

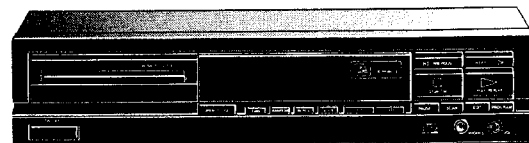


V14511

Compact disc player CD604/00B/17B

CD614/00B/00S/05B/07B/17B

Service
Service
Service



45 239 A11

Service Manual

COMPACT
disc
DIGITAL AUDIO

CONTENTS

1. Controls and connections
2. Technical specifications, servicing hints and tools, disassembly hints, exploded view
3. Faultfinding procedure
4. Circuit diagrams and panel data
5. Partslist

(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 rimesso 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.

(SF)

Varo!

Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle. Älä katso säteeseen.

(S)

Varning!

Osynlig laserstrålning när denna del är öppnad och spärren är urkopplad. Betrakta ej strålen.

**CLASS 1
LASER PRODUCT**

3122 110 00420

Documentation Technique Service Dokumentation Documentazione di Servizio Huolto-Ohje Manual de Servicio Manual de Servicio



"Pour votre sécurité, ces documents doivent être utilisés par des spécialistes agréés, seuls habilités à réparer votre appareil en panne".

Subject to modification

4822 725 22739

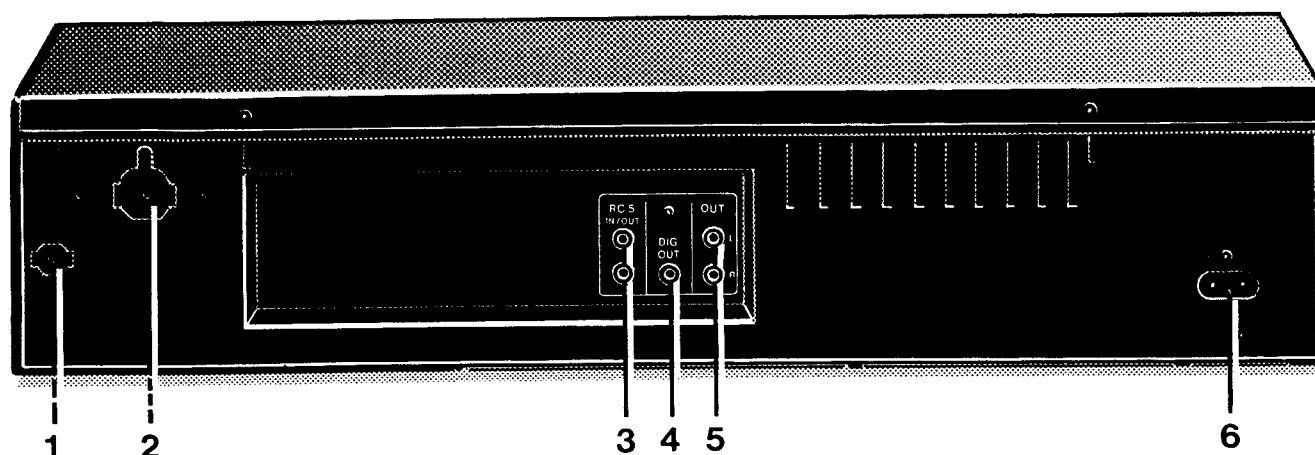
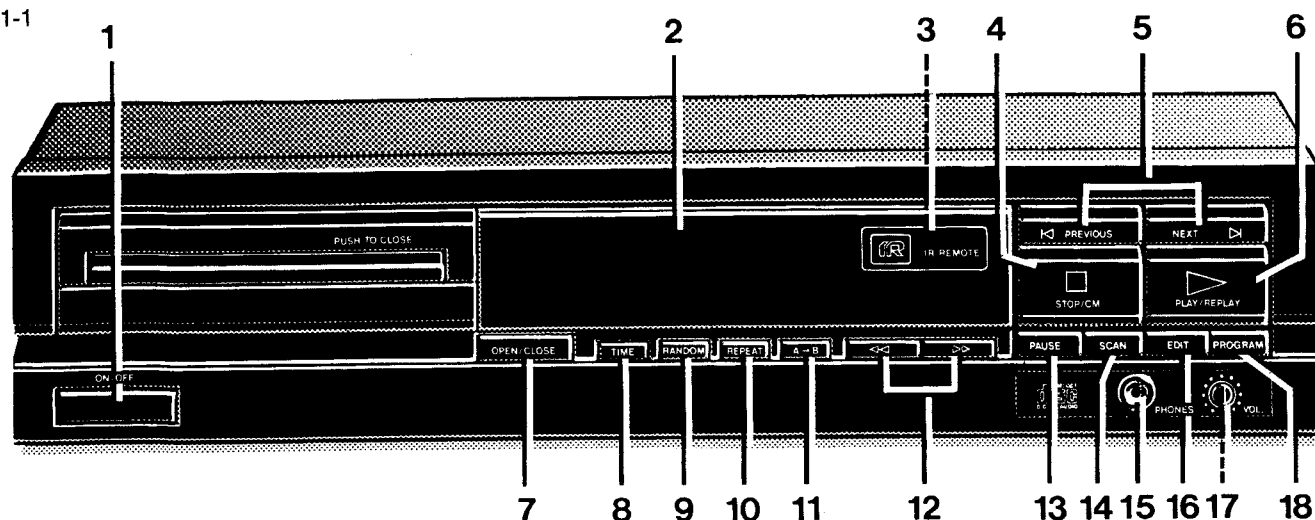
Printed in The Netherlands

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PHILIPS

Published by
Consumer Electronics

CS 28 910



45 240 A11

CONTROLS AND CONNECTIONS

Front of player

1. **ON/OFF** : To turn the set on and off.
2. **DISPLAY**
3. **IR REMOTE** : Remote control eye (only for CD614)
4. **STOP/Clear Memory** : Stop the player and erases the memory.
5. **PREVIOUS and NEXT** :
 - Selecting tracks during play or program.
 - Selecting the recording time when making a tape recording with EDIT.
6. **PLAY/REPLAY** : Starting play or returning to the beginning of a track.
7. **OPEN/CLOSE** : To open or close the loading.
8. **TIME** : For selecting time information.
9. **RANDOM** : Plays the tracks in a random order.
10. **REPEAT** : Repeating play.
11. **A-B** : Sets the starting and the stopping point of a passage to be repeated.
12. **<< and >>** : fast search forward and backward.
13. **PAUSE** : Interrupts play.
14. **SCAN** : Plays the beginning of each track.
15. **PHONES** : Bus for connection of headphones.
16. **EDIT** : Selects EDIT-mode to make a tape recording. The recording time can be entered by pressing NEXT.
17. **VOLUME** : for adjusting the headphone volume. (Only for CD614)
18. **PROGRAM** : To store or erase a program.

Back of player

1. Mains fuse holder (not all versions)
2. Voltage selector (not all versions)
3. **RC5 IN/OUT**: This connection can be used to :
 - Connect the player to a PHILIPS HiFi set with its own remote control system.
 - Connect the remote control receiver EM2200, available as an accessory. (not in UK)
4. **DIGITAL OUT** : Output for the digital signal.
5. **OUT L/R** : Analog output to the amplifier.
6. Mains inlet.

TECHNICAL DATA :**General**

1. Mains voltage : 220 , 240 Volt (+/- 10%)
2. Mains frequency : 50 Hz
3. Mains voltage selection : By soldering or changing transformer
4. Power consumption mains, operated : 12W

External RC-5 connection

- Specification : V-in Low : from -2,0V to +1,6V
 V-in High : from +3V to +7,5V
 R-in : from 47 kOhm to 68 kOhm

Line output

1. Number of channels : 2
2. Output voltage : 2 Vrms +/- 2dB
3. Unbalance left-right : max +/- 0,5dB
4. Output resistance : 1 kOhm
5. Amplitude linearity : max. +/- 0,2dB from 20 Hz to 18 kHz
typ. +/- 0,02dB from 20 Hz to 18 kHz
6. Phase non-linearity : max. +/- 1,0° from 20 Hz to 18 kHz
typ. +/- 0,5° from 20 Hz to 18 kHz
7. Signal to noise ratio : min. 90dB from 20 Hz to 18 kHz
typ. 95dB
8. Dynamic range (-60dB) : min. 80dB from 20 Hz to 18 kHz (max. 0,01 %)
typ. 86dB (typ. 0,005 %)
9. Total harmonic distortion + noise : min. 66dB from 20 Hz to 18 kHz (max. 0,05 %)
typ. 76dB (typ. 0,016 %)
10. Intermodulation distortion : min. 66dB from 20 Hz to 18 kHz (max. 0,05 %)
typ. 76dB (typ. 0,016 %)
11. Outband attenuation : min. 50dB above 24.8 kHz
12. Channel separation : min. 80dB from 20 Hz to 18 kHz
typ. 93dB
13. Muting during random acces : min. 90dB from 20 Hz to 18 kHz
14. Automatic switched de-emphasis
whith time constant 15/50 µs

Fixed headphone (CD604)

1. Output voltage : max. 2 Vrms ± 2dB
2. Unbalance left-right : max. ± 0,5dB
3. Output resistance : 150 Ω
4. load impedance range : 30 to 600 Ω
5. Output power : max. 6 W into 30 Ω
max. 10 W into 150 Ω
max. 6 W into 600 Ω
6. Signal to noise ratio : min. 90dB from 20Hz to 18kHz
7. Channel separation : min. 65dB from 20Hz to 18kHz

Variable headphone (CD614)

1. Output voltage : max. 7,4 Vrms (at max. setting)
2. Unbalance left-right : Max. ± 0,5 dB
3. Output resistance : 150 Ω
4. Load impedance range : 30 to 600 Ω
5. Output power : 50 mW into 30 Ω
90 mW into 150 Ω
50 mW into 600 Ω
6. Signal to noise ratio : min 90 dB from 20 Hz to 18 kHz
7. Channel separation : min 65 dB from 20 Hz to 18 kHz

Dimensions and weight

1. Apparatus tray closed : WxDxH 420 x 280 x 104 mm
2. Apparatus tray open : WxDxH 420 x 423 x 104 mm
3. Weight : 4,4 kg

Laser diode

1. Wavelength : 780nm +/- 5nm
2. Output power on laserdiode : typ. 3 mW
3. Output power after objective lens : 100 µW

SERVICING HINTS

In the set chip components have been applied.
For disassembly and assembly of chip components see the figure below.

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.
(See drawing "Service disc hold-down")

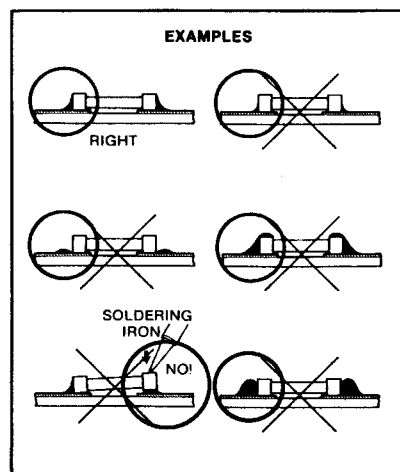
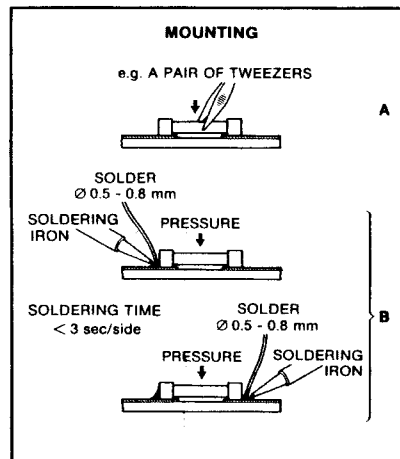
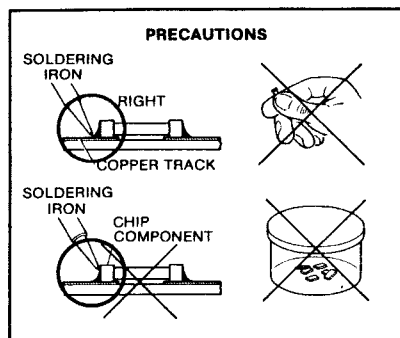
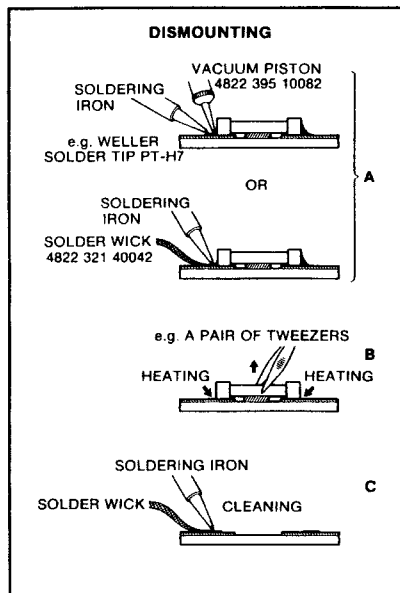
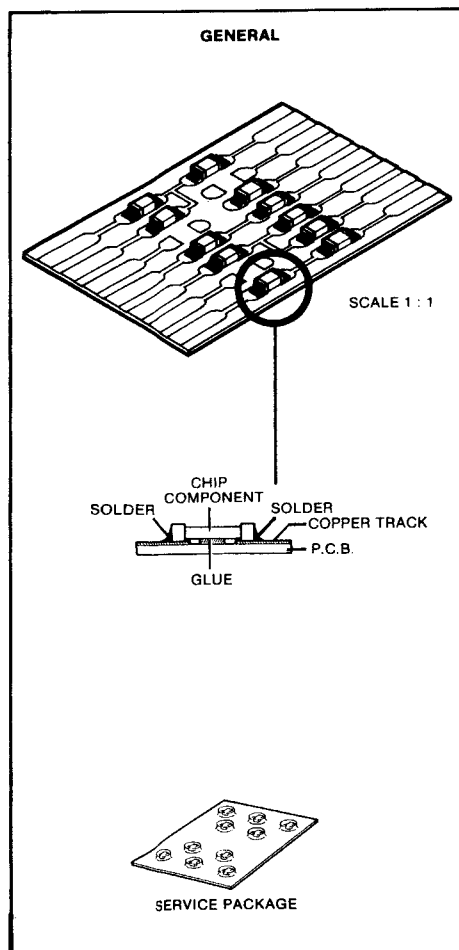
The set can function normally then.
Code number of the disc hold-down is 4822 462 50383.

When the tray mechanism has been disassembled, the tray switch must be activated immediately after pressing the play button in order to ensure normal operation.

To avoid electric shock during servicing, it is recommended to mount an insulation cover over the mains leads on the servo & decoder panel. See drawing MDA 02548. The cover can be ordered under codenumber 4822 444 60655.

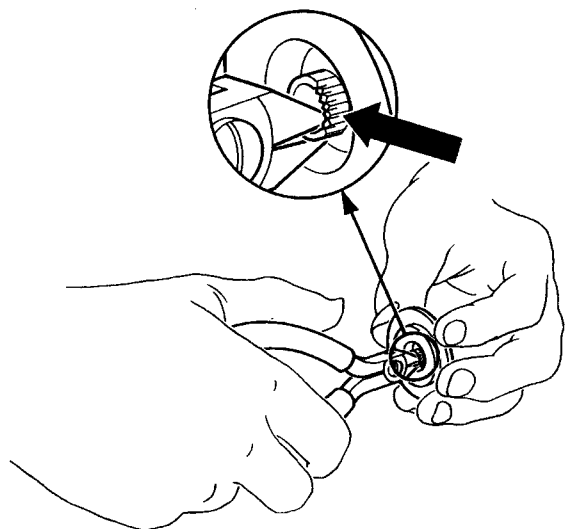
SERVICE TOOLS

Audio signals disc	4822 397 30184
Disc without errors (test disc 5) + disc with DO errors, black spots and fingerprints (test disc 5A)	4822 397 30096
Disc 65 min 1 kHz without pause	4822 397 30155
Max. diameter disc(58.0 mm)	4822 397 60141
Torx screwdrivers	
Set (straight)	4822 395 50145
Set (square)	4822 395 50132
13th order filter	4822 395 30204
Service cable (4p)	4822 321 21284
Service flexfoil (14p)	4822 322 40066
Service connector (14p)	4822 267 50676
Green LED CQY G11	5322 130 32182
Insulation cover	4822 444 60655

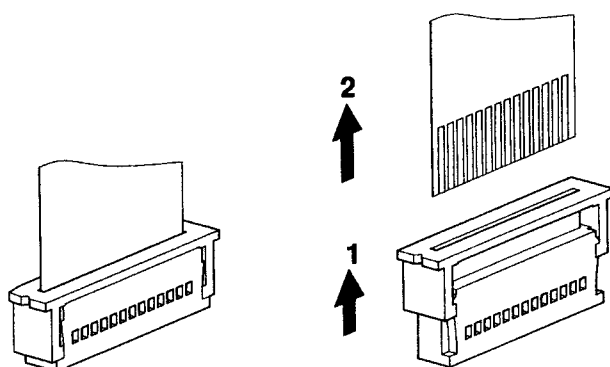


27 012C12

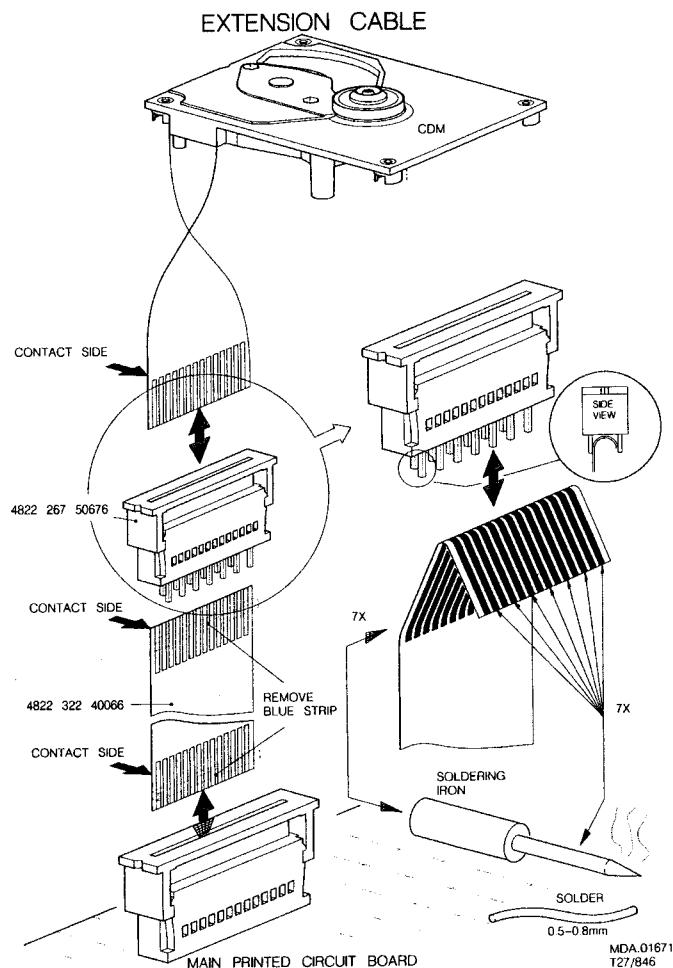
SERVICE DISC HOLDDOWN



42 565 A12

MDA.01408
T28/822

SERVICE FOIL FOR CDM

MDA.01671
T27/846**(GB) WARNING**

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically.

When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance. Keep components and tools also at this potential.

(F) ATTENTION

Tous les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharges statiques (ESD). Leur longévité pourrait être considérablement écourtée par le fait qu'aucune précaution n'est prise à leur manipulation.

Lors de réparations, s'assurer de bien être relié au même potentiel que la masse de l'appareil et enfiler le bracelet muni d'une résistance de sécurité.

Veiller à ce que les composants ainsi que les outils que l'on utilise soient également à ce potentiel.

ESD**(D) WARNUNG**

Alle ICs und viele andere Halbleiter sind empfindlich gegen elektrostatische Entladungen (ESD).

Unvorsichtige Behandlung bei der Reparatur kann die Lebensdauer drastisch vermindern. Sorgen Sie dafür, dass Sie im Reparaturfall über ein Pulsarmband mit Widerstand mit dem Massepotential des Gerätes verbunden sind. Halten Sie Bauteile und Hilfsmittel ebenfalls auf diesem Potential.

(NL) WAARSCHUWING

Alle IC's en vele andere halfgeleiders zijn gevoelig voor electrostatische ontladingen (ESD).

Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen. Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat.

Houd componenten en hulpmiddelen ook op hetzelfde potentiaal.

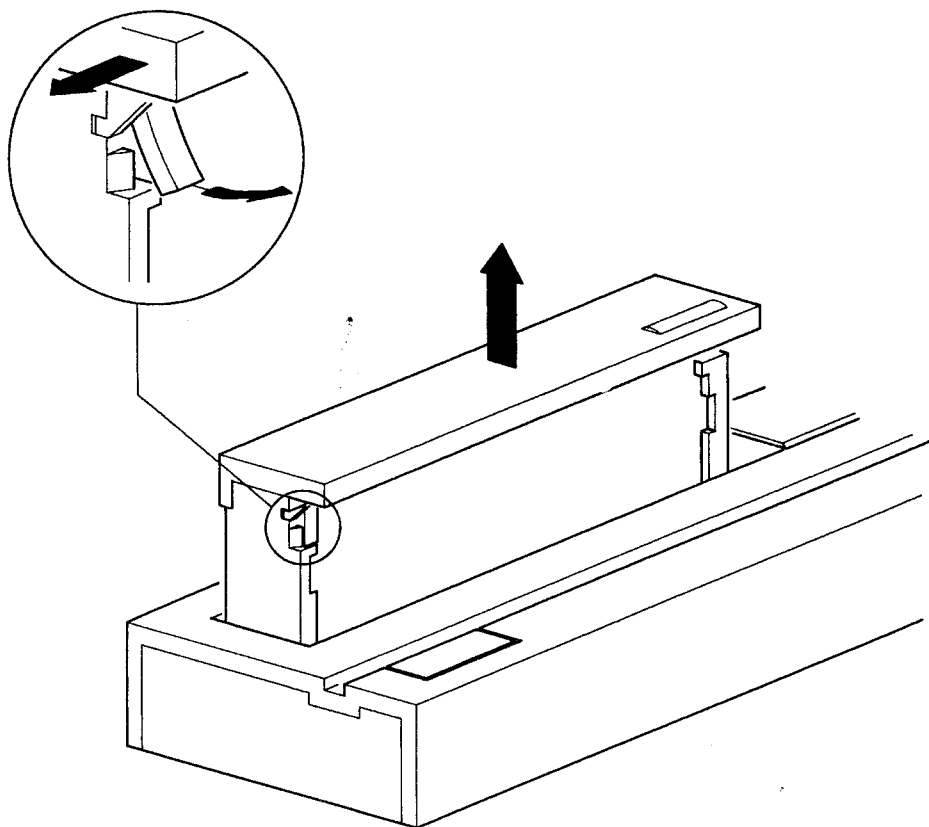
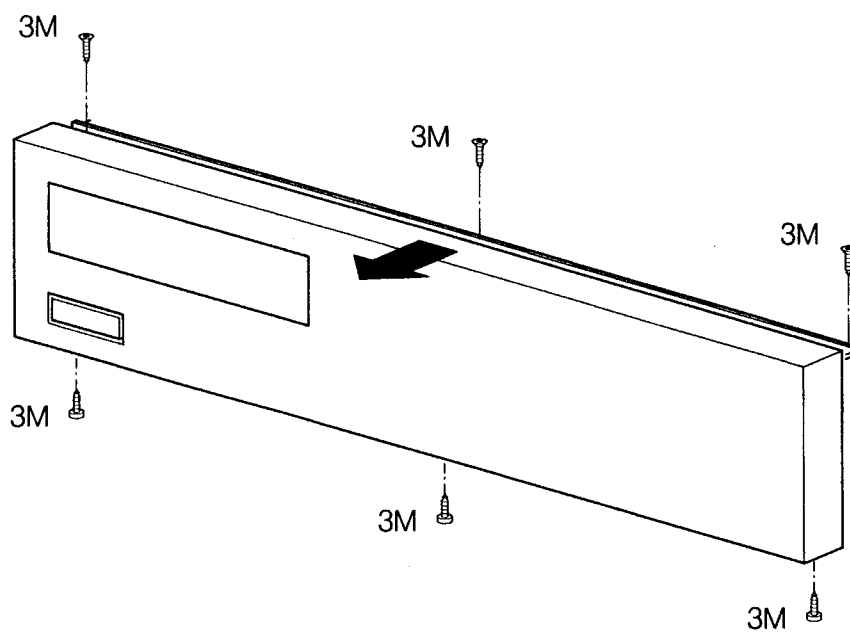
(I) AVVERTIMENTO

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD).

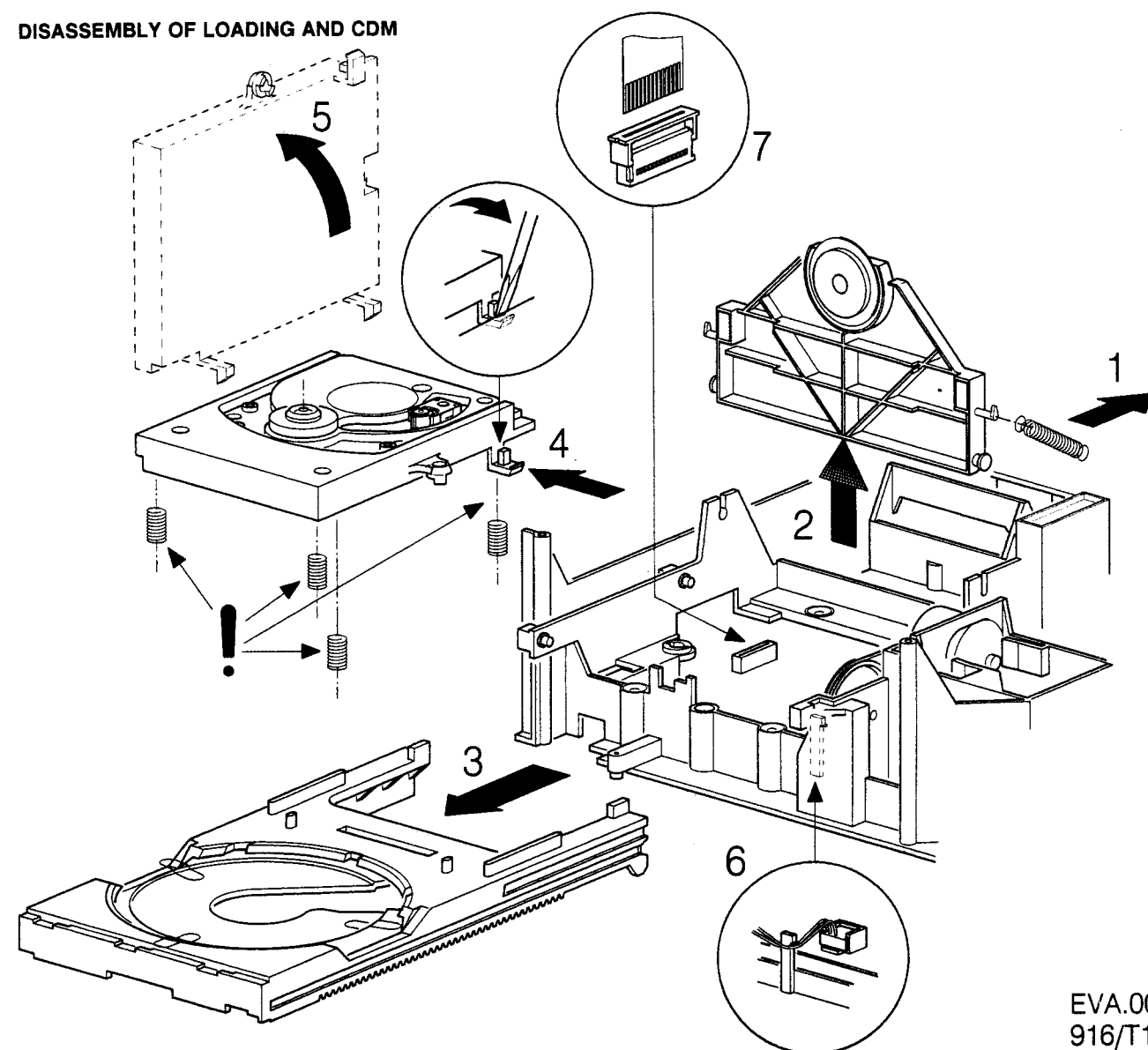
La loro longevità potrebbe essere fortemente ridotta in caso di non osservazione della più grande cautela alla loro manipolazione. Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un braccialetto a resistenza.

Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

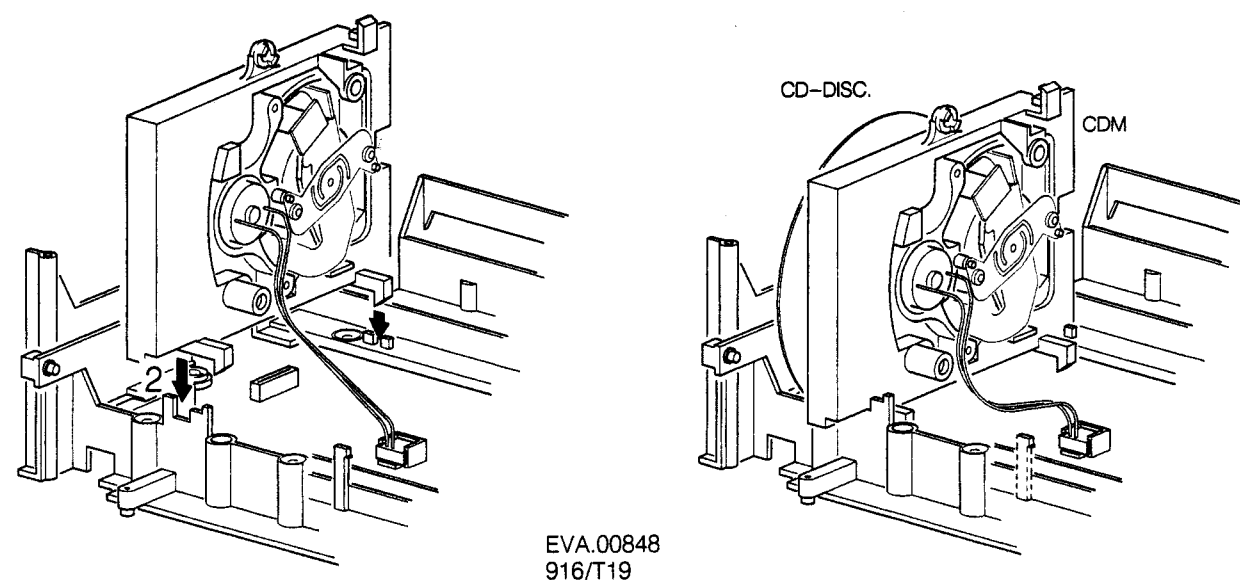
CABINET DISASSEMBLY HINTS

A**B**MDA.02137
916/T19

DISASSEMBLY OF LOADING AND CDM

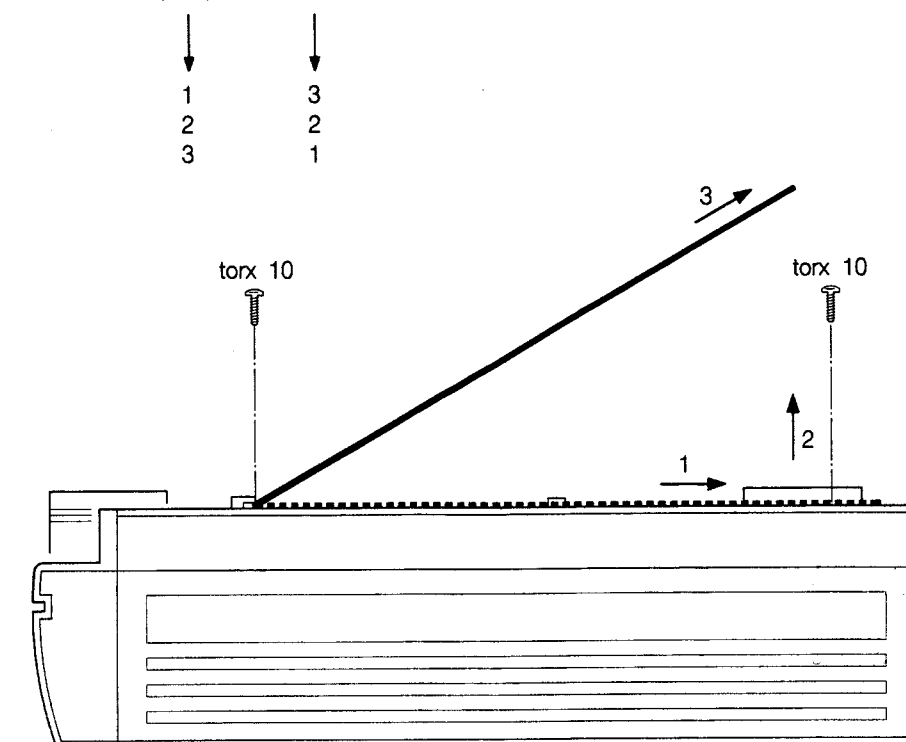
EVA.00846
916/T19

PLAY SERVICE POSITION

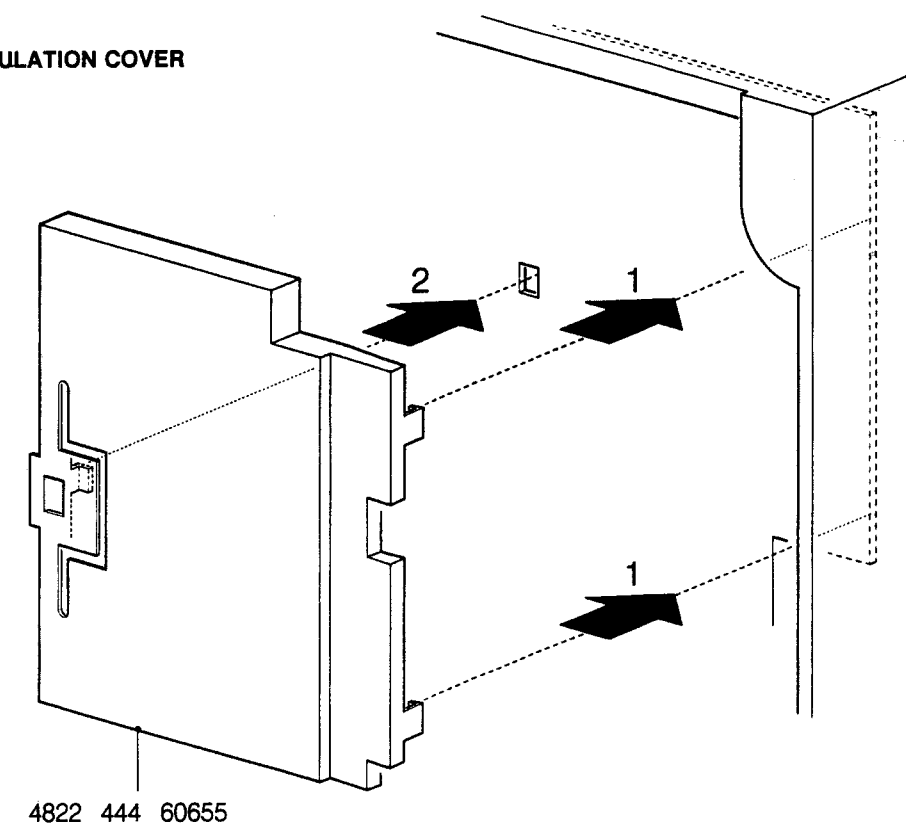
EVA.00848
916/T19EVA.00849
916/T19

FOR ACCESS OF THE MAIN PANEL REMOVE BOTTOM PLATE

(DE)-MOUNTING THE BOTTOM PLATE

MDA.02161
T20-916

INSULATION COVER



4822 444 60655

TO AVOID ELECTRIC SHOCK DURING SERVICING MOUNT
INSULATION COVER OVER MAINS LEADS ON MAIN PANELMDA.02548
T02/007

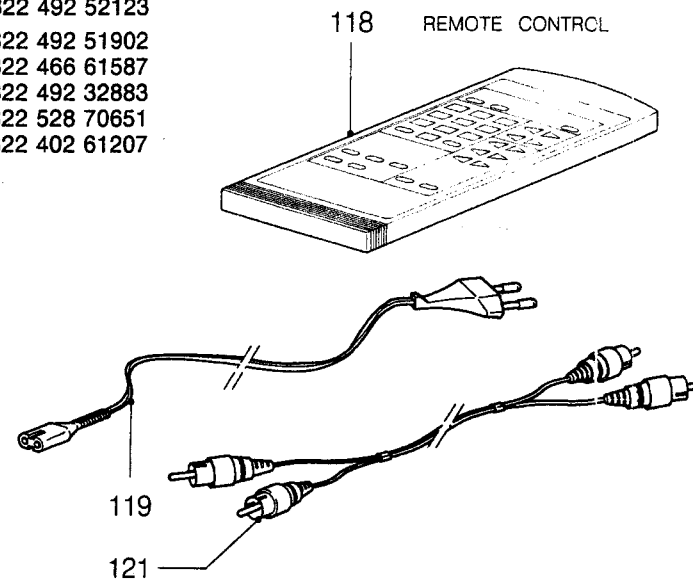
EXPLODED VIEW

MECHANICAL PARTSLIST

101	4822 444 40371	CD604/00B
101	4822 444 40369	CD604/17B
101	4822 444 40362	CD614/00B /05B /07B
101	4822 444 40382	CD614/00S
101	4822 444 40372	CD614/17B
102	4822 459 10803	CD604/00B
102	4822 459 10888	CD614/00B /00S /05B /07B
102	4822 459 10888	CD604/17B
102	4822 459 10888	CD614/17B
103	4822 444 60625	
103	4822 444 60688	CD614/00S
104	4822 450 61373	CD604
104	4822 450 61355	CD614
106	4822 410 60094	
106	4822 410 60375	CD614/00S
107	4822 410 60606	
107	4822 410 60692	CD614/00S
108	4822 410 60607	
108	4822 410 60693	CD614/00S
109	4822 410 60095	
109	4822 410 60376	CD614/00S
111	4822 410 60105	
111	4822 410 60379	CD614/00S
112	4822 411 61674	CD614/00B /05B /07B /17B
112	4822 411 61692	CD614/00S
113	4822 444 50603	
114	4822 325 50176	
116	4822 325 50177	
117	4822 466 92251	
118	4822 218 10325	CD614
119	4822 321 10457	CD604/00B
119	4822 321 10445	CD614/00B /00S
119	4822 321 10445	CD604/17B
119	4822 321 10251	CD614/07B /17B
119	4822 321 10251	CD614/05B
121	4822 321 22832	
122	4822 410 60605	
122	4822 410 60691	CD614/00S
123	4822 505 10571	
124	4822 492 52094	
126	4822 528 90638	
127	4822 444 60568	

128	4822 466 92257	
129	4822 102 10398	CD614
131	4822 520 40177	
132	4822 530 80503	
133	4822 402 61252	
134	4822 402 61253	
136	4822 532 51756	
137	4822 402 61196	
138	4822 358 10115	
139	4822 528 81329	
141	4822 492 70332	
142	4822 402 50276	
143	4822 492 52123	
144	4822 492 51902	
146	4822 466 61587	
147	4822 492 32883	
148	4822 528 70651	
149	4822 402 61207	

151	4822 691 30209	
152	4822 361 21258	
154	4822 444 30417	
154	4822 444 30429	CD614/00S
156	4822 444 30418	
157	4822 464 50793	
157	4822 464 50802	CD614/00S
158	4822 444 30404	



EVA.01054
CD614
T28/005

ERROR TABLE

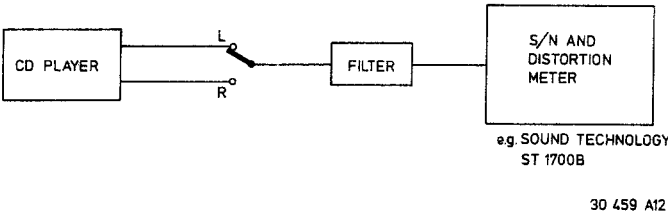
System errors

02>Err: TL pulse is missing during start-up. Check the TL signal, the HF-signal and the Photodiode signal processor. (Starting error)
03>Err: Lead-in track not found. Check the disc used.
Check also that the radial arm rests against the inside. Check the RE-dig signal and the Radial error processor. (Starting error)
04>Err: Focus lost while starting: Check the focus offset
05>Err: TL pulse is low for more than 50 msec. Check the disc used. Check the HF-in signal and the photodiodes (Error during PLAY)
06>Err: No TL pulse received within 0.5 sec. in case of track jumping. Check the RE-lag circuit. (Error during SEARCH or NEXT/PREVIOUS)
07>Err: Subcode error. In case of track loss during play the information of the subcode is used to determine the place of the last information that was still well readable. In case of an interruption of HF or other signals, this will lead to Er 07. (Error during PLAY)
08>Err: TOC error (Table of Contents). Check the quality of the disc used. Check the initial speed of the turntable motor and the motor control. Check also that the radial arm rests against the inside. (Starting error)

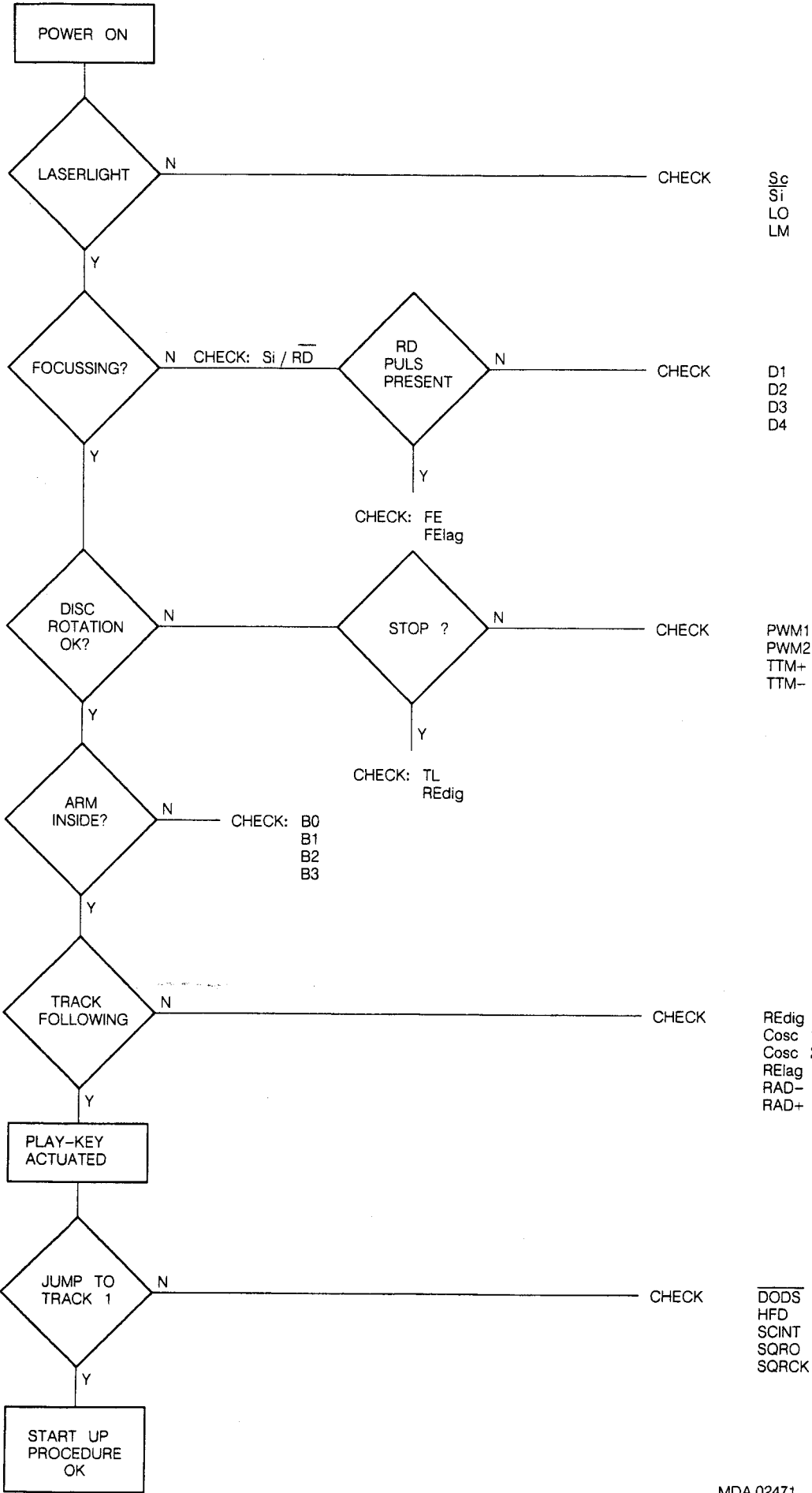
Operating errors

11>Err: CDI Disc
30>Err: NEXT when repeat is off.
31>Err: PREVIOUS when repeat is off.
32>Err: INDEX selected when no track selected.
33>Err: Selected index does not exist on this CD.
34>Err: Review error: no program.
35>Err: Program memory full.
36>Err: Programmed track is non existing on this CD.
37>Err: Selected track is non existing on this CD.
38>Err: Program during scan while track is not known
39>Err: Program during scan while track is already programmed
40>Err: 10 key when programmed or no valid track selection
41>Err: Track selected while programmed
50>Err: EDIT pressed while in play mode
51>Err: 0 minutes cassette time for edit
52>Err: Not-allowed key pressed while in edit
53>Err: No track possible to play in edit
56>Err: A B key pressed while not in play
60>Err: Fast forward bound
61>Err: Fast reverse bound
62>Err: Fast forward/reverse during scan
63>Err: Index +/- pressed during scan

SPECIFICATION MEASUREMENT



3-2 3-2
START UP PROCEDURE



CIRCUIT DIAGRAM POWER SUPPLY

The diagram illustrates a power supply circuit for a radio receiver, featuring a transformer with multiple secondary windings and various electronic components.

Transformer and Primary Connections:

- VAC1 (1075-2):** Connected to the primary of the transformer.
- VAC2 (1075-1):** Connected to the primary of the transformer.
- VFTD (1075-3):** Connected to the primary of the transformer.

Transformer Secondary Windings and Taps:

- 5730:** A tap on the main secondary winding.
- 10, 12, 11:** Taps on a secondary winding, with 10 and 12 connected to a 1.7V~ source and 11 connected to a 6.2V source.
- 16, 14, 13, 15:** Taps on another secondary winding, with 16 connected to a 43V~ source, 14 to a 9.5V~ source, 13 to a 9.5V~ source, and 15 to ground.

Rectification and Regulation Stages:

- 750:** A 750V diode connected to the 10V tap.
- 6750:** A 6V2 diode connected to the 6.2V tap.
- 7750 MC7815CT:** A 15V voltage regulator IC connected to the 43V~ source. It includes a 2750 220μF capacitor and a 6753 50V capacitor.
- 7760 TY40408:** A 40V voltage regulator IC connected to the 9.5V~ source. It includes a 2762 3300μF capacitor and a 2763 33μF capacitor.
- 7770 MC79L05ACP:** A -5V voltage regulator IC connected to the 9.5V~ source. It includes a 2772 1000μF capacitor and a 2773 33μF capacitor.

Other Components and Connections:

- 1730:** A 100mA for /00 /05 and 200mA for /17 component.
- 9001, 9002:** Diodes connected to the 100mA/200mA component.
- SK1:** A switch connected to the 2730 3nF capacitor.
- 1250:** A 125V component connected to the 15V tap.
- 2770, 2771, 2760, 2761:** 22nF capacitors connected to the 43V~ and 9.5V~ sources.
- 6770, 6760, 6771, 6761:** 1N4002 diodes connected to the 43V~ and 9.5V~ sources.

Output Connections:

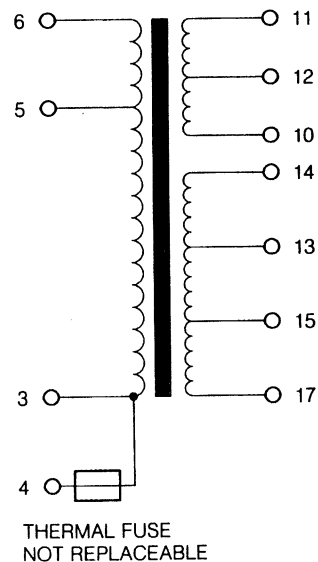
- ~1, +10, +5, -5, -10, ~2:** The final output voltages of the power supply.

Component Values and Part Numbers:

- 4822 146 30859 for /00 /05
- 4822 146 30879 for /17
- 9001 for /00 /17
- 9002 for /05
- 7750 MC7815CT
- 7760 TY40408
- 7770 MC79L05ACP
- 2750 220μF
- 6753 50V
- 2762 3300μF
- 2763 33μF
- 2772 1000μF
- 2773 33μF
- 2730 3nF
- 1250
- 2770 22nF
- 2771 22nF
- 2760 22nF
- 2761 22nF
- 6770 1N4002
- 6760 1N4002
- 6771 1N4002
- 6761 1N4002

Source: PRS 06504 T-26/011

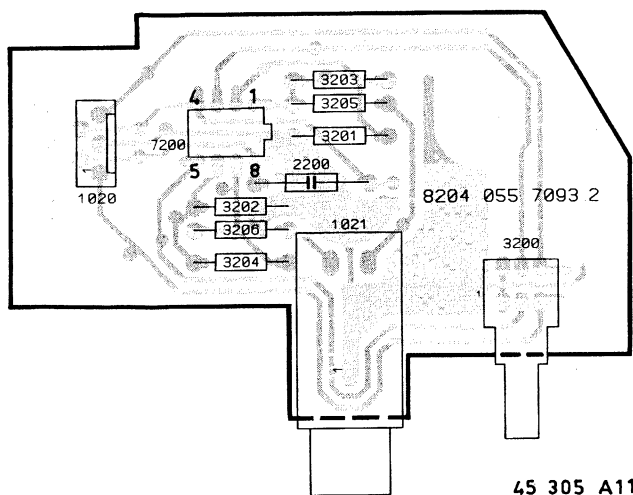
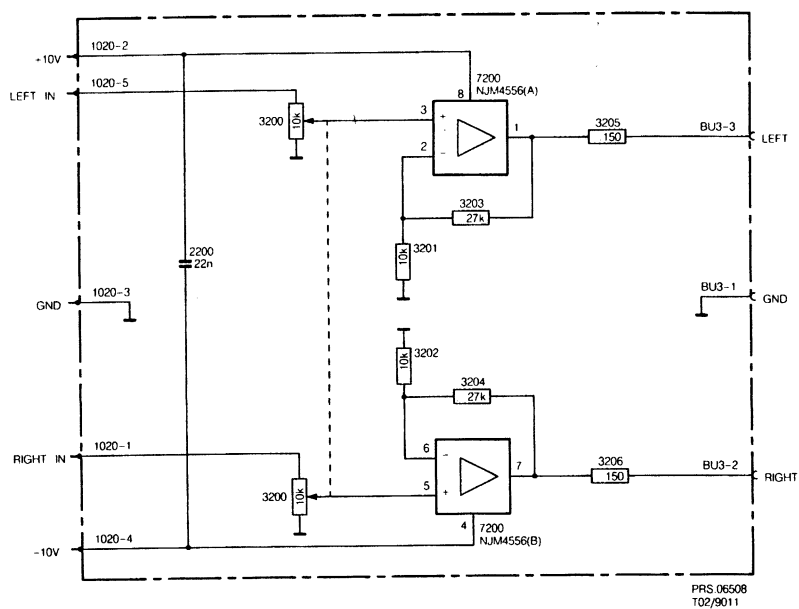
A detailed line drawing of a 17-pin D-sub connector. The connector has a D-shaped metal housing. The top edge features 17 pins, numbered 1 through 17 from left to right. Pin 1 is the longest. Pins 2 through 16 are of varying heights. Pin 17 is a shorter pin located on the right side. The connector is shown from a perspective view, highlighting its mechanical structure and pin arrangement.



Vprim (V ~)	WINDING	TRANSFORMER
110V / 60Hz	5 - 4	4822 146 30879
127V / 60Hz	6 - 4	4822 146 30879
220V / 50Hz	5 - 4	4822 146 30859
240V / 50Hz	6 - 4	4822 146 30859

MDA.02603
T07-9012

VARIABLE HEADPHONE

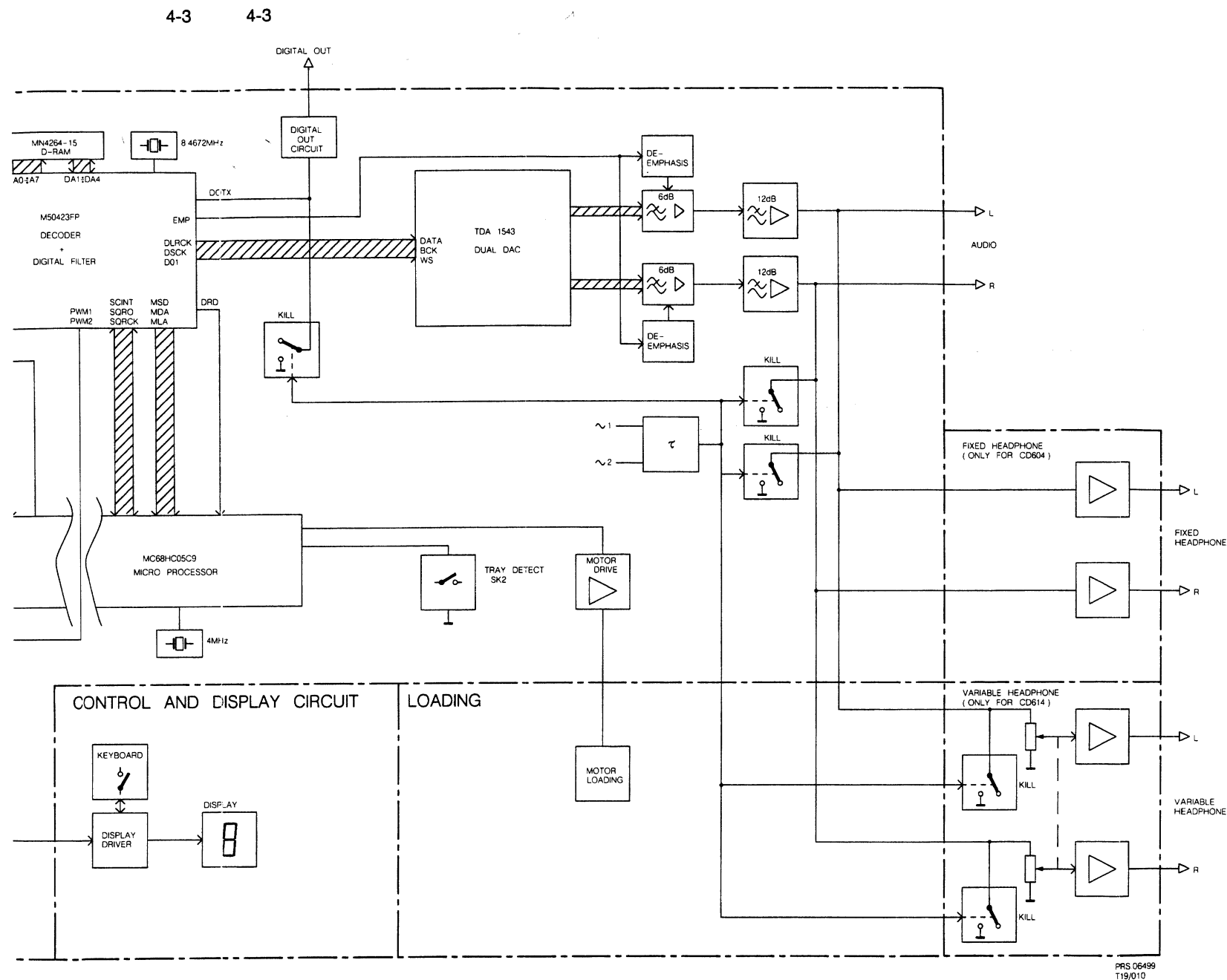


Partslist variable headphone panel

2200	4822 122 10166	22nF 30% 16V
3200	4822 102 10398	10kΩ Stereo potmeter
3201	4822 111 90249	10kΩ 2% 0,25W
3202	4822 111 90249	10kΩ 2% 0,25W
3203	4822 116 52264	27kΩ 5% 0,5W
3204	4822 116 52264	27kΩ 5% 0,5W
3205	4822 050 21501	150Ω 1% 0,6W
3206	4822 050 21501	150Ω 1% 0,6W
7200	4822 209 82362	NJM4556D

BLOCK DIAGRAM



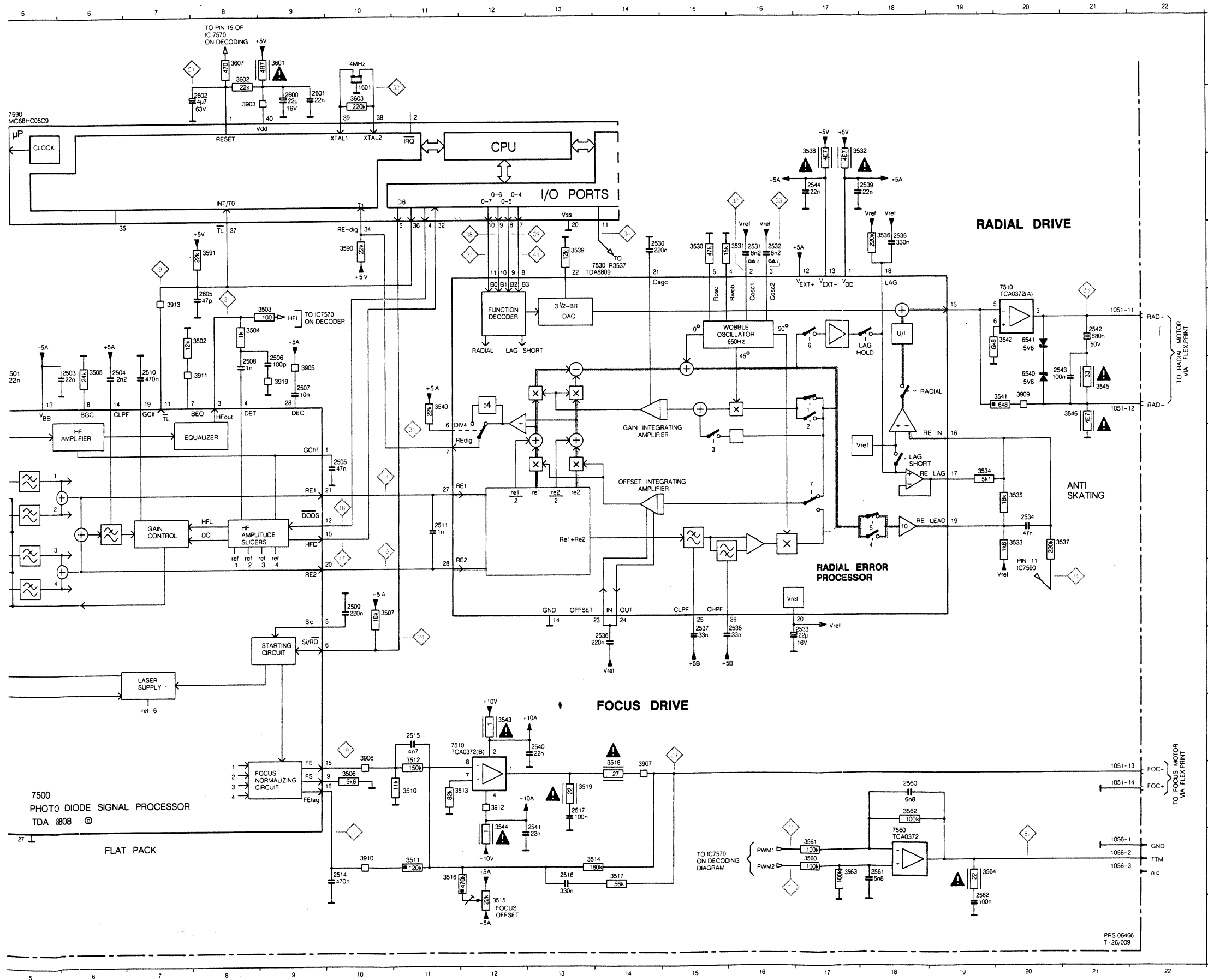


AGC - Automatic Gain Control
 B0-B3 - Control bits for radial circuit
 BEQ - Equalizer reference current input
 BGC - DC and LF gain control reference input
 Cosc1 - Capacitor wobble oscillator
 Cosc2 - Capacitor wobble oscillator
 DEC - Decoupling input of inkruat bypass
 DET - HF detector voltage input
 DIV4 - Divide by 4 input
 DODS - Drop out detector suppression
 D1+4 - Photodiode currents
 FE - Focus error signal
 FE lag - Focus error signal for LAG network
 HFD - HF detector output for Decoder
 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
 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 RE₂-RE₁ currents)

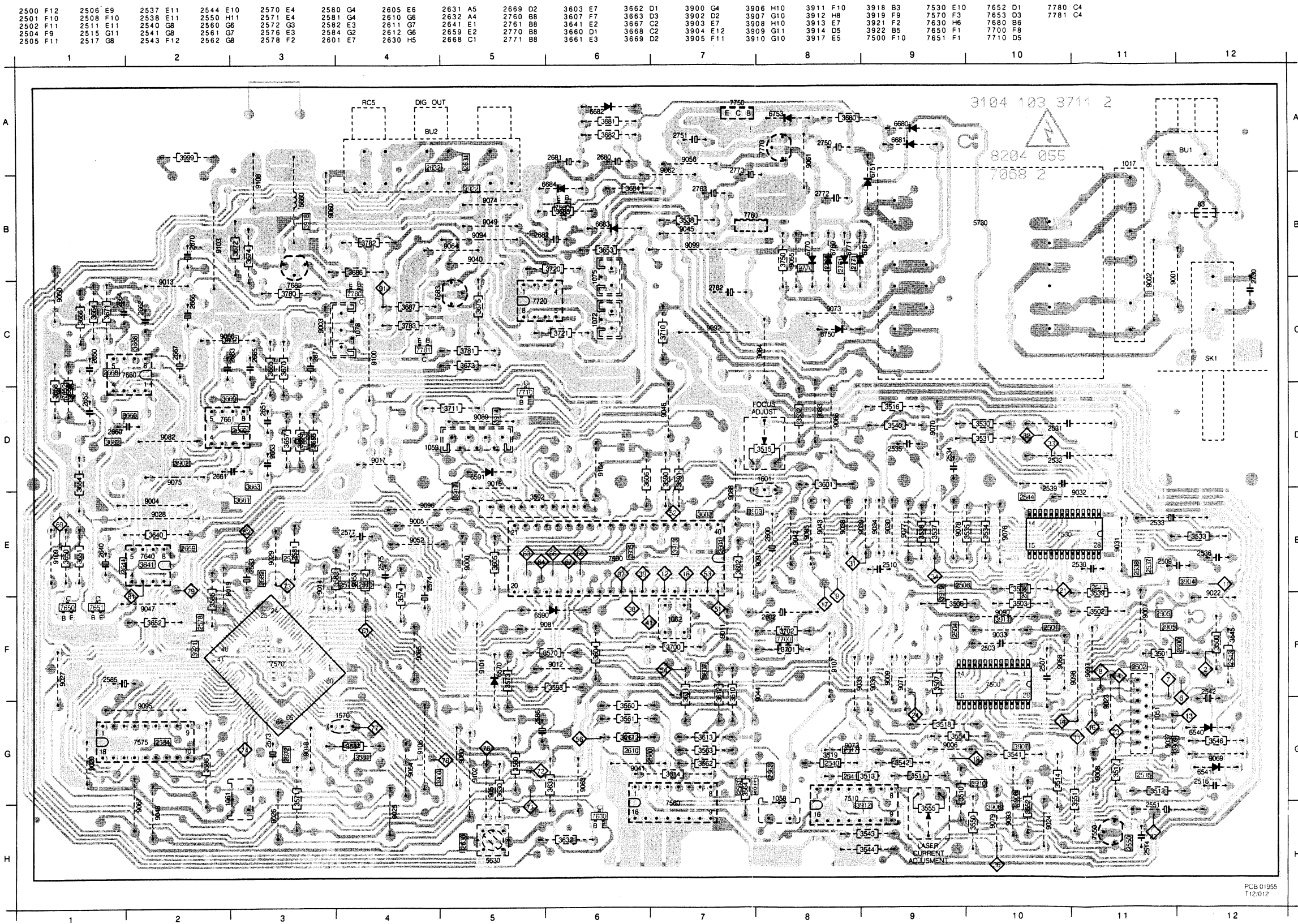
ACLR - μ Processor interface register clear input
 AOR - Audio out right
 AOL - Audio out left
 APTR - DAC sampling clock Rch
 APTL - DAC sampling clock Lch
 ACRCY - Clock accuracy input
 BCK - Clock input
 C423 - Clock output 4.2336 MHz
 C846 - Clock output 8.4672 MHz
 C8MO - 1/2 divider output
 C16MI - 1/2 divider input
 CAS - Column address strobe signal output to RAM
 CRCF - Subcode Q CRC check flag output
 DASEL 1-4 - DAC Interface format select
 DATA - Serial data input
 DLRCK - Lch/Rch clock
 DO 1 - Dual DAC Rch serial data output
 DO 2 - Dual DAC Lch serial data output
 DOFK - OSC frame clock output 7.35 kHz (duty = 50 %)
 DOSEL - Data bit select
 DOTX - Digital interface output
 DRD - Disc rotation down signal
 EFFK - EFM frame clock output
 EMP - Emphasis flag output
 EST1 - Error status 1 (Error detected at C1)
 EST2 - Error status 2 (Error to be interpolated detected at C2)
 FSCK - Clock output 44.1 kHz (fs)
 HFD - High frequency signal detect
 HFI - High frequency signal input
 IREF - Reference current input
 LOCK/DRD - Lock status/Disc rotation down signal
 LPF - PLL loop filter
 LRCK - Lch/Rch clock to DAC or APTR clock
 MCK - μ Processor interface clock input
 MLA - μ Processor interface latch input
 MSD - μ Processor interface data input
 PWM1 - Turntable motor signal
 PWM2 - Turntable motor signal
 RAD0-7 - Address outputs to RAM
 RAS - Row address strobe signal output to RAM
 RDB1-4 - Data I/O to RAM

Rosc - Resistor wobble oscillator
 Rwob - Wobble generator input
 RE1 - Radial error signal 1 (summation of amplified currents D₃ and D₄)
 RE2 - Radial error signal 2 (summation of amplified currents D₁ and D₂)
 RE dig - Radial error digital
 RE lag - Radial error signal for LAG network
 Sc - Starting up capacitor input
 Si/RD - On/off control for laser supply and focus circuit. Ready signal, Starting up procedure succesful.
 TL - Track loss output signal
 TTM - Control voltage for turntable motor
 Vext- - Supply connection
 Vext+ - Supply connection

SBCU - Subcode Uch output
 SBCV - Subcode Vch output
 SBCW - Subcode Wch output
 SBCQ - Subcode Qch output
 SBCR - Subcode Rch output
 SBOS - Subcode Sch output
 SBCT - Subcode Tch output
 SBCK - Shift clock input for serial subcode output
 SCINT - Interrupt output of subcode Q
 SCOE1 - Enable input for subcode channels T-W
 SCOE2 - Enable input for subcode channels P-S
 SCOR - Subcode sync output
 SQRCK - Subcode Q register clock
 SQRO - Subcode Q register output
 TEST 1 - Test control input (normal "0")
 TLC - Output from slice level control
 Vref - Reference offset voltage
 WDCK - Word clock to DAC or APTL clock
 WE - Write enable output to RAM
 WS - Word select clock (L/R)
 X-out - Crystal oscillator output
 X-in - Crystal oscillator input

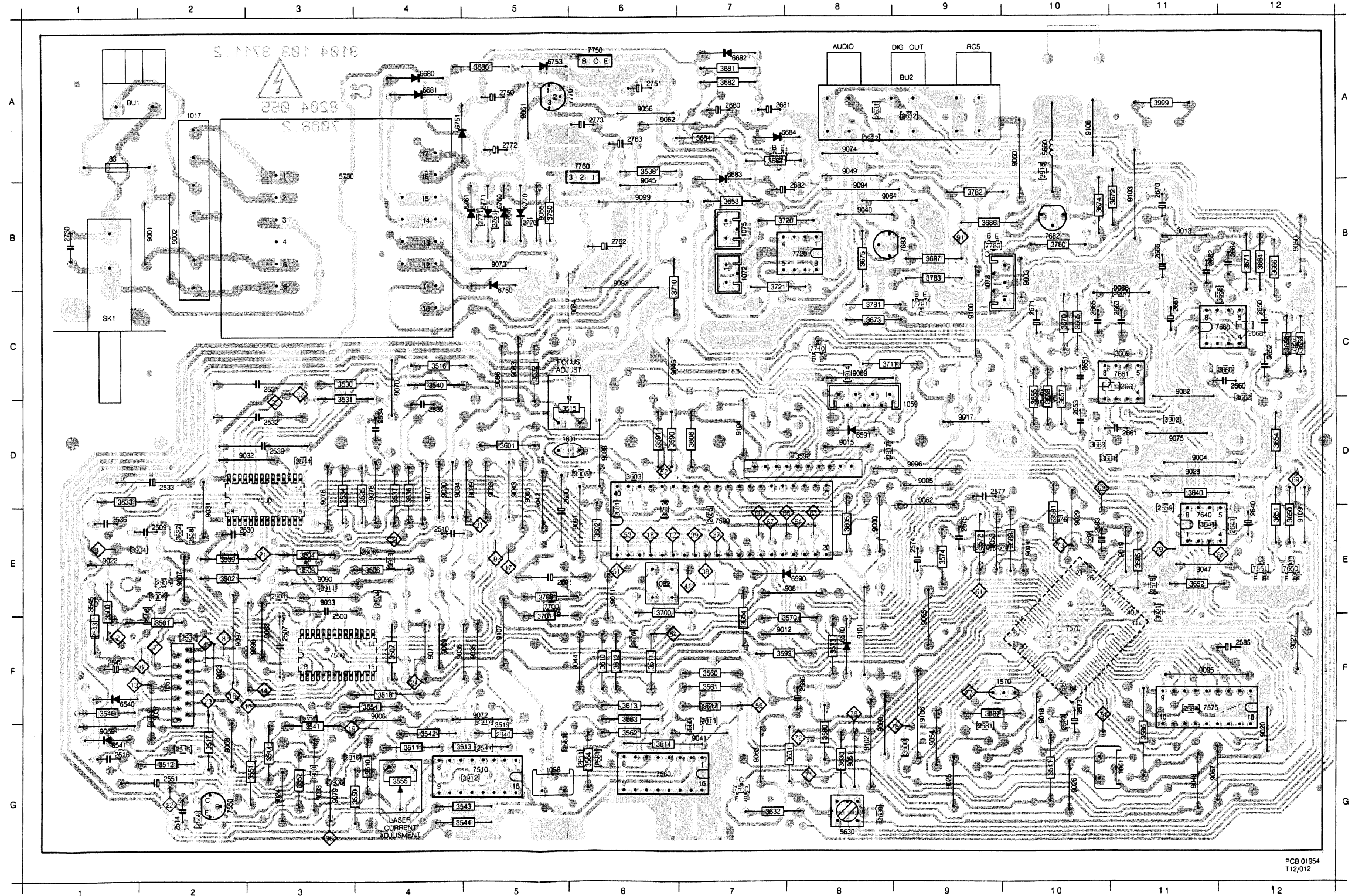


MAIN PANEL SOLDERSIDE

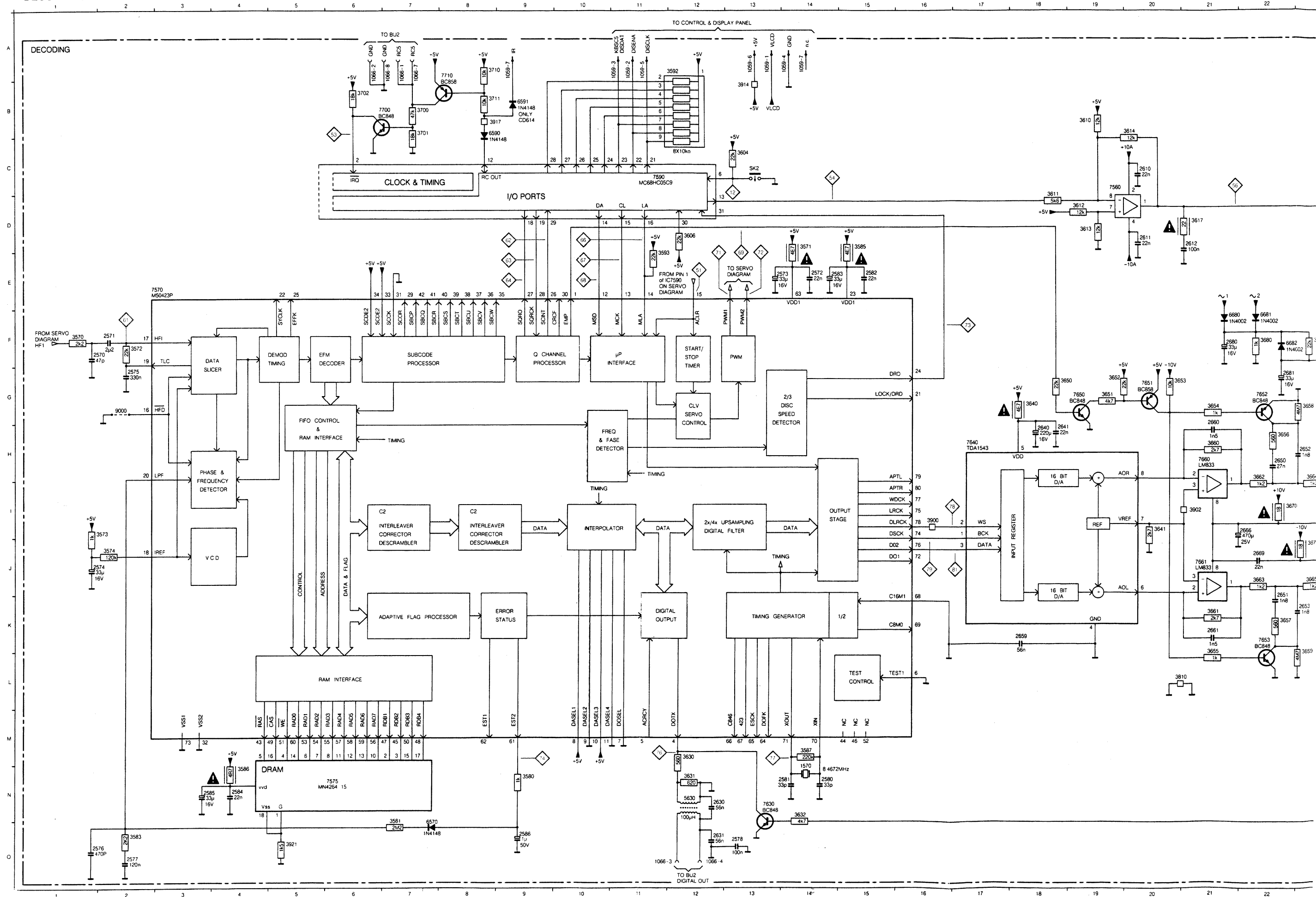


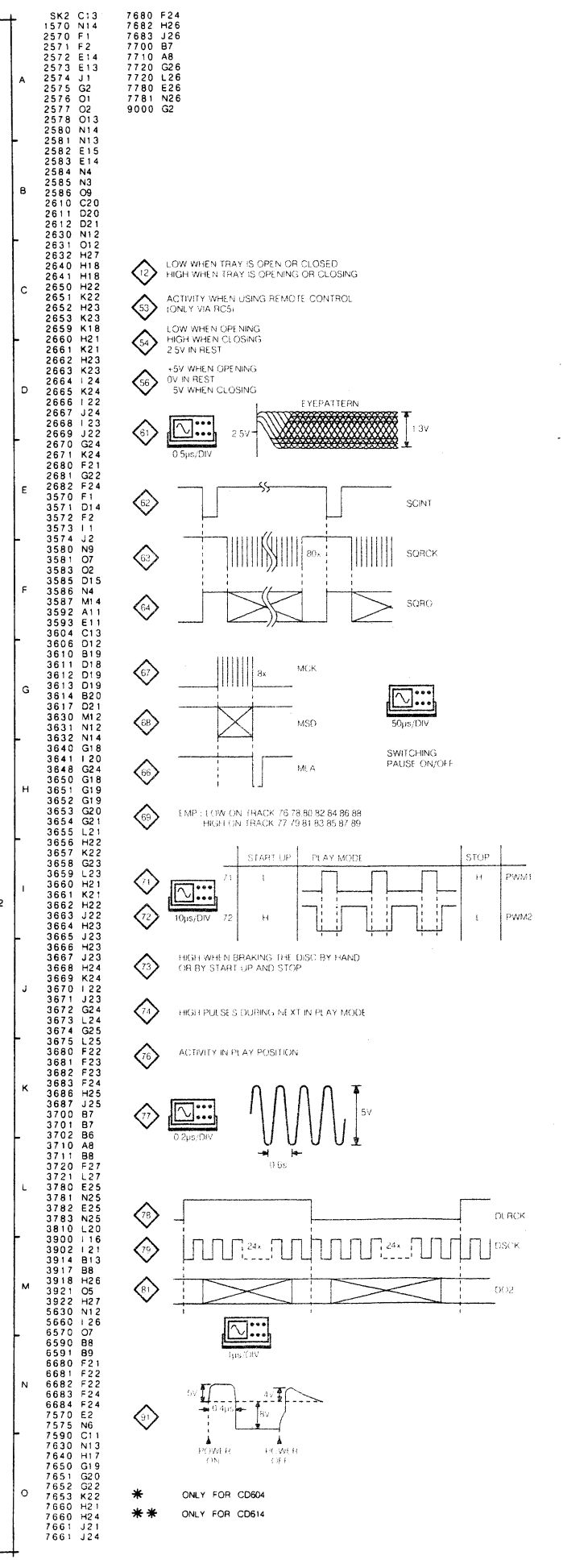
MAIN PANEL COMPONENT SIDE

83 A1	2503 F3	2551 G2	2660 C12	2751 A6	3513 G4	3538 A6	3561 F7	3590 D6	3630 G8	3665 C10	3700 F6	5730 A3	6761 B5	7760 A6	9014 E10	9031 E2	9046 C6	9064 B8	9079 G3	9095 F11
BU1 A1	2507 F3	2573 F10	2661 D11	2762 B6	3514 G3	3539 E2	3562 G6	3591 D6	3631 G8	3666 B12	3701 F5	6540 F1	6770 B5	7770 A6	9015 E10	9032 D3	9047 E11	9065 F9	9080 G8	9096 D9
BU2 A9	2509 E2	2574 E9	2662 B11	2763 A6	3515 D5	3540 C4	3563 F6	3592 D8	3632 G7	3667 D12	3702 E5	6541 G1	6771 B5	7771 B5	9016 E10	9033 E3	9048 G11	9066 C11	9081 E7	9097 F2
SK1 C1	2510 E4	2575 E9	2663 C11	2772 A5	3516 C4	3541 G3	3564 G6	3593 F7	3633 G7	3668 B12	3703 E5	6542 G1	6772 B5	7772 B5	9017 D9	9034 D4	9049 A8	9067 G11	9082 C11	9098 F3
1017 F2	2514 G2	2577 D9	2664 B12	2773 A6	3517 G2	3542 G4	3565 E12	3594 D5	3634 G8	3669 B12	3704 E5	6543 G1	6773 B5	7773 B5	9018 G10	9035 F5	9050 B12	9068 F3	9083 C5	9099 B6
1051 F2	2516 G1	2583 E10	2665 C10	2774 A6	3518 F4	3543 G4	3566 E12	3595 D6	3635 G8	3670 B12	3705 E5	6544 G1	6774 B5	7774 B5	9019 E11	9036 F4	9051 G8	9069 G1	9084 C6	9100 C9
1058 G5	2530 E2	2585 F12	2666 B11	2775 A6	3519 G5	3544 G4	3567 E9	3596 D7	3636 G8	3671 B12	3706 E5	6545 G1	6775 B5	7775 B5	9020 G12	9037 F2	9052 D8	9070 C4	9085 D5	9101 F8
1059 D9	2531 C3	2586 F9	2667 C11	2776 A6	3520 E2	3545 E1	3568 E9	3597 D8	3637 G8	3672 B11	3707 E5	6546 G1	6776 B5	7776 B5	9021 G12	9038 D5	9053 E9	9071 F4	9086 C5	9102 G8
1061 G11	2532 D3	2587 D5	2668 B11	2777 A6	3521 G5	3546 F1	3569 E9	3598 D8	3638 G8	3673 C8	3708 E5	6547 G1	6777 B5	7777 B5	9022 E1	9039 D5	9054 G9	9072 F5	9087 D6	9103 B11
1062 E6	2533 D2	2588 E5	2669 C10	2778 A6	3522 C5	3547 G4	3570 E9	3599 D8	3639 G8	3674 B11	3709 E5	6548 G1	6778 B5	7778 B5	9023 F2	9040 B7	9055 B5	9073 B5	9088 C8	9104 D7
1072 B7	2534 D4	2589 E12	2670 B11	2779 A6	3523 D1	3548 G4	3571 E10	3600 D6	3640 D11	3675 B11	3710 C6	6549 G1	6779 B5	7779 B5	9024 G3	9041 G7	9056 A10	9074 A8	9089 E3	9105 G9
1075 B7	2535 D4	2590 C12	2671 C10	2780 A7	3524 E3	3549 G4	3572 E9	3601 D5	3641 G11	3676 B11	3711 C8	6550 G1	6780 B5	7780 B5	9025 G10	9042 E5	9057 A5	9075 D11	9091 E6	9107 F5
1078 C9	2536 E1	2591 C10	2672 B1	2781 A7	3525 D4	3550 G4	3573 E9	3602 E6	3642 G11	3677 B11	3712 C8	6551 G1	6781 B5	7781 B5	9026 G10	9043 D5	9058 A5	9076 D3	9092 B6	9108 A10
1570 F9	2539 D3	2592 C12	2673 B1	2782 B8	3526 G4	3551 G4	3574 E9	3603 E6	3643 G11	3678 B11	3713 C8	6552 G1	6782 B5	7782 B5	9027 F12	9044 F6	9059 A6	9077 D4	9093 G3	9109 E12
1601 D5	2542 F1	2593 D10	2674 A5	2783 G2	3527 D4	3552 G4	3575 E9	3604 E6	3644 B12	3679 B11	3714 C8	6553 G1	6783 B5	7783 B5	9028 D11	9045 B6	9060 G7	9078 D4	9094 B8	

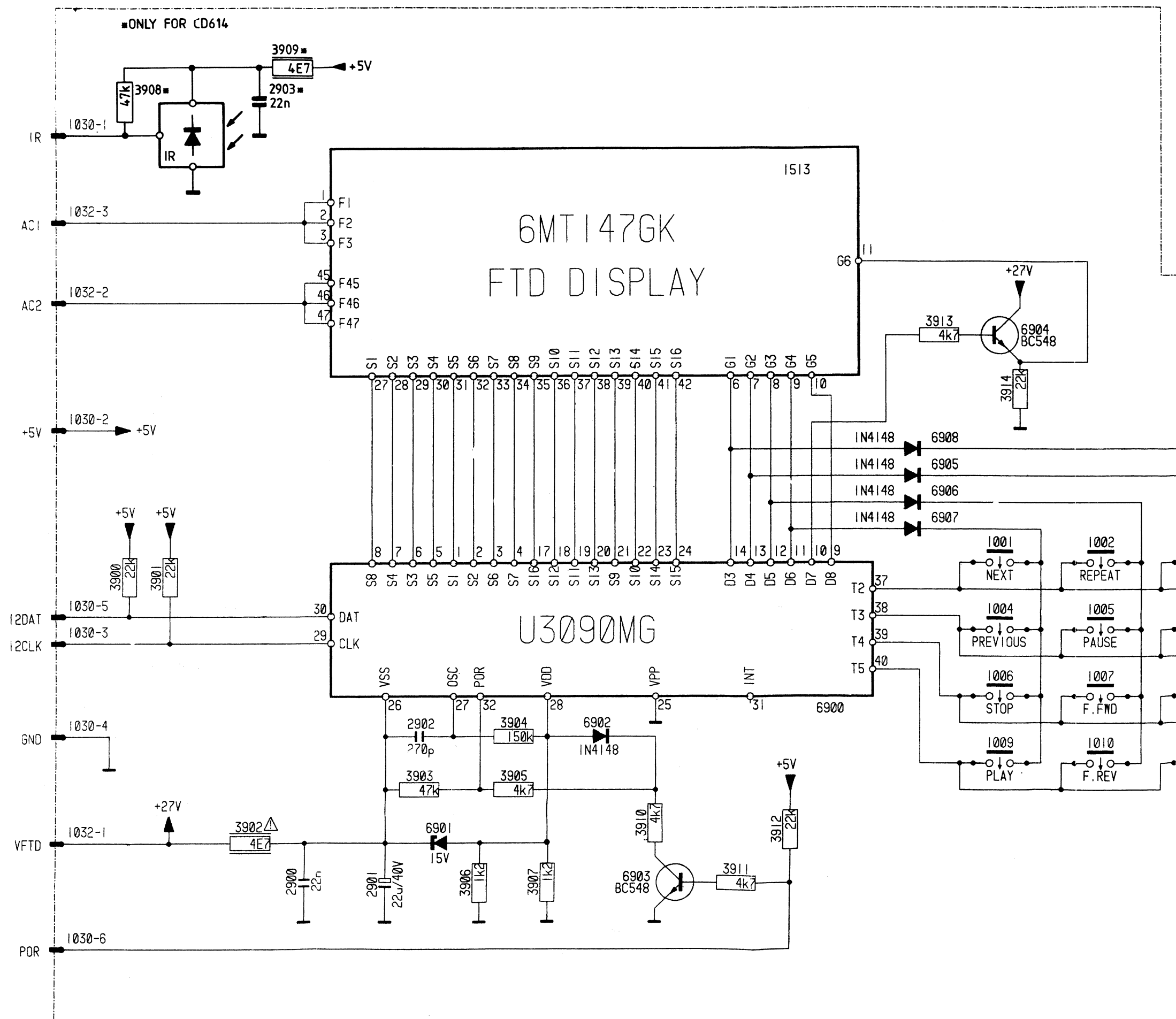


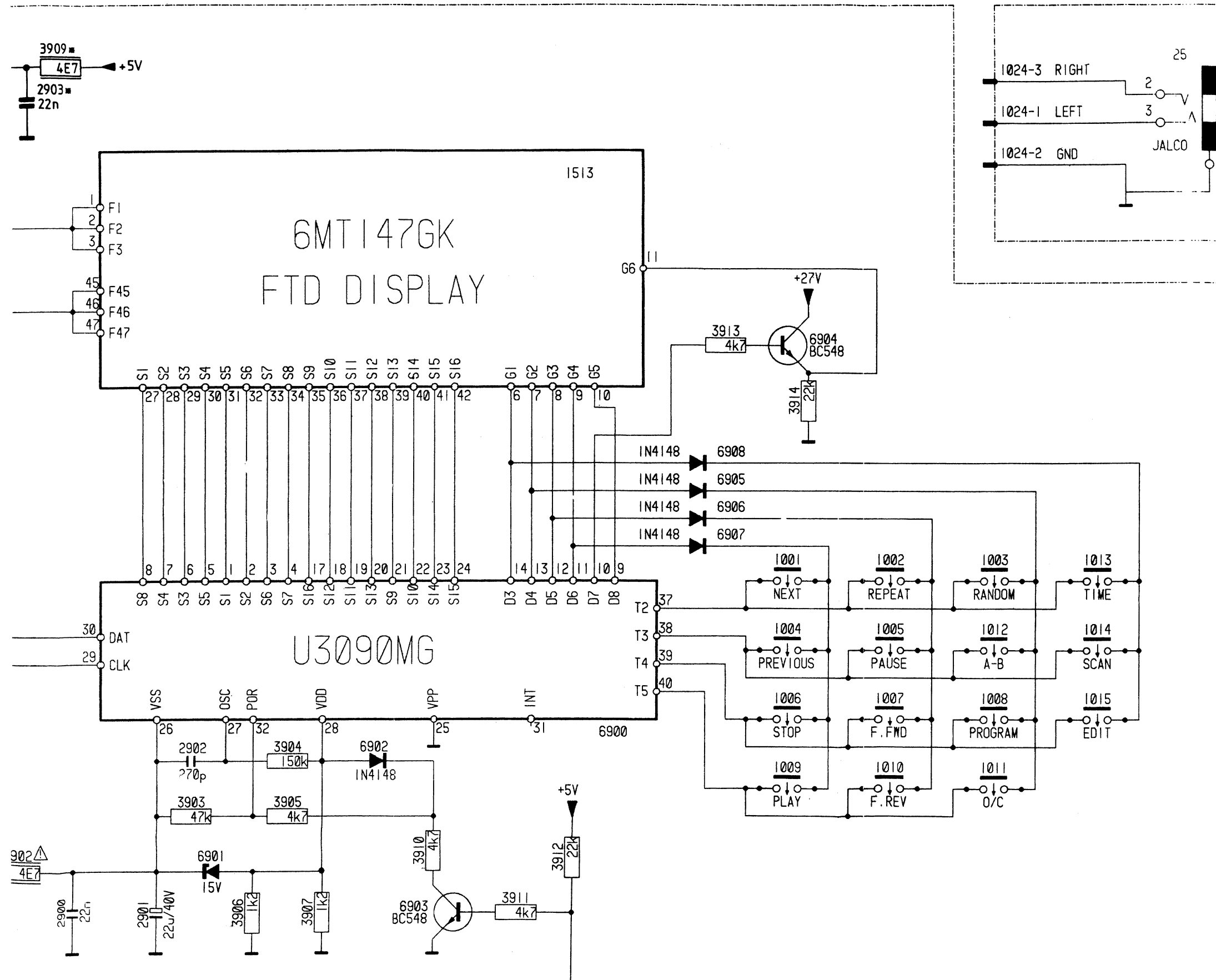
4-7 4-7





DISPLAY PANEL CIRCUIT DIAGRAM





Display partslist

Miscellaneous

BU3	4822 267 30743	
1001	4822 276 12276	TACT SWITCH
1002	4822 276 12276	TACT SWITCH
1003	4822 276 12276	TACT SWITCH
1004	4822 276 12276	TACT SWITCH
1005	4822 276 12276	TACT SWITCH
1006	4822 276 12276	TACT SWITCH
1007	4822 276 12276	TACT SWITCH
1008	4822 276 12276	TACT SWITCH
1009	4822 276 12276	TACT SWITCH
1010	4822 276 12276	TACT SWITCH
1011	4822 276 12276	TACT SWITCH
1012	4822 276 12276	TACT SWITCH
1013	4822 276 12276	TACT SWITCH
1014	4822 276 12276	TACT SWITCH
1015	4822 276 12276	TACT SWITCH
1513	4822 130 90661	6-MT-147GK
1514	4822 214 51772	GP1U521X



2900	4822 122 10166	22nF 30% 16V
2901	5322 124 21643	22μF 20% 40V
2902	4822 122 31465	270pF
2903	4822 122 10166	22nF 30% 16V

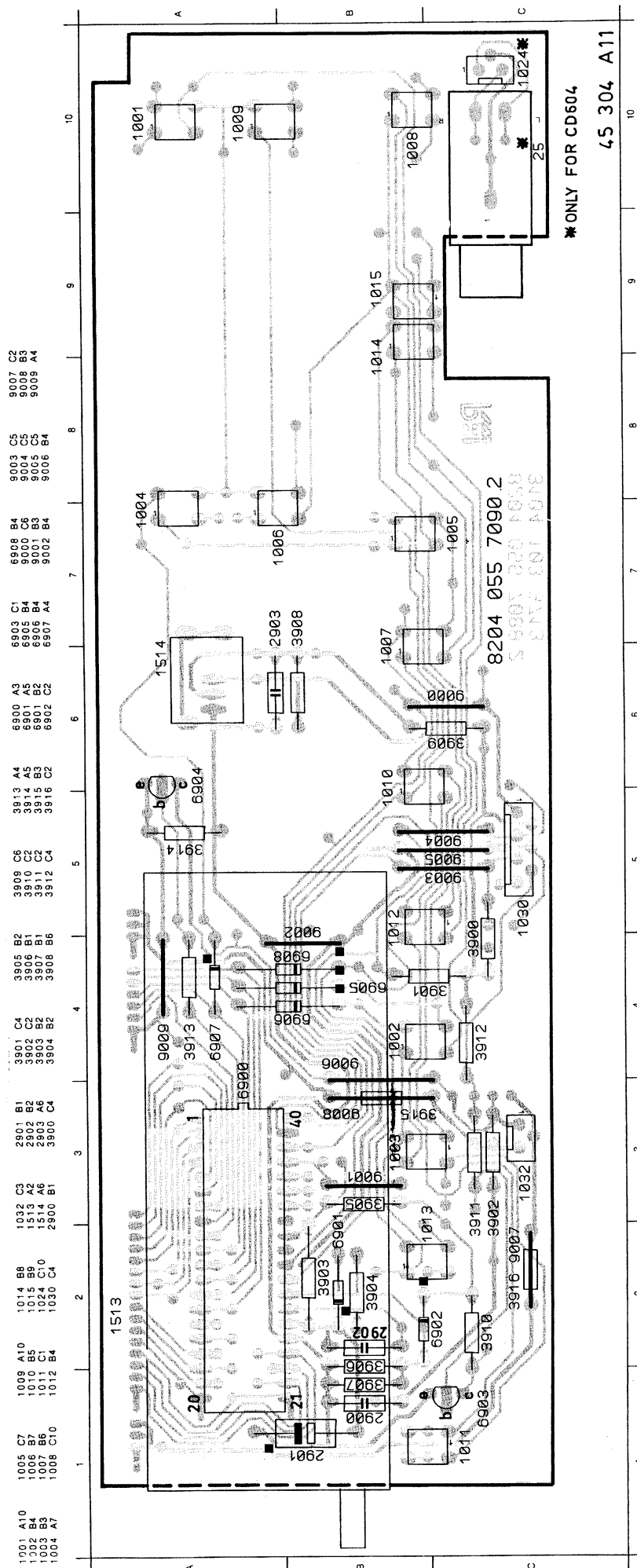


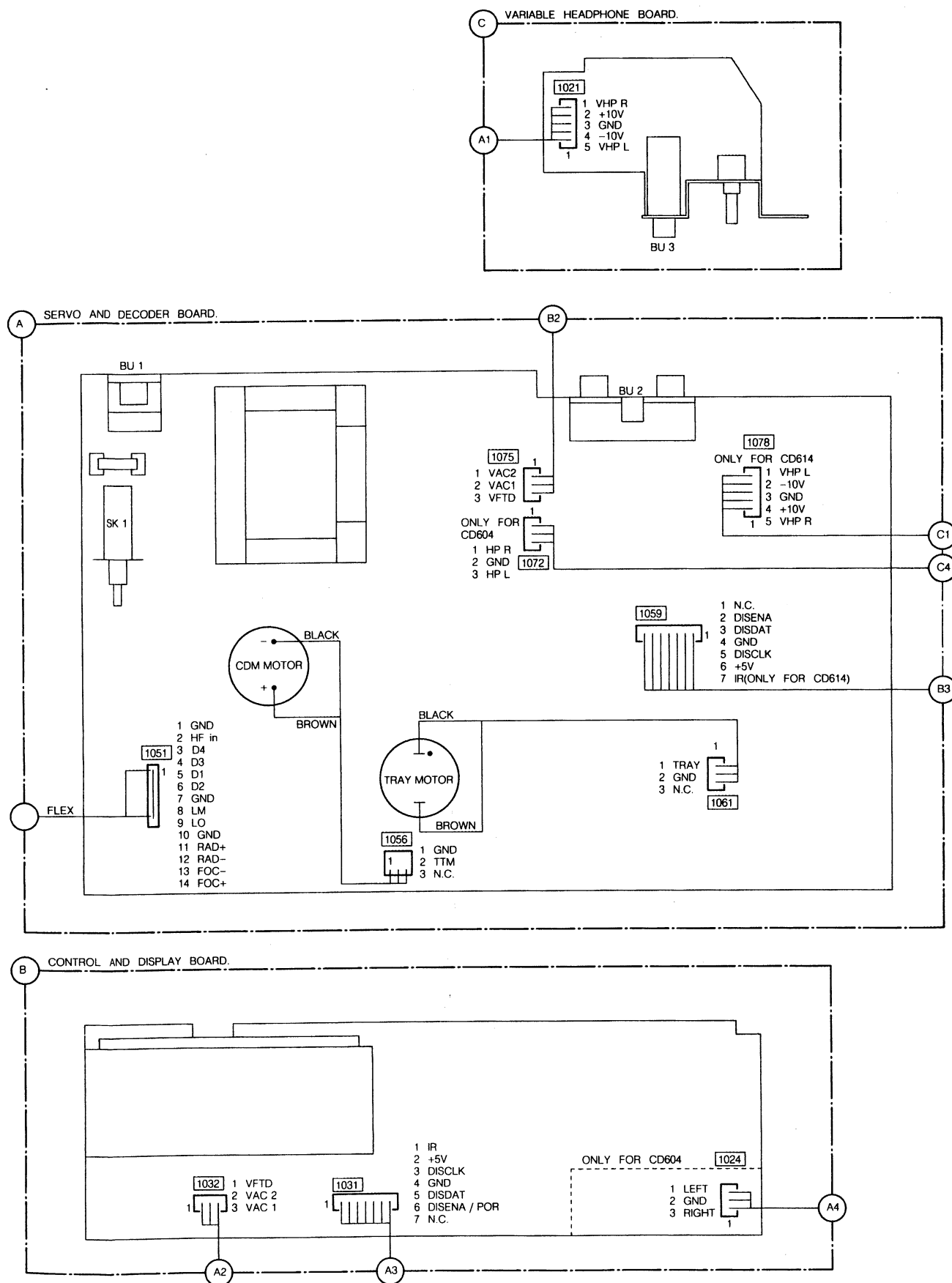
3900	4822 051 10223	22kΩ 2% 0,25W
3901	4822 051 10223	22kΩ 2% 0,25W
3902	4822 111 30499	4,7kΩ 5% 0,33W
3903	4822 116 52857	47kΩ 1% 0,6W
3904	4822 050 21504	150kΩ 1% 0,6W
3905	4822 116 52921	4,7kΩ 1% 0,6W
3906	4822 051 10122	1,2kΩ 2% 0,25W
3907	4822 051 10122	1,2kΩ 2% 0,25W
3908	4822 116 52857	47kΩ 1% 0,6W
3909	4822 111 30499	4,7kΩ 5% 0,33W
3910	4822 116 52921	4,7kΩ 1% 0,6W
3911	4822 116 52921	4,7kΩ 1% 0,6W
3912	4822 051 10223	22kΩ 2% 0,25W
3913	4822 116 52921	4,7kΩ 1% 0,6W
3914	4822 051 10223	22kΩ 2% 0,25W

Semiconductors

6900	4822 209 72226	U3090
6901	4822 130 81086	BZX55-C15
6902	4822 130 30621	1N4148
6903	4822 130 40938	BC548
6904	4822 130 40938	BC548
6905	4822 130 30621	1N4148
6906	4822 130 30621	1N4148
6907	4822 130 30621	1N4148
6908	4822 130 30621	1N4148

CONTROL AND DISPLAY PANEL





CS 28 930

Miscellaneous

	4822 256 30274	Fuse holder
1570	4822 242 73586	X-tal 8.4672 MHz
1601	4822 242 72527	Ceramic resonator 4 MHz
1730	4822 070 31001	/00B /00S /05B
1730	4822 253 30322	/07B /17B
5730	4822 146 30859	/00B /00S /05B
5730	4822 146 30879	/07B /17B
BU1	4822 265 20291	Mains inlet
BU2	4822 267 40789	Cinch socket 5p
BU3	4822 267 30743	Headphone socket
SK1	4822 276 12907	Mains switch
SK2	4822 276 12523	Tact switch
5630	4822 148 80281	Transformer for digital out
5660	4822 157 60363	Anti radiation coil

Tools

	4822 444 60655	Insulation cover
	4822 397 30184	CD Audio signals
	4822 397 30096	Audio test disc 5+5A
	4822 395 30204	13th order filter
	4822 397 30155	Audio test disc 1kHz
	4822 322 40066	Service cable (14p)
	4822 397 60141	Audio test max diam
	4822 267 50676	Service conn (14p)
	4822 395 50145	Torx Screwdriverset
	5322 130 32182	Led green CQYG11
	4822 395 50132	Torx screw square
	4822 321 21284	Service cable (4p)