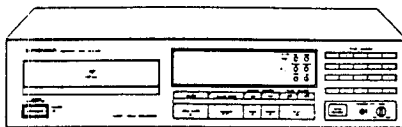


Service Manual



● PD-6700 TYPE

ORDER NO.
ARP2193

COMPACT DISC PLAYER

PD-6700 PD-5700 PD-4700

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Oxon OX9 4QY
Tel:- 01844-351694 Fax:- 01844-352554
Email:- enquiries@mauritron.co.uk

PD- 6700, PD- 5700 AND PD- 4700 HAVE THE FOLLOWING:

Type	Model					Power Requirement.	Remarks
	PD-6700	PD-6700-S	PD-5700	PD-5700-S	PD-4700		
KU	○	—	○	—	○	AC 120V only	
KC	○	—	○	—	○	AC 120V only	
KUXJ	○	—	○	—	○	AC 120V only	
KCXJ	○	—	○	—	○	AC 120V only	
SD	—	—	○	—	○	AC 110V, 120V-127V, 220V, 240V (switchable)	
UPW	—	—	○	—	○	AC 230V-240V	
MEMXJ	○	—	○	—	○	AC 220V-230V	
MEWMXJ	—	○	—	○	—	AC 220V-230V	
UBXJ	○	—	○	—	○	AC 230V-240V	

- This manual is applicable to the PD- 6700/KU, KC, KUXJ, KCXJ, PD- 5700/KU, KC, KUXJ, KCXJ, PD- 4700/KU, KC, KUXJ and KCXJ types.
- As to the PD- 6700/KC, KUXJ and KCXJ types, refer to pages 76.
- As to the PD- 5700/KC, KUXJ and KCXJ types, refer to pages 76.
- As to the PD- 4700/KC, KUXJ and KCXJ types, refer to pages 77.
- As to the other types, refer to applicable service manuals.
- Ce manuel pour le service comprend les explications de réglage en français.
- Este manual de servicio trata del método ajuste escrito en español.

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PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan

PIONEER ELECTRONICS SERVICE INC. P.O. Box 1760, Long Beach, California 90801 U.S.A.

PIONEER ELECTRONICS OF CANADA, INC. 505 Cochrane Drive, Markham, Ontario L3R 8E3 Canada

PIONEER ELECTRONIC [EUROPE] N.V. Keetberglaan 1, 2740 Beveren, Belgium

PIONEER ELECTRONICS AUSTRALIA PTY. LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia TEL: [03] 580-9911

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IFJ MAR. 1991 Printed in Japan

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.

Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING

Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5).

When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

1. SAFETY INFORMATION

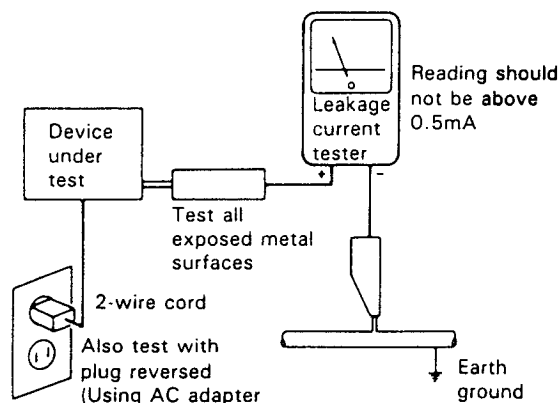
(FOR USA MODEL ONLY)

1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5mA.



AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a Δ on the schematics and on the parts list in this Service Manual.

The use of a substitute replacement component which does not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

2. DISASSEMBLY

● REMOVING THE BONNET

- 1 Remove six screws to the bonnet.
- 2 Remove the bonnet by pulling up it in the vertically direction of arrow.

To easily remove the bonnet, pull outward on both sides of the bonnet then pull it diagonally toward the rear of the unit. In the conventional manner, the hooks shown in Fig. 2-1 may be caught and the hooks on the front panel side may be deformed.

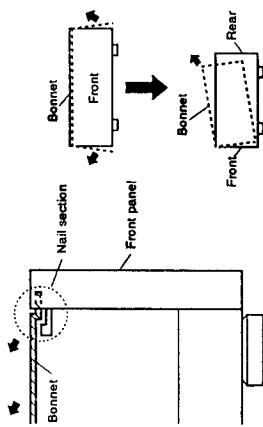


Fig. 2-1

● REMOVING THE TRAY

- 1 Turn the POWER switch ON, and open the tray by the OPEN/CLOSE key. (Refer to the Note 1 when opening the tray by hand-operated.)
- 2 Pull out the tray slowly by pushing the nail of the tray section front: two holes ① and ② of the clamping base (Fig. 2-2). (It is necessary to push the nail of the tray section at the front panel portion.)

Note 1: How to open the tray by hand-operated

● REMOVING THE FRONT PANEL

- 1 Remove five screws ③ (Upper side is two screws and under side is three screws.) to the front panel.
- 2 Remove a screw ④ to the Headphone board assembly (Fig. 2-2).
- 3 Disconnect two connectors CN351 and CN401 from the Mother board assembly (Fig. 2-2).
- 4 Remove the front panel and the Headphone board assembly together.

CAUTION: When CN351 is connected and disconnected, be sure to disconnect the AC power cord from the AC outlet. If not, microcomputer (IC351) may be destroyed.

- 1 Turn the gear B slowly in the direction of arrow by ① screwdriver with care not to damage the gear B (Fig. 2-2).
- 2 Turn gear B until the tray starts to move in the direction of the OPEN position.
- 3 Move the tray to the OPEN position by hand.

Note: When attaching the tray, be sure attach it when the servo mechanism assembly is in the completely lowered position (when the rack has been moved all the way back). Otherwise, the upward and downward movements of the servo mechanism assembly may not synchronize with the movements of the tray. If the tray has been incorrectly attached, re-attach it as follows.

- 1 Remove the tray following Step 2 of "REMOVING THE TRAY".
- 2 Move the rack all the way back by hand.
- 3 Install the tray.

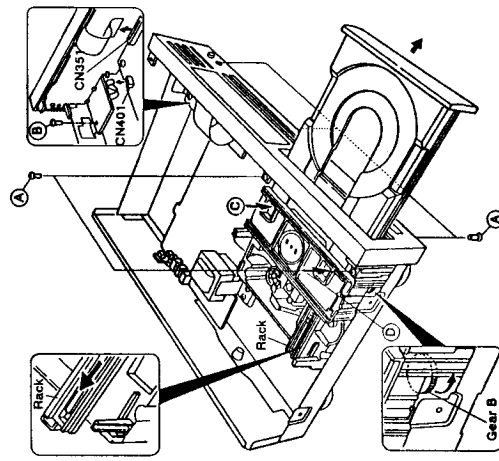


Fig. 2-2

● REMOVING THE SERVO MECHANISM ASSEMBLY

- 1 Remove the tray (Refer to the "REMOVING THE TRAY").
- 2 Remove the four screws ① and one screw ② with the servo mechanism assembly lowered (to the tray-open position) (Fig. 2-3).
- 3 To move the rack by hand, gear A and the gear section of the rack must be engaged at section ③ (see Fig. 2-3). Otherwise, the rack may not move. In this case, move gear B with a ④ screwdriver from the side and fit gear B and the gear section of the rack at the engaging section ⑤.

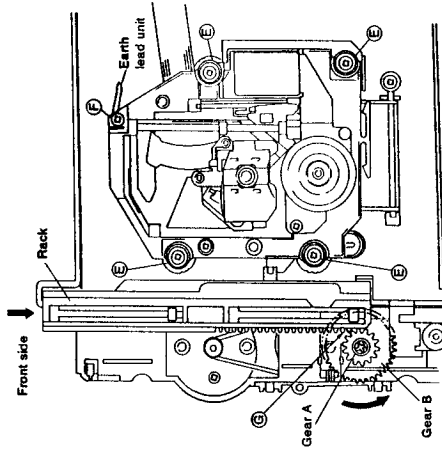


Fig. 2-3

- 4 Push the slide bushing at the front left with a thin implement such as a ⑥ screwdriver (Fig. 2-4).
- 5 Pull up the rear side H of the servo mechanism assembly. (Arrow ① in Fig. 2-4)
- 6 To release the engagement at section ① of the servo mechanism assembly, turn the assembly counterclockwise on the slide bushing ⑦ (Arrow ② in Fig. 2-4)

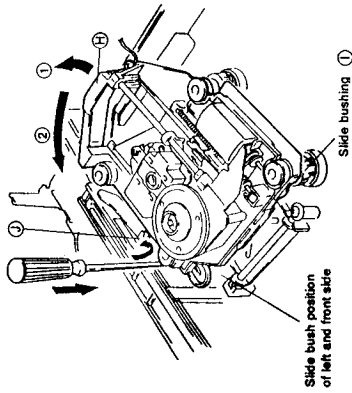


Fig. 2-4

● REMOVING THE SWING LEVER

- 1 Move the rack manually so that section ⑧ of the swing lever reaches the inclined part ⑨ of a groove on the rack. (see Fig. 2-5)
- 2 Remove screw ⑩ which holds the shaft.
- 3 Slightly pull up the right side of the shaft (the side of screw ⑩) and pull the shaft outward in the direction of arrow ⑪.

● REMOVING THE SLIDE BUSHING

- 1 Compress the slide bushing from three directions as shown in Fig. 2-5.
- 2 Remove the bushing by turning it in the direction of the arrow ⑫.

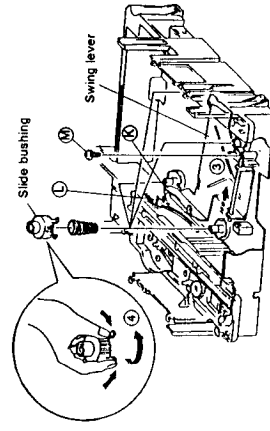
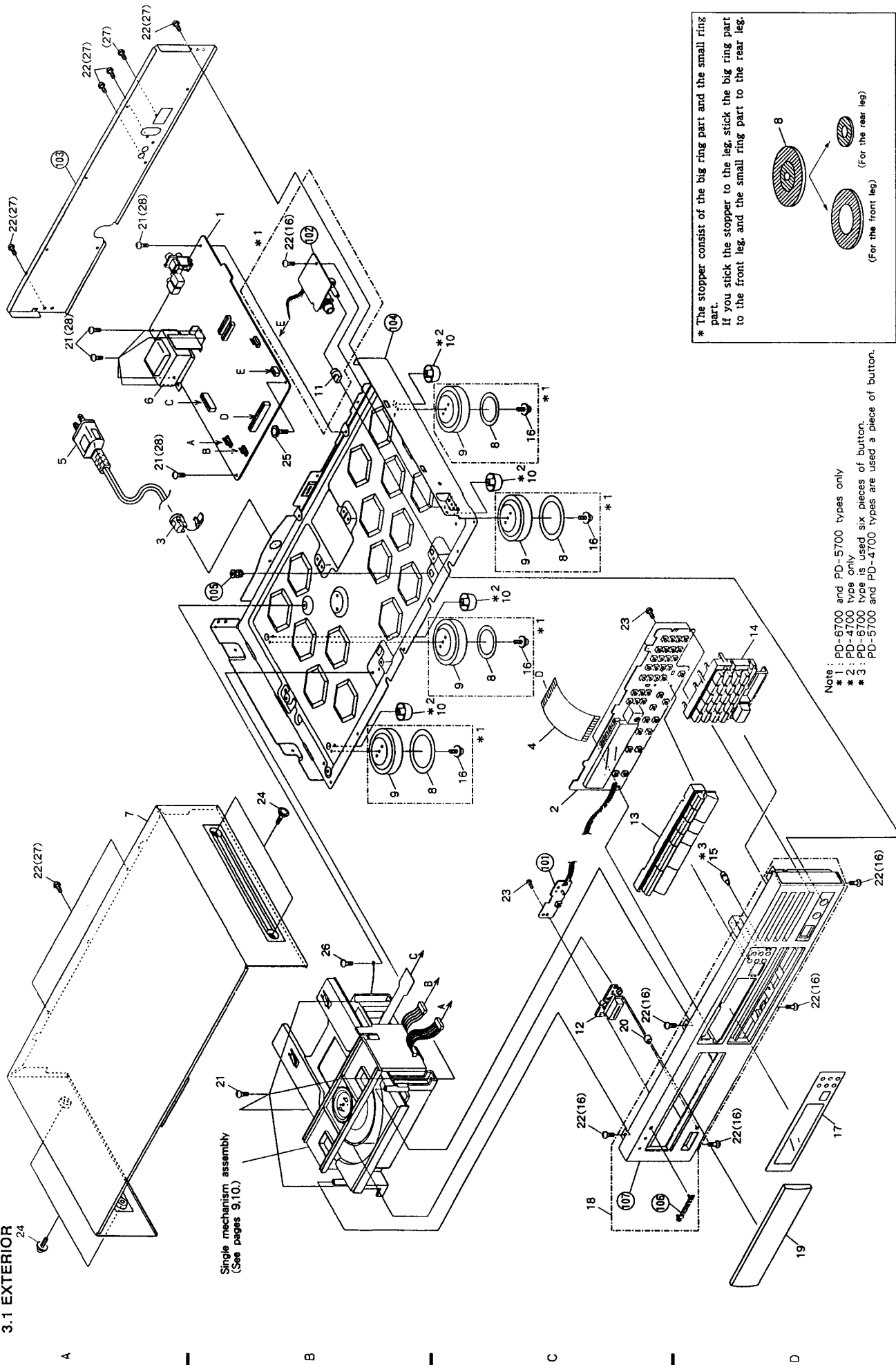


Fig. 2-5

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3. EXPLODED VIEWS AND PARTS LIST

3.1 EXTERIOR



NOTES:

- Parts without part number cannot be supplied.
- The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

Parts List of Exterior Section

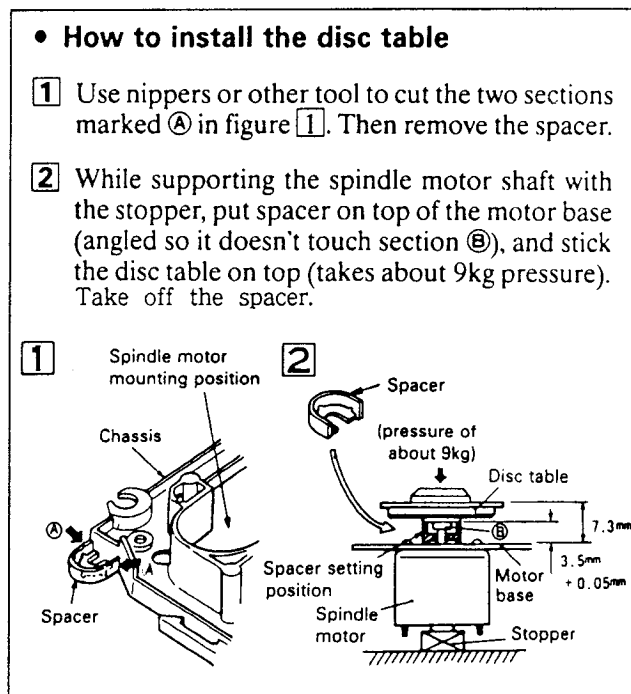
Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
⊙	1	Mother board assembly (PD-6700 type only)	PWM1429	15	Time button B (PD-6700 and PD-5700 types only)	PAC1549	
⊙	1	Mother board assembly (PD-5700 type only)	PWM1425	15	Time button A (PD-4700 type only)	PAC1546	
⊙	1	Mother board assembly (PD-4700 type only)	PWM1421	16	Screw (PD-6700 type only)	IBZ30P080FCC	
⊙	2	Function board assembly (PD-6700 type only)	PWZ2103	17	Display window CK (PD-6700 type only)	PAM1470	
⊙	2	Function board assembly (PD-5700 type only)	PWZ2096	17	Display window BK (PD-5700 type only)	PAM1463	
⊙	2	Function board assembly (PD-4700 type only)	PWZ2094	17	Display window AK (PD-4700 type only)	PAM1462	
Δ	3	Strain relief (PD-6700 type only)	CM-22C	18	Function panel assembly (PD-6700 type only)	PEA1141	
Δ	3	Strain relief (PD-5700 and PD-4700 types only)	CM-22	18	Function panel assembly (PD-5700 type only)	PEA1140	
	4	Flexible cable (30P) (PD-6700 and PD-5700 types only)	PDD1049	18	Function panel assembly (PD-4700 type only)	PEA1139	
	4	Flexible cable (28P) (PD-4700 type only)	PDD1070	19	Tray name plate	PNW1900	
Δ	5	AC power cord (PD-6700 type only)	PDG1015	20	LED lens	PNW2019	
Δ	5	AC power cord (PD-5700 and PD-4700 types only)	PDG1040	21	Screw	BBZ30P060FMC	
				22	Screw	BBZ30P080FZK	
				23	Screw	BBZ30P120FMC	
Δ	6	Power transformer (AC 120V)	PTT1187	24	Screw	FBT40P080FZK	
	7	Bonnet	PYY1147	25	Screw	IBZ30P150FCC	
	8	Stopper (PD-6700 and PD-5700 types only)	PNM1070	26	Screw	PDZ30P050FMC	
				27	Screw (PD-6700 type only)	BBZ30P080FCC	
	9	Insulator (PD-6700 and PD-5700 types only)	VNK1095	28	Screw (PD-6700 type only)	IBZ30P060FCC	
	10	Leg assembly (PD-4700 type only)	PXA1201	101	Switch board assembly		
	11	Headphone knob (PD-6700 and PD-5700 types only)	PAC1370	102	Headphone board assembly (PD-6700 and PD-5700 types only)		
	12	Power button	PAC1540	103	Rear base		
	13	Play button B (PD-6700 and PD-5700 types only)	PAC1542	104	Under base		
	13	Play button A (PD-4700 type only)	PAC1541	105	PCB spacer		
	14	Select button (PD-6700 type only)	PAC1545	106	PIONEER badge		
	14	Program button B (PD-5700 type only)	PAC1544	107	Function panel C (PD-6700 type only)		
	14	Program button A (PD-4700 type only)	PAC1543	107	Function panel B (PD-5700 type only)		
				107	Function panel A (PD-4700 type only)		

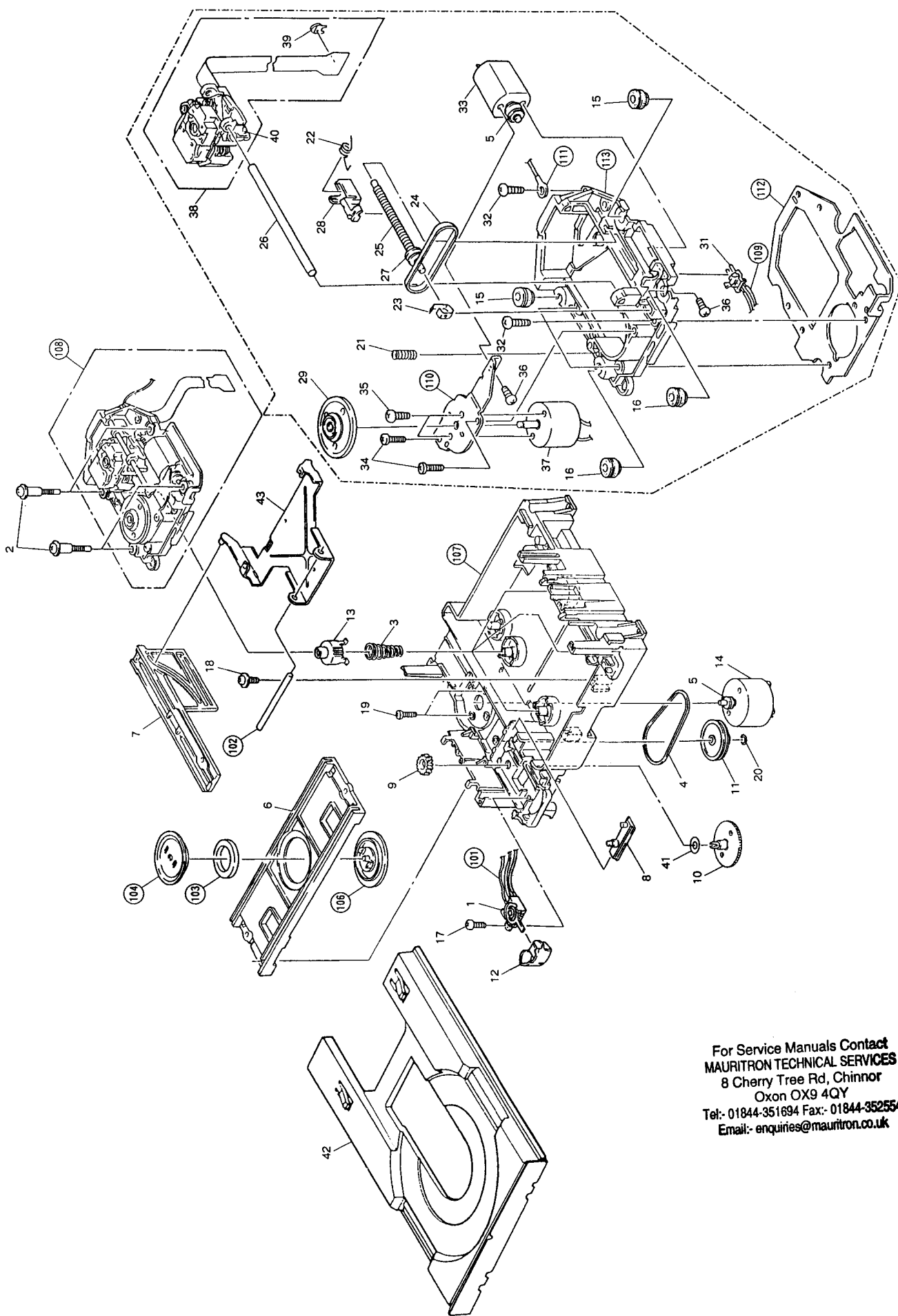
3.2 MECHANISM SECTION

Parts List of Mechanism Section

Mark	No.	Description	Part No.
	1	Lever switch (CLAMP)	DSK1003
	2	Screw	PBA1042
	3	Coil spring	PBH1085
	4	Rubber belt	PEB1127
	5	Motor pulley	PNW1634
	6	Clamper base	PNW1673
	7	Rack	PNW1674
	8	Synchronized plate	PNW1675
	9	Gear A	PNW1676
	10	Gear B	PNW1677
	11	Gear Pulley	PNW1678
	12	Sensor head	PNW1679
	13	Slide bushing	PNW1680
	14	D. C. motor (0.75W) (LOADING)	PXM1010
	15	Floating rubber	PEB1014
	16	Floating rubber	PEB1132
	17	Screw	BPZ26P080FMC
	18	Screw	IPZ30P080FMC
	19	Screw	PMZ26P040FMC
	20	Washer	WT26D047D025
	21	Earth spring	PBH1009
	22	Drive spring	PBH1084
	23	Plate spring	PBK1057
	24	Belt	PEB1072
	25	Drive screw	PLA1003
	26	Guide bar	PLA1071
	27	Pulley	PNW1066
	28	Half nut	PNW1605
	29	Disc table	PNW1608
	30	
	31	Push switch (INSIDE)	DSG1014
	32	Screw	PBZ30P080FMC
	33	D. C. motor (1.7W) (CARRIAGE)	PXM1013
	34	Screw	BPZ20P080FMC
	35	Screw	JFZ20P025FMC
	36	Screw	PMZ20P030FMC
	37	D. C. motor assembly (SPINDLE) (with oil)	PEA1028
	38	Pickup assembly	PEA1030
	39	Variable resistor (VR1)	PCP1008
	40	Chip capacitor (C1001)	CKSYF105Z16
	41	Washer	WA62D095D013
	42	Tray	PNW1838
	43	Swing lever	PNB1296

Mark	No.	Description	Part No.
	101	2mm pitch connector assembly (5P)	
	102	Shaft	
	103	Clamp magnet	
	104	Yoke	
	105	
	106	Clamper S	
	107	Loading base	
	108	Servo mechanism assembly	
	109	2mm pitch connector assembly (6P)	
	110	Motor base	
	111	Earth lead unit (300V)	
	112	Mechanism base	
	113	Mechanism chassis	



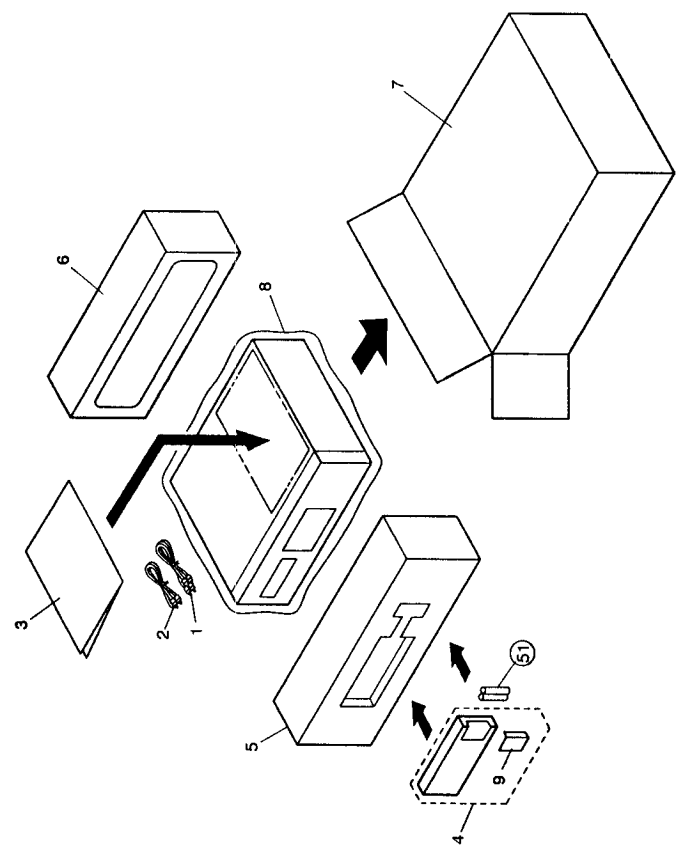


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10 6 5 4 3 2 1

4. PACKING

Parts List	Part No.	Description	Part No.	Description	Part No.
1	PDE-319	Connection cord with mini plug	PHG1700	CD packing case (PD-6700 type)	
2	PDE1109	Connection cord with pin plug	PHG1699	CD packing case (PD-5700 type)	
3	PRB1138	Operating instructions (English)	PHG1698	CD packing case (PD-4700 type)	
4	PWW1060	Remote control unit (PD-6700 type)	223-007	Mirror mat sheet	
4	PWW1061	Remote control unit (PD-5700 type)	PZNI1001	Battery cover (PD-6700 and PD-5700 types)	
5	PHA1116	Protector F	51	Dry cell battery (R03, AAA)	
6	PHA1117	Protector R			



5. IC INFORMATION

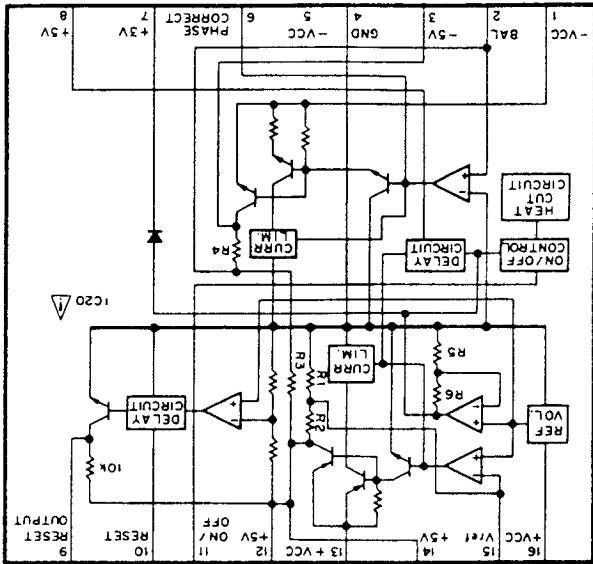
■ PD2026A
D/A converter

● Pin Function

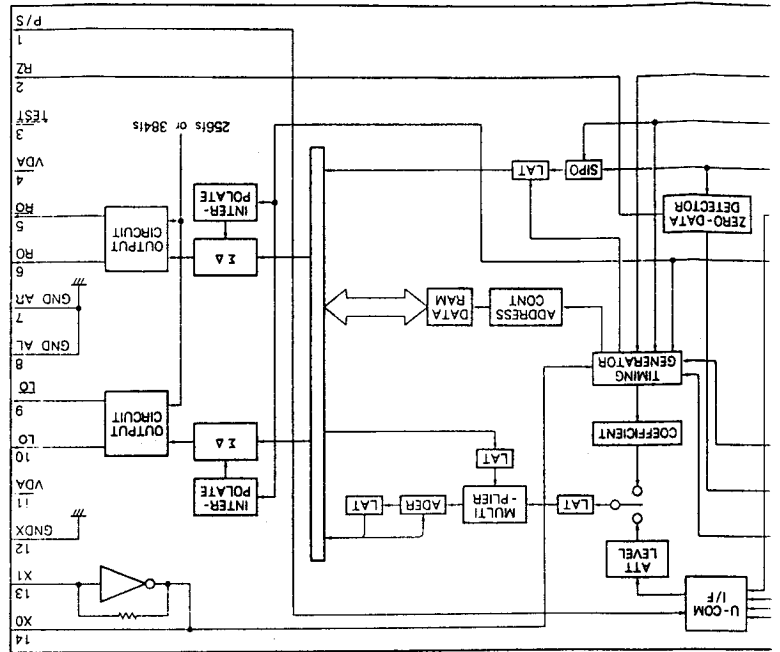
No.	Pin Name	I/O	Function	No.	Pin Name	I/O	Function
1	P/S	I*	Switching the serial and parallel controls.	20	LATCH (EM1)	I*	Data latch signal input for attenuator when controlling the serial. Select the deemphasis filter mode when controlling the parallel.
2	RZ	O	Digital zero detection output of R ch.	21	SHIFT (EM2)	I	Shift clock input for attenuator when controlling the serial. Select the deemphasis filter mode when controlling the parallel. EMI L L L H H EMI2 L H L H H Mode 44.1 OFF 48 32 (kHz)
3	TEST	I*	Test terminal (usually, use at "H")	22	ATT (MUTE)	I	Data input for attenuator when controlling the serial. Becomes muting terminal when controlling the parallel. Mute ON at "H".
4	VDA	-	Analog power supply for R ch DA converter.	23	OSCE	I*	System clock control. Stop the system clock at "L".
5	RO	O	Data positive direction output of R ch.	24	RESET	I*	Reset terminal. Reset the $\Sigma \Delta$ circuit at "L" and attenuate data becomes 00 (HEX).
6	RO	O	Data reverse direction output of R ch.	25	DATA		Data input.
7	GND A	-	Analog ground for R ch DA converter.	26	BCK	I	Bit clock input.
8	GND A	-	Analog ground for L ch DA converter.	27	LRCK		LR clock input (L ch data at "H").
9	LO	O	Data reverse output of L ch.	28	VDD	-	Power supply of the logic section.
10	LO	O	Data positive output of L ch.				
11	VDA	-	Analog power supply for L ch DA converter.				
12	GND X	-	Ground of oscillating section.				
13	XI	I	Crystal oscillating circuit input.				
14	XO	O	Crystal oscillating circuit output.				
15	VDX	-	Power supply of oscillating section.				
16	GND	-	Ground of logic section.				
17	C	I*	Clock selection. "L": 256fs, "H": 384fs				
18	LZ	O	Digital zero detection output of L ch.				
19	MCK	O	System clock output.				

I* : Input terminals with pull-up resistor.

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IC20: M5298P



IC20: M5298P

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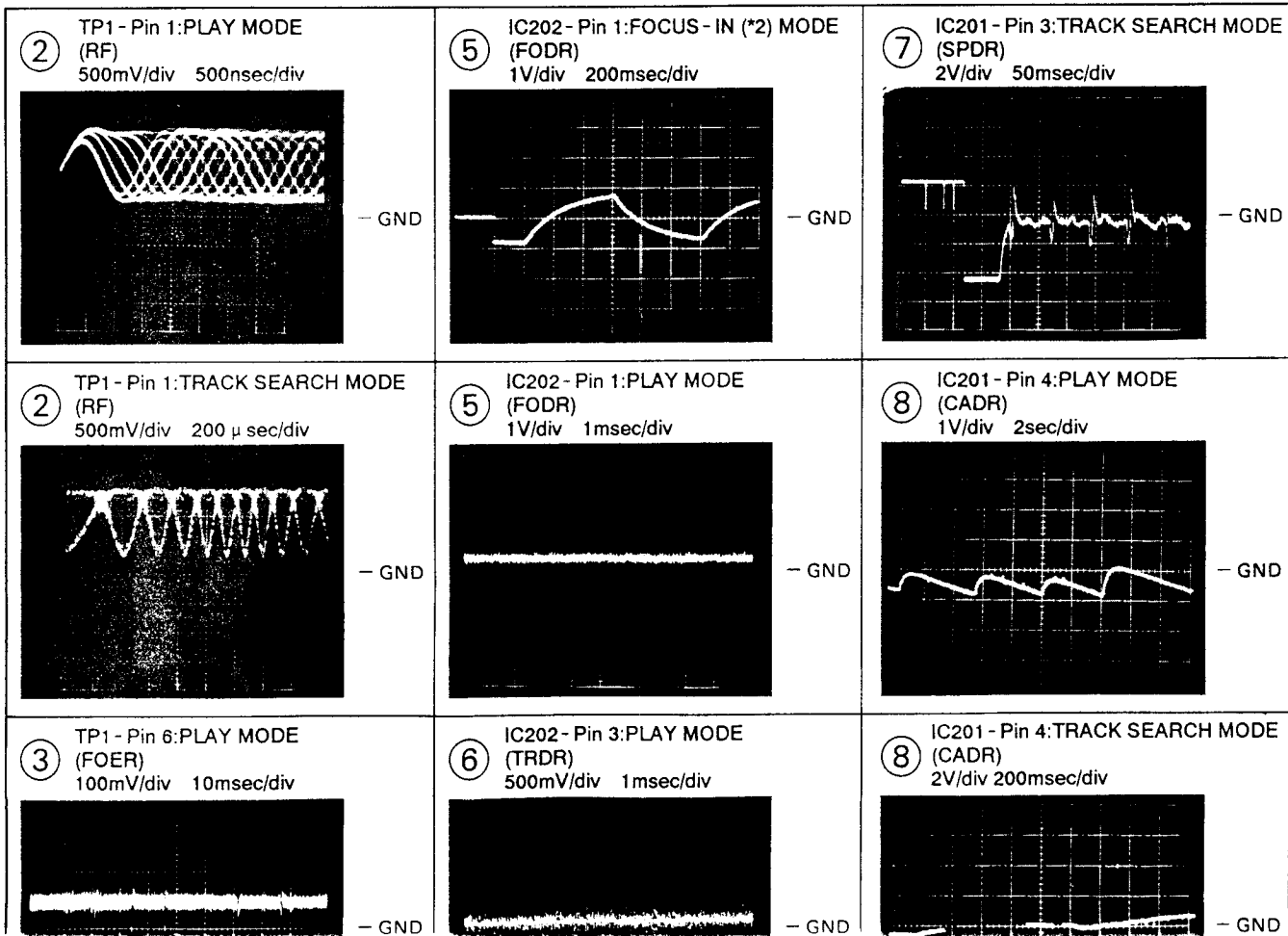
6. SCHEMATIC DIAGRAM

6.1 Wave Forms

Note: The encircled numbers denote measuring in the schematic diagram.

*1 50T - JUMP: After switching to the pause mode, press the manual search key.

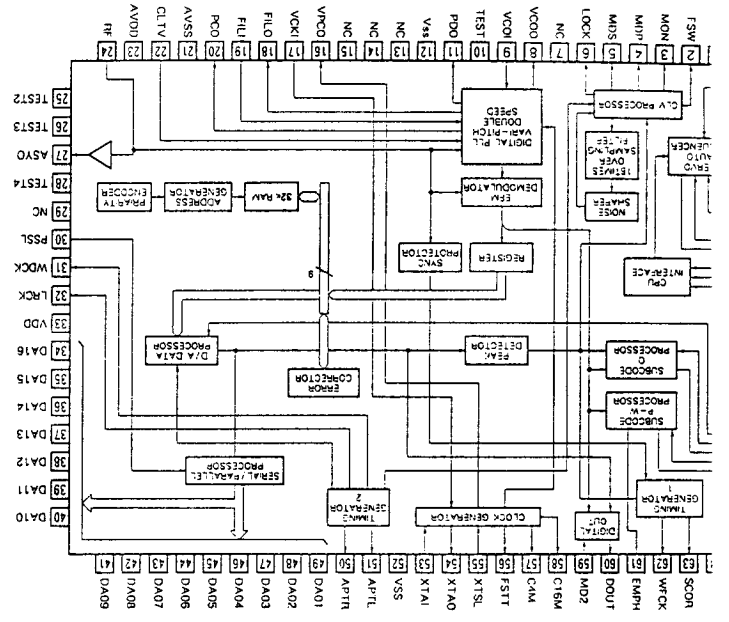
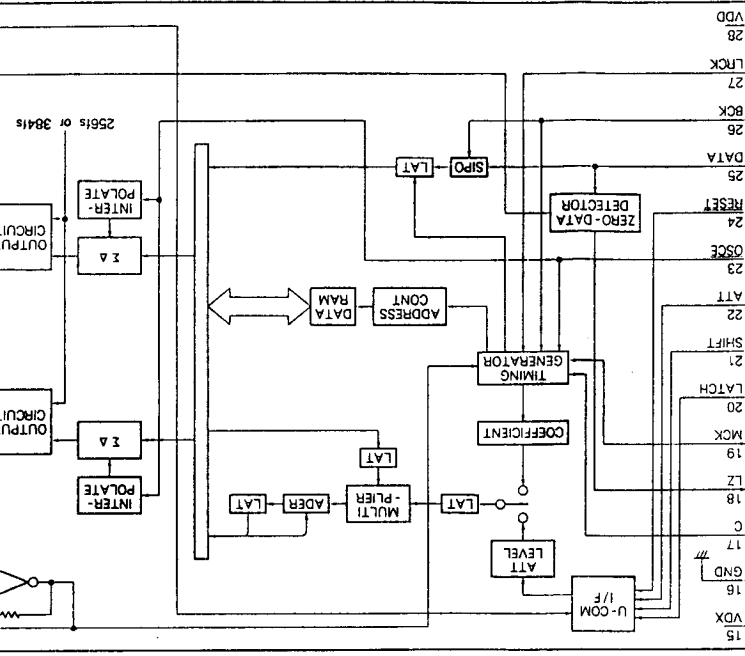
*2 FOCUS - IN: Press the key without loading a disc.



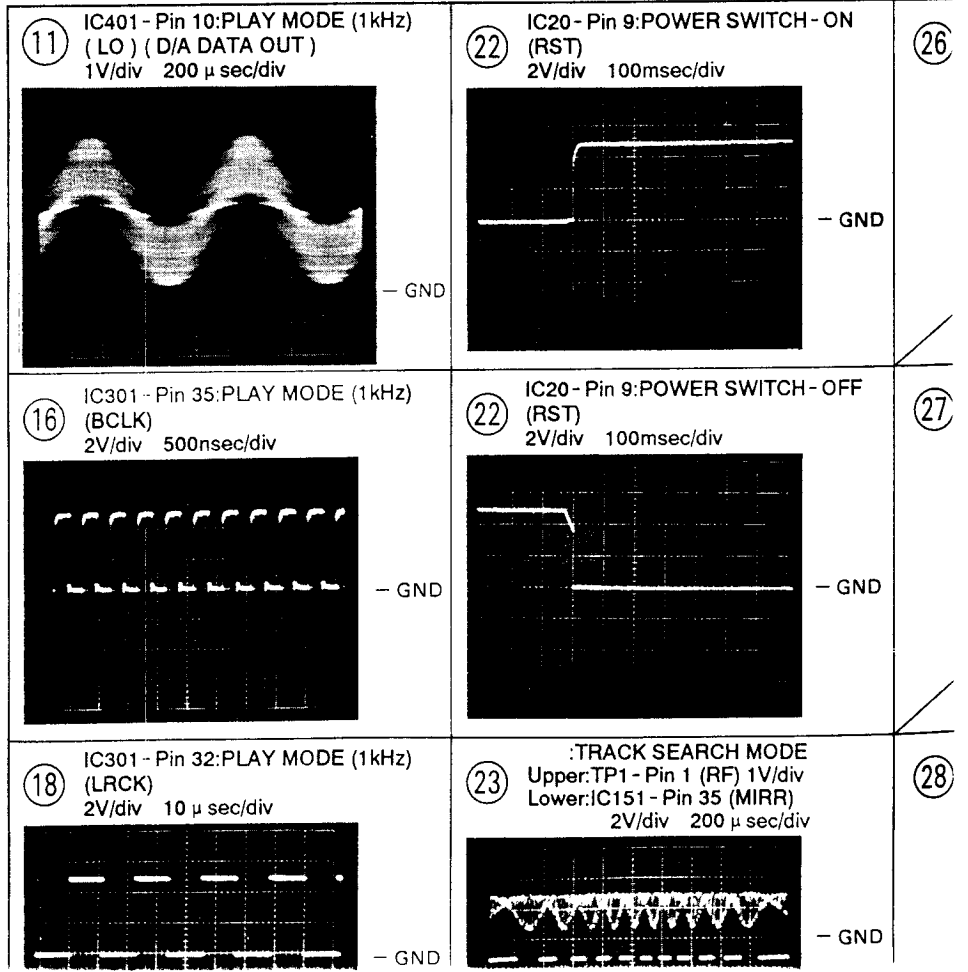
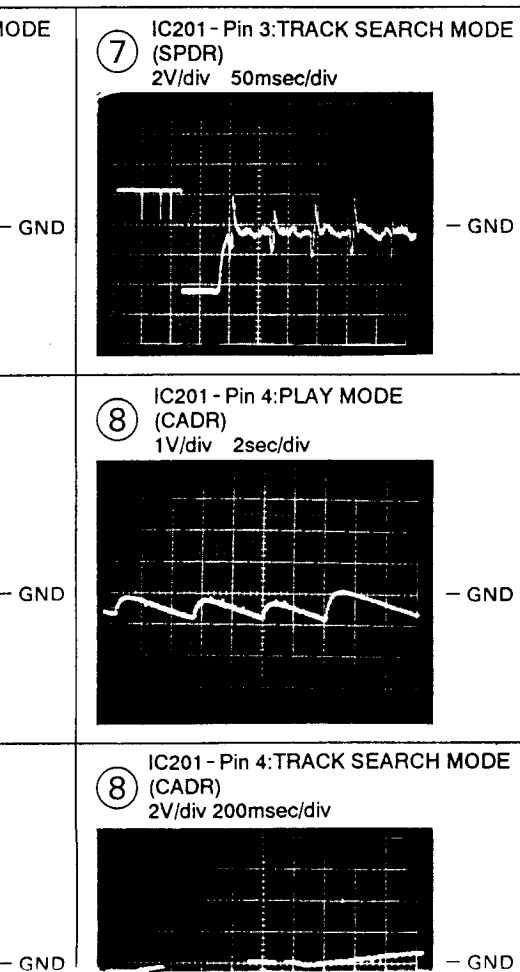
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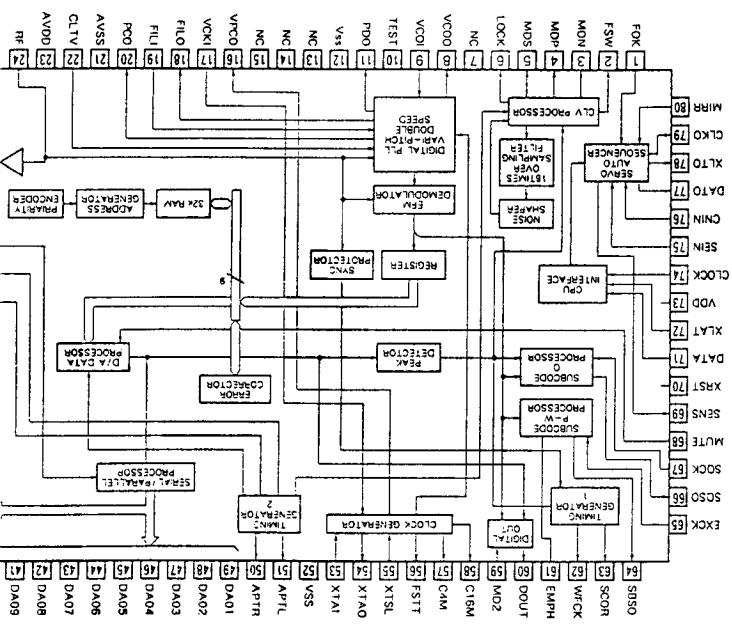
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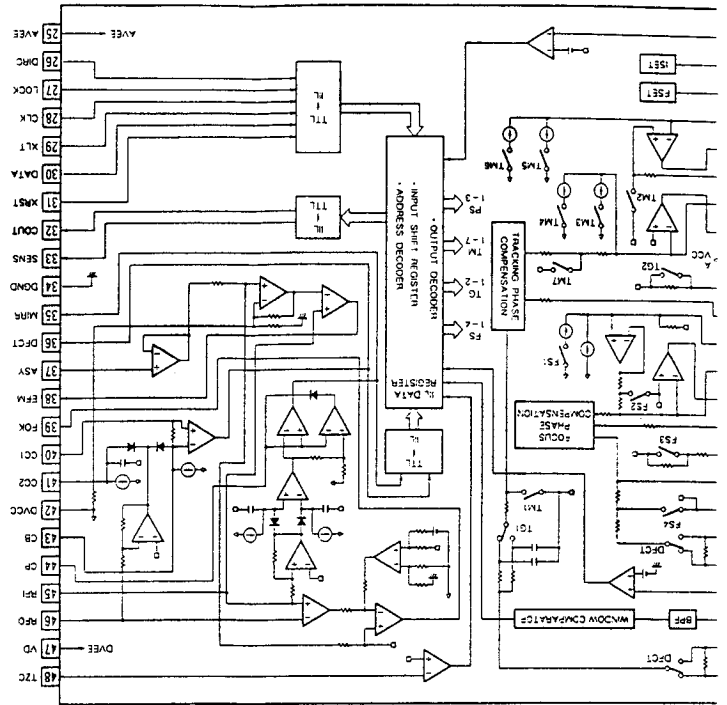


OT - JUMP: After switching to the pause mode, press the manual search key.
 OCUS - IN: Press the key without loading a disc.



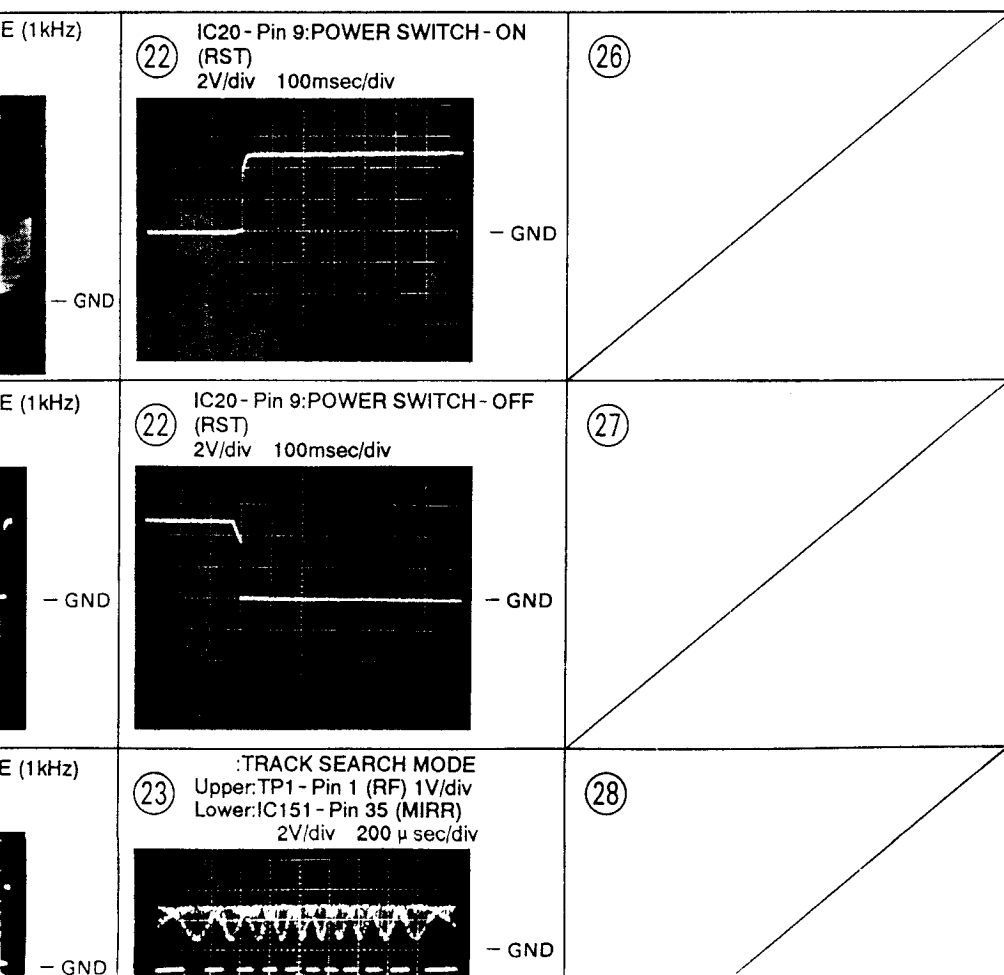


IC301: CXD2500AQ



IC151: CXA1372S

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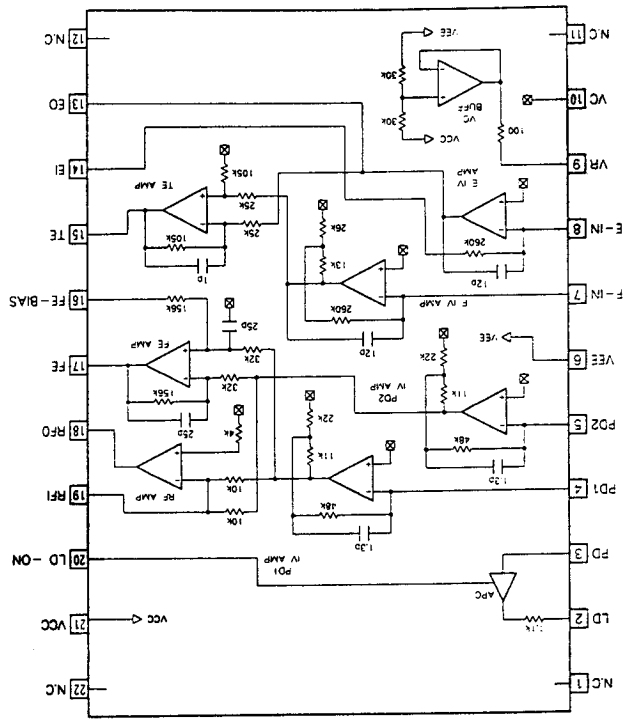
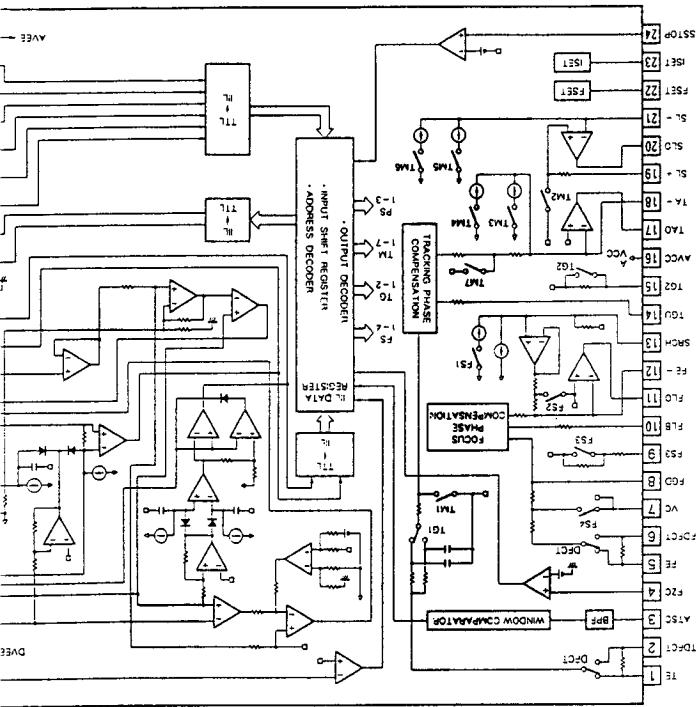
1. RESISTORS :
Indicated in Ω , 1/4W, 1/5W
M;M Ω , (F); ± 1%, (G); ±
2. CAPACITORS :
Indicated in capacity(μ F)/
voltage is 50V except electro

3. VOLTAGE, CURRENT :
 :DC voltage(V)at
 :DC current at pla
 Value in()is DC

4. OTHERS :
 :Signal route.
 :Adjusting point.
 The Δ mark found on som
 factor of the part. Therefo
 designation.
 * marked capacitors and res

This is the basic schema
 improvements in design.

5. SWITCHES : (The underlined
 SWITCH BOARD ASSEMBLY
 S801 : POWER ON - O
 FUNCTION BOARD ASSEME
 (PD - 6700 TYPE)
 S701 : PEAK SEARCH
 S702 : CHECK
 S703 : CLEAR
 S704 : PGM
 S705 : EDIT
 S706 : RANDOM PLAY
 S707 : >>>



● IC BLOCK DIAGRAMS

1. RESISTORS :
Indicated in Ω , 1/4W, 1/6W and 1/8W, $\pm 5\%$ tolerance unless otherwise noted k; k Ω , M; M Ω , (F); $\pm 1\%$, (G); $\pm 2\%$, (K); $\pm 10\%$, (M); $\pm 20\%$ tolerance.
2. CAPACITORS :
Indicated in capacity (μ F)/voltage(V) unless otherwise noted p ; pF. Indication without voltage is 50V except electrolytic capacitor.
3. VOLTAGE, CURRENT :

	:DC voltage(V) at play state.
\Rightarrow mA	:DC current at play state.

Value in () is DC current at stop state.
4. OTHERS :
 - \Rightarrow :Signal route.
 - \odot :Adjusting point.

The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

* marked capacitors and resistors have parts numbers.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

5. SWITCHES : (The underlined indicates the switch position)
- | | |
|---|--|
| <p>SWITCH BOARD ASSEMBLY</p> <p>S801 : POWER ON — <u>OFF</u></p> <p>FUNCTION BOARD ASSEMBLY (PD - 6700 TYPE)</p> <p>S701 : PEAK SEARCH</p> <p>S702 : CHECK</p> <p>S703 : CLEAR</p> <p>S704 : PGM</p> <p>S705 : EDIT</p> <p>S706 : RANDOM PLAY</p> <p>S707 : <u>>></u></p> | <p>FUNCTION BOARD ASSEMBLY (PD - 5700 AND PD4700 TYPES)</p> <p>S701 : PEAK SEARCH</p> <p>S702 : CHECK</p> <p>S703 : CLEAR</p> <p>S704 : PGM</p> <p>S705 : EDIT</p> <p>S706 : RANDOM PLAY</p> <p>S707 : <u>>></u></p> |
|---|--|

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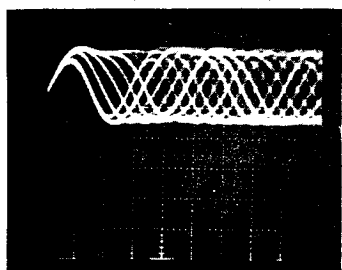
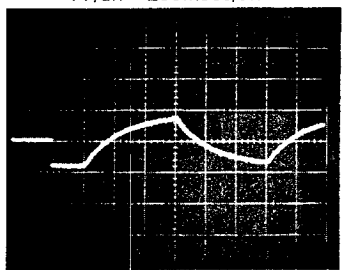
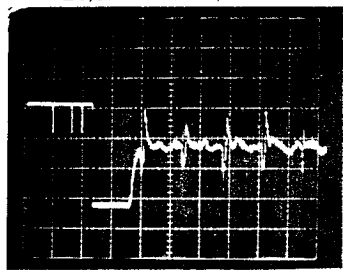
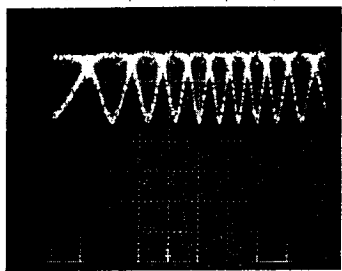
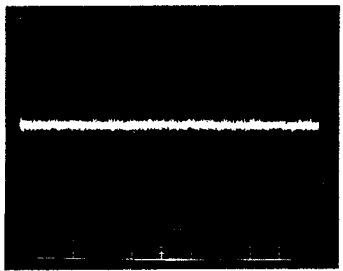
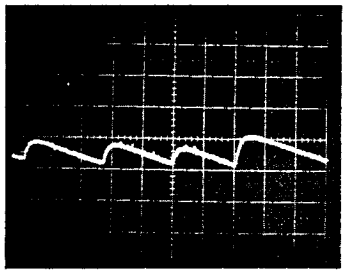
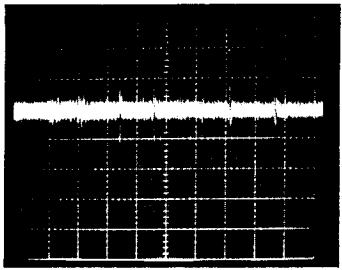
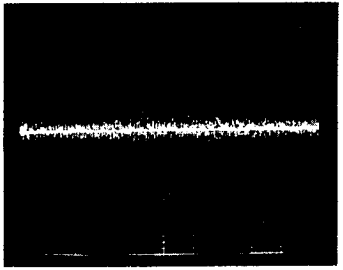
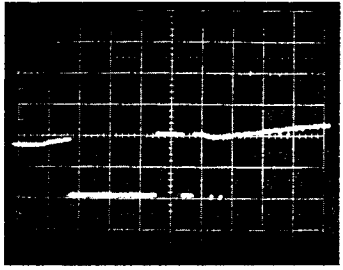
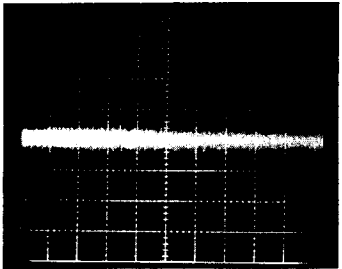
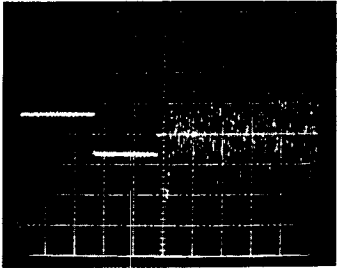
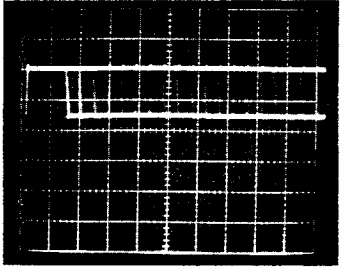
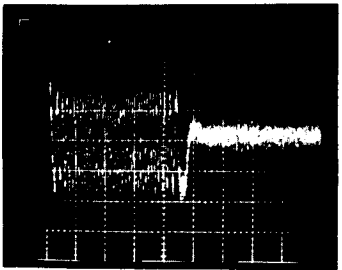
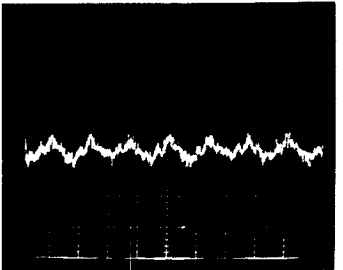
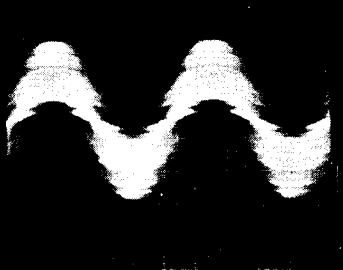
6. SCHEMATIC DIAGRAM

6.1 Wave Forms

Note: The encircled numbers denote measuring in the schematic diagram.

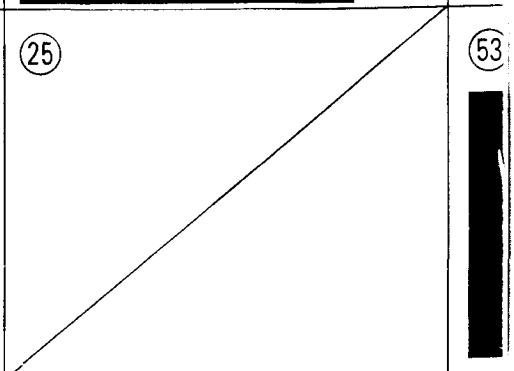
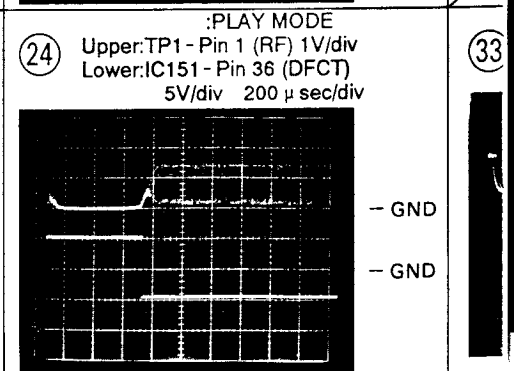
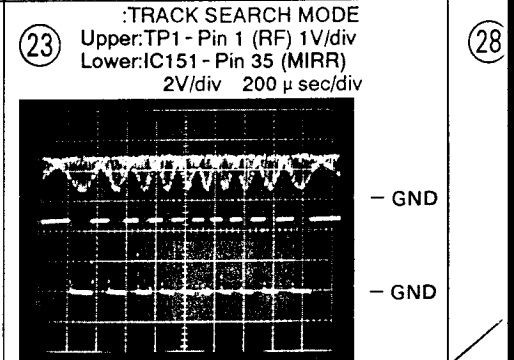
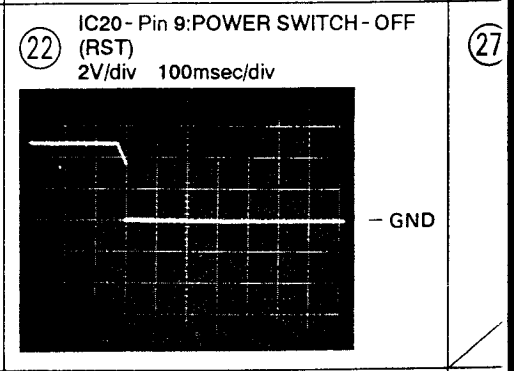
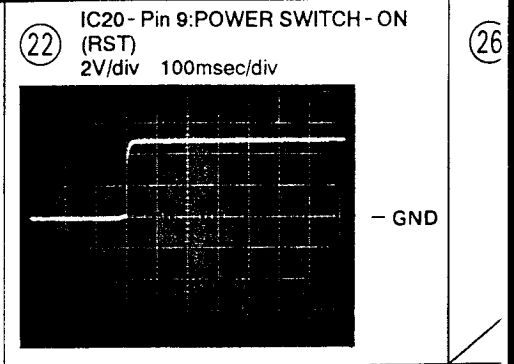
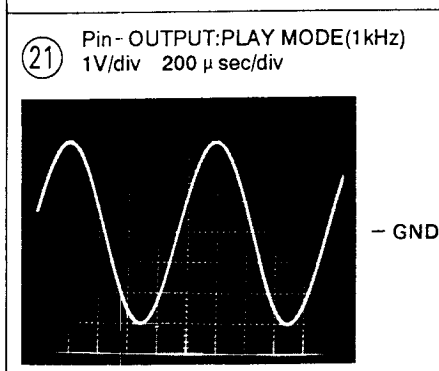
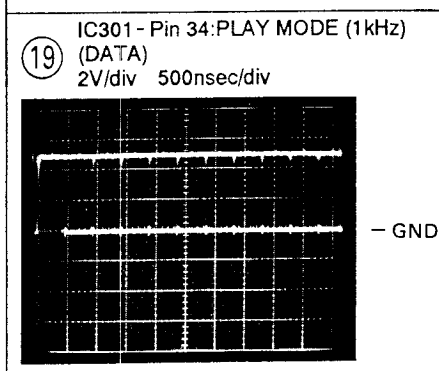
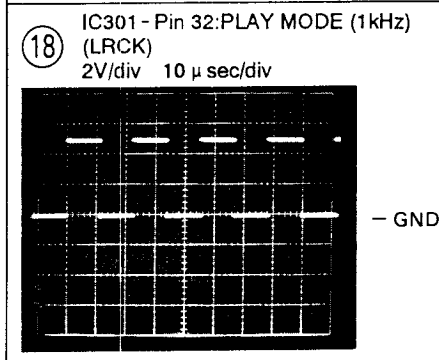
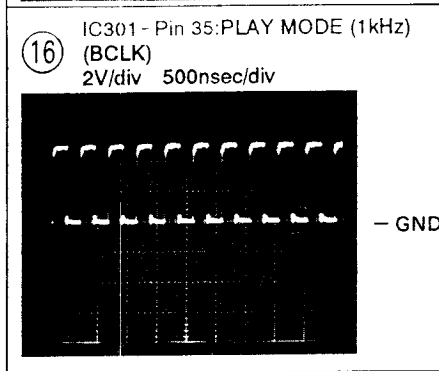
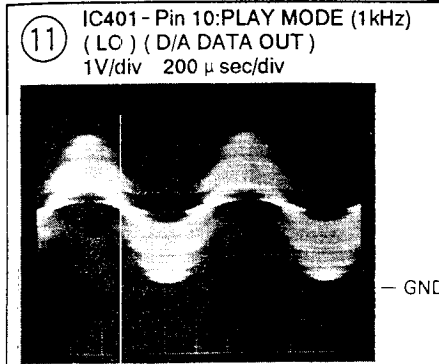
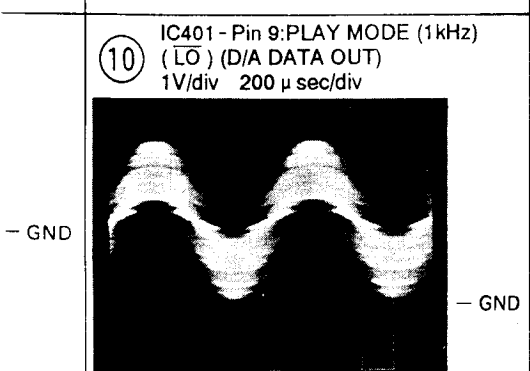
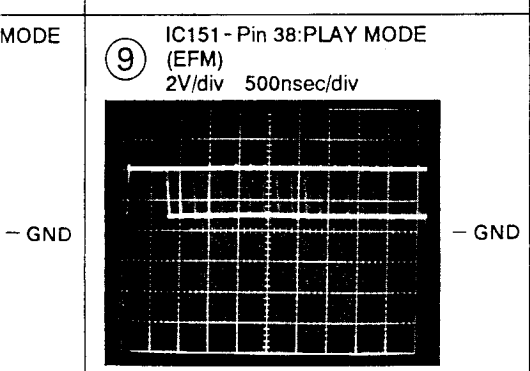
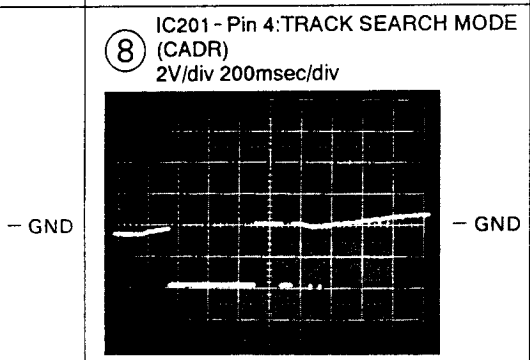
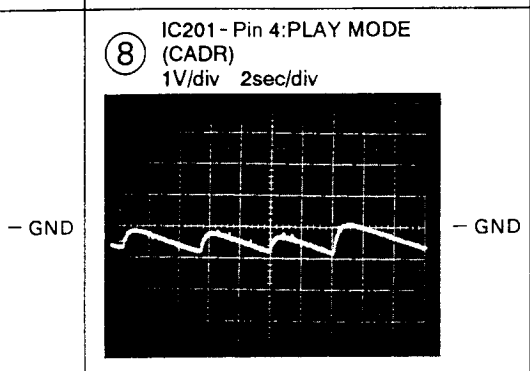
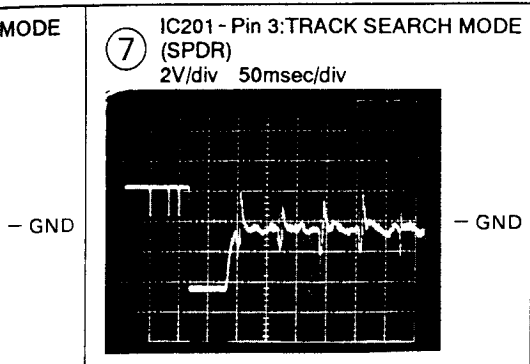
*1 50T-JUMP: After switching to the pause mode, press the manual search key.

*2 FOCUS-IN: Press the key without loading a disc.

<p>② TP1 - Pin 1:PLAY MODE (RF) 500mV/div 500nsec/div</p>  <p>- GND</p>	<p>⑤ IC202 - Pin 1:FOCUS-IN (*2) MODE (FODR) 1V/div 200msec/div</p>  <p>- GND</p>	<p>⑦ IC201 - Pin 3:TRACK SEARCH MODE (SPDR) 2V/div 50msec/div</p>  <p>- GND</p>
<p>② TP1 - Pin 1:TRACK SEARCH MODE (RF) 500mV/div 200 μ sec/div</p>  <p>- GND</p>	<p>⑤ IC202 - Pin 1:PLAY MODE (FODR) 1V/div 1msec/div</p>  <p>- GND</p>	<p>⑧ IC201 - Pin 4:PLAY MODE (CADR) 1V/div 2sec/div</p>  <p>- GND</p>
<p>③ TP1 - Pin 6:PLAY MODE (FOER) 100mV/div 10msec/div</p>  <p>- GND</p>	<p>⑥ IC202 - Pin 3:PLAY MODE (TRDR) 500mV/div 1msec/div</p>  <p>- GND</p>	<p>⑧ IC201 - Pin 4:TRACK SEARCH MODE (CADR) 2V/div 200msec/div</p>  <p>- GND</p>
<p>④ TP1 - Pin 2:PLAY MODE (TRER) 1V/div 10msec/div</p>  <p>- GND</p>	<p>⑥ IC202 - Pin 3:50T-JUMP (*1) MODE (TRDR) 500mV/div 1msec/div</p>  <p>- GND</p>	<p>⑨ IC151 - Pin 38:PLAY MODE (EFM) 2V/div 500nsec/div</p>  <p>- GND</p>
<p>④ TP1 - Pin 2:50T-JUMP (*1) MODE (TRER) 1V/div 1msec/div</p>  <p>- GND</p>	<p>⑦ IC201 - Pin 3:PLAY MODE (SPDR) 1V/div 50msec/div</p>  <p>- GND</p>	<p>⑩ IC401 - Pin 9:PLAY MODE (1kHz) (LO) (D/A DATA OUT) 1V/div 200 μ sec/div</p>  <p>- GND</p>

50T - JUMP: After switching to the pause mode, press the manual search key.

FOCUS - IN: Press the key without loading a disc.



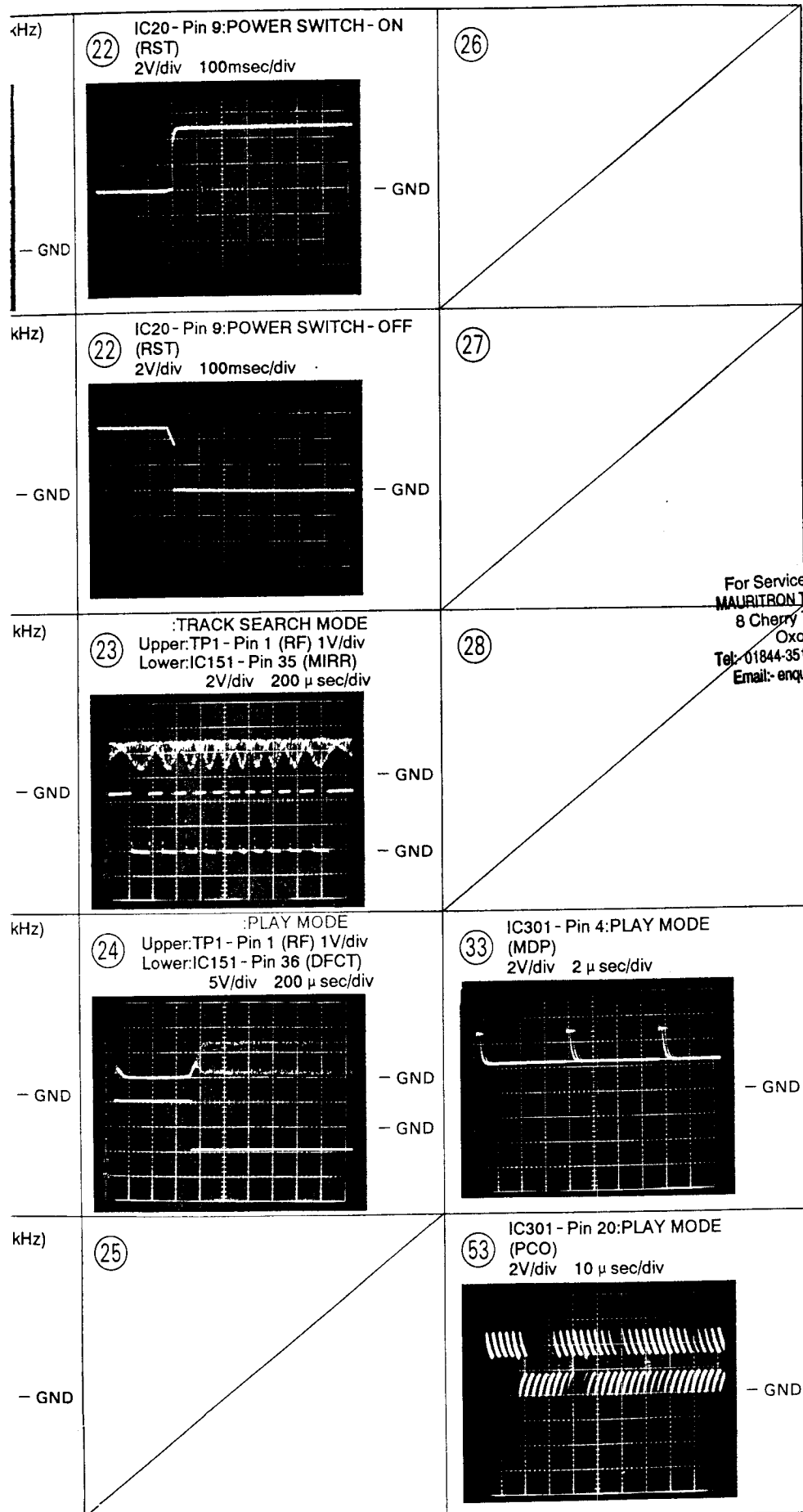
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

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1. RESISTORS :
 Indicated in Ω , 1/4W, 1/6W and 1
 M;M Ω , (F); $\pm 1\%$, (G); $\pm 2\%$.

2. CAPACITORS :
 Indicated in capacity(μ F)/voltage;
 voltage is 50V except electrolytic c.

3. VOLTAGE, CURRENT :
 ;DC voltage(V)at play s
 mA ;DC current at play stat.
 Value in () is DC curre

4. OTHERS :
 ;Signal route.
 ;Adjusting point.
 The Δ mark found on some con
 factor of the part. Therefore, w
 designation.
 * marked capacitors and resistors

This is the basic schematic d
 improvements in design.

5. SWITCHES : (The underlined indic
 SWITCH BOARD ASSEMBLY

S801 : POWER ON — OFF
 FUNCTION BOARD ASSEMBLY
 (PD - 6700 TYPE)

- S701 : PEAK SEARCH
- S702 : CHECK
- S703 : CLEAR
- S704 : PGM
- S705 : EDIT
- S706 : RANDOM PLAY
- S707 : $\triangleright \triangleright$] MANUAL SEAF
- S708 : $\triangleleft \triangleleft$]
- S709 : STOP(\square)
- S710 : PLAY(\triangleright)
- S711 : $\triangleright \triangleright$] TRACK SEAR
- S712 : $\triangleleft \triangleleft$]
- S713 : PAUSE($\square \square$)

- S714 : 17
- S715 : 18
- S716 : 19
- S717 : 20
- S718 : 14
- S719 : 15
- S720 : 16
- S721 : 11
- S722 : 12
- S723 : 13

TRACK NUMBER

- S724 : OPEN/CLOSE(Δ)
- S725 : HI - LITE SCAN
- S726 : REPEAT
- S727 : TIME
- S728 : 10
- S729 : 9
- S730 : 8
- S731 : 7
- S732 : > 20
- S733 : 6
- S734 : 5
- S735 : 4
- S737 : 3
- S738 : 2
- S739 : 1

TRACK NUMBE

● IC BLOCK DIAGRAMS

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

1. RESISTORS :

Indicated in Ω , 1/4W, 1/6W and 1/8W, \pm 5% tolerance unless otherwise noted k Ω , M;M Ω , (F); \pm 1%, (G); \pm 2%, (K); \pm 10%, (M); \pm 20% tolerance.



2. CAPACITORS :

Indicated in capacity(μ F)/voltage(V)unless otherwise noted p; pF. Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE, CURRENT :

 ;DC voltage(V)at play state.
 mA ;DC current at play state.
 Value in()is DC current at stop state.

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 ;Signal route.
 ;Adjusting point.
 The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
 * marked capacitors and resistors have parts numbers

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.








5. SWITCHES : (The underlined indicates the switch position)

SWITCH BOARD ASSEMBLY

S801 : POWER ON — OFF

FUNCTION BOARD ASSEMBLY

(PD - 6700 TYPE)








- S701 : PEAK SEARCH
- S702 : CHECK
- S703 : CLEAR
- S704 : PGM
- S705 : EDIT
- S706 : RANDOM PLAY
- S707 : ] MANUAL SEARCH
- S708 : ]
- S709 : STOP()
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- S713 : PAUSE()
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- S721 : 11
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- S723 : 13
- S724 : OPEN/CLOSE(Δ)
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- S733 : 6
- S734 : 5
- S735 : 4
- S737 : 3
- S738 : 2
- S739 : 1

TRACK NUMBER

TRACK NUMBER

FUNCTION BOARD ASSEMBLY

(PD - 5700 AND PD4700 TYPES)

- S701 : PEAK SEARCH
- S702 : CHECK
- S703 : CLEAR
- S704 : PGM
- S705 : EDIT
- S706 : RANDOM PLAY
- S707 : ] MANUAL SEARCH
- S708 : ]
- S709 : STOP()
- S710 : PLAY()
- S711 : ] TRACK SEARCH
- S712 : ]
- S713 : PAUSE()
- S724 : OPEN/CLOSE(Δ)
- S725 : HI - LITE SCAN
- S726 : REPEAT
- S727 : TIME
- S728 : 10
- S729 : 9
- S730 : 8
- S731 : 7
- S732 : >20
- S733 : 6
- S734 : 5
- S735 : 4
- S736 : +10
- S737 : 3
- S738 : 2
- S739 : 1

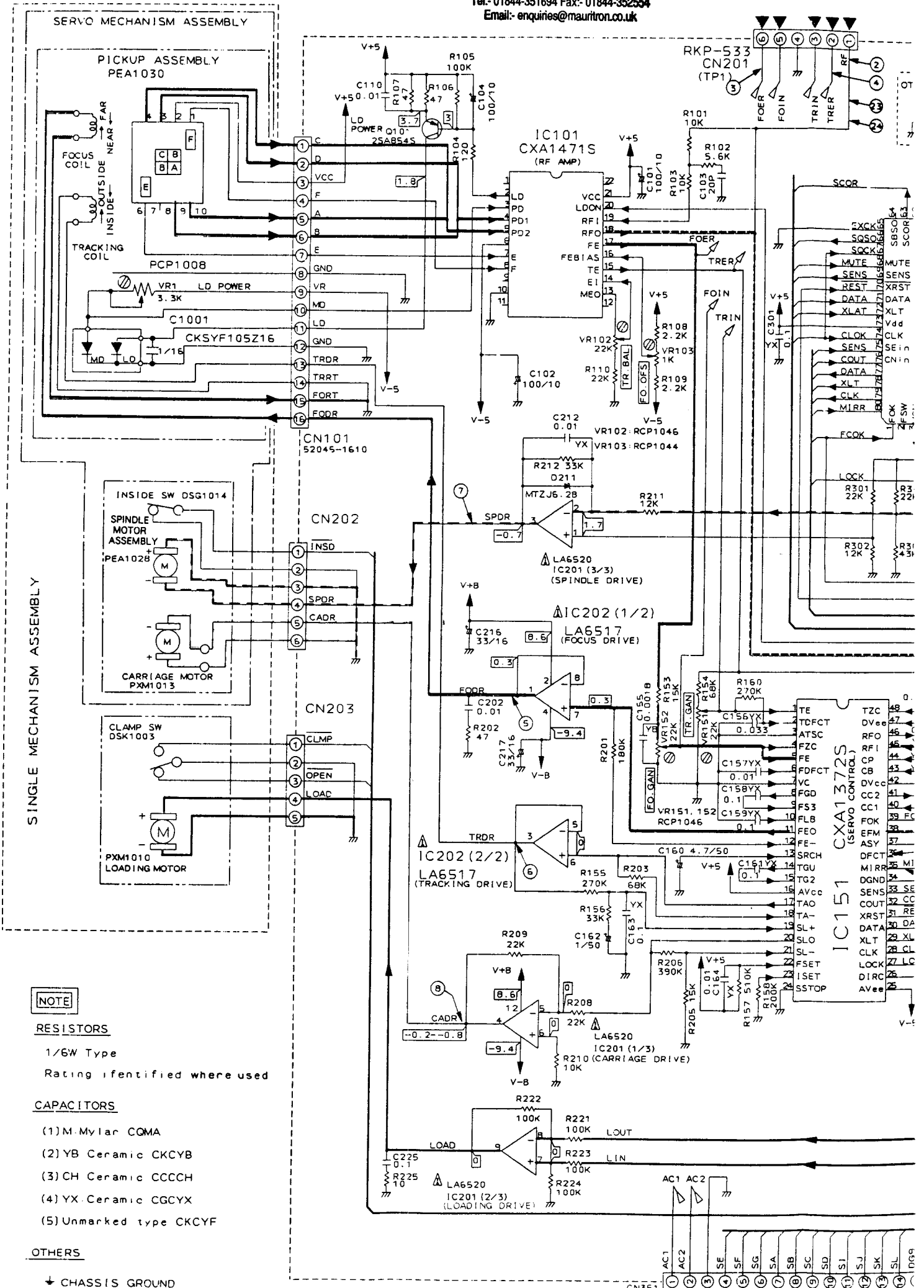
TRACK NUMBER

- GND

- GND

6.2 SCHEMATIC DIAGRAM

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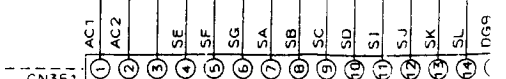


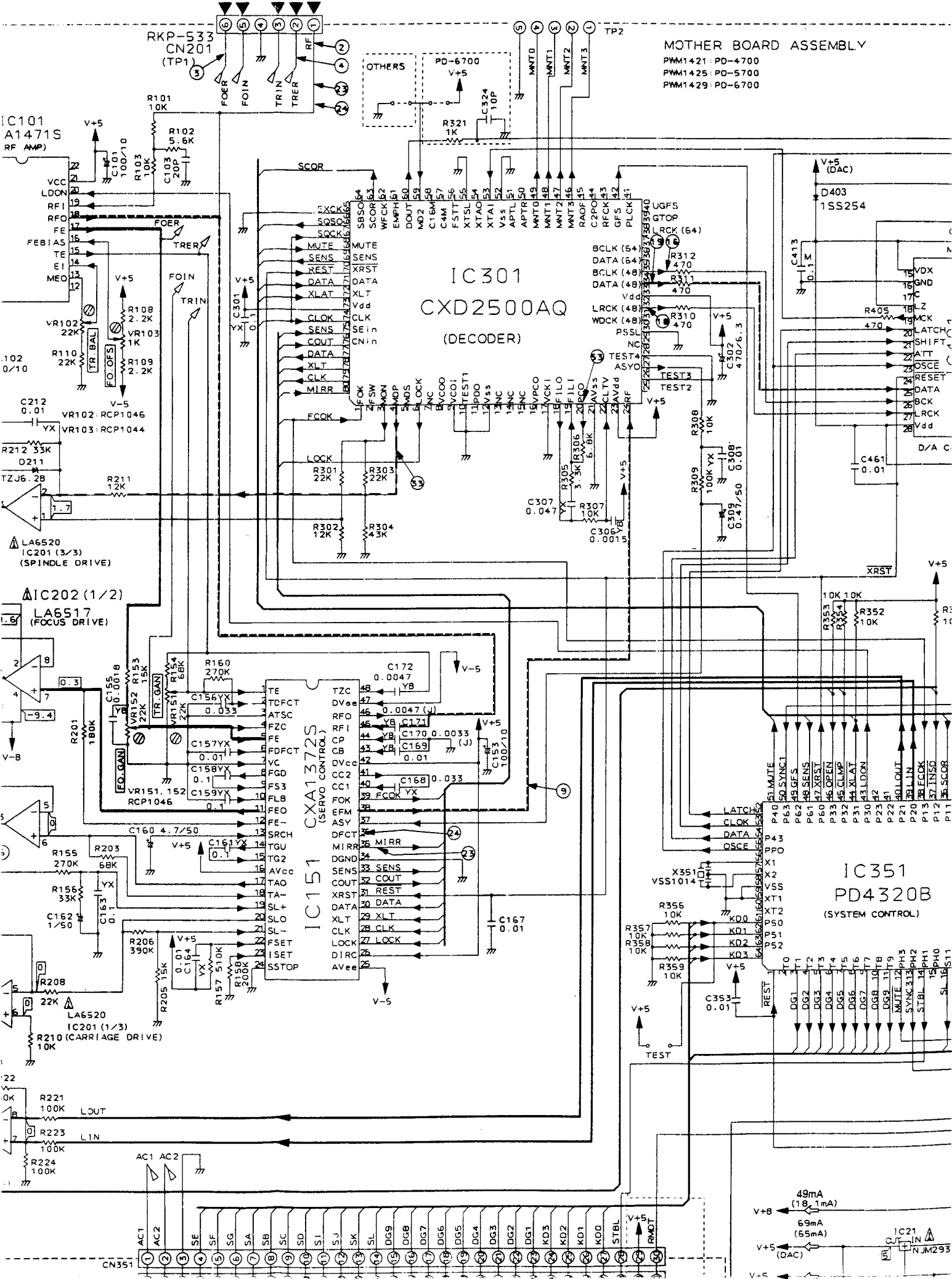
NOTE

RESISTORS
 1/6W Type
 Rating identified where used

- CAPACITORS**
- (1) M. Mylar CGMA
 - (2) YB Ceramic CKCYB
 - (3) CH Ceramic CCCCH
 - (4) YX Ceramic CGCYX
 - (5) Unmarked type CKCYF

OTHERS
 * CHASSIS GROUND





MOTHER BOARD ASSEMBLY

PWM1421: PD-4700
PWM1425: PD-5700
PWM1429: PD-6700

IC301
CXD2500AQ
(DECODER)

IC151
CXA1372S
(SERVO CONTROL)

IC351
PD4320B
(SYSTEM CONTROL)

IC101
A1471S
RF AMP)

LA6520
IC201 (3/3)
(SPINDLE DRIVE)

LA6517
IC202 (1/2)
(FOCUS DRIVE)

LA6520
IC201 (1/3)
(CARRIAGE DRIVE)

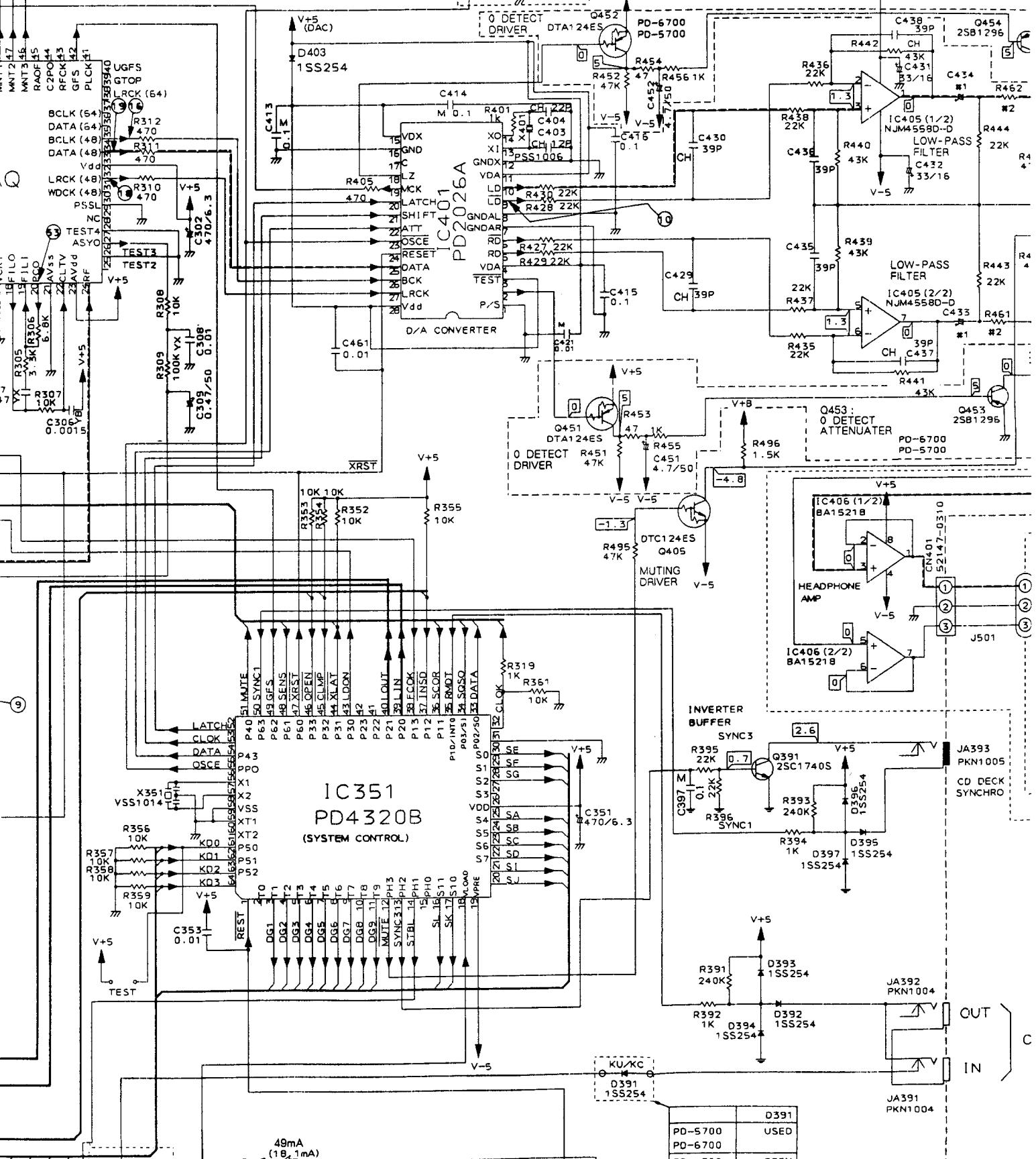
49mA
(18.1mA)

69mA
(55mA)

IC21
N.M293

MOTHER BOARD ASSEMBLY

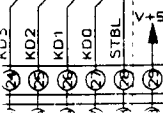
PWM1 421 : PD-4700
 PWM1 425 : PD-5700
 PWM1 429 : PD-6700

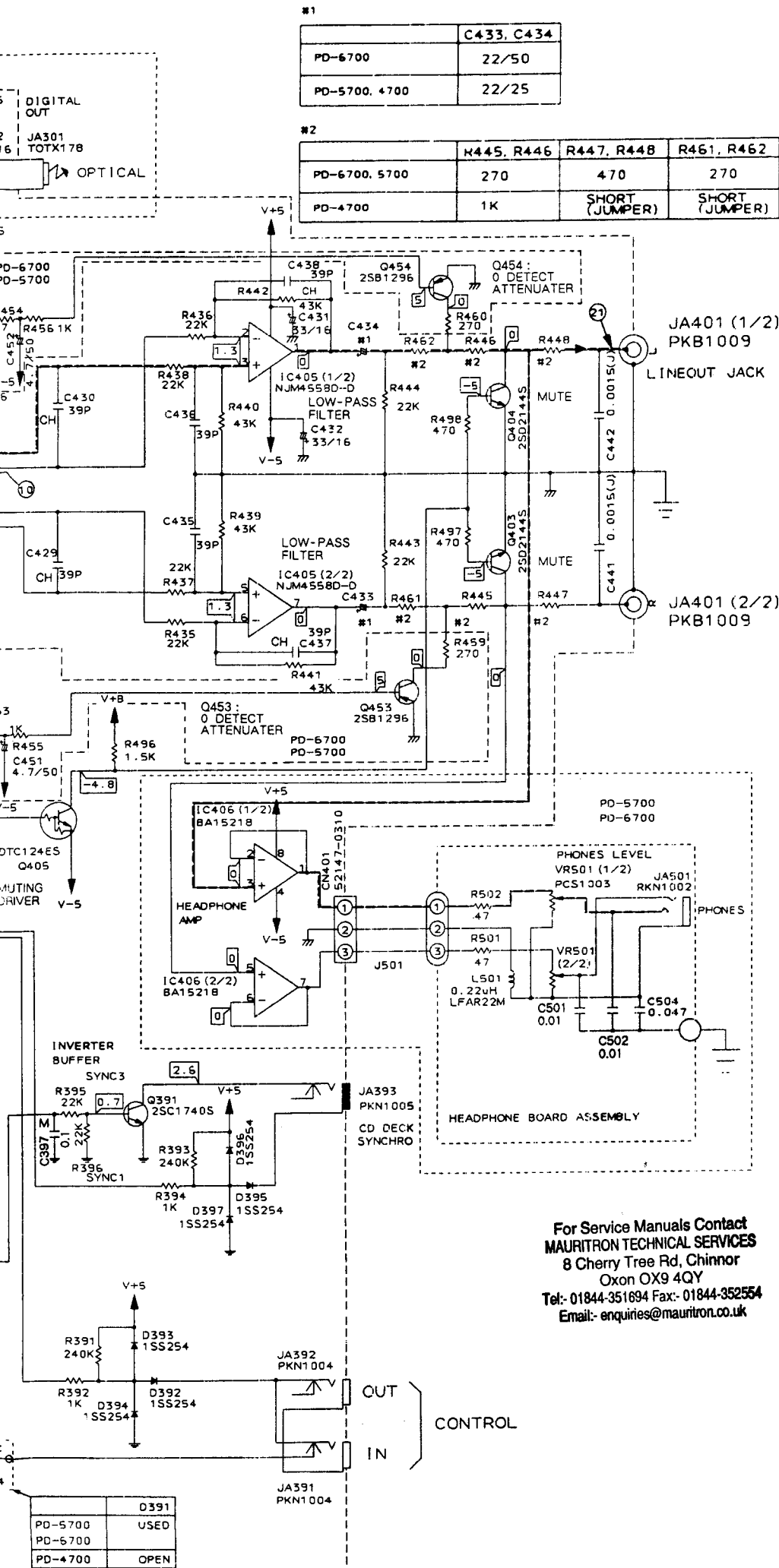


#1	PD-6700
	PD-5700, 4700
#2	PD-6700, 5700
	PD-4700

D391	PD-5700	USED
	PD-6700	USED
	PD-4700	OPEN

V+8	49mA	(18.1mA)
V+5	69mA	(65mA)





	C433, C434
PD-6700	22/50
PD-5700, 4700	22/25

	R445, R446	R447, R448	R461, R462
PD-6700, 5700	270	470	270
PD-4700	1K	SHORT (JUMPER)	SHORT (JUMPER)

IC151
(CXAI372S)

Pin No.	Voltage	Pin No.	Voltage
1	0	25	-5
2	0	26	5
3	0	27	5
4	0	28	5
5	0	29	5
6	0	30	5
7	0	31	5
8	0	32	0
9	0	33	5
10	0	34	0
11	1	35	0
12	0	36	N.C.
13	0.2	37	2.5
14	0	38	2.5
15	0	39	5
16	5	40	-1.5
17	0	41	-1.7
18	0	42	5
19	0	43	-0.7
20	0.2-0.8	44	-1.6
21	0	45	0
22	-4	46	0.8
23	1.3	47	-5
24	0	48	0

IC301
(CXD2500AQ)

Pin No.	Voltage	Pin No.	Voltage
1	5	42	5
2	N.C.	43	N.C.
3	5	44	N.C.
4	2.6	45	N.C.
5	N.C.	46	4.4
6	5	47	0
7	N.C.	48	0
8	N.C.	49	0-0.3
9	0	50	N.C.
10	0	51	N.C.
11	N.C.	52	0
12	0	53	2.5
13	N.C.	54	N.C.
14	N.C.	55	0
15	N.C.	56	N.C.
16	N.C.	57	N.C.
17	0	58	N.C.
18	2.5	59	5:PD-6700
19	2.4	60	0:Others
20	2.4	61	0:PD-6700
21	0	62	N.C.:Others
22	2.5	63	N.C.
23	5	64	N.C.
24	2.5	65	0
25	N.C.	66	3.3-4.6
26	0	67	5
27	2.5	68	0
28	N.C.	69	2.1-3
29	0	70	5
30	N.C.	71	5
31	1.3-2.2	72	5
32	2.5	73	5
33	5	74	5
34	2.5	75	5
35	N.C.	76	0
36	N.C.	77	5
37	N.C.	78	5
38	N.C.	79	5
39	N.C.	80	0
40	N.C.		
41	N.C.		

IC351
(PD4320B)

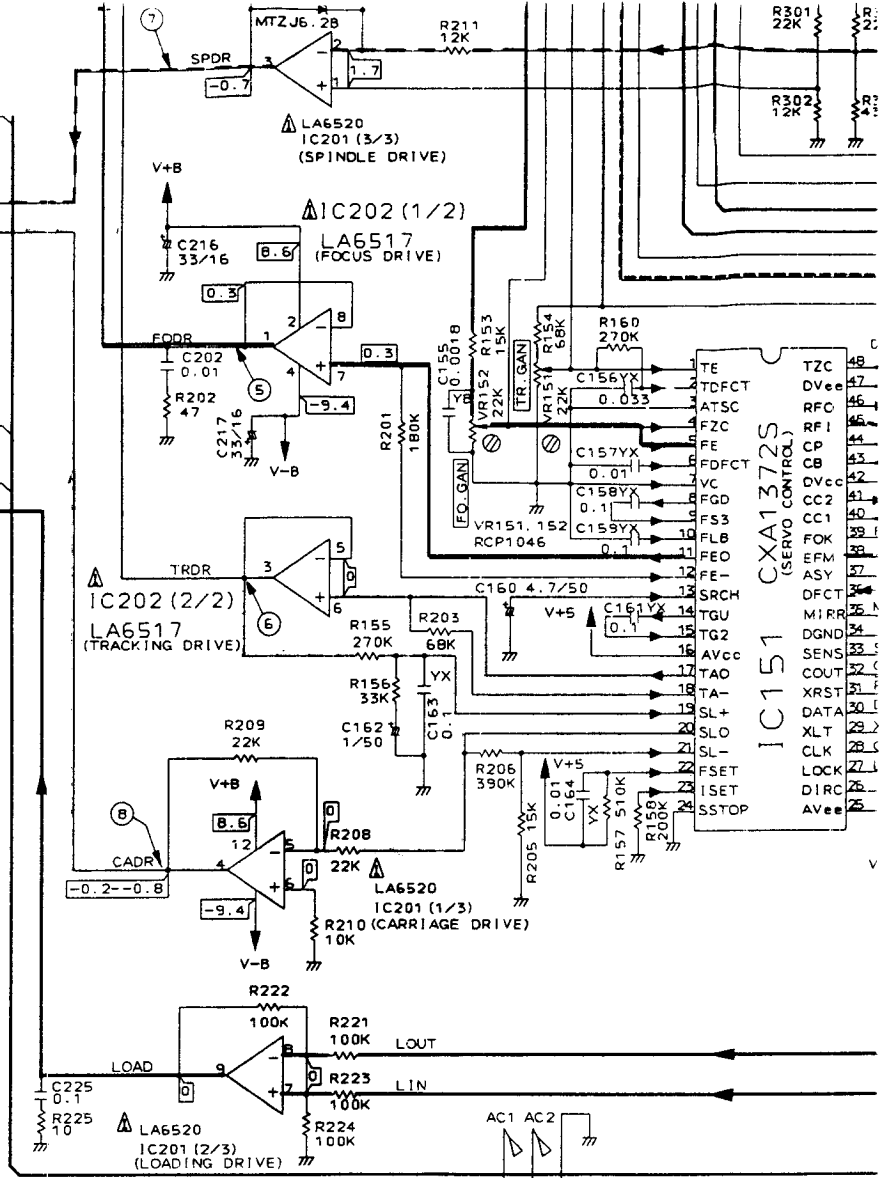
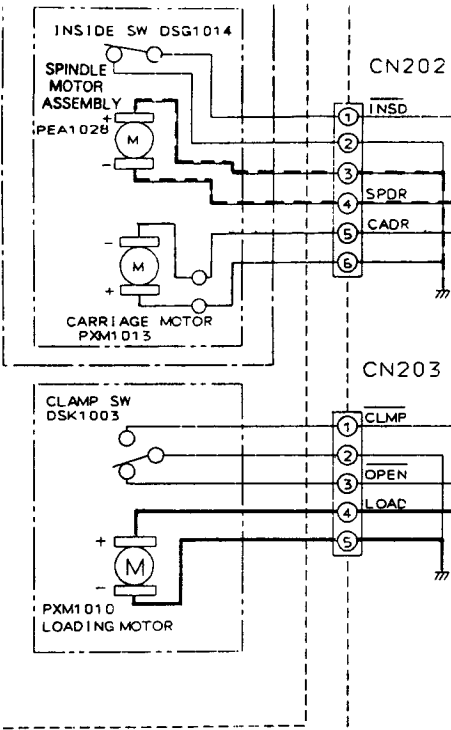
Pin No.	Voltage	Pin No.	Voltage
1	5	33	5
2	N.C.	34	3.3-4.7
3	-24- -24.3	35	5
4	-24- -24.3	36	0
5	-24- -24.3	37	5
6	-24- -24.3	38	5
7	-24- -24.3	39	0
8	-24- -24.3	40	0
9	-24- -24.3	41	N.C.
10	-24- -24.3	42	N.C.
11	-24- -24.3	43	5
12	5	44	5
13	5	45	0
14	0	46	5
15	N.C.	47	5

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	D391
PD-5700	USED
PD-6700	
PD-4700	OPEN

A
B
C
D

SINGLE MECHANISM ASSEMBLY



NOTE

RESISTORS

1/6W Type
Rating identified where used

CAPACITORS

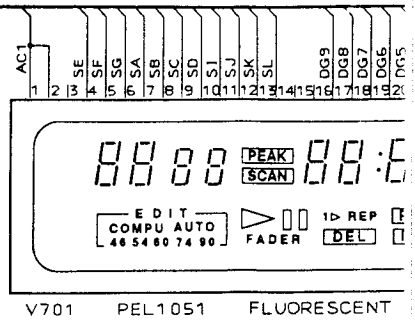
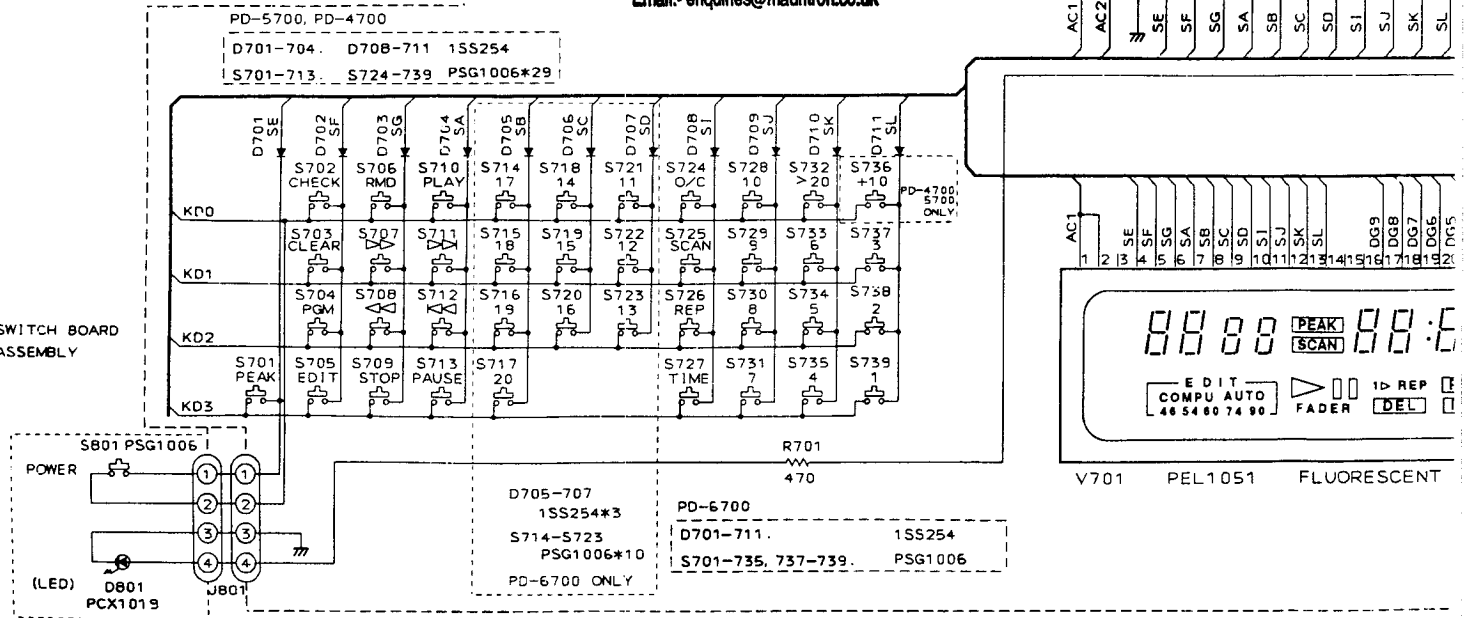
- (1) M Mylar CQMA
- (2) YB Ceramic CKCYB
- (3) CH Ceramic CCCCH
- (4) YX Ceramic CGCYX
- (5) Unmarked type KCYF

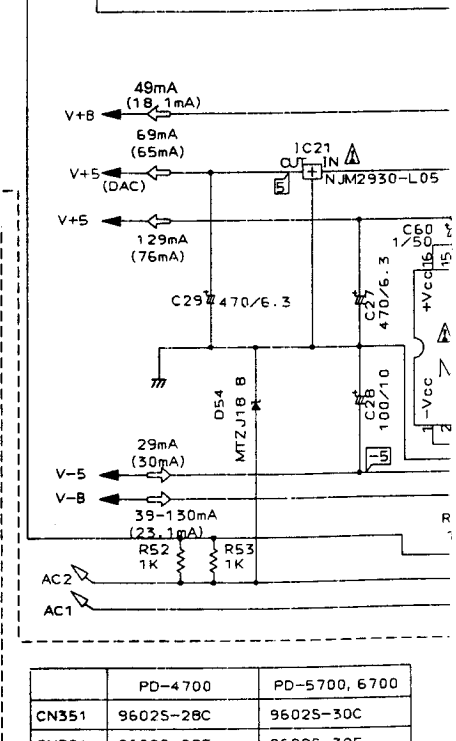
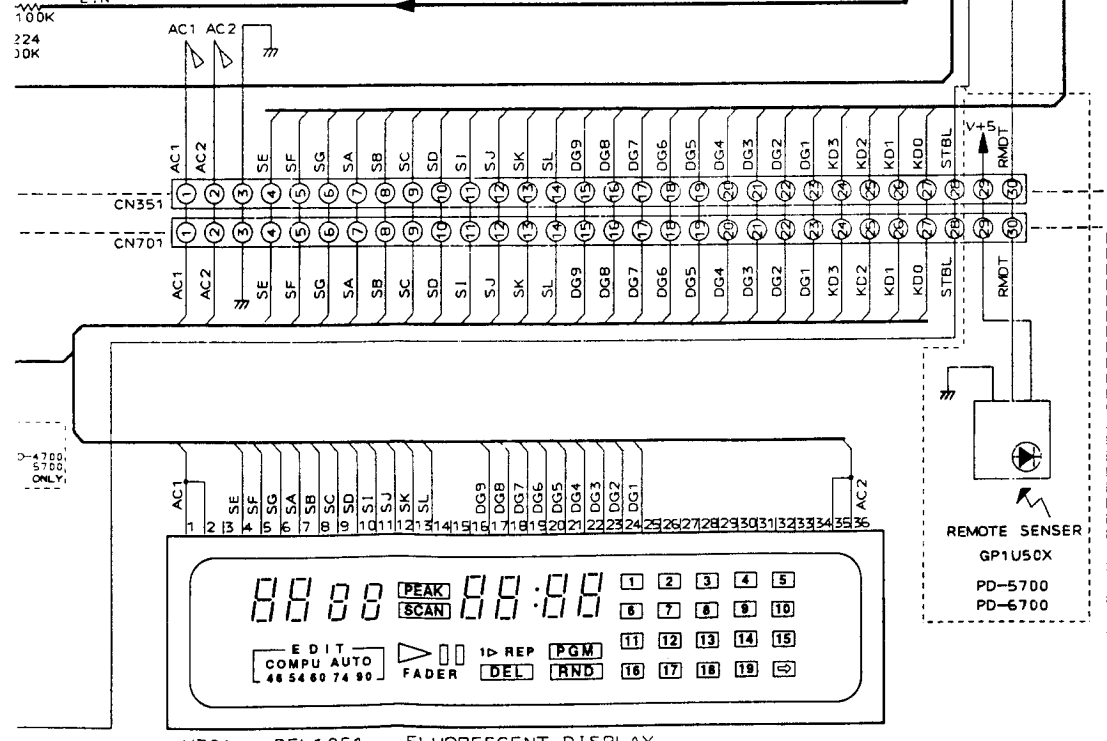
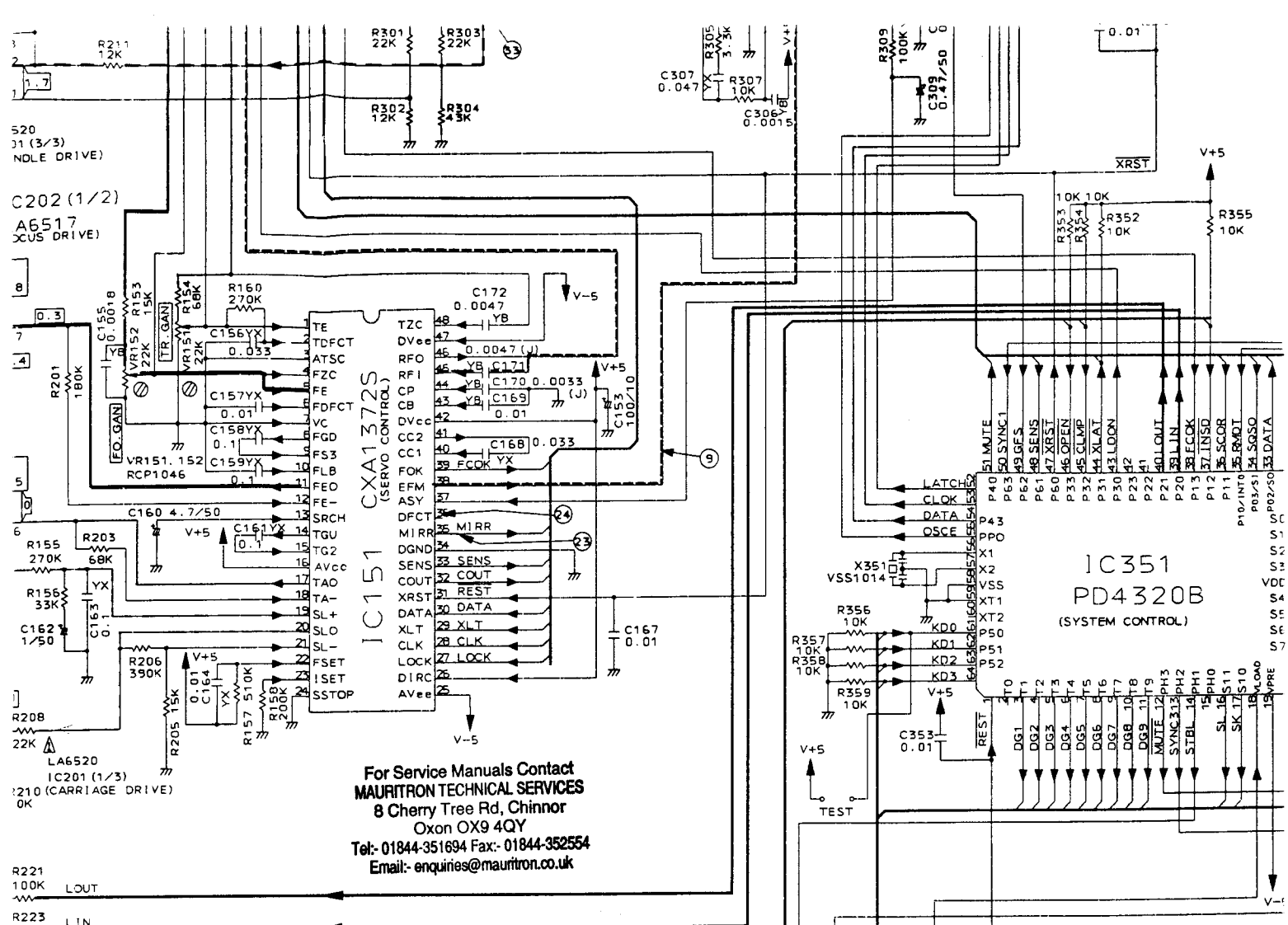
OTHERS

⊥ CHASSIS GROUND
ABC LOW ACTIVE SIGNAL

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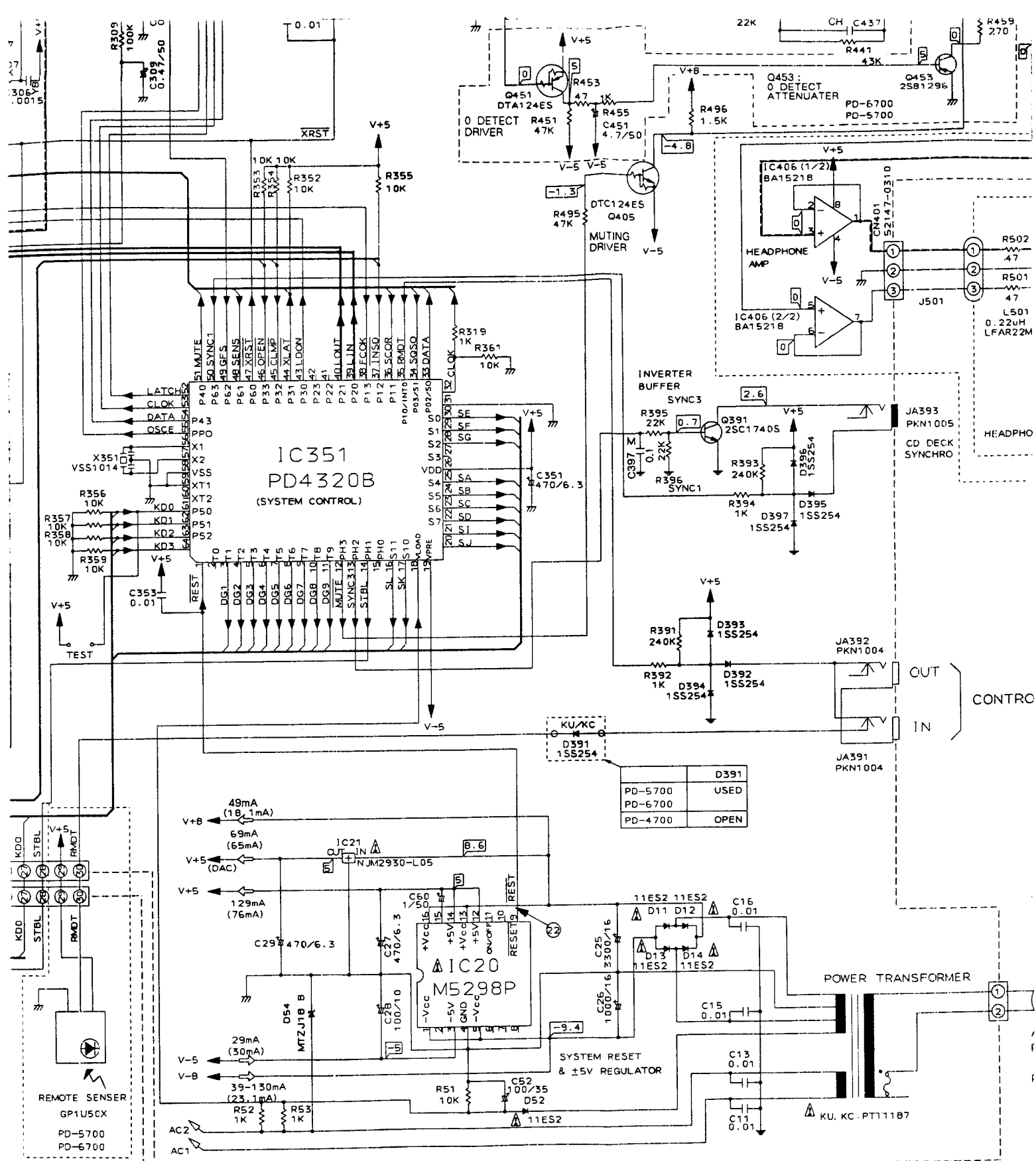
SWITCH BOARD ASSEMBLY





SS254
SG1006

PWZ2094: PD-4700
PWZ2096: PD-5700
PWZ2103: PD-6700



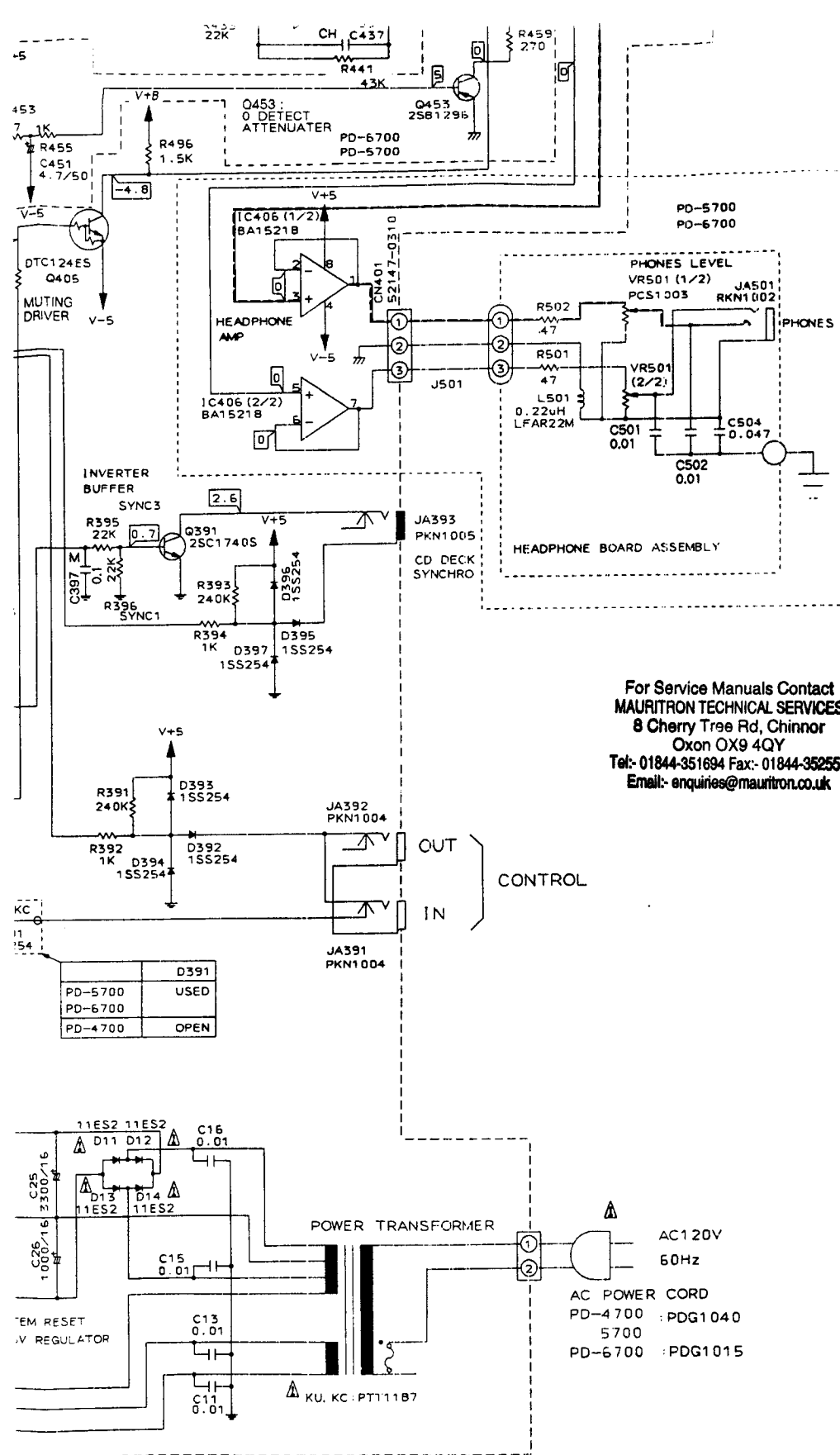
BOARD ASSEMBLY

- PD-4700
- PD-5700
- PD-6700

	PD-4700	PD-5700, 6700
CN351	9602S-28C	9602S-30C
CN701	9602S-28F	9602S-30F

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- :Focus servo loop
- - - - - :Signal route
- :Tracking servo loop
- :Carriage servo loop
- :Loading motor route
- - - - - :Spindle motor route
- ▶ :Measurement point



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 Email:- enquiries@mauritron.co.uk

	D391
PD-5700	USED
PD-6700	
PD-4700	OPEN

4	2.6	45	N. C.
5	N. C.	46	4.4
6	5	47	0
7	N. C.	48	0
8	N. C.	49	0-0.3
9	0	50	N. C.
10	0	51	N. C.
11	N. C.	52	0
12	0	53	2.5
13	N. C.	54	N. C.
14	N. C.	55	0
15	N. C.	56	N. C.
16	N. C.	57	N. C.
17	0	58	N. C.
18	2.5	59	5:PD-6700
19	2.4		0:Others
20	2.4	60	0:PD-6700
21	0		N. C.:Others
22	2.5	61	N. C.
23	5	62	N. C.
24	2.5	63	N. C.
25	N. C.	64	N. C.
26	0	65	0
27	2.5	66	3.3-4.6
28	N. C.	67	5
29	0	68	0
30	N. C.	69	2.1-3
31	1.3-2.2	70	5
32	2.5	71	5
33	5	72	5
34	2.5	73	5
35	N. C.	74	5
36	N. C.	75	5
37	N. C.	76	0
38	N. C.	77	5
39	N. C.	78	5
40	N. C.	79	5
41	N. C.	80	0

IC351 (PD4320B)

Pin No.	Voltage	Pin No.	Voltage
1	5	33	5
2	N. C.	34	3.3-4.7
3	-24- -24.3	35	5
4	-24- -24.3	36	0
5	-24- -24.3	37	5
6	-24- -24.3	38	5
7	-24- -24.3	39	0
8	-24- -24.3	40	0
9	-24- -24.3	41	N. C.
10	-24- -24.3	42	N. C.
11	-24- -24.3	43	5
12	5	44	5
13	5	45	0
14	0	46	5
15	N. C.	47	5
16	-23.8	48	2.1-3
17	-9.1 - -9.3	49	5
18	-26	50	5
19	-5	51	0
20	1.2	52	5
21	1.1	53	5
22	-9- -12	54	0
23	0.2-0.8	55	5
24	0.6-1.1	56	2.5
25	0	57	2.5
26	N. C.	58	0
27	0.2-0.4	59	0
28	-2- -3.3	60	N. C.
29	-14- -17	61	0
30	-11.5- -17.3	62	0
31	0	63	0
32	5	64	0

- :Focus servo loop
- - - - - :Signal route
- :Tracking servo loop
- - - - - :Carriage servo loop
- :Loading motor route
- - - - - :Spindle motor route
- ▶ :Measurement point

IC101 (CX1471S)

Pin No.	Voltage	Pin No.	Voltage
1	N. C.	12	N. C.
2	2.9	13	-0.9
3	-4.7	14	-0.7
4	0	15	0
5	0	16	0
6	-5	17	0
7	0	18	0.8
8	0	19	0
9	N. C.	20	5
10	0	21	5
11	N. C.	22	N. C.

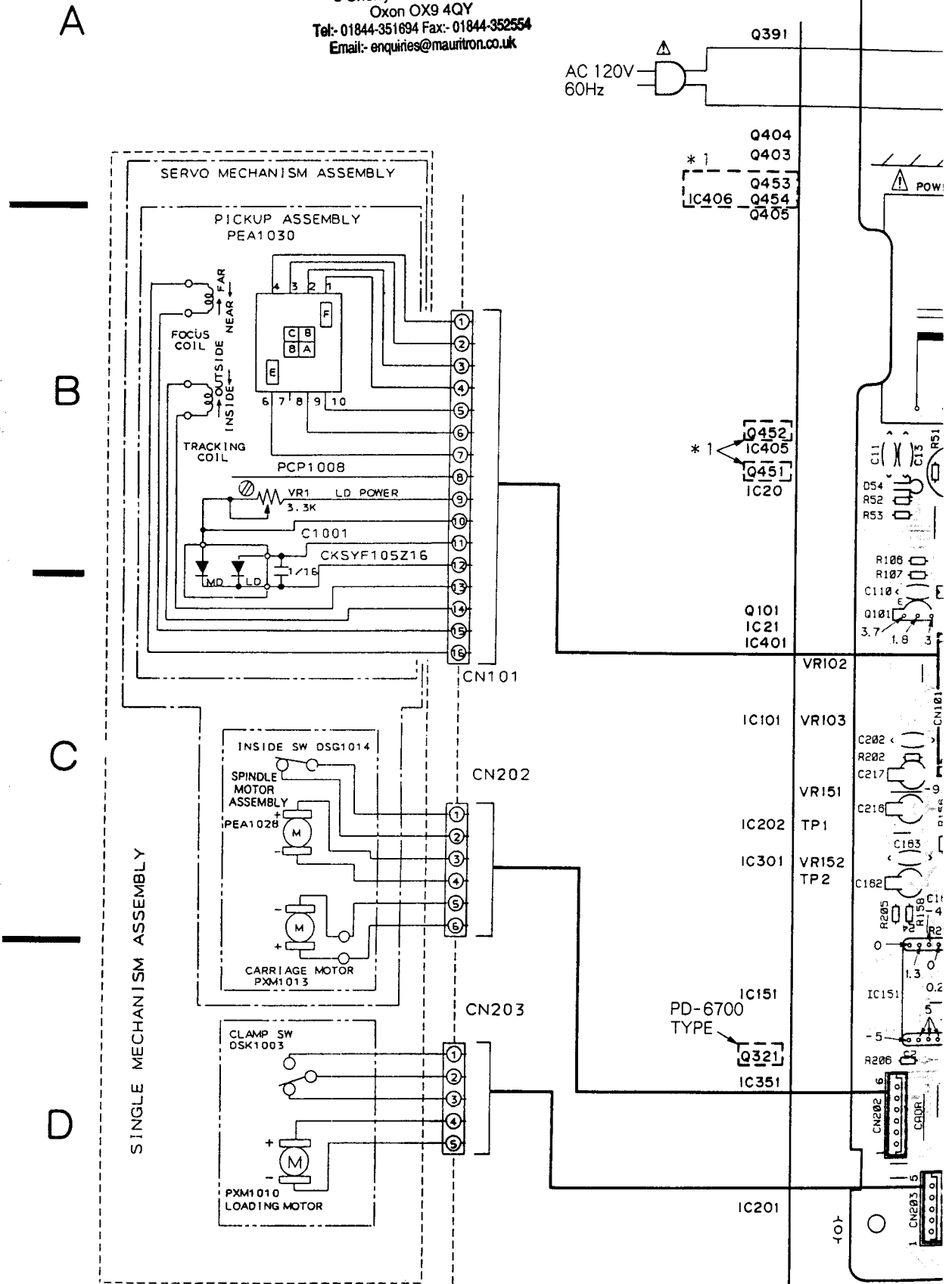
IC401 (PD2026A)

Pin No.	Voltage	Pin No.	Voltage
1	0	15	5
2	0	16	0
3	5	17	N. C.
4	5	18	0
5	2.4	19	2
6	2.6	20	5
7	0	21	5
8	0	22	5
9	2.6	23	5
10	2.4	24	5
11	5	25	2.4
12	0	26	2.4
13	2.4	27	2.4
14	2.4	28	5

7. P.C.BOARDS CONNECTION DIAGRAM

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MOTHER BOARD ASSEMBLY
 (PD-6700 : PWM1429)
 (PD-5700 : PWM1425)
 (PD-4700 : PWM1421)



A

B

C

D

22

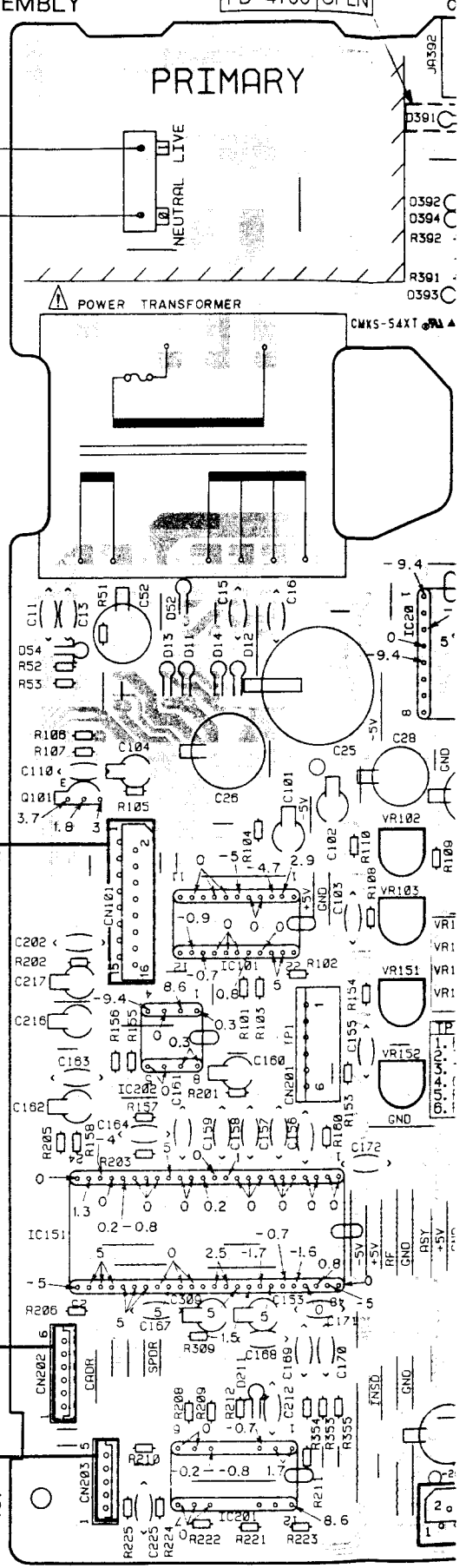
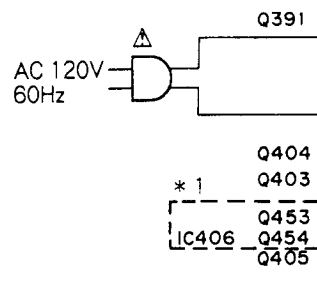
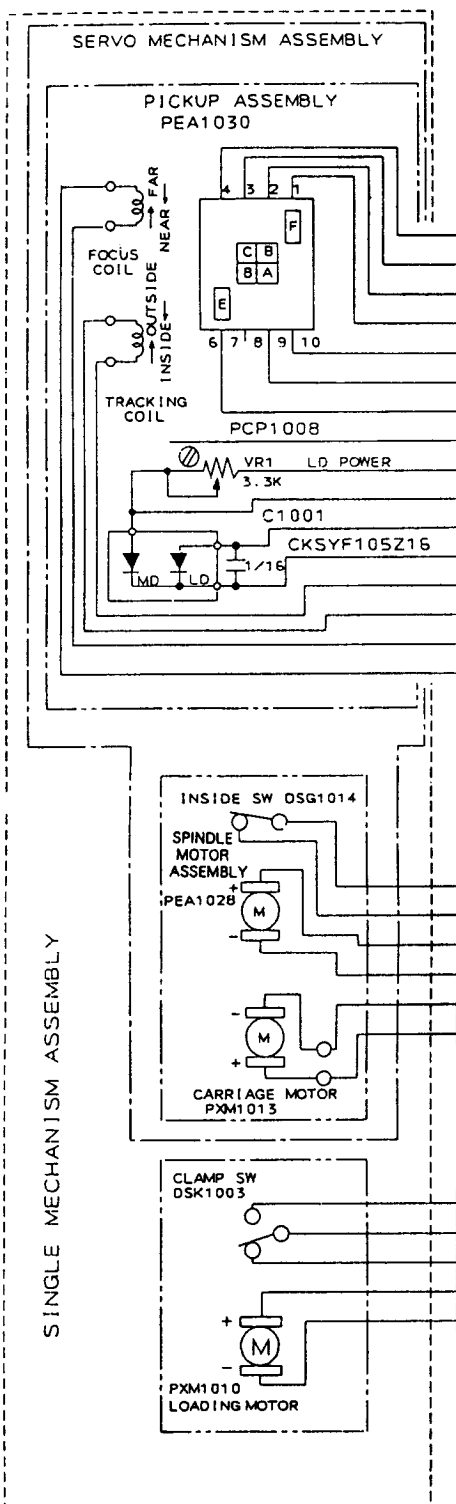
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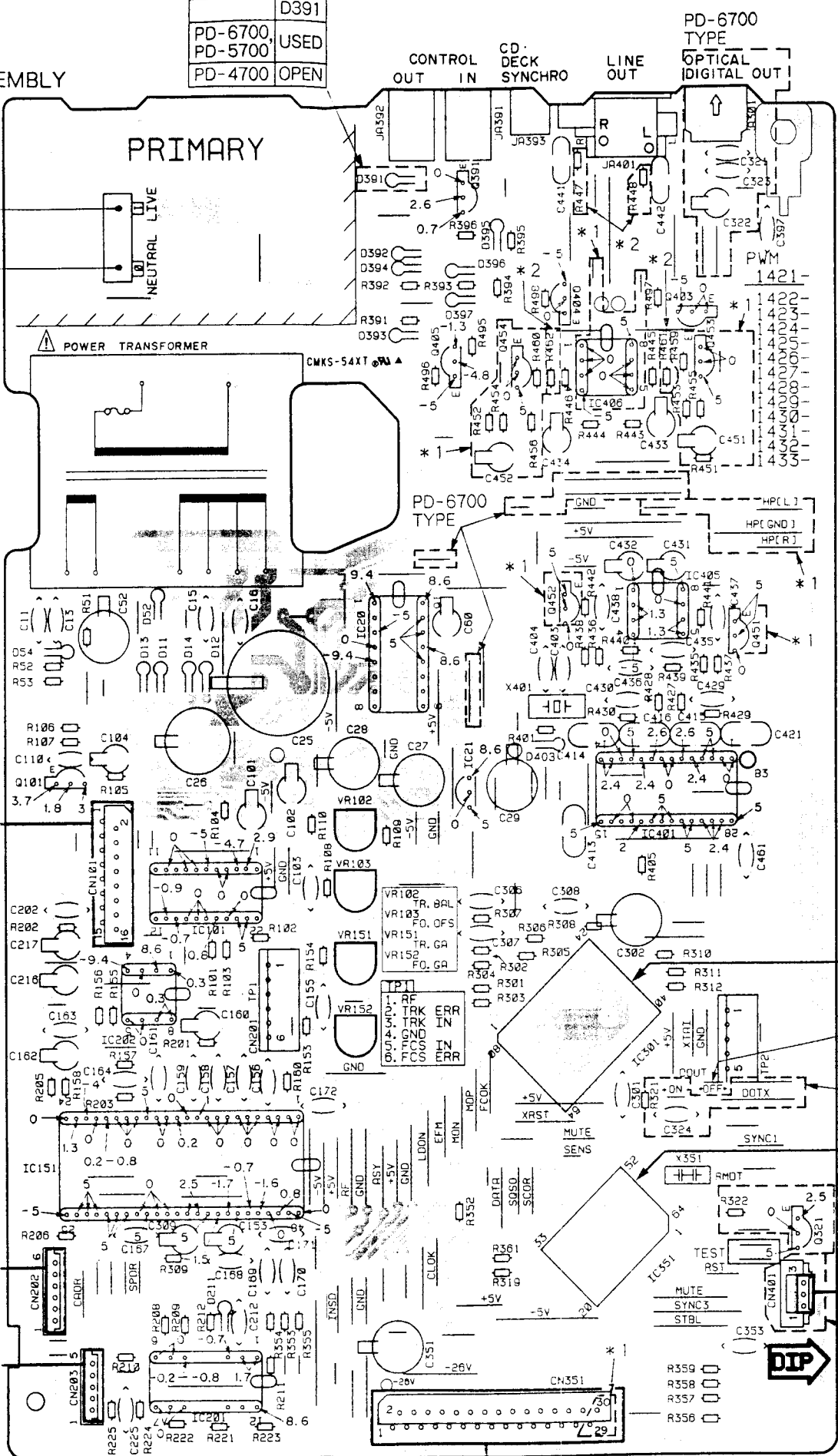
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7. P.C.BOARDS CONNECTION DIAGRAM

D391	
PD-6700	USED
PD-5700	USED
PD-4700	OPEN

MOTHER BOARD ASSEMBLY
 (PD-6700 : PWM1429)
 (PD-5700 : PWM1425)
 (PD-4700 : PWM1421)





	D391
PD-6700	USED
PD-5700	
PD-4700	OPEN

*1: PD-6700,PD-5700 TYPES

	R447,R448
	R461,R462
PD-6700,	USED
PD-5700	
PD-4700	SHORT (JUMPER)

IC301 (CXD2500AQ)

Pin No.	Voltage	Pin No.	Voltage
1	5	42	5
2	N. C.	43	N. C.
3	5	44	N. C.
4	2.6	45	N. C.
5	N. C.	46	4.4
6	5	47	0
7	N. C.	48	0
8	N. C.	49	0-0.3
9	0	50	N. C.
10	0	51	N. C.
11	N. C.	52	0
12	0	53	2.5
13	N. C.	54	N. C.
14	N. C.	55	0
15	N. C.	56	N. C.
16	N. C.	57	N. C.
17	0	58	N. C.
18	2.5	58	5:PD-6700
19	2.4		0:Others
20	2.4	60	0:PD-6700
21	0		N.C.:Others
22	2.5	51	N. C.
23	5	62	N. C.
24	2.5	63	N. C.
25	N. C.	64	N. C.
26	0	55	0
27	2.5	66	3.3-4.6
28	N. C.	67	5
29	0	68	0
30	N. C.	69	2.1-3
31	1.3-2.2	70	5
32	2.5	71	5
33	5	72	5
34	2.5	73	5
35	N. C.	74	5
36	N. C.	75	5
37	N. C.	76	0
38	N. C.	77	5
39	N. C.	78	5
40	N. C.	79	5
41	N. C.	80	0

IC35 (PD4)

Pin No.	Voltage
1	5
2	N. C.
3	5
4	2.6
5	N. C.
6	5
7	N. C.
8	N. C.
9	0
10	0
11	N. C.
12	0
13	N. C.
14	N. C.
15	N. C.
16	N. C.
17	0
18	2.5
19	2.4
20	2.4
21	0
22	2.5
23	5
24	2.5
25	N. C.
26	0
27	2.5
28	N. C.
29	0
30	N. C.
31	1.3-2.2
32	2.5
33	5
34	2.5
35	N. C.
36	N. C.
37	N. C.
38	N. C.
39	N. C.
40	N. C.
41	N. C.

PD-5700, PD-4700 TYPES

PD-6700 TYPE

PD-6700 TYPE

	CN351,CN701
PD-6700,	30PIN
PD-5700,	
PD-4700	28PIN

*1: PD-6700,PD-5700 TYPES

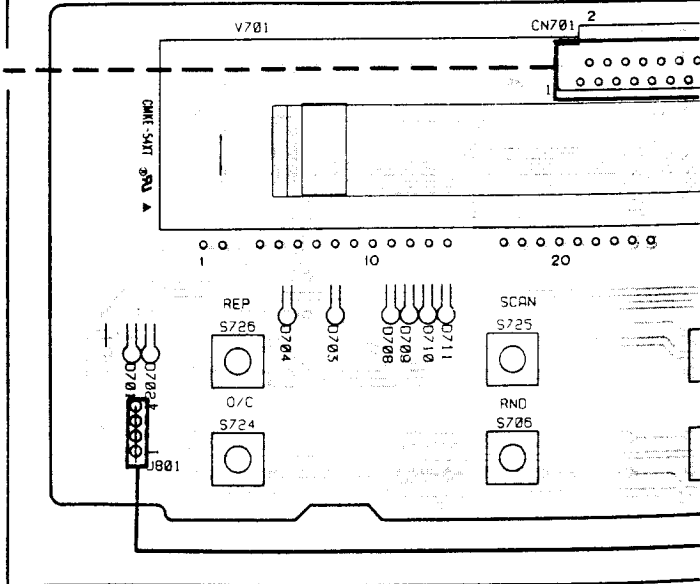
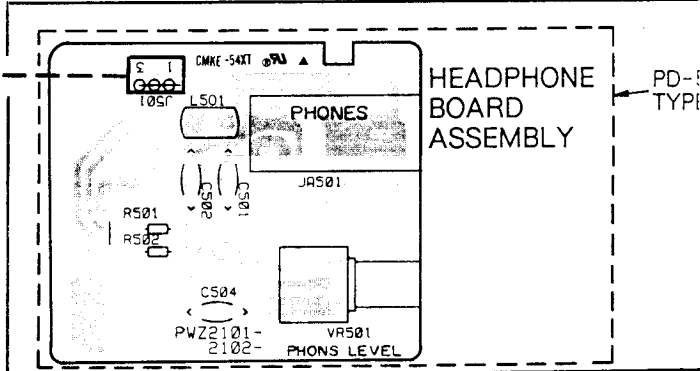
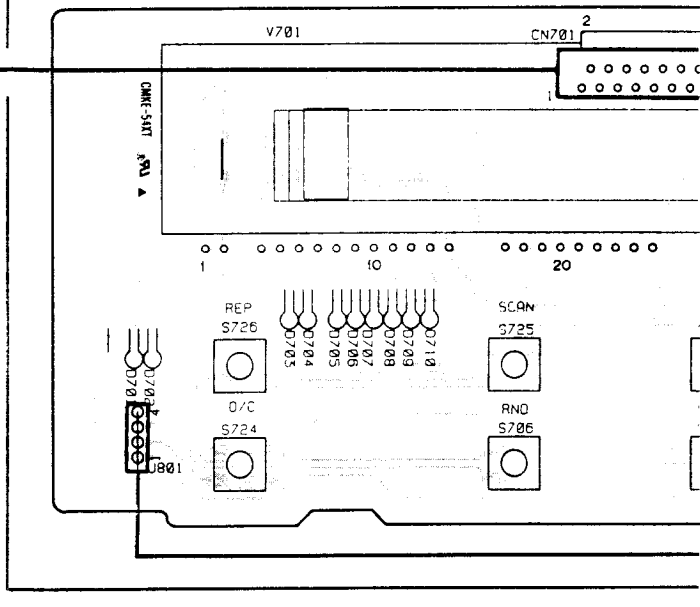
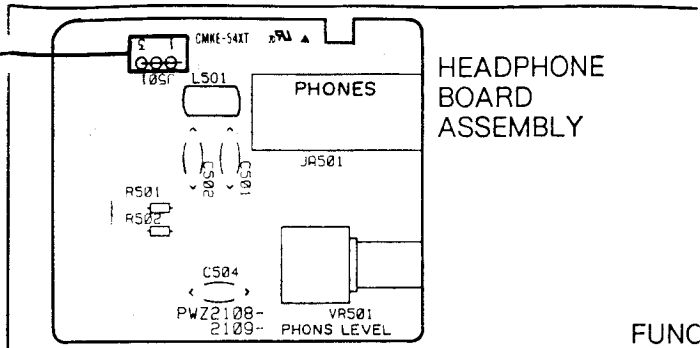
*2	R447,R448 R461,R462
PD-6700, PD-5700	USED
PD-4700	SHORT (JUMPER)

IC301
(CXD2500AQ)

Pin No.	Voltage	Pin No.	Voltage
1	5	42	5
2	N. C.	43	N. C.
3	5	44	N. C.
4	2.6	45	N. C.
5	N. C.	46	4.4
6	5	47	0
7	N. C.	48	0
8	N. C.	49	0-0.3
9	0	50	N. C.
10	0	51	N. C.
11	N. C.	52	0
12	0	53	2.5
13	N. C.	54	N. C.
14	N. C.	55	0
15	N. C.	56	N. C.
16	N. C.	57	N. C.
17	0	58	N. C.
18	2.5	59	5:PD-6700
19	2.4	60	0:Others
20	2.4	60	0:PD-6700
21	0	60	N. C.:Others
22	2.5	61	N. C.
23	5	62	N. C.
24	2.5	63	N. C.
25	N. C.	64	N. C.
26	0	65	0
27	2.5	66	3.3-4.6
28	N. C.	67	5
29	0	68	0
30	N. C.	69	2.1-3
31	1.3-2.2	70	5
32	2.5	71	5
33	5	72	5
34	2.5	73	5
35	N. C.	74	5
36	N. C.	75	5
37	N. C.	76	0
38	N. C.	77	5
39	N. C.	78	5
40	N. C.	79	5
41	N. C.	80	0

IC351
(PD4320B)

Pin No.	Voltage	Pin No.	Voltage
1	5	33	5
2	N. C.	34	3.3-4.7
3	-24- -24.3	35	5
4	-24- -24.3	36	0
5	-24- -24.3	37	5
6	-24- -24.3	38	5
7	-24- -24.3	39	0
8	-24- -24.3	40	0
9	-24- -24.3	41	N. C.
10	-24- -24.3	42	N. C.
11	-24- -24.3	43	5
12	5	44	5
13	5	45	0
14	0	46	5
15	N. C.	47	5
16	-23.8	48	2.1-3
17	-9.1 - -9.3	49	5
18	-26	50	5
19	-5	51	0
20	1.2	52	5
21	1.1	53	5
22	-9- -12	54	0
23	0.2-0.8	55	5
24	0.6-1.1	56	2.5
25	0	57	2.5
26	N. C.	58	0
27	0.2-0.4	59	0
28	-2- -3.3	60	N. C.
29	-14- -17	61	0
30	-11.5- -17.3	62	0
31	0	63	0
32	5	64	0



PD-5700,
PD-4700
TYPES

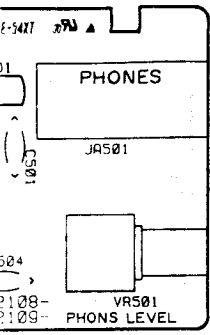
PD-6700
TYPE

PD-6700
TYPE

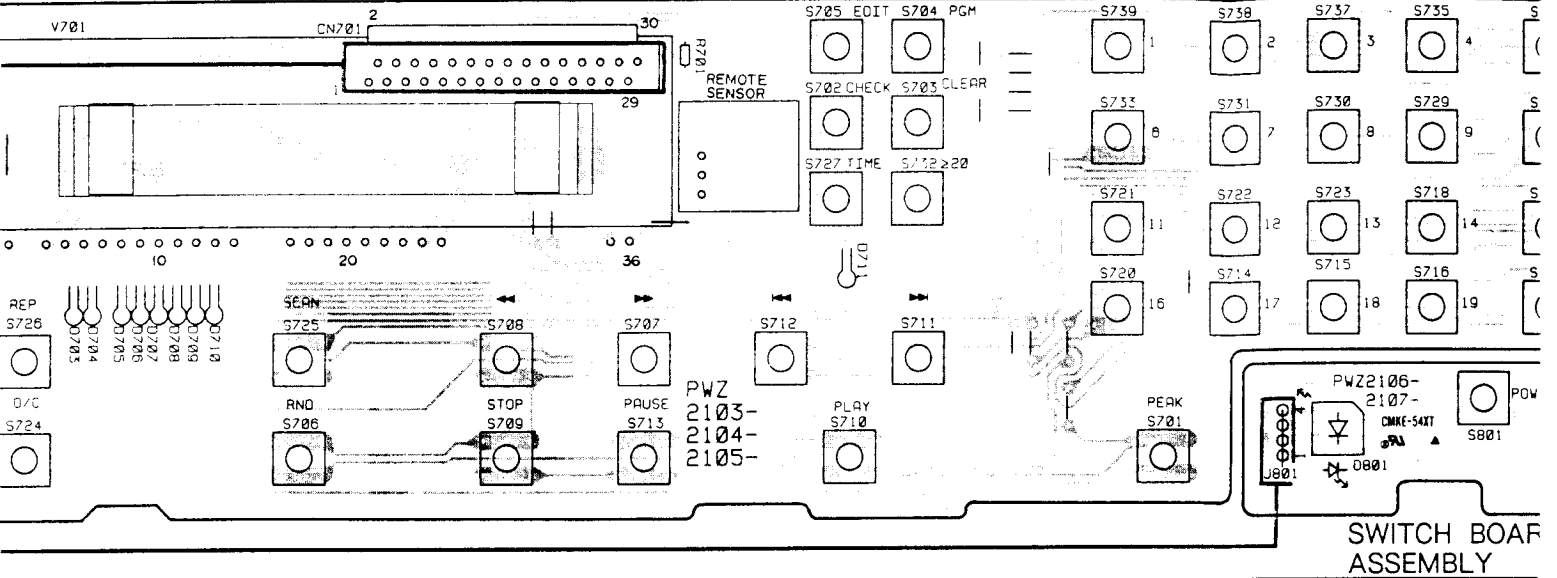
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 Email: enquiries@mauritron.co.uk

CN351,CN701	
PD-6700, PD-5700	30PIN
PD-4700	28PIN

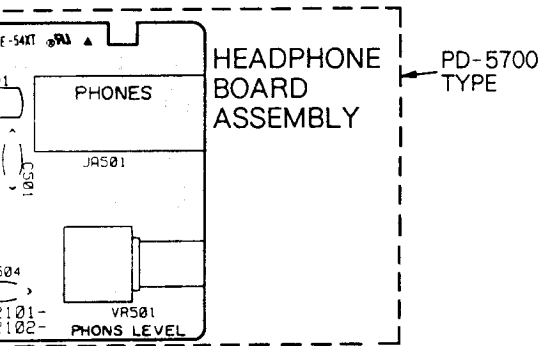
● PD-6700 TYPE



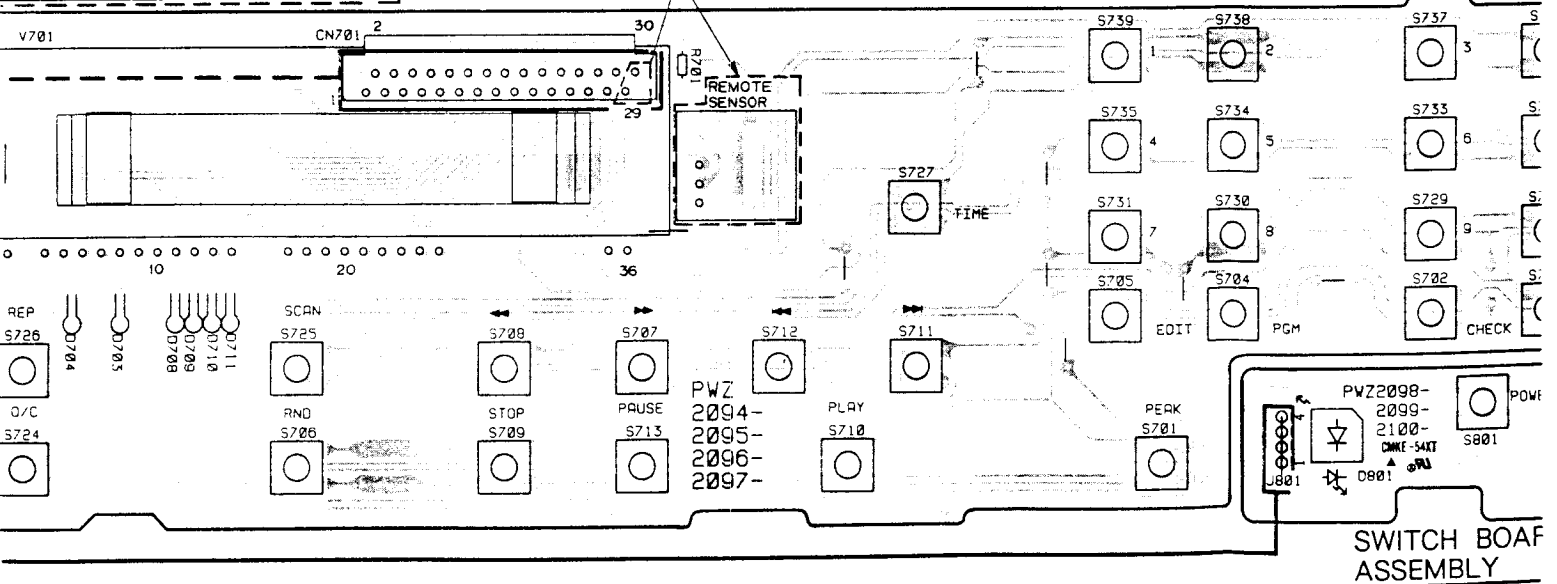
FUNCTION BOARD ASSEMBLY (PD-6700 : PWZ2103)

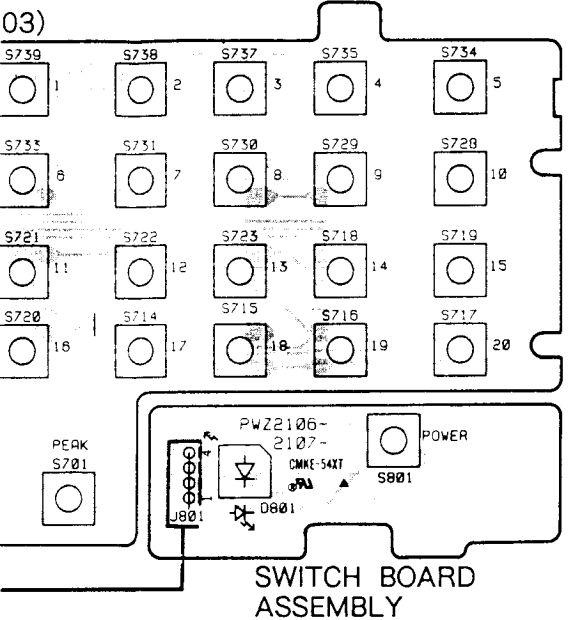


● PD-5700 AND PD-4700 TYPES



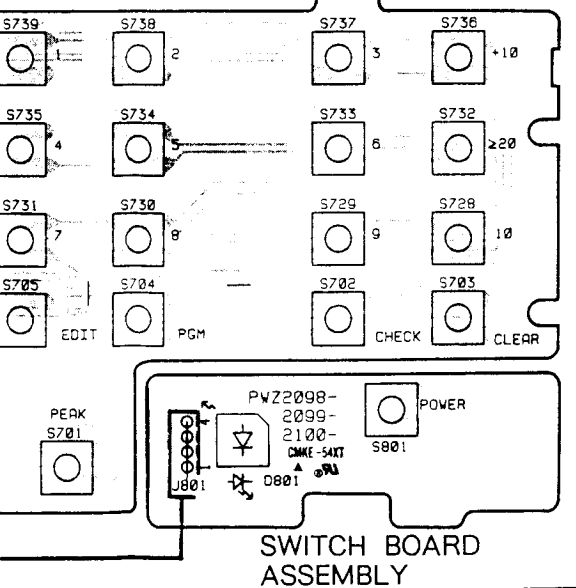
FUNCTION BOARD ASSEMBLY (PD-5700 : PWZ2096) (PD-4700 : PWZ2094)





4700 TYPES

ARD ASSEMBLY
VZ2096)
VZ2094)



P.C.B. pattern diagram indication	Corresponding part symbol	Part name	P.C.B. pattern diagram indication	Corresponding part symbol	Part name
		Transistor			Ceramic capacitor
		FET			Mylar capacitor
		Diode			Styrol capacitor
		Zener diode			Electrolytic capacitor (Non polarized)
		LED			Electrolytic capacitor (Noiseless)
		Varactor			Electrolytic capacitor (Polarized)
		Tact switch			Electrolytic capacitor (Polarized)
		Inductor			Power capacitor
		Coil			Semi-fixed resistor
		Transformer			Resistor array
		Filter			Resistor
		Resonator			Resistor
		Thermistor			Resistor

1. This P.C.B. connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the above Table.
3. The capacitor terminal marked with shows negative terminal.
4. The diode marked with shows cathode side.
5. The transistor terminal marked with shows emitter.

For Service Manuals Contact
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Oxon OX9 4QY
Tel: 01844-351694 Fax: 01844-352554
Email: enquiries@mauritron.co.uk

A

B

C

D

8. P. C. B's PARTS LIST

NOTES:

- Parts without part number cannot be supplied.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- When ordering resistors, first convert resistance values into code form as shown in the following examples.
 Ex.1 When there are 2 effective digits(any digit apart from 0), such as 560 ohm and 47k ohm(tolerance is shown by J=5%, and K=10%).
 560 Ω → 56 × 10¹ → 561 RD1/4PS 561J
 47k Ω → 47 × 10³ → 473 RD1/4PS 473J
 0.5 Ω → 0R5 RN2H 0R5K
 1 Ω → 010 RS1P 010K
 Ex.2 When there are 3 effective digits(such as in high precision metal film resistors).
 5.62k Ω → 562 × 10¹ → 5621 RN1/4SR 5621F

Mark	No.	Description	Part No.
Switch Board Assembly			
SEMICONDUCTOR			
	D801	LED	PCX1019
SWITCH			
	S801	SWITCH (POWER)	PSG1006
Headphone Board Assembly (PD- 6700 and PD- 5700 types)			
COIL			
	L501		LFAR22M
CAPACITORS			
	C501, 502	CERAMIC CAPACITOR	CKCYF103Z50
	C504	CERAMIC CAPACITOR	CKCYF473Z50
RESISTORS			
	VR501	VARIABLE RESISTOR (PHONES LEVEL)	PCS1003
	R501, 502	CARBON FILM RESISTOR	RD1/6PM470J
OTHERS			
	JA501	JACK (PHONES)	RKN1002

**⊙ Mother Board Assembly
(PWM1429:PD- 6700)**

Mark	No.	Description	Part No.
SEMICONDUCTORS			
	IC101	PRE AMP IC	CXA1471S
	IC151	SERVO IC	CXA1372S
Δ	IC20	REGULATOR IC	M5298P
Δ	IC201	POWER OP-AMP, IC	LA6520
Δ	IC202	POWER OP-AMP, IC	LA6517
	IC21	REGULATOR, IC	NJM2930-L05
	IC301	EFM DEMODULATION IC	CXD2500AQ
	IC351	MICROCOMPUTER, IC	PD4320B
	IC401	D/A CONVERTER, IC	PD2026A
	IC405	OP-AMP IC	NJM4558D-D
	IC406	OP-AMP IC	BA15218

Mark	No.	Description	Part No.
	Q101	TRANSISTOR	2SA854S
	Q321	TRANSISTOR	2SA933S
	Q391	TRANSISTOR	2SC1740S
	Q403, 404	TRANSISTOR	2SD2144S
	Q405	TRANSISTOR	DTC124ES
	Q451, 452	TRANSISTOR	DTA124ES
	Q453, 454	TRANSISTOR	2SB1296
Δ	D11-14	DIODE	11ES2
	D211	ZENNER DIODE	MTZJ6. 2B
	D391-397	DIODE	1SS254
	D403	DIODE	1SS254
Δ	D52	DIODE	11ES2
	D54	ZENNER DIODE	MTZJ18B
CAPACITORS			
	C101, 102	ELECTR. CAPACITOR	CEAS101M10
	C103	CERAMIC CAPACITOR	CCCH200J50
	C104	ELECTR. CAPACITOR	CEAS101M10
	C11, 110	CERAMIC CAPACITOR	CKCYF103Z50
	C13, 15	CERAMIC CAPACITOR	CKCYF103Z50
	C153	ELECTR. CAPACITOR	CEAS101M10
	C155	CERAMIC CAPACITOR	CKCYB182K50
	C156	CERAMIC CAPACITOR	CGCYX333K25
	C157	CERAMIC CAPACITOR	CGCYX103K25
	C158, 159	CERAMIC CAPACITOR	CGCYX104K25
	C16	CERAMIC CAPACITOR	CKCYF103Z50
	C160	ELECTR. CAPACITOR	CEAS4R7M50
	C161	CERAMIC CAPACITOR	CGCYX104K25
	C162	ELECTR. CAPACITOR	CEAS010M50
	C163	CERAMIC CAPACITOR	CGCYX104K25
	C164	CERAMIC CAPACITOR	CGCYX103K25
	C167	CERAMIC CAPACITOR	CKCYF103Z50
	C168	CERAMIC CAPACITOR	CGCYX333K25
	C169	CERAMIC CAPACITOR	CGCYX103K25
	C170	CERAMIC CAPACITOR	CKCYB332K50
	C171, 172	CERAMIC CAPACITOR	CKCYB472K50
	C202	CERAMIC CAPACITOR	CKCYF103Z50
	C212	CERAMIC CAPACITOR	CGCYX103K25
	C216, 217	ELECTR. CAPACITOR	CEAS330M16
	C225	CERAMIC CAPACITOR	CGCYX104K25

Mark	No.	Description	Part No.
	C25	ELECTR. CAPACITOR	CEAS332M16
	C26	ELECTR. CAPACITOR	CEAS102M16
	C27	ELECTROLYTIC CAPACIT	CEAS471M6R3
	C28	ELECTR. CAPACITOR	CEAS101M10
	C29	ELECTROLYTIC CAPACIT	CEAS471M6R3
	C301	CERAMIC CAPACITOR	CGCYX104K25
	C302	ELECTROLYTIC CAPACIT	CEAS471M6R3
	C306	CERAMIC CAPACITOR	CKCYB152K50
	C307	CERAMIC CAPACITOR	CGCYX473K25
	C308	CERAMIC CAPACITOR	CGCYX103K25
	C309	ELECTR. CAPACITOR	CEASR47M50
	C321	CERAMIC CAPACITOR	CGCYX104K25
	C322	ELECTR. CAPACITOR	CEAS330M16
	C323	CERAMIC CAPACITOR	CKCYF473Z50
	C324	CERAMIC CAPACITOR	CCCCH100D50
	C351	ELECTROLYTIC CAPACIT	CEAS471M6R3
	C353	CERAMIC CAPACITOR	CKCYF103Z50
	C397	MYLOR FILM CAPACITOR	CQMA104K50
	C403	CERAMIC CAPACITOR	CCCCH120J50
	C404	CERAMIC CAPACITOR	CCCCH220J50
	C413, 414	MYLOR FILM CAPACITOR	CQMA104K50
	C415, 416	AUDIO FILM CAPACITOR	CFTXA104J50
	C421	MYLOR FILM CAPACITOR	CQMA103K50
	C429, 430	CERAMIC CAPACITOR	CCCCH390J50
	C431, 432	ELECTR. CAPACITOR	CEAS330M16
	C433, 434	ELECTR. CAPACITOR	CEAS220M50
	C435-438	CERAMIC CAPACITOR	CCCCH390J50
	C441, 442	PL. STYRENE CAPACITOR	CQSA152J50
	C451, 452	ELECTR. CAPACITOR	CEAS47M50
	C461	CERAMIC CAPACITOR	CKCYF103Z50
	C52	ELECTR. CAPACITOR	CEAS101M35
	C60	ELECTR. CAPACITOR	CEAS010M50

RESISTORS

VR102	VR (22k Ω)	RCP1046
VR103	VR (1k Ω)	RCP1044
VR151, 152	VR (22k Ω)	RCP1046
Other resistors		RD1/6PM□□□J

OTHERS

CN101	CONNECTOR	52045-1610
CN351	CONNECTOR	9602S-30C
JA301	OPTICAL OUTPUT JACK	TOTX178
JA391, 392	JACK/12V (CONTROL IN, OUT)	PKN1004
JA393	JACK (CD DECK SYNCHRO)	PKN1005
JA401	JACK (LINE OUT L, R)	PKB1009
X351	CERAMIC RESONATOR (4.19MHz)	VSS1014
X401	XTAL RES (OSC) (16.9344MHz)	PSS1006

Mark No. Description Part No.
◎ Mother Board Assembly
(PWM1425:PD-5700)

SEMICONDUCTORS

	IC101	PRE AMP IC	CXA1471S
	IC151	SERVO IC	CXA1372S
△	IC20	REGULATOR IC	M5298P
△	IC201	POWER OP-AMP, IC	LA6520
△	IC202	POWER OP-AMP, IC	LA6517
	IC21	REGULATOR, IC	NJM2930-L05
	IC301	EFM DEMODULATION IC	CXD2500AQ
	IC351	MICROCOMPUTER, IC	PD4320B
	IC401	D/A CONVERTER, IC	PD2026A
	IC405	OP-AMP IC	NJM4558D-D
	IC406	OP-AMP IC	BA15218
	Q101	TRANSISTOR	2SA854S
	Q391	TRANSISTOR	2SC1740S
	Q403, 404	TRANSISTOR	ZSD2144S
	Q405	TRANSISTOR	DTC124ES
	Q451, 452	TRANSISTOR	DTA124ES
	Q453, 454	TRANSISTOR	ZSB1296
△	D11-14	DIODE	11ES2
	D211	ZENNER DIODE	MTZJ6. 2B
	D391-397	DIODE	1SS254
	D403	DIODE	1SS254
△	D52	DIODE	11ES2
	D54	ZENNER DIODE	MTZJ18B

CAPACITORS

	C101, 102	ELECTR. CAPACITOR	CEAS101M10
	C103	CERAMIC CAPACITOR	CCCCH200J50
	C104	ELECTR. CAPACITOR	CEAS101M10
	C11, 110	CERAMIC CAPACITOR	CKCYF103Z50
	C13, 15	CERAMIC CAPACITOR	CKCYF103Z50
	C153	ELECTR. CAPACITOR	CEAS101M10
	C155	CERAMIC CAPACITOR	CKCYB182K50
	C156	CERAMIC CAPACITOR	CGCYX333K25
	C157	CERAMIC CAPACITOR	CGCYX103K25
	C158, 159	CERAMIC CAPACITOR	CGCYX104K25
	C16	CERAMIC CAPACITOR	CKCYF103Z50
	C160	ELECTR. CAPACITOR	CEAS47M50
	C161	CERAMIC CAPACITOR	CGCYX104K25
	C162	ELECTR. CAPACITOR	CEAS010M50
	C163	CERAMIC CAPACITOR	CGCYX104K25
	C164	CERAMIC CAPACITOR	CGCYX103K25
	C167	CERAMIC CAPACITOR	CKCYF103Z50
	C168	CERAMIC CAPACITOR	CGCYX333K25
	C169	CERAMIC CAPACITOR	CGCYX103K25
	C170	CERAMIC CAPACITOR	CKCYB332K50
	C171, 172	CERAMIC CAPACITOR	CKCYB472K50
	C202	CERAMIC CAPACITOR	CKCYF103Z50
	C212	CERAMIC CAPACITOR	CGCYX103K25
	C216, 217	ELECTR. CAPACITOR	CEAS330M16
	C225	CERAMIC CAPACITOR	CGCYX104K25
	C25	ELECTR. CAPACITOR	CEAS332M16
	C26	ELECTR. CAPACITOR	CEAS102M16
	C27	ELECTROLYTIC CAPACIT	CEAS471M6R3
	C28	ELECTR. CAPACITOR	CEAS101M10
	C29	ELECTROLYTIC CAPACIT	CEAS471M6R3

Mark	No.	Description	Part No.
	C301	CERAMIC CAPACITOR	CGCYX104K25
	C302	ELECTROLYTIC CAPACIT	CEAS471M6R3
	C306	CERAMIC CAPACITOR	CKCYB152K50
	C307	CERAMIC CAPACITOR	CGCYX473K25
	C308	CERAMIC CAPACITOR	CGCYX103K25
	C309	ELECTR. CAPACITOR	CEASR47M50
	C351	ELECTROLYTIC CAPACIT	CEAS471M6R3
	C353	CERAMIC CAPACITOR	CKCYF103Z50
	C397	MYLOR FILM CAPACITOR	CQMA104K50
	C403	CERAMIC CAPACITOR	CCCCH120J50
	C404	CERAMIC CAPACITOR	CCCCH220J50
	C413-416	MYLOR FILM CAPACITOR	CQMA104K50
	C421	MYLOR FILM CAPACITOR	CQMA103K50
	C429, 430	CERAMIC CAPACITOR	CCCCH390J50
	C431, 432	ELECTR. CAPACITOR	CEAS330M16
	C433, 434	ELECTR. CAPACITOR	CEAS220M25
	C435-438	CERAMIC CAPACITOR	CCCCH390J50
	C441, 442	MYLOR FILM CAPACITOR	CQMA152J50
	C451, 452	ELECTR. CAPACITOR	CEAS4R7M50
	C461	CERAMIC CAPACITOR	CKCYF103Z50
	C52	ELECTR. CAPACITOR	CEAS101M35
	C60	ELECTR. CAPACITOR	CEAS010M50

RESISTORS

VR102	VR (22k Ω)	RCP1046
VR103	VR (1k Ω)	RCP1044
VR151, 152	VR (22k Ω)	RCP1046
Other resistors		RD1/6PM□□□□J

OTHERS

CN101	CONNECTOR	52045-1610
CN351	CONNECTOR	9602S-30C
JA391, 392	JACK/12V (CONTROL IN, OUT)	PKN1004
JA393	JACK (CD DECK SYNCHRO)	PKN1005
JA401	JACK (LINE OUT L, R)	PKB1009
X351	CERAMIC RESONATOR (4.19MHz)	VSS1014
X401	XTAL RES (OSC) (16.9344MHz)	PSS1006

**● Mother Board Assembly
(PWM1421:PD - 4700)**

SEMICONDUCTORS

	IC101	PRE AMP IC	CXA1471S
	IC151	SERVO IC	CXA1372S
△	IC20	REGULATOR IC	M5298P
△	IC201	POWER OP-AMP, IC	LA6520
△	IC202	POWER OP-AMP, IC	LA6517
	IC21	REGULATOR, IC	NJM2930-L05
	IC301	EFM DEMODULATION IC	CXD2500AQ
	IC351	MICROCOMPUTER, IC	PD4320B
	IC401	D/A CONVERTER, IC	PD2026A
	IC405	OP-AMP IC	NJM4558D-D
	Q101	TRANSISTOR	2SA854S
	Q391	TRANSISTOR	2SC1740S
	Q403, 404	TRANSISTOR	2SD2144S
	Q405	TRANSISTOR	DTC124ES

Mark	No.	Description	Part No.
△	D11-14	DIODE	11ES2
	D211	ZENNER DIODE	MTZJ6. 2B
	D392-397	DIODE	1SS254
	D403	DIODE	1SS254
△	D52	DIODE	11ES2
	D54	ZENNER DIODE	MTZJ18B

CAPACITORS

	C101, 102	ELECTR. CAPACITOR	CEAS101M10
	C103	CERAMIC CAPACITOR	CCCCH200J50
	C104	ELECTR. CAPACITOR	CEAS101M10
	C11, 110	CERAMIC CAPACITOR	CKCYF103Z50
	C13, 15	CERAMIC CAPACITOR	CKCYF103Z50
	C153	ELECTR. CAPACITOR	CEAS101M10
	C155	CERAMIC CAPACITOR	CKCYB182K50
	C156	CERAMIC CAPACITOR	CGCYX333K25
	C157	CERAMIC CAPACITOR	CGCYX103K25
	C158, 159	CERAMIC CAPACITOR	CGCYX104K25
	C16	CERAMIC CAPACITOR	CKCYF103Z50
	C160	ELECTR. CAPACITOR	CEAS4R7M50
	C161	CERAMIC CAPACITOR	CGCYX104K25
	C162	ELECTR. CAPACITOR	CEAS010M50
	C163	CERAMIC CAPACITOR	CGCYX104K25
	C164	CERAMIC CAPACITOR	CGCYX103K25
	C167	CERAMIC CAPACITOR	CKCYF103Z50
	C168	CERAMIC CAPACITOR	CGCYX333K25
	C169	CERAMIC CAPACITOR	CGCYX103K25
	C170	CERAMIC CAPACITOR	CKCYB332K50
	C171, 172	CERAMIC CAPACITOR	CKCYB472K50
	C202	CERAMIC CAPACITOR	CKCYF103Z50
	C212	CERAMIC CAPACITOR	CGCYX103K25
	C216, 217	ELECTR. CAPACITOR	CEAS330M16
	C225	CERAMIC CAPACITOR	CGCYX104K25
	C25	ELECTR. CAPACITOR	CEAS332M16
	C26	ELECTR. CAPACITOR	CEAS102M16
	C27	ELECTROLYTIC CAPACIT	CEAS471M6R3
	C28	ELECTR. CAPACITOR	CEAS101M10
	C29	ELECTROLYTIC CAPACIT	CEAS471M6R3
	C301	CERAMIC CAPACITOR	CGCYX104K25
	C302	ELECTROLYTIC CAPACIT	CEAS471M6R3
	C306	CERAMIC CAPACITOR	CKCYB152K50
	C307	CERAMIC CAPACITOR	CGCYX473K25
	C308	CERAMIC CAPACITOR	CGCYX103K25
	C309	ELECTR. CAPACITOR	CEASR47M50
	C351	ELECTROLYTIC CAPACIT	CEAS471M6R3
	C353	CERAMIC CAPACITOR	CKCYF103Z50
	C397	MYLOR FILM CAPACITOR	CQMA104K50
	C403	CERAMIC CAPACITOR	CCCCH120J50
	C404	CERAMIC CAPACITOR	CCCCH220J50
	C413-416	MYLOR FILM CAPACITOR	CQMA104K50
	C421	MYLOR FILM CAPACITOR	CQMA103K50
	C429, 430	CERAMIC CAPACITOR	CCCCH390J50
	C431, 432	ELECTR. CAPACITOR	CEAS330M16
	C433, 434	ELECTR. CAPACITOR	CEAS220M25
	C435-438	CERAMIC CAPACITOR	CCCCH390J50
	C441, 442	MYLOR FILM CAPACITOR	CQMA152J50
	C461	CERAMIC CAPACITOR	CKCYF103Z50
	C52	ELECTR. CAPACITOR	CEAS101M35
	C60	ELECTR. CAPACITOR	CEAS010M50

Mark	No.	Description	Part No.
RESISTORS			
	VR102	VR (22kΩ)	RCP1046
	VR103	VR (1kΩ)	RCP1044
	VR151, 152	VR (22kΩ)	RCP1046
	Other resistors		RD1/6PM□□□J

Mark	No.	Description	Part No.
OTHERS			
	CN101	CONNECTOR	52045-1610
	CN351	CONNECTOR	9602S-28C
	JA391, 392	JACK/12V (CONTROL IN, OUT)	PKN1004
	JA393	JACK (CD DECK SYNCHRO)	PKN1005
	JA401	JACK (LINE OUT L, R)	PKB1009
	X351	CERAMIC RESONATOR (4.19MHz)	VSS1014
	X401	XTAL RES (OSC) (16.9344MHz)	PSS1006

◎ Function Board Assembly
(PWZ2103:PD- 6700)

SEMICONDUCTORS			
	D701-711	DIODE	1SS254

RESISTOR			
	R701	CARBON FILM RESISTOR	RD1/6PM471J

SWITCHES			
	S701-735	SWITCH	PSG1006
	PEAK SEARCH, CHECK, CLEAR, PGM, EDIT, RANDOM PLAY, MANUAL SEARCH(<<I, >>I), STOP (□), PLAY (<), TRACK SEARCH ([<<I, >>I]), PAUSE ([]), TRACK NUMBER (4-20, >20), OPEN/CLOSE (Δ), HI-LITE SCAN, REPEAT, TIME		
	S737-739	SWITCH	PSG1006
	(TRACK NUMBER (3, 2, 1))		

OTHERS			
	CN701	REMOTE SENSOR	GP1U50X
	CN701	CONNECTOR	9602S-30F
	V701	FL INDICATOR TUBE	PEL1051

◎ Function Board Assembly
(PWZ2096:PD- 5700)

SEMICONDUCTORS			
	D701-704	DIODE	1SS254
	D708-711	DIODE	1SS254

SWITCHES			
	S701-713	SWITCH	PSG1006
	PEAK SEARCH, CHECK, CLEAR, PGM, EDIT, RANDOM PLAY, MANUAL SEARCH(<<I, >>I), STOP (□), PLAY (<), TRACK SEARCH ([<<I, >>I]), PAUSE ([])		
	S724-739	SWITCH	PSG1006
	OPEN/CLOSE (Δ), HI-LITE SCAN, REPEAT, TIME, TRACK NUMBER (1-10, +10, >20)		

Mark	No.	Description	Part No.
RESISTOR			
	R701	CARBON FILM RESISTOR	RD1/6PM471J
OTHERS			
	CN701	REMOTE SENSOR	GP1U50X
	CN701	CONNECTOR	9602S-30F
	V701	FL INDICATOR TUBE	PEL1051

◎ Function Board Assembly
(PWZ2094:PD- 4700)

SEMICONDUCTORS			
	D701-704	DIODE	1SS254
	D708-711	DIODE	1SS254

SWITCHES			
	S701-713	SWITCH	PSG1006
	PEAK SEARCH, CHECK, CLEAR, PGM, EDIT, RANDOM PLAY, MANUAL SEARCH(<<I, >>I), STOP (□), PLAY (<), TRACK SEARCH ([<<I, >>I]), PAUSE ([])		
	S724-739	SWITCH	PSG1006
	OPEN/CLOSE (Δ), HI-LITE SCAN, REPEAT, TIME, TRACK NUMBER (1-10, +10, >20)		

RESISTOR			
	R701	CARBON FILM RESISTOR	RD1/6PM471J

OTHERS			
	CN701	CONNECTOR	9602S-28F
	V701	FL INDICATOR TUBE	PEL1051

9. ADJUSTMENTS

9.1. Adjustment Methods

If a disc player is adjusted incorrectly or inadequately, it may malfunction or not work at all even though there is nothing at all wrong with the pickup or the circuitry. Adjust correctly following the adjustment procedure.

● Adjustment items/verification items and order

Step	Item	Test point	Adjustment location
1	Focus offset adjustment	TP1, Pin 6(FCS. ERR)	VR103(FCS. OFS)
2	Grating adjustment	TP1, Pin 2(TRK. ERR)	Grating adjustment slit
3	Tracking error balance adjustment	TP1, Pin 2(TRK. ERR)	VR102(TRK. BAL)
4	Pickup radial/tangential direction tilt adjustment	TP1, Pin 1(RF)	Radial tilt adjustment screw, Tangential tilt adjustment screw
5	RF level adjustment	TP1, Pin 1(RF)	VR1(RF level)
6	Focus servo loop gain adjustment	TP1, Pin 5(FCS. IN) TP1, Pin 6(FCS. ERR)	VR152(FCS. GAN)
7	Tracking servo loop gain adjustment	TP1, Pin 3(TRK. IN) TP1, Pin 2(TRK. ERR)	VR151(TRK. GAN)
8	Focus error signal verification	TP1, Pin 6(FCS. ERR)	—————

● Abbreviation table

FCS. ERR	:Focus Error
FCS. OFS	:Focus Offset
TRK. ERR	:Tracking Error
TRK. BAL	:Tracking Balance
FCS. GAN	:Focus Gain
TRK. GAN	:Tracking Gain
FCS. IN	:Focus In
TRK. IN	:Tracking In

● Measuring instruments and tools

1. Dual trace oscilloscope (10:1 probe)
2. Low-frequency oscillator
3. Test disc (YEDS - 7)
4. 12 - cm disc (with at least about 70 minutes recording)
5. Low-pass filter (39 k Ω + 0.001 μ F)
6. Resistor (100 k Ω)
7. Hexagonal wrench (M3 mm)
8. Standard tools

For Service Manuals Contact
MAURITRON TECHNICAL SERVICES
 8 Cherry Tree Rd, Chinnor
 Oxon OX9 4QY
 Tel: 01844-351694 Fax: 01844-352554
 Email: enquiries@mauritron.co.uk

● Test point and adjustment variable resistor positions

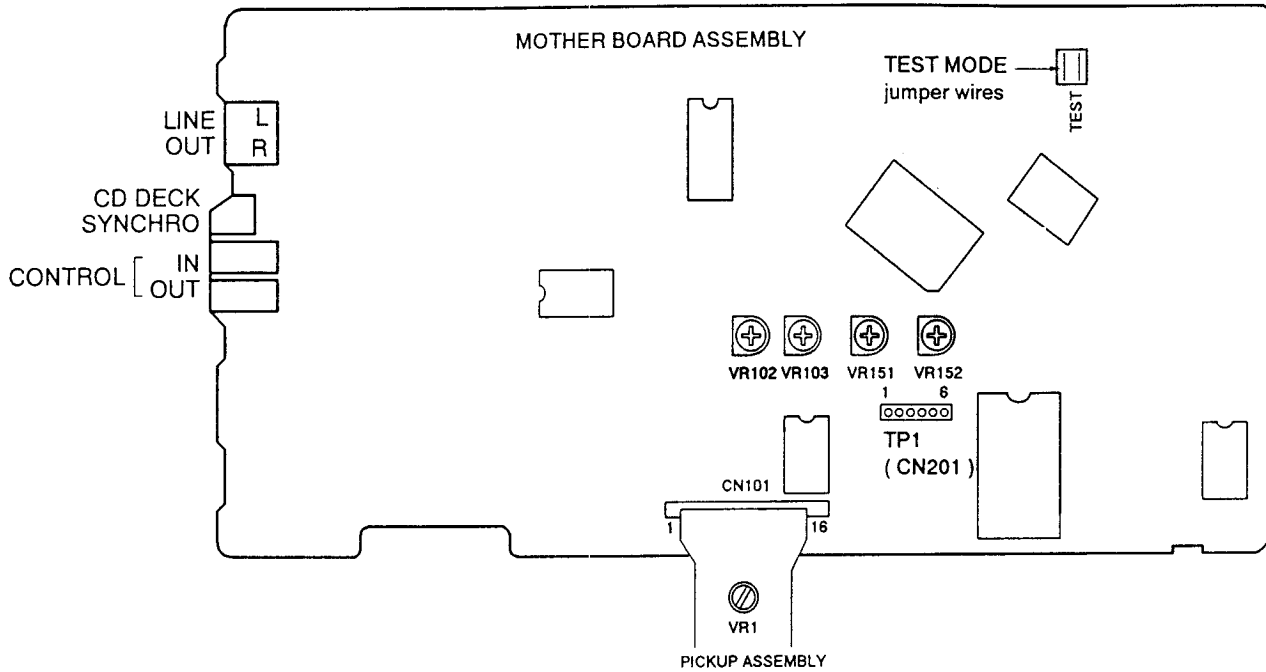


Figure 1 Adjustment Locations

● Notes

1. Use a 10:1 probe for the oscilloscope.
2. All the knob positions (settings) for the oscilloscope in the adjustment procedures are for when a 10:1 probe is used.

● Test mode

These models have a test mode so that the adjustments and checks required for service can be carried out easily. When these models are in test mode, the keys on the front panel work differently from normal. Adjustments and checks can be carried out by operating these keys with the correct procedure. For these models, all adjustments are carried out in test mode.

[Setting these models to test mode]

How to set this model into test mode.

1. Unplug the power cord from the AC socket.
2. Short the test mode jumper wires. (See Figure 1.)
3. Plug the power cord back into the AC socket.

When the test mode is set correctly, the display is different from what it usually is when the power is turned on. If the display is still the same as usual, test mode has not been set correctly, so repeat Steps 1 - 3.

[Release from test mode]

Here is the procedure for releasing the test mode:

1. Press the STOP key and stop all operations.
2. Unplug the power cord from the AC socket.

[Operations of the keys in test mode]

Code	Key name	Function in test mode	Explanation
	PROGRAM	Focus servo close	<p>The laser diode is lit up and the focus actuator is lowered, then raised slowly and the focus servo is closed at the point where the objective lens is focused on the disc.</p> <p>With the player in this state, if you lightly rotate the stopped disc by hand, you can hear the sound the focus servo.</p> <p>If you can hear this sound, the focus servo is operating correctly. If you press this key with no disc mounted, the laser diode lights up, the focus actuator is pulled down, then the actuator is raised and lowered twice and returned to its original position.</p>
▷	PLAY	Spindle servo ON	<p>Starts the spindle motor in the clockwise direction and when the disc rotation reaches the prescribed speed (about 500 rpm at the inner periphery), sets the spindle servo in a closed loop.</p> <p>Be careful. Pressing this key when there is no disc mounted makes the spindle motor run at the maximum speed.</p> <p>If the focus servo does not go correctly into a closed loop or the laser light shines on the mirror section at the outermost periphery of the disc, the same symptom is occurred.</p>
□□	PAUSE	Tracking servo close/open	<p>Pressing this key when the focus servo and spindle servo are operating correctly in closed loops puts the tracking servo into a closed loop, displays the track number being played back and the elapsed time on the front panel, and outputs the playback signal.</p> <p>If the elapsed time is not displayed or not counted correctly or the audio is not played back correctly, it may be that the laser is shining on the section with no sound recorded at the outer edge of the disc, that something is out of adjustment, or that there is some other problem.</p> <p>This key is a toggle key and open/close the tracking servo alternately. This key has no effect if no disc is mounted.</p>

For Service Manuals Contact
MAURITRON TECHNICAL SERVICES
 8 Cherry Tree Rd, Chinnor
 Oxon OX9 4CY
 Tel: 01844-351694 Fax: 01844-352554
 Email: enquiries@mauritron.co.uk

Code	Key name	Function in test mode	Explanation
◀◀	MANUAL SEARCH REV	Carriage reverse (inwards)	Moves the pickup position toward the inner diameter of the disc. When this key is pressed with the tracking servo in a closed loop, the tracking servo automatically goes into an open loop. Since the motor does not automatically stop at the mechanical end point in test mode, be careful with this operation.
▶▶	MANUAL SEARCH FWD	Carriage forward (outwards)	Moves the pickup position toward the outer diameter of the disc. When this key is pressed with the tracking servo in a closed loop, the tracking servo automatically goes into an open loop. Since the motor does not automatically stop at the mechanical end point in test mode, be careful with this operation.
□	STOP	Stop	Switches off all the servos and initialized. The pickup remains where it was when this key was pressed.
△	OPEN/CLOSE	Disc tray open/close	Open/close the disc tray. This key is a toggle key and open/close tray alternately. Pressing this key when the disc is turning stops the disc, then opens the tray. This key operation does not affect the position of the pickup.

[How to play back a disc in test mode]

In test mode, since the servos operate independently, playing back a disc requires that you operate the keys in the correct order to close the servos.

Here is the key operation sequence for playing back a disc in test mode.

PROGRAM

Lights up the laser diode and closes the focus servo.



PLAY ▷

Starts the spindle motor and closes the spindle servo.



PAUSE ||

Closes the tracking servo.

Wait at least 2-3 seconds between each of these operations.

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8 Cherry Tree Rd, Chinnor
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1. Focus Offset Adjustment

<ul style="list-style-type: none"> ● Objective ● Symptom when out of adjustment 	Sets the DC offset for the focus error amp. The model does not focus in and the RF signal is dirty.		
<ul style="list-style-type: none"> ● Measurement instrument connections 	Connect the oscilloscope to TP1, Pin 6 (FCS. ERR) [Settings] 5 mV/division 10 ms/division DC mode	<ul style="list-style-type: none"> ● Player state ● Adjustment location ● Disc 	Test mode, stopped (just the Power switch on) VR103 (FCS. OFS) None needed

[Procedure]

Adjust VR103 (FCS. OFS) so that the DC voltage at TP1, Pin 6 (FCS. ERR) is -50 ± 50 mV.

2. Grating Adjustment

● Objective	To align the tracking error generation laser beam spots to the optimum angle on the track.		
● Symptom when out of adjustment	Play does not start, track search is impossible, tracks are skipped.		
● Measurement instrument connections	Connect the oscilloscope to TP1, Pin 2 (TRK. ERR) via a low pass filter. (See Figure 2)	● Player state	Test mode, focus and spindle servos closed and tracking servo open
	[Settings] 50 mV/division 5 ms/division DC mode	● Adjustment location	Pickup grating adjustment slit
		● Disc	12-cm disc. (YEDS-7 can not be used.)

[Procedure]

1. Move the pickup to the outer edge of the disc with the MANUAL SEARCH FWD $\triangleright\triangleright$ or REV $\triangleleft\triangleleft$ key.
2. Press the PROGRAM key, then the PLAY \triangleright key in that order to close the focus servo then the spindle servo.
3. Insert an ordinary screwdriver into the grating adjustment slit and adjust the grating to find the null point. For more details, see the next page.
4. If you slowly turn the screwdriver counterclockwise from the null point, the amplitude of the wave gradually increases, then if you continue turning the screwdriver, the amplitude of the wave becomes smaller again. Turn the screwdriver counterclockwise from the null point and set the grating to the first point where the wave amplitude reaches its maximum.

Reference : Figure 3 shows the relation between the angle of the tracking beam with the track and the waveform.

Note : The amplitude of the tracking error signal is about 3 Vp-p (when a 39 k Ω + 0.001 μ F low pass filter is used). If this amplitude is extremely small (2 Vp-p or less), the objective lens or the pickup malfunction may be the cause. If the difference between the amplitude of the error signal at the innermost edge and outermost edge of the disc is more than 10%, the grating is not adjusted to the optimum point, so adjust it again.

5. Return the pickup to more or less midway across the disc with the MANUAL SEARCH REV $\triangleleft\triangleleft$ key, press the PAUSE \square key and double check that the track number and elapsed time are displayed on the front panel. If they are not displayed at this time or the elapsed time changes irregularly, double check the null point and adjust the grating again.

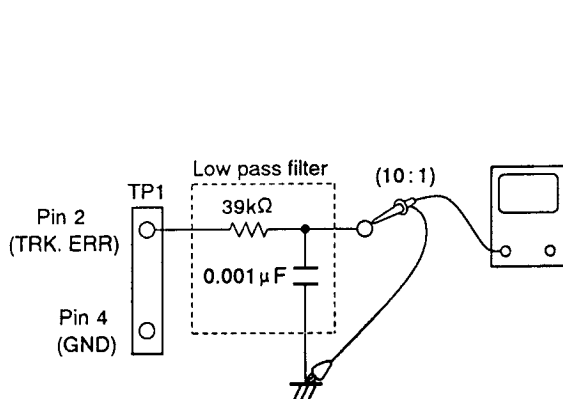
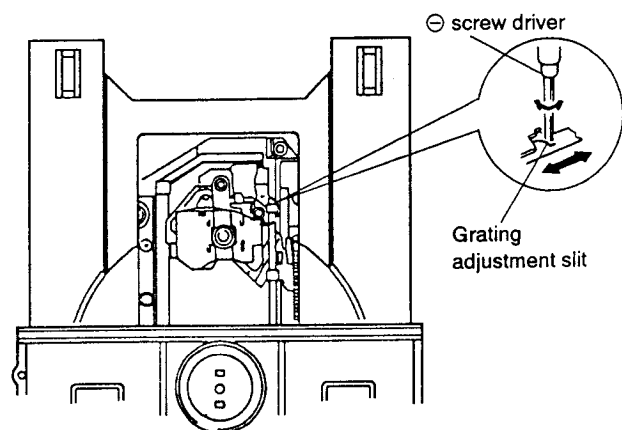


Figure 2



Adjustment locations

[How to find the null point]

When you insert the regular screwdriver into the slit for the grating adjustment and change the grating angle, the amplitude of the tracking error signal at TP1, Pin 2 changes. Within the range for the grating, there are five or six locations where the amplitude of the wave reaches a minimum. Of these five or six locations, there is only one at which the envelope of the waveform is smooth. This location is where the three laser beams divided by the grating are all right above the same track. (See Figure 3.)

This point is called the null point. When adjusting the grating, this null point is found and used as the reference position.

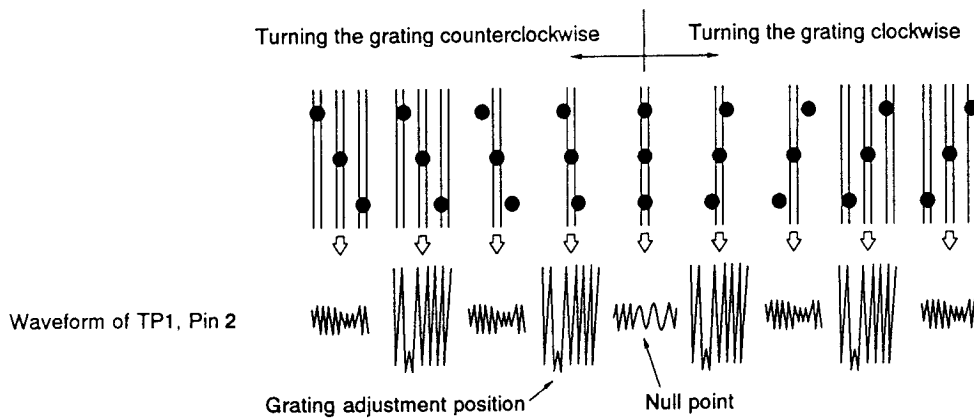
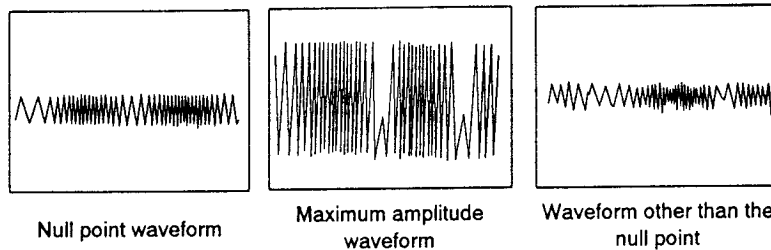


Figure 3

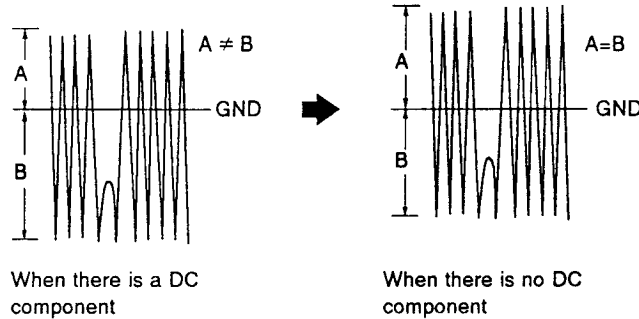


3. Tracking Error Balance Adjustment

● Objective	To correct for the variation in the sensitivity of the tracking photodiode.		
● Symptom when out of adjustment	Play does not start or track search is impossible.		
● Measurement instrument connections	Connect the oscilloscope to TP1, Pin 2 (TRK. ERR). This connection may be via a low pass filter.	● Player state	Test mode, focus and spindle servos closed and tracking servo open
	[Settings] 50 mV/division 5 ms/division DC mode	● Adjustment location	VR102 (TRK. BAL)
		● Disc	YEDS-7

[Procedure]

1. Move the pickup to midway across the disc (R=35 mm) with the MANUAL SEARCH FWD $\triangleright\triangleright$ or REV $\triangleleft\triangleleft$ key.
2. Press the PROGRAM key, then the PLAY \triangleright key in that order to close the focus servo then the spindle servo.
3. Line up the bright line (ground) at the center of the oscilloscope screen and put the oscilloscope into DC mode.
4. Adjust VR102 (TRK. BAL) so that the positive amplitude and negative amplitude of the tracking error signal at TP1, Pin 2 (TRK. ERR) are the same (in other words, so that there is no DC component).



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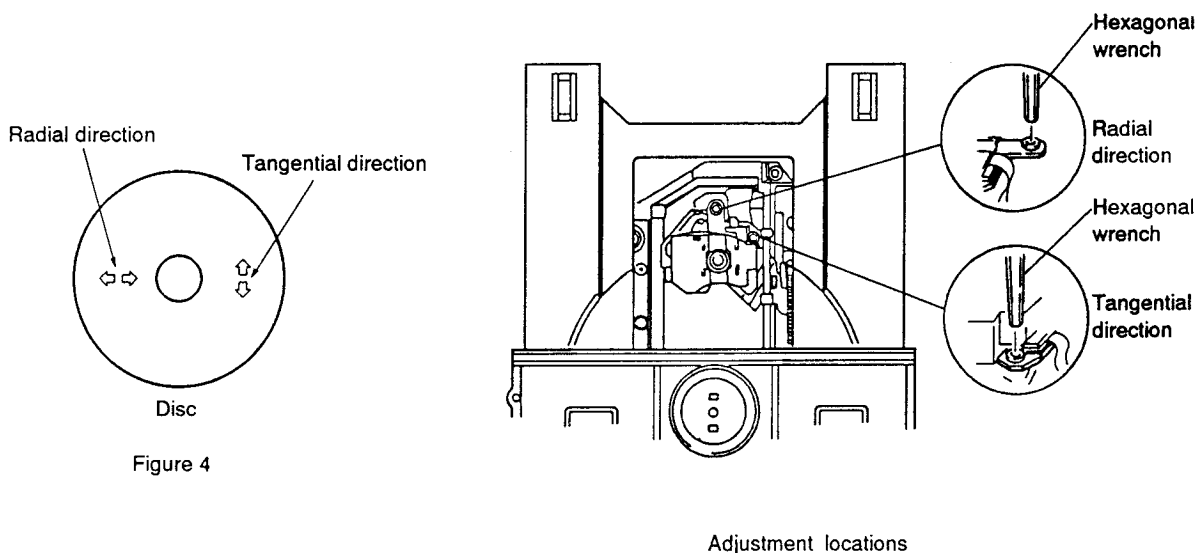
4. Pickup Radial/Tangential Tilt Adjustment

<ul style="list-style-type: none"> ● Objective 	To adjust the angle of the pickup relative to the disc so that the laser beams are shone straight down into the disc for the best read out of the RF signals.		
<ul style="list-style-type: none"> ● Symptom when out of adjustment 	Sound broken; some discs can be played but not others.		
<ul style="list-style-type: none"> ● Measurement instrument connections 	Connect the oscilloscope to TP1, Pin 1 (RF). [Settings] 20 mV/division 200 ns/division AC mode	<ul style="list-style-type: none"> ● Player state 	Test mode, play
		<ul style="list-style-type: none"> ● Adjustment location 	Pickup radial tilt adjustment screw and tangential tilt adjustment screw
		<ul style="list-style-type: none"> ● Disc 	12- cm disc. (YEDS-7 can not be used.)

[Procedure]

1. Press the MANUAL SEARCH FWD ▷▷ or REV ◁◁ key so that the radial / tangential tilt screws can be adjusted. Press the PROGRAM key, the PLAY ▷ key, then the PAUSE ◻◻ key in that order to close the focus servo then the spindle servo and put the player into play mode.
2. First, adjust the radial tilt adjustment screw with an M3-mm hexagonal wrench so that the eye pattern (the diamond shape at the center of the RF signal) can be seen the most clearly.
3. Next, adjust the tangential tilt adjustment screw with an M3-mm hexagonal wrench so that the eye pattern (the diamond shape at the center of the RF signal) can be seen the most clearly (Figure 5).
4. Adjust the radial tilt adjustment screw and the tangential tilt adjustment screw again so that the eye pattern can be seen the most clearly. As necessary, adjust the two screws alternately so that the eye pattern can be seen the most clearly.

Note:Radial and tangential mean the directions relative to the disc shown in Figure 4.



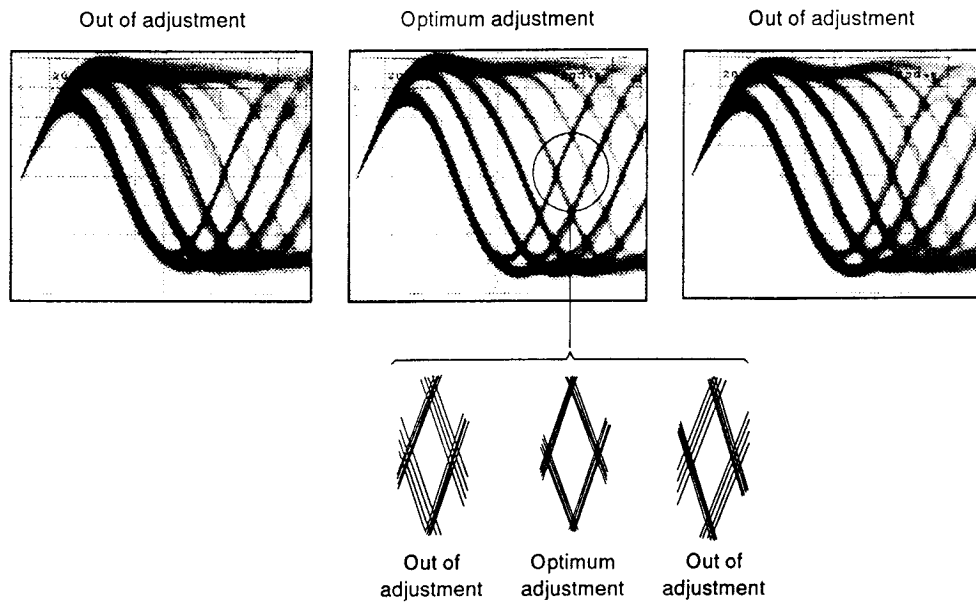


Figure 5 Eye pattern

5. RF Level Adjustment

● Objective	To optimize the playback RF signal amplitude		
● Symptom when out of adjustment	No play or no search		
● Measurement instrument connections	Connect the oscilloscope to TPI, Pin 1 (RF).	● Player state	Test mode, play
	[Settings] 50 mV/division 10 ms/division AC mode	● Adjustment location	VR1 (laser power)
		● Disc	YEDS-7

[Procedure]

1. Move the pickup to midway across the disc (R=35 mm) with the MANUAL SEARCH FWD >> or REV << key, then press the PROGRAM key, then the PLAY ▷ key in that order to close the respective servos and put the player into play mode.
2. Adjust VR1 (laser power) so that the RF signal amplitude is $1.2 V_{p-p} \pm 0.1 V$.

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6. Focus Servo Loop Gain Adjustment

● Objective	To optimize the focus servo loop gain.		
● Symptom when out of adjustment	Playback does not start or focus actuator noisy.		
● Measurement instrument connections	See figure 6. [Settings] CH1 CH2 20 mV/division 5 mV/division X-Y mode	● Player state	Test mode, play
		● Adjustment location	VR152 (FCS. GAN)
		● Disc	YEDS-7

[Procedure]

1. Set the AF generator output to 1.2 kHz and 1 Vp-p.
2. Press the MANUAL SEARCH FWD \gg or REV \ll key to move the pickup to halfway across the disc (R=35 mm), then press the PROGRAM key, the PLAY \triangleright key, then the PAUSE \square key in that order to close the corresponding servos and put the player into play mode.
3. Adjust VR152 (FCS. GAN) so that the Lissajous waveform is symmetrical about the X axis and the Y axis.

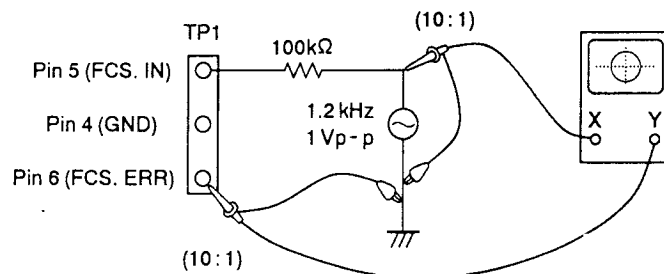
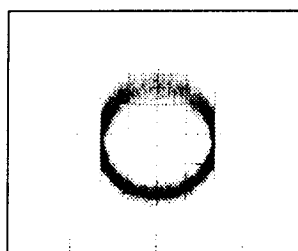


Figure 6

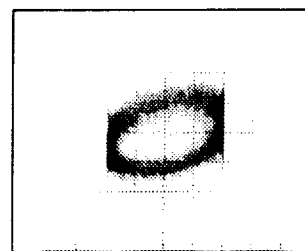
Focus Gain Adjustment



Higher gain



Optimum gain



Lower gain

7. Tracking Servo Loop Gain Adjustment

● Objective	To optimize the tracking servo loop gain.		
● Symptom when out of adjustment	Playback does not start, during searches the actuator is noisy, or tracks are skipped.		
● Measurement instrument connections	See Figure 7.	● Player state	Test mode, play
	[Settings] CH1 CH2 50 mV/division 50 mV/division X - Y mode	● Adjustment location	VR151 (TRK. GAN)
		● Disc	YEDS-7

[Procedure]

1. Set the AF generator output to 1.2 kHz and 2 Vp-p.
2. Press the MANUAL SEARCH FWD >> or REV << key to move the pickup to halfway across the disc (R=35 mm), then press the PROGRAM key, the PLAY > key, then the PAUSE || key in that order to close the corresponding servos and put the player into play mode.
3. Adjust VR151 (TRK. GAN) so that the Lissajous waveform is symmetrical about the X axis and the Y axis.

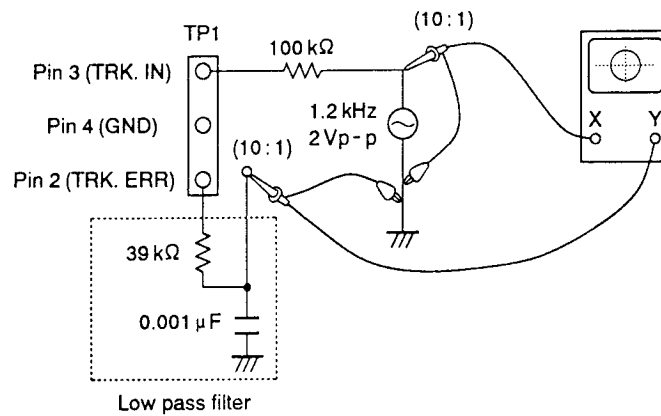
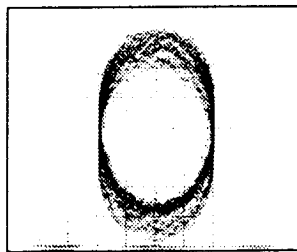


Figure 7

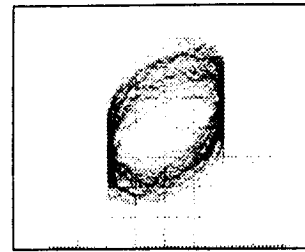
Tracking Gain Adjustment



Higher gain



Optimum gain



Lower gain

8. Focus Error Signal (Focus S Curve) Verification

<ul style="list-style-type: none"> ● Objective ● Symptom when out of adjustment 	To judge whether the pickup is ok or not by observing the focus error signal. The pickup is judged from the amplitude of the tracking error signal (as discussed in the section on adjusting the tracking error balance) and the waveform for the focus error signal.		
<ul style="list-style-type: none"> ● Measurement instrument connections 	Connect the oscilloscope to TP1, Pin 6 (FCS. ERR). [Settings] 100 mV/division 5 ms/division DC mode	<ul style="list-style-type: none"> ● Player state ● Adjustment location ● Disc 	Test mode, stop None YEDS-7

[Procedure]

1. Connect TP1 Pin 5 to ground.
2. Mount the disc.
3. While watching the oscilloscope screen, press the PROGRAM key and observe the waveform in Figure 8 for a moment. Verify that the amplitude is at least 2.5 Vp-p and that the positive and negative amplitude are about equal. Since the waveform is only output for a moment when the PROGRAM key is pressed, press this key over and over until you have checked the waveform.

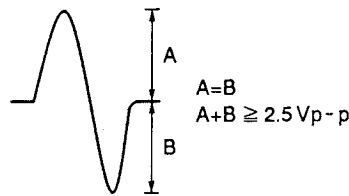


Figure 8

[Judging the pickup]

Do not judge the pickup until all the adjustments have been made correctly. In the following cases, there may be something wrong with the pickup.

1. The tracking error signal amplitude is extremely small (less than 2 Vp-p).
2. The focus error signal amplitude is extremely small (less than 2.5 Vp-p).
3. The positive and negative amplitudes of the focus error signal are extremely asymmetrical (2 : 1 ratio or more).
4. The RF signal is too small (less than 0.8 Vp-p) and even if VR1 (laser power) is adjusted , the RF signal can not be brought up to the standard level.

9. RÉGLAGES

9.1. Méthodes de réglage

Si le lecteur CD est mal réglé, il risque de ne plus fonctionner normalement, voire de ne plus fonctionner du tout, même si le capteur et la circuiterie en présentent aucune anomalie. Par conséquent, ajuster le lecteur correctement en suivant les démarches de réglage.

● Points de réglage/Point et ordre de vérification

Etape	Point	Point d'essai	Emplacement du réglage
1	Réglage du décalage de la mise au point	TP1, Broche 6(FCS. ERR)	VR103(FCS. OFS)
2	Réglage du réseau de diffraction	TP1, Broche 2(TRK. ERR)	Fente de réglage du réseau de diffraction
3	Réglage d'équilibrage d'erreur d'alignement	TP1, Broche 2(TRK. ERR)	VR102(TRK. BAL)
4	Réglage d'inclinaison radiale/tangentielle du capteur	TP1, Broche 1(RF)	Vis de réglage d'inclinaison radiale, vis de réglage d'inclinaison tangentielle
5	Réglage du niveau RF	TP1, Broche 1(RF)	VR1 (niveau RF)
6	Réglage de gain de boucle asservie de la mise au point	TP1, Broche 5(FCS. IN) TP1, Broche 6(FCS. ERR)	VR152(FCS. GAN)
7	Réglage de gain de boucle asservie de l'alignement	TP1, Broche 3(TRK. IN) TP1, Broche 2(TRK. ERR)	VR151 (TRK. GAN)
8	Vérification du signal d'erreur de la mise au point	TP1, Broche 6(FCS. ERR)	—————

● Tableau des abréviations

FCS. ERR : Erreur de mise au point
 FCS. OFS : Décalage de mise au point
 TRK. ERR : Erreur d'alignement
 TRK. BAL : Équilibrage d'erreur d'alignement
 FCS. GAN : Gain de mise au point
 TRK. GAN : Gain d'alignement
 FCS. IN : Mise au point correcte
 TRK. IN : Alignement correct

● Instruments de mesure et outils

- Oscilloscope cathodique à deux faisceaux (sonde 10 : 1)
- Oscillateur de basse fréquence
- Disque d'essai (YEDS-7)
- Disque de 12- cm (avec au moins 70 minutes d'enregistrement)
- Filtre passe-bas (39 kΩ + 0,001 μF)
- Résistance (100 kΩ)
- Clé hexagonale (M3 mm)
- Outils conventionnels

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● Point d'essai et positions de réglage de la résistance variable

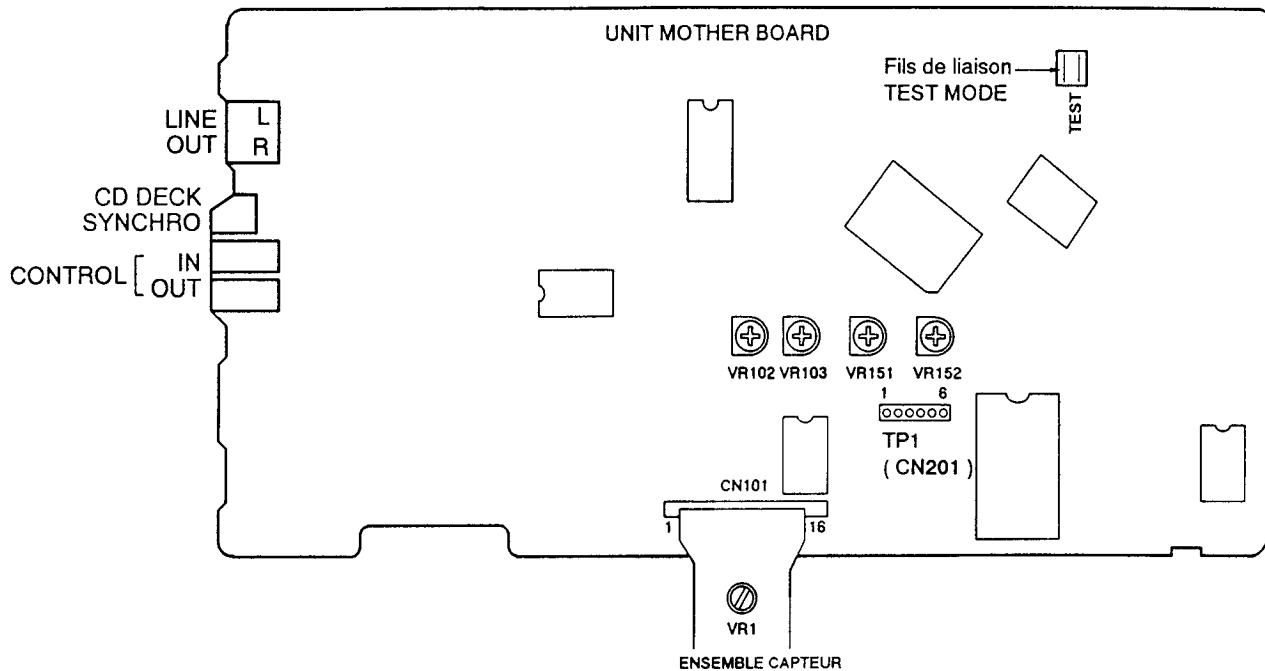


Figure 1 Emplacement des réglages

● Remarques

1. Utiliser une sonde 10:1 pour l'oscilloscope.
2. Toutes les positions (réglages) des boutons de l'oscilloscope, dans les démarches de réglage, sont conçues pour l'usage d'une sonde 10:1.

● Mode d'essai

Ces modèles sont munis d'un mode d'essai, de façon que les réglages requis à la réparation puissent être effectués aisément. Quand ces modèles sont en mode d'essai, les touches du panneau avant ne fonctionnent pas comme à l'ordinaire. Les réglages et les vérifications peuvent s'effectuer par l'enclenchement de ces touches, à conditions de suivre les démarches requises. Dans le cas de ces modèles, tous les réglages sont réalisés en mode d'essai.

[Mise en mode d'essai]

Voici la manière de mettre le modèle en mode d'essai.

1. Débrancher le cordon d'alimentation de la prise secteur.
2. Court-circuiter les fils de liaison du mode d'essai. (Voir Figure 1.)
3. Rebrancher le cordon d'alimentation dans la prise secteur.

Quand le mode d'essai est correctement réglé, l'affichage est différent de celui qui apparaît généralement à la mise sous tension. Si l'affichage reste le même, le mode d'essai n'a pas été réglé correctement. Dans ce cas, répéter les étapes 1 à 3.

[Pour sortir du mode d'essai]

Voici la procédure pour sortir du mode d'essai.

1. Appuyer sur la touche STOP pour arrêter toutes les opérations.
2. Débrancher le cordon d'alimentation de la prise secteur.

[Fonctionnement des touches en mode d'essai]

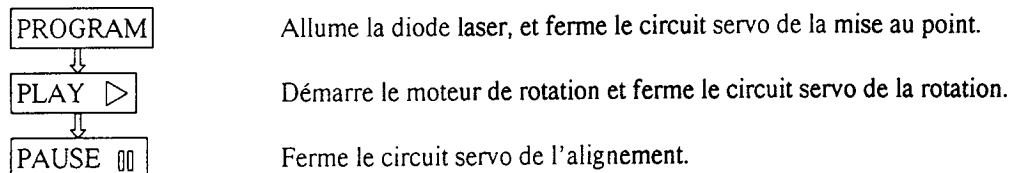
Code	Nom de la touche	Fonction en mode d'essai	Explications
	PROGRAM	Fermeture du circuit asservi de la mise au point	<p>La diode laser s'allume et l'actuateur de la mise au point s'abaisse, puis se relève lentement et le circuit servo de la mise au point se ferme au point où la lentille de l'objectif se focalise sur le disque.</p> <p>Quand l'appareil est dans cet état, si l'on fait légèrement tourner à la main le disque arrêté, le bruit produit par le circuit servo de la mise au point sera audible.</p> <p>Si ce bruit est perçu, le circuit servo de la mise au point fonctionne correctement. Si cette touche est enclenchée et qu'aucun disque n'est installé, la diode laser s'allume, l'actuateur de la mise au point s'abaisse, se relève, puis s'abaisse une deuxième fois et enfin, revient à sa position de départ.</p>
▷	PLAY	Asservissement de rotation en service	<p>Démarre le moteur de rotation dans le sens des aiguilles d'une montre, quand la rotation du disque atteint la vitesse prescrite (environ 500 tours/min à la circonférence interne) et place le circuit servo de rotation dans une boucle fermée.</p> <p>Attention. Si cette touche est enfoncée et qu'un disque n'est pas installé, le moteur de rotation va tourner à la vitesse maximum.</p> <p>Si le circuit servo de la mise au point ne passe pas comme prévu dans une boucle fermée ou que la diode laser brille dans le miroir à la périphérie externe du disque, le même symptôme se produit.</p>
□□	PAUSE	Ouverture/Fermeture du circuit servo de l'alignement	<p>Le fait d'appuyer sur cette touche quand le circuit servo de la mise au point et de la rotation fonctionnent correctement en boucles fermées, place le circuit servo de l'alignement dans une boucle fermée, fait apparaître, sur le panneau avant, le numéro de la piste en cours de lecture et la durée écoulée, puis sort le signal de lecture.</p> <p>Si la durée écoulée n'est pas affichée ou n'est pas correctement calculée, ou si la reproduction sonore est anormale, il se peut que la diode laser s'active dans la section dépourvue de signaux enregistrés, au bord externe du disque, qu'un ajustement quelconque soit déréglé, ou qu'un autre problème se manifeste.</p> <p>Cette touche est de type à bascule, et ouvre/ferme alternativement le circuit servo de l'alignement. Cette touche est inopérante si un disque n'est pas installé.</p>

Code	Nom de la touche	Fonction en mode d'essai	Explications
◀◀	MANUAL SEARCH REV	Inversion du chariot (vers l'intérieur)	Déplace le capteur vers la périphérie interne du disque. Quand cette touche est enclenchée et que le circuit servo de l'alignement travaille en boucle fermée, celui-ci change automatiquement dans une boucle ouverte. Comme le capteur ne s'arrête pas automatiquement au point de fin mécanique du mode d'essai, effectuer cette démarche avec précaution.
▶▶	MANUAL SEARCH FWD	Inversion du chariot (vers l'extérieur)	Déplace le capteur vers la périphérie externe du disque. Quand cette touche est enclenchée et que le circuit servo de l'alignement travaille en boucle fermée, celui-ci change automatiquement dans une boucle ouverte. Comme le capteur ne s'arrête pas automatiquement au point de fin mécanique du mode d'essai, effectuer cette démarche avec précaution.
□	STOP	Arrêt	Met tous les circuits servo hors service et les initialise. Le capteur reste là où il était quand cette touche a été enclenchée.
△	OPEN/CLOSE	Ouverture/Fermeture du plateau à disque	Cette touche est de type à bascule et ouvre/ferme alternativement le plateau. Le fait d'enfoncer cette touche quand le plateau est ouvert le ferme et vice versa. Le fait d'appuyer sur cette touche quand le disque tourne arrête la rotation et ouvre le plateau. La fonction de cette touche n'a aucun effet sur la position du capteur.

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[Lecture de disque en mode d'essai]

En mode d'essai, comme les circuits servo fonctionnent de manière indépendante, la lecture d'un disque exige que les touches soient enclenchées dans l'ordre prescrit, afin de fermer les circuits servo.
Voici l'ordre d'enclenchement des touches pour reproduire un disque en mode d'essai.



Attendre 2 à 3 secondes entre chaque opération.

1. Réglage du dÉcalage de la Mise au Point

● Objectif	Règle le décalage CC de l'amplificateur d'erreur de mise au point.		
● Symptôme quand dérégulé	Le lecteur ne procède plus à la mise au point et le signal RF n'est pas clair.		
● Raccordement des instruments de mesure	Raccorder l'oscilloscope à TP1, broche 6 (FCS. ERR). [Réglages] 5 mV/division 10 ms/division mode CC	● Etat du lecteur ● Emplacement du réglage ● Disque	Mode d'essai, arrêté (juste l'interrupteur d'alimentation commuté sur marche) VR103(FCS. OFS) Aucun requis
<p>[Marche à suivre]</p> <p>Ajuster VR103 (FCS. OFS) de façon que la tension à TP1 broche 6 (FCS. ERR) soit -50 ± 50 mV.</p>			

2. Réglage du Réseau de Diffraction

<ul style="list-style-type: none"> ● Objectif 	Pour aligner les points du rayon laser producteur d'erreur d'alignement sur l'angle optimum de la piste.		
<ul style="list-style-type: none"> ● Symptôme quand déréglé 	La lecture ne commence pas, la recherche de piste est impossible, les pistes sont sautées.		
<ul style="list-style-type: none"> ● Raccordement des instruments de mesure 	Raccorder l'oscilloscope à TP1, broche 2 (TRK. ERR) via un filtre passe-bas. (Voir Figure 2)	<ul style="list-style-type: none"> ● Etat du lecteur 	Mode d'essai, circuits servo de la mise au point et de la rotation fermés, circuit servo de l'alignement ouvert.
	[Réglages] 50 mV/division 5 ms/division mode CC	<ul style="list-style-type: none"> ● Emplacement du réglage 	Fente de réglage du réseau de diffraction du capteur.
		<ul style="list-style-type: none"> ● Disque 	Dans de 12cm. (il est impossible d'employer le disque YEDS-7).

[Marche à suivre]

1. Déplacer le capteur à mi-chemin sur le disque (R=35 mm) par la touche MANUAL SEARCH FWD ▷▷ ou la touche REV ◀◀.
2. Appuyer sur la touche PROGRAM, puis sur la touche PLAY ▷, dans cet ordre, pour fermer le circuit servo de la mise au point, puis celui de la rotation.
3. Insérer un tournevis ordinaire dans le réseau de diffraction pour trouver le point zéro. Pour plus de détails, voir page suivante.
4. Si l'on tourne lentement le tournevis dans le sens contraire des aiguilles d'une montre à partir du point zéro, l'amplitude de l'onde augmente graduellement et si l'on continue à tourner le tournevis, l'amplitude de l'onde diminue de nouveau. Tourner le tournevis dans le sens contraire des aiguilles d'une montre à partir du point zéro et régler le réseau de diffraction au premier point où l'amplitude de l'onde atteint son maximum.

Référence: La Figure 3 illustre la relation entre l'angle du faisceau de l'alignement et la piste et la forme d'onde.

Remarque: L'amplitude du signal d'erreur d'alignement se situe aux environs de 3 Vc-c (quand un filtre passe-bas de $39\text{ k}\Omega \pm 0,001\ \mu\text{F}$ est utilisé). Si cette amplitude est extrêmement petite (2 Vc-c ou moins), la lentille d'objectif ou du capteur risque de mal fonctionner. Si la différence entre l'amplitude du signal d'erreur au bord le plus intérieur et au bord le plus extérieur du disque est supérieure à 10%, ceci signifie que le réseau de diffraction n'est pas réglé à son point optimum. Dans ce cas, recommencer le réglage.

5. Replacer le capteur plus ou moins à mi-chemin sur le disque par la touche MANUAL SEARCH REV ◀◀, appuyer sur la touche PAUSE ■■ et vérifier que le numéro de piste et la durée écoulée sont affichés sur le panneau avant. Si ces paramètres n'apparaissent pas ce moment, ou que la durée écoulée change de manière irrégulière, vérifier le point zéro et recommencer le réglage du réseau de diffraction.

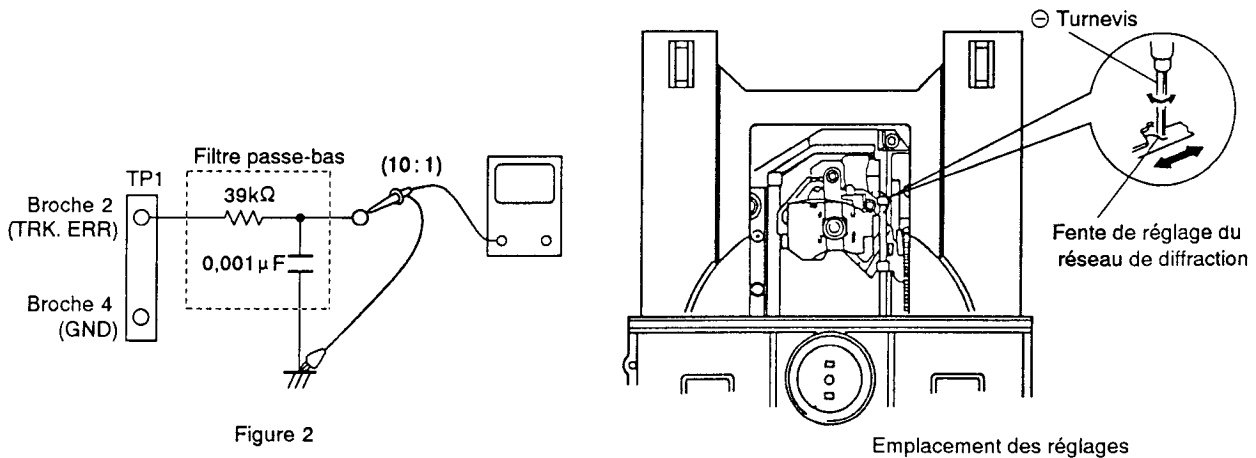


Figure 2

Emplacement des réglages

[Repérage du point zéro]

Quand le tournevis est introduit dans la fente de réglage du réseau de diffraction et que l'angle du réseau de diffraction est modifié, l'amplitude du signal d'erreur d'alignement à TP1, broche 2, change. Dans les limites de la plage du réseau de diffraction, il existe six emplacements où l'amplitude de l'onde atteint le minimum. Mais l'enveloppe de la forme d'onde n'est régulière qu'à un seul de ces emplacements. Ce point se situe à l'endroit où les trois rayons laser, divisés par le réseau de diffraction, se situent exactement sur la même piste (voir Figure 3). Ce point s'appelle le point zéro. Lors du réglage du réseau de diffraction, ce point zéro est repéré et utilisé comme position de référence.

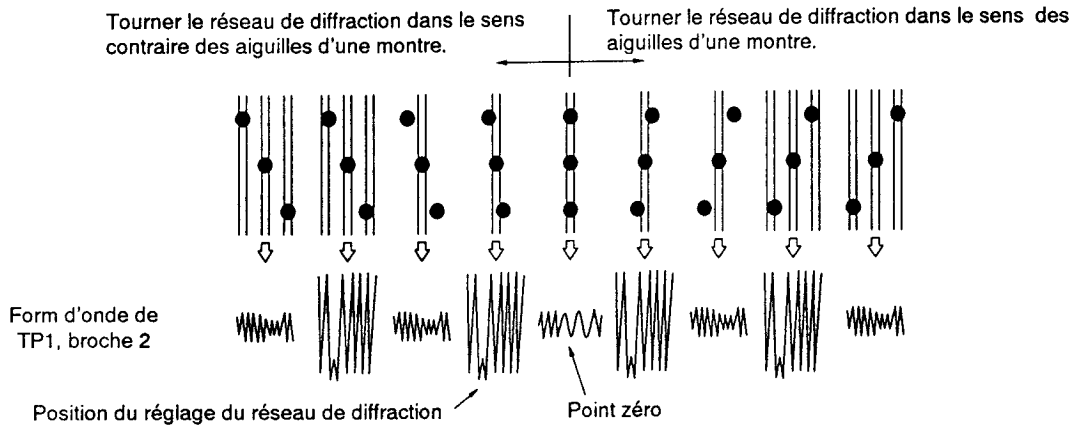
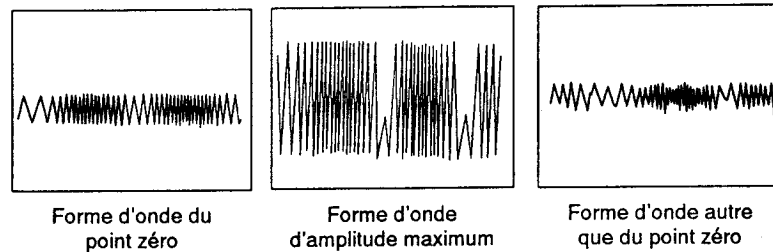


Figure 3



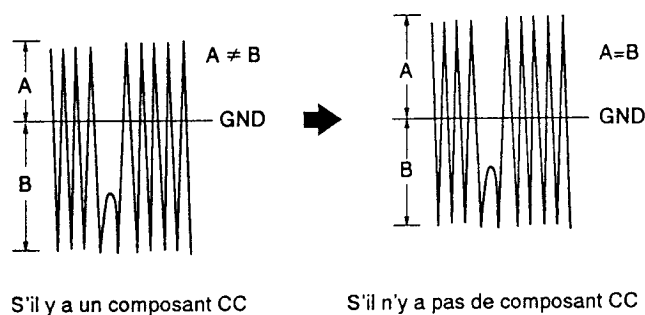
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3. Réglage d'Équilibrage d'Erreur d'Alignement

● Objectif	Pour corriger la variation de sensibilité de la photodiode d'alignement.		
● Symptôme quand déréglé	La lecture ne commence pas, la recherche de piste est impossible.		
● Raccordement des instruments de mesure	Raccorder l'oscilloscope à TP1, broche 2 (TRK. ERR). Cette connexion peut être faite par l'intermédiaire d'un filtre passe-bas.	● Etat du lecteur	Mode d'essai, circuits servo de la mise au point et de la rotation fermés, circuit servo de l'alignement ouvert.
	[Réglages] 50 mV/division 5 ms/division mode CC	● Emplacement du réglage	VR102 (TRK. BAL)
		● Disque	YEDS-7

[Marche à suivre]

1. Déplacer le capteur à mi-chemin sur le disque (R=35 mm) par la touche MANUAL SEARCH FWD \gg ou la touche REV \ll .
2. Appuyer sur la touche PROGRAM, puis sur la touche PLAY \triangleright , dans cet ordre, pour fermer le circuit servo de la mise au point, puis celui de la rotation.
3. Aligner la ligne lumineuse (masse) au centre de l'écran de l'oscilloscope et placer celui-ci en mode CC.
4. Ajuster VR102 (TRK. BAL) de façon que l'amplitude positive et l'amplitude négative du signal d'erreur d'alignement à TP1, broche 2 (TRK. ERR) soient identiques (c'est-à-dire, qu'il n'y ait aucun composant CC).



4. Réglage d'Inclinaison Radiale/Tangentielle du Capteur

● Objectif	Pour régler l'angle du capteur par rapport au disque, de façon que les rayons laser frappent vericalement le disque et permettre ainsi la lecture optimum des signaux RF.		
● Symptôme quand déréglé	Son interrompu ; certains disques peuvent être lus et pas d'autres.		
● Raccordement des instruments de mesure	Raccorder l'oscilloscope à TP1, broche 1 (RF). [Réglages] 20 mV/division 200 ns/division mode CA	● Etat du lecteur ● Emplacement du réglage ● Disque	Mode d'essai, lecture Vis de réglage d'inclinaison radiale. Vis de réglage d'inclinaison tangentielle. Disque de 12cm. (il est impossible d'employer le disque YEDS-7.)

[Marche à suivre]

1. Dans le cas d'un lecteur multidisque, utiliser la touche MANUAL SEARCH FWD ▷▷ ou la touche REV ◁◁ de façon que les vis de réglage d'inclinaison radiale et tangentielle puissent être réglées
Appuyer sur la touche PROGRAM, PLAY ▷ et PAUSE ◻◻ dans cet ordre, afin de fermer le circuit servo de la mise au point, puis celui de la rotation et placer le lecteur en mode de lecture.
2. D'abord, ajuster la vis d'inclinaison radiale à l'aide une clé hexagonale M de 3mm, de façon que le motif en oeil (c'est-à-dire, le diamant au centre du signal RF) soit le plus clairement visible.
3. Ensuite, ajuster la vis d'inclinaison tangentielle à l'aide une clé hexagonale M de 3mm, de façon que le motif en oeil (c'est-à-dire, le diamant au centre du signal RF) soit le plus clairement visible (Figure 5).
4. Ajuster de nouveau la vis d'inclinaison radiale et la vis d'inclinaison tangentielle de façon que le motif en oeil soit le plus clairement visible. Le cas échéant, régler les deux vis de façon que le motif en oeil soit le plus clairement visible.

Remarque: "Radiale" et "tangentielle" se rapportent aux sens par rapport au disque illustré à la Figure 4.

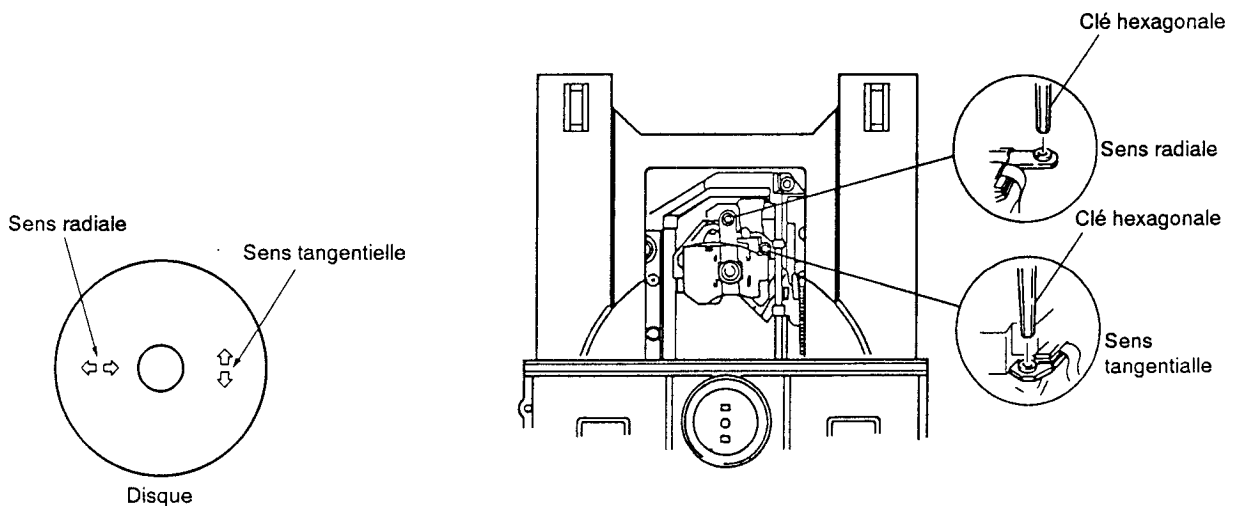


Figure 4

Emplacements des réglages

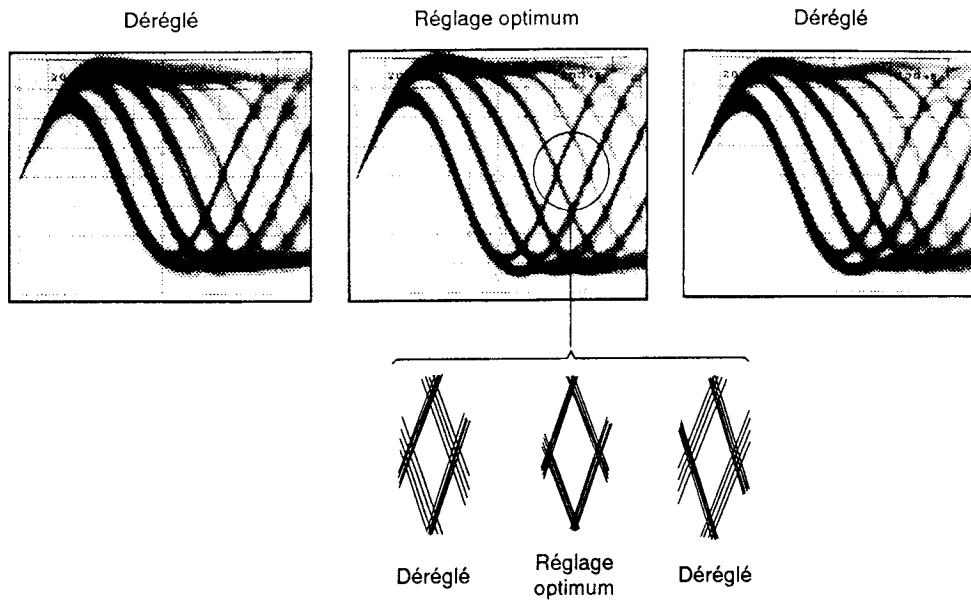


Figure 5 Motif en oeil

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5. Réglage du Niveau RF (Niveau RF)

● Objectif	Pour optimaliser l'amplitude du signal RF de lecture		
● Symptôme quand déréglé	Pas de lecture ni de recherche		
● Raccordement des instruments de mesure	Raccorder l'oscilloscope à TP1, broche 1 (RF).	● Etat du lecteur	Mode d'essai, lecture
	[Réglages] 50 mV/division 10 ms/division mode CA	● Emplacement du réglage	VRI (alimentation du laser)
		● Disque	YEDS-7

[Marche à suivre]

- Placer le capteur à mi-chemin sur le disque (R=35 mm) à l'aide de la touche MANUAL SEARCH FWD ▷▷ ou la touche REV ◁◁.
Ensuite, appuyer sur la touche PROGRAM, puis sur la touche PLAY ▷, dans cet ordre, pour fermer les circuits servo respectifs et mettre le lecteur en mode de lecteur.
- Ajuster VRI (alimentation du laser) de façon que l'amplitude du signal RF atteigne $1,2V_{c-c} \pm 0,1 V$.

6. Réglage de Gain de Boucle Asservie de la Mise au Point

● Objectif	Pour optimiser le gain de la boucle d'asservissement de la mise au point.		
● Symptôme quand déréglé	La lecture ne commence pas ou l'actuateur de la mise au point est parasité.		
● Raccordement des instruments de mesure	Voir Figure 6.	● Etat du lecteur	Mode d'essai, lecture
	[Réglages] GAN. 1 GAN. 2 20 mV/division 5mV/division mode X-Y	● Emplacement du réglage	VR152 (FCS. GAN)
		● Disque	YEDS-7

[Marche à suivre]

1. Régler la sortie du générateur AF sur 1,2 kHz et 1 Vc-c.
2. Appuyer sur la touche MANUAL SEARCH FWD ▷▷ ou la touche REV ◁◁ pour placer le capteur à mi-chemin sur le disque (R=35 mm). Ensuite, appuyer sur la touche PROGRAM, la touche PLAY ▷, puis sur la touche PAUSE ◻◻, dans cet ordre, pour fermer les circuits servo respectifs et placer le lecteur en mode de lecture.
3. Ajuster VR152 (FCS. GAN) de façon que la forme d'onde de Lissajous soit symétrique aux alentours de l'axe X et l'axe Y.

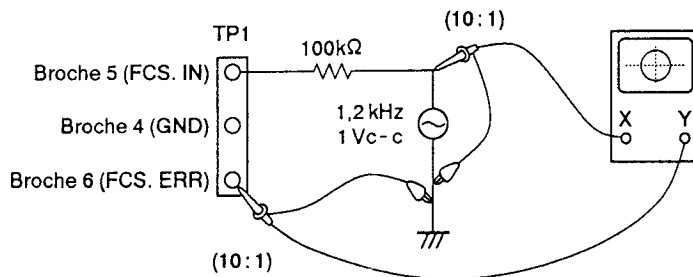
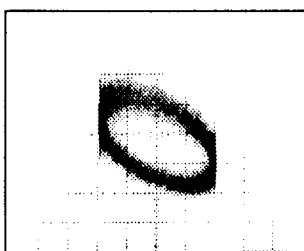
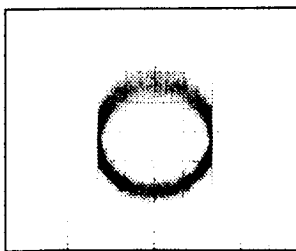


Figure 6

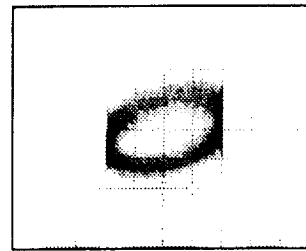
Réglage de gain de mise au point



Gain supérieur



Gain optimum



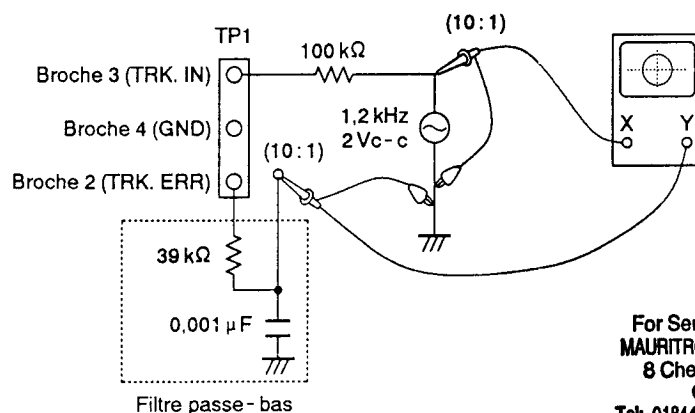
Gain inférieur

7. Réglage de Gain de Boucle Asservie de l'Alignement

● Objectif	Pour optimiser le gain de la boucle d'asservissement de l'alignement.		
● Symptôme quand déréglé	La lecture ne commence pas, l'actuateur est parasité pendant la recherche, ou des pistes sont sautées.		
● Raccordement des instruments de mesure	Voir Figure 7.	● Etat du lecteur	Mode d'essai, lecture
	[Réglages] GAN. 1 GAN. 2 50 mV/division 50 mV/division mode X-Y	● Emplacement du réglage	VR151 (TRK. GAN)
		● Disque	YEDS-7

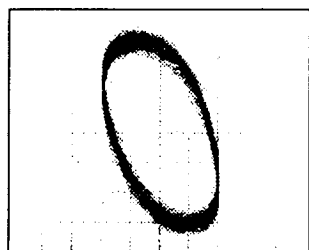
[Marche à suivre]

1. Régler la sortie du générateur AF sur 1,2 kHz et 2 Vc-c.
2. Appuyer sur la touche MANUAL SEARCH FWD >> ou la touche REV << pour placer le capteur à mi-chemin sur le disque (R=35 mm). Ensuite, appuyer sur la touche PROGRAM, la touche PLAY ▷, puis sur la touche PAUSE ◻◻, dans cet ordre, pour fermer les circuits servo respectifs et placer le lecteur en mode de lecture.
3. Ajuster VR151 (TRK. GAN) de façon que la forme d'onde de Lissajous soit symétrique aux alentours de l'axe X et l'axe Y.

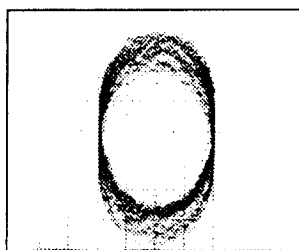


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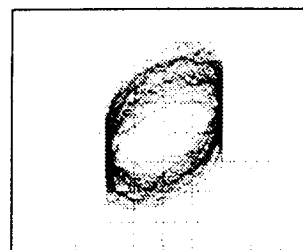
Réglage de gain d'alignement



Gain supérieur



Gain optimum



Gain inférieur

8. Vérification du Signal d'Erreur de la Mise au Point

<ul style="list-style-type: none"> ● Objectif 	Pour juger si le capteur est bon ou pas, en observant le signal d'erreur de la mise au point. L'état du capteur s'évalue à partir de l'amplitude du signal d'erreur d'alignement (comme décrit dans le paragraphe relatif à l'équilibrage d'erreur d'alignement), ainsi qu'à partir de la forme d'onde du signal d'erreur de mise au point.		
<ul style="list-style-type: none"> ● Symptôme quand déréglé 			
<ul style="list-style-type: none"> ● Raccordement des instruments de mesure 	Raccorder l'oscilloscope à TP1, broche 6 (FCS.ERR). [Réglages] 100 mV/division 5 ms/division mode CC	<ul style="list-style-type: none"> ● Etat du lecteur ● Emplacement du réglage ● Disque 	Mode de test, arrêt Aucun YEDS-7

[Marche à suivre]

1. Raccorder TP1, broche 5 à la masse.
2. Installer le disque.
3. Tout en regardant l'écran de l'oscilloscope, appuyer sur la touche PROGRAM et observer la forme d'onde de la Figure 8, pendant quelques instants. Vérifier que l'amplitude atteint au moins 2,5 Vc-c et que les amplitudes positive et négative soient égales. Comme la forme ne sort que pour un moment, quand la touche PROGRAM est enclenchée, appuyer sur à plusieurs reprises sur cette touche, jusqu'à ce que la forme d'onde ait été vérifiée.

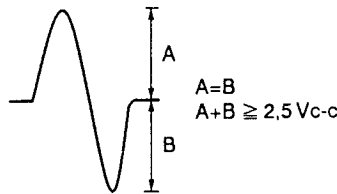


Figure 8

[Evaluation du capteur]

Ne pas tenter d'évaluer l'état du capteur tant que tous les réglages ne sont pas corrects. Les cas suivants témoignent de l'anomalie du capteur.

1. L'amplitude du signal d'erreur d'alignement est extrêmement petite (inférieure à 2 Vc-c).
2. L'amplitude du signal d'erreur de mise au point est extrêmement petite (inférieure à 2,5 Vc-c).
3. Les amplitudes positive et négative du signal d'erreur de mise au point sont extrêmement asymétriques (taux 2:1 ou plus).
4. Le signal RF est trop petit (inférieur à 0,8 Vc-c) et même si VR1 (alimentation du laser) est ajustée, le signal RF ne peut être élevé au niveau standard.

9. AJUSTES

9.1. Métodos de ajuste

Si un reproductor de discos compactos se ajusta incorrecta o inadecuadamente, puede funcionar mal o no trabajar incluso aunque no exista ningún problema en el captor ni en los circuitos. Ajuste correctamente siguiendo el procedimiento de ajuste.

● Ítemes de ajuste/verificación y orden

Paso	Ítem	Punto de prueba	Lugar de ajuste
1	Ajuste del descentramiento de enfoque	TP1, Patilla 6(FCS. ERR)	VR103(FCS. OFS)
2	Ajuste de retícula	TP1, Patilla 2(TRK. ERR)	Ranura de ajuste de retícula
3	Ajuste del equilibrio de ajuste de seguimiento	TP1, Patilla 2(TRK. ERR)	VR102(TRK. BAL)
4	Ajuste de la inclinación en sentido radial / tangencial del captor	TP1, Patilla 1 (RF)	Tomillo de ajuste de la inclinación radial. Tomillo de ajuste de la inclinación tangencial
5	Ajuste del nivel de RF	TP1, Patilla 1 (RF)	VR1 (Nivel de RF)
6	Ajuste de la ganancia del bucle del servo de enfoque	TP1, Patilla 5(FCS. IN) TP1, Patilla 6(FCS. ERR)	VR152(FCS. GAN)
7	Ajuste de la ganancia del bucle del servo de seguimiento	TP1, Patilla 3(TRK. IN) TP1, Patilla 2(TRK. ERR)	VR151 (TRK. GAN)
8	Verificación de la señal de error de enfoque	TP1, Patilla 6(FCS. ERR)	_____

● Tabla de abreviaturas

FCS. ERR	:Error de enfoque
FCS. OFS	:Descentramiento de enfoque
TRK. ERR	:Error de seguimiento
TRK. BAL	:Equilibrio de seguimiento
FCS. GAN	:Ganancia de enfoque
TRK. GAN	:Ganancia de seguimiento
FCS. IN	:Entrada de enfoque
TRK. IN	:Entrada de seguimiento

● Instrumentos y herramientas de medición

1. Osciloscopio de doble traza (Sonda de 10:1)
2. Oscilador de baja frecuencia
3. Disco de prueba (YEDS-7)
4. Disco de 12cm (con 70 minutos de grabación por lo menos)
5. Filtro de paso bajo ($39 \text{ k}\Omega + 0,001 \mu \text{F}$)
6. Resistor ($100 \text{ k}\Omega$)
7. Llave hexagonal (M3mm)
8. Herramientas estándar

● **Ubicación de los puntos de prueba y los resistores variables de ajuste**

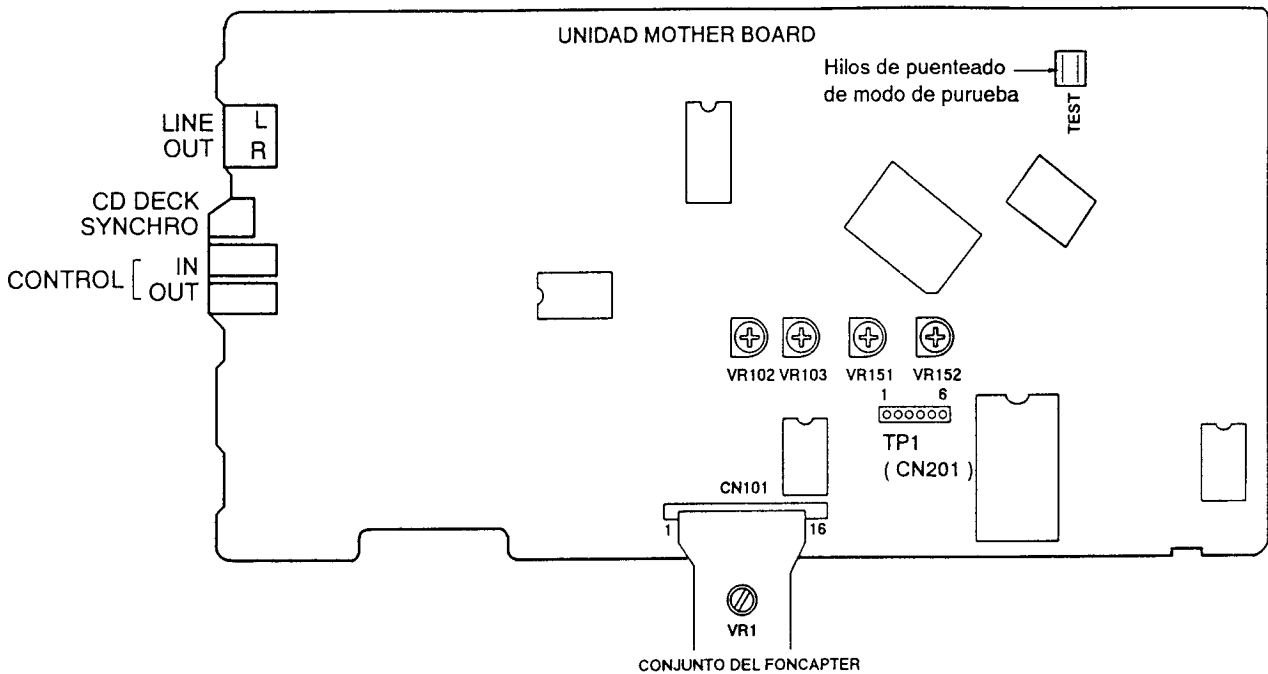


Figura 1 Lugares de ajuste

● **Notas**

1. Emplee una sonda de 10:1 para el osciloscopio.
2. Todas las posiciones de los mandos (ajustes) para el osciloscopio de los procedimientos de ajuste son para cuando se emplee la sonda de 10:1.

● **Modo de prueba**

Estos modelos poseen un modo de prueba que permite realizar fácilmente los ajustes y las comprobaciones requeridos para el servicio. Cuando estos modelos estén en el modo de prueba, las teclas del panel frontal trabajarán de forma diferente a la normal. Los ajustes y las comprobaciones podrán realizarse accionando estas teclas de acuerdo con el procedimiento correcto. Para estos modelos, todos los ajustes se realizarán en el modo de prueba.

[Puesta de estos modelos en el modo de prueba]

A continuación se indica cómo poner estos modelos en el modo de prueba.

1. Desenchufe el cable de alimentación de la toma de CA.
2. Cortocircuite los hilos de puenteado de modo de prueba. (Consulte la figura 1.)
3. Enchufe el cable de alimentación de la toma de CA.

Cuando haya ajustado correctamente el modo de prueba, la visualización será diferente a la obtenida normalmente al conectar la alimentación. Si la visualización sigue siendo la normal, el modo de prueba no se habrá ajustado normalmente, por lo que tendrá que repetir los pasos 1 a 3.

[Desactivación del modo de prueba]

A continuación se indica el procedimiento para desactivar el modo de prueba.

1. Presione la tecla STOP y cese todas las operaciones.
2. Desenchufe el cable de alimentación de la toma de CA.

[Operaciones de teclas en el modo de prueba]

Código	Nombre de la tecla	Función en el modo de prueba	Explicación
	PROGRAM	Cierre del servo de enfoque	<p>El diodo láser se encenderá y el actuador de enfoque descenderá, después se elevará lentamente, y el servo de enfoque se cerrará en el punto en el que el objetivo se enfoque sobre el disco.</p> <p>Con el reproductor en este estado, si gira ligeramente con la mano el disco parado, podrá oír el sonido del servo de enfoque.</p> <p>Si puede oír este sonido, el servo de enfoque estará funcionando correctamente. Si presiona esta tecla sin disco montado, el diodo láser se encenderá, el actuador de enfoque se vera empujado hacia abajo, y después se levantará y descenderá á dos veces, y volverá a su posición original.</p>
▷	PLAY	Activación del servo del eje	<p>Pondrá en marcha el motor del eje haciéndolo girar hacia la derecha y después la rotación del disco alcanzará la velocidad prescrita (unas 500 rpm en la periferia interior), y pondrá el servo del eje en un bucle cerrado.</p> <p>Tenga cuidado. Si presiona esta tecla cuando no haya disco montado, el motor del eje girará a la velocidad máxima.</p> <p>Si el servo de enfoque no pasa correctamente a un bucle cerrado, o si el haz láserico incide en la sección del espejo en el la periferia del disco, ocurrirá el mismo síntoma.</p>
□□	PAUSE	Apertura/cierre del servo de seguimiento	<p>Si presiona esta tecla cuando el servo de enfoque y el servo del eje están funcionando correctamente en bucles cerrados, el servo de seguimiento se pondrá en bucle cerrado, en el panel frontal se visualizarán el número de canción que esté reproduciéndose y el tiempo transcurrido, y se producirá la salida de la señal de reproducción.</p> <p>Si el tiempo transcurrido no se visualiza o no se cuenta correctamente, o si el sonido no se reproduce correctamente, es posible que el rayo láserico esté incidiendo en la sección sin sonido grabado en el borde exterior del disco, o que exista algún otro problema.</p> <p>Esta tecla es basculante de acción alternativa, y abre/cierra el servo de seguimiento alternativamente. Esta tecla no funcionará cuando no haya disco montado.</p>

Código	Nombre de la tecla	Función en el modo de prueba	Explicación
◀◀	MANUAL SEARCH REV	Retroceso del carro (hacia adentro)	Moverá la posición del captor hacia el diámetro interior del disco. Si presiona esta tecla con el servo de seguimiento en bucle cerrado, dicho bucle pasará automáticamente a bucle abierto. Como el captor no se para automáticamente en el punto final mecánico en el modo de prueba, tenga cuidado cuando realice esta operación.
▶▶	MANUAL SEARCH FWD	Avance del carro (hacia afuera)	Moverá la posición del captor hacia la periferia del disco. Si presiona esta tecla con el servo de seguimiento en bucle cerrado, dicho bucle pasará automáticamente a bucle abierto. Como el captor no se para automáticamente en el punto final mecánico en el modo de prueba, tenga cuidado cuando realice esta operación.
□	STOP	Parada	Desactivará todos los servos e inicializará la unidad. El captor permanecerá donde estaba cuando se presionó esta tecla.
△	OPEN/CLOSE	Apertura/cierre de la bandeja del disco	Abrirá/cerrará la bandeja del disco. Esta tecla es baseulante de acción alternativa y abre/cierra la bandeja alternativamente. Si presiona esta tecla cuando el disco esté girando, lo parará, y abriera la bandeja. Esta operación de la tecla no afectará posición del captor.

[Cómo reproducir un disco en el modo de prueba]

En el modo de prueba, como los servos funcionan independientemente, la reproducción de un disco requiere el que usted emplee las teclas en el orden correcto para cerrar los servos.

A continuación se indica la secuencia de operación de teclas para reproducir un disco en el modo de prueba.

PROGRAM



PLAY ▷



PAUSE ||

Hará que se encienda el diodo láser, y cerrará el servo de enfoque.

Pondrá en marcha el motor del eje y hará que se cierre el servo del eje.

Cerrará el servo de seguimiento.

Espere de 2 a 3 segundos por lo menos entre cada una de estas operaciones.

1. Ajuste del Descentramiento del Enfoque

<ul style="list-style-type: none"> ● Objetivo ● Síntomas en caso de desajuste 	Ajuste de la tensión de CC para el amplificador de error de enfoque. El reproductor no enfoca y la señal de RF contiene perturbaciones.		
<ul style="list-style-type: none"> ● Conexión de los instrumentos de medición 	Conecte el osciloscopio a TP1, patilla 6 (FCS. ERR) [Ajustes] 5 mV/división 10 ms/división modo de CC	<ul style="list-style-type: none"> ● Estado del reproductor ● Lugar de ajuste ● Disco 	Mode de prueba, parado (con el interruptor de alimentación en ON) VR103 (FCS. OFS) No es necesario

[Procedimiento]

Ajuste VR103 (FCS. OFS) de forma que la tensión de CC de TP1, patilla 6 (FCS. ERR) sea de -5.0 ± 50 mV

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2. Ajuste de Retícula

● Objetivo	Alineación de los puntos del haz láser de generación de error de seguimiento al ángulo óptimo en la pista.		
● Síntomas en caso de desajuste	La reproducción no se inicia, la búsqueda de canciones es imposible, las pistas se saltan.		
● Conexión de los instrumentos de medición	<p>Conecte el osciloscopio a TP1, patilla 2 (TRK. ERR) a través de un filtro de paso bajo. (Consulte la figura 2)</p> <p>[Ajustes] 50 mV/división 5 ms/división modo de CC</p>	<ul style="list-style-type: none"> ● Estado del reproductor ● Lugar de ajuste ● Disco 	<p>Modo de prueba, servos de enfoque y del eje cerrados, y servo de seguimiento abierto.</p> <p>Ranura de ajuste de retícula del captor</p> <p>Disco de 12 cm. (El disco YEDS-7 no podrá emplearse.)</p>

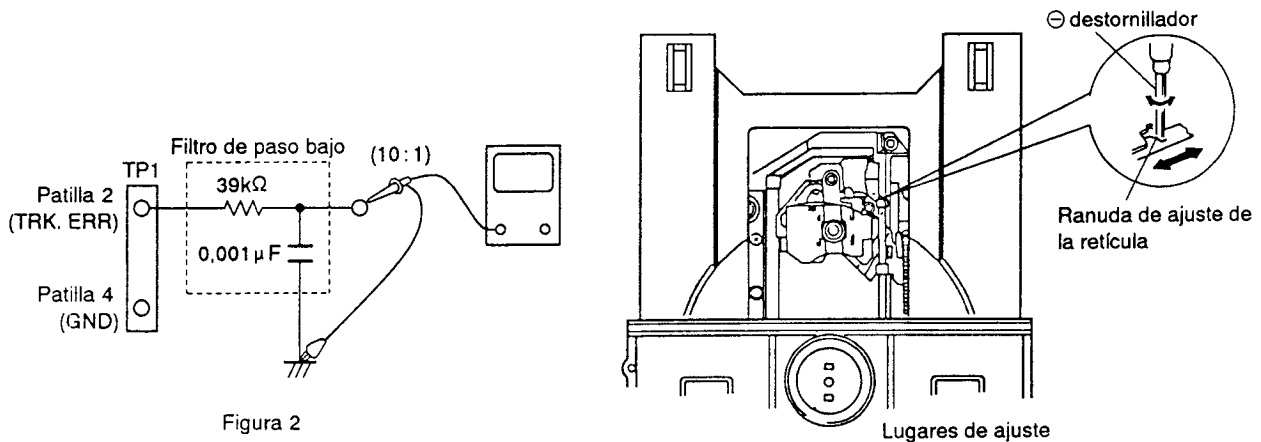
[Procedimiento]

1. Mueva el captor hasta el la mitad del disco (R=35mm) con la tecla MANUAL SEARCH FWD ▷▷ o la tecla REV ◁◁.
2. Presione la tecla PROGRAM, y después la tecla PLAY ▷ , por este orden, a fin de cerrar el servo de enfoque y después el servo del eje.
3. Inserte un destornillador normal en la ranura de ajuste de la retícula y ajuste la retícula hasta encontrar el punto nulo. Para más detalles, consulte la página siguiente.
4. Si gira lentamente el destornillador hacia la izquierda desde el punto nulo, la amplitud de la onda aumentará gradualmente. Después, si continúa girando el destornillador, la amplitud de la onda se volverá otra vez más pequeña. Gire el distornillador hacia la izquierda desde el punto nulo y ajuste la retícula al primer punto en el que la amplitud de la onda alcance su valor máximo.

Referencia : En la figura 3 se muestra la relación entre el ángulo del haz de seguimiento con la pista y la forma de onda.

Nota : La amplitud de la señal de error de seguimiento será de aproximadamente 3 Vp-p (cuando se emplee un filtro de paso bajo de 39 kΩ , 0,001 μF). Si la amplitud está extremadamente pequeña (2 Vp-p ó menos), es posible que el objetivo o en el captador esté funcionando mal. Si la diferencia entre la amplitud de la señal de error en el borde interior y exterior del disco es superior al 10%, la retícula no estará ajustada al punto óptimo, por lo que tendrá que volver a ajustarla.

5. Devuelva el captor hasta la mitad más o menos del disco con la tecla MANUAL SEARCH REV ◁◁ , presione la tecla PAUSE ||| , y vuelva a comprobar si en el panel frontal se visualizan el número de canción y el tiempo transcurrido. Si no se visualizan esta vez, o si el tiempo transcurrido cambia irregularmente, vuelva a comprobar el punto nulo y ajuste otra vez la retícula.



[Cómo encontrar el punto nulo]

Cuando inserte el destornillador normal en la ranura para el ajuste de la retícula y cambie el ángulo de la misma. La amplitud de la señal de error de seguimiento de TP1, patilla 2, cambiará. Dentro del margen para la retícula existen cinco o seis lugares en los que la amplitud alcanza el valor mínimo. De estos cinco o seis lugares, solamente hay uno en el que la envolvente de la forma de onda es uniforme. Este lugar es donde los tres haces lásericos divididos por la retícula se encuentran exactamente sobre la misma pista. (Consulte la figura 3.)

Este punto se denomina punto nulo. Cuando ajuste la retícula, este punto se encontrará y empleará como posición de referencia.

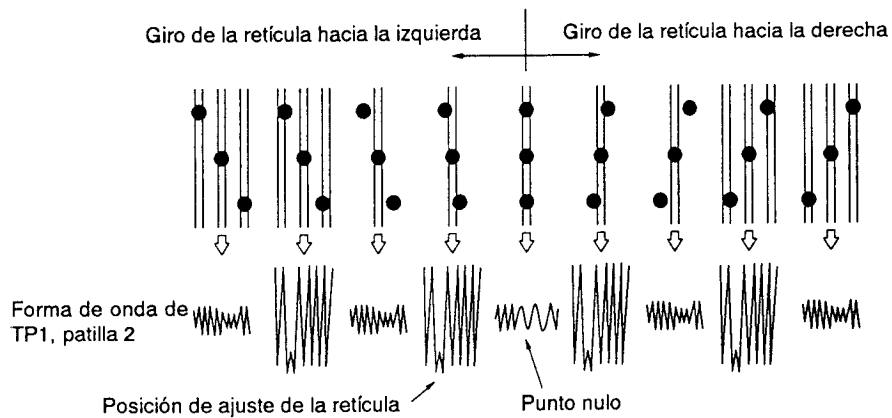
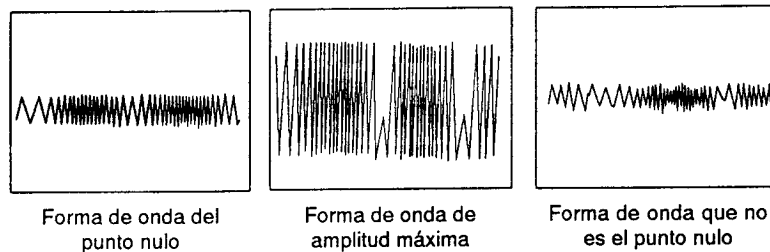


Figura 3

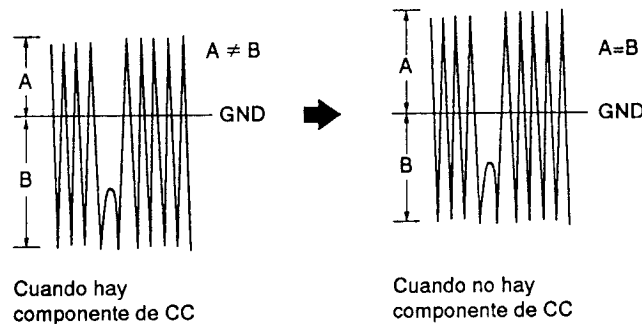


3. Ajuste del Equilibrio de Error de Seguimiento

● Objetivo	Corrección de la variación de la sensibilidad del fotodiodo de seguimiento.		
● Síntomas en caso de desajuste	La reproducción no se inicia o la búsqueda de canciones es imposible.		
● Conexión de los instrumentos de medición	Conecte el osciloscopio a TP1, patilla 2 (TRK. ERR). Esta conexión puede realizarse a través de un filtro de paso bajo	● Estado del reproductor	Modo de prueba, servos de enfoque y del eje cerrados, y servo de seguimiento abierto
	[Ajustes] 50 mV/división 5 ms/división modo de CC	● Lugar de ajuste	VR102 (TRK. BAL)
		● Disco	YEDS-7

[Procedimiento]

1. Mueva el captor hasta la mitad del disco (R=35 mm) con la tecla MANUAL SEARCH FWD $\triangleright\triangleright$ o la tecla REV $\triangleleft\triangleleft$.
2. Presione la tecla PROGRAM, y después la tecla PLAY \triangleright , por este orden, a fin de cerrar el servo de enfoque y después el servo del eje.
3. Haga coincidir la línea brillante (masa) del centro de la pantalla del osciloscopio y ponga éste en el modo de CC.
4. Ajuste VR102 (TRK. BAL) de forma que la amplitud positiva y la negativa de la señal de error de seguimiento de TP1 patilla 2 (TRK. ERR) sean iguales (en otras palabras, de forma que no haya componente de CC).



4. Ajuste de la Inclinación en Sentido Radial / Tangencial del Captor

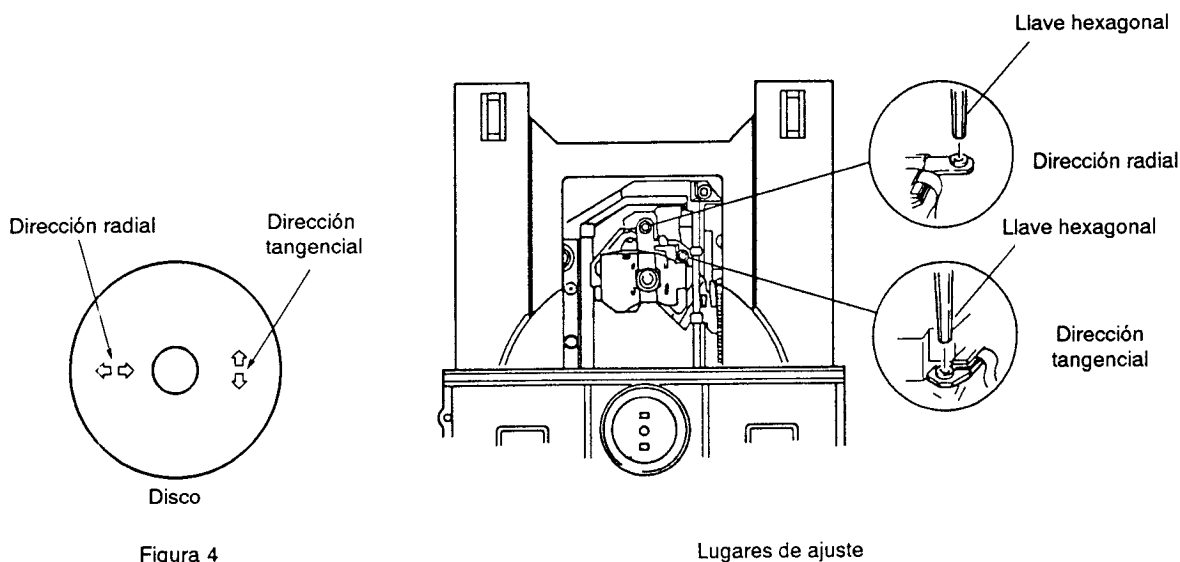
● Objetivo	Ajustar el ángulo del captor en relación con el disco de forma que los haces lásericos incidan perpendicularmente sobre el mismo a fin de poder leer con la mayor exactitud las señales de RF.		
● Síntomas en caso de desajuste	Sonido quebrado, algunos discos pueden reproducirse pero otros no.		
● Conexión de los instrumentos de medición	Conecte el osciloscopio a TP1, patilla 1 (RF).	● Estado del reproductor	Modo de prueba, reproducción
	[Ajustes] 20 mV/división 200 ns/división modo de CA	● Lugar de ajuste	Tornillo de ajuste de la inclinación radial y tornillo de ajuste de la inclinación tangencial
		● Disco	Disco de 12cm. (El disco YEDS-7 no podrá emplearse.)

[Procedimiento]

1. Para un tipo de reproducción múltiple de disco compacto, emplee la tecla MANUAL SEARCH FWD ▷▷ o la tecla REV ◀◀ a fin de mover el captor hasta la mitad del disco (R=35 mm)
Presione la tecla PROGRAM, la tecla PLAY ▷, y después la tecla PAUSE ◻◻, por este orden, a fin de cerrar el servo de enfoque, después el servo del eje, y por último para poner el reproductor en el modo de reproducción.
2. En primer lugar, gire el tornillo de ajuste de inclinación radial con una llave hexagonal M 3 mm hasta que el patrón ocular (la forma de diamante del centro de la señal de RF) pueda verse con la mayor claridad.
3. A continuación, ajuste el tornillo de ajuste de inclinación tangencial con una llave hexagonal M 3 mm hasta que el patrón ocular (la forma de diamante del centro de la señal de RF) pueda verse con la mayor claridad (figura 5).
4. Vuelva a girar el tornillo de ajuste de inclinación radial y el tornillo de inclinación tangencial hasta que el patrón ocular pueda verse con la mayor claridad. Si es necesario, ajuste alternativamente los dos tornillos hasta que el patrón ocular pueda verse con la mayor claridad.

Nota: Radial y tangencial significan las direcciones en relación con el disco mostrado en la figura 4.

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 Oxon OX9 4QY
 Tel:- 01844-351694 Fax:- 01844-352554
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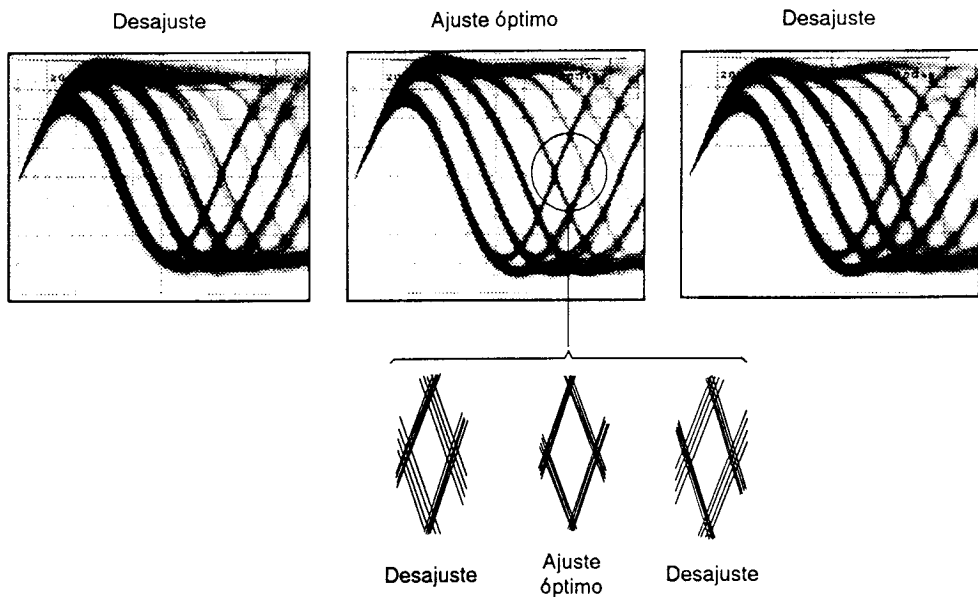


Figura 5 Patron optico

5. Ajuste del Nivel de RF

<ul style="list-style-type: none"> ● Objetivo ● Síntomas en caso de desajuste 	Optimización de la amplitud de la señal de RF de reproducción. La reproducción no se inicia o la búsqueda de canciones es imposible.		
<ul style="list-style-type: none"> ● Conexión de los instrumentos de medición 	Conecte el osciloscopio a TP1, patilla 1 (RF). [Ajustes] 50 mV/división 10 ms/división modo de CA	<ul style="list-style-type: none"> ● Estado del reproductor ● Lugar de ajuste ● Disco 	Modo de prueba, reproducción VR1 (potencia de láser) YEDS-7

[Procedimiento]

1. Mueva el captor hasta la mitad del disco (R=35 mm) con la tecla MANUAL SEARCH FWD ▷▷ o la tecla REV ◁◁, presione la tecla PROGRAM, después la tecla PLAY ▷, por este orden a fin de cerrar los servos respectivos, y ponga el reproductor en el modo de reproducción.
2. Ajuste VR1 (potencia de láser) de forma que la amplitud de la señal de RF sea de $1,2 V_{p-p} \pm 0,1 V$.

6. Ajuste de la Ganancia del Bucle del Servo de Enfoque

● Objetivo	Optimización de la ganancia del bucle del servo de enfoque.		
● Síntomas en caso de desajuste	La reproducción no se inicia o el actuador de enfoque produce ruido.		
● Conexión de los instrumentos de medición	Consulte la figura 6. [Ajustes] CH1 CH2 20 mV/división 5mV/división modo X - Y	● Estado del reproductor ● Lugar de ajuste ● Disco	Modo de prueba, reproducción VR152 (FCS. GAN) YEDS-7

[Procedimiento]

1. Ajuste la salida del generador de AF a 1,2 kHz y 1 Vp-p.
2. Presione la tecla MANUAL SEARCH FWD ▷▷ o la tecla REV ◁◁ para mover el captor hasta la mitad del disco (R=35 mm), y después presione la tecla PROGRAM, la tecla PLAY ▷, y después la tecla PAUSE ◻◻, por este orden, a fin de cerrar los servos correspondientes y poner el reproductor en el modo de reproducción.
3. Ajuste VR152 (FCS. GAN) hasta que la forma de onda de Lissajous sea simétrica alrededor del eje X y el eje Y.

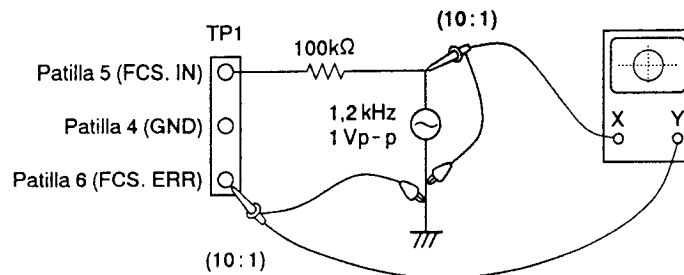
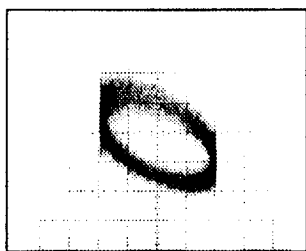
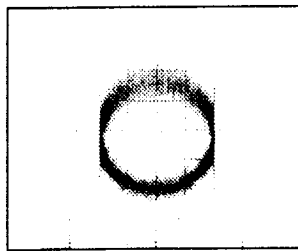


Figura 6

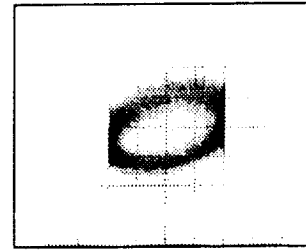
Ajuste de la ganancia de enfoque



Ganancia superior



Ganancia óptima



Ganancia inferior

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 8 Cherry Tree Rd, Chinnor
 Oxon OX9 4QY
 Tel: 01844-351694 Fax: 01844-352554
 Email: enquiries@maurtron.co.uk

7. Ajuste de la Ganancia del Bucle del Servo de Seguimiento

● Objetivo	Optimización de la ganancia del bucle del servo de seguimiento.		
● Síntomas en caso de desajuste	La reproducción no se inicia, el actuador de enfoque produce ruido, o se saltan pistas.		
● Conexión de los instrumentos de medición	Consulte la figura 7.	● Estado del reproductor	Modo de prueba, reproducción
	[Ajustes] CHI CH2 50 mV/división 50 mV/división modo X-Y	● Lugar de ajuste	VR151(TRK. GAN)
		● Disco	YEDS-7

[Procedimiento]

1. Ajuste la salida del generador de AF a 1,2 kHz y 2 Vp-p.
2. Presione la tecla MANUAL SEARCH FWD >> o la tecla REV << para mover el captor hasta la mitad del disco (R=35 mm), y después presione la tecla PROGRAM, la tecla PLAY >, y la tecla PAUSE |||, por este orden, a fin de cerrar los servos respectivos y poner el reproductor en el modo de reproducción.
3. Ajuste VR151 (TRK. GAN) hasta que la forma de onda de Lissajous sea simétrica alrededor del eje X y el eje Y.

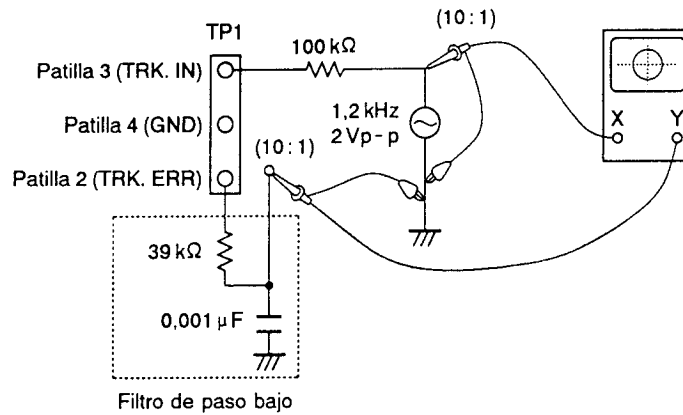
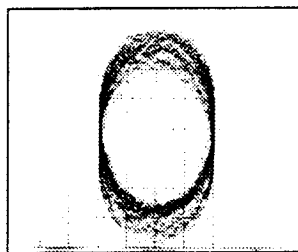


Figura 7

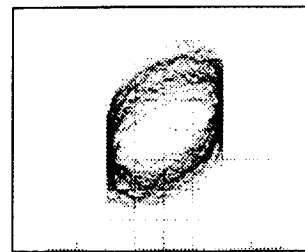
Ajuste de la ganancia de seguimiento



Ganancia superior



Ganancia óptima



Ganancia inferior

8. Verificación de la Señal de Error de Enfoque (Curva S de Enfoque)

<ul style="list-style-type: none"> ● Objetivo ● Síntomas en caso de desajuste 	Juzgar si el captor está bien o no observando la señal de error de enfoque. El captor se juzga por la amplitud de la señal de error de seguimiento (como se ha indicado en la sección sobre el ajuste del equilibrio de error de seguimiento) y la forma de onda de la señal de error de enfoque.		
<ul style="list-style-type: none"> ● Conexión de los instrumentos de medición 	Conecte el osciloscopio a TP1, patilla 6 (FCS. ERR). [Ajustes] 100 mV/división 5 ms/división modo de CC	<ul style="list-style-type: none"> ● Estado del reproductor ● Lugar de ajuste ● Disco 	Modo de prueba, parada Ninguno YEDS-7

[Precedimiento]

1. Conecte TP1, patilla 5, a masa.
2. Coloque el disco.
3. Contemplando la pantalla del osciloscopio, presione la tecla PROGRAM y observe durante un momento la forma de onda de la figura 8. Verifique si la amplitud es de 2,5 Vp-p por lo menos y si la amplitud de las partes positiva y negativa son iguales. Como la forma de onda solamente sale durante un momento cuando se presiona la tecla PROGRAM, presione una y otra vez esta tecla hasta que logre comprobar la forma de onda.

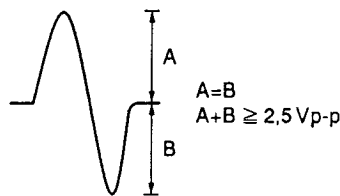


Figura 8

[Juicio sobre el captor]

No juzgue el captor hasta haber finalizado correctamente todos los ajustes. En los casos siguientes es posible que haya algo erróneo en el captor.

1. La amplitud de la señal de error de seguimiento es extremadamente pequeña (menos de 2 Vp-p).
2. La amplitud de la señal de error de enfoque es extremadamente pequeña (menos de 2,5 Vp-p).
3. Las amplitudes de las partes positiva y negativa de la señal de error de enfoque son extremadamente asimétricas (relación de 2:1 o superior).
4. La señal de RF es demasiado pequeña (menos de 0,8 Vp-p) y aunque se ajuste VR1 (potencia de láser), la señal de RF no puede aumentarse hasta el nivel estándar.

10. FOR PD- 6700/KC, KUXJ, KCXJ, PD- 5700/KC, KUXJ, KCXJ, PD- 4700/KC, KUXJ AND KCXJ TYPES

NOTES:

- Parts without part number cannot be supplied.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

10.1 FOR PD- 6700/KC, KUXJ AND KCXJ TYPES

CONTRAST OF MISCELLANEOUS PARTS

The PD - 6700/KC, KUXJ and KCXJ types are the same as the PD - 6700/KU type with the exception of the following sections.

Mark	Symbol & Description	Part No.				Remarks
		KU type	KC type	KUXJ type	KCXJ type	
	CD packing case Bonnet Operating instructions(English) Operating instructions (English/French)	PHG1700 PYY1147 PRB1138	PHG1700 PYY1147 PRE1141	PHG1627 PYY1129 PRB1138	PHG1628 PYY1129 PRE1141	For packing

Note: As to the SCHEMATIC DIAGRAM and P. C. BOARDS CONNECTION DIAGRAM of the KC, KUXJ and KCXJ types, refer to those of the KU type.

10.2 FOR PD- 5700/KC, KUXJ AND KCXJ TYPES

CONTRAST OF MISCELLANEOUS PARTS

The PD - 5700/KC, KUXJ and KCXJ types are the same as the PD - 5700/KU type with the exception of the following sections.

Mark	Symbol & Description	Part No.				Remarks
		KU type	KC type	KUXJ type	KCXJ type	
	CD packing case Bonnet Operating instructions(English) Operating instructions (English/French)	PHG1699 PYY1147 PRB1138	PHG1699 PYY1147 PRE1141	PHG1622 PYY1129 PRB1138	PHG1625 PYY1129 PRE1141	For packing

Note: As to the SCHEMATIC DIAGRAM and P. C. BOARDS CONNECTION DIAGRAM of the KC, KUXJ and KCXJ types, refer to those of the KU type.

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10.3 FOR PD- 4700/KC, KUXJ AND KCXJ TYPES

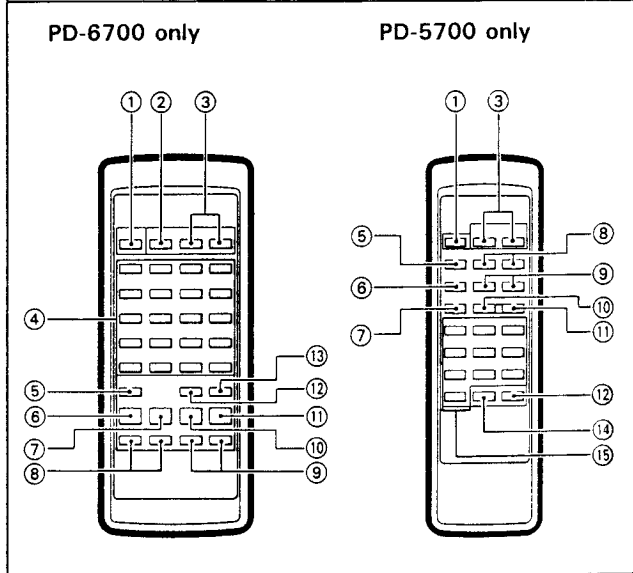
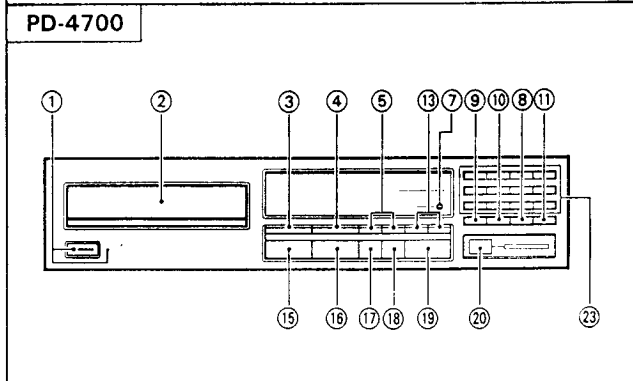
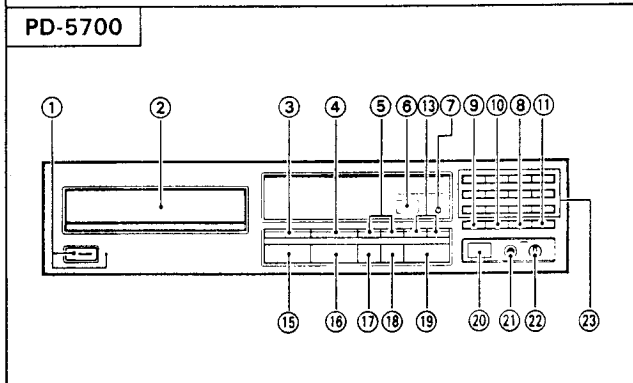
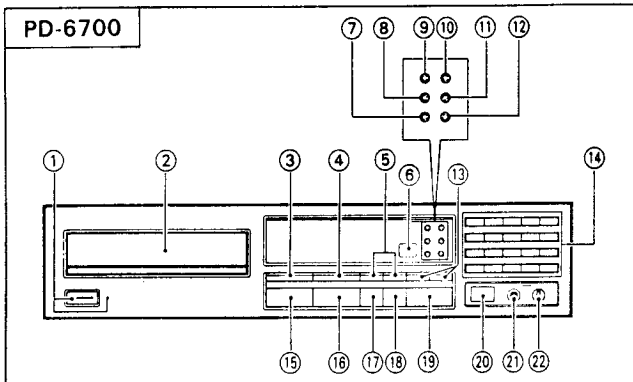
CONTRAST OF MISCELLANEOUS PARTS

The PD - 4700/KC, KUXJ and KCXJ types are the same as the PD - 4700/KU type with the exception of the following sections.

Mark	Symbol & Description	Part No.				Remarks
		KU type	KC type	KUXJ type	KCXJ type	
	CD packing case	PHG1698	PHG1698	PHG1617	PHG1619	For packing
	Bonnet	PYY1147	PYY1147	PYY1129	PYY1129	
	Operating instructions(English)	PRB1138	PRB1138	
	Op�rating instructions (English/French)	PRE1141	PRE1141	

Note: As to the SCHEMATIC DIAGRAM and P. C. BOARDS CONNECTION DIAGRAM of the KC, KUXJ and KCXJ types, refer to those of the KU type.

11. PANEL FACILITIES



FRONT PANEL

- ① POWER STANDBY/ON switch and indicator
- ② Disc tray
- ③ REPEAT button
- ④ HI-LITE SCAN button
- ⑤ MANUAL SEARCH (MANUAL) buttons (◀, ▶)
- ⑥ Remote sensor
- ⑦ TIME button
- ⑧ CHECK button
- ⑨ Program edit button (EDIT) (■ COMPU/■■ AUTO)
- ⑩ Program button (PGM)
- ⑪ CLEAR button
- ⑫ > 20 button
- ⑬ TRACK SEARCH (TRACK) buttons (◀◀, ▶▶)
- ⑭ TRACK NUMBER buttons (1-20)
- ⑮ OPEN/CLOSE button (▲)
- ⑯ RANDOM PLAY button
- ⑰ STOP button (■)
- ⑱ PAUSE button (■)
- ⑲ PLAY button (▶)
- ⑳ PEAK SEARCH button
- ㉑ Headphones jack (PHONES)
- ㉒ Headphones volume control (PHONES LEVEL)
- ㉓ TRACK NUMBER buttons (1-10, +10, >20)

NOTE:

Items ㉑ and ㉒ are included on the U.K. and European models of the PD-4700.

REMOTE CONTROL UNIT

Buttons listed here but not accompanied with explanations have the same functions as the corresponding front panel buttons.

- ① POWER button
- ② OPEN/CLOSE button
- ③ OUTPUT LEVEL buttons (-, +)
- ④ Track number buttons (1-20)
- ⑤ Hi-lite scan button (HI-LITE SCAN)
- ⑥ RANDOM PLAY button
- ⑦ STOP/clear button (■)
- ⑧ Manual search buttons (MANUAL ◀, ▶)
- ⑨ Track search buttons (TRACK ◀◀, ▶▶)
- ⑩ PAUSE button (■)
- ⑪ PLAY button (▶)
- ⑫ Program button (PROGRAM/PGM)
- ⑬ > 20 button
- ⑭ > 10 button
- ⑮ Track number buttons (1-10)

12. SPECIFICATIONS

1. General

Type	Compact disc digital audio system
Usable discs	Compact Disc
Power requirements	
U.K. and Australian models	AC 230-240V, 50/60Hz
European model	AC 220-230V, 50/60Hz
U.S. and Canadian models	AC 120V, 60Hz
Multi-voltage model	AC 110/120-127/220/240V (switchable) 50/60Hz
Power consumption	12W
Operating temperature	+5°C - +35°C (+41°F - +95°F)
Weight	3.6kg (7lb, 15oz)
External dimensions	
PD-4700: U.K. and European models,	
PD-5700: U.S., Canadian, U.K. and European models,	
PD-6700: All models	420(W) × 276(D) × 101(H)mm 16-9/16(W) × 10-7/8(D) × 4(H) in.
Other models	420(W) × 276(D) × 96(H)mm 16-9/16(W) × 10-7/8(D) × 3-13/16(H) in.

2. Audio section

Frequency response	2Hz-20kHz
Dynamic range	96dB or more (EIAJ)
Total harmonic distortion	0.003% or less (EIAJ)
Output voltage	2.0V
Wow and flutter	Limit of measurement (±0.001% W.PEAK) or less (EIAJ)
Number of channels	2 channels (stereo)

3. Output terminal

- Audio line output terminals
- CD-DECK SYNCHRO terminal
- Control input/output terminals
(PD-4700: All models,
PD-5700: U.S. and Canadian models only,
PD-6700: U.S. and Canadian models only)
- Headphone jack (with volume control)
(PD-4700: U.K. and European models only,
PD-5700: All models,
PD-6700: All models)
- Optical digital output terminal
(PD-6700: All models)

4. Functions

- Play
- Pause
- Stop
- Manual search
- Track search
- Peak search
- Hi-lite scan
- Direct selection
- Single track repeat
- All track repeat
- Programmed repeat
- Random play repeat
- Programmed random play repeat
- Programmed playback (up to 24 tracks)
- Pause program
- Program check
- Program correction
- Program clear
- Auto program edit
- Compu program edit
- Digital level control (PD-6700/PD-5700: Remote control only)
- Random play
- Programmed random play
- Program hold
- Level hold
- Timer start
- CD-deck synchro

5. Accessories

- Remote control unit (PD-6700, PD-5700) 1
- Size AAA/R03 dry cell batteries (PD-6700, PD-5700) 2
- Output cable 1
- Control cord
(PD-6700: U.S. and Canadian models)
(PD-5700: U.S. and Canadian models)
(PD-4700: All models) 1
- Operating instructions 1

NOTE:

The specifications and design of this product are subject to change without notice, due to improvements.

For Service Manuals Contact
MAURITRON TECHNICAL SERVICES
 8 Cherry Tree Rd, Chinnor
 Oxon OX9 4QY
 Tel: 01844-351694 Fax: 01844-352554
 Email: enquiries@maurtron.co.uk