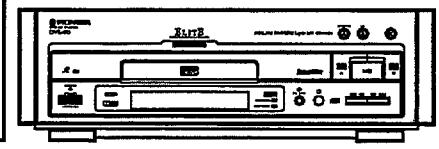
PIONEER®
The Art of Entertainment

Service Manual



ORDER NO.
RRV1709

DVD LD PLAYER

DVL-90

DVL-700

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Type	Model		Power requirement	Remarks
	DVL-90	DVL-700		
KU/CA	○	○	AC120V	

- **For the DVD section, refer to the service guide RRV1710 for DV-500. (The completion is scheduled for about Feb, 1997.)**

CONTENTS

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T - IZM DEC. 1996 Printed in Japan

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 safety 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 safety, 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 serving 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.

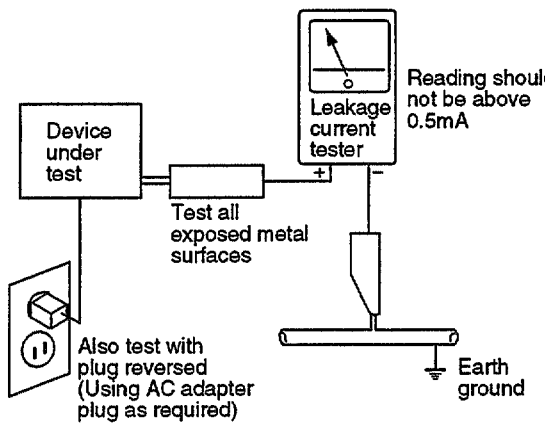
(FOR USA MODEL ONLY)

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 indentified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.
The use of a substitute replacement component which dose 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.

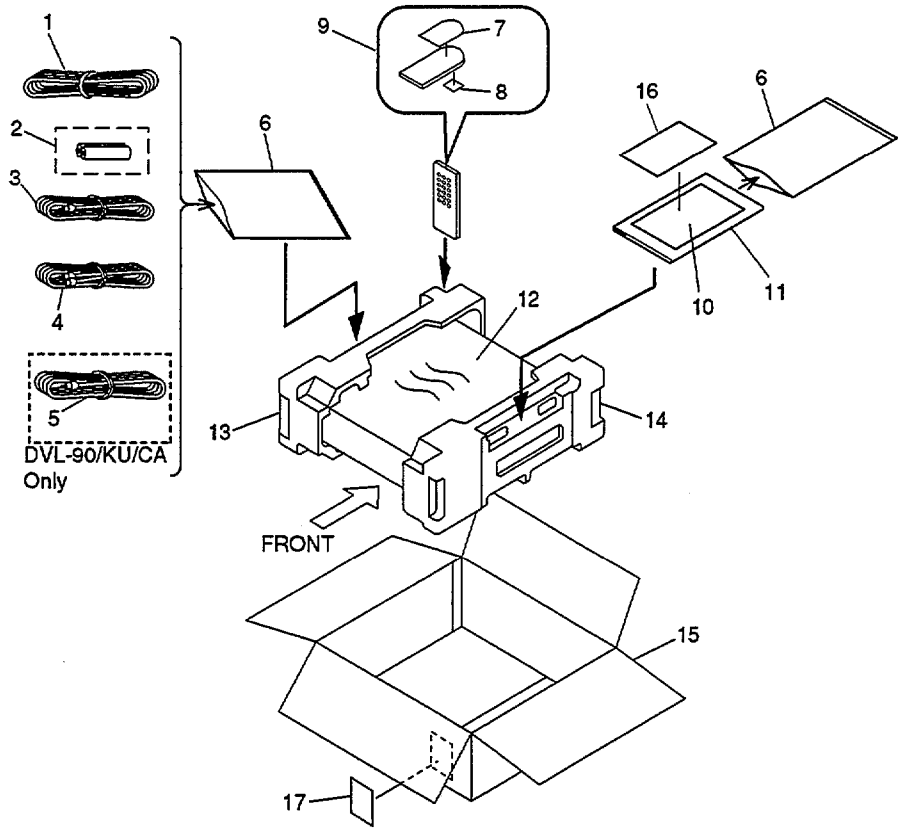
Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

"**CAUTION**-Laser radiation when open and interlock defeated. **DO NOT STARE INTO BEAM.**"

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 ⚠ 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.
• Screws adjacent to ▼ mark on the product are used for disassembly.

2.1 PACKING



(1) PARTS LIST

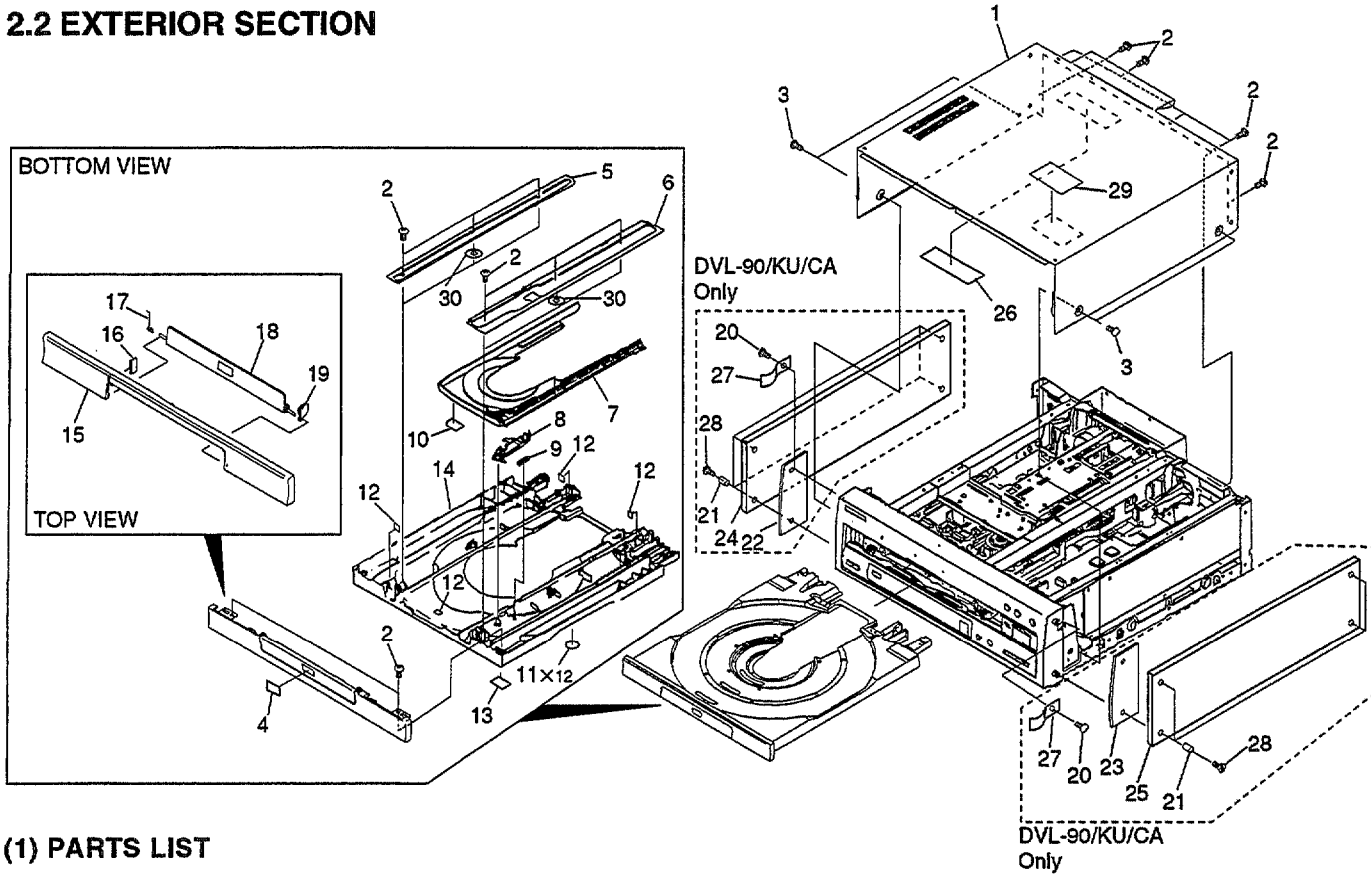
Mark	No.	Description	Part No.
⚠ NSP	1	AC POWER CORD	ADG1126
	2	DRY CELL BATTERY(R03,AAA)	VEM-022
	3	VIDEO CORD	See Contrast table (2)
	4	AUDIO CORD	See Contrast table (2)
	5	S VIDEO CABLE	See Contrast table (2)
	6	POLYETHYLENE BAG	Z21-038
	7	UPPER COVER	VNK3940
	8	BATTERY COVER	VNK3864
	9	REMOTE CONTROL UNIT (CU-DV001)	VXX2399
NSP	10	WARRANTY CARD	See Contrast table (2)
	11	OPERATING INSTRUCTIONS	See Contrast table (2)
	12	MIRROR MAT	VHL1018
	13	PAD L	VHA1179
	14	PAD R	VHA1180
	15	PACKING CASE	See Contrast table (2)
	16	CAUTION	VRM1063
NSP	17	LABEL	VRW1629

(2) CONTRAST TABLE

DVL-90/KU/CA and DVL-700/KU/CA have the same construction except for the following :

Mark	No.	Symbol & Description	Part No.		Remarks
			DVL-90/KU/CA	DVL-700/KU/CA	
	3	VIDEO CORD	VDE1024	VDE1036	
	4	AUDIO CORD	VDE1023	VDE1033	
	5	S VIDEO CABLE	VDE1013	Not used	
NSP	10	WARRANTY CARD	ARY1026	ARY1044	
	11	OPERATING INSTRUCTIONS (ENGLISH)	VRB1177	VRB1178	
	15	PACKING CASE	VHG1642	VHG1643	

2.2 EXTERIOR SECTION



(1) PARTS LIST

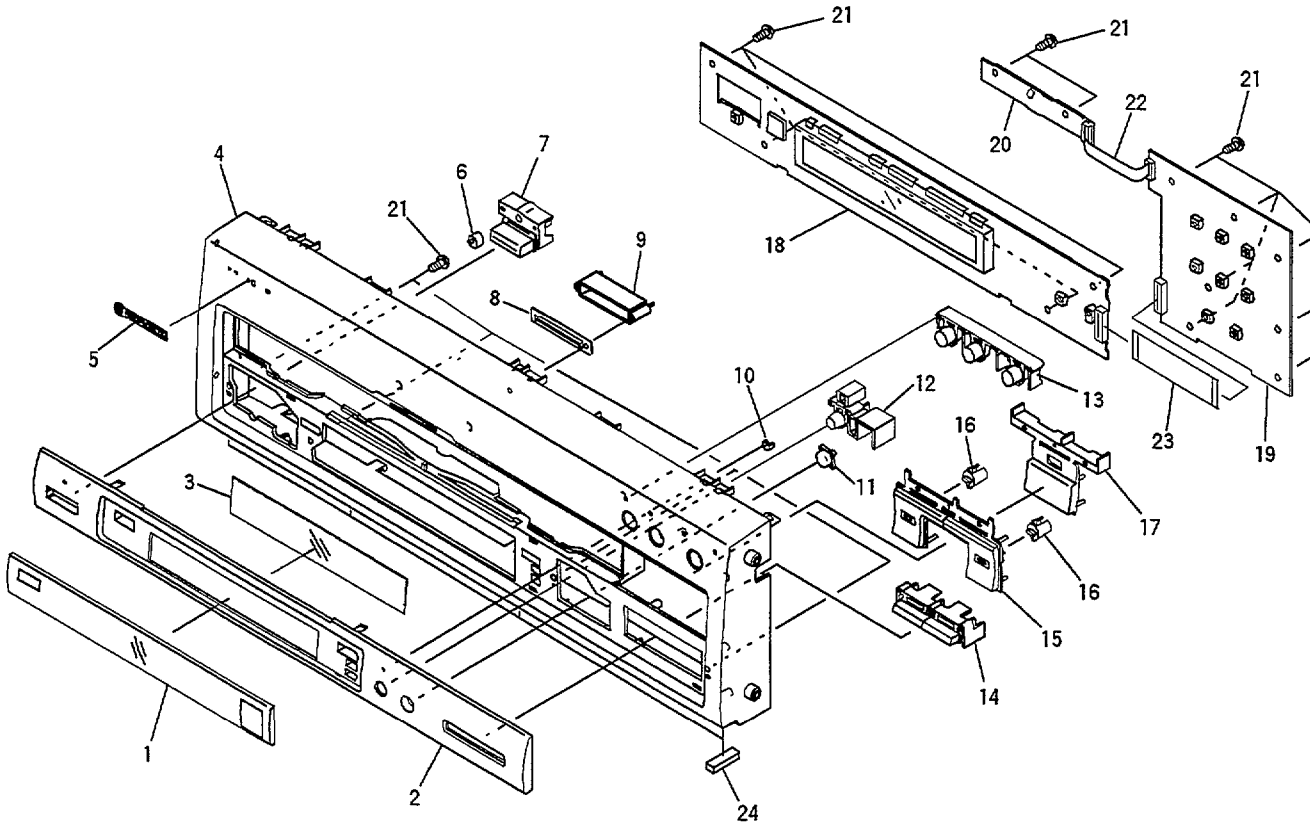
Mark	No.	Description	Part No.
	1	BONNET CASE S	See Contrast table (2)
	2	SCREW	BBZ30P080FMC
	3	SCREW	BCZ40P060FZK
	4	DVD PLATE	VAM1066
	5	GUIDE PLATE (R)	VNE1939
	6	GUIDE PLATE (L)	VNE1938
	7	CD TRAY	See Contrast table (2)
	8	LOCK PLATE	VNL1703
	9	LOCK PLATE SPRING	VBH1188
	10	TRAY LABEL	VRW1628
	11	CUSHION	VEC1682
	12	DAMP CUSHION	VEC1683
NSP	13	CARRY LABEL	VRW1289
	14	LD TRAY ASSY	See Contrast table (2)
	15	TRAY PANEL	See Contrast table (2)
	16	DOOR HOLDER	VEC1904
	17	DOOR SPRING	VBH1248
	18	DVD DOOR ASSY	VXA2305
	19	DAMPER ASSY	VXA1999
	20	SCREW	See Contrast table (2)
	21	WOOD COLLER	See Contrast table (2)
	22	DECORATION PLATE L	See Contrast table (2)
	23	DECORATION PLATE R	See Contrast table (2)
	24	SIDE WOOD L	See Contrast table (2)
	25	SIDE WOOD R	See Contrast table (2)
	26	65 LABEL	ORW1069
	27	EARTH PLATE	See Contrast table (2)
	28	SCREW	See Contrast table (2)
	29	LABEL	VRW1648
	30	WASHER	VEC1254

(2) CONTRAST TABLE

DVL-90/KU/CA and DVL-700/KU/CA have the same construction except for the following :

Mark	No.	Symbol & Description	Part No.		Remarks
			DVL-90/KU/CA	DVL-700/KU/CA	
	1	BONNET CASE S	VXX2484	VXX2485	
	7	CD TRAY	VNK3923	VNK3922	
	14	LD TRAY ASSY	VXA2318	VXA2173	
	15	TRAY PANEL	VNK3803	VNK3990	
	20	SCREW	BBZ30P080FMC	Not used	
	21	WOOD COLLER	PNW1238	Not used	
	22	DECORATION PLATE L	VAH1270	Not used	
	23	DECORATION PLATE R	VAH1269	Not used	
	24	SIDE WOOD L	VAP1028	Not used	
	25	SIDE WOOD R	VAP1029	Not used	
	27	EARTH PLATE	VNE1518	Not used	
	28	SCREW	IBZ40P200FZK	Not used	

2.3 FRONT PANEL SECTION



(1) PARTS LIST

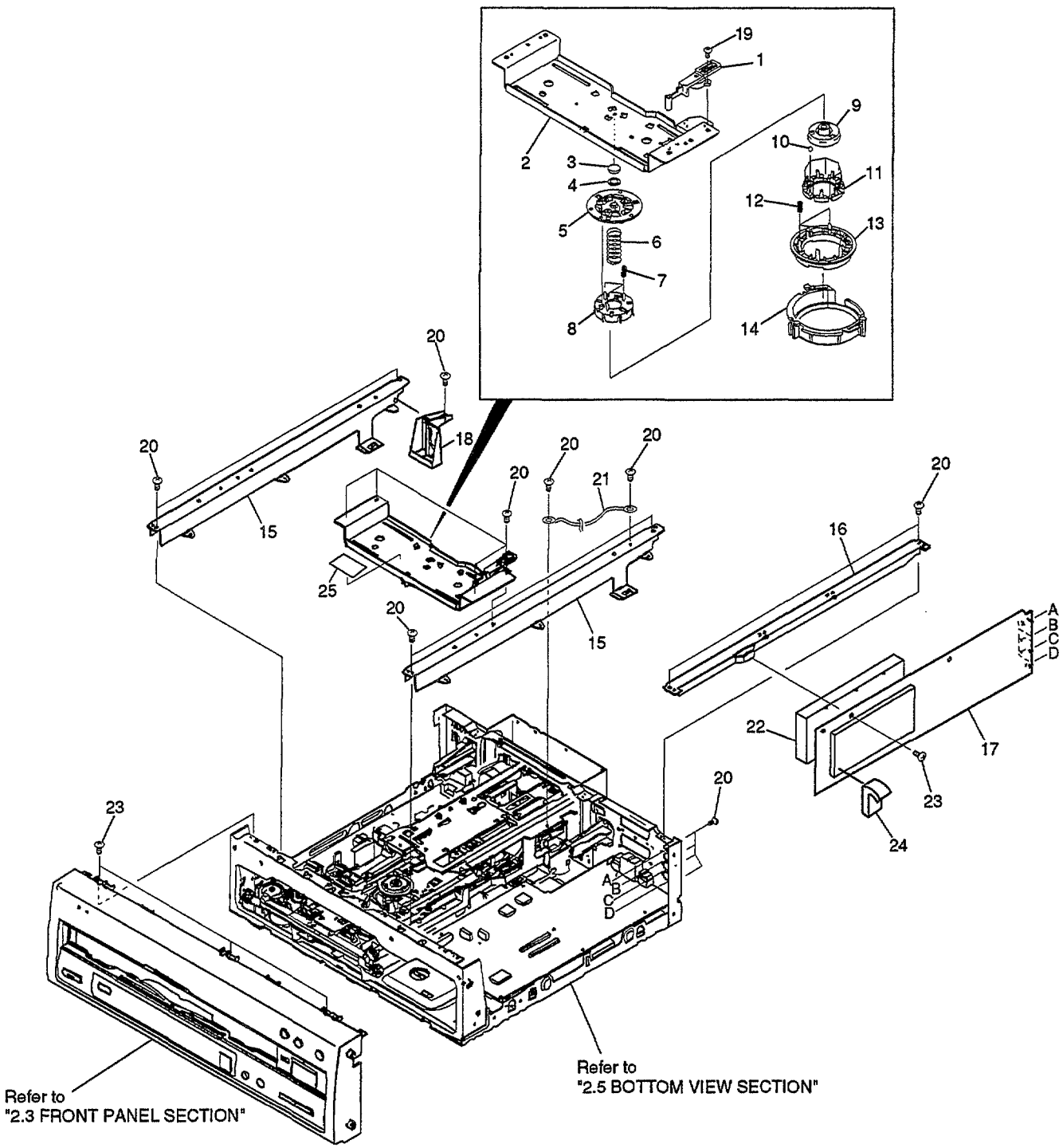
Mark	No.	Description	Part No.
	1	FL LENS	VNK3599
	2	SUB PANEL	See Contrast table (2)
	3	FL FILTER	VEC1890
	4	FRONT PANEL	See Contrast table (2)
	5	NAME PLATE	See Contrast table (2)
	6	LED LENS	PNW2019
	7	POWER BUTTON	VNK3689
	8	ILLUMINATION LENS	VNK3652
	9	LED HOLDER	VNK4001
	10	LED LENS 1	RNK2066
	11	IR WINDOW	VNK2246
	12	DISPLAY BUTTON	VNK3694
	13	OPEN BUTTON	VNK3690
	14	SKIP BUTTON	See Contrast table (2)
	15	SIDE BUTTON	See Contrast table (2)
	16	SIDE LENS	VNK3602
	17	PLAY BUTTON	See Contrast table (2)
	18	FLPB ASSY	See Contrast table (2)
	19	KEYB ASSY	VWG1736
	20	LEDB ASSY	VWG1832
	21	SCREW	BBZ30P080FMC
	22	FLEXIBLE CABLE (5P)	VDA1590
	23	FLEXIBLE CABLE (19P)	VDA1603
NSP	24	SPACER A	VEC1933

(2) CONTRAST TABLE

DVL-90/KU/CA and DVL-700/KU/CA have the same construction except for the following :

Mark	No.	Symbol & Description	Part No.		Remarks
			DVL-90/KU/CA	DVL-700/KU/CA	
	2	SUB PANEL	VNK3685	VNK3805	
	4	FRONT PANEL	VNK4028	VNK4029	
	5	NAME PLATE	VAM1032	PAM1704	
	14	SKIP BUTTON	VNK3807	VNK3693	
	15	SIDE BUTTON	VNK3808	VNK3925	
	17	PLAY BUTTON	VNK3806	VNK3924	
	18	FLPB ASSY	VWG1801	VWG1800	

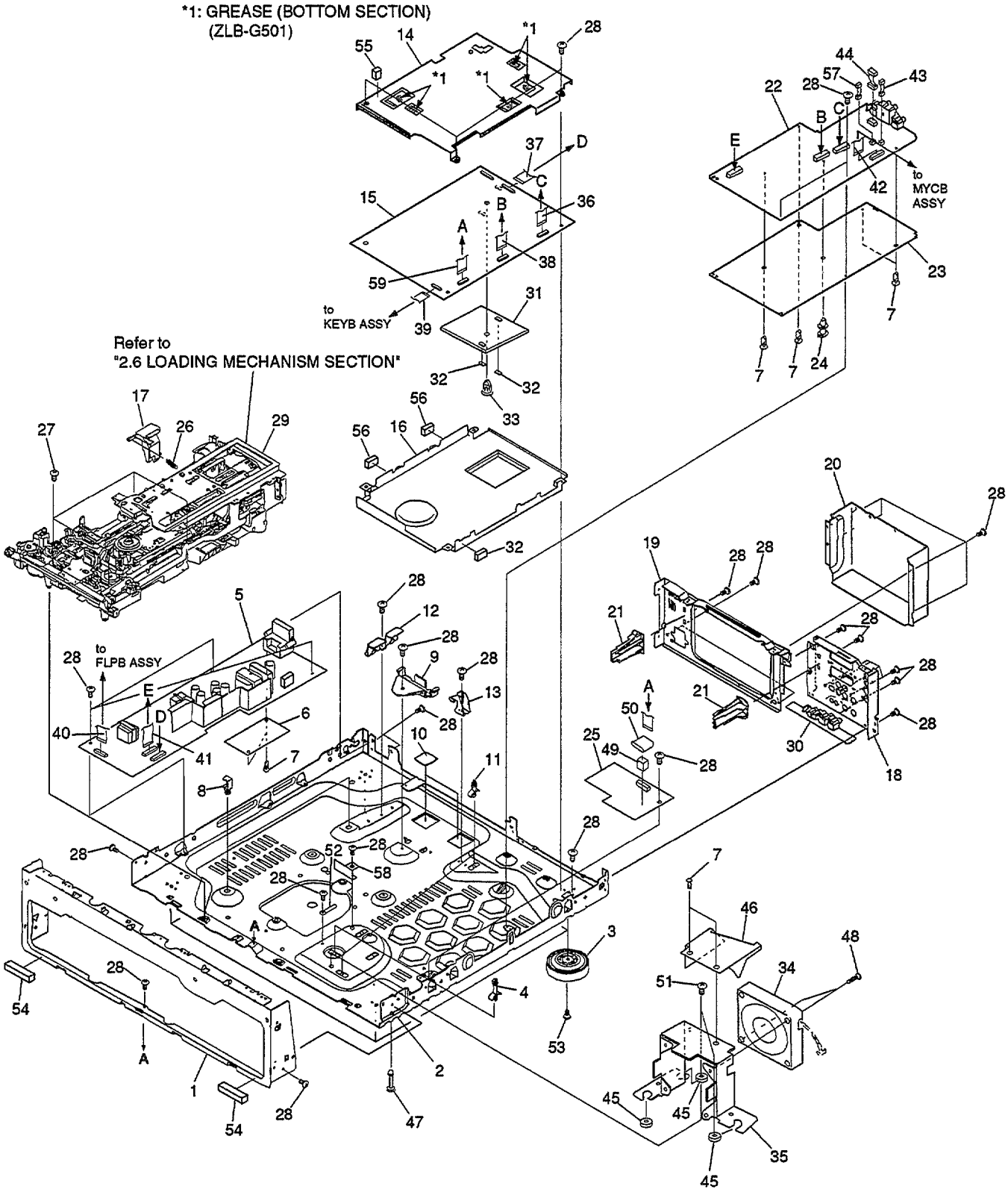
2.4 TOP VIEW SECTION



Parts List

Mark	No.	Description	Part No.
	1	D LEVER ASSY	VXA2205
	2	CENTER PLATE	VNE2051
	3	RUBBER SHEET	VEB1114
	4	THRUST HOLDER	VNL1663
	5	CLAMPER HEAD	VNL1603
	6	LD SPRING	VBH1240
	7	COVER SPRING	VBH1234
	8	BALL COVER	VNL1602
	9	LD HAB	VNT1047
	10	STEEL BALL	VNX1013
	11	BALL GUIDE	VNL1616
	12	CLAMP SPRING	VBH1239
	13	CLAMPER	VNL1604
	14	CLAMPER HOLDER	VNL1708
NSP	15	CENTER ANGLE	VNE2048
NSP	16	PCB HOLDER	VNE2049
	17	MYCB ASSY	VWV1519
	18	SHIPPING CAM	VNL1729
	19	SCREW	PBZ20P060FMC
	20	SCREW	BBZ30P080FMC
NSP	21	WIRE	DE007VF0
	22	SHIELD CASE B	VNF1099
	23	SCREW	IBZ30P080FMC
	24	CUSHION	VEC1925
	25	FUSE CAUTION LABEL	VRW1642

2.5 BOTTOM VIEW SECTION



(1) PARTS LIST

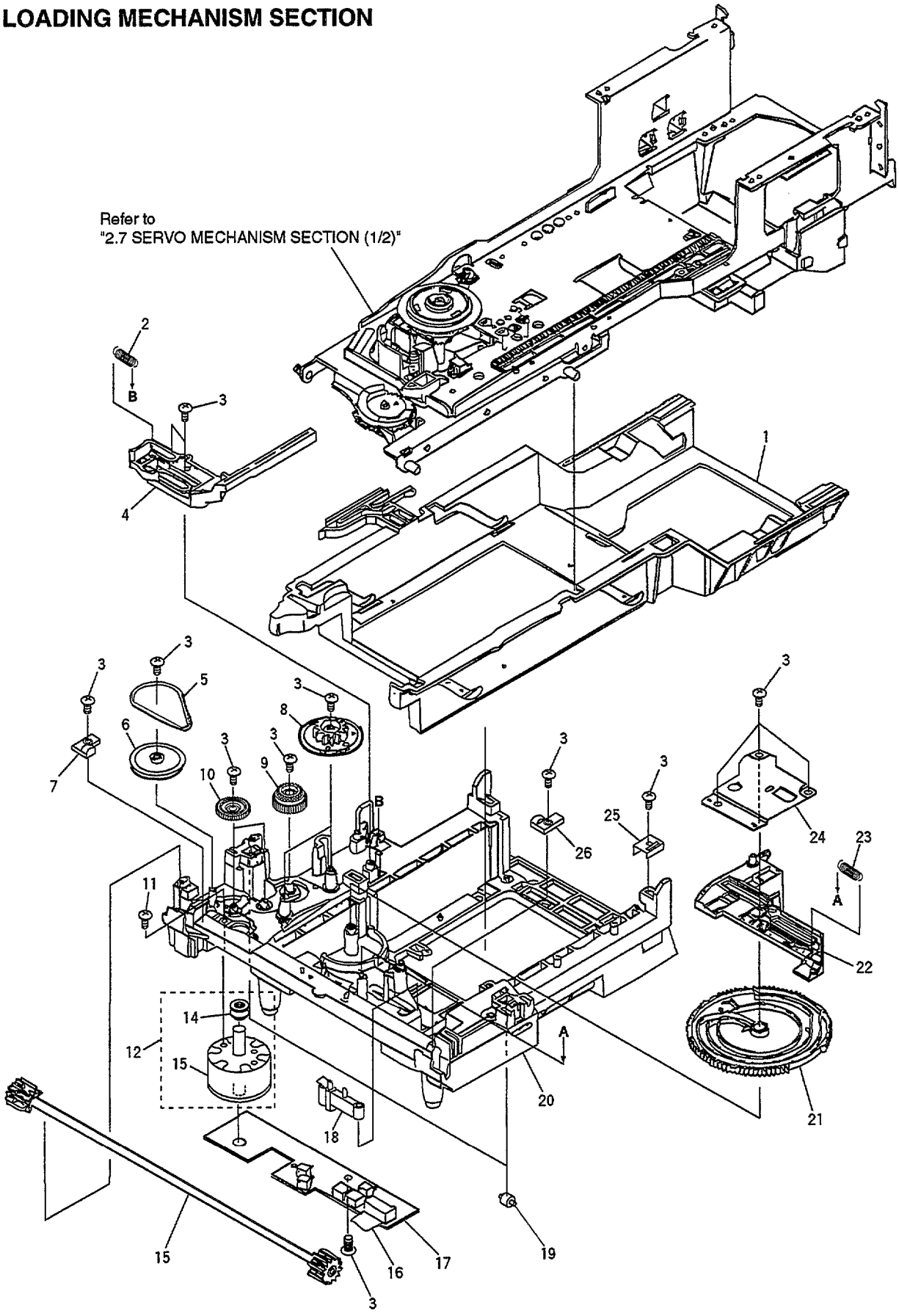
Mark	No.	Description	Part No.
NSP	1	PANEL HOLDER	VNA1686
NSP	2	CHASSIS	See Contrast table (2)
	3	INSULATOR	See Contrast table (2)
NSP	4	SPACER 40	PNW2488
⚠	5	POWER SUPPLY ASSY	VWR1273
	6	SHEET P	VEC1874
	7	RIVET	RBM-003
	8	PCB HINGE	VEC1174
NSP	9	STOPPER	VNE2088
NSP	10	RUBBER SPACER	VEB1252
NSP	11	PCB SPACER	AEC1188
NSP	12	CAM HOLDER L	VNE2089
NSP	13	CAM HOLDER R	VNE2090
	14	SHIELD CASE (UPPER)	VNF1093
	15	DVD MAIN ASSY	VWS1243
	16	SHIELD CASE (LOWER)	VNF1094
	17	SHIPPING LEVER	VNL1728
	18	REAR PANEL L	See Contrast table (2)
	19	REAR PANEL R	See Contrast table (2)
	20	REAR COVER	See Contrast table (2)
	21	TRAY STOPPER	VNL1707
	22	CLD MAIN ASSY	VWS1285
	23	SHEET C	VEC1875
NSP	24	PCB SPACER	AEC1372
	25	MCRB ASSY	VWV1544
	26	SHIPPING SPRING	VBH1275
	27	SCREW	BBZ30P100FMC
	28	SCREW	BBZ30P080FMC
NSP	29	MECHANISM ASSY	VWT1132
	30	JCKB ASSY	VWV1532
	31	FTSB ASSY	VWS1291
NSP	32	SPACER A	VEC1933
	33	PCB HOLDER	AEC1534
	34	DC FAN MOTOR	VXM1070
	35	FAN HOLDER	VNE2108
	36	FLEXIBLE CABLE (26P)	VDA1587
	37	FLEXIBLE CABLE (24P)	VDA1588
	38	FLEXIBLE CABLE (30P)	VDA1586
	39	FLEXIBLE CABLE (13P)	VDA1589
	40	FLEXIBLE CABLE (5P)	VDA1572
	41	FLEXIBLE CABLE (15P)	VDA1582
	42	FLEXIBLE CABLE (10P)	VDA1584
	43	HOUSING ASSY (2P)	VKP2138
	44	HOUSING ASSY (8P)	VKP2139
	45	RUBBER BUSH	VEB1164
NSP	46	FAN COVER	VEC1921
NSP	47	LOCKING CARD SPACER	VEC1596
	48	SCREW	IBZ30P150FMC
NSP	49	SPACER B	VEC1934
⚠	50	FERRITE CORE	VTH1038
	51	SCREW	VBA1029
NSP	52	CORD HOLDER	ZCB-069Z
	53	SCREW	See Contrast table (2)
NSP	54	CUSHION	VEC1923
NSP	55	SPACER C	VEC1935
	56	CUSHION	VEC1924
	57	HOUSING ASSY (2P)	VKP2142
NSP	58	PCB ANGLE	VNE2110
	59	FLEXIBLE CABLE (26P)	VDA1621

(2) CONTRAST TABLE

DVL-90/KU/CA and DVL-700/KU/CA have the same construction except for the following :

Mark	No.	Symbol & Description	Part No.		Remarks
			DVL-90/KU/CA	DVL-700/KU/CA	
NSP	2	CHASSIS	VNA1852	VNA1851	
	3	INSULATOR	VXA1450	PNW1912	
	18	REAR PANEL L	VNA1718	VNA1807	
	19	REAR PANEL R	VNA1719	VNA1684	
	20	REAR COVER	VNA1720	VNA1810	
	53	SCREW	IBZ30P150FMC	BBZ30P080FMC	

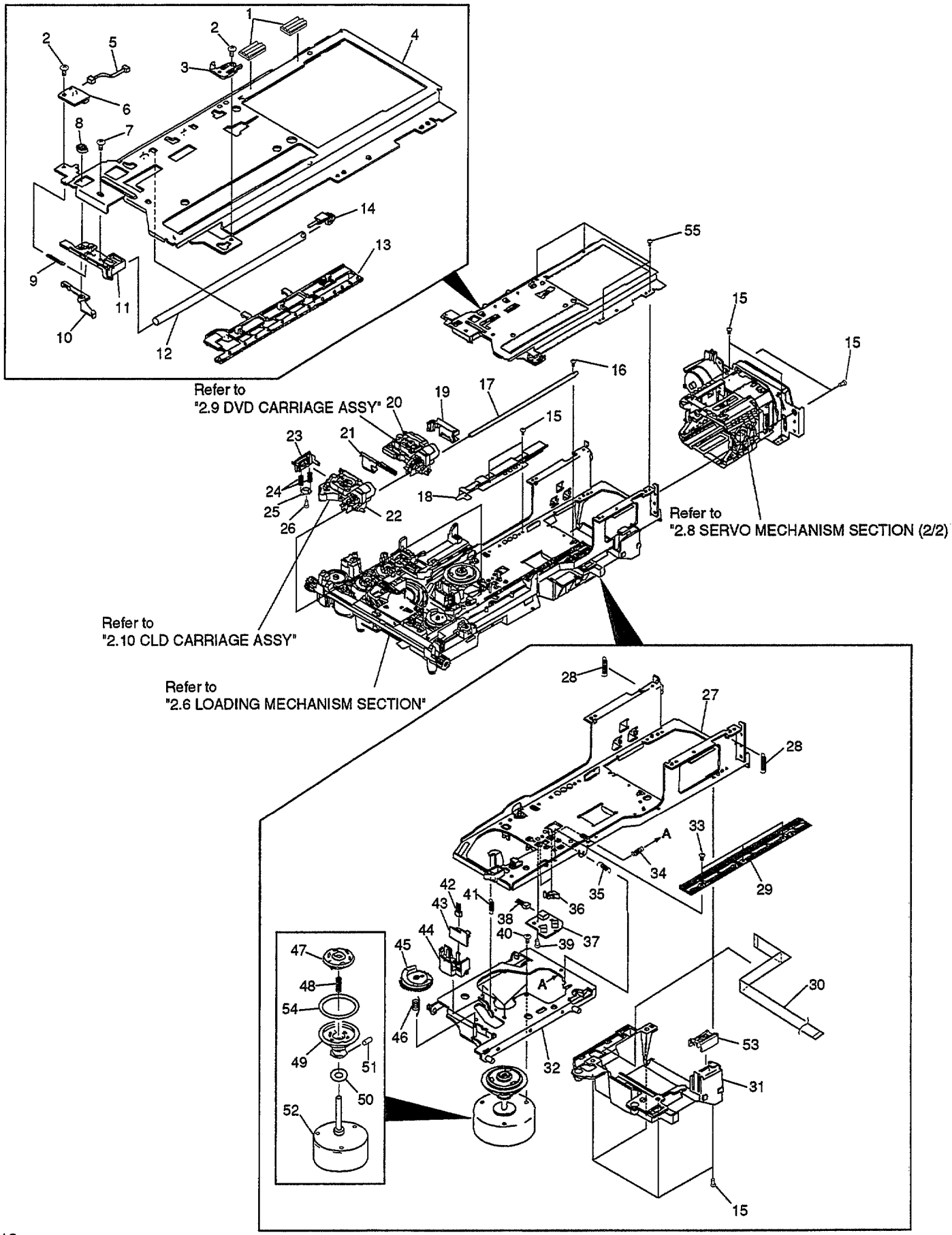
2.6 LOADING MECHANISM SECTION



Parts List

Mark	No.	Description	Part No.
	1	CLAMP CAM B	VNL1765
	2	CDP SPRING	VBH1191
	3	SCREW	Z39-019
	4	CD PLATE	VNL1685
	5	RUBBER BELT	VEB1184
	6	GEAR PULLEY	VNL1662
	7	SLIDER(L)	VNL1665
	8	TWIN GEAR	VNL1626
	9	CENTER GEAR	VNL1660
	10	DOUBLE GEAR	VNL1661
	11	SCREW	BMZ26P040FMC
	12	LOADING MOTOR ASSY	VXX2045
	13	CARRIAGE MOTOR	VXM1033
NSP	14	MOTOR PULLEY	VNL1630
	15	SYNCHRO GEAR ASSY	VXA2105
	16	FLEXIBLE CABLE (10P)	VDA1579
NSP	17	LMSB ASSY	VWG1554
	18	MB SWITCH LEVER	VNL1664
	19	ROLLER	VNL1042
	20	MECHANISM BASE	VNK3239
	21	CAM GEAR	VNL1625
	22	CAM PLATE	VNL1631
	23	CAS SPRING	VBH1190
	24	SHAFT HOLDER	VNE1942
	25	CAM HOLDER	VNE2032
	26	SLIDER(R)	VNL1666

2.7 SERVO MECHANISM SECTION (1/2)

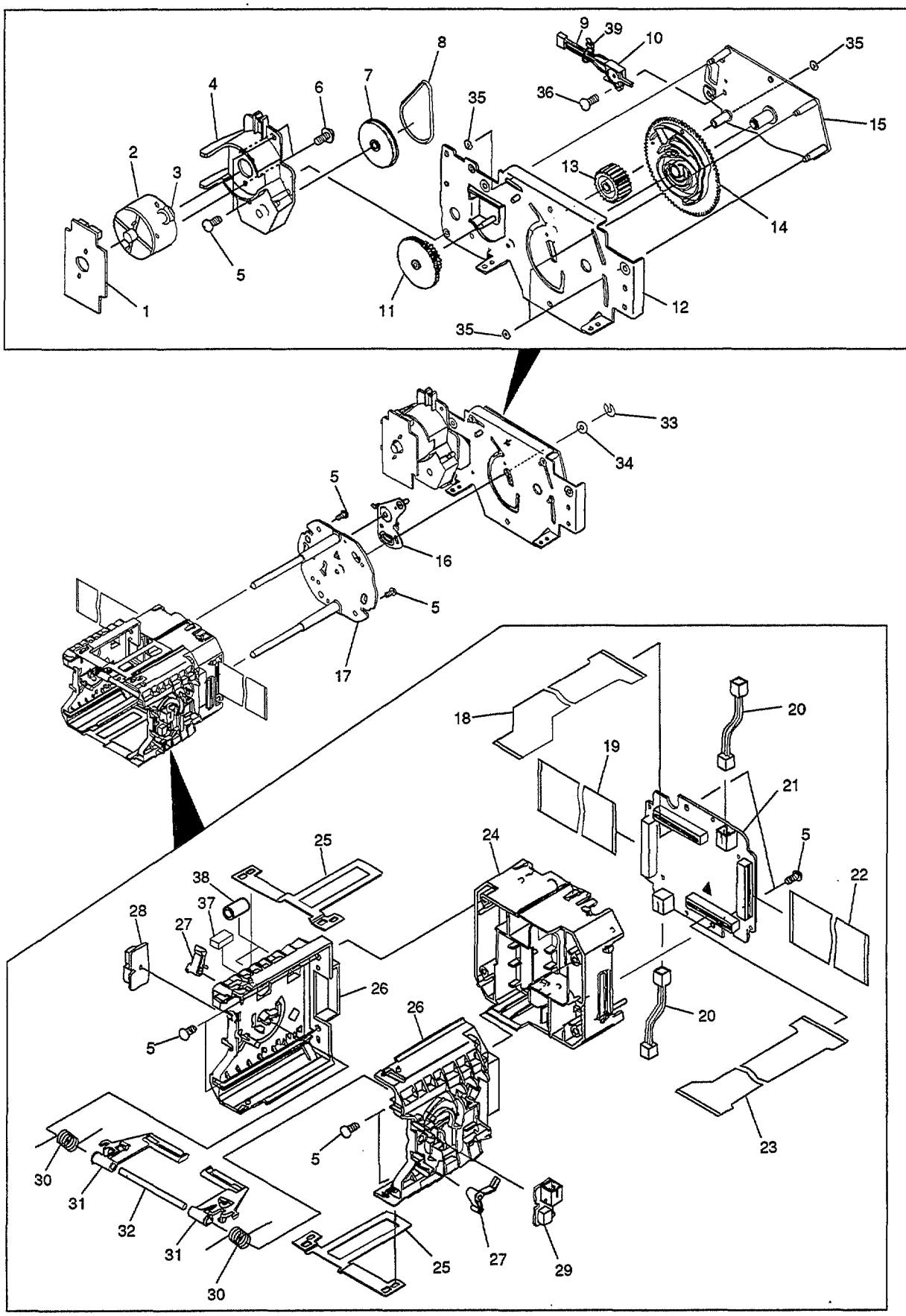


Parts List

Mark	No.	Description	Part No.
	1	MINI CLAMP	VEC1905
	2	SCREW	BBZ26P060FMC
	3	A HORN	VNL1689
	4	TILT BASE(UPPER)	VNE2062
	5	HOUSING ASSY (2P)	VKP2136
NSP	6	BISB ASSY	VWG1796
	7	SCREW	BPZ20P040FZK
	8	B CAM	VNL1725
	9	SUPPORT SPRING	VBH1273
	10	SW LEVER B	VNL1723
	11	SHAFT HOLDER	VNL1724
	12	CA SHAFT(UPPER)	VLL1486
	13	CA RACK(UPPER)	VNL1722
	14	SHAFT STAY	VNL1726
	15	SCREW	BBZ30P080FMC
	16	SCREW	PPZ20P060FMC
	17	CA SHAFT(LOWER)	VLL1485
	18	TAN GUIDE	VNE2061
	19	FPC HOLDER A	VNL1751
	20	DVD CARRIAGE ASSY	VWT1139
	21	FPC HOLDER B	VNL1752
	22	CLD CARRIAGE ASSY	VWT1141
	23	CA GUIDE	VNL1668
	24	TAN SPRING (B)	VBH1264
	25	TAN LEVER(B)	VNL1669

Mark	No.	Description	Part No.
	26	SCREW	PMZ20P060FZK
	27	TILT BASE(UNDER)	VNL1711
	28	TILT REAR SPRING	VBH1274
	29	CA RACK (LOWER)	VNL1712
	30	FLEXIBLE CABLE (6P)	VDA1578
	31	FLEXIBLE CABLE COVER	VNL1727
	32	MOTOR BASE	VNE1941
	33	•••••	
	34	TILT SPRING	VBH1263
	35	THRUST SPRING	VBH1245
	36	CA SWITCH LEVER	VNL1644
NSP	37	PKSB ASSY	VWG1555
	38	HOUSING ASSY (3P)	VKP2045
	39	SCREW	IBZ26P120FMC
	40	SCREW	PMA30P050FMC
	41	TILT SPRING B	VBH1287
	42	HOUSING ASSY (3P)	VKP2046
NSP	43	FG ASSY	VWG1556
	44	FG BASE	VNL1781
	45	TILT CAM	VNL1643
	46	TILT CAM SPRING	VBH1243
	47	PRC HUB	VNL1684
	48	CENTERING SPRING	VBH1269
	49	R-TURN TABLE ASSY	VXA2284
NSP	50	OIL STOPPER	VBF1002
	51	SCREW	ZMD30H030FBT
NSP	52	SPINDLE MOTOR	VXM1057
	53	COVER S	VNL1780
NSP	54	RUBBER SHEET	VEB1272
	55	SCREW	BBZ30P050FZK

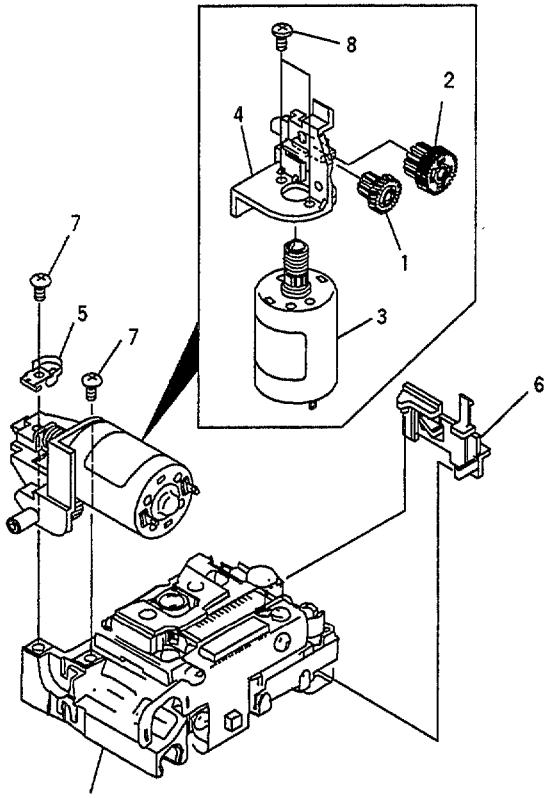
2.8 SERVO MECHANISM SECTION (2/2)



Parts List

Mark	No.	Description	Part No.
NSP	1	TNMB ASSY	VWG1793
	2	CARRIAGE MOTOR	VXM1033
NSP	3	MOTOR PULLEY	VNL1630
	4	MOTOR HOLDER	VNL1717
	5	SCREW	BBZ30P080FMC
	6	SCREW	BMZ26P040FMC
	7	GEAR PULLEY	VNL1662
	8	RUBBER BELT	VEB1184
	9	HOUSING ASSY (3P)	VKP2137
	10	LEVER SWITCH	DSK1003
	11	MIDDLE GEAR	VNL1720
	12	TURN PANEL ASSY	VXA2337
	13	GEAR S	VNL1719
	14	TURN CAM GEAR	VNL1718
	15	SWING PLATE ASSY	VXA2289
	16	TURN LEVER ASSY	VXA2292
	17	TURN PLATE ASSY	VXA2290
	18	PU FPC-B	VNP1583
	19	FLEXIBLE CABLE (26P)	VDA1580
	20	CONNECTOR ASSY	PG02KK-E10
NSP	21	CNNB ASSY	VWG1792
	22	FLEXIBLE CABLE (27P)	VDA1581
	23	PU FPC-A	VNP1582
	24	PCB HOLDER	VNL1716
	25	FC GUIDE	VNE2059
	26	PU HOLDER	VNL1715
	27	SW LEVER C	VNL1714
NSP	28	LCSB ASSY	VWG1795
NSP	29	DCSB ASSY	VWG1794
	30	FC ARM SPRING	VBH1272
	31	FC ARM	VNL1713
	32	TILT SHAFT	VLL1175
	33	E RING	YE30FUC
	34	WASHER	WA42D080D050
	35	WASHER	WT26D070D050
	36	SCREW	PMA26P060FMC
	37	CUSHION	VEC1917
	38	TUBE	VEB1273
	39	BINDER	Z09-056

2.9 DVD CARRIAGE ASSY

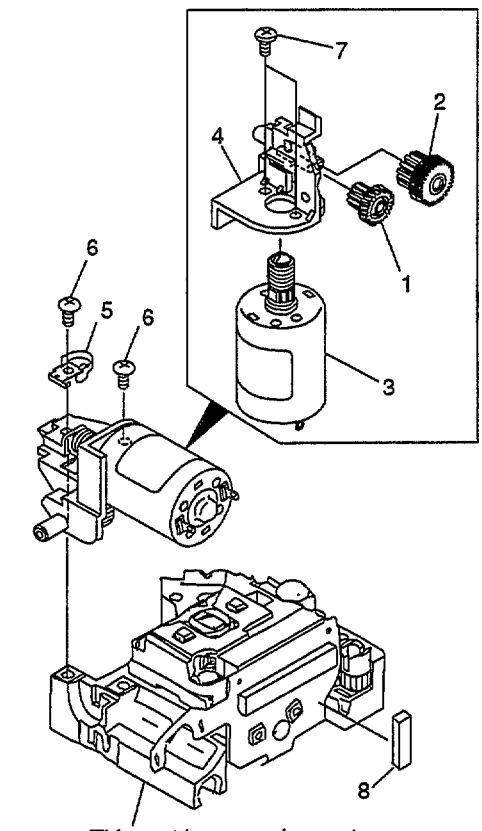


This part is no service part.

Parts List

Mark	No.	Description	Part No.
	1	CA GEAR(A)	VNL1782
	2	CA GEAR B ASSY	VXX2471
	3	SLIDER MOTOR ASSY	VXX2472
	4	MOTOR HOLDER	VNL1779
	5	THRUST HOLDER	VBK1058
	6	CA GUIDE B	VNL1721
	7	SCREW	BBZ20P050FZK
	8	SCREW	PMZ20P030FMC

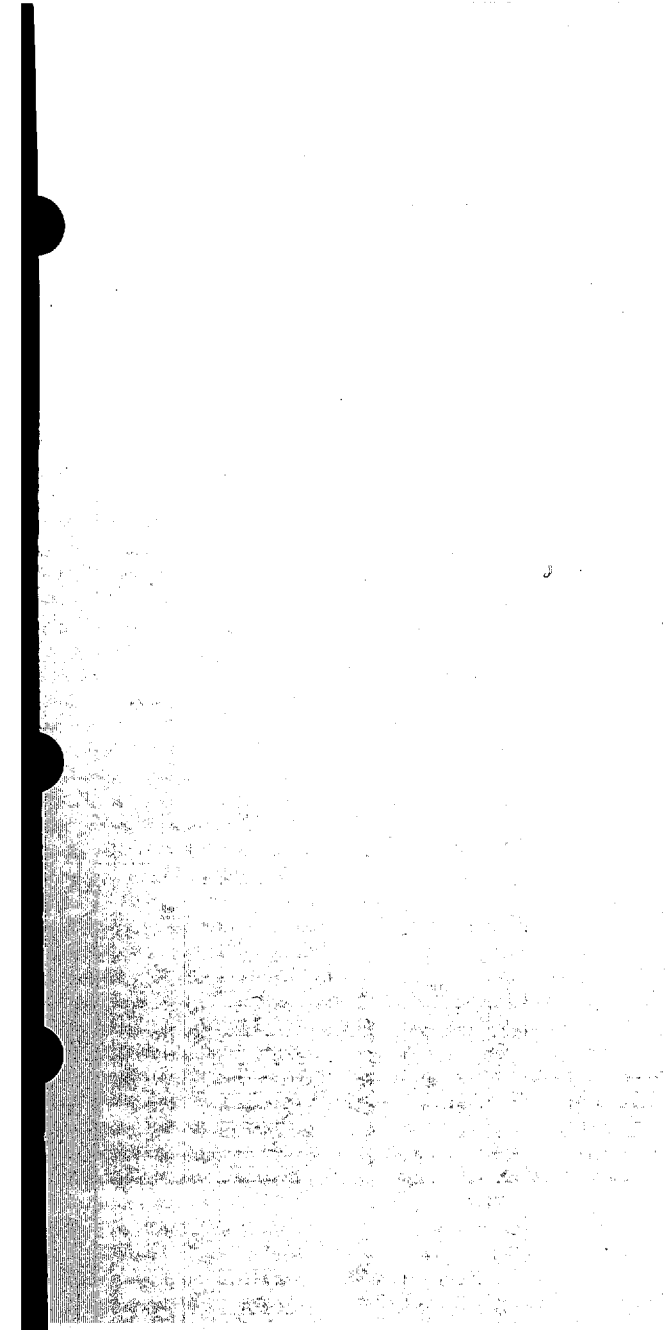
2.10 CLD CARRIAGE ASSY



This part is no service part.

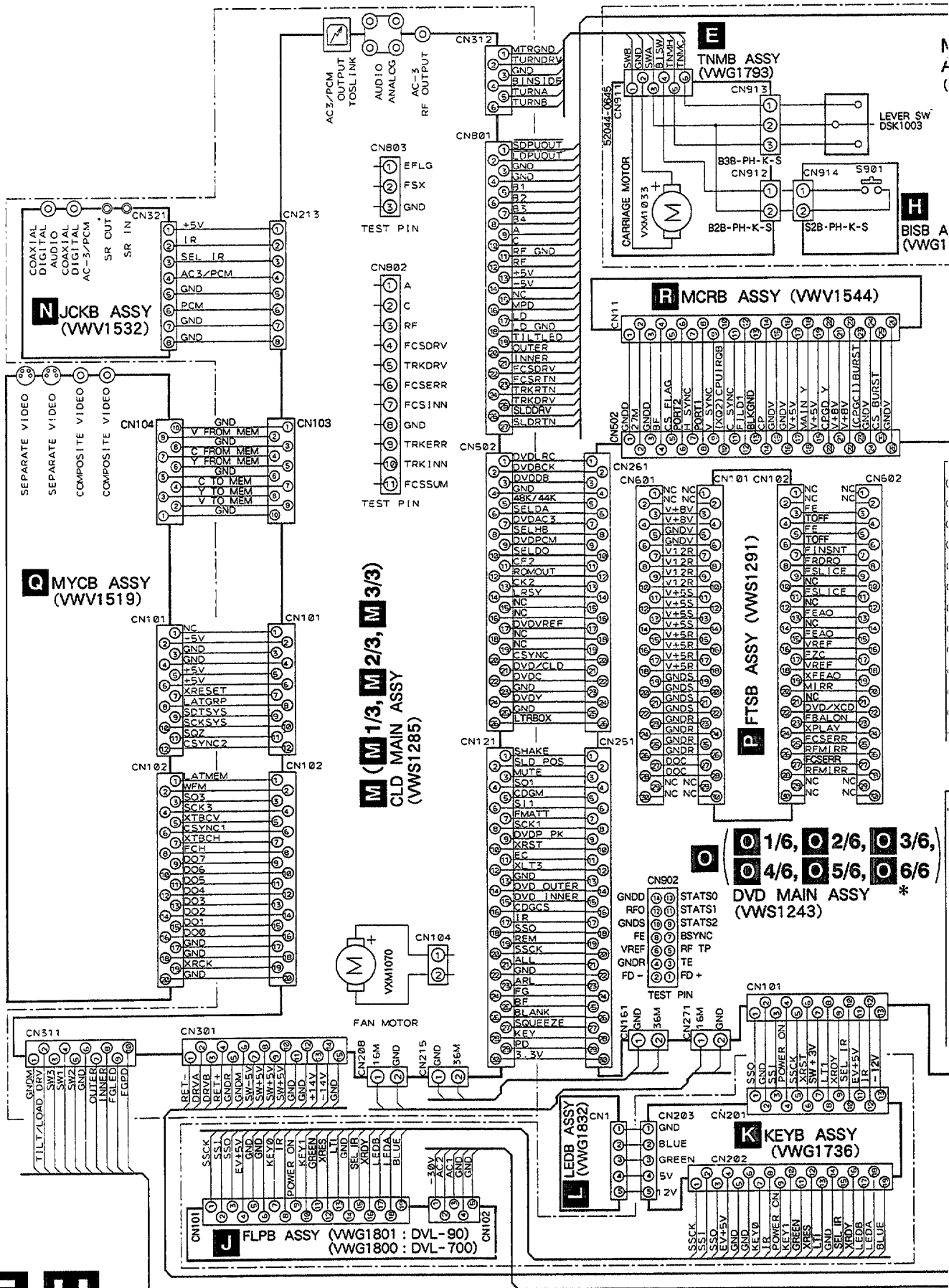
Parts List

Mark	No.	Description	Part No.
	1	CA GEAR(A)	VNL1782
	2	CA GEAR(B)	VNL1639
	3	SLIDER MOTOR ASSY	VXX2472
	4	MOTOR HOLDER	VNL1779
	5	THRUST HOLDER	VBK1058
	6	SCREW	PBZ20P050FMC
	7	SCREW	PMZ20P030FMC
	8	CUSHION B	VEC1931

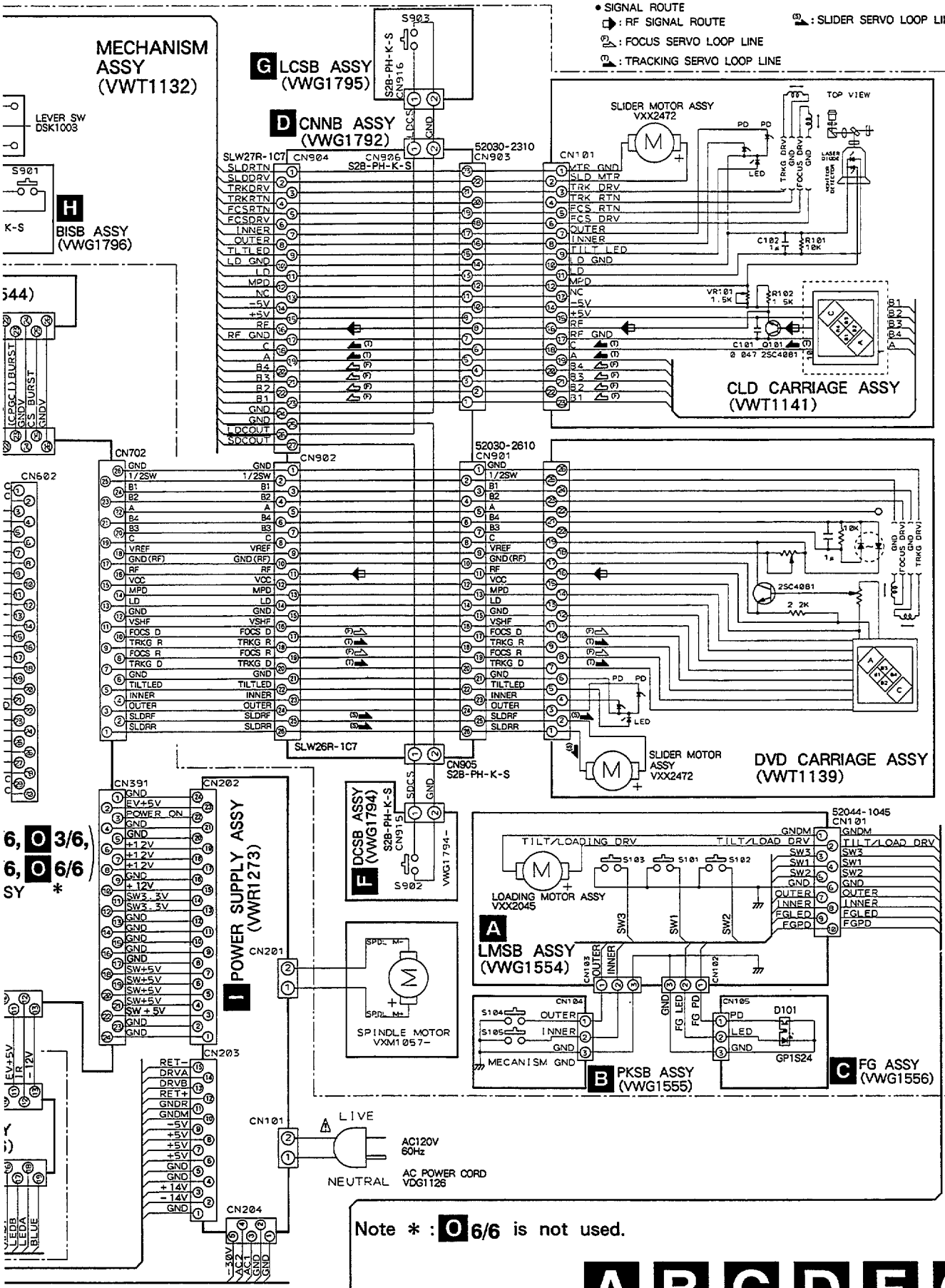


3. SCHEMATIC DIAGRAM

3.1 OVERALL WIRING DIAGRAM, LMSB, PKSB, FG, CNNB, TNMB, DCSB, LCSB AND BISB ASSEMBLIES



Note : When ordering service parts, be sure to refer to
"EXPLODED VIEWS AND PARTS LIST" or "PCB PARTS LIST"

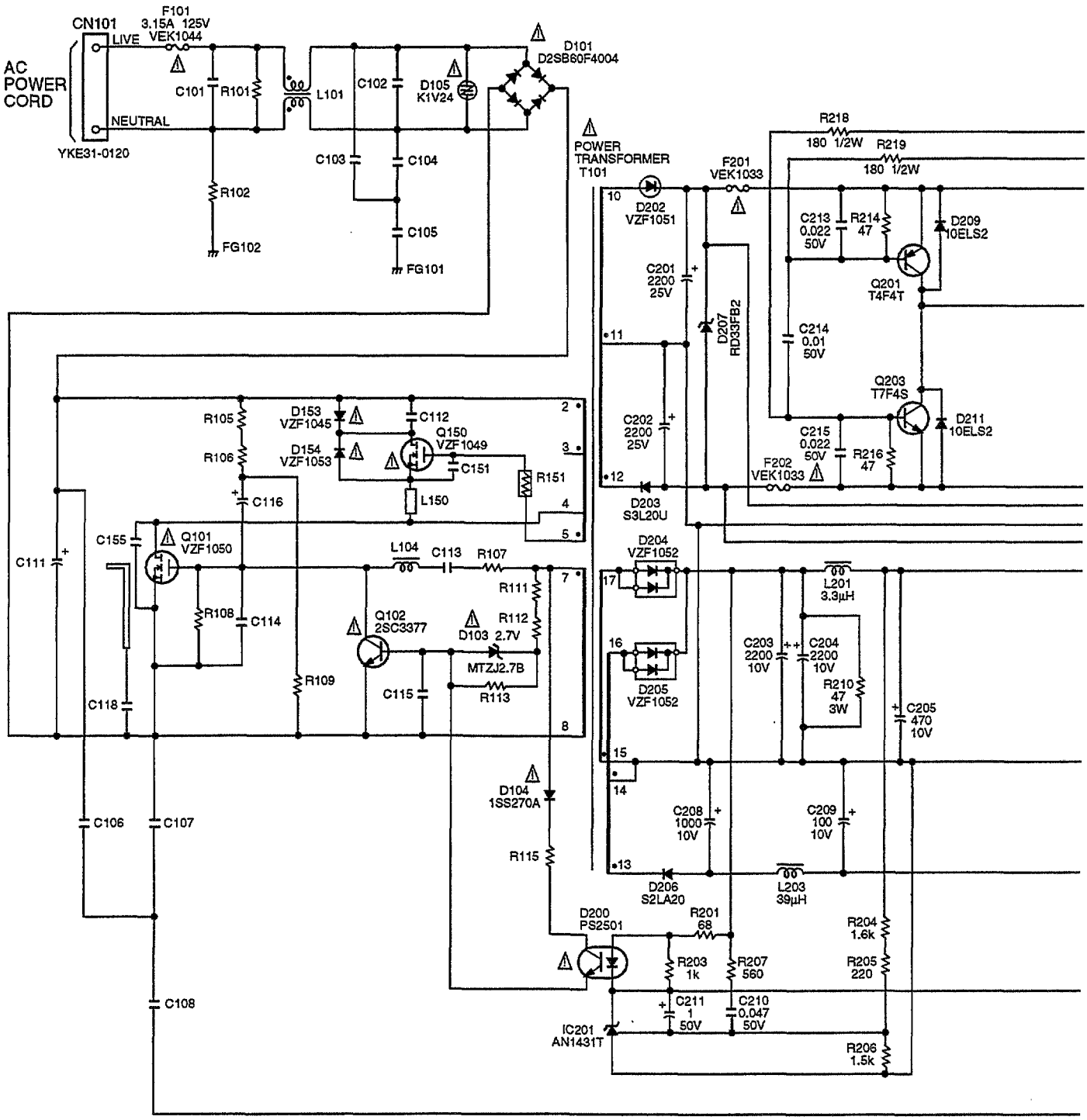


3.2 POWER SUPPLY ASSY

• NOTE FOR FUSE REPLACEMENT

CAUTION -FOR CONTINUED PROTECTION AGAINST RISK OF FIRE. REPLACE ONLY WITH SAME TYPE AND RATINGS ONLY.

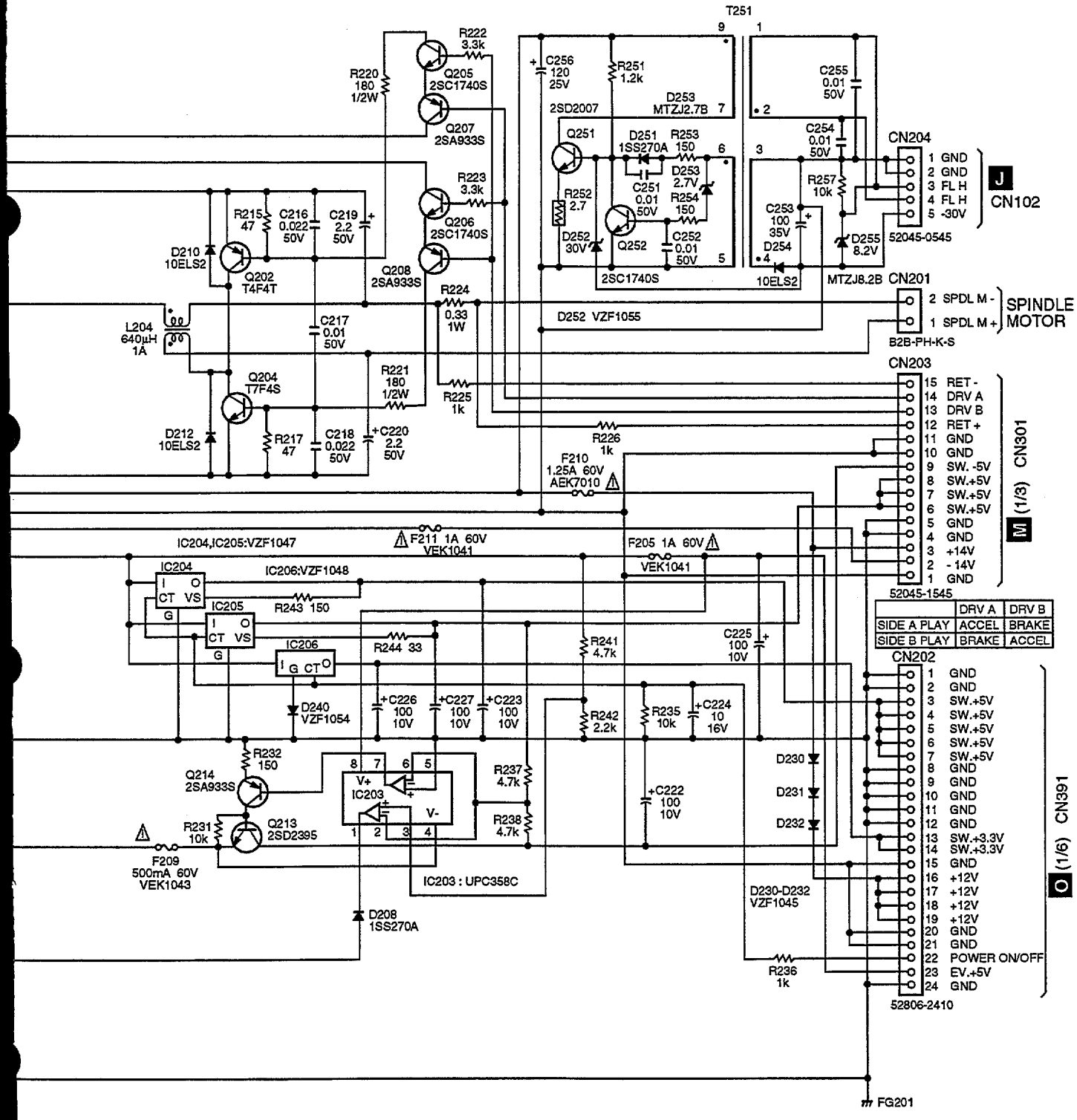
⚠ POWER SUPPLY ASSY (VWR1273)



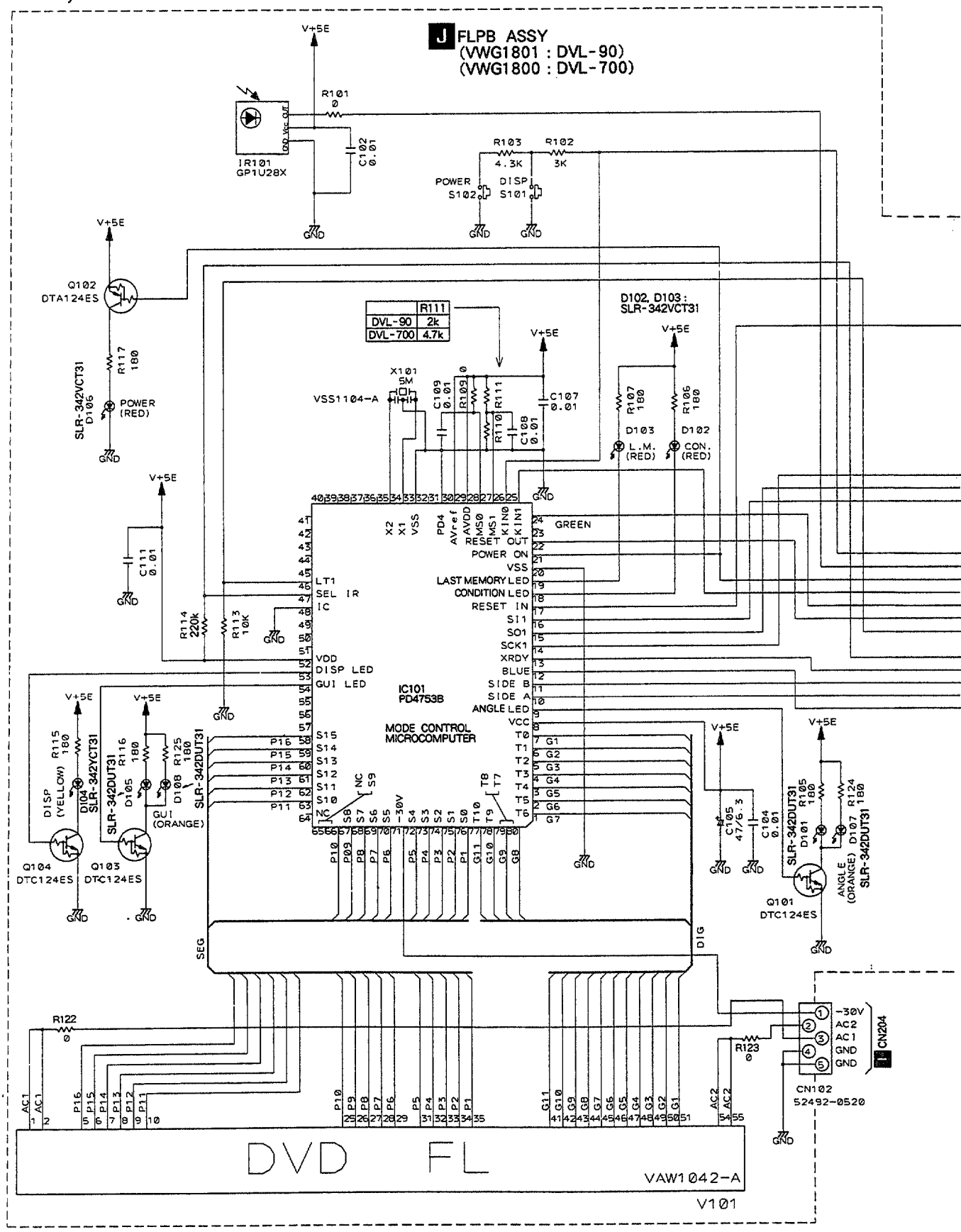
《 NOTE OF SPARE PARTS IN POWER SUPPLY (SYPS) ASSY 》

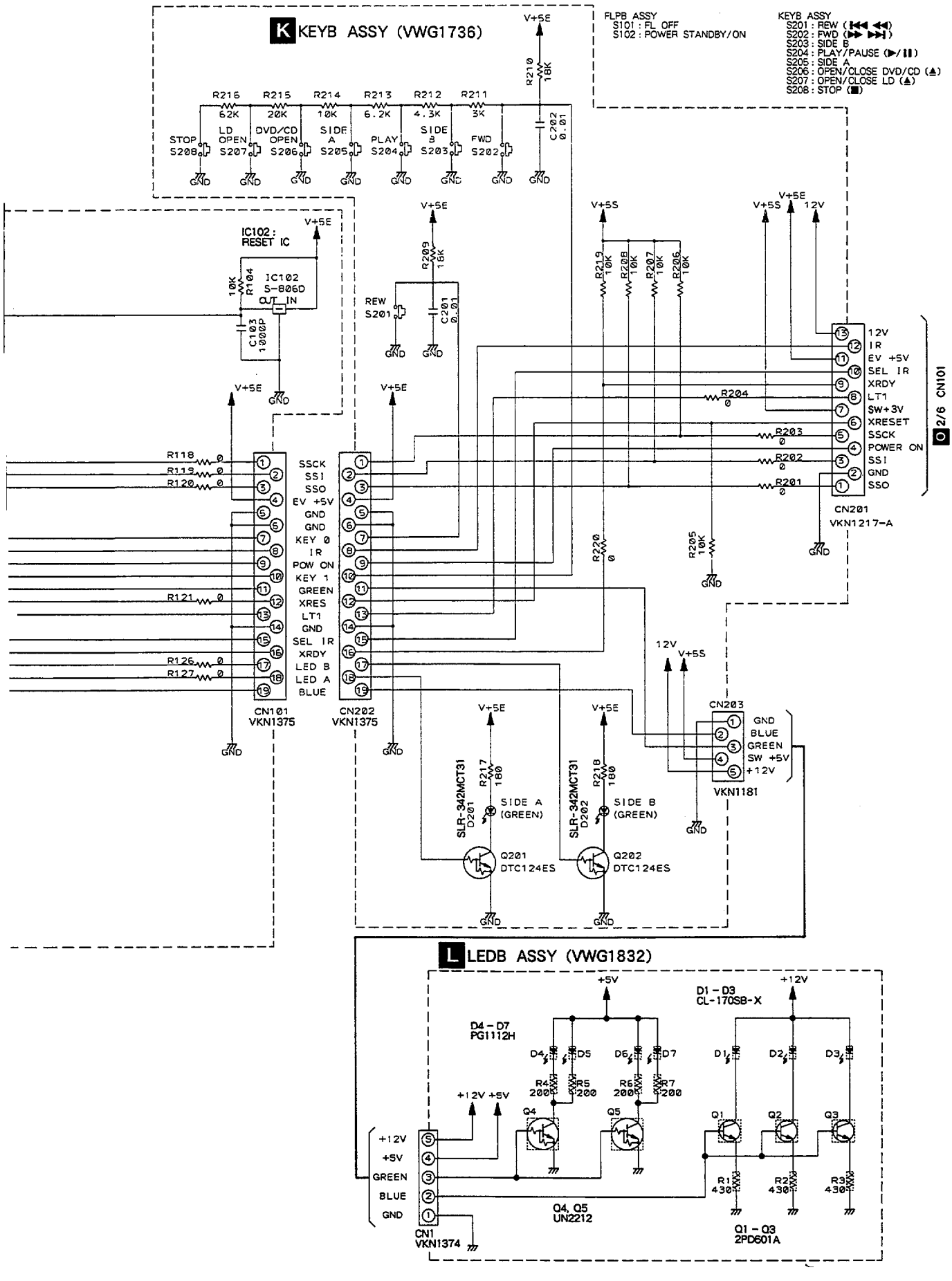
- In case of repairing, use the described parts only to prevent an accident.
- Please write the red √ mark on the board when the primary section of POWER SUPPLY (SYPS) Assy is repaired.
- Please take care to keep the space, not touching other parts when replacing the parts.

CAUTION - FOR CONTINUED PROTECTION AGAINST RISK OF FIRE. REPLACE ONLY WITH SAME TYPE NO. 491001 MFD. BY LITTELFUSE INC. FOR F205 AND F211, 491.500 MFD. BY LITTELFUSE INC. FOR F209, 4911.25 MFD. BY LITTELFUSE INC. FOR F210.

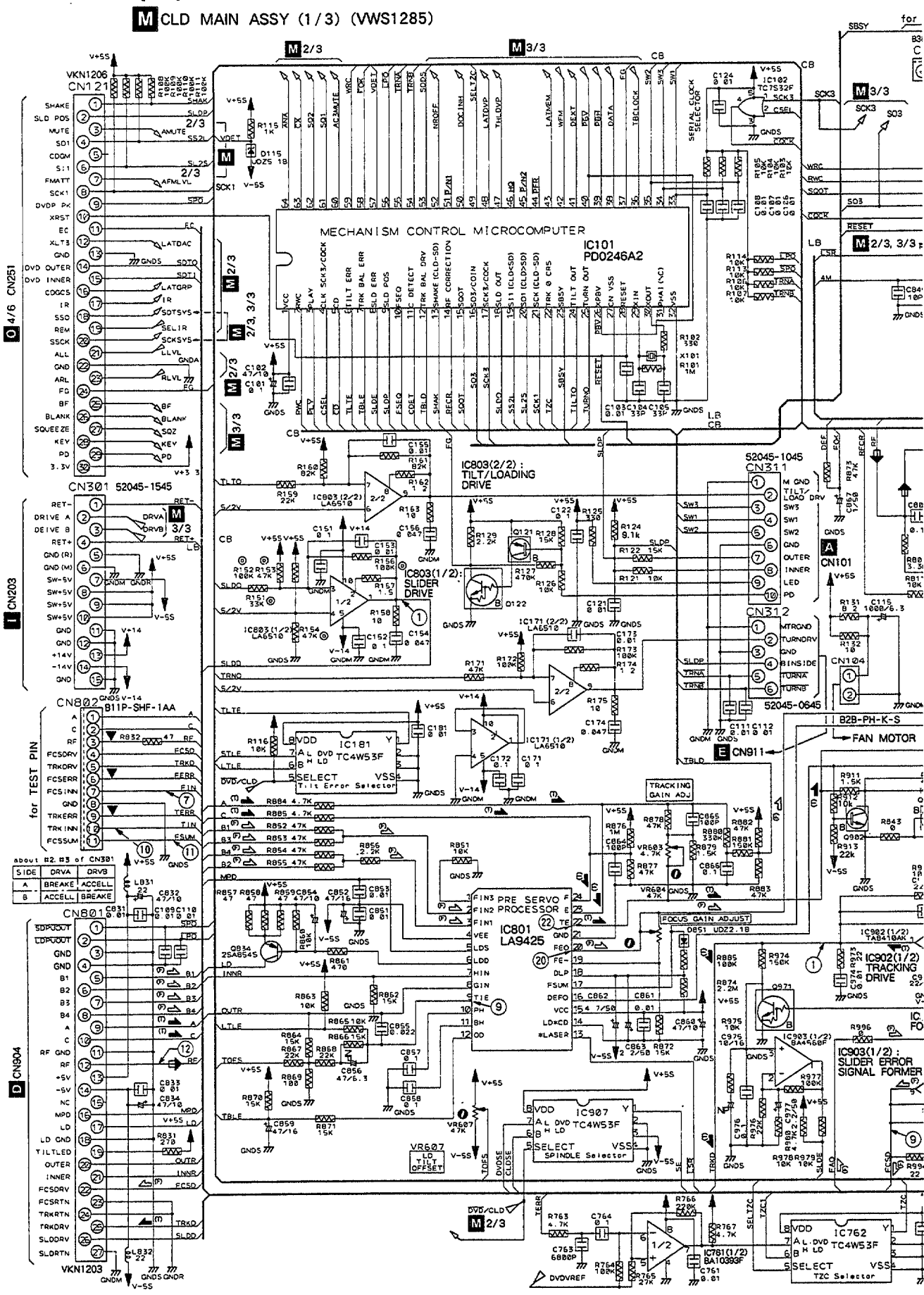


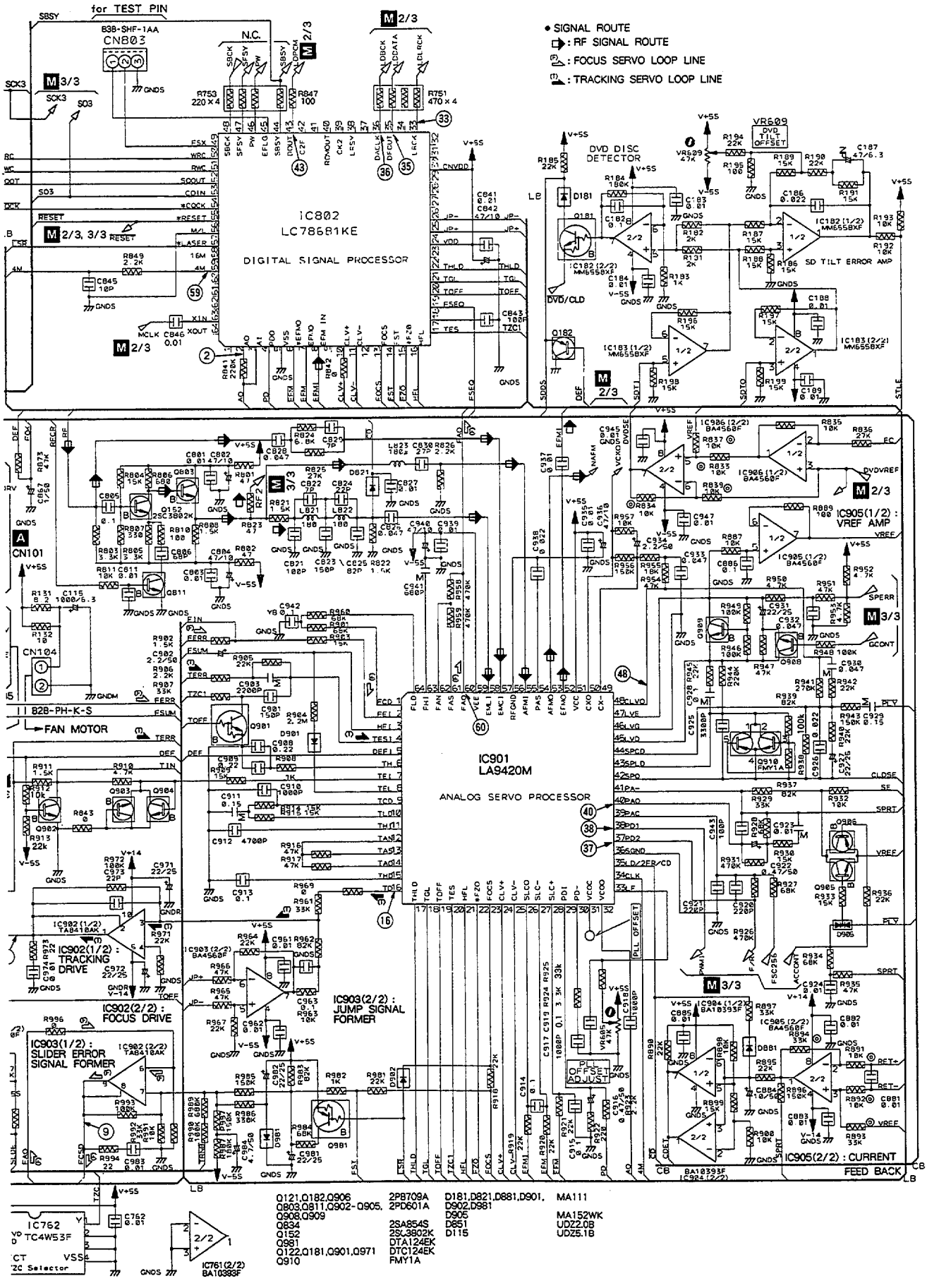
3.3 FLPB, KEYB AND LEDB ASSEMBLIES



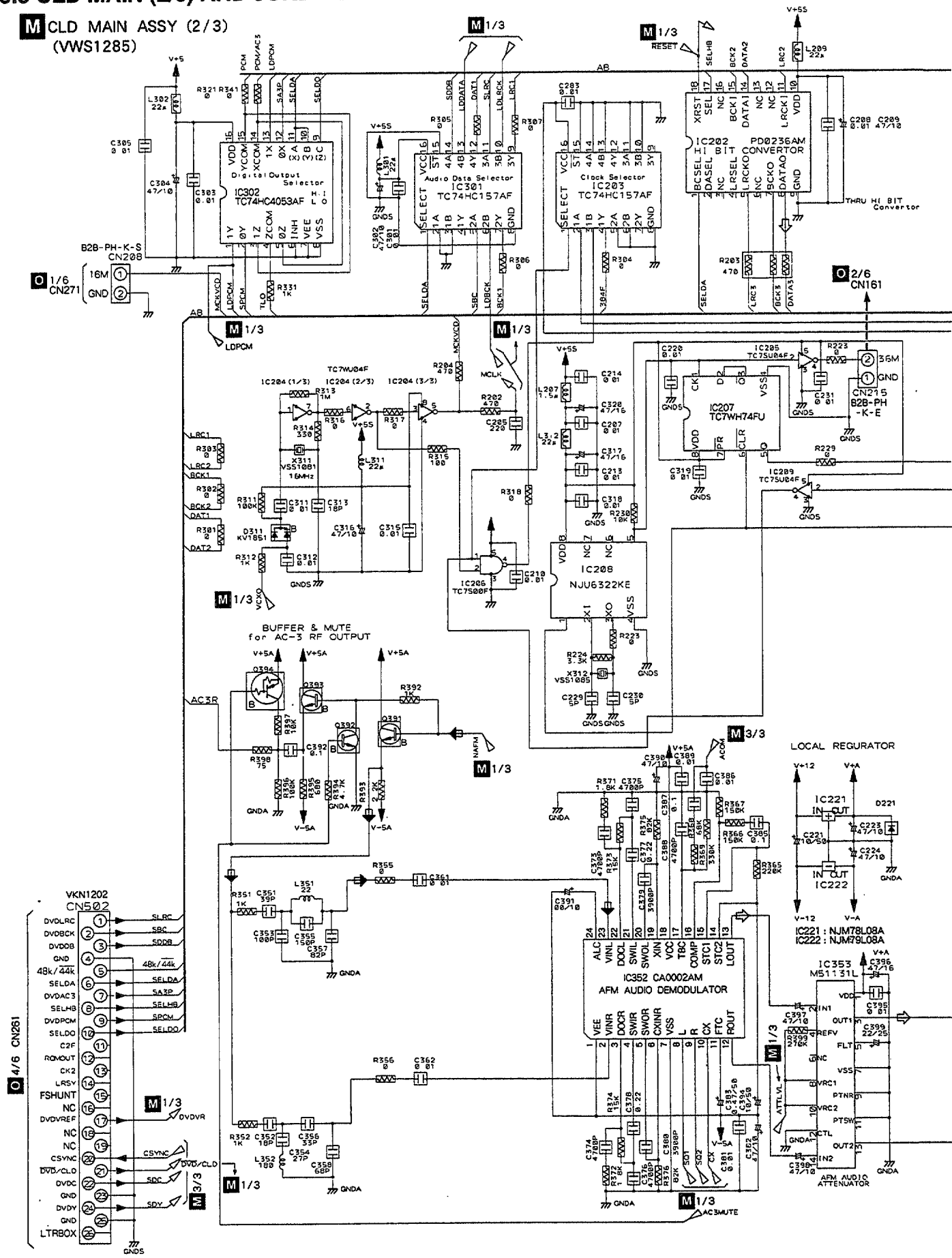

K KEYB ASSY (VWG1736)
FLPB ASSY
S101 : FL OFF
S102 : POWER STANDBY/ON
KEYB ASSY
S201 : REW (⏮ ◀◀)
S202 : FWD (▶▶ ⏭)
S203 : SIDE B
S204 : PLAY/PAUSE (▶/❚❚)
S205 : SIDE A
S206 : OPEN/CLOSE DVD/CD (▲)
S207 : OPEN/CLOSE LD (▲)
S208 : STOP (■)
R216 62K
R215 20K
R214 10K
R213 6.2K
R212 4.3K
R211 3K
R210 18K
C202 0.01
STOP S208
LD OPEN S207
DVD/CD OPEN S206
SIDE A S205
PLAY S204
SIDE B S203
FWD S202
IC102 : RESET IC
IC102 S-806D
R104 10K
C103 1000P
REW S201
R209 18K
C201 0.01
R219 10K
R208 10K
R207 10K
R206 10K
R204 0
R203 0
R202 0
R201 0
CN201 VKN1217-A
12V
IR
EV +5V
SEL IR
XRDY
LT1
SW+3V
XRESET
SSCK
POWER ON
SSI
GND
SSO
2/6 CN101
R118 0
R119 0
R120 0
R121 0
R126 0
R127 0
CN101 VKN1375
CN202 VKN1375
SSCK
SSI
SSO
EV +5V
GND
KEY 0
IR
POW ON
KEY 1
GREEN
XRES
LT1
SEL IR
XRDY
LED B
LED A
BLUE
R220 0
R205 10K
CN203
GND
BLUE
GREEN
SW +5V
+12V
VKN1181
R217 180
R218 180
SLR-342MCT31 D201
SLR-342MCT31 D202
SIDE A (GREEN)
SIDE B (GREEN)
Q201 DTC124ES
Q202 DTC124ES
L LEDB ASSY (VWG1832)
D4 – D7 PG1112H
D1 – D3 CL-170SB-X
R4 200
R5 200
R6 200
R7 200
R1 430
R2 430
R3 430
Q1
Q2
Q3
Q4
Q5
Q4, Q5 UN2212
Q1 – Q3 2PD601A
CN1 VKN1374
+12V
+5V
GREEN
BLUE
GND

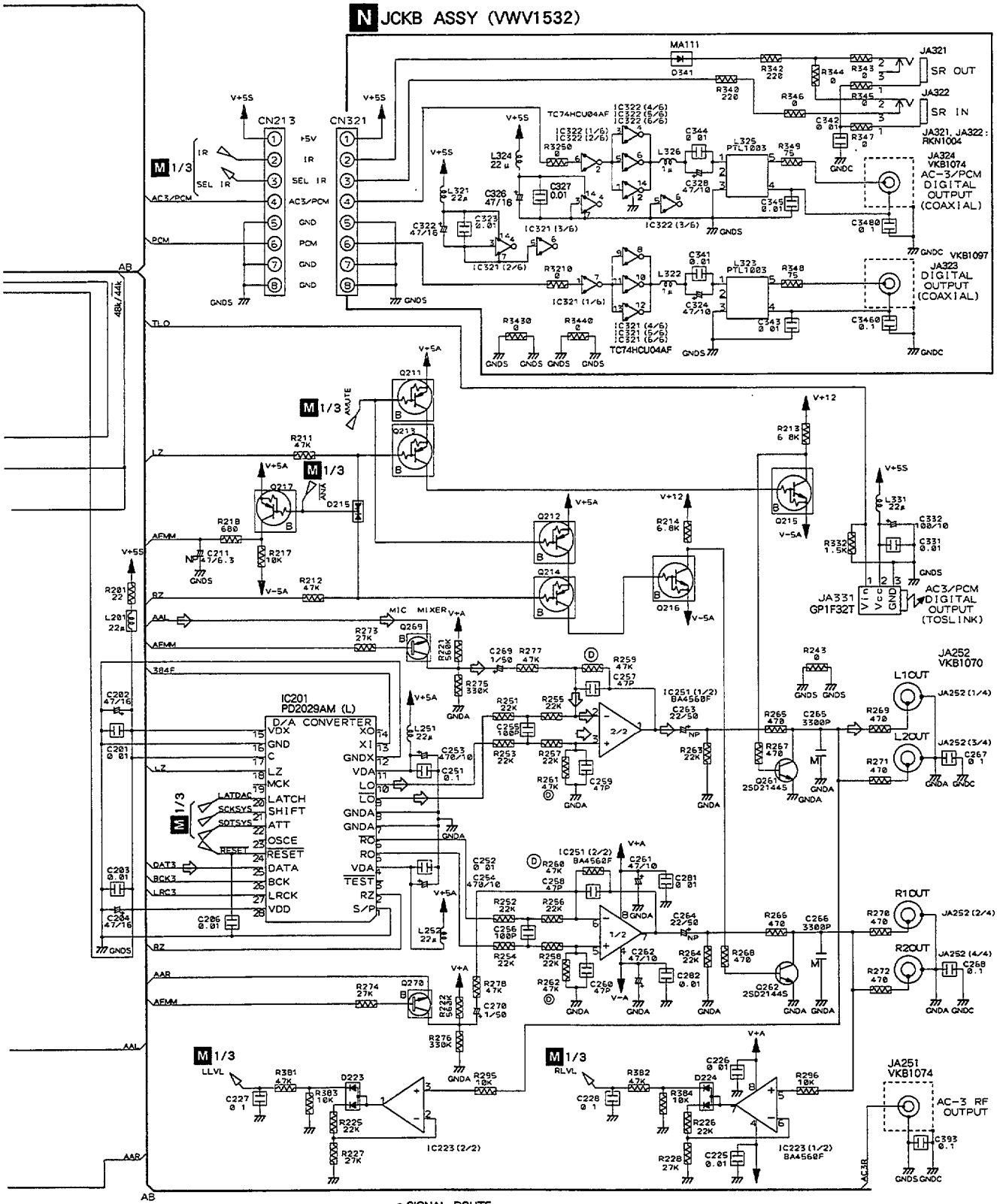
3.4 CLD MAIN ASSY (1/3)




for TEST PIN
CN803
IC802
LC78681KE
DIGITAL SIGNAL PROCESSOR
IC901
LA9420M
ANALOG SERVO PROCESSOR
• SIGNAL ROUTE
: RF SIGNAL ROUTE
: FOCUS SERVO LOOP LINE
: TRACKING SERVO LOOP LINE
DVD DISC DETECTOR
DVD TILT OFFSET
SD TILT ERROR AMP
IC905(1/2) : VREF AMP
IC905(2/2) : CURRENT FEED BACK
IC902(1/2) : TRACKING DRIVE
IC902(2/2) : FOCUS DRIVE
IC903(1/2) : SLIDER ERROR SIGNAL FORMER
IC903(2/2) : JUMP SIGNAL FORMER
PLL OFFSET ADJUST
FAN MOTOR
CN101
CN104
IC762
IC761(2/2)
Q121,Q182,Q906
Q803,Q811,Q902-Q905,
Q908,Q909
Q834
Q152
Q981
Q122,Q181,Q901,Q971
Q910
2P8709A
2PD601A
2SA854S
2SC3802K
DTA124EK
DTC124EK
FMY1A
D181,D821,D881,D901,
D902,D981
D905
D651
D115
MA111
MA152WK
UDZ2.0B
UDZ5.1B

3.5 CLD MAIN (2/3) AND JCKB ASSEMBLIES



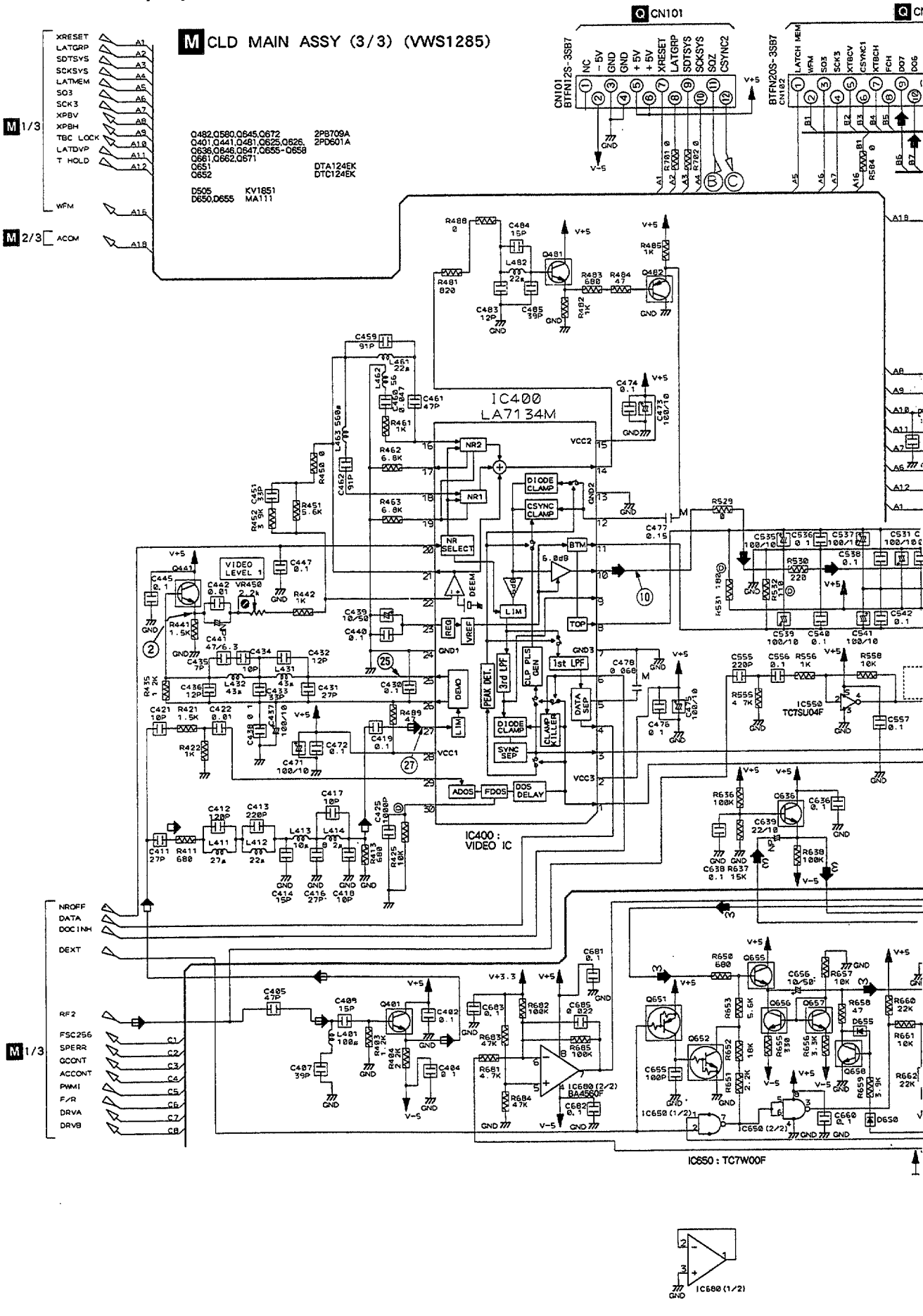


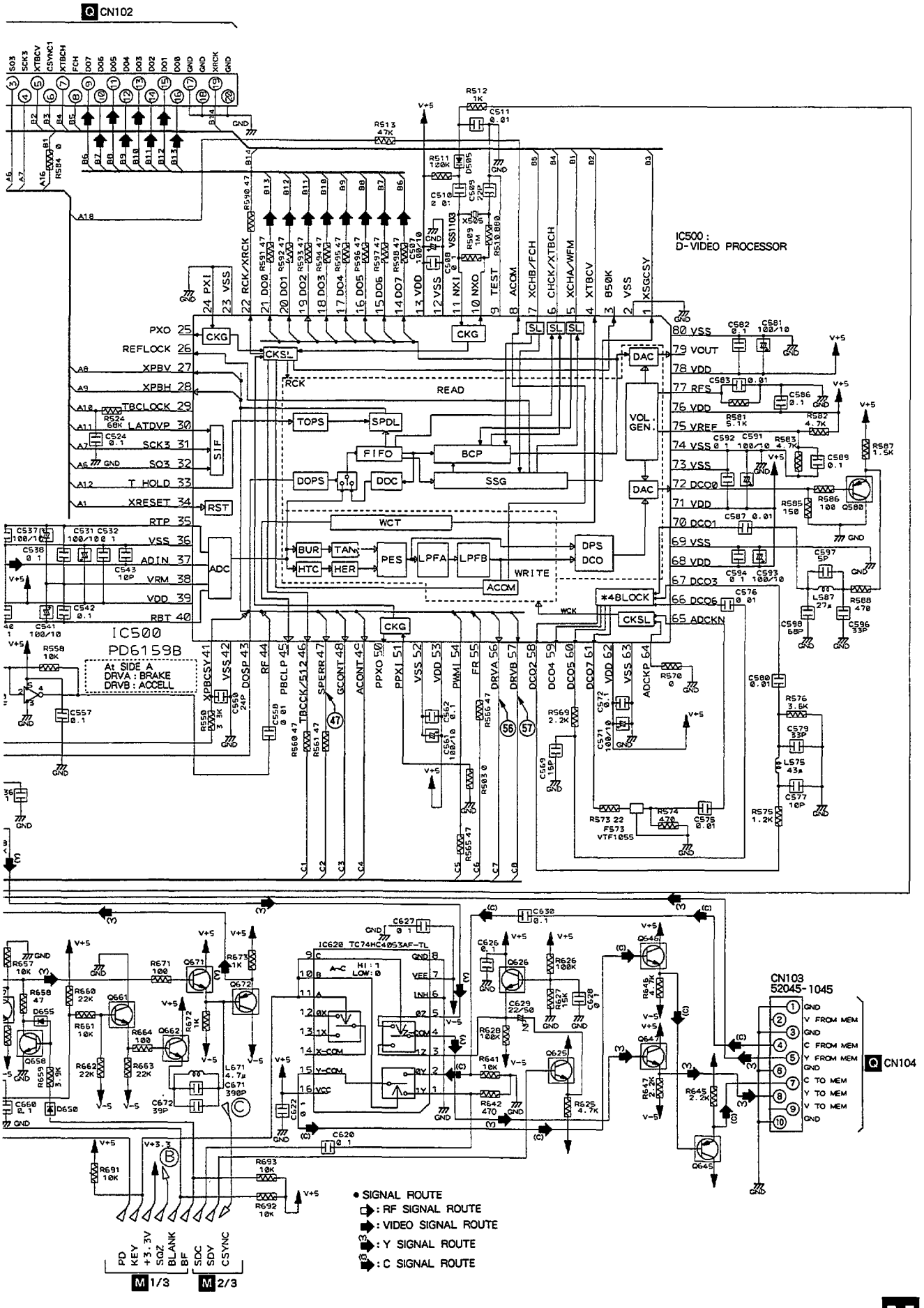
Q269,Q270,Q391-Q393 2PD601A
Q261,Q262 2SD2144S
Q211-Q214,Q217,Q394 DTA124EK
Q215,Q216 DTC124EK

D221 EC10QS04
D311 KV1851
D223,D224 MA152WA
D215 MA152WK

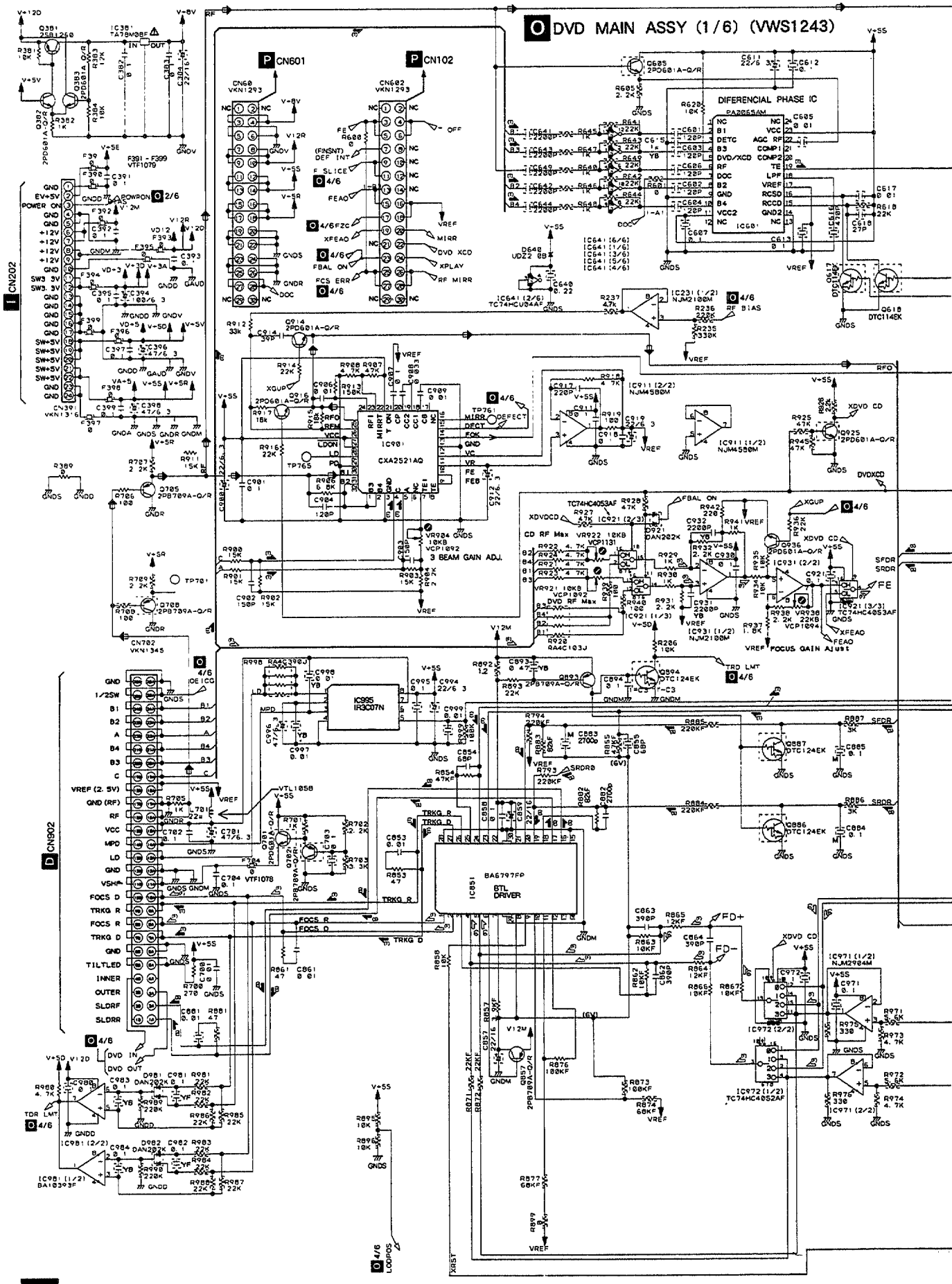
• SIGNAL ROUTE
▭: RF SIGNAL ROUTE
▭: AUDIO SIGNAL ROUTE

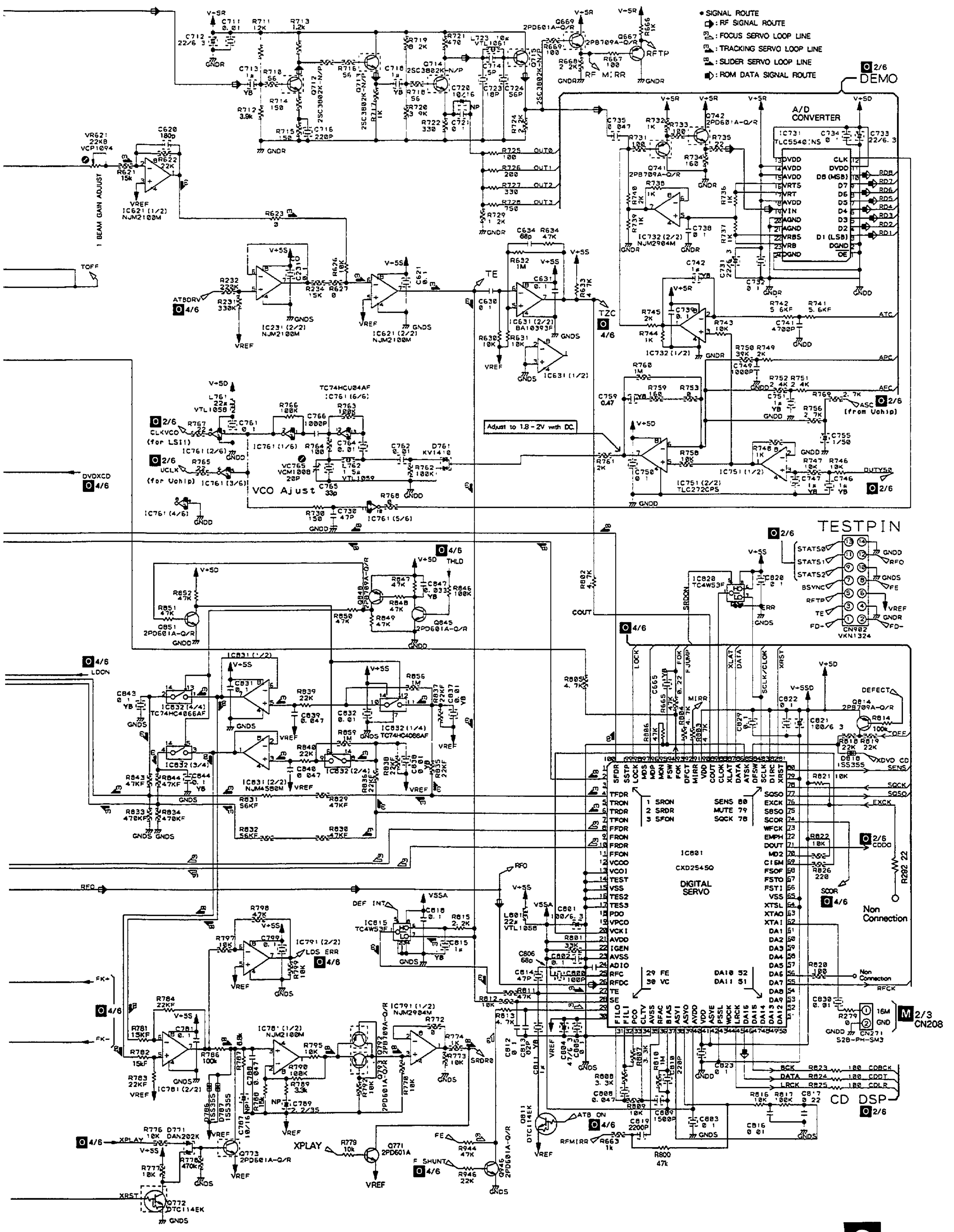
3.6 CLD MAIN ASSY (3/3)



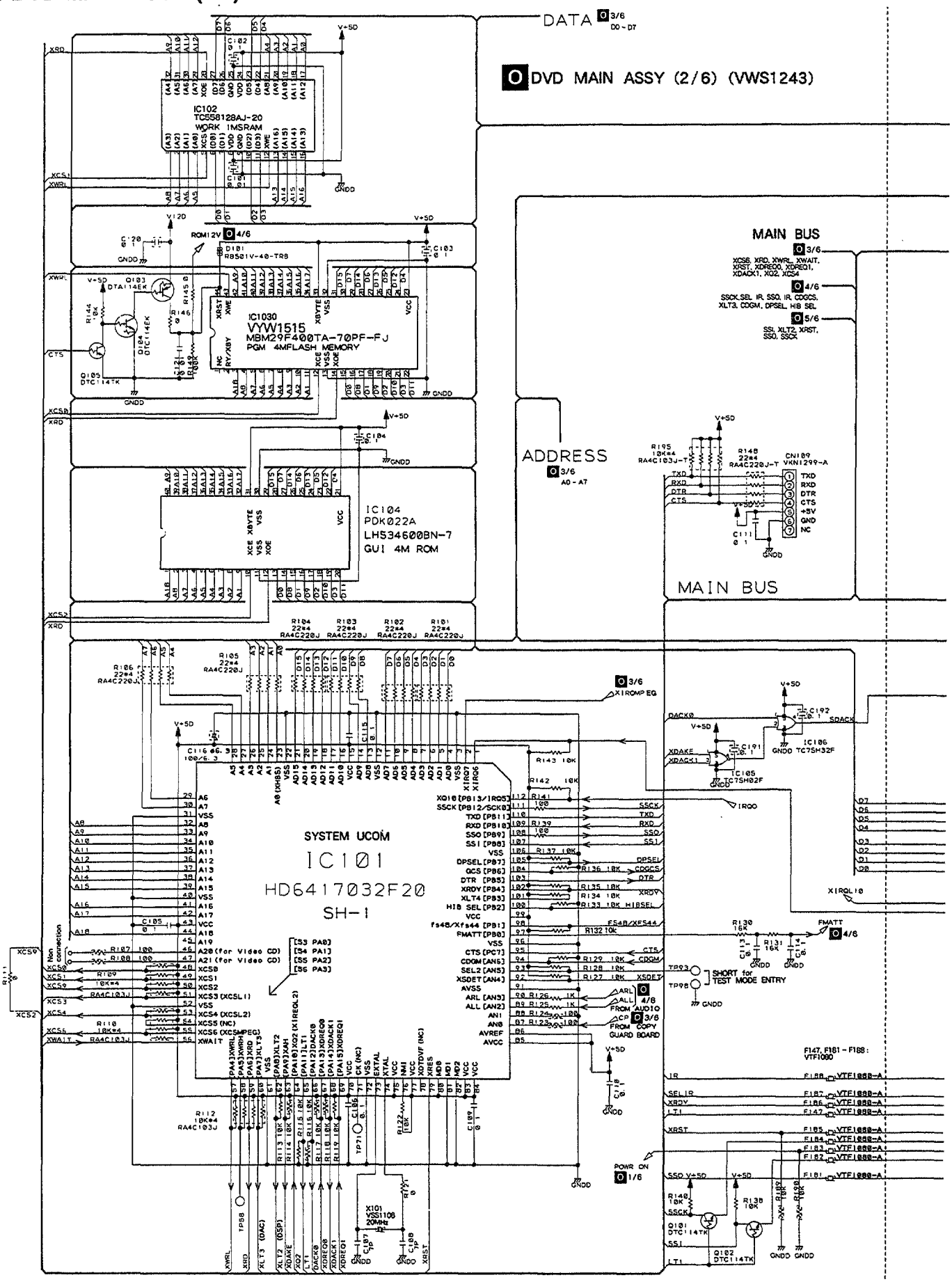

Q CN102
IC500 :
D-VIDEO PROCESSOR
IC500
PD6159B
At SIDE A
DRVA : BRAKE
DRVB : ACCELL
CN103
52045-1045
Q CN104
• SIGNAL ROUTE
: RF SIGNAL ROUTE
: VIDEO SIGNAL ROUTE
: Y SIGNAL ROUTE
: C SIGNAL ROUTE
M 1/3
M 2/3

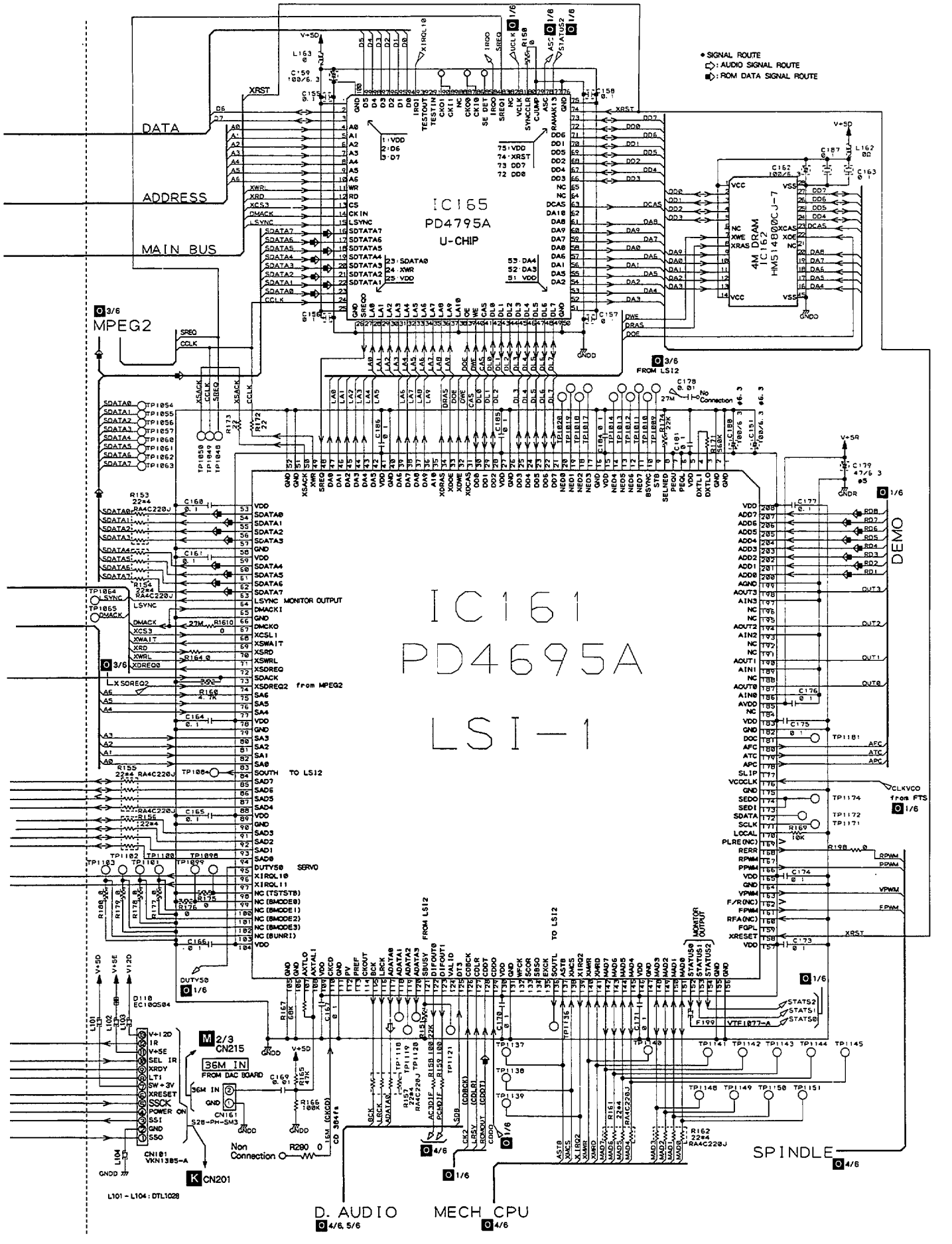
3.7 DVD MAIN ASSY (1/6)




SIGNAL ROUTE
: RF SIGNAL ROUTE
: FOCUS SERVO LOOP LINE
: TRACKING SERVO LOOP LINE
: SLIDER SERVO LOOP LINE
: ROM DATA SIGNAL ROUTE
DEMO
A/D CONVERTER
TESTPIN
Adjust to 1.8 - 2V with DC
VCO Ajust
IC801
CXD2545Q
DIGITAL SERVO
CD DSP
Non Connection
1 BEAM GAIN ADJUST

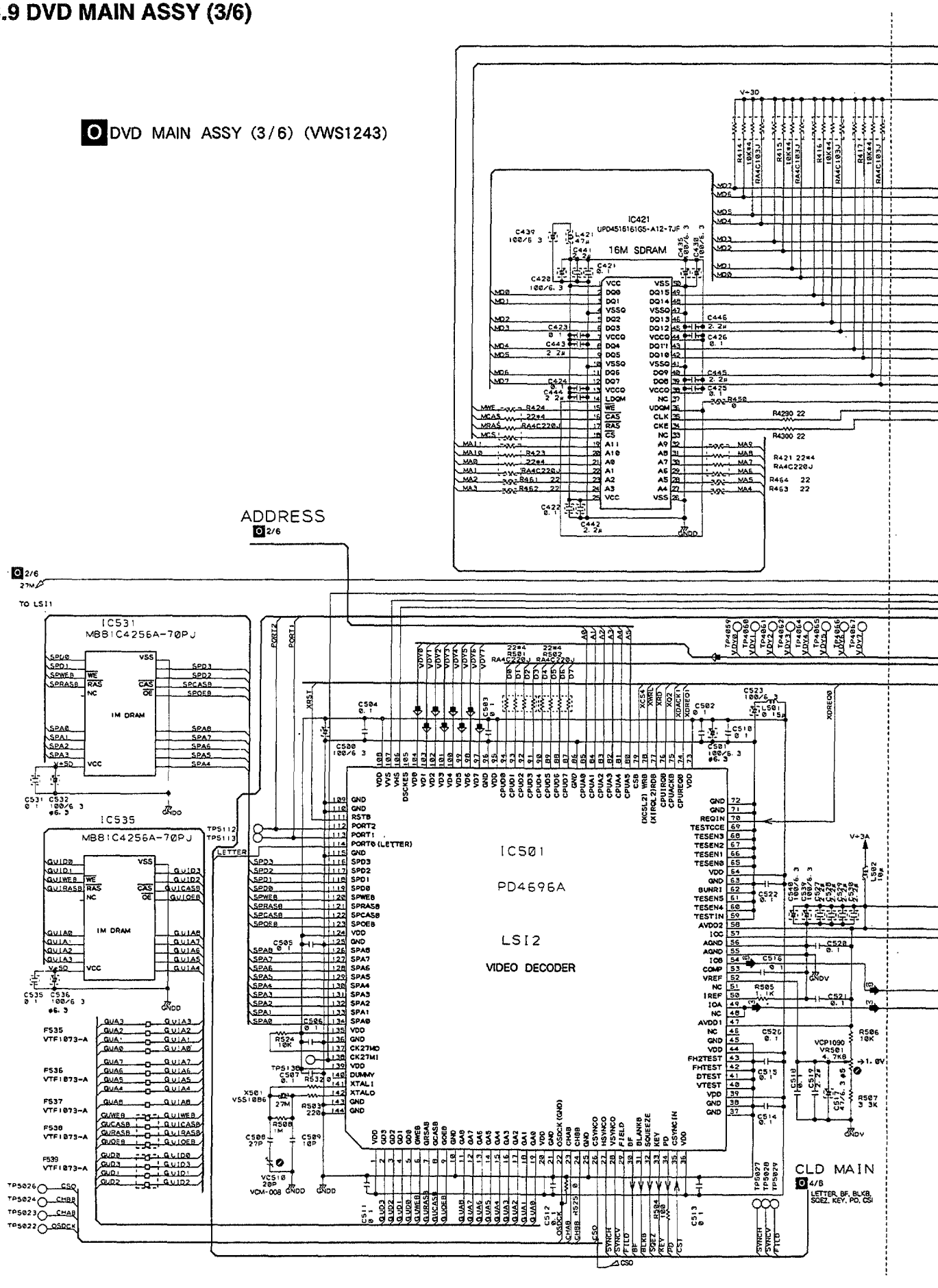
3.8 DVD MAIN ASSY (2/6)

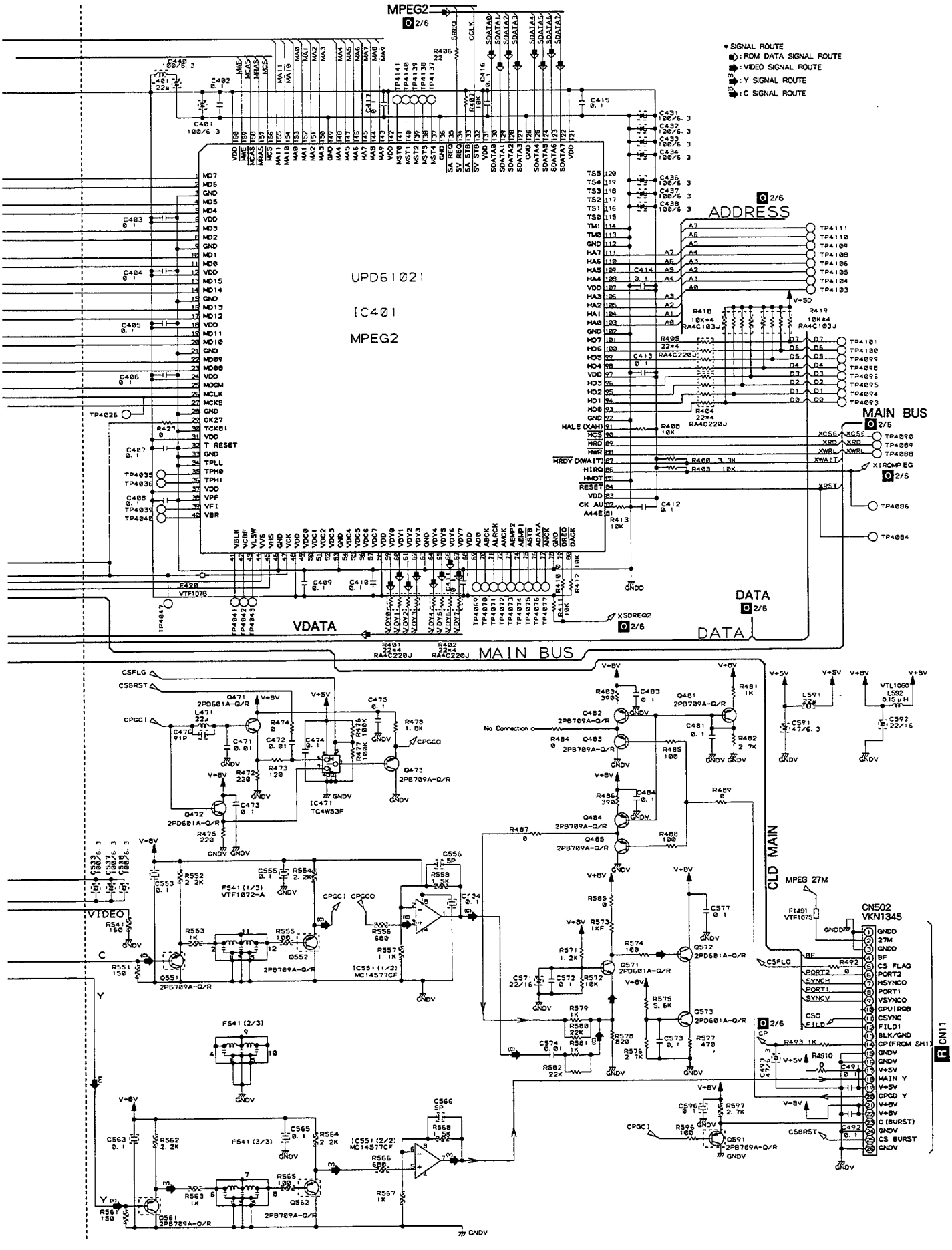



IC165
PD4795A
U-CHIP
IC161
PD4695A
LSI-1
4M DRAM
IC162
HM5148800CJ-7
MPEG2
DEMO
SPINDLE
D. AUDIO
MECH CPU
DATA
ADDRESS
MAIN BUS
SIGNAL ROUTE
AUDIO SIGNAL ROUTE
ROM DATA SIGNAL ROUTE
36M IN
FROM DAC BOARD
CN215
CN201
CN161
CN101
VKN1385-A
S28-PH-SM3
Non Connection
TO LS12
FROM LS12
SERVO
MONITOR OUTPUT
CLKVCO from FTS
L101 - L104 : DTL1028

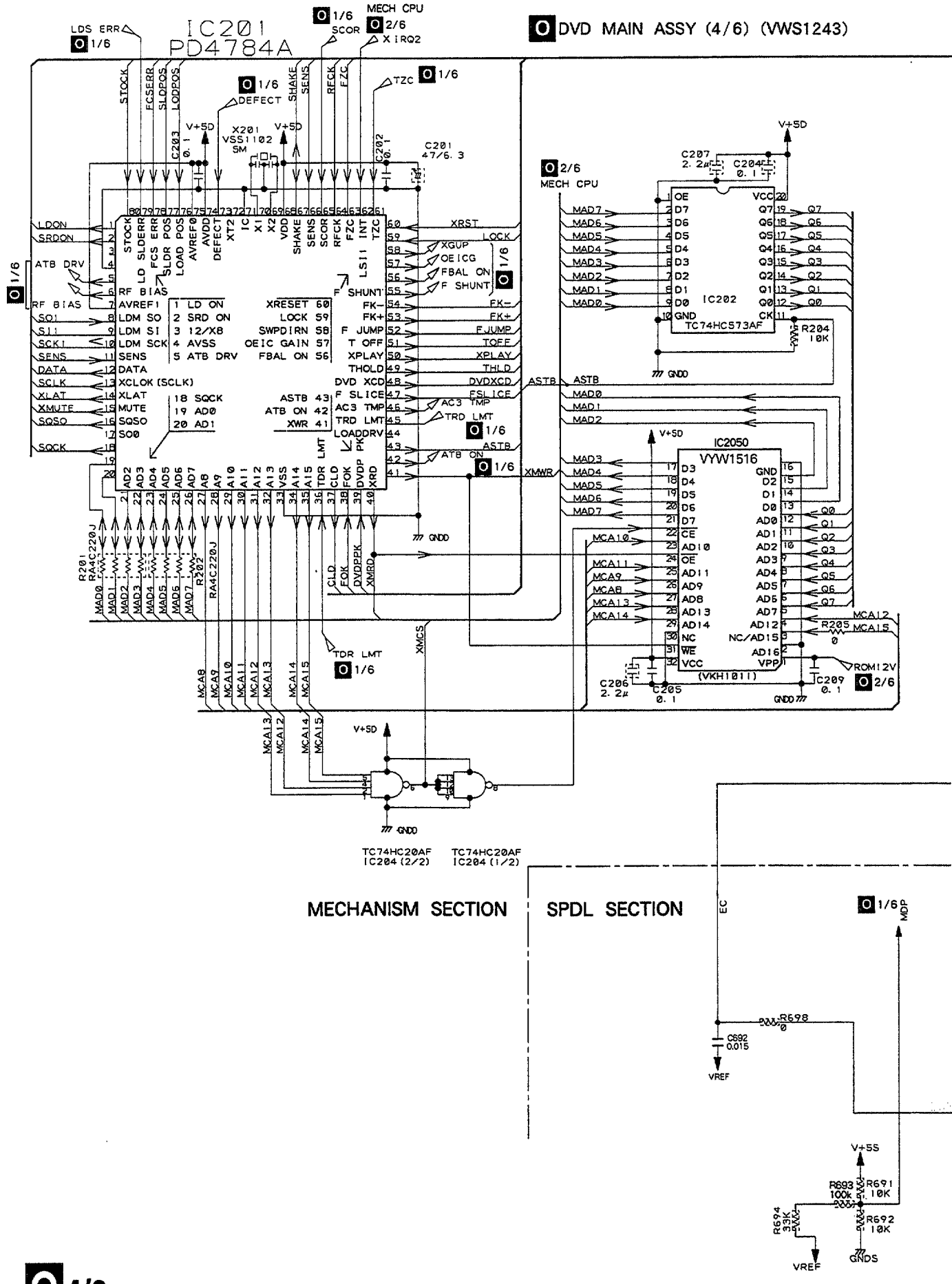
3.9 DVD MAIN ASSY (3/6)

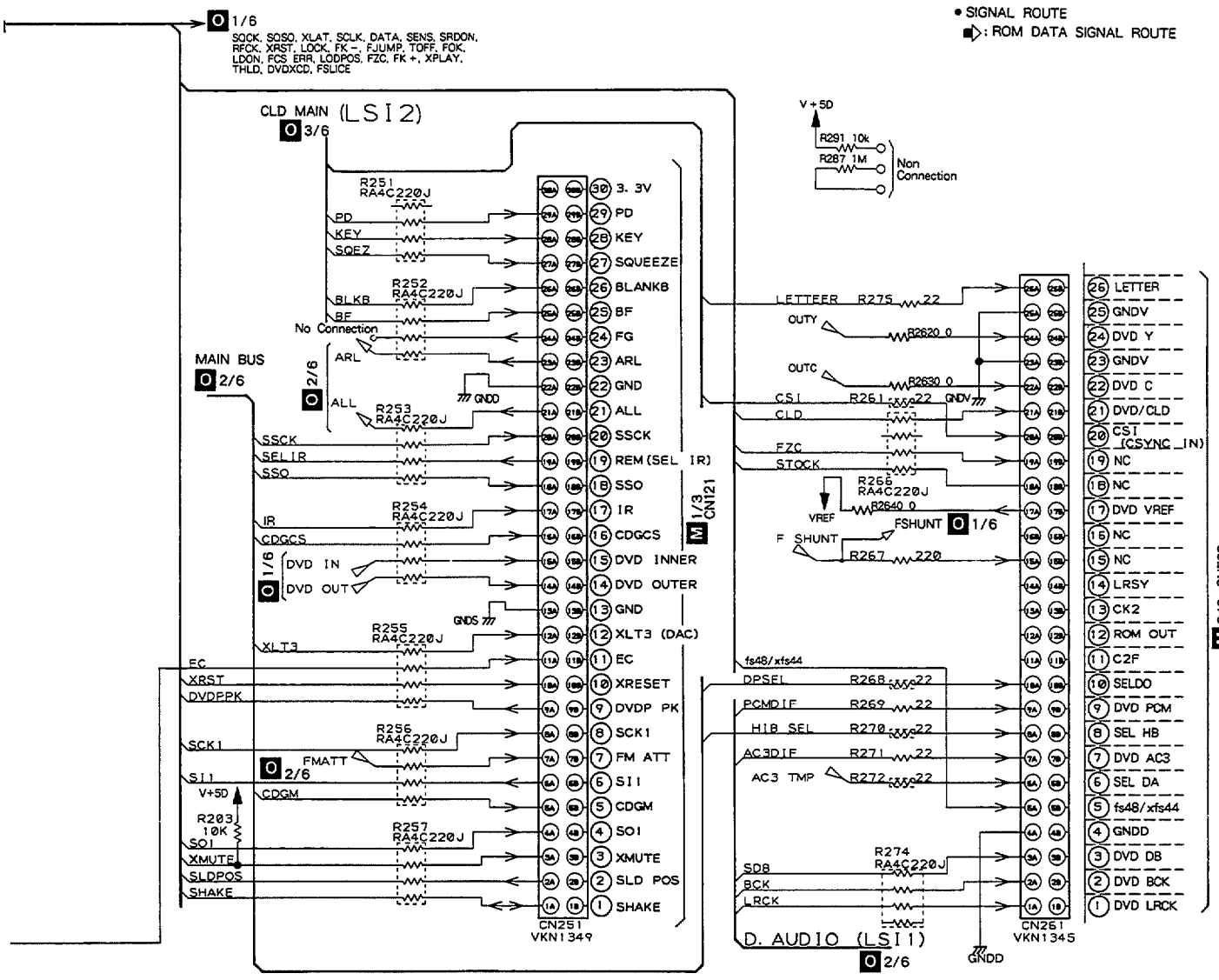
O DVD MAIN ASSY (3/6) (VWS1243)

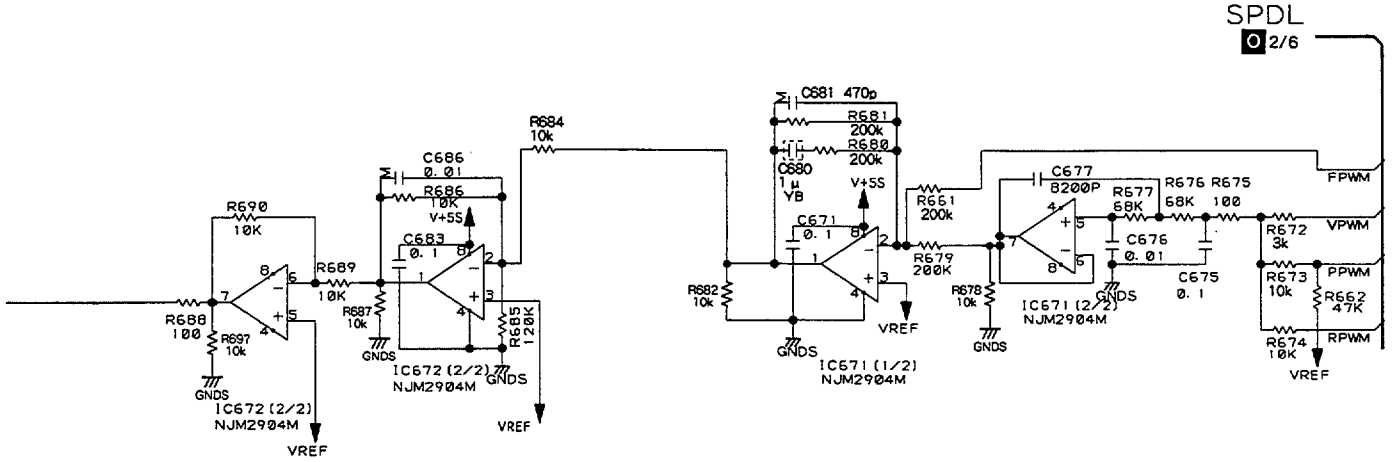



MPEG2
UPD61021
IC401
MPEG2
ADDRESS
DATA
MAIN BUS
VDATA
VIDEO
CLD MAIN
MPEG 27M
CN502
VKN1345
CN11
SIGNAL ROUTE
: ROM DATA SIGNAL ROUTE
: VIDEO SIGNAL ROUTE
: Y SIGNAL ROUTE
: C SIGNAL ROUTE

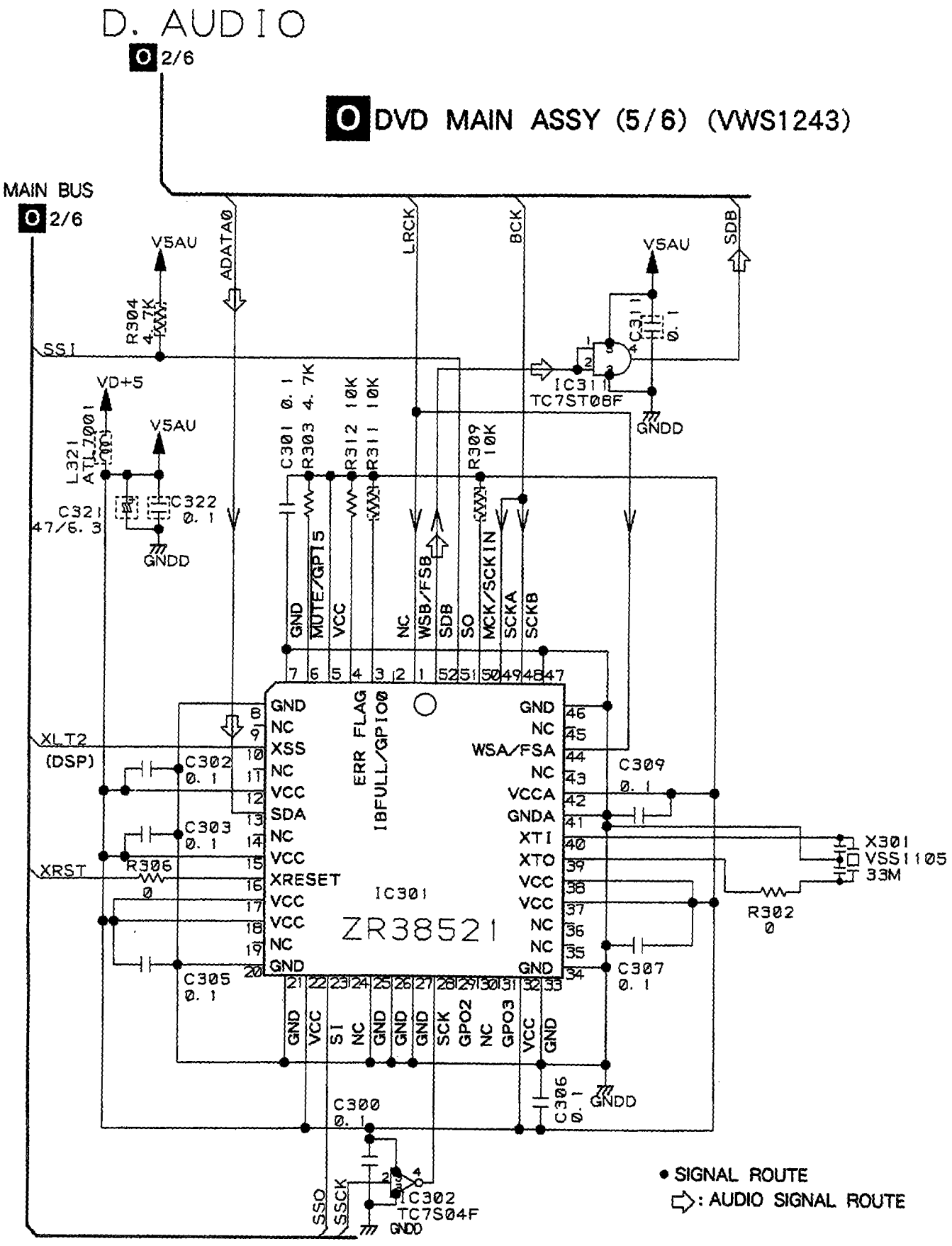
3.10 DVD MAIN ASSY (4/6)




• SIGNAL ROUTE
▶: ROM DATA SIGNAL ROUTE
O 1/6
SOCK, SOSO, XLAT, SCLK, DATA, SENS, SRDON, RFCK, XRST, LOCK, FK −, FJUMP, TOFF, FOK, LDON, FCS ERR, LODPOS, FZC, FK +, XPLAY, THLD, DVDXCD, FSLICE
CLD MAIN (LSI2)
O 3/6
MAIN BUS
O 2/6
O 2/6
ALL
ARL
No Connection
R251 RA4C220J
R252 RA4C220J
R253 RA4C220J
R254 RA4C220J
R255 RA4C220J
R256 RA4C220J
R257 RA4C220J
PD
KEY
SQEZ
BLKB
BF
GND
SSCK
SEL IR
SSO
IR
CDGCS
DVD IN
DVD OUT
XLT3
EC
XRST
DVDPPK
SCK1
SI1
CDGM
SO1
XMUTE
SLDPOS
SHAKE
FMATT
O 2/6
V+5D
R203 10K
GNDS
M 1/3 CN121
30 3. 3V
29 PD
28 KEY
27 SQUEEZE
26 BLANKB
25 BF
24 FG
23 ARL
22 GND
21 ALL
20 SSCK
19 REM (SEL IR)
18 SSO
17 IR
16 CDGCS
15 DVD INNER
14 DVD OUTER
13 GND
12 XLT3 (DAC)
11 EC
10 XRESET
9 DVDP PK
8 SCK1
7 FM ATT
6 SI1
5 CDGM
4 SO1
3 XMUTE
2 SLD POS
1 SHAKE
CN251 VKN1349
V+5D
R291 10k
R287 1M
Non Connection
LETTEER R275 22
OUTY R2620 0
OUTC R2630 0
CSI R261 22
CLD
FZC
STOCK
R268 RA4C220J
R2640 0
VREF
FSHUNT O 1/6
F SHUNT
R267 220
fs48/xfs44
DPSEL R268 22
PCMDIF R269 22
HIB SEL R270 22
AC3DIF R271 22
AC3 TMP R272 22
R274 RA4C220J
SDB
BCK
LRCK
D. AUDIO (LSI1)
O 2/6
GNDD
CN261 VKN1345
26 LETTER
25 GNDV
24 DVD Y
23 GNDV
22 DVD C
21 DVD/CLD
20 CST (CSYNC IN)
19 NC
18 NC
17 DVD VREF
16 NC
15 NC
14 LRSY
13 CK2
12 ROM OUT
11 C2F
10 SELDO
9 DVD PCM
8 SEL HB
7 DVD AC3
6 SEL DA
5 fs48/xfs44
4 GNDD
3 DVD DB
2 DVD BCK
1 DVD LRCK
M 2/3 CN502


SPDL
O 2/6
R690 10K
R688 100
R697 10k
R689 10K
R687 10k
C686 0. 01
R686 10K
V+5S
C683 0. 1
R685 120K
R684 10k
IC672 (2/2) NJM2904M
GNDS
VREF
C681 470p
R681 200k
R680 200k
C680 1 μ YB
C671 0. 1
R682 10k
R679 200K
R661 200k
IC671 (1/2) NJM2904M
C677 8200P
R677 68K
R676 68K
R675 100
C676 0. 01
C675 0. 1
R678 10k
IC671 (2/2) NJM2904M
FPWM
R672 3k
VPWM
R673 10k
R662 47K
PPWM
R674 10K
RPWM

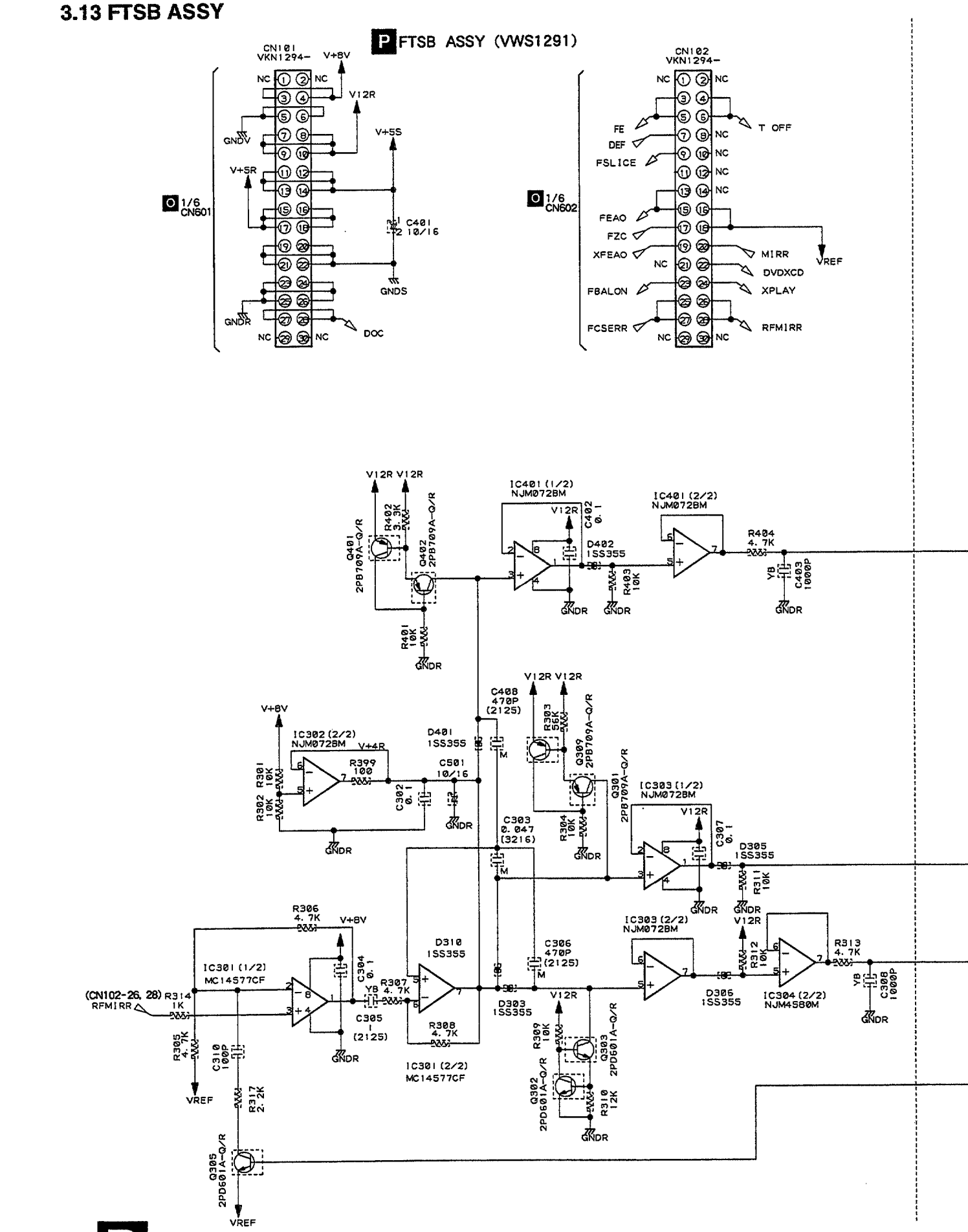
3.11 DVD MAIN ASSY (5/6)

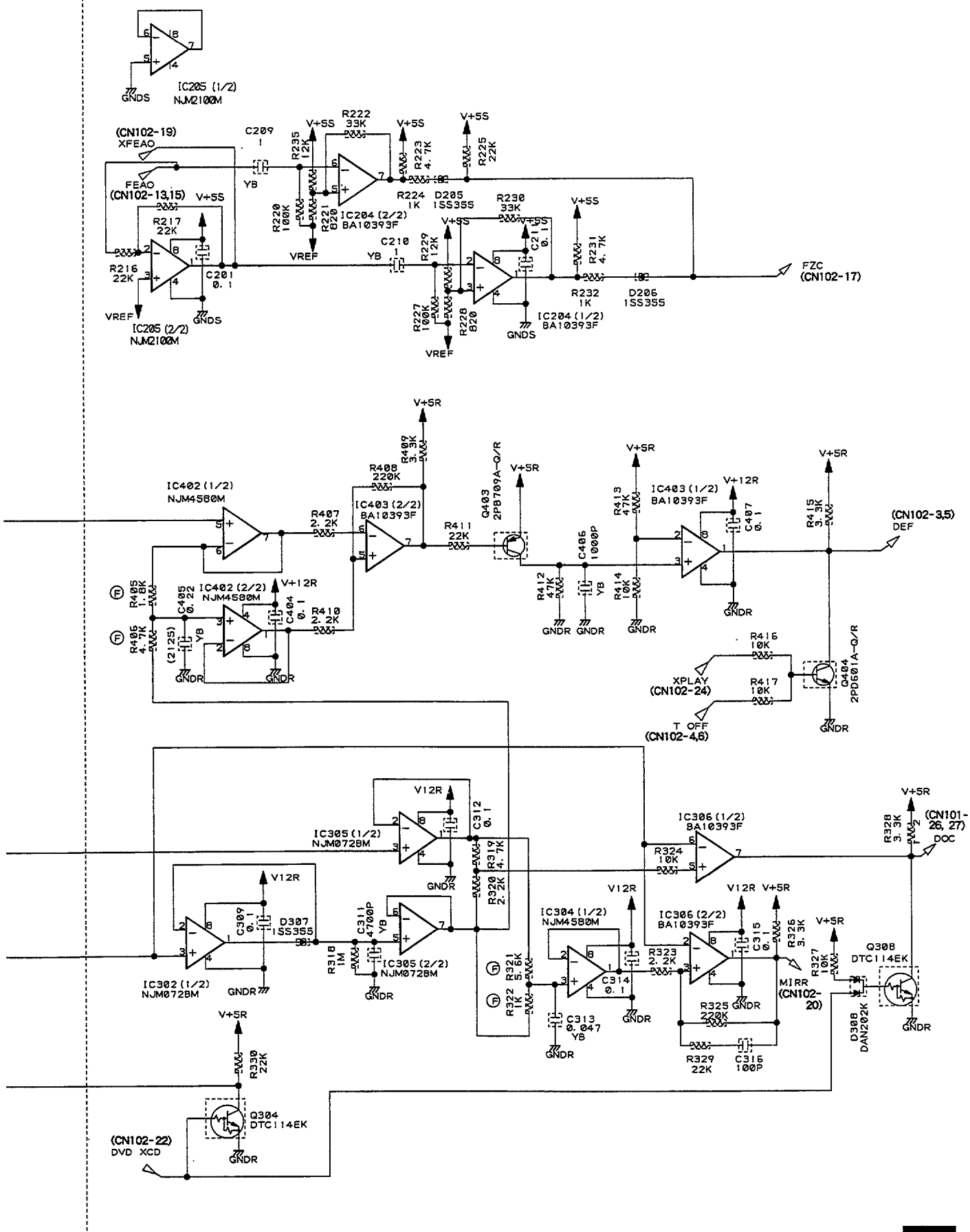


3.12 DVD MAIN ASSY (6/6)

6/6 DVD MAIN ASSY (6/6) (VIDEO CD SECTION) is not used on this model.

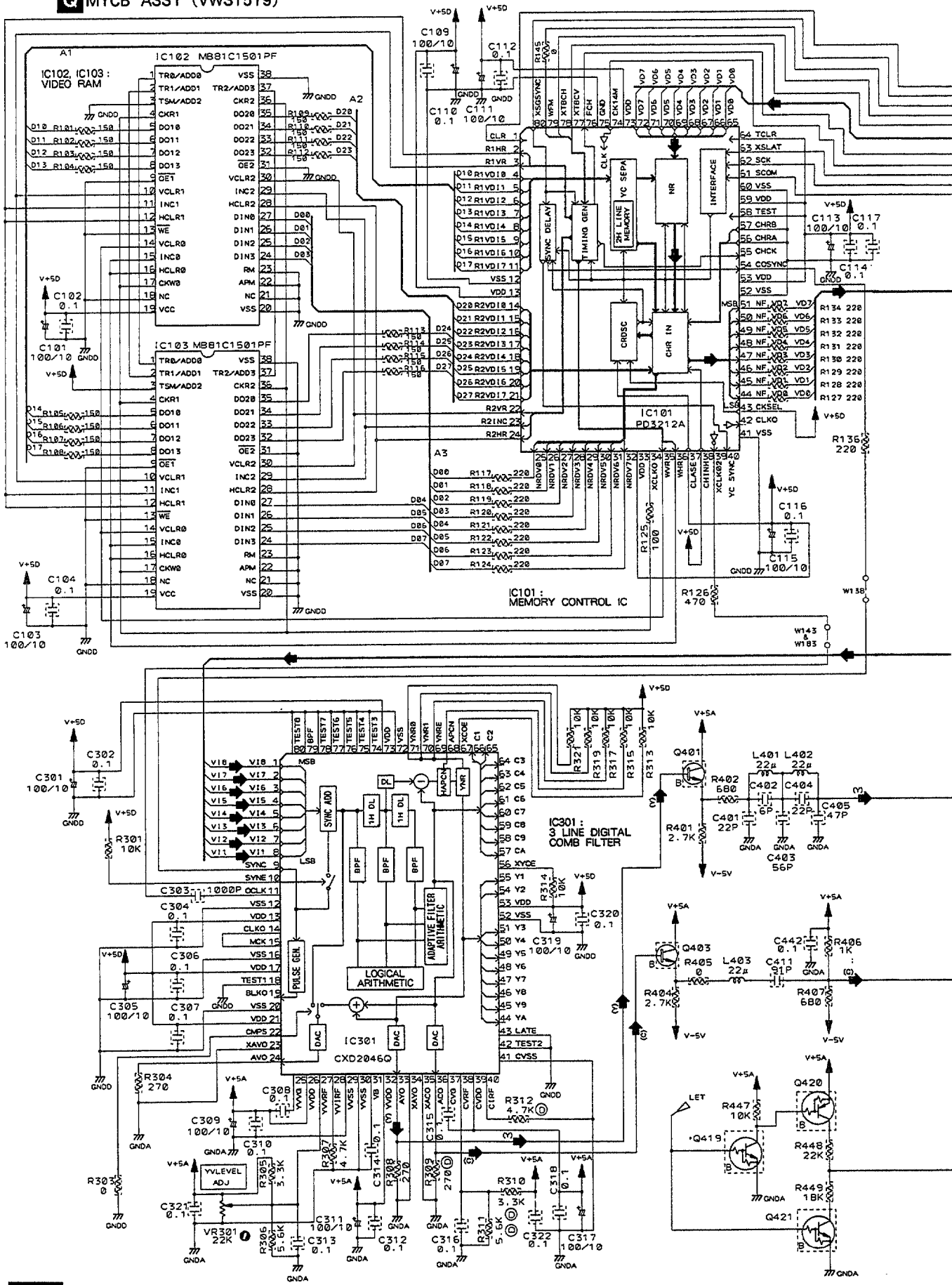
3.13 FTSB ASSY

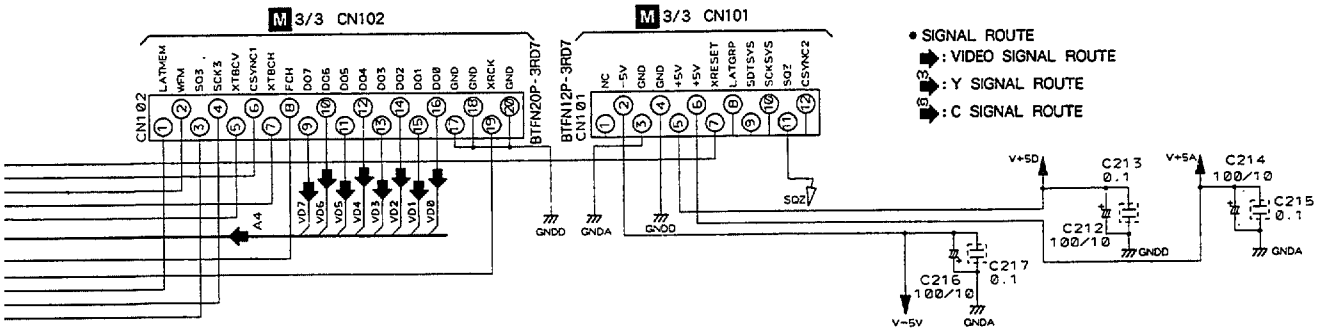


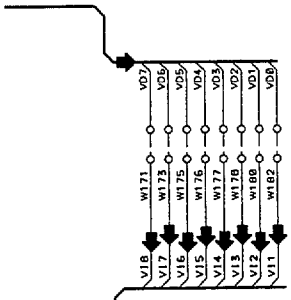

IC205 (1/2)
NJM2100M
GNDS
(CN102-19)
XFEAO
FEAO
(CN102-13,15)
C209
1
YB
R235
12K
V+5S
R222
33K
R223
4.7K
R225
22K
R224
1K
D205
1SS355
R230
33K
R231
4.7K
R232
1K
D206
1SS355
FZC
(CN102-17)
R220
100K
R221
820
IC204 (2/2)
BA10393F
R217
22K
R216
22K
C201
0.1
VREF
IC205 (2/2)
NJM2100M
C210
1
R229
12K
C211
0.1
R227
100K
R228
820
IC204 (1/2)
BA10393F
V+5R
R409
3.3K
R408
220K
IC402 (1/2)
NJM4580M
R407
2.2K
IC403 (2/2)
BA10393F
R411
22K
Q403
2PB709A-Q/R
C406
1000P
R412
47K
R413
47K
IC403 (1/2)
BA10393F
V+12R
C407
0.1
R414
10K
R415
3.3K
(CN102-3,5)
DEF
R405
1.8K
C405
6.22
(2125)
IC402 (2/2)
NJM4580M
C404
0.1
R410
2.2K
R406
4.7K
R416
10K
R417
10K
XPLAY
(CN102-24)
T OFF
(CN102-4,6)
Q404
2PD601A-Q/R
V12R
IC305 (1/2)
NJM072BM
C312
0.1
R319
4.7K
R320
2.2K
IC306 (1/2)
BA10393F
R324
10K
R328
3.3K
(CN101-
26, 27)
DOC
C309
0.1
D307
1SS355
C311
4700P
R318
1M
IC305 (2/2)
NJM072BM
IC302 (1/2)
NJM072BM
IC304 (1/2)
NJM4580M
R321
5.6K
R322
1K
C313
0.047
C314
0.1
R323
2.2K
IC306 (2/2)
BA10393F
C315
0.1
R326
3.3K
R327
10K
MIRR
(CN102-
20)
Q308
DTC114EK
D308
DAN202K
R325
220K
R329
22K
C316
100P
R330
22K
Q304
DTC114EK
(CN102-22)
DVD XCD

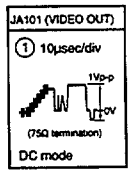
3.14 MYCB ASSY

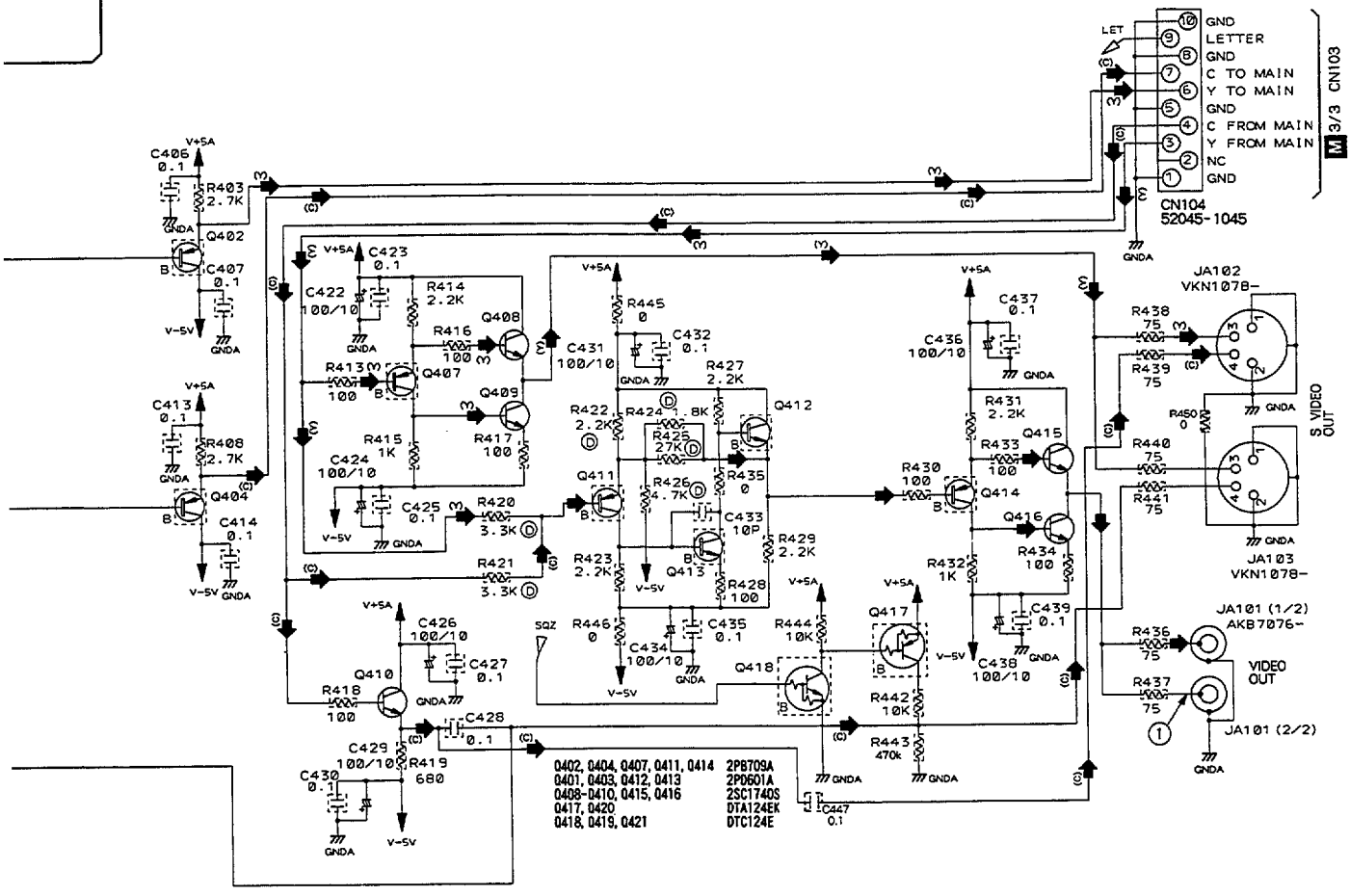
Q MYCB ASSY (VWS1519)



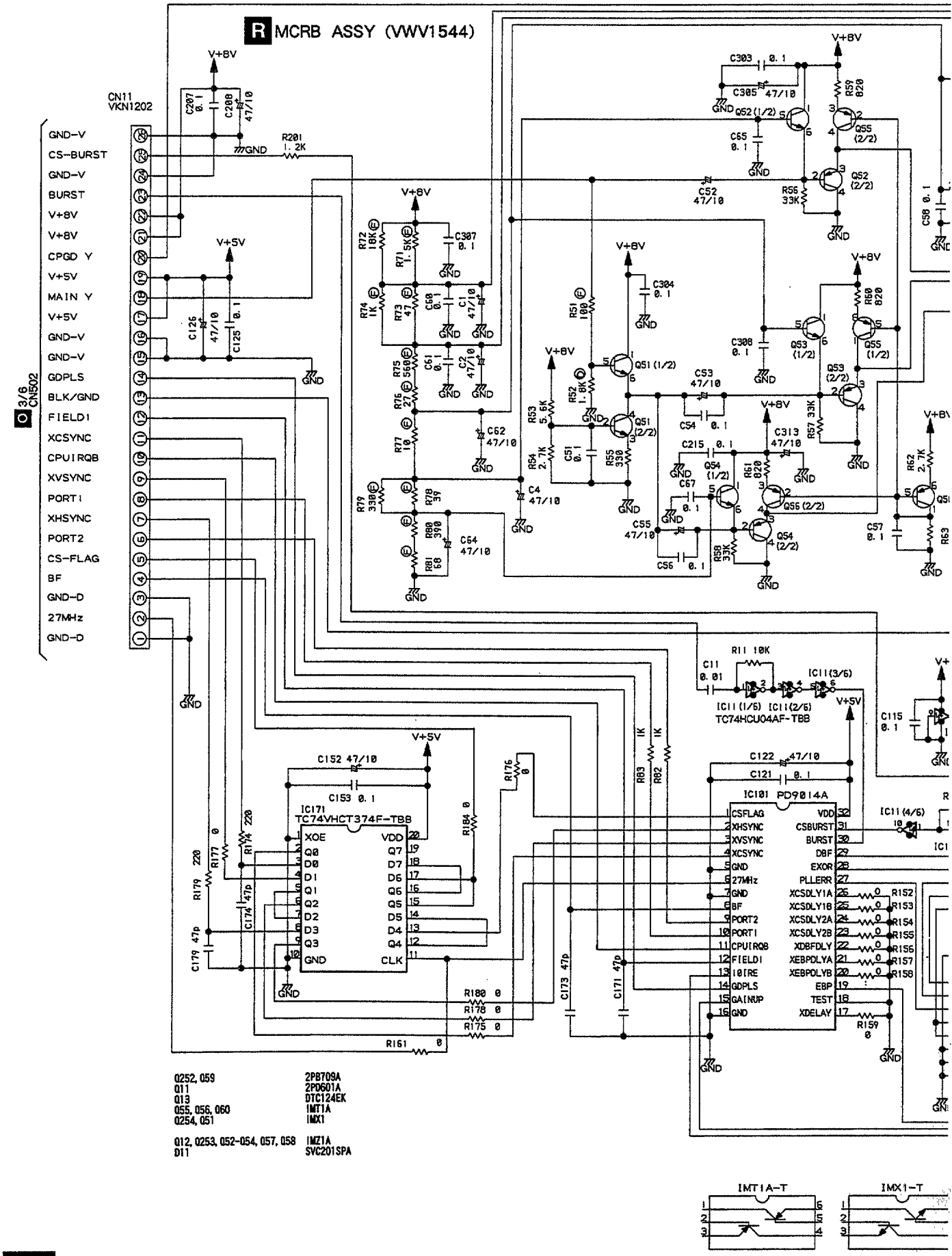

M 3/3 CN102
M 3/3 CN101
CN102
BTFN20P-3RD7
BTFN12P-3RD7
CN1101
• SIGNAL ROUTE
: VIDEO SIGNAL ROUTE
: Y SIGNAL ROUTE
: C SIGNAL ROUTE
C213 0.1
C214 100/10
C215 0.1
C212 100/10
C216 100/10
C217 0.1
V+5D
V+5A
V-5V
GNDD
GNDA
SQZ

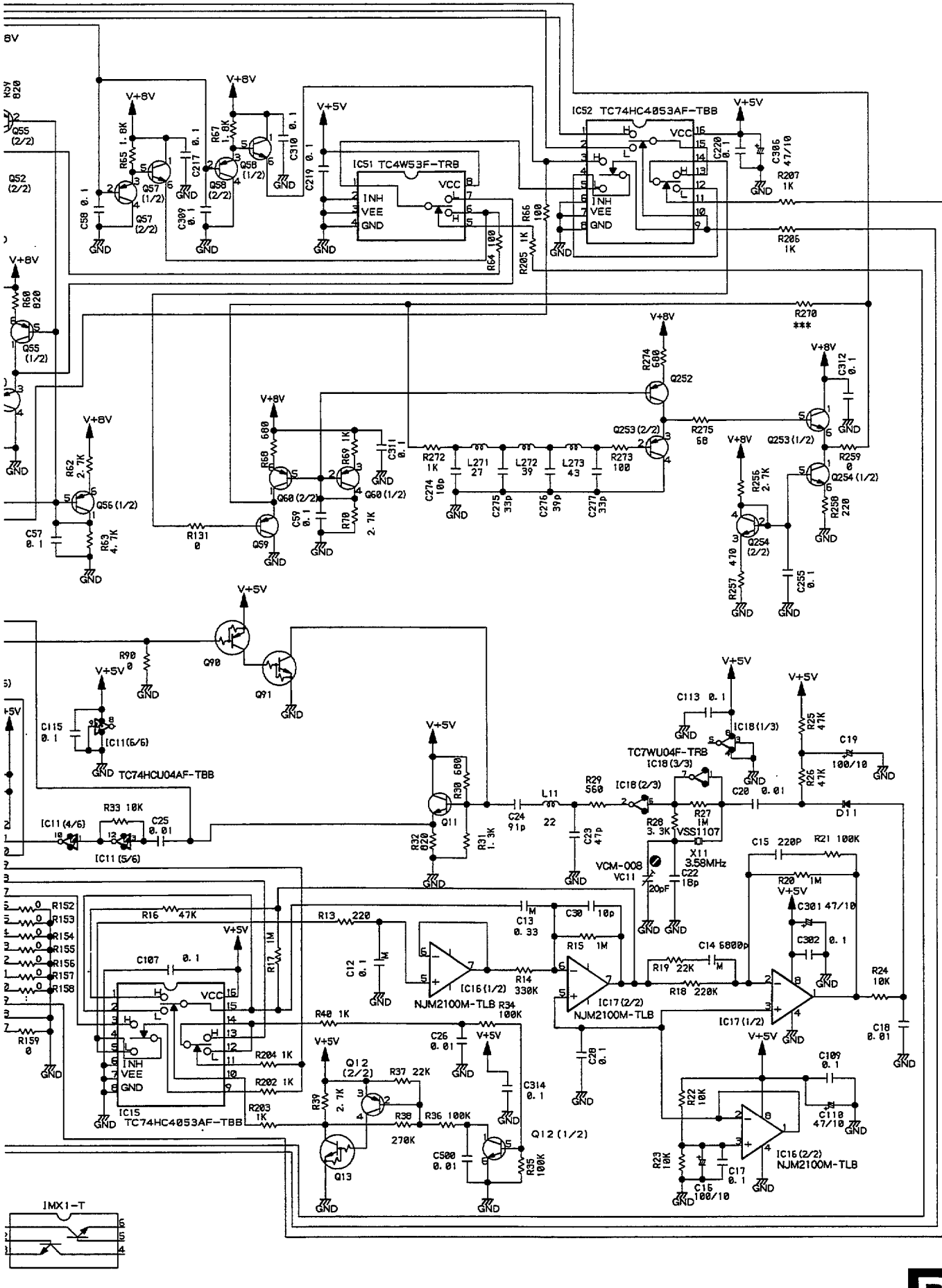

VD7 VD6 VD5 VD4 VD3 VD2 VD1 VD0
W171 W173 W175 W176 W177 W178 W180 W182
V18 V17 V16 V15 V14 V13 V12 V11


JA101 (VIDEO OUT)
1 10µsec/div
1Vp-p
0V
(75Ω termination)
DC mode


M 3/3 CN103
CN104
52045-1045
GND
LETTER
C TO MAIN
Y TO MAIN
C FROM MAIN
Y FROM MAIN
NC
JA102
VKN1078-
JA103
VKN1078-
JA101 (1/2)
AKB7076-
JA101 (2/2)
S VIDEO OUT
VIDEO OUT
0402, 0404, 0407, 0411, 0414 2PB709A
0401, 0403, 0412, 0413 2PD601A
0408-0410, 0415, 0416 2SC1740S
0417, 0420 DTA124EK
0418, 0419, 0421 DTC124E

3.15 MCRB ASSY




IC52 TC74HC4053AF-TBB
IC51 TC4W53F-TRB
IC15 TC74HC4053AF-TBB
TC74HCU04AF-TBB
TC7WU04F-TRB
IC18(1/3)
IC18(2/3)
IC18(3/3)
IC11(6/6)
IC11(4/6)
IC11(5/6)
IC16(1/2)
IC16(2/2)
IC17(2/2)
IC17(1/2)
NJM2100M-TLB
VSS1107
X11
3.58MHz
VCM-008
VC11
20pF
Q252
Q253(2/2)
Q253(1/2)
Q254(1/2)
Q254(2/2)
Q60(2/2)
Q60(1/2)
Q56(1/2)
Q55(1/2)
Q55(2/2)
Q57(1/2)
Q57(2/2)
Q58(2/2)
Q58(1/2)
Q90
Q91
Q11
Q12(2/2)
Q12(1/2)
Q13
Q59
V+8V
V+5V
GND
VCC
INH
VEE
IMX1-T

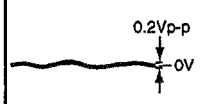
• WAVEFORMS AND VOLTAGE

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

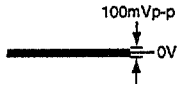
Measurement condition : In case when (D.audio) is written, at time when disc that has digital audio recording is played.

M CLD MAIN ASSY

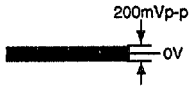
IC801 (LA9425)

(9) 10msec/div


DC mode

(20) 5msec/div


DC mode

(22) 5msec/div


DC mode

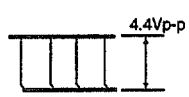
IC802 (LC78681KE)

(2) 0.1µsec/div

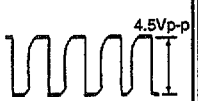

AC mode (D.audio)

(33) 10µsec/div

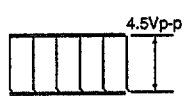

AC mode (D.audio)

(35) 0.2µsec/div


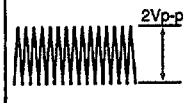
AC mode (D.audio)

(36) 0.2µsec/div


AC mode (D.audio)

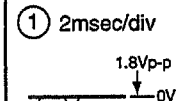
(43) 0.1µsec/div


AC mode (D.audio)

(59) 0.1µsec/div


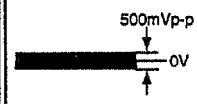
AC mode (D.audio)

IC803 (LA6510)

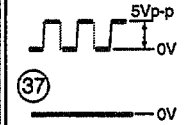
(1) 2msec/div


DC mode

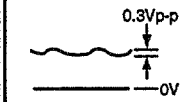
IC901 (LA9420M)

(16) 5msec/div


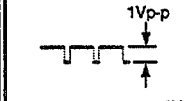
DC mode

(38) 10µsec/div


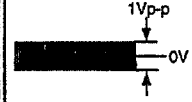
DC mode

(40) 10msec/div


DC mode

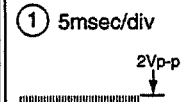
(48) 50µsec/div


DC mode

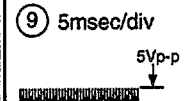
(60) 5msec/div


DC mode

IC902 (TA8410AK)

(1) 5msec/div


DC mode

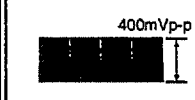
(9) 5msec/div


DC mode

IC400 (LA7134M)

(10) 10µsec/div


DC mode

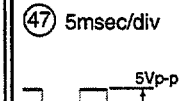
(27) 2msec/div


AC mode

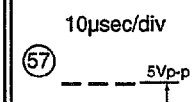
(25) 10µsec/div


DC mode

IC500 (PD6159A)

(47) 5msec/div


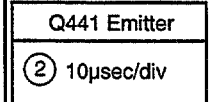
DC mode

10µsec/div
(57)


(56)

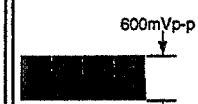
DC mode

Q441 Emitter

(2) 10µsec/div


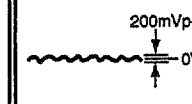
AC mode

CN801

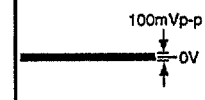
(12) 2msec/div


AC mode

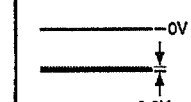
CN802

(7) 5msec/div


DC mode

(10) 5msec/div


DC mode

(11) 5msec/div


DC mode

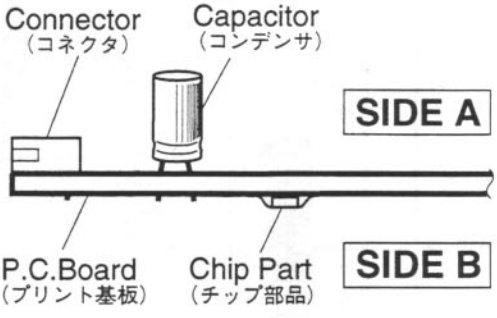
4. PCB CONNECTION DIAGRAM

NOTE FOR PCB DIAGRAMS :

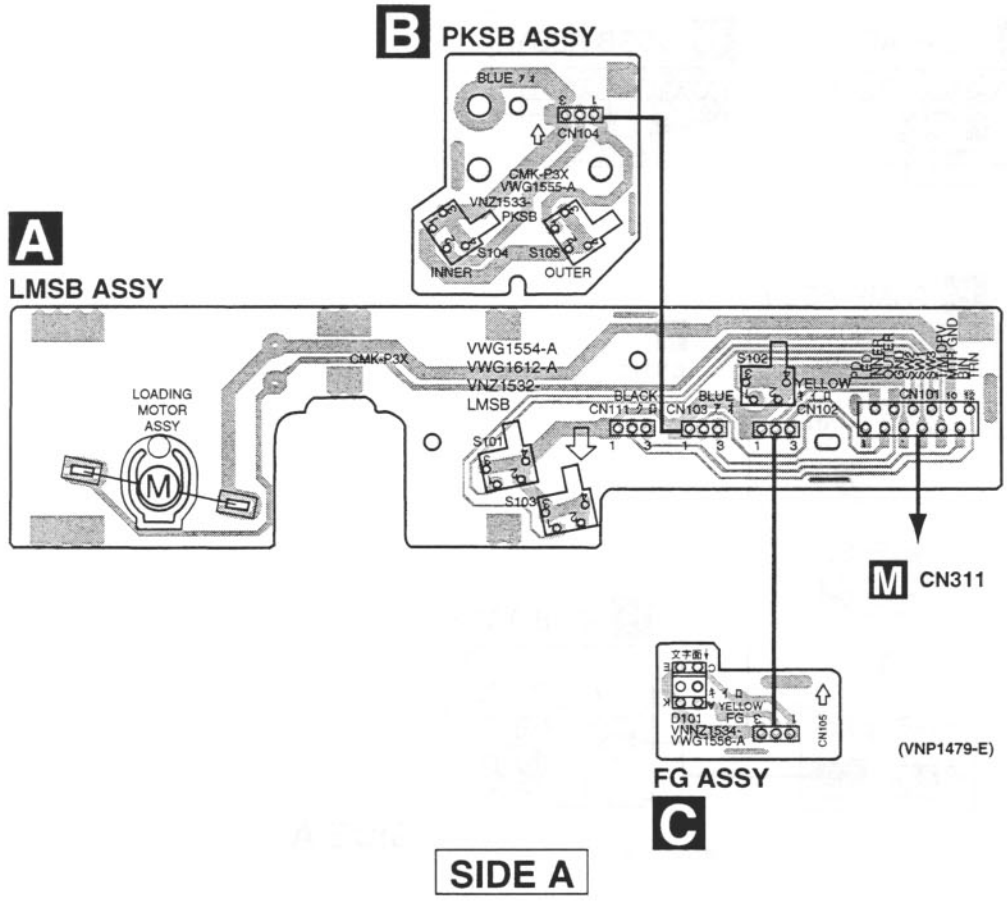
1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

Symbol In PCB Diagrams	Symbol In Schematic Diagrams	Part Name
B C E	B C E B C E	Transistor
B C E	B C E B C E	Transistor with resistor
D G S	D G S D G S	Field effect transistor
		Resistor array
		3-terminal regulator

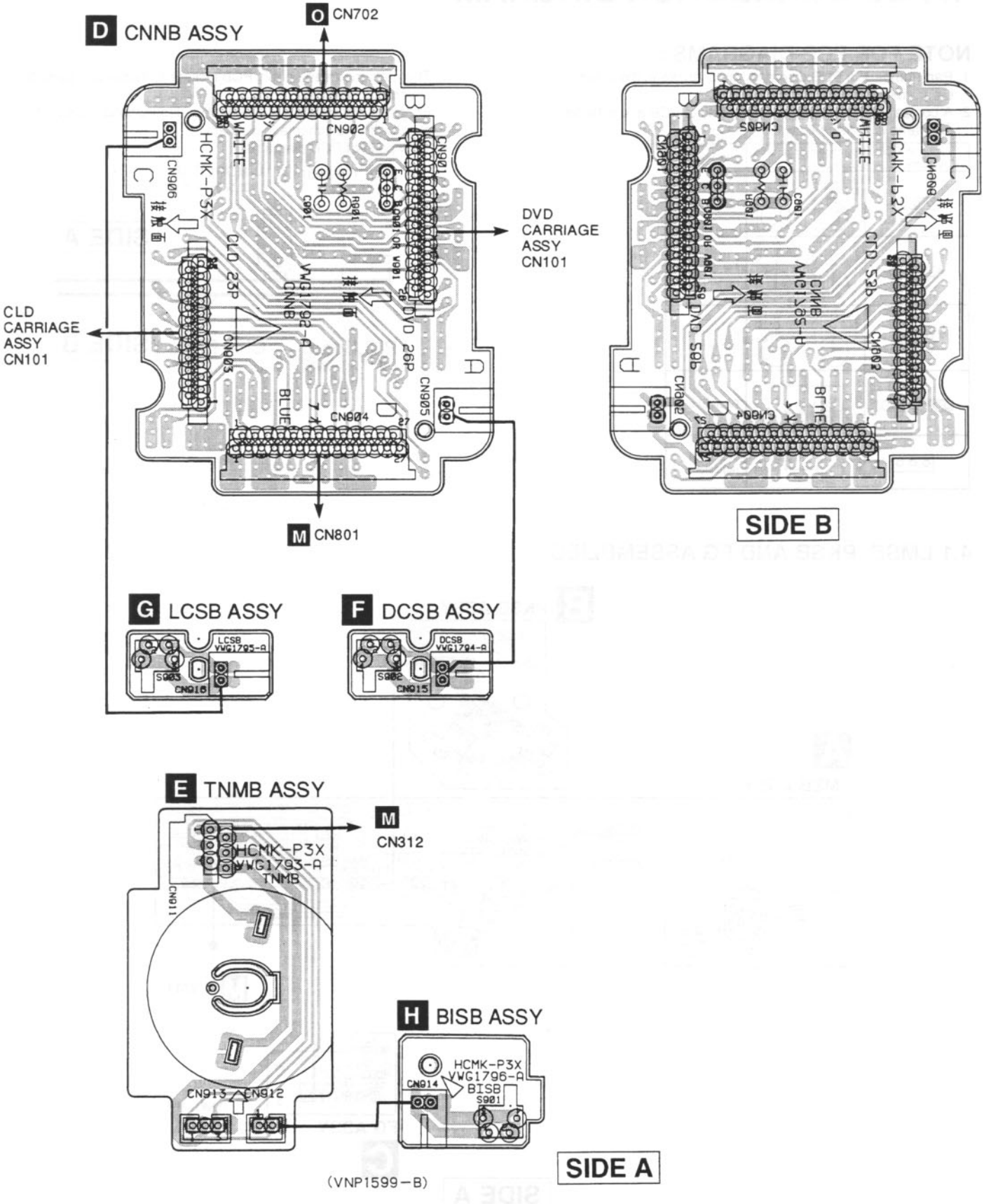
3. The parts mounted on this PCB include all necessary parts for several destinations.
   For further information for respective destinations, be sure to check with the schematic diagram.
4. View point of PCB diagrams.



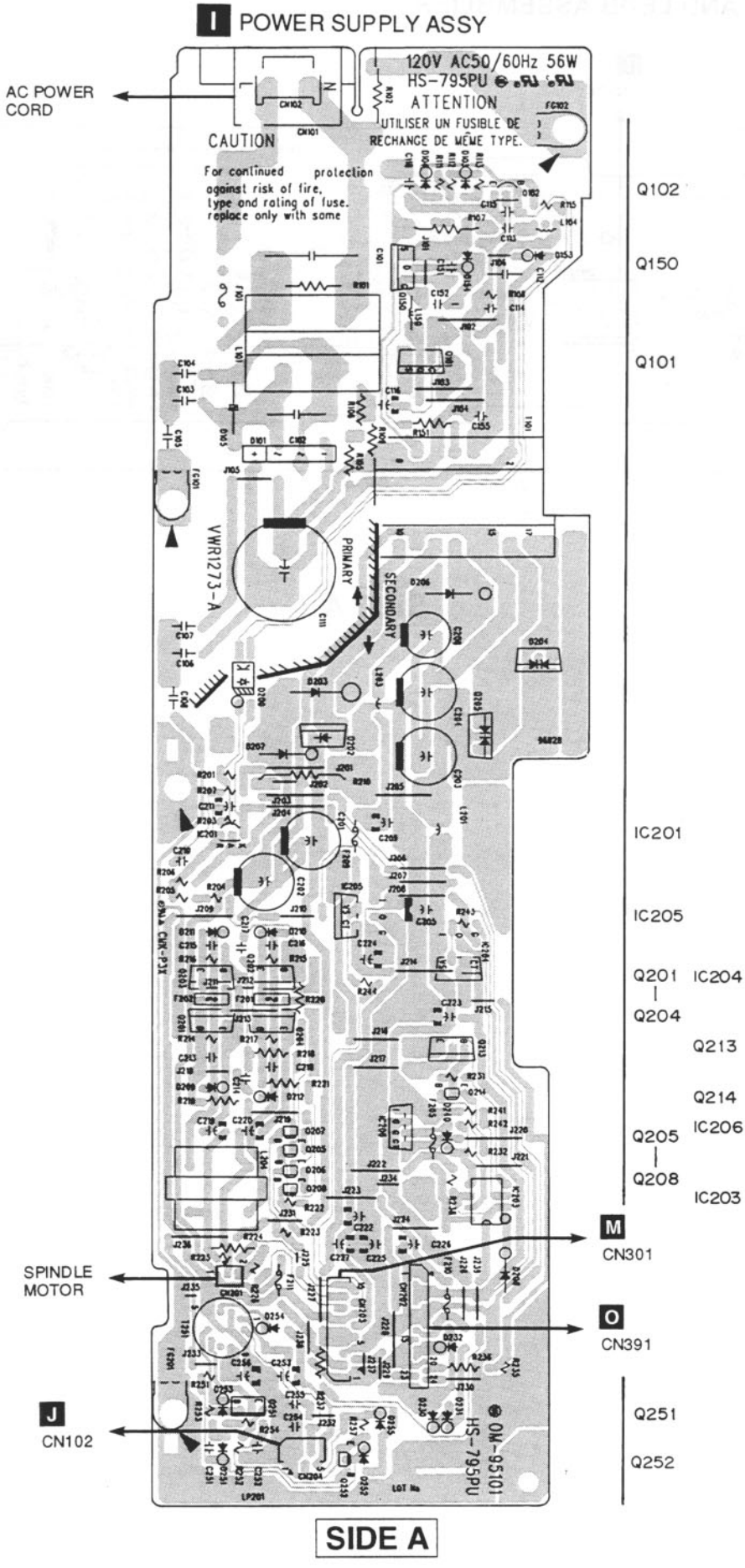
4.1 LMSB, PKSB AND FG ASSEMBLIES



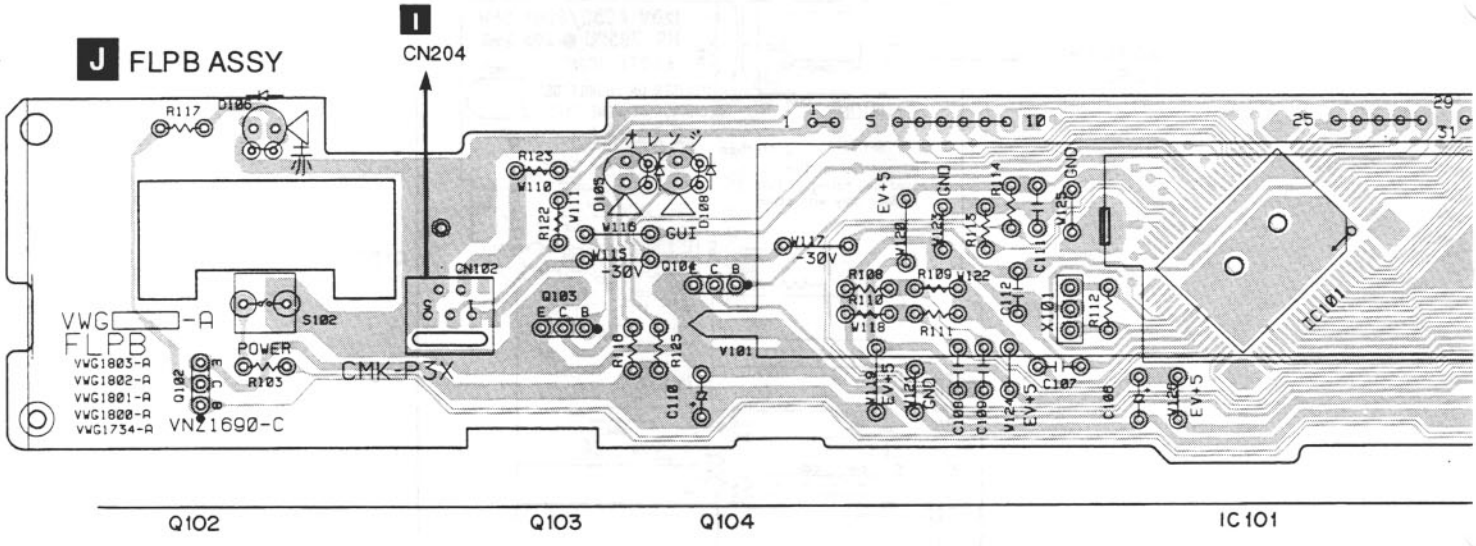
4.2 CNNB, TNMB, DCSB, LCSB AND BISB ASSEMBLIES



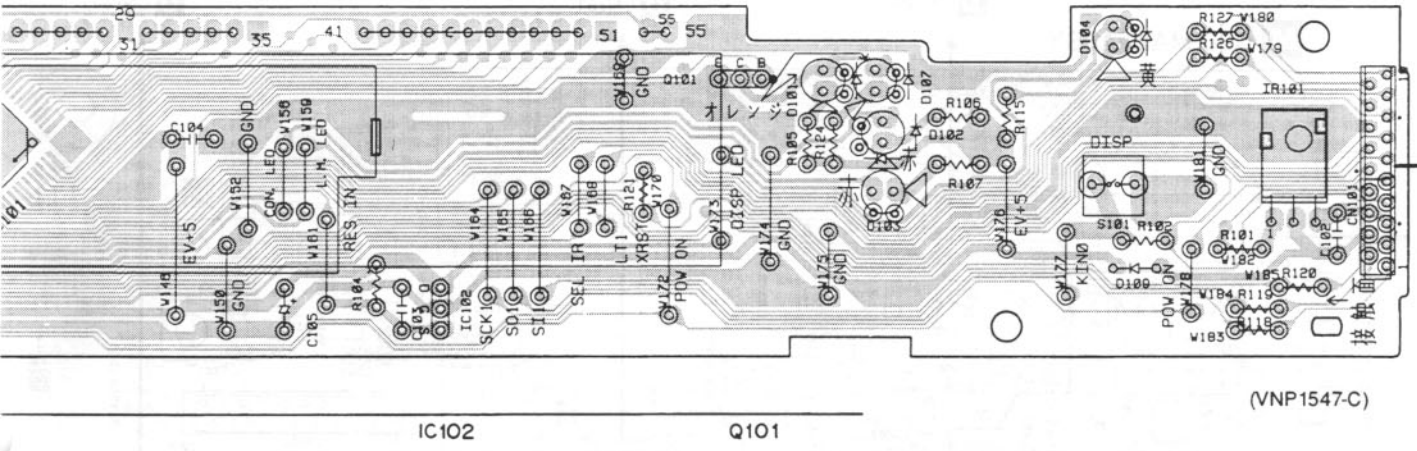
4.3 POWER SUPPLY ASSY



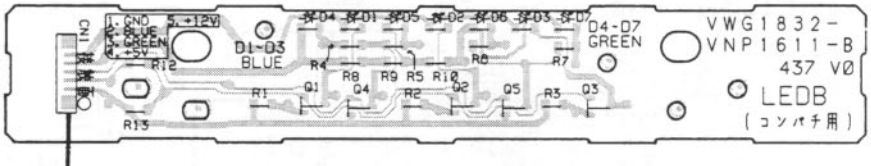
4.4 FLPB, KEYB AND LEDB ASSEMBLIES



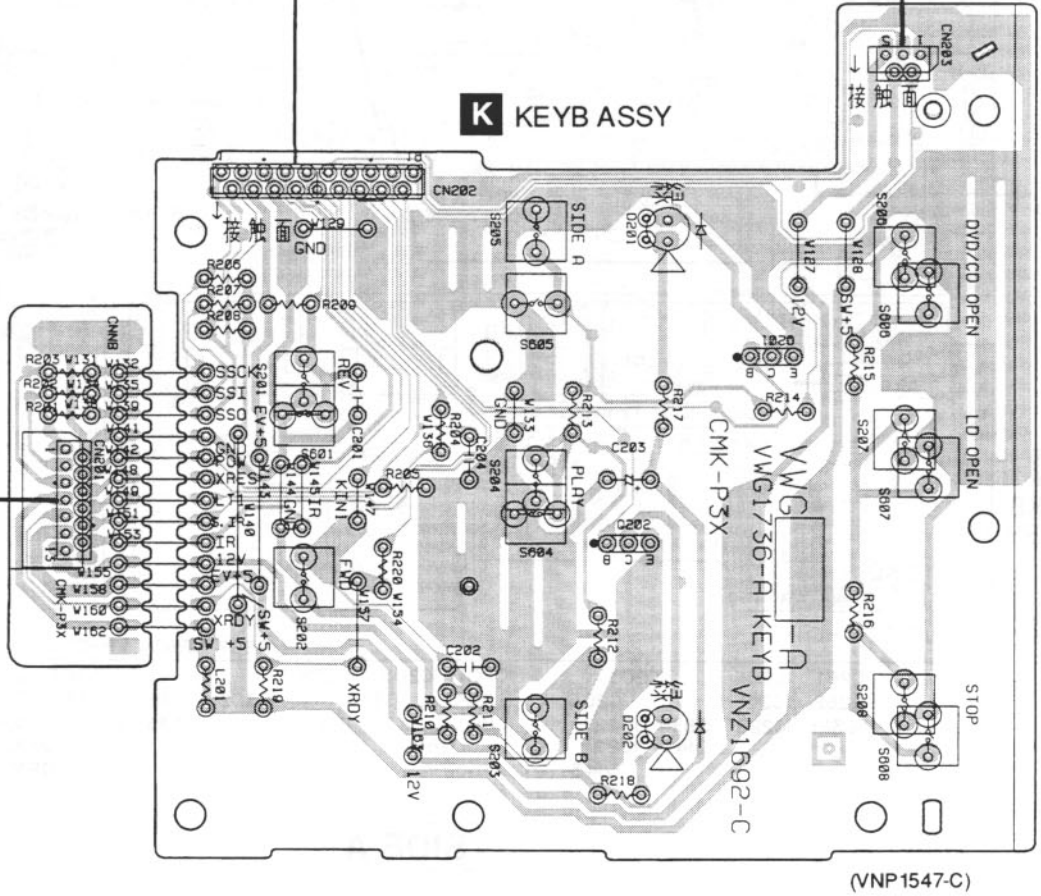
SIDE A



L LEDB ASSY

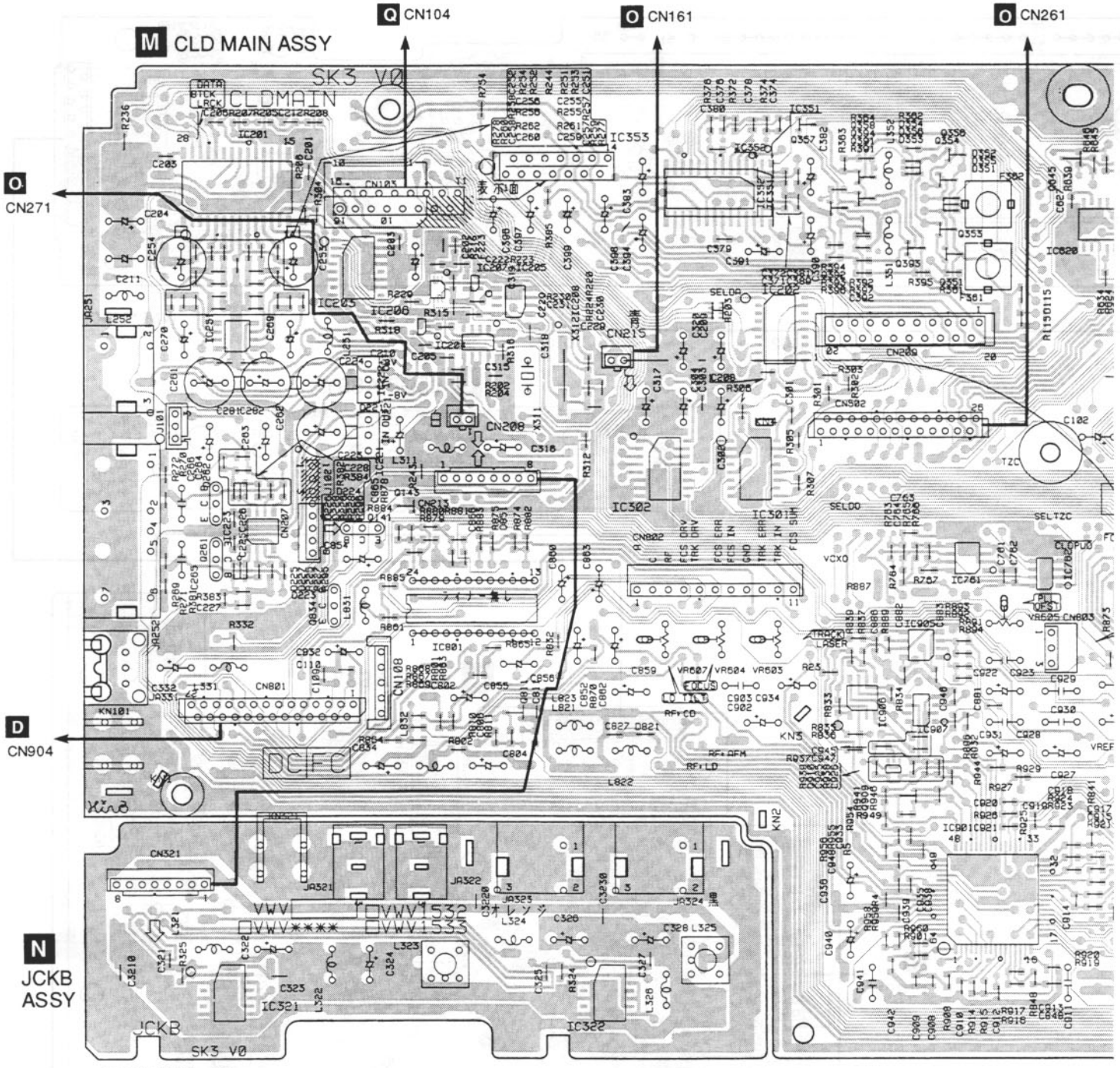


K KEYB ASSY

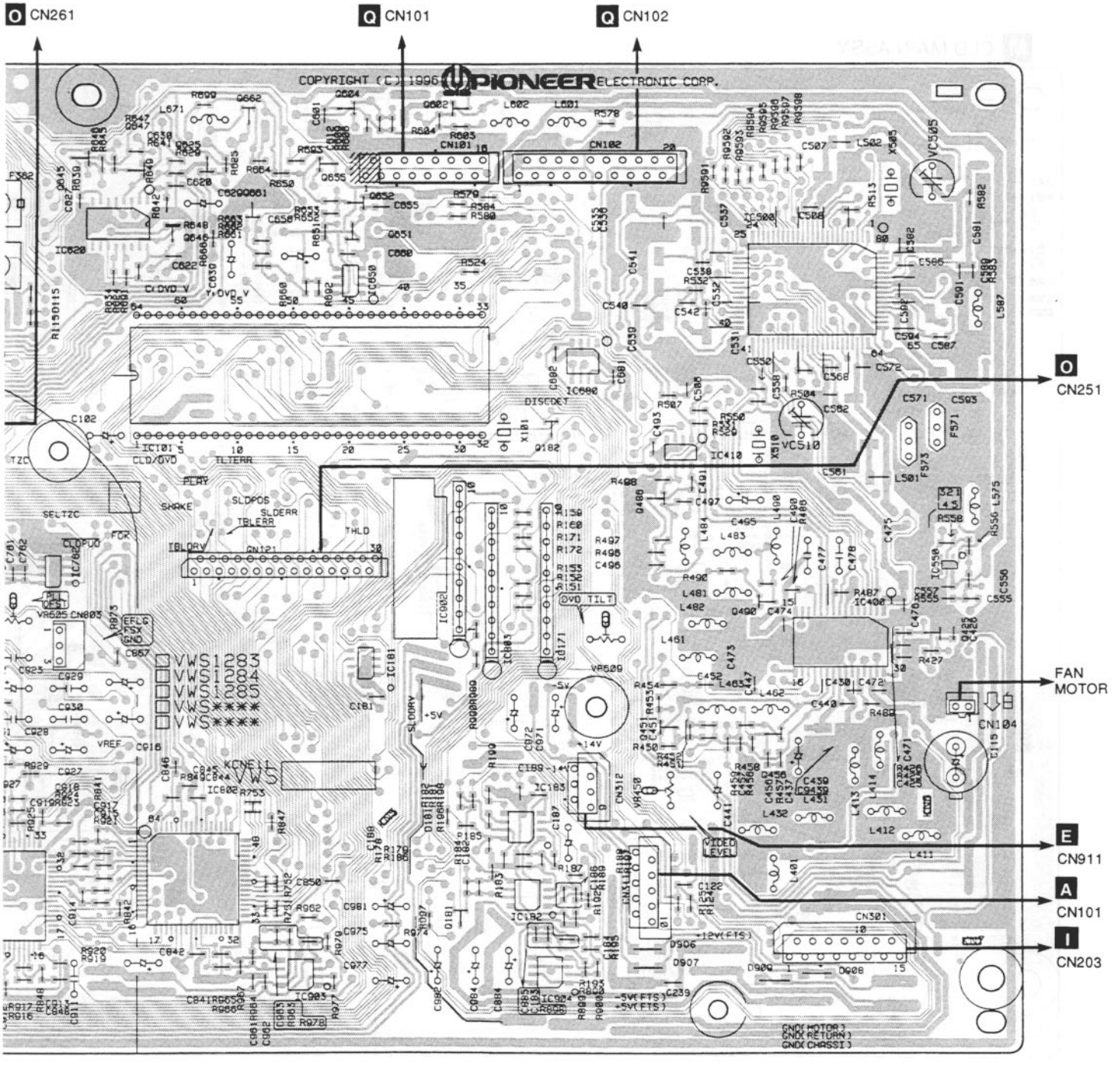


O CN101

4.5 CLD MAIN AND JCKB ASSEMBLIES



SIDE A



VR605 VR609 VR450 VC510 VC505

Q645 IC620 Q625 Q662 Q604 Q651 Q602 IC183 IC500 IC550

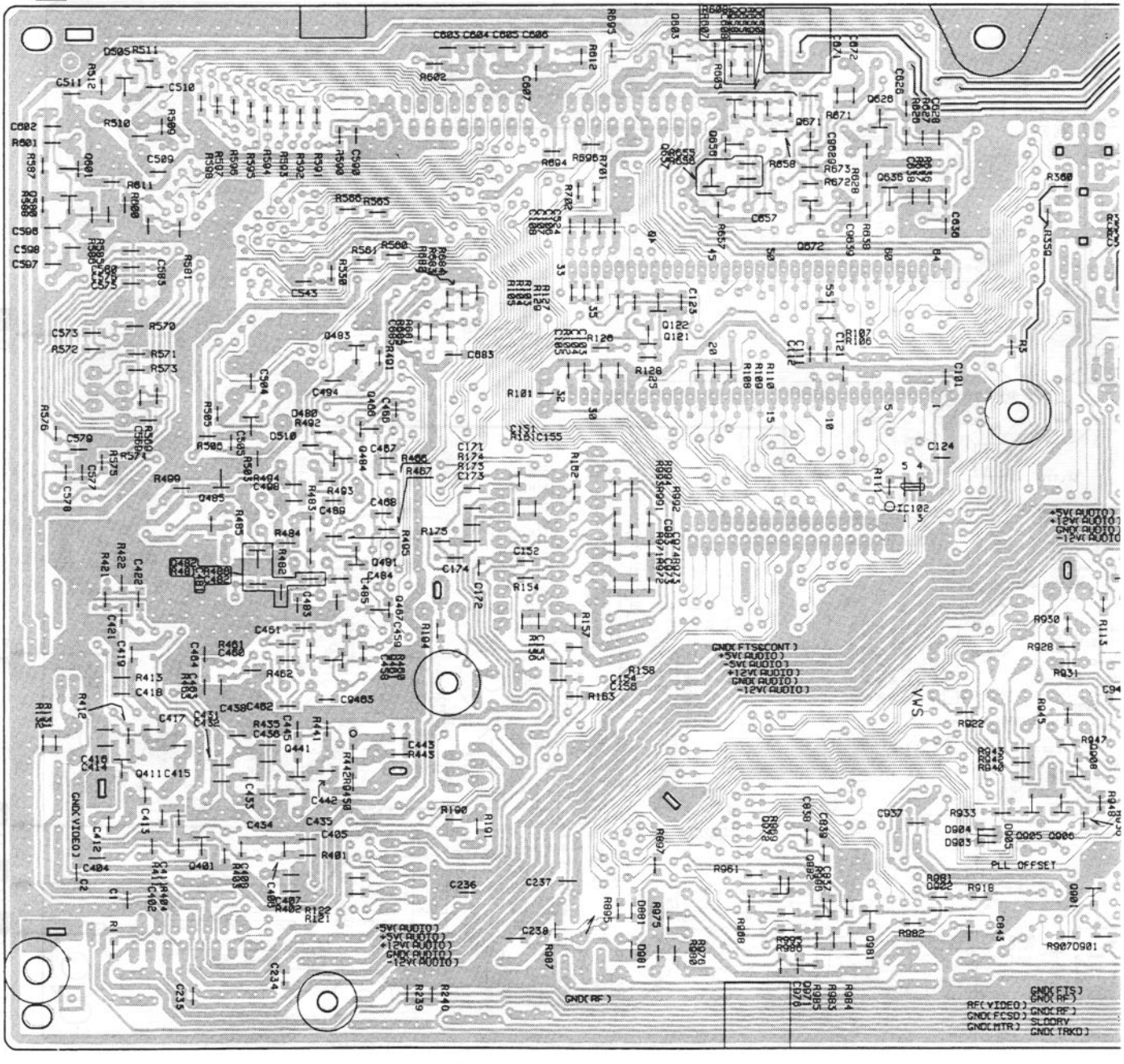
Q647 Q646 Q661 Q655 Q652 IC182 IC680 IC410 IC400

IC762 IC101 IC650 IC902 IC803 IC171 Q486

01 IC802 IC903 IC181 Q181 Q182 Q451 Q490 Q456 Q425

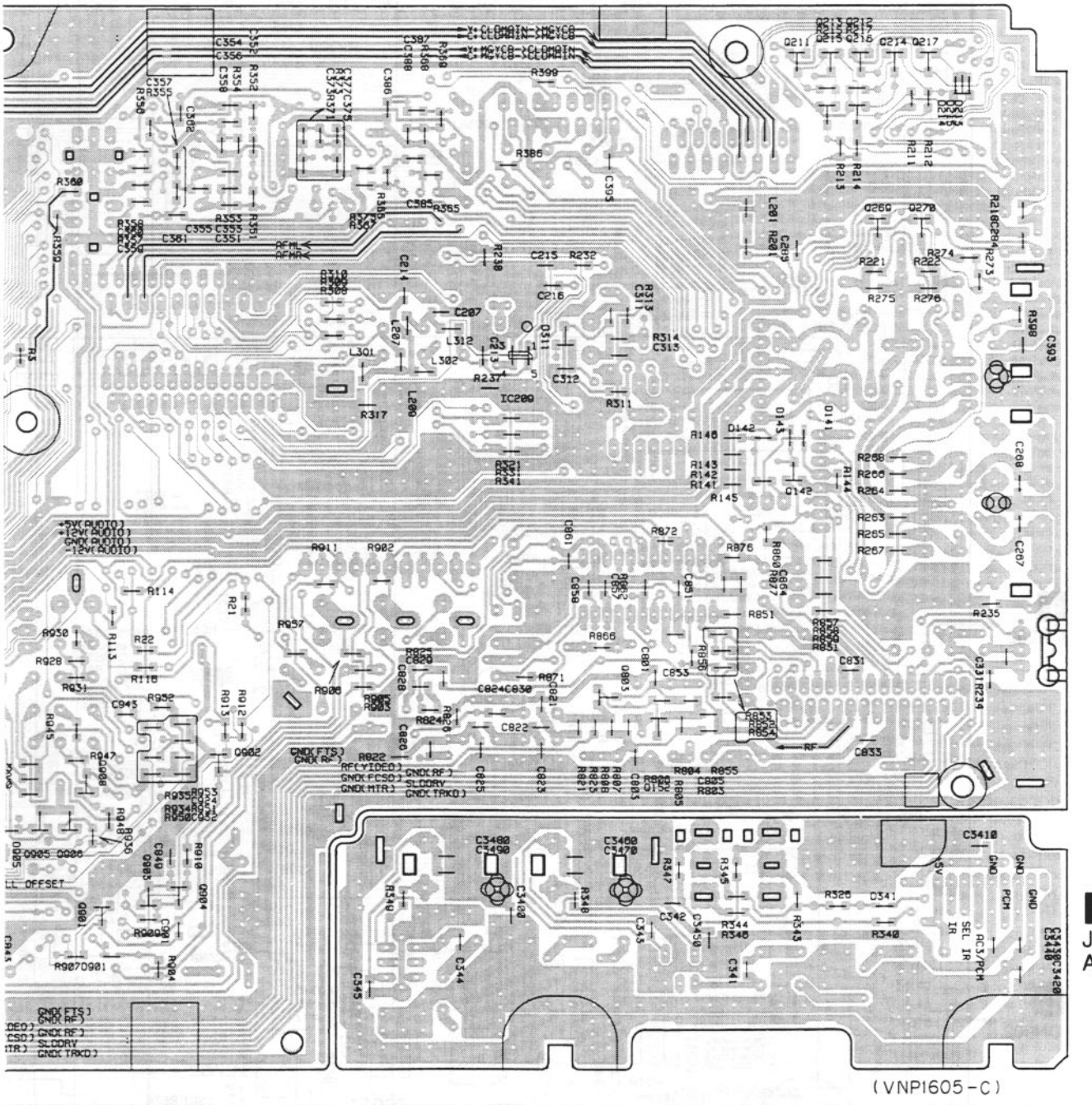
IC904

M CLD MAIN ASSY



Q580
Q601 Q482 Q485 Q441 Q483 Q466 Q467 Q461
Q411 Q401 Q484 Q481
Q603 Q656 Q671 Q626 IC102
Q657 Q658 Q982 Q672 Q636
Q121 Q122 Q972 Q971 Q981
Q908
Q905 Q906 Q90

SIDE B



(VNP1605-C)

N
JCKB
ASSY

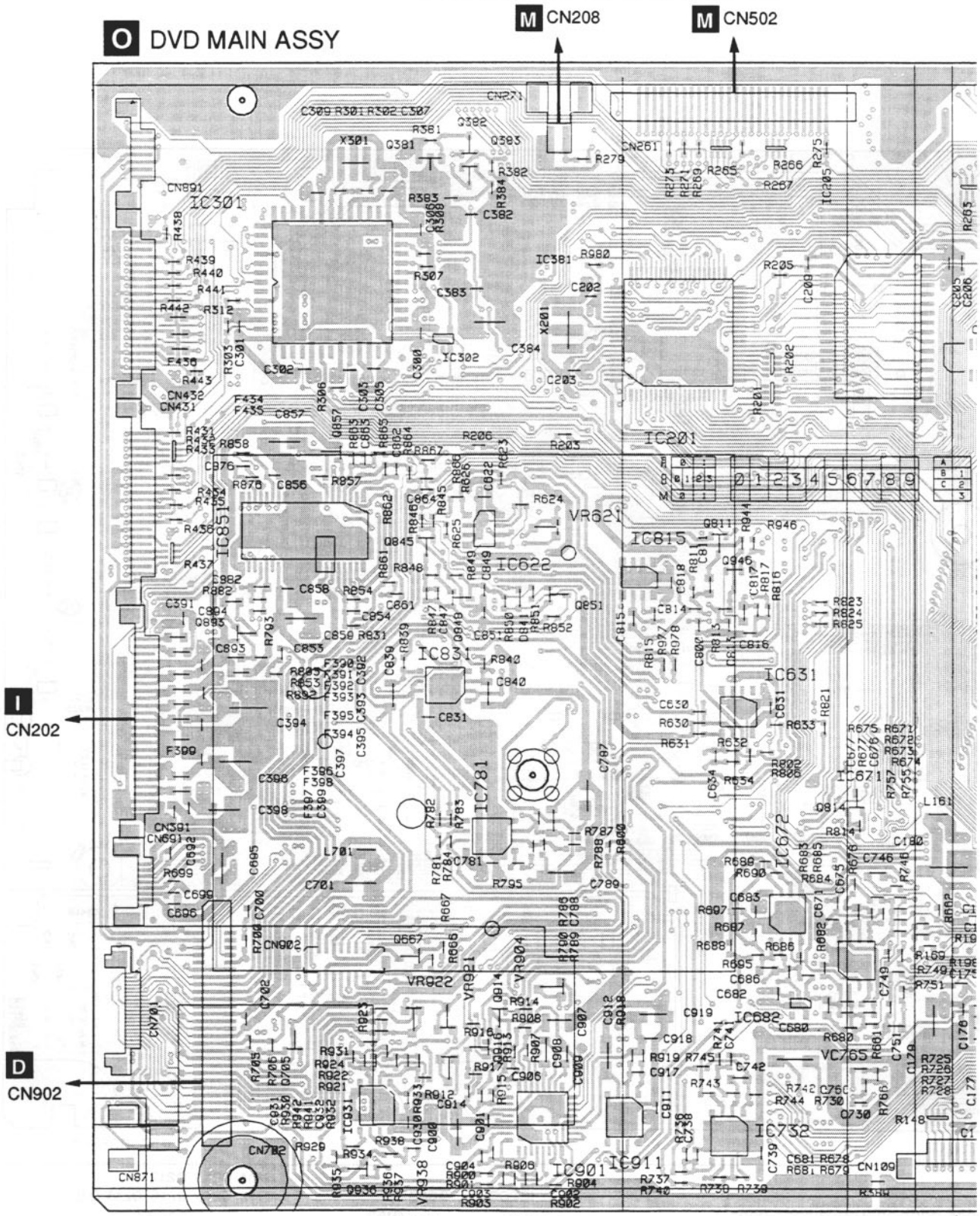
Q908
1905 Q906 Q901 Q903 Q904 Q902

IC209 Q803
Q152

Q211 Q213 Q212
Q142 Q215 Q216 Q214 Q217
Q269 Q270

4.6 DVD MAIN ASSY

• This PCB is a four-layered board.
Middle layer is mainly connected to Vcc and GND.

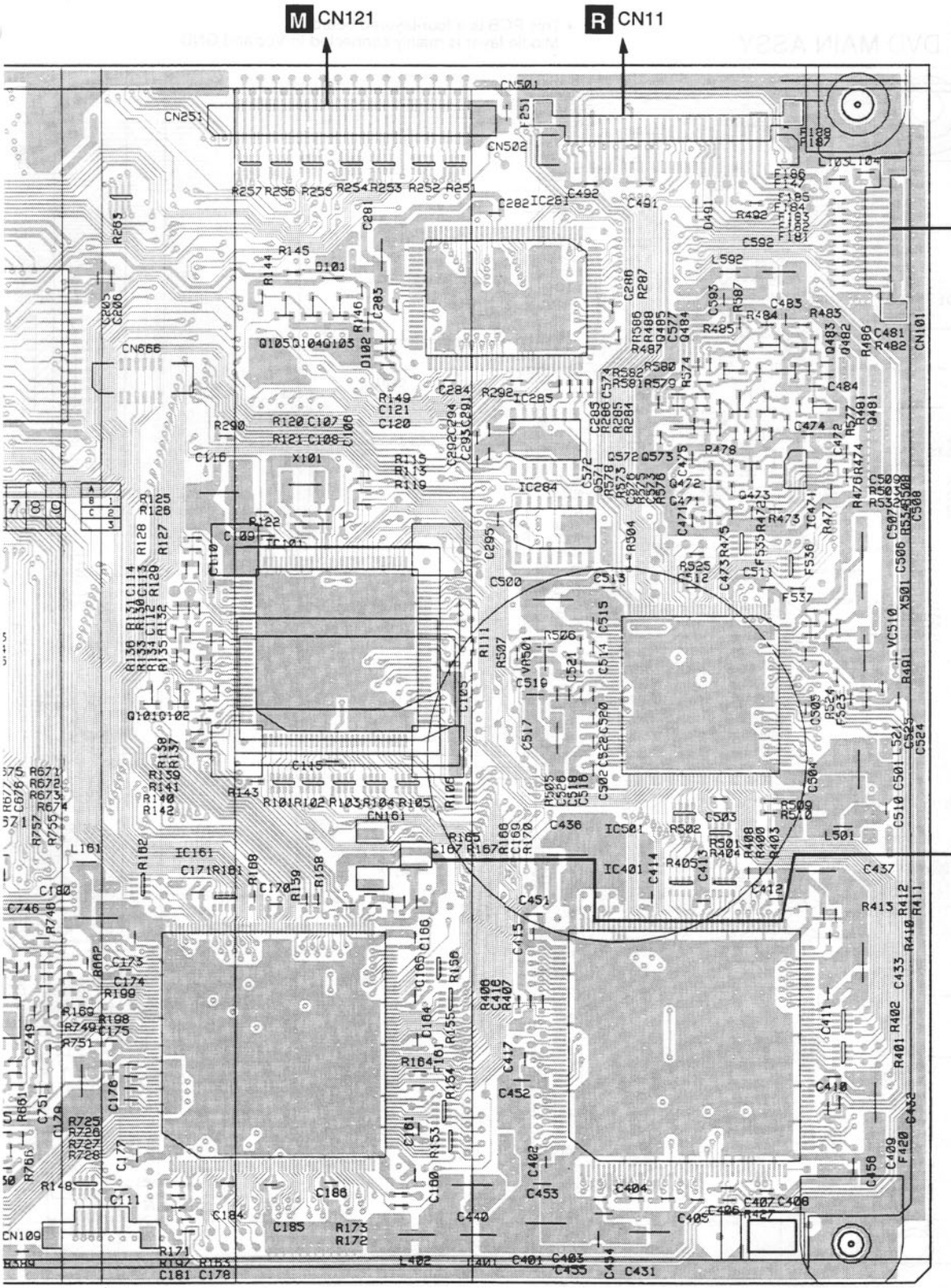


(VNP1550 - B)

VR922 VR621
VR938 VR921 VR904 VC765

IC851 IC301 Q381 Q382 Q383 IC381 IC201 IC631 IC205
Q893 Q705 Q857 Q845 IC302 IC622 Q851 IC815 Q811 IC672 IC671 Q
Q936 IC831 Q848 IC781 IC682 Q814
IC931 Q667 Q916 Q914 IC901 IC911 Q946 IC732

SIDE A



65

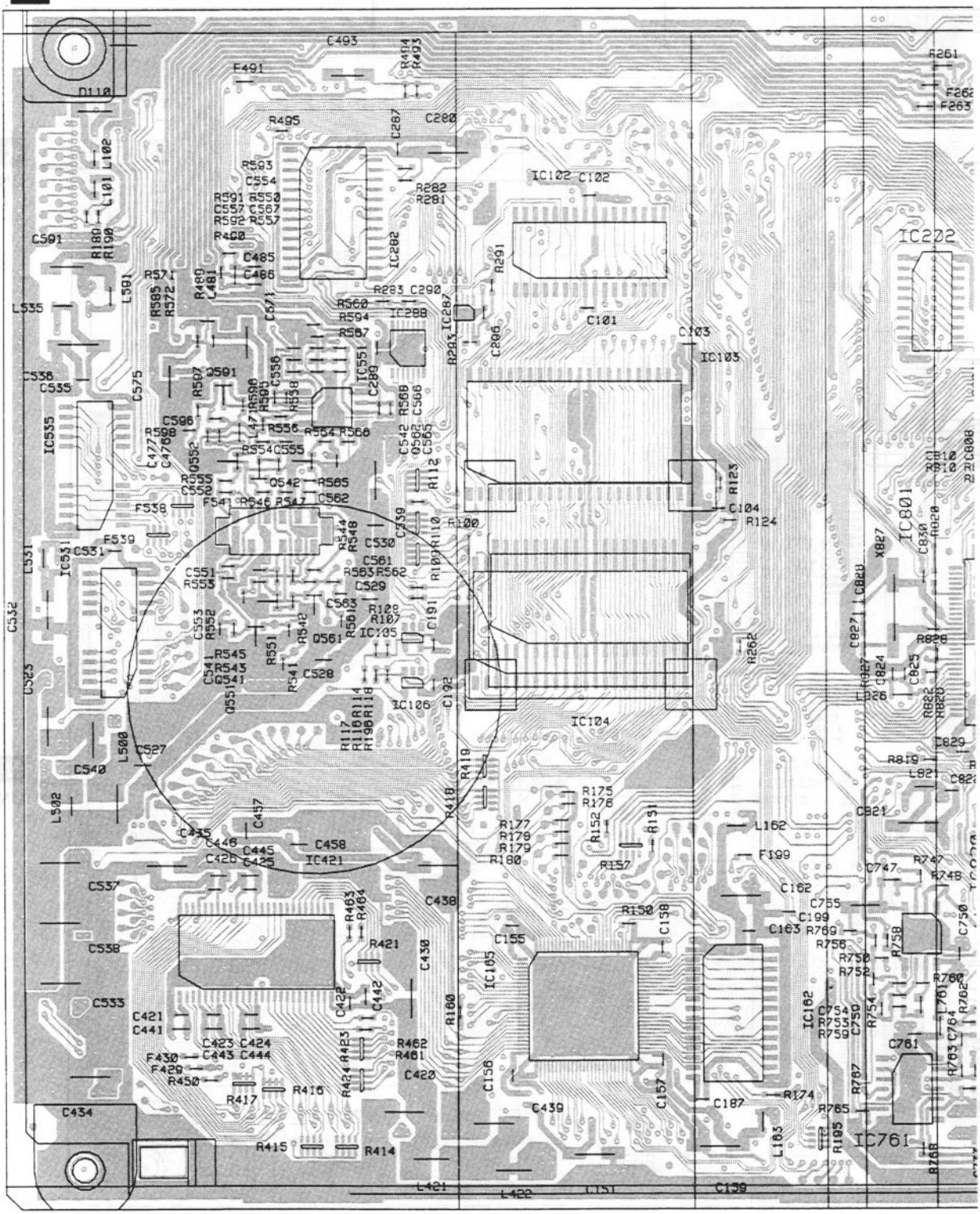
05 Q101 Q102 Q103–Q105 IC101 IC161 IC281 IC285 IC284 Q571–Q573 Q485 Q484 Q481–Q483 IC471 Q471–Q473 IC401 IC501

571

14

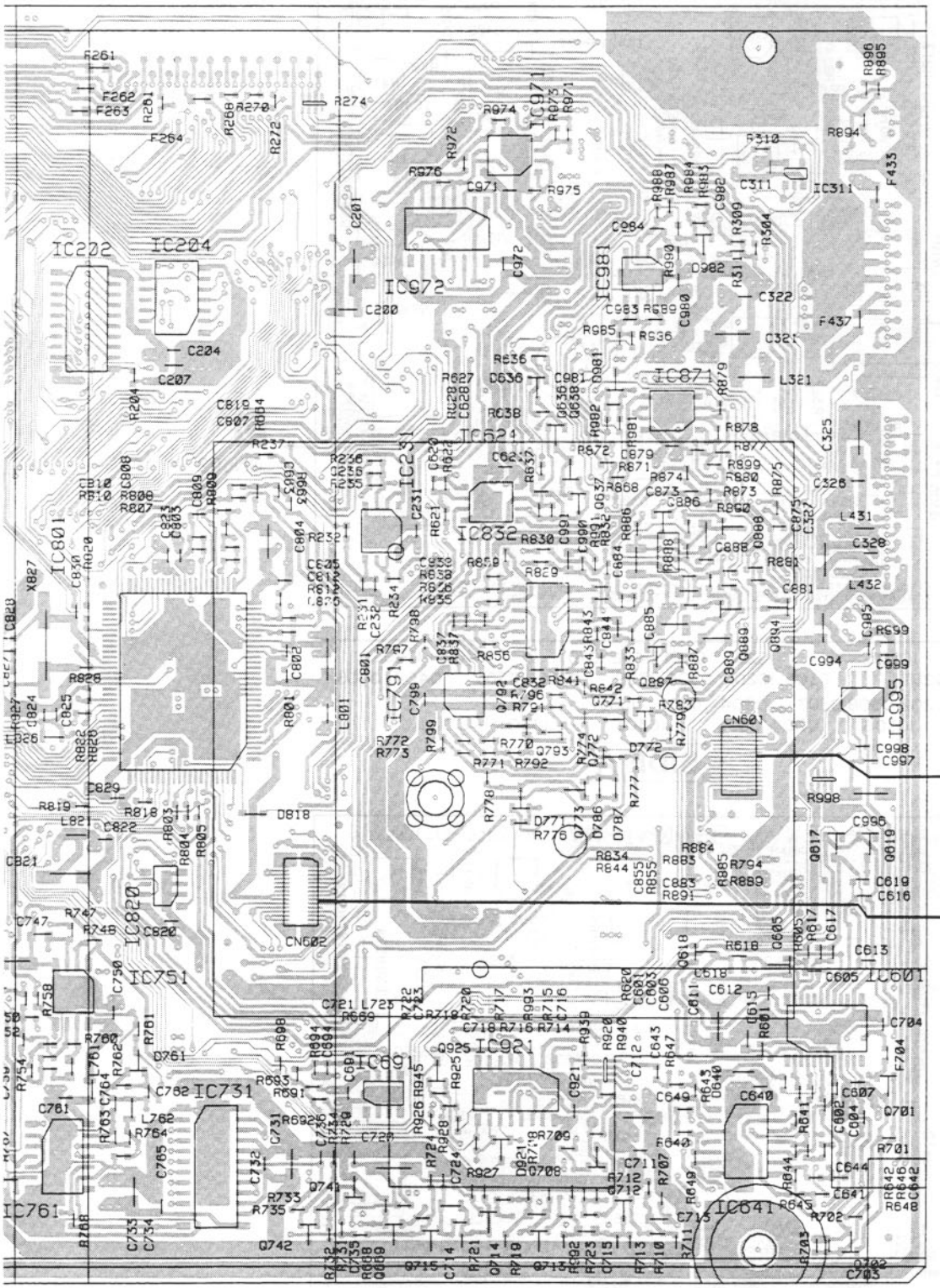
O DVD MAIN ASSY

• This PCB is a four-layered board.
Middle layer is mainly connected to Vcc and GND.



IC535	Q591 Q542 Q562	IC282	IC288	IC102 – IC104		IC202
IC531	Q552 Q541 Q561	IC551	IC287			IC751
	Q551	IC421	IC105	IC106	IC165	IC162	IC761

SIDE B

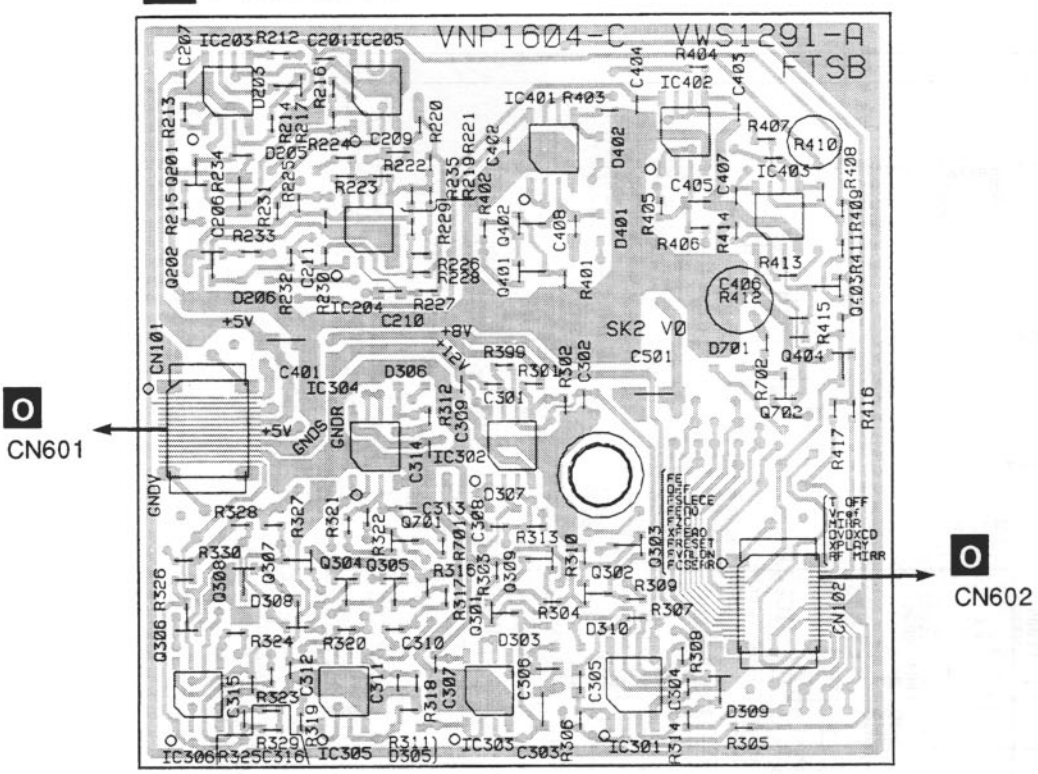


(VNP1550-B)

IC202 IC204 IC231 IC972 IC621 IC971 IC981 IC871 IC311 IC995
IC751 IC801 IC791 IC832 Q636–Q638 Q886–Q889 Q617 Q619
IC761 IC820 IC731 Q741 IC691 Q925 Q792 Q793 Q771–Q773 Q894 Q701
Q742 IC921 Q708 Q618 Q605 IC601
Q669 Q715 Q714 Q713 Q712 IC641 Q702

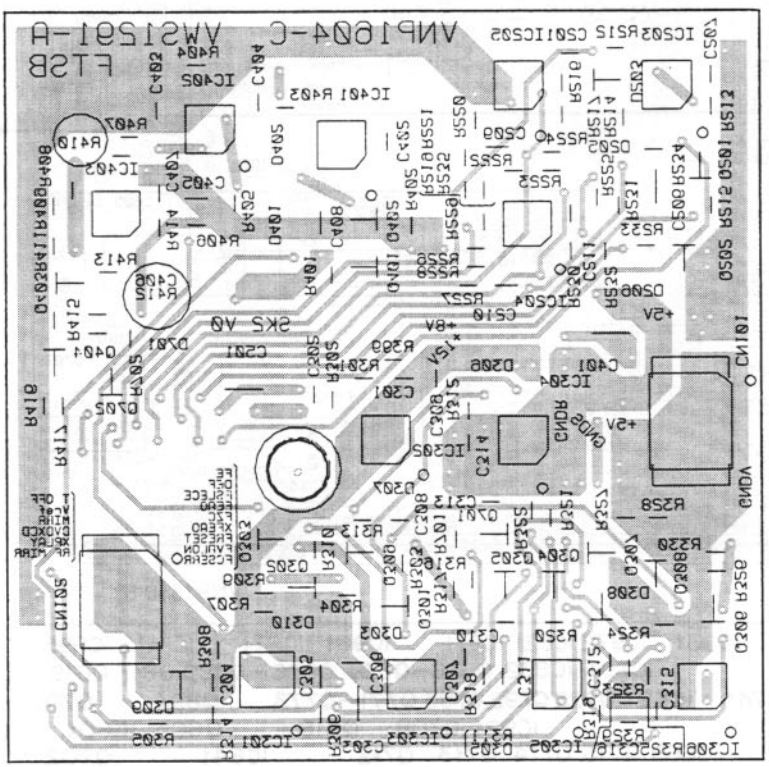
4.7 FTSB ASSY

P FTSB ASSY



IC203 IC205 Q401 Q402 IC401 IC402 IC403
Q201 IC305 IC204 Q305 Q309 Q302 Q303 Q404 Q403
Q202 Q308 Q307 IC304 Q301 IC302
IC306 Q304 Q305 IC303 IC301

SIDE A

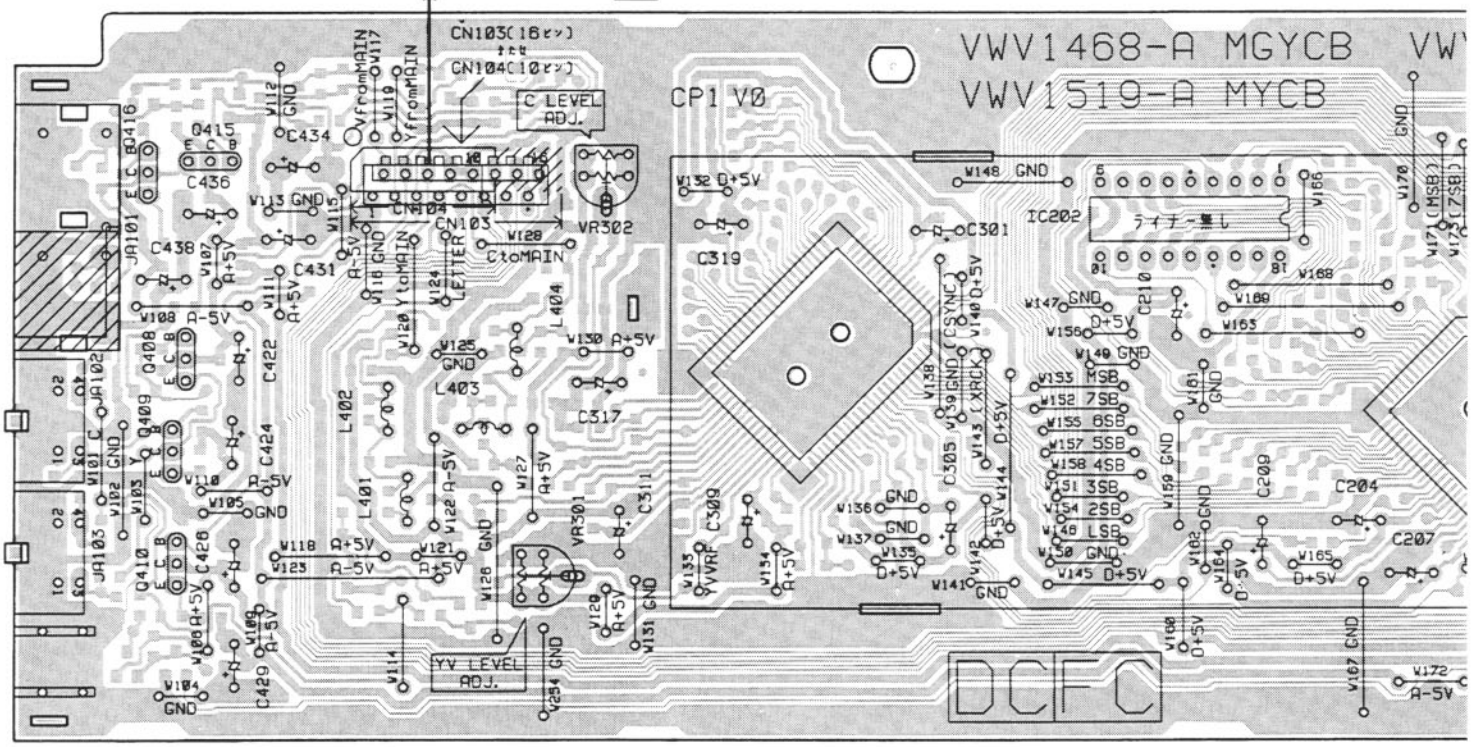


SIDE B

4.8 MYCB ASSY

M CN103

Q MYCB ASSY



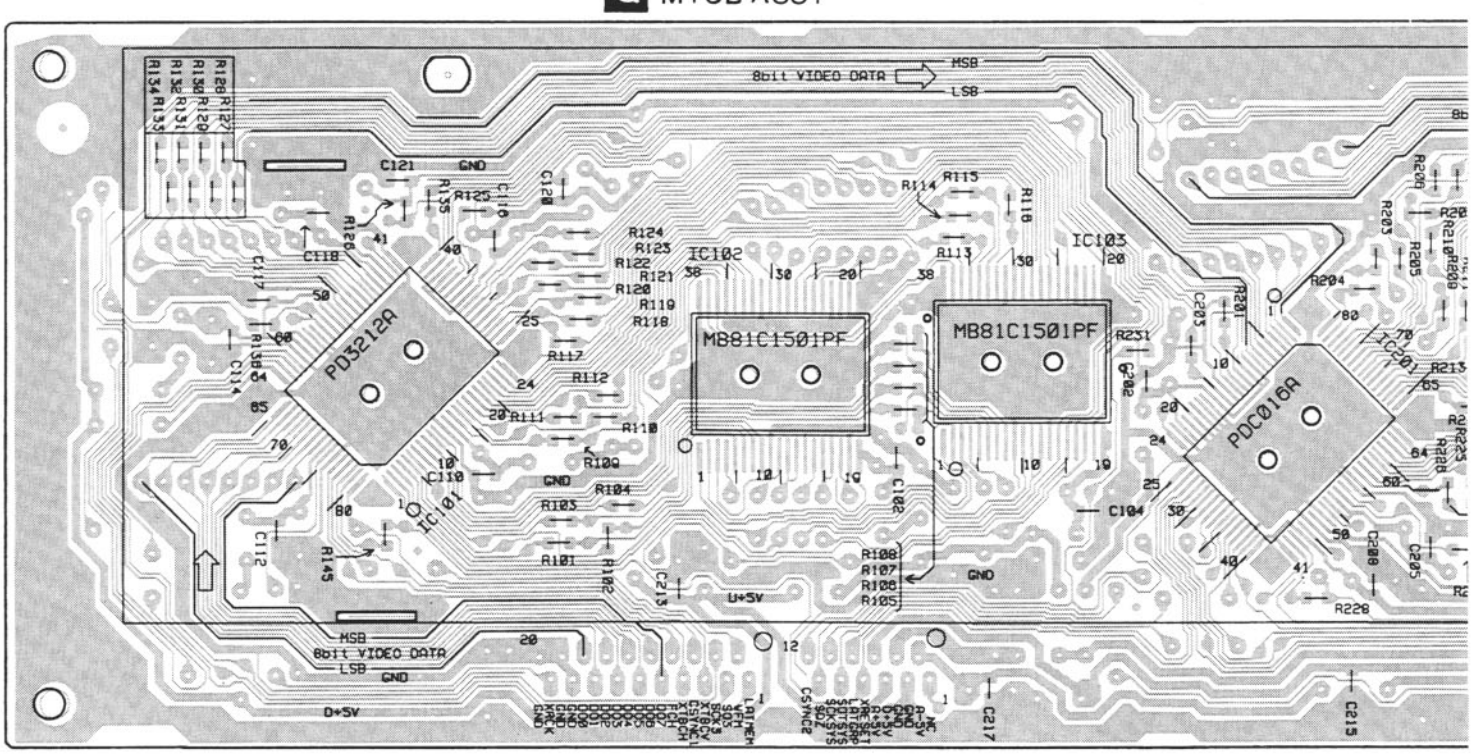
VR301 VR302

Q416 Q415
Q408–Q410

SIDE A

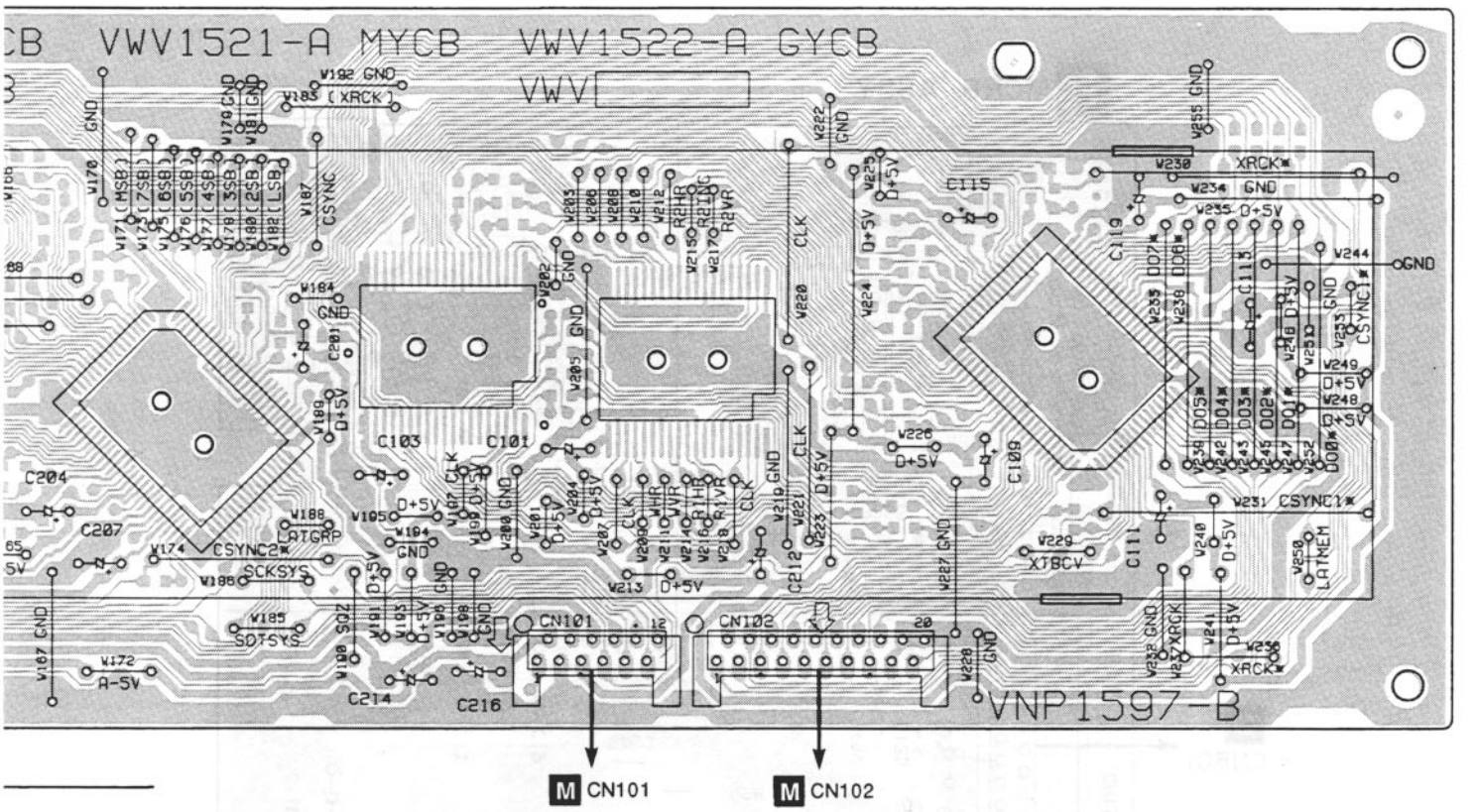
IC202

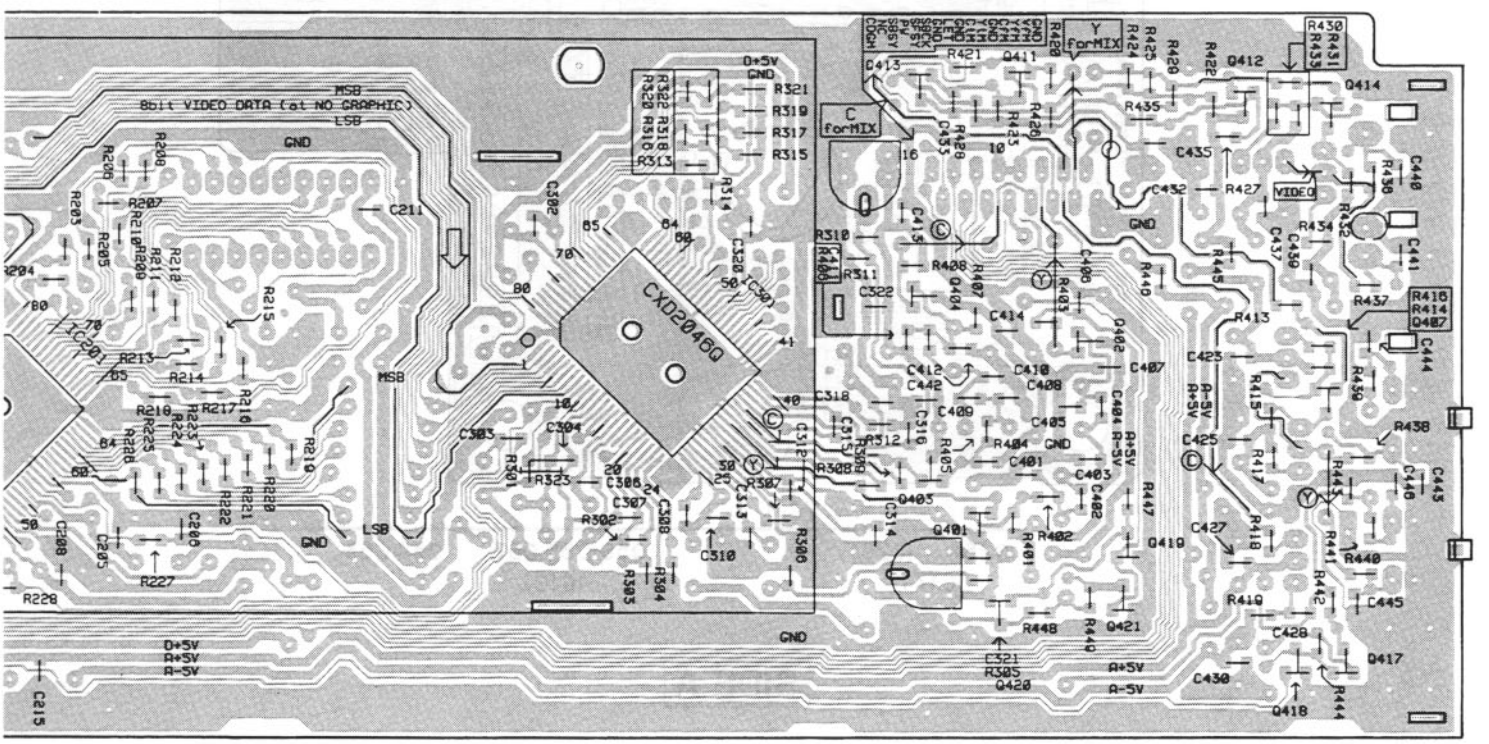
Q MYCB ASSY



IC101 IC102 IC103 IC201

SIDE B

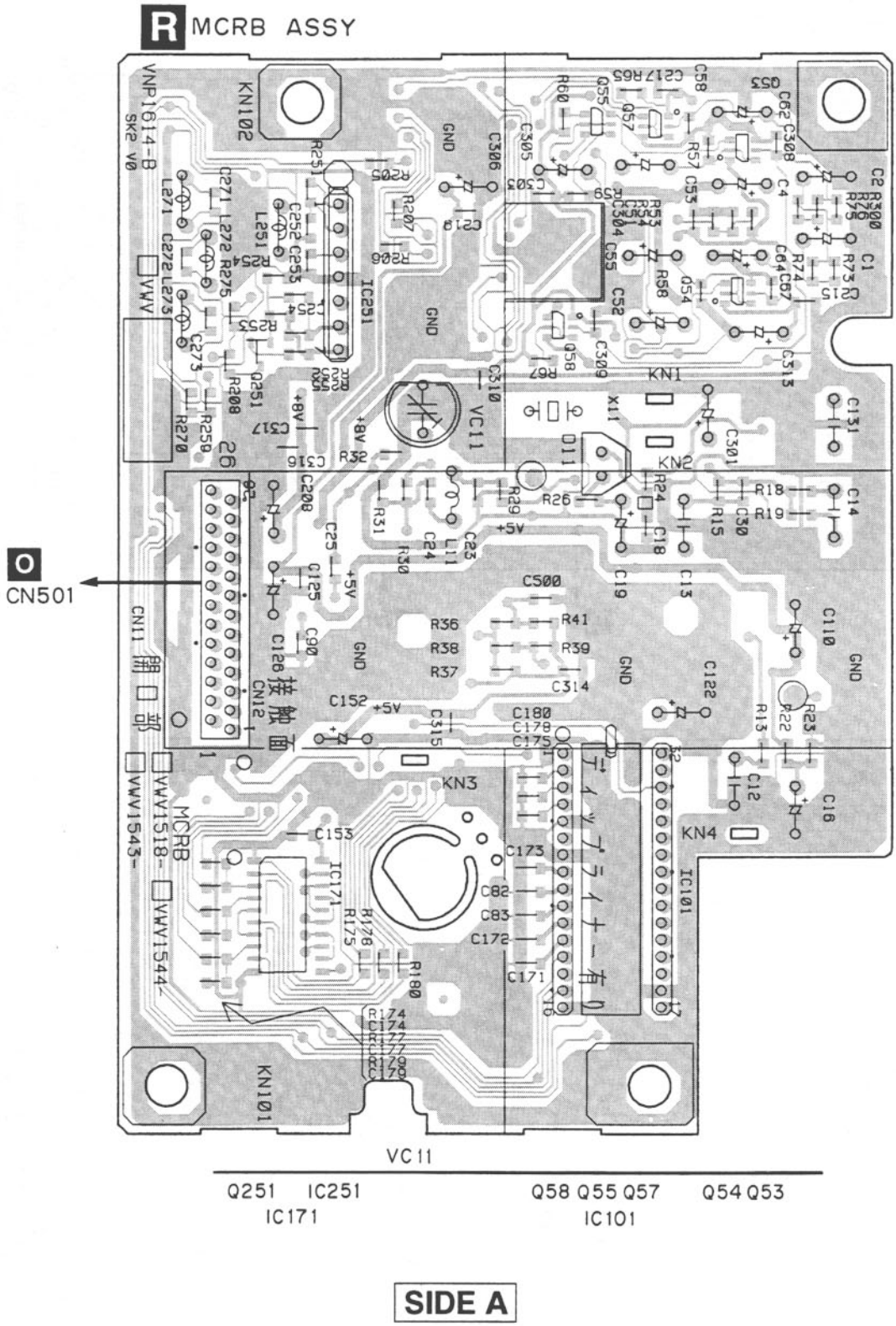




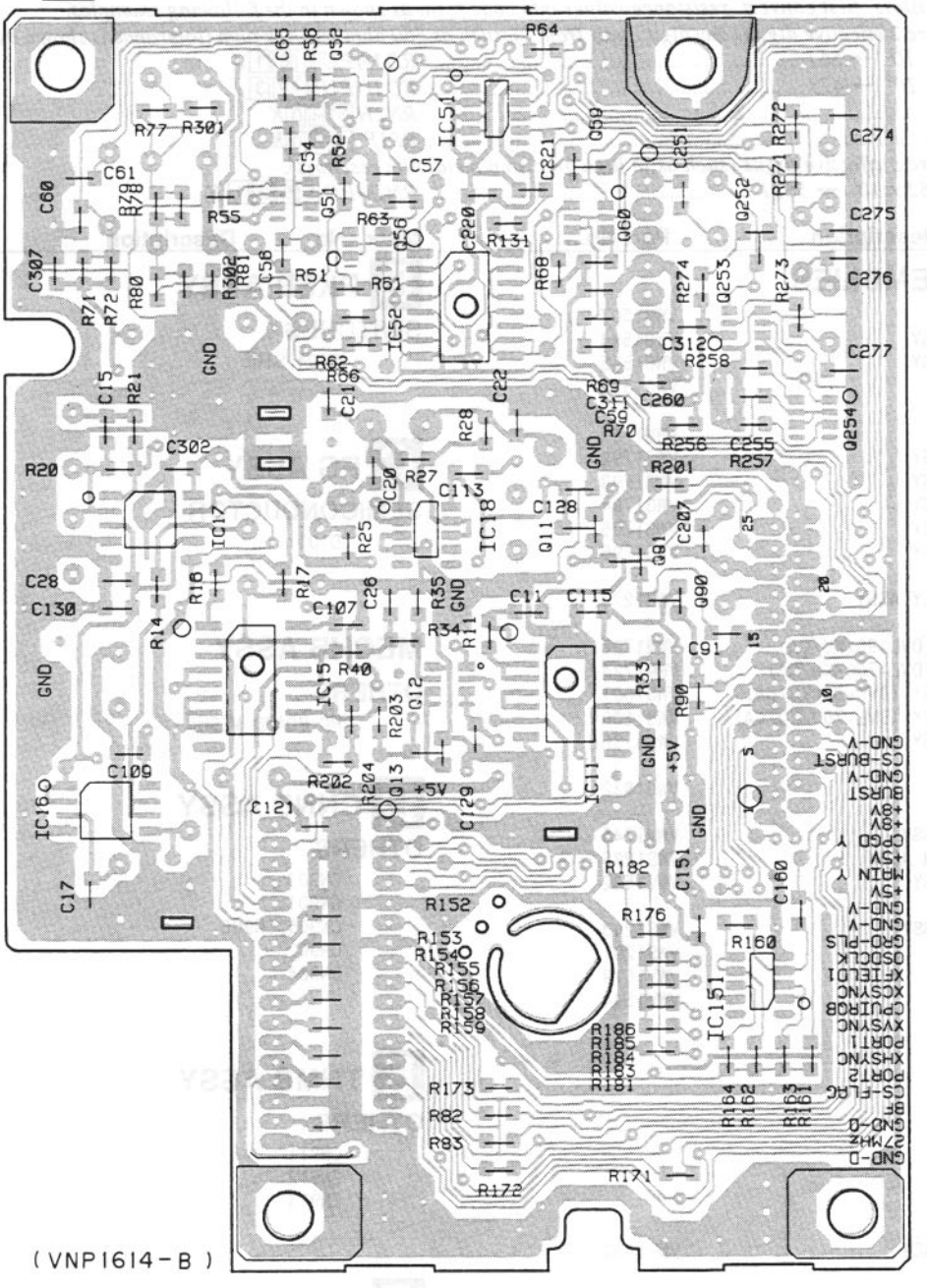
IC301

Q413 Q404 Q411 Q402 Q412 Q414 Q407
Q403 Q401 Q420 Q421 Q419 Q418 Q417

4.9 MCRB ASSY


R MCRB ASSY
O CN501
VC11
Q251 IC251
IC171
Q58 Q55 Q57 Q54 Q53
IC101
SIDE A

R MCRB ASSY



Q51 Q52 Q56 IC51 Q59 Q60 Q252 – Q254

IC16 IC17 IC15 IC18 IC52 Q11 Q91 Q90

Q13 Q12 IC11 IC151

SIDE B

5. PCB PARTS LIST

NOTES: • Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
• The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
• When ordering resistors, first convert resistance values into code form as shown in the following examples.
Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).
560 Ω → 56 × 10¹ → 561 ..... RD1/4PU 5 6 1 J
47k Ω → 47 × 10³ → 473 ..... RD1/4PU 4 7 3 J
0.5 Ω → 5R0 ..... RN2H 5 R 0 K
1 Ω → 1R0 ..... RS1P 1 R 0 K
Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).
5.62k Ω → 562 × 10¹ → 5621 ..... RN1/4PC 5 6 2 1 F

LIST OF ASSEMBLIES

Mark	No.	Description	Part No.
NSP		MACB ASSY	VWM1507
NSP		├ LMSB ASSY	VWG1554
NSP		├ PKSB ASSY	VWG1555
NSP		└ FG ASSY	VWG1556
NSP		MECHB ASSY	VWM1721
NSP		├ CNNB ASSY	VWG1792
NSP		├ TNMB ASSY	VWG1793
NSP		├ DCSB ASSY	VWG1794
NSP		├ LCSB ASSY	VWG1795
NSP		└ BISB ASSY	VWG1796
⚠		POWER SUPPLY ASSY	VWR1273
NSP		FLKB ASSY (DVL-90/KU/CA)	VWM1725
NSP		FLKB ASSY (DVL-700/KU/CA)	VWM1724
		├ FLPB ASSY (DVL-90/KU/CA)	VWG1801
		├ FLPB ASSY (DVL-700/KU/CA)	VWG1800
		└ KEYB ASSY	VWG1736
		LEDB ASSY	VWG1832
NSP		CLD MAIN ASSY	VWM1745
		├ CLD MAIN ASSY	VWS1285
		└ JCKB ASSY	VWV1532
		DVD MAIN ASSY	VWS1243
		FTSB ASSY	VWS1291
		MYCB ASSY	VWV1519
		MCRB ASSY	VWV1544

MACB ASSY

OTHERS

	PC BOARD MACB	VNP1479

A LMSB ASSY

SWITCHES

	S101–S103	DSG1017

OTHERS

	CN101 10P FFC CONNECTOR	52044-1045

B PKSB ASSY

SWITCHES

	S104, S105	DSG1017

C FG ASSY

SEMICONDUCTOR

	D101	GP1S24

MECHB ASSY

OTHERS

	PC BOARD MECHB	VNP1599

D CNNB ASSY

OTHERS

	CN903	52030-2310
	CN901	52030-2610
	CN905, CN906	S2B-PH-K-S
	CN902	SLW26R-1C7
	CN904	SLW27R-1C7

E TNMB ASSY

OTHERS

	CN911	52044-0645
	CN912	B2B-PH-K-S
	CN913	B3B-PH-K-S

F DCSB ASSY

SWITCH

	S902	DSG1017

OTHERS

	CN915	S2B-PH-K-S

Mark	No.	Description	Part No.

G LCSB ASSY

SWITCH

	S903		DSG1017

OTHERS

	CN916		S2B-PH-K-S

H BISB ASSY

SWITCH

	S901		DSG1017

OTHERS

	CN914		S2B-PH-K-S

I POWER SUPPLY ASSY

SEMICONDUCTORS

	IC201		AN1431T
	IC203		UPC358C
	IC204, IC205		VZF1047
	IC206		VZF1048
	Q203, Q204		T7F4S
	Q201, Q202		T7F4T
⚠	Q150		VZF1049
⚠	Q101		VZF1050
	Q207, Q208, Q214		2SA933S
	Q205, Q206, Q252		2SC1740S
⚠	Q102		2SC3377
	Q251		2SD2007
	Q213		2SD2395
⚠	D101		D2SB60F4004
⚠	D105		K1V24
⚠	D103		MTZJ2.7B
	D253		MTZJ2.7B
	D255		MTZJ8.2B
⚠	D200		PS2501
	D207		RD33FB2
	D206		S2LA20
	D203		S3L20U
⚠	D153		VZF1045
	D230-D232		VZF1045
	D202		VZF1051
	D204, D205		VZF1052
⚠	D154		VZF1053
	D240		VZF1054
	D252		VZF1055
⚠	D104		1SS270A
	D208, D251		1SS270A
	D209-D212, D254		10ELS2

OTHERS

⚠	F201, F202	FUSE	VEK1033
⚠	F205, F210, F211	FUSE(1A)	VEK1041
⚠	F209	FUSE(0.5A)	VEK1043
⚠	F101	FUSE(3.15A)	VEK1044

Mark	No.	Description	Part No.

J FLPB ASSY

VWG1801 and VWG1800 have the same construction except for the following :

Mark	Symbol & Description	Part No.		Remarks
		VWG1801	VWG1800	
	R111	RD1/4PU202J	RD1/4PU472J	

• PARTS LIST FOR VWG1801

SEMICONDUCTORS

IC101		PD4753B
IC102		S-806D
Q102		DTA124ES
Q101, Q103, Q104		DTC124ES
D101, D105, D107, D108		SLR-342DUT31
D102, D103, D106		SLR-342VCT31
D104		SLR-342YCT31

SWITCHES

S101, S102		RSG1030

CAPACITORS

C105		CEJA470M6R3
C103		CKPUYB102K50
C102, C104, C107-C109, C111		CKPUYF103Z25

RESISTORS

All Resistors		RD1/4PU□□□J

OTHERS

CN102	FFC BOTTOM CONNECTOR 5P	52492-0520
	REMOTE RECEIVER UNIT	GP1U28X
V101	FL TUBE	VAW1042
	SPACER	VEC1599
CN101	1.25FJ CONNECTOR	VKN1375
	FL HOLDER	VNF1087
X101	CERAMIC(5.00MHz)	VSS1104

K KEYB ASSY

SEMICONDUCTORS

Q201, Q202		DTC124ES
D201, D202		SLR-342MCT31

SWITCHES

S201-S208		RSG1030

CAPACITORS

C201, C202		CKPUYF103Z25

RESISTORS

All Resistors		RD1/4PU□□□J

OTHERS

CN203	5P FFC CONNECTOR	VKN1181
CN201	13P FFC CONNECTOR	VKN1217
CN202	1.25 FJ CONNECTOR	VKN1375

Mark	No.	Description	Part No.

L LEDB ASSY

SEMICONDUCTORS

	Q1-Q3	2PD601A
	Q4, Q5	UN2212
	D1-D3	CL-170SB-X
	D4-D7	PG1112H-430

RESISTORS

	All Resistors	RS1/10S□□□J

OTHERS

	CN1	FLEXIBLE CONNECTOR	VKN1374

M CLD MAIN ASSY

SEMICONDUCTORS

	IC761, IC904	BA10393F
	IC223, IC251, IC680, IC903	BA4560F
	IC905, IC906	BA4560F
	IC352	CA0002AM
	IC171, IC803	LA6510
	IC400	LA7134M
	IC901	LA9420M
	IC801	LA9425
	IC802	LC78681KE
	IC353	M51131L
	IC182, IC183	MM6558XF
⚠	IC221	NJM78L08A
⚠	IC222	NJM79L08A
	IC208	NJU6322KE
	IC202	PD0236AM
	IC101	PD0246A2
	IC201	PD2029AM(L)
	IC500	PD6159B
	IC902	TA8410AK
	IC181, IC762, IC907	TC4W53F
	IC203, IC301	TC74HC157AF
	IC302, IC620	TC74HC4053AF
	IC206	TC7S00F
	IC102	TC7S32F
	IC205, IC209, IC550	TC7SU04F
	IC650	TC7W00F
	IC207	TC7WH74FU
	IC204	TC7WU04F
	Q121, Q182, Q482, Q580, Q645	2PB709A
	Q672, Q906	2PB709A
	Q269, Q270, Q391-Q393, Q401	2PD601A
	Q441, Q481, Q625, Q626, Q636	2PD601A
	Q646, Q647, Q655-Q658	2PD601A
	Q661, Q662, Q671, Q803, Q811	2PD601A
	Q902-Q905, Q908, Q909	2PD601A
	Q834	2SA854S
	Q152	2SC3802K
	Q261, Q262	2SD2144S
	Q211-Q214, Q217, Q394, Q651	DTA124EK
	Q981	DTA124EK
	Q122, Q181, Q215, Q216, Q652	DTC124EK
	Q901, Q971	DTC124EK
	Q910	FMY1A
	D221	EC10QS04
	D311, D505	KV1851
	D181, D650, D655, D821, D881	MA111
	D901, D902, D981	MA111
	D223, D224	MA152WA
	D215, D905	MA152WK
	D851	UDZ2.0B
	D115	UDZ5.1B

COILS AND FILTERS

	L413	LAU100J
	L401	LAU101J
	L352, L821-L823	LAU181J
	L251, L252, L311, L331, L351	LAU220J
	L412, L461, L482, L831, L832	LAU220J
	L411, L587	LAU270J
	L431, L432, L575	LAU430J
	L671	LAU4R7J
	L462	LAU560J
	L414	LAU8R2J
	L463	LFA561J
	F573 14.3MHz FILTER	VTF1055
	F223	VTF1094
	L201, L209, L301, L302, L312 CHIP COIL(22μH)	VTL1058
	L207 CHIP COIL(1.5μH)	VTL1059

CAPACITORS

	C417, C418, C421, C434, C543	CCSQCH100D50
	C577, C845	CCSQCH100D50
	C255, C256, C353, C655, C821	CCSQCH101J50
	C843, C864, C865, C943	CCSQCH101J50
	C432, C436, C483	CCSQCH120J50
	C412	CCSQCH121J50
	C408, C414, C484, C569	CCSQCH150J50
	C355, C823, C901	CCSQCH151J50
	C313, C352	CCSQCH180J50
	C205, C509, C824, C973	CCSQCH220J50
	C413, C555, C920, C921	CCSQCH221J50
	C550	CCSQCH240J50
	C354, C411, C416, C431, C830	CCSQCH270J50
	C104, C105, C356, C433, C451	CCSQCH330J50
	C579, C596	CCSQCH330J50
	C351, C407, C485, C672	CCSQCH390J50
	C671	CCSQCH391J50
	C222, C257-C260, C405, C461	CCSQCH470J50
	C229, C597	CCSQCH5R0C50
	C358, C598, C806	CCSQCH680J50
	C435, C822, C829	CCSQCH7R0D50
	C357, C825	CCSQCH820J50
	C459, C462	CCSQCH910J50
	C230	CCSQCJ3R0C50
	C656	CEAL100M16
	C437	CEAL101M6R3
	C927, C931	CEAL220M6R3
	C936, C940	CEAL470M16
	C316	CEAL470M6R3
	C975	CEANP100M16

Mark	No.	Description	Part No.
	C263, C264, C629, C639		CEANP220M10
	C187, C211, C441, C856		CEANP470M6R3
	C221, C394, C397, C398, C884		CEAS100M50
	C332, C391		CEAS101M10
	C115		CEAS102M6R3
	C269, C270, C867		CEAS1R0M50
	C399, C971, C972, C981, C982		CEAS220M25
	C863, C902, C934, C977		CEAS2R2M50
	C320		CEAS470M10
	C102, C202, C204, C209		CEAS470M16
	C223, C224, C261, C262, C302		CEAS470M16
	C304, C317, C382, C390, C396		CEAS470M16
	C802, C804, C832, C834, C842		CEAS470M16
	C852, C854, C859, C860		CEAS470M16
	C253, C254		CEAS471M10
	C862, C984		CEAS4R7M50
	C383, C916, C922		CEASR47M50
	C439		CEV100M16
	C471, C473, C475, C507, C531		CEV101M6R3
	C535, C537, C539, C541, C561		CEV101M6R3
	C571, C581, C591, C593		CEV101M6R3
	C928		CFTXA104J50
	C477, C911, C929		CFTXA154J50
	C930		CFTXA473J50
	C478		CFTXA683J50
	C425, C910, C917, C918		CKSQYB102K50
	C942		CKSQYB104K25
	C925		CKSQYB332K50
	C379, C380		CKSQYB392K50
	C371-C376, C388, C912		CKSQYB472K50
	C763		CKSQYB682K50
	C106-C112, C121, C124, C153		CKSQYF103Z50
	C155, C173, C181, C183, C184		CKSQYF103Z50
	C188, C189, C201, C203		CKSQYF103Z50
	C206-C208, C210, C213, C214		CKSQYF103Z50
	C231, C251, C252, C281-C283		CKSQYF103Z50
	C301, C303, C311, C312, C315		CKSQYF103Z50
	C318, C319, C331, C361, C362		CKSQYF103Z50
	C381, C386, C389, C395, C422		CKSQYF103Z50
	C442, C510, C511, C558		CKSQYF103Z50
	C575, C576, C580, C583, C587		CKSQYF103Z50
	C761, C762, C801, C803, C811		CKSQYF103Z50
	C827, C831, C833, C841, C846		CKSQYF103Z50
	C851, C853, C861, C881-C883		CKSQYF103Z50
	C885, C924, C935, C937, C939		CKSQYF103Z50
	C945, C946, C961, C962, C974		CKSQYF103Z50
	C983		CKSQYF103Z50
	C101, C103, C122, C151, C152		CKSQYF104Z25
	C171, C172, C182, C227, C228		CKSQYF104Z25
	C267, C268, C385, C387, C392		CKSQYF104Z25
	C402, C404, C419, C430, C438		CKSQYF104Z25
	C440, C445, C447, C472, C474		CKSQYF104Z25
	C476, C508, C524, C532, C536		CKSQYF104Z25
	C538, C540, C542, C556, C557		CKSQYF104Z25
	C562, C572, C582, C586, C589		CKSQYF104Z25
	C592, C594, C620, C622		CKSQYF104Z25
	C626-C628, C630, C636, C638		CKSQYF104Z25
	C660, C681-C683, C764, C805		CKSQYF104Z25
	C857, C858, C866, C886		CKSQYF104Z25
	C913-C915, C919, C963, C976		CKSQYF104Z25
	C186, C685, C855, C926, C938		CKSQYF223Z50
	C377, C378, C393, C908, C909		CKSQYF224Z25
	C154, C156, C174, C460, C826		CKSQYF473Z50
	C828, C932, C933		CKSQYF473Z50
	C923		CQMA103J50
	C903		CQMA222J50
	C265, C266		CQMA332J50
	C941		CQMZA681J50

RESISTORS

	R753		RA4C221J
	R203, R751		RA4C471J
	R425, R833, R834, R837, R839		RN1/10SE1002D
	R891, R892		RN1/10SE1002D
	R152, R156		RN1/10SE1003D
	R532		RN1/10SE1100D
	R531		RN1/10SE1800D
	R151, R893, R894		RN1/10SE3302D
	R153, R154, R259-R262		RN1/10SE4702D
	VR450	(2.2kΩ)	PCP1025
	VR603	(4.7kΩ)	PCP1028
	VR604, VR605, VR607, VR609	(47kΩ)	PCP1031
	Other Resistors		RS1/10S□□□J

OTHERS

CN312	6P FFC CONNECTOR	52045-0645
CN103, CN311	10P FFC CONNECTOR	52045-1045
CN301	15P FFC CONNECTOR	52045-1545
CN802	11P TOP POST	B11P-SHF-1AA
CN215	KR CONNECTOR	B2B-PH-K-E
CN104, CN208	KR CONNECTOR	B2B-PH-K-S
CN803	3P TOP POST	B3P-SHF-1AA
CN101	B TO B CONNECTOR 12P	BTFN12S-3SB7
CN102	B TO B CONNECTOR 12P	BTFN20S-3SB7
JA331	OPTICAL MODULE	GP1F32T
	PCB BINDER	VEF1040
JA252	4P PIN JACK	VKB1070
JA251	1P PIN JACK	VKB1074
	64P IC SOCKET	VKH1004
CN502	26P FFC CONNECTOR	VKN1202
CN801	27P FFC CONNECTOR	VKN1203
CN121	30P FFC CONNECTOR	VKN1206
	SCREW TERMINAL	VNE1948
X101	CERAMIC RESONATOR(9.00MHz)	VSS1040
X311	CRYSTAL RESONATOR(16MHz)	VSS1081
X312	CHIP CRYSTAL(36.86MHz)	VSS1085
X505	CRYSTAL RESONATOR(14MHz)	VSS1103
	SCREW	BBZ30P060FCC

N JCKB ASSY

SEMICONDUCTORS

IC321, IC322		TC74HCU04AF
D341		MA111

COILS

L322, L326		LAU1R0J
L321, L324		LAU220J
L323, L325	PAL TRANS.	PTL1003

Mark	No.	Description	Part No.
CAPACITORS			
	C322, C324, C326, C328		CEAL470M16
	C323, C327, C341-C345		CKSQYF103Z50
	C3460, C3480		CKSQYF104Z25
RESISTORS			
	All Resistors		RS1/10S□□□J
OTHERS			
	JA321, JA322	REMOTE CONTROL JACK	RKN1004
	JA324	1P PIN JACK	VKB1074
	JA323	1P PIN JACK	VKB1097
		SCREW TERMINAL	VNE1948

ⓞ DVD MAIN ASSY

SEMICONDUCTORS

	IC631, IC981		BA10393F
	IC851		BA6797FP
	IC901		CXA2521AQ
	IC801		CXD2545Q
	IC101		HD6417032F20
	IC162		HM514800CJ-7
	IC995		IR3C07N
	IC531, IC535		MB81C4256A-70PJ
	IC551		MC14577CF
	IC231, IC621, IC781, IC931		NJM2100M
	IC671, IC672, IC732, IC791, IC971		NJM2904M
	IC831, IC911		NJM4580M
	IC601		PA0065AM
	IC161		PD4695A
	IC501		PD4696A
	IC201		PD4784A
	IC165		PD4795A
	IC104		PDK022A
⚠	IC381		TA78M08F
	IC471, IC815, IC820		TC4W53F
	IC102		TC558128AJ-20
	IC204		TC74HC20AF
	IC972		TC74HC4052AF
	IC921		TC74HC4053AF
	IC832		TC74HC4066AF
	IC202		TC74HC573AF
	IC641, IC761		TC74HCU04AF
	IC302		TC7S04F
	IC105		TC7SH02F
	IC106		TC7SH32F
	IC311		TC7ST08F
	IC751		TLC272CPS
	IC731		TLC5540INS
	IC421		UPD4516161G5-A12-7JF
	IC401		UPD61021
	IC1030		VYW1515
	IC2050		VYW1516
	IC301		ZR38521
	Q473, Q481-Q485, Q551, Q552		2PB709A
	Q561, Q562, Q591, Q667, Q702		2PB709A
	Q705, Q708, Q741, Q792, Q814		2PB709A
	Q848, Q857, Q893		2PB709A
	Q382, Q383, Q471, Q472		2PD601A
	Q571-Q573, Q605, Q669, Q701		2PD601A
	Q742, Q771, Q773, Q793, Q845, Q851		2PD601A
	Q914, Q916, Q925, Q936, Q946		2PD601A
	Q381		2SB1260
	Q712-Q715		2SC3802K
	Q103		DTA114EK
	Q104, Q617, Q618, Q772, Q811		DTC114EK
	Q101, Q102, Q105		DTC114TK
	Q886, Q887, Q894		DTC124EK
	D786, D787, D818		1SS355
	D771, D921, D981, D982		DAN202K
	D110		EC10QS04
	D761		KV1410
	D101		RB501V-40
	D640		UDZ2.0B

COILS AND FILTERS

	L321	CHIP SOLID INDUCTOR	ATL7001
	L101-L104	CHIP INPEDER	DTL1028
	F541	DVD VIDEO FILTER	VTF1072
	F535, F536, F538, F539	FERRITE BEAD	VTF1073
	F537	FERRITE BEAD	VTF1074
	F1491	FERRITE BEAD	VTF1075
	F420, F523	FERRITE BEAD	VTF1076
	F199	FERRITE BEAD	VTF1077
	F704	CHIP SOLID INDUCTOR	VTF1078
	F390-F399	FERRITE BEAD	VTF1079
	F147, F181-F188	FERRITE BEAD	VTF1080
	L431, L432, L471, L591	CHIP COIL(22μH)	VTL1058
	L701, L761, L801	CHIP COIL(22μH)	VTL1058
	L762	CHIP COIL(1.5μH)	VTL1059
	L501, L592	CHIP COIL(0.15μH)	VTL1060
	L502, L723	CHIP COIL(10μH)	VTL1061
	L401	CHIP COIL(22μH)	VTL1062
	L421	CHIP COIL(47μH)	VTL1063

CAPACITORS

	C509	CCSRCH100D50
	C800	CCSRCH101J50
	C601-C604, C606, C904	CCSRCH121J50
	C902, C903	CCSRCH151J50
	C723	CCSRCH180J50
	C620	CCSRCH181J50
	C716, C810, C917	CCSRCH221J50
	C508, C618	CCSRCH270J50
	C765	CCSRCH330J50
	C914	CCSRCH390J50
	C862-C864	CCSRCH391J50
	C730, C814	CCSRCH470J50
	C616, C681	CCSRCH471J50
	C724	CCSRCH560J50
	C556, C566, C714	CCSRCH5R0C50
	C634, C806, C854, C855	CCSRCH680J50
	C107, C108	CCSRCH7R0C50
	C813	CCSRCH820J50
	C476	CCSRCH910J50
	C116, C151, C159, C162, C180	CEV101M6R3

Mark	No.	Description	Part No.
	C401, C420, C430-C440		CEV101M6R3
	C500, C501, C523, C532, C533		CEV101M6R3
	C536-C540, C801, C821		CEV101M6R3
	C755		CEV1R0M50
	C325, C384, C571, C592, C857		CEV220M16
	C859		CEV220M16
	C611, C712, C731, C733, C900		CEV220M6R3
	C912, C919, C994		CEV220M6R3
	C179, C201, C321, C327, C396		CEV470M6R3
	C493, C517, C591, C701, C804		CEV470M6R3
	C996		CEV470M6R3
	C720, C787		CEVNP100M16
	C789		CEVNP2R2M35
	C908		CFHS333J16
	C788, C839, C840		CFHS473J16
	C884, C885, C907		CFHSP104J16
	C686, C909		CFHSQ103J16
	C882, C883		CFHSQ272J50
	C677		CFHSQ822J16
	C843, C844, C894		CKSQYB104K25
	C615, C680, C713, C718, C742		CKSQYB105K10
	C746, C747, C751, C811		CKSQYB105K10
	C815, C817		CKSQYB224K16
	C759, C893		CKSQYB474K16
	C206, C207, C441-C446, C519		CKSQYF225Z16
	C527-C530		CKSQYF225Z16
	C749, C766		CKSRYB102K50
	C101, C121, C169, C178		CKSRYB103K50
	C471, C472, C574, C605, C617		CKSRYB103K50
	C676, C700, C711, C762, C764		CKSRYB103K50
	C816, C830, C832, C837, C838		CKSRYB103K50
	C853, C861, C881, C906		CKSRYB103K50
	C997-C999		CKSRYB103K50
	C983, C984		CKSRYB104K16
	C809		CKSRYB152K50
	C692		CKSRYB153K50
	C641-C644, C649, C819		CKSRYB222K50
	C931, C932		CKSRYB222K50
	C847		CKSRYB332K50
	C741		CKSRYB472K50
	C735, C808		CKSRYB473K16
	C102-C106, C109-C111		CKSRYF104Z16
	C113-C115, C120, C155-C158		CKSRYF104Z16
	C160, C161, C163-C167		CKSRYF104Z16
	C170, C171, C173-C177, C181		CKSRYF104Z16
	C184-C187, C191, C192		CKSRYF104Z16
	C202-C205, C209, C231		CKSRYF104Z16
	C300-C303, C305-C307, C309		CKSRYF104Z16
	C311, C322, C326, C328		CKSRYF104Z16
	C382, C383, C391-C393, C395		CKSRYF104Z16
	C397, C399, C402-C417		CKSRYF104Z16
	C421-C426, C473-C475, C481		CKSRYF104Z16
	C483, C484, C491, C492		CKSRYF104Z16
	C502-C507, C510-C516, C518		CKSRYF104Z16
	C520-C522, C526, C531, C535		CKSRYF104Z16
	C553-C555, C563, C565		CKSRYF104Z16
	C572, C573, C577, C596, C607		CKSRYF104Z16
	C612, C613, C621, C630, C631		CKSRYF104Z16
	C640, C671, C675, C683		CKSRYF104Z16
	C702-C704, C721, C732, C734		CKSRYF104Z16
	C738, C739, C750, C761, C781		CKSRYF104Z16
	C799, C802, C803, C805, C812		CKSRYF104Z16
	C818, C820, C822, C823, C829		CKSRYF104Z16
	C831, C858, C901, C911, C918		CKSRYF104Z16
	C921, C930, C971, C972		CKSRYF104Z16
	C980-C982, C995		CKSRYF104Z16
	VC510, VC765	(20pF)	VCM1008

RESISTORS

	R109, R110, R112, R195		RA4C103J
	R414-R419, R920		RA4C103J
	R101-R106, R148, R153-R157		RA4C220J
	R161, R162, R201, R202		RA4C220J
	R251-R257, R266, R274		RA4C220J
	R401, R402, R404, R405, R421		RA4C220J
	R423, R424, R4290, R4300		RA4C220J
	R461, R462, R501, R502		RA4C220J
	R998		RA4C390J
	R723, R2510, R2620, R2630		RS1/10S0R0J
	R2640, R4910		RS1/10S0R0J
	R892		RS1/10S1R2J
	R573		RS1/16S1001F
	R862, R863, R866, R867		RS1/16S1002F
	R149, R166, R477, R693		RS1/16S1003F
	R762, R763, R766, R786, R790		RS1/16S1003F
	R814, R817, R846, R873, R876, R999		RS1/16S1003F
	R383, R864, R865		RS1/16S1202F
	R781, R782, R788, R900-R903		RS1/16S1502F
	R580, R582, R783, R784		RS1/16S2202F
	R835-R840, R871, R872, R893		RS1/16S2202F
	R914, R916, R936, R946		RS1/16S2202F
	R232, R236, R793, R794		RS1/16S2203F
	R884, R885, R989, R990		RS1/16S2203F
	R712, R720, R857		RS1/16S3901F
	R798, R800, R829, R830, R843, R844		RS1/16S4702F
	R854, R855, R925, R927, R928		RS1/16S4702F
	R945		RS1/16S4702F
	R778, R833, R834		RS1/16S4703F
	R575, R741, R742		RS1/16S5601F
	R831, R832		RS1/16S5602F
	R874, R877		RS1/16S6802F
	R882, R883		RS1/16S8202F
	VR501	(4.7KΩ)	VCP1090
	VR904, VR921	(10KΩ)	VCP1092
	VR621, VR938	(22KΩ)	VCP1094
	VR922	(10KΩ)	VCP1131
	Other Resistors		RS1/16S□□□J

OTHERS

	CN161, CN271	PH CONNECTOR	S2B-PH-SM3
		32P IC SOCKET	VKH1011
		44P IC SOCKET	VKH1012
	CN601, CN602	B TO B CONNECTOR 60P	VKN1293
	CN109	7P FFC CONNECTOR	VKN1299
	CN101	13P FFC CONNECTOR	VKN1305
	CN391	24P FFC CONNECTOR	VKN1316
	CN902	B TO B CONNECTOR 14P	VKN1324
	CN261, CN502, CN702		VKN1345
		26P FFC CONNECTOR	

Mark	No.	Description	Part No.
	CN251	30P FFC CONNECTOR	VKN1349
		INSPECTION LABEL	VRW1634
	X501	CHIP CRYSTAL(27.00MHz)	VSS1086
	X201	CHIP CERAMIC(5.00MHz)	VSS1102
	X301	CHIP CERAMIC(33.000MHz)	VSS1105
	X101	CHIP CERAMIC(20.00MHz)	VSS1106

P FTSB ASSY

SEMICONDUCTORS

IC204, IC306, IC403	BA10393F
IC301	MC14577CF
IC302, IC303, IC305, IC401	NJM072BM
IC205	NJM2100M
IC304, IC402	NJM4580M
Q301, Q309, Q401-Q403	2PB709A
Q302, Q303, Q305, Q404	2PD601A
Q304, Q308	DTC114EK
D205, D206, D303, D305-D307	1SS355
D310, D401, D402	1SS355
D308	DAN202K

CAPACITORS

C316	CCSRCH101J50
C401, C501	CEV100M16
C303	CFHS473J16
C306, C408	CFHSQ471J50
C209, C210, C305	CKSQYB105K10
C308, C403, C406	CKSRYB102K50
C311	CKSRYB472K50
C313	CKSRYB473K16
C201, C211, C302, C304, C307	CKSRYF104Z16
C309, C312, C314, C315, C402	CKSRYF104Z16
C404, C407	CKSRYF104Z16
C310	CCSRCH101J50
C405	CKSQYB224K16

RESISTORS

R322	RS1/16S1001F
R405	RS1/16S1801F
R406	RS1/16S4701F
R321	RS1/16S5601F
Other Resistors	RS1/16S□□□J

OTHERS

CN101, CN102	B TO B CONNECTOR 30P	VKN1294

Q MYCB ASSY

SEMICONDUCTORS

IC301	CXD2046Q
IC102, IC103	MB81C1501PF
IC101	PD3212A
Q402, Q404, Q407, Q411, Q414	2PB709A
Q401, Q403, Q412, Q413	2PD601A
Q408-Q410, Q415, Q416	2SC1740S
Q417, Q420	DTA124EK
Q418, Q419, Q421	DTC124EK

Mark	No.	Description	Part No.

COILS

L401-L403	LAU220J

CAPACITORS

C433	CCSQCH100D50
C401, C404	CCSQCH220J50
C405	CCSQCH470J50
C403	CCSQCH560J50
C402	CCSQCH6R0D50
C411	CCSQCH910J50
C101, C103, C109, C111, C113	CEAS101M10
C115, C212, C214, C216, C301	CEAS101M10
C305, C309, C311, C317, C319	CEAS101M10
C422, C424, C426, C429, C431	CEAS101M10
C434, C436, C438	CEAS101M10
C303	CKSQYB102K50
C102, C104, C110, C112, C114	CKSQYF104Z25
C116-C118, C213, C215, C217	CKSQYF104Z25
C302, C304, C306-C308, C310	CKSQYF104Z25
C312-C316, C318, C320-C322	CKSQYF104Z25
C406, C407, C413, C414, C423	CKSQYF104Z25
C425, C427, C428, C430, C432	CKSQYF104Z25
C435, C437, C439, C442, C447	CKSQYF104Z25

RESISTORS

R424	RN1/10SE1801D
R422	RN1/10SE2201D
R309	RN1/10SE2700D
R425	RN1/10SE2702D
R310, R420, R421	RN1/10SE3301D
R312, R426	RN1/10SE4701D
R311	RN1/10SE5601D
VR301 (22kΩ)	PCP1030
Other Resistors	RS1/10S□□□J

OTHERS

CN104	10P FFC CONNECTOR	52045-1045
	2P PIN JACK	AKB7076
CN101	B TO B CONNECTOR 12P	BTFN12P-3RD7
CN102	B TO B CONNECTOR 20P	BTFN20P-3RD7
	4P MINI DIN SOCKET	VKN1078
	SCREW TERMINAL	VNE1948
	SHIELD CASE A	VNF1098
	SHIELD CASE C	VNF1100

Mark	No.	Description	Part No.
R	**MCRB ASSY**		
	SEMICONDUCTORS		
	IC16, IC17		NJM2100M
	IC101		PD9014A
	IC51		TC4W53F
	IC15, IC52		TC74HC4053AF
	IC11		TC74HCU04AF
	IC171		TC74VHCT374F
	IC18		TC7WU04F
	Q252, Q59		2PB709A
	Q11		2PD601A
	Q13		DTC124EK
	Q55, Q56, Q60		IMT1A
	Q254, Q51		IMX1
	Q12, Q253, Q52-Q54		IMZ1A
	Q57, Q58		IMZ1A
	D11		SVC201SPA
	COILS		
	L271		LAU270J
	L272		LAU390J
	L273		LAU430J
	L11		LFA220J
	CAPACITORS		
	C274, C30		CCSQCH100D50
	C22		CCSQCH180J50
	C15		CCSQCH221J50
	C275, C277		CCSQCH330J50
	C276		CCSQCH390J50
	C171, C173, C174, C179		CCSQCH470J50
	C24		CCSQCH910J50
	C16, C19		CEJA101M10
	C1, C110, C122, C126, C152		CEJA470M10
	C2, C208, C301, C305, C306		CEJA470M10
	C313, C4, C52, C53, C55		CEJA470M10
	C62, C64		CEJA470M10
	C12		CFTXA104J50
	C13		CFTXA334J50
	C11, C18, C20, C25, C26		CKSQYF103Z50
	C500		CKSQYF103Z50
	C107, C109, C113, C115, C121		CKSQYF104Z25
	C125, C153, C17, C207, C215		CKSQYF104Z25
	C217, C219, C220, C255, C28		CKSQYF104Z25
	C302-C304, C307-C312, C314		CKSQYF104Z25
	C51, C54, C56-C61, C65		CKSQYF104Z25
	C67		CKSQYF104Z25
	C14		CQMZA682J50
	VC11 (20pF)		VCM-008
	RESISTORS		
	R52		RN1/10SE1801D
	R51		RS1/10S1000F
	R74		RS1/10S1001F
	R77		RS1/10S10R0F
	R71		RS1/10S1501F
	R72		RS1/10S1802F
	R76		RS1/10S27R0F
	R79		RS1/10S3300F
	R80		RS1/10S3900F
	R78		RS1/10S39R0F

Mark	No.	Description	Part No.
	R73		RS1/10S47R0F
	R75		RS1/10S5600F
	R81		RS1/10S68R0F
	Other Resistors		RS1/10S□□□J
	OTHERS		
	X11	CRYSTAL(3.579545MHz)	VSS1107
		PCB BINDER	VEF1040
	CN12	26P FFC CONNECTOR	VKN1202
		EARTH METAL FITTING	VNF1084

6. ADJUSTMENT (調整方法)

6.1 ADJUSTMENT ITEMS AND LOCATION (調整項目と調整位置)

■Adjustment Items

[Mechanical Part]

CLD

❶ Tilt Offset Adjustment
(チルトオフセット調整)
❷ Tangential Direction Angle Adjustment for Side A
(A面タンジェンシャル傾き調整)
❸ Spindle Motor Centering Adjustment for Side A
(A面スピンドル芯出し調整)
❹ Crosstalk Check and Fine Tilt Offset Adjustment for Side A
(A面クロストーク確認及び、チルトオフセット微調整)
❺ Focus Servo Loop Gain Adjustment
(フォーカスサーボループゲイン調整)
❻ Tracking Servo Loop Gain Adjustment
(トラッキングサーボループゲイン調整)
❼ Tangential Direction Angle Adjustment for Side B
(B面タンジェンシャル傾き調整)
❽ Spindle Motor Centering Adjustment for Side B
(B面スピンドル芯出し調整)
❾ Crosstalk Check and Fine Tilt Offset Adjustment for Side B
(B面クロストーク確認及び、チルトオフセット微調整)

DVD

❿ DVD Focus S-curve Level Coarse Adjustment
(DVDフォーカスS字レベル粗調整)
⓫ RF MAX Adjustment
(RF MAX調整)
⓬ Jitter Adjustment
(ジッター調整)
⓭ Tracking Error Level Adjustment
(トラッキングエラーレベル調整)
⓮ DVD Focus S-curve Level Fine Adjustment
(DVDフォーカスS字レベル微調整)

[Electricall Part]

CLD

① Video Level Adjustment
(ビデオレベル調整)
② PLL Offset Adjustment
(PLLオフセット調整)
③ Y Output Level Adjustment
(Y出力レベル調整)

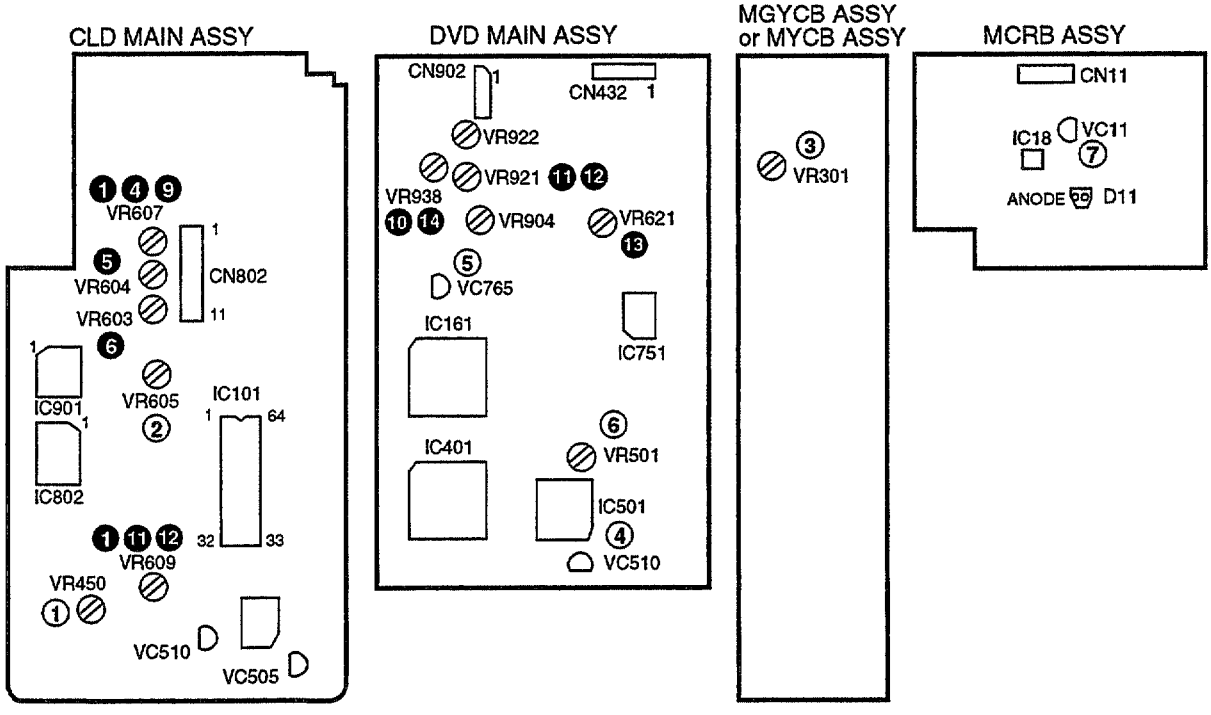
DVD

④ Master Clock Adjustment
(マスタークロック調整)
⑤ VCO Offset Adjustment
(VCOオフセット調整)
⑥ Video Output Adjustment
(ビデオ出力調整)

MCRB

⑦ MCRB Master CLK Adjustment
(MCRBマスターCLK調整)

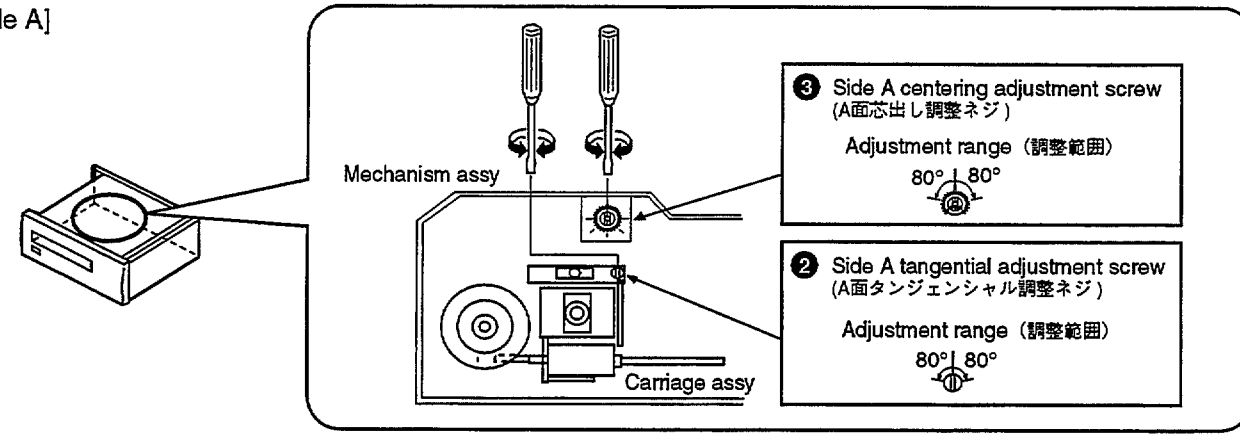
■Adjustment Points (PCB Part)



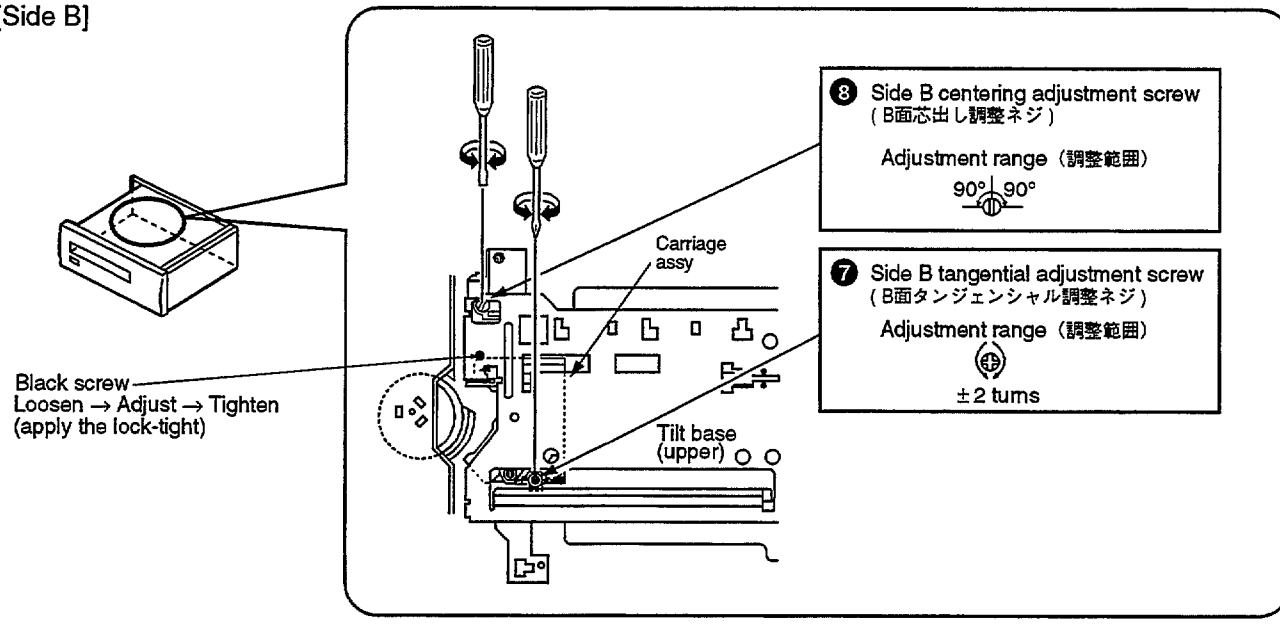
■Adjustment Points (Mechanism Part)

CLD

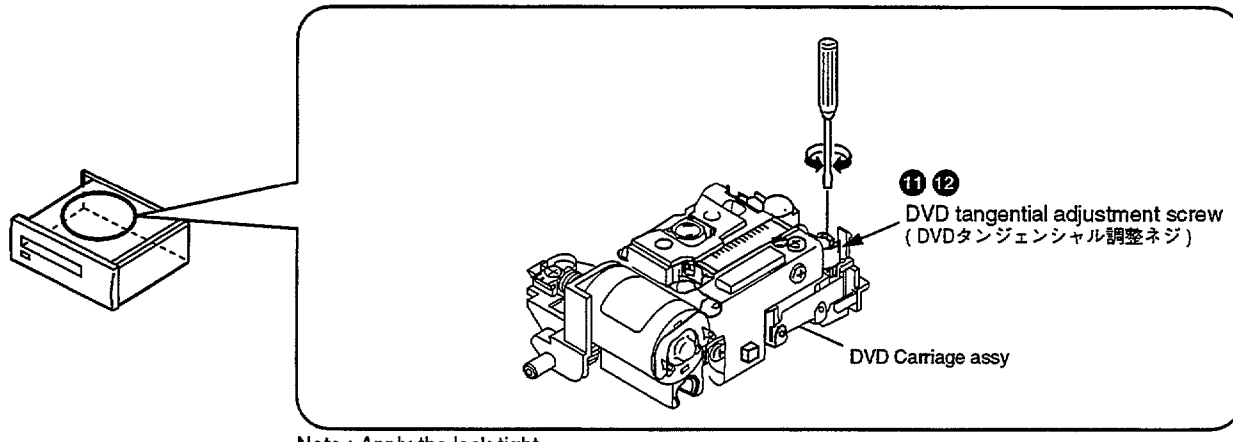
[Side A]



[Side B]

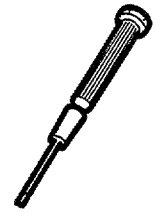
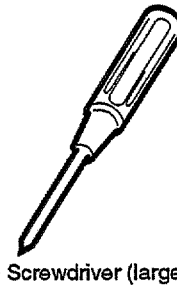
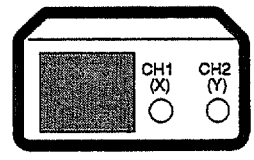
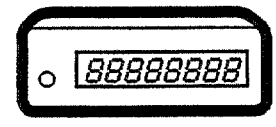
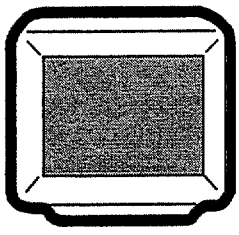
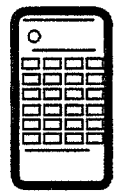
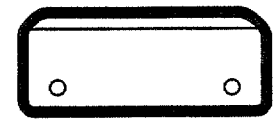


DVD



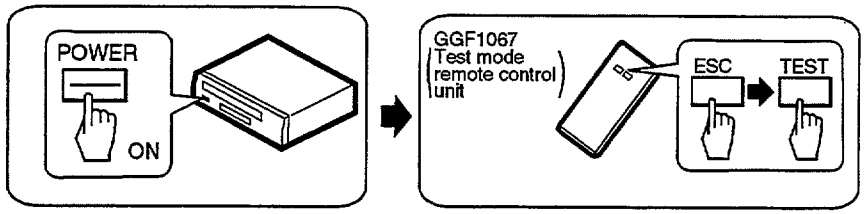
Note : Apply the lock-tight.
(調整ネジは, 調整後ボンドロックする.)

6.2 JIGS AND MEASURING INSTRUMENTS (調整に必要な治工具類)

 CD test disc (YEDS-7)	 LD test disc (GGV1012)	 DVD test disc (DVD-MJK1)	 ⊖ Screwdriver (medium)
 ⊖ Screwdriver (small)	 ⊕ Precise screwdriver	 ⊖ Precise screwdriver	 ⊕ Screwdriver (large)
 ⊕ Screwdriver (medium)		 Dual-trace oscilloscope (with delay) Frequency band ≧ 40MHz	 Frequency counter Display digit ≧ 8-digit
 TV monitor	 Test mode remote control unit (GGF1067)	 Jitter meter	 Equalizer unit

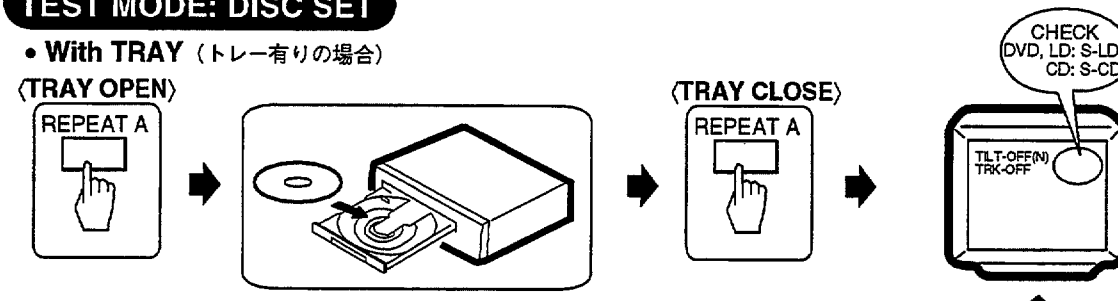
6.3 TEST MODE (テストモード)

TEST MODE: ON

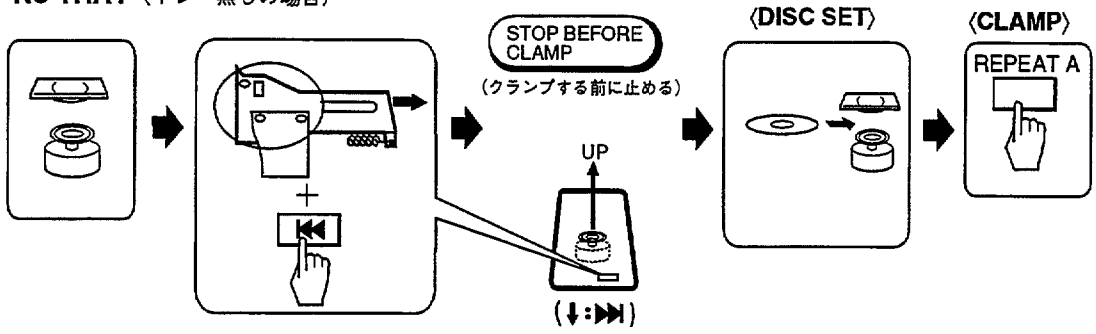


TEST MODE: DISC SET

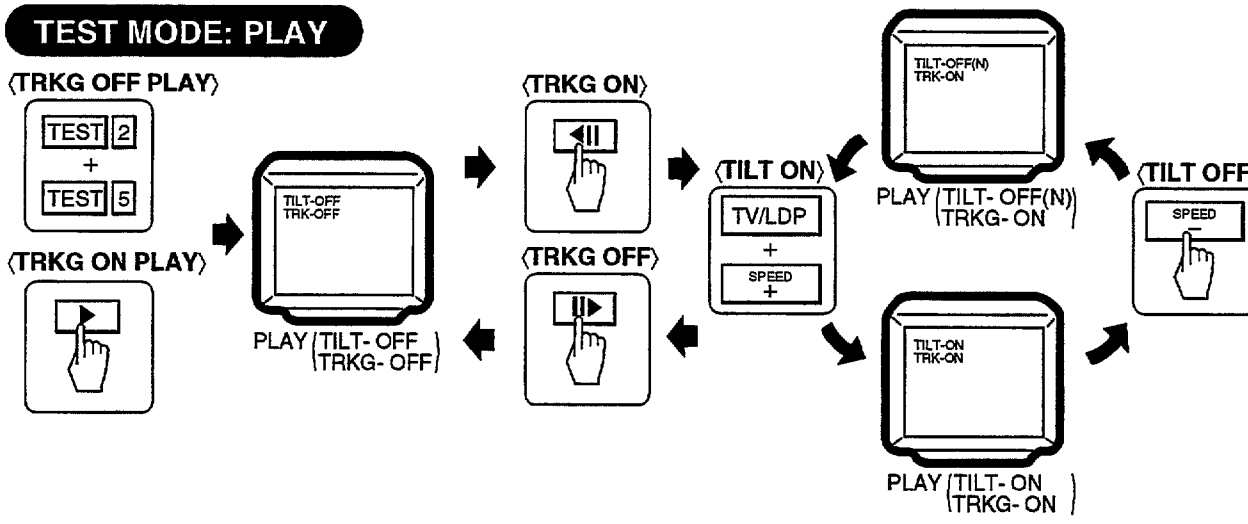
• **With TRAY** (トレー有りの場合)



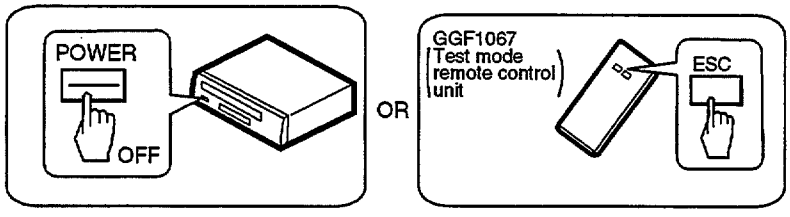
• **No TRAY** (トレー無しの場合)



TEST MODE: PLAY



TEST MODE: OFF

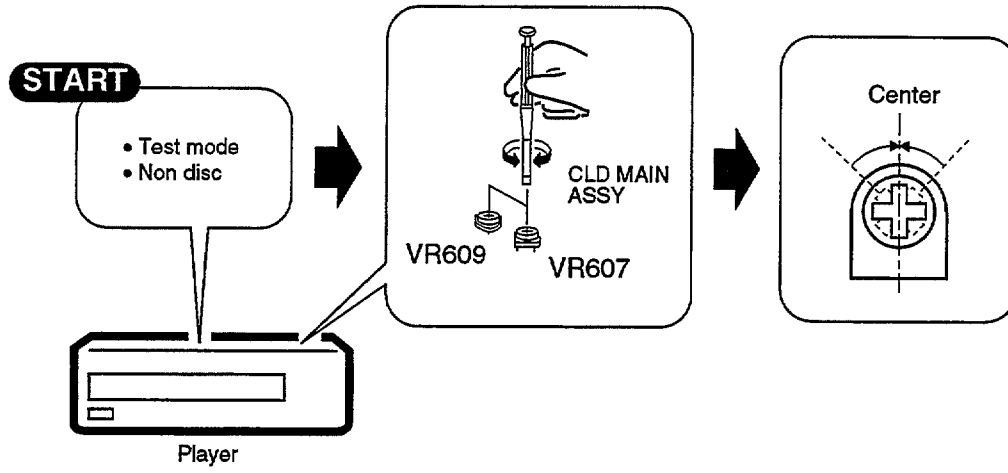


6.4 NECESSARY ADJUSTMENT POINTS (必要な調整項目)

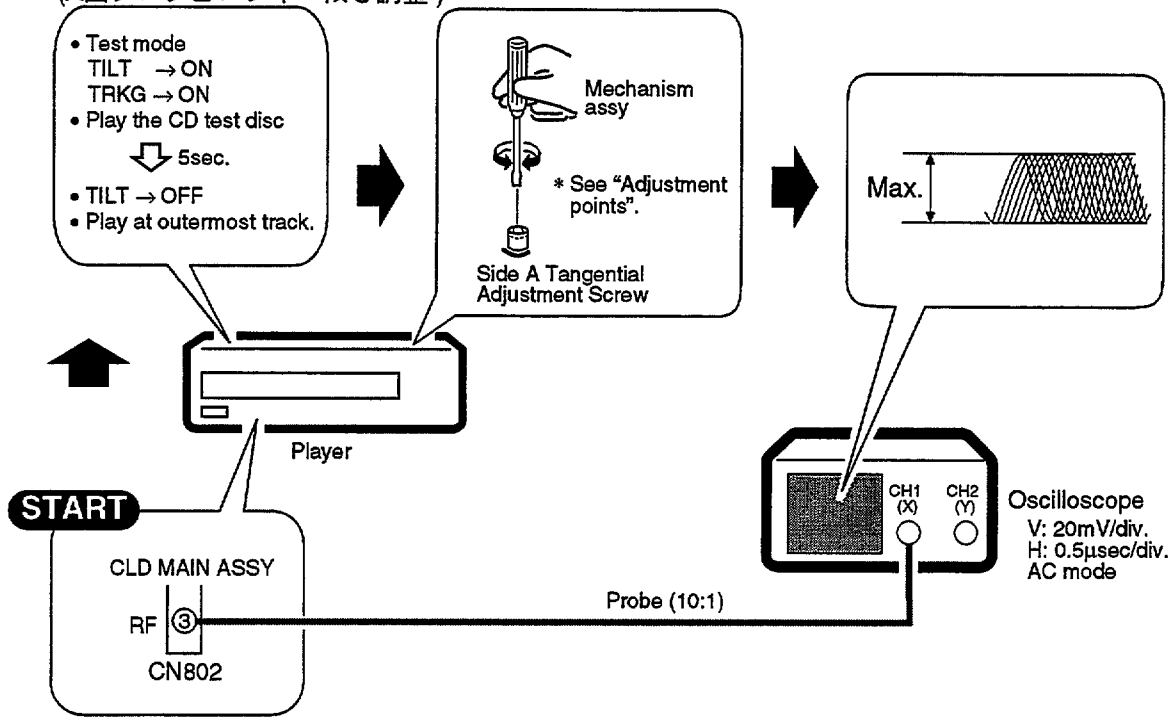
When (このような時)	Adjustment Points	
■ EXCHANGE MECHANISM ASSY PARTS (メカASSY部品を交換したとき)		
Exchange pickup (CLD) (CLDのピックアップを交換したとき)	Mechanical point	❶,❷,❸,❹,❺,❻,❼,❽,❾
	Electric point	———
Exchange pickup (DVD) (DVDのピックアップを交換したとき)	Mechanical point	❿,⓫,⓬,⓭,⓮
	Electric point	———
Exchange spindle motor (スピンドルモータを交換したとき)	Mechanical point	❸,❽
	Electric point	———
■ EXCHANGE PCB ASSY (PCB ASSYを交換したとき)		
Exchange board CLD MAIN ASSY (マザーボードを交換したとき)	Mechanical point	❶,❹,❺,❻,❾
	Electric point	———
	Note : ①, ② and ③ are adjusted already. (①,②,③は調整済)	
Exchange board DVD MAIN ASSY (マザーボードを交換したとき)	Mechanical point	❿,⓫,⓬,⓭,⓮
	Electric point	———
	Note : ④, ⑤ and ⑥ are adjusted already. (④,⑤,⑥は調整済)	
Exchange board MCRB ASSY (MCRB ASSYを交換したとき)	Mechanical point	———
	Electric point	———
	Note : ⑦ is adjusted already. (⑦は調整済)	

6.5. MECHANICAL ADJUSTMENT (機構系の調整)

❶ Tilt Offset Adjustment
(チルトオフセット調整)

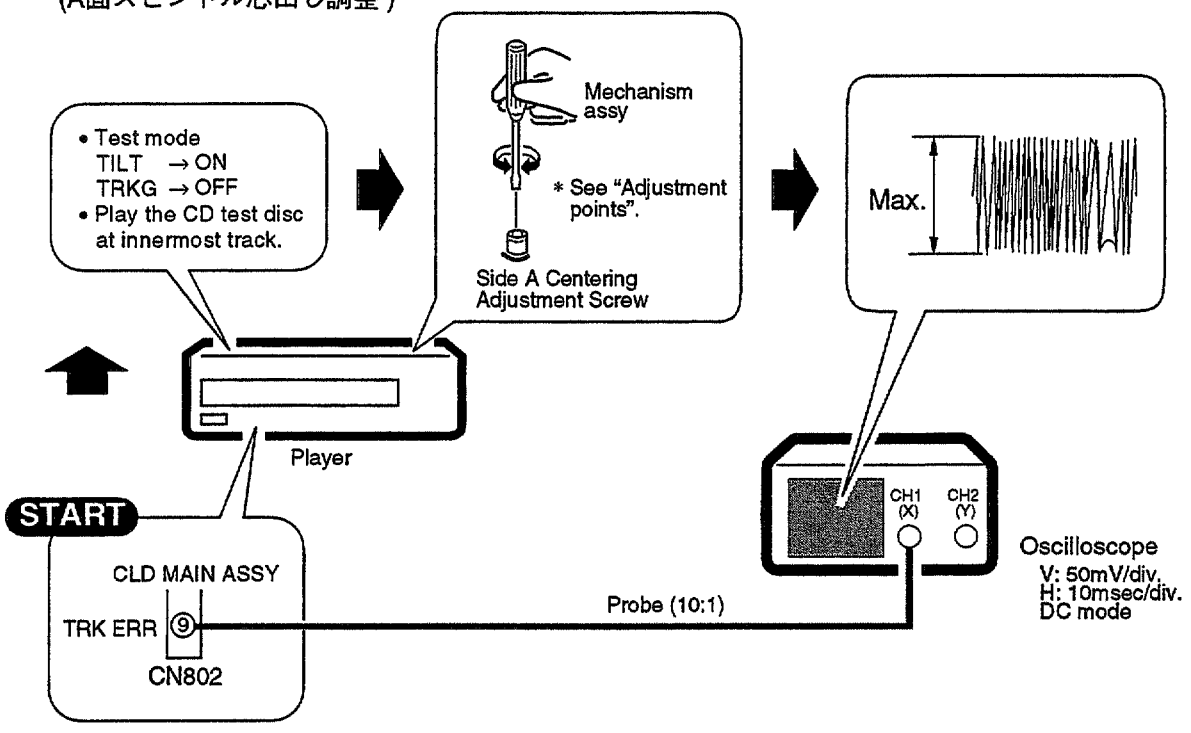


❷ Tangential Direction Angle Adjustment for Side A
(A面タンジェンシャル傾き調整)



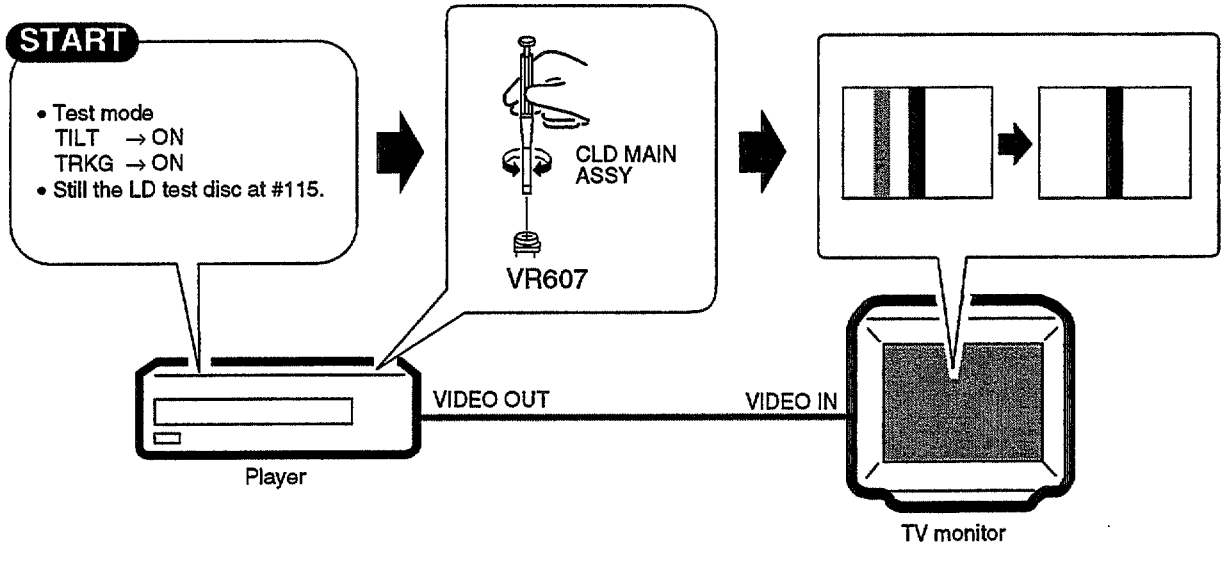
outermost : 最外周

3 Spindle Motor Centering Adjustment for Side A
(A面スピンドル芯出し調整)

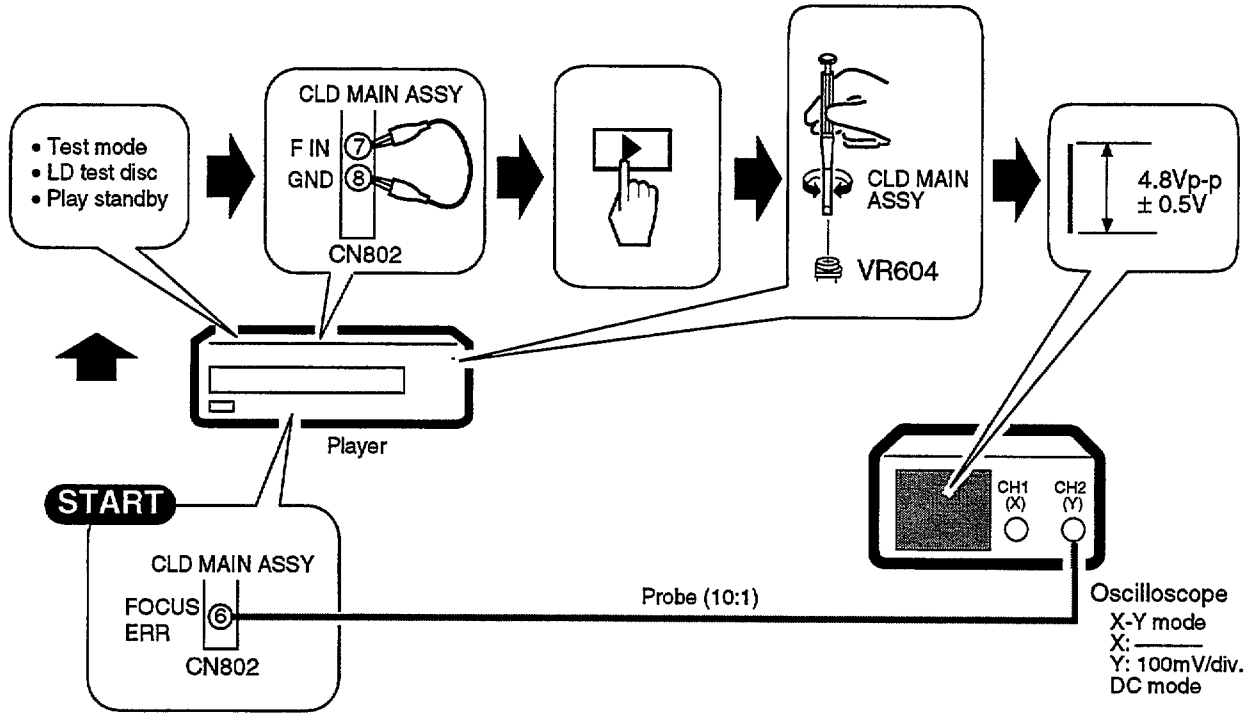


innermost : 最内周

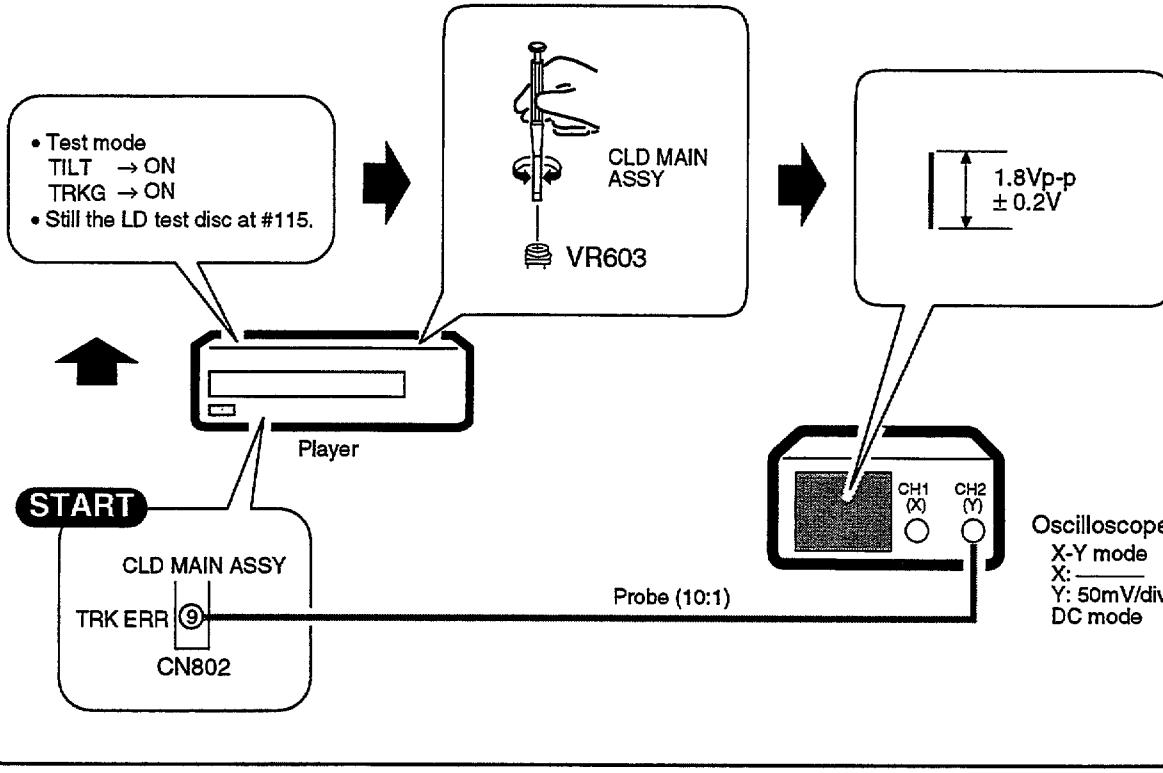
4 Crosstalk Check and Fine Tilt Offset Adjustment for Side A
(A面クロストーク確認及び，チルトオフセット微調整)



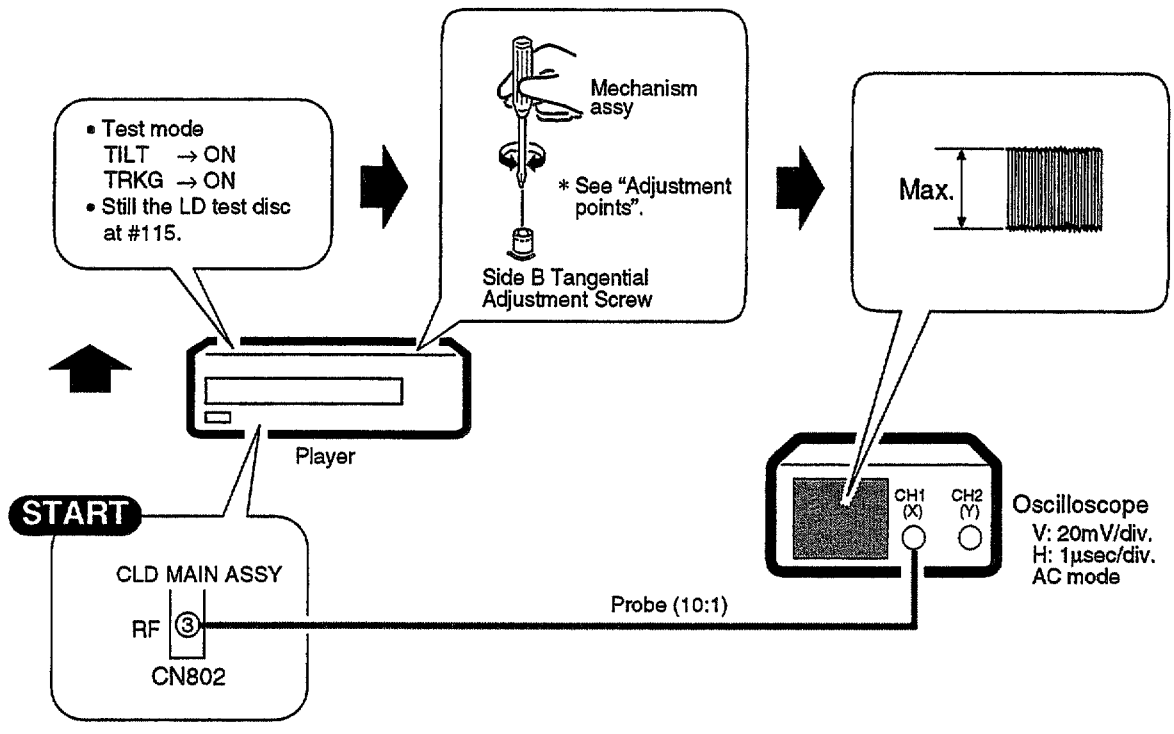
5 Focus Servo Loop Gain Adjustment
（フォーカスサーボループゲイン調整 ）



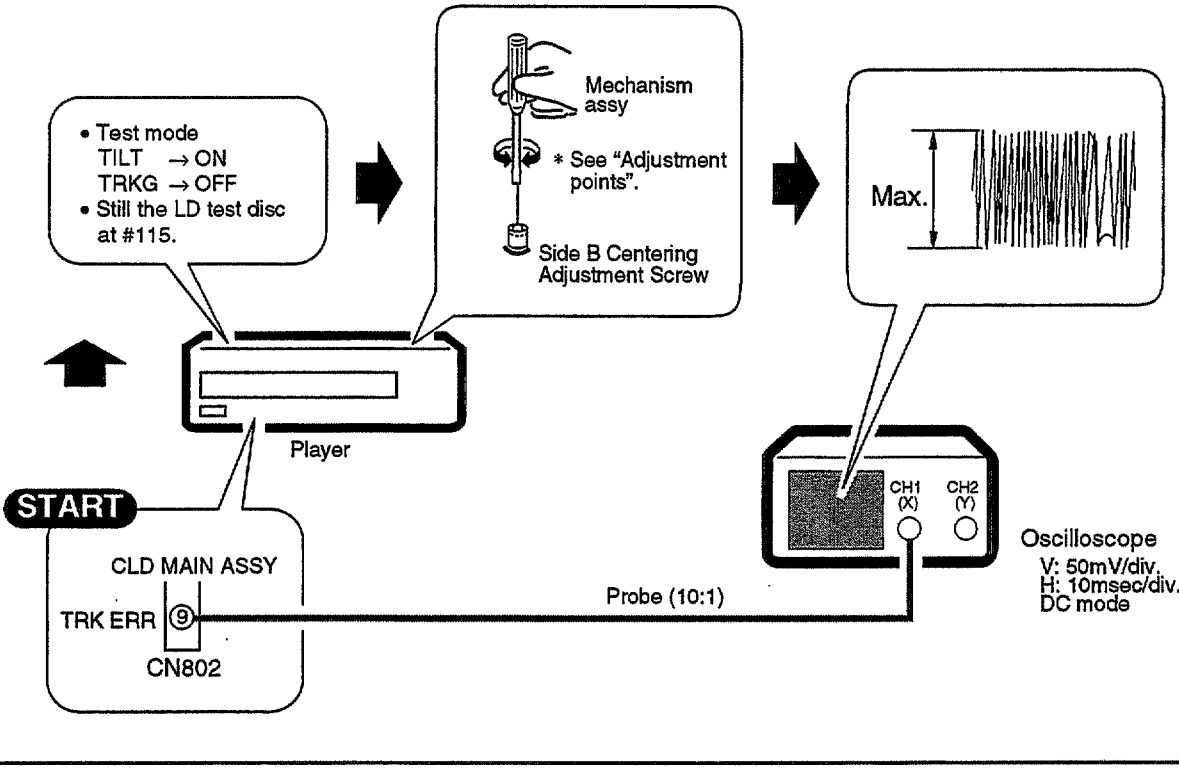
6 Tracking Servo Loop Gain Adjustment
（トラッキングサーボループゲイン調整 ）



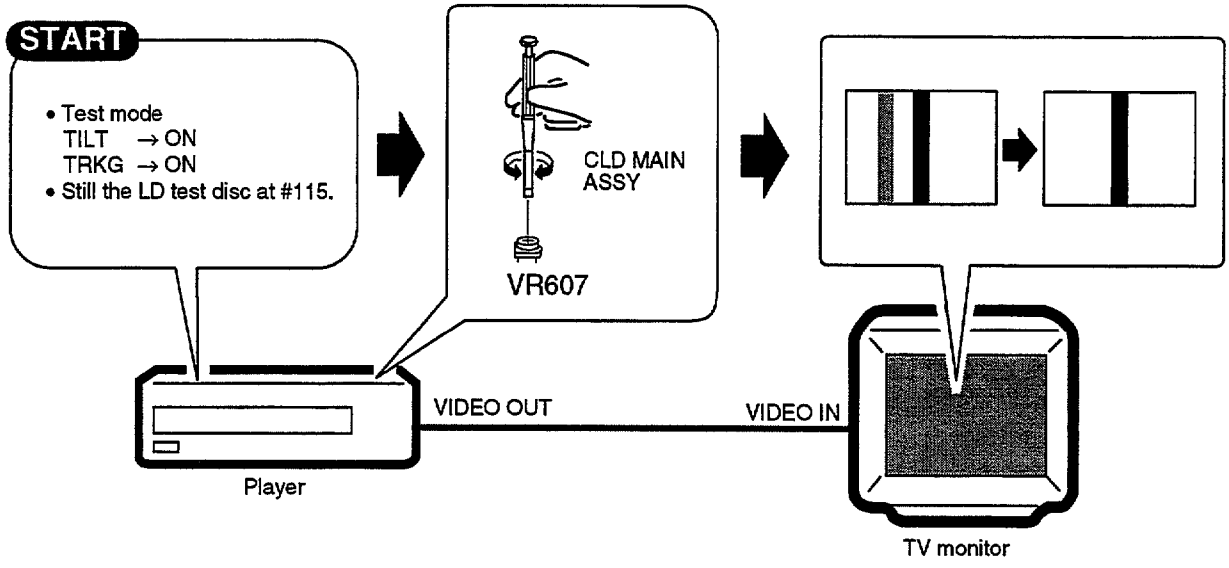
7 Tangential Direction Angle Adjustment for Side B
(B面タンジェンシャル傾き調整)



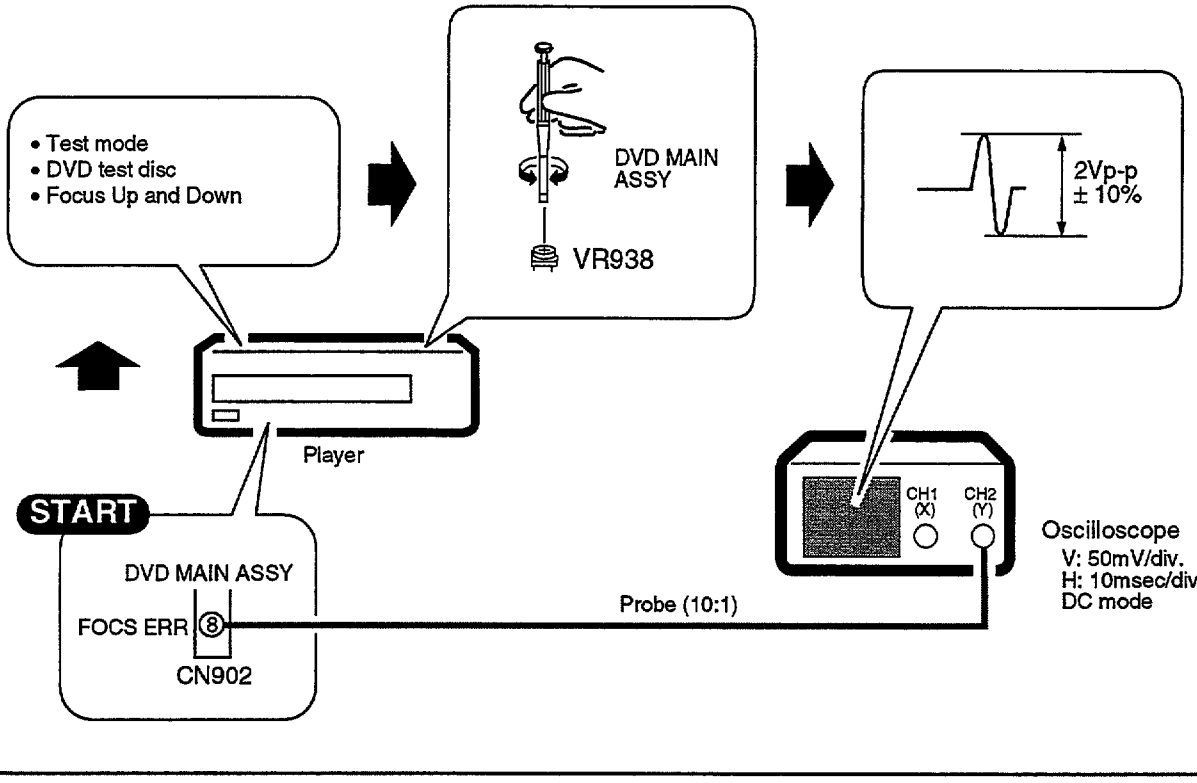
8 Spindle Motor Centering Adjustment for Side B
(B面スピンドル芯出し調整)



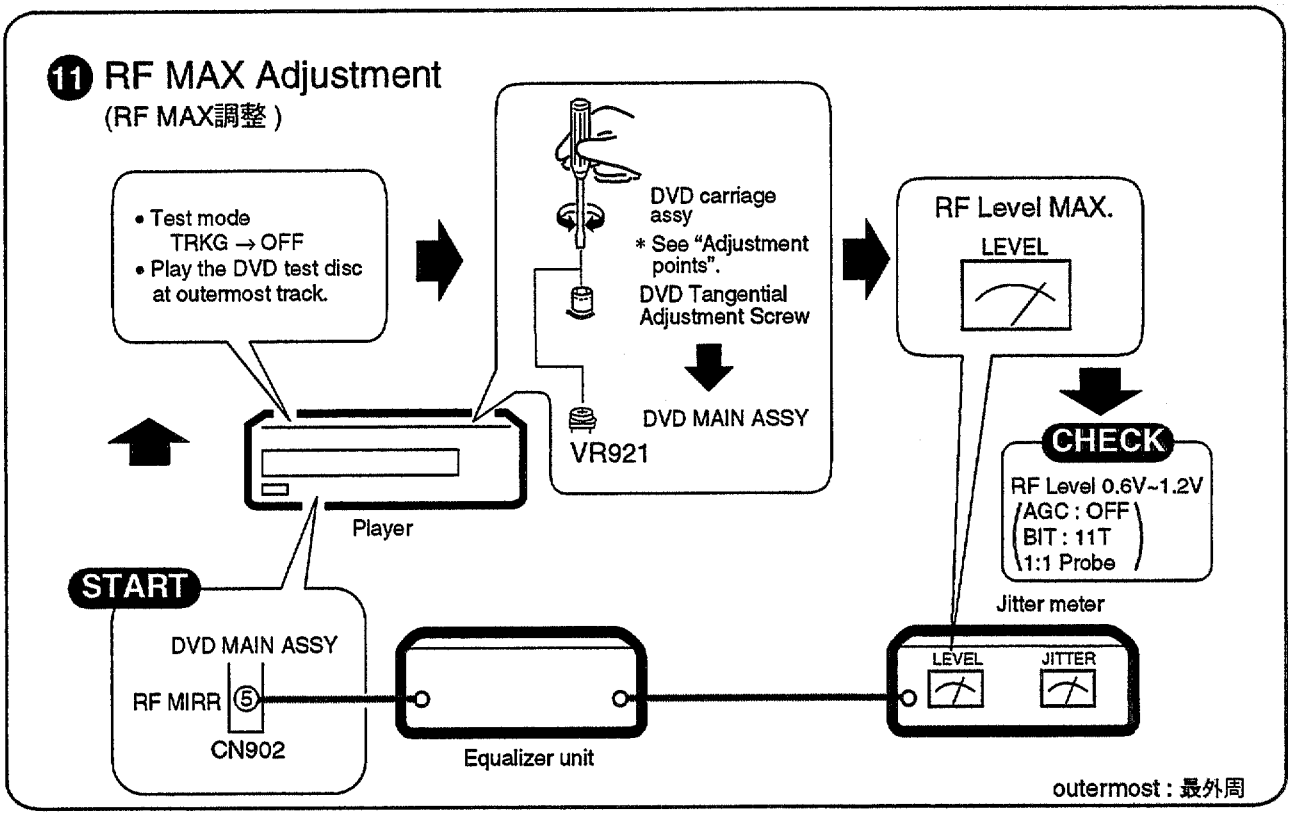
9 Crosstalk Check and Fine Tilt Offset Adjustment for Side B
(B面クロストーク確認及び，チルトオフセット微調整)



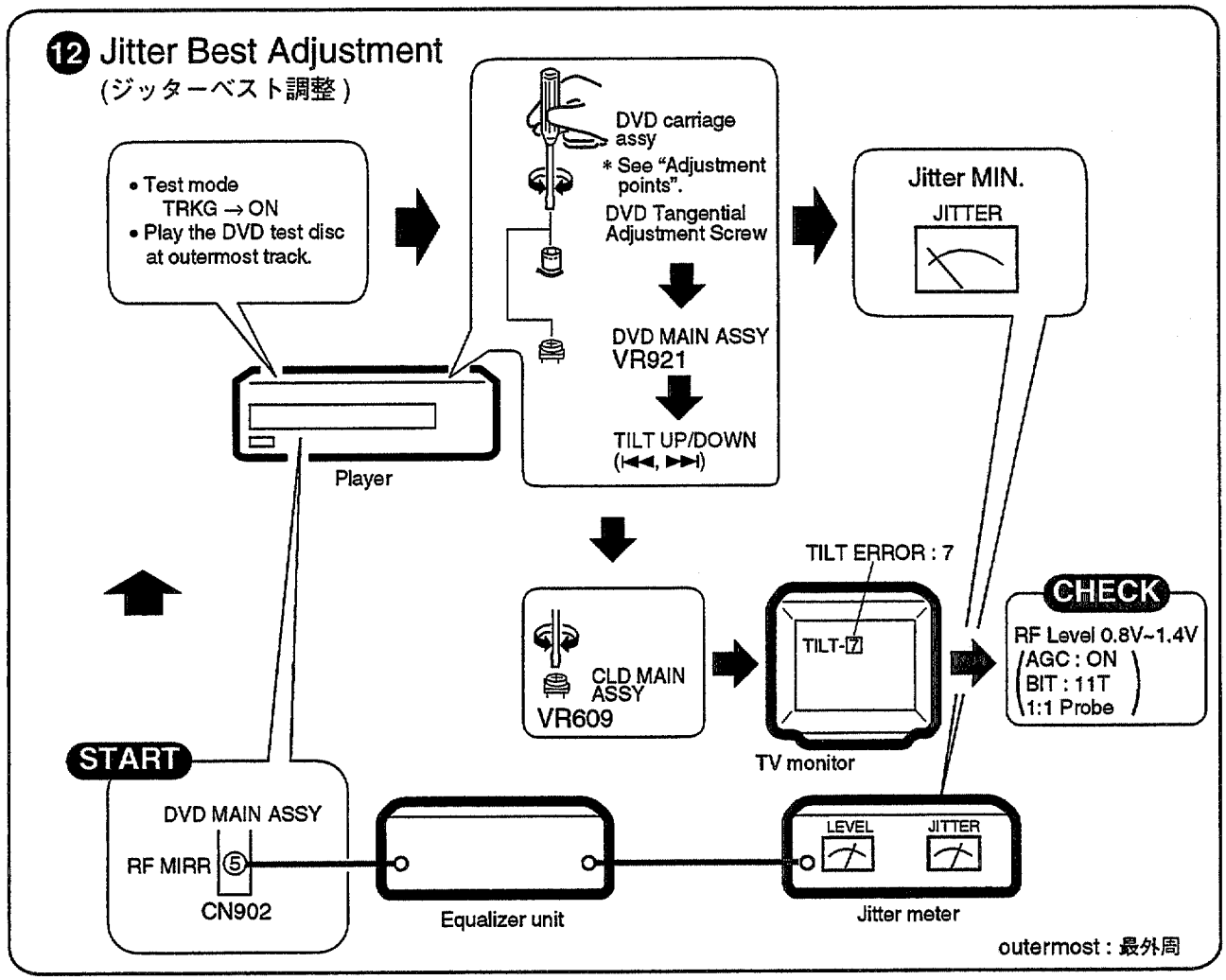
10 DVD Focus S-curve Level Coarse Adjustment
(DVDフォーカスS字レベル粗調整)



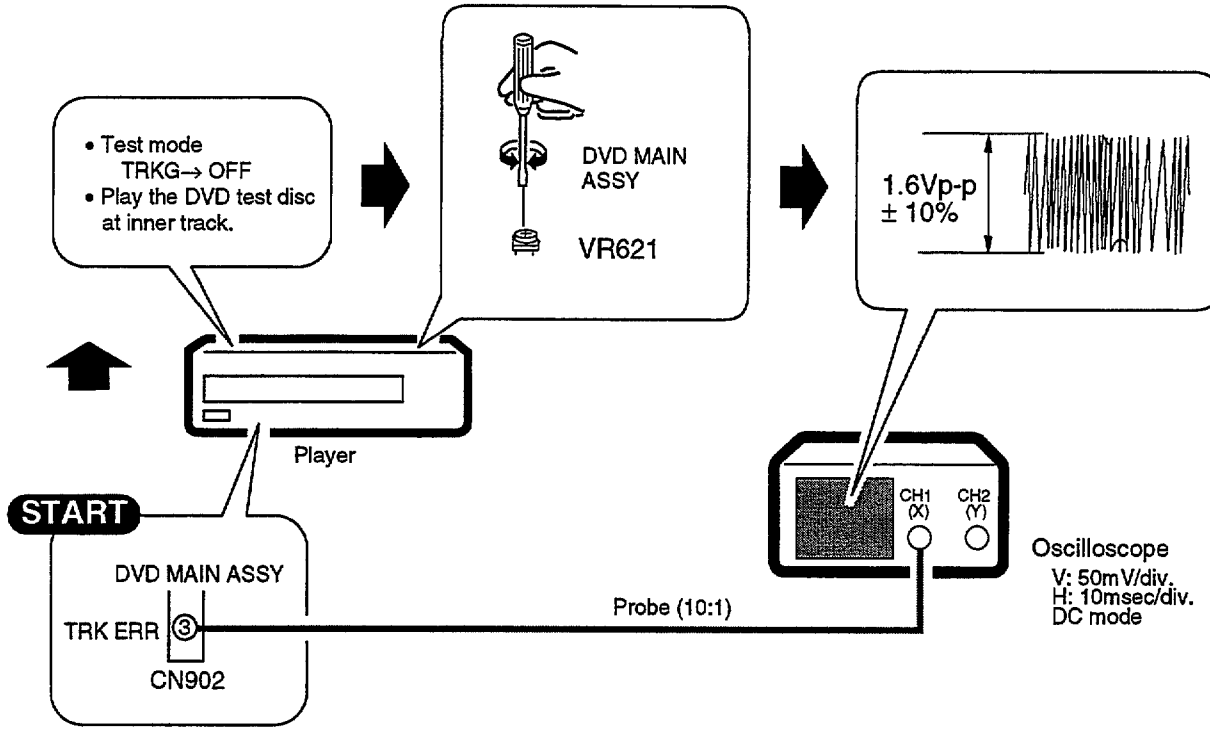
11 RF MAX Adjustment
(RF MAX調整)



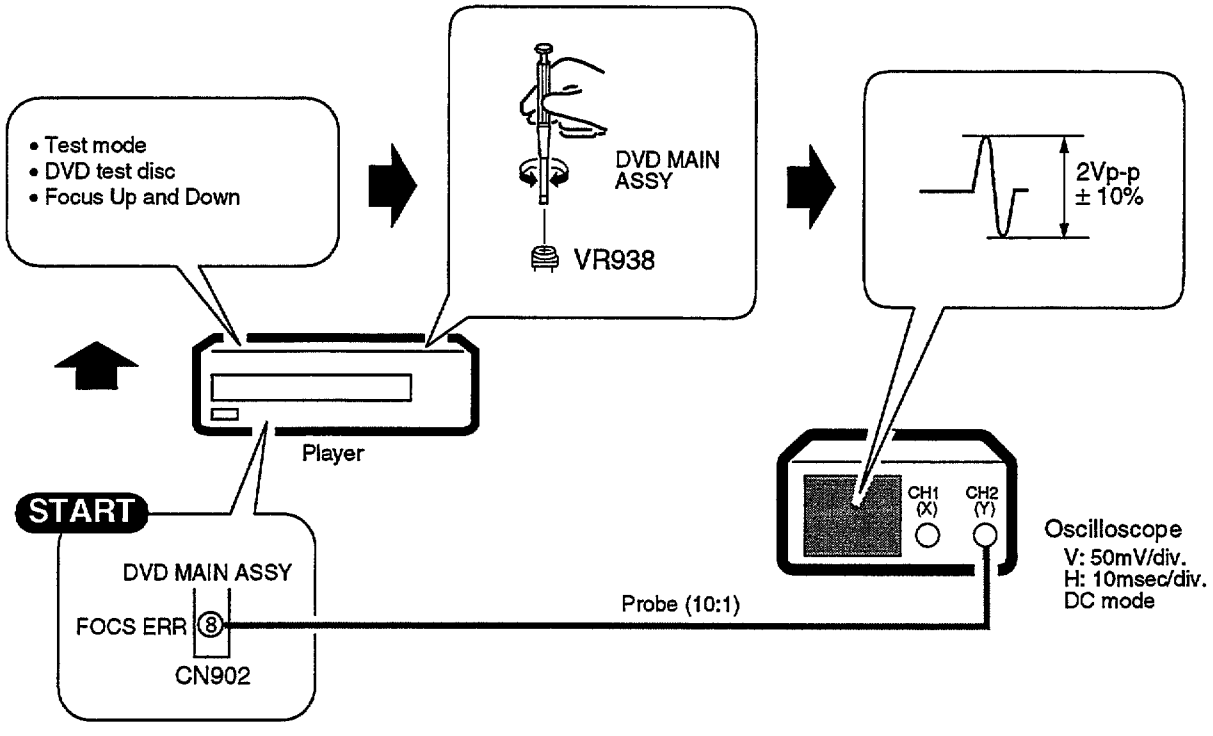
12 Jitter Best Adjustment
(ジッターベスト調整)



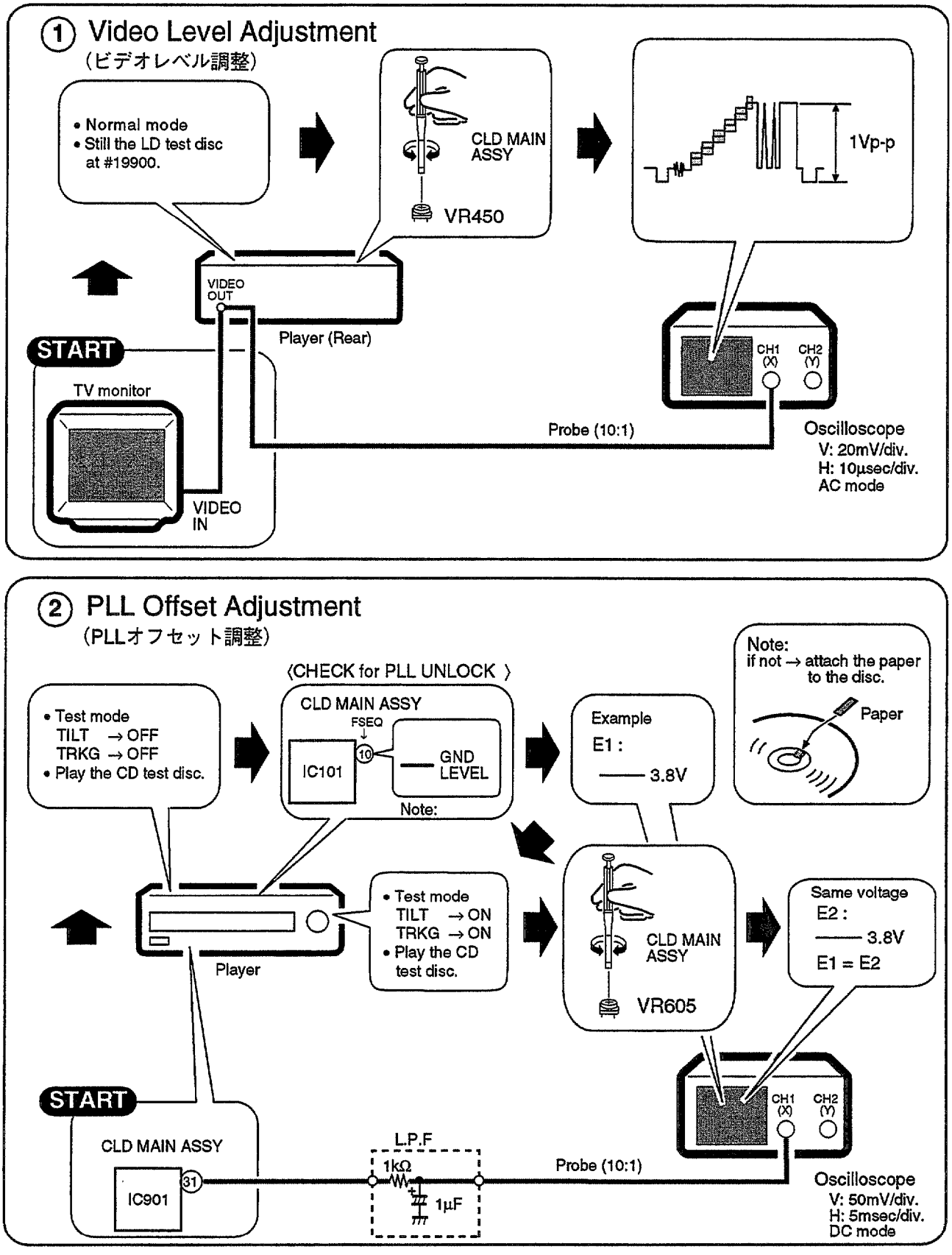
13 Tracking Error Level Adjustment
(トラッキングエラーレベル調整)



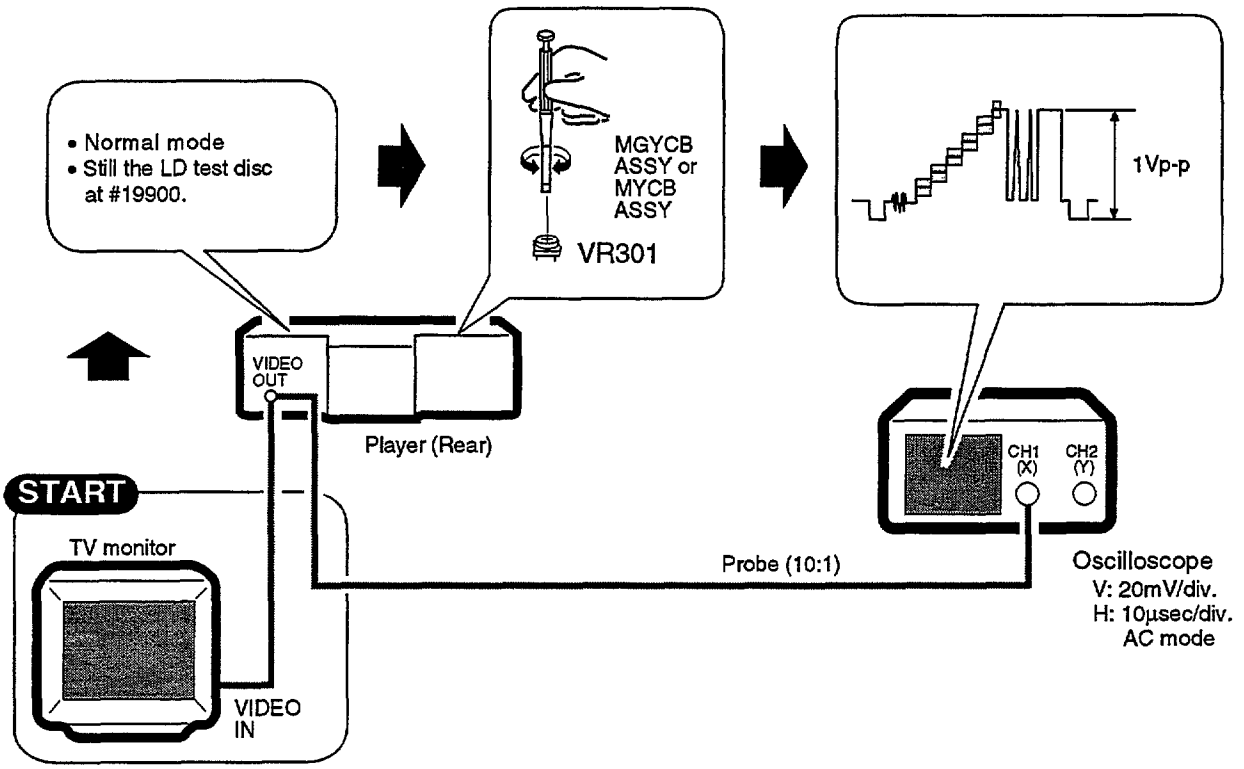
14 DVD Focus S-curve Level Fine Adjustment
(DVDフォーカスS字レベル微調整)



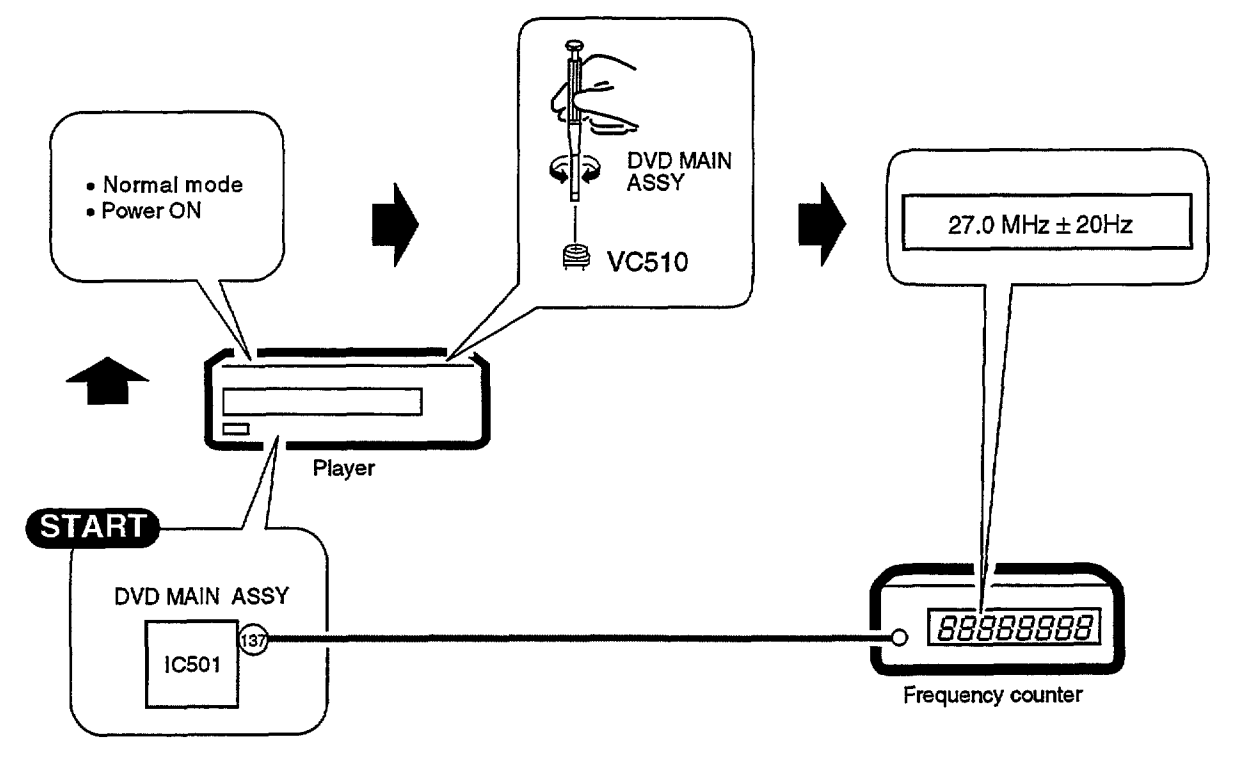
6.6 ELECTRICAL ADJUSTMENT (電気系の調整)



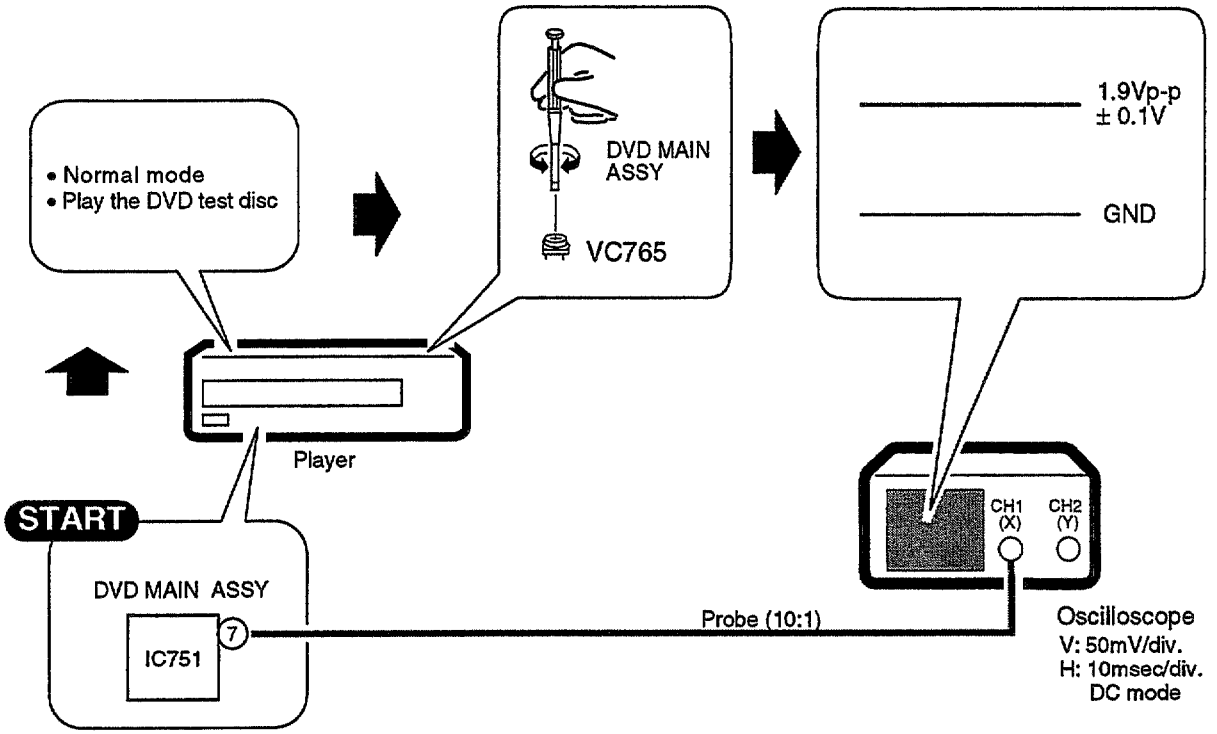
③ Y Output Level Adjustment
(Y出力レベル調整)



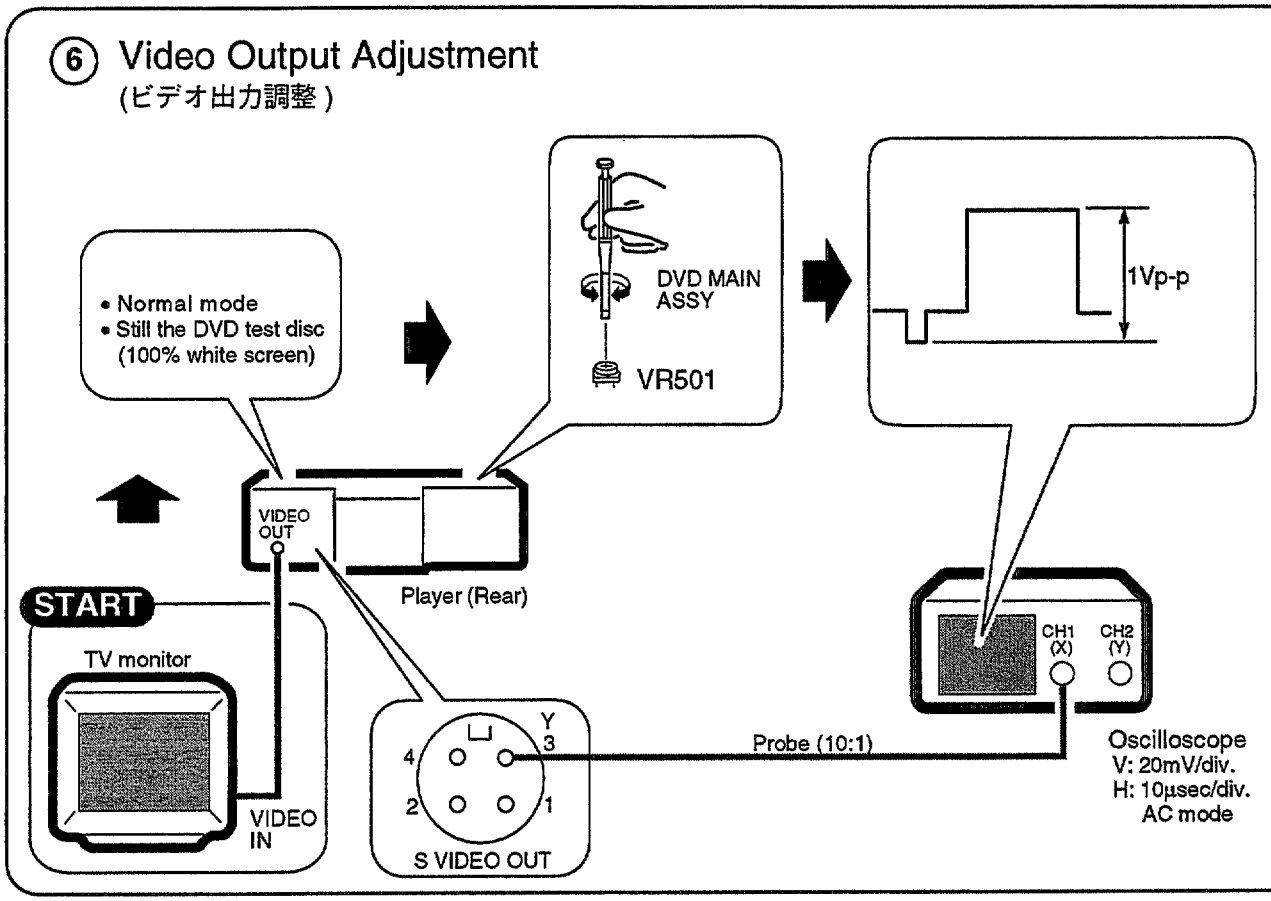
④ Master Clock Adjustment
(マスタークロック調整)



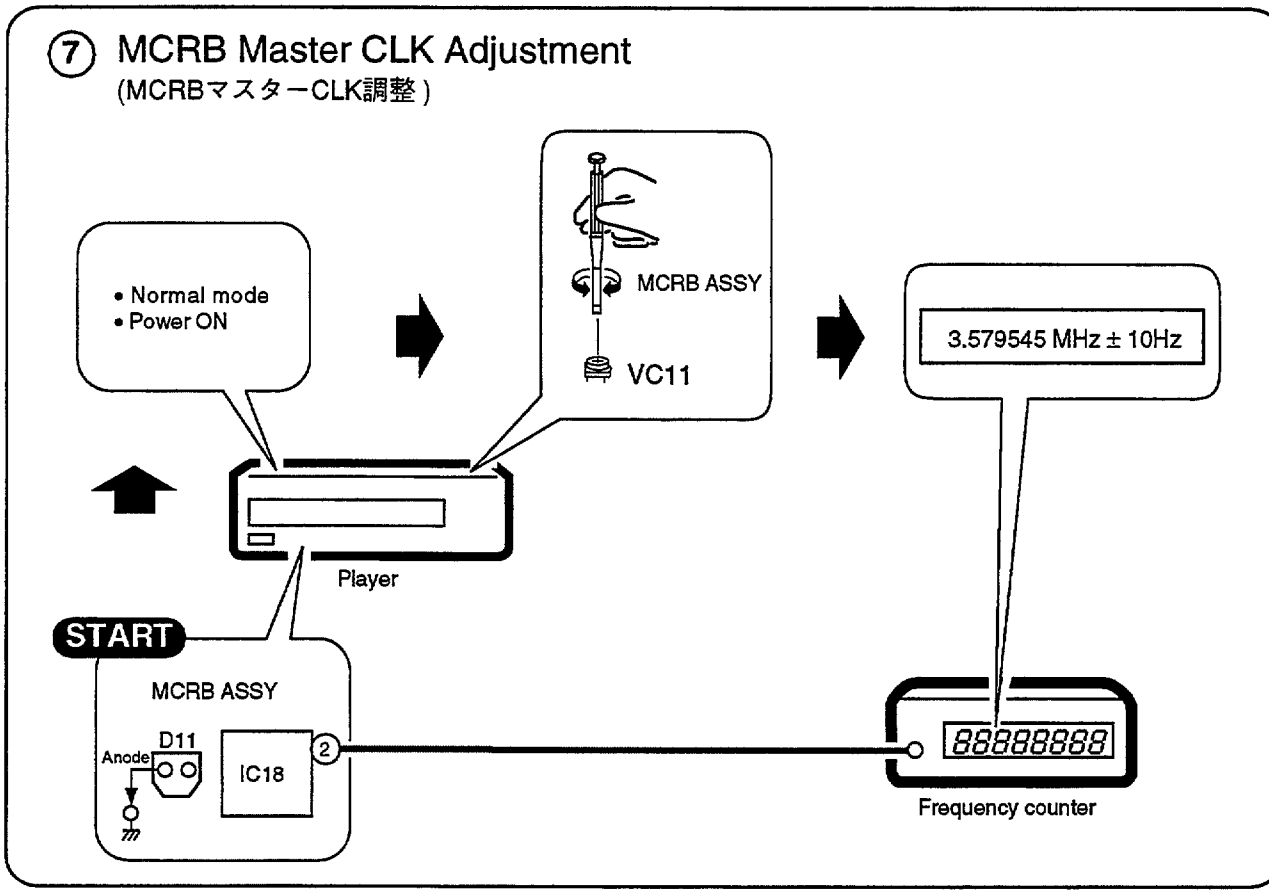
⑤ VCO Offset Adjustment
(VCOオフセット調整)



⑥ Video Output Adjustment
(ビデオ出力調整)

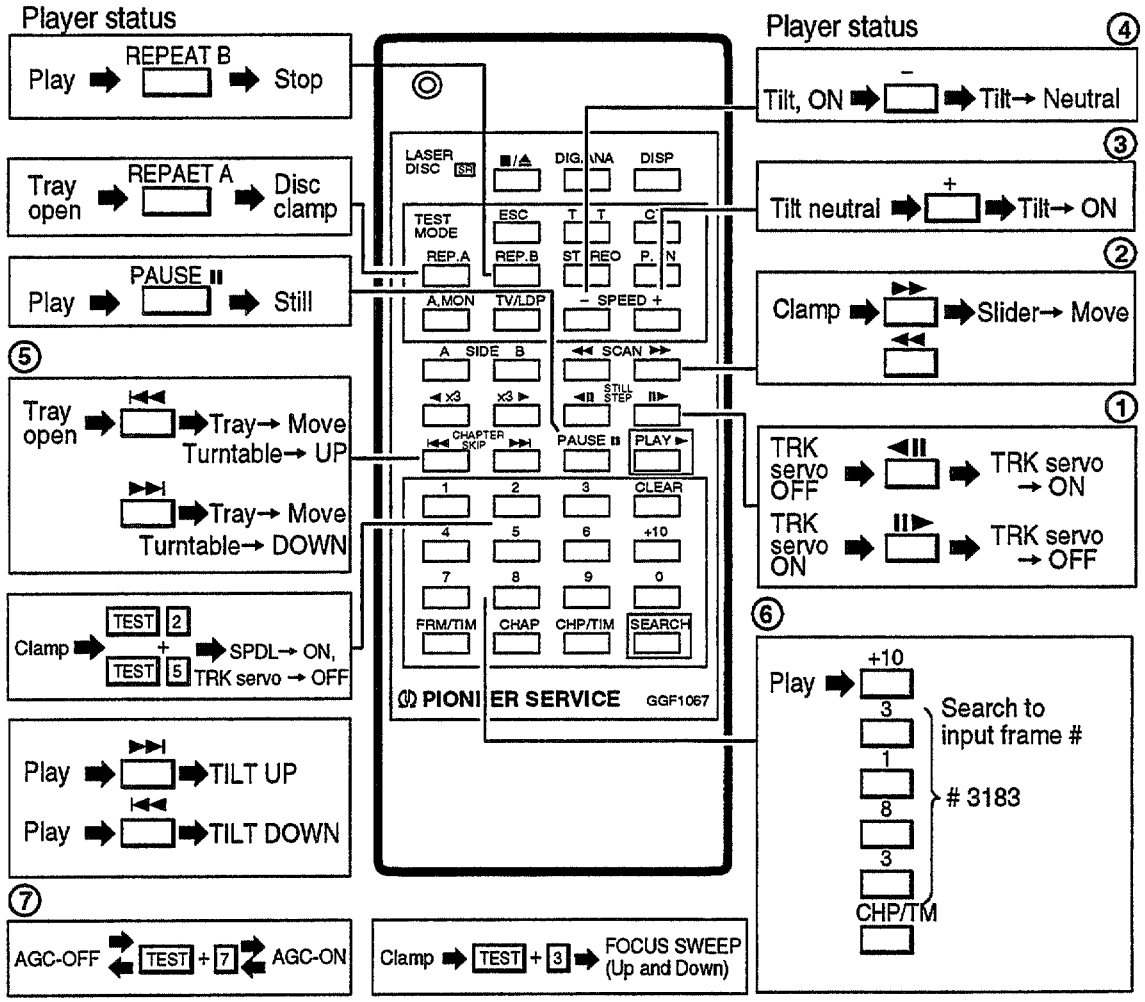


⑦ MCRB Master CLK Adjustment
(MCRBマスターCLK調整)

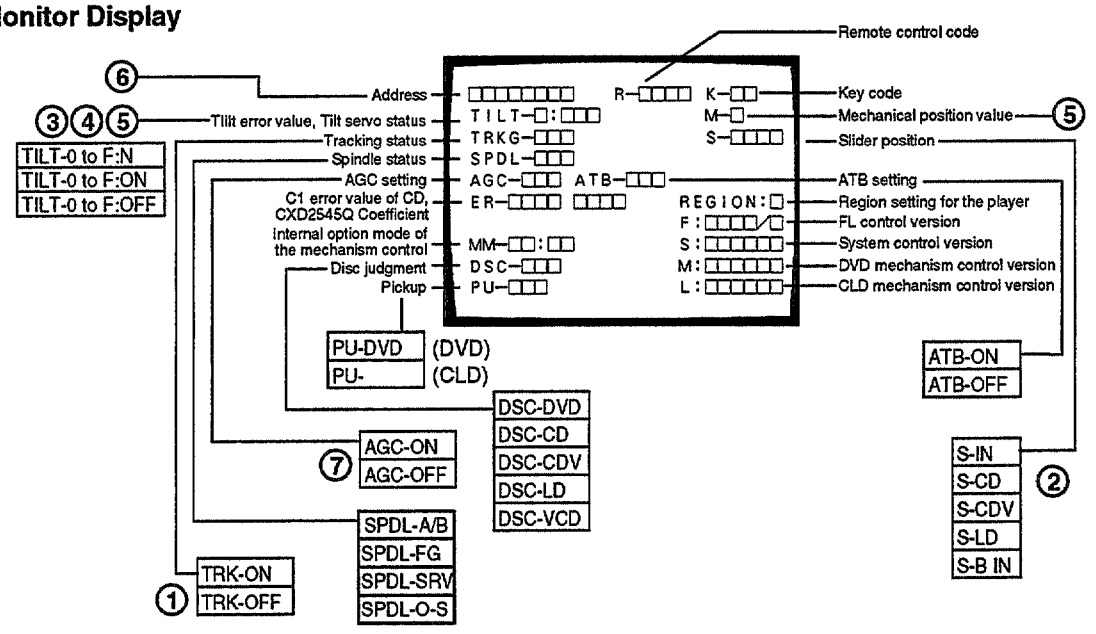


6.7 OPERATIONS IN THE TEST MODE（テストモード時のサービス用リモコン操作方法）

■ Test Mode Remote Control Unit (GGF1067)



■ TV Monitor Display



7. GENERAL INFORMATION

7.1 PARTS

7.1.1 IC

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

■ PD4753B (FLPB ASSY : IC101)

● MODE CONTROL IC

● Pin Function

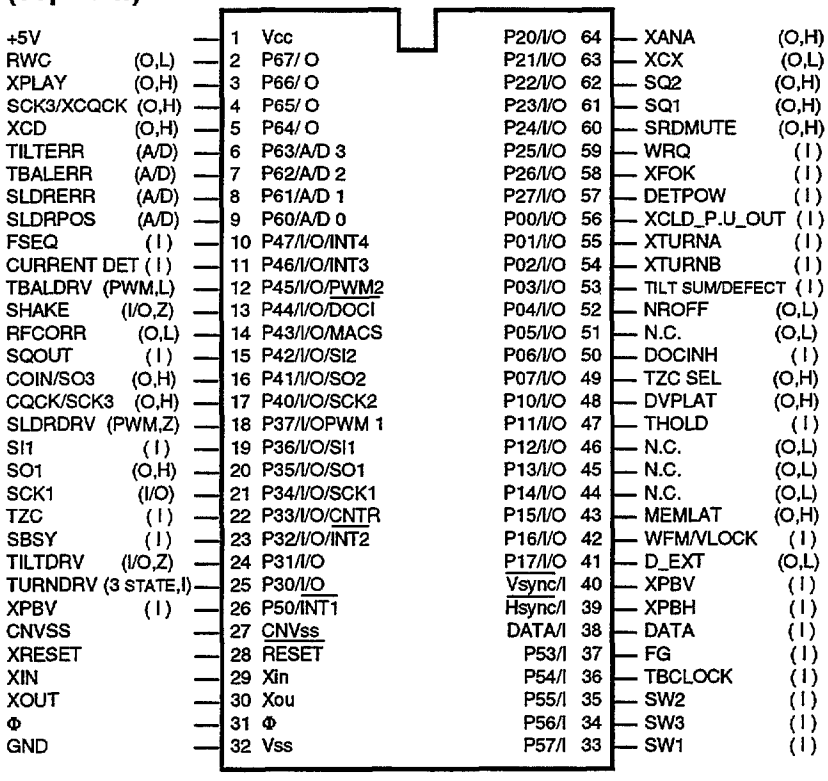
No.	Name	Function Name	I/O	Function	ACTIVE
1	P94	T6	O	FL timing output.	H : ON
2	P93	T5	O		
3	P92	T4	O		
4	P91	T3	O		
5	P90	T2	O		
6	P81	T1	O		
7	P80	T0	O		
8	VDD	Vcc	-	-	-
9	P27	Angle LED	O	Angle LED ON/OFF.	H : ON
10	P26	SIDE A LED	O	SIDE A LED ON/OFF. Basically (NC) only with compatible.	H : ON
11	P25	SIDE B LED	O	SIDE B LED ON/OFF. Basically (NC) only with compatible.	H : ON
12	P24	DVD illumination	O	DVD illumination lamp ON/OFF.	H : ON
13	P23	XRDY	O	Communications handshake line with system controller.	L: communications enabled
14	P22	SCK1	I/O	Communication clock output with system controller.	-
15	P21	SO1	I/O	Communication data output with system controller.	-
16	P20	SI1	I	Communication data input with system controller.	-
17	$\overline{\text{RESET}}$	RESET IN	I	Reset input.	L: reset
18	P74	Condition LED	O	Condition OED ON/OFF.	L : ON
19	P73	Last memory LED	O	Last memory LED ON/OFF.	L : ON
20	AVss	Vss	-	-	-
21	P17	POWER ON	O	SW5V ON/OFF.	H : ON
22	P16	RESET OUT	O	System reset output.	L: reset
23	P15	(NC)	O	-	-
24	P14	(NC)	O	-	-
25	P13	KIN1	I	Key input.	
26	P12	KIN0	I	Key input.	
27	P11	MS1	I	Destination determination input.	
28	P10	MS0	I	Destination determination input.	
29	AVDD	AVDD	-	-	-
30	AVREF	AVREF	-	-	-
31	P04	P04	I	(Not used)	-
32	XT2	(NC)	-	-	-
33	Vss	Vss	I	-	-
34	X1	X1	I	Microprocessor clock connection.	
35	X2	X2	-	Microprocessor clock connection.	
36	P37	(NC)	O	-	-
37	P36	(NC)	O		
38	P35	(NC)	O		
39	P34	(NC)	O		
40	P33	(NC)	O		

No.	Name	Function Name	I/O	Function	ACTIVE
41	P32	(NC)	O	-	-
42	P31	(NC)	O		
43	P30	(NC)	O		
44	P03	(NC)	O		
45	P02	(NC)	O		
46	P01	LT1	I	Communications handshake line with system controller.	L: communications enabled
47	P00	SEL IR	I	Remote control signal input.	
48	IC	IC	-	-	-
49	P72	(NC)	O	-	-
50	P71	(NC)	O		
51	P70	(NC)	O		
52	VDD	VDD	-	-	-
53	P127	DISP LED	O	Display LED ON/OFF.	H : ON
54	P126	GUI LED	O	GUI LED ON/OFF.	H : ON
55	P125	(NC)	O	-	-
56	P124	(NC)	O		
57	P123	(NC)	O		
58	P122	S15	O	FL segment output.	H : ON
59	P121	S14	O		
60	P120	S13	O		
61	P117	S12	O		
62	P116	S11	O		
63	P115	S10	O		
64	P114	(NC)	O	-	-
65	P113	(NC)	O	-	-
66	P112	S9	O	FL segment output.	H : ON
67	P111	S8	O		
68	P110	S7	O		
69	P107	S6	O		
70	P106	S5	O		
71	VLOAD	-30V	-	Input for -30V.	
72	P105	S4	O	FL segment output.	H : ON
73	P104	S3	O		
74	P103	S2	O		
75	P102	S1	O		
76	P101	S0	O		
77	P100	T10	O	FL segment output.	H : ON
78	P97	T9	O		
79	P96	T8	O		
80	P95	T7	O		

■ PD0246A2 (CLD MAIN ASSY : IC101)

● LD MECHANISM CONTROL IC

● Pin Arrangement (Top View)



● Pin Function

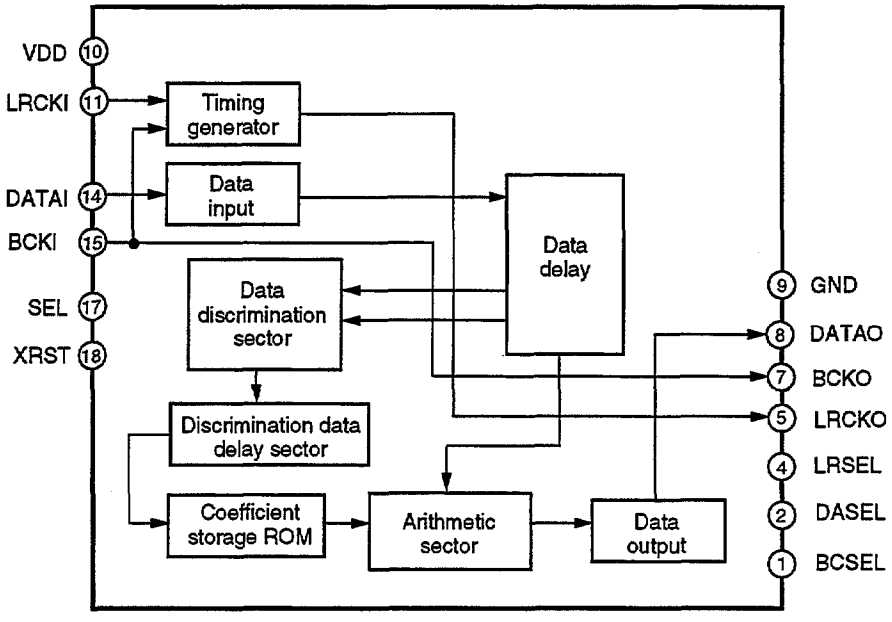
No.	Pin Name	I/O	Pin Function
1	VCC	I	Power supply pin Apply 5V ± 10%
2	RWC	O	DSP read/write command signal output "L"= Read "H"= Write
3	XPLAY	O	Signal output during spindle servo "L"= During servo "H"= During acceleration, brake and stop
4	SCK3/XCQCK	O	DVP/DSP clock switch "H"= DVP "L"= DSP
5	XCD	O	LD/CD switch signal output "L= CD "H"= LD
6	TILTERR	I A/D	This signal is A/D converted as the tilt servo control input. Control the tilt motor so that this signal becomes 2.5V.
7	TBALERR	I A/D	Tracking balance error signal input This signal is A/D converted as the tracking offset control input.
8	SLDERR	I A/D	This signal is A/D converted as the slider servo control input. Control the slider motor so that this signal becomes 2.5V.
9	SLDPOS	I A/D	Pickup position detection switch input Detect the position by reading A/D input value which each switches are resistance divided.
10	FSEQ	I	Subcode sync. confirmity detection signal input "L"= Not confirmity "H"= Confirmity
11	CURRENTDET	I	Spindle over-current detection signal input "L" = Over current "H"= Normal
12	TBALDRV	O PWM	Output the tracking offset signal to PWM output, then use for auto tracking offset. 910µsec period, tri-state control H, L, Z
13	SHAKE	I/O	Handshake signal for data communication with the mode control IC This pin is the bilateral data line and each microprocessor control the Input/Output.
14	RFCORR	O	RF correction switch signal output "H"= Gain UP CD, CDV-A:Low, CAV inner circuit gain up, others are High.
15	SQOUT	I	Command data input from DSP Read out SUBQ
16	SO3/COIN	O	Command data output to DVP/DSP
17	SCK3/CQCK	O	DVP/DSP read/write command clock output Read-in at rising edge
18	SLDDRV	O PWM	Slider control signal output 5V= FWD, 0V= REV, 2.5V= STOP 910µsec period, tri-state control H, L, Z

No.	Pin Name	I/O	Pin Function
19	SI1	I	Data input from the mode control IC
20	SO1	O	Serial data output to the mode control IC
21	SCK1	I/O	Clock for serial communication with the mode control IC Becomes input mode without communicate with the mode control IC
22	TZC	I INT	Tracking error zero cross signal input Monitor this signal when searching track count in the miss clamp detection
23	SBSY	I	Subcode block sync. input
24	TILTDRV	I/O	LOAD/TILT control output 0.5V= Tray IN, OUT/Tilt DOWN, UP 2.5V=STOP Use for tilt servo that tilt drive is PWM output.
25	TURNDRV	O	Turn drive signal output
26	XPBV	I	Playback vertical sync. signal input of LD/CDV "L"= During vertical sync.
27	CNVSS	I	Ground for A/D conversion
28	XRESET	I	Reset signal input "L"= Reset "H"= Release reset Mode control IC is controlled.
29	XIN	I	9MHz clock oscillation input
30	XOUT	O	9MHz clock oscillation output
31	N.C.	O	Not used
32	GND	I	Ground
33	SW1	I	Switch input for Loading/Tilt position detection
34	SW3		
35	SW2		
36	TBCLOCK	I	Spindle lock signal input "L"= Unlock "H"= Lock
37	FG	I	Spindle motor FG signal input 16 outputs per rotation Used after dividing by 2 in the microprocessor
38	DATA	I	Input for Phillips code decoder with built-in mechanism controller
39	XPBH	I	Playback H-SYNC input for Phillips code decoder
40	XPBV	I	Playback V-SYNC input for Phillips code decoder
41	D_EXT	O	Control signal output for video dynamic extension "H"= ON "L"= OFF
42	WFM	I	Field discrimination signal from DVP "H"= ODD "L"= EVEN
43	MEMLAT	O	Serial control latch output of memory control IC PD3212A Latches at falling edge.
44	N.C.	O	Not used
45	N.C.	O	Not used
46	N.C.	O	Not used
47	THOLD	I	Track jump accelerating / decelerating signal input "L"= Other "H"= During accelerating / decelerating
48	DVPLAT	O	PD6159B serial latch signal output Latches at falling edge.
49	TZCSEL	O	TZC switch signal output "H"= at normal "L"= at CD/DVD disc discrimination
50	DOCINH	O	Control the clamp pulse and clamp killer by tri-state value
51	N.C.	O	Not used
52	NROFF	O	Noise reduction control output by VDEM "L"= Normal "H"= Not NR
53	TILT SUM	O	Disc present/absent detecting signal input by the tilt sum in the DVD P.U. mode "H"= Absent "L"= Present
54	XTURNB	I	Turn switch input "H"= Side A / turn "L"= Side B
55	XTURNA	I	Turn switch input "H"= Side B / turn "L"= Side A
56	XLDPUCUT	I	LD P.U. out position detecting switch input "H"= LD P.U. active "L"= LD P.U. out position
57	DETPOW	I	Use for power abnormal signal input port "L"= Normal "H"= Abnormal
58	XFOK	I	Focus servo lock signal input "L"= Lock "H"= Unlock Use for lock detection of focus servo
59	WRQ	I	Subcode Q reading OK signal input "L"= NG "H"= OK This pin will be H when subcode Q data passed by CRC check.
60	SRDMUTE	O	Mute control signal output for AC3 Release MUTE during playback. "L"= Release MUTE "H"= MUTE
61	SQ1	O	Analog audio switching signal output 1/L "L"= Squelch OFF "H"= Squelch ON
62	SQ2	O	Analog audio switching signal output 2/R "L"= Squelch OFF "H"= Squelch ON
63	XCX	O	Analog audio CX noise reduction switching signal output "L"= CX ON "H"= CX OFF
64	XANA	O	Digital / Analog audio switching signal output "L"= Analog "H"= Digital

■ PD0236AM (CLD MAIN ASSY : IC202)

● HI-BIT IC

● Block Diagram



● Pin Function

No.	Pin Name	I/O	Pin Function
1	BCSEL	Ip	fs selection of bit clock (built-in pull-up) H : BCKI = 48fs , L : BCKI = 64fs
2	DASEL	Ip	Output data length selection when the bit length expansion function is ON. H :DATAO = 20 bit , L : DATAO = 24 bit
3	(NC)	–	Not used (Open or VDD)
4	LRSEL	Ip	LRCKO polarity selection (built-in pull-up) H : LRCKI = LRCKO , L : LRCKI = $\overline{\text{LRCKO}}$
5	LRCKO	O	LR clock output
6	(NC)	–	Not used (Open or VDD)
7	BCKO	O	Bit clock output
8	DATAO	O	Data output
9	GND	–	Ground pin
10	VDD	–	Power supply pin
11	LRCKI	I	LR clock input
12	(NC)	–	Not used (Open or VDD)
13	(NC)	–	Not used (Open or VDD)
14	DATAI	I	Data input
15	BCKI	I	Bit clock input
16	(NC)	–	Not used (Open or VDD)
17	SEL	Ip	Bit length expansion process / input data output selection (built-in pull-up) H :Expansion process (output word length : 20/24 bit), L : Input data output
18	XRST	I	Reset pin H : Normal , L : Reset

■ HD6417032F20 (DVD MAIN ASSY : IC101)

● SYSTEM μ- COM

● Pin Function

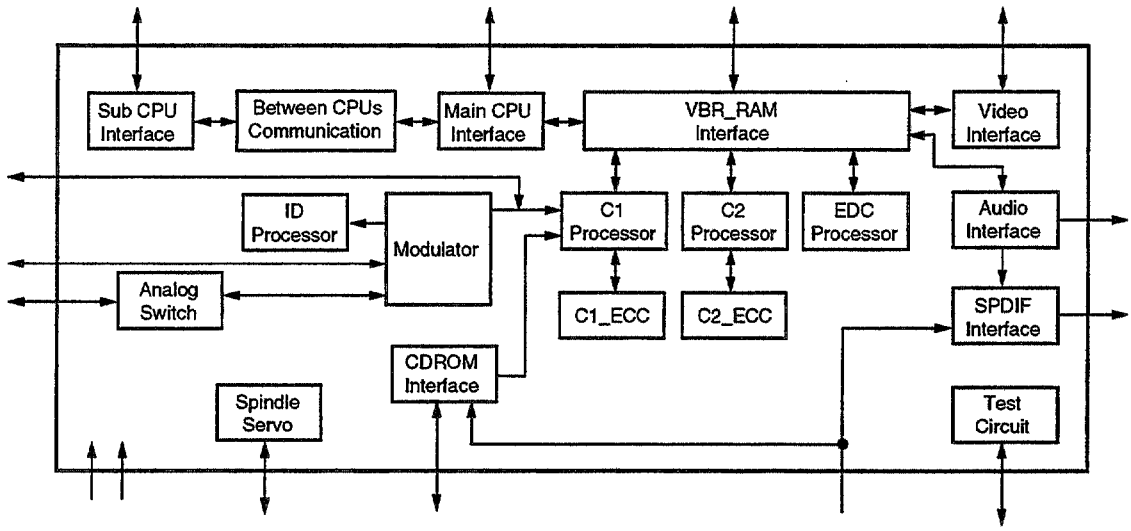
No.	Name	Signal Name	I/O	Active	Function
1	XIRQ6	XIRQ6	I	L	Interrupt input from LSI-1.
2	XIRQ7	XIRQ7	I	L	Interrupt input from μPD61020.
3	Vss	Vss	-	-	Grounding.
4	AD0	AD0	I/O	-	Data bus.
5	AD1	AD1	I/O	-	
6	AD2	AD2	I/O	-	
7	AD3	AD3	I/O	-	
8	AD4	AD4	I/O	-	
9	AD5	AD5	I/O	-	
10	AD6	AD6	I/O	-	
11	AD7	AD7	I/O	-	
12	Vss	Vss	-	-	Grounding.
13	AD8	AD8	I/O	-	Data bus.
14	AD9	AD9	I/O	-	Data bus.
15	Vcc	Vcc	-	-	Power supply.
16	AD10	AD10	I/O	-	Data bus.
17	AD11	AD11	I/O	-	
18	AD12	AD12	I/O	-	
19	AD13	AD13	I/O	-	
20	AD14	AD14	I/O	-	
21	AD15	AD15	I/O	-	
22	Vss	Vss	-	-	Grounding.
23	A0 (XHBS)	A0 (XHBS)	O	-	
24	A1	A1	O	-	
25	A2	A2	O	-	
26	A3	A3	O	-	Address bus.
27	A4	A4	O	-	
28	A5	A5	O	-	
29	A6	A6	O	-	
30	A7	A7	O	-	
31	Vss	Vss	-	-	Grounding.
32	A8	A8	O	-	Address bus.
33	A9	A9	O	-	
34	A10	A10	O	-	
35	A11	A11	O	-	
36	A12	A12	O	-	
37	A13	A13	O	-	
38	A14	A14	O	-	
39	A15	A15	O	-	
40	Vss	Vss	-	-	Grounding.
41	A16	A16	O	-	Address bus.
42	A17	A17	O	-	Address bus.
43	Vcc	Vcc	-	-	Power supply.
44	A18	A18	O	-	Address bus.
45	A19	A19	O	-	
46	A20	A20	O	-	
47	A21	A21	O	-	
48	XCS0	XCS0	O	L	Chip selection to program ROM.
49	XCS1	XCS1	O	L	Chip selection to work SRAM.
50	XCS2	XCS2	O	L	Chip selection to GUI-ROM.
51	XCS3	XCS3	O	L	Chip selection to LSI-1.
52	Vss	Vss	-	-	Grounding.
53	XCS4	XCS4	O	L	Chip selection to LSI-2.
54	XCS5	XCS5	-	-	Not used.
55	XCS6	XCS6	O	L	Chip selection to μPD61020.
56	XWAIT	XWAIT	I	L	Weight input for bus cycle.

No.	Name	Signal Name	I/O	Active	Function
57	XWR	XWR	O	L	Signal for external write.
58	PA5	PA5	O	-	TP58 (test pin).
59	XRD	XRD	O	L	Signal for external read.
60	PA7	XLT3	O	L	Latch signal to PD2026/29.
61	Vss	Vss	-	-	Grounding.
62	PA8	XLT2	O	L	Latch signal to ZR38521.
63	PA9	XDAKE	O	L	LSI-1 and LSI-2 direct DMA enable output.
64	TIOCA1	XQ2	I	L	Interrupt input from LSI-2.
65	PA11	LT1	O	H	Handshake output to FL CON.
66	DACK0	DACK0	O	H	Signal to acknowledge request for DMA transfer to LSI-1.
67	XDREQ0	XDREQ0	I	L	Signal to acknowledge request for DMA transfer from LSI-1.
68	DACK1	DACK1	O	L	Signal to acknowledge request for DMA transfer to LSI-2.
69	XDREQ1	XDREQ1	I	L	Signal to acknowledge request for DMA transfer from LSI-2.
70	Vcc	Vcc	-	-	Power supply.
71	CK	CK	O	-	System control clock output. Not used.
72	Vss	Vss	-	-	Grounding.
73	EXTAL	EXTAL	I	-	Crystal oscillator input.
74	XTAL	XTAL	I	-	Crystal oscillator input.
75	Vcc	Vcc	-	-	Power supply.
76	NMI	NMI	I	-	NMI input (pull-up). Not used.
77	Vcc	Vcc	-	-	Power supply.
78	XWDTOF	WDTOF	O	L	Watchdog timer output. Not used.
79	XRES	XRES	I	L	Reset input.
80	MD0	MD0	I	-	Operation mode setting terminal (H).
81	MD1	MD1	I	-	Operation mode setting terminal (L). Set to Mode 1.
82	MD2	MD2	I	-	Operation mode setting terminal (L).
83	Vcc	Vcc	-	-	Power supply.
84	Vcc	Vcc	-	-	Power supply.
85	AVcc	AVcc	I	-	Analog power supply.
86	AVref	AVref	-	-	Analog reference voltage input.
87	AN0	AN0	-	-	Analog signal input (pull-up). Not used.
88	AN1	AN1	I	-	Analog signal input (pull-up). Not used.
89	AN2	AN2	I	-	Audio level (Lch) input.
90	AN3	AN3	I	-	Audio level (Rch) input.
91	AVss	AVss	-	-	Analog power grounding.
92	PC4	XSDET	I	-	Sync detection input.
93	PC5	XSEL2	I	-	Test mode determination input.
94	PC6	CDGM	I	H	Graphic input data detection input.
95	PC7	CTS	I	H	CTS (for RS-232).
96	Vss	Vss	-	-	Grounding.
97	PB0	FMATT	O	-	LD FM audio attenuation output.
98	PB1	BSEL	O	-	Hi Bit clock selection output.
99	Vcc	Vcc	-	-	Power supply.
100	TIOCA3	HIBSEL	O	-	Hi Bit expansion selection output.
101	PB3	XIRQCDROM	I	-	Interrupt input from CDROM decoder.
102	PB4	XRDY	I	L	Ready signal input from FL microprocessor.
103	PB5	DTR	O	-	DTR output (for RS-232).
104	PB6	GCS	O	H	Chip selection for CDG.
105	PB7	DPSEL	O	-	Optical output selection output. $\overline{\text{PCM}}$/AC3.
106	Vss	Vss	-	-	Grounding.
107	RxD0	SSI	I	-	Serial IN (synchronizing the clock).
108	TxD0	SSO	O	-	Serial OUT (synchronizing the clock).
109	RxD1	RXD	I	-	Serial IN (synchronizing adjustment).
110	TxD1	TXD	O	-	Serial OUT (synchronizing adjustment).
111	SCK0	SSCK	I/O	-	Serial clock input/output (synchronizing the clock).
112	XIRQ5	XQ10	I	L	Interrupt input from LSI-1 INT1.

■ PD4695A (DVD MAIN ASSY : IC161)

● DVD DECODER

● Block Diagram



● Pin Function

No.	Pin Name	I/O	Pin Function
1	GND	–	Ground for digital circuit
2	GND		
3	DXTLO	O	Connect a 27MHz crystal which is oscillated PLL reference clock When input a signal from the external, connect to DXTLI.
4	DXTLI	I	
5	VDD	–	Power supply for digital circuit Connect to +5V.
6	PEQL	I	Not used Fixed to GND or VDD.
7	PEQH	I	
8	SELNED	I	Set the input/output direction of NED (7:0), STB and BSYNC pins 0 for input.
9	STB	I/O	Strobe signal which is indicated data of after the 8/16 demodulation is in NED (7:0) pins
10	BSYNC	I/O	Pulse which is indicated the lead of ECC block
11	NED7	I/O	8 bit parallel data input/output of after the 8/16 demodulation
12	NED6		
13	NED5		
14	NED4		
15	VDD	–	Power supply for digital circuit Connect to +5V.
16	GND	–	Ground for digital circuit
17	NED3	I/O	8 bit parallel data input/output of after the 8/16 demodulation
18	NED2		
19	NED1		
20	NED0		
21	DD7	I/O	DRAM data bus for VBR buffer
22	DD6		
23	DD5		
24	DD4		
25	DD3		
26	GND	–	Ground for digital circuit

No.	Pin Name	I/O	Pin Function
27	VDD	–	Power supply for digital circuit Connect to +5V.
28	DD2	I/O	DRAM data bus for VBR buffer
29	DD1		
30	DD0		
31	XDRAS	O	DRAM RAS signal of VBR buffer
32	XDCAS	O	DRAM CAS signal of VBR buffer
33	XDOE	O	DRAM OE signal of VBR buffer
34	XDWE	O	DRAM WE signal of VBR buffer
35	DA10	O	DRAM address signal for VBR buffer
36	DA9		
37	DA8		
38	DA7		
39	DA6		
40	GND	–	Ground for digital circuit
41	VDD	–	Power supply for digital circuit Connect to +5V.
42	DA5	O	DRAM address signal for VBR buffer
43	DA4		
44	DA3		
45	DA2		
46	DA1		
47	DA0		
48	SREQ	I	Data transfer request pin from the MPEG decoder
49	XWR	O	Data transfer response pin to the MPEG decoder Output form is changed by setting.
50	XSACK		
51	GND	–	Ground for digital circuit
52	GND		
53	VDD	–	Power supply for digital circuit Connect to +5V.
54	SDATA0	O	Data output bus to the MPEG decoder
55	SDATA1		
56	SDATA2		
57	SDATA3		
58	GND	–	Ground for digital circuit
59	VDD	–	Power supply for digital circuit Connect to +5V.
60	SDATA4	O	Data output bus to the MPEG decoder
61	SDATA5		
62	SDATA6		
63	SDATA7		
64	LSYNC	O	Line sync. detecting output in the demodulator
65	DMACKI	I	System clock input of DVD and CD ROM decoder Input 10 to 29MHz.
66	GND	–	Ground for digital circuit
67	DMCKO	O	Outputs a clock which is oscillated and input at DXTLI and DXTLO pins Normally, connect to DMACKI.
68	XSCL1	I	Chip select signal from the main CPU When this signal is Low, XSRD/XSWR becomes effectively.
69	XSWAIT	O	WAIT output against to the main CPU When this pin is Low, you should not stop the access from the main CPU. This pin is open-drain.
70	XSRD	I	Connect to RD signal of main CPU
71	XSWR	I	Connect to WR signal of main CPU
72	XSDREQ	O	DMA request against to the main CPU Drive the DMA transfer at Low level or falling edge.
73	SDACK	I	DMA response signal When this signal is High, outputs the data to SAD (7:0).
74	XSDREQ2	I	Connect the DMA request signal of other device.
75	SA6	I	Connect the address bus of the main CPU
76	SA5		
77	SA4		

No.	Pin Name	I/O	Pin Function
78	VDD	–	Power supply for digital circuit Connedct to +5V.
79	GND	–	Ground for digital circuit
80	SA3	I	Connect the address bus of the main CPU
81	SA2		
82	SA1		
83	SA0		
84	SOUTH	O	Serial output which is used the DMA channel of CPU Outputs the upper nibble.
85	SAD7	I/O	Connect the data bus of the main CPU
86	SAD6		
87	SAD5		
88	SAD4		
89	VDD	–	Power supply for digital circuit Connedct to +5V.
90	GND	–	Ground for digital circuit
91	SAD3	I/O	Connect the data bus of the main CPU
92	SAD2		
93	SAD1		
94	SAD0		
95	DUTY50	O	Always outputs the duty 50% pulse Apply the reference voltage of each PWM signal of demodulation system.
96	XIRQ10	O	Low for require the interrupt against to the main CPU Setable the output pins with the register.
97	XIRQ11		
98	TSTSTB	I	Set the LSI to operate the test mode Test mode for High input.
99	BMODE0	I	Set to perform the any test in the test mode
100	BMODE1		
101	BMODE2		
102	BMODE3		
103	BUNRI	I	Separation test control pin of the internal RAM Inputs Low in the actual use.
104	VDD	–	Power supply for digital circuit Connedct to +5V.
105	GND	–	Ground for digital circuit
106	GND		
107	AXTLO	O	36.864MHz or 24.576MHz crystal connect pin which is oscillated the reference clock to use the audio output circuit.
108	AXTLI	I	When input a signal from the external, connect to AXTLI.
109	VDD	–	Power supply for digital circuit Connedct to +5V.
110	CKCD	I	Reference clock of CD audio output Inputs 16.9MHz.
111	GND	–	Ground for digital circuit
112	PV	O	When the master clock is AV synchronized, outputs the pulse which is frequency divided the audio side clock (AXTLI input) for apply to the PLL circuit.
113	PREF	O	When the master clock is AV synchronized, outputs the pulse which is frequency divided the video side clock (DMACKI input) for apply to the PLL circuit.
114	CKOUT	O	Frequency divided signal which is connected to AXTL pin and use for DAC control Frequency is changed by the mode.
115	BCK	O	Bit clock output to DAC and audio decoder It is 48fs or 64fs of the source.
116	LRCK	O	LRCK signal output to DAC and audio decoder
117	ADATA0	O	Outputs the compression data when source is AC3/MPEG and outputs CH0/CH1 when source is linear.
118	ADATA1	O	Output CH2/CH3 when source is linear
119	ADATA2		
120	ADATA3		
121	SBUSY	I	Busy signal for output control the serial output of SOUTL, SOUTH pins
122	DIFOUT0	O	Digital output by switching the compression data and linear data When linear data is output, output the same as that of the DIFOUT1.
123	DIFOUT1	O	Digital out for linear data only Outputs CH0&CH1/AC3/MPEG/CD of DVD linear correspond to the source.
124	VALID	O	When source is AC3/MPEG, it becomes High level during effective data output
125	DT3	I	Inputs linear data after the decode from audio decoder This data is digital output. Audio data is slave movement.

No.	Pin Name	I/O	Pin Function
126	CDBCK	I	Bit clock input from the CD decoder Expect frequency is 2.1168MHz (48fs).
127	CDLR	I	LRCK signal input from the CD decoder
128	CDDT	I	Audio data input from the CD decoder
129	CDDO	I	Digital output signal input from the CD decoder Outputs by switching it of DVD into LSI.
130	VDD	–	Power supply for digital circuit Connect to +5V.
131	GND	–	Ground for digital circuit
132	WFCK	I	CD frame clock signal Connect to same pin name pin of the CD decoder IC.
133	SCOR	I	CD subcode sync. input Connect to same pin name pin of the CD decoder IC.
134	SBSO	I	CD subcode data input Connect to same pin name pin of the CD decoder IC.
135	EXCK	O	Shift clock to making the timing of data transfer to SBSO pin
136	SOUTL	O	Serial output which is used the DMA channel of CPU and outputs the lower nibble
137	ASTB	I	Strobe signal which is indicated the address information in MAD (7:0) Connect to ASTB of sub CPU.
138	XMCS	I	Chip select signal from the sub CPU When this signal is Low, XMRD/XMWR will be effective.
139	XIRQ2	I	Low for require the interrupt against to the sub CPU
140	XMWR	I	Connect to WR signal of the sub CPU
141	XMRD	I	Connect to RD signal of the sub CPU
142	MAD7	I/O	Connect to multiplex bus of address data of the sub CPU
143	MAD6		
144	MAD5		
145	MAD4		
146	VDD	–	Power supply for digital circuit Connect to +5V.
147	GND	–	Ground for digital circuit
148	MAD3	I/O	Connect to multiplex bus of address data of the sub CPU
149	MAD2		
150	MAD1		
151	MAD0		
152			
153			
154			
155	GND	–	Ground for digital circuit
156	GND		
157	VDD	–	Power supply for digital circuit Connect to +5V.
158	XRESET	I	Initialize the whole LSI system by Low level input
159	FGPL	I	Rotation pulse input from the spindle motor
160	RFA	I	External binary RF signal input for the rough servo Connect to GND at not used.
161	FPWM	O	7 bit PWM output for the FG servo Tri-state output of High, Low and Hi-impedance
162	F_R	O	Rotaion direction of the spindle motor indicating output
163	VPWM	O	5 bit PWM output for the velocity servo Tri-state output of High, Low and Hi-impedance
164	GND	–	Ground for digital circuit
165	VDD	–	Power supply for digital circuit Connect to +5V.
166	PPWM	O	PWM output for the phase servo Tri-state output of High, Low and Hi-impedance
167	RPWM	O	4 bit PWM output for the rough servo Tri-state output of High, Low and Hi-impedance
168	RERR	O	Control pin for the rough servo Tri-state output of High, Low and Hi-impedance
169	PLRE	O	RRPW pin output without tri-state control
170	LOCAL	I	Input for local operaion of the demodulation system
171	SCLK	O	Clock pulse output with synchronizing the main data after the 8/16 demodulation Test signal to connect the error measuring instrument
172	SDATA	O	Serial output the main data after the 8/16 demodulation Test signal to connect the error measuring instrument
173	SEDI	I	Serial data input after the ビタビ複号 Normally, connect to SEDO pin.
174	SEDO	O	Serial data output after the ビタビ複号 Normally, connect to SEDI pin.
175	GND	–	Ground for digital circuit

No.	Pin Name	I/O	Pin Function
176	VCOCLK	I	System clock of the spindle demodulator Connect to the external VCO.
177	SLIP	O	When PLL cycle slip is occured, outputs the pulse of prescribed width.
178	APC	O	Phase difference of PLL outputs as PWM pulse
179	ATC	O	DC difference of RF signal outputs as PWM pulse
180	AFC	O	Frequency difference of PLL outputs as PWM pulse
181	DOC	O	When the polarity of RF signal is not turned more than 32 clocks, it is supposed to drop out then output the flag.
182	GND	–	Ground for digital circuit
183	VDD	–	Power supply for digital circuit Connect to +5V.
184			
185	AVDD	–	Power supply for analog circuit Connect to +5V.
186	AIN0	I	Analog switch input/output for controling the amplitude of RF signal
187	AOUT0	O	Analog switch is ON/OFF correspond to the amplitude of RF signal
188			
189	AIN1	I	Analog switch input/output for controling the amplitude of RF signal
190	AOUT1	O	Analog switch is ON/OFF correspond to the amplitude of RF signal
191			
192			
193	AIN2	I	Analog switch input/output for controling the amplitude of RF signal
194	AOUT2	O	Analog switch is ON/OFF correspond to the amplitude of RF signal
195			
196			
197	AIN3	I	Analog switch input/output for controling the amplitude of RF signal
198	AOUT3	O	Analog switch is ON/OFF correspond to the amplitude of RF signal
199	AGND	–	Ground for analog circuit
200	ADD0	I	Input RF sampling value after the A/D conversion to 8 bit parallel data
201	ADD1		
202	ADD2		
203	ADD3		
204	ADD4		
205	ADD5		
206	ADD6		
207	ADD7		
208	VDD	–	Power supply for digital circuit Connect to +5V.

■ HM514800CJ-7 (DVD MAIN ASSY : IC162)

● 4M DRAM

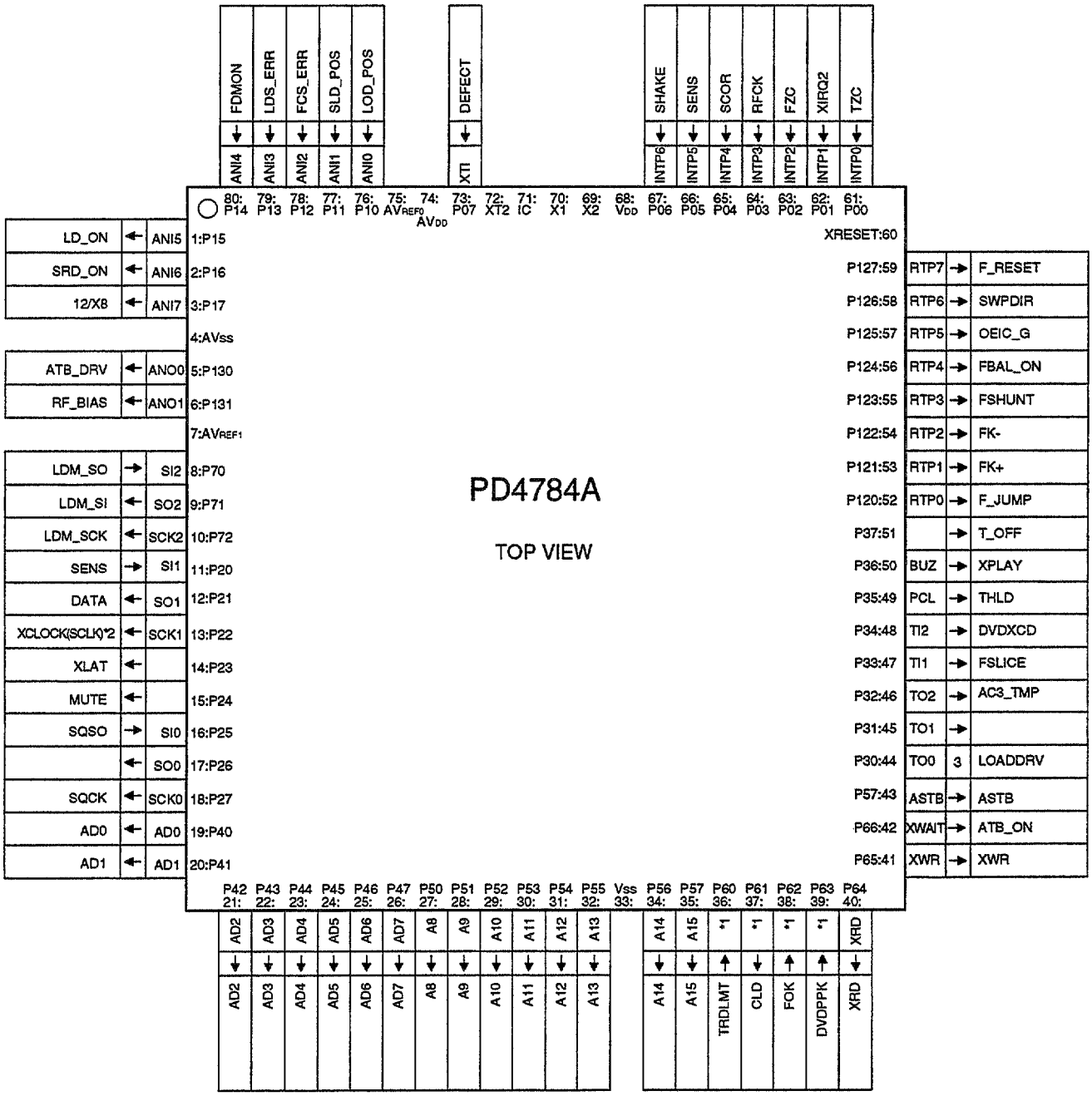
● Pin Function

No.	Pin Name	Pin Function
1	Vcc	Power supply
2	I/O0	Data input/output
3	I/O1	
4	I/O2	
5	I/O3	
6	NC	Non connection
7	$\overline{WE}$	Read/Write enable
8	$\overline{RAS}$	Low address strobe
9	A9	Address input/Refresh address input
10	A0	
11	A1	
12	A2	
13	A3	
14	Vcc	Power supply
15	Vss	Ground
16	A4	Address input/Refresh address input
17	A5	
18	A6	
19	A7	
20	A8	
21	NC	Non connection
22	OE	Output enable
23	CAS	Column address strobe
24	I/O4	Data input/output
25	I/O5	
26	I/O6	
27	I/O7	
28	Vss	Ground

■ PD4784A (DVD MAIN ASSY : IC201)

● MECHANISM CONTROL IC

● Pin Assignment



*1 Sets to open drain output during output.

*2 Connect to the XCLOC and SCLK terminals of CXD2545Q.

● Pin Function

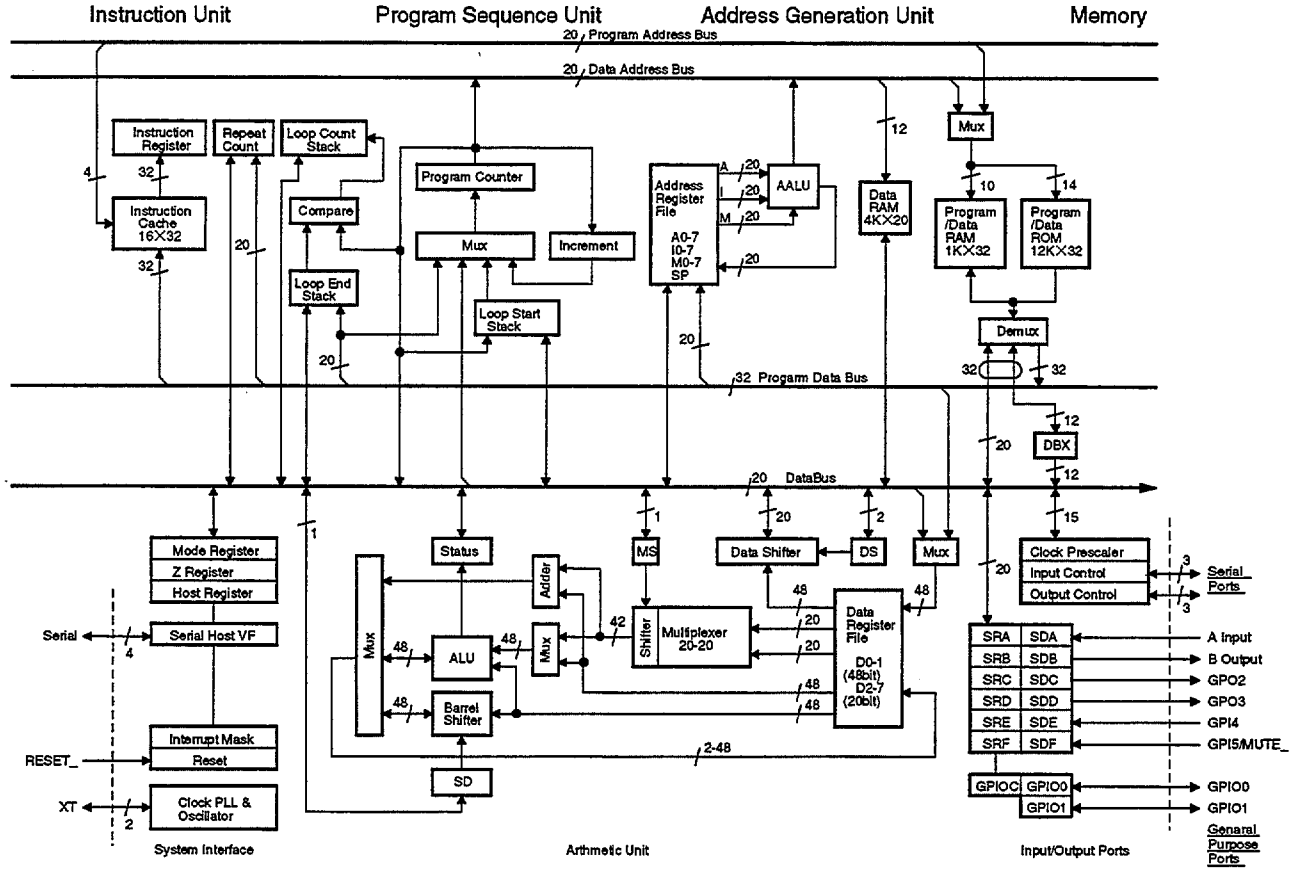
No.	Name	I/O	Function
1	LD_ON	OUT	Laser diode ON signal. H: active
2	SRD_ON	OUT	Switches command clock inhibit during serial read out. H: inhibit
3	12/X8.	OUT	DVD 8/12 cm switching signal.
4	AVss	-	Analog Ground.
5	ATB_DRV	D/A	ATB drive.
6	RF_BIAS	D/A	RD BIAS drive.
7	AVref1	-	Analog Reference Voltage1.
8	LDM_SO	Serial I	LD mechanical controller communications data IN (SD ← LD).
9	LDM_SI	Serial O	LD mechanical controller communications data OUT (SD → LD).
10	LDM_SCK	Serial O	LD mechanical controller communications data CLOCK (SD ← LD).
11	SENS	Serial I	CXD2545Q Serial Read Out function output data input.
12	DATA	Serial O	CXD2545Q command data output.
13	XCLOCK (SCLK)	Serial O	Clock for CXD2545Q command/serial read out function.
14	XLAT	OUT	CXD2545Q LATCH signal.
15	MUTE	OUT	Power ON MUTE signal.
16	SQSO	Serial I	CXD2545Q SubQ data input.
17	NC.	OUT	Available.
18	SQSK	Serial O	Clock for CXD2545Q SubQ.
19	AD0	IO	Address/Data Bus.
20	AD1	IO	
21	AD2	IO	
22	AD3	IO	
23	AD4	IO	
24	AD5	IO	
25	AD6	IO	
26	AD7	IO	
27	A8	OUT	Address Bus.
28	A9	OUT	
29	A10	OUT	
30	A11	OUT	
31	A12	OUT	
32	A13	OUT	
33	Vss	-	Ground.
34	A14	Expansion IO	Address Bus.
35	A15	Expansion IO	Address Bus.
36	TRDLMT.	IN	Tracking drive limit current detection signal input.
37	CLD	IN	Signal to control whether the pick of DVD or CD is active (Used with CLD compatible.).
38	FOK	IN	Focus OK signal.
39	DVDPRK	IN	DVD slider park IN signal (Used with CLD compatible.).
40	XRD	OUT	Read Strobe.

No.	Name	I/O	Function
41	XWR	OUT	Write Strobe.
42	ATB_ON	OUT	For ATB circuit ON/OFF.
43	ASTB	OUT	Address Strobe.
44	LOAD DRV	OUT	Loading drive.
45	NC.	OUT	Available.
46	AC3_TMP.	OUT	Signal for controlling AC3.
47	NC.	OUT	Available.
48	DVD/XCD	OUT	DVD/CD change-over SW (H: DVD, L: CD). The switch switches spindle error signal, etc.
49	THLD	OUT	Tracking hold signal ("H" duing jump).
50	XPLAY	OUT	For off-track measure circuit.
51	T_OFF		
52	F_JUMP	OUT	Focus jump switching signal ("H" during jump).
53	FK+	OUT	Focus jump kick pulse (+).
54	FK-	OUT	Focus jump kick pulse (-).
55	FCHUNT	OUT	Focus SHUNT SW control.
56	FBAL_ON	OUT	Focus Balance circuit control signal.
57	OEIC_G	OUT	OEIC GAIN SW switching signal.
58	SWPDIR	OUT	Sweep direction control.
59	GAIN_JDGE	OUT	Signal for disc judgment.
59	F_RESET	OUT	Peak hold reset signal for focus S.
60	XRESET	-	Mechanical controller hardware reset signal.
61	TZC	IN	TZC input.
62	XIRQ	IN	LSI1 interrupt (DVD-ID, system controller communications, FG-spindle).
63	FZC	IN	FZC interrupt (focus jump).
64	RFCK	IN	RFCK interrupt (error rate measurement).
65	SCOR	IN	SCOR interrupt (SubQ).
66	SENS	IN	SENS interrupt (fine search/MTJ) SENS monitor.
67	SHAKE	I/O	SHAKE interrupt input/SHAKE output (LD mechanical controller communications when CLD compatible is used).
68	Vdd	-	Power Supply (+5V).
69	X2	-	Cristal (Main System Clock).
70	X1	-	Cristal (Main System Clock).
71	IC	-	Internally Connected.
72	XT2	-	Crystal (Sub System Clock) ← Clock.
73	DEFECT	IN	DETECT signal input.
74	AVdd	-	Analog Power Supply.
75	AVref0	-	Analog Refernce Voltage0.
76	LOAD_POS	A/D	Loading SW read signal.
77	SLD_POS	A/D	Slider SW read signal.
78	FCS_ERR	A/D	Focus error signal.
79	LDSLDERR	A/D	SLD error input of LD pick-up (when compatible is used).
80	FDMON	A/D	A/D input signal for disc judgment.

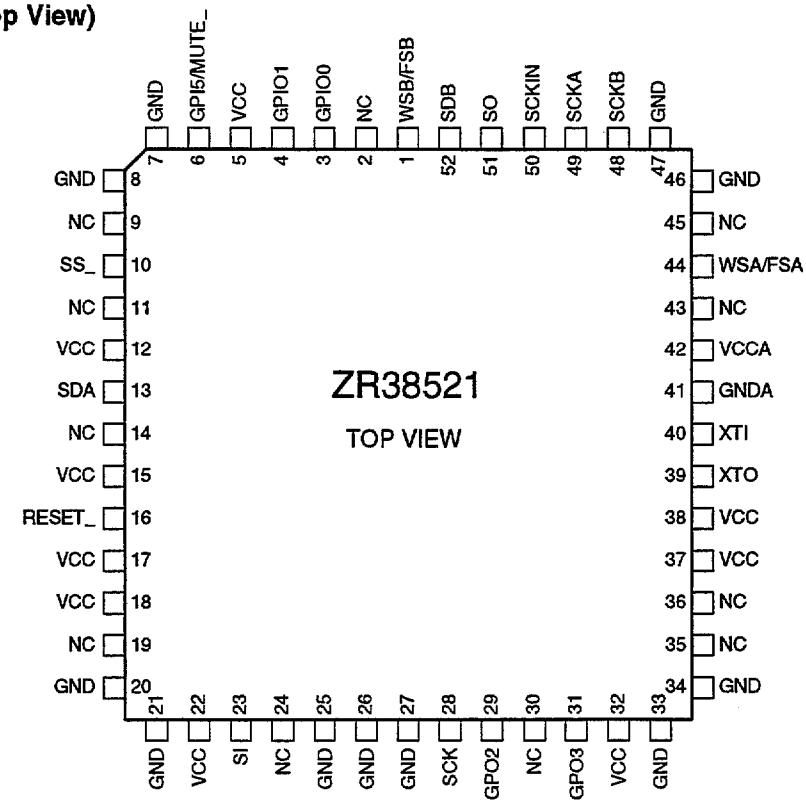
■ ZR38521 (DVD MAIN ASSY : IC301)

● AC-3 AUDIO DECODER

● Block Diagram



● Pin Assignment (Top View)



● Pin Function

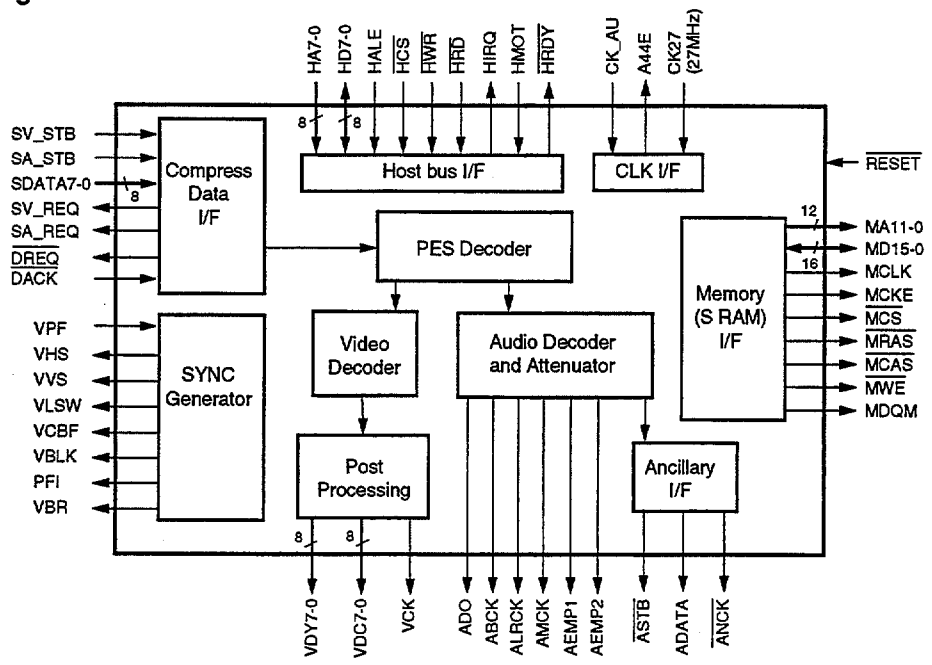
No.	Name	I/O	Function
1	WSB/FSB	I/O	Word selection or frame synchronous input/output for B Group serial port.
2	NC	-	Not used.
3	GPIO0	I/O	General-purpose I/O pin.
4	GPIO1	I/O	General-purpose I/O pin.
5	VCC	P	Power pin.
6	GPI5/MUTE	I	General-purpose input/mute pin.
7	GND	P	GND pin.
8	GND	P	GND pin.
9	NC	-	Not used.
10	SS_	I	Serial port interface: slave selection input (SPI).
11	NC	-	Not used.
12	VCC	P	Power pin.
13	SDA	I	Data input for serial port A.
14	NC	-	Not used.
15	VCC	P	Power pin.
16	RESET_	I	Reset input.
17	VCC	P	Power pin.
18	VCC	P	Power pin.
19	NC	-	Not used.
20	GND	P	GND pin.
21	GND	P	GND pin.
22	VCC	P	Power pin.
23	SI	I	Serial port interface: serial data input (SPI).
24	NC	-	Not used.
25	GND	I	GND pin.
26	GND	I	GND pin.
27	GND	P	GND pin.
28	SCK	I	Serial port interface: clock input (SPI).
29	GPO2	O	General-purpose output pin.
30	NC	-	Not used.
31	GPO3	O	General-purpose output pin.
32	VCC	P	Power pin.
33	GND	P	GND pin.
34	GND	P	GND pin.
35	NC	-	Not used.
36	NC	-	Not used.
37	VCC	P	Power pin.
38	VCC	P	Power pin.
39	XTO	O	Crystal oscillator output terminal.
40	XTI	I	Crystal oscillator input terminal.
41	GNDA	P	GND pin.
42	VCCA	P	Power pin.
43	NC	-	Not used.
44	WSA/FSA	I/O	Word selection or frame synchronous input/output for A Group serial port (for input).
45	NC	-	Not used.
46	GND	P	GND pin.
47	GND	P	GND pin.
48	SCKB	I/O	Clock input/output for B Group serial port.
49	SCKA	I/O	Clock input/output for A Group serial port.
50	SCKIN	I/O	Clock input/output for B Group serial port.
51	SO	O	Serial port interface: serial data output (SPI).
52	SDB	O	Data input for serial port B.

Note:
1) Connect an input terminal not to be used (TYPE = I) to VCC if active Low, or to GND if active High.
2) Do not connect output not to be used (TYPE = O), try state (TYPE = T), and NC terminal.

■ UPD61021 (DVD MAIN ASSY : IC401)

● MPEG2 DECODER

● Block Diagram



● Pin Function

No.	Pin Name	I/O	Pin Function	No.	Pin Name	I/O	Pin Function
1	MD7	I/O	Data bus for 16 bit memory interface	21	GND	–	Ground pin
2	MD6			22	MD9	I/O	Data bus for 16 bit memory interface
3	GND	–	Ground pin	23	MD8		
4	MD5	I/O	Data bus for 16 bit memory interface	24	VDD	–	Power supply pin
5	MD4			25	MDQM	O	Mask enable output signal of data input / output
6	VDD	–	Power supply pin	26	MCLK	O	81MHz system clock output for memory
7	MD3	I/O	Data bus for 16 bit memory interface	27	MCKE	O	Clock enable output signal
8	MD2			28	GND	–	Ground pin
9	GND	–	Ground pin	29	CK27	I	27MHz master clock input
10	MD1	I/O	Data bus for 16 bit memory interface	30	TCK81	I	Test clock pin Input 81MHz. Connect to GND in the actual use.
11	MD0			31	VDD	–	Power supply pin
12	VDD	–	Power supply pin	32	T_RESET	I	Test reset pin Connect to GND in the actual use.
13	MD15	I/O	Data bus for 16 bit memory interface	33	GND	–	Ground pin
14	MD14			34	T_PLL	I	PLL test input pin Connect to GND in the normal use.
15	GND	–	Ground pin	35	TPH0	O	Test output pin Open in the actual use.
16	MD13	I/O	Data bus for 16 bit memory interface	36	YPH1		
17	MD12			37	VDD	–	Power supply pin
18	VDD	–	Power supply pin	38	VPF	I	Freeze signal Input when freezing the picture. Freeze is able to performed by the software command.
19	MD11	I/O	Data bus for 16 bit memory interface	39	VFI	O	Field index signal output Discriminate the output picture data is ODD or EVEN.
20	MD10			40	VBR	O	Flag signal of the Video chroma Cb

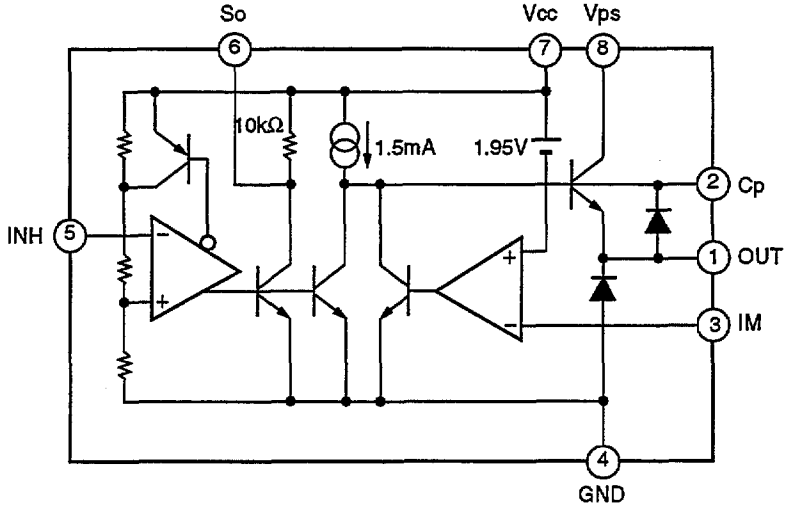
No.	Pin Name	I/O	Pin Function	No.	Pin Name	I/O	Pin Function
41	VBLK	O	Composite blanking output and clock reference signal Selectable by mode setting	77	$\overline{\text{ANCK}}$	O	Clock signal at ancillary data output
42	VCBF	O	Color burst insertion position signal	78	GND	–	Ground pin
43	VLSW	O	Line switch (at PAL used)	79	$\overline{\text{DREQ}}$	O	Request signal when stream input via the host path.
44	VVS	O	Vertical sync. signal output Also selectable to vertical reset signal by mode setting.	80	$\overline{\text{DACK}}$	I	Acknowledge signal when stream input via the host path.
45	VHS	O	Horizontal sync. signal output Selectable to composite sync. signal or horizontal reset signal by mode register setting	81	A44E	O	Status signal of sampling clock of the decode When compound with 44.1kHz, it becomes "H".
46	GND	–	Ground pin	82	CK_AU	I	Audio sampling clock input
47	VCK	O	Video data clock output Frequency outputs to 27MHz and 13.5MHz.	83	VDD	–	Power supply pin
48	VDD	–	Power supply pin	84	$\overline{\text{RESET}}$	I	Reset input
49	VDC0	O	Video chroma Cb and Cr output These pins output Cb and Cr video signal at 16 bit mode.	85	HMOT	I	Host interface mode selection HMOT : When set to H, it becomes bus mode of 68 system.
50	VDC1			86	HIRQ	O	Interrupt request signal to the host This pin becomes active when accepting the interrupt. This pin is tri-state output.
51	VDC2			87	$\overline{\text{HRDY}}$	O	Tri-state ready output Communicate the end of bus cycle to the host CPU in the 68k mode. Use for Wait signal in the 78k0 mode.
52	VDC3			88	$\overline{\text{HWR}}$	I	Enable signal when the host is wrote Input WR signal in the 78k bus mode. Input R/W signal in the 68k bus mode.
53	GND	–	Ground pin	89	$\overline{\text{HRD}}$	I	Enable signal when the host is readed Input RD signal in the 78k bus mode. Input data strobe signal in the 68k bus mode.
54	VDC4	O	Video chroma Cb and Cr output These pins output Cb and Cr video signal at 16 bit mode.	90	$\overline{\text{HCS}}$	I	Chip select signal of active "L"
55	VDC5			91	HALE	I	Address latch enable signal When address and data is not multiplexed, pull-up to "H".
56	VDC6			92	GND	–	Ground pin
57	VDC7			93	HD0	I/O	Data bus for 8 bit host interface Lower 8 bit address of the host is able to input with multiplex.
58	VDD	–	Power supply pin	94	HD1		
59	VDY0	O	Video data output Output Y data only at 16 bit mode. Output Cb, Y, Cr and Y video format at 8 bit mode.	95	HD2		
60	VDY1			96	HD3		
61	VDY2			97	VDD	–	Power supply pin
62	VDY3			98	HD4	I/O	Data bus for 8 bit host interface Lower 8 bit address of the host is able to input with multiplex.
63	GND	–	Ground pin	99	HD5		
64	VDY4	O	Video data output Output Y data only at 16 bit mode. Output Cb, Y, Cr and Y video format at 8 bit mode.	100	HD6		
65	VDY5			101	HD7		
66	VDY6			102	GND	–	Ground pin
67	VDY7			103	HA0	I	Host address bus input This address bus is able to multipled to HD7-0
68	VDD	–	Power supply pin	104	HA1		
69	ADO	O	PCM data output	105	HA2		
70	ABCK	O	Audio data clock output	106	HA3		
71	ALRCK	O	LR switching signal	107	VDD	–	Power supply pin
72	AMCK	O	Master clock for audio Outputs same frequency as CK_AU pin	108	HA4	I	Host address bus input This address bus is able to multipled to HD7-0
73	AEMP2	O	Emphasis output When existing the emphasis in conformity to 50 / 15μs, outputs "H".	109	HA5		
74	AEMP1	O	Emphasis output When existing the emphasis in conformity to ITU-TJ.71, outputs "H".	110	HA6		
75	$\overline{\text{ASTB}}$	O	Ancillary strobe signal	111	HA7		
76	ADATA	O	Ancillary data output	112	GND	–	Ground pin

No.	Pin Name	I/O	Pin Function	No.	Pin Name	I/O	Pin Function
113	TM0	I	Test mode input Connect to GND excepting test.	137	MST4	O	Test output Set to open in the actual use.
114	TM1			138	MST3		
115	TS0	O	Test output Set to open in the actual use.	139	MST2		
116	TS1			140	MST1		
117	TS2			141	MST0		
118	TS3			142	VDD	–	Power supply pin
119	TS4			143	MA9	O	Address output Output low address to MA11-0 and column address to MA8-0 with multiplex.
120	TS5			144	MA8		
121	VDD	–	Power supply pin	145	MA7		
122	SDATA7	I	A/V PES stream data bus	146	MA6		
123	SDATA6			147	MA5		
124	SDATA5			148	MA4		
125	SDATA4			149	GND	–	Ground pin
126	GND	–	Ground pin	150	MA3	O	Address output Output low address to MA11-0 and column address to MA8-0 with multiplex.
127	SDATA3	I	A/V PES stream data bus	151	MA2		
128	SDATA2			152	MA1		
129	SDATA1			153	MA0		
130	SDATA0			154	MA10		
131	VDD	–	Power supply pin	155	MA11		
132	SV_STB	I	Video PES stream data strobe signal	156	MCS	O	Chip select output
133	$\overline{\text{SA\_STB}}$	I	Audio PES stream data strobe signal	157	$\overline{\text{MRAS}}$	O	Low address strobe signal
134	$\overline{\text{SV\_REQ}}$	O	Video PES stream data request signal	158	$\overline{\text{MCAS}}$	O	Column address strobe signal
135	$\overline{\text{SA\_REQ}}$	O	Audio PES stream data request signal	159	$\overline{\text{MWE}}$	O	Write enable signal
136	$\overline{\text{GND}}$	–	Ground pin	160	$\overline{\text{VDD}}$	–	Power supply pin

■ IR3C07N (DVD MAIN ASSY : IC995)

● LASER DIODE DRIVER

● Block Diagram



● Pin Function

No.	Mark	Pin Function
1	OUT	Output
2	Cp	Phase compensation
3	IM	Monitor input
4	GND	Ground
5	INH	Inhibit input (ON, OFF)
6	So	Operating signal output
7	Vcc	Power supply for control circuit
8	Vps	Power supply for laser driver

■ UPD4516161G5-A12-7JF (DVD MAIN ASSY : IC421)

● SYNCHRONOUS DRAM

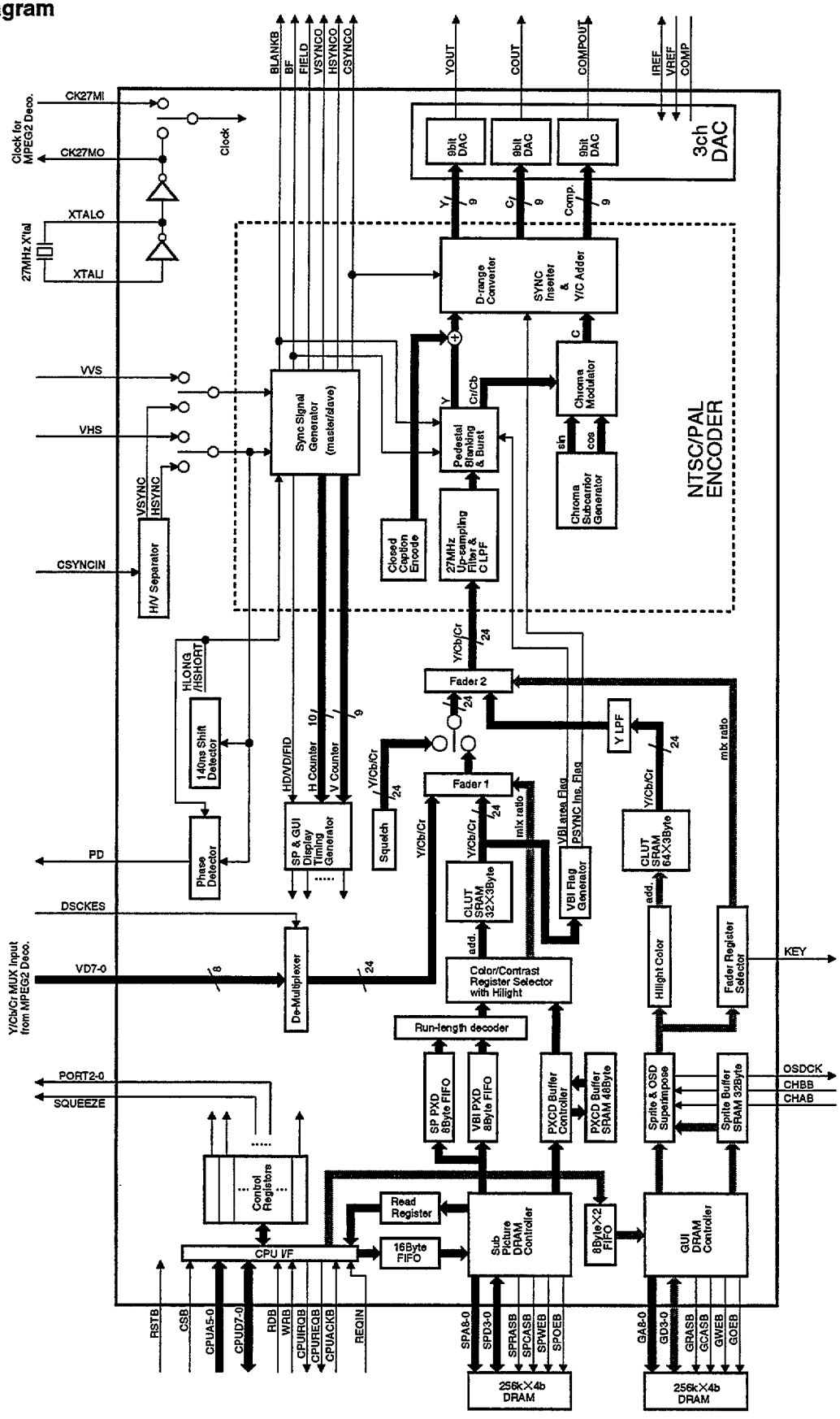
● Pin Function

No.	Pin Name	Pin Function	No.	Pin Name	Pin Function
1	Vcc	Power supply	26	Vss	Ground
2	DQ0	Data input/output	27	A4	Address input
3	DQ1		28	A5	
4	VssQ	Ground for DQ	29	A6	
5	DQ2	Data input/output	30	A7	
6	DQ3		31	A8	
7	VccQ	Power supply for DQ	32	A9	
8	DQ4	Data input/output	33	NC	Non connection
9	DQ5		34	CKE	Clock enable
10	VssQ	Ground for DQ	35	CLK	System clock input
11	DQ6	Data input/output	36	UDQM	Upper DQ mask enable
12	DQ7		37	NC	Non connection
13	VccQ	Power supply for DQ	38	VccQ	Power supply for DQ
14	LDQM	Low DQ mask enable	39	DQ8	Data input/output
15	$\overline{WE}$	Write enable	40	DQ9	
16	$\overline{CAS}$	Column address strobe	41	VssQ	Ground for DQ
17	$\overline{RAS}$	Row address strobe	42	DQ10	Data input/output
18	$\overline{CS}$	Chip select	43	DQ11	
19	A11	Address input	44	VccQ	Power supply for DQ
20	A10		45	DQ12	Data input/output
21	A0		46	DQ13	
22	A1		47	VssQ	Ground for DQ
23	A2		48	DQ14	Data input/output
24	A3		49	DQ15	
25	Vcc	Power supply	50	Vss	Ground

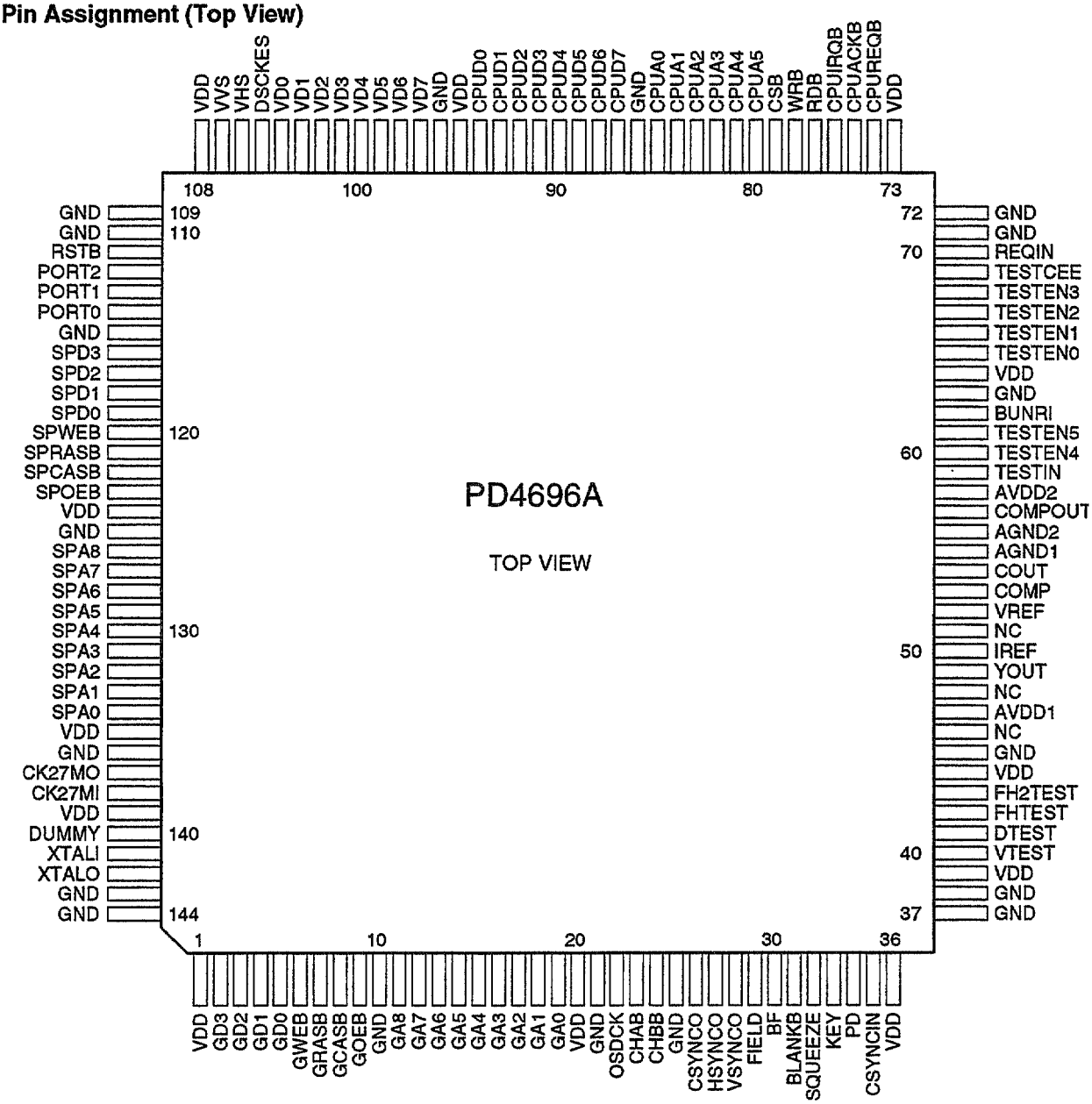
■ PD4696A (DVD MAIN ASSY : IC501)

● VIDEO ENCODER

● Block Diagram



● Pin Assignment (Top View)



● Pin Function

No.	Name	I/O	Function
1	VDD	-	Power terminal. Connect to +3.3 V (VDD of the logic system).
2	GD3	I/O	DRAM data input/output for GUI. Connect to data input/output of 256 k54 bits DRAM.
3	GD2		
4	GD1		
5	GD0		
6	GWEB	O	/WE output to DRAM for GUI. Connect to the /WE terminal of 256 k54 bits DRAM.
7	GRASB	O	/RAS output to DRAM for GUI. Connect to the /RAS terminal of 256 k54 bits DRAM.
8	GCASB	O	/CAS output to DRAM for GUI. Connect to the /CAS terminal of 256 k54 bits DRAM.
9	GOEB	O	/OE output to DRAM for GUI. Connect to the /OE terminal of 256 k54 bits DRAM.
10	GND	-	Grounding terminal. Connect to GND (GND of the logic system).

No.	Name	I/O	Function
11	GA8	O	Address output of DRAM for GUI. Connect to address output of 256 k54 bits DRAM. GAO is LSB, and GA8 is MSB.
12	GA7		
13	GA6		
14	GA5		
15	GA4		
16	GA3		
17	GA2		
18	GA1		
19	GA0		
20	VDD	-	Power terminal. Connect to +3.3 V (VDD of the logic system).
21	GND	-	Grounding terminal. Connect to GND (GND of the logic system).
22	OSDCK	O	Clock output when using OSD IC as external. Connect to clock input of OSD IC (6.75 MHz).
23	CHAB	I	Connects character output of OSD IC when using the OSD IC as external. Character colors fom the color pallet according to OSD mode will be superimposed on video output when the system is set to "L".
24	CHBB	I	Connects character frame output of OSD IC when using the OSD IC as external. Character frame colors from the color pallet according to OSD mode will be superimposed on video output when the system is set to "L".
25	GND	-	Grounding terminal. Connect to GND (GND of the logic system).
26	CSYNCO	O	Composite sync output from built-in SSG. Synchronizes video output (negative logic).
27	HSYNCO	O	H sync output from built-in SSG. Synchronizes video output (negative logic).
28	VSYNCO	O	V sync output from built-in SSG. Synchronizes video output (negative logic).
29	FIELD	O	Field output from built-in SSG. Synchronizes the field of video output. Indicates "Odd" when the system is set to "H" and "Even" when "L".
30	BF	O	Burst flag output from built-in SSG. The system indicates the position of burst of video output with "H".
31	BLANKB	O	Blanking output from built-in SSG. The system indicates the blanking area between H and V of video output with "L".
32	SQUEEZE	O	Outputs the content of built-in register of the same name.
33	KEY	O	Outputs "H" if the value of fader corresponding the value of pixel of GUI is other than zero (0) when the value of KEY_EN register is "H" Otherwise outputs "L" Synchronizes the pixel position of video output (delay is also possible). The system is fixed.
34	PD	O	Outputs the result of comparison of phases of H sync of external input and H sync of built-in SSG in three states. "L"/"H" shows the polarity, and the pulse width shows the phase difference. ON/OFF and polarity of output are set by the register.
35	CSYNCIN	I	Composite sync input for external synchronization. The composite sync separates into H sync and V sync inside the system to synchronize built-in SSG or output the results of comparison of H phases from PD.
36	VDD	-	Power terminal. Connect to +3.3 V (VDD of the logic system).
37	GND	-	Grounding terminal. Connect to GND (GND of the logic system).
38	GND	-	Grounding terminal. Connect to GND (GND of the logic system).
39	VDD	-	Power terminal. Connect to +3.3 V (VDD of the logic system).
40	VTEST	-	Test terminal. Leave it open (terminal for IC test).
41	DTEST		
42	FHTEST		
43	FH2TEST		
44	VDD	-	Power terminal. Connect to +3.3 V (VDD of the logic system).
45	GND	-	Grounding terminal. Connect to GND (GND of the logic system).
46	NC	-	No connection. Leave it open.
47	AVDD1	-	Power terminal. Connect to +3.3 V (VDD of the logic system).
48	NC	-	No connection. Leave it open.
49	YOUT	O	Analog video output of luminance signal. Composite sync signal is superimposed. Connect the load of standard 150Ωbetween GND of the analog system.
50	IREF	I	Terminal for adjustment of video output current (full-scale current). Connect the reference resistor of standard 1.1kΩ between GND of the analog system.
51	NC	-	No connection. Leave it open.
52	VREF	I	Terminal for adjustment of video output current (full-scale current). Apply the reference voltage of standard 1.0V.
53	COMP	I	Terminal to compensate phase of built-in DA convertor. Connect the capacitor of standard 0.1ΩF between GND of the analog system.
54	COUT	O	Analog video output of color signal. Connect the load of standard 150Ω between GND of the analog system.
55	AGND1	-	Grounding terminal. Connect to GND (GND of the analog system).
56	AGND2	-	Grounding terminal. Connect to GND (GND of the analog system).
57	COMPOUT	O	Analog video output of composite video signal. Composite sync signal is superimposed. Connect the load of standard 150â+ between GND of the analog system.
58	AVDD2	-	Power terminal. Connect to +3.3 V (VDD of the analog system).
59	TESTIN	-	Test terminal. Leave it open (terminal for IC test).
60	TESTEN4		
61	TESTEN5		
62	BUNRI		

PD4696A

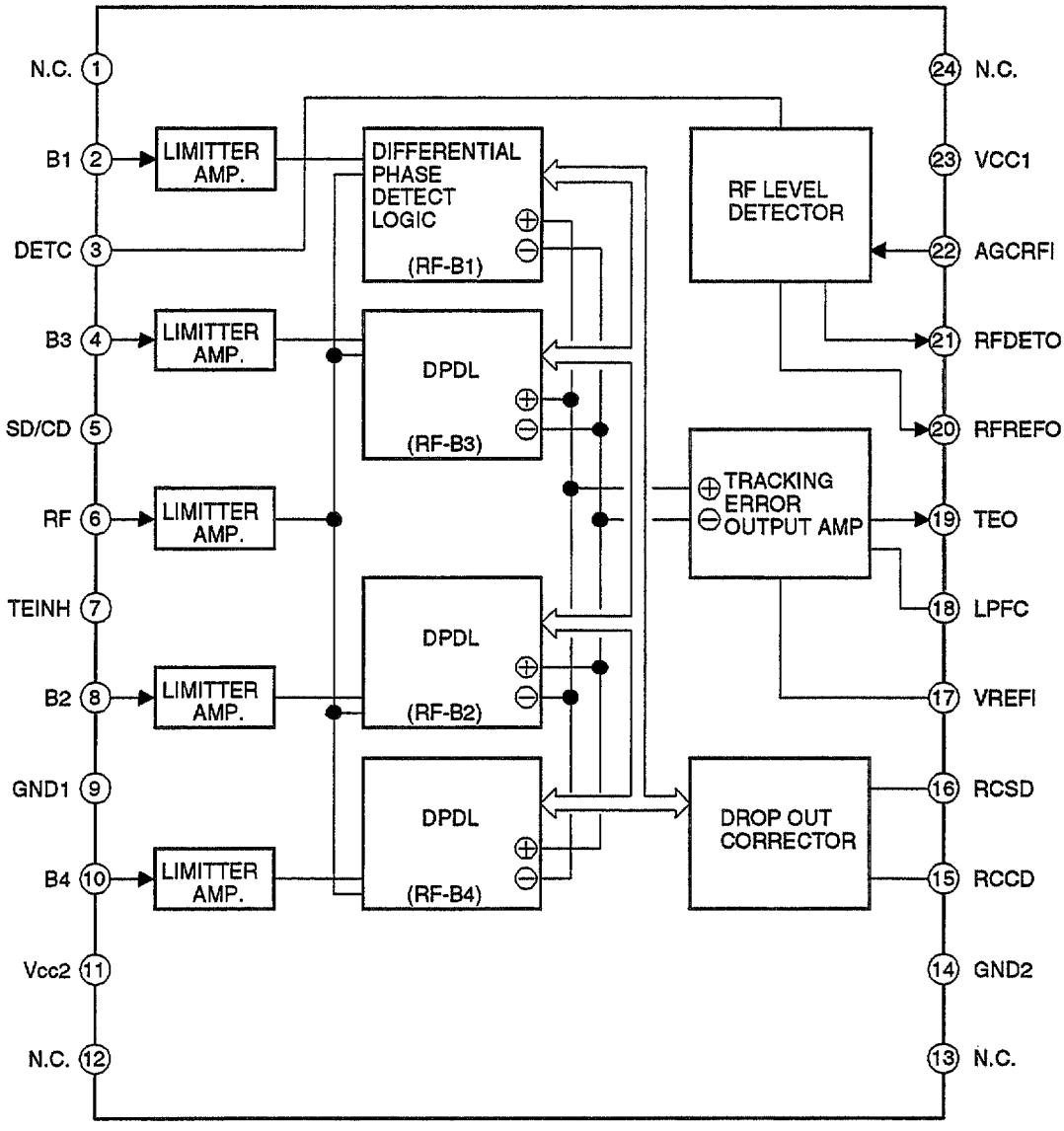
No.	Name	I/O	Function
63	GND	-	Grounding terminal. Connect to GND (GND of the analog system).
64	VDD	-	Power terminal. Connect to +3.3 V (VDD of the analog system).
65	TESTEN0	-	Test terminal. Leave it open (terminal for IC test)
66	TESTEN1		
67	TESTEN2		
68	TESTEN3		
69	TESTCCE		
70	REQIN	I	Inputs request signal of the DMA source if OR logic is required for transfer enable request of the external IC (DMA source) and DMA request of this IC.
71	GND	-	Grounding terminal. Connect to GND (GND of the analog system).
72	GND	-	Grounding terminal. Connect to GND (GND of the analog system).
73	VDD	-	Power terminal. Connect to +3.3 V (VDD of the analog system).
74	CPUREQB	O	DMA request signal. Connect to DMA request input of CPU IC. The DMA request is roughly classified into the request for subvideo data and the request for GUI data. Either requests are executed by the instruction of the DMA start command to the corresponding register. The "L" level of the DMA request signal indicates that the request is being made. The system automatically sets to "H" if built-in FIFO becomes full or transmission of the required amount of data is completed. THe DMA request signal can use OR logic with REQIN input.
75	CPUACKB	I	Connect acknowledge output from CPU IC during DMA request. The system retrieves data input to CPUD7-0 into biult-in FIFO at the leading edge of this signal.
76	CPUIRQB	O	Interrupt signal to CPU IC. Connect to interrupt input of CPU IC. The system generates "L" signal every time the V blanking of video output is encountered.
77	RDB	I	Read signal when the CPU IC wants to read the content of the read register. The content of the register of the address being accessed will be output to CPU7-0 when the system is set to "L".
78	WRB	I	Write signal when the CPU IC wants to rewrite the content of the read register. Connects write output of CPU IC. The content of the register of the address being accessed will be rewritten to the data being input to CPU7-0 when the system is set to "L".
79	CSB	I	Selection signal when the CPU IC wants to read or write the register of this IC. Connects CS output of CPU IC.
80	CPUA5	I	Address signal when the CPU IC wants to read or write the register of this IC. Connects address output of CPU IC. CPUA0 is LSB, and CPUA5 is MSB.
81	CPUA4		
82	CPUA3		
83	CPUA2		
84	CPUAI		
85	CPUAO		
86	GND	-	Grounding terminal. Connect to GND (GND of the logic system).
87	CPUD7	IO	Data signal when the CPU IC wants to read or write the register of this IC, and transmission data signal during DMA transmission. Connects to data bus under the CPU IC. CPUD0 is LSB, and CPUD7 is MSB.
88	CPUD6		
89	CPUD5		
90	CPUD4		
91	CPUD3		
92	CPUD2		
93	CPUD1		
94	CPUD0		
95	VDD	-	Power terminal. Connect to +3.3 V (VDD of the logic system).
96	GND	-	Grounding terminal. Connect to GND (GND of the logic system).
97	VD7	I	Connects video data signal output of 8-bit multiplex mode of the MPEG2 decoder IC. VD0 is LSB, and VD7 is MSB.
98	VD6		
99	VD5		
100	VD4		
101	VD3		
102	VD2		
103	VD1		
104	VD0		
105	DSCKES	I	Signal to select whether retrieve video data signal input from VD7-0 at the leading edge or trailing edge of the internal 27 MHz clock. The system selects the leading edge at "L" or open, and selects the trailing edge at "H".
106	VHS	I	Connects H sync output from the MPEG2 decoder. Must be synchronized with VD7-0 (negative logic). Synchronizes built-in SSG, and outputs the result of comparison of H phases from PD.
107	VVS	I	Connects V sync output from the MPEG2 decoder. Must be synchronized with VD7-0 (negative logic). Synchronizes built-in SSG.
108	VDD	-	Power terminal. Connect to +3.3 V (VDD of the logic system).
109	GND	-	Grounding terminal. Connect to GND (GND of the logic system).
110	GND	-	Grounding terminal. Connect to GND (GND of the logic system).

No.	Name	I/O	Function
111	RSTB	I	Reset input for IC as a whole. The built-in register, circuitry, etc. will be initialized when the system is set to "L".
112	PORT2	O	Outputs the content of the built-in register of the same name.
113	PORT1		
114	PORT0		
115	GND	-	Grounding terminal. Connect to GND (GND of the logic system).
116	SPD3	IO	Data input/output of DRAM for subvideo. Connect to data input/output of 256 kü~4 bits DRAM.
117	SPD2		
118	SPD1		
119	SPD0		
120	SPWEB	O	/WE output to DRAM for subvideo. Connect to the /WE terminal of 256 k54 bits DRAM.
121	SPRASB	O	/RAS output to DRAM for subvideo. Connect to the /RAS terminal of 256 k54 bits DRAM.
122	SPCASB	O	/CAS output to DRAM for subvideo. Connect to the /CAS terminal of 256 k54 bits DRAM.
123	SPOEB	O	/OE output to DRAM for subvideo. Connect to the /OE terminal of 256 k54 bits DRAM.
124	VDD	-	Power terminal. Connect to +3.3 V (VDD of the logic system).
125	GND	-	Grounding terminal. Connect to GND (GND of the logic system).
126	SPA8	O	Address output of DRAM for subvideo. Connect to address output of 256 k54 bits DRAM. SPA0 is LSB, and SPA8 is MSB.
127	SPA7		
128	SPA6		
129	SPA5		
130	SPA4		
131	SPA3		
132	SPA2		
133	SPA1		
134	SPA0		
135	VDD	-	Power terminal. Connect to +3.3 V (VDD of the logic system).
136	GND	-	Grounding terminal. Connect to GND (GND of the logic system).
137	CK27M0	O	27 MHz clock output from built-in X'tal OSC. The terminal is buffered, and can drive external circuit.
138	CK27MI	I	27 MHz system clock input during external input mode of this IC. Inputs rectangular wave of 27 MHz.
139	VDD	-	Power terminal. Connect to +3.3 V (VDD of the logic system).
140	DUMMY	O	Dummy output of built-in X'tal OSC. Normally leave it open.
141	XTALI	I	Input of built-in X'tal OSC. Use the terminal by connecting the X'tal to external circuit.
142	XTALO	O	Output of built-in X'tal OSC. Use the terminal by connecting the X'tal to external. Cannot supply the clock to external circuit from this terminal. Should use CK27MO. For the system clock of this IC, this signal is internally buffered during internal input.
143	GND	-	Grounding terminal. Connect to GND (GND of the logic system).
144	GND	-	Grounding terminal. Connect to GND (GND of the logic system).

■ PA0065AM (DVD MAIN ASSY : IC601)

● TIME-DIFFERENCE IC

● Block Diagram



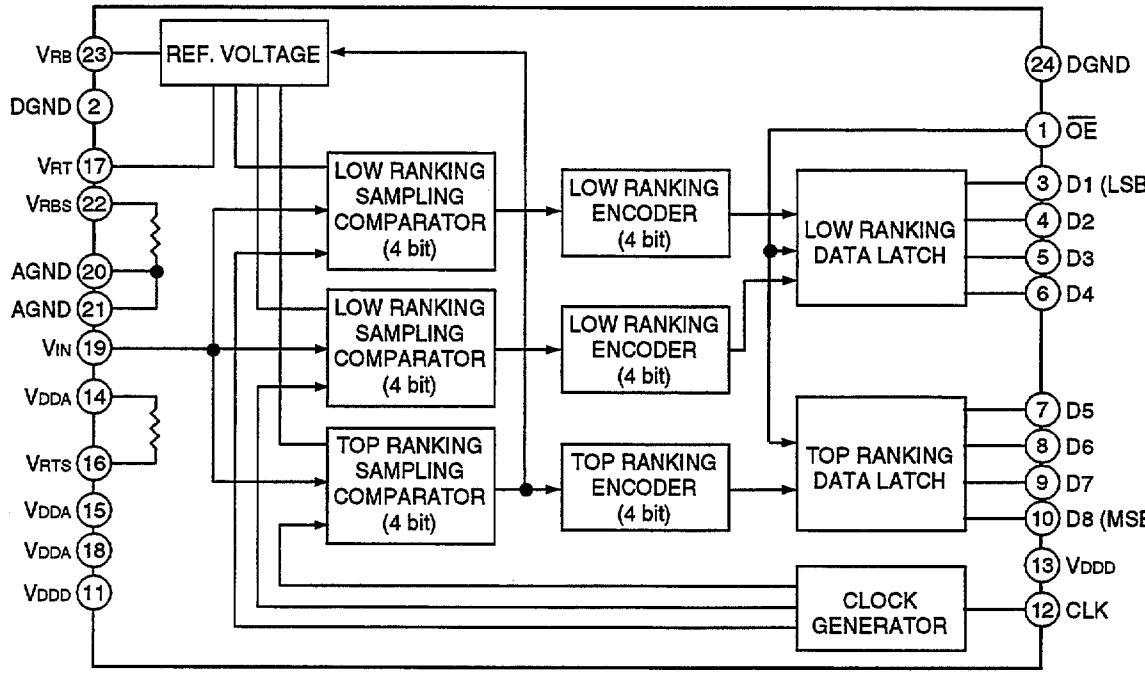
● Pin Function

No.	Pin Name	Pin Function	No.	Pin Name	Pin Function
1	NC	Non connection	13	NC	Non connection
2	B1	B1 signal input	14	GND2	Ground
3	DETC	Connect a capacitor for RF level detection	15	RCCD	Time constant for limit the pulse width of CD mode
4	B3	B3 signal input	16	RCDVD	Time constant for limit the pulse width of DVD mode
5	DVD/CD	DVD/CD mode switching signal input H : DVD mode, L : CD mode	17	VREFI	Reference voltage input
6	RF	RF signal input	18	LPFC	Low pass filter for TE output
7	TEINH	TE output prohibition signal input	19	TEO	TE output
8	B2	B2 signal input	20	RFREFO	Reference voltage output for RF level detection
9	GND1	Ground	21	RFDETO	RF level detecting output
10	B4	B4 signal input	22	AGCRFI	AGCRF signal input
11	VCC2	5V power supply	23	VCC1	5V power supply
12	NC	Non connection	24	NC	Non connection

■ TLC5540INS (DVD MAIN ASSY : IC731)

● A/D CONVERTER

● Block Diagram



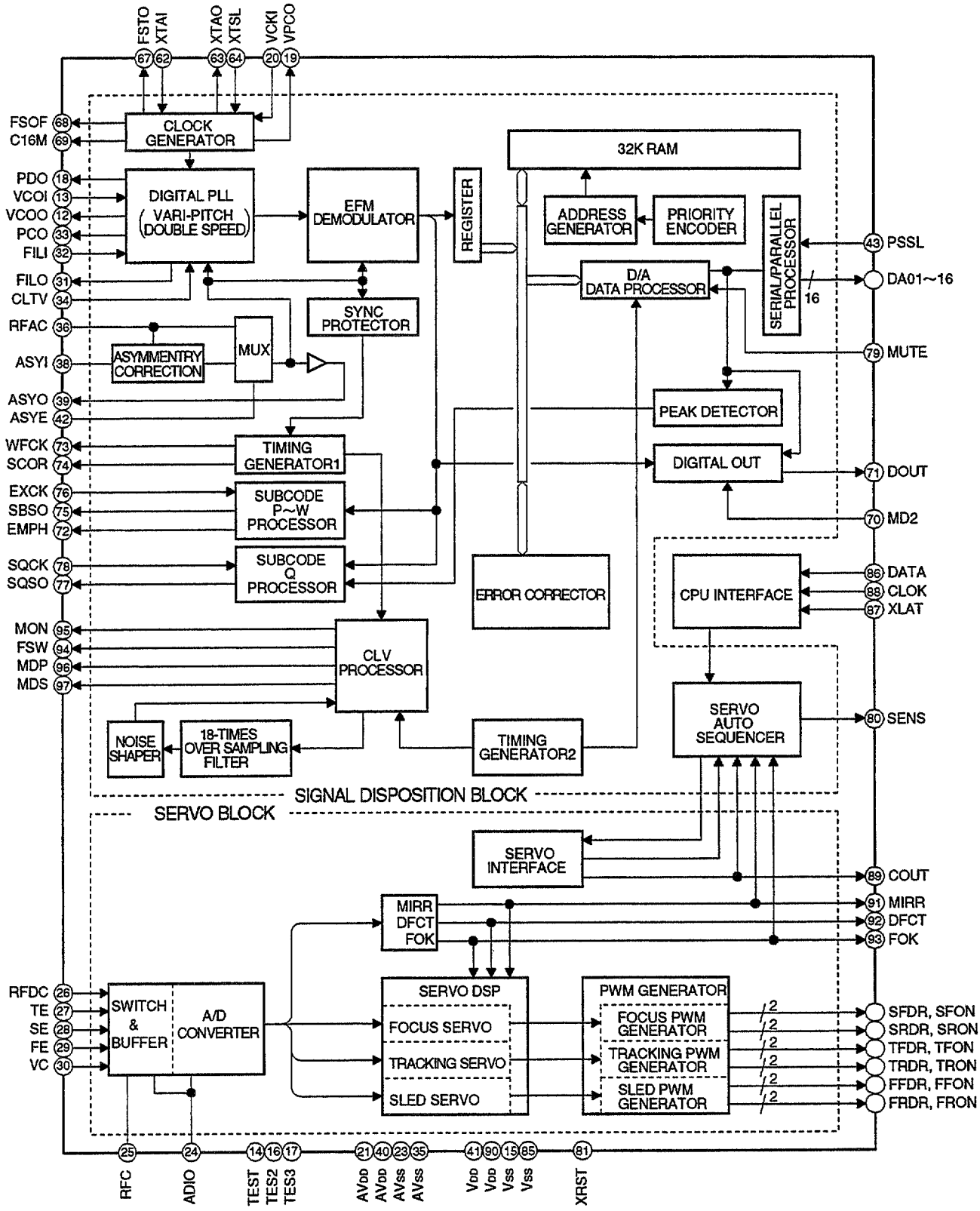
● Pin Function

No.	Pin Name	I/O	Pin Function
1	$\overline{OE}$	I	Output enable $\overline{OE}$="L" level : Data enable $\overline{OE}$="H" level : Output high impedance
2, 24	DGND	—	Ground for Digital system
3-10	D1-D8	O	Digital output D1: LSB, D8 : MSB
11, 13	VDDD	—	Power supply for Digital system
12	CLK	I	Clock input
16	VRTS	—	Reference voltage output (upper) Short-circuit to VRT in the internal reference voltage used. Generates a 2.63V.
17	VRT	I	Reference voltage output (upper)
23	VRB	I	Reference voltage output (lower)
14, 15, 18	VDDA	—	Power supply for Analog system
19	VIN	I	Analog input
20, 21	AGND	—	Ground for Analog system
22	VRBS	—	Reference voltage output (upper) Short-circuit to VRT in the internal reference voltage used. Generates a 0.61V.

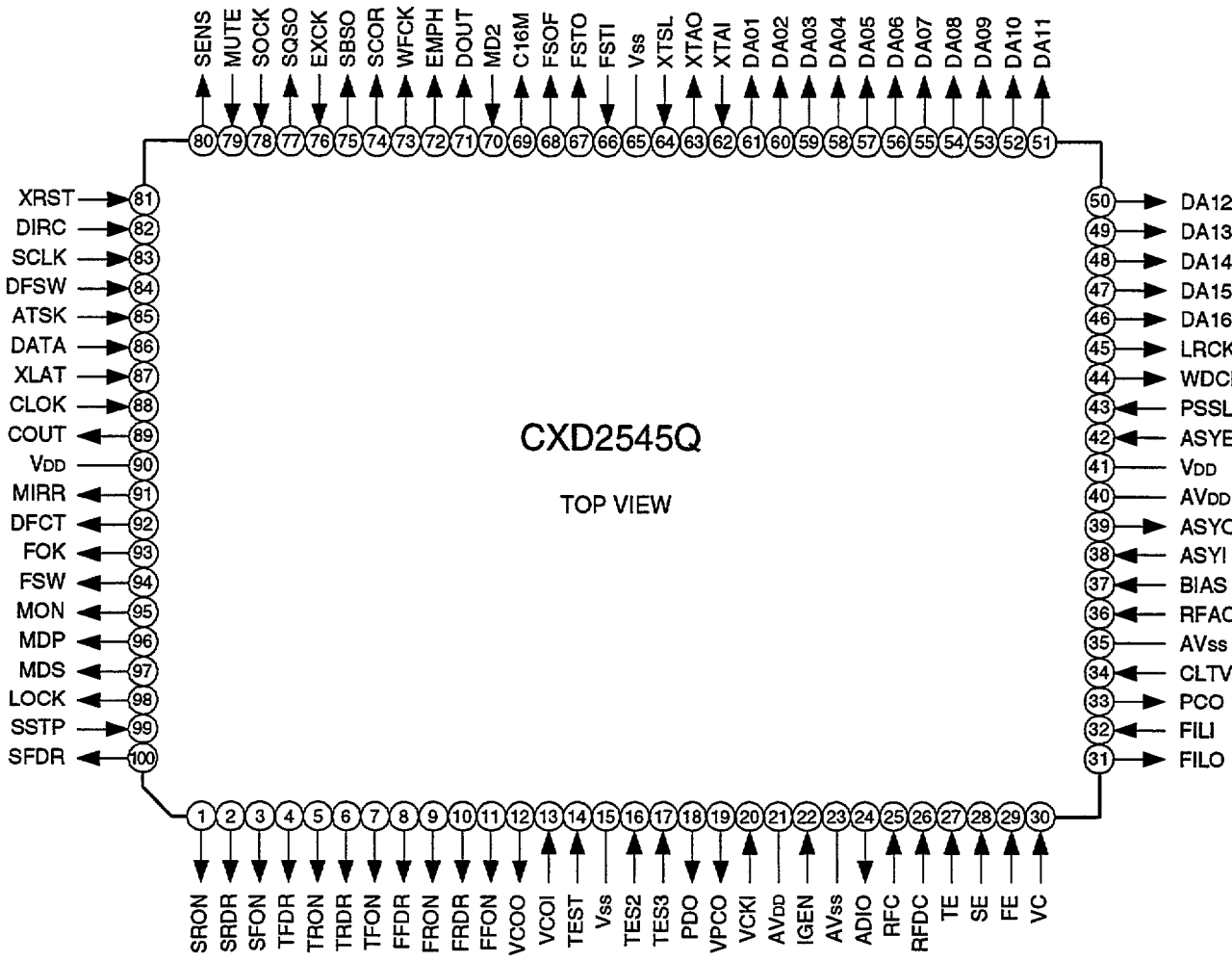
■ CXD2545Q (DVD MAIN ASSY : IC801)

● DIGITAL SERVO IC

● Block Diagram



● Pin Assignment (Top View)



● Pin Function

No.	Name	I/O	Function
1	SRON	O	Thread drive output.
2	SRDR	O	
3	SFON	O	
4	TFDR	O	Tracking drive output.
5	TRON	O	
6	TRDR	O	
7	TFON	O	
8	FFDR	O	Focus drive output.
9	FRON	O	
10	FRDR	O	
11	FFON	O	
12	VCOO	O	Oscillation circuit output for analog EFM PLL.
13	VCOI	I	Oscillation circuit input for analog EFM PLL. fLOCK = 8.6436MHz.
14	TEST	I	TEST terminal. Normally GND.
15	Vss	-	Digital GND.
16	TES2	I	TEST terminal. Normally GND.
17	TES3	I	TEST terminal. Normally GND.
18	PDO	O	Charge-pump output for analog EFM PLL.
19	VPCO	O	PLL charge-pump output for variable pitch.
20	VCKI	I	Clock input from external VCO for variable pitch.fcenter = 16.9344MHz.

No.	Name	I/O	Function
21	AVDD	-	Analog power supply.
22	IGEN	I	Terminal to connect the current source reference resistor of the operational amplifier for digital servo.
23	AVss	-	Analog GND.
24	ADIO	O	A/D converter input monitor terminal.
25	RFC	I	Terminal to connect the low-pass filter capacitor for RFDC input.
26	RFDC	I	RF signal input. Input range: 2.15 to 5.0 V (when VDD = AVDD = 5.0 V).
27	TE	I	Tracking error signal input. Input range: 2.5~1.0 V (when VDD = AVDD = 5.0 V).
28	SE	I	Thread-error signal input. Input range: 2.5~1.0 V (when VDD = AVDD = 5.0 V).
29	FE	I	Focus-error signal input. Input range: 2.5~1.0 V (when VDD = AVDD = 5.0 V).
30	VC	I	Mid-point voltage input terminal.
31	FILO	O	Filter output for master PLL.
32	FILI	O	Filter input for master PLL.
33	PCO	O	Charge-pump output for master PLL.
34	CLTV	I	VCO control voltage input for master.
35	AVss	-	Analog GND.
36	RFAC	I	EFM signal input.
37	BIAS	I	Asymmetrical circuit constant current input.
38	ASYI	I	Asymmetrical comparison voltage input.
39	ASYO	O	EFM full-swing output (L = Vss, H = VDD).
40	AVDD	-	Analog power supply.
41	VDD	-	Digital power supply.
42	ASYE	I	Asymmetrical circuit ON/OFF (L = OFF, H = ON).
43	PSSL	I	Audio data output mode switching input (L = serial output, H = parallel output).
44	WDCK	O	48-bit slot D/A interface. Word clock (f = 2 Fs).
45	LRCK	O	48-bit slot D/A interface. OR clock (f = Fs).
46	DA16	O	DA16 output when PSSL = 1. Serial data of 48-bit slot when PSSL = 0.
47	DA15	O	DA15 output when PSSL = 1. Bit clock of 48-bit slot when PSSL = 0.
48	DA14	O	DA14 output when PSSL = 1. Serial data of 64-bit slot when PSSL = 0.
49	DA13	O	DA13 output when PSSL = 1. Bit clock of 64-bit slot when PSSL = 0.
50	DA12	O	DA12 output when PSSL = 1. LR clock of 64-bit slot when PSSL = 0.
51	DA11	O	DA11 output when PSSL = 1. GTOP output when PSSL = 0.
52	DA10	O	DA10 output when PSSL = 1. XUGF output when PSSL = 0.
53	DA09	O	DA09 output when PSSL = 1. XPLCK output when PSSL = 0.
54	DA08	O	DA08 output when PSSL = 1. GFS output when PSSL = 0.
55	DA07	O	DA07 output when PSSL = 1. RFCK output when PSSL = 0.
56	DA06	O	DA06 output when PSSL = 1. C2PO output when PSSL = 0.
57	DA05	O	DA05 output when PSSL = 1. XRAOF output when PSSL = 0.
58	DA04	O	DA04 output when PSSL = 1. MNT3 output when PSSL = 0.
59	DA03	O	DA03~ output when PSSL = 1. MNT2 output when PSSL = 0.
60	DA02	O	DA02 output when PSSL = 1. MNT1 output when PSSL = 0.
61	DA01	O	DA01 output when PSSL = 1. MNT0 output when PSSL = 0.
62	XTAI	1	X'tal oscillation circuit input. 16.9344 MHz or 33.8688 MHz input.
63	XTAO	O	X'tal oscillation circuit output.
64	XTSL	I	X'tal selective input terminal. The system is set to L when X+tal is 16,9344 MHz, and H when 33,8688 MHz (during normal playback).
65	Vss	-	Digital GND.
66	FSTI	I	Reference clock input terminal for digital servo block.
67	FSTO	O	2/3 divided output for Terminals 62 and 63. Variable pitch does not change the output.
68	FSOF	O	1/4 divided output for Terminals 62 and 63. Variable pitch does not change the output.
69	C16M	O	16,9344 MHz output. Changes simultaneously with variable pitch (during normal playback).
70	MD2	I	Digital-Out ON/OFF control terminal (L = OFF, H = ON).
71	DOUT	O	Digital-Out output terminal.
72	EMPH	O	Emphasis mode output of the disc played back (L = no emphasis, H = emphasis).
73	WFCK	O	WFCK output.
74	SCOR	O	Subcode sync output terminal (The system sets to H when either subcode sync S0 or S1 is detected.).
75	SBSO	O	Serial output of Sub-P to Sub W.

No.	Name	I/O	Function
76	EXCK	I	Clock input for SBSO read out.
77	SQSO	O	Sub-Q 80-bit output, PCM peak data, level data 16-bit output.
78	SQCK	I	Clock input for SBSO read out.
79	MUTE	I	Mute switching terminal (H = Mute).
80	SENS	O	SENS output. Outputs to CPU.
81	XRST	I	System reset (L = reset).
82	DIRC	I	Used when skipping a single track. (Inputs VDD level when not used.)
83	SCLK	I	Clock for reading SENS serial data.
84	DFSW	I	DFCT switching terminal (H = DFCT measure circuit OFF).
85	ATSK	I	Antishock terminal.
86	DATA	I	Inputs serial data from the CPU.
87	XLAT	I	Inputs latch from the CPU.
88	CLOK	I	Inputs serial data transfer clock from the CPU.
89	COUT	O	Track counting signal output.
90	VDD	-	Digital power supply.
91	MIRR	O	Mirror signal output.
92	DFCT	O	Defect signal output.
93	FOK	O	Focus OK output.
94	FSW	O	Outputs switching the output filter of the spindle motor.
95	MON	O	ON/OFF control output for the spindle motor.
96	MDP	O	Servo control of the spindle motor.
97	MDS	O	Servo control of the spindle motor.
98	LOCK	O	Samples GFS at 460 Hz and outputs H when GFS is H. Outputs L if GFS is L eight times continuously.
99	SSTP	I	Terminal for the signal to detect the most inner circumference of the disc.
100	SFDR	O	Thread drive output.

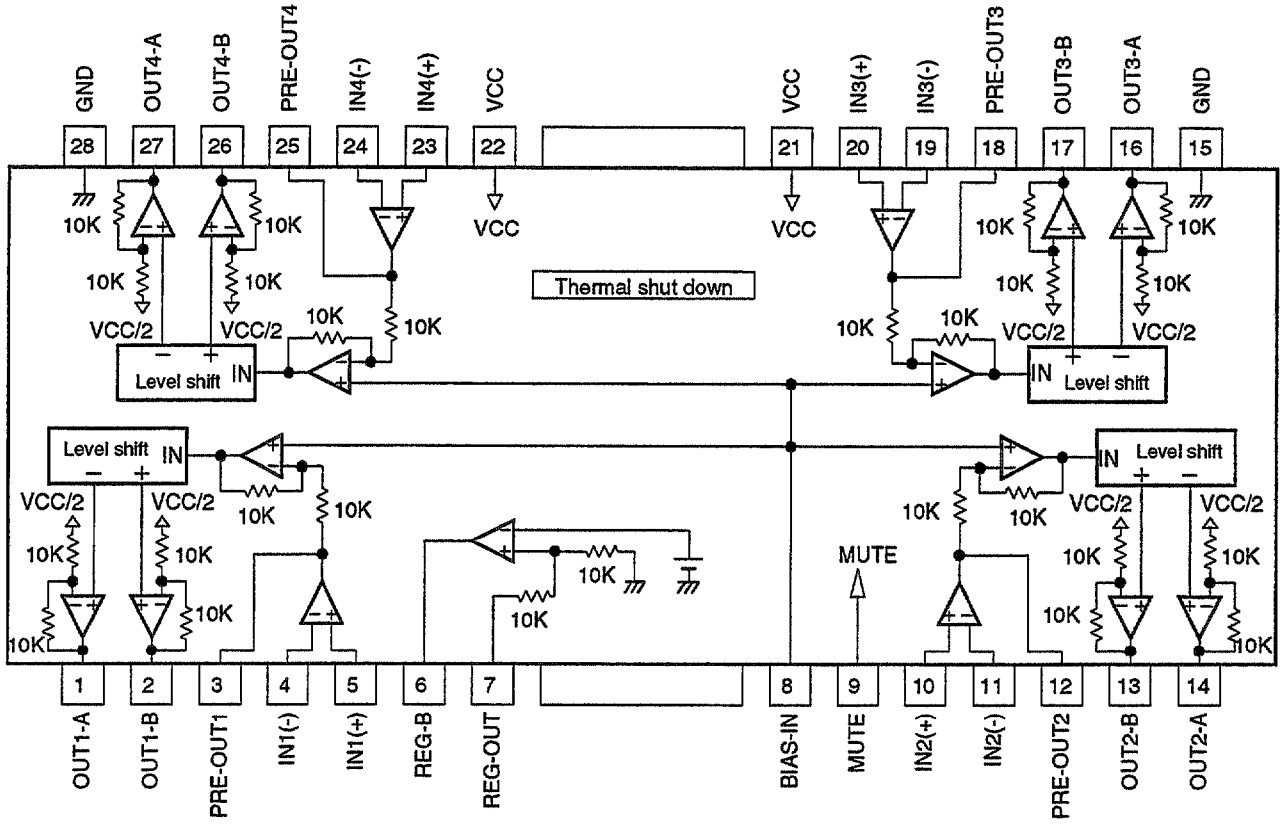
Notes:

- The 64-bit slot is 2's complementary output of LSB first. The 48-bit slot is 2's complementary output of MSB first.
- GTOP is to monitor protection of Frame sync (H: sync protective window open).
- XUGF is Frame sync obtained from EFM signal, and is negative pulse. It is signal before sync protection. "
- For XPLCK, PLL is produced so that the reverse and trailing edge of the clock of EFM PLL meet the point of change of EFM signal.
- GFS signal is set to H when Frame sync meets the interpolated protection timing.
- RFCK is obtained with X'tal precision. It is signal of cycles at 136±s.
- C2PO is signal to express error status of data.
- XRAOF is signal generated when 32K RAM exceeds the jitter margin ofü}28 frames.

■ BA6797FP (DVD MAIN ASSY : IC851)

● BTL DRIVER

● Block Diagram



● Pin Function

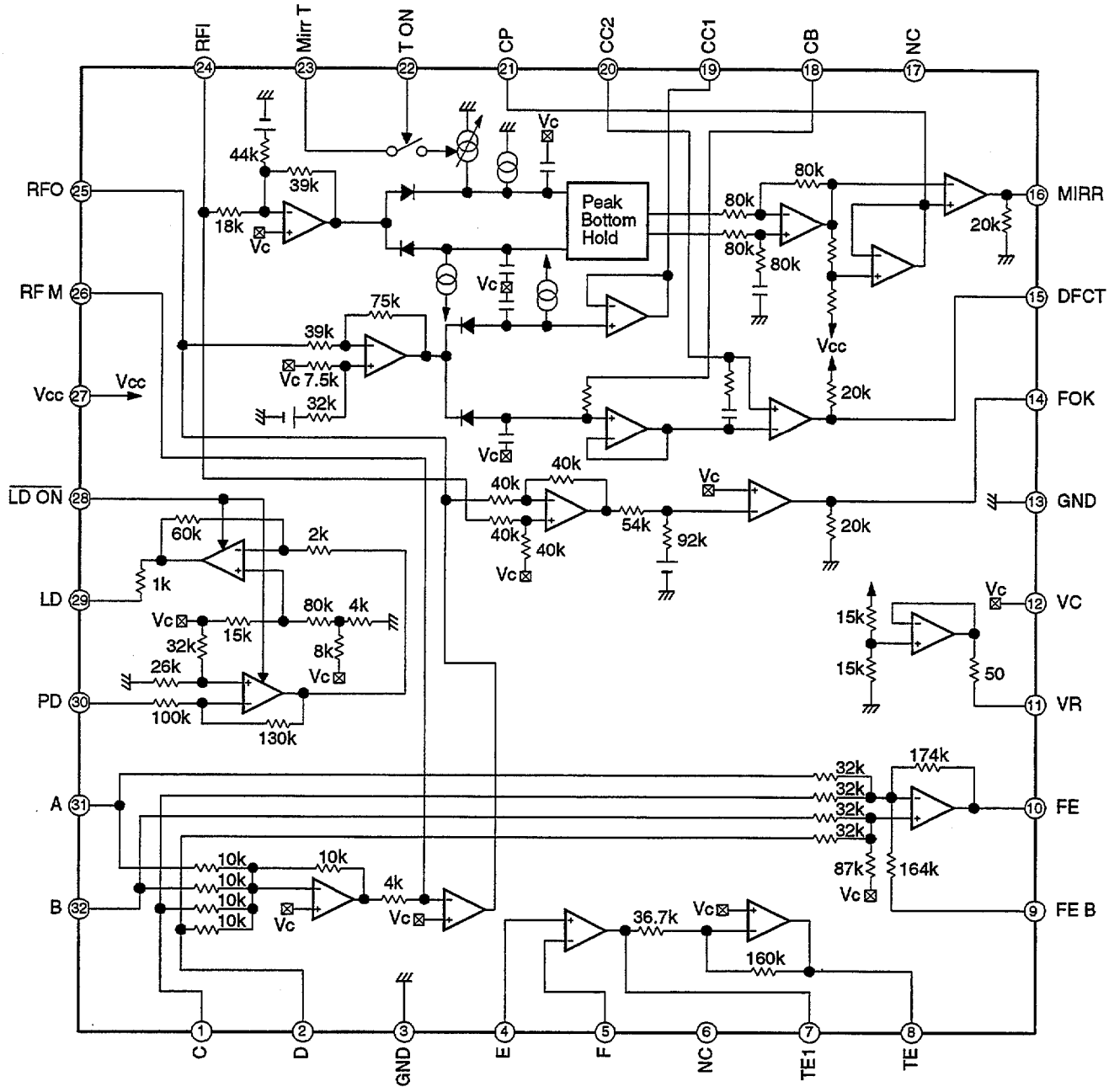
No.	Name	Function
1	OUT1-A	Driver CH1 output terminal.
2	OUT1-B	Driver CH1 output terminal.
3	PRE-OUT1	CH1 previous-stage amplifier output terminal.
4	IN1 (-)	CH1 previous-stage amplifier reverse input terminal.
5	IN1 (+)	CH1 previous-stage amplifier non-reverse input terminal.
6	REG-B	External Tr base connection terminal.
7	REG-OUT	Constant-voltage output (external Tr collector connection).
8	BIAS-IN	Bias input terminal.
9	MUTE	Mute control terminal.
10	IN2 (+)	CH2 previous-stage amplifier non-reverse input terminal.
11	IN2 (-)	CH2 previous-stage amplifier reverse input terminal.
12	PRE-OUT2	CH2 Previous-stage amplifier output terminal.
13	OUT2-B	Driver CH2 output terminal.
14	OUT2-A	Driver CH2 output terminal.

No.	Name	Function
15	GND	Substraight GND.
16	OUT3-A	Driver CH3 output terminal.
17	OUT3-B	Driver CH3 output terminal.
18	PRE-OUT3	CH3 previous-stage amplifier output terminal.
19	IN3 (-)	CH3 previous-stage amplifier reverse input terminal.
20	IN3 (+)	CH3 previous-stage amplifier non-reverse input terminal.
21	VCC	VCC
22	VCC	VCC
23	IN4 (+)	CH4 previous-stage amplifier non-reverse input terminal.
24	IN4 (-)	CH4 previous-stage amplifier reverse input terminal.
25	PRE-OUT4	CH4 previous-stage amplifier output terminal.
26	OUT4-B	Driver CH4 output terminal.
27	OUT4-A	Driver CH4 output terminal.
28	GND	Substraight GND.

■ CXA2521AQ (DVD MAIN ASSY : IC901)

● RF AMP

● Block Diagram



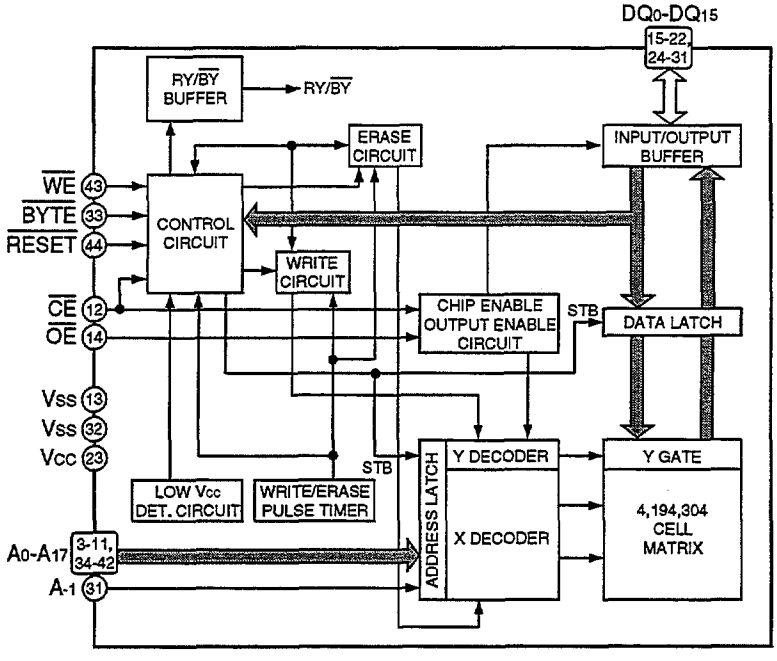
● Pin Function

No.	Name	I/O	Function
1	C	I	Input terminal for the RF summing amplifier and focus error amplifier.
2	D	I	Input terminal for the RF summing amplifier and focus error amplifier.
3	GND	-	Grounding terminal.
4	E	I	Input terminal for the tracking error amplifier.
5	F	I	Input terminal for the tracking error amplifier.
6	NC	-	Open on the circuit.
7	TE1	O	Output for the tracking error amplifier and input terminal for the tracking error drive .
8	TE	O	Output terminal for the tracking error amplifier.
9	FE B	I	Focus bias adjusting terminal for the focus amplifier.
10	FE	O	Output terminal for the focus error amplifier.
11	VR	O	DC voltage output terminal for (Vcc + GND)/2.
12	VC	I	Mid-point voltage input terminal for VC.
13	GND	-	Grounding terminal.
14	FOK	O	Output terminal for the FOK comparator.
15	DFCT	O	Output terminal for the DEFECT comparator.
16	Mirr	O	Output terminal for the mirror comparator.
17	NC	-	Open on the circuit.
18	CB	I	Connection terminal for the DEFECT Bottom Hold capacitor.
19	CC1	O	Output terminal for DEFECT Bottom Hold.
20	CC2	I	Input terminal to which combined capacity of output from DEFECT Bottom Hold is input.
21	CP	I	Connection terminal for the Mirror Hold capacitor and non-reverse input terminal for the mirror comparator.
22	T ON	I	Time constant switching terminal for Peak Hold. Connecting the terminal to Vcc enables adjustment of time constant. Connecting the terminal to GND fixes time constant.
23	Mirr	I	Time constant adjusting terminal for Peak Hold. Time constant is set to that adjusted when Terminal 22 was turned to ON.
24	RFI	I	Input terminal to which combined capacity of output from the RF summing amplifier is input.
25	RFO	O	Output terminal for RF signal. The value of resistor connected between Terminals 25 and 26 determines the low-frequency gain of the RF drive amplifier.
26	RF M	I	Input terminal on the reverse side for the RF drive amplifier.
27	Vcc	-	Vcc pin.
28	$\overline{\text{LD ON}}$	I	APC amplifier ON/OFF switching terminal. Connecting the terminal to Vcc turns the amplifier to OFF. Connecting the terminal to GNC turns the amplifier to ON.
29	LD	O	Output terminal for the APC amplifier.
30	PD	I	Input terminal for the APC amplifier.
31	A	I	Input terminal for the RF summing amplifier and focus error amplifier.
32	B	I	Input terminal for the RF summing amplifier and focus error amplifier.

■ MBM29F400TA-70PF (VYW1515) (DVD MAIN ASSY : IC1030)

● 4M bit FLASH MEMORY

● Block Diagram



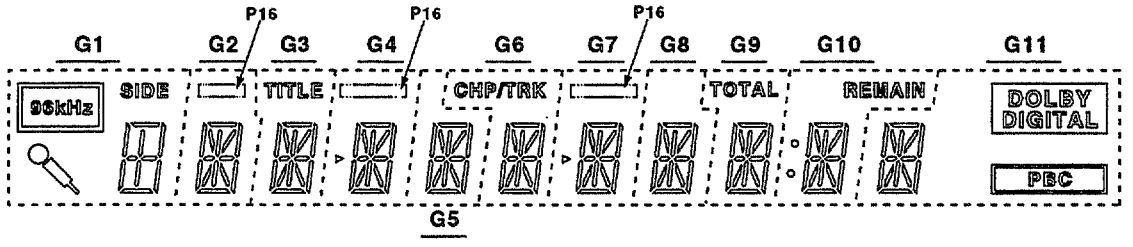
● Pin Function

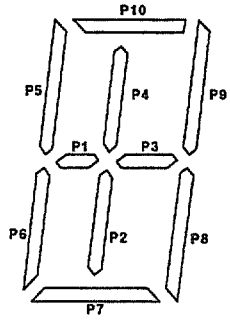
No.	Pin Name	Pin Function	No.	Pin Name	Pin Function
1	N.C.	Non connection	23	Vcc	Power supply (+5.0V ± 10% or ± 5%)
2	RY/$\overline{BY}$	Ready/Buzy output	24	DQ4	Data input/output
3	A17	Address input	25	DQ12	
4	A7		26	DQ5	
5	A6		27	DQ13	
6	A5		28	DQ6	
7	A4		29	DQ14	
8	A3		30	DQ7	
9	A2		31	DQ15/A-1	Data input / output / address input
10	A1		32	Vss	Ground
11	A0		33	$\overline{BYTE}$	Mode select of 8 bit and 16 bit
12	$\overline{CE}$	Chip enable	34	A16	Address input
13	Vss	Ground	35	A15	
14	$\overline{OE}$	Output enable	36	A14	
15	DQ0	Data input /output	37	A13	
16	DQ8		38	A12	
17	DQ1		39	A11	
18	DQ9		40	A10	
19	DQ2		41	A9	
20	DQ10		42	A8	
21	DQ3		43	$\overline{WE}$	Write enable
22	DQ11		44	$\overline{RESET}$	Hard ware reset

7.1.2 DISPLAY

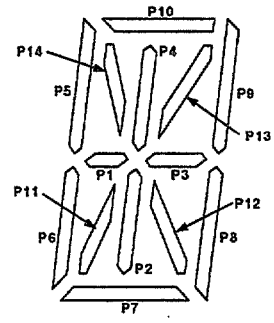
■ VAW1042 (FLPB ASSY : V101)

- FL DISPLAY





G1



G1-G11

- ANODE AND GRID ASSIGNMENT

	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10	G11
P1	P1	P1	P1	P1	P1	P1	P1	P1	P1	P1	P1
P2	P2	P2	P2	P2	P2	P2	P2	P2	P2	P2	P2
P3	P3	P3	P3	P3	P3	P3	P3	P3	P3	P3	P3
P4	P4	P4	P4	P4	P4	P4	P4	P4	P4	P4	P4
P5	P5	P5	P5	P5	P5	P5	P5	P5	P5	P5	P5
P6	P6	P6	P6	P6	P6	P6	P6	P6	P6	P6	P6
P7	P7	P7	P7	P7	P7	P7	P7	P7	P7	P7	P7
P8	P8	P8	P8	P8	P8	P8	P8	P8	P8	P8	P8
P9	P9	P9	P9	P9	P9	P9	P9	P9	P9	P9	P9
P10	P10	P10	P10	P10	P10	P10	P10	P10	P10	P10	P10
P11		P11	P11	P11	P11	P11	P11	P11	P11	P11	P11
P12		P12	P12	P12	P12	P12	P12	P12	P12	P12	P12
P13	96kHz	P13	P13	P13	P13	P13	P13	P13	P13	P13	P13
P14		P14	P14	P14	P14	P14	P14	P14	P14	P14	P14
P15				▷			▷			○	PBC
P16	SIDE	P16	TITLE	P16		CHP/TRK	P16		TOTAL	REMAIN	DOLBY DIGITAL

- PIN ASSIGNMENT

Pin No.	1	2	3	4	5	6	7	8	9	10	11-24	25	26	27	28	29	30	31	32
Assignment	F1	F1	NP	NL	P16	P15	P14	P13	P12	P11	NL	P10	P9	P8	P7	P6	NL	P5	P4

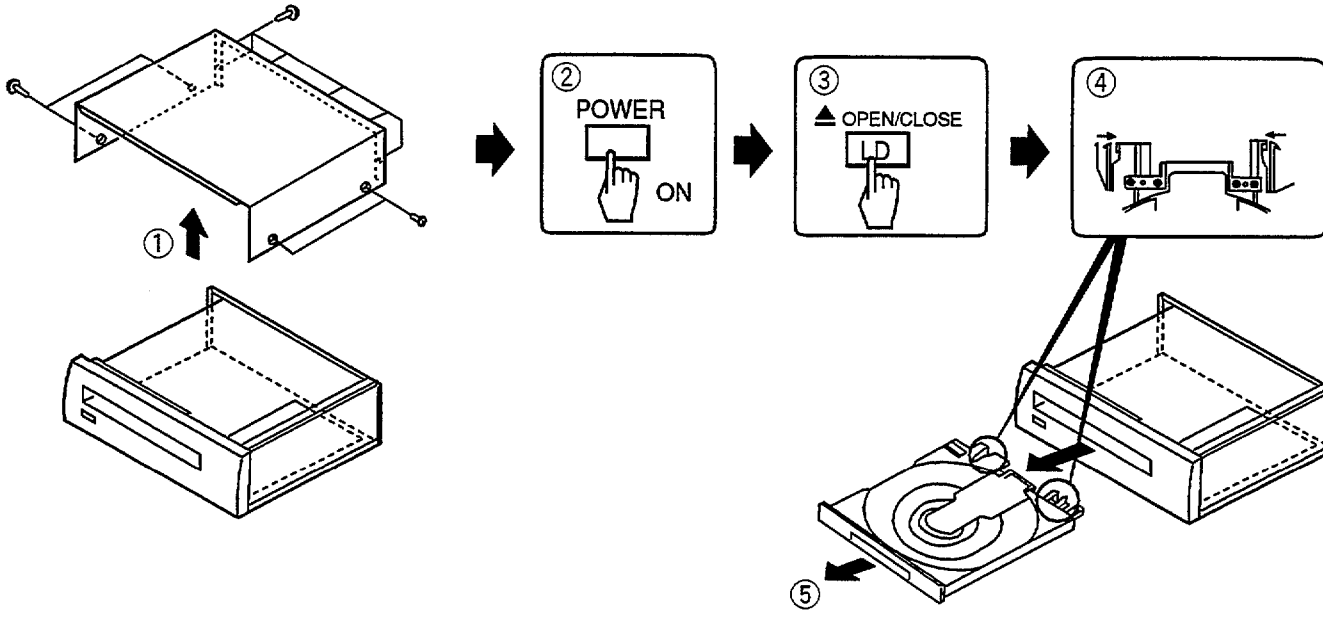
Pin No.	33	34	35	36-40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
Assignment	P3	P2	P1	NL	G11	G10	G9	G8	G7	G6	G5	G4	G3	G2	G1	NL	NP	F2	F2

F1, F2 : Filament G1-G11 : Grid P1-P16 : Anode NP : No Pin NL : No Lead

7.2 DISASSEMBLY/ASSEMBLY（分解/組立の手順）

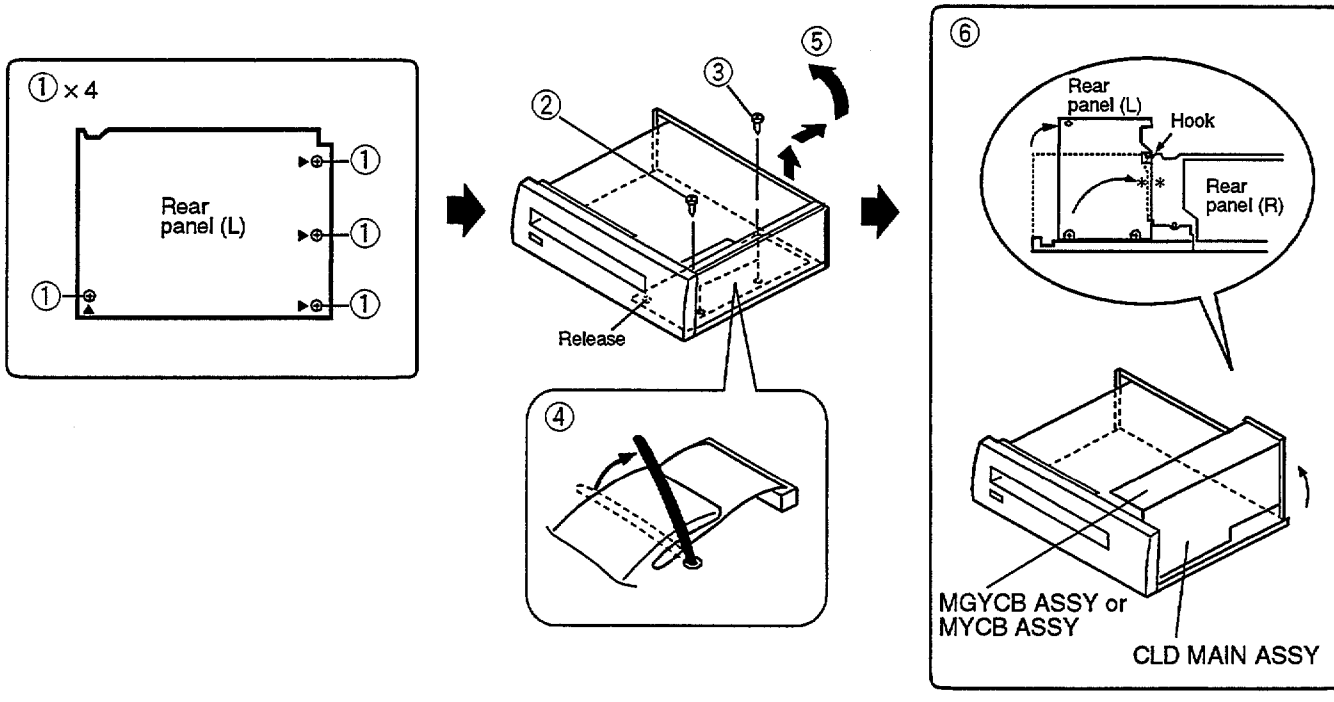
(1) DISC TRAY

- Disassembly : ①→②→③→④→⑤
- Assembly : ⑤→①



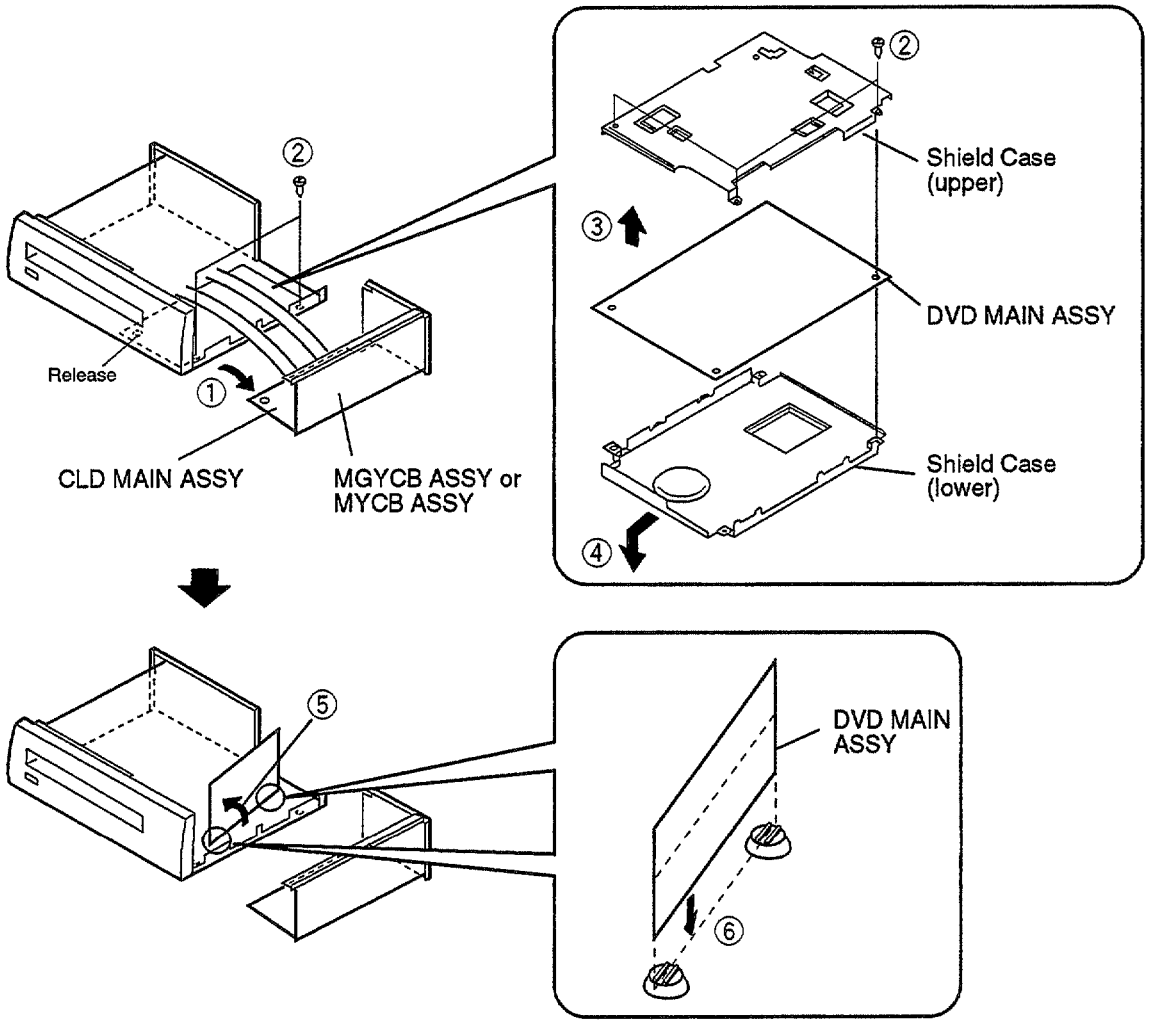
(2) CLD MAIN ASSY

- Disassembly : ①→②→③→④→⑤→⑥
- Assembly : ⑥→⑤→④→③→②→①



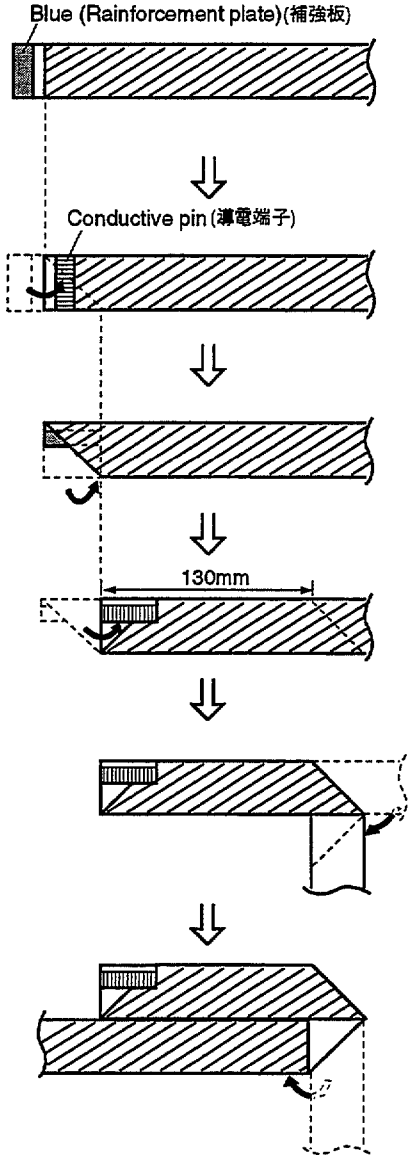
(3) DVD MAIN ASSY

- Disassembly : ①→②→③→④→⑤→⑥
- Assembly : ⑥→④→③→②→①



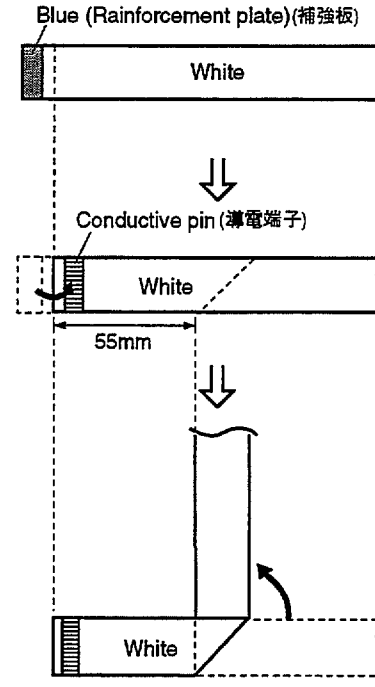
7.3 HOW TO BEND THE FLEXIBLE CABLE (フレキシブルケーブルの折り方)

(1) THE FLEXIBLE CABLE FOR CLD CARRIAGE ASSY

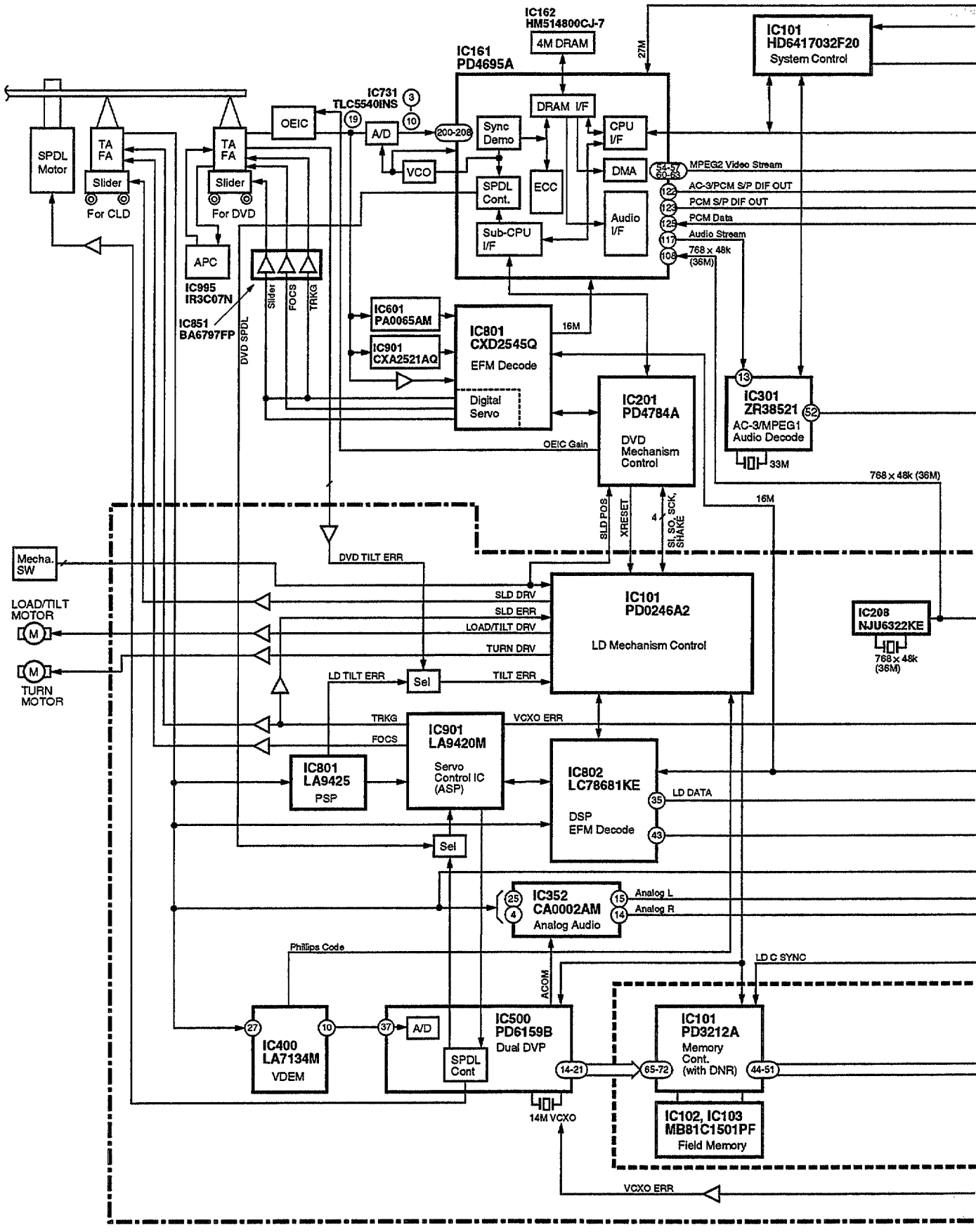


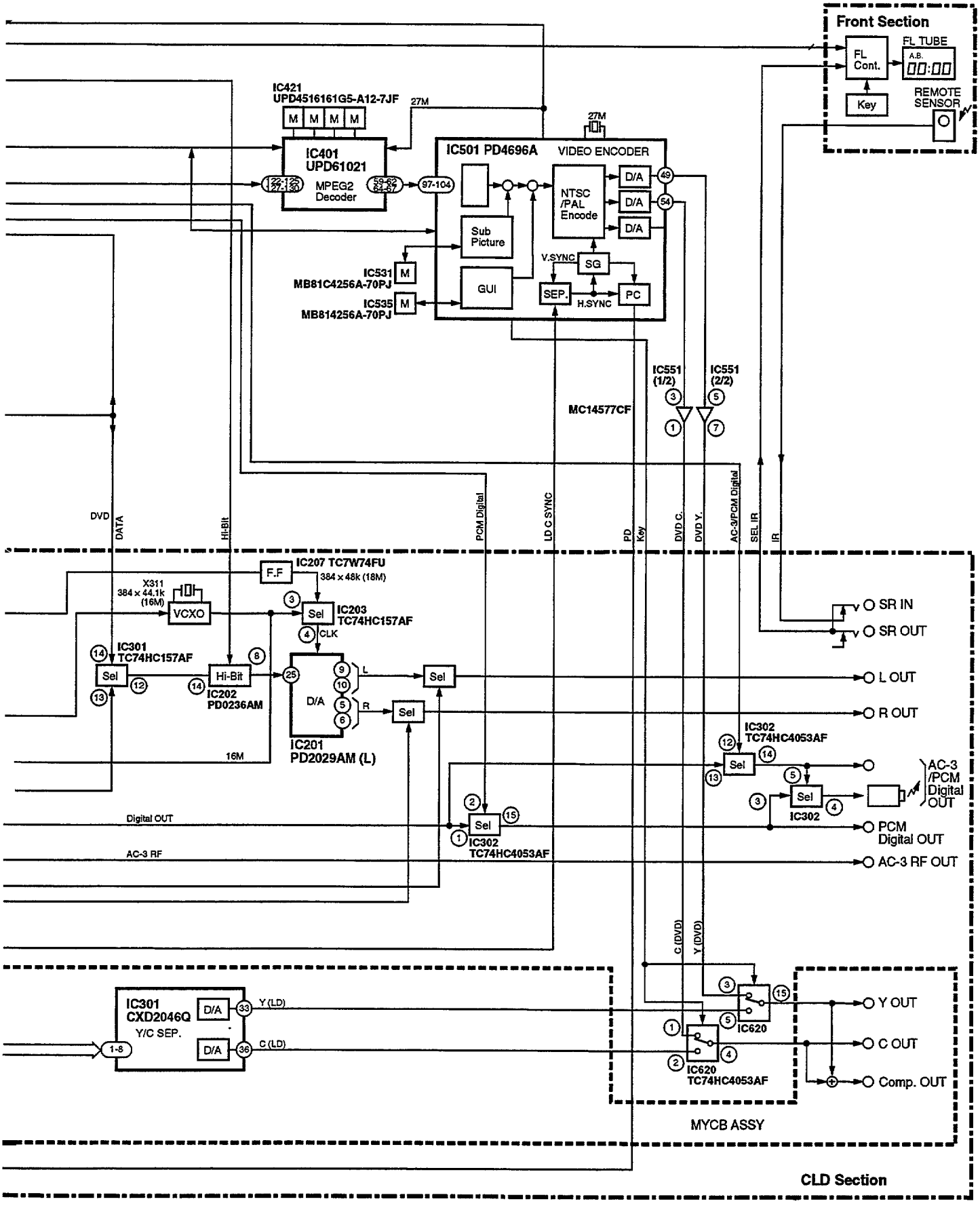
: Part rating indication side (部品定格表示側)

(2) THE FLEXIBLE CABLE FOR DVD CARRIAGE ASSY



7.4 BLOCK DIAGRAM

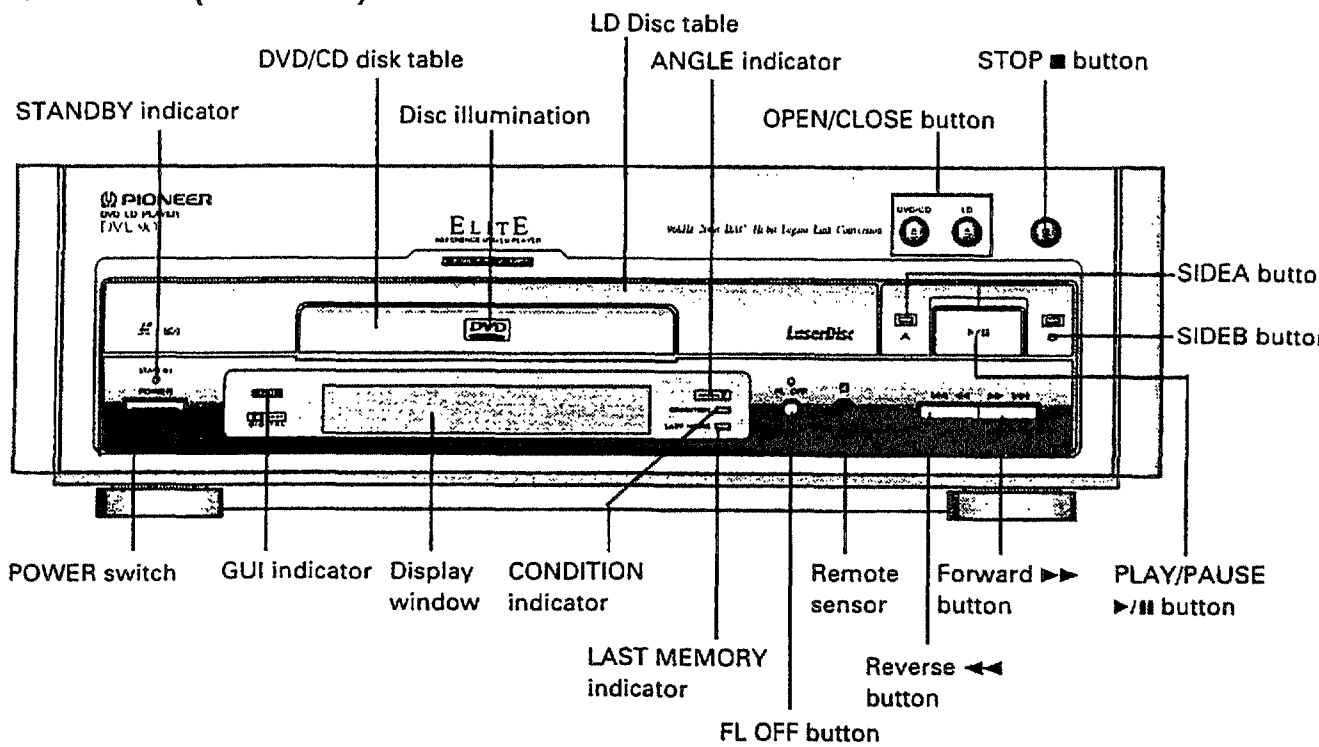



Front Section
FL Cont.
FL TUBE
A.B.
00:00
Key
REMOTE SENSOR
IC421
UPD4516161G5-A12-7JF
27M
IC401
UPD61021
MPEG2 Decoder
IC501 PD4696A VIDEO ENCODER
NTSC /PAL Encode
D/A
Sub Picture
GUI
V.SYNC
SG
SEP.
H.SYNC
PC
IC531
MB81C4256A-70PJ
IC535
MB814256A-70PJ
IC551 (1/2)
IC551 (2/2)
MC14577CF
DVD DATA
Hi-Bit
PCM Digital
LD C SYNC
PD
Key
DVD C.
DVD Y.
AC-3/PCM Digital
SEL IR
IR
F.F
IC207 TC7W74FU
384 x 48k (18M)
X311
384 x 44.1k (16M)
VCXO
Sel
IC203
TC74HC157AF
CLK
IC301
TC74HC157AF
Hi-Bit
IC202
PD0236AM
D/A
L
R
IC201
PD2029AM (L)
16M
SR IN
SR OUT
L OUT
R OUT
IC302
TC74HC4053AF
AC-3 /PCM Digital OUT
PCM Digital OUT
AC-3 RF OUT
Digital OUT
AC-3 RF
IC301
CXD2046Q
Y/C SEP.
Y (LD)
C (LD)
C (DVD)
Y (DVD)
IC620
IC620
TC74HC4053AF
Y OUT
C OUT
Comp. OUT
MYCB ASSY
CLD Section

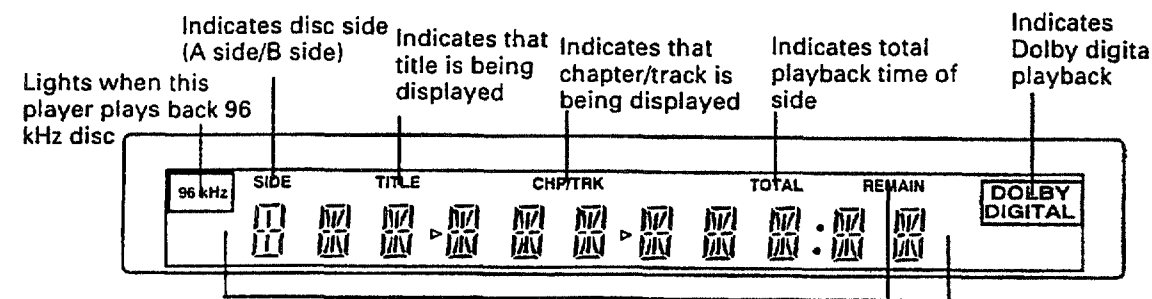
8. PANEL FACILITIES AND SPECIFICATIONS

■ PANEL FACILITIES

■ FRONT PANEL (FOR DVL-90)



■ DISPLAY WINDOW



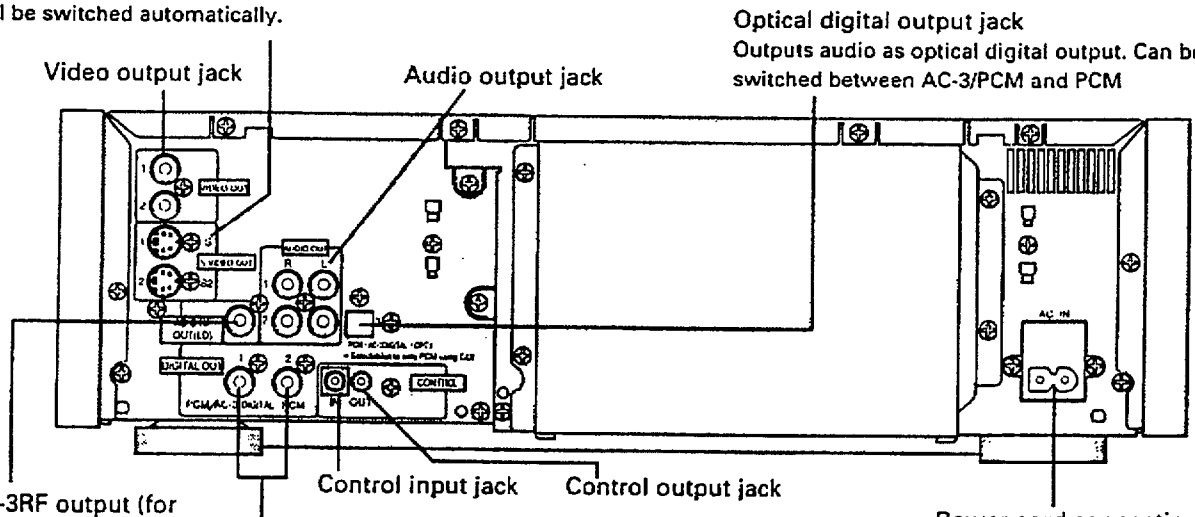
LD	LaserDisc	PLAY	Playback
CD	Compact disc	STOP	Stop
CDV	CD video	PAUSE	Pause
DVD	DVD	NO DISC	No disc
OPEN	Disc table is opening or is open	- OFF -	Power is turned off
CLOSE	Disc table is closing	SIDE A(B)	SIDE A(B): Disc side

■ REAR PANEL (DVL-90)

* There is both 1 and 2, allowing 2 systems to be connected at the same time. For example, 1 can be connected to the TV and 2 can be connected to an AV amplifier.

Your home amplifier	Regular AV amplifier	Coaxial	Connect to PCM jack
		Optical	Connect to optical output and select PCM jack using the menu
	AC-3 compatible amplifier	Coaxial	Connect to PCM/AC-3 jack
		Optical	Connect optical output and select PCM/AC-3 jack using the menu

S-video output jack
1: S jack (regular S output)
2: S2 jack (simultaneously outputs recognition signal for wide TV)
S2 function is only available during DVD playback.
By connecting to the S2 jack of your wide TV etc., TV settings etc., will be switched automatically.

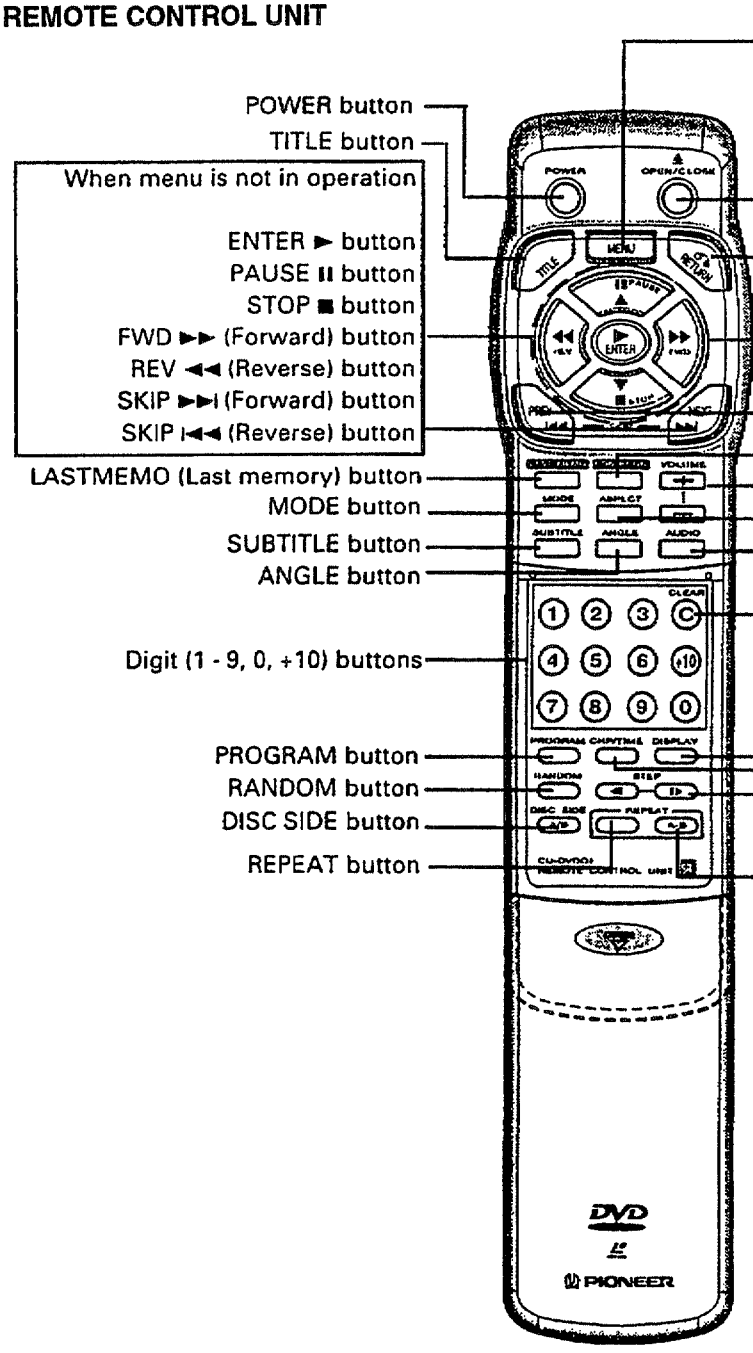


AC-3RF output (for LD)
By connecting to the AC-3RF jack of a receiver or processor, 5.1 ch surround audio can be enjoyed.

Digital output jack (coaxial)
Outputs digital audio of CD, video CD and LDs with digital sound as digital output.
Depending on the other components the player is combined with, noise may be generated from the digital output jack.
When connecting to an AC-3 compatible component, please connect to the PCM/AC-3 jack.
Other components should be connected to the PCM jack. (Refer to the list above.)

RDM	Random playback
PROGRAM	Program mode
R-TRK	Repeat mode
R-A	Start point of 2 point repeat playback
R-AB	2 point repeat playback
R-TTL	Repeat playback of the title
R-SID	Both sides of LD repeat playback
COND.MEMORY	Condition memory
LAST MEMORY	Last memory playback
CINEMA1	Cinema 1
CINEMA2	Cinema 2
ANIMATION	Animation mode
STANDARD	Standard
STEREO	Stereo
MENU	Menu mode
TITLE	Title menu
CHAPTER	Chapter menu
SUB-TITLE	Sub-title menu
SETUP	Set-up menu
ANGLE	Angle menu
AUDIO	Audio menu
DOLBY DIGITAL 5.1CH	Dolby digital surround 5.1 ch
PCM 96K	96KPCM audio
PCM 48K	48KPCM audio
MPEG AUDIO	MPEG1 or MPEG2 audio

■ REMOTE CONTROL UNIT



To use the buttons on the lower half of the remote control, slide the cover down as shown in the diagram. (You can come it off also.)

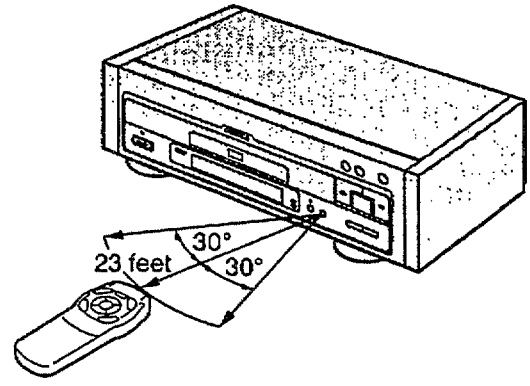
Tips

During disc menu operation, pressing any of the direction buttons (◄ • ► • ▲ • ▼) for over 2 seconds allows them to be used to operate functions available when a menu is not in operation (fast reverse, fast forward, pause, stop). However, within these, when the **STOP ■ button** is pressed, "STOP?" will appear on the screen to prevent mistaken operation. To stop playback, press the button once again.

Remote control operation

When operating the remote control, point it at the remote sensor located on the player's front panel. The remote control can be used up to 23 feet (7m) from the player and within a 30° angle each side of the sensor.

- Exposing the remote sensor to direct sunlight or strong light may cause faulty operation.
- If the CONTROL terminal on the player's rear panel is connected to another component, point the remote control at that component for operation. Operation is not possible when pointed at this player.
- When using the remote control, first press the POWER switch to turn on the player's power.



■ SPECIFICATIONS

General

System ..... DVD system, LaserVision Disc system and Compact Disc digital audio system
Laser ..... Semiconductor laser: wavelength 635 nm
Power requirements: ..... AC 120 V, 60 Hz
Power consumption ..... 52 W
Weight ..... 10.0 kg
..... (22 lb 1 oz)
Dimensions ..... 459 (W) x 463 (D) x 143 (H) mm
..... (18 $^{1}/_{16}$x18 $^{1}/_{4}$x5 $^{5}/_{8}$ in.)
(Not including protruding cables, etc.)
Operating temperature ..... +5°C to +35°C
..... (+36°F to +96°F)
Operating humidity ..... 5% to 85% (no condensation)

Video Output (2 pairs)

Output level ..... 1 Vp-p (75Ω when loaded, synchronous negative)
Jacks ..... RCA jacks

S-Video Output level (2 pairs)

Y (luminance) - Output level ..... 1 Vp-p (75 Ω)
C (color) - Output level ..... 286 mVp-p (75 Ω)
Jacks ..... S-VIDEO jacks

Audio Output (2 pairs)

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

Digital audio characteristics

Frequency response	4 Hz to 22 kHz (DVD fs: 48 kHz) 4 Hz to 22 kHz (LD, CD)
S/N ratio	115 dB (EIAJ)
Dynamic range	97 dB (EIAJ)
Total harmonic distortion	0.003 %
Wow and flutter	Limit of measurement (±0.001% W. PEAK) or lower (EIAJ)

Other Terminals

Optical digital output (AC-3/PCM) ..... Optical digital jack
Coaxial digital output (AC-3/PCM) ..... RCA jack
Coaxial digital output (PCM) ..... RCA jack
AC-3RF output (for LD) ..... Pin jack
CONTROL IN ..... Minijack (3.5ø)
CONTROL OUT ..... Minijack (3.5ø)

Accessories

Remote control unit 1
AAA/R03 dry cell batteries 2
Audio cord 1
Video cord 1
S-video cable (DVL-90 Only) 1
Power cord 1
Operating Instructions 1
Warranty card 1

NOTE:

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

Accessories