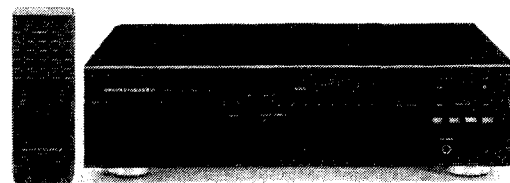


Service  
Service  
Service



# Service Manual

COMPACT  
disc  
DIGITAL AUDIO

## CONTENTS

- 1 Explanation of the layout
- 2 Controls and technical specification
- 3 Servicing hints
- 4 Exploded view
- 5 Measurements and adjustments
- 6 Circuit diagrams, power supply, voltage adapter
- 7 Control & display panel
- 8 Wiring diagram, Voltage adapter
- 9 Electrical parts list
- 10 List of symbols

GB

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

NL

Veiligheidsbepalingen vereisen, dat het apparaat in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde worden toegepast.

D

Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Originalzustand des Geräts darf nicht verändert werden für Reparaturen sind Original-Ersatzteile zu verwenden.

I

Le norme di sicurezza esigono che l'apparecchio venga rimeso nelle condizioni originali e che siano utilizzati pezzi di ricambio identici a quelli specificati.

F

Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utilisées les pièces de rechange identiques à celles spécifiées.

CLASS 1  
LASER PRODUCT

3122 110 03420

## MARANTZ DESIGN AND SERVICE

Using superior design and selected high grade components, MARANTZ company has created the ultimate in stereo sound.

Only **original MARANTZ parts** can insure that your MARANTZ product will continue to perform to the specifications for which it is famous.

Parts for your MARANTZ equipment are generally available to our National Marantz Subsidiary or Agent.

### ORDERING PARTS:

Parts can be ordered either by mail or by telex. In both cases, correct part number has to be specified. The following information must be supplied to eliminate delays in processing your order:

1. Complete address
2. Complete part numbers and quantities required
3. Description of parts
4. Model number for which part is required
5. Way of shipment
6. Signature: any order form or telex must be signed otherwise such part order will be considered as null and void.

### MARANTZ INTERNATIONAL

Vestdijk 9  
5600 MD Eindhoven  
The Netherlands  
Phone: +31/40.758290  
Telefax: +31/40.75.82.99  
Telex: 35000 PHTC NL routing IND NLMTFAT

### PARTS ORDERING

Parts may be ordered at the following addresses:

**AUSTRIA**  
HORNYPHON  
Vertriebsgesellschaft GmbH  
Wienerbergstrasse 1  
A 1101 Wien  
Austria  
Telex: 132.332

**FINLAND**  
MARANTZ  
DIVISION OF OY PHILIPS Ab  
Kaivokatu 8  
00100 Helsinki  
Finland  
Telex: 124811

**GREAT BRITAIN**  
MARANTZ AUDIO U.K. Ltd  
Unit 15/16  
Saxon Way Industrial Estate  
Moor Lane  
Harmondsworth UB7 OLW  
Great Britain  
Telex: 935196

**SAUDI ARABIA**  
AL ALAMIAH ELECTRONICS  
P.O.Box 5954  
University Street  
Riyadh 11432  
Saudi Arabia  
Telex: 401530

**SWITZERLAND**  
DYNAVOX ELECTRONICS  
Route de Villars 105  
1701 Fribourg  
Switzerland  
Telex: 942377

**BELGIUM**  
SVD DIVISION MARANTZ  
Industrialaan 1  
1720 Groot-Bijgaarden  
Belgium  
Telex: 24466

**FRANCE**  
MARANTZ FRANCE  
4 Rue Bernard Palissy  
92600 Asnières  
France  
Telex: 611651

**GREECE**  
SHERTON ELECTRONICS S.A.  
P.O.Box 21025  
Hippocrates Street 188  
Athens 11471  
Greece  
Telex: 216.795

**SOUTH AFRICA**  
MARANTZ  
DIVISION OF PHILIPS S.A.  
Main Road Martindale  
P.O. Box. 58088  
Newville 21114  
South Africa

**TURKEY**  
DOGRUOL Ltd.  
I.M.C.  
6 Blok N°6310  
Unkapani  
Istanbul  
Turkey  
Telex: 22085

**CHILE**  
MARANTZ  
DIVISION OF PHILIPS S.A.  
AV. Santa Maria, 0760  
Casilla 2687  
Santiago  
Telex: 240.239

**GERMANY**  
MARANTZ GERMANY GmbH  
Max-Planck-Strasse 22  
6072 Dreieich 1  
Germany  
Telex: 529821

**JAPAN**  
MARANTZ JAPAN, Inc.  
35-1, 7-chome, Sagamiono  
Sagamihara-shi, Kanagawa  
Japan

**SPAIN**  
PHONO S.A.  
Ignacio Iglesias 10  
Badalona (Barcelona)  
Spain  
Telex: 59355

**MALTA**  
CACHIA & GALEA  
Republic Street, 68D  
Valetta  
Telex: 1682

**DENMARK**  
MARANTZ  
DIVISION OF PHILIPS  
SERVICE A/S  
Prags Boulevard 80  
Postbox 1919  
DK-2300 København S  
Denmark  
Telex: 31201

**THE NETHERLANDS**  
Elpro Marantz  
Wint Hontlaan 28  
3526 KV Utrecht  
The Netherlands  
Telex: 4748

**KUWAIT**  
AL ALAMIAH ELECTRONICS  
Ussama Building  
Fahd al Saleem Street  
P.O.Box 23781  
Safat-Kuwait  
Telex: 22694

**SWEDEN**  
MARANTZ  
DIVISION OF PHILIPS  
Försäljning AB  
Tegeluddsvägen 1  
S-115 84 Stockholm  
Sweden  
Telex: 14060

**PORTUGAL**  
MARANTZ  
Divisao philips S.A. service  
Ourelra-carnaxide  
2795 LinDA-A-VELHA  
Telex: 43906

**NORWAY**  
MARANTZ  
DIVISION OF PHILIPS A/S  
Sandstuveien 40  
0680 Oslo 6  
Norway  
Telex: 72640

**ITALY**  
MARANTZ ITALIANA S.P.A.  
Via Chiese, 74  
20126 Milano  
Italy

All of the above locations are fully equipped to take care of your total service needs. Because various countries have differing configuration requirements, it is necessary that you contact the service facility in your particular country. In the event that there is no service location listed for your country, please, contact the nearest facility for the necessary assistance.

In case of difficulties, do not hesitate to contact the Technical Department at abovementioned address.

**1. EXPLANATION OF THE LAYOUT OF THE DOCUMENTATION**

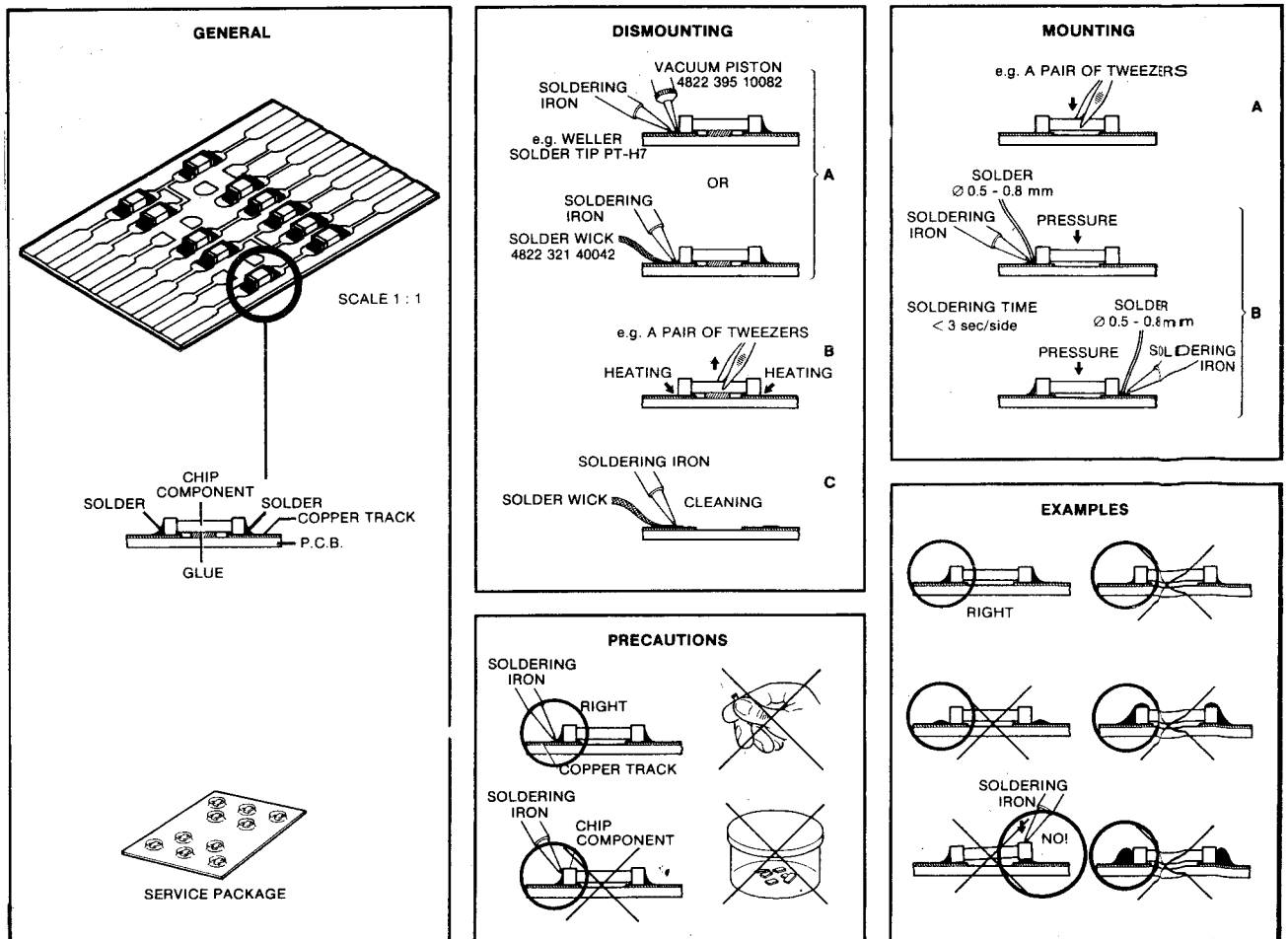
The documentation consists of chapters.  
 The number of the chapter is indicated by the first digit of the page number.  
 The second digit of the page number is the sequence numbering.

If modifications or supplements require new supplementary or replacement pages, the page number is extended with a third part:

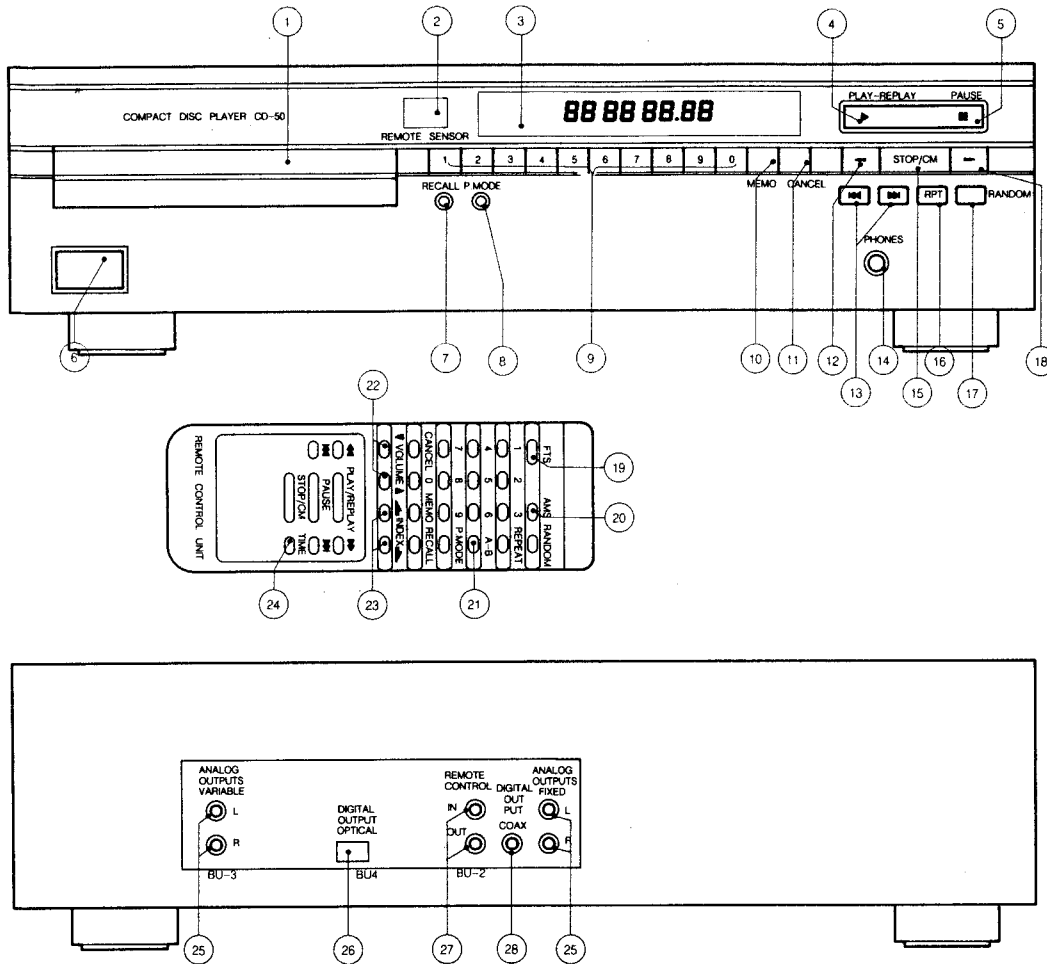
A digit behind the page number indicates that it concerns a supplementary page.  
 A replacement page is indicated by a letter behind the page number.

**Example**

- 3-6 is page 6 of chapter 3
- 3-6-1 is a supplementary page behind page 3-6
- 3-6-a is the replacement page of page 3-6 (so page 3-6 can be removed from the documentation).



## CONTROLS



## FRONT OF PLAYER

- 1** Disc tray on which the **OPEN** key is situated; the tray closes when the front is pressed briefly.
- 2 REMOTE SENSOR**  
Receives the signals from the remote control handset.
- 3 DISPLAY**  
- Informs you about the functioning of the player.  
- Displays details from the disc contents list.
- 4 PLAY-REPLAY (▶)**  
- Starting play (**PLAY**)  
- Returning to the beginning of a track (**REPLAY**)
- 5 PAUSE (||)**  
Interrupting play.
- 6 ON/OFF**  
Switching on and off.
- 7 RECALL**  
Reviewing a programme.
- 8 PROGRAM MODE**  
- Selecting **PROGRAM** mode when storing a program.  
- Selecting **EDIT** mode to enter the recording time when making a tape recording.
- 9 '1-0' digit keys**  
- Selecting another track number during play.  
- Selecting a track number to start play with.  
- Selecting track numbers when programming.  
- Entering the recording time when making a tape recording.
- 10 MEMO**  
- Storing track numbers in a program.  
- Storing the recording time when making a tape recording.
- 11 CANCEL**  
- Erasing track numbers you do not wish to include in a program.  
- Erasing track numbers from a program.  
- Erasing favourite track selections.

**12 ◀◀**

Fast search for a particular passage; backwards to the beginning of the disc.

**13 ◀◀ ▶▶**

- Selecting another track number during play.
- Selecting a track number to start play with.
- Selecting track numbers when programming.  
(◀◀ from high to low; ▶▶ from low to high).

**14 PHONES BU-5**

Connecting headphones.

**15 STOP/CM**

- Stopping play (**STOP**).
- Erasing a program (**CM** = Clear Memory).

**16 RPT**

Repeating a track, the entire disc or a program (**RPT** = repeat).

**17 RANDOM**

Playing in a random order.

**18 ▶▶**

Fast search for a particular passage; forwards to the end of the disc.

## REMOTE CONTROL FUNCTIONS

Most of the controls also appear on the remote control handset. The functions below can only be operated using the remote control handset:

**19 FTS**

Activating the Favourite Track Selection circuit.

**20 AMS**

Automatically playing the beginning of each track (**AMS** = Automatic Music Scan).

**21 A-B**

Storing the start and stop points of a passage to be repeated.

MDA.02152  
917/T19

**22 ▼ VOLUME ▲**

Adjusting the sound level when the player is connected via the **VARIABLE**-output to an amplifier or HiFi system without its own remote control (▼ from high to low; ▲ from low to high).

**23 ← INDEX →**

- Selecting another index number during play.
- Selecting an index number to start play with.
- ( ← from high to low; → from low to high).

**24 TIME**

- Selecting the time information you want to see:
- **REMAIN**: The remaining playing time of a track.
  - **TOTAL REMAIN**: The remaining playing time of the entire disc or a program.
  - The elapsed playing time of a track.

For the best reception of the signals from the remote control you should aim it as directly as possible at the **REMOTE SENSOR**.

**CONNECTIONS REAR OF PLAYER**

- All connections to the rear panel should be made with the power to the entire system switched off.
- To avoid cross-connection of channels, connect one plug at a time.

**25 ANALOG OUTPUTS**

**VARIABLE (BU-3)**: For connection to an amplifier of HiFi system without its own remote control.

**FIXED (BU-2 Line out L/R)**: For connection to a **MARANTZ** amplifier of HiFi system with its own remote control.

- Insert a red plug into the 'R' socket (right-hand channel) and the other plug into the 'L' socket (left-hand channel) of the **VARIABLE** output or the **FIXED** output. In the case of connection via the **VARIABLE** output, the sound level can be adjusted with the ▼ **VOLUME** ▲ keys on the remote control.
- Insert the two other plugs into the corresponding sockets of the CD or AUX input of your amplifier. You can also use the TUNER or TAPE IN connection, but *never* the PHONO input. This is not suitable for Compact Disc reproduction.

**26 DIGITAL OUTPUT OPTICAL BU-2-Digital out**

This output supplies a digital signal via an optical path; for this reason it can only be connected to a Digital Analog Converter, an amplifier with an optical digital input or a digital sound processor. For this use an optical lead.

To prevent dirt entering this output, it is covered with a little cap which should only be removed when the output is in use.

**27 REMOTE CONTROL IN/OUT BU-2 RC5 IN/OUT**

- For connecting up the equipment when you are incorporating the player in a **MARANTZ** HiFi system with its own remote control system.

For this use the RC5 cable supplied.

- For connecting the remote control receiver **RC 55**, available as an accessory, if the siting of the changer prevents its **REMOTE SENSOR** from receiving the signals from the remote control directly.

**28 DIGITAL OUTPUT COAX BU-4**

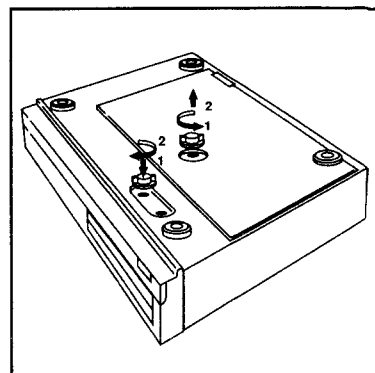
For digital signal processign or future applications such as CD-I.

This output supplies a digital signal and can therefore only be connected to an input which is suitable for this signal. Use here a lead with one cinch plug on either end.

**WARNING!**

Never connect this socket to a non-digital input of an amplifier, such as AUX, CD, TAPE, PHONO, etc. This can damage the amplifier and the loudspeakers.

3



44 229 A11

**REMOVING THE TRANSIT CLAMPS**

The two red transit clamps on the underside of the player lock the player mechanism to secure it during transportation.

Remove these transit clamps before using the player. Store them in the recesses provided. Refit them before transporting the player.

**TECHNICAL SPECIFICATION**

- System : Compact Disc Digital Audio system
- Disc diameter : 120mm/80mm
- Mainsvoltages/02/05 : 110 V, 127 V, 220 V, 240 V ± 10% (to be changed by transformer connections)
- /04 : 100 V ± 10%
- /06 : 117 V ± 10%
- /01 : 110 V, 127 V, 220 V ± 10% (to be changed by carousel switch)
- Mains frequencies : 50,60 Hz (no adaption required)
- Power consumption : ≤ 25 W
- Frequency range : 20 Hz + 20 kHz ± 0,1 dB
- Output voltage fixed : max. 2 V<sub>rms</sub> / ≥ 10 kOhms
- Output impedance : 200 Ohms
- S/N ratio : ≥ 96 dB
- Channel separation : ≥ 93 dB
- Channel difference : ≤ 0,2 dB
- Total harmonic distortion : ≤ -88 dB
- Intermodulation distortion : ≤ -88 dB
- De-emphasis : 0 or 15/50 μs (switched by the subcode on the disc)
- Dimensions WxDxH : 420 × 117 × 88 mm (tray closed)
- Weight : approx 5 kg

**3. SERVICING HINTS**



All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can drastically reduce life expectancy. When repairing, make sure that you are connected via a wrist wrap with resistance to the same potential as the chassis of the set. Keep components and aids also at the same potential.

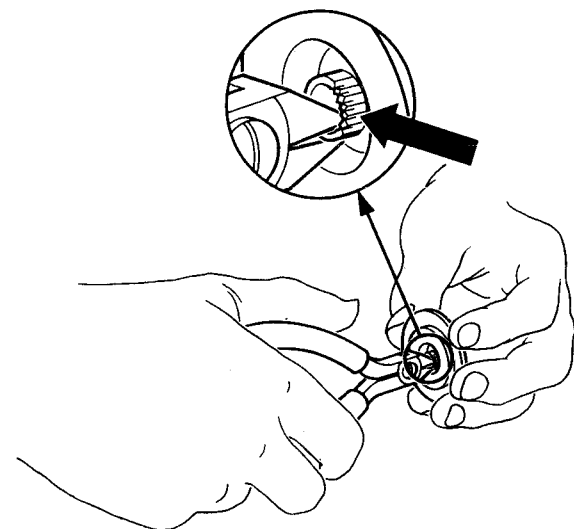
When the tray mechanism and CDM-unit has been disassembled the player can be prepared for measurements by bridging the "tray detection" switch SK2 on the main panel.

**Service disc hold-down**

- The disc should always rest properly on the turntable. To achieve this a disc hold-down has been mounted in a bracket of the tray mechanism. If the tray mechanism has to be disassembled for servicing, a separate disc hold-down should be used. For a service disc hold-down see the figure below. Compose a service Disc hold-down in the following way.
- Cut in the most inner ring of a disc holddown (4822 462 50383) with small and sharp nippers See fig. below.
  - Enlarge the diameter of the innermost ring slightly with the hind part of a pencil or ballpoint, so that it jams onto the turntable with sufficient force.
  - If the jamming force decreases after certain time of use, the diameter has to be enlarged with a pencil or ballpoint again.

**Explanation of the symbols used**

- = oscilloscope (ri ≥ 10 MΩ)
- = meter (voltmeter with ri ≥ 10 MΩ)
- = carry out alignment/adjustment
- = test point



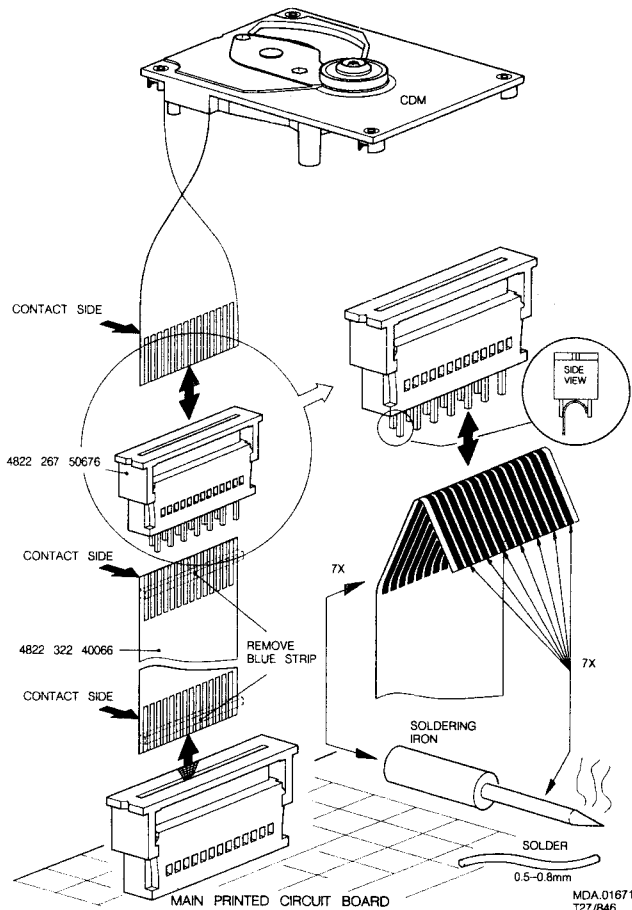
**SERVICE TOOLS**

Audio test disc 1	4822 397 30185
Disc without errors + disc with DO errors, black spots and fingerprints	4822 397 30096
Disc (65 min, 1kHz) without pause	4822 397 30155
Maximum diameter disc	4822 397 60141
Torx screwdrivers	
Set (straight)	4822 395 50145
Set (square)	4822 395 50132
13th order filter	4822 395 30204

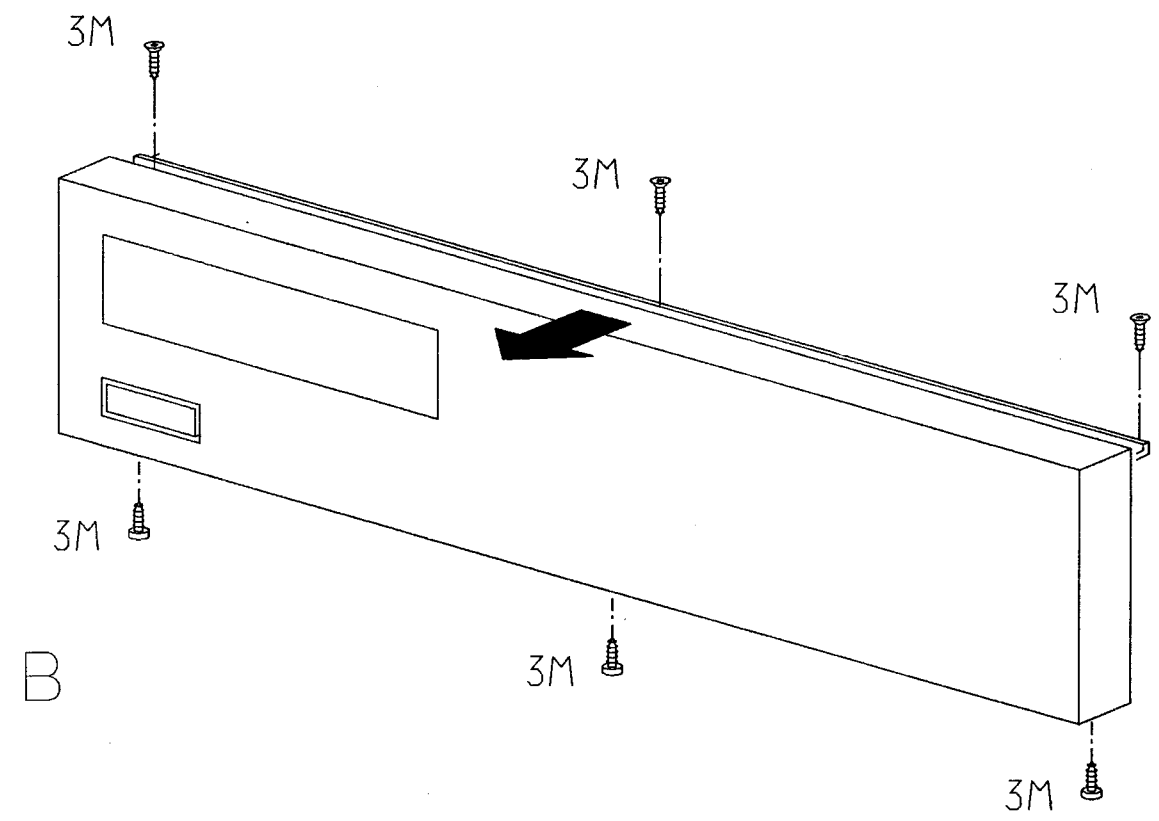
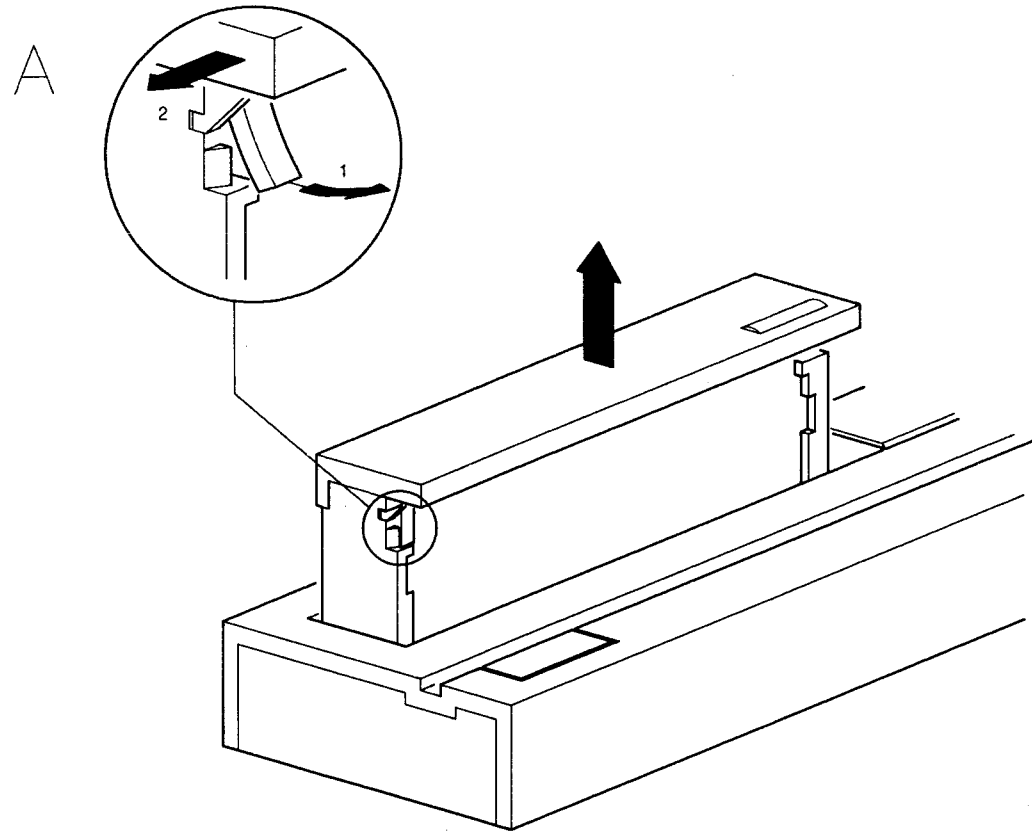
**WORKING WITH THE FAULTFINDING TREE**

Follow the path of the faultfinding tree, beginning at the top left. Perform the actions you come across in the various blocks. Look at the various side branches to find out if the information you see there applies to your problem. If, for instance, you find the indication display, this means that no picture appears on the display. If you establish this fault, follow the branch and perform the recommended actions. Check the components mentioned. In a number of branches further reference is made to measurements you could carry out. These measurements are explained in several tables further on in this manual.

**EXTENSION CABLE**

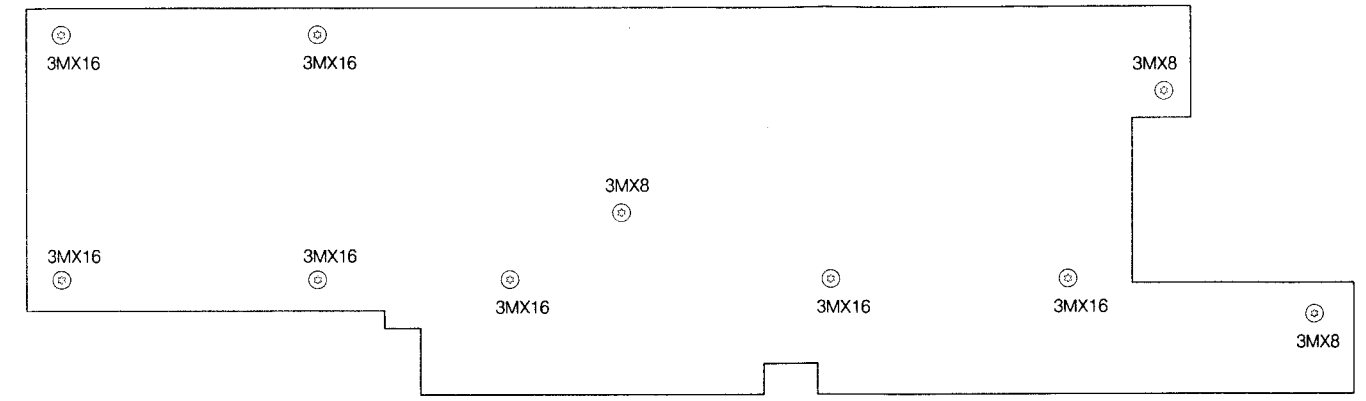


# CABINET DISASSEMBLY HINTS

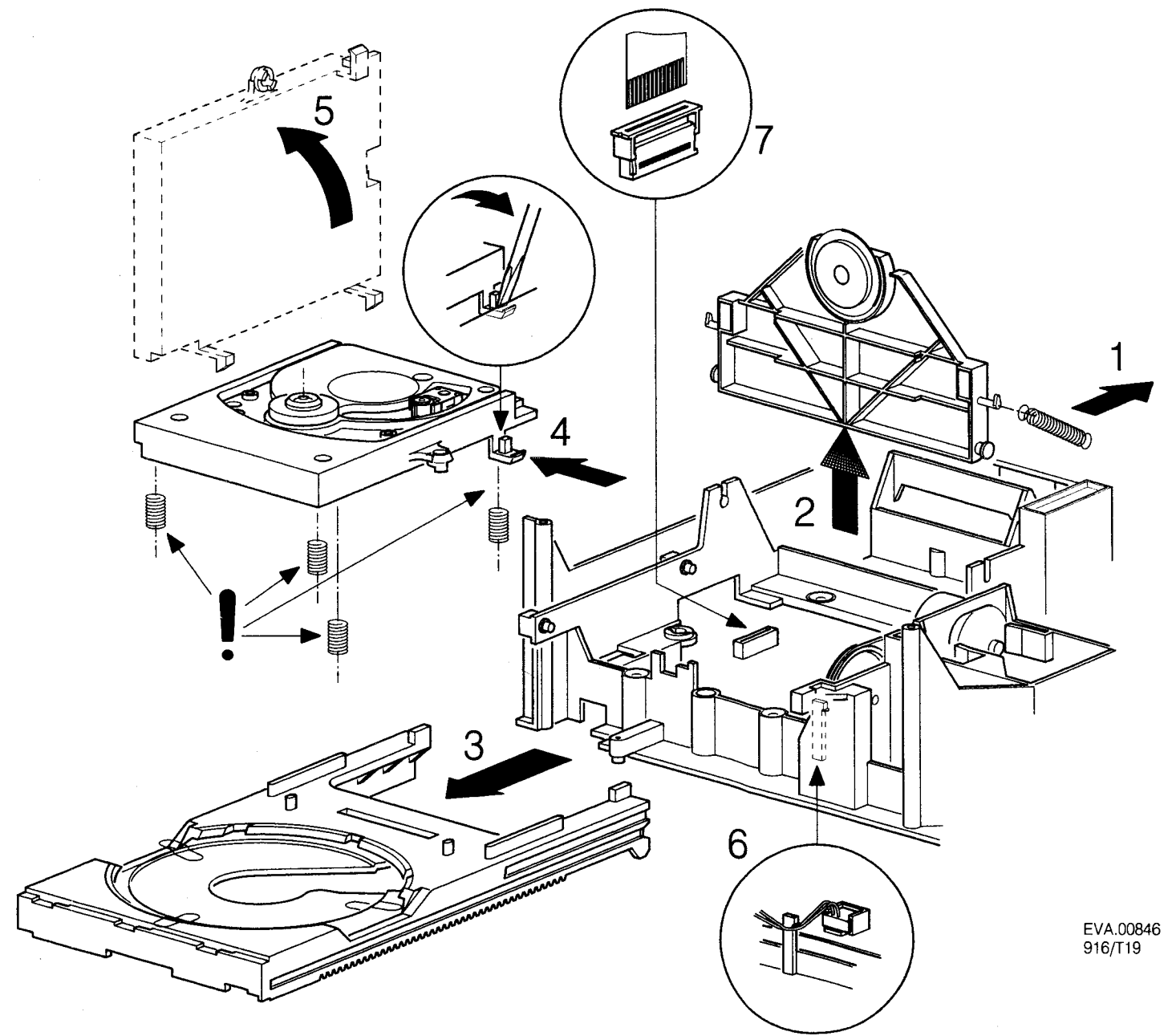


mda.02137

## CONTROL+DISPLAY PANEL.

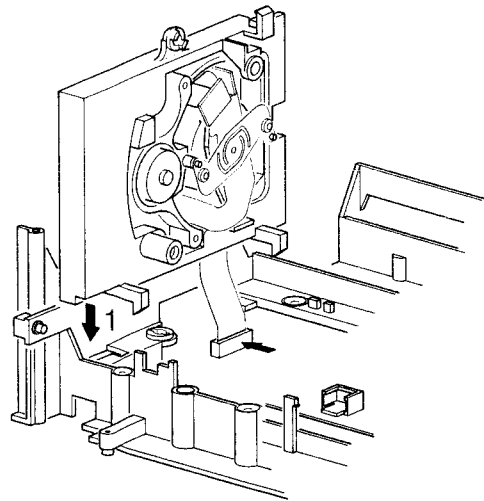


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916/T19

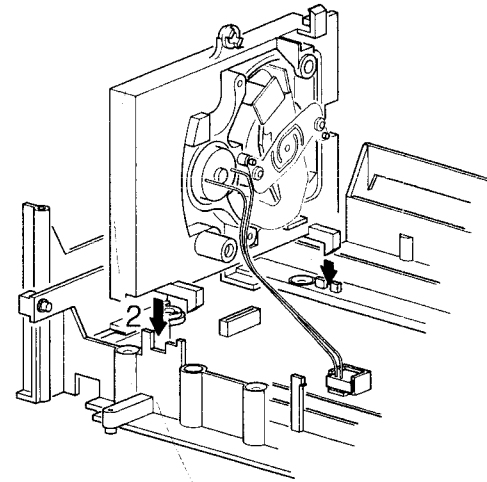


EVA.00846  
916/T19

FOIL CONNECTION POSITION.

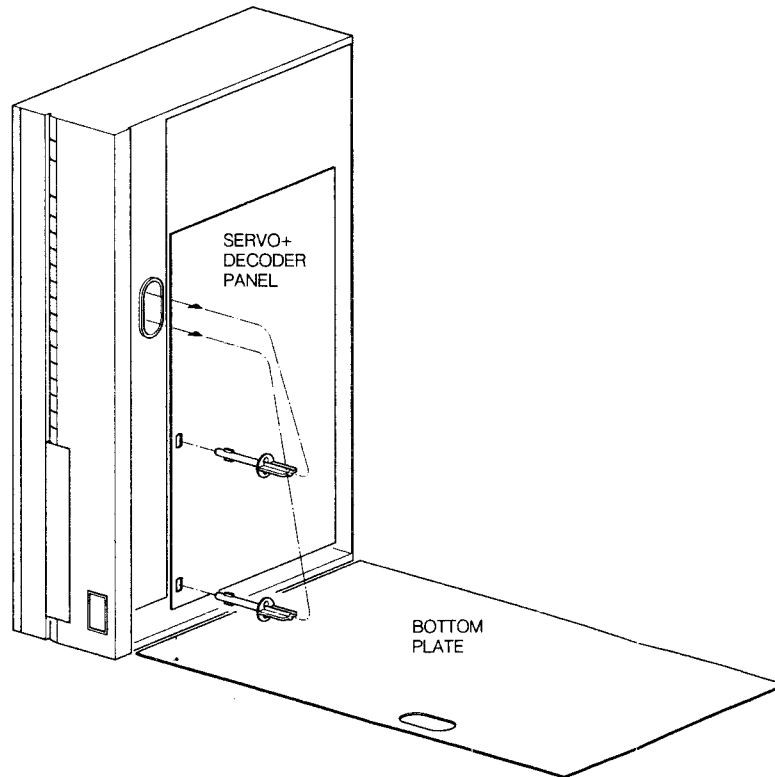


PLAY-SERVICE POSITION



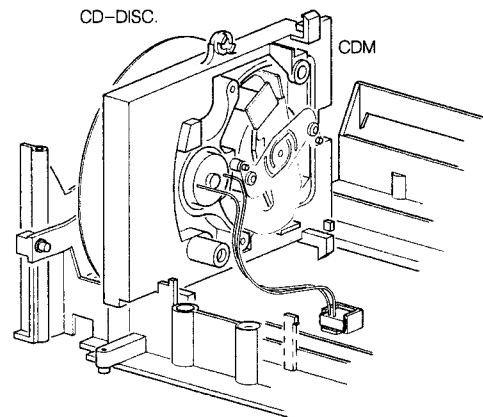
EVA.00848  
916/T19

MEASURING AND ADJUSTMENT POSITION OF THE SET



EVA.00849  
916/T19

SERVICE POSITION PLAY



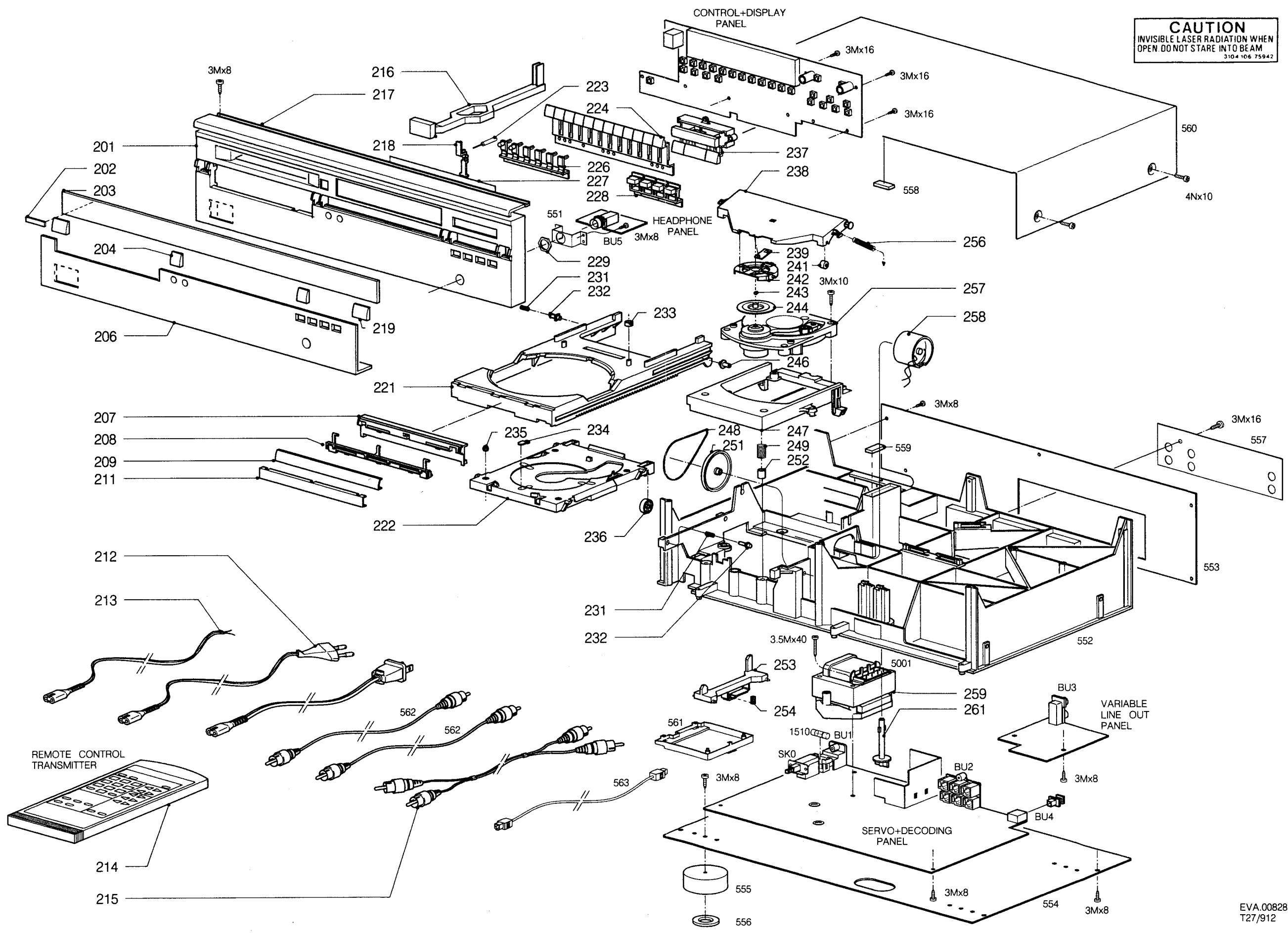
**MECHANICAL PARTS**

201	4822 444 40308	only for /04
201	4822 444 40316	only for /01/02/05/06
202	4822 459 10747	WORDMARK MARANTZ only for /01/02/04/05
202	4822 459 10887	WORDMARK PHILIPS only for /06
203	4822 450 61359	
204	4822 460 20768	only for /04
204	4822 460 20771	only for /01/02/05/06
206	4822 460 20762	
207	4822 464 50764	only for /04
207	4822 464 50773	only for /01/02/05/06
208	4822 402 61254	only for /04
208	4822 402 61266	only for /01/02/05/06
209	4822 460 20763	
210	4822 321 10492	only for /04
210	4822 321 10445	only for /06
211	4822 460 20766	
212	4822 321 10457	only for /01/02
213	4822 321 10522	only for /05
214	4822 218 10272	only for /01/02/04/05
214	4822 218 10283	only for /06
215	4822 321 22603	
216	4822 402 61255	
217	4822 460 20767	
218	4822 402 50277	
219	4822 460 20769	only for /04
219	4822 460 20772	only for /01/02/05/06
221	4822 444 50603	
222	4822 466 92251	
223	4822 410 50169	
224	4822 410 60115	only for /04
224	4822 410 60202	only for /01/02/05/06
226	4822 410 60118	
227	4822 450 61362	
228	4822 410 60116	
229	4822 505 10571	
231	4822 492 52094	
232	4822 402 61252	
233	4822 532 51756	
234	4822 325 50176	
235	4822 325 50177	
236	4822 528 90638	
237	4822 276 30403	only for /04
237	4822 276 30404	only for /01/02/05/06
238	4822 444 60568	
239	4822 466 92257	
241	4822 528 90639	
242	4822 402 61207	
243	4822 520 40177	
244	4822 530 80503	
246	4822 402 61253	
247	4822 402 61196	
248	4822 358 10115	
249	4822 492 51902	
251	4822 528 81329	
252	4822 466 61587	
253	4822 402 50276	
254	4822 492 51935	
256	4822 492 32883	
257	4822 691 30209	
258	4822 361 20998	
261	4822 535 92907	

MDA.02138  
916/T19



**CAUTION**  
INVISIBLE LASER RADIATION WHEN  
OPEN. DO NOT STARE INTO BEAM.  
3104 106 75942

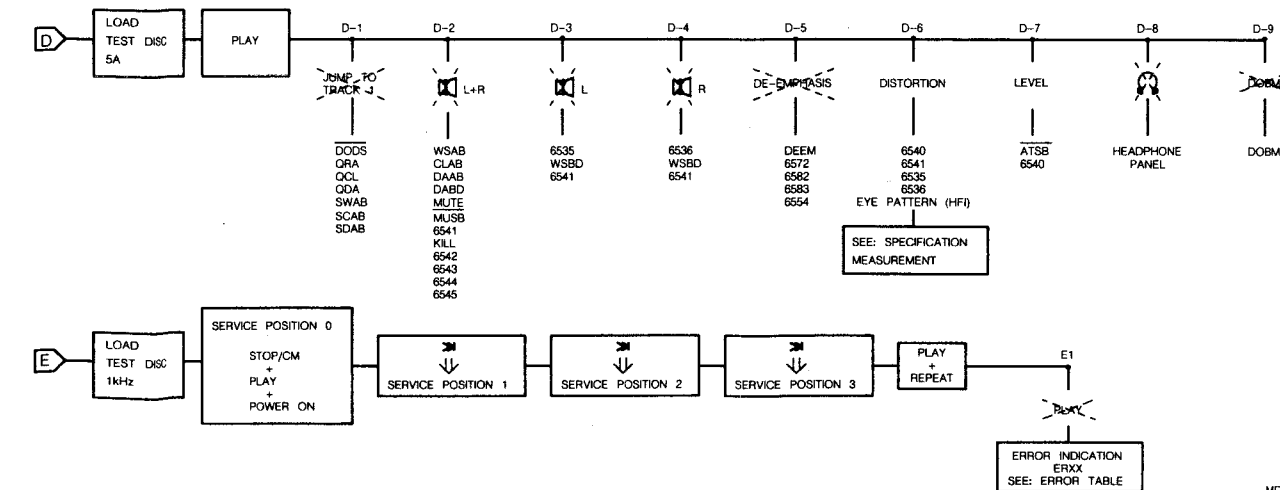
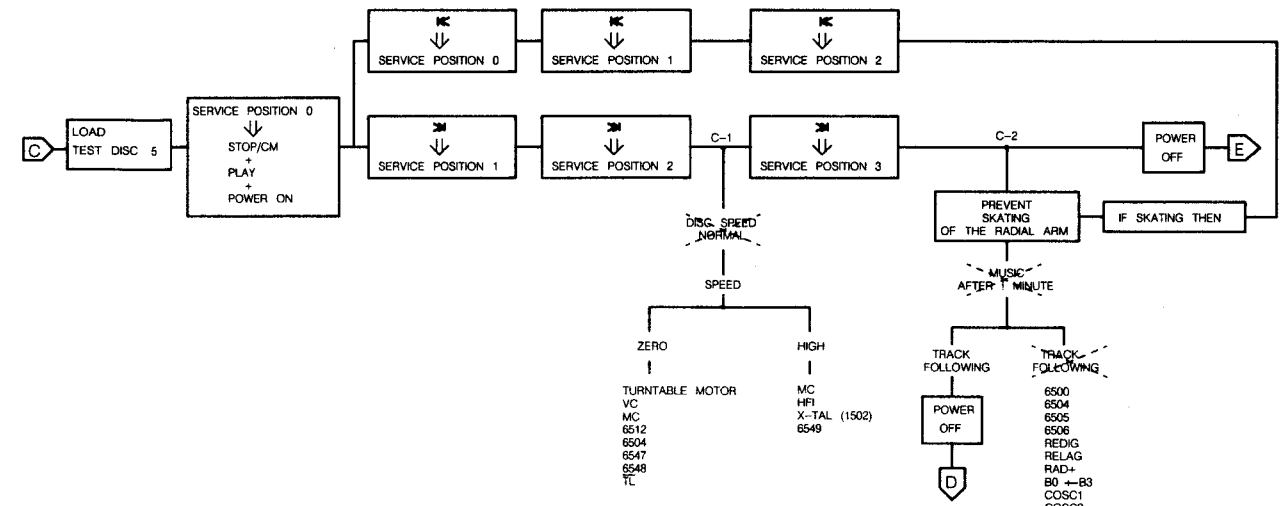
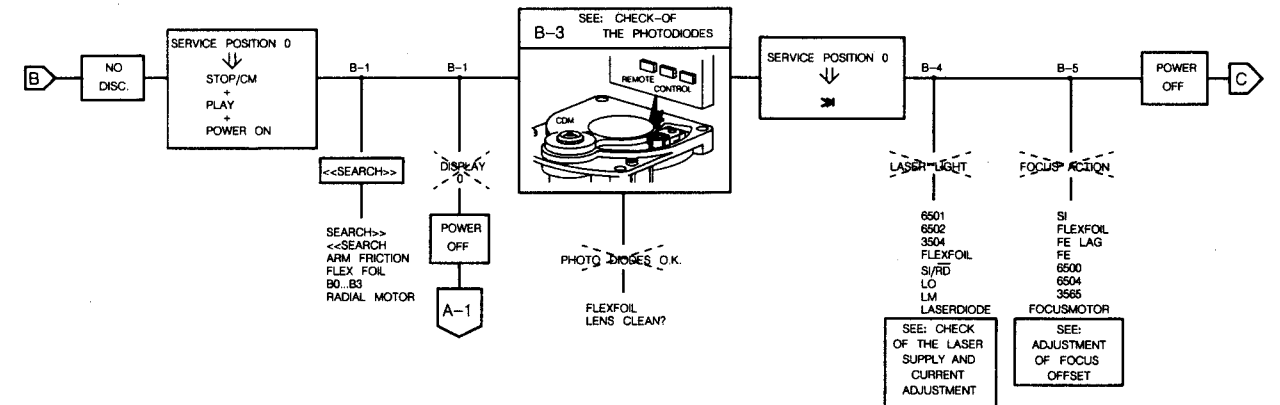
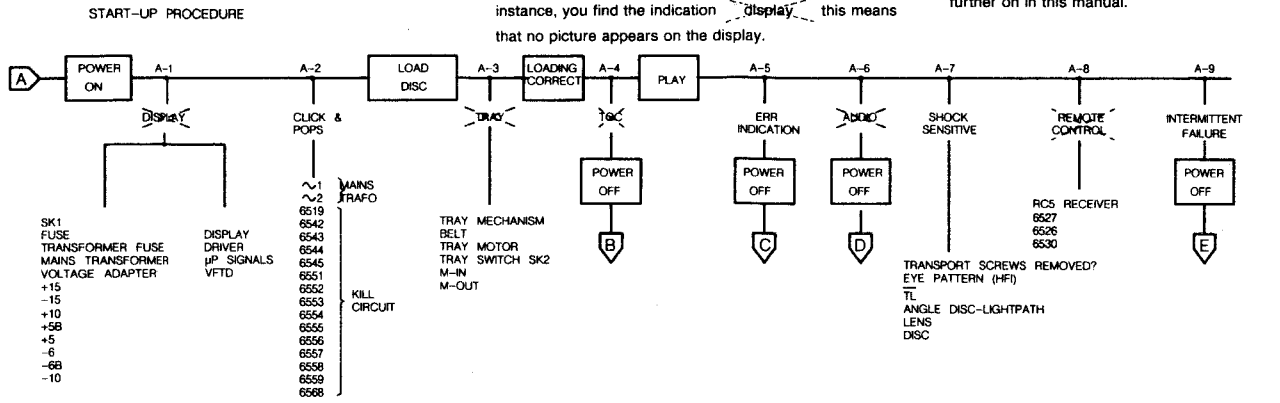


EVA.00828  
T27/912

TROUBLE SHOOTING (FAULT FINDING TREE)

Follow the path of the faultfinding tree beginning at the top left. Perform the actions you come across in the various blocks. Look at the various side branches to find out if the information you see there applies to your problem. If, for instance, you find the indication "display", this means that no picture appears on the display.

If you establish this fault, follow the branch and perform the recommended actions. Check the signals mentioned. In a number of branches further reference is made to measurements you could carry out. These measurements are explained in several tables further on in this manual.



A-1 μP - SIGNALS

Signal	Mode	◇	⊗	⏏	Remarks
Reset	Power on	100		Pulse "high"	
X-TAL	Stand-by	101		4 MHz	
TRAY IN/OUT	2,5 Vdc when tray is inside	83		2,5 Vdc	"low" when tray is opening
				2,5 Vdc	"high" when tray is closing
ATSB	DISC, SEARCH	89		"low"	
MUTE	Play	67		"high"	pulses low in position pause
BWS	8 cm disc	17		"high"	only when a 8 cm disc has been used.

T-22387A

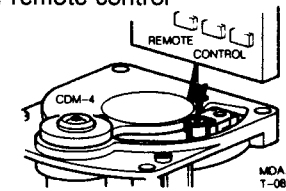
B-2 B0, B1, B2, B3 SIGNALS

Signal	Mode	◇	⊗	⏏	Remarks
B0	Service position 0 or 1; search >>	36		"low"	
	Service position 0 or 1; search <<	36		"low"	
B1	Service position 0 or 1; search >>	34		"high"	
	Service position 0 or 1; search <<	34		"high"	
B2	Service position 0 or 1; search >>	33		"low"	
	Service position 0 or 1; search <<	33		"high"	
B3	Service position 0 or 1; search >>	32		"high"	
	Service position 0 or 1; search <<	32		"high"	

T-22387B

B-3 CHECK OF THE PHOTODIODES

Step	Signal	Mode	◇	⊗	⏏	Remarks	
1	-	power on	4	6	7	8	See drawing 38314A12 Signal depends on Distance lens ↔ IR LED of remote control



T-22387C

B-4 CHECK OF LASER SUPPLY

The laser, the lasersupply plus the monitor diode form a feedback system. A defect in the lasersupply may result in the destruction of the laser. If, in that case, the laser is replaced, (= complete C.D.M.-unit) the new laser will also become defective. However, it is impossible to check and repair a feedback system if a link is missing. For this reason the laser supply can be checked with the replacement circuit for laser assembly.

Step	Signal	Mode	◇	⊗	⏏	Remarks	
1	LO	serv. pos. 2	9		-	1.8 < V < 2.3	PRS05539
	LM	SK	11		-	170 < mV < 220	
2	LO	serv. pos. 2	9		-	1.8 < V < 2.3	PRS05540
	LM	SK	11		-	170 < mV < 220	
3	LO	Power on	9		-	0V ± 0.2V	No light

T-22387D

**B-4 LASER CURRENT ADJUSTMENT (see drawing MDA02138 measuring and adjustment position)**

Step	Signal	Mode					Remarks
1	-	Power off		R3520	1kΩ	-	Pre-adjustment Ohmic value
2	Eye-pattern HFI	Power on Test disc 5 play		-	-	-	See drawing 37017B8 IF no signal see "start up procedure"
3	laser current = voltage across R3508	Test disc 5 play track 1		R3520	50 mV DC	-	use a high-ohmic voltmeter

T-22387E

**B-5 ADJUSTMENT OF FOCUS-OFFSET (see drawing MDA02138 measuring and adjustment position)**

Step	Signal	Mode					Remarks
1	-	Power on	-	R3568	-	-	adjust for optical mid-position of the focus motor
2	FE LAG	Play Test disc 5 Track 1	27	R3568	400mV ± 40 mV DC	-	fine adjustment

T-22387F

**B-5 FOCUS ACTION**

Signal	Mode				Remarks
Si/Rd	Service position 1 when repeating focus start up	21			See drawing MDA.01403
FE	Service position 1, no disc	26			See drawing MDA.01413
FE-LAG	Test disc 5A, play	27			See adjustment of focus-offset

T-22387G

**C-1 HIGH SPEED DISC ROTATION**

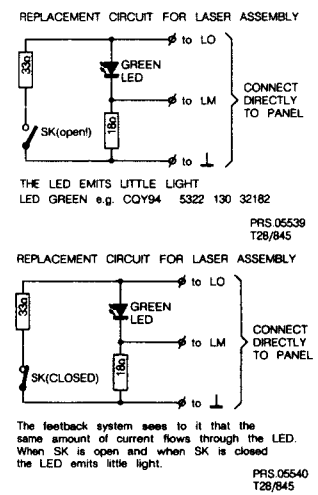
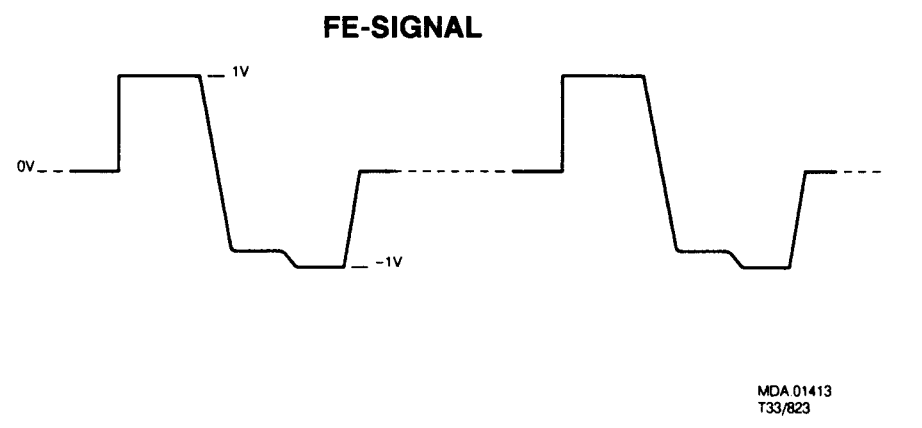
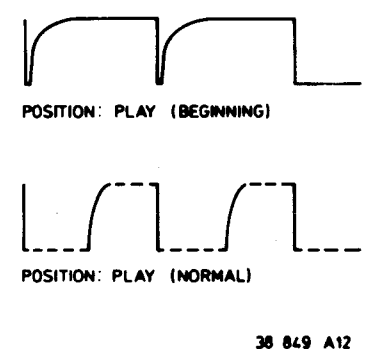
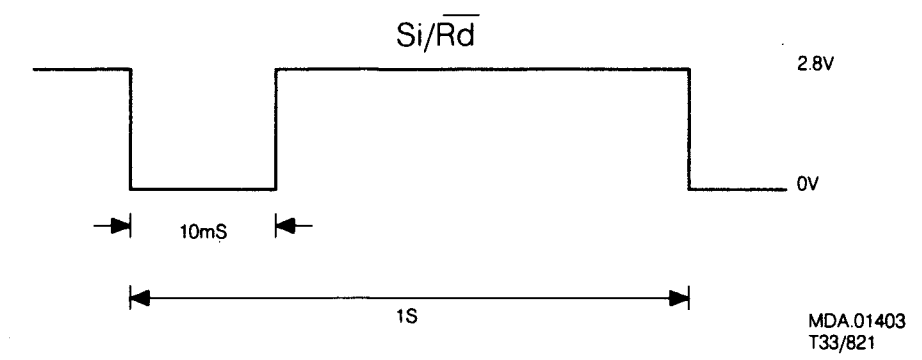
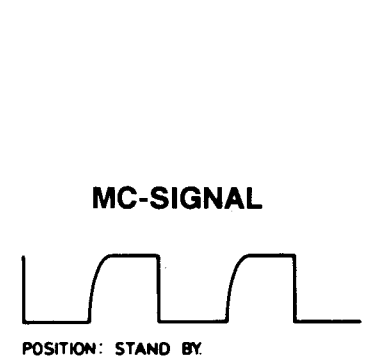
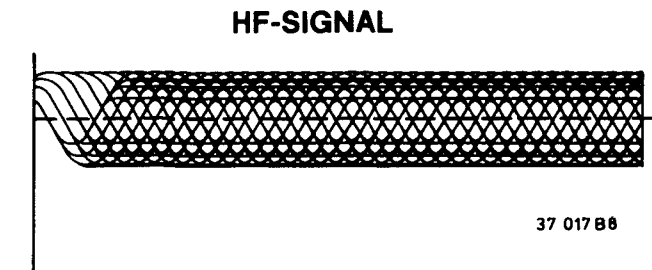
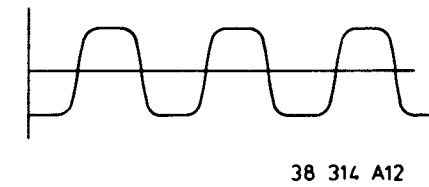
Signal	Mode				Remarks
TL	Test disc 5, play or service position 2	13			Pulses "low" TL indicates that the track has been found
HFI	Test disc 5, play or service position 2	65			See drawing: 37017B8
X-tal	Test disc 5A, play or service position 2	70			11.28 MHz
MC	Test disc 5, play or service position 2	81			See drawing: 38849A12
		12			

T-22387H

**C-2 TRACK FOLLOWING**

Signal	Mode				Remarks
RE dig	Test disc 5, play or service position 3	37			
RE lag	Test disc 5, play or service position 3	41			≈ 2.5 Vdc
C osc1	Test disc 5, play or service position 3	30			≈ 650 Hz
C osc2	Test disc 5, play or service position 3	31			≈ 650 Hz
RAD+	Test disc 5A, service position 1	40			Arm inside: 1V Arm inside: -1V
RE lead	Position stand-by	35			≈ 650 Hz

T-22387I



**DOSD-SIGNAL**

POSITION	PLAYER	POWER ON	SERVICE POSITION 3	PLAY	SEARCH PAUSE
DOSD SIGNAL	LOW	HIGH	HIGH		

MDA.01143 T12 -651

D1 JUMP TO TRACK 1

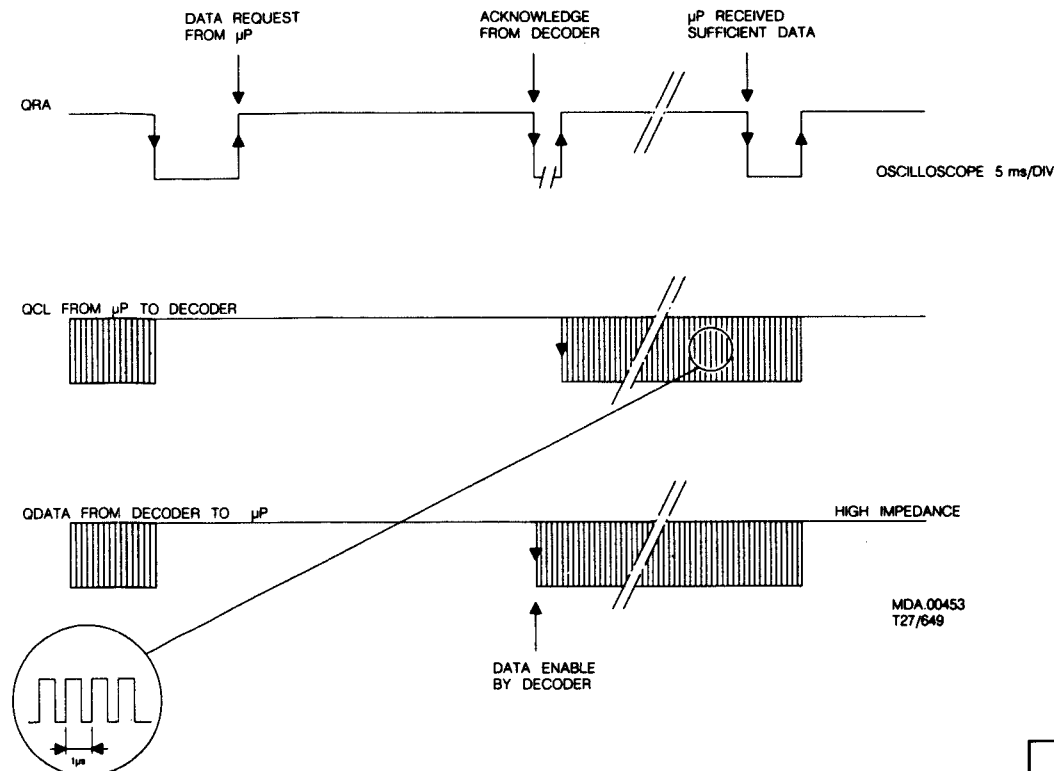
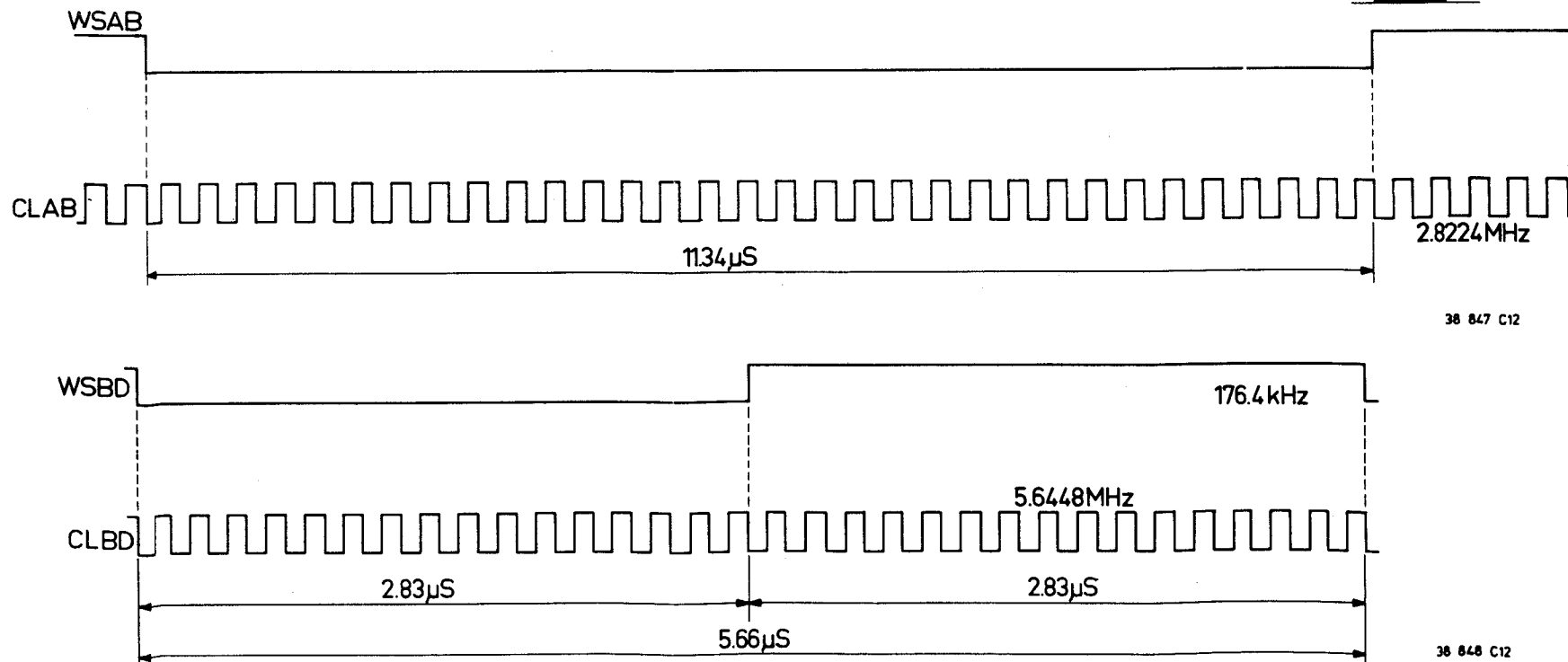
Signal	Mode				Remarks
DODS	Test disc 5A search >> or search <<	19			See drawing MDA.01143
QRA	Test disc 5A, play	75			} See drawing MDA.00453
QDA	Test disc 5A, play	77			
QCL	Test disc 5A, play	76			
SWAB/SSM	Test disc 5A, play	78			See drawing MDA.00239
SCAB	Test disc 5A, play	79			See drawing MDA.00239
SDAB	Test disc 5A, play	80			See drawing MDA.00239

T-22387J

D-2 NO AUDIO OUTPUT LEFT+RIGHT

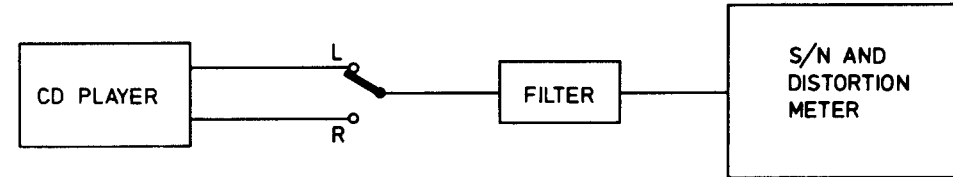
Signal	Mode				Remarks
WSAB	Disc, play	71			} See drawing 38847C12
CLAB	Disc, play	72			
DAAB	Disc, play	73		activity	
EFAB	Testdisc 5A	74		pulses "high"	When the disc is slowly braked by hand
CLBD	Disc, play	87			} See drawing 38848C12
DABD	Disc, play	86		activity	
WSBD	Disc, play	85			
MUSB	Disc, play	90		"high"	Pause, next, prev, stop: "low"
MUTE	Disc, play	67		"high"	Pulses low during pause
AM	Disc, play	67		"high"	AM = additional mute

T-22387K



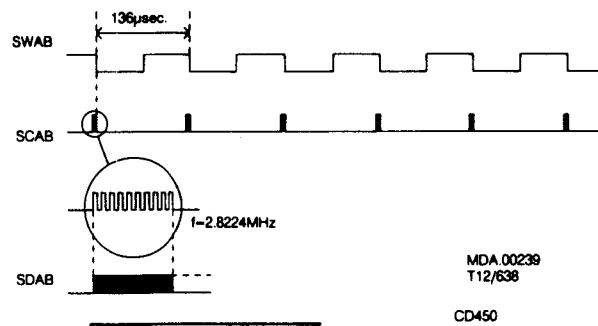
OSCILLOSCOPE 5 ms/DIV

MDA.00453  
T27/649



e.g. SOUND TECHNOLOGY  
ST 1700B

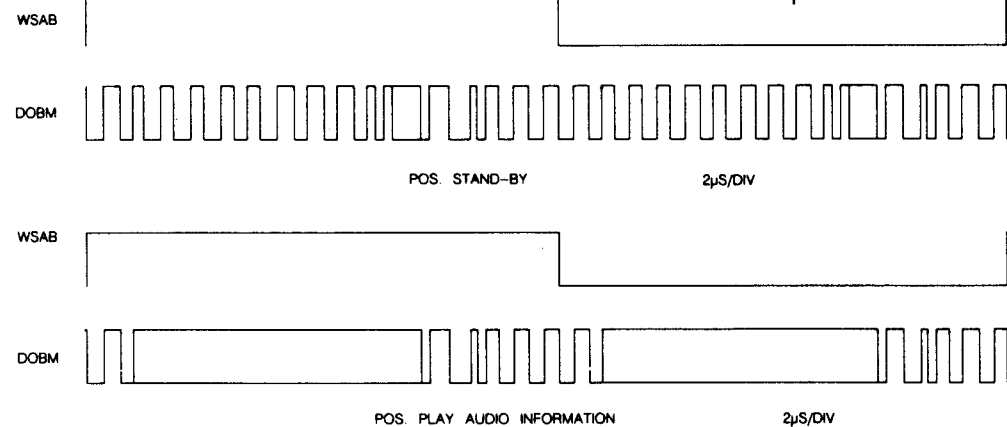
30 459 A12






ERROR TABLE

System errors




Indication	Cause	Check	
Er 02	No TL pulse at start-up	} Si, Sc, RD, Photodiode signal processor TL, HFI, CD disc present?	
Er 03	No lead-in track found		CD disc, radial arm position, REdig, Radial error processor
Er 06	No TL pulse within 0.5 sec. during track jumping		RE-lag circuit, TL, REdig
Er 07	Subcoding error during PLAY	HFI	
Er 08	TOC error	CD disc, turntable motor control, radial arm position	



Signal	Mode				Remarks
DEEM	Test disc 5A: track 14 PLAY track 15 PLAY	84		"low" "high"	See testpoint 92 and 91 on DEEM circuit
Testpoint 92	Test disc 5A track 14	92		LF signal	
Testpoint 92	Test disc 5A track 15	92		No signal	
Testpoint 91	Test disc 5A track 14	91		LF signal	
Testpoint 91	Test disc 5A track 15	91		No signal	

T-22387L




D-6 SPECIFICATIONS MEASUREMENT

Signal	Mode				Remarks
BU2-L	Test disc 3, play, total harmonic distortion	filter output	See technical data		See drawing 30459A12
BU2-R	Test disc 3, play, total harmonic distortion	filter output	See technical data		See drawing 30459A12
BU2-L	Test disc 3, play signal-to-noise ratio	filter output	See technical data		See drawing 30459A12
BU2-R	Test disc 3, play signal-to-noise ratio	filter output	See technical data		See drawing 30459A12

T-22387M

Filter = 13th order filter 4822 395 30204

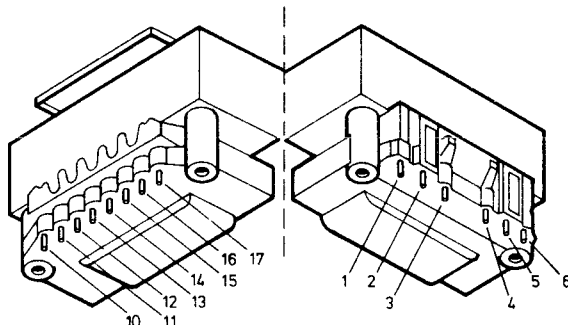
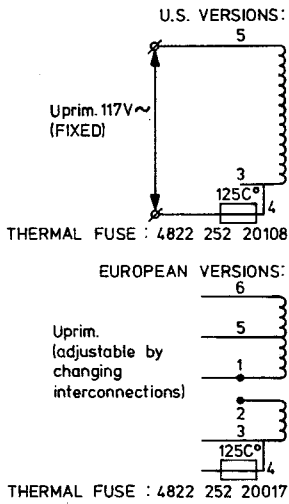
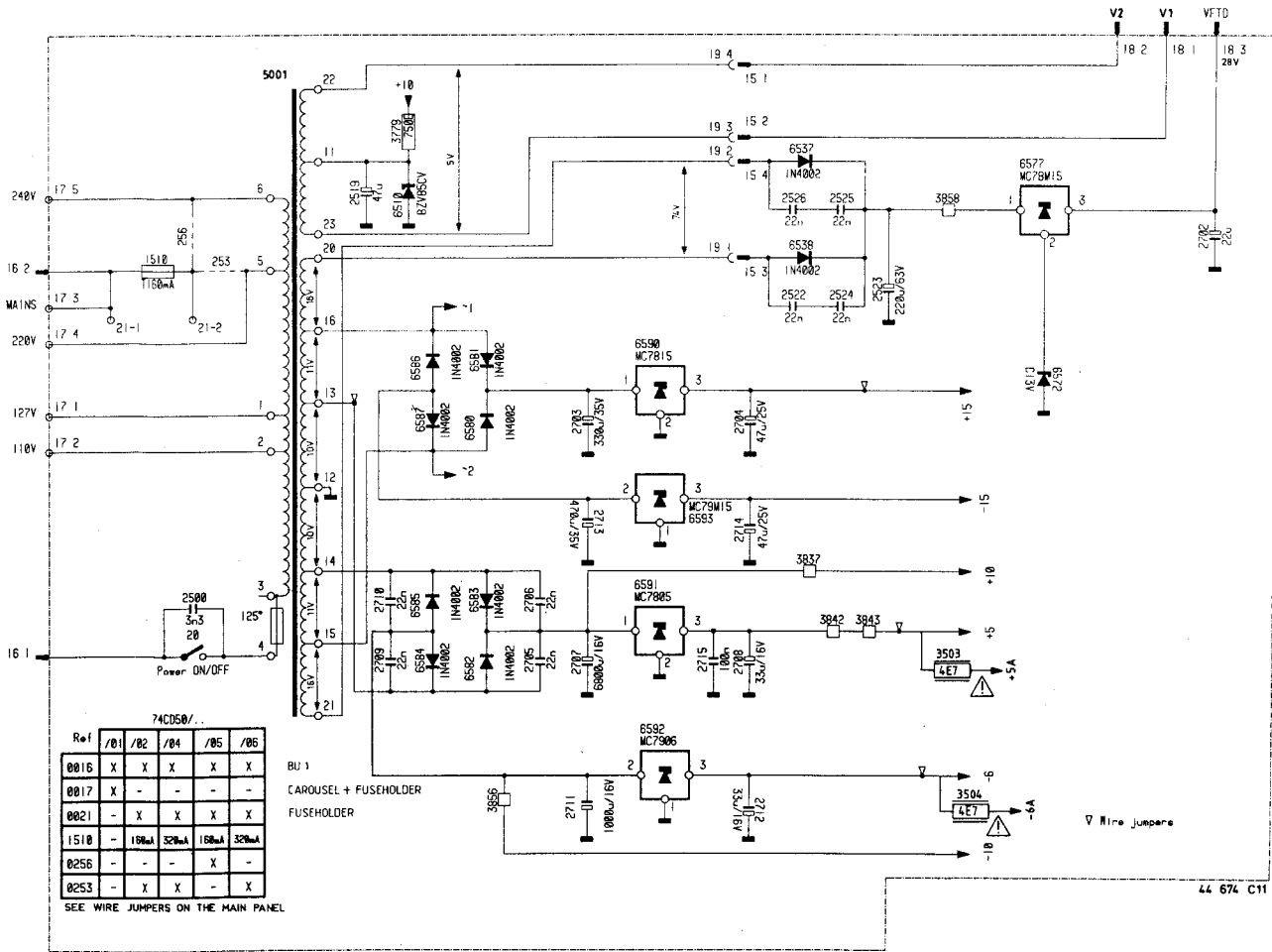
D-9 DOBM DIGITAL OUTPUT

Signal	Mode				Remarks
DOBM	Test disc 5A	88			See drawing MDA.00238

T-22387N

Operating errors

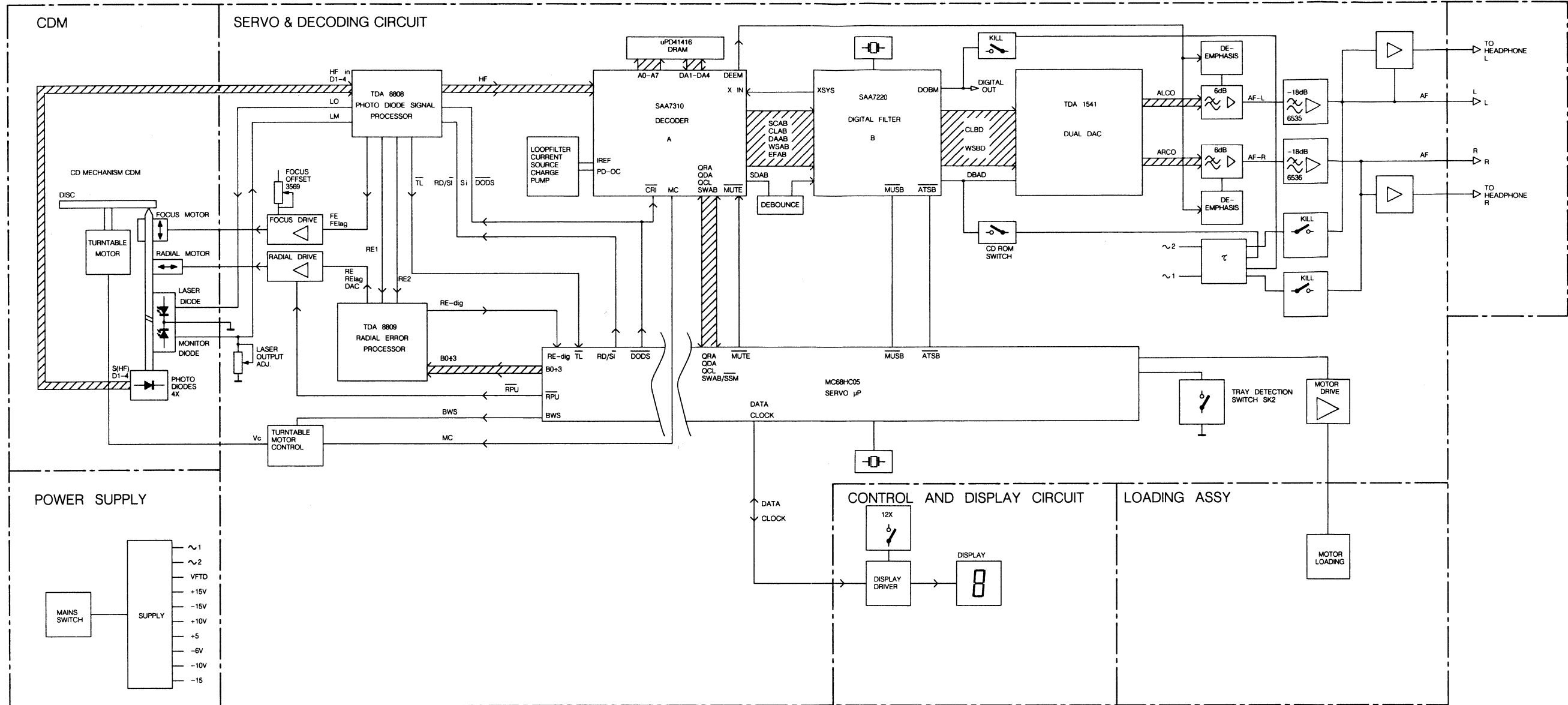
- |  |  |
|--|--|
| <p>Er 30 "NEXT" key operated during the last track, with "REPEAT" turned off.</p> <p>Er 31 "PREVIOUS" key operated during the first track, with "REPEAT" turned off.</p> <p>Er 32 AB key operated in AMS mode.</p> <p>Er 33 The selected index number does not exist on this disc.</p> <p>Er 34 Programme survey requested; no programme present.</p> <p>Er 35 The programme memory is full.</p> <p>Er 36 The programmed track is not present on this CD disc.</p> <p>Er 37 The selected track is not present on this CD disc.</p> <p>Er 38 MEMO pressed during AMS while track not known.<br/>MEMO pressed during EDIT while cassette time = 0 sec.</p> <p>Er 39 MEMO or CANCEL pressed while in play program.</p> <p>Er 40 MEMO pressed when already a delete program has been made.</p> | <p>Er 41 CANCEL pressed when already a not deleted program has been made.</p> <p>Er 42 Selected track is not a program block.</p> <p>Er 43 FTS store error: memory full.</p> <p>Er 44 FTS store error: no program.</p> <p>Er 46 FTS play error: no FTS program in memory.</p> <p>Er 47 FTS selection error: upper bound of fts memory. (next).</p> <p>Er 49 FTS selection error: selection request while storing. (next/ prev).</p> <p>Er 51 FTS selection error: selection request while storing. (review).</p> <p>Er 52 FTS selection clear error: clear request while storing.</p> <p>Er 54 FTS store error: no record id (toc) available.</p> <p>Er 56 AB key pressed when not in PLAY mode.</p> <p>Er 60 Fast forward/reverse bound.</p> <p>Er 63 No track possible to play in edit mode.</p> <p>Er 74 Relative time not found.</p> <p>Er 75 Binary search time out error.</p> <p>Er 76 Time search time out error.</p> |
|--|--|



Uprim. (V) ~	Winding	Inter-connect
110	4-1	3-1/5-2
127	4-6	3-1/5-2
220	4-5	1-2
240	4-6	1-2

44 577 A11

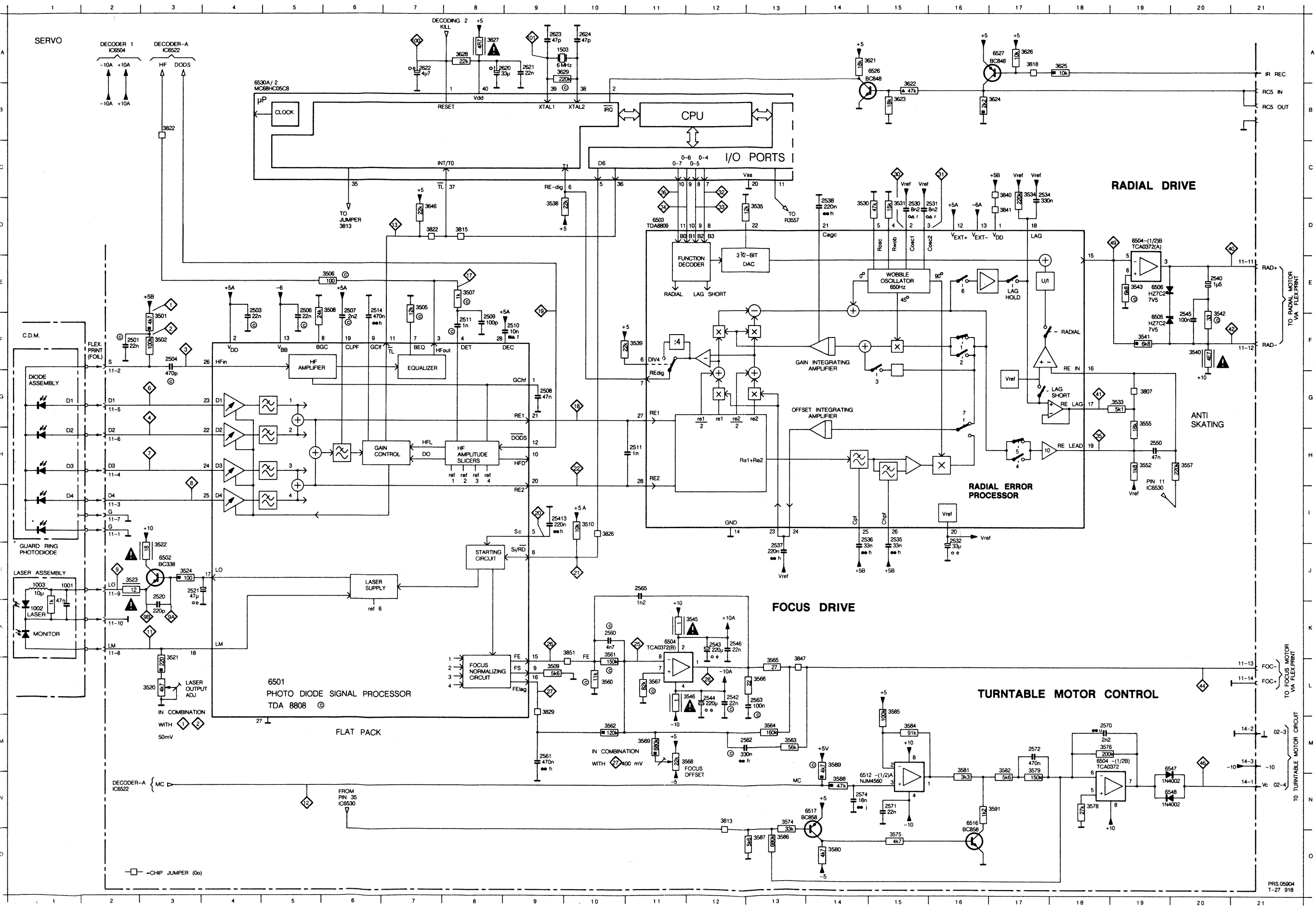
BLOCK DIAGRAM



PRS.05906  
1-27/918

- |            |  |        |   |               |  |          |  |
|------------|--|--------|---|---------------|--|----------|--|
| AGC        | - Automatic Gain Control                                   | Rosc   | - Resistor wobble oscillator  | ATSB          | - Attenuation of Audio level in Search position (Cueing) | MUSB     | - Soft Mute signal                     |
| B0-B3      | - Control bits for radial circuit                          | Rwob   | - Wobble generator input  | CD ROM Switch | - Digital Data information on disc signal                | PD/OC    | - Phase detector - oscillator control  |
| BEQ        | - Equalizer reference current input                        | RE1    | - Radial error signal 1 (summation of amplified currents $D_3$ and $D_4$ )                          | CEFM          | - Clock Eight-to-Fourteen Modulator                      | QCL      | - Q-channel Clock signal               |
| BGC        | - DC and LF gain control reference input                   | RE2    | - Radial error signal 2 (summation of amplified currents $D_1$ and $D_2$ )                          | CLAB          | - Clock signal Decoder-A to Filter-B                     | QDA      | - Q-channel Data signal                |
| Cosc1      | - Capacitor wobble oscillator                              | RE dig | - Radial error digital  | CLBD          | - Clock signal Filter-B to DAC                           | QRA      | - Q-channel Request Acknowledge        |
| Cosc2      | - Capacitor wobble oscillator                              | RE lag | - Radial error signal for LAG network   | CREF          | - Reference Current                                      | SCAB     | - Subcode clock Decoder-A to Filter-B  |
| DEC        | - Decoupling input of inkruat bypass                       | Sc     | - Starting up capacitor input   | CRI           | - Counter Reset Inhibit                                  | SDAB     | - Subcode data Decoder-A to Filter-B   |
| DET        | - HF detector voltage input                                | Si/RD  | - On/off control for laser supply and focus circuit. Ready signal, Starting up procedure succesful. | DAAB          | - Data signal Decoder-A to Filter-B                      | SWAB/SSM | - Subcode Word/Start-stop motor signal |
| DIV4       | - Divide by 4 input  | TL     | - Track loss output signal  | DABD          | - Data signal Filter-B to DAC                            | WSAB     | - Word select Decoder-A to Filter-B    |
| DODS       | - Drop out detector suppression                            | TTM-   | - Control voltage for turntable motor   | DEEM          | - Deemphasis   | WSBD     | - Word Select Filter-B to DAC          |
| D1+4       | - Photodiode currents                                      | TTM+   | - Control voltage for turntable motor   | DOBM          | - Digital out signal                                     | XSYS     | - Oscillator signal in Decoder-A       |
| FE         | - Focus error signal                                       | Vext-  | - Supply connection   | EFAB          | - Error flag Decoder-A to Filter-B                       |          |  |
| FE lag     | - Focus error signal for LAG network                       | Vext+  | - Supply connection   | MUTE          | - Mute signal  |          |  |
| HF         | - HF output for DEMOD                                      | TCMP   | - Turntable control motor pulse   |               |  |          |  |
| HFD        | - HF detector output for DEMOD                             | BWS    | - Band Width Switch 8/12 cm disc  |               |  |          |  |
| HF-in      | - HF current input to HF amplifier                         |        |   |               |  |          |  |
| HF-out     | - HF amplifier and equalizer voltage output                |        |   |               |  |          |  |
| LM         | - Laser monitor diode input                                |        |   |               |  |          |  |
| LO         | - Laser amplifier current output                           |        |   |               |  |          |  |
| MC         | - Motor control signal                                     |        |   |               |  |          |  |
| offset IN  | - Offset control input                                     |        |   |               |  |          |  |
| offset OUT | - Offset control output                                    |        |   |               |  |          |  |
| PLLH       | - PLL on hold output                                       |        |   |               |  |          |  |
| RADout     | - output of RE2-RE1 input                                  |        |   |               |  |          |  |
| RE         | - Radial error signal (Amplified $RE_2$ - $RE_1$ currents) |        |   |               |  |          |  |

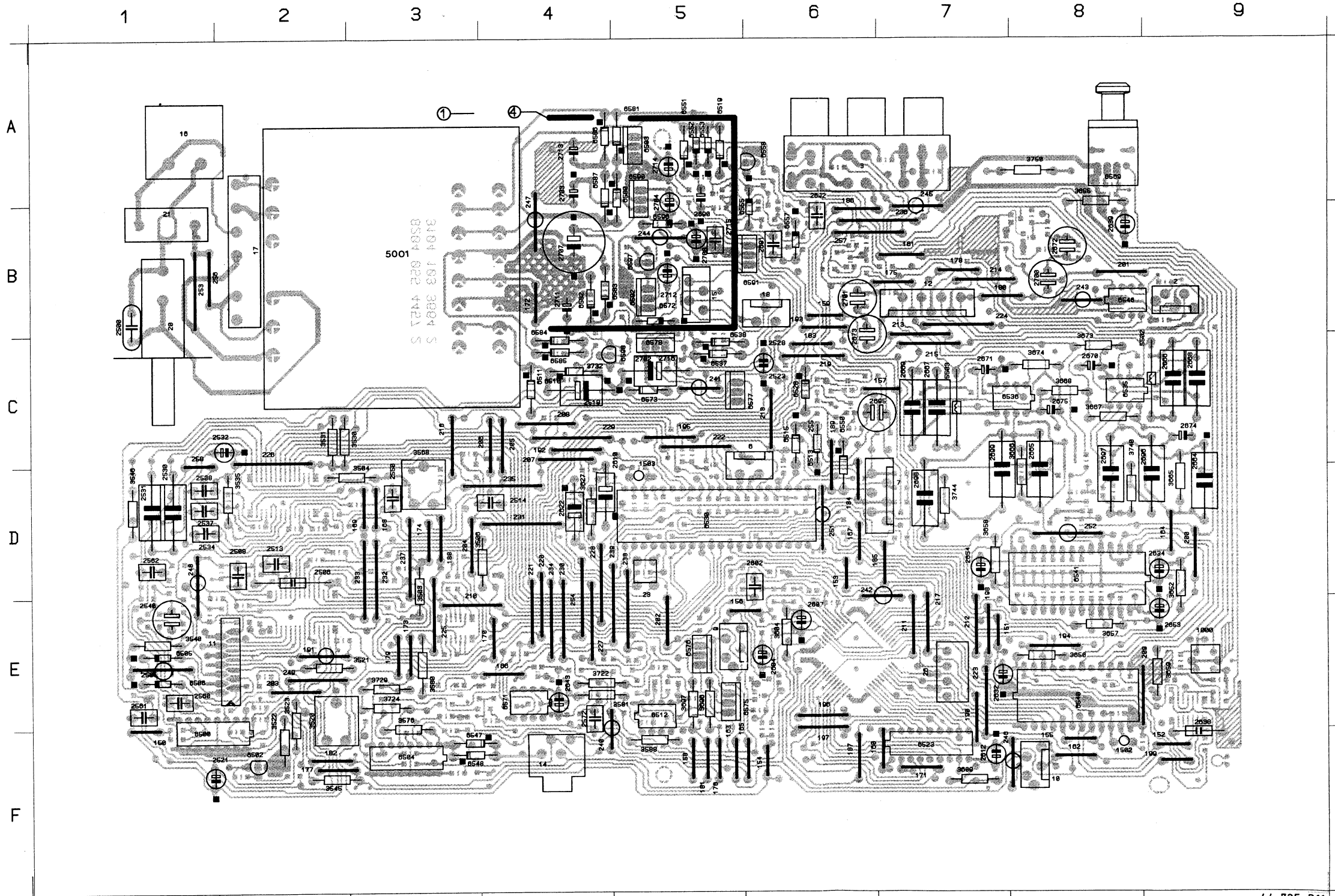
1001 J 1	2503 E 4	2509 F 8	2520 J 3	2534 C17	2540 E20	2545 F20	2562 M13	2572 M17	2623 A 9	3506 E 6	3520 L 3	3530 D14	3538 D 9	3543 E19	3557 H20	3564 M13	3569 M11	3579 M17	3585 L15	3591 N17	3625 A18	3646 D 7	3822 D 7	3841 D17	6504 D19	6512 N14	6548 N20
1002 K 1	2504 F 3	2510 F 9	2521 J 3	2535 I15	2541 L 9	2546 K12	2563 L13	2574 N14	2624 A10	3507 E 8	3521 L 3	3531 D15	3539 F11	3545 K12	3560 L10	3565 L13	3574 N13	3580 O14	3586 O13	3621 A15	3626 A17	3807 G19	3822 B 3	3847 L13	6504 K11	6516 N16	
1003 J 1	2506 E 5	2511 F 8	2530 D15	2536 B15	2542 L12	2550 H19	2565 J11	2620 A 9	3501 F 3	3508 E 6	3522 J 3	3533 G19	3540 F20	3546 L12	3561 K10	3566 L13	3575 O15	3581 M16	3587 O13	3622 B15	3627 A 8	3813 N12	3826 I10	3851 K10	6504 M18	6517 N14	
1503 A 9	2507 E 6	2511 H11	2531 D16	2537 J13	2543 K12	2560 K10	2570 M18	2621 A 9	3502 F 3	3509 L 9	3523 J 2	3534 C17	3541 F19	3552 H19	3562 M10	3567 L11	3576 M18	3582 M17	3588 N14	3623 B15	3628 A 8	3815 D 8	3829 L 9	6502 J 3	6505 F19	6530 A 5	
2501 F 2	2508 G 9	2514 E 6	2532 I16	2538 D14	2544 L12	2561 M 9	2571 N15	2622 A 7	3505 E 7	3510 I10	3524 J 3	3535 D13	3542 F20	3555 G19	3563 M13	3568 M12	3578 N18	3584 M15	3589 M14	3624 B17	3629 A 9	3818 A17	3840 C17	6503 D11	6506 E19	6547 M20	





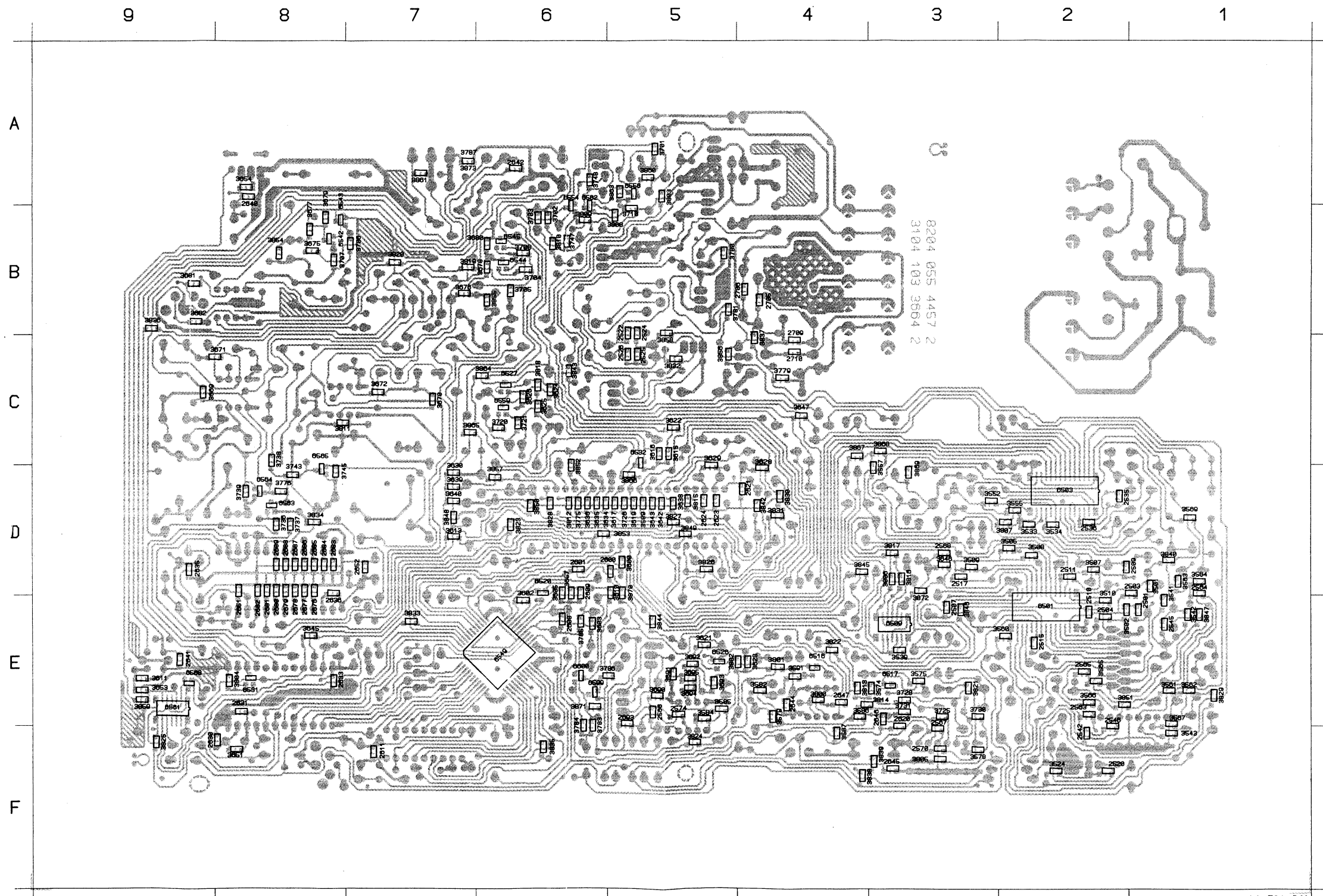
SERVO + DECODER

2	B 0	158	F 5	182	F 2	206	C 4	230	D 4	254	D 4	2520	F 2	2563	E 2	2630	F 9	2667	C 7	2691	B 6	3501	D 1	3543	F 1	3584	E 5	3624	C 6	3657	E 8	3693	E 5	3736	D 8	3804	E 8	3828	D 0	3853	D 5	0502	F 2	0537	C 5	0563	D 8	0590	B 5
3	A 7	150	B 6	183	C 6	207	C 4	231	D 4	256	B 1	2521	F 1	2564	D 1	2631	E 8	2668	C 9	2692	B 6	3502	E 2	3545	F 2	3585	E 5	3625	C 6	3658	D 7	3694	E 5	3737	D 8	3805	F 3	3829	E 1	3854	B 8	0503	D 2	0538	C 0	0564	D 8	0591	B 5
6	D 5	160	F 7	184	C 6	208	C 4	232	D 3	257	B 6	2522	C 5	2565	E 2	2632	E 7	2669	C 7	2693	E 5	3503	E 3	3546	D 1	3586	E 4	3626	C 0	3659	E 9	3695	E 5	3738	D 8	3806	D 2	3831	D 4	3856	C 5	0504	F 3	0540	E 8	0565	D 8	0592	C 4
7	D 0	161	B 7	185	D 7	209	E 9	233	D 3	258	C 1	2523	C 0	2566	E 5	2633	E 8	2670	C 8	2695	C 6	3504	D 2	3547	D 3	3587	F 4	3627	D 4	3660	D 0	3696	E 5	3739	D 8	3807	D 2	3832	C 5	3857	D 0	0505	E 1	0541	D 8	0566	E 0	0593	E 0
9	E 5	162	F 8	186	B 6	210	E 3	234	D 4	259	E 9	2524	B 5	2567	F 3	2634	D 9	2671	C 7	2696	D 9	3505	D 2	3548	D 3	3588	F 5	3628	D 4	3661	D 8	3697	F 5	3740	D 8	3808	E 6	3833	E 7	3858	B 5	0506	E 3	0542	B 8	0567	A 4	0594	E 8
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11	E 2	164	D 9	188	D 3	212	E 7	236	B 7	261	B 7	2526	F 8	2569	F 3	2636	D 9	2673	B 6	2698	D 7	3507	D 2	3550	E 1	3590	D 5	3630	D 6	3663	C 9	3700	B 6	3745	C 8	3811	C 7	3835	F 6	3860	A 5	0511	C 4	0544	B 6	0569	C 5	0596	E 5
12	B 7	165	F 6	189	D 5	213	C 7	237	D 3	262	D 5	2527	D 5	2570	F 3	2637	D 8	2674	C 0	2699	D 7	3508	D 3	3551	E 1	3591	D 5	3631	D 6	3664	C 0	3701	B 6	3746	C 8	3812	C 7	3836	F 6	3861	A 7	0512	C 5	0545	B 6	0570	C 5	0597	E 5
14	F 4	166	E 4	190	F 7	214	B 7	238	D 5	263	D 1	2528	B 1	2571	D 1	2638	D 5	2675	C 8	2700	B 8	3509	D 3	3552	E 1	3592	E 0	3632	D 0	3665	C 9	3702	B 6	3747	B 6	3813	C 7	3837	B 4	3862	A 5	0513	C 0	0546	B 8	0571	E 4	0598	E 5
15	B 5	167	D 6	191	E 2	215	C 7	239	D 5	264	E 9	2529	B 1	2572	D 1	2639	D 5	2676	E 8	2701	B 0	3510	E 2	3553	D 1	3593	E 0	3633	D 0	3666	C 0	3703	B 6	3748	A 0	3814	D 5	3838	B 4	3863	A 5	0514	C 5	0547	F 3	0572	E 5	0599	E 0
16	A 1	168	D 3	192	C 4	216	C 3	240	E 4	265	E 1	2530	C 1	2601	D 6	2641	E 0	2677	E 8	2702	C 5	3511	E 2	3554	D 1	3594	E 0	3634	D 5	3667	C 7	3704	B 7	3749	A 7	3815	E 3	3839	F 4	3864	C 0	0515	C 0	0548	F 4	0573	C 5	0600	E 0
17	A 2	169	D 3	193	B 6	217	D 7	241	C 5	266	D 2	2531	D 1	2602	E 6	2642	A 6	2678	E 8	2703	A 4	3512	E 3	3555	E 2	3595	E 0	3635	D 6	3668	C 7	3705	B 7	3750	A 7	3816	E 3	3840	F 4	3865	C 0	0516	C 0	0549	F 4	0574	C 5	0601	E 0
18	B 6	170	E 4	194	E 9	218	C 6	242	E 6	267	E 2	2532	D 2	2603	E 6	2643	E 4	2679	E 8	2704	A 5	3513	E 3	3556	E 2	3596	E 0	3636	D 5	3669	C 7	3706	B 7	3751	A 7	3817	E 3	3841	D 3	3866	C 7	0517	E 4	0550	E 7	0575	C 5	0602	E 0
20	B 1	171	F 7	195	C 5	219	C 6	243	B 8	268	D 2	2533	D 2	2604	E 6	2644	E 4	2680	E 8	2705	B 4	3514	E 3	3557	E 2	3597	E 0	3637	D 4	3670	C 8	3707	B 8	3752	D 6	3818	D 5	3842	D 1	3867	D 5	0518	E 4	0551	E 7	0576	C 5	0603	E 0
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26	E 7	173	E 3	197	F 6	221	D 4	245	B 7	270	D 2	2535	D 1	2606	E 6	2646	F 3	2682	E 8	2707	B 4	3516	E 3	3559	E 2	3599	E 0	3639	D 2	3672	C 8	3709	C 8	3754	D 6	3820	D 5	3844	D 1	3869	D 5	0520	E 4	0553	A 5	0578	C 5	0605	E 0
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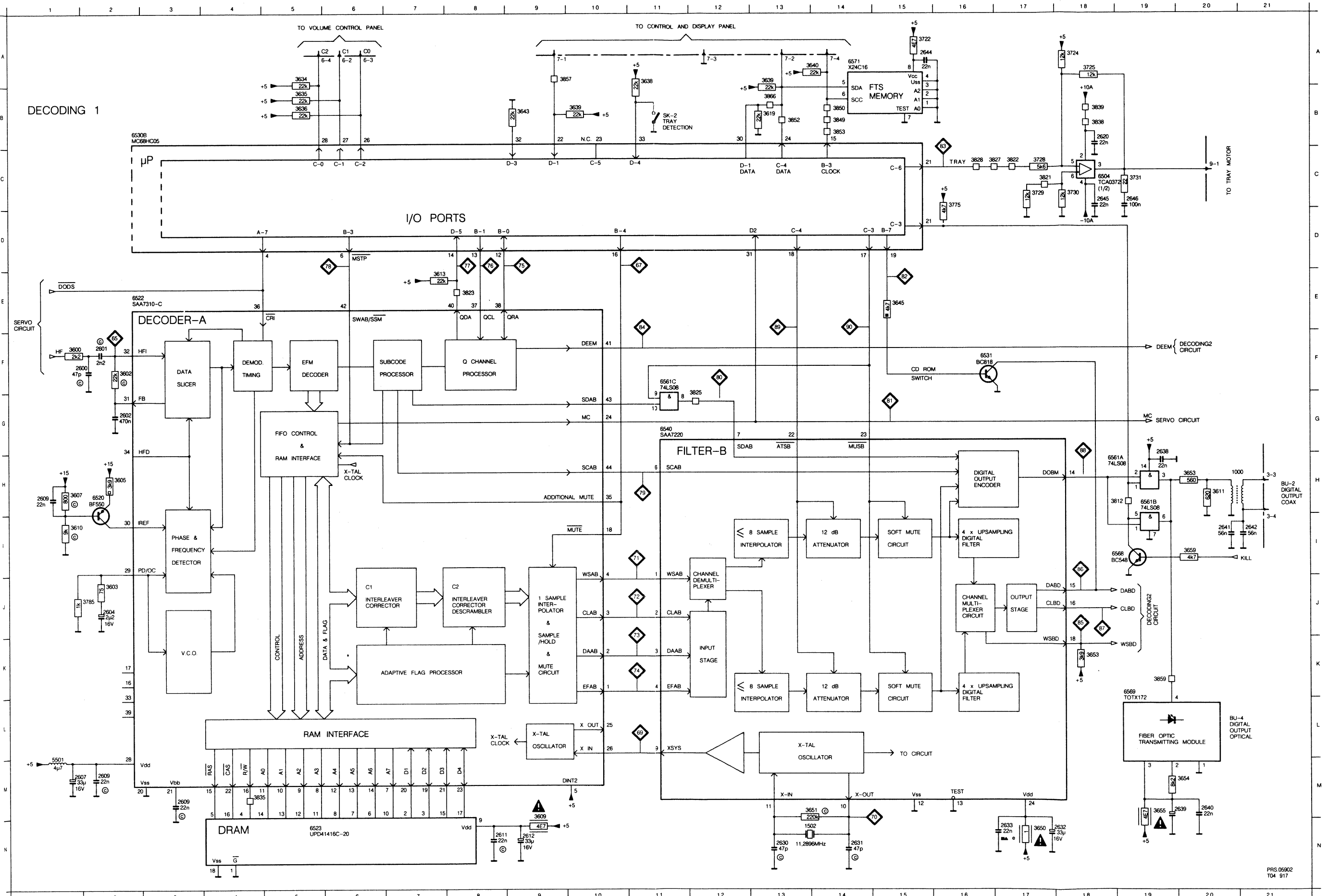


SERVO + DECODER PANEL

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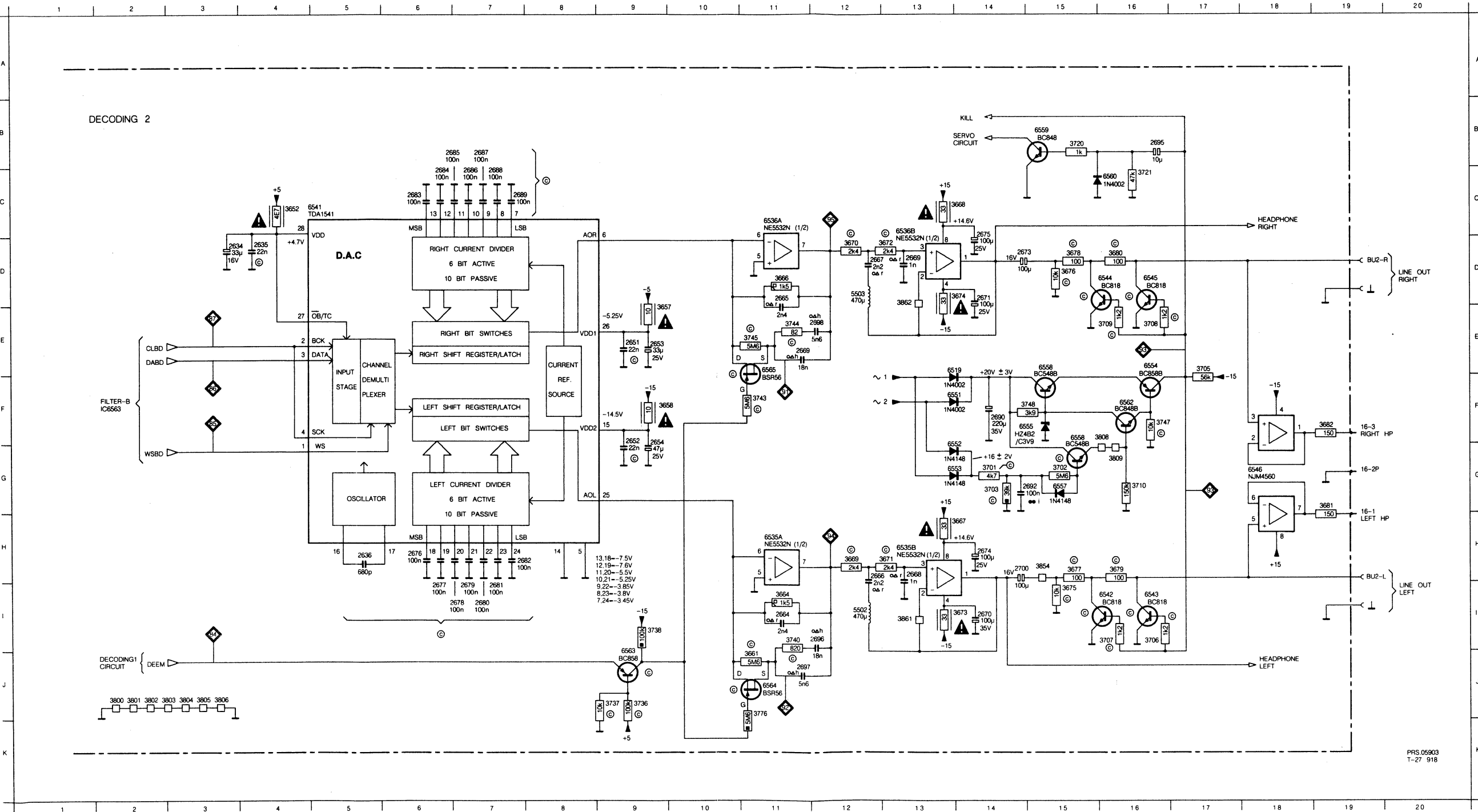


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PRS 05902  
T04 917

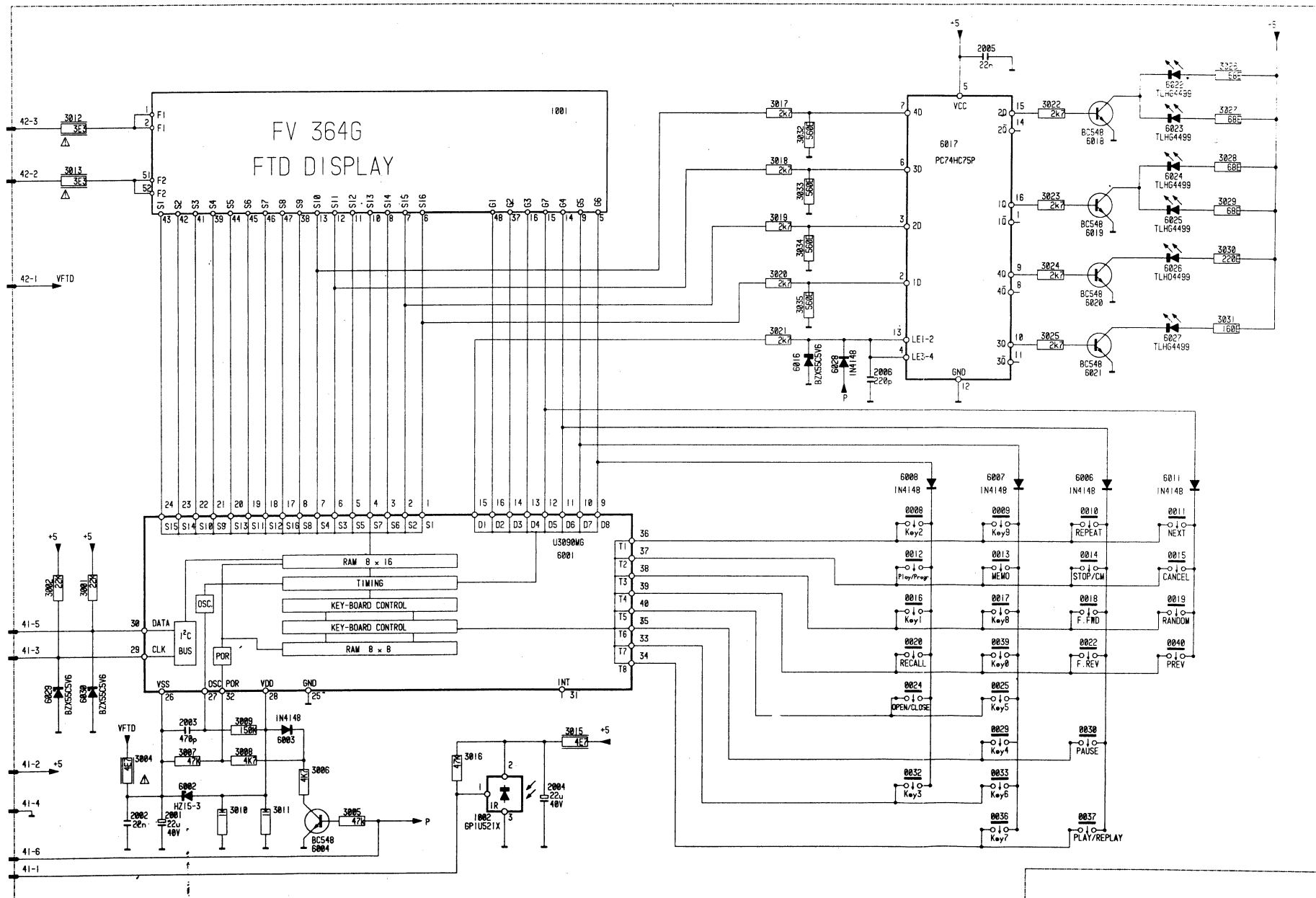
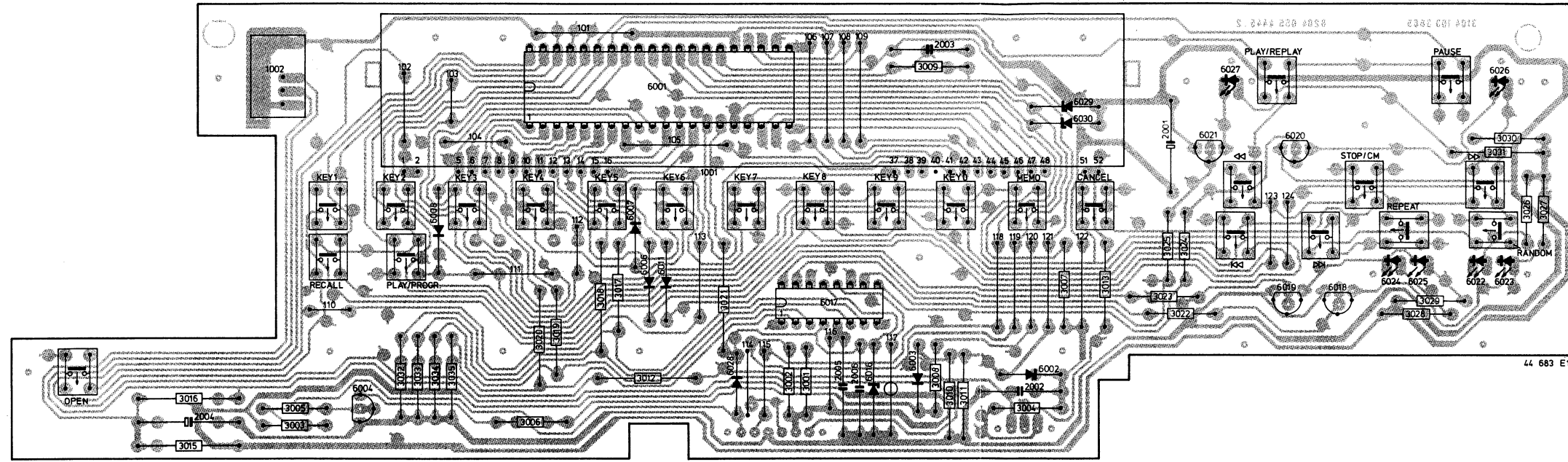
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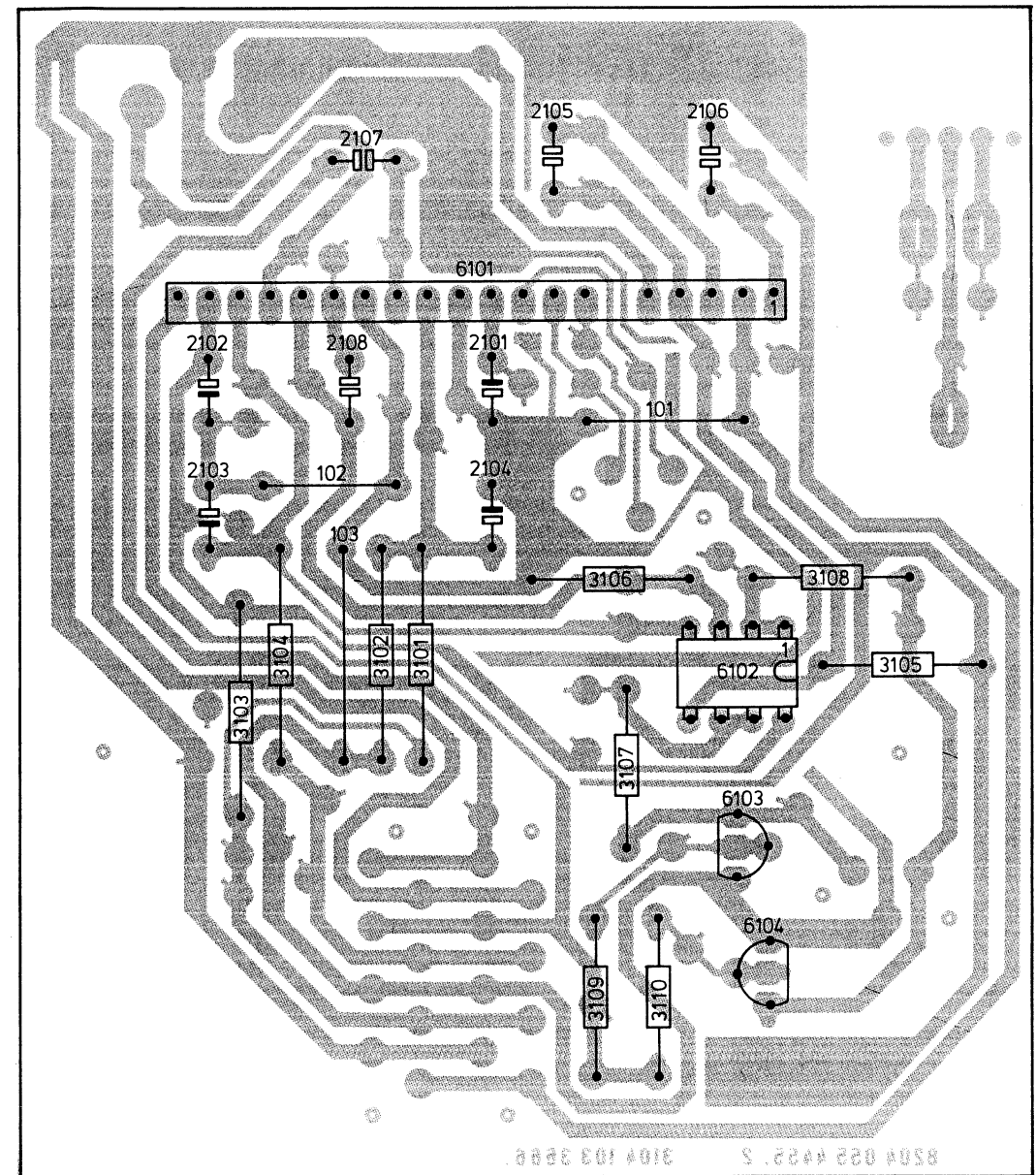
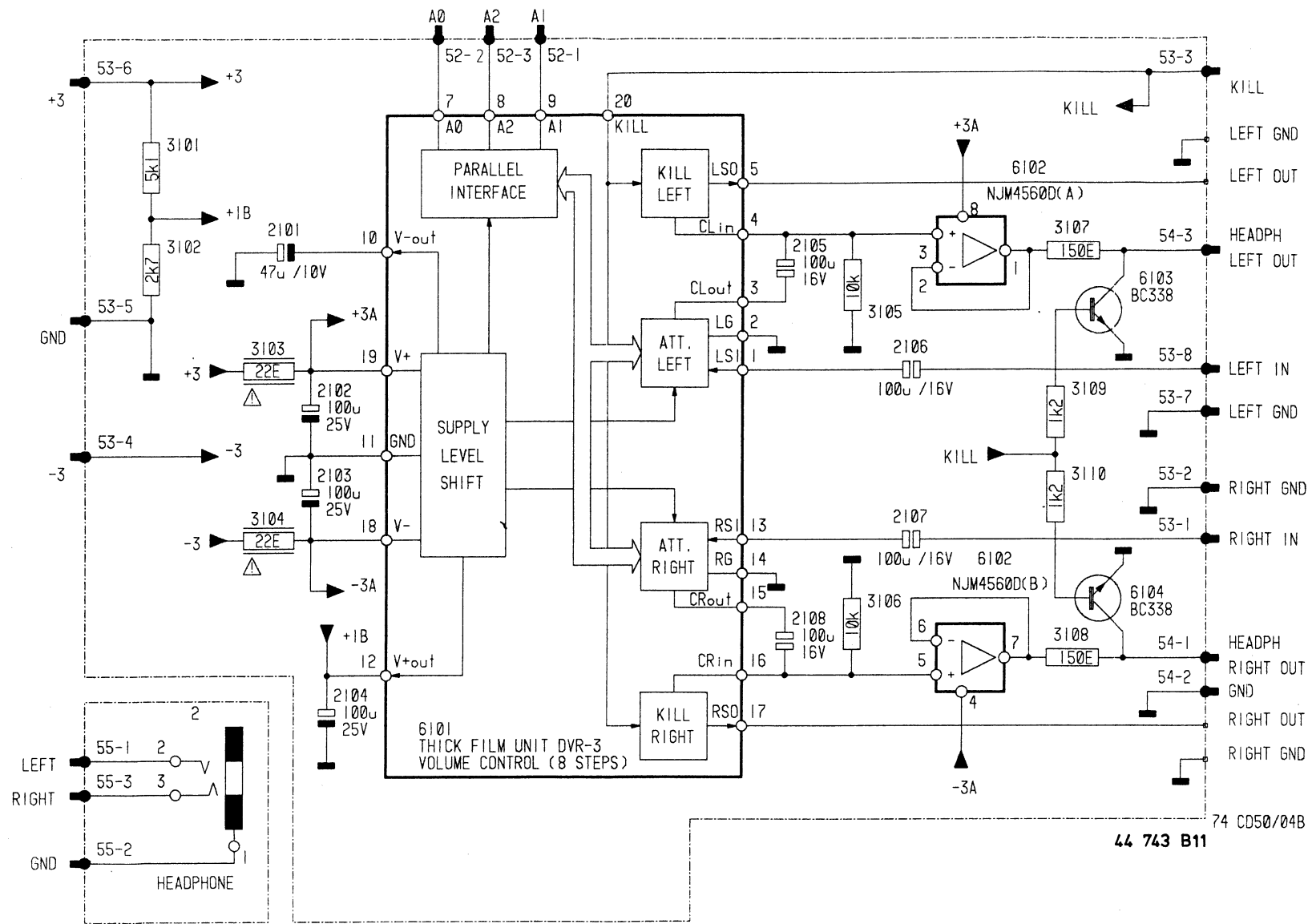
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T-27 918



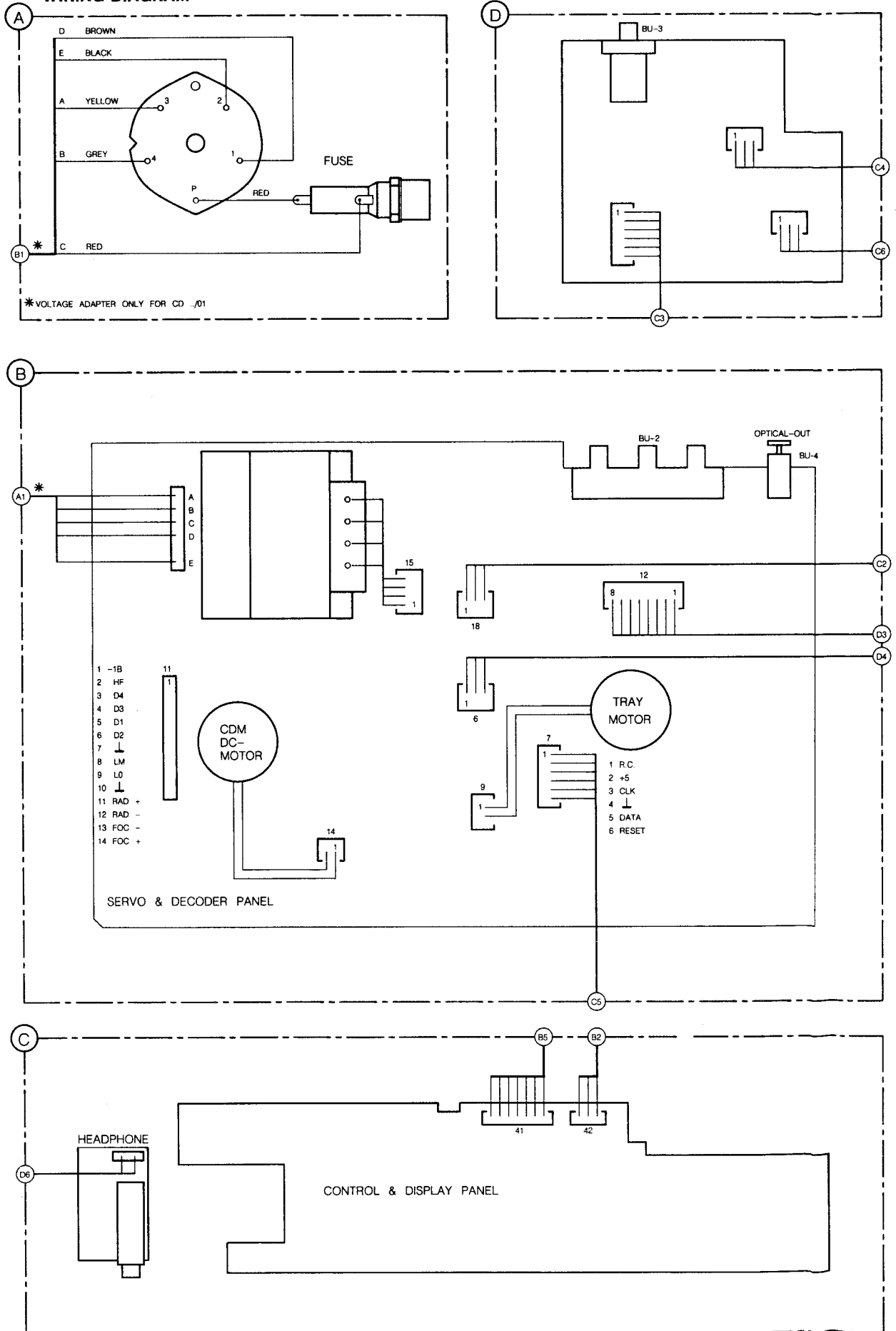
CONTROL + DISPLAY



VARIABLE LINE OUT



WIRING DIAGRAM






PRS 05909  
132-916


## ELECTRICAL PARTSLIST SERVO &amp; DECODER PANEL

<b>Miscellaneous</b>			2570	4822 122 31644	2n2 10% 63V
			2572	5322 121 42661	330nF 5% 63V
			2574	4822 122 31759	18nF 10%
BU-1	4822 492 63076	Clamping spring	2600	4822 122 31772	47pF 5% 50V
SK-1	4822 265 20291	Mains inlet	2601	4822 122 31644	2n2 10% 63V
	4822 276 11309	Mains switch	2602	4822 121 51252	470nF 5% 100V
	4822 256 30274	Fuse holder	2604	4822 124 41576	2μ2 20% 50V
SK-2	4822 276 12523	Tact switch (4.3mm)	2607	4822 124 40272	33μF20% 16V
BU-2	4822 267 20368	Cinch socket 5P	2608	4822 122 33147	22nF 20%
			2609	4822 122 33147	22nF 20%
<b>HF-transformer</b>			2610	4822 124 20688	33μF 50% 16V
1000	4822 148 80281	HF-transformer for Digital output	2611	4822 122 33147	22nF 20%
			2612	4822 124 40272	33μF 20% 16V
			2620	4822 122 33147	22nF 20%
			2621	4822 122 33147	22nF 20%
<b>Crystal</b>			2622	4822 124 22031	4μ7 20% 63V
1502	4822 242 71349	11.289 600 MHz Quartz Crystal	2623	4822 122 31772	47pF 5% 50V
1503	4822 242 70831	4.00 MHz Ceramic Resonator	2624	4822 122 31772	47pF 5% 50V
			2630	4822 122 31772	47pF 5% 50V
			2631	4822 122 31772	47pF 5% 50V
<b>—  —</b>			2632	4822 124 40272	33μF 20% 16V
2500	4822 126 10005	3n3 400V 20% Ceramic disc cap.	2633	4822 122 33147	22nF 20%
2501	4822 122 33147	22nF 20%	2634	4822 124 40272	33μF 20% 16V
2503	4822 122 33147	22nF 20%	2635	4822 122 33147	22nF 20%
2504	4822 122 31727	470pF 5% 63V	2636	4822 122 31775	680pF 5% 50V
2506	4822 122 10166	22nF 30% 16V	2638	4822 122 10166	22nF 30% 16V
2507	4822 122 31644	2n2 10% 63V	2640	4822 122 33147	22nF 20%
2508	5322 121 42491	47nF 5% 100V	2641	4822 122 32183	56nF 10% 50V
2509	4822 122 31765	100pF 5% 50V	2642	4822 122 32183	56nF 10% 50V
2510	4822 122 32442	10nF 50V	2644	4822 122 33147	22nF 20%
2511	4822 122 31746	1000pF 5% 50V	2645	4822 122 33147	22nF 20%
2513	4822 121 42245	220nF 10% 63V	2646	4822 122 33104	100nF10% 63V
2514	4822 121 51252	470nF 5% 100V	2651	4822 122 33147	22nF 20%
2515	4822 122 31746	1000pF 5% 50V	2652	4822 122 33147	22nF 20%
2519	4822 124 22027	47μF 20% 25V	2653	4822 124 40272	33μF 20% 16V
2520	4822 122 31965	220pF 5% 63V	2654	4822 124 41527	47μF 25V
2521	4822 124 41527	47μF 25V	2664	4822 121 51111	2n4 2% 250V
2522	4822 122 33147	22nF 20%	2665	4822 121 51111	2n4 2% 250V
2523	4822 124 40257	220μF 20% 63V	2668	4822 121 43066	1nF 1% 400V
2524	4822 122 33147	22nF 20%	2669	4822 121 43066	1nF 1% 400V
2525	4822 122 33147	22nF 20%	2670	4822 124 41528	100μF 25V
2526	4822 122 33147	22nF 20%	2671	4822 124 41528	100μF 25V
2530	4822 121 51321	8μ2 1% 63V	2673	4822 124 22339	100μF 20% 16V Bipolar
2531	4822 121 51321	8μ2 1% 63V	2674	4822 124 41528	100μF 25V
2532	4822 124 40272	33μF 20% 16V	2675	4822 124 41528	100μF 25V
2534	5322 121 42661	330nF 5% 63V	2676	4822 122 33104	100nF 10% 63V
2535	5322 122 31848	33nF 10% 63V	2677	4822 122 33104	100nF 10% 63V
2536	5322 122 31848	33nF 10% 63V	2678	4822 122 33104	100nF 10% 63V
2537	4822 121 42245	220nF 10% 63V	2679	4822 122 33104	100nF 10% 63V
2538	4822 121 42245	220nF 10% 63V	2680	4822 122 33104	100nF 10% 63V
2540	4822 124 41583	0μ68 Bipolar Elco	2681	4822 122 33104	100nF 10% 63V
2542	4822 122 33147	22nF 20%	2682	4822 122 33104	100nF 10% 63V
2545	4822 122 33104	100nF 10% 63V	2683	4822 122 33104	100nF 10% 63V
2546	4822 122 33147	22nF 20%	2684	4822 122 33104	100nF 10% 63V
2550	5322 121 42491	47nF 5% 100V	2685	4822 122 33104	100nF 10% 63V
2560	4822 121 51314	4n7 5% 50V	2686	4822 122 33104	100nF 10% 63V
2561	4822 121 51252	470nF 5% 100V	2687	4822 122 33104	100nF 10% 63V
2562	5322 121 42661	330nF 5% 63V	2688	4822 122 33104	100nF 10% 63V
2563	4822 122 33104	100nF 10% 63V	2689	4822 122 33104	100nF 10% 63V
2566	4822 122 33147	22nF 20%	2690	4822 124 41573	470μF 20% 35V
			2691	4822 121 51252	470nF 5% 100V
			2692	5322 121 42386	100nF 5% 63V
			2693	4822 122 33147	22nF 20%



		
2695	4822 124 41558	10µF 20% 25V Bipolar
2696	4822 121 51225	18nF 2% 63V
2697	4822 121 51361	5n6 2% 160V
2698	4822 121 51361	5n6 2% 160V
2699	4822 121 51225	18nF 2% 63V
2700	4822 124 22339	100µF 20% 16V Bipolar
2702	4822 124 22337	22µF 20% 63V
2703	4822 124 41594	330µF 20% 35V
2704	4822 124 41527	47µF 25V
2705	4822 122 33147	22nF 20%
2706	4822 122 33147	22nF 20%
2707	4822 124 41591	6800µF 20% 16V
2708	4822 124 40272	33µF 20% 16V
2709	4822 122 33147	22nF 20%
2710	4822 122 33147	22nF 20%
2711	4822 124 41571	1000µF 20% 16V
2712	4822 124 40272	33µF 20% 16V
2713	4822 124 41573	470µF 20% 35V
2714	4822 124 41527	47µF 25V
2715	5322 121 42386	100nF 5% 63V
		
3501	5322 111 90111	4k7 2% 0,125W
3502	4822 111 90214	100k 2% 0,125W
3503	4822 111 30499	4Ω7 5% 0,33W
3504	4822 111 30499	4Ω7 5% 0,33W
3505	4822 111 90253	12k 2% 0,125W
3506	4822 116 52389	100Ω 5% 0,5W
3507	5322 111 90092	1k 2% 0,125W
3508	4822 111 90512	24k 2% 0,125W
3509	4822 111 90572	5k6 2% 0,125W
3510	4822 111 90249	10k 2% 0,125W
3520	4822 101 10685	4k7 20%LIN 0,05W trimpot
3521	4822 116 52407	220Ω 5% 0,5W
3522	4822 111 30515	18Ω 5% 0,33W
3523	4822 111 30511	12Ω 5% 0,33W
3524	5322 111 90091	100Ω 2% 0,125W
3533	5322 111 90268	5k1 2% 0,125W
3534	4822 111 90197	220k 2% 0,125W
3535	4822 116 53081	12k 1% 0,6W
3539	4822 111 90251	22k 2% 0,125W
3540	4822 111 30499	4Ω7 5% 0,33W
3541	4822 111 90544	6k8 2% 0,125W
3542	4822 111 90357	33Ω 2% 0,125W
3543	4822 111 90544	6k8 2% 0,125W
3545	4822 111 30483	1Ω 5% 0,33W
3546	4822 111 30483	1Ω 5% 0,33W
3551	5322 111 90099	150k 2% 0,125W
3552	5322 111 90101	1k8 2% 0,125W
3555	4822 111 90238	180k 5% 0,25W
3557	4822 111 90197	220k 2% 0,125W
3560	4822 111 91494	11k 2%
3561	4822 116 90417	150k 2%
3562	4822 111 90568	120k 2% 0,125W
3563	4822 111 90573	56k 2% 0,125W
3564	4822 111 91495	160k 2%
3565	5322 111 90105	27Ω 2% 0,125W
3566	4822 111 90186	22Ω 2% 0,125W
3567	4822 111 90575	82k 2% 0,125W
3568	4822 100 20522	22k 20%LIN 0,05W trimpot
3569	4822 111 90368	680k 2% 0,125W
3574	5322 111 90267	33k 2% 0,125W
3575	5322 111 90111	4k7 2% 0,125W
3576	4822 116 52848	200k 1% 0,6W
3578	4822 111 90575	82k 2% 0,125W
3579	4822 116 90417	150k 2%
3580	4822 116 52426	4k7 5% 0,5W
3581	4822 116 53105	3k3 1% 0,6W
3582	4822 111 90572	5k6 2% 0,125W
3584	4822 111 91492	91k 2%
3585	4822 111 90214	100k 2% 0,125W
3586	4822 111 90368	680k 2% 0,125W
3588	4822 116 52472	47k 5% 0,5W
3589	5322 111 90111	4k7 2% 0,125W
3591	5322 111 90096	1k2 2% 0,125W
3600	4822 111 90248	2k2 2% 0,125W
3602	4822 111 90251	22k 2% 0,125W
3603	4822 111 90371	75Ω 2% 0,125W
3604	4822 111 30499	4Ω7 5% 0,33W
3605	5322 111 90265	1k6 2% 0,125W
3607	4822 111 90571	3k9 2% 0,125W
3609	4822 111 30499	4Ω7 5% 0,33W
3610	4822 111 90373	9k1 2% 0,125W
3611	4822 111 90366	620Ω 2% 0,125W
3613	4822 111 90251	22k 2% 0,125W
3619	4822 111 90251	22k 2% 0,125W
3621	4822 111 90238	180k 5% 0,25W
3622	4822 111 90543	47k 2% 0,125W
3623	4822 111 90238	180k 5% 0,25W
3624	4822 111 90248	2k2 2% 0,125W
3625	4822 111 90249	10k 2% 0,125W
3626	4822 111 90249	10k 2% 0,125W
3627	4822 111 30499	4Ω7 5% 0,33W
3628	4822 111 90251	22k 2% 0,125W
3629	4822 111 90197	220k 2% 0,125W
3630	4822 111 90251	22k 2% 0,125W
3634	4822 111 90251	22k 2% 0,125W
3635	4822 111 90251	22k 2% 0,125W
3636	4822 111 90251	22k 2% 0,125W
3638	4822 111 90251	22k 2% 0,125W
3639	4822 111 90251	22k 2% 0,125W
3640	4822 111 90251	22k 2% 0,125W
3643	4822 111 90251	22k 2% 0,125W
3645	5322 111 90111	4k7 2% 0,125W
3646	4822 111 90251	22k 2% 0,125W
3647	4822 111 90251	22k 2% 0,125W
3650	4822 111 30483	1Ω 5% 0,33W
3651	4822 111 90197	220k 2% 0,125W
3652	4822 111 30499	4Ω7 5% 0,33W
3653	4822 116 52428	560Ω 5% 0,5W
3654	5322 111 90118	8k2 2% 0,125W
3655	4822 111 30499	4Ω7 5% 0,33W
3657	4822 111 30499	4Ω7 5% 0,33W
3658	4822 111 30508	10Ω 5% 0,33W
3659	4822 116 52426	4k7 5% 0,5W
3665	5322 116 53478	1k5 1% 0,6W
3666	5322 116 53478	1k5 1% 0,6W
3667	4822 111 30522	33Ω 5% 0,33W
3668	4822 111 30522	33Ω 5% 0,33W
3669	4822 116 90271	2k4 2%
3670	4822 116 90271	2k4 2%
3671	4822 116 90271	2k4 2%
3672	4822 116 90271	2k4 2%
3673	4822 111 30522	33Ω 5% 0,33W
3674	4822 111 30522	33Ω 5% 0,33W
3675	4822 111 90249	10k 2% 0,125W
3676	4822 111 90249	10k 2% 0,125W
3677	5322 111 90091	100Ω 2% 0,125W
3678	5322 111 90091	100Ω 2% 0,125W
3679	5322 111 90091	100Ω 2% 0,125W
3680	5322 111 90091	100Ω 2% 0,125W
3690	4822 111 90253	12k 2%

		
3691	4822 111 90253	12k 2%
3692	4822 111 90253	12k 2%
3693	5322 116 80445	4k7 5%
3694	4822 111 90253	12k 2%
3695	5322 116 80426	100Ω
3696	4822 111 30513	15Ω Safety Resistor
3697	4822 111 30513	15Ω Safety Resistor
3701	5322 111 90111	4k7 2% 0,125W
3702	4822 111 90425	5M6 5% 0,125W
3703	5322 111 90108	39k 2% 0,125W
3704	5322 111 90096	1k2 2% 0,125W
3705	4822 111 90573	56k 2% 0,125W
3706	5322 111 90096	1k2 2% 0,125W
3707	5322 111 90096	1k2 2% 0,125W
3708	5322 111 90096	1k2 2% 0,125W
3710	5322 111 90099	150k 2% 0,125W
3720	5322 111 90092	1k 2% 0,125W
3721	4822 111 90543	47k 2% 0,125W
3722	4822 111 30499	4Ω7 5% 0,33W
3724	4822 116 53081	12k 1% 0,6W
3725	4822 111 90253	12k 2% 0,125W
3726	4822 111 90251	22k 5%
3728	4822 111 90572	5k6 2% 0,125W
3729	4822 116 53081	12k 0423 ER
3730	4822 111 90253	12k 2% 0,125W
3731	4822 111 90186	22Ω 2% 0,125W
3732	4822 116 52407	220Ω 5% 0,5W
3736	4822 111 90214	100k 2% 0,125W
3737	4822 111 90249	10k 2% 0,125W
3738	4822 111 90214	100k 2% 0,125W
3739	4822 111 90425	5M6 5% 0,125W
3740	4822 116 52864	820Ω 1% 0,6W
3743	4822 111 90425	5M6 5% 0,125W
3744	4822 116 52864	820Ω 1% 0,6W
3745	4822 111 90425	5M6 5% 0,125W
3747	4822 111 90249	10k 2% 0,125W
3748	4822 111 90571	3k9 2% 0,125W
3775	5322 111 90111	4k7 2% 0,125W
3776	4822 111 90425	5M6 5% 0,125W
3779	5322 111 90306	750Ω 2% 0,125W
<b>jumper</b>		
3801	4822 111 90163	jumper
3802	4822 111 90163	jumper
3803	4822 111 90163	jumper
3804	4822 111 90163	jumper
3805	4822 111 90163	jumper
3808	4822 111 90163	jumper
3809	4822 111 90163	jumper
3810	4822 111 90163	jumper
3811	4822 111 90163	jumper
3812	4822 111 90163	jumper
3813	4822 111 90163	jumper
3814	4822 111 90163	jumper
3818	4822 111 90163	jumper
3821	4822 111 90163	jumper
3822	4822 111 90163	jumper
3823	4822 111 90163	jumper
3824	4822 111 90163	jumper
3825	4822 111 90163	jumper
3826	4822 111 90163	jumper
3827	4822 111 90163	jumper
3828	4822 111 90163	jumper
3829	4822 111 90163	jumper

<b>jumper</b>		
3830	4822 111 90163	jumper
3831	4822 111 90163	jumper
3833	4822 111 90163	jumper
3834	4822 111 90163	jumper
3835	4822 111 90163	jumper
3836	4822 111 90163	jumper
3837	4822 111 90163	jumper
3838	4822 111 90163	jumper
3839	4822 111 90163	jumper
3840	4822 111 90163	jumper
3841	4822 111 90163	jumper
3842	4822 111 90163	jumper
3843	4822 111 90163	jumper
3844	4822 111 90163	jumper
3845	4822 111 90163	jumper
3847	4822 111 90163	jumper
3848	4822 111 90163	jumper
3849	4822 111 90163	jumper
3850	4822 111 90163	jumper
3852	4822 111 90163	jumper
3853	4822 111 90163	jumper
3854	4822 111 90163	jumper
3855	4822 111 90163	jumper
3856	4822 111 90163	jumper
3857	4822 111 90163	jumper
3858	4822 111 90163	jumper
3859	4822 111 90163	jumper
3860	4822 111 90163	jumper
3861	4822 111 90163	jumper
3862	4822 111 90163	jumper
		
5502	4822 157 53141	coil 470µH
5503	4822 157 53141	coil 470µH
<b>semi conductor</b>		
6500	4822 209 72587	TCA0372DP2
6501	4822 209 73234	TDA8808T/C3
6502	4822 130 44121	BC338
6503	4822 209 73235	TDA8809T/C2
6504	4822 209 72587	TCA0372DP2
6505	4822 130 34173	BZX79-B5V6

semi conductor			semiconductor		
6544	4822 130 42675	BC818	6571	4822 209 60772	X24C16
6545	4822 130 42675	BC818	6572	4822 130 34195	BZX55-C13
6547	5322 130 30684	1N4002	6575	4822 130 40823	BD135
6548	5322 130 30684	1N4002	6576	4822 130 40824	BD136
6549	4822 209 60775	SAA7310GP/05	6577	4822 209 80808	MC78M15CT
6550	5322 130 30684	1N4002	6580	5322 130 30684	1N4002
6551	5322 130 30684	1N4002	6581	5322 130 30684	1N4002
6552	4822 130 30621	1N4148	6582	5322 130 30684	1N4002
6553	4822 130 30621	1N4148	6583	5322 130 30684	1N4002
6554	4822 130 42513	BC858C	6584	5322 130 30684	1N4002
6555	4822 130 31981	BZX55-C3V9	6585	5322 130 30684	1N4002
6556	4822 130 61207	BC848	6586	5322 130 30684	1N4002
6557	4822 130 30621	1N4148	6587	5322 130 30684	1N4002
6558	4822 130 44121	BC338	6590	4822 209 80808	MC78M15CT
6559	4822 130 61207	BC848	6591	4822 209 71579	TY40408 = MC7805CT
6561	4822 209 60803	SN74LS08D			selected
6562	4822 130 61207	BC848	6592	5322 209 11222	MC7905CT
6563	5322 130 42012	BC858	6593	5322 130 41899	MC7915CT
6564	4822 130 42633	BSR56			
6565	4822 130 42633	BSR56			
6568	4822 130 61207	BC848			
6569	4822 218 20752	TOTX172 optical transmitter BU-4			


MISCELLANEOUS





1510	4822 253 30009	0.160A T FUSE only for /01/02/05	TOOLS 5322 130 32182	LED GREEN CQY G II
1510	4822 253 30014	0.315A T FUSE only for /04	TOOLS 4822 397 30184	CD AUDIO SIGNALS
1510	4822 253 30217	0.300A T FUSE UL only for /06	TOOLS 4822 321 21284	SERVICE CABLE (4P)
5001	4822 146 30798	MAINS TRANSFORMER only for /01	TOOLS 4822 397 30096	AUDIO TEST DISC 5+5A
5001	4822 146 30778	MAINS TRANSFORMER only for /02/05	TOOLS 4822 397 30155	AUDIO TEST DISC 1kHz
5001	4822 146 30782	MAINS TRANSFORMER only for /04	TOOLS 4822 397 60141	AUDIO TEST MAX DIAM
5001	4822 146 30797	MAINS TRANSFORMER only for /06	TOOLS 4822 395 50145	TORX SCREWDRIVERSET
	4822 263 40054	CAROUSEL ASSY only for /01	TOOLS 4822 395 50132	TORX SCREW SQUARE
	4822 600 10296	A-BOX MARANTZ	TOOLS 4822 395 30204	13TH ORDER FILTER
	4822 600 10302	A-BOX PHILIPS	TOOLS 4822 322 40066	SERVICE CABLE (14P)
	4822 600 10294	EPS-CUSHION	TOOLS 4822 267 50676	SERVICE CONNECTOR (14P)

ELECTRICAL PARTSLIST CONTROL & DISPLAY PANEL

switch			semiconductor		
SK...	4822 276 12465	TACT SWITCH (4.3MM)	3523	4822 116 52413	2k7 5% 0,5W
miscellaneous			3524	4822 116 52413	2k7 5% 0,5W
1501	4822 130 90663	DISPLAY FV364G	3525	4822 116 52413	2k7 5% 0,5W
1502	4822 214 51772	IR RECEIVER GP1U521X	3526	4822 116 52412	270Ω 5% 0,5W
-			3527	4822 116 52412	270Ω 5% 0,5W
2501	5322 124 21643	22μF 20% 40V	3528	4822 116 52412	270Ω 5% 0,5W
2502	4822 122 10166	22nF 30% 16V	3529	4822 116 52412	270Ω 5% 0,5W
2503	4822 122 10172	220pF 10% 50V	3530	4822 116 52412	270Ω 5% 0,5W
2504	5322 124 21643	22μF 20% 40V	3531	4822 116 52412	270Ω 5% 0,5W
2505	4822 122 10166	22nF 30% 16V	semiconductor		
2506	4822 122 10172	220pF 10% 50V	6501	4822 209 72226	FTD DRIVER U3090MG
-			6502	4822 130 33732	BZV85-C15
3501	4822 116 52463	22k 5% 0,5W	6503	4822 130 30621	1N4148
3502	4822 116 52463	22k 5% 0,5W	6504	4822 130 40938	BC548
3503	4822 116 52463	22k 5% 0,5W	6506	4822 130 30621	1N4148
3504	4822 111 30499	4Ω 5% 0,33W Safety resistor	6507	4822 130 30621	1N4148
3505	4822 116 52426	4k7 5% 0,5W	6508	4822 130 30621	1N4148
3506	4822 116 52426	4k7 5% 0,5W	6511	4822 130 30621	1N4148
3507	4822 116 52472	47k 5% 0,5W	6512	4822 130 34173	BZX55-C5V6
3508	4822 116 52426	4k7 5% 0,5W	6513	4822 130 34173	BZX55-C5V6
3509	4822 116 52501	150k 5% 0,5W	6514	4822 130 34173	BZX55-C5V6
3510	4822 116 52391	1k 5% 0,5W	6515	4822 130 34173	BZX55-C5V6
3511	4822 116 52391	1k 5% 0,5W	6516	4822 130 34173	BZX55-C5V6
3512	4822 111 30593	3Ω 5% 0,33W Safety resistor	6517	4822 209 60774	PC74HC75P
3513	4822 111 30593	3Ω 5% 0,33W Safety resistor	6518	4822 130 40938	BC548
3515	4822 111 30499	4Ω 5% 0,33W Safety resistor	6519	4822 130 40938	BC548
3516	4822 116 52472	47k 5% 0,5W	6520	4822 130 40938	BC548
3517	4822 116 52413	2k7 5% 0,5W	6521	4822 130 40938	BC548
3518	4822 116 52413	2k7 5% 0,5W	6522	4822 130 80848	TLHG4499
3519	4822 116 52413	2k7 5% 0,5W	6523	4822 130 80848	TLHG4499
3520	4822 116 52413	2k7 5% 0,5W	6524	4822 130 80848	TLHG4499
3521	4822 116 52413	2k7 5% 0,5W	6525	4822 130 80848	TLHG4499
3522	4822 116 52413	2k7 5% 0,5W	6526	4822 130 80849	TLHR4499
			6527	4822 130 80848	TLHG4499

VARIABLE LINE OUTPUT PANEL

<b>BU</b>			
BU-3	4822 267 30878	VAR.LINE OUTPUT SOCKET	3101 4822 116 52437 5k1 5% 0,5W
BU-5	4822 267 31065	HEADPHONE SOCKET	3102 4822 116 52413 2k7 5% 0,5W
			3103 4822 111 30517 22Ω 5% 0,33W
			3104 4822 111 30517 22Ω 5% 0,33W
			3105 4822 116 52452 10k 5% 0,5W
			3106 4822 116 52452 10k 5% 0,5W
			3107 4822 116 52398 150Ω 5% 0,5W
			3108 4822 116 52398 150Ω 5% 0,5W
			3109 4822 116 52395 1k2 5% 0,5W
			3110 4822 116 52395 1k2 5% 0,5W
			<b>semiconductor</b>
2101	4822 124 41527	47μF 25V	6101 4822 214 51724 DVR-3
2102	4822 124 41528	100μF 25V	6102 4822 209 83274 NJM4560D
2103	4822 124 41528	100μF 25V	6103 4822 130 44121 BC338
2104	4822 124 41528	100μF 25V	6104 4822 130 44121 BC338
2105	4822 124 22339	100μF 20% 25V	
2106	4822 124 22339	100μF 20% 25V	
2107	4822 124 22339	100μF 20% 25V	
2108	4822 124 22339	100μF 20% 25V	

⊖  Chips 50 V NP0 S1206			⊖  Chips 0,125 W S1206			⊖  Chips 0,125 W S1206			1U
1 pF	5%	4822 122 32479	4,7 E	5%	5322 111 90376	6,8 k	2%	4822 111 90544	
1,2 pF	5%	4822 122 33013	5,1 E	5%	4822 111 90393	7,5 k	2%	4822 111 90276	
1,5 pF	5%	4822 122 31792	5,6 E	5%	4822 111 90394	8,2 k	2%	5322 111 90118	
1,8 pF	5%	4822 122 32087	6,2 E	5%	4822 111 90395	9,1 k	2%	4822 111 90373	
2,2 pF	5%	4822 122 32425	6,8 E	5%	4822 111 90254	10 k	2%	4822 111 90249	
3,3 pF	5%	4822 122 32079	7,5 E	5%	4822 111 90396	11 k	2%	4822 111 90337	
3,9 pF	5%	4822 122 32081	8,2 E	5%	4822 111 90397	12 k	2%	4822 111 90253	
4,7 pF	5%	4822 122 32082	9,1 E	5%	4822 111 90398	13 k	2%	4822 111 90509	
5,6 pF	5%	4822 122 32506	10 E	2%	5322 111 90095	15 k	2%	4822 111 90196	
6,8 pF	5%	4822 122 32507	11 E	2%	4822 111 90338	16 k	2%	4822 111 90346	
8,2 pF	5%	4822 122 32083	12 E	2%	4822 111 90341	18 k	2%	4822 111 90238	
10 pF	5%	4822 122 31971	13 E	2%	4822 111 90343	20 k	2%	4822 111 90349	
12 pF	5%	4822 122 32139	15 E	2%	4822 111 90344	22 k	2%	4822 111 90251	
15 pF	5%	4822 122 32504	16 E	2%	4822 111 90347	24 k	2%	4822 111 90512	
18 pF	5%	4822 122 31769	18 E	2%	5322 111 90139	27 k	2%	4822 111 90542	
22 pF	10%	4822 122 31837	20 E	2%	4822 111 90352	30 k	2%	4822 111 90216	
27 pF	5%	4822 122 31966	22 E	2%	4822 111 90186	33 k	2%	5322 111 90267	
33 pF	5%	4822 122 31756	24 E	2%	4822 111 90355	36 k	2%	4822 111 90514	
39 pF	5%	4822 122 31972	27 E	2%	5322 111 90105	39 k	2%	5322 111 90108	
47 pF	5%	4822 122 31772	30 E	2%	4822 111 90356	43 k	2%	4822 111 90363	
56 pF	5%	4822 122 31774	33 E	2%	4822 111 90357	47 k	2%	4822 111 90543	
68 pF	5%	4822 122 31961	36 E	2%	4822 111 90359	51 k	2%	5322 111 90274	
82 pF	10%	4822 122 31839	39 E	2%	4822 111 90361	56 k	2%	4822 111 90573	
100 pF	5%	4822 122 31765	43 E	2%	5322 116 90125	62 k	2%	5322 111 90275	
120 pF	5%	4822 122 31766	47 E	2%	4822 111 90217	68 k	2%	4822 111 90202	
150 pF	5%	4822 122 31767	51 E	2%	4822 111 90365	75 k	2%	4822 111 90574	
180 pF	2%	4822 122 31794	56 E	2%	4822 111 90239	82 k	2%	4822 111 90575	
220 pF	5%	4822 122 31965	62 E	2%	4822 111 90367	91 k	2%	5322 111 90277	
270 pF	5%	4822 122 32142	68 E	2%	4822 111 90203	100 k	2%	4822 111 90214	
330 pF	10%	4822 122 31642	75 E	2%	4822 111 90371	110 k	2%	5322 111 90269	
390 pF	5%	4822 122 31771	82 E	2%	4822 111 90124	120 k	2%	4822 111 90568	
470 pF	5%	4822 122 31727	91 E	2%	4822 111 90375	130 k	2%	4822 111 90511	
560 pF	5%	4822 122 31773	100 E	2%	5322 111 90091	150 k	2%	5322 111 90099	
680 pF	5%	4822 122 31775	110 E	2%	4822 111 90335	160 k	2%	5322 111 90264	
820 pF	5%	4822 122 31974	120 E	2%	4822 111 90339	180 k	2%	4822 111 90565	
1 nF	10%	5322 122 31647	130 E	2%	4822 111 90164	200 k	2%	4822 111 90351	
1,2 nF	5%	4822 122 31807	150 E	2%	5322 111 90098	220 k	2%	4822 111 90197	
1,5 nF	10%	4822 122 31781	160 E	2%	4822 111 90345	240 k	2%	4822 111 90215	
1,8 nF	10%	4822 122 32153	180 E	2%	5322 111 90242	270 k	2%	4822 111 90302	
2,2 nF	10%	4822 122 31644	200 E	2%	4822 111 90348	300 k	2%	5322 111 90266	
2,7 nF	10%	4822 122 31783	220 E	2%	4822 111 90178	330 k	2%	4822 111 90513	
3,3 nF	10%	4822 122 31969	240 E	2%	4822 111 90353	360 k	2%	4822 111 90515	
3,9 nF	10%	4822 122 32566	270 E	2%	4822 111 90154	390 k	2%	4822 111 90182	
4,7 nF	10%	4822 122 31784	300 E	2%	4822 111 90156	430 k	2%	4822 111 90168	
5,6 nF	10%	4822 122 31916	330 E	2%	5322 111 90106	470 k	2%	4822 111 90161	
6,8 nF	10%	4822 122 31976	360 E	1%	4822 111 90288	510 k	2%	4822 111 90364	
10 nF	10%	4822 122 31728	360 E	2%	4822 111 90358	560 k	2%	4822 111 90169	
12 nF	10%	5322 122 31648	390 E	2%	5322 111 90138	620 k	2%	4822 111 90213	
15 nF	10%	4822 122 31782	430 E	2%	4822 111 90362	680 k	2%	4822 111 90368	
18 nF	10%	4822 122 31759	470 E	2%	5322 111 90109	750 k	2%	4822 111 90369	
22 nF	10%	4822 122 31797	510 E	2%	4822 111 90245	820 k	2%	4822 111 90205	
27 nF	10%	4822 122 32541	560 E	2%	5322 111 90113	910 k	2%	4822 111 90374	
33 nF	10%	4822 122 31981	620 E	2%	4822 111 90366	1 M	2%	4822 111 90252	
47 nF	10%	4822 122 32542	680 E	2%	4822 111 90162	1,1 M	5%	4822 111 90408	
56 nF	10%	4822 122 32183	750 E	2%	5322 111 90306	1,2 M	5%	4822 111 90409	
100 nF	10%	4822 122 31947	820 E	2%	4822 111 90171	1,3 M	5%	4822 111 90411	
180 nF	10%	4822 122 32915	910 E	2%	4822 111 90372	1,5 M	5%	4822 111 90412	
220 nF	20%	4822 122 32715	1 k	2%	5322 111 90092	1,6 M	5%	4822 111 90413	
⊖  Chips 0,125 W S1206 NP0			1,1 k	2%	4822 111 90336	1,8 M	5%	4822 111 90414	
0 E	jumper	4822 111 90163	1,2 k	2%	5322 111 90096	2 M	5%	4822 111 90415	
1 E	5%	4822 111 90184	1,3 k	2%	4822 111 90244	2,2 M	5%	4822 111 90185	
1,1 E	5%	4822 111 90377	1,5 k	2%	4822 111 90151	2,4 M	5%	4822 111 90416	
1,2 E	5%	4822 111 90378	1,6 k	2%	5322 111 90265	2,7 M	5%	4822 111 90417	
1,3 E	5%	4822 111 90379	1,8 k	2%	5322 111 90101	3 M	5%	4822 111 90418	
1,5 E	5%	4822 111 90381	2 k	2%	4822 111 90165	3,3 M	5%	4822 111 90191	
1,6 E	5%	4822 111 90382	2,2 k	2%	4822 111 90248	3,6 M	5%	4822 111 90419	
1,8 E	5%	4822 111 90383	2,4 k	2%	4822 111 90289	3,9 M	5%	4822 111 90421	
2 E	5%	4822 111 90384	2,7 k	2%	4822 111 90569	4,3 M	5%	4822 111 90422	
2,2 E	5%	5322 111 90104	3 k	2%	4822 111 90198	4,7 M	5%	4822 111 90423	
2,4 E	5%	4822 111 90385	3,3 k	2%	4822 111 90157	5,1 M	5%	4822 111 90424	
2,7 E	5%	4822 111 90386	3,6 k	2%	5322 111 90107	5,6 M	5%	4822 111 90425	
3 E	5%	4822 111 90387	3,9 k	2%	4822 111 90571	6,2 M	5%	4822 111 90426	
3,3 E	5%	4822 111 90388	4,3 k	2%	4822 111 90167	6,8 M	5%	4822 111 90235	
3,6 E	5%	4822 111 90389	4,7 k	2%	5322 111 90111	7,5 M	5%	4822 111 90427	
3,9 E	5%	4822 111 90391	5,1 k	2%	5322 111 90268	8,2 M	5%	4822 111 90237	
4,3 E	5%	4822 111 90392	5,6 k	2%	4822 111 90572	9,1 M	5%	4822 111 90428	
			6,2 k	2%	4822 111 90545	10M	5%	5322 111 91141	

SYMBOL	DESCRIPTION
	Capacitor, general
	Electrolytic capacitor (+ and - may be omitted)
	Bipolar electrolytic capacitor (+ may be omitted)
	Resistor, general
	N.T.C. resistor
	P.T.C. resistor
	Voltage divider with preset adjustment
	Chip jumper
	Pin contact
	Bus contact
	Coil, self-induction
	Transformer with electrically poor conducting core and adjustable pre-magnetization
	Diode
	Zener diode
	Stabistor
	Double variable capacity diode (in one envelope)
	Photo conductive diode
	L.E.D.

SYMBOL	DESCRIPTION
	Transistor (N.P.N.)
	Transistor (P.N.P.)
	Direct current (DC)
	Alternating current (AC)
	Earth (functional)
	Frame or chassis connection
	Direction in which AC voltages are passed on (optional present)
	Interrupted line
	Not-connected crossing lines
	Connected lines
	Cable tree with lead-outs
	Changer, general (arrow is optional)
	Voltage Controlled Oscillator
	Band-pass filter
	Phase changing network
	Delay element
	Amplifier, general

SYMBOL	DESCRIPTION
	Operational amplifier
	Differential amplifier
	Splitter
	Operational amplifier with open output
	Exclusive OR gate
	True/complement amplifier with high input
	Flip Flop
	AND gate
	OR gate
	Inverter with high input

	0.2W (CR 16)	220kΩ	5%
	0.33W (CR 25)	270kΩ	10%
	0.33W (SFR25)	1MΩ	5%
	0.25W (VR 25)	1MΩ	10%
	0.5W (CR 37)	10MΩ	5%
	0.67W (CR 52)	10MΩ	10%
	1.15W (CR 68)	1MΩ	5%
	Ceramic plate	* a=2.5V b=4V c=6.3V d=10V e=16V f=25V g=40V h=63V i=100V j=125V l=125V m=150V n=160V q=200V r=250V s=300V t=350V u=400V v=500V w=630V x=1000V A=1.6V B=6V C=12V D=15V E=20V F=35V G=50V H=75V I=80V	
	Polyester flat foil		
	Polyester nepolesco		
	Mylar (Polyester flat foil small sized)		
	Micropoco		
	Tubular ceramic (body colour pink or yellow/green)		
	Miniature single elco		
	Subminiature tantalum		

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