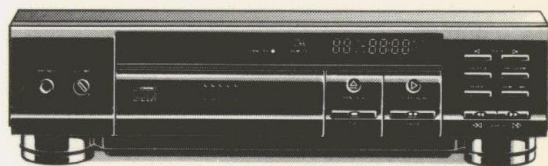


# Compact disc player CD110/00B/05B

Service  
Service  
Service

CD130/00B/05B  
CD140/00B/05B/10B



45 192 A11

# Service Manual

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- 2 Controls and connections
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COMPACT  
disc  
DIGITAL AUDIO

(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.

(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.

(S) Varning!

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

(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.

(SF) Varo!

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

CLASS 1  
LASER PRODUCT

3122 110 03420

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



\*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 22624

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PHILIPS

Published by  
Consumer Electronics

CS 29 554

**TECHNICAL SPECIFICATIONS**

**General**

- 1. Mains voltage : 220, 240 Volt (+/- 10%)
- 2. Mains frequency : 50-60 Hz
- 3. Mains voltage selection : By soldering (220/240 Volt-version)  
By changing transformer (110/127 Volt-version)
- 4. Power consumption mains, operated : 9 W
- Standby : 3 W

**Line output**

- 1. Number of channels : 2
- 2. Output voltage : 2 Vrms +/- 2 dB
- 3. Unbalance Left-Right : max. 0,5 dB
- 4. Output resistance : 1 kOhm
- 5. Amplitude linearity : max. +/- 0,15 dB from 20 Hz to 18 kHz
- 6. Phase non-linearity : max. +/- 1° from 20 Hz to 18 kHz
- 7. Signal to noise ratio : min 90 dB from 20 Hz to 18 kHz
- 8. Dynamic range : min 80 dB from 20 Hz to 18 kHz
- 9. Total harmonic distortion + noise : min -66 dB from 20 Hz to 18 kHz
- 10. Intermodulation distortion : min -66 dB from 20 Hz to 18 kHz
- 11. Out-band attenuation : min 50 dB
- 12. Channel separation : min 80 dB from 20 Hz to 18 kHz
- 13. Muting during random access : min 90 dB from 20 Hz to 18 kHz
- 14. Automatic switched de-emphasis with time constants 15/50 us

**Headphone**

- 1. Output voltage : max. 2 Vrms +/- 2 dB
- 2. Unbalance Left-right : max. +/- 0,2 dB
- 3. Output resistance : 150 Ohm
- 4. Load impedance range : 32 Ohm to 600 Ohm
- 5. Output power : max. 6 mW into 32 Ohm load  
max. 10 mW into 150 Ohm load  
max. 6 mW into 600 Ohm load
- 6. Signal to noise ratio : min 90 dB from 20 Hz to 18 kHz
- 7. Dynamic range : min 80 dB from 20 Hz to 18 kHz
- 8. Total harmonic distortion + noise : min 66 dB from 20 Hz to 18 kHz
- 9. Intermodulation distortion : min 66 dB from 20 Hz to 18 kHz
- 10. Channel separation : min 65 dB from 20 Hz to 18 kHz

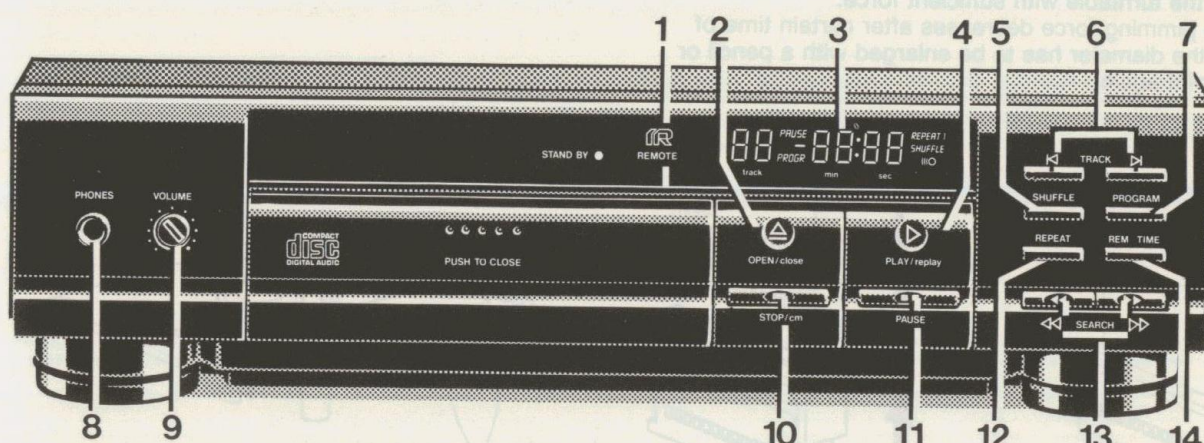
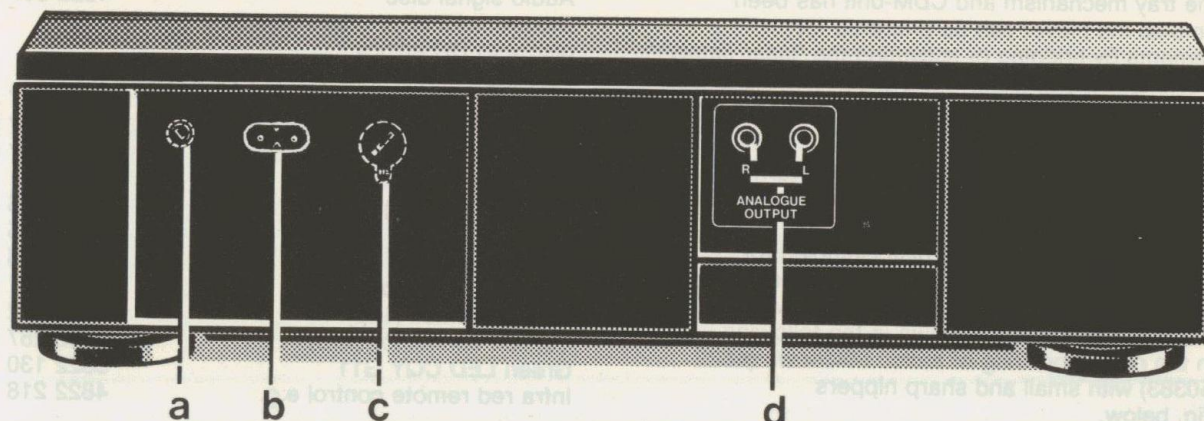
**Dimensions and weight**

- 1. Apparatus tray closed WxDxM : 360 x 280 x 90/100 mm
- 2. Apparatus tray open WxDxM : 360 x 445 x 90/100 mm
- 3. Weight : 3,3 kg

**Optical read-out system**

- Laser type : Semiconductor AlGaAs
- Wave length : 780 nm ± 20 nm
- Light output (c.w.) : 0,4 mW ± 0,04 mW

**CONTROLS AND CONNECTIONS**



45 187 A11

**OPERATION KEYS**

- 1 IR-REMOTE
- 2 OPEN/close
- 3 DISPLAY
- 4 PLAY/replay
- 5 SHUFFLE
- 6 TRACK
- 7 PROGRAM
- 8 PHONES
- 9 VOLUME
- 10 STOP/cm
- 11 PAUSE
- 12 REPEAT
- 13 SEARCH
- 14 REM(aining) TIME

**CONNECTIONS**

- a. Mains fuse holder
- b. Mains lead
- c. Voltage selector
- d. Analogue output

3. SERVICING HINTS

When the tray mechanism and CDM-unit has been disassembled the player can be prepared for measurements by bridging or activating the "laser safety switch" SK3 on the photo diode signal controller 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 hold-down (4822 462 50383) with small and sharp nippers
- See fig. below.

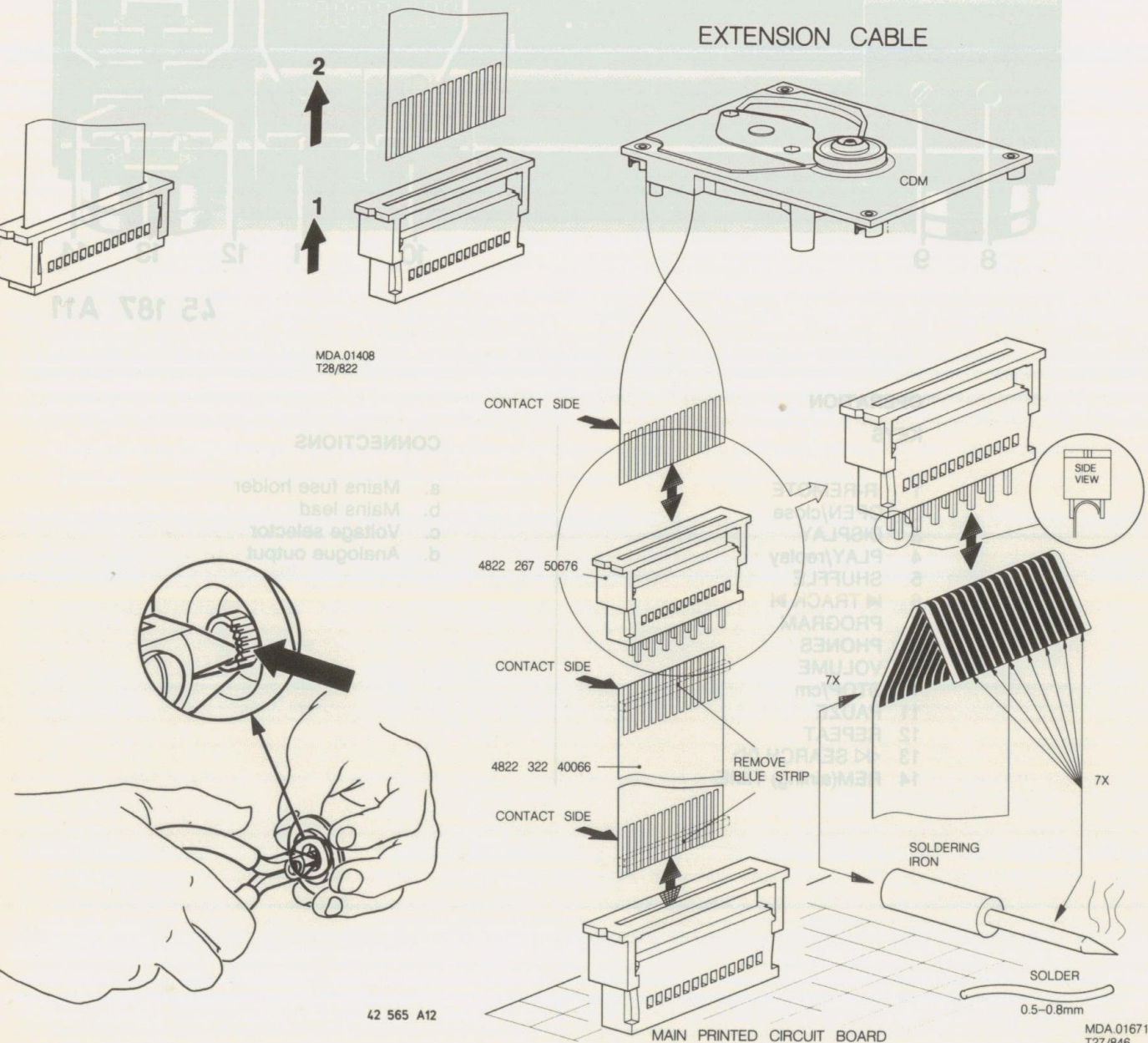
- Enlarge the diameter of the innermost ring slightly with the hind part of a pencil or ballpoint, so that it jams onto the turntable with sufficient force.

- If the jamming force decreases after certain time of use, the diameter has to be enlarged with a pencil or ballpoint again.

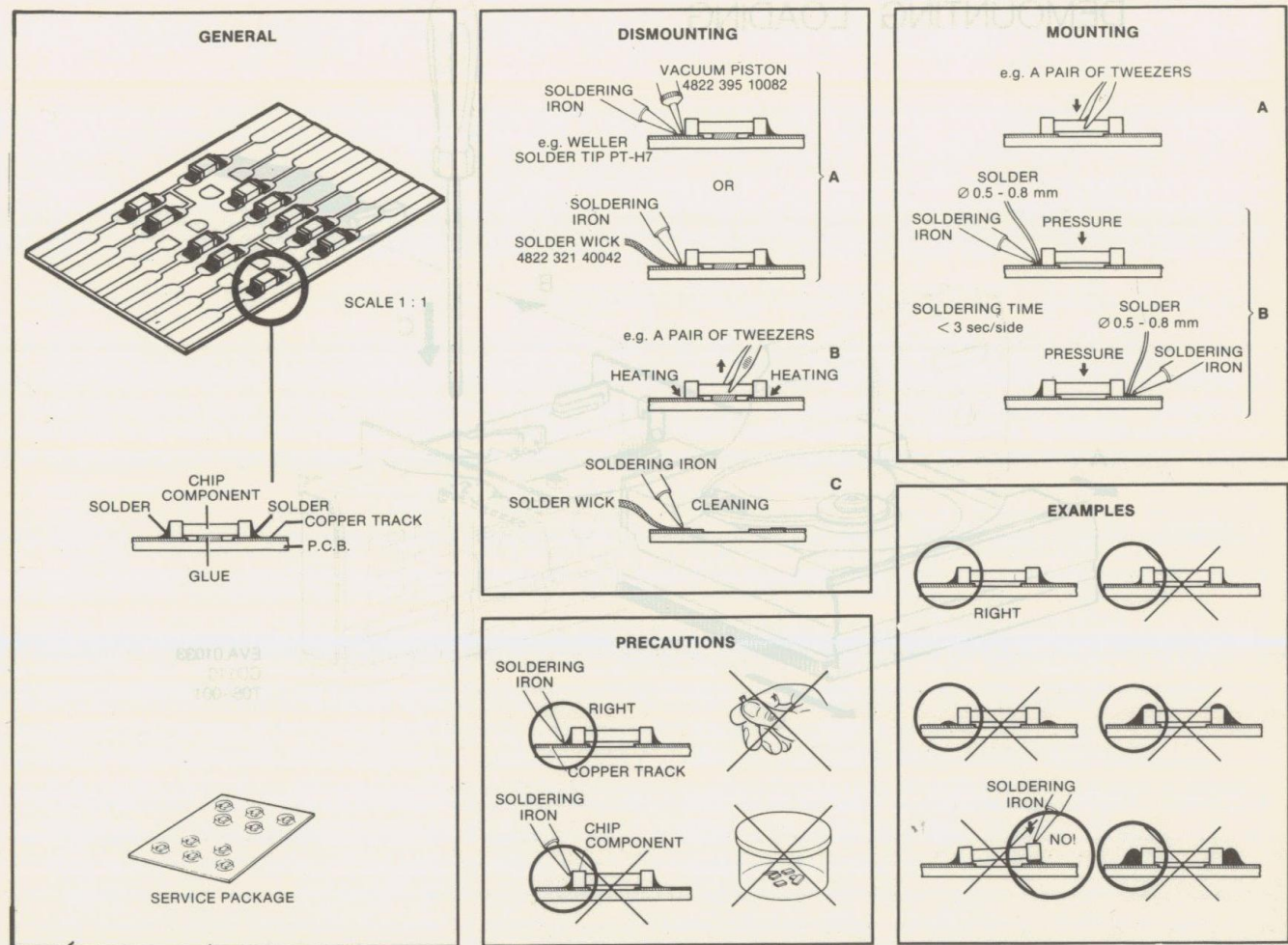
SERVICE TOOLS

Audio signal 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 1kHz) 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
Infra red remote control e.g.	4822 218 10324

EXTENSION CABLE



SERVICING HINTS AND TOOLS



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.

D WARNUNG

Alle ICs und viele andere Halbleiter sind empfindlich gegenüber elektrostatiscen Entladungen (ESD). Unsorgfältige Behandlung im Reparaturfall kan die Lebensdauer drastisch reduzieren. Veranlassen Sie, dass Sie im Reparaturfall über ein Pulsarmband mit Widerstand verbunden sind mit dem gleichen Potential wie die Masse des Gerätes. Bauteile und Hilfsmittel auch auf dieses gleiche Potential halten.

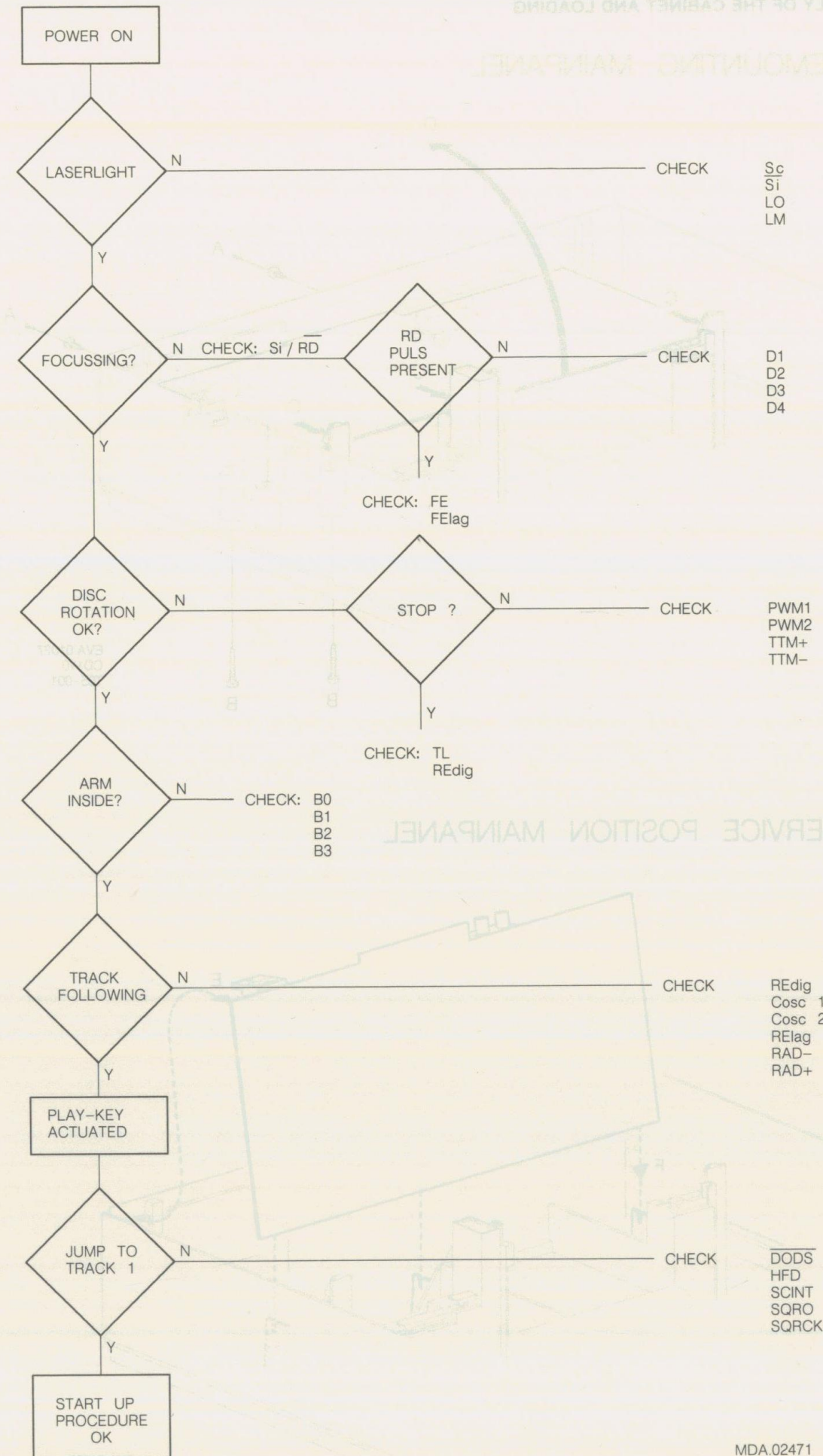
NL WAARSCHUWING

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 ditzelfde potentiaal.

I AVVERTIMENTO

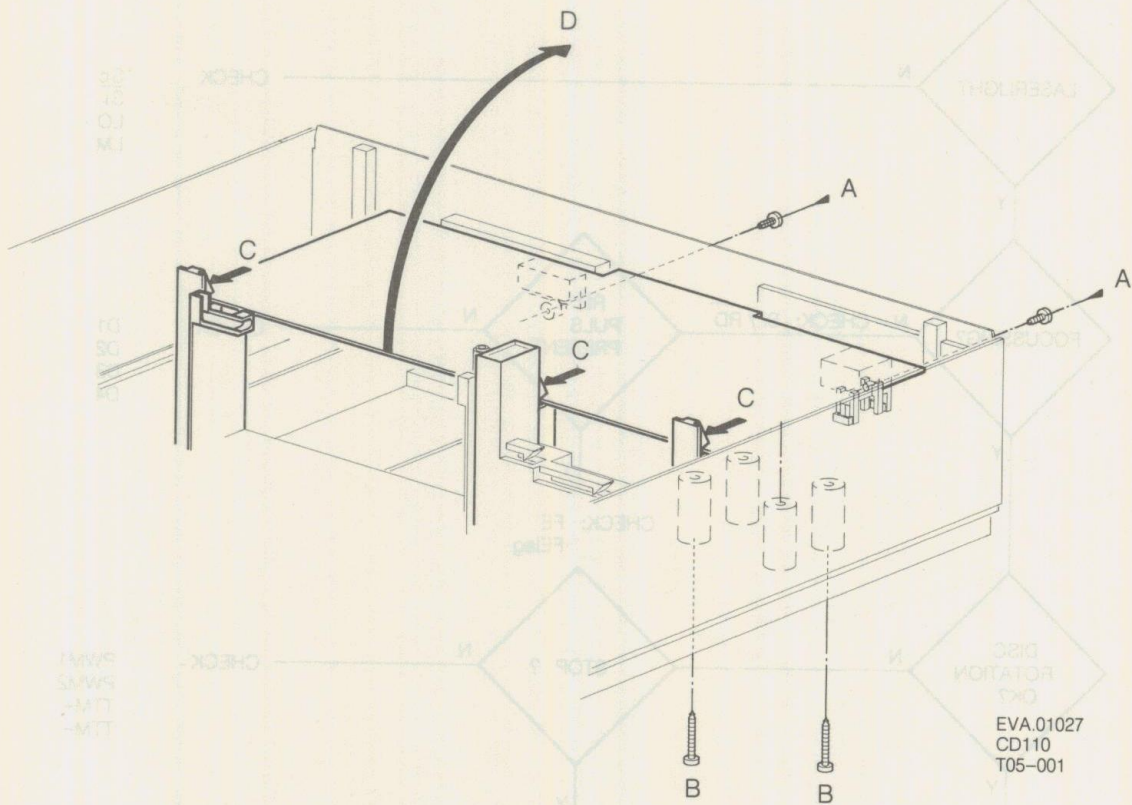
Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD). La loro longevità potrebbe essere fortemente ridatta in caso di non osservazione della più grande cauzione alla loro manipolazione. Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello 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.

ESD

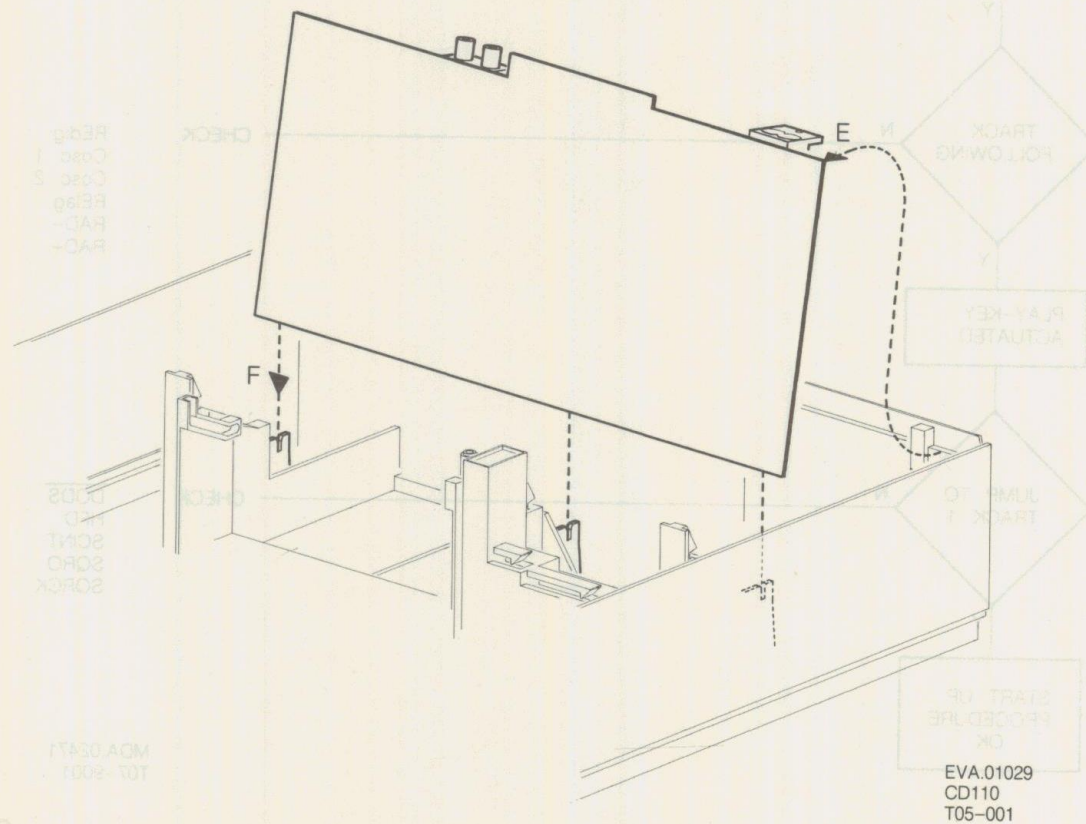


DISASSEMBLY OF THE CABINET AND LOADING

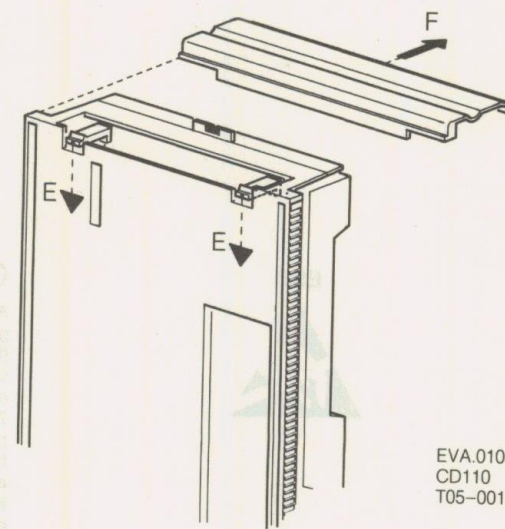
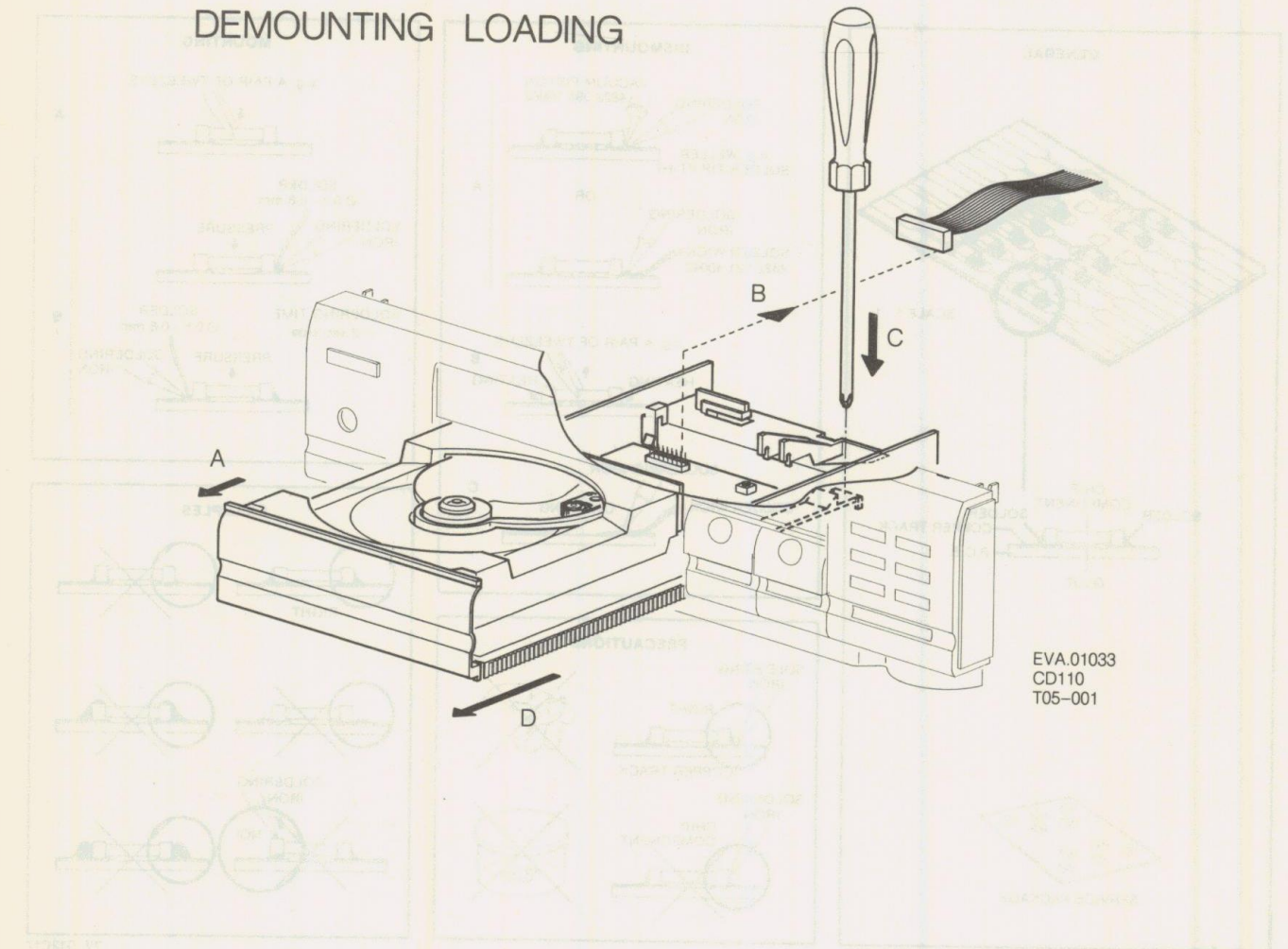
DEMOUNTING MAINPANEL



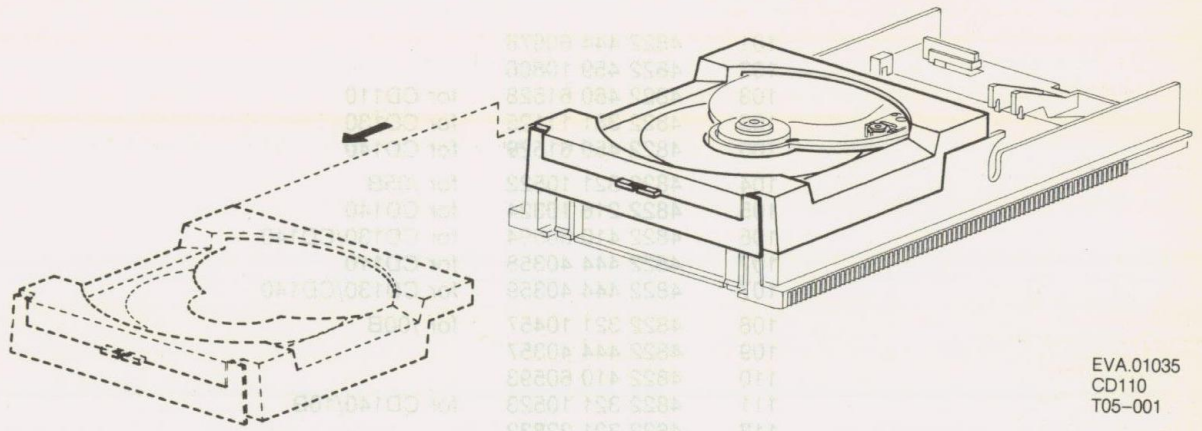
SERVICE POSITION MAINPANEL



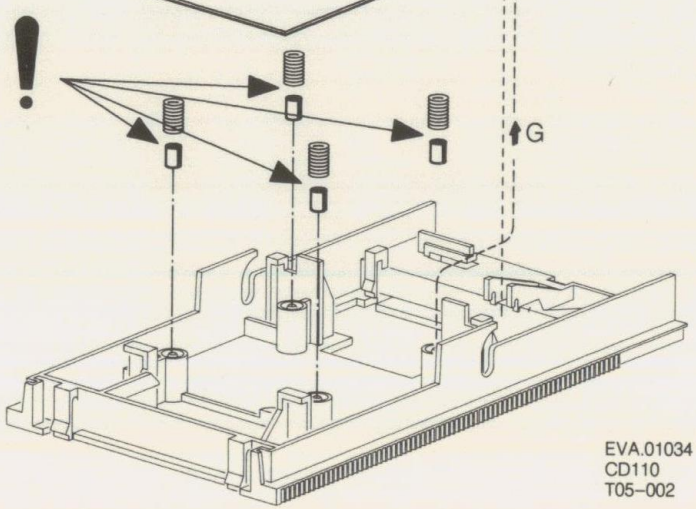
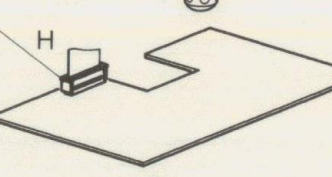
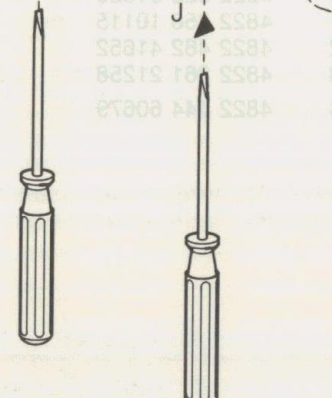
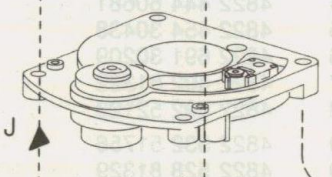
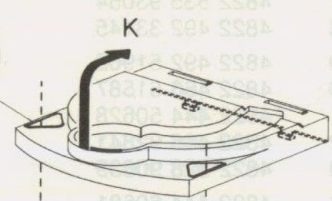
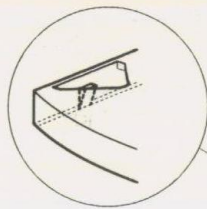
DEMOUNTING LOADING



MECHANICAL PARTLIST



EVA.01035  
CD110  
T05-001

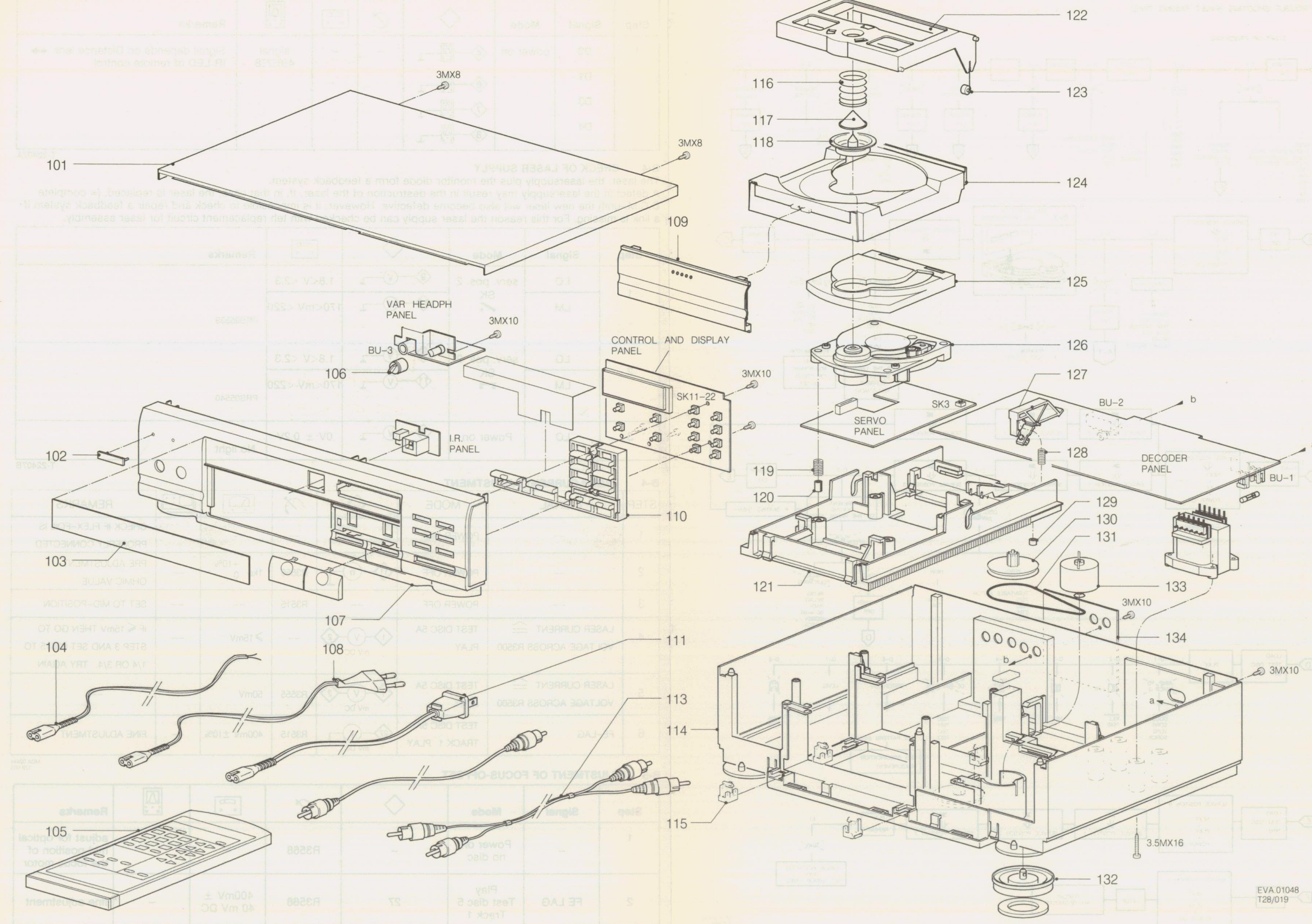


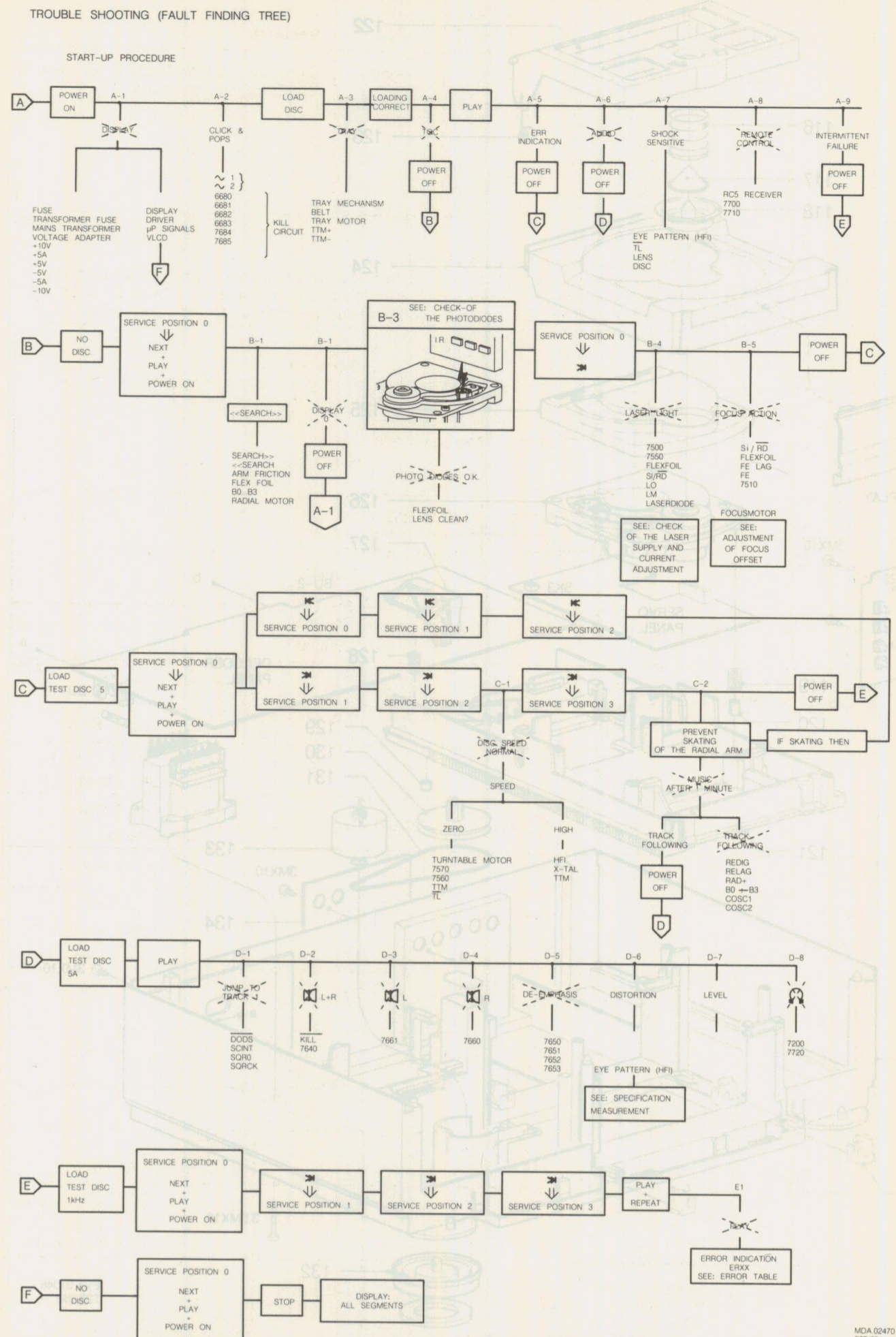
EVA.01034  
CD110  
T05-002

MECHANICAL PARTSLIST

101	4822 444 60678	
102	4822 459 10806	
103	4822 450 61528	for CD110
103	4822 381 11125	for CD130
103	4822 450 61529	for CD140
104	4822 321 10522	for /05B
105	4822 218 10324	for CD140
106	4822 410 60594	for CD130/CD140
107	4822 444 40358	for CD110
107	4822 444 40359	for CD130/CD140
108	4822 321 10457	for /00B
109	4822 444 40357	
110	4822 410 60593	
111	4822 321 10523	for CD140/10B
113	4822 321 22832	
114	4822 464 50792	
115	4822 402 61323	
116	4822 492 52159	
117	4822 535 93054	
118	4822 492 33145	
119	4822 492 51902	
120	4822 466 61587	
121	4822 444 50628	
122	4822 466 92841	
123	4822 528 90639	
124	4822 444 60681	
125	4822 454 30438	
126	4822 691 30209	
127	4822 402 61322	
128	4822 492 52123	
129	4822 532 51756	
130	4822 528 81329	
131	4822 358 10115	
132	4822 462 41652	
133	4822 361 21258	
134	4822 444 60679	

EXPLODED VIEW





B-3 CHECK OF THE PHOTODIODES

Step	Signal	Mode	Measurement Point	Expected Value	Remarks
1	D2	power on	4	signal 4±6%±7±8	Signal depends on Distance lens ↔ IR LED of remote control
	D1		6		
	D3		7		
	D4		8		

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 D.C.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	Measurement Point	Expected Value	Remarks
1	LO	serv. pos. 2	9	1.8<V<2.3	PRS05539
	LM	SK	1	170<mV<220	
2	LO	serv. pos. 2	9	1.8<V<2.3	PRS05540
	LM	SK	1	170<mV<220	
3	LO	Power on	9	0V ± 0.2V	No light

B-4 LASER CURRENT ADJUSTMENT

STEP	SIGNAL	MODE	Measurement Point	Expected Value	REMARKS
1	--	POWER OFF	--	--	CHECK IF FLEX-FOIL IS PROPERLY CONNECTED
2	--	POWER OFF	1	R3555 1kΩ +10% 0	PRE ADJUSTMENT OHMIC VALUE
3	--	POWER OFF	--	R3515	SET TO MID-POSITION
4	LASER CURRENT	TEST DISC 5A PLAY	1	≥15mV	IF ≤ 15mV THEN GO TO STEP 3 AND SET R3515 TO 1/4 OR 3/4. TRY AGAIN
5	LASER CURRENT	TEST DISC 5A PLAY	1	50mV	
6	FE-LAG	TEST DISC 5A TRACK 1 PLAY	27	400mV ±10%	FINE ADJUSTMENT

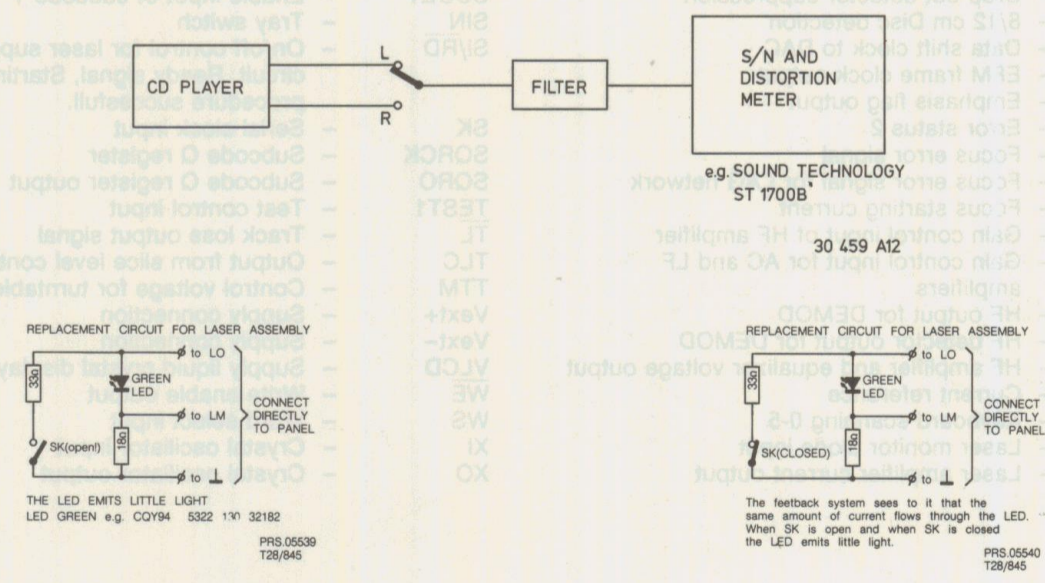
B-5 ADJUSTMENT OF FOCUS-OFFSET

Step	Signal	Mode	Measurement Point	Expected Value	Remarks
1	-	Power on no disc	-	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

D-6 SPECIFICATIONS MEASUREMENT

Signal	Mode	Measurement Point	Expected Value	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

Filter = 13th order filter 4822 395 30204



ERROR CODE TABLE

**SYSTEM ERRORS**

ERROR 02	Focus error
ERROR 03	Radial error
ERROR 04	Disc error: DRD becomes not low
ERROR 06	Jump error
ERROR 07	Subcode error
ERROR 08	TOC error

OPERATING ERRORS

ERROR 31	Search time out error
ERROR 32	Binary search time out error
ERROR 33	Index not found
ERROR 34	Relative time not found
ERROR 36	Programmed track is not existing on this CD
ERROR 37	Selected track is not existing on this CD
ERROR 38	Next at a boarder when repeat is off
ERROR 39	Previous at a boarder when repeat is off
ERROR 41	No program
ERROR 42	Program memory full

- ACLK -  $\mu$ P interface register clear input
- AGC - Automatic Gain Control
- AOL-R - Analogue output left-right
- B0-B3 - Control bits for radial circuit
- BCK - Bit clock input
- BEQ - Equalizer reference current input
- BGC - DC and LF gain control reference input
- BPA-C - Display backplane A-C
- C16M1 - 1/2 divider input
- CAS - Column address strobe signal output
- Cosc1 - Capacitor wobble oscillator
- Cosc2 - Capacitor wobble oscillator
- CS - Chip select
- D1-D4 - Photodiode currents
- DASEL1-4 - DAC interface format select
- DATA - Data input
- DEC - Decoupling input internal bypass
- DET - HF detector voltage input
- DI - Serial data input
- DISBL - Display blank
- DISENA-B - Disenable A-B
- DISCLK - Display clock
- DISDAT - Display data
- DIV4 - Divide by 4 input
- DLRCK - Left/right channel clock
- DO1 - Dual DAC Rch serial data output
- DOBSEL - Data bit select
- DODS - Drop out detector suppression
- DRD - 8/12 cm Disc detection
- DSCK - Data shift clock to DAC
- EFFK - EFM frame clock output
- EMP - Emphasis flag output
- EST2 - Error status 2
- FE - Focus error signal
- FE lag - Focus error signal for LAG network
- FS - Focus starting current
- GCHF - Gain control input of HF amplifier
- GCLF - Gain control input for AC and LF amplifiers
- HF - HF output for DEMOD
- HFD - HF detector output for DEMOD
- HF-out - HF amplifier and equalizer voltage output
- IREF - Current reference
- KBSCO-5 - Keyboard scanning 0-5
- LM - Laser monitor diode input
- LO - Laser amplifier current output

- LPF - PLL loop filter
- MCK -  $\mu$ P interface shift clock input
- MLA -  $\mu$ P interface data latch clock input
- MSD -  $\mu$ P interface serial data input
- PLLH - PLL on hold output
- PWM - Disk motor driving output
- RADO-7 - Address output
- RAD - Radial drive input
- RADout - output of RE2-RE1 input
- RAS - Row address strobe signal output
- RDB1-4 - Data input/output
- RE - Radial error signal (Amplified RE<sub>2</sub>-RE<sub>1</sub> currents)
- RE1 - Radial error signal 1 (summation of amplified currents D<sub>3</sub> and D<sub>4</sub>)
- RE2 - Radial error signal 2 (summation of amplified currents D<sub>1</sub> and D<sub>2</sub>)
- RE dig - Radial error digital
- REin - Radial error input
- RE lag - Radial error signal for LAG network
- Rosc - Resistor wobble oscillator
- Rwob - Wobble generator input
- SA1-SC4 - 12 multiplexed outputs
- Sc - Starting up capacitor input
- SCCK - Shift clock input for serial subcode data output
- SCINT - Interrupt output of subcode Q
- SCOE1 - Enable input of subcode T
- SIN - Tray switch
- Si/RD - On/off control for laser supply and focus circuit. Ready signal, Starting up procedure successful.
- SK - Serial clock input
- SQRCK - Subcode Q register
- SQRO - Subcode Q register output
- TEST1 - Test control input
- TL - Track loss output signal
- TLC - Output from slice level control
- TMM - Control voltage for turntable motor
- Vext+ - Supply connection
- Vext- - Supply connection
- VLCD - Supply liquid crystal display
- WE - Write enable output
- WS - Word select input
- XI - Crystal oscillator input
- XO - Crystal oscillator output

BLOCKDIAGRAM

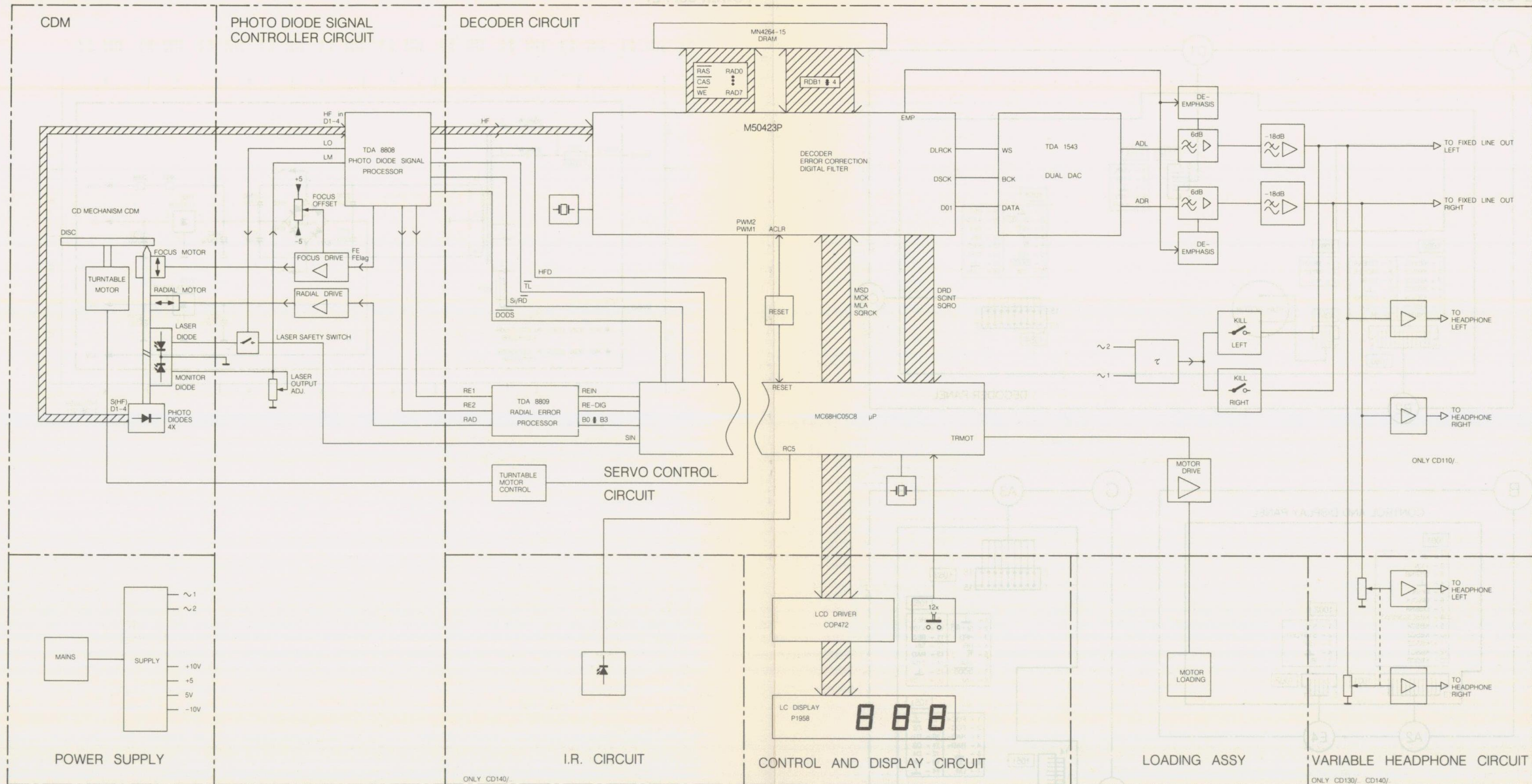
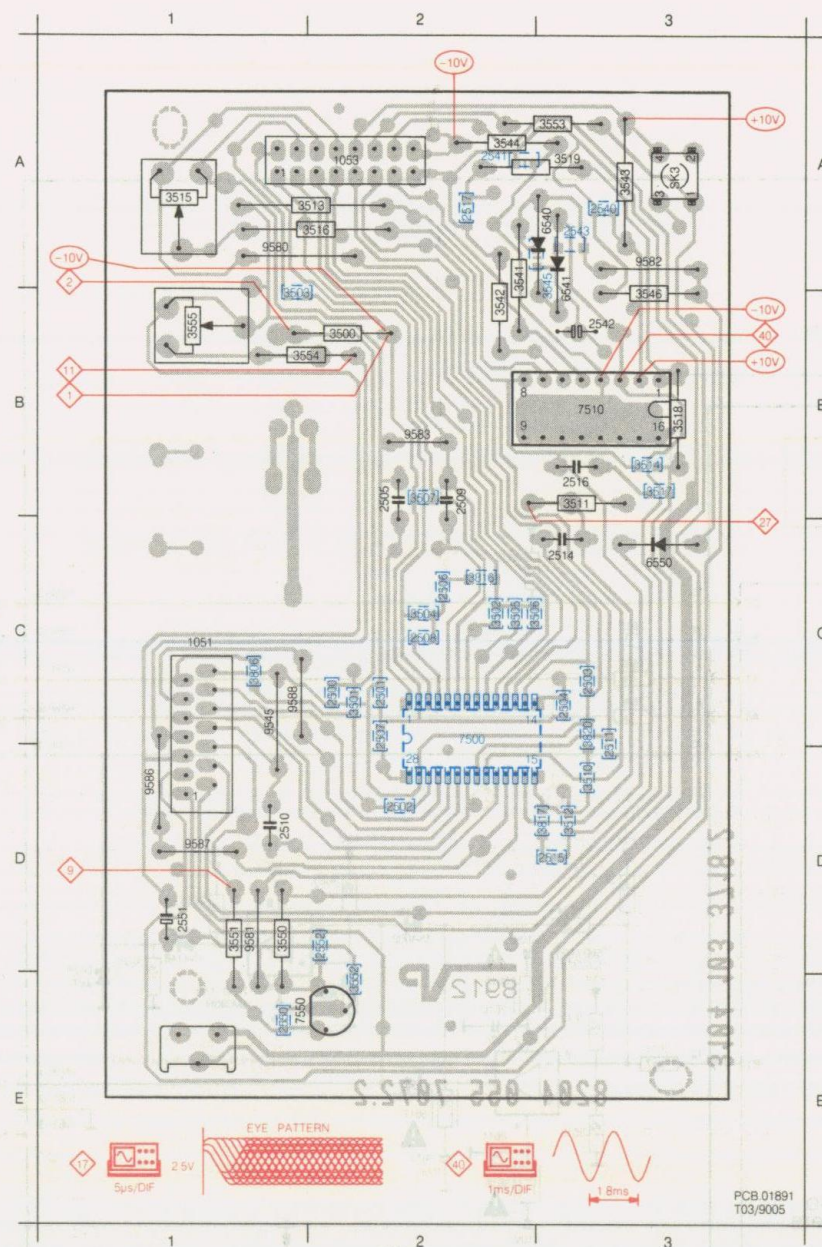
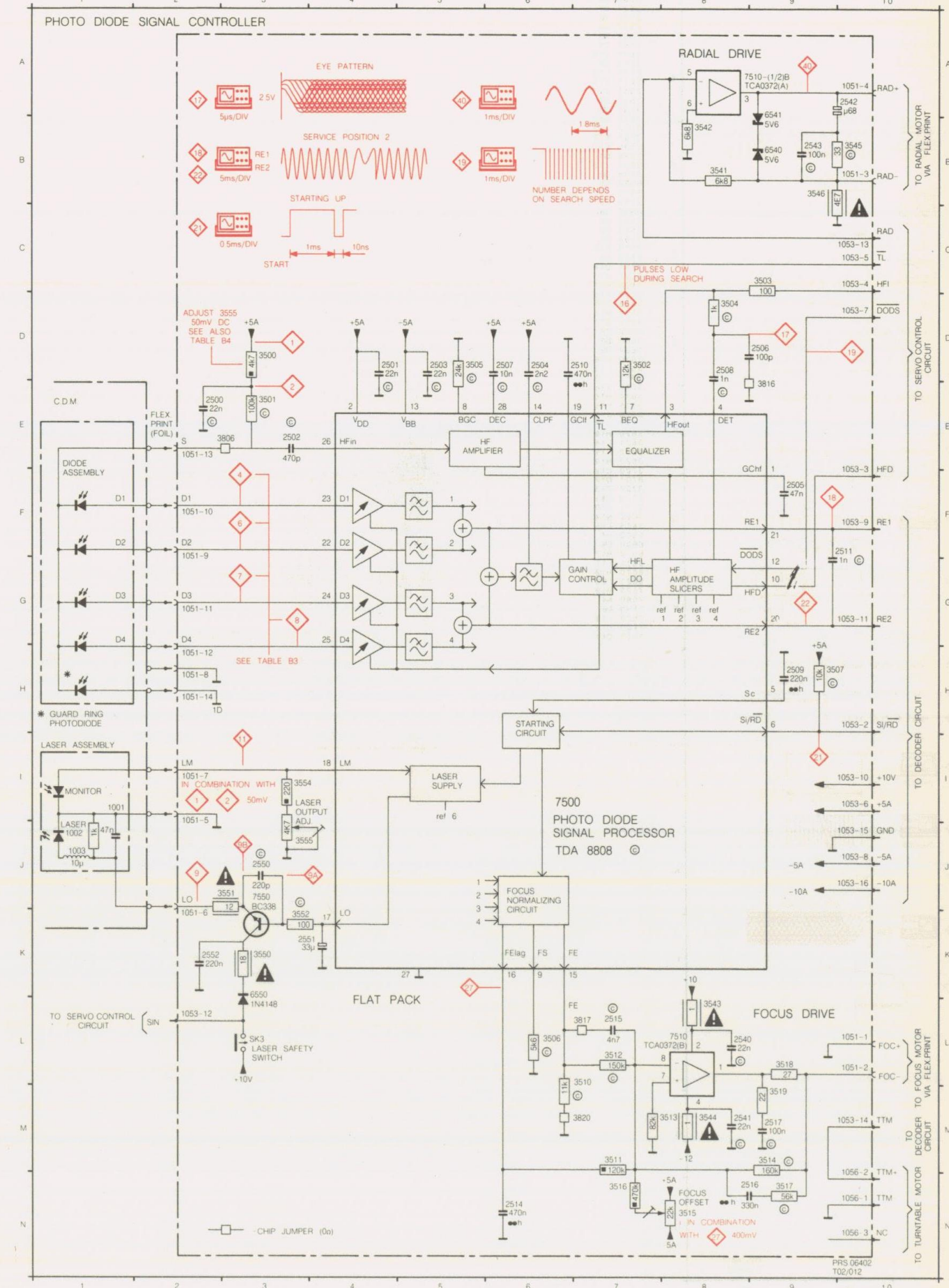




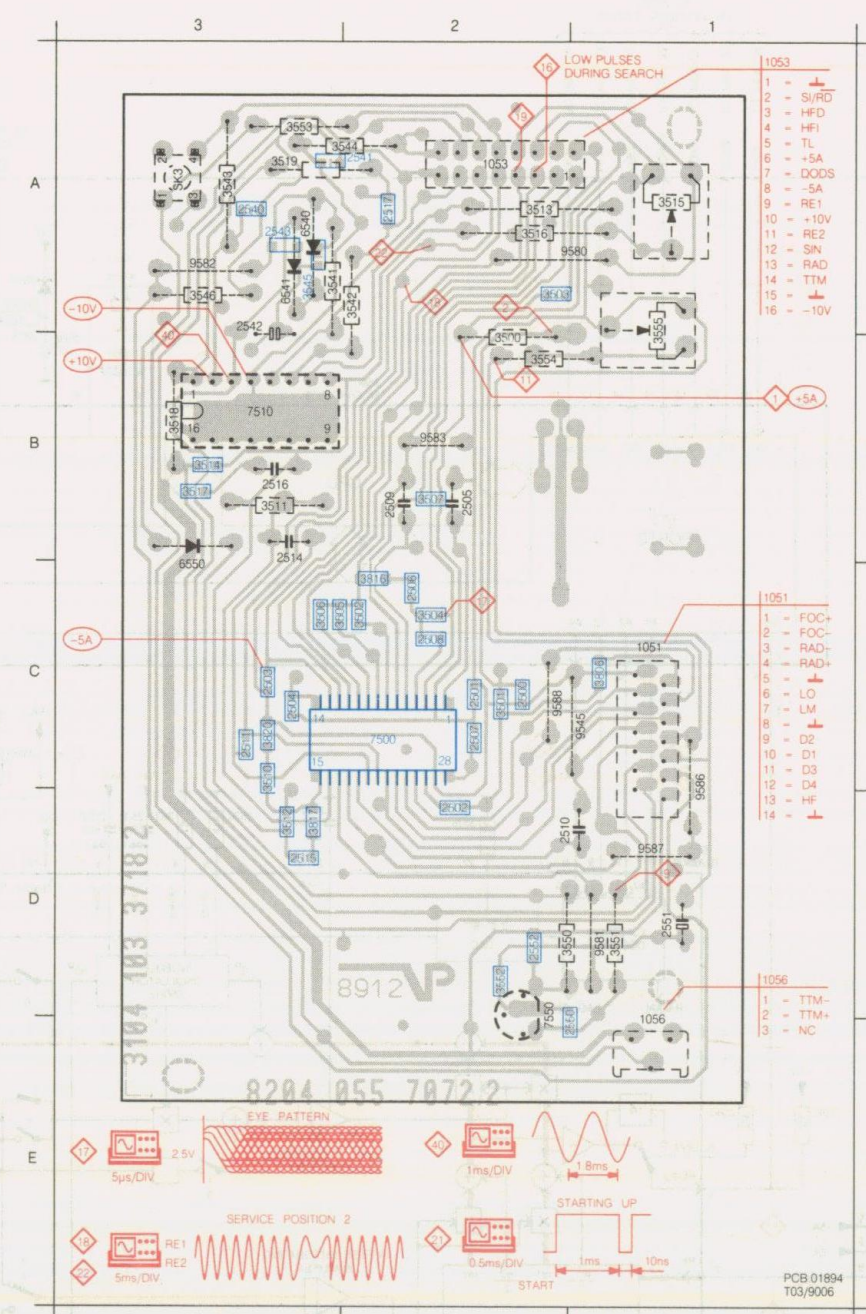


PHOTO DIODE SIGNAL CONTROLLER

SK3 L3	2503 D5	2510 D6	2541 M6	3501 E3	3510 M7	3517 N9	3545 B10	3806 E3	7500 J6
1001 I1	2504 D6	2511 F9	2542 A10	3502 D7	3511 M7	3518 L9	3546 B9	3816 E9	7510 A8
1002 J1	2505 F9	2514 N6	2543 B9	3503 C9	3512 L7	3519 M6	3550 K3	3817 L7	7510 L8
1003 J1	2506 D9	2515 L7	2550 J3	3504 D8	3513 M7	3541 B8	3551 J3	3820 M7	7550 J3
2500 E2	2507 D6	2516 N9	2551 K3	3505 D5	3514 M8	3542 B8	3552 K3	6540 B9	
2501 D4	2508 H8	2517 M9	2552 K2	3506 L6	3515 N8	3543 L8	3554 J3	6541 B9	
2502 E3	2509 H9	2540 L8	3500 D3	3507 H9	3516 N7	3544 M8	3555 J4	6550 L3	



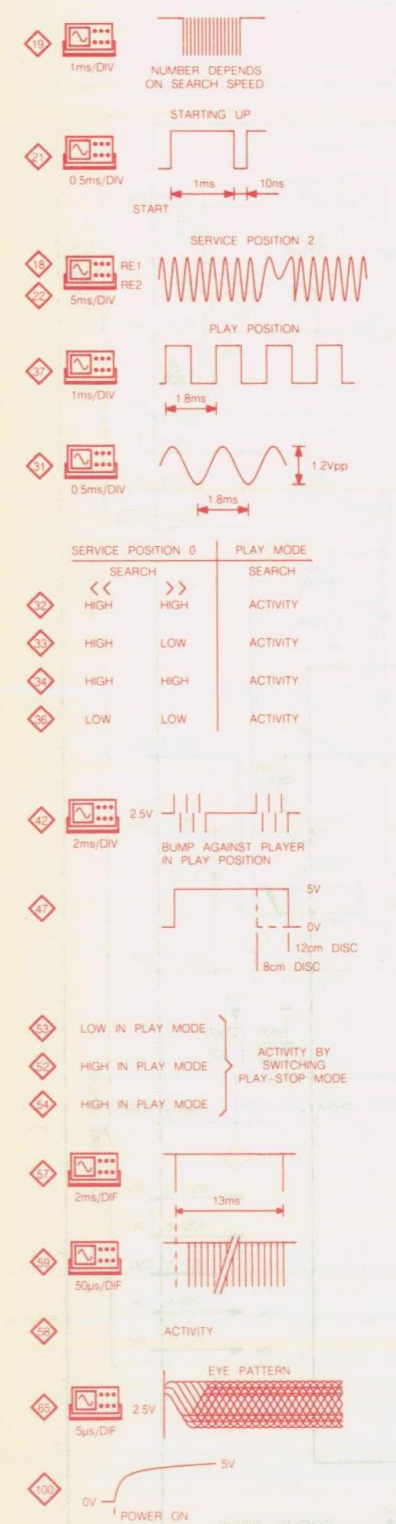
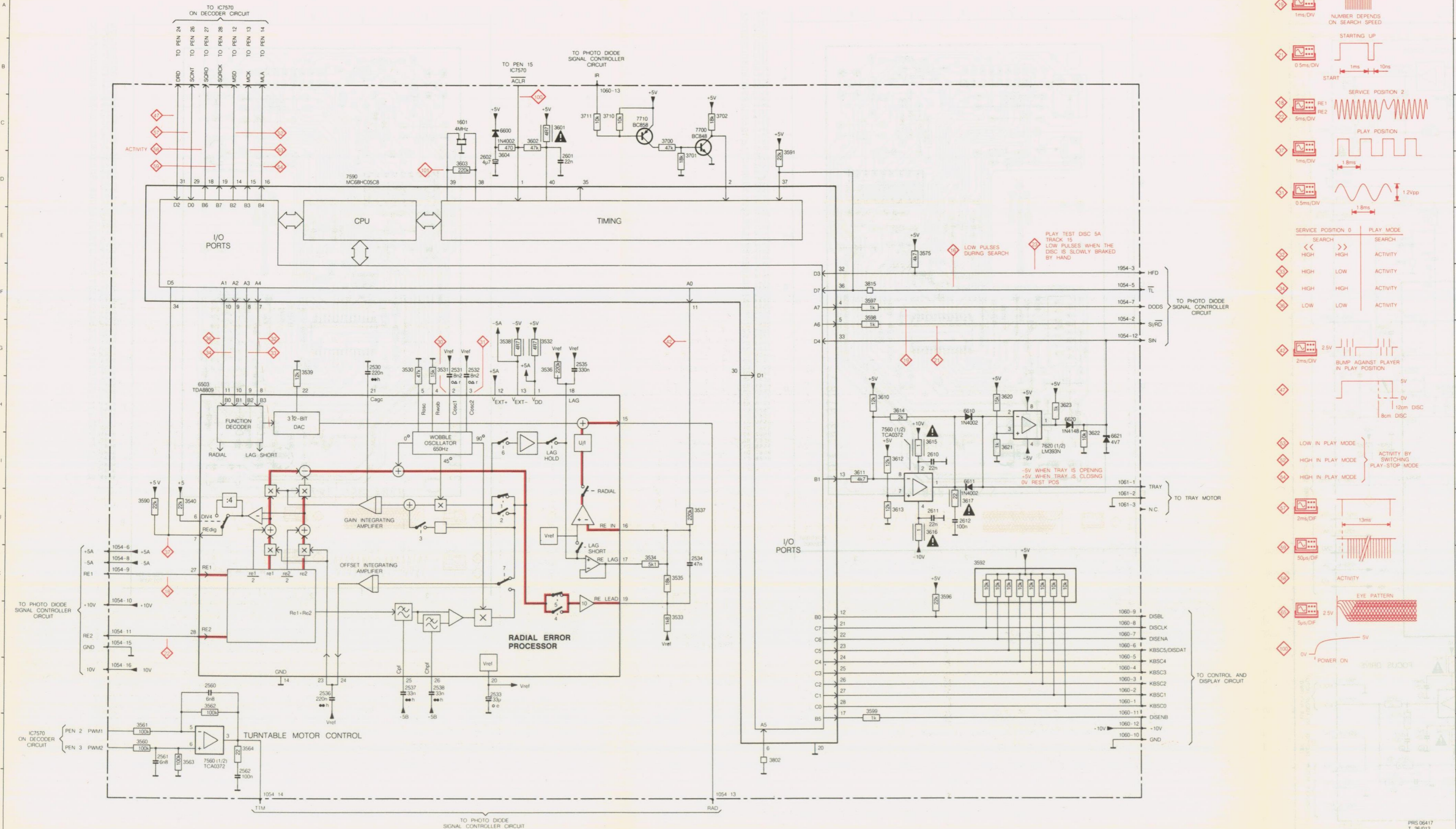
SK3 A3	1051 C1	1053 A2	2500 C2	2501 C2	2502 D2	2503 C3	2504 C3	2505 B2	2506 C2	2507 D2	2508 C2	2509 B2	2510 D1	2511 D9	2514 C3	2515 D3	2516 B3	2517 A2	2540 A3	2541 A2	2542 B3	2543 A3	2550 E1	2551 D1	2552 D2	3500 B1	3501 C2	3502 C2	3503 B1	3504 C2	3505 C2	3506 C3	3507 B2	3510 D3	3511 B3	3512 D3	3513 A1	3514 B3	3515 A1	3516 A1	3517 B3	3518 B3	3519 A3	3541 B2	3542 B2	3543 A3	3544 A2	3545 A3	3546 B3	3550 D1	3551 D1	3552 E2	3553 A3	3554 B1	3555 B1	3806 C1	3816 C2	3817 D3	3820 D3	6540 A3	6541 B3	6550 C3	7500 D2	7510 B3	7550 E1	9545 C1	9580 A1	9581 D1	9582 A3	9583 B2	9586 D1	9587 D1	9588 C1
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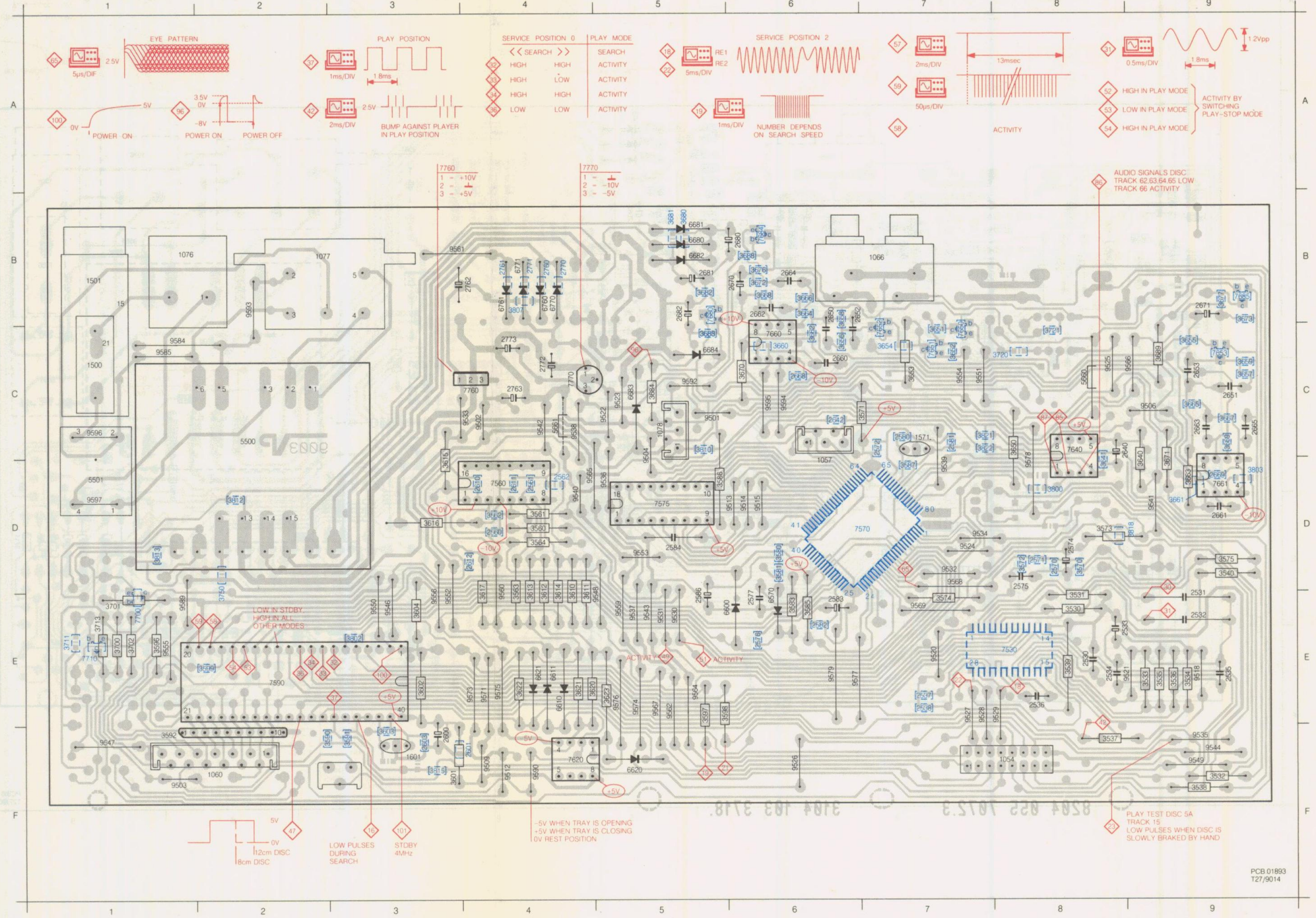
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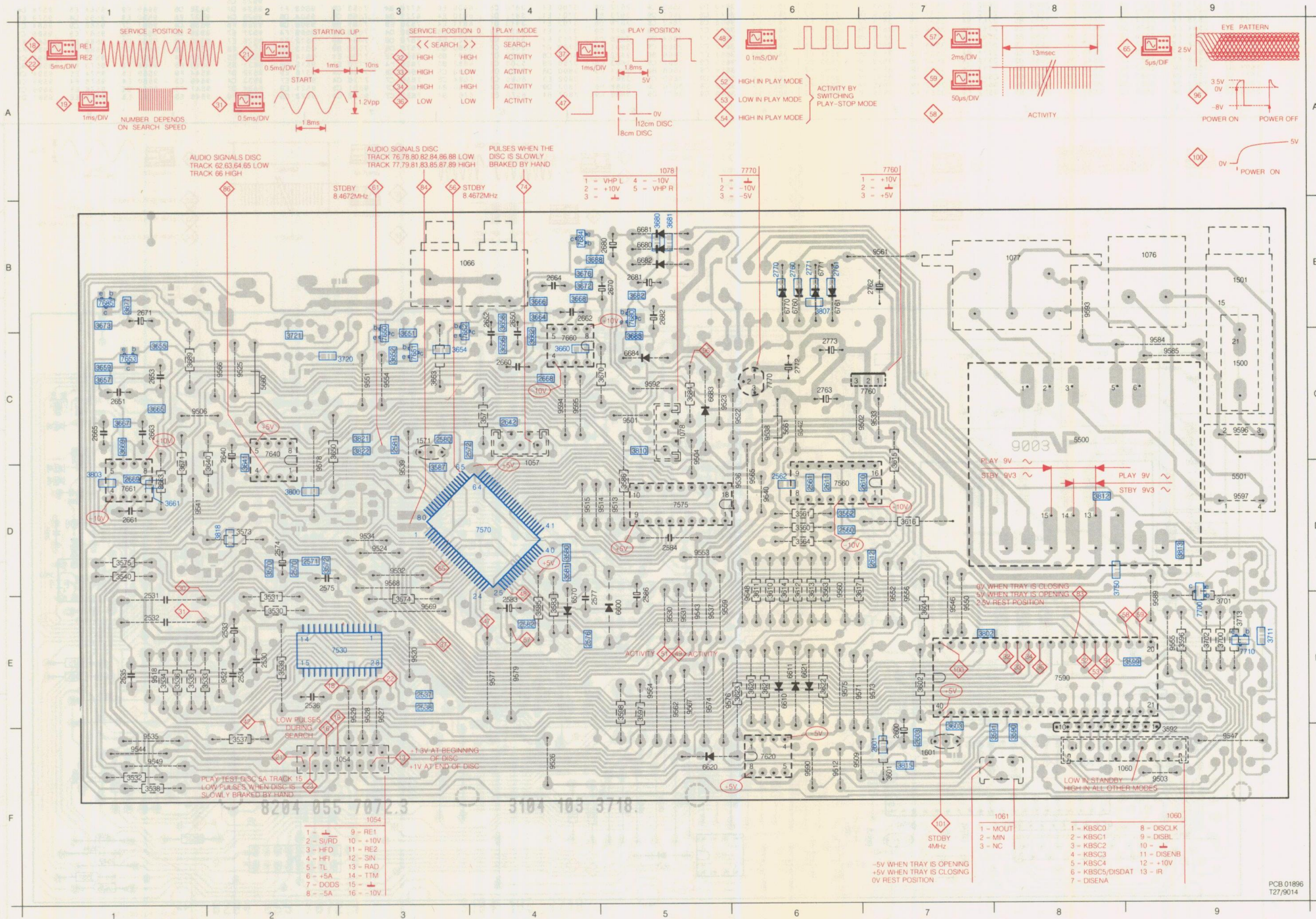
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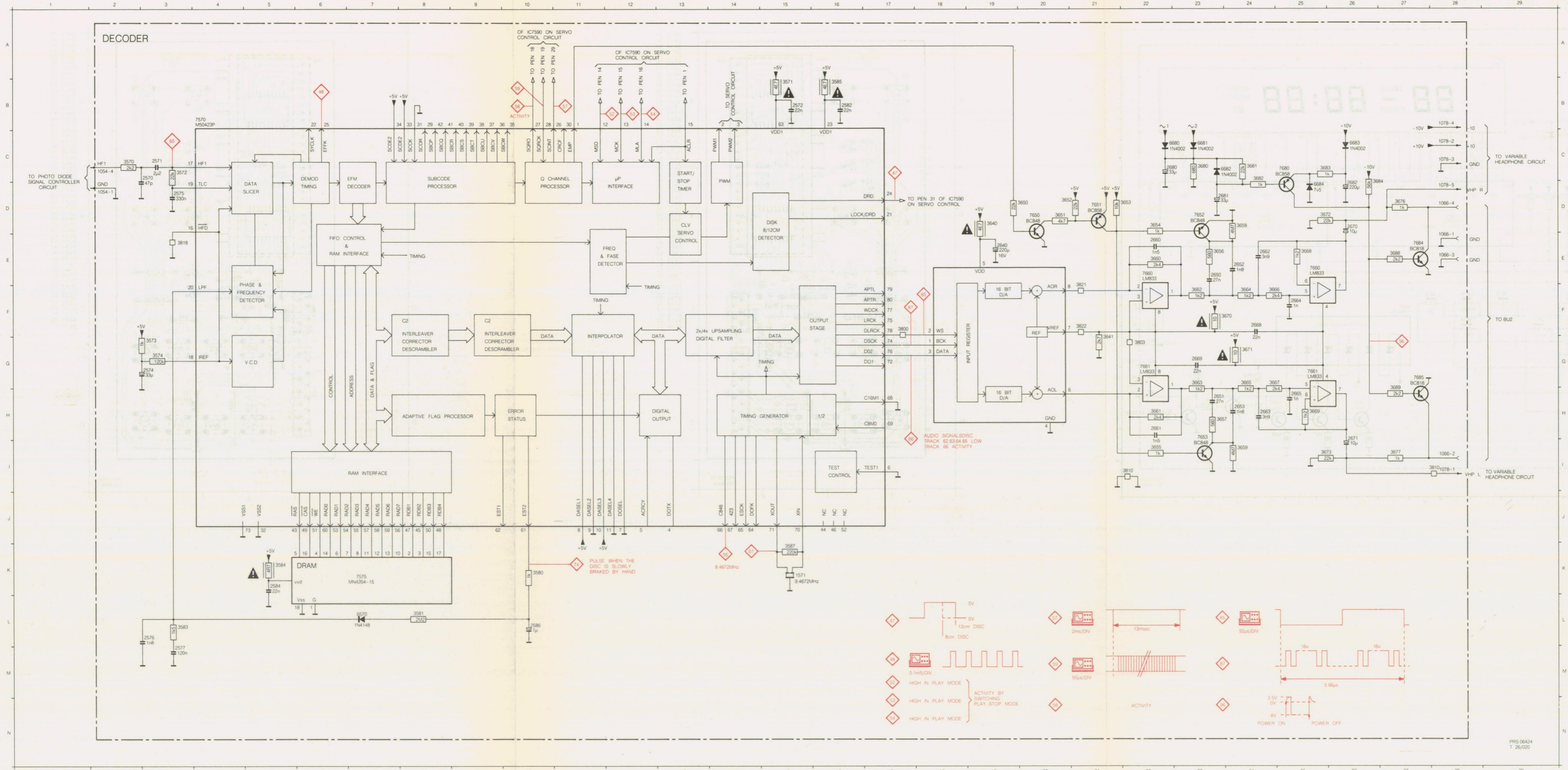
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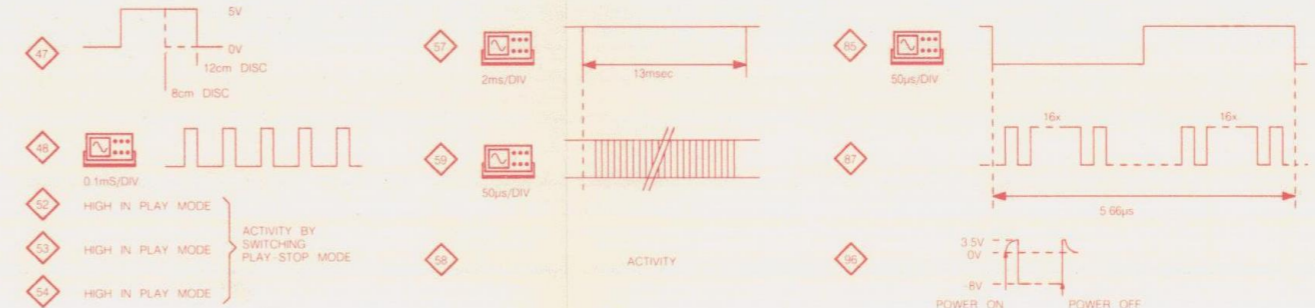




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2536	E2	3659	C1	9540	D6
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2571	D2	3666	B4	9548	E6
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2577	E4	3671	D1	9553	D5
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2583	E4	3677	B1	9559	E5
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2603	F7	3684	C5	9565	D6
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2653	C1	3720	C3	9576	E5
2660	C4	3721	C2	9577	E4
2661	D1	3750	E8	9578	D2
2662	B4	3800	D2	9579	E4
2663	C1	3802	E7	9584	C9
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3538	F1	6761	B6		
3539	E2	6770	B6		
3540	D1	6771	B6		
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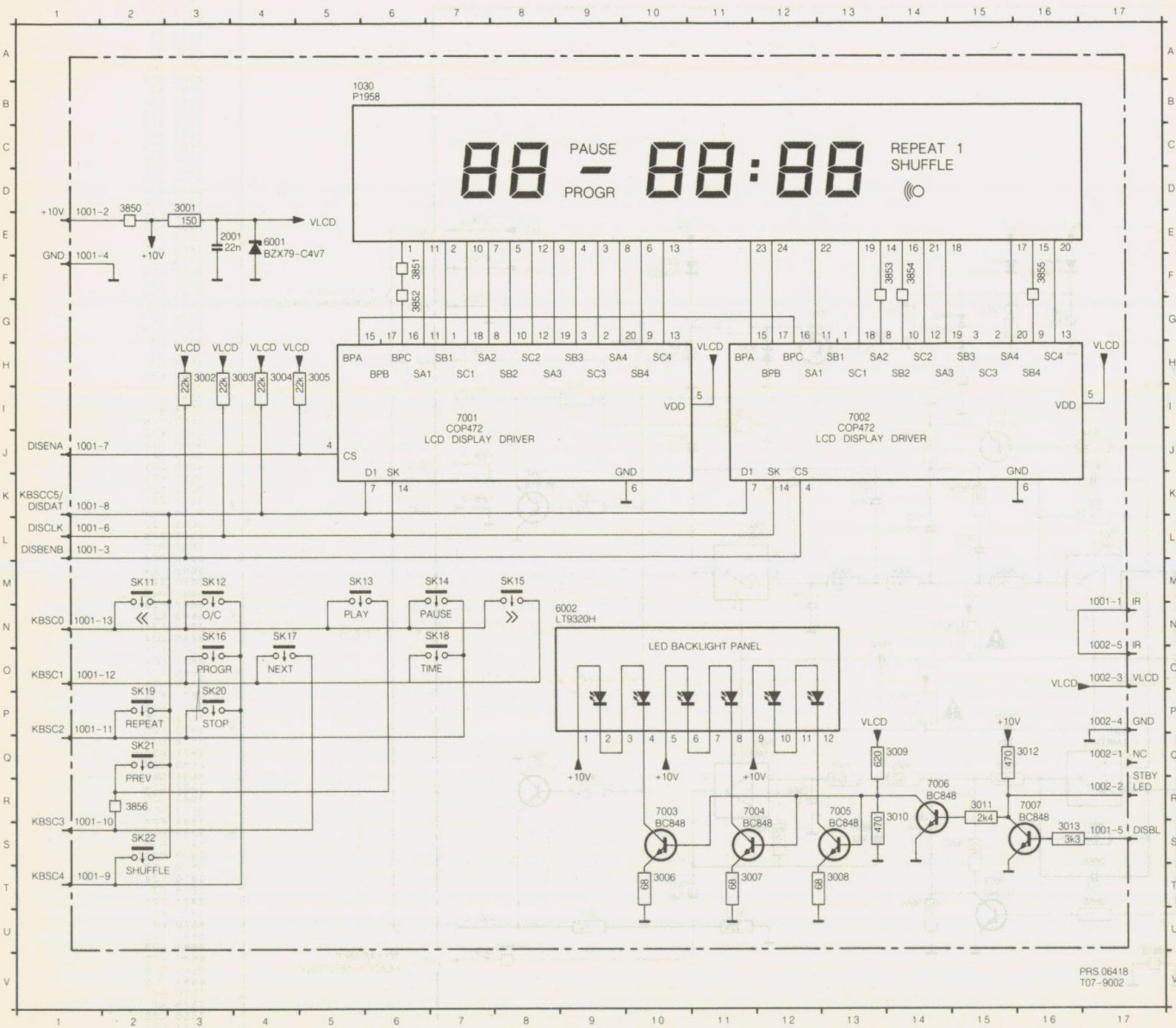


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- 3570 C25
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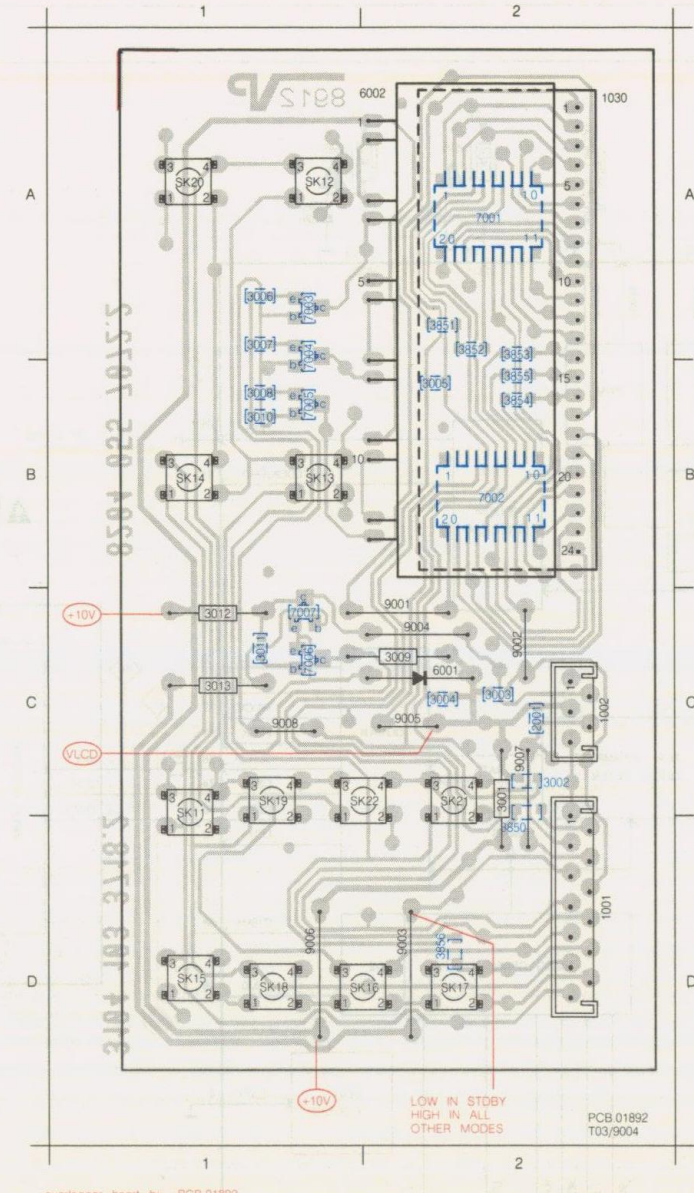


CONTROL AND DISPLAY

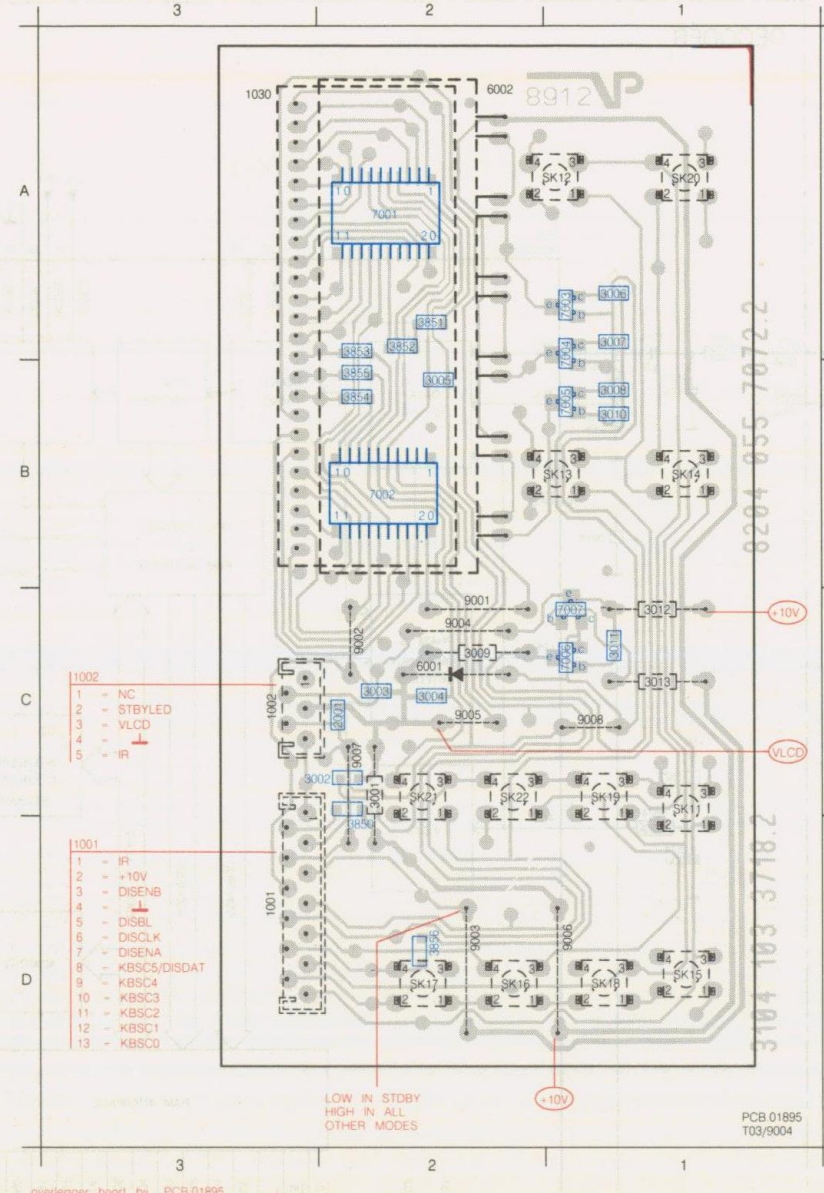
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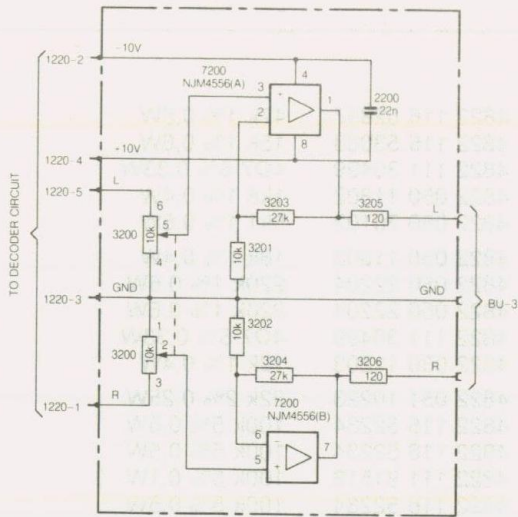


CONTROL AND DISPLAY PANEL COMPONENT SIDE

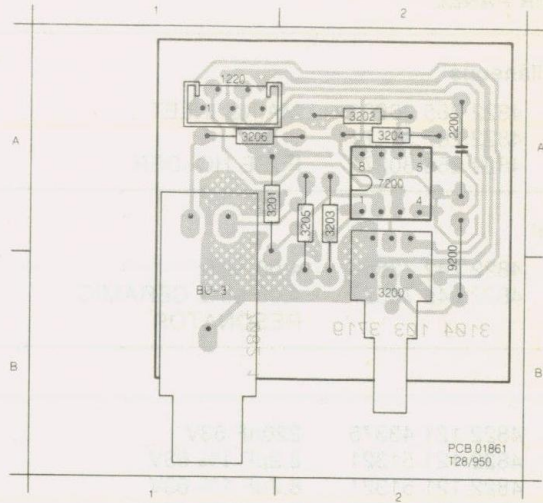


CONTROL AND DISPLAY PANEL SOLDER SIDE



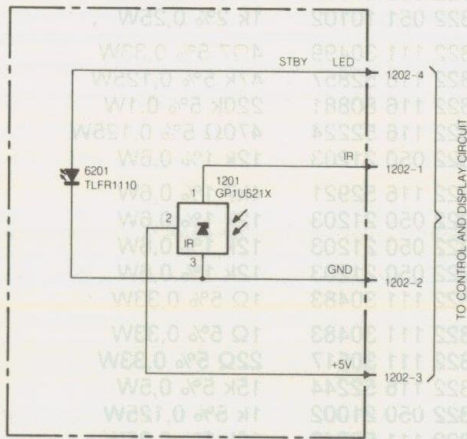


PRS 06372  
T-08 019

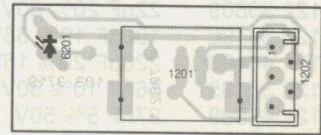


- 1220 A1
- 2200 A2
- 3200 B2
- 3201 A1
- 3202 A2
- 3203 A2
- 3204 A2
- 3205 A2
- 3206 A1
- 7200 A2
- 9200 B2
- BU-3 B1

I.R. REMOTE CONTROL



PRS 06373  
T02/949





PCB 01862  
T28/950



DECODER PANEL

Miscellaneous					
BU1	4822 265 20291	MAINS INLET			
BU2	4822 267 31171				
	4822 256 30274	FUSE HOLDER			
Crystal					
1571	4822 242 73557	4,00 MHz			
1601	4822 242 72527	4,00 MHz CERAMIC RESONATOR			
-					
2530	4822 121 43375	220nF 63V	3530	4822 116 52857	47k 1% 0,6W
2531	4822 121 51321	8,2µF 1% 63V	3531	4822 116 53083	15k 1% 0,6W
2532	4822 121 51321	8,2µF 1% 63V	3532	4822 111 30499	4Ω7 5% 0,33W
2533	4822 124 40272	33µF 20% 16V	3533	4822 050 11802	1k8 1% 0,4W
2534	5322 121 42604	47nF 5% 63V	3534	4822 050 25102	5k1 1% 0,6W
2535	5322 121 42661	330nF 5% 63V	3535	4822 050 11803	18k 1% 0,4W
2536	4822 121 43375	220nF 10% 63V	3536	4822 050 22204	220k 1% 0,6W
2537	4822 122 33342	33nF 10% 63V	3537	4822 050 22204	220k 1% 0,6W
2538	4822 122 33342	33nF 10% 63V	3538	4822 111 30499	4Ω7 5% 0,33W
2560	5322 122 31866	6,8nF 10% 63V	3539	4822 050 11203	12k 1% 0,4W
2561	5322 122 31866	6,8nF 10% 63V	3540	4822 051 10223	22k 2% 0,25W
2562	4822 122 33496	100nF 10% 63V	3560	4822 116 52234	100k 5% 0,5W
2570	5322 122 32452	47pF 5% 50V	3561	4822 116 52234	100k 5% 0,5W
2571	4822 122 33175	2,2nF 20% 50V	3562	4822 111 91518	100k 5% 0,1W
2572	4822 122 33809	22nF 20% 50V	3563	4822 116 52234	100k 5% 0,5W
2574	4822 124 40272	33µF 20% 16V	3564	4822 111 30517	22Ω 5% 0,33W
2575	5322 121 42661	330nF 5% 63V	3570	4822 111 91522	2k2 5% 0,1W
2576	4822 122 33219	470pF 5% 50V	3571	4822 111 30499	4Ω7 5% 0,33W
2577	4822 121 43396	120nF 10% 63V	3572	4822 111 91523	22k 5% 0,1W
2582	4822 122 33809	22nF 20% 50V	3573	4822 050 21002	1k 5% 0,125W
2584	4822 122 10166	22nF 30% 16V	3574	4822 050 11204	120k 2% 0,6W
2586	4822 124 40242	1µF 20% 63V	3575	4822 116 52921	4k7 1% 0,6W
2601	4822 122 33809	22nF 20% 50V	3580	4822 051 10102	1k 2% 0,25W
2602	4822 124 40435	10µF 20% 50V	3581	4822 051 20475	4M7 5% 0,1W
2610	4822 122 33809	22nF 20% 50V	3583	4822 050 21502	1k5 1% 0,6W
2611	4822 122 33809	22nF 20% 50V	3585	4822 111 30499	4Ω7 5% 0,33W
2612	4822 122 33496	100nF 10% 63V	3586	4822 111 30499	4Ω7 5% 0,33W
2640	4822 124 40196	220µF 20% 16V	3587	4822 116 80881	220k 5% 0,1W
2642	4822 122 33485	56nF 10% 50V	3590	4822 111 91523	22k 5% 0,1W
2650	4822 121 42888	27nF 5% 50V	3591	4822 111 91523	22k 5% 0,1W
2651	4822 121 42888	27nF 5% 50V	3592	5322 111 91484	10k 2% 0,2W NETWORK
2652	4822 121 51311	1,8nF 5% 50V	3596	4822 051 10223	22k 2% 0,25W
2653	4822 121 51311	1,8nF 5% 50V	3597	4822 050 21002	1k 5% 0,125W
2660	4822 121 43651	1,5nF 5% 50V	3598	4822 050 21002	1k 5% 0,125W
2661	4822 121 43651	1,5nF 5% 50V	3599	4822 051 10102	1k 2% 0,25W
2662	4822 121 51313	3,9µF 5% 50V	3601	4822 111 30499	4Ω7 5% 0,33W
2663	4822 121 51313	3,9µF 5% 50V	3602	4822 116 52857	47k 5% 0,125W
2664	4822 121 51324	1nF 5% 50V	3603	4822 116 80881	220k 5% 0,1W
2665	4822 121 51324	1nF 5% 50V	3604	4822 116 52224	470Ω 5% 0,125W
2668	4822 122 33809	22nF 20% 50V	3610	4822 050 21203	12k 1% 0,6W
2669	4822 122 33809	22nF 20% 50V	3611	4822 116 52921	4k7 1% 0,6W
2670	4822 124 41579	10µF 20% 50V	3612	4822 050 21203	12k 1% 0,6W
2671	4822 124 41579	10µF 20% 50V	3613	4822 050 21203	12k 1% 0,6W
2680	4822 124 40272	33µF 20% 16V	3614	4822 050 21203	12k 1% 0,6W
2681	4822 124 40272	33µF 20% 16V	3615	4822 111 30483	1Ω 5% 0,33W
2682	4822 124 40196	220µF 20% 16V	3616	4822 111 30483	1Ω 5% 0,33W
2760	4822 122 33809	22nF 20% 50V	3617	4822 111 30517	22Ω 5% 0,33W
2761	4822 122 33809	22nF 20% 50V	3620	4822 116 52244	15k 5% 0,5W
2762	4822 124 23268	3300µF 20% 16V	3621	4822 050 21002	1k 5% 0,125W
2763	4822 124 40272	33µF 20% 16V	3622	4822 111 90249	10k 2% 0,25W
2770	4822 122 33809	22nF 20% 50V	3623	4822 050 21002	1k 5% 0,125W
2771	4822 122 33809	22nF 20% 50V	3640	4822 111 30499	4Ω7 5% 0,33W
2772	4822 124 41853	1000µF 16V	3641	4822 051 20242	2k4 5% 0,1W
2773	4822 124 40272	33µF 20% 16V	3650	4822 051 10223	22k 2% 0,25W
			3651	4822 111 91532	4k7 5% 0,06W
			3652	4822 111 91523	22k 5% 0,1W
			3653	4822 111 90249	10k 2% 0,25W
			3654	4822 051 10102	1k 2% 0,25W
			3655	4822 051 10102	1k 2% 0,25W
			3656	4822 051 10561	560Ω 2% 0,25W
			3657	4822 051 10561	560Ω 2% 0,25W
			3658	4822 051 20475	4M7 5% 0,1W
			3659	4822 051 20475	4M7 5% 0,1W
			3660	4822 051 20272	2k7 2% 0,1W
			3661	4822 051 20272	2k7 2% 0,1W

3662	4822 051 10122	1k2 2% 0,25W	6570	4822 130 30621	1N4148
3663	4822 051 10122	1k2 2% 0,25W	6600	5322 130 30684	1N4002
3664	4822 051 10122	1k2 2% 0,25W	6610	5322 130 30684	1N4002
3665	4822 051 10122	1k2 2% 0,25W	6611	5322 130 30684	1N4002
3666	4822 051 20242	2k4 5% 0,1W	6620	4822 130 30621	1N4148
3667	4822 051 20242	2k4 5% 0,1W	6621	4822 130 34174	BZX55-C4V7
3668	4822 051 10122	1k2 2% 0,25W	6680	5322 130 30684	1N4002
3669	4822 051 10122	1k2 2% 0,25W	6681	5322 130 30684	1N4002
3670	4822 111 30508	10Ω 5% 0,33W	6682	5322 130 30684	1N4002
3671	4822 111 30508	10Ω 5% 0,33W	6683	5322 130 30684	1N4002
3672	4822 111 91523	22k 5% 0,1W	6684	4822 130 30861	BZX55-C7V5
3673	4822 111 91523	22k 5% 0,1W	6760	5322 130 30684	1N4002
3676	4822 051 10102	1k 2% 0,25W	6761	5322 130 30684	1N4002
3677	4822 051 10102	1k 2% 0,25W	6770	5322 130 30684	1N4002
3680	4822 051 10102	1k 5% 0,1W	6771	5322 130 30684	1N4002
3681	4822 111 91523	22k 5% 0,1W	7530	4822 209 73235	TDA8809T/C2
3682	4822 051 10102	1k 2% 0,25W	7560	4822 209 72587	TCA0372DP2
3683	4822 051 10102	1k 2% 0,25W	7570	4822 209 62112	M50423FP
3684	4822 050 25603	56k 1% 0,6W	7575	4822 209 70422	MN4264-15
3688	4822 111 91522	2k2 5% 0,1W	7590	4822 209 62208	MC68HC05C8P/9411
3689	4822 116 53025	2k2 1% 0,6W	7620	4822 209 80797	LM393N
3700	4822 116 52857	47k 5% 0,125W	7640	4822 209 73236	TDA1543/N2
3701	4822 116 53084	18k 5% 0,125W	7650	4822 130 61207	BC848
3702	4822 116 53084	18k 5% 0,125W	7651	5322 130 42012	BC858
3710	4822 111 90249	10k 5% 0,125W	7652	4822 130 61207	BC848
3711	4822 111 91517	10k 5% 0,1W	7653	4822 130 61207	BC848
3720	4822 051 10151	150Ω 2% 0,25W	7660	4822 209 83163	LM833N
3721	4822 051 10151	150Ω 2% 0,25W	7661	4822 209 83163	LM833N
3800	4822 111 90163	jumper	7680	5322 130 42012	BC858
3802	4822 111 90163	jumper	7684	4822 130 61207	BC848
3803	4822 111 90163	jumper	7685	4822 130 61207	BC848
3807	4822 111 90163	jumper	7700	4822 130 61207	BC848
3808	4822 111 90163	jumper	7710	5322 130 42012	BC858
3810	4822 111 90163	jumper	7720	4822 209 83274	NJM4560D
3811	4822 111 90163	jumper	7760	4822 209 71579	TY40408
3814	4822 111 90163	jumper	7770	4822 209 73233	MC79L05ACP
3815	4822 111 90163	jumper			
3818	4822 111 90163	jumper			
					
5660	4822 157 60363	ANTI INTERFERENCE COIL			

Miscellaneous					
SK3	4822 276 12523		3507	4822 111 91517	10k 5% 0,1W
			3510	4822 051 20113	11k 5% 0,1W
			3511	4822 050 11204	120k 1% 0,4W
			3512	4822 051 20154	150k 5% 0,1W
			3513	4822 116 52866	82k 1% 0,6W
			3514	4822 051 20164	160k 5% 0,1W
			3515	4822 100 11193	22k 20%LIN 0,05W Trimpot
			3516	4822 050 24704	470k 1% 0,6W
			3517	4822 051 20563	56k 5% 0,1W
			3518	4822 111 30519	27Ω 5% 0,33W
			3519	4822 111 30517	22Ω 5% 0,33W
			3541	4822 050 16802	6k8 1% 0,4W
			3542	4822 116 52441	6k8 5% 0,5W
			3543	4822 111 30483	1Ω 5% 0,33W
			3544	4822 111 30483	1Ω 5% 0,33W
			3545	4822 116 90471	33Ω 5% 0,1W
			3546	4822 111 30499	4Ω7 5% 0,33W
			3550	4822 111 30515	18Ω 5% 0,33W
			3551	4822 111 30511	12Ω 5% 0,33W
			3552	4822 116 90441	100Ω 5% 0,1W
			3553	4822 116 53025	2k2 1% 0,6W
			3554	4822 111 90178	220Ω 2% 0,25W
			3555	4822 101 10685	4k7 20%LIN 0,05W Trimpot
			3806	4822 111 90163	jumper
			3816	4822 111 90163	jumper
			3817	4822 111 90163	jumper
			3820	4822 111 90163	jumper
			3500	4822 116 52921	4k7 1% 0,6W
			3501	4822 111 91518	100k 5% 0,1W
			3502	4822 051 20123	12k 5% 0,1W
			3503	4822 116 90441	100Ω 5% 0,1W
			3504	4822 051 10102	1k 2% 0,25W
			3505	4822 051 20243	24k 5% 0,1W
			3506	4822 111 91534	5k6 5% 0,06W
			6540	4822 130 34173	BZX55-F5V6
			6541	4822 130 34173	BZX55-F5V6
			6550	4822 130 30621	1N4148
			7500	4822 209 73234	TDA8808T/C3
			7510	4822 209 72587	TCA0372DP2
			7550	4822 130 44121	BC338

Miscellaneous		
SK..	4822 276 12276	
	4822 256 91613	LCD HOLDER
1030	4822 130 90819	LPH-1958-1
2001	4822 122 33809	22nF 20% 50V
3001	4822 050 21501	150Ω 1% 0,6W
3002	4822 111 91523	22k 5% 0,1W
3003	4822 111 91523	22k 5% 0,1W
3004	4822 111 91523	22k 5% 0,1W
3005	4822 111 91523	22k 5% 0,1W
3006	4822 116 80887	68Ω 5% 0,1W
3007	4822 116 80887	68Ω 5% 0,1W
3008	4822 116 80887	68Ω 5% 0,1W
3009	4822 050 26201	620Ω 1% 0,6W
3010	4822 116 90446	470Ω 5% 0,1W
3011	4822 051 20242	2k4 5% 0,1W
3012	4822 116 52224	470Ω 5% 0,5W
3013	4822 050 23302	3k3 1% 0,6W
3850	4822 111 90163	jumper
3851	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
6001	4822 017 24780	BZX79-C4V7
6002	4822 130 81011	LT9320Hz
7001	4822 209 62209	COP472WM-3
7002	4822 209 62209	COP472WM-3
7003	4822 130 61207	BC848
7004	4822 130 61207	BC848
7005	4822 130 61207	BC848
7006	4822 130 61207	BC848
7007	4822 130 61207	BC848

Miscellaneous		
BU3	4822 267 30522	
3200	4822 102 10398	10k LOG CARBPOT
2200	4822 122 10166	22nF 30% 16V
3201	4822 111 90249	10k 2% 0,25W
3202	4822 111 90249	10k 2% 0,25W
3203	4822 116 52264	27k 5% 0,5W
3204	4822 116 52264	27k 5% 0,5W
3205	4822 050 21201	120Ω 1% 0,6W
3206	4822 050 21201	120Ω 1% 0,6W
7200	4822 209 82362	NJM4556D

I.R. REMOTE CONTROL PANEL

6201	4822 130 33528	TLFR1110
7201	4822 214 51772	GP1U521X

MISCELLANEOUS

1501	4822 070 31001	FUSE 100mAT
5500	4822 146 30891	MAINSTRANSFORMER

Modifications with A90-109

Page	Reason
Frontpage	CD130 added
3-1a	Correction
3-5a	Partslist updated
6-1a	Partslist updated
6-2a	Partslist updated
6-3a	Partslist updated
6-4a	Partslist updated
7-1	Modifications added

Modifications with A90-115

Page	Reason
Frontpage	/10B added
3-5b	Partslist updated
3-6a	Correction
5-2a	Correction
5-3a	Correction
5-4a	Correction
5-5a	Correction
5-6a	Correction
5-7a	Correction
5-8a	Correction
5-9a	Correction
5-10a	Correction
6-2b	Partslist updated
6-4b	Partslist updated
7-1a	Modifications added

# Service Information

1990-05-23

CD110

A90-115

Product Service Group CE A

(GB)

To adapt the service manual the following sheets have been added/changed  
Page:

(NL)

Voor het aanpassen van de service manual zijn de onderstaande pagina's toegevoegd/gewijzigd.  
Pagina:

(F)

Afin de pouvoir adapter le "manual service" les feuillets suivants ont été soit modifiés, soit ajoutés.  
Pages:

(D)

Zür anpassung des Service Manual sind die nachstehenden Seiten hinzugefügt/geändert.  
Seite:

(I)

Le seguenti pagine sono state cambiate/aggiunte allo scopo di adattare il Manuale di Servizio.  
Pagine:

Frontpage

3-5b

3-6a

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5-4a

5-5a

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5-8a

5-9a

5-10a

6-2b

6-4b

7-1a

Service  
Service  
Service

4822 725 22801

CS

# Service Information

1990-03-21

CD110-CD140

A90-109

Product Service Group CE Audio

(GB)

To adapt the service manual the following sheets have been added/changed  
Page:

(NL)

Voor het aanpassen van de service manual zijn de onderstaande pagina's toegevoegd/gewijzigd.  
Pagina:

(F)

Afin de pouvoir adapter le "manual service" les feuillets suivants ont été soit modifiés, soit ajoutés.  
Pages:

(D)

Zür anpassung des Service Manual sind die nachstehenden Seiten hinzugefügt/geändert.  
Seite:

(I)

Le seguenti pagine sono state cambiate/aggiunte allo scopo di adattare il Manuale di Servizio.  
Pagine:

Frontpage

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3-5a

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Service  
Service  
Service

4822 725 22717

CS 28 192