		
TR3	8320615	**051** BC848B	TR8	8320616	**051** BC858B
TR4	8320616	**051** BC858B	TR101	8320615	**051** BC848B
TR5	8320740	**051** BF840	TR102	8320816	**051** BC846B

TR103	8320903	**032** BD788	TR109	8320616	**051** BC858B
TR104	8320616	**051** BC858B	TR110	8320615	**051** BC848B
TR105-TR108	8320615	**051** BC848B			

D2-D7	8300482	**250** 4148	0D1	8330145	**244** 880nm Receive
			0D2-	8330237	**206** 880nm
D8-D9	8330145	**244** 880nm Receive	0D3		Transmit
			0D4	8330145	**244** 880nm Receive
D107-D112	8330237	**206** 880nm	0D5-	8330237	**206** 880nm
		Transmit	0D6		Transmit

R109	5011845	8.2Ω 1% 1/4W	R126	5012069	2.0kΩ 1% 1/8W
R122	5012068	47.5Ω 1% 1/8W	R128	5021267	10Ω 5% 0.14W
R123	5012067	29.4Ω 1% 1/8W	R129	5011845	8.2Ω 1% 1/4W

C1	4000286	470pF 5% 50V	C104	4000286	470pF 5% 50V
C2	4010166	100nF -20+80% 50V	C105	4201087	47μF -10+100% 40V
C3	4000286	470pF 5% 50V	C106	4000233	220pF 5% 50V
C4-	4000293	47pF 5% 50V	C107	4000286	470pF 5% 50V
C5			C108	4000281	82pF 5% 50V
C6	4010170	2.2nF 10% 50V	C109	4000287	220nF -20+80% 25V
C7	4130228	470nF 20% 63V	C110	4201082	100μF -20+50% 40V
C8	4000286	470pF 5% 50V	C111	4010166	100nF -20+80% 50V
C9	4000293	47pF 5% 50V	C112	4000286	470pF 5% 50V
C10	4000286	470pF 5% 50V	C113	4010209	47nF 10% 50V
C11	4000287	220nF -20+80% 25V	C114	4010173	4.7nF 10% 50V
C15	4010166	100nF -20+80% 50V	C115	4010209	47nF 10% 50V
C16	4000286	470pF 5% 50V	C116	4010132	1nF 10% 50V
C17	4000293	47pF 5% 50V	C117	4130171	330nF 20% 63V
C18	4000289	15nF 10% 50V	C118	4010220	100nF 10% 50V
C19	4000286	470pF 5% 50V	C119	4200431	10μF 20% 16V
C102-C103	4000241	100pF 5% 50V	C120	4000287	220nF -20+80% 25V

L101	8020594	Coil 3.3mH	L103	8020621	Coil 100μH
L102	8020870	Coil 3mH 3%			

P46	7220726	Plug 4 pol	P49	7220710	Plug 3 pol
P47	7220725	Plug 3 pol	P50	7220728	Plug 6 pol
P48	7220727	Plug 5 pol	P83	7220693	Plug 2 pol

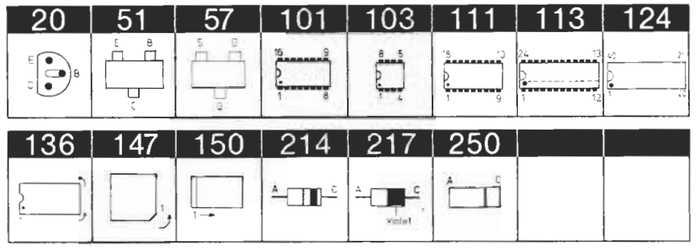
BP1	8030056	455kHz	BP2	8020562	Coil 455kHz

X1	8030024	455kHz			

PCB 07, 8004913 Tape
8001381 – Automatic rec. level

IC1-IC2△	8341024	**150** 4066	IC13△	8341376	**151** HA12136
			IC14△	8341033	**138** LF353
IC3△	8341033	**138** LF353	IC15-	8341024	**150** 4066
IC4△	8341411	**150** LM13700	IC17△		
IC5△	8341033	**138** LF353	IC18△	8341408	**138** 4073
IC6△	8341024	**150** 4066	IC20△	8341417	**138** 4021
IC7△	8340752	**111** uPC1297CA	IC21-	8341025	**138** 4094
IC8△	8341041	**138** LM324	IC22△		
IC10-IC12△	8341041	**138** LM324	IC23△	8341033	**138** LF353

TR1	8320755	**051** BC847B	TR20		
TR2	8320769	**051** BC849C	TR25	8320755	**051** BC847B
TR3	8320768	**051** BC850B	TR28	8320755	**051** BC847B
TR4	8320769	**051** BC849C	TR29	8320753	**051** BC856B
TR5	8320768	**051** BC850B	TR30-	8320752	**051** BC817-40
TR6-	8320755	**051** BC847B	TR32		
TR7			TR33-	8320753	**051** BC856B
TR8	8320753	**051** BC856B	TR36		
TR9	8320617	**032** BD137-10	TR37-	8320752	**051** BC817-40
TR10-	8320755	**051** BC847B	TR39		
TR11			TR40	8320755	**051** BC847B
TR12	8320753	**051** BC856B	TR41-	8320523	**017** BC328-25
TR15	8320753	**051** BC856B	TR42		
TR16	8320755	**051** BC847B	TR43-	8320755	**051** BC847B
TR18-	8320755	**051** BC847B	TR45		



Resistors not referred to are standard, see page 3-12

△ indicates that static electricity may destroy the component.

* Specially selected or adapted sample.

D1	8300409	**214**	BAV20	D19	8300482	**250**	4148
D2	8300482	**250**	4148	D23-	8300482	**250**	4148
D4-	8300482	**250**	4148	D24			
D12				D26-	8300409	**214**	BAV20
D13	8300409	**214**	BAV20	D27			
D14	8300482	**250**	4148	D28-	8300482	**250**	4148
D15	8300726		7.5V 2%	D29			
D16	8300482	**250**	4148				

R3	5011792	4.75kΩ 1% 1/8W	R115	5011996	8.25kΩ 1% 1/8W
R7	5011870	90.9Ω 1% 1/8W	R117	5011992	12.1kΩ 1% 1/8W
R8	5011871	365Ω 1% 1/8W	R118	5011995	46.4kΩ 1% 1/8W
R9	5011849	8.66kΩ 1% 1/8W	R119	5011899	21.5kΩ 1% 1/8W
R13	5370382	47kΩ 30% 0.1W	R120	5011994	4.02kΩ 1% 1/8W
R15	5011792	4.75kΩ 1% 1/8W	R126	5011838	18kΩ 1% 1/8W
R19	5011849	8.66kΩ 1% 1/8W	R135-	5011838	18kΩ 1% 1/8W
R20	5011870	90.9Ω 1% 1/8W	R136		
R21	5011871	365Ω 1% 1/8W	R159-	5370381	10kΩ 30% 0.1W
R25	5370382	47kΩ 30% 0.1W	R164		
R52-	5370403	22kΩ 30% 0.1W	R198	5370381	10kΩ 30% 0.1W
R53			R233-	5011844	2.55kΩ 1% 1/8W
R89	5020489	10Ω 10% 0.3W	R234		
R102	5011986	15.4kΩ 1% 1/8W	R235-	5011840	137Ω 1% 1/8W
R103	5021023	9.09kΩ 1% 1/4W	R236		
R104	5011752	12.7kΩ 1% 1/8W	R238	5020770	4.42kΩ 1% 1/4W
R105	5011996	8.25kΩ 1% 1/8W	R239	5020074	15kΩ 1% 1/4W
R107	5011992	12.1kΩ 1% 1/8W	R243-	5021119	270Ω 5% 1W
R108	5011995	46.4kΩ 1% 1/8W	R244		
R109	5011899	21.5kΩ 1% 1/8W	R248-	5021119	270Ω 5% 1W
R110	5011994	4.02kΩ 1% 1/8W	R249		
R112	5011986	15.4kΩ 1% 1/8W	R266-	5011517	220Ω 5% 1W
R113	5021023	9.09kΩ 1% 1/4W	R267		
R114	5011752	12.7kΩ 1% 1/8W			

C1	4200403	100µF -20+50% 25V	C27-	4010259	5.6nF 10% 50V
C2	4200525	22µF 20% 10V	C28		
C3	4000283	270pF 5% 50V	C29-	4000290	22nF 10% 50V
C4	4000233	220pF 5% 50V	C30		
C5	4200515	4.7µF 20% 25V	C31-	4100240	5.6nF 5% 63V
C6	4200625	3.3µF 20% 50V	C32		
C7	4130315	15nF 5% 63V	C35-	4130379	270nF 10% 63V
C8	4000351	1.5nF 5% 50V	C36		
C9	4100236	1nF 5% 63V	C37-	4200510	10µF 20% 16V
C10	4010157	10nF 10% 50V	C38		
C11	4000233	220pF 5% 50V	C39-	4200617	47µF 20% 10V
C12	4200403	100µF -20+50% 25V	C40		
C13	4201219	22µF 20% 10V	C42-	4200517	2.2µF 20% 50V
C14	4000283	270pF 5% 50V	C43		
C15	4200515	4.7µF 20% 25V	C44-	4000327	820pF 5% 50V
C16	4130315	15nF 5% 63V	C45		
C17	4100236	1nF 5% 63V	C46	4200525	22µF 20% 10V
C18	4200625	3.3µF 20% 50V	C47-	4010170	2.2nF 10% 50V
C19	4000351	1.5nF 5% 50V	C48		
C20	4010157	10nF 10% 50V	C49-	4000283	270pF 5% 50V
C21-	4200625	3.3µF 20% 50V	C50		
C22			C51	4010220	100nF 10% 50V
C25-	4010157	10nF 10% 50V	C52	4200512	1µF 20% 50V
C26			C53	4200631	0.22µF 20% 50V

PCB 08, 8005275
CD

C54	4010170	2.2nF 10% 50V	C83		
C55	4200515	4.7µF 20% 25V	C84-	4130233	220nF 20% 63V
C56	4200792	10µF 20% 50V	C85		
C57	4200512	1µF 20% 50V	C86-	4200510	10µF 20% 16V
C58	4100243	8.2nF 5% 63V	C87		
C59	4000163	10pF 5% 63V	C88	4130313	470nF 20% 63V
C60	4200510	10µF 20% 16V	C89	4200512	1µF 20% 50V
C61-	4010157	10nF 10% 50V	C90	4200508	22µF 20% 25V
C62			C93	4200517	2.2µF 20% 50V
C63	4200524	10µF 20% 25V	C94-	4200600	470µF 20% 16V
C64-	4010216	22nF 10% 100V	C95		
C65			C96-	4200523	0.47µF 20% 50V
C66-	4010220	100nF 10% 50V	C97		
C67			C98	4000287	220nF -20+80% 25V
C68-	4100255	560pF 5% 63V	C99	4130236	330nF 20% 63V
C69			C100	4200403	100µF -20+50% 25V
C70-	4000241	100pF 5% 50V	C101-	4010195	2.7nF 5% 50V
C71			C102		
C72-	4000344	560pF 5% 50V	C103-	4010132	1nF 10% 50V
C73			C104		
C74	4200631	0.22µF 20% 50V	C105-	4000290	22nF 10% 50V
C75	4200600	470µF 20% 16V	C106		
C76-	4200515	4.7µF 20% 25V	C107-	4000241	100pF 5% 50V
C77			C111		
C78-	4200512	1µF 20% 50V	C112	4010220	100nF 10% 50V
C80			C113	4200524	10µF 20% 25V
C81	4200508	22µF 20% 25V	C114	4010157	10nF 10% 50V
C82-	4130333	220nF 5% 63V			

L1-	8022237	Coil 10mH	L7-	8022251	Coil 5mH
L4			L8		
L5	8020556	Coil 2.4mH	L9-	8020594	Coil 3.3mH 5%
L6	8020552	Coil 10µH 10%	L10		

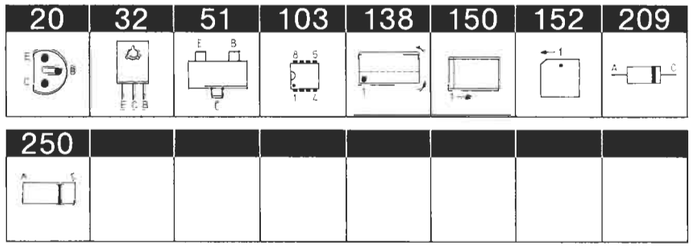
P51	7220716	Plug 9 pol	P55	7220711	Plug 4 pol
P52	6276291	Plug 12 pol	P56	7220712	Plug 5 pol
P53	7220712	Plug 5 pol	P57	7220883	Plug 7 pol
P54	7220710	Plug 3 pol	P58	7220900	Plug 4 pol

IC1△	8341316	**150**	TDA8808T	IC6△	8341152	**136**	TDA1541A
IC2△	8341317	**150**	TDA8809T	IC7*△	8341450	**124**	MC68HC05C4
IC3△	8341318	**147**	SAA7310GP	IC8△	8341682	**101**	0372
IC4△	8340927	**111**	41416C-20	IC9△	8341683	**150**	LM837
IC5△	8341153	**113**	SAA7220P/B	IC13△	8341420	**103**	TCA0372

TR1	8320512	**020**	BC338-25	TR6-	8320616	**051**	BC858B
TR2-	8320724	**057**	BSR56	TR7			
TR3				TR8	8320620	**051**	BF550
TR4	8320616	**051**	BC858B	TR11	8320757	**051**	BC818-40

D1-	8300636	7.5V 5%	D5		
D2			D6-	8300482	**217** 4148
D4-	8300557	BYM10 100V	D7		

R1-	5012057	6.8kΩ2 1% 1/8W	R40-	5011329	5.6MΩ 10% 1/8W
R2			R41		
R5	5011527	12kΩ 1% 1/8W	R42-	5011853	158Ω 1% 1/4W
R6-	5021030	3.3Ω 10% 0.3W	R43		
R7			R44-	5011329	5.6MΩ 10% 1/8W
R8	5011527	12kΩ 1% 1/8W	R45		
R12	5011744	24kΩ 1% 1/4W	R46-	5012056	1.5kΩ 1% 1/4W
R18	5020629	18Ω 5% 0.30W	R49		
R19	5020877	12Ω 10% 0.3W	R50-	5011854	2.1kΩ 1% 1/4W
R21	5011914	5.1kΩ 1% 1/8W	R51		
R22	5012058	47kΩ 1% 1/4W	R52	5020956	68Ω 5% 0.14W
R23	5020074	15kΩ 1% 1/4W	R55	5021246	68Ω 5% 0.14W
R24	5370324	4.7kΩ 20% 0.1W	R68	5021054	1Ω 10% 0.30W
R25	5021030	3.3Ω 10% 0.30W	R69	5020489	10Ω 10% 0.30W
R26	5011571	75Ω 1% 1/8W	R70	5021030	3.3Ω 10% 0.30W
R28	5021030	3.3Ω 10% 0.30W	R71-	5021054	1Ω 10% 0.30W
R33	5011601	200kΩ 1% 1/8W	R72		
R35	5011913	91kΩ 1% 1/8W	R91	5020114	11kΩ 1% 1/4W
R37	5010726	4.7kΩ 2% 1/4W	R92	5011587	160kΩ 1% 1/8W
R38-	5011852	332Ω 1% 1/4W	R93	5370327	22kΩ 20% 0.1W
R39			R95	5021030	3.3Ω 10% 0.30W



Resistors not referred to are standard, see page 3-12

△ indicates that static electricity may destroy the component.

* Specially selected or adapted sample.

R105	5021030	3.3Ω 10% 0.30W	R115- R116	5012055	750Ω 1% 1/4W
R112- R113	5021054	1Ω 10% 0.30W	R117	5011855	1kΩ 1% 1/4W
R114	5011855	1kΩ 1% 1/4W			

C1	4010220	100nF 10% 50V	C66		
C3	4000287	220nF -20+80% 25V	C67	4000290	22nF 10% 50V
C4-	4010175	33nF 10% 50V	C68	4200551	33µF 20% 16V
C5			C71	4000326	680pF 5% 50V
C6-	4100243	8.2nF 5% 63V	C72- C73	4000234	47pF 5% 50V
C7					
C8	4200551	33µF 20% 16V	C74	4200551	33µF 20% 16V
C9	4130308	220nF 10% 63V	C75- C79	4000290	22nF 10% 50V
C10	4130234	470nF 10% 63V			
C11- C13	4000290	22nF 10% 50V	C81	4010209	47nF 10% 50V
C14	4010157	10nF 10% 50V	C82	4010220	100nF 10% 50V
C15	4010209	47nF 10% 50V	C83	4130236	330nF 20% 63V
C16	4010170	2.2nF 10% 50V	C85	4130234	470nF 10% 63V
C17	4000241	100pF 5% 50V	C86	4010173	4.7nF 10% 50V
C18	4000345	1nF 5% 50V	C88- C89	4200551	33µF 20% 16V
C19	4000286	470pF 5% 50V	C90	4000290	22nF 10% 50V
C20	4000233	220pF 5% 50V	C91- C92	4000234	47pF 5% 50V
C22	4130309	330nF 10% 63V			
C23	4000287	220nF -20+80% 25V	C93	4000290	22nF 10% 50V
C27	4200551	33µF 20% 16V	C94	4200515	4.7µF 20% 25V
C28	4000290	22nF 10% 50V	C95	4200551	33µF 20% 16V
C31	4000234	47pF 5% 50V	C97- C98	4000290	22nF 10% 50V
C32	4130234	470nF 10% 63V			
C33	4010170	2.2nF 10% 50V	C99	4200517	2.2µF 20% 50V
C34	4200551	33µF 20% 16V	C100	4200516	47µF 20% 16V
C35	4000290	22nF 10% 50V	C101	4100210	1.5nF 5% 63V
C36	4010253	18nF 10% 50V	C102	4100279	2nF 2.5% 63V
C37	4130236	330nF 20% 63V	C103- C105	4100235	680pF 5% 63V
C38	4010170	2.2nF 10% 50V			
C39- C40	4130304	22nF 10% 63V	C106	4100279	2nF 2.5% 63V
			C107	4100235	680pF 5% 63V
C41- C42	4130266	82nF 5% 63V	C108	4100210	1.5nF 5% 63V
			C109	4000345	1nF 5% 50V
C43- C44	4100243	8.2nF 5% 63V	C110- C111	4200551	33µF 20% 16V
C45	4200403	100µF -20+50% 25V	C112	4000239	33pF 5% 50V
C47	4200403	100µF -20+50% 25V	C113	4010157	10nF 10% 50V
C51- C52	4200544	22µF 20% 16V	C114	4000345	1nF 5% 50V
			C200	4130311	680nF 10% 63V
C53-	4010220	100nF 10% 50V			

P62	7220710	Plug 3 pol	P66- P67	7220711	Plug 4 pol
P63	7220709	Plug 2 pol			
P65	7220709	Plug 2 pol	P68	7220710	Plug 3 pol

X1	8090070	Crystal 11.2896MHz	X2	8090120	Crystal 4.000MHz

8001384, Connector PCB

P1 P2	7220883	Plug 7 pol Socket 14 pol	P3	7220883	Plug 7 pol

PCB 09, 8001322
Light and motor control

IC1 IC2	8340605 8341352	**103**	L272M L2722	IC3	8341041	**138**	LM324
TR1- TR2	8320755	**051**	BC847B	TR14	8320927	**032**	BD436
				TR21	8320507	**020**	BC337-25
TR3- TR7	8320616	**051**	BC858B	TR22	8320497	**020**	BC547B
				TR23	8320616	**051**	BC858B
TR8- TR11	8320755	**051**	BC847B	TR24	8320755	**051**	BC847B
				TR25	8320616	**051**	BC858B
TR13	8320755	**051**	BC847B				

D1- D2	8300482	**250**	4148	D14	8300772	**250**	24V 5%
				D16- D19	8300482	**250**	4148
D4	8300774	**250**	5.1V 5%				
D5- D8	8300482	**250**	4148	D20- D23	8300023	**209**	1N4002
D9	8300723	**250**	8.2V 2%	D24	8300482	**250**	4148

R32	5011845	8.2Ω 1% 1/4W	R48	5011598	24.9kΩ 1% 1/8W
R33	5011834	845Ω 1% 1/8W	R49	5011838	18kΩ 1% 1/8W
R35	5011845	8.2Ω 1% 1/4W	R50	5011760	23.7kΩ 1% 1/8W
R37	5011834	845Ω 1% 1/8W	R67	5011601	200kΩ 1% 1/8W
R38	5011527	12kΩ 1% 1/8W	R68	5011600	100kΩ 1% 1/8W
R39	5011752	12.7kΩ 1% 1/8W	R69- R71	5011601	200kΩ 1% 1/8W
R40	5011527	12kΩ 1% 1/8W			
R41	5011752	12.7kΩ 1% 1/8W	R74	5011595	26.7kΩ 1% 1/8W
R42	5021151	1.5Ω 1% 1/4W	R78	5011600	100kΩ 1% 1/8W
R43	5011834	845Ω 1% 1/8W	R82- R83	5011598	24.9kΩ 1% 1/8W
R45	5021151	1.5Ω 1% 1/4W			
R47	5011854	2.1kΩ 1% 1/4W			

C1	4010220	100nF 10% 50V	C10		
C3	4010220	100nF 10% 50V	C11	4010157	10nF 10% 50V
C4	4200484	10µF 20% 25V	C12	4010166	100nF -20+80% 50V
C5- C6	4000287	220nF -20+80% 25V	C13	4200484	10µF 20% 25V
			C14	4010157	10nF 10% 50V
C7	4200477	4.7µF 20% 25V	C15- C16	4010157	10nF 10% 50V
C8-	4000345	1nF 5% 50V			

P76	7220714	Plug 7 pol	P80		
P77	7220711	Plug 4 pol	P81	7220710	Plug 3 pol
P78-	7220709	Plug 2 pol			

PCB 10, 8001351
Radio Data System
PCB 29, 8001781
RDS, New Version
(List of electrical parts
See Service Manual
f. BeoSound Ouverture,
3538837)

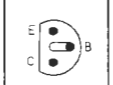
IC1△ IC2△ IC3△	8341453 8341578 8341600	**138** **152** **150**	SAF7579T 80C31 LM311	IC4△ IC5△	8341439 8341612	**103** **150**	MCM44182 TL7705
TR1- TR2	8320755	**051**	BC847B				

C1- C2	4000287		220nF -20+80% 25V	C12- C13	4000241		100pF 5% 50V
C3	4000241		100pF 5% 50V	C15	4000287		220nF -20+80% 25V
C4- C9	4000287		220nF -20+80% 25V	C16	4200826		10µF 20% 16V
				C17	4010166		100nF
C10	4000234		47pF 5% 50V	C18	4000351		1.5nF 5% 50V
C11	4000276		18pF 5% 50V				

L1	8022322	Coil 57kHz	L2- L4	8020816	Coil 1.5µH

P71	7220709	Plug 2 pol	P73	7220710	Plug 3 pol
P72	7220711	Plug 4 pol			

X1	8090126	Crystal 4.332MHz

20	51	53	141	150	209	250	255
							

Resistors not referred to are standard, see page 3-12

Δ indicates that static electricity may destroy the component.

* Specially selected or adapted sample.

PCB 11, 8001320
Right door Sensor

TR1	8320616	**051**	BC858B	TR5			
TR2-	8320615	**051**	BC848B	TR6	8320616	**051**	BC858B
R4	5012068	47.5Ω 1% 1/8W		R16	5012267	10Ω 5% 0.14W	
C1	4010220	100nF 10% 50V		C5	4010209	47nF 10% 50V	
C2	4130171	330nF 20% 63V		C6	4010173	4.7nF 10% 50V	
C3	4200431	10µF 20% 16V		C7	4000286	470pF 5% 50V	
C4	4010132	1nF 10% 50V		C8	4010209	47nF 10% 50V	
L1	8020870	Coil 3mH 3%					
P80	7220710	Plug 3 pol		P82	7220727	Plug 5 pol	
P81	7220728	Plug 6 pol					

PCB 17, 8050111
FM Tuner

TR1	8320610	**053**	BF995	TR3-	8320672	**051**	BFS20
TR2	8320766		BF995	TR4			

PCB 17, 8050112
FM Tuner
type 2604, 2609

D1-	8300301	**209**	BB204				
D4							
R32-	5370253	47kΩ 20% 0.1W					
R34							
C1	4000331	6.8pF 50V		C16	4000332	8.2pF 50V	
•C1	4000275	15pF 5% 50V		C17-	4000260	5pF 50V	
C2	4000257	27pF 5% 50V		C18			
C3-	4010132	1nF 10% 50V		•C18	4000228	12pF 5% 50V	
C6				C19-	4010132	1nF 10% 50V	
C7	4000257	27pF 5% 50V		C20			
C8	4000332	8.2pF 50V		C21	4000275	15pF 5% 50V	
•C8	4000275	15pF 5% 50V		C22	4000228	12pF 5% 50V	
C9	4000258	4pF 50V		C23	4010132	1nF 10% 50V	
•C9	4000228	12pF 5% 50V		C24	4010157	10nF 10% 50V	
C10	4000330	5.6pF 50V		C25	4000294	0.5pF 50V	
C12	4010132	1nF 10% 50V		C26	4200512	1µF 20% 50V	
C13	4000231	68pF 5% 50V		C27-	4000321	220pF 5% 50V	
C14	4010157	10nF 10% 50V		C29			

• only in types 2604, 2609

L1	6850158	Coil 70nH		L5			
L2	6850157	Coil 115nH		L6	8020632	Coil 0.68µH 20%	
L3	8020577	Coil 2.2µH 10%		L7	8020567	Coil 10.7mH ±3.2µH	
L4-	6850157	Coil 115nH		L8	6850159	Coil 100mH	
P1	7220129	Plug 2/2		P3	7220210	Plug 4/4	
P2	7220212	Plug 3/3					

PCB 18, 8001382
Headphone

C79-	4010105	1nF 10%					
C80		50V					
P26	7220711	Plug 4 pol		P103	7210510	Plug Minijack	

PCB 20, 8001377
Disc detector

IC1	8330235		Optocoupler				
TR2-	8320615	**051**	BC848B				
TR3							

Beolab 2500
PCB 21, 8001266
Transformer

D1-D2	8300428	**209** 1N4007			
C1	4200821	1000µF -20+50% 6.3V			
F1-F2	6600066	T2A 250V	F3	6600109	2.5A 250V
TF1	6609040	2.5A Termo			
P1-P2	7220406	Plug 2 pol			

PCB 22, 8001271
Active crossover network and power amplifier

IC1△ IC2△	8341081 8350069	**150** LM833 **141** Hybrid STK4191	IC3-IC4△	8341022	**150** 4558
TR1	8320755	**051** BC847B	TR9		
TR2	8320752	**051** BC817-40	TR10	8320753	**051** BC856B
TR3	8320497	**020** BC547B	TR11	8320755	**051** BC847B
TR4	8320503	**020** BC557B	TR12	8320615	**051** BC848B
TR5	8320752	**051** BC817-40	TR13	8320616	**051** BC858B
TR7-	8320755	**051** BC847B			
D1-D3	8300482	**250** 4148	D8-D9	8300584	**250** Z15V
D4	8300487	Bridge circuit	D12	8300023	**209** 1N4002
D5-D6	8300023	**209** 1N4002	D13-D17	8300482	**250** 4148
D7	8300482	**250** 4148			
R3	5011575	20kΩ 1% 1/8W	R20		
R16	5021225	10kΩ 1% 1/8W	R64	5020159	100Ω
R19-	5020489	10Ω 10% 0.30W			
C1-C4	4010173	4.7nF 10% 50V	C35		
			C36	4200688	47µF 20% 50V
C5	4200517	2.2µF 20% 50V	C37	4200510	10µF 20% 16V
C6	4200784	22µF 20% 16V	C38	4200525	22µF 20% 10V
C7	4200510	10µF 20% 16V	C39	4200688	47µF 20% 50V
C8	4010170	2.2nF 10% 50V	C41	4200561	10µF 20% 50V
C9-C10	4200799	3300µF 20% 50V	C42	4010216	22nF 10% 100V
			C43-C44	4200561	10µF 20% 50V
C11-C15	4010216	22nF 10% 100V			
			C45-C46	4130234	470nF 10% 63V
C16	4200858	220µF 20% 50V			
C17-C19	4010220	100nF 10% 50V	C47	4010166	100nF -20+80% 50V
			C48-C52	4010176	10nF -20+80% 50V
C20	4010157	10nF 10% 50V			
C21	4010173	4.7nF 10% 50V	C55-C56	4010220	100nF 10% 50V
C22	4010220	100nF 10% 50V			
C23	4000290	22nF 10% 50V	C57	4200486	4.7µF 20% 50V
C24	4010173	4.7nF 10% 50V	C58-C59	4010176	10nF -20+80% 50V
C25	4010220	100nF 10% 50V			
C26	4000345	1nF 5% 50V	C60-C62	4010170	2.2nF 10% 50V
C27	4200525	22µF 20% 10V			
C28	4010170	2.2nF 10% 50V	C63-C64	4010176	10nF -20+80% 50V
C29	4200517	2.2µF 20% 50V			
C30-C31	4130233	220nF 20% 63V	C65	4010166	100nF -20+80% 50V
			C66	4010170	2.2nF 10% 50V
C34-	4130233	220nF 20% 63V	C67	4200561	10µF 20% 50V
P2	7220212	Plug 3 pol	P8	7220185	Plug 3 pol
P3	7220206	Plug 5/4 pol	P9	7220710	Plug 3 pol
P4-P5	7220403	Plug 4 pol	P10	7220279	Plug 2 pol
			P16	7220711	Plug 4 pol
RL1	7600069	Relay 24V			

PCB 23, 8001400
Bass level adjust

P15	7210394	Socket 4 pol

PCB 24, 8001401
Treble level adjust

P14	7210394	Socket 4 pol

Beolab 2500
PCB 21, 8001266
Transformer

D1-D2	8300428	**209**	1N4007				
C1	4200821	1000µF -20+50% 6.3V					
F1-F2	6600066	T2A 250V		F3	6600109	2.5A 250V	
TF1	6609040	2.5A Termo					
P1-P2	7220406	Plug 2 pol					

PCB 22, 8001271
Active crossover network and power amplifier

IC1Δ	8341081	**150**	LM833	IC3-	8341022	**150**	4558
IC2Δ	8350069	**141**	Hybrid STK4191	IC4Δ			
TR1	8320755	**051**	BC847B	TR9			
TR2	8320752	**051**	BC817-40	TR10	8320753	**051**	BC856B
TR3	8320497	**020**	BC547B	TR11	8320755	**051**	BC847B
TR4	8320503	**020**	BC557B	TR12	8320615	**051**	BC848B
TR5	8320752	**051**	BC817-40	TR13	8320616	**051**	BC858B
TR7-	8320755	**051**	BC847B				
D1-D3	8300482	**250**	4148	D8-D9	8300584	**250**	Z15V
D4	8300487		Bridge circuit	D12	8300023	**209**	1N4002
D5-D6	8300023	**209**	1N4002	D13-D17	8300482	**250**	4148
D7	8300482	**250**	4148				
R3	5011575	20kΩ 1% 1/8W		R20			
R16	5021225	10kΩ 1% 1/8W		R64	5020159	100Ω	
R19-	5020489	10Ω 10% 0.30W					
C1-C4	4010173	4.7nF 10% 50V		C35			
C5	4200517	2.2µF 20% 50V		C36	4200688	47µF 20% 50V	
C6	4200784	22µF 20% 16V		C37	4200510	10µF 20% 16V	
C7	4200510	10µF 20% 16V		C38	4200525	22µF 20% 10V	
C8	4010170	2.2nF 10% 50V		C39	4200688	47µF 20% 50V	
C9-	4200799	3300µF 20% 50V		C41	4200561	10µF 20% 50V	
C10				C42	4010216	22nF 10% 100V	
C11-	4010216	22nF 10% 100V		C43-	4200561	10µF 20% 50V	
C15				C44			
C16	4200858	220µF 20% 50V		C45-	4130234	470nF 10% 63V	
C17-	4010220	100nF 10% 50V		C46			
C19				C47	4010166	100nF -20+80% 50V	
C20	4010157	10nF 10% 50V		C48-	4010176	10nF -20+80% 50V	
C21	4010173	4.7nF 10% 50V		C52			
C22	4010220	100nF 10% 50V		C55-	4010220	100nF 10% 50V	
C23	4000290	22nF 10% 50V		C56			
C24	4010173	4.7nF 10% 50V		C57	4200486	4.7µF 20% 50V	
C25	4010220	100nF 10% 50V		C58-	4010176	10nF -20+80% 50V	
C26	4000345	1nF 5% 50V		C59			
C27	4200525	22µF 20% 16V		C60-	4010170	2.2nF 10% 50V	
C28	4010170	2.2nF 10% 50V		C62			
C29	4200517	2.2µF 20% 50V		C63-	4010176	10nF -20+80% 50V	
C30-	4130233	220nF 20% 63V		C64			
C31				C65	4010166	100nF -20+80% 50V	
C34-	4130233	220nF 20% 63V		C66	4010170	2.2nF 10% 50V	
				C67	4200561	10µF 20% 50V	
P2	7220212	Plug 3 pol		P8	7220185	Plug 3 pol	
P3	7220206	Plug 5/4 pol		P9	7220710	Plug 3 pol	
P4-	7220403	Plug 4 pol		P10	7220279	Plug 2 pol	
P5				P16	7220711	Plug 4 pol	
RL1	7600069	Relay 24V					
P13	7210394	Socket 4 pol					
P14	7210394	Socket 4 pol					

PCB 23, 8001400
Bass level adjust

PCB 24, 8001401
Treble level adjust

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PCB 25, 8001402 NTC

R	5220036	330kΩ 10% 1/2W	

PCB 26, 8001403
ON/Standby PCB

TR1	8320755	**051**	BC847B	TR2-TR3	8320753	**051**	BC856B
D1	8330236	**255**	Bicolor				
R15-R17	5011854	2.1kΩ 1% 1/4W					
P19	6276076	Plug pin 3 pol					

Standard Resistors:
Resistors 5% 1/2 W

	x1	x10	x100	x1K	x10K	x100K	x1M	x10M
1.0		5011000	5011013	5011028	5011044	5010313	5011069	5011083
1.2	5011406	5011001	5011014	5011030	5011045	5011058	5010421	
1.5	5010727	5011002	5011015	5011031	5011046	5011059	5011071	
1.8	5010857	5010787	5011016	5011033	5011047		5011072	
2.2	5011335	5010708	5010815	5011034	5011048	5011061	5011074	
2.7	5011612	5010803	5011018	5010055	5011049	5011062	5011075	
3.3	5010255	5011007	5011019	5011037		5011063	5010381	
3.9		5010782	5011021	5010700	5011051		5010392	
4.7	5010765	5011009	5011022	5010035	5010036	5011065	5011078	
5.6		5011010	5011023	5011041		5011066	5011079	
6.8	5010874	5011011	5011024	5011042	5010810	5011067	5011080	
8.2		5011012	5011026	5011043	5010038	5011068	5011081	

Resistors 5% 1/4 W

	x1	x10	x100	x1K	x10K	x100K	x1M	x10M
1.0	5010592	5010506	5010065	5010040	5010059	5010049	5010054	5010638
1.2		5010595	5010128	5010153	5010046	5010047	5010665	
1.5	5011348	5010468	5010037	5010247	5010053	5010063	5010093	
1.8		5010822	5010362	5010066	5010135	5010072	5010701	
2.2	5010682	5010448	5010092	5010064	5010079	5010126	5010245	
2.7	5010925	5010403	5010000	5010298	5010141	5010083	5010431	
3.3		5010253	5010044	5010076	5010075	5010117	5010848	
3.9	5011377	5010622	5010070	5010069	5010060	5010073	5010714	
4.7	5010888	5010411	5010038	5010048	5010045	5010077	5011513	
5.6	5010706	5010151	5010067	5010041	5010061	5010071	5010658	
6.8	5010904	5010039	5010144	5010052	5010062	5010074		
8.2	5010889	5010056	5010058	5010154	5010091	5010505		

Resistors 5% 1/8 W

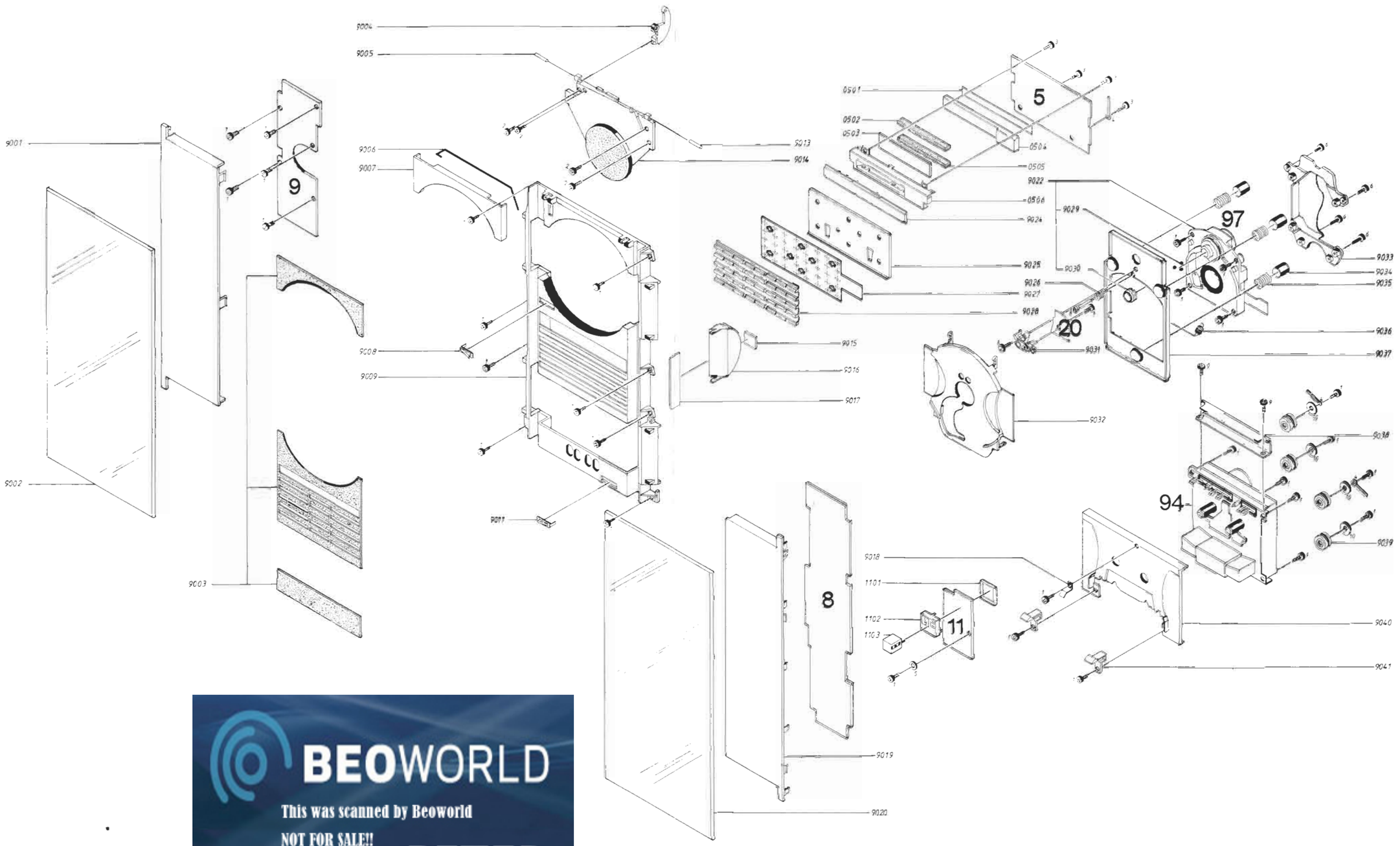
	x1	x10	x100	x1K	x10K	x100K	x1M	x10M
1.0		5011464	5011337	5010816	5010935	5011440	5011459	5020875
1.2		5011351	5011084	5011442	5011338	5011341	5011175	
1.5		5011463	5011443	5011178	5011364	5011398	5011460	
1.8			5011350	5011361	5011344	5011468		
2.2	5011032	5011376	5010886	5011383	5010833	5011369	5011342	
2.7		5011471	5011355	5011362	5011366	5011370	5011478	
3.3		5011347	5011337	5010827	5011346	5011371	5011462	
3.9		5011438	5011817	5011157	5011457	5011372	5020876	
4.7	5011363	5011038	5011441	5011363	5010937	5011343	5011611	
5.6		5011412	5011358	5010885	5011166	5011340		
6.8		5011558	5011336	5010839	5011367	5011458		
8.2		5011466	5011354	5011339	5011368	5011373		

Resistors SMD 2% 1/8 W
SMD 5% 1/8 W

	5%	2%	2%	2%	2%	2%	5%	5%
	x1	x10	x100	x1K	x10K	x100K	x1M	x10M
1.0	5011623	5011647	5011218	5011227	5011241	5011256	5011267	5011730
1.1	5011624	5011648	5011669	5011681	5011689	5011694	5011707	
1.2	5011625	5011649	5011219	5011682	5011490	5011257	5011708	
1.3	5011626	5011650	5011670	5011683	5011242	5011258	5011709	
1.5	5011627	5011651	5011220	5011228	5011243	5011259	5011710	
1.6	5011628	5011652	5011671	5011684	5011690	5011695	5011711	
1.8	5011629	5011653	5011672	5011229	5011244	5011260	5011712	
2.0	5011630	5011654	5011673	5011685	5011691	5011696	5011713	
2.2	5011216	5011655	5011674	5011230	5011245	5011261	5011714	
2.4	5011634	5011656	5011675	5011686	5011246	5011697	5011715	
2.7	5011635	5011657	5011497	5011231	5011247	5011262	5011716	
3.0	5011731	5011658	5011499	5011500	5011692	5011698	5011717	
3.3	5011217	5011659	5011676	5011232	5011248	5011263	5011718	
3.6	5011636	5011660	5011677	5011687	5011249	5011264	5011719	
3.9	5011637	5011661	5011221	5011233	5011491	5011699	5011720	
4.3	5011638	5011662	5011498	5011688	5011492	5011700	5011721	
4.7	5011639	5011269	5011222	5011234	5011250	5011265	5011722	
5.1	5011640	5011663	5011678	5011235	5011493	5011701	5011723	
5.6	5011641	5011664	5011223	5011236	5011251	5011702	5011724	
6.2	5011642	5011665	5011224	5011237	5011693	5011703	5011725	
6.8	5011643	5011666	5011225	5011238	5011252	5011704	5011726	
7.5	5011644	5011667	5011679	5011239	5011253	5011705	5011727	
8.2	5011645	5011270	5011226	5011240	5011254	5011266	5011728	
9.1	5011646	5011668	5011680	5011489	5011255	5011706	5011729	

(Glue dots, approx. 200, part no. 3181932).

LIST OF MECHANICAL PARTS
Front



Front

05 modul	8001309	Display
0501	8001383	Backlight
0502	7500272	Contact rubber
0503	8330259	Contrast screen
0504	3131365	Housing with tape
0505	2574078	Rubber support
0506	3151256	Holder

08 modul	8005275	CD
	8001384	Connector PCB

09 modul	8001322	Light and motor control

11 modul	8001320	Right door Sensor
1101	3300125	Screen, inner
1102	3300126	Screen, outer
1103	3304135	Shielded box

9001	3162320	Cover, left	9022	8420172	CD mechanism
9002	3162330	Glass, left	9024	3322135	Window
9003	3904111	Alu foil with tape	9025	2572045	Spacer
9004	3017028	Wheel	9026	2812128	Spring
9005	2830111	Cylinder pin	9027	7500270	Contact spring
9006	2819251	Spring	9028	2776192	Set of buttons
9007	3164877	Cover	9029	2917025	Ball
9008	2816257	Ground spring	9030	2311036	Clip
9009	3451185	Front piece with alu foil	9031	3152764	Holder
			9032	3162338	Cover
9011	2816257	Ground spring	9033	3300121	Screen
9013	2830111	Cylinder pin	9034	3333017	Rubber damping
9014	3152726	Clamper	9035	2812132	Compression spring
9015	8230100	Print with lamp			
9016	3131356	Light cabinet	9036	2810254	Tension spring
	8230100	Lamp, sidelight	9037	3112332	Chassis
9017	3322145	Window	9038	3162342	Cover
9018	2816256	Spring	9039	2938277	Bushing
9019	3162319	Cover, right	9040	3162337	Cover
9020	3162331	Glass, right	9041	2816255	Spring

94	8422070	Tape mechanism
	8422085	Tape mechanism, New version

97	8420172	CD mechanism

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4-2

4-3

Chassis

01 modul	8001413	FM/AM	0101	3302504	Screen
	8001415	FM/AM, type 2609	0102	3170293	Insulation piece
02 modul	8001289	Power Supply		7210689	Socket 8 pin
	8001378	LF 28 V		7210418	Socket 7 pin
	8001379	LF 15 V		7219087	2 pin
	8001385	Power link		7210851	Socket FM
0201	3152725	Holder	02T1	8013457	Transformer
	6276296	Socket, aerial			
03 modul	8001287	Microcomputer	0303	2938281	Bushing
0301	3162328	Lid, small	0304	3322130	Frame
0302	3162327	Lid, large	0305	2641140	Spacer
06 modul	8001288	IR Transceiver and left door Sensor	0602	3300123	Screen, outer
			0603	3304135	Shielded box
0601	3300124	Screen, inner	0604	3300129	Screen
07 modul	8004913	Tape	0701	3302500	Screen
	8001385	Tape potentiometer	0702	3170295	Insulation piece
			0703	3302513	Screen
10 modul	8001351	Radio data system			
29 modul	8001781	RDS, New version			
17 modul	8050111	Tuner			
	8050112	Tuner, type 2604, 2609			
	3302396	Lid			
18 modul	8001382	Headphone			
	7210510	Socket			
20 modul	8001377	Disc detector			

9101	3151277	Holder	9134	2854153	Arm
9102	2722055	Belt pulley	9135	2819255	Spring
9103	2938237	Bushing	9136	3151291	Holder
9104	2930074	Spacer	9137	3010033	Stop for transport screw
9105	3031314	Fitting			
9106	3015167	Guide	9138	3152747	Holder
9107	3114369	Chassis	9139	3103303	Foot
9108	3152732	Holder		2576264	Clips f. angle adjustment
9109	3152735	Holder			
9110	2642030	Clamp	9140	2311029	Clip
9111	3152732	Holder	9141	2560250	Rail
9112	3322141	Window	9142	2722055	Pulley
9113	3151276	Holder	9143	2548246	Bracket
9114	2938237	Bushing	9144	2391086	Locking piece
9115	2732092	Belt	9145	2391087	Locking piece
9116	2831071	Shaft	9146	3152727	Holder
9117	2722053	Belt pulley	9147	3358279	Heat sink
9118	2390001	Lock washer	9148	3955042	Cord
9119	2700093	Gear wheel	9149	2810133	Tension spring
9120	2724087	Cord pulley	9150	2810155	Spring
9121	2815029	Ground spring	9151	2930074	Bushing
9122	2815032	Leaf spring	9152	7400322	Switch 1 pin
9123	7400322	Switch 1 pin	9153	2311030	Clip
9124	3035062	Slide shoe	9154	2391086	Locking piece
9125	2819254	Spring	9155	2391087	Locking piece
9126	2831070	Shaft	9156	3152727	Holder
9127	2700092	Gear wheel	9157	3035060	Slide shoe
9128	2390001	Lock washer	9158	3358275	Heat sink
9129	2732076	Belt	9159	3030116	Hinge
9130	2722054	Belt pulley	9160	3030117	Hinge
9131	2905128	Bearing	9161	3152730	Holder
9132	2700094	Gear wheel	9162	3358274	Heat sink
9133	2930108	Bushing	9163	3030120	Hinge
9164	3124121	Mounting plate	9169	3152757	Holder
9165	2548247	Bracket	9170	2777052	Handle, right
9166	3013083	Guide rail	9171	3130550	Rear cover
9167	3013084	Guide rail	9172	2777053	Handle, left
9168	2548245	Bracket	9173	3300120	Screen
91M1	8400190	Motor			
91M2	8400189	Motor			

Survey of screws and washers

1	2013118	Screw 3,0x8	12	2834109	Shaft
2	2036036	Screw 2,5x4	13	2389065	Nut
3	2039033	Screw 3x6	14	2036066	Screw 2,5x2,5
4	7530119	Solder tag	15	2011050	Screw 3x8
5	2622052	Washer 3,2x8x1	16	2364060	Rivet
6	2039069	Screw 3x8	17	2724078	Cord pulley
7	2011032	Screw 2,5x6	18	2039062	Screw 3x5
8	2038127	Screw transport protection	19	2038116	Screw 3x20
			20	2038130	Screw 3x25
9	2039006	Screw 3x5	21	2038129	Screw 3x10
10	2622247	Washer 3,2x10,2x1	22	2039034	Screw 3x12
11	2036016	Screw 2,6x6			

Parts not shown

3392405	Outer carton	3501369	User's guide, NL
3397824	Foam packing	3501370	User's guide, F
3946038	Foil	3501371	User's guide, I
3164900	Cable cover	3501372	User's guide, E
2042240	Screw, 4 x 10	3502943	Setting-up guide, DK
6100216	Mains cable, 510mm	3502944	Setting-up guide, S
6100231	Mains cable, 705mm	3502945	Setting-up guide, SF
6270494	Signal cable, 520mm	3502946	Setting-up guide, GB
6270531	Signal cable, 585mm	3502947	Setting-up guide, D
6100245	Mains cable, 2,5A	3502948	Setting-up guide, NL
6100328	Mains cable, UK		
6100311	Mains cable, type 2703, 2708	3502949	Setting-up guide, F
		3502950	Setting-up guide, I
3501364	User's guide, DK	3502951	Setting-up guide, E
3501365	User's guide, S	3502812	Setting-up guide, USA
3501366	User's guide, SF		
3501367	User's guide, GB	3502813	Setting-up guide, CDN
3501368	User's guide, D		

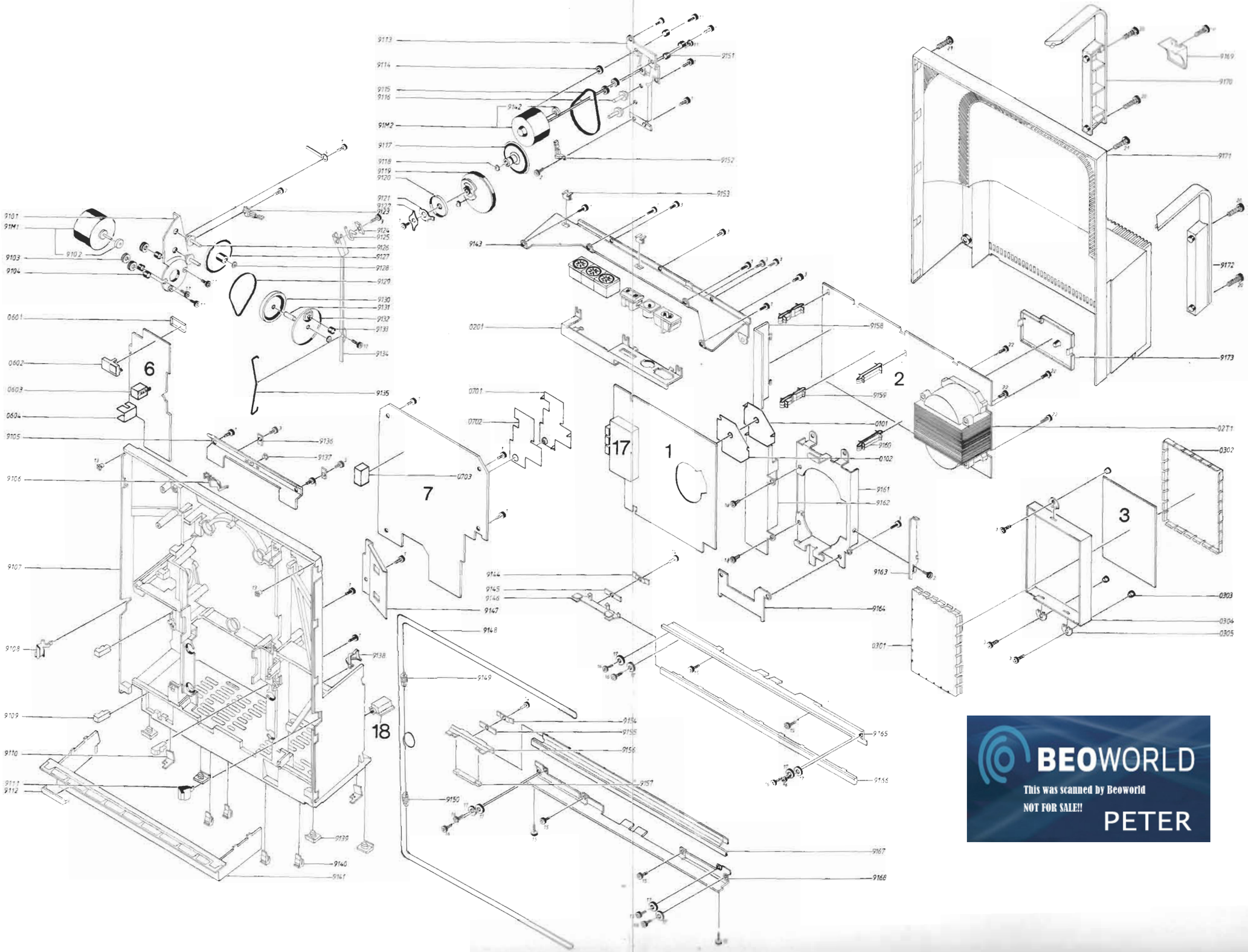
Wall bracket 1208726

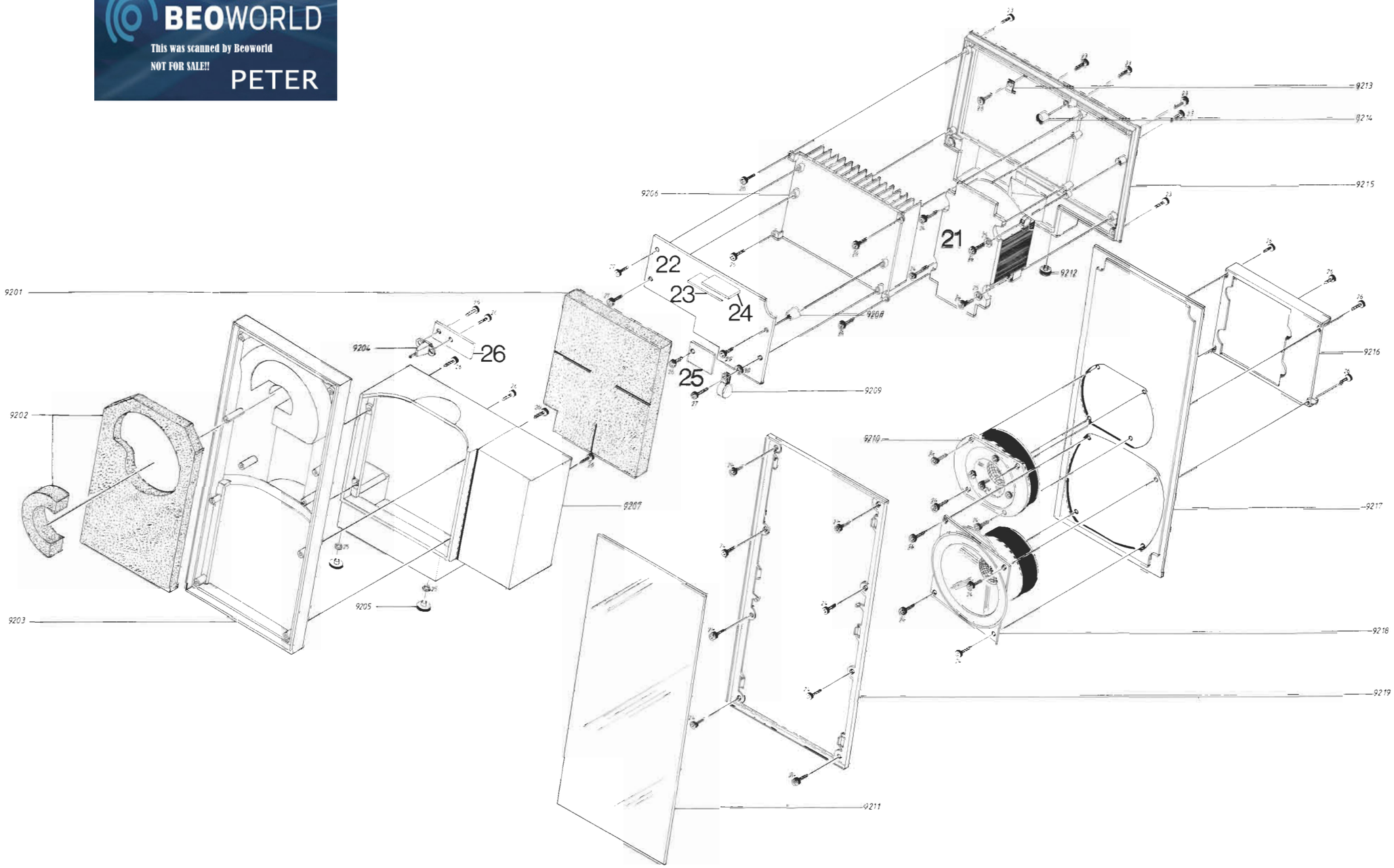
3392185	Outer carton	3390341	Screws assortment
3397774	Pycofoam	3390432	Wire holder assortment
3152790	Holder for antenna		
3031319	Wall plate		

Survey of wire bundles

6276291	Tape PCB	6276388	Main wire bundle
6276296	AM socket		2P11 - 8P67
6276386	Tape head		2P16 - 7P56
6276401	Transmission diode, right		2P15 - 8P65
			2P12 - 8P66
6276402	Transmission diode, left		2P17 - 5P41
			2P19 - 7P53
6276403	Reception diode, right		2P18 - 6P49
			2P25 - HTLFP26
6276404	Reception diode, left		2P22 - 7P55
			2P24 - MotP76
6276517	Switch (motor), CD motor, Disc detector, Micro switch, motor for lid		3P36 - 5P41
			3P29 - 7P54
			3P32 - 6P46
			3P30 - 8P68
			3P27 - MotP77
6276369	Wire bundle for back cover		IRLP48 - 6P82
			MotP80 - 5P46
	2P20 - 3P28		
	2P13 - 1P05		
	2P23 - 3P33		
	2P21 - 1P07		
	2P14 - 1P03		
	3P31 - 1P06		

Chassis





Beolab 2500

21 modul	8001266	PCB transformer
22 modul	8001271	Active Crossover network and power amplifier
23 modul	8001400	Bass level adjustment
24 modul	8001401	Treble level adjustment
25 modul	8001402	NTC
26 modul	8001403	ON/Standby PCB

9201	3922054	Felt piece	9212	3103317	Foot
9202	3922053	Felt piece	9213	2530540	Fitting
9203	3451206	Front part	9214	2938285	Bushing
9204	3152738	Holder	9215	3452643	Rear plate, left
9205	3103327	Foot, adjustable		3452645	Rear plate, right
9206	3458734	Heat sink	9216	3031324	Fitting
9207	3430568	Rear part, left	9217	3440117	Baffle, right
	3430569	Rear part, right		3440119	Baffle, left
9208	2576263	PCB holder	9218	8480226	Loudspeaker, 8Ω
9209	3152214	Cable holder	9219	3451070	Ornamental frame
9210	8480227	Loudspeaker, 16Ω			
9211	1603673	Cloth frame, jade			
	1603674	Cloth frame, cerise			
	1603675	Cloth frame, white			
	1603676	Cloth frame, black			
	1603678	Cloth frame, cobalt			
	1603679	Cloth frame, grey			
	1603641	Cloth frame, silver			
	1603642	Cloth frame, cream			
	1603643	Cloth frame, green			
	1603644	Cloth frame, red			
	1603646	Cloth frame, black			
	1603648	Cloth frame, blue			

Survey of screws and washers

23	2015124	Screw 3,5x25	27	2013144	Screw 3x8
24	2015139	Screw 3,5x16	28	2011050	Screw 3,0x8
25	2389098	Nut	29	2011056	Screw 3x16
26	2015142	Screw 3,5x10	30	2624013	Washer

Parts not shown

3392222	Outer carton	3340092	Set of packing, powerlink
3397825	Foam packing	3340093	Set of packing, cabinet
6100246	1,5m mains cable, USA	3340095	Set of packing, treble
3947350	Tape	3340096	Set of packing, rear right
3947344	Foam tightening		
3340088	Set of packing, rear left		
3340090	Set of packing, mains plug		
3340091	Set of packing, mains plug		

Survey of wire bundles

6276277	Loudspeaker
6276443	Mains plug, male
6276444	Mains plug, female
6276293	8 pol DIN
6200044	Ribbon cable
6276294	22P8-Transformer
6100328	Main cable, type 6202
6276747	Wire bundle f. trafo right
6276745	Wire bundle f. trafo left

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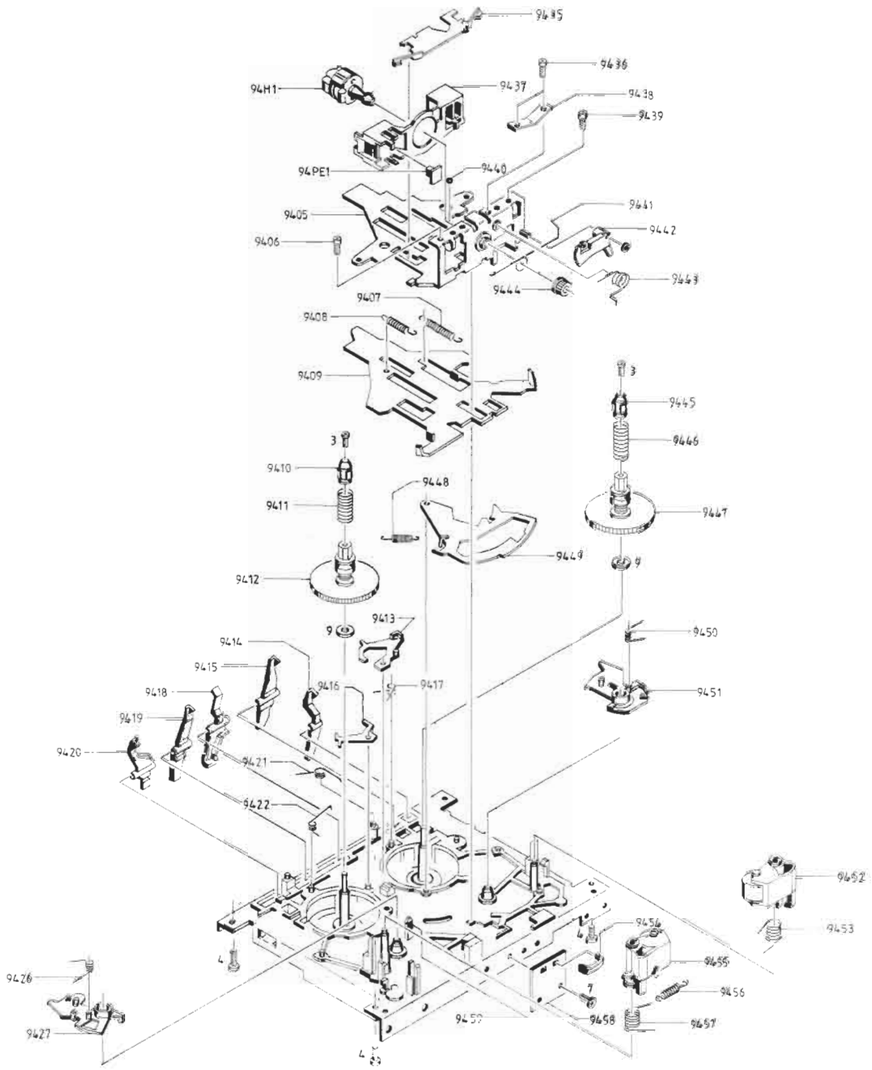

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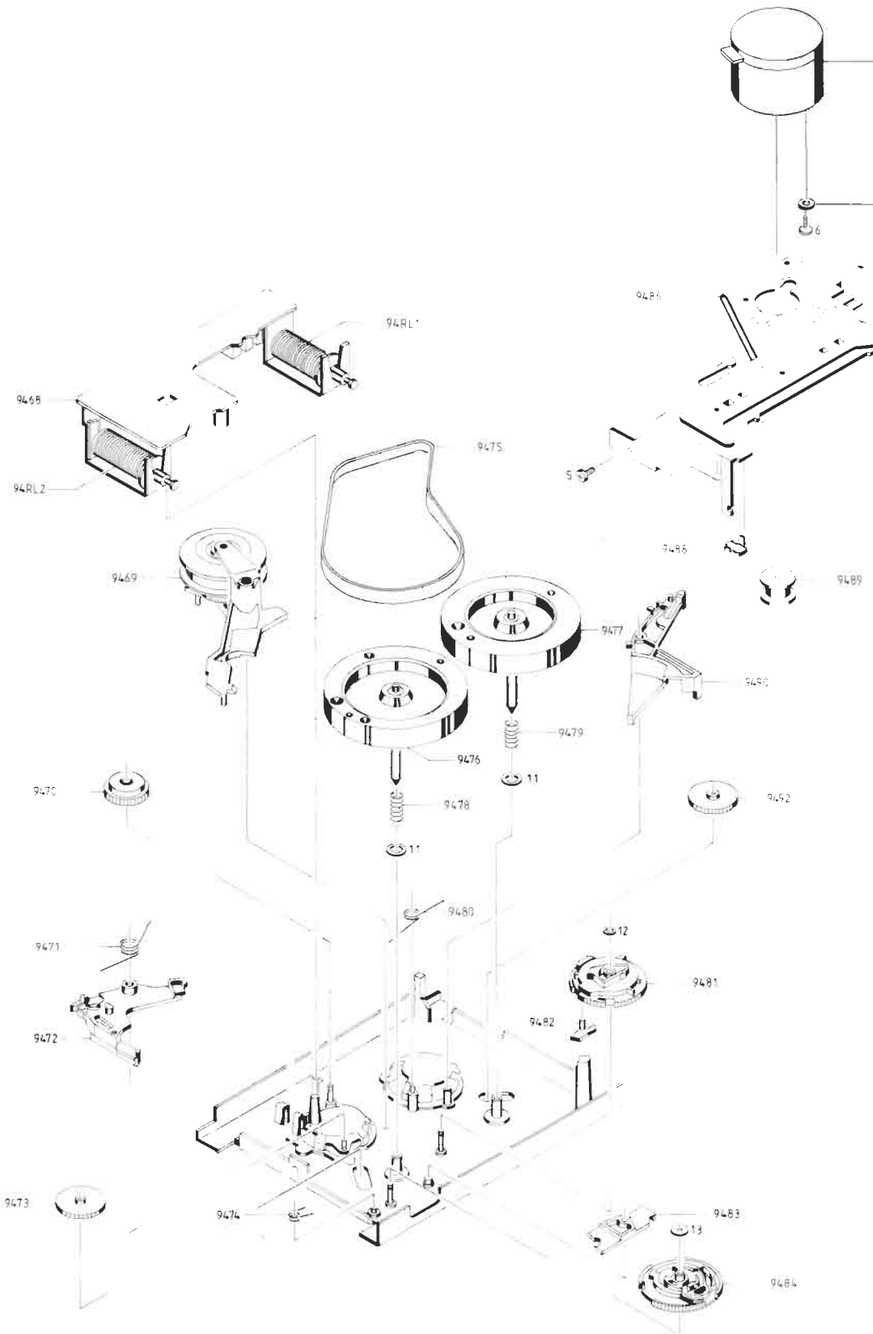
Tape deck

94modul	8422070	Tape deck	9436	2037002	Screw, azimuth adj.
	8422085	Tape deck, New version	9437	3131364	Housing, tape head assembly
9405	3112372	Slide, tape head assembly	9438	2816262	Spring, azimuth adj.
9406	2037001	Screw, heigt adj.	9439	2037001	Screw, height adj.
9407	2810257	Spring, tape head assembly	9440	2917027	Ball
			9441	2818102	Locking spring
9408	2810255	Spring, slide plate	9442	2851225	Gear arm
9409	3014089	Slide plate	9443	2818103	Spring f. gear arm
9410	3164872	Cap, turntable	9444	2700000	Gear, tape head
9411	2812135	Spring, turntable	9445	3164873	Cap, turntable
9412	2776165	Turntable	9446	2812136	Spring, turntable
9413	2851224	Arm, brake F.	9447	2726165	Turntable
9414	2851223	Arm, record 2 sensor	9448	2810258	Spring f. arm, tape direction
9415	2851222	Arm, Cr sensor	9449	2851226	Arm, tape direction
9416	2851218	Arm, brake R.			
9417	2818101	Spring, brake F	9450	2818104	Spring, arm F.
9418	2851221	Arm, cassette sensor	9451	2851227	Arm, play F.
			9452	2794146	Thrust roller F.
9419	2851220	Arm, metal sensor	9453	2818105	Spring, thurst roller F.
9420	2851219	Arm, record 1 sensor	9454	2311637	Wire holder
9421	2818100	Spring f. switch	9455	2794149	Thrust roller R.
9422	2818099	Spring, brake R	9456	2810257	Spring, thrust roller R.
9426	2818098	Spring, arm play R			
9427	2851217	Arm, play R.	9457	2818106	Spring, thrust roller R.
9428	3112371	Chassis			
9435	2816261	Spring, tape head assembly	9458	6141575	PCB for tape head
			9459	3634041	Mirror f. PE1

94 H1	8600115	Tape head w. wires
	6276498	Set of wires from tape head to tape head PCB
	6276435	Wire with P4 for tape head

94PE1	8004902	Opto Coupler

Tape deck



Tape deck

9468	8004901	PCB for tape mechanism	9479	2812137	Spring, flywheel
9469	2851233	Cluth, fast foreward rewind	9480	2818109	Spring
9470	2700104	Wheel, autostop	9481	2700102	Cam wheel
9471	2818108	Spring	9482	2851231	Arm
9472	2851228	Arm	9483	2851232	Arm, pause
9473	2700100	Gear wheel	9484	2700103	Cam, wheel
9474	2818107	Spring, cam wheel	9486	3112373	Chassis, flywheels
9475	2732101	Belt	9488	2905131	Bearing, flywheels
9476	2794147	Flywheel, right	9489	2722061	Pulley
9477	2794148	Flywheel, left	9490	2851230	Arm
9478	2812137	Spring, flywheel	9492	2700100	Gear wheel
			9494	2932133	Rubber bushing
				2932134	Gummi dæmper

94S1/4/5	7400411	Switch
94S2/3	7400412	Switch

94RL1	8020898	Solenoid, play
94RL2	8020899	Solenoid, « »

94M1	8400188	Motor

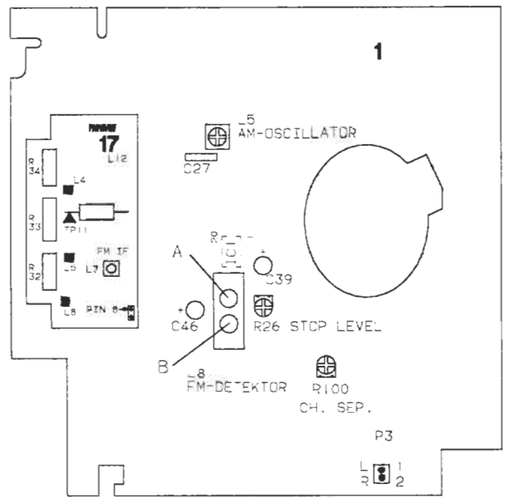
Survey of screws and washers

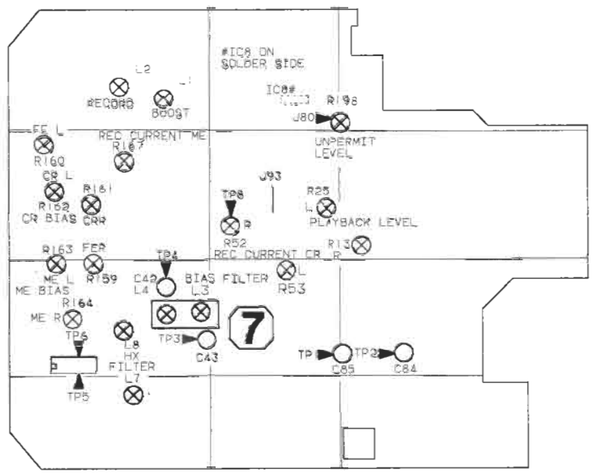
3	2036073	Screw 2.1 x 4
4	2013144	Screw 3 x 8
5	2036074	Screw 2.6 x 4
6	2036076	Screw f. motor
7	2036072	Screw 2 x 4
9	2390113	Washer
10	2390111	Washer
11	2390112	Washer
12	2390109	Washer
13	2390110	Washer

5-1

JUSTERINGER

ADJUSTMENTS





HF-JUSTERINGER
Bemærk! Foretag HF-justeringer i testmode, for at lette betjeningen af apparatet.

TESTMODE: Se afsnit 7. I testmode kan modtageren skifte mellem de frekvenser, der benyttes ved justering. Benyt følgende tabel til at vælge frekvenser.

Tryk:	**Frekvens:**
30	150 kHz AM
31	87,5 MHz FM
32	88,0 MHz FM
33	108,0 MHz FM

FM (Type 2604, 2609)

Tryk:	**Frekvens:**
34	76,0 MHz FM
35	88,0 MHz FM
36	90,0 MHz FM

AM JUSTERING
Oscillator MW
Der må ikke tilføres signal.

Tilslut DC-voltmeter over 1C27.

Indstil apparat til 150 kHz (520 kHz).

Juster 1L5 til spændingen over 1C27 er 2 V ±0,25V (4 V ±0,25 V).

FM JUSTERING
Udskiftning af FM-tuner
Ved udskiftning af FM-tuner er det kun nødvendigt at justere MF-spolen 17L7.

MF
Slut et oscilloskop til ben 8 på 1IC1.

Slut en sweepgenerator til antenneindgangen og indstil til 87,5 MHz.
Tryk 31 (87,5 MHz).

Juster 17L7 til max. og symmetrisk MF-kurve.

TUNERJUSTERINGER
(Kun hvis tuneren er fejljusteret)

Oscillator
Der skal ikke tilføres signal.

Tilslut et DC-voltmeter mellem 17TP11 og ben 8 på tuneren.

Tryk 31 (87,5 MHz) og justér 17L8 til 0V.

RF ADJUSTMENTS
Note: Carry out RF adjustments in testmode in order to ease the operation of the product.

TESTMODE: See chapter 7. In testmode the receiver may switch between the frequencies used for adjustment. Use the following list to chose frequencies:

Press:	**Frequency:**
30	150 kHz AM
31	87.5 MHz FM
32	88.0 MHz FM
33	108.0 MHz FM

FM (type 2604, 2609)

Press:	**Frequency:**
34	76.0 MHz FM
35	88.0 MHz FM
36	90.0 MHz FM

AM ADJUSTMENT
Oscillator MW
Do not feed any signal.

Connect DC votmeter across 1C27.

Adjust product to 150 kHz (520 kHz).

Adjust 1L5 until the voltage across 1C27 is 2 V ±0.25 V (4 V ±0.25V).

FM ADJUSTMENT
Replacement of FM tuner
When replacing af FM tuner, it is only necessary to adjust the IF coil 17L7.

IF
Connect an oscilloscope to pin 8 of 1IC1.

Connect a sweep generator to the aerial input and adjust to 87.5 MHz.
Press 31 (87.5 MHz).

Adjust 17L7 to max. and symmetrical IF curve.

TUNER ADJUSTMENT
(only if turner is incorrectly adjusted)

Oscillator
Do not feed any signal.

Connect a DC voltmeter between 17TP11 and pin 8 on the tuner.

Press 31 (87.5 MHz) and adjust 17L8 to 0 V.

HF 87,5 MHz
Slut et oscilloskop til ben 8 på 1IC1.

Slut en sweepgenerator til antenneindgangen og indstil til 87,5 MHz.

Tryk 31 (87,5 MHz).

Juster 17L2, 17L4, 17L5 og 17L7 til max. og symmetrisk MF-kurve.

HF 108 MHz
Tryk 33 (108 MHz).

Sweepgeneratorens frekvens ændres til 108 MHz, og 17R32, 17R33 og 17R34 justeres til max.

Detektor
Slut et oscilloskop til ben 8 på 1IC1.

Tilslut et DC-voltmeter mellem plus på 1C39 og plus på 1C46.

Slut en målesender til antenneindgangen og indstil til 98 MHz, 50dBµV (300µV EMF), ±75 kHz, 1 kHz modulation.

Indstil radioen på 98 MHz.

Finindstil målesenderens frekvens til min. forvrængning (2. harmonisk) i signalet, som vist på kurven.

RF 87.5 MHz
Connect an oscilloscope to pin 8 of 1IC1.

Connect a sweep generator to the aerial input and adjust to 87.5 MHz.

Press 31 (87.5 MHz).

Adjust 17L2, 17L4, 17L5 and 17L7 to max. and symmetrical IF curve.

RF 108 MHz
Press 33 (108 MHz).

Change the frequency of the sweep generator to 108 MHz and adjust 17R32, 17R33 and 17R34 to max.

Detector
Connect an oscilloscope to pin 8 of 1IC1.

Connect a DC voltmeter between plus op 1C39 and plus of 1C46.

Connect a signal generator to the aerial input and adjust it to 98 MHz, 50 dBµV (300 µV EMF), ±75 kHz, 1kHz modulation.

Adjust the radio to 98 MHz.

Fine-tune the frequency of the signal generator to min. distortion (2nd harmonic) of the signal, as shown on the curve.

RIGTIG  CORRECT

FORKERT  INCORRECT

Juster 1L8A til 0 V ±50 mV. Ved justering af 1L8 må der ikke anvendes metalværktøj.

Skru 1L8B op, så kernen flugter med dåsen.

Slut et oscilloskop til LF-udgangen (højre eller venstre HT-stik).

Juster 1L8B nedad til der 1. gang er minimum harmonisk forvrængning på LF-udgangen.

Finjuster 1L8A og 1L8B.

Indstil FM-displayindikering efter detektorjustering (se afsnit 7).

Adjust 1L8A to 0 V ±50 mV. Do not use metal tools when adjusting 1L8.

Turn up 1L8B until the core is flush with the box.

Connect an oscilloscope to the AF output (right- or lefthand loudspeaker socket).

Adjust 1L8B downwards until there is minimum harmonic distortion on the AF output first time.

Fine-tune 1L8A and 1L8B.

Adjust FM display indication after detector adjustment (see chapter 7).

Kanalseparation

Slut en stereokoder (encoder) til antenneindgangen og indstilles til 88 MHz 60dBµV, 1 kHz modulation i den ene kanal og umoduleret signal i den anden kanal.

Slut et LF-voltmeter til den umodulerede kanal – 1P3-2 (højre) eller 1P3-1 (venstre).

Tryk 32 (88 MHz).

Juster 1R100 til min. signal i den umodulerede kanal.

Slut LF-voltmeteret til den anden kanal, og indstil her stereokoderen til umoduleret signal.

Kontroller om der er symmetrisk kanalseparation, hvis ikke, juster indtil dette opnås.

FM stopniveau

Slut en målesender til antenneindgangen og indstil til 88 MHz, 10µV EMF, ±75 kHz.

Slut DC-voltmeter til ben 16 på 1IC1.

Kortslut basic på 1TR6 til stel (se SMD-komponentplaceringtegning).

Drej 1R26 mod uret til stop.

Drej 1R26 med uret til ben 16 på 1IC1 skifter fra høj til lav.

Fjern kortslutningen på basic af 1TR6.

Display, PCB5

Kontrastjustering

Sæt PCB5 i serviceposition.

Tast RADIO

Juster med 5R56 (SMD) til max. kontrast i displayet. Skru ned for kontrasten indtil lyset netop forsvinder i de lyssegmenter, der er uvedkommende for den aktuelle tekst i displayet.

Channel separation

Connect a stereo decoder (encoder) to the aerial input and adjust to 88 MHz 60 dBµV, 1kHz modulatin in one channel and unmodulated signal in the other.

Connect an AF voltmeter to the unmodulated channel – 1P3-2 (right) og 1P3-1 (left).

Press 32 (88 MHz).

Adjust 1R100 to min. signal in the unmodulated channel.

Connect the AF voltmeter to the other channel and set the stereo coder to the unmodulated signal.

Check whether there is symmetrical channel separation. If not adjust until this is achieved.

FM stop level

Connect a signal generator to the aerial input and adjust to 88 MHz, 10 µV EMF, ±75 kHz.

Connect a DC voltmeter to pin 16 of 1IC1.

Short-circuit base of 1TR6 to ground (see SMD component placement)

Turn 1R26 anticlockwise to stop.

Turn 1R26 clockwise until pin 16 of 1IC1 changes from high to low.

Remove the short-circuit on the base of 1TR6.

Display, PCB5

Contrast adjustment

Bring PCB5 into service position.

Press RADIO

Adjust to maximum contrast in the display by means of 5R56 (SMD).
Reduce the contrast until the light just disappears in those light segments which are not relevant to the text currently being displayed.

MEKANISKE JUSTERINGER, BÅNDOPTAGER

Højde og azimuth

For at opnå korrekt højdejustering skal højdeværktøj bestillingsnr. 3624026 benyttes.

En tilnærmet justering kan opnås med en spejlkassette.

Ilæg justerværktøj 1 og 2.

Tryk TAPE. Løbeværket kan nu køre uden bånd, uden det går i autostop.

MECHANICAL ADJUSTMENTS, TAPE RECORDER

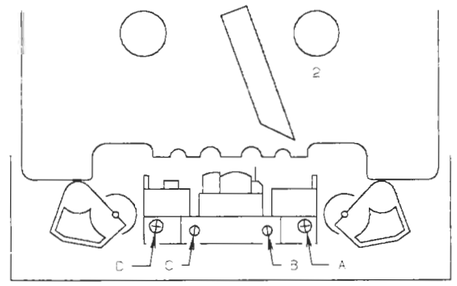
Height and azimuth

To obtain correct height adjustment, height adjustment tool part no. 3624026 must be used.

Approximate adjustment can be obbtained using a mirror cassette.

Insert adjustment tools 1 and 2.

Press TAPE. The tape transport mechanisme can now run without a tape without going into autostop.



Højde båndstyr

Juster henholdsvis A og D sådan at justerværktøj 1 kan skubbes ind i båndstyrene.

Azimuth side 1

Ilæg azimuth bånd bestillingsnr. 6780036.

De to Y indgange på et oscilloskop tilsluttes højre og venstre AUX udgang.

Tryk PLAY, og skruen C justeres til de 2 kurver på oscilloskopet er i medfase ved max. amplitude.

Azimuth side 2

Tryk TURN.

Justeringen gøres som azimuth side 1, blot justeres der med skruen B.

Height, tape guide

Adjust A and D so that adjustment tool 1 can be pushed into the tape guides.

Azimuth side 1

Load azimuth tape part no. 6780036.

Connect the two Y inputs on an oscilloscope to right and left AUX outputs.

Press PLAY and adjust screw C until the 2 curves on the oscilloscope are in phase at maximum amplitude.

Azimuth side 2

Press TURN.

Adjustment as for azimuth side 1 but using screw B.

ELEKTRISKE JUSTERINGER, BÅNDOPTAGER

Angivelserne er for højre kanal, angivelserne i parentes er for venstre kanal.

Foretag elektriske justeringer uden DOLBY NR.

Normbånd benyttet til justering:

CrO_2 TDK AP512	bestillingsnr. 6780066
Fe_2O_3 BASF R723 DG	bestillingsnr. 6780067
METAL AP 712	bestillingsnr. 6780101

Hastighed

Ilæg wow bånd bestillingsnr. 6780037. (Justeringen skal foretages midt på båndet).

ELECTRICAL ADJUSTMENTS, TAPE RECORDER

The specifications are for the righthand channel (the specifications in brackets are for the lefthand channel).

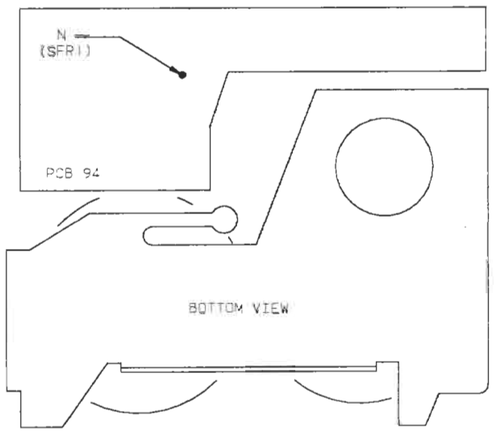
Carry out the electrical adjustments without DOLBY NR.

Level tapes used for the adjustment:

CrO_2 TDK AP512	part no. 6780066
Fe_2O_3 BASF R723 DG	part no. 6780067
METAL AP 712	part no. 6780101

Speed

Load wow tape part no. 6780037. (The adjustment should be made in a mid-tape position).



Tilslut wow meter med driftmeter til amplifier stikket.

Tryk PLAY, måleresultatet aflæses og noteres.

Tryk TURN, og den anden side af båndet afspilles, måleresultatet aflæses og noteres.

Middelværdien af de to tal udregnes.

Hvis måleresultaterne er negative, lægges middelværdien til det højeste af de to tal, og potentiometeret SFR1 på printet under løbeværket justeres til det udregnede resultat. SFR1 er tilgængelig gennem hullet N i printet på løbeværket.

Hvis måleresultaterne er positive, trækkes middelværdien fra det højeste af de to tal, og potentiometeret SFR1 på printet under løbeværket justeres til det udregnede resultat.

Connect wow meter with drift meter to the amplifier point.

Press PLAY, read off and note down reading.

Press TURN and play other side of tape, read off and note down reading.

Calculate the mean of the two figures.

If the values obtained are negative, add the mean value to the higher of the two figures. Adjust potentiometer SFR1 on the PCB under the tape transport mechanism to the value calculated. SFR1 is accessible through the hole N in the PCB on the tape transport mechanism.

If the values obtained are positive, subtract the mean value from the higher of the two figures. Adjust potentiomenter SFR1 on the PCB under the tape transport mechanism to the value calculated.

Afspilningsniveau

Nedenfor er beskrevet justering af afspilningsniveau med anvendelse af to alternative typer normbånd:

1. DIN-standard, 250 pWb/mm.
2. Dolby level, 200 pWb/mm.

1. Ilæg Pegel-bånd 6780035.

   Slut LF-voltmeter til 7TP2 (7TP1).

   Juster 7R13 (7R25), til der måles 660 mV i 7TP2 (7TP1).

2. Ilæg Dolby level kalibreringsbånd MTT-150 A.

   Slut LF-voltmeter til 7TP2 (7TP1).

   Juster 7R13 (7R25), til der måles 580 mV i 7TP2 (7TP1).

TESTMODEJUSTERING

Den automatiske optagekontrol i apparatet skal sættes ud af funktion, mens apparatet justeres. Det kan gøres i testmode.

Forbind apparatet til lysnettet.

Tryk AUX RECORD

Kortslut clamper-kontakten i 2-3 sekunder.

Playback level

The playback adjustment described below has been carried out using two alternative types of level tapes:

1. DIN-standard, 250 pWb/mm.
2. Dolby level, 200 pWb/mm.

1. Load level tape 6780035.

   Connect an AF voltmeter to 7TP2 (7TP1).

   Adjust 7R13 (7R25) until a reading of 660 mV is obtained in 7TP2 (7TP1).

2. Load Dolby level calibration tape MTT-150 A.

   Connect an AF voltmeter to 7TP2 (7TP1).

   Adjust 7R13 (7R25) until a reading of 580 mV is obtained in 7TP2 (7TP1).

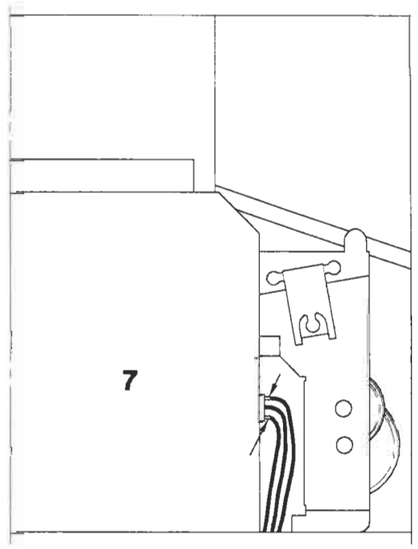
TESTMODE ADJUSTMENT

Disengage the automatic recording control while adjusting the product. This can be done in testmode.

Connect the product to the mains.

Press AUX RECORD

Short-circuit the clamper switch for 2-3 seconds.



Display skal nu vise TESTMODE/AUX.

Tast 20 på tastaturet (automatisk rec. level off).

Tast 22 på tastaturet (DOLBY NR. off).

Tryk ⏺

Tryk AUX RECORD

Slut tonegenerator til AUX indgangen.

Apparatet er nu klar til justering.

Tag netstikket ud for at resette apparatet efter justeringerne.

Optagehæv
Foretag denne justering i testmode (udfør punktet TESTMODEJUSTERING).

Indstil tonegenerator til 333 Hz og 400 mV.

Ilæg Cr-bånd.

Slut LF-voltmeter til 7TP8 (7TP7).

Reguler tonegeneratorens udgangsniveau, til der måles 1 V.

Tonegeneratorens udgangsniveau dæmpes 20 dB, og frekvensen ændres til 18 kHz.

Juster 7L1 (7L2), til der måles 760 mV.

HX-filter
Foretag denne justering i testmode (udfør punktet TESTMODEJUSTERING).

Slut DC-voltmeter til 7TP6 (7TP5).

Ilæg Cr-bånd.

Juster 7L8 (7L7) til min. DC-spænding.

Biasfilter
Foretag denne justering i testmode (udfør punktet TESTMODEJUSTERING).

Slut LF-voltmeter til 7TP4 (7TP3).

Ilæg Cr-bånd.

Juster 7L4 (7L3) til min. spænding i 7TP4 (7TP3).

Cr-bias
Foretag denne justering i testmode (udfør punktet TESTMODEJUSTERING).

Ilæg CrO_2 norm-bånd 6780066.

Indstil tonegenerator til 333 Hz og 20 mV.

Slut LF-voltmeter til 7TP2 (7TP1).

Indstil tonegeneratoren, til der måles ca. 30 mV.

TESTMODE/AUX must be displayed.

Press 20 on the keyboard (Automatic rec. level off).

Press 22 on the keyboard (DOLBY NR. off).

Press ⏺

Press AUX RECORD

Connect tone generator to the AUX input.

The product is now ready for adjustment.

When the adjustment has been carried out remove the mains plug in order to reset the product.

Recording boost
Carry out this adjustment in testmode (carry out TESTMODE ADJUSTMENT).

Set the tone generator to 333 Hz and 400 mV.

Load Cr tape.

Connect af AF voltmeter to 7TP8 (7TP7).

Adjust the tone generator output until a reading op 1 V is measured.

Damp the tone generator output by 20 dB, and change the frequency to 18 kHz.

Adjust 7L1 (7L2) until a reading of 760 mV is obtained.

HX filter
Carry out this adjustment in testmode (carry out TESTMODE ADJUSTMENT).

Connect a DC voltmeter to 7TP6 (7TP5).

Load Cr tape.

Adjust 7L8 (7L7) to min. DC voltage.

Bias filter
Carry out this adjustment in testmode (carry out TESTMODE ADJUSTMENT).

Connect af AF voltmeter to 7TP4 (7TP3).

Load Cr tape.

Adjust 7L4 (7L3) until min. voltage in 7TP4 (7TP3).

Cr Bias
Carry out this adjustment in testmode (carry out TESTMODE ADJUSTMENT).

Load CrO_2 level tape 6780066.

Adjust tone generator to 333 Hz and 20 mV.

Connect af AF voltmeter to 7TP2 (7TP1).

Adjust the tone generator until a reading of approx. 30 mV is obtained.

Juster 7R161 (7R162) indtil afspilleniveauet ved 333 Hz og 16 kHz er ens, ved henholdsvis at optage og afspille 333 Hz og 16 kHz.
(Mindre bias giver diskanthæv. Mere bias giver diskantfald).

Fe-bias
Fremgangsmåde som Cr-bias, men benyt Fe_2O_3 normbånd 6780067, og juster med 7R159 (7R160).

MP-bias
Fremgangsmåde som Cr-bias, men benyt metal-normbånd 6780101 benyttes, og juster med 7R164 (7R163).

Optagestrøm, Cr
Foretag denne justering i testmode (udfør punktet TESTMODEJUSTERING).

Ilæg CrO_2 norm-bånd.

Indstil tonegenerator til 333 Hz og 100 mV.

Slut LF-voltmeter til 7TP2 (7TP1).

Indstil tonegeneratoren til der måles 200 mV.

Juster 7R52 (7R53) indtil afspilleniveauet er 200 mV, ved henholdsvis at optage og afspille 333 Hz.

Optagestrøm, MP
Cr-justering skal være foretaget.

Fremgangsmåde som ved optagestrøm, Cr, men benyt metal-normbånd 6780101.

Justeringen er fælles for de to kanaler og foretages med 7R167.

Automatisk optageniveau
Foretag denne justering i testmode (udfør punktet TESTMODEJUSTERING).

Ilæg Cr-bånd.

Indstil tonegeneratoren til 333 Hz og ca. 400 mV.

Slut LF-voltmeter til 7TP2.

Juster på tonegeneratoren til der måles 660 mV.

Slut et DC-voltmeter til 7IC8, ben 9 (lus J93) og ben 10 (lus J80).

Juster 7R198 til der måles 0 mV ±10mV.

While recording and playing back 333 Hz and 16 kHz respectively, adjust 7R161 (7R162) until the playback level is identical for 333 Hz and 16 kHz.
(Less bias will result in treble boost, more bias will result in treble cut).

Fe bias
Follow the same procedure as for Cr bias, only use Fe_2O_3 level tape 6780067 and adjust 7R159 (7R160).

MP bias
Follow the same procedure as for Cr bias, only use metal level tape 6780101 and adjust with 7R164 (7R163).

Recording current, Cr
Carry out this adjustment in testmode (carry out TESTMODE ADJUSTMENT).

Load CrO_2 level tape.

Adjust tone generator to 333 Hz and 100 mV.
Connect AF voltmeter to 7TP2 (7TP1).

Set the tone generator until a reading of 200 mV is obtained.

While recording and playing back 333 Hz adjust 7R52 (7R53) until the playback level is 200 mV.

Recording current, MP
The Cr adjustment must have been carried out.

Follow the same procedure as for recording current, Cr, only use metal level tape 6780101.

This adjustment applies to both channels and is carried out with 7R167.

Automatic recording level
Carry out this adjustment in testmodt (carry out TESTMODE ADJUSTMENT)

Load Cr tape.

Adjust the tone generator to 333 Hz and approx. 400 mV.

Connect an AF voltmeter to 7TP2.

Adjust the tone generator until a reading of 660 mV is obtained.

Connect a DC voltmeter to 7IC8, pins 9 (J93) and 10 (J80).

Adjust 7R198 until a reading of 0 mV ±10 mV is obtained.

ELEKTRISKE JUSTERINGER, CD

FOTODIODERNE OG LASEREN ER MERE FØLSOMME OVERFOR STATISK EL END MOS IC'er. UFORSIGTIG BEHANDLING UNDER SERVICE KAN REDUCERE LEVETIDEN DRASTISK. DERFOR SKAL DET SIKRES, AT ARBEJDSPLADSEN ER BESKYTTET MOD STATISK EL.

Apparatet må ikke være sluttet til lysnettet, når der skiftes løbeværk, eller hvis løbeværk og PCB8 ikke er forbundet til hinanden.

Laserstrøm

Vigtigt:
Forjuster laserstrømpotentiometeret 8R24 efter udskiftning af CD-løbeværket; kontroller også forbindelsen til monitordioden, inden apparatet sluttes til lysnet.

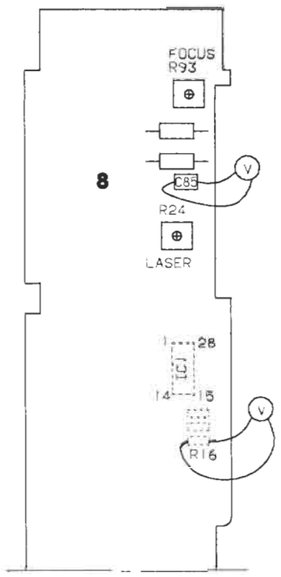
ELECTRICAL ADJUSTMENTS, CD

THE PHOTODIODES AND THE LASER ARE MORE SENSITIVE TO ELECTROSTATIC DISCHARGES THAN MOS ICS.
CARELESS HANDLING DURING SERVICING MAY REDUCE LIFE EXPECTATION DRASTICALLY.
THEREFORE, CARE SHOULD BE TAKEN, THAT THE REPAIR STATION IS PROTECTED AGAINST STATIC ELECTRICITY.

The product must not be connected to the mains, when replacing the CD mechanism, or if the CD mechanism and PCB8 are not interconnected.

Laser current

Important:
When the CD transport mechanism has been replaced, the laser current potentiometer 8R24 has to be preadjusted before the product is connected to the mains. Also, check the connection of the monitor diode before the product in connected to the mains.



Tilslut et ohmmeter fra ben 18 til ben 27 på 8IC1.	Connect an ohmmeter from pin 18 to pin 27 of 8IC1.
Juster 8R24 til der måles 1 kohm ±10%.	Adjust 8R24 until 1 kohm ±10% is measured.
Tilslut et DC-voltmeter over 8R16.	Connect a DC voltmeter across 8R16.
Ilæg testplade nr. 5 (plade uden fejl, bestillingsnr. 3634031).	Insert test disc no. 5 (disc without errors, part no. 3634031).
Slut apparatet til lysnettet og tryk CD.	Connect the product to the mains, and press CD.
Spændingen over R16 skal være over 15 mV, hvis ikke, slukkes apparatet og fejlen findes.	The voltage across R16 should be higher than 15 mV. If it is not higher than 15 mV, switch off the product and find the error.

Hvis der er over 15 mV, spilles spor 1 på testplade 5, og 8R24 justeres, til der måles 50 mV ±5 mV med DC-voltmeteret.
N.B. Hvis spændingen over 8R16 er under 25 mV kan CD'en stoppe kort efter start, derfor skal justeringen foregå lige efter start af CD.

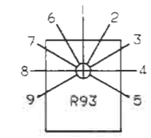
Fokus offset

Ilæg testplade nr. 5 (bestillingsnr. 3634031).

Tilslut DC-voltmeter over 8C85.

Tryk CD.

Hvis CD'en ikke starter drej da potentiometer 8R93 i stop indtil den starter.



POTENTIOMETER STEP

Når CD kan starte, justeres 8R93, til der måles 400 mV ±40 mV.

If the voltage is higher than 15 mV, play track 1 on test disc 5 and adjust 8R24 until 50 mV ±5 mV is measured with the DC voltmeter.
NOTE: If the voltage across 8R16 is less than 25 mV, the CD may stop shortly after starting, so the adjustment has to be made immediately after the CD is started.

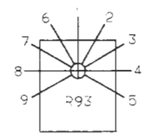
Focus offset

Insert test disc no. 5 (part no. 3634031).

Connect a DC voltmeter across 8C85.

Press CD.

If the CD does not start, turn potentiometer 8R93 in steps until it starts.



POTENTIOMETER STEP

When the CD is able to start, adjust 8R93 until 400 mV ±40 mV is measured.

Kontrol af laserforsyning

Laseren, laserforsyningen i 8IC1 og monitordioden danner et tilbagekoblings-system. En fejl i laserforsyningen kan medføre, at laseren ødelægges.

Da det er umuligt at kontrollere og reparere et tilbagekoblingssystem, hvor en af komponenterne mangler, kan nedenstående kredsløb bruges til at kontrollere laserforsyningen.

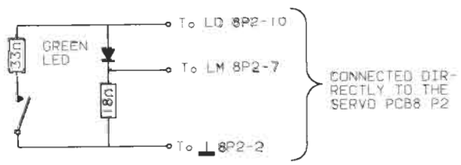
Den grønne LED udgør laseren. Spændingen over 18 ohms modstanden udgør monitor-tilbagekoblingsspændingen. 33 ohms modstanden og omskifteren gør det muligt at ændre strømforbruget fra laserforsyningen.

Checking the laser supply

The laser, the laser supply in 8IC1 and the monitor diode form a feed-back system. A defect in the laser supply may result in destruction of the laser.

As it is impossible to check and repair a feed-back system if one part of the system is missing, the laser supply can be checked by means of the below circuit.

The green LED replaces the laser. The voltage across the 18-ohm resistor is the feed-back voltage for the monitor. The 33-ohm resistor and the switch make it possible to change the power consumption from the laser supply.



Grøn LED f.eks. CQY94 bestillingsnr. 8330054.

Fleks-printet tages ud af P2 på servo-PCB'en.

Ovenstående kredsløb loddes på P2 på servo-PCB'en.

SI (ben 6 på 8IC1) kortsluttes til stel.

Når $\overline{SI}$ (Start initialization) er low, kan laserforsyningen tændes i service position 1, ved at kortslutte TESTMODE stikket kortvarigt. Tryk derefter CD og PLAY.

LO-spændingen på ben 10 af 8P2 måles.

S1 afbrudt:
LO fra 1,8 V til 2,3 V
LM fra 170 mV til 220 mV
Den grønne LED lyser svagt

S1 kortsluttet:
LO fra 1,8 V til 2,3 V
LM fra 170 mV til 220 mV
Den grønne LED lyser svagt

Når S1 skiftes fra kortsluttet til afbrudt, vil LED'en lyse kraftigere i et kort øjeblik.
Tilbagekoblingssystemet bevirker, at der går samme strøm i LED'en, hvad enten S1 er kortsluttet eller afbrudt.

Green LED, e.g. CQY94, part no. 8330054.

Remove the flex PCB from P2 on the servo PCB.

Connect the above-mentioned circuit to P2 on the servo PCB.

Connect SI (pin 6 of 8IC1) to ground.

When $\overline{SI}$ (Start initialization) low, the laser supply can be switched on by short circuit the socket TESTMODE briefly. Then press CD and PLAY.

Measure the LO voltage on pin 10 of 8P2.

S1 open:
LO from 1.8 V to 2.3 V
LM from 170 mV to 220 mV
The green LED emits little light

S1 closed:
LO from 1.8 V to 2.3 V
LM from 170 mV to 220 mV
The green LED emits little light

During the change from S1 closed to S1 open, the LED will shortly emit more light than usual. The feed-back system ensures that the same amount of current passes through the LED irrespective of whether S1 is open or closed.

BEOLAB 2500

Justering af bas-/diskantniveau

Foretages kun ved udskiftning af højttaler.
Tilslut den nye enhed.
Fjern justerings-PCB – diskant PCB24 eller bas PCB23.
Tilslut tonegenerator til Power Link-ingangen og indstil den til 900 Hz (bas)/6 kHz (diskant) og 30 mV.
Tilslut LF-voltmeter over tilslutningsklemmerne på den udskiftede enhed.
Beregn forskellen på den skrevne spænding (bag på enheden) og den målte spænding i antal gange:

$$\frac{\text{skrevet spænding}}{\text{målt spænding}} = \text{x times}$$

Tabellen viser den værdi, der ligger nærmest den beregnede og dermed kombinationen af modstande, der skal afbrydes (0 i hver binærkode).

BEOLAB 2500

Adjustment of bass/treble levels

To be carried out only when replacing a loudspeaker.
Connect the new unit.
Remove the adjustment PCB – treble PCB24 or bass PCB23.
Connect an audio oscillator to the Power Link input and set it to 900 Hz (bass)/6 kHz (treble) and 30 mV.
Connect AF voltmeter across the connection terminals of the replaced unit.
Calculate the difference between the rated voltage (on the back of the unit) and the measured voltage in number of times:

$$\frac{\text{rated voltage}}{\text{measured voltage}} = \text{x times}$$

The table indicates the value closest to the calculated voltage and thus the combination of resistors which have to be disconnected (0 in each binary code).

x times	Binary code	Parallel con. between	Attennation degree
1.0	0 0 0 0		0 dB
0.94	0 0 0 1	15K	-0.5 dB
0.89	0 0 1 0	6K8	-1.0 dB
0.85	0 0 1 1	6K8 // 15K	-1.4 dB
0.80	0 1 0 0	3K3	-1.9 dB
0.78	0 1 0 1	3K3 // 15K	-2.2 dB
0.74	0 1 1 0	3K3 // 68K	-2.7 dB
0.71	0 1 1 1	3K3 // 6K8 // 15K	-3.0 dB
0.65	1 0 0 0	1K5	-3.7 dB
0.63	1 0 0 1	1K5 // 15K	-4.0 dB
0.61	1 0 1 0	15K // 6K8	-4.3 dB
0.59	1 0 1 1	1K5 // 6K8 // 15K	-4.6 dB
0.56	1 1 0 0	1K5 // 3K3	-5.0 dB
0.55	1 1 0 1	1K5 // 3K3 // 15K	-5.2 dB
0.53	1 1 1 0	1K5 // 3K3 // 6K8	-5.5 dB
0.51	1 1 1 1	1K5 // 3K3 // 6K8 // 15K	-5.8 dB

ADSKILLELSE

BEOCENTER 2500

Glaslåge
Afmonter glaslågen ved at trække den ud fra systemet i øverste højre hjørne, modsat låsen.

Frontdæksler
Træk ud i øverste hjørne.

Bagpart
Fjern 6 skruer (samt evt. antenneholder)
Træk bagparten bagud.

Serviceposition PCB1
Fjern de 5 skruer A og de 3 skruer B.
Løsn de 2 skruer C samt skinnen.
Løft POWER SUPPLY AND PRE AMP. (PCB2) ud af kabinettet.

Løsn TUNER (PCB1) vha. de to plastiktappe og sving den ud i serviceposition.

Serviceposition PCB2
Som PCB1.

Serviceposition PCB3
Som PCB1; fjern dog kun skruerne A (skinnen bliver siddende).

DISMANTLING

BEOCENTER 2500

Glass door
Dismount the glass door by pulling it out from the system at its top right-hand corner, opposite the lock.

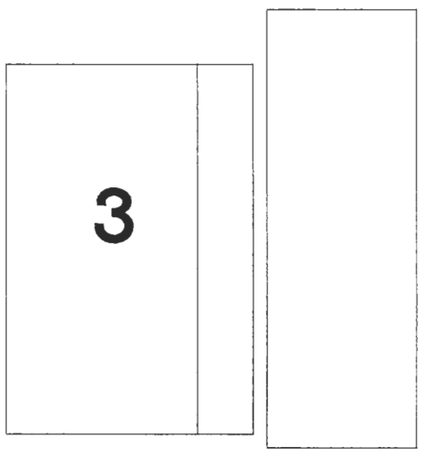
Front covers
Pull out at the top corner.

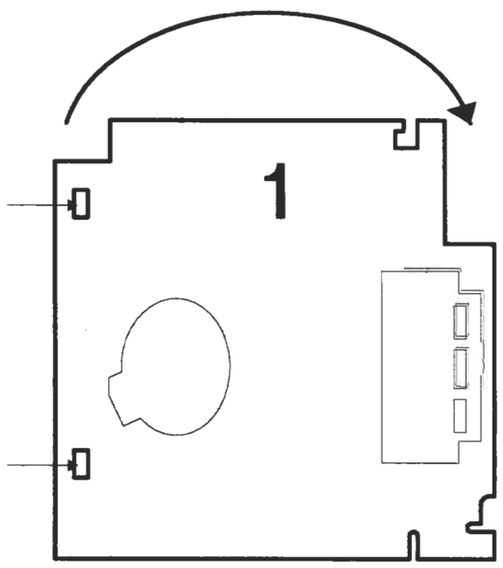
Rear panel
Remove six screws (and perhaps the aerial holder).
Pull the rear panel backwards.

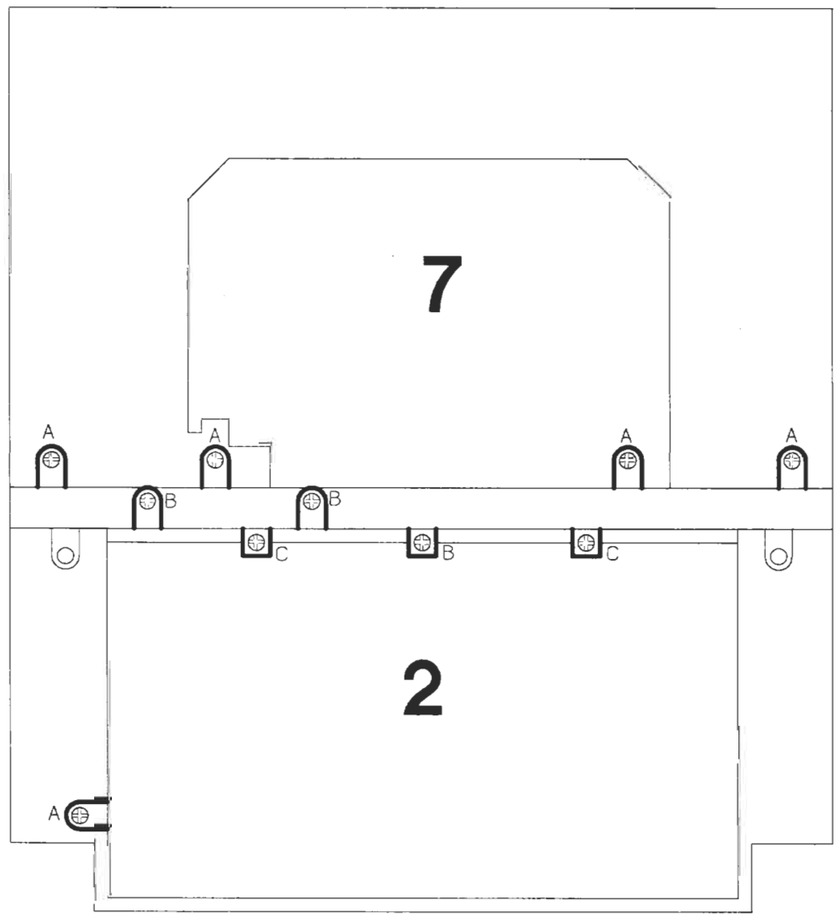
Service position of PCB1
Remove the five screws A and the three screws B.
Loosen the two screws C and the rail.
Lift the POWER SUPPLY AND PRE AMP. (PCB2) out of the cabinet.
Loosen the TUNER (PCB1) by means of the two plastics tabs and swing it out into service position.

Service position of PCB2
Same as PCB1.

Service position of PCB3
Same as PCB1; however, only the screws A should be removed (leave the rail in place).





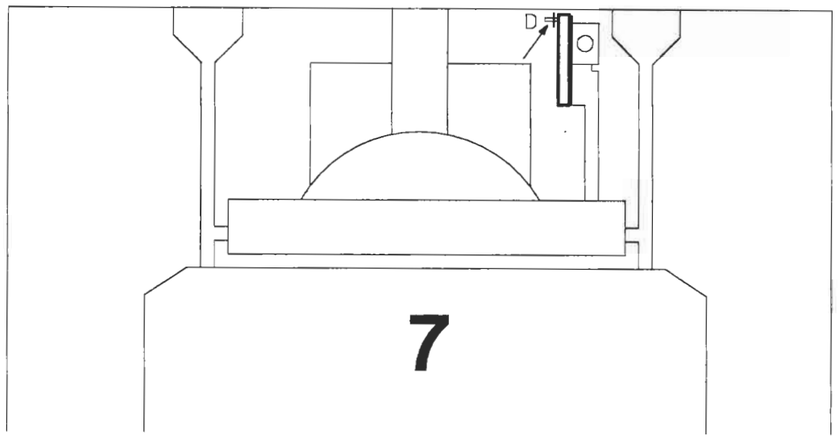


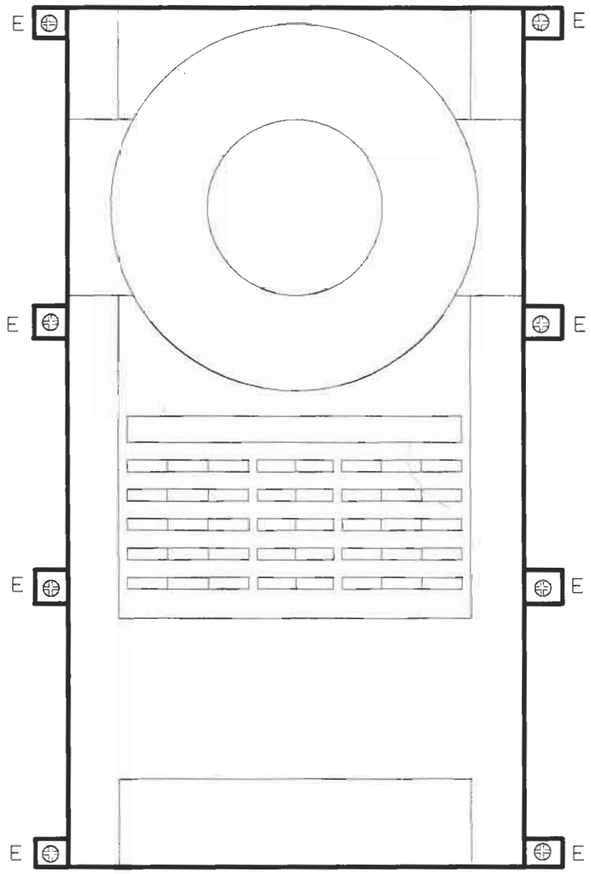
Serviceposition PCB5

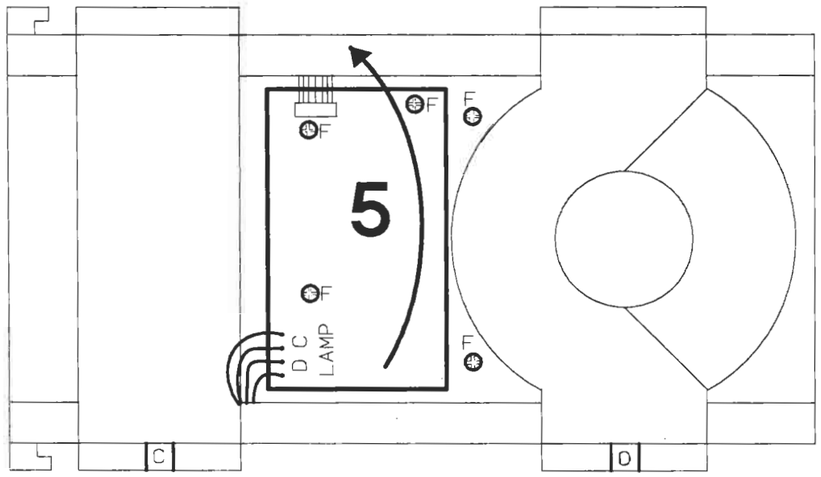
Fjern låsering D, frigør klampe-arm og klampe fra tappen.
Afmonter glaslåger og frontdæksler.
Afmonter de 8 skruer E, der holder midterpladen.
Løft klampe og træk forsigtigt midterpladen ud.
Afmonter de 5 skruer F.
Lod Lamp C og Lamp D af.
Sving PCB5 i serviceposition (pas på fladkablet).

Service position of PCB5

Remove the locking ring D, release the clamp arm and the clamp from the tab.
Dismount glass doors and front covers.
Dismount the eight screws E which hold the centre plate.
Lift the clamp and pull out the centre plate carefully.
Dismount the five screws F.
Unsolder Lamp C and Lamp D.
Swing PCB5 into service position (watch out for the flat cable).

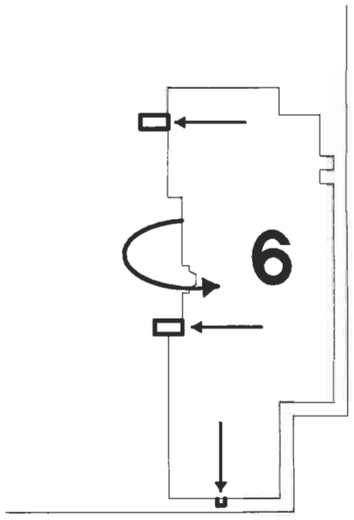






Serviceposition PCB6
Som PCB1; fjern dog kun skruerne A (skinnen bliver siddende).
Løsn de 3 plastiktappe og træk PCB6 bagud i serviceposition.

Service position of PCB6
Same as PCB1; however, only the screws A should be removed (leave the rail in place).
Loosen the three plastics tabs and pull PCB6 backwards out into service position.

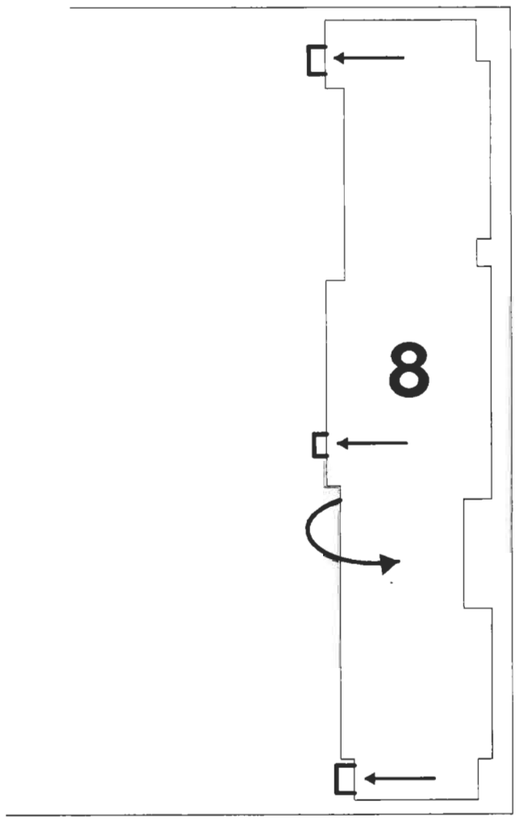


Serviceposition PCB7
Som PCB1; fjern dog kun skruerne A (skinnen bliver siddende).
Fjern de 4 skruer og læg PCB7 i serviceposition.

Service position of PCB7
Same as PCB1; however, only the screws A should be removed (leave the rail in place).
Remove the four screws and place PCB7 in service position.

Serviceposition PCB8
Afmonter højre glaslåge og frontdæksel.
Løsn de 3 plastiktappe og drej PCB8 ud i serviceposition (pas på fladkablet).

Service position of PCB8
Dismount the right-hand glass door and the front cover.
Loosen the three plastics tabs and swing PCB8 out into service position (watch out for the flat cable).



Serviceposition PCB9
Afmonter venstre glaslåg og frontdæksel, samt bagpart.
Fjern evt. de 5 skruer og træk PCB9 en smule ud.

Serviceposition PCB10
Ekstra kit til PCB1; se PCB1.

Serviceposition PCB11
Sæt PCB8 i serviceposition (PCB11 sider bag ved).
Fjern 1 skrue og træk ud.

Serviceposition PCB20
Fjern midterplade; se PCB5.

Pres plastiktappene ned, træk CD-dækslet ud (PCB20 sidder bag ved).
Fjern 1 skrue og løft fri.

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Serviceposition PCB22
Afmonter bagparten (fjern 5 skruer og træk bagud).
Fjern de 4 skruer G og vip PCB22 i serviceposition.

Service position of PCB9
Dismount the left-hand glass door and the front cover as well as the rear panel.
Remove the five screws and pull out PCB9 a little if required.

Service position of PCB10
Extra kit for PCB1; see PCB1.

Service position of PCB11
Bring PCB8 into service position (PCB11 is located behind it).
Remove one screw and pull out PCB11.

Service position of PCB20
Remove centre plate; see PCB5.

Press the plastic tabs downwards, pull out the CD cover (PCB20 is located behind it).
Remove one screw and lift out PCB20.

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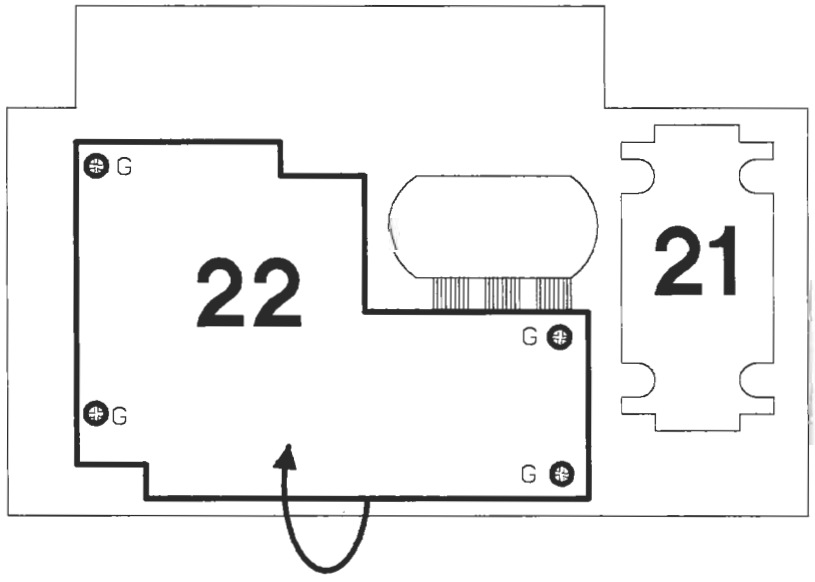
Service position of PCB22
Dismount the rear panel (remove five screws and pull backwards).
Remove the four screws G and tilt PCB22 into service position.



REPARATIONSTIPS

Udskiftning af CD-løbeværk

Fjern bagbeklædningen
Sæt netdel/LF-PCB2 i serviceposition.
Afmonter PCB7.
Afmonter kølepladen A vha. skruerne B (transportskruen for CD skal være løsnet).
Afmonter flexprint og 8P63.
Fjern skruerne E og tag CD-løbeværket ud.
Fjern plastbeslag på CD-løbeværket.

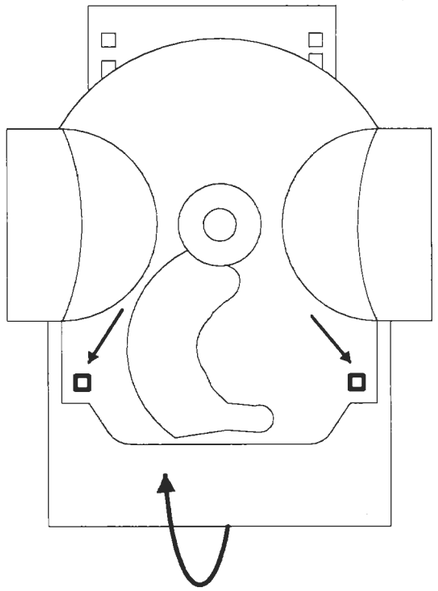
Justeringerne for dybde og sideværts centrering foretages vha. fjedrene F.
Foretag dybdejustering ved at bukke fjederbeslaget ud/ind.
Foretag sideværtscentreringen ved at flytte fjedrene F til siden på fjederbeslaget.

REPAIR TIPS

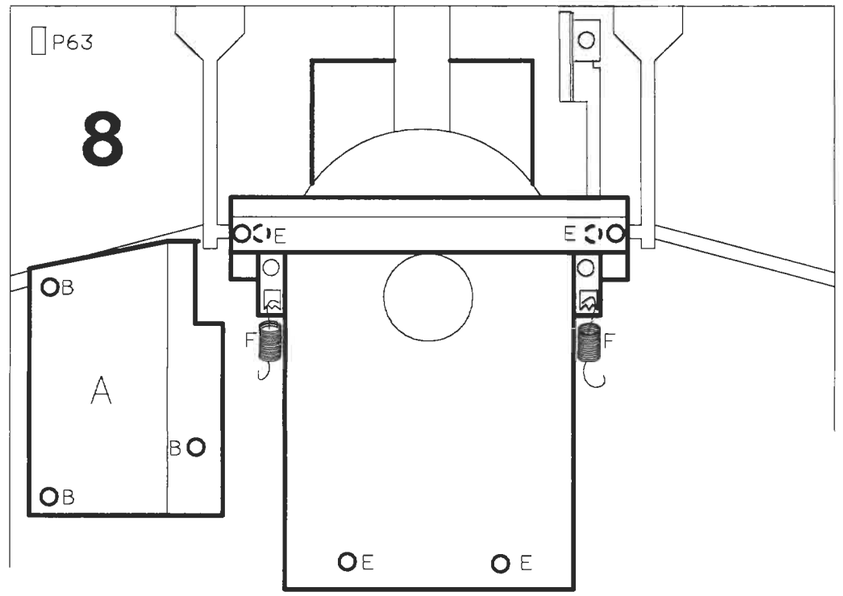
Replacement of CD transport mechanism

Remove the rear panel.
Bring the power-supply unit/AF-PCB2 into service position.
Dismount PCB7.
Dismount the cooling plate A by means of the screws B (the CD transport screw must be loosened).
Dismount flex print and 8P63.
Remove the screws E and take out the CD transport mechanism.
Remove the plastics fitting on the CD transport mechanism.

The adjustments for elevation and lateral centring are made by means of the springs F.
Make the elevation adjustment by bending the spring fitting outwards/inwards.
Make the lateral centring by moving the springs F to the side of the spring fitting.



7-1



Udtagning af gearkasse for CD-klampe

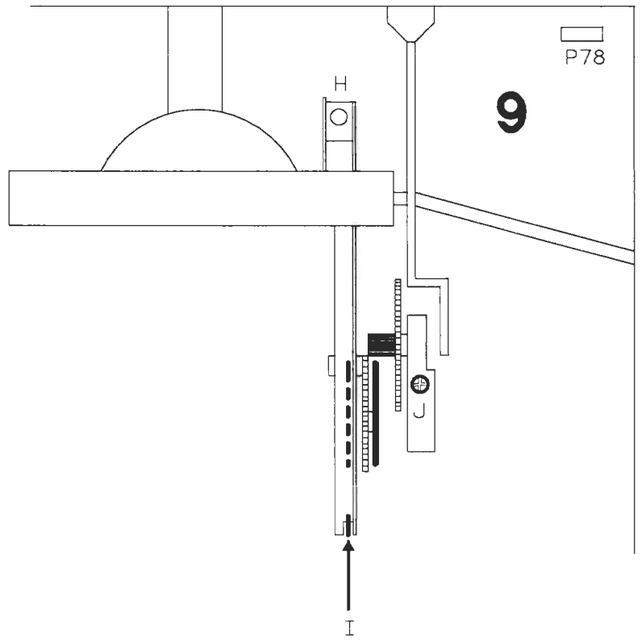
Båndoptager-PCB7 skal være afmonteret.
Klampen skal være lukket elektrisk.
Løft klampen op manuelt.
Afmonter fjederen I i nederste punkt.
Afmonter armen H.
Afmonter ledning til motor, stik 9P78.
Løsn skruen J og tag gearkassen ud.

Vær opmærksom på at beslaget øverst på armen H ved samling er trykket helt sammen, og spænd det derefter.

Removal of gearbox for CD clamp

Tape recorder PCB7 must be removed.
The clamp must be electrically sealed.
Lift up the clamp manually.
Dismount the spring I in its bottommost point.
Dismount the arm H.
Dismount the lead to the motor, plug 9P78.
Loosen the screw J and take out the gearbox.

Make sure that the two parts of the fitting at the top of the arm H are pressed together completely when reassembling; then tighten the fitting.



7-2

Udtagning af båndoptagerløbeværket

Fjern bagbeklædningen.
Sæt netdel/LF-PCB2 i serviceposition.
Afmonter PCB7.
Fjern skruerne G og tag løbeværket ud.

Ved elektriske justeringer skal båndoptager-PCB7 være afmonteret!

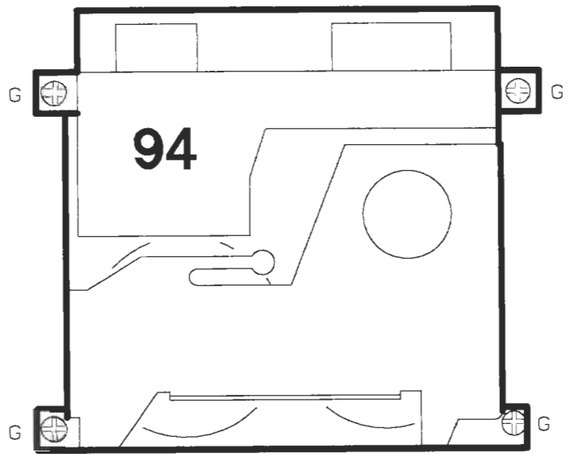
Sørg for at tonehovedledninger ligger rigtigt ved samling.

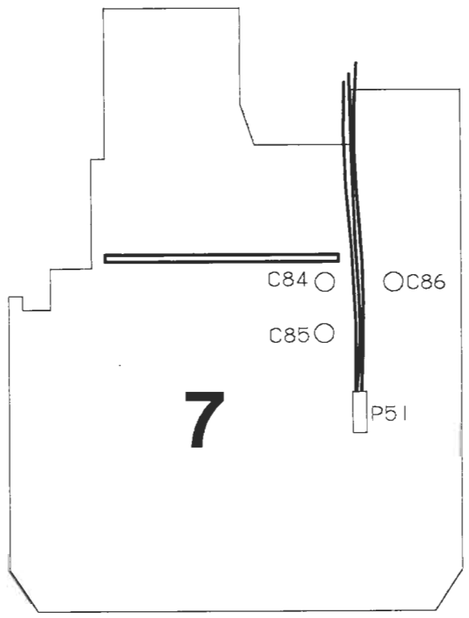
Removal of the tape recorder transport mechanism

Remove the rear panel.
Bring the power-supply unit/AF-PCB2 into service position.
Dismount PCB7.
Remove the screws G and take out the transport mechanism.

When making electrical adjustments, the tape recorder PCB7 must be dismounted!

Make sure that the tape head leads are arranged properly when reassembling.





7-2

Snorsystem til glaslåger

Afmonter glaslåger og dækplader.
Afmonter bagbeklædningen.
Sæt netdel/LF-mondul i serviceposition.
Skub glasholder til midten og løsn låsestykker for snor (en omdrejning).
Afmonter motorstyringsprint, PCB9.

Afmontering af skinne A

Løft højre side (set forfra) lidt ud, og skub mod venstre.
Løsn skruerne B for at afmontere beslag med snorhjul.

Sørg for, ved montering af ny skinne, at skinnen sidder rigtigt i styrehullerne.

Afmontering af skinnerne D og C

Før skinnen C afmonteres skal skinnen D og fronten afmonteres.

Træk bagkanterne på D ud i begge sider og afmonter skinnen D.
Løsn 8 skruer i fronten for at afmontere den.
Løft skinnen C ud i venstre side, skub mod højre og afmonter den.
Løsn skruerne F.
Afmonter beslag med snorhjul.

Sørg for, ved montering af ny skinne, at skinnen sidder i styrehullerne.

Wire system for glass doors

Dismount the glass doors and cover plates.
Dismount the rear panel.
Bring the power-supply unit/AF module into service position.
Push the glass holder to the centre and loosen the wire clamping clips (one revolution).
Dismount the motor control circuit board, PCB9.

Dismounting rail A

Lift the right-hand side (as seen from the front) slightly outwards and push it towards the left.
Loosen the screws B in order to dismount the fitting with the wire pulleys.

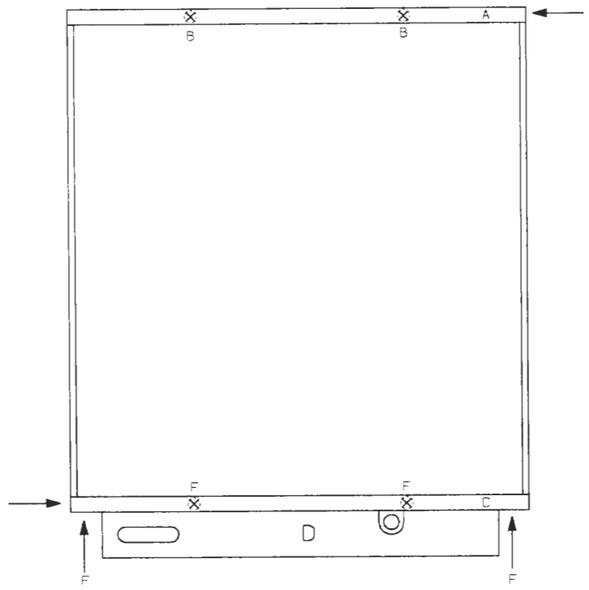
Make sure when mounting the new rail that the rail is positioned correctly in the pilot holes.

Dismounting rails D and C

Before dismounting the rail C, rail D and the front have to be dismounted.

Pull out the rear edges of D in both sides and dismount the rail D.
Loosen eight screws in the front to dismount it.
Lift out the left-hand side of the rail C, push it towards the right and dismount it.
Loosen the screws F.
Dismount the fitting with the wire pulleys.

Make sure when mounting the new rail that the rail is positioned in the pilot holes.



Montering af snor for glaslåger

Drej snorhjulet G med uret til stop.
Monter snoren i snorhjulet H (enden med den kraftige fjeder).
Før snoren i den næstinderste rille på snorhjulet H (nedenom), op omkring de øverste snorhjul (I, J, K og L) og ned om de nederste snorhjul (M, N og O).
Drej hjulet G mod uret.
Sæt snoren fast i hjulet H.
Sæt snoren på hjul P og drej hjulet G for at se om alt er OK.

Glideskinnerne kan smøres med Barrierta fedt L55-3 (bestillingsnr. 3984030).

Mounting of wire for glass doors

Turn the wire pulley G clockwise until it stops.
Mount the wire in the wire pulley H (the end with the heavy spring).
Run the wire in the second innermost groove of the wire pulley H (underneath the pulley), up around the uppermost pulleys (I, J, K and L) and down around the lowermost pulleys (M, N and O).
urn the pulley G anticlockwise.
Fasten the wire in the pulley H.
Mount the wire on pulley P and turn pulley G to check that everything is OK.

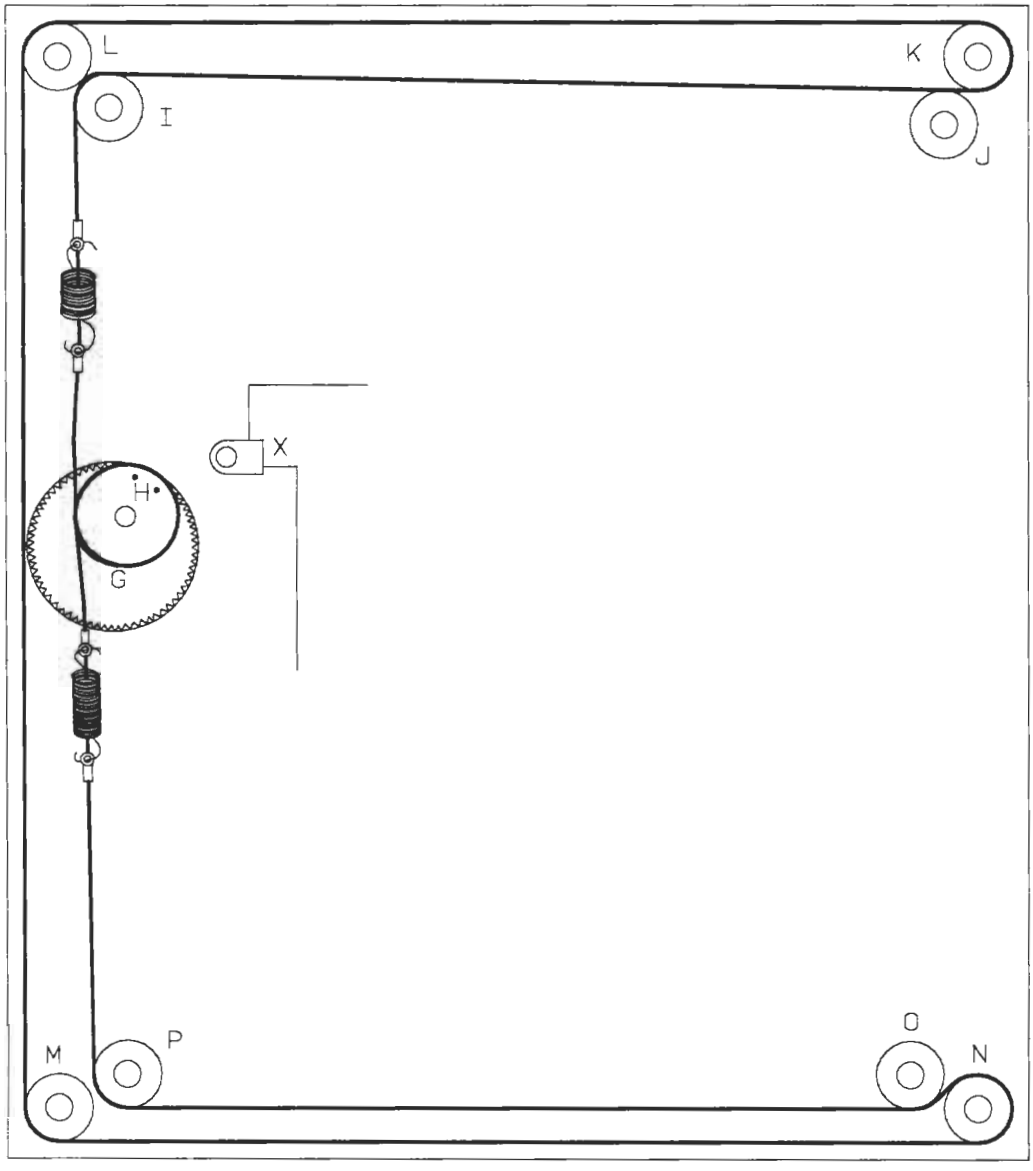
The slide rails may be lubricated with Barrierta grease L55-3 (part no. 3984030).

Opjustering af snor

Drej hjulet G så centrum af hjulene G og H flugter med overkanten af tårnet X.
Skub låsestykke for snor mod midten og spænd (ikke for hårdt).

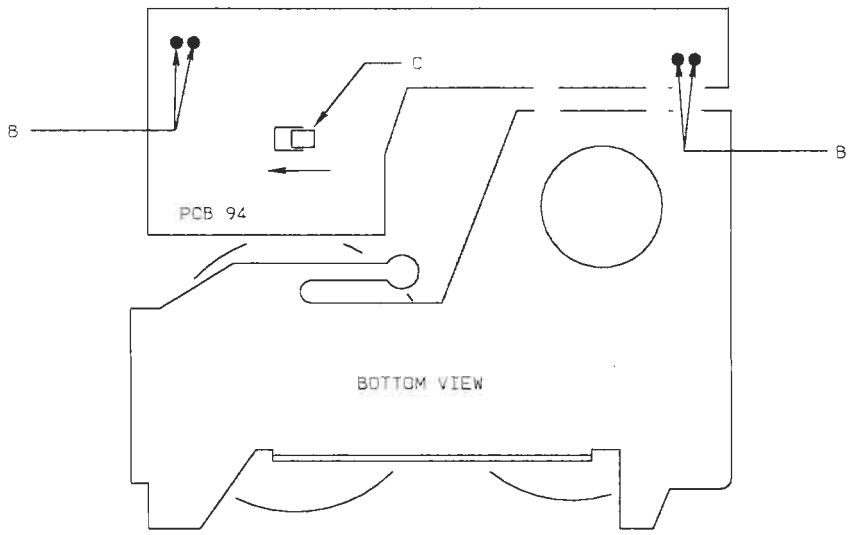
Readjustment of wire

Turn the pulley G such that the centre of the pulleys G and H is flush with the upper edge of the tower X.
Push the wire clamping clip towards the centre and tighten (but not too tight).



Afmontering af PCB94 under løbeværk

Dismantling of PCB94 under tape transport mechanism



Lod loddepunkter B fri.

Pres låsetappen C i pilens retning, og træk PCB'en ud.

Desolder the solder points B.

Push the locking pin C in the direction of the arrow and pull out the PCB.

Smøreskema

Behovet for eftersmøring er minimalt.
Ved større eftersyn og ved udskiftning af mekaniske dele bør nedenstående retningslinier følges.
NB! Smøremidlet bør kun påføres i lille mængde.

Kapstanlejer Aksler for spoletallerkener 9412 og 9447 Leje for remskiver 9489 Aksel på tonehoved 94H1	3984022 Floil GB TS-1
Glideflader mellem andre bevægelige dele	3984030 Barrierta L5512 (25gr.)

Lubrication Chart

The need for relubrication is negligible.
In the case of overhauls and when replacing mechanical parts the directions below should be followed.
NB! The lubricant should only be applied in small quantities.

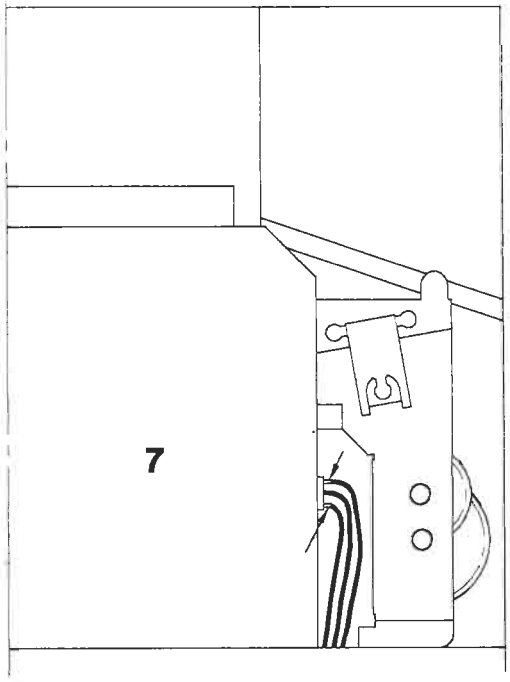
Capstan bearings Shafts for turntables 9412 and 9447 Bearing for pulleys 9489 Shaft on tapehead 94H1	3984022 Floil GB TS-1
Sliding surfaces between other movable parts	3984030 Barrierta L5512 (25gr.)

TESTFUNKTIONER

Beosystem 2500 kan bringes i testmode ved at fjerne bagparten. Tænde for apparatet, og kortslutte clamper-kontakten i to-tre sekunder. Displayet viser nu TESTMODE.

TEST FUNCTIONS

The Beosystem 2500 may be brought into test mode by removing its rear panel, switching on the system and short-circuiting the clamper switch for two or three seconds; the display will now read TEST-MODE.



Forlad testmode ved at fjerne netstikket.

I testmode er der mulighed for:

- læsning af tuner variant.
- FM displayindikering.
- AM displayindikering.
- test af ROM/RAM.
- sletning af alle presatte programmer.

The test mode may be left by unplugging the mains plug.

In test mode, the following options are available:

- Display of tuner model.
- FM display indication.
- AM display indication.
- Testing of ROM/RAM.
- Deletion of all preset programmes.

Udlæsning af tunervariant

Bring apparatet i testmode.

Tryk [3]	Variant	Display
	EU-FM/AM	0.0
	EU-FM	0.1
	US-FM/AM	1.0
	US-FM	1.1
	JAP-FM/AM	2.0
	JAP-FM	2.1
	AUS-FM/AM	3.0
	AUS-FM	3.1

Display of tuner model

Bring the system into test mode.

Press [3]	Model	Display
	EU-FM/AM	0.0
	EU-FM	0.1
	US-FM/AM	1.0
	US-FM	1.1
	JAP-FM/AM	2.0
	JAP-FM	2.1
	AUS-FM/AM	3.0
	AUS-FM	3.1

AM/FM displayindikering

Indstil FM displayindikering efter udskiftning af PCB1, PCB3, 3IC6, 3B1, 3D4, 3R38, 1BP4 eller efter reparation/justering i FM-detektorkredsløbet.

Indstil AM displayindikering efter udskiftning af PCB1, PCB3, 3IC6, 3B1, 3D4, 3R38, 1BP1 eller 1BP2.

AM/FM display indication

The FM display indication has to be set after a replacement of PCB1, PCB3, 3IC6, 3B1, 3D4, 3R38 or 1BP4 or after a repair/adjustment of the FM detector circuit.

The AM display indication has to be set after a replacement of PCB1, PCB3, 3IC6, 3B1, 3D4, 3R38, 1BP1 or 1BP2.

FM:
Kontroller at justeringen af FM detektor er korrekt, før indstilling foretages.

Bring apparatet i testmode.

Indstil modtageren til en kendt station, f.eks 96,0 MHz.

Tryk [GOTO].
Indtast frekvensen på den kendte station.
Tryk [STORE].

Hvis indstillingen er i orden, skrives der OK i displayet, hvis ikke, står der ERROR.

AM:
Bring apparatet i testmode.

Indstil modtageren til en kendt station, f.eks 520 kHz.

Tryk [GOTO].
Indtast frekvensen på den kendte station.
Tryk [STORE].

Hvis indstillingen er i orden, skrives der OK i displayet, hvis ikke, står der ERROR.

ROM/RAM test:
Bring apparatet i testmode.

Tryk [8].

Display:	OK	OK	OK
	ROM	INT-RAM	EXT-RAM
	3IC3	3IC10	3IC6

Hvis der vises --, i displayet i stedet for OK, er der fejl i den pågældende IC.

Sletning af alle forudindstillede programmer:
Bring apparatet i testmode.

Tryk [7].

Alle forudindstillede programmer er nu slettet.

FM:
Check that the adjustment of the FM detector is correct before the setting is made.

Bring the system into test mode.

Set the receiver to a known station, e.g. 96.0 MHz.

Press [GOTO].
Enter the frequency of the known station.
Press [STORE].

If the setting is in order, the display will write OK, if it is not, the display will read ERROR.

AM:
Bring the system into test mode.

Set the receiver to a known station, e.g. 520 kHz.

Press [GOTO].
Enter the frequency of the known station.
Press [STORE].

If the setting is in order, the display will say OK, if it is not, the display will say ERROR.

ROM/RAM tests:
Bring the system into test mode.

Press [8].

Display:	OK	OK	OK
	ROM	INT-RAM	EXT-RAM
	3IC3	3IC10	3IC6

If rather than OK the display says --, the IC in question is defective.

Deletion of all preset programmes:
Bring the system into test mode.

Press [7].

All preset programmes have now been deleted.

Serviceprogram for CD delen:
Bring apparatet i testmode.

Tryk [CD] Der behøver ikke at være lagt plade på.

Tryk [1] Laser tænder og søger fokus (der søges fokus, hver gang der trykkes [1]).

- Tænder laser?
- Regulerer FE udgangen fokusmotor-amplifier?
- Regulerer fokusmotor?

Tryk [2] Laser slukker.

Tryk [3] CD-motor starter (kører mod uret), og laser går i startposition.

Tryk [4] CD-motor slukker.

Tryk [5] Laserarm bevæges mod yderstilling.

Tryk [6] Laserarm bevæges mod centrum.

Fjern netstik.

Ilæg CD-plade, f.eks. nr. 5 (plade uden fejl, bestillingsnr. 3634031).

Tryk [CD] [STOP]

Bring apparatet i testmode.

Tryk [PLAY] CD starter (lead in).

Tryk [STOP] CD stopper.

Displayet kan under afspilning vise følgende fejlmeddelelser.

CD ERR 2 Fokusfejl.

CD ERR 3 Radialfejl.

CD ERR 4 Motorfejl.

CD ERR 5 TL er lav i 50 ms.

CD ERR 6 Stepfejl.

CD ERR 7 Subcodefejl, ingen subcode indenfor 3 sek.

CD ERR 8 TOC fejl; uden for »lead in« område, mens TOC (programindhold) læses.

Service program for the CD section:
Bring the system into test mode.

Press [CD] A disc need not be inserted.

Press [1] The laser switches on and searches its focus (the focus is searched each time [1] is pressed).

- Does the laser switch on?
- Does the FE output adjust the focus motor amplifier?
- Does the focus motor adjust?

Press [2] The laser switches off.

Press [3] The CD motor starts (runs anticlockwise), and the laser goes into its starting position.

Press [4] The CD motor switches off.

Press [5] The laser arm is moved towards its extreme peripheral position.

Press [6] The laser arm is moved towards the centre.

Remove the mains plug.

Insert a CD, e.g. disc no. 5 (disc without errors, part no. 3634031).

Press [CD] [STOP]

Bring the system into test mode.

Press [PLAY] The CD starts (lead in)

Press [STOP] The CD stops.

During the playback, the display may give the following error messages:

CD ERR 2 Focus error.

CD ERR 3 Radial error.

CD ERR 4 Motor error.

CD ERR 5 TL (track loss) is low for 50 ms.

CD ERR 6 Step error.

CD ERR 7 Subcode error, no subcode within 3 sec.

CD ERR 8 TOC error; outside the lead-in area while the TOC (table of contents) is being read.

Oversigt over IC ben

Nedenstående skemaer er en kort beskrivelse af funktionen af de vigtigste ben på servo og decoder IC'erne.
De steder hvor 2 IC'er har direkte forbindelse med hinanden, er der kun nævnt benet på den ene IC.

8IC1 TDA8808

PIN	BEMÆRKNINGER	PLAY POSITION	SEARCH POSITION	SERVICE POSITION1	SERVICE POSITION2	SERVICE POSITION3	SERVICE POSITION4	SERVICE POSITION5	SERVICE POSITION6
17	LO (Laser Out).	~3V	~3V	~3V	~1.8V				
18	LM (Laser Monitor) Via LM styres strømforsyningen til laser dioden.	~200 mV	~200 mV	~200 mV					
15	FE (Focus Error). FE styrer focus enheden. Når SI går »high« søges der efter focus punktet. Når apparatet sættes i serviceposition 2 uden plade, vil optikket søge efter focus punktet. På ben 5 vil FE signalet variere mellem 0 V og +4 V.								
23 22 24 25	D1 D2 D3 D4 D1→D4 er korrektionssignaler for fotodiode kredsløbet. Hvis pladen bevæges når apparatet er i serviceposition 2, skal focusenheden holde focus. Når pladen bevæges, skal der være varierende signaler på ben 7, 8, 9 og 10.								
26	HF (High Frequency). HF information fra de 4 fotodioder.								
3	HF out (High Frequency out). HF out er et forstærket informationssignal til decoderen.	B (Stable)	B (Unstable)						
4	DET (Detector).								
21 20	RE1 (Radial Error). RE1-2 er styresignaler til sporing af laseren. RE2								
5	SC (Start Capacitor). *Stiger til +5 V hvis focus-punktet er fundet.	~5V	~5V	*~4.6V	~0V	~0V	~0V	~0V	~0V
16	FE lag (Focus Error). *Når pladen bevæges, vil signalet variere.	~0.5V	~0.5V	*~0.5V					
1	GCHF (Gain Control HF).	~2.4V	~2.4V	~3.8V					

B

Amplitude ≈ 1.5 V_{pp}

0,5 uS/DIV

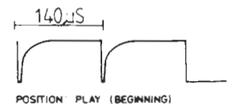
8IC2 TDA8809

PIN	BEMÆRKNINGER	PLAY POSITION	SEARCH POSITION	SERVICE POSITION1	SERVICE POSITION2	SERVICE POSITION3	SERVICE POSITION4	SERVICE POSITION5	SERVICE POSITION6
15	RADout	0V	0V	0V					
17	RElay	~2.5V	~2.5V	~2.5V					
23-24	Offset control	~2.5V	~2.5V	~2.2V	~0.6V				
21	AGC	~1.2V	~1.2V	~4V					
2	OSC	580 Hz		580 Hz					

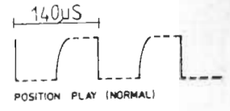
8IC3 SAA7310

PIN	BEMÆRKNINGER	PLAY POSITION	SEARCH POSITION	SERVICE POSITION1	SERVICE POSITION2	SERVICE POSITION3	SERVICE POSITION4	SERVICE POSITION5	SERVICE POSITION6
24	MCES (Motor Control). MCES styrer discmotorens hastighed.	A_2		A_2	A_2	A_1	A_2	A_2	A_2
32	HF (High Frequency). Indgang for HF-øje mønster.	B (Stable)	B (Unstable)	~2V	~2V	~2V	~2V	~2V	~2V
34	HFD (High Frequency Detector). HFD vil gå »low« når HF signalet er for svagt. *Ved afspilning af testplade 5A, vil HFD give »low« pulser på spor med afbrydelser og sorte pletter.	*»High«	»Activity«						
4	WS (Word Select)	D	D	D	D	D	D	D	D
3	Clock	D	D	D	D	D	D	D	D
2	Data	»Activity«	»Activity«						
1	E Flag (Error Flag). Indikerer utroværdige samples for 8-sample interpolator.	»Low«	»Activity«						
38	QRA (Q-channel Request Acknowledge).	F	F	F	F	F	F	F	F
40	QCL (Q Clock).	F	F	»High«	»High«	»High«	»High«	»High«	»High«
37	QData QRA initieres af 8IC7 med »high«, 8IC3 svarer med »low«. Ved forkanten på næste clock puls sættes QRA »high« igen af 8IC7. Når 8IC7 har modtaget nok information (via Q Data), går QRA »low«. Dette gør at QRA tiden varierer.	F	F	»High«	»High«	»High«	»High«	»High«	»High«
42	SW (Subcode Word clock).	G	G			G			
44	SC (Subcode Clock).	G	G			G			
43	SD (Subcode DATA) Efter Motor Start Pulse vil Subcode Word Clock være synlig. Medens en burst på 10 clock pulser er synlig på SC, overføres Q-channel information på SD. Herefter følger P-bit indikation. P-bit indikationen kommer mellem 2 bursts på 10 clock pulser. Ved pause er P-bit indikationen »high« og ved musik er den »low«.	G	G			G			
36	$\overline{CRI}$ (Counter Reset Inhibit). $\overline{CRI}$ er »low« ved spring over spor.	»High«	»Activity«						
41	$\overline{DEEM}$ (Deemphasis). »Low« ved afspilning af testplade 5 spor 14. »High« ved afspilning af testplade 5 spor 15.	»Low«	»Low«						
26	OSC. Indgang fra krystal oscillator.	11.3 MHz	11.3 MHz						
29	PD/OC (Phase Detector/Oscillator Control). Pulser fra fasedetektorens udgang integreres og regulerer oscillatorfrekvensen.	~2.5V	~2.5V	~3.5V	~3.5V	~3.5V	~3.5V	~3.5V	~3.5V
31	FB (Feed Back). Fastholder data slicerens arbejdspunkt.	~2V	~2V	~2V	~2V	~2V	~2V	~2V	~2V

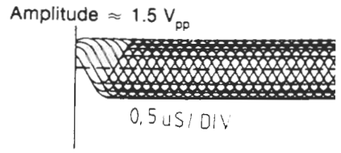
A1



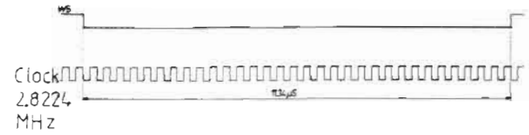
A2



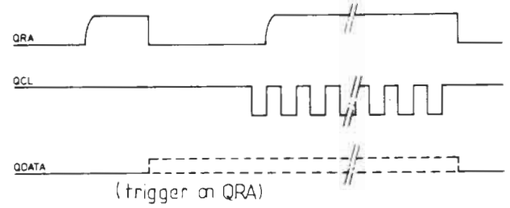
B



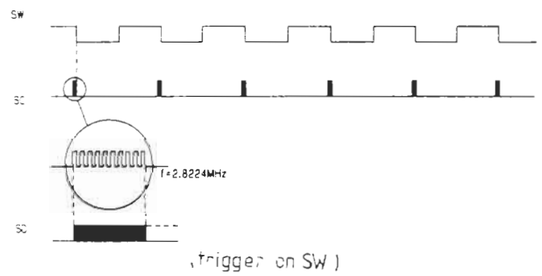
D



F



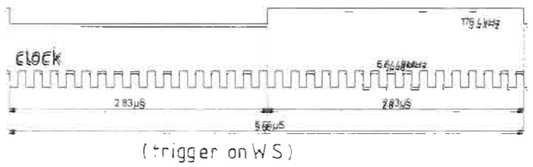
G



8IC5 SAA7220

PIN	BEMÆRKNINGER	PLAY POSITION	SEARCH POSITION	SERVICE POSITION1	SERVICE POSITION2	SERVICE POSITION3	SERVICE POSITION4	SERVICE POSITION5	SERVICE POSITION6
18	WS (Word Select)	I	I	I	I	I	I		
16	Clock								
15	Data	»Activity«	»Activity«	»Stable«	»Stable«	»Activity«	»Stable«		
22	$\overline{ATSB}$ (Attenuation Audio Signal). Ved »low« dæmpes signalet 12 dB.								
23	$\overline{MUSB}$ (Soft Mute). $\overline{MUSB}$ er »low« ved spring fra et spor til et andet.	»High«	»Low«						
14	DOBM (Digital Output). Fejlkorrigeret audio og subcode data.								

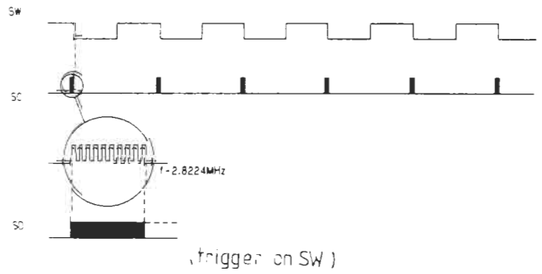
I



8IC7 MC 68HC05C4

PIN	BEMÆRKNINGER	PLAY POSITION	SEARCH POSITION	SERVICE POSITION1	SERVICE POSITION2	SERVICE POSITION3	SERVICE POSITION4	SERVICE POSITION5	SERVICE POSITION6
5	SI (Start Initialization). Når SI er »high«, er laserforsyningen og focus-styring tændt. $\overline{RD}$ (Ready). Med plade på pladeholderen vil $\overline{RD}$ forblive »low« når focus-punktet er fundet.			~3V	»Low«	»Low«	»Low«	»Low«	»Low«
6	SSM (Motor Start-Stop signal). Når RD er gået »low«, vil SSM være »low« i et kort øjeblik (<0,2 sek.), og discmotor forstærkeren tændes (styret af MCES signalet).	G	G			G			
10	B0	»High«		»Low«	»Low«	»Low«	»Low«	»Low«	»Low«
9	B1 — Tænder radial kontrol. Styrer niveauet på radial servo DAC udgang. I søge position vil der være aktivitet på alle 4 udgange.	»High«		»High«	»High«	»High«	»High«	»High«	»High«
8	B2	»High«		»High«	»High«	»High«	»High«	»Low«	»High«
7	B3	»Low«		»High«	»High«	»High«	»High«	»High«	»High«
36-37	$\overline{TL}$ (Track Loss). $\overline{TL}$ giver information til 8IC7 om, at tab af spor kan være forestående. 8IC7 kan så give korrektionssignaler med B0-B3.	»High«		»Low«	»High«	»High«	»High«	»High«	»High«
4	$\overline{DODS}$ (Drop Out Detector Suppression). Når $\overline{DODS}$ er »low«, har drop out signaler ingen indflydelse på styringen af laserarmen under søg.	»High«		»Low«	»Low«	»Low«	»Low«	»Low«	»Low«

G



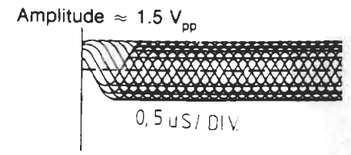
IC pin survey

The following surveys briefly describes the function of the most important pins of the servo and decoder IC's.
Where 2 IC's are directly connected, only the pin of one IC is mentioned.

8IC1 TDA8808

PIN	REMARKS	PLAY POSITION	SEARCH POSITION	SERVICE POSITION1	SERVICE POSITION2	SERVICE POSITION3	SERVICE POSITION4	SERVICE POSITION5	SERVICE POSITION6
17	LO (Laser Out).	~3V	~3V	~3V	~1.8V				
18	LM (Laser Monitor) Via the LM the power supply for the laser diode is controlled.	~200 mV	~200 mV	~200 mV					
15	FE (Focus Error). FE drives the focusing unit. When the $\overline{SI}$ goes 'high', the focusing unit will search for the focal point. When the player is brought into servicing position 2 without disc, the objective will search for the focal point. At pin 5 the FE signal varies between 0 V and +4 V.								
23 22 24 25	D1 D2 D3 D4 — D1→D4 are the error signals from the photodetector circuits. When the disc is moved while the disc is in service position 2, the focusing unit should keep the laser beam in focus. When the disc is moving, there should be a changing signal on pins 7, 8, 9 and 10.								
26	HF (High Frequency). HF information from the 4 photodiodes.								
3	HF out (High Frequency out). HF ouBis the amplified information signal for the decoder.	(Stable)	B (Unstable)						
4	DET (Detector).								
21 20	RE1 (Radial Error). RE1-2 are the control signals for the arm during tracking. RE2								
5	SC (Start Capacitor). *Rises to +5 V if focus point is found.	~5V	~5V	*~4.6V	0V	0V	0V	0V	0V
16	FE lag (Focus Error). *When the disc is moved by hand, the signal will vary.	~0.5V	~0.5V	*~0.5V					
1	GCHF (Gain Control HF)	~2.4V	~2.4 V	~3.8 V					

B



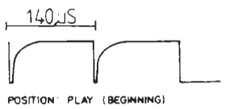
8IC2 TDA8809

PIN	REMARKS	PLAY POSITION	SEARCH POSITION	SERVICE POSITION1	SERVICE POSITION2	SERVICE POSITION3	SERVICE POSITION4	SERVICE POSITION5	SERVICE POSITION6
15	RADout	0V	0V	0V					
17	RElay	~2.5 V	~2.5 V	~2.5 V					
23-24	Offset control	~2.5 V	~2.5 V	~2.2 V	~0.6 V				
21	AGC	~1.2 V	~1.2 V	~4 V					
2	OSC	580 Hz		580 Hz					

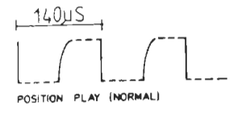
8IC3 SAA7310

PIN	REMARKS	PLAY POSITION	SEARCH POSITION	SERVICE POSITION1	SERVICE POSITION2	SERVICE POSITION3	SERVICE POSITION4	SERVICE POSITION5	SERVICE POSITION6
24	MCES (Motor Control). MCES controlls the speed of the turntable motor.	A_2		A_2	A_2	A_1	A_2	A_2	A_2
32	HF (High Frequency). HF eye pattern input.	B (Stable)	B (Unstable)	~2V	~2V	~2V	~2V	~2V	~2V
34	HFD (High Frequency Detector). HFD will go 'low' when the HF signal is too low. *When playing test disc 5A, HFD will make low pulses on track numbers with interruption or black dots.	*»High«	»Activity«						
4	WS (Word Select)	D	D	D	D	D	D	D	D
3	Clock	D	D	D	D	D	D	D	D
2	Data	»Activity«	»Activity«						
1	E Flag (Error Flag). Indicates untrustworty samples for the 8 sample interpolator.	»Low«	»Activity«						
38	QRA (Q-channel Request Acknowledge).	F	F	F	F	F	F	F	F
40	QCL (Q Clock).	F	F	»High«	»High«	»High«	»High«	»High«	»High«
37	QData QRA is initiated by 8IC7 with 'high', 8IC3 answers with 'low'. With the next leading clock pulse (Q CL), the QRA is set 'high' again by 8IC7. When 8IC7 has taken enough information (via Q Data), QRA will go 'low'. This makes the QRA times vary each time.	F	F	»High«	»High«	»High«	»High«	»High«	»High«
42	SW (Subcode Word clock).	G	G			G			
44	SC (Subcode Clock).	G	G			G			
43	SD (Subcode DATA) After Motor Start Pulse, Subcode Word Clock is visible. While the burst of 10 clock pulses appear on SC, the Q-channel information is transferred on SD. Hereafter the P-bit indication follows. The P-bit is 'high' between two bursts of 10 clock pulses in case of pause indication, and 'low' in case of music indication. There will be P-bit indication between two bursts of 10 clock pulses. The P-bit indication is 'high' during pause and 'low' during music.	G	G			G			
36	$\overline{CRI}$ (Counter Reset Inhibit). $\overline{CRI}$ is 'low' in case of track jumping.	»High«	»Activity«						
41	$\overline{DEEM}$ (Deemphasis). 'Low' when playing test disc 5 track no. 14 'High' when playing test disc 5 track no. 15	»Low«	»Low«						
26	OSC. Input from crystal oscillator.	11.3 MHz	11.3 MHz						
29	PD/OC (Phase Detector/Oscillator Control). Pulses from the output of the phasedetector are integrated and controls the oscillatorfrequency.	~2.5V	~2.5V	~3.5V	~3.5V	~3.5V	~3.5V	~3.5V	~3.5V
31	FB (Feed Back). Keeps the operating point for the data slicer.	~2V	~2V	~2V	~2V	~2V	~2V	~2V	~2V

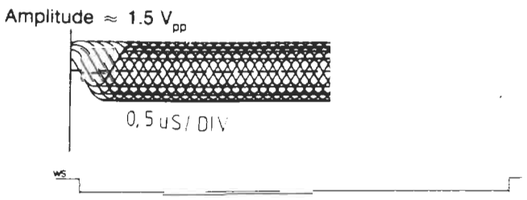
A1



A2

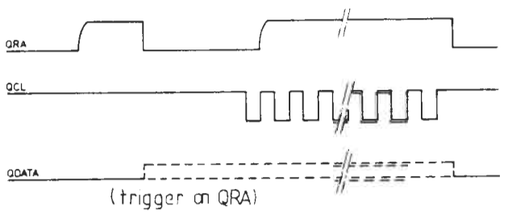


B



D

F



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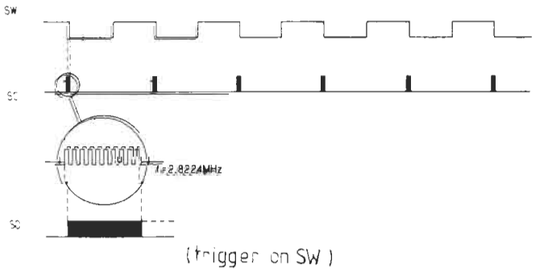
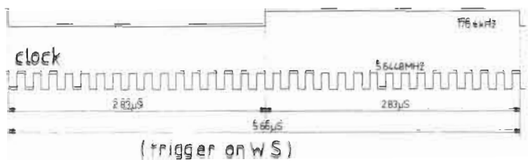


8IC5 SAA 7220

PIN	REMARKS	PLAY POSITION	SEARCH POSITION	SERVICE POSITION 1	SERVICE POSITION 2	SERVICE POSITION 3	SERVICE POSITION 4	SERVICE POSITION 5	SERVICE POSITION 6
18	WS (Word Select)	I	I	I	I	I	I		
16	Clock								
15	Data	»Activity«	»Activity«	»Stable«	»Stable«	»Activity«	»Stable«		
22	$\overline{ATSB}$ (Attenuation Audio Signal). At 'low', the signal is lowered by 12 dB.								
23	$\overline{MUSB}$ (Soft Mute). $\overline{MUSB}$ is 'low' when jumping from one track to another.	»High«	»Low«						
14	DOBM (Digital Output). Error corrected audio and subcode data.								

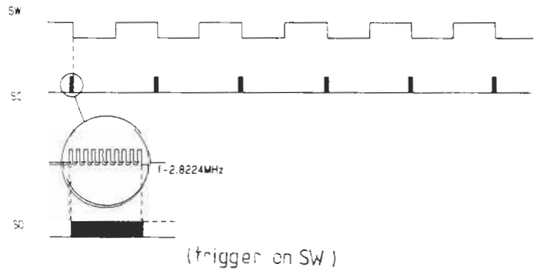
I



8IC7 MC 68HC05C4

PIN	REMARKS	PLAY POSITION	SEARCH POSITION	SERVICE POSITION 1	SERVICE POSITION 2	SERVICE POSITION 3	SERVICE POSITION 4	SERVICE POSITION 5	SERVICE POSITION 6
5	SI (Start Initialization). When SI is 'high' the laser supply and the focus control are switched on. $\overline{RD}$ (Ready). With a disc on the turntable, $\overline{RD}$ stays 'low', when the focal point has been found.			~3V	»Low«	»Low«	»Low«	»Low«	»Low«
6	SSM (Motor Start-Stop signal). After the RD has passed to 'low', the SSM will be 'low' for a short moment (<0.2 sec.) and the disc motor amplifier will be switched on (controlled by the MCES signal).	G	G			G			
10	B0	»High«		»Low«	»Low«	»Low«	»Low«	»Low«	»Low«
9	B1 — Switches on the radial control. Controls the level on the radial servo DAC output. In search mode, there should be activity on all 4 pins.	»High«		»High«	»High«	»High«	»High«	»High«	»High«
8	B2	»High«		»High«	»High«	»High«	»High«	»Low«	»High«
7	B3	»Low«		»High«	»High«	»High«	»High«	»High«	»High«
36-37	$\overline{TL}$ (Track Loss). $\overline{TL}$ tells 8IC7 that track loss may be imminent. 8IC7 can give correction signals with B0-B3.	»High«		»Low«	»High«	»High«	»High«	»High«	»High«
4	$\overline{DODS}$ (Drop Out Detector Suppression). When $\overline{DODS}$ is 'low', drop-out signals do not influence the arm control during track search.	»High«		»Low«	»Low«	»Low«	»Low«	»Low«	»Low«

G



7-14

IR DOOR SENSORS, PCB6 og PCB11

Kontroller sendedioderne OD2, OD3, OD5 og OD6 således:

Parallelforbind en IR-modtagerdiode og en 220 ohm modstand, og tilslut et oscilloskop (AC, 1mV/DIV og 20 µs/DIV)
Afmonter 6P46.
Hold IR-modtagerdioden foran hver IR-sendediode og sørg for reflektion bag IR-modtagedioden f.eks. fra et stykke papir.

På oscilloskopet kan der måles en 102 kHz svingning, hvis der er »liv« i systemet.

IR DOOR SENSORS, PCB6 and PCB11

Check the transmitter diodes OD2, OD3, OD5 and OD6 as follows:

Connect an IR receiver diode and a 220 ohm resistor in parallel, and connect an oscilloscope (AC, 1 mV/DIV and 20 µs/DIV).
Dismount 6P46.
Hold the IR receiver diode in front of each IR transmitter diode and make sure that there is some kind of reflection behind the IR receiver diode, e.g. from a piece of paper.

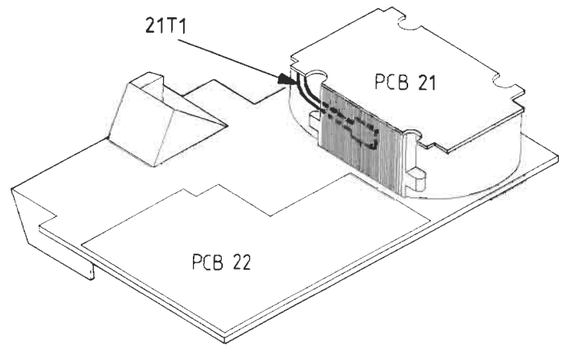
A 102 kHz oscillation may be measured on the oscilloscope if the system is "active".

BEOLAB 2500
Termosikring TF1

TF1 er en one-shot termosikring. Ved udskiftning er det væsentligt, at den nye termosikring bliver placeret som den gamle.

BEOLAB 2500
Thermal fuse TF1

The TF1 is a one-shot thermal fuse. When replacing the fuse, it is important that the new thermal fused is placed like the old one.



Netledning

De interne netledninger til Trafo PCB21 *skal* forbindes således:

han (lille) = IN (PCB21)
hun (stor) = OUT (PCB21)

Mains lead

The internal mains leads to the Transformer PCB21 *must* be connected as follows:

male (small) = IN (PCB21)
female (large) = OUT (PCB21)

C9, C10

Gummifødderne på 22C9 og 22C10 fungerer som isolering da man i servicestilling kan kortslutte dem på kølepladen.

C9, C10

The rubber feet on 22C9 and 22C10 serve as insulation, because they may be short-circuited on the cooling plate while in service position.

Højttaler tavs; rød diode

Kontroller:
Sikringerne 21F1 og 21F2.
Sikringsmodstandene 22R19 og 22R20.
35V spændingen (katoden på 22D5 eller 22D6).
Spændingen mellem 22R86 og 22R83 (Protection) som bør være ca. 17,5 V.

Speaker silent; red diode

Check:
The fuses 21F1 and 21F2.
The fuse resistors 22R19 and 22R20.
The 35V voltage (cathode of 22D5 or 22D6).
The voltage between 22R86 and 22R83 (Protection); it should be approx. 17.5 V.

Højttaler tavs; grøn diode

Kontroller:
Sikringer 21F1 og 21F2.
Er relæet 22RL1 trukket?
±15 V spændingen.
±37 V spændingen.
27 V AC spændingen.
Spændingen over 21IC43, som bør være ca. 18 V.
Spændingen på 21IC3, ben 7, som bør være ca. -37 V.
Spændingen på basen af 21TR2 og 21TR5, som bør være ca. -1,5 V ⟶ -1 V.
Signalvejen.

Speaker silent; green diode

Check:
The fuses 21F1 and 21F2.
Is the relay 22RL1 active?
The ±15 V voltage.
The ±37 V voltage.
The 27 V AC voltage.
The voltage across 21IC43, which should be approx. 18 V.
The voltage at 21IC3, pin 7, which should be approx. -37 V.
The voltage at the base of 21TR2 and 21TR5, which should be approx. -1.5 V ⟶ -1 V.
The signal path.

Slutafprøvning BC 2500

Denne afprøvning bør benyttes som slutkontrol efter endt reparation, og sikrer at hovedparten af Beocenterens funktioner er i orden.

Tilslut Beocenter 2500 til lysnet.

Stand-by diode lyser.

Tast [●]	
Tast [RADIO]	Radio starter på den sidst benyttede station
Tast [GOTO] [TURN] [RADIO]	Indtil display viser AM 150
Tast [TUNE >]	Søger til AM-station, hvor lydkvaliteten kan bedømmes
Tast [GOTO] [TURN] [RADIO]	Til display viser FM 87,5
Tast [TUNE >]	Søger til FM-station, hvor lydkvaliteten kan bedømmes
Ilæg kassettebånd for optagelse	
Tast [RECORD] [RECORD] Optag 1 min.	Optagelse starter
Tast [RETURN]	Spoler tilbage til optagestart
Tast [TAPE]	Optagelse afspilles, hvorved lydkvaliteten kan bedømmes
Tast [LOAD]	CD-clamper åbnes
Ilæg CD-plade	
Tast [CD]	CD-clamper lukker og afspilning 1 starter
Tast [STOP]	Lyt efter støj
Tast [CD]	Afspilning fortsætter
Tast højeste nummer på CD	Søger til sidste nummer og starter afspilning
Tast [LOAD]	Fjern CD-plade og bånd fra Beocenteren
Tast [●] med fjernbetjening	CD-clamper og døre lukker

Final Testing of BC 2500

This testing procedure should be used as a final check after completion of repairs to ensure that the majority of the Beocenter's functions are in working order.

Connect Beocenter 2500 to mains.

Stand-by diode lights up.

Key ●	
Key RADIO	Radio starts on the station last used
Key GOTO TURN RADIO	Until display shows AM 150
Key TUNE >	Searches for AM station on which to evaluate sound quality
Key GOTO TURN RADIO	Until display shows FM 87.5
Key TUNE >	Searches for FM station on which to evaluate sound quality
Insert cassette for recording	
Key RECORD RECORD Record 1 min.	Recording starts
Key RETURN	Rewinds to start of recording
Key TAPE	Recording is played back, enabling sound quality to be evaluated
Key LOAD	CD clamper opens
Insert CD	
Key CD	CD clamper closes and playback 1 starts
Key STOP	Listen out for noise
Key CD	Playback continues
Key highest number on CD	Searches for last number and starts playback
Key LOAD	Remove CD and tape from Beocenter
Key ● using remote control	CD clamper and doors close

ISOLATIONSTEST

Ethvert apparat **skal** isolationstestes efter at det har været adskilt. Testen udføres når apparatet igen er helt samlet og klar til udlevering til kunden.

Isolationstest for Beosystem 2500

Isolationstesten udføres på følgende måde:
De to stikben på netstikket kortsluttes og tilsluttes en af terminalerne på isolationstesteren. Den anden terminal fra isolationstesteren tilsluttes stelbenet i hovedtelefonstikdåsen.

OBS!
For at undgå beskadigelser på apparatet er det vigtigt, at begge terminaler fra isolationstesteren har virkelig god mekanisk kontakt.

Der drejes nu langsomt med spændingsreguleringen op isolationstesteren indtil en spænding på 1,5 – 2 kV er opnået. Her skal den holdes i 1 sekund, derefter drejes der langsomt ned for spændingen igen.

Der må ikke på noget tidspunkt under testen forekomme overslag.

INSULATION TEST

Each set **must** be insulation tested after dismantling. The test is to be performed when the set has been re-assembled and is ready for delivery to the customer.

Insulation test for Beosystem 2500

Make the insulation test as follows: Short-circuit the two plug pins of the mains plug and connect one of the terminals of the insulation tester. Connect the other terminal of the insulation tester to the chassis pin of the headphone socket.

N.B.!
To avoid ruining the set, it is essential that both insulator test terminals are in really good mechanical contact.

Now turn slowly the voltage control of the insulation tester until a voltage of 1.5 - 2 kV is obtained. Hold it there for 1 second, then turn slowly the voltage down again.

At no point during the testing procedure any flash-overs are permissible.

Bang&Olufsen

Beocenter 2300

Type 2611, 2612 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620

Bang&Olufsen

INDHOLD

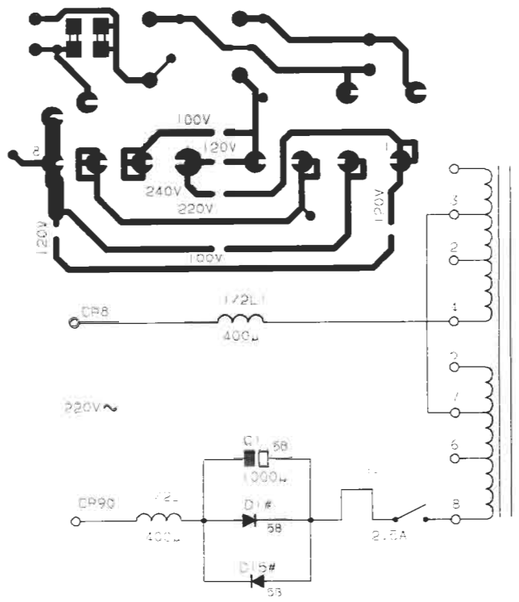
CONTENTS

INHALT

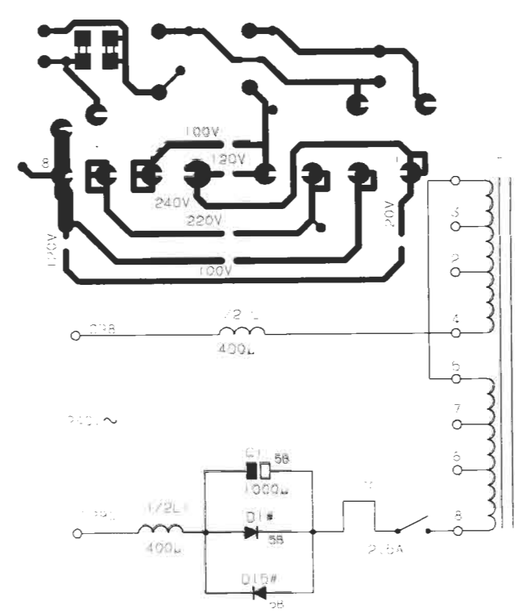
TABLE DES MATIERES

WIRING OF TRANSFORMER

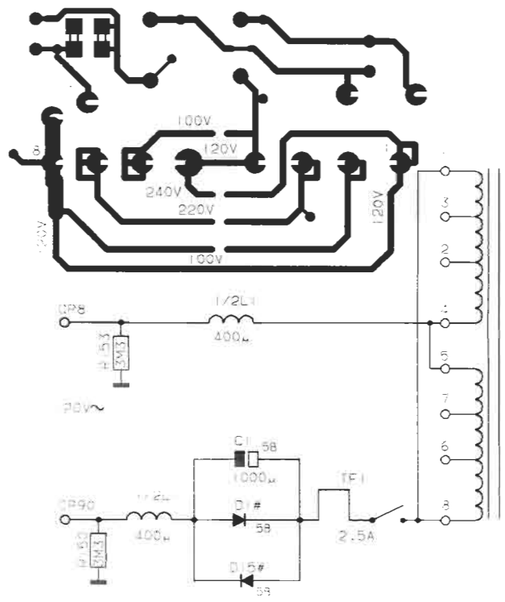
Beocenter 2300, PCB 2
Type 2611, 2616
EU 220 V~



Type 2612, 2615, 2617, 2620
GB, AUS 240 V~



Type 2613, 2618
CND, USA 120 V~



Type 2614, 2619
JPN 100 V~

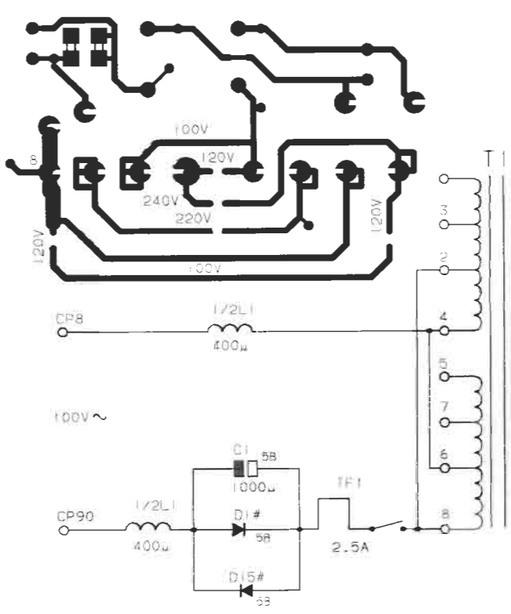


DIAGRAM A FM/AM, RF, IF decoder

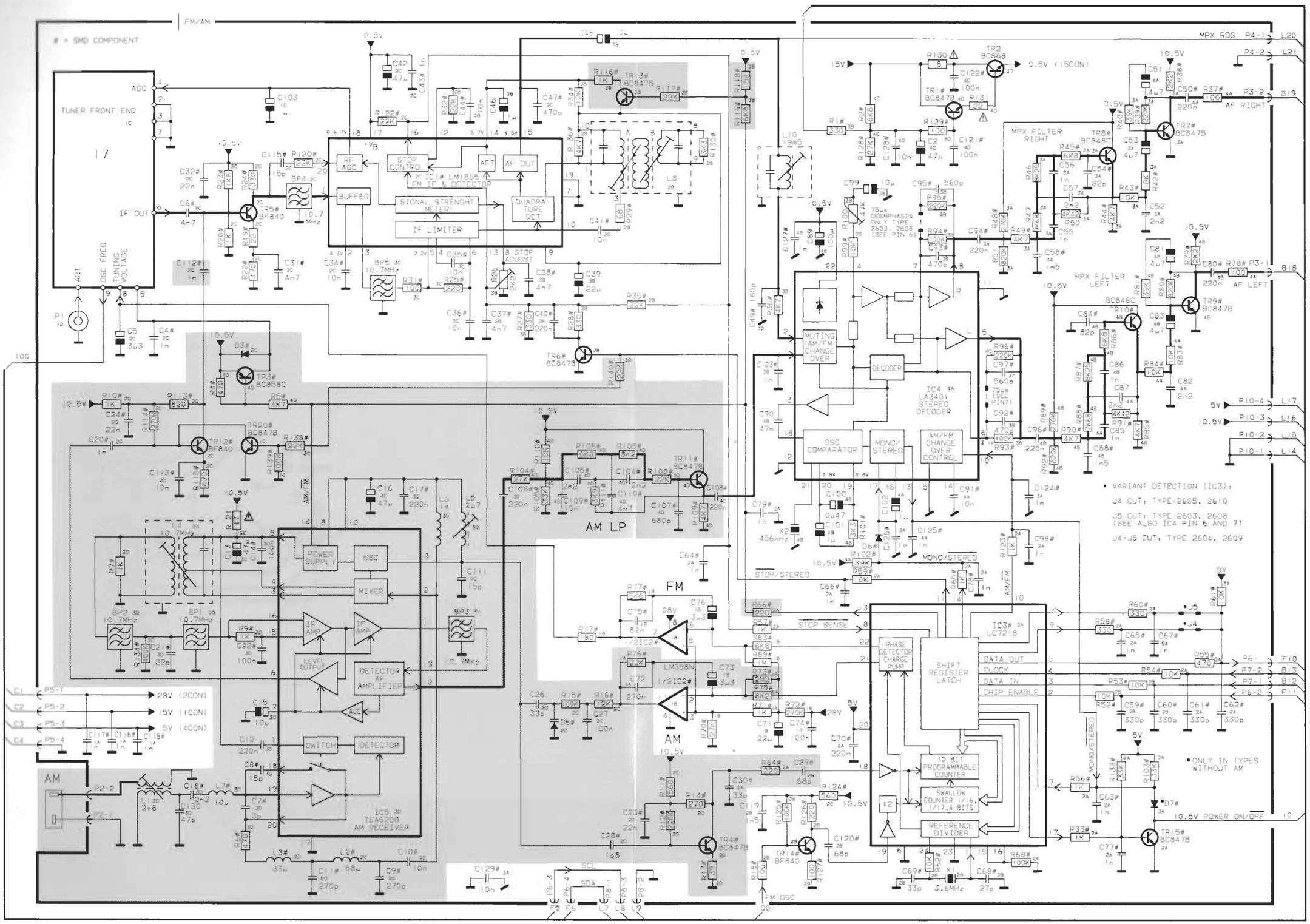


DIAGRAM F MICROCOMPUTER

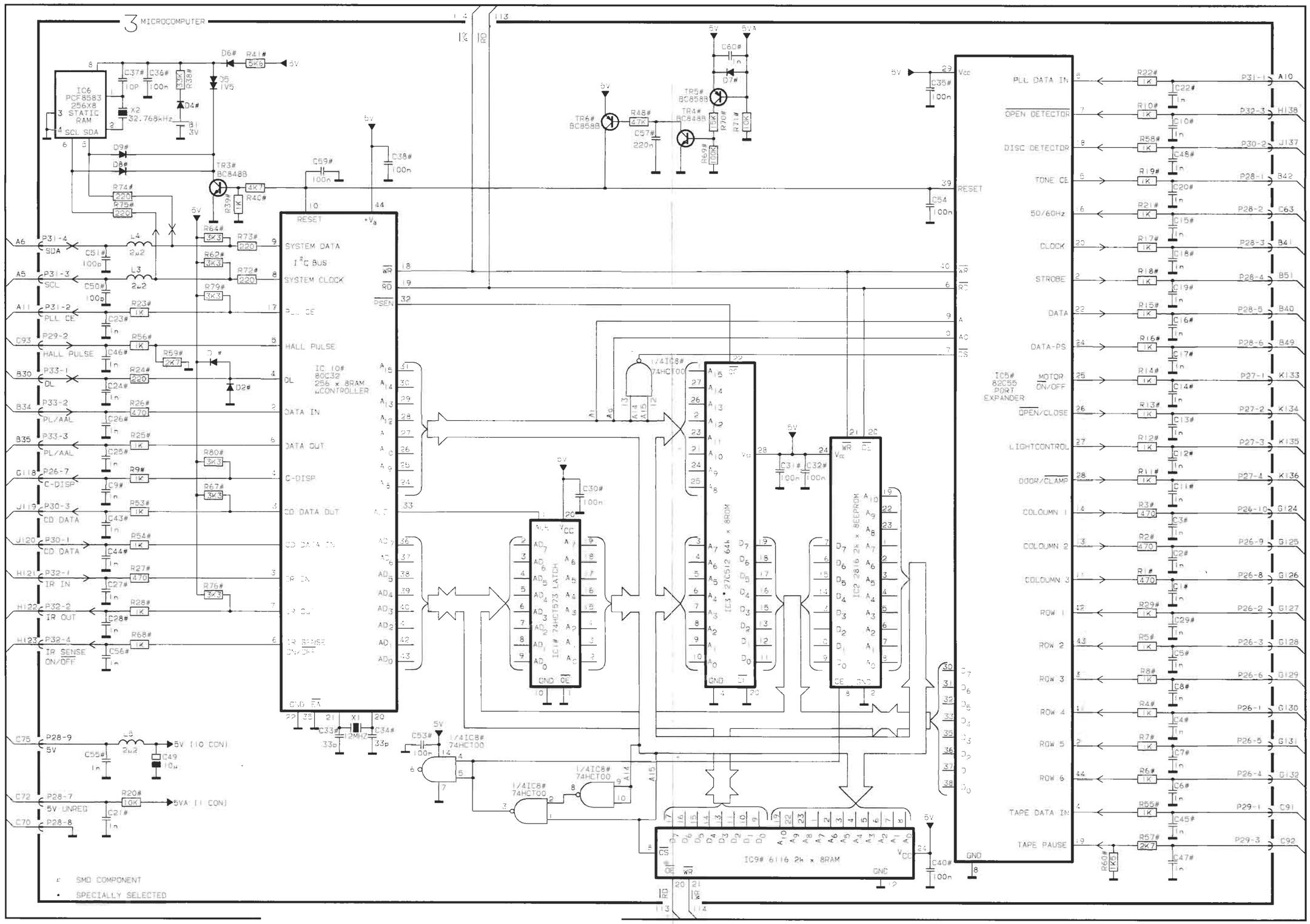


DIAGRAM G DISPLAY AND KEYBOARD

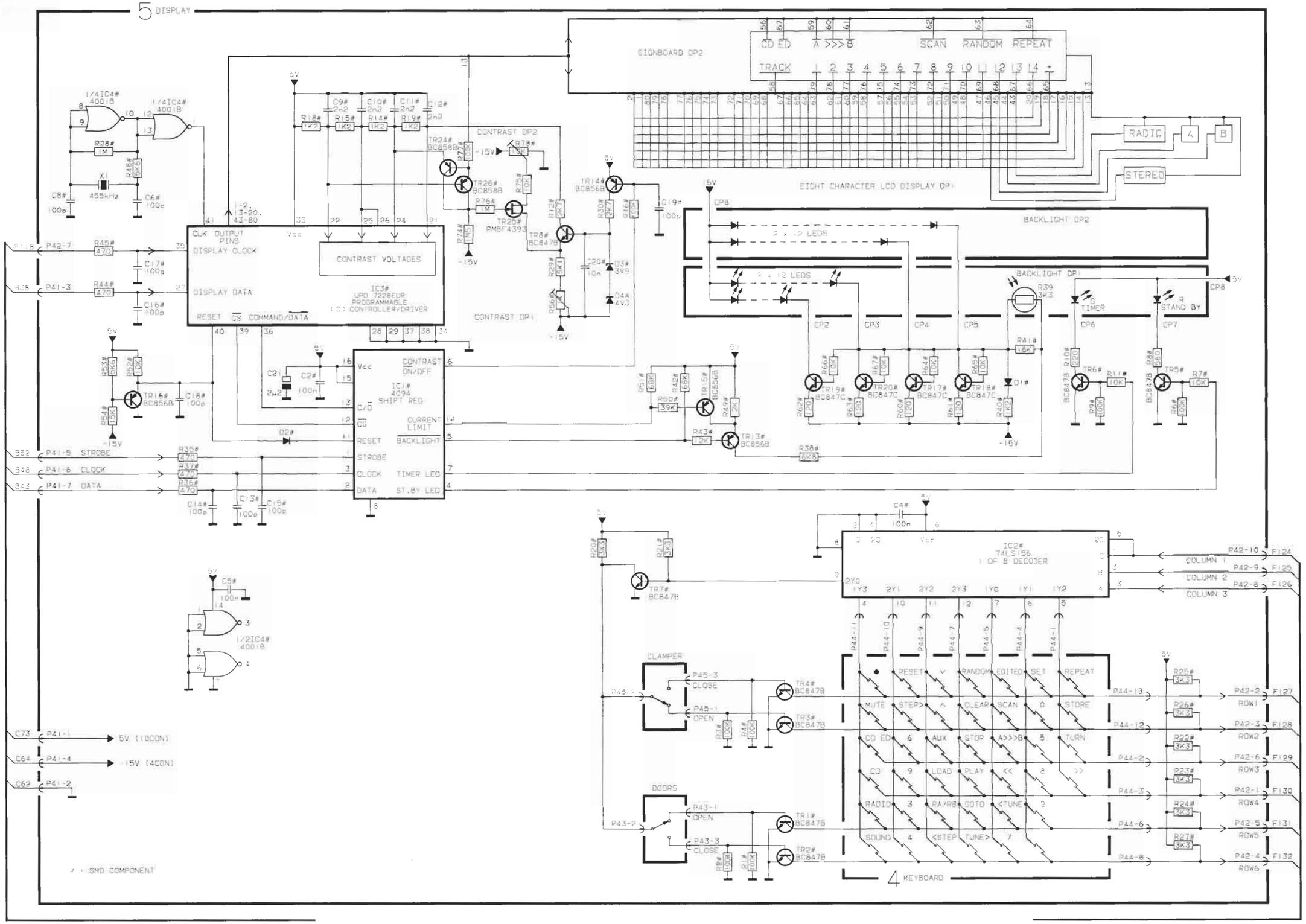
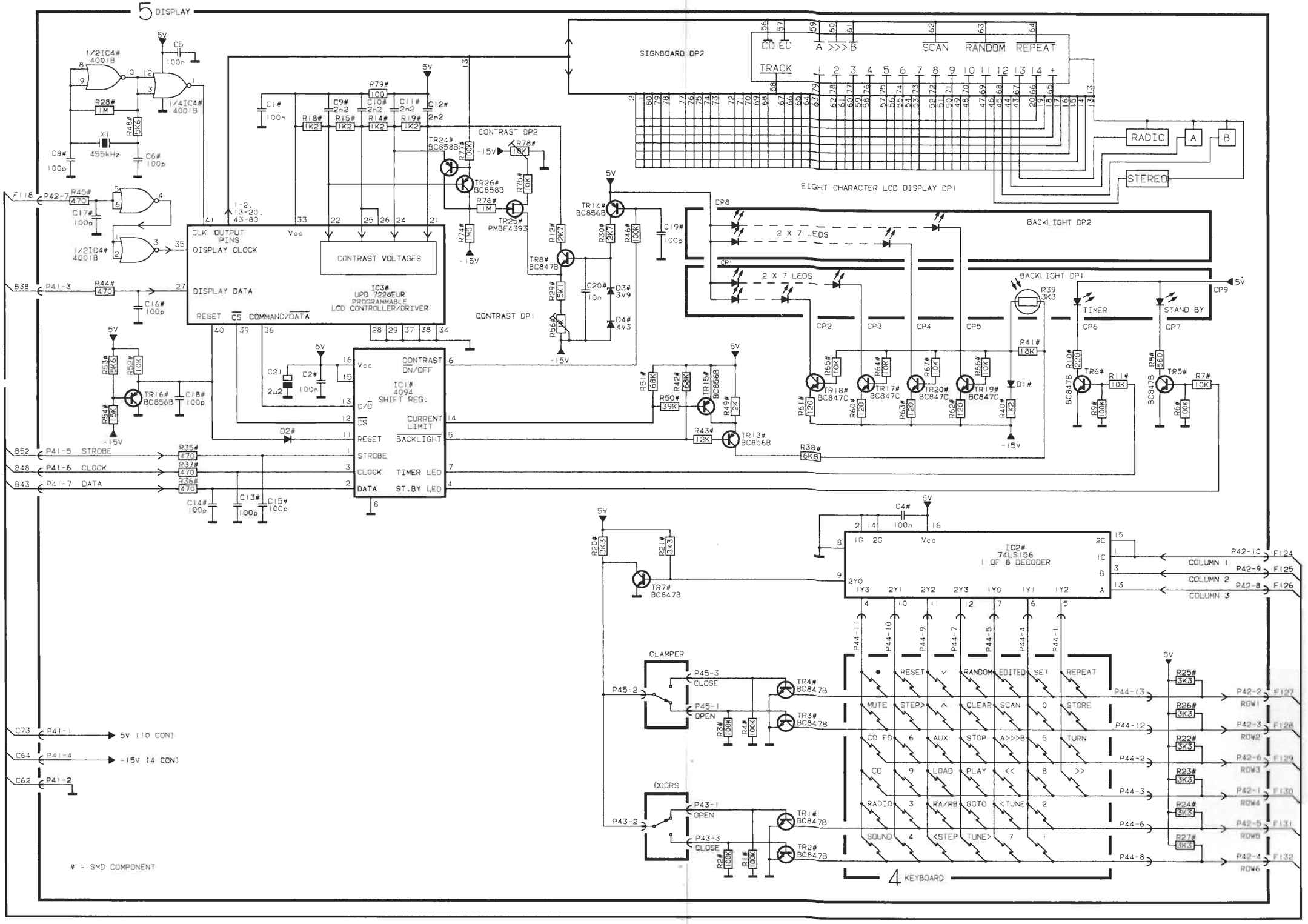


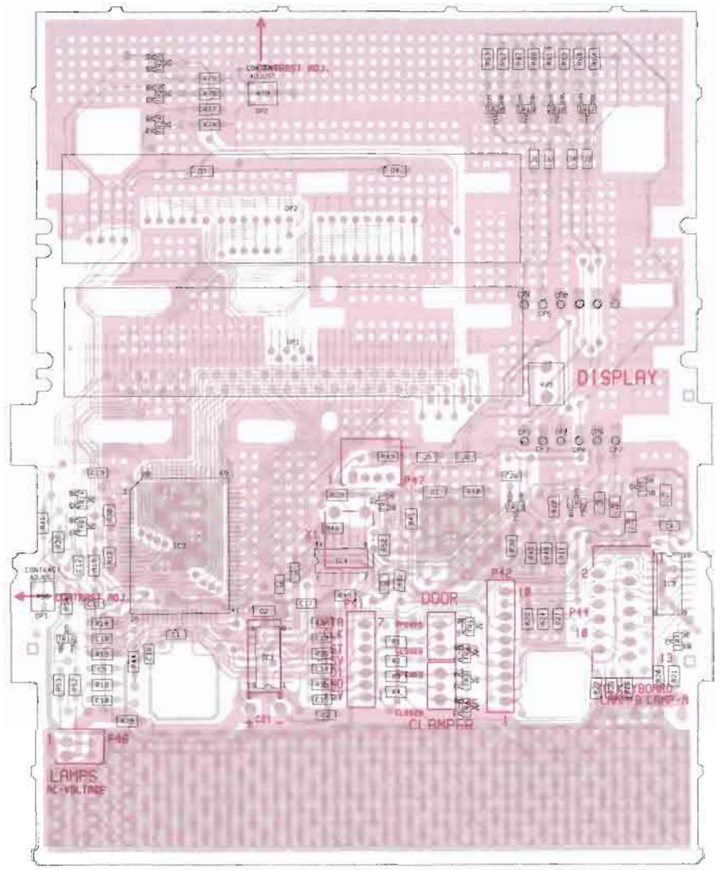
DIAGRAM G DISPLAY AND KEYBOARD VERSION E



10-3b

10-3b

PCB 5 Display, version E



10-3b

10-3b

Bang&Olufsen

Corrections

Page 11-1

The correct part no. for PCB 03 is 8001376.

3IC2△ has been changed to 8341125
3IC3 is missing 3IC3*△ 8341573 27C512

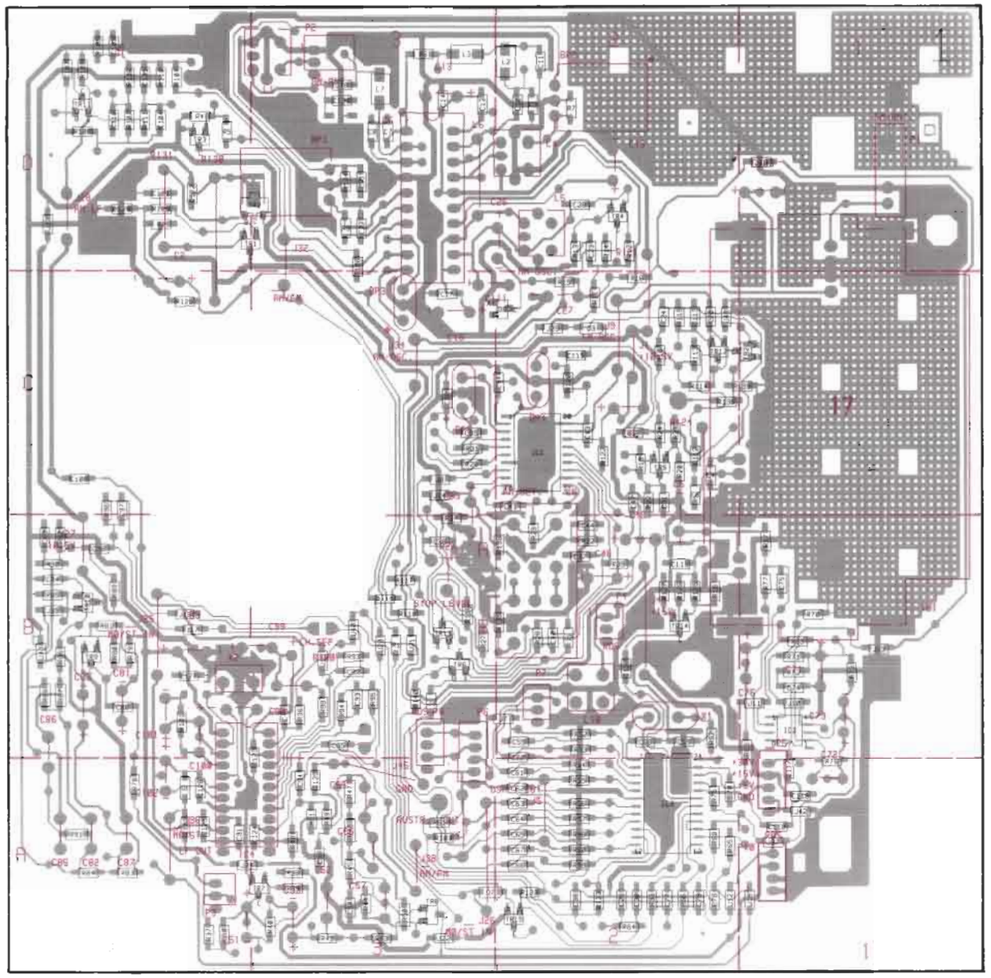
* special selected sample.

SMD Survey

: rear side

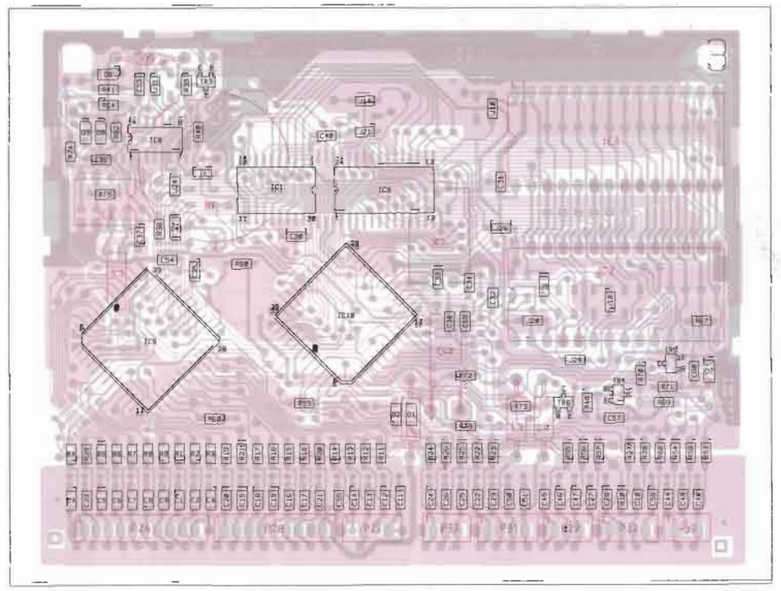
: rear side

PCB 1, Tuner and IF System

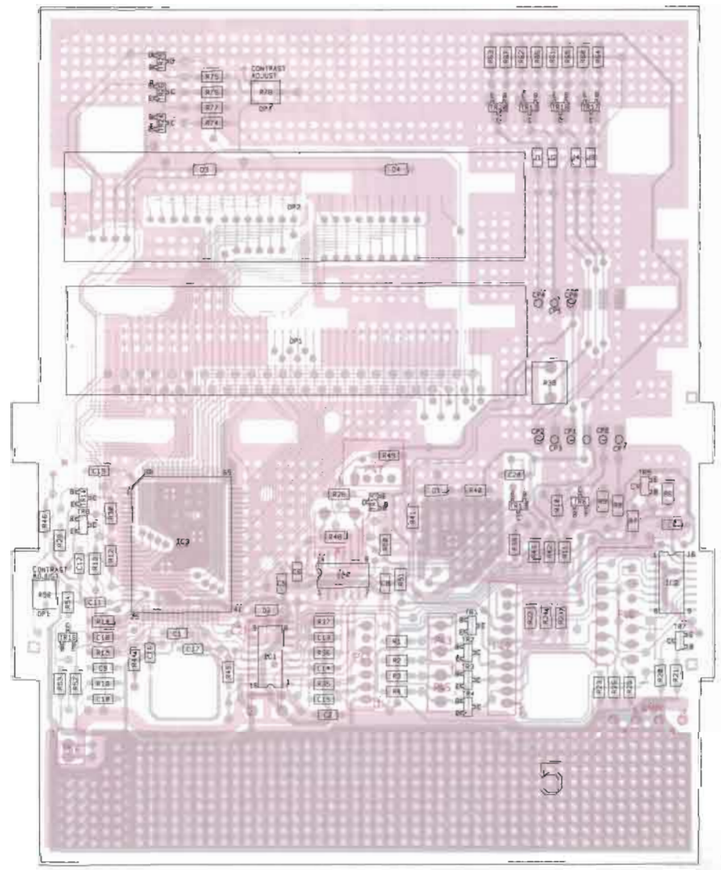


10-4

PCB 3, Microcomputer



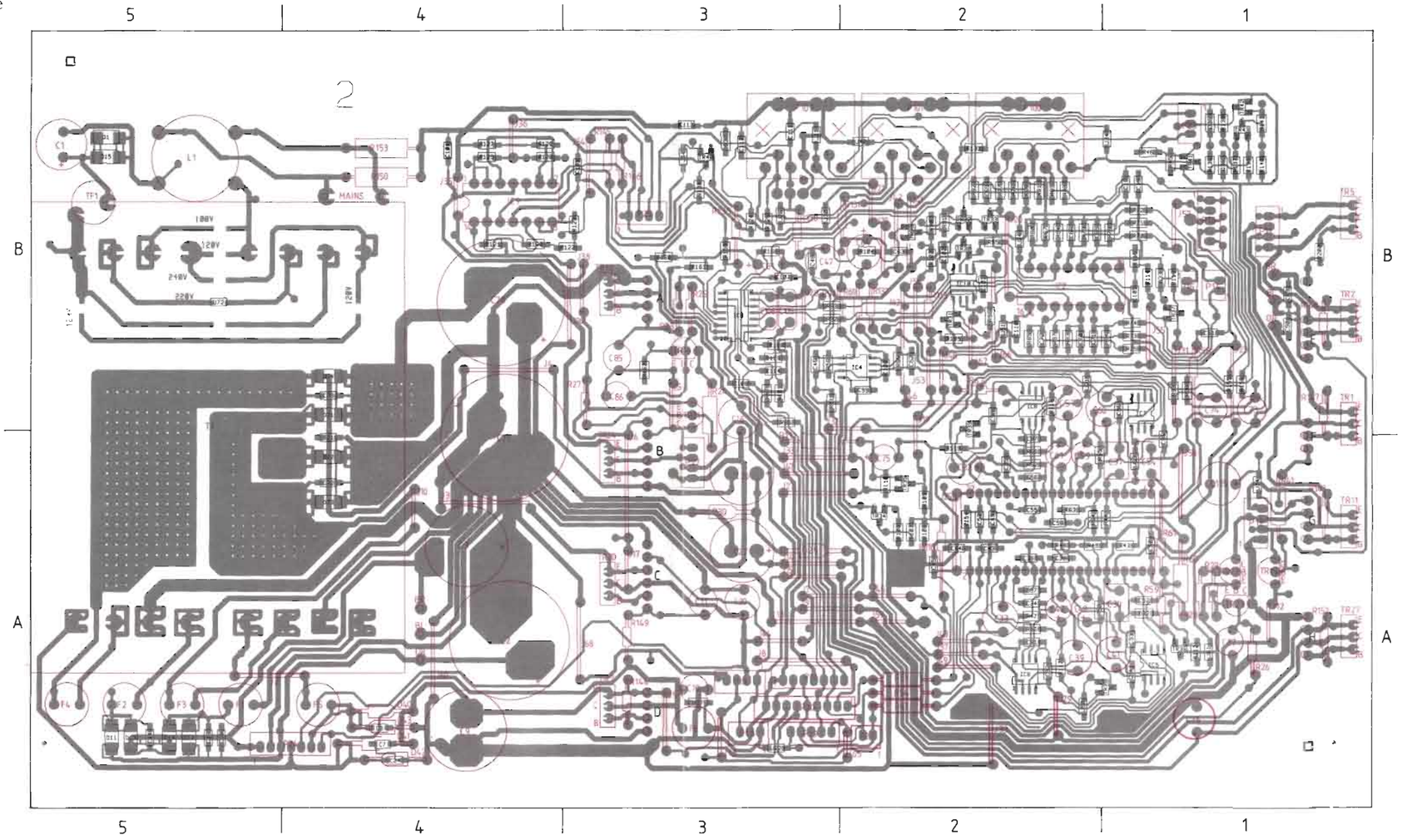
PCB 5, Display



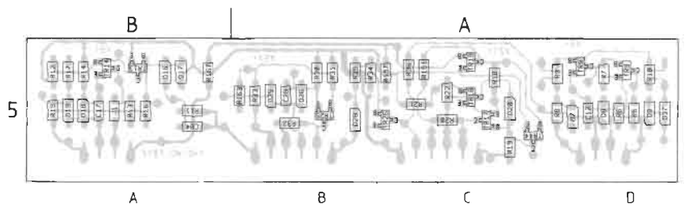
10-4

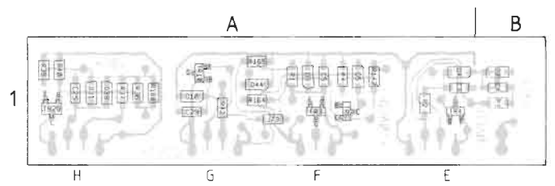
PCB 2, Pre. Amp. and Power Supply

: rear side

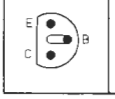
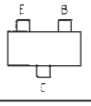


: rear side





LIST OF ELECTRICAL PARTS

20	51	57	151	250			
							

Resistors not referred to are standard, see page 3-12
△ Indicates that static electricity may destroy the component
** Specially selected or adapted sample*

PCB 01
8001413 FM/AM
8001415 FM/AM,
type 2609 and 2619

TR20	8320755	**051** BC847B			
C7	4000267	3pF ±0.25 50V	C28	4000357	1.8pF ±0.25 50V
C8	4000276	18pF 5% 50V	C129	4010157	10nF 10% 50V
C10	4010157	10nF 10% 50V	C130	4000234	47pF 5% 50V
L1	8020909	Coil 2.8mH	L7	8020772	Coil 10µH

PCB 02
8001289, Power Supply
8001378-LF 28V (16 pin)
8001379-LF 15V (20 pin)
8001385-Power Link

TR16	8320497	**020** BC547B	TR28	8320816	**051** BC846B
TR23	8320497	**020** BC547B			
C2	4201111	6800µF 20% 16V	C113-C114	4010157	10nF 10% 50V
C111-C112	4010132	1nF 10% 50V	C115	4200682	100µF 20% 16V
R56	5011914	5.1kΩ 1% 1/8W	R68	5011914	5.1kΩ 1% 1/8W

PCB 03, 8001376
Microcomputer

IC2△	8341125	2816C	IC3△*	8341573	27C512
C60	4010132	1nF 10% 50V			

PCB 05, 8001362
Display

IC3△	8341079	**151** µPD7228			
TR17-TR20	8320936	**051** BC847C	TR25	8320955	**057** PMBF4393
			TR26	8320616	**051** BC858B
TR24	8320616	**051** BC858B			
D3	8300577	**250** Z3.9V 2%	D4	8300661	**250** Z4.3V 2%
R29	5011914	5.1kΩ 1% 1/8W	R78	5370400	10kΩ 25% 0.1W
R40	5011912	1.2kΩ 1% 1/8W			
C9-C12	4010170	2.2nF 10% 50V	C19	4000241	100pF 5% 50V
			C20	4010157	10nF 10% 50V
P41	7220714	Plug 7 pole	P45	7220710	Plug 3 pole
P42	7220717	Plug 10 pole	P46	7220724	Plug 2 pole
P43	7220710	Plug 3 pole	P47	7220726	Plug 4 pole
P44	7210853	Plug 13 pole			

8001473, Backlight

D1-D24	8330275	LED green	D30	8330275	LED green
			D31	8330246	LED red

All other electrical parts are identical with chapter 3.

LIST OF MECHANICAL PARTS

See drawing page 4-1

Front

05 modul	8001362	Display
0506	3151285	Holder top (DP2)
	3151292	Holder bottom (DP1)
9003	3904124	Alu foil with tape
9004	3451196	Front piece with alu foil
9029	3322137	Window
9028	2776226	Set of buttons

The Tape Mechanism is replaced by:

	3342051	Counterweight
	3124129	Holder f. counter-weight
	2572044	Holder f. clavier

Chassis

See drawing page 4-4

01 modul	8001413	FM/AM
	8001415	FM/AM, type 2609 and 2619
03 modul	8001376	Microcomputer
9143	2548251	Bracket

Parts not shown

6276495	Main wire bundle
6100248	Mains cable, Japan
6100248	Mains cable, Aus.
3392405	Outer carton
3397824	Foam packing

All other mechanical parts are identical with chapter 4.

Display, PCB 5 (BS 2300)

Kontrastjustering

Sæt PCB 5 i serviceposition (se side 6-3), Lamp B loddes fra og 4 skruer afmonteres.

Påsæt CD. Tast CD

Juster med 5R78 (SMD) til minimum kontrast i display 2 (DP2).

Tast RADIO

Juster med 5R56 (SMD) til maximum kontrast i display 1 (DP1). Skru ned for kontrasten indtil lyset netop forsvinder i de lyssegmenter, der er uvedkommende for den aktuelle tekst i displayet.

Tast CD

Juster med 5R78 (SMD) til maximum kontrast i display 2 (DP2). Skru ned for kontrasten indtil lyset netop forsvinder i de lyssegmenter, der er uvedkommende for den aktuelle tekst i displayet.

Display, PCB 5 (BS 2300)

Contrast adjustment

Bring PCB 5 into service position (see page 6-3). Unsolder Lamp B and remove 4 screws.

Load a CD. Press CD

Adjust to minimum contrast in display 2 (DP2) by means of 5R78 (SMD).

Press RADIO

Adjust to maximum contrast in display 1 (DP1) by means of 5R56 (SMD).
Reduce the contrast until the light just disappears in those light segments which are not relevant to the text currently being displayed.

Press CD

Adjust to maximum contrast in display 2 (DP2) by means of 5R78 (SMD).
Reduce the contrast until the light just disappears in those light segments which are not relevant to the text currently being displayed.

Display, PCB 5 (BS 2300)

Kontrasteinstellung

PCB 5 in Service-Position bringen (siehe Seite 6-3), Lampe B ablöten und 4 Schrauben abmontieren.

CD aufsetzen und CD drücken.

Mit 5R78 (SMD) auf minimalen Kontrast im Display 2 (DP2) einstellen.

RADIO drücken.

Mit 5R56 (SMD) auf maximalen Kontrast im Display 1 (DP1) einstellen. Kontrast hinabdrehen, bis das Licht in den Leuchtsegmenten, die für den aktuellen Displaytext ohne Bedeutung sind, gerade verschwindet.

CD drücken.

Mit 5R78 (SMD) auf maximalen Kontrast im Display 2 (DP2) einstellen. Kontrast hinabdrehen, bis das Licht in den Leuchtsegmenten, die für den aktuellen Displaytext ohne Bedeutung sind, gerade verschwindet.

Affichage, carte PCB 5 (BS 2300)

Réglage du contraste

Amener la carte PCB 5 en position de maintenance (voir page 6-3). Dessouder le voyant B et enlever les 4 vis.

Charger un CD. Appuyer sur CD

A l'aide de 5R78 (CMS), régler pour avoir un contraste minimal sur l'afficheur 2 (DP2).

Appuyer sur RADIO

A l'aide de 5R56 (CMS), régler pour avoir un contraste maximal sur l'afficheur 1 (DP1). Diminuer le contraste jusqu'à extinction des segments lumineux sans rapport avec l'indication instantanée de l'afficheur.

Appuyer sur CD

A l'aide de 5R78 (CMS), régler pour avoir un contraste maximal sur l'afficheur 2 (DP2). Diminuer le contraste jusqu'à extinction des segments lumineux sans rapport avec l'indication instantanée de l'afficheur.

Bang&Olufsen

Beocenter 2500

Type 2601, 2602, 2603, 2604
2605, 2606, 2607, 2608
2609, 2610

Corrections

Bang&Olufsen

INDHOLD

CONTENTS

INHALT

TABLE DES MATIERES

DIAGRAM G DISPLAY AND KEYBOARD, VERSION I

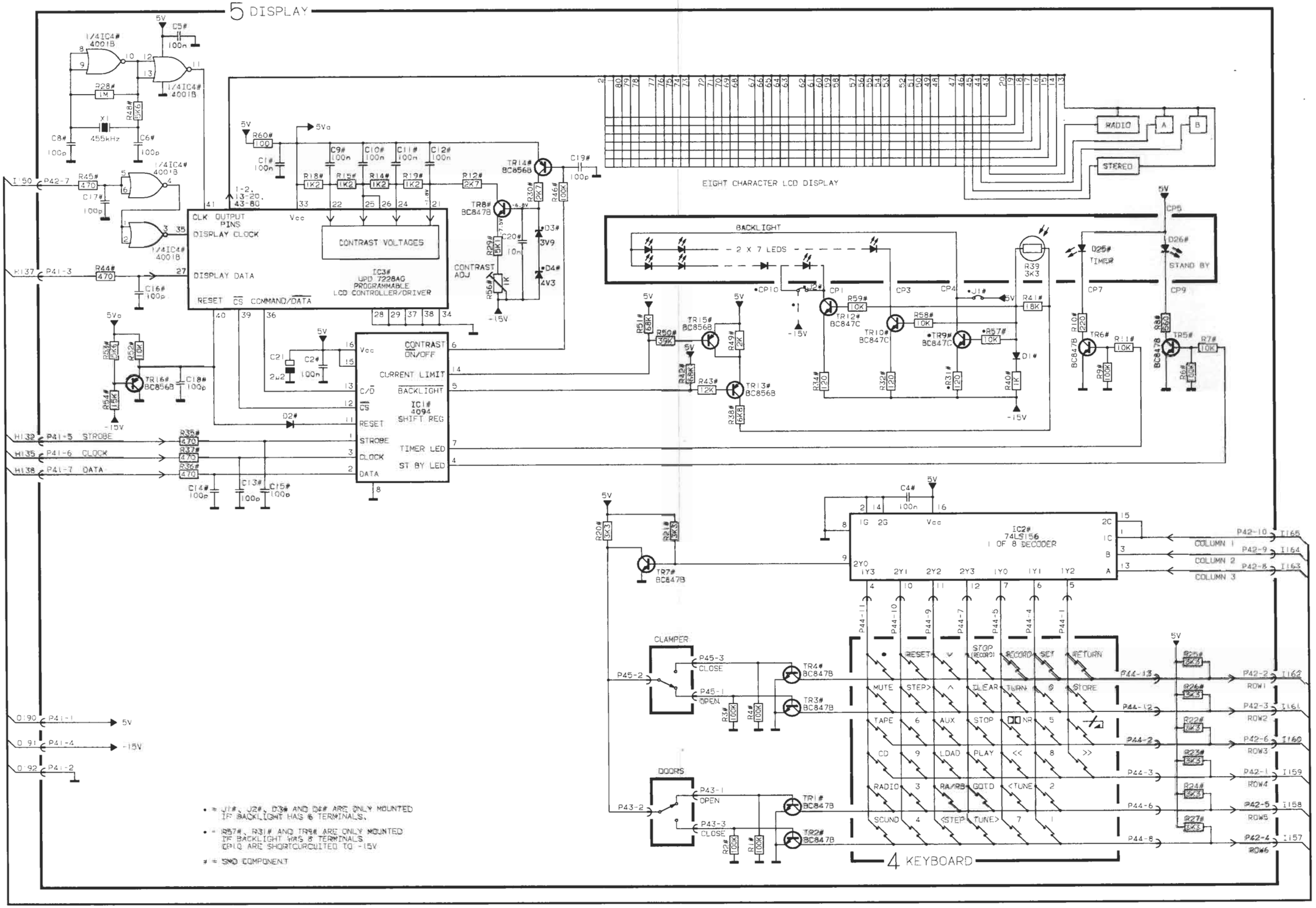
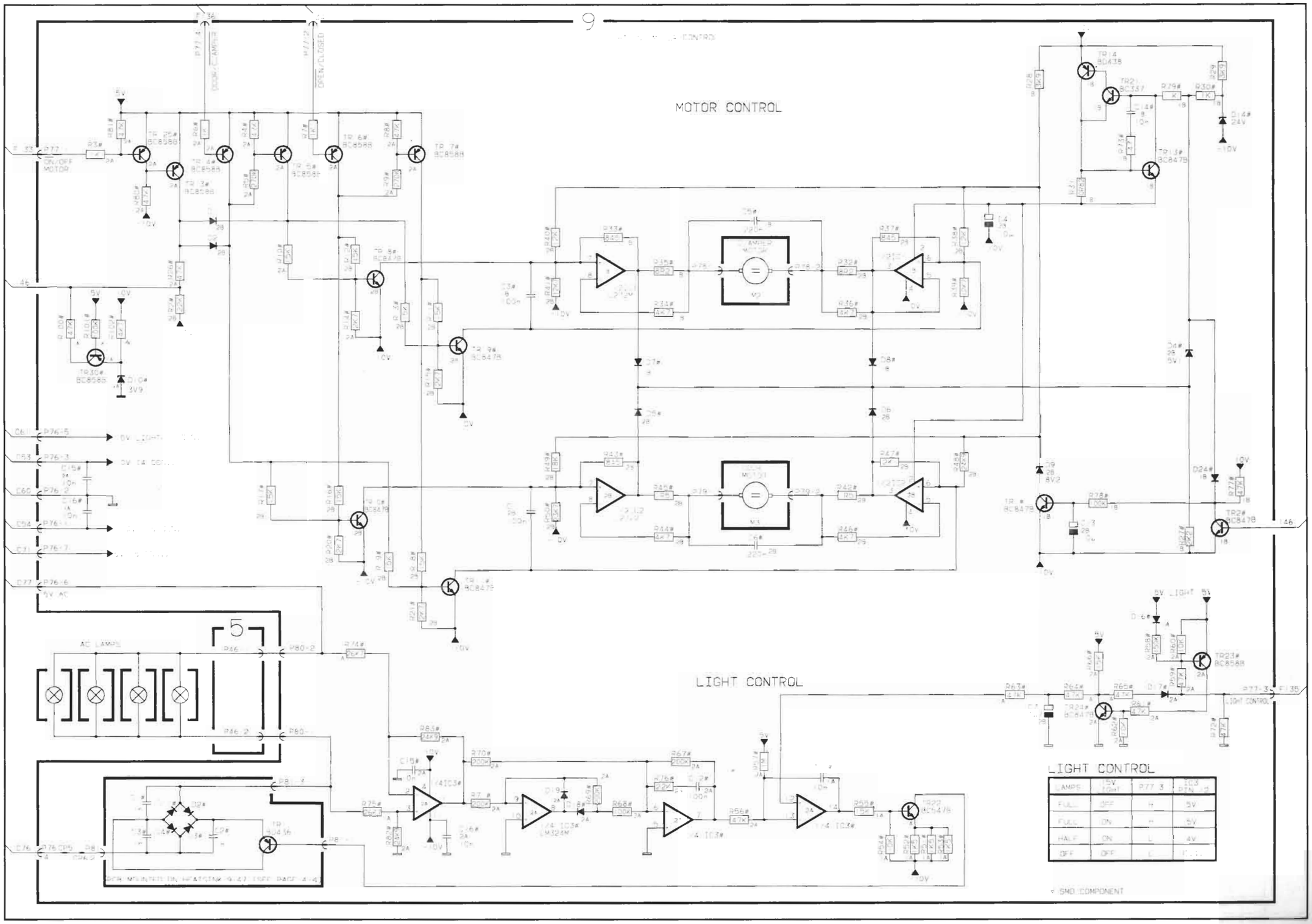


DIAGRAM K LIGHT AND MOTOR CONTROL, VERSION G



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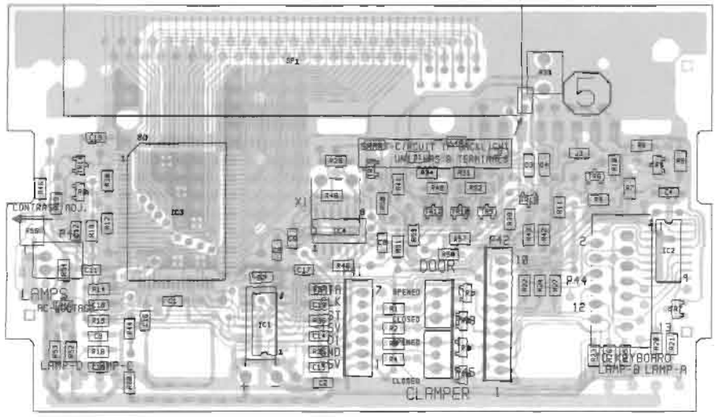
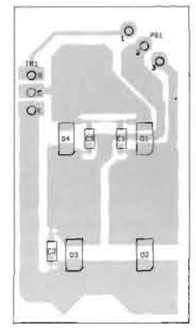
14-3

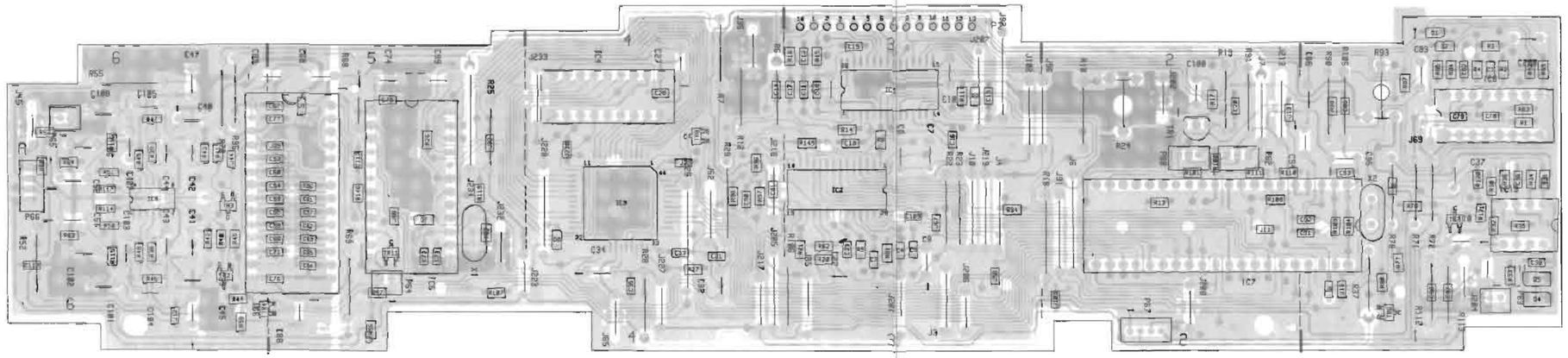
PCB5, Display, Version I



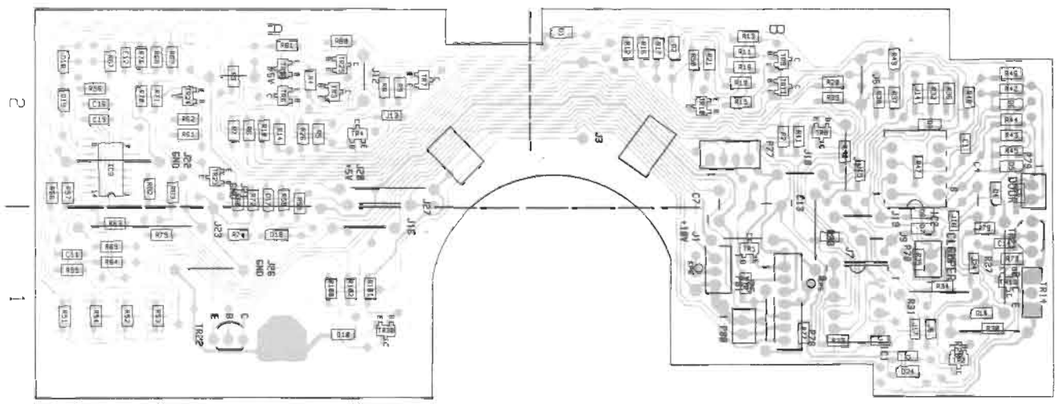
PCB mounted on heatsink 9147 (see page 4-4)



PCB8, CD, Version G



PCB9, Light and motor control, Version G



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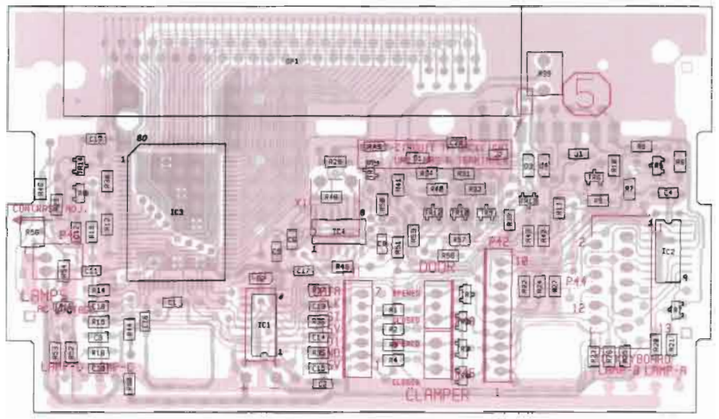
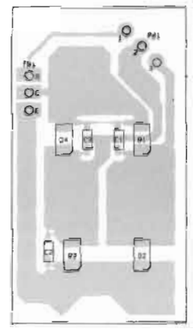
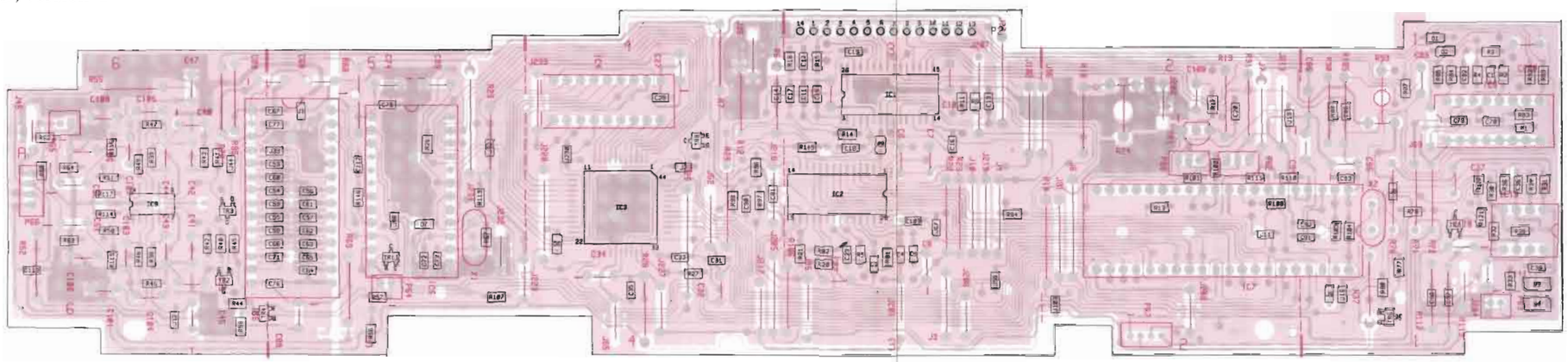
PCB5, Display, Version I



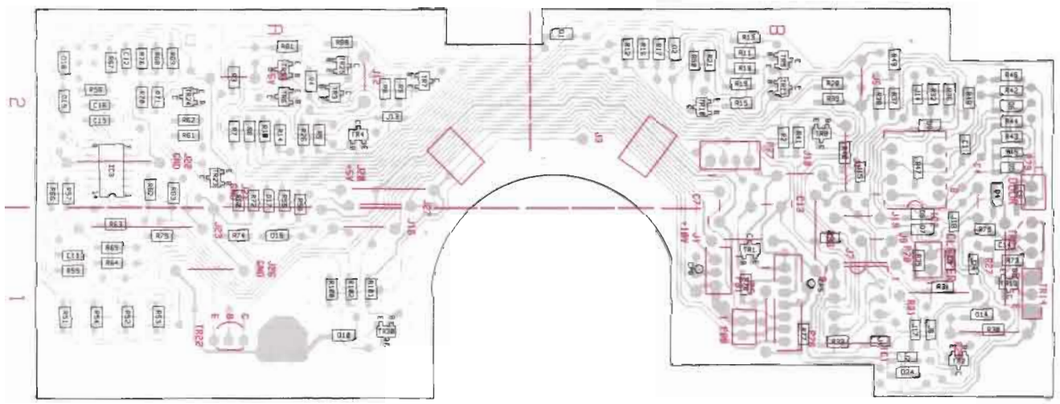
PCB mounted on heatsink 9147 (see page 4-4)



PCB8, CD, Version G



PCB9, Light and motor control, Version G



CORRECTIONS

Diagrams

Page 1-11

17C2 has been changed to 27pF 5% 50V 4000257
17C24 has been changed to 68nF 5% 63V 4130270

Page 2-2

1C49 has been connected to 1IC4 pin 2
The correct output mode for 1IC3 pin 11 is: $\overline{\text{STOP}}$/STEREO.

Page 2-3

The correct output mode for 2IC3 pin 12: SPEAKER $\overline{\text{ON}}$/OFF
P25-4 (TO HEADPHONE PCB18): SPK ON/$\overline{\text{OFF}}$.

Page 2-4

The resistor connected to emitter on 2TR14 (-15V) is named wrong (R11). The correct name is R14.

2R11 has been changed to 47KΩ 2% 1/8W 5011250.

7IC8 pin 5 is positive input (+), pin 6 is negative.

Page 2-7

Connections:

B63 = C63
B70 = C70
B72 = C72
B75 = C75

Page 2-8

Connections:

B62 = C62
B64 = C64
B73 = C73

Page 2-9

Connections:

B67 = C67
B69 = C69
B74 = C74

Page 2-11

Connections:

I55 = I155
I55 = I153

Page 2-12

Connections:

B53 = C53
B54 = C54
B60 = C60
B61 = C61
B71 = C71
B76 = C76
B77 = C77

Page 2-13

10C3 has been changed to 10n 10% 50V 4010157
10C4 has been changed to 2n2 10% 50V 4010170
10R6 has been changed to 270 KΩ 2% 1/8W 5011262
10R4 has been changed to 33Ω 1/8W 5011659

Page 2-15

Basic and emitter of 1TR6 coordinate 3B has been interchanged (1TR6 and 1TR13 is alike).

List of electrical parts

Page 3-1

1C7 has been changed to 3pF ±0.25pF 50V, 4000267
IC8 has been changed to 18pF 5% 50V, 4000276
1C10 has been changed to 10nF 10% 50V, 4010280

New components
1C130 4000234 47pF 5% 50V
1L1 8020909 Coil transformer

Page 3-5

PCB05:

5IC3 is missing. 1IC3△ 8341079 **147** D7228

Plugs is missing:

P41	7220714	Plug 7 pole	P44	7210853	Plug 13 pole
P42	7220717	Plug 10 pole	P45	7220710	Plug 3 pole
P43	7220710	Plug 3 pole	P46	7220724	Plug 2 pole

Page 3-10

10C3 has been changed to 10n 10% 50V 4010157
10C4 has been changed to 2n2 10% 50V 4010170.

Page 3-11

17C24 has been changed to 68n 5% 63V 4130270.

Page 3-12

From PCB22 version G:
22IC1△ has been changed to 8350085 STK 4171-V
22C9 and 22C10 has been changed to 4201158 3300µF ±20% 50V

List of mechanical parts

Page 4-2

Two screws for cover 9007 2011047 2.5x5

Page 4-6

9207 Rear part left, has been changed to 3430584
Rear part right, has been changed to 3430585
9215 Rear plate left, has been changed to 3452653
Rear part right, has been changed to 3452655
9217 Baffle right, has been changed to 3440147
Baffle left, has been changed to 3440148
9219 Ornamental frame, has been changed to 3451241

PCB05, 8001309
DISPLAY
VERSION I

New components

D3	8300577	**250**	3.9V 2%	D4	8300661	**250**	**4.3V 2%**
R29	5011914		5.1 kΩ 1% 1/8W				
C19 C20	4000241 4010157		100 pF 5% 50V 10 nF 10% 50V	C21	4200517		**2.2µF 20% 50V**

PCB09, 8001322
LIGHT AND MOTOR CONTROL
VERSION G

TR30	8320616	**051**	BC 858B				
D10	8300577	**250**	3.9V 2%				
R75 1/8W	5011595		26.7kΩ 1% 1/8W	R101	5011600		100 kΩ 1%
C11	4010280		10 nF 10% 50V				

Bang & Olufsen

CD
New Version
CDM 12

Beocenter 2300-2500
Master Panel AV9000
BeoSound Ouverture

CONTENTS

Survey of modules

88 CD Servo & Decoder ..... diagram X
page 15 - 3

89 CD Interface ..... diagram I&E
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98 CD Mechanism ..... diagram X
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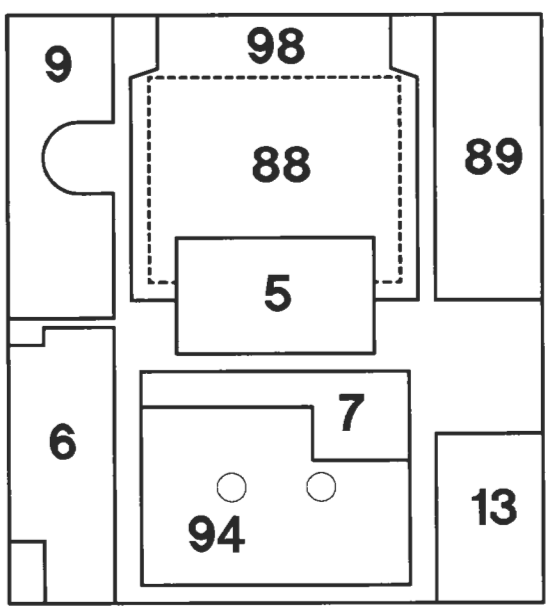
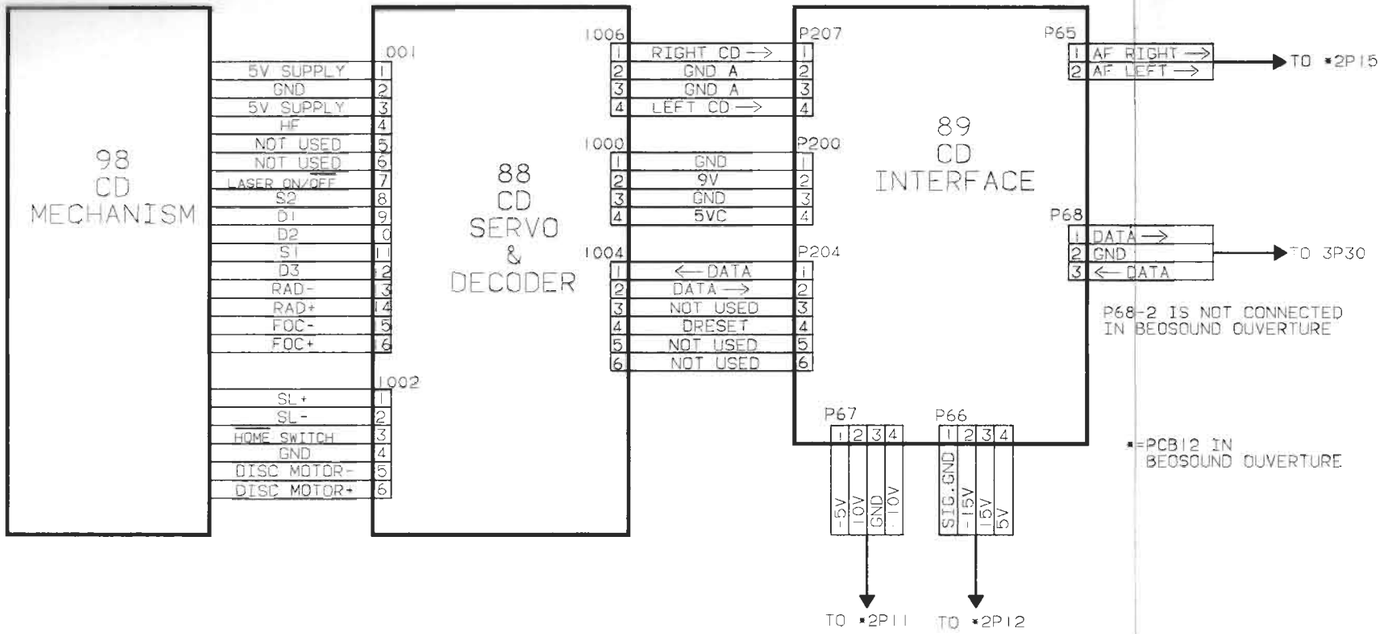


15 - 1
BLOCK DIAGRAM
15 - 1

WIRING DIAGRAM



BLOCK DIAGRAM FOR CD

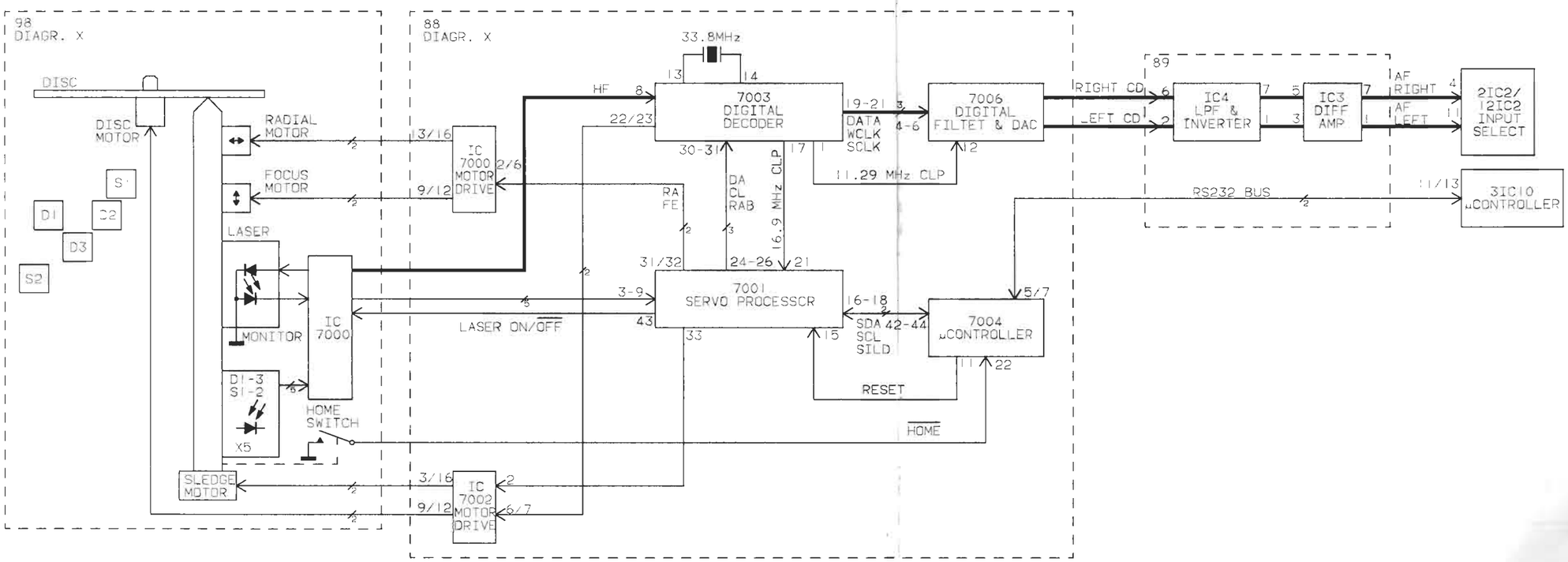
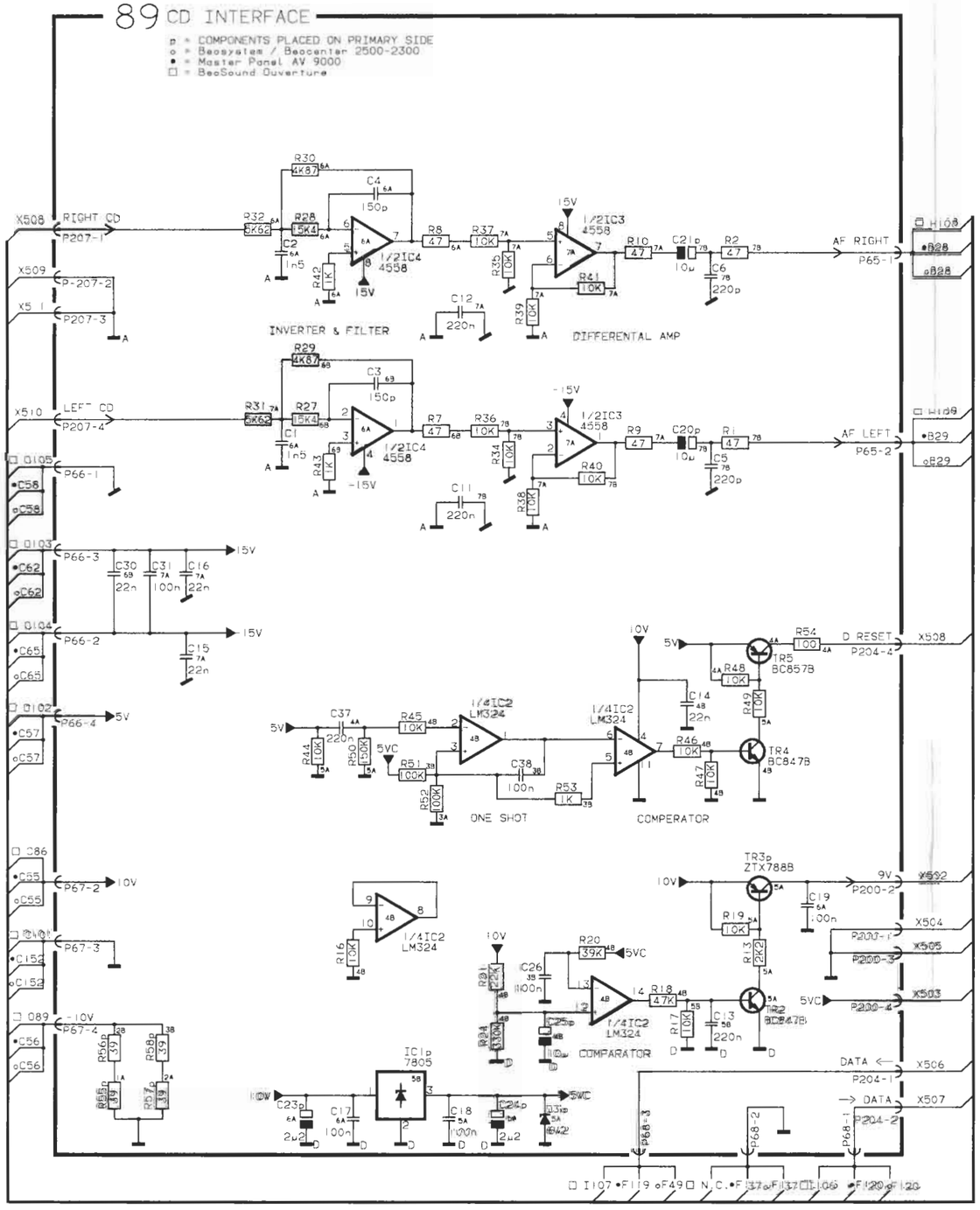
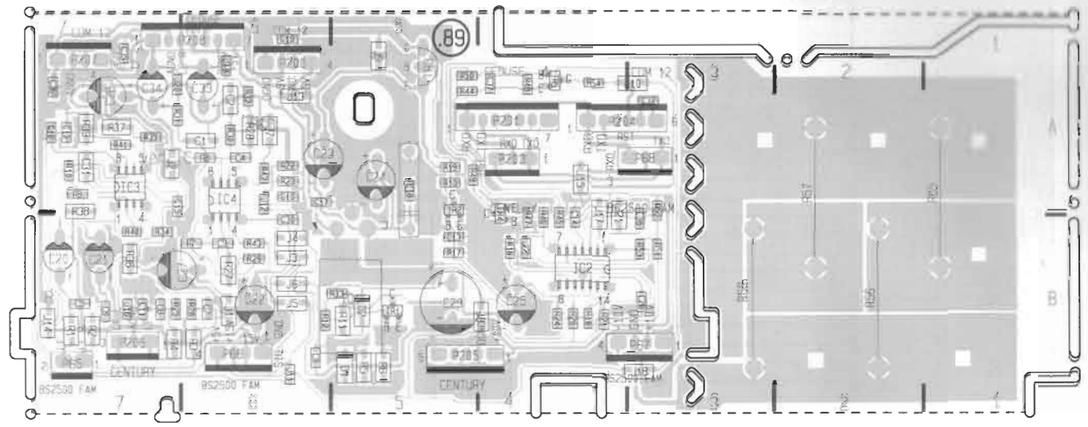


DIAGRAM I & J **CD INTERFACE (for BeoSystem/Beocenter 2500-2300 and Master Panel AV 9000)**
DIAGRAM E & F **CD INTERFACE (for BeoSound Ouverture)**



PCB 89, CD Interface



PCB 88, CD Servo & Decoder

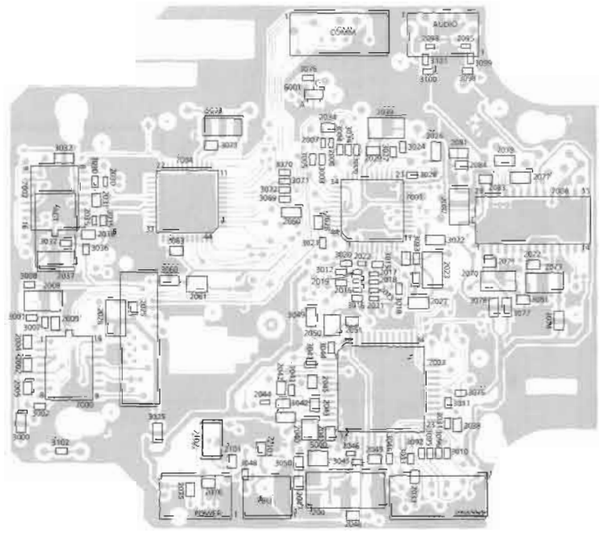


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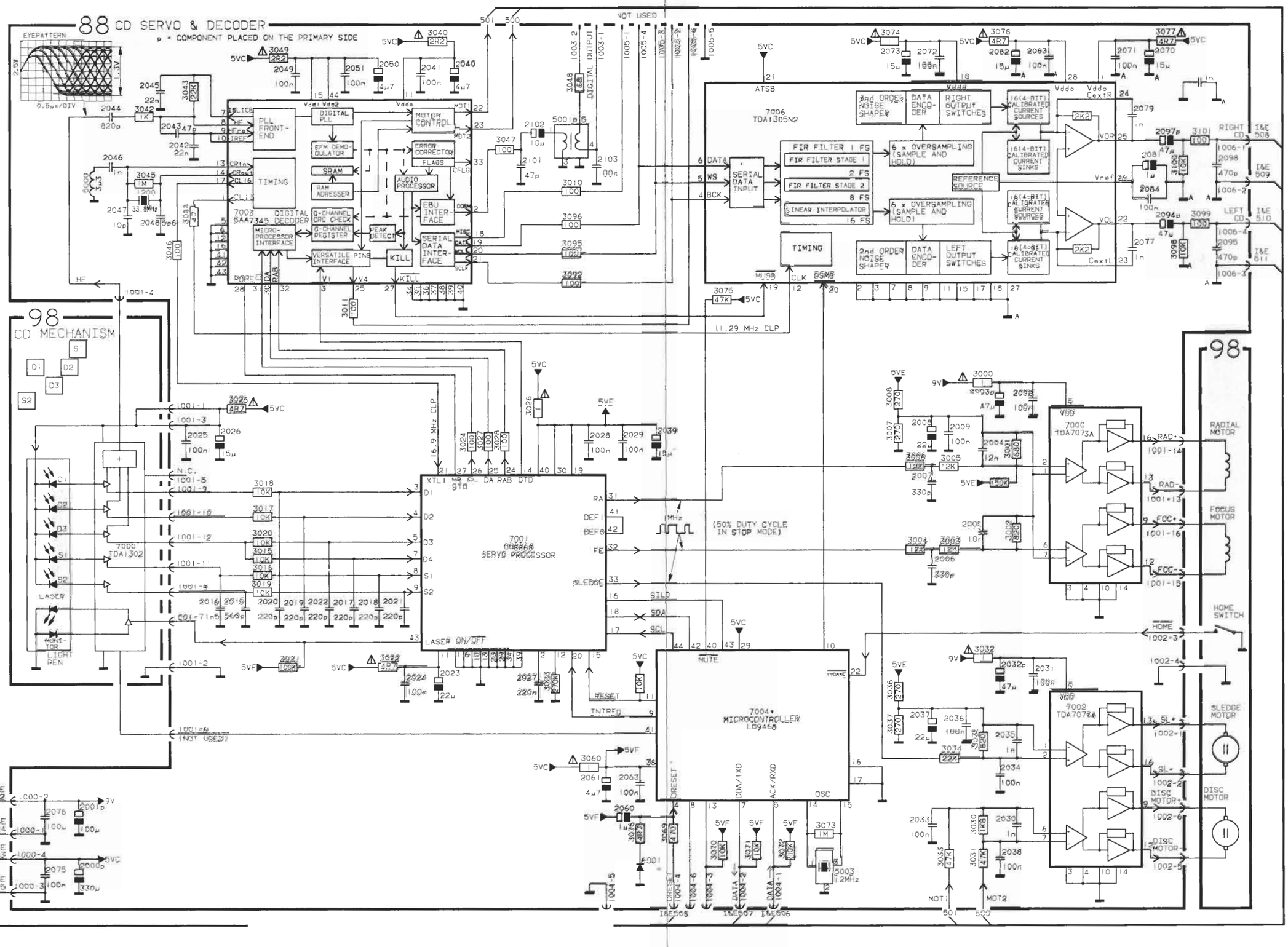
DIAGRAM X

DIAGRAM X **CD SERVO & DECODER** **(The connections I&E refers to the diagram on page 15-2)**



LIST OF ELECTRICAL PARTS

19	51	56	106	136	147	150	209
C B E	E B C	A C	IN ⊥ OUT	1	1	1	A C

Resistors not referred to are standard, see page 16-2
Δ indicates that static electricity may destroy the component.
** Specially selected or adapted sample.*

PCB 88, 8001868
CD Servo & Decoder

7000	8342495	**136**	TDA7073A	7003Δ	8342496	**147**	SAA7345
7001Δ	8342542	**147**	OQ8868	7004Δ*	8342670	**147**	LO9468
7002	8342495	**136**	TDA7073A	7006Δ	8342497	**136**	TDA1305

6001	8300979	**056**	BAS16

3000	5024000	1Ω	3040	5024001	2.2Ω
3001	5013235	680Ω 5% 1/16W	3043	5013253	22kΩ 5% 1/16W
3002	5013236	820Ω 1% 1/16W	3044	5013221	47Ω 5% 1/16W
3003-	5013250	12kΩ 1% 1/16W	3045	5013273	1MΩ 5% 1/16W
3008			3046-	5013225	100Ω 5% 1/16W
3010-	5013225	100Ω 5% 1/16W	3047		
3011			3048	5013223	68Ω 5% 1/16W
3015-	5013249	10kΩ 5% 1/16W	3049	5024001	2.2Ω
3020			3060	5024000	1Ω
3021	5013261	100kΩ 5% 1/16W	3069	5013233	470Ω 5% 1/16W
3022	5024004	4.7Ω	3070-	5013249	10kΩ 5% 1/16W
3023	5013266	270kΩ 5% 1/16W	3072		
3024	5013225	100Ω 5% 1/16W	3074	5024000	1Ω
3025	5024004	4.7Ω	3075	5013257	47kΩ 5% 1/16W
3026	5024000	1Ω	3076	5013209	4.7Ω 5% 1/16W
3027-	5013225	100Ω 5% 1/16W	3077-	5024004	4.7Ω
3028			3078		
3030	5013240	1.8kΩ 5% 1/16W	3092	5013225	100Ω 5% 1/16W
3031	5013257	47kΩ 5% 1/16W	3095-	5013225	100Ω 5% 1/16W
3032	5024000	1Ω	3096		
3033	5013257	47kΩ 5% 1/16W	3098	5013249	10kΩ 5% 1/16W
3034	5013253	22kΩ 5% 1/16W	3099	5013225	100Ω 5% 1/16W
3035	5013236	820Ω 1% 1/16W	3100	5013249	10kΩ 5% 1/16W
3036-	5013230	270Ω 1% 1/16W	3101	5013225	100Ω 5% 1/16W
3037			3102	5013249	10kΩ 5% 1/16W

2000	4201350	330µF 10V	2028-	4010274	100nF -20+80% 25V
2001	4201351	100µF 25V	2029		
2002	4010274	100nF -20+80% 25V	2030	4011110	1.0nF 10% 50V
2003	4201352	47µF 16V	2031	4010274	100nF -20+80% 25V
2004	4011123	12nF 10% 50V	2032	4201352	47µF 16V
2005	4010271	10nF 10% 50V	2033-	4010274	100nF -20+80% 25V
2006	4001141	330pF 5% 50V	2034		
2007	4001141	330pF 5% 50V	2035	4011110	1.0nF 10% 50V
2008	4201353	22µF 6.3V	2036	4010274	100nF -20+80% 25V
2009	4010274	100nF -20+80% 25V	2037	4201353	22µF 6.3V
2015	4001144	560pF 5% 50V	2038	4010274	100nF -20+80% 25V
2016	4011112	1.5nF 10% 50V	2039	4201354	15µF 10V
2017-	4001139	220pF 5% 50V	2040	4201355	4.7µF 10V
2022			2041	4010274	100nF -20+80% 25V
2023	4201353	22µF 6.3V	2042	4010272	22nF -20+80% 50V
2024-	4010274	100n -20+80% 25V	2043	4000408	47pF 5% 50V
2025			2044	4001146	820pF 5% 50V
2026	4201354	15µF 10V	2045	4010272	22nF -20+80% 50V
2027	4010314	220nF -20+80% 25V	2046	4011110	1.0nF 10% 50V
			2047	4000400	10pF 5% 50V

PCB 89, 8001814
CD Interface

2048	4001120	5.6pF 5% 50V	2077	4000424	1nF 5% 50V
2049	4010274	100nF -20+80% 25V	2079	4000424	1nF 5% 50V
2050	4201355	4.7µF 10V	2081	4201356	1µF 16V
2051	4010274	100nF -20+80% 25V	2082	4201354	15µF 10V
2060	4201356	1µF 16V	2083-	4010274	100nF -20+80% 25V
2061	4201355	4.7µF 10V	2084		
2063	4010274	100nF -20+80% 25V	2094	4201352	47µF 16V
2070	4201354	15µF 10V	2095	4001143	470pF 5% 50V
2071-	4010274	100nF -20+80% 25V	2097	4201352	47µF 16V
2072			2098	4001143	470pF 5% 50V
2073	4201354	15µF 10V	2101	4000408	47pF 5% 50V
2075-	4010274	100nF -20+80% 25V	2102	4201357	10µF 16V
2076			2103	4010274	100nF -20+80% 25V

1200	8090157	Crystal 33.868MHz

5000	8020822	Coil 3.3µH	5003	8030246	Coil 12MHz

1000	7221131	Plug 4 pole	1004-	7221157	Plug 6 pole
1001	7210895	Socket 16 pole	1005		
1002	7210890	Socket 6 pole	1006	7221131	Plug 4 pole
1003	7221082	Plug 2 pole			

IC1	8340796	**106**	7805	IC3-	8341022	**150**	4558
IC2	8341041	**150**	LM324 SO-14	IC4			

TR2	8320755	**051**	BC847B	TR4	8320755	**051**	BC847B
TR3	8321050	**019**	ZTX788B	TR5	8320811	**051**	BC857B

D003	8300201	**209**	Z6.2V 5%

R027-	5011986	15.4kΩ 1% 1/8W	R34-	5012331	10kΩ 1% 1/10W
R028			R35		
R29-	5012290	4.87kΩ 1% 1/10W	R36-	5011557	10kΩ 1% 1/8W
R30			R39		
R31-	5012297	5.62kΩ 1% 1/10W	R40-	5012331	10kΩ 1% 1/10W
R32			R41		

C1-	4000351	1.5nF 5% 50V	C20-	4201173	10µF 20% 50V
C2			C21		
C3-	4000414	150pF 5% 50V	C23-	4201174	2.2µF 20% 50V
C4			C24		
C5-	4000416	220pF 5% 50V	C25	4200524	10µF 20% 25V
C6			C26	4010274	100nF -20+80% 25V
C11-	4010314	220nF -20+80% 25V	C30	4010272	22nF -20+80% 50V
C13			C31	4010166	100nF -20+80% 50V
C14-	4010272	22nF -20+80% 50V	C37-	4010314	220nF -20+80% 25V
C16			C38		
C17-	4010274	100nF -20+80% 25V			
C19					

P65	7220709	Plug 2 pole	P200	7220711	Plug 4 pole
P66-	7220711	Plug 4 pole	P204	7220713	Plug 6 pole
P67			P207	7220711	Plug 4 pole
P68	7220710	Plug 3 pole			

For other electrical parts see section 3.

Standard resistors
Resistors 5% 1/2W

	x1	x10	x100	x1k	x10k	x100k	x1M	x10M
1.0		5011000	5011013	5011028	5011044	5010313	5011069	5011083
1.2	5011406	5011001	5011014	5011030	5011045	5011058	5010421	
1.5	5010727	5011002	5011015	5011031	5011046	5011059	5011071	
1.8	5010857	5010787	5011016	5011033	5011047		5011072	
2.2	5011335	5010708	5010815	5011034	5011048	5011061	5011074	
2.7	5011612	5010803	5011018	5010055	5011049	5011062	5011075	
3.3	5010255	5011007	5011019	5011037		5011063	5010381	
3.9		5010782	5011021	5010700	5011051		5010392	
4.7	5010765	5011009	5011022	5010035	5010036	5011065	5011078	
5.6		5011010	5011023	5011041		5011066	5011079	
6.8	5010874	5011011	5011024	5011042	5010810	5011067	5011080	
8.2		5011012	5011026	5011043	5010038	5011068	5011081	

Resistors 5% 1/4W

	x1	x10	x100	x1k	x10k	x100k	x1M	x10M
1.0	5010592	5010506	5010065	5010040	5010059	5010049	5010054	5010638
1.2		5010595	5010128	5010153	5010046	5010047	5010665	
1.5	5011348	5010468	5010057	5010247	5010053	5010063	5010093	
1.8		5010822	5010362	5010066	5010135	5010072	5010791	
2.2	5010682	5010448	5010092	5010064	5010079	5010120	5010245	
2.7	5010925	5010403	5010000	5010298	5010141	5010083	5010431	
3.3	5011860	5010253	5010044	5010076	5010075	5010117	5010848	
3.9	5011377	5010622	5010070	5010069	5010060	5010073	5010714	
4.7	5010888	5010411	5010058	5010048	5010045	5010077	5011513	
5.6	5010706	5010151	5010067	5010041	5010061	5010071	5010658	
6.8	5010904	5010039	5010144	5010052	5010062	5010074		
8.2	5010880	5010056	5010068	5010154	5010091	5010505		

Resistors 5% 1/8W

	x1	x10	x100	x1k	x10k	x100k	x1M	x10M
1.0		5011464	5011357	5010816	5010935	5011440	5011459	5020875
1.2		5011351	5011084	5011442	5011338	5011341	5011175	
1.5		5011463	5011443	5011178	5011364	5011398	5011460	
1.8			5011350	5011361	5011344	5011468		
2.2	5011032	5011376	5010886	5011353	5010833	5011369	5011342	
2.7		5011471	5011355	5011362	5011366	5011370	5011478	
3.3		5011347	5011337	5010827	5011346	5011371	5011462	
3.9		5011438	5011817	5011157	5011457	5011372	5020876	
4.7	5011363	5011038	5011441	5011363	5010937	5011343	5011611	
5.6		5011412	5011358	5010885	5011166	5011340		
6.8		5011356	5011336	5010839	5011367	5011458		
8.2		5011466	5011354	5011339	5011368	5011373		

Resistors SMD 2% 1/8W
SMD 5% 1/8W

Glue dots, approx. 200, part no. 3181932

	5% x1	2% x10	2% x100	2% x1k	2% x10k	2% x100k	5% x1M	2% x10M
1.0	5011623	5011647	5011218	5011227	5011241	5011256	5011267	5011730
1.1	5011624	5011648	5011669	5011681	5011689	5011694	5011707	
1.2	5011625	5011649	5011219	5011682	5011490	5011257	5011708	
1.3	5011626	5011650	5011670	5011683	5011242	5011258	5011709	
1.5	5011627	5011651	5011220	5011228	5011243	5011259	5011710	
1.6	5011628	5011652	5011671	5011684	5011690	5011695	5011711	
1.8	5011629	5011653	5011672	5011229	5011244	5011260	5011712	
2.0	5011630	5011654	5011673	5011685	5011691	5011696	5011713	
2.2	5011216	5011655	5011674	5011230	5011245	5011261	5011714	
2.4	5011634	5011656	5011675	5011686	5011246	5011697	5011715	
2.7	5011635	5011657	5011497	5011231	5011247	5011262	5011716	
3.0	5011731	5011658	5011499	5011500	5011692	5011698	5011717	
3.3	5011217	5011659	5011676	5011232	5011248	5011263	5011718	
3.6	5011636	5011660	5011677	5011687	5011249	5011264	5011719	
3.9	5011637	5011661	5011221	5011233	5011491	5011699	5011720	
4.3	5011638	5011662	5011498	5011688	5011492	5011700	5011721	
4.7	5011639	5011269	5011222	5011234	5011250	5011265	5011722	
5.1	5011640	5011663	5011678	5011235	5011493	5011701	5011723	
5.6	5011641	5011664	5011223	5011236	5011251	5011702	5011724	
6.2	5011642	5011665	5011224	5011237	5011693	5011703	5011725	
6.8	5011643	5011666	5011225	5011238	5011252	5011704	5011726	
7.5	5011644	5011667	5011679	5011239	5011253	5011705	5011727	
8.2	5011645	5011270	5011226	5011240	5011254	5011266	5011728	
9.1	5011646	5011668	5011680	5011489	5011255	5011706	5011729	

Resistors SMD 5% 1/10W

Glue dots, approx. 200, part no. 3181932

	x1	x10	x100	x1k	x10k	x100k	x1M	x10M
0.0	6000072							
1.0		5011920	5011932	5011944	5011956	5011968	5011980	5012275
1.2	5012326	5011921	5011933	5011945	5011957	5011969	5012267	
1.5	5012235	5011922	5011934	5011946	5011958	5011970	5012268	
1.8		5011923	5011935	5011947	5011959	5011971	5011989	
2.2		5011924	5011936	5011948	5011960	5011972	5012220	
2.7		5011925	5011937	5011949	5011961	5011973	5012269	
3.3		5011926	5011938	5011950	5011962	5011974	5012261	
3.9		5011927	5011939	5011951	5011963	5011975	5012270	
4.7		5011928	5011940	5011952	5011964	5011976	5012271	
5.6		5011929	5011941	5011953	5011965	5011977	5012272	
6.8		5011930	5011942	5011954	5011966	5011978	5012273	
8.2		5011931	5011943	5011955	5011967	5011979	5012274	

LIST OF MECHANICAL PARTS

Front

See drawing page 4-1

	Beocenter 2500	Beocenter 2300	Master Panel AV9000	BeoSound Ouverture	
0506	3151357			3151357	Holder
9028			3162461		Cover
9032	3162461	3162461		3162461	Cover
9033			3112418		Chassis
			2515001		Wire holder
			2038118		Screw, 3x6
9037	3112418	3112418		3112418	Chassis
	2515001	2515001		2515001	Wire holder
	2038118	2038118		2038118	Screw, 3x6
98	8420201	8420201	8420201	8420201	CD mechanism
1	2038133	2038133	2038133	2038133	Screw, 3x11

Screws etc.

Survey of wire bundles

6277019	6277019	6277019	6277019	Wire bundle for CD Servo & Decoder and CD Interface 88P1006 - 89P207 88P1000 - 89P200 88P1004 - 89P204
6276990	6276991	6276992	6276994	Main wire bundle
2P11 - 89P67	2P11 - 89P67	2P11 - 89P67	3P26 - 5P42	
2P16 - 7P56	2P15 - 89P65	2P16 - 7P56	3P27 - 9P77	
2P15 - 89P65	2P12 - 89P66	2P15 - 89P65	3P32 - 6P46	
2P12 - 89P66	2P17 - 5P41	2P12 - 89P66	3P30 - 89P68	
2P17 - 5P41	2P18 - 6P49	2P17 - 5P41	3P29 - 7P54	
2P19 - 7P53	2P25 - HTLFP26	2P19 - 7P53	9P80 - 5P46	
2P18 - 6P49	2P24 - MotP76	2P18 - 6P49	9P76 - 6P133	
2P25 - HTLFP26	3P36 - 5P41	2P22 - 7P55	12P11 - 89P67	
2P22 - 7P55	3P32 - 6P46	2P24 - 9P76	12P12 - 89P66	
2P24 - MotP76	3P30 - 89P68	3P36 - 5P41	12P15 - 89P65	
3P36 - 5P41	3P27 - MotP77	3P29 - 7P54	12P16 - 7P56	
3P29 - 7P54	IRLP48 - 6P82	3P32 - 6P46	12P17 - 5P41	
3P32 - 6P46	MotP80 - 5P46	3P30 - 89P68	12P18 - 6P49	
3P30 - 89P68		3P27 - 9P77	12P19 - 7P53	
3P27 - MotP77		6P48 - 6P82	12P22 - 7P55	
IRLP48 - 6P82		5P46 - 9P80	12P25 - 18P26	
MotP80 - 5P46			12P108 - 13P130	
			15P24 - 6P132	

ELECTRICAL MODIFICATIONS IN RELAITION TO OLD VERSION

Beocenter/ Beosystem 2300-2500	Master Panel AV9000	BeoSound Ouverture	
PCB8	PCB8	PCB8	Replaced by PCB88 CD Servo & Decoder and PCB89 CD interface.
PCB20 Disc Detector	PCB20 Disc Detector		Removed.
2R3, 2C4, 2D2 & 2TR5	2R3, 2R200, 2C4, 2D2 & 2TR5	12R113, 12R23, 12C61, 12D7 & 12TR2	Removed.

SERVICE TIPS

Starting up

When starting up the CD section, 5VC for the CD servo & decoder, PCB 88, has to switch on approx. 200 ms before 9V. This is important because the microcomputer system at PCB 88 has to be reset before voltage is applied to the motor control circuits.

CD starting procedure

When starting up, the first step in the procedure is to search for focus, then the disc motor starts, the radial loop is locked, and the search for the "lead in" is started.

Disc motor does not start

If focus is searched and the laser switches on, and yet the disc motor does not rotate, the error is probably in the transport mechanism itself. For further service tips, see section 5 (section 7 as regards Beocenter/ Beosystem 2500-2300).

SERVICE-TIPS

Anfahren

Beim Anfahren des CD-Teils muß 5VC für den CD Servo & Decoder, PCB 88, um ca. 200 ms vor 9V einschalten. Dies ist wichtig, damit das Mikrocomputersystem auf PCB 88 zurückgesetzt wird, ehe Spannung auf die Motorsteuerschaltkreise gelangt.

CD-Anfahrvorgang

Beim Anfahren erfolgt zuerst ein Fokussuchvorgang, der Disc-Motor läuft an, die Radial-Servo-Schleife rastet ein, und es wird nach "lead in" gesucht.

Disc-Motor läuft nicht an

Wird nach Fokus gesucht und zündet gleichzeitig der Laser, der Motor rotiert aber nicht, so ist der Fehler warscheinlich im Laufwerk selbst zu suchen. Siehe hierzu im übrigen Service-Tips Abschnitt 5 (Abschnitt 7 für Beocenter/Beosystem 2500-2300).

CONSEILS DE MAINTENANCE

Mise en route

Lors de la mise en route du bloc CD, la ligne 5VC alimentant la carte PCB 88 "CD Servo & Decoder" doit s´amorcer quelque 200 ms avant la ligne 9V. Ce décalage est important car il permet la réinitialisation des microcalculateurs de la carte PCB 88 avant la mise sous tension des circuits de commande du moteur.

Procédure de mise en route du CD

Lors de la mise en route, la recherche porte d´abord sur le point de concentration. Puis le moteur de rotation du disque démarre, la boucle radiale se verrouille et le sillon de départ fait l´objet d´une recherche.

Moteur de rotation du disque : refus de démarrer

L´anomalie se trouve vraisemblablememt dans le mécanisme d´entraînement à proprement parler si le moteur de rotation du disque refuse de tourner après avoir recherché le point de concentration et excité le laser. Se reporter également aux conseils de maintenance du paragraphe 5 (paragraphe 7 pour les Beocenter/Beosystem 2500-2300).