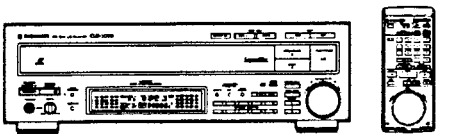
PIONEER®
The Art of Entertainment

Service Manual



ORDER NO.
ARP2526

CD CDV LD PLAYER

CLD-2700

CLD-2700 HAS THE FOLLOWING :

Type	Power Requirement	Remarks
WEZ	AC220-240V	
WB	AC220-240V	

- **This manual is applicable to the CLD-2700/WEZ and WB.**
- **For WB type, refer to page 150.**
- **Ce manuel pour le service comprend les explications de réglage en français.**
- **Este manual de servicio trata del método ajuste escrito en español.**

CONTENTS

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IFO JUNE 1992 Printed in Japan

1. SAFETY INFORMATION

(FOR EUROPEAN MODEL ONLY)

VARO!
AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.

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

VARNING!
OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD. BETRAKTA EJ STRÅLEN.

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 CLASS 1.
SERVICING OPERATION OF THE APPARATUS SHOULD BE DONE BY A SPECIALLY INSTRUCTED PERSON.

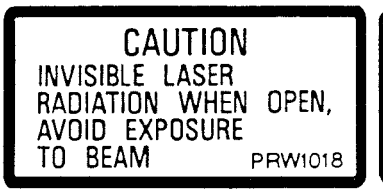
LASER DIODE CHARACTERISTICS
MAXIMUM OUTPUT POWER: 5 mw
WAVELENGTH: 780-785 nm

LASER
Picture 1
Warning sign for laser radiation

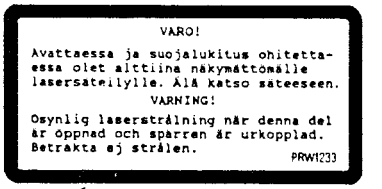
LABEL CHECK

WEZ model

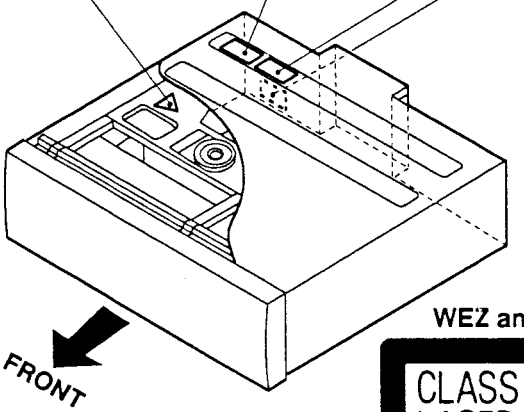
WB model



WEZ model



WEZ and WB models



WEZ and WB model

Additional Laser Caution

1. The ON/OFF statuses of the side-A/B detection switch (TURN switch on the MECHANISM assembly), slider-position detection switches (PARK 1, 2 and 3 on the MECHANISM assembly) and loading-status detection switches (SW 1, 2 and 3 on SW2 board assembly) are detected by the microprocessor (IC101 in the ASCB board assembly).
   To permit the laser diode to oscillate, it is required to set the side-A/B detection switch for side A (IC101 in the ASCB board assembly, pin 47 XTURN A=L and pin 46 XTURN B=H) or the slider-position detection switch for the LD ACTIVE status (PARK 1: OFF, PARK 2: OFF, PARK 3: OFF), and to set the loading-status detection switch for clamped state (SW 1:OFF, SW 2:ON, SW 3:ON). (These requirements assume that the shipping screws have been removed.) As long as these requirements are not satisfied, the laser diode will not oscillate. When the requirements are met in any way, the laser diode can oscillate. The laser diode oscillation will continue if the collector and the base of Q822 in the ASCB board assembly are shorted to each other (fault condition).
   In test mode (see page 80), the laser diode oscillates when the microprocessor detects a PLAY signal, or when the PLAY key is pressed (S124 : ON in the FLKY assembly), with the above requirements satisfied.
2. When the cover is open, close viewing through the objective lens with the naked eye will cause exposure to a Class 1 laser beam.

2. EXPLODED VIEWS, PACKING AND PARTS LIST

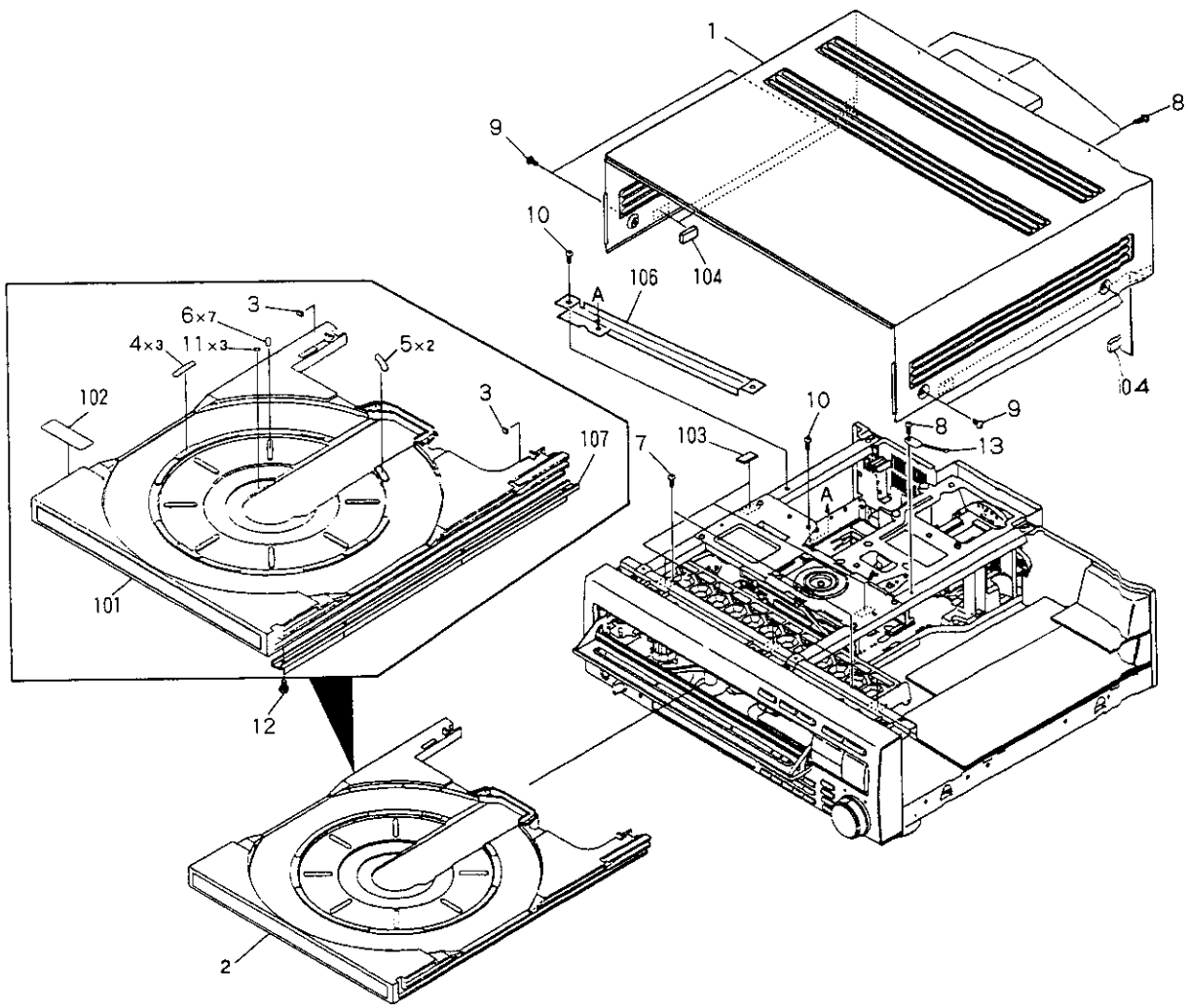
NOTES:

- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *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.*

2.1 EXTERIOR SECTION

Parts List

Mark	No.	Description	Part No.
	1	Bonnet - S	VXX1535
	2	Tray assembly - S	VXX1707
	3	Tray rubber	VEB1089
	4	Disc pad (L)	VEC1191
	5	Disc pad (B)	VEC1379
	6	Disc pad (C)	VEC1380
	7	Screw	VCZ30P120FMC
	8	Screw	BBT30P060FCC
	9	Screw	BCZ40P060FZK
	10	Screw	BBZ30P060FCC
	11	CD pad	VEC1252
	12	Screw	BPZ30P080FCU
	13	Tray plate	VBK1029
NSP	101	Tray	VNK1672
NSP	102	Carry label	VRW1274
NSP	103	Cushion	VEC1092
NSP	104	Cushion	VEC1004
	105	• • • • •	
NSP	106	Reinforced plate angle	VNE1673
NSP	107	Tray reinforced plate	VNE1679

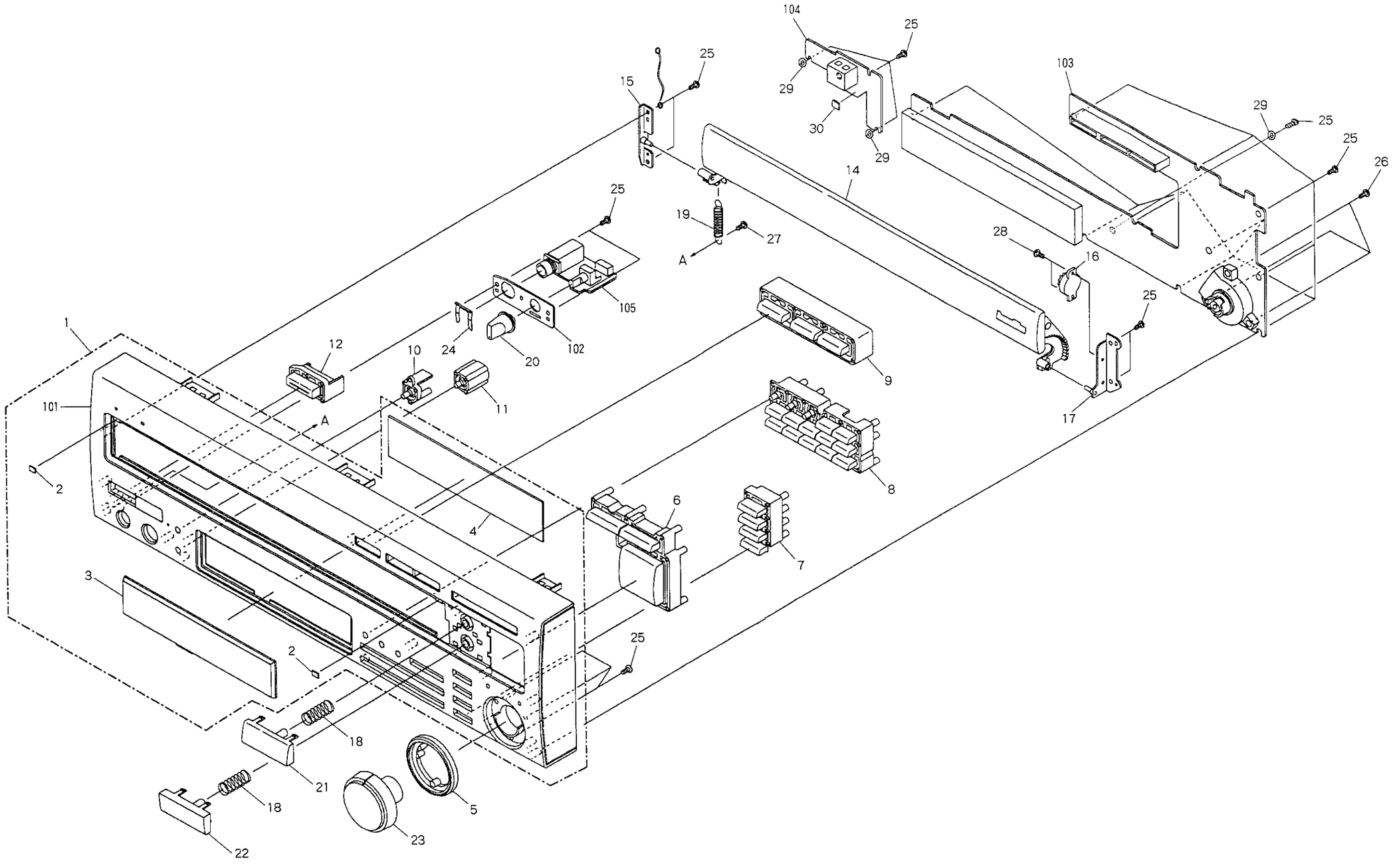


2.2 FRONT PANEL SECTION

Parts List

Mark	No.	Description	Part No.
	1	Front panel assembly - S	VXX1745
	2	Door damp rubber	VEB1141
	3	FL lens	VNK1540
	4	FL filter	VNK1541
	5	Scan escutcheon	VNK1589
	6	Main key	VNK1676
	7	Sub key	VNK1555
	8	Ten key	VNK1542
	9	L key assembly	VXA1519
	10	Gold button (A)	VNK1547
	11	Gold button (B)	VNK1559
	12	PW button	VNK1536
	13	• • • • •	
	14	Front door assembly	VXA1800
	15	Hinge plate assembly	VXA1518
	16	Damper assembly	VXA1053
	17	Damper plate assembly	VXA1517
	18	Button spring	VBH1137
	19	Door spring	VBH1167
	20	Volume knob	VNK1539
	21	O/C button	VNK1675
	22	Stop button	VNK1678
	23	Scan dial (L)	VNK1588
	24	Snap plate	VNE1102
	25	Screw	BPZ26P060FCU
	26	Screw	BPZ26P080FMC
	27	Screw	IPZ26P060FMC
	28	Screw	PMZ20P040FCU
	29	Fiber washer	VEC1254
	30	Stopper rubber	VEB1149

Mark	No.	Description	Part No.
NSP	101	Front panel assembly	VXA1854
NSP	102	Jack holder	VNE1555
NSP	103	FLKY assembly	VWG1334
NSP	104	PSWB assembly	VWG1217
NSP	105	HEPB assembly	VWV1156


104
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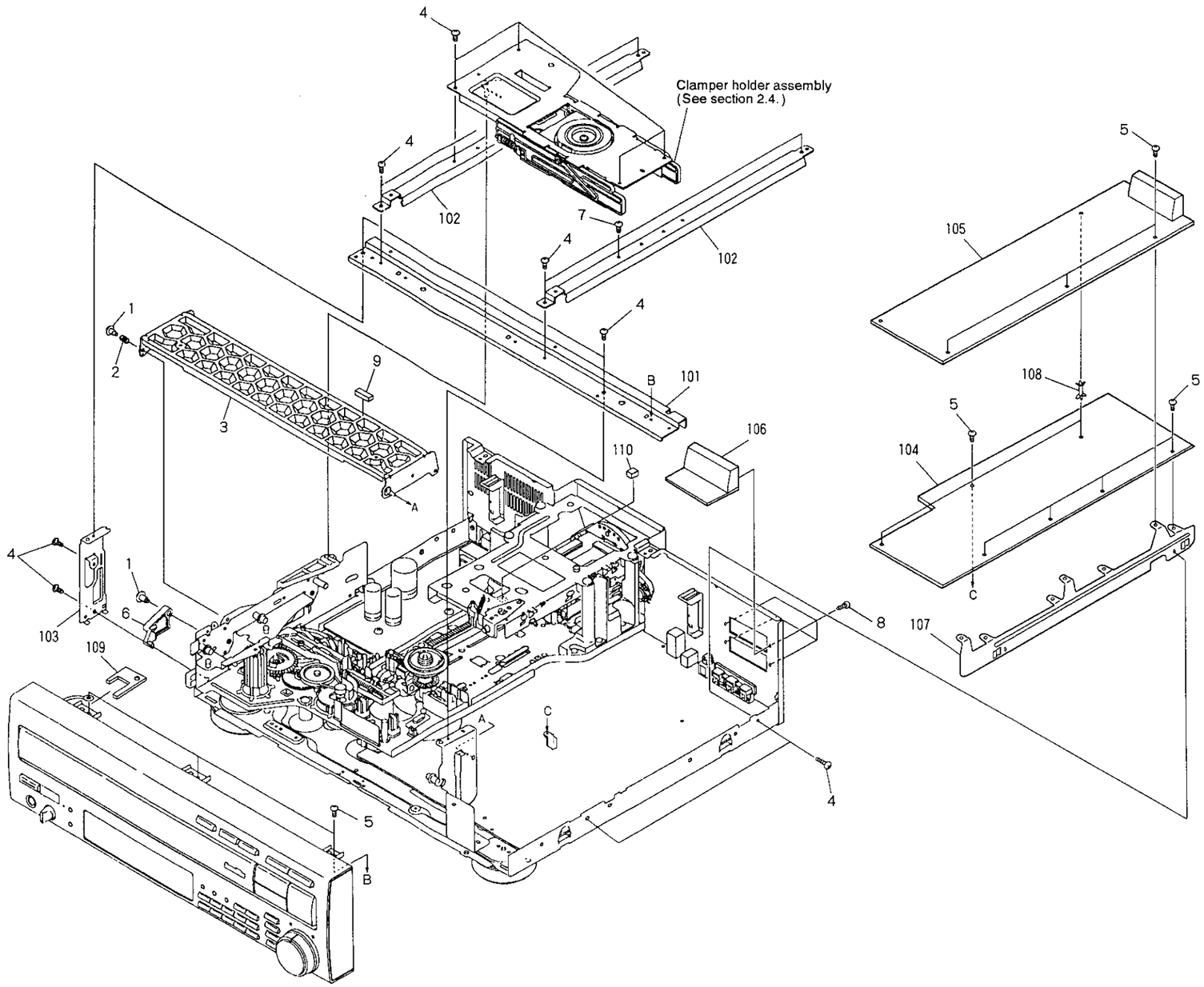
2.3 TOP VIEW SECTION

Parts List

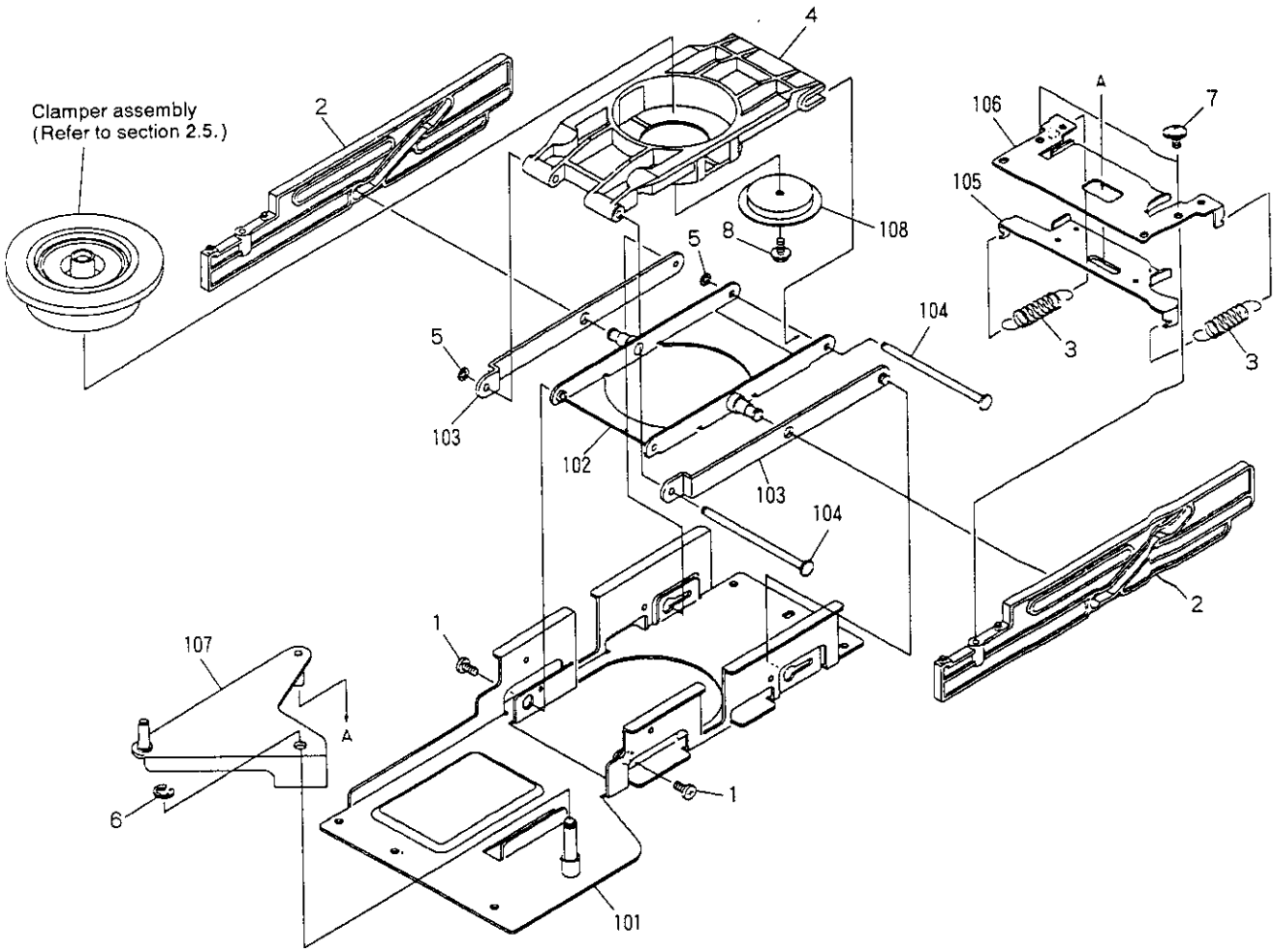
Mark	No.	Description	Part No.
	1	Screw (B)	VBA1008
	2	Arm spring	VBH1093
	3	Tray guide assembly	VXA1576
	4	Screw	BBZ30P060FCC
	5	Screw	IBZ30P060FCC
	6	Door lever	VNL1330
	7	Screw	BSZ30P200FMC
	8	Screw	BBZ30P080FCC
	9	Stopper rubber	VEB1119
NSP	101	Front angle	VNE1543
NSP	102	Center angle	VNE1761
NSP	103	Side stay (L)	VNE1545
NSP	104	VDTB board assembly	VWS1094
NSP	105	PALB board assembly	VWV1228
NSP	106	SCRT board assembly	VWV1220
NSP	107	PCB holder	VNE1652
NSP	108	PC support	VEC1508
NSP	109	Reinforced plate (A)	VNE1529
NSP	110	Damp cushion	VEC1602



2.4 CLAMPER SECTION

Parts list

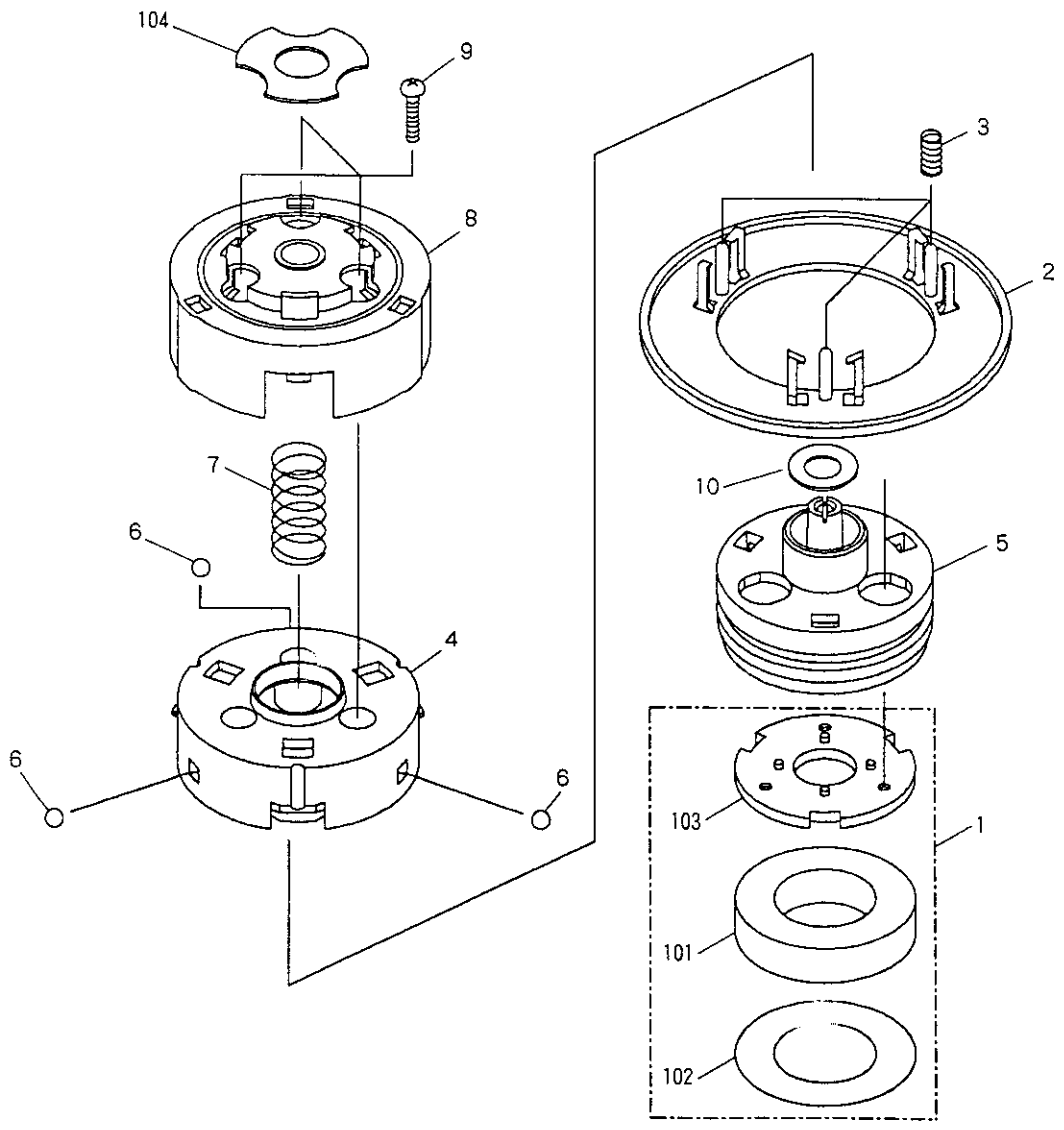
Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	1	Screw	VBA1022	NSP	101	Center plate assembly	VXA1506
	2	Clamp cam	VNL1527	NSP	102	Lever(B)assembly	VXA1504
	3	Limiter spring	VBH1168	NSP	103	Lever(A)assembly	VXA1503
	4	Clamper holder	VNL1305	NSP	104	Clamp shaft	VLL1299
	5	Washer	WT26D060D050	NSP	105	Limiter plate	VNE1551
	6	E ring	YE40FUC	NSP	106	Slide plate	VNE1556
	7	Screw	IPZ30P060FMC	NSP	107	Lever(C)assembly	VXA1505
	8	Screw	PMB30P080FMC	NSP	108	Clamper head	VNE1546



2.5 CLAMPER ASSEMBLY

Parts List

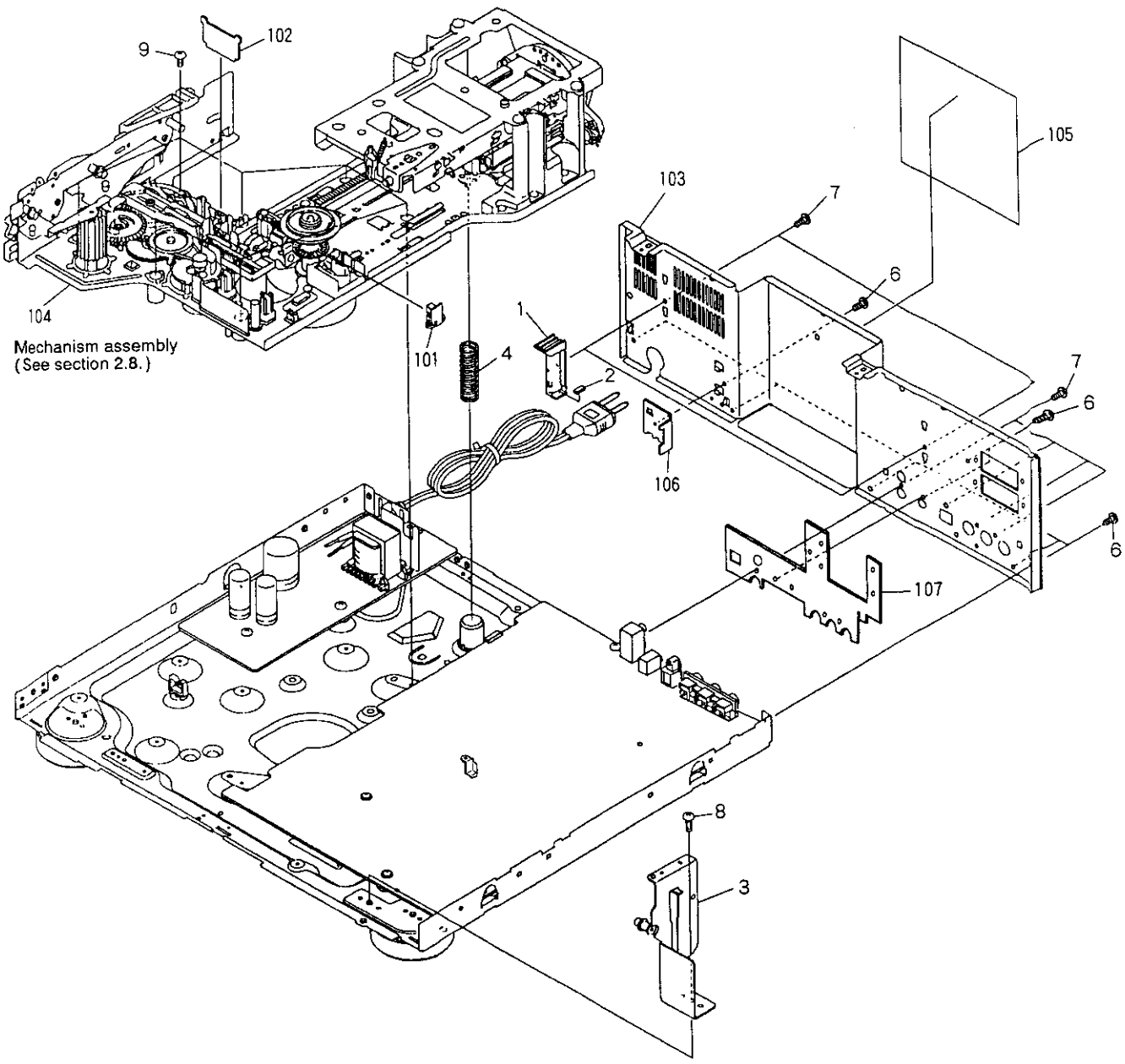
Mark	No.	Description	Part No.
	1	Magnet assembly - S	VXX1475
	2	Disc clamper	VNL1362
	3	Clamper spring	VBH1153
	4	Clamper base	VNL1364
	5	Centering hab(B)	VNL1435
	6	Steel ball	VNX1006
	7	Centering spring(B)	VBH1130
	8	Clamper cover	VNL1363
	9	Screw	AMZ20P040FMC
	10	Washer	WA60F115M160
NSP	101	Magnet	VMG1010
NSP	102	Gap sheet	VEC1561
NSP	103	Clamper plate	VNE1549
NSP	104	Absorber rubber(A)	VEB1146



2.6 BASE SECTION (1)

Parts List

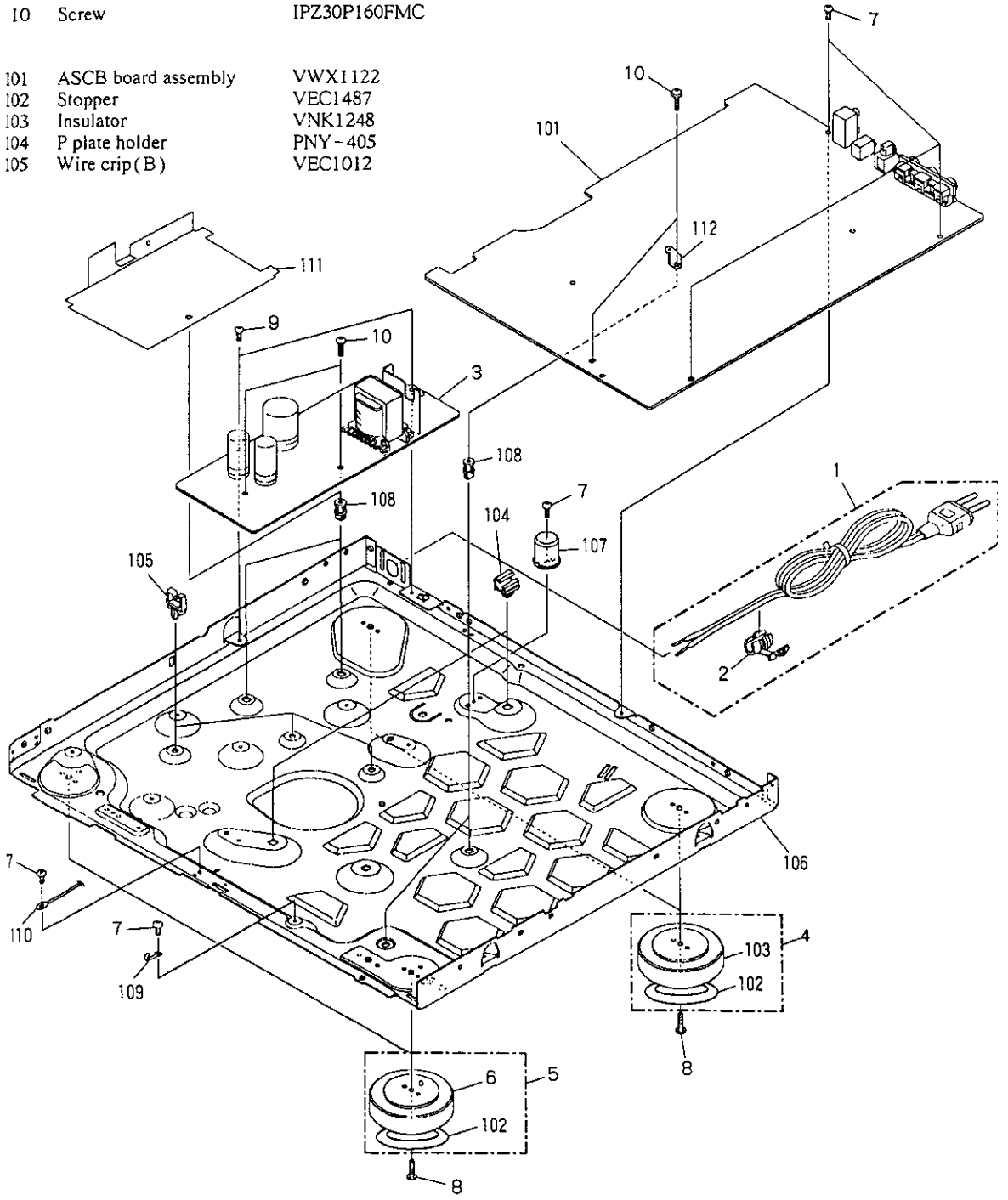
Mark	No.	Description	Part No.
	1	Tray stopper	VNL1202
	2	Door damp rubber	VEB1033
	3	Side stay (R) assembly	VXA1690
	4	Base spring	VBH1145
	5	• • • • •	
	6	Screw	BBT30P060FCC
	7	Screw	BPZ30P080FCU
	8	Screw	BBZ30P060FCC
	9	Screw (B)	VBA1023
NSP	101	FG board assembly	VWG1214
NSP	102	SW2 board assembly	VWG1213
NSP	103	Rear panel	VNA1270
NSP	104	Mechanism assembly	VWT1078
NSP	105	Rear label	VRW1277
NSP	106	TB holder	VNE1612
NSP	107	Rear earth	VNE1800



2.7 BASE SECTION (2)

Parts List

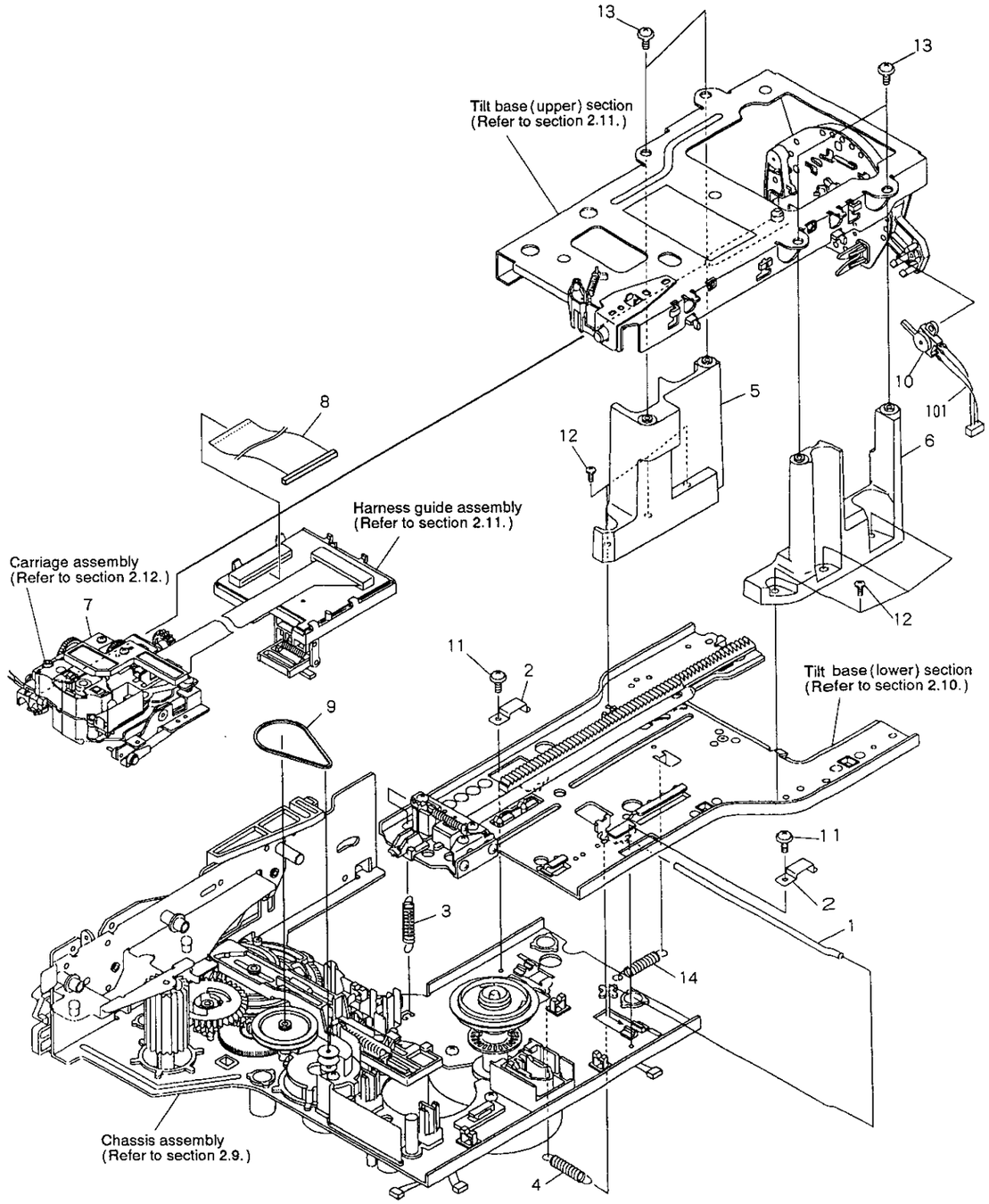
Mark	No.	Description	Part No.
⚠	1	AC power cord	VDG1028
⚠	2	Strain relief	CM-22B
	3	Power supply assembly	VWR1144
	4	Insulator assembly	VXA1687
	5	Insulator assembly	VXA1686
	6	Insulator	VNK1095
	7	Screw	BBZ30P060FCC
	8	Screw	BBZ30P080FCC
	9	Screw	IBZ30P060FCC
	10	Screw	IPZ30P160FMC
NSP	101	ASCB board assembly	VWX1122
NSP	102	Stopper	VEC1487
NSP	103	Insulator	VNK1248
NSP	104	P plate holder	PNY-405
NSP	105	Wire crip(B)	VEC1012
NSP	106	Base chassis	VNA1173
NSP	107	Spring guide	VNL1343
NSP	108	PCB spacer	PNY-404
NSP	109	Cord holder	VNF-069
NSP	110	Earth lug assembly	VDA1347
NSP	111	Power supply insulation sheet	VEC1492
NSP	112	PCB holder(C)	VNE1329



2.8 MECHANISM ASSEMBLY

Parts List

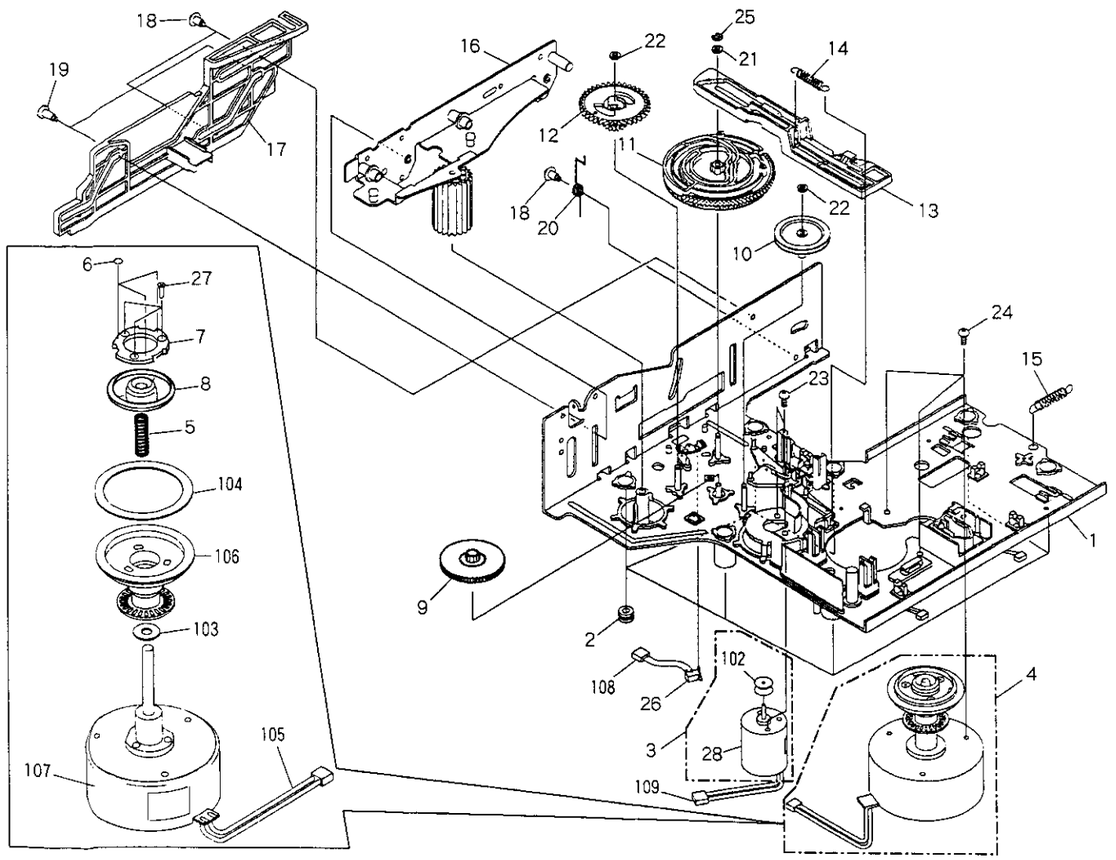
Mark	No.	Description	Part No.
	1	Tilt shaft	VLL1326
	2	Plate spring	VBK1013
	3	Tilt spring	VBH1146
	4	Thrust spring	VBH1163
	5	Post(L)	VNL1489
	6	Post(R)	VNL1488
◉	7	Carriage assembly	VWT1068
	8	Flexible cable(22P)	VDA1329
	9	Belt	PEB1013
	10	Lever switch	DSK1003
	11	Screw	ABZ26P050FMC
	12	Screw	IBZ30P100FMC
	13	Screw	IPZ30P100FCU
	14	Radial spring	VBH1164
NSP	101	Housing assembly(3P)	VKP1937



2.9 MECHANISM CHASSIS SECTION

Parts List

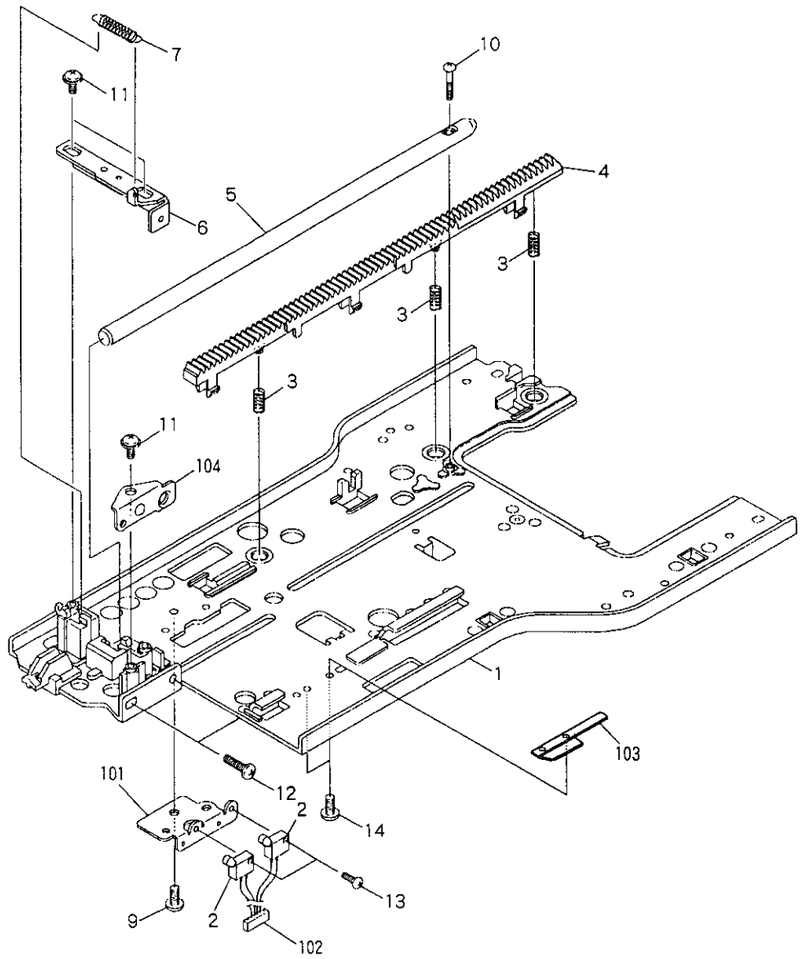
Mark	No.	Description	Part No.
◉	1	Chassis assembly	VXA1577
	2	Rubber bushing	VEB1138
	3	Loading motor assembly	VXX1262
⚠	4	Spindle motor assembly	VXA1900
	5	Centering spring	VBH1024
	6	Sheet	VEB1194
	7	Yoke plate A	VNE1835
	8	Centering hab(A)	VNL1296
	9	Two stair gear	VNL1326
	10	Gear pulley	VNL1249
	11	Cam gear	VNL1350
	12	Follow gear	VNL1317
	13	Spring slating cam	VNL1316
	14	Cam spring	VBH1082
	15	Radial spring	VBH1164
	16	Roller plate assembly	VXA1770
	17	Slide cam	VNL1304
	18	Screw(B)	VBA1008
	19	Screw(C)	VBA1015
	20	Return spring	VBH1129
	21	Washer	WA32N080W050
	22	Washer	WT26D047D025
	23	Screw	PMZ30P040FCU
	24	Screw	PMA30P050FCU
	25	E ring	YE23FUC
	26	Push switch	DSG1014
	27	Screw	CPZ20P080FMC
	28	Loading motor	VXM1034
	101	•••••	
NSP	102	Motor pulley	VLL1176
NSP	103	Oil stopped washer	VBF1002
NSP	104	Rubber sheet	VEB1135
NSP	105	Housing assembly(02P)	VKP1566
NSP	106	Turn table assembly	VXA1760
NSP	107	Spindle assembly	VXM1046
NSP	108	Housing assembly(02P red)	VKP1815
NSP	109	Housing assembly	VKP1875



2.10 TILT BASE(LOWER)SECTION

Parts List

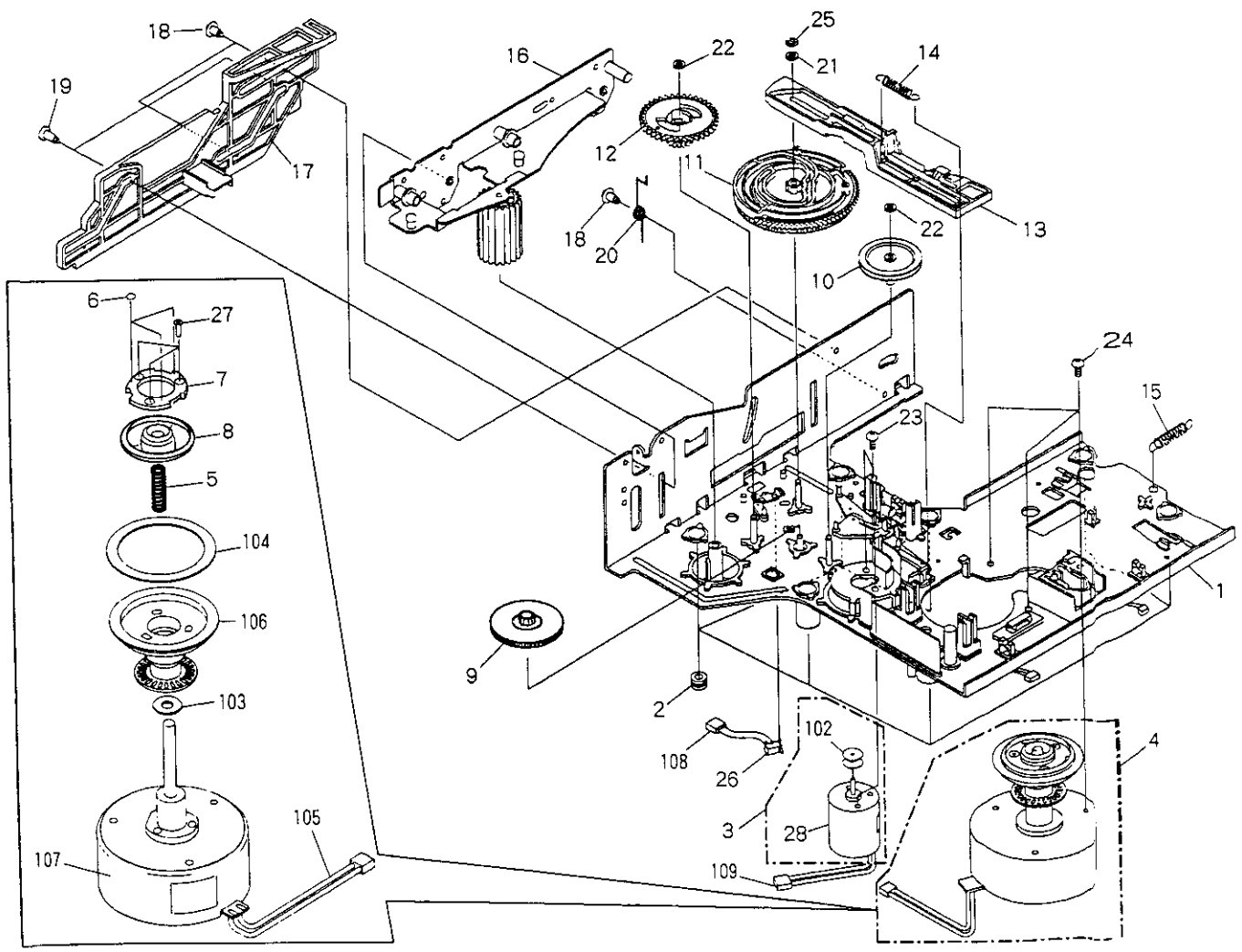
Mark	No.	Description	Part No.
◉	1	Tilt base(Lower)assembly	VXA1798
	2	Slide switch	OSH1001
	3	Rack spring	VBH1133
	4	Rack gear(Lower)	VNL1346
	5	Carriage shaft(Lower)	VLL1325
	6	Shaft plate(Lower)assembly	VXA1626
	7	S plate spring	VBH1149
	8	•••••	
	9	Screw	BBZ30P060FCC
	10	Screw	PPZ20P120FMC
	11	Screw	IPZ20P080FMC
	12	Screw	BMZ26P100FMC
	13	Screw	PMZ20P060FMC
	14	Screw	PMZ20P030FMC
NSP	101	SW holder	VNE1620
NSP	102	Housing assembly (04P white)	VKP1851
NSP	103	Roller shaft holder plate	VNE1666
NSP	104	S plate holder	VNE1621



2.9 MECHANISM CHASSIS SECTION

Parts List

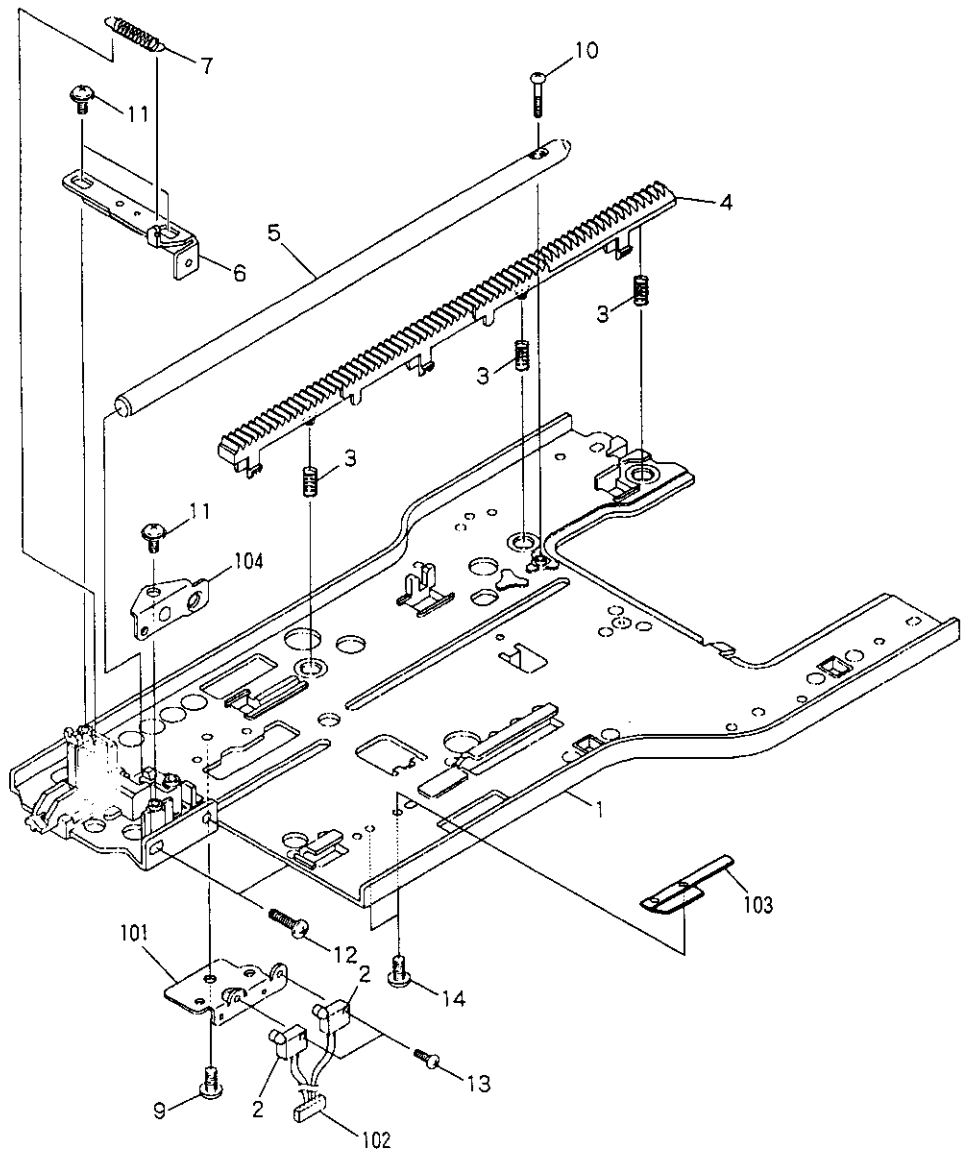
Mark	No.	Description	Part No.
◉	1	Chassis assembly	VXA1577
	2	Rubber bushing	VEB1138
	3	Loading motor assembly	VXX1262
⚠	4	Spindle motor assembly	VXA1900
	5	Centering spring	VBH1024
	6	Sheet	VEB1194
	7	Yoke plate A	VNE1835
	8	Centering hab(A)	VNL1296
	9	Two stair gear	VNL1326
	10	Gear pulley	VNL1249
	11	Cam gear	VNL1350
	12	Follow gear	VNL1317
	13	Spring slating cam	VNL1316
	14	Cam spring	VBH1082
	15	Radial spring	VBH1164
	16	Roller plate assembly	VXA1770
	17	Slide cam	VNL1304
	18	Screw(B)	VBA1008
	19	Screw(C)	VBA1015
	20	Return spring	VBH1129
	21	Washer	WA32N080W050
	22	Washer	WT26D047D025
	23	Screw	PMZ30P040FCU
	24	Screw	PMA30P050FCU
	25	E ring	YE23FUC
	26	Push switch	DSG1014
	27	Screw	CPZ20P080FMC
	28	Loading motor	VXM1034
	101	•••••	
NSP	102	Motor pulley	VLL1176
NSP	103	Oil stopped washer	VBF1002
NSP	104	Rubber sheet	VEB1135
NSP	105	Housing assembly(02P)	VKP1566
NSP	106	Turn table assembly	VXA1760
NSP	107	Spindle assembly	VXM1046
NSP	108	Housing assembly(02P red)	VKP1815
NSP	109	Housing assembly	VKP1875



2.10 TILT BASE (LOWER) SECTION

Parts List

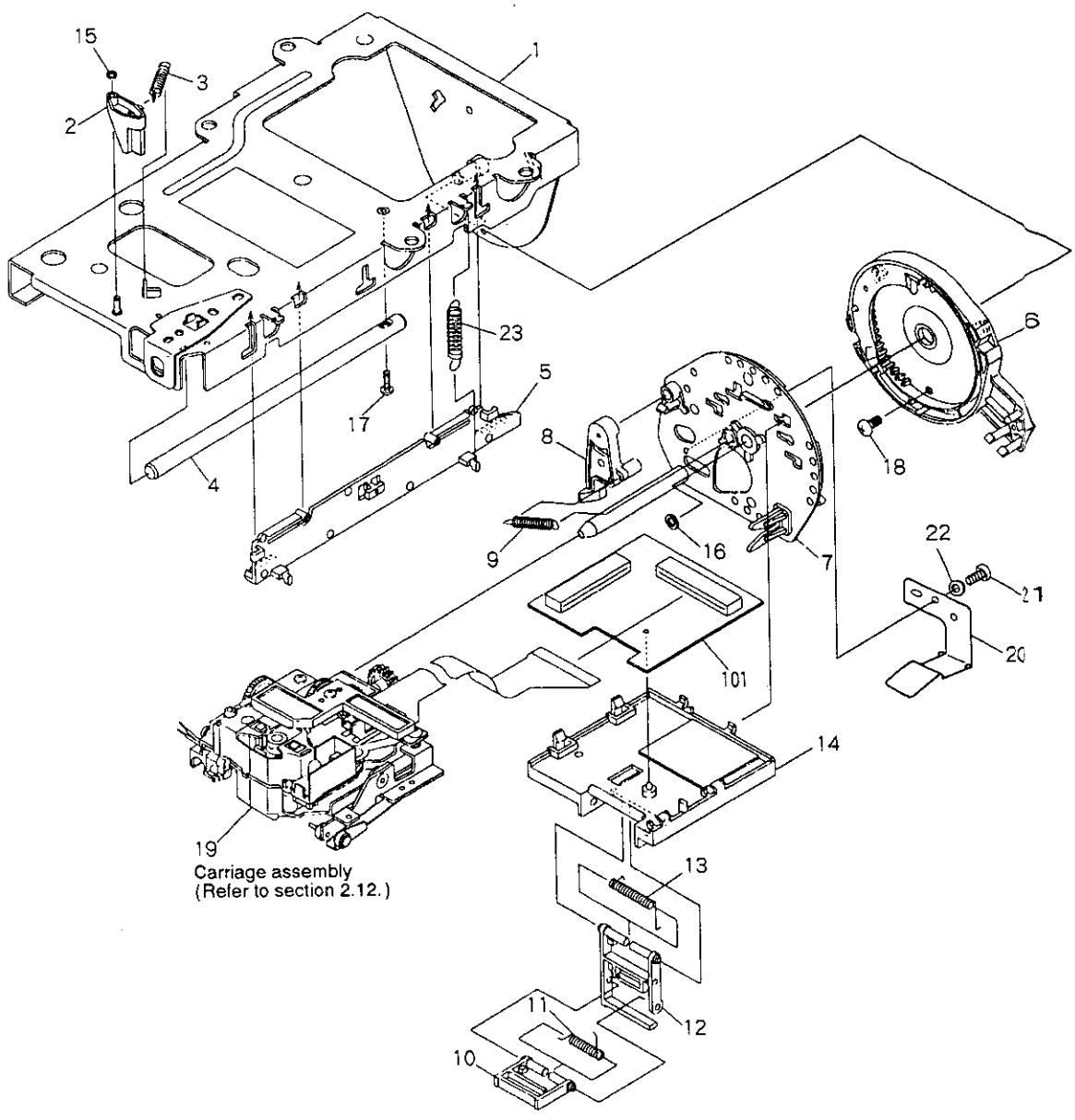
Mark	No.	Description	Part No.
◉	1	Tilt base (Lower) assembly	VXA1798
	2	Slide switch	OSH1001
	3	Rack spring	VBH1133
	4	Rack gear (Lower)	VNL1346
	5	Carriage shaft (Lower)	VLL1325
	6	Shaft plate (Lower) assembly	VXA1626
	7	S plate spring	VBH1149
	8	• • • • •	
	9	Screw	BBZ30P060FCC
	10	Screw	PPZ20P120FMC
	11	Screw	IPZ20P080FMC
	12	Screw	BMZ26P100FMC
	13	Screw	PMZ20P060FMC
	14	Screw	PMZ20P030FMC
NSP	101	SW holder	VNE1620
NSP	102	Housing assembly (04P white)	VKP1851
NSP	103	Roller shaft holder plate	VNE1666
NSP	104	S plate holder	VNE1621



2.11 TILT BASE (UPPER) SECTION

Parts List

Mark	No.	Description	Part No.
	1	Tilt base (Upper) assembly	VXA1808
	2	SW lever	VNL1359
	3	SW lever spring	VBH1150
	4	Carriage shaft (Upper)	VLL1324
	5	Rack gear (Upper)	VNL1345
	6	Internal gear assembly	VXA1903
◉	7	R plate assembly	VXA1579
	8	Rock lever	VNL1351
	9	Lever spring	RBH1323
	10	Harness guide (C)	VNL1361
	11	Guide spring (B)	VBH1155
	12	Harness guide (B)	VNL1408
	13	Guide spring (A)	VBH1166
	14	Harness guide (A)	VNL1349
	15	Washer	WT16D032D025
	16	Washer	WT36D072D050
	17	Screw	PMZ20P120FMC
	18	Screw	BBZ26P050FCC
◉	19	Carriage assembly	VWT1068
	20	Rock plate	VBK1026
	21	Screw	IBZ20P040FZK
	22	Washer	WB20FMC
	23	Rack spring (upper)	VBH1198
NSP	101	CNNB assembly	VWG1194

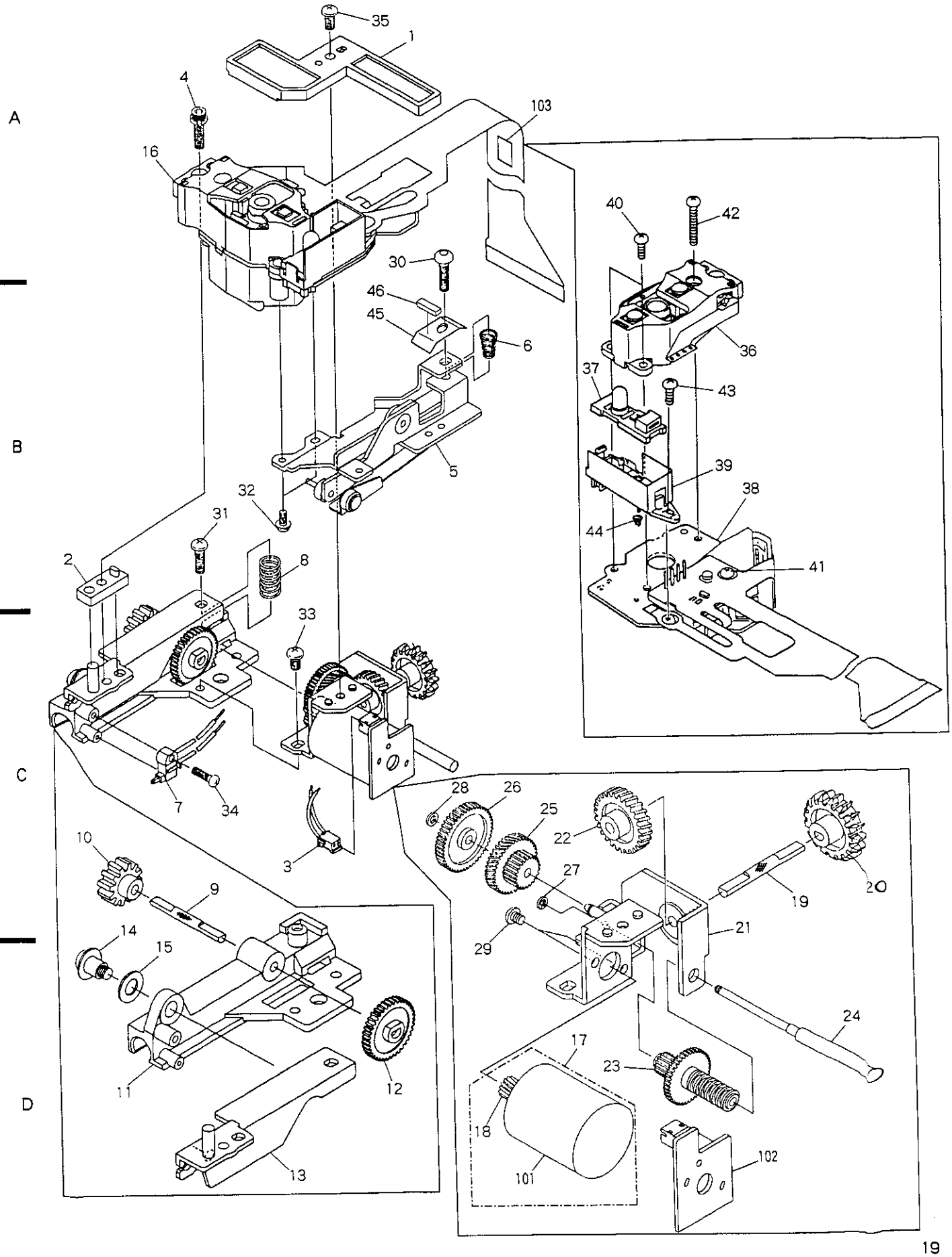


2.12 CARRIAGE ASSEMBLY

Parts List

Mark	No.	Description	Part No.
	1	Flexible holder	VNL1358
	2	PU base	VNT1037
	3	Housing assembly (1.5MP2P)	VKP1852
	4	Bolt 2.6 × 10	VLL1192
	5	TAN base assembly	VXA1752
	6	TAN spring	VBH1151
	7	Slide switch	VSK1008
	8	TRKG spring	VBH1152
	9	SL shaft(B)	VLL1334
	10	Gear(F)	VNL1356
	11	Carriage shaft holder	VNT1039
	12	Gear(E)	VNL1355
	13	PU plate assembly	VXA1583
	14	Screw 4	VLL-183
	15	Spring washer ϕ 4	VEF-027
	16	Pickup assembly - S	VXX1553
	17	Carriage motor assembly - S	VXX1537
	18	SL gear(A)	VNL1250
	19	SL shaft(C)	VLL1289
	20	Gear(G)	VNL1365
	21	Motor holder assembly	VXA1751
	22	Gear(H)	VNL1357
	23	Gear(C)	VNL1353
	24	SL shaft(A)	VLL1333
	25	Gear(B)	VNL1352
	26	Gear(D)	VNL1354
	27	Stop ring	YE12FUC
	28	Washer	WT17D034D050
	29	Screw	JGZ20P022FMC
	30	Screw	PMZ26P100FMC
	31	Screw	BMZ26P080FMC
	32	Screw	PMA20P040FMC
	33	Screw	PMH26P050FMC
	34	Screw	PBZ20P070FCC
	35	Screw	BBZ26P050FMC
	36	Actuator assembly	VXX1551
	37	Sensor assembly	VEX1018
	38	Pre-pickup assembly	VXX1554
	39	Sensor stay	VNH1037
	40	Screw	PMA20P060FMC
	41	Screw	PMA20P080FMC
	42	Screw	PMA20P160FMC
	43	Screw	BMZ20P060FMC
	44	Sensor spring	VBH1087
	45	Spacer	VEC1496
	46	Cushion	VEC1497

Mark	No.	Description	Part No.
NSP	101	Slider motor	VXM1027
NSP	102	P.C.board, SLMB	VNP1295
NSP	103	Flexible spacer	VEC1498


1
2
3
A
B
C
D
35
1
4
16
103
30
46
45
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5
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2
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101
102
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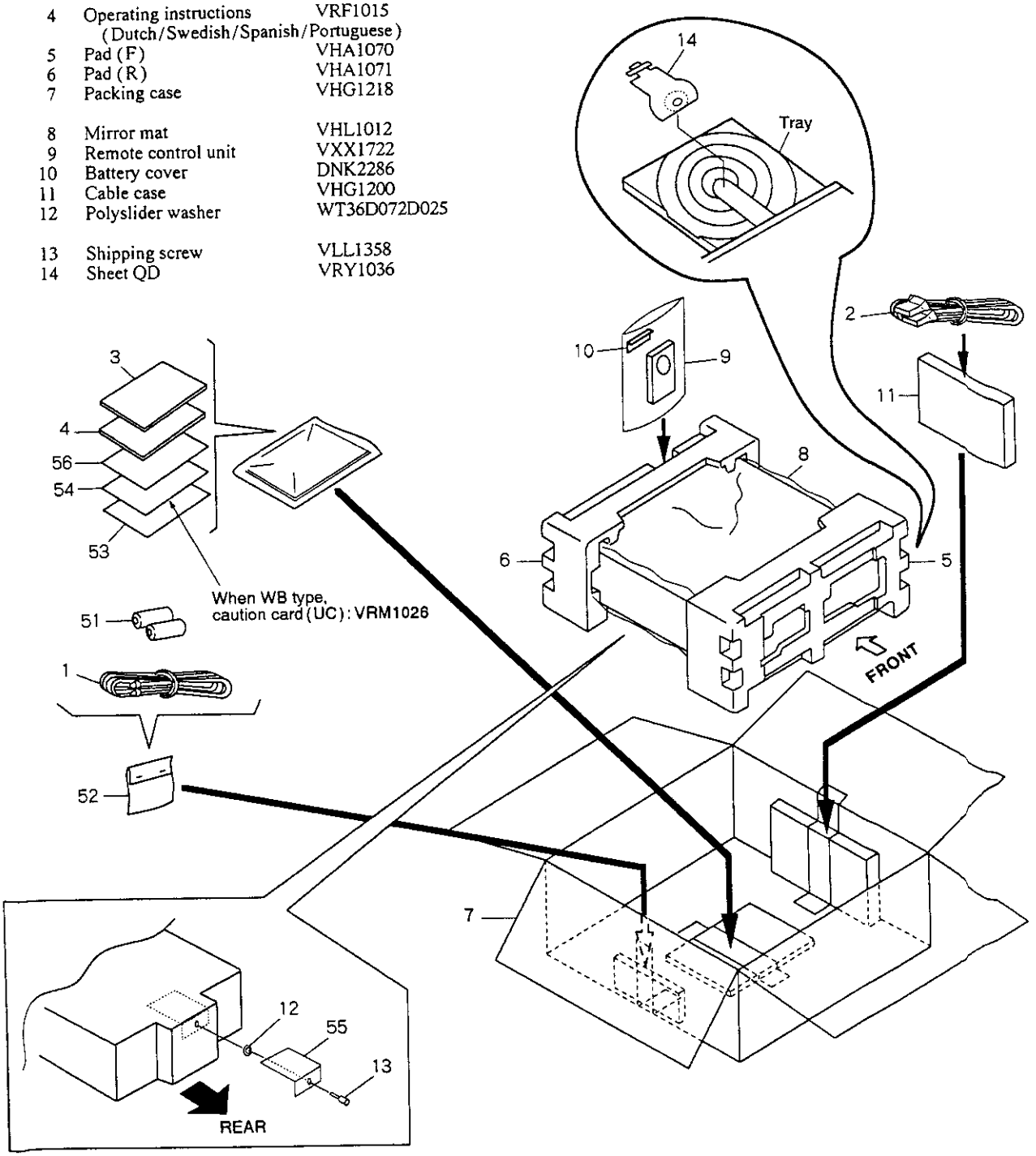
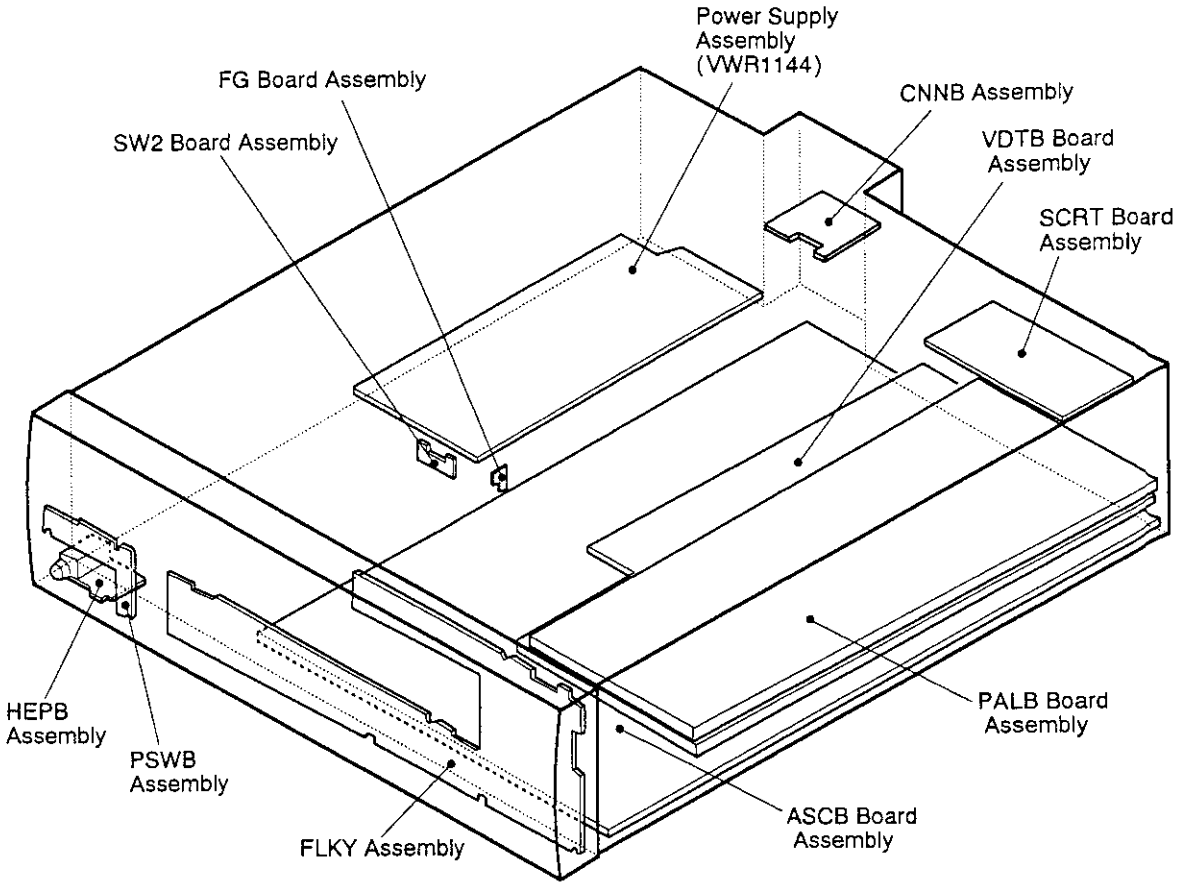
2.13 PACKING

Parts List

Mark	No.	Description	Part No.
	1	Connection cord	VDE-055
	2	Euroconnector cable (SCART ⟷ SCART)	VDE1031
	3	Operating instructions (English/French/German/Italian)	VRE1008
	4	Operating instructions (Dutch/Swedish/Spanish/Portuguese)	VRF1015
	5	Pad (F)	VHA1070
	6	Pad (R)	VHA1071
	7	Packing case	VHG1218
	8	Mirror mat	VHL1012
	9	Remote control unit	VXX1722
	10	Battery cover	DNK2286
	11	Cable case	VHG1200
	12	Polyslider washer	WT36D072D025
	13	Shipping screw	VLL1358
	14	Sheet QD	VRY1036
NSP	51	Dry cell battery (R03, AAA)	VEM-022
NSP	52	Polyethylene bag	VHL-014
NSP	53	Caution card	VRR1009
NSP	54	Caution card (EW)	VRM1027
NSP	55	TAC card	VRW1240
NSP	56	Caution card (UC)	VRM1039



3. PCB LOCATION



MAIN BOARD ASSEMBLY (VWM1274)

MAIN board assembly is composed of ASCB, FG and SW2 board assemblies.

VTPB BOARD ASSEMBLY (VWM1205)

VTPB board assembly is composed of VDTB, PALB and SCRT board assemblies.

FLKB ASSEMBLY (VWM1273)

FLKB assembly is composed of FLKY, PSWB and HEPB assemblies.

ASCB	: **A**UDIO **S**ERVO **C**ONTROL **B**OARD
FG	: **FG** COUNTER BOARD
SW2	: **SW2** BOARD
VDTB	: **V**IDEO AND **T**BC **B**OARD
PALB	: **PAL** BOARD
SCRT	: EUROPEAN **SCRT** BOARD
FLKY	: **FL** TUBE AND **K**EY BOARD
PSWB	: **P**OWER **S**WITCH **B**OARD
HEPB	: **HE**ADPHONE **B**OARD

4.SCHEMATIC AND PCB CONNECTIONS DIAGRAMS

1. RESISTORS:
Indicated in Ω , 1/4W, 1/6W and 1/8W, ±5% tolerance unless otherwise noted k;k Ω , M;M Ω , (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)
OUTSIDE OF P.C. BOARDS
Push switch :TRAY SW
Lever switch :TURN SW
Slide switch :LD, CDV INSIDE
Slide switch :CD, B INSIDE

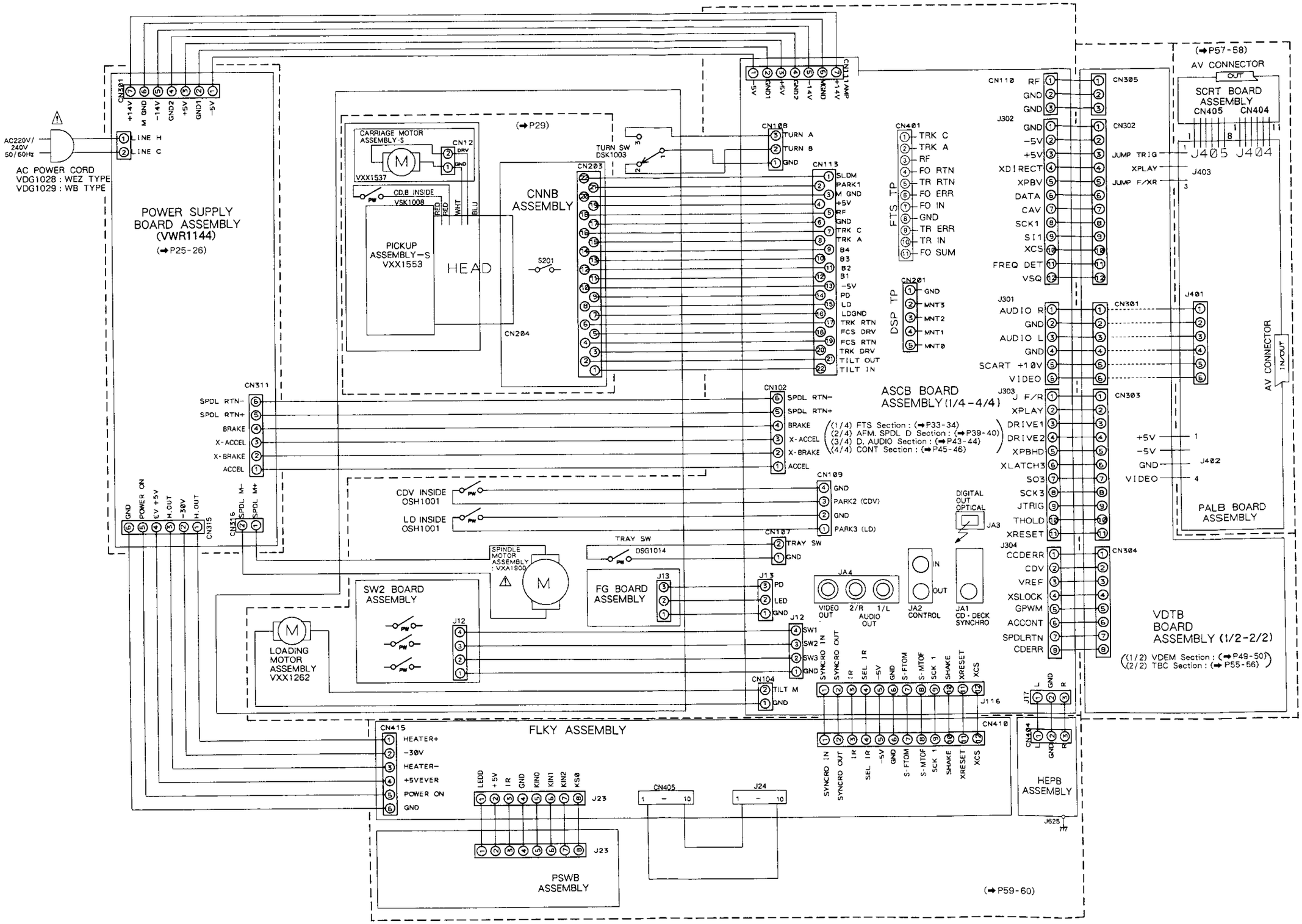
SW2 BOARD ASSEMBLY
S101-S103 : LOADING, TILT

FLKY ASSEMBLY
S101 :DOOR
S102 :SINGLE
S103 :EDIT
S104 :LANGUAGE
S105 :+10 ⎕ DIRECT SEARCH
S106 :PGM
S107 :1 ⎫
S108 :2 ⎪
S109 :3 ⎪
S110 :4 ⎪
S111 :5 ⎪ DIRECT SEARCH
S112 :6 ⎪
S113 :7 ⎪
S114 :8 ⎪
S115 :9 ⎪
S116 :0 ⎭
S117 :DIRECT CD
S118 :A ⎫ DISC SIDE
S119 :B ⎭
S120 :|◀◀ ⎫ SKIP
S121 :▶▶| ⎭
S122 :OPEN / CLOSE (▲)
S123 :STOP (■)
S124 :PLAY / PAUSE (▶ / ❚❚)
S125 :RANDOM PLAY
S126 :HILITE/INTRO SCAN
S127 :A ⎫ REPEAT
S128 :B ⎭
S129 :SCAN

PSWB ASSEMBLY
S301 :16:9
S302 :DISPLAY
S303 :POWER

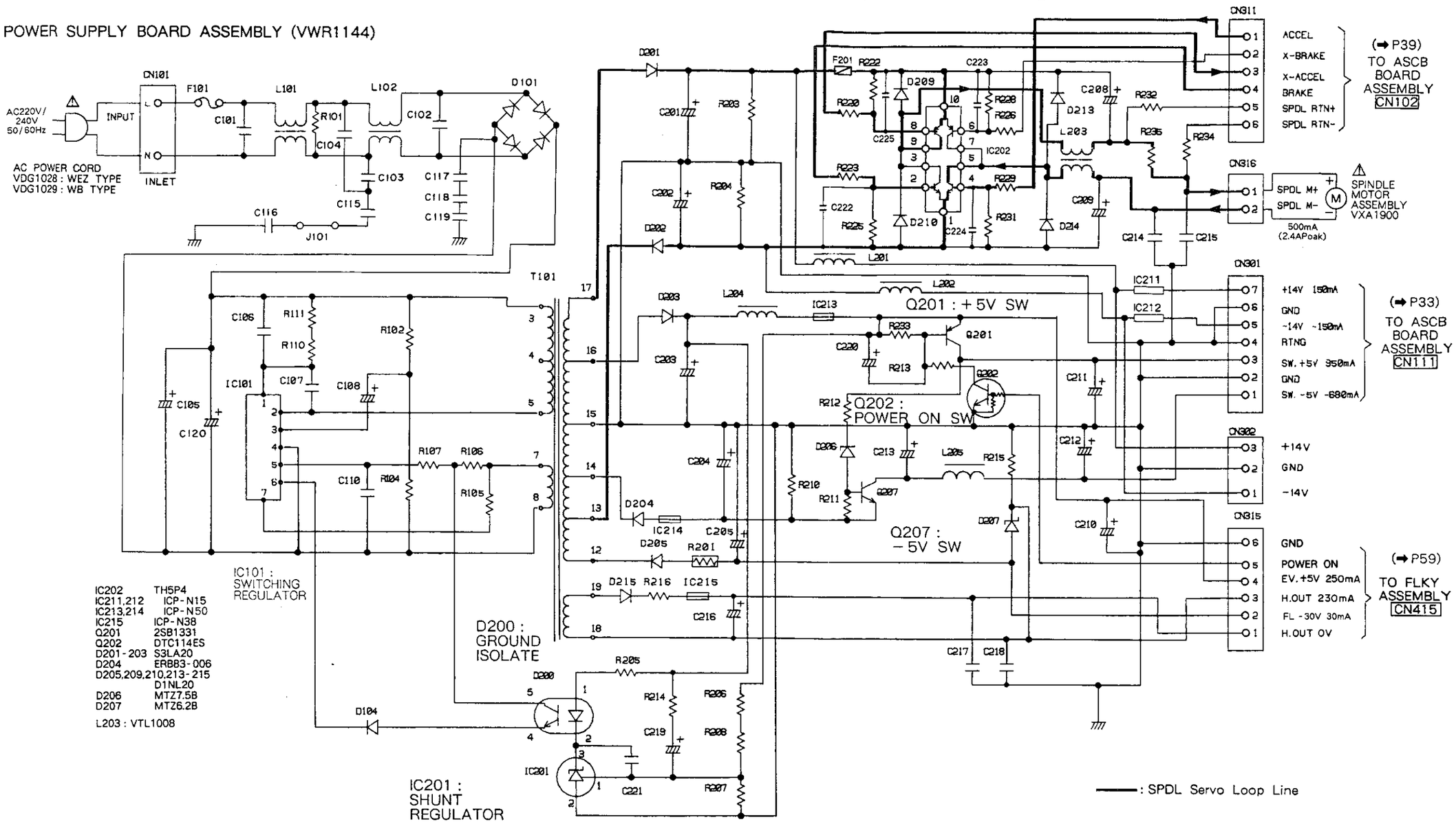
CNNB ASSEMBLY
S201 :PARK 1

4.1 OVERALL WIRING DIAGRAM

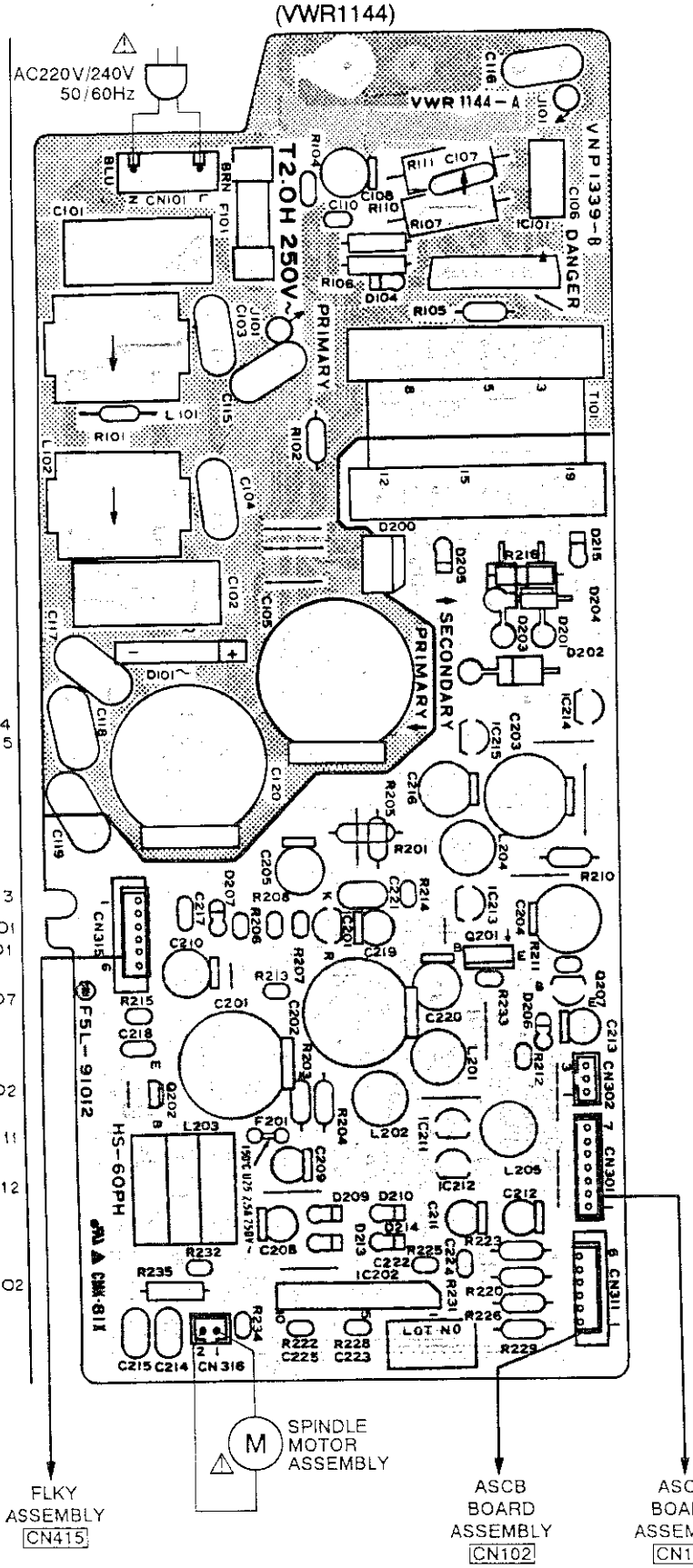


4.2 POWER SUPPLY BOARD ASSEMBLY

POWER SUPPLY BOARD ASSEMBLY (VWR1144)



POWER SUPPLY BOARD ASSEMBLY (VWR1144)



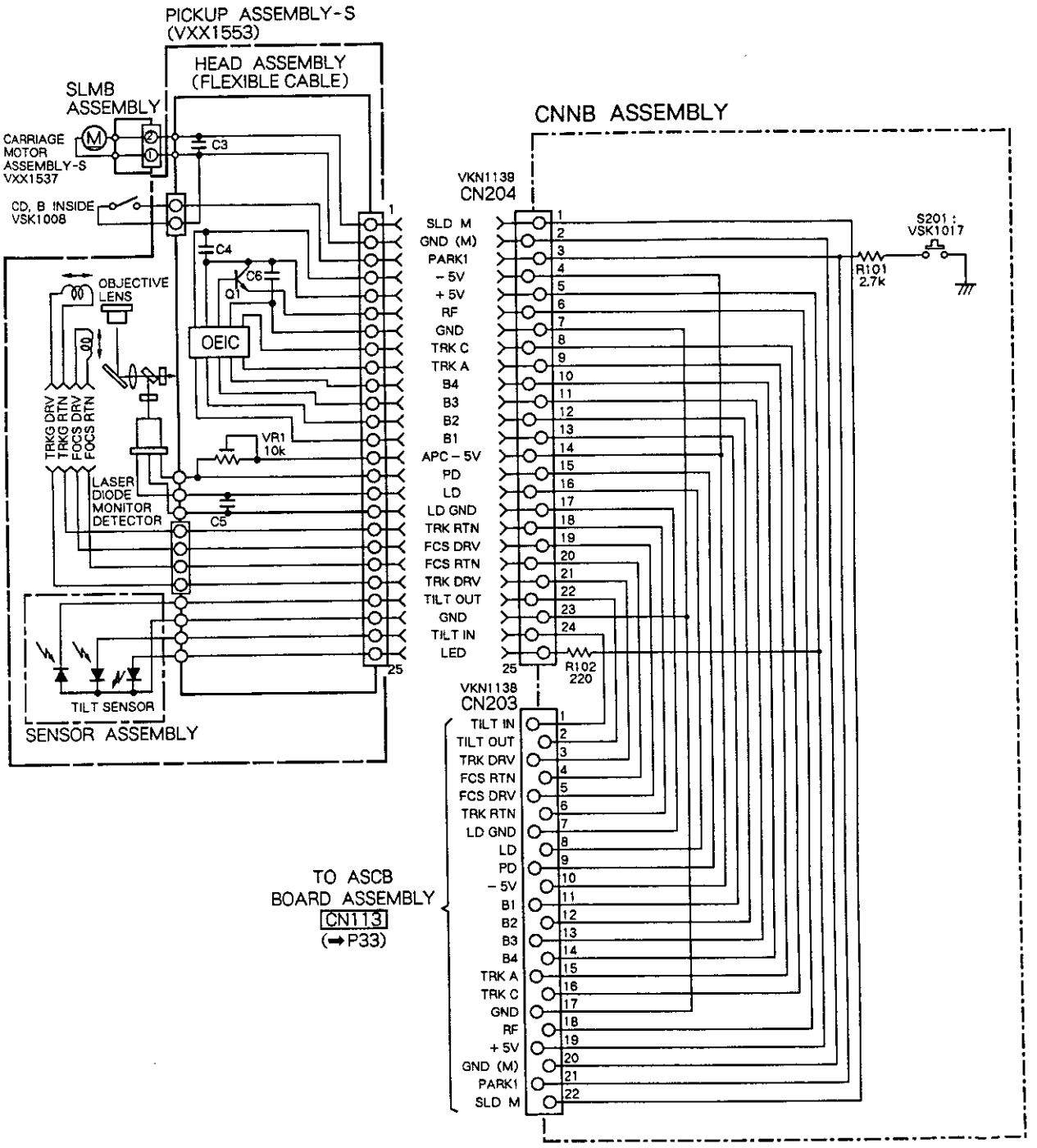
P.C.B. pattern diagram indication	Corresponding part symbol	Part name
		Transistor
		FET
		Diode
		Zenner diode
		LED
		Varactor
		Tact switch
		Inductor
		Coil
		Transformer
		Filter
		Ceramic capacitor
		Mylar capacitor
		Styrol capacitor
		Electrolytic capacitor (Non polarized)
		Electrolytic capacitor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

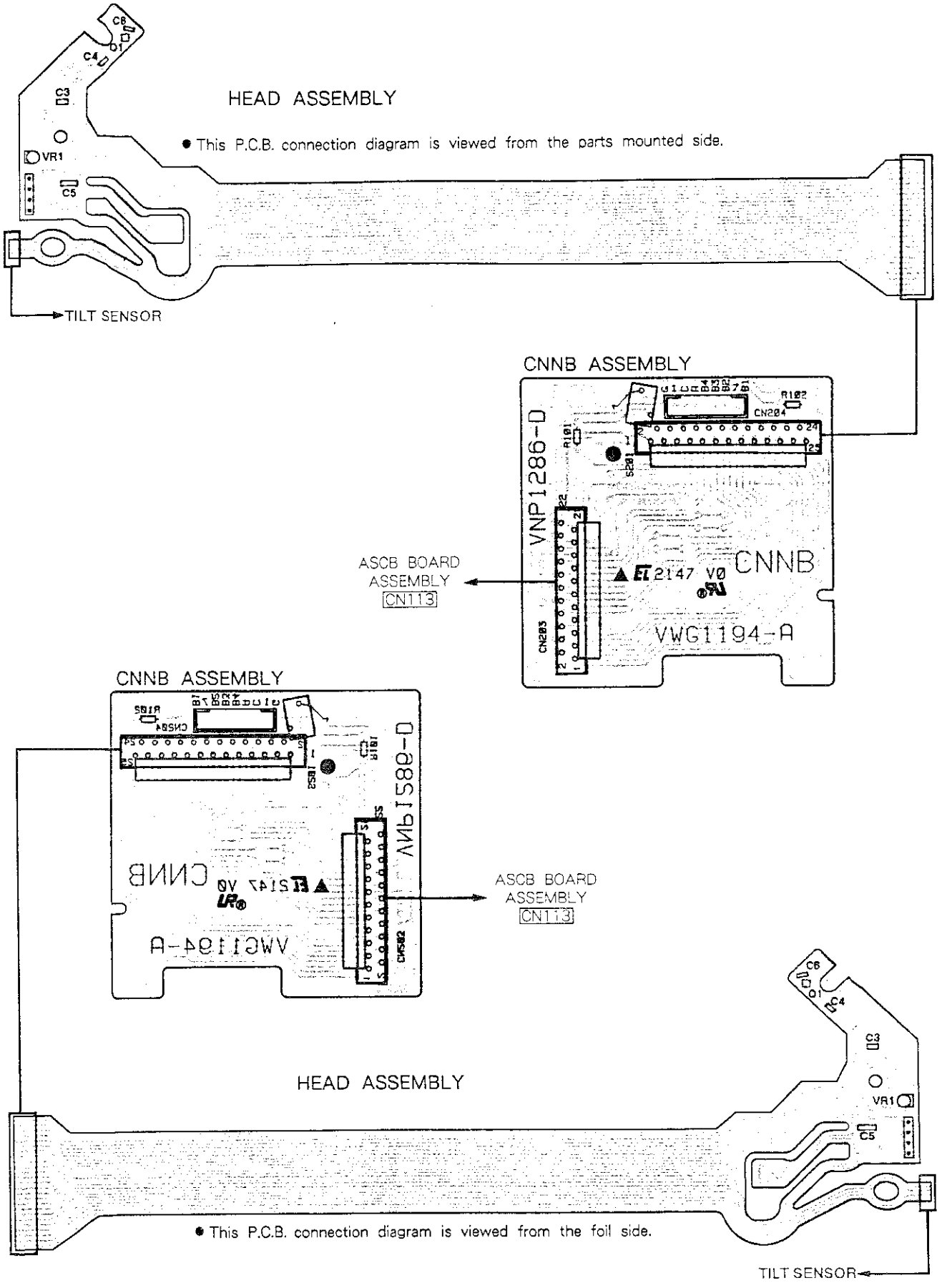
1. This P.C.B. connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be recognized with those shown with the corresponding wiring symbols listed in the above Table.
3. The capacitor terminal marked with ▭ shows negative terminal.
4. The diode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

POWER SUPPLY BOARD ASSEMBLY
(VWR1144)

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

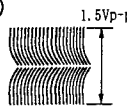
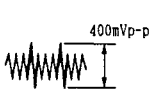
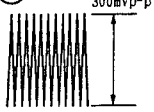
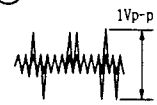
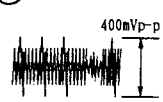
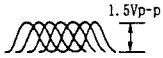
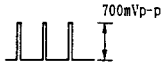
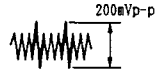
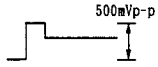
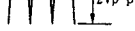
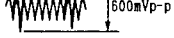
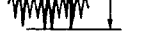
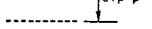
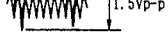
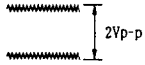
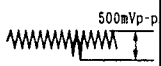
4.3 PICKUP AND CNNB ASSEMBLIES




HEAD ASSEMBLY
● This P.C.B. connection diagram is viewed from the parts mounted side.
TILT SENSOR
CNNB ASSEMBLY
VNP1286-D
CN204
CN203
ASCB BOARD ASSEMBLY
CN113
CNNB
VWG1194-A
CNNB ASSEMBLY
ASCB BOARD ASSEMBLY
CN113
HEAD ASSEMBLY
● This P.C.B. connection diagram is viewed from the foil side.
TILT SENSOR

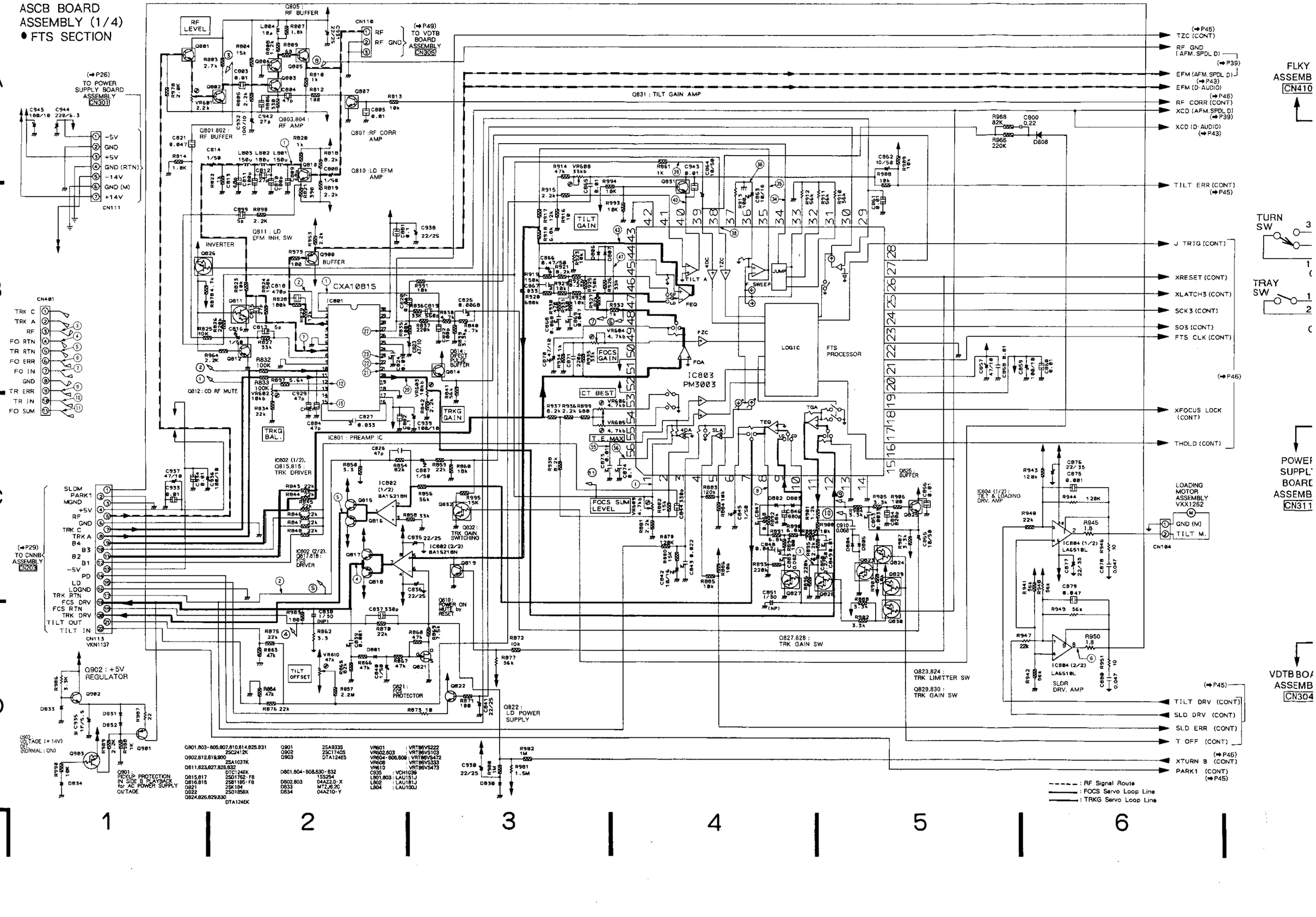
FTS SECTION

Note: (No.) in the table correspond to the pin No.

IC801 (CXA1081S)		CN401	IC803 (PM3003)		Other points
(1) 1.5Vp-p 	(20) 400mVp-p 	(3) 300mVp-p 	(1) 300mVp-p 	(39) 1Vp-p 	(1) Q810 Collector 400mVp-p 
(2) 1.5Vp-p 	(21) 700mVp-p 	(4) 5Vp-p 	(8) 2Vp-p 	(40) 200mVp-p 	(2) CN113 Pin 17 200mVp-p 
(7) 40mVp-p 	(22) 10Vp-p :still 	(5) 4Vp-p 	(34) 500mVp-p :still 	(43) 1.5Vp-p 	(3) Q828 Collector 400mVp-p 
(12) 200mVp-p 	(23) 2Vp-p 	(6) 600mVp-p 	(35) 1Vp-p 	(47) 150mVp-p 	(4) CN113 Pin 18 15Vp-p 
(15) 400mVp-p 	(27) 3Vp-p 	(7) 1.5Vp-p 	(36) 2Vp-p 	(55) 250mVp-p 	(5) CN113 Pin 20 20Vp-p 
		(9) 1.25Vp-p :open 	(38) 2Vp-p 	(58) 250mVp-p 	(6) IC804 Pin 9 3Vp-p 
		(10) 1.25Vp-p 			
		(11) 500mVp-p 			

4.4 ASCB BOARD ASSEMBLY(1/4)

ASCB BOARD ASSEMBLY (1/4)
• FTS SECTION



7 8 9 10 11 12

A B C D

FG BOARD ASSEMBLY

CN109

CDV INSIDE

LD INSIDE

SW2 BOARD ASSEMBLY

ASCB BOARD ASSEMBLY

VNZ1199-H

VWX -A

FLKY ASSEMBLY CN410

PCB BINDER

LOADING MOTOR ASSEMBLY

CN104

CNNB ASSEMBLY CN203

TURN SW

CN108

TRAY SW

CN107

OUT CONTROL IN

CD-DECK SYNCHRO

DIGITAL OUT OPTICAL

VDTB BOARD ASSEMBLY CN305

POWER SUPPLY BOARD ASSEMBLY VXX1262

CN311

TEST MODE

ASCB

VNP1301-H

AUDIO OUT

VIDEO OUT

HEPB ASSEMBLY CN404

VDTB BOARD ASSEMBLY CN304

CMK-54XT 94V-0

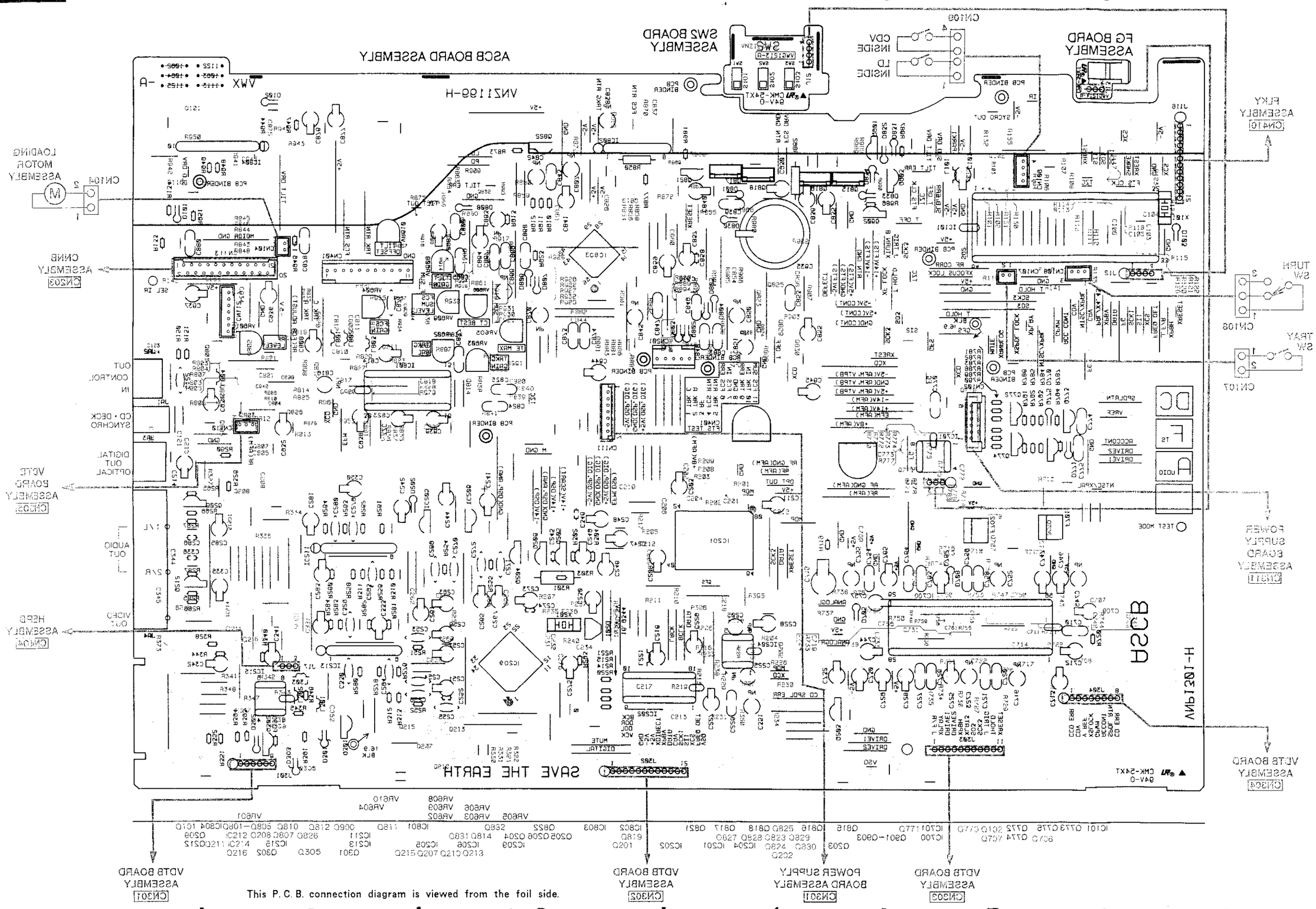
SAVE THE EARTH

VDTB BOARD ASSEMBLY CN303

POWER SUPPLY BOARD ASSEMBLY CN301

VDTB BOARD ASSEMBLY CN302

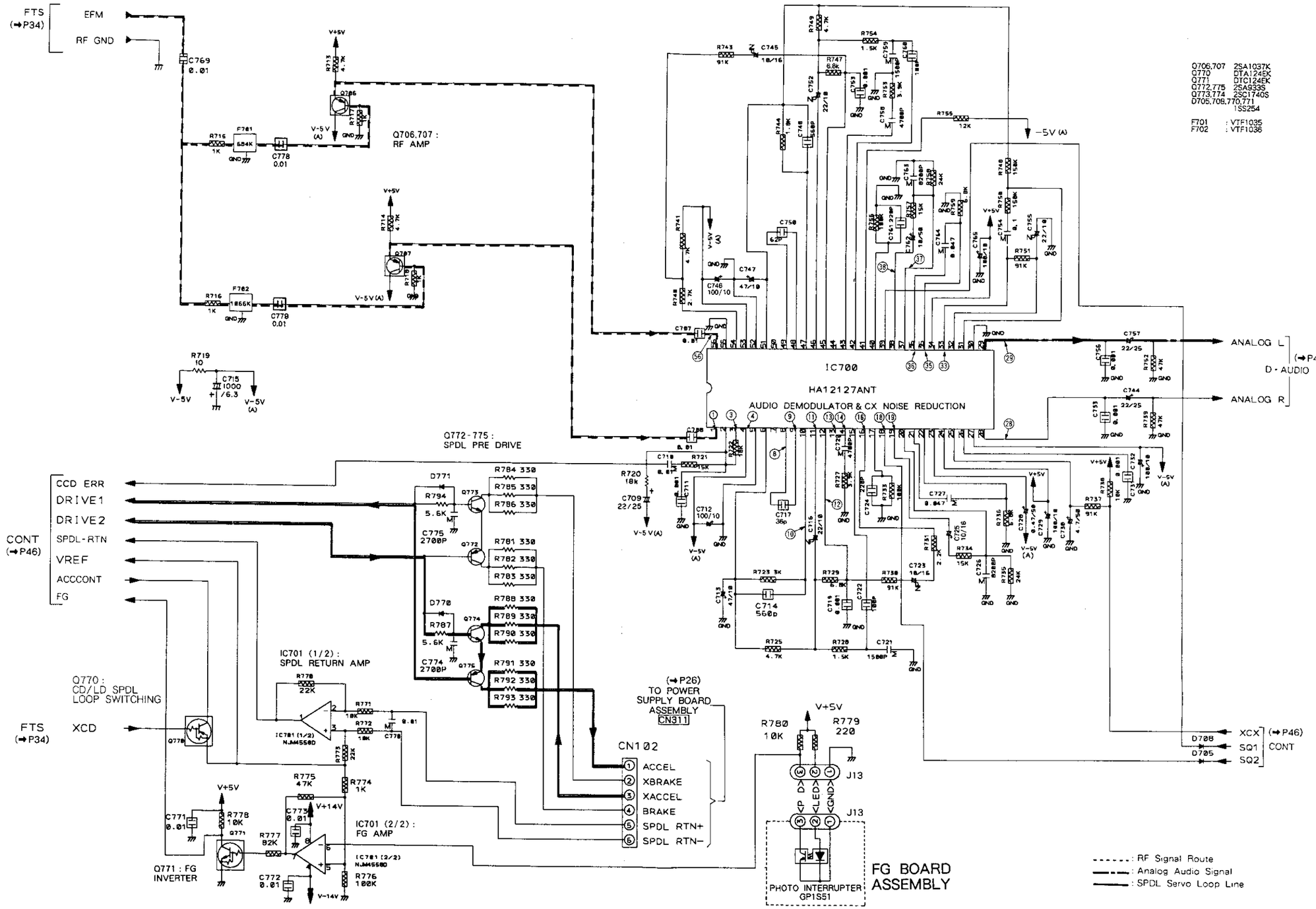
VDTB BOARD ASSEMBLY CN301



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

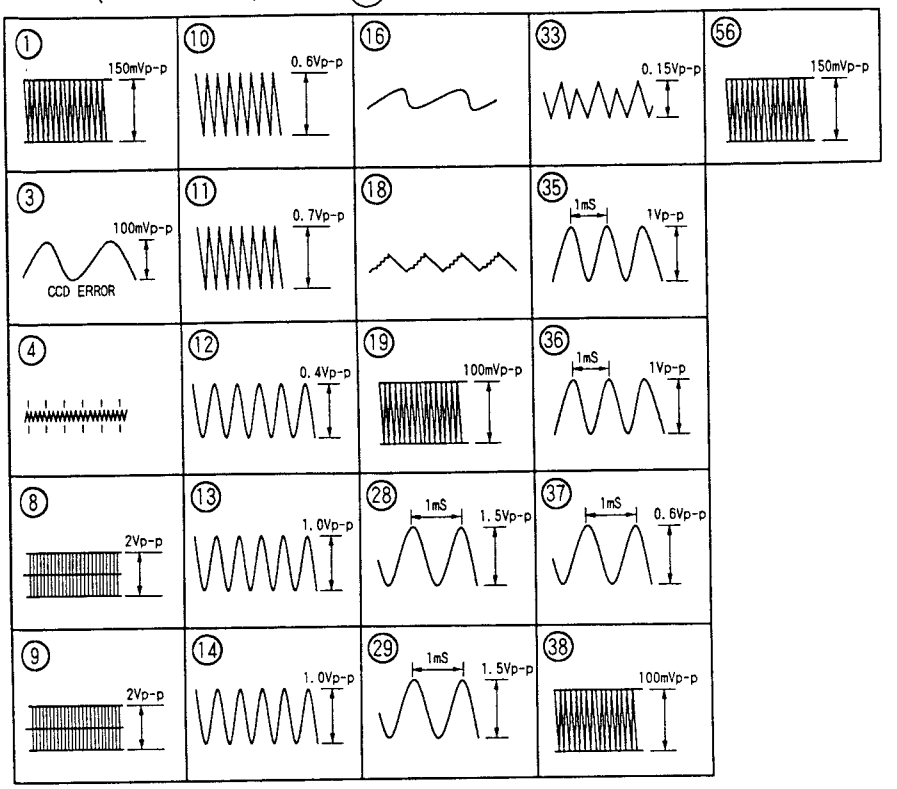
4.5 ASCB BOARD(2/4) AND FG BOARD ASSEMBLIES

ASCB BOARD ASSEMBLY (2/4)
● AFM. SPDL D SECTION



AFM. SPDL D SECTION

• IC700 (HA12127ANT) Note : (No.) in the table correspond to the pin No.



D. AUDIO SECTION

Note: Waveforms and voltages are at the PLAY.

IC201 (CXD2500AQ)

Pin No.	Voltage	Pin No.	Voltage	Pin No.	Voltage	Pin No.	Voltage	Pin No.	Voltage	Pin No.	Voltage
1	0	15	0	29	0	43	*	57	*	71	*
2	0	16	4.8	30	0	44	0	58	*	72	5
3	0	17	0	31	*	45	4.8	59	5	73	5
4	*	18	*	32	*	46	*	60	*	74	*
5	0	19	2.4	33	4.8	47	*	61	5	75	0
6	4.8	20	*	34	*	48	*	62	*	76	0
7	0	21	0	35	*	49	*	63	*	77	*
8	4.8	22	2.3	36	*	50	*	64	*	78	*
9	0	23	4.8	37	*	51	*	65	0	79	*
10	0	24	*	38	*	52	0	66	*	80	0
11	0	25	0	39	0	53	*	67	*		
12	0	26	0	40	4.8	54	*	68	0		
13	0	27	*	41	*	55	0	69	*		
14	0	28	0	42	*	56	*	70	5		

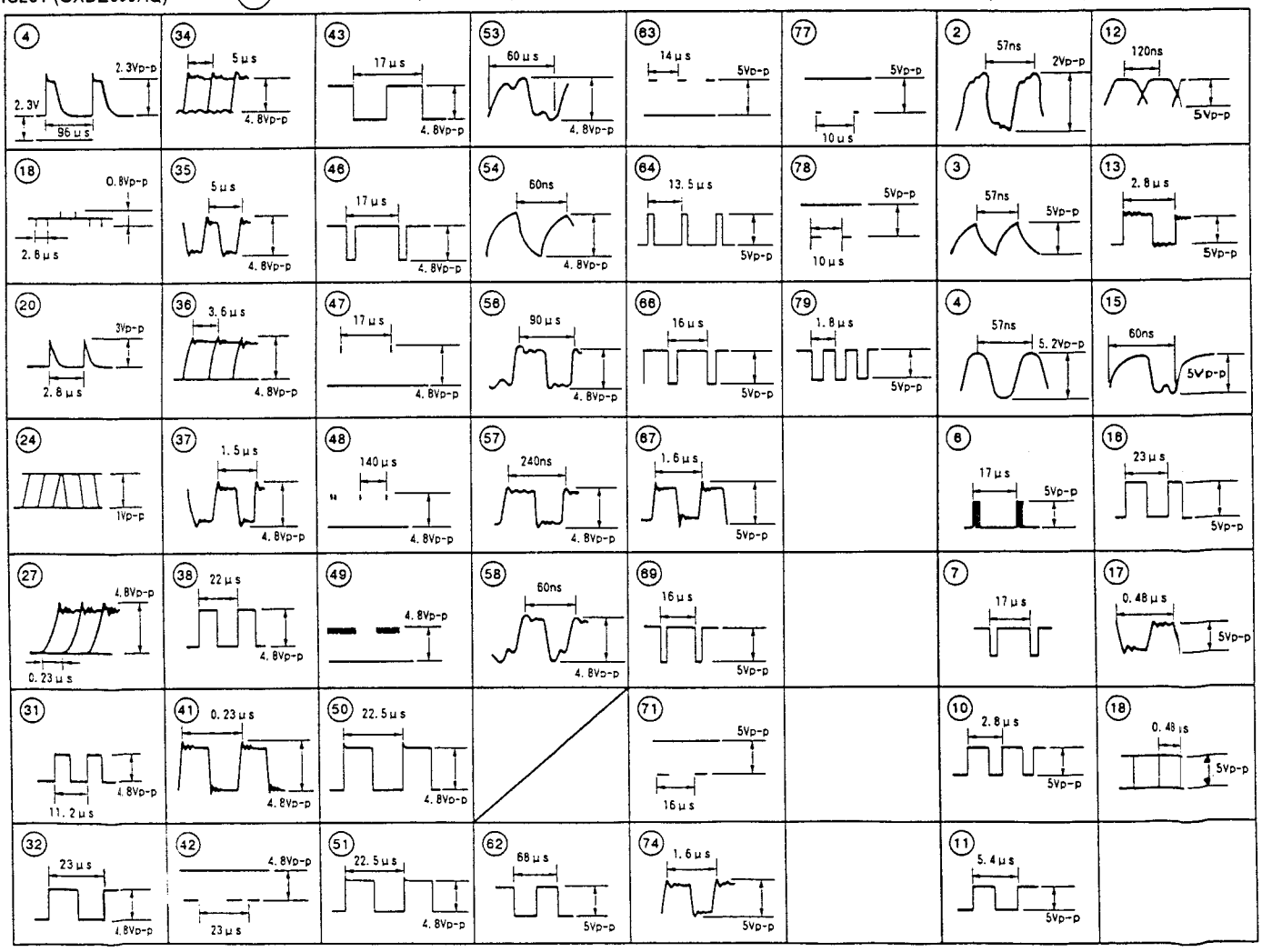
*: Refer to waveforms

IC202 (SM5840AP)

Pin No.	Voltage	Pin No.	Voltage
1	5	10	*
2	*	11	*
3	*	12	*
4	*	13	*
5	0	14	5
6	*	15	*
7	*	16	*
8	5	17	*
9	5	18	*

IC201 (CXD2500AQ) Note: (No.) in the table correspond to the pin No.

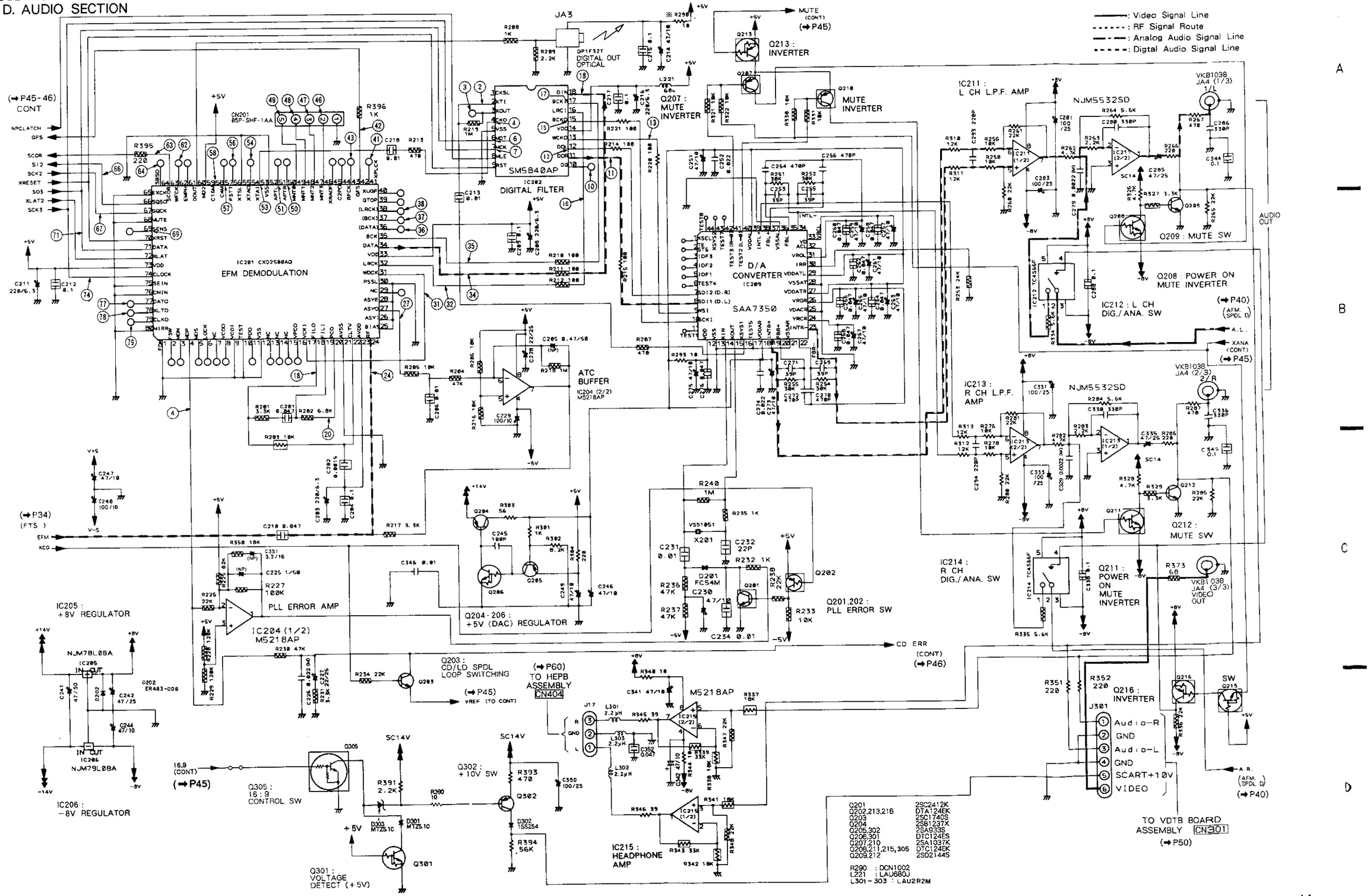
IC202 (SM5840AP)



4.6 ASCB BOARD ASSEMBLY(3/4)

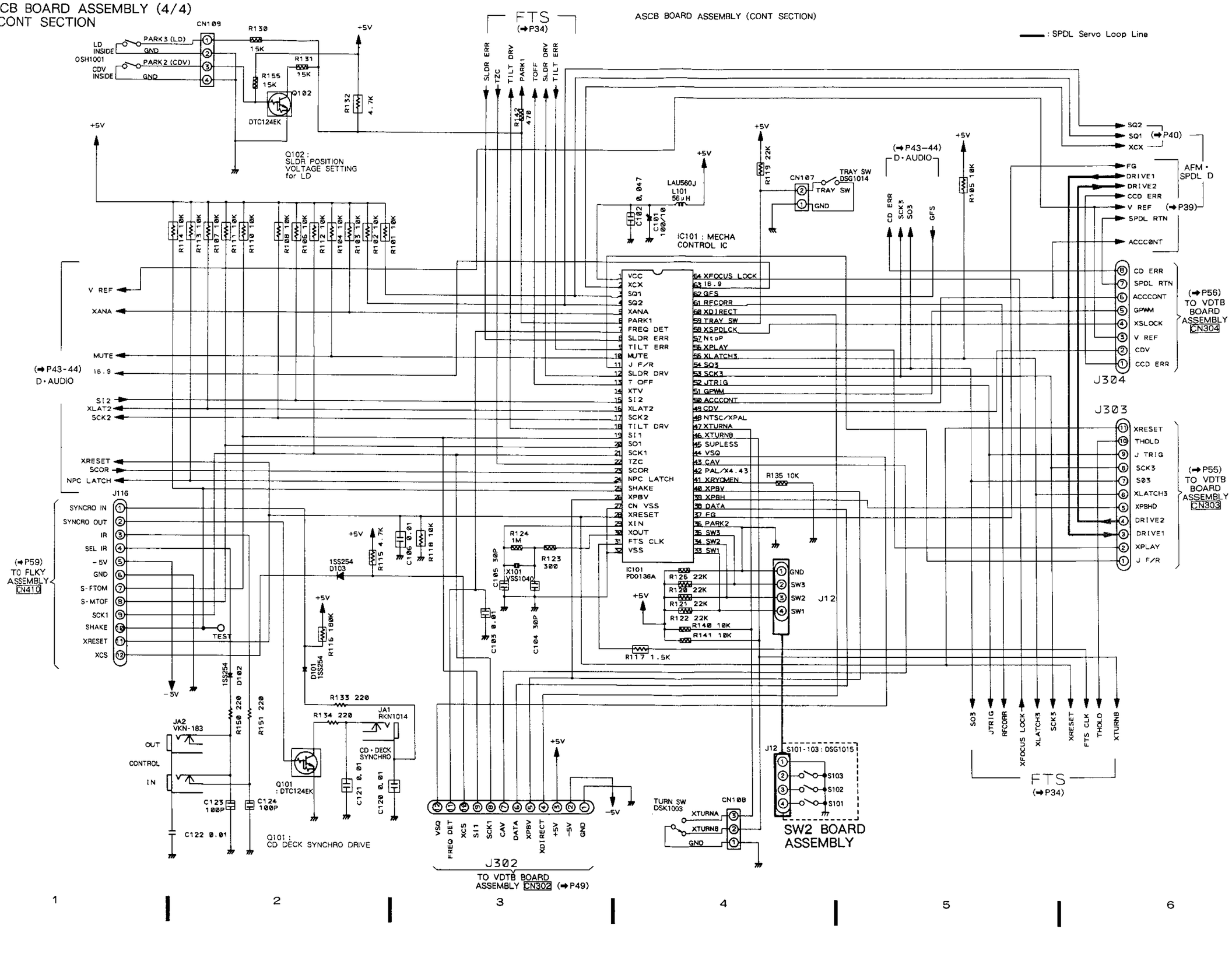
ASCB BOARD ASSEMBLY (3/4)

● D. AUDIO SECTION



4.7 ASCB BOARD(4/4)AND SW2 BOARD ASSEMBLIES

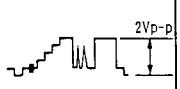
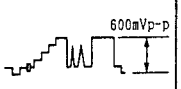
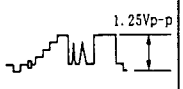
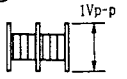
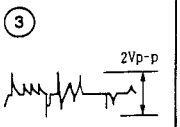
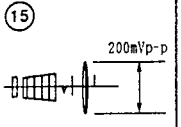
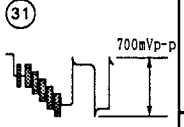
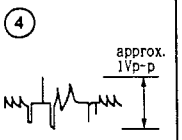
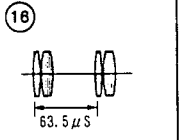
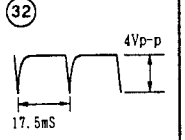
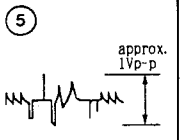
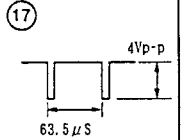
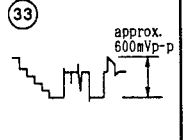
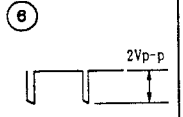
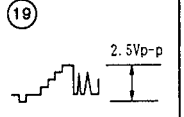
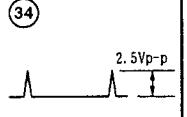
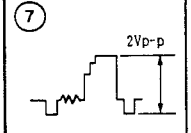
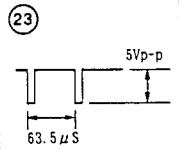
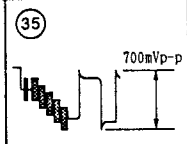
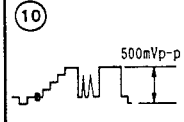
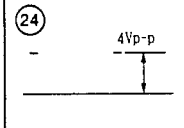
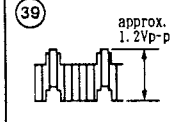
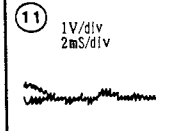
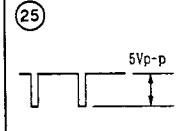
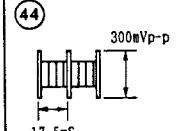
ASCB BOARD ASSEMBLY (4/4)
● CONT SECTION



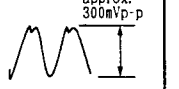
VDEM SECTION

Note: (No.) in the table correspond to the pin No.

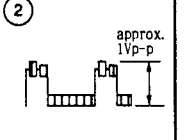
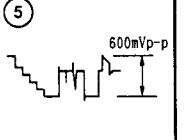
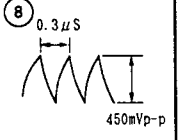
IC401 (PA5013A)

① 	⑭ 	㉙ 	㊻ 
③ 	⑮ 	㉛ 	
④ 	⑯ 	㉜ 	
⑤ 	⑰ 	㉝ 	
⑥ 	⑲ 	㉞ 	
⑦ 	㉓ 	㉟ 	
⑩ 	㉔ 	㊴ 	
⑪ 	㉕ 	㊹ 	

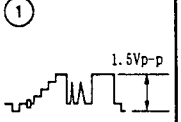
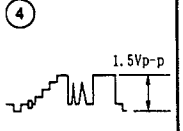
IC404 (PA0017)

⑨ 

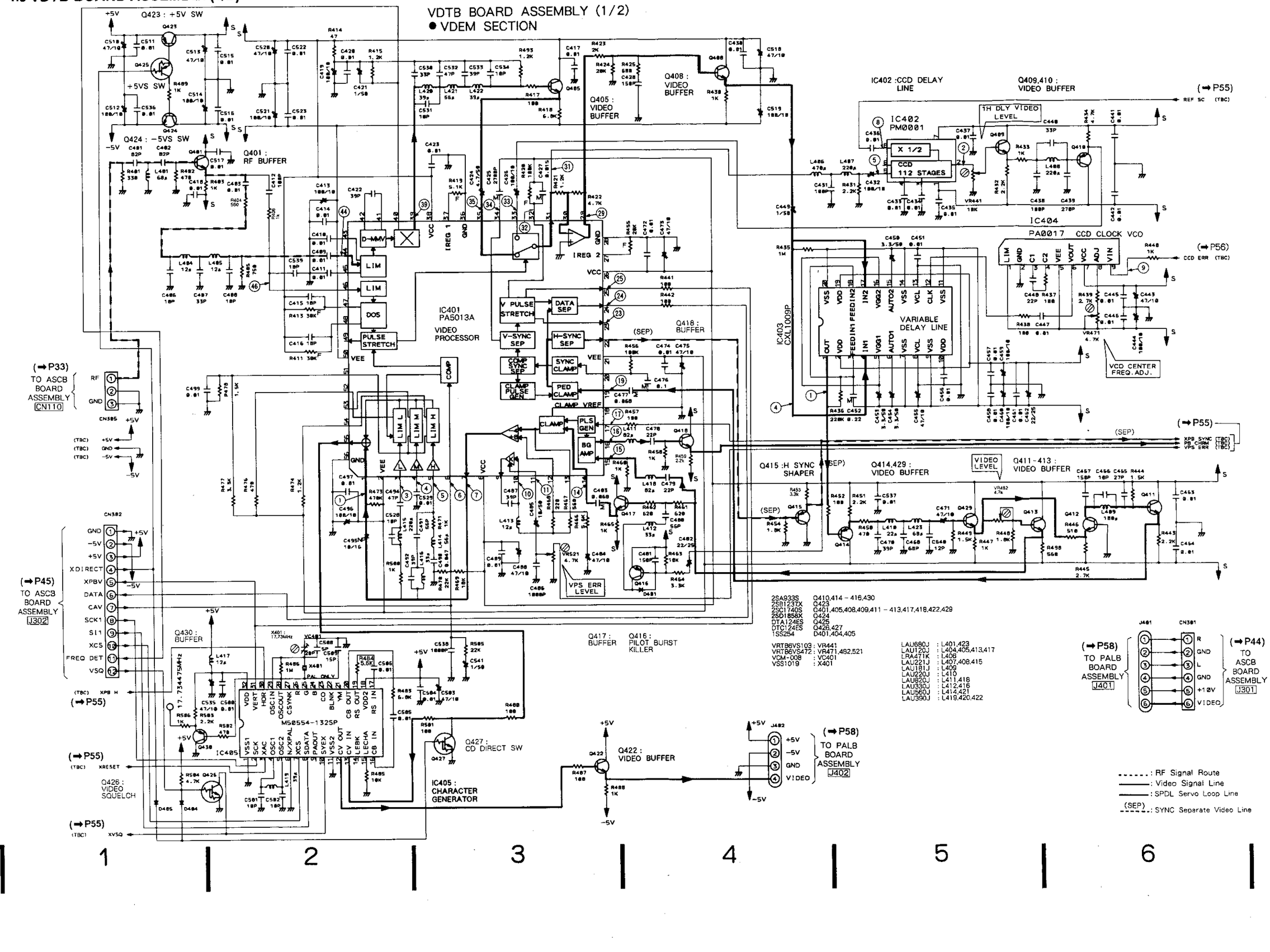
IC402 (PM0001)

② 
⑤ 
⑧ 

IC403(CXL1009P)

① 
④ 

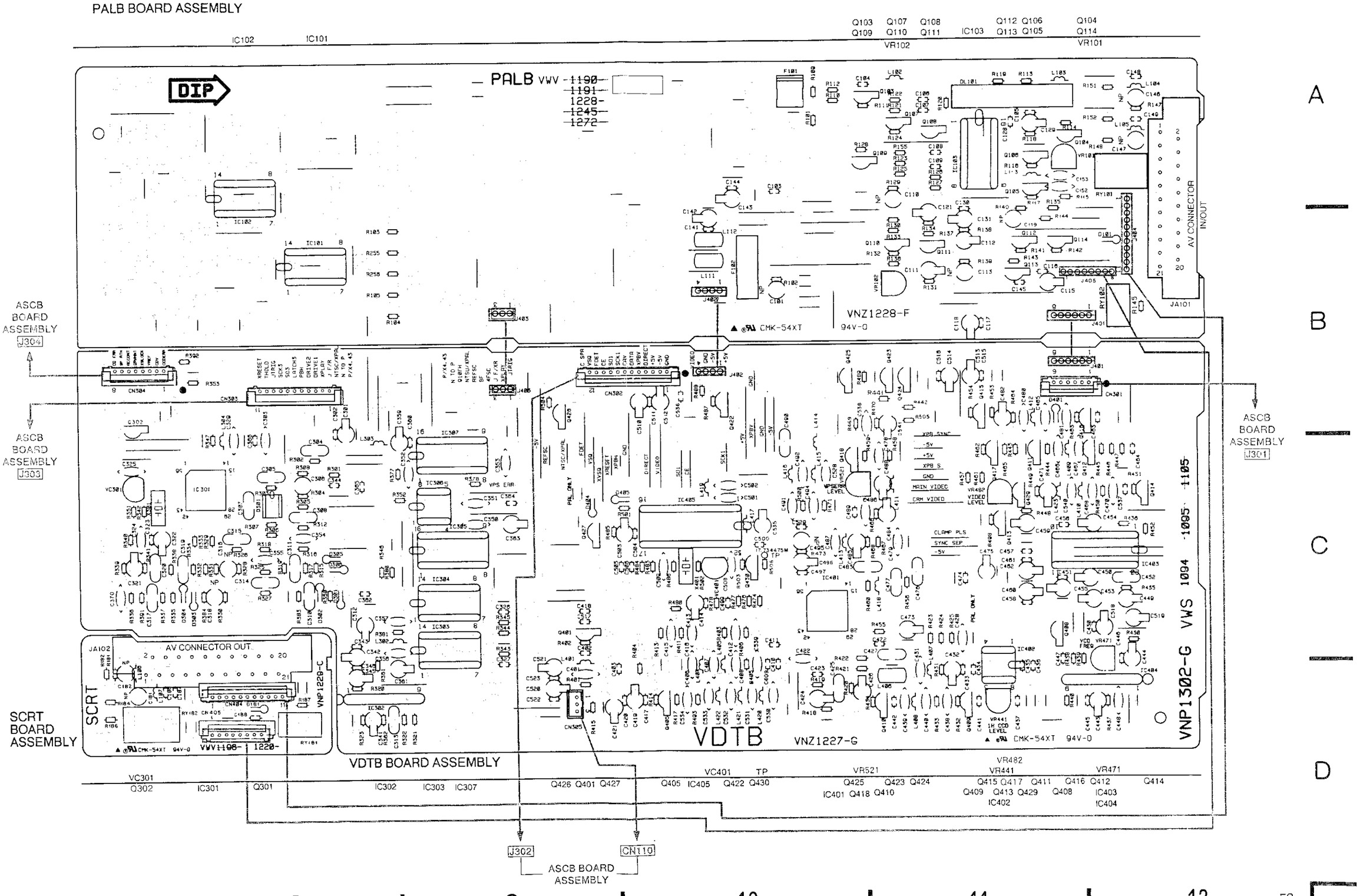
4.8 VDTB BOARD ASSEMBLY(1/2)



ASC BOAF ASSEM J30
ASC BOAF ASSEM J303
SCRT BOAF ASSE

7 8 9 10 11 12

PALB BOARD ASSEMBLY



(➡P55)
EF SC (TBC)

(➡P56)
CO ERR (TBC)

➡P55)
XPB SYNC (TBC)
-5V (TBC)
SYNC SEP (TBC)

S

S

R
GND
L
GND
+12V
VIDEO
(➡P44) TO ASCB BOARD ASSEMBLY J301

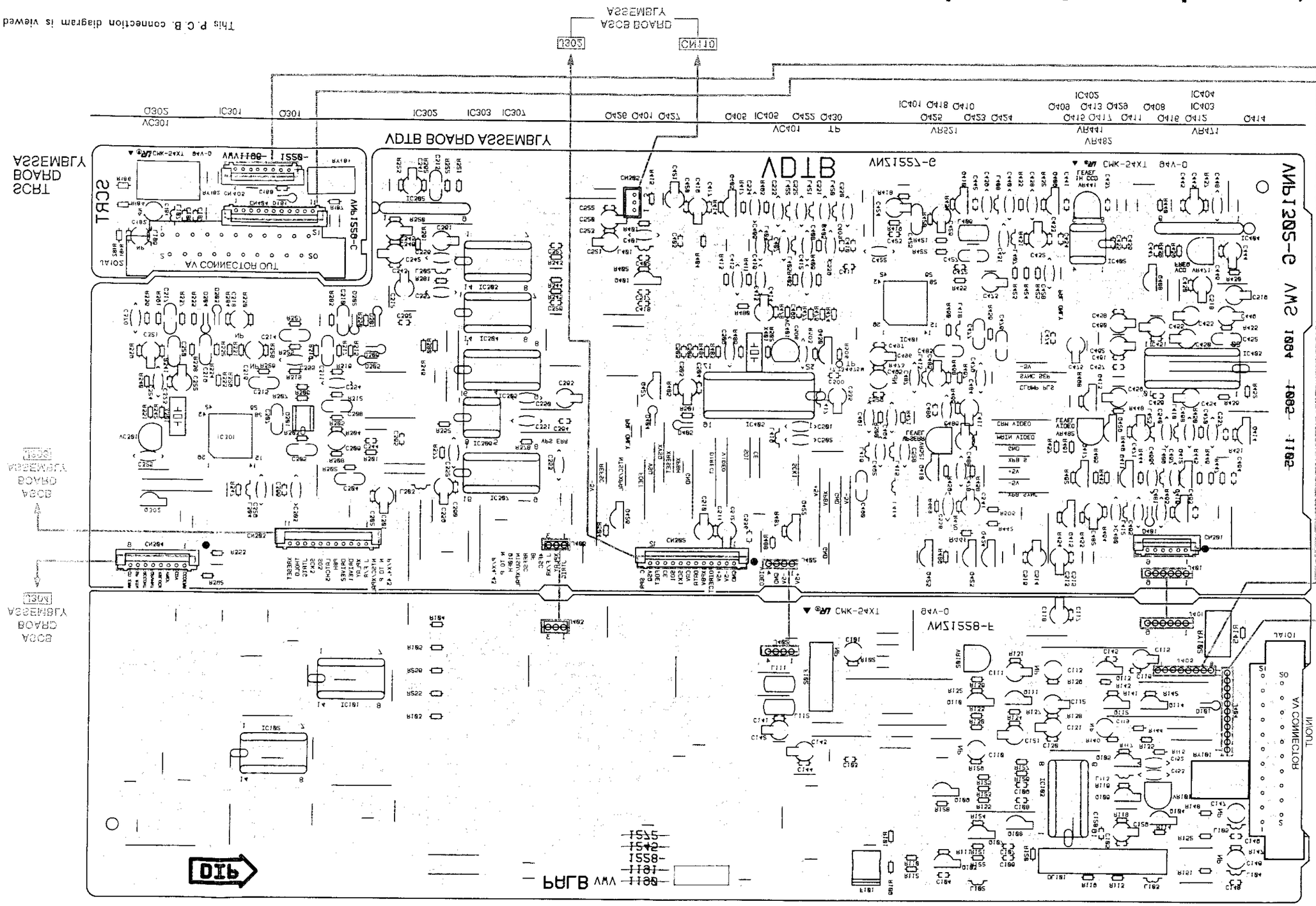
al Route
ignal Line
rvo Loop Line
parate Video Line

A B C D

7 8 9 10 11 12

4.9 VDTB BOARD ASSEMBLY

● TBC SECTION



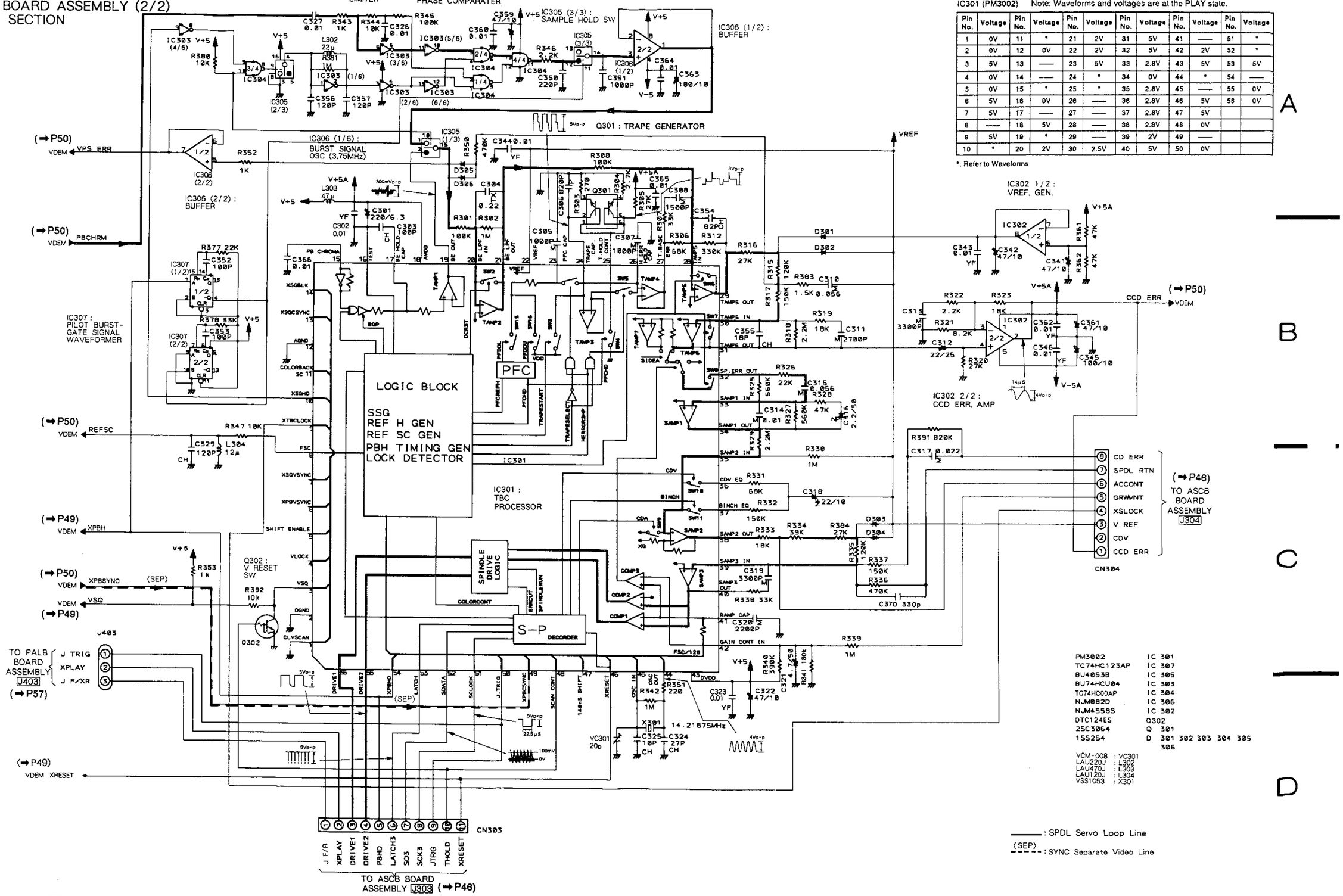
This P.C.B. connection diagram is viewed from the foil side.

1 2 3 4 5 6

4.9 VDTB BOARD ASSEMBLY(2/2)

VDTB BOARD ASSEMBLY (2/2)

● TBC SECTION



IC301 (PM3002) Note: Waveforms and voltages are at the PLAY state.

Pin No.	Voltage	Pin No.	Voltage	Pin No.	Voltage	Pin No.	Voltage	Pin No.	Voltage
1	0V	11	*	21	2V	31	5V	41	——	51	*
2	0V	12	0V	22	2V	32	5V	42	2V	52	*
3	5V	13	——	23	5V	33	2.8V	43	5V	53	5V
4	0V	14	——	24	*	34	0V	44	*	54	——
5	0V	15	*	25	*	35	2.8V	45	——	55	0V
6	5V	16	0V	26	——	36	2.8V	46	5V	58	0V
7	5V	17	——	27	——	37	2.8V	47	5V		
8	——	18	5V	28	——	38	2.8V	48	0V		
9	5V	19	*	29	——	39	2V	49	——		
10	*	20	2V	30	2.5V	40	5V	50	0V		

*: Refer to Waveforms

PM3002	IC 301
TC74HC123AP	IC 307
BU4053B	IC 305
BU74HCU04	IC 303
TC74HC00AP	IC 304
NJM082D	IC 306
NJM4558S	IC 302
DTC124ES	Q 302
2SC3064	Q 301
1SS254	D 301 302 303 304 305 306

VCM-008 : VC301
LAU220J : L302
LAU470J : L303
LAU120J : L304
VSS1053 : X301

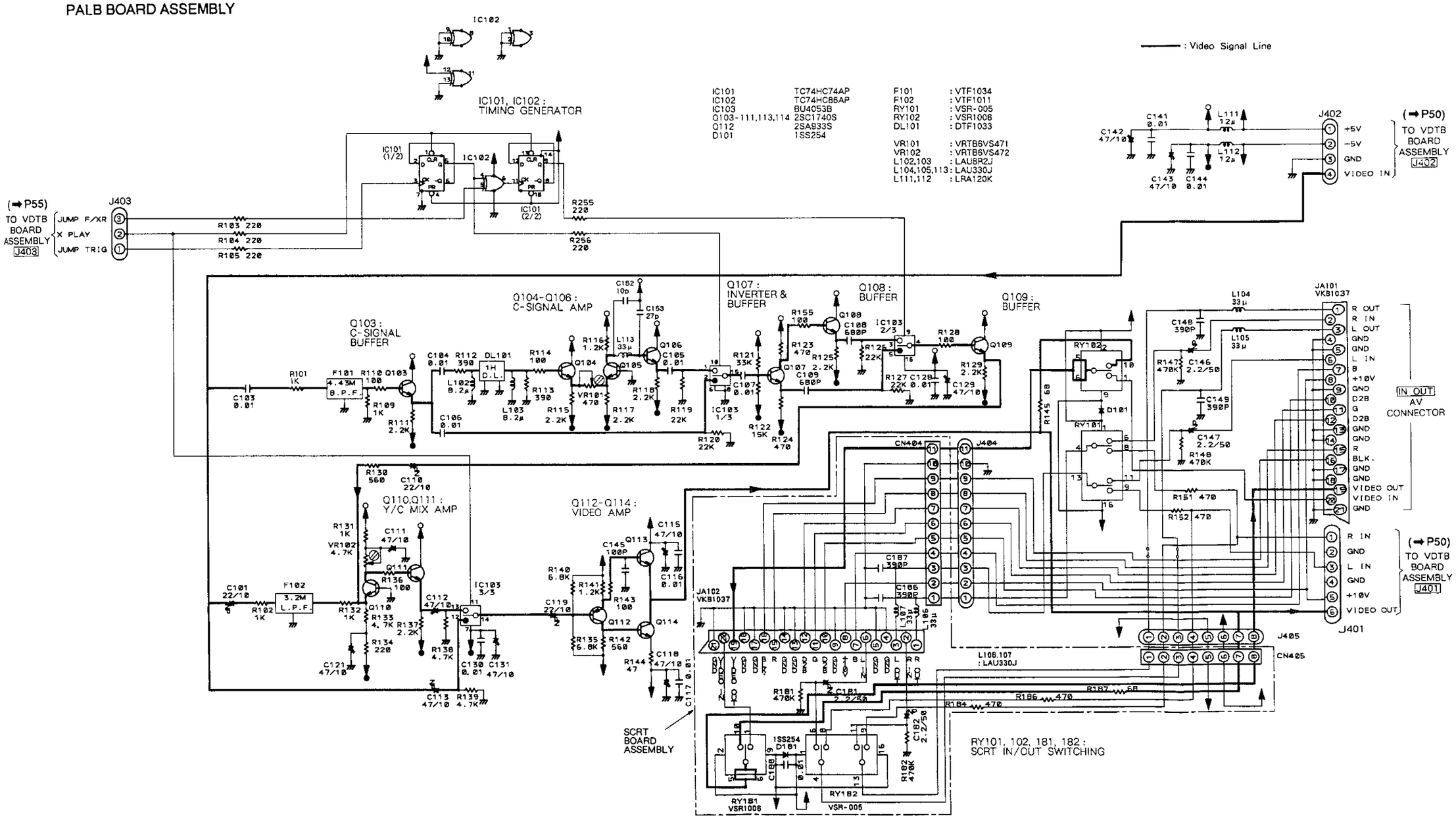
——— : SPDL Servo Loop Line

(SEP) - - - - : SYNC Separate Video Line

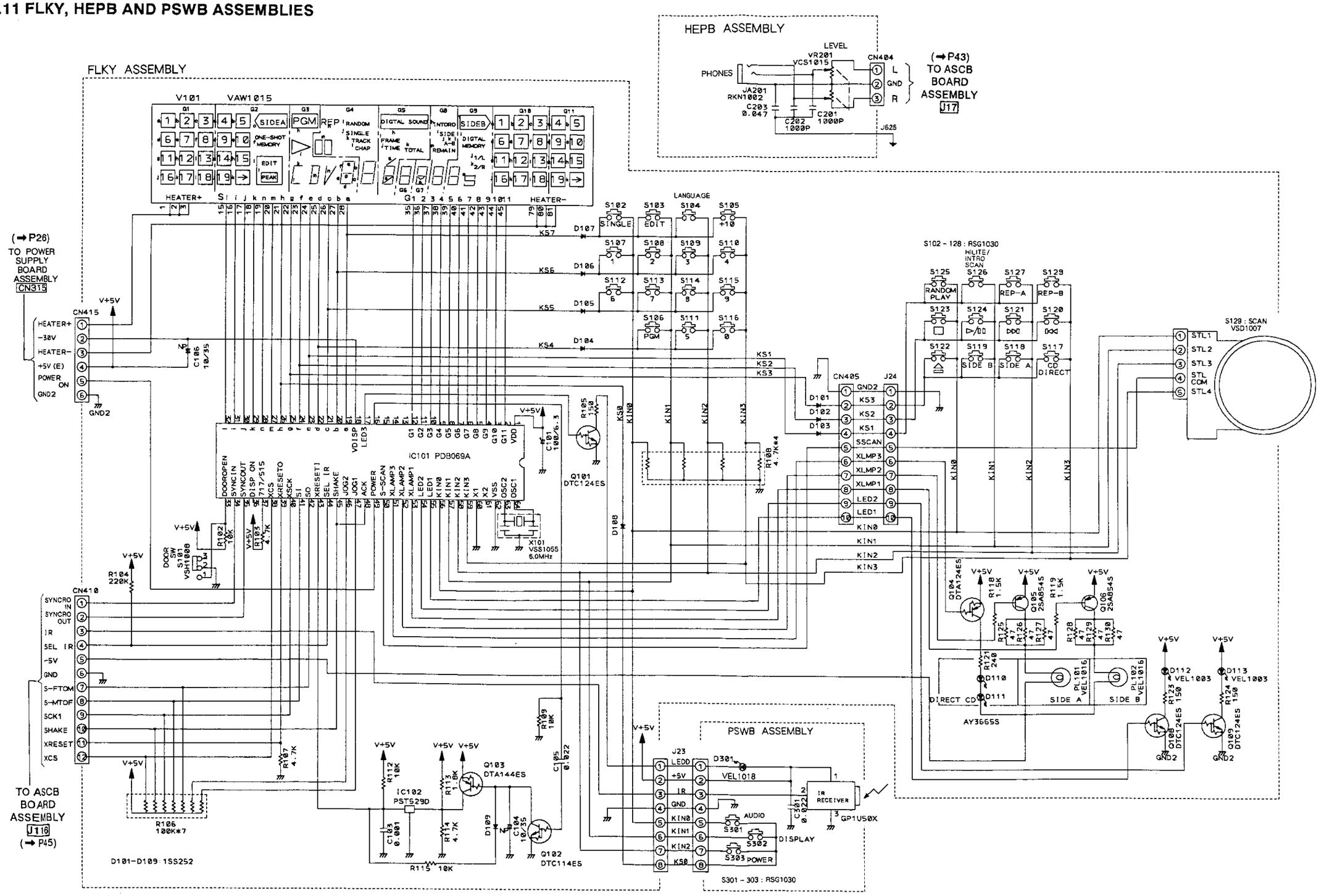
s viewed from the foil side.

4.10 PALB AND SCRT BOARD ASSEMBLIES

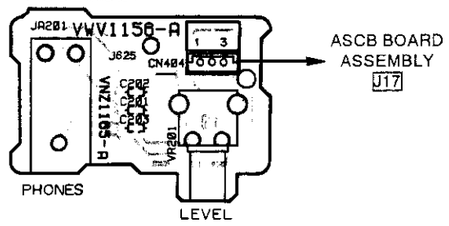
PALB BOARD ASSEMBLY



4.11 FLKY, HEPB AND PSWB ASSEMBLIES

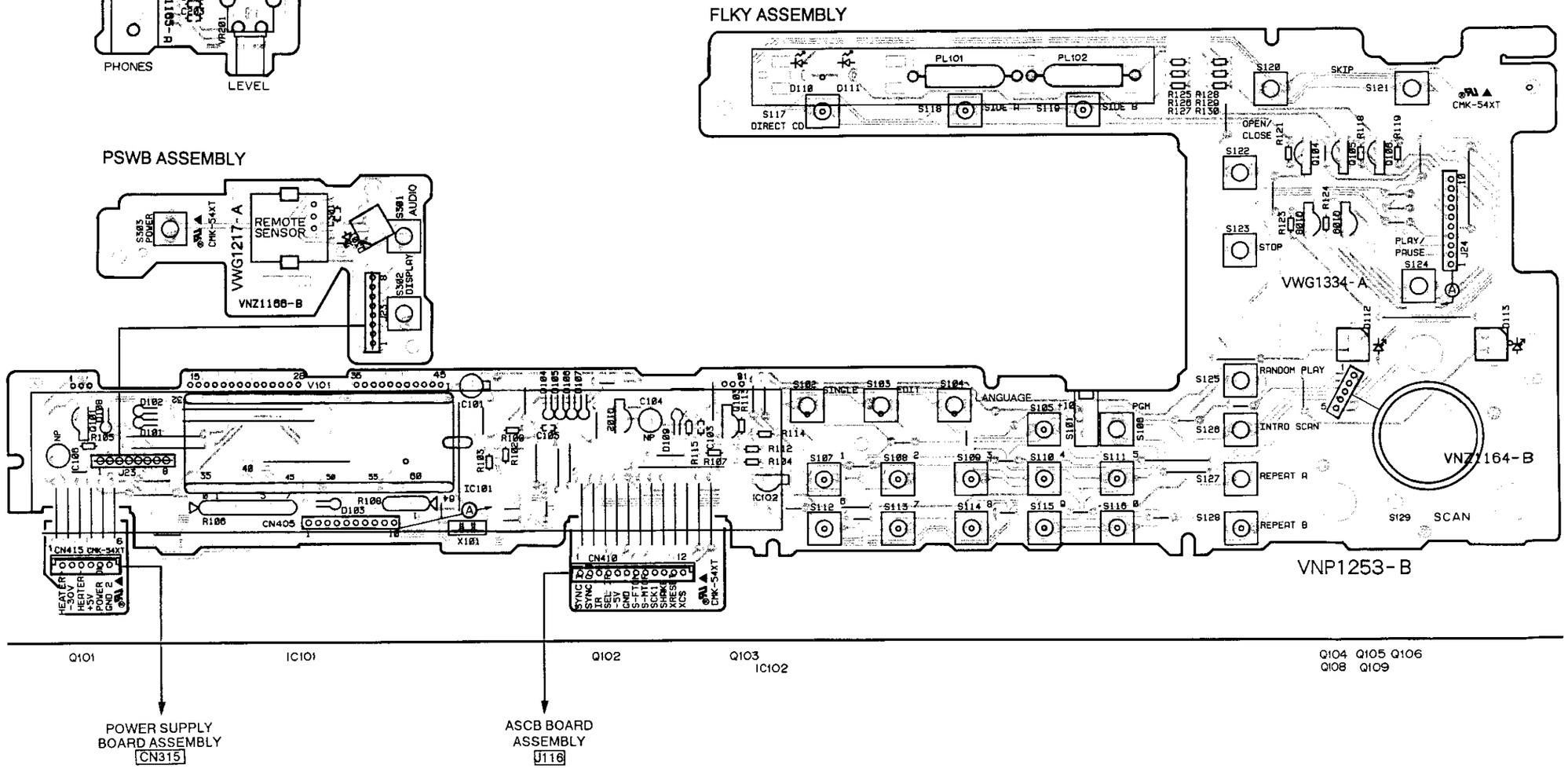


HEPB ASSEMBLY



FLKY ASSEMBLY

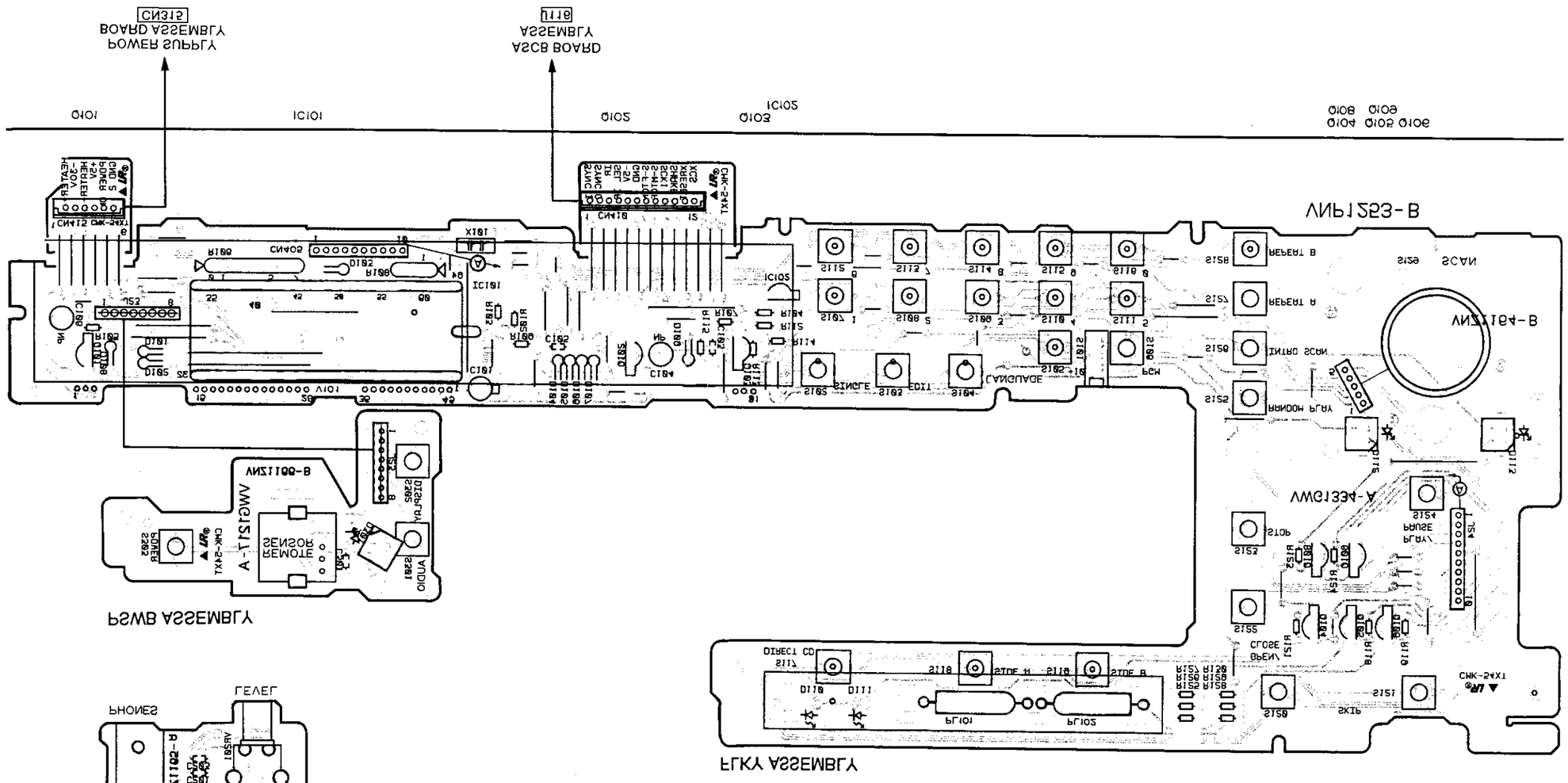
PSWB ASSEMBLY



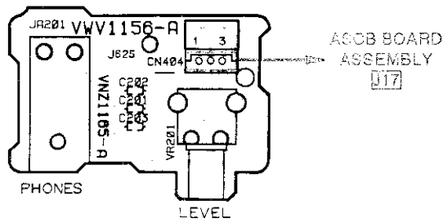
POWER SUPPLY BOARD ASSEMBLY
CN315

ASCB BOARD ASSEMBLY
J116

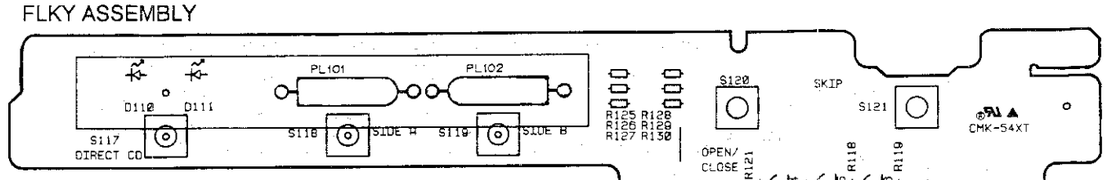
This P.C.B. connection diagram is viewed from the foil side.



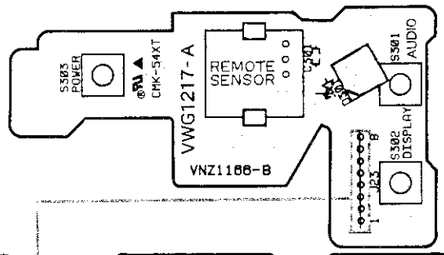
HEPB ASSEMBLY

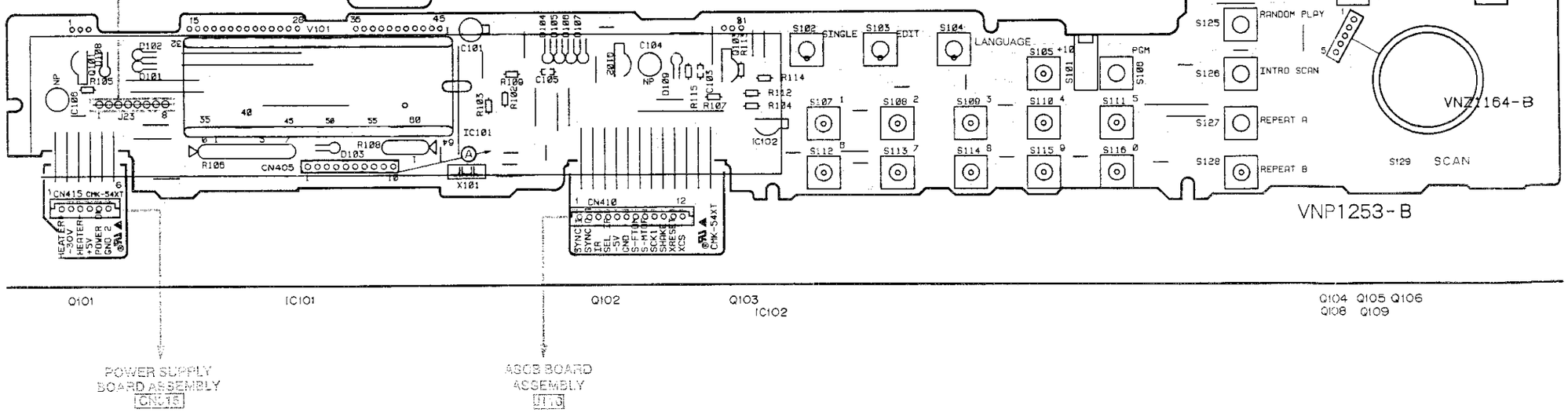


FLKY ASSEMBLY



PSWB ASSEMBLY

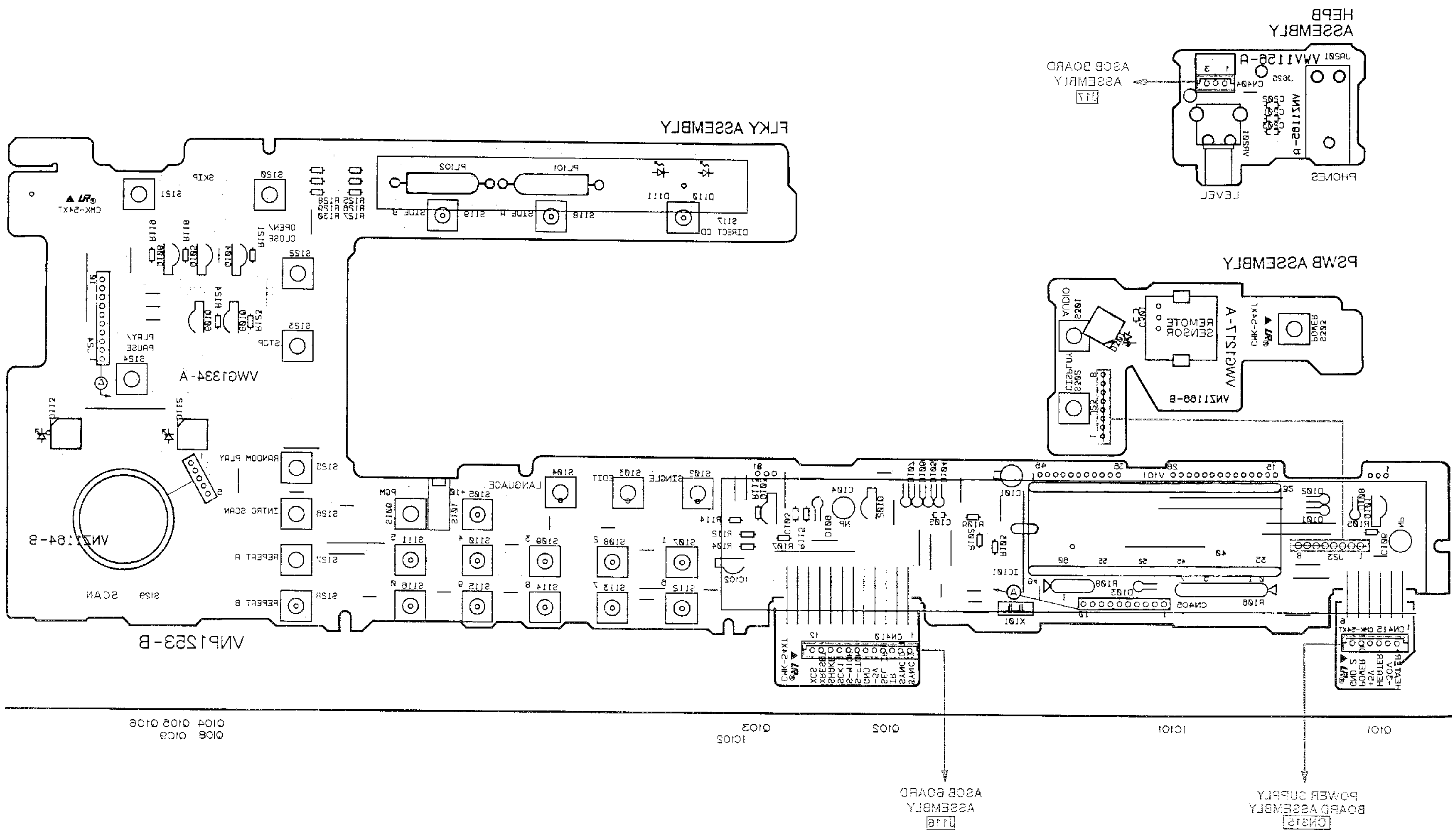




Q101 IC101 Q102 Q103 IC102 Q104 Q105 Q106 Q108 Q109

POWER SUPPLY BOARD ASSEMBLY CN415

ASCB BOARD ASSEMBLY J13



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

5. PCB PARTS LIST

NOTES:

- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *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.*
- *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 ..... RD1/8PM 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 ..... RN1/4PC 5 6 2 1 F

Mark	No.	Description	Part No.
LIST OF ASSEMBLIES			
◉		VTPB BOARD ASSEMBLY	VWM1205
NSP		├VDTB BOARD ASSEMBLY	VWS1094
NSP		├SCRT BOARD ASSEMBLY	VWV1220
NSP		└PALB BOARD ASSEMBLY	VWV1228
◉		FLKB ASSEMBLY	VWM1273
NSP		├PSWB ASSEMBLY	VWG1217
NSP		├FLKY ASSEMBLY	VWG1334
NSP		└HEPB ASSEMBLY	VWV1156
◉		MAIN BOARD ASSEMBLY	VWM1274
NSP		├SW2 BOARD ASSEMBLY	VWG1213
NSP		├FG BOARD ASSEMBLY	VWG1214
NSP		└ASCB BOARD ASSEMBLY	VWX1122
		POWER SUPPLY ASSEMBLY	VWR1144
NSP		HEAD ASSEMBLY	VWV1178
NSP		CNNB ASSEMBLY	VWG1194
VDTB BOARD ASSEMBLY			
SEMICONDUCTORS			
	IC301	TBC IC	PM3002
	IC302	OP-AMP IC	NJM4558S
	IC303	LOGIC IC	BU74HCU04
	IC304	LOGIC IC	TC74HC00AP
	IC305	LOGIC IC	BU4053B
	IC306	IC	NJM082D
	IC307	CMOS, IC	TC74HC123AP
	IC401	VIDEO IC	PA5013A
	IC402	CCD DELAY LINE	PM0001
	IC403	IC	CXL1009P
	IC404	IC	PA0017
	IC405	CHARACTER IC	M50554-132SP
	Q301	TRANSISTOR	2SC3064
	Q302	TRANSISTOR	DTC124ES
	Q401, 405	TRANSISTOR	2SC1740S
	Q408, 409	TRANSISTOR	2SC1740S
	Q410	TRANSISTOR	2SA933S
	Q411-413	TRANSISTOR	2SC1740S
	Q414-416	TRANSISTOR	2SA933S
	Q417, 418	TRANSISTOR	2SC1740S
	Q422	TRANSISTOR	2SC1740S
	Q423	TRANSISTOR	2SB1237X
	Q424	TRANSISTOR	2SD1858X
	Q425	TRANSISTOR	DTA114ES
	Q426, 427	TRANSISTOR	DTC114ES
	Q429	TRANSISTOR	2SC1740S
	Q430	TRANSISTOR	2SA933S
	D301-306	DIODE	1SS254
	D401	DIODE	1SS254
	D404, 405	DIODE	1SS254
COILS			
	L302	AXIAL INDUCTOR	LAU220J
	L303	AXIAL INDUCTOR	LAU470J
	L304	AXIAL INDUCTOR	LAU120J
	L401	AXIAL INDUCTOR	LAU680J
	L404, 405	AXIAL INDUCTOR	LAU120J
	L406	RADIAL INDUCTOR	LRA471K
	L407, 408	AXIAL INDUCTOR	LAU121J
	L409	AXIAL INDUCTOR	LAU181J
	L410	AXIAL INDUCTOR	LAU120J
	L411	AXIAL INDUCTOR	LAU120J
	L412	AXIAL INDUCTOR	LAU330J
	L413	AXIAL INDUCTOR	LAU120J
	L414	AXIAL INDUCTOR	LAU560J
	L415	AXIAL INDUCTOR	LAU121J
	L416	AXIAL INDUCTOR	LAU330J
	L417	AXIAL INDUCTOR	LAU120J
	L418	AXIAL INDUCTOR	LAU120J
	L419, 420	AXIAL INDUCTOR	LAU390J
	L421	AXIAL INDUCTOR	LAU560J
	L422	AXIAL INDUCTOR	LAU390J
	L423	AXIAL INDUCTOR	LAU680J

CAPACITORS

Mark	No.	Description	Part No.
	VC301, 401	VARIABLE CAPACITOR(20P)	VCM-008
	C301	ELECT. CAPACITOR	CEAS221M6R3
	C302	CERAMIC CAPACITOR	CKPUYY103N16
	C303	CERAMIC CAPACITOR	CCCCH101J50
	C304	FILM CAPACITOR	CFTNA224J50
	C305	MYLAR FILM CAPACITOR	CQMA102J50
	C306	CAPACITOR	CQPA821J100
	C307	MYLAR FILM CAPACITOR	CQMA102J50
	C308	MYLAR FILM CAPACITOR	CQMA152J50
	C310	AUDIO FILM CAPACITOR	CFTXA563J50
	C311	MYLAR FILM CAPACITOR	CQMA272J50
	C312	ELECT. CAPACITOR	CEAS220M25
	C313	MYLAR FILM CAPACITOR	CQMA332J50
	C314	AUDIO FILM CAPACITOR	CFTXA103J50
	C315	AUDIO FILM CAPACITOR	CFTXA563J50
	C316	ELECT. CAPACITOR	CEANP2R2M50
	C317	AUDIO FILM CAPACITOR	CFTXA223J50
	C318	ELECT. CAPACITOR	CEANP220M10
	C319	MYLAR FILM CAPACITOR	CQMA332J50
	C320	MYLAR FILM CAPACITOR	CQMA222J50
	C321	ELECT. CAPACITOR	CEAS4R7M50
	C322	ELECT. CAPACITOR	CEAS470M10
	C323	CERAMIC CAPACITOR	CKPUYY103N16
	C324	CERAMIC CAPACITOR	CCCCH270J50
	C325	AXIAL CERAMIC C.	CCPUCH100J50
	C326, 327	CERAMIC CAPACITOR	CKPUYY103N16
	C329	CERAMIC CAPACITOR	CCCCH121J50
	C341, 342	ELECT. CAPACITOR	CEAS470M10
	C343, 344	CERAMIC CAPACITOR	CKPUYY103N16
	C345	ELECT. CAPACITOR	CEAS101M10
	C346	CERAMIC CAPACITOR	CKPUYY103N16
	C350	CERAMIC CAPACITOR	CCCSL221J50
	C351	CERAMIC CAPACITOR	CKCYB102K50
	C352, 353	CERAMIC CAPACITOR	CCCCH101J50
	C354	CERAMIC CAPACITOR	CCCCH820J50
	C355	AXIAL CERAMIC C.	CCPUCH180J50
	C356, 357	CERAMIC CAPACITOR	CCCCH121J50
	C359	ELECT. CAPACITOR	CEAS470M10
	C360	CERAMIC CAPACITOR	CKPUYY103N16
	C361	ELECT. CAPACITOR	CEAS470M10
	C362	CERAMIC CAPACITOR	CKPUYY103N16
	C363	ELECT. CAPACITOR	CEAS101M10
	C364-366	CERAMIC CAPACITOR	CKPUYY103N16
	C370	CERAMIC CAPACITOR	CKPUYB331K50
	C401, 402	CERAMIC CAPACITOR	CCCCH820J50
	C403	CERAMIC CAPACITOR	CKPUYY103N16
	C406	AXIAL CERAMIC C.	CCPUCH100J50
	C407	CERAMIC CAPACITOR	CCCCH330J50
	C408	AXIAL CERAMIC C.	CCPUCH100J50
	C409-411	CERAMIC CAPACITOR	CKPUYY103N16
	C412	CERAMIC CAPACITOR	CCCCH101J50
	C413	ELECT. CAPACITOR	CEAS101M10
	C414	CERAMIC CAPACITOR	CKPUYY103N16
	C415, 416	AXIAL CERAMIC C.	CCPUCH180J50
	C417, 418	CERAMIC CAPACITOR	CKPUYY103N16
	C419	ELECT. CAPACITOR	CEAS101M10
	C420	CERAMIC CAPACITOR	CKPUYY103N16
	C421	ELECT. CAPACITOR	CEAS010M50
	C422	CERAMIC CAPACITOR	CCCCH390J50
	C423	CERAMIC CAPACITOR	CKPUYY103N16
	C424	ELECT. CAPACITOR	CEAS4R7M50
	C425	MYLAR FILM CAPACITOR	CQMA272J50
	C426	ELECT. CAPACITOR	CEAS101M10
	C427	AUDIO FILM CAPACITOR	CFTXA153J50
	C428	CERAMIC CAPACITOR	CCCCH151J50
	C430	CERAMIC CAPACITOR	CKPUYY103N16
	C431	CERAMIC CAPACITOR	CCCCH101J50
	C432	ELECT. CAPACITOR	CEAS101M10
	C433-437	CERAMIC CAPACITOR	CKPUYY103N16
	C438	CERAMIC CAPACITOR	CCCCH101J50
	C439	CERAMIC CAPACITOR	CCCSL271J50
	C440	CERAMIC CAPACITOR	CCCCH330J50
	C441, 442	CERAMIC CAPACITOR	CKPUYY103N16
	C443	ELECT. CAPACITOR	CEAS470M10
	C444	ELECT. CAPACITOR	CEAS101M10
	C445-447	CERAMIC CAPACITOR	CKPUYY103N16
	C448	CERAMIC CAPACITOR	CCCCH220J50
	C449	ELECT. CAPACITOR	CEAS010M50
	C450	ELECT. CAPACITOR	CEAS3R3M50
	C451	CERAMIC CAPACITOR	CKPUYY103N16
	C452	FILM CAPACITOR	CFTNA224J50
	C453, 454	ELECT. CAPACITOR	CEAS3R3M50
	C455	ELECT. CAPACITOR	CEAS470M10
	C456-458	CERAMIC CAPACITOR	CKPUYY103N16
	C459, 460	ELECT. CAPACITOR	CEAS101M10
	C461	CERAMIC CAPACITOR	CKPUYY103N16
	C462	ELECT. CAPACITOR	CEAS220M25
	C463, 464	CERAMIC CAPACITOR	CKPUYY103N16
	C465	CERAMIC CAPACITOR	CCCCH270J50
	C466	AXIAL CERAMIC C.	CCPUCH100J50
	C467	CERAMIC CAPACITOR	CCCCH151J50
	C468	CERAMIC CAPACITOR	CCCCH680J50
	C470	CERAMIC CAPACITOR	CCCCH390J50
	C471	ELECT. CAPACITOR	CEAS470M10
	C472	CERAMIC CAPACITOR	CKPUYY103N16
	C473	ELECT. CAPACITOR	CEAS470M10
	C474	CERAMIC CAPACITOR	CKPUYY103N16
	C475	ELECT. CAPACITOR	CEAS470M10
	C476	AUDIO FILM CAPACITOR	CFTXA104J50
	C477	AUDIO FILM CAPACITOR	CFTXA683J50
	C478, 479	CERAMIC CAPACITOR	CCCCH220J50
	C480	CERAMIC CAPACITOR	CCCCH560J50
	C481	CERAMIC CAPACITOR	CCCCH151J50
	C482	ELECT. CAPACITOR	CEAS220M25
	C483	AUDIO FILM CAPACITOR	CFTXA683J50
	C484	ELECT. CAPACITOR	CEAS470M10
	C485	ELECT. CAPACITOR	CEAS100M50
	C486	CERAMIC CAPACITOR	CKCYB102K50
	C487	CERAMIC CAPACITOR	CCCCH390J50
	C488	ELECT. CAPACITOR	CEAS470M10

Mark	No.	Description	Part No.
	C489	CERAMIC CAPACITOR	CKPUYY103N16
	C490	AUDIO FILM CAPACITOR	CFTXA473J50
	C491	CERAMIC CAPACITOR	CCCCH560J50
	C492	CERAMIC CAPACITOR	CCCCH390J50
	C494	CERAMIC CAPACITOR	CCCCH470J50
	C495	ELECT. CAPACITOR	CEANP100M16
	C496	ELECT. CAPACITOR	CEAS101M10
	C497	CERAMIC CAPACITOR	CKPUYY103N16
	C499, 500	CERAMIC CAPACITOR	CKPUYY103N16
	C501, 502	AXIAL CERAMIC C.	CCPUCH100J50
	C503	ELECT. CAPACITOR	CEAS470M10
	C504-506	CERAMIC CAPACITOR	CKPUYY103N16
	C508	CERAMIC CAPACITOR	CCCCH050C50
	C509	CERAMIC CAPACITOR	CCCCH150J50
	C510	ELECT. CAPACITOR	CEAS470M10
	C511	CERAMIC CAPACITOR	CKPUYY103N16
	C512	ELECT. CAPACITOR	CEAS101M10
	C513	ELECT. CAPACITOR	CEAS470M10
	C514	ELECT. CAPACITOR	CEAS101M10
	C515-517	CERAMIC CAPACITOR	CKPUYY103N16
	C518	ELECT. CAPACITOR	CEAS470M10
	C519	ELECT. CAPACITOR	CEAS101M10
	C520	ELECT. CAPACITOR	CEAS470M10
	C521	ELECT. CAPACITOR	CEAS101M10
	C522, 523	CERAMIC CAPACITOR	CKPUYY103N16
	C528	AXIAL CERAMIC C.	CCPUCH100J50
	C529	CERAMIC CAPACITOR	CKPUYY103N16
	C530	CERAMIC CAPACITOR	CCCCH330J50
	C531	AXIAL CERAMIC C.	CCPUCH100J50
	C532	CERAMIC CAPACITOR	CCCCH470J50
	C533	CERAMIC CAPACITOR	CCCCH390J50
	C534	AXIAL CERAMIC C.	CCPUCH100J50
	C535	ELECT. CAPACITOR	CEAS470M10
	C536, 537	CERAMIC CAPACITOR	CKPUYY103N16
	C538	CERAMIC CAPACITOR	CKCYB102K50
	C539	CERAMIC CAPACITOR	CCCCH180J50
	C540	CERAMIC CAPACITOR	CCCCH120J50
	C541	ELECT. CAPACITOR	CEAS010M50
RESISTORS			
	VR441	SEMI-FIXED VR(10kΩ)	VRTB6VS103
	VR471, 482	SEMI-FIXED VR(4.7kΩ)	VRTB6VS472
	VR521	SEMI-FIXED VR(4.7kΩ)	VRTB6VS472
	R411, 413	METALFILM RESISTOR	RN1/6PQ3002F
	R419	METALFILM RESISTOR	RN1/6PQ5101F
	R420	METALFILM RESISTOR	RN1/6PQ1003F
	R455	METALFILM RESISTOR	RN1/6PQ2002F
	OTHER RESISTORS		RD1/6PM□□□J
OTHERS			
	X301	CRYSTAL RESONATOR (14.22MHz)	VSS1053
	X401	CRYSTAL RESONATOR (17.734MHz)	VSS1019

Mark	No.	Description	Part No.
SCRT BOARD ASSEMBLY			
SEMICONDUCTOR			
	D181	DIODE	1SS254
RELAYS			
	RY181	RELAY	VSR1006
	RY182	RELAY	VSR-005
COILS			
	L106, 107	AXIAL INDUCTOR	LAU330J
CAPACITORS			
	C181, 182	ELECT. CAPACITOR	CEANP2R2M50
	C186, 187	AXIAL CAPACITOR	CKPUYB391K50
	C188	CERAMIC CAPACITOR	CKPUYY103N16
RESISTORS			
	ALL RESISTORS		RD1/6PM□□□J
OTHERS			
	JA102	RGB CONNECTOR	VKB1037
PALB BOARD ASSEMBLY			
SEMICONDUCTORS			
	IC101	LOGIC IC	TC74HC74AP
	IC102	LOGIC IC	TC74HC86AP
	IC103	LOGIC IC	BU4053B
	Q103-111	TRANSISTOR	2SC1740S
	Q112	TRANSISTOR	2SA933S
	Q113, 114	TRANSISTOR	2SC1740S
	D101	DIODE	1SS254
RELAYS			
	RY101	RELAY	VSR-005
	RY102	RELAY	VSR-006
COILS AND FILTERS			
	L102, 103	AXIAL INDUCTOR	LAU2R2J
	L104, 105	AXIAL INDUCTOR	LAU330J
	L111, 112	RADIAL INDUCTOR	LRA120K
	L113	AXIAL INDUCTOR	LAU330J
	F101	B.P.F(4.43MHz)	VTF1034
	F102	L.P.F(3.2MHz)	VTF1011
CAPACITORS			
	C101	ELECT. CAPACITOR	CEANP220M10
	C103-107	CERAMIC CAPACITOR	CKPUYY103N16
	C108, 109	AXIAL CAPACITOR	CKPUYB681K50
	C110	ELECT. CAPACITOR	CEANP220M10
	C111, 112	ELECT. CAPACITOR	CEAS470M10
	C113	ELECT. CAPACITOR	CEANP470M10
	C115	ELECT. CAPACITOR	CEAS470M10
	C116, 117	CERAMIC CAPACITOR	CKPUYY103N16
	C118	ELECT. CAPACITOR	CEAS470M10
	C119	ELECT. CAPACITOR	CEANP220M10
	C121	ELECT. CAPACITOR	CEAS470M10
	C128	CERAMIC CAPACITOR	CKPUYY103N16
	C129	ELECT. CAPACITOR	CEAS470M10
	C130	CERAMIC CAPACITOR	CKPUYY103N16
	C131	ELECT. CAPACITOR	CEAS470M10

Mark	No.	Description	Part No.
	C141	CERAMIC CAPACITOR	CKPUYY103N16
	C142, 143	ELECT. CAPACITOR	CEAS470M10
	C144	CERAMIC CAPACITOR	CKPUYY103N16
	C145	AXIAL CAPACITOR	CKPUYB101K50
	C146, 147	ELECT. CAPACITOR	CEANP2R2M50
	C148, 149	AXIAL CAPACITOR	CKPUYB391K50
	C152	AXIAL CERAMIC C.	CCPUCH100J50
	C153	CERAMIC CAPACITOR	CCCCH270J50
RESISTORS			
	VR101	SEMI-FIXED VR(470Ω)	VRTB6VS471
	VR102	SEMI-FIXED VR(4.7kΩ)	VRTB6VS472
	OTHER RESISTORS		RD1/6PM□□□J
OTHERS			
	DL101	64USEC DELAY LINE	DTF1033
	JA101	RGB CONNECTOR	VKB1037

PSWB ASSEMBLY

SEMICONDUCTOR			
	D301	LED INDICATOR(RED)	VEL1018
SWITCHES			
	S301-303	TACT SWITCH	RSG1030
CAPACITOR			
	C301	CERAMIC CAPACITOR	CKPUYF223Z25
OTHERS			
		REMOTE SENSOR	GP1U50X

FLKY ASSEMBLY

SEMICONDUCTORS			
	IC101	MODE CONTROL MCU	PDB069A
	IC102	RESET IC	PST529D
	Q101	TRANSISTOR	DTC124ES
	Q102	TRANSISTOR	DTC114ES
	Q103	TRANSISTOR	DTA144ES
	Q104	TRANSISTOR	DTA124ES
	Q105, 106	TRANSISTOR	2SA854S
	Q108, 109	TRANSISTOR	DTC124ES
	D101-109	DIODE	1SS252
	D110, 111	LED(YELLOW)	AY3665S
	D112, 113	LED INDICATOR(YELLOW)	VEL1003
SWITCHES			
	S101	DETECTOR SWITCH	VSH1008
	S102-128	TACT SWITCH	RSG1030
	S129	ROTARY ENCODER	VSD1007
CAPACITORS			
	C101	ELECTR. CAPACITOR	CEAL101M6R3
	C103	CERAMIC CAPACITOR	CKPUYB102K50
	C104	ELECTR. CAPACITOR	CEALNP100M35
	C105	CERAMIC CAPACITOR	CKPUYF223Z25
	C106	ELECTR. CAPACITOR	CEALNP100M35

Mark	No.	Description	Part No.
RESISTORS			
	R106	RESISTOR ARRAY(100k)	RA7S104J
	R108	RESISTOR ARRAY(4.7k)	RA4T472J
	OTHER RESISTORS		RD1/6PM□□□J
OTHERS			
		FL SPACER	VEB1140
	PL101, 102	PILOT LAMP WITH WIRE	VEL1016
	V101	FL TUBE	VAW1015
	X101	CERAMIC RESONATOR (5.50MHz)	VSS1055

HEPB ASSEMBLY

CAPACITORS			
	C201, 202	CERAMIC CAPACITOR	CKPUYB102K50
	C203	CERAMIC CAPACITOR	CGCYX473K25
RESISTOR			
	VR201	DOUBLE ROTARY VOULME (LEVEL)	VCS1015
OTHERS			
	JA201	HEADPHOTO JACK(PHONES)	RKN1002

SW2 BOARD ASSEMBLY

SWITCHES			
	S101-103	PUSH SWITCH	DSG1015

FG BOARD ASSEMBLY

SEMICONDUCTOR			
		PHOTO INTERRUPTER	GP1S51

POWER SUPPLY ASSEMBLY

SEMICONDUCTORS			
	IC202	TRANSISTOR ARRAY WITH FUSE	TH5P4
	IC211, 212	IC PROTECTOR	ICP-N15
	IC213, 214	IC PROTECTOR	ICP-N50
	IC215	IC PROTECTOR	ICP-N38
	Q201	TRANSISTOR	2SB1331
	Q202	DIGITAL TRANSISTOR	DTC114ES
	D201-203	DIODE	S3LA20
	D204	DIODE	ERB83-006
	D205	DIODE	D1NL20
	D206	ZENER DIODE	MTZ7.5B
	D207	ZENER DIODE	MTZ6.2B
	D209, 210	DIODE	D1NL20
	D213-215	DIODE	D1NL20
COIL			
	L203	FILTER(10MH)	VTL1008

OTHER PARTS ARE NOT SUPPLIED.

ASCB BOARD ASSEMBLY

SEMICONDUCTORS

Mark	No.	Description	Part No.
	IC101	MECHANISM CONT. MCU	PD0136A
	IC201	EFM DEMODULATION IC	CXD2500AQ
	IC202	DIGITAL FILTER, IC	SM5840AP
	IC204	OP-AMP, IC	M5218AP
	IC205	REGULATOR IC	NJM78L08A
	IC206	REGULATOR IC	NJM79L08A
	IC209	DA CONVERTER IC	SAA7350
	IC211	OP-AMP IC	NJM5532SD
	IC212	LOGIC IC	TC4S66F
	IC213	OP-AMP IC	NJM5532SD
	IC214	LOGIC IC	TC4S66F
	IC215	OP-AMP, IC	M5218AP
	IC700	BIPOLAR, IC	HA12127ANT
	IC701	LINEAR IC	NJM4558D
	IC801	PRE AMP IC	CXA1081S
	IC802	IC	BA15218N
	IC803	FTS IC	PM3003
	IC804	POWER OP AMP	LA6510L
	Q101, 102	DIGITAL TRANSISTOR	DTC124EK
	Q201	CHIP TRANSISTOR	2SC2412K
	Q202	DIGITAL TRANSISTOR	DTA124EK
	Q203	TRANSISTOR	2SC1740S
	Q204	TRANSISTOR	2SB1237X
	Q205	TRANSISTOR	2SA933S
	Q206	TRANSISTOR	DTC124ES
	Q207	CHIP TRANSISTOR	2SA1037K
	Q208	DIGITAL TRANSISTOR	DTC124EK
	Q209	TRANSISTOR	2SD2144S
	Q210	CHIP TRANSISTOR	2SA1037K
	Q211	DIGITAL TRANSISTOR	DTC124EK
	Q212	TRANSISTOR	2SD2144S
	Q213	DIGITAL TRANSISTOR	DTA124EK
	Q215	DIGITAL TRANSISTOR	DTC124EK
	Q216	DIGITAL TRANSISTOR	DTA124EK
	Q301	TRANSISTOR	DTC124ES
	Q302	TRANSISTOR	2SA933S
	Q305	DIGITAL TRANSISTOR	DTC124EK
	Q70, 707	CHIP TRANSISTOR	2SA1037K
	Q770	DIGITAL TRANSISTOR	DTA124EK
	Q771	DIGITAL TRANSISTOR	DTC124EK
	Q772	TRANSISTOR	2SA933S
	Q773, 774	TRANSISTOR	2SC1740S
	Q775	TRANSISTOR	2SA933S
	Q801	CHIP TRANSISTOR	2SC2412K
	Q802	CHIP TRANSISTOR	2SA1037K
	Q803-805	CHIP TRANSISTOR	2SC2412K
	Q807, 810	CHIP TRANSISTOR	2SC2412K
	Q811	DIGITAL TRANSISTOR	DTC124EK
	Q812	CHIP TRANSISTOR	2SA1037K
	Q814	CHIP TRANSISTOR	2SC2412K
	Q815	TRANSISTOR	2SD1762
	Q816	TRANSISTOR	2SB1185
	Q817	TRANSISTOR	2SD1762
	Q818	TRANSISTOR	2SB1185
	Q819	CHIP TRANSISTOR	2SA1037K
	Q821	N-FET	2SK184
	Q822	TRANSISTOR	2SD1858X
	Q823	DIGITAL TRANSISTOR	DTC124EK
	Q824	DIGITAL TRANSISTOR	DTA124EK
	Q825	CHIP TRANSISTOR	2SC2412K
	Q826	DIGITAL TRANSISTOR	DTA124EK
	Q827, 828	DIGITAL TRANSISTOR	DTC124EK
	Q829, 830	DIGITAL TRANSISTOR	DTA124EK
	Q831	CHIP TRANSISTOR	2SC2412K
	Q832	DIGITAL TRANSISTOR	DTC124EK
	Q900	CHIP TRANSISTOR	2SA1037K
	Q901	TRANSISTOR	2SA933S
	Q902	TRANSISTOR	2SC1740S
	Q903	TRANSISTOR	DTA124ES
	D101-103	DIODE	1SS254
	D201	VARI-CAP	FC54M
	D202	SCHOTTKY DIODE	ERA83-006
	D301	ZENER DIODE	MTZ5.1C
	D302	DIODE	1SS254
	D303	ZENER DIODE	MTZ5.1C
	D705, 708	DIODE	1SS254
	D770, 771	DIODE	1SS254
	D801	DIODE	1SS254
	D802, 803	ZENER DIODE	04AZ2.0-X
	D804-808	DIODE	1SS254
	D830-832	DIODE	1SS254
	D833	ZENER DIODE	MTZJ6.2C
	D834	ZENER DIODE	04AZ10-Y

COILS AND FILTERS

Mark	No.	Description	Part No.
	L101	AXIAL INDUCTOR	LAU56OJ
	L221	AXIAL INDUCTOR	LAU68OJ
	L301-303	AXIAL INDUCTOR	LAUR2M
	L801	AXIAL INDUCTOR	LAU51J
	L802	AXIAL INDUCTOR	LAU81J
	L803	AXIAL INDUCTOR	LAU51J
	L804	AXIAL INDUCTOR	LAU10OJ
	F701	B.P.F(684kHz)	VTF10035
	F702	B.P.F(1066kHz)	VTF10036

CAPACITORS

Mark	No.	Description	Part No.
	C101	ELECT. CAPACITOR	CEAS101M10
	C102	CERAMIC CAPACITOR	CKSQYF473Z25
	C103	CHIP CAPACITOR	CKSQYF103Z50
	C104, 105	CHIP CERAMIC C.	CCSQCH300J50
	C106, 120	CHIP CAPACITOR	CKSQYF103Z50
	C121	CHIP CAPACITOR	CKSQYF103Z50
	C122	CERAMIC CAPACITOR	CKSQYF103Z50
	C123, 124	CHIP CAPACITOR	CCSQCH101J50
	C201	CERAMIC CAPACITOR	CKSQYF473Z25
	C202	CERAMIC CAPACITOR	CKSQYB152K50
	C203	ELECT. CAPACITOR	CEAS221M6R3
	C204	CERAMIC CAPACITOR	CKSQYF104Z25
	C205	ELECT. CAPACITOR	CEANPR47M50
	C206	CHIP CAPACITOR	CKSQYF103Z50
	C208	ELECT. CAPACITOR	CEAS221M6R3

Mark	No.	Description	Part No.
	C209	CERAMIC CAPACITOR	CKSQYF104Z25
	C210	CERAMIC CAPACITOR	CKSQYF473Z25
	C211	ELECT. CAPACITOR	CEAS221M6R3
	C212	CERAMIC CAPACITOR	CKSQYF104Z25
	C213	CHIP CAPACITOR	CKSQYF103Z50
	C214	ELECT. CAPACITOR	CEAS470M10
	C215	CERAMIC CAPACITOR	CKSQYF104Z25
	C216	ELECT. CAPACITOR	CEAS221M6R3
	C217	CERAMIC CAPACITOR	CKSQYF104Z25
	C218	CHIP CAPACITOR	CKSQYF103Z50
	C225	ELECT. CAPACITOR	CEANP010M50
	C226	AUDIO FILM CAPACITOR	CFTXA223J50
	C227, 228	ELECT. CAPACITOR	CEAS220M25
	C229	ELECT. CAPACITOR	CEAS101M10
	C230	ELECT. CAPACITOR	CEAS470M10
	C231	CHIP CAPACITOR	CKSQYF103Z50
	C232	CHIP CERAMIC C.	CCSQCH220J50
	C234	CHIP CAPACITOR	CKSQYF103Z50
	C241	ELECT. CAPACITOR	CEAS470M50
	C242, 244	ELECT. CAPACITOR	CEAS470M10
	C245	AXIAL CAPACITOR	CKPUYB101K50
	C246, 247	ELECT. CAPACITOR	CEAS470M10
	C248	ELECT. CAPACITOR	CEAS101M10
	C249, 251	ELECT. CAPACITOR	CEAS470M10
	C252	CERAMIC CAPACITOR	CKPUYF223Z25
	C253	CERAMIC CAPACITOR	CCCCH390J50
	C254	CERAMIC CAPACITOR	CCCSL471J50
	C255	CERAMIC CAPACITOR	CCCCH390J50
	C256	CERAMIC CAPACITOR	CCCSL471J50
	C257	ELECT. CAPACITOR	CEAS470M10
	C258	CERAMIC CAPACITOR	CKSQYF473Z25
	C259	ELECT. CAPACITOR	CEAS470M10
	C260	CERAMIC CAPACITOR	CKSQYF473Z25
	C261	ELECT. CAPACITOR	CEAS470M10
	C262	CERAMIC CAPACITOR	CKSQYF473Z25
	C263	ELECT. CAPACITOR	CEAS470M10
	C264	CERAMIC CAPACITOR	CKSQYF473Z25
	C265	ELECT. CAPACITOR	CEAS470M10
	C266	CERAMIC CAPACITOR	CKSQYF473Z25
	C267	ELECT. CAPACITOR	CEAS470M10
	C268	CERAMIC CAPACITOR	CKSQYF473Z25
	C269	CERAMIC CAPACITOR	CCCCH390J50
	C270	CERAMIC CAPACITOR	CCCSL471J50
	C271	CERAMIC CAPACITOR	CCCCH390J50
	C272	CERAMIC CAPACITOR	CCCSL471J50
	C273	ELECT. CAPACITOR	CEAS470M10
	C274	CERAMIC CAPACITOR	CKPUYF223Z25
	C275	ELECT. CAPACITOR	CEAS470M10
	C276	CERAMIC CAPACITOR	CKSQYF473Z25
	C279	MYLAR FILM CAPACITOR	CQMA222J50
	C280	CERAMIC CAPACITOR	CCCSL331J50
	C281, 283	ELECT. CAPACITOR	CEAS101M25
	C285	ELECT. CAPACITOR	CEAS470M25
	C286	CERAMIC CAPACITOR	CKPUYB331K50
	C288	CERAMIC CAPACITOR	CKSQYF104Z25

Mark	No.	Description	Part No.
	C293, 294	CERAMIC CAPACITOR	CCCCH221J50
	C329	MYLAR FILM CAPACITOR	CQMA222J50
	C330	CERAMIC CAPACITOR	CCCSL331J50
	C331, 333	ELECT. CAPACITOR	CEAS101M25
	C335	ELECT. CAPACITOR	CEAS470M25
	C336	CERAMIC CAPACITOR	CKPUYB331K50
	C338	CERAMIC CAPACITOR	CKSQYF104Z25
	C341, 342	ELECT. CAPACITOR	CEAS470M10
	C344, 345	CERAMIC CAPACITOR	CKSQYF104Z25
	C346	CERAMIC CAPACITOR	CKPUYY103N16
	C350	ELECT. CAPACITOR	CEAS101M25
	C351	ELECT. CAPACITOR	CEANP3R3M16
	C352	CERAMIC CAPACITOR	CKSQYF473Z25
	C707, 708	CHIP CAPACITOR	CKSQYF103Z50
	C709	ELECT. CAPACITOR	CEAS220M25
	C710	AUDIO FILM CAPACITOR	CFTXA103J50
	C711	CHIP CAPACITOR	CKSQYB102K50
	C712	ELECT. CAPACITOR	CEAS101M10
	C713	ELECT. CAPACITOR	CEAS470M10
	C714	CHIP CAPACITOR	CCSQSL561J50
	C715	ELECT. CAPACITOR	CEAS102M6R3
	C716	ELECT. CAPACITOR	CEANP220M10
	C717	CHIP CAPACITOR	CCSQCH360J50
	C719	CHIP CAPACITOR	CKSQYB102K50
	C720	AUDIO FILM CAPACITOR	CFTXA472J50
	C721	AUDIO FILM CAPACITOR	CFTXA152J50
	C722	CHIP CAPACITOR	CCSQCH101J50
	C723	ELECT. CAPACITOR	CEJANP100M16
	C724	CHIP CERAMIC C.	CCSQCH221J50
	C725	ELECT. CAPACITOR	CEJA100M16
	C726	AUDIO FILM CAPACITOR	CFTXA822J50
	C727	AUDIO FILM CAPACITOR	CFTXA473J50
	C728	ELECT. CAPACITOR	CEASR47M50
	C729	ELECT. CAPACITOR	CEAS101M10
	C730	ELECT. CAPACITOR	CEAS4R7M50
	C731	CHIP CAPACITOR	CKSQYB102K50
	C732	ELECT. CAPACITOR	CEAS101M10
	C733	CHIP CAPACITOR	CKSQYB102K50
	C744	ELECT. CAPACITOR	CEAS220M25
	C745	ELECT. CAPACITOR	CEANP100M16
	C746	ELECT. CAPACITOR	CEAS101M10
	C747	ELECT. CAPACITOR	CEAS470M10
	C748	CHIP CAPACITOR	CCSQSL561J50
	C750	CHIP CERAMIC C.	CCSQCH620J50
	C752	ELECT. CAPACITOR	CEANP220M10
	C753	CHIP CAPACITOR	CKSQYB102K50
	C754	AUDIO FILM CAPACITOR	CFTXA104J50
	C755	ELECT. CAPACITOR	CEANP220M10
	C756	CHIP CAPACITOR	CKSQYB102K50
	C757	ELECT. CAPACITOR	CEAS220M25
	C758	AUDIO FILM CAPACITOR	CFTXA472J50
	C759	AUDIO FILM CAPACITOR	CFTXA152J50
	C760	CHIP CAPACITOR	CCSQCH101J50
	C761	CHIP CERAMIC C.	CCSQCH221J50
	C762	ELECT. CAPACITOR	CEAS100M50

Mark	No.	Description	Part No.
	C763	AUDIO FILM CAPACITOR	CFTXA822J50
	C764	AUDIO FILM CAPACITOR	CFTXA473J50
	C765	ELECT. CAPACITOR	CEAS101M10
	C769	CHIP CAPACITOR	CKSQYF103Z50
	C770	MYLAR FILM CAPACITOR	CQMA103J50
	C771-773	CHIP CAPACITOR	CKSQYF103Z50
	C774, 775	MYLAR FILM CAPACITOR	CQMA272J50
	C778, 779	CHIP CAPACITOR	CKSQYF103Z50
	C803	CHIP CAPACITOR	CKSQYF103Z50
	C804	CHIP CAPACITOR	CCSQCH470J50
	C805	CHIP CAPACITOR	CKSQYF103Z50
	C807	ELECT. CAPACITOR	CEANP010M50
	C808	ELECT. CAPACITOR	CEAS010M50
	C809	CHIP CAPACITOR	CCSQCH680J50
	C810, 811	CHIP CAPACITOR	CCSQCH101J50
	C812	CHIP CAPACITOR	CCSQCH270J50
	C813	CHIP CAPACITOR	CCSQCH680J50
	C814	ELECT. CAPACITOR	CEAS010M50
	C815	CHIP CAPACITOR	CCSQCH270J50
	C816	ELECT. CAPACITOR	CEANP010M50
	C817	CHIP CAPACITOR	CCSQCH050C50
	C818	CHIP CAPACITOR	CCSQSL471J50
	C819	CHIP CAPACITOR	CCSQSL561J50
	C820, 821	CERAMIC CAPACITOR	CKSQYF473Z25
	C822	CHIP CAPACITOR	CCSQCH101J50
	C823	ELECT. CAPACITOR	CEAS470M10
	C824	AUDIO FILM CAPACITOR	CFTXA103J50
	C825	MYLAR FILM CAPACITOR	CQMA682J50
	C826	CHIP CAPACITOR	CCSQCH470J50
	C827	AUDIO FILM CAPACITOR	CFTXA333J50
	C835, 836	ELECT. CAPACITOR	CEAS220M25
	C837	CHIP CAPACITOR	CCSQSL331J50
	C838	ELECTR. CAPACITOR	CEALNP010M50
	C839	MYLAR FILM CAPACITOR	CQMA102J50
	C840	ELECT. CAPACITOR	CEAS010M50
	C841	ELECT. CAPACITOR	CEAS220M25
	C842	ELECT. CAPACITOR	CEANP100M16
	C843	AUDIO FILM CAPACITOR	CFTXA223J50
	C844	CHIP CAPACITOR	CCSQSL331J50
	C845	ELECT. CAPACITOR	CEANP010M50
	C846	CHIP CAPACITOR	CCSQSL681J50
	C847	AUDIO FILM CAPACITOR	CFTXA683J50
	C848	AUDIO FILM CAPACITOR	CFTXA473J50
	C849	AUDIO FILM CAPACITOR	CFTXA103J50
	C850	ELECT. CAPACITOR	CEANP2R2M50
	C851	ELECT. CAPACITOR	CEANP010M50
	C853	MYLAR FILM CAPACITOR	CQMA332J50
	C854	CERAMIC CAPACITOR	CKSQYB821K50
	C855	ELECT. CAPACITOR	CEAS100M50
	C856	CHIP CAPACITOR	CKSQYF103Z50
	C857	ELECT. CAPACITOR	CEAS470M10
	C858	CERAMIC CAPACITOR	CKPUYY103N16
	C859	ELECT. CAPACITOR	CEAS101M10
	C860, 861	CHIP CAPACITOR	CKSQYF103Z50
	C862	ELECT. CAPACITOR	CEAS100M50

Mark	No.	Description	Part No.
	C863	ELECT. CAPACITOR	CEANP100M16
	C864	ELECT. CAPACITOR	CEAS100M50
	C865	AUDIO FILM CAPACITOR	CFTXA103J50
	C866	ELECT. CAPACITOR	CEANPR47M50
	C867	AUDIO FILM CAPACITOR	CFTXA333J50
	C868	AUDIO FILM CAPACITOR	CFTXA683J50
	C869	AUDIO FILM CAPACITOR	CFTXA473J50
	C870	ELECT. CAPACITOR	CEANP470M10
	C871	CERAMIC CAPACITOR	CCCSL221J50
	C873	AUDIO FILM CAPACITOR	CFTXA103J50
	C874	AUDIO FILM CAPACITOR	CFTXA104J50
	C875	CHIP CAPACITOR	CKSQYB102K50
	C876, 877	ELECTROLYTIC CAPACITOR	CEAL220M35
	C878	AUDIO FILM CAPACITOR	CFTXA473J50
	C879	CERAMIC CAPACITOR	CKSQYF473Z25
	C880	AUDIO FILM CAPACITOR	CFTXA473J50
	C881, 882	CERAMIC CAPACITOR	CKSQYF104Z25
	C883	AUDIO FILM CAPACITOR	CFTXA823J50
	C884	CHIP CAPACITOR	CCSQCH470J50
	C899	CHIP CAPACITOR	CCSQCH050C50
	C900	AUDIO FILM CAPACITOR	CFTXA224J50
	C910	AUDIO FILM CAPACITOR	CFTXA683J50
	C929	CHIP CAPACITOR	CCSQCH470J50
	C930	ELECT. CAPACITOR	CEAS220M25
	C931	ELECT. CAPACITOR	CEAS220M25
	C932	ELECT. CAPACITOR	CEAS101M10
	C933, 934	CHIP CAPACITOR	CKSQYF103Z50
	C935	(1F/5.5)	VCH0039
	C936	ELECT. CAPACITOR	CEAS101M10
	C937	ELECT. CAPACITOR	CEAS470M10
	C938	ELECT. CAPACITOR	CEAS220M25
	C939	ELECT. CAPACITOR	CEAS101M10
	C942	CHIP CAPACITOR	CCSQCH270J50
	C943	CHIP CAPACITOR	CKSQYF103Z50
	C944	ELECT. CAPACITOR	CEAS221M6R3
	C945	ELECT. CAPACITOR	CEAS101M10

RESISTORS

	VR601	SEMI-FIXED VR(22kΩ)	VRTB6VS222
	VR602, 603	SEMI-FIXED VR(10kΩ)	VRTB6VS103
	VR604-606	SEMI-FIXED VR(4.7kΩ)	VRTB6VS472
	VR608	SEMI-FIXED VR(33kΩ)	VRTB6VS333
	VR609	SEMI-FIXED VR(4.7kΩ)	VRTB6VS472
	VR610	SEMI-FIXED VR(47kΩ)	VRTB6VS473
	R133, 134	CARBON FILM RESISTOR	RD1/6PM221J
	R150, 151	CARBON FILM RESISTOR	RD1/6PM221J
	R214, 215	CARBON FILM RESISTOR	RD1/6PM101J
	R220, 221	CARBON FILM RESISTOR	RD1/6PM101J
	R251, 252	CARBON FILM RESISTOR	RD1/6PM303J
	R254, 255	CARBON FILM RESISTOR	RD1/6PM303J
	R256, 258	CARBON FILM RESISTOR	RD1/6PM103J
	R260-267	CARBON FILM RESISTOR	RD1/6PM□□□J
	R276, 278	CARBON FILM RESISTOR	RD1/6PM103J

Mark	No.	Description	Part No.
	R280-287	CARBON FILM RESISTOR	RD1/6PM□□□J
	R290	FUSE RESISTOR(10Ω)	DCN1002
	R293, 301	CARBON FILM RESISTOR	RD1/6PM□□□J
	R302	CARBON FILM RESISTOR	RD1/6PM822J
	R303	METAL OXIDE RESISTOR	RS2LMF560J
	R304	CARBON FILM RESISTOR	RD1/6PM221J
	R310-313	CARBON FILM RESISTOR	RD1/6PM123J
	R326, 328	CARBON FILM RESISTOR	RD1/6PM472J
	R340, 344	CARBON FILM RESISTOR	RD1/6PM100J
	R345, 346	CARBON FILM RESISTOR	RD1/6PM390J
	R351, 352	CARBON FILM RESISTOR	RD1/6PM221J
	R390, 391	CARBON FILM RESISTOR	RD1/6PM□□□J
	R393, 394	CARBON FILM RESISTOR	RD1/6PM□□□J
	R719, 720	CARBON FILM RESISTOR	RD1/6PM□□□J
	R781-794	CARBON FILM RESISTOR	RD1/6PM□□□J
	R850, 862	METAL OXIDE RESISTOR	RS1LMF3R3J
	R873, 877	CARBON FILM RESISTOR	RD1/6PM□□□J
	R910-913	CARBON FILM RESISTOR	RD1/6PM□□□J
	R923, 944	CARBON FILM RESISTOR	RD1/6PM□□□J
	R946-949	CARBON FILM RESISTOR	RD1/6PM□□□J
	R951, 981	CARBON FILM RESISTOR	RD1/6PM□□□J
	R986, 987	CARBON FILM RESISTOR	RD1/6PM□□□J
	OTHER RESISTORS		RS1/10S□□□J

OTHERS

CN113	22P TOP CONNECTOR	VKN1137
CN201	5P TOP POST(NH)	B5P-SHF-1AA
JA1	MINI JACK (CD•DECK SYNCHRO)	RKN1014
JA2	2P MINI JACK (CONTROL(IN, OUT))	VKN-183
JA3	OPTICAL DIGITAL MODULE (DIGITAL OUT OPTICAL)	GP1F32T
JA4	3P PIN JACK (VIDEO OUT, AUDIO OUT(L, R))	VKB1038
X101	CERAMIC RESONATOR(9.00MHz)	VSS1040
X201	CRYSTAL RESONATOR(16MHz)	VSS1051

CNNB ASSEMBLY

SWITCH

S201	LEVER SWITCH	VSK1017

RESISTORS

R101	CARBON FILM RESISTOR	RD1/6PM272J
R102	CARBON FILM RESISTOR	RD1/6PM221J

OTHERS

CN203	22P SIDE CONNECTOR	VKN1138
CN204	25P SIDE CONNECTOR	VKN1139

Mark	No.	Description	Part No.

HEAD ASSEMBLY

CAPACITORS

C3	CHIP CAPACITOR	CKSQYF223Z50
C4	CHIP CAPACITOR	CKSQYF104Z25
C5	CHIP CAPACITOR	CKSYF105Z16
C6	CHIP CAPACITOR	CKSQYF104Z25

RESISTOR

VR1	SEMI-FIXED VR(10kΩ)	VCP1025

6. DISASSEMBLY

1. Disc Tray

①Turn the power switch on and press the OPEN button then pull the tray out from the player.
②Remove two tray stopper screws Ⓐ .
③Pull out the tray toward the front.

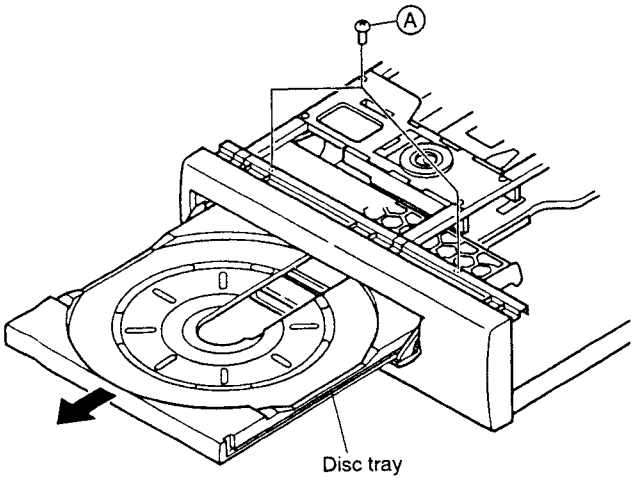


Fig. 1

Note 1: How to open the tray by hand

① Remove two screws Ⓐ for tray stopper. (Fig. 1)
② Remove the front panel. (by loosening three screws at the top side and a fixing screw of the earth lead.)
③ Remove two fixing screws from the slide cam on the left side. (Fig.2)
④ Lift up the front side of the disc tray to enable the gear pulley to be turned by hand. (Fig.3)
⑤ Turn the gear pulley (Fig.3) counterclockwise by hand.
⑥ After the disc tray is lifted up and moved toward you, tighten two screws Ⓑ which were removed in step 3.
⑦ Pull out the disc tray toward you by hand.

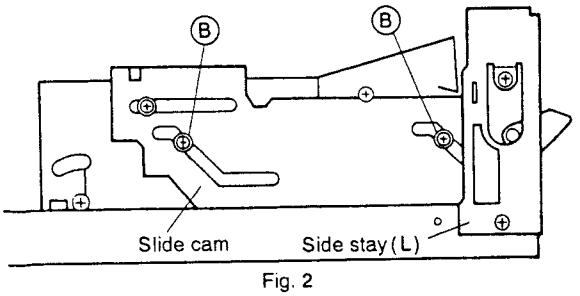


Fig. 2

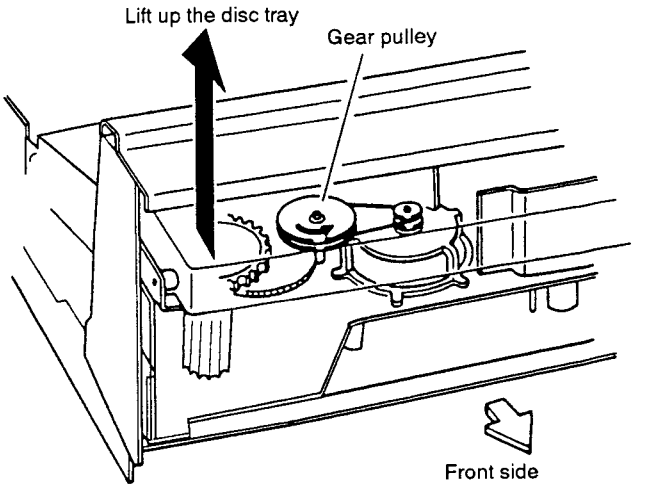


Fig. 3

2. Clamper Assembly

①Remove four screws Ⓐ to remove the clamper assembly.

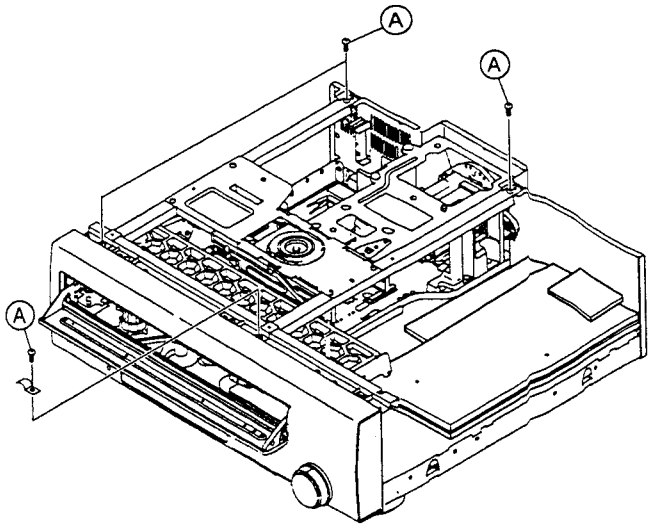


Fig. 4

3. Carriage Assembly

①Slide the carriage assembly to the shaft of the turn plate by hand.

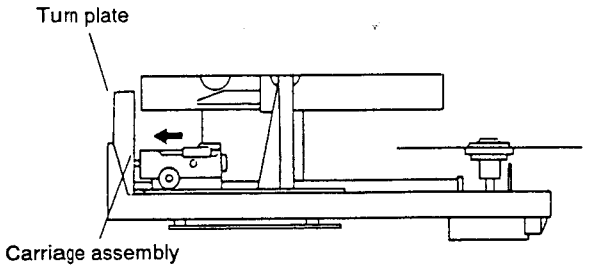


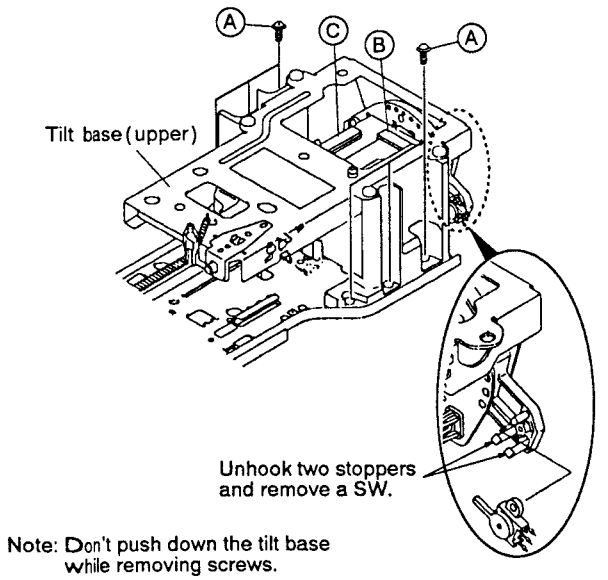
Fig. 5

②Disconnect two connectors Ⓑ and Ⓒ from the CNNB assembly to remove the flexible cable (Fig. 6).

③Remove six screws Ⓐ from the post(L) and (R) to remove the tilt base.

④Pull out the carriage assembly by setting the tilt base (upper) toward the upper (Fig. 7).

⑤Unhook two stoppers and remove a SW.



Note: Don't push down the tilt base while removing screws.

Fig.6

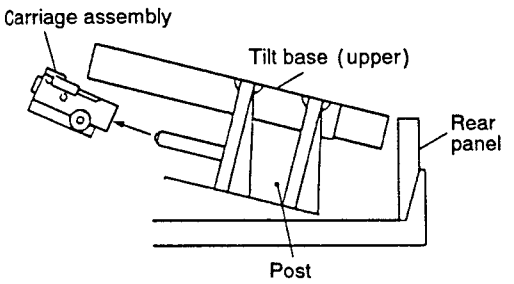


Fig. 7

● How to replace the flexible cable

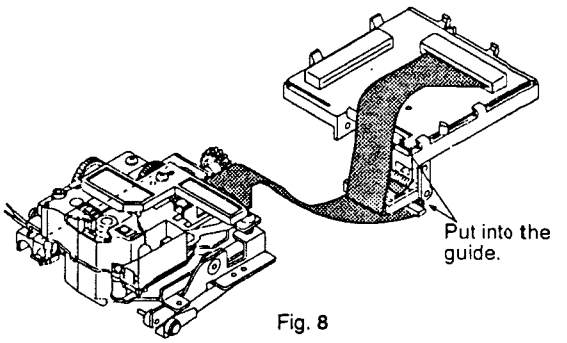


Fig. 8

4. AUDIO Assembly

①Open the tray.

②Remove one screw Ⓐ, two screws Ⓑ, three screws Ⓒ and one screw Ⓓ.

③Separate the output terminal of the AUDIO Assembly from the rear panel. (Arrow ①)

④Slide the AUDIO Assembly by lifting it up. (Arrow ②)

⑤Raise the AUDIO Aseembly so that it does not touch the tray guide assembly. (Arrow ③)

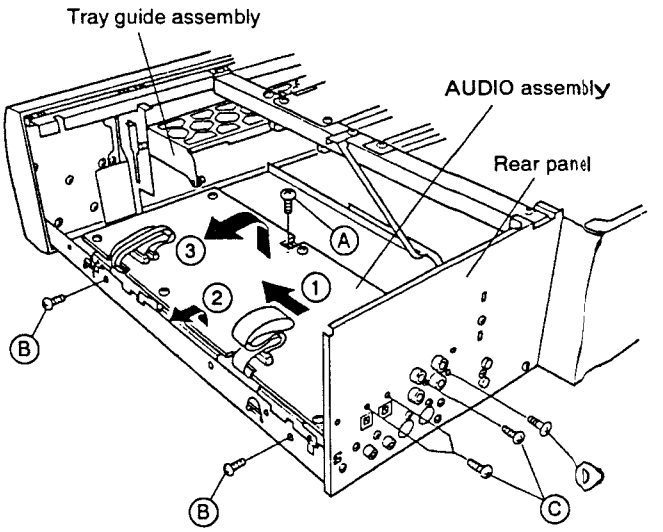


Fig. 9

5. How to install the cam gear

①Grease the cam gear. (Fig.10)

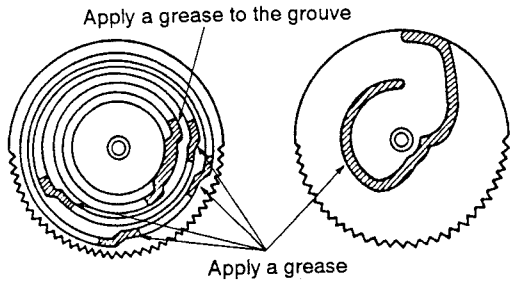


Fig. 10

②Move switch levers Ⓐ and Ⓑ (Fig.11) in the direction of arrow① (SW is ON), switch leverⒸ in the direction of arrow ② and lever Ⓓ in the direction of arrow ③

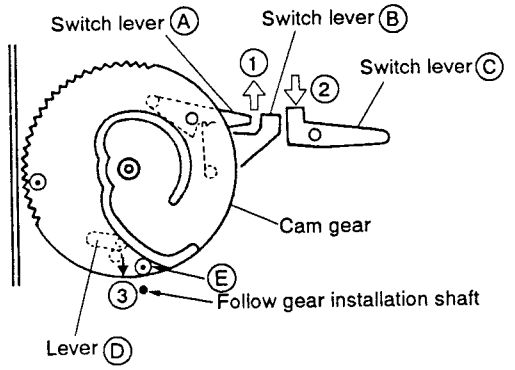


Fig. 11

③Install the cam gear in the position where projection Ⓔ of the cam gear comes to the front of the follow gear installation shaft..

6. How to install the spring slanting cam

①Grease the spring slanting cam. (Fig. 12)

②Install the cam gear when the cam gear comes to the position as shown in Fig. 11.

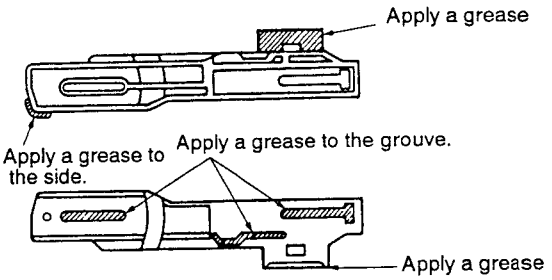


Fig. 12

③Install a nylon washer and an E ring, and hang the cam spring on the hook. (Fig.13)

Note: The cam gear and spring slanting cam as shown in Fig.13 are positioned when installing the slide cam.

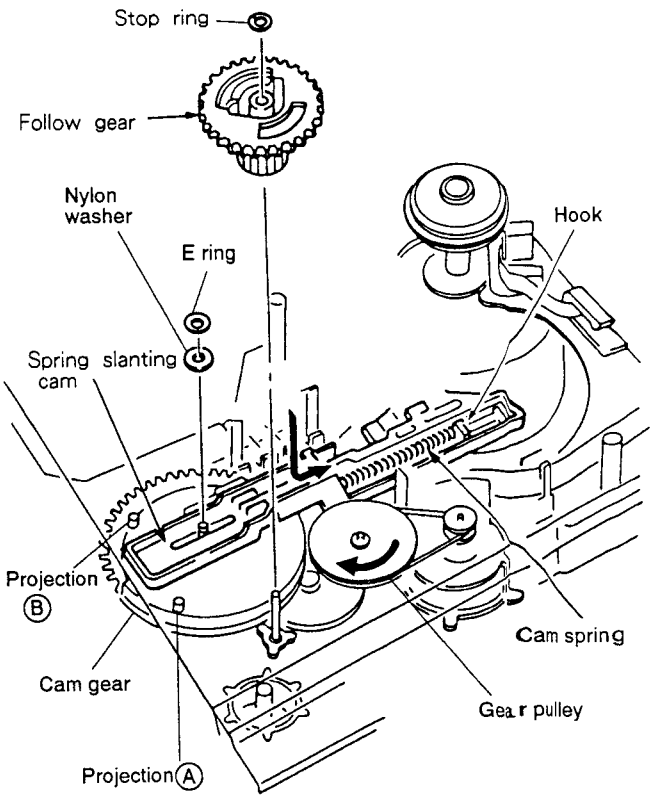


Fig. 13

7. How to install the follow gear

①Grease the follow gear. (Fig.14)

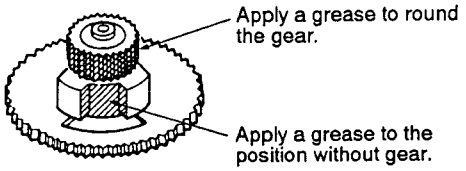


Fig. 14

②Install the follow gear where the portion of chipped tooth of the follow gear come to the position as shown in Fig. 15.

③Install the stop ring. (Fig.13)

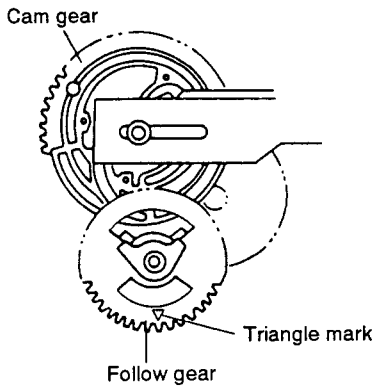


Fig. 15

8. How to install the roller plate assembly

①Mount the roller plate assembly in the position where the tooth with a triangle mark of the follow gear meshes with the gap of the gear of the roller plate assembly. (Fig.16)

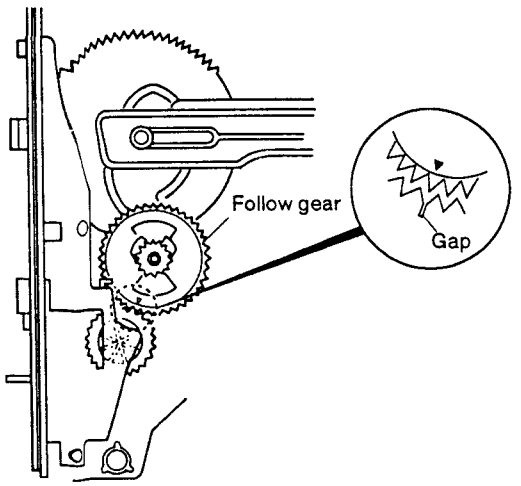


Fig. 16

9. Caution for installing the tray guide assembly

①Install the tray guide assembly in the position where projection Ⓐ of the tray guide assembly fits into the long hole Ⓑ of the chassis assembly and the long hole Ⓒ of the roller plate assembly. (Fig.17)

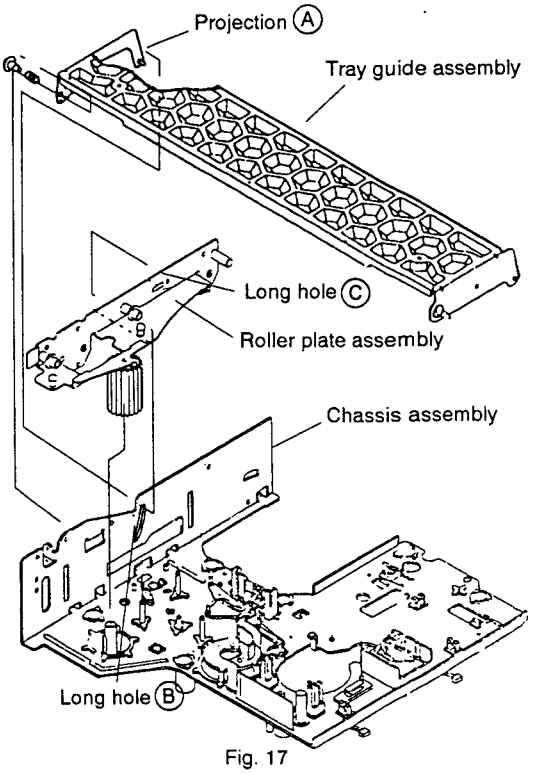


Fig. 17

10. How to install the slide cam

①Set the position of projection Ⓐ and Ⓑ of the cam gear by turning the gear pulley clockwise by hand as shown in Fig.13.

②Tighten four screws Ⓒ to install the slide cam. (Fig.18)

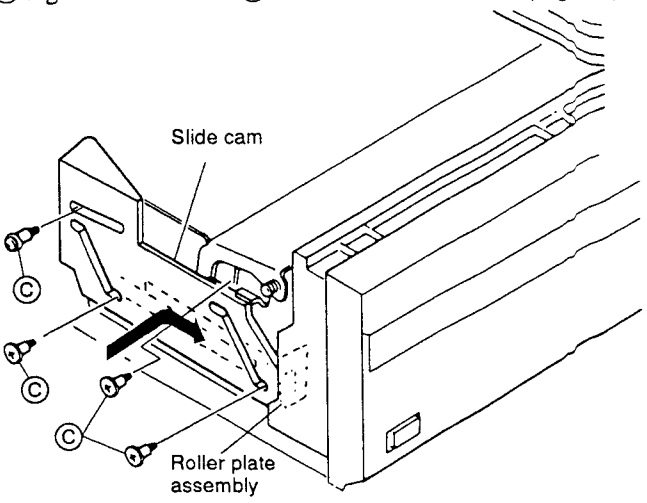


Fig. 18

11. How to install the disc tray

① Adjust the gear positions in the loading mechanism for the disc tray open status, as ⓐ and ⓑ mentioned below.

ⓐ : The position where the cam gear turns counter-clockwise and stops when the OPEN/CLOSE button is pressed.

ⓑ : The position where the cam gear stops when the pulley is continuously turned by hand.

② The top of one of the gear teeth of the roller plate assembly has been chipped off. Finely adjust the position of this chipped tooth by turning the gear counterclockwise so that the tooth comes halfway on the roller plate line.(Fig.19)

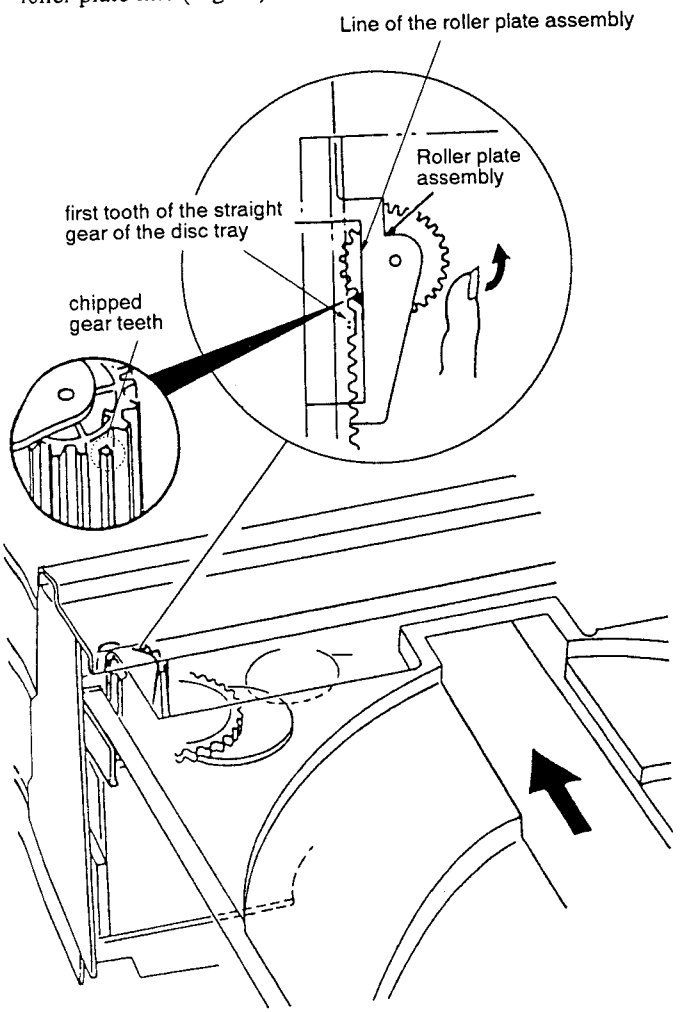


Fig. 19

③ Insert so that the first tooth of the straight gear on the rear of the disc tray meshes with the chipped gear teeth of the roller plate assembly.

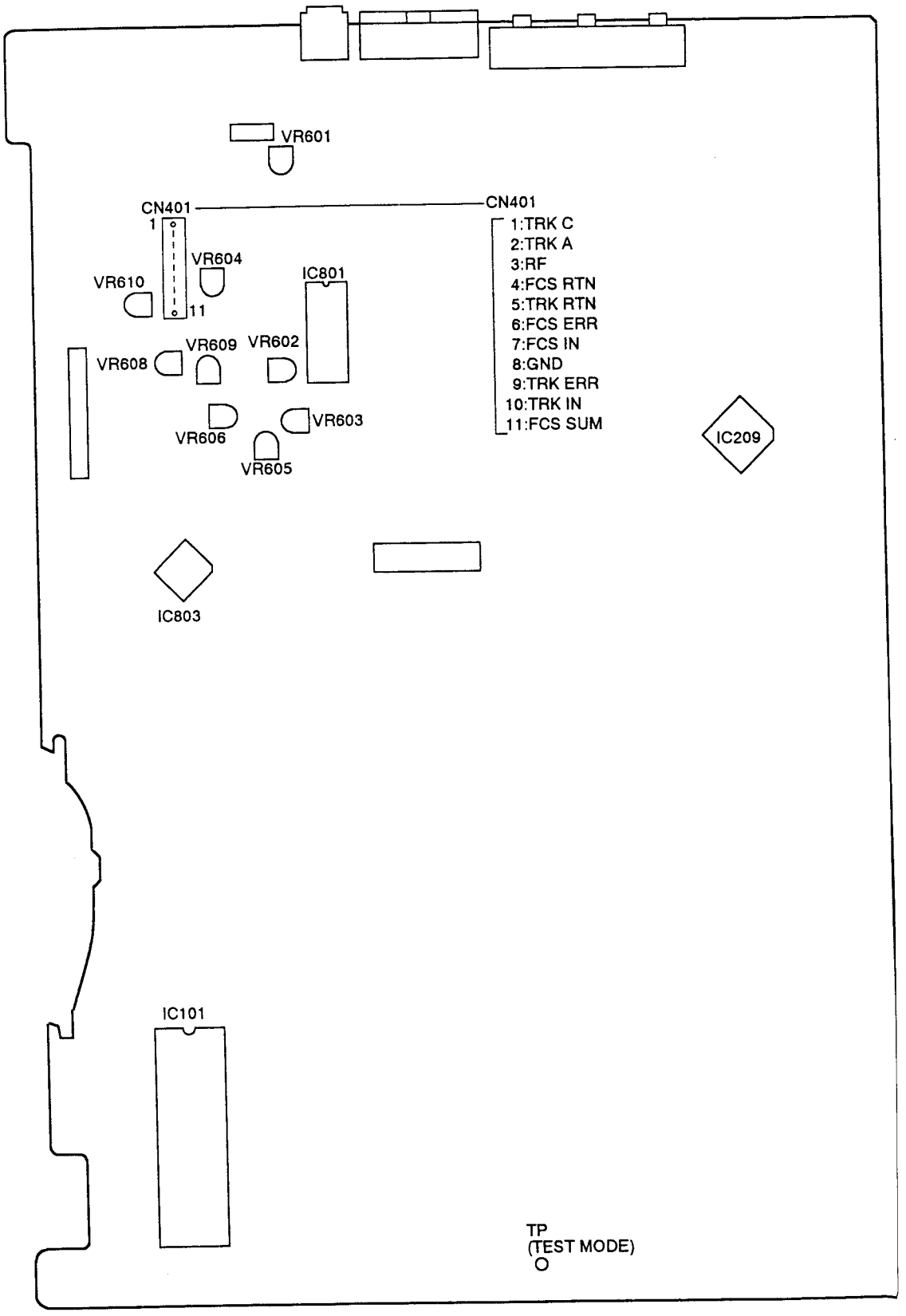
④ Tighten two screws Ⓐ for disc tray stopper. (Fig.1)

7. ADJUSTMENTS

7.1 ASCB BOARD ASSEMBLY ADJUSTMENT ABSTRACT

	ADJUSTMENT	Adjusting Point	Measurement equipment Connecting Point	Player Condition	Adjusting Specification
1	Tilt Servo Gain Adjustment	VR608	None	• Power OFF	• Making of Tilt gain VR position Red : Turn to right Clear : Center Blue : Turn to left
2	Coarse Grating and Tracking Balance Adjustment	Grating / VR602	CN401-9 (TRKG ERR)	• Test mode #6,500 TRKG servo open	• Null point → TRK error MAX • Adjust VR602 so that the TRK error waveform amplitude's positive and negative level become equal.
3	Slider Shaft Horizontal Adjustment	Player SKIP key	CN401-4 (FOCS RTN)	• #9,800 , #23,800 TRKG servo open • TILT servo OFF	• Adjust so that the FOCS RTN voltage becomes 0 ± 20mV.
4	Pickup Inclination Adjustment	Pickup assembly TAN / TRK inclination adjustment screw	CN401-3 (RF)	• Test mode , #2,251 still TRKG servo loop close • TILT servo OFF	• RF waveform's amplitude MAX (Pickup TAN / TRK adjustment screw) • Minimized crosstalk.
5	TRKG Error Best / Crosstalk Best Adjustment	VR605 (TE MAX) VR606 (CT BEST)	CN401-3 (RF) CN401-9 (TRKG ERR)	• Test mode TRKG servo close /open • TILT servo OFF	• TRK error MAX (VR605) RF MAX (VR606)
6	FOCS SUM Level Adjustment	VR609	CN401-11 (FOCS SUM)	• Play mode	• Adjust VR609 so that the voltage becomes 1.8V DC.
7	Tilt Sensor Inclination/ Tilt Balance Adjustment	Tilt senser inclination adjustment screw VR610(TILT BAL.)	TV monitor Test mode screen	• Test mode #16,200 / #475 still TRKG servo loop close • TILT servo OFF	• Set VR610 to the center. • Adjust the adjustment screw so that the tilt error display code is 6, 7, or 8. • Adjust VR610 so that the tilt error display becomes 7.
8	Spindle Motor Centering Check	Check the lissajous figure.	CH1:CN401-9(TRKG ERR) CH2:CN401-1, 2(TRKG A+C)	• Test mode #100 and #23,800 TRKG servo open	• Check that the amplitude of the lissajous figure of the frame #100 is the same as that of the frame #23,800.
9	Spindle Motor Centering Adjustment	Spindle motor centering adjustment screw	CH1:CN401-9(TRKG ERR) CH2:CN401-1, 2(TRKG A+C)	• Test mode #100 and #23,800 TRKG servo open / close	• Adjust the centering adjustment screw so that the lissajous figures of #100 and #23,800 are the same.
10	Fine Grating Adjustment	Grating	CH1:CN401-9(TRKG ERR) CH2:CN401-1, 2(TRK A+C)	• Test mode #6,500 still TRKG servo open	• Minimize the Y direction of the lissajous figure. • Level of the X direction of the lissajous figure are equal.
11	RF Gain Adjustment	VR601	CH1:CN401-3 (RF)	• Test mode #15,000 still TRKG servo close	• Adjust VR601 so that the RF level becomes 300mV ± 50mV.
12	FOCS Servo Loop Gain Adjustment	VR604	CH1:CN401-6 (FOCS ERR) CH2:CN401-7 (FOCS IN)	• Test mode #15,000 still TRKG servo close	• Adjust VR604 so that the lissajous figure is symmetrical with respect to the X and Y axes.
13	TRKG Servo Loop Gain Adjustment	VR603	CH1:CN401-9 (TRKG ERR) CH2:CN401-10 (TRKG IN)	• Test mode #15,000 still TRKG servo close	• Adjust VR603 so that the lissajous figure is symmetrical with respect to the X and Y axes.
14	Centering Adjustment for Side B Play	Centering adjustment hole for side B	CH1:CN401-9(TRKG ERR) CH2:CN401-1, 2(TRKG A+C)	• Test mode #100 play TRKG servo open / close	• Adjust so that the X-axis amplitude of the lissajous figure becomes maximum.
15	Pickup Tangential Direction Angle Adjustment for Side B Play	Pickup tangential direction angle adjustment screw	TV monotor	• Test mode #475 still	• Adjust so that the crosstalk is minimized.
16	Fine Centering Adjustment for Side B Play	Centering adjustment hole for side B	CH1:CN401-9(TRKG ERR) CH2:CN401-1, 2(TRKG A+C)	• Test mode #100 play TRKG servo open	• Adjust so that the X-axis amplitude of the lissajous figure becomes maximum.

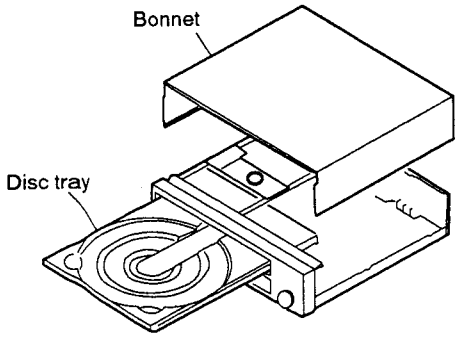
7.2 ADJUSTMENT POINTS OF THE ASCB BOARD ASSEMBLY



7.3 TEST MODE

7.3.1 TEST MODE

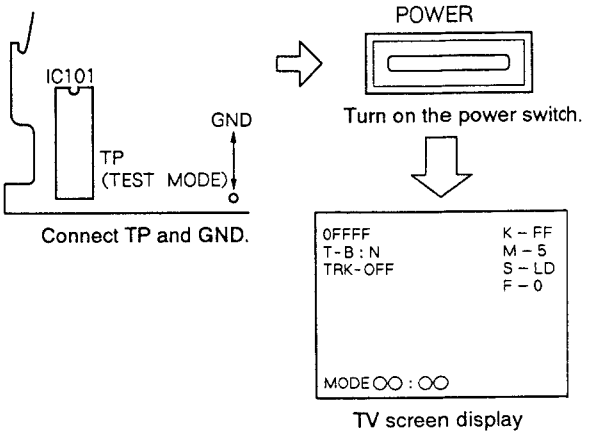
The player has a test mode function which allows the servicer to check the player's status on the TV screen by executing the respective key operation.
Also, since the TRK servo opens and closes easily, the test mode is especially useful for mechanical adjustments.



7.3.2 TEST MODE INITIATION

[Procedure]

1. Remove the bonnet and disc tray.
2. Connect the TP(TEST MODE) in the ASCB board assembly to GND.
3. Turn on the power switch.
4. Disconnect the TP(TEST MODE) from GND.



7.3.3 TEST MODE CANCELLATION

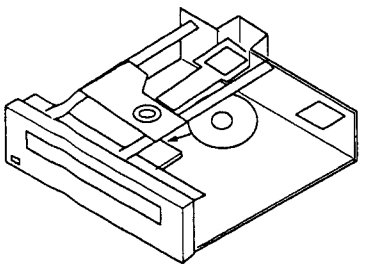
Turn off the power switch.

7.3.4 PLAYER OPERATION IN THE TEST MODE

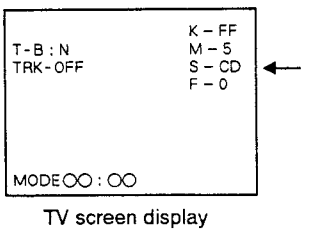
Operate the player by selecting a test mode function with the keys on the player or on the remote control unit.

- CD PLAYBACK

① Place the CD disc on the turn table. (Clamper is already lifted up.)



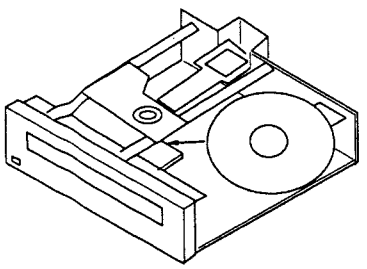
② Press the ◀◀ or ▶▶ keys to appear "S-CD" on the TV screen display.



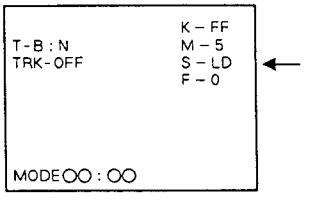
③ Clamp the disc by pressing the PLAY (▶) key once. Then, press the PLAY (▶) key twice, disc will be normal playbacked.

- LD PLAYBACK

① Place the LD disc on the turn table. (Clamper is already lifted up.)



② Press the ◀◀ or ▶▶ keys to appear "S-LD" on the TV screen display.

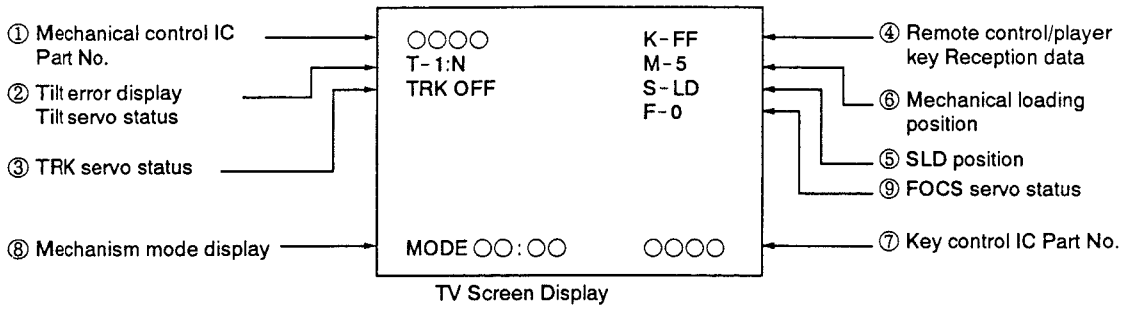


③ Clamp the disc by pressing the PLAY (▶) key once. Then, press the PLAY (▶) key twice, disc will be normal playbacked.

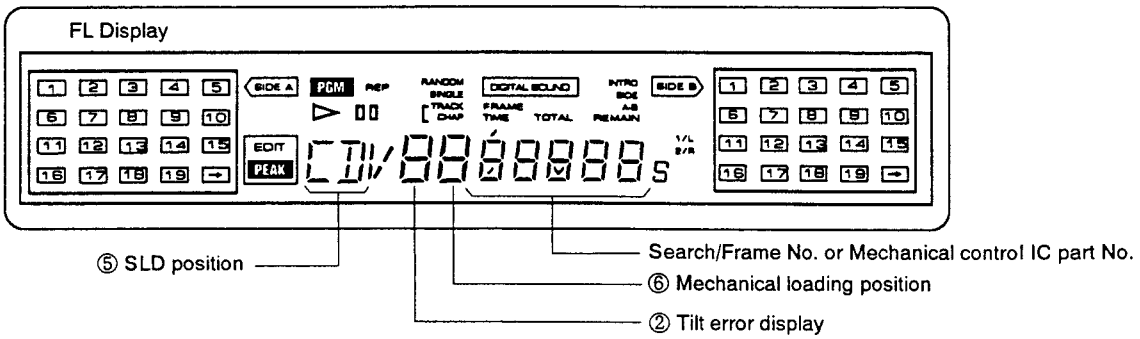
Table. Operation in the test mode.

Function	Player Status	Key Operation	Remarks
Open Tray	STOP mode	▲	
Close Tray	Tray open	▲	
Stop	PLAY mode	■	
Play	Disc in place and tray closed.	▶	• Start play with the TRK servo open. • Raise up with tilt neutral. • The disc type (LD/CD/CDV) is determined when playback starts at the SLDR position during start play.
TRK Servo Open/Close	PLAY mode	▶	• Each time the PLAY button (▶) is pressed, the TRK servo will open or close alternately.
Still	PLAY mode TRK servo closed.	II	• Each time the PAUSE button (II) is pressed, the player will switch between the PLAY and STILL modes alternately.
SLDR REV SCAN	PLAY mode	◀◀	• Counterclockwise • With the TRK servo open, the pickup can be damaged if the SLD moves further inward than the lead-in area on the disc. Do not allow the SLD to move further inward than the lead-in area .
SLDR FWD SCAN	PLAY mode	▶▶	• Clockwise • With the TRK servo open, the pickup can be damaged if the SLD moves further outward than the lead-in area on the disc. Do not allow the SLD to move further outward than the lead-in area.
TILT Neutral	POWER switch ON	EDIT	
TILT Servo ON	PLAY mode	RANDOM PLAY	
TILT Minus TILT Servo OFF	PLAY mode	I◀◀	• Press and hold down the keys.
TILT Plus TILT Servo OFF	PLAY mode	▶▶I	• Press and hold down the keys.
Screen Display ON / OFF	POWER switch ON	PGM key	
Frame search	PLAY mode	+10 key ↓ 0-9 key ↓ ▶	• In the PLAY mode, press the +10 key. (The player will stand by for the frame No. entry.) • Use the numeric keys(0 – 9) to enter the frame No.. Then press the player's PLAY key to search. • After the search is completed, the player will return to the operation mode before the search was performed.
Loading Motor Rotation Clockwise Counterclockwise	Tray open	▶▶I I◀◀	• FWD:Unloading • REV:Loading
Focus Offset (CT BEST) for Checking VR606	PLAY mode TRKG servo open	Remote control unit key •MULTI-SPEED FWD➡F-1 REV➡F-0 Player key •INTRO SCAN	VR606 and VR605 : For check F – 0 : Normal state - - - - - - TRKG close : VR606 (CT BEST) TRKG open : VR605 (TE MAX) F – 1 : VR606 is effective when opening the TRKG.

7.3.5 TV SCREEN AND LED DISPLAYS IN THE TEST MODE



TV Screen Display



① The Mechanical Control IC (ASCB board assembly) Part No. will be Displayed.

PD0105A1 → 0105A

② Tilt Servo Status / Tilt Error Display

T-○:○○

- Tilt servo status : N...Tilt neutral
  ON...Tilt servo ON
  OFF...Tilt servo OFF
- Tilt error display: 0 Tilt −
  ↕ Tilt neutral
  F Tilt +

③ TRK Servo Status

TV screen display

TRK-○○○

└ ON...TRK servo close

OFF...TRK servo open

④ Remote Control / Player Key Reception Data

TV screen display

K-○○

└ See table below

Code	Function	Code	Function	Code	Function	Code	Function
00	0	20	F JOG0	40	(CHAP / TRK)	60	
01	1	21	F JOG1	41	(FRAM / TIM)	61	
02	2	22	F JOG2	42	(SEARCH)	62	
03	3	23	F JOG3	43	DISPLAY	63	
04	4	24	R JOG0	44	REPEAT B	64	
05	5	25	R JOG1	45	CLEAR	65	
06	6	26	R JOG2	46	SPEED –	66	
07	7	27	R JOG3	47	SPEED +	67	
08	8	28		48	REPEAT A	68	
09	9	29		49	(2 / R)	69	
0A	(VOLUME +)	2A		4A	(STEREO)	6A	
0B	(VOLUME –)	2B		4B	(1 / L)	6B	
0C	D / A / CX	2C		4C	PROGRAM	6C	
0D		2D		4D	SIDE A	6D	PLAY /PAUSE
0E	(CX ON/OFF)	2E		4E	SIDE B	6E	STOP
0F	(TV / LDP)	2F		4F		6F	OPEN / CLOSE
10	F-SCAN	30		50	F-STEP	70	
11	R-SCAN	31		51		71	DIRECT CD
12	16:9	32		52	F-SKIP	72	
13	CHAP / FRME	33		53	R-SKIP	73	SINGLE
14		34		54	R-STEP	74	
15		35		55	R-MULT	75	
16	STOP / OPEN	36		56		76	LANGUAGE
17	PLAY	37	DGT LEVEL	57		77	
18	PAUSE	38		58	F-MULT	78	
19		39		59		79	
1A	(POW ON)	3A		5A	HILIT / INTR	7A	
1B	(POW OFF)	3B		5B		7B	
1C	POW ON/OFF	3C		5C		7C	
1D	EDIT	3D		5D		7D	
1E	AUDIO	3E		5E	RNDM (TEST)	7E	
1F	+10	3F		5F	(ESC)	7F	

⑤ SLD Position

TV screen display

S-○○○

└ IN ... CD inside SW ON

CD ... CD active area

CDV ... CDV active area

LD ... LD active area

B IN ... LD B inside SW ON

⑥ Mechanical Loading Position

TV screen display

M-○

└ 0 ... Tray open

1 ... Loading

2 ... Standby

3 ... Clamped

5 ... Tilt minus

7 ... Tilt plus

8 ... Tilt limit

9 ... B side clamped (two sides)

⑦ Focus offset VR Status

TV screen display

F-○

└ 0 ... Normal state

TRKG close : VR606(CT BEST)

TRKG open : VR605(TE MAX)

1 ... VR606 is effectived when opening the TRKG.

7.4 ADJUSTMENTS

7.4.1 JIGS AND INSTRUMENTS REQUIRED FOR ADJUSTMENT

- Small screwdriver (about 10cm long)
- Small Phillips screwdriver
- Hexagonal wrenches (2.0mm and 2.5mm)
- Dual-trace oscilloscope (with delay)
- AF oscillator
- Frequency counter
- LD test disc (GGV1007)
- LDD disc (buy locally)
- CD test disc (YEDS-7)
- Shorting clip
- L-shaped eccentric screwdriver (GGV-129)
- Phillips head screwdriver
- Resistor (47kΩ , 10kΩ × 2)
- Low-pass filter (47kΩ +1 μF)
- Digital voltmeter

7.4.2 PREPARATIONS FOR ADJUSTMENTS AND PRECAUTIONS

1) Adjust the height of the turntable when the spindle motor is replaced.

2) Side B play

Direct side B play is possible by pressing the SIDE B key of the front panel.

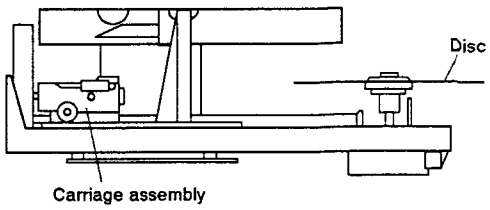
3)Test disc

The LD test disc used for mechanical adjustment and ASCB board assembly adjustment may either be the GGV1007. The frame numbers given in the text are for the GGV1007.

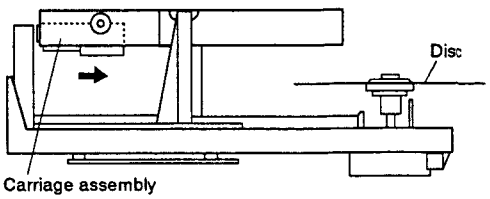
4) Numbers given in connection diagram correspond to those in the text covering the adjustment procedure.

5) Frame numbers are not displayed on the monitor TV, please read the FL display.

Carriage assembly forward state



Carriage assembly reverse state



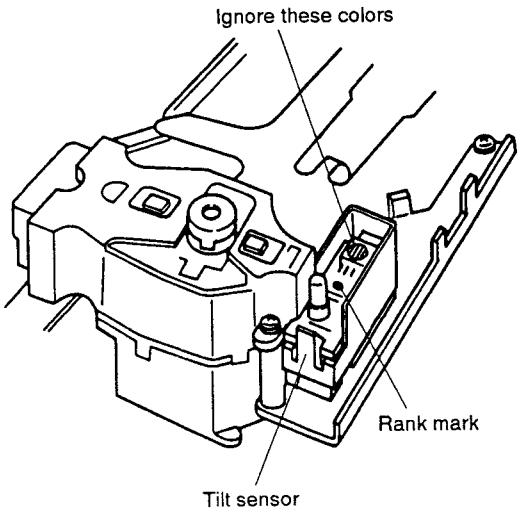
7.4.3 MECHANICAL ADJUSTMENTS

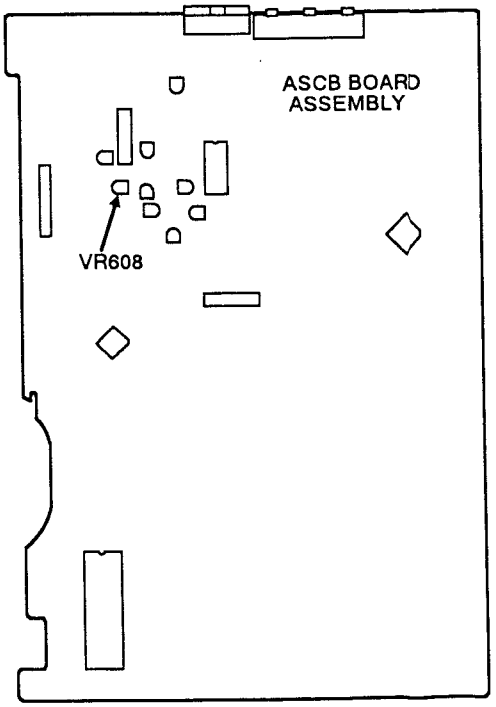
1. TILT SERVO GAIN ADJUSTMENT

- Purpose: Adjustment of the tilt servo's gain according to the tilt sensor's sensitivity rank.
- When not properly adjusted: Increased tilt servo hunting and increased crosstalk.

• Measuring instruments and jigs: • Measuring point: • Test disc and player mode	● Small screwdriver
• Positions to be adjusted	● VR608 (TILT GAIN)

Connection diagram





Adjustment Procedure

1. Use a screwdriver to adjust the angle of VR608 on the ASCB board assembly according to the rank indicator's color.

Rank	Color	VR Angle
A	Red	Clockwise all the way
B	Clear	Mechanical center
C	Blue	Counterclockwise all the way

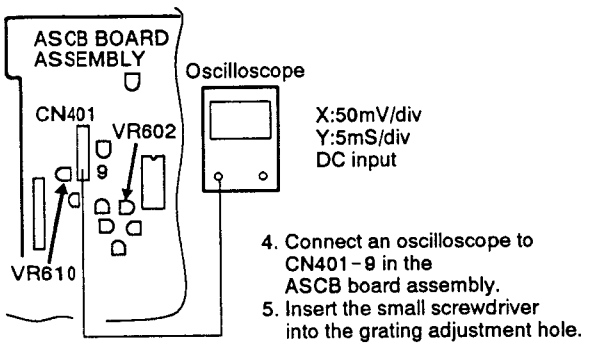
2. COARSE GRATING AND TRACKING (TRKG) BALANCE ADJUSTMENT

Mechanical Adjustment

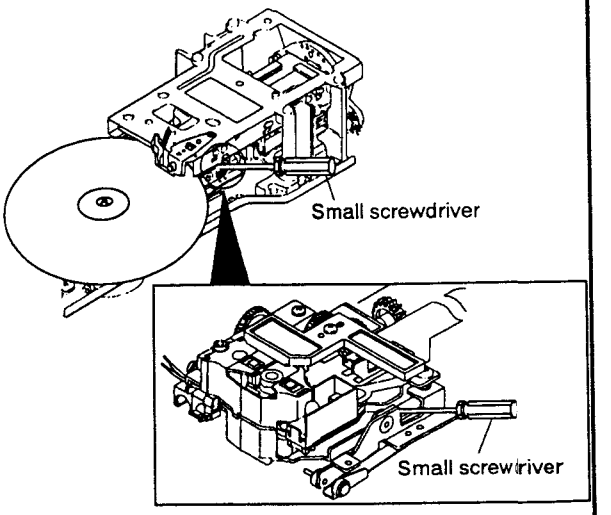
- Purpose: To adjust the laser beam which is divided into three by the grating to the optimum position on the track. Set the TRKG servo offset voltage to 0 V.
- When not properly adjusted: Disc playback will be impossible. During play, tracks may be skipped.

● Measuring instruments and jigs:	● Small screwdriver ● Oscilloscope
● Measuring point:	● CN401 - 9 (TRKG ERR)
● Test disc and player mode	● 8 - inch LD test disc GGV1007...#6,500 ● Test Mode (TRKG servo:Open) ● The carriage assembly should be in the forward state.
● Positions to be adjusted	● Grating ● VR602 (TRKG balance)

Connection diagram



4. Connect an oscilloscope to CN401 - 9 in the ASCB board assembly.
5. Insert the small screwdriver into the grating adjustment hole.



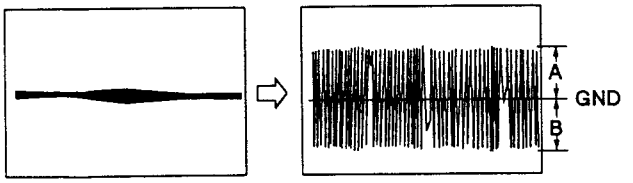


Fig. 1 Nul point

Fig. 2 Maximum amplitude A=B

Adjustment Procedure

<Coarse Grating Adjustment>

1. Play the LD test disc.
2. Search around for frame #6,500.
3. Open the TRKG servo. (See section 7.3.)
4. Connect an oscilloscope to CN401 - 9 and observe the waveform.
5. Insert the small screwdriver into the grating adjustment hole. Turning the grating will allow you to vary the amplitude of the TRKG error waveform. Find the position where the waveform amplitude becomes minimum with a smooth envelope. (Fig. 1) (This indicates that the 3 - way split laser beams are directed onto the track. This is called the nul point.)
6. Slowly turn the grating counterclockwise from the on track position until the waveform amplitude becomes maximum. (Fig. 2)
7. Close the TRKG servo and check that a normal picture is displayed on the TV screen.

<TRKG Balance Adjustment>

1. Align the oscilloscope GND so that it comes to the center of the oscilloscope screen.
2. Adjust VR602 so that the positive and negative amplitudes of the TRKG error waveform become equal. (Fig. 2)

Note: If adjustment of VR602 fails to disturb the tracking, perform the adjustment after set VR610 to the mechanical center.

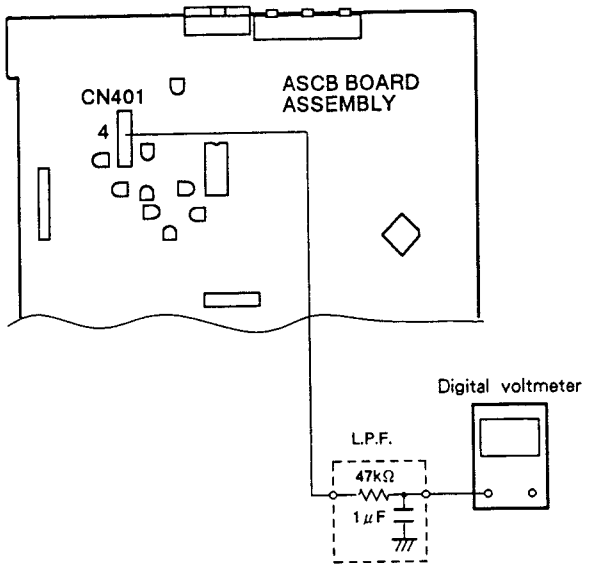
3. SLDR SHAFT HORIZONTAL ADJUSTMENT

● Purpose: Setting the slider shaft horizontally to enable the pickup to more over the disc horizontal.

● When not properly adjusted: With a warped disc, the FOCS servo does not function at the inner or outer periphery.

● Measuring instruments and jigs:	● Digital voltmeter ● Low-pass filter (47kΩ +1 μF)
● Measuring point:	● CN401 - 4 (FOCS RTN) and GND.
● Test disc and player mode	● 8 - inch LD test disc GGV1007 ● Test Mode (#9,800 / #23,800, TRKG servo:Open, Tilt servo OFF)
● Positions to be adjusted	● Player SKIP key (During test mode)

Connection diagram



Adjustment Procedure

1. Connect a digital voltmeter to CN401 - 4 via the L. P. F.
2. Open the TRKG servo, and search around for frame #9,800.
3. Check the voltage.
4. Search around for frame #23,800 and check that the voltage is same as the frame #9,800. If not, adjust the SKIP key so that the voltage is same as the frame #9,800.

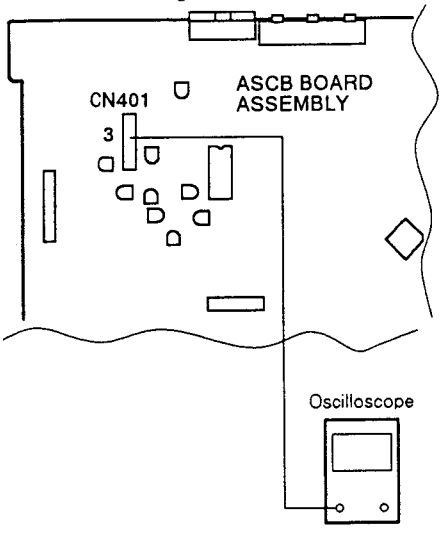
4. PICKUP INCLINATION ADJUSTMENT

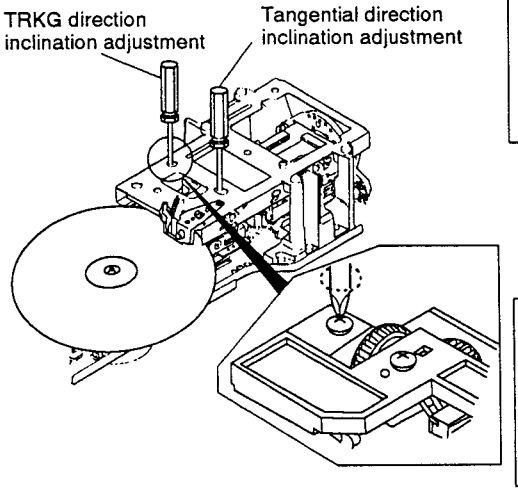
● Purpose: Adjustment of the pickup inclination to direct the laser beam vertically with respect to the disc.

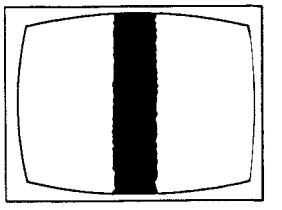
● When not properly adjusted: Crosstalk will be generated.

● Measuring instruments and jigs:	● TV monitor ● Phillips screwdriver ● Oscilloscope
● Measuring point:	● CN401 - 3 (RF)
● Test disc and player mode	● 8 - inch LD test disc GGV1007 ● Test Mode (#2,251 still (Black screen)), Tilt servo OFF
● Positions to be adjusted	● Pickup assembly TRK / Tangential direction inclination adjustment screws

Connection diagram







Minimum crosstalk on the screen

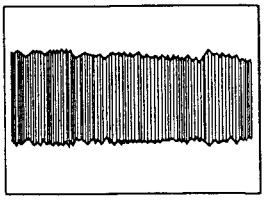


Fig. 1 RF waveform

Adjustment Procedure

1. Connect the oscilloscope to CN401 - 3.
2. Search for frame #2,251 and observe the RF waveform.(Fig. 1)
3. Adjust the pickup's TRK / Tangential direction inclination adjustment screw to maximize the waveform's amplitude.
4. Look at the TV screen and make sure there is no crosstalk.

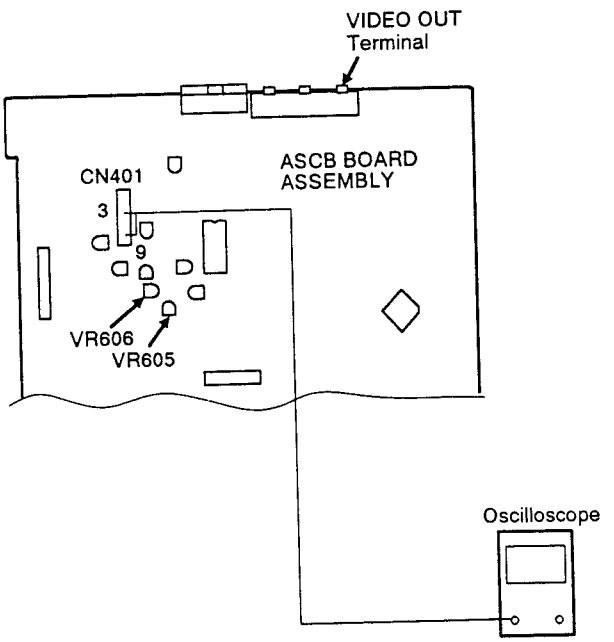
Note : If there is crosstalk on the TV screen even when the RF Level is at the maximum, perform next steps.

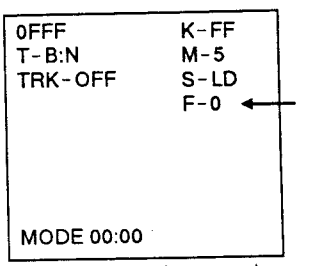
5. TRKG ERROR BEST/CROSSTALK BEST ADJUSTMENT

- Purpose: To set the FOCS servo to the optimum state when playing the normal playback and track jump (search).
- When not properly adjusted: Crosstalk will be generated.

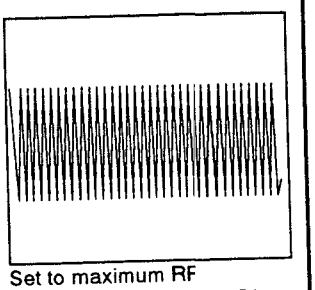
• Measuring instruments and jigs:	● TV monitor ● Oscilloscope
• Measuring point:	● CN401-3(RF) ● CN401-9(TRKG ERR) ● Player's VIDEO OUT terminal
• Test disc and player mode	● 8-inch LD test disc (GGV1007) ● Test Mode (TRK servo close / open, Tilt servo OFF)
• Positions to be adjusted	● VR605 (TE MAX) ● VR606 (CT BEST)

Connection diagram

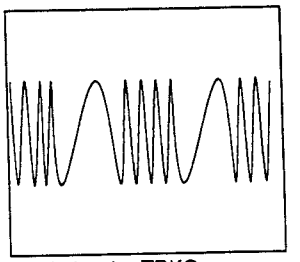




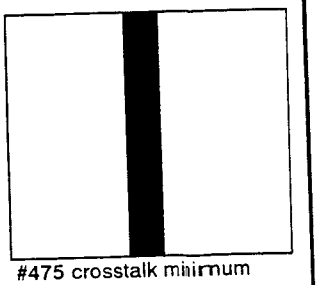
Screen display of test mode



Set to maximum RF amplitude at frame #2,251.



Maximize the TRKG error.



#475 crosstalk minimum

Adjustment Procedure

Note : Perform this adjustment when there is still noticeable crosstalk on the TV screen in section "4. Pickup Inclination Adjustment".

1. Connect the oscilloscope to CN401-9.
2. Open the TRK servo.
3. Confirm that the test mode screen display is F-0.
   If not, set the MULTI-SPEED REV button of the remote control unit to F-0.
4. Adjust VR605 so that the amplitude of the TRKG error waveform becomes maximum.
5. Close the TRKG servo.
6. Connect the oscilloscope to CN401-3.
7. Press the MULTI-SPEED FWD button of the remote control unit to display "F-1" on the TV screen.
8. Search frame #2,251 and adjust VR606 so that the amplitude of the RF waveform becomes maximum.
9. Confirm that the crosstalk on the TV screen becomes minimum at frame #475.

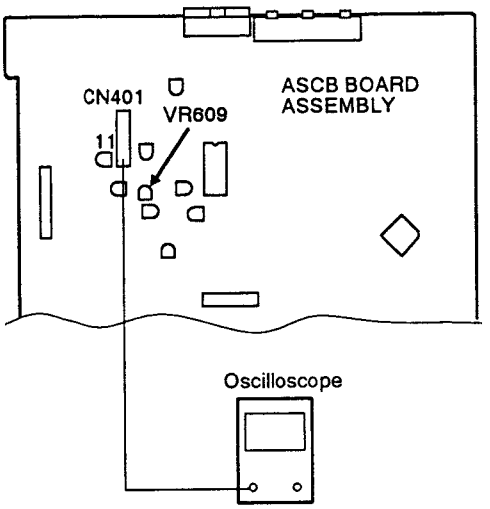
Note : After adjustment is complete, be sure to perform "6. FOCS SUM Level Adjustment".

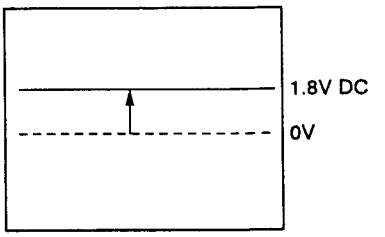
6. FOCS SUM LEVEL ADJUSTMENT

- Purpose: To set the sum level (FOCS A+C) of B1 – B4 to the optimum value for activating the FOCS servo.
- When not properly adjusted: Play ability is poor.

• Measuring instruments and jigs:	● TV monitor ● Oscilloscope
• Measuring point:	● CN401 - 11 (FOCS SUM)
• Test disc and player mode	● 8 - inch LD test disc GGV1007...#15,000 ● Still mode ● Test mode (TRKG servo : Close) ● Tilt servo : Neutral
• Positions to be adjusted	● VR609 (FOCS SUM)

Connection diagram





Adjustment Procedure

Note : Perform this adjustment after perform the "5. TRKG Error Best / Crosstalk Best Adjustment".

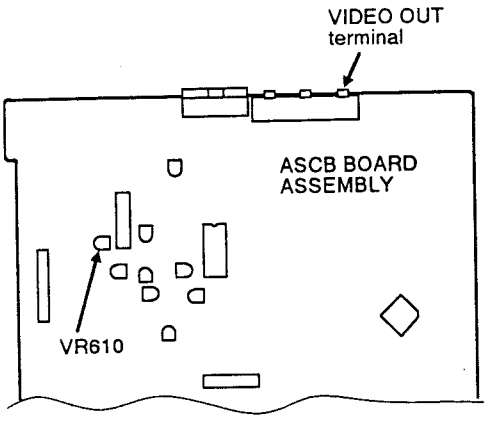
1. Connect the oscilloscope to CN401 - 11.
2. Adjust VR609 so that the voltage becomes 1.8V DC.

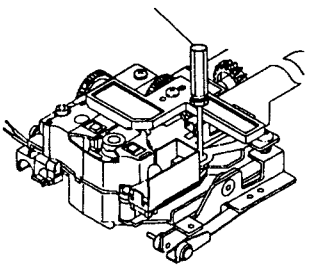
7. TILT SENSOR INCLINATION / TILT BALANCE ADJUSTMENT

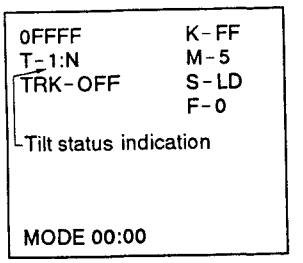
- Purpose: Adjustment of the tilt sensor's inclination to direct the tilt sensor's LED vertically with respect to the disc. Also, compensation for the sensitivity difference between the two sensors.
- When not properly adjusted: Crosstalk will be generated.

• Measuring instruments and jigs:	● TV monitor ● Small Phillips screwdriver
• Measuring point:	● Player's VIDEO OUT terminal
• Test disc and player mode	● 8-inch LD test disc (GGV1007) ● Test Mode (#16,200 and #475 still, TRK servo closed, Tilt servo OFF)
• Positions to be adjusted	● Tilt sensor inclination adjustment screw ● VR610 (TILT BAL).

Connection diagram







TV screen display

Note: This display indicates the tilt error display's location. Other displays may differ slightly from the actual.

Adjustment Procedure

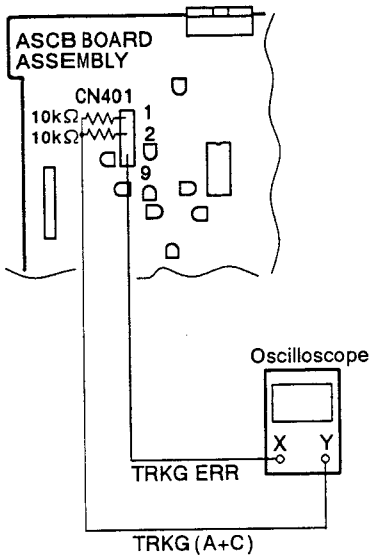
1. Search for frame #16,200 on the test disc.
2. Set VR610 to the mechanical center.
3. Adjust the tilt sensor inclination adjustment screw so that the tilt status display code is 6, 7, or 8 on the TV monitor.
4. Search for frame #475.
5. Adjust VR610 so that the tilt error display becomes 7.

8. SPINDLE MOTOR CENTERING CHECK

● Purpose: To check that the center of the spindle motor is on the orbit of the laser beam.

● Measuring instruments and jigs:	● Oscilloscope ● Resistor(10kΩ×2)
● Measuring point:	● CN401-9(TRKG ERR), CN401-1(TRKG C) and CN401-2(TRKG A)
● Test disc and player mode	● 8-inch LD test disc GGV1007...#100 and #23,800 ● Play mode ● CD test disc(YEDS-7) ● Test Mode(TRKG servo:Open) ● The carriage assembly should be in the forward state.
● Positions to be adjusted	● Check the Lissajous figure.

Connection diagram



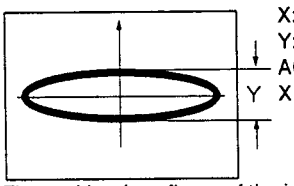


Fig. 1 Lissajous figure of the inner track of the disc(CD)

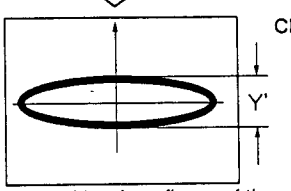


Fig. 2 Lissajous figure of the outer track of the disc(CD)

5. The Y-axis of the Lissajous figure should be the same for the inner and the outer tracks.

Checking Procedure

1. Play the 8-inch LD test disc.
2. Move the pickup to frame #23,800 by scanning or searching, then open the TRKG servo.
3. Connect the X-input (CH-1) of the oscilloscope to CN401-9 and the Y-input (CH-2) to CN401-1 and 2.
   Set the oscilloscope to the X–Y mode and observe the Lissajous figures of the TRKG error signal and the TRKG (A+C) signal.
4. Write down the Y-axis amplitudes of the Lissajous figures. (Fig. 1)
5. Close the TRKG servo and search for frame #100, then open the TRKG servo again to observe the Lissajous figure.
   At this time, check that the Y-axis amplitude of the Lissajous figure is the same as that noted in step 4. (Fig. 2)
6. Remove the 8-inch LD test disc from the player, then load the CD test disc and repeat the checking procedures steps 1 to 5. However, it is not necessary to specify the inner or outer track positions of the disc. If the Y-axis amplitude of the Lissajous figure is different for the inner and outer tracks, perform "9. Spindle Motor Centering Adjustment".

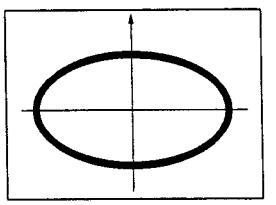


Fig. 3 Lissajous figure when not properly adjusted

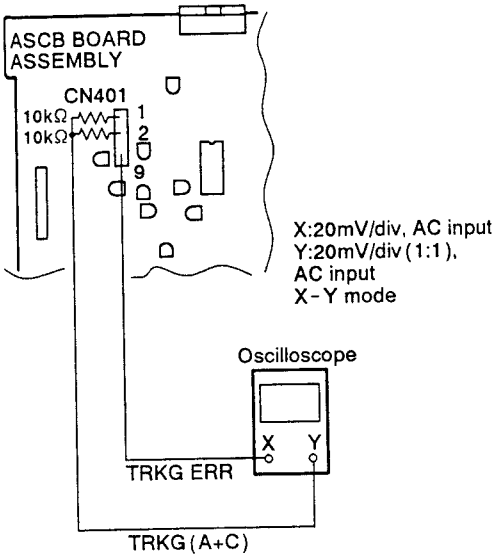
9. SPINDLE MOTOR CENTERING ADJUSTMENT

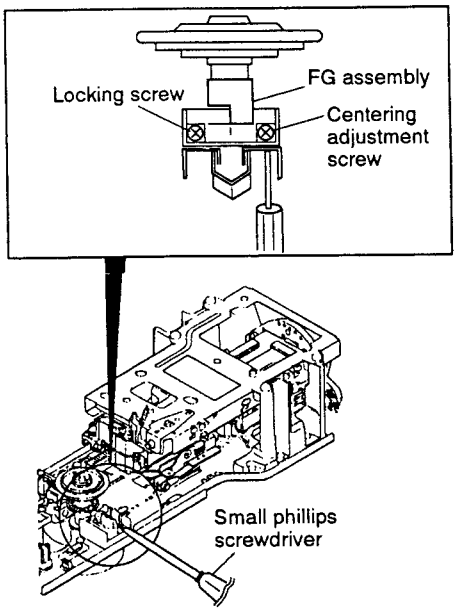
● Purpose: To adjust so that the center of the spindle motor is on the orbit of the laser beam.

● When not properly adjusted: Track skips, or searching takes too long.

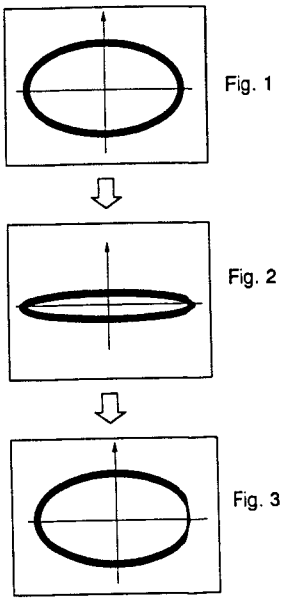
● Measuring instruments and jigs:	● Small Phillips screwdriver ● Oscilloscope ● Resistor(10kΩ×2)
● Measuring point:	● CN401-9(TRKG ERR), CN401-1(TRKG C) and CN401-2(TRKG A)
● Test disc and player mode	● 8-inch LD test disc GGV1007...#100 and #23,800 ● Play mode ● Test Mode(TRKG servo:Open/Close) ● CD test disc(YEDS-7)
● Positions to be adjusted	● The carriage assembly should be in the forward state. ● Spindle motor centering adjustment screw

Connection diagram





7. Adjust the centering adjustment screw.



7. Lissajous figure.

Adjustment Procedure

1. Connect the X-input (CH-1) of the oscilloscope to CN401-9 and the Y-input (CH-2) to CN401-1 and 2.
2. Play the 8-inch LD test disc and search for frame #23,800.
3. Open the TRKG servo and observe the Lissajous figures of the TRKG error signal and the TRKG sum signal.
4. Fine-adjust the grating so that the Y-axis amplitude of the Lissajous figure is minimized. (Fig. 2)
5. Close the TRKG servo and search for frame #100.
6. Open the TRKG servo again and observe the Lissajous figure and write the values down. (Fig. 1)
7. Loosen a locking screw and insert the small Phillips-head screwdriver from the adjusting hole, and turn the centering adjustment screw slowly so that the Y-axis amplitude of the Lissajous figure is reduced. After the Y-axis amplitude of the Lissajous figure is minimized, turn the adjusting screw further until the amplitude becomes the same shape as that observed in procedure 6. (Fig. 1-3)
8. Close the TRKG servo, and move the pickup assembly to the outer track of the disc(#23,800), then perform the adjustments in steps 4 to 6 again.
9. Re-open the TRKG servo and observe the Lissajous figure to check that the Y-axis amplitude is minimum. (Fig. 2)
   If the Y-axis amplitude of the Lissajous figure is larger than specified, repeat the adjustment procedure from steps 5 to 8.
10. After adjustment is completed, perform the adjustment in "8. Spindle Motor Centering Check" step 6.
11. Tighten the locking screw.

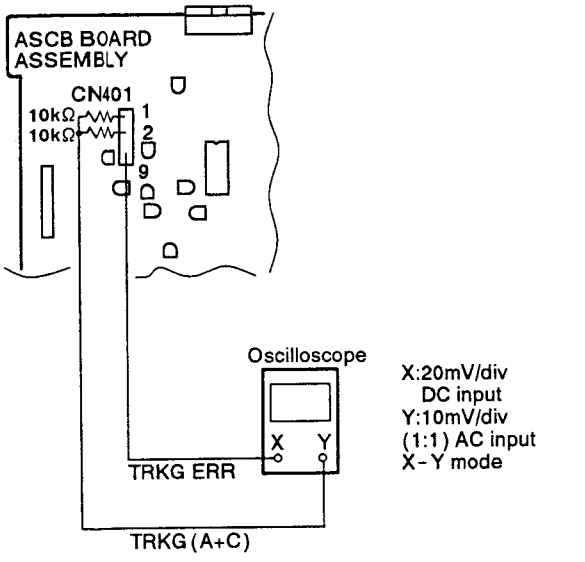
10. FINE GRATING ADJUSTMENT

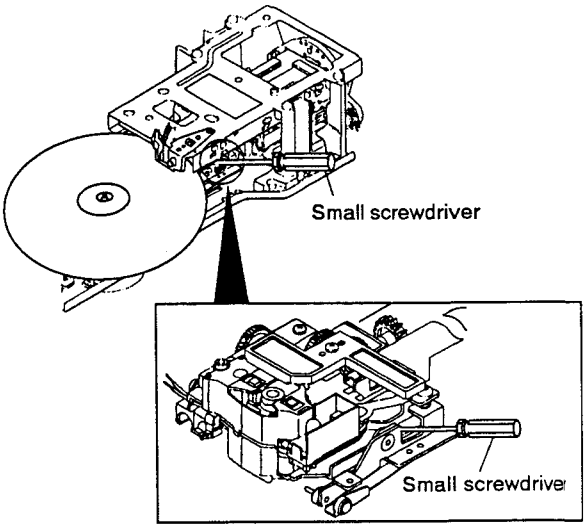
Mechanical Adjustment

- Purpose: To fine-adjust the grating so that the two tracking beams for the TRKG servo are projected in the optimum positions on the tracks being played. Set the TRKG servo loop offset voltage to 0V.
- When not properly adjusted: During play, tracks may be skipped.

● Measuring instruments and jigs:	● Oscilloscope ● Small screwdriver ● Resistor(10kΩ×2)
● Measuring point:	● CN401-9(TRKG ERR), CN401-1(TRKG C)and CN401-2(TRKG A)
● Test disc and player mode	● 8-inch LD test disc GGV1007...#6,500 ● Still mode ● Test Mode(TRKG servo:Open) ● The carriage assembly should be in the forward state.
● Positions to be adjusted	● Grating

Connection diagram



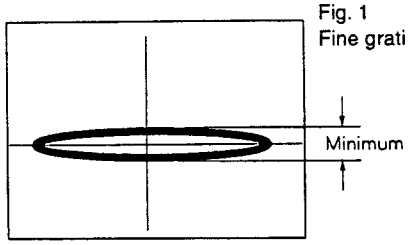


3. Insert the small screwdriver into the grating adjustment hole to fine-adjust it.

Adjustment Procedure

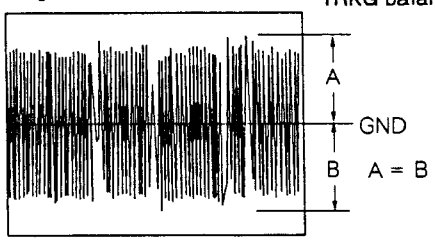
1. Connect the X-input(CH-1)of the oscilloscope to CN401-9 and the Y-input(CH2) to CN401-1 and 2.
2. Play the LD test disc and search for frame #6,500, then open the TRKG servo.
   Set the oscilloscope to the X-Y mode and observe the Lissajous figures of the TRKG error signal and the TRKG sum signal.
3. Insert the small screwdriver into the grating adjustment hole, and fine-adjust the grating so that the Y-axis amplitude of the Lissajous figures is minimized. (Fig. 1)
   If the grating is turned too much and the optimum position can no longer be found, repeat the "2. Coarse Grating Adjustment".
4. Select the oscilloscope's X-input(CH-1) and check that the positive and negative amplitudes of the TRKG error signal are equal. (Fig. 2)
   If they are not, repeat the "2. Tracking Balance Adjustment".
5. Close the TRKG servo and check that the picture(image) on the TV screen is normal.

Fig. 1
Fine grating adjustment



3. Y-axis amplitude of Lissajous figure becomes minimum.

Fig. 2
TRKG balance



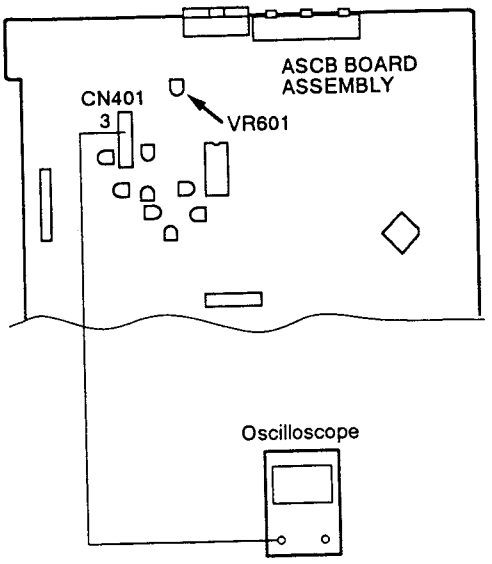
11. RF GAIN ADJUSTMENT

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

● When not properly adjusted: Dropout occurs frequently.

● Measuring instruments and jigs:	● Oscilloscope
● Measuring point:	● CN401 - 3 (RF signal)
● Test disc and player mode	● 8 - inch LD test disc GGV1007...#15,000 ● Still mode ● Test Mode (TRKG servo:Close) ● Tilt servo : Neutral ● The carriage assembly should be in the forward state.
● Positions to be adjusted	● VR601 (RF LEVEL)

Connection diagram



Adjustment Procedure

1. Play the LD test disc and search for frame #15,000.
2. Connect an oscilloscope to CN401 - 3 (RF signal) and observe the RF signal.
3. Adjust VR601 so that the amplitude of the RF signal becomes 300mV ± 50mV. (Fig. 1)

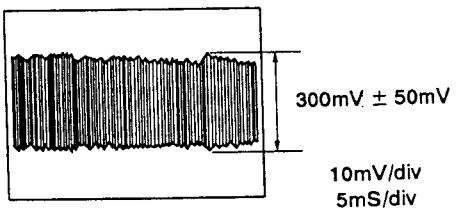


Fig. 1 RF signal

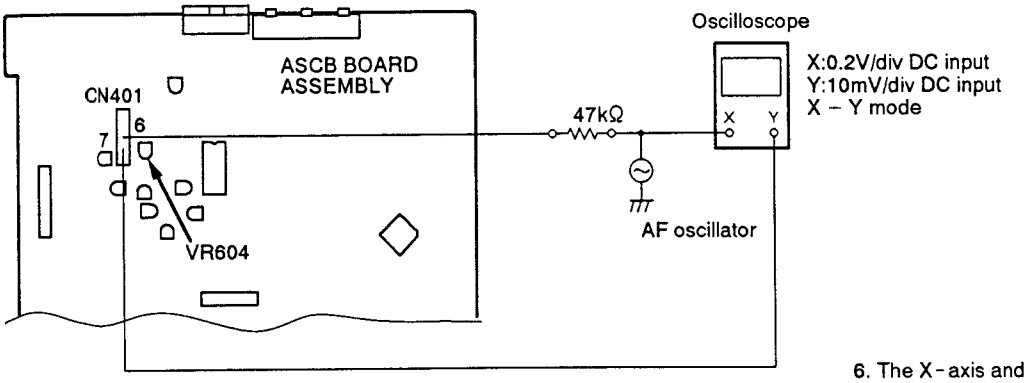
12. FOCUS SERVO LOOP GAIN ADJUSTMENT

● Purpose: To set the loop gain of the FOCS servo to the optimum value.

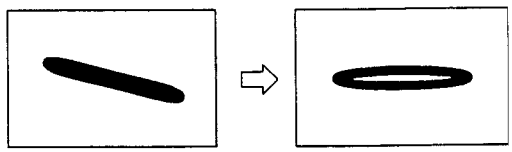
● When not properly adjusted: Performance deteriorates.

● Measuring instruments and jigs:	● Oscilloscope ● AF oscillator ● Resistor(47kΩ)
● Measuring point:	● CN401 - 6(FOCS ERR) and CN401 - 7(FOCS IN)
● Test disc and player mode	● 8 - inch LD test disc GGV1007...#15,000 ● Still mode ● Test mode (TRKG servo:Close) ● Tilt servo : Neutral ● The carriage assembly should be in the forward state.
● Positions to be adjusted	● VR604(FOCS GAIN)

Connection diagram



6. The X - axis and Y - axis of the Lissajous figure are symmetrical.



Adjustment not completed　　Properly adjusted

Fig. 1

Adjustment Procedure

1. Connect the oscilloscope's X - input(CH - 1) and AF oscillat... to CN401 - 6 via the resistor , and the Y - input (CH - 2) to CN401 - 7, as shown in the above diagram.
2. Set the AF oscillator output to ..0kHz/6Vp - p for GGV1007, according to the test disc used.
3. Play the 8 - inch LD test disc and search for frame #15,000.
4. Set the oscilloscope to the X - Y mode and observe the Lissajous figure.
5. Adjust VR604 so that the Lissajous figure is symmetrical on both the X - axis and Y - axis of the oscilloscope. (Fig. 1)

Note : If the AF oscillator output does not exceed 6Vp - p, reduce the value of the resistor(47kΩ) in the above diagram, for easier observation of the Lissajous figure. (not below 33kΩ)

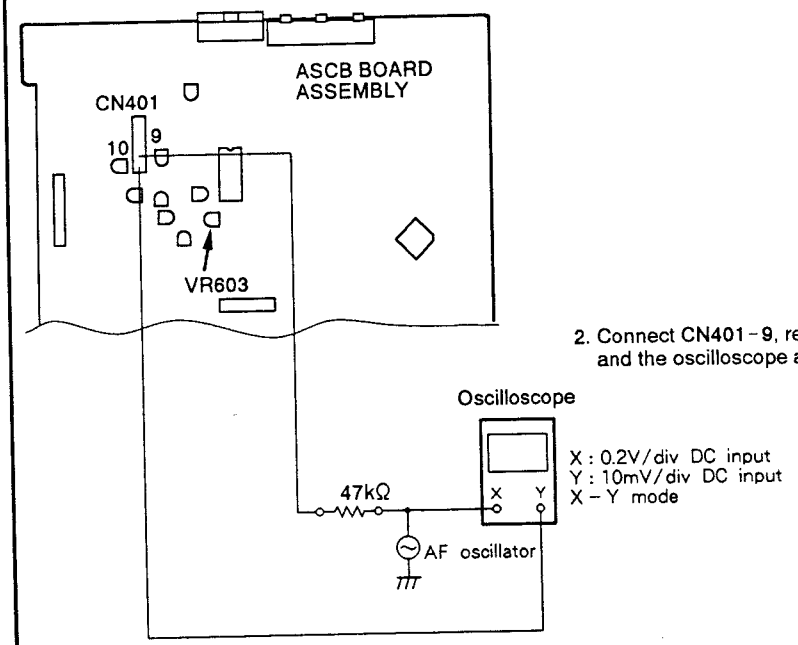
13. TRKG SERVO LOOP GAIN ADJUSTMENT

● Purpose: To set the loop gain of the TRKG servo to the optimum value.

● When not properly adjusted: Performance deteriorates

● Measuring instruments and jigs:	● Oscilloscope ● Resistor(47kΩ) ● AF oscillator
● Measuring point:	● CN401 - 9(TRKG ERR), CN401 - 10(TRKG IN)
● Test disc and player mode	● 8 - inch LD test disc GGV1007...#15,000 ● Still mode ● Tilt servo : Neutral ● Test mode (TRKG servo:Close) ● The carriage assembly should be in the forward state.
● Positions to be adjusted	● VR603

Connection diagram

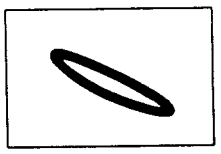


2. Connect CN401 - 9, resistor, AF oscillator and the oscilloscope as shown.

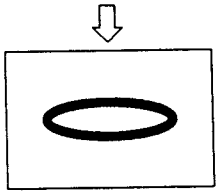
Adjustment Procedure

1. Play the LD test disc and search frame #15,000.
2. Connect the oscilloscope's X - input(CH - 1) and AF oscillator to CN401 - 9 via the reisitor, and the Y - input (CH - 2) to CN401 - 10, as shown in the above diagram.
3. Set the AF oscillator output to 3.3kHz/6Vp - p for GGV1007, according to the test disc used.
4. Set the oscilloscope to the X - Y mode and observe the Lissajous figure.
5. Adjust VR603 so that the Lissajous figure is symmetrical on both the X - axis and Y - axis of the oscilloscope. (Fig. 1)

Note : If the AF oscillator output does not exceed 6Vp - p, reduce the value of the resistor (47kΩ) in the above diagram, for easier observation of the Lissajous figure. (not below 33kΩ)



Adjustment not completed



Properly adjusted

5. The X - axis and Y - axis of the Lissajous figue are symmetrical.

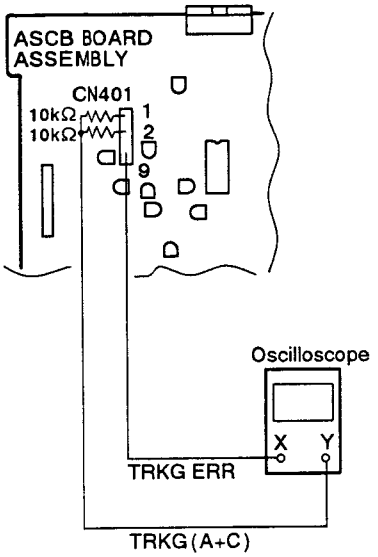
Fig. 1

14. CENTERING ADJUSTMENT FOR SIDE B PLAY

- Purpose: To check that the position check at the start play and to set the center of the spindle motor on the path of the laser beam when playing the side B of the disc.
- When not properly adjusted: Tracks skipped, longer searching time or searching is impossible when playing side B of the disc.

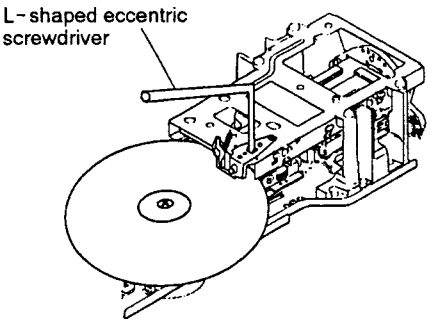
● Measuring instruments and jigs:	● L-shaped eccentric screwdriver(GGV-129) ● Oscilloscope ● Resistor(10kΩ)
● Measuring point:	● CN401-9(TRKG ERR), CN401-1(TRKG C) and CN401-2(TRKG A)
● Test disc and player mode	● 8-inch LD test disc GGV1007...#100 ● Play mode
● Positions to be adjusted	● The carriage assembly should be in the reverse state. ● Test mode (TRKG servo:Open /Close) ● Centering adjustment hole for side B

Connection diagram



4. Centering adjustment for side B play.

X:20mV/div DC input
Y:10mV/div DC input
X-Y mode



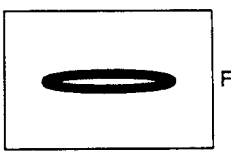


Fig. 1

4. Properly adjusted(X:maximum).

Adjustment Procedure

1. Turn the LD test disc upside-down(change from side A to side B). The start play position from side A to B should be within frame #3,500.
2. Set the oscilloscope to the X-Y mode, and connect the oscilloscope's X-input (CH-1) to CN401-9 (TRKG ERR) and the Y-input (CH-2) to CN401-1 and 2 (TRKG A+C).
3. Play the LD test disc and search for frame #100, then open the tracking servo.

Note: If the center is too eccentric on side B of the disc, since searching will be impossible on side B, open the TRKG servo when the carriage assembly moves to the side B play position and searches around for frame #100.

4. While observing the Lissajous figure on the oscilloscope, insert the eccentric screwdriver into the centering adjustment hole for side B and adjust it so that the X-axis amplitude of the Lissajous figure is minimized(on-track position). Then turn the eccentric screwdriver clockwise further until the X-axis amplitude of the Lissajous figure becomes maximum. (Fig. 1)

Note: When "4 Pickup inclination Adjustment" is performed with the pickup in the forward state, perform "15. Pickup Tangential Direction Angle Adjustment for Side B Play" and "16. Fine Centering Adjustment for Side B Play".

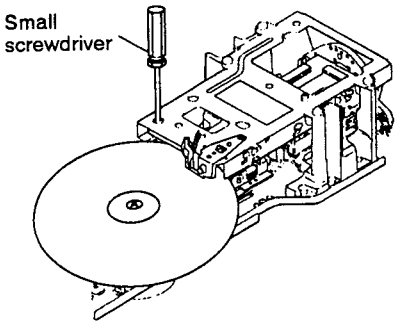
15. PICKUP TANGENTIAL DIRECTION ANGLE ADJUSTMENT FOR SIDE B PLAY Mechanical Adjustment

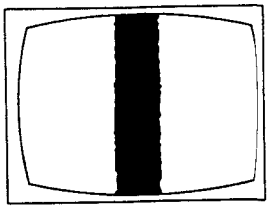
● Purpose: To minimize the crosstalk in the tangential direction angle of the pickup assembly when playing side B of the disc.

● When not properly adjusted: Crosstalk is significant.

● Measuring instruments and jigs:	● TV monitor ● Small Phillips screwdriver
● Measuring point:	● Monitor screen
● Test disc and player mode	● 8-inch LD test disc GGV1007...#475 ● Still mode ● The carriage assembly should be in the reverse state.
● Positions to be adjusted	● Pickup tangential direction angle adjustment screw

Connection diagram





2. Minimum crosstalk

Adjustment Procedure

1. Play the LD test disc and search for frame #475.
2. Check if crosstalk appears on the screen of the TV monitor, and adjust the pickup tangential direction angle adjustment screw so that the crosstalk is minimized.
3. After steps 1 and 2 have been completed, perform "14. Centering Adjustment for Side B Play" again.

Note: When the pickup tangential direction angle for side B play is varied by this adjustment, the center of the disc for side B may be shifted slightly. As a countermeasure, perform the centering adjustment again.

16. FINE CENTERING ADJUSTMENT FOR SIDE B PLAY

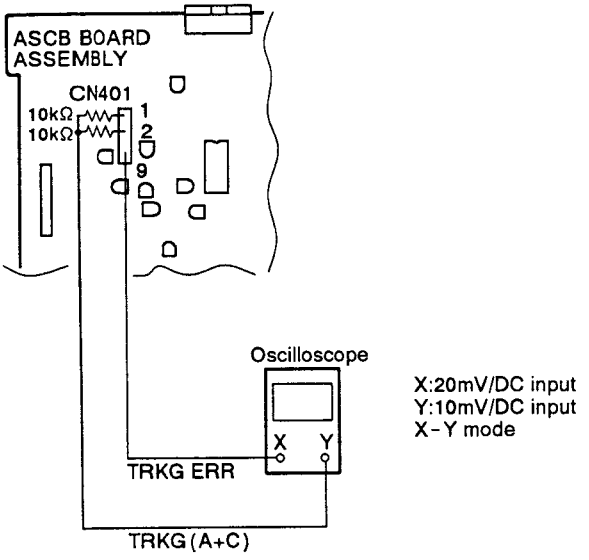
Mechanical Adjustment

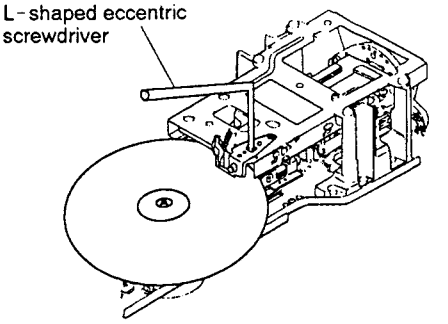
● Purpose: To set the center of the spindle motor on the track of the laser beam when playing the side B of the disc.

● When not properly adjusted: Tracks skipped when playing side B of the disc.

● Measuring instruments and jigs:	● Oscilloscope ● L-Shaped eccentric screwdriver(GGV-129) ● Resistor (10kΩ × 2)
● Measuring point:	● CN401-9(TRKG ERR), CN401-1(TRKG C) and CN401-2(TRKG A)
● Test disc and player mode	● 8-inch LD test disc GGV1007...#100 ● Test mode (TRKG servo: Open) ● Play mode ● The carriage assembly should be in the reverse state.
● Positions to be adjusted	● Centering adjustment hole for side B

Connection diagram





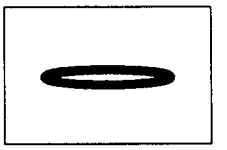


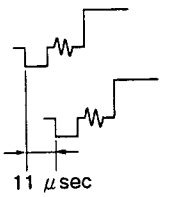
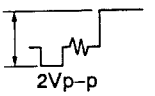
Fig. 1

4. X-axis of Lissajous figure maximun.

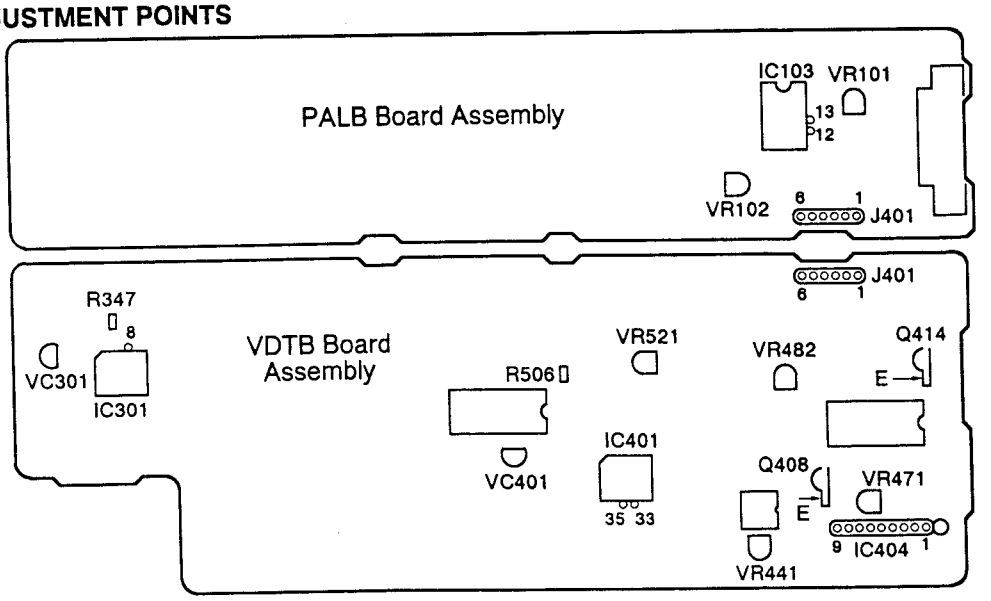
Adjustment Procedure

1. Set the oscilloscope to the X-Y mode, and connect the oscilloscope's X-input (CH-1) to CN401-9 (TRKG ERR) and the Y-input (CH-2) to CN401-1 and 2(TRKG A+C).
2. Play the LD test disc and search for frame #100.
3. Open the TRKG servo.
4. While observing the Lissajous figure on the oscilloscope, insert the eccentric screwdriver into the centering adjustment hole for side B and adjust it so that the X-axis amplitude of the Lissajous figure becomes maximum. (Fig. 1)
5. Turn the power OFF.
6. Fix and lock the following screws;
   Grating screw
   Spindle motor centering adjustment screw
   Pickup tangential direction angle adjustment screw
   Centering adjustment hole for side B
   Tilt sensor screw
   Shaft plate (upper)

7.4.4 ELECTRICAL ADJUSTMENTS

	Adjustment	Adjusting Point	Adjusting Specifications	Inspection Standard	Remarks
VDTB Board Assembly					
1	Sync-generator Clock Adjustment	VC401	Adjust VC401 for 17.734475MHz at the OPEN side of R506.	17.734475MHz ± 100Hz	
2	REF Clock Adjustment	VC301	Adjust for 3.5546875MHz at pin 8 (R347) of IC301. Or, adjust so that 1H of the PB video spans 10 seconds longer than that of the reference video signal.	3.5546875MHz ± 25Hz 15.6250kHz ± 0.1Hz	
3	VCO Center Frequency Adjustment	VR471	 Adjust VR471 so that the time lag between CCD input video (Q408 emitter) and the CCD output video (Q414 emitter) becomes 75 μsec (1H + 11 μsec). For this adjustment, connect pin 9 of IC404 to GND.	75 μsec ± 1.4 μsec	
4	Video Level Adjustment	VR482	 Adjust the 100 % white video level to 2 Vp-p at VIDEO OUT (J401, pin 6).	2Vp-p ± 5%	
5	1H Delay Video Level Adjustment	VR441	Adjust VR441 so that the level of the 1H-delay video at pin 33 of IC401 becomes the same as that of the main-line video pin 35.	Main-line video ± 3%	
6	VPS ERR Level Adjustment	VR521	While observing the magenta screen on a vector scope, minimize the jitter at VIDEO OUT (J401, pin 6).		
PALB Board Assembly					
7	MOD Video Level Adjustment	VR102	Adjust VR102 so that the luminance level of the MOD video at pin 13 of IC103 becomes the same as that of the through video at pin 12.	± 3%	
8	1H Delay S.C. Level Adjustment	VR101	While observing color bars in still mode on a vector scope, minimize the gain variation at VIDEO OUT (J401, pin 6).		

- **ADJUSTMENT POINTS**

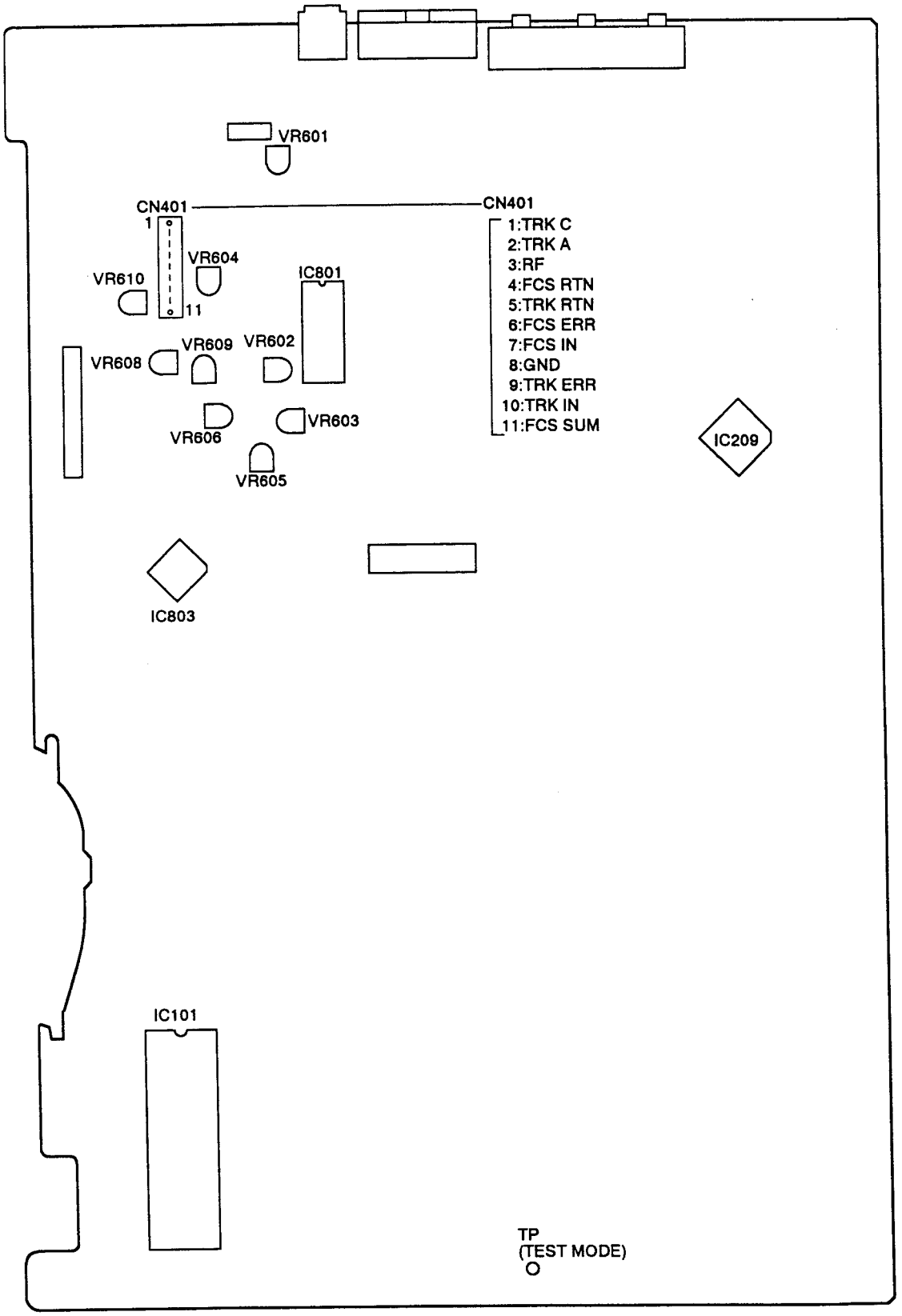


7. REGLAGES

7.1 SOMMAIRE DES REGLAGES SUR L'ENSEMBLE ASCB

	Réglage	Point de Réglage	Equipement de Mesure Point de Connexion	Etat du Lecteur	Spécifications de Réglage
1	Réglage de gain d'inclinaison	VR608	Aucun	• Hors tension	• Position de GAIN VR d'inclinaison Rouge: Tourner vers la droite Clair : Centre Bleu: Tourner vers la gauche
2	Réglage approximatif de réfraction et de balance d'alignement (TRK)	Réfraction/VR602	CN401-9 (TRK ERR)	• Mode d'essai #6,500 Servo boucle TRK ouverte	• Point nul → Erreur TRK MAX • Ajuster VR602 pour que le niveau positif et négatif de l'amplitude de forme d'onde à l'erreur TRK soit égal.
3	Réglage horizontal d'axe coulissant	Touche SKIP du lecteur	CN401-4 (FCS RTN)	• Mode d'essai Servo boucle d'inclinaison coupée Servo boucle TRK ouverte #9,800 #23,800	• Ajuster de manière que la tension de FOCS RTN soit 0 ± 20mV.
4	Réglage d'inclinaison de capteur	Vis de réglage TAN ensemble capteur/ inclinaison TRK	CN401-3(RF)	• Mode d'essai #2,251 fixe Servo boucle TRK fermée/ouverte Servo boucle d'inclinaison ouverte	• Amplitude de forme d'onde RF MAX (Vis de réglage TAN capteur/TRK) • Diaphonie minimisée
5	Réglage optimal d'erreur d'alignement/diaphonie	VR605 (TE MAX) VR606 (CT BEST)	CN401-3(RF) CN401-9(TRK ERR)	• Mode d'essai Servo boucle TRK fermée/ouverte Servo boucle d'inclinaison coupée	• RF MAX (VR606) Erreur TRK MAX (VR605)
6	Réglage de niveau FOCS SUM	VR609	CN401-11 (FCS SUM)	• Mode Lecture	• Ajuster VR609 pour que la tension soit 1,8 VDC.
7	Réglage inclinaison de capteur/balance d'inclinaison	Vis de réglage d'inclinaison de capteur VR610 (TILT BAL)	Moniteur TV Ecran en mode d'essai	• Mode d'essai #16,200 / #475 fixe Servo boucle TRK fermée Servo boucle d'inclinaison coupée	• Régler VR610 au centre. • Agir sur vis de réglage de sorte que le code d'affichage d'erreur soit 6,7 ou 8. • Ajuster VR610 de sorte que l'affichage d'erreur d'inclinaison soit 7.
8	Vérification du centrage de moteur á broche	Vérifier la courbe de Lissajous.	CH1:CN401-9 (TRK ERR) CH2:CN401-1, 2 (TRK A+C)	• Mode d'essai #100 et #23,800 Boucle d'asservissement TRKG ouverte	• Vérifier que l'amplitude de la courbe de Lissajous de l'image #100 est la même que pour l'image #23,800.
9	Réglage de centrage du moteur á broche	Vis de réglage de centrage du moteur á broche	CH1:CN401-9 (TRK ERR) CH2:CN401-1, 2 (TRK A+C)	• Mode d'essai #100 et #23,800 Boucle d'asservissement TRKG ouverte/fermée	• Tourner la vis de réglage de centrage de manière que les courbes de Lissajous pour #100 et #23,800 soient égales.
10	Réglage fin de réfraction	Réfraction	CH1:CN401-9 (TRK ERR) CH2:CN401-1, 2 (TRK A+C)	• Mode d'essai #6,500 fixe Boucle d'asservissement TRKG ouverte	• Minimiser la direction Y de la courbe de Lissajous. • Le niveau de la direction X de la courbe deLissajous est égal.
11	Réglage de gain de fréquence radio (RF)	VR601	CN401-3(RF)	• Mode d'essai #15,000 fixe Boucle d'asservissement TRKG fermée	• Ajuster VR601 pour que le niveau RF devienne 300mV ± 50mV.
12	Réglage de gain de boucle d'asservissement FOCS	VR604	CH1:CN401-6 (FCS ERR) CH2:CN401-7 (FCS IN)	• Mode d'essai #15,000 fixe Boucle d'asservissement TRKG fermée	• Ajuster VR604 pour que les axes X et Y de la courbe de Lissajous soient symétriques.
13	Réglage de gain de boucle d'asservissement TRKG	VR603	CH1:CN401-9 (TRK ERR) CH2:CN401-10 (TRK IN)	• Mode d'essai #15,000 fixe Boucle d'asservissement TRKG fermée	• Ajuster VR603 pour que les axes X et Y de la courbe de Lissajous soient symétriques.
14	Réglage de centrage pour la lecture de la face B	Orifice de réglage de centrage pour la face B	CH1:CN401-9 (TRK ERR) CH2:CN401-1, 2 (TRK A+C)	• Mode d'essai Lecture #100 Boucle d'asservissement TRKG ouverte/fermée	• Ajuster pour que l'amplitude sur l'axe X de la courbe de Lissajous soit maximale.
15	Réglage d'angle de direction tangentielle du capteur pour la lecture de la face B.	Vis de réglage d'angle de direction tangentielle du captuer	Moniteur TV	• Mode d'essai #475 fixe	• Ajuster de maniére à minimiser la diaphonie.
16	Réglage fin de centrage pour la lecture de la face B	Orifice de réglage de centrage pour la face B.	CH1:CN401-9 (TRK ERR) CH2:CN401-1, 2 (TRK A+C)	• Mode d'essai Lecture de #100 Boucle d'esservissement TRKG ouverte	• Ajuster pour que l'amplitude sur l'axe X de la courbe de Lissajous soit maximale.

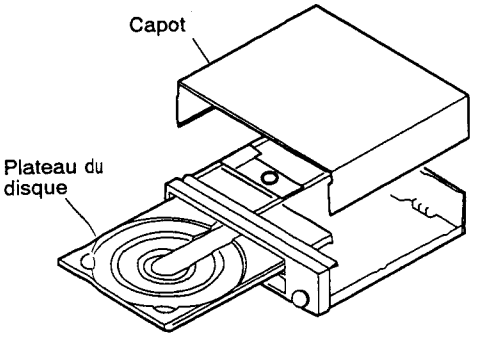
7.2 POINTS DE REGLAGE DE L'ENSEMBLE ASCB



7.3 MODE D'ESSAI

7.3.1 MODE D'ESSAI

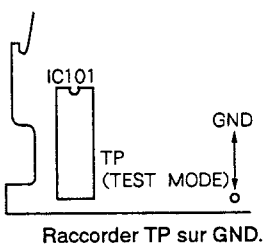
Le lecteur possède une fonction Mode d'essai, permettant au réparateur de vérifier l'état de l'appareil sur l'écran TV par exécution d'opérations sur les touches respectives.
De plus, comme l'asservissement TRK s'ouvre et se ferme facilement, le mode d'essai est particulièrement pratique pour les ajustements mécanismes.



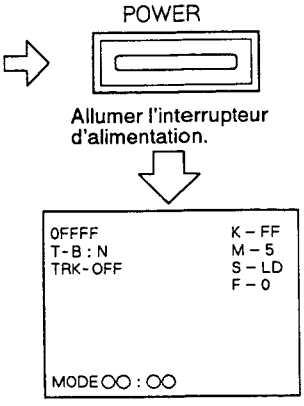
7.3.2 PASSAGE EN MODE D'ESSAI

[Démarche]

1. Déposer le capot et le plateau du disque.
2. Raccorder TP (TEST MODE) de l'ensemble ASCB à GND (masse).
3. Allumer l'interrupteur d'alimentation.
4. Débrancher TP et GND (masse).



Raccorder TP sur GND.



Ecran du téléviseur

7.3.3 ANNULATION DU MODE D'ESSAI

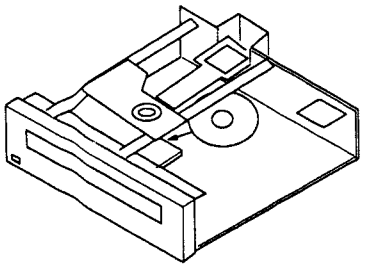
Couper l'interrupteur d'alimentation.

7.3.4 FONCTIONNEMENT DU LECTEUR EN MODE D'ESSAI

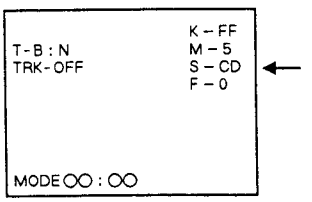
Faire fonctionner le lecteur en choisissant une fonction du mode d'essai par les touches du lecteur ou de la télécommande.

- Lecture d'un CD

① Placer un disque CD sur le plateau. (La bride est déjà relevée.)



② Appuyer sur ◀◀ ou ▶▶ pour obtenir "S-CD" sur l'écran du téléviseur.

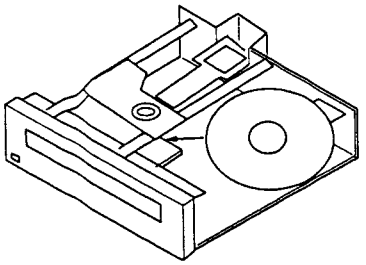


Ecran du téléviseur

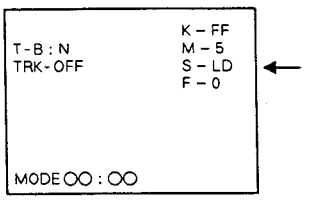
③ Immobiliser le disque en appuyant une fois sur la touche PLAY (▶). Appuyer ensuite deux fois sur la touche PLAY (▶) et le disque sera reproduit normalement.

- Lecture d'un LD

① Placer un disque LD sur le plateau. (La bride est déjà relevée.)



② Appuyer sur ◀◀ ou ▶▶ pour obtenir "S-LD" sur l'écran du téléviseur.



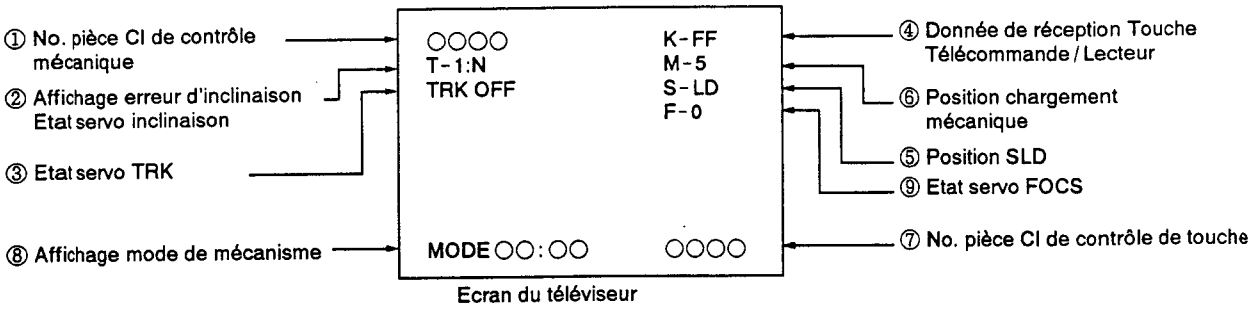
Ecran du téléviseur

③ Immobiliser le disque en appuyant une fois sur la touche PLAY (▶). Appuyer ensuite deux fois sur la touche PLAY (▶) et le disque sera reproduit normalement.

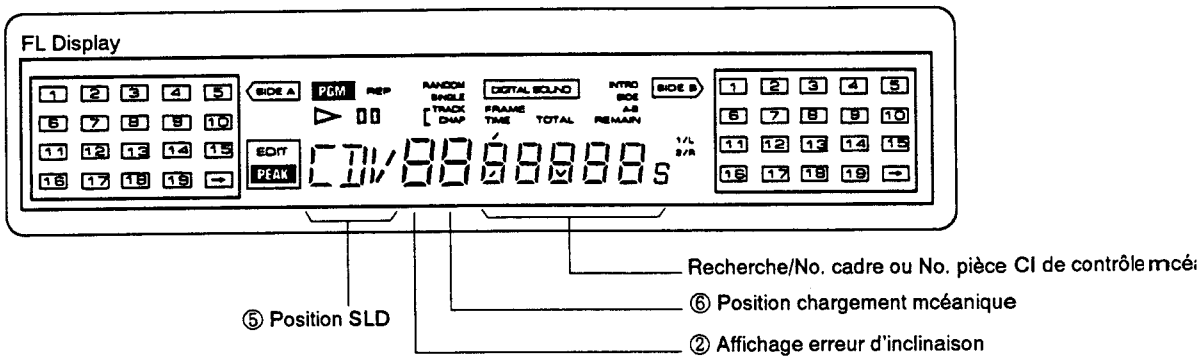
Tableau : Démarches en mode d'essai

Fonction	Etat du lecteur	Touche utilisée	Remarques
Ouverture plateau	Mode STOP	▲	
Fermeture plateau	Plateau ouvert	▲	
Arrêt	Mode PLAY	■	
Lecture	Placement de disque et plateau fermé.	▶	• Lancer la lecture avec servo TRK ouvert. • Lancer la lecture avec inclinaison au neutre. • Le type de disque (LD/CD/CDV) est déterminé quand la lecture commence à la position SLDR.
Servo TRK Ouverture/Fermeture	Mode PLAY	▶	• A chaque poussée sur la touche PLAY (▶), le servo TRK s'ouvre ou se ferme alternativement.
Fixe	Mode PLAY Servo TRK fermé.	II	• A chaque poussée sur la touche PAUSE (II), le lecteur passe alternativement entre les modes PLAY et STILL.
SLDR REV SCAN	Mode PLAY	◀◀	• Sens anti-horaire • Avec le servo TRK ouvert, le capteur peut être endommagé sur le SLD se déplace plus à l'intérieur que la zone d'amorce du disque. Ne pas laisser le SLD dépasser la zone d'amorce vers l'intérieur du disque.
SLDR FWD SCAN	Mode PLAY	▶▶	• Sens horaire • Avec le servo TRK ouvert, le capteur peut être endommagé sur le SLD se déplace plus à l'extérieur que la zone d'amorce du disque. Ne pas laisser le SLD dépasser la zone d'amorce vers l'extérieur du disque.
TILT Neutre	Interrupteur POWER allumé	EDIT	
TILT Servo ON	Mode PLAY	RANDOM PLAY	
TILT Moins TILT Servo OFF	Mode PLAY	I◀◀	• Maintenir les touches enfoncées.
TILT Plus TILT Servo OFF	Mode PLAY	▶▶I	• Maintenir les touches enfoncées.
Ecran d'affichage ON/OFF	Interrupteur POWER allumé	Touche PGM	
Recherche de cadre	Mode PLAY	Touche +10 ↓ Touche 0-9 ↓ ▶	• En mode PLAY, appuyer sur la touche +10 (Le lecteur se met en attente de l'entreé du No. de cadre.) • Se servir des touches numériques (0 – 9) pour entrer le numéro de cadre, puis appuyer sur la touche PLAY du lecteur pour la recherche. • A la fin de la recherche, le lecteur repasse au mode d'avant la recherche.
Moteur de chargement Rotation dans le sens horaire ou anti-horaire	Plateau ouvert	▶▶I I◀◀	• FWD: Déchargement • REV : Chargement
FOCS OFFSET (CT BEST) Vérification VR606	Mode PLAY (Servo TRK ouvert)	(Télécommande) MULTI-SPEED FWD →F-1 REV →F-0 (Lecteur) INTRO SCAN	VR606 et VR605 : Pour vérification F – 0 : Mode normal•••••••••fermeture de TRKG : VR606 (CT BEST) ouverture de TRKG : VR605 (TE MIX) F – 1 : VR606 est actualise à l'ouverture TRKG.

7.3.5 ECRAN DU TÉLÉVISEUR ET AFFICHAGES EN MODE D'ESSAI



Ecran du téléviseur



① Le No. de piéce (ensemble ASCB) CI de contrôle mécanique sera affiché.

PD0105A1 → 0105A

② Etat servo inclinaison/Affichage erreur d'inclinaison

T-○:○○

- Etat servo d'inclinaison : N... Neutre
  ON... Servo ON
  OFF... Servo OFF
- Affichage erreur inclin : 0 Inclinaison −
  ↕ Neutre
  F Inclinaison +

③ Etat servo TRK

Ecran du téléviseur

TRK-○○○

└—ON...Servo TRK fermé

OFF...Servo TRK ouvert

④ Donneé de réception Touche Télécommande / Lecteur

Ecran du téléviseur

K-○○

└— Voir tableau ci-après.

Code	Fonction	Code	Fonction	Code	Fonction	Code	Fonction
00	0	20	F JOG0	40	(CHAP / TRK)	60	
01	1	21	F JOG1	41	(FRAM / TIM)	61	
02	2	22	F JOG2	42	(SEARCH)	62	
03	3	23	F JOG3	43	DISPLAY	63	
04	4	24	R JOG0	44	REPEAT B	64	
05	5	25	R JOG1	45	CLEAR	65	
06	6	26	R JOG2	46	SPEED –	66	
07	7	27	R JOG3	47	SPEED +	67	
08	8	28		48	REPEAT A	68	
09	9	29		49	(2 / R)	69	
0A	(VOLUME +)	2A		4A	(STEREO)	6A	
0B	(VOLUME –)	2B		4B	(1 / L)	6B	
0C	D/A / CX	2C		4C	PROGRAM	6C	
0D		2D		4D	SIDE A	6D	PLAY /PAUSE
0E	(CX ON/OFF)	2E		4E	SIDE B	6E	STOP
0F	(TV / LDP)	2F		4F		6F	OPEN / CLOSE
10	F-SCAN	30		50	F-STEP	70	
11	R-SCAN	31		51		71	DIRECT CD
12	16:9	32		52	F-SKIP	72	
13	CHAP / FRME	33		53	R-SKIP	73	SINGLE
14		34		54	R-STEP	74	
15		35		55	R-MULT	75	
16	STOP / OPEN	36		56		76	LANGUAGE
17	PLAY	37	DGT LEVEL	57		77	
18	PAUSE	38		58	F-MULT	78	
19		39		59		79	
1A	(POW ON)	3A		5A	HILIT / INTR	7A	
1B	(POW OFF)	3B		5B		7B	
1C	POW ON/OFF	3C		5C		7C	
1D	EDIT	3D		5D		7D	
1E	AUDIO	3E		5E	RNDM (TEST)	7E	
1F	+10	3F		5F	(ESC)	7F	

⑤ Position SLD

Ecran du téléviseur

S-○○○

└— IN ... CD intérieur SW ON

CD ... Zone active de CD

CDV ... Zone active de CDV

LD ... Zone active de LD

⑥ Position de chargement mécanique

Ecran du téléviseur

M-○

└— 0 ... Plateau ouvert

1 ... Chargement

2 ... Attente

3 ... Verrouillé

5 ... Inclinason moin

6 ... Inclinaison neutre (un côté)

7 ... Inclinaison plus

8 ... Limite d'inclinaison

9 ... Côté B verrouillé (deux côtés)

⑦ Etat VR décalage de mise au point

Ecran du téléviseur

F-○

└— 0 ... Mode normal

•A la fermeture de servo TRK, VR606 (CT BEST) est actualisé.

•A l'ouverture de servo TRK, VR605 (TE MAX) est actualisé.

1 ... A l'ouverture de servo TRK, VR606 (CT BEST) est aussi actualisé.

7.4 REGLAGES

7.4.1 OUTILS ET INSTRUMENTS DE RÉGLAGE

- Petit tournevis (environ 10cm de long)
- Petit tournevis cruciforme
- Clés hexagonales (2mm et 2,5mm)
- Oscilloscope double faisceau (avec retard)
- Oscillateur audiofréquence (AF)
- Compteur de fréquence
- Disque d'essai LD (GGV1007)
- Disque LDD (acheter dans le commerce)
- Disque d'essai CD (YEDS-7)
- Pince coupe-circuit
- Tournevis excentrique en L (GGV-129)
- Tournevis cruciforme
- Résistance (47kΩ , 10kΩ × 2)
- Filtre passe-bas (47kΩ +1 μF)
- Voltmètre numérique

7.4.2 PREPARATIFS POUR LES RÉGLAGES ET PRECAUTIONS

1) Ajuster la hauteur de la table de lecture au moment de remplacer le moteur à broche.

2) Lecture de la face B

La lecture directe de la face B est possible par l'action de la touche SIDE B sur le panneau avant.

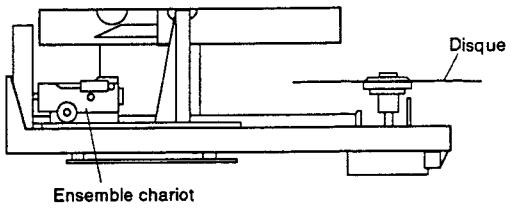
3) Disque d'essai

Le disque d'essai LD utilisé pour le réglage mécanique et le réglage de l'ensemble carte mère peut être le même GGV1007. Les numéros d'image donnés dans le texte sont pour le GGV1007.

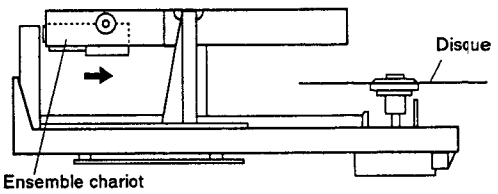
4) Les numéros donnés dans les schémas de connexion correspondent aux numéros des étapes de la procédure de réglage.

5) Les numéros d'image ne sont pas affichés sur le moniteur TV. Veuillez lire l'affichage FL.

Etat de lecture avant de l'ensemble chariot



Etat de lecture arrière de l'ensemble chariot

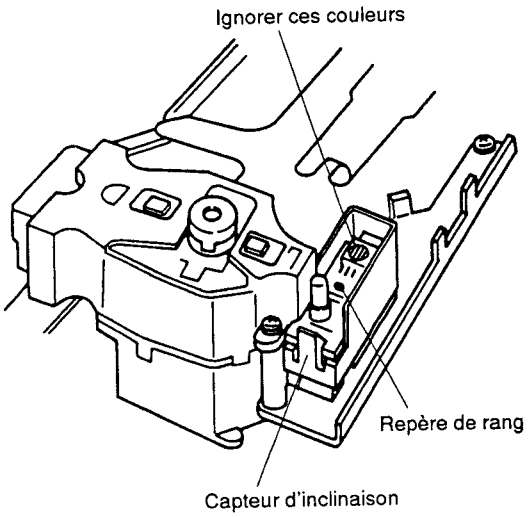


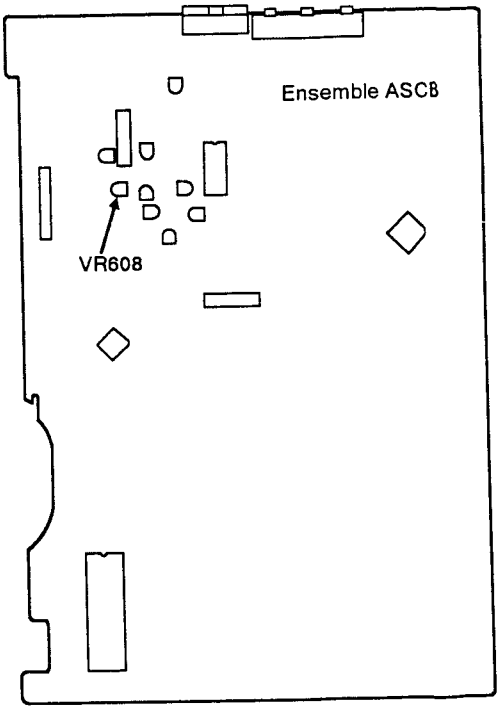
7.4.3 RÉGLAGES MÉCANIQUES
1. RÉGLAGE DE GAIN D'INCLINAISON

- Objet : Ajuster le gain d'inclinaison en fonction du rang de sensibilité du capteur d'inclinaison.
- En cas de mauvais réglage : Augmentation des oscillations d'inclinaison et de la diaphonie.

• Instruments de mesure et calibres: • Point de mesure: • Disque d'essai et mode du lecteur:	• Petit tournevis
• Positions à ajuster:	• VR608 (TILT GAIN)

Schéma de connexion





Procédure de Réglage

1. Se servir du tournevis pour ajuster l'angle de VR608 sur l'ensemble ASCB en fonction de la couleur de l'indicateur de rang.

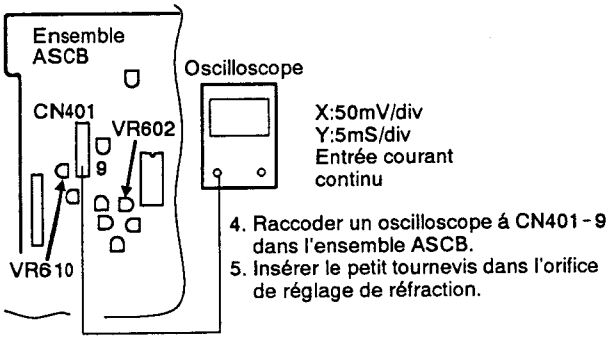
Rang	Couleur	Angle VR
A	Rouge	A fond dans le sens horaire
B	Clair	Centre mécanique
C	Bleu	A fond dans le sens anti-horaire

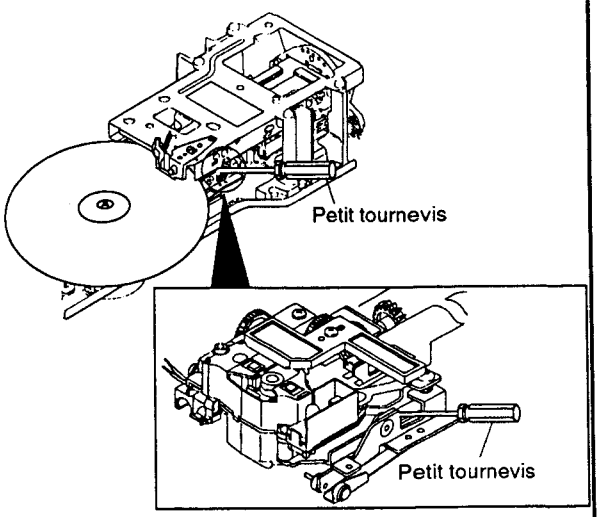
2. RÉGLAGE APPROXIMATIF DE RÉFRACTION ET D'EQUILIBRE D'ALIGNEMENT (TRKG)

- Objet : Réglage du faisceau laser, qui est divisé en trois par la réfraction, sur la position optimale sur la piste.
  Régler la tension offset de boucle d'asservissement TRKG sur 0V.
- En cas de mauvais réglage : La lecture du disque est impossible. Saut de piste pendant la lecture.

• Instruments de mesure et calibres:	● Petit tournevis ● Oscilloscope
• Point de mesure:	● CN401 - 9 (TRKG ERR)
• Disque d'essai et mode du lecteur:	● Disque d'essai LD de 8 pouces (GGV1007)...#6,500 ● Mode d'essai (boucle d'asservissement TRKG:ouverte) ● L'ensemble chariot doit être en état de lecture avant.
• Positions à ajuster:	● Réfraction ● VR602 (TRKG BAL).

Schéma de connexion





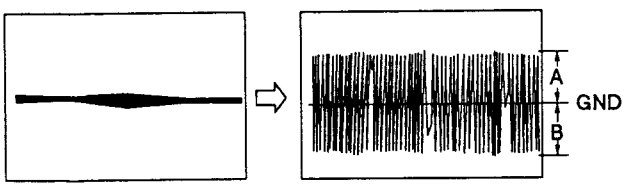


Fig. 1 Position "point nul" Fig. 2 Amplitude maximale A=B

Procédure de réglage

<Réglage approximatif de réfraction>

1. Reproduire le disque d'essai LD.
2. Rechercher l'image #6,500.
3. Ouvrir la boucle d'asservissement TRKG. (Voir section 7.3.)
4. Raccorder un oscilloscope à CN401 - 9 et observer la forme d'onde.
5. Insérer le petit tournevis dans l'orifice de réglage de réfraction. Le réglage de réfraction vous permet de faire varier l'amplitude de la forme d'onde d'erreur TRKG. Trouver la position où l'amplitude de la forme d'onde est minimale avec un enveloppe douce. (Fig. 1)
   (Ceci indique que les faisceaux laser divisés en trois sont dirigés sur la piste. C'est la position "point nul".)
6. Tourner lentement le tournevis dans le sens antihoraire à partir de la position "point nul" jusqu'à ce que l'amplitude de la forme d'onde soit maximale. (Fig.2.)
7. Fermer la boucle d'asservissement TRKG et vérifier qu'une image normale est affichée sur l'écran du téléviseur.

<Réglage d'équilibre TRKG>

1. Aligner la position GND de l'oscilloscope de manière qu'elle arrive au centre de l'écran de l'oscilloscope.
2. Ajuster VR602 de manière que les amplitudes positive et négative de la forme d'onde d'erreur TRKG soient égales. (Fig. 2)

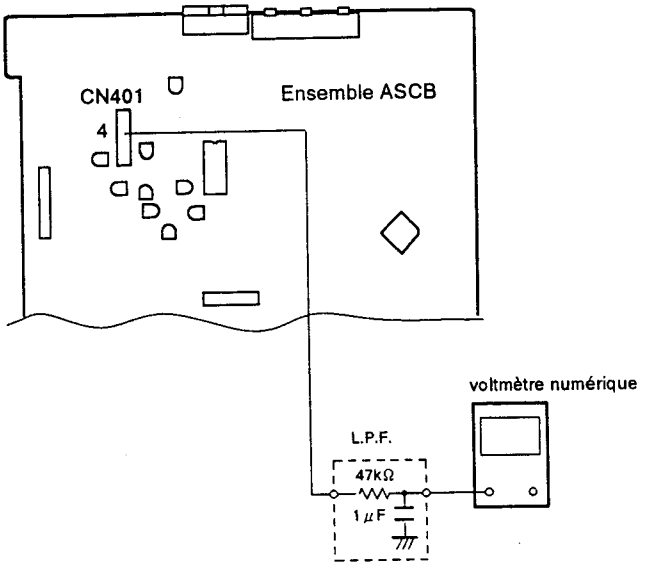
Remarque: Si le réglage de VR602 ne change pas l'alignement, effectuer l'ajustement après avoir réglé VR610 sur le centre mécanique.

3. RÉGLAGE HORIZONTAL D'AXE COULISSANT (SLDR)

- Objet : Positionner l'axe coulissant horizontalement pour que le capteur puisse se déplacer horizontalement sur le disque.
- En cas de mauvais réglage : Avec un disque voilé, le servomoteur FOCS ne fonctionne pas au centre et à la périphérie du disque.

• Instruments de mesure et calibres:	• Voltmètre numérique • Filtre passe-bas (47k Ω + 1 μF)
• Point de mesure:	• CN401 - 4 (FCS RTN) et GND
• Disque d'essai et mode du lecteur:	• Disque d'essai LD de 8 pouces (GGV1007) • Mode d'essai (#9,800/#23,800,boucle d'asservissement TRKG:ouverte, servomoteur d'inclinaison OFF)
• Positions à ajuster:	• Touche SKIP du lecteur (pendant le mode d'essai)

Schéma de connexion



Procédure de réglage

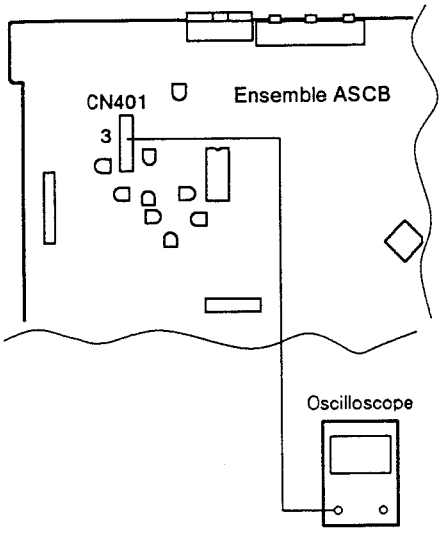
1. Raccorder un voltmétre numérique à CN401 - 4 via L.P.F.
2. Ouvrir la boucle d'asservissement TRKG et rechercher l'image #9,800.
3. Vérifier la tension.
4. Rechercher l'image #23,800 et vérifier que la tension est la même qu'à l'image #9,800. Si elle est différente, régler la touche SKIP de manière que la tension soit la même qu'à l'image #9,800.

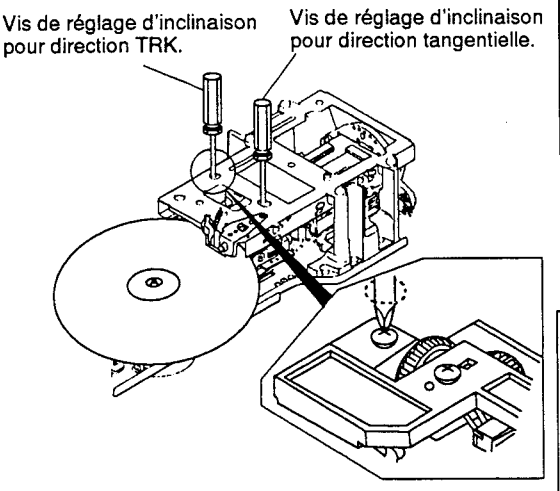
4. RÉGLAGE D'INCLINAISON DE CAPTEUR

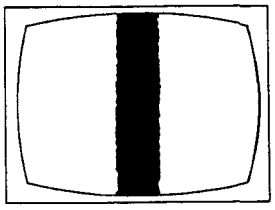
- Objet : Régler l'inclinaison du capteur de sorte que le faisceau laser soit dirigé verticalement par rapport au disque.
- En cas de mauvais réglage : Production de diaphonie.

• Instruments de mesure et calibres:	• Moniteur TV • Tournevis cruciforme • Oscilloscope
• Point de mesure:	• CN401 - 3 (RF)
• Disque d'essai et mode du lecteur:	• Disque d'essai LD de 8 pouces (GGV1007) • Mode d'essai (Image fixe au #2,251, écran noir),Servo d'inclinaison OFF
• Positions à ajuster:	• Alignement d'ensemble capteur / Vis de réglage d'inclinaison tangentielle

Schéma de connexion







Diaphonie minimum

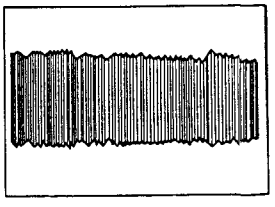


Fig. 1 Forme d'onde RF

Procédure de réglage

1. Raccorder l'oscilloscope sur CN401 - 3.
2. Rechercher le cadre #2,251 et observer la forme d'onde RF.
3. Agir sur la vis de réglage TRK du capteur/inclinaison en direction tangentielle pour maximaliser l'amplitude de la forme d'onde.
4. Observer l'écran du téléviseur et confirmer qu'il n'y a pas de diaphonie

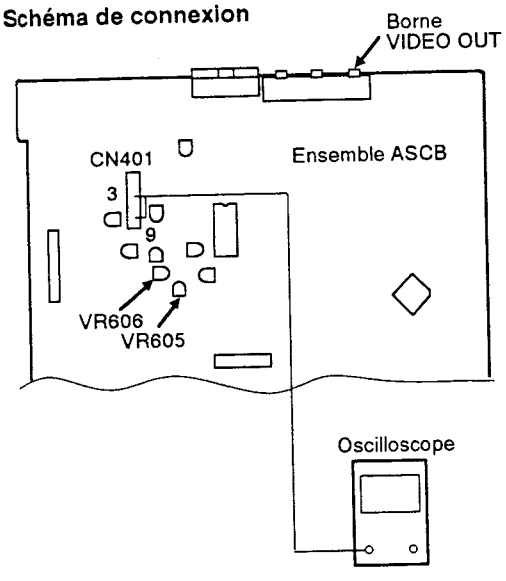
Remarq : une diaphonie est constatée sur l'écran même nd le niveau RF est au maximum, effectuer les pes suivantes.

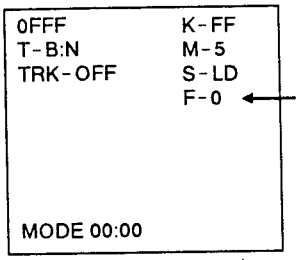
5. RÉGLAGE ERREUR D'ALIGNEMENT/DIAPHONIE OPTIMALE

- Objet : Ajuster la mise au point à l'état optimal à la lecture normale et lors du saut de plage (recherche).
- En cas de mauvais réglage : Production de diaphonie.

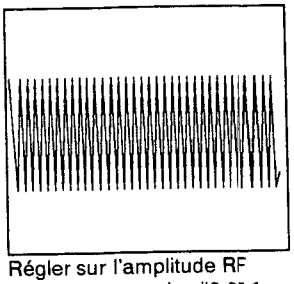
• Instruments de mesure et calibres:	● Moniteur TV ● Oscilloscope
• Point de mesure:	● CN401 - 3 (RF) ● CN401 - 9 (TRK ERR) ● Borne VIDEO OUT du lecteur
• Disque d'essai et mode du lecteur:	● Disque d'essai LD de 8 pouces (GGV1007) ● Mode d'essai (ouverture / fermeture servo TRK, Servo d'inclinaison OFF)
• Positions à ajuster:	● VR605 (TE MAX) ● VR606 (CT BEST)

Schéma de connexion

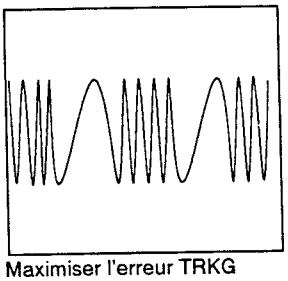




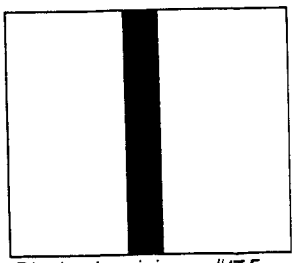
Affichage d'écran du mode d'essai



Régler sur l'amplitude RF maximum au cadre #2,251.



Maximiser l'erreur TRKG (alignement).



Diaphonie minimum #475

Procdéure de réglage

Remarque : Effectuer ce réglage si une diaphonie considérable est constatée sur l'écran à la section 4 "Réglage d'inclinaison de capteur".

1. Raccorder l'oscilloscope sur CN401 - 9.
2. Ouvrir le servo TRKG.
3. Confirmer que l'affichage d'écran du mode d'essai est F-0. Dans la négative, régler la touche MULTI - SPEED REV de la télécommande sur F-0.
4. Ajuster VR605 de sorte que l'amplitude de la forme d'onde d'erreur TRKG devienne maximale.
5. Refermer le servo TRKG.
6. Raccorder l'oscilloscope sur CN401 - 3.
7. Appuyer sur la touche MULTI - SPEED FWD de la télécommande pour afficher "F-1" sur l'écran du téléviseur.
8. Rechercher le cadre #2,251 et ajuster VR606 de sorte que l'amplitude de la forme d'onde RF devienne maximale.
9. Confirmer que la diaphonie sur l'écran du téléviseur devient minimale au cadre #475.

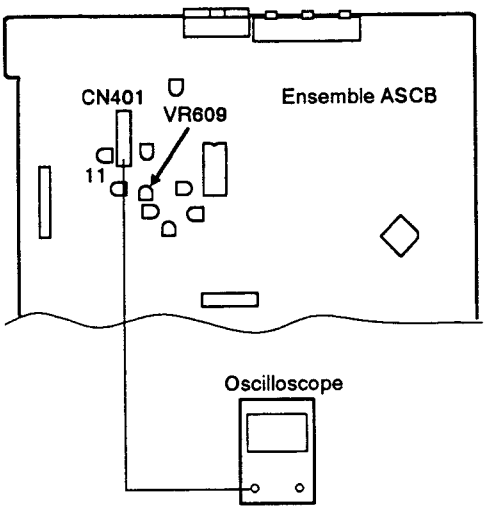
Remarque : Une fois le réglage terminé, veiller à effectuer "6. Réglage de niveau FOCS SUM".

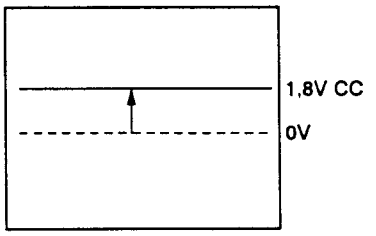
6. RÉGLAGE DE NIVEAU FOCS SUM

- Objet : Régler le niveau de la somme (FCS A+C) de B1– B4 à la valeur optimale pour actualiser le servo FOCS (mise au point).
- En cas de mauvais réglage : Dégradation de la possibilté de lecture.

• Instruments de mesure et calibres:	● Moniteur TV ● Oscilloscope
• Point de mesure:	● CN401 - 11(FCS SUM)
• Disque d'essai et mode du lecteur:	● Disque d'essai LD de 8 pouces (GGV1007)...#15,000 ● Mode fixe ● Mode d'essai(boucle d'asservissement TRKG:fermeé) ● Servomoteur d'inclinason:meutre
• Positions à ajuster:	● VR609(FCS SUM)

Schéma de connexion





Procdéure de réglage

Remarque : Effectuer ce réglage après avoir exécuté "5. Réglage Erreur d'alignement / Diaphonie optimale".

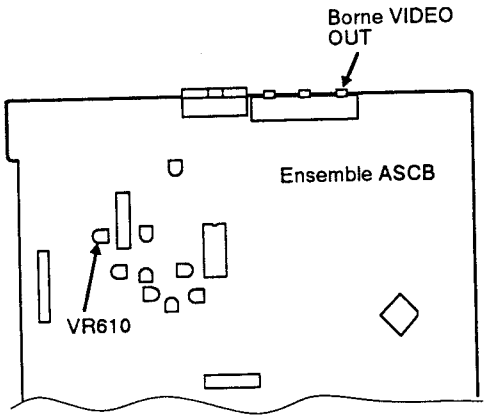
1. Raccorder l'oscilloscope sur CN401 - 11.
2. Ajuster VR609 de sorte que la tension deviennt 1,8 V CC.

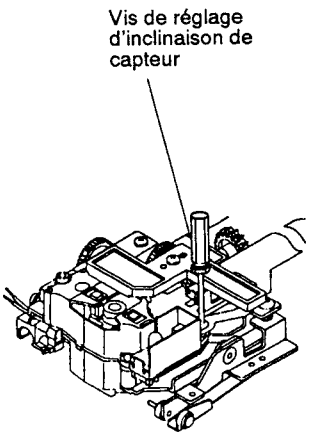
7. RÉGLAGE INCLINAISON DE CAPTEUR/BALANCE D'INCLINAISON

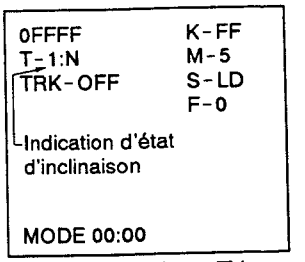
- Objet : Régler l'inclinaison du capteur afin de diriger verticalement la diode LED du capteur d'inclinaison par rapport au disque. Egalement, compenser la différence de sensibilité entre les deux capteurs.
- En cas de mauvais réglage : Production de diaphonie

• Instruments de mesure et calibres:	• Moniteur TV • Petit tournevis cruciforme
• Point de mesure:	• Borne VIDEO OUT du lecteur
• Disque d'essai et mode du lecteur:	• Disque d'essai LD de 8 pouces (GGV1007) • Mode d'essai (image fixe sur #16,200/#475, servo TRK fermé servo d'inclinaison OFF)
• Positions à ajuster:	• Vis de réglage d'inclinaison de capteur • VR610 (TILT BAL).

Schéma de connexion







Affichage d'écran TV

Remarque:
L'affichage indique l'endroit d'affichage de l'erreur d'inclinaison. Les autres affichages peuvent différer légèrement de l'affichage réel.

Procédure de réglage

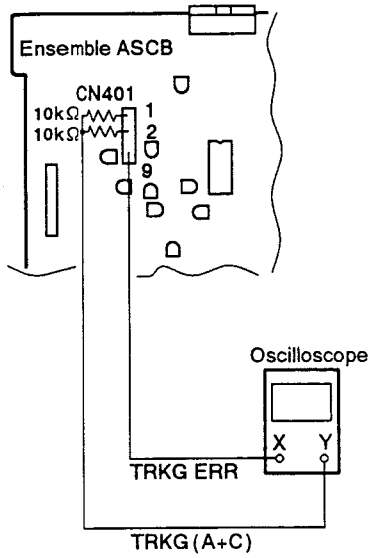
1. Rechercher le cadre #16,200 sur le disque d'essai.
2. Régler VR610 au centre mécanique.
3. Ajuster la vis de réglage d'inclinaison de capteur de sorte que le code d'affichage d'état soit 6, 7 ou 8 sur le moniteur TV.
4. Rechercher le cadre #475.
5. Ajuster VR610 de sorte que l'affichage d'erreur d'inclinaison soit 7.

8. VÉRIFICATION DU CENTRAGE DU MOTEUR À BROCHE

● Objet: Pour vérifier que l'axe du moteur à broche soit au centre de la trajectoire du faisceau laser.

• Instruments de mesure et calibres:	● Oscilloscope ● Résistance (10kΩ × 2)
• Point de mesure:	● CN401 - 9 (TRKG ERR), CN401 - 1 (TRKG C) et CN401 - 2 (TRKG A)
• Disque d'essai et mode du lecteur:	● Disque d'essai LD 8 pouces GGV1007...#100 et #23,800 ● Mode de lecture ● Disque d'essai CD (YEDS - 7)
• Positions à ajuster:	● Mode de d'essai (boucle d'asservissement TRKG:ouverte) ● L'ensemble chariot doit être en état de lecture avant. ● Vérifier la courbe de Lissajous.

Schéma de connexion



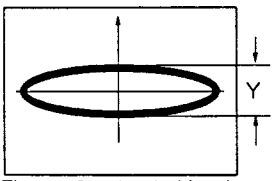


Fig. 1 Courbe de Lissajous de la piste interne du disque (CD)

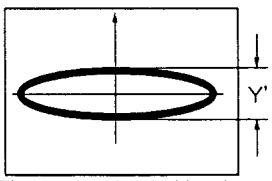


Fig. 2 Courbe de Lissajous de la piste externe du disque (CD)

5. L'axe Y de la courbe de Lissajous doit être identique pour les pistes interne et externe.

Procédure de vérification

1. Reproduire le disque d'essai LD 8 pouces.
2. Amener le capteur sur l'image #23,800 par scanning ou par recherche, puis ouvrir la boucle d'asservissement TRKG.
3. Raccorder l'entrée X (CH - 1) de l'oscilloscope à CN401 - 9 et l'entrée Y (CH - 2) à CN401 - 1 et 2.
   Régler l'oscilloscope en mode X - Y et observer les courbes de Lissajous du signal d'erreur TRKG et le signal TRKG (A+C).
4. Eorire les amplitudes de l'axe Y sur les courbes de Lissajous. (Fig. 1)
5. Fermer la boucle d'asservissement TRKG et rechercher l'image #100, puis ouvrir à nouveau la boucle d'asservissement TRKG pour observer la courbe de Lissajous.
   A ce moment, vérifier que l'amplitude de l'axe Y de la courbe de Lissajous est égale à celle notée à l'étape 4. (Fig. 2)
6. Sortir le disque d'essai LD 8 pouces du lecture, puis charger le disque d'essai CD et répéter la procédure de vérification de 1 à 5.
   Il n'est cependant pas nécessaire de spécifier les positions de piste interne ou externe du disque. Si l'amplitude de l'axe Y de la courbe de Lissajous est différente pour les pistes interne et externe, faire le réglage "9.Réglage de centrage du moteur à broche".

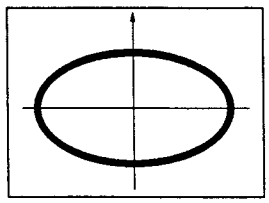


Fig. 3 Courbe de Lissajous lorsque le moteur est mal centré

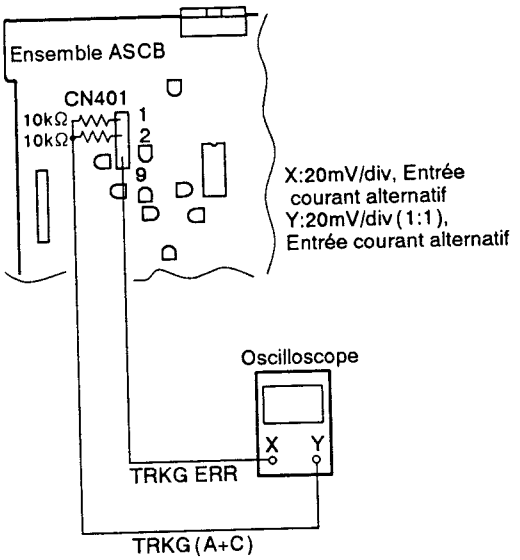
9. RÉGLAGE DE CENTRAGE DU MOTEUR À BROCHE

● Objet: Régler la position du moteur à broche de manière que l'axe du moteur soit au centre de la trajectoire du faisceau laser.

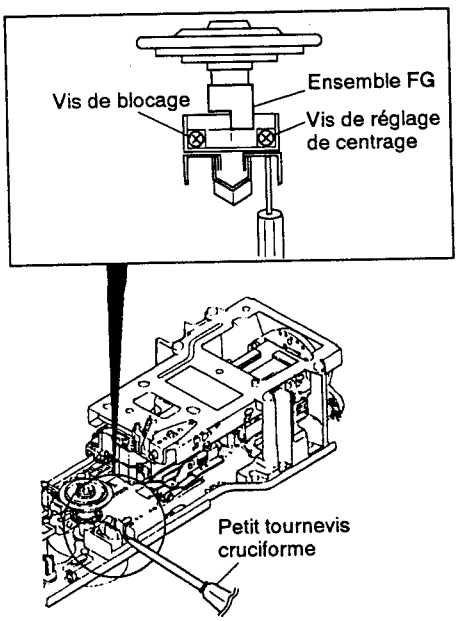
● En cas de mauvais réglage: Sauts de pistes, recherche trop longue.

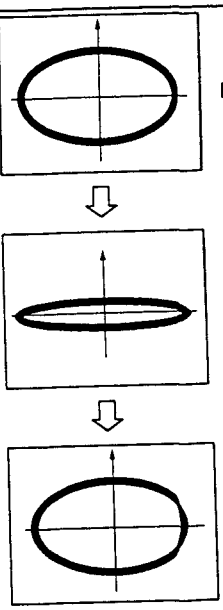
• Instruments de mesure et calibres:	● Petit tournevis cruciforme ● Oscilloscope ● Résistance (10kΩ ×2)
• Point de mesure:	● CN401 - 9 (TRKG ERR), CN401 - 1 (TRKG C) à CN401 - 2 (TRKG A)
• Disque d'essai et mode du lecteur:	● Disque d'essai LD 8 pouces GGV1007...#100 et #23,800 ● Mode de lecture ● Mode de d'essai (boucle d'asservissement TRKG:ouverte/fermée) ● Disque d'essai CD (YEDS - 7)
• Positions à ajuster:	● L'ensemble chariot doit être en état de lecture avant. ● Vis de réglage de centrage du moteur à broche

Schéma de connexion



7. Tourner la vis de réglage de centrage.





7. Courbe de Lissajous

Procédure de réglage

1. Raccorder l'entrée X (CH - 1) de l'oscilloscope à CN401 - 9 et l'entrée Y (CH - 2) à CN401 - 1 et 2.
2. Reproduire le disque d'essai LD 8 pouces et rechercher l'image #23,800.
3. Ouvrir la boucle d'asservissement TRKG et observer les courbes de Lissajous du signal d'erreur TRKG et du signal résultant TRKG.
4. Régler la réfraction avec précision de manière que l'amplitude de l'axe Y de la courbe de Lissajous soit minimisée. (Fig. 2)
5. Fermer la boucle d'asservissement TRKG et rechercher l'image #100.
6. Ouvrir à nouveau la boucle d'asservissement TRKG, observer la courbe de Lissajous et écrire les valeurs. (Fig. 1)
7. Desserrer la vis de blocage et insérer le petit tournevis cruciforme dans l'orifice de réglage. Touner lentement la vis de réglage de centrage de manière que l'amplitude de l'axe Y de la courbe de Lissajous soit réduite. Lorsque l'amplitude de l'axe Y de la courbe de Lissajous est minimisée, tourner la vis de réglage un peu plus jusqu'a ce que l'amplitude soit de la même forme que celle observée á l'étape 6. (Fig. 1 - 3)
8. Fermer la boucle d'asservissement TRKG et amener l'ensemble capteur sur la piste externe du disque (#23,800), puis refaire les réglages des étapes 4 à 6.
9. Ouvrir à nouveau la boucle d'asservissement TRKG et observer la courbe de Lissajous pour vérifier que l'amplitude de l'axe Y est au minimum. (Fig. 2)
   Si l'amplitude de l'axe Y de la courbe de lissajous est supérieure à celle spécifiée, répéter la procédure de réglage de l'étape 5 à l'étape 8.
10. Lorsque le réglage est terminé, faire le réglage de "8. Vérification de centrage du moteur à broche", étape 6.
11. Serrer la vis de blocage.

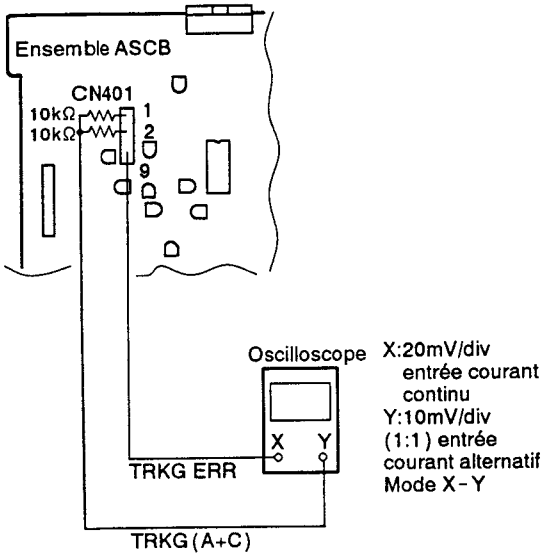
10. RÉGLAGE FIN DE RÉFRACTION

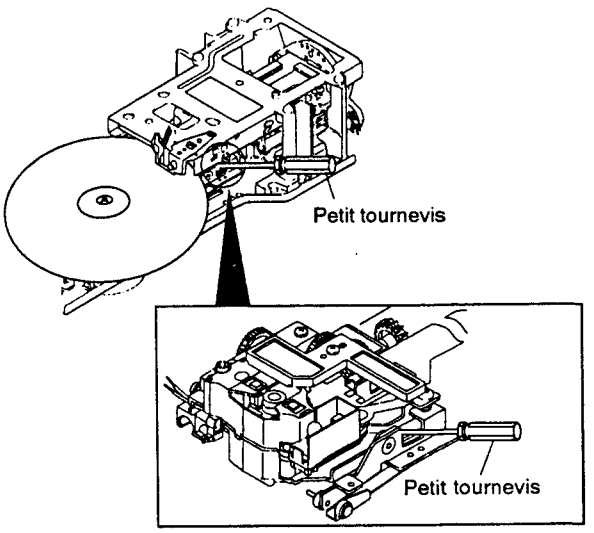
● Objet: Ajuster avec précision la réfraction de manière que les deux faisceaux laser pour la boucle d'asservissement TRKG soient projetés à la position optimale au - dessus des pistes en cours de lecture. Régler la tension offset de la boucle d'asservissement TRKG sur 0V.

● En cas de mauvais réglage: Risque de saut de pistes pendant la lecture.

● Instruments de mesure et calibres:	● Oscilloscope ● Petit tournevis ● Résistance (10kΩ ×2)
● Point de mesure:	● CN401 - 9 (TRKG ERR), CN401 - 1 (TRKG C) et CN401 - 2 (TRKG A)
● Disque d'essai et mode du lecteur:	● Disque d'essai LD 8 pouces GGV1007...#6,500 ● Mode fixe ● Mode d'essai (boucle d'asservissement TRKG:ouverte) ● L'ensemble chariot doit être en état de lecture avant.
● Positions à ajuster:	● Réfraction

Schéma de connexion





3. Insérer le petit tournevis dans l'orifice de réglage de réfraction pour faire le réglage fin.

Procédure de réglage

1. Raccorder l'entrée X (CH - 1) de l'oscilloscope à CN401 - 9 et l'entrée Y (CH - 2) à CN401 - 1 et 2.
2. Reproduire le disque d'essai LD à l'image #6,500, puis ouvrir la boucle d'asservissement TRKG.
   Mettre l'oscilloscope en mode X - Y et observer les courbes de Lissajous du signal d'erreur TRKG et du signal résultant TRKG.
3. Insérer le petit tournevis dans l'orifice de réglage de réfraction et faire le réglage fin de manière que l'amplitude de l'axe Y des courbes de Lissajous soit minimisée. (Fig. 1)
   Si la vis est trop tournée et que la position optimale est impossible à trouver, répéter "2. Réglage approximatif de réfraction".
4. Sélectionner l'entrée X (CH - 1) de l'osciloscope et vérifier que les amplitudes positive et négative du signal d'erreur TRKG sont égales. (Fig. 2)
   Si elles ne sont pas égales, répéter "2. Réglage d'équilibre d'alignement".
5. Fermer la boucle d'asservissement TRKG et vérifier que l'image sur l'écran du téléviseur est normale.

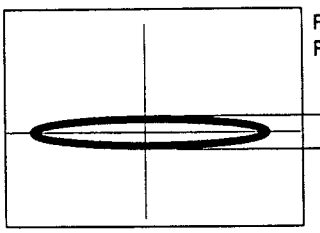


Fig. 1
Réglage fin de réfraction

3. L'amplitude de l'axe Y de la courbe de Lissajous devient minimale

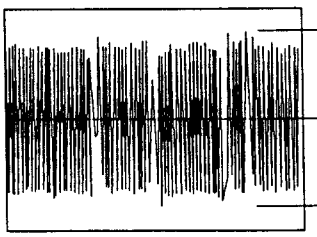


Fig. 2
Equilibre TRKG

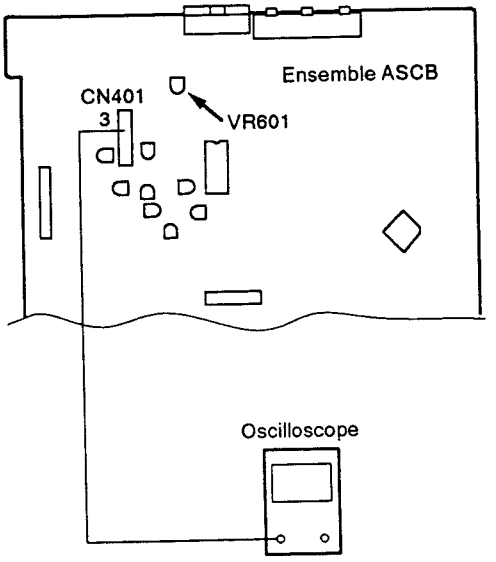
11. RÉGLAGE DE GAIN RF

● Objet: Obtenir la valeur optimale d'amplitude du signal RF.

● En cas de mauvais réglage: Pertes fréquentes de signaux

● Instruments de mesure et calibres:	● Oscilloscope
● Point de mesure:	● CN401 - 3 (signal RF)
● Disque d'essai et mode du lecteur:	● Disque d'essai LD 8 pouces GGV1007...#15,000 ● Mode fixe ● Mode d'essai (boucle d'asservissement TRKG:fermeé) ● Servomoteur d'inclinason:neutre ● L'ensemble chariot doit être en état de lecture avant.
● Positions à ajuster:	● VR601 (RF LEVEL)

Schéma de connexion



Procédure de réglage

1. Reproduire le disque d'essai LD et rechercher l'image #15,000.
2. Raccorder un oscilloscope à CN401 - 3 (signal RF) et observer le signal RF.
3. Ajuster VR601 de manière que l'amplitude du signal RF soit 300mV ± 50mV. (Fig. 1)

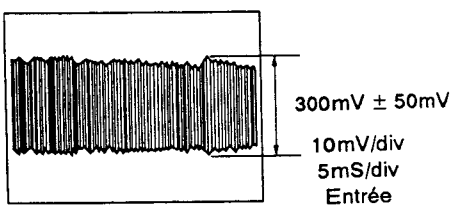


Fig. 1 signal RF

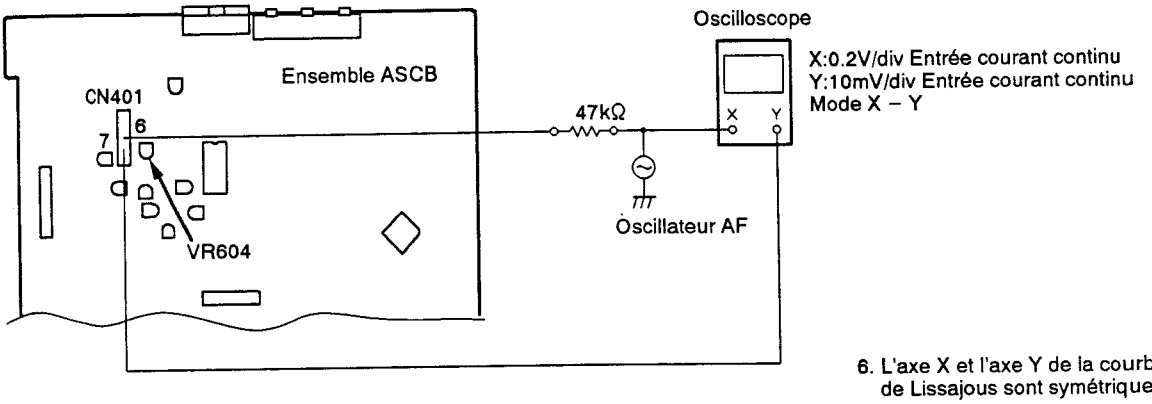
12. RÉGLAGE DE GAIN DE BOUCLE D'ASSERVISSEMENT FOCS

● Objet: Régler le gain de la boucle d'asservissement de FOCS sur la valeur optimale.

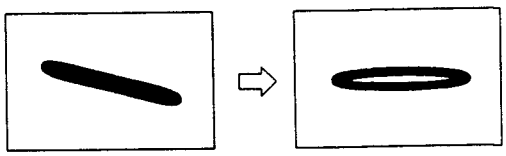
● En cas de mauvais réglage: Les performances diminuent.

• Instruments de mesure et calibres:	• Oscilloscope • Oscillateur AF • Résistance (47kΩ)
• Point de mesure:	• CN401 - 6 (FOCS ERR) et CN401 - 7 (FOCS IN)
• Disque d'essai et mode du lecteur:	• Disque d'essai LD 8 pouces GGV1007...#15,000 • Mode fixe • Mode d'essai (boucle d'asservissement TRKG:fermée) • Servomoteur d'inclinason:neutre • L'ensemble chariot doit être en état de lecture avant.
• Positions à ajuster:	• VR604 (FOCS GAIN)

Schéma de connexion



6. L'axe X et l'axe Y de la courbe de Lissajous sont symétriques.



Mauvais réglage Réglage correct

Fig. 1

Procédure de réglage

1. Raccorder l'entrée X (CH - 1) de l'oscilloscope via la résistance et l'oscillateur AF à CN401 - 6, et l'entrée Y (CH - 2) à CN401 - 7, comme indiqué sur le schéma ci - dessus.
2. Régler la sortie de l'oscillateur AF sur 2,0kHz/6Vc - c pour GGV1007, en fonction du disque d'essai utilisé.
3. Reproduire le disque d'essai LD 8 pouces et rechercher l'image #15,000.
4. Régler l'osciloscope en mode X - Y et observer la courbe de Lissajous.
5. Ajuster VR604 de manière que la courbe de Lissajous soit symétrique sur l'axe X et l'axe Y de l'oscilloscope. (Fig. 1)

Remarque : Si la sortie de l'oscillateur AF n'excède pas 6Vc - c, réduire la valeur de la résistance (47kΩ) dans le schéma ci - dessus, pour faciliter l'observation de la courbe de Lissajous. (pas moins de 33kΩ)

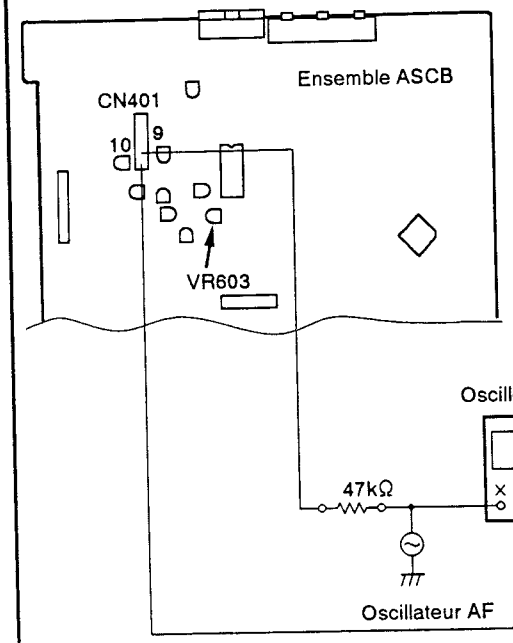
13. RÉGLAGE DE GAIN DE BOUCLE D'ASSERVISSEMENT TRKG

● Objet: Régler le gain de la boucle d'asservissement TRKG sur la valeur optimale.

● En cas de mauvais réglage: Les performance diminuent.

● Instruments de mesure et calibres:	● Oscilloscope ● Résistance(47kΩ) ● Oscillateur AF
● Point de mesure:	● CN401-9(TRKG ERR), CN401-10(TRKG IN)
● Disque d'essai et mode du lecteur:	● Disque d'essai LD 8 pouces GGV1007...#15,000 ● Mode fixe ● Servomoteur d'inclinason:neutre ● Mode d'essai (boucle d'asservissement TRKG:fermée) ● L'ensemble chariot doit être en état de lecture avant.
● Positions à ajuster:	● VR603

Schéma de connexion



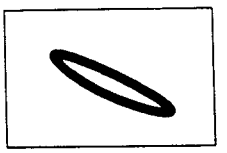
2. Raccorder CN401-9, la résistance, l'oscillateur AF et l'oscilloscope comme illustré.

X:0.2V/div Entrée courant continu
Y:10mV/div Entrée courant continu
Mode X-Y

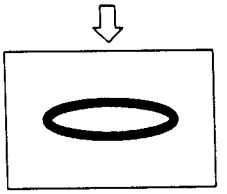
Procédure de réglage

1. Reproduire le disque d'essai LD 8 pouces et rechercher l'image #15,000.
2. Raccorder l'entrée X(CH-1) de l'oscilloscope via la résistance et l'oscillateur AF à CN401-9, et l'entrée Y(CH-2) à CN401-10, comme indiqué sur le schéma ci-dessus.
3. Régler la sortie de l'oscillateur AF sur 3,3kHz/6Vc-c pour GGV1007, en fonction du disque d'essai utilisé.
4. Régler l'oscilloscope en mode X-Y et observer la courbe de Lissajous.
5. Ajuster VR603 de manière que la courbe de Lissajous soit symétrique sur l'axe X et l'axe Y de l'oscilloscope. (Fig. 1)

Remarque : Si la sortie de l'oscillateur AF n'excède pas 6Vc-c, réduire la valeur de la résistance(47kΩ) dans le schéma ci-dessus, pour faciliter l'observation de la courbe de Lissajous. (pas moins de 33kΩ)



Réglage incorrect



Réglage correct

Fig. 1

5. L'axe X et l'axe Y de la courbe de Lissajous sont symétriques.

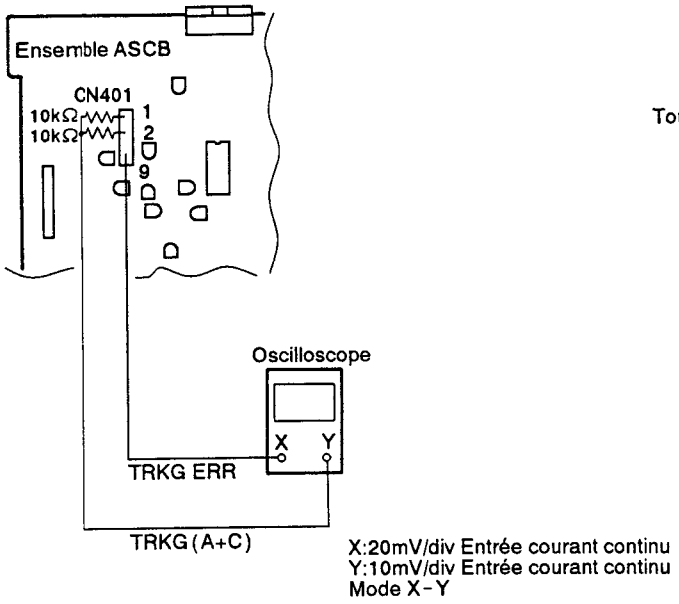
14. RÉGLAGE DE CENTRAGE POUR LA LECTURE DE LA FACE B

● Objet: Vérifier la position au début de la lecture et régler le moteur à broche au centre de la trajectoire du faisceau laser lors de la lecture de la face B du disque.

● En cas de mauvais réglage: Saut de pistes, temps de recherche plus long ou recherche impossible lors de la lecture de la face B du disque.

● Instruments de mesure et calibres:	● Tournevis excentrique en L(GGV-129) ● Oscilloscope ● Résistance(10kΩ)
● Point de mesure:	● CN401-9(TRKG ERR), CN401-1(TRKG C) et CN401-2(TRKG A)
● Disque d'essai et mode du lecteur:	● Disque d'essai LD 8 pouces GGV1007...#100 ● Mode de lecture ● L'ensemble chariot doit être en état de lecture arrière. ● Mode d'essai (boucle d'asservissement TRKG:ouverte/fermée)
● Positions à ajuster:	● Orifice de réglage de centrage pour la face B

Schéma de connexion



4. Réglage de centrage pour la lecture de la face B.

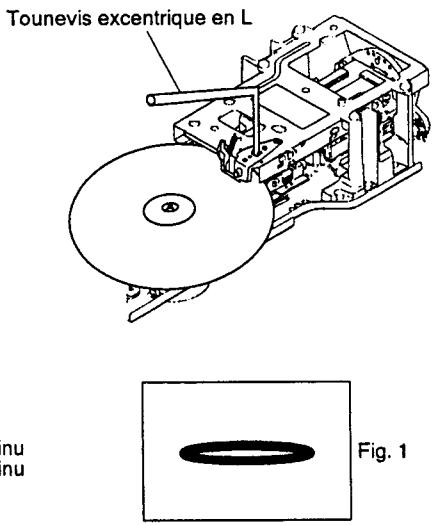


Fig. 1

4. Réglage correct(X:maximum).

Procédure de réglage

1. Retourner le disque d'essai LD(remplacer la face A par la face B). La position de début de lecture de la face A à B doit être aux alentours de l'image #3,500.
2. Mettre l'oscilloscope en mode X-Y, et raccorder l'entrée X (CH-1) de l'oscilloscope à CN401-9(TRKG ERR) et l'entrée Y(CH-2) à CN401-1 et 2(TRKG A+C).
3. Reproduire le disque d'essai LD et rechercher l'image #100, puis ouvrir la boucle d'asservissement TRKG.

Remarque: Si l'axe est trop excentré sur la face B du disque, puisque la recherche est impossible sur la face B, ouvrir la boucle d'asservissement TRKG lorsque l'ensemble chariot se déplace vers la position de lecture de la face B et recherche l'image #100.

4. Tout en observant la courbe de Lissajous sur l'oscilloscope, insérer le tournevis excentrique dans l'orifice de réglage de centrage pour la face B et le tourner de manière que l'amplitude de l'axe X de la courbe de Lissajous soit minimisé (position "sur piste"). Tourner ensuite le tournevis excentrique un peu plus dans le sens horaire jusqu'à ce que l'amplitude de l'axe X sur la courbe de Lissajous soit au maximum. (Fig.1)

Remarque: Si "4. Réglage de l'inclinason du capteur" est réalisé pendant que le capteur est en état avant, effectuer "15.Réglage de l'angle de direction tangentielle du capteur pour la lecture de la face B" et "16. Réglage fin de centrage pour la lecture de la face B".

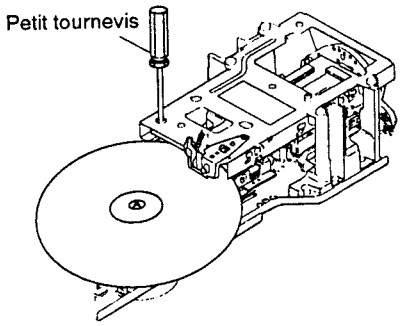
15. RÉGLAGE DE L'ANGLE DE DIRECTION TANGENTIELLE DU CAPTEUR POUR LA LECTURE DE LA FACE B

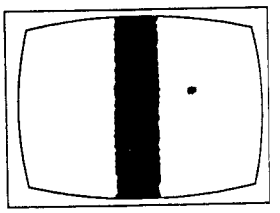
● Objet: Régler la diaphonie au minimum dans l'angle de direction tangentielle de l'ensemble capteur lors de la lecture de la face B du disque.

● En cas de mauvais réglage: La diaphonie est importante.

• Instruments de mesure et calibres:	● Moniteur TV ● Petit tournevis cruciforme
• Point de mesure:	● Ecran de contrôle
• Disque d'essai et mode du lecteur:	● Disque d'essai LD 8 pouces GGV1007...#475 ● Mode fixe ● L'ensemble chariot doit être en état de lecture arrière.
• Positions à ajuster:	● Vis de réglage de l'angle de direction tangentielle du capteur

Schéma de connexion





2. Diaphonie minimale

Procédure de réglage

1. Reproduire le disque d'essai LD et rechercher l'image #475.
2. Vérifier si de la diaphonie apparaît sur l'écran du moniteur TV et tourner la vis de réglage de l'angle de direction tangentielle du capteur de manière à minimiser la diaphonie.
3. Lorsque les étapes 1 et 2 sont terminées, effectuer à nouveau "14. Réglage de centrage pour la lecture de la face b".

Remarque: Si l'angle de direction tangentielle du capteur pour la lecture de la face B est modifié par ce réglage, le centre du disque pour la face B peut être légèrement décalé. Pour remédier à cela, refaire le réglage de centrage.

16. RÉGLAGE FIN DE CENTRAGE POUR LA LECTURE DE LA FACE B

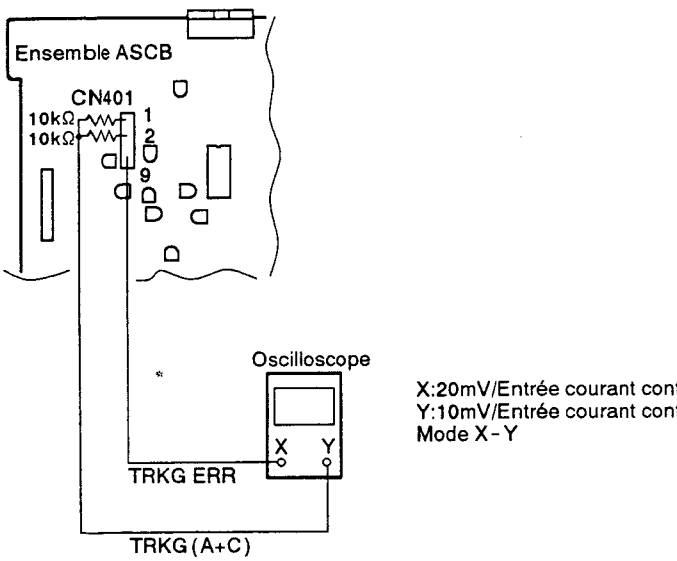
Réglages Mécaniques

● Objet: Régler le moteur à broche au centre de la trajectoire du faisceau laser lors de la lecture de la face B du disque.

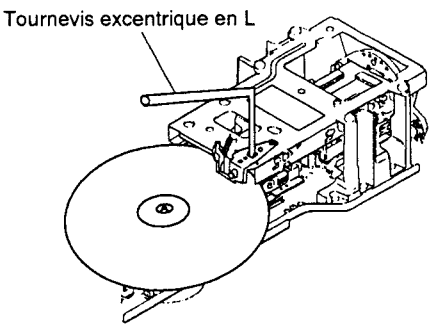
● En cas de mauvais réglage: Les pistes sautent lors de la lecture de la face B du disque.

● Instruments de mesure et calibres:	● Oscilloscope ● Petit tournevis excentrique en L(GGV-129) ● Résistance (10kΩ × 2)
● Point de mesure:	● CN401-9(TRKG ERR), CN401-1(TRKG C) et CN401-2(TRKG A)
● Disque d'essai et mode du lecteur:	● Disque d'essai LD 8 pouces GGV1007...#100 ● Mode d'essai(boucle d'asservissement TRKG:ouverte) ● Mode de lecture ● L'ensemble chariot doit être en état de lecture arrière.
● Positions à ajuster:	● Centrage de l'orifice de réglage pour la face B

Schéma de connexion



X:20mV/Entrée courant continu
Y:10mV/Entrée courant continu
Mode X-Y



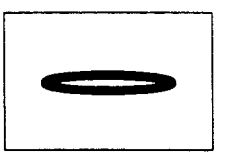
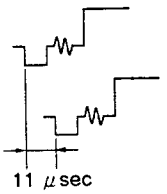
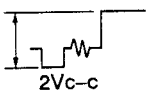


Fig. 1
4. Axe X de la courbe de Lissajous au maximum

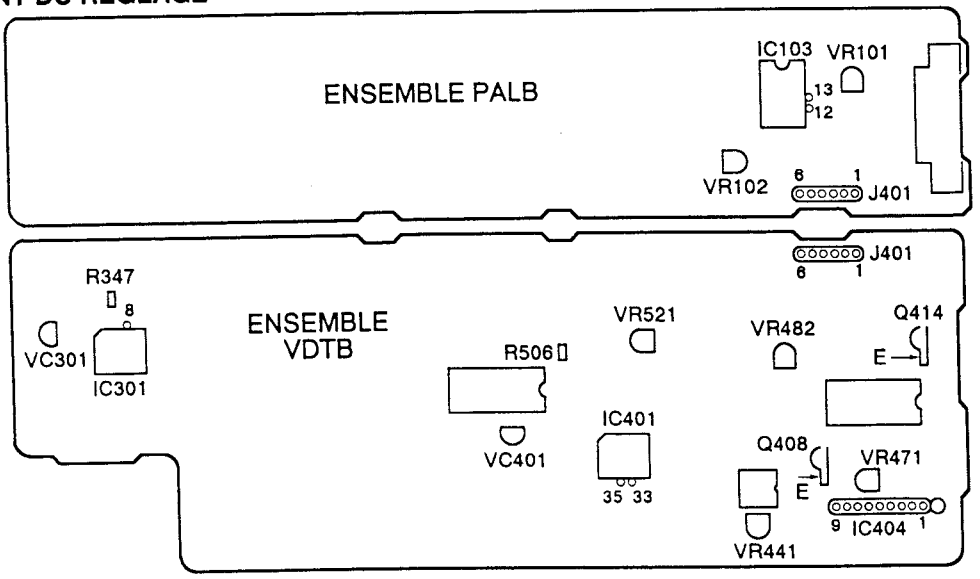
Procédure de réglage

1. Mettre l'oscilloscope en mode X-Y, et raccorder l'entrée X (CH-1) de l'oscilloscope à CN401-9(TRKG ERR) et l'entrée Y(CH-2) à CN401-1 et 2(TRKG A+C).
2. Reproduire le disque d'essai LD rechercher l'image #100.
3. Ouvrir la boucle d'asservissement TRKG.
4. Tout en observant la courbe de Lissajous sur l'oscilloscope, insérer le tournevis excentrique dans l'orifice de réglage de centrage pour la face B et le tourner de manière que l'amplitude de l'axe X de la courbe de Lissajous soit au maximum. (Fig. 1)
5. Mettre le lecture hors tension.
6. Fixer et verrouiller les vis comme suit:
   Vis de réfraction
   Vis de réglage de centrage du moteur à broche
   Vis de réglage de l'angle de direction tangentielle du capteur
   Orifice de réglage de centrage pour la face B
   Vis de détecteur d'inclinaison
   Plaque de l'axe (supérieure)

7.4.4 RÉGLAGES ELECTRIQUESS

	Réglage	Point de Réglage	Spécifications de Réglage	Norme d'Inspection	Remarques
	Ensemble VDTB				
1	Réglage de rythmeur de synchro - générateur	VC401	Ajuster VC401 sur 17,734475MHz au côté OPEN de R506.	17,734475MHz ± 100Hz	
2	Réglage de rythmeur REF	VC301	Ajuster sur 3,5546875MHz à la broche 8 (R347) de IC301. Ou ajuster de sortge que 1H de vidéo PB dure 10 secondes de plus que la valeur du signal vidéo de référence.	3,5546875MHz ± 25Hz 15,6250kHz ± 0,1Hz	
3	Réglage de fréquence centrale VCO	VR471	 11 μsec Ajuster VR471 de sorte que le retard horaire entre le signal vidéo d'entrée CCD (émetteur Q408) et le signal vidéo de sottie CCD (émetteur Q414) soit 75 μsec (1H+11 μsec). Pour ce réglage, raccoder la broche 9 de IC404 sur GND.	75 μsec ± 1,4 μsec	
4	Réglage de niveau vidéo	VR482	 2Vc-c Ajuster le niveau vidéo blanc 100% sur 2Vc-c au VIDEO OUT (J401, broche 6).	2Vc-c ± 5%	
5	Réglage de niveau vidéo de retard 1H	VR441	Ajuster VR441 de sorte que le niveau du signal vidéo de retard 1H à la broche 33 de IC401 soit le même que celui du signal vidéo de ligne à la broche 35.	Signal vidéo de ligne ± 3%	
6	Réglage de niveau VPS ERR	VR521	Tout en observant l'écran magenta sur le vectorscope, minimiser l'instabilité au VIDEO OUT (J401, broche 6).		
	Ensemble PALB				
7	Réglage de niveau vidéo MOD	VR102	Ajuster VR102 de sorte que le niveau de luminance du signal vidéo MOD à la broche 13 de IC103 soit le même que celui du signal vidéo à la broche 12.	± 3%	
8	Réglage de niveau SC de retard 1H	VR101	Tout en observant les barres couleur en mode d'image fixe sur un vectorscope, minimiser la variation de gain à VIDEO OUT (J401, broche 6).		

- **POINT DU RÉGLAGE**

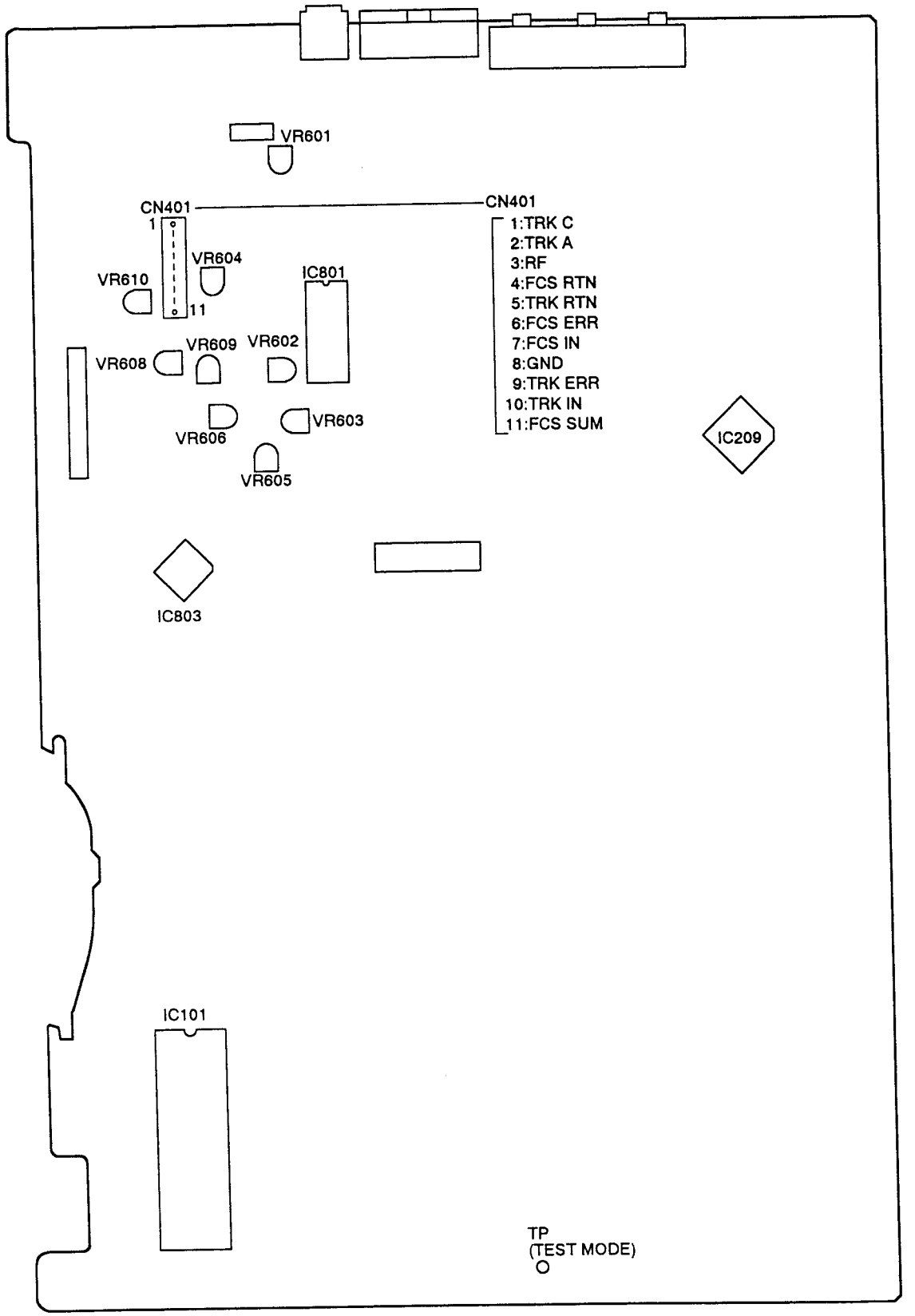


7. AJUSTES

7.1 SUMARIO DE LOS AJUSTES DEL CONJUNTO DEL ASCB

	Ajuste	Punto de Ajuste	Equipo de Medición y Puntos de Conexión	Condicione el reproductor	Especificación de ajuste
1	Ajuste del servo de la ganancia de inclinación	VR608	No hay	• Desconecte la alimentación	• Posición de GAIN VR de inclinación Rojo: Gire hacia la derecha Nada: Centro Azul:Gire hacia la izquierda
2	Ajuste aproximado de la retícula y ajuste del equilibrio de error de seguimiento	Retícura/VR602	CN401-9 (TRK ERR)	• Modo de prueba n. °6,500 Abierto del bucle de servos de seguimiento	• Punto nulo → Error de TRK a MAX • Ajuste VR602 hasta que los niveles positivo y negativo de la amplitud de la forma de onda del error TRK sean iguales.
3	Ajuste del nivel del eje de la corredera	Tecla SKIP del reproductor	CN401-4 (FCS RTN)	• Modo de prueba OFF del bucle de servos de inclinación Abierto del bucle de servos de seguimiento n. °23,800	• Ajuste la tensión hasta que sea de 0V ± 20 mV.
4	Ajuste de la inclinación del captor	Tornillo para ajuste del conjunto del captor TAN/ inclinación TRK	CN401-3(RF)	• Modo de prueba n. °2,251 fijo Cerrado/abierto del bucle de servos de seguimiento Abierto del bucle de servos de inclinación	• La amplitud de la forma de onda de RF a MAX. (Tornillo para el ajuste de TAN/ TRK del captor) • Diafonía mínima
5	Ajuste del error de seguimiento/ajuste de la diafonía	VR605 (TE MAX) VR606 (CT BEST)	CN401-3(RF) CN401-9(TRK ERR)	• Modo de prueba Cerrado/abierto del bucle de servos de seguimiento OFF del bucle de servos de inclinación	• RF a MAX (VR606) Error de TRK a MAX (VR605)
6	Ajuste del nivel de la suma del foco	VR609	CN401-11 (FCS SUM)	• Modo de reproducción	• Ajuste VR609 hasta que la tensión sea de 1,8 VCC.
7	Ajuste del sensor de inclinación/ajuste del equilibrio de la inclinación	Tornillo para el ajuste del sensor de inclinación VR610(TILT BAL)	Monitor de TV Pantalla de modo de prueba	• Modo de prueba Fijo de n. °16,200 /n. °475 Cerrado del bucle de servos de seguimiento OFF del bucle de servos de inclinación	• Coloque VR610 en el centro. • Ajuste el tornillo para el ajuste hasta que el código de la visualización del error de inclinación sea 6,7 ó 8. • Ajuste VR610 hasta que la visualización del error de inclinación sea 7.
8	Comprobación del centrado del motor de eje	Compruebe la figura de Lissajous.	CH1:CN401-9 (TRK ERR) CH2:CN401-1, 2 (TRK A+C)	• Modo de prueba n. °100 y n. °23,800 Abierto del servo de seguimient	• Compruebe que la amplitud de la figura de Lissajous del fotograma n. °100 sea igual que la amplitud del fotograma n. °23,800
9	Ajuste del centrado del motor de eje	Tornillo para el ajuste del centrado del motor de eje	CH1:CN401-9 (TRK ERR) CH2:CN401-1, 2 (TRK A+C)	• Modo de prueba n. °100 y n. °23,800 Abierto/cerrado del servo de seguimient	• Ajuste el el tornillo para el ajuste del centrado hasta que las figuras de Lissajous n. °100 y n. °23,800 sean iguales.
10	Ajuste fino de la retícula	Retícula	CH1:CN401-9 (TRK ERR) CH2:CN401-1, 2 (TRK A+C)	• Modo de prueba n. °6,500 fijo Abierto del servo de seguimiento	• Reduzca la anchura del sentido del eje Y de la figura de Lissajous. • Los niveles del sentido del eje X de las figuras de Lissajous son iguales.
11	Ajuste de la ganancia de RF	VR601	CN401-3(RF)	• Modo de prueba n. °15,000 fijo Cerrado del servo de seguimiento	• Ajuste VR601 hasta que el nivel de RF sea de 300 mV ± 50 mV.
12	Ajuste de la ganancia del bucle de servos de seguimiento	VR604	CH1:CN401-7 (FCS IN) CH2:CN401-6 (FCS ERR)	• Modo de prueba n. °15,000 fijo Cerrado del servo de seguimiento	• Ajuste VR604 hasta que los ejes X e Y de la figura de Lissajous sean simétricos.
13	Ajuste de la ganancia del bucle de servos de seguimiento	VR603	CH1:CN401-9 (TRK ERR) CH2:CN401-10 (TRK IN)	• Modo de prueba n. °15,000 fijo Cerrado del servo de seguimiento	• Ajuste VR603 hasta que los ejes X e Y de la figura de Lissajous sean simétricos.
14	Ajuste del centrado para la reproducción del lado B	Agujero para el ajuste del centrado para el lado B	CH1:CN401-9(TRK ERR) CH2:CN401-1,2(TRK A+C)	• Modo de prueba n. °100 reproducción Abierto/cerrado del servo de seguimiento	• Ajuste hasta que la amplitud del eje de la figura de Lissajous sea máxima.
15	Ajuste del ángulo de sentido tangencial del captor para la reproducción del lado B	Tornillo para el ajuste del ángulo del sentido tangencial del captor	Monitor de TV	• Modo de prueba n. °475 fijo	• Ajuste para que la diafonía sea mínima.
16	Ajuste fino del centrado para la reproducción del lado B	Agujero para el ajuste del centrado para el lado B	CH1:CN401-9(TRK ERR) CH2:CN401-1,2(TRK A+C)	• Modo de prueba n. °100 reproducción Abierto del servo de seguimiento	• Ajuste hasta que la amplitud del eje de la figura de Lissajous sea máxima.

7.2 PUNTOS DE AJUSTE DEL CONJUNTO DEL ASCB

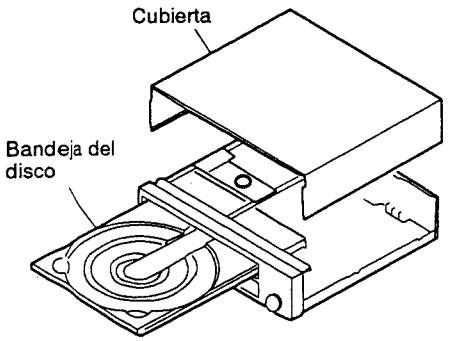


7.3 MODO DE PRUEBA

7.3.1 MODO DE PRUEBA

El reproductor tiene la función del modo de prueba para permitir el hombre de servicios a comprobar el estado del reproductor sobre la pantalla de TV por las teclas respectivas.

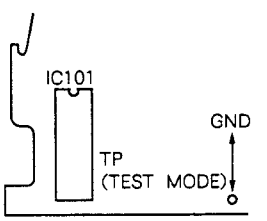
Además, el servo de seguimiento se abre y se cierre fácilmente, el modo de prueba es muy útil para los ajustes mecánicos.



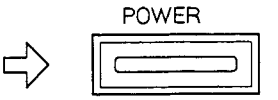
7.3.2 INICIACION DEL MODO DE PRUEBA

[Procedimiento]

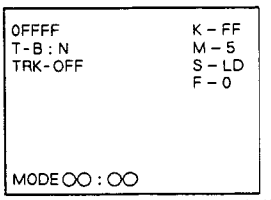
1. Remueva la cubierta y la bandeja del disco.
2. Conecte TP (MODO DE PRUEBA) situado en el conjunto de tabla ASCB a GND.
3. Conecte la alimentación.
4. Desconecte TP y GND.



Conecte TP y GND.



Conecte la alimentación.



Visualización en la pantalla de TV

7.3.3 CANCELACIÓN DEL MODO DE PRUEBA

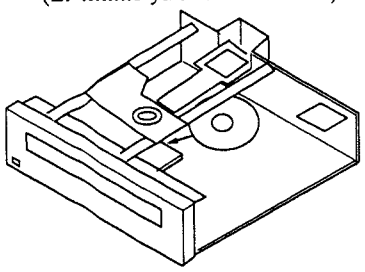
Desconecte la alimentación.

7.3.4 FUNCIÓN DEL REPRODUCTOR EN EL MODO DE PRUEBA

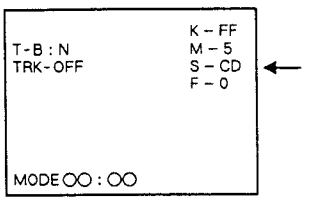
Maneje el reproductor por seleccionando la función del modo de prueba con las teclas sobre el reproductor o sobre el control remote.

- Reproducción de CD

① Ponga el CD (disco compacto) sobre el plato giratorio.
(El tornillo ya se ha levantado.)



② Presione la tecla ◀◀ o ▶▶ para que la visualización "S-CD" se muestre en la pantalla de TV.

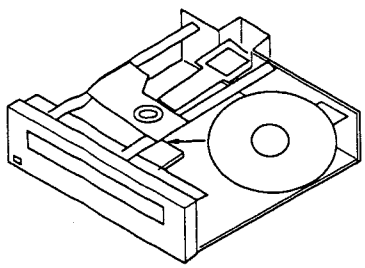


Visualización en la pantalla de TV

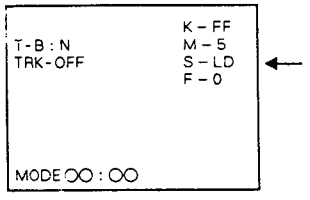
③ Sujete el disco presionando la teda PLAY (▶) una vez.
Después, presione la tecla PLAY (▶) dos veces. El disco se reproducirá normalmente.

- Reproducción de LD

① Ponga el disco LD sobre el plato giratorio.
(El tornillo ya se ha levantado.)



② Presione la tecla ◀◀ o ▶▶ para que la visualización "S-LD" se muestre en la pantalla de TV.



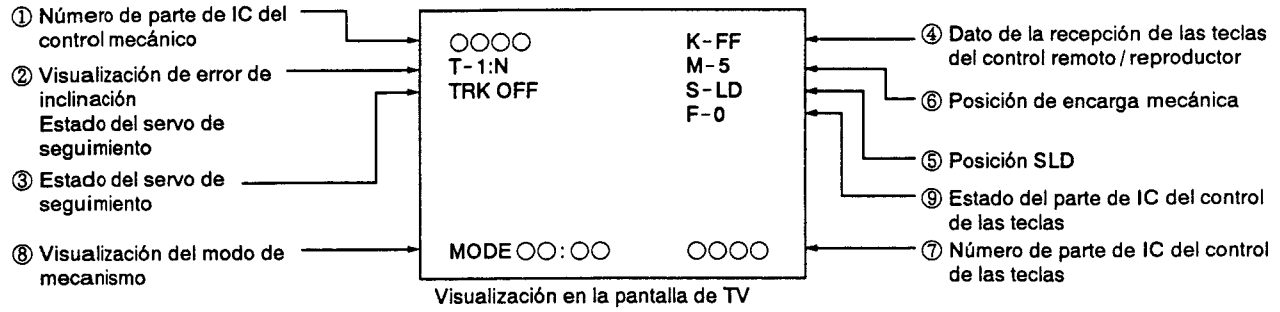
Visualización en la pantalla de TV

③ Sujete el disco presionando la teda PLAY (▶) una vez.
Después, presione la tecla PLAY (▶) dos veces. El disco se reproducirá normalmente.

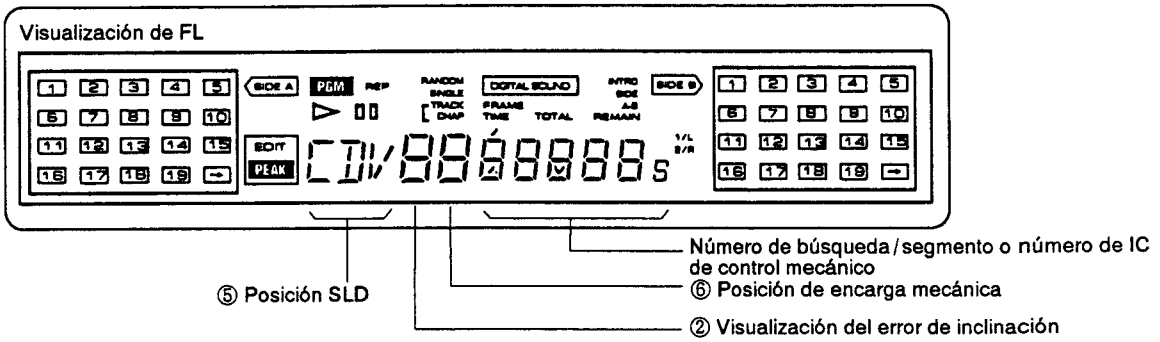
Tabla. Función en el modo de prueba

Función	Estado del Reproductor	Función de tecla	Notas
Bandeja abierta	Modo STOP	▲	
Bandeja cerrada	Bandeja abierta	▲	
Parada	Modo PLAY	■	
Reproducción	Colocación del disco y la bandeja cerrada	▶	• Empieza la reproducción con el servo de seguimiento abierto. • Empieza la reproducción con la inclinación neutral. • El tipo del disco (LD/CD/CDV) se determina cuando la reproducción se empieza en la posición SLDR.
Abierto / cerrado del servo de seguimiento	Modo PLAY	▶	• Cada vez que la tecla PLAY (▶) se presiona, el servo de seguimiento será abierto o cerrado alternadamente.
Fijo	Modo PLAY Cerrado del servo de seguimiento	❚❚	• Cada vez que la tecla PAUSE(❚❚) se presiona, el reproductor se cambia entre los modos PLAY y STILL alternadamente.
SLDR REV SCAN	Modo PLAY	◀◀	• A la izquieda • Con el servo de seguimiento abierto, el captor puede ser dañado si el SLD mueva más al interior que la área de conducción sobre el disco. No haga el SLD mover más al interior que la área de conducción.
SLDR FWD SCAN	Modo PLAY	▶▶	• A la derecha • Con el servo de seguimiento abierto, el captor puede ser dañado si el SLD mueva más al exterior que la área de conducción sobre el disco. No haga el SLD mover más al exterior que la área de conducción.
Inclinación neutral	Interruptor POWER ON	EDIT	
ON del servo de inclinación	Modo PLAY	RANDOM PLAY	
Menos de la inclinación OFF del servo de inclinación	Modo PLAY	⏮	• Presione y retenga las teclas.
Más de la inclinación OFF del servo de inclinación	Modo PLAY	⏭	• Presione y retenga las teclas.
ON/OFF de la visualización en la pantalla	Interruptor POWER ON	Tecla PGM	
Búsqueda de segmento	Modo PLAY	Tecla +10 ↓ Teclas 0-9 ↓ ▶	• En el modo de PLAY, presione la tecla +10. (El reproductor será preparado para la entrada del número de segmento.) • Use las teclas numéricas (0 – 9) para entrar el número de segmento. Después, presione la tecla PLAY del reproductor para la búsqueda. • Después de completar la búsqueda, el reproductor se volverá al modo anterior.
Rotación del motor de carga hacia la derecha y hacia la izquierda	Bandeja abierta	⏭ ⏮	• FWD:Descargar • REV :Encargar
FOCS OFFSET (CT BEST) Comprobación de VR606	Modo PLAY (el servo de seguimiento OPEN)	(Control remoto) MULTI-SPEED FWD →F-1 REV →F-0 (Reproductor) INTRO SCAN	VR606 y VR605:Para la comprobación F – 0:Estado normal.....Cerrado de TRKG:VR606(CT BEST) Abierto de TRKG:VR605(TE MAX) F – 1:VR606 se activa couado se abre el TRKG

7.3.5 VISUALIZACIÓNES EN LA PANTALLA DE TV Y DE LED EN EL MODO DE PRUEBA



Visualización en la pantalla de TV



① Se mostrará el número de parte de IC (conjunto de tabla ASCB) del control mecánico.

PD0105A1 → 0105A

② Estado del servo de inclinación / Visualización del error de inclinación

T-○:○○

- ○○: Estado de servo de inclinación:
  - N...Inclinación neutral
  - ON...ON del servo de inclinación
  - OFF...OFF del servo de inclinación
- ○: Visualización del error de inclinación
  - 0 Inclinación −
  - ↕ Inclinación neutral
  - F Inclinación +

③ Estado del servo de seguimiento

Visualización en la pantalla de TV

TRK-○○○

└— ON...Cerrado del servo de seguimiento

OFF...Abierto del servo de seguimiento

④ Dato de la recepción de las teclas del control remoto /reproductor

Visualización en la pantalla de TV

K-○○

└— Vea la tabla abajo.

Código	Función	Código	Función	Código	Función	Código	Función
00	0	20	F JOG0	40	(CHAP / TRK)	60	
01	1	21	F JOG1	41	(FRAM / TIM)	61	
02	2	22	F JOG2	42	(SEARCH)	62	
03	3	23	F JOG3	43	DISPLAY	63	
04	4	24	R JOG0	44	REPEAT B	64	
05	5	25	R JOG1	45	CLEAR	65	
06	6	26	R JOG2	46	SPEED –	66	
07	7	27	R JOG3	47	SPEED +	67	
08	8	28		48	REPEAT A	68	
09	9	29		49	(2 / R)	69	
0A	(VOLUME +)	2A		4A	(STEREO)	6A	
0B	(VOLUME –)	2B		4B	(1 / L)	6B	
0C	D/A / CX	2C		4C	PROGRAM	6C	
0D		2D		4D	SIDE A	6D	PLAY /PAUSE
0E	(CX ON/OFF)	2E		4E	SIDE B	6E	STOP
0F	(TV / LDP)	2F		4F		6F	OPEN / CLOSE
10	F-SCAN	30		50	F-STEP	70	
11	R-SCAN	31		51		71	DIRECT CD
12	16:9	32		52	F-SKIP	72	
13	CHAP / FRME	33		53	R-SKIP	73	SINGLE
14		34		54	R-STEP	74	
15		35		55	R-MULT	75	
16	STOP / OPEN	36		56		76	LANGUAGE
17	PLAY	37	DGT LEVEL	57		77	
18	PAUSE	38		58	F-MULT	78	
19		39		59		79	
1A	(POW ON)	3A		5A	HILIT / INTR	7A	
1B	(POW OFF)	3B		5B		7B	
1C	POW ON/OFF	3C		5C		7C	
1D	EDIT	3D		5D		7D	
1E	AUDIO	3E		5E	RNDM (TEST)	7E	
1F	+10	3F		5F	(ESC)	7F	

⑤ Posición de SLD

Visualización en la pantalla de TV

S-○○○

└— IN ... ON del interruptor interior del CD

CD ... Área activo del CD

CDV ... Área activo del CDV

LD ... Área activo del LD

⑥ Posición de encarga mecánica

Visualización en la pantalla de TV

M-○

└— 0 ... Abierto de la bandeja

1 ... Encarga

2 ... Preparado

3 ... Sujetado

5 ... Menos de inclinación

6 ... Inclinación neutral (un lado)

7 ... Más de inclinación

8 ... Limite de inclinación

9 ... El lado B sujetado (dos lados)

⑦ Estado compensador de VR de foco

Visualización en la pantalla de TV

F-○

└ 0 ... Modo normal

•Cuando cierre el servo de seguimiento, VR606 (CT BEST) es efectivo.

•Cuando abre el servo de seguimiento, VR605 (TE MAX) es efectivo.

1 ... Cuando abre el servo de seguimiento, VR606 (CT BEST) es también efectivo.

7.4 AJUSTES

7.4.1 INSTRUMENTOS REQUERIDOS

- Destornillador pequeño (con un mango de aprox. 10cm)
- Destornillador pequeño de Phillips
- Llaves inglesas hexagonales (2,0mm y 2,5mm)
- Osciloscopio de doble traza (con retardo)
- Oscilador de AF
- Frecuencímetro
- Disco de prueba LD (GGV1007)
- Disco LDD (se vende en el mercado)
- Disco de prueba CD (YEDS-7)
- Presilla cortocircuitadora
- Destornillador excéntrico con la forma L (GGV-129)
- Destornillador de cabeza Phillips
- Resistor (47kΩ , 10kΩ ×2)
- Filtro de paso bajo (47kΩ +1 μF)
- Voltímetro digital

7.4.2 PREPARATIVOS Y PRECAUCIÓNES PARA LOS AJUSTES

1) Ajuste la altura del reproductor cuando se reemplaza el motor de eje.

2) Reproduccíon del lado B

Es posible reproducir directamente el lado B por presionando la tecla SIDE B en el panel frontal.

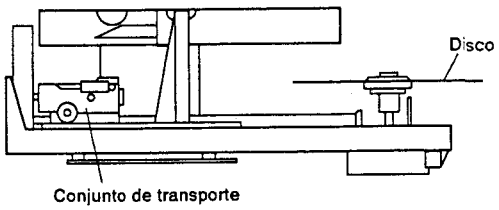
3)Disco de prueba

GGV1007 puede ser usado como un disco de prueba LD para el ajuste mecánico y para el ajuste del conjunto de la tabla ASCB

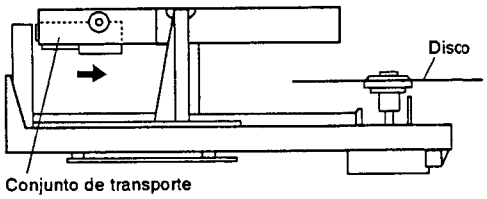
4) Los números en el diagrama de conexiones corresponden a los múmeros en el texto que explica el procedimiento de ajuste.

5) Los números de fotograma no se muestran en el monitor de TV, lee por favor la visualización de FL.

Conjunto de transporte en el estado de avance



Conjunto de transporte en el estado de avance contrario

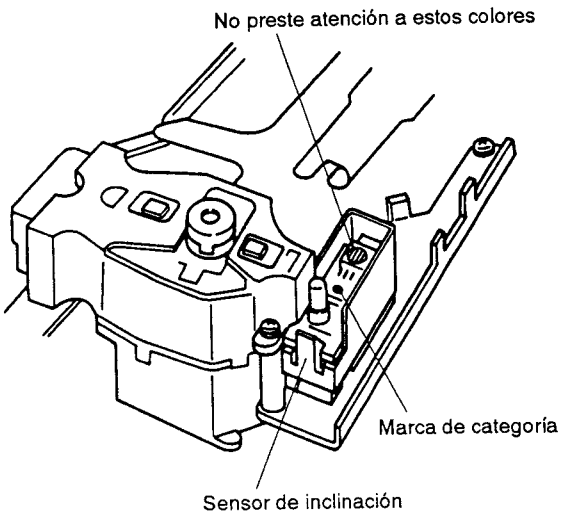


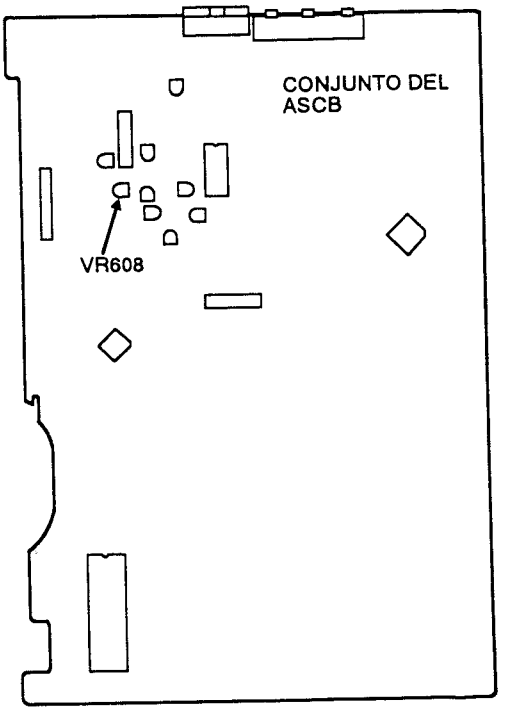
7.4.3 AJUSTES MECANICOS
1. AJUSTE DE LA GANANCIA DE SERVOS DE INCLINACIÓN

- Propósito: Para ajustar la ganancia de servos de inclinación de acuerdo con la categoría de sensibilidad(nivel) del sensor de inclinación.
- Cuando no se ajuata correctamente: Oscilación aumentada del servo de inclinación o diafonía.

• Instrumentos y dispositivos de medida: • Punto de medita: • Disco de prueba y el modo de reproductor:	● Destornillador pequeño
• Posiciones para	● VR608(TILT GAIN)

Diagrama de conexiones





Procedimiento de ajuste

1. Use un destornillador para ajustar el ángulo de VR608 sobre el conjunto del ASCB de acuerdo con el color de la indicación de categoría.

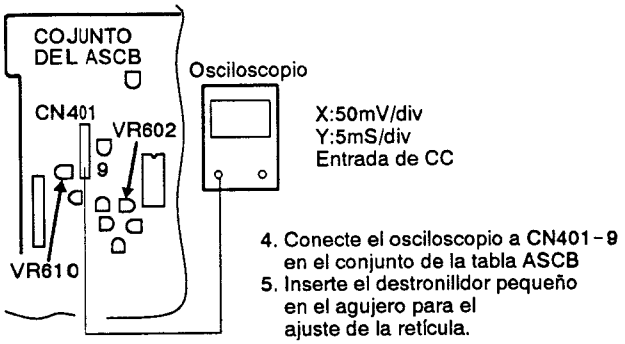
Categoría	Color	Angule de VR
A	Rojo	Hacia la derecha
B	Nada	Centro mecánico
C	Azul	Hacia la izquierda

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

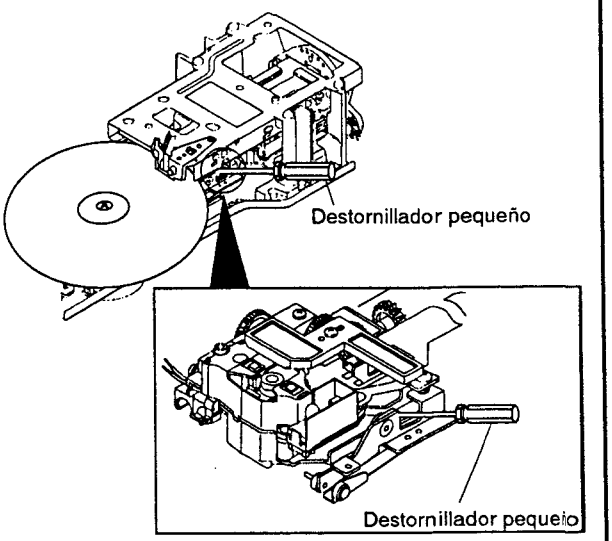
- Propósito: Para ajustar el rayo lasérico que se divide en tres por la retícula, se emita en la posición óptima de la pista. Ajuste la tension de servo de seguimiento en OV.
- Cuando no se ajusta correctamente: La reproducción de los discos será imposible. Durante la reproducción las pistas se saltan.

• Instrumentos y dispositivos de medida:	● Destornillador pequeño ● Osciloscopio
• Punto de medita:	● CN401 - 9 (TRKG ERR)
• Disco de prueba y el modo de reproductor:	● Disco de prueba de 8 pulgadas (GGV1007)...n.°6,500 ● Modo de prueba (servo de seguimiento:Abierto) ● El conjunto de transporte debe ser en el estado de avance.
• Posiciones para ajustarse:	● Retícula ● VR602 (TRKG BAL).

Diagrama de conexiones



4. Conecte el osciloscopio a CN401 - 9 en el conjunto de la tabla ASCB
5. Inserte el destronilldor pequeño en el agujero para el ajuste de la retícula.



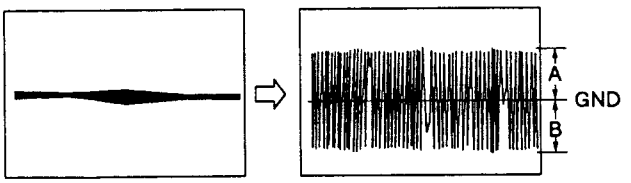


Fig. 1 Posición punto nulo

Fig. 2 Amplitud máxima A=B

Procedimiento de ajuste

<Ajuste aproximado de la retícula>

1. Reproduzca el disco de prueba LD.
2. Busque el fotograma n. ° 6,500.
3. Abra el servo de seguimiento. (Véase la sección 7.3)
4. Conecte el osciloscopio a CN401 - 9 y observe la forma de onda.
5. Inserte el destornillador en el agujero para el ajuste de la retícula. A medita que gira la retícura, la amplitud de la forma de onda del error de seguimiento se cambia. Busque la posición en la que la amplitud de la forma de onda sea mínima con la línea plana. (Fig. 1) (Esto indica que 3 modos del rayo lasérico se emiten hacia la pista. Esto se disco como la posición "punto unlo".)
6. Lentamente haga girar la retícula a la izquierda desde la posición de pista hasta que la amplitud de la forma de onda sea máxima. (Fig. 2)
7. Cierre el servo de seguimiento y compruebe que se muestra la visualización normal en la pantalla de TV.

<Ajuste del equilibrio de seguimiento>

1. Alinee GND del osciloscopio hasta que se ponga en el centro de la pantalla del osciloscopio.
2. Ajuste VR602 hasta que las amplitudes positiva y negativa de la forma de onda del error de seguimiento sean iguales. (Fig.2)

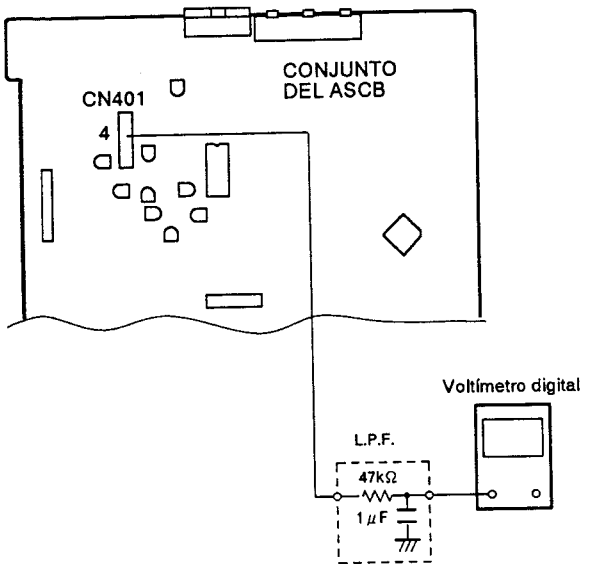
Nota:Si el ajuste de VR602 desarregla la retícura, realice el ajuste después de colocar VR610 en el centro mecánico.

3. AJUSTE HORIZONTAL DEL EJE DE CORREDERA

- Propósito: Para ajustar el eje de corredera de manera que el captor pueda mover horizontalmente sobre el disco.
- Cuando no se ajusta correctamente: Con el disco deformado, el servo de foco no funciona en el interior o exterior del disco.

• Instrumentos y dispositivos de medida:	• Voltímetro digital • Filtro de paso bajo (47k Ω + 1 μF)
• Punto de medita:	• CN401 - 4 (FCS RTN) y GND
• Disco de prueba y el modo de reproductor:	• Disco de prueba de 8 pulgadas (GGV1007) • Modo de prueba (n.°9,800/n.°23,800 Abierto del servo de seguimiento, OFF del servo de inclinación)
• Posiciones para ajustarse:	• Tecla SKIP del reproductor (en el modo de prueba)

Diagrama de conexiones



Procedimiento de ajuste

1. Conecte el voltímetro digital a CN401 - 4 por L.P.F.
2. Abra el servo de seguimiento, y busque el fotograma n.°9,800.
3. Compruebe le tensión.
4. Busque el fotograma n.°23,800 y compruebe que la tensión está igual con la tensión del fotograma n.°9,800.

4. AJUSTE DE LA INCLINACIÓN DEL CAPTOR

- Propósito: Para ajustar la inclinación del captor hasta que el rayo lasérico golpee el disco verticalmente.
- Cuando no se ajusta correctamente: Se ocurre la diafonía.

• Instrumentos y dispositivos de medida:	● Monitor de TV ● Destornillador pequeño Phillips ● Osciloscopio
• Punto de medita:	● CN401 - 3 (RF)
• Disco de prueba y el modo de reproductor:	● Disco de prueba LD de 8 pulgadas (GGV1007) ● Modo fijo ● Modo de prueba (n. °2,251, fijo (Pantalla negra))
• Posiciones para ajustarse:	● Conjunto de captor TRK/Tornillos para el ajuste de la inclinación en sentido tangencial

Diagrama de conexiones

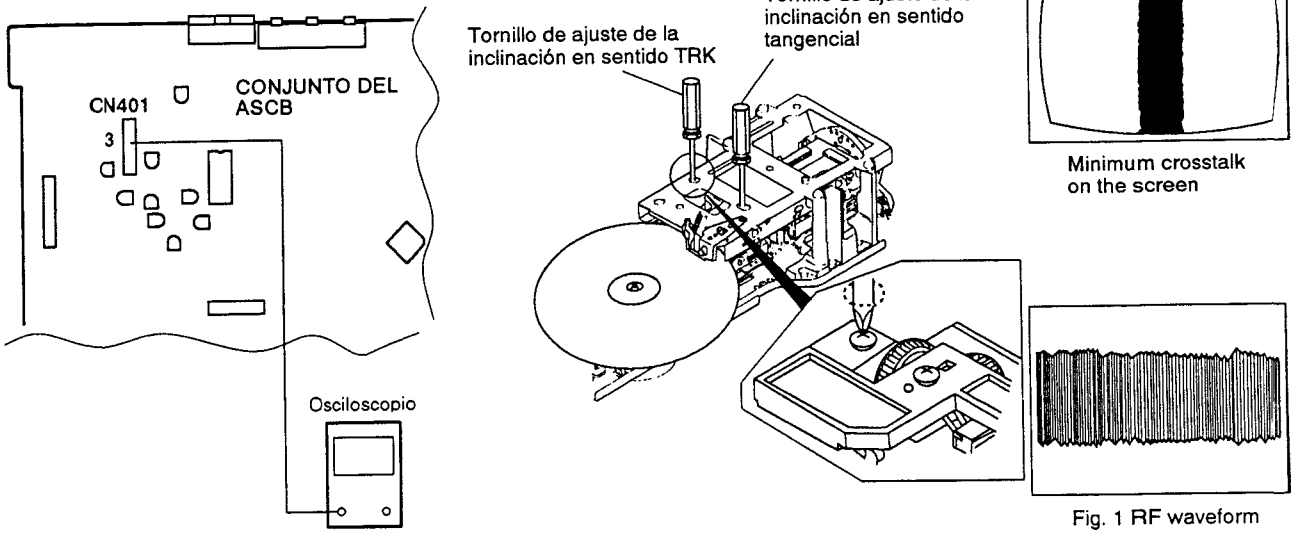


Fig. 1 RF waveform

Procedimiento de ajuste

1. Conecte el osciloscopio a CN401 - 3.
2. Busque el fotograma n. ° 2,251 para observar la forma de onda.
3. Ajuste el tornillo de ajuste de la inclinación en sentido TRK y el tornillo de ajuste de la inclinación en sentido tangencial hasta que la amplitud de la forma de onda sea máxima.
4. Observe la pantalla de TV y asegúrese de no hay diafonía.

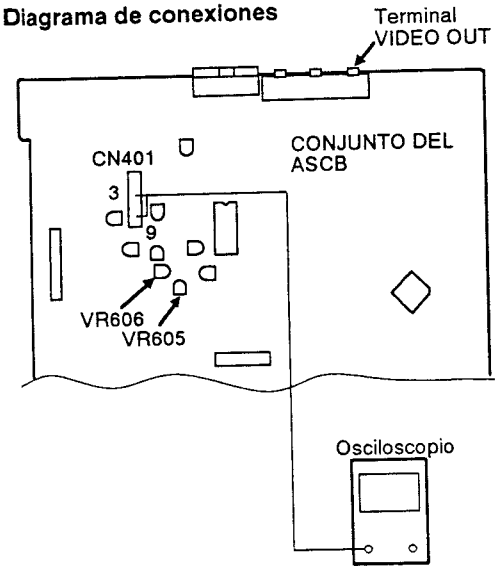
Nota: Si se ocurre todavía la diafonía, realice los procedimientos siguientes.

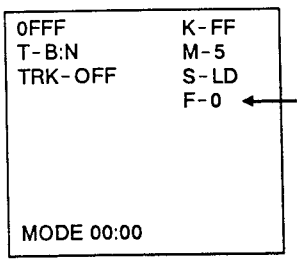
5. AJUSTE DEL ERROR DE SEGUIMIENTO/AJUSTE DE LA DIAFONÍA

- Próposito: Para ajustar el servo de foco en el estado óptimo cuando se hace la reproducción normal o se salta la pista (búsqueda).
- Cuando no se ajusta correctamete: Se ocurre la diafonía.

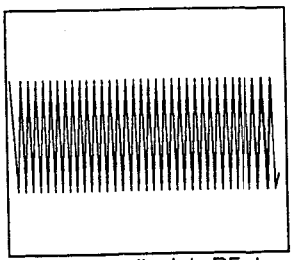
• Instrumentos y dispositivos de medida: • Punto de medita: • Disco de prueba y el modo de reproductor:	● Monitor de TV ● Osciloscopio ● CN401 - 3 (RF) ● CN401 - 9 (TRKG ERR) ● Terminal VIDEO OUT del reproductor ● Disco de prueba LD 8 pulgadas (GGV1007) ● Modo de prueba (Cerrado/abierto del servo TRK, OFF del servo de inclinación)
• Posiciones para ajustarse:	● VR605 (TE MAX) ● VR606 (CT BEST)

Diagrama de conexiones

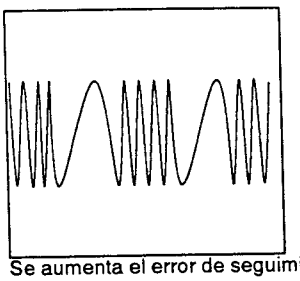




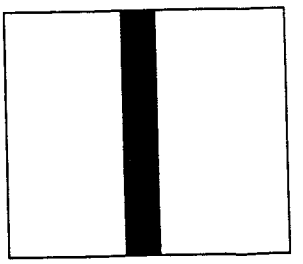
Visualización en la pantalla de modo de prueba



Ponga la amplitud de RF al máximo en el fotograma n. °2,251



Se aumenta el error de seguimiento



Se reduce la diafonía den. °475 al mímino.

Procedimiento de ajuste

Nota: Realice este ajuste cuando todavía se ocurre la diafonía perceptible en la visualización en la pantalla como se escribe en la sección "4. Ajuste de la inclinación del captor"

1. Conecte el osciloscopio CN401 - 9.
2. Abre el servo TRK.
3. Compruebe que la visualización en la pantalla de modo de prueba está F-0.
   Si no, ponga la tecla MULTI - SPEED REV del control remoto en F-0.
4. Ajuste VR605 hasta que la amplitud de la forma de onda del error TRKG sea máxima.
5. Cierre el servo TRKG.
6. Conecte el osciloscopio a CN401 - 3.
7. Presione la tecla MULTI - SPEED FWD del control remoto hasta que se muestre "F-1" en la pantalla de TV
8. Busque el fotograma n. °2,251 y ajuste VR606 hasta que la amplitud de la forma de onda RF sea máxima.
9. Compruebe que la diafonía en la pantalla de TV está mínima en el fotograma n. °475.

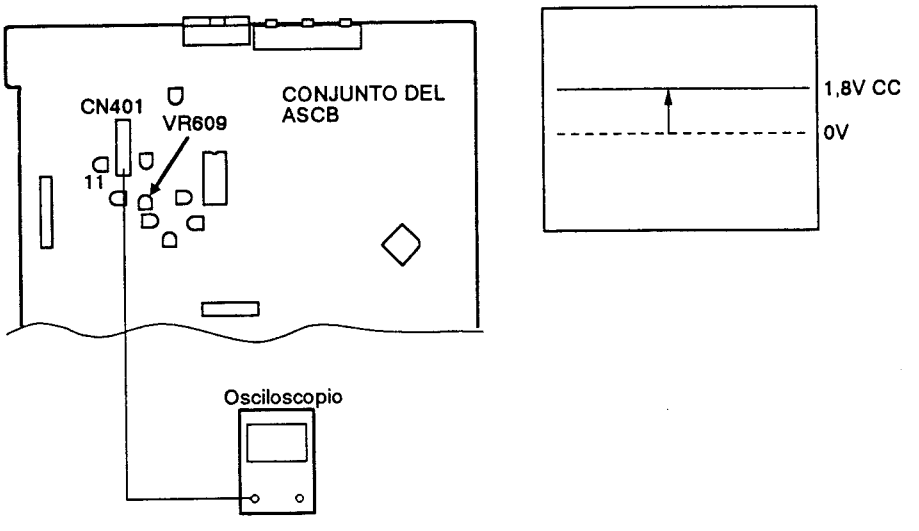
Nota: Después del ajuste, asegúrese de hacer el "Ajuste del nivel de la suma del foco" en la sección 6.

6. AJUSTE DEL NIVEL DE LA SUMA DEL FOCO

- Propósito: Para ajustar el nivel de suma (FCS A+C) de B1 – B4 al valor óptimo para activar el servo FOCS.
- Cuando no se ajusta correctamente: Peproducción empeorada.

• Instrumentos y dispositivos de medida:	● Monitor de TV ● Osciloscopio
• Punto de medita:	● CN401 - 11 (FCS SUM)
• Disco de prueba y el modo de reproductor:	● Disco de prueba LD de 8 pulgadas (GGV1007)...n.°15,000 ● Modo fijo ● Modo de prueba(servo de seguimiento:Cerrad) ● Servo de indinación:Neutral
• Posiciones para ajustarse:	● VR609 (FCS SUM)

Diagrama de conexiones



Procedimiento de ajuste

Nota:Realice este ajuste después de la sección "5. Ajuste del error de seguimiento/ajuste de la diafonía"

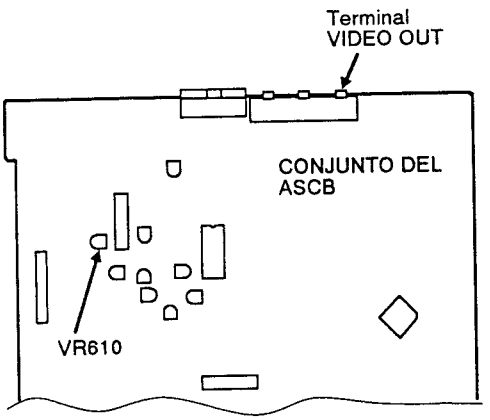
1. Conecte el osciloscopio a CN401 - 11.
2. Ajuste VR609 hasta que la tensión sea 1,8V CC.

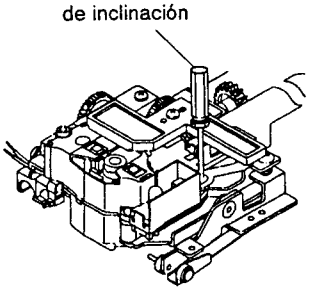
7. AJUSTE DEL SENSOR DE INCLINACION/AJUSTE DEL EQUILIBLIO DE LA INCLINACIÓN

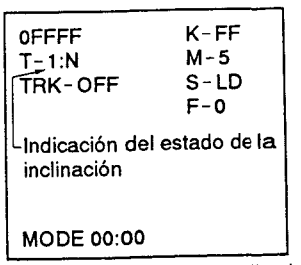
- Propósito: Para justar el LED del sensor de inclinación verticalmente al disco. También, para compensar la diferencia de sensibilidad entre dos sensores.
- Cuando no se ajusta correctamente: Se ocurre la diafonía.

• Instrumentos y dispositivos de medida:	● Monitor de TV ● Destornillador pequeño de Phillips
• Punto de medita:	● Terminal VIDEO OUT del reproductor
• Disco de prueba y el modo de reproductor:	● Disco de prueba LD de 8 pulgadas (GGV1007) ● Modo de prueba (n.°16,200/n.°475 fijo, Cerrado del servo TRK, OFF del servo de la inclinación)
• Posiciones para ajustarse:	● Tornillo de ajuste de la inclinación del servo de inclibación ● VR610 (TILT BAL).

Diagram de conexiones







Visualización en la pantalla de TV

Nota: Esta visualización indica la localización del error de la inclinación. Otras visualizaciónes se difieren poco del estado actual.

Procedimiento de ajuste

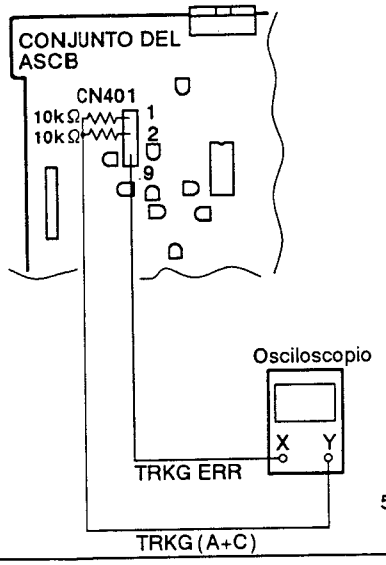
1. Busque el fotograma n.°16,200 en el disco de prueba.
2. Ponga VR610 en el centro mecánico.
3. Ajuste el tornillo de ajuste de la inclinación del sensor de inclinación hasta que el código de la visualización sea 6,7 ó 8 en el monitor de TV.
4. Busque el fotograma n.°475.
5. Ajuste VR610 hasta que la visualización del error de la inclinación sea 7.

8. COMPROBACIÓN DEL CENTRADO DEL MOTOR DE EJE

● Próposito: Para comprobar que el centro del motor de eje quedo en la órbita del rayo lasérico.

• Instrumentos y dispositivos de medida:	● Osciloscopio ● Resistor(10kΩ×2)
• Punto de medita:	● CN401-9(TRKG ERR), CN401-1(TRKG C) y CN401-2(TRKG A)
• Disco de prueba y el modo de reproductor:	● Disco de prueba LD de 8 pulgadas GGV1007...n.°100 y n.°23,800 ● Modo de reproducción ● Disco de prueba CD(YEDS-7) ● Modo de prueba(servo de TRKG:Abierto) ● El conjunto de tranporte debe ser en el estado de avance
• Posiciones para ajustarse:	● Compruebe la figura de Lissajous.

Diagrama de conexiones



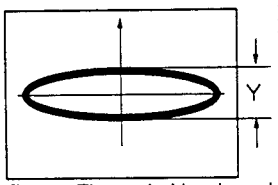


Fig. 1 Figura de Lissajous de la pista interior del disco(CD)

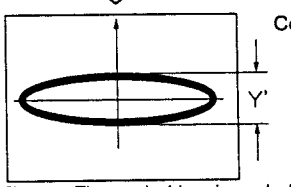


Fig. 2 Figura de Lissajous de la pista interior del disco(CD)

5. El eje Y de la figura de Lissajous debe ser mismo en ambas pistas interior y exterior.

Procedimiento de ajuste

1. Reproduzca el disco de prueba LD de 8 pulgadas.
2. Mueva el captor al fotograma n.°23,800 por examinando o buscando, y abra el servo de seguimiento.
3. Conecte la entrada-X(CH-1) del osciloscopio a CN401-9 y conecte la entrada-Y(CH-2) a CN401-1 y 2.
   Ajuste el osciloscopio en el modo de X-Y y observe las figuras de Lissajous de la señal de error de seguimiento y la señal de seguimiento(A+C).
4. Escriba las amplitudes de las figras de Lissajous.(Fig. 1)
5. Cierre el servo de seguimmiento y busque el fotograma n.°100, y abra el servo de seguimiento otra vez para observar la figura de Lissajous.
   En este momento, compruebe que la amplitud del eje-Y de la figura de Lissajous es misma que la amplitud excrita en la etapa 4.(Fig. 2)
6. Remueva el disco de prueba LD de 8 pulgadas dede el reproductor, coloque el disco de prueba CD y repita las etapas 1 a 5. Sin embargo, no es necesario especificar las posiciones de la pista interior o exterior. Si la amplitud del eje-Y de la figura de Lissajous está diferente entre las pistas interior o exterior, realice los procedimientos en la sección "9. Ajuste del centrado del motor de eje".

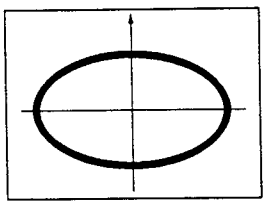


Fig. 3 Figura de Lissajous cuando no se ajusta correctamente.

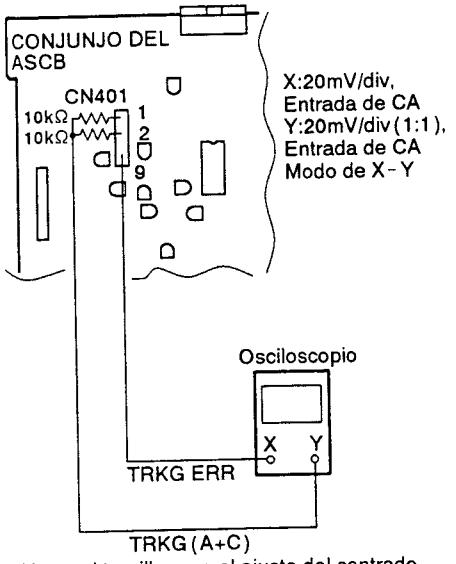
9. AJUSTE DEL CENTRADO DEL MOTOR DE EJE

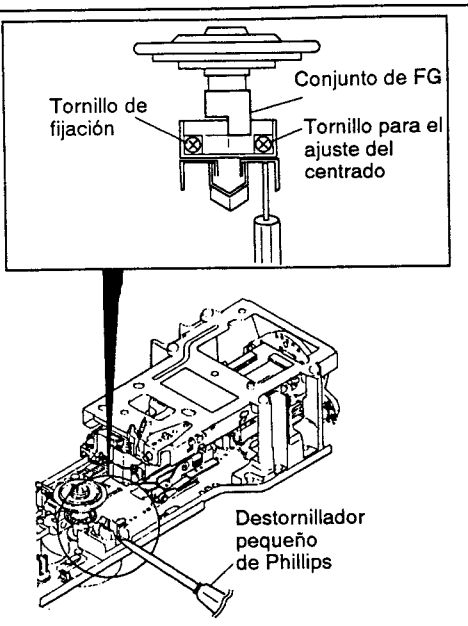
● Propósito: Para ajustar para que el centro del motor de eje se quede en la órbita del rayo lasérico.

● Cuando no se ajusta correctamente: Se salta la pista y se trada más tiempo en buscar.

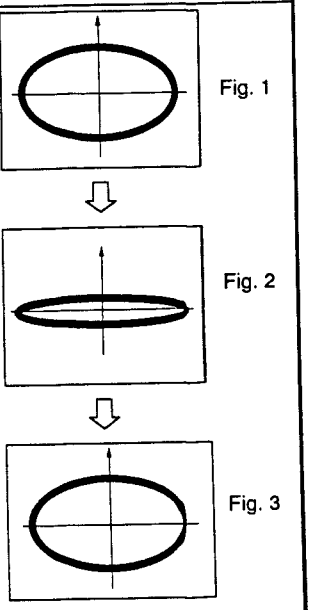
• Instrumentos y dispositivos de medida:	● Destornillador pequeño de Phillips ● Osciloscopio ● Resistor(10kΩ × 2)
• Punto de medita:	● CN401 - 9 (TRKG ERR), CN401 - 1 (TRKG C) y CN401 - 2 (TRKG A)
• Disco de prueba y el modo de reproductor:	● Disco de prueba LD de 8 GGV1007...n.°100 y n.°23,800 ● Modo de reproducción ● Modo de prueba (servo de seguimiento:Abierto/Cerrado)
	● Disco de prueba CD (YEDS - 7)
	● El conjunto de transporte debe ser en el modo de avance.
• Posiciones para ajustarse:	● Vis de réglage de centrage du moteur à broche

Diagrama de conexiones





7. Ajuste el tornillo para el ajuste del centrado.



7. Figura deLissajous

Procedimiento de ajuste

1. Conecte la entrada - X (CH - 1) del osciloscopio a CN CN401 - 9 y conecte la entrada - Y (CH - 2) a CN401 - 1 y 2.
2. Reroduzca el disco del prueba LD de 8 pulgadas y busque el fotograma n.° 23,800.
3. Abra el servo de seguimiento y observe las figuras de Lissajous de la señal de error de seguimiento y la señal del sumo de seguimiento.
4. Ajuste exacxtamente la retícula hasta que la amplitud del eje - Y de la figura de Lissajous se disminuya. (Fig. 2)
5. Cierre el servo de seguimiento y busque el fotograma n.° 100.
6. Abra el servo de seguimiento otra vez, obserce la figura de Lissajous y escriba los valores. (Fig. 1)
7. Suelte un tornillo de fijación y inserte el destornillador pequeño con la cebaza Phillips a través del agujero para el ajuste, y haga girar lentamente el tornillo para el ajuste del centrado hasta que la amplitud del eje - Y de la figuras de Lissajous se reduzca. Después de que la amplitud del eje - Y de la figura de Lissajous se disminuya, haga girar el tornillo má hasta que la amplitud se aparezca en la misma forma que en la etapa 6. (Fig. 1 - 3)
8. Cierre el servo de seguimiento, mueva el conjunto de captor a la pista exterior del disco (n.° 23,800) y realice los ajustes en las etapas 4 a 6 otra vez.
9. Abra de nuevo el servo de seguimiento y observe la figura de Lissajous para comprobar que la amplitud del eje - Y es mínima. (Fig. 2)
   Si la amplitud del eje - Y de la figura de Lissajous está más larga que se especifica, repita las etapas 5 a 8.
10. Después del ajuste, realice la las etapa 6 en la sección "8. Comprobación del centrado del motor de eje".
11. Apriete el tornillo de fijación.

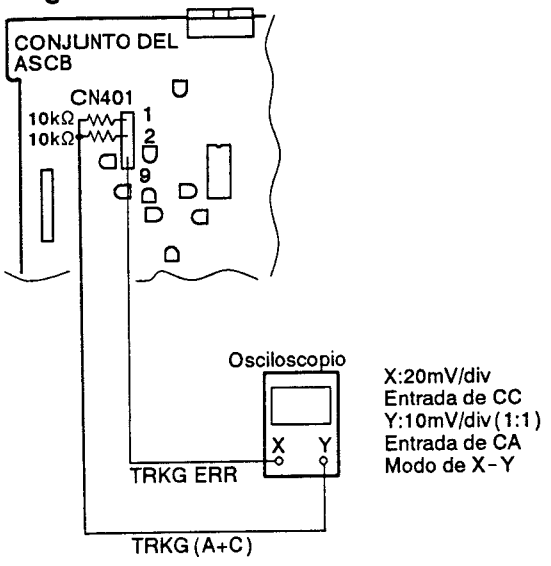
10. AJUSTE FINO DE LA RETÍCULA

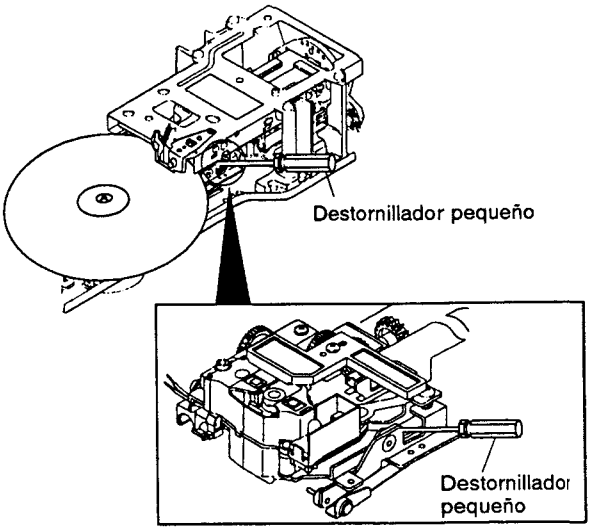
● Propósito: Para ajustar la retícula hasta que dos rayos de seguimiento para el servo de seguimiento se apunten en las posiciones de las pistas que se reproducen. Ajuste la tensión del boucle de servo de seguimiento a 0V.

● Cuando no se ajusta correctamente: Se saltan las pistas en la reproducción.

• Instrumentos y dispositivos de medida:	● Osciloscopio ● Destornillador pequeño ● Resisotr(10kΩ × 2)
• Punto de medita:	● CN401 - 9(TRKG ERR), CN401 - 1(TRKG C) y CN401 - 2(TRKG A)
• Disco de prueba y el modo de reproductor:	● Disco de prueba LD de 8 pulgadas GGV1007...n.°6,500 ● Modo fijo
	● Modo de prueba(servo de seguimiento:Abierto)
	● El conjunto de transporte debe ser en el estado de avance.
• Posiciones para ajustarse:	● Retícula

Diagrama de conexiones





3. Inserte el destornillador pequeño a través del agujero para el ajuste de la retícula para ajustarlo exaxtamente.

Procedimientos de ajuste

1. Conecte la entrada- X(CH- 1) del osciloscopio a CN401 - 9 y conecte la entrada- Y(CH- 2) a CN401 - 1 y 2.
2. Reproduzca el disco de prueba LD para buscar el fotograma n.°6,500 y abra el servo de seguimiento.
   Ajuste el osciloscopio en el modo de X- Y y observe las figuras de Lissajous de la señal de error de seguimiento y la señal del sumo de seguimiento.
3. Inserte el destornillador pequeño en el agujero para el ajuste, y ajuste exactamente la retícula hasta que la amplitud del eje- Y de las figuras de Lissajous se disminuya.(Fig. 1)
   Si la retícula se disminuye demasiado, y la posición óptima ya no se puede buscar, repita la sección "2. Ajuste aproximado de la retícula".
4. Seleccione la entrada- X(CH- 1) del osciloscopio y compruebe que las amplitudes positiva y negativa de la señal de error de seguimiento son iguales.
   Si no están iguales, repita la sección "2. Ajuste del equilibrio del seguimiento".
5. Cierre el servo de seguimiento y compruebe que la visualización(imagen) en la pantalla de TV es normal.

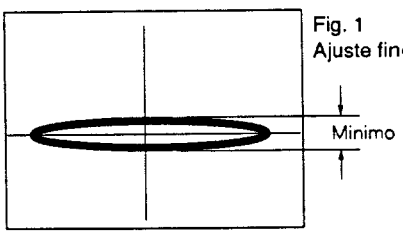


Fig. 1
Ajuste fino de la retícula

3. La amplitud del eje- Y de la figura de Lissajous se hace minima.

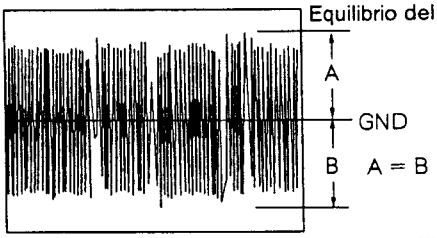


Fig. 2
Equilibrio del seguimiento

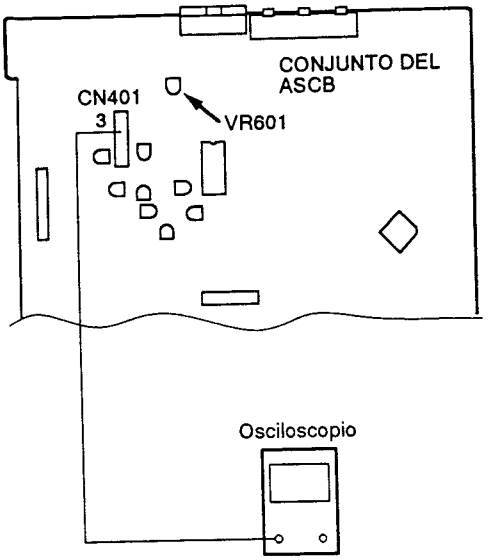
11. AJUSTE DE LA GANANCIA DE RF

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

● Cuando no se ajusta correctamente: Reproducción empeorada se ocurre frecuentemente.

• Instrumentos y dispositivos de medida:	● Osciloscopio
• Punto de medita:	● CN401 - 3 (signal RF)
• Disco de prueba y el modo de reproductor:	● Disco de prueba LD de 8 pulgadas GGV1007...n.°15,000 ● Modo fijo ● Modo de prueba (servo de seguimiento:Cerrado) ● Servo de inclinación:Neutral ● El conjunto de transporte debe ser en el estado de avance.
• Posiciones para ajustarse:	● VR601 (RF LEVEL)

Diagrama de conexiones



Procedimientos de ajuste

1. Reproduzca el disco de prueba LD y busque el fotograma n.°15,000.
2. Conecte el osciloscopio a CN401 - 3 (señal de RF) y observe la señal de RF.
3. Ajuste VR601 hasta que la amplitud de la señal de RF sea 300mV ± 50mV. (Fig. 1)

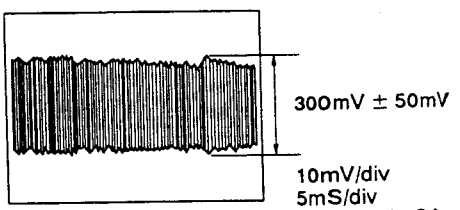


Fig. 1 señal de RF

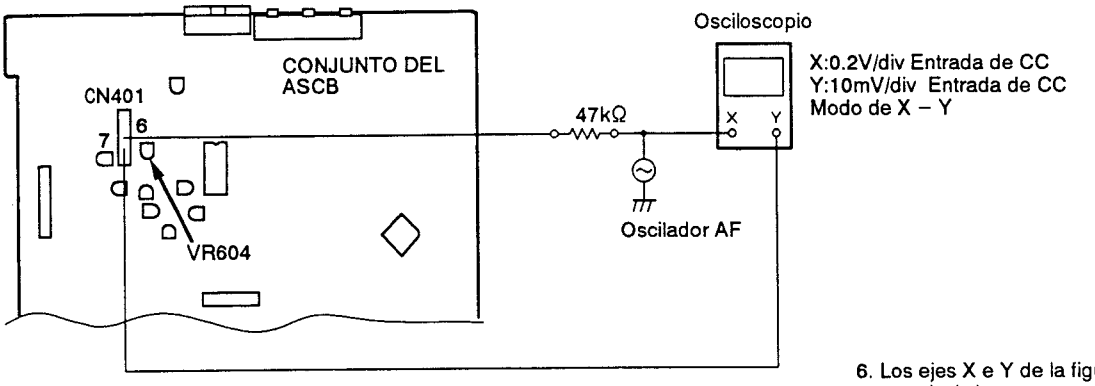
12. AJUSTE DE LA GANANCIA DEL BUCLE DE SERVO DE FOCO

● Propósito: Para ajustar la ganancia del boucle de servo de foco al valor óptimo.

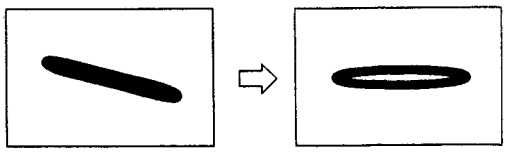
● Cuando no se ajusta correctamente: Reproducción se empeora.

• Instrumentos y dispositivos de medida:	● Osciloscopio ● Oscilador AF ● Resistor(47kΩ)
• Punto de medita:	● CN401-6(FOCS ERR) y CN401-7(FOCS IN)
• Disco de prueba y el modo de reproductor:	● Disco de prueba LD de 8 pulgadas GGV1007...n.°15,000 ● Modo fijo
	● Modo de prueba(servo de seguimiento:Cerrado) ● Servo de la inclinación:Neutral
• Posiciones para ajustarse:	● El conjunto de transporte debe ser el estado de avance.
	● VR604(FOCS GAIN)

Diagrama de conexiones



6. Los ejes X e Y de la figura de Lissajous son simétricos



Ajuste incompleto — Ajuste apropiado

Fig. 1

Procedimiento de ajuste

1. Conecte la entrada-X(CH-1) del osciloscopio a CN401-6 a través del resistor y del oscilador de AF, y conecte la entrada – Y(CH-2) a CN401-7, como se ve en el diagrama arriba.
2. Ajuste la salida de oscilador de AF a 2,0kHz/6Vp-p para GGV1007, de acuerdo con el disco de prueba usado.
3. Reproduzca el disco de prueba LD de 8 pulgadas y busque el fotograma n.°15,000.
4. Ajuste el oscilador en el modo de X-Y y observe la figura de Lissajous.
5. Ajuste VR604 para que los ejes Xe Y de la figura de Lissajous sean simétricos.(Fig. 1)

Nota : Si la salida del oscilador de AF no sobrepasa a 6Vp-p, reduzca el valor del resistor(47kΩ) en el diagrama arriba, para más fácil observación de la figura de Lissajous.(no menos de 33k Ω)

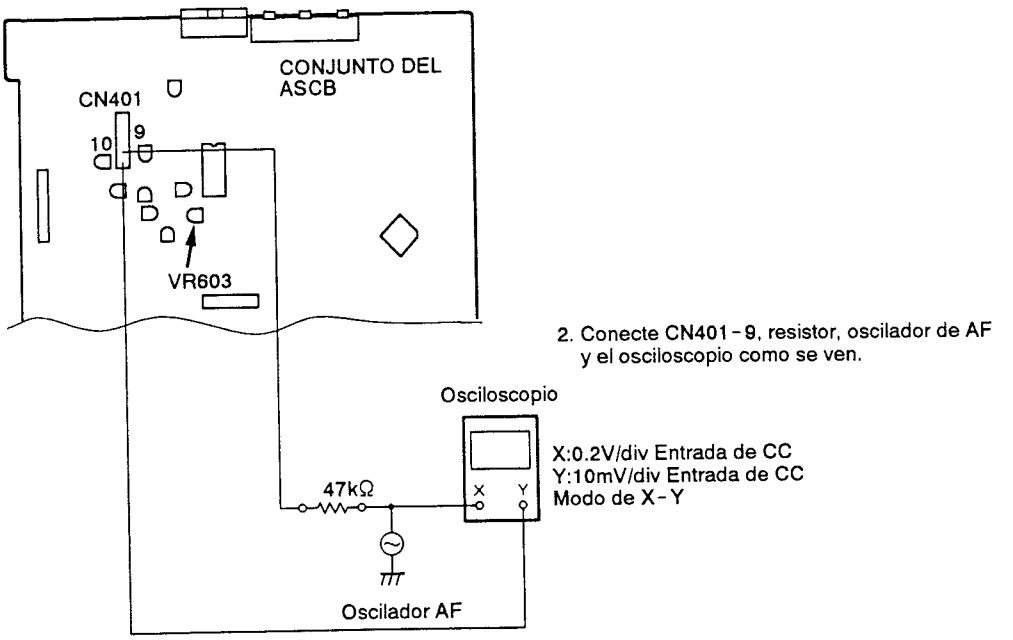
13. AJUSTE DE LA GANANCIA DEL BUCLE DE SERVO DE SEGUIMIENTO

● Propósitot: Para ajustar la ganancia del bucle del servo de seguimiento al valor óptimo.

● Cuando no se ajusta correctamente: Reproducción se empeora.

• Instrumentos y dispositivos de medida:	● Osciloscopio ● Resistor(47kΩ) ● Oscilador AF
• Punto de medita:	● CN401-9(TRKG ERR), CN401-10(TRKG IN)
• Disco de prueba y el modo de reproductor:	● Disco de prueba LD 8 pulgadas GGV1007...n.°15,000 ● Modo fijo ● Servo de inclinación:Neutral ● Modo de prueba(servo de seguimiento:Cerrado) ● El conjunto de tranporte debe ser en el estado de avance.
• Posiciones para ajustarse:	● VR603

Diagrama de conexiones



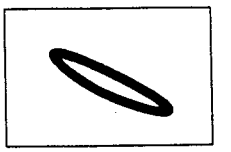
2. Conecte CN401-9, resistor, oscilador de AF y el osciloscopio como se ven.

X:0.2V/div Entrada de CC
Y:10mV/div Entrada de CC
Modo de X-Y

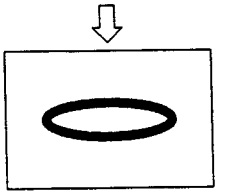
Procedimiento de ajuste

1. Reproduzca el disco de prueba LD y busque el fotograma n.°15,000.
2. Conecte la entrada(CH-1) del osciloscopio a CN401-9 a través del resistor y del oscilador de AF, y conecte la entrada-Y(CH-2) a CN401-10, como se en ven el diagrama arriba.
3. Ajuste la salida del oscilador de AF a 3,3kHz/6Vp-p para GGV1007, de acuerdo con ven el disco de prueba usado.
4. Ajuste el osciloscopio en el modo de X-Y y observe la figura de Lissajous.
5. Ajuste VR603 para que los ejes X e Y de la figura de Lissajous sean simétricos.(Fig. 1)

Nota : Si la salida del oscilador de AF no sobrepasa 6Vp-p, reduzca el valor del resistor(47kΩ) en el diagrama arriba, para más fácil observación de la figura de Lissajous.
(no menos de 33kΩ)



Ajuste incompeto



Ajuste apropiado

Fig. 1

5. Los ejes X e Y de la figura de Lissajous son simétricos.

14. AJUSTE DEL CENTRADO PARA LA REPRODUCCIÓN DEL LADO B

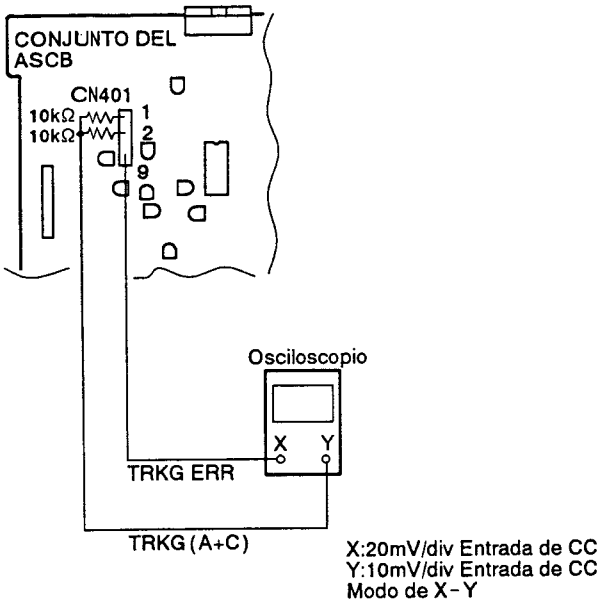
Ajustes Mecánicos

● Propósito: Para comprobar la posición al comienzo de la reproducción y para poner el centro del motor de eje sobre el paso del rayo lasérico cuando empezar la reproducción del lado B del disco.

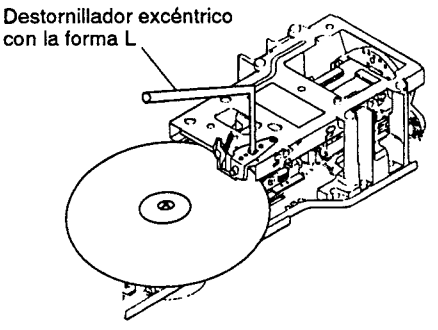
● Cuando no se ajusta correctamente: Se saltan las pistas, se tarda más tiempo en buscar o es imposible buscar, cuando se reproduce el lado B del disco.

• Instrumentos y dispositivos de medida:	● Destornillador excéntrico con la forma L(GGV-129) ● Osciloscopio ● Resistor(10kΩ)
• Punto de medita:	● CN401-9(TRKG ERR), CN401-1(TRKG C) y CN401-2(TRKG A)
• Disco de prueba y el modo de reproductor:	● Disco de prueba LD de 8 pulgadas GGV1007...n.°100 ● Modo reproducción ● El conjunto de transporte debe ser en el estado de avance contrario. ● Modo de prueba(servo de seguimiento:Abisiciones/Cerrado)
• Posiciones para ajustarse:	● Agujero para el ajuste del centrado para el lado B

Diagrama de conexiones



4. Ajuste del centrado para la reproducción del lado B.



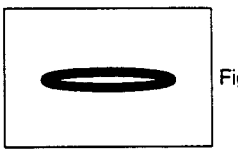


Fig. 1

4. Ajuste apropiado (X:máximo)

Procedimiento de ajuste

1. Revuelva el disco de prueba LD(cambie desde el lado A al lado B). Posición del comienzo de la reproducción debe ser dentro del fotograma n.°3,500.
2. Ajuste el osciloscopio en el modo de X-Y, conecte la entrada-X(CH-1) del osciloscopio a CN401-9(TRKG ERR) y conecte la entrada-Y(CH-2) a CN401-1 y 2(TRKG A+C)
3. Reproduzca el disco de prueba LD y busque el fotograma n.°100 y abra el servo de seguimiento.

Nota: Si el centro está tan excéntrico en el lado B del disco, que no se pueda buscar el lado, sbra el servo de seguimiento cuando el conjunto de transporte mueve hacia la posición del lado B y busca el fotograma n.°100.

4. Mientras observando la figura de Lissajous del osciloscopio, inserte el destornillador exéntrico en el agujero para el ajuste del centrado para el lado B y ajústelo hasta que la amplitud del eje-X de la figura de Lissajous se disminuya(la posición sobre la pista). Después, haga girar el destornillador a la derecha hasta que la amplitud del eje-X de la figura sea máxima.(Fig. 1)

Nota: Cuando se realiza la sección "4. Ajuste de la inclinación del captor" en el estado de avance, realice las secciones "15. Ajuste del ángulo del sentido tangencial del captor para la reproducción del lado B" y "16. Ajuste fino del centrado para la reproducción del lado B".

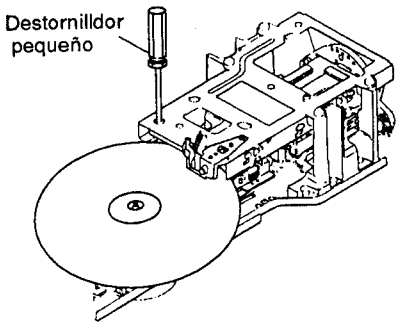
15. AJUSTE DEL ANGULO DEL SENTIDO TANGENCIAL DEL CAPTOR PARA LA REPRODUCCIÓN DEL LADO B

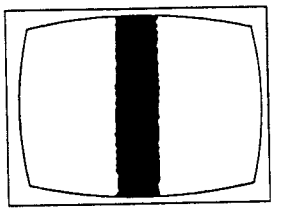
● Propósito: Para ajustar la diafonía hasta que sea mínima en el ángulo del sentido tangencial del conjunto de captor cuando se reproduce el lado B del disco.

● Cuando no se ajusta correctamente: Diafonia está significante.

• Instrumentos y dispositivos de medida:	● Monitor de TV ● Destornilldor pequeño de Phillips
• Punto de medita:	● Pantalla de monitor
• Disco de prueba y el modo de reproductor:	● Disco de prueba LD de 8 pulgadas GGV1007...n.° 475 ● Modo fijo ● El conjunto de transporte debe ser en el estado de avance contrario.
• Posiciones para ajustarse:	● Tornillo para el ajuste del ángulo del sentido

Diagrama de conexiones





2. Diafonía mínima

Procedimiento de ajuste

1. Reproduzca el disco de prueba LD y busque el fotograma n.° 475.
2. Compruebe que se aparece la diafonía en la pantalla del monitor de TV, y ajuste el tornillo para el ajuste del ángulo del sentido tangencial del captor hasta que la diafonía.
3. Después de las etapas 1 y 2, realice otra vez la sección "14. Ajuste del centrado para la reproducción del lado B".

Nota: Cuando el ángulo del sentido tangencial del captor para la reproducción del lado B se varia por este ajuste, se cambia suavemente el centro del disco para el lado B. Como una contramedita, realice el ajuste del centrado otra vez.

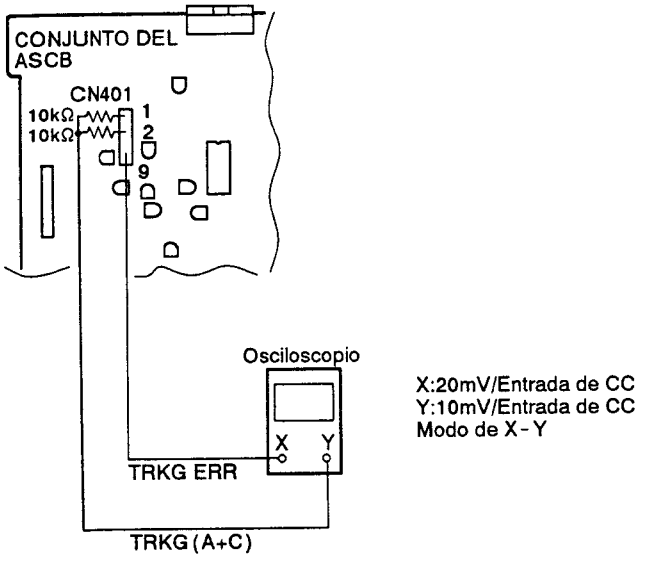
16. AJUSTE FINO DEL CENTRADO PARA LA REPRODUCCIÓN DEL LADO B

● Propósito: Para ajustar el centro del motor de eje sobre la pista del rayo lasérico cuando se reproduce el lado B del disco.

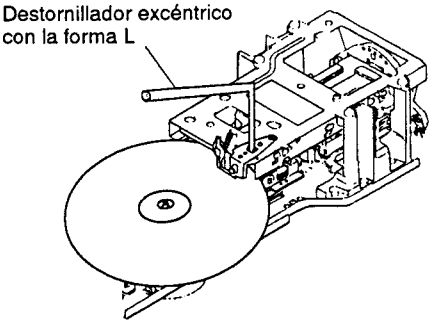
● Cuando no se ajusta correctamete: Se saltan las pistas cuando se reproduce el lado B del disco.

• Instrumentos y dispositivos de medida: • Punto de medita: • Disco de prueba y el modo de reproductor: • Posiciones para ajustarse:	● Osciloscopio ● Destornillador excéntrico con la forma L(GGV-129) ● Resistor (10kΩ × 2) ● CN401-9(TRKG ERR), CN401-1(TRKG C) y CN401-2(TRKG A) ● Disco de prueba LD de 8 pulgadas GGV1007...n.°100 ● Modo de prueba(servo de seguimiento:Abierto) ● Modo de reproducción ● El conjunto de transporte debe ser en el estado contrario. ● Agujero para el ajuste del centrado para el lado B

Diagrama de conexiones



X:20mV/Entrada de CC
Y:10mV/Entrada de CC
Modo de X-Y



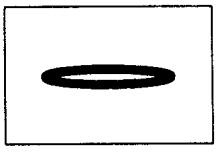


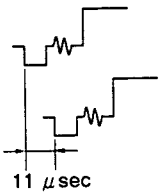
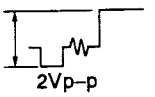
Fig. 1

4. El eje-X de la figura de Lissajous está máxino.

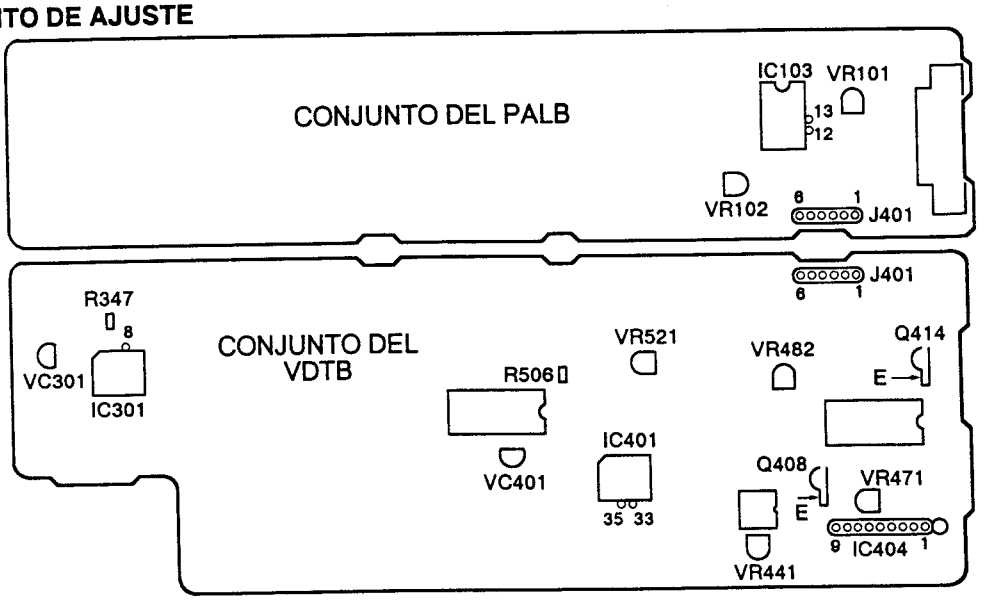
Procedimiento de ajuste

1. Ajuste el osciloscopio en el modo de X-Y, y conecte la entrada-X(CH-1) del osciloscopio a CN401-1 y 2(TRKG A+C).
2. Reproduzca el disco de prueba LD y busque el fotograma n.°100.
3. Abra el servo de seguimiento.
4. Mientras observando la figura de Lissajous del osciloscopio, inserte el destornillador excéntrico en el agujero para el ajuste para el lado B y ajustélo hasta que la amplitud del eje-X de la figura de Lissajous sea máxima.(Fig. 1)
5. Desconecte la alimentación.
6. Los tornillos para la fijación son como siguen;
   Tornillo para la retícula
   Tornillo para el ajuste del centrado del motor de eje
   Tornillo para el ajuste del ángulo del sentido tangencial del captor
   Agujero para el ajuste del centrado para el lado B
   Tornillo del sensor de la inclinación
   Placa del mango(superior)

7.4.4 AJUSTES ELECTRICOS

	Ajuste	Punto de Ajuste	Especificaciones de Ajuste	Inspección Estándar	Notas
	Conjunto del VDTB				
1	Ajuste del reloj del generador sincrónico	VC401	Ajuste VC401 a 17,734475MHz en el lado OPEN de R506.	17,734475MHz ± 100Hz	
2	Ajuste de reloj REF	VC301	Ajuste a 3,5546875MHz al alfiler 8 (R347) de IC301.O, ajuste para que 1H del video PB (reproducción) sea 10 segundos más largos que 1H de señal de referencia de video.	3,5546875MHz ± 25Hz 15,6250kHz ± 0,1Hz	
3	Ajuste de frecuencia central de VCO	VR471	 Ajuste VR471 para que el retardo de tiempo entre entrada de video CCD (Q408 emitidor) y la salida de video CCD (Q414 emitidor) sea 75 μsec (1H + 11 μsec). Para este ajuste, conecte el alfiler de IC404 a GND.	75 μsec ± 1,4 μsec	
4	Ajuste del nivel de video	VR482	 Ajuste del nivel de video blanco de 100% a 2Vp-p en VIDEO OUT (J401, alfiler 6).	2Vp-p ± 5%	
5	Ajuste del nivel de video de retardo 1H	VR441	Ajuste VR441 para que el nivel de video de retardo de 1H en el alfiler 33 de IC401 sea mismo que el nivel de video en el alfiler 35. Video de línea principal es de ± 3%.	Video de línea principal ± 3%	
6	Ajuste del nivel de VPS ERR	VR521	Mientras observando la pantalla majenta en la esfera de vector, reduzca la fluctuaión en VIDEO OUT (J401, alfiler 6).		
	Conjunto del PALB				
7	Ajuste del nivel de video MOD	VR102	Ajuste VR102 para que el nivel de luz de video MOD al alfiler 13 de IC103 sea mismo que el nivel a través de video en el alfiler 12.	± 3%	
8	Ajuste del nivel SC de retardo de 1H	VR101	Mientras observando las barras de color en el modo fijo en la esfera de vector, reduzca la variación de ganancia en VIDEO OUT (J401, alfiler 6).		

- **PUNTO DE AJUSTE**



8. FOR WB TYPE

NOTES:

- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *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.*

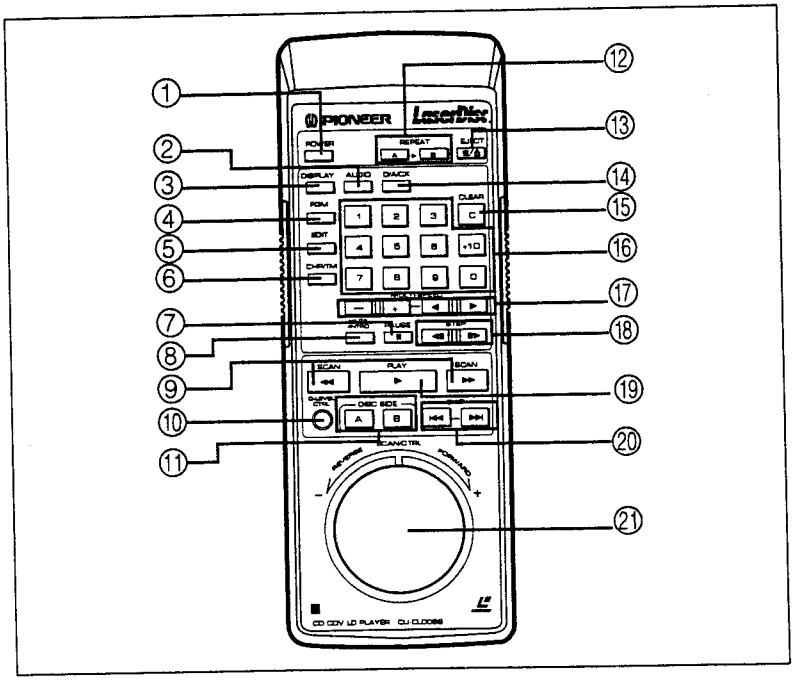
CONTRAST OF MISCELLANEOUS PARTS

CLD - 2700/WB and CLD - 2700/WEZ have the same construction except for the following :

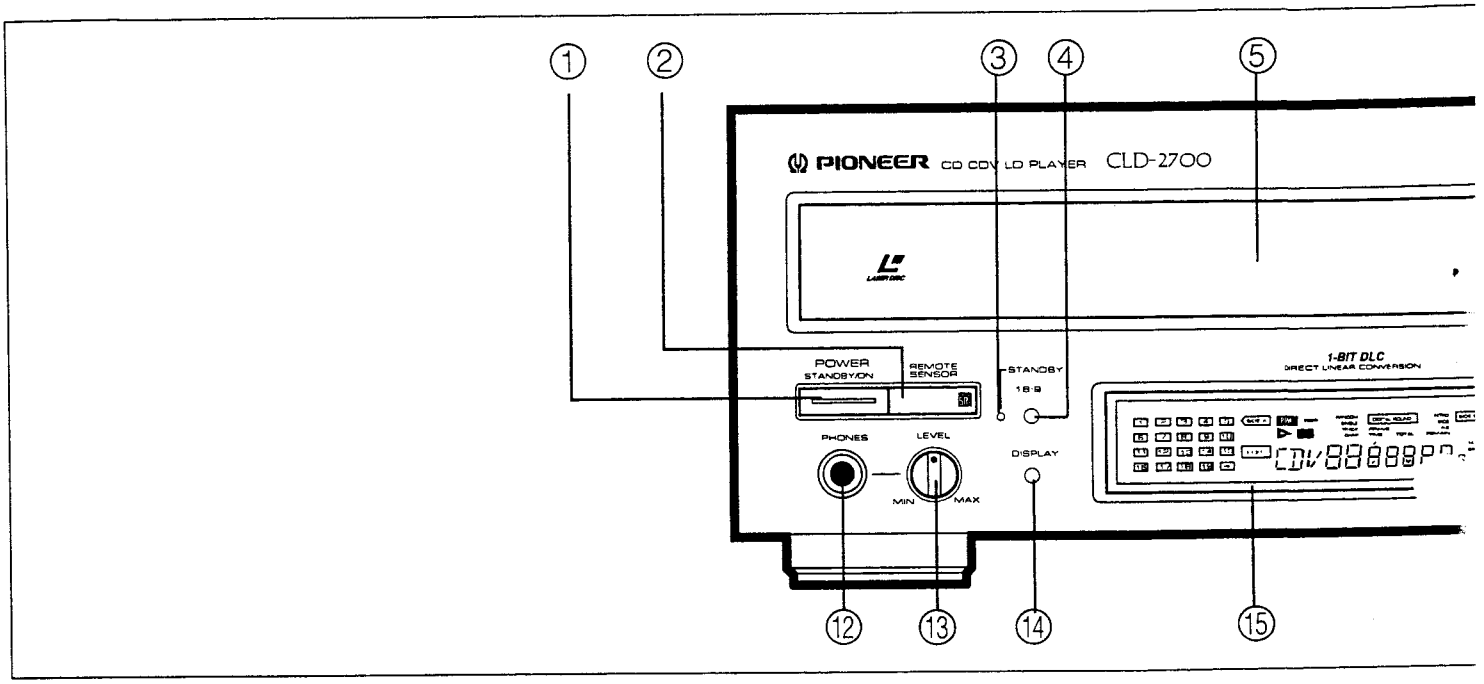
Mark	Symbol & Description	Part No.		Remarks
		WEZ type	WB type	
⚠	AC power cord	VDG1028	VDG1029	
	Operating instructions (English/French/German/Italian)	VRE1008	• • • • •	
	Operating instructions (Dutch/Swedish/Spanish/Portuguese)	VRF1015	• • • • •	
	Operating instructions (English)	• • • • •	VRB1068	
NSP	Caution card (EW)	VRM1027	• • • • •	┐ Refer to
NSP	Caution card (UC)	• • • • •	VRM1026	┘ 2.13 PACKING

9. PANEL FACILITIES

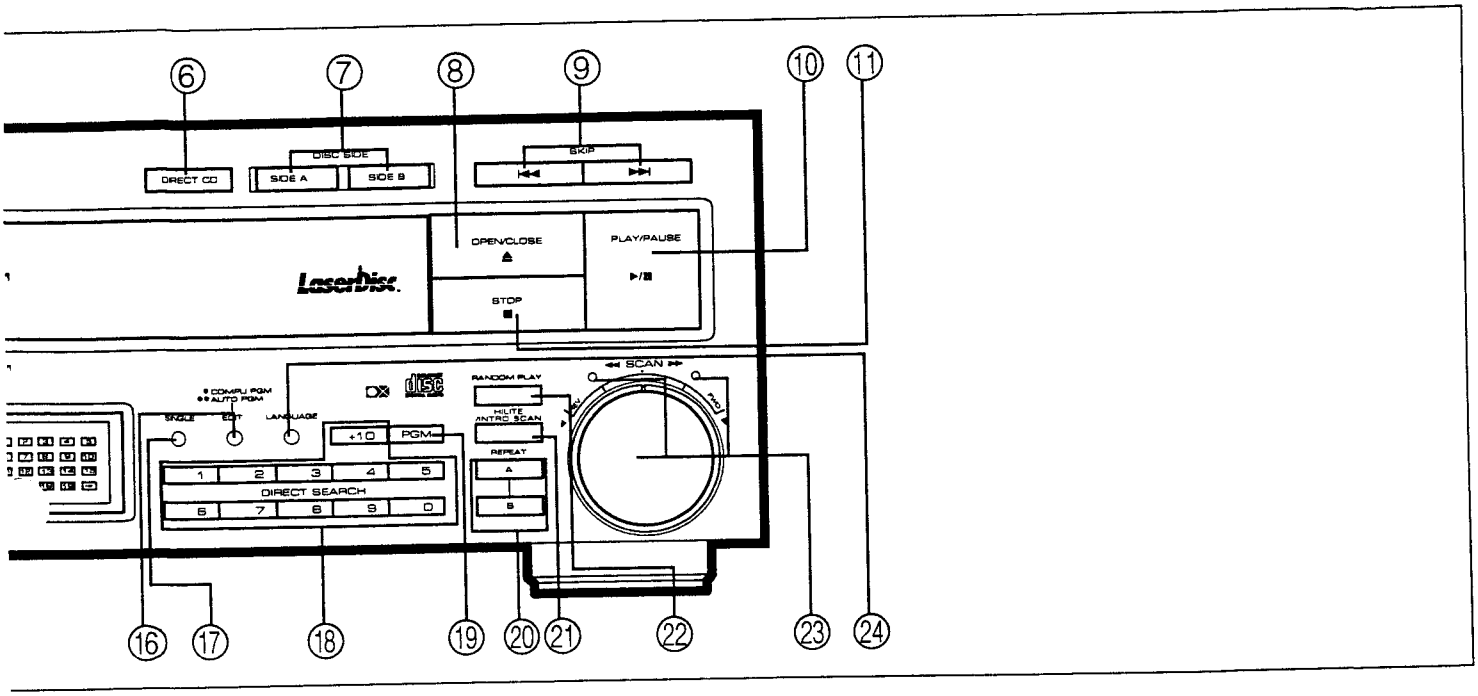
Remote control buttons with the same names or marks as buttons on the front panel of the player control the same operations as the corresponding front panel buttons.



① **POWER button**
Press to turn the power on and off.
② **AUDIO button**
③ **DISPLAY button**
④ **PGM button**
⑤ **EDIT button**
⑥ **CHP/TM button**
⑦ **PAUSE button**
⑧ **HILITE/INTRO button**
⑨ **SCAN buttons**
⑩ **D-LEVEL CTRL button**
⑪ **DISC SIDE A/B buttons**
⑫ **REPEAT A/B buttons**
⑬ **EJECT button**
⑭ **D/A/CX button**
⑮ **CLEAR button**
Used to clear the repeat mode, program mode, random play mode or hi-lite scan/intro scan mode. This button is also for use in correcting input digits.
⑯ **Direct search/Digit buttons**
⑰ **MULTI-SPEED buttons**
⑱ **STEP buttons**
⑲ **PLAY button**
⑳ **SKIP buttons**
㉑ **SCAN/CTRL control**



① **POWER STANDBY/ON switch**
Press to turn the power on and off.
② **REMOTE SENSOR**
③ **STANDBY indicator**
④ **16:9 button**
⑤ **Door/Disc table**
⑥ **DIRECT CD button**
⑦ **DISC SIDE A/B button**
⑧ **OPEN/CLOSE button**
⑨ **SKIP buttons**
⑩ **PLAY/PAUSE button**
⑪ **STOP button**
⑫ **PHONES jack**
⑬ **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.
⑭ **DISPLAY button**
⑮ **Display window**
⑯ **EDIT button (COMPU PGM/AUTO PGM)**
⑰ **SINGLE button**
⑱ **DIRECT SEARCH/Digit buttons**
⑲ **PGM (program) button**
⑳ **REPEAT A/B buttons**
㉑ **HILITE/INTRO SCAN button**
㉒ **RANDOM PLAY button**
㉓ **SCAN control and indicators**
㉔ **LANGUAGE button**


6
7
8
9
10
11
DIRECT CD
DISC SIDE
SIDE A
SIDE B
SKIP
OPEN/CLOSE
PLAY/PAUSE
STOP
LaserDisc
SCAN
RANDOM PLAY
MUTE
ANTRC SCAN
REPEAT
SINGLE
EDIT
LANGUAGE
+10
PGM
DIRECT SEARCH
1
2
3
4
5
6
7
8
9
0
16
17
18
19
20
21
22
23
24

10. SPECIFICATIONS

1. General

System ..... LaserVision Disc system and Compact Disc digital audio system
Laser ..... Semiconductor laser wavelength 780 nm
Power requirements ..... AC 220 ~ 240 V, 50/60 Hz
Power consumption ..... 42 W
Weight ..... 8.5 kg
Dimensions ..... 420 (W) x 438 (D) x 135 (H) mm
16-9/16 (W) x 17-1/4 (D) x 5-5/16 (H) in
Operating temperature ..... +5°C ~ +35°C (41°F - 95°F)
Operating humidity ..... 5% ~ 90%
(There should be no condensation of moisture.)

2. Disc

LaserVision Discs

*Maximum playing times
30 cm active play disc ..... 72 min/both sides
30 cm long play disc ..... 2 hours/both sides
20 cm active play disc ..... 28 min/both sides
14 min/one side
20 cm long play disc ..... 40 min/both sides
20 min/one side
Spindle motor speed
Active play disc ..... 1,500 rpm
Long play disc ..... 1,500 rpm (inner circumference) to 570 rpm (outer circumference)
(For a 30 cm disc)

Compact Discs

DISC ..... Diameter: 12 cm, 8 cm, Thickness: 1.2 mm
Rotation direction (pickup side) ..... Counterclockwise
Linear speed ..... 1.2 ~ 1.4m/sec
*Maximum playing time ..... 74 min. 12 cm discs
20 min. 8 cm discs
(For stereo playback)

Compact Discs with Video

Disc ..... Diameter: 12 cm, Thickness: 1.2 mm
Rotation direction (pickup side) ..... Counterclockwise
Linear speed ..... Audio portion: 1.2 ~ 1.4m/sec
Video portion: 11 ~ 12m/sec
*Maximum playing time ..... Video portion: 5 min. (CLV)
Audio portion: 20 min. (Digital)

** Actual playback time differs for each disc.*

3. Video characteristics

Format ..... PAL specifications
Video output
Level ..... 1 Vp-p nominal, sync. negative, terminated
Impedance ..... 75Ω unbalanced
Jack ..... RCA 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

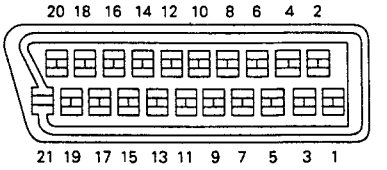
Digital Audio Characteristics

Frequency response	4 Hz - 20 kHz
SN ratio	106 dB (EIAJ)
Dynamic range	98 dB (EIAJ)
Total harmonic distortion	0.0025% (EIAJ)
Wow and flutter	Limit of measurement (EIAJ)

5. Other Terminals

Control input/output ..... Both miniature jacks
CD-DECK synchro ..... Miniature jack
Optical digital output ..... Optical digital jack
AV connector 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 "AV CONNECTOR" 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-CLD069) 1
Size "AAA" (IEC R03) dry cell batteries 2
Euroconnector cable 1
Audio cord 1
Operating instructions 1
Warranty card 1

7. Functions

Remote control unit operations (CU-CLD069)

	Function	Active play Disc (CAV)	Long play Disc (CLV)	Compact Disc with Video	Compact Disc
Basic Functions	Two-side play	YES	YES	NO	NO
	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
	Absolute time search	NO	NO	NO	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
	All-side repeat	YES	YES	NO	NO
	Program repeat	YES	YES	YES	YES
	Random repeat	YES*1	YES*1	YES	YES
	Program random repeat	YES	YES	YES	YES
Trick play	Still/Step	YES	NO	NO	NO
	Multi-speed (Forward/reverse 9-level variable)	YES	NO	NO	NO
Time display	Elapsed time display	NO	YES	YES	YES
	Absolute time display	YES*1	NO	NO	YES
	Remaining track time display	NO	NO	YES	YES
	Remaining total time display	YES*1	YES*1	YES	YES
	Total number of selections, total time display	YES*1	YES*1	YES	YES
Others	Compu program/Auto program edit	YES*1	YES*1	YES	YES
	Hi-Lite scan	NO	NO	YES*4	YES
	Intro scan	YES	YES	YES*5	NO
	Digital level control	YES*3	YES*3	YES	YES
	Single play	YES	YES	YES	YES
	CX system ON/OFF	YES*2	YES*2	NO	NO
	Audio channel selection (Stereo, 1/L, 2/R)	YES	YES	YES	YES

*1 Only discs with TOC

*2 Valid for analog audio playing a disc with the CX mark.

*3 Can only be used with discs with digital audio tracks.

*4 Audio part only

*5 Video part only

NOTE:

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

PLAYER FUNCTIONS

- Display, Visual Calendar Display
- Intro Scan, Hi-Lite Scan, Direct CD, Single Play, Digital Level Control, Random Playback, Program Random Playback and Compu Program/Auto Program Edit
- Digital Audio for LaserVision Discs
- Last Memory