PIONEER®
The future of sound and vision.

Service Manual

ORDER NO.
ARP2095

COMPATIBLE LASER DISC PLAYER

CLD-1500

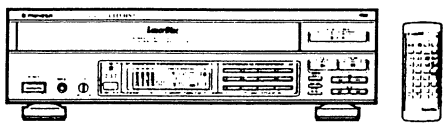
HEM, HB

- Refer to the service manual ARP1879, CLD-1400.

- This manual is applicable to the CLD-1500/HEM and HB types.

PIONEER®
The future of sound and vision.

Service Manual



ORDER NO.
ARP1879

CD CDV LD PLAYER

CLD-1450
CLD-1400

MODELS CLD-1450 AND CLD-1400 HAVE FOLLOWING VERSIONS :

Type	Applicable model		Power requirement	Export destination
	CLD-1450	CLD-1400		
HB	○	—	AC 220V, 240V (switchable) *	United kingdom
HEM	—	○	AC 220V, 240V (switchable) *	European continent

* Change the position of jumper of the Power supply board assembly.

- **The CLD-1450/HB type can reproduce both a PAL disc and a NTSC disc. The CLD--1400/HEM type can reproduce a PAL disc only.**
- **This manual is applicable to the CLD-1450/HB and CLD-1400/HEM types.**
- **As to the CLD-1400/HEM type, refer to page 179.**
- **Ce manuel pour le service comprend les explications de réglage en français.**
- **Este manual de servicio trata del método ajuste escrito en español.**

CONTENTS

1. SAFETY INFORMATION

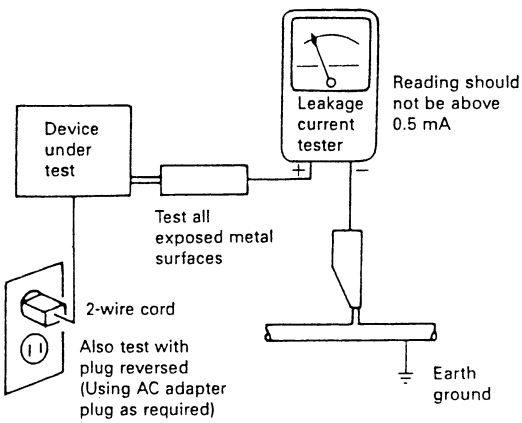
(FOR USA MODEL ONLY)

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 120 V AC 60 Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5 mA.



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 ⚠ 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.

(FOR EUROPEAN MODEL ONLY)

VAROITUS!
LAITE SISÄLTÄÄ LASERDIODIN, JOKA LÄHETTÄÄ NÄKYMÄTÖNTÄ, SILMILLE VAARALLISTA LASERSÄTEILYÄ.

ADVERSEL:
USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION UNDGÅ UDSAETTELSE FOR STRÅLING.

VARNING
DENNA APPARAT INNEHÅLLER EN LASER MED HÖGRE EFFEKT ÄN KLASS 1. TAG INTE AV HÖLJET ELLER FÖRSÖK GÖRA INGREPP I APPARATEN. ÖVERLAT SERVICE TILL KVALIFICERAD PERSONAL.

LASER
Kuva 1
Lasersateilyn varoitusmerkki

WARNING!
DEVICE INCLUDES LASER DIODE WHICH EMITS INVISIBLE INFRARED RADIATION WHICH IS DANGEROUS TO EYES. THERE IS A WARNING SIGN ACCORDING TO PICTURE 1 INSIDE THE DEVICE CLOSE TO THE LASER DIODE.

IMPORTANT
THIS PIONEER APPARATUS CONTAINS LASER OF HIGHER CLASS THAN 1. SERVICING OPERATION OF THE APPARATUS SHOULD BE DONE BY A SPECIALLY INSTRUCTED PERSON.

LASER
Picture 1
Warning sign for laser radiation

CONTRAST OF MISCELLANEOUS PARTS

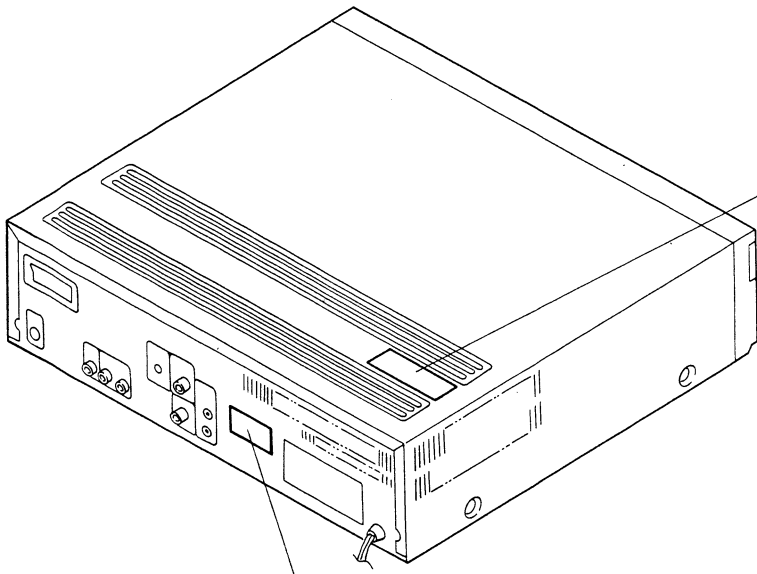
NOTES :
- Parts without part number cannot be supplied.
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "◉" are not always kept in stock. Their delivery time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

The CLD-1500/HEM and HB types are the same as the CLD-1400/HEM type with the exception of the following sections.

Mark	Symbol & Description	Part No.			Remarks
		CLD-1400 /HEM type	CLD-1500 /HEM type	CLD-1500 /HB type	
	Packing case	VHG1070	VHG1115	VHG1122	For packing
	Main key	VNK1265	VNK1578	VNK1578	
	Ten key	VNK1266	VNK1579	VNK1579	
	Sub panel (R)	VNK1271	VNK1580	VNK1580	
	Operating instructions (English/German/French/Italian)	VRE1003	VRE1004	• • • • •	
	Operating instructions (Dutch/Swedish/Spanish/Portuguese)	VRF1004	VRF1009	• • • • •	
	Operating instructions (English)	• • • • •	• • • • •	VRB1038	
	Front panel assembly S	VXX1292	VXX1451	VXX1451	
	Door assembly S	VXX1294	VXX1452	VXX1452	
⚠	AC power cord	VDG1028	VDG1028	VDG1029	
◉	POWER SUPPLY board assembly	VWR1023	VWR1023	VWR1017	
◉	ASCB assembly	VWX1005	VWX1005	VWX1045	*

* : The difference point of ASCB assembly is the only RFMD (PAL).

LABEL CHECK



HB model

CAUTION
INVISIBLE LASER
RADIATION WHEN OPEN,
AVOID EXPOSURE
TO BEAM PRW1018

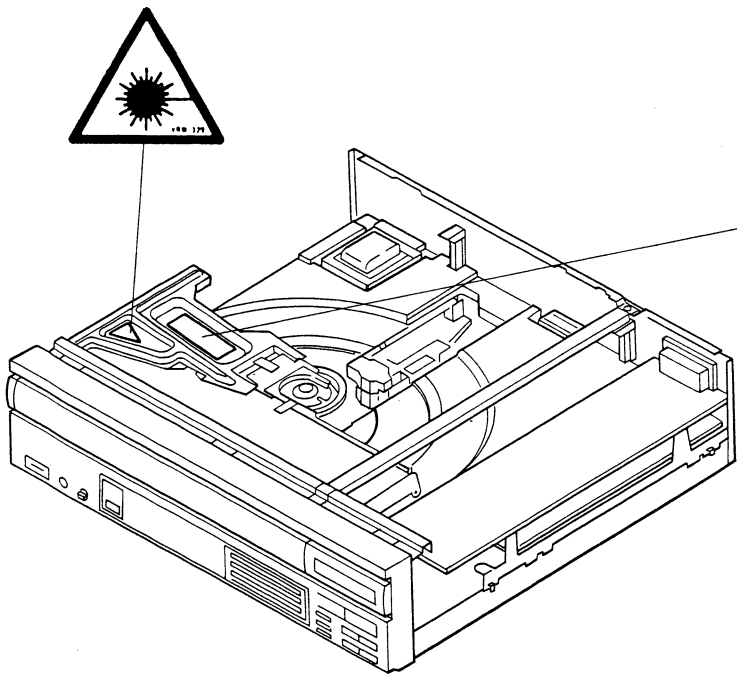
HEM model

ADVARSEL
USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHED SAFBRYDERE ER UDE AF FUNKTION.
UNDGÅ UDSÆTTELSE FOR STRÅLING.
VORSICHT!
UNSICHTBARE LASER-STRAHLUNG TRITT AUS, WENN DECKEL (ODER KLAPPE) GEÖFFNET IST! NICHT DEM STRAHL AUSSETZEN!
VRW1094

HEM and HB models

CLASS 1
LASER PRODUCT
VRW-328

HEM and HB models



HB model

CAUTION
INVISIBLE LASER
RADIATION WHEN OPEN,
AVOID EXPOSURE
TO BEAM PRW1018

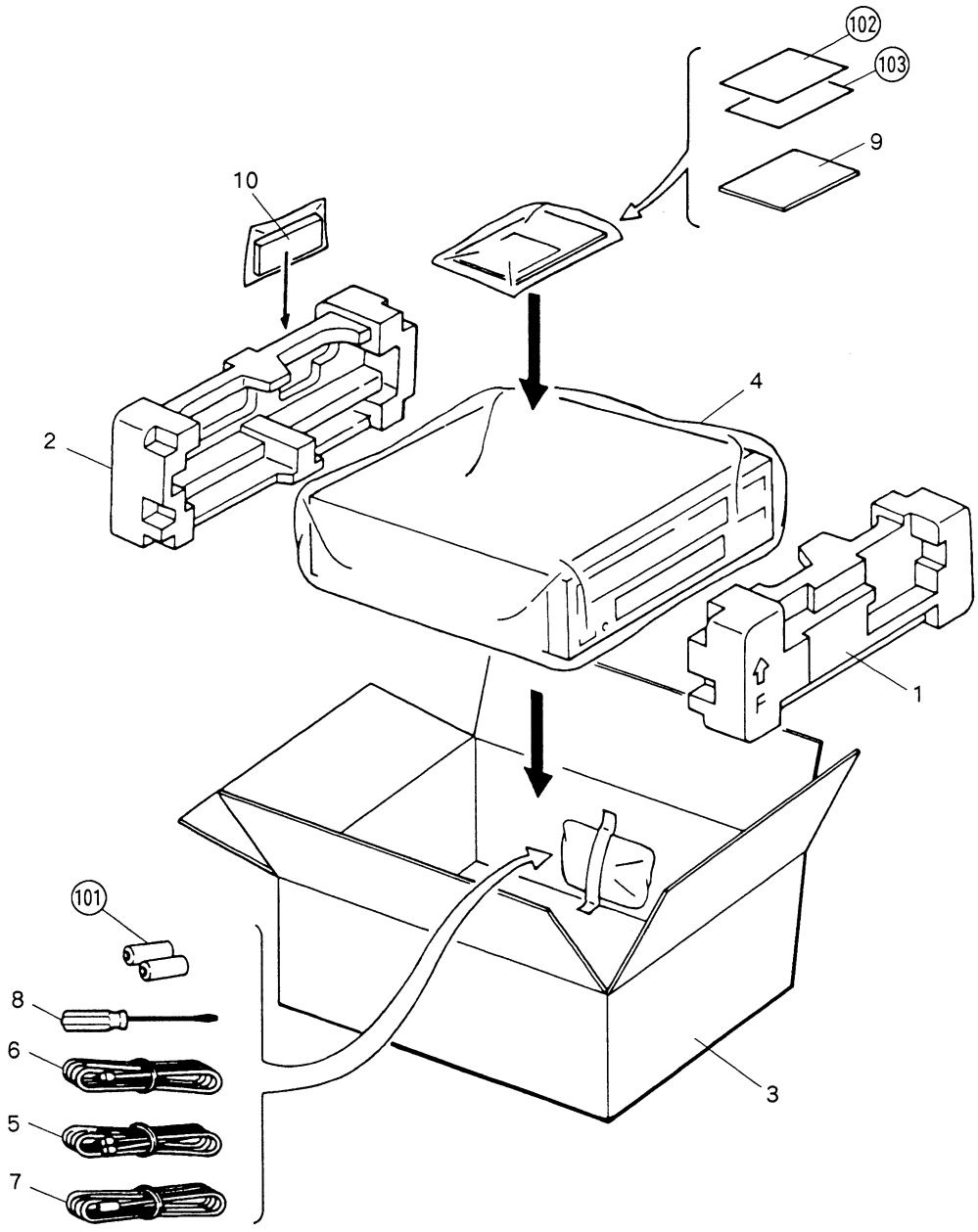
HEM model

LASER RADIATION
AVOID EXPOSURE TO BEAM, CLASS 3B LASER PRODUCT
ADVARSEL
USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION
UNDGÅ UDSÆTTELSE FOR STRÅLING
UNSICHTBARE
LASER-STRAHLUNG NICHT DEM STRAHL AUSSETZEN! LASER KLASSE 3B PRW-162-A

2. PACKING

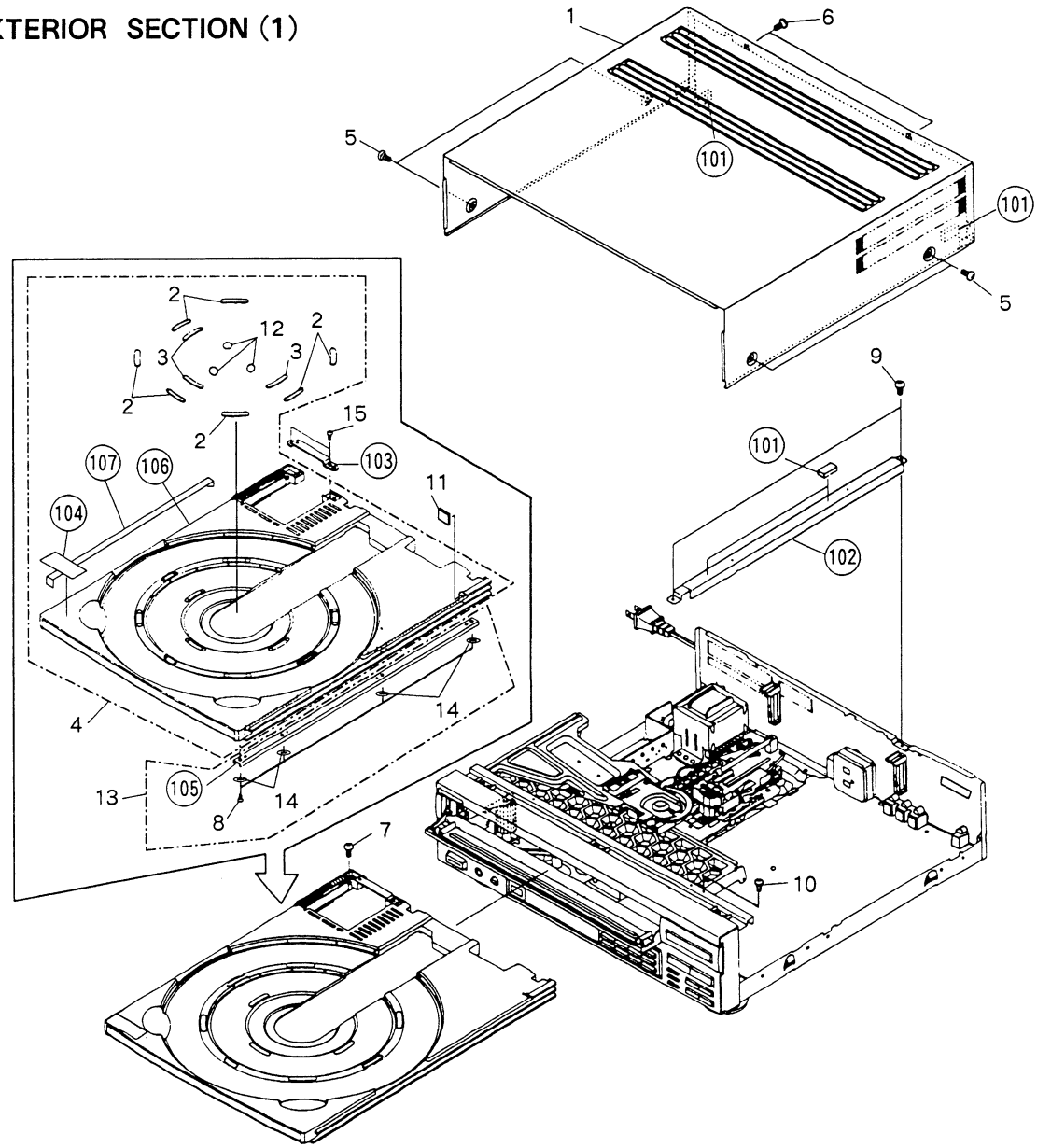
Parts List

Mark	No.	Part No.	Description
	1	VHA1039	Pad (F)
	2	VHA1040	Pad (R)
	3	VHG1071	Packing case
	4	VHL1006	Packing mat
	5	VDE-055	Audio cord
	6	VDE-056	Video cord
	7	VDE1007	RF antenna cable with IEC plug
	8	VEX-006	Adjustment screwdriver
	9	VRB1022	Operating instructions (English)
	10	VXX1326	Remote control unit
	101		Battery UM-4
	102		Warranty card
	103		Caution card



3. EXPLODED VIEWS AND PARTS LIST

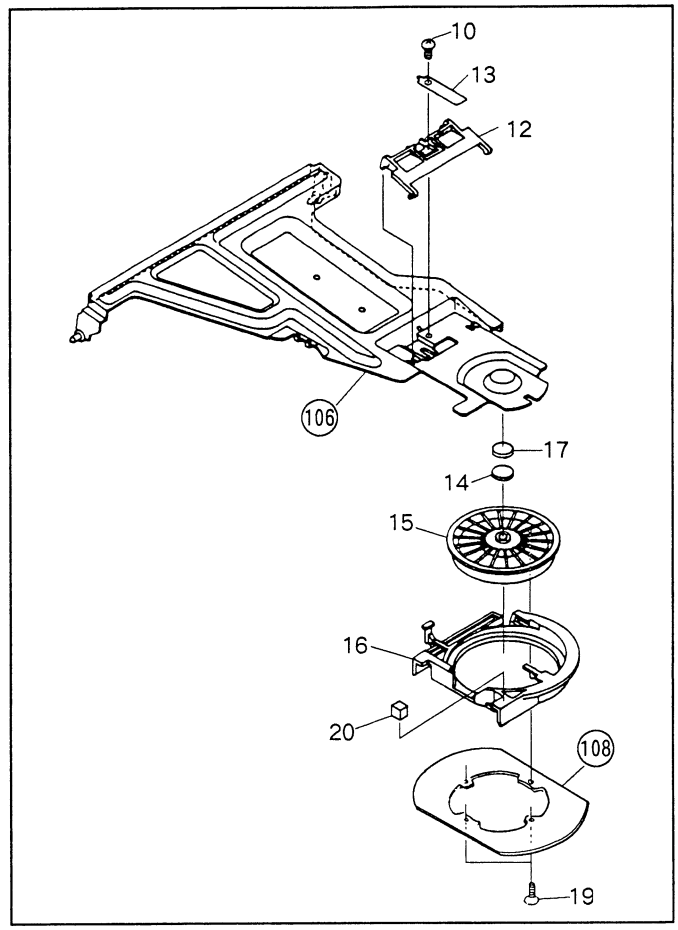
3.1 EXTERIOR SECTION (1)



Parts List of Exterior Section (1)

Mark	No.	Part No.	Description
	1	VXX1267	Bonnet S
	2	VEC1191	Disc pad (L)
	3	VEC1192	Disc pad (S)
	4	VXX1311	Tray assembly
	5	BCZ40P080FZK	Screw
	6	BBZ30P080FZK	Screw
	7	BPZ30P140FMC	Screw
	8	BPZ30P080FMC	Screw
	9	BBZ30P060FMC	Screw
	10	PCZ30P080FMC	Screw
	11	VEB1089	Tray rubber
	12	VEC1252	CD pad
	13	VXA1320	Reinforced plate assembly
	14	VEC1254	Fiber washer
	15	CPZ30P100FMC	Screw
	101		Dump cushion
	102		Center angle
	103		Tray metal
	104		Carry label
	105		Tray reinforced plate
	106		Tray
	107		Side plate

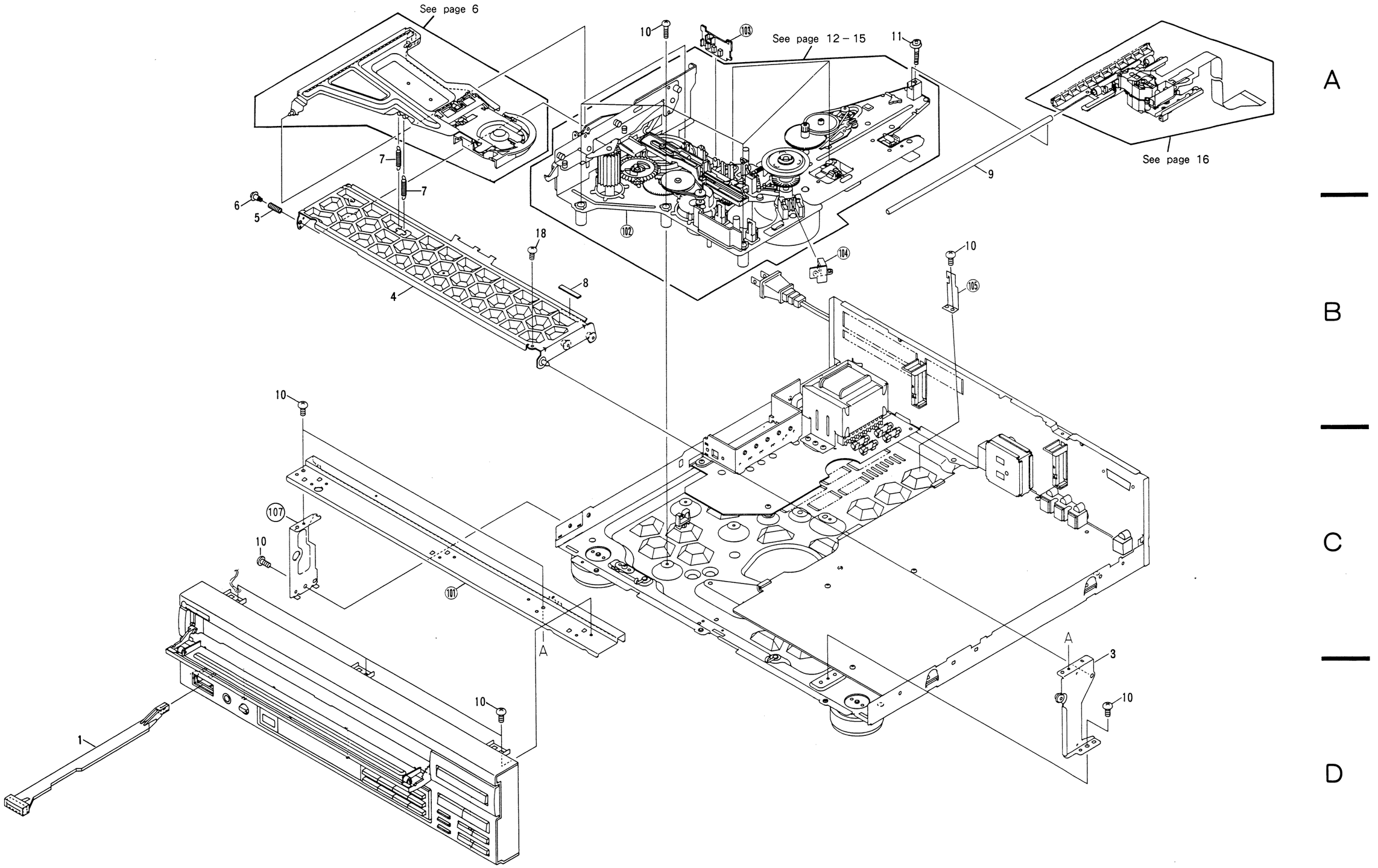
3.2 EXTERIOR SECTION (2)



NOTES :
- Parts without part number cannot be supplied.
- The ⚠ 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 (2)

Mark	No.	Part No.	Description
	1	VNK1267	Power knob
	2		• • • • •
	3	VXA1280	Side stay (R) assembly
	4	VXA1319	Clamper arm (A) assembly
	5	VBH1093	Arm spring
	6	VBA1008	Screw
	7	VBH1094	Clamper spring
	8	VEB1084	Dump rubber (A)
	9	VLL1177	Carriage shaft
	10	BBZ30P060FMC	Screw
	11	IBZ30P200FMC	Screw
	12	VNL1254	Parallel link
	13	VBK1014	Plate spring
	14	VNL1206	Ball catcher
	15	VNL1248	Clamper S
	16	VNL1205	Clamper holder
	17	VEB1114	Rubber sheet
	18	PCZ30P080FMC	Screw
	19	CPZ20P050FMC	Screw
	20	VEC1264	Clamper pad
	101		Front angle
	102		Mechanism assembly
	103		SW board assembly
	104		FG board assembly
	105		SM head stopper
	106		Clamper arm (B)
	107		Side stay (L)
	108		Stabilizer


See page 6
See page 12 – 15
See page 16
10
103
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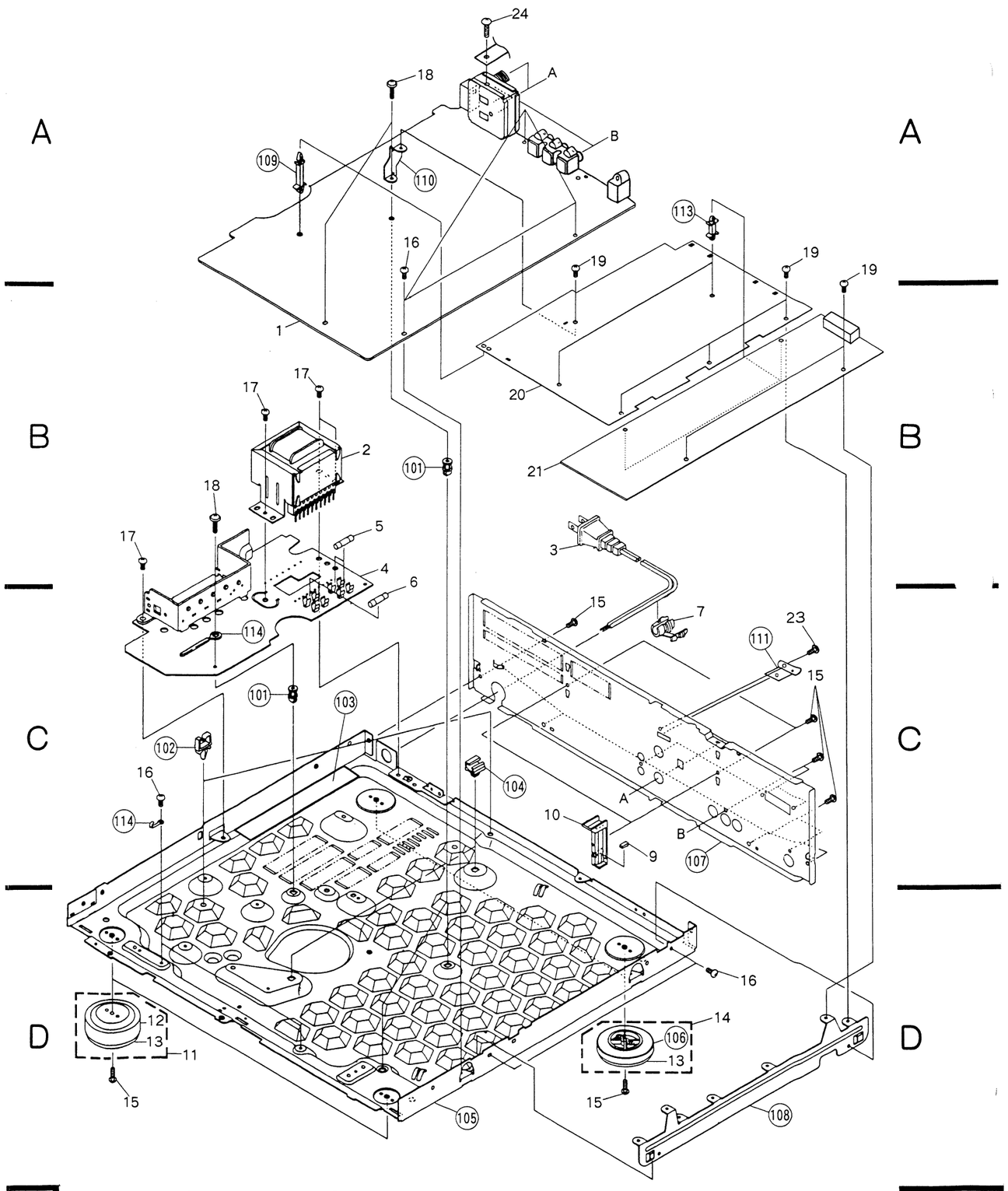
3.3 BASE SECTION

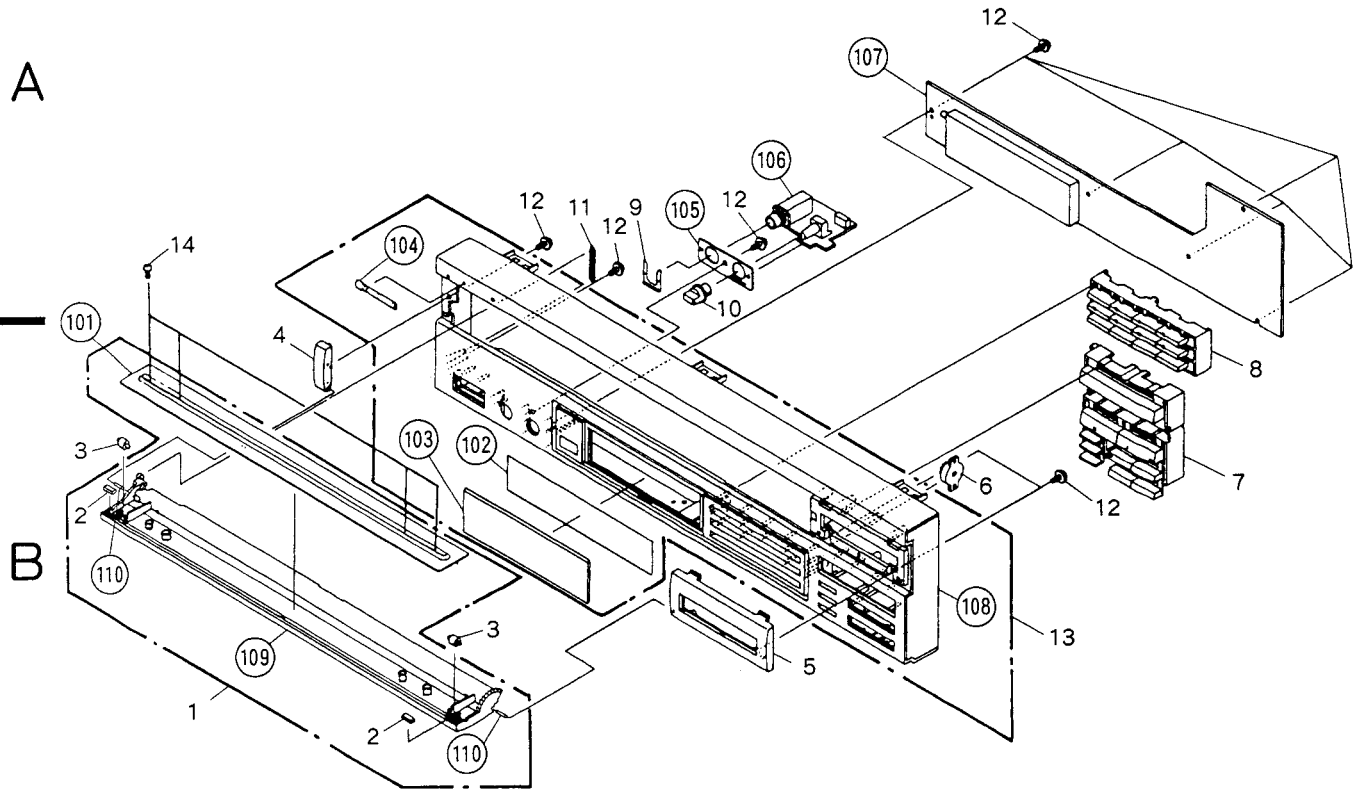
Parts List of Base Section

Mark	No.	Part No.	Description
◉	1	VWX1007	ASCB board assembly
⚠	2	VTT1062	Power transformer
⚠	3	VDG1029	AC power cord
◉	4	VWR1017	POWER SUPPLY board assembly
⚠	5	REK-105	Fuse (FU201,FU202, 3.15A)
⚠	6	REK-101	Fuse (FU203,FU204, 1.25A)
	7	CM-22B	Strain relief
	8		• • • • •
	9	VEB1033	Door dump rubber
	10	VNL1202	Tray stopper
	11	VXA1289	Insulator assembly (A)
	12	VNK1095	Insulator
	13	VEC1224	Felt
	14	VXA1290	Insulator assembly
	15	BBZ30P080FZK	Screw
	16	BBZ30P060FMC	Screw
	17	BCZ40P080FMC	Screw
	18	IPZ30P160FMC	Screw
	19	IBZ30P060FMC	Screw
◉	20	VWS1055	VDTB board assembly
◉	21	VWV1073	PALB board assembly
	22		• • • • •
	23	BBT30P060FBR	Screw
	24	PMB26P050FMC	Screw

Mark	No.	Part No.	Description
	101		PCB spacer
	102		Wire clip (B)
	103		Insulation sheet
	104		P plate holder
	105		Base chassis
	106		Insulator
	107		Rear panel
	108		P. C. board holder (A)
	109		PC support
	110		P. C. board holder (C)
	111		MD holder
	112		• • • • •
	113		P. C. support
	114		Cord holder



3.4 FRONT PANEL SECTION

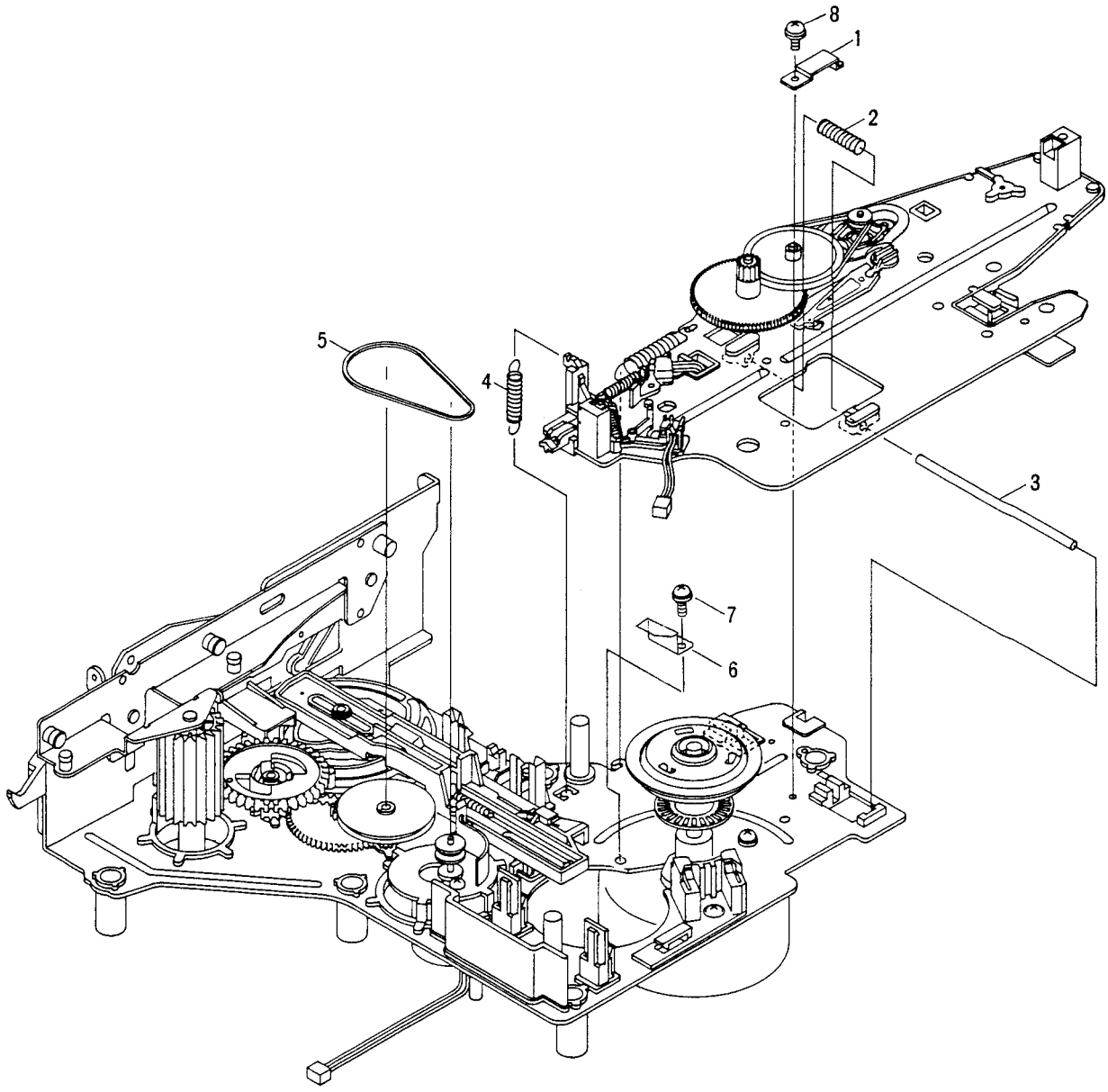


Parts List of Front panel Section

Mark	No.	Part No.	Description
	1	VXX1294	Door assembly S
	2	VEB1033	Door dump rubber
	3	VNL1042	Roller
	4	VNK1270	Sub panel (L)
	5	VNK1271	Sub panel (R)
	6	VXA1053	Dumper assembly
	7	VNK1265	Main key
	8	VNK1266	Ten key
	9	VNE1102	Snap plate
	10	VNK1262	Headphone knob
	11	VBH1085	Door spring
	12	IPZ26P060FMC	Screw
	13	VXX1295	Front panel assembly S
	14	BPZ20P040FZK	Screw

Mark	No.	Part No.	Description
	101		Door plate
	102		FL filter
	103		FL lens
	104		Name plate
	105		Jack holder
	106		HEADPHONE board assembly
	107		FUNCTION board assembly
	108		Front panel assembly
	109		Door assembly
	110		Door shaft

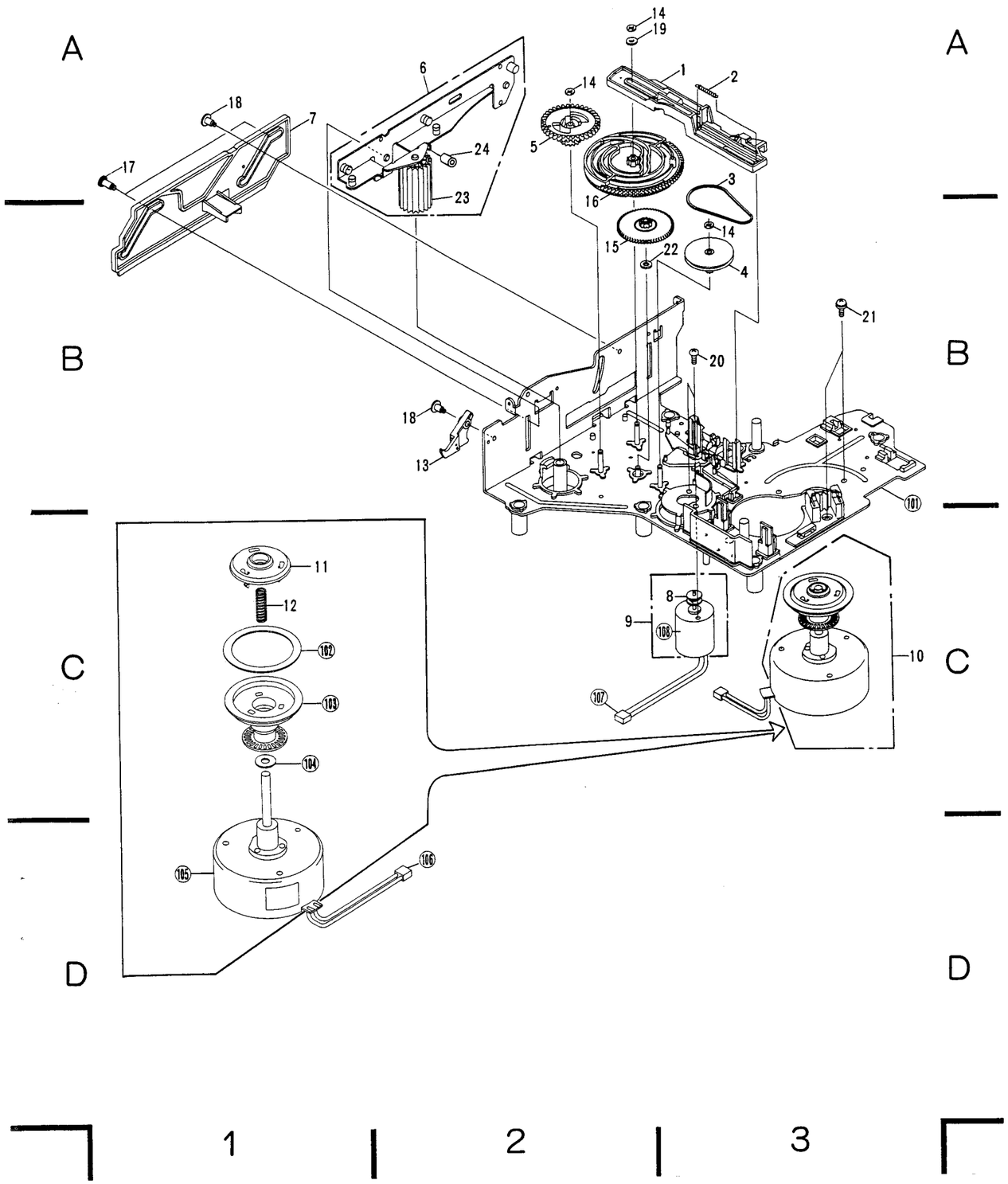
3.5 MECHANISM ASSEMBLY (1)



Parts List of Mechanism Assembly (1)

Mark	No.	Part No.	Description
	1	VBK1013	Plate spring
	2	VBH1073	Thrust spring
	3	VLL1175	Tilt shaft
	4	VBH1074	Tilt tension spring
	5	PEB1013	Belt
	6		• • • • •
	7	PMA30P050FMC	Screw
	8	ABZ26P050FMC	Screw
	101		Cam head stopper

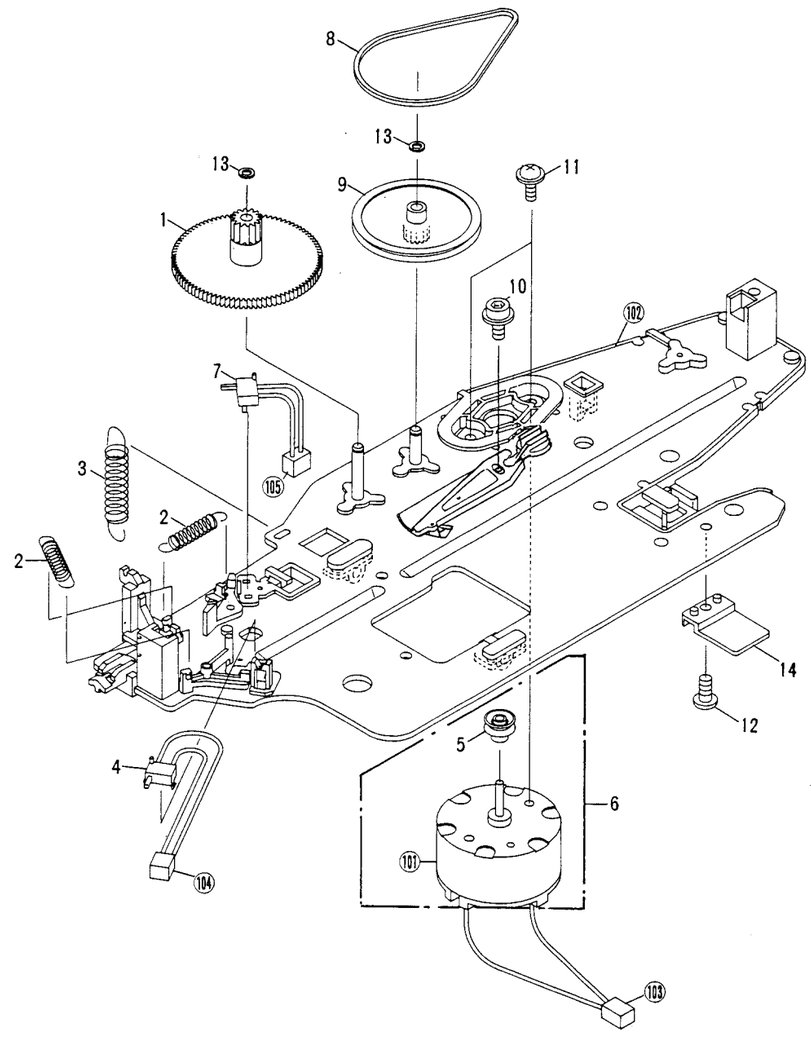
3.6 MECHANISM ASSEMBLY (2)



Parts List of Mechanism Assembly (2)

Mark	No.	Part No.	Description
	1	VNL1191	Spring slanting cam
	2	VBH1082	Cam spring
	3	PEB1013	Belt
	4	VNL1249	Gear pulley
	5	VNL1194	Follow gear
	6	VXA1346	Roller plate assembly
	7	VNL1188	Slide cam
	8	VLL1176	Motor pulley
	9	VXX1262	Loading motor assembly
	10	VXX1347	Spindle assembly
	11	VNL1174	Centering hab
	12	VBH1083	Centering spring
	13	VNL1208	Door lever
	14	WT26D047D025	Washer
	15	VNL1193	Two stair gear
	16	VNL1190	Cam gear
	17	VBA1015	Screw (C)
	18	VBA1008	Screw (B)
	19	WA32N080W050	Nylon washer
	20	PMZ30P040FMC	Screw
	21	PMA30P050FMC	Screw
	22	WA32D060D025	Washer
	23	VEB1091	Stopper ring
	101		Chassis assembly
	102		Rubber sheet
	103		Turn-table assembly
	104		Oil stopped washer
	105		Spindle motor
	106		Loading motor
	107		Slide gear

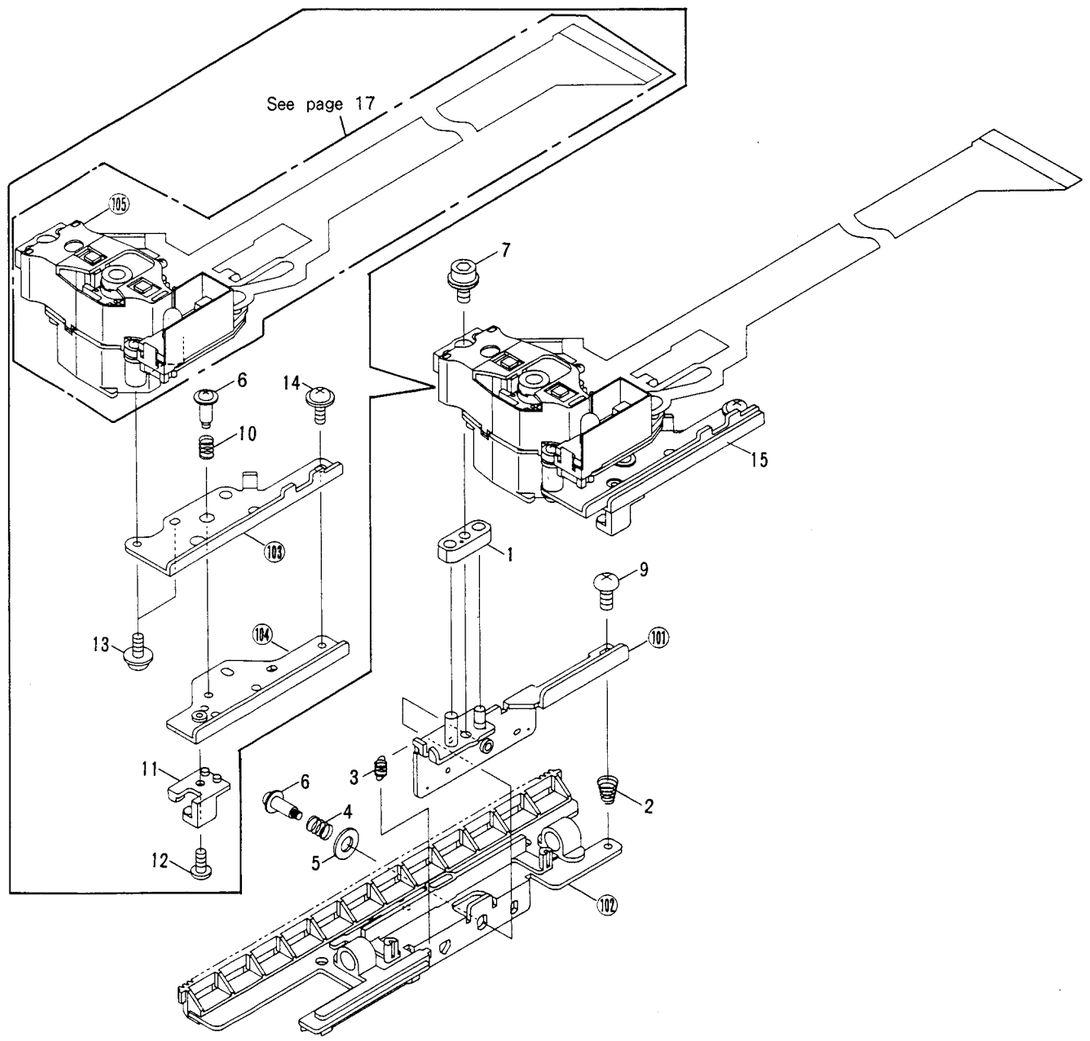
3.7 MECHANISM ASSEMBLY (3)



Parts List of Mechanism Assembly (3)

Mark	No.	Part No.	Description
	1	VNL1196	CA gear (3)
	2	VBH1079	Switch tension spring
	3	VBH1080	TC tension spring
	4	PSH1003	Slide switch (S5 : INNER)
	5	VNL1197	CA pulley (1)
	6	VXX1261	Carriage motor assembly
	7	PSH1003	Slide switch (S4 : OUTER)
	8	VEB1077	CA belt
	9	VNL1198	CA pulley (2)
	10	SMF30H080FBT	Bolt
	11	PAM26P040FMC	Screw
	12	BPZ26P050FMC	Screw
	13	WT26D047D025	Washer
	14	VNL1210	FLE base
	101		Carriage motor
	102		Servo mechanism base assembly

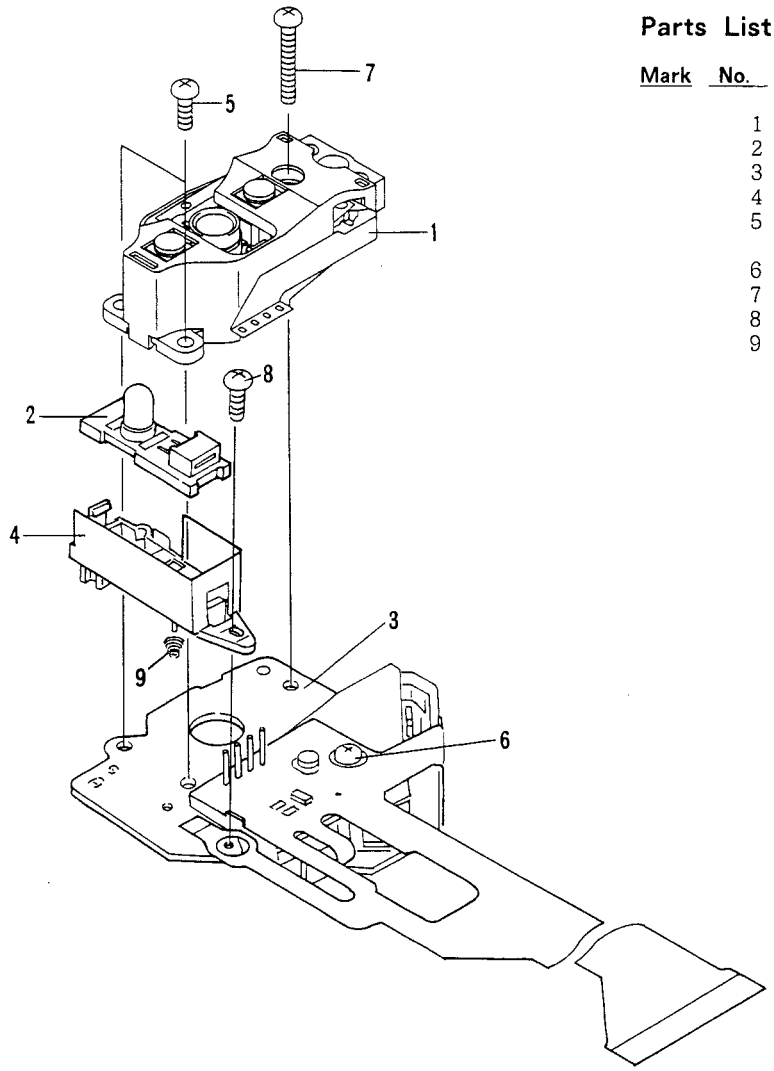
3.8 RACK SECTION



Parts List of Rack Section

Mark	No.	Part No.	Description
	1	VNL1209	PU base
	2	VBH1075	LP center spring
	3	VBH1089	PU tension spring
	4	VBH1090	L-2 spring
	5	WA32F070M080	Washer
	6	VBA1007	Screw
	7	VLL1192	Bolt 2.6 × 10
	8	VEC1284	Spacer (S)
	9	BMZ26P080FMC	Screw
	10	VBH1081	TAN spring
	11	VNL1199	TAN base
	12	PMZ20P040FMC	Screw
	13	PMA20P040FMC	Screw
	14	AMZ20P050FMC	Screw
	15	VWT1048	Slider assembly
	101		PU mount base assembly
	102		Rack
	103		TAN plate (2)
	104		TAN plate (1)
	105		Pickup assembly

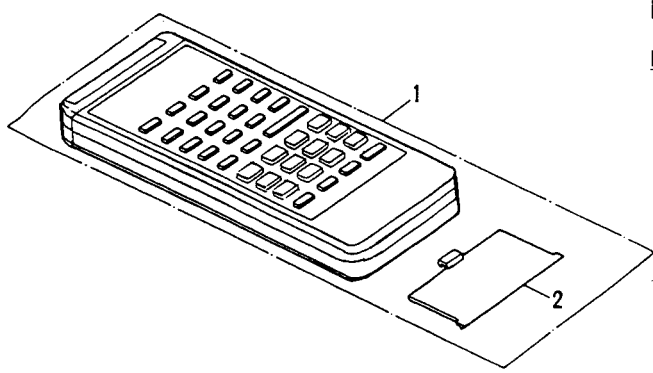
3.9 PICK-UP ASSEMBLY



Parts List of Pickup Assembly

Mark	No.	Part No.	Description
	1	VXX1266	Actuator assembly
	2	VEX1018	Sensor assembly
	3	VXX1274	Pre pickup assembly
	4	VNH1024	Sensor stay
	5	PMA20P060FMC	Screw
	6	PMA20P080FMC	Screw
	7	PMA20P140FMC	Screw
	8	PMB20P050FMC	Screw
	9	VBH1087	Sensor spring

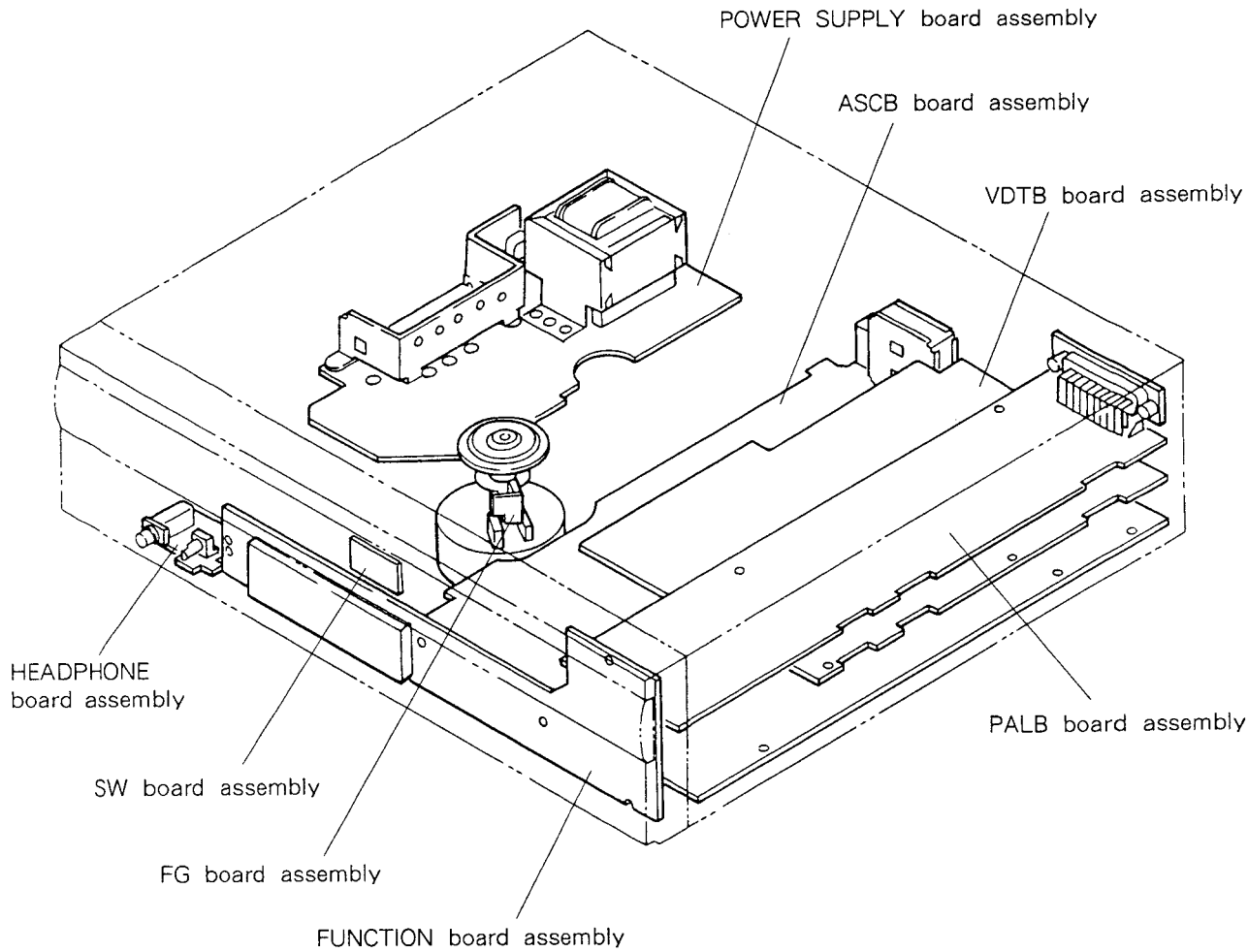
3.10 REMOTE CONTROL UNIT



Parts List of Remote Control Unit

Mark	No.	Part No.	Description
	1	VXX1326	Remote control unit
	2	VNK1293	Battery cover

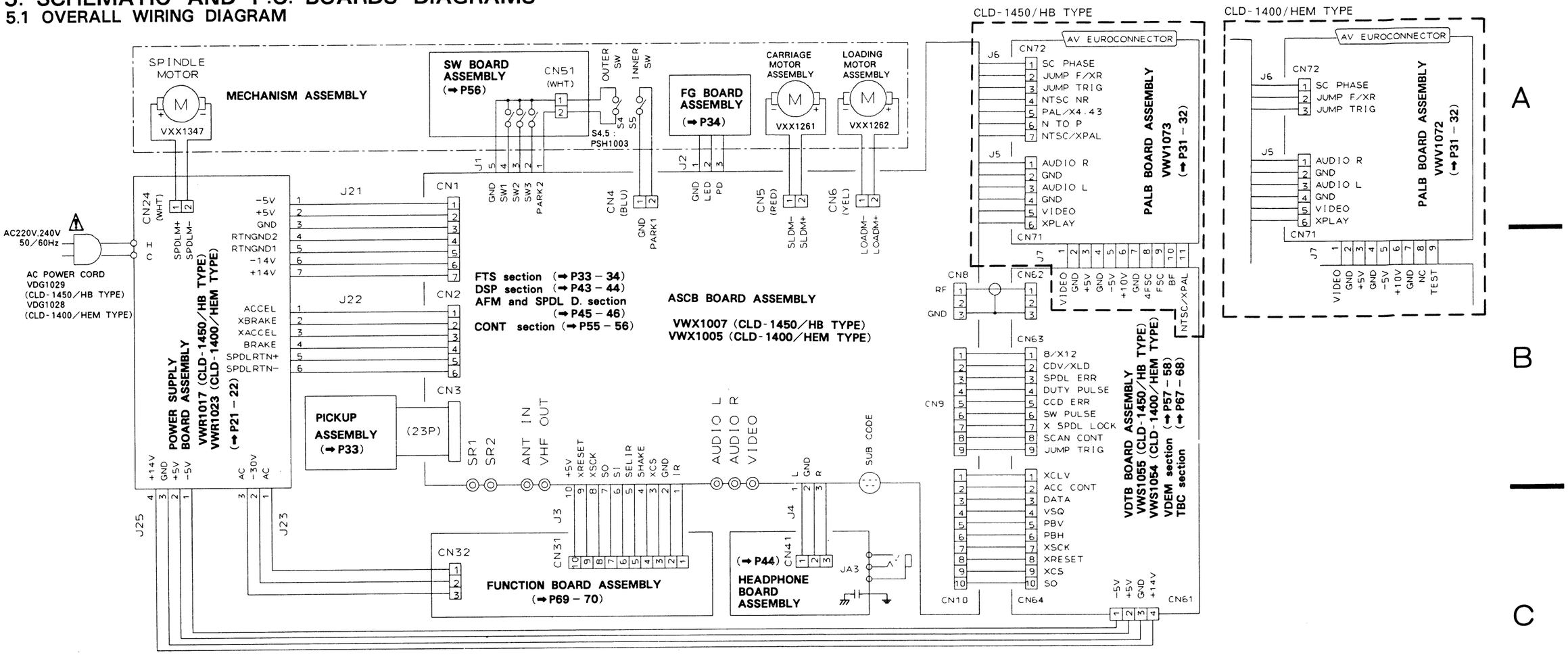
4. P. C. BOARDS LOCATION



P.C.Boards List		
P.C.Boards name	CLD-1450/HB type	CLD-1400/HEM type
Power supply boards assembly	VWR1017	VWR1023
ASCB board assembly	VWX1007	VWX1005
VDTB board assembly	VWS1055	VWS1054
PALB board assembly	VWV1073	VWV1072
HEADPHONE board assembly	N. S. P.	N. S. P.
SW board assembly	N. S. P.	N. S. P.
FG board assembly	N. S. P.	N. S. P.
FUNCTION board assembly	N. S. P.	N. S. P.

5. SCHEMATIC AND P.C. BOARDS DIAGRAMS

5.1 OVERALL WIRING DIAGRAM



CN3

NO.	NAME	NO.	NAME	NO.	NAME	NO.	NAME
1	−5V	7	B4	13	LD	19	TR DR
2	+5V	8	B3	14	LD GND	20	TILT OUT
3	RF	9	B2	15	NC	21	TILT GND
4	GND	10	B1	16	TR RT	22	TILT IN
5	C	11	VR	17	FO DR	23	TILT LED
6	A	12	MD	18	FO RT		

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

2. CAPACITORS :
   Indicated in capacity (μF) / voltage (V) unless otherwise noted p ; pF. Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE, CURRENT :
   ⎡ ⎤ ; DC voltage (V) at no input signal.
   ⎣ ⎦ Value in ( ) is DC voltage at rated power.
   ⇦mA ; DC current at no input signal.

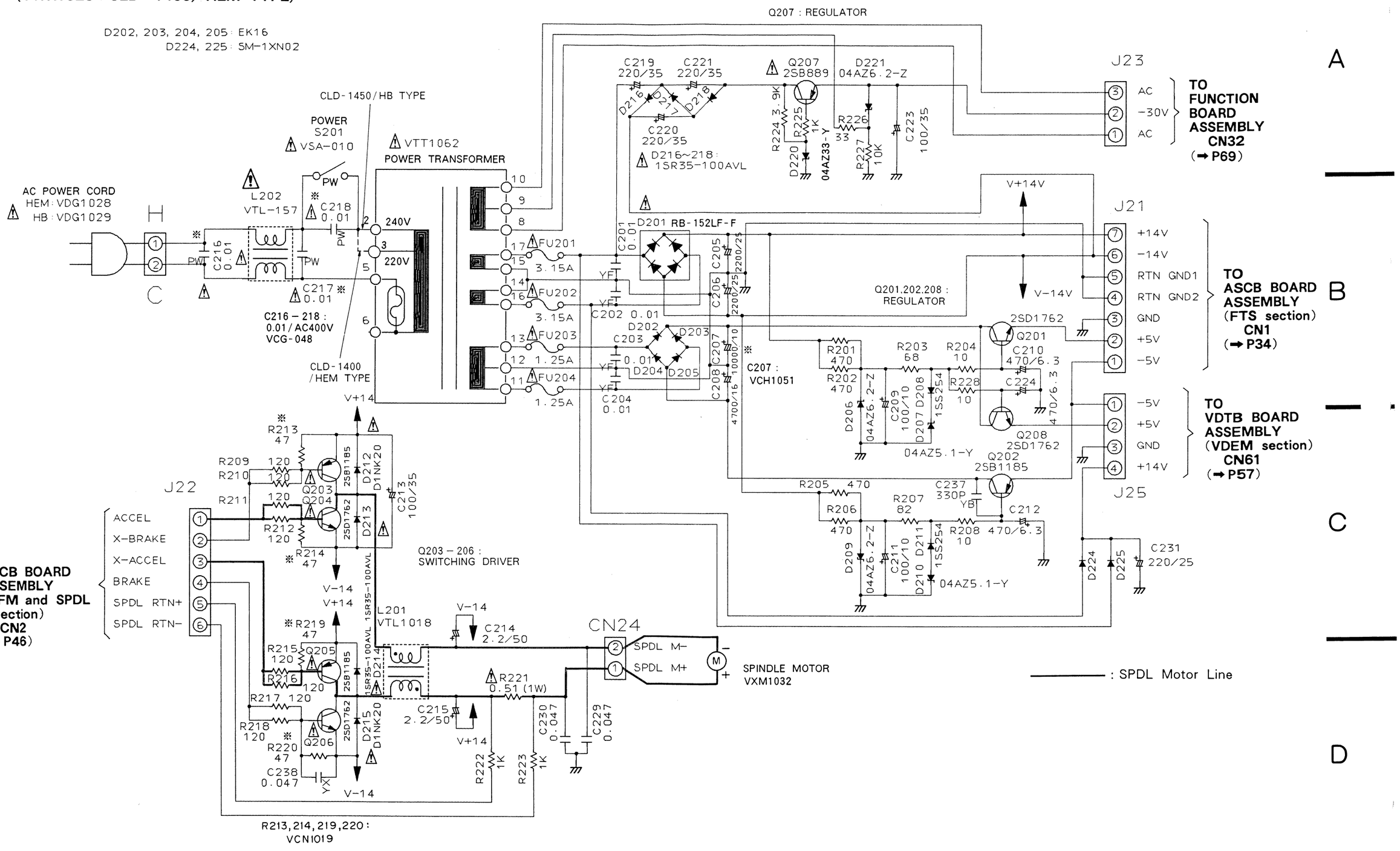
4. OTHERS :
   ➡ ; Signal route.
   ⊘ ; Adjusting point.
   The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
   ※ marked capacitors and resistors have parts numbers.

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

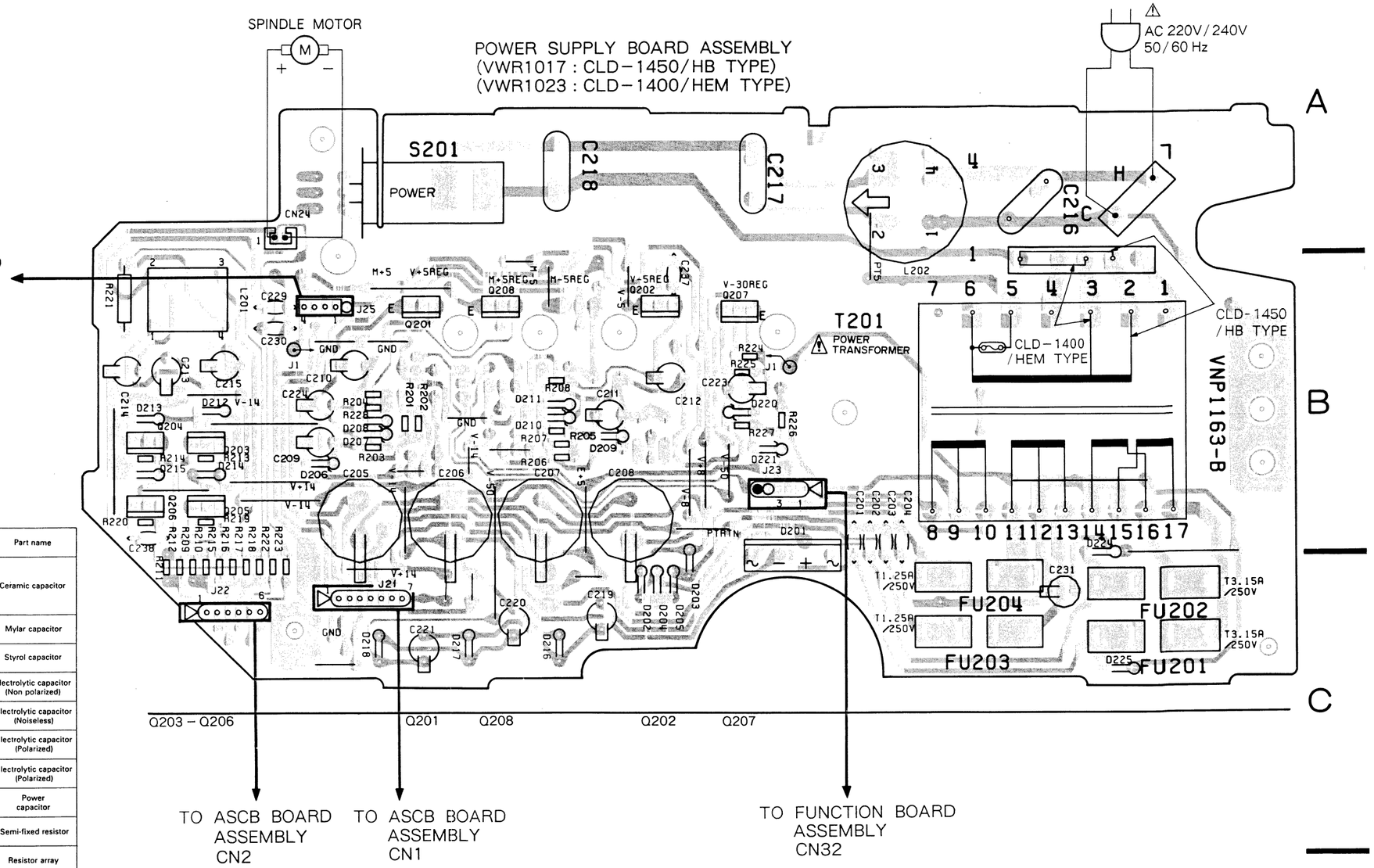
5. SWITCHES : (The underlined indicates the switch position)
   SWITCH BOARD ASSEMBLY
   S1 – 3 : LOADING/TILT POSITION SWITCH
   FUNCTION BOARD ASSEMBLY
   S251 : 1
   S252 : 5
   S253 : 9
   S254 : 2
   S255 : 6
   S256 : 0
   S257 : 3
   S258 : 7
   S259 : + 10
   S260 : 4
   S261 : 8
   S262 : PROGRAM
   S263 : RANDOM PLAY
   S264 : AUTO PGM EDITING
   S265 : INTRO SCAN
   S266 : PLAY (▶)
   S267 : STOP/OPEN (■/⏏)
   S268 : PAUSE (⏸)
   S269 : |◀◀] SKIP
   S270 : ▶▶|]
   S271 : ◀◀] SCAN
   S272 : ▶▶]

POWER SUPPLY BOARD ASSEMBLY
S201 : POWER ON — OFF
OUTSIDE OF P.C. BOARD ASSEMBLIES
S4 : OUTER SW
S5 : INNER SW

5.2 POWER SUPPLY BOARD ASSEMBLY
(VWR1017 : CLD-1450/HB TYPE)
(VWR1023 : CLD-1400/HEM TYPE)



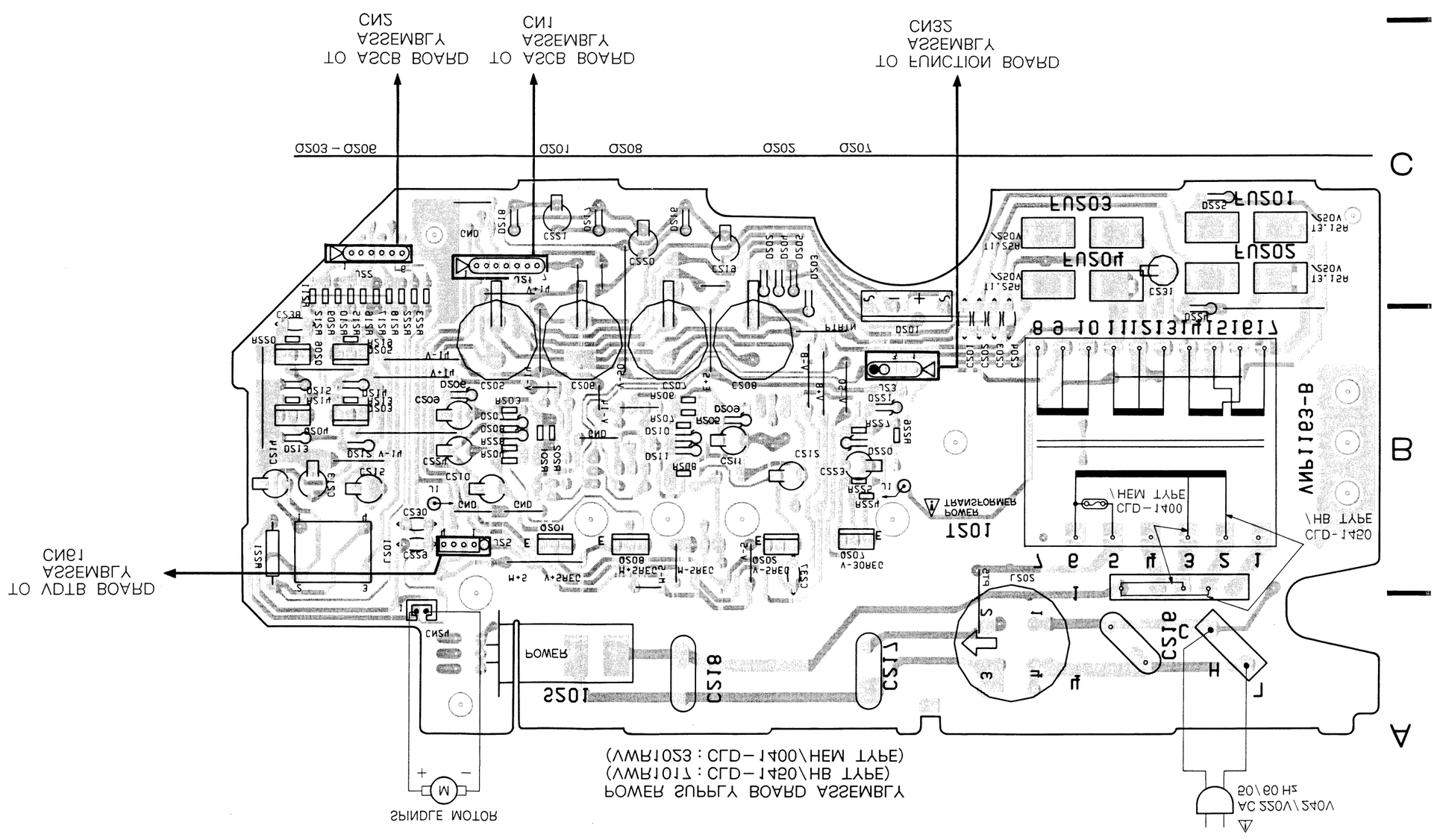
POWER SUPPLY BOARD ASSEMBLY
(VWR1017 : CLD-1450/HB TYPE)
(VWR1023 : CLD-1400/HEM TYPE)



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
					Electrolytic capacitor (Non polarized)
					Electrolytic capacitor (Noiseless)
		Zenner diode			Electrolytic capacitor (Polarized)
					Electrolytic capacitor (Polarized)
		LED			Power capacitor
		Varactor			Semi-fixed resistor
		Tact switch			Resistor array
					Resistor
		Inductor			
		Coil			Resonator
		Transformer			Thermistor
		Filter			

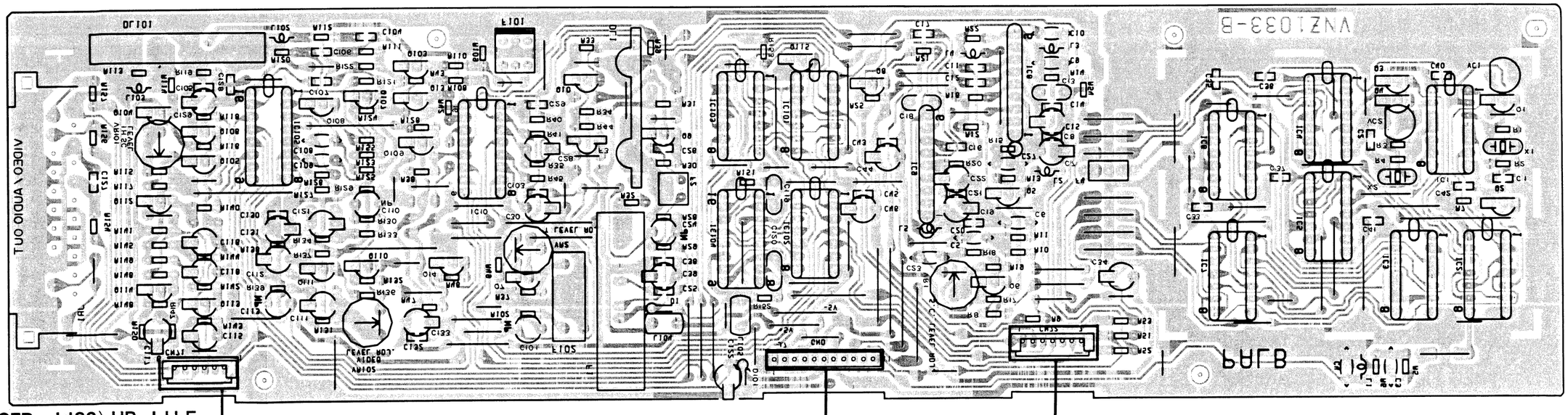
1. This P.C.B. connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the above Table.
3. The capacitor terminal marked with ▭ shows negative terminal.
4. The diode marked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

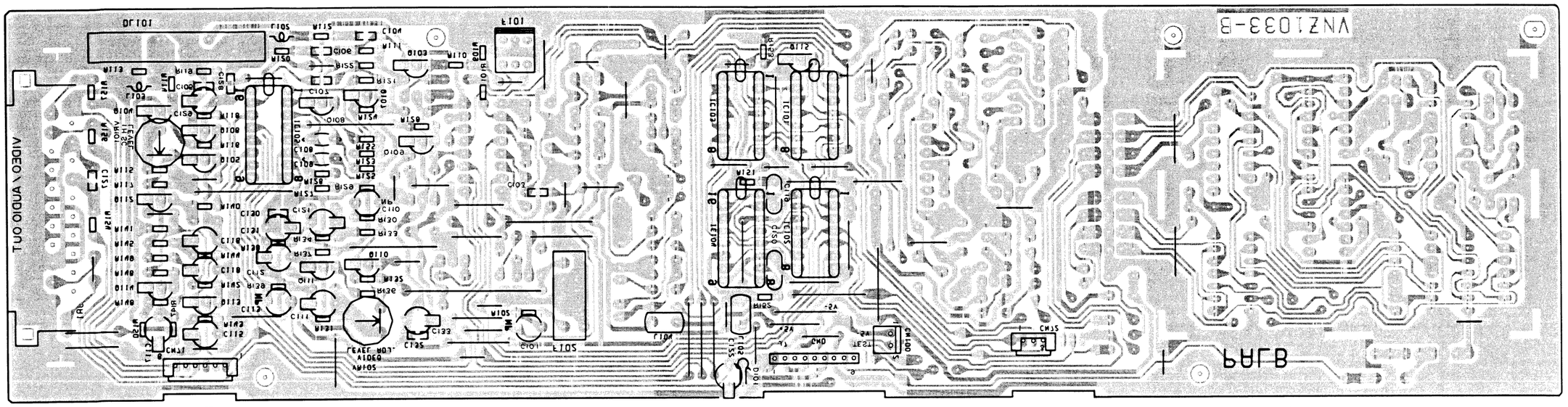
This P. C. B. connection diagram is viewed from the foil side.



2.3 PARA BOARD ASSEMBLY

This P.C.B. connection diagram is viewed from the foil side.





5.3 PALB BOARD ASSEMBLY

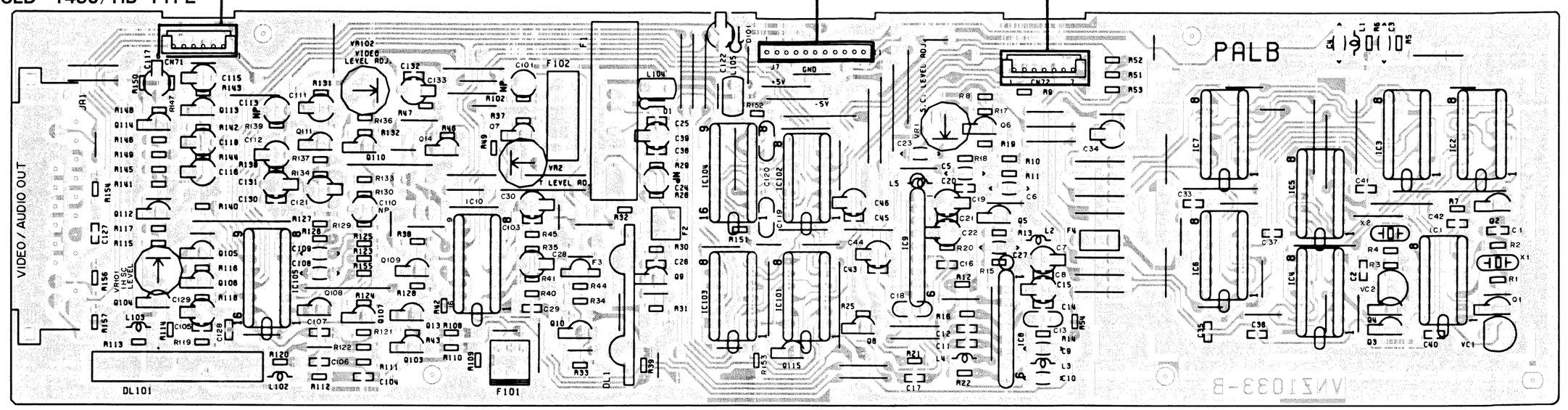
TO ASCB BOARD ASSEMBLY J5

TO VDTB BOARD ASSEMBLY J7

TO ASCB BOARD ASSEMBLY J6

PALB BOARD ASSEMBLY (VWV1073)

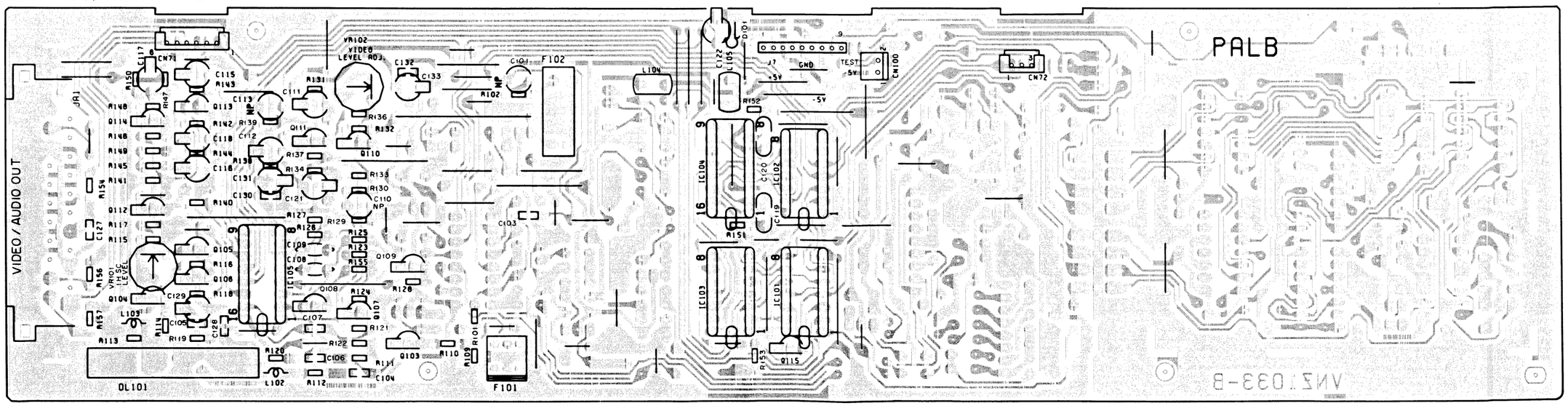
● CLD-1450/HB TYPE



VR101 Q114 Q112 Q104 Q113 Q105 Q106 IC105 VR102 Q111 Q108 Q110 Q107 Q109 Q103 Q14 IC10 VR2 Q7 Q10 Q9 IC101–IC104 Q115 Q8 VR1 IC9 Q6 IC8 Q5 IC4–IC7 Q4 Q3 IC1–IC3 Q2 Q1

PALB BOARD ASSEMBLY (VWV1072)

● CLD-1400/HEM TYPE



VR101 Q114 Q112 Q104 Q113 Q105 Q106 IC105 VR102 Q111 Q108 Q110 Q107 Q109 Q103 IC101–IC104 Q115

PALB BOARD ASSEMBLY
(VWV1073 : CLD-1450/HB TYPE)
(VWV1072 : CLD-1400/HEM TYPE)

: CLD-1450/HB TYPE ONLY
: CLD-1400/HEM TYPE ONLY

Note ; The circuit is open or there is no connection at connecting points such as an IC which have no indication in the part shown by

IC1 : BU74HC04
IC2 : BU74HC00
IC3, 7 : TC74HC10AP
IC4, 103 : TC74HC107AP
IC5, 6 : TC74HC74AP
IC8, 9 : TA7320P
IC10, 105 : BU4053B
IC101 : TC74HC08AP
IC102 : TC74HC32AP
IC104 : TC74HC123AP

Q6, 14, 112 : 2SA933S
Q5, 7~10, 13, 103~111, 113, 114 : 2SC1740S
Q3, 115 : UN4112
Q1, 2, 4 : UN4212

D1 : 1SS254
D101 : HZS10NB2

CN100
1 -5V
2 TEST
J7
11 NTSC/XPAL
10 B.F.IN
9 FSC IN
8 4FSC OUT
7 GND
6 +10V
5 -5V
4 GND
3 +5V
2 GND
1 VIDEO IN
TO VDTB BOARD ASSEMBLY (TBC section) J7 (➡P68)

CN72
7 NTSC/XPAL
6 N TO P
5 PAL/X4.43
4 NTSC NR
3 JUMP TRIG
2 JUMP F/XR
1 SC PHASE
TO ASCB BOARD ASSEMBLY (CONT section) J6 (➡P56)

IC101 : TC74HC08AP
IC102 : TC74HC32AP
IC103 : TC74HC107AP
IC104 : TC74HC123AP
IC105 : BU4053B

Q112 : 2SA933S
Q103~111, 113, 114 : 2SC1740S
Q115 : UN4112

D101 : HZS10NB2

F101 : VTF1034
F102 : VTF1011

DL101 : VTF1019
VR101 : VRTB6VS471
VR102 : VRTB6VS472

F1 : VTF1032
F2 : VTF1030
F3 : VTF1018
F4 : VTH1012
F101 : VTF1034
F102 : VTF1011

DL1 : VTF1037
DL101 : VTF1019

VC1, 2 : VCM-008
X1 : VSS1029
X2 : VSS1019
VR1, 2, 101 : VRTB6VS471
VR102 : VRTB6VS472

CN71
1 XPLAY
2 VIDEO
3 GND
4 AUDIO L
5 GND
6 AUDIO R
TO ASCB BOARD ASSEMBLY (DSP section) J5 (➡P44)

JA1
VKB1003
VIDEO/AUDIO OUT

: VIDEO Signal Line

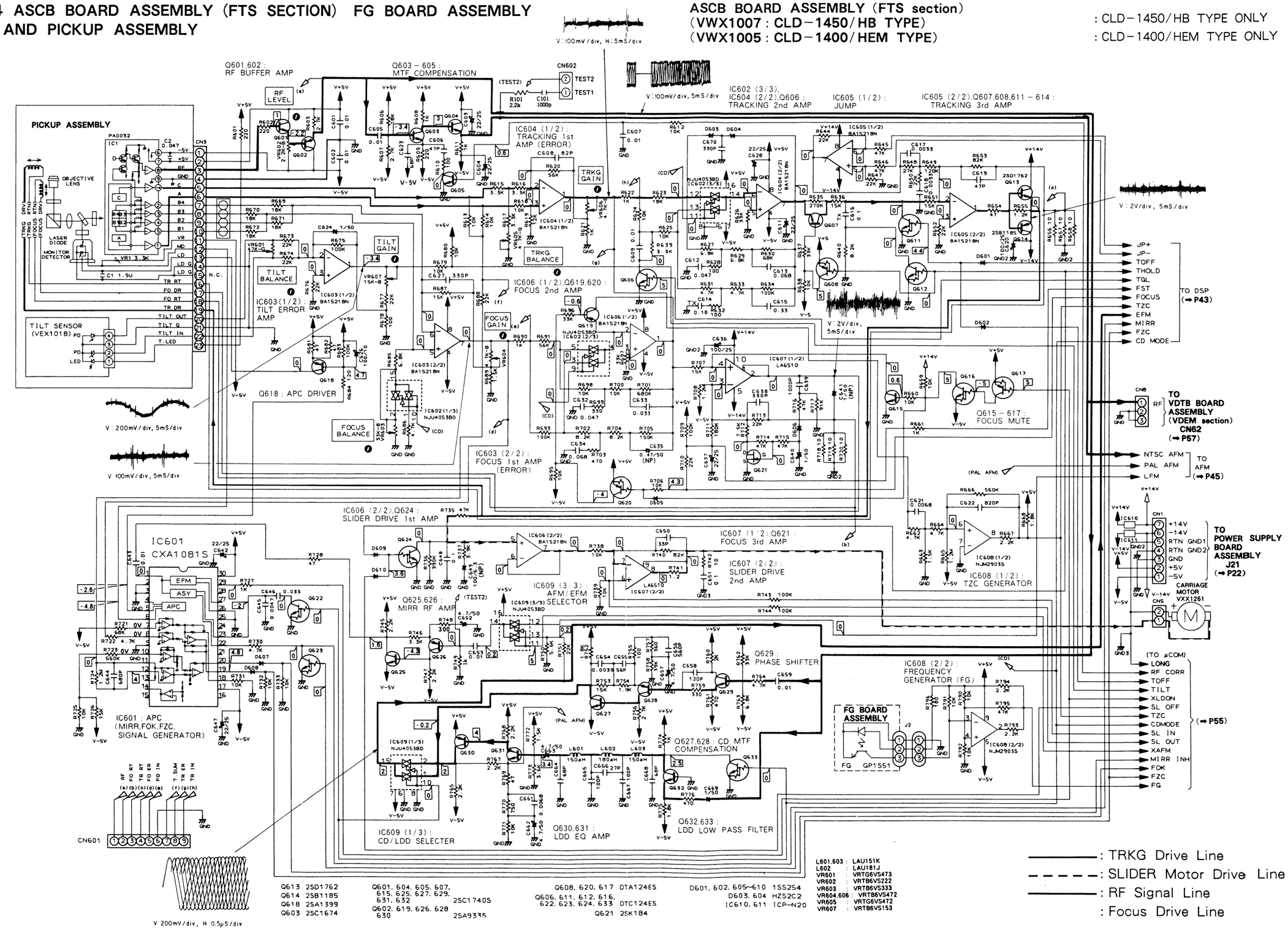
R133

CLD-1450/HB	1.8k
CLD-1400/HEM	4.7k

5.4 ASCB BOARD ASSEMBLY (FTS SECTION) FG BOARD ASSEMBLY AND PICKUP ASSEMBLY

ASCB BOARD ASSEMBLY (FTS section)
(VWX1007 : CLD-1450/HB TYPE)
(VWX1005 : CLD-1400/HEM TYPE)

: CLD-1450/HB TYPE ONLY
: CLD-1400/HEM TYPE ONLY



Q613 2SD1762
Q614 2SB1185
Q618 2SA1399
Q603 2SC1674

Q601, 604, 605, 607, 615, 625, 627, 629, 631, 632 : 2SC1740S
Q602, 619, 626, 628 630 : 2SA933S

Q608, 620, 617 DTA124ES
Q606, 611, 612, 616, 622, 623, 624, 633 DTC124ES
Q621 2SK184

D601, 602, 605~610 1SS254
D603, 604 HZS2C2
IC610, 611 ICP-N20

L601,603 : LAU151K
L602 : LAU181J
VR601 : VRTG6VS473
VR602 : VRTB6VS222
VR603 : VRTB6VS333
VR604,606 : VRTB6VS472
VR605 : VRTG6VS472
VR607 : VRTB6VS153

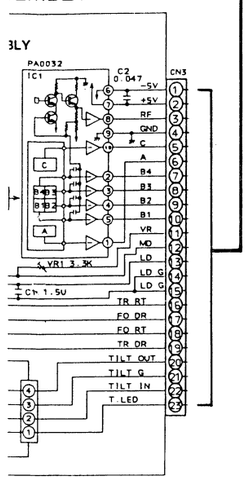
——— : TRKG Drive Line
– – – – : SLIDER Motor Drive Line
——— : RF Signal Line
: Focus Drive Line

1
2
3
4
5
6
A
B
C
D
●CLD−1450/HB TYPE
LOADING MOTOR ASSEMBLY
SW BOARD ASSEMBLY
S4 OUTER SW
FG BOARD ASSEMBLY
TO VDTB BOARD ASSEMBLY CN62
CARRIAGE MOTOR ASSEMBLY
PICKUP ASSEMBLY
MAIN
TO FUNCTION BOARD ASSEMBLY CN31
TO VDTB BOARD ASSEMBLY CN63
TO VDTB BOARD ASSEMBLY CN64
S5 INNER SW
TO POWER SUPPLY BOARD ASSEMBLY J22
TO POWER SUPPLY BOARD ASSEMBLY J21
AUDIO OUT
VIDEO OUT
SUB CODE OUT
RFMD
HEADPHONE BOARD ASSEMBLY
ASCB
ASCB BOARD ASSEMBLY (VWX1007)
TO PALB BOARD ASSEMBLY CN72
TO PALB BOARD ASSEMBLY CN71

7 8 9 10 11 12

SEMBLY

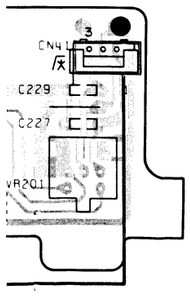
3LY



R SUPPLY
SEMBLY

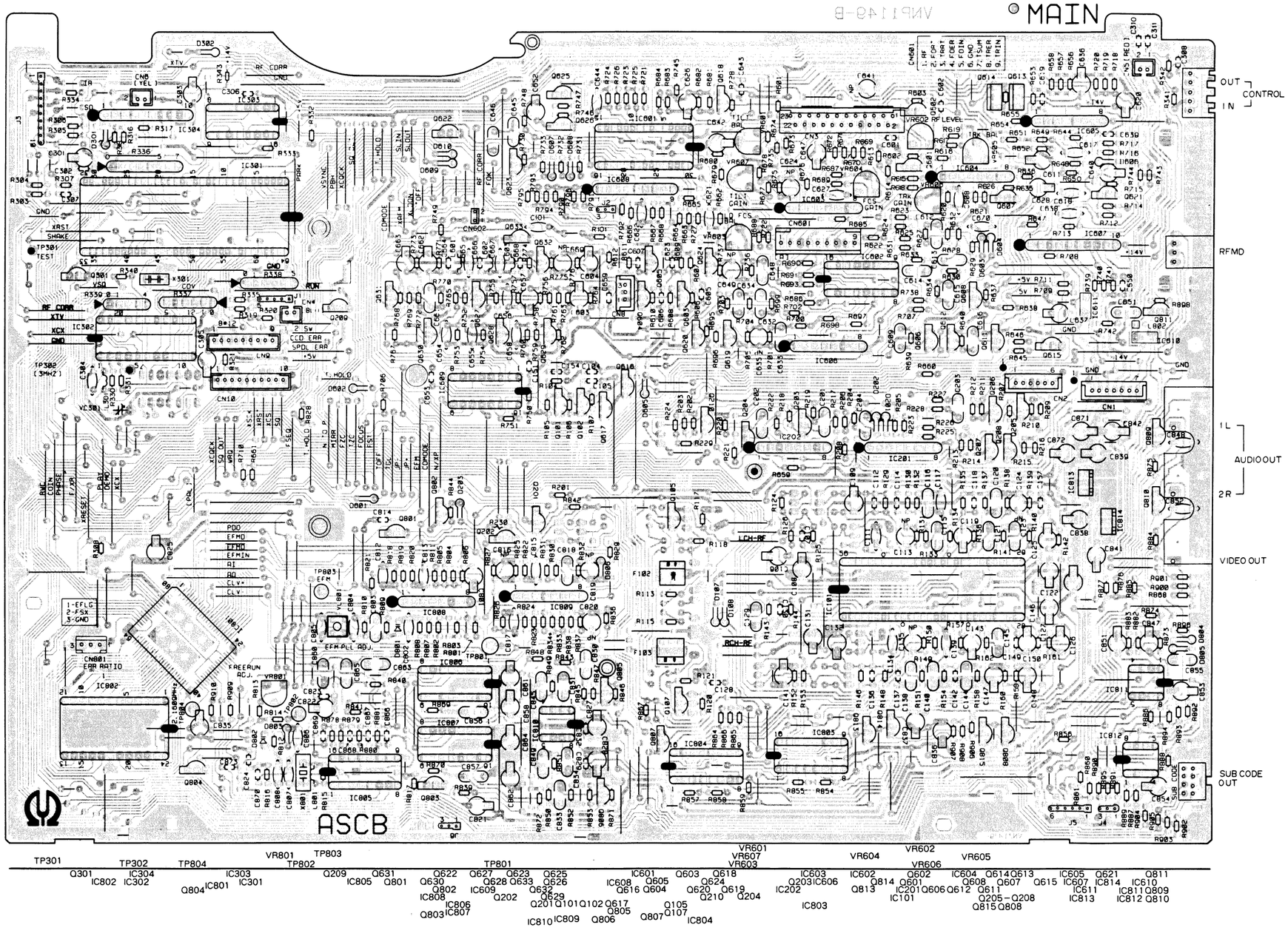
R SUPPLY
SEMBLY

BOARD ASSEMBLY



● CLD-1400/HEM TYPE

ASCB BOARD ASSEMBLY (VWX1005)



A

B

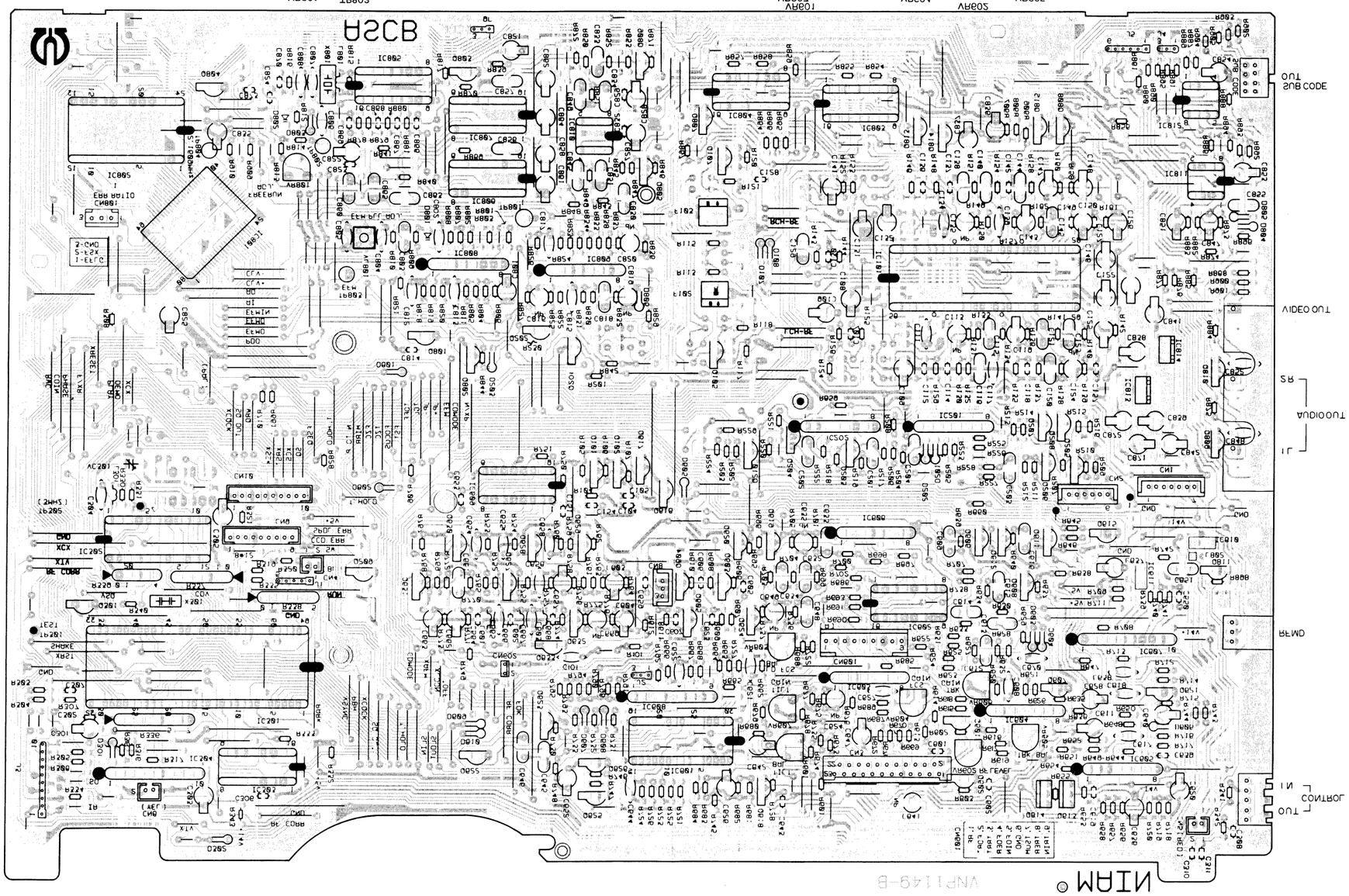
C

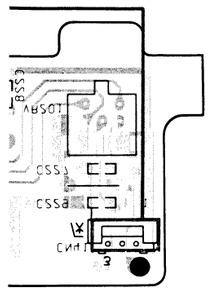
D

39

● CLD-J400\HEM TYPE

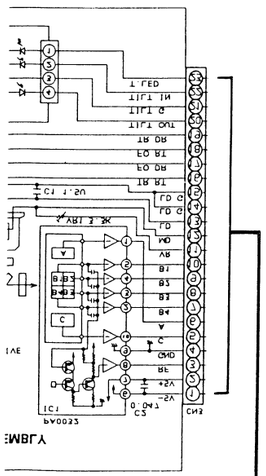
ASCB BOARD ASSEMBLY (VWX1002)





E BOARD ASSEMBLY

This P. C. B. connection diagram is viewe

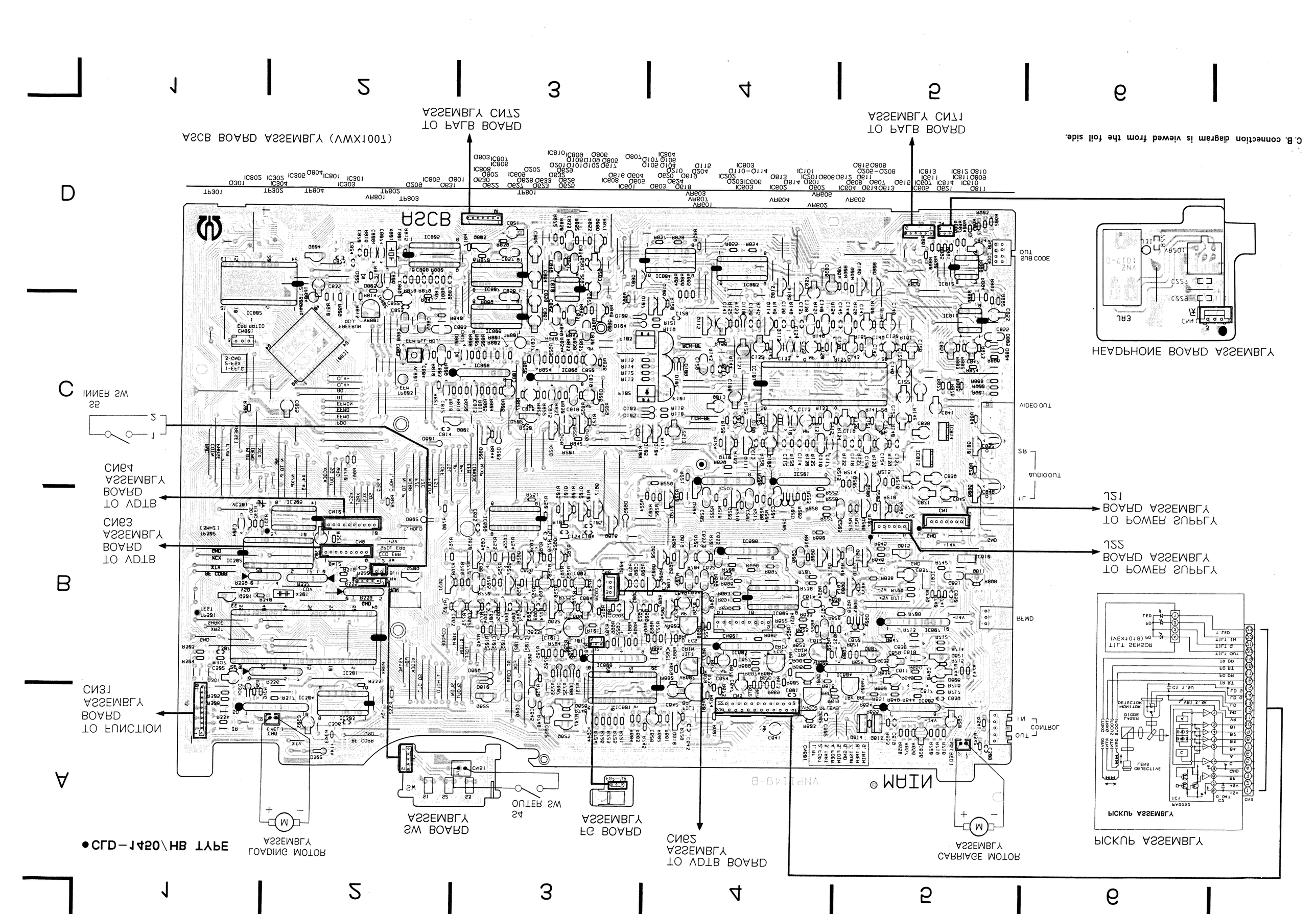


ASSEMBLY

E SUPPLY ASSEMBLY,

E SUPPLY ASSEMBLY,

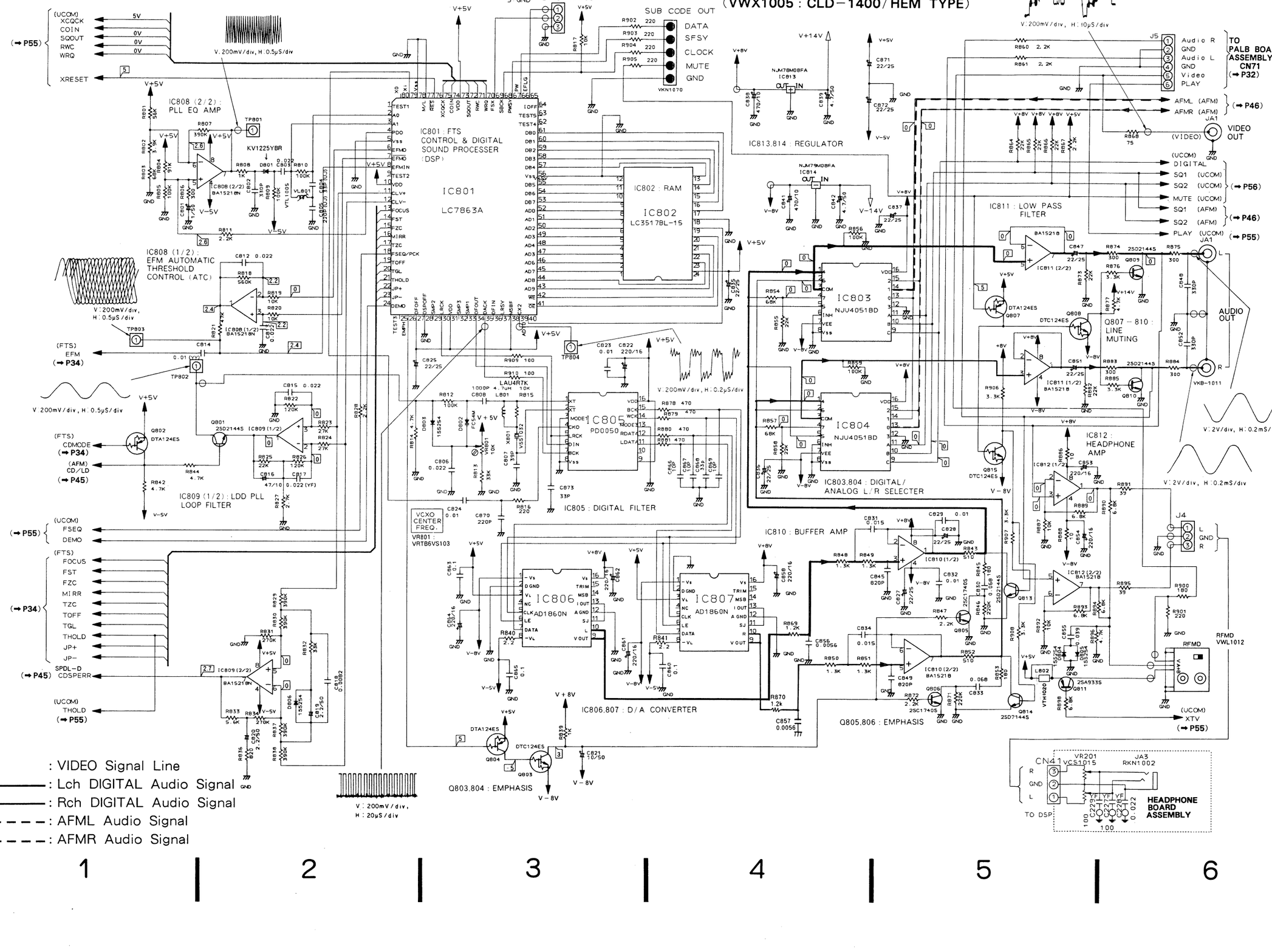
C.B. connection diagram is viewed from the foil side.



5.5 ASCB BOARD ASSEMBLY (ESP SECTION) AND HEADPHONE BOARD ASSEMBLY

: CLD-1450/HB TYPE ONLY
: CLD-1400/HEM TYPE ONLY

ASCB BOARD ASSEMBLY (DSP section)
(VWX1007 : CLD-1450/HB TYPE)
(VWX1005 : CLD-1400/HEM TYPE)



5.6 ASCB BOARD ASSEMBLY (AFM AND SPDL D. SECTION)
(VWX1007 : CLD-1450/HB TYPE)
(VWX1005 : CLD-1400/HEM TYPE)

: CLD-1450/HB TYPE ONLY
: CLD-1400/HEM TYPE ONLY

Note ; The circuit is open or there is no connection at connecting points such as an IC which have no indication in the part shown by

	＊1	＊2	＊3	＊4	＊5	＊6	＊7	＊8	＊9	＊10	＊11
	C106	R129	C112	R124	R125	C111	R144	C134	R146	C136	C141
CLD－1450/HB TYPE	10/16 (NP)	4.7k	220p	7.5k	2.2k	18p	36k	15p	4.3k	220p	10/16(NP)
CLD－1400/HEM TYPE	10/50	1.8k	560p	4.7k	2.7k	62p	18k	36p	3k	560p	10/50

F102 : VTF1035
F103 : VTF1036
D107, 108, 203 : 1SS254
D201, 202 : HZS2C2
Q101, 102, 105, 107, 204, 206, 208 : 2SA933S
Q209 : DTA124ES
Q201 : DTC124ES
Q202 : 2SK184
Q203, 205, 207, 210 : 2SC1740S

F101 : RTF1084
F102 : VTF1035
F103 : VTF1036
D103~110, 203 : 1SS254
D201, 202 : HZS2C2
Q101, 102, 104~107, 204, 206, 208 : 2SA933S
Q108, 109, 209 : DTA124ES
Q110, 111, 114, 115, 201 : DTC124ES
Q112, 113, 202 : 2SK184
Q203, 205, 207, 210 : 2SC1740S
L101 : LRA101J
L102 : LAU470J
L103 : LAU560J

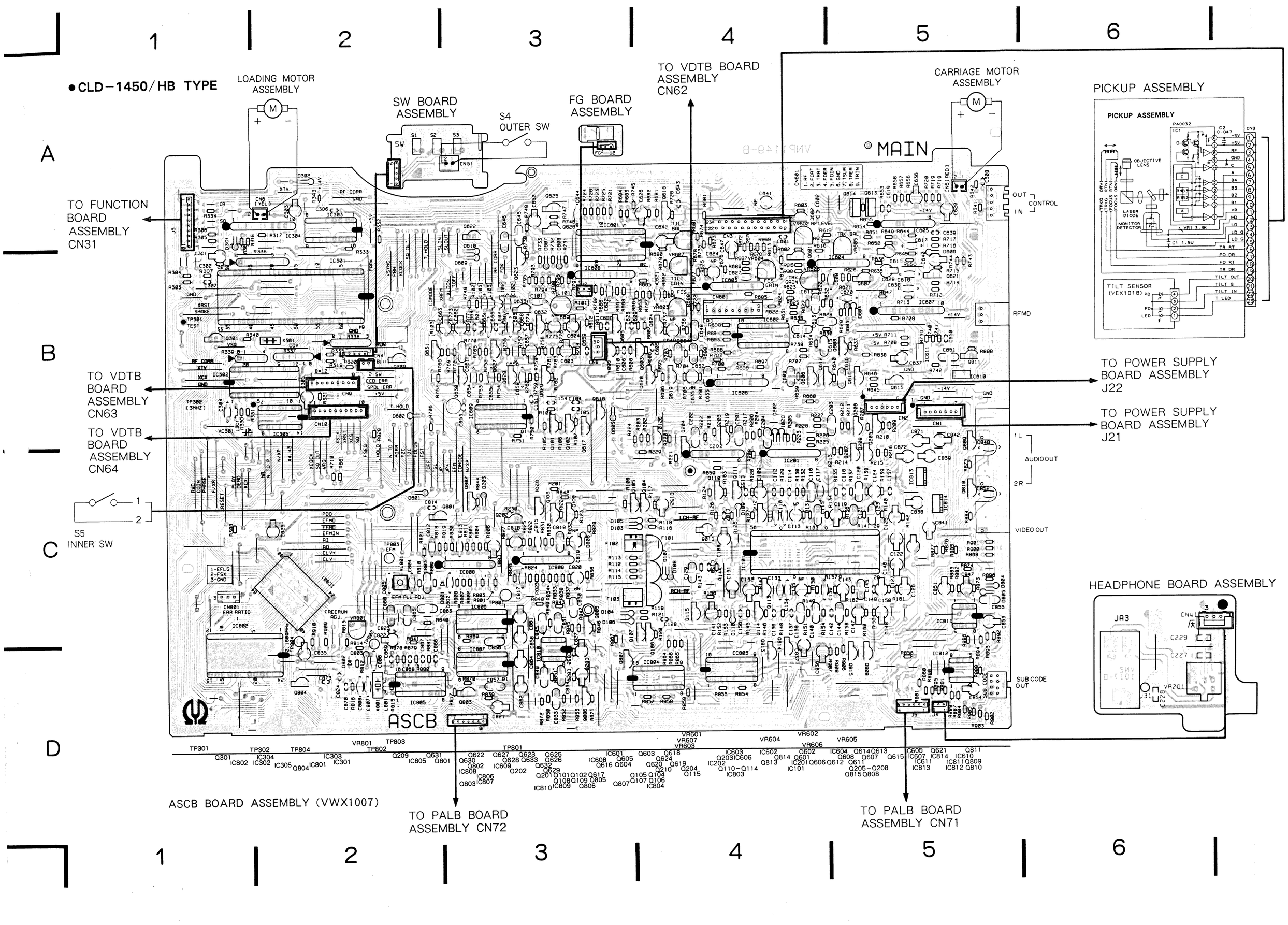
TO FTS (➡P34) NTSC AFM / PAL AFM / LFM
(➡P56) TO μCOM NTSC/XPAL
TO DSP P/XN
TO DSP (➡P43) CD SPDL ERR / CD/LD
TO CONT (➡P55) LD SPDL ERR / CCD ERR / SW PULSE / SPDL RUN

IC101 HA12127ANT
AUDIO DEMODULATOR & CX NOISE REDUCTION

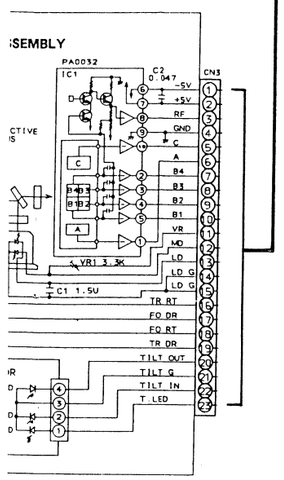
CN2
① ACCEL
② X-BRAKE
③ X-ACCEL
④ BRAKE
⑤ SPDL RTN+
⑥ SPDL RTN−
TO POWER SUPPLY BOARD ASSEMBLY J22 (➡P21)

AFML
AFMR
TO DSP (➡P44)
XCX (➡P55) TO μCOM
SQ1 / SQ2 TO DSP (➡P44)

——— : RF Signal Line
– – – – – : AFML Audio Signal
– – – – – : AMMR Audio Signal
——— : SPDL Servo Line
——— – ——— : TBC Servo Line


● CLD-1450/HB TYPE
LOADING MOTOR ASSEMBLY
SW BOARD ASSEMBLY
S4 OUTER SW
FG BOARD ASSEMBLY
TO VDTB BOARD ASSEMBLY CN62
CARRIAGE MOTOR ASSEMBLY
PICKUP ASSEMBLY
MAIN
TO FUNCTION BOARD ASSEMBLY CN31
TO VDTB BOARD ASSEMBLY CN63
TO VDTB BOARD ASSEMBLY CN64
S5 INNER SW
TO POWER SUPPLY BOARD ASSEMBLY J22
TO POWER SUPPLY BOARD ASSEMBLY J21
OUT
IN
CONTROL
RFMD
AUDIOOUT
VIDEO OUT
SUB CODE OUT
HEADPHONE BOARD ASSEMBLY
JA3
ASCB
ASCB BOARD ASSEMBLY (VWX1007)
TO PALB BOARD ASSEMBLY CN72
TO PALB BOARD ASSEMBLY CN71

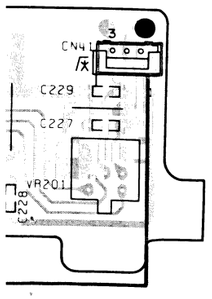
ASSEMBLY



/ER SUPPLY
ASSEMBLY

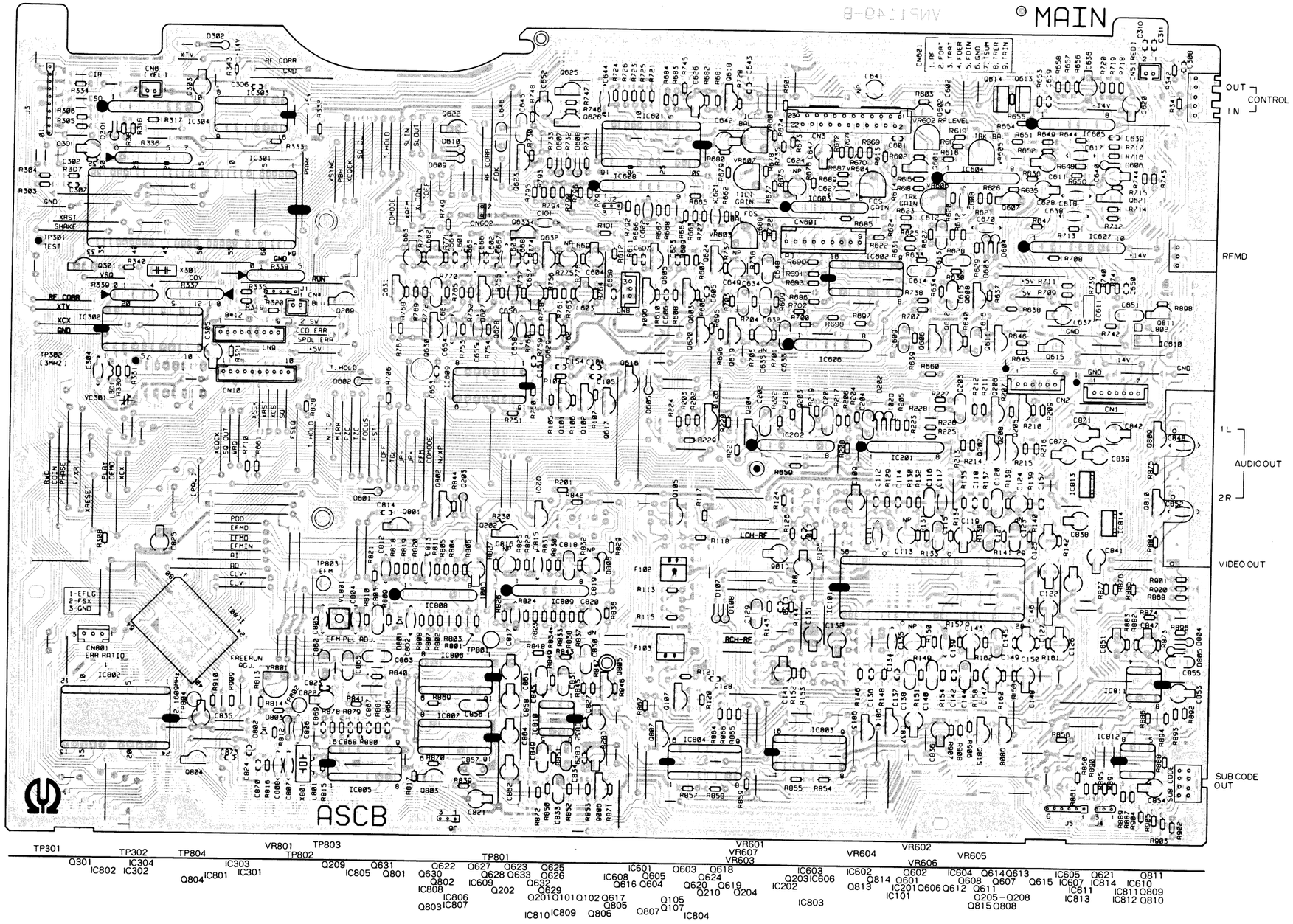
/ER SUPPLY
ASSEMBLY

IE BOARD ASSEMBLY



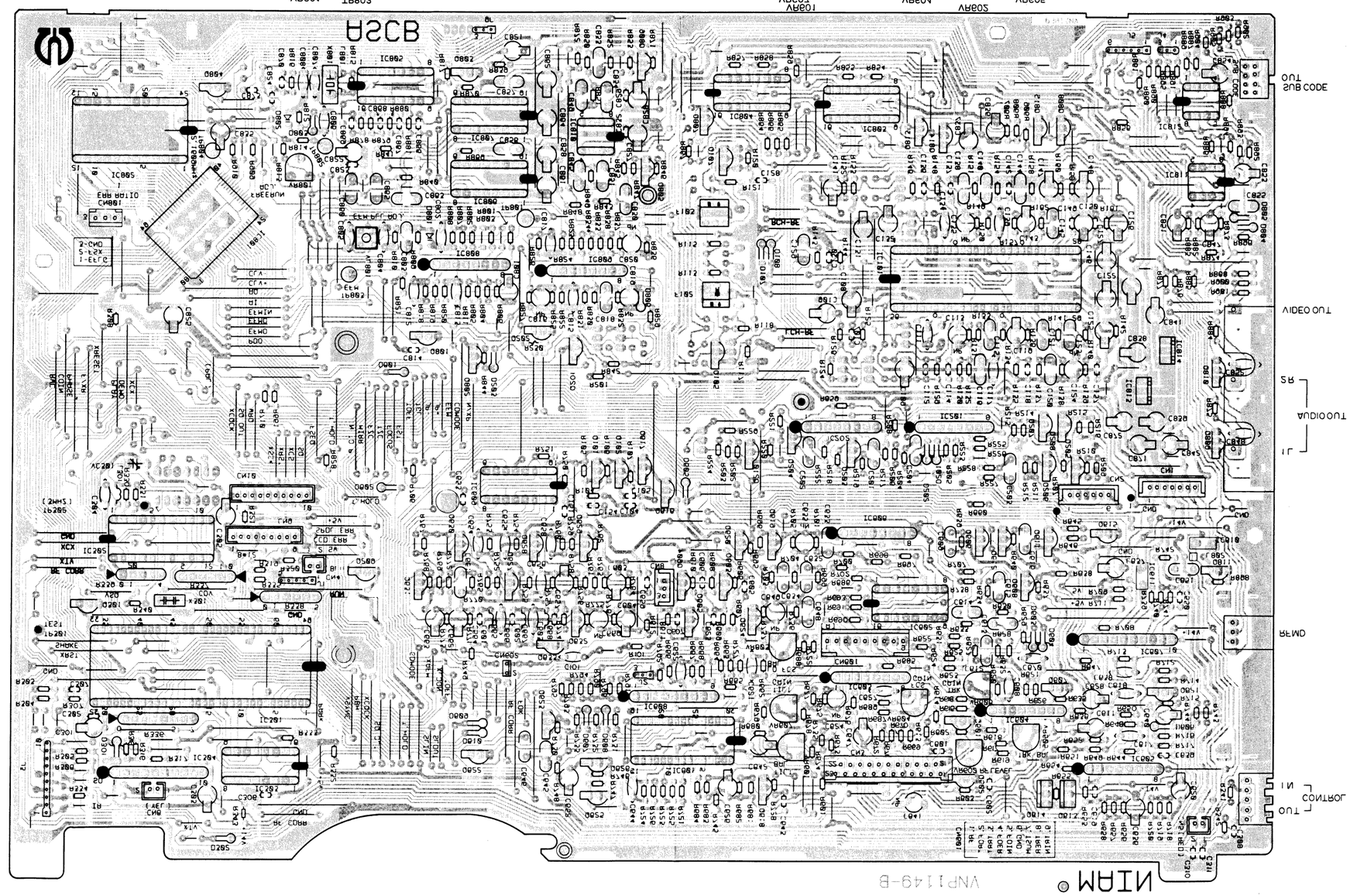
● **CLD-1400/HEM TYPE**

ASCB BOARD ASSEMBLY (VWX1005)

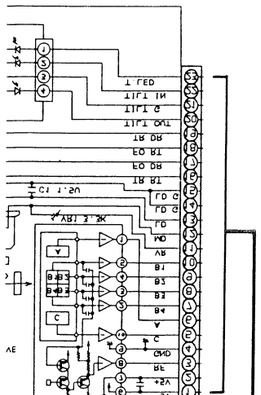


● CLD-J400\HEM TYPE

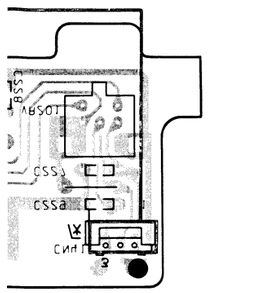
A2CB BOARD ASSEMBLY (VWX1002)



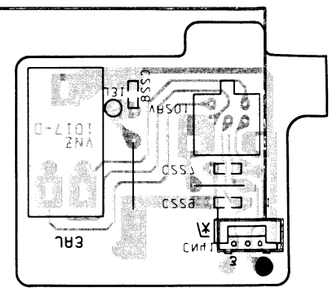
MAIN BOARD ASSEMBLY



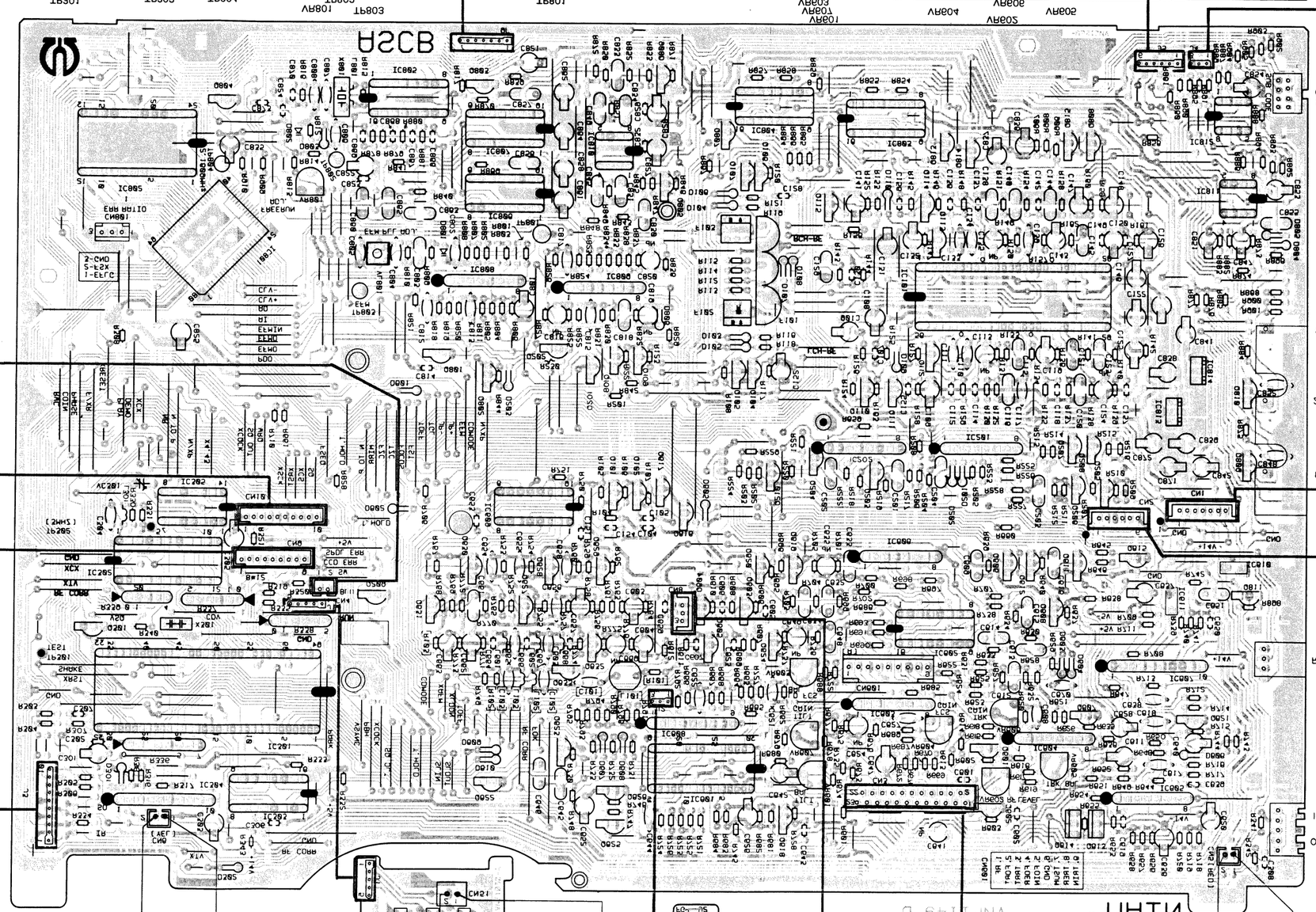
This P.C.B. connection diagram is viewed from SOLDER SIDE.



2. Bottom view



HEADPHONE BOARD ASSEMBLY



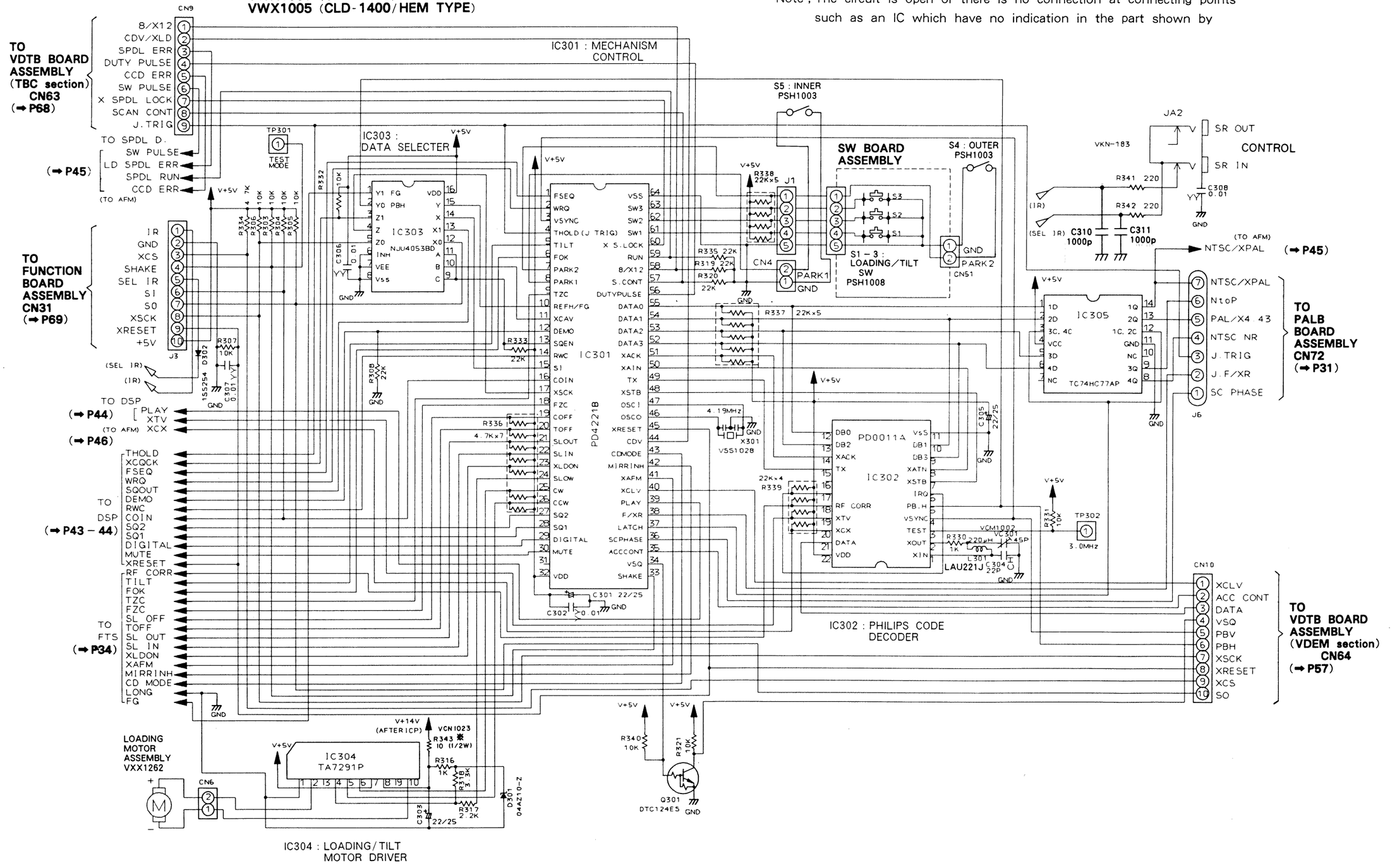
• CLD-J420\BH TYPE

5.7 ASCB BOARD ASSEMBLY (CONT SECTION) AND SW BOARD ASSEMBLY

ASCB BOARD ASSEMBLY (CONT section)
VWX1007 (CLD-1450/HB TYPE)
VWX1005 (CLD-1400/HEM TYPE)

: CLD-1450/HB TYPE ONLY
: CLD-1400/HEM TYPE ONLY

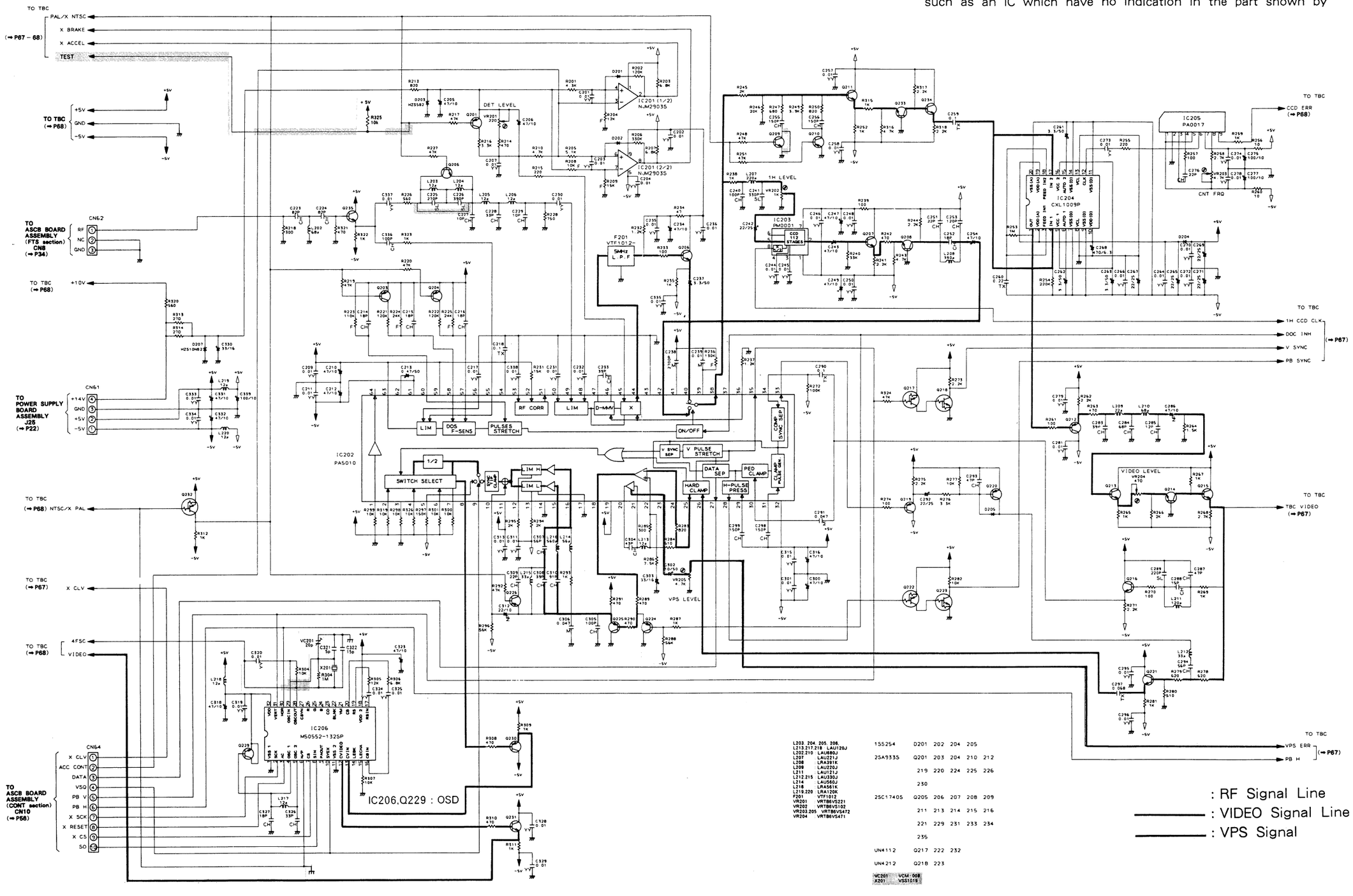
Note ; The circuit is open or there is no connection at connecting points such as an IC which have no indication in the part shown by



5.8 VDTB BOARD ASSEMBLY (VDEM SECTION)
(VWS1055 : CLD-1450/HB TYPE)
(VWS1054 : CLD-1400/HEM TYPE)

: CLD-1450/HB TYPE ONLY
: CLD-1400/HEM TYPE ONLY

Note ; The circuit is open or there is no connection at connecting points such as an IC which have no indication in the part shown by



L203 204 205 206 L213 217 218 LAU120J
L207 210 LAU880J
L207 LAU221J
L208 LRA391K
L209 LAU220J
L211 LAU121J
L212 215 LAU330J
L214 LAU560J
L216 LRA561K
L219 220 LRA120K
F201 VTF1012
VR201 VRTB6VS221
VR202 VRTB6VS102
VR203 205 VRTB6VS472
VR204 VRTB6VS471

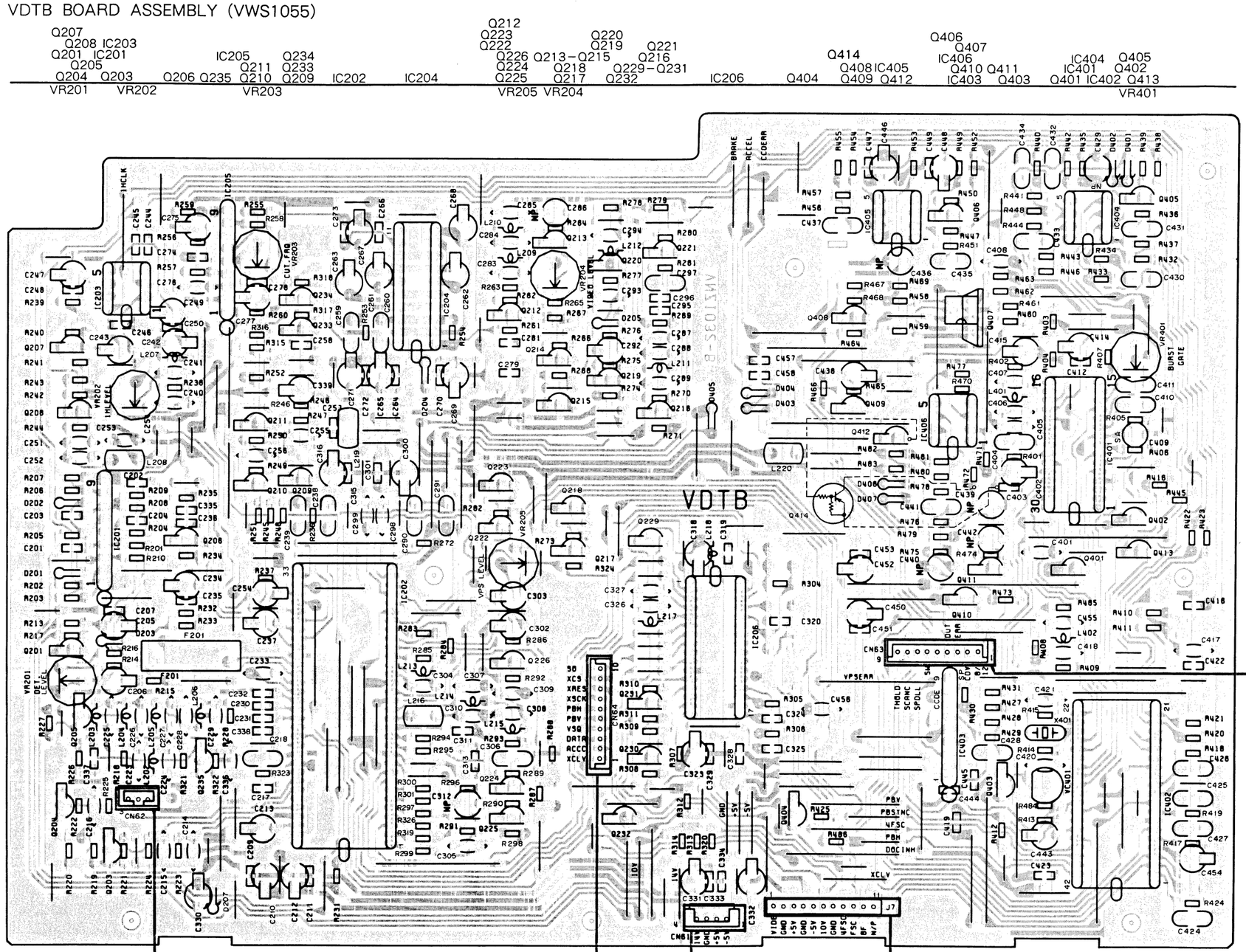
1SS254 D201 202 204 205
2SA933S Q201 203 204 210 212 219 220 224 225 226 230
2SC1740S Q205 206 207 208 209 211 213 214 215 216 221 229 231 233 234 235
UN4112 Q217 222 232
UN4212 Q218 223

VC201 VCM-008
X201 VSS1019

: RF Signal Line
: VIDEO Signal Line
: VPS Signal

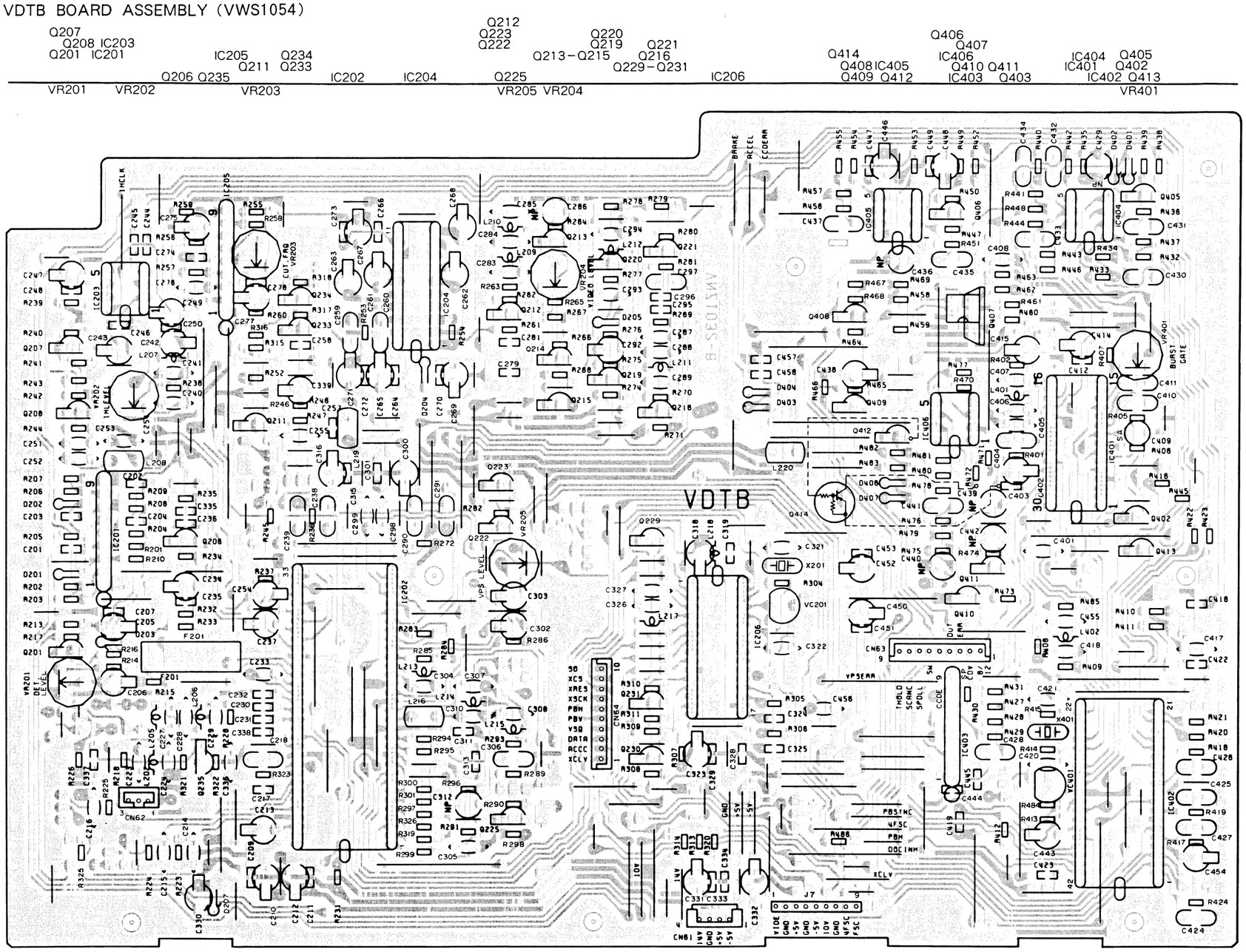
● **CLD−1450/HB TYPE**

VDTB BOARD ASSEMBLY (VWS1055)



● CLD-1400/HEM TYPE

VDTB BOARD ASSEMBLY (VWS1054)



BOARD

A

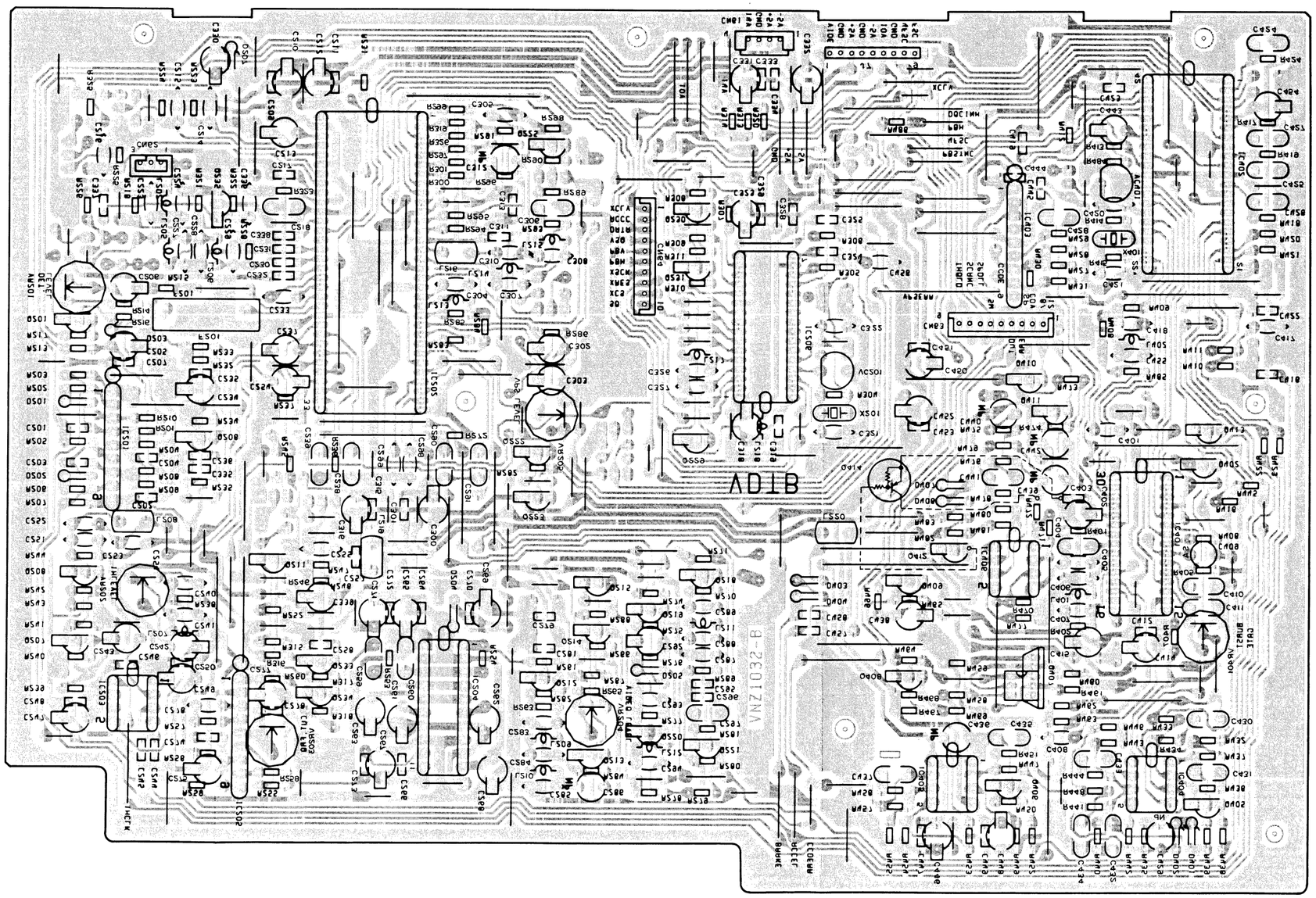
B

C

D

● CLD-J400\MEM TYPE

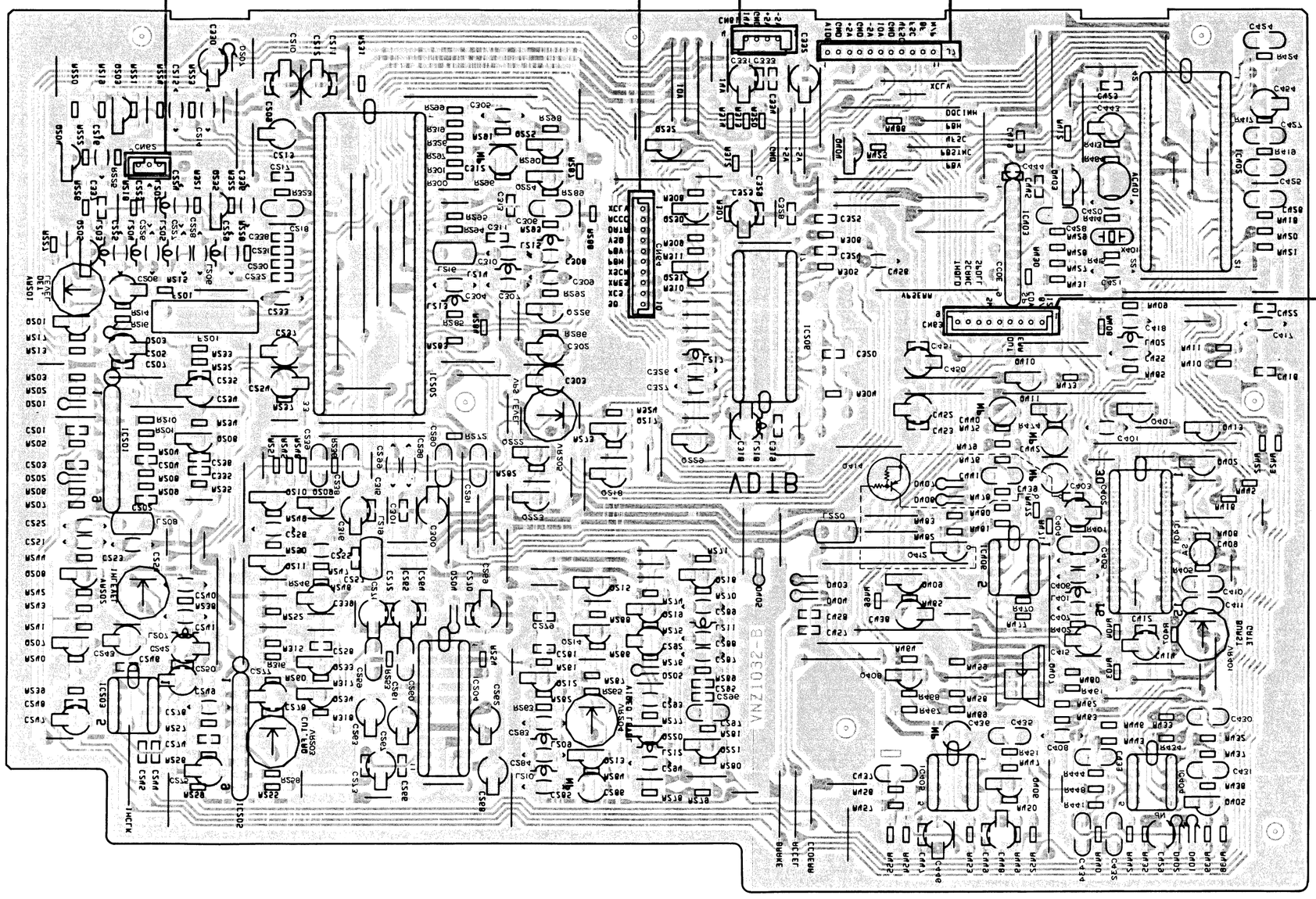
VDTR BOARD ASSEMBLY (VWS1024)



• CLD-J420\HB TYPE

VDTB BOARD ASSEMBLY (VWS1022)

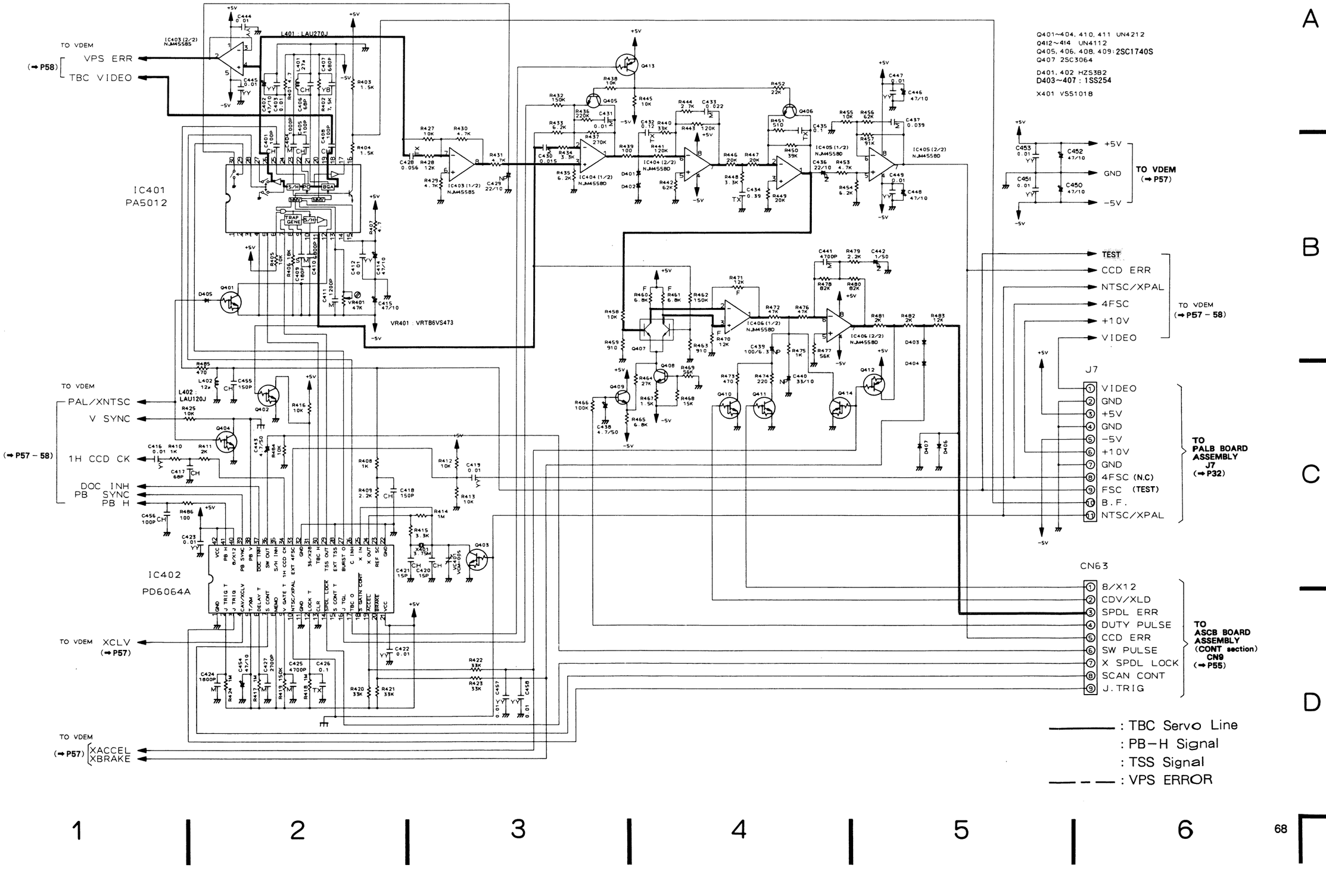
This P.C.B. connection diagram is viewed from the foil side.



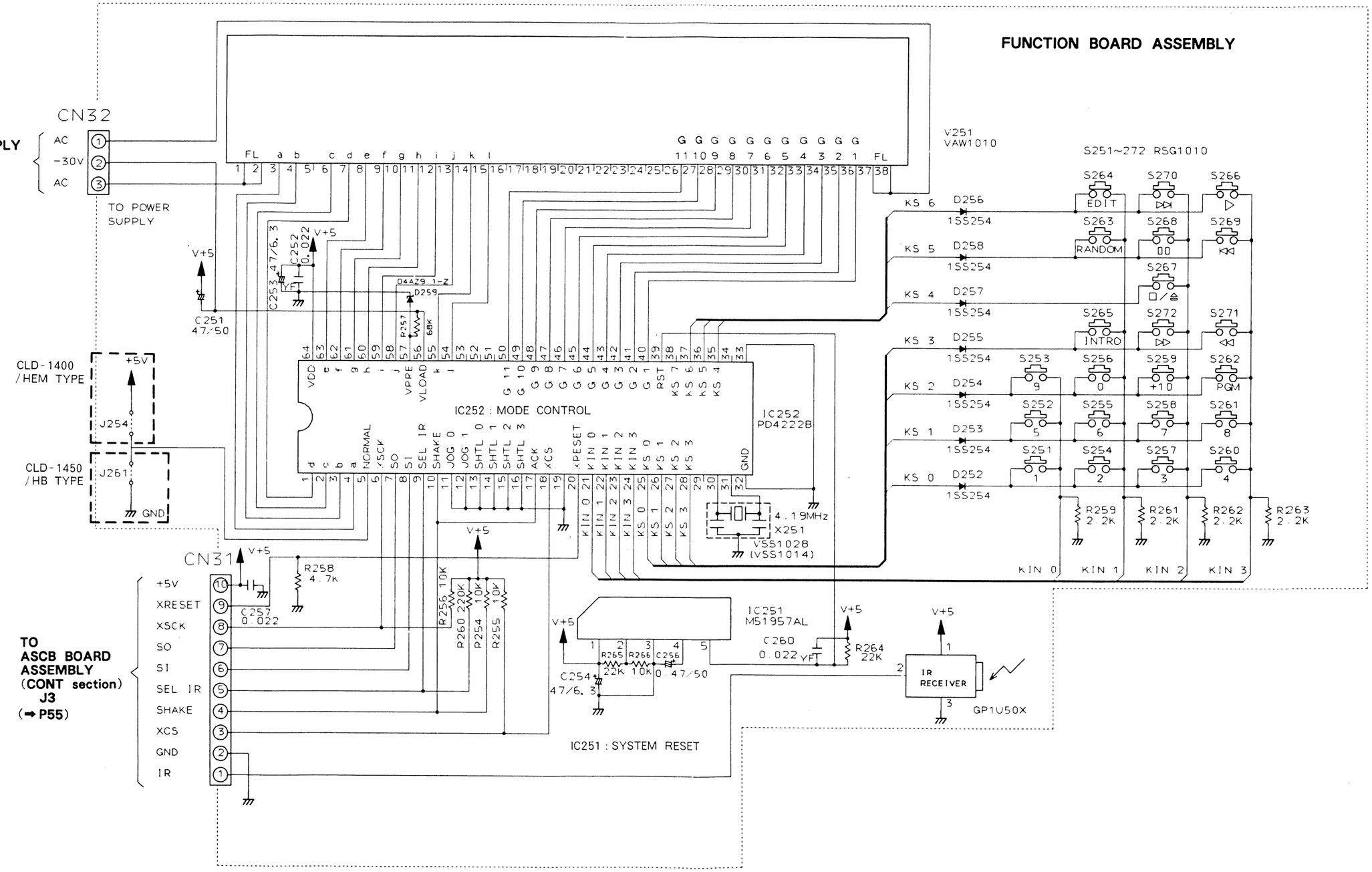
5.9 VDTB BOARD ASSEMBLY (TBC SECTION)
(VWS1055 : CLD-1450/HB TYPE)
(VWS1054 : CLD-1400/HEM TYPE

: CLD-1450/HB TYPE ONLY
: CLD-1400/HEM TYPE ONLY

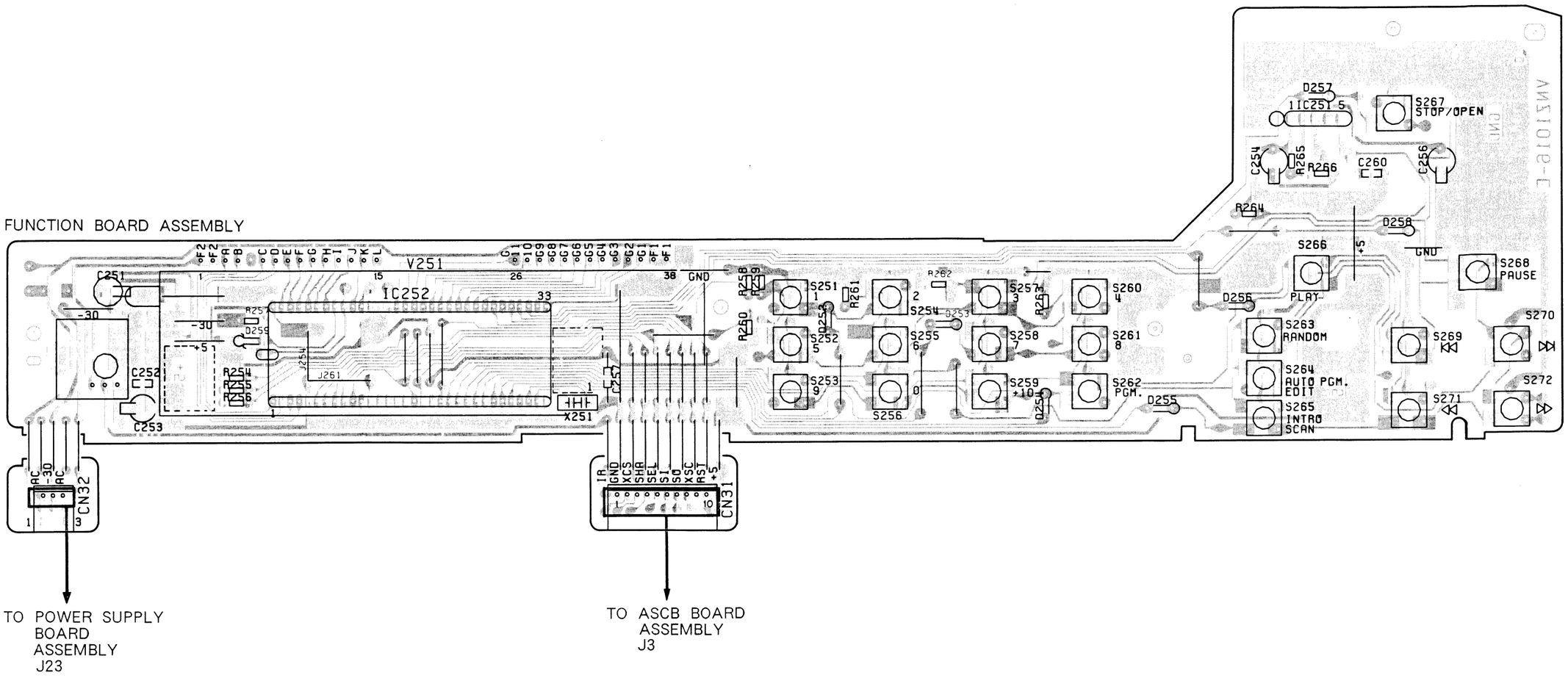
Note ; The circuit is open or there is no connection at connecting points such as an IC which have no indication in the part shown by



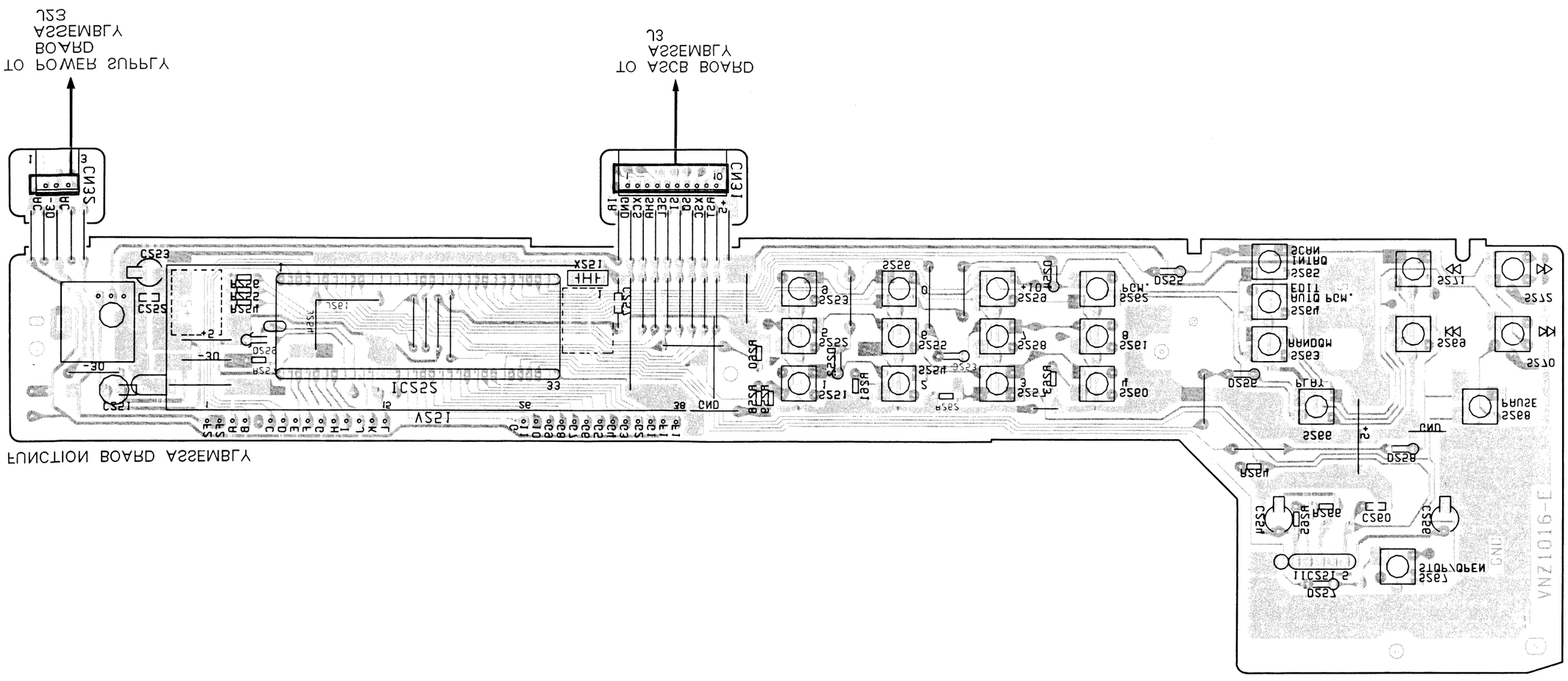
5.10 FUNCTION BOARD ASSEMBLY



FUNCTION BOARD ASSEMBLY



This P.C.B. connection diagram is viewed from the foil side.



6. ELECTRICAL 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 ⚠ 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 × 10^1 → 561 ····· RD1/4PS 5 6 1 J
47k Ω → 47 × 10^3 → 473 ····· RD1/4PS 4 7 3 J
0.5 Ω → 0R5 ····· RN2H 0 R 5 K
1 Ω → 010 ····· RS1P 0 1 0 K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k Ω → 562 × 10^1 → 5621 ····· RN1/4SR 5 6 2 1 F

Miscellaneous Parts

P. C. BOARD ASSEMBLIES

Mark	Symbol & Description	Part No.
	SW board assembly	
	FUNCTION board assembly	
◉	ASCB board assembly	VWX1007
◉	POWER SUPPLY board assembly	VWR1017
◉	VDTB board assembly	VWS1055
	HEADPHONE board assembly	
◉	PALB board assembly	VWV1073
	FG board assembly	

OTHERS

Mark	Symbol & Description	Part No.
⚠	FU203,FU204 Fuse (T1.25A)	REK-101
⚠	FU201,FU202 Fuse (T3.15A)	REK-105
⚠	AC power cord	VDG1029
	Strain relief	CM-22B
⚠	Power transformer	VTT1062
	S4,S5 Slide switch (OUTER, INNER)	PSH1003
	Spindle motor assembly	VXX1347
	Loading motor assembly	VXX1262
	Carriage motor assembly	VXX1261

SW Board Assembly

SWITCHES

Mark	Symbol & Description	Part No.
	S1 – S3 Push switch (LOADING/TILT SW)	PSH1008

FUNCTION Board Assembly

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC251	M51957AL
	IC252	PD4222B
	D259	04AZ9.1-Z
	D252 – D258	1SS254

SWITCHES

Mark	Symbol & Description	Part No.
	S251 – S272 Tact switch (0 – 9, +10, PROGRAM, RANDOM PLAY, AUTO PGM EDITING, INTRO SCAN, PLAY, STOP/OPEN, PAUSE, SKIP (⏮, ⏭), SCAN (◀◀, ▶▶))	RSG1010

CAPACITORS

Mark	Symbol & Description	Part No.
	C251	CEAS470M50
	C256	CEJAR47M50
	C253,C254	CEJA470M6R3
	C252,C257,C260	CKPUYF223Z25

RESISTORS

Mark	Symbol & Description	Part No.
	All resistors	RD1/6PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	V251 Fluorescent indicator tube	VAW1010
	X251 Ceramic resonator	VSS1028
	IR sensor unit	GP1U50X
	FL spacer	VEB1080

ASCB Board Assembly (VWX1007)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC806,IC807	AD1860N
	IC810 – IC812	BA15218
	IC201,IC202,IC603 – IC606, IC808,IC809	BA15218N
	IC601	CXA1081S
	IC101	HA12127ANT
	IC610,IC611	ICP-N20
	IC607	LA6510
	IC802	LC3517BL-15
	IC801	LC7863A
	IC608	NJM2903S
	IC813	NJM78M08FA
	IC814	NJM79M08FA
	IC803,IC804	NJU4051BD
	IC303,IC602,IC609	NJU4053BD
	IC302	PD0011A
	IC805	PD0050
	IC301	PD4221B
	IC304	TA7291P
	IC305	TC74HC77AP
	Q108,Q109,Q209,Q608,Q617,Q620, Q802,Q804,Q807	DTA124ES
	Q110,Q111,Q114,Q115,Q201,Q301, Q606,Q611,Q612,Q616,Q622,Q623, Q624,Q633,Q803,Q808,Q815	DTC124ES
	Q618	2SA1399
	Q101,Q102,Q104 – Q107,Q204, Q206,Q208,Q602,Q619,Q626,Q628, Q630,Q811	2SA933S
	Q614	2SB1185
	Q603	2SC1674
	Q203,Q205,Q207,Q210,Q601,Q604, Q605,Q607,Q615,Q625,Q627,Q629, Q631,Q632,Q805,Q806	2SC1740S
	Q613	2SD1762
	Q801,Q809,Q810,Q813,Q814	2SD2144S
	Q112,Q113,Q202,Q621	2SK184
	D801	KV1225YBR
	D301	04AZ10-Z
	D103 – D110,D203,D302,D601, D602,D605 – D610,D803 – D806	1SS254
	D802	FC54M
	D201,D202,D603,D604	HZS2C2

COILS AND FILTERS

Mark	Symbol & Description	Part No.
	L601,L603	LAU151K
	L602	LAU181J
	L301	LAU221J
	L801	LAU4R7K
	L102	LAU470J
	L103	LAU560J
	L101	LRA101J
	VL801 Variable coil	VTL1005
	F101 BPF (2.30, 2.81MHz)	RTF1084
	F102 684kHz B. P. filter	VTF1035
	F103 1066kHz B. P. filter	VTF1036

CAPACITORS

Mark	Symbol & Description	Part No.
	VC301 Ceramic trimmer (45P)	VCM1002
	C117,C139,C665,C667	CCCCH101J50
	C102,C658	CCCCH121J50
	C133	CCCCH150J50
	C111	CCCCH180J50
	C134,C304	CCCCH220J50
	C807	CCCCH390J50
	C110	CCCCH430J50
	C103	CCCCH910J50
	C627,C638,C670,C802,C848,C852	CCCSL331J50
	C101	CCCSL390J50
	C655	CCCSL560J50
	C656	CCCSL561J50
	C608	CCCSL820J50
	C805	CCCUJ221J50
	C804	CCCUJ330J50
	C866,C867,C869	CCPUCH100J50
	C666	CCPUSL270J50
	C650,C868,C873	CCPUSL330J50
	C606,C619	CCPUSL470J50
	C623,C664,C668	CCPUSL680J50
	C635	CEANPR47M50
	C624,C641,C669	CEANP010M50
	C106,C141	CEANP100M16
	C649	CEANP101M6R3
	C819,C820	CEANP2R2M50
	C113,C124,C135	CEANP220M10
	C816	CEANP470M10
	C146	CEASR47M50
	C640,C801	CEAS010M50
	C119,C143,C152,C821	CEAS100M50
	C626	CEAS101M10
	C620,C636	CEAS101M25
	C125,C126,C301,C303,C305,C603, C604,C611,C628,C637,C642,C647, C825,C827,C828,C835 – C837, C847,C851,C871,C872	CEAS220M25
	C822,C853,C854,C858,C861,C862, C864	CEAS221M16
	C148,C652,C657,C662,C663,C839, C842	CEAS4R7M50
	C108,C109,C131,C132	CEAS470M10
	C838,C841	CEAS471M10
	C122,C147,C150	CEAS471M6R3
	C129,C201,C202,C609	CFTXA103J50
	C123,C203,C616,C648,C651,C860, C863,C865	CFTXA104J50

Mark	Symbol & Description	Part No.
	C116,C140	CFTXA152J50
	C831,C834	CFTXA153J50
	C614	CFTXA184J50
	C803	CFTXA223J50
	C204,C633,C646	CFTXA333J50
	C615	CFTXA334J50
	C855	CFTXA393J50
	C115,C138,C645	CFTXA472J50
	C121,C145,C612,C632	CFTXA473J50
	C856,C857	CFTXA562J50
	C661	CFTXA682J50
	C613,C634,C830,C833	CFTXA683J50
	C120,C144,C818	CFTXA822J50
	C617,C618	CKCYB332K50
	C654	CKCYB392K50
	C644	CKCYB681K50
	C621	CKCYB682K50
	C622	CKCYB821K50
	C806,C812,C813,C815,C817	CKCYF223Z50
	C114,C127,C130,C137,C149,C157, C639,C808	CKPUYB102K50
	C112,C118,C136,C142,C155,C156, C870	CKPUYB221K50
	C104,C105,C107,C128,C151,C154, C302,C306 – C308,C601,C602, C605,C607,C643,C653,C659,C814, C823,C824,C829,C832	CKPUYY103N16
	C845,C849	CQMA821J50

RESISTORS

Mark	Symbol & Description	Part No.
	VR801 Semi-fixed (10kΩ)	VRTB6VS103
	VR607 Semi-fixed (15kΩ)	VRTB6VS153
	VR602 Semi-fixed (2.2kΩ)	VRTB6VS222
	VR603 Semi-fixed (33kΩ)	VRTB6VS333
	VR604,VR606 Semi-fixed (4.7kΩ)	VRTB6VS472
	VR605 Semi-fixed (4.7kΩ)	VRTG6VS472
	VR601 Semi-fixed (47kΩ)	VRTG6VS473
	R343 Fuse resistor	VCN1023
	R339 Resistor array	RA4S223J
	R337,R338 Resistor array	RA5S223J
	R336 Resistor array	RA7S472J
	Other resistors	RD1/6PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	CN3 23P top connector	VKN1073
	JA2 2P mini jack	VKN-183
	X301 Ceramic resonator	VSS1028
	X801 Crystal resonator (17.2872MHz)	VSS1032
	3P Pin jack	VKB1011
	I/O jack	VKN1070
	RFMD (PAL)	VWL1012

POWER SUPPLY Board Assembly (VWR1017)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
⚠	Q203	2SB1185
	Q202,Q205	2SB1185
⚠	Q207	2SB889
	Q201	2SD1762
⚠	Q204,Q206,Q208	2SD1762
⚠	D212,D215	D1NK20
	D202 – D205	EK16
⚠	D201	RB-152LF-F
	D224,D225	SM-1XN02
	D220	04AZ33-Y
	D207,D210	04AZ5.1-Y
	D206,D209,D221	04AZ6.2-Z
⚠	D213,D214,D216 – D218	1SR35-100AVL
	D208,D211	1SS254

SWITCH

Mark	Symbol & Description	Part No.
⚠	S201 Power switch	VSA-010

COILS

Mark	Symbol & Description	Part No.
⚠	L202 Line filter	VTL-157
	L201 Coil (10mH)	VTL1018

CAPACITORS

Mark	Symbol & Description	Part No.
⚠	C216 – C218 (0.01μ/AC400V)	VCG-048
	C207 (10000/10V)	VCH1051
	C209,C211	CEAS101M10
	C213,C223	CEAS101M35
	C214,C215	CEAS2R2M50
	C231	CEAS221M25
	C219 – C221	CEAS221M35
	C205,C206	CEAS222M25
	C210,C212,C224	CEAS471M6R3
	C208	CEAS472M16
	C229,C230,C238	CGCYX473M25
	C201 – C204	CKCYF103Z50
	C237	CKPUYB331K50

RESISTORS

Mark	Symbol & Description	Part No.
	R213,R214,R219,R220	DCN1003
⚠	R221	RS1PMFR51J
	Other resistors	RD1/6PM□□□J

VDTB Board Assembly (VWS1055)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC204	CXL1009P
	IC206	M50552-132SP
	IC201	NJM2903S
	IC404 – IC406	NJM4558D
	IC403	NJM4558S
	IC205	PA0017
	IC202	PA5010
	IC401	PA5012
	IC402	PD6064A
	IC203	PM0001
	Q217,Q222,Q232,Q412,Q413	UN4112
	Q218,Q223,Q401 – Q404,Q410, Q411	UN4212
	Q201,Q203,Q204,Q210,Q212,Q219, Q220,Q224 – Q226,Q230	2SA933S
	Q205 – Q209,Q211,Q213 – Q216, Q221,Q229,Q231,Q233 – Q235, Q405,Q406,Q408,Q409	2SC1740S
	Q407	2SC3064
	D207	HZS10NB2
	D401,D402	HZS3B2
	D203	HZS5B2
	D201,D202,D204,D205, D403 – D407	1SS254

COILS AND FILTER

Mark	Symbol & Description	Part No.
	L203 – L206,L213,L217,L218, L402	LAU120J
	L211	LAU121J
	L209	LAU220J
	L207	LAU221J
	L401	LAU270J
	L212,L215	LAU330J
	L214	LAU560J
	L202,L210	LAU680J
	L219,L220	LRA120K
	L208	LRA391K
	L216	LRA561K
	F201 5.0MHz L. P. F	VTF1012

CAPACITORS

Mark	Symbol & Description	Part No.
	VC401 Ceramic trimmer (30P)	VCM-005
	C227,C229	CCCCH100D50
	C240,C305,C336,C401,C405,C408, C456	CCCCH101J50
	C285	CCCCH120J50
	C253	CCCCH121J50
	C288,C420,C421	CCCCH150J50
	C255,C256,C298,C299,C418,C455	CCCCH151J50
	C214 – C216,C252,C327	CCCCH180J50
	C251,C276,C309	CCCCH220J50
	C228,C326	CCCCH330J50
	C233,C283,C308	CCCCH390J50
	C304	CCCCH430J50
	C287,C293	CCCCH470J50
	C294,C307	CCCCH560J50
	C284,C406,C417	CCCCH680J50
	C223,C224	CCCCH820J50
	C310	CCCCH910J50
	C289	CCCSL221J50
	C225	CCCSL271J50
	C241	CCCSL331J50
	C226	CCCSL391J50
	C442	CEANP010M50
	C439	CEANP101M6R3
	C312,C429,C436	CEANP220M10
	C440	CEANP330M10
	C286	CEANP470M10
	C213	CEASR47M50
	C302	CEAS100M50
	C275,C277,C339	CEAS101M10
	C242,C265,C267,C269,C271,C292	CEAS220M25
	C237,C261 – C263	CEAS3R3M50
	C303,C330	CEAS330M16
	C438,C443	CEAS4R7M50
	C205,C206,C210,C212,C234,C243, C247,C249,C254,C300,C316,C318, C323,C331,C332,C402,C414,C415, C446,C448,C450,C452,C454	CEAS470M10
	C268	CEAS471M6R3
	C218,C259,C290,C426,C435	CFTXA104J50
	C432	CFTXA124J50
	C260	CFTXA224J50
	C434	CFTXA394J50
	C428	CFTXA563J50
	C297	CFTXA683J50
	C407	CKCYB681K50
	C201 – C204,C207,C209,C211, C217,C230 – C232,C235,C236, C244 – C246,C248,C250,C257, C258,C264,C266,C270, C272 – C274,C278,C279,C281, C295,C296,C301,C311,C313,C315, C319,C320,C324,C325,C328,C329, C333 – C335,C337,C338,C403, C412,C416,C419,C422,C423,C444, C445,C447,C449,C451,C453,C457, C458	CKPUYY103N16
	C404	CQMA102J50
	C239,C431	CQMA103J50
	C411	CQMA122J50
	C430	CQMA153J50
	C424	CQMA182J50

Mark	Symbol & Description	Part No.
	C433	CQMA223J50
	C238,C427	CQMA272J50
	C437	CQMA393J50
	C425,C441	CQMA472J50
	C291,C306	CQMA473J50
	C410	CQMA682J50
	C409	CQSA181J50

RESISTORS

Mark	Symbol & Description	Part No.
	VR202 Semi-fixed (1kΩ)	VRTB6VS102
	VR201 Semi-fixed (220Ω)	VRTB6VS221
	VR204 Semi-fixed (470Ω)	VRTB6VS471
	VR203,VR205 Semi-fixed (4.7kΩ)	VRTB6VS472
	VR401 Semi-fixed (47kΩ)	VRTB6VS473
	R204,R208,R209,R223 – R225, R236,R298,R460,R461,R470,R471	RN1/6PQ□□□□F
	Other resistors	RD1/6PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	X401 Crystal resonator (3.750MHz)	VSS1018

HEADPHONE Board Assembly

CAPACITORS

Mark	Symbol & Description	Part No.
	C227,C229	CKPUYB101K50
	C228	CKPUYF223Z25

RESISTORS

Mark	Symbol & Description	Part No.
	VR201 Volume (PHONES LEVEL)	VCS1015

OTHERS

Mark	Symbol & Description	Part No.
	JA3 Headphone jack	RKN1002

PALB Board Assembly (VWV1073)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC10,IC105	BU4053B
	IC1	BU74HCU04
	IC2	BU74HC00
	IC8,IC9	TA7320P
	IC101	TC74HC08AP
	IC3,IC7	TC74HC10AP
	IC4,IC103	TC74HC107AP
	IC104	TC74HC123AP
	IC102	TC74HC32AP
	IC5,IC6	TC74HC74AP
	Q3,Q115	UN4112
	Q1,Q2,Q4	UN4212
	Q6,Q14,Q112	2SA933S
	Q5,Q7 – Q10,Q13,Q103 – Q111, Q113,Q114	2SC1740S
	D101	HZS10NB2
	D1	1SS254

COILS AND FILTERS

Mark	Symbol & Description	Part No.
	L1	LAU1R2J
	L2	LAU120J
	L3	LAU121J
	L5	LAU330J
	L4	LAU680J
	L102,L103	LAU8R2J
	L104,L105	LRA120K
	F102 3.2MHz L. P. F	VTF1011
	F3 4.43MHz Trap	VTF1018
	F2 Bandpass filter	VTF1030
	F1 COMB filter	VTF1032
	F101 4.43MHz B. P. F	VTF1034
	F4 EMI filter	VTH1012

CAPACITORS

Mark	Symbol & Description	Part No.
	VC1,VC2 Ceramic trimmer (20p)	VCM-008
	C6,C10	CCCCH101J50
	C5,C27	CCCCH151J50
	C3	CCCCH330J50
	C23	CCCCH390J50
	C4	CCCCH680J50
	C9	CCCSL271J50
	C1,C2	CCPUCH100J50
	C101,C110	CEANP220M10
	C24,C113	CEANP470M10
	C122	CEAS330M16
	C7,C15,C19,C22,C28,C30,C34,C39, C44,C46,C111,C112,C115 – C118, C121,C129,C131,C133	CEAS470M10
	C108,C109	CKCYB681K50

Mark	Symbol & Description	Part No.
	C8,C11,C12,C14,C16,C17,C20,C21, C25,C26,C29,C33,C35 – C38, C40 – C43,C45,C103 – C107, C127,C128,C130,C132	CKPUYY103N16
	C18	CQMA102J50
	C13	CQMA182J50
	C119,C120	CQMA473J50

RESISTORS

Mark	Symbol & Description	Part No.
	VR1,VR2,VR101 Semi-fixed (470Ω)	VRTB6VS471
	VR102 Semi-fixed (4.7kΩ)	VRTB6VS472
	Other resistors	RD1/6PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	JA1 RGB connector (VIDEO/AUDIO OUT)	VKB1003
	X2 Crystal (17.734MHz)	VSS1019
	X1 Crystal (14.318MHz)	VSS1029
	DL101 64μsec Delay line	VTF1019
	DL1 750ns Delay line	VTF1037

FG Board Assembly

SEMICONDUCTOR

Mark	Symbol & Description	Part No.
	Photo interruptor	GP1S51

7. DISASSEMBLY

7.1 REMOVING THE BONNET AND FRONT PANEL (Fig. 7-1, 2)

①Remove six screws Ⓐ to remove the bonnet.
②To remove the front panel assembly, unscrew three screws Ⓑ and lift the catches as shown in the figure and lower the front panel toward the front.
③To remove the power knob, insert the flat-blade screwdriver into the slit on the side of the chassis as shown in Fig. 7-2, and push the protrusion of the knob. You can now remove the power knob easily. (Check that the power switch is in the OFF position before removal.)

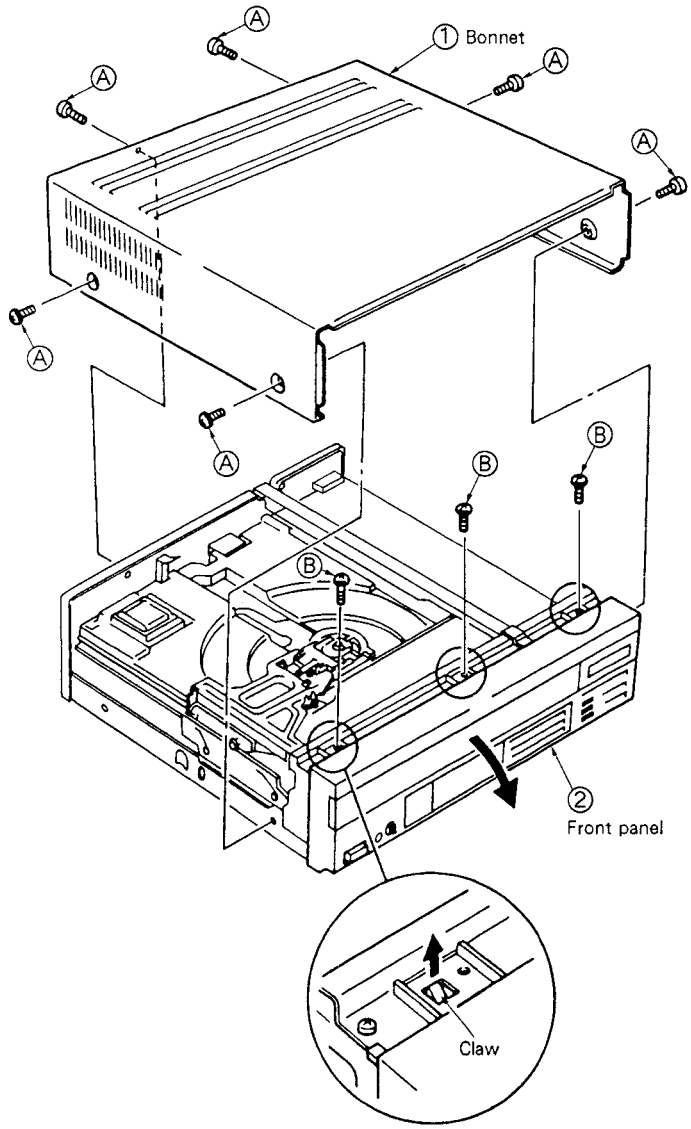


Fig. 7-1

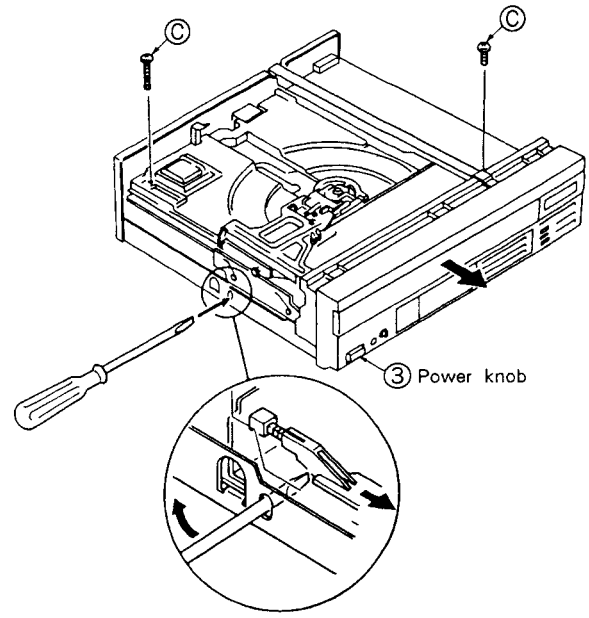


Fig. 7-2

7.2 REMOVING THE TRAY (Fig. 7-2, 3)

①Remove two stopper screws Ⓒ shown in Fig. 7-2. When the power can be turned ON, press the OPEN button then pull the tray out from the player.
②When the power cannot be turned ON, remove the front panel (Fig. 7-1), and turn the gear pulley shown in Fig. 7-3 counterclockwise, and the tray will slide out toward the front.

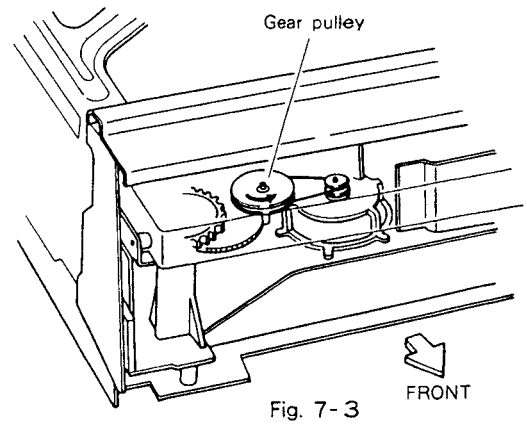


Fig. 7-3

7.3 REMOVING THE PALB, VDTB AND ASCB BOARD ASSEMBLY (Fig. 7-4)

● After removing the bonnet, remove by the following procedure :
1. Remove the PCB holder for PALB and VDTB board assemblies from the base chassis.
①Remove two screws Ⓐ from the right side of the base chassis.
②Remove a screw Ⓑ from the VDTB board assembly.
③Remove two screws Ⓒ for VIDEO/AUDIO OUT terminal from the rear panel.

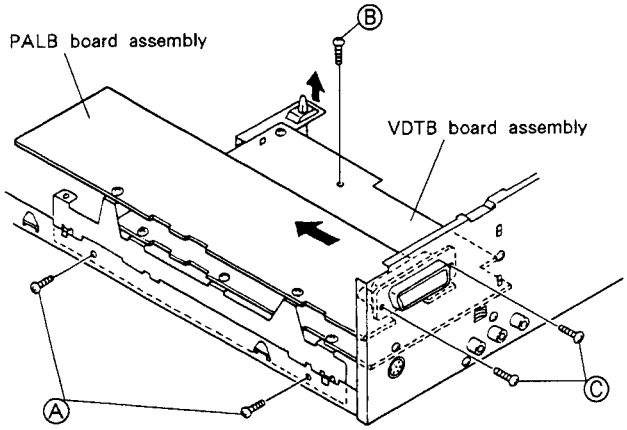


Fig. 7-4-1

2. Removing the ASCB board assembly
① Remove two screws Ⓓ to remove the center angle.
② Remove five screws Ⓔ holding the ASCB board assembly, and remove four screws Ⓕ from the rear panel.
③ The clamper can be removed by sliding the clamper holder in the direction of the arrow.
④ Pull the ASCB board assembly in the direction of the arrow.
⑤ While sliding the ASCB board assembly to the right, lift it upward, in the direction of the arrow.

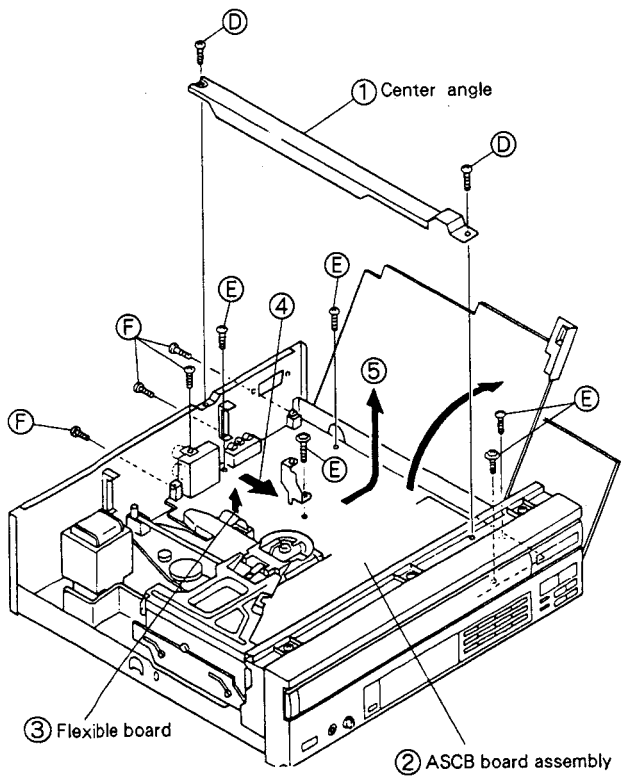


Fig. 7-4-2

7.4 REMOVING THE CLAMPER ARMS (B) AND (A) (Fig. 7-5)

Set the player with the tray moved up.
① Remove two clamper springs and raise clamper arm (B).
② clamper arm (B) can be removed by pulling it in the direction of the arrow.
③ Remove the screw Ⓐ with a spring holding clamper arm (A) assembly.
④ Remove clamper arm (A) assembly by pulling it in the direction of the arrow.

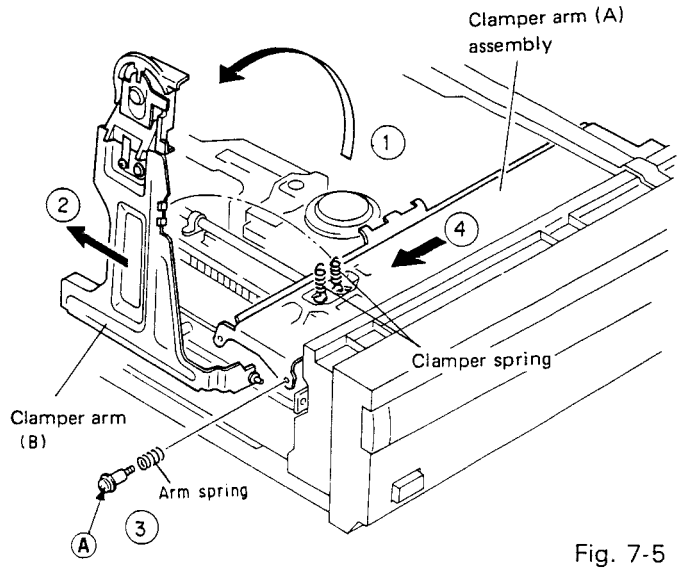


Fig. 7-5

7.5 REMOVING THE CLAMPER (Fig. 7-6)

① Remove the plate spring by unscrewing screw A.
② Remove the parallel link by sliding it in the direction of the arrow. (Be careful not to damage the claw located on one side of the link.)
③ The clamper can be removed by sliding the clamper holder in the direccion of the arrow.

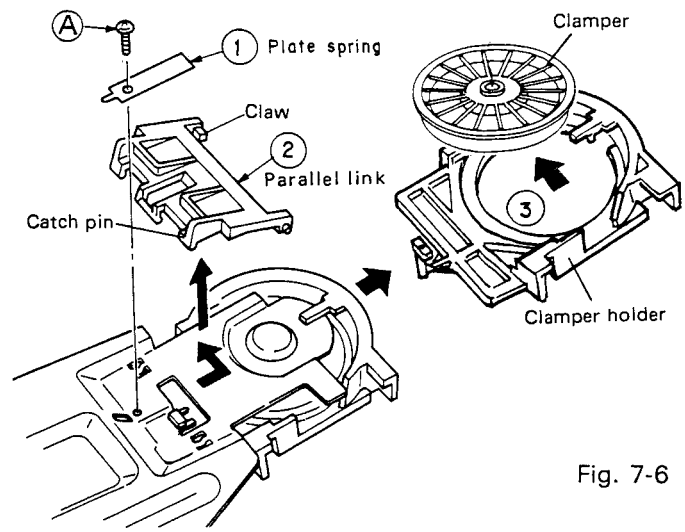


Fig. 7-6

7.6 REMOVING THE PICK-UP ASSEMBLY (Fig. 7-7)

① Remove the flexible board from the connector and also remove the flexible board installed at section ⓐ.
② Remove the screw Ⓐ holding the carriage shaft.
③ Raise the shaft in the direction of the arrow to remove the rack assembly.
④ Remove the hexagonal screw Ⓑ and lift up the pick-up assembly alightly and turn the pick-up assembly in the direction of arrow ⑤.
⑥ Remove two screws Ⓒ on the back of the pick-up assembly.

Note: Make sure that rack assembly is not close to the turntable when it is removed.

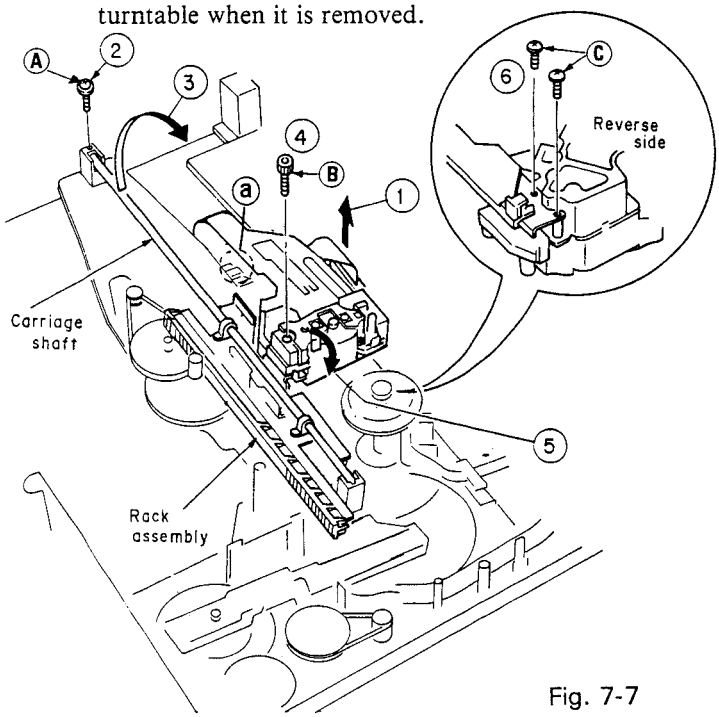


Fig. 7-7

7.7 REMOVING THE TILT SENSOR (Fig. 7-8)

Remove the connector of the flexible board (arrow Ⓐ) and release the catches to remove the tilt sensor board (arrow Ⓑ).

① Remove the connector (arrow Q) of the flexible board and claw (arrow Ⓑ) to remove the tilt sensor boards.

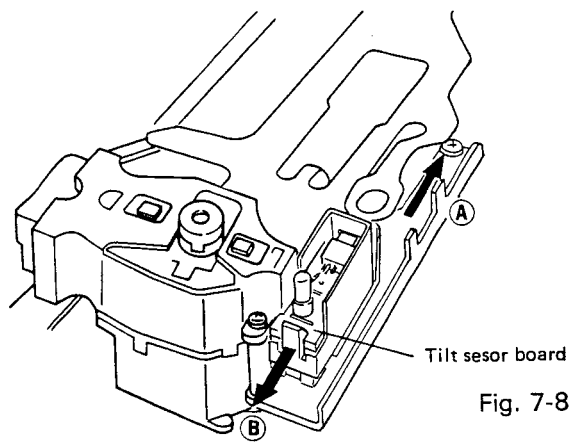


Fig. 7-8

7.8 REMOVING THE MECHANISM SECTION (Fig. 7-9)

Remove six screws Ⓐ, and the entire mechanism section can be removed.

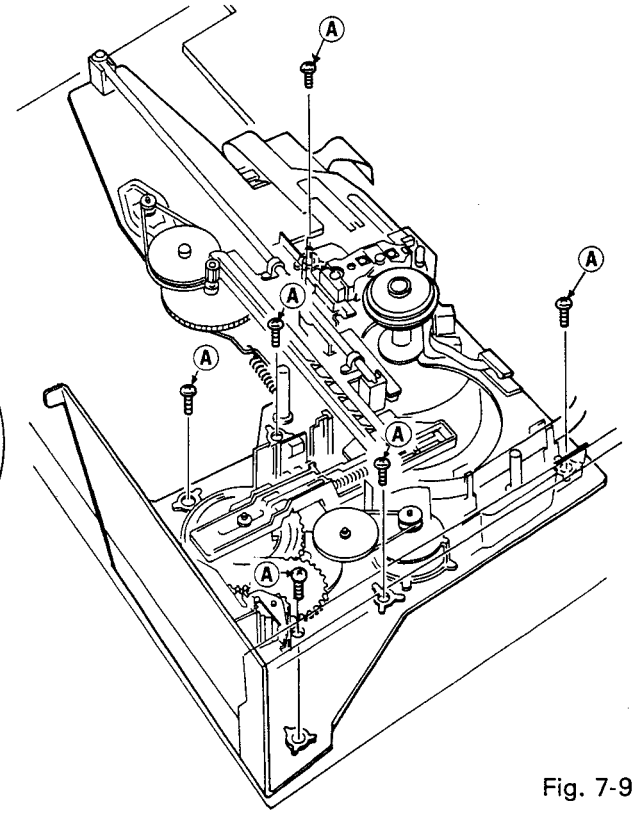


Fig. 7-9

7.9 REMOVING THE SLIDE CAM AND ROLLER PLATE ASSEMBLY (Fig. 7-10)

Set the player with the tray down.
Remove three screws Ⓐ and slide the slide cam toward the rear to remove it.
Remove clamper arms (B) and (A) (see page 56) after removing slide cam to remove the roller board assembly.

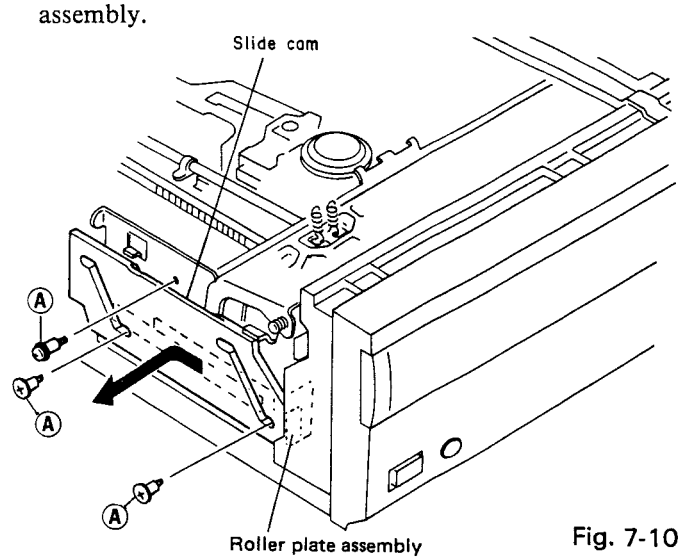


Fig. 7-10

7.10 ASSEMBLING THE MECHANISM SECTION

1. POSITIONING THE GEARS

(Since the cam gears are used for the detection of all operation modes in this unit, the cam gears and the tray should be positioned correctly. Reassemble in the following procedure.)

① Position three switch levers so that they are nearly parallel (approx. 2mm), as shown in Fig. 7-10.

② Insert the cam gear so that the end of the spiral groove on the upper surface of the cam gear comes to the position nearest to the shaft located at the front, as shown in Fig. 7-11.
(In this case, the cam gear should be set in the position where the angle between the center line of the cam gear and the pin on the cam gear is 45°, by visual checking.)

③ Mount the Spring slanting cam by raising the rack assembly in the direction of the arrow so that the tilt slide section comes under the rack assembly. Then, mount the cam spring. (Fig. 7-12)

④ Insert the follow gear so that the "L"-shaped section of the follow gear comes to the end of the cam gear, as shown in Fig. 7-12.

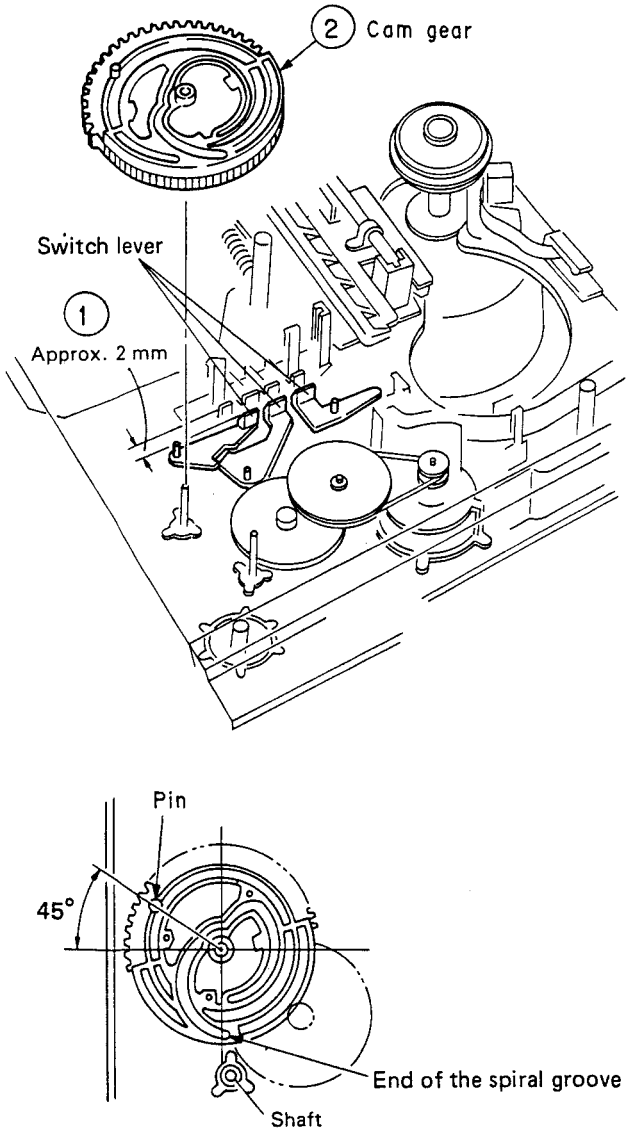


Fig. 7-11

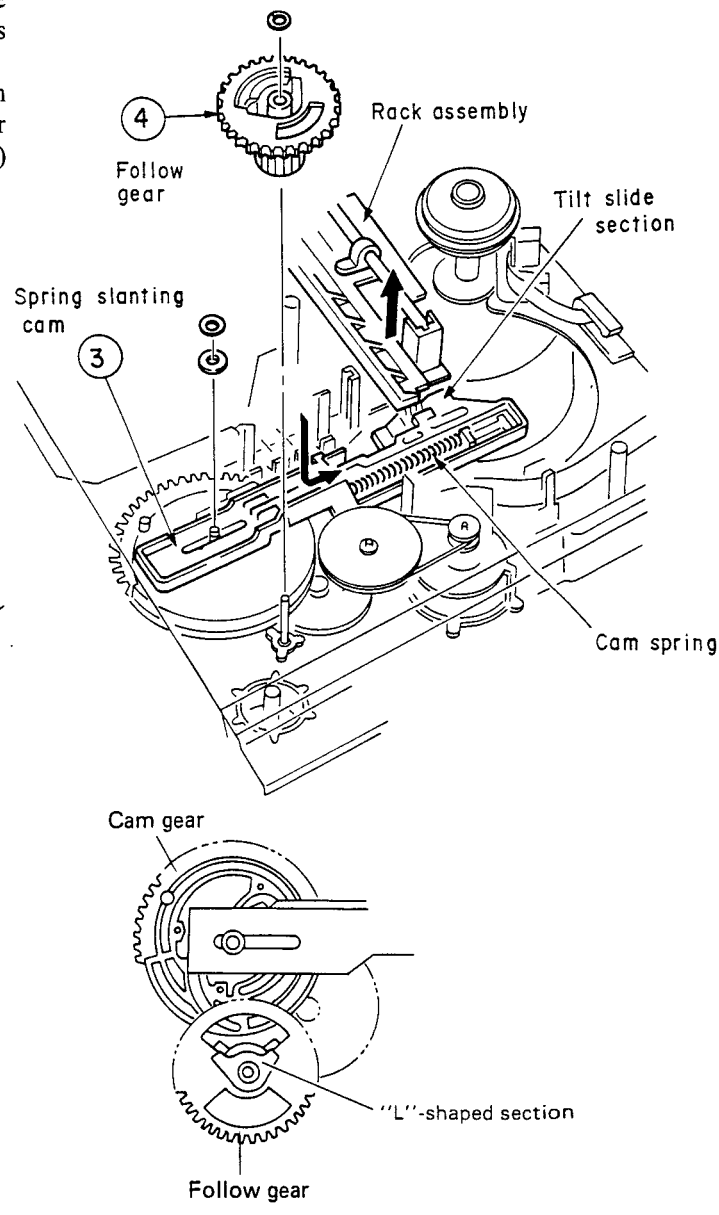


Fig. 7-12

⑤ Mount the roller plate assembly in the position where the tooth with the triangle mark of the follow gear is engaged with the dip of the gear with the short rib on the roller plate gear, as shown in Fig. 7-13.

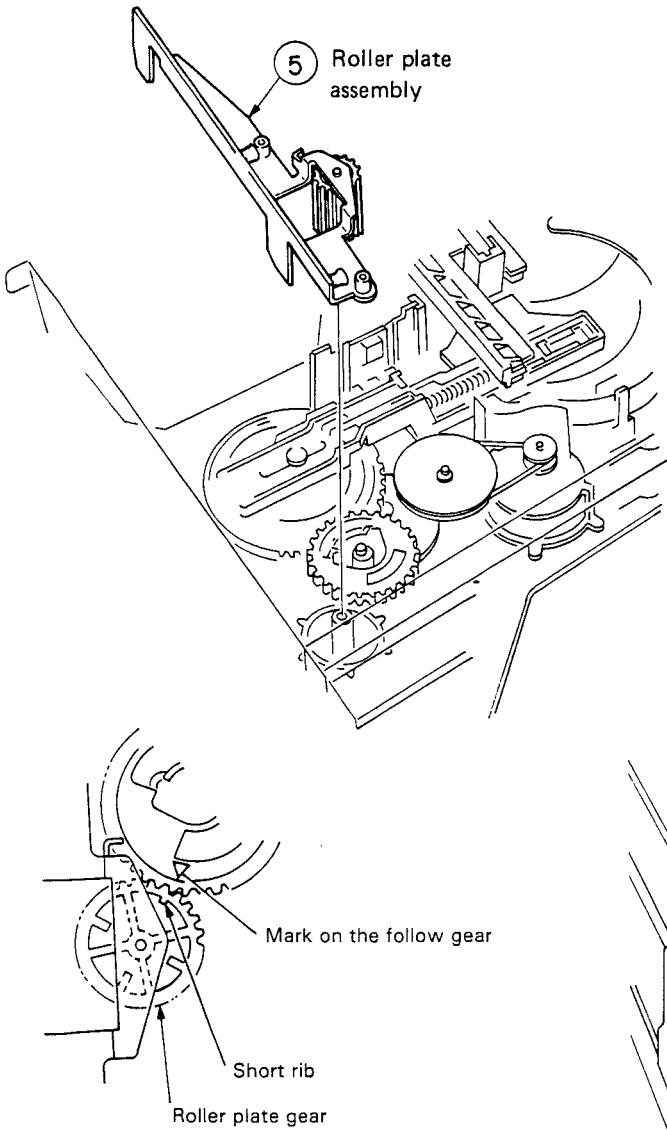


Fig. 7-13

2. POSITIONING THE TRAY (Fig. 7-14)

① Set the player with the tray open.

② Set the roller plate gear so that the roller plate line intersects with the mid-point of missing tooth of the roller plate gear.
(At this time, adjust the position by the method shown in Fig. 7-3, or turn the power ON and use the SKIP (|◄◄, ►►|) buttons in the test mode.)
Or you can turn it in the direction of OUT till it stops as shown in the fig.

③ Insert the tray.
At this time, the tray can be inserted only when the first missing tooth of the tray gear is engaged with the missing tooth section of the roller plate gear, as shown in the figure.

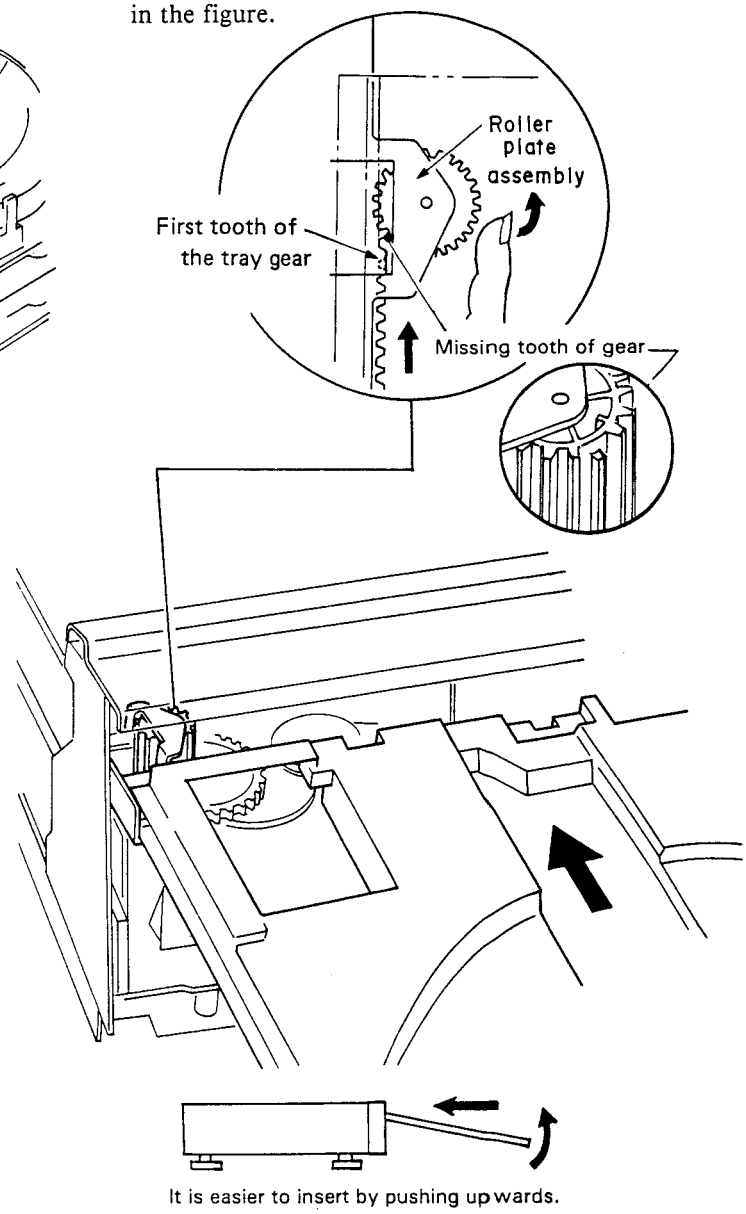


Fig. 7-14

3. ASSEMBLING THE SERVO MECHANISM BASE ASSEMBLY

When assembling the servo mechanism base assembly, pay special attention to the following points:

- After inserting the shaft in the position shown in Fig. 7-14 of mechanism chassis assembly, mount the servo mechanism base assembly in the direction of the arrow so that the tilt shaft does not come over the shaft holder as shown in Fig. 7-15.
- The thrust spring should not come over the shaft holder.
- Check that the end of the plate spring is inserted under the base.

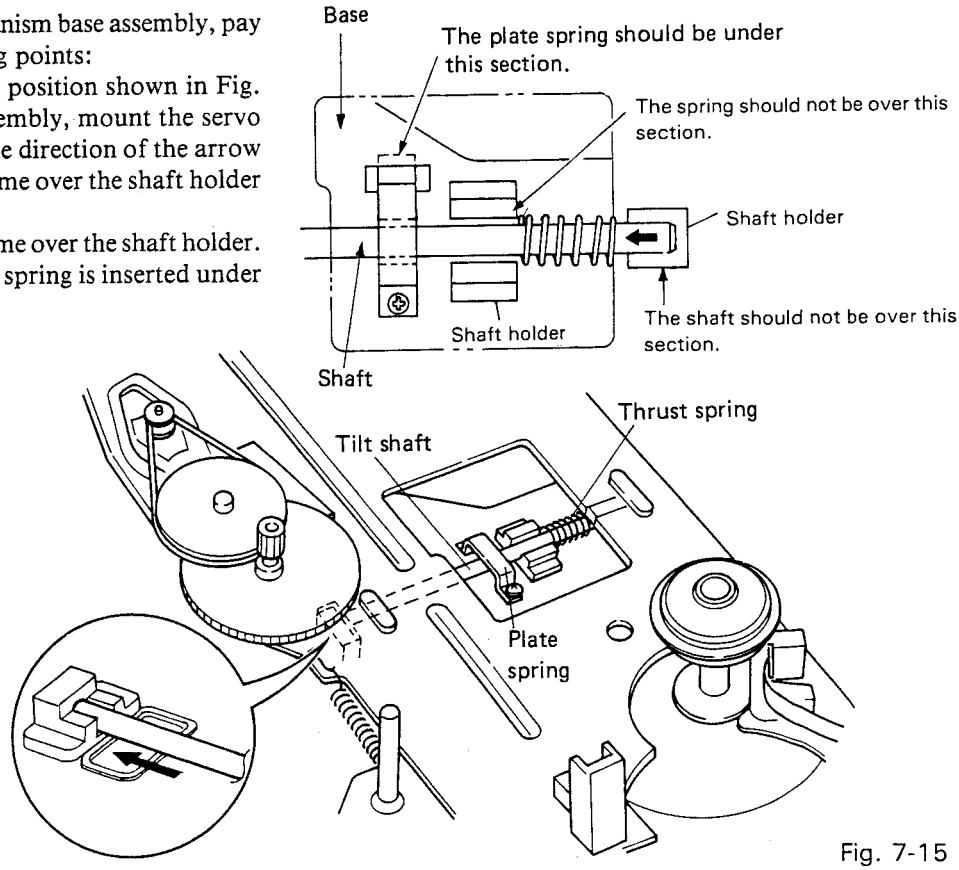


Fig. 7-15

4. FLEXIBLE STYLING OF THE PICK-UP (Fig. 7-16)

① Bend the flexible board of the pick-up assembly by about 45° at the ▲ mark.
② Inset the flexible board into the connector.
③ Set the flexible board under the protruding section.
④ Twist the flexible board by a half turn.
⑤ Insert the triangular section.
⑥ Further insert the flexible board under the protruding section.

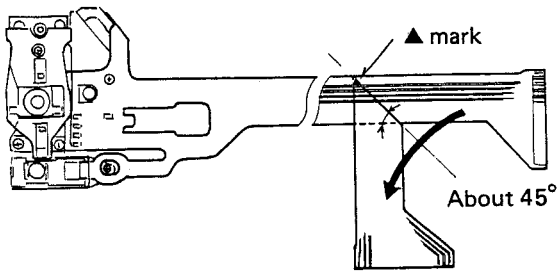


Fig. 7-16(1)

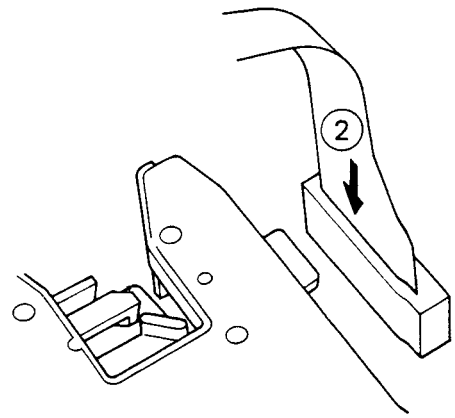


Fig. 7-16(2)

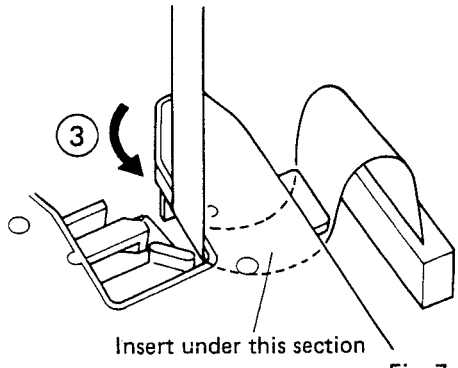


Fig. 7-16(3)

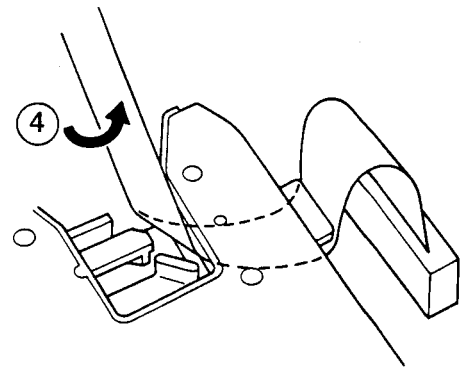


Fig. 7-16(4)

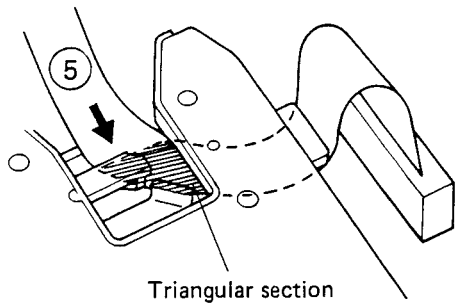


Fig. 7-16(5)

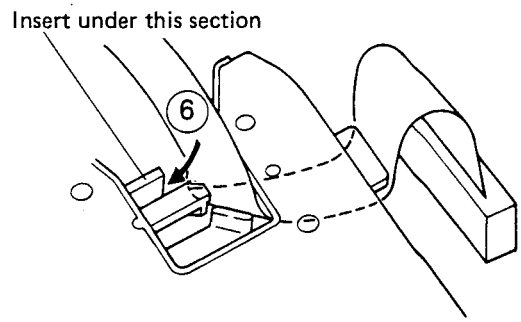


Fig. 7-16(6)

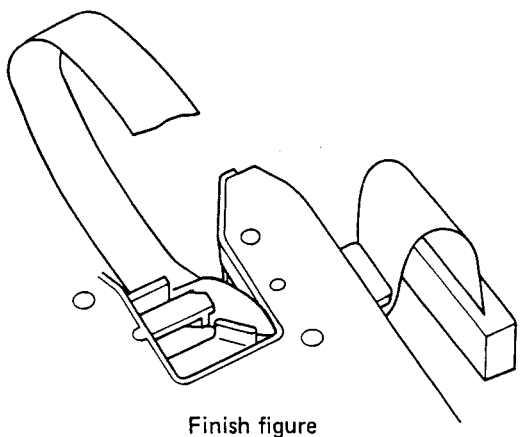


Fig. 7-16(7)

8. TEST MODE

• How to enter the test mode

1. Remove the bonnet and tray (refer to "7. DISASSEMBLY").
2. Using an alligator clip, etc., short-circuit TP301 and GND on the ASCB assembly (refer to Fig. 8-1).

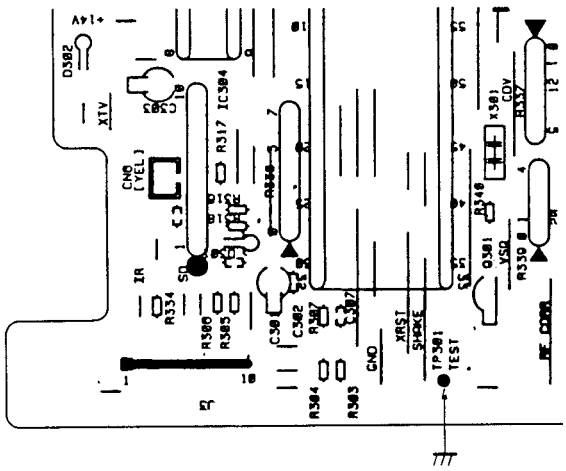


Fig. 8-1

3. Set the POWER switch to ON.
   - When the test mode is initiated, all segments of the FL display light until a key is operated (refer to Fig. 8-2).

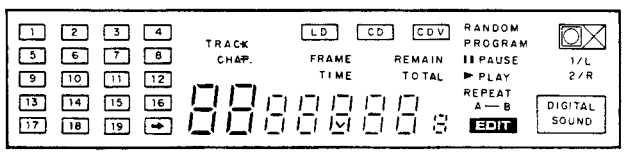


Fig. 8-2

- In the test mode, the TV screen shows the test mode information against a blue background (refer to Fig. 8-3). However, during play and search with a LD or CDV (CD with Video), the blue background is replaced by the playback picture and the service mode information (the same information as that shown against the blue background) is shown against the playback picture (refer to Fig. 8-4).

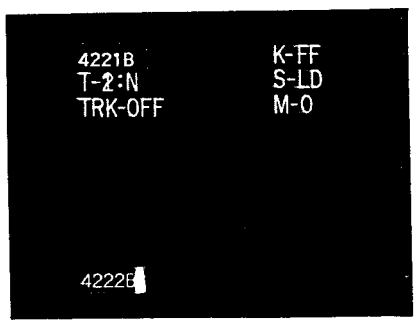


Fig. 8-3 Blue Background Display

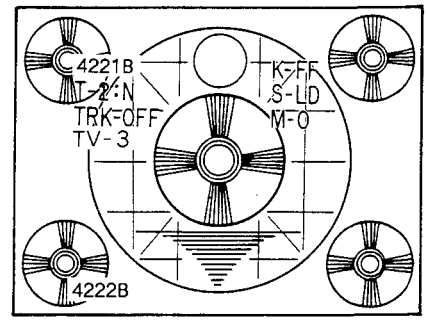


Fig. 8-4 Play Back Display

4. After confirming that the test mode has started, be sure to remove the material used for short-circuiting TP301 and GND of the ASCB Assembly.

• Test mode functions

The following functions can be controlled in the test mode.

1. Tracking → Open/Close
2. Slider → FWD Scan/REV Scan
3. Tilt → Neutral, servo ON/OFF, tilt +/−
4. Loading → Motor rotation clockwise/counter-clockwise
5. Search → CAV disc frame search
6. TV screen display → ON/OFF
7. NTSC/PAL change mode (*)
   → 0 NTSC 3.58MHz output mode
   1 NTSC 4.43MHz output mode
   2 NTSC→PAL output mode
   3 PAL direct output mode

*** On the PAL/NTSC switching mode**

The CLD-1450 is a PAL/NTSC dual player which automatically detects the system of the inserted disc. For a PAL disc, it feeds out PAL video signals and, for a NTSC disc, it converts NTSC signals into PAL signals to feed out.

In the test mode, the automatic detection does not function and the system must be switched manually. However, the player enters the PAL disc mode when the test mode is initialized, eliminating the necessity of switching for adjustments with PAL discs.

*** HOW TO PLAY THE TEST DISC GGV1002 BY CLD-1400.**

① Select TV-0 (NTSC 3.58MHz) by the INTORO SCAN KEY (SYSTEM SELECTOR).
② Short-circuit pin 1 and pin 2 of CN100 in the PALB board assembly and of CN602 in the ASCB board assembly.
③ After adjustment, remove the short circuit jigs from CN100 and CN602.

• TV screen display/FL display

The following details are displayed on the TV screen or by FL segments in the test mode.

Test Mode	FL Display	TV Screen Display
Search/frame No.	○	○
Tilt error	○	○
Mechanism loading position	○	○
Mechanism slider position	○	○
Key/remote control signal reception data	–	○
Tilt servo status	–	○
Tracking status	–	○

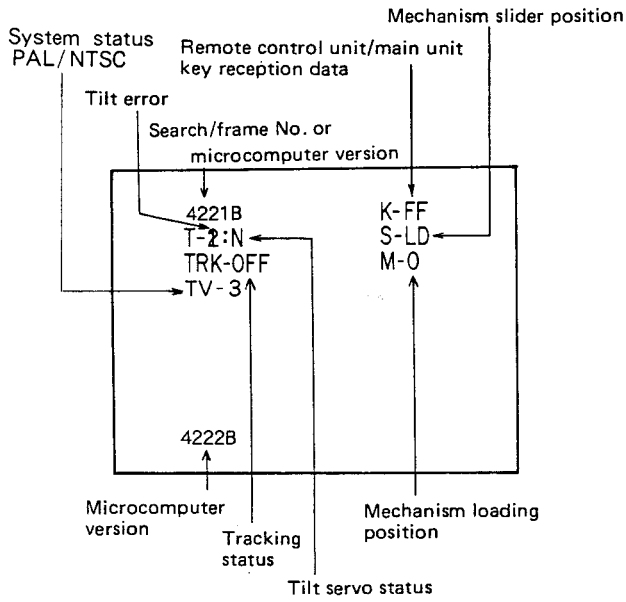


Fig. 8-5 TV Screen display

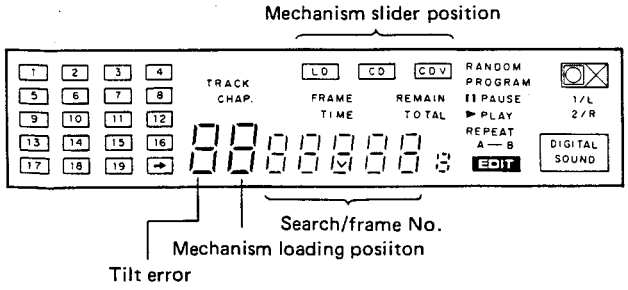
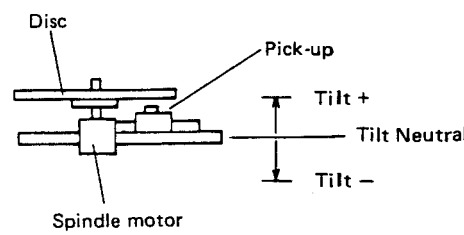


Fig. 8-6 FL display

• Test mode operation methods

1. Open
   — In the stop condition, press the STOP/OPEN (■/▲) key of the main unit.
2. Close
   — In the open condition, press the PLAY (►) key of the main unit.
3. Stop
   — In the play condition, press the STOP/OPEN (■/▲) key of the main unit.
4. Play (Spindle motor startup)
   — In the stop or close condition, press the PLAY (►) key of the main unit.
   - Tracking can be started from the open condition.
   - The tilt is neutral in the initial condition.
   - The type of disc to be played (LD, CD, CDV) is determined by the position of the slider at the time of startup.
5. Tracking Open/Close
   — In the play condition, pressing the PLAY (►) key of the main unit alternates between open and close.
6. Still
   — In the play condition with tracking closed, pressing the PAUSE (II) key of the main unit alternates between play and still.
7. Slider REV Scan
   — Press the REV SCAN (◄◄) key of the main unit.
   Caution: Do not move the slider inside the disc lead-in area while the tracking is open, otherwise the object lens of the pickup may be damaged.
8. Slider FWD Scan
   — Press the FWD SCAN (►►) key of the main unit.
   Caution: Do not move the slider outside the disc lead-out area while the tracking is open, otherwise the object lens of the pickup may be damaged.
9. Tilt Neutral
   — Press the AUTO-PGM EDITING key of the main unit.
10. Tilt servo ON
    — Press the RANDOM PLAY key of the main unit.
11. Tilt – (minus) & servo OFF
    — In a condition other than with the tray open, press the SKIP REV (|◄◄) key of the main unit.

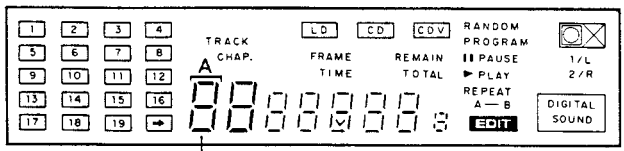


12.Tilt + & servo OFF
— In a condition other than with the tray open, press the SKIP FWD (►►|) key of the main unit.
13.Screen display ON/OFF
— Pressing the PGM (program) key of the main unit alternates the screen display between ON and OFF.
14.Search/frame No.
— In the play condition, press the + 10 key of the main unit to start search/frame No. entry standby, then enter a search/frame No. with numeric keys 0 to 9 of the main unit, and press the PLAY (►) key of the main unit.
Note: After the end of search, the unit resumes the previous operation mode.
15.Loading motor rotation (CW)
— With the tray open, press the SKIP REV (|◄◄) key of the main unit.
16.Loading motor rotation (CCW)
— With the tray open, press the SKIP FWD (►►|) key of the main unit.
17. System selection of NTSC/PAL
— Pressing the INTRO SCAN key of the main unit.

• Description of TV screen display/FL display items

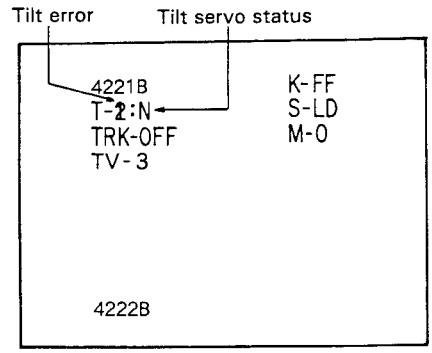
1. Tilt servo status/tilt error

• FL display
The higher digit of the two chapter No. display segments is used. (The servo status is not displayed.)



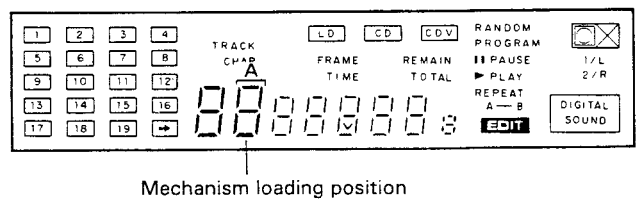
Tilt error indication

• TV screen display
T - 0 : 000
A B
A: Tilt error indication
"0" to "F". "7" means tilt is neutral.
B: Tilt servo status
N --- Tilt neutral
ON --- Tilt servo ON
OFF --- Tilt servo OFF



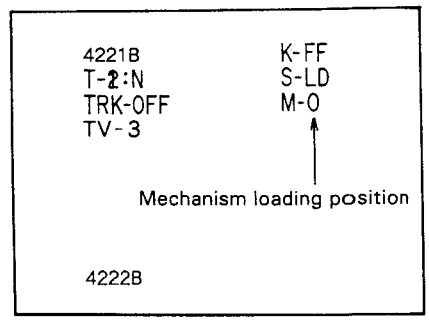
2. Mechanism loading position

• FL display
The lower digit of the two chapter No. display segments is used.



Mechanism loading position

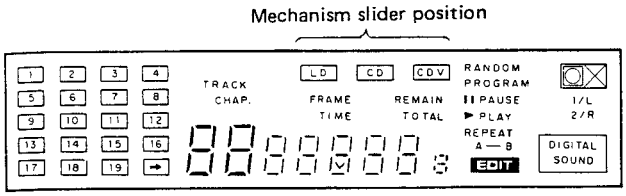
• TV screen display
M - 0
A
A: 0 --- Open
1 --- During loading
2 --- Standby
3 --- During clamping
4 --- Tilt −
5 --- Tilt neutral
6 --- Tilt +
7 --- Tilt limit



3. Mechanism slider position

• FL display

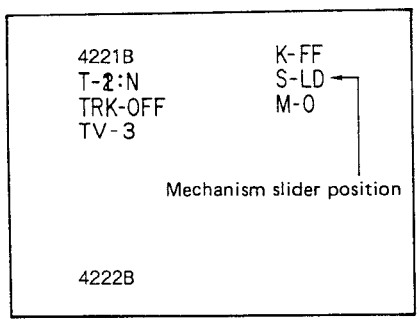
The CD/CDV/LD segment indicators are used. ("IN" is shown in the TV screen display by switching off all of the CD/CDV/LD segments in the FL display.)



• TV screen display

S - 000
A

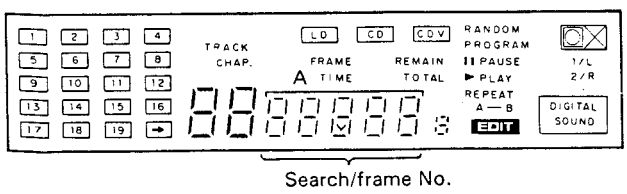
A: IN (OFF) --- TOC area of CD
CD --- Active area of CD
CDV --- Video area of CDV
LD --- Active area of LD



4. Search/frame No.

• FL display

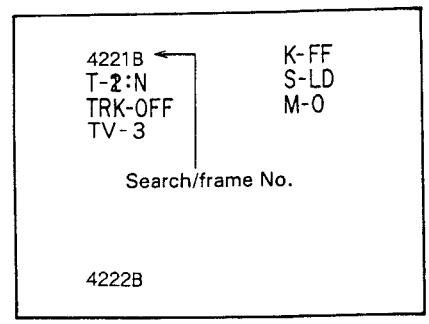
All of the five digits of the frame No. display segments are used. (It will be flashing while search is input.)



• TV screen display

00000
A

A: F0000 --- Lead-in when the top digit is "F"
E0000 --- Lead-out when the top digit is "E"



5. Remote control unit/main unit key reception data

• TV screen display (It is not displayed by FL display)

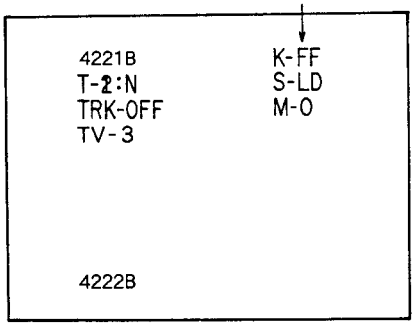
K-00
A

A	Function	A	Function
00	0	20	CLEAR
01	1	21	SEARCH
02	2	22	CHP/FRM
03	3	23	(CHAPT)
04	4	24	(FRAME)
05	5	25	REPT-A
06	6	26	REPT-B
07	7	27	AUD. MON
08	8	28	(1/L)
09	9	29	(2/R)
0A		2A	(STEREO)
0B		2B	DGT/ANL
0C		2C	CX
0D		2D	TV/LDP
0E		2E	SPEED +
0F		2F	SPEED −
10	+10	30	DISPLAY
11	STOP	31	
12	PLAY	32	
13	PAUSE	33	
14	F-SCAN	34	
15	R-SCAN	35	
16	F-SKIP	36	
17	R-SKIP	37	
18	F-MULTI	38	
19	R-MULTI	39	
1A	F-STEP	3A	
1B	R-STEP	3B	
1C	PROGRAM	3C	
1D	EDIT	3D	
1E	RANDOM	3E	
1F	INTRO	3F	

Notes:

1. *Codes inside ( ) are those which are not generated by normal remote control unit/main unit key operations but are accepted nevertheless.*
2. *The data becomes "FF" when the remote control unit/main unit key data is not present.*

Remote control unit/main unit key reception data

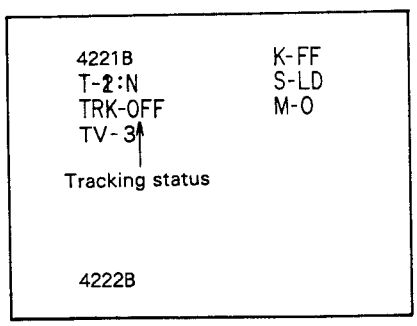


6. Tracking status

- TV screen display (It is not displayed by FL display)

TRK - 000
A

A: ON --- Tracking close
OFF --- Tracking open

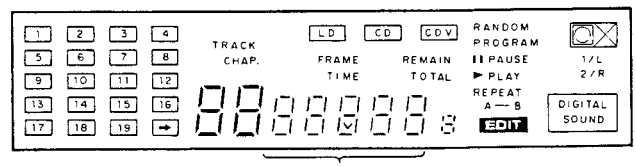


7. Microcomputer version

- FL display

4192 0
A B

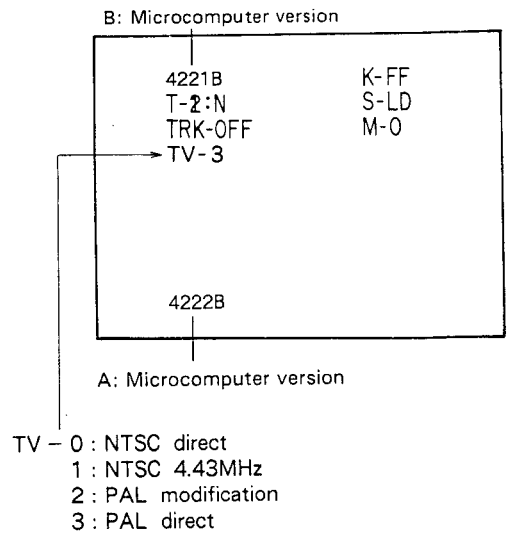
The frame No. display segments of the FL display is used in the stop condition.
A: PD4192 (Mechanism control IC)
B: 0 (Microcomputer version)



- TV screen display

4193
A

A : PD4222B (Mode control IC)
B : PD4221B (Mechanism control IC)



TV – 0 : NTSC direct
1 : NTSC 4.43MHz
2 : PAL modification
3 : PAL direct

- **How to quit the test mode**

1. Set the POWER switch to OFF.

9. ADJUSTMENTS

9.1 JIG AND TOOLS REQUIRED FOR ADJUSTMENT

- Small flat-bladed ⊖ screwdriver (with a shaft of about 7 cm)
- Small Philips ⊕ screwdriver (with a shaft of more than 15 cm)
- Low-pass filter (100 kohms + 1μF (BP))
- Dual-trace oscilloscope (with delay)
- AF oscillator
- Frequency counter
- LD test disc (GGV1002)
- 8-inch LDD disc (generally available) and CDV disc (generally available)
- Shorting clip
- Digital voltmeter
- TV monitor
- Resistor (100k Ω)
- Resistor (330k Ω)
- Capacitor (0.01μF)

9.2 PREPARATIONS AND PRECAUTIONS FOR ADJUSTMENT

1. Player setting

● How to stand the ASCB assembly

Adjustment should be performed with the bonnet and tray removed and the player set horizontally. (Refer to section 7. Disassembly (Page 81).)

In this case, be careful not to damage the flexible P. C. board. (Fig. 9-1)

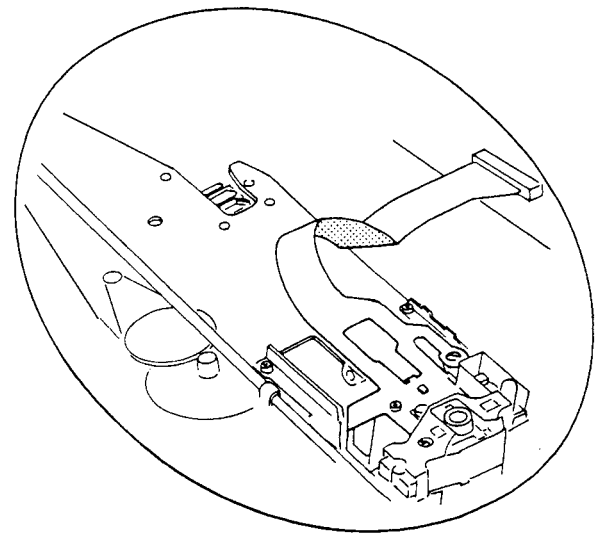


Fig. 9-1

● How to install the disc

The disc should be placed from behind on the turntable of spindle motor (check that the disc is accurately set at the center of the turntable at this time), and when PLAY key is pressed, the clamper comes down to clamp the disc before playing starts.

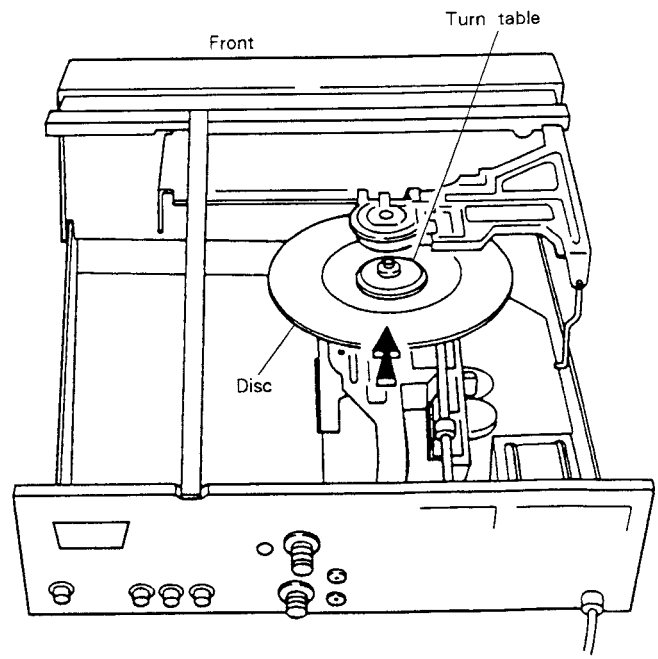


Fig. 9-2

● **How to install the tray**

While the tray is open and POWER OFF, set the teeth without a gear to match the teeth of the tray as shown in Fig. 9-3. Push the tray slightly and make sure that the tray goes into the unit and the power is switched ON. Then press the tray and the tray will be loaded automatically. And install two tray stopper screws.

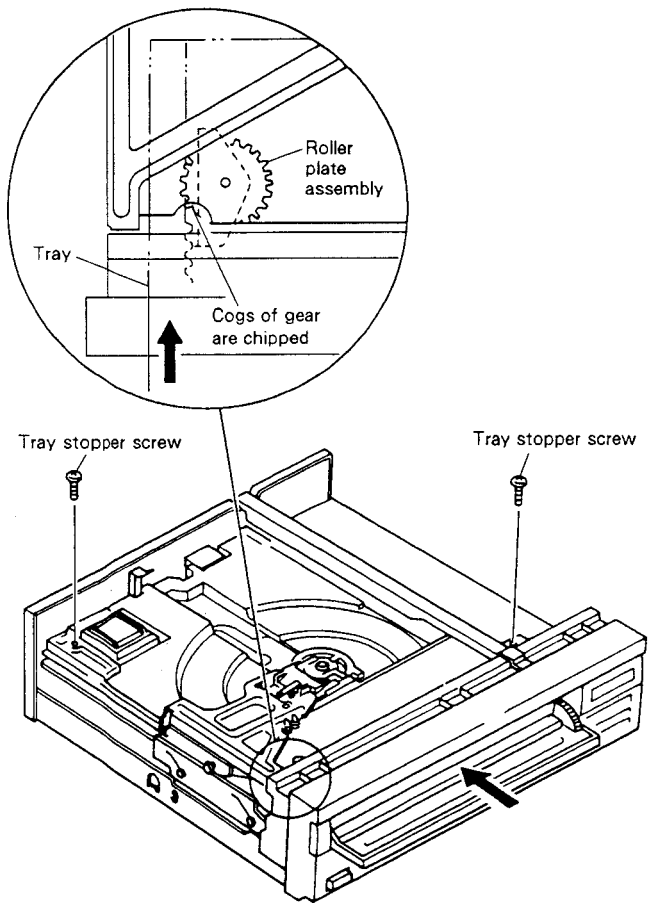


Fig. 9-3

- For mechanism adjustments from item 1. "Tilt gain adjustment" to item 12. "RF gain adjustment", the player should be set to the test mode. (Refer to section 8. Test Mode (Page 88).)
- The oscilloscope should be used with a 10 : 1 probe.

2. Adjustment procedure accompanying the replacement of major parts

1) When the pick-up assembly is replaced

- All the adjustments from item 1. "Tilt Servo loop gain adjustment" to item 12. "RF gain adjustment" should be performed.

2) When the spindle motor is replaced

- Adjustment item 8. "Spindle motor centering check and adjustment" should be performed, then the crosstalk at the outermost and innermost edges of the LD test disc should be checked. If crosstalk is present at this time, all the adjustments from item 3. "Slider shaft levelness adjustment" to item 7. "Tilt error balance adjustment" should be performed.

3) When the tilt sensor is replaced

- Adjustments of item 1. "Tilt servo loop gain adjustment", item 3 "Slider shaft levelness adjustment, item 6. "Tilt sensor adjustment", and item 7. "Tilt balance adjustment" should be performed.

9.3 MECHANISM ADJUSTMENTS

1. TILT GAIN ADJUSTMENT

● Purpose : To adjust the gain of tilt servo according to the sensitivity rank (level) of the tilt sensor.

● Symptoms when incorrectly adjusted : Increased hunting of the tilt servo or crosstalk.

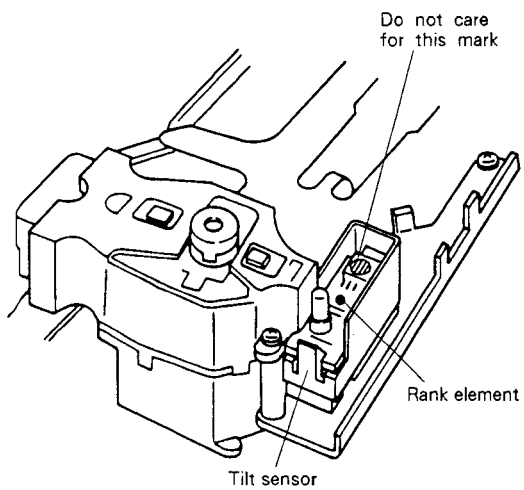
Measurement equipment & jigs	Adjusting points
● Screwdriver (flat bladed)	● VR607 in the ASCB assembly

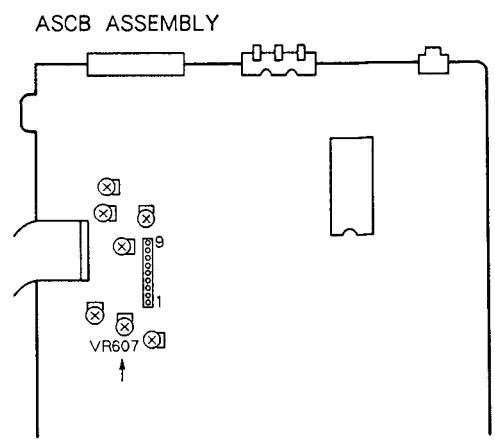
Adjusting procedure

1. According to the color of the rank indication, turn VR607 on the ASCB assembly as follows, using the flat bladed ⊖ screwdriver.

Rank	Color	VR angle
A	Red	Rotate fully clockwise
B	None	Set to the mechanical center
C	Blue	Rotate fully counterclockwise

Adjustment diagram





2. GRATING COARSE ADJUSTMENT AND TRACKING ERROR BALANCE ADJUSTMENT

● Purpose : Adjust the grating for the disc play and some kind of tric play need for adjustment.

● Symptom when incorrectly adjusted : Disc play impossible. Track jumping.

Measurement equipment & jigs	Measurement equipment connecting points	Player condition	Adjusting points
● Screwdriver (flat bladed) ● Oscilloscope ● Test disc : GGV1002 ● TV monitor	● Oscilloscope : CH1 : Between TRKG Error (CN601-8) and GND in the ASCB assembly	* Test mode ; ● Play mode ● Tracking servo loop open ● Set tilt servo to OFF	● Grating adjustment screw in the pick-up assembly ● VR605 on the ASCB assembly

Adjusting procedure

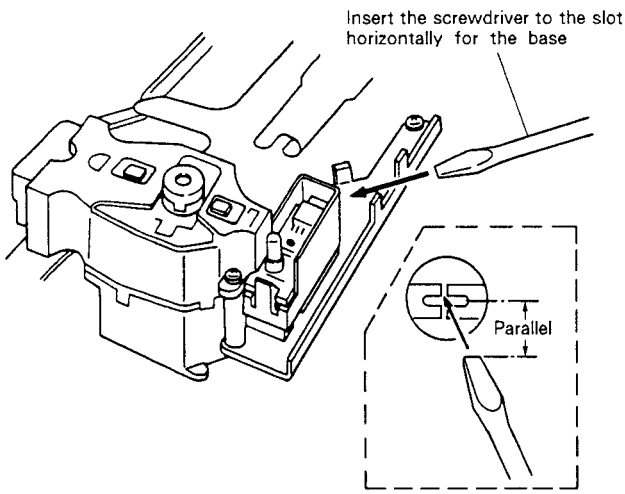
[Grating coarse (temporary) adjustment]

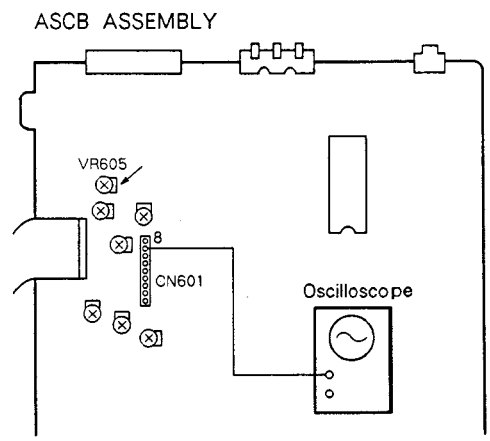
1. Load the LD disc and press the PLAY key.
2. Move the pick-up to around frame # 15,000 using the Scan keys.
3. Open the TRKG servo loop. (Refer to page 88.)
4. Connect CN601-8 of the ASCB assembly to the oscilloscope to observe the waveform.
5. Insert a flat bladed ⊖ screwdriver (small) into the grating adjustment hole horizontally, and first set to the point where the amplitude of the TRKG error waveform is maximum, then find the point where the waveform becomes minimum and the smoothest envelope is obtained (on-track position). (Photo 1)
6. In this condition, rotate the flat bladed screwdriver counterclockwise and stop rotating at the point where the amplitude of the TRKG error waveform becomes maximum for the first time. (Photo 2)

[TRKG (Tracking) balance adjustment]

1. Adjust VR605 in the ASCB assembly so that amplitudes "a" and "b" shown in Photo 2 become equal.
   Close the TRKG servo loop and check that the picture on the TV screen appears normal.

Adjustment diagram





Weveforms

● Oscilloscope range : DC 20mV / div., 5 mS / div

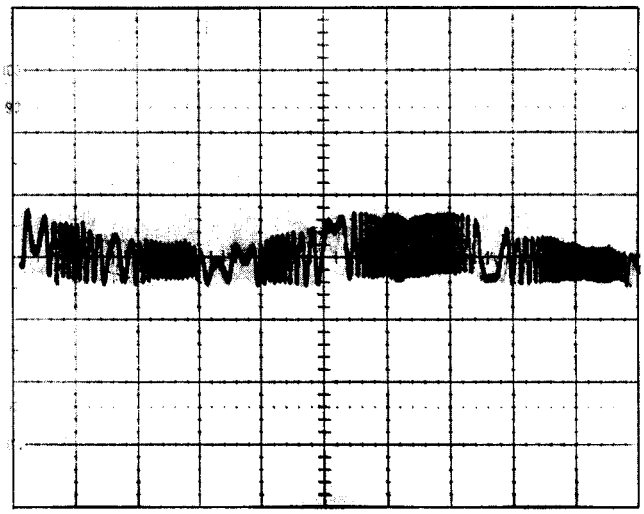


Photo 1 On-track position

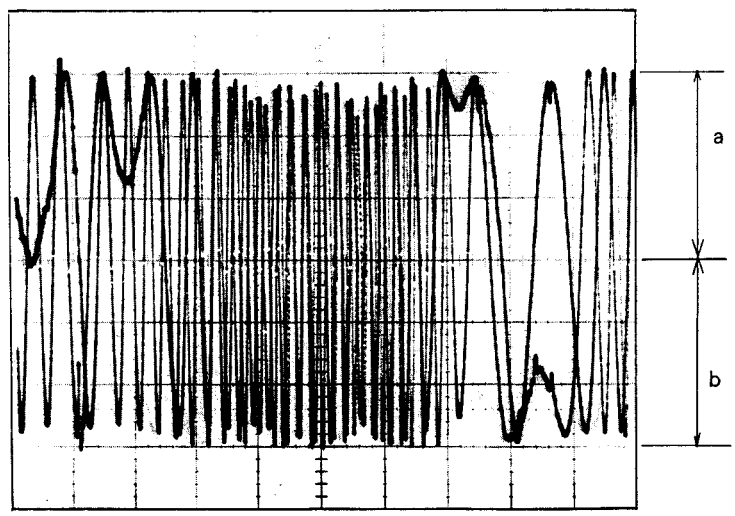


Photo 2 Maximum amplitude

3. SLIDER SHAFT LEVELNESS ADJUSTMENT

● Purpose : To make the disc and the slider shaft parallel so that the pick-up could move parallel to the disc.

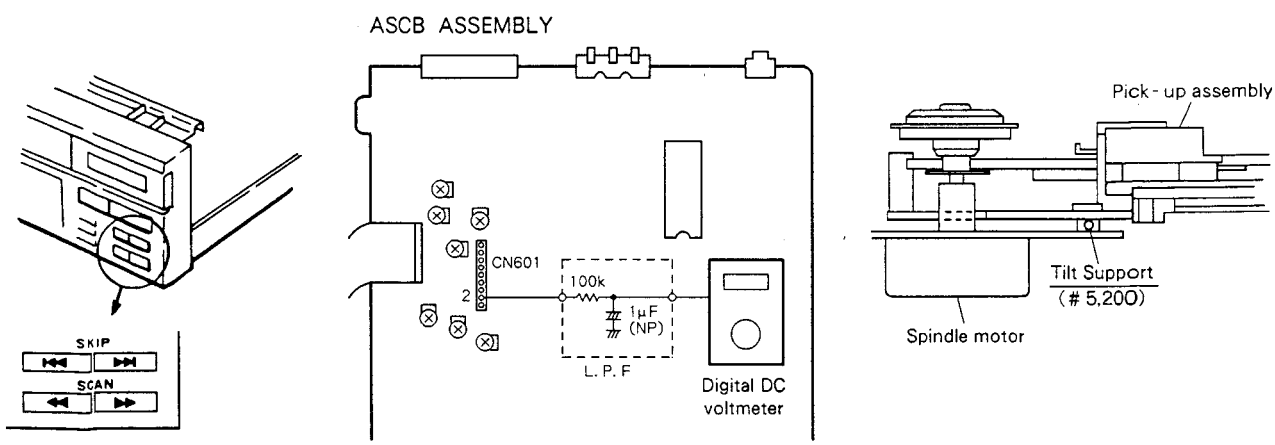
● Symptoms when incorrectly adjusted : Operating range of the objective lens is unsatisfactory with warped discs, and the focus is unlocked at the middle or outer area of the disc.

Measurement equipment & jigs	Measurement equipment connecting points	Player condition	Adjusting points
● Digital voltmeter ● Low-pass filter ● Test disc : GGV1002	● Digital DC voltmeter : Between the FORT (CN601 -2) and GND in the ASCB assembly	* Test mode ; ● Still mode ● Tracking servo loop open ● Set tilt servo to OFF	● Player : SKIP keys (during test mode)

Adjusting procedure

1. Load the LD test disc and feed the slider to around frame #5,200 (tilt support) using the SCAN (▶▶) key, and open the TRKG servo loop.
2. Connect Pin 2 of CN601 in the ASCB assembly to digital DC voltmeter.
3. Read the digital DC voltmeter (1 mV unit), and note the reading.
4. Feed the slider to around frame #25,000 of the LD test disc using the SCAN (▶▶) key.
5. Adjust with the SKIP keys (|◀◀, ▶▶|) so that the meter reading is within ± 2mV of the value noted above.

Adjustment diagram



4. PICK-UP INCLINATION ADJUSTMENT

● Purpose : To adjust the inclination of the pick-up so that laser beam strikes the bit vertically.

● Symptom when incorrectly adjusted : Crosstalk.

Measurement equipment & jigs	Measurement equipment connecting points	Player condition	Adjusting points
● TV monitor ● Test disc : GGV1002	● TV monitor Connect to the video output terminal of the player.	* Test mode : ● Still mode ● Tracking servo loop close ● Set tilt servo to OFF	● For pick-up assembly : Radial direction inclination adjustment screw, and tangential direction inclination adjustment screw.

Adjusting procedure

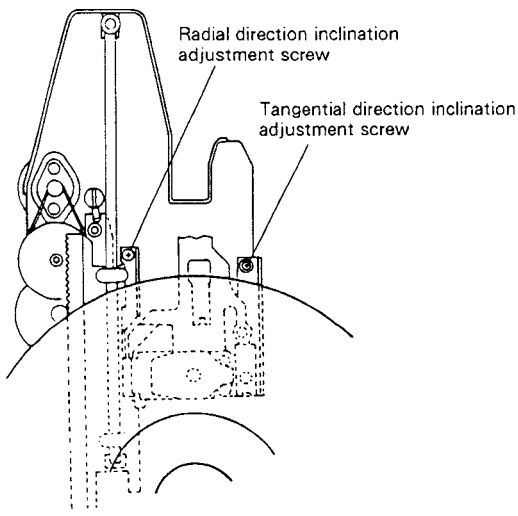
1. Set the player to the STILL mode with the tracking servo loop closed, and search frame #115 of the LD test disc.
2. Adjust the pick-up assembly radial direction inclination adjustment screw and the tangential direction inclination adjustment screw so that crosstalk on the right and left sides of the TV screen becomes minimum.
3. Search frame #130.
4. Adjust the radial direction inclination adjustment screw and the tangential direction inclination adjustment screw so that crosstalk at the right and left sides of the TV screen becomes minimum.
5. Repeat the above procedure so that the crosstalk at frames #115 and #130 becomes minimum.

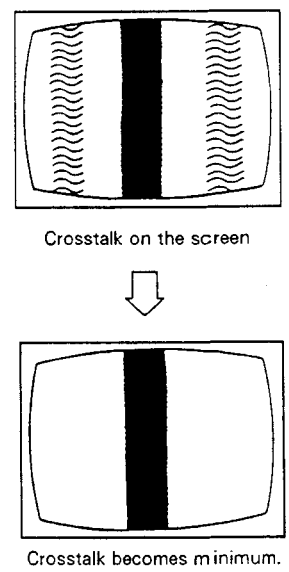
Note :

At this time, turn the radial direction inclination adjustment screw and the tangential direction adjustment screw clockwise about a quarter turn beyond the best point, and then turn them counterclockwise by a quarter turn to complete the adjustment.

When crosstalk is difficult to detect, adjust the contrast and brightness of the TV monitor to make it easier to see. If it is still difficult to detect, obtain the maximum RF waveform by adjusting the tangential direction adjustment screw and the radial direction adjustment screw.

Adjustment diagram





5. FOCUS ERROR BALANCE ADJUSTMENT

● Purpose : To compensate the objective lens position electrically so that the FOCS servo properly functions.

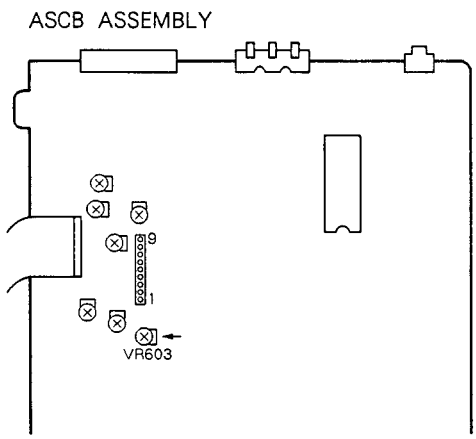
● Symptom when incorrectly adjusted : Crosstalk.

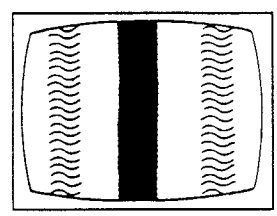
Measurement equipment & jigs	Measurement equipment connecting points	Player condition	Adjusting points
● TV monitor ● Test disc : GGV1002	● TV monitor Connect to the video output terminal of the player.	* Test mode : ● Still mode ● Tracking servo loop Close ● Set tilt servo to OFF	● VR603 in the ASCB assembly

Adjusting procedure

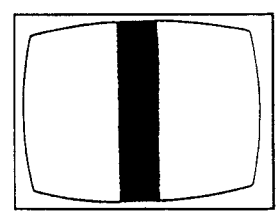
1. Set the player in the test mode and set to the STILL mode with the tracking servo loop closed, and search frame # 115 of the LD test disc.
2. Adjust VR603 so that the crosstalk on the right and left sides of the TV screen becomes minimum and equal.

Adjustment diagram





Crosstalk on the screen



Crosstalk becomes minimum.

6. TILT SENSOR ADJUSTMENT

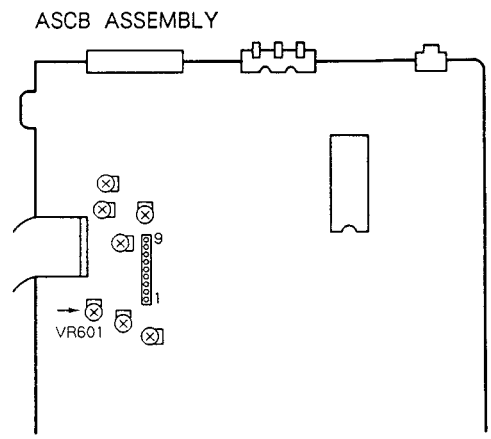
- Purpose : To adjust the angle of the tilt sensor optimally (parallel to the disc) so that the LED of tilt sensor light vertically to the disc superficial.
- Symptom when incorrectly adjusted : Crosstalk, unsatisfactory operating range of the objective lens, unstable search operation.

Measurement equipment & jigs	Measurement equipment connecting points	Player condition	Adjusting points
● TV monitor ● Small Philips ⊕ screwdriver ● Test disc : GGV1002	● TV monitor Connect to the video output terminal of the player. * When the TV monitor is not used, connect to the FL tube of the player.	* Test mode : ● Still mode ● Tracking servo loop close ● Set tilt servo to OFF	● Tilt sensor inclination adjustment screw in the mechanism assembly

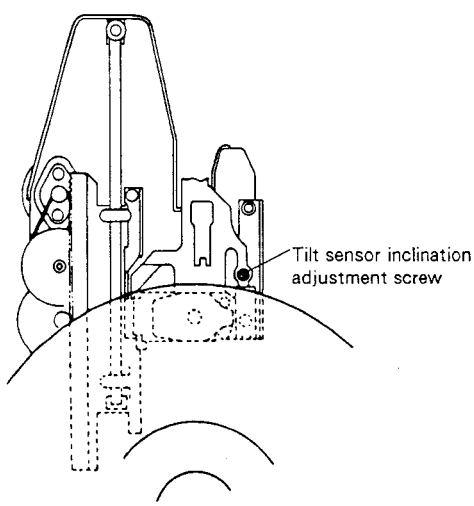
Adjusting procedure

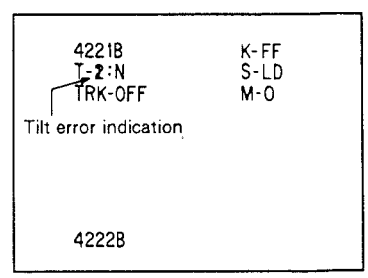
1. Set the player to the STILL mode, and search frame # 16,200 of the LD test disc.
2. Set tilt balance adjustment VR601 to its mechanical center position.
3. Adjust the tilt sensor inclination adjustment screw so that the tilt error indication code on the TV monitor or on the FL display on the main unit becomes 6 – 8.

Note :
At this time, turn the tilt sensor inclination adjustment screw clockwise about a quarter turn beyond the best point, and then turn it counterclockwise by a quarter turn to complete the adjustment.

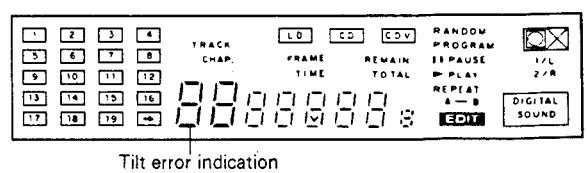


Adjustment diagram





Note : This on-screen display is used to show the position of the tilt error indication and may be different from the actual display.



7. TILT BALANCE ADJUSTMENT

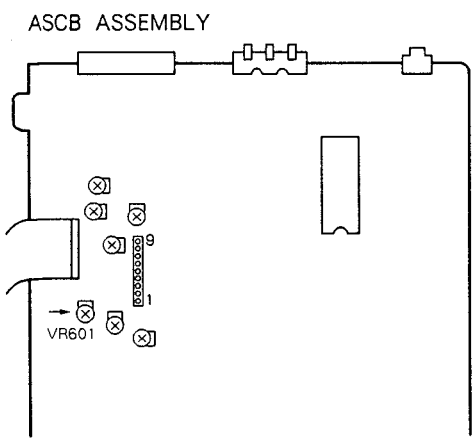
- Purpose : To compensate the sensitivity difference between the two photo diodes on the tilt sensor board assembly with pick-up inclination adjustment frame.
- Symptom when incorrectly adjusted : Crosstalk, unsatisfactory operating range of the objective lens, unstable search operation.

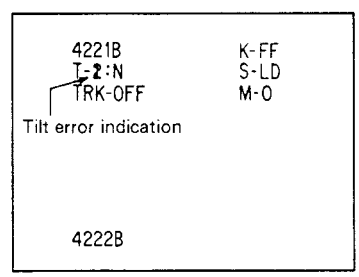
Measurement equipment & jigs	Measurement equipment connecting points	Player condition	Adjusting points
● TV monitor ● Small flat bladed ⊖ screwdriver ● Test disc : GGV1002	● TV monitor Connect to the video output terminal of the player. * When the TV monitor is not used, connect to the FL tube of the player.	* Test mode : ● Still mode ● Tracking servo loop close ● Set tilt servo to OFF	● VR601 in the ASCB assembly

Adjusting procedure

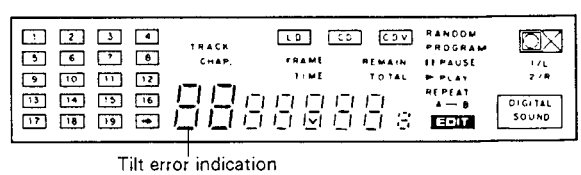
1. Set the player to the STILL mode, and search frame #115 of the LD test disc.
2. Adjust VR601 so that the tilt error indication code on the TV monitor or on the FL display on the player becomes 7.

Adjustment diagram





Note : This on-screen display is used to show the position of the tilt error indication and may be different from the actual display.



8. SPINDLE MOTOR CENTERING CHECK AND ADJUSTMENT

- Purpose : To adjust the mechanism assembly position so that the center of the spindle motor is on the laser beam track when the pick-up assembly is moved toward the inside or outside of the disc.
- Symptom when incorrectly adjusted : Track jumping, longer search time.

Measurement equipment & jigs	Measurement equipment connecting points	Player condition	Adjusting points
● Flat bladed ⊖ screwdriver ● Oscilloscope ● Test disc : GGV1002	● Oscilloscope : Connect CH1 between the TRKG error (CN601-8) and GND in the ASCB assembly. Connect CH2 to the TRKG sum (CN601-7) in the ASCB assembly.	* Test mode ; ● Play mode ● Tracking servo loop open ● Set tilt servo to ON	● Spindle motor centering adjustment lever in the mechanism assembly

Adjusting procedure

[Centering check]

1. Set the player to the play mode with the TRKG servo loop open, and search frame #25,000 (outer edge) of the LD test disc.
2. Observe the signal at CN601-8 (TRKG error) in the ASCB assembly and check that the amplitude is minimum and the envelope is smooth. If not, adjust the grating screw using a flat bladed ⊖ screwdriver. (Fig. 1/Photo 3)
3. Set the oscilloscope to the X − Y mode, and connect CN601-8) (TRKG error) in the ASCB assembly to CH1 (X input) and CN601-7 (TRKG sum) to CH2 (Y input) respectively, to observe the Lissajous waveform. (Fig. 2)
4. Fine adjust the grating so that the width of the Lissajous waveform in the direction of the X axis becomes minimum. (Fig. 3)
5. Move the pick-up assembly toward the inside of the disc to around frame #3,000.
6. Check that the width of the Lissajous waveform in the direction of the X axis is minimum.
7. At this time, if the Lissajous waveform shows the expanded oval shape around frame #3,000, loosen the shaft fixing screw (see Fig. 2) slightly, then perform the centering adjustment in the following manner :

[Centering adjustment]

1. Insert the flat bladed screwdriver into the shaft adjustment lever (see Fig. 2).
2. Turn the screwdriver slowly so that the width of the Lissajous waveform in the direction of the X axis becomes minimum, and then turn it until the Lissajous waveform with the same shape as that observed in item 4 in "Centering check". (Fig. 4)
3. Move the pick-up assembly to the position around frame #25,000 (towards the outside of the disc), and adjust the grating screw so that the width of the Lissajous waveform in the direction of the X axis becomes minimum.
4. Move the pick-up assembly towards the inside of the disc again to the position around frame #3,000, and check that the width of the Lissajous waveform in the direction of the X axis is minimum.
5. If the width of the Lissajous waveform in the direction of the X axis does not become minimum, repeat the above procedures again so that the minimum width of the Lissajous waveform in the direction of the X axis is obtained either at the inside or outside of the disc.
6. After the centering adjustment is complete, secure the shaft fixing screw (see Fig. 2) while checking that the shape of the waveform does not change.

Adjustment diagram

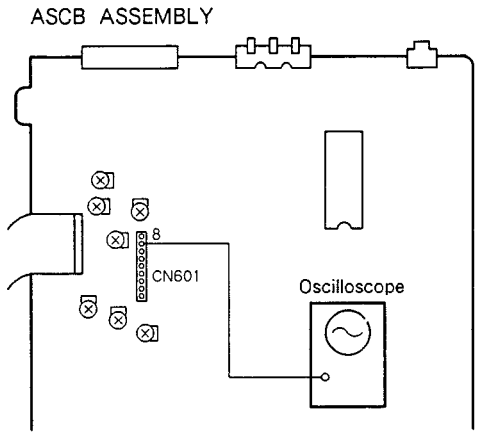


Fig. 1

● Oscilloscope : DC 20 mV / div. 5 mS / div.

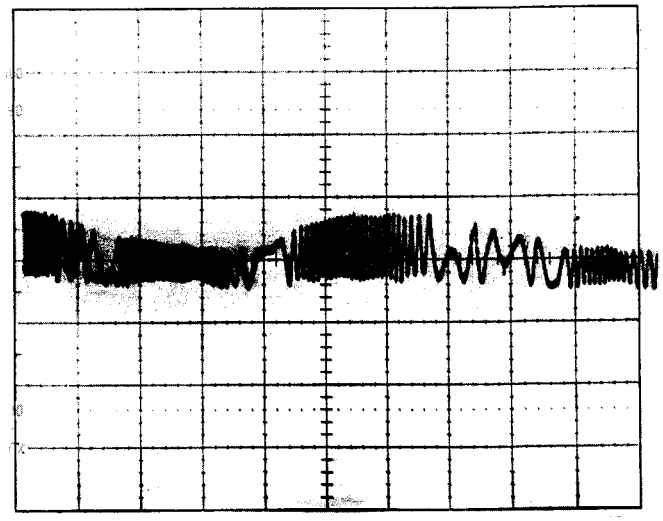
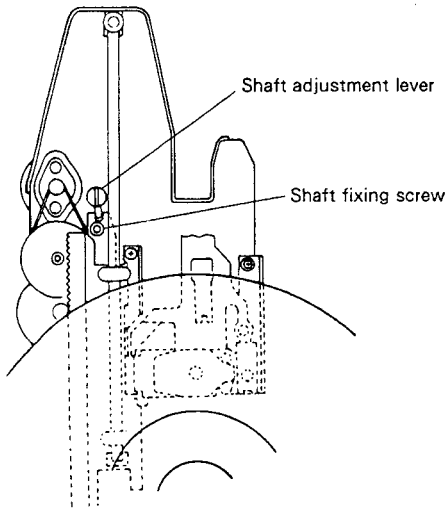


Photo 3 On-track position (Null point)



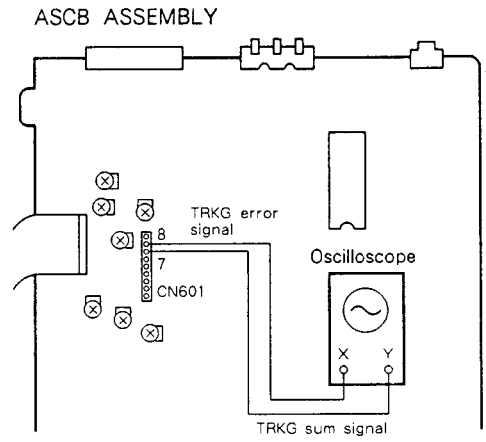
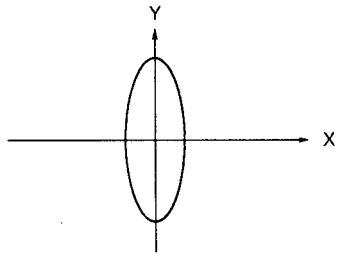


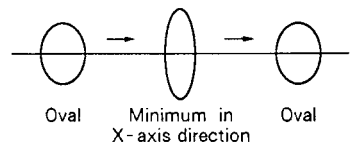
Fig. 2



Lissajous waveform
On-track position ; Minimum width in the direction of the X-axis and maximum width in the direction of the Y-axis.

Fig. 3

Reference :
When the Lissajous waveform cannot be seen clearly, add a low-pass filter to the measurement circuit and adjust it, as shown in the figure below.



Lissajous waveform

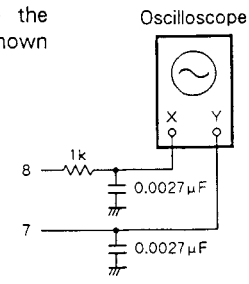


Fig. 4

9. GRATING FINE ADJUSTMENT AND TRKG BALANCE ADJUSTMENT

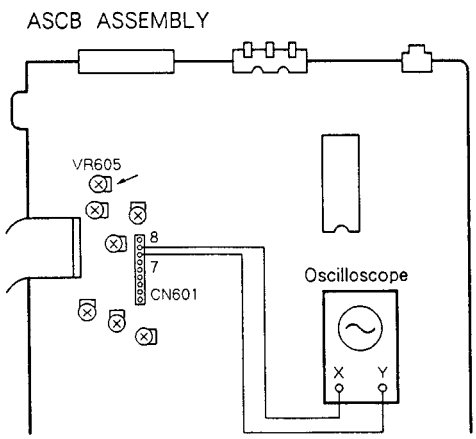
- Purpose : To fine adjust the grating so that the two laser beams for TRKG (tracking) servo are emitted on the optimum track positions of the disc.
- Symptom when incorrectly adjusted : Track jumping.

Measurement equipment & jigs	Measurement equipment connecting points	Player condition	Adjusting points
● Oscilloscope ● Flat bladed ⊖ screwdriver ● Test disc : GGV1002	● Oscilloscope : Connect CH1 between the TRKG error (CN601-8) and GND in the ASCB assembly. Connect CH2 to the TRKG sum (CN601-7) in the ASCB assembly.	* Test mode ; ● Play mode ● Tracking servo loop open ● Set tilt servo to ON	● Grating screw in the mechanism assembly ● VR605 in the ASCB assembly

Adjusting procedure

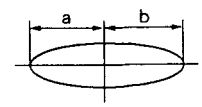
1. Set the player to the play mode with the TRKG servo loop open, and search frame #3,000 (inner side) of the LD test disc.
2. Set the oscilloscope to the X – Y mode, and connect CN601 -8 (TRKG error) in the ASCB assembly to CH1 (X input) and CN601-7 (TRKG sum) to CH2 (Y input) respectively, to observe the Lissajous waveform.
3. Insert the flat-bladed screwdriver into the grating adjustment hole (see page 84), and adjust the grating so that the width of the Lissajous waveform in the direction of the Y axis becomes minimum.
4. At this time, check that dimensions "a" and "b" of the Lissajous waveform become equal (a = b). If not, adjust VR605 (TRKG balance) in the ASCB assembly.
5. Close the TRKG servo loop and check that the picture on the TV screen is normal.

Adjustment diagram

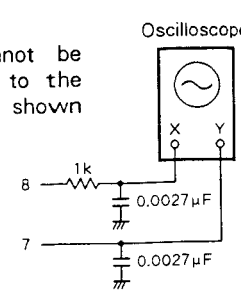


- Oscilloscope range :
  CH1 (X) : 20 – 50 mV/div.
  CH2 (Y) : 5 mV/div.
  At this time, the probe for the Y-axis should be set to × 1 mode.

Frame #15,000
Lissajous waveform
Minimum width in direction of the Y-axis, a = b



Reference :
When the Lissajous waveform cannot be seen clearly, add a low-pass filter to the measurement circuit and adjust it, as shown in the figure below.



10. FOCUS SERVO LOOP GAIN ADJUSTMENT

● Purpose : To set the gain for the focus servo loop to the optimum value.

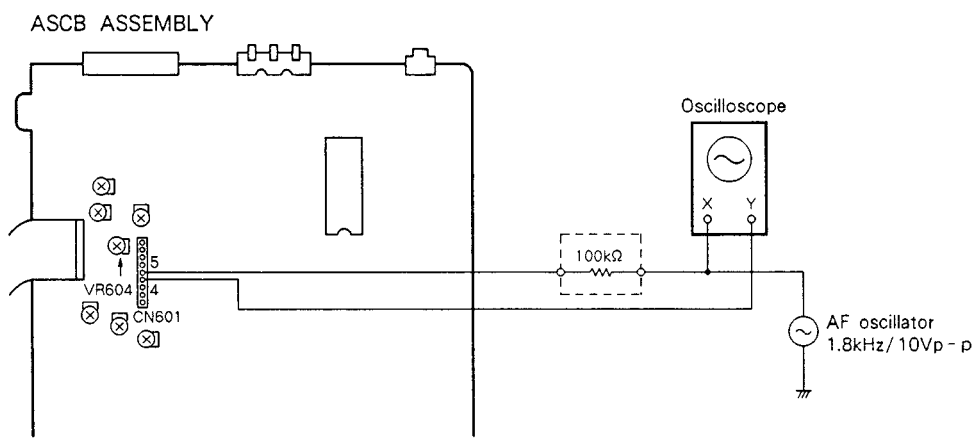
● Symptom when incorrectly adjusted : Degraded playing ability.

Measurement equipment & jigs	Measurement equipment connecting points	Player condition	Adjusting points
● Oscilloscope ● AF oscillator (1.8 kHz/10Vp-p) ● Resistor (100k ohms) ● Test disc : GGV1002	● Oscilloscope : Connect CH1 between the FOCS in (CN601-5) and GND in the ASCB assembly. Connect CH2 to the FOCS error (CN601-4) in the ASCB assembly.	* Test mode ; ● Still mode ● Tracking servo loop close ● Set tilt servo to ON	● VR604 in the ASCB assembly

Adjusting procedure

1. Set the output of the AF oscillator to 1.8 kHz/10Vp-p.
2. Set the player to the still mode, and search frame #15,000 of the LD test disc.
3. Connect CN601-4 and CN601-5 in the ASCB assembly as shown in the figure below.
4. Set the oscilloscope to the X – Y mode, and observe the Lissajous waveform.
5. Adjust VR604 so that the Lissajous waveform become symmetrical about the X and Y axes. (Photo 4, 5)

Adjustment diagram



Weveforms

● Oscilloscope range :

CH1 (X) : 200 mV / div.,

CH2 (Y) : 5 mV / div

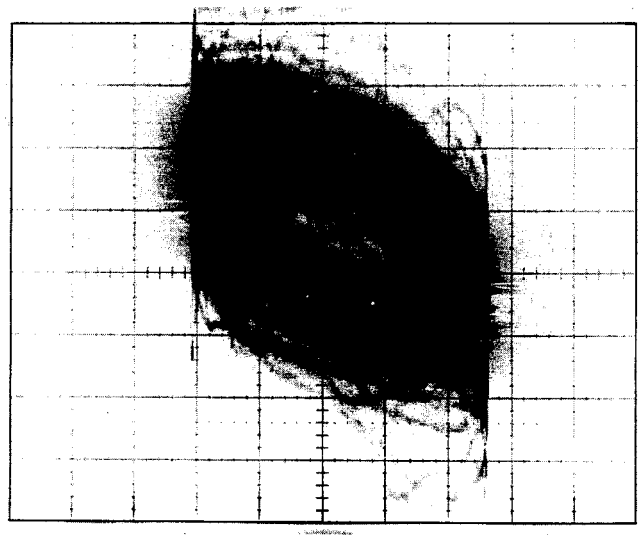


Photo 4

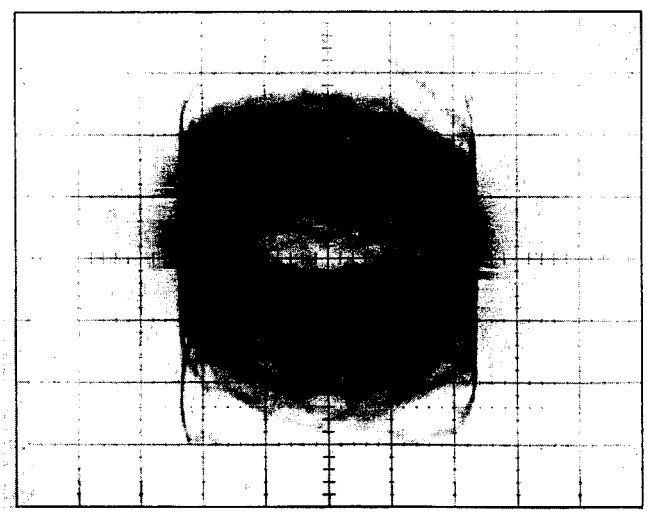


Photo 5

11. TRACKING SERVO LOOP GAIN ADJUSTMENT

● Purpose : To set the gain for the tracking servo loop to the optimum value.

● Symptoms when incorrectly adjusted : Degraded playing ability.

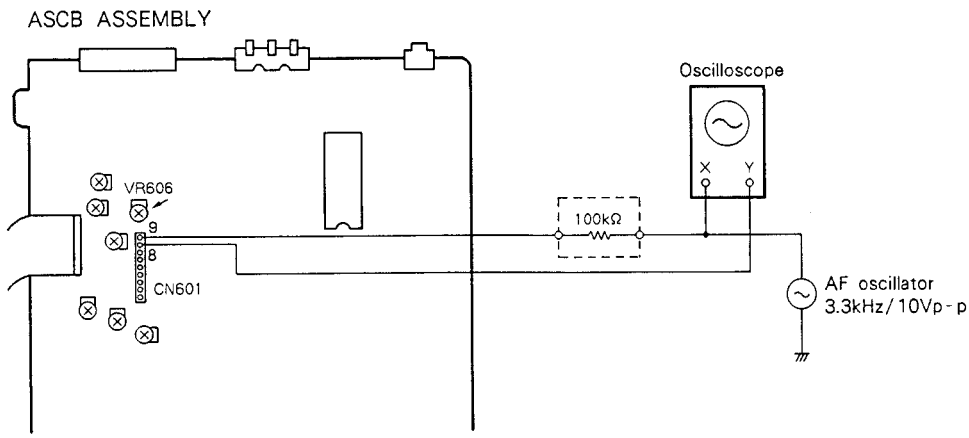
Measurement equipment & jigs	Measurement equipment connecting points	Player condition	Adjusting points
● Oscilloscope ● Resistor (100 kohms) ● AF oscillator (3.3 kHz / 10 Vp-p) ● Test disc : GGV1002	● Oscilloscope : Connect CH1 between the TRKG in (CN601-9) and GND in the ASCB assembly. Connect CH2 to the TRKG error (CN601-8) in the ASCB assembly.	* Test mode : ● Still mode ● Tracking servo loop close ● Set tilt servo to ON	● VR606 in the ASCB assembly

Adjusting procedure

1. Set the player to the still mode, and search frame #15,000 of the LD test disc.
2. Connect the resistor, AF oscillator and the oscilloscope as shown in the figure below.
   At this time, set the output of the AF oscillator to 3.3 kHz / 10 Vp-p.
3. Set the oscilloscope to the X – Y mode, and observe the Lissajous waveform.
4. Adjust VR606 so that the Lissajous waveform become symmetrical about the X and Y axes.
   (Photo 6, 7)

Note :
When the required results is not obtained, replace the 100-kohm resistor with a 33-kohm one, or increase the output level of the oscillator.

Adjustment diagram



Weveforms

● Oscilloscope range :

CH1 (X) : 200 mV/div.,

CH2 (Y) : 5 mV/div

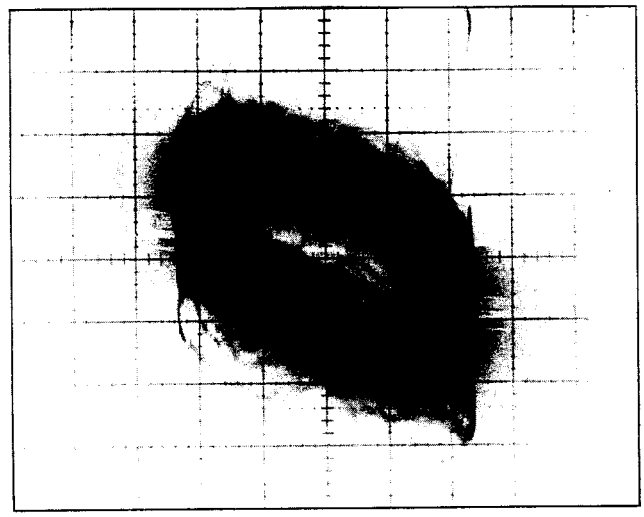


Photo 6

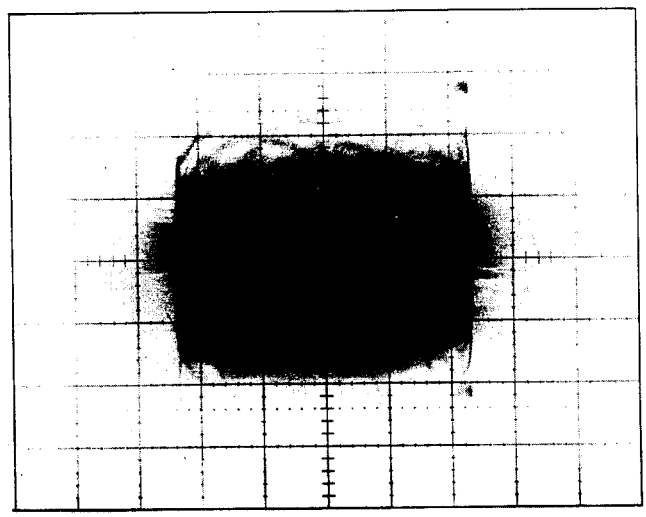


Photo 7

12. RF GAIN ADJUSTMENT

● Purpose : To set the amplitude of the RF signal to the optimum value.

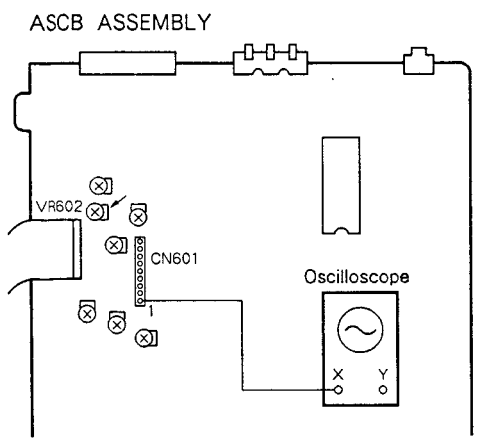
● Symptom when incorrectly adjusted : Dropout occurs frequently. Unstable scan, search operations.

Measurement equipment & jigs	Measurement equipment connecting points	Player condition	Adjusting points
● Oscilloscope ● Test disc : GGV1002	● Oscilloscope : Connect CH1 between the RF signal (CN601-1) and GND in the ASCB assembly.	* Test mode ; ● Still mode ● Tracking servo loop close ● Set tilt servo to ON	● VR602 in the ASCB assembly

Adjusting procedure

1. Set the player to the still mode, and search frame #15,000 of the LD test disc.
2. Connect the oscilloscope to CN601-1 in the ASCB assembly to observe the RF signal.
3. Adjust VR602 so that the amplitude of the RF signal becomes 300 mV ± 50 mV. (Photo 8)

Adjustment diagram



Waveforms

● Oscilloscope range : AC 5 mV/div., 2 mS/div

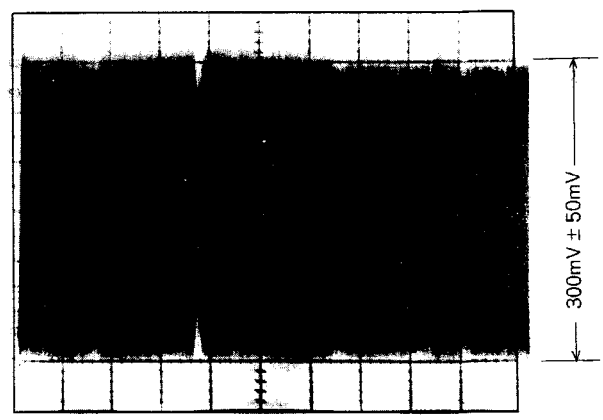


Photo 8

13. VCO FREQUENCY ADJUSTMENT

● Purpose : To adjust the VCO frequency of the PLL circuit used by the EFM decoder.

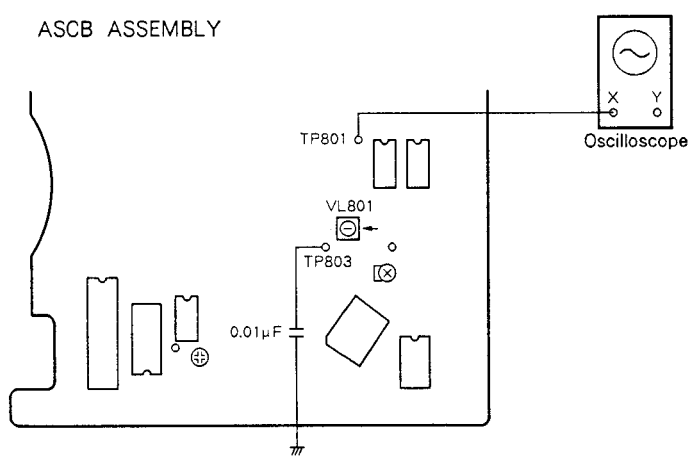
● Symptoms when incorrectly adjusted : CD play impossible, no digital audio signal output.

Measurement equipment & jigs	Measurement equipment connecting points	Player condition	Adjusting points
● Capacitor (0.01μF) ● Oscilloscope ● 8-inch LDD (with digital audio) or video part of CDV disc	● Oscilloscope : Connect CH1 between TP801 and GND in the ASCB assembly.	* Normal mode : ● Play mode	● VL801 in the ASCB assembly

Adjusting procedure

1. Press the OPEN/CLOSE key on the front panel twice to open the disc tray.
2. Load an LDD disc and play it.
3. Ground TP803 in the ASCB assembly using the capacitor (0.01μF), and connect the oscilloscope to TP801 to observe the waveform. At this time, adjust the Up/Down position knob so that the waveform comes to the center of the screen.
4. Release the shorting clip and adjust VL801 so that the center of the waveform on the oscilloscope becomes 0 mV ±200 mV from the center of the waveform observed in item 3.

Adjustment diagram



Weveforms

● Oscilloscope range :

DC CH1 : 50 mV / div., 2 mS / div

Photo 9

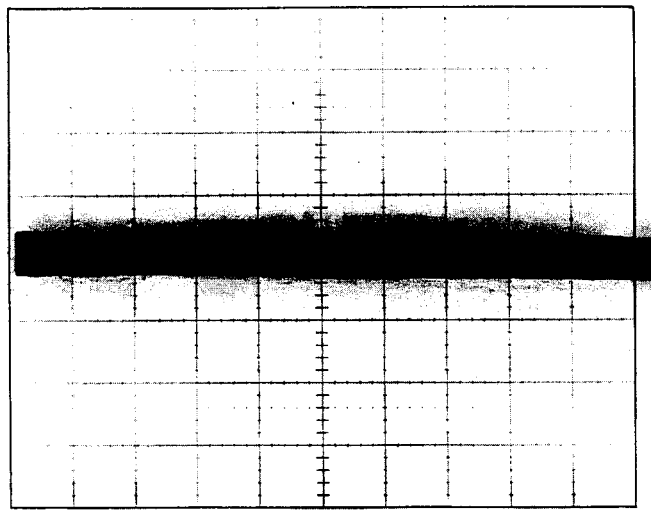
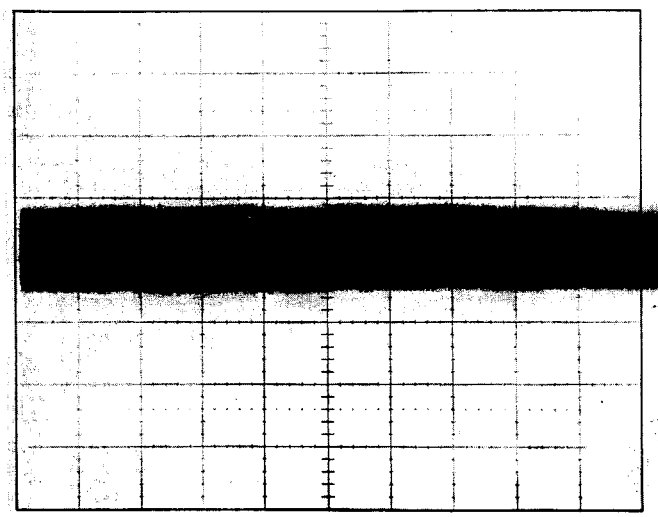


Photo 10



14. VCXO FREQUENCY ADJUSTMENT

● Purpose : To adjust the frequency of the crystal oscillator used by the EFM decoder.

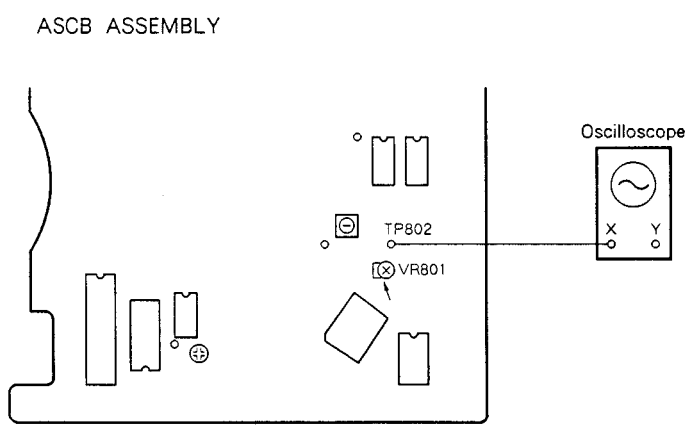
● Symptom when incorrectly adjusted : Audio signal interrupted occasionally with an LDD disc.

Measurement equipment & jigs	Measurement equipment connecting points	Player condition	Adjusting points
● Oscilloscope ● 8-inch LDD disc (with digital audio) or video part of CDV disc	● Oscilloscope : Connect CH1 between TP802 and GND in the ASCB assembly.	* Normal mode : ● Play mode	● VR801 in the ASCB assembly

Adjusting procedure

1. Press the OPEN/CLOSE key on the front panel twice to open the disc tray.
2. Load an LDD disc and play it.
3. Connect the oscilloscope to TP802 in the ASCB assembly.
4. Adjust VR801 in the ASCB assembly so that the center of the waveform on the oscilloscope (Photo 12) becomes 0 V ± 0.5 V.

Adjustment diagram



Weveforms

● Oscilloscope range :

DC CH1 : 50 mV / div., 5 mS / div

Photo 11

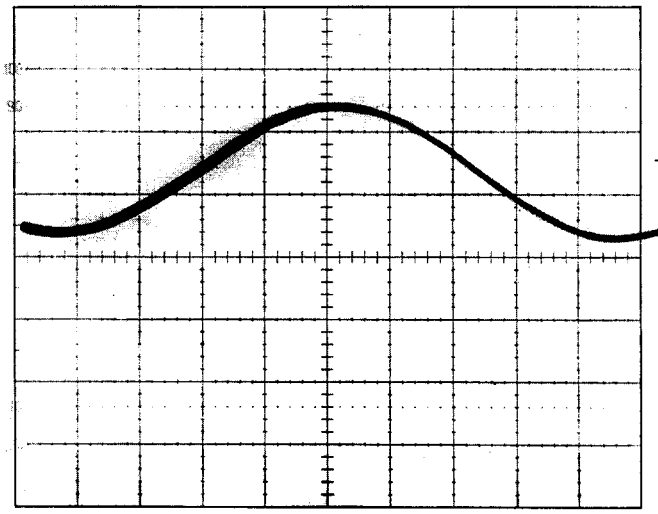
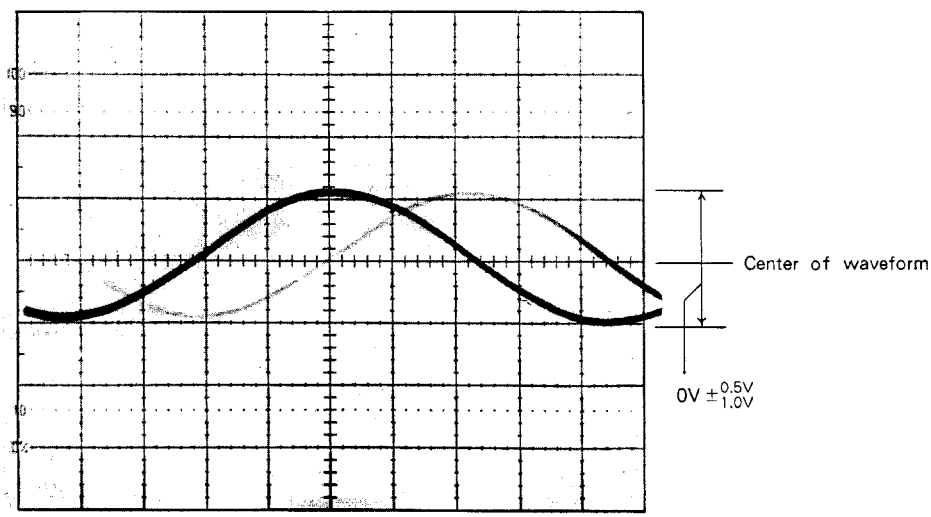


Photo 12



15. PD0011A CLOCK ADJUSTMENT

● Purpose : To adjust the clock frequency of the Philips decoder.

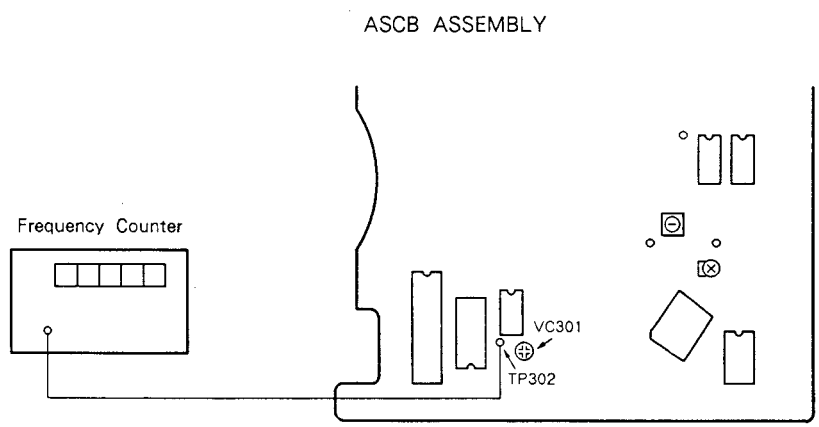
● Symptoms when incorrectly adjusted : Philips code readout impossible, no frame time indication, search operation impossible.

Measurement equipment & jigs	Adjusting points
● Frequency counter	● VC301 in the ASCB assembly

Adjusting procedure

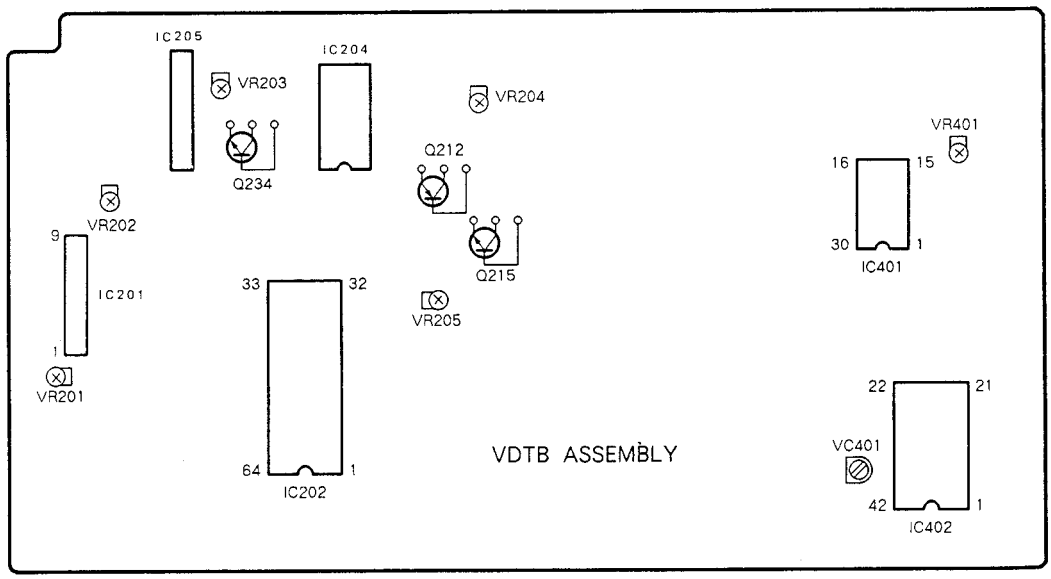
1. In the test mode stop condition, connect the frequency counter to TP302.
2. In this condition, adjust VC301 in the ASCB assembly so that the frequency at this time becomes 3.0 MHz ± 0.1 MHz.

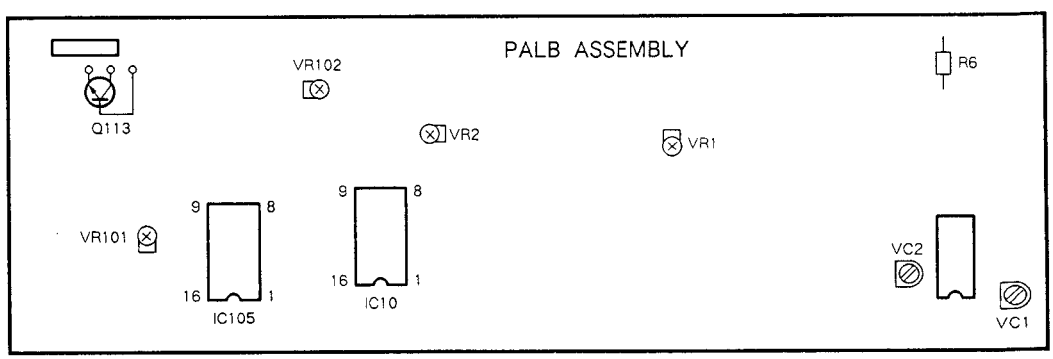
Adjustment diagram



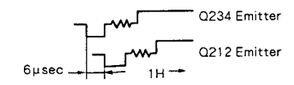
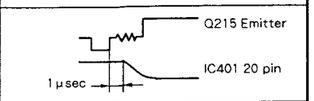
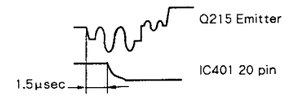
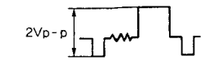
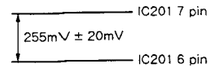
9.4 ELECTRICAL ADJUSTMENT

● ADJUSTMENT POINTS





(*) a : for CLD-1450/HB type, b : for CLD-1400/HEM type, a • b : both for CLD-1450/HB and CLD-1400/HEM types.

	Assembly Adjustment Name	*	Adjustment Point	Measurement Point	Adjustment Description	Condition for adjustment	Oscilloscope	Remarks
	PALB assembly (1/2)							
1	PAL Reference Clock Adjustment	a	VC2	Lead wire of R6	Adjust VC2 so that the frequency at the lead wire of R6 becomes 17.734475 MHz ± 110 Hz.	PAL DISC (J1) playback	Frequency counter	
		b	VC201	IC402 34 pin in theVDTB Ass'y	Adjust VC201 so that the frequency at the pin 34 of IC402 in the VDTB assembly becomes 3.546895MHz ± 22Hz.	PAL DISC (J1) playback	Frequency counter	
2	NTSC Reference Clock Adjustment	a	VC1	Lead wire of R6	Adjust VC1 so that the frequency at the lead wire of R6 becomes 14.31818 MHz ± 90 Hz.	NTSC DISC (GGV1002) playback	Frequency counter	
	VDTB assembly							
3	PAL Reference H-Sync Adjustment	a • b	VC401	IC402 29 Pin (TSS OUT)	Adjust VC401 so that pin 29 (TSS OUT) of IC402 becomes 15.6250 kHz ± 0.1 Hz.	PAL DISC (J1) playback	Frequency counter	
4	VCO Center Frequency Adjustment	a • b	VR203	Q234 Emitter Q212 Emitter	Adjust VR203 so that the time difference between the video signal of Q234 emitter and that of Q212 emitter becomes 70 ± 1.4μsec. (1H + 6μsec)	NTSC DISC (GGV1002) #5,100 STILL	CH1 : 50mV/div 10μS/div CH2 : 50mV/div	
5	Burst Gate Timing Adjustment	a	VR401	Q215 Emitter IC401 20 Pin	Adjust VR401 so that the time from the H sync rising edge of the video signal of Q215 emitter to the beginning of fall at pin 20 of IC401 becomes 1 ± 0.1μsec.	NTSC DISC (GGV1002) playback (as required)	CH1 : 50mV/div 1μS/div CH2 : 50mV/div	
		b	VR401	Q215 Emitter IC401 20 Pin	Adjust VR401 so that the time from the H sync falling edge of the video signal of Q215 emitter to the beginning of fall at pin 20 of IC401 becomes 1.5 ± 0.1μsec.	PAL DISC (J1) playback	CH1 : 50mV/div CH2 : 50mV/div	
6	Video Level Adjustment	a • b	VR204	Q113 Emitter in the PALB assembly	Adjust VR204 so that the level from sync chip to white peak in the video signal of Q113 emitter in the PALB assembly becomes 2 Vp-p ± 5%.	PAL DISC (J1) Chap. 11 STILL	CH1 : 50mV/div	
7	1H Delay Video Level Adjustment	a • b	VR202	IC202 40 Pin IC202 42 Pin	Adjust VR202 so that the main video signal at pin 40 of IC202 and the 1H delay video signal at pin 42 to the same level.	NTSC DISC (GGV1002) #3,800 STILL	CH1 : 20mV/div CH2 : 20mV/div	± 3%
8	DET Level Adjustment	a • b	VR201	IC201 7 Pin IC201 6 Pin	Adjust VR201 so that the voltage at pin 6 (rotation frequency detection output) of IC201 becomes a level 255 mV ± 20mV higher than that at pin 7 (threshold voltage) with a white picture.	PAL DISC (J1) #3,001 STILL	Digital voltmeter	
9	VPS Err Level Adjustment	a • b	VR205	TV monitor screen	Adjust VR205 so that color shading in a magenta picture is minimized.	NTSC DISC (#7,201) STILL	——	
	PALB assembly (2/2)							
10	MOD. Y Level Adjustment	a	VR2	IC10 3 Pin IC10 5 Pin	Adjust VR2 so that the luminance level at pin 3 (subsequent to the comb filter) becomes equal to that at pin 5 (subsequent to the 3.2 MHz L. P. F.)	NTSC DISC (GGV1002) playback	CH1 : 20mV/div CH2 : 20mV/div	0 ± 3%
11	Mod Video Level Adjustment	a	VR102	VIDEO OUT TERMINAL	Adjust VR102 so that the output video level at VIDEO OUT TERMINAL becomes 2 Vp-p ± 5%.	NTSC DISC (GGV1002) #5,100 STILL	CH1 : 50mV/div	2Vp-p ± 5%
		b	VR102	IC105 13 Pin IC105 12 Pin	Adjust VR102 so that the luminance level at pin 13 of IC105 becomes equal to that at pin 12.	PAL DISC (J1) chap. 11 STILL	CH1 : 50mV/div CH2 : 50mV/div	± 3%
12	Mod S. C. Level Adjustment	a	VR1	IC105 13 Pin IC105 12 Pin	Adjust VR1 so that the level at pin 13 (conversion chroma level) becomes equal to that pin 12 (main chroma level).	NTSC DISC (GGV1002) playback (as required)	CH1 : 50mV/div CH2 : 50mV/div	± 3%
13	1H Delay S. C. Level Adjustment	a • b	VR101	TV monitor screen	Adjust VR101 so that flicker on the TV monitor screen is minimized.	PAL DISC Chap. 11 STILL		

9. RÉGLAGES

9.1 GABARIT ET OUTILS NÉCESSAIRES POUR CE RÉGLAGE

- Petit tournevis à bout plat ⊖
  (avec une longueur de tige d'environ 7 cm)
- Petit tournevis cruciforme ⊕
  (avec une longueur de tige de plus de 15 cm)
- Filtre passe-bas (100 kohms + 1 μF (BP))
- Oscilloscope cathodique à deux faisceaux (avec délai)
- Oscillateur AF
- Compteur de fréquence
- Disque d'essai LD (GGV1002)
- Disque LDD de 8 pouces (disponible partout) et disque CDV (disponible partout)
- Pince de mise en coupe-circuit
- Voltmètre numérique
- Moniteur TV
- Résistance (100kΩ)
- Résistance (330kΩ)
- Capaciteur (0,01 μF)

9.2 PRÉPARATIFS ET PRÉCAUTIONS POUR LE RÉGLAGE

1. Réglage de lecteur

● Comment placer l'ensemble ASCB

Le réglage devrait être effectué avec le capot et le plateau déposés et le lecteur à l'horizontale (se reporter à la section 7. Démontage (page 81)).

Dans ce cas, faire attention à ne pas endommager le flexible de la plaquette P. C. (Fig. 9-1.)

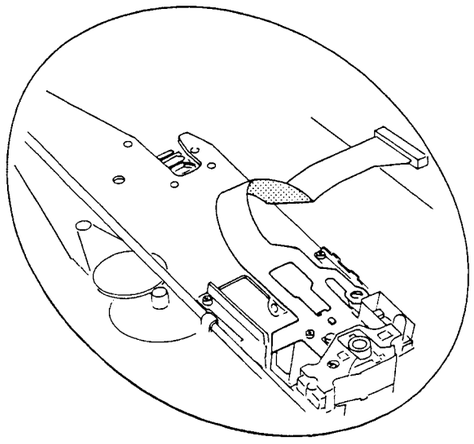


Fig. 9-1

● Installation du disque

Le disque doit être mis en place par l'arrière de la plaque rotative sur l'axe du moteur (vérifier que le disque est précisément positionné au centre de la plaque rotative à ce moment là) et, lorsque la touche PLAY est actionnée, le dispositif de maintien s'abaisse pout maintenir le disque en place avant de commencer la lecture.

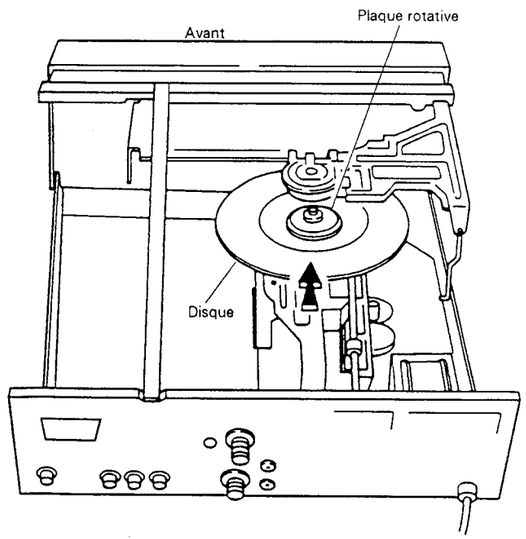


Fig. 9-2

● Installation du plateau

Alors que le plateau est ouvert et l'alimentation coupée, mettre les dents sans pignon pour une correspondance avec les dents du plateau, comme montré dans la Fig. 9-3. Pousser légèrement le plateau et s'assurer qu'il rentre dans l'appareil lorsque l'alimentation est fournie.

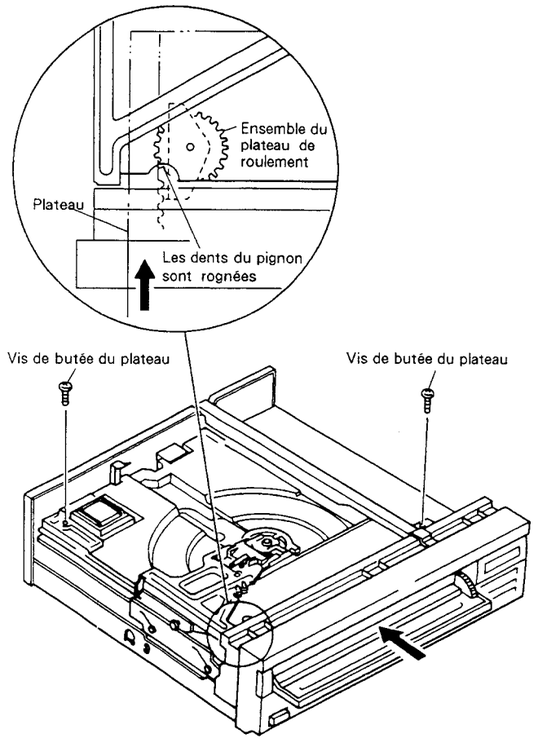


Fig. 9-3

- Pour les réglages du mécanisme à partir de l'item 1. "Réglage du gain d'angle" à l'item 12. "Réglage du gain de fréquence radio (RF)", le lecteur doit être mis en mode d'essai (se reporter à la section 8. "Mode d'essai (page 88)).
- L'oscilloscope doit être utilisé avec la sonde 10 : 1.

2. Procédure de réglage accompagnant le remplacement des pièces principales

1) Lorsque l'ensemble du capteur est remplacé

- Tous les réglages à partir de l'item 1. "Réglage du gain d'inclination" à l'item 12. "Réglage du gain de fréquence radio (RF)", le lecteur doivent être exécutés.

2) Lorsque l'axe du moteur est remplacé

- Le réglage de l'item 8. "Vérification et réglage du centrage de l'axe" doit être effectué. Ensuite la diaphonie aux bords les plus extérieurs et intérieurs du disque d'essai LD doit être vérifiée. Si on trouve une diaphonie à ce moment, tous les réglages à partir de l'item 3. "Réglage de mise à niveau de l'axe coulissant" à l'item 7. "Réglage de la balance d'erreur d'inclinaison" doivent être effectués.

3) Lorsque le capteur d'inclinaison est remplacé

- Les réglages de l'item 1. "Réglage du gain d'inclinaison", item 6. "Réglage du capteur d'inclinaison" et item 7. "Réglage de la balance d'erreur d'inclinaison" doivent être effectués.

9.3 RÉGLAGES DU MÉCANISME

1. RÉGLAGE DU GAIN D'INCLINAISON

● But : Régler le gain d'inclinaison en fonction du rang (niveau) de sensibilité du capteur d'inclinaison.

● Symptômes lorsqu'incorrectement réglé : Augmentation des oscillations d'inclinaison ou de la diaphonie.

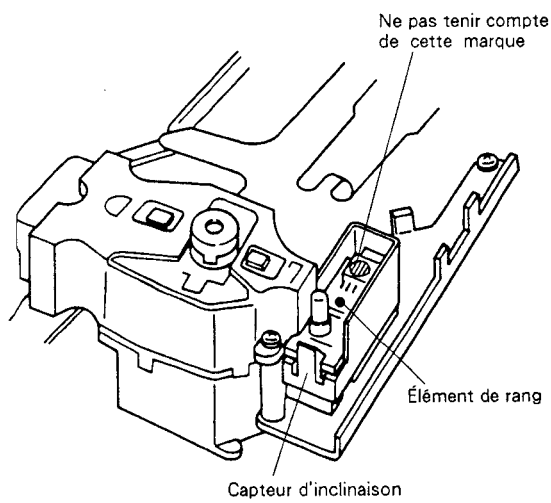
Equipement de mesure et gabarits	Point de réglage
● Tournevis (à bout plat)	● VR607 sur l'ensemble ASCB.

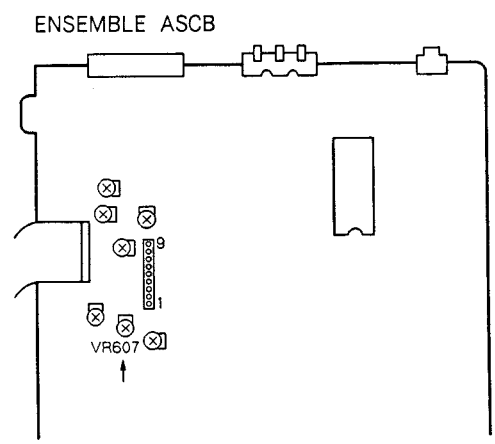
Procédure de réglage

1. En fonction de la couleur de l'indication du rang, tourner VR607 sur l'ensemble ASCB en utilisant le tournevis à bout plat.

Rang	Couleur	Inclinaison VR
A	Rouge	Tourner à fond dans le sens des aiguilles d'une montre.
B	Sans	Mettre sur le centre mécanique.
C	Bleu	Tourner à fond dans le sens contraire des aiguilles d'une montre.

Diagramme de réglage





2. RÉGLAGE APPROXIMATIF DU GRINCEMENT ET DE LA BALANCE D'ERREUR DE L'ALIGNEMENT

● But : Régler le grincement pour la lecture du disque et certaines sortes de réglages nécessaire à la lecture.

● Symptômes lorsqu'incorrectement réglé : Lecture du disque inpossible. Saut de piste.

Equipement de mesure et gabarits	Equipement de mesure et point de raccorder	Condition l'appareil	Point de réglage
● Tournevis (à bout plat) ● Oscilloscope ● Disque d'essai : GGV1002 ● Moniteur TV	● Oscilloscope : CH1 : Entre erreur TRKG (CN601-8) et GND dans l'ensemble ASCB	* Mode d'essai ; ● Mode de lecture ● Boucle d'alignement ouverte ● Spécifier l'inclinaison sur OFF	● Réglage du grincement dans l'ensemble du capteur. ● VR605 sur l'ensemble ASCB

Procédure de réglage

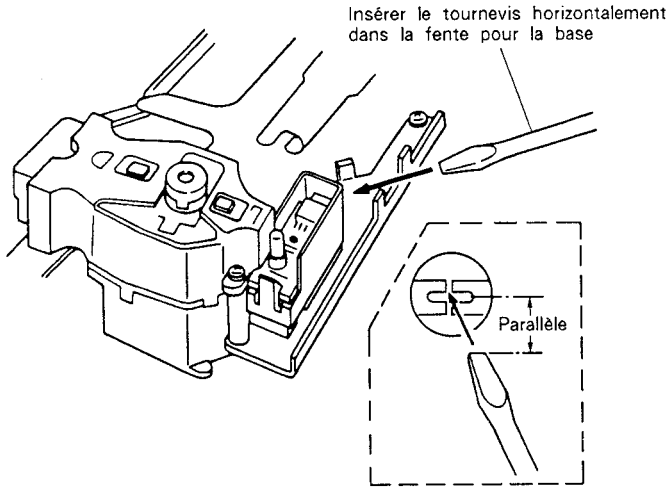
[Réglage approximatif (temporaire) du grincement]

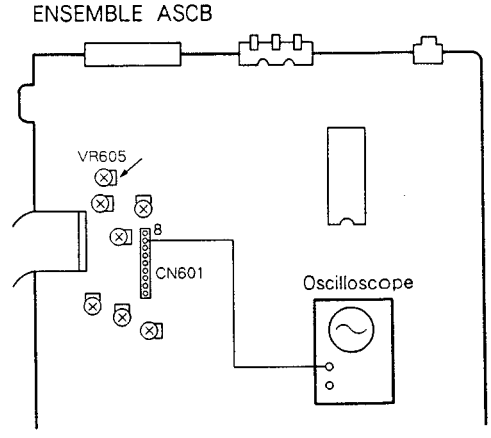
1. Mettre le disque LD en place et appuyer sur la touche PLAY.
2. Déplacer le capteur au cadre d'environ n° 15000 en utilisant les touches de balayage.
3. Ouvrir la boucle d'alignement (TRKG) (se reporter en 88).
4. Connecter CN601-8 de l'ensemble ASCB à l'oscilloscope pour observer la forme d'onde.
5. Insére un (petit) tournevis plat dans l'orifice de réglage du grincement et spécifier d'abord le point ou l'amplitude de l'erreur d'alignement (TRKG) de la forme d'onde est maximum puis trouver le point ou la forme d'onde devient minimum et ainsi l'enveloppe la plus douce est obtenue (position sur piste) (Photo 1).
6. Dans cette condition, tourner le tournevis plat dans le sens inverse des aiguilles d'une montre et arrêter de tourner au niveau du point où l'amplitude de l'erreur d'alignement (TRKG) devient maximum pour la première fois (photo 2).

[Réglage de la balance de l'alignement (TRKG)]

1. Régler VR605 sur l'ensemble ASCB de façon à ce que les amplitudes "a" et "b" montrées sur la photo 2 deviennent égales.
   Fermer la boucle d'alignement et vérifier que l'image sur l'écran de télévision est normale.

Diagramme de réglage





Formes d'ondes

● Gamme de l'oscilloscope : CC 20mV/div., 5 mS/div

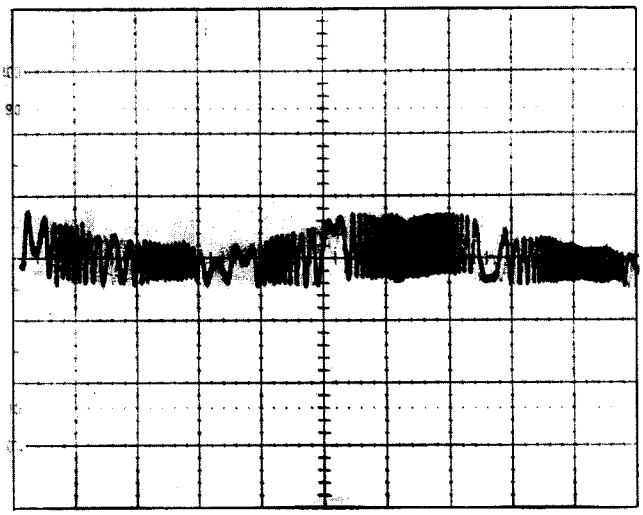


Photo 1 Position sur piste

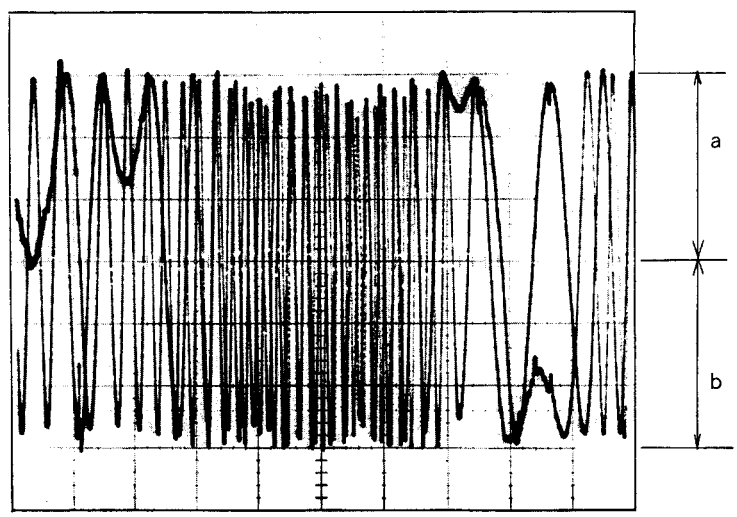


Photo 2 Amplitude maximum

3. RÉGLAGE DE MISE À NIVEAU DE L'AXE COULISSANT

● But : Rendre le disque et l'axe coulissant parallèles de façn à ce que le capteur puisse se déplacer parallèlement au disque.

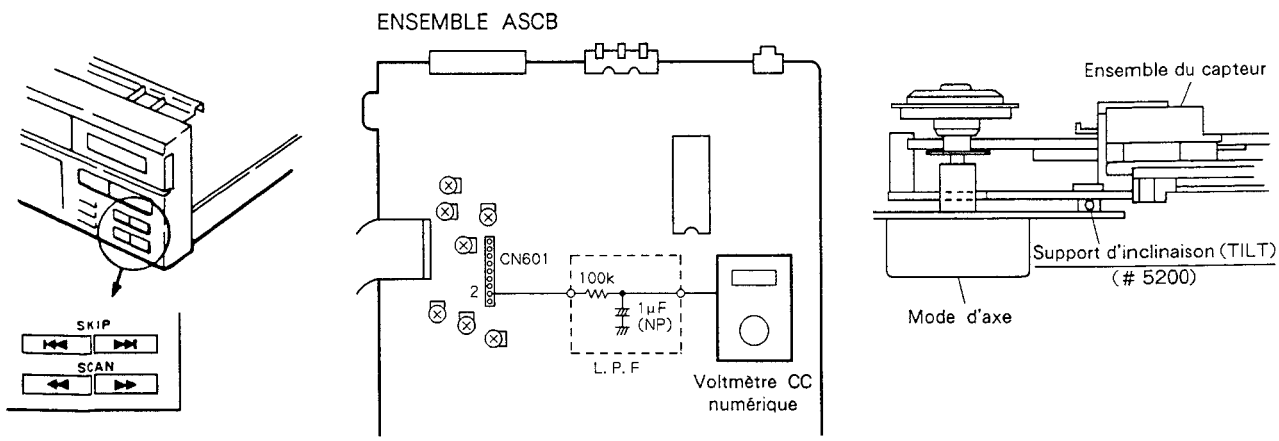
● Symptômes lorsqu'incorrectement réglé : La zone de fonctionnement des lentilles n'est pas satisfaisant avec des disques voilés et la mise au point est déverrouillée au milieu ou à la zone externe du disque.

Equipement de mesure et gabarits	Equipement de mesure et point de raccorder	Condition l'appareil	Point de réglage
● Voltmètre numérique ● Filtre passe-bas ● Disque d'essai : GGV1002	● Voltmètre CC numérique entre FORT (CN601-2) et GND sur l'ensemble ASCB.	* Mode d'essai ; ● Mode d'image fixe ● Boucle d'alignement ouverte ● Spécifier l'inclinaison sur OFF	● Lecteur : Touches SKIP (pendant le mode d'essai)

Procédure de réglage

1. Mettre le disque d'essai LD en place et alimenter le curseur autour du cadre n° 5200 (Support d'inclinaison) en utilisant la touche SCAN (▶▶) et ouvrir la boucle d'alignement (TRKG).
2. Connecter la borne 2 de CN601 de l'ensemble ASCB au voltmètre numérique.
3. Noter la lecture du voltmètre numérique (unité 1 mV).
4. Alimenter le curseur autour du cadre n° 25000 du disque d'essai LD en utilisant la touche SCAN (▶▶).
5. Régler les touche SKIP (|◀◀, ▶▶|) de façon à ce que la lecteur sur le compteur soit ± 2 mV de la valeur noté ciavant.

Diagramme de réglage



4. RÉGLAGE DE L'INCLINAISON DU CAPTEUR

● But : Régler l'inclinaison du capteur de façon à ce que le faisceau laser atteigne le disque verticalement.

● Symptômes lorsqu'incorrectement réglé : Diaphonie.

Equipement de mesure et gabarits	Equipement de mesure et point de raccorder	Condition l'appareil	Point de réglage
● Moniteur TV ● Disque d'essai : GGV1002	● Moniteur TV Connecter à la borne de sortie du lecteur.	* Mode d'essai : ● Mode d'image fixe ● Boucle d'alignement ouverte ● Spécifier l'inclinaison sur OFF	● Ensemble du lecteur : Vis de réglage d'inclinaison en direction radiale et vis de réglage d'inclinaison en direction tangentielle.

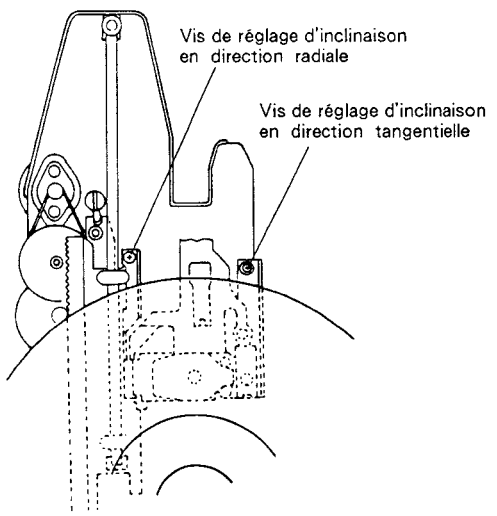
Procédure de réglage

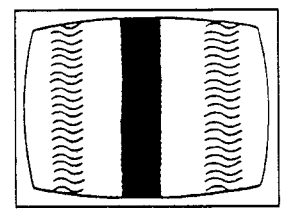
1. Mettre le lecteur en mode d'arrêt sur image avec la boucle d'alignement fermée et chercher le cadre n° 115 du disque d'essai LD.
2. Régler les vis de réglage d'inclinaison en direction radiale et tangentielle de l'ensemble capteur de façon à ce que la diaphonie sur les côtés droit et gauche de l'écran TV devient minimum.
3. Rechercher le cadre n° 130.
4. Régler les vis de réglage d'inclinaison en direction radiale et tangentielle de l'ensemble capteur de façon à ce que la diaphonie sur les côtés droit et gauche de l'écran TV devienne minimum.
5. Répéter la procédure du dessus de façon à ce que la diaphonie des cadres n° 115 et n° 130 devienne minimum.

Remarque :

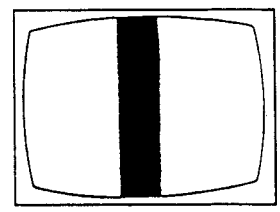
À ce moment, tourner la vis de réglage d'inclinaison en direction radiale et tangentielle dans le sens des aiguilles d'une montre d'environ un quart de tour après le meilleur point et revenir d'un quart de tour pour terminer le réglage. Lorsque la diaphonie est difficile à détecter, régler le contraste et la luminosité du moniteur TV pour la rendre plus visible. Si elle est encore difficile à détecter, obtenir la forme d'onde RF maximum en ajustant les vis de réglage d'inclinaison en direction radiale et tangentielle.

Diagramme de réglage





Diaphonie sur l'écran



La diaphonie devient minimum

5. RÉGLAGE DE LA BALANCE D'ERREUR DE MISE AU POINT

● But : Compenser la position de la lentille électriquement de façon à ce que FOCS fonctionne correctement.

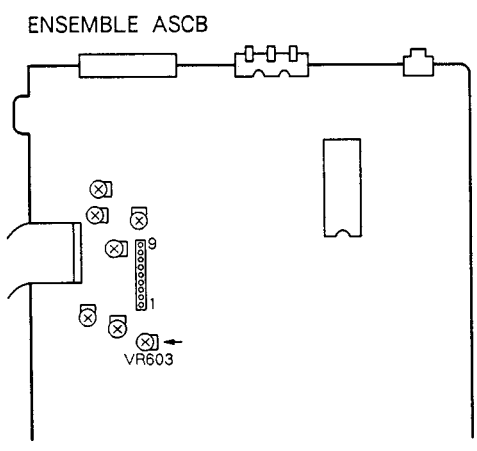
● Symptômes lorsqu'incorrectement réglé : Diaphonie.

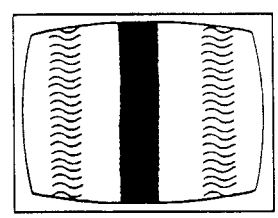
Equipement de mesure et gabarits	Equipement de mesure et point de raccorder	Condition l'appareil	Point de réglage
● Moniteur TV ● Disque d'essai : GGV1002	● Moniteur TV Connecteru à la borne de sortie du lecteur	* Mode d'essai : ● Mode d'image fixe ● Boucle d'alignement ouverte ● Spécifier l'inclinaison sur OFF	● VR603 sur l'ensemble ASCB

Procédure de réglage

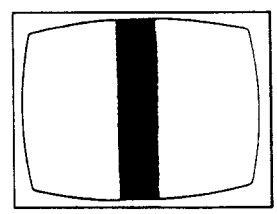
1. Mettre le lecteur en mode d'arrêt sur image avec la boucle d'alignement fermée et chercher le cadre n° 115 du disque d'essai LD.
2. Régler VR603 de façon à ce que la diaphonie sur les côtés droit et gauche de l'écran TV devienne minimum et égale.

Diagramme de réglage





Diaphonie sur l'écran



La diaphonie devient minimum

6. RÉGLAGE DU CAPTEUR D'INCLINAISON

- But : Régler l'angle du capteur d'inclinaison de façon optimalle (paralèle au disque) de façon à ce que la DEL du capteur d'inclinaison s'allume verticalement sur la superficie du disque.
- Symptômes lorsqu'incorrectement réglé : Diaphonie, gamme de fonctionnement non satisfaisante de la lentille, opération de recherche instable.

Equipement de mesure et gabarits	Equipement de mesure et point de raccorder	Condition l'appareil	Point de réglage
● Moniteur TV ● Petit tournevis cruciforme ⊕ ● Disque d'essai : GGV1002	● Moniteur TV Connecter à la borne de sortie du lecteur. * Lorsque le moniteur TV n'est pas utilisé, connecter le l'affichage fluorescent au lecteur.	* Mode d'essai : ● Mode d'image fixe ● Boucle d'alignement fermée ● Spécifier l'inclinaison sur OFF	● Vis de réglage d'inclinaison du capteur d'inclinaison dans l'ensemble du mécanisme.

Procédure de réglage

1. Mettre le lecteur sur le mode d'arrêt sur image et rechercher le cadre n° 16200 du disque d'essai LD.
2. Mettre le réglage de la balance d'inclinaison VR601 sur sa position centrale mécanique.
3. Régler la vis de réglage d'inclinaison du capteur d'inclinaison de façon à ce que le code d'indication d'erreur sur le moniteur TV ou l'affichage fluorescent sur l'appareil principal devient 6 à 8.

Remarque :
À ce moment, tourner la vis de réglage d'inclinaison du capteur d'inclinaison dans le sens des aiguille d'une montre d'environ un quart de tour après le meilleur point puis dans le sens contraire d'un quart de tour pour compléter le réglage.

ENSEMBLE ASCB

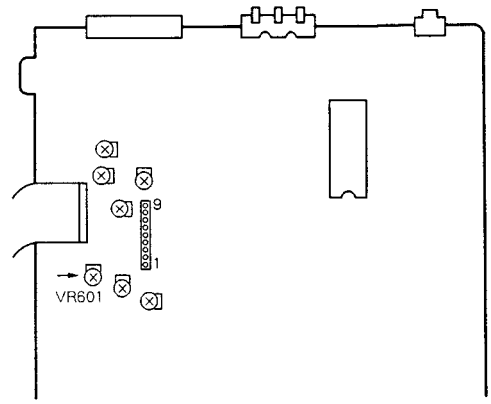
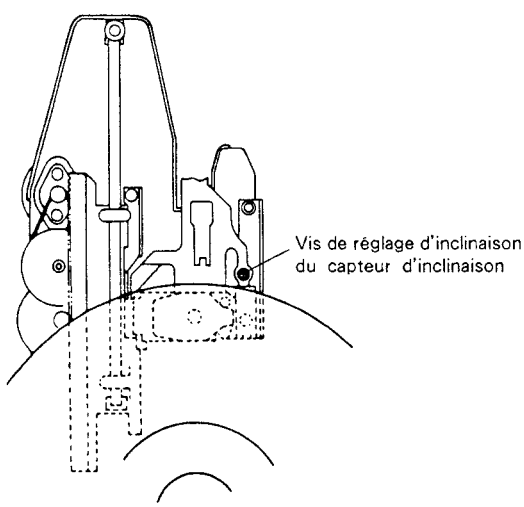
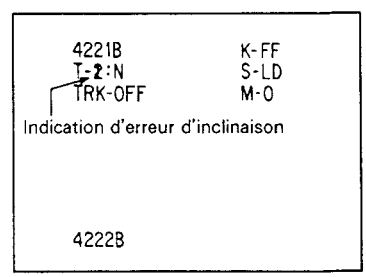
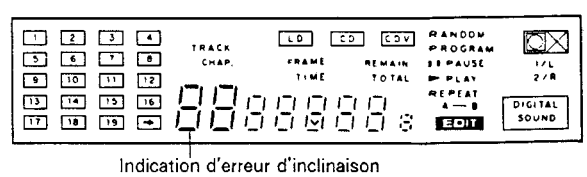


Diagramme de réglage





Remarque : Cet affichage sur écran est utilisé pour montré la position de l'indication de l'erreur d'inclinaison et peut être différent de l'affichage actuel.



7. RÉGLAGE DE LA BALANCE D'INCLINAISON

● But : Compenser la différence de sensibilité entre les deux diodes photo sur l'ensemble de la plaquette de capteur d'inclinaison avec un cadre de réglage d'inclinaison du capteur.

● Symptômes lorsqu'incorrectement réglé : Diaphonie, gamme de fonctionnement non satisfaisante de la lentille, opération de recherche instable.

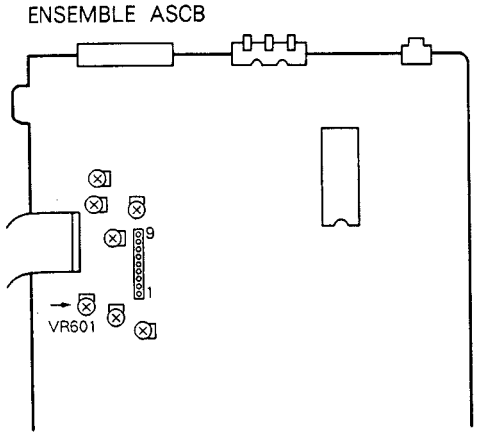
Equipement de mesure et gabarits	Equipement de mesure et point de raccorder	Condition l'appareil	Point de réglage
● Moniteur TV ● Petit tournevis à bout plat ⊖ ● Disque d'essai : GGV1002	● Moniteur TV Connecter à la borne de sortie du lecteur. * Lorsque le moniteur TV n'est pas utilisé, connecter le l'affichage fluorescent au lecteur.	* Mode d'essai : ● Mode d'image fixe ● Boucle d'alignement fermée ● Spécifier l'inclinaison sur OFF	● VR601 sur l'ensemble ASCB

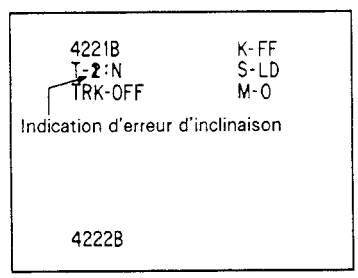
Procédure de réglage

1. Mettre le lecteur sur la mode d'arrêt sur image et rechercher le cadre n° 115 du disque d'essai LD.
2. Régler VR601 de façon à ce que le code d'indication d'erreur d'inclinaison sur le moniteur TV ou l'affichage fluorescent sur le lecteur devienne 7.

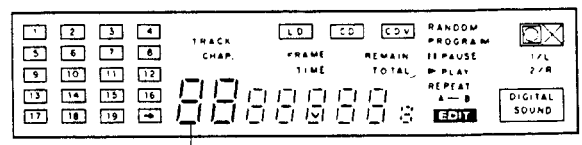
Diagramme de réglage

ENSEMBLE ASCB





Remarque : Cet affichage sur écran est utilisé pour montré la position de l'indication de l'erreur d'inclinaison et peut être différent de l'affichage actuel.



Indication d'erreur d'inclinaison

8. VÉRIFICATION ET RÉGLAGE DU CENTRAGE DU MOTEUR D'AXE

- But : Régler la position de l'ensemble du mécanisme de façon à ce que le centre de moteur d'axe soit sur la pisite du faisceau laser lorsque l'ensemble du capteur est déplacé vers l'intérieur ou l'extérieur du disque.
- Symptômes lorsqu'incorrectement réglé : Saut de piste, temps de recherche plus long.

Equipement de mesure et gabarits	Equipement de mesure et point de raccorder	Condition l'appareil	Point de réglage
● Petit tournevis à bout plat ⊖ ● Oscilloscope ● Disque d'essai : GGV1002	● Oscilloscope : Connecter CH1 entre l'erreur TRKG (CN601-8) et GND sur l'ensemble ASCB. Connecter CH2 à la somme TRKG (CN601-7) sur l'ensemble ASCB.	* Mode d'essai : ● Mode de lecture ● Boucle d'alignement ouverte ● Spécifier l'inclinaison sur ON	● Levier de réglage de centrage du moteur d'axe dans l'ensemble du mécanisme.

Procédure de réglage

[Vérification de centrage]

1. Mettre le lecteur en mode de lecture avec la boucle TRKG ouverte et rechercher le cadre n° 25000 (bord extéreieur) du disque d'essai LD.
2. Observer le signal à CN601-8 (erreur TRKG) dans l'ensemble ASCB et vérifier que l'amplitude est minimum et que l'enveloppe est douce. Si non, régler la vis du grincement en utilisant un tournevis à bout plat (Fig. 1/Photo 3).
3. Spécifier l'oscilloscope en mode X − Y et connecter CN601-8 (erreur TRKG) dans l'ensemble ASCB à CH1 (entrée X) et CN601-7 (somme TRKG) à CH2 (entrée Y) respectivement pour observer la forme d'onde de Lisajous. (Fig. 2)
4. Régler finement le grincement de façon à ce que la forme d'onde de Lisajous dans la direction de l'axe X devienne minimum. (Fig. 3)
5. Déplacer l'ensemble du capteur vers l'intérieur autour du cadre n° 3000.
6. Vérifier que la largeur de la forme d'onde de Lisajous dans la direction de l'axe X est minimum.
7. À ce moment, si la forme d'onde de Lisajous montre une forme ovale étendue autour du cadre n° 3000, desserrer la vis de fixation de l'axe légement (voir en Fig. 2) puis effectuer le réglage du centrage de la manière suivante.

[Réglage du centrage]

1. Insérer le tournevis à bout plat dans le levier de réglage d'axe (voir la Fig. 2).
2. Tourner lentement le tournevis de façon à ce que la largeur de la forme d'onde de Lisajous dans la direction de l'axe X devienne minimum puis tourner le tournevis jousqu'à obtenir une forme d'onde de forme identique à celle de l'item d 4 de "Vérification du centrage". (Fig. 4)
3. Déplacer l'ensemble du capteur à une position autour du cadre n° 25000 (vers l'extérieur du disque) et régler la vis du grincement de façon à ce que la largeur de la forme d'onde de Lisajous dans la direction de l'axe X devienne minimum.
4. Déplacer de nouveau l'ensemble du capteur vers l'intérieur du disque autour du cadre n° 3000 et vérifier que la largeur de la forme d'onde de Lisajous dans la direction de l'axe X est minimum.
5. Si la largeur de la forme d'onde de Lisajous dans la direction de l'axe X ne devient pas minimum, répéter de nouveau les procédures ci-avant de façon à ce que la largeur minimum de la forme d'onde de Lisajous dans la direction de l'axe X soit obtenue à l'intérieur et à l'extérieur du disque.
6. Aprés en avoir terminé avec le réglage du centrage, serrer la vis de fixation de l'axe (voir Fig. 2) tout en vérifiant que la forme de la forme d'onde ne change pas.

Diagramme de réglage

ENSEMBLE ASCB

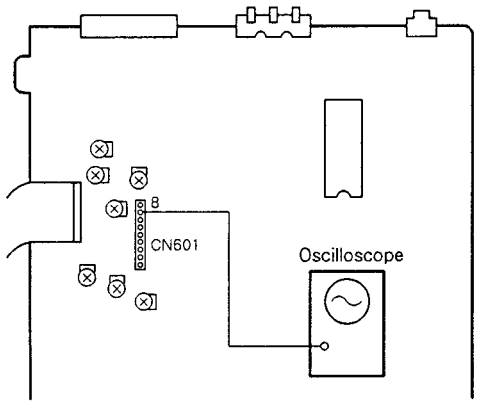


Fig. 1

● Oscilloscope : CC 20 mV / div. 5 mS / div.

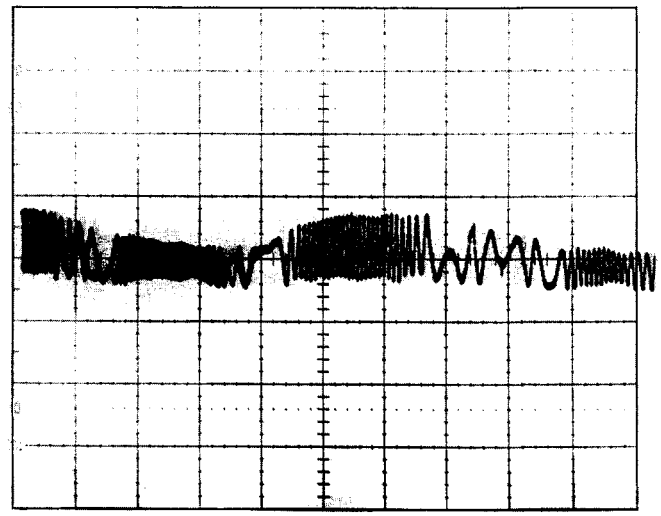
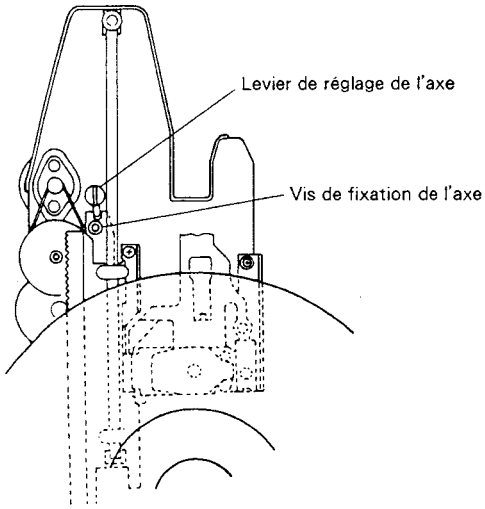


Photo 3 Position sur piste (point nul)



ENSEMBLE ASCB

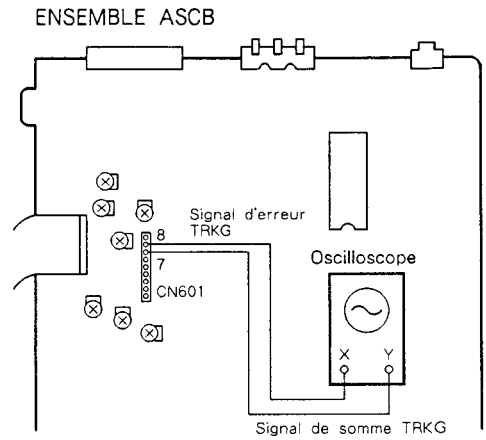
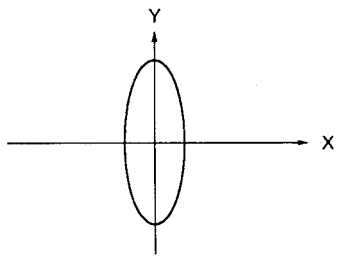


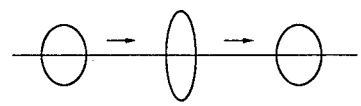
Fig. 2



Forme d'onde de Lisajous
Position sur piste : Largeur minimum dans la direction de l'axe X et largeur maximum dans la direction de l'axe Y.

Fig. 3

Référence :
Lorsque la forme d'onde de Lisajous ne peut pas être vue clairement, ajouter un filtre passe-bas au circuit de mesure et le régler come montré dans la figure du dessous.



Forme d'onde de Lisajous

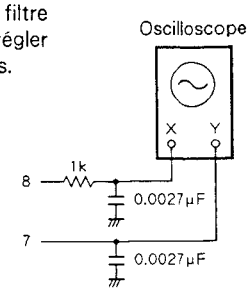


Fig. 4

9. RÉGLAGE FIN DU GRINCEMENT ET RÉGLAGE DE LA BALANCE D'ALGNEMENT

- But : Réglage fin du grincement de façon à ce que les deux faisceaux laser pour l'alignement (TRKG) soient émis sur les position de piste optimum sur le disque.
- Symptômes lorsqu'incorrectement réglé : Saut de piste.

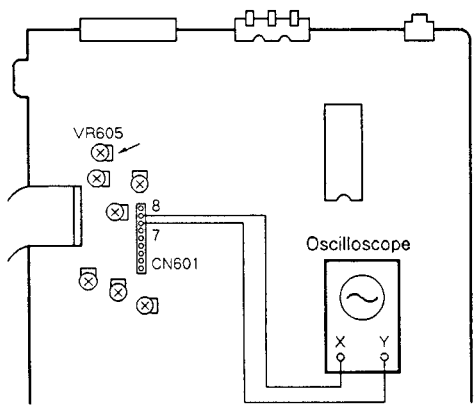
Equipement de mesure et gabarits	Equipement de mesure et point de raccorder	Condition l'appareil	Point de réglage
● Oscilloscope ● Petit tournevis à bout plat ⊖ ● Disque d'essai : GGV1002	● Oscilloscope : Connecter CH1 entre l'erreur TRKG (CN601-8) et GND sur l'ensemble ASCB. Connecter CH2 à la somme TRKG (CN601-7) sur l'ensemble ASCB.	* Mode d'essai : ● Mode de lecture ● Boucle d'alignement ouverte ● Spécifier l'inclinaison sur ON	● Vis du grincement dans l'ensemble du mécanisme ● VR605 sur l'ensemble ASCB

Procédure de réglage

1. Mettre le lecteur en mode de lecture avec la boucle TRKG ouverte et rechercher le cadre n° 3000 (bord intérieur) du disque d'essai LD.
2. Spécifier l'oscilloscope en mode X – Y et connecter CN601-8 (erreur TRKG) dans l'ensemble ASCB à CH1 (entrée X) et CN601-7 (somme TRKG) à CH2 (entrée Y) respectivement pour observer la forme d'onde de Lisajous.
3. Insérer le tournevis à bout plat dans le trou de réglage du grincement (voir page 110) et régler le grincement de façon à ce que la largeur de la forme d'onde de Lisajous dans la direction de l'axe Y devienne minimum.
4. À ce moment, vérifier que les dimensions "a" et "b" de la forme d'onde de Lisajous soit égale (a = b). Si non, régler VR605 (balance TRKG) sur l'ensemble ASCB.
5. Fermer la boucle TRKG et vérifier que l'image sur l'écran TV est normale.

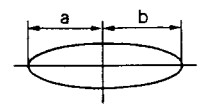
Diagramme de réglage

ENSEMBLE ASCB

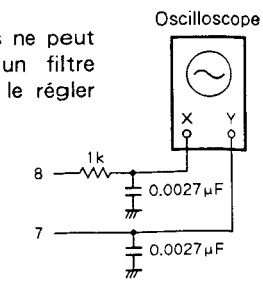


- Gamme de l'oscilloscope :
  CH1 (X) : 20 – 50 mV/div.
  CH2 (Y) : 5 mV/div.
  À ce moment, la sonde pour l'axe Y doit être réglée sur le mode X1.

Cadre n° 15000
Forme d'onde de Lisajous
Largeur minimum dans la direction de l'axe Y, a = b



Référence :
Lorsque la forme d'onde de Lisajous ne peut pas être vue clairement, ajouter un filtre passe-bas au circuit de mesure et le régler comme montré sur la figure.



10. RÉGLAGE DU GAIN DE LA BOUCLE DE LA MISE AU POINT

● But : Spécifier le gain pour la boucle de mise au point à la valeur optimum.

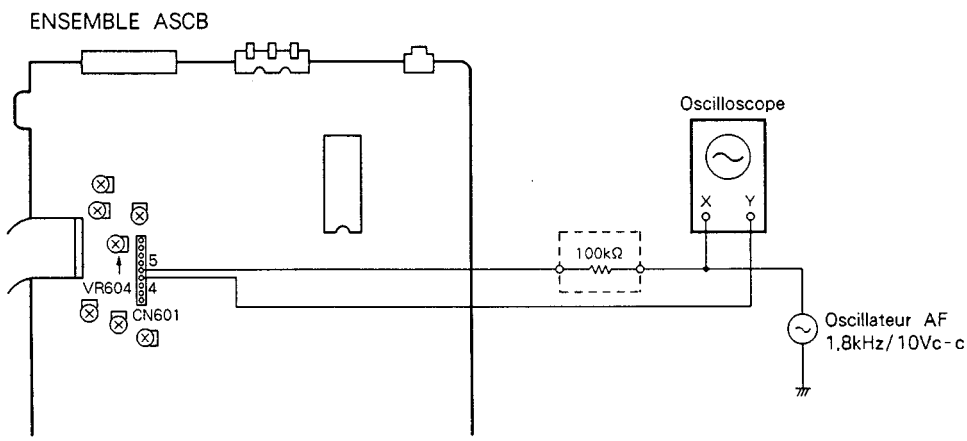
● Symptômes lorsqu'incorrectement réglé : Dégradation de la possibilité de lecture.

Equipement de mesure et gabarits	Equipement de mesure et point de raccorder	Condition l'appareil	Point de réglage
● Oscilloscope ● Oscillateur AF (1,8 kHz/10Vc-c) ● Résistance (100 kohms) ● Disque d'essai : GGV1002	● Oscilloscope : Connecter CH1 entre la entrée FOCS (CN601-5) et GND sur l'ensemble ASCB. Connecter CH2 à l'erreur FOCS (CN601-7) sur l'ensemble ASCB.	* Mode d'essai : ● Mode d'image fixe ● Boucle d'alignement fermeé ● Spécifier l'inclinaison sur ON	● VR604 sur l'ensemble ASCB

Procédure de réglage

1. Spécifier la sortie de l'oscillateur AF sur 1,8 kHz/10Vc-c.
2. Mettre le lecteur en mode d'arrêt sur image et rechercher le cadre n° 15000 sur le disque d'essai LD.
3. Connecter CN601-4 et CN601-5 dans l'ensemble ASCB, comme montré dans la figure du dessous.
4. Spécifier le mode X – Y de l'oscilloscope et observer la forme d'onde de Lisajous.
5. Régler VR604 de façon à que la forme d'onde de Lisajous devienne symétrique aux axes X et Y. (Photo 4 et 5)

Diagramme de réglage



Formes d'ondes

● Gamme de l'oscilloscope :
CH1 (X) : 200 mV / div.,
CH2 (Y) : 5 mV / div

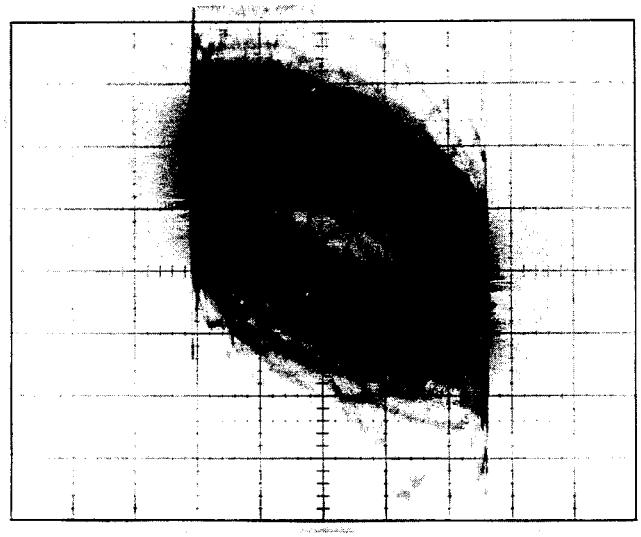


Photo 4

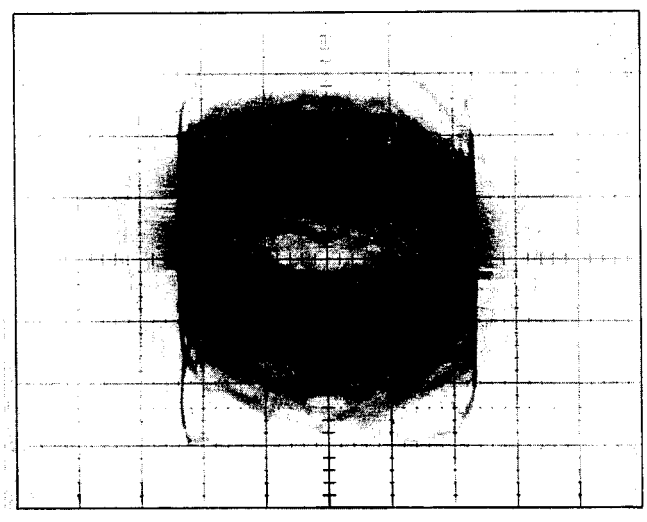


Photo 5

11. RÉGLAGE DU GAIN DE LA BOUCLE DE MISE AU POINT

● But : Spécifier le gain pour la boucle de mise au point à la valeur optimum.

● Symptômes lorsqu'incorrectement réglé : Dégradation de la possibilité de lecture.

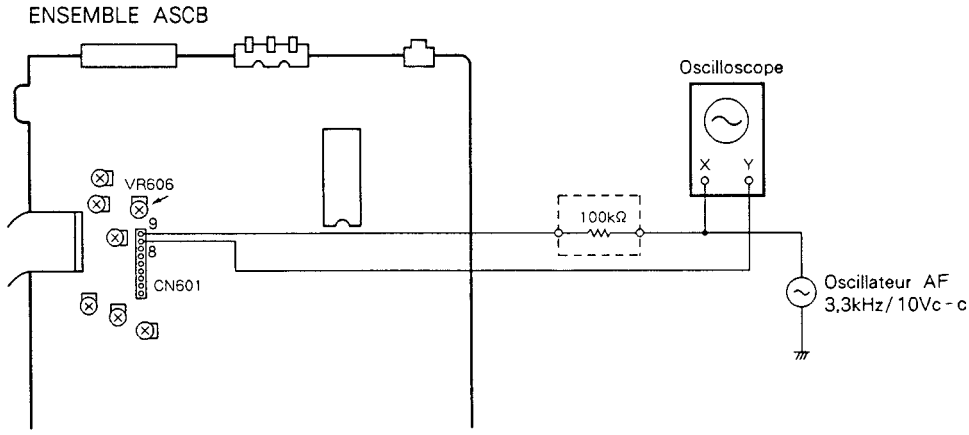
Equipement de mesure et gabarits	Equipement de mesure et point de raccorder	Condition l'appareil	Point de réglage
● Oscilloscope ● Résistance (100 kohms) ● Oscillateur AF (3,3 kHz/10 Vc-c) ● Disque d'essai : GGV1002	● Oscilloscope : Connecter CH1 entre la entrée TRKG (CN601-9) et GND sur l'ensemble ASCB. Connecter CH2 à l'erreur TRKG (CN601-8) sur l'ensemble ASCB.	* Mode d'essai : ● Mode d'image fixe ● Boucle d'alignement fermeé ● Spécifier l'inclinaison sur ON	● VR606 sur l'ensemble ASCB

Procédure de réglage

1. Mettre le lecteur en mode d'arrêt sur image et rechercher le cadre n° 15000 sur le disque d'essai LD.
2. Connecter la résistance, l'oscillateur AF et l'oscilloscope comme montré dans la figure ci-dessous.
   À ce moment, spécifier la sortie de l'oscillateur AF sur 3,3 kHz/10 Vc-c.
3. Spécifier le mode X−Y de l'oscilloscope et observer la forme d'onde de Lisajous.
4. Régler VR606 de façon à ce que la forme d'onde de Lisajous devienne symétrique aux axes X et Y.
   (Photos 6 et 7)

Remarque :
Lorsque les résultats requis ne sont pas obtenus, remplacer la résistance de 100 kohms par une de 33 kohms ou accroître le niveau de sortie de l'oscillateur.

Diagramme de réglage



Formes d'ondes

● Gamme de l'oscilloscope :
CH1 (X) : 200 mV/div.,
CH2 (Y) : 5 mV/div

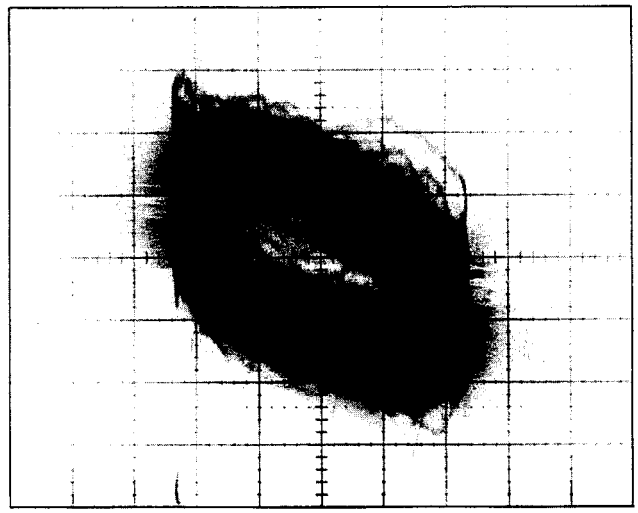


Photo 6

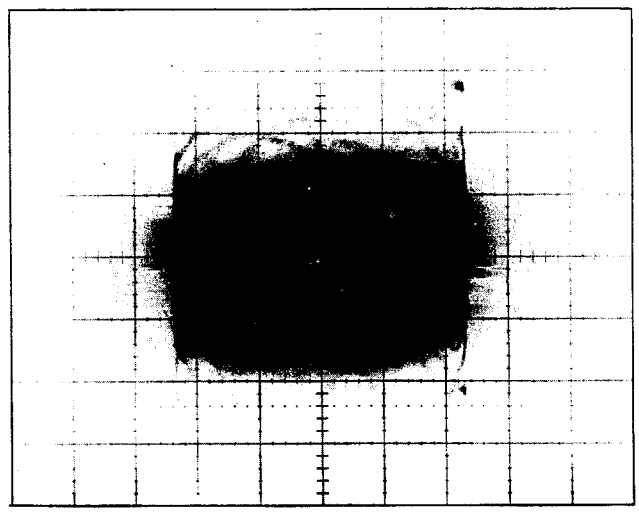


Photo 7

12. RÉGLAGE DU GAIN DE LA FRÉQUENCE RADIO (RF)

● But : Spécifier l'amplitude du signal RF à la valeur optimum.

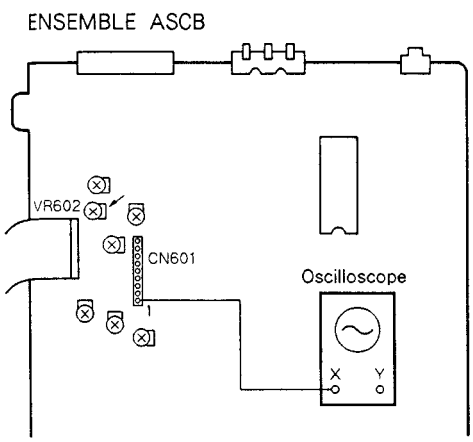
● Symptômes lorsqu'incorrectement réglé : Chutes fréquentes. Balayage instable, opérations de recherche.

Equipement de mesure et gabarits	Equipement de mesure et point de raccorder	Condition l'appareil	Point de réglage
● Oscilloscope ● Disque d'essai : GGV1002	● Oscilloscope : Connecter CH1 enter du signal RF (CN601-1) et GND sur l'ensemble ASCB	* Mode d'essai : ● Mode d'image fixe ● Boucle d'alignement fermeé ● Spécifier l'inclinaison sur ON	● VR602 sur l'ensemble ASCB

Procédure de réglage

1. Mettre le lecteur en mode d'arrêt sur image et rechercher le cadre n° 15000 sur le disque d'essai LD.
2. Connecter l'oscilloscope à CN601-1 sur l'ensemble ASCB pour observer le signal RF.
3. Régler VR602 de façon à ce que l'amplitude du signal RF devienne 300 mV ± 50 mV. (Photo 8)

Diagramme de réglage



Formes d'ondes

● Gamme de l'oscilloscope : AC 5 mV/div., 2 mS/div

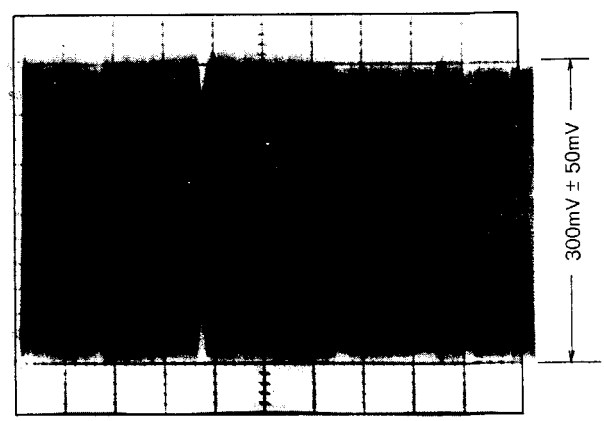


Photo 8

13. RÉGLAGE DE LA FRÉQUENCE VCO

● But : Pour régler la fréquence VCO du circuit PLL utilisé par le décodeur EFM.

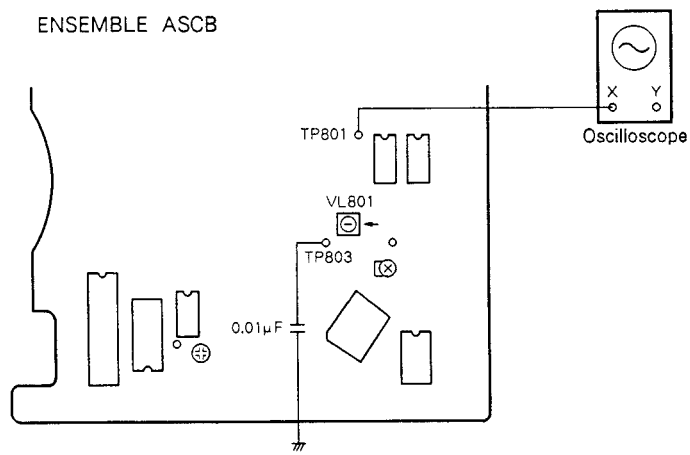
● Symptômes lorsqu'incorrectement réglé : La lecture du disque compact est impossible, aucun signal audio n'est sorti.

Equipement de mesure et gabarits	Equipement de mesure et point de raccorder	Condition l'appareil	Point de réglage
● Capaciteur (0.01μF) ● Oscilloscope ● Disque LDD de 8 pouces (avec digital audio ou vidéo partie du disque CDV.	● Oscilloscope : Connecter CH1 entre TP801 et GND sur l'ensemble ASCB.	* Mode normal : ● Mode de lecture	● VL801 sur l'ensemble ASCB

Procédure de réglage

1. Appuyer deux fois sur la touche d'ouverture fermeture sur le panneau frontal pour ouvrir le plateau du disque.
2. Mettre un dique LDD en place et le jouer.
3. Mettre TP803 à la terre sur l'ensemble ASCB en utilisant le capaciteur (0,01μF) et connecter l'oscilloscope à TP801 pour observer la forme d'onde. À ce moment, régler le réglage de position haute/basse de façon à ce que la forme d'onde soit au centre de l'écran.
4. Enlever la pince de court-circuit et régler VR801 de façon à ce que le centre de la forme d'onde sur l'oscilloscope soit 0 mV ± 200 mV à partir du centre de la forme d'onde observé à l'item 3.

Diagramme de réglage



Formes d'ondes

● Gamme de l'oscilloscope :
CC CH1 : 50 mV/div., 2 mS/div

Photo 9

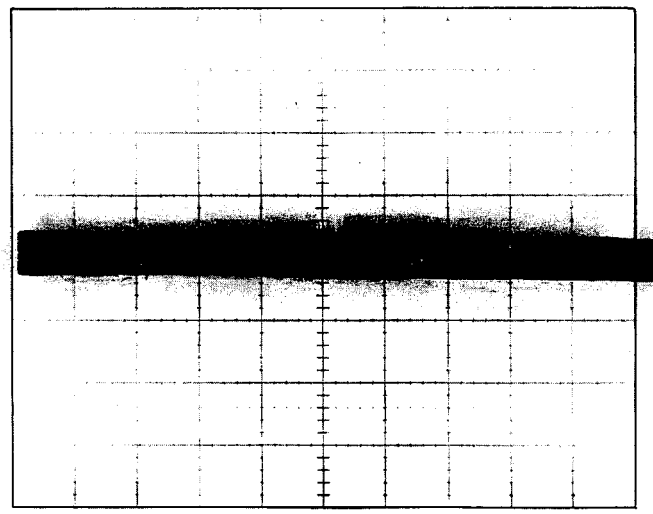
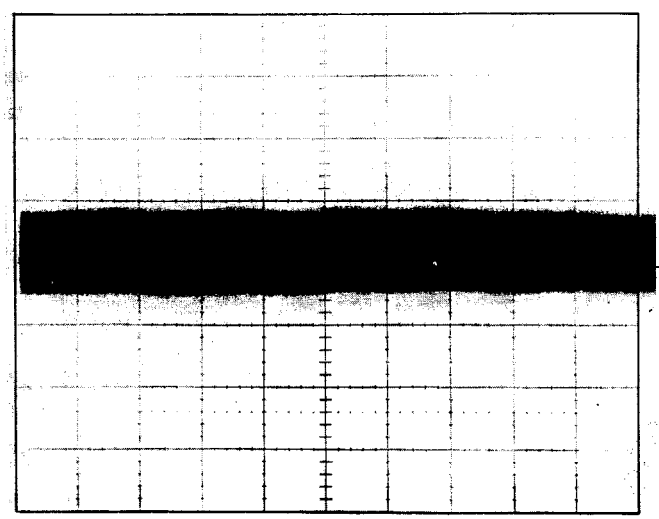


Photo 10



14. RÉGLAGE DE LA FRÉQUENCE VCXO

● But : Régler la fréquence de l'oscillateur cristal utilisé par le décodeur EFM.

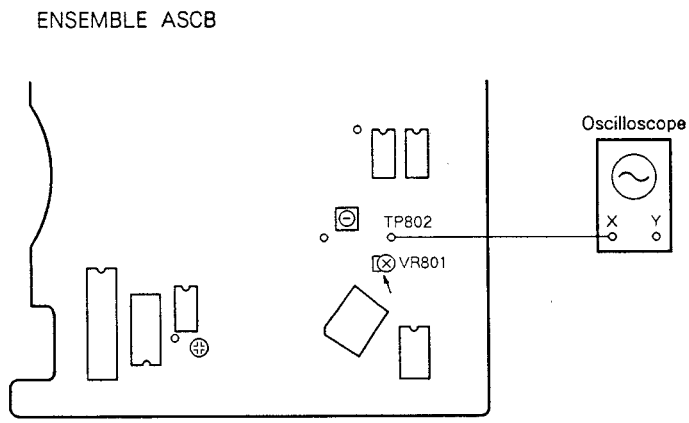
● Symptômes lorsqu'incorrectement réglé : Signal audio interrompu occasionnellement avec le disque LDD.

Equipement de mesure et gabarits	Equipement de mesure et point de raccorder	Condition l'appareil	Point de réglage
● Oscilloscope ● Disque LDD de 8 pouces (avec digital audio ou vidéo partie du disque CDV.	● Oscilloscope : Connecter CH1 entre TP802 et GND sur l'ensemble ASCB	* Mode normal : ● Mode de lecture	● VR801 sur l'ensemble ASCB

Procédure de réglage

1. Appuyer deux fois sur la touche d'ouverture fermeture sur le panneau frontal pour ouvrir le plateau du disque.
2. Mettre un disque LDD en place et le jouer.
3. Connecteur l'oscilloscope à TP802 sur l'ensemble ASCB.
4. Régler VR801 sur l'ensemble ASCB de façon à ce que le centre de la forme d'onde sur l'oscilloscope soit 0 V ± 0,5 V. (Photo 12)

Diagramme de réglage



Formes d'ondes

● Gamme de l'oscilloscope :
CC CH1 : 50 mV/div., 5 mS/div

Photo 11

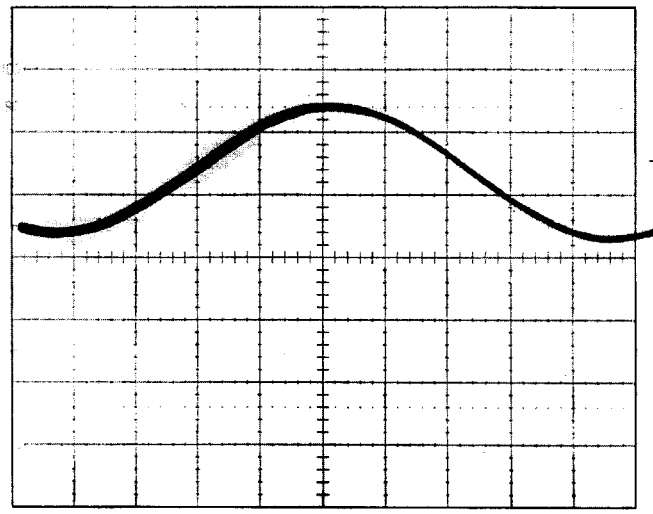
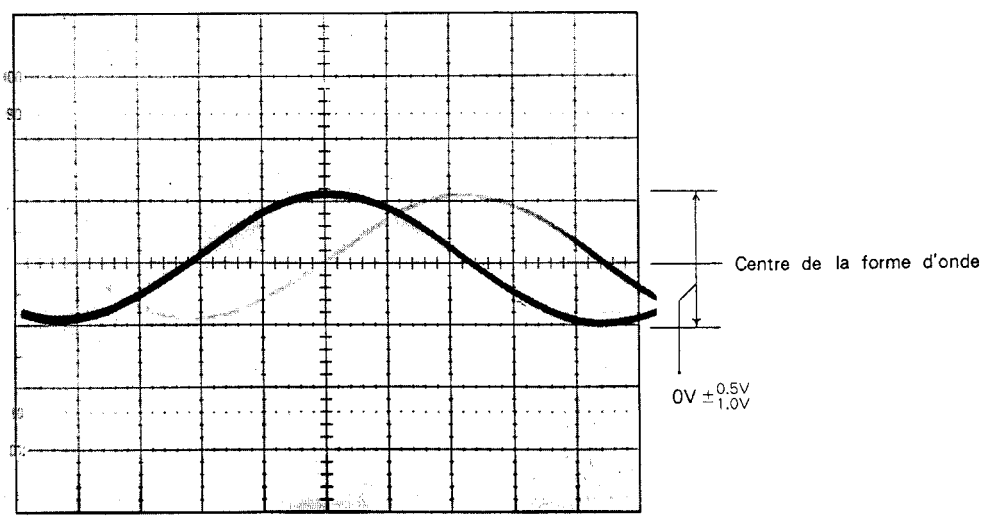


Photo 12



15. RÉGLAGE DE L'HORLOGE PD0011A

● But : Régler la fréquence d'horloge du décodeur Philips.

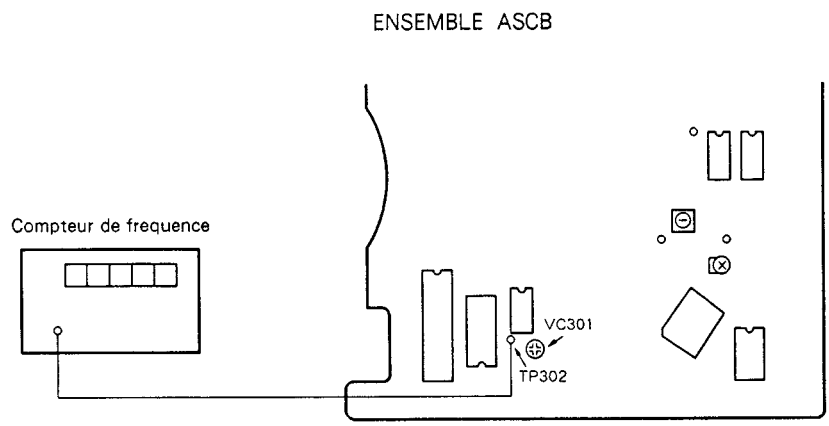
● Symptômes lorsqu'incorrectement réglé : Le code de lecture Philips est impossible, pas d'indication de cadre, opération de recherche impossible.

Equipement de mesure et gabarits	Point de réglage
● Compteur de fréquence	● VC301 sur l'ensemble ASCB

Procédure de réglage

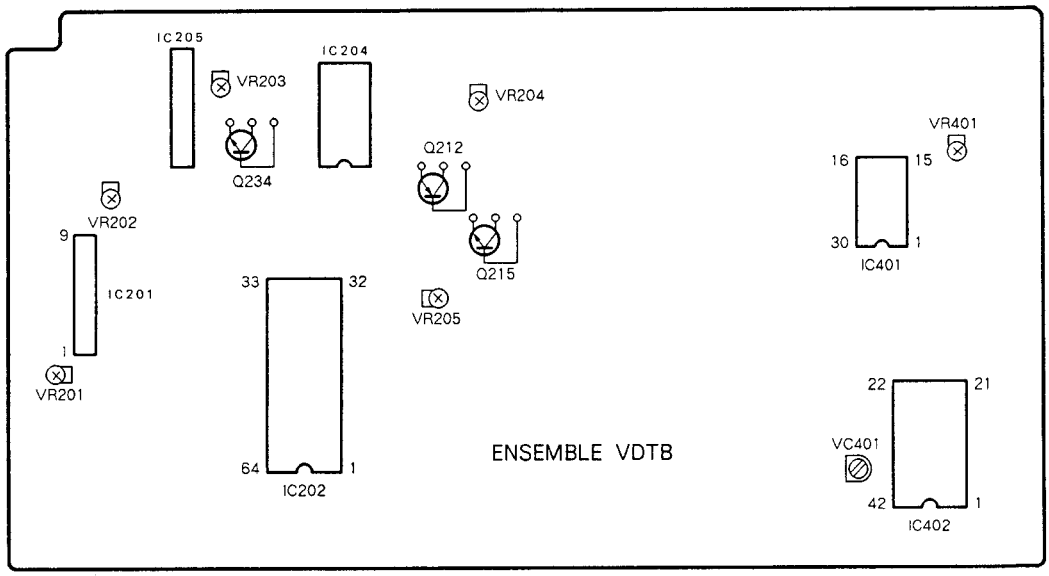
1. Dans la condition du mode d'arrêt d'essai, connecter le compteur de fréquence à TP302.
2. Dans cette condition, régler VC301 sur l'ensemble de la plaquette mère de façon à ce que la fréquence devienne 3,0 MHz ± 0,1 MHz.

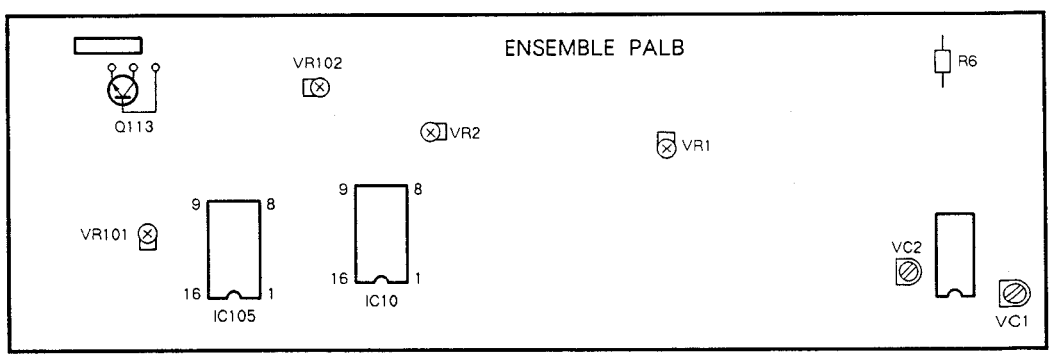
Diagramme de réglage



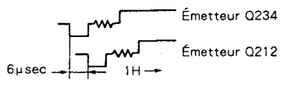
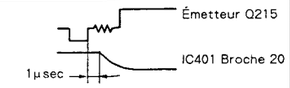
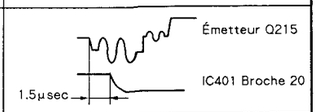
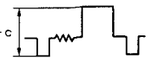
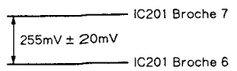
9.4 RÉGLAGES ELECTRIQUESS

● POINT DU RÉGLAGE





(*) a : pour les deux type CLD-1450/HB, b : pour les deux type CLD-1400/HEM, a • b : pour les deux types CLD-1450/HB et CLD-1400/HEM

Désignation du réglage de l'ensemble		*	Point du réglage	Point de mesure	Description du réglage	Condition pour un réglage	Oscilloscope	Remarques
Ensemble PALB (1/2)								
1	Réglage D'horloge de Reference PAL	a	VC2	Fil du R6	Régler VC2 de façon à ce que la fréquence au fil du R6 soit 17,734475 MHz ± 110 Hz.	Lecture PAL DISC (J1)	Compteur de fréquence	
		b	VC201	IC402 Broche 34 (Ensemble VDTB)	Régler VC201 de façon à ce que la fréquence à la broche 34 de IC201 soit 3.546895MHz ± 22Hz.	Lecture PAL DISC (J1)	Compteur de fréquence	
2	Réglage D'horloge de Référence NTSC	a	VC1	Fil du R6	Régler VC1 de façon à ce que la fréquence au fil du R6 soit 14,31818 MHz ± 90 Hz.	Lecture NTSC DISC (GGV1002)	Compteur de fréquence	
Ensemble VDTB								
3	Réglage Synchro H. de Référence PAL	a • b	VC401	IC402 Broche 29 (TSS OUT)	Régler VC401 de façon à ce que la broche 29 (TSS OUT) de IC402 soit 15,6250 kHz ± 0,1 Hz.	Lecture PAL DISC (J1)	Compteur de fréquence	
4	Réglage Fréquence Centrale VCO	a • b	VR203	Émetteur Q234 Émetteur Q212	Régler VR203 de façon à ce que la différence de temps entre le signal vidéo de l'émetteur Q234 et celle de l'émetteur Q212 devient 70 ± 1,4 μsec. (1H + 6 μsec)	Lecture NTSC DISC (GGV1002) n° 5100 STILL	CH1 : 50mV/div 10μS/div CH2 : 50mV/div	
5	Réglage du Calage de Porte de Chrominance	a	VR401	Émetteur Q215 IC401 Broche 20	Régler VR401 de façon à ce que la durée à partir du bord montant de la synchro H du signal vidéo de l'émetteur Q215 au début de la retombée à la broche 20 de IC401 soit 1 ± 0,1 μsec.	Lecture NTSC DISC (GGV1002) (si requis)	CH1 : 50mV/div 1μS/div CH2 : 50mV/div	
		b	VR401	Émetteur Q215 IC402 Broche 20	Régler VR401 de façon à ce que la durée à partir du bord tombant de la synchro H du signal vidéo de l'émetteur Q215 au début de la retombée à la broche 20 de IC401 soit 1,5 ± 0,1 μsec.	Lecture PAL DISC (J1)	CH1 : 50mV/div CH2 : 50mV/div	
6	Réglage du Niveau Vidéo	a • b	VR204	Émetteur Q113 sur l'ensemble PALB	Régler VR204 de façon à ce que le niveau à partir de la puce de synchronisation à la crête blanche dans le signal vidéo de l'émetteur Q113 sur l'ensemble PALB deviennent 2 Vc-c ± 5 %.	PAL DISC (J1) Chap. 11 STILL	CH1 : 50mV/div	
7	Réglage du Niveau Vidéo de Délai 1H.	a • b	VR202	IC202 Broche 40 IC202 Broche 42	Régler VR202 de façon à ceque le signal vidéo principal à la broche 40 de IC202 et le signal vidéo de délai 1H à la broche 42 au même niveau.	NTSC DISC (GGV1002) n° 3800 STILL	CH1 : 20mV/div CH2 : 20mV/div	± 3 %
8	Réglage Niveau DET	a • b	VR201	IC201 Broche 7 IC201 Broche 6	Régler VR201 de façon à ce que la tension à la broche 6 (sortie de détection de la fréquence de rotation) de IC201 soit à un niveau de 255 mV ± 20 mV plus haut que celui de la broche 7 (tension de seuil) avec une image blanche.	PAL DISC (J1) n° 3001 STILL	Voltmètre numérique	
9	Réglage Niveau Err. VPS	a • b	VR205	Écran du moniteur TV	Régler VR205 de façon à ce que à ce que l'ombrage de couleur pour une image magenta soit minimisé.	NTSC DISC (n° 7201) STILL	——	
Ensemble PALB (2/2)								
10	Réglage Niveau Mode Y	a	VR2	IC10 Broche 3 IC10 Broche 5	Régler VR2 de façon à ce que à ce que le niveau de luminance à la broche 3 (subséquente au filtre en peigne) devienne égal à celui de la broche 5 (subséquente à 3,2 MHz L. P. F.).	Lecture NTSC DISC (GGV1002)	CH1 : 20mV/div CH2 : 20mV/div	0 ± 3 %
11	Réglage Niveau Mode Vidéo	a	VR102	VIDEO OUT TERMINAL	Régler VR102 de façon à ce que à ce que le niveau vidéo de sortie à VIDEO OUT TERMINAL soit 2 Vc-c ± 5 %.	NTSC DISC (GGV1002) n° 5100 STILL	CH1 : 50mV/div	2Vc-c ± 5 %
		b	VR102	IC105 Broche 13 IC105 Broche 12	Régler VR102 de façon à ce que le niveau de luminance à la broche 13 de IC105 soit égal à celui de la broche 12.	PAL DISC (J1) chap. 11 STILL	CH1 : 50mV/div CH2 : 50mV/div	± 3 %
12	Réglage Niveau Mode S.C.	a	VR1	IC105 Broche 13 IC105 Broche 12	Régler VR1 de façon à ce que le niveau à la broche 13 (conversion du niveau de chroma) soit égal à celui de la broche 12.	Lecture NTSC DISC (GGV1002) (si requis)	CH1 : 50mV/div CH2 : 50mV/div	± 3 %
13	Réglage Niveau Délai 1H. S. C.	a • b	VR101	Écran du moniteur TV	Régler VR101 de façon à ce que à ce que le clignotement sur l'écran du moniteur TV soit minimisé.	PAL DISC Chap. 11 STILL		

9. AJUSTES

9.1 DISPOSITIVOS Y HERRAMIENTAS REQUERIDOS PARA LOS AJUSTES

- Destornillador con cabeza plana ⊖ pequeño (con un mango de aprox. 7cm)
- Destornillador Philips con cabeza ⊕ paqueño (con un mango de aprox. 15 cm)
- Filtro de paso bajo (100 kilomios + 1 μF (BP))
- Osciloscopio de doble traza (con retardo)
- Oscilador de AF
- Frecuencímetro
- Disco de prueba LD (GGV1002)
- Disco LDD de 8 pulgadas (adquirible en el mercado) y disco CDV (adquirible en el mercado)
- Presilla cortocircuitadora
- Voltímetro digital
- Monitor de TV
- Resistor (100k Ω)
- Resistor (330k Ω)
- Capacitor (0.01 μF)

9.2 PREPARATIVOS Y PRECAUCIONES PARA LOS AJUSTES

1. Ajuste del reproductor

● Cómo colocar el conjunto ASCB verticalmente

Realice el ajuste con la cubierta y la bandeja quitadas y con el reproductor colocado horizontalmente.(Refiérase a la Sección 7. Desmontaje (página 81).)

Tenga cuidado para no dañar la tarjeta de circuito impreso flexible. (Fig. 9-1)

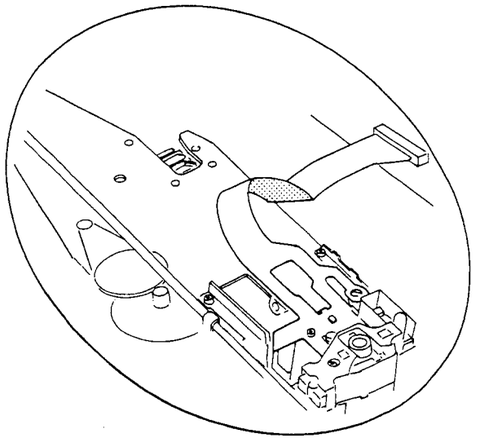


Fig. 9-1

● Cómo colocar el disco

Coloque el disco desde atrás sobre el plato giratorio del motor del eje central (en este momento compruebe si el disco queda exactamente en el centro del plato giratorio). Al presionar la tecla PLAY, el sujetador se descenderá para sujetar el disco antes de que comience la reproducción.

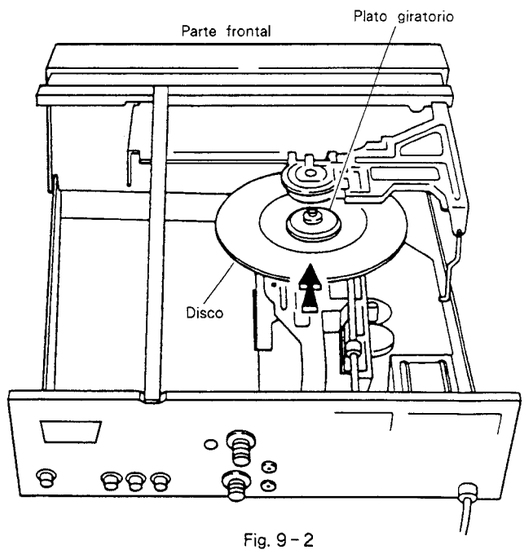


Fig. 9-2

● Cómo instalar la bandeja

Mientras la bandeja esté abierta y el interruptor POWER puesto en OFF, ponga los dientes sin engranaje de menera que correspondan a los dientes de la bandeja como muestra la Fig. 9-3. Empuje la bandeja ligeramente y asegúrese de que la bandeja se vaya introducido en la unidad y se conecte la alimentación. Presione la bandeja y ésta se cargará automáticamente. Apriete los dos tornillos retenedores de la bandeja.

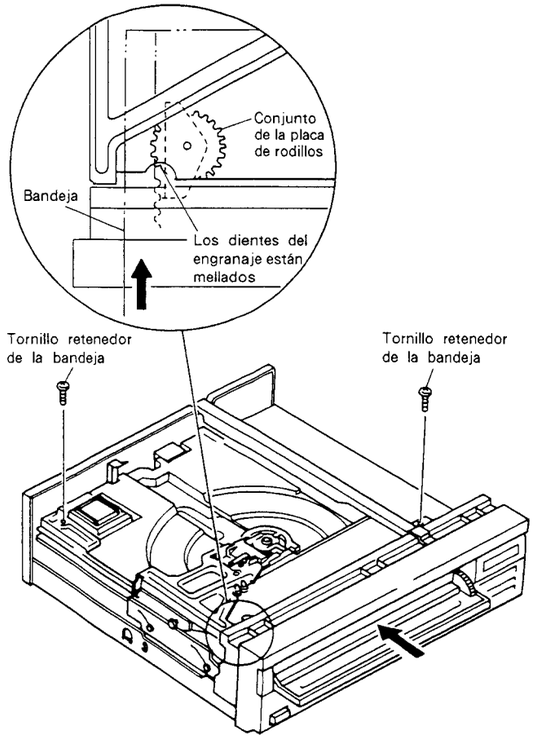


Fig. 9-3

- Cuando realice los ajustes mecánicos a partir del ítem 1. "Ajuste de la ganancia de inclinación" al ítem 12. "Ajuste de la ganancia de RF", tiene que poner el reproductor en el modo de prueba. (Refiérase a la Sección 8. Modo de prueba (página 88).)
- El osciloscopio deberá emplearse con una sonda de 10 : 1.

2. Procedimientos de ajustes necesarios para el reemplazo de las partes principales

1) Para reemplazar el conjunto captor

- Realice todos los ajustes a partir del ítem 1. "Ajuste de la ganancia de bulce de servos de inclinación" al ítem 12. "Ajuste de la ganancia de RF".

2) Para reemplazar el motor del eje central

- Realice el ajuste del ítem 8. "Comprobación y ajuste del centrado del motor del eje central", y después compruebe la diafonía en los bordes más exterior e interior del disco de prueba LD. Si se presenta diafonía en este momento, realice todos los ajustes a partir del ítem 3. "Ajuste del nivel del eje de la corredera" al ítem 7. "Ajuste del equilibrio de error de inclinación".

3) Para reemplazar el sensor de inclinación

- Realice los ajustes del ítem 1. "Ajuste de la ganancia de bucle de servos de inclinación", ítem 3. "Ajuste del nivel del eje de la corredera", ítem 6. "Ajuste del sensor de inclinación", e ítem 7. "Ajuste del equilibrio de inclinación".

9.3 AJUSTES MECÁNICOS

1. AJUSTE DE LA GANANCIA DE INCLINACIÓN

- Propósito : Para ajustar la ganancia de servos de inclinación de acuerdo con la categoría de sensibilidad (nivel) del sensor de inclinación.
- Síntomas causados por los ajustes incorrectos : Oscilación aumentada del servo de inclinación o diafonía.

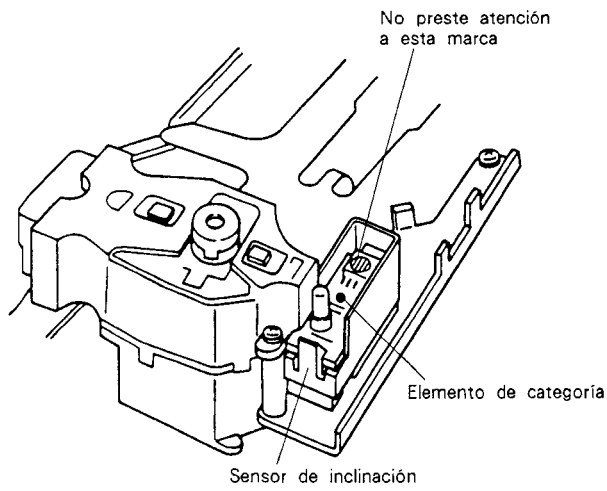
Dispositivos y herramientas de medida	Punto de ajuste
● Destornillador (con cabeza plana)	● VR607 en el conjunto ASCB

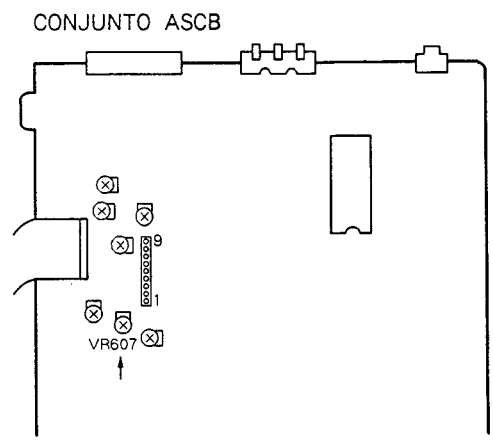
Procedimiento de ajuste

1. De acuerdo con el color de la indicación de categoría, ajuste VR607 en el conjunto ASCB como sigue, con el destornillador con cabeza plana ⊖.

Categoría	Color	Ángulo de VR
A	Rojo	Gire hacia la derecha completamente.
B	Nada	Ponga en el centro mecánico
C	Azul	Gire hacia la izquierda completamente.

Diagrama de ajuste





2. AJUSTE APROXIMADO DE LA RETÍCULA Y AJUSTE DEL EQUILIBRIO DE ERROR DE SEGUIMIENTO

- Propósito : Para ajustar la retícula para reproducción de discos y cierta clase de reproducción trucada necesaria para el ajuste.
- Síntomas causados por los ajustes incorrectos : Imposibilidad de reproducción, salto de pistas.

Dispositivos y herramientas de medida	Equipo de medición y puntos de conecte	Condicione el reproductor	Punto de ajuste
● Destornillador (con cabeza plana) ● Osciloscopio ● Disco de prueba : GGV1002 ● Monitor de TV	● Osciloscopio : CH1 : Entre el error TRKG (CN601-8) y GND en el conjunto ASCB.	* Modo de prueba : ● Modo de reproducción ● Apertura del bucle de servos de seguimiento ● Ajuste el servo de inclinación a OFF	● Tornillo de ajuste de la retiícula en el conjunto captor ● VR605 en el conjunto ASCB

Procedimiento de ajuste

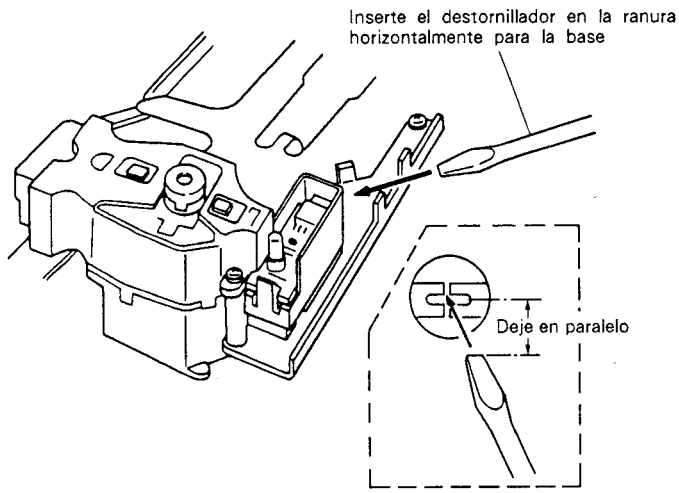
[Ajuste aproximado de la retícula (temporal)]

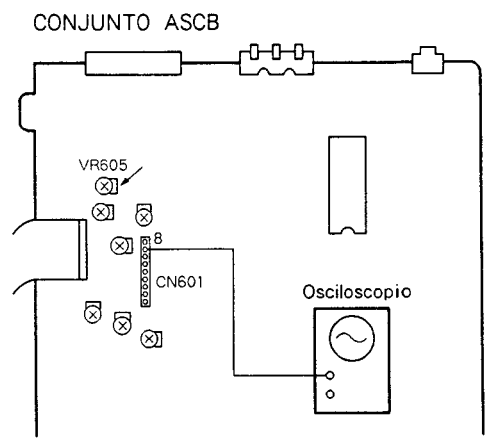
1. Cargue el disco LD y presione la tecla PLAY.
2. Mueva el captor hasta cerca del fotograma n.° 15000 con las teclas de exploración.
3. Abra el bucle de servos TRKG. (Refiérase a la página 88.)
4. Conecte CN601-8 del conjunto ASCB al osciloscopio para observar la forma de onda.
5. Inserte el destornillador con cabeza plana ⊖ (paqueño) en el orificio de ajuste de la retícula horizontalmente, y primero ajuste al punto donde la amplitud de la forma de onda del error TRKG sea máxima, y después busque el punto donde la forma de onda sea mínima y se obtenga la envolvente más uniforme (en la posición sobre la pista). (Foto. 1)
6. Ahora gire el destornillador con cabeza plana hacia la izquierda y deténgalo en el punto donde la amplitud de la forma de onda del error TRKG alcance su máximo por primera vez. (Foto. 2)

[Ajuste del equilibrio de seguimiento (TRKG)]

1. Ajuste VR605 en el conjunto ASCB hasta que las amplitudes "a" y "b" mostradas en la Foto. 2 sean iguales. Cierre el bucle de servos TRKG y compruebe si la imagen en la pantalla de TV aparece normalmente.

Diagrama de ajuste





Forma de ondas

● Gama de osciloscopio : 20 mV / div., 5 mS / div. CC

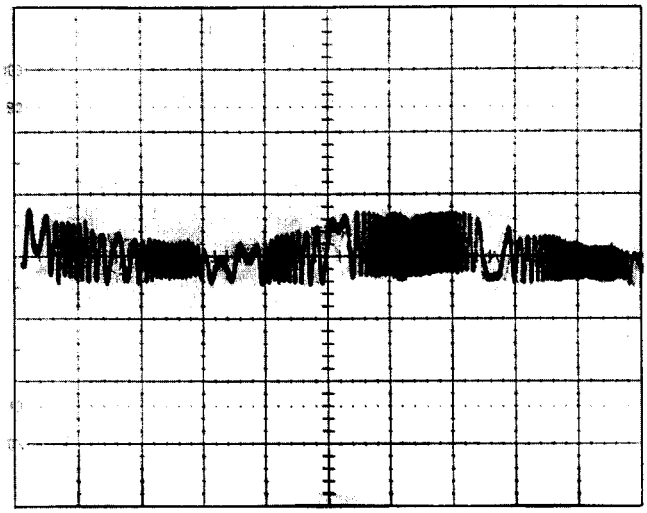


Foto 1 Posición sobre la pista

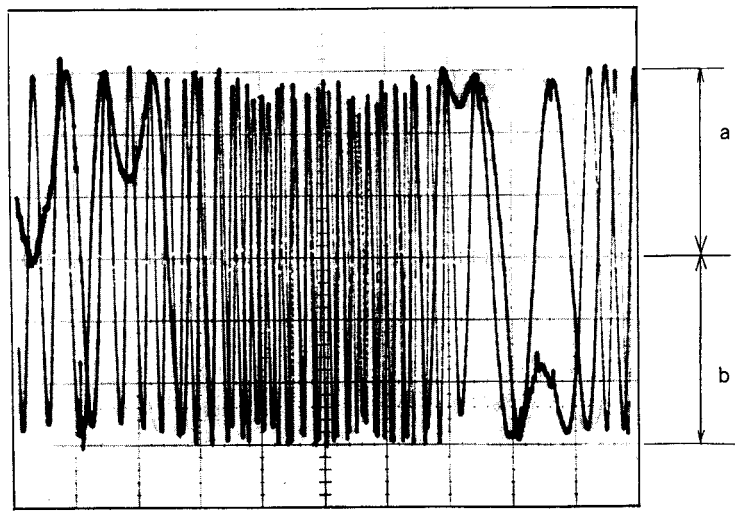


Foto 2 Amplitud máxima

3. AJUSTE DEL NIVEL DEL EJE DE LA CORREDERA

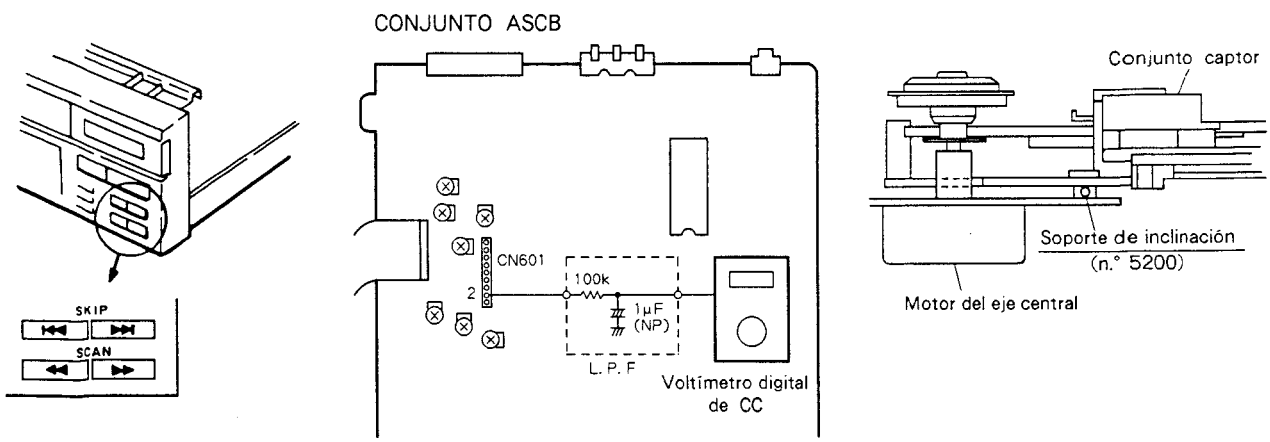
- Propósito : Para hacer el disco y el eje de la corredera paralelos de manera que el captor pueda mover paralelamente al disco.
- Síntomas causados por los ajustes incorrectos : La gama de operación de la lente del objetivo será insuficiente con los discos deformados, y el foco está desbeoqueado en el medio o en el área exterior del disco.

Dispositivos y herramientas de medida	Equipo de medición y puntos de conecte	Condicione el reproductor	Punto de ajuste
● Voltímetro digital ● Filtro de paso bajo ● Disco de prueba : GGV1002	● Voltímetro digital de CC : Entre FORT (CN601-2) y GND en el conjunto ASCB	* Mode de prueba : ● Modo fijo ● Apertura del bucle de servos de seguimiento ● Ajuste el servo de inclinación a OFF	● Reproductor : Teclas SKIP (durante el modo de prueba)

Procedimiento de ajuste

1. Cargue el disco de prueba LD y alimente la corredera hasta cerca del fotograma n.° 5200 (soporte de inclinación) con la tecla SCAN (▶▶), y abra el bucle de servos TRKG.
2. Conecte la patilla 2 de CN601 en el conjunto ASCB al voltímetro digital de CC.
3. Observe el voltímetro digital de CC (unidad de 1 mV), y anote la cifra.
4. Alimente la corredera hasta cerca del fotograma n.° 25000 del disco de prueba LD con la tecla SCAN (▶▶).
5. Ajuste las teclas SKIP (|◀◀, ▶▶|) hasta que la indicación del medidor esté dentro de los límites de ±2 mV del valor anotado en el paso anterior.

Diagrama de ajuste



4. AJUSTE DE LA INCLINACIÓN DEL CAPTOR

● Propósito : Para ajustar la inclinación del captor hasta que el rayo lasérico golpee el bitio verticalmente.

● Síntomas causados por los ajustes incorrectos : Diafonía.

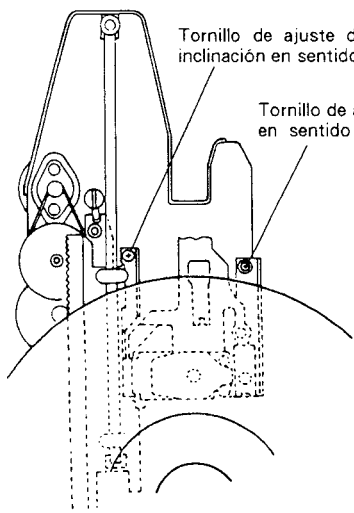
Dispositivos y herramientas de medida	Equipo de medición y puntos de conecte	Condicione el reproductor	Punto de ajuste
● Monitor de TV ● Disco de prueba : GGV1002	● Monitor de TV Conecte al terminal de salida de video del reproductor.	* Modo de prueba : ● Modo fijo ● Cerrado del bucle de servos de seguimiento ● Ajuste el servo de inclinación a OFF	● Para el conjunto captor : Tornillo de ajuste de la inclinación en sentido radial, y tornillo de ajuste de la inclinación en sentido tangencial.

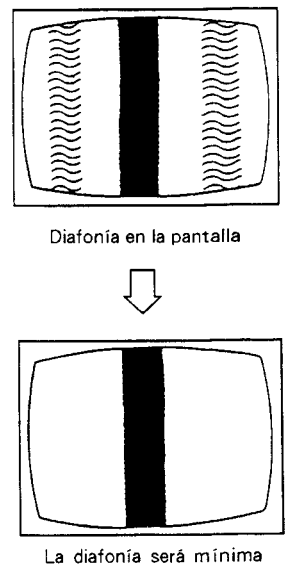
Procedimiento de ajuste

1. Ponga el reproductor en el modo STILL con el bucle de servos de seguimiento cerrado, y busque el fotograma n.° 115 del disco de prueba LD.
2. Ajuste el tornillo de ajuste de la inclinación en sentido radial y el tornillo de ajuste de la inclinación en sentido tangencial en el conjunto captor hasta que la diafonía de las partes derecha e izquierda de la pantalla de TV sea mínima.
3. Busque el fotograma n.° 130.
4. Ajuste el tornillo de ajuste de la inclinación en sentido tangencial y el tornillo de ajuste de la inclinación en sentido tangencial en el conjunto captor hasta que la diafonía de las partes derecha e izquierda de la pantalla de TV sea mínima.
5. Repita el procedimiento precedente hasta que la diafonía en los fotograms n.° 115 y n.° 130 sea mínima.

Nota :
En este momento, gire el tornillo de ajuste de la inclinación en sentido radial y el tornillo de ajuste en sentido tangencial hacia la derecha aproximadamente un cuarto de vuelta más allá del mejor punto, y después gírelos hacia la izquierda un cuarto de vuelta para completar el ajuste.
Si es difícil de detectar la diafonía, ajuste el contraste y el brillo del monitor de TV para facilitar la contemplación.
Si la detección es todavía difícil después del ajuste, obtenga la forma de onda de RF máxima ajustando el tornillo de ajuste en sentido tangencial y el tornillo de ajuste en sentido radial.

Diagrama de ajuste





5. AJUSTE DEL EQUILIBRIO DEL ERROR DE FOCO

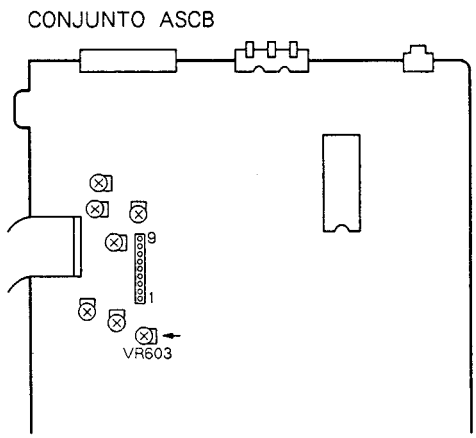
- Propósito : Para compensar la posición de la lente del objetivo eléctricamente hasta que el servo FOCS funcione adecuadamente.
- Síntomas causados por los ajustes incorrectos : Diafonía.

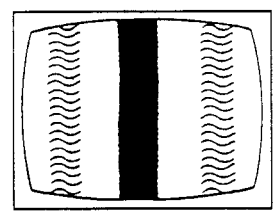
Dispositivos y herramientas de medida	Equipo de medición y puntos de conecte	Condicione el reproductor	Punto de ajuste
● Monitor de TV ● Disco de prueba : GGV1002	● Monitor de TV Conecte al terminal de salida de video del reproductor.	* Modo de prueba : ● Modo fijo ● Cerrado del bucle de servos de seguimiento ● Ajuste el servo de inclinación a OFF	● VR603 en el conjunto ASCB

Procedimiento de ajuste

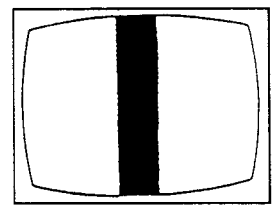
1. Ponga el reproductor en el modo de prueba y póngalo en el modo STILL con el bucle de servos de seguimiento cerrado, y busque el fotograma n.° 115 del disco de prueba LD.
2. Ajuste VR603 hasta que la diafonía de las partes derecha e izquierda de la pantalla de TV sea mínima e igual.

Diagrama de ajuste





Diafonía en la pantalla



La diafonía será mínima

6. AJUSTE DEL SENSOR DE INCLINACIÓN

- Propósito : Para ajustar el ángulo del sensor de inclinación al óptimo (paralelo al disco) hasta que el LED del sensor de inclinación se enciende verticalmente a la superficie del disco.
- Síntomas causados por los ajustes incorrectos : Diafonía, gama de operación de la lente del objetivo insuficiente, operación de búsqueda inestable.

Dispositivos y herramientas de medida	Equipo de medición y puntos de conecte	Condicione el reproductor	Punto de ajuste
● Monitor de TV ● Destornillador Philips con cabeza ⊕ paqueño ● Disco de prueba : GGV1002	● Monitor de TV Conecte al terminal de salida de video del reproductor. * Cuando no emplee el monitor de TV, conecte al tubo FL del reproductor.	* Modo de prueba : ● Modo fujo ● Cerrado del bucle de servos de seguimiento ● Ajuste el servo de inclinación a OFF	● Tornillo de ajuste de la inclinación del sensor de inclinación en el conjunto mecánico.

Procedimiento de ajuste

1. Ponga el reproductor en el modo STILL, y busque el fotograma de búsqueda n.° 16200 del disco de prueba LD.
2. Ajuste el equilibrio de inclinación VR601 en su posición mecánica central.
3. Ajuste el tornillo de ajuste de la inclinación del sensor de inclinación hasta que el código de indicación del error de inclinación en el monitor de TV o en el visualizador FL de la unidad principal sea 6 a 8.

Nota :
En este momento gire el tornillo de ajuste de la inclinación del sensor de inclinación hacia la derecha un cuarto de vuelta más allá del punto mejor, y después gírelo hacia la izquierda un cuarto de vuelta para completar el ajuste.

CONJUNTO ASCB

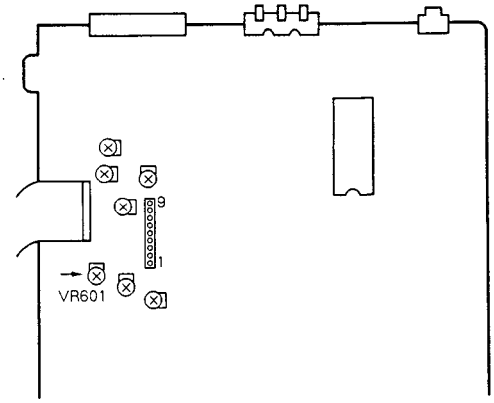
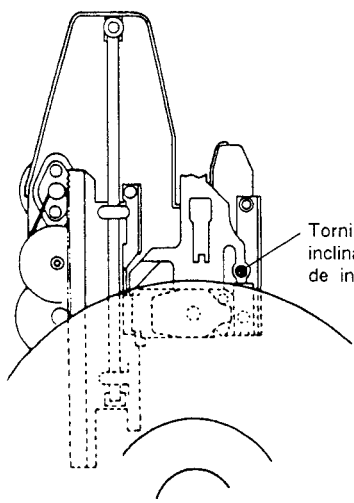
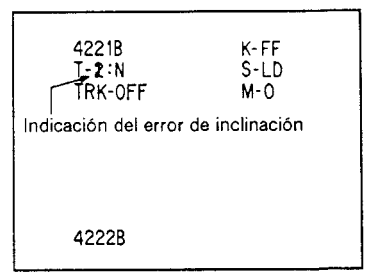
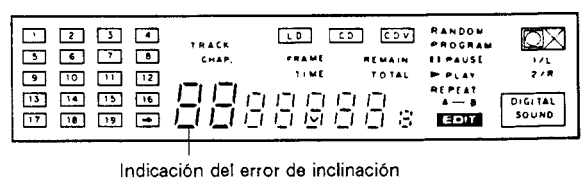


Diagrama de ajuste





Nota : Esta visualización en la pantalla se utiliza para mostrar la posición de la indicación del error y es posible que sea diferente a la indicación actual.



7. AJUSTE DEL EQUILIBRIO DE INCLINACIÓN

- Propósito : Para compensar la diferencia de sensibilidad entre dos fotodiodos en el conjunto de la tarjeta del sensor de inclinación con el fotograma de ajuste de inclinación del captor.
- Síntomas causados por los ajustes incorrectos : Diafonía, gama de operación de la lente del objetivo insuficiente, operación de búsqueda inestable.

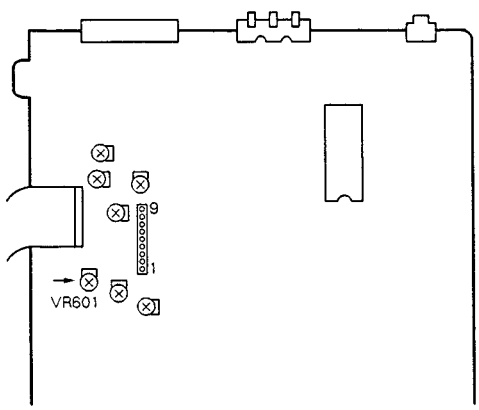
Dispositivos y herramientas de medida	Equipo de medición y puntos de conecte	Condicione el reproductor	Punto de ajuste
● Monitor de TV ● Destornillador con cabeza plana ⊖ paqueño ● Disco de prueba : GGV1002	● Monitor de TV Conecte al terminal de salida de video del reproductor. * Cuando no emplee el monitor de TV, conecte al tubo FL del reproductor.	* Modo de prueba : ● Modo fijo ● Cerrado del bucle de servos de seguimiento ● Ajuste el servo de inclinación a OFF	● VR601 en el conjunto ASCB

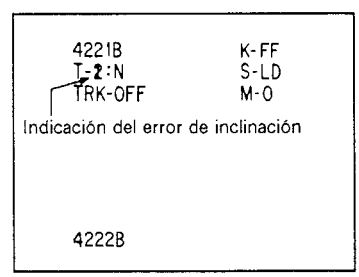
Procedimiento de ajuste

1. Ponga el reproductor en el modo STILL, y busque el fotograma n.° 115 del disco de prueba LD.
2. Ajuste VR601 hasta que el código de indicación del error de inclinación en el monitor de TV o en el visualizador FL del reproductor sea 7.

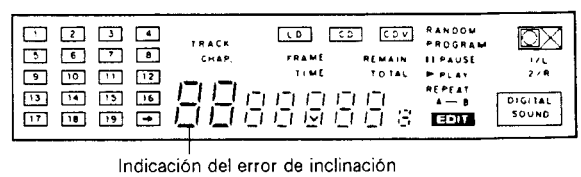
Diagrama de ajuste

CONJUNTO ASCB





Nota : Esta visualización en la pantalla se utiliza para mostrar la posición de la indicación del error y es posible que sea diferente a la indicación actual.



8. COMPROBACIÓN Y AJUSTE DEL CENTRADO DEL MOTOR DEL EJE CENTRAL

- Propósito : Para ajustar la posición del conjunto mecánico hasta que el centro del motor del eje central quede en la pista del rayo lasérico cuando mueva el conjunto captor hacia el interior o exterior del disco.
- Síntomas causados por los ajustes incorrectos : Salto de pistas, tiempo prolongado de búsqueda.

Dispositivos y herramientas de medida	Equipo de medición y puntos de conecte	Condicione el reproductor	Punto de ajuste
● Destornillador con cabeza plana ⊖ paqueño ● Osciloscopio ● Disco de prueba : GGV1002	● Osciloscopio : Conecte CH1 entre el error TRKG (CN601-8) y GND en el conjunto ASCB. Conecte CH2 a la suma TRKG (CN601-7) en el conjunto ASCB.	* Modo de prueba : ● Modo de reproducción ● Apertura del bucle de servos de seguimiento ● Ajuste el servo de inclinación a ON	● Palanca de ajuste del centrado del motor del eje central en el conjunto mecánico.

Procedimiento de ajuste

[Comprobación del centrado]

1. Ponga el reproductor en el modo de reproducción con el bucle de servos TRKG abierto, y busque el fotograma n.° 25000 (borde exterior) del disco de prueba LD.
2. Observe la señal de CN601-8 (error TRKG) en el conjunto ASCB y compruebe si la amplitud es mínima y la envolvente es uniforme. Si no, ajuste el tornillo de la retícula con el destornillador con cabeza plana ⊖. (Fig. 1/Foto 3)
3. Ponga el osciloscopio en el modo X – Y, y conecte CN601-8 (error TRKG) en el conjunto ASCB a CH1 (entrada X) y CN601-7 (suma TRKG) a CH2 (entrada Y) respectivamente, para observar la forma de onda de Lissajous. (Fig. 2)
4. Realice el ajuste fino de la retícula hasta que la anchura de la forma de onda de Lissajous en el sentido del eje X sea mínima. (Fig. 3)
5. Mueva el conjunto captor hacia el interior del disco hasta cerca del fotograma n.° 3000.
6. Compruebe si la anchura de la forma de onda de Lissajous en el sentido del eje X sea mínima.
7. En este momento, si la forma de onda de Lissajous muestra la forma de óvalo extendido alrededor del fotograma n.° 3000, afloje el tornillo de fijación del eje (Fig. 2) ligeramente, y después realice el ajuste del centrado siguiendo las maneras siguientes :

[Ajuste del centrado]

1. Inserte el destornillador con cabeza plana en la palanca de ajuste del eje (consulte la Fig. 2)
2. Gire el destornillador lentamente hasta que la anchura de la forma de onda de Lissajous en el sentido del eje X sea mínima, y después gírelo hasta que se obtenga la misma forma de onda de Lissajous que la observada en el ítem 4 de "Comprobación del centrado". (Fig. 4)
3. Mueva el conjunto captor hasta la posición cera del fotograma n.° 25000 (hacia el exterior del disco), y ajuste el tornillo de la retícula hasta que la anchura de la forma de onda de Lissajous en el sentido del eje X sea mínima.
4. Mueva el conjunto captor hacia el interior del disco de nuevo hasta la posición alrededor del fotograma n.° 3000, y compruebe si la anchura de la forma de onda de Lissajous en el sentido del eje X sea mínima.
5. Si la anchura de la forma de onda de Lissajous en el sentido del eje X no es mínima, repita los pasos anteriores hasta que se obtenga la anchura mínima de la forma de onda de Lissajous en el sentido del eje X en el interior o exterior del disco.
6. Después de haber completado el ajuste del centrado, fije el tornillo de fijación del eje (consulte la Fig. 2) asegurándose de que la forma de la onda no se cambie.

Diagrama de ajuste

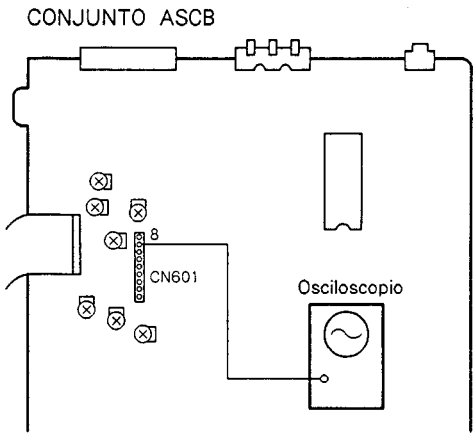


Fig. 1

● Osciloscopio : 20 mV/div. 5 mS/div. CC

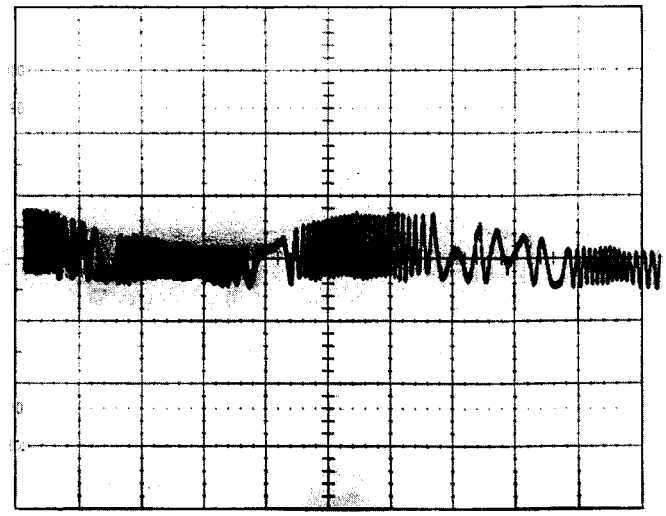
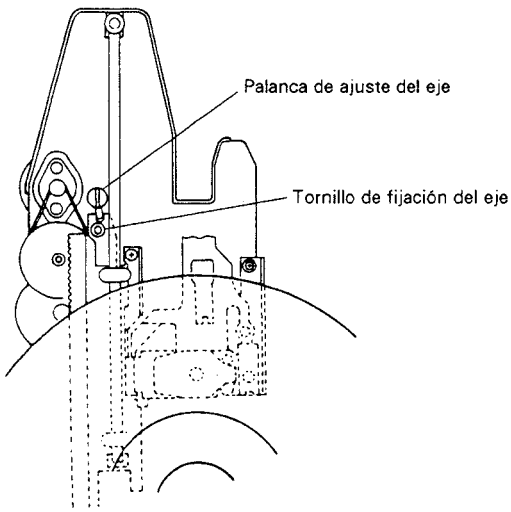


Foto 3 Posición sobre la pista (punto nulo)



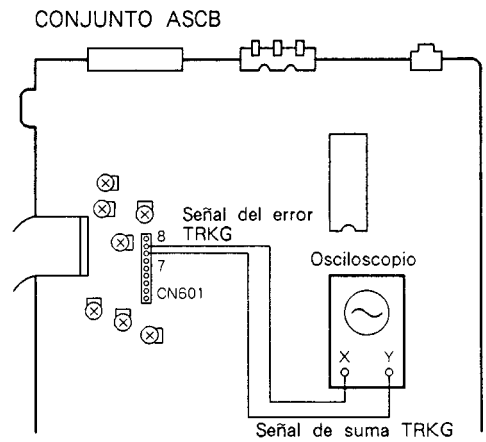
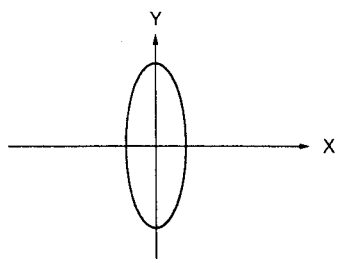


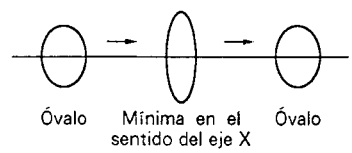
Fig. 2



Forma de onda de Lissajous
Posición sobre la pista ; Anchura mínima en el sentido del eje X y la anchura máxima en el sentido del eje Y.

Fig. 3

Referencia :
Cuando no pueda contemplar la forma de onda de Lissajous claramente, añada el filtro de paso bajo al circuito de medida y ajústelo como muestra la figura siguiente.



Forma de onda de Lissajous

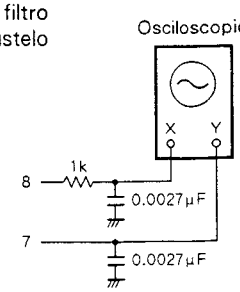


Fig. 4

9. AJUSTE FINO DE LA RETÍCULA Y AJUSTE DEL EQUILIBRIO TRKG

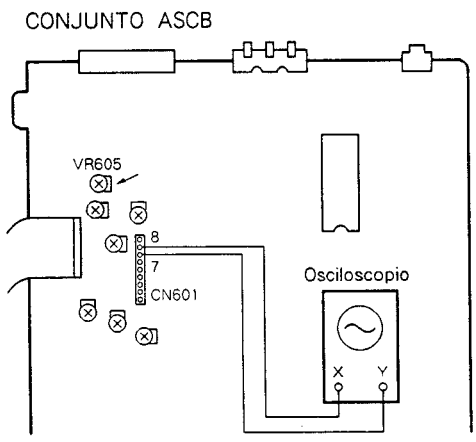
- Propósito : Para realizar el ajuste fino de la retícula a fin de que los dos rayos laséricos para el servo TRKG (seguimiento) se emitan en las posiciones óptimas de pistas del disco.
- Síntomas causados por los ajustes incorrectos : Salto de pistas.

Dispositivos y herramientas de medida	Equipo de medición y puntos de conecte	Condicione el reproductor	Punto de ajuste
● Osciloscopio ● Destornillador con cabeza plana ⊖ paqueño ● Disco de prueba : GGV1002	● Osciloscopio : Conecte CH1 entre el error TRKG (CN601-8) y GND en el conjunto ASCB. Conecte CH2 a la suma TRKG (CN601-7) en el conjunto ASCB.	* Modo de prueba : ● Modo de reproducción ● Apertura del bucle de servos de seguimiento ● Ajuste el servo de inclinación a ON	● Tornillo de retícula en el conjunto mecánico ● VR605 en el conjunto ASCB

Procedimiento de ajuste

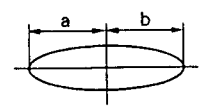
1. Ponga el reproductor en el modo de reproducción con el bucle de servos TRKG abierto, y busque el fotograma n.° 3000 (parte interior) del disco de prueba LD.
2. Ponga el osciloscopio en el modo X − Y, y conecte CN601-8 (error TRKG) en el conjunto ASCB a CH1 (entrada X) y CN601-7 (suma TRKG) a CH2 (entrada Y) respectivamente, para observar la forma de onda de Lissajous.
3. Inserte el destornillador con cabeza plana en el orificio de ajuste de la retícula (consulte la página 136), y ajuste la retícula hasta que la anchura de la forma de onda de Lissajous en el sentido del eje Y sea mínima.
4. En este momento, compruebe si las dimensiones "a" y "b" de la forma de onda de Lissajous es igual (a = b). Si no, ajuste VR605 (equilibrio TRKG) en el conjunto ASCB.
5. Cierre el bucle de servos TRKG y compruebe si la imagen en la pantalla de TV es normal.

Diagrama de ajuste

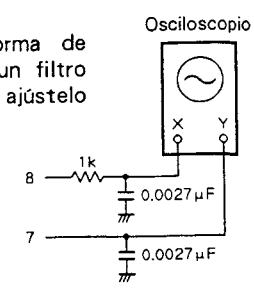


Gama del osciloscopio :
CH1 (X) : 20 − 50 mV/div.
CH2 (Y) : 5 mV/div.
En este momento, la sonda para el eje Y debe estar en el modo × 1.

Fotograma n.° 15,000
Forma de onda de Lissajous
Anchura mínima en el sentido del eje Y, a = b



Referencia :
Cuando no pueda contemplar la forma de onda de Lissajous claramente, añada un filtro de paso bajo al circuito de medida y ajústelo como muestra la figura siguiente.



10. AJUSTE DE LA GANANCIA DEL BUCLE DE SERVOS DEL FOCO

● Propósito : Para ajustar la ganancia para el bucle de servos de foco al valor óptimo.

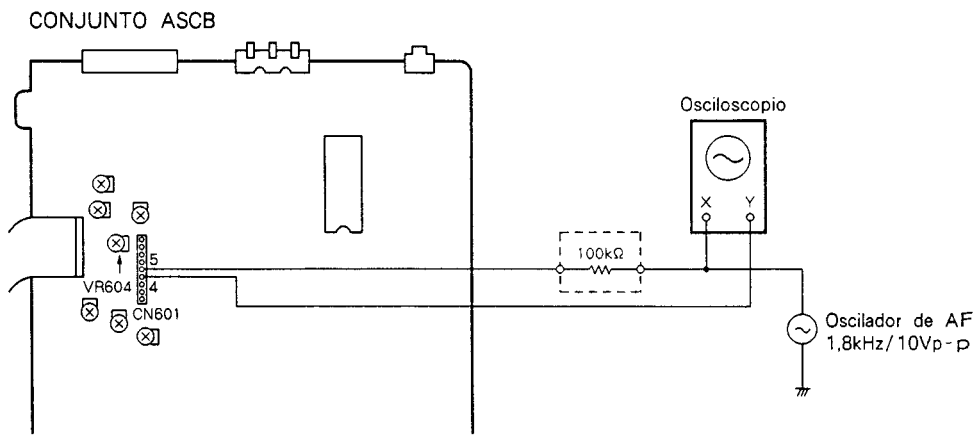
● Síntomas causados por los ajustes incorrectos : Reproducción empeorada

Dispositivos y herramientas de medida	Equipo de medición y puntos de conecte	Condicione el reproductor	Punto de ajuste
● Osciloscopio ● Oscilador de AF (1,8 kHz/10 Vp-p) ● Resistor (100 kilohmios) ● Disco de prueba : GGV1002	● Oscilloscope : Conecte CH1 entre el entrada FOCS (CN601-5) y GND en el conjunto ASCB. Conecte CH2 a la error FOCS (CN601-4) en el conjunto ASCB.	* Modo de prueba : ● Modo fijo ● Cerrado del bucle de servos de seguimiento ● Ajuste el servo de inclinación a ON	● VR604 en el conjunto ASCB

Procedimiento de ajuste

1. Ajuste la salida del oscilador de AF a 1,8 kHz/10 Vp-p.
2. Ponga el reproductor en el modo fijo, y busque el fotograma n.° 15,000 del disco de prueba LD.
3. Conecte CN601-4 y CN601-5 en el conjunto ASCB como muestra la figura de abajo.
4. Ponga el osciloscopio en el modo X-Y, y observe la forma de onda de Lissajous.
5. Ajuste VR604 hasta que la forma de onda de Lissajous sea simétrica en los ejes X e Y. (Foto. 4, 5)

Diagrama de ajuste



Forma de ondas

● Gama de osciloscopio :
CH1 (X) : 200 mV / div.,
CH2 (Y) : 5 mV / div

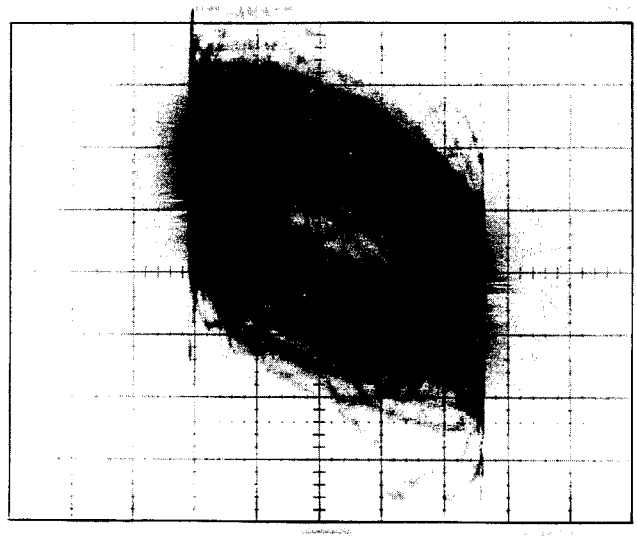


Foto 4

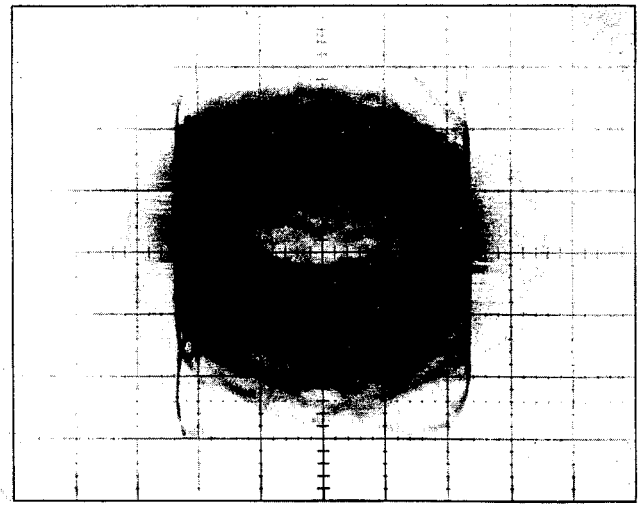


Foto 5

11. AJUSTE DE LA GANANCIA DEL BUCLE DE SERVOS DE SEGUIMIENTO

● Propósito : Para ajustar la ganancia para el bucle de servos de seguimiento al valor óptimo.

● Síntomas causados por los ajustes incorrectos : Reproducción empeorada.

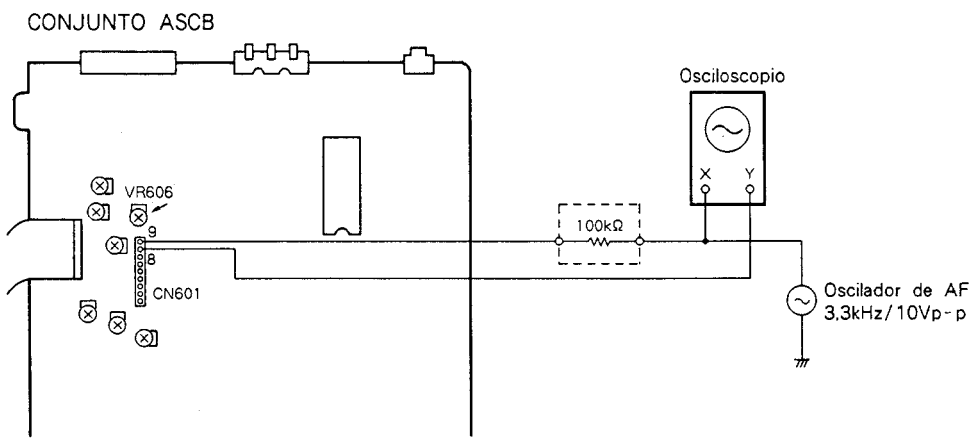
Dispositivos y herramientas de medida	Equipo de medición y puntos de conecte	Condicione el reproductor	Punto de ajuste
● Osciloscopio ● Resistor (100 kilohmios) ● Oscilador de AF (3,3 kHz/10 Vp-p) ● Disco de prueba : GGV1002	● Osciloscopio : Conecte CH1 entre el entrada TRKG (CN601-9) y GND en el conjunto ASCB. Conecte CH2 a la error TRKG (CN601-8) en el conjunto ASCB.	* Modo de prueba : ● Modo fijo ● Cerrado del bucle de servos de segumiento ● Ajuste el servo de inclinación ON	● VR606 en el conjunto ASCB

Procedimiento de ajuste

1. Ponga el reproductor en el modo fijo, y busque el fotograma n.° 15,000 del disco de prueba LD.
2. Conecte el resistor, el oscilador de AF, y el osciloscopio como muestra la figura de abajo.
   En este momento, ajuste la salida del oscilador de AF a 3,3 kHz/10 Vp-p.
3. Ponga el osciloscopio en el modo X-Y, y observe la forma de onda de Lissajous.
4. Ajuste VR606 hasta que la forma de onda de Lissajous sea simétrica en los ejes X e Y. (Foto. 6, 7)

Nota :
Cuando no se obtenga el resultado requerido, reemplace el resistor de 100 kilohmios con uno de 33 kilohmios, o aumente el nivel de salida del oscilador.

Diagrama de ajuste



Forma de ondas

- Gama de osciloscopio :
  CH1 (X) : 200 mV / div.,
  CH2 (Y) : 5 mV / div

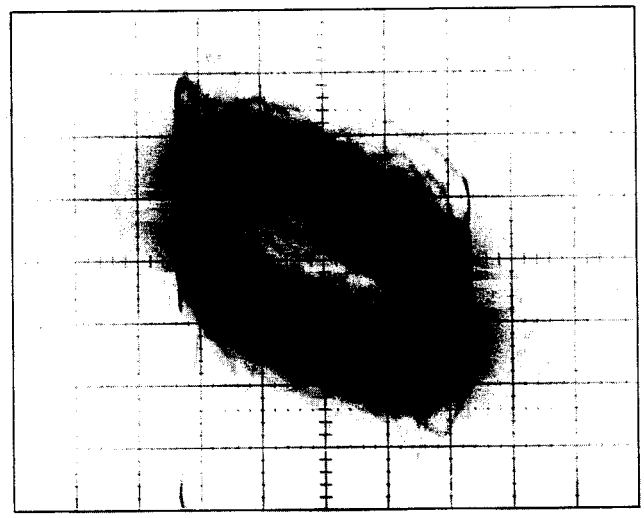


Foto 6

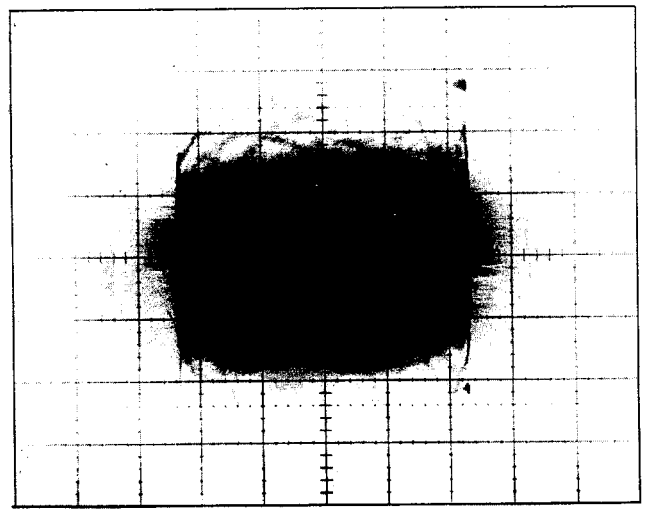


Foto 7

12. AJUSTE DE LA GANANCIA DE RF

● Propósito : Para ajustar la amplitud de la señal de RF al valor óptimo.

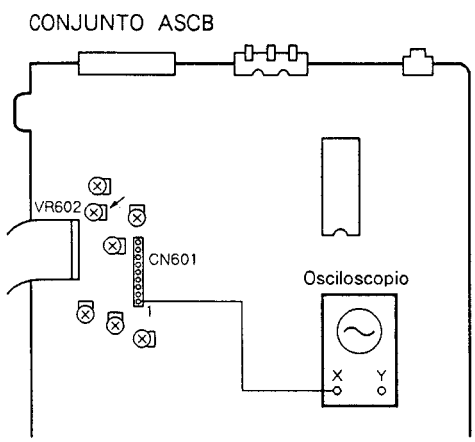
● Síntomas causados por los ajustes incorrectos : Sucederá frecuentemente la pérdida del sonido. Operaciones de exploración y búsqueda inestables.

Dispositivos y herramientas de medida	Equipo de medición y puntos de conecte	Condicione el reproductor	Punto de ajuste
● Osciloscopio ● Disco de prueba : GGV1002	● Osciloscopio : Conecte CH1 entre el señal de RF (CN601-1) y GND en el conjunto ASCB	* Modo de prueba : ● Modo fijo ● Cerrado del bucle de servos de seguimiento ● Ajuste el servo de inclinación a ON	● VR602 en el conjunto ASCB

Procedimiento de ajuste

1. Ponga el reproductor en el modo fijo, y busque el fotograma n.° 15,000 del disco de prueba LD.
2. Conecte el osciloscopio a CN601-1 en el conjunto ASCB para observar la señal de RF.
3. Ajuste VR602 hasta que la amplitud de la señal de RF sea 300 mV ± 50 mV. (Foto 8)

Diagrama de ajuste



Forma de ondas

● Gama de osciloscopio : AC 5 mV/div., 2 mS/div

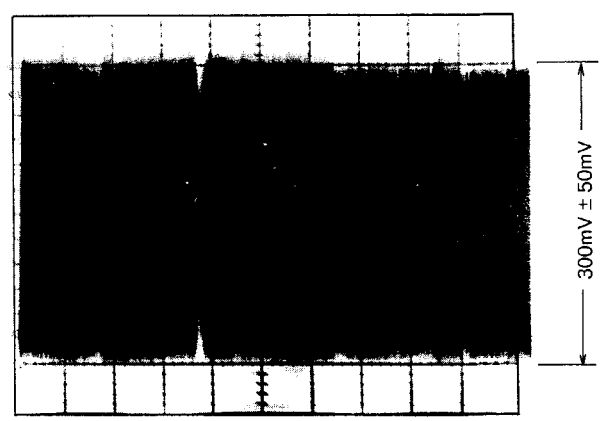


Foto 8

13. AJUSTE DE LA FRECUENCIA DE VCO

● Propósito : Para ajustar la frecuencia de VCO del circuito PLL empleado en el decodificador de EFM.

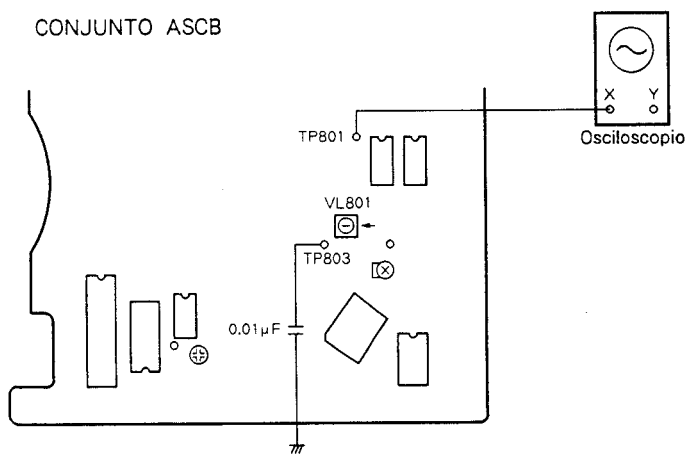
● Síntomas causados por los ajustes incorrectos : Imposibilidad de reproducción de discos compactos, no habrá salida de señales audiodigitales.

Dispositivos y herramientas de medida	Equipo de medición y puntos de conecte	Condicione el reproductor	Punto de ajuste
● Capacitor (0,01 μF) ● Osciloscopio ● Disco LDD de 8 pulgadas (con señales audiodigitales) o parte de video del disco CDV	● Osciloscopio : Conecte CH1 entre el TP801 y GND en el conjunto ASCB.	* Modo normal : ● Modo de reproducción	● VL801 en el conjunto ASCB

Procedimiento de ajuste

1. Presione dos veces la tecla OPEN/CLOSE del panel frontal para abrir la bandeja del disco.
2. Cargue el disco LDD y peprodúzcalo.
3. Ponga a masa TP803 del conjunto ASCB con el capacitor (0.01 μF), y conecte el osciloscopio a TP801 para observar la forma de onda. En este momento, ajuste el mando de posición de elevación/descenso hasta que la forma de onda quede en el centro de la pantalla.
4. Desenganche la presilla cortocircuitadora y ajuste VL801 hasta que el centro de la forma de onda en el osciloscopio sea de 0 mV ± 200 mV a partir del centro de la forma de onda observada en el ítem 3.

Diagrama de ajuste



Forma de ondas

● Gama de osciloscopio :

CH1 : 50 mV/div., 5 mS/div. CC

Foto 9

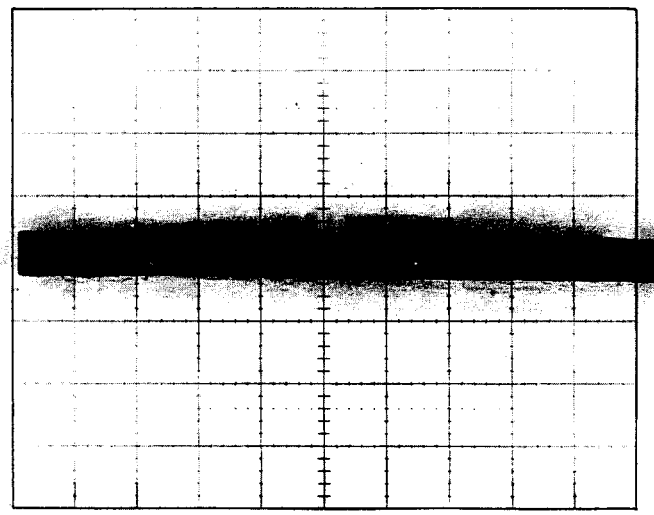
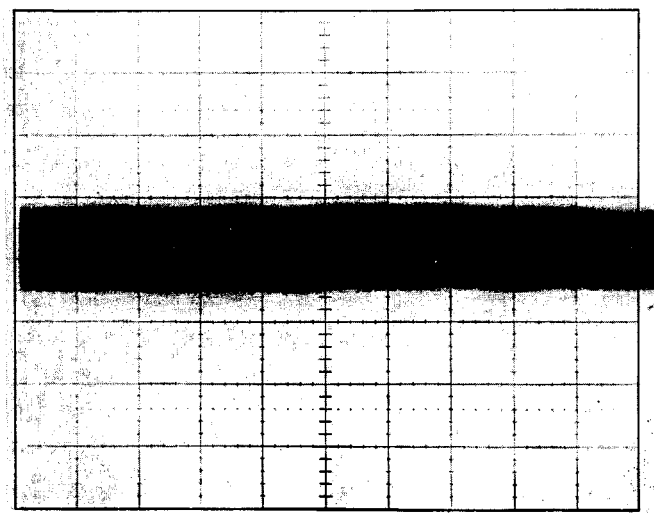


Foto 10



14. AJUSTE DE LA FRECUENCIA DE VCXO

● Propósito : Para ajustar la frecuencia del oscilador de cristal empleado en el decodificador de EFM.

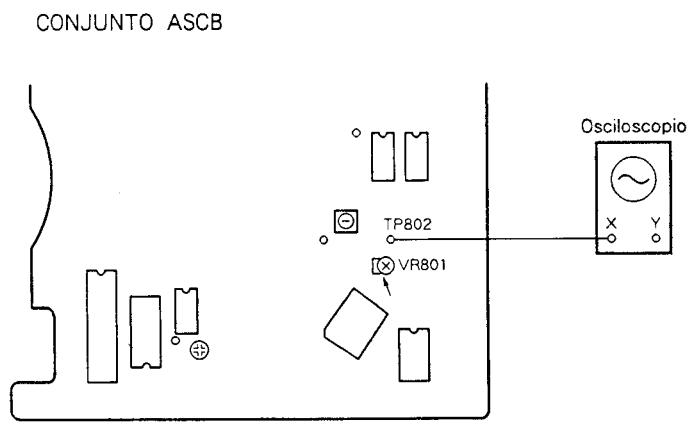
● Síntomas causados por los ajustes incorrectos : Las señales de audio del disco LDD se interrumpirán de vez en cuando.

Dispositivos y herramientas de medida	Equipo de medición y puntos de conecte	Condicione el reproductor	Punto de ajuste
● Osciloscopio ● Disco LDD de 8 pulgadas (con señales audiodigitales) o parte de video del disco CDV	● Osciloscopio : Conecte CH1 entre el TP802 y GND en el conjunto ASCB.	* Modo normal : ● Modo de reproducción	● VR801 en el conjunto ASCB

Procedimiento de ajuste

1. Presione dos veces la tecla OPEN/CLOSE del panel frontal para abrir la bandeja del disco.
2. Cargue el disco LDD y reprodúzcalo.
3. Conecte el osciloscopio a TP802 en el conjunto ASCB.
4. Ajuste VR801 en el conjunto ASCB hasta que el centro de la forma de onda en el osciloscopio (Foto. 12) sea 0 V ± 0,5 V.

Diagrama de ajuste



Forma de ondas

● Gama de osciloscopio :

CH1 : 50 mV / div., 2 mS / div. CC

Foto 11

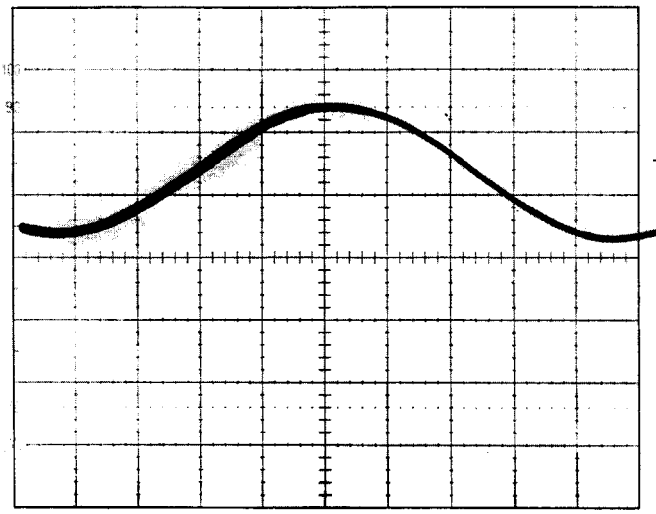
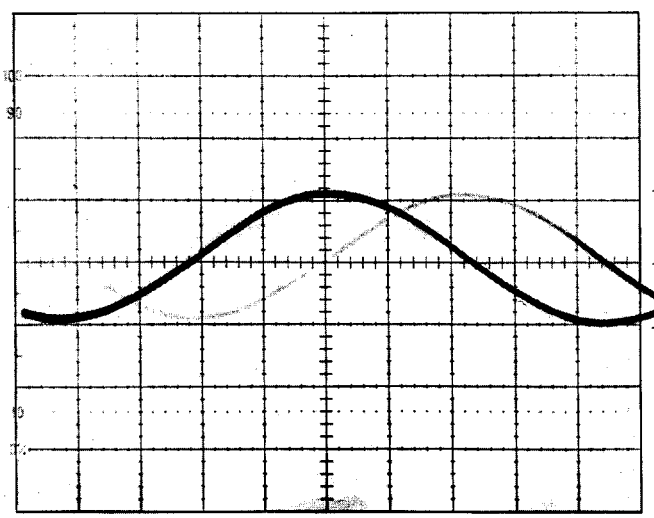


Foto 12



15. AJUSTE DEL RELOJ DE PD0011A

● Propósito : Para ajustar la frecuencia del reloj del decodificador Philips.

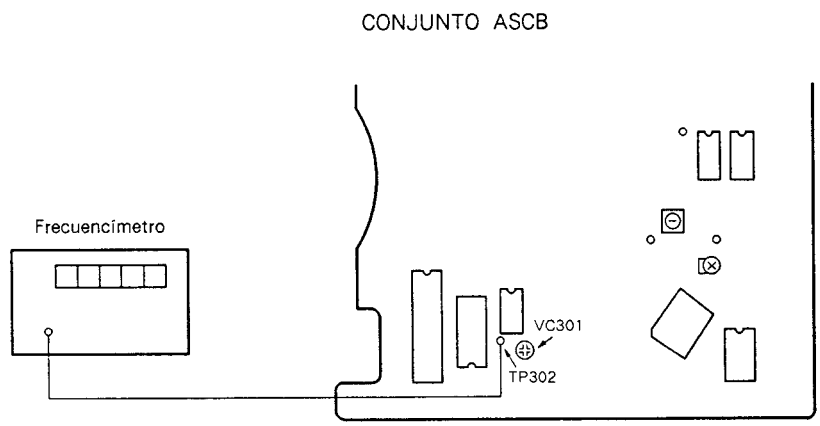
● Síntomas causados por los ajustes incorrectos : Imposibilidad de leer el código de Philips, sin indicación del tiempo de fotograma, imposibilidad de operación de búsqueda.

Dispositivos y herramientas de medida	Punto de ajuste
● Frecuencímetro	● VC301 en el conjunto ASCB

Procedimiento de ajuste

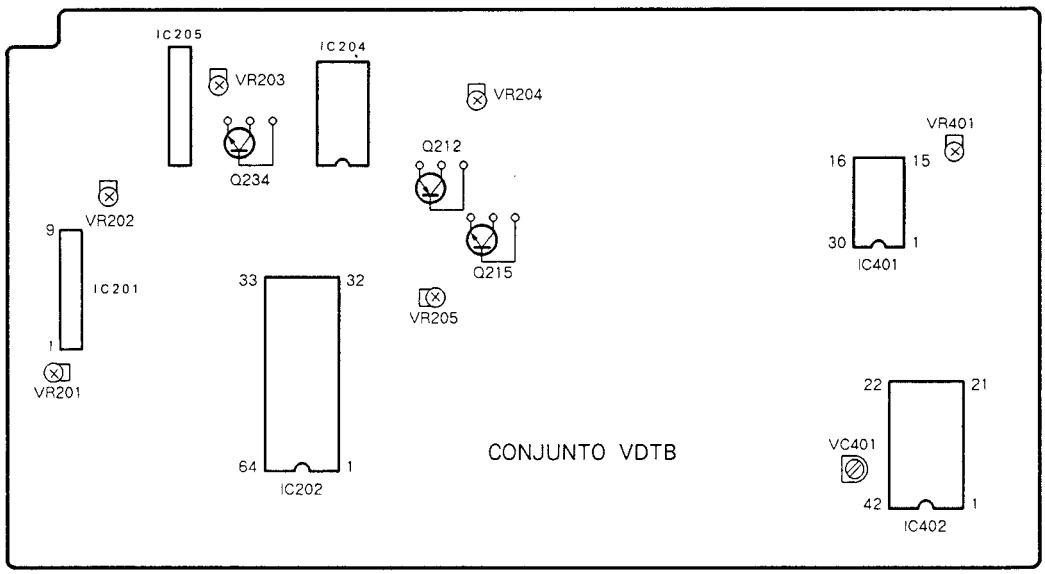
1. Durante la condición de parada del modo de prueba, conecte el frecuencímetro a TP302.
2. En esta condición, ajuste VC301 en el conjunto de tarjeta principal hasta que la frecuencia en este momento sea 3,0 MHz ± 0,1 MHz.

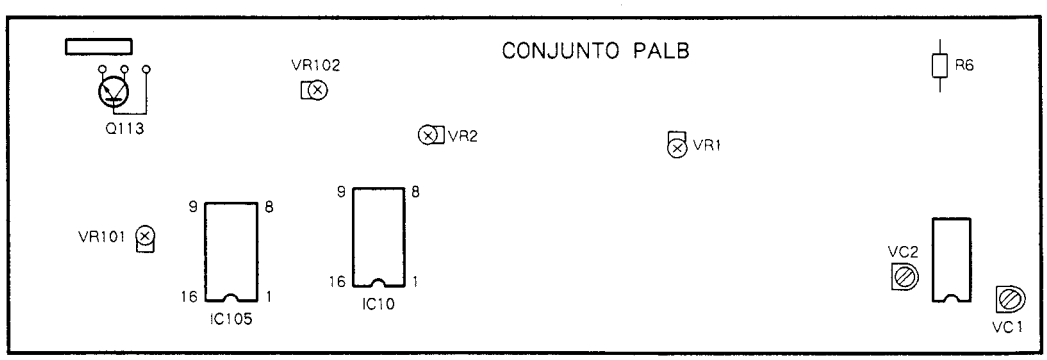
Diagrama de ajuste



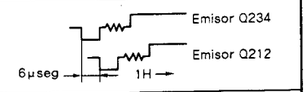
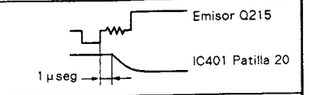
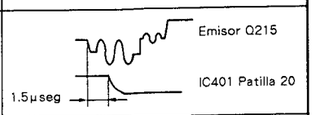
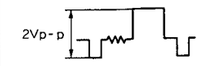
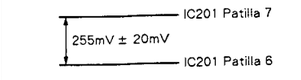
9.4 AJUSTES ELECTRICOS

● PUNTO DE AJUSTE



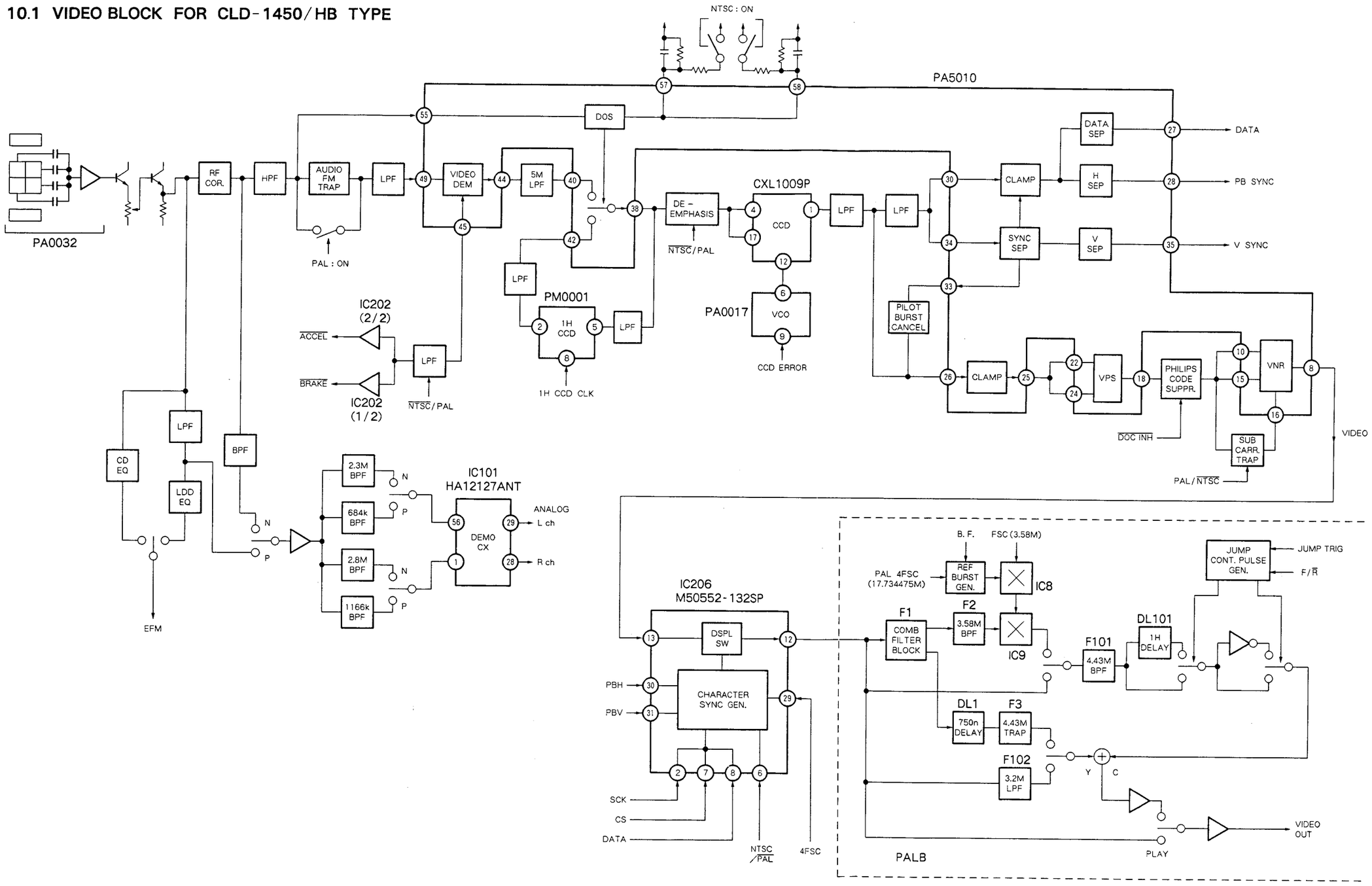


(*) a : para ambos tipo CLD-1450/HB, b : para ambos tipo CLD-1400/HEM, a • b : para ambos tipos CLD-1450/HB y CLD-1400/HEM

	Designación de ajuste de conjuntos	*	Punto de ajuste	Punto de medicón	Descripción de ajustes	Condición durante el ajuste	Osciloscopio	Remarks
	Conjunto PALB (1/2)							
1	Ajuste del Reloj de Referencia PAL	a	VC2	Conductor de R6	Ajuste VC2 hasta que la frecuencia en el conductor de R6 sea de 17.734475 MHz ± 110 Hz.	Reproducción de PAL DISC (J1)	Frecuencímetro	
		b	VC201	IC402 Patilla 34 (Conjunto VDTB)	Ajuste VC201 hasta que la frecuencia en la patilla 34 de IC402 sea de 3.546895MHz ± 22Hz.	Reproducción de PAL DISC (J1)	Frecuencímetro	
2	Ajuste del Reloj de Referencia NTSC	a	VC1	Conductor de R6	Ajuste VC1 hasta que la frecuencia en el conductor de R6 sea de 14,31818 MHz ± 90 Hz.	Reproducción de NTSC DISC (GGV1002)	Frecuencímetro	
	Conjunto VDTB							
3	Ajuste de H Sync. de Referencia PAL	a • b	VC401	IC402 Patilla 29 (TSS OUT)	Ajuste VC401 hasta que la patilla 29 (TSS OUT) de IC402 sea de 15,6250 kHz ± 0,1 Hz.	Reproducción de PAL DISC (J1)	Frecuencímetro	
4	Ajuste de Frecuencia Central de VCO	a • b	VR203	Emisor Q234 Emisor Q212	Ajuste VR203 hasta que la diferencia de tiempo entre la señal de video del emisor Q234 y la del emisor Q212 sea de 70 ± 1,4 μseg. (1H + 6 μseg)	NTSC DISC (GGV1002) n.° 5100 STILL	CH1 : 50mV/div 10 μS/div CH2 : 50mV/div	
5	Ajuste de la Temporización de la Compuerta de Sincronización Cromática	a	VR401	Emisor Q215 IC401 Patilla 20	Ajuste VR401 hasta que el tiempo del borde ascendente de sincronismo H de la señal de video del emisor Q215 hasta el comienzo de la caída en la patilla 20 de IC401 sea de 1 ± 0,1 μseg.	Reproducción de NTSC DISC (GGV1002) (cuando se requira)	CH1 : 50mV/div 1 μS/div CH2 : 50mV/div	
		b	VR401	Emisor Q215 IC401 Patilla 20	Ajuste VR401 hasta que el tiempo del borde descendente de sincronismo H de la señal de video del emisor Q215 hasta el comienzo de la caída de la patilla 20 de IC401 sea de 1,5 ± 0,1 μseg.	Reproducción de PAL DISC (J1)	CH1 : 50mV/div CH2 : 50mV/div	
6	Ajuste del Nivel Video	a • b	VR204	Emisor Q113 en el conjunto PALB	Ajuste VR204 hasta que el nivel del chip de sincronismo al pico del blanco de la señal de video del emisor Q113 en el conjunto PALB sea de 2 Vp-p ± 5 %.	PAL DISC (J1) Chap. 11 STILL	CH1 : 50mV/div	
7	Ajuste del Nivel de Video de Retardo de 1H	a • b	VR202	IC202 Patilla 40 IC202 Patilla 42	Ajuste VR202 hasta que la señal de video principal en la patilla 40 de IC202 y la señal de video de retardo 1H en la patilla 42 al mismo nivel.	NTSC DISC (GGV1002) n.° 3800 STILL	CH1 : 20mV/div CH2 : 20mV/div	± 3 %
8	Ajuste del Nivel de DET	a • b	VR201	IC201 Patilla 7 IC201 Patilla 6	Ajuste VR201 hasta que la tensión en la patilla 6 (salida de detección de frecuencia de rotación) de IC201 alcance un nivel 255 mV ± 20 mV superiror a la patilla 7 (tensión de umbral) con una imagen blanca.	PAL DISC (J1) n.° 3001 STILL	Voltímetro digital	
9	Ajuste del Nivel del Error de VPS	a • b	VR205	Pantalla del monitor de TV	Ajuste VR205 hasta que la sombra de color en una imagen magenta sea mínima.	NTSC DISC (n.° 7201) STILL	——	
	Conjunto PALB (2/2)							
10	Ajuste del Nivel de MOD. Y	a	VR2	IC10 Patilla 3 IC10 Patilla 5	Ajuste VR2 hasta que el nivel de luminancia en la patilla 3 (siguiente al filtro de peine) sea igual que en la patilla 5 (siguiente a 3,2 MHz L. P. F.)	Reproducción de NTSC DISC (GGV1002)	CH1 : 20mV/div CH2 : 20mV/div	0 ± 3 %
11	Ajuste del Nivel de MOD. Video	a	VR102	VIDEO OUT TERMINAL	Ajuste VR102 hasta que el nivel de salida de video en VIDEO OUT TERMINAL sea 2 Vp-p ± 5 %.	NTSC DISC (GGV1002) n.° 5100 STILL	CH1 : 50mV/div	2Vp-p ± 5 %
		b	VR102	IC105 Patilla 13 IC105 Patilla 12	Ajuste VR102 hasta que el nivel de luminancia en la patilla 13 de IC105 sea igual que en la patilla 12.	PAL DISC (J1) chap. 11 STILL	CH1 : 50mV/div CH2 : 50mV/div	± 3 %
12	Ajuste del Nivel de MOD. S. C.	a	VR1	IC105 Patilla 13 IC105 Patilla 12	Ajuste VR1 hasta que el nivel en la patilla 13 (nivel de conversión de croma) sea igual que en la patilla 12 (nivel de croma principal).	Reproducción de NTSC DISC (GGV1002) (cuando se requiera)	CH1 : 50mV/div CH2 : 50mV/div	± 3 %
13	Ajuste del Nivel de S. C. de Retardo 1H	a • b	VR101	Pantalla del monitor de TV	Ajuste VR101 hasta que el parpadeo en la pantalla del monitor de TV sea mínimo.	PAL DISC Chap. 11 STILL		

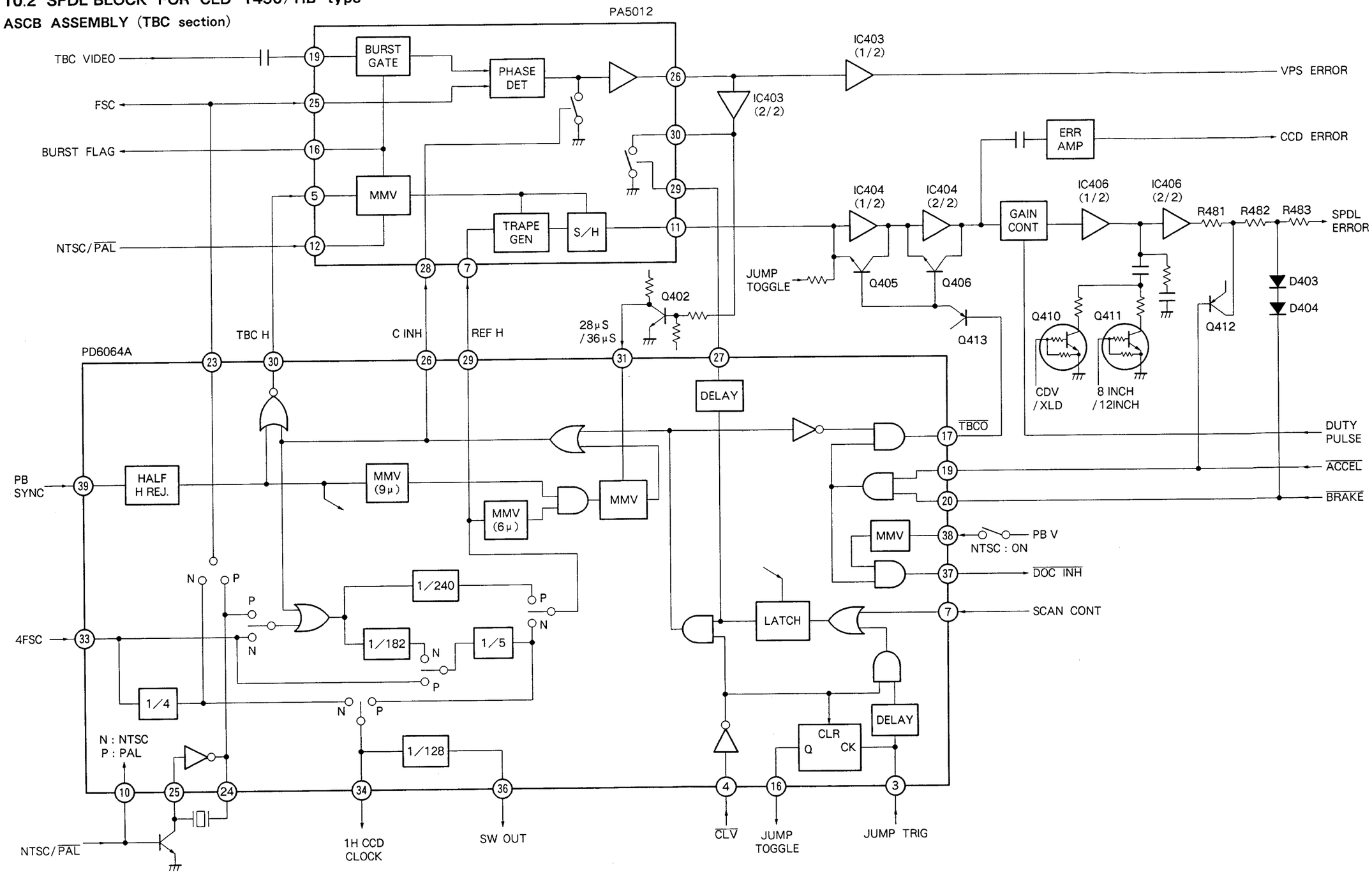
10. BLOCK DIAGRAM

10.1 VIDEO BLOCK FOR CLD-1450/HB TYPE



10.2 SPDL BLOCK FOR CLD-1450/HB type

ASCB ASSEMBLY (TBC section)



11. PALB CIRCUIT DESCRIPTION

When a NTSC disc is played back on the CLD-1450, the video signal is automatically converted into the signal of the PAL system by the PALB and output.

11.1 NTSC→PAL Conversion Circuit

1. Purpose and advantage

Some television sets of the PAL system conform to not only the pure 625 lines/50 Hz PAL color system with 4.43 MHz chrominance subcarrier frequency but also to the the 525 lines/60 Hz NTSC color system of which only the chrominance subcarrier frequency has been converted from 3.58 MHz into 4.43 MHz. (This is called the "4.43 NTSC system".)
The 4.43 MHz NTSC conversion circuit is designed to permit the users of those television sets to obtain color pictures when reproducing NTSC discs.

2. Principle and description of the circuit operations

Four-times frequencies (4fsc) of both the PAL and NTSC systems obtained from a crystal oscillator are divided into four, becoming subcarrier frequencies of 4.43 MHz (PAL) and 3.58 MHz (NTSC), respectively. These frequencies are input to a multiplier, providing added and subtracted frequencies.
By passing the output of the multiplier through a 1 MHz low-pass filter, a continuous 854 kHz sine wave (differential component) with a fixed amplitude is obtained. (See Fig. 11-2)
An NTSC video signal reproduced from an NTSC disc is Y/C-separated by a comb filter which uses a 1H glass delay line, supplying only the C component to the next multiplier, where the C component is analogically multiplied by 854 kHz mentioned above. Then, by passing the output of the multiplier through a 4.43 MHz band-pass filter, a signal of which the amplitude and phase are the same as those of the C component (3.58 MHz of the video signal) and only the frequency has been converted into 4.43 MHz, is obtained.
By adding this 4.43 MHz to the Y component (luminance signal component) which has been previously separated by the comb filter, a 4.43 MHz NTSC signal is obtained.

11.2 525-lines/60 Hz modified PAL conversion circuit

1. Purpose and advantage

With television sets of the PAL system only, color pictures cannot be obtained with the 4.43 NTSC conversion mentioned above.
Those TVs are adjusted so that a picture is scanned from the top to the bottom with 625 lines. If an NTSC disc of 525 lines is reproduced on such TVs, the top and bottom of the screen will be black as these portions are not scanned.
Although the vertical picture shrinking due to the difference in the number of lines cannot be compensated for on the player end, coloring operation may be possible on the player.
The circuit to be described here is one to convert an NTSC color signal into pseudo-PAL format, permitting color pictures to be obtained on television sets of the PAL system only.

2. Principle and description of the circuit operations

This section describes the differences between the PAL and NTSC formats.

	Format	NTSC	PAL
A	Lines/field frequency	525/60	625/50
B	Color subcarrier frequency	3.58 MHz	4.43 MHz
C	Burst phase	Fixed	±135° in alternation
D	Color signal phase at each line	Fixed	Converted at each line

Fig. 11-1 shows these items diagrammed on color vectors.
To obtain color pictures on the screen by converting a NTSC color signal into PAL system format, items B, C and D must be modified to conform to the PAL format.

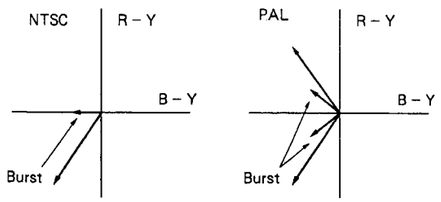


Fig. 11-1 Vector waveforms when reproducing green

11.3 DPFS (Digital Phase and Frequency Shift) system

Using the previously mentioned process with multipliers, this system simultaneously converts the frequency and phase of the chrominance subcarrier of a video signal recorded/reproduced with the NTSC format, into those conforming to the PAL color format.
Thus, the above items B, C and D are converted all at once with this system.

1.Conversion of the burst phase (Item C)

While the burst phase is fixed to −180° with NTSC, phases of +135° and −135° are alternately selected for every line with PAL.

2. Conversion of the color signal phase (Item D)

While the phase operation for each line is not performed with NTSC, the vertical component of the color vector is reversed (against the B-Y axis) for each line with PAL.
With a PAL monitor, colors are demodulated from information carried on two lines by using a 1H delay line. If color information on either of these two lines is available, accurate demodulation of color components is possible even though the color saturation level may be lowered. The decrease in the saturation level will be eliminated by controlling the burst level on the player end.
Modulation of these two items. C and D, and the previously mentioned frequency modulation are performed as follows.

A shift register is used for the clock which oscillates a frequency 4 times the PAL system subcarrier freqeuncy (4 fsc), providing three carriers, fsc1, fsc2 and fsc3 which differ from 4 fsc in the phase by a half wave, one wave, and one and a half waves, respectively.
According to the positions of the burst and video signal, these carriers are switched to be the output at SW1 (surrounded with a dotted line in Fig. 11-2). This output will represent a signal for which the frequency is 4.43 MHz and the phase cyclically changes from 0° (video signal section at line N), +45° (burst section at line N+1), no amplitude (video signal section at line N+1), −45° (burst section at line N+2), 0° (video signal section at line N+2), to +45° (burst section at line N+3).
This phase- and amplitude-modified 4,43 MHz is multiplied by 3.58 MHz which is also a continuous wave obtained when dividing the frequency of 4 times the NTSC color subcarrier oscillated at the crystal oscillator. This provides 854 kHz, a differential component with the phase and amplitude modified with the same cycle, through a low-pass filter.
By multiplying this 854 kHz by the C component of the NTSC signal separated by the above-mentioned comb filter, a pseudo-PAL NTSC video signal as shown in Fig. 11-2 is obtained.

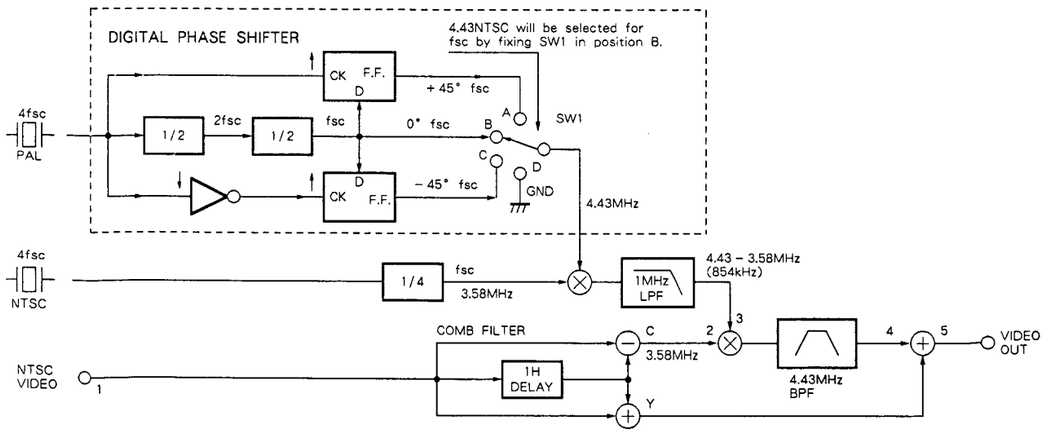


Fig. 11-2 Frequency and phase conversion system

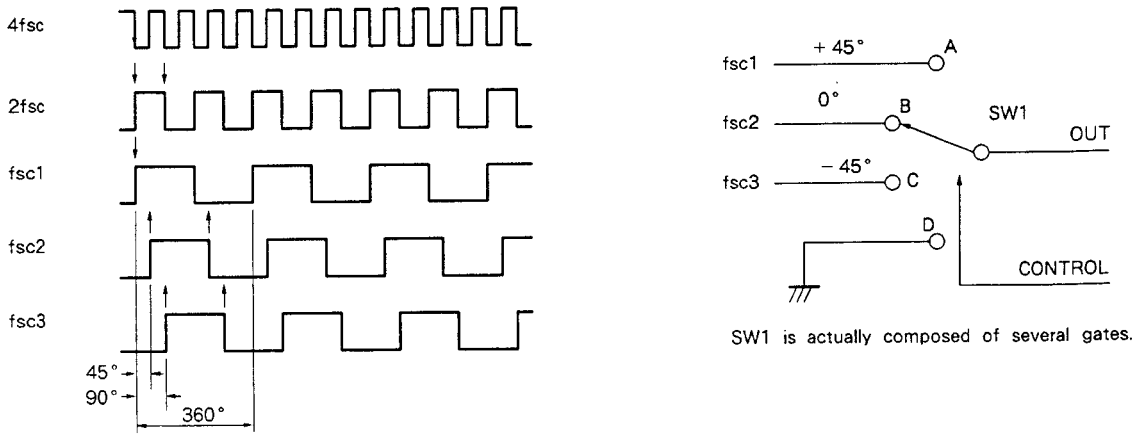


Fig. 11-3 Timing chart in the portion enclosed with dotted line in Fig. 11-2

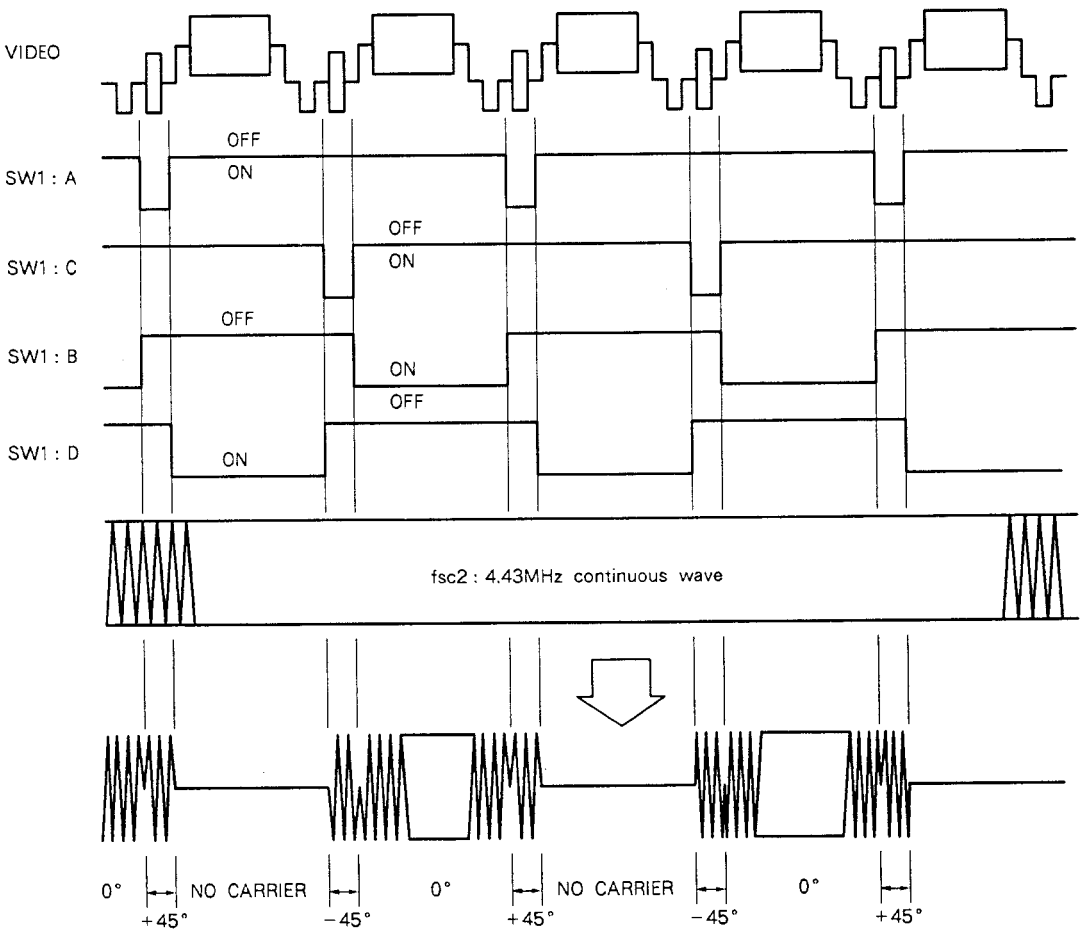


Fig. 11-4 Phase- and amplitude-modified 4.43MHz

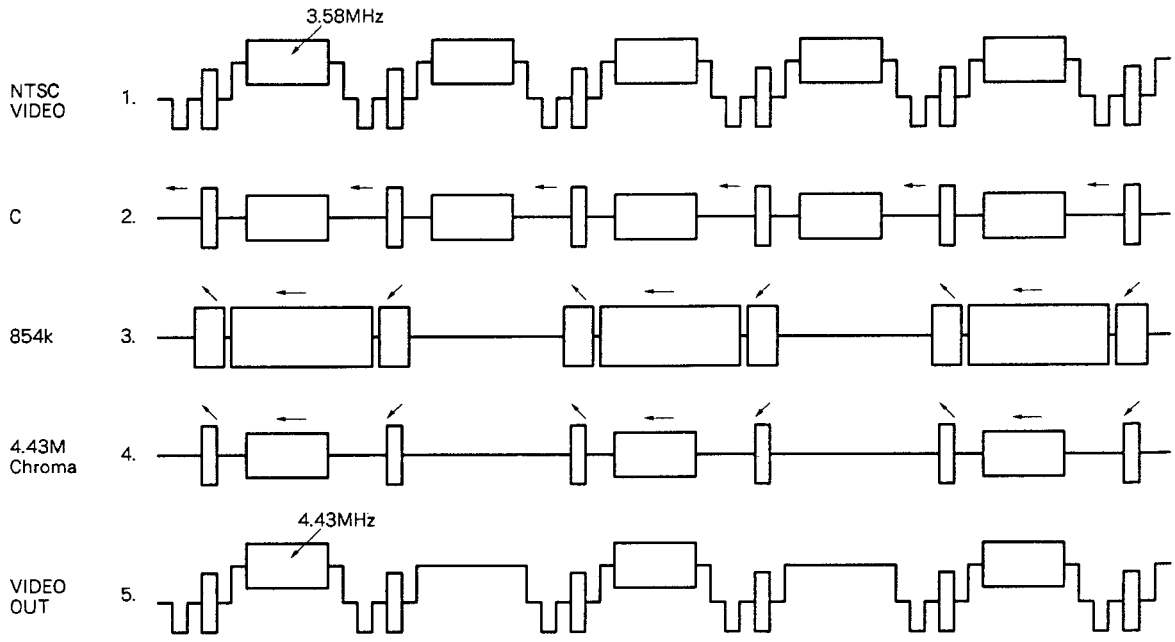


Fig. 11-5

12. AS TO THE CLD-1400/HEM TYPE

12.1 CONTRAST OF MISCELLANEOUS PARTS

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 ⚠ 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 5 6 1 J
47k Ω → 47 × 10³ → 473 ····· RD1/4PS 4 7 3 J
0.5 Ω → 0R5 ····· RN2H 0 R 5 K
1 Ω → 010 ····· RS1P 0 1 0 K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).
5.62k Ω → 562 × 10¹ → 5621 ····· RN1/4SR 5 6 2 1 F

The CLD-1400/HEM type is the same as the CLD-1450/HB type with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		CLD-1450/HB type	CLD-1400/HEM type	
◉	ASCB board assembly	VWX1007	VWX1005	
◉	VDTB board assembly	VWS1055	VWS1054	
◉	PALB board assembly	VWV1073	VWV1072	
	FUNCTION board assembly	Non supply	Non supply	
◉	POWER SUPPLY board assembly	VWR1017	VWR1023	
⚠	AC power cord	VDG1029	VDG1028	
	Packing case	VHG1071	VHG1070	For packing
	Operating instructions (English)	VRB1022	• • • • •	
	Operating instructions (English/German/French/Italian)	• • • • •	VRE1003	
	Operating instructions (Dutch/Swedish/Spanish/Portuguese)	• • • • •	VRF1004	
	Front panel assembly S	VXX1295	VXX1292	

Note : As to the schematic diagram and P. C. Boards pattern of the CLD-1400/HEM type, refer to page from 19 to 74.

12.2 ELECTRICAL PARTS LIST

PALB Board Assembly (VWV1072)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC105	BU4053B
	IC101	TC74HC08AP
	IC103	TC74HC107AP
	IC104	TC74HC123P
	IC102	TC74HC32AP
	Q115	UN4112
	Q112	2SA933S
	Q103 – Q111,Q113,Q114	2SC1740S
	D101	HZS10NB2

COILS AND FILTERS

Mark	Symbol & Description	Part No.
	L102,L103	LAU8R2J
	L104,L105	LRA120K
	F102 3.2MHz L.P.F	VTF1011
	F101 4.43MHz B.P.F	VTF1034

CAPACITORS

Mark	Symbol & Description	Part No.
	C101,C110	CEANP220M10
	C113	CEANP470M10
	C122	CEAS330M16
	C111,C112,C115 – C118,C121, C129,C131,C133	CEAS470M10
	C108,C109	CKCYB681K50
	C103–C107,C127,C128,C130,C132	CKPUYY103N16
	C119,C120	CQMA473J50

RESISTORS

Mark	Symbol & Description	Part No.
	VR101 Semi-fixed (470Ω)	VRTB6VS471
	VR102 Semi-fixed (4.7kΩ)	VRTB6VS472
	Other resistors	RD1/6PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	JA1 RGB connector	VKB1003
	DL101 64μsec delay line	VTF1019

ASCB Board Assembly (VWX1005)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC806,IC807	AD1860N
	IC810 – IC812	BA15218
	IC201,IC202,IC603 – IC606, IC808,IC809	BA15218N
	IC601	CXA1081S
	IC101	HA12127ANT
	IC610,IC611	ICP-N20
	IC607	LA6510
	IC802	LC3517BL-15
	IC801	LC7863A
	IC608	NJM2903S
	IC813	NJM78M08FA
	IC814	NJM79M08FA
	IC803,IC804	NJU4051BD
	IC303,IC602,IC609	NJU4053BD
	IC302	PD0011A
	IC805	PD0050
	IC301	PD4221B
	IC304	TA7291P
	Q209,Q608,Q617,Q620,Q802,Q804, Q807	DTA124ES
	Q201,Q301,Q606,Q611,Q612,Q616, Q622,Q623,Q624,Q633,Q803,Q808, Q815	DTC124ES
	Q618	2SA1399
	Q101,Q102,Q105,Q107,Q204,Q206, Q208,Q602,Q619,Q626,Q628,Q630, Q811	2SA933S
	Q614	2SB1185
	Q603	2SC1674
	Q203,Q205,Q207,Q210,Q601,Q604, Q605,Q607,Q615,Q625,Q627,Q629, Q631,Q632,Q805,Q806	2SC1740S
	Q613	2SD1762
	Q801,Q809,Q810,Q813,Q814	2SD2144S
	Q202,Q621	2SK184
	D801	KV1225YBR
	D301	04AZ10-Z
	D107,D108,D203,D302,D601, D602,D605 – D610,D803 – D806	1SS254
	D802	FC54M
	D201,D202,D603,D604	HZS2C2

COILS AND FILTERS

Mark	Symbol & Description	Part No.
	L602	LAU181J
	L301	LAU221J
	L801	LAU4R7K
	L802 Ferrite bead	VTH1020
	VL801 Variable coil	VTL1005
	F102 684kHz B. P. filter	VTF1035
	F103 1066kHz B. P. filter	VTF1036

CAPACITORS

Mark	Symbol & Description	Part No.
	VC301 Ceramic trimmer (45P)	VCM1002
	C117,C139,C665,C667	CCCCH101J50
	C658	CCCCH121J50
	C134	CCCCH360J50
	C111	CCCCH620J50
	C304	CCCCH220J50
	C807	CCCCH390J50
	C627,C638,C670,C802,C848,C852	CCCSL331J50
	C101	CKCYB102K50
	C655	CCCSL560J50
	C656	CCCSL561J50
	C608	CCCSL820J50
	C805	CCCUJ221J50
	C804	CCCUJ330J50
	C866,C867,C869	CCPUCH100J50
	C666	CCPUSL270J50
	C650,C868,C873	CCPUSL330J50
	C606,C619	CCPUSL470J50
	C623,C664,C668	CCPUSL680J50
	C635	CEANPR47M50
	C624,C641,C669	CEANP010M50
	C649	CEANP101M6R3
	C819,C820	CEANP2R2M50
	C113,C124,C135	CEANP220M10
	C816	CEANP470M10
	C146	CEASR47M50
	C640,C801	CEAS010M50
	C106,C119,C141,C143,C821	CEAS100M50
	C626	CEAS101M10
	C620,C636	CEAS101M25
	C125,C126,C301,C303,C305,C603, C604,C611,C628,C637,C642,C647, C825,C827,C828,C835 – C837, C847,C851,C871,C872	CEAS220M25
	C822,C853,C854,C858,C861,C862, C864	CEAS221M16
	C148,C652,C657,C662,C663,C839, C842	CEAS4R7M50
	C108,C109,C131,C132	CEAS470M10
	C838,C841	CEAS471M10
	C122,C147,C150	CEAS471M6R3
	C129,C201,C202,C609	CFTXA103J50
	C123,C203,C616,C648,C651,C860, C863,C865	CFTXA104J50
	C116,C140	CFTXA152J50
	C831,C834	CFTXA153J50
	C614	CFTXA184J50
	C803	CFTXA223J50
	C204,C633,C646	CFTXA333J50
	C615	CFTXA334J50
	C855	CFTXA393J50

Mark	Symbol & Description	Part No.
	C115,C138,C645	CFTXA472J50
	C121,C145,C612,C632	CFTXA473J50
	C856,C857	CFTXA562J50
	C661	CFTXA682J50
	C613,C634,C830,C833	CFTXA683J50
	C120,C144,C818	CFTXA822J50
	C617,C618	CKCYB332K50
	C654	CKCYB392K50
	C644	CKCYB681K50
	C621	CKCYB682K50
	C622	CKCYB821K50
	C806,C812,C813,C815,C817	CKCYF223Z50
	C114,C127,C130,C137,C149,C157, C310,C311,C808	CKPUYB102K50
	C118,C142,C870	CKPUYB221K50
	C112,C136	CKPUYB561K50
	C104,C105,C107,C128,C151,C154, C302,C306 – C308,C601,C602, C605,C607,C643,C653,C659,C814, C823,C824,C829,C832,C874	CKPUYY103N16
	C845,C849	CQMA821J50

RESISTORS

Mark	Symbol & Description	Part No.
	VR801 Semi-fixed (10kΩ)	VRTB6VS103
	VR607 Semi-fixed (15kΩ)	VRTB6VS153
	VR602 Semi-fixed (2.2kΩ)	VRTB6VS222
	VR603 Semi-fixed (33kΩ)	VRTB6VS333
	VR604,VR606 Semi-fixed (4.7kΩ)	VRTB6VS472
	VR605 Semi-fixed (4.7kΩ)	VRTG6VS472
	VR601 Semi-fixed (47kΩ)	VRTG6VS473
	R343 Fuse resistor	VCN1023
	R339 Resistor array	RA4S223J
	R337,R338 Resistor array	RA5S223J
	R336 Resistor array	RA7S472J
	R658	RD1/2PMF3R3J
	Other resistors	RD1/6PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	CN3 23P top connector	VKN1073
	JA2 2P mini jack	VKN-183
	X301 Ceramic resonator	VSS1028
	X801 Crystal resonator (17.2872MHz)	VSS1032
	3P Pin jack	VKB1011
	I/O jack	VKN1070
	RFMD (PAL)	VWL1010

VDTB Board Assembly (VWS1054)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC204	CXL1009P
	IC206	M50552-132SP
	IC201	NJM2903S
	IC404 – IC406	NJM4558D
	IC403	NJM4558S
	IC205	PA0017
	IC202	PA5010
	IC401	PA5012
	IC402	PD6064A
	IC203	PM0001
	Q222,Q412,Q413,Q414	UN4112
	Q223,Q402,Q410,Q411	UN4212
	Q201,Q212,Q219,Q220,Q225,Q230	2SA933S
	Q206 – Q208,Q211,Q213 – Q216, Q221,Q229,Q231,Q233 – Q235, Q405,Q406,Q408,Q409	2SC1740S
	Q407	2SC3064
	D207	HZS10NB2
	D401,D402	HZS3B2
	D203	HZS5B2
	D201,D202,D204,D205,D403,D404, D406,D407	1SS254

COILS AND FILTER

Mark	Symbol & Description	Part No.
	L205,L206,L213,L217,L218, L402	LAU120J
	L211	LAU121J
	L209	LAU220J
	L207	LAU221J
	L401	LAU270J
	L212,L215	LAU330J
	L214	LAU560J
	L202,L210	LAU680J
	L219,L220	LRA120K
	L208	LRA391K
	L216	LRA561K
	F201 5.0MHz L. P. F	VTF1012

CAPACITORS

Mark	Symbol & Description	Part No.
	VC201 Ceramic trimmer (20p)	VCM-008
	VC401 Ceramic trimmer (30p)	VCM-005
	C227,C229	CCCCH100D50
	C240,C305,C336,C401,C405,C408, C456	CCCCH101J50
	C285	CCCCH120J50
	C253	CCCCH121J50
	C288,C322,C420,C421	CCCCH150J50
	C255,C298,C299,C418,C455	CCCCH151J50
	C214 – C216,C252,C327	CCCCH180J50

Mark	Symbol & Description	Part No.
	C251,C276	CCCCH220J50
	C321	CCCCH050C50
	C228,C326	CCCCH330J50
	C233,C283,C308	CCCCH390J50
	C304	CCCCH430J50
	C287,C293	CCCCH470J50
	C294,C307	CCCCH560J50
	C284,C406,C417	CCCCH680J50
	C223,C224	CCCCH820J50
	C310	CCCCH910J50
	C289	CCCSL221J50
	C225	CCCSL271J50
	C241	CCCSL331J50
	C226	CCCSL391J50
	C442	CEANP010M50
	C439	CEANP101M6R3
	C312,C429,C436	CEANP220M10
	C440	CEANP330M10
	C286	CEANP470M10
	C213	CEASR47M50
	C302	CEAS100M50
	C275,C277,C339	CEAS101M10
	C242,C265,C267,C269,C271,C292	CEAS220M25
	C237,C261 – C263	CEAS3R3M50
	C303,C330	CEAS330M16
	C438,C443	CEAS4R7M50
	C205,C206,C210,C212,C234,C243, C247,C249,C254,C300,C316,C318, C323,C331,C332,C402,C414,C415, C446,C448,C450,C452,C454	CEAS470M10
	C268	CEAS471M6R3
	C218,C259,C290,C426,C435	CFTXA104J50
	C432	CFTXA124J50
	C260	CFTXA224J50
	C434	CFTXA394J50
	C428	CFTXA563J50
	C297	CFTXA683J50
	C407	CKCYB681K50
	C201 – C204,C207,C209,C211, C217,C230 – C232,C235,C236, C244 – C246,C248,C250,C257, C258,C264,C266,C270, C272 – C274,C278,C279,C281, C295,C296,C301,C311,C313,C315, C319,C324,C325,C328,C329, C333 – C335,C337,C338,C403, C412,C416,C419,C422,C423,C444, C445,C447,C449,C451,C453,C457, C458	CKPUYY103N16
	C404	CQMA102J50
	C239,C431	CQMA103J50
	C411	CQMA122J50
	C430	CQMA153J50
	C424	CQMA182J50
	C433	CQMA223J50
	C238,C427	CQMA272J50
	C437	CQMA393J50
	C425,C441	CQMA472J50
	C291,C306	CQMA473J50
	C410	CQMA682J50
	C409	CQSA181J50

RESISTORS

Mark	Symbol & Description	Part No.
	VR202 Semi-fixed (1kΩ)	VRTB6VS102
	VR201 Semi-fixed (220Ω)	VRTB6VS221
	VR204 Semi-fixed (470Ω)	VRTB6VS471
	VR203,VR205 Semi-fixed (4.7kΩ)	VRTB6VS472
	VR401 Semi-fixed (47kΩ)	VRTB6VS473
	R204,R208,R209,R223 – R225, R236,R298,R460,R461,R470,R471	RN1/6PQ□□□□F
	Other resistors	RD1/6PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	X401 Crystal resonator (3.750MHz)	VSS1018
	X201 Crystal resonator (17.734MHz)	VSS1019

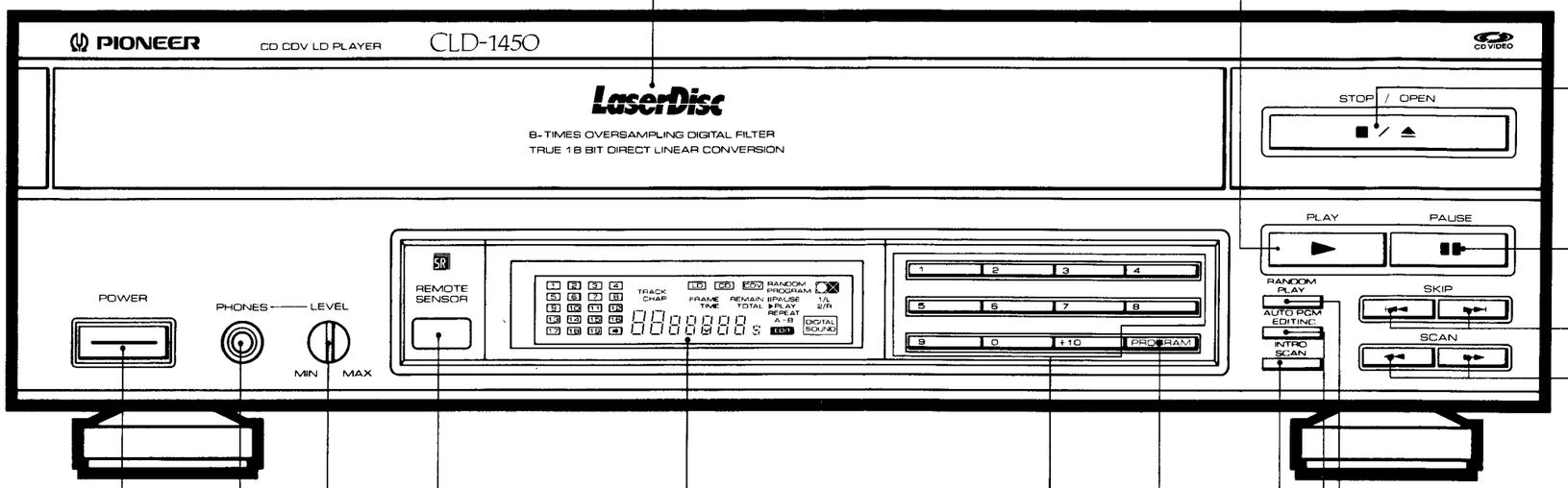
FUNCTION BOARD ASSEMBLY AND POWER SUPPLY BOARD ASSEMBLY

The electrical parts of the FUNCTION board assembly and the POWER SUPPLY board assembly are same as the CLD-1450/HB type.

13 PANEL FACILITIES

13.1 CLD−1450/HB TYPE

A detailed description is provided on the indicated page(s).



Door/Disc table

PLAY button

STOP/OPEN button

When a disc is being played back, pressing this button once stops the player. Pressing it again opens the disc table after disc rotation has stopped.

PAUSE button

Press this button to stop playback

SKIP buttons

SCAN buttons

RANDOM PLAY button

AUTO PGM EDITING button

INTRO SCAN button

PROGRAM button

Digit buttons

Display window

POWER switch

Press to turn power to the unit ON and OFF.
If there is disc in the unit when power is turned ON, playback will begin automatically.

PHONES jack

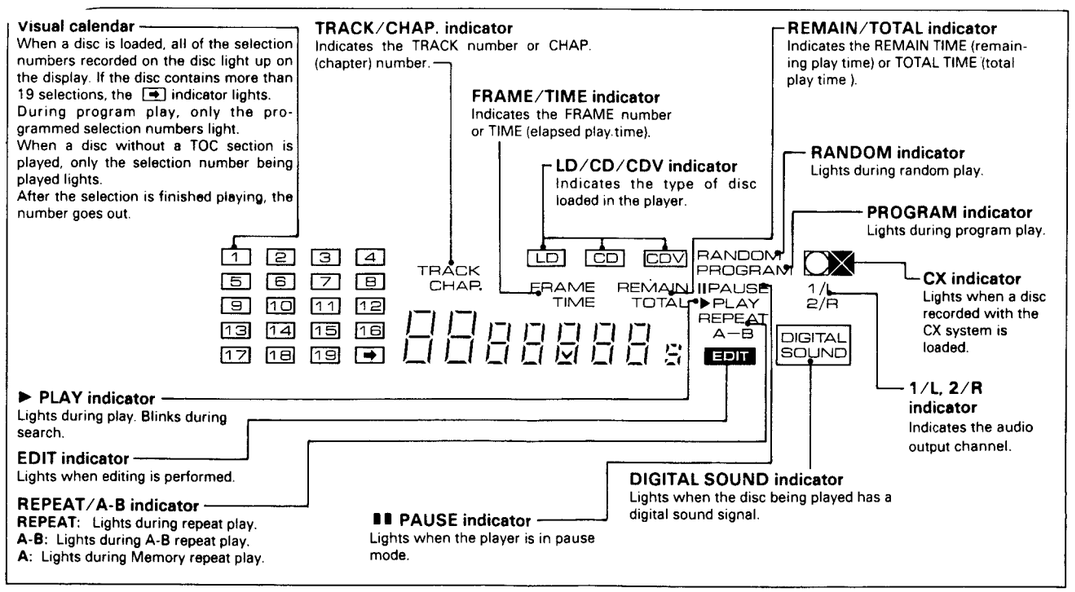
Insert a headphone plug into this jack for private listening.

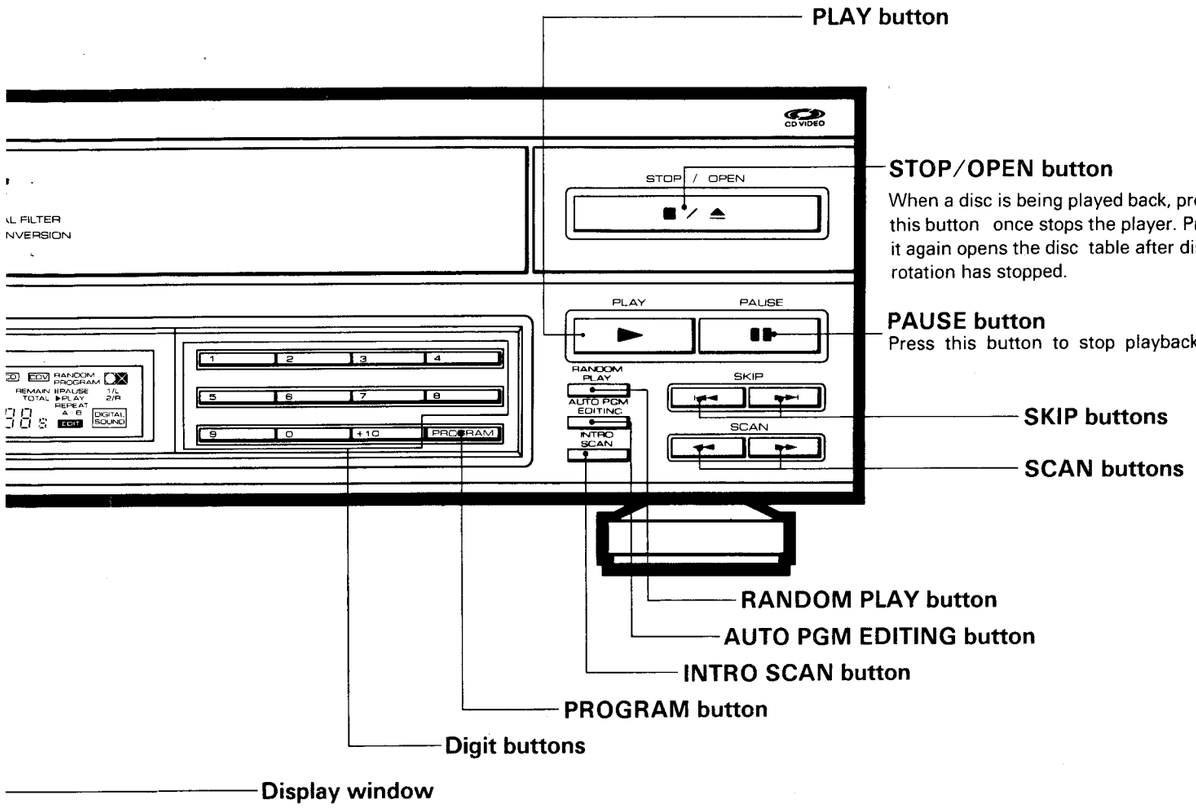
PHONES LEVEL control

Turn this control in the "MAX" direction to increase the output level from the PHONES jack. Turn this control in the "MIN" direction to decrease the output level from the PHONES jack.

REMOTE SENSOR

Receives the signal from the remote control unit.





STOP/OPEN button
When a disc is being played back, pressing this button once stops the player. Pressing it again opens the disc table after disc rotation has stopped.

PAUSE button
Press this button to stop playback

SKIP buttons

SCAN buttons

RANDOM PLAY button

AUTO PGM EDITING button

INTRO SCAN button

PROGRAM button

Digit buttons

Display window

Visual calendar
When a disc is loaded, all of the selection numbers recorded on the disc light up on the display. If the disc contains more than 19 selections, the ➡ indicator lights.
During program play, only the programmed selection numbers light.
When a disc without a TOC section is played, only the selection number being played lights.
After the selection is finished playing, the number goes out.

TRACK/CHAP. indicator
Indicates the TRACK number or CHAP. (chapter) number.

FRAME/TIME indicator
Indicates the FRAME number or TIME (elapsed play.time).

LD/CD/CDV indicator
Indicates the type of disc loaded in the player.

REMAIN/TOTAL indicator
Indicates the REMAIN TIME (remaining play time) or TOTAL TIME (total play time).

RANDOM indicator
Lights during random play.

PROGRAM indicator
Lights during program play.

CX indicator
Lights when a disc recorded with the CX system is loaded.

1/L, 2/R indicator
Indicates the audio output channel.

▶ PLAY indicator
Lights during play. Blinks during search.

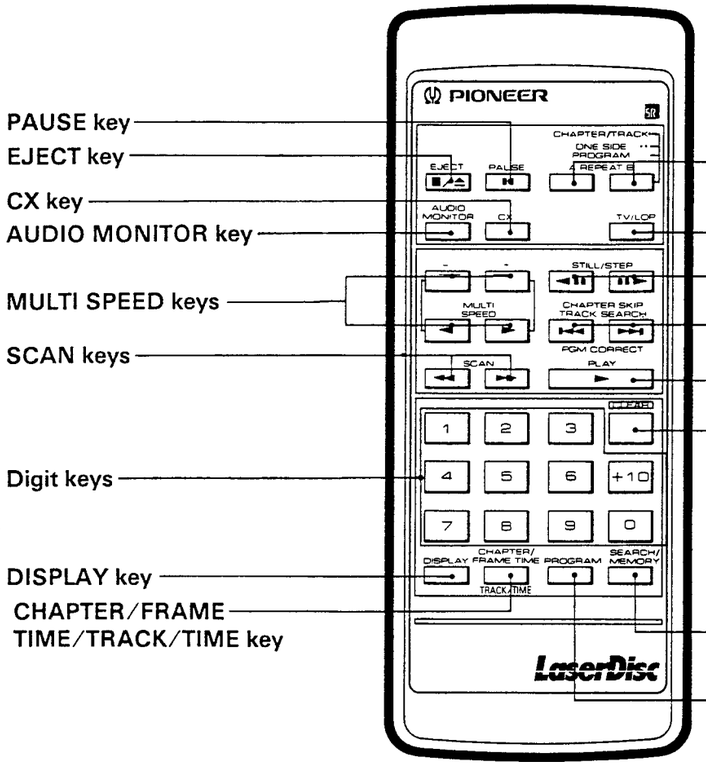
EDIT indicator
Lights when editing is performed.

REPEAT/A-B indicator
REPEAT: Lights during repeat play.
A-B: Lights during A-B repeat play.
A: Lights during Memory repeat play.

▮▮ PAUSE indicator
Lights when the player is in pause mode.

DIGITAL SOUND indicator
Lights when the disc being played has a digital sound signal.

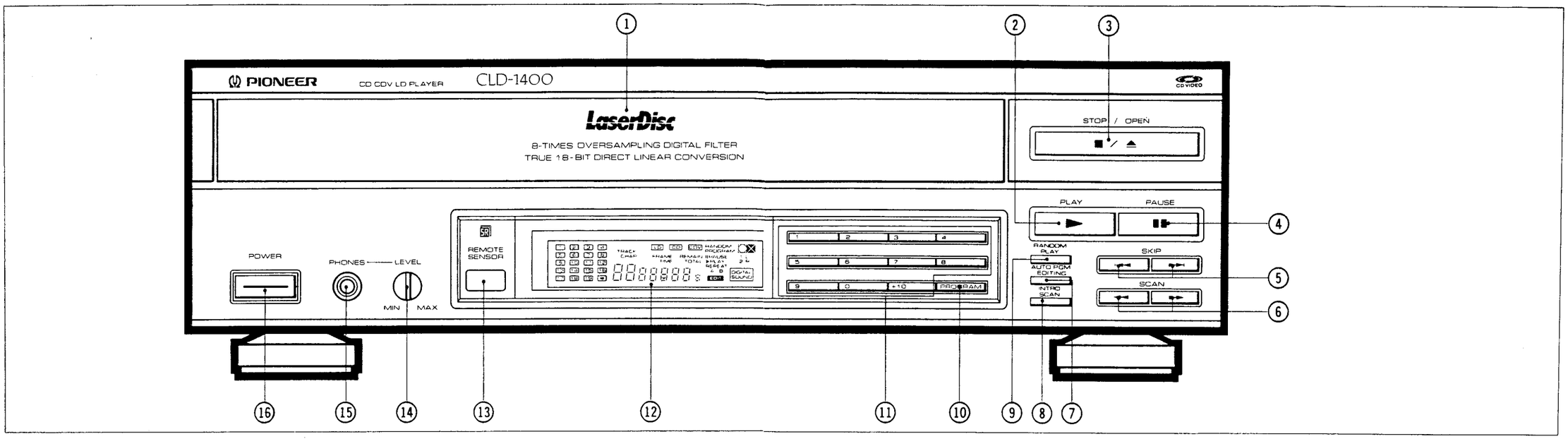
The buttons with the same names or marks on the front panel of the player unit control the same operations as the corresponding keys on the remote control unit.



TV/LDP key
When the UHF antenna is connected to the TV set via the player, this key switches between disc play and UHF TV broadcast.

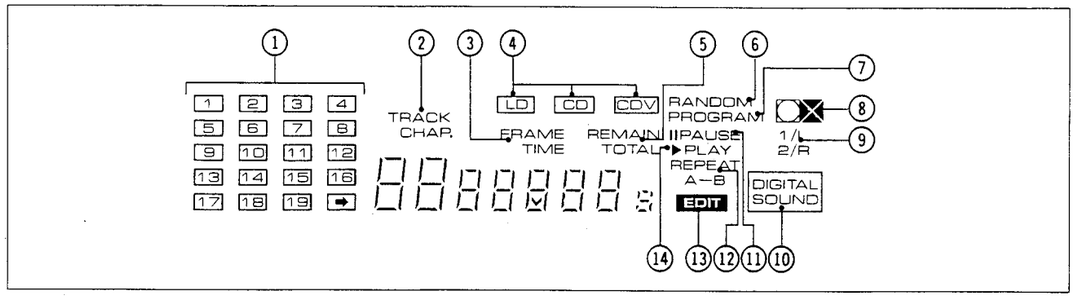
CLEAR key
Used to clear the repeat mode, program mode, random play mode, or intro scan mode. This key can also be used for correcting input digits.

13.2 CLD-1400/HEM TYPE



① **Door/Disc table**
② **PLAY button**
③ **STOP/OPEN buttons**
④ **PAUSE buttons**
Press this button to stop playback temporarily. To resume playback, press this button again.
⑤ **SKIP buttons**
⑥ **SCAN buttons**
⑦ **AUTO PGM EDITING button**
⑧ **INTRO SCAN button**
⑨ **RANDOM PLAY button**
⑩ **PROGRAM button**
⑪ **Digit buttons**
⑫ **Display window**
⑬ **REMOTE SENSOR**
Receives the signal from the retmote control unit.
⑭ **PHONES LEVEL control**
Turn this control in the "MAX" direction to increase the output level from the PHONES jack. Turn this control in the "MIN" direction to decrease the output level from the PHONES jacks.
⑮ **PHONES jack**
Insert a headphone plug into this jack for private listening.
⑯ **POWER switch**
Press to turn power to the unit ON and OFF.
If there is disc in the unit when power is tured ON, playback will begin automatically.

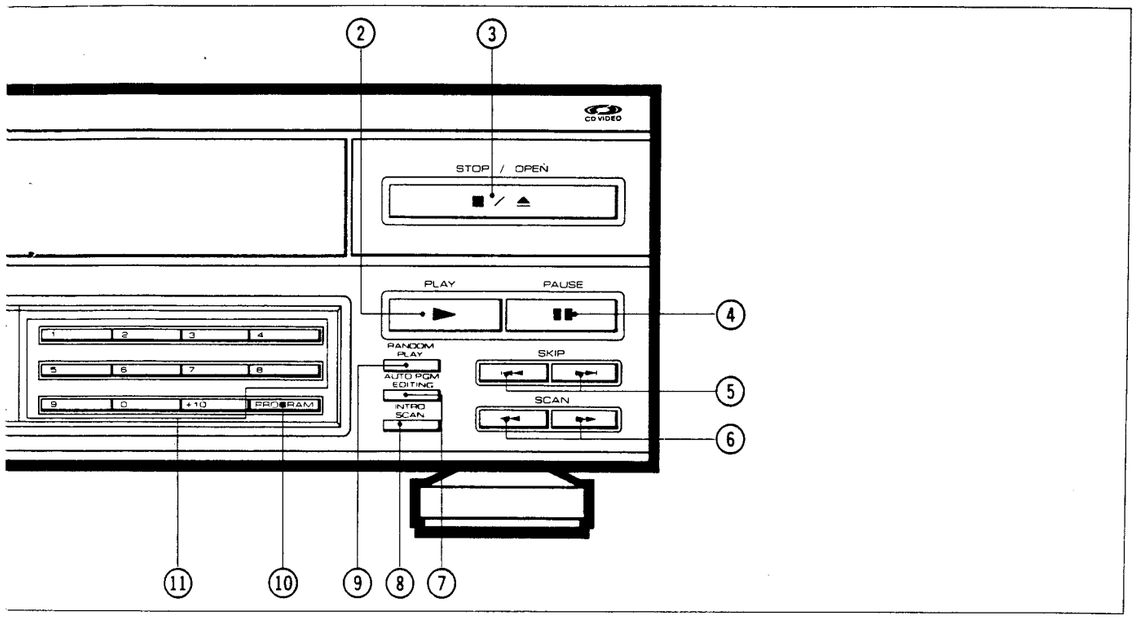
Display window

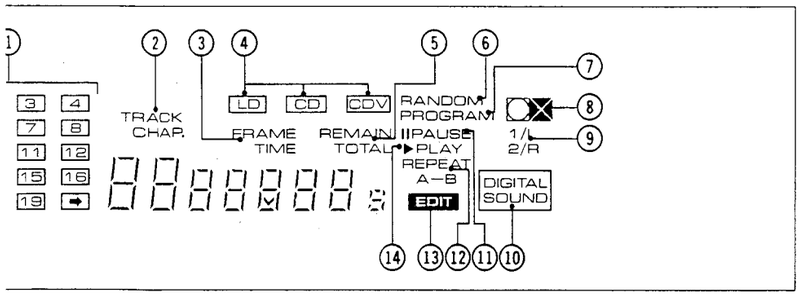


① **Visual calendar**
When a disc is loaded, all of the selection numbers recorded on the disc light up on the display. If the disc contains more than 19 selections, the ➡ indicator lights. During program play, only the programmed selection numbers light. When a disc without a TOC section is played, only the selection number being played lights. After the selection is finished playing, the number goes out.
② **TRACK/CHAP. indicator**
Indicates the TRACK number or CHAP. (chapter) number.
③ **FRAME/TIME indicator**
Indicates the FRAME number or TIME (elapsed play time).
④ **LD/CD/CDV indicator**
Indicates the type of disc loaded in the player.
⑤ **REMAIN/TOTAL indicator**
Indicates the REMAIN TIME (remaining play time) or TOTAL TIME (total play time).
⑥ **RANDOM indicator**
Lights during random play.
⑦ **PROGRAM indicator**
Lights during program play.
⑧ **CX indicator**
Lights when a disc recorded with the CX system is loaded.
⑨ **1/L, 2/R indicator**
Indicates the audio output channel.
⑩ **DIGITAL SOUND indicator**
Lights when the disc being played has a digital sound signal.
⑪ **❚❚ PAUSE indicator**
Lights when the player is in pause mode.
⑫ **REPEAT/A-B indicator**
REPEAT: Lights during repeat play.
A-B: Lights during A-B repeat play.
A: Lights during Memory repeat play.
⑬ **EDIT indicator**
Lights when editing is performed.
⑭ **► PLAY indicator**
Lights during play. Blinks during search.

The buttons w
panel of the pl
corresponding

① **PAUSE ke**
② **EJECT key**
③ **CX key**
④ **AUDIO MC**
⑤ **MULTI SPI**
⑥ **SCAN key**
⑦ **Digit keys**
⑧ **DISPLAY k**
⑨ **CHAPTER/**
⑩ **REPEAT A**
⑪ **TV/LDP ke**
When the UHF
player, this ke
broadcast.
⑫ **STILL/STE**
⑬ **CHAPTER**
CORRECT
⑭ **PLAY key**
⑮ **CLEAR ke**
Used to clear t
mode, or intro
correcting inpu
⑯ **SEARCH/**
⑰ **PROGRAM**





⑤ **REMAIN/TOTAL indicator**
Indicates the REMAIN TIME (remaining play time) or TOTAL TIME (total play time).
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Indicates the audio output channel.
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Lights when the disc being played has a digital sound signal.

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Lights when the player is in pause mode.
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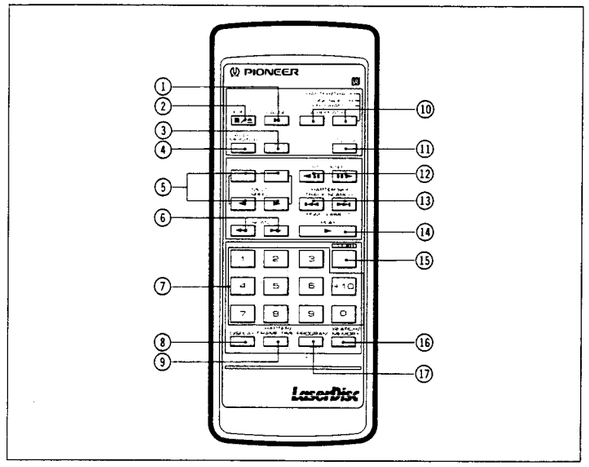
A-B: Lights during A-B repeat play.
A: Lights during Memory repeat play.
⑬ **EDIT indicator**
Lights when editing is performed.
⑭ **► PLAY indicator**
Lights during play. Blinks during search.

REMOTE CONTROL UNIT FACILITIES

The buttons with the same names or marks on the front panel of the player unit have the same functions as the corresponding keys on the remote control unit.



① **PAUSE key**
② **EJECT key**
③ **CX key**
④ **AUDIO MONITOR key**
⑤ **MULTI SPEED keys**
⑥ **SCAN keys**
⑦ **Digit keys**
⑧ **DISPLAY key**
⑨ **CHAPTER/FRAME TIME/TRACK/TIME key**

⑩ **REPEAT A/B keys**
⑪ **TV/LDP key**
When the UHF antenna is connected to the TV set via the player, this key switches between disc play and UHF TV broadcast.
⑫ **STILL/STEP keys**
⑬ **CHAPTER SKIP/TRACK SEARCH/PGM CORRECT keys**
⑭ **PLAY key**
⑮ **CLEAR key**
Used to clear the repeat mode, program mode, random play mode, or intro scan mode. This key can also be used for correcting input digits.
⑯ **SEARCH/MEMORY key**
⑰ **PROGRAM key**

14. SPECIFICATIONS

14.1 CLD-1450/HB TYPE

1. General

System ..... LaserVision Disc system and Compact Disc digital audio system
Laser ..... Semiconductor laser wavelength 780 nm
Power requirements
U.K. model ..... AC 240V, 50/60 Hz

Power consumption 44W
Weight ..... 8.1 kg (17 lbs 14 oz)
Dimensions ..... 420(W) x 416(D) x 122(H) mm
16-9/16(W) x 16-3/8(D) x 4-13/16(H) in
Operating temperature ..... +5°C — +35°C
(41°F — 95°F)
Operating humidity ..... 5% — 85%
(There should be no condensation of moisture.)

2. Disc

LaserVision Discs

30 cm active (standard) play disc
30 cm long (extended) play disc
20 cm active (standard) play disc
20 cm long (extended) play disc

Compact Discs

Disc ..... Diameter: 12 cm, 8 cm, Thickness: 1.2 mm

Compact Discs with Video

Disc ..... Diameter: 12 cm, Thickness: 1.2 mm

3. Video characteristics

Video output
Level ..... 1 Vp-p nominal, sync. negative, terminated
Impedance ..... 75Ω unbalanced
Jack ..... RCA jack
UHF output
Channel ..... Channel 36 (CH32 ~ 40)
Impedance ..... 75Ω unbalanced
Terminal ..... IEC (J) type jack

4. Audio characteristics

Output level
During analog audio output ..... 200 mVrms (1 kHz, 40%)
During digital audio output ..... 200 mVrms (1 kHz, −20 dB)
Jacks ..... Both RCA jacks
Number of channels 2

Digital Audio Characteristics
System ..... 8 times oversampling true 18 bits L/R twin D/A converter system

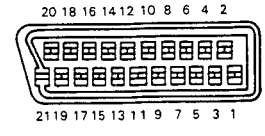
Frequency response	4 Hz — 20 kHz (±0.3 dB) (EIAJ)
SN ratio	105 dB (EIAJ)
Dynamic range	97 dB (EIAJ)
Channel separation	92 (EIAJ)
Total harmonic distortion	0.004% (EIAJ)
Wow and flutter	Limit of measurement (±0.001% W. PEAK) or less (EIAJ)

5. Other Terminals

Control input/output ..... Both miniature jacks
Sub code output ..... 5 pin, DIN connector
Video/Audio output ..... 21-pin connector

This connector provides the video and audio signals for connection to a colour video TV monitor (or TV set) which has a "VIDEO/AUDIO" terminal.

PIN assignment



Pin no.		
1	Audio 2/R out	17 GND
3	Audio 1/L out	19 Video out
4	GND	21 GND
8	Status	

6. Accessories

Remote control unit (CU-CLD023) 1
Size "AAA" (IEC R03) dry cell batteries 2
RF antenna cable with IEC plug 1
Video cord 1
Audio cord 1
Adjustment screwdriver 1
Operating instructions 1
Warranty card 1

7. Functions

Remote control unit operations (CU-CLD023)

	Function	Active(Standard) Play Disc (CAV)	Long(Extended) Play Disc (CLV)	Compact Disc with Video	Compact Disc
Basic Functions	Single-side play	YES	YES	YES	YES
	Pause	YES	YES	YES	YES
	Stop	YES	YES	YES	YES
Search	Fast forward (forward and reverse)	YES	YES	YES	YES
	Chapter/Track skip	YES	YES	YES	YES
	Direct chapter/Track number search	YES	YES	YES	YES
	Frame number search	YES	NO	NO	NO
	Time number search	NO	YES	YES	YES
Program	Chapter/Track program play	YES	YES	YES	YES
	Program correction	YES	YES	YES	YES
Repeat	Repeat between 2 points	YES	YES	YES	YES
	Memory repeat	YES	YES	YES	YES
	Chapter/Track repeat	YES	YES	YES	YES
	One-side repeat	YES	YES	YES	YES
	Program repeat	YES	YES	YES	YES
Trick play	Still/Step	YES	NO	NO	NO
	Multi-speed (Forward/receive 9-level variable)	YES	NO	NO	NO
Time display	Elapsed time display	NO	YES	YES	YES
	Absolute time display	NO	NO	NO	YES
	Remaining track time display	NO	NO	YES	YES
	Remaining total time display	YES (Only discs with TOC	YES (Only discs with TOC)	YES	YES
	Total number of selections, total time display	YES (Only discs with TOC)	YES (Only discs with TOC)	YES	YES
Others	CX system ON/OFF	YES*	YES*	—	—
	TV/LDP selection	YES	YES	YES	YES
	Audio channel selection (Stereo, 1/L, 2/R)	YES	YES	—	—

* Valid for analog sound when playing a disc with the CX mark.

NOTE:

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

14.2 CLD-1400/HEM TYPE

1. General

System ..... LaserVision Disc system and Compact Disc digital audio system
Laser ..... Semiconductor laser wavelength 780 nm
Power requirements ..... AC 220V, 50/60 Hz
Power consumption 44W
Weight ..... 7.9 kg
Dimensions ..... 420(W) x 416(D) x 122(H) mm
16-9/16(W) x 16-3/8(D) x 4-13/16(H) in
Operating temperature ..... +5°C — +35°C (41°F — 95°F)
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Compact Discs

Disc ..... Diameter: 12 cm, 8 cm, Thickness: 1.2 mm

Compact Discs with Video

Disc ..... Diameter: 12 cm, Thickness: 1.2 mm

3. Video characteristics

Format ..... PAL specifications
Video output
Level ..... 1 Vp-p nominal, sync. negative, terminated
Impedance ..... 75Ω unbalanced
Jack ..... RCA jack
UHF output
Channel ..... Channel 36 (32 ~ 40 CH)
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Jacks ..... Both RCA jacks
Number of channels 2

Digital Audio Characteristics
System ..... 8 times oversampling true 18 bits L/R twin D/A converter system

Frequency response	4 Hz — 20 kHz (±0.3 dB) (EIAJ)
SN ratio	105 dB (EIAJ)
Dynamic range	97 dB (EIAJ)
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Total harmonic distortion	0.004% (EIAJ)
Wow and flutter	Limit of measurement (±0.001% W. PEAK) or less (EIAJ)

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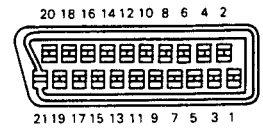
Control input/output ..... Both miniature jacks
Sub code output ..... 5-pin, DIN connector
Video/Audio output ..... 21-pin connector
This connector provides the video and audio signals for connectin to a colour video TV monitor (or TV set) which has a "VIDEO/AUDIO" terminal.

PIN assignment



PIN no.	1 Audio 2/R out	17 GND
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Audio cord 1
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	Pause	YES	YES	YES	YES
	Stop	YES	YES	YES	YES
Search	Fast forward (forward and reverse)	YES	YES	YES	YES
	Chapter/Track skip	YES	YES	YES	YES
	Direct chapter/Track number search	YES	YES	YES	YES
	Frame number search	YES	NO	NO	NO
	Time number search	NO	YES	YES	YES
Program	Chapter/Track program play	YES	YES	YES	YES
	Program correction	YES	YES	YES	YES
Repeat	Repeat between 2 points	YES	YES	YES	YES
	Memory repeat	YES	YES	YES	YES
	Chapter/Track repeat	YES	YES	YES	YES
	One-side repeat	YES	YES	YES	YES
	Program repeat	YES	YES	YES	YES
Trick play	Still/Step	YES	NO	NO	NO
	Multi-speed (Forward/receive 9-level variable)	YES	NO	NO	NO
Time display	Elapsed time display	NO	YES	YES	YES
	Absolute time display	NO	NO	NO	YES
	Remaining track time display	NO	NO	YES	YES
	Remaining total time display	YES (Only discs with TOC)	YES (Only discs with TOC)	YES	YES
	Total number of selections, total time display	YES (Only discs with TOC)	YES (Only discs with TOC)	YES	YES
Others	CX system ON/OFF	YES*	YES*	—	—
	TV/LDP selection	YES	YES	YES	YES
	Audio channel selection (Stereo, 1/L, 2/R)	YES	YES	—	—

* Valid for analog sound when playing a disc with the CX mark.

NOTE:
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