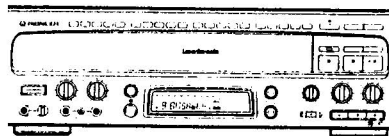


Service Manual

PIONEER
The Art of Entertainment



ORDER NO.
ARP2802

CD CDV LD PLAYER

CLD-V840

CLD-2720K

CLD-V840 AND CLD-2720K HAVE THE FOLLOWING:

Type	Model		Power Requirement	Remarks
	CLD - V840	CLD - 2720K		
KU	○	-	AC120V only	
KC	○	-	AC120V only	
RD	-	○	AC110 - 127V, 220 - 240V (switchable)	

- This manual is applicable to the following : CLD-V840/KU and KC ; CLD-2720K/RD.
- For the following : CLD-V840/KC ; CLD-2720K/RD, refer to page 75.

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PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan
PIONEER ELECTRONICS SERVICE INC. P.O. Box 1760, Long Beach, California 90801 U.S.A.
PIONEER ELECTRONICS OF CANADA, INC. 300 Allstate Parkway Markham, Ontario L3R 0P2 Canada
PIONEER ELECTRONIC [EUROPE] N.V. Haven 1087 Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS AUSTRALIA PTY. LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia TEL: [03] 580-9911
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1. SAFETY INFORMATION



This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual. Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING

Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5). When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.



NOTICE

(FOR CANADIAN MODEL ONLY)

Fuse symbols  (fast operating fuse) and/or  (slow operating fuse) on PCB indicate that replacement parts must be of identical designation.

REMARQUE

(POUR MODÈLE CANADIEN SEULEMENT)

Les symboles de fusible  (fusible de type rapide) et/ou  (fusible de type lent) sur CCI indiquent que les pièces de remplacement doivent avoir la même désignation.

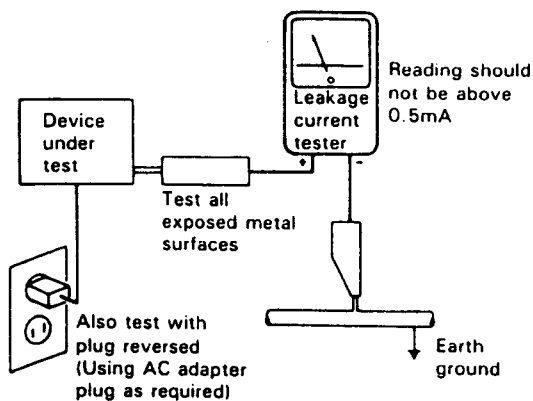
(FOR USA MODEL ONLY)

1. SAFETY PRECAUTIONS

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

LEAKAGE CURRENT CHECK

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



AC Leakage Test

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

2. PRODUCT SAFETY NOTICE

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

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

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

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

2. EXPLODED VIEWS AND PARTS LIST

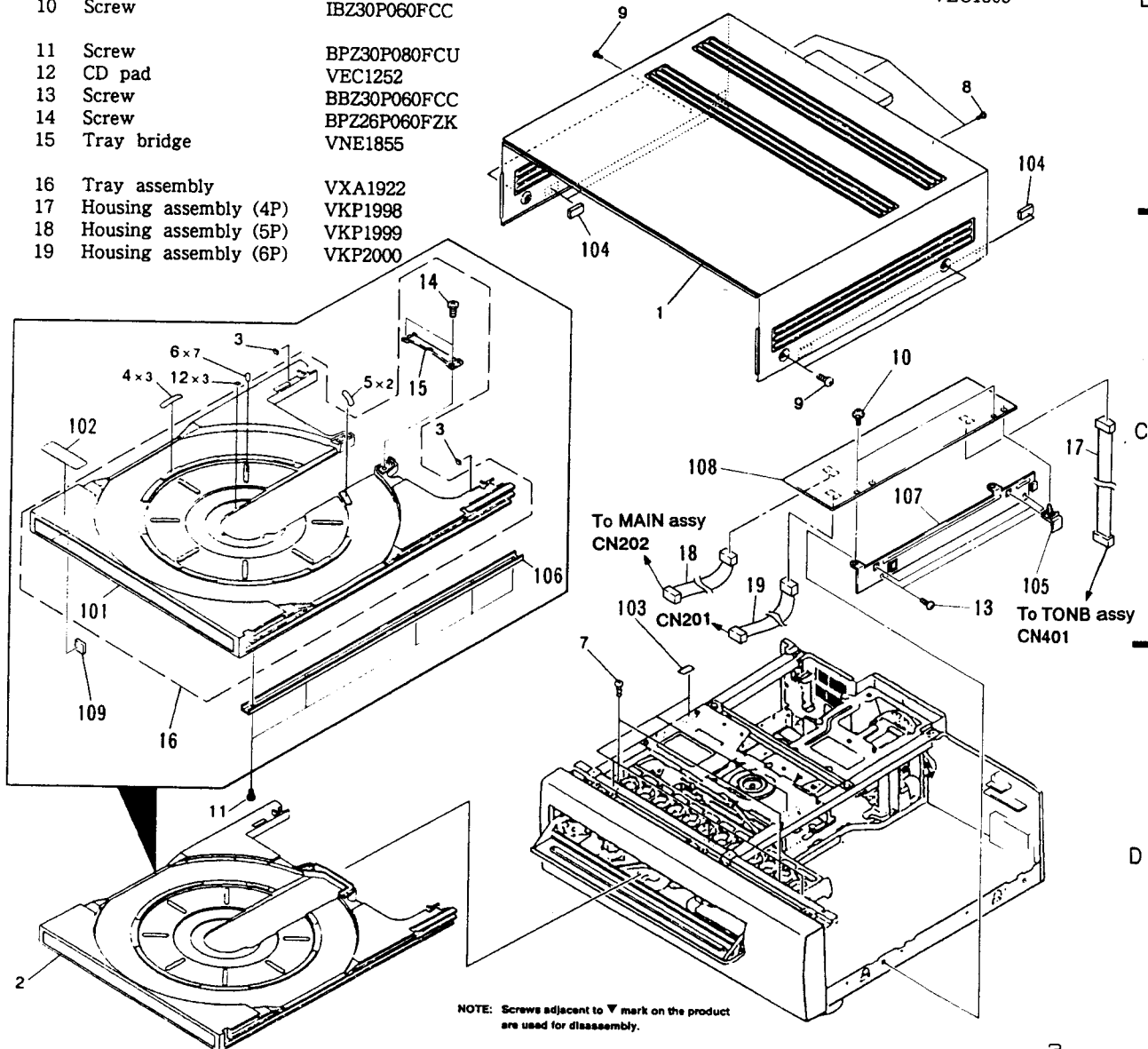
NOTES:

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

1. EXTERIOR SECTION

Parts List

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	1	Bonnet - S	VXX1535	NSP	101	Tray	VNK2185
	2	Tray assembly - S	VXX1808	NSP	102	Carry label	VRW1289
	3	Tray rubber	VEB1089	NSP	103	Cushion	VEC1092
	4	Disc pad (L)	VEC1191	NSP	104	Cushion	VEC1004
	5	Disc pad (B)	VEC1379	NSP	105	PCB hinge	VEC - 169
	6	Disc pad (C)	VEC1380	NSP	106	Tray reinforcing plate	VNE1679
	7	Screw	VCZ30P120FMC	NSP	107	PCB holder (A)	VNE1394
	8	Screw	BBT30P060FCC	NSP	108	KFCB assy	VWV1329
	9	Screw	BCZ40P060FZK	NSP	109	Cushion	VEC1609
	10	Screw	IBZ30P060FCC				
	11	Screw	BPZ30P080FCU				
	12	CD pad	VEC1252				
	13	Screw	BBZ30P060FCC				
	14	Screw	BPZ26P060FZK				
	15	Tray bridge	VNE1855				
	16	Tray assembly	VXA1922				
	17	Housing assembly (4P)	VKP1998				
	18	Housing assembly (5P)	VKP1999				
	19	Housing assembly (6P)	VKP2000				



NOTE: Screws adjacent to ▼ mark on the product are used for disassembly.

2. FRONT PANEL SECTION

Parts List

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	1	Headphone knob	PAC1707	NSP	101	Wire clip (A)	VEC1355
	2	Name plate	VAM1032		102	.....
	3	Karaoke badge	VAM1034	NSP	103	Reinforced plate	VNE1610
	4	Door spring	VBH1193		104	.....
	5	Door damp rubber	VEB1141	NSP	105	FLKB assy	VWG1455
	6	Plastic rivet (A)	VEC - 179	NSP	106	KEYB assy	VWG1456
	7	Insulation sheet	VEC1620	NSP	107	JACB assy	VWV1326
	8	Door plate	VNE1482	NSP	108	VOLB assy	VWV1327
	9	Volume holder	VNE1869	NSP	109	TONB assy	VWV1328
	10	FL filter	VNK1659				
	11	PW button	VNK2002				
	12	Ten key (L)	VNK2208				
	13	Ten key (R)	VNK2209				
	14	Key (A)	VNK2210				
	15	Key (B)	VNK2211				
	16	L key (C)	VNK2214				
	17	VR knob (L)	VNK2220				
	18	Slide knob	VNK2222				
	19	Sub panel	VNK2225				
	20	FL panel	VEC1612				
	21	VR knob (S)	VNK2284				
	22	Damper assembly	VXA1153				
	23	L key (A) assembly	VXA1948				
	24	L key (B) assembly	VXA1949				
	25	Door assembly - S	VXX1896				
	26	Front panel assembly - S	VXX1911				
	27	Screw	BPZ20P040FZK				
	28	Screw	BPZ26P060FCU				
	29	Screw	IPZ26P060FMC				
	30	Reinforced plate (B)	VNE1913				

1 2 3 4 5 6
Front Panel Section

6 CLD-V840

A

B

C

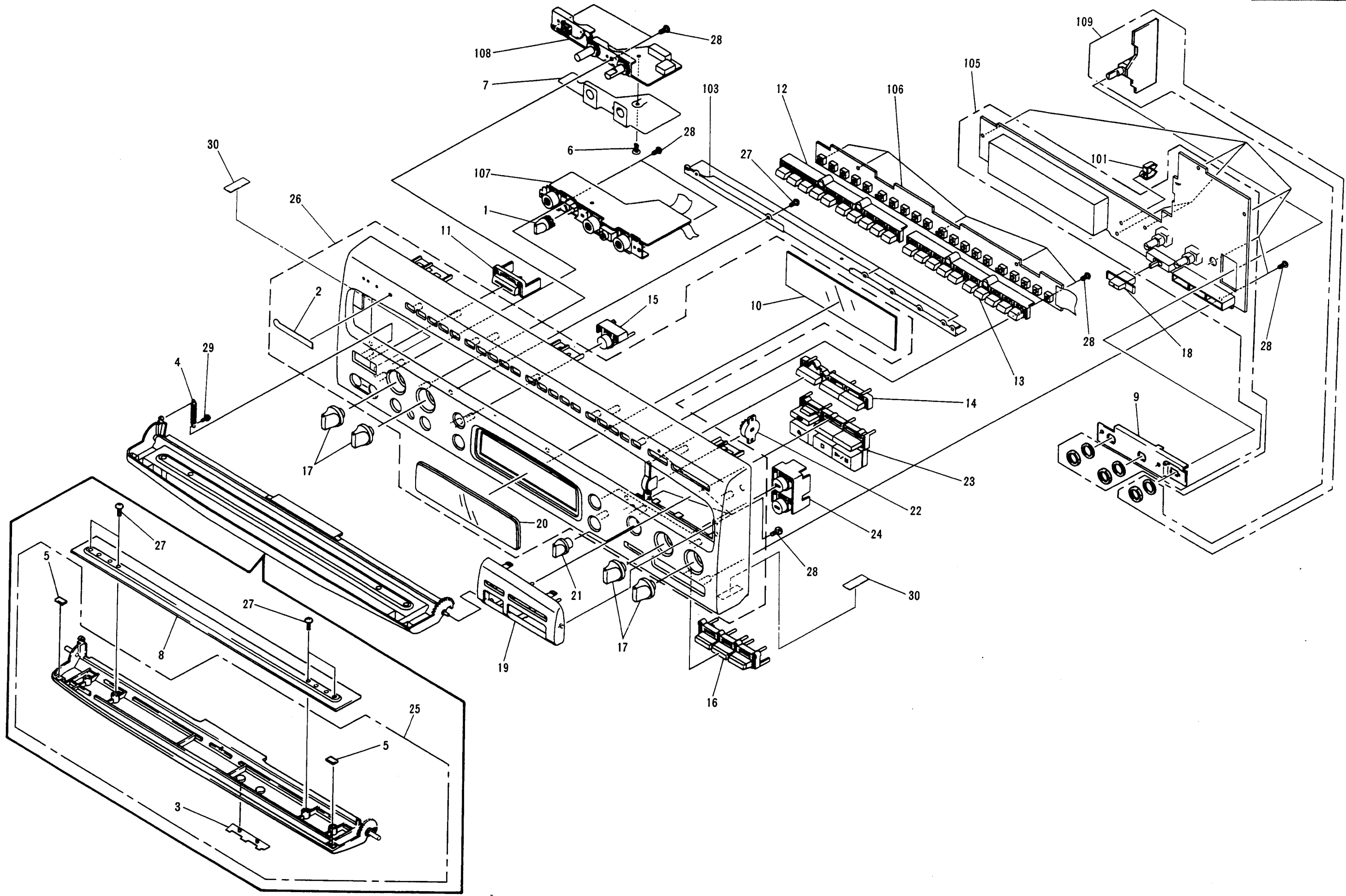
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A

B

C

D

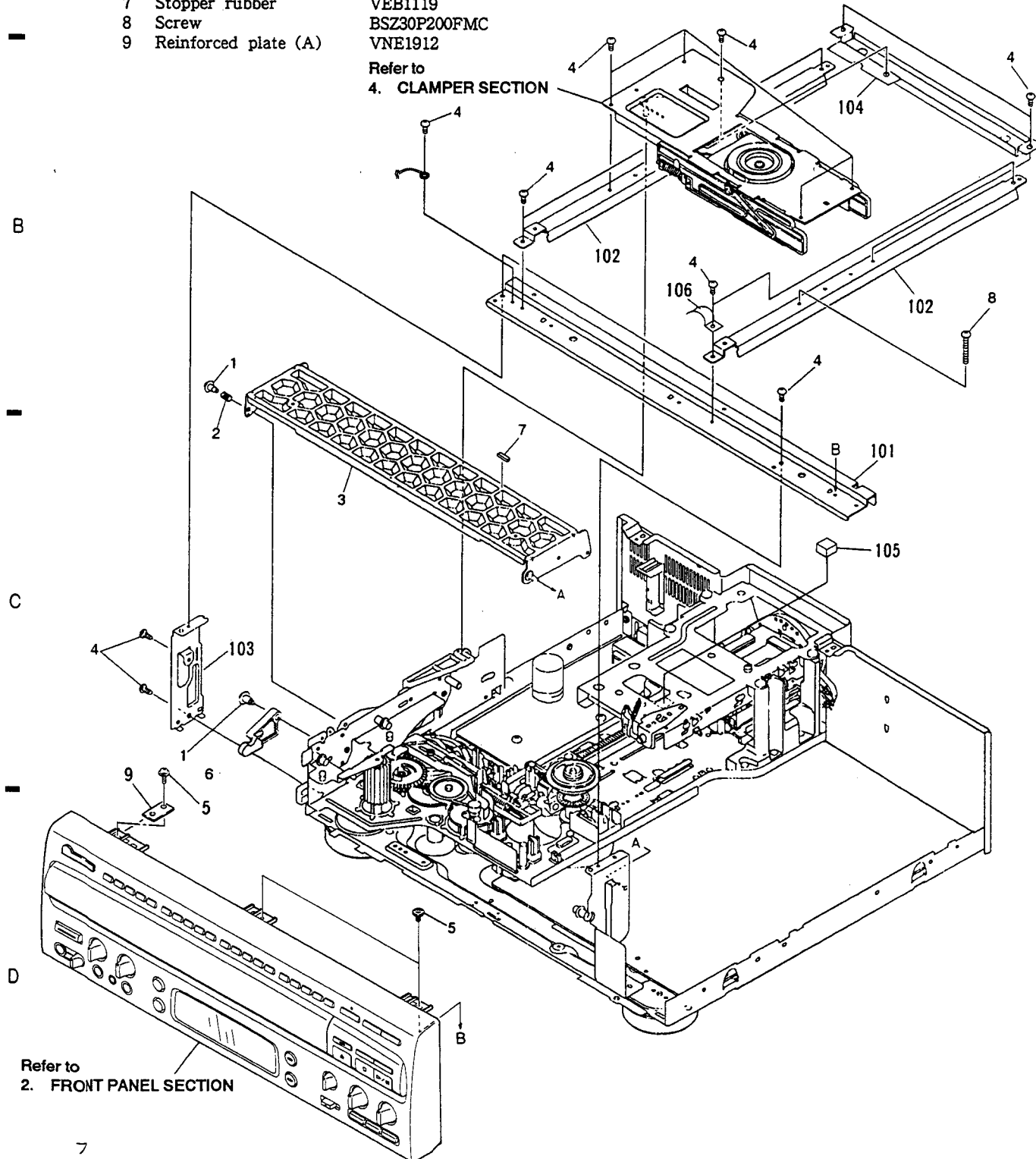


3. TOP VIEW SECTION

Parts List

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Screw (B)	VBA1008	NSP 101	Front angle	VNE1543
2	Arm spring	VBH1093	NSP 102	Center angle	VNE1761
3	Tray guide assembly	VXA1576	NSP 103	Side stay (L)	VNE1545
4	Screw	BBZ30P060FCC	NSP 104	Reinforced angle	VNE1673
5	Screw	IBZ30P060FCC	NSP 105	Damp cushion	VEC1602
6	Door lever (W)	VNL1398	NSP 106	Earth plate	VNE1518
7	Stopper rubber	VEB1119			
8	Screw	BSZ30P200FMC			
9	Reinforced plate (A)	VNE1912			

Refer to
4. CLAMPER SECTION



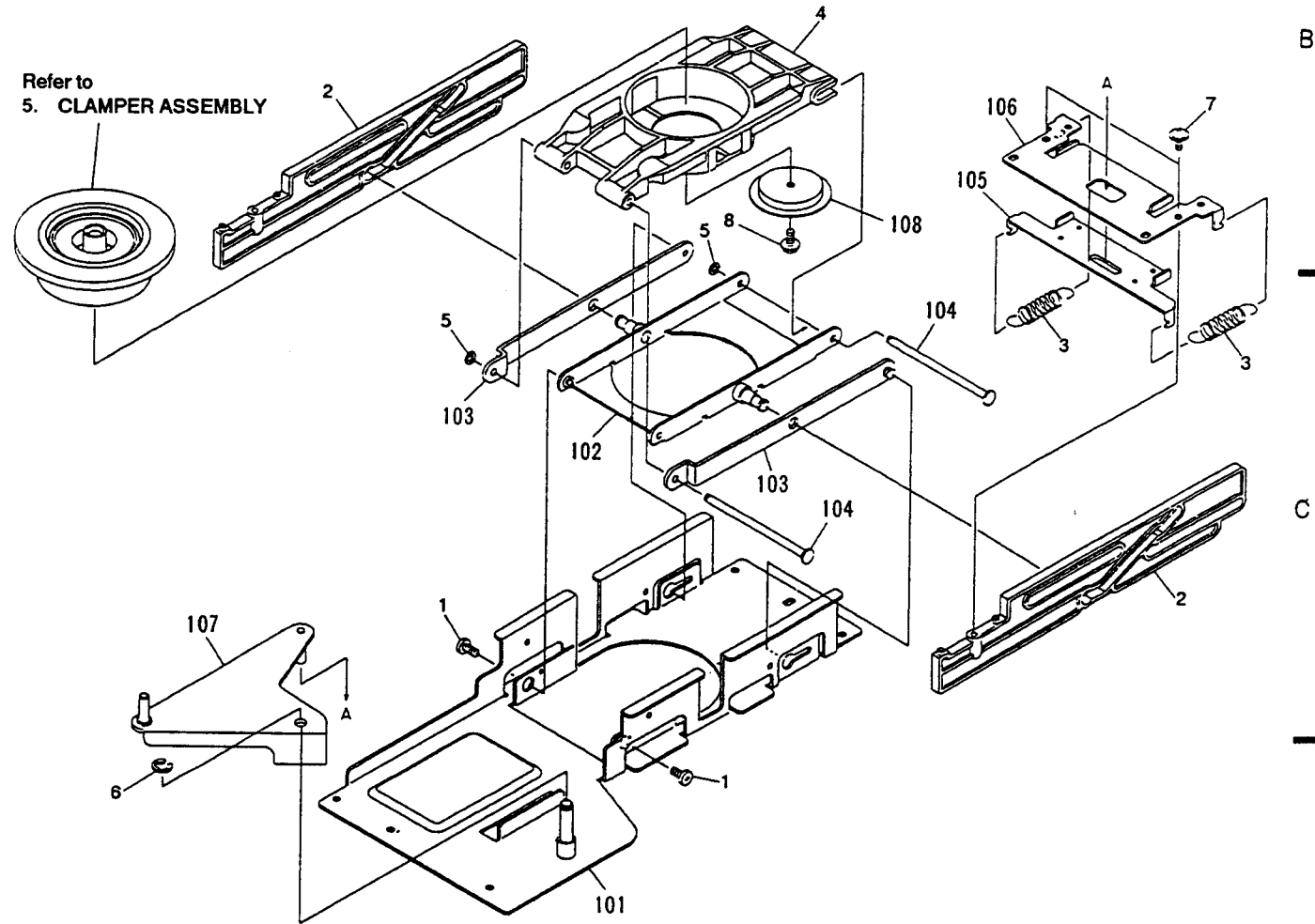
Refer to
2. FRONT PANEL SECTION

4. CLAMPER SECTION

Parts List

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Pivot 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

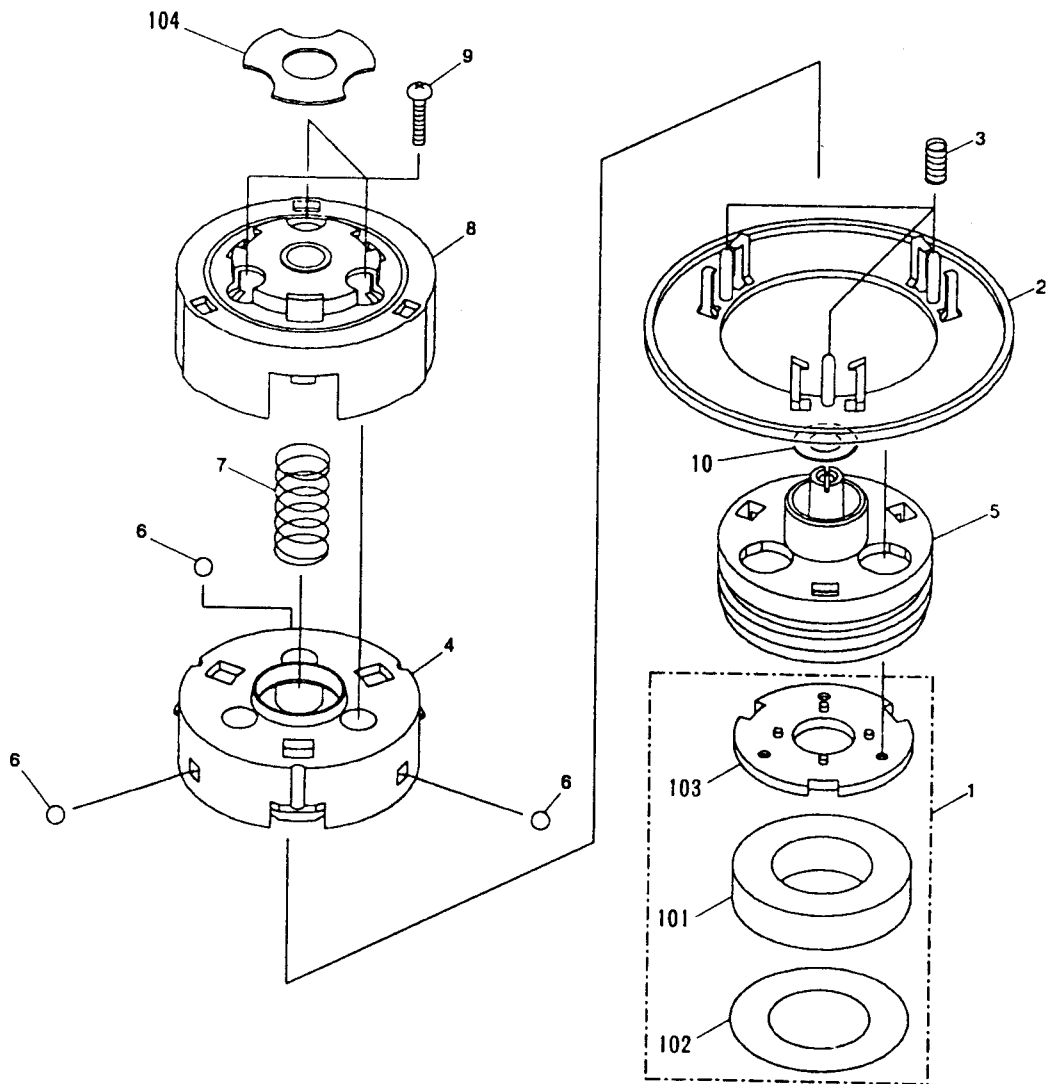
Refer to
5. CLAMPER ASSEMBLY



5. CLAMPER ASSEMBLY

Parts List

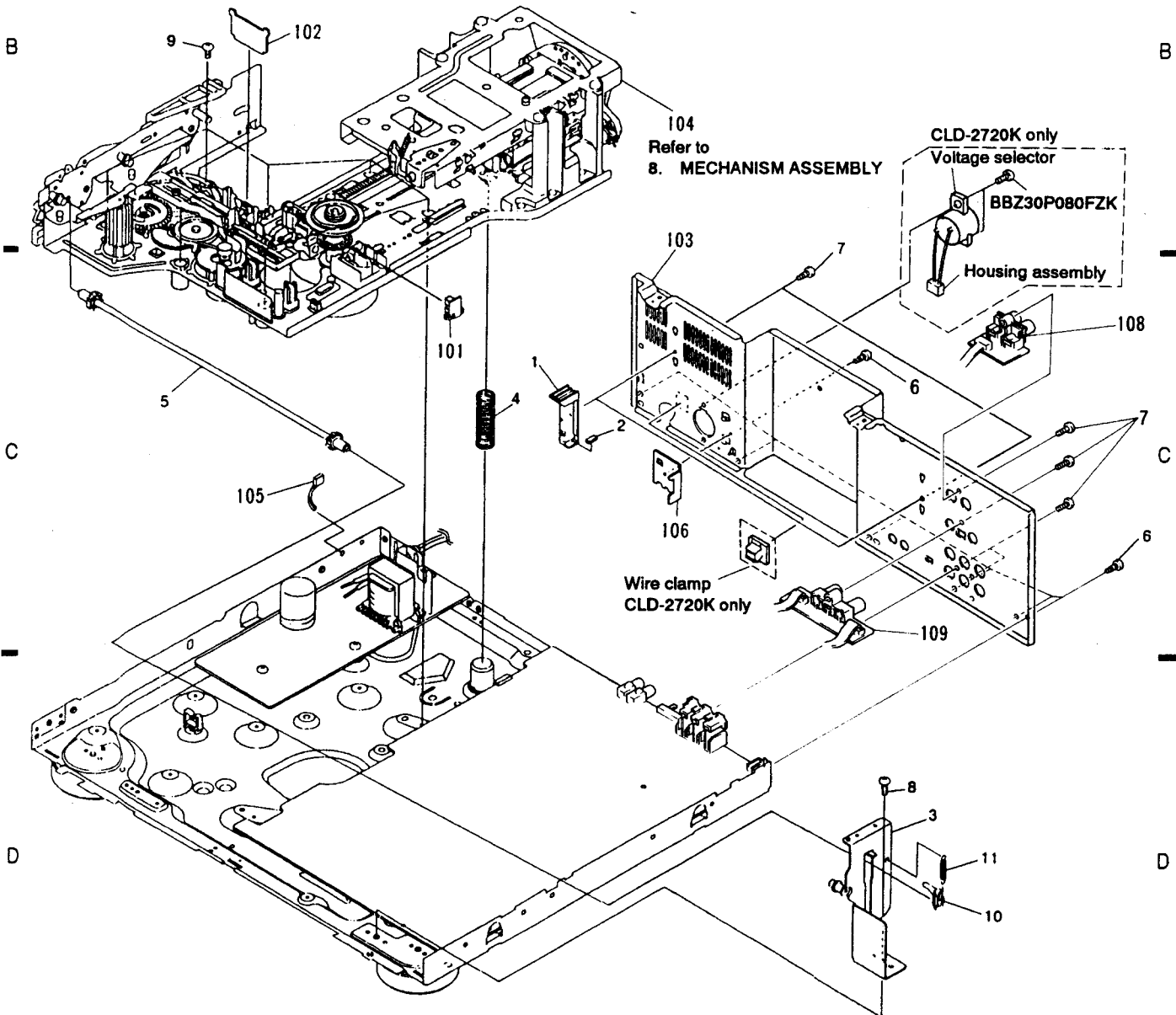
Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	1	Magnet assembly - S	VXX1475	NSP	101	Magnet	VMG1010
	2	Disc clamper	VNL1362	NSP	102	Gap sheet	VEC1561
	3	Clamper spring	VBH1153	NSP	103	Clamper plate	VNE1549
	4	Clamper base	VNL1364	NSP	104	Absorber rubber (A)	VEB1146
	5	Centering hub (B)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



6. BASE SECTION [1]

Parts List

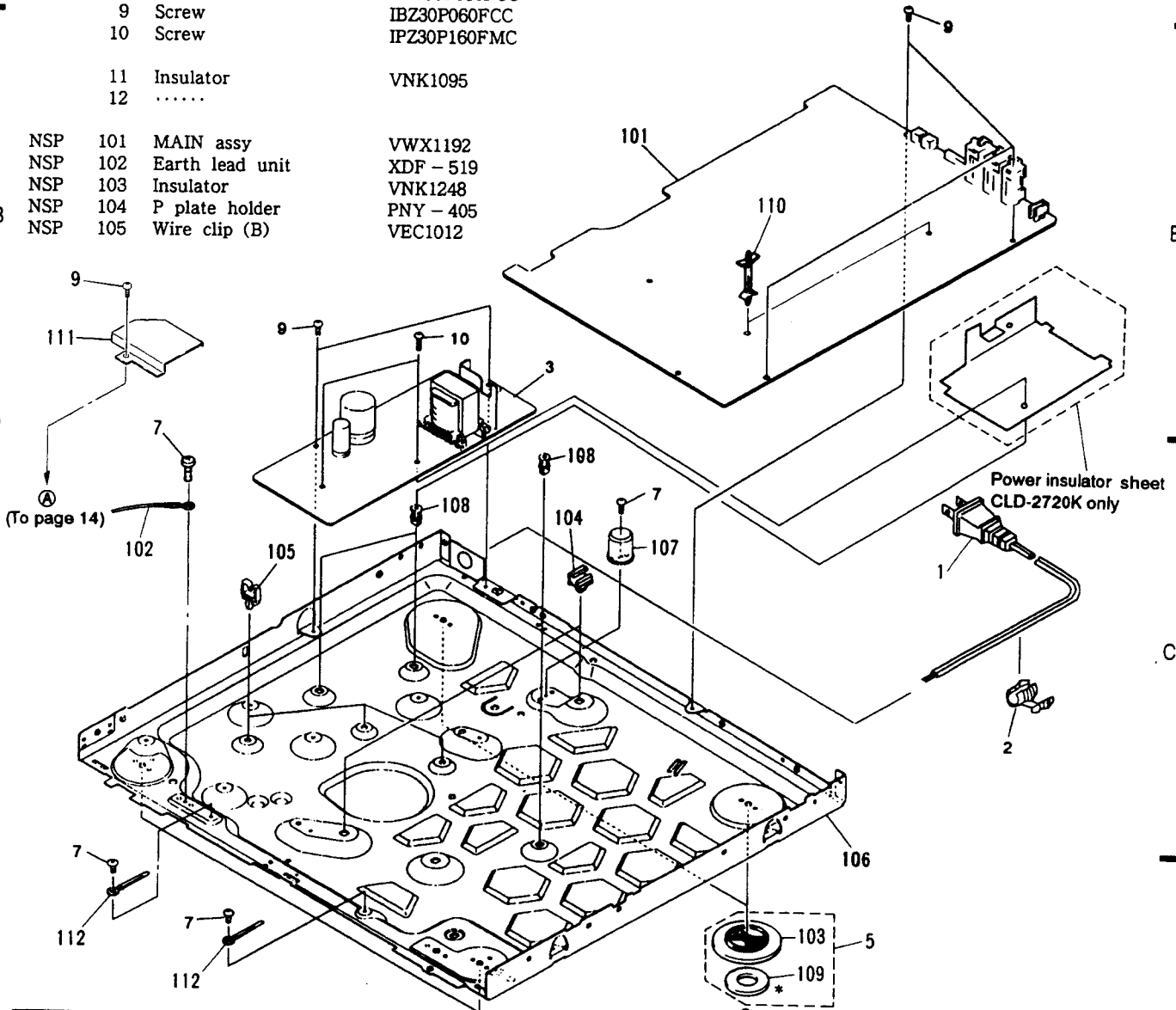
Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
A	1	Tray stopper	VNL1202	NSP	101	FG board assy	VWG1458
	2	Door damp rubber	VEB1033	NSP	102	SW board assy	VWG1459
	3	Side stay (R) assembly	VXA1690		103	Rear panel	VNA1369
	4	Base spring	VBH1145	NSP	104	Mechanism assembly	VWT1085
	5	Synchro gear assembly	VXA1627	NSP	105	Binder	Z09 - 057
	6	Screw	BBT30P060FCC	NSP	106	TB holder	VNE1612
	7	Screw	BPZ30P080FCU	NSP	107	.....
	8	Screw	BBZ30P060FCC	NSP	108	EXTB assy	VWG1457
	9	Screw (B)	VBA1023	NSP	109	RFAB assy	VWG1454
	10	Synchro holder	VNL1334				
	11	Synchro spring	VBH1139				



7. BASE SECTION [2]

Parts List

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
△	1	AC power cord	PDG1015	NSP	106	Base chassis	VNA1341
△	2	Strain relief	CM - 22C	NSP	107	Spring guide	VNL1343
	3	Power supply assy	VWR1198	NSP	108	PCB spacer	PNY - 404
	4	Insulator assembly	VXA1686	NSP	109	Stopper	VEC1487
	5	Insulator assembly	VXA1687	NSP	110	PCB support	AEC1013
	6	.....		NSP	111	Heat guard	VNE1864
	7	Screw	BBZ30P060FCC	NSP	112	Cord holder	Z09 - 062
	8	Screw	BBZ30P080FCC				
	9	Screw	IBZ30P060FCC				
	10	Screw	IPZ30P160FMC				
	11	Insulator	VNK1095				
	12	.....				
NSP	101	MAIN assy	VWX1192				
NSP	102	Earth lead unit	XDF - 519				
NSP	103	Insulator	VNK1248				
NSP	104	P plate holder	PNY - 405				
NSP	105	Wire clip (B)	VEC1012				



* The stopper consist of the big ring part and the small ring part.
 If you stick the stopper to the leg, stick the big ring part to the front insulator, and the small ring part to the rear insulator.

(For the front insulator) (For the rear insulator)

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	VWT1086
	8	Flexible cable (22P)	VDA1329
	9	Belt	PEB1013
	10	Lever switch (TURN SW)	DSK1003

Mark	No.	Description	Part No.
	11	Screw	ABZ26P050FMC
	12	Screw	IBZ30P100FMC
	13	Screw	IPZ30P100FCU
	14	Radial spring	VBH1164
NSP	101	Housing assembly (3P)	VKP1937

1 | 2 | 3
Mechanism Assembly

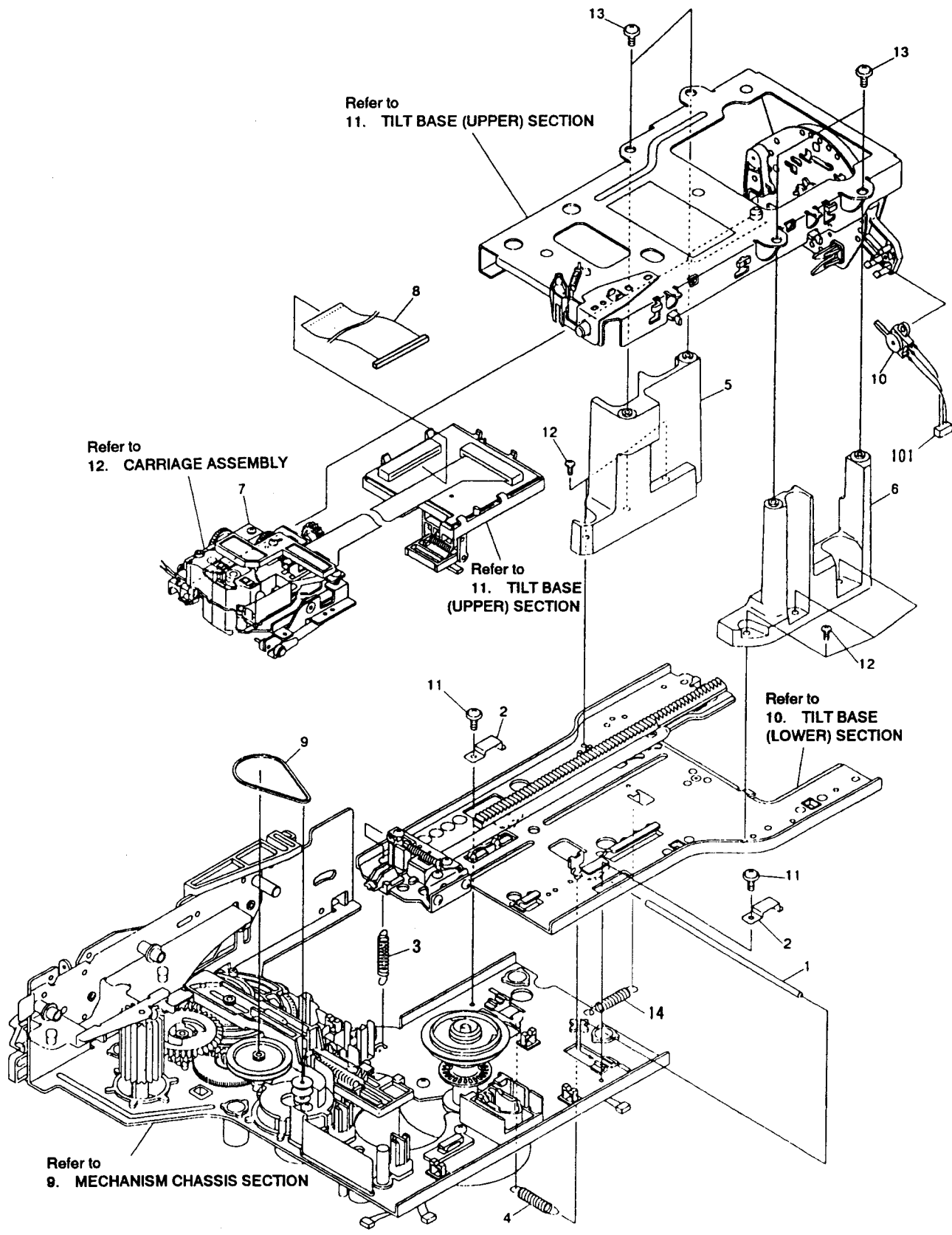
CLD-V840

A

B

C

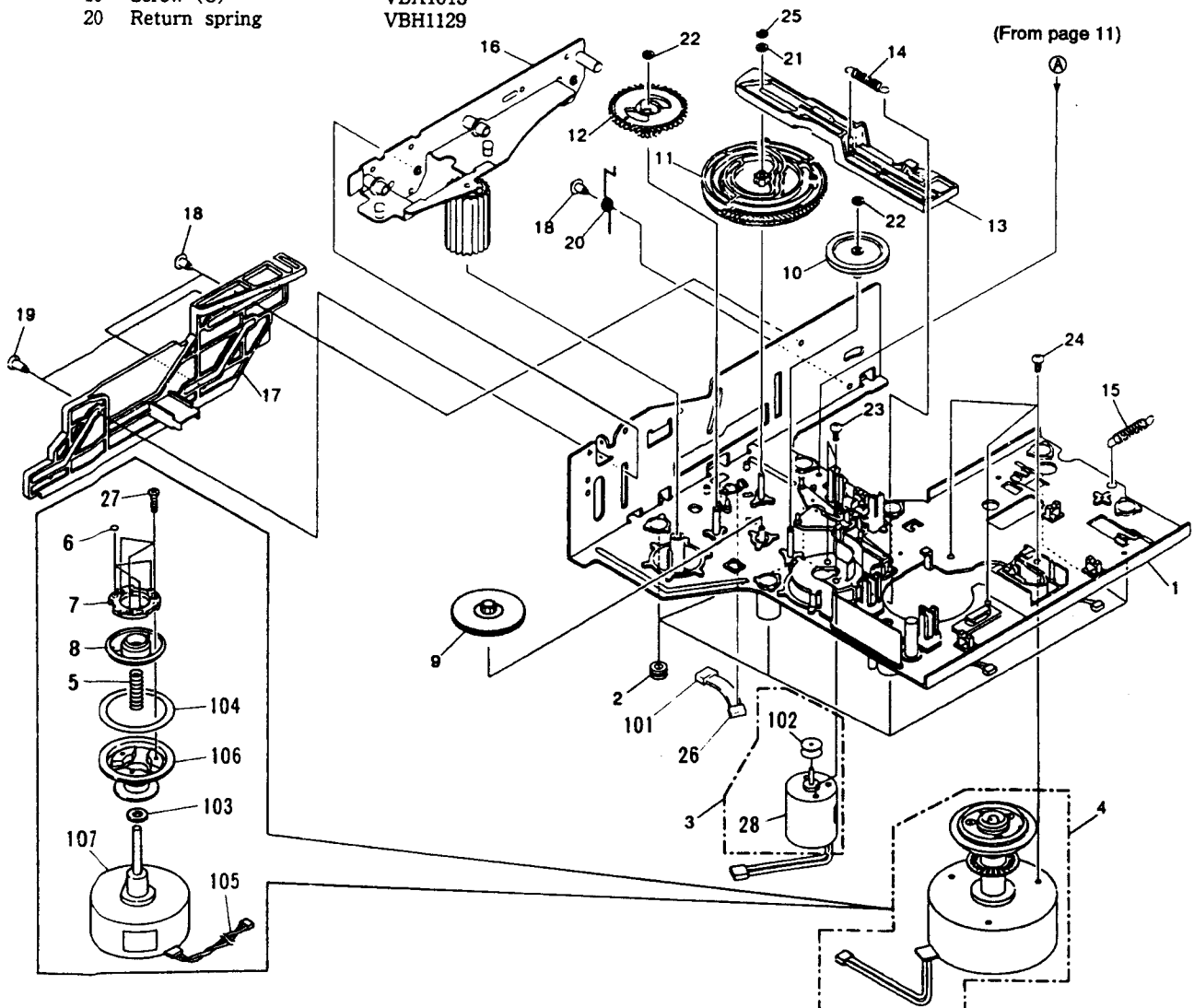
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9. MECHANISM CHASSIS SECTION

Parts List

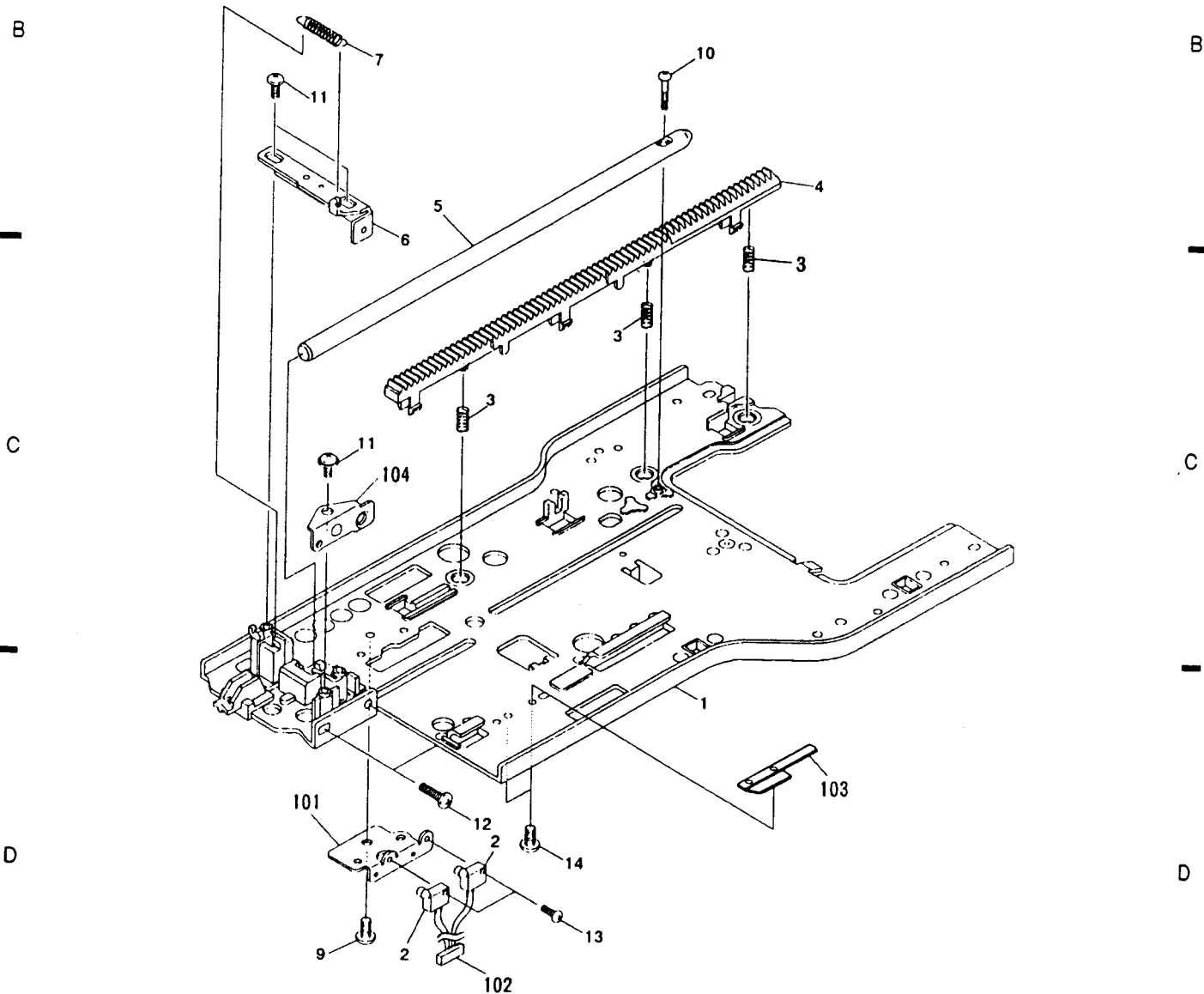
Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
⊙	1	Chassis assembly	VXA1577		21	Nylon washer	WA32N080W050
	2	Rubber bushing	VEB1138		22	Washer	WT26D047D025
	3	Loading motor assembly	VXX1262		23	Screw	PMZ30P040FCU
△	4	Spindle motor assembly	VXA1900		24	Screw	PMA30P050FCU
	5	Centering spring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



10. TILT BASE (LOWER) SECTION

Parts List

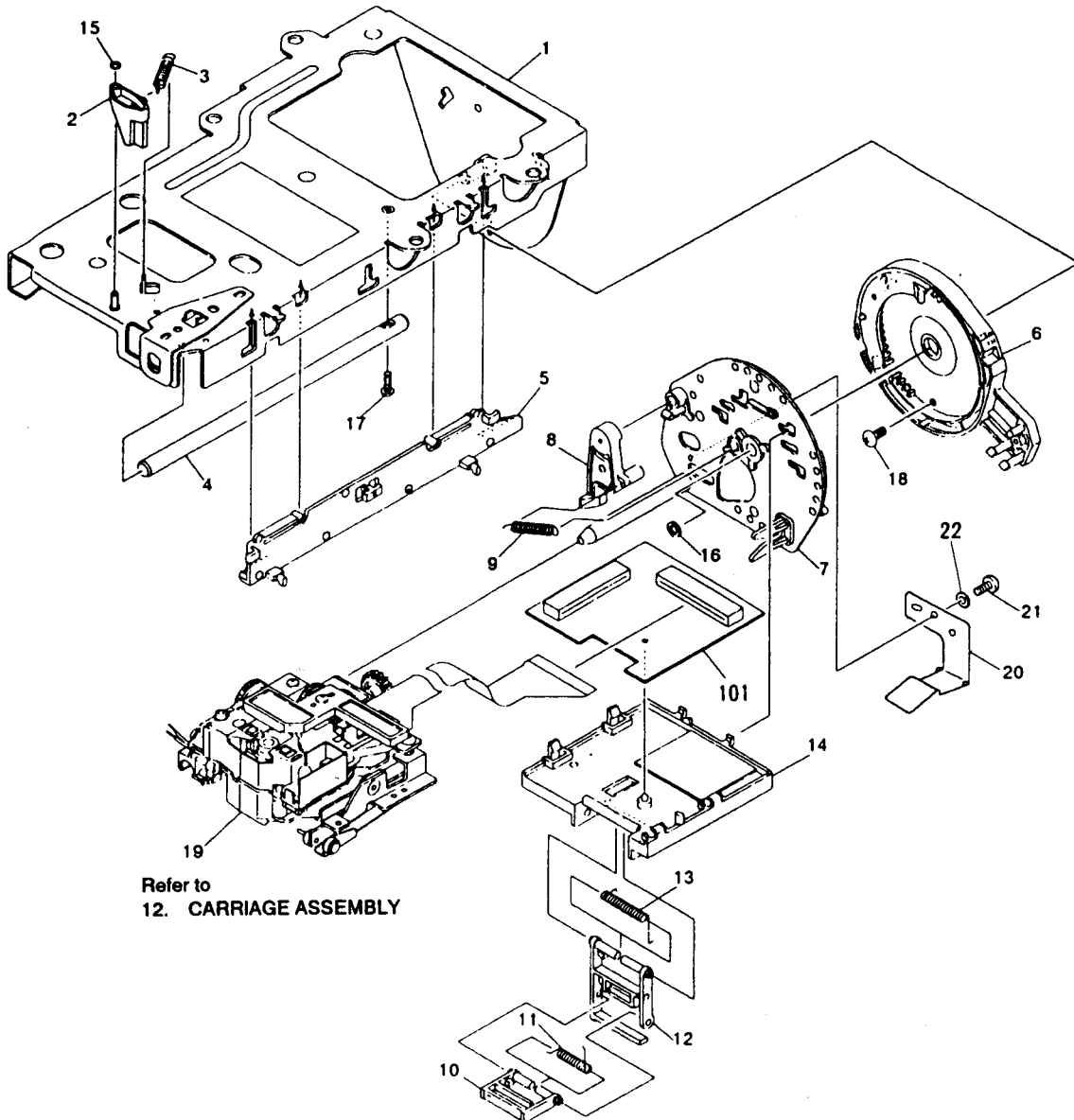
Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
⊙	1	Tilt base (lower) assembly	VXA1798	11	Screw	IPZ20P080FMC	
	2	Slide switch (LD, CDV INSIDE)	OSH1001	12	Screw	BMZ26P100FMC	
	3	Rack spring	VBH1133	13	Screw	PMZ20P060FMC	
	4	Rack gear (lower)	VNL1346	14	Screw	PMZ20P030FMC	
	5	Carriage shaft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



11. TILT BASE (UPPER) SECTION

Parts List

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	1	Tilt base (upper) assembly	VXA1808		11	Guide spring (B)	VBH1155
	2	SW lever	VNL1359		12	Harness guide (B)	VNL1408
	3	SW lever spring	VBH1150		13	Guide spring (A)	VBH1166
	4	Carriage shaft (upper)	VLL1324		14	Harness guide (A)	VNL1349
	5	Rack gear (upper)	VNL1345		15	Washer	WT16D032D025
	6	Internal gear assembly	VXA1903		16	Washer	WT36D072D050
⊙	7	R plate assembly	VXA1579		17	Screw	PM220P120FMC
	8	Lock lever	VNL1351	⊙	18	Screw	BBZ26P050FCC
	9	Lever spring	RBH1323		19	Carriage assembly	VWT1086
	10	Harness guide (C)	VNL1361		20	Lock plate	VBK1026
					21	Screw	IBZ20P040FZK
					22	Washer	WB20FMC
					23	Rack spring (upper)	VBH1198
				NSP	101	CNNB assy	VWG1194



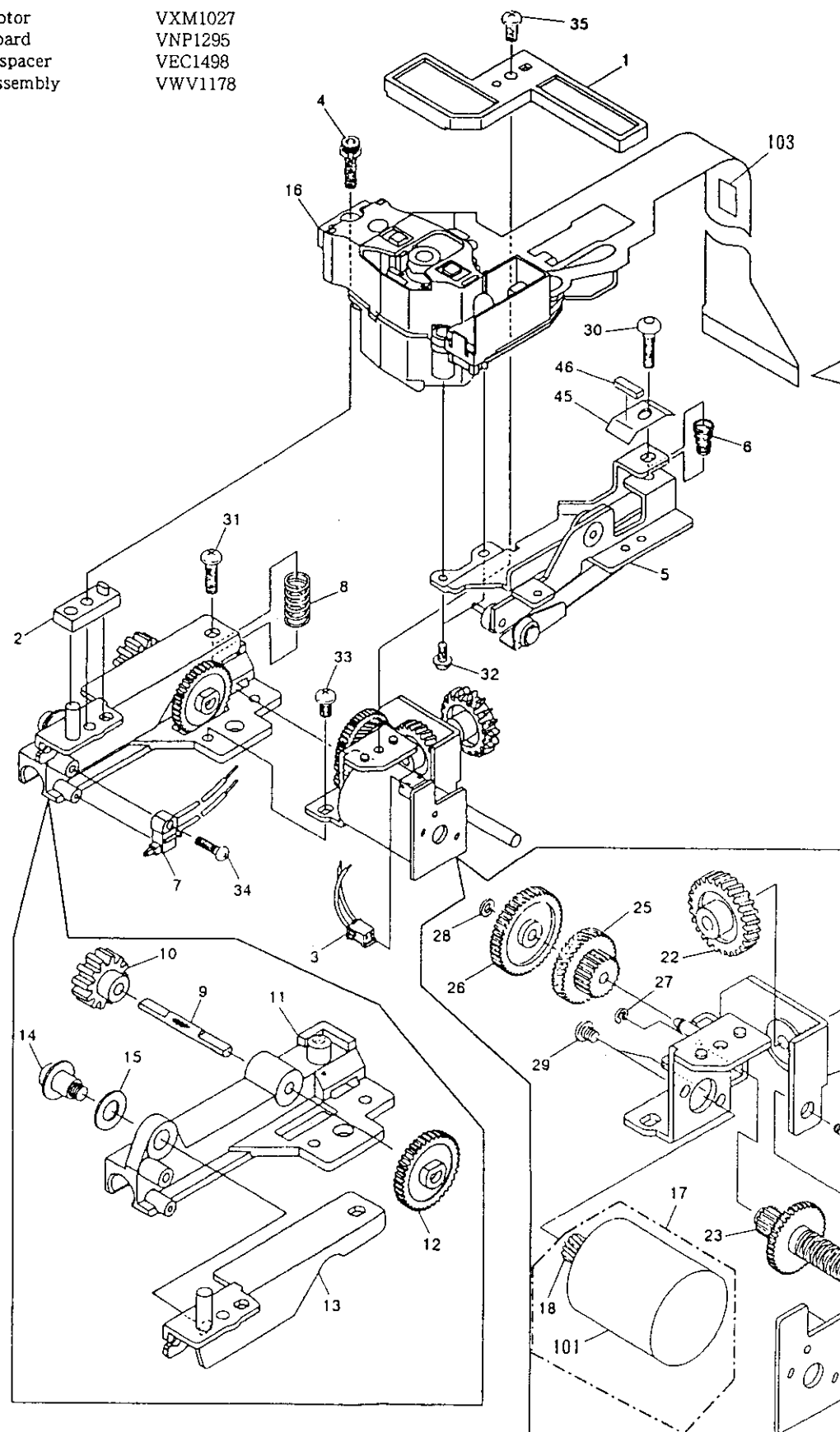
Refer to
12. CARRIAGE ASSEMBLY

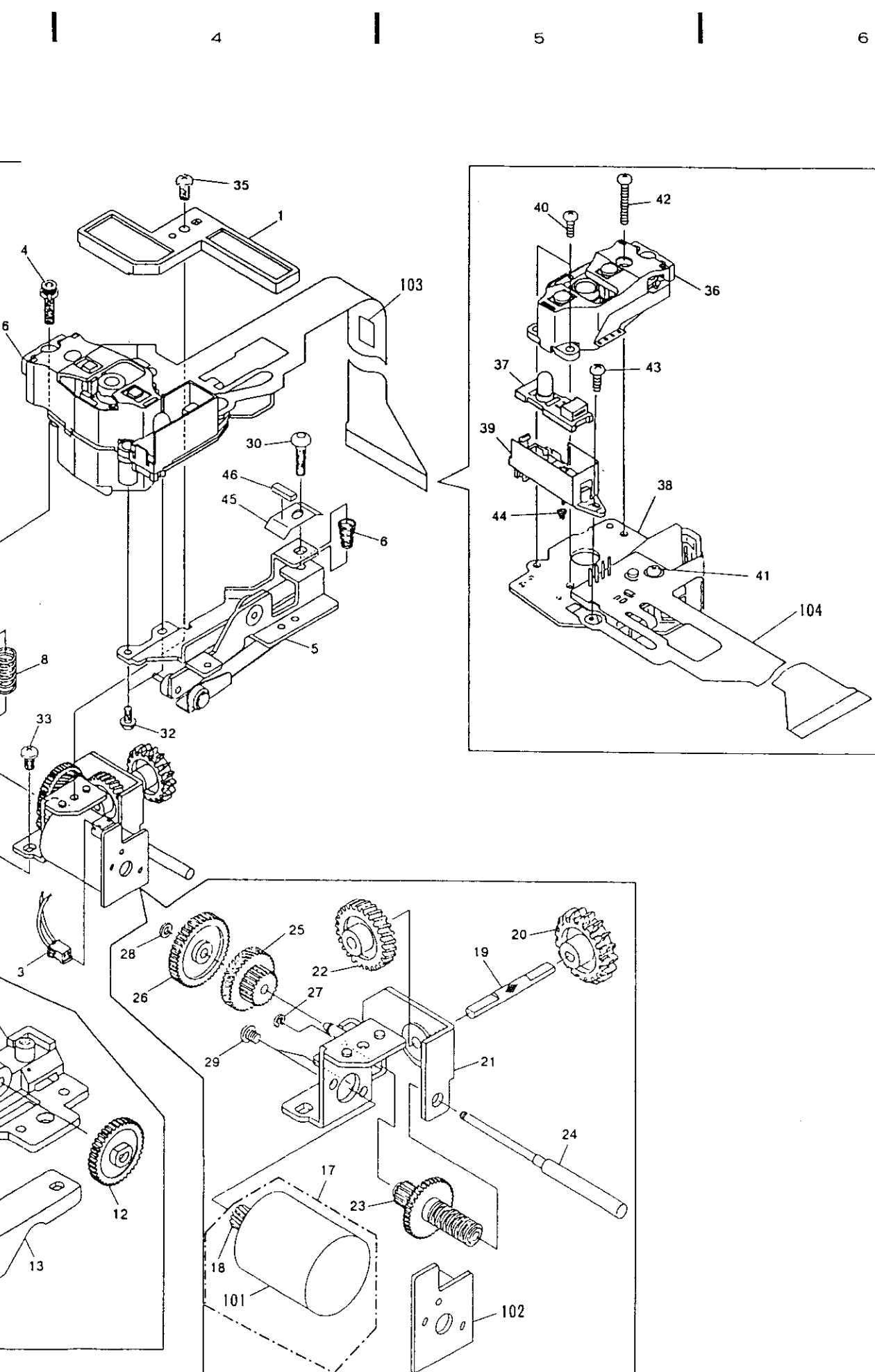
12. CARRIAGE ASSEMBLY

Parts List

Mark	No.	Description	Part No.
A	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 (CD, B INSIDE)	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
B	16	Pickup assembly - S	VXX1841
	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
C	26	Gear (D)	VNL1354
	27	E 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
D	36	Actuator assembly	VXX1740
	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	SLMB board	VNP1295
NSP	103	Flexible spacer	VEC1498
NSP	104	HEAD assembly	VWV1178



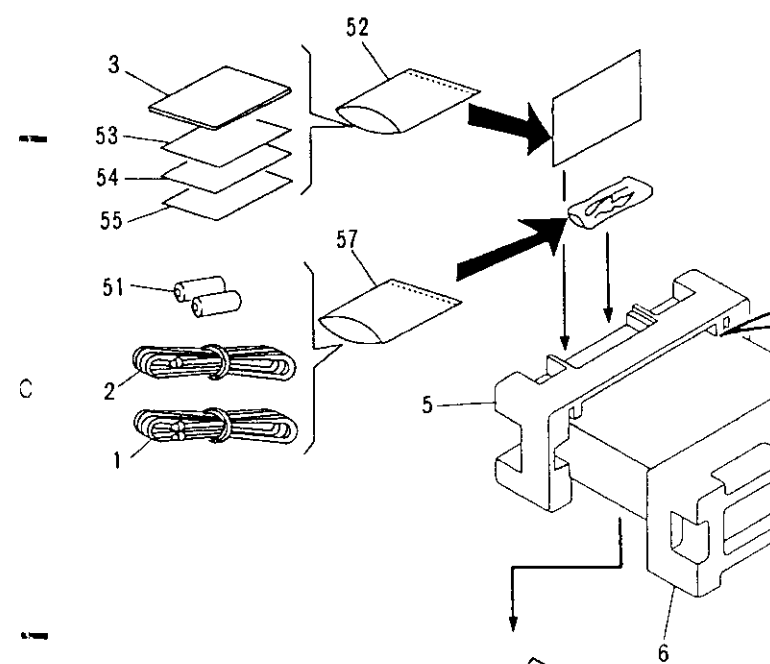


13. PACKING

Parts List

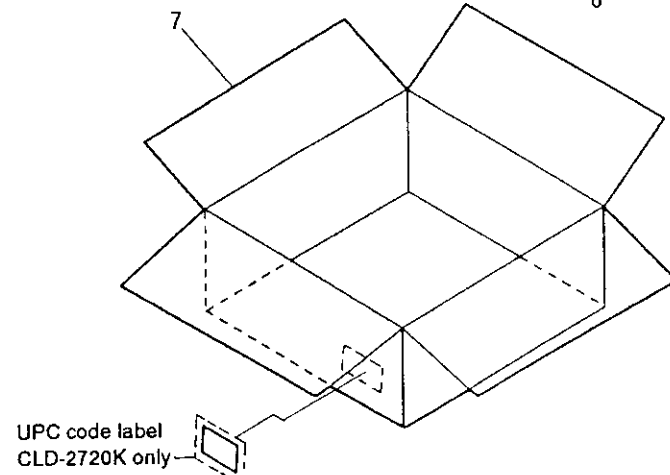
Mark No.	Description	Part No.
A	1 Connection cord	VDE - 055
	2 Video cable	VDE - 056
	3 Operating instructions (English)	VRB1091
	4 Remote control unit (CU - CLD047)	VXX1604
	5 Pad (R)	VHA1099
	6 Pad (F)	VHA1100
	7 Packing case	VHG1284
	8 Mirror mat	VHL1012
	9 Battery cover	VNK1293
	10	
	11 Sheet	VRV1035
	12 Washer	WT36D072D025
	13 Screw	VLL1358

B



D

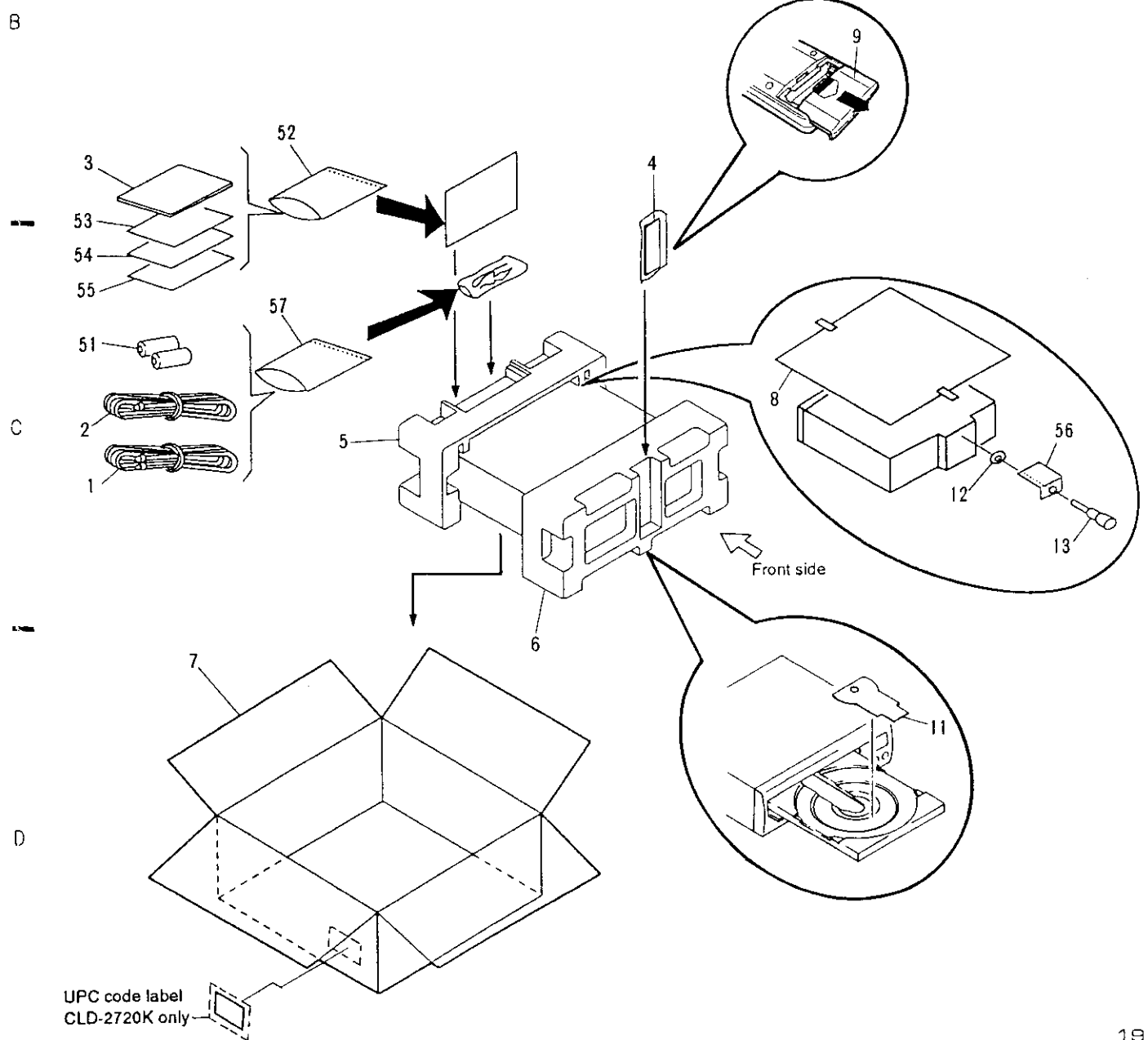
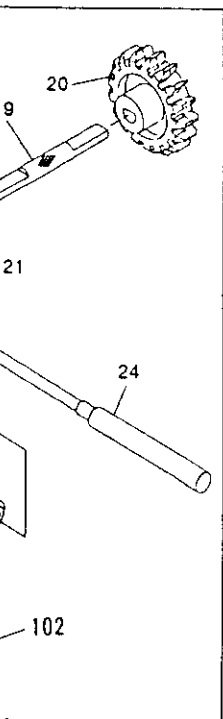
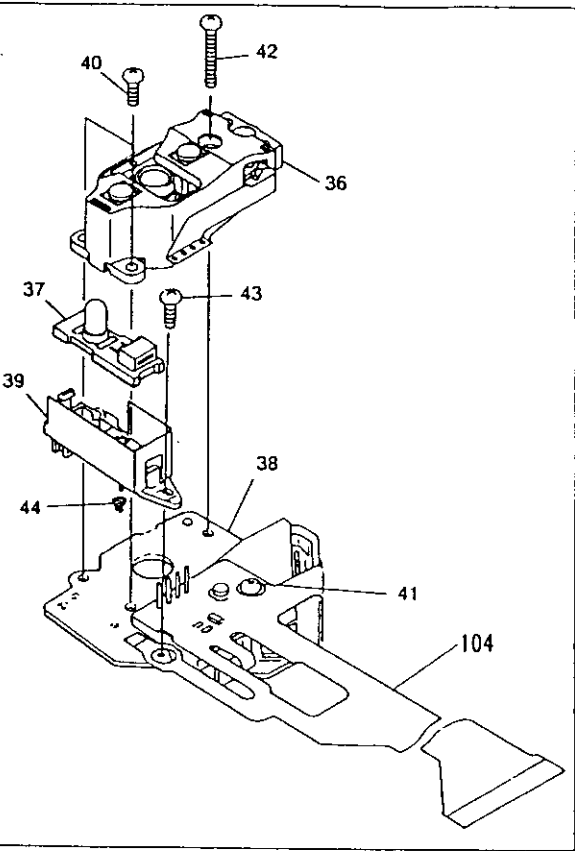
1B



13. PACKING

Parts List

Mark No.	Description	Part No.	Mark No.	Description	Part No.
A	1 Connection cord	VDE - 055	NSP	51 Dry cell battery (R03, AAA)	VEM - 022
	2 Video cable	VDE - 056	NSP	52 Vinyl bag	VHL - 014
	3 Operating instructions (English)	VRB1091	NSP	53 Caution card	VRR1009
	4 Remote control unit (CU - CLD047)	VXX1604	NSP	54 Caution card (UC)	VRM1026
	5 Pad (R)	VHA1099	NSP	55 Caution card (UC)	VRM1039
	6 Pad (F)	VHA1100	NSP	56 Tac card	VRW1200
	7 Packing case	VHG1284	NSP	57 Vinyl bag	Z21 - 029
	8 Mirror mat	VHL1012			
	9 Battery cover	VNK1293			
	10				
	11 Sheet	VRY1035			
	12 Washer	WT96D072D025			
	13 Screw	VLL1358			



3. SCHEMATIC AND PCB DIAGRAMS

3.1 OVERALL WIRING DIAGRAM

A

NOTE FOR SCHEMATIC DIAGRAMS (Type 4A)

1. When ordering service parts, be sure to refer to "PARTS LIST of EXPLODED VIEWS" or "PCB PARTS LIST".

2. Since these are basic circuits, some parts of them or the values of some components may be changed for improvement.

3. RESISTORS:
Unit: k: kΩ, M: MΩ, or Ω unless otherwise noted.
Rated power: 1/4W, 1/6W, 1/8W, 1/10W unless otherwise noted.
Tolerance: (F): ±1%, (G): ±2%, (K): ±10%, (M): ±20% or ±5% unless otherwise noted.

4. CAPACITORS:
Unit: p: pF or μF unless otherwise noted.
Ratings: capacitor (μF)/ voltage (V) unless otherwise noted.
Rated voltage: 50V except for electrolytic capacitors.

5. COILS:
Unit: m: mH or μH unless otherwise noted.

6. VOLTAGE AND CURRENT:
□ or - V :
DC voltage (V) in PLAY mode unless otherwise noted.
⊙ mA or - mA :
DC current in PLAY mode unless otherwise noted.
Value in () is DC current in STOP mode.

7. OTHERS:
• ∅ or Ø : Adjusting point.
• ◀ : Measurement point.
• The Δ mark found on some component parts indicates the importance of the safety factor of the parts. Therefore, when replacing, be sure to use parts of identical designation.

8. SCH-□ ON THE SCHEMATIC DIAGRAM:
• SCH-□ indicates the drawing number of the schematic diagram. (SCH stands for schematic diagram.)

9. SWITCHES (Underline indicates switch position):

• FLKB ASSY
S101: KARAOKE/NORMAL/AUX INPUT
S102: OPEN/CLOSE

S103: STOP
S104: #
S105: ⏏
S106: b
S107: SURROUND
S108: ONCE MORE
S109: DIRECT CD
S110: PLAY/PAUSE
S111: ONE-TOUCH KARAOKE
S112: INTRO
S113: SIDE A
S114: VOCAL PARTNER
S115: AUDIO MODE
S116: SIDE B

• KEYB ASSY
S301: 1
S302: 2
S303: 3
S304: 4
S305: 5
S306: 6
S307: 7
S308: 8
S309: 9
S310: 10
S311: 11
S312: 12
S313: 13
S314: 14
S315: 15
S316: 16
S317: 17
S318: 18
S319: 19
S320: 20

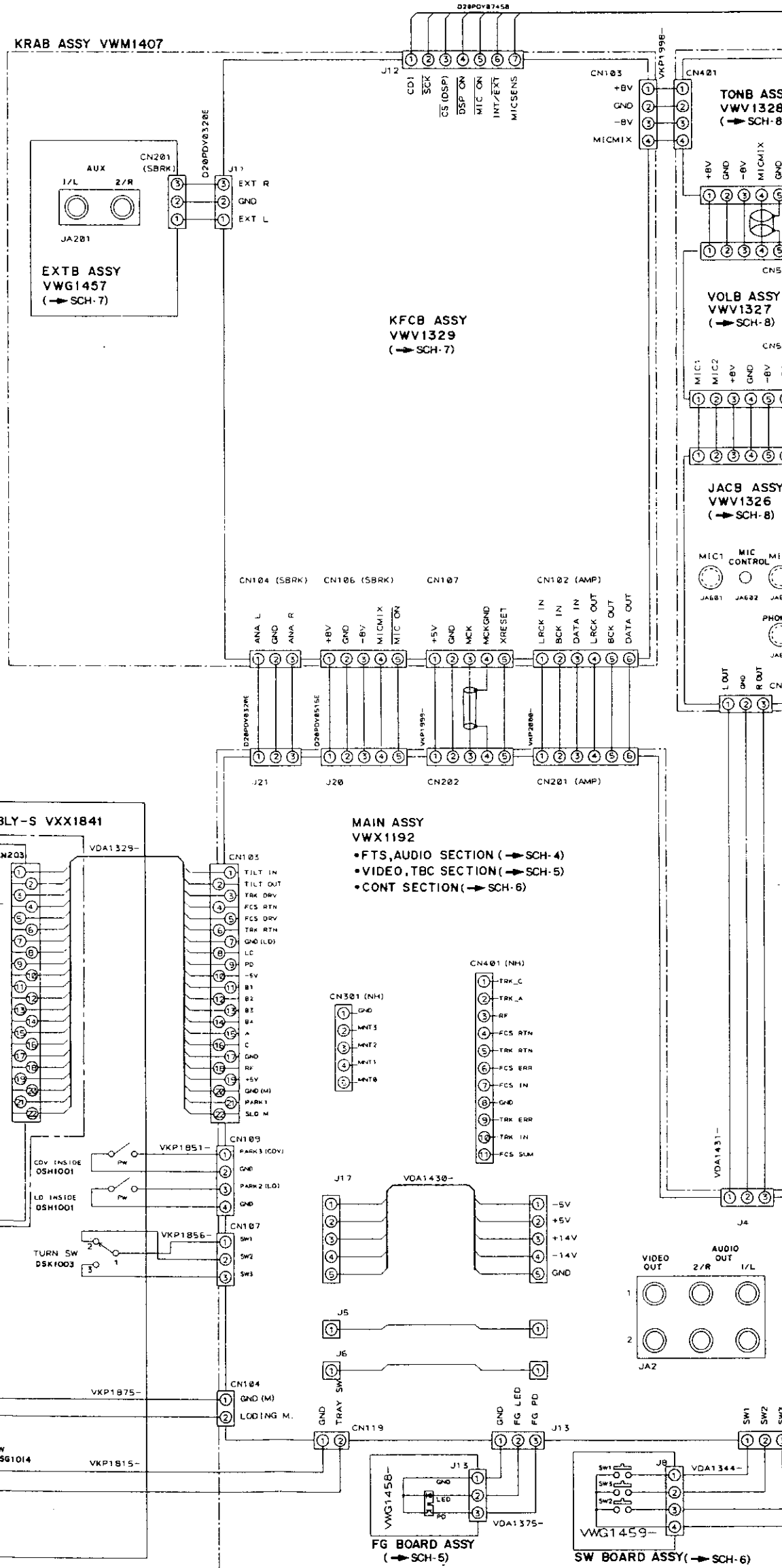
• SW BOARD ASSY
SW1 - SW3: LOADING/TILT
• VOLB ASSY
S501: POWER
• OUTSIDE OF ASSY
TRAY SW:
TURN SW:
LD, CDV INSIDE SW:
CD, B INSIDE SW:

C

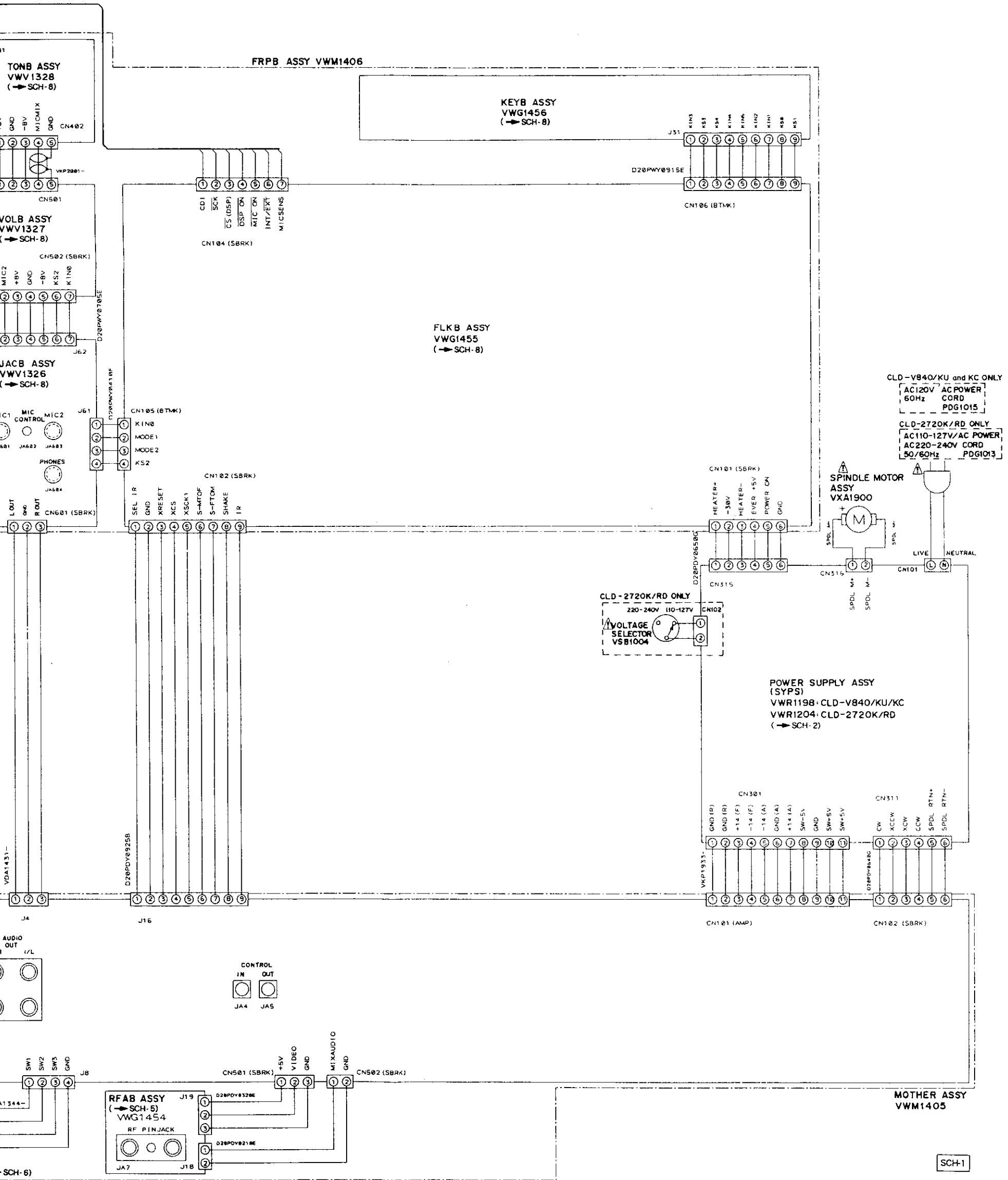
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E

F

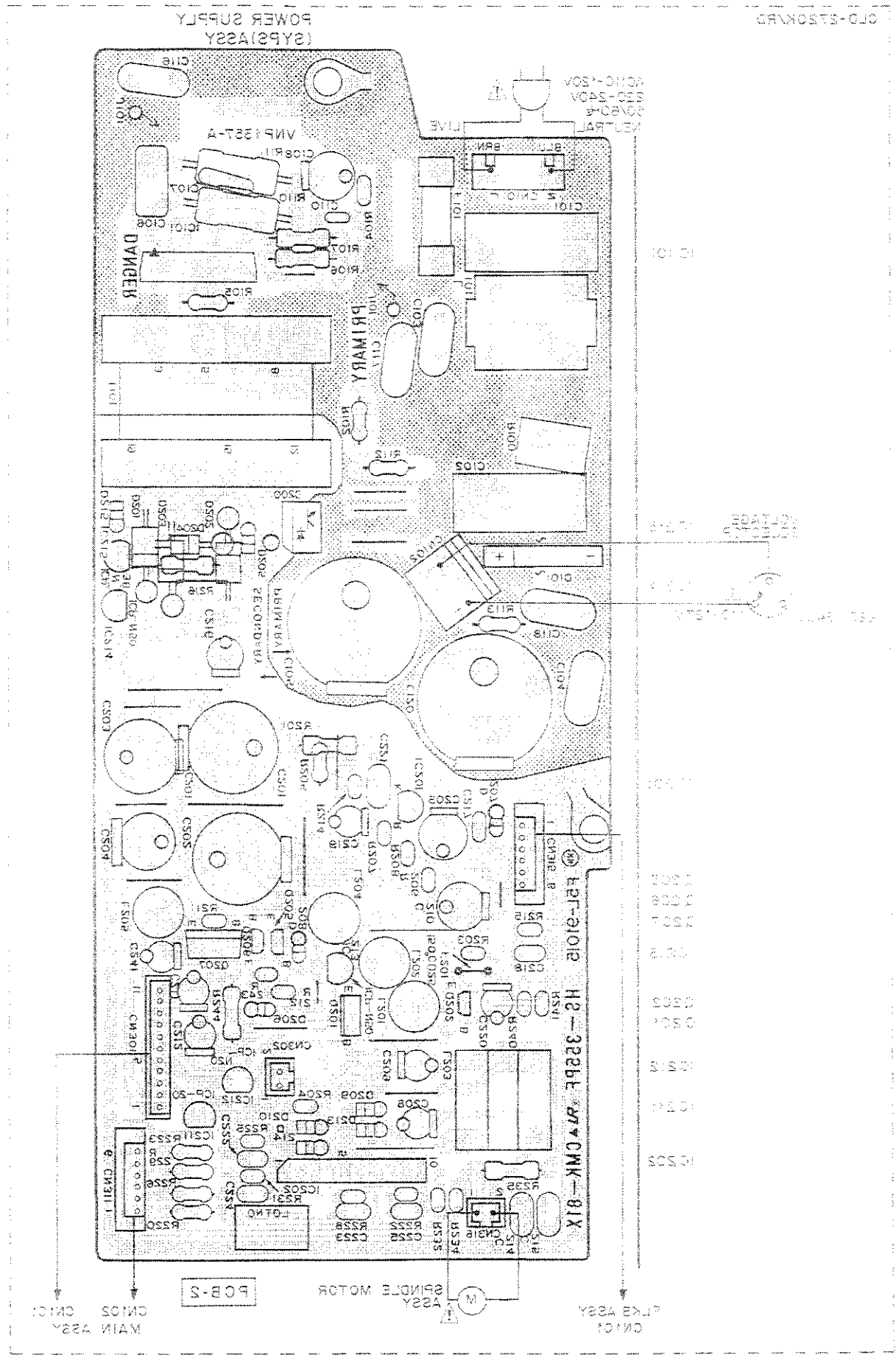
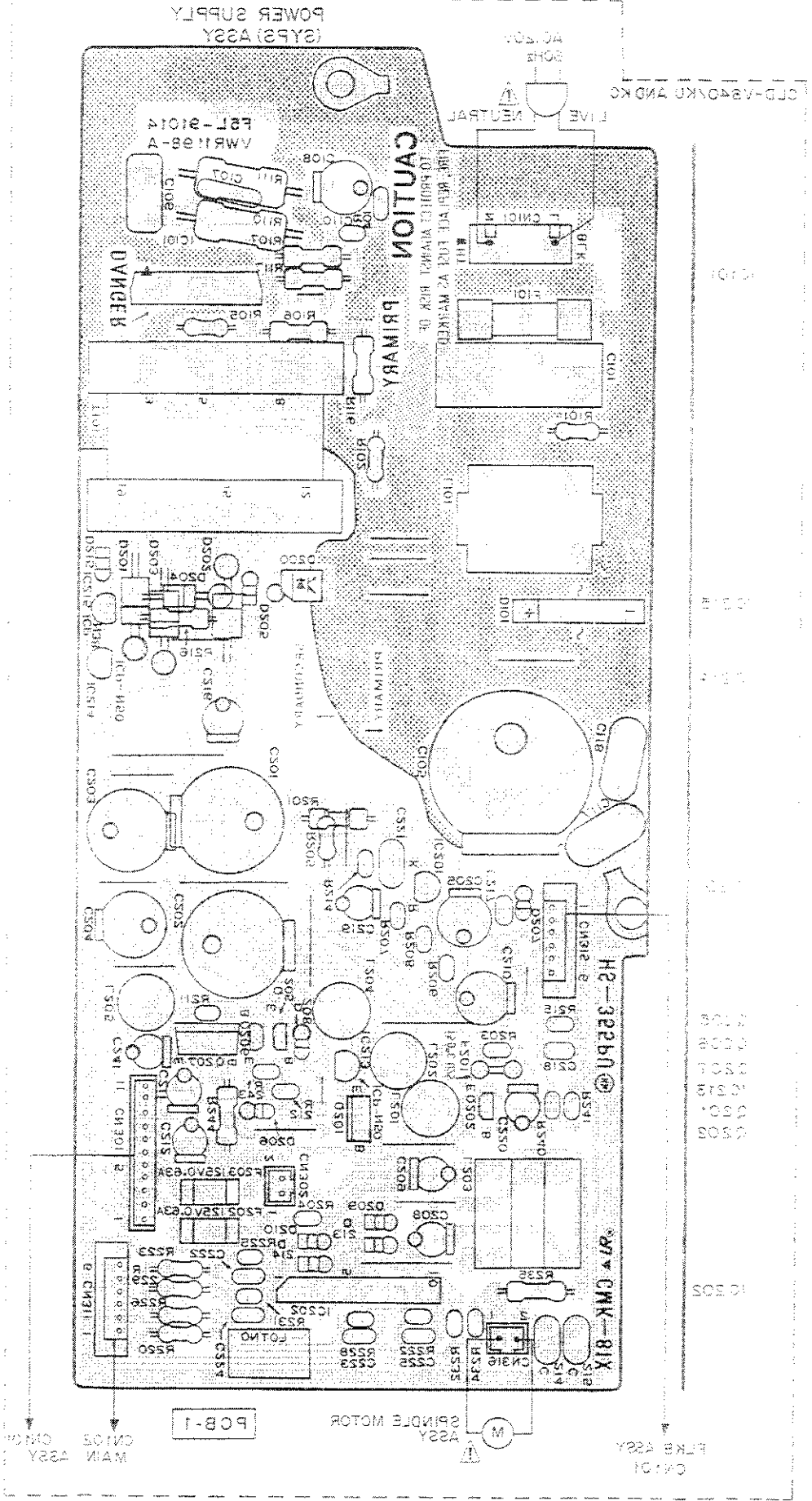


SCH-1 OVERALL WIRING DIAGRAM



OVERALL WIRING DIAGRAM **SCH-1**

View from soldering side

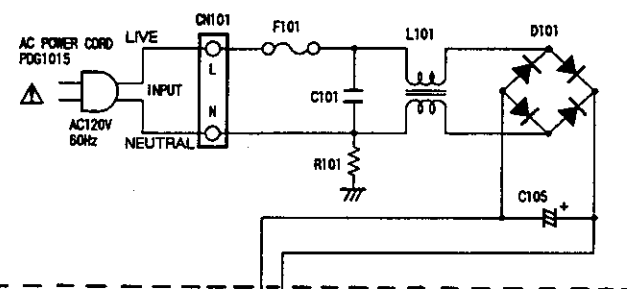


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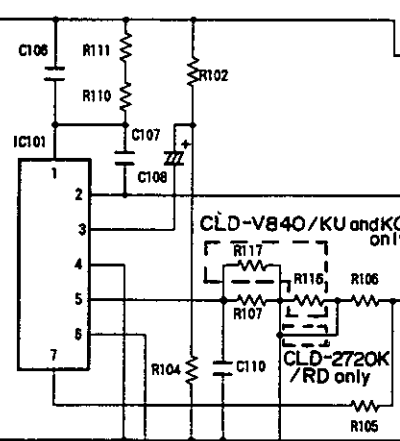
POWER SUPPLY (SYPS) ASSY (VWR1198: CLD-V840/KU AND KC) (VWR1204: CLD-2720K/RD)

CLD-2720K/RD		IC202	TH5P4-FU-A	D201, 202	S3LA20
IC211, 212	ICP-N20	IC213, 214	ICP-N50	D203	S3S4M
D204	ERB84-008	IC215	ICP-N38	D205, 209, 210, 213-215	D1NL20
F202, 203	NT1-0.63A	Q201	2SB1331	D206	MTZJ2.4A
D204	ERB83-006	Q202	2SC1740S	D207	MTZJ3.3A
CLD-V840/KU and KC		Q205, 206	2SA933S	D208	MTZJ5.6C
		Q207	2SD1762	L203	VTL1008

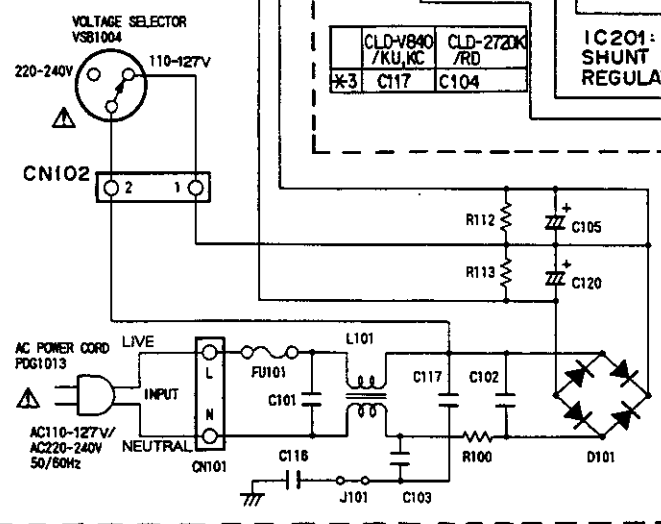
CLD-V840/KU and KC only



IC101: SWITCHING REGULATOR



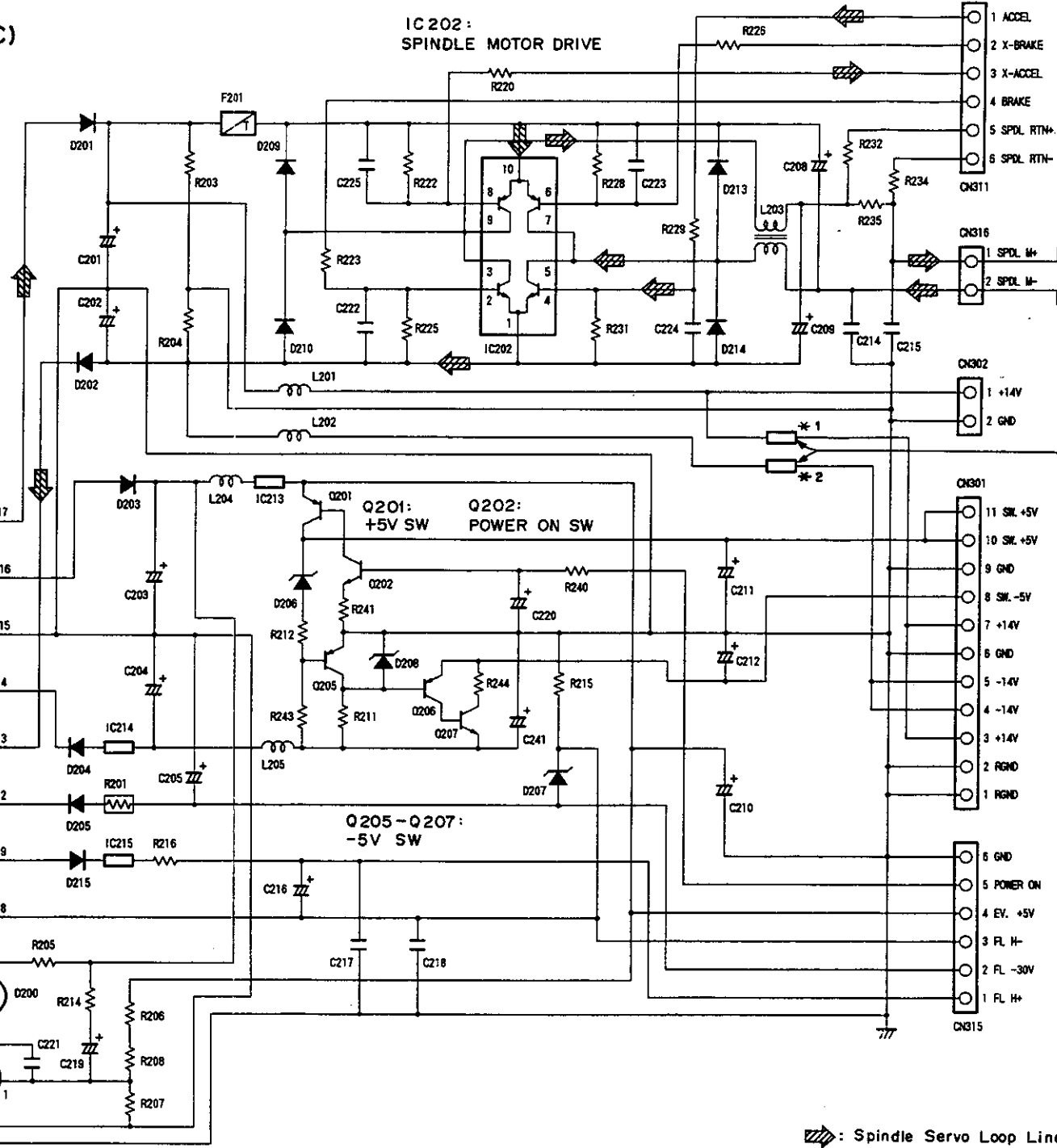
CLD-2720K/RD only



CAUTION: FOR CONTINUED PROTECTION AGAINST RISK OF FIRE REPLACE WITH SAME TYPE NO. ICP-N50, MFD BY ROHM CO., LTD. FOR IC213 AND IC214.

CAUTION: FOR CONTINUED PROTECTION AGAINST RISK OF FIRE REPLACE WITH SAME TYPE NO. ICP-N38, MFD BY ROHM CO., LTD. FOR IC215.

IC 202: SPINDLE MOTOR DRIVE



Spindle Servo Loop Line

MAIN ASSY (2/3) (TBC SECTION) CN102 (SCH-5)

	CLD-V840 /KU, KC	CLD-2720K /RD
*1	F202	IC211
*2	F203	IC212

MAIN ASSY (1/3) (FTS SECTION) CN101 (SCH-4)

FLKB ASSY CN101 (SCH-8)

SCH-2

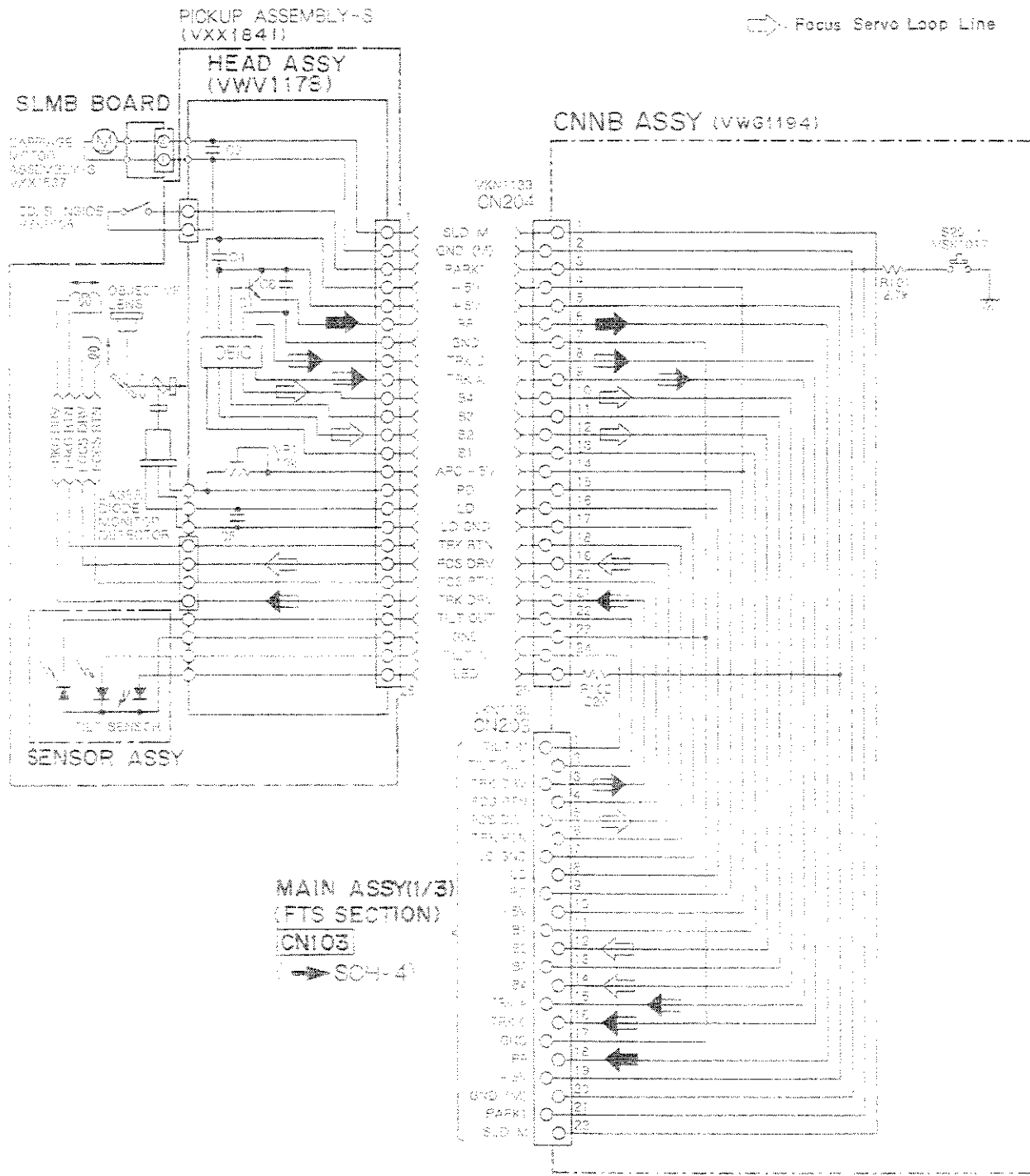
POWER SUPPLY (SYPS) ASSY

POWER SUPPLY (SYPS) ASSY

SCH-2

3.3 PICKUP AND CNNB ASSEMBLIES

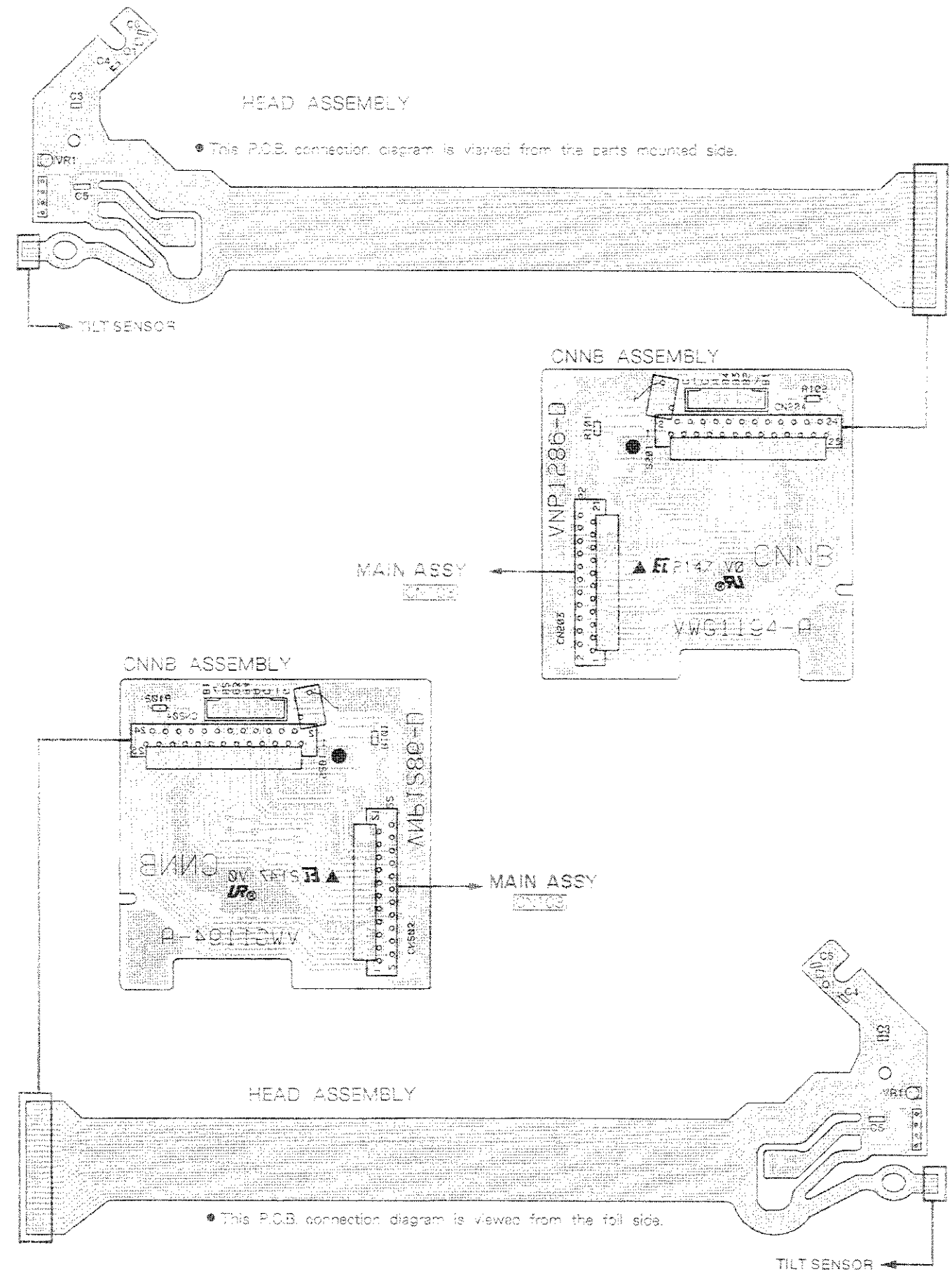
- ➡ RF Signal Route
- ➡ Tracking Servo Loop Line
- ➡ Focus Servo Loop Line



SCH-3

SCH-3 PICKUP ASSY, CNNB ASSY

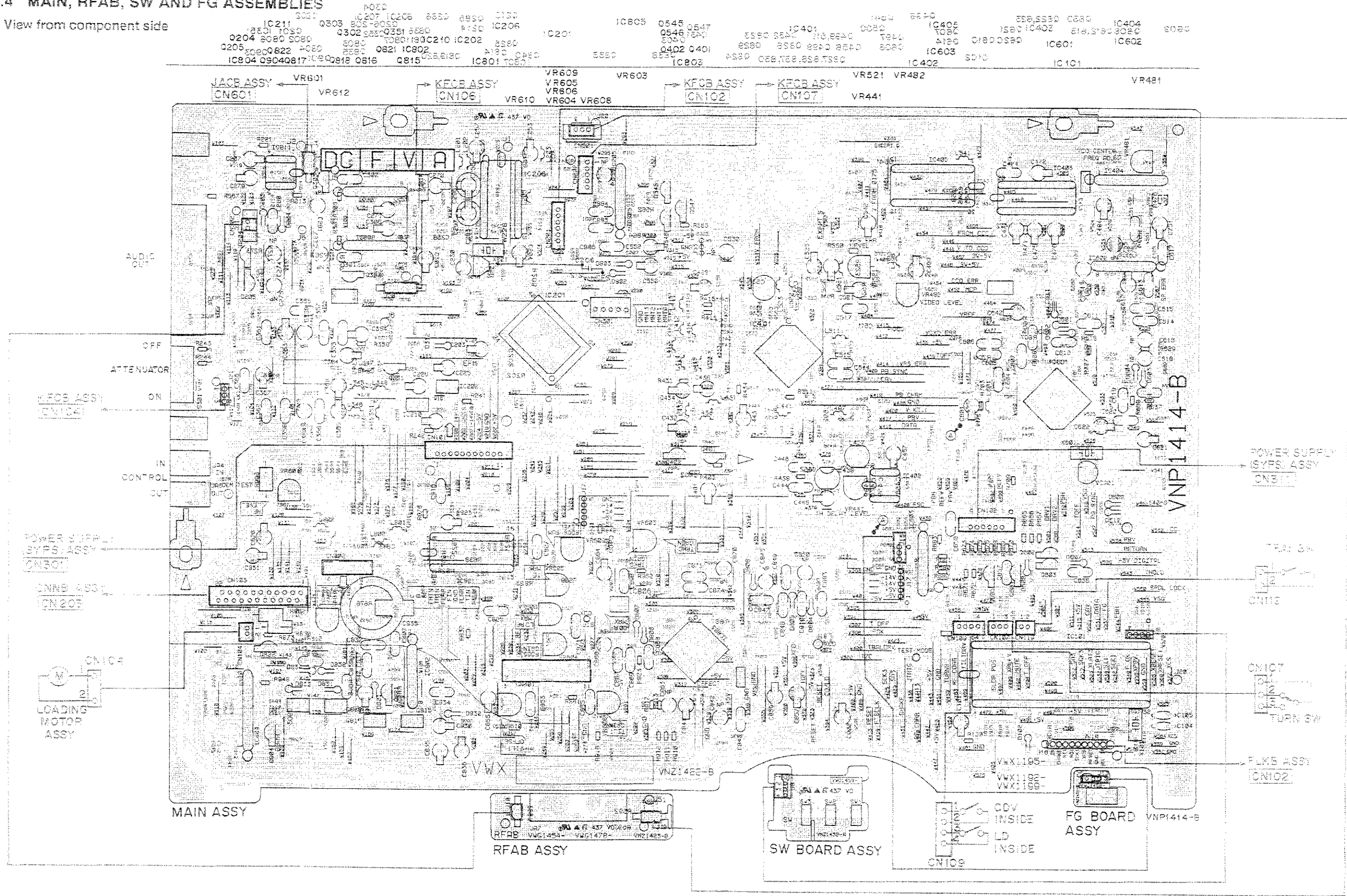
SCH-3 PICKUP ASSY, CNNB ASSY



PCB-3

3.4 MAIN, RFAB, SW AND FG ASSEMBLIES

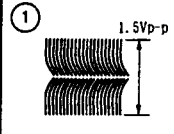
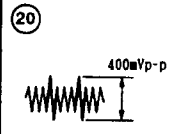
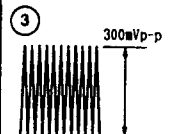
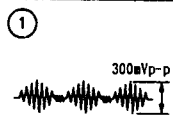
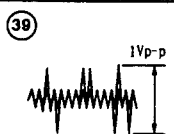
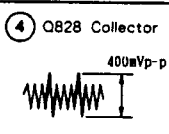
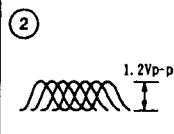
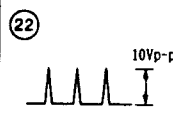
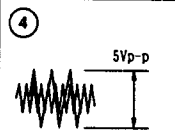
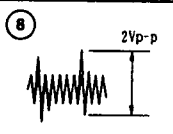
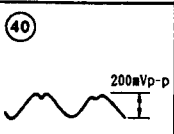
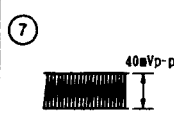
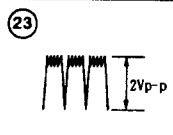
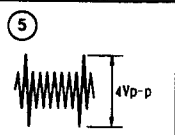
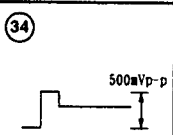
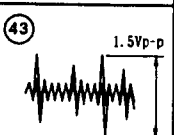
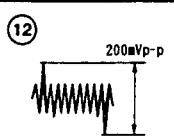
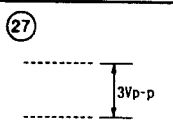
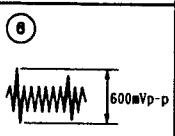
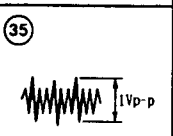
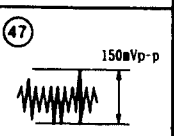
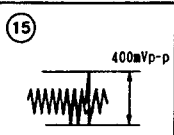
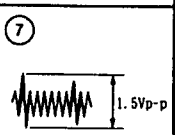
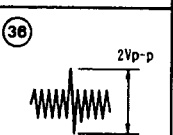
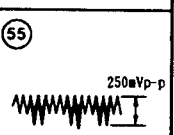
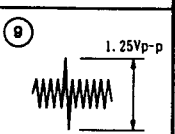
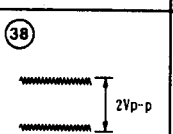
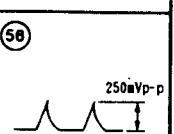
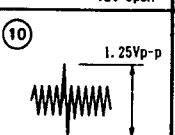
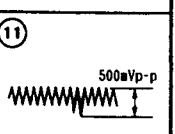
View from component side



- IC211, IC204, IC205, IC804, IC801, IC802, IC803, IC805, IC806, IC807, IC808, IC809, IC810, IC811, IC812, IC813, IC814, IC815, IC816, IC817, IC818, IC819, IC820, IC821, IC822, IC823, IC824, IC825, IC826, IC827, IC828, IC829, IC830, IC831, IC832, IC833, IC834, IC835, IC836, IC837, IC838, IC839, IC840, IC841, IC842, IC843, IC844, IC845, IC846, IC847, IC848, IC849, IC850, IC851, IC852, IC853, IC854, IC855, IC856, IC857, IC858, IC859, IC860, IC861, IC862, IC863, IC864, IC865, IC866, IC867, IC868, IC869, IC870, IC871, IC872, IC873, IC874, IC875, IC876, IC877, IC878, IC879, IC880, IC881, IC882, IC883, IC884, IC885, IC886, IC887, IC888, IC889, IC890, IC891, IC892, IC893, IC894, IC895, IC896, IC897, IC898, IC899, IC900, IC901, IC902, IC903, IC904, IC905, IC906, IC907, IC908, IC909, IC910, IC911, IC912, IC913, IC914, IC915, IC916, IC917, IC918, IC919, IC920, IC921, IC922, IC923, IC924, IC925, IC926, IC927, IC928, IC929, IC930, IC931, IC932, IC933, IC934, IC935, IC936, IC937, IC938, IC939, IC940, IC941, IC942, IC943, IC944, IC945, IC946, IC947, IC948, IC949, IC950, IC951, IC952, IC953, IC954, IC955, IC956, IC957, IC958, IC959, IC960, IC961, IC962, IC963, IC964, IC965, IC966, IC967, IC968, IC969, IC970, IC971, IC972, IC973, IC974, IC975, IC976, IC977, IC978, IC979, IC980, IC981, IC982, IC983, IC984, IC985, IC986, IC987, IC988, IC989, IC990, IC991, IC992, IC993, IC994, IC995, IC996, IC997, IC998, IC999, IC1000.

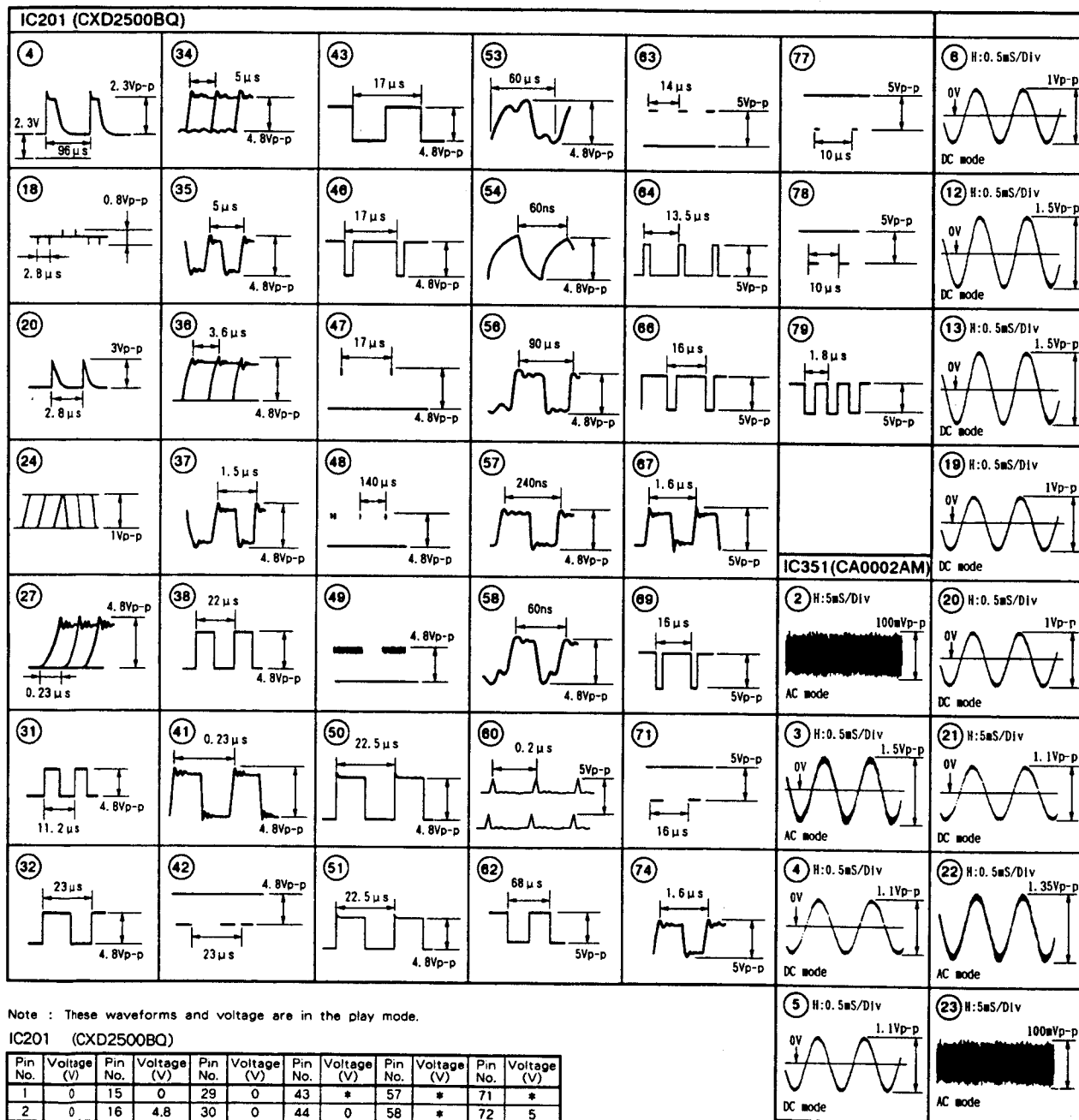
Waveforms of the FTS section

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

IC801 (CXA1081S)		CN401	IC803 (PM3003A)		Other points
① 	⑳ 	③ 	① 	⑳ 	④ Q828 Collector 
② 	⑳⑳ 	④ 	⑧ 	④④ 	
⑦ 	⑳⑳⑳ 	⑤ 	⑳⑳⑳ 	④③ 	
⑫ 	⑳⑳⑳⑳ 	⑥ 	⑳⑳⑳⑳ 	④⑦ 	
⑮ 	/	⑦ 	⑳⑳⑳⑳⑳ 	⑤⑤ 	
		⑨ 	⑳⑳⑳⑳⑳⑳ 	⑤⑥ 	
		⑩ 			
		⑪ 			

Waveforms of the AUDIO section

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



Note : These waveforms and voltage are in the play mode.

IC201 (CXD2500BQ)

Pin No.	Voltage (V)	Pin No.	Voltage (V)	Pin No.	Voltage (V)	Pin No.	Voltage (V)	Pin No.	Voltage (V)	Pin No.	Voltage (V)
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.

Note : These waveforms and voltage are in the play mode.

• IC351 (CA0002AM)

Pin No.	Voltage (V)	Pin No.	Voltage (V)	Pin No.	Voltage (V)	Pin No.	Voltage (V)
1	-5	7	0	13	*	19	*
2	*	8	0	14	-0.6	20	*
3	*	9	0	15	-0.6	21	*
4	*	10	5	16	0	22	*
5	*	11	2	17	0	23	*
6	*	12	*	18	5	24	-2.2

* : Refer to waveforms.

3.4.1 MAIN ASSY (1/3)

• FTS AND AUDIO SECTION

MAIN ASSY(1/3)
(VWX1192)

Q214
INVERT
BUFF

• FTS SECTION

• AUDIO SECTION

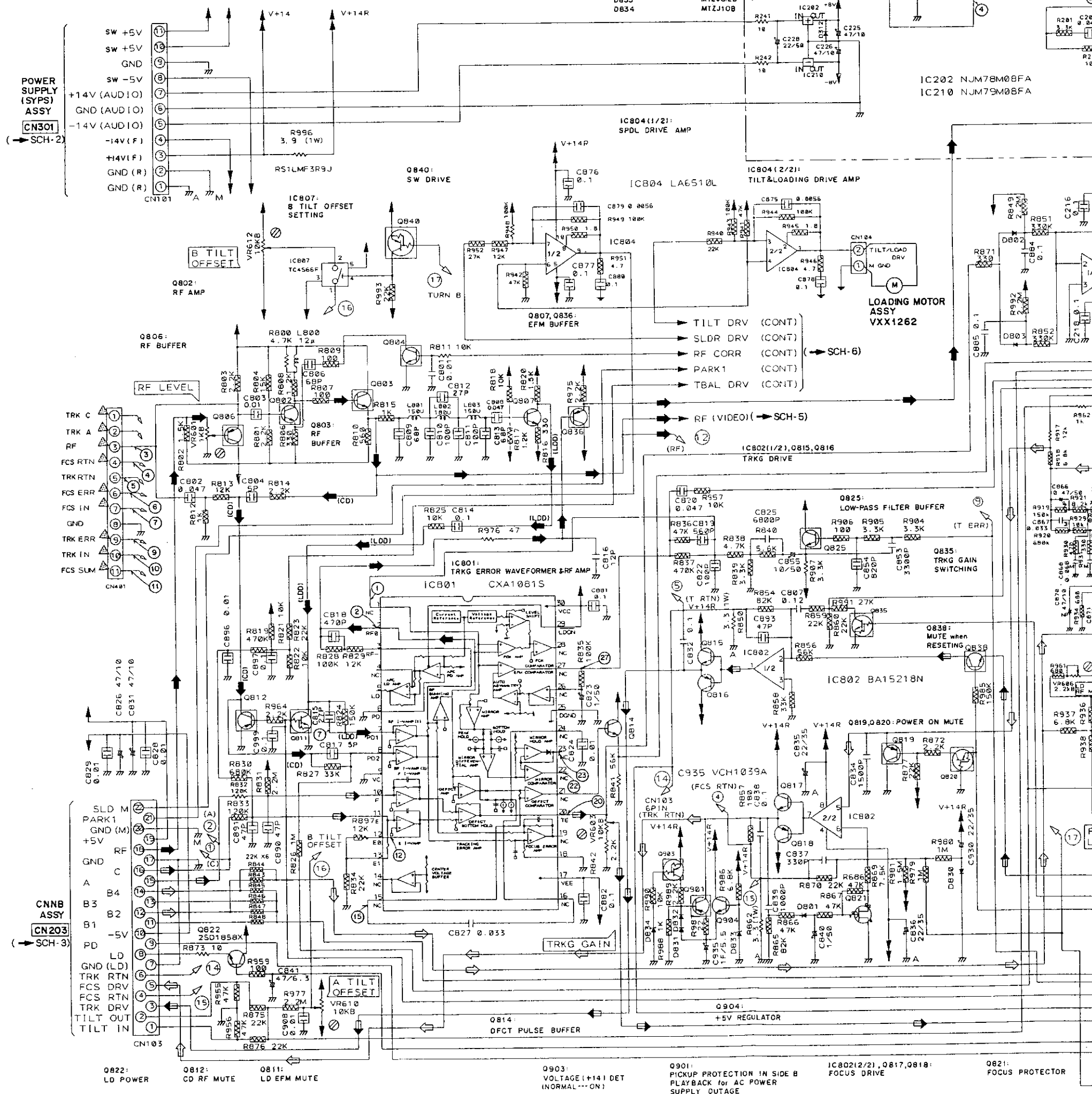
- Q802,804,807,814,825 2SC2421K
- Q833,838
- Q806,812,819,836,901 2SA1037K
- Q811,823,827,828,835 2TC124EK
- Q837
- Q815,817 2SD1762-FA
- Q816,818 2SB1185-F8
- Q820,824,826,829,830 2TA124EK
- Q840,903
- Q821 2SK184
- Q822 2SD1858X
- Q904 2SC1740S
- D8Q1-808,830-832 ISS254
- D833 MTZJ6.2B
- D834 MTZJ10B

- Q201,202,285,352 2SC2421K
- Q207,208,286 2TA124EK
- Q204,205,302,303 2SD2144S
- Q206,214,215,304 2TC124EK
- Q351 2SC2786
- O201 FC544M
- O203,204 ISS254
- D312 ERA83-006

(SCH-5)

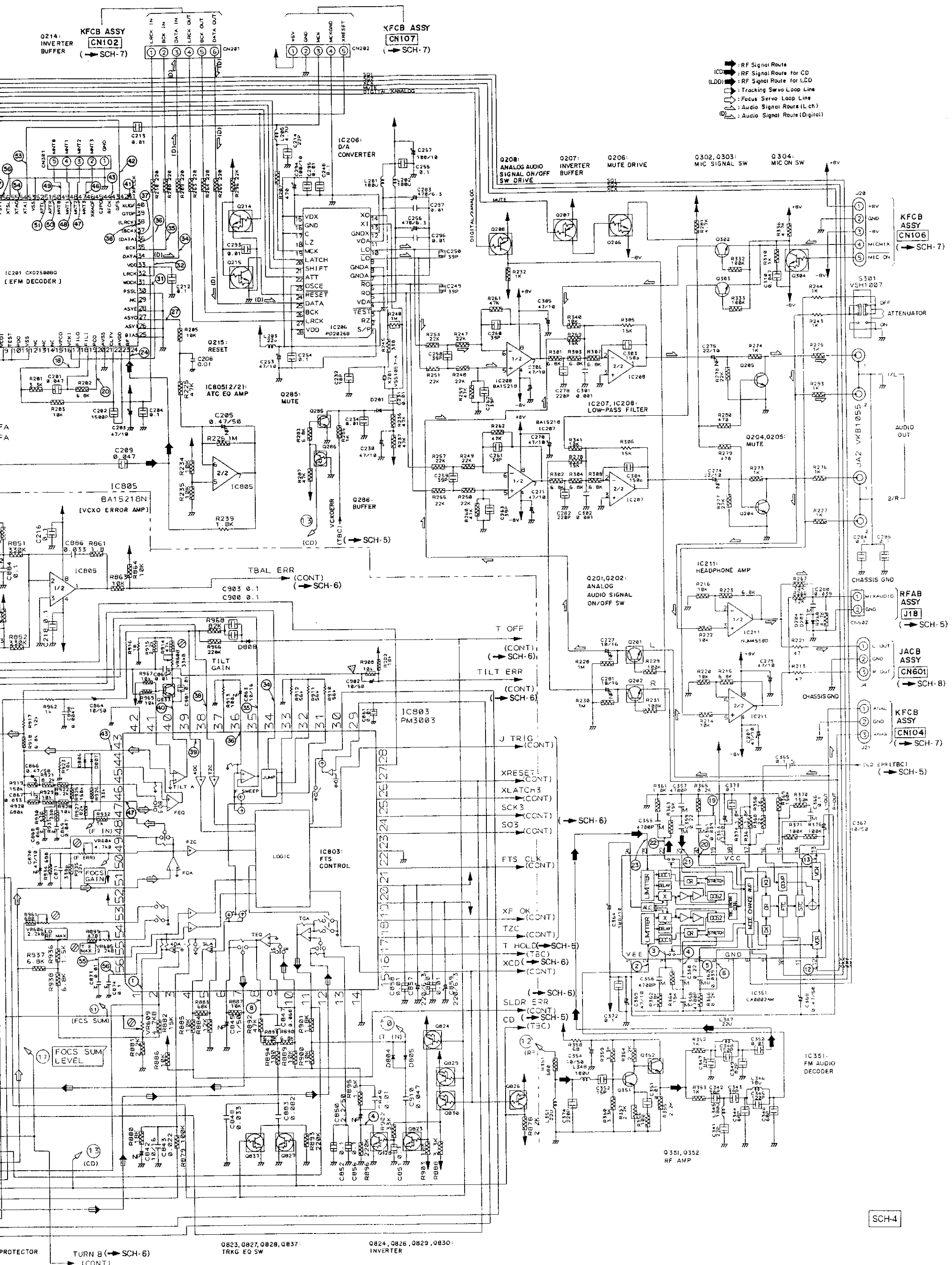
MDP

(TBC)



SCH-4
MAIN ASSY (1/3)

- Q822: LD POWER
- Q812: CD RF MUTE
- Q811: LD EFM MUTE
- Q903: VOLTAGE (+14V) DET (NORMAL --- ON)
- Q901: PICKUP PROTECTION IN SIDE B PLAYBACK FOR AC POWER SUPPLY OUTAGE
- IC802(1/2), Q817, Q818: FOCUS DRIVE
- Q821: FOCUS PROTECTOR



- RF Signal Route
- (CD) → RF Signal Route for CD
- (LDD) → RF Signal Route for LDD
- Tracking Servo Loop Line
- Focus Servo Loop Line
- Audio Signal Route (Lch)
- (D) → Audio Signal Route (Digital)

SCH-4

0823, 0827, 0828, 0837: TRNG EQ SW
 0824, 0826, 0829, 0830: INVERTER

MAIN ASSY
 (1/3)

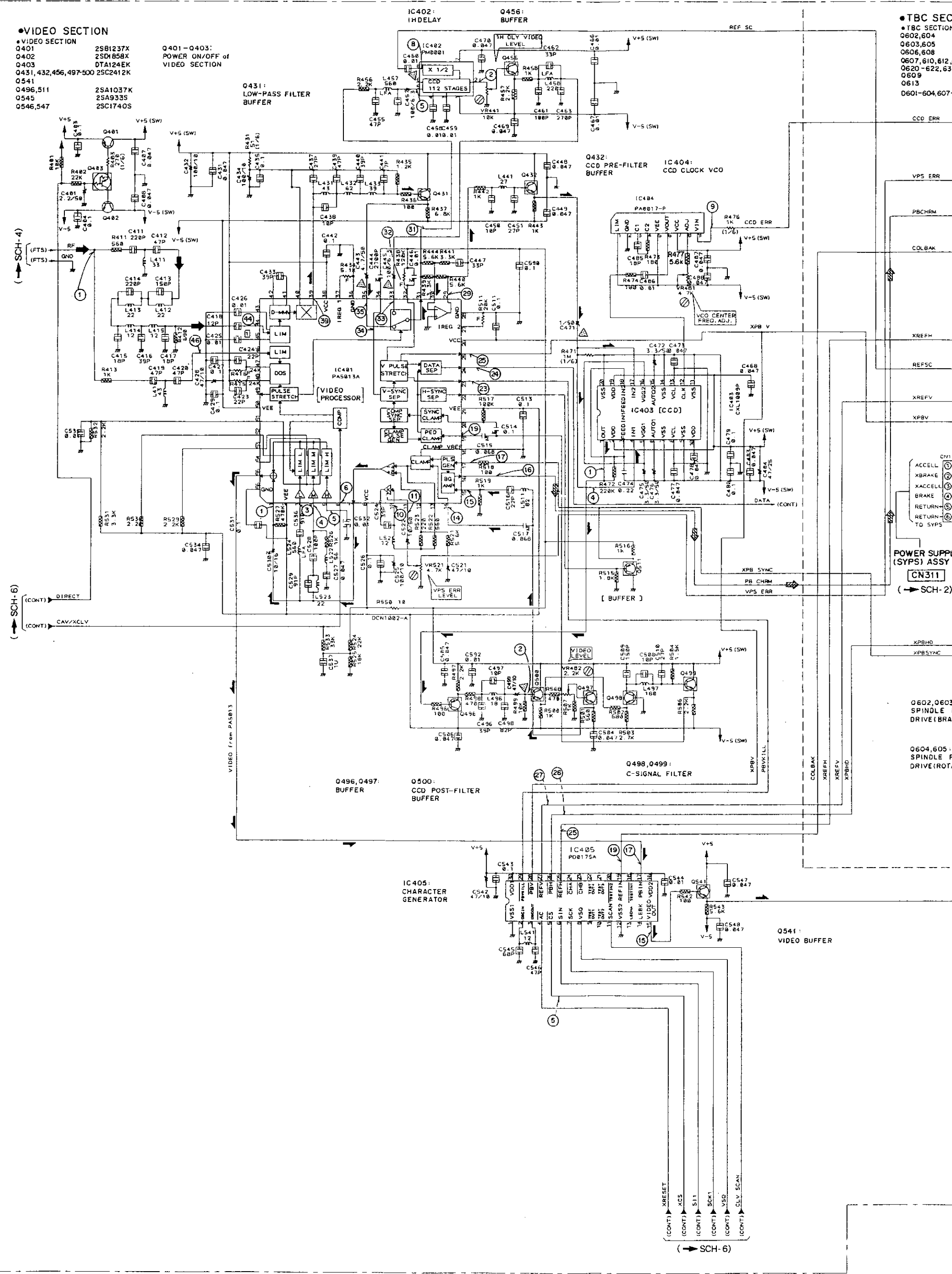
SCH-4

3.4.2 MAIN (2/3), RFAB AND FG BOARD ASSEMBLIES

VIDEO AND TBC SECTION

VIDEO SECTION

- VIDEO SECTION
- Q401 2SB1237X
- Q402 2SD1858X
- Q403 DTA124EK
- Q431, 432, 456, 497-500 25C2412K
- Q541 2SA1037K
- Q496, 511 2SA933S
- Q545 25C1740S
- Q546, 547 25C1740S
- Q401-Q403: POWER ON/OFF of VIDEO SECTION
- Q431: LOW-PASS FILTER BUFFER



(SCH-4)

(SCH-6)

TBC SECTION

- Q602, 604
- Q603, 605
- Q606, 608
- Q607, 610, 612, 613
- Q620-622, 630
- Q609
- Q613
- Q601-604, 607-

CCD ERR

VPS ERR

PBCHRM

COLBAK

XREFH

XREFV

XPBV

ACCEN

XBRACK

XACCEL

BRAKE

RETURN TO SVPS

POWER SUPPLY (SYPS) ASSY (CN311)

(SCH-2)

Q602, 603: SPINDLE DRIVE (BRAK)

Q604, 605: SPINDLE DRIVE (ROTA)

SCH-5

MAIN ASSY (2/3),
RFAB ASSY,
FG BOARD ASSY

(SCH-6)

MAIN ASSY(2/3) (VWX1192)

•TBC SECTION

- 0602,604 2SC1740S
- 0603,605 2SA933S
- 0606,608 DTC124EK
- 0607,610,612,614 2SC2412K
- 0620-622,630 2SA1037K
- 0609 DTA124EK
- 0613 ISS254
- 0601-604,607-610

- RF Signal Route
- Spindle Servo Loop Line
- Video Signal Route
- Audio Signal Route (MONO)

0607,0614: BUFFER

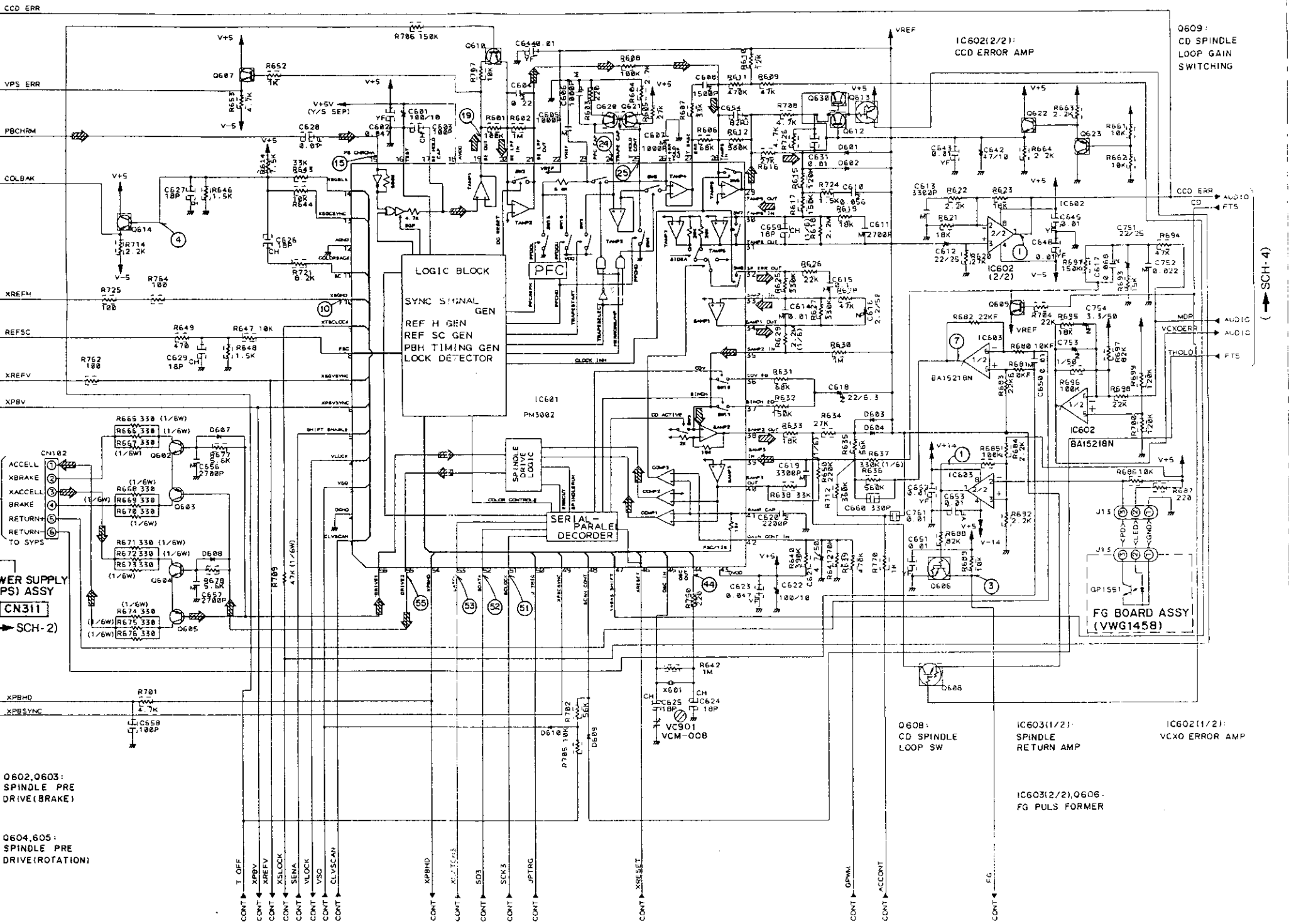
IC601: TBC SERVO

0610: TBC GAIN SWITCHING

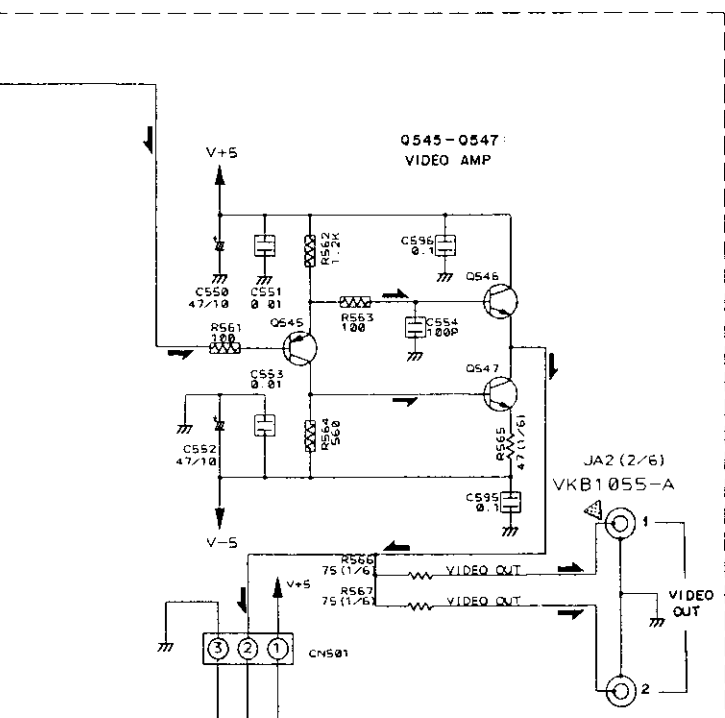
0620,0621: TRAPEZOID WAVEFORMER

0612,0613,0630: TBC ERROR DETECTOR

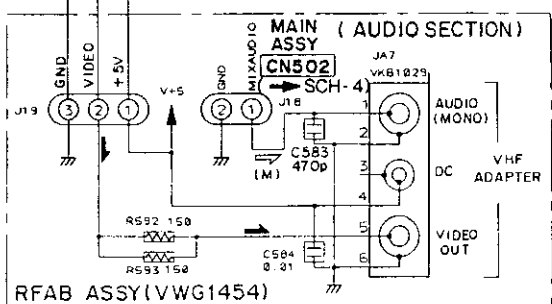
0622,623: REFERENCE VOLTAGE GENERATOR



(SCH-6)



SCH-5



MAIN ASSY (2/3),
RFAB ASSY,
FG BOARD ASSY

SCH-5

Waveforms of the TBC section

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

IC601 (PM3002)		IC602 (BA15218N)	IC603 (BA15218N)	Other points
(10)	(44)	(1)	(1)	(3) Q606 Collector
(15)	(51)		(7)	(4) Q614 Base
(19)	(52)			
(24)	(53)			
(25)	(55)			

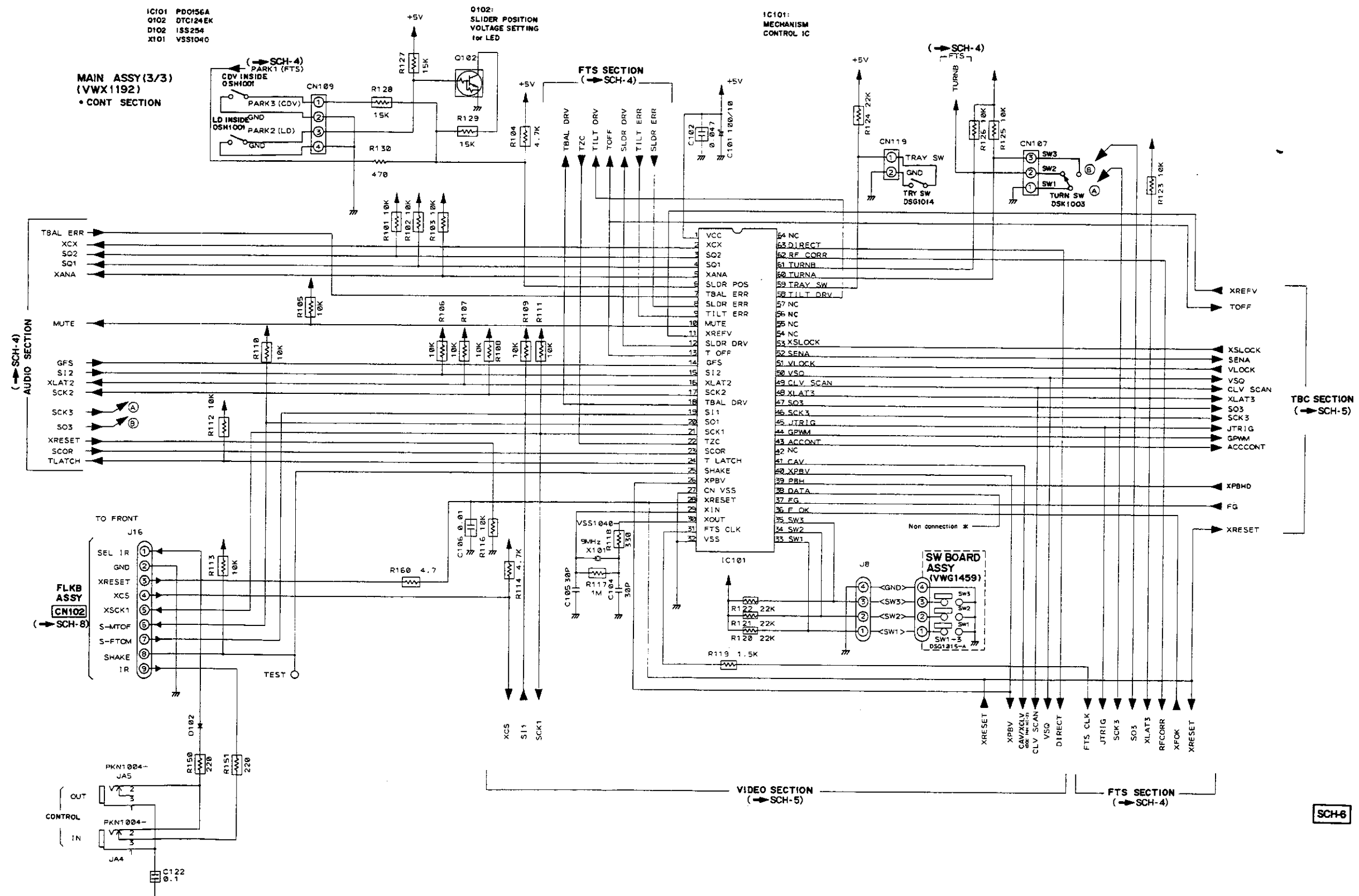
Waveforms of the VIDEO section

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

IC401 (PA5013A)			IC402 (PM0001)	IC405 (PD0175A)	Other points
(1)	(15)	(31)	(2)	(5)	(1) RF (Between R411 and R413)
(3)	(18)	(32)	(5)	(15)	(2) + side of C499
(4)	(17)	(33)	(8)	(17)	
(5)	(19)	(34)	IC403 (CXL1009P)		(19)
(8)	(23)	(35)	(1)	(25)	
(10)	(24)	(39)	(4)	(28)	
(11)	(25)	(44)	IC404 (PA0017-P)		(27)
(14)	(29)	(46)	(9)		

3.4.3 MAIN (3/3) AND SW BOARD ASSEMBLIES

• CONT SECTION



SCH-6

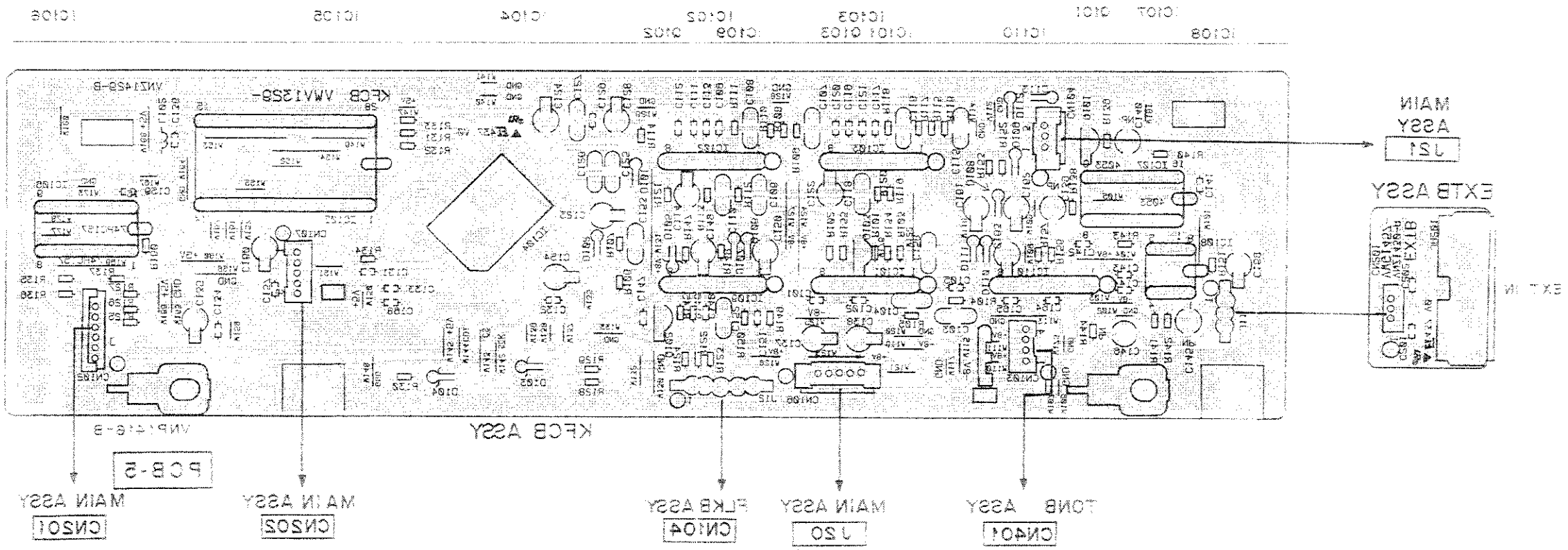
MAIN ASSY (3/3), SW BOARD ASSY

MAIN ASSY (3/3), SW BOARD ASSY

SCH-6

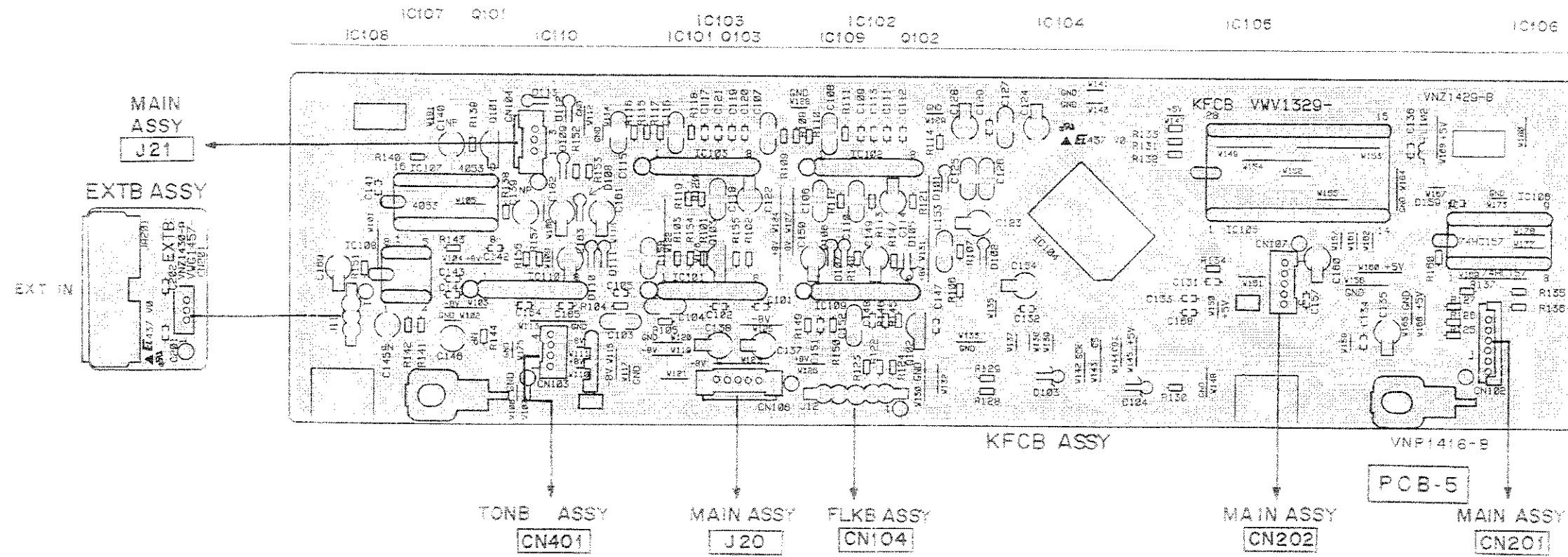
3.2 EXT B AND KECB ASSEMBLIES

• View from soldering side



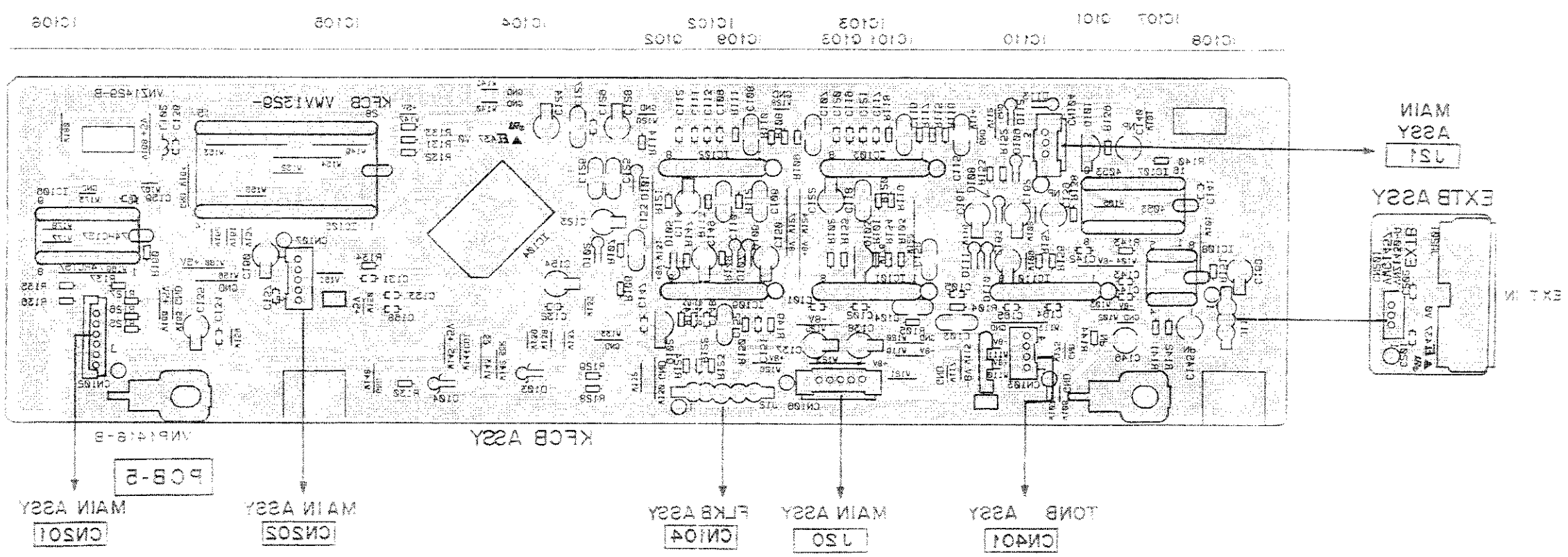
3.5 EXTB AND KFCB ASSEMBLIES

• View from component side



3.2 EXT B AND KEFB ASSEMBLIES

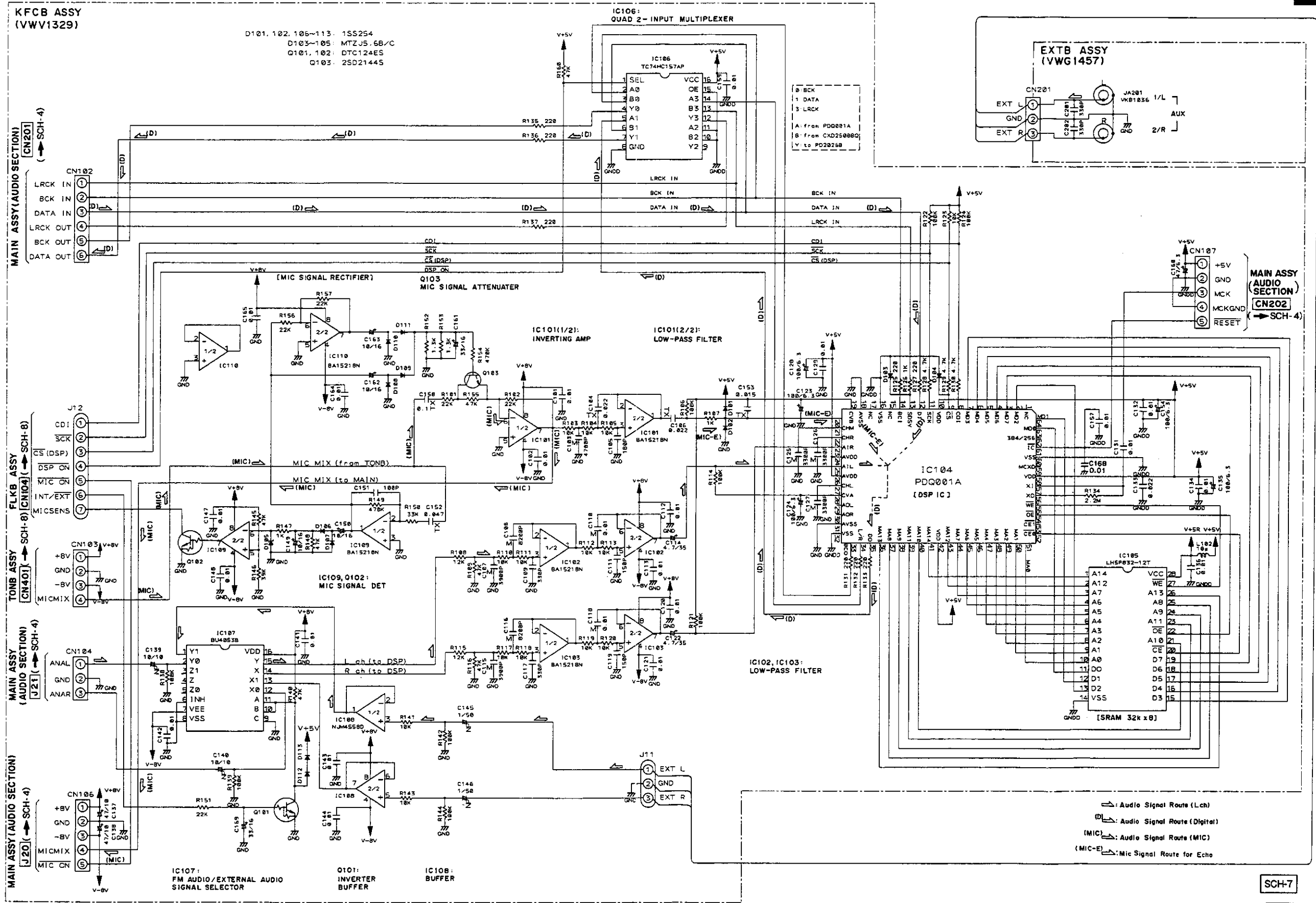
• View from soldering side



01

02

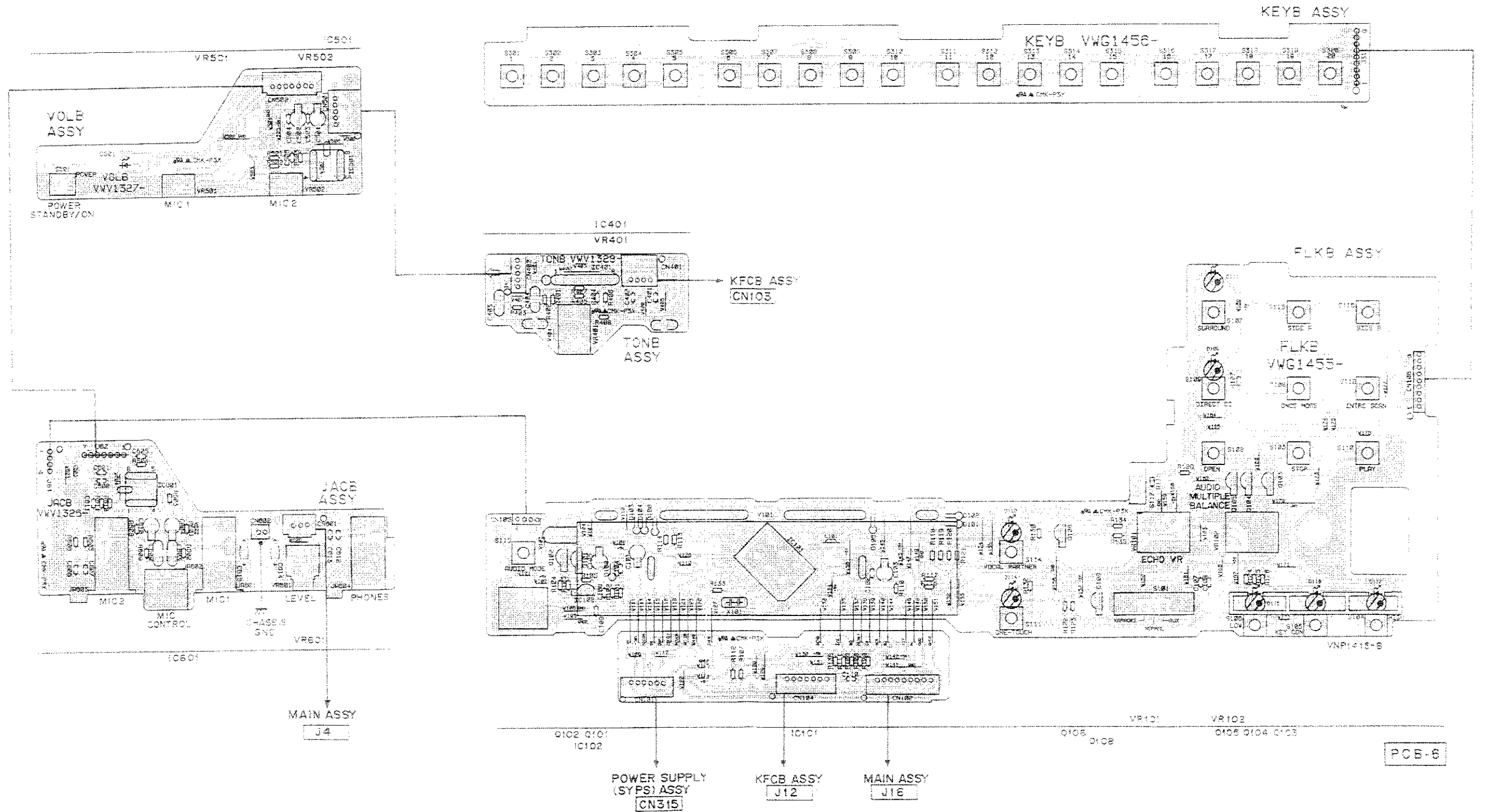
03

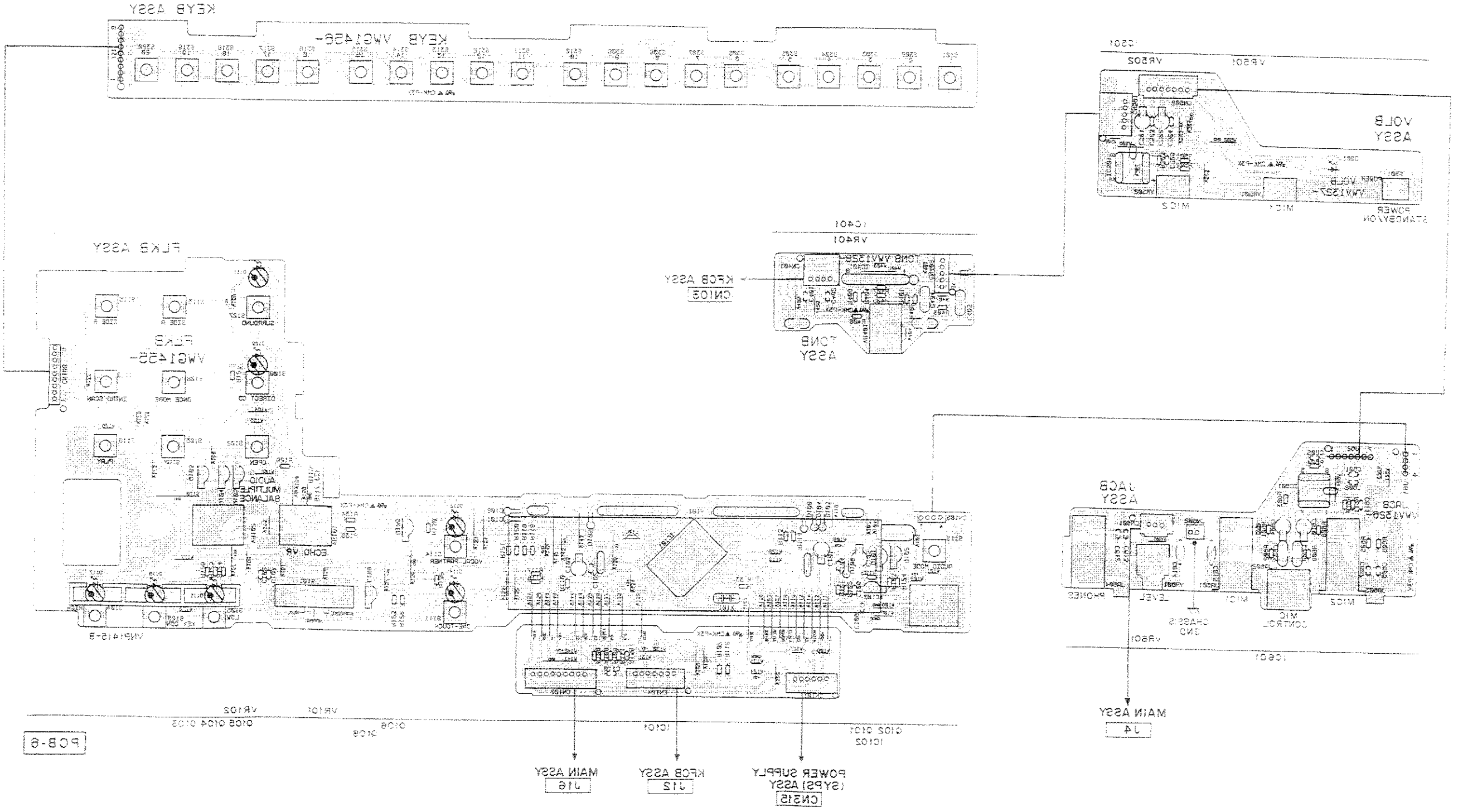


SCH-7 EXTB ASSY, KFCB ASSY

SCH-7

View from component side





POB-8

POWER SUPPLY (SPSY) ASSY
CN125

KEYB ASSY
715

MAIN ASSY
716

MAIN ASSY
7A

4. PCB PARTS LIST

NOTES:

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by " \odot " 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 \rightarrow 56 \times 10¹ \rightarrow 561 RD1/8PM $\begin{matrix} 5 & 6 & 1 \\ \hline \end{matrix}$ J
 47k Ω \rightarrow 47 \times 10³ \rightarrow 473 RD1/4PS $\begin{matrix} 4 & 7 & 3 \\ \hline \end{matrix}$ J
 0.5 Ω \rightarrow 0R5 RN2H $\begin{matrix} 0 & R & 5 \\ \hline \end{matrix}$ K
 1 Ω \rightarrow 010 RS1P $\begin{matrix} 0 & 1 & 0 \\ \hline \end{matrix}$ K

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

5.62k Ω \rightarrow 562 \times 10¹ \rightarrow 5621 RN1/4PC $\begin{matrix} 5 & 6 & 2 & 1 \\ \hline \end{matrix}$ F

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
------	-----	-------------	----------	------	-----	-------------	----------

LIST OF ASSEMBLIES

\odot	MOTHER ASSY	VWM1405
NSP	├ RFAB ASSY	VWG1454
NSP	├ FG BOARD ASSY	VWG1458
NSP	├ SW BOARD ASSY	VWG1459
NSP	└ MAIN ASSY	VWX1192
\odot	FRPB ASSY	VWM1406
NSP	├ FLKB ASSY	VWG1455
NSP	├ KEYB ASSY	VWG1456
NSP	├ JACB ASSY	VWV1326
NSP	├ VOLB ASSY	VWV1327
NSP	└ TONB ASSY	VWV1328
\odot	KRAB ASSY	VWM1407
NSP	├ EXTB ASSY	VWG1457
NSP	└ KFCB ASSY	VWV1329
	POWER SUPPLY (SYPS) ASSY	VWR1198
NSP	CNNB ASSY	VWG1194
NSP	HEAD ASSY	VWV1178

RFAB ASSY

CAPACITORS

C583	CCSQCH471J50
C584	CKSQYF103Z50

RESISTORS

R592, R593	RS1/10S151J
------------	-------------

OTHERS

CABLE HOLDER (3P)	51048-0300
JA7 RF PIN JACK	VKB1029

FG BOARD ASSY

OTHERS

PHOTO INTERRUPTER	GP1S51V
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SW BOARD ASSY

SWITCHES

SW1-SW3	DSG1015
---------	---------

MAIN ASSY

SEMICONDUCTORS

IC207, IC208, IC602, IC603, IC802, IC805	BA15218N
IC351	CA0002AM
IC801	CXA1081S
IC201	CXD2500BQ
IC403	CXL1009P
IC804	LA6510L
IC211	NJM4558D
IC202	NJM78M08FA
IC210	NJM79M08FA
IC404	PA0017-P
IC401	PA5013A
IC101	PD0156A
IC405	PD0175A
IC206	PD2026B
IC402	PM0001
IC601	PM3002
IC803	PM3003A
IC807	TC4S66F
Q496, Q511, Q609, Q623, Q806, Q812, Q819, Q836, Q901	2SA1037K
Q545, Q603, Q605	2SA933S
Q816, Q818	2SB1185-F8
Q401	2SB1237X
Q546, Q547, Q602, Q604, Q904	2SC1740S
Q201, Q202, Q285, Q352, Q431, Q432, Q456, Q497-Q500, Q541, Q607, Q610, Q612, Q614, Q620-Q622, Q630, Q802-Q804, Q807, Q814, Q825, Q833, Q838	2SC2412K
Q351	2SC2786
Q815, Q817	2SD1762-F8
Q402, Q822	2SD1858X
Q204, Q205, Q302, Q303	2SD2144S
Q821	2SK184
Q207, Q208, Q286, Q403, Q613, Q820, Q824, Q826, Q829, Q830, Q840, Q903	DTA124EK

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	Q102, Q206, Q214, Q215, Q304, Q606, Q608, Q811, Q823, Q827, Q828, Q835, Q837		DTC124EK		C347, C349, C498, C654 C529, C536		CCSQCH820J50 CCSQCH910J50
	D102, D203, D204, D601-D604, D607-D610, D801-D808, D830-D832		1SS254		C818		CCSQL471J50
	D312		ERA83-006		C819		CCSQL561J50
	D201		FC54M		C823, C840		CEAL010M50
	D834		MTZJ10B		C902		CEAL100M50
					C101, C445, C457		CEAL101M6R3
	D833		MTZJ6. 2B		C612		CEAL220M16
SWITCHES					C835, C836, C930		CEAL220M35
	S301		VSH1007		C841		CEAL470M6R3
					C753		CEALNP010M50
COILS					C842, C863		CEALNP100M16
	L414, L415, L521, L541, L800		LAU120J		C618		CEALNP220M6R3
	L801, L803		LAU151J		C845		CEANP010M50
	L346, L496		LAU180J		C227, C281, C530		CEANP100M16
	L201, L202, L345, L348, L497, L802		LAU181J		C274, C275		CEANP220M10
	L203, L347, L351, L412, L413, L523		LAU220J		C616, C850		CEANP2R2M50
	L441		LAU270J		C754		CEANP3R3M50
	L411		LAU330J		C870		CEANP470M10
	L433		LAU390J		C205, C866		CEANPR47M50
	L416, L431		LAU430J		C471		CEAS010M50
	L205		LAU4R7K		C354, C522, C855, C864		CEAS100M50
	L522		LAU560J		C257, C294, C364, C432, C434, C525,		CEAS101M10
	L432		LAU620J		C601, C622		
	L511		LAU820J		C751		CEAS220M25
	L458		LFA221J		C228		CEAS220M50
	L457		LFA561J		C857, C859		CEAS221M6R3
	L524		LFA561K		C401		CEAS2R2M50
CAPACITORS					C472, C475, C476		CEAS3R3M50
	C816		CCCCH120J50		C203, C207, C225, C226, C230, C253,		CEAS470M10
	C104, C105		CCCCH300J50		C270, C271, C279, C305, C306, C363,		
	C837, C871		CCCSL331J50		C369, C428, C499, C521, C542, C550,		
	C804		CCSQCH050C50		C552, C642, C826, C831		
	C441		CCSQCH070D50		C484		CEAS470M25
	C817		CCSQCH050D50		C256, C283		CEAS471M6R3
	C438, C450, C497, C500		CCSQCH100D50		C443, C621		CEAS4R7M50
	C461, C528, C554, C603, C658, C810,		CCSQCH101J50		C368		CEASR47M50
	C811, C822		CCSQCH120J50		C367		CEHAQ100M50
	C418		CCSQCH121J50		C301, C302		CFTXA102J50
	C345, C456		CCSQCH150J50		C825		CFTXA682J50
	C303, C304, C348, C413, C509		CCSQCH151J50		C515, C517, C617, C847, C868		CFTXA683J50
	C232, C415, C417, C485, C624-C627,		CCSQCH180J50		C883		CFTXA823J50
	C629, C655		CCSQCH220J50		C446, C614, C650, C849, C865, C873		CFTYA103J50
	C214, C423, C424, C516		CCSQCH221J50		C365, C366, C514, C615, C832, C838,		CFTYA104J50
	C278, C282, C374, C411, C414		CCSQCH270J50		C874, C884, C885		
	C341, C437, C451, C510, C815		CCSQCH271J50		C807		CFTYA124J50
	C463, C812		CCSQCH330J50		C752, C843		CFTYA223J50
	C447, C462		CCSQCH331J50		C359, C360, C474, C604		CFTYA224J50
	C660		CCSQCH390J50		C827, C848, C867		CFTYA333J50
	C249, C250, C258-C263, C343, C416,		CCSQCH560J50		C280, C361, C362		CFTYA393J50
	C433, C440, C496, C524		CCSQCH680J50		C869, C910		CFTYA473J50
	C412, C419, C420, C439, C455, C546,				C610		CFTYA563J50
	C890, C891, C893				C296, C297		CKPUYY103N16
	C342				C202		CKSQYB152K50
	C344, C346, C545, C806, C809, C813				C875, C879		CKSQYB562K50
					C854		CKSQYB821K50

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	C106, C206, C213, C231, C234, C293, C295, C350, C351, C425, C426, C458-C460, C466, C467, C486, C532, C535, C544, C551, C553, C592, C628, C631, C643-C646, C651-C653, C761, C801, C803, C824, C828, C829, C858, C860, C861, C896, C901, C908		CKSQYF103Z50		R266, R267, R610, R813, R829, R884, R897, R947 R615, R699, R700, R833		RS1/10S123J RS1/10S124J
	C122, C204, C211, C212, C216, C218, C248, C254, C255, C284, C285, C372, C373, C403, C404, C427, C429, C435, C442, C479, C480, C511, C513, C526, C531, C543, C590, C595, C596, C814, C851, C852, C856, C876-C878, C880-C882, C897, C900, C903, C999		CKSQYF104Z25		R119, R504, R646, R648, R724, R802, R820, R895, R936 R127-R129, R269, R270, R363, R364, R693, R804, R882 R369, R370, R617, R632, R691, R706, R824, R919, R925, R985 R981 R473, R857		RS1/10S152J RS1/10S153J RS1/10S154J RS1/10S155J RS1/10S181J
	C102, C201, C209, C407, C408, C431, C448, C449, C468-C470, C473, C477, C478, C483, C487, C488, C504-C506, C527, C534, C547, C548, C602, C623, C802, C808, C820		CKSQYF473Z25		R239, R361, R362, R367, R374, R515, R901 R525, R619, R621, R623, R633, R695, R880 R861, R945, R950 R368, R987 R150, R151, R208-R210, R263-R265, R523, R603, R687, R750		RS1/10S182J RS1/10S183J RS1/10S1R8J RS1/10S220J RS1/10S221J
	C310		CKSQYF473Z50		R354, R355, R357, R456, R457, R497, R506, R529, R530, R532, R622, R663, R664, R684, R692, R714, R801, R803, R814, R872, R878, R881, R915, R964, R975, R989		RS1/10S222J
	C537		CKSYF105Z16		R120-R122, R124, R247-R251, R253, R255, R257, R277, R278, R296, R402, R524, R626, R698, R704, R823, R834, R843-R848, R859, R860, R870, R875-R877, R935, R940, R993 R472, R893, R896, R966 R831, R849, R977, R992 R503, R604		RS1/10S223J RS1/10S224J RS1/10S225J RS1/10S272J
	C605-C607, C839		CQMA102J50		R605, R616, R620, R634, R952, R991 R641 R118, R245, R806, R816, R871, R931 R201, R359, R360, R439, R441, R531, R839, R888, R904, R905, R907 R533, R607, R638, R643, R827, R858, R902, R926		RS1/10S273J RS1/10S274J RS1/10S331J RS1/10S332J RS1/10S333J
	C608, C834		CQMA152J50		R625, R627, R851, R852 R712 R640 R207, R279, R280, R498, R508, R649, R899, R930 R104, R114, R268, R281, R336, R653, R701, R708, R726, R800, R838		RS1/10S334J RS1/10S364J RS1/10S394J RS1/10S471J
	C620		CQMA222J50		R225, R236, R237, R259-R262, R287, R609, R628, R694, R836, R866-R868, R914, R941, R942, R955, R956 R527, R611, R639, R819, R837 R160, R946, R951 R411, R501, R522, R564, R810 R440, R444, R477, R521, R543, R677, R678, R840		RS1/10S472J RS1/10S473J
	C444, C611, C656, C657		CQMA272J50		R635, R702, R856, R892 R612, R636 R351, R412, R502, R934, R961 R202, R215, R223, R283, R301-R304, R307, R308, R437, R890, R891, R918, R937, R938, R986		RS1/10S474J RS1/10S4R7J RS1/10S561J RS1/10S562J
	C613, C619, C853		CQMA332J50				
	C886		CQMA333J50				
	C355-C358, C898		CQMA472J50				
	C935 (1 μ F/5.5)		YCH1039				
	VC901 (20p)		YCM-008				
RESISTORS							
	R241, R242, R550 (10K)		DCN1002				
	R680, R681		RN1/6PQ1002F				
	R438		RN1/6PQ1203F				
	R511		RN1/6PQ2002F				
	R682, R683		RN1/6PQ2202F				
	R415, R416		RN1/6PQ2402F				
	R434		RN1/6PQ5101F				
	R299, R356, R436, R474, R496, R518, R542, R561, R563, R725, R762, R764, R807, R809, R894, R906, R959		RS1/10S101J				
	R227, R232, R273-R276, R285, R293, R310, R350, R352, R353, R413, R442, R443, R458, R500, R507, R516, R519, R526, R652, R770, R812, R815, R932, R988		RS1/10S102J				
	R101-R103, R105-R113, R116, R123, R125, R126, R203, R205, R214, R216, R220, R222, R234, R235, R340, R341, R401, R499, R644, R647, R661, R662, R686, R689, R705, R707, R811, R818, R821, R822, R825, R863, R864, R885-R887, R889, R900, R903, R908, R909, R928, R929, R957, R967, R969, R990		RS1/10S103J				
	R229, R231, R332, R333, R371, R376, R517, R601, R608, R685, R696, R828, R835, R879, R943, R944, R949		RS1/10S104J				
	R117, R226, R228, R230, R240, R602, R630, R642, R826, R979, R980		RS1/10S105J				
	R435, R562, R808, R817		RS1/10S122J				

Mark	No.	Description	Part No.
	R606, R631, R883		RS1/10S683J
	R830, R920		RS1/10S684J
	R614, R869		RS1/10S752J
	R365, R366, R721, R921, R922		RS1/10S822J
	R688, R697, R854, R865, R927, R968		RS1/10S823J
	R850, R862 (3.3K)		RS1LMF3R3J
	R996 (3.9K)		RS1LMF3R9J
	VR482, VR605, VR606 (2.2K)		RCP1019
	VR604, VR609 (4.7K)		RCP1020
	VR441, VR603, VR610, VR612 (10K)		RCP1045
	VR608 (33K)		VCP1062
	VR601		VRTB6VS102
	VR481, VR521		VRTB6VS472
	OTHER RESISTORS		RD1/6PM□□□J
OTHERS			
	CN401 11P TOP POST		B11P-SHF-1AA
	CN107 CONNECTOR 3P		B3B-PH-K
	CN301 5P TOP POST		B5P-SHF
	CN103 22P TOP CONNECTOR		VKN1137
	CABLE HOLDER (3P)		51048-0300
	CABLE HOLDER (9P)		51048-0900
	CN402 CONNECTOR		B7B-PH-K
	JA4, JA5 REMOTE CONTROL JACK		PKN1004
	CN102 CONNECTOR		SBRK06S
	PCB BINDER		VEF1040
	JA2 6P PIN JACK		VKB1055
	SCREW TERMINAL		VNE1841
	GROUND TERMINAL		VNF-091
	X601 CRYSTAL RESONATOR (14.31MHz)		VSS1026
	X101 CERAMIC RESONATOR (9MHz)		VSS1040
	X201 CRYSTAL RESONATOR (16MHz)		VSS1057
FLKB ASSY			
SEMICONDUCTORS			
	IC101		PD3245A
	IC102		PST529D
	Q104		2SC1740S
	Q102		DTA144ES
	Q101, Q103, Q105, Q106, Q108		DTC114ES
	D101-D106		1SS252
	D108		1SS254
	D109, D111		SEL6410E
	D112, D114-D117		SEL6910A
SWITCHES			
	S102-S116		RSG1030
	S101		VSH1005
	S117		VSH1008
COILS			
	L101		LAU010K
CAPACITORS			
	C110		CCPUSL330J50
	C105		CEAL100M16
	C101		CEAL100M50
	C103		CEAL101M6R3
	C106		CKPUYB102K50

Mark	No.	Description	Part No.
	C104		CKPUYF223Z25
	C102, C107-C109		CKPUYY103N16
RESISTORS			
	VR101, VR102 (10K)		VCS1027
	OTHER RESISTORS		RD1/6PM□□□J
OTHERS			
	CN105 CONNECTOR		BTMK04S
	CN106 CONNECTOR		BTMK09S
	V101 FL TUBE		YAW1029
	REMOTE CONTROL SENSOR		GP1U58X
	FL HOLDER		VNF1078
	LED HOLDER		VNL1535
	X101 CERAMIC RESONATOR		VSS1031
KEYB ASSY			
SWITCHES			
	S301-S320		RSG1030
JACB ASSY			
SEMICONDUCTORS			
	IC601		NJM2068D
CAPACITORS			
	C604, C610		CEJA2R2M50
	C614, C615		CKCYF473Z50
	C612, C613		CKPUYB101K50
	C605, C611		CKPUYB681K50
	C601, C602		CKPUYF223Z25
	C606, C607		CKPUYY103N16
	C603, C609		QMA152J50
RESISTORS			
	VR601 (0.5K)		VCS1015
	OTHER RESISTORS		RD1/6PM□□□J
OTHERS			
	JA604 HEADPHONE JACK		RKN1002
	JA602 HEADPHONE JACK		RKN1006
	JA601, JA603 MIC JACK		VKN1147
	SNAP PLATE		VNE1102
	JACK HOLDER		VNE1868
VOLB ASSY			
SEMICONDUCTORS			
	IC501		NJM4558D
SWITCHES			
	S501		VSC1001
CAPACITORS			
	C501, C502		CEJA220M10
	C506		CKPUYB101K50
	C503, C504		CKPUYY103N16
RESISTORS			
	VR501, VR502 (10K)		VCS1030
	OTHER RESISTORS		RD1/6PM□□□J

5. ADJUSTMENTS

5.1 JIGS AND INSTRUMENTS REQUIRED FOR ADJUSTMENT

- Small screwdriver (about 10cm long)
- Small Phillips screwdriver (about 7cm long)
- Phillips screwdriver
- Dual-trace oscilloscope (with delay)
- AF oscillator
- Frequency counter
- LD test disc (GGV1003)
- CD test disc (YEDS - 7)
- Digital voltmeter
- Shorting clip
- L - shaped eccentric screwdriver (GGV - 129)
- TV monitor
- Resistor (47kΩ , 10kΩ × 2, 75Ω)
- Low-pass filter (47kΩ +1μF)
- 10:1/1:1 Probe

5.2 TEST MODE

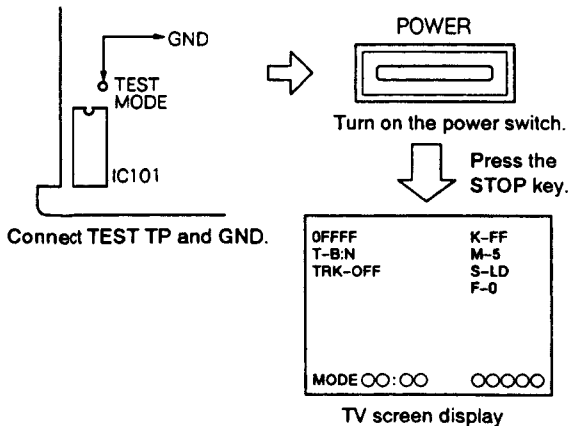
The player has a test mode function which allows the servicer to check the player's status on the TV screen by executing the respective key operation.

Also, since the TRKG servo OFF and ON easily, the test mode is especially useful for mechanical adjustments.

5.2.1 Test Mode Initiation

[Procedure]

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



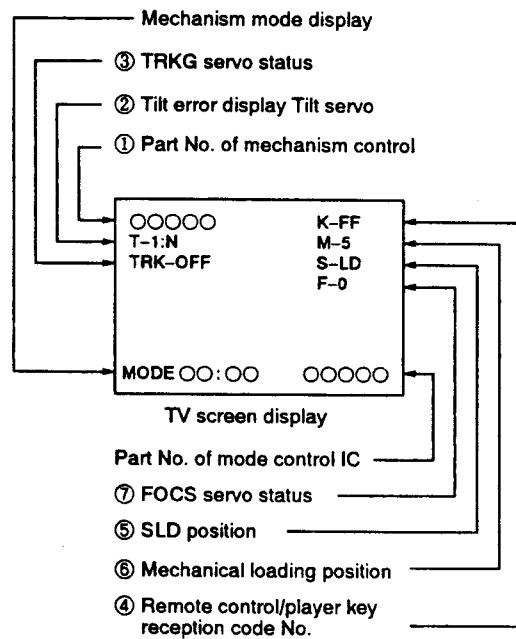
Note: When using the remote control unit (GGF1067) for the test mode.

- Press the **TEST** key after pressing the **ESC** key.

5.2.2 Test Mode Cancellation

Turn off the power switch.

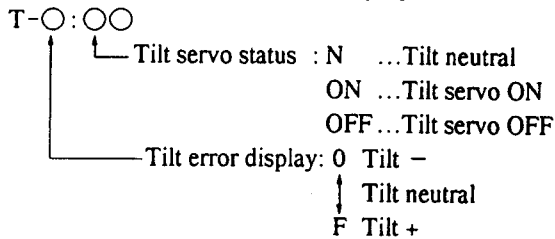
5.2.3 TV Screen and FL Displays in the Test Mode



① The Mechanical Control IC Part No. will be Displayed.

Example: PD0081A1 → 0081A
 PD0081B1 → 0081B

② Tilt Servo Status / Tilt Error Display



③ TRKG Servo Status

TV screen display
 TRK-○○○

- └─ ON...TRKG servo ON
- OFF...TRKG servo OFF

④ Remote Control/Player Key Reception Code No.

TV screen display
 K-○○

- └─ See Table 1

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	
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
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	

Table 1 Example of Code

⑤ SLDR Position

TV screen display	FL display	Mode
S-○○○		
└─ IN	—	CD inside SW ON
CD	CD	CD active area
CDV	CDV	CDV active area
LD	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-○

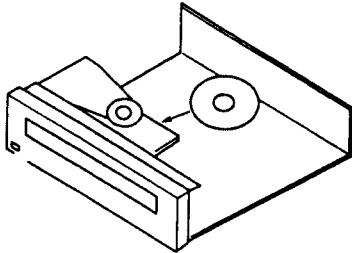
- └─ 0 ... Normal mode
- TRKG ON : VR606 (RF MAX)
- TRKG OFF : VR605 (TE MAX)
- 1 ... VR606 is activated when the TRKG servo is OFF.

5.2.5 Player Operation in the Test Mode

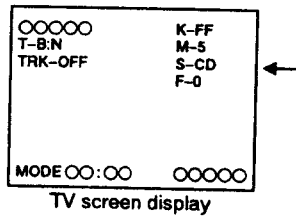
Operate the player by selecting a test mode function with the keys on the player or on the remote control unit.

● CD PLAYBACK

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



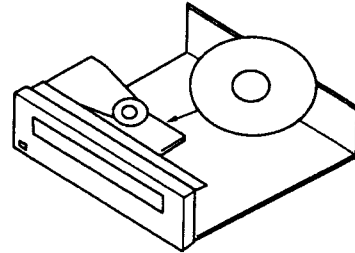
- ② Press the or key to appear "S-CD" on the TV screen display.



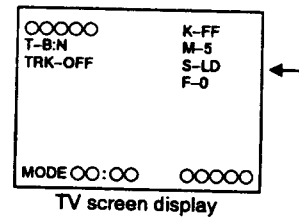
- ③ Clamp the disc by pressing the PLAY () key once.
Then, press the PLAY () key twice, disc will be normal playbacked.

● LD PLAYBACK

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



- ② Press the or key 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.

5.3 PREPARATIONS FOR ADJUSTMENT AND PRECAUTIONS

1) When replacing the pickup assembly, adjust in the following way:

- Carriage assembly in forward state -

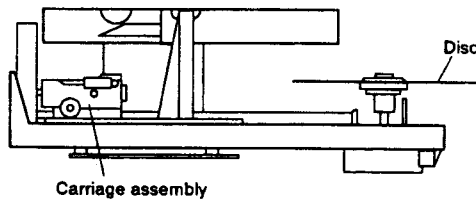
3. Coarse grating adjustment /TRKG error MAX. adjustment
4. Slider shaft horizontal adjustment /RF level MAX. adjustment
5. Pickup inclination adjustment
6. Tilt sensor inclination adjustment
7. Spindle motor centering check
8. Spindle motor centering adjustment
9. Fine grating adjustment
10. FOCS SUM level adjustment
11. RF gain adjustment
12. FOCS servo loop gain adjustment
13. TRKG servo loop gain adjustment

- Carriage assembly in reverse state -

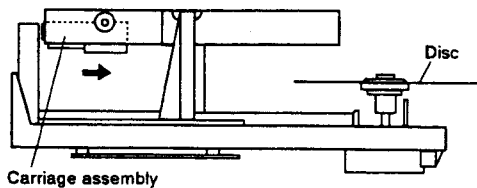
15. Coarse centering adjustment for side B play
16. Pickup tangential direction angle adjustment for side B play / (Tilt offset fine adjustment for side B)
17. Fine centering adjustment for side B play

Note : The forward status of carriage assembly is when the carriage assembly is in the position to play side A of the disc. The reverse status is when it is in the position to play side B of the disc.

Carriage assembly in forward state



Carriage assembly in reverse state



2) How to reverse the carriage assembly

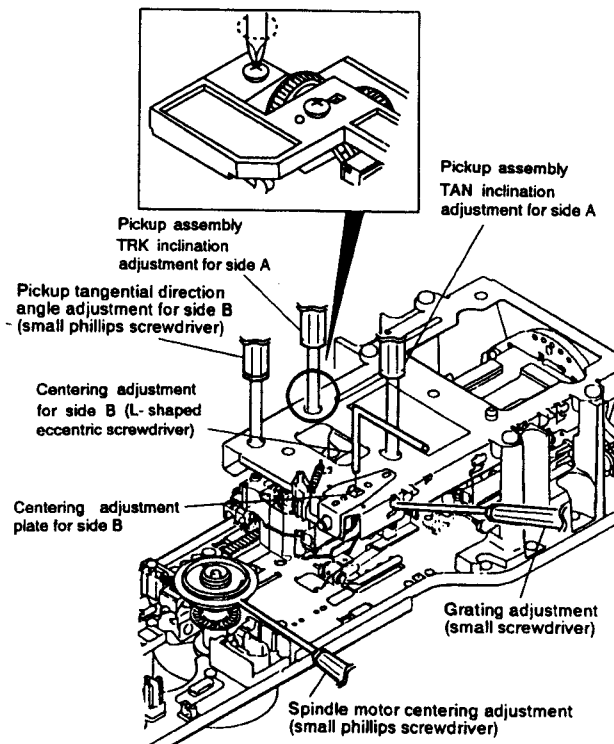
- Carriage assembly is reversed by pressing the DISC SIDE B key of the front panel.
- Side A is returned by pressing the STOP key.

3) Installing the disc

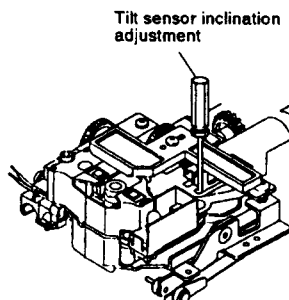
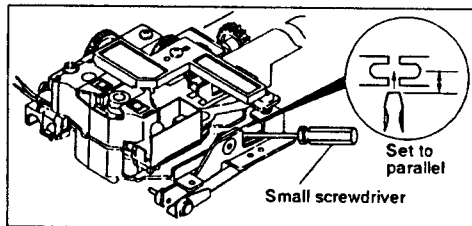
The disc should be placed from behind on the turntable and when Open/Close key is pressed, the clamper comes down to clamp the disc.

4) Where to insert the screwdriver when adjusting the pickup assembly

- Carriage assembly in forward state -



Detail of grating adjustment point



OFFFF	K-FF
T-1:N	M-5
TRK-OFF	S-LD
	F-0
Tilt status display	
MODE 00:00	○○○○○
TV screen display	

5.4 MAIN BOARD ASSEMBLY ADJUSTMENT SUMMARY

	ADJUSTMENT	Adjusting Point	Measurement equipment Connecting Point	Player Condition	Adjusting Specification
1	Tilt Offset Adjustment for Side A	VR610	C902 - (minus) lead wire	• Stop mode (power ON)	• Adjust VR610 so that the DC voltage becomes $0 \pm 0.2V$.
2	Tilt Servo Gain Adjustment	VR608	None	• Stop mode (Power OFF)	• Marking of Tilt gain VR position Red : Turn to right Clear : Center Blue : Turn to left
3	Coarse Grating / TRKG Error MAX. Adjustment	Grating / VR605(TE MAX)	CN401 - 9 (TRKG ERR)	• Test mode #6,500 still TRKG servo OFF • Tilt servo OFF	• Null point → TRKG error MAX • TRKG error MAX (VR605)
4	Slider Shaft Horizontal Adjustment / RF Level MAX. Adjustment	SKIP key VR606 (RF MAX)	CN401 - 4 (FOCS RTN) CN401 - 3 (RF)	• Test mode #9,800 , #22,000 - 25,000 still TRKG servo OFF TILT servo OFF • #2,701 / #115 still TRKG servo ON TILT servo OFF	• Adjust the SKIP key so that the FOCS RTN voltage between #9,800 and #22,000 - #25,000 becomes +8 to +12 mV. • RF level MAX (VR608) • Check that the crosstalk of the frame #115 is not appeared.
5	Pickup Inclination Adjustment for Side A	Pickup assembly TAN / TRK inclination adjustment screw	CN401 - 3 (RF)	• Test mode . #2,701 still TRKG servo ON • TILT servo OFF	• RF waveform's amplitude MAX (Pickup TAN / TRK adjustment screw) • Minimized crosstalk.
6	Tilt Sensor Inclination Adjustment	Tilt senser inclination adjustment screw	Video output terminal (TV monitor)	• Test mode #16,200 / #115 still TRKG servo ON • TILT servo OFF	• Adjust the adjustment screw so that the tilt status display code of #115 and #16,200 in still mode are 6, 7, or 8.
7	Spindle Motor Centering Check	None	CH1:CN401 - 9(TRKG ERR) CH2:CN401 - 1, 2(TRKG SUM) (X - Y mode) (Fig. 2)	• Test mode #22,000 - 25,000 and #100 still TRKG servo OFF • TILT servo ON	• Check that the amplitude of the lissajous figure of the frame #100 is the same as that of the frame #22,000 - 25,000.
8	Spindle Motor Centering Adjustment	Spindle motor centering adjustment screw.	CH1:CN401 - 9(TRKG ERR) CH2:CN401 - 1, 2(TRKG SUM) (X - Y mode) (Fig.2)	• Test mode #22,000 - 25,000 and #100 still TRKG servo OFF • TILT servo ON	• Adjust the centering adjustment screw so that the lissajous figures of #100 and #22,000 - 25,000 are the same.
9	Fine Grating Adjustment	Grating	CH1:CN401 - 9(TRKG ERR) CH2:CN401 - 1, 2(TRK SUM) (X - Y mode) (Fig.2)	• Test mode #6,500 still TRKG servo OFF • TILT servo ON	• Minimize the Y direction of the lissajous figure.
10	FOCS SUM Level Adjustment	VR609	CN401 - 11 (FOCS SUM)	• Test mode #15,000 still TRKG servo ON • Tilt servo NEUTRAL	• Adjust VR609 so that the voltage becomes $1.8V \pm 0.1V$ DC.
11	RF Gain Adjustment	VR601	CH1:CN401 - 3 (RF)	• Test mode #15,000 still TRKG servo ON • TILT servo NEUTRAL	• Adjust VR601 so that the RF level becomes $270mV \pm 20mV$.
12	FOCS Servo Loop Gain Adjustment	VR604	CH1:CN401 - 7 (FOCS IN) CH2:CN401 - 6 (FOCS ERR) (X - Y mode) (Fig.3)	• Test mode #15,000 still TRKG servo ON • TILT servo NEUTRAL	• Connect the oscilloscope and AF oscillator as shown in Fig.3 and observe the lissajous figure. 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 - 10 (TRKG IN) CH2:CN401 - 9 (TRKG ERR) (X - Y mode) (Fig.4)	• Test mode #15,000 still TRKG servo ON • TILT servo NEUTRAL	• Connect the oscilloscope and AF oscillator as shown in Fig.4 and observe the lissajous figure. Adjust VR603 so that the lissajous figure is symmetrical with respect to the X and Y axes.
14	Temporary Tilt Offset Adjustment for Side B	VR612	None	• Stop mode (power ON)	• Temporary adjust VR612 so that the VR612 becomes line symmetry as compared with the mechanical inclination of tilt offset VR(VR610) for side A. (Fig.5)
15	Coarse Centering Adjustment for Side B Play	Centering adjustment plate for side B.	CH1:CN401 - 9 (TRKG ERR) CH2:CN401 - 1, 2(TRKG SUM) (X - Y mode)	• Test mode #100 still TRKG servo ON / OFF • TILT servo ON	• Adjust that the X - axis amplitude of the lissajous figure becomes maximum.
16	Pickup Tangential Direction Angle Adjustment for Side B Play / (Tilt Offset Fine Adjustment for Side B)	Pickup tangential direction angle adjustment screw. / (VR612)	Video output terminal (TV monitor)	• Test mode #115 still TRKG servo ON • TILT servo ON	• Adjust the pickup tangential adjustment screw for side B play so that the crosstalk becomes minimum. • If crosstalk is appeared, adjust the tilt offset fine adjustment for side B(VR612).
17	Fine Centering Adjustment for Side B Play	Centering adjustment plate for side B	CH1:CN401 - 9 (TRKG ERR) CH2:CN401 - 1, 2(TRKG SUM) (X - Y mode)	• Test mode #100 still TRKG servo ON/OFF • TILT servo ON	• Adjust that the X - axis amplitude of the lissajous figure becomes maximum.
18	Reference Sub - carrier Adjustment	VC901	IC402 - pin 8	• Stop mode	• Adjust VC901 so that the frequency becomes $3.579545MHz \pm 10Hz$.
19	VCO Center Frequency Adjustment	VR481	CH1: C471 + lead wire CH2: C499 + lead wire	• #5,100 still	• Adjust VR481 so that the center position of jitter of CH2 video signal is delayed to $76 \mu sec \pm \frac{25}{100}$ as compared with CH1 video signal.

	ADJUSTMENT	Adjusting Point	Measurement equipment Connecting Point	Player Condition	Adjusting Specification
20	Output Video Level Adjustment	VR482	Video output terminal (Terminated with 75 Ω)	<ul style="list-style-type: none"> • Normal mode • #19,900 still 	<ul style="list-style-type: none"> • Adjust VR482 so that the voltage between the sync tip and the white peak becomes 1.0Vp-p ± 5%. (Fig. 6)
21	1H Delay Video Level Adjustment	VR441	CH1: C443 – (minus) lead wire CH2: C445 – (minus) lead wire	<ul style="list-style-type: none"> • #3,800 still 	<ul style="list-style-type: none"> • Adjust VR441 so that the level of the 1H-delay video becomes the same as that of the main-line video.
22	VPS Error Adjustment	VR521	Video output terminal (TV monitor)	<ul style="list-style-type: none"> • #8,000 still 	<ul style="list-style-type: none"> • Color irregularity on the magenta screen is minimized.

Adjustment Points in the Main Board Assembly

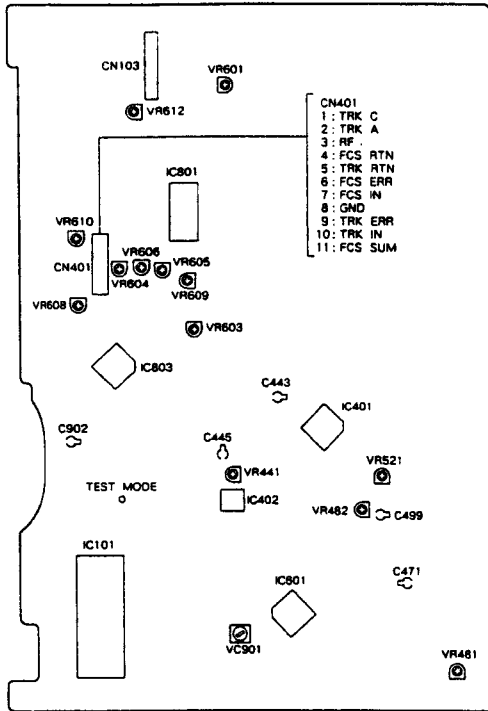


Fig.1 Adjustment points

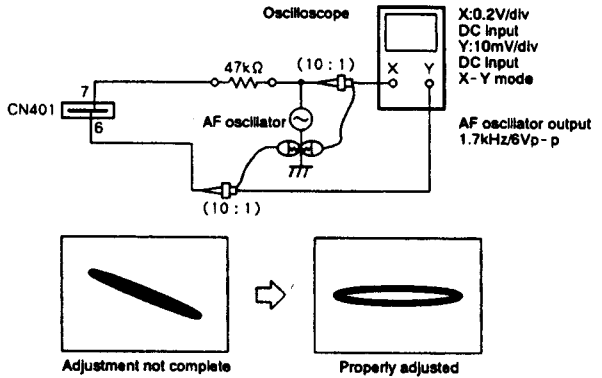


Fig.3 FOCS servo loop gain adjustment

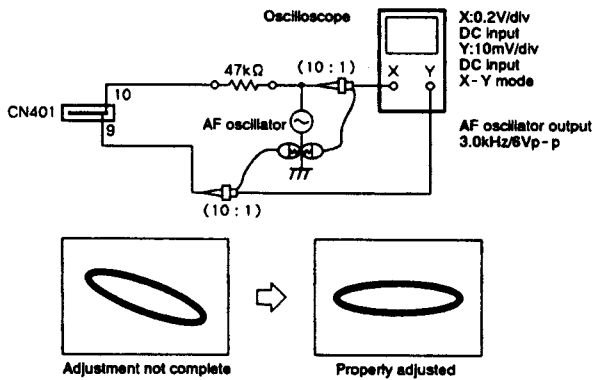


Fig.4 TRKG servo loop gain adjustment

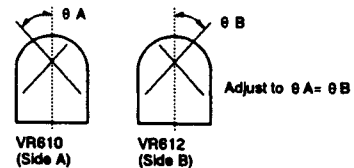


Fig.5 Tilt offset VR

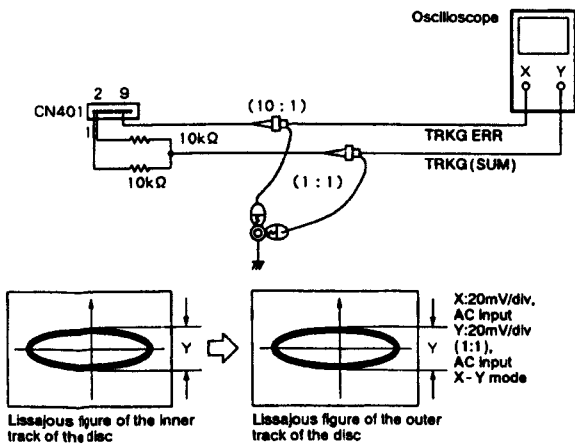


Fig.2 Connection for the spindle motor centering adjustment and fine grating adjustment

When the video out terminal is connected to a TV monitor, *1 Vp-p value should be met No. 20 * Adjusting Specification shown above.

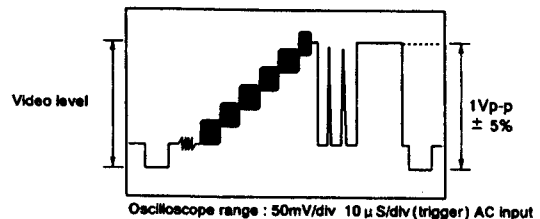
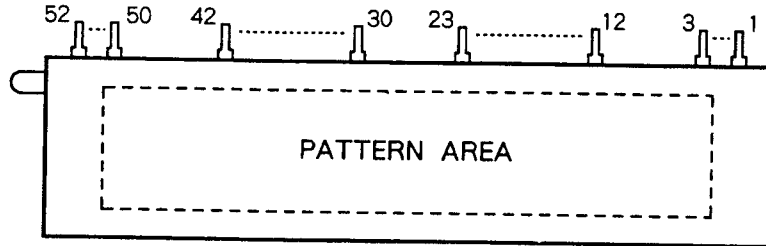


Fig.6 Output video level adjustment

6. FL INFORMATION

● VAW1029 (V101)

PIN LOCATION

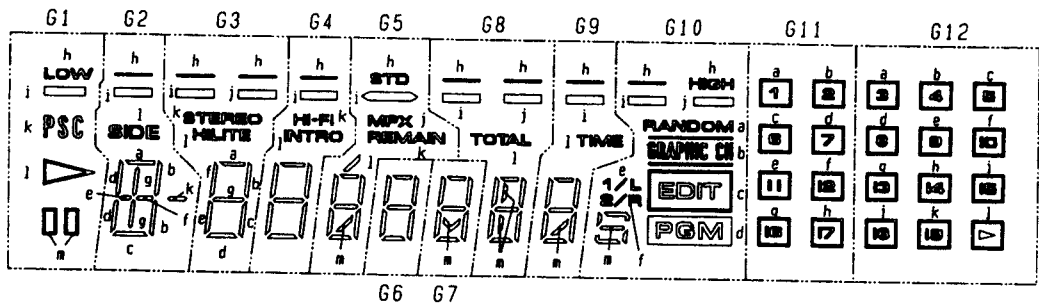


PIN ASSIGNMENT

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Assignment	F	F	F	NP	NP	NP	NP	NP	NP	NP	NP	G12	G11	G10	G9	G8	G7	G6
Pin No.	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
Assignment	G5	G4	G3	G2	G1	NP	NP	NP	NP	NP	NP	a	b	c	d	e	f	g
Pin No.	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52		
Assignment	h	i	j	k	l	m	NP	NP	NP	NP	NP	NP	NP	F	F	F		

F:Filament G1-G12:Grid a-m:Anode NP:No pin

ANODE GRID ASSIGNMENT & PIN ASSIGNMENT



ANODE GRID ASSIGNMENT

	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10	G11	G12	
a		—	a	a	a	a	a	a	a	RANDOM	1	3	
b		|	b	b	b	b	b	b	b	SLAPIC CH	2	4	
c		—	c	c	c	c	c	c	c	EDIT	8	6	
d		|	d	d	d	d	d	d	d	PGM	7	9	
e		o	e	e	e	e	e	e	e	1/L	11	10	
f		—	f	f	f	f	f	f	f	2/R	12	13	
g		|	g	g	g	g	g	g	g		16	15	
h	LOW	—	—	—	STD			—	—	—	HIGH	17	14
i	—	—	—	—	—			—	—	—			18
j			—		MPX			—	—	—			19
k	PSC	—	STEREO	HI-FI	REMAIN								20
l	▷	SIDE	HILITE	INTRO	/(UP)			TOTAL	TIME				21
m	□□				/(LOW)		∨	|	/	Σ			22

7. IC INFORMATION

• The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

■ PD0156A (IC101)

• Mechanism Control IC

Pin Function

No.	Pin Name	I/O	Function	No.	Pin Name	I/O	Function
1	VCC	I	Power supply connection. Applies 5V ± 10%.	14	GFS	I	CD (EFM signal) frame-lock signal input. Connect to pin 12 of CXD2500AQ. "H" for lock and "L" for unlock. GFS is the abbreviation for Good Frame Sync.
2	XCX	O	Analog audio CX noise-reduction switching signal output. "L" for ON and "H" for OFF.	15	S12	I	EFM decoder CXD2500BQ subcode input. Subcodes are read by two lines of this signal and SCK2.
3	SQ2	O	Analog audio-switching signal output 2/R. "H" for squelch.	16	XLAT2	O	EFM decoder CXD2500BQ control latch signal output. Sends control command using S03, 2500CLK.
4	SQ1	O	Analog audio-switching signal output 1/L. "H" for squelch. Digital audio is controlled by EFM decoder (CXD2500BQ).	17	SCK2	O	EFM decoder CXD2500BQ subcode-reading clock signal output. 96 clocks are generated to read subcodes.
5	XANA	O	Digital/analog audio-switching signal output. "H" for digital and "L" for analog. This signal switches the signal to be sent to LINE OUT and headphones.	18	TBAL DRV	O	Tracking offset control signal output. Tracking offset control PWM signal is output and used for the autotracking offset. Period 910 μsec, ternary control H,L,Z
6	SLDR POS	I	Pickup position detection switch input (analog signal). Detects the position by performing resistive division for each switch and reading the value of the A/D input.	19	S11	I	Data input from mode control IC. Serially sent from front to mechanism. Also used as data signal to the character generating IC.
7	TBAL ERR	I	Tracking balance error signal input (analog signal). This signal undergoes A/D conversion and becomes the tracking offset control input.	20	SO1	O	Serial data output to mode-control IC. Serially sent from mechanism to front.
8	SLDR ERR	I	Slider-error signal input (analog signal). This signal undergoes A/D conversion and becomes the slider servo control input.	21	SCK1	O	Clock for serial communication with the mode-control IC. Set the input mode when there is no communication with the mode-control IC. Also used as data signal to the character generating IC.
9	TILT ERR	I	Tilt-sensor output signal input (analog signal). The signal obtained by amplifying the tilt sensor output by 40 to 50dB is input (0.5V). This signal undergoes A/D conversion and becomes the tilt servo control input. Controls the tilt motor so that this signal becomes 2.5V.	22	TZC	I	Tracking error zero-cross signal input. The signal is obtained by comparison of the tracking-error signal. This signal is counted to control the slider motor during track count search.
10	MUTE	O	Audio system mute-control signal output. "H" for MUTE ON and "L" for MUTE OFF.	23	SCOR	I	Subcode sync signal input. When this signal is "H", the subcode signal is supplied from CXD2500BQ. The disc playback status is also monitored through the presence/absence of the signal.
11	XREFV	I	Reference V-SYNC signal input for clear scanning. Detects edge and functions as CAV/CLV DOCINH in 700/1700.	24	T LATCH	O	DAC and digital filter PD2026 serial control latch signal output.
12	SLDR DRV	O	Slider-control signal output. A PWM signal is supplied to drive the slider for the slider servo. Period 910 μsec, ternary control H,L,Z	25	SHAKE	I/O	Handshake signal terminal for data communication with mode-control IC. This terminal is a bidirectional data line used by both ICs for both input and output. Sends data transfer timing by switching mode.
13	TOFF	O	Tracking-operation control signal output. This signal backs up the tracking servo operation ON/OFF. "H" for OFF and "L" for ON.				

No.	Pin Name	I/O	Function	No.	Pin Name	I/O	Function
26	XPBV	I	Vertical-sync signal input for LD/CDV playback. This IC basically operates in synchronization with this signal (at the falling edge). Jump timing is created using this signal as reference in the CAV special playback mode. "L" for vertical synchronization.	47	SO3	O	Serial 3 data output. The above four ICs commonly use the same serial signal, distinguishing by XLAT3, XLAT2 and T LATCH. LSB first.
27	CN VSS	-	GND for A/D conversion	48	XLAT3	O	Latch-signal output for the spindle servo IC.
28	XRESET	I	Reset signal input. "L" for reset and "H" for reset cancellation. Controlled by the mode control IC.	49	CLV SCAN	O	CLV V synchronization scanning mode signal output.
29	XIN	I	9MHz clock oscillation output	50	VSQ	O	Video-output switching signal output. "H" for squelch and "L" for playback video.
30	XOUT	O					
31	FTS CLK	O	External clock output. A clock (2.25MHz) obtained by dividing the master clock frequency (9MHz) by 4 is output for the FTS IC (PM3003). Does not output when FTS IC other than PM3003 is used.	51	VLOCK	I	Vertical synchronization lock detection signal input. "H" is kept for a certain time if the phase of CLV clear scanning REF-V matches with that of PBV.
32	VSS	I	For GND.	52	SENA	O	Shift enable signal output. "H" when H for CLV clear scanning is reduced to make REF-V and CLV closer.
33	SW1	I	Loading/tilt position-detector switch input.	53	XSLOCK	I	Spindle lock signal input. "L" for lock and "H" for unlock.
34	SW2	I					
35	SW3	I					
36	FOK	I	Focus servo lock signal input. Used for focus servo-lock detection. "L" for lock and "H" for unlock.	54	N.C.	O	Not used.
37	FG	I	Input for spindle-motor FG-signal generated 24 FGs per rotation. Used by dividing the signal by 3 in the IC.	55	TILT ON	-	Tilt operation information. "H" for during operation. This port becomes "H" when the tilt is ON. This port is for confirming the tilt operation.
38	DATA	I	Input for the PHILLIPS code decoder in the mechanism controller.	56	N.C.	O	Not used.
39	PBH	I	Playback H-SYNC input for detecting the PHILLIPS codes.	57	N.C.	O	Not used.
40	XPBV	I	Playback V-SYNC input for detecting the PHILLIPS codes.	58	TILT DRV	O	Tilt control signal output. The tilt-drive PWM signal is output and used for the tilt servo.
41	CAV	O	CAV/CLV switching-signal output. "H" for CAV and "L" for CLV. Connected to pin 6 (PA5013), it is used as the video NR switching signal.	59	TRAY.SW	I	Switch input for detecting the CD direct tray position.
42	N.C.	O	Not used.	60	TURNA	I	α -turn position detection signal input. "L" for side A and "H" for side B or during turn.
43	ACC CONT	O	Spindle acceleration/deceleration signal output. "H" for acceleration, "L" for deceleration, and "Z" for CD stop and play.	61	TURNB	I	α -turn position detection signal input. "L" for side B and "H" for side A or during turn.
44	GPWM	O	Duty pulse signal output for spindle gain switching. "L" for CLV inner periphery or CAV and "H" for CLV outer periphery or CDV.	62	RFCORR	O	RF-correction switching signal output. "H" for gain-up. Increase the gain for CAV inner periphery. #8000-#8100 Other than CAV is fixed to the gain up side.
45	J.TRIG	O	Track-jump signal output. For 1-track jump. "H" during a jump operation and "L" in other states. "H" width is about 20 μ sec.	63	DIRECT	O	Video-system power supply OFF signal output in CD direct mode. "H" for video system power supply OFF and "L" for normal operation.
46	SCK3	O	Serial 3 clock signal output. Rising edge reading, 2 μ sec during "H" and 20 μ sec during "L".	64	ATB ON	-	ATB operation information. "H" for during operation. This port becomes "H" when the ATB is ON. This port is for confirming the ATB operation.

■ PD3245A (IC101)

• Mode Control IC

Pin Function

No.	Pin Name	I/O	Function	No.	Pin Name	I/O	Function	
1	OEMSEL1	I	"L" for PIONEER and "H" for music interval representation for OEM. (Microphone appears on screen.)	43	G3	O	Display grid output.	
				44	G4	O		
2	OEMSEL2	I	"L" for PIONEER and "H" for TEAC (remote commander).	45	G5	O		
				46	G6	O		
3	OEMSEL3	I	"L" for PIONEER and "H" for PHILLIPS (remote commander).	47	G7	O		
				48	G8	O		
4	-	I	Not used (GND)	49	G9	O		
5	AVSS	I	Not used (GND)	50	G10	O		
6	-	I	Not used (GND)	51	G11	O		
7	x2	O	NC (OPEN)	52	G12	O		
8	x1	I	Not used (GND)	53	LED(DRCTCD)	O		LED output for indicating "direct CD".
9	GND	I	GND	54	LED(KEYCON)	O		LED output for illuminating key controller key.
10	OSC1	I	Main system clock oscillation (8MHz).	55	LED(SURRND)	O	LED output for indicating "surround".	
11	OSC2	O						
12	xRESET IN	I	CPU reset ("L" for reset).	56	LED(VPRTRN)	O	LED output for indicating "vocal partner".	
13	SHAKE	I	Mechanism control serial communication request.	57	VCC	I	+5V	
14	SEL IR	I	Remote commander input.	58	KIN0	I	Key data input	
15	DOGFOOD	O	Pulse output for watchdog timer.	59	KIN1	I		
16	POWERON	O	Power supply switching output.	60	KIN2	I		
17	xCSDSP	O	CS output ("L" for enable) for DSP (PDQ001A).	61	KIN3	I		
18	xDSP_ON	O	By-pass circuit switching ("L" for DSP) for DSP (PDQ001A).	62	KIN4	I		
19	-	I	Not used (GND)	63	KIN5	I		
20	MODE2	I	Microphone control pin input 2.	64	DOOR OPEN	I	Door SW input ("H" for OPEN and "L" for CLOSE).	
21	MODE1	I	Microphone control pin input 1.	65	-	O	NC (Open).	
22	-	O	NC (Open).	66	LED(ONETCH)	O	LED output for indicating "one-touch KARAOKE".	
23	-	O	NC (Open).	67	xS-CLOCK	I/O	Serial communication clock (mechanism control, character generator and DSP).	
24	xMIC_ON	O	Microphone ON/OFF switching ("L" for MIC active).	68	S-MTOF	I	Serial communication data input (mechanism control).	
25	-	O	NC (Open).	69	S-FTOM	O	Serial communication data output (mechanism control, character generator and DSP).	
26	KSCAN5	O	Key scan output.	70	xRESET OUT	O	Reset output	
27	KSCAN4/SEG M	O	Key scan output/display segment output.	71	xCS	O	Character generator (PD0175A) CS output ("L" for enable).	
28	KSCAN3/SEG L	O						
29	KSCAN2/SEG K	O						
30	KSCAN1/SEG J	O						
31	KSCAN0/SEG I	O						
32	SEG H	O	Display segment output.	72	-	O	NC (Open).	
33	SEG G	O						
34	SEG F	O						
35	SEG E	O						
36	SEG D	O						
37	SEG C	O						
38	SEG B	O						
39	SEG A	O						
40	VDISP	I	-30V.	73	-	O	NC (Open).	
41	G1	O	Display grid output.	74	KAR/NO \bar{R}	O	KARAOKE/standard/switching selector input ("H" for KARAOKE and "L" for NORMAL).	
42	G2	O						
				75	INT/EXT	O	Internal/external input switching selector input ("H" for internal and "L" for external).	
				76	AVCC	I	+5V	
				77	ECHOVAL	I	Control voltage input for echo volume (0V to 5V)	
				78	ONTABAL	I	Control voltage input for voice multiplexed mode balance (0V to 5V)	
				79	MICSNS	I	Microphone input sensor ("H" for present and "L" for absent).	
				80	P03	I	+5V	

8. FOR CLD-V840/KC AND CLD-2720K/RD

CONTRAST OF MISCELLANEOUS PARTS

NOTES:

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

CLD-2720K/RD, CLD-V840/KC and CLD-V840/KU have the same construction except for the following:

Mark	Symbol & Description	Part No.			Remarks
		CLD-V840/KU	CLD-V840/KC	CLD-2720K/RD	
Δ	POWER SUPPLY (SYPS) ASSY	VWR1198	VWR1198	VWR1204	Refer to P.10
	Strain relief	CM - 22C	CM - 22C	CM - 22B	
	AC power cord	PDG1015	PDG1015	PDG1013	
	Voltage selector	.....	.....	USB1004	
	Rear panel	VNA1369	VNA1370	VNA1368	
	Power insulator sheet	.....	.....	VEC1492	Refer to P.11
	Door assembly - S	VXX1898	VXX1898	VXX1894	
NSP	Wire clamp	.....	.....	VEC1237	Refer to P.10
NSP	Housing assembly	.....	.....	VKP1952	Refer to P.10
NSP	Front door assembly	VXA1979	VXA1979	VXA1951	
	Packing case	VHG1284	VHG1285	VHG1283	
	Operating instructions (French)	.....	VRC1022	.....
	UPC code label	.....	.....	VRW1344	Refer to P.19

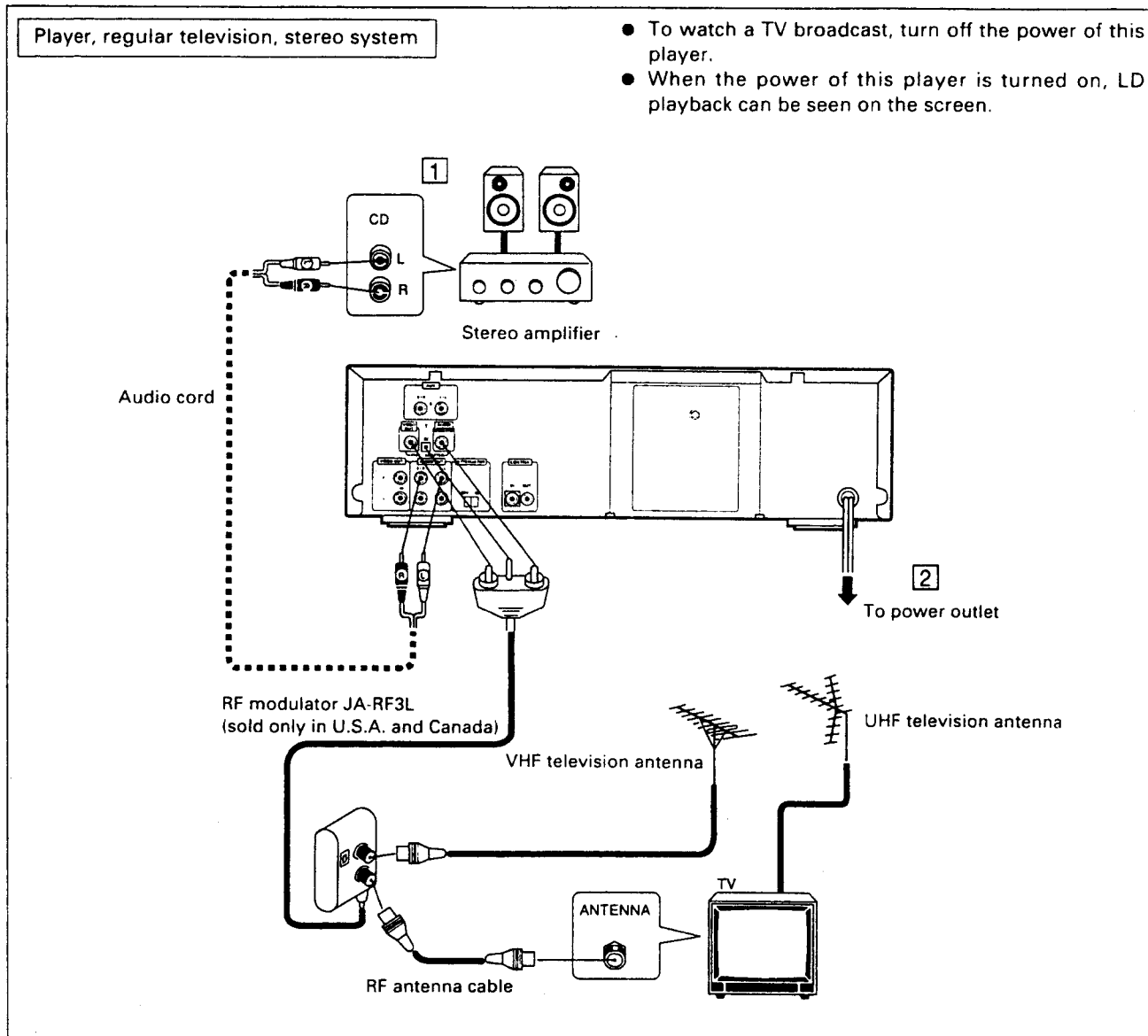
POWER SUPPLY (SYPS) ASSY

VWR1204 and VWR1198 have the same construction except for the following:

Mark	Symbol & Description	Part No.		Remarks
		VWR1198	VWR1204	
	IC211, IC212	.....	ICP - N20	
	D204	ERB83 - 006	ERB84 - 009	
	F202, F203	NT1 - 0.63A	.....

9. CONNECTIONS

USING TELEVISION WITHOUT AUDIO AND VIDEO JACKS (WITH OPTIONAL RF MODULATOR JA-RF3L) (CLD-V840 only)



1. Detach the VHF antenna cable from the VHF antenna terminal of your TV set, and connect the cable to the VHF IN terminal of the RF modulator JA-RF3L.
2. Connect the VHF OUT terminal of the RF modulator to the VHF antenna terminal of your TV set.
3. Connect the socket (3-pin) of the RF modulator to the VHF ADAPTER OUTPUT jacks.

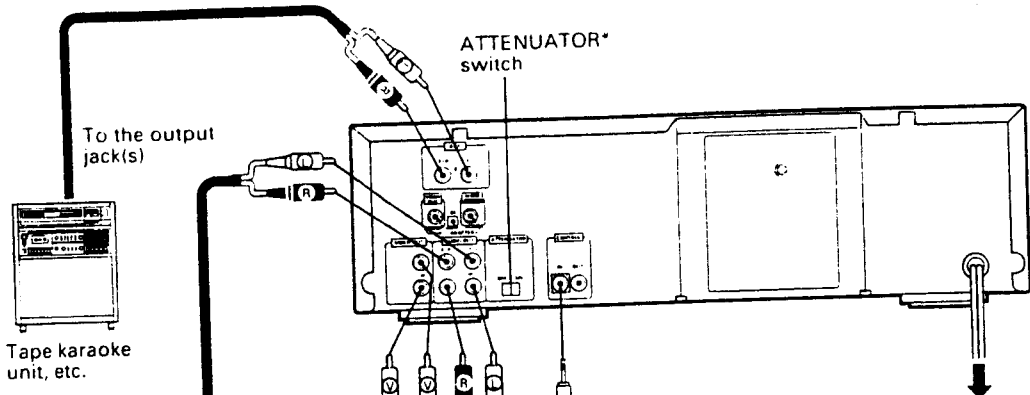
NOTE:

Push the plug in firmly. If the plug is not properly inserted, it may result in snow or noise on the screen.

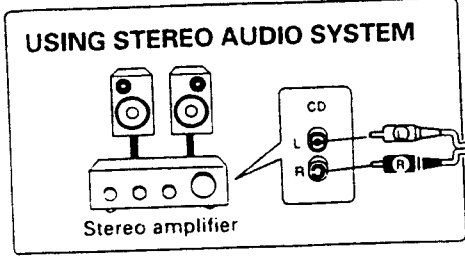
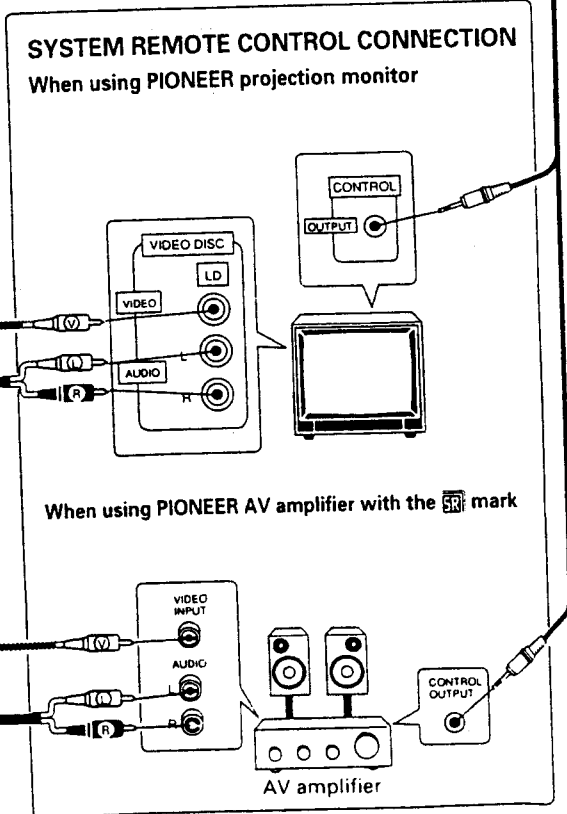
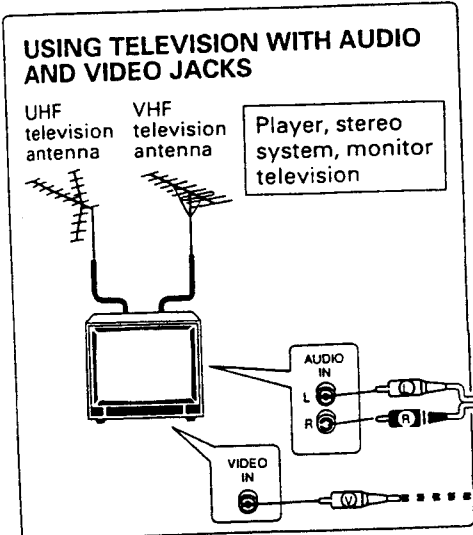
When the sound from a LaserDisc or Compact Disc is output from a television speaker it becomes monaural sound. (This is the same as stereo television).

NOTE:

- Stripe patterns may appear when a LaserDisc is played on a television. Move the antenna cable away from the power cord to avoid this.
- Be sure to turn off the power of this player when you watch a TV broadcast.

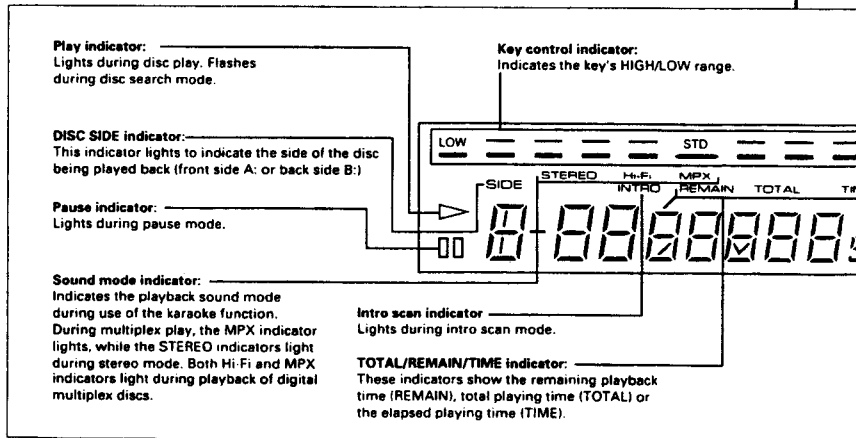
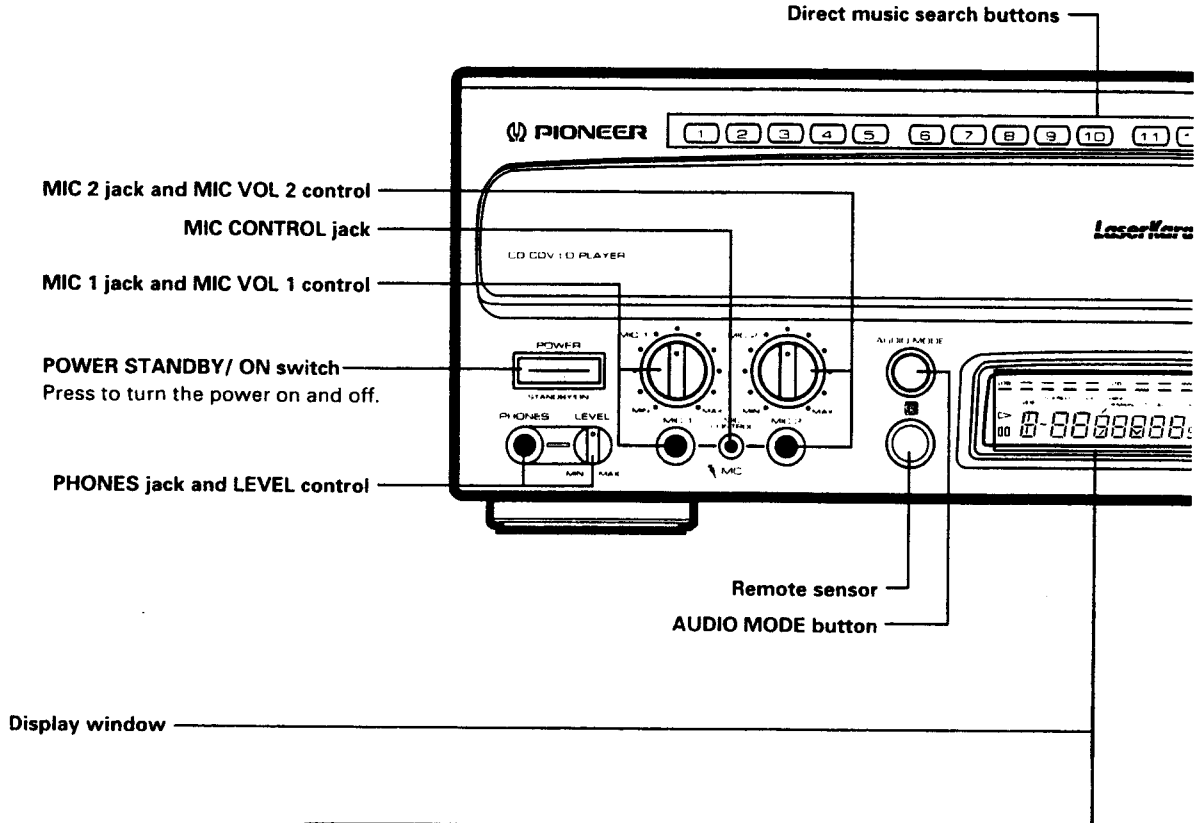


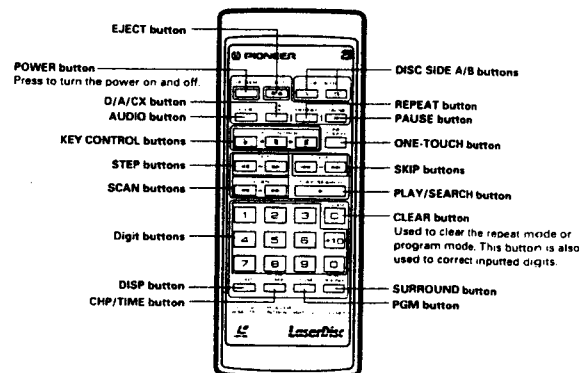
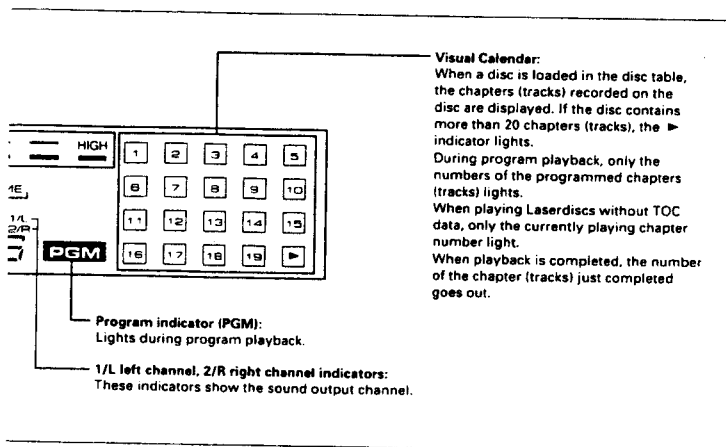
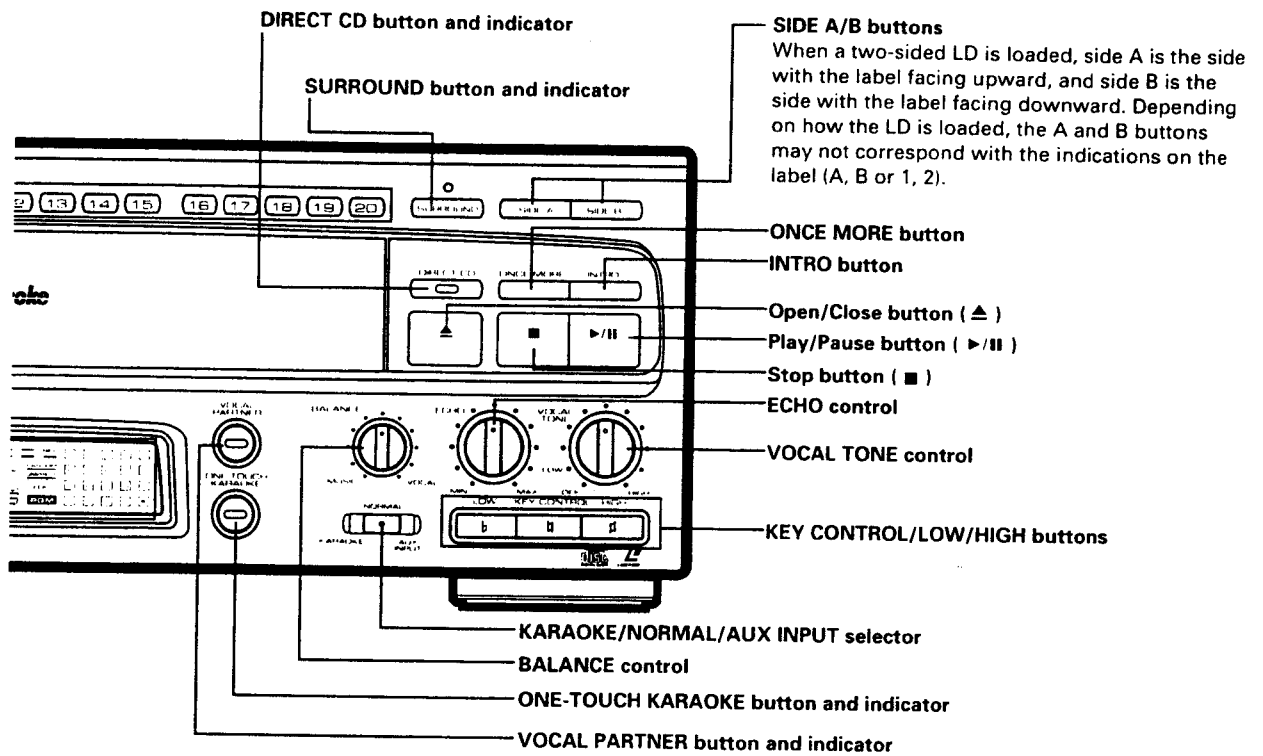
Plug the power cords into AC outlet.
 Plug the AC power cords of the player, stereo amplifier and TV set into an AC outlet. When the power cord of this unit is connected to an AC outlet, power is supplied to the unit's internal memory (such as the last memory) even when the POWER switch is off (STANDBY). Therefore, be sure to connect the power cord directly to a wall outlet. If the power cord is connected to an outlet such as a switched outlet on an amplifier, the various memory contents will be erased whenever the amplifier's power switch is turned off.



10. PANEL FACILITIES

- Most of the buttons on the front panel are used for Karaoke play.
- A detailed description is provided on the indicated page(s).





11. SPECIFICATIONS

1. General

System	LaserVision Disc system and Compact Disc digital audio system
Laser	Semiconductor laser wavelength 780 nm
Power requirements	
CLD-V840	AC 120 V, 60 Hz
CLD-2720K.....	AC 110- 127 V/220-240V (Switchable), 50/60 Hz
Power consumption	
CLD-V840	36 W
CLD-2720K	36 W
Weight	8.4 kg (18 lbs 8 oz)
Dimensions.....	420 (W) x 435 (D) x 135(H) mm
	16-9/16 (W) x 17-1/8 (D) x 5-5/16 in
Operating temperature.....	+5°C ~ +35°C (41 °F - 95°F)
Operating humidity	5% ~ 85% (There should be no condensation of moisture.)

2. Disc

LaserVision Discs

*Maximum playing times	
12-inch standard play disc	1 hour/both sides
12-inch extended play disc	2 hours/both sides
8-inch standard play disc	28 min/both sides
	14 min/one side
8-inch extended play disc.....	40 min/both sides
	20 min/one side
Spindle motor speed	
Standard play disc	1,800 rpm
Extended play disc.....	1,800 rpm (inner circumference)
	to 600 rpm (outer circumference)
	(For a 1 2-inch disc)

Compact Discs

DISC	Diameter: 5-inch, 3-inch, Thickness: 1.2 mm
Rotation direction (pickup side).....	Counterclockwise
Liner speed.....	1.2 ~1.4m/sec
*Maximum playing time.....	74 min. 5-inch discs
	20 min. 3-inch discs
	(For stereo playback)

Compact Discs with Video

Disc.....	Diameter: 5-inch, 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 (two pairs)

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

4. Audio characteristics (two pairs)

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

5. Other Terminals

Microphone input	2
MIC control input	miniature jack
Head phones output	1
Control input/output	Both miniature jacks
AUX.....	RCA Jacks
VHF adapter output (Video/Audio)	
.....	Both RCA jack with DC jack

6. Accessories

Remote control unit (CU-CLD047)	1
Size "AAA" (IEC R03) dry cell batteries	2
Video cord	1
Audio cord	1
Operating instructions.....	1
Warranty card.....	1

7. Functions

Remote control unit operations (CU-CLD047)

	Function	Standard play Disc (CAV)	Extended 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
	Eject	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	Chapter/Track repeat	YES	YES	YES	YES
	One-side repeat	YES	YES	YES	YES
	Two-side repeat	YES	YES	NO	NO
	Program repeat	YES	YES	YES	YES
Trick play	Still/Step	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	CX system ON/OFF	YES* ²	YES* ²	NO	NO
	AUTO DIGITAL/ANALOG switch	YES* ³	YES* ³	NO	NO
	Audio channel selection (Stereo, 1/L, 2/R)* ⁴	YES	YES	YES	YES
	Intro scan	YES* ⁵	YES* ⁵	YES	YES

*1 Only discs with TOC

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

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

*4 Only NORMAL mode.

*5 Only discs with chapter divisions.

NOTE:

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