Compact disc player AK691/00/05/10

AK696/17

Service
Service
Service

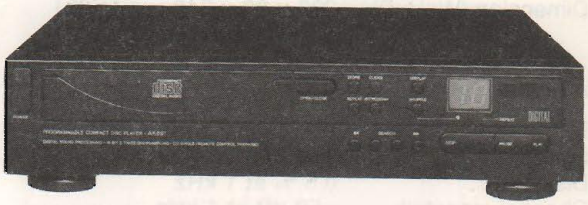
For repair of the CD mechanism see Service Manual RCD1F

Voor reparatie C.D. mechanisme zie Service Manual RCD1F

Consulter la Documentation Service RCD 1F en matière de mécanisme du CD

Reparatur des CD-Mechanismus siehe Service Manual RCD1F

Per quanto è del meccanismo del CD, riferirsi alla Documentazione di Servizio RCD 1F



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Service Manual

COMPACT disc DIGITAL AUDIO

CLASS 1 LASER PRODUCT

3122 110 03420

Documentation Technique Service Dokumentation Documentazione di Servizio Huolte-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

(GB) (NL) 4822 725 22337 (F) (D) (I)

Printed in The Netherlands

Published by Service Consumer Electronics

CS 21 556

Specifications

General

Power supply	: 220 V
Service solution for	: 120 V - 240 V
Mains frequencies	: 50 Hz-60 Hz
Power consumption	: 60 W
Dimension (WxHxD)	: 336 x 82 x 340 cm AK691
	420 x 82 x 340 cm AK696

Audio performance

Frequency response	: 20-20.000 Hz +2/-4dB
Signal to noise ratio	: 80dB (A weighted)
Distortion	: 0,5 % at 1 kHz
Channel crosstalk	: –50 dB at 1 kHz
Output voltage	: 1,5 V ± 2 dB
Load impedance	: 47 kΩ

(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.

ESD

(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.

(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 serti 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 elektrostatischen 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.

(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.

(GB)

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

(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.

(NL)

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

(I)

Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati i pezzi di ricambiago 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.

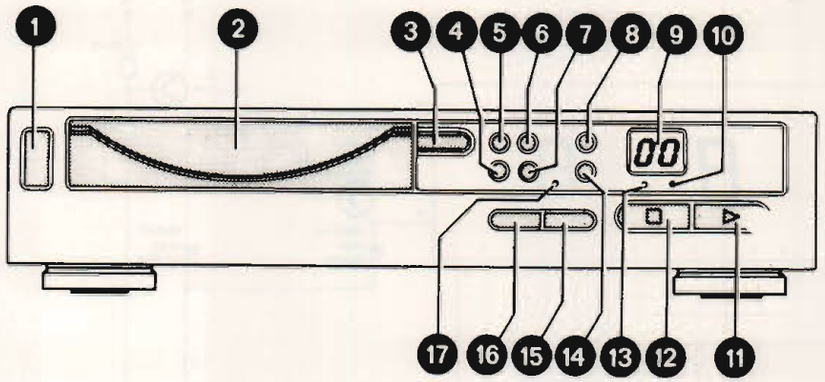


Fig. 1

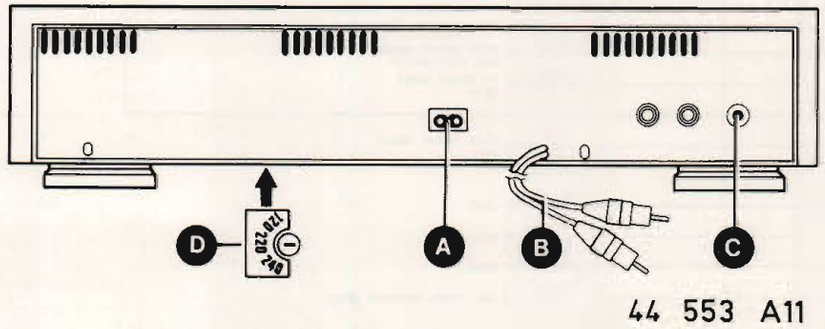
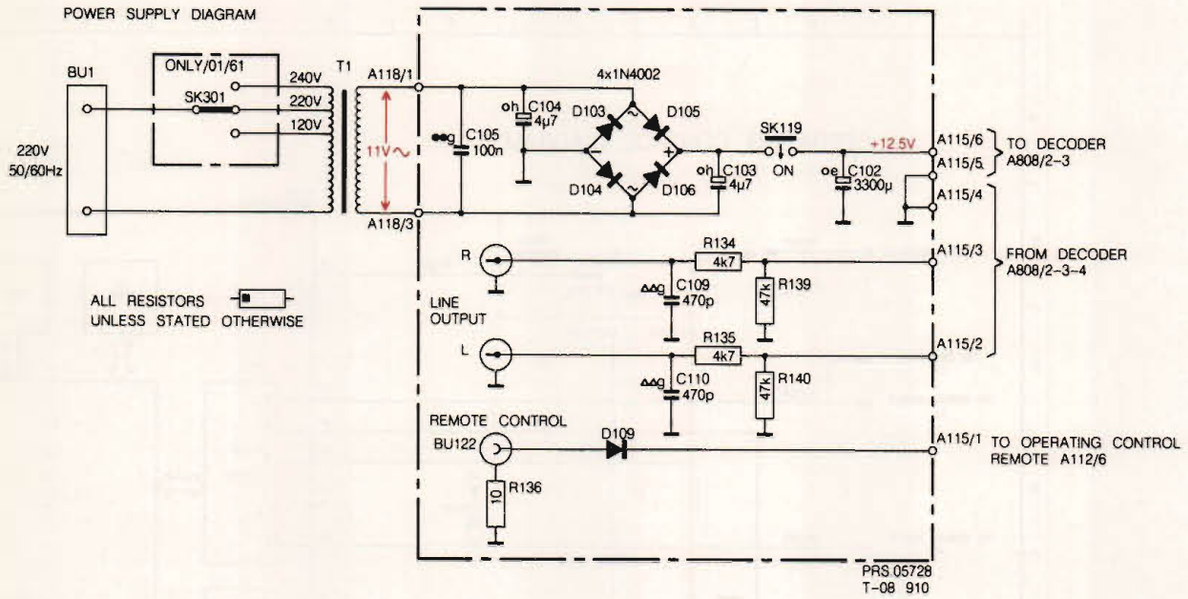
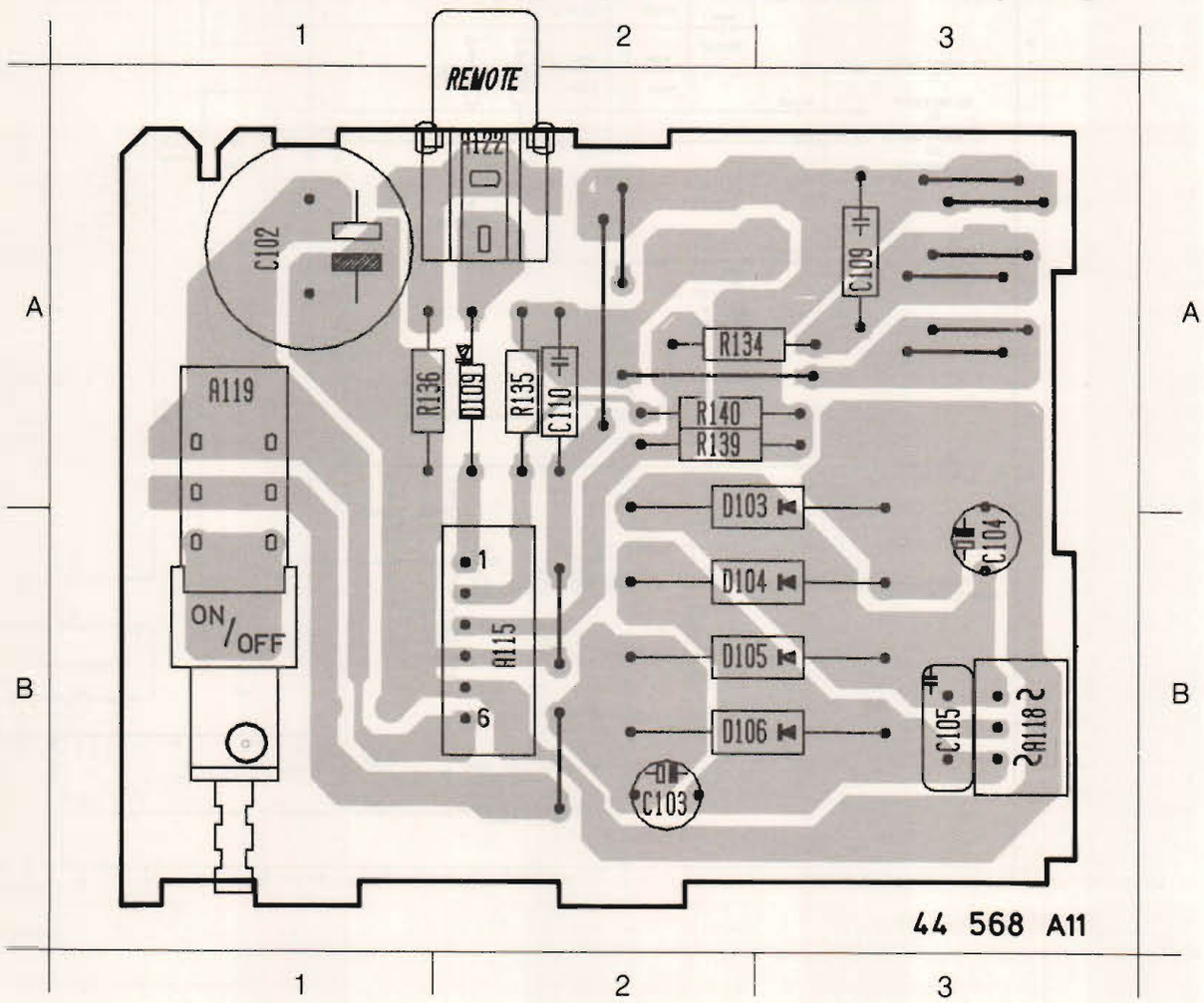


Fig. 2

1	Power switch	SK119
2	C.D. tray	
3	Open/close key	SK104
4	Store key	SK106
5	Clear key	SK109
6	Display key	SK105
7	Shuffle key	SK110
8	Track display	Q110
9	Play/pause key	SK101
10	Stop key	SK102
11	Repeat indicator	D102
12	Shuffle indicator	D101
13	Next/search key	SK111
14	Previous/search key	SK107
15	Introscan key	SK108
16	Repeat key	SK110
17	Scan indicator	D107
A	mains socket	BU1
B	Audio output	ST110
C	Remote control	BU122
D	Voltage selector	SK301 only /01



A115	B 2	C102	A 1	C109	A 3	D105	B 3	R135	A 2
A118	B 3	C103	B 2	C110	A 2	D106	B 3	R136	A 2
A119	A 1	C104	B 3	D103	A 3	D109	A 2	R139	A 2
A122	A 2	C105	B 3	D104	B 3	R134	A 3	R140	A 2



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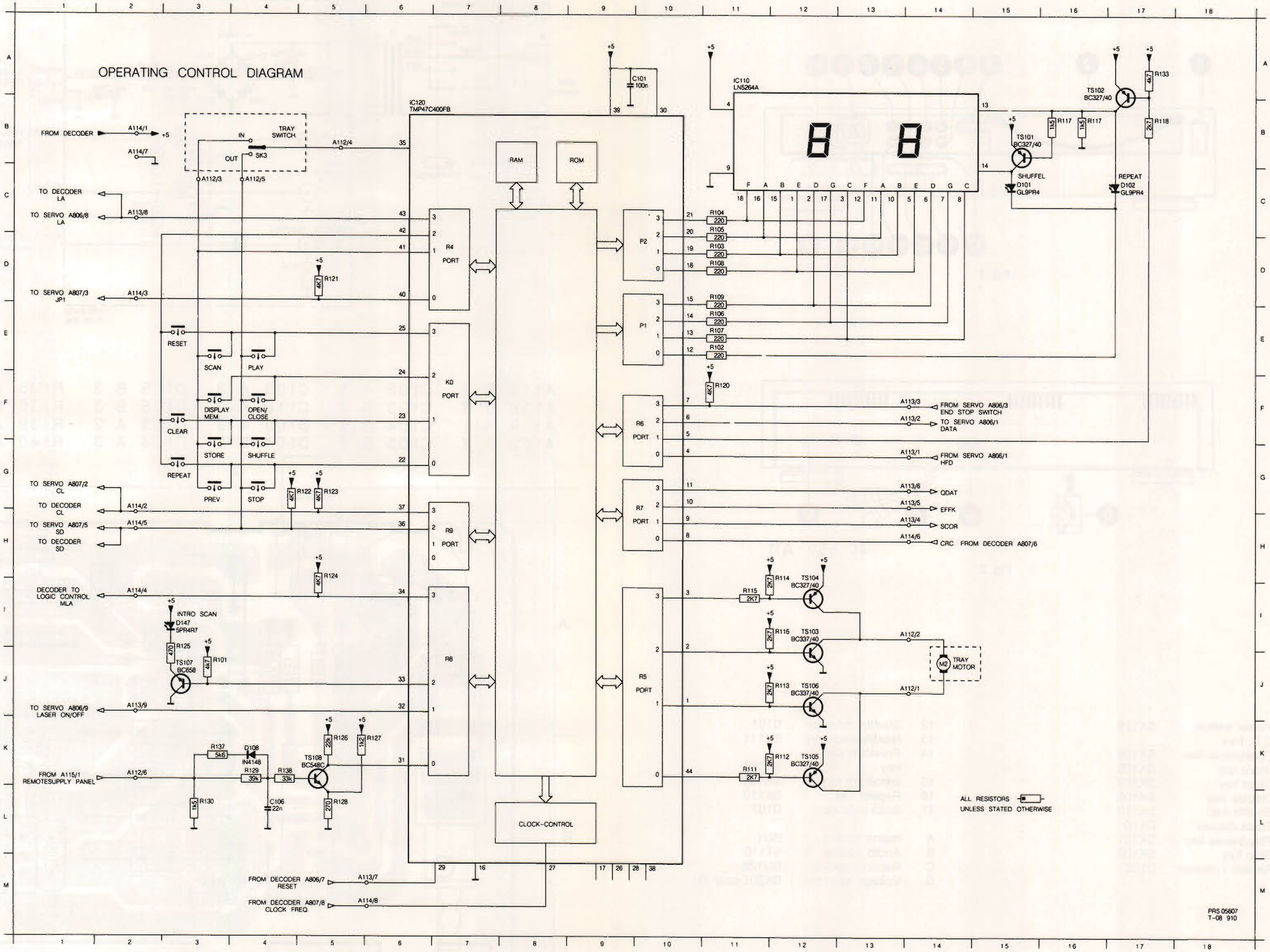
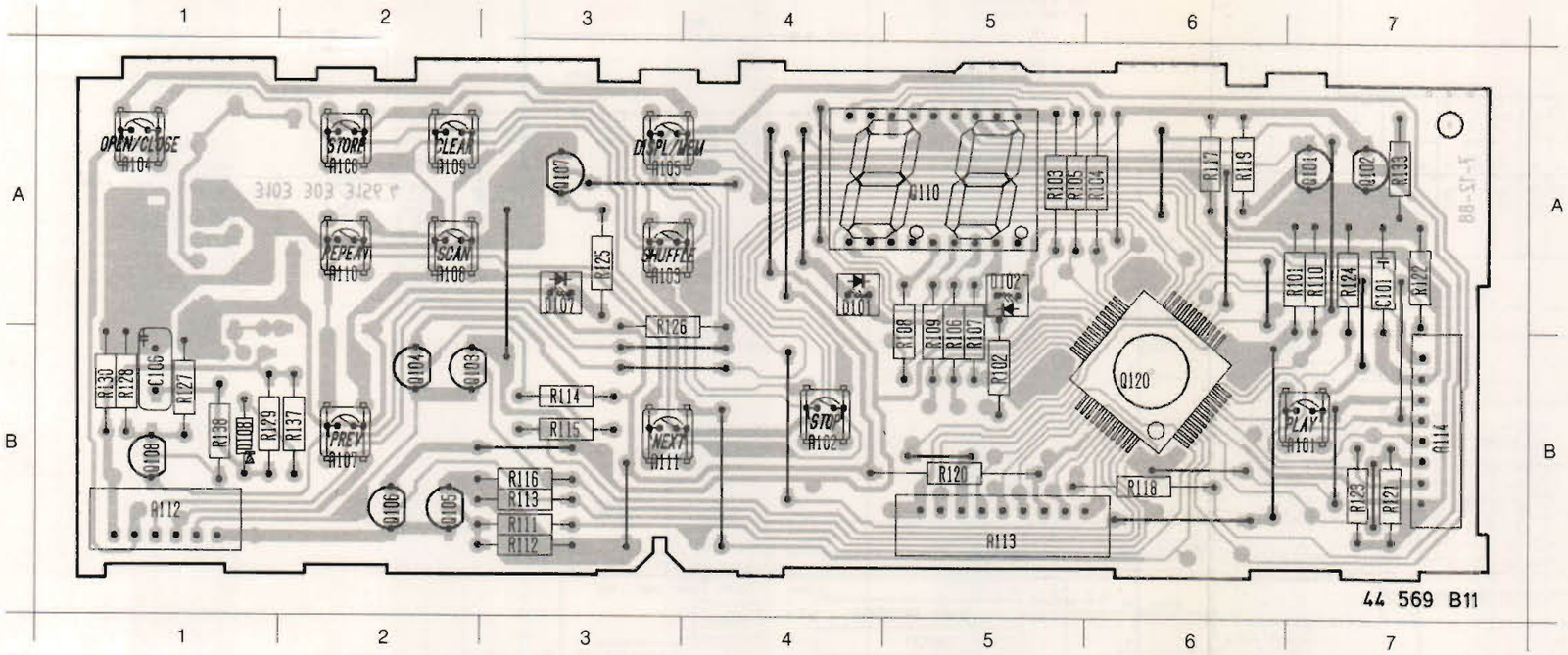
OPERATING CONTROL DIAGRAM



C101 A10
C106 L 4
D101 C15
D102 C17
D108 K 4
D147 I 3
I C110 A11
I C120 B 6
M2 J14
R101 J 3
R102 E11
R103 D11
R104 C11
R105 C11
R106 E11
R107 E11
R108 D11
R109 D11
R111 K11
R112 K12
R113 J12
R114 H12
R115 I 11
R116 I 12
R117 B16
R117 B16
R118 B17
R120 F11
R121 D 5
R122 G 5
R123 G 5
R124 H 5
R125 I 3
R126 K 5
R127 K 6
R128 L 5
R129 K 4
R130 L 3
R133 A17
R137 K 3
R138 K 4
SK3 B 4
TS101 B15
TS102 A16
TS103 I 12
TS104 H12
TS105 K12
TS106 J12
TS107 J 3
TS108 K 5

A101	B	7	A108	A	2	C101	A	7	Q102	A	7	Q110	A	5	R106	A	5	R113	B	3	R120	B	5	R127	B	1
A102	B	4	A109	A	2	C106	B	1	Q103	B	3	Q120	B	6	R107	A	5	R114	B	3	R121	B	7	R128	B	1
A103	A	3	A110	A	2	D101	A	4	Q104	B	2	R101	A	7	R108	A	5	R115	B	3	R122	A	7	R129	B	2
A104	A	1	A111	B	3	D102	A	5	Q105	B	2	R102	B	5	R109	A	5	R116	B	3	R123	B	7	R130	B	1
A105	A	3	A112	B	1	D107	A	3	Q106	B	2	R103	A	6	R110	A	7	R117	A	6	R124	A	7	R133	A	7
A106	A	2	A113	B	5	D108	B	1	Q107	A	3	R104	A	6	R111	B	3	R118	B	6	R125	A	3	R137	B	2
A107	B	2	A114	B	7	Q101	A	7	Q108	B	1	R105	A	6	R112	B	3	R119	A	6	R126	A	4	R138	B	1



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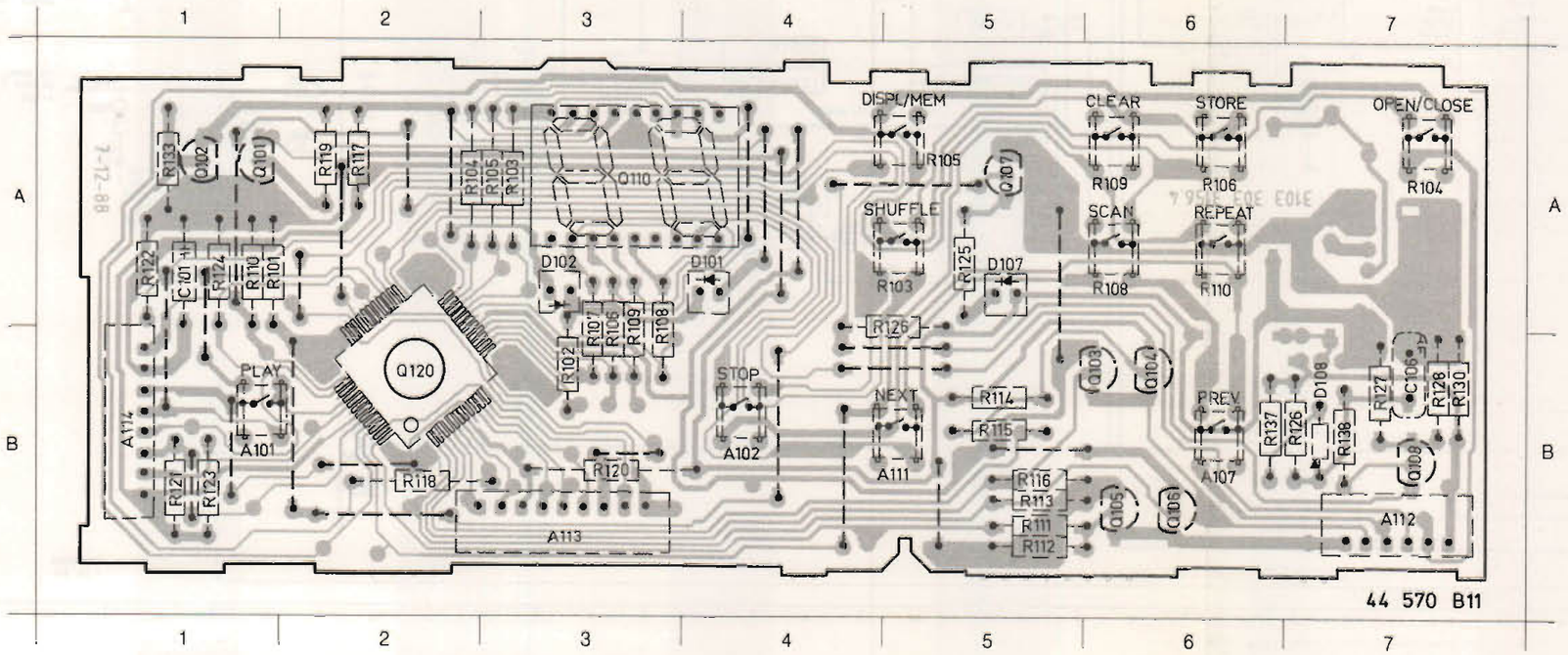
A101	B	1	C101	A	1	Q102	A	1	Q110	A	3	R104	A	7	R108	A	6	R113	B	5	R120	B	3	R126	B	7
A102	B	4	C106	B	7	Q103	B	6	Q120	B	2	R105	A	3	R109	A	3	R114	B	5	R121	B	1	R127	B	7
A107	B	6	D101	A	4	Q104	B	6	R101	A	2	R105	A	5	R109	A	6	R115	B	5	R122	A	1	R128	B	7
A111	B	5	D102	A	3	Q105	B	6	R102	B	3	R106	A	3	R110	A	2	R116	B	5	R123	B	1	R130	B	7
A112	B	7	D107	A	5	Q106	B	6	R103	A	3	R106	A	6	R110	A	6	R117	A	2	R124	A	1	R133	A	1
A113	B	3	D108	B	7	Q107	A	5	R103	A	5	R107	A	3	R111	B	5	R118	B	2	R125	A	5	R137	B	7
A114	B	1	Q101	A	2	Q108	B	7	R104	A	3	R108	A	4	R112	B	5	R119	A	2	R126	A	5	R138	B	7



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C828 B16 C843 G21 C853 B16 C862 B 4 C866 F17 C871 B18 C876 A16 C893 J21 D852 K 4 I C841 K18 I C863 F17 I C871 B17 R841 G20 R844 H21 R847 N19 R853 L 3 R859 C18 R862 B 4 R865 E17 R867 K15 R891 J20 R894 K21 R902 A16 TS844 M19 TS853 L 2 TS859 C19
C841 G18 C844 H21 C860 H12 C863 B 3 C867 L13 C872 B17 C891 J18 C894 K22 D853 C18 I C861 B12 I C864 K15 C861 J10 R842 H20 R845 M19 R851 K 3 R854 L 4 R860 C19 R863 B 2 R866 K16 R869 B 3 R892 J20 R896 K19 TS842 G20 TS851 K 2 TS854 L 4 TS891 J20
C842 G19 C852 C20 C861 B16 C864 B 2 C868 K14 C873 B16 C892 J19 D851 K 3 I C841 H18 I C862 A10 I C864 K13 R808 A16 R843 G22 R846 H19 R852 K 3 R858 B18 R861 L14 R864 B 5 R867 K16 R869 G19 R893 J22 R900 J19 TS843 H21 TS852 K 4 TS858 C19 TS892 K21

DECODER DIAGRAM

IC862
MN4264-15
D RAM

IC861
M50422P

ALL RESISTORS
UNLESS STATED OTHERWISE
VOLTAGES MEASURED IN POSITION STOP
E.V.M

+11V R902 68 C876 330µ
+12.5V R808 4R7 C853 220µ o e
+5V
IC871 NJM7905A 5V 12.5V
C828 47µ o f
C861 470µ o d
C873 470n e h
C872 47µ o f
C871 47µ o f
R858 470
TO SERVO D
FROM POWER SUPPLY +12.5V
D853 BZX79
R859 470
R860 2k2
TS858 BC548
TS859 BC548
C852 22µ
A806/7
RESET TO µ PROC A113/7
RESET TO SERVO

R863 33k
C864 22n e h
R869 3k3
R862 3k9
C863 330n e h
C862 390p
R864 120k
FB
PLL LOOP FILTER
IREF
A0 A1 A2 A3 A4 A5 A6 A7 D1 D2 D3 D4 RAS CAS WE
VDD2 VDD1
RAM INTERFACE

HF FROM SERVO
DATA SLICER
PHASE DETECTOR
VCO 8.6MHz
HFD FROM SERVO
HFD
FREQUENCY DETECTOR

TEST CONTROL
TEST
ERROR FLAG
EST1
EST2
INTERPOLATION INH

CIRC DECODER
DECODE SEQUENCER
INTER-POLATOR
DIGITAL FILTER
DATA SELECT
WORD CLK
L/R CLK
DATA CLK
DAC INTERFACE
DATA
DIG. FILTER BYPASS

SYNC. DET. SYNC. PROTECT
EFM TIMING GENERATOR
EFM FRAME CLK
EFCLK TO µP
EFM DEMODU-LATOR

FREQUENCY DETECTOR
S/S TIMER

TIMING GENERATOR
4.23MHz
C860 180p

FROM µP SCSO
SC SYNC
SCOE 1
SCOE 2
SC CLK
Q CH
SUBCODE DEMODU-LATOR
QDATA TO µP

CV SERVO CONTROL

S/S | BRAKE | BCON | ATT | MUTE | S/S TIMER RESET
MICRO PROCESSOR INTERFACE

CRC
CRC FLAG
QCRC EMPHASIS
EMP

2/3 DE-TECTOR
PWM
LOW DISC ROTATION STATUS
PWM 1
PWM 2
REGISTER CLEAR
µP DATA
SHIFT CLOCK
DATA LATCH CLOCK
X IN
X OUT
VSS1 VSS2
Q861 8.46MHZ

DRD TO µP

TS851 BC327/40
TS852 BC327/40
TS853 BC327/40
TS854 BC327/40
R851 1k8
R852 1k8
D851 1N4148
D852 1N4148
R853 100
R854 100
TO SERVO DISK MOTOR

SD A807/5
CL A807/2
LA A806/8
TO OPERATING CONTROL A114/8 CLOCK FREQ A807/8

SHIFT REGISTER
LATCH
FORM SELECT
FORM
MSB
PRIORITY DETECT
DIGITAL SHIFT
ANALOG SHIFT-EXPT
MANTISSA 10 BIT DAC
ICL
V BIAS
VREF
FEEDBACK-R
BC MP TO BUFF
DIGITAL ANALOG CONVERTER

IC863 YM3016
CLOCK I
SMP1 SMP2 VDD VDD
TIMING
ANALOG SWITCH CH1
ANALOG SWITCH CH2
COMM VSS
R865 100
C866 470µ

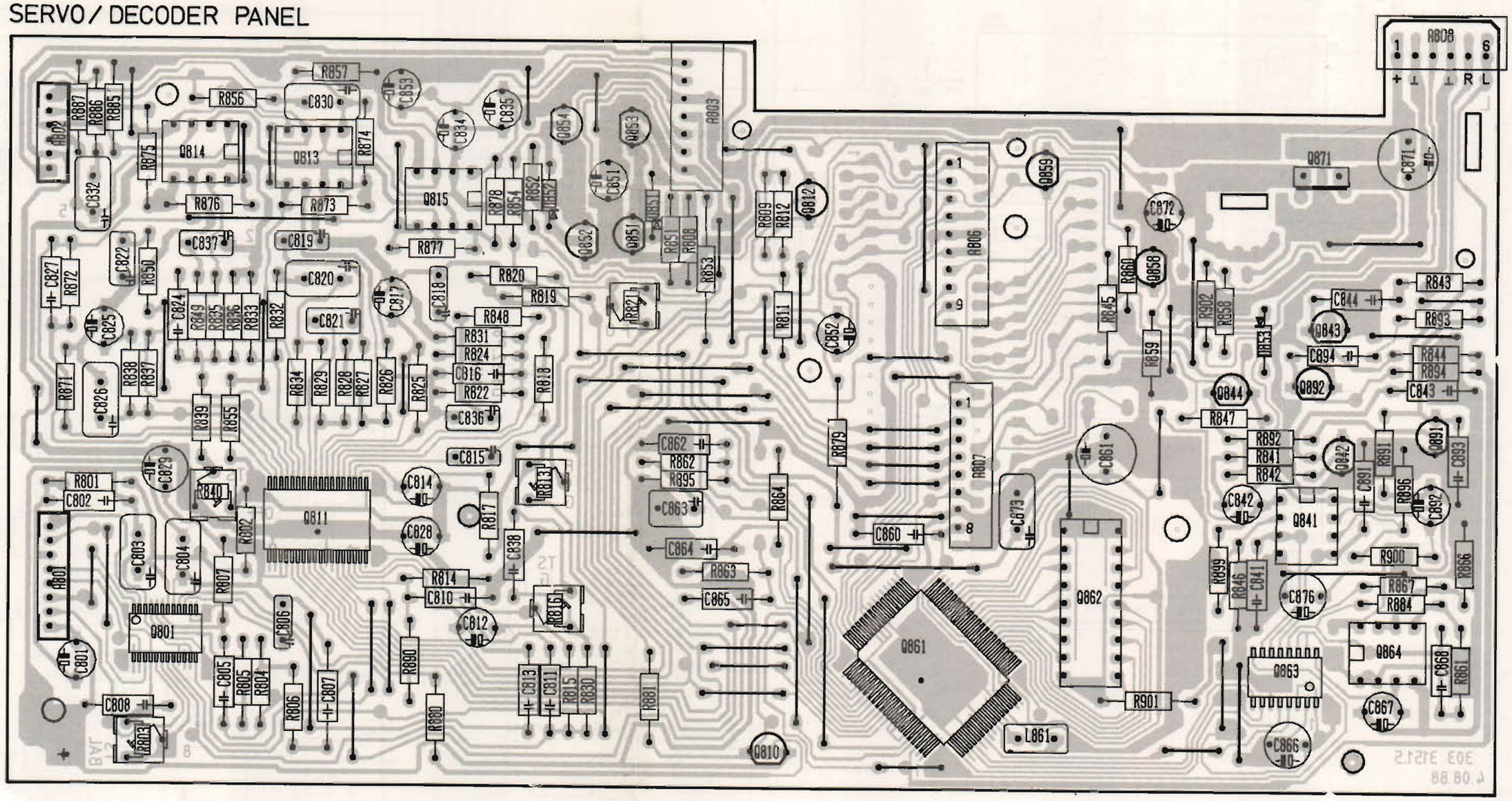
IC864-A NJM3415D
IC864-B NJM3415D
C867 2µ2 o n
C868 68p
R867 33
R866 470
R861 820k

IC841-A NJM3415D
IC841-B NJM3415D
C841 2n7
C891 2n7
R889 470
R846 470
R900 470
R896 470
C842 4µ7 o h
C892 4µ7 o h
R841 1k
R842 1k
R891 1k
R892 1k
TS842 BC548
TS843 BC548
TS891 BC548
TS892 BC548
C843 3n3
C893 3n3
R843 470
C844 33n
C894 33n
R844 10k
R894 10k
R845 22k
R847 33k
TS844 BC558
A808/6 TO SUPPLY OUTPUT L A115/3
A808/4 TO SUPPLY OUTPUT A115/4
A808/5 TO SUPPLY OUTPUT R A115/2
R893 470

PRS 05608
T-08 910

R801	F 3	C805	G 4	C816	E 6	C827	D 3	C841	F12	C863	F 7	C891	F12	Q811	F 5	Q852	D 7	Q891	E13	R809	D 8	R820	D 6	R831	E 6	R841	E12	R851	D 7	R861	G13	R875	C 4	R887	C 3	R901	G11
R802	C 3	C806	G 5	C817	D 5	C828	F 6	C842	F11	C864	F 7	C892	F13	Q812	D 8	Q853	C 7	Q892	E12	R811	D 8	R821	D 7	R832	D 5	R842	F12	R852	D 6	R862	F 7	R876	D 4	R890	G 6	R902	D11
R803	C 8	C807	G 5	C818	D 6	C829	F 4	C843	E13	C865	F 8	C893	E13	Q813	C 5	Q854	C 7	R801	F 9	R812	D 8	R822	E 6	R833	D 4	R843	D13	R853	D 8	R863	F 8	R877	D 8	R891	E12		
R806	D 9	C808	G 3	C819	D 5	C830	C 5	C844	D12	C866	G12	C894	E12	Q814	C 4	Q858	D11	R802	F 4	R813	F 6	R824	E 6	R834	E 5	R844	E13	R854	D 6	R864	F 8	R878	D 8	R892	E12		
R807	F10	C810	F 6	C820	D 5	C832	D 3	C851	D 7	C867	G12	D851	D 7	Q815	D 6	Q859	C10	R803	G 4	R814	F 6	R825	E 6	R835	D 4	R845	D10	R855	E 4	R866	F13	R879	E 9	R893	D13		
R808	B13	C811	G 7	C821	E 5	C834	C 6	C852	E 9	C868	G13	D852	D 7	Q841	F12	Q861	G 9	R804	G 5	R815	G 7	R826	E 5	R836	D 4	R846	F11	R856	C 4	R867	F13	R880	G 6	R894	E13		
C801	G 3	C812	G 6	C822	D 4	C835	C 6	C853	C 5	C871	C13	D853	E12	Q842	E12	Q862	F10	R805	G 4	R816	G 7	R827	E 5	R837	E 4	R847	E11	R857	C 5	R871	E 3	R881	G 7	R895	F 7		
C802	F 3	C813	G 6	C824	D 4	C836	E 6	C860	F 9	C872	D11	L861	G10	Q843	E12	Q863	G12	R806	G 5	R817	F 6	R828	E 5	R838	E 4	R848	E 6	R858	D11	R872	D 3	R884	F13	R896	F13		
C803	F 4	C814	F 6	C825	E 3	C837	D 4	C861	E10	C873	F10	Q801	G 4	Q844	E11	Q864	G12	R807	F 4	R818	E 6	R829	E 5	R839	E 4	R849	D 4	R859	E11	R873	D 5	R885	C 3	R899	F11		
C804	F 4	C815	F 6	C826	E 3	C838	F 6	C862	E 7	C876	F12	Q810	H 8	Q851	D 7	Q871	C12	R808	D 8	R819	D 6	R830	G 7	R840	F 4	R850	D 4	R860	D11	R874	C 5	R886	C 3	R900	F12		

SERVO / DECODER PANEL



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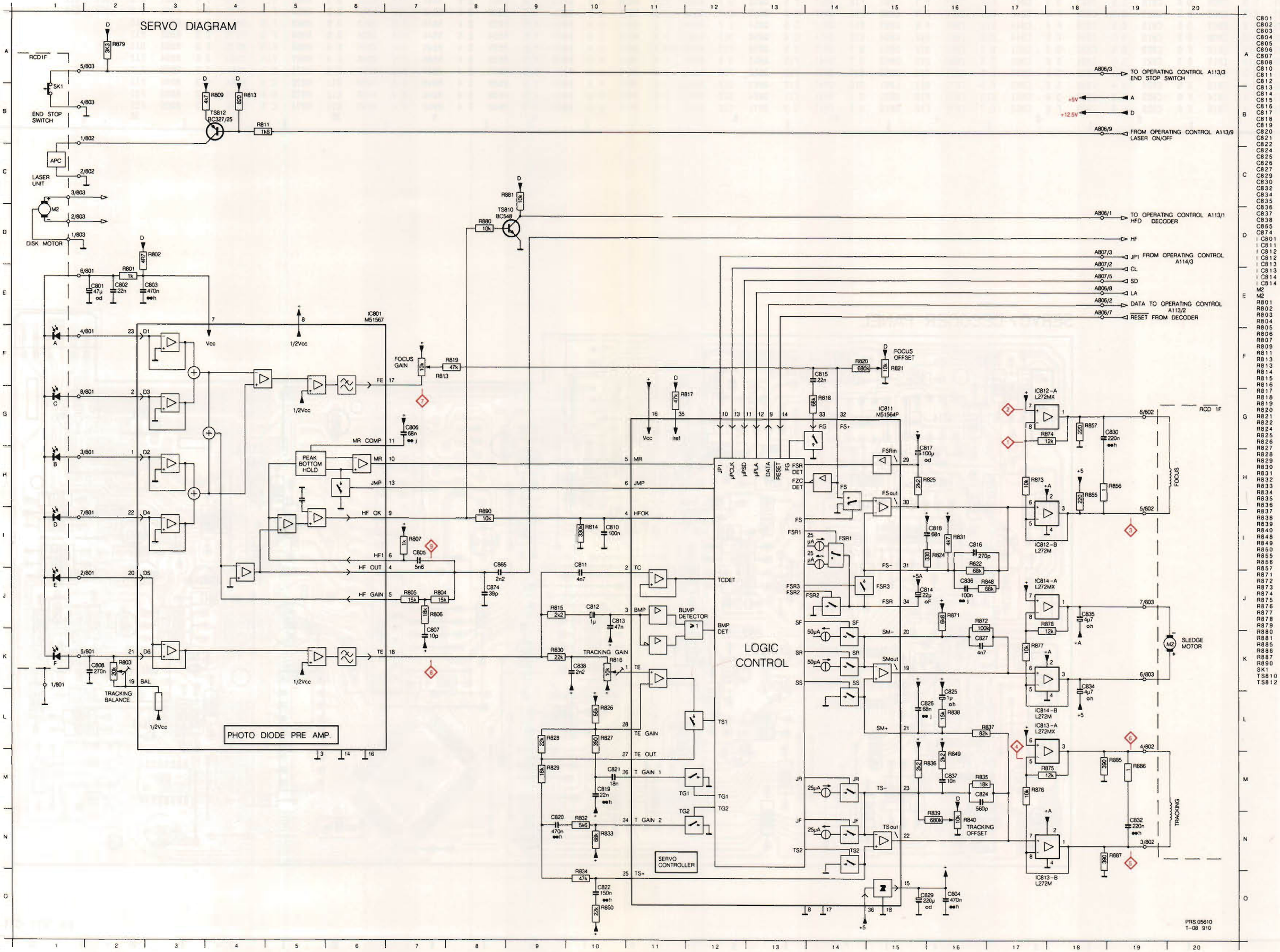
CS 21 562

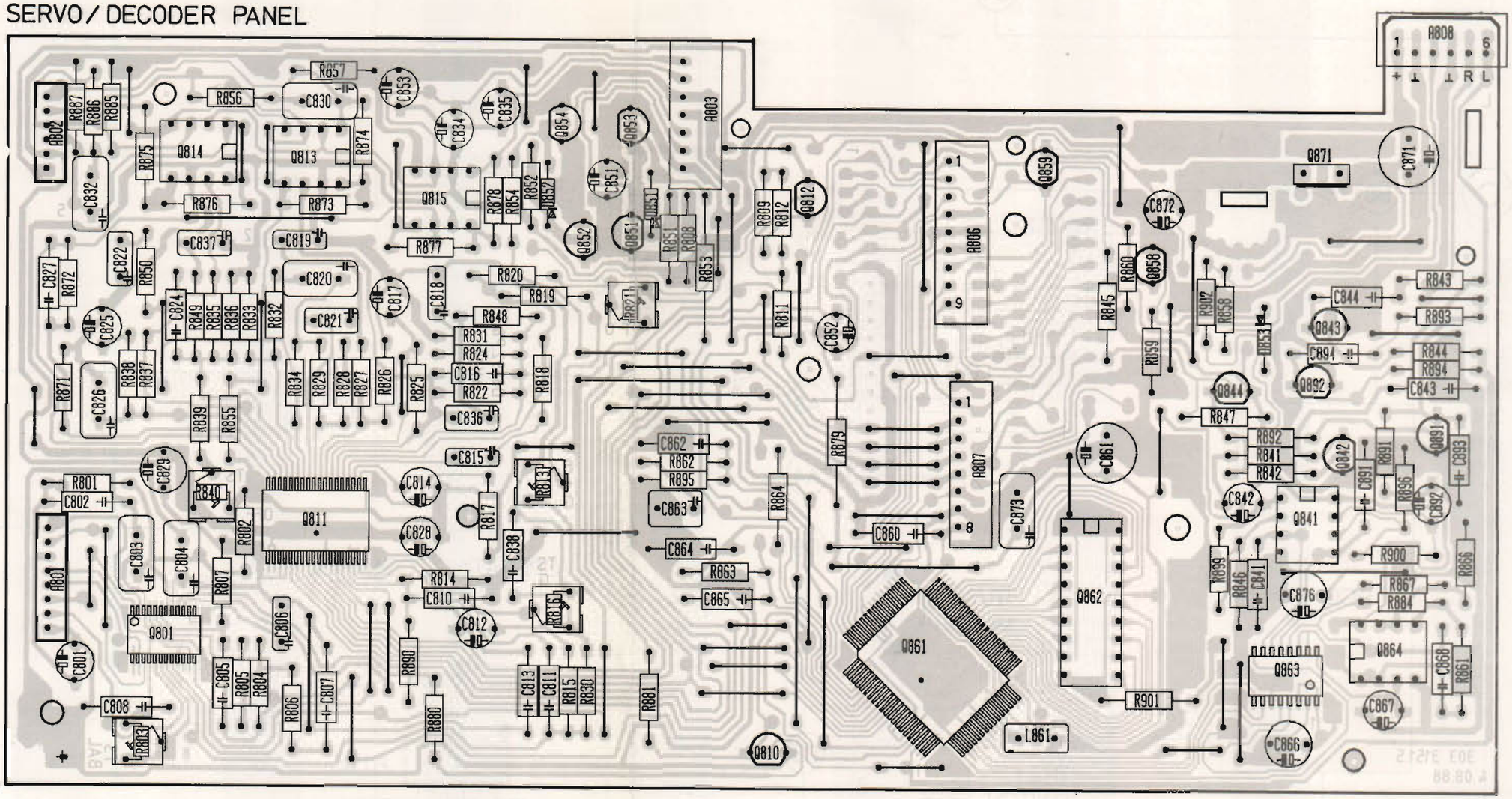
SERVO DIAGRAM



CS 21 563

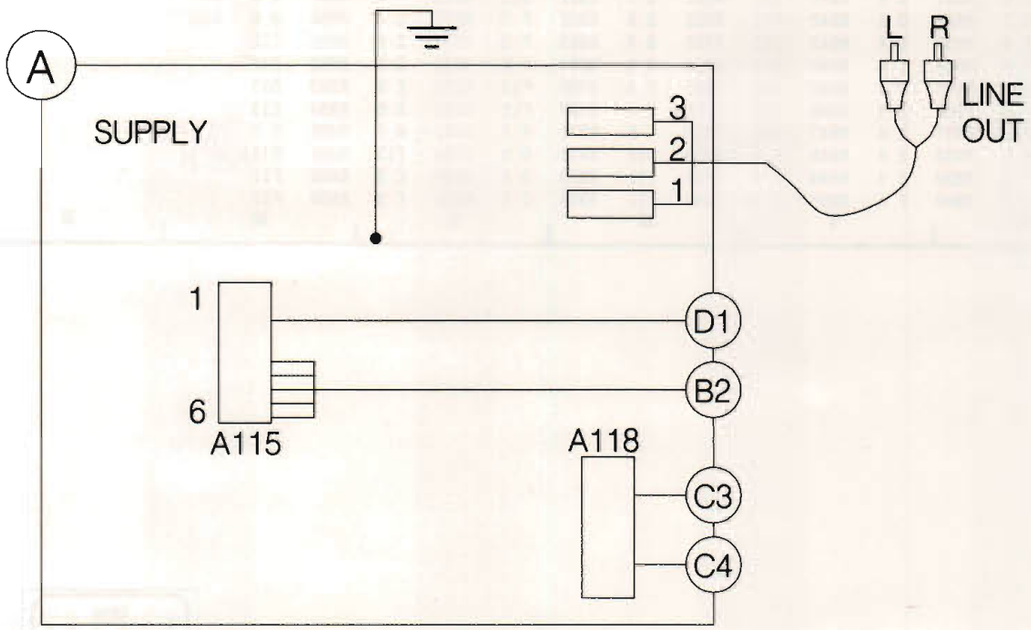
A801	F 3	C805	G 4	C816	E 6	C827	D 3	C841	F12	C863	F 7	C891	F12	Q811	F 5	Q852	D 7	Q891	E13	R809	D 8	R820	D 6	R831	E 6	R841	E12	R851	D 7	R861	G13	R875	C 4	R887	C 3	R901	G11
A802	C 3	C806	G 5	C817	D 5	C828	F 6	C842	F11	C864	F 7	C892	F13	Q812	D 8	Q853	C 7	Q892	E12	R811	D 8	R821	D 7	R832	D 5	R842	F12	R852	D 6	R862	F 7	R876	D 4	R890	G 6	R902	D11
A803	C 8	C807	G 5	C818	D 6	C829	F 4	C843	E13	C865	F 8	C893	E13	Q813	C 5	Q854	C 7	R801	F 3	R812	D 8	R822	E 6	R833	D 4	R843	D13	R853	D 8	R863	F 8	R877	D 6	R891	E12		
A806	D 9	C808	G 3	C819	D 5	C830	C 5	C844	D12	C866	G12	C894	E12	Q814	C 4	Q858	D11	R802	F 4	R813	F 6	R824	E 6	R834	E 5	R844	E13	R854	D 6	R864	F 8	R878	D 6	R892	E12		
A807	F10	C810	F 6	C820	D 5	C832	D 3	C851	D 7	C867	G12	D851	D 7	Q815	D 6	Q859	C10	R803	G 4	R814	F 6	R825	E 6	R835	D 4	R845	D10	R855	E 4	R866	F13	R879	E 9	R893	D13		
A808	B13	C811	G 7	C821	E 5	C834	C 6	C852	E 9	C868	G13	D852	D 7	Q841	F12	Q861	G 9	R804	G 5	R815	G 7	R826	E 5	R836	D 4	R846	F11	R856	C 4	R867	F13	R880	G 6	R894	E13		
C801	G 3	C812	G 6	C822	D 4	C835	C 6	C853	C 5	C871	C13	D853	E12	Q842	E12	Q862	F10	R805	G 4	R816	G 7	R827	E 5	R837	E 4	R847	E11	R857	C 5	R871	E 3	R881	G 7	R895	F 7		
C802	F 3	C813	G 6	C824	D 4	C836	E 6	C860	F 9	C872	D11	L861	G10	Q843	E12	Q863	G12	R806	G 5	R817	F 6	R828	E 5	R838	E 4	R848	E 6	R858	D11	R872	D 3	R884	F13	R896	F13		
C803	F 4	C814	F 6	C825	E 3	C837	D 4	C861	E10	C873	F10	Q801	G 4	Q844	E11	Q864	G12	R807	F 4	R818	E 6	R829	E 5	R839	E 4	R849	D 4	R859	E11	R873	D 5	R885	C 3	R899	F11		
C804	F 4	C815	F 6	C826	E 3	C838	F 6	C862	E 7	C876	F12	Q810	H 8	Q851	D 7	Q871	C12	R808	D 8	R819	D 6	R830	G 7	R840	F 4	R850	D 4	R860	D11	R874	C 5	R886	C 3	R900	F12		

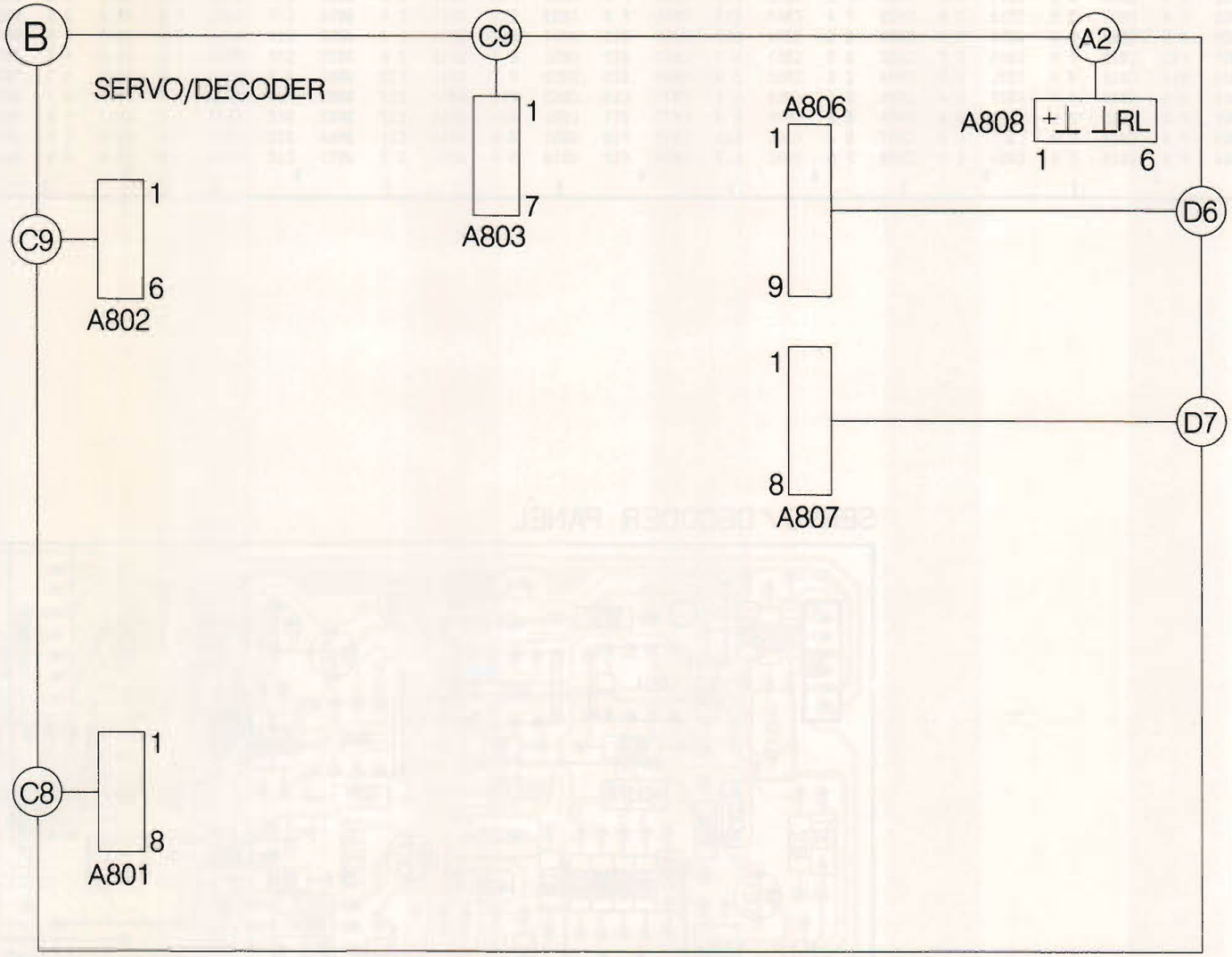
SERVO / DECODER PANEL

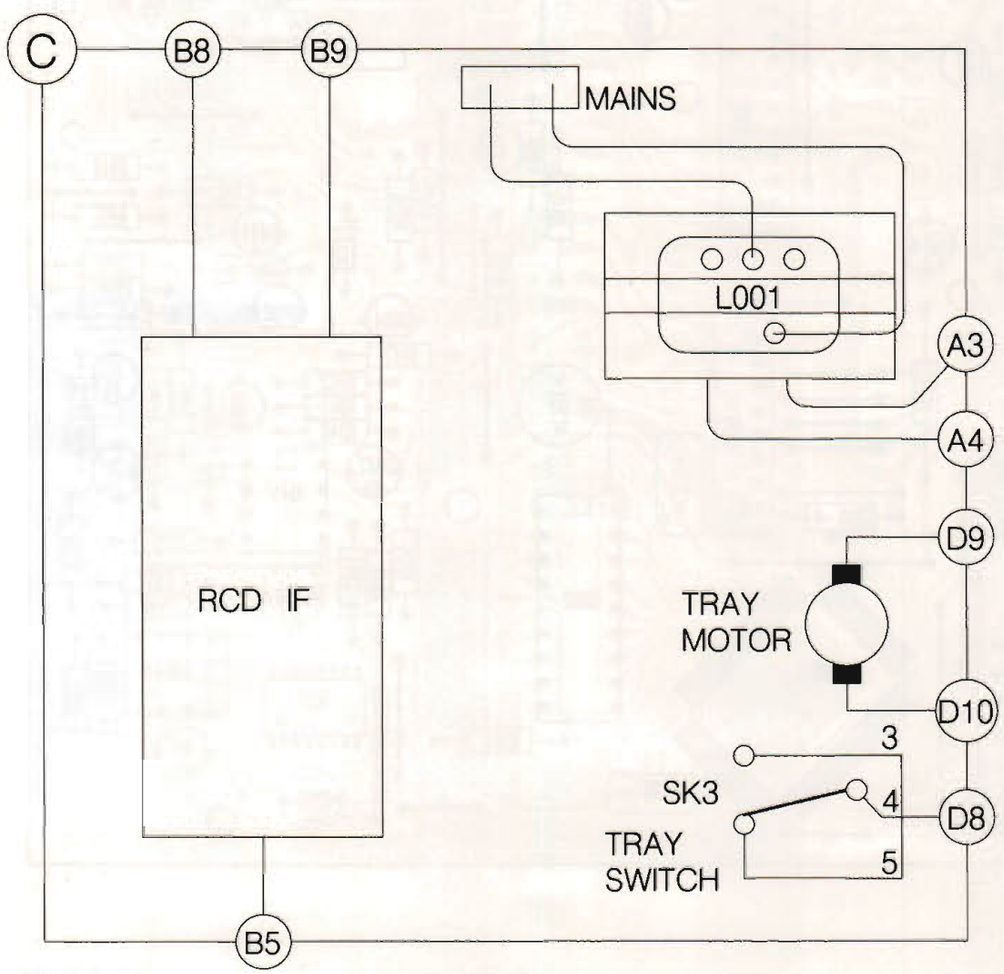


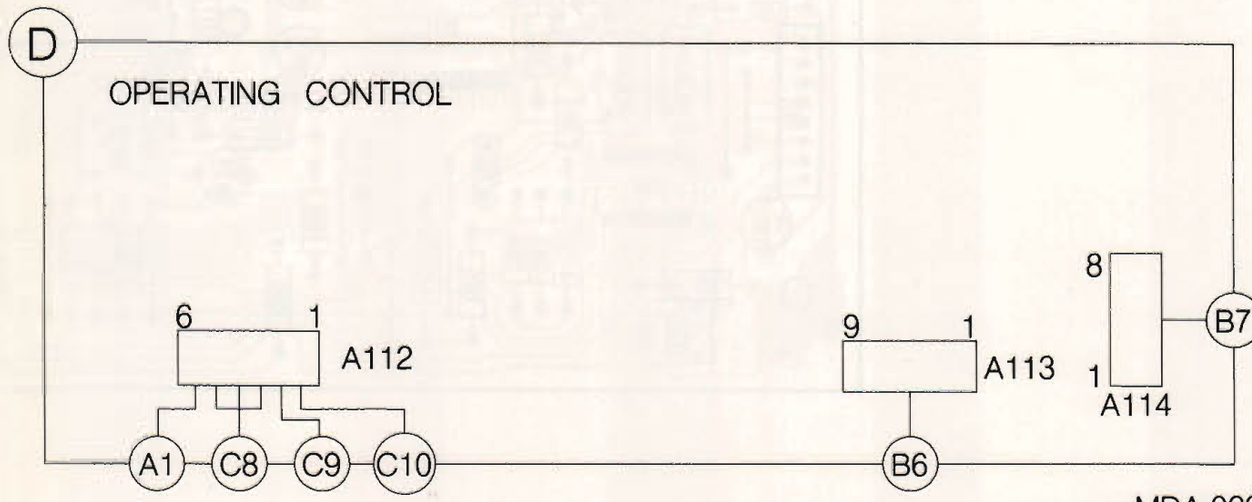
44 571 C11

CS 21 564









MDA.02027
T–08 910

(GB) Required test instruments and tools

Oscilloscope
LF tone generator
AC millivoltmeter
Universal meter

Test disc No. 5	4822 397 30085
Torx screwdrivers	4822 395 50145
Disc hold–down	4822 532 60906

Service test

For testing microprocessor, display and servo, the microprocessor can be placed in the service position.

1 Service position "0"

This position is reached by keeping the display and shuffle switches pressed while switching the set on.
- The display shows "–".
  If this sign does not appear on the display, it is 80% sure that the microprocessor is defective.
- Display test
  When the open/close switch is pressed, the disc tray will slide out.
  The display will light up completely, as will the repeat and shuffle LEDs.
  Pressing the open/close switch again causes the tray to slide in again and the display and LEDs to go out.
  Besides the display, a number of I/O gates will be tested with this test.

2 Service position "1"

To achieve service position "1", one should press the play switch after service position "0".
- The display keeps on showing "–".
- Focussing test
  If there is no disc on the turntable and the play switch is pressed, the light pen will move up and down twice.
  If there is a disc on the turntable and the play switch is pressed, the laser and the focus control will be working and the motor will be running.
  The light pen stays below the lead–in tracks.

3 Service position "2"

You can put the player in service position "2" by pressing the introscan switch after service position "0" or "1".
- Test disc on turntable.
- The display shows " – – ".
- Radial servo test
- As soon as the introscan switch has been pressed, the music track will be played back.
  If now the next or previous switch is pressed, the light pen will jump about 40 tracks forward or backward.

One can return to service position "0" by pressing the stop switch. One can leave the service position by switching the set off.

(NL) Benodigde meetinstrumenten en hulpmiddelen

Oscilloscoop
LF toongenerator
AC millivoltmeter
Universeelmeter

Testplaat No. 5	4822 397 30085
Torx schroevedraaiers	4822 395 50145
Aandrukker	4822 532 60906

Service test

De µ-processor kan in de servicestand gezet worden om de µ-processor, display en servo te testen.

1. Service pos. "0"

Deze wordt bereikt door de schakelaars display en shuffle ingedrukt te houden en gelijktijdig het apparaat in te schakelen.
- Display geeft "–"
  Indien dit niet op het display verschijnt is het voor 80% zeker dat de µ-processor defect is.
- Display test
  Door indrukken van de schakelaar open/close zal de lade naar buiten worden geschoven.
  Het display zal volledig oplichten, alsmede de leds repeat en shuffle.
  Opnieuw indrukken van de schakelaar open/close doet de lade naar binnen schuiven en het display en leds doen uitgaan.
  Naast de display test zal hiermede tevens nog een aatal I/O poorten worden getest.

2. Service pos. "1"

Om in service pos. "1" te geraken dient men na service pos. "0" op schakelaar play te drukken.
- Display blijft "–" aangegeven
- Focussering test
  Zonder plaat op de draaitafel zal bij indrukken van de schakelaar play de lichtpen 2x op en neer bewegen.
  Met een plaat op de draaitafel zal bij indrukken van de schakelaar play de laser en de focusregeling werken en draait de motor.
  De lichtpen blijft continu onder de aanloopsporen staan.

3. Service pos. "2"

Door na service pos. "0" of "1" op schakelaar introscan te drukken zal de speler in de service pos. "2" worden gezet.
- Testplaat op draaitafel
- Display geeft "––"
- Radiaal servo test.
  Na het indrukken van de schakelaar introscan zal onmiddellijk het muziekspoor worden weergegeven.
  Door nu de schakelaar next of previous in te drukken zal de lichtpen ± 40 sporen vooruit of terug springen.

Door de schakelaar stop in te drukken komt men terug in de service pos. "0". Men kan uit de servicestand geraken door het apparaat uit te schakelen.

(F) Instruments de mesure requis et auxiliaires

Oscilloscope	
Générateur BF	
Millivoltmètre AC	
Disque de test n°5	4822 397 30085
Tournevis Torx	4822 395 50145
Presseur	4822 532 60906

Test Service

Le µP peut être branché en position service afin de pouvoir tester le µP, l'afficheur et l'asservissement.

1. Position Service "0"

Maintenir enfoncé les commutateurs " display "et "shuffle" et allumer simultanément l'appareil.

- L'afficheur donne:"–"
  Si ce signal n'apparaît pas, il y 80% de chances que le µP est défectueux.
- Test de l'afficheur
  En appuyant sur la touche open/close, le plateau glissera vers l'extérieur.
  L'afficheur s'allumera ainsi que les DEL "repeat" et "shuffle".
  Presser encore une fois le commutateur open/close, le plateau rentrera et l'afficheur ainsi que les DEL s'éteignent.
  Outre à l'afficheur, un certrain nombre de portes E/S sont également testées.

2. Position Service "1"

A partir de la position de service "0" on appelle la position de service "1" en appuyant sur la touche "play".
- Le "–" se maintient à l'afficheur.
- Test de focalisation
  S'il n'y a pas de disque sur le plateau, le laser se déplacera deux fois de haut en bas.
  Lorsqu'il y a un disque sur le plateau, le laser et le régalge de focalisation fonctionneront et le moteur tournera.
  Le laser se maintiendra en permanence sous la piste d'amorçage.

3. Position Service "2"

En appuyant sur la touche "introscan" à partir de la position de service "0" ou "1", l'appareil sera mis dans la position service "2".
- Mettre le disque d'essai sur le plateau.
- L'afficheur indique "––".
- Test d'asservissement radial
  Après avoir appuyé sur la touche instroscan, la piste de musique sera immédiatement reproduite.
  En pressant alors soit la touche "next", soit la touche "previous", le laser avancera, respectivement, reculera de +/– 40 pistes.

A l'aide du commutateur "stop" on revient à la position de service "O".
On quitte les positions de service en éteignant l'appareil.

(D) Benötigte Messgeräte und Hilfsmittel

Oszilloskop	
NF-Tongenerator	
Millivoltmeter	
Universalmessgerät	
Prüfplatte Nr. 5	4822 397 30085
Torx-Schraubenzieher	4822 395 50145
Anpresser	4822 532 60906

Service-Prüfung

Zum Prüfen des µP-Display und Servos lässt sich der Mikroprozessor in die Servicestellung bringen.

1. Servicestellung "0"

Sie wird durch Niederhalten der Schalter "display" und "shuffle" und gleichzeitiges Einschalten des Geräts erreicht.
- Display stellt "–" dar.
  Wenn dies nicht auf dem Display erscheint, hat der Mikroprozessor mit 80%iger Wahrscheinlichkeit Schaden genommen.
- Display-Prüfung
  Durch Drücken des Schalters "open/close" wird die Lade ausgefahren werden.
  Das Display wird voll aufleuchten, sowie die Leuchtdioden "repeat" und "shuffle".
  Erneutes Drücken des Schalters "open/close" lässt die Laden einfahren und das Display und die Leuchtdioden erlöschen.
  Ausser der Display-Prüfung werden damit gleichzeitig noch einige E/A-Tore geprüft werden.

2. Servicestellung "1"

Um in die Servicestellung "1" zu geraten, muss man nach Servicestellung "0" den Schalter "play" drücken.
- Display stellt nach wie vor "–" dar.
  Ohne Platte auf dem Plattenteller wird sich beim Drücken des Schalters "play" der Lichtstift 2x hin und her bewegen.
  Mit einer Platte auf dem Plattenteller wird beim Drücken des Schalters "play" der Laser und die Fokusregelung arbeiten und läuft der Motor.
  Der Lichtstift bleibt dauernd unter den Anlaufspuren stehen.

3. Servicestellung "2l

Dadurch dass nach Servicestellung "0" oder "1" Schalter "introscan" gedrückt wird, wird der Spieler in die Servicestellung "2" gebracht werden.
- Prüfplatte auf Plattenteller.
- Display zeigt "––" an.
- Radialservorprüfung
  Nach Drücken des Schalters "introscan" wird sofort die Musikspur wiedergegeben werden.
  Dadurch dass nun der Schalters "next" oder "previous" gedrückt wird, wird der Lichtstift ca. 40 Spuren voraus oder zurückspringen. Durch Drücken des Schalters "stop" gelangt man wieder in die Servicestellung "0"

Durch Ausschalten des Geräts wird die Servicestellung verlassen.

(I) Instrumenti metrologici e ausiliari

Oscilloscopio	
Generatore BF	
Millivoltmetro AC	
Disco di prova n°5	4822 397 30085
Cacciavite Torx	4822 395 50145
Pressore	4822 532 60906

Test di servizio

Il µP sarà inestato in posizione di servizio in modo di poter testare il µP, il display e il servo.

1. Posizione di Servizio "0"

Mantenere i commutatori " display "e "shuffle" spinti mentre si accende l'apparecchio.

- Il display indica:"–"
  Se questo segnale non compare, esiste 80% di probabilità che il µP è difettoso.
- Prova del display
  Spingendo sul tasto open/close, il piatto sarà spinto verso fuori.
  Il dsiplay si accende cosi come i DEL "repeat" e "shuffle".
  premere un altra volta il tasto open/close, il piatto rientra e il display cosi come i DEL si spengono.
  Oltre al display, alcune porte I/U vengono sottomesse alle prove.

2. Posizione di Servizio "1"

Dalla posizione di servizio "0" si chiama la posizione di servizio "1" premdendo il tasto "play".

- Il "–" si mantiene al display.
- Prova di focalizzazione
  Se il piatto è vuoto, il laser si sposterà due volte insù e ingiù.
  Se vi è un disco sul piatto, il laser e il comando di focalizzazione funzioneranno e il motore girerà.
  Il laser si manterrà constantemente sotto la traccia d'inizio.

3. Position Service "2"

Se si preme sul tasto "introscan" dalla posizione di servizio "0" o "1", l'apparecchio sarà portato in posizione di servizio "2".

- Mettere un disco di prova sul piatto.
- Il display fa comparire "––".
- Test servo–radiale
  Dopo aver premuto il tasto instroscan, la traccia di musica sarà letta subito.
  Premendo sia sul tasto "next", sia il tasto "previous", il laser proseguirà o retrocederà di +/– 40 traccie.

Per mezzo del "stop" si tornà in posizione di servizio "O". Si lascia le posizioni di servizio mentre si mette l'apparecchio fuori funzione.

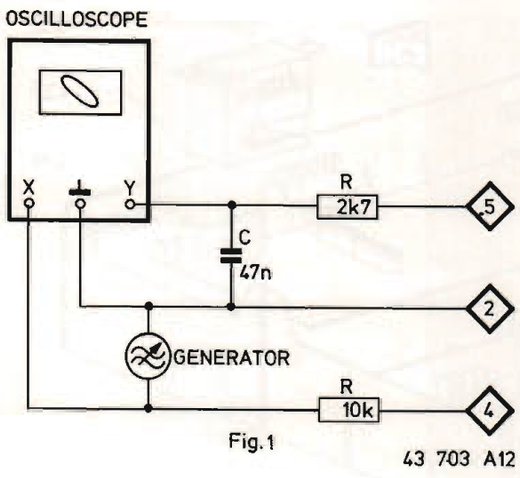


Fig.1

43 703 A12

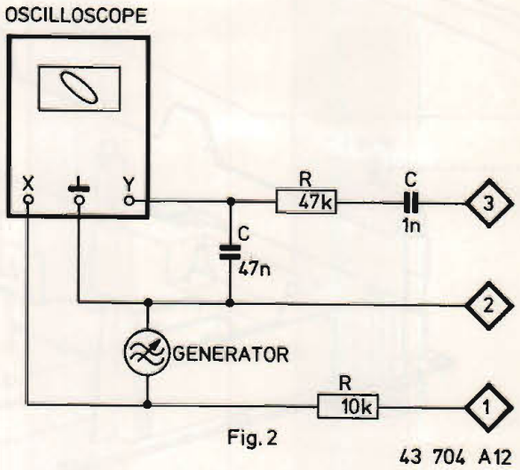
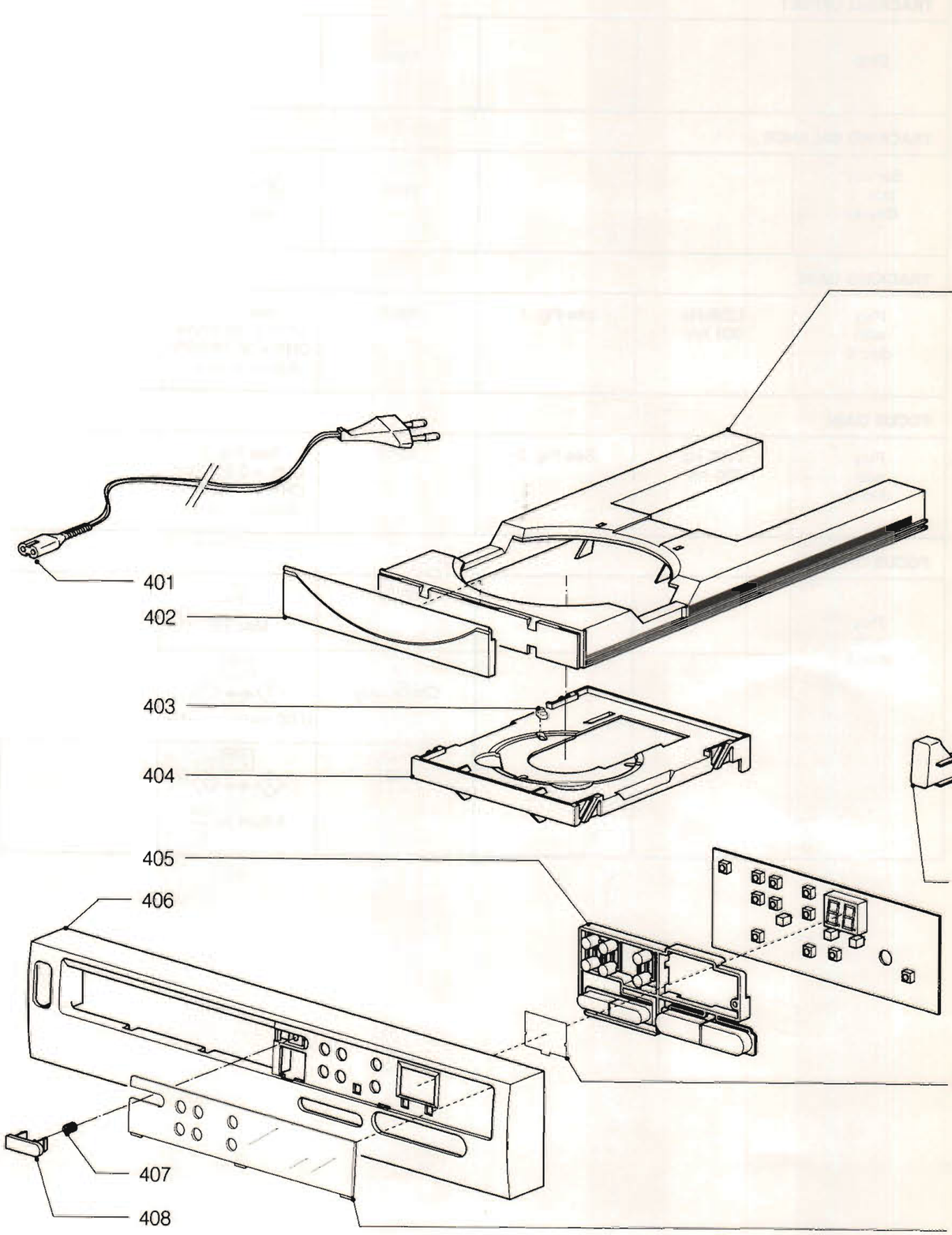


Fig.2

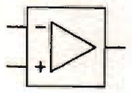
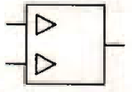
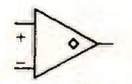
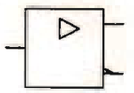
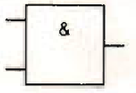
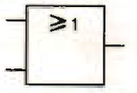
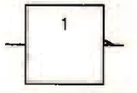
43 704 A12

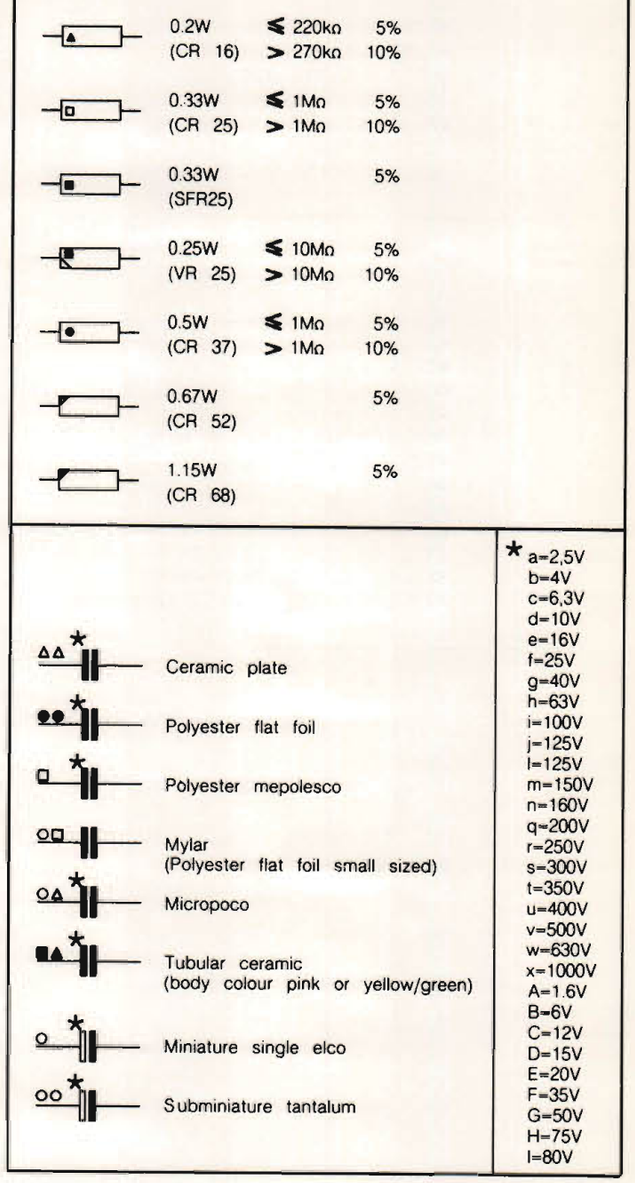
CD part	⊛	◇	⌀	▭	▯
TRACKING OFFSET					
Stop			R840		◇5 ↔ 6◇ 0 V ± 10 mV
TRACKING BALANCE					
Service* pos. 1 display "–"			R803	◇8 ↔ 2◇ Adjust to 0 V DC offset	
TRACKING GAIN					
Play with disc 5	1200 Hz 200 mV	see Fig. 1	R816	See Fig. 1 CHX = 0,2 V/DIV CHY = 50 mV/DIV Adjust to circle	
FOCUS GAIN					
Play with disc 5	1100 Hz 700 mV	See Fig. 2	R813	See Fig. 2 CHX = 0,5 V/DIV CHY = 5 mV/DIV Adjust to circle	
FOCUS OFFSET					
Play with disc 5			R821	◇9 Max HF	
			Check only	◇7 ↔ 2◇ U DC measured = Ux	
			R821	◇7 ↔ 2◇ Adjust to $\frac{Ux}{2}$	



EVA.00724
T28–907

401	4822 321 10244	for /00
401	4822 321 30306	for /05
401	4822 321 10524	for /10
401	4822 321 10259	for /17
402	4822 454 12246	
403	4822 466 61758	
404	4822 691 20498	
405	4822 410 26876	
406	4822 444 40282	
407	4822 492 52057	
408	4822 410 26875	
409	4822 444 60605	
411	4822 444 50614	
412	4822 528 70575	
413	4822 281 50126	
414	4822 402 61223	
415	4822 462 71567	
416	4822 532 61103	
418	4822 535 92565	
419	4822 402 61224	
420	4822 410 26874	
421	4822 381 11037	
422	4822 462 40683	
423	4822 450 61309	
424	4822 492 42317	
425	4822 276 12525	
426	4822 528 70573	
427	4822 358 10111	
428	4822 361 21199	
429	4822 492 70142	
431	4822 528 70574	
432	4822 267 30911	
432	4822 267 31045	only /17
433	4822 146 21079	
434	4822 255 40179	

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



MDA.00084
T32-735

-R-

R802	4822 111 30499	4E7 0,33W
R802	4822 100 20589	
R802	4822 111 30499	4E7 0,33W
R802	4822 100 20166	10K 0,1 30% LIN
R802	4822 100 20166	10K 0,1 30% LIN
R802	4822 100 20166	10K 0,1 30% LIN
R802	4822 100 20166	10K 0,1 30% LIN

-D-

D101	4822 130 80141	GL-9PR4
D102	4822 130 80141	GL9PR4
D103	4822 130 30684	IN4002
D104	4822 130 30684	IN4002
D105	4822 130 30684	IN4002
D106	4822 130 30684	IN4002
D107	4822 130 80141	GL-9PR4
D108	4822 130 30621	IN4148
D109	4822 130 30621	IN4148
D851	4822 130 30621	IN4148
D852	4822 130 30621	IN4148
D853	4822 130 34173	BZX79/B6V6

-IC-

IC110	4822 209	LCD-6810Y
IC120	4822 209	TMP47C 400 AF
IC801	4822 209 72814	M51567P
IC811	4822 209 72815	M51564P
IC813	4822 209 70705	L2727MH
IC814	4822 209 70705	L2727MH
IC815	4822 209 70705	L272MH
IC841	4822 209 83274	N3M4560D
IC861	4822 209 72813	M50422P
IC862	4822 209 72936	MB81416-15P
IC863	4822 209 73864	IM3016
IC864	4822 209 83274	NIM4560D
IC871	4822 209 72096	NIM7805A

-TS-

TS101	4822 130 41327	BC327-40
TS102	4822 130 41327	BC327-40
TS103	4822 130 41344	BC337-40
TS104	4822 130 41327	BC327-40
TS105	4822 130 41327	BC327-40
TS106	4822 130 41344	BC337-40
TS107	4822 130 40941	BC558
TS108	4822 130 44196	BC548C
TS810	4822 130 40938	BC548
TS812	4822 130 41246	BC327-25
TS842	4822 130 40938	BC548
TS843	4822 130 40938	BC548
TS844	4822 130 40941	BC558
TS851	4822 130 41344	BC337-40
TS852	4822 130 41344	BC337-40
TS853	4822 130 41327	BC337-40
TS854	4822 130 41327	BC337-40
TS858	4822 130 40938	BC548
TS859	4822 130 40938	BC548
TS891	4822 130 40938	BC548
TS892	4822 130 40938	BC548

-MISC-

Switch	4822 276 11276	
Switch	4822 276 12349	Power
Switch	4822 276 12525	Moter
Motor	4822 361 21199	Tray
Cinch socket	4822 267 31016	Remote
Crystal	4822 242 71855	8, 46 MC
Transformer	4822 146 21079	Mains

Compact disc player AK691/00/01/05/10/13/17/60/65

Service
Service
Service

AK696/17
AK698/17

For repair information of the C.D. mechanism see Service Manual RCD IF

Service Manual

SUPPLEMENT

AK691/60 is indentical to AK691/00
AK691/65 is indentical to AK691/05

This supplement discribes the changes due to a modified driver circuitry of the C.D. mechanism.
For missing data see service manual 4822 725 22337 of AK691

Q813 Q814	4822 209 61073	TDA7073
A810 ⚠	4822 071 56301	630MAT
Q110	4822 209 60758	LTD-6810Y
Q120	4822 209 72214	TMP47C400AF

CLASS 1 LASER PRODUCT
3122 110 03420

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

Subject to modification
4822 725 22796
Printed in The Netherlands

Published by Consumer Electronics

CD part	⊛	◇	∅	▭	⊡
TRACKING OFFSET					
Stop			R840		⊡ 6 ↔ 10 0 V ± 10 mV
TRACKING BALANCE					
Service* pos. 1 display "–"			R803	▭ 8 ↔ 2 Adjust to 0 V DC offset	
TRACKING GAIN					
Play with disc 5	1200 Hz 200 mV	see Fig. 1	R816		See Fig. 1 CHX = 0,2 V/DIV CHY = 50 mV/DIV Adjust to circle
FOCUS GAIN					
Play with disc 5	1100 Hz 700 mV	See Fig. 2	R813		See Fig. 2 CHX = 0,5 V/DIV CHY = 5 mV/DIV Adjust to circle
FOCUS OFFSET					
Play with disc 5			R821		◈ 9 Max HF
			Check only	▭ 7 ↔ 2 U DC measured = Ux	
			R821	▭ 7 ↔ 2 Adjust to $\frac{Ux}{2}$	

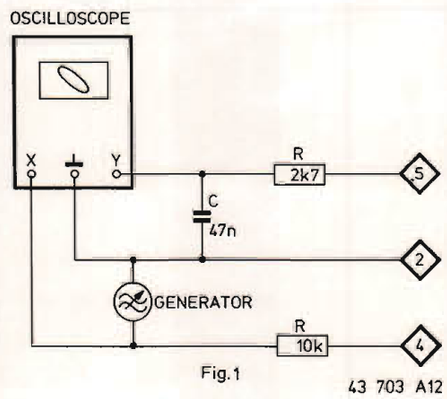


Fig. 1

43 703 A12

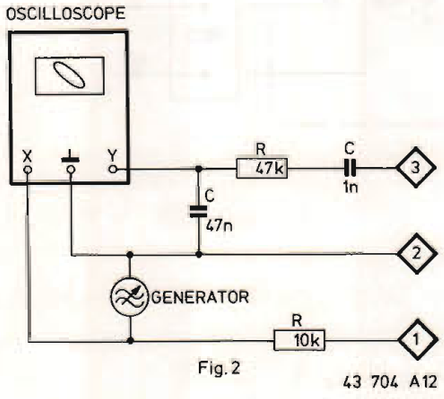


Fig. 2

43 704 A12

CS 29 287

Q811

M51564P

PICK UP UNIT

TRACKING

FOCUS

A802

86

6

89

44

1/2 Q813
TDA7073

+F

R873 10K

R874 220

C836 100N

R822 68K

R848 68K

C816 270P

R831 4K7

R824 330

R825 2K2

C818 68N

C817 100MU

R826 56K

R828 22K

R827 390

R829 18K

C819 18N

C821 18N

R833 68K

R832 5K6

C820 470N

R834 47K

R840 20K

+5

R849 2K2

C837 10N

R839 470K

R836 2K2

C824 560P

R835 22K

R837 82K

C825 1MU

R838 15K

84

C826 68N

R871 6K8

C827 4N7

R872 100K

R876 10K

R875 220

1/2Q813

R877 10K

R878 220

88

C822 150N

R850 22K

1/2 Q814
TDA7073

FS-

FS

FSR

TE-

TE

TG

TST

TG2

TS-

TS

SS+

SS-

SS

31

30

29

28

27

26

25

24

23

22

21

20

19

DISK DRIVE

SLEDGE MOTOR

M1

END STOP SWITCH

SK2

DISC MOTOR

M2

A803

60

61

67

66

62

65

66

R879 3K3

+5

R851 220

R852 220

R854 22K

PMW1

to IC 861

C851 2MU2

R853 22K

PMW2

A810

630MAT

+F

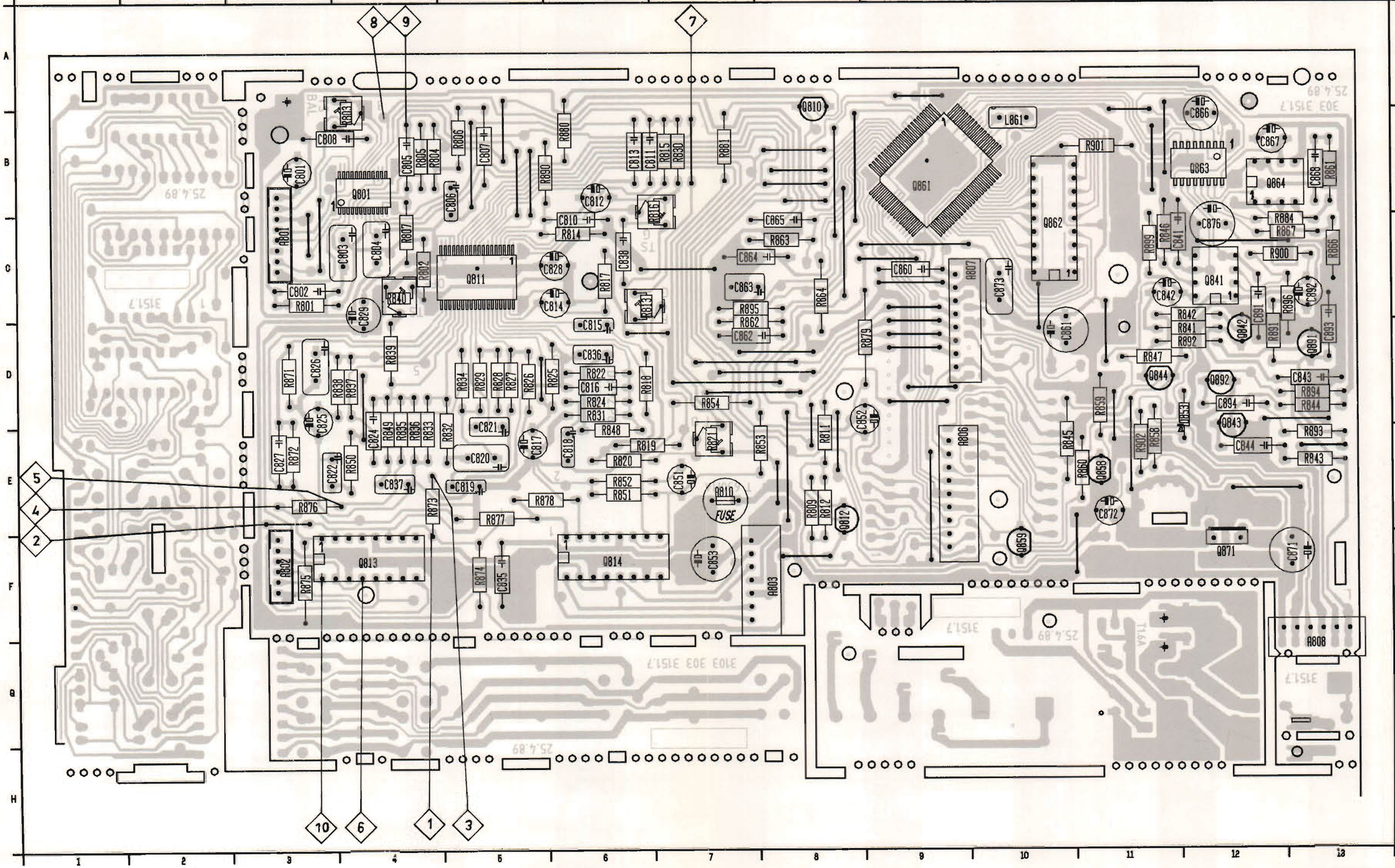
+CD

C835 47N

C853 220MU

CS 29 288

A801	C 3	C803	C 4	C813	B 6	C822	E 3	C837	E 4	C860	C 9	C871	F13	L861	B10	Q843	D12	Q891	D13	R809	E 8	R819	E 6	R829	D 5	R838	D 4	R847	D11	R859	D11	R872	E 3	R881	B 7	R899	C11
A802	F 3	C804	C 4	C814	C 6	C824	E 4	C838	C 6	C861	D10	C872	E11	Q801	B 4	Q844	D11	Q892	D12	R811	E 8	R820	E 6	R830	B 7	R839	D 4	R848	E 6	R860	E11	R873	E 4	R884	C13	R900	C12
A803	F 8	C805	B 4	C815	D 6	C825	D 3	C841	C11	C862	D 7	C873	C10	Q810	A 8	Q858	E11	R801	C 3	R812	E 8	R821	E 7	R831	D 6	R840	C 4	R849	E 4	R861	B13	R874	F 5	R890	B 6	R901	B11
A806	E 9	C806	B 5	C816	D 6	C826	D 3	C842	C11	C863	C 7	C876	C12	Q811	C 5	Q859	F10	R802	C 4	R813	C 6	R822	D 6	R832	E 5	R841	D12	R850	E 4	R862	D 7	R875	F 3	R891	D12	R902	E11
A807	C10	C807	B 5	C817	E 5	C827	E 3	C843	D13	C864	C 7	C891	C12	Q812	E 8	Q861	B 9	R803	B 4	R814	C 6	R824	D 6	R833	E 4	R842	C12	R851	E 6	R863	C 8	R876	E 3	R892	D12		
A808	G13	C808	B 3	C818	E 6	C828	C 6	C844	E12	C865	C 8	C892	C13	Q813	F 4	Q862	C10	R804	B 4	R815	B 7	R825	D 6	R834	D 5	R843	E13	R852	E 6	R864	C 8	R877	E 5	R893	E13		
A810	E 7	C810	C 6	C819	E 5	C829	C 4	C851	E 7	C866	B12	C893	D13	Q814	F 6	Q863	B12	R805	B 4	R816	B 7	R826	D 5	R835	E 4	R844	D13	R853	E 8	R866	C13	R878	E 5	R894	D13		
C801	B 3	C811	B 6	C820	E 5	C835	F 5	C852	D 8	C867	B12	C894	D12	Q841	C12	Q864	B12	R806	B 5	R817	C 6	R827	D 5	R836	E 4	R845	E10	R854	D 7	R867	C13	R879	D 9	R895	C 7		
C802	C 3	C812	B 6	C821	D 5	C836	D 6	C853	F 7	C868	B13	D853	D12	Q842	D12	Q871	F12	R807	C 4	R818	D 6	R828	D 5	R837	D 4	R846	C11	R858	E11	R871	D 3	R880	B 6	R896	C13		



CS 29 289