CD Stereo Radio Recorder AZ8304

00/05

Service
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Service Manual

For repair information of the cassette mechanism
see Service Manual of Recorders tape deck RDR-6

COMPACT disc DIGITAL AUDIO

CONTENTS:

(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 190 03420

DocumentationTechnique Service Dokumentation Documentazione di Servizio Huolte-Ohje Manual de Servicio Manual de Servicio

PHILIPS

"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 22988

Printed in The Netherlands

PHILIPS

Service Information

1993 - 04 - 19

AZ8300, AZ8301 and AZ8304 families

A93 - 188

Product Service Group CE Audio

To **prevent lens knocking against dust cover during "power on"** do the following on the CD board.
change 2829 from 220µF to 4.7µF 4822 124 23175

To **improve playability (test disc 7A/track 8)** do the following on the CD board.
change 2807 from 15pF to 33pF 4822 122 33069
3806 from 12kΩ to 4.7kΩ 4822 116 52283

To **adapt to small leaded component** do the following on the CD board.
change 3841/3842 from 1kΩ to 680Ω 4822 116 52228
3843/3844 from 470Ω to 330Ω 4822 116 52219
2843/2844 from 3.3nF to 4.7nF 4822 126 11714
2847/2848 from 33nF to 47nF 4822 126 12785

Further to earlier Service information **A92-179** (4822 725 24421) on the problem of **CD not able to play unless extra push down pressure is applied to the CD lid**, the additional self adhesive felt ring to be added onto the brass disc is 4822 529 10258 instead of 4822 532 52514.

Due to **logistic problem** the RCD-1D mechanism will be available for limited stocks after which all defective RCD-1D mechanisms (see figure 1) must be replaced with RCD-1.2D mechanism.

CD mechanism:	**Service code:**
RCD-1D	4822 691 20596
RCD-1.2D	4822 691 20768

For this reason the following are the **minimum necessary changes** required to adapt the electronics for use with RCD-1.2D mechanism:

Item	**From**	**To**	**Remarks**
2814	10µF	4.7µF	Focus search
2829	220µF	4.7µF	Vref buffer
3804	15k	8.2k	HF amplifier
3805	15k	8.2k	
3871	6.8k	18k	Sledge section
3872	100k	47k	

After adaptations, electrical adjustments must be done according to the enclosed new adjustment table.

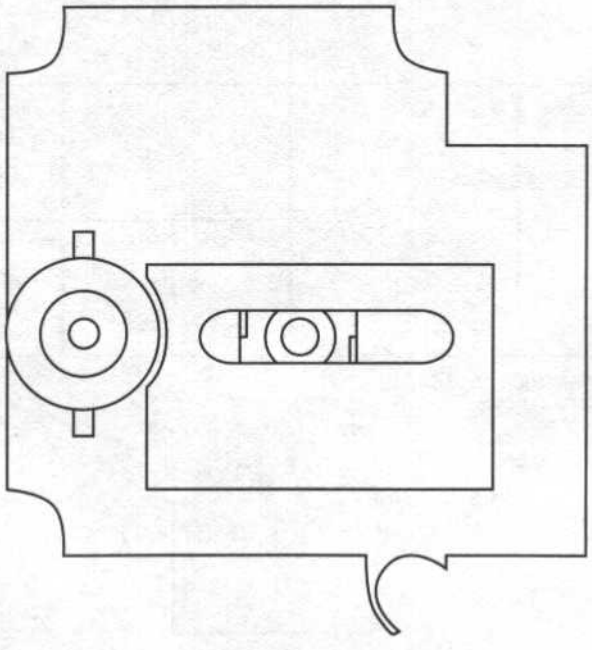


FIGURE 1. OLD RCD-ID MECHANISM

Service
Service
Service

ADJUSTMENT TABLE (valid for modified electronic acc. to service solution "Replacement RCD1→RCD1.2")

CD-PART					
LASER CURRENT					
The APC (Automatic Power Control) for the laser diode is located on the disc drive and has been adjusted in the production line. Therefore for service purpose it is not intended to adjust the laser current.					
TRACKING OFFSET					
STOP		◇6 ◇10	3840		Adjust to 0V DC ±10 mV
TRACKING BALANCE					
Service pos. 1 * Display shows "-"		◇8 ◇2	3803	Adjust to 0V DC offset	
TRACKING GAIN					
Play with Test-Disc 5 Connect pin 3 of M51564 to V_{ref} ◇2	1100 Hz 180 mVrms	see Fig. 1	3816		CHX = 100 mV/DIV CHY = 100 mV/DIV Adjust according to FIG.3
FOCUS GAIN					
Play with Test-Disc 5	960 Hz 300 mVrms	see Fig. 2	3813		CHX = 200 mV/DIV CHY = 200 mV/DIV Adjust according to FIG.3
FOCUS OFFSET					
Play with Test-Disc 5		◇9 ◇2	3821		Max. HF
		◇7 ◇2	Check only	DC voltage measured = Ux	
			3821	Adjust to $\frac{Ux}{2}$	

* How to enter service pos.1 see service test program
Test disc 5 4822 397 30096

FIG. 1

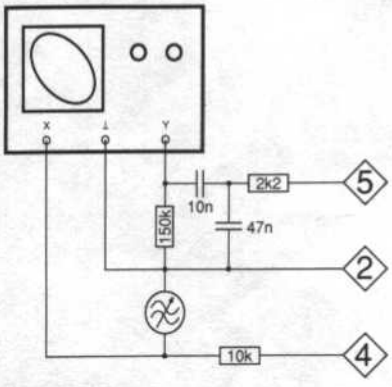


FIG. 2

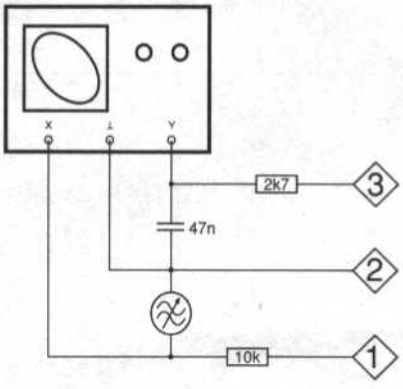
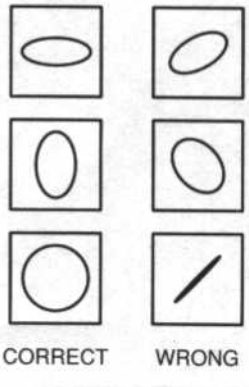


FIG. 3



SERVICE TEST PROGRAMME

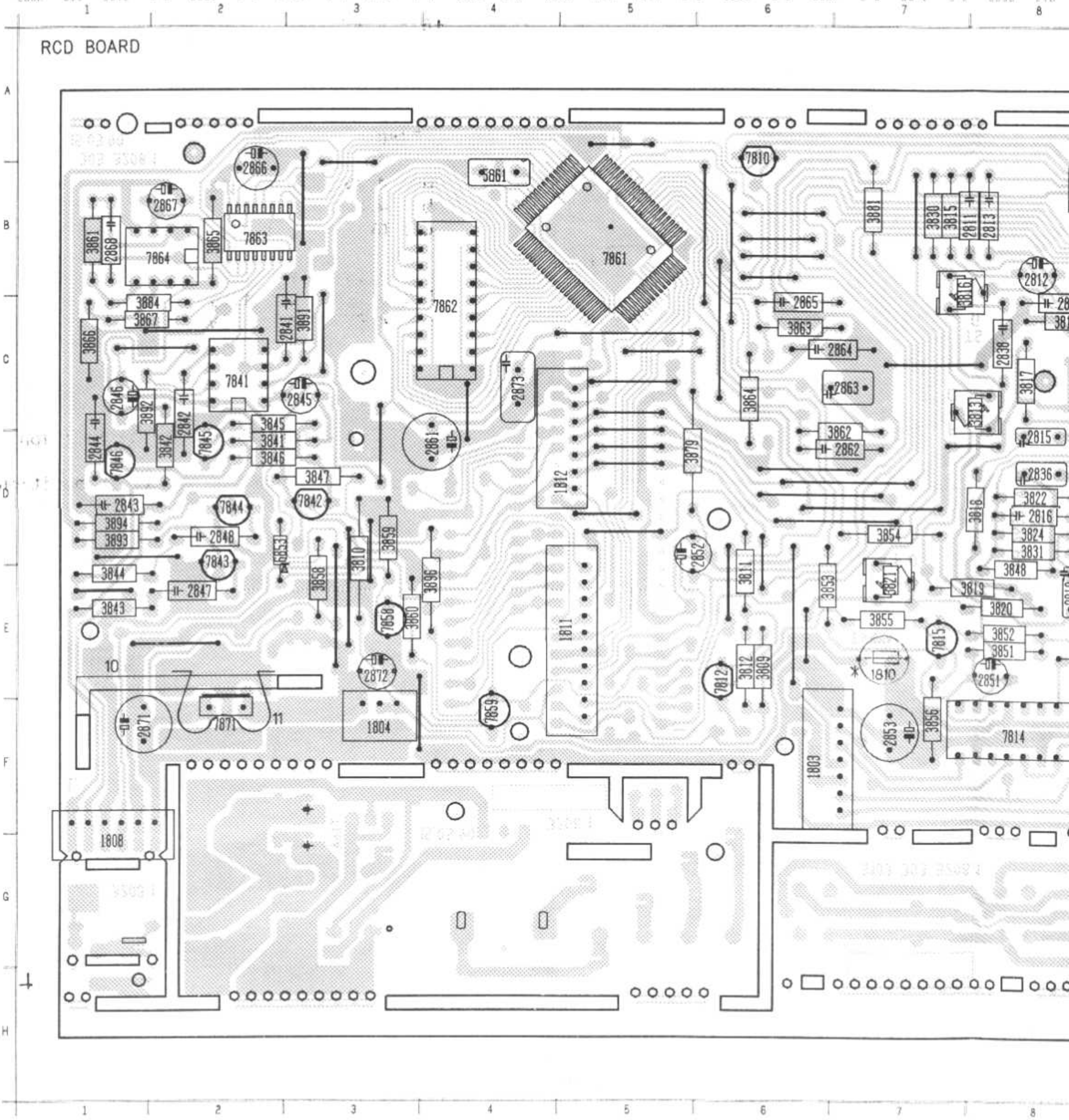
Following can be tested with **testprogramme 1**:

* Display CD
* Sledge motor
* Focus servo
* Track servo

Operating sequence	**Display shows**	**Remarks**	**In case of problems check**
Insert any disc in CD–compartment and shut CD–door. To start testprogramme 1 set mode switch to "radio" or "tape" first. Hold switches "display" and "clear" depressed while setting mode switch to "CD" → now **step 1** of the test programme is reached.		During step 1 – 3 "mute" is active.	connection Display
Press "play" to get to **step 2** Press "next" Press "previous"	  	Sledge will be moved outside as long as "next" will be hold depressed (display shows fig.2b) and moved inside as long as "previous" will be hold depressed (display shows fig.2c).	Sledge motor and driver circuit for sledge motor
Press "play" to get to **step 3**	 	Laser is now switched on and objective will be focussed (while focussing display shows fig.3a). As soon as focus is o.k. display shows fig.3b and disc motor is switched on. Sledge servo and tracking servo are switched off → "tracking offset" can be adjusted.	Focus servo circuit
Press "play" to get to **step 4** Press "next" Press "previous"		Track servo loop is active → **normal "play" mode.** "Mute" will be switched off after pressing "next" or "previous". By pressing "next" or "previous" track servo will jump in steps of either 16 tracks forward or backward.	
Press "stop" to get back in normal CD-mode		By pressing "stop" Service Testprogramme can be interrupted during each step.	

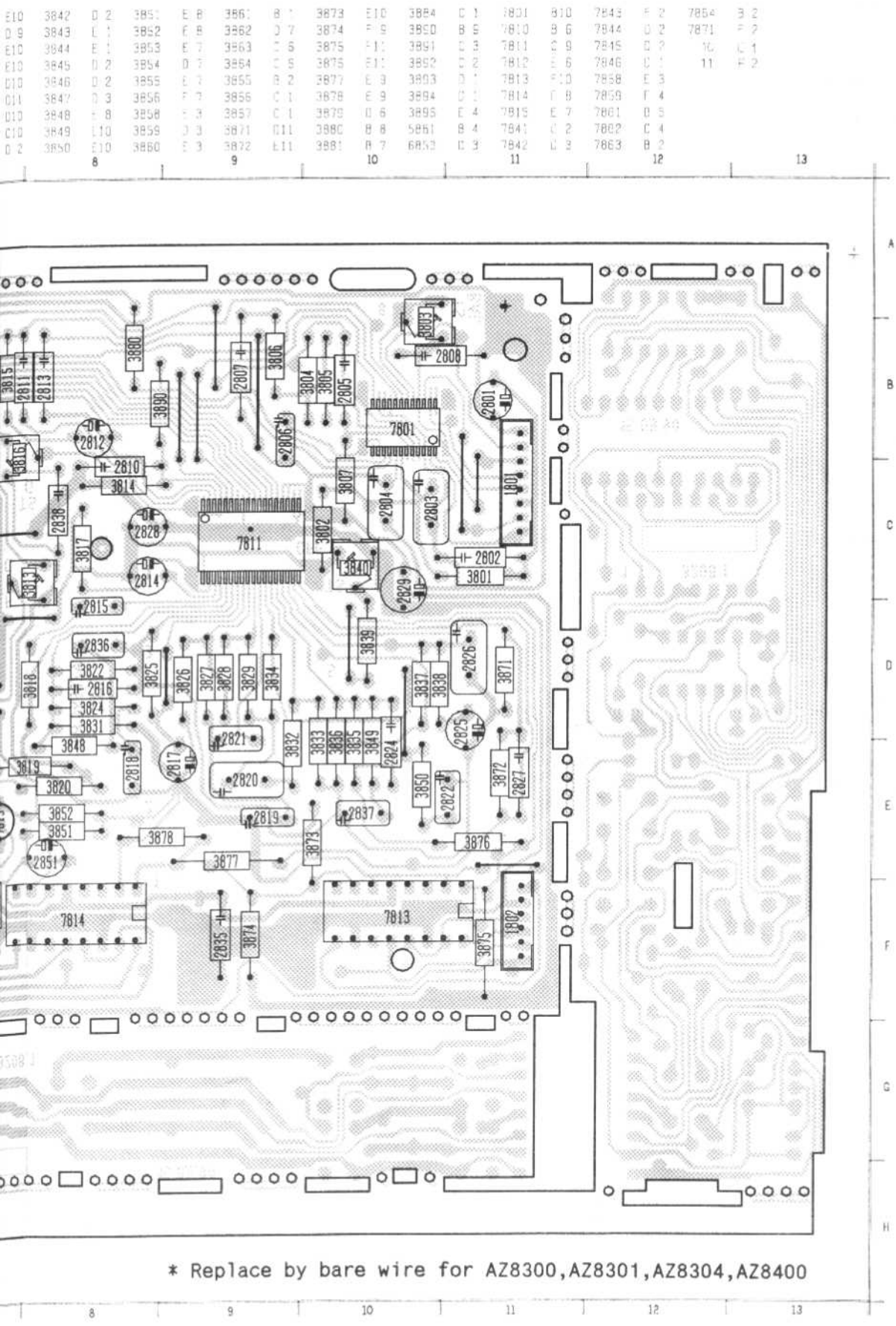
1801	C11	2803	C10	2813	B 8	2822	E11	2837	E10	2848	D 2	2866	B 2	3804	B10	3814	C 8	3824	C 8	3833	E10	3842	C 2
1802	F11	2804	C10	2814	C 8	2824	F10	2838	C 8	2851	E 8	2867	B 2	3805	B10	3815	B 7	3825	C 8	3834	D 9	3843	E 1
1803	F 5	2805	B10	2815	D 8	2825	D11	2841	C 3	2852	D 5	2868	B 1	3806	B 9	3816	B 8	3826	C 9	3835	E10	3844	F 1
1804	F 3	2806	B 9	2816	D 8	2826	D11	2842	C 2	2853	F 7	2871	F 1	3807	C10	3817	C 8	3827	D 9	3836	E10	3845	D 2
1808	G 1	2807	A 9	2817	E 9	2827	E11	2843	D 1	2861	C 4	2872	E 3	3809	E 6	3818	D 8	3828	D 9	3837	D10	3846	D 2
1811	E 5	2808	B11	2818	F 9	2828	C 8	2844	D 1	2862	D 7	2873	C 4	3810	D 3	3819	E 8	3829	D 9	3838	D11	3847	D 3
1812	D 5	2810	C 8	2819	E 9	2829	C10	2845	C 3	2863	C 7	3801	C11	3811	E 6	3820	E 8	3830	B 7	3839	D10	3848	E 8
2801	B11	2811	A 8	2820	E 9	2835	F 9	2846	C 1	2864	C 7	3802	C10	3812	E 6	3821	E 7	3831	D 8	3840	C10	3849	E10
2802	C11	2812	B 8	2821	E 9	2836	D 8	2847	F 2	2865	C 6	3803	B10	3813	C 8	3822	D 8	3832	C 9	3841	D 2	3850	E10

RCD BOARD



ASSEMBLY DRAWING FOR AZ8700 FROM COMPONENT SIDE
BESTUECKUNGSPLAN FUER AZ8700 VON BAUTEILSEITE

DERIVED FROM PART PC.AZ8594.P8.D1
ERZEUGT VOM PART PC.AZ8594.P8.D1



* Replace by bare wire for AZ8300,AZ8301,AZ8304,AZ8400

....V measured in CD play position

7841

1	:	2.5V
2	:	2.5V
3	:	2.5V
4	:	0V
5	:	2.5V
6	:	2.5V
7	:	2.5V
8	:	5V

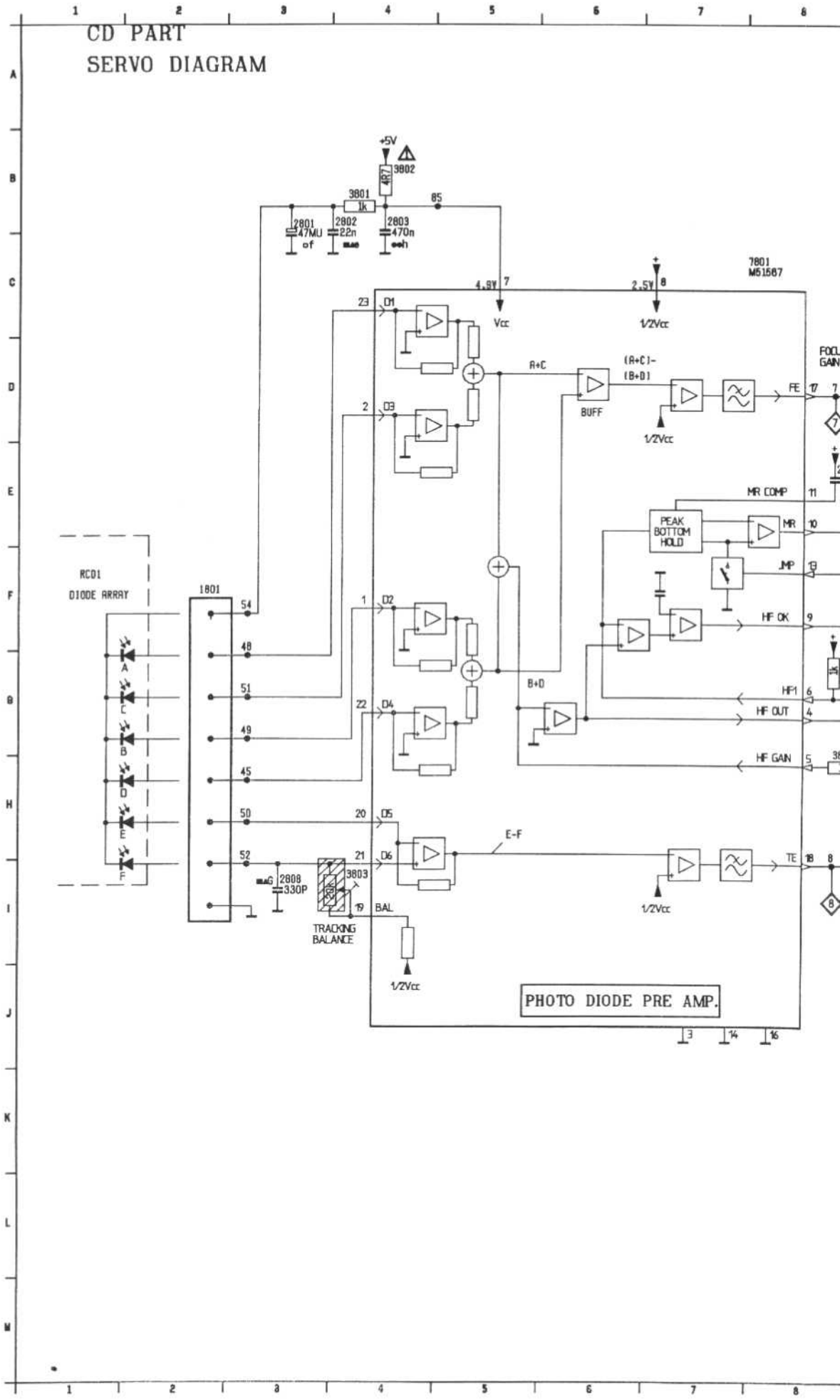
7864

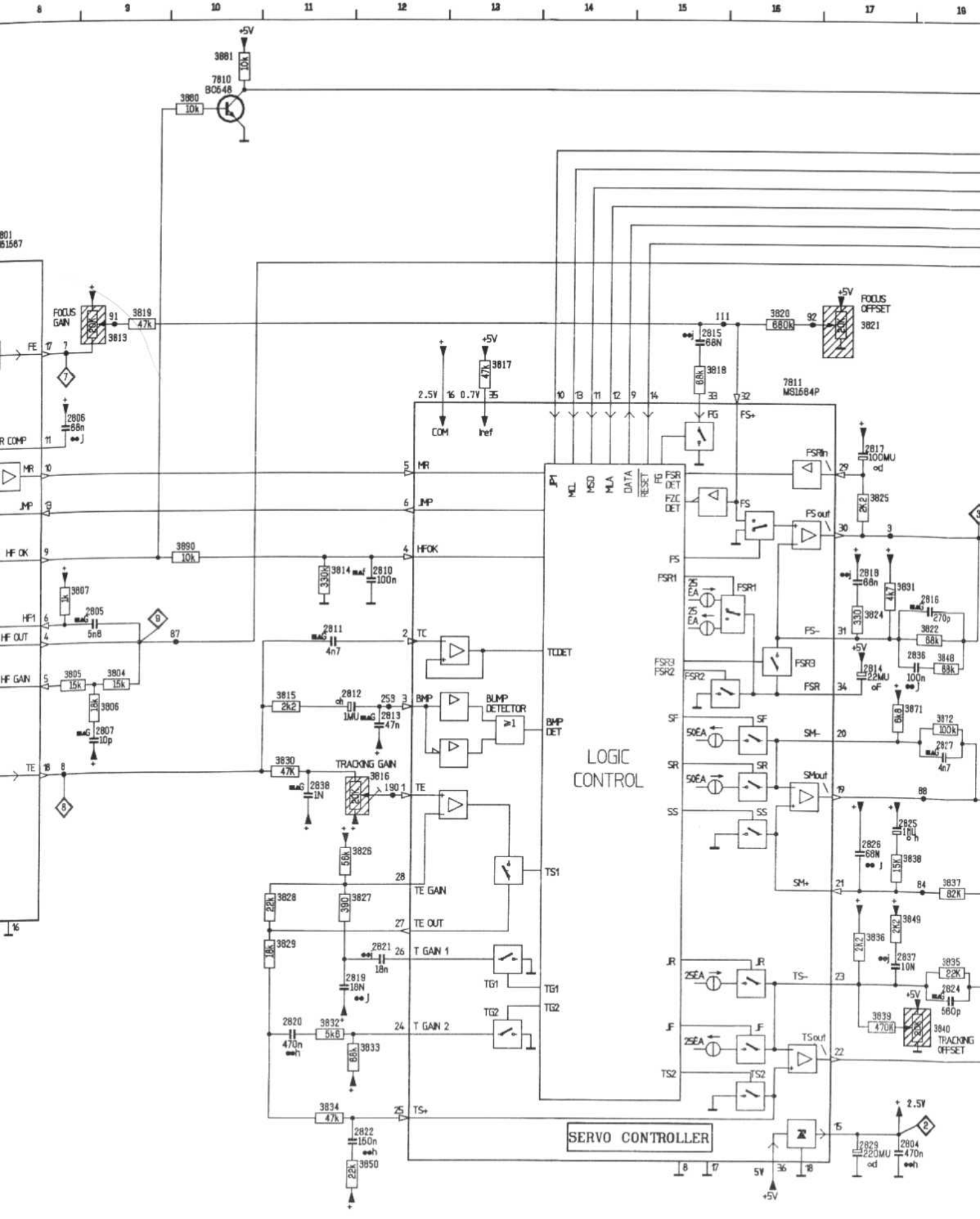
1	:	2.5V
2	:	2.5V
3	:	2.5V
4	:	0V
5	:	2.5V
6	:	2.5V
7	:	2.5V
8	:	5V

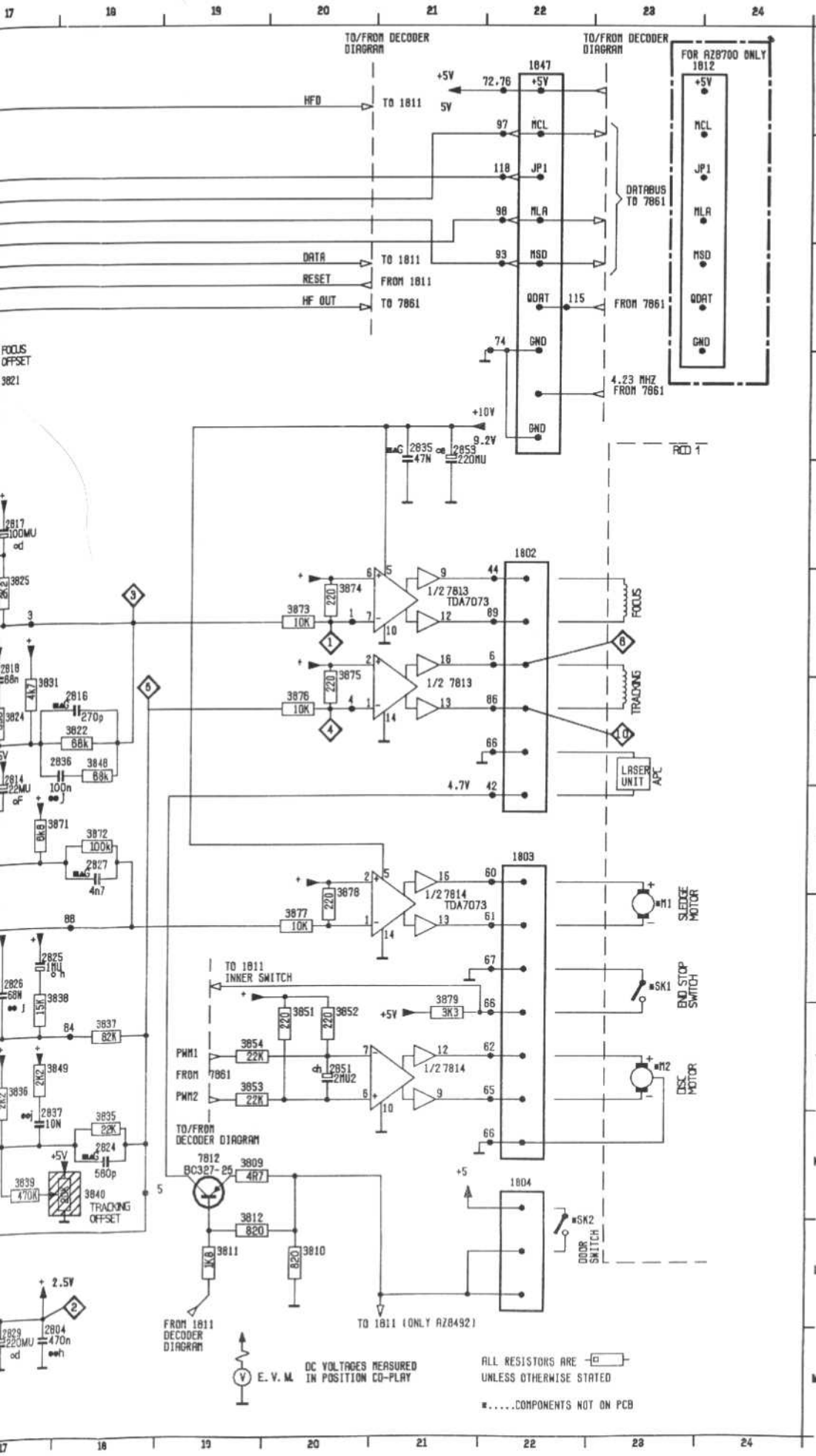
7871

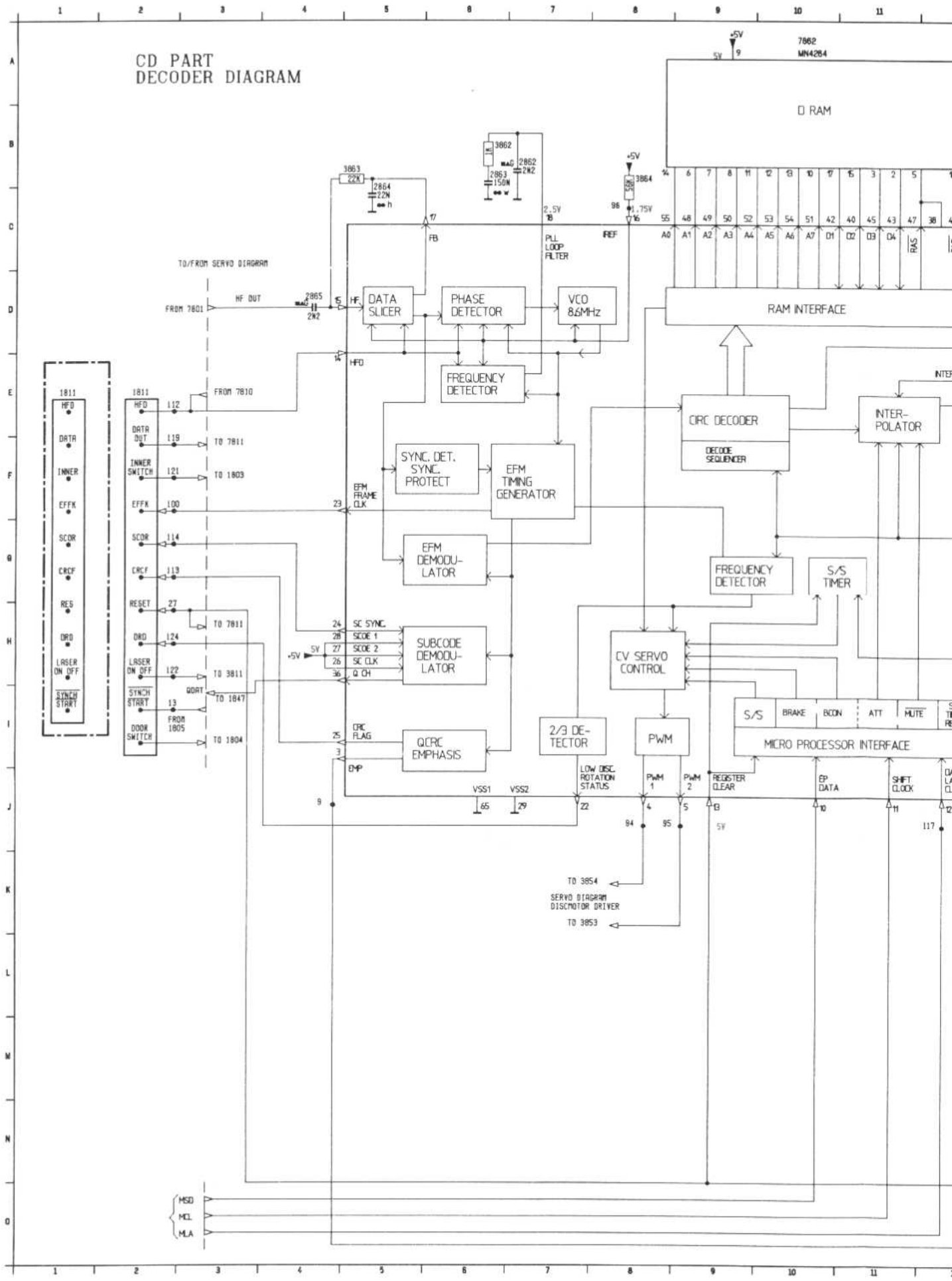
1	:	9.2V
2	:	0V
3	:	5V

CD PART
SERVO DIAGRAM




LOGIC
CONTROL
SERVO CONTROLLER
7811
MSI1684P
FOCUS
GAIN
FOCUS
OFFSET
TRACKING GAIN
TRACKING
OFFSET
BUMP
DETECTOR
COM
Iref
MR
JMP
HFOK
TC
TCDET
BMP
BMP
DET
TE
TE GAIN
TE OUT
T GAIN 1
T GAIN 2
TS+
TS-
TSout
TG1
TG2
TS1
TS2
FS+
FS-
FS
FSout
FSR
FSR1
FSR2
FSR3
FSRin
FSR
DET
FZC
DET
SF
SR
SS
SM-
SM+
SMout
JF
JR
FG
JP1
MCL
MSD
MLA
DATA
RESET
HF OK
HF1
HF OUT
HF GAIN
R COMP
FE
TE
+5V
2.5V
0.7V




CD PART
DECODER DIAGRAM
D RAM
RAM INTERFACE
DATA SLICER
PHASE DETECTOR
VCO 8.6MHz
FREQUENCY DETECTOR
PLL LOOP FILTER
SYNC. DET. SYNC. PROTECT
EFM TIMING GENERATOR
EFM DEMODU-LATOR
SUBCODE DEMODU-LATOR
QCRC EMPHASIS
CIRC DECODER
DECODE SEQUENCER
INTER-POLATOR
FREQUENCY DETECTOR
S/S TIMER
CV SERVO CONTROL
2/3 DE-TECTOR
PWM
MICRO PROCESSOR INTERFACE
TO/FROM SERVO DIAGRAM
FROM 7801
HF OUT
FROM 7810
TO 7811
TO 1803
TO 3811
TO 1847
TO 1804
FROM 1805
TO 3854
SERVO DIAGRAM DISCMOTOR DRIVER
TO 3853

* Replace by bare wire for AZ8300,AZ8301,AZ