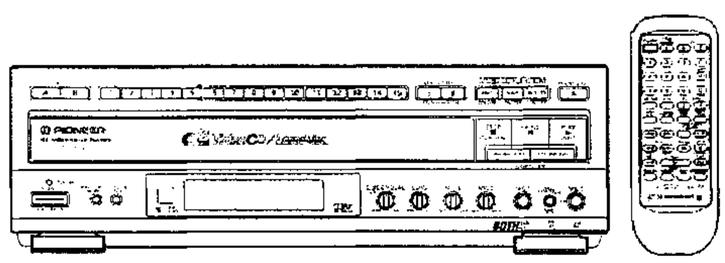
Service Manual

PIONEER®
The Art of Entertainment



ORDER NO.
RRV1845

CD / VIDEO CD / LD PLAYER

CLD-210KVT

CLD-210KVT-G

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

Type	Model		Power Requirement	Remarks
	CLD-210KVT	CLD-210KVT-G		
TAM	O	O	AC110-240V	
TL	O	–	AC110-240V	
TD	–	O	AC110-240V	

CONTENTS

PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan
PIONEER ELECTRONICS SERVICE, INC. P.O. Box 1760, Long Beach, CA 90801-1760, U.S.A.
PIONEER ELECTRONIC (EUROPE) N.V. Haven 1087, Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS ASIACENTRE PTE. LTD. 501 Orchard Road, #10-00 Lane Crawford Place, Singapore 0923

T - IZK AUG. 1997 Printed in Belgium

CLD-210KVT,
CLD-210KVT-G

1. SAFETY INFORMATION

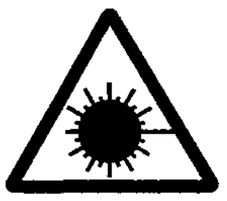
VARO!
AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA NÄKYMÄTTÖMÄLLE LASERSÄTEIYLLE. ÄLÄ KATSO SÄTEESEEN.

ADVARSEL :
USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHED SAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSÆTTELSE FOR STRÅLING.

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

LASER
kuva 1
Lasersateilyn
varoitusmerkki

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

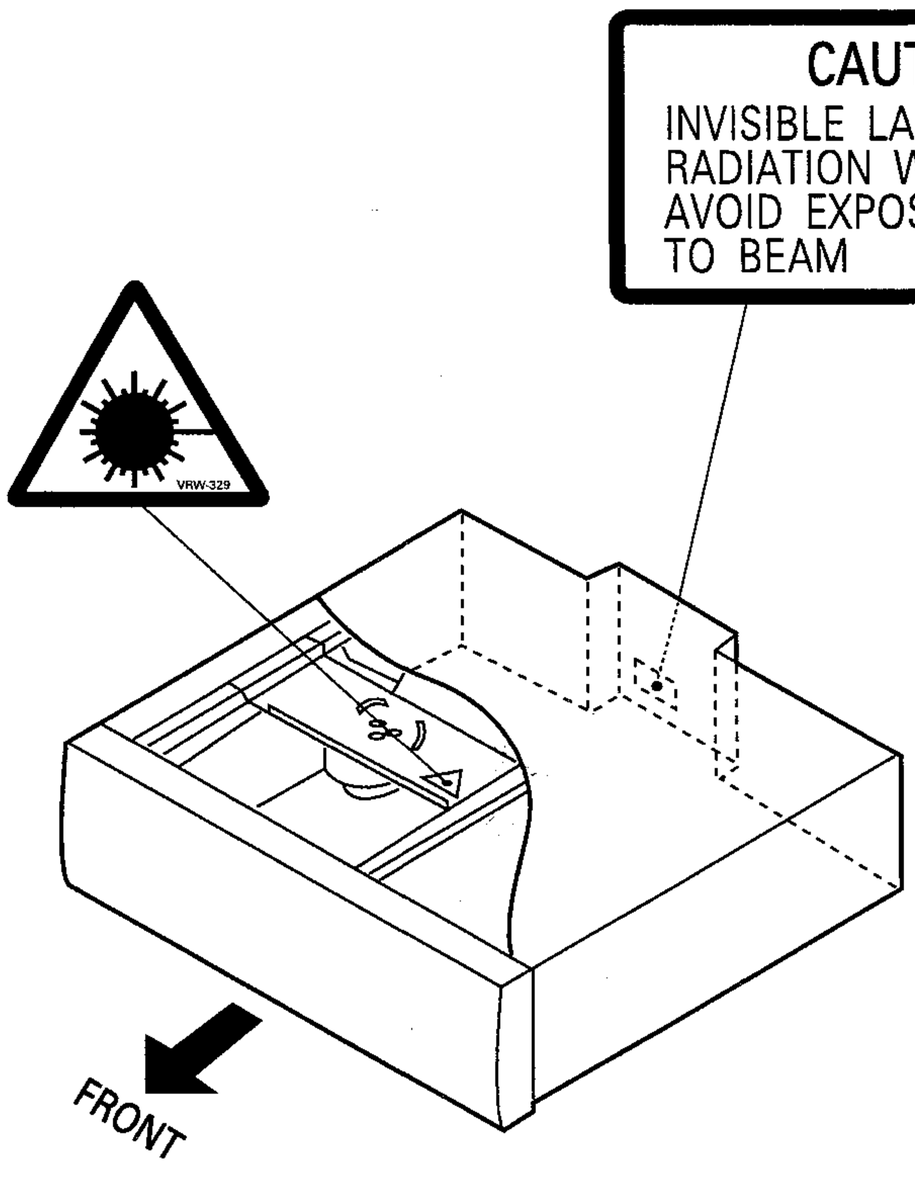


LASER
Picture 1
Warning sign for
laser radiation

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

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

LABEL CHECK (TAM and TL types)



Additional Laser Caution

1. The ON/OFF statuses of the side-A/B detection switch (TURN switch on the TNSB assy), slider-position detection switches (INNER and OUTER on the PKSB assy) and loading-status detection switches (SW101, 102 and 103 on the LMSB assy) are detected by the microprocessor (IC101 in the MOTHER assy). To permit the laser diode to oscillate, it is required to set the side-A/B detection switch for side A status (TRN : OFF) and the slider-position detection switches for the LD ACTIVE status (INNER : OFF, OUTER: OFF), and to set the loading-status detection switches for tilt neutral state (SW101 : OFF, SW102 : OFF, SW103 : ON). As long as these requirements are not satisfied, the laser diode will not oscillate. When the requirements are met in any way, the laser diode can oscillate. The laser diode oscillation will continue if pin 13 of IC801 is shorted to GND or the emitter and collector of Q834 are shorted each other (fault condition) in MOTHER assy.
   In the test mode *, the laser diode oscillates when the microprocessor detects a PLAY signal, or when the PLAY key is pressed (S307 ON in the FLKY assy), with the above requirements satisfied.

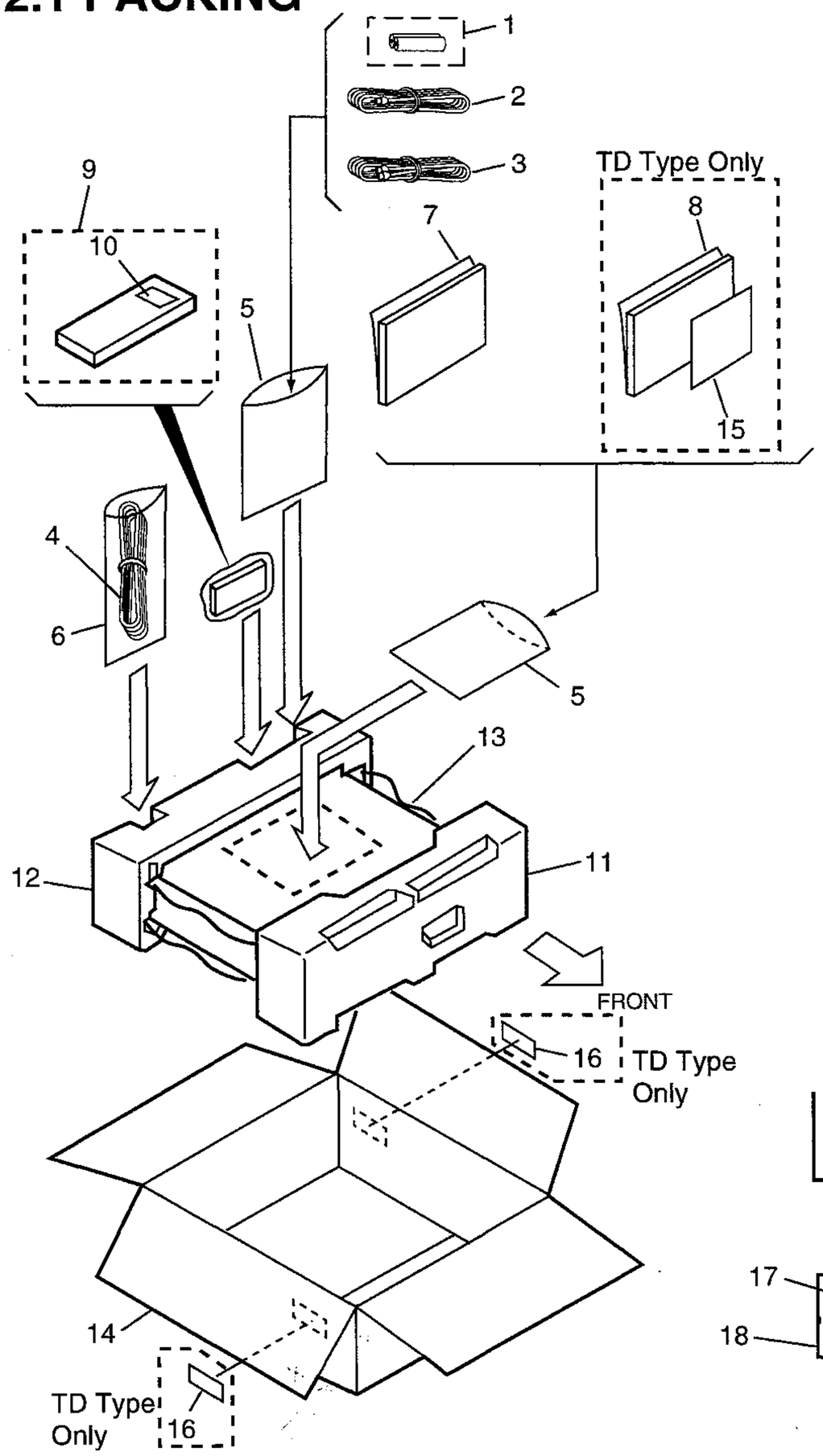
2. When the cover is open, close viewing through the objective lens with the naked eye will cause exposure to a Class 1 laser beam.

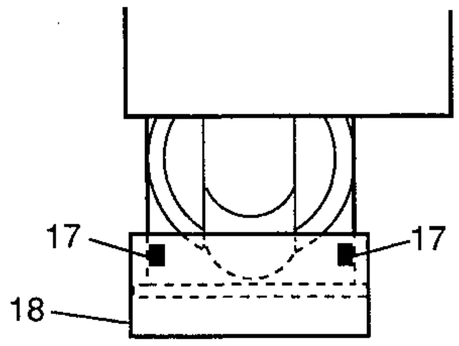
* : Refer to pages 48 and 49.

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	Dry Cell Battery (R6P, AA)	VEM-013
	2	Video Cord	VDE1048
	3	Audio Cord	VDE1033
⚠	4	Power Cord	See Contrast table (2)
	5	Polyethylene Bag (230 * 340 * 0.03)	Z21-038
NSP	6	Cord Bag	VEG-012
	7	Operating Instructions (English/Chinese)	See Contrast table (2)
	8	Operating Instructions (Spanish)	See Contrast table (2)
	9	Remote Control Unit (CU-CLD149)	VXX2527
	10	Battery Cover	VNK3703
	11	Pad F	VHA1204
	12	Pad R	VHA1205
	13	Mirror Mat	DHL1006
	14	Packing Case	See Contrast table (2)
NSP	15	Warranty Card	See Contrast table (2)
	16	TD Label	See Contrast table (2)
	17	Sheet	VEC1971
	18	Mirror Mat Sheet	VHL1039

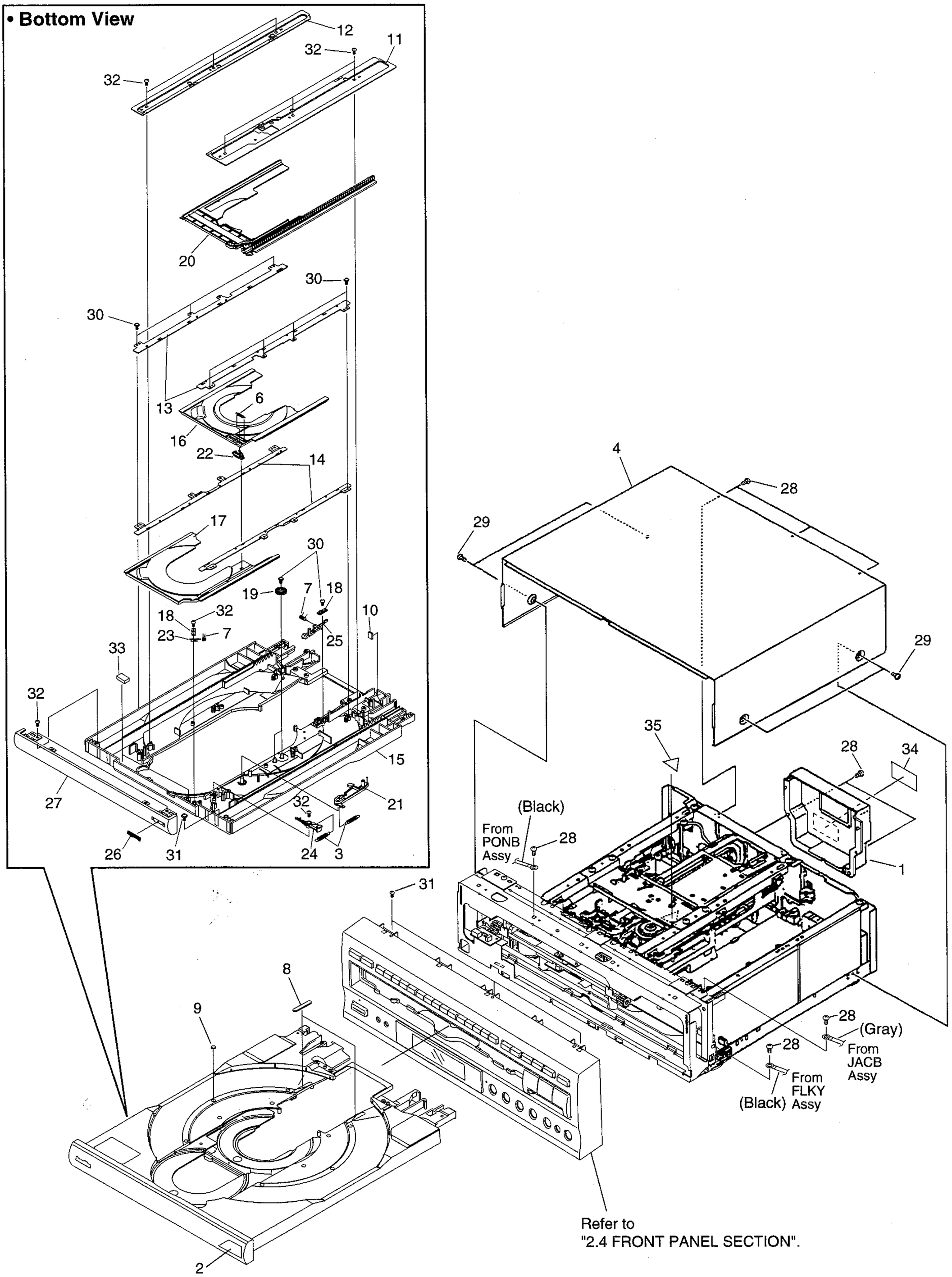
(2) CONTRAST TABLE

CLD-210KVT/TAM, TL,CLD-210KVT-G/TAM and TD constructed the same except for the following :

Mark	No.	Symbol and Description	Part No.				Remarks
			CLD-210KVT /TAM	CLD-210KVT /TL	CLD-210KVT-G /TAM	CLD-210KVT-G /TD	
⚠	4	Power Cord	ADG7017	ADG1154	ADG7017	ADG1158	
	7	Operating Instructions (English/Trad-Chinese Language)	VRD1066	Not used	VRD1066	Not used	
	7	Operating Instructions (English/Simp-Chinese Language)	Not used	VRD1067	Not used	VRD1067	
	8	Operating Instructions (Spanish)	Not used	Not used	Not used	VRC1059	
	14	Packing Case	VHG1706	VHG1706	VHG1707	VHG1707	
NSP	15	Warranty Card	Not used	Not used	Not used	ARW1020	
	16	TD Label	Not used	Not used	Not used	VRW1687	

CLD-210KVT,
CLD-210KVT-G

2.2 EXTERIOR AND DISC TRAY SECTION



(1) PARTS LIST

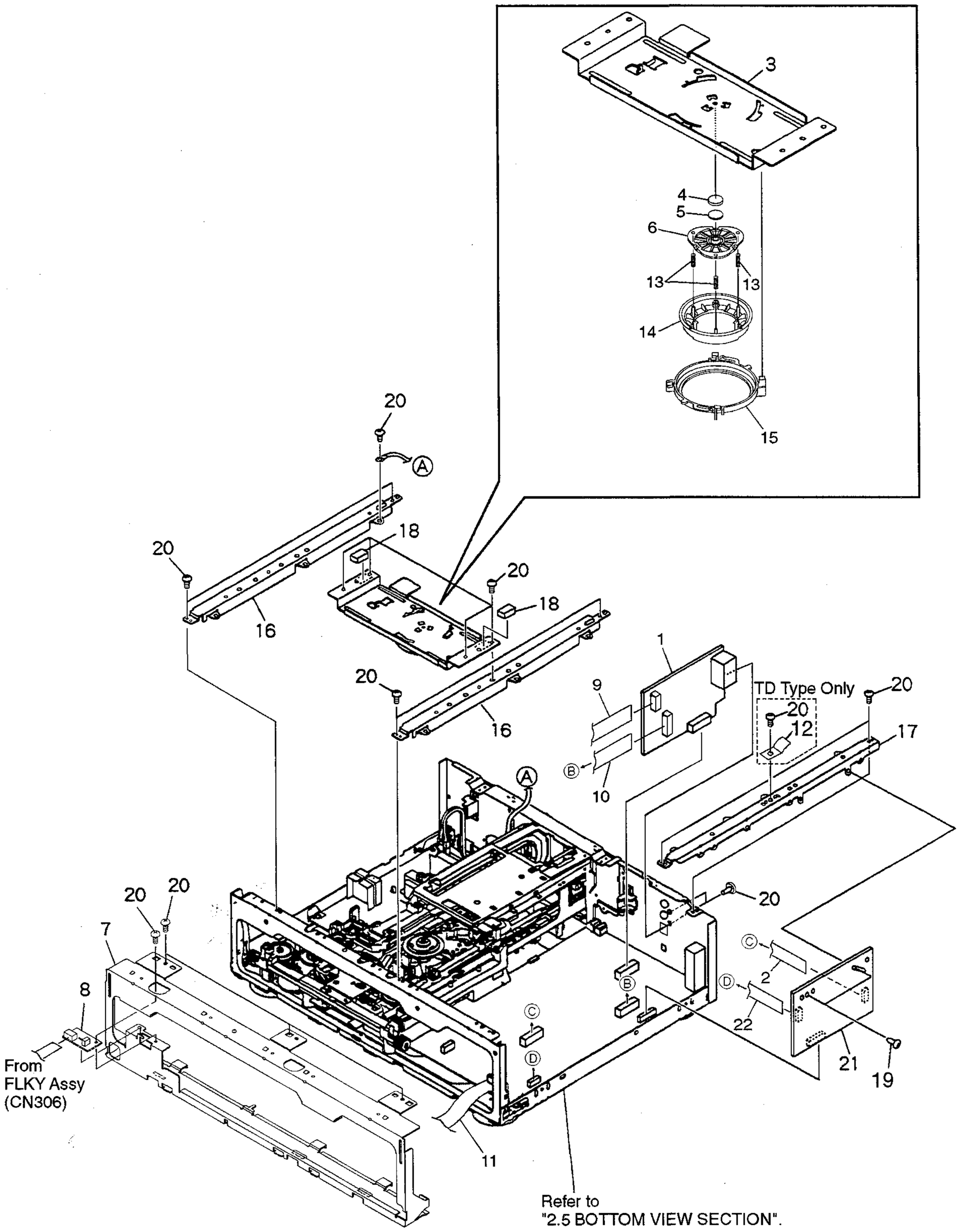
Mark	No.	Description	Part No.
	1	Rear Cover	See Contrast table (2)
NSP	2	Getter	VRW1676
	3	Lock Plate Spring	VBH1188
	4	Bonnet Case S	See Contrast table (2)
	5	•••••	
	6	Lock Pin Spring	VBH1292
	7	Valve Spring	VBH1293
	8	Disc Pad (C)	See Contrast table (2)
	9	Cushion	See Contrast table (2)
	10	Damp Cushion	VEC1683
	11	Guide Plate (L)	VNE2100
	12	Guide Plate (R)	VNE2101
	13	CD Guide I	VNE2102
	14	CD Guide Z	VNE2103
	15	LD Tray Assy	See Contrast table (2)
	16	CD Tray A	See Contrast table (2)
	17	CD Tray B	See Contrast table (2)
	18	Door Holder	VNL1697
	19	T18 Gear	VNL1772
	20	Tray Base	See Contrast table (2)
	21	Lock Plate	VNL1774
	22	Lock Pin	VNL1787
	23	Cam Valve	VNL1776
	24	Change Lever	VNL1777
	25	Center Lock	VNL1778
	26	Name Plate	See Contrast table (2)
	27	Tray Panel	See Contrast table (2)
	28	Screw	BBZ30P080FMC
	29	Screw	See Contrast table (2)
	30	Screw	IPZ20P060FMC
	31	Screw	IBZ30P080FMC
	32	Screw	BPZ30P080FMC
	33	Cushion	VEC1936
	34	Caution Label	See Contrast table (2)
	35	Caution Label (G)	See Contrast table (2)

(2) CONTRAST TABLE

CLD-210KVT/TAM, TL,CLD-210KVT-G/TAM and TD constructed the same except for the following :

Mark	No.	Symbol and Description	Part No.				Remarks
			CLD-210KVT /TAM	CLD-210KVT /TL	CLD-210KVT-G /TAM	CLD-210KVT-G /TD	
	1	Rear Cover	VNK4180	VNK4080	VNK4181	VNK4081	
	4	Bonnet Case S	VXX2494	VXX2494	VXX2555	VXX2555	
	8	Disc Pad (C)	VEC1380	VEC1380	VEC1545	VEC1545	
	9	Cushion	VEC1682	VEC1682	VEC1881	VEC1881	
	15	LD Tray Assy	VXA2325	VXA2325	VXA2342	VXA2342	
	16	CD Tray A	VNK4167	VNK4167	VNK4104	VNK4104	
	17	CD Tray B	VNK3970	VNK3970	VNK4105	VNK4105	
	20	Tray Base	VNL1786	VNL1786	VNL1785	VNL1785	
	26	Name Plate	PAM1704	PAM1704	VAM1067	VAM1067	
	27	Tray Panel	VNK4075	VNK4075	VNK4074	VNK4074	
	29	Screw	BCZ40P060FZK	BCZ40P060FZK	BCZ40P060FNI	BCZ40P060FNI	
	34	Caution Label	PRW1018	PRW1018	PRW1018	Not used	
	35	Caution Label (G)	VRW-329	VRW-329	VRW-329	Not used	

2.3 TOP VIEW SECTION



(1) PARTS LIST

Mark	No.	Description	Part No.
	1	KARAB Assy	VWV1553
	2	Housing Assy (3P)	VKP2145
		(VCDB CN202-MOTHER CN702)	
	3	Center Plate	VNE2099
	4	Rubber Mat	VEB1114
	5	Thrust Holder	VNL1663
	6	Clamper Head	VNL1649
NSP	7	Plus Holder	VNE2120
NSP	8	MSWB Assy	VWV1554
	9	Flexible Cable (9P)	VDA1630
		(KARAB CN104-FLKY CN304)	
	10	Flexible Cable (13P)	VDA1628
		(KARAB CN103-MOTHER CN202)	
	11	Flexible Cable (20P)	VDA1629
		(MOTHER CN107-FLKY CN301)	
	12	Earth Plate	See Contrast table (2)
	13	Clamp Spring	VBH1192
	14	Clamper	VNL1648
	15	Clamper Holder	VNL1771
	16	Center Angle	VNE1965
NSP	17	PCB Holder	VNE2087
NSP	18	Damp Cushion	VEC1602
	19	Screw	IBZ30P080FMC
	20	Screw	BBZ30P080FMC
	21	VCDB Assy	VWV1550
	22	Housing Assy	See Contrast table (2)

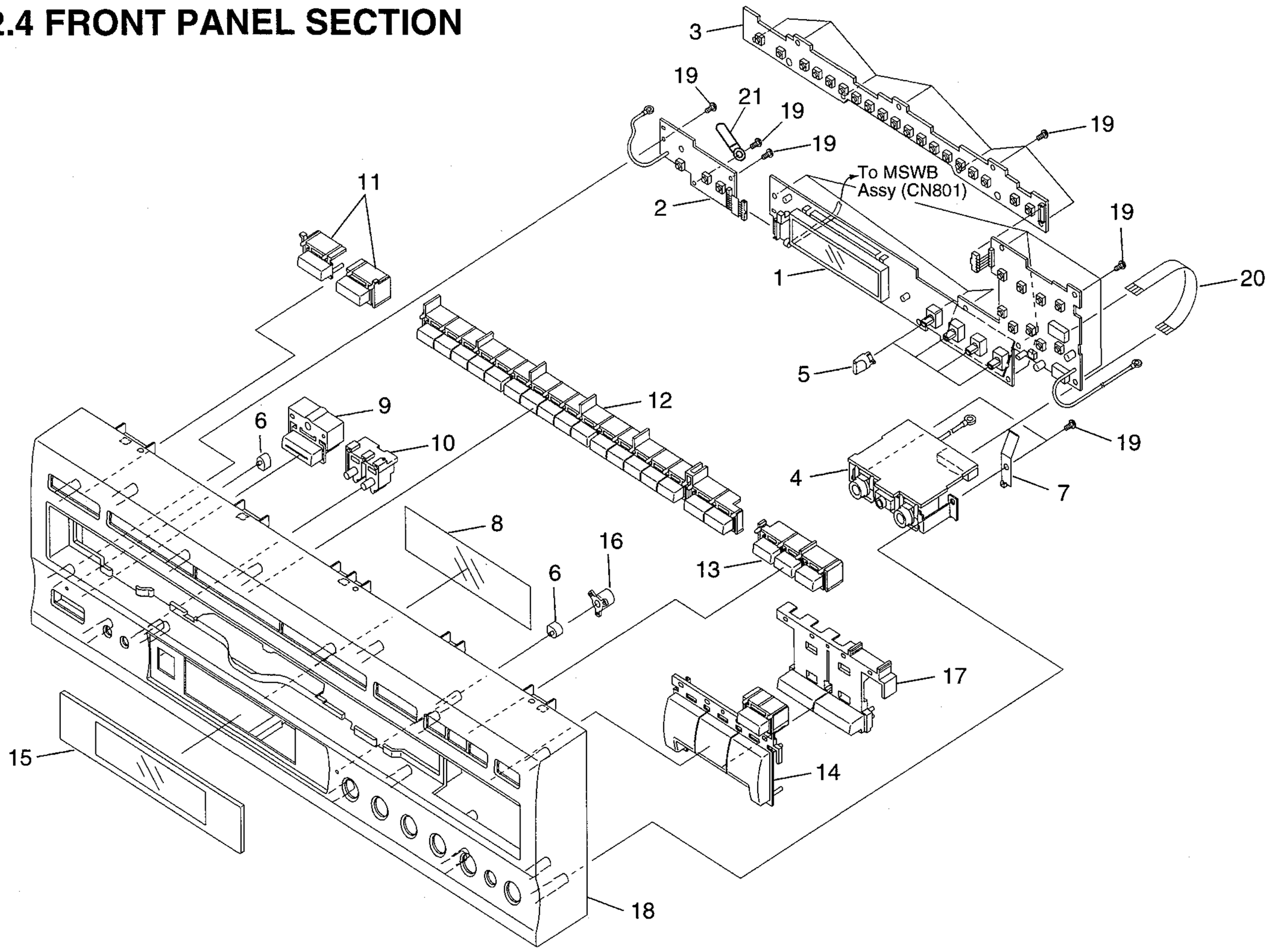
(2) CONTRAST TABLE

CLD-210KVT/TAM, TL,CLD-210KVT-G/TAM and TD constructed the same except for the following :

Mark	No.	Symbol and Description	Part No.				Remarks
			CLD-210KVT /TAM	CLD-210KVT /TL	CLD-210KVT-G /TAM	CLD-210KVT-G /TD	
	12	Eart Plate	Not used	Not used	Not used	VNE1518	
	22	Housing Assy	PG05KK-F20	PG05KK-F20	PG05KK-F20	VKP2146	

CLD-210KVT,
CLD-210KVT-G

2.4 FRONT PANEL SECTION



(1) PARTS LIST

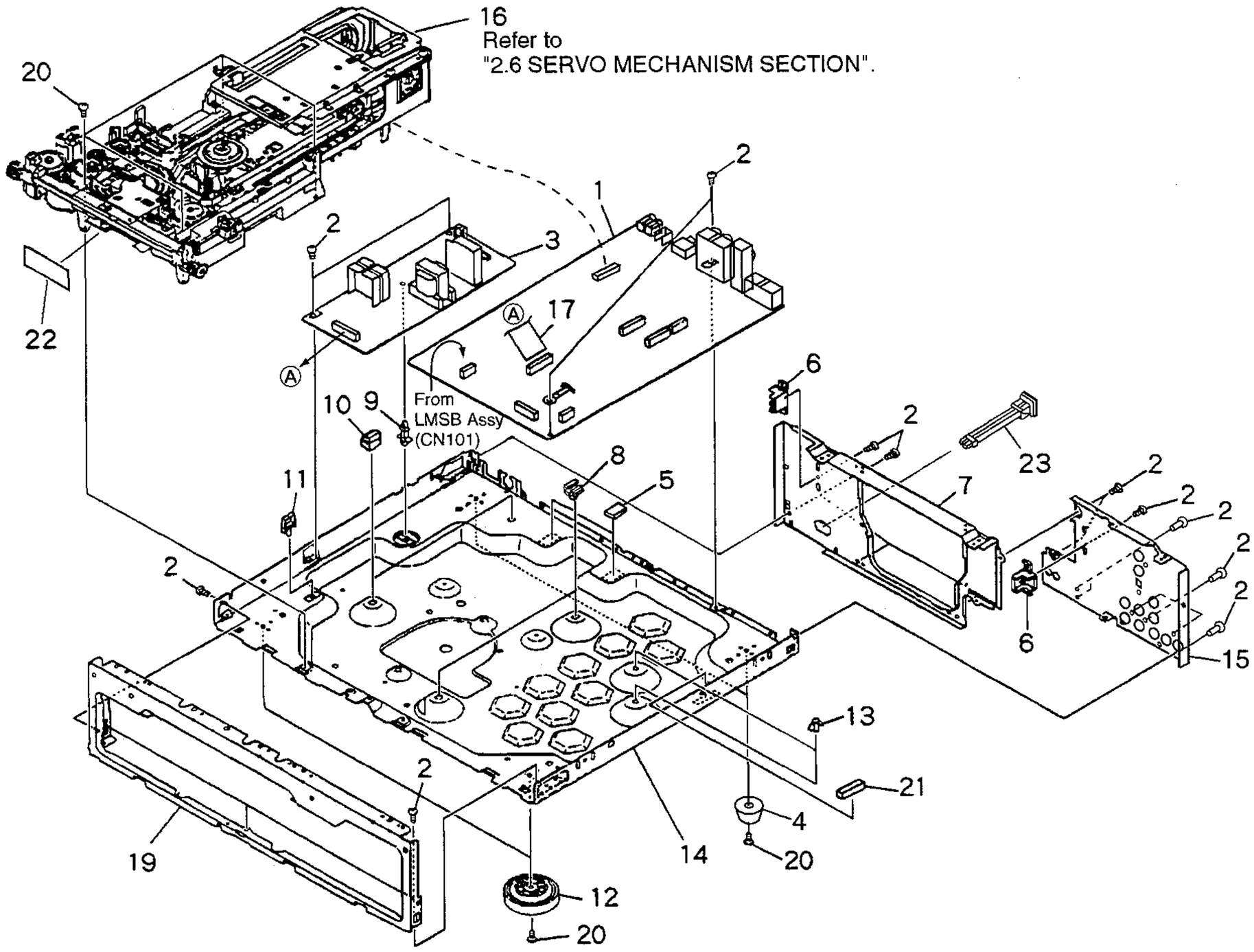
Mark	No.	Description	Part No.
	1	FLKY Assy	VWG1838
NSP	2	PONB Assy	VWG1839
	3	DIKB Assy	VWG1840
	4	JACB Assy	VWV1552
	5	Knob	See Contrast table (2)
	6	LED Lens	PNW2019
	7	Earth Plate	VBK1070
	8	FL Filter	See Contrast table (2)
	9	Power Button	See Contrast table (2)
	10	L Key C	VNK3070
	11	Side Key	VNK4044
	12	17 Key	See Contrast table (2)
	13	VCD Key	VNK4046
	14	Main Key	See Contrast table (2)
	15	FL Lens	VNK4048
	16	Lens Holder	VNK4049
	17	Skip Key	See Contrast table (2)
	18	Front Panel	See Contrast table (2)
	19	Screw	BBZ30P080FMC
	20	Flexible Cable (7P)	VDA1633
NSP	21	Cord Stopper	ZCB-069Z

(2) CONTRAST TABLE

CLD-210KVT/TAM, TL,CLD-210KVT-G/TAM and TD constructed the same except for the following :

Mark	No.	Symbol and Description	Part No.				Remarks
			CLD-210KVT /TAM	CLD-210KVT /TL	CLD-210KVT-G /TAM	CLD-210KVT-G /TD	
	5	Knob	PAC1707	PAC1707	PAC1745	PAC1745	
	8	FL Filter	VEC1948	VEC1948	VEC1910	VEC1910	
	9	Power Button	VNK2329	VNK2329	VNK2355	VNK2355	
	12	17 Key	VNK4045	VNK4045	VNK4076	VNK4076	
	14	Main Key	VNK4047	VNK4047	VNK4077	VNK4077	
	17	Skip Key	VNK4050	VNK4050	VNK4079	VNK4079	
	18	Front Panel	VNK4082	VNK4082	VNK4051	VNK4051	

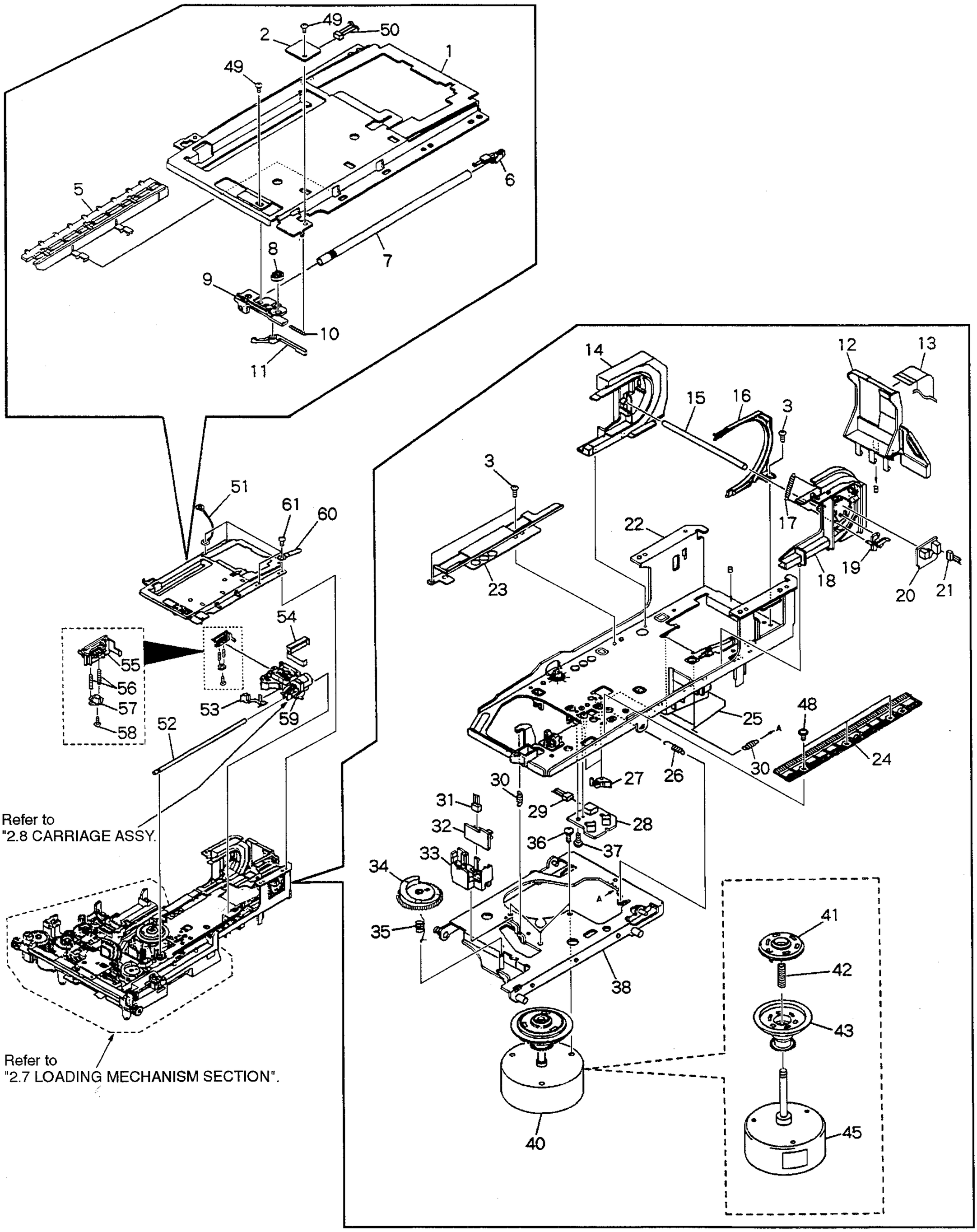
2.5 BOTTOM VIEW SECTION



Parts List

Mark	No.	Description	Part No.
	1	MOTHER Assy	VWS1310
	2	Screw	BBZ30P080FMC
⚠	3	POWER SUPPLY Assy	VWR1267
	4	Insulator	VXA2295
NSP	5	Rubber Spacer	VEB1252
	6	Tray Stopper	VNL1657
	7	Rear Panel (R)	VNA1872
NSP	8	P. Plate Holder	PNY-405
NSP	9	PC Support	VEC-269
	10	PCB Hinge	VEC1174
NSP	11	Wire Clip (H)	VEC1181
	12	Insulator	PNW1912
	13	Card Spacer A	VEC1708
NSP	14	Chassis	VNA1461
	15	Rear Panel (L)	VNA1871
NSP	16	Mechanism Assy	VWT1131
	17	Flexible Cable (21P) (MOTHER CN102-POWER SUPPLY CN3)	VDA1632
	18	•••••	
NSP	19	Panel Holder	VNA1835
	20	Screw	BBZ30P100FMC
	21	Spacer	REB1171
NSP	22	Sheet	VEC1927
⚠	23	AC Inlet Assy	VKP2116

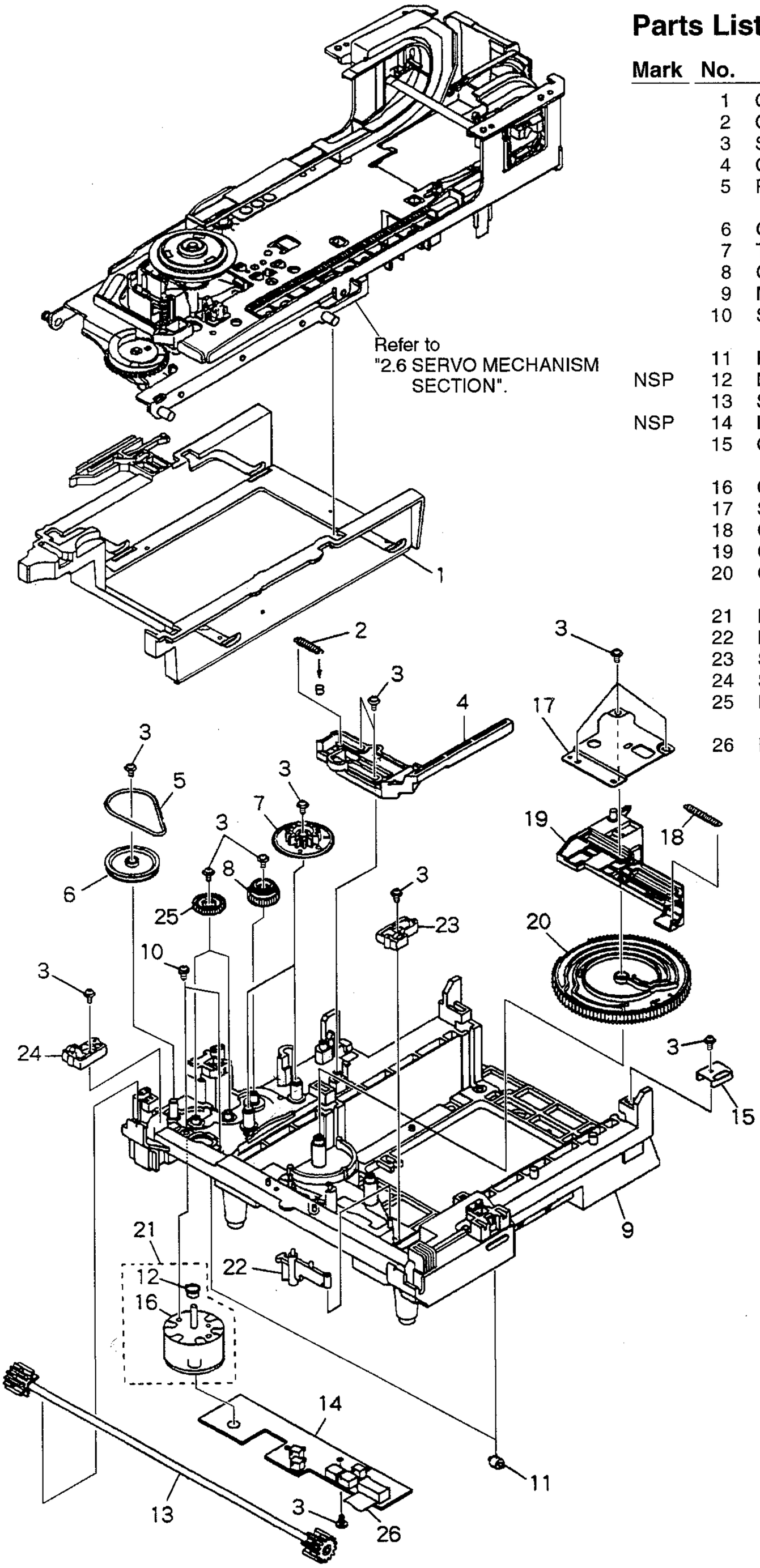
2.6 SERVO MECHANISM SECTION



Parts List

Mark	No.	Description	Part No.
	1	Tilt Base (upper)	VNE1969
NSP	2	BISB Assy	VWG1558
	3	Screw	BBZ30P060FMC
	4	•••••	
	5	Rack (Upper)	VNL1679
	6	Shaft Stay	VNL1671
	7	Carriage Shaft (upper)	VLL1478
	8	B Cam	VNL1673
	9	Shaft Support	VNL1672
	10	Support Spring	VBH1265
	11	SW Lever (B)	VNL1678
	12	Large hill	VNL1682
	13	Flexible Cable (23P)	VDA1528
	14	Turn Guide	VNL1701
	15	FFC Style Shaft	VLL1474
	16	Guide	VNL1674
	17	Lever Spring	VBH1266
	18	Turn Gear	VNL1702
	19	SW Lever (T)	VNL1695
NSP	20	TNSB Assy	VWG1557
	21	Housing Assy (3P, Black)	VKP2059
	22	Tilt Base (Under)	VNL1670
	23	TAN Guide	VNE1973
	24	CA Rack	VNL1647
	25	FFC Style Spring	VBH1270
	26	Thrust Spring	VBH1245
	27	CA-SW Lever	VNL1644
NSP	28	PKSB Assy	VWG1555
	29	Housing Assy (3P, Blue)	VKP2045
	30	Tilt Spring	VBH1263
	31	Housing Assy (3P, Yellow)	VKP2046
NSP	32	FG Assy	VWG1556
	33	FG Base	VNL1781
	34	Tilt Cam	VNL1643
	35	Tilt Cam Spring	VBH1243
	36	Screw	PMA30P050FMC
	37	Screw	IBZ26P120FMC
	38	Motor Base	VNE1941
	39	•••••	
	40	Spindle Motor Assy	VXA2271
	41	PRC Hub	VNL1684
	42	Centering Spring	VBH1269
NSP	43	R Turn Table Assy	VXA2225
	44	•••••	
NSP	45	Spindle Motor	VXM1057
	46	•••••	
	47	•••••	
	48	Screw	IBZ26P060FMC
	49	Screw	BPZ20P040FZK
	50	Housing Assy (2P, Red)	VKP2060
NSP	51	Earth Lead Unit	DE007VF0
	52	Carriage Shaft (Under)	VLL1493
	53	Body Guard	VNL1681
	54	FFC Holder	VNL1706
	55	CA Guide	VNL1668
	56	TAN Spring (B)	VBH1264
	57	TAN Lever (B)	VNL1669
	58	Screw	PMZ20P060FZK
	59	Carriage Assy	VWT1141
NSP	60	Cord Binder	ZCB-069Z
	61	Screw	BBZ30P080FMC

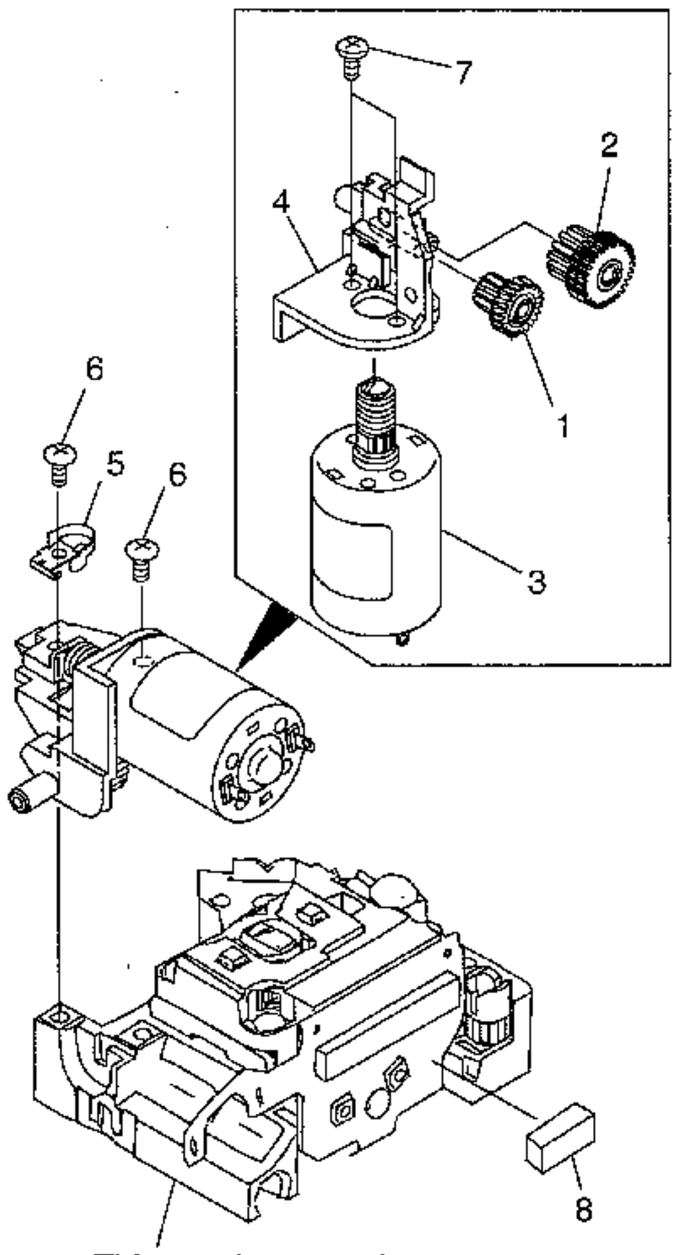
2.7 LOADING MECHANISM SECTION



Parts List

Mark	No.	Description	Part No.
	1	Clamp Cam	VNL1633
	2	CDP Spring	VBH1191
	3	Screw	Z39-019
	4	CD Plate	VNL1685
	5	Rubber Belt	VEB1184
	6	Gear Pulley	VNL1662
	7	Twin Gear	VNL1626
	8	Center Gear	VNL1660
	9	Mechanism Base	VNK3239
	10	Screw	BMZ26P040FMC
	11	Roller	VNL1042
NSP	12	Motor Pulley	VNL1630
	13	Synchro Gear Assy	VXA2105
NSP	14	LMSB Assy	VWG1612
	15	Cam Holder	VNE2032
	16	Carriage Motor	VXM1033
	17	Shaft Holder	VNE1942
	18	CAS Spring	VBH1190
	19	Cam Plate	VNL1631
	20	Cam Gear	VNL1625
	21	Loading Motor Assy	VXX2045
	22	MB-SW Lever	VNL1664
	23	Slider (R)	VNL1666
	24	Slider (L)	VNL1665
	25	Double Gear	VNL1661
	26	Flexible Cable (12P)	VDA1485

2.8 CARRIAGE ASSY



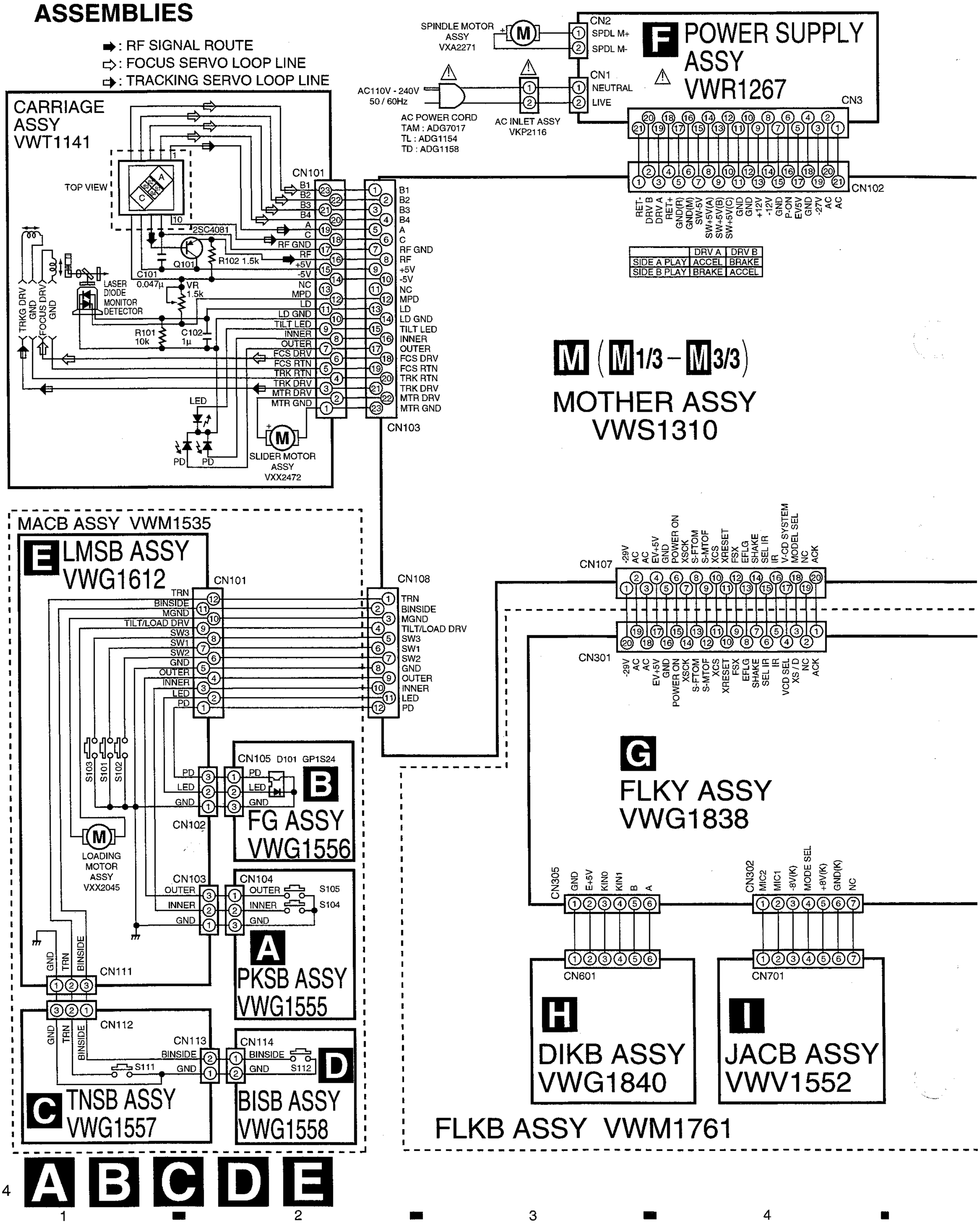
This part is no service part.

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	VEC1945

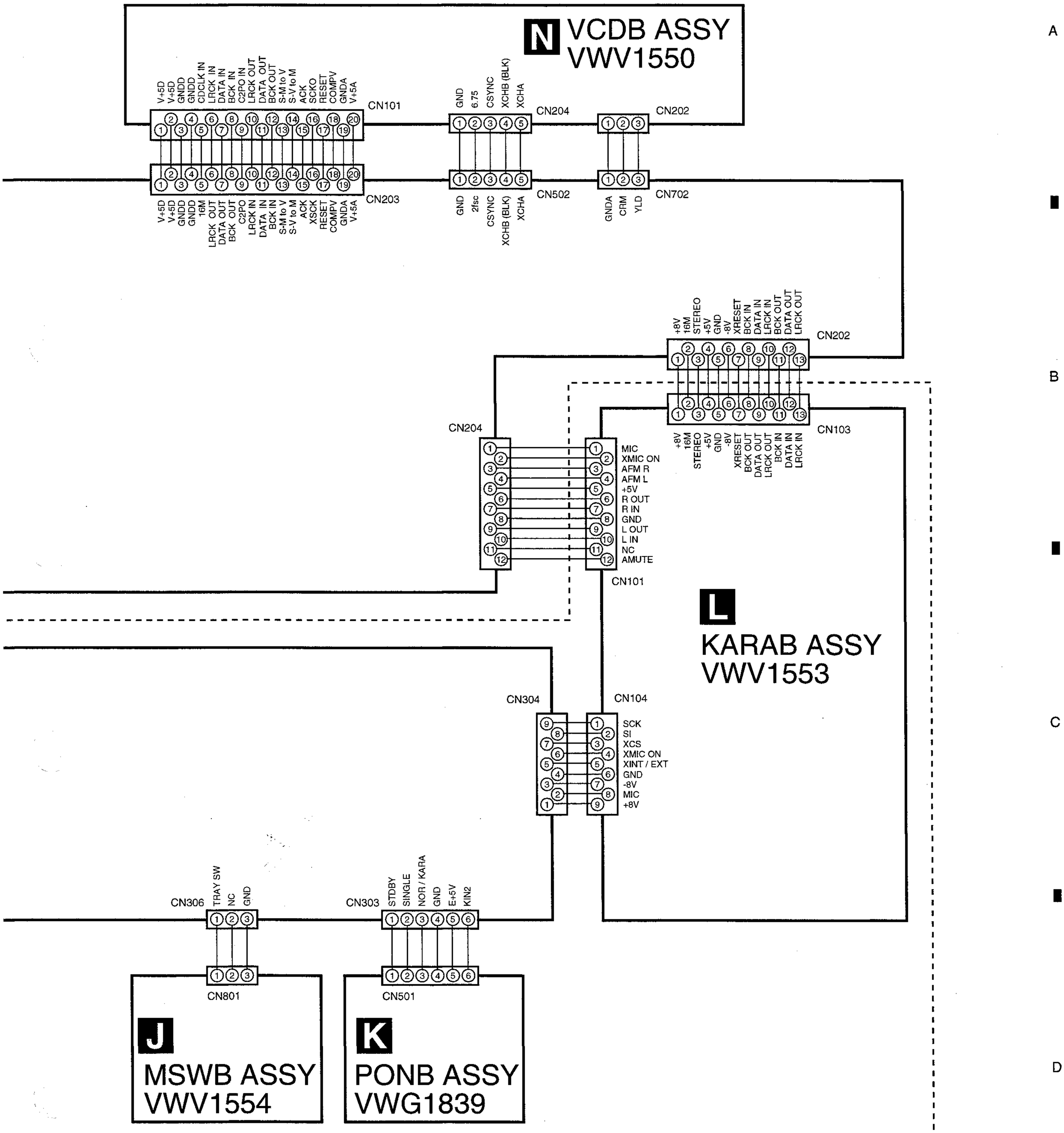
3. SCHEMATIC DIAGRAM

3.1 OVERALL CONNECTIONS, PKSB, FG, TNSB, BISB, LMSB AND CARRIAGE ASSEMBLIES



CLD-210KVT, CLD-210KVT-G

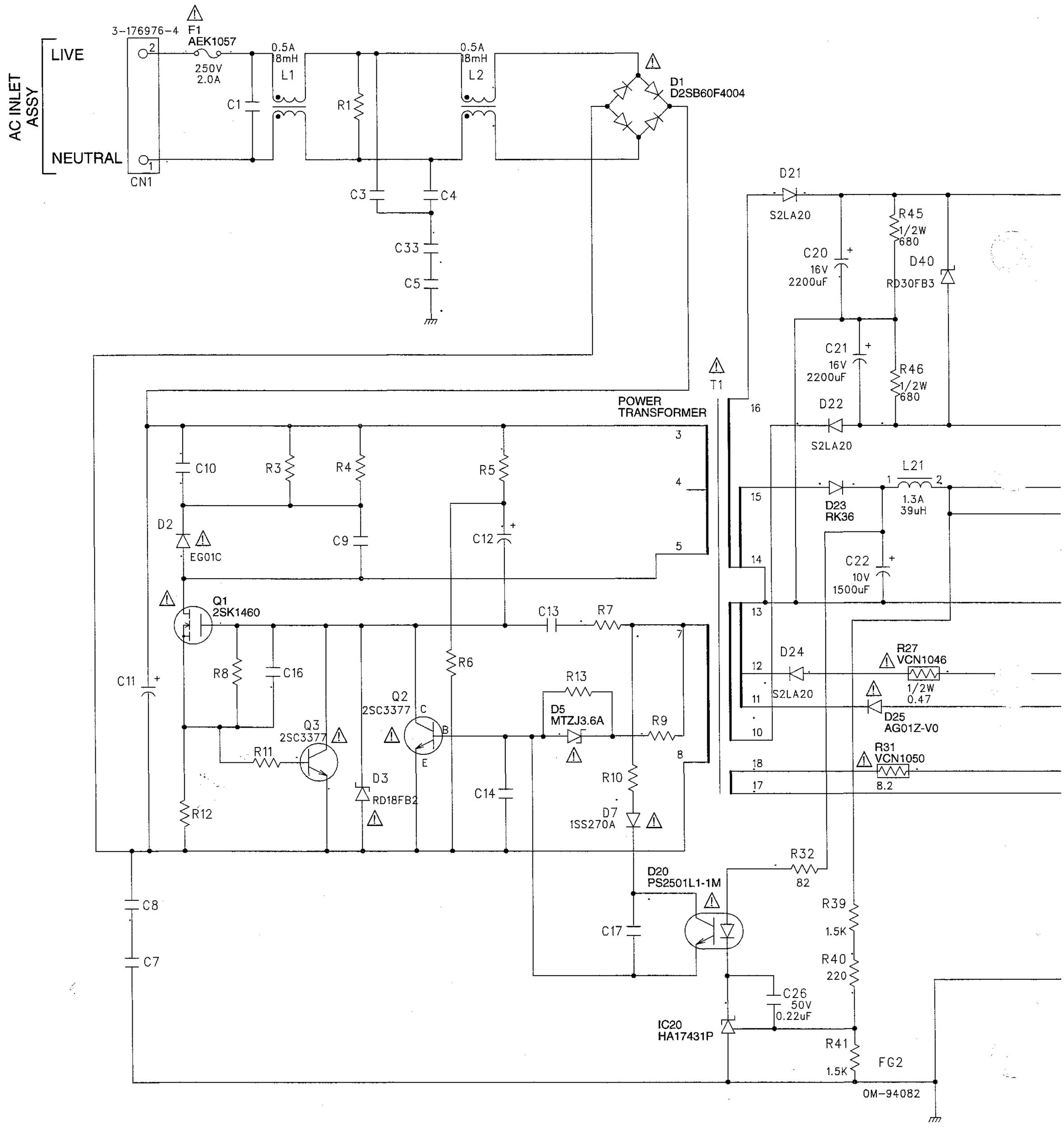
Note : When ordering service parts, be sure to refer to "EXPLODED VIEWS and PARTS LIST" or "PCB PARTS LIST".



CLD-210KVT, CLD-210KVT-G

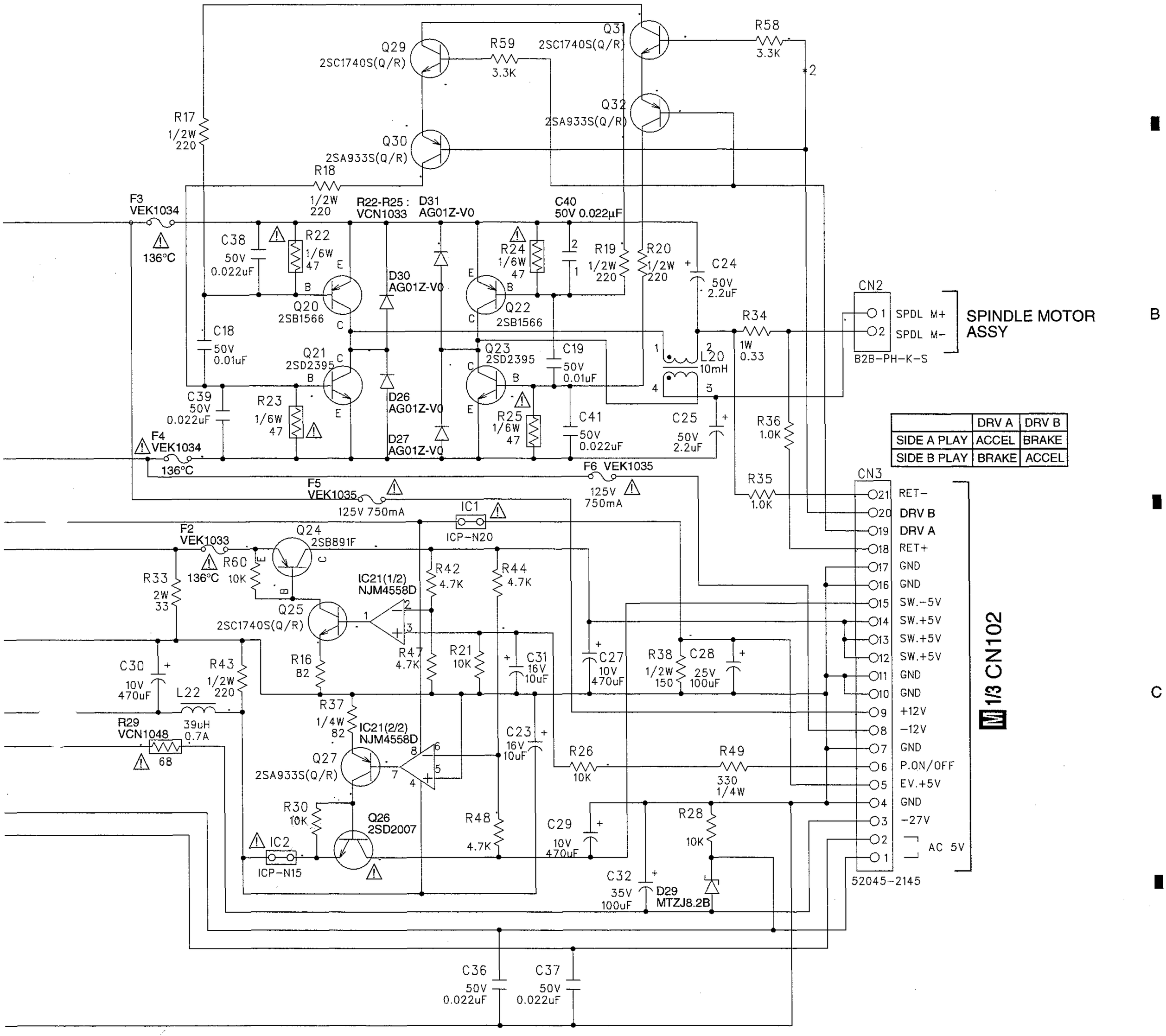
3.2 POWER SUPPLY ASSY

F POWER SUPPLY ASSY (VWR1267)



《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.



	DRV A	DRV B
SIDE A PLAY	ACCEL	BRAKE
SIDE B PLAY	BRAKE	ACCEL

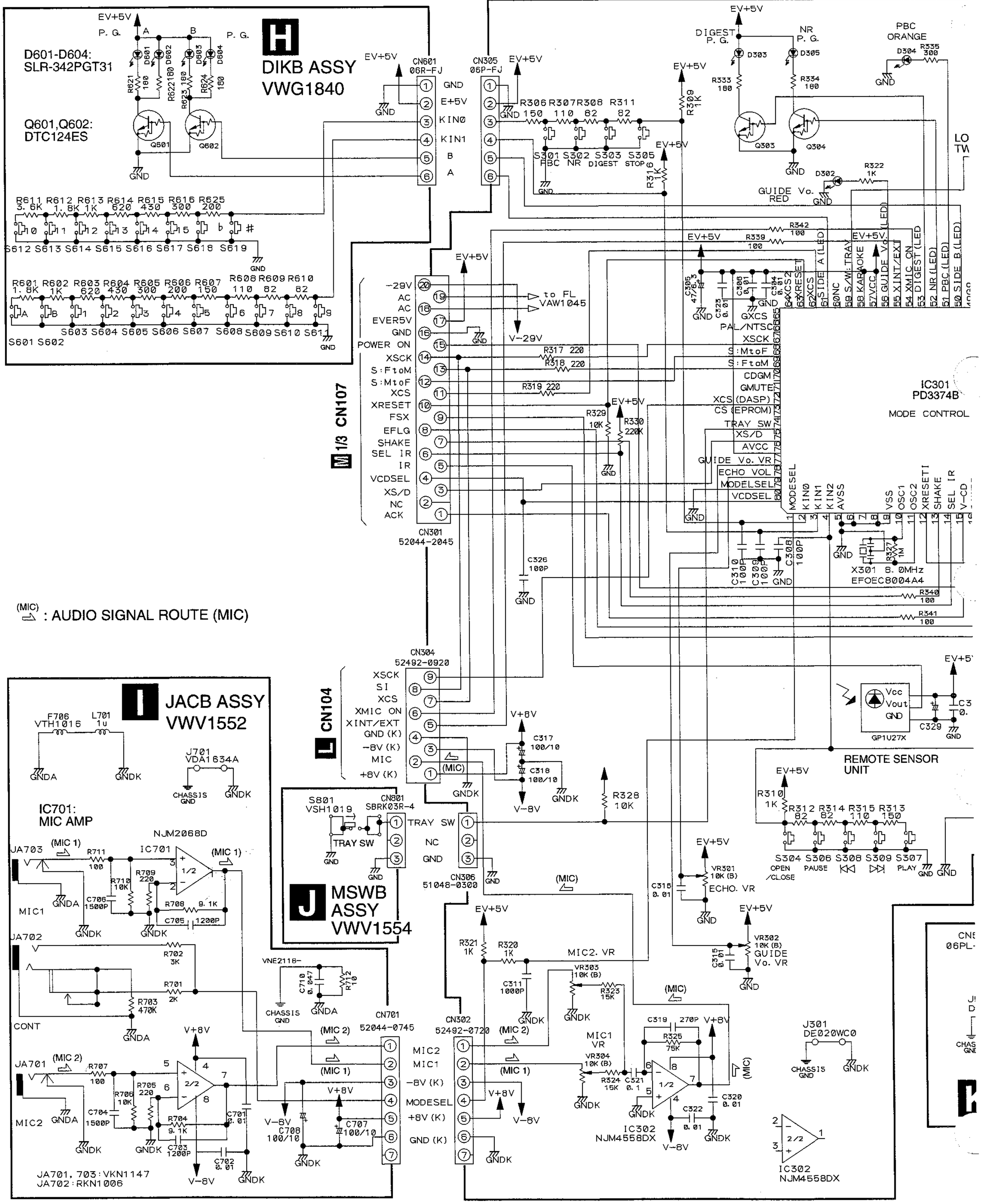
CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ONLY WITH SAME TYPE NO. ICP-N15, MFD BY ROHM CO., LTD. FOR IC2.

CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ONLY WITH SAME TYPE NO. ICP-N20, MFD BY ROHM CO., LTD. FOR IC1.

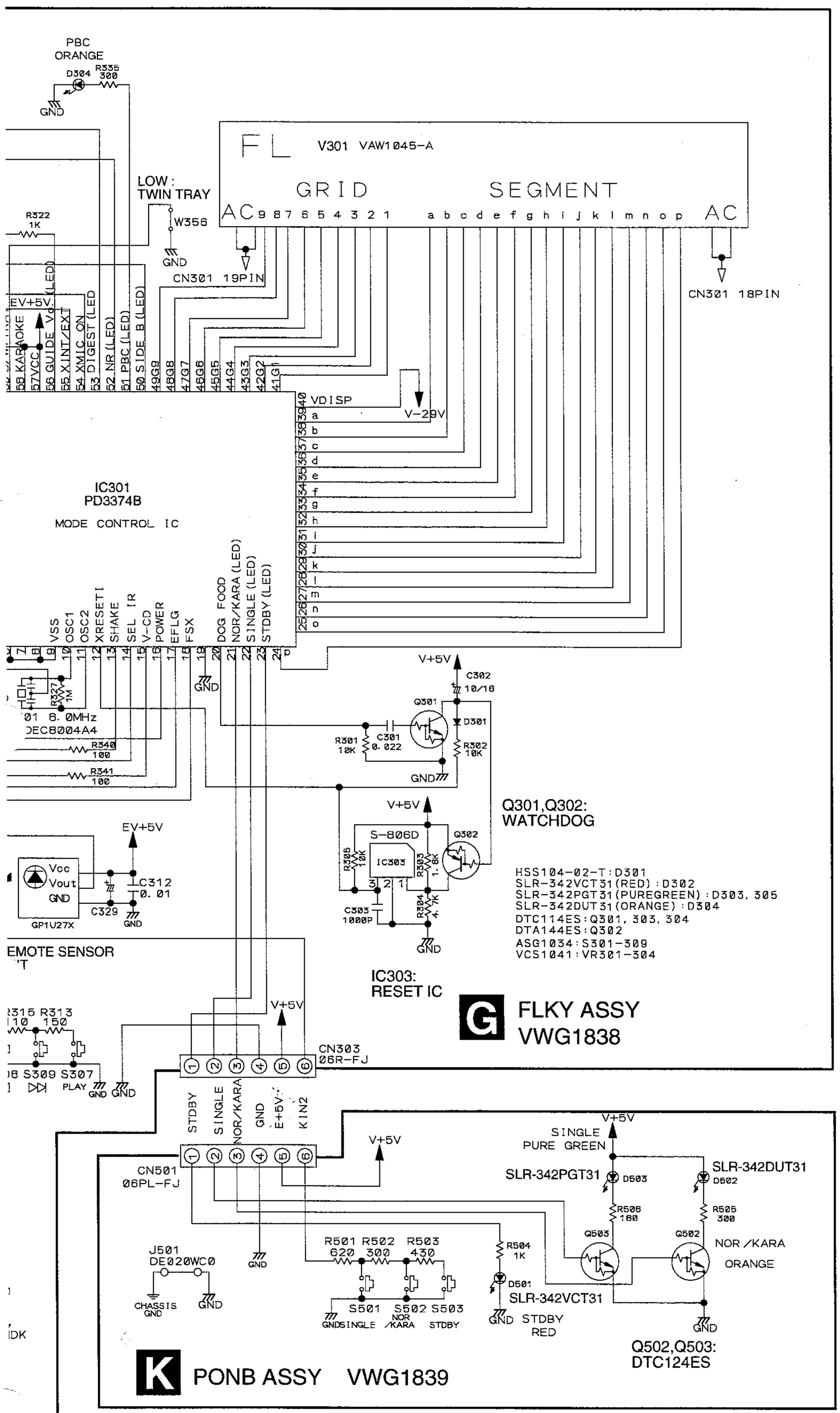
- NOTE FOR FUSE REPLACEMENT

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

3.3 FLKY, DIKB, JACB, MSWB AND PONB ASSEMBLIES



CLD-210KVT, CLD-210KVT-G



● Switches
(Underline Indicates switch position):

FLKY ASSY

- S301 : PBC
- S302 : V-NR
- S303 : DIGEST

] VIDEO CD FUNCTION

- S304 : OPEN/CLOSE (⏏)
- S305 : STOP (■)
- S306 : PAUSE (⏸)
- S307 : PLAY (▶)
- S308 : PREV (⏮)
- S309 : NEXT (⏭)

DIKB ASSY

- S601 : A
- S602 : B

] DISC SIDE

- S603 : 1
- S604 : 2
- S605 : 3
- S606 : 4
- S607 : 5
- S608 : 6
- S609 : 7
- S610 : 8
- S611 : 9
- S612 : 10
- S613 : 11
- S614 : 12
- S615 : 13
- S616 : 14
- S617 : 15
- S618 : ♭
- S619 : ♯

] KEY CONTROL

PONB ASSY

- S501 : SINGLE PLAY
- S502 : KARAOKE MODE
- S503 :POWER STANDBY/ON

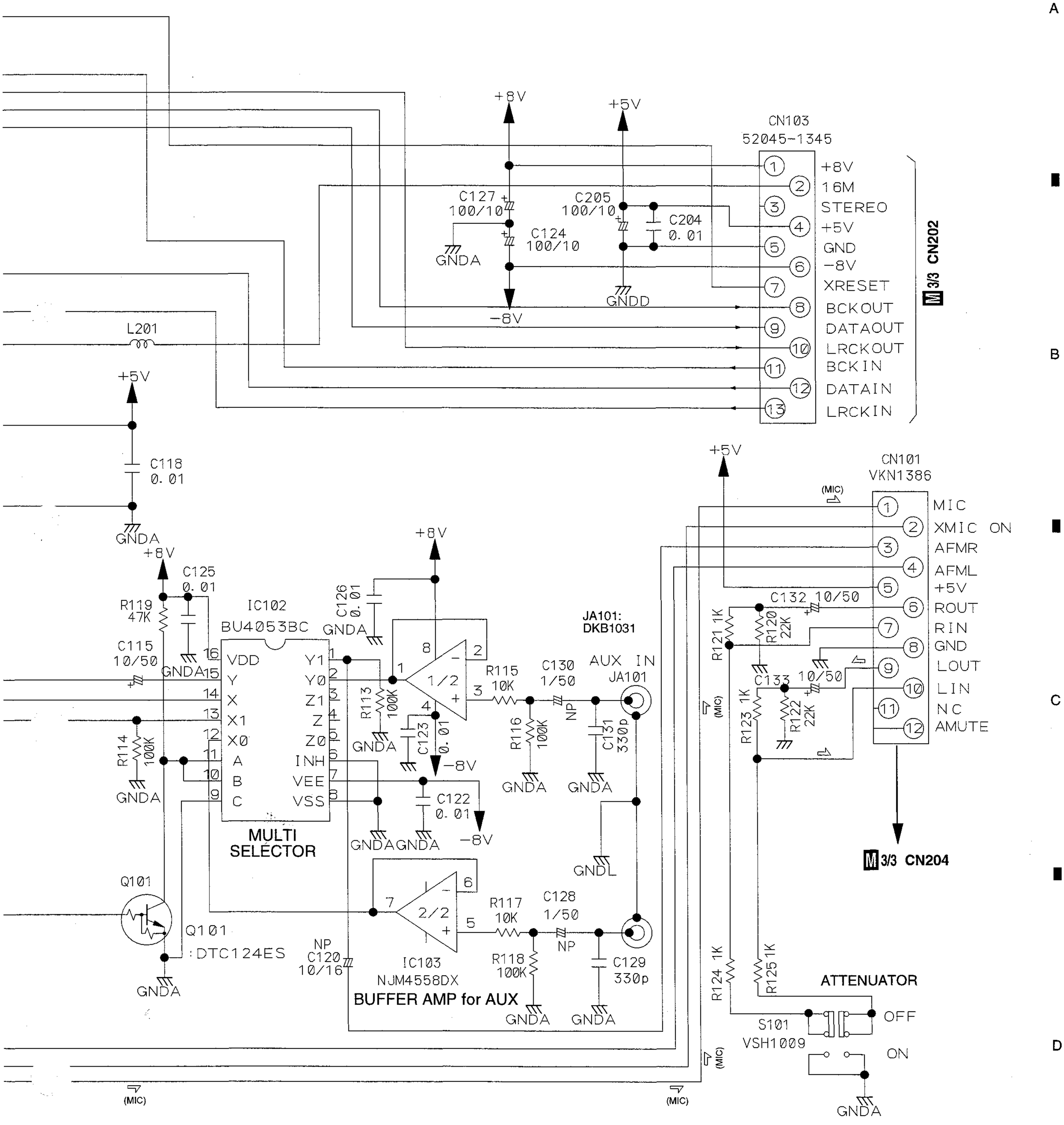
3.4 KARAB ASSY

KARAB ASSY
VWV1553

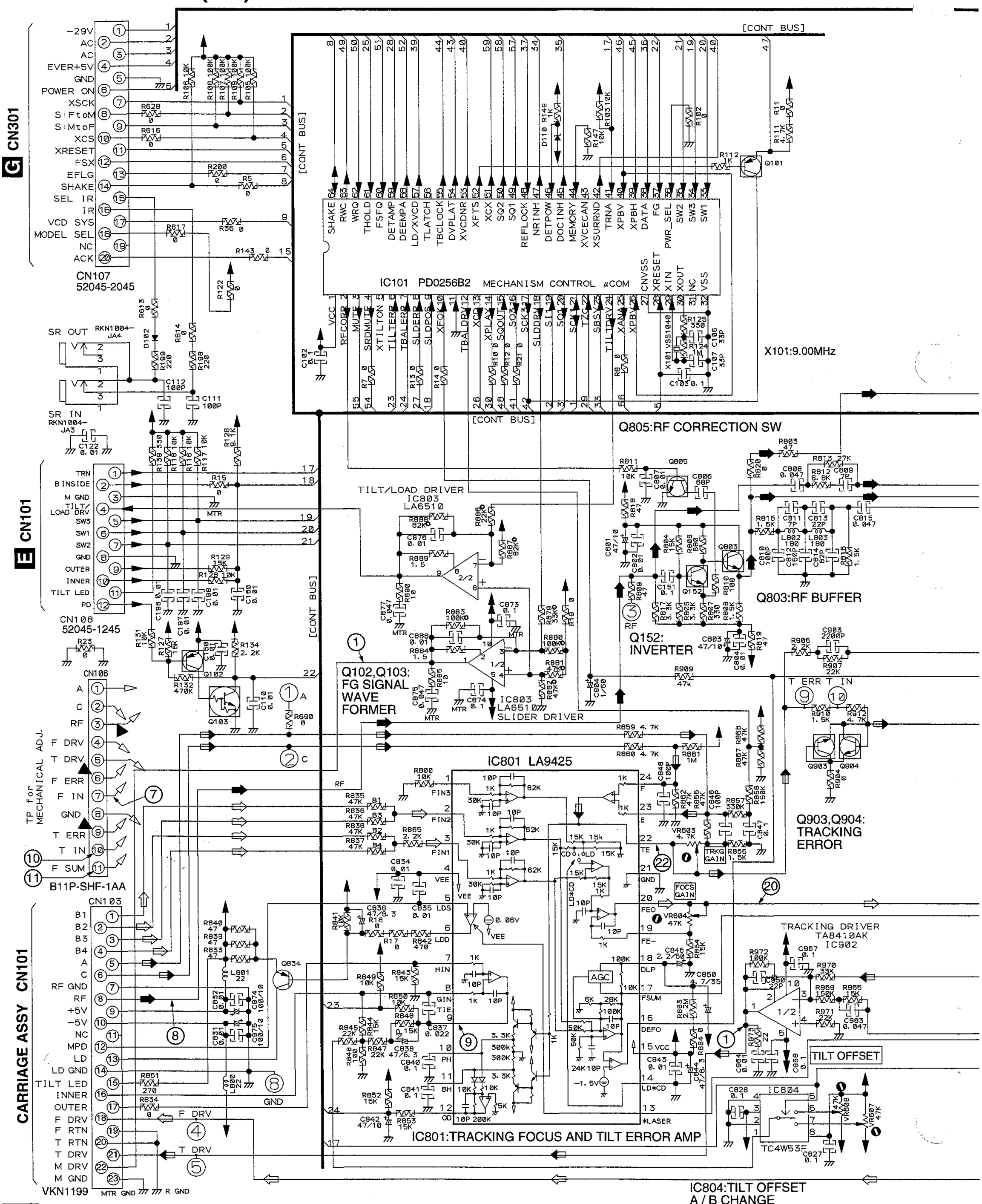
: AUDIO SIGNAL ROUTE

(MIC) : AUDIO SIGNAL ROUTE (MIC)

CLD-210KVT, CLD-210KVT-G



3.5 MOTHER ASSY (1/3)



M 1/3

CLD-210KVT, CLD-210KVT-G

M 1/3

MOTHER ASSY (1/3)
VWS1310

➡ : RF SIGNAL ROUTE
⇨ : FOCUS SERVO LOOP LINE
➡ : TRACKING SERVO LOOP LINE

HSS104-02	D102
MTZJ5. 1 B/C	D110
MA11	D802, D963
2PB709A Q/R	Q101, Q102
2PD601A Q/R	Q805, Q903, Q904
DTC124EK	Q103, Q901, Q908
DTA124EK	Q918
2SA854S-T	Q834
2SC2412K Q/R	Q803
2SC3802K	Q152

52045-2145
CN102

F CN3

21	AC
20	AC
19	−29V
18	GND
17	EVER+5V
16	POWER ON
15	GND
14	−12V
13	+12V
12	GND
11	GND
10	SW+5V
9	SW+5V
8	SW+5V
7	SW−5V
6	GND (MTR)
5	GND (RTN)
4	RET+
3	DRV A
2	DRV B
1	RET−

	DRV A	DRV B
SIDE A PLAY	ACCEL	BRAKE
SIDE B PLAY	BRAKE	ACCEL

[CONT BUS] — M 2/3, 3/3
[SURVO BUS]
RF (VIDEO) — RF (VIDEO) M 2/3
[CONT BUS]
[SURVO BUS]

RF (EFM)
RF (AFM)
RF (LDD)

IC901
LA9430M

IC901:SERVO CONTROL IC

Q908:
GAIN CONTROL

F ERR F IN
F SUM
SPERR 10
GCONT 11
ACCONT 12
2fsc 13
PWMI 14
FR 15
XCD 26

FOCUS DRIVER
TA8410AK
IC902

IC905 (2/2)
BA4560F

IC905
BA4560F
I-V Converter

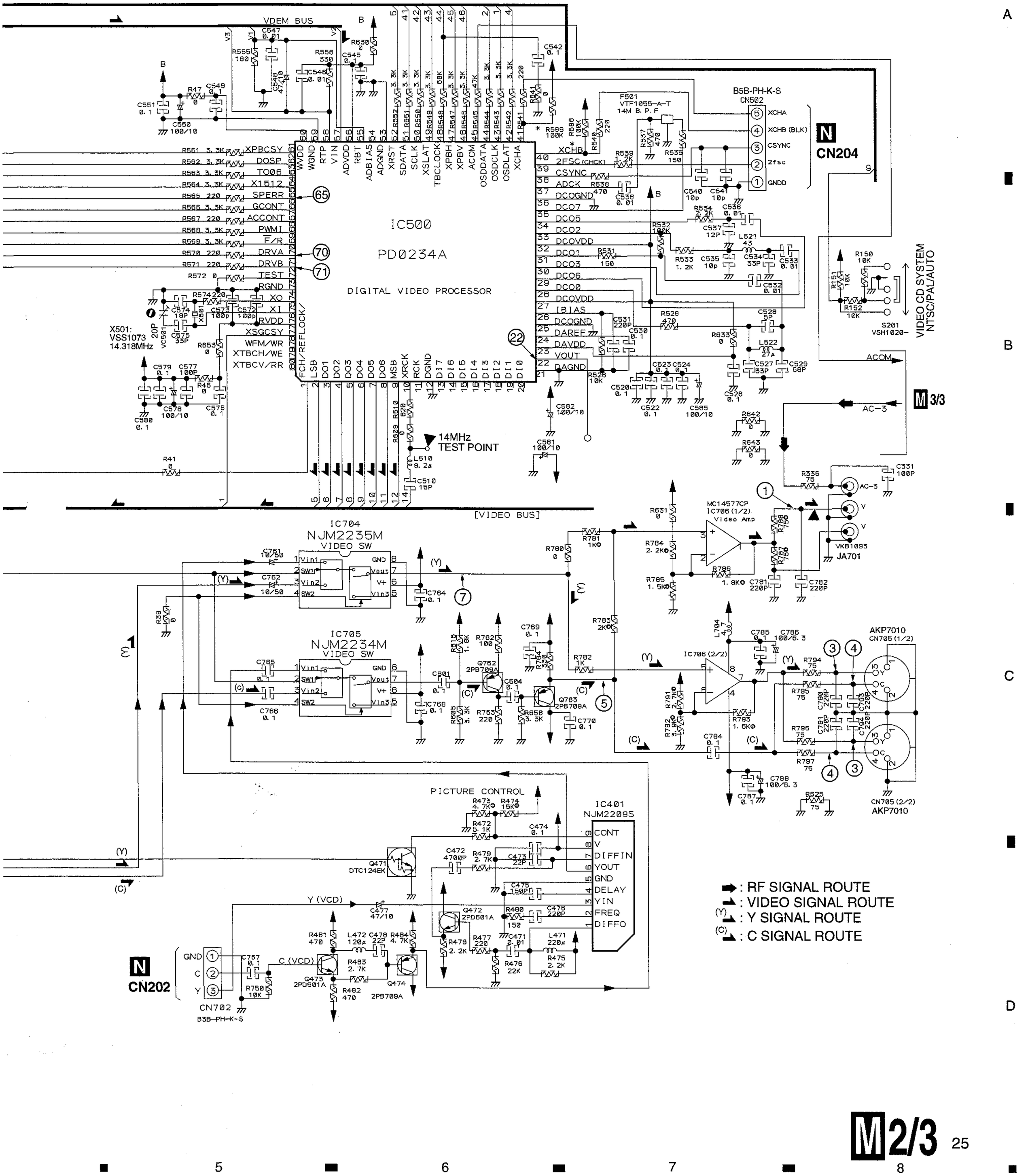
Q901
Q908
Q918

[SURVO BUS]
[CONT BUS]

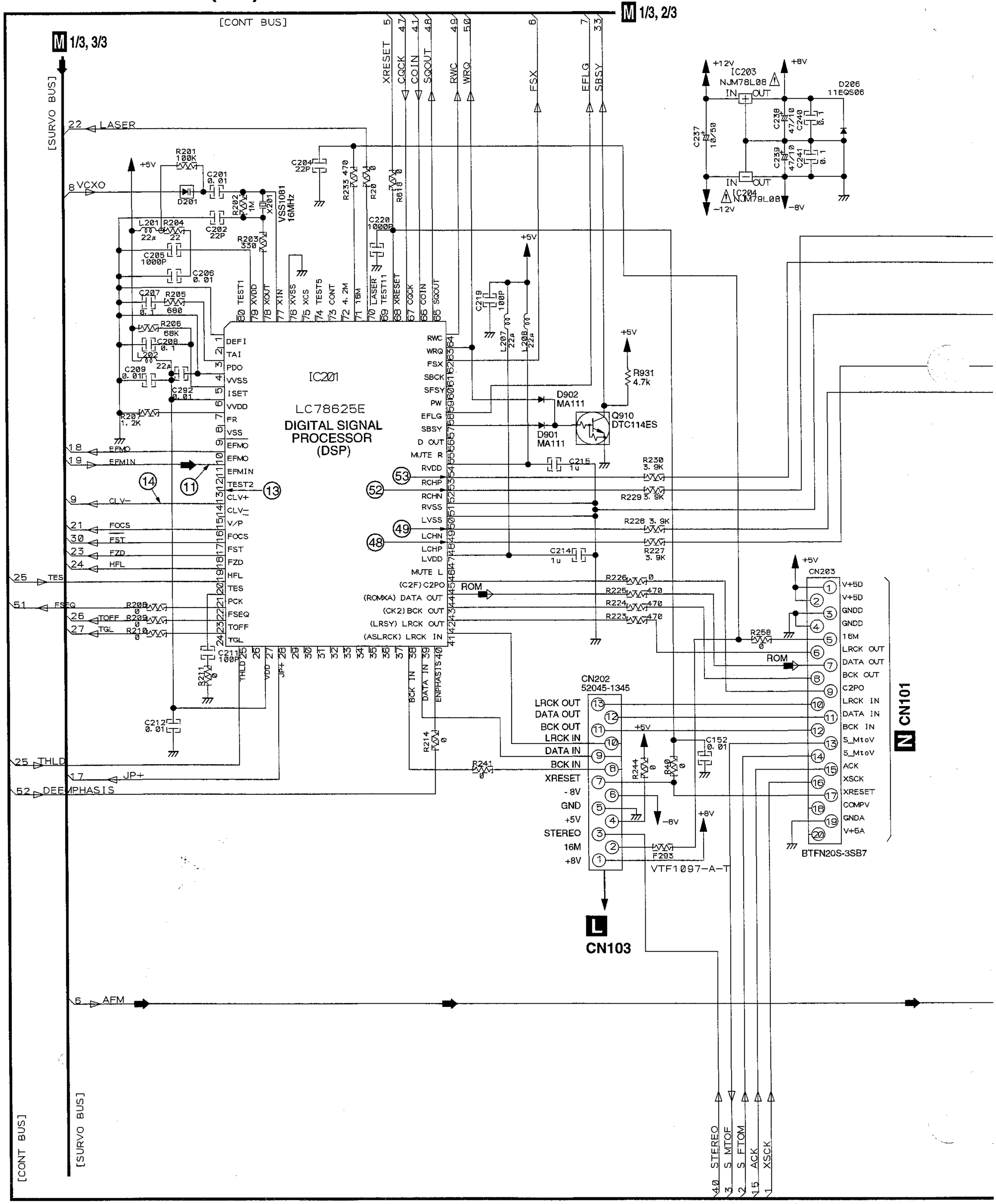
M 1/3

3.6 MOTHER ASSY (2/3)

CLD-210KVT, CLD-210KVT-G



3.7 MOTHER ASSY (3/3)



CLD-210KVT, CLD-210KVT-G

M 3/3 MOTHER ASSY (3/3) VWS1310

: RF SIGNAL ROUTE
: AUDIO SIGNAL ROUTE
(A) : AUDIO SIGNAL ROUTE (ANALOG)
(MIC) : AUDIO SIGNAL ROUTE (MIC)
ROM : ROM DATA SIGNAL ROUTE

L CN101

CN204 VKN1399
MIC
XMIC ON
AFMR
AFML
+5V
Rch OUT
Rch IN
GND
Lch OUT
Lch IN
NC
AUDIO MUTE

BA4560F IC202

R R OUT JA201 VKB1065-
L L OUT JA201 VKB1065-
CHASSIS GND
CHASSIS GND

Q201,Q203-Q205: AUDIO MUTE

Q206 - Q208: DIGITAL/ANALOG SWITCH

Q302 : AC-3 AMP

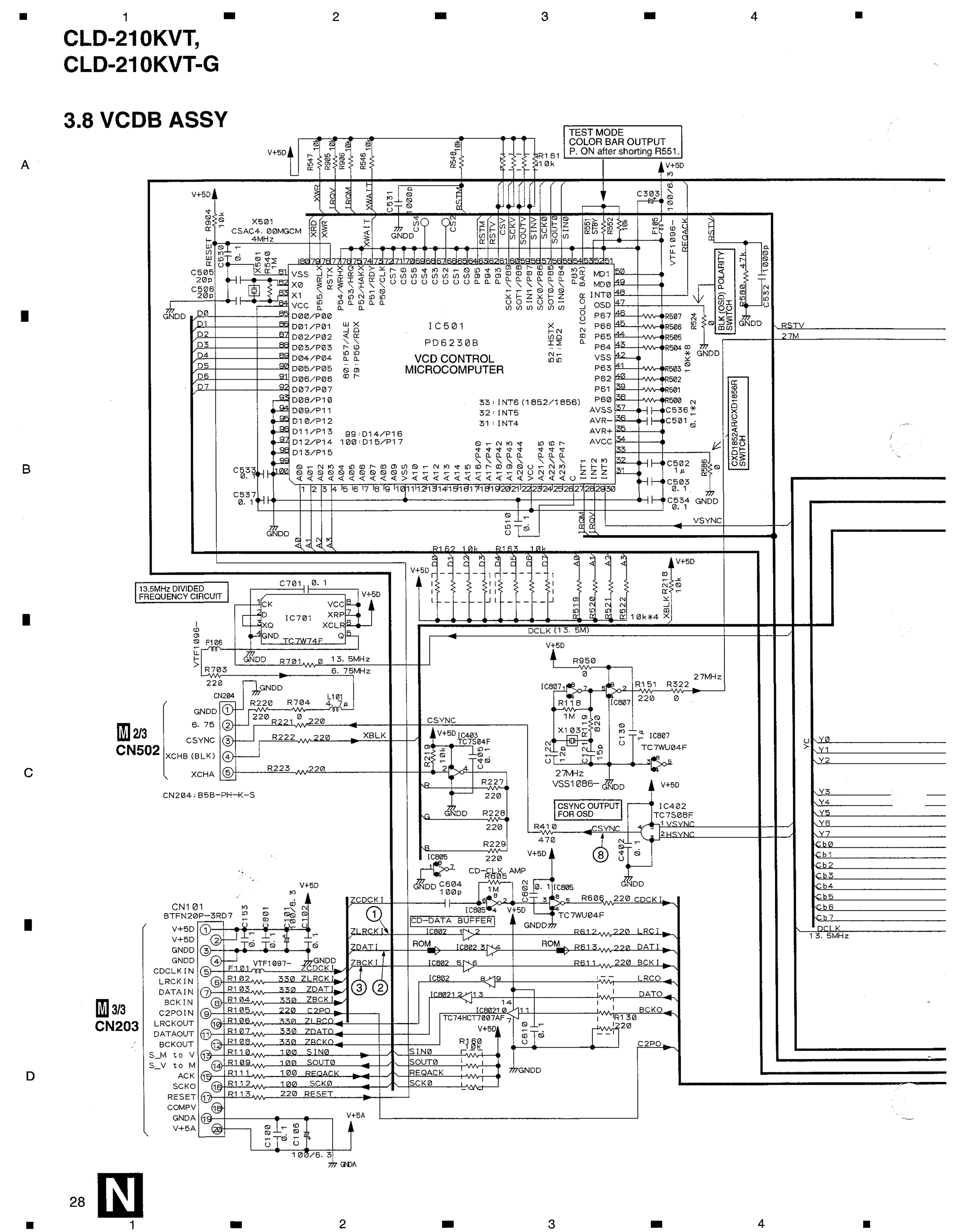
11EQS06	D206				
KV1851	D201				
2PD601A	Q207	Q208	Q301	Q302	Q304
2SD2114K	Q204	Q205	Q209		
DTA124EK	Q201	Q206	Q210	Q303	
DTC124EK	Q203				

IC301: FM AUDIO DECODER
IC301 CA0002AM

AC3 OUT
ACOM
AFM R
AFM L
AFM
V-5V
[CONT BUS]
54 AC3 MUTE
55 AUDIO MUTE
56 XANA
57 SQ1
58 SQ2
59 XCX

M 2/3

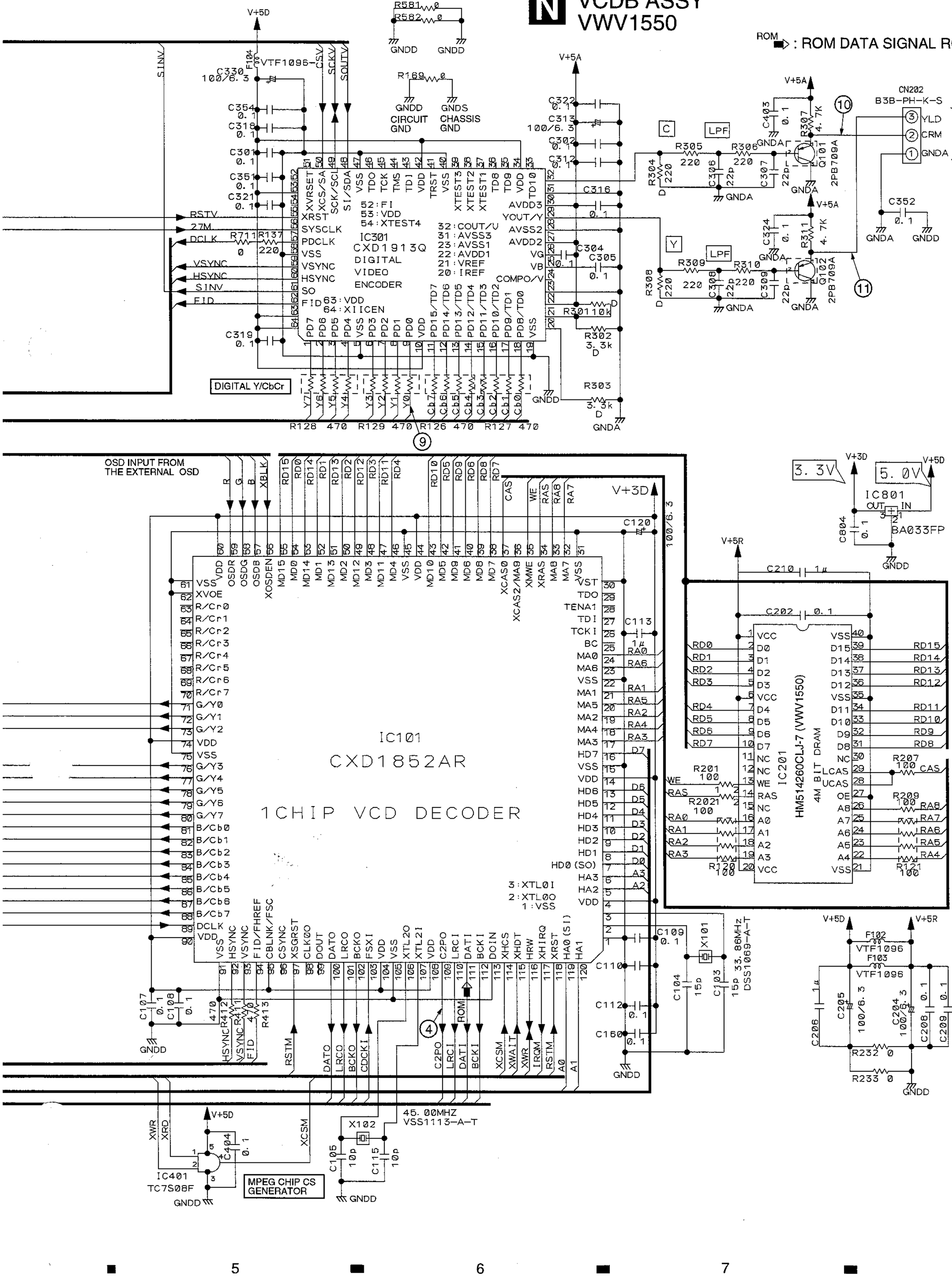
3.8 VCDB ASSY


TEST MODE
COLOR BAR OUTPUT
P. ON after shorting R551.
IC501
PD6230B
VCD CONTROL
MICROCOMPUTER
X501
CSAC4. 00MGCM
4MHz
13.5MHz DIVIDED
FREQUENCY CIRCUIT
IC701
TC7W74F
CN204
CN204 : B5B-PH-K-S
M 2/3
CN502
M 3/3
CN203
CN101
BTFN20P-3RD7
IC403
TC7S04F
IC807
TC7WU04F
IC402
TC7S08F
IC805
TC74HCT7007AF
IC802
ROM
CD-CLK AMP
CD-DATA BUFFER
CSYNC OUTPUT
FOR OSD
BLK (OSD) POLARITY
SWITCH
CXD1852AR/CXD1856R
SWITCH
V+5D
V+5A
GNDD
GNDA
RSTV
27M
VSYNC
DCLK (13. 5M)
DCLK
13. 5MHz
27MHz
VSS1086-
VTF1096-
VTF1097-
REQACK
SCK0
SOUT0
SIN0
ZCDCKI
ZLRCKI
ZDATI
ZBCKI
C2PO
LRCO
DATO
BCKO
CDCLKIN
LRCKIN
DATAIN
BCKIN
C2POIN
LRCKOUT
DATAOUT
BCKOUT
S_M to V
S_V to M
ACK
SCKO
RESET
COMPV
GNDA
V+5A

CLD-210KVT, CLD-210KVT-G

N VCDB ASSY VWV1550

ROM ■▶ : ROM DATA SIGNAL ROUTE



● WAVEFORMS AND VOLTAGES

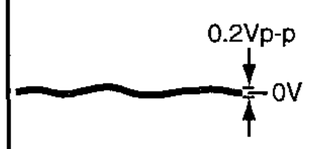
MOTHER ASSY

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.

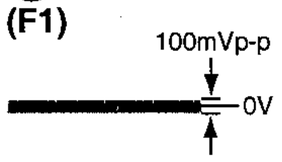
IC801 (LA9425)

⑨ 10msec/div



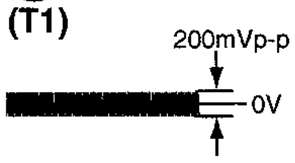
DC mode

⑳ 5msec/div **(F1)**



DC mode

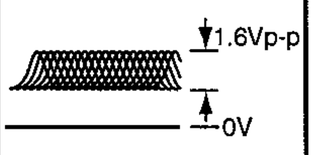
㉒ 5msec/div **(T1)**



DC mode

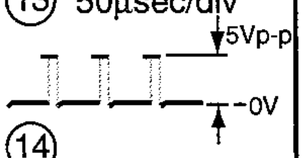
IC201 (LC78625E)

⑪ 0.5µsec/div



DC mode

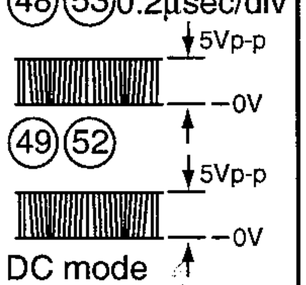
⑬ 50µsec/div



⑭

DC mode

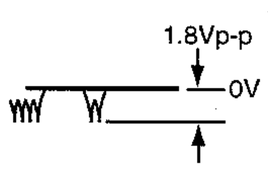
㊽ ㊸ 0.2µsec/div



DC mode

IC803 (LA6510)

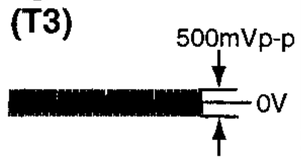
① 2msec/div



DC mode

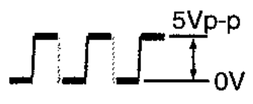
IC901 (LA9430M)

⑯ 5msec/div **(T3)**



DC mode

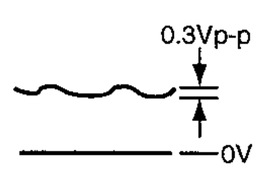
㊳ 10µsec/div



㊲

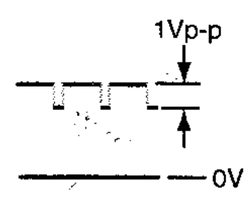
DC mode

㊵ 10msec/div



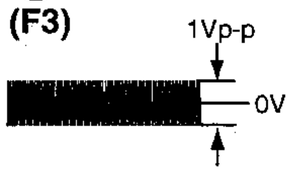
DC mode

㊽ 50µsec/div



DC mode

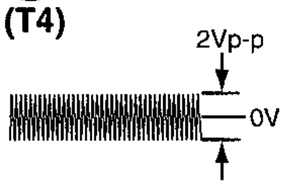
⑥⓪ 5msec/div **(F3)**



DC mode

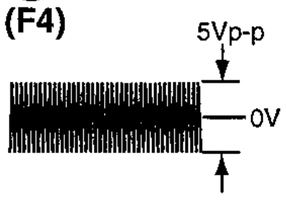
IC902 (TA8410AK)

① 5msec/div **(T4)**



DC mode

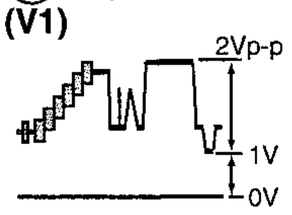
⑨ 5msec/div **(F4)**



DC mode

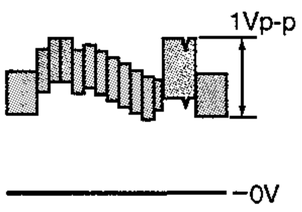
IC400 (LA7134M)

⑩ 10µsec/div **(V1)**



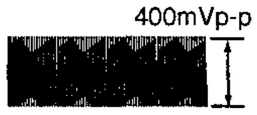
DC mode

㉕ 10µsec/div



DC mode

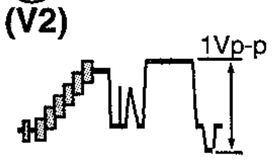
㉗ 2msec/div **(RF2)**



AC mode

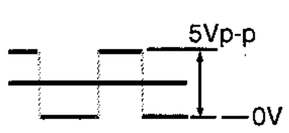
IC500 (PD0234A)

㉒ 10µsec/div **(V2)**



DC mode

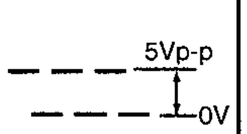
⑥⑤ 5msec/div



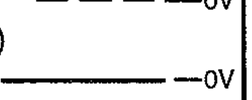
DC mode

10µsec/div

⑦⓪



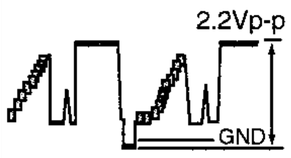
⑦①



DC mode

IC701 (CXD2046Q)

㉔ 10µsec/div

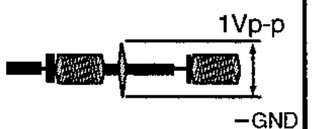


DC mode

㉝ 10µsec/div

DC mode

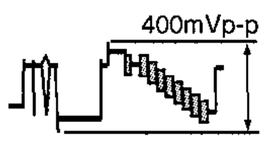
㊱ 10µsec/div



DC mode

Q431 Emitter

② 10µsec/div



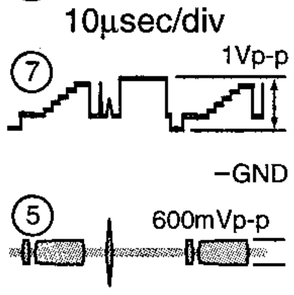
AC mode

IC704 pin 7 / Q763 Emitter

⑦ IC704 pin 7

⑤ Q763 Emitter

10µsec/div

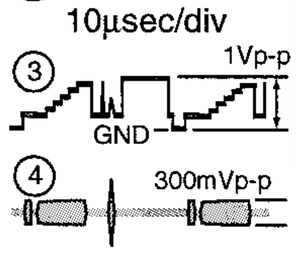


Q703 Emitter / Q705 Emitter

③ Q703 Emitter

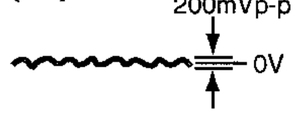
④ Q705 Emitter

10µsec/div



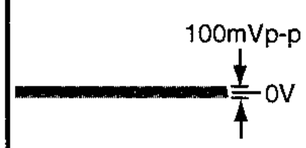
CN106

⑦ 5msec/div **(F2)**



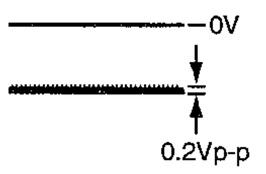
DC mode

⑩ 5msec/div



DC mode

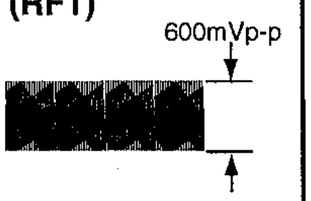
⑪ 5msec/div



DC mode

CN103

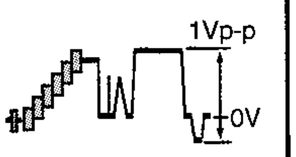
⑧ 2msec/div **(RF1)**



AC mode

JA701 (VIDEO OUT)

① 10µsec/div

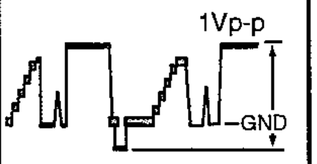


(75Ω termination)

DC mode

CN705 YOUT

③ 10µsec/div

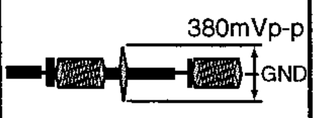


(75Ω termination)

DC mode

CN705 COUT

④ 10µsec/div



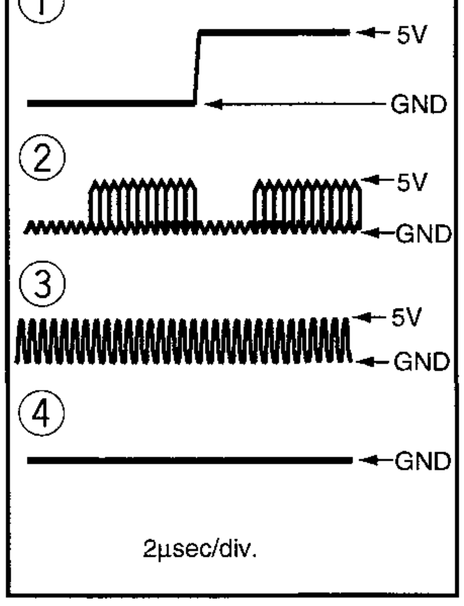
(75Ω termination)

DC mode

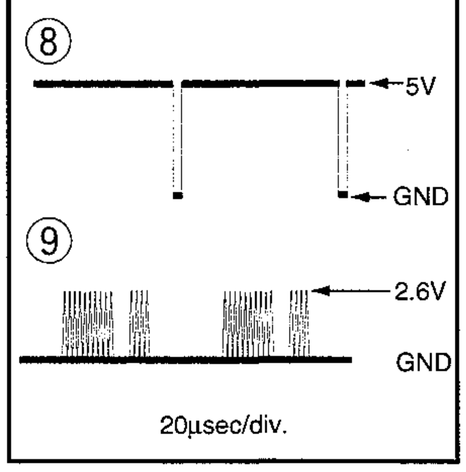
VCDB ASSY

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

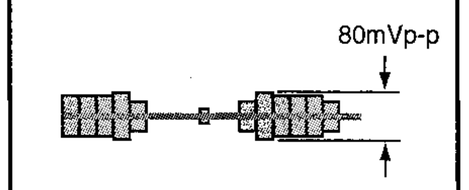
① IC802-1 (ZLRCKI)
② IC802-3 (ZDATI)
③ IC802-5 (ZBCKI)
④ IC101-109 (C2POI)
DC mode



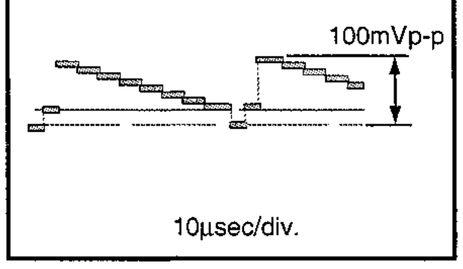
⑧ IC402-4 (CSYNC)
⑨ IC301-9 (YO)
DC mode



⑩ Q101-Emitter
(C signal) AC mode



⑪ Q102-Emitter
(Y signal) AC mode



CLD-210KVT,
CLD-210KVT-G

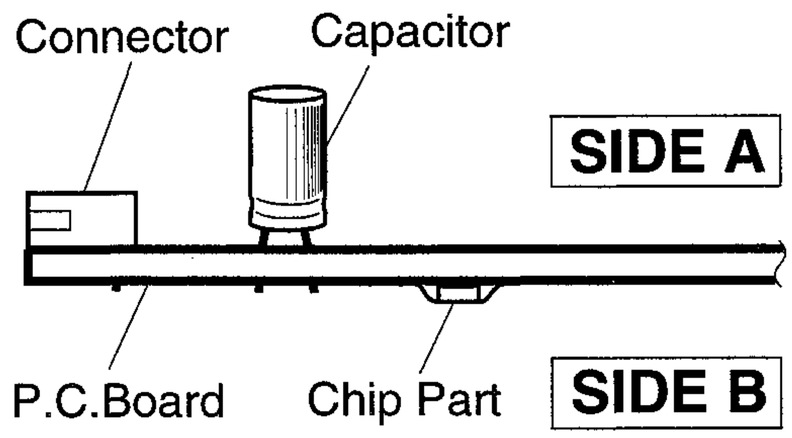
4. PCB CONNECTION DIAGRAM

NOTE FOR PCB DIAGRAMS :

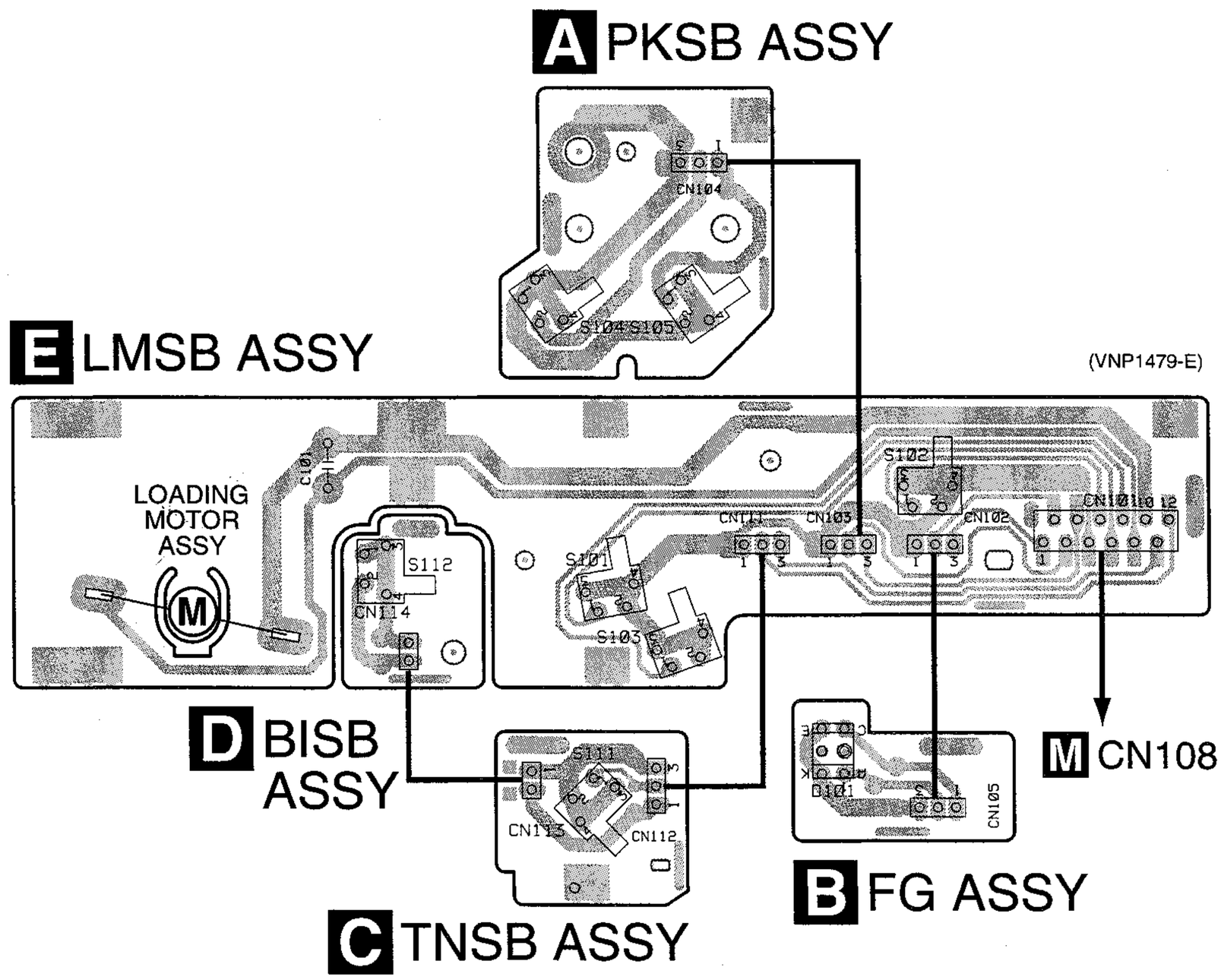
1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

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.

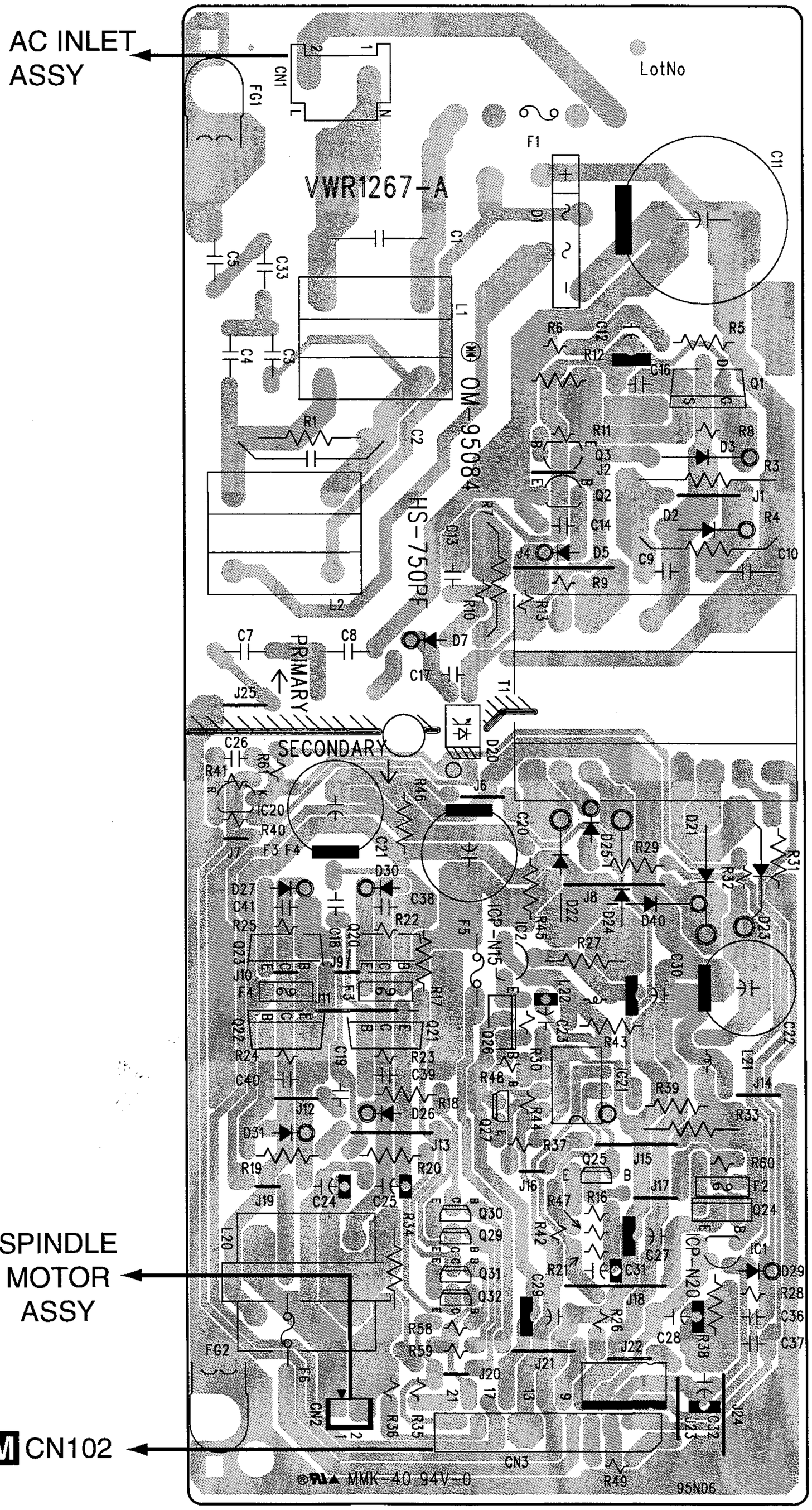


4.1 PKSB, FG, TNSB, BISB AND LMSB ASSEMBLIES



4.2 POWER SUPPLY ASSY

F POWER SUPPLY ASSY

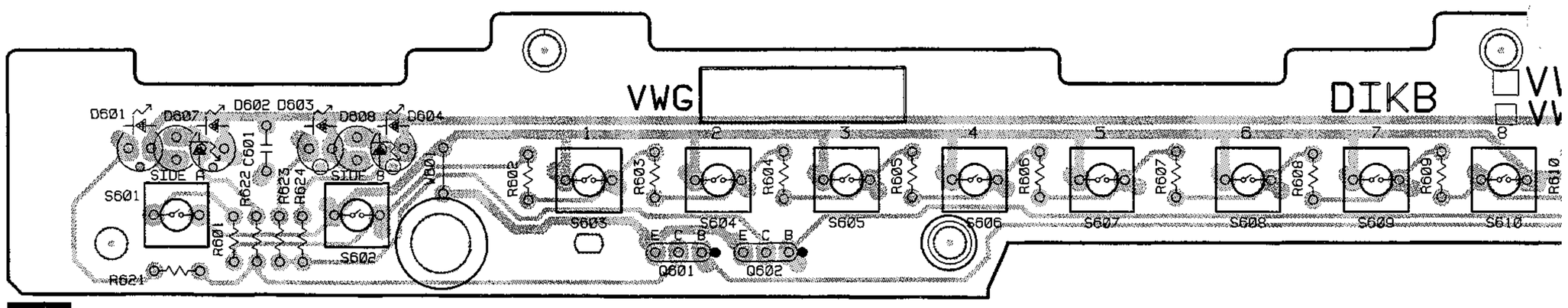


A
B
C
D

Q1
Q3
Q2
IC20
Q23 Q20 IC2
Q22 Q21 Q26
IC21
Q27
Q25
Q30 Q24
Q29 IC1
Q31
Q32

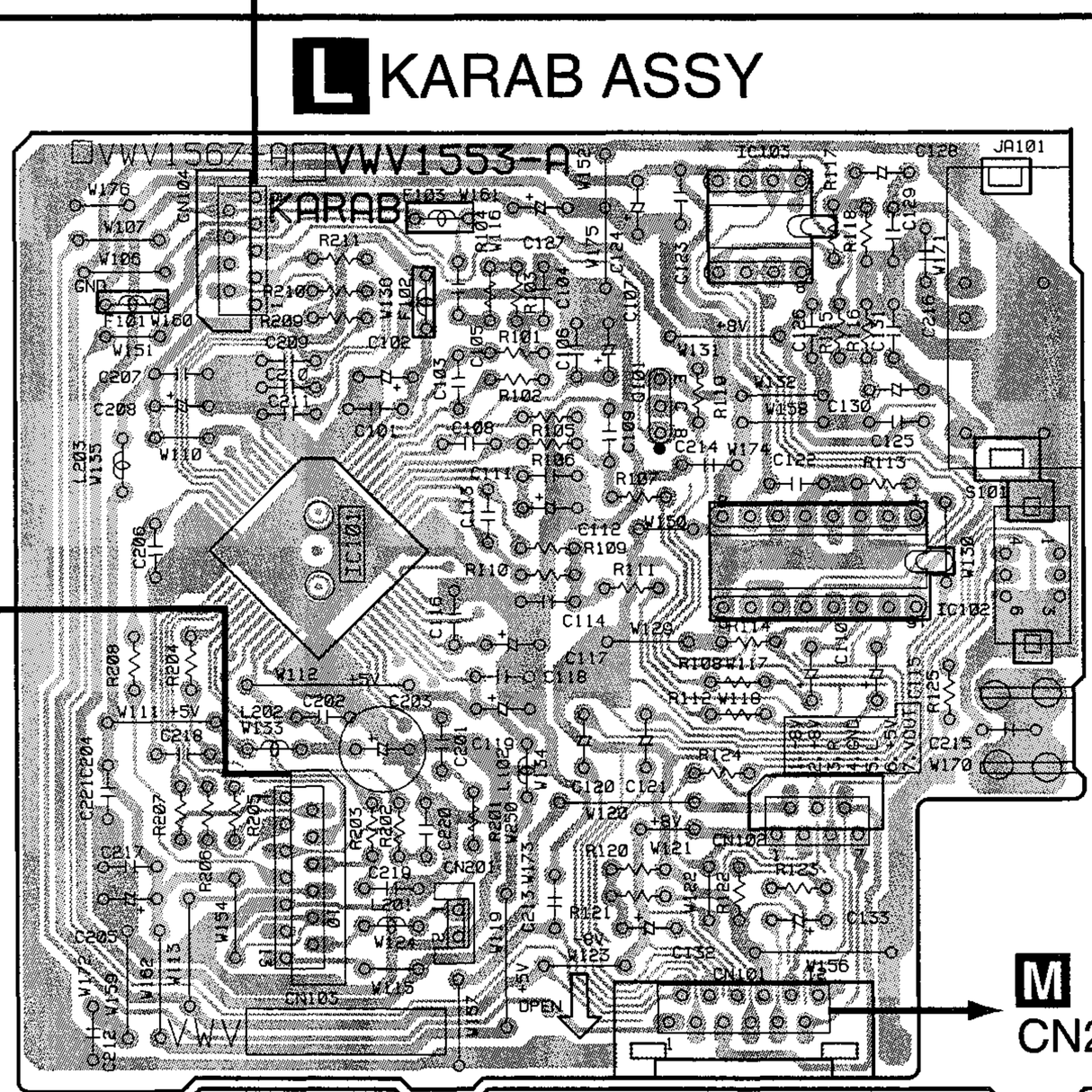
SIDE A

4.3 FLKY, DIKB, JACB, MSWB, PONB AND KARAB ASSEMBLIES



H DIKB ASSY

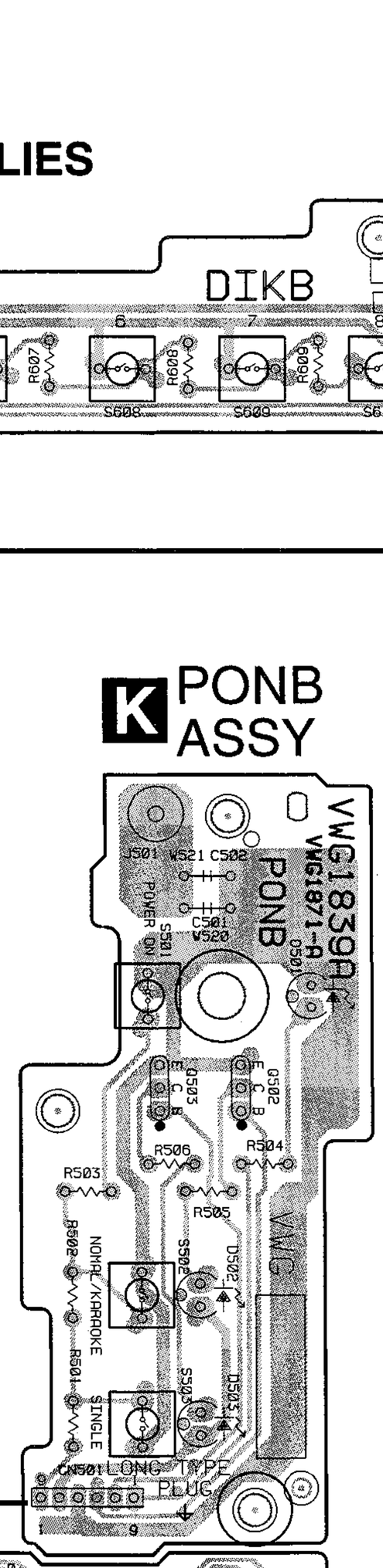
L KARAB ASSY



M CN202

M CN204

K PONB ASSY



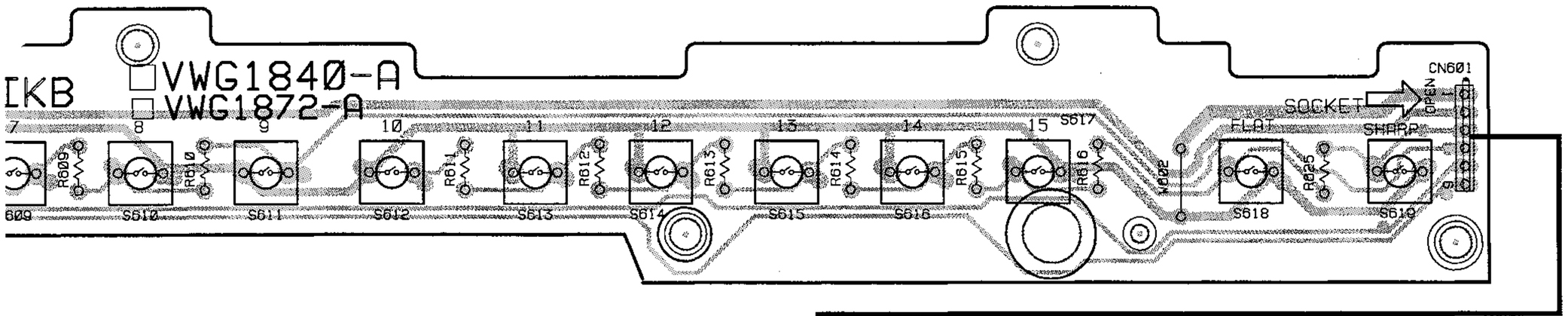
G FLKY ASSY

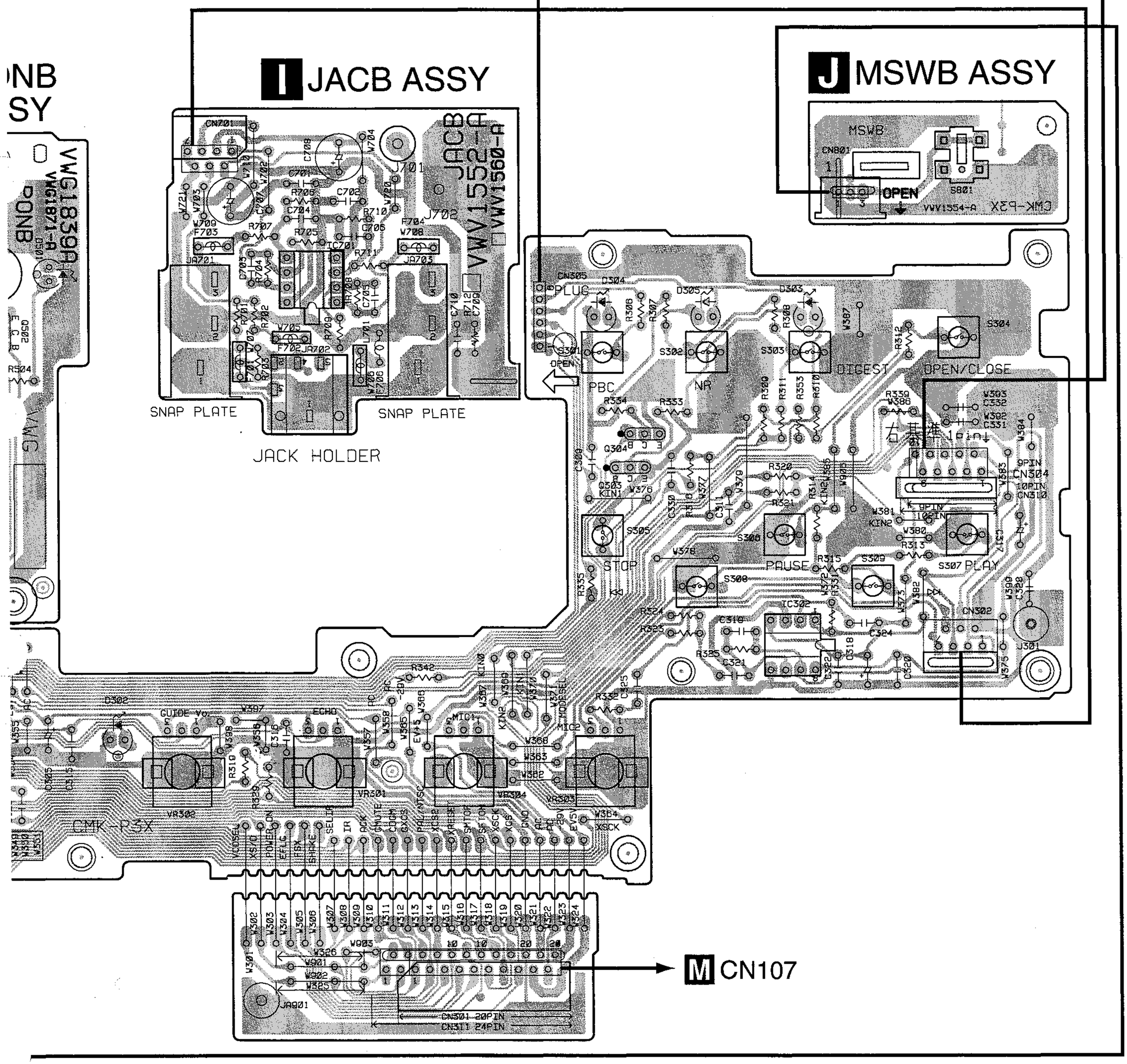
IC303 Q301 Q302 IC301 IC304

G H K L

SIDE A

CLD-210KVT, CLD-210KVT-G



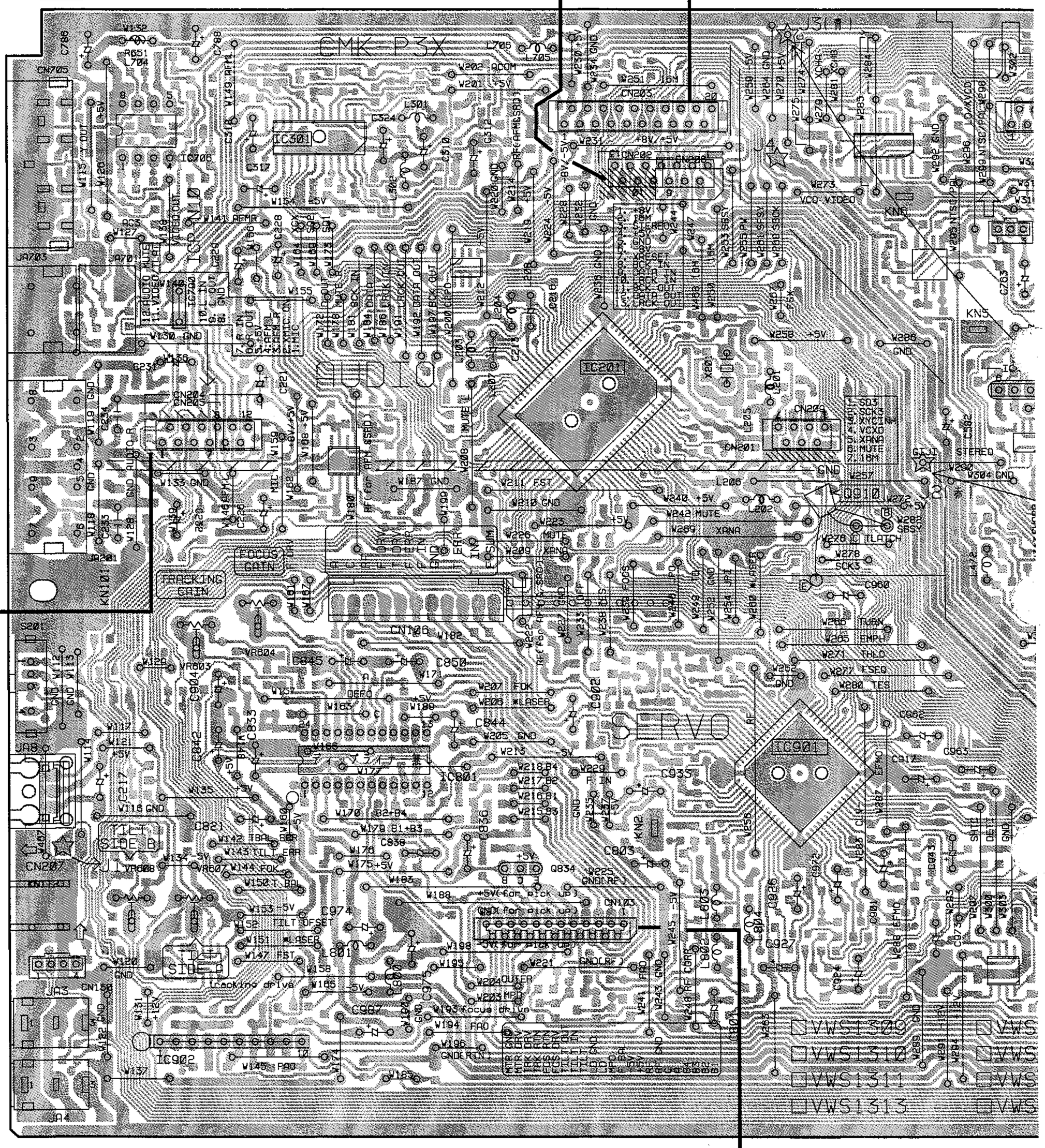


CLD-210KVT, CLD-210KVT-G

4.4 MOTHER ASSY

L CN103 **N** CN101

M MOTHER ASSY

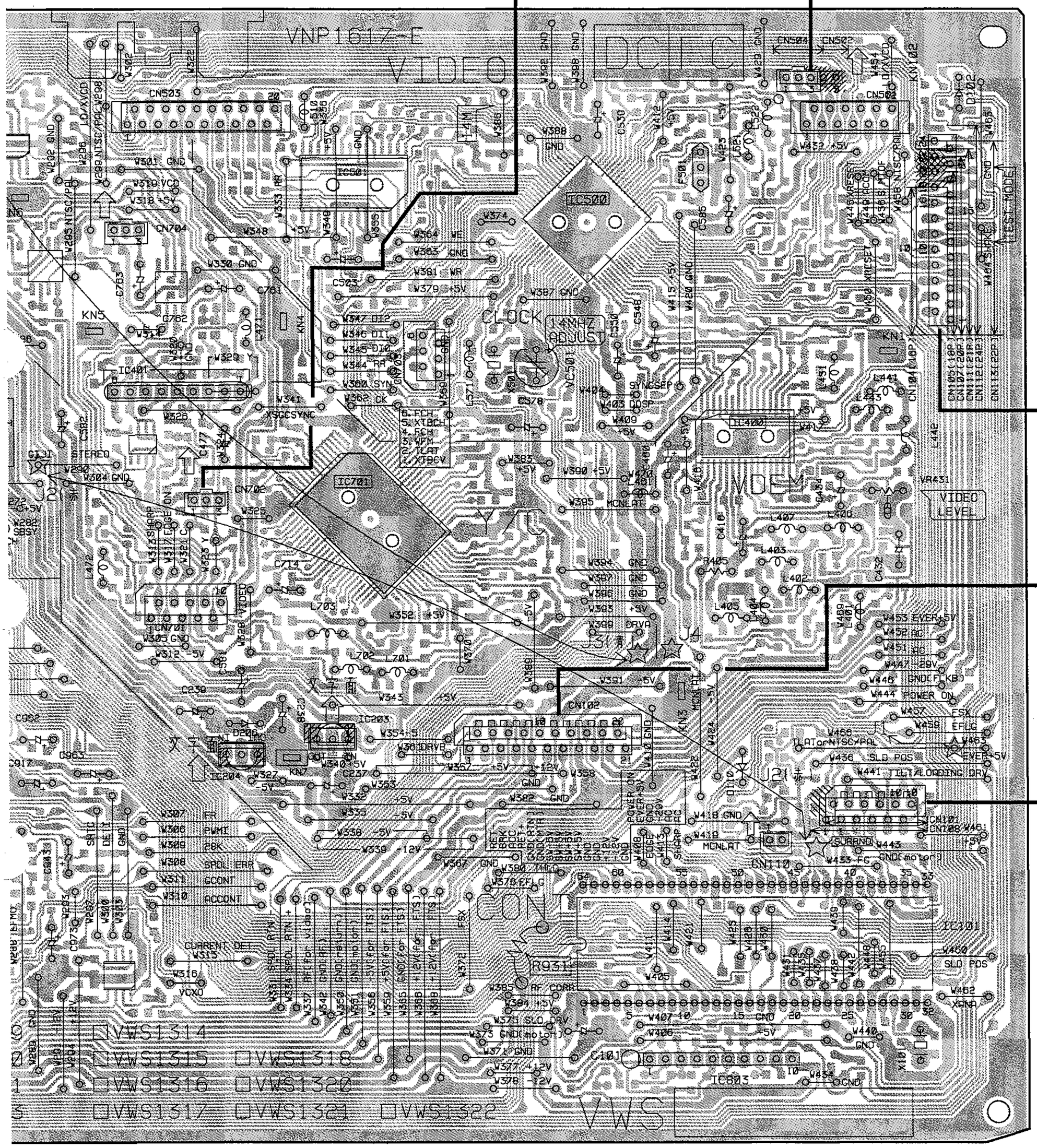


SIDE A

CLD-210KVT, CLD-210KVT-G

N CN202

N CN204



G CN301 B

F CN3

E CN101 C

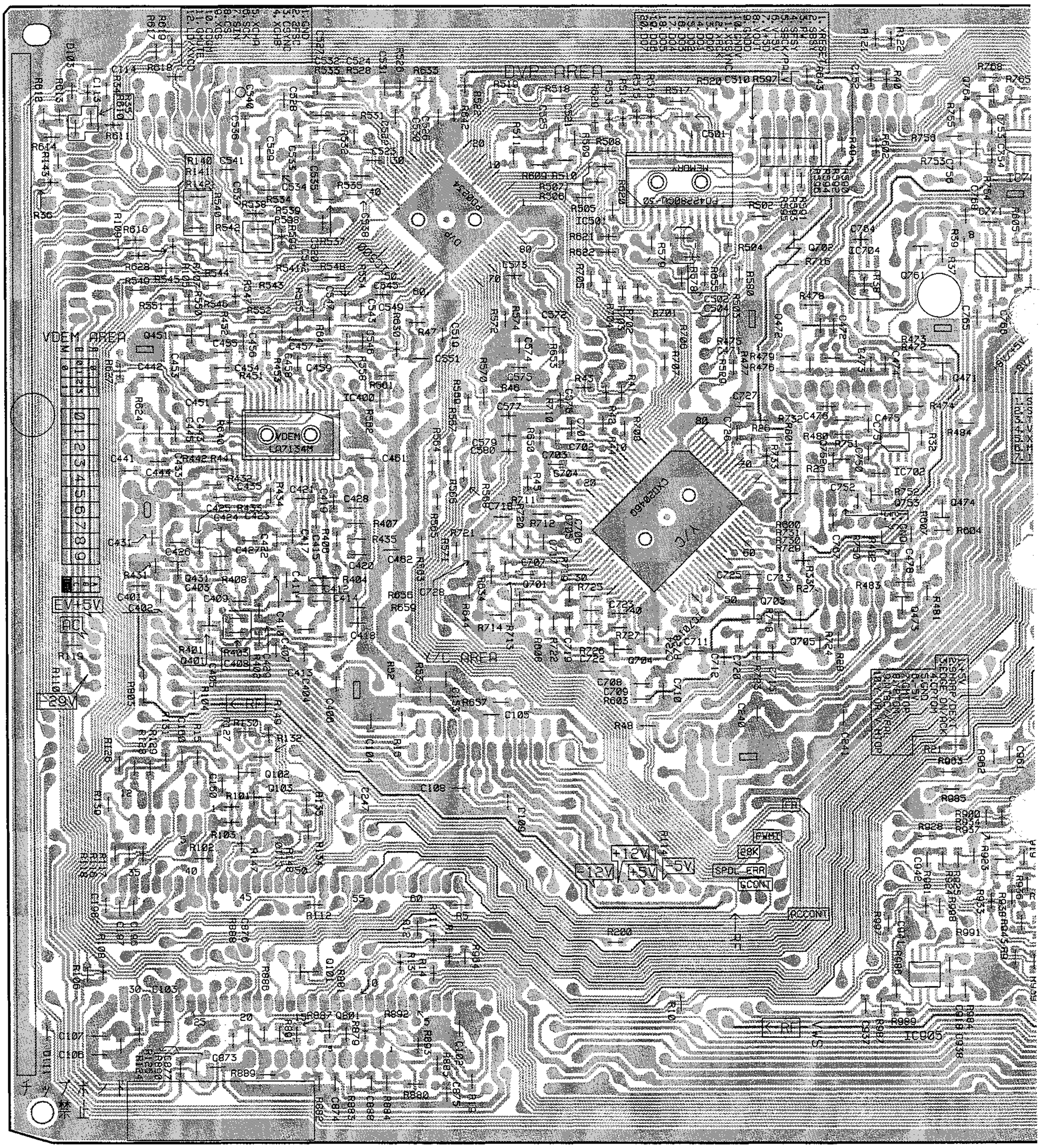
(VNP1617-E)

D

SIDE A

CLD-210KVT, CLD-210KVT-G

M MOTHER ASSY



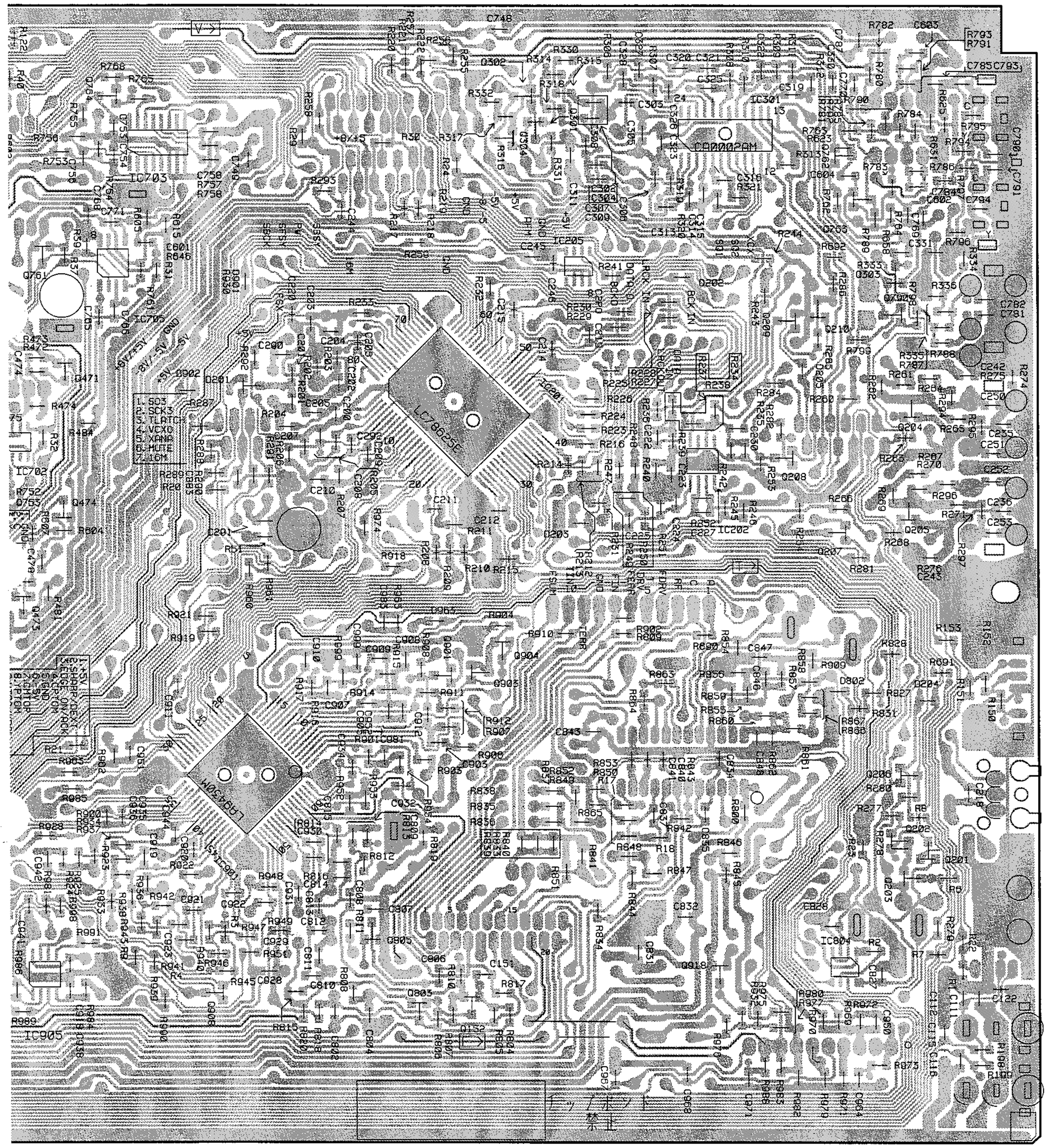
CLD-210KVT, CLD-210KVT-G

A

B

C

D

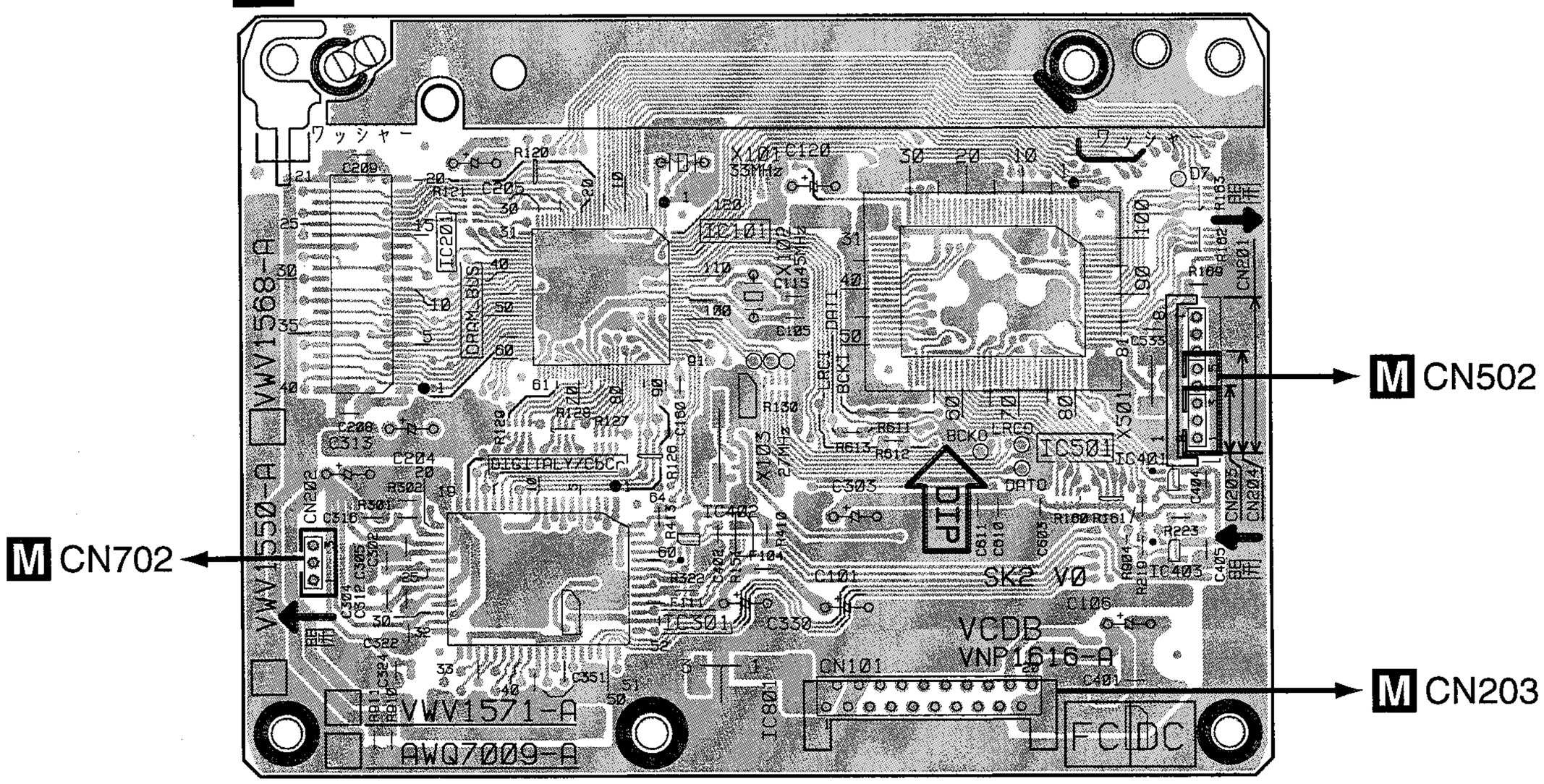


(VNP1617-E)

CLD-210KVT, CLD-210KVT-G

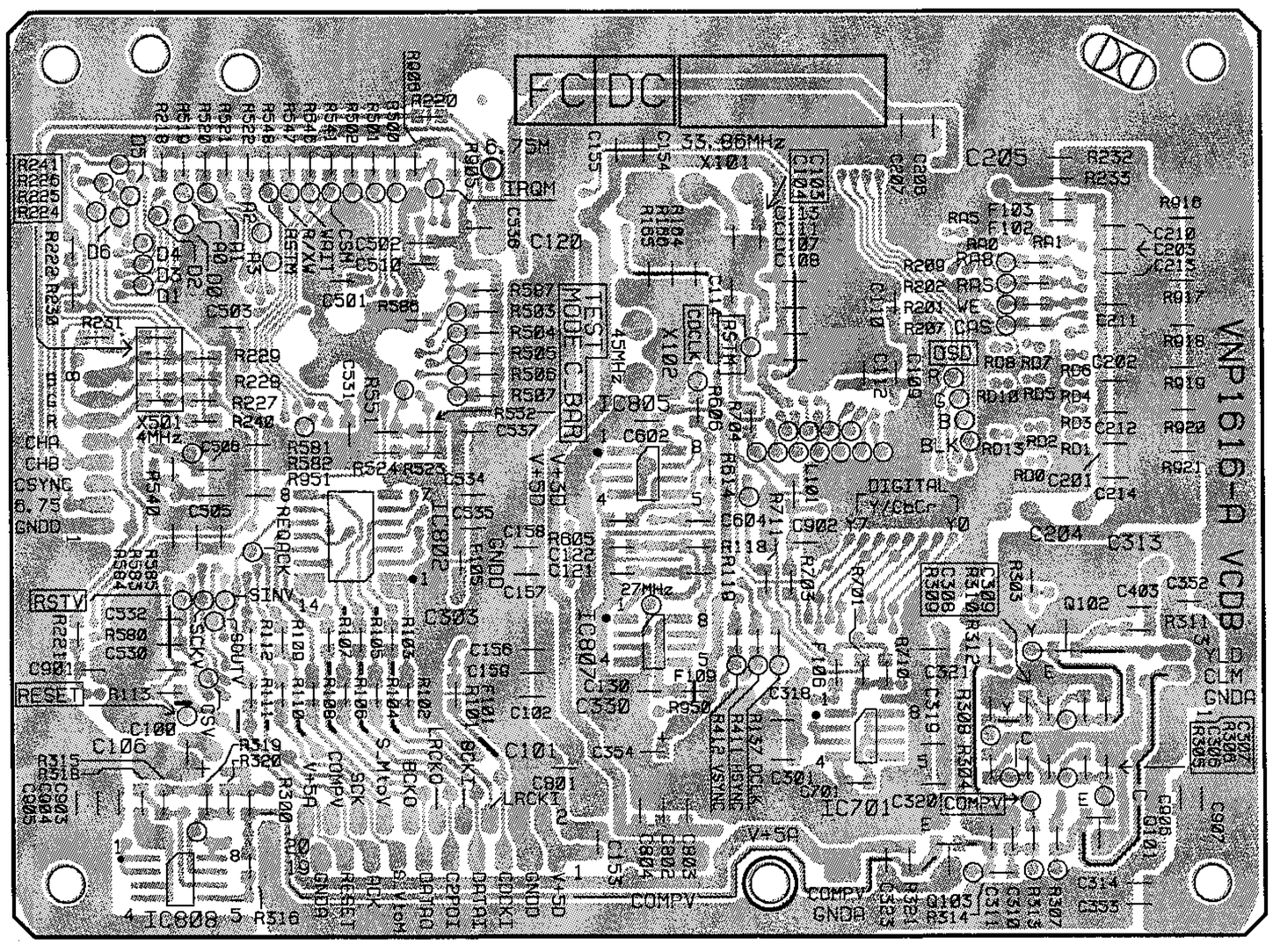
4.5 VCDB ASSY

N VCDB ASSY



SIDE A

N VCDB ASSY



(VNP1616-A)

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	→	*R50*		*..... RN2H [R][5][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	VWM1535
NSP		├PKSB ASSY	VWG1555
NSP		├FG ASSY	VWG1556
NSP		├TNSB ASSY	VWG1557
NSP		├BISB ASSY	VWG1558
NSP		└LMSB ASSY	VWG1612
⚠		POWER SUPPLY ASSY	VWR1267
NSP		FLKB ASSY	VWM1761
		├FLKY ASSY	VWG1838
		├DIKB ASSY	VWG1840
		├JACB ASSY	VWV1552
NSP		├MSWB ASSY	VWV1554
NSP		├PONB ASSY	VWG1839
		└KARAB ASSY	VWV1553
		MOTHER ASSY	VWS1310
		VCDB ASSY	VWV1550

MACB ASSY

OTHERS

	PC BOARD MACB	VNP1479

A PKSB ASSY

SWITCHES

	S104,S105	DSG1017

B FG ASSY

SEMICONDUCTOR

	D101	GP1S24

C TNSB ASSY

SWITCH

	S111	DSG1017

D BISB ASSY

SWITCH

	S112	DSG1017

E LMSB ASSY

SWITCHES

	S101-S103	DSG1017

OTHERS

	CN101 12P FFC CONNECTOR	52044-1245

F POWER SUPPLY ASSY

SEMICONDUCTORS

	IC20	HA17431P
⚠	IC2	ICP-N15
⚠	IC1	ICP-N20
	IC21	NJM4558D
	Q27,Q30,Q32	2SA933S
	Q20,Q22	2SB1566
	Q24	2SB891F
	Q25,Q29,Q31	2SC1740S
⚠	Q2,Q3	2SC3377
⚠	Q26	2SD2007
	Q21,Q23	2SD2395
⚠	Q1	2SK1460
⚠	D7	1SS270A
	D25-D27,D30,D31	AG01Z-VO
⚠	D1	D2SB60F4004
⚠	D2	EG01C
⚠	D5	MTZJ3.6A
	D29	MTZJ8.2B
⚠	D20	PS2501L1-1M
⚠	D3	RD18FB2

Mark	No.	Description	Part No.
	D40		RD30FB3
	D23		RK36
	D21,D22,D24		S2LA20
RESISTORS			
⚠	R22-R25 (47Ω)		VCN1033
⚠	R27 (0.47Ω)		VCN1046
⚠	R29 (68Ω)		VCN1048
⚠	R31 (8.2Ω)		VCN1050
OTHERS			
⚠	F1	FUSE (T2A/250V)	AEK1057
⚠	F2	FUSE	VEK1033
⚠	F3,F4	FUSE	VEK1034
⚠	F5,F6	FUSE (0.75A/125V)	VEK1035

G FLKY ASSY

SEMICONDUCTORS

	IC302	NJM4558DX
	IC301	PD3374B
	IC303	S-806D
	Q302	DTA144ES
	Q301,Q303,Q304	DTC114ES
	D301	HSS104-02
	D304	SLR-342DUT31
	D303,D305	SLR-342PGT31
	D302	SLR-342VCT31

SWITCHES

	S301-S309	ASG1034

CAPACITORS

	C302	CEAL100M6R3
	C305,C329	CEAL470M6R3
	C317,C318	CEJA101M10
	C308-C310,C326,C327	CKPUYB101K50
	C303,C311	CKPUYB102K50
	C319	CKPUYB271K50
	C301	CKPUYF223Z25
	C304,C306,C312,C315,C316	CKPUYY103N16
	C320,C322,C323	CKPUYY103N16
	C321	CQMBA104J50

RESISTORS

	VR301-VR304 (10KΩ)	VCS1041
	Other Resistors	RD1/4PU□□□J

OTHERS

	CN305 FJ CONNECTOR 6P	06P-FJ
	CN303 FJ CONNECTOR 6P	06R-FJ
	306 3P CABLE HOLDER	51048-0300
	CN301 20P FFC CONNECTOR	52044-2045
	CN302 FFC BOTTOM CONNECTOR 7P	52492-0720
	CN304 FFC BOTTOM CONNECTOR 9P	52492-0920
	J306 2mm PITCH JUMPER 3P	D20PYY0320E
	X301 CERAMIC RESONATOR (8MHz)	EFOEC8004A4
	REMOTE RECEIVER UNIT	GP1U27X
	V301 FL TUBE	VAW1045
	SPACER	VEC1599

Mark	No.	Description	Part No.

H DIKB ASSY

SEMICONDUCTORS

	Q601,Q602	DTC124ES
	D601-D604	SLR-342PGT31

SWITCHES

	S601-S619	ASG1034

RESISTORS

	All Resistors	RD1/4PU□□□J

OTHERS

	CN601 FJ CONNECTOR 6P	06R-FJ

I JACB ASSY

SEMICONDUCTOR

	IC701	NJM2068D

COIL AND FILTER

	L701	LAU1R0J
	F706	VTH1016

CAPACITORS

	C707,C708	CEAS101M10
	C710	CGCYX473M16
	C703,C705	CKPUYX122M16
	C704,C706	CKPUYX152M16
	C701,C702	CKPUYY103N16

RESISTORS

	R701	RN1/4PC2001F
	R702	RN1/4PC3001F
	Other Resistors	RD1/4PU□□□J

OTHERS

	CN701 7P FFC CONNECTOR	52044-0745
	JA702 HEADPHONE JACK	RKN1006
	JA701,JA703 MIC JACK	VKN1147
	SNAP PLATE	VNE1102
	JACK HOLDER	VNE2118

J MSWB ASSY

SWITCH

	S801	VSH1019

K PONB ASSY

SEMICONDUCTORS

	Q502,Q503	DTC124ES
	D502	SLR-342DUT31
	D503	SLR-342PGT31
	D501	SLR-342VCT31

SWITCHES

	S501-S503	ASG1034

Mark	No.	Description	Part No.
RESISTORS			
	All Resistors		RD1/4PU□□□J
OTHERS			
	CN501	FJ CONNECTOR 6P	06PL-FJ

L KARAB ASSY

SEMICONDUCTORS			
	IC102		BU4053BC
	IC103		NJM4558DX
	IC101		TC9409BF-001
	Q101		DTC124ES
SWITCH			
	S101		VSH1009
CAPACITORS			
	C120,C121		CEANP100M16
	C128,C130		CEANP1R0M50
	C115,C132,C133		CEAS100M50
	C102,C107,C110,C112,C117		CEAS101M10
	C119,C124,C127,C205,C208		CEAS101M10
	C203		CEAS331M16
	C221		CGCYX473M16
	C104		CGCYX562K25
	C129,C131,C209-C211		CKPUYB331K50
	C103,C108,C113		CKPUYX122M16
	C109,C114		CKPUYX472M16
	C101,C106,C111,C116,C118		CKPUYY103N16
	C122,C123,C125,C126		CKPUYY103N16
	C201,C202,C206,C207		CKPUYY103N16
	C105		CQMA104J50
RESISTORS			
	All Resistors		RD1/4PU□□□J
OTHERS			
	CN104	9P FFC CONNECTOR	52045-0945
	CN103	13P FFC CONNECTOR	52045-1345
	JA101	2P PIN JACK	DKB1031
	CN101	B TO B CONNECTOR 12P	VKN1386
	SCREW PLATE		VNE1948

M MOTHER ASSY

SEMICONDUCTORS			
	IC202,IC905		BA4560F
	IC301		CA0002AM
	IC701		CXD2046Q
	IC803		LA6510
	IC400		LA7134M
	IC801		LA9425
	IC901		LA9430M
	IC201		LC78625E
	IC706		MC14577CP
	IC401		NJM2209S
	IC705		NJM2234M
	IC704		NJM2235M
⚠	IC203		NJM78L08A
⚠	IC204		NJM79L08A
	IC500		PD0234A
	IC101		PD0256B2
	IC902		TA8410AK
	IC804		TC4W53F
	Q101,Q102,Q474,Q701		2PB709A
	Q762,Q763		2PB709A
	Q207,Q208,Q301,Q302,Q304		2PD601A
	Q431,Q451,Q472,Q473		2PD601A
	Q703-Q705,Q805,Q903,Q904		2PD601A
	Q834		2SA854S
	Q401,Q803		2SC2412K
	Q152		2SC3802K
	Q204,Q205,Q209		2SD2114K
	Q201,Q206,Q210,Q303,Q918		DTA124EK
	Q910		DTC114ES
	Q103,Q203,Q471,Q901,Q908		DTC124EK
	D206		11EQS06
	D102		HSS104-02
	D201		KV1851
	D802,D963,D901,D902		MA111
	D110		MTZJ5.1B
COILES AND FILTERS			
	L404		LAU100J
	L401		LAU101J
	L472		LAU121J
	L302,L802-L804		LAU181J
	L201,L202,L301,L403,L441		LAU220J
	L451,L461,L701,L702		LAU220J
	L800,L801		LAU220J
	L471		LAU221J
	L402,L522		LAU270J
	L406,L407,L521		LAU430J
	L704		LAU4R7J
	L443		LAU560J
	L405,L510		LAU8R2J
	L207,L208,L703		LFA220J
	L442		LFA561J
	F501		VTF1055
	F293		VTF1097
SWITCH			
	S201		VSH1020
CAPACITORS			
	C413,C414,C418,C425,C535		CCSQCH100D50
	C540,C541		CCSQCH100D50
	C111,C112,C211,C219,C304		CCSQCH101J50
	C331,C572,C577,C810,C846		CCSQCH101J50
	C848		CCSQCH101J50
	C423,C427,C454,C537		CCSQCH120J50
	C409		CCSQCH121J50
	C403,C411,C453,C510		CCSQCH150J50
	C303,C475,C812,C912		CCSQCH151J50
	C308,C574		CCSQCH180J50
	C202,C204,C457,C473,C478		CCSQCH220J50
	C708,C711,C813,C950		CCSQCH220J50
	C410,C476,C531,C781,C782		CCSQCH221J50
	C790,C791,C793,C794		CCSQCH221J50
	C307,C408,C412,C422,C931		CCSQCH270J50

CLD-210KVT,
CLD-210KVT-G

Mark	No.	Description	Part No.
	C250-C253		CCSQCH271J50
	C106,C107,C309,C424,C435		CCSQCH330J50
	C527,C534,C575		CCSQCH330J50
	C222,C225,C919		CCSQCH331J50
	C302,C402,C455		CCSQCH390J50
	C223,C224,C227,C230,C401		CCSQCH470J50
	C443,C712		CCSQCH470J50
	C710		CCSQCH560J50
	C528		CCSQCH5R0C50
	C306,C529,C806		CCSQCH680J50
	C934		CCSQCH681J50
	C709		CCSQCH6R0D50
	C426,C809,C811		CCSQCH7R0D50
	C305,C814		CCSQCH820J50
	C442,C444,C720		CCSQCH910J50
	C936,C944		CCSQSL102J50
	C935		CCSQSL152J50
	C434		CEAL100M6R3
	C416,C786		CEAL101M6R3
	C902		CEAL220M6R3
	C788,C836,C844		CEAL470M6R3
	C432,C838		CEANP470M6R3
	C960		CEANP4R7M50
	C962		CEAT100M50
	C237,C318,C761,C762,C901		CEAT100M50
	C228,C229,C310,C312,C324		CEAS101M10
	C550,C578,C581,C582,C585		CEAS101M10
	C714,C917,C927,C933		CEAS101M10
	C974,C975		CEAS101M10
	C221,C226,C904		CEAT1R0M50
	C821,C972,C987		CEAT220M50
	C845,C926		CEAT2R2M50
	C460		CEAT331M10
	C238,C239,C477,C548,C801		CEAS470M10
	C803,C842		CEAS470M10
	C924		CEAS470M25
	C850		CEAT4R7M50
	C317,C943,C973		CEATR47M50
	C205,C220,C242,C243,C420		CKSQYB102K50
	C701,C907		CKSQYB102K50
	C431		CKSQYB103K50
	C207,C579,C922,C981		CKSQYB104K25
	C942		CKSQYB153K50
	C456,C908		CKSQYB154K16
	C903		CKSQYB222K50
	C920		CKSQYB223K50
	C316,C325		CKSQYB392K50
	C923		CKSQYB393K50
	C313,C315,C322,C327,C328		CKSQYB472K50
	C472,C909		CKSQYB472K50
	C983		CKSQYB473K25
	C921		CKSQYB682K50
	C458		CKSQYB683K25
	C110,C122,C150,C152,C160		CKSQYF103Z50
	C196-C198,C201,C206,C209		CKSQYF103Z50
	C212,C292,C311,C320,C323		CKSQYF103Z50
	C419,C471,C532,C533,C536		CKSQYF103Z50
	C538,C546,C547,C727,C802		CKSQYF103Z50
	C804,C807,C831,C832		CKSQYF103Z50
	C834,C835,C843,C876,C888		CKSQYF103Z50
	C918,C928,C929,C932		CKSQYF103Z50
	C937,C938,C941,C964,C971		CKSQYF103Z50
	C102,C103,C151,C208		CKSQYF104Z25
	C235,C236,C240,C241,C319		CKSQYF104Z25
	C321,C330,C405,C407,C415		CKSQYF104Z25
	C417,C421,C428,C433,C441		CKSQYF104Z25
	C451,C459,C461,C462,C474		CKSQYF104Z25
	C520,C522-C524,C526,C530		CKSQYF104Z25
	C542,C545,C549,C551,C573		CKSQYF104Z25
	C576,C580,C601,C702-C707		CKSQYF104Z25
	C713,C715,C717-C719		CKSQYF104Z25
	C722-C726,C728,C764-C770		CKSQYF104Z25
	C784,C785,C787,C827,C828		CKSQYF104Z25
	C840,C841,C847,C873,C874		CKSQYF104Z25
	C910,C911,C961,C967,C968		CKSQYF104Z25
	C604		CKSQYF104Z50
	C214,C215		CKSQYF105Z16
	C837,C930		CKSQYF223Z50
	C314,C326,C905,C952		CKSQYF224Z25
	C445,C808,C815,C875,C877		CKSQYF473Z25
	C883		CKSQYF473Z25
	C233,C234		CQMBA152J50
	VC501 (20pF)		VCM-008

RESISTORS

	R931	RD1/4PU472J
	R405	RD1/4PU470J
	R787,R788	RN1/10SC75R0D
	R781	RN1/10SE1001D
	R435,R987,R989	RN1/10SE1002D
	R880,R883	RN1/10SE1003D
	R721	RN1/10SE1201D
	R785	RN1/10SE1501D
	R474	RN1/10SE1502D
	R726,R793	RN1/10SE1601D
	R786	RN1/10SE1801D
	R240,R251	RN1/10SE1802D
	R783	RN1/10SE2001D
	R784	RN1/10SE2201D
	R886	RN1/10SE2202D
	R719,R725	RN1/10SE2700D
	R791	RN1/10SE2701D
	R720,R727	RN1/10SE3301D
	R879,R986,R990	RN1/10SE3302D
	R792	RN1/10SE3901D
	R473,R713,R728	RN1/10SE4701D
	R242,R252,R881,R882	RN1/10SE4702D
	R887,R888	RN1/10SE8202D
	VR431 (2.2kΩ)	PCP1025
	VR603 (4.7kΩ)	RCP1020
	VR604,VR607,VR608 (47kΩ)	RCP1047
	Other Resistors	RS1/10S□□□J

OTHERS

CN108	12P FFC CONNECTOR	52045-1245
CN202	13P FFC CONNECTOR	52045-1345
CN107	20P FFC CONNECTOR	52045-2045
CN102	21P FFC CONNECTOR	52045-2145
CN705	4P MINI DIN SOCKET	AKP7010

Mark	No.	Description	Part No.
	CN106	11P TOP POST	B11P-SHF-1AA
	CN702	KR CONNECTOR 3P	B3B-PH-K-S
	CN502	KR CONNECTOR	B5B-PH-K-S
	CN203	B TO B CONNECTOR 20P	BTFN20S-3SB7
	JA3,JA4	REMOTE CONTROL JACK	RKN1004
	PCB BINDER		VEF1040
	JA201	4P PIN JACK	VKB1065
	JA701	3P PIN JACK	VKB1093
	CN103	23P FFC CONNECTOR	VKN1199
	CN204	B TO B CONNECTOR 12P	VKN1399
	SCREW PLATE		VNE1948
	KN101,KN102	EARTH METAL FITTING	VNF1084
	X101	CERAMIC RESONATOR (9.00MHz)	VSS1040
	X501	CRYSTAL RESONATOR (14.318MHz)	VSS1073
	X201	CRYSTAL RESONATOR (16MHz)	VSS1081
	PC BOARD MOTHER		VNP1617

N VCDB ASSY

SEMICONDUCTORS

IC801	BA033FP
IC101	CXD1852AR
IC301	CXD1913Q
IC201	HM514260CLJ-7
IC501	PD6230B
IC802	TC74HCT7007AF
IC403	TC7S04F
IC401,IC402	TC7S08F
IC701	TC7W74F
IC805,IC807	TC7WU04F
Q101,Q102	2PB709A

COIL AND FILTERS

L101	LCTB4R7K2125
F102-F106	VTF1096
F101	VTF1097

CAPACITORS

C105,C115	CCSQCH100D50
C604	CCSQCH101J50
C122	CCSQCH120J50
C103,C104,C121	CCSQCH150J50
C505,C506	CCSQCH200J50
C306-C309	CCSQCH220J50
C101,C106,C120,C204,C205	CEJA101M6R3
C303,C313,C330	CEJA101M6R3
C531,C532	CKSQYB102K50
C100,C102,C107-C110,C112	CKSQYF104Z25
C153,C160,C202,C208,C209	CKSQYF104Z25
C301,C302,C304,C305,C312	CKSQYF104Z25
C316,C318,C319,C321,C322	CKSQYF104Z25
C324,C351,C352,C354	CKSQYF104Z25
C402-C405,C501,C503,C510	CKSQYF104Z25
C530,C533,C537,C602,C610	CKSQYF104Z25
C701,C801,C804	CKSQYF104Z25
C534,C536	CKSQYF104Z50
C113,C130,C206,C210,C502	CKSQYF105Z16

RESISTORS

R120,R121	RA4C101J
R160-R163	RA4C103J
R130	RA4C221J
R126-R129	RA4C471J
R301	RN1/10SE1002D
R304,R308	RN1/10SE2200D
R302,R303	RN1/10SE3301D
Other Resistors	RS1/10S□□□J

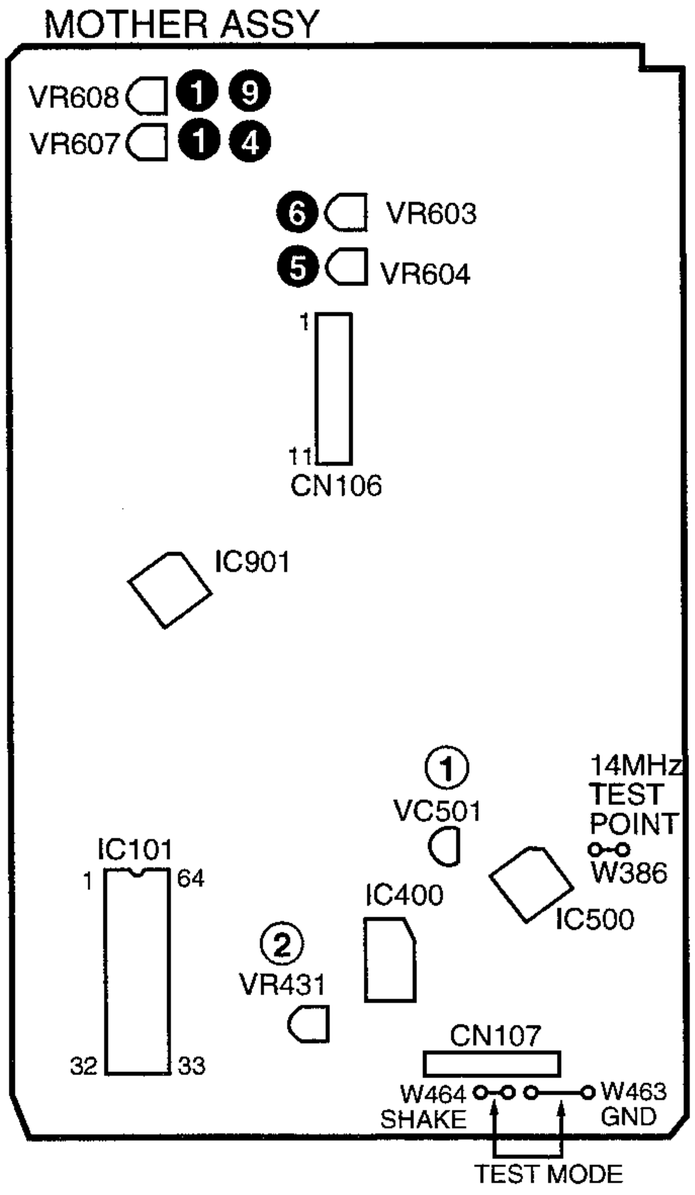
OTHERS

CN202	KR CONNECTOR 3P	B3B-PH-K-S
CN204	KR CONNECTOR	B5B-PH-K-S
CN101	B TO B CONNECTOR 20P	BTFN20P-3RD7
X501	CERAMIC RESONATOR (4MHz)	CSAC4.00MGCM
X101	CERAMIC RESONATOR (33.86MHz)	DSS1069
X103	CRYSTAL RESONATOR (27.0MHz)	VSS1086
X102	CERAMIC RESONATOR (45.00MHz)	VSS1113

6. ADJUSTMENT

6.1 ADJUSTMENT ITEMS AND LOCATION

■ Adjustment Points (PCB Part)



■ Adjustment Items

[Mechanical Part]

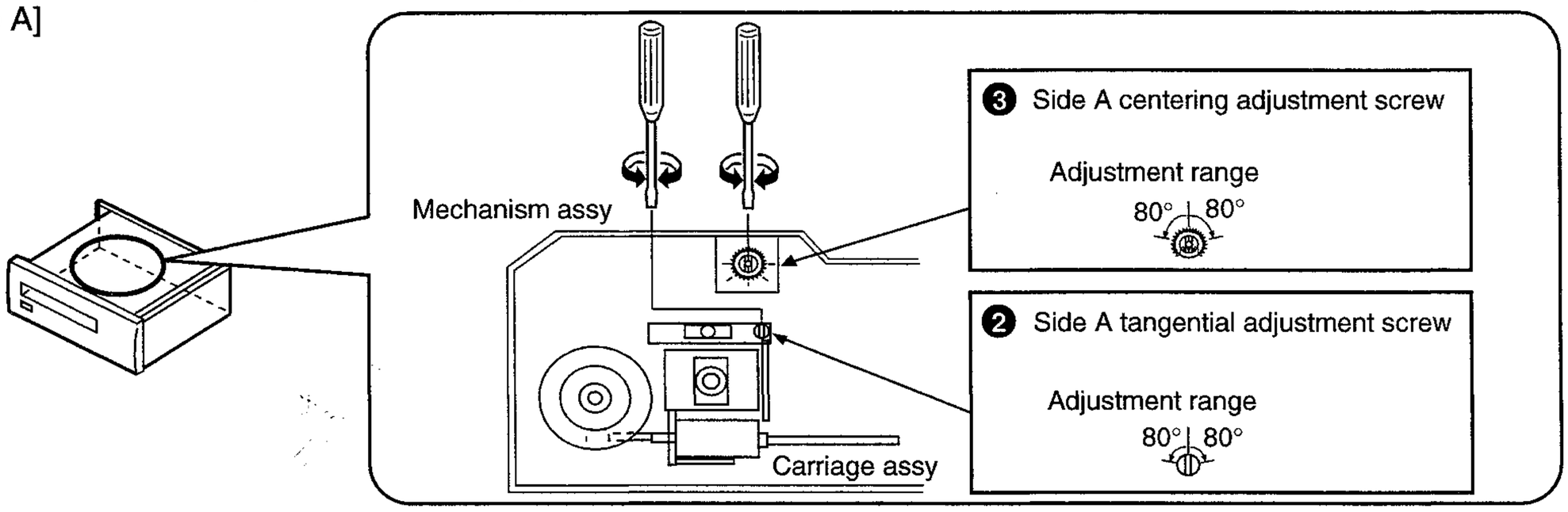
❶ Tilt Offset Adjustment
❷ Tangential Direction Angle Adjustment for Side A
❸ Spindle Motor Centering Adjustment for Side A
❹ Crosstalk Check and Fine Tilt Offset Adjustment for Side A
❺ Focus Servo Loop Gain Adjustment
❻ Tracking Servo Loop Gain Adjustment
❼ Tangential Direction Angle Adjustment for Side B
❽ Spindle Motor Centering Adjustment for Side B
❾ Crosstalk Check and Fine Tilt Offset Adjustment for Side B

[Electrical Part]

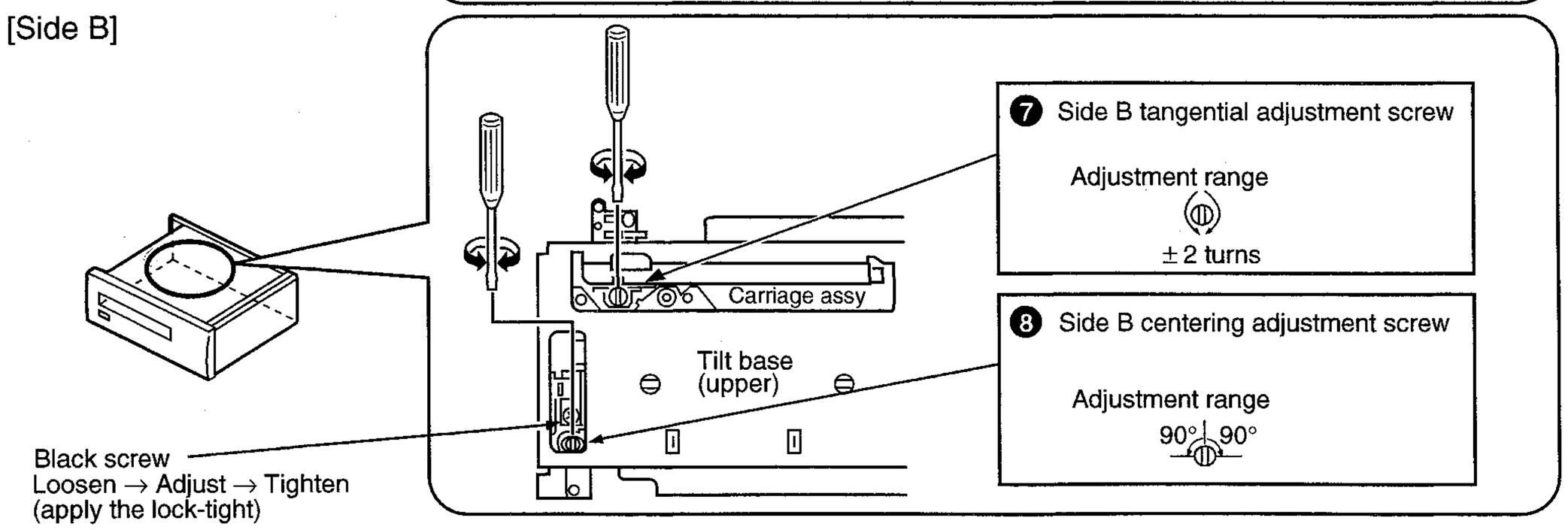
① Master Clock Adjustment
② Output Video Level Adjustment

■ Adjustment Points (Mechanism Part)

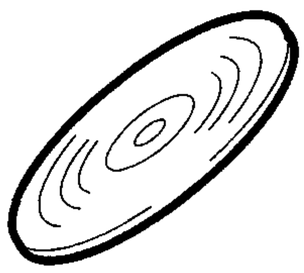
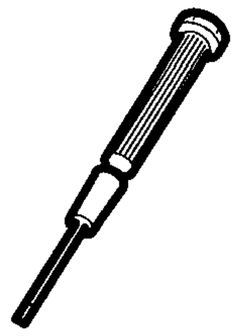
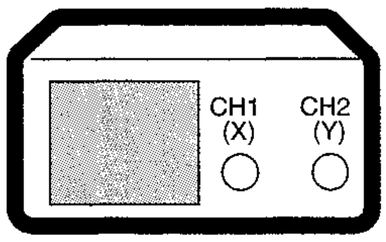
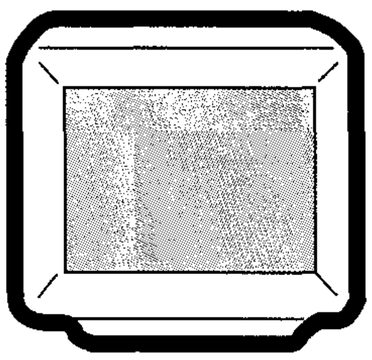
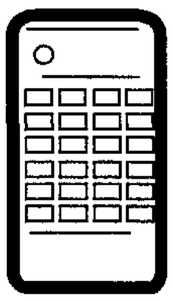
[Side A]



[Side B]

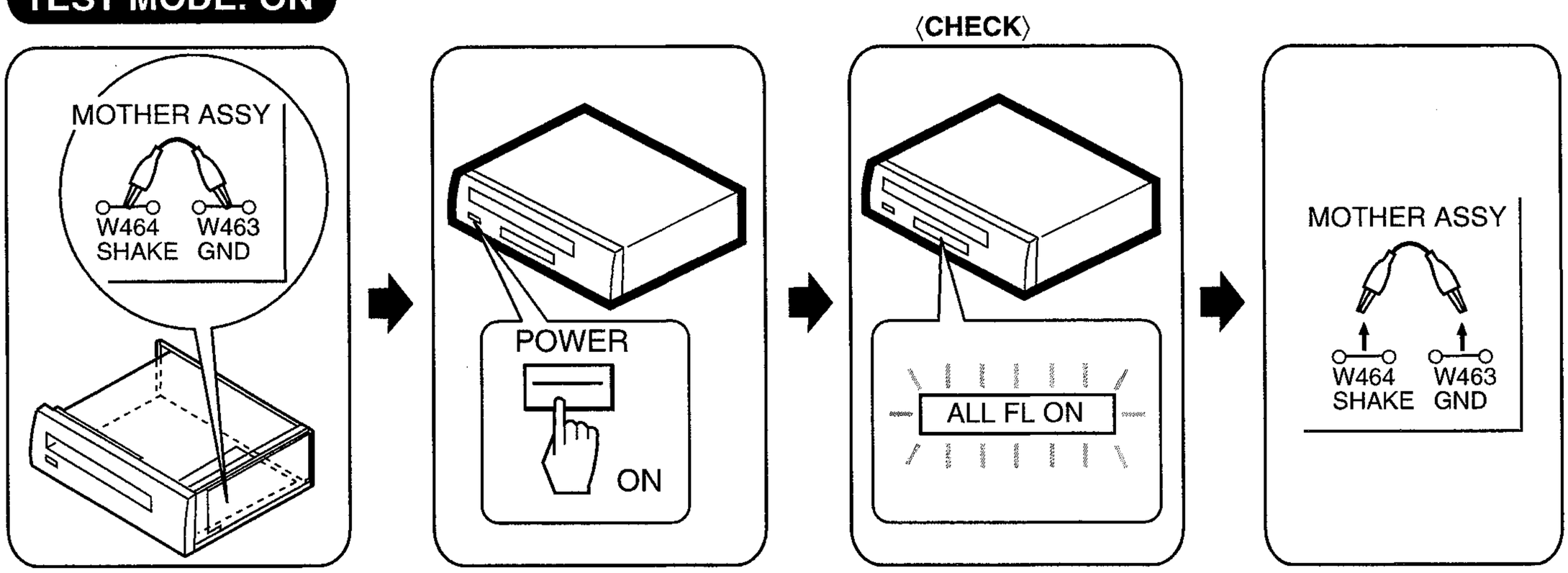


6.2 JIGS AND MEASURING INSTRUMENTS

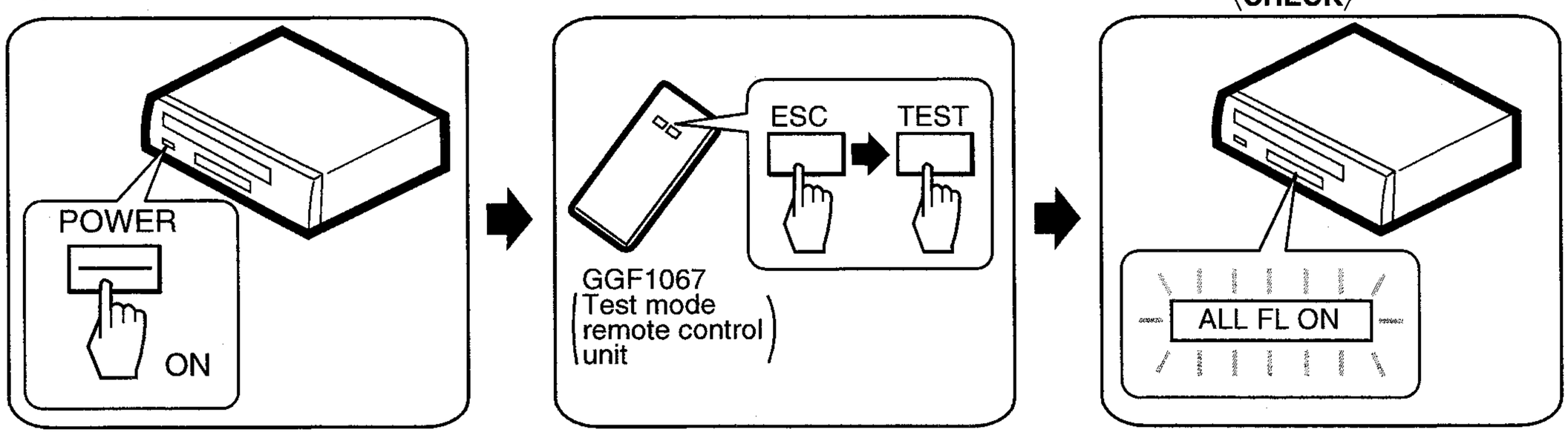
 CD test disc (YEDS-7)	 LD test disc (GGV1012)	 ⊖ Screwdriver (medium)	 ⊖ Screwdriver (small)
 ⊖ Precise screwdriver	 ⊕ Screwdriver (large)	 ⊕ Screwdriver (medium)	 Dual-trace oscilloscope (with delay) Frequency band ≧ 40MHz
 Frequency counter Display digit ≧ 8-digit	 TV monitor	 Test mode remote control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

6.3 TEST MODE

TEST MODE: ON

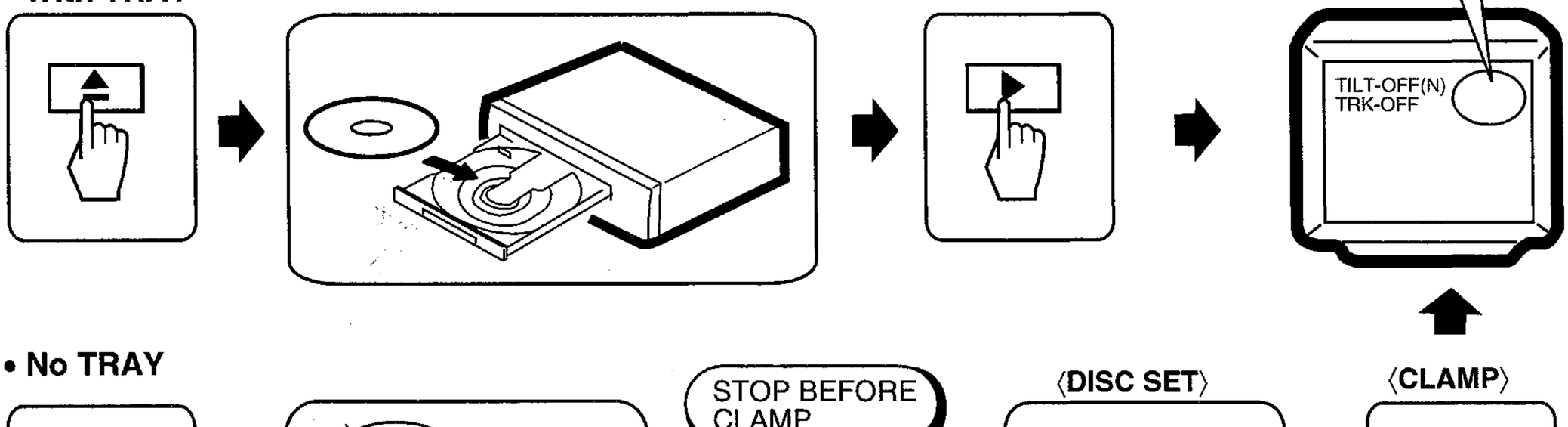


OR

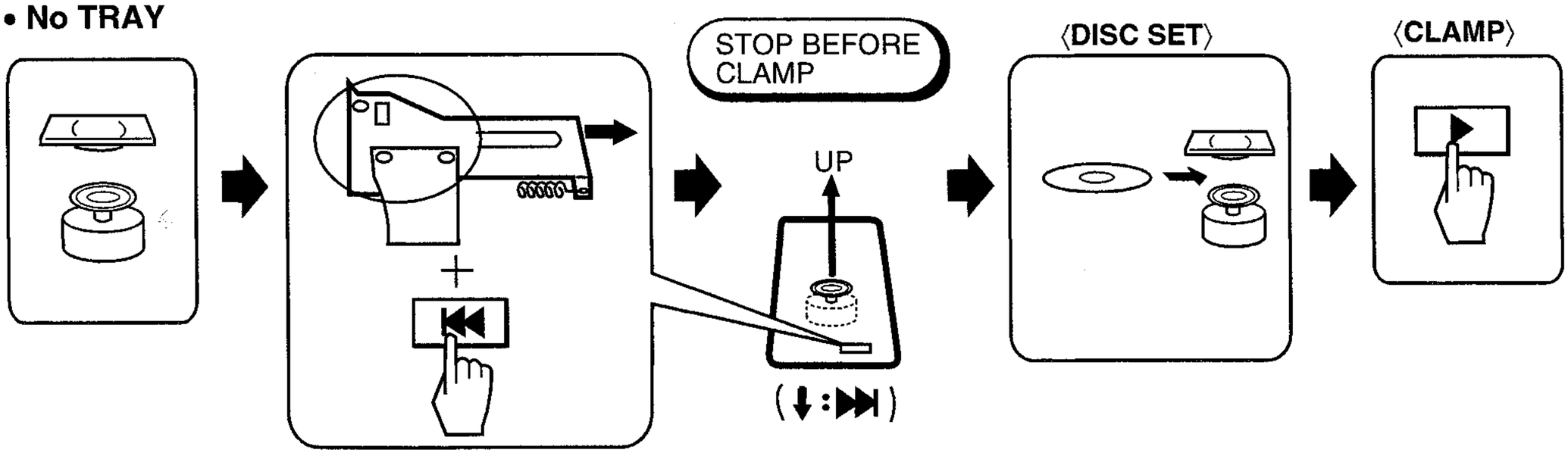


TEST MODE: DISC SET

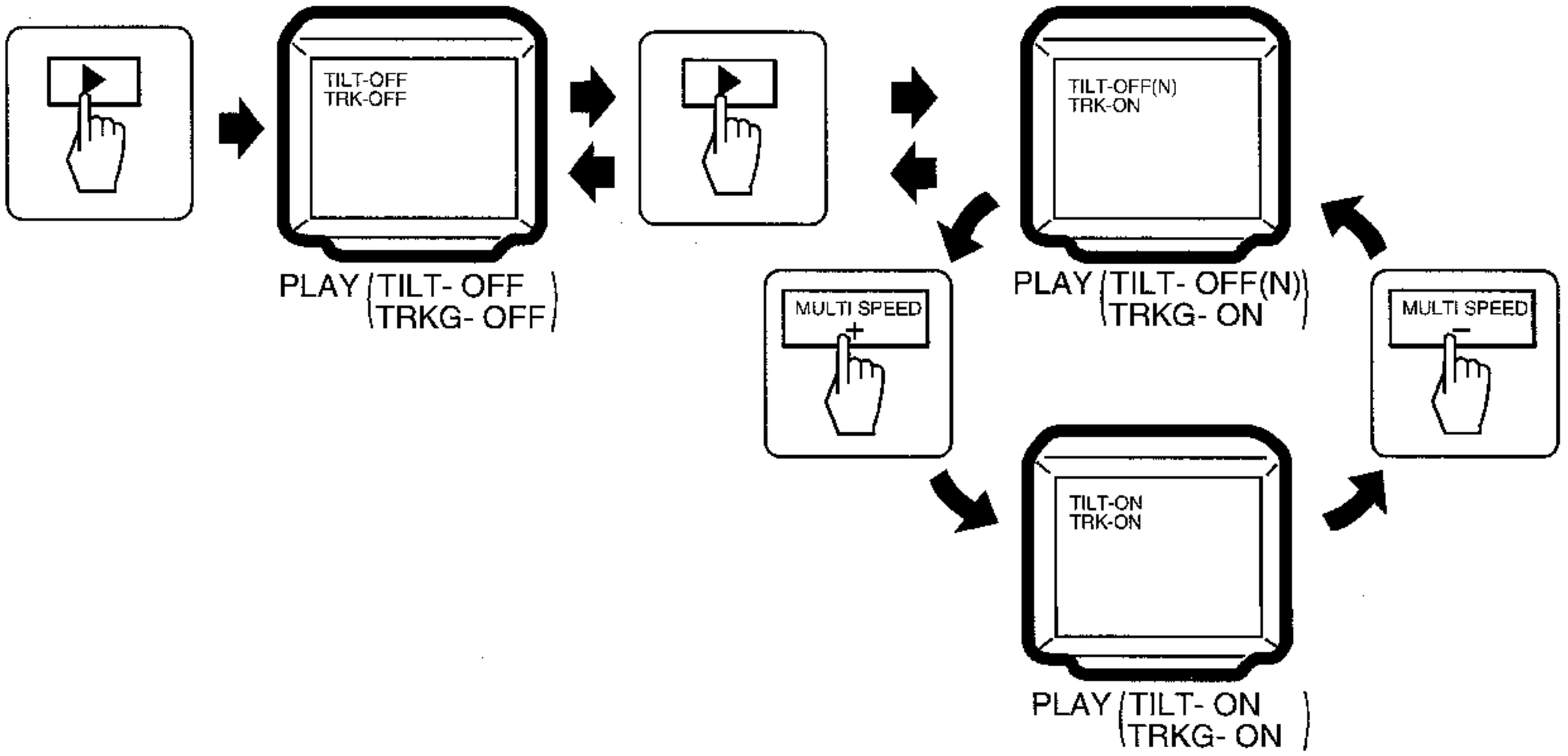
• With TRAY



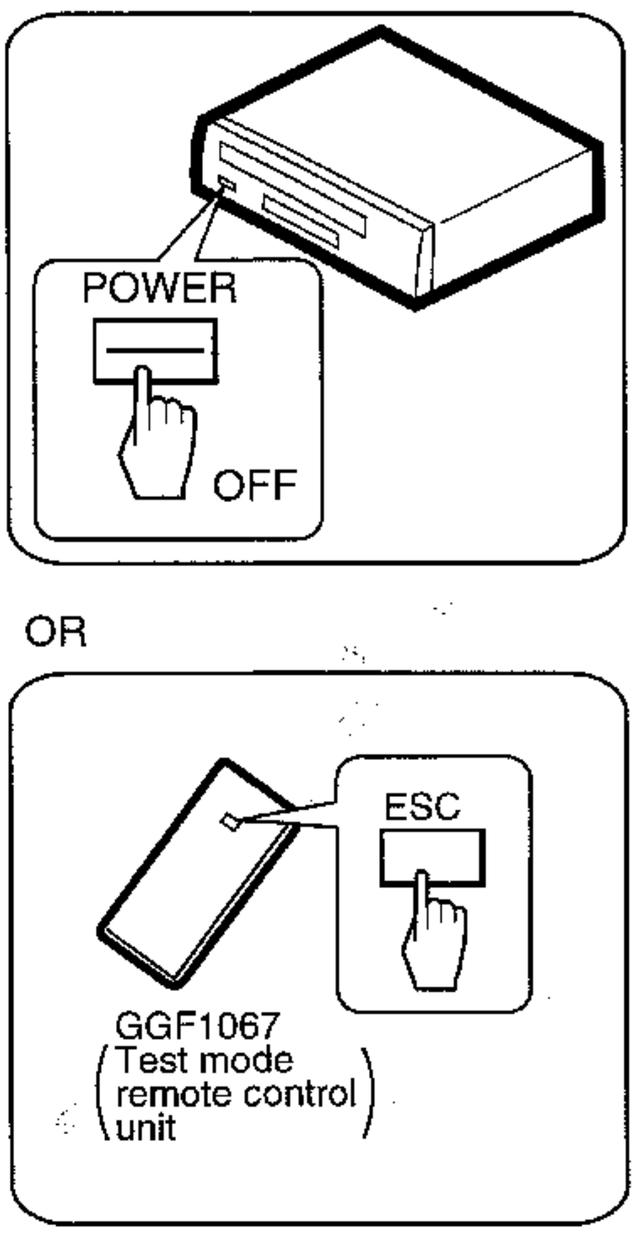
• No TRAY



TEST MODE: PLAY



TEST MODE: OFF



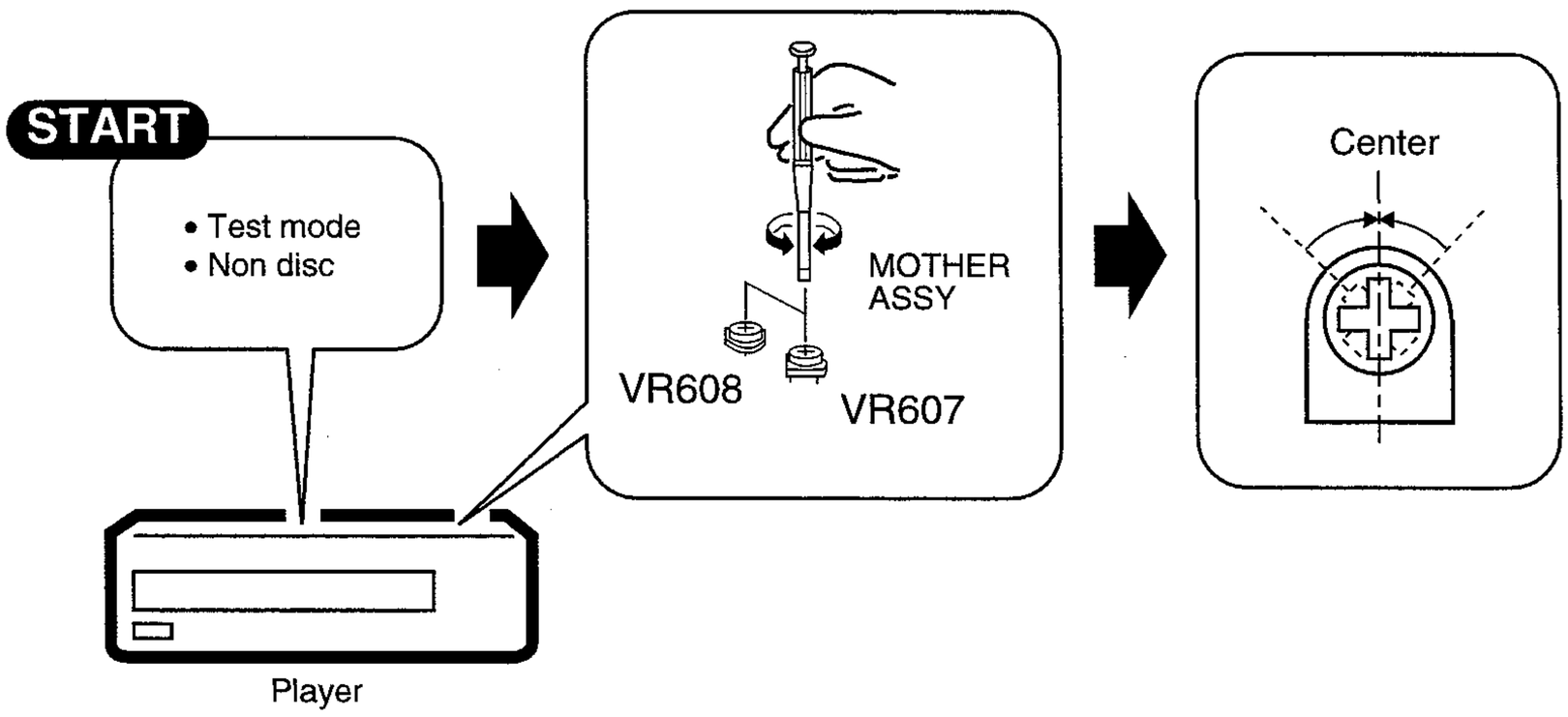
6.4 NECESSARY ADJUSTMENT POINTS

When	Adjustment Points
■ EXCHANGE MECHANISM ASSY PARTS	
Exchange pickup	Mechanical point: ❶,❷,❸,❹,❺,❻,❼,❽,❾ Electric point: ———
Exchange spindle motor	Mechanical point: ❸,❽ Electric point: ———
■ EXCHANGE PCB ASSY	
Exchange board MOTHER ASSY	Mechanical point: ❶,❹,❺,❻,❾ Electric point: ———

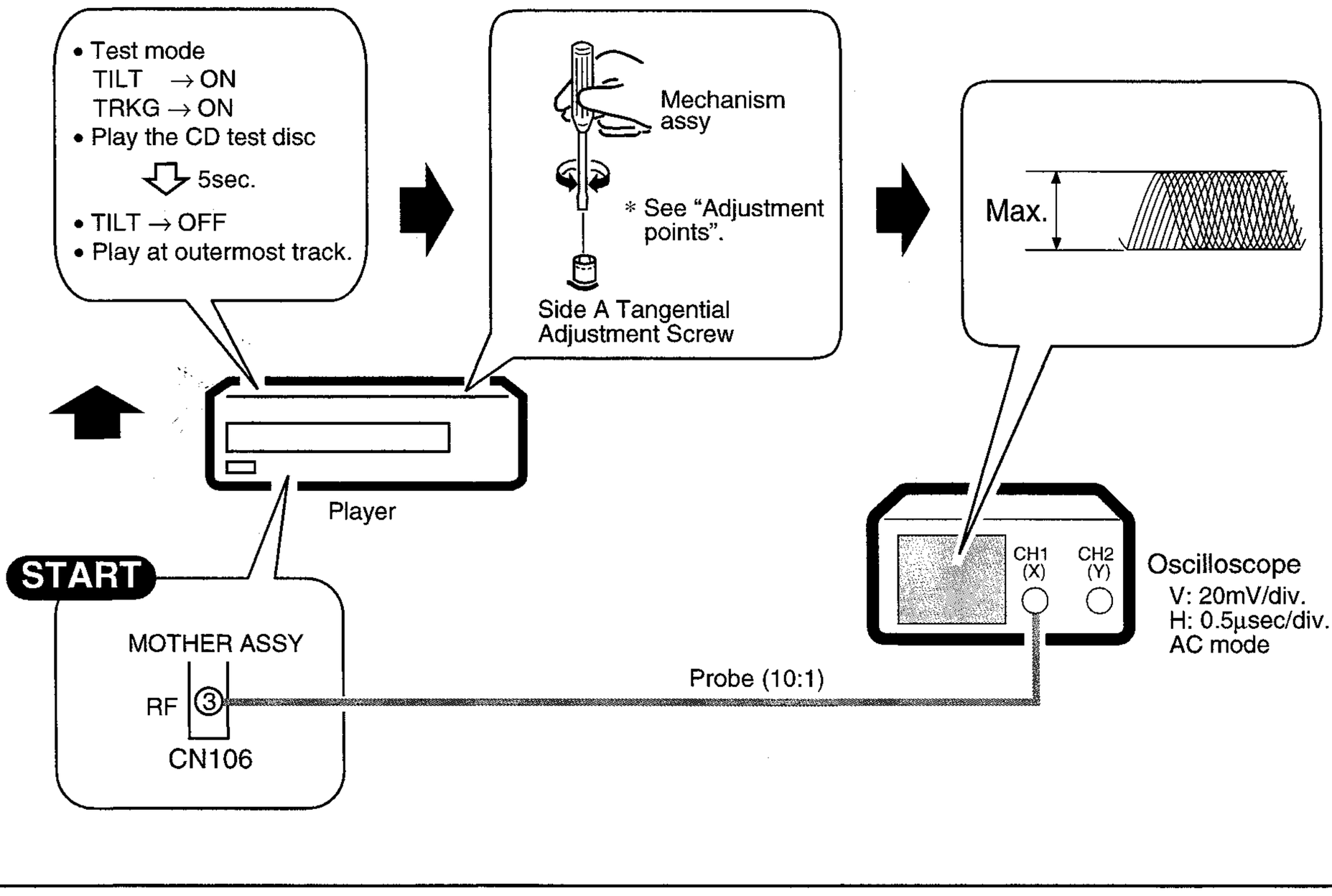
Note : ① and ② are adjusted already.

6.5. MECHANICAL ADJUSTMENT

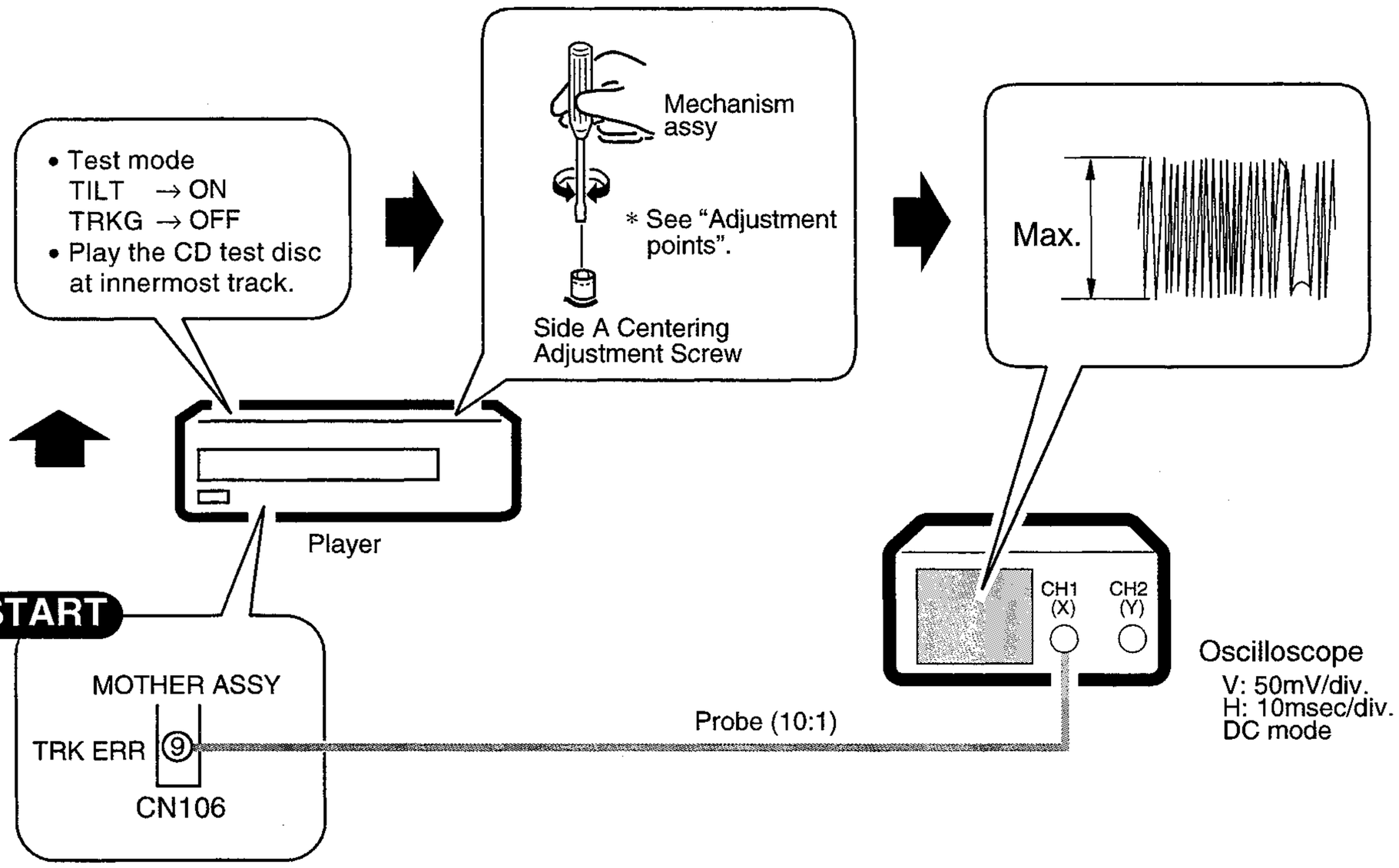
❶ Tilt Offset Adjustment



❷ Tangential Direction Angle Adjustment for Side A

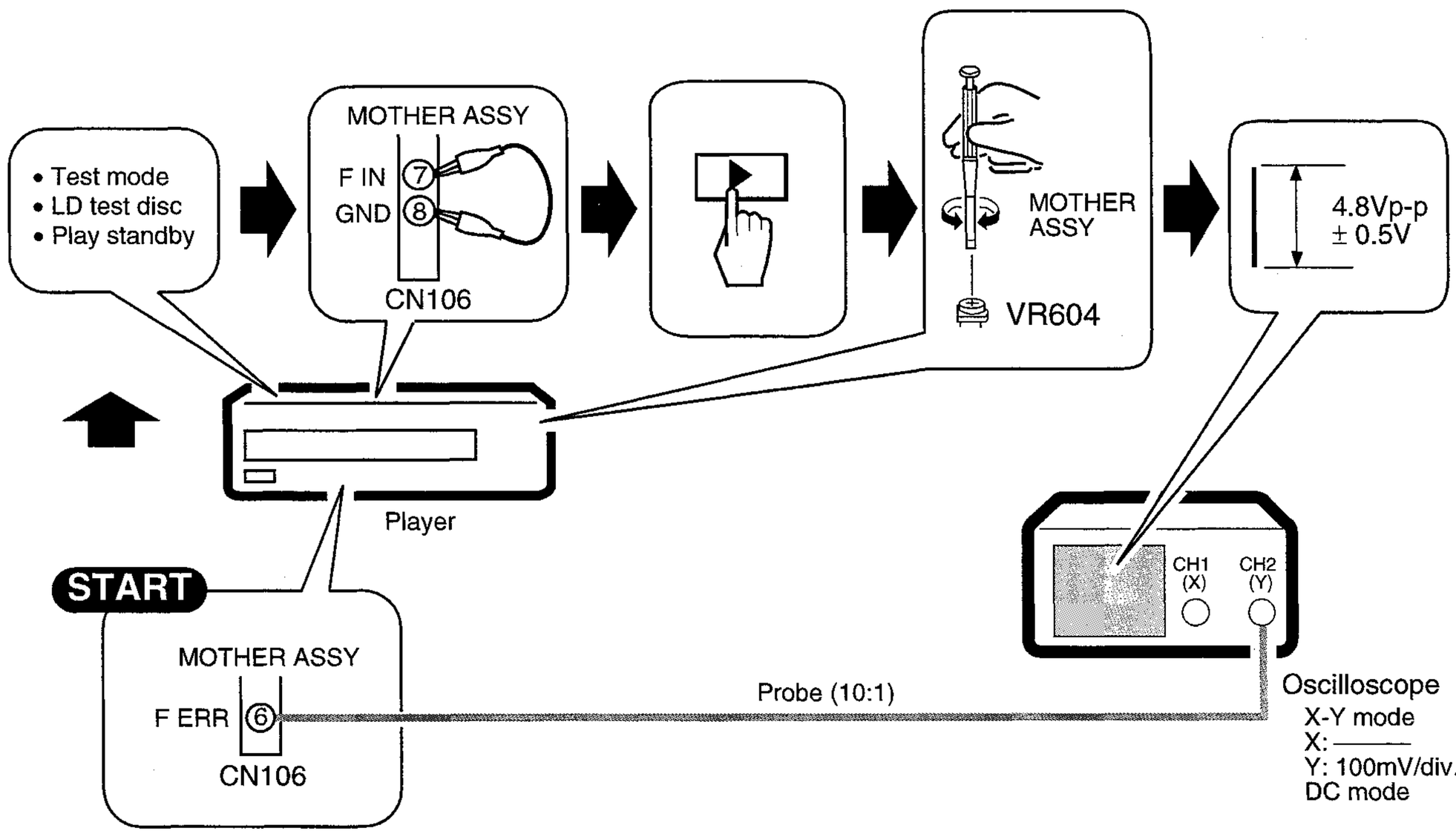


3 Spindle Motor Centering Adjustment for Side A

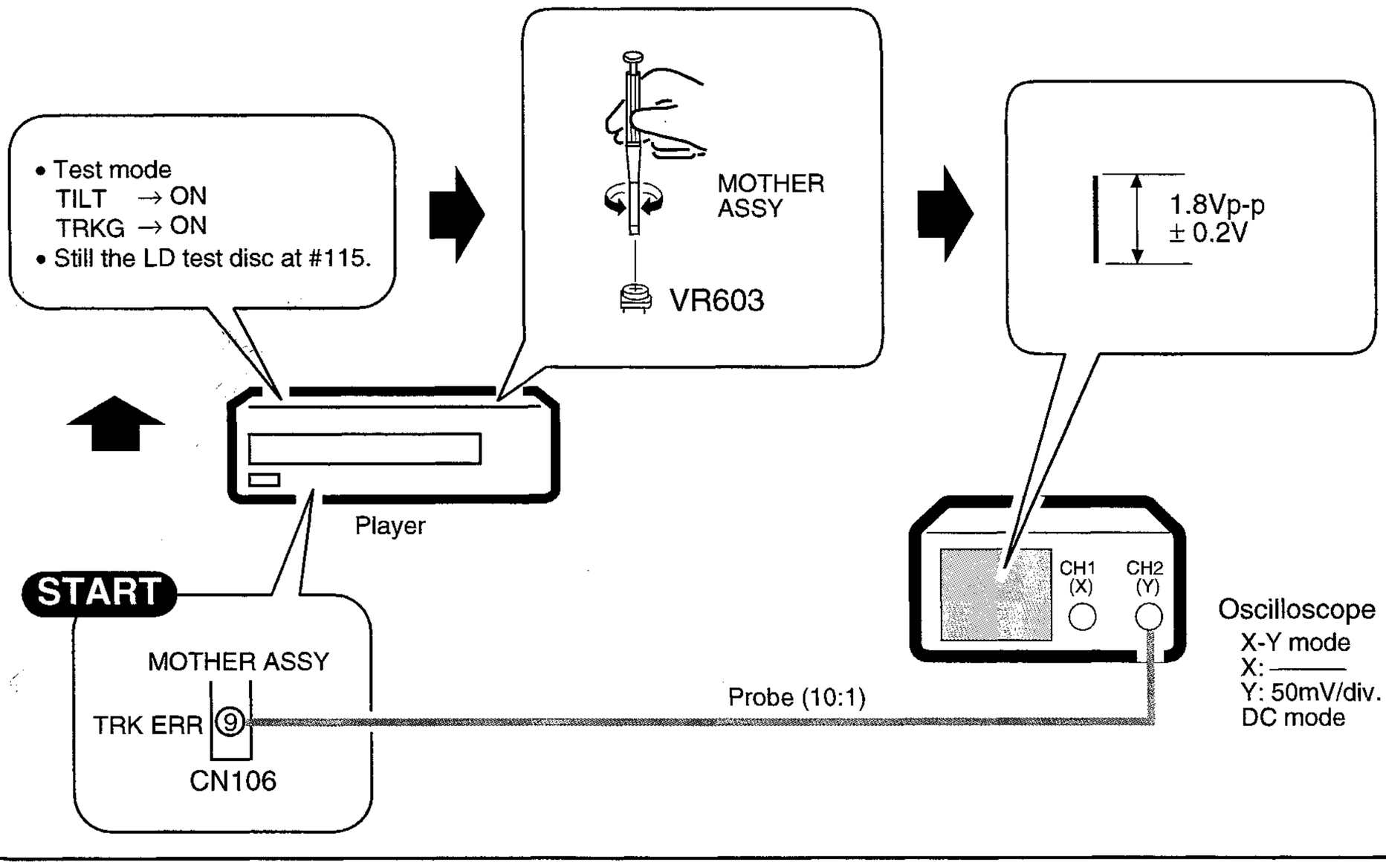


4 Crosstalk Check and Fine Tilt Offset Adjustment for Side A

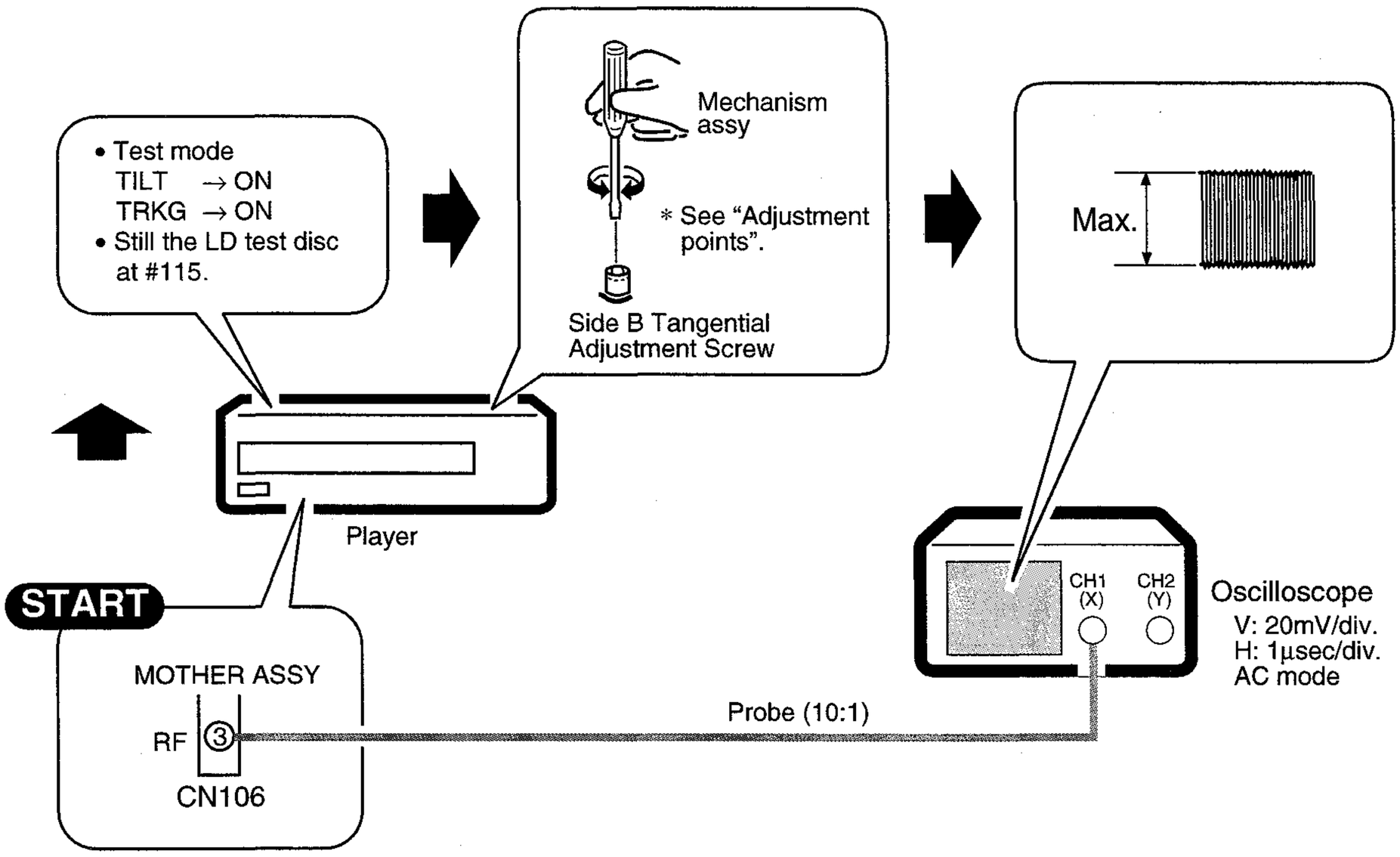
5 Focus Servo Loop Gain Adjustment



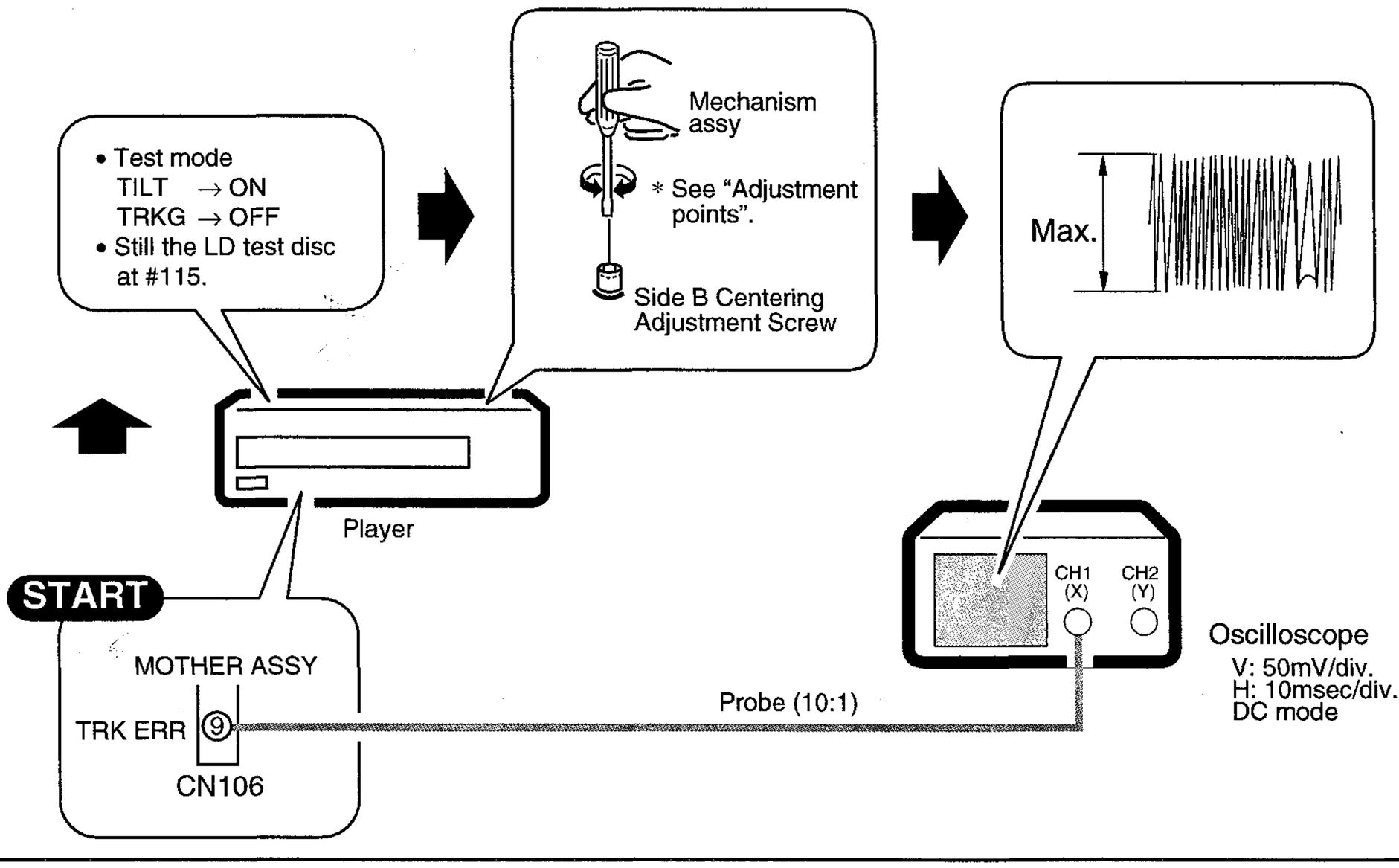
6 Tracking Servo Loop Gain Adjustment



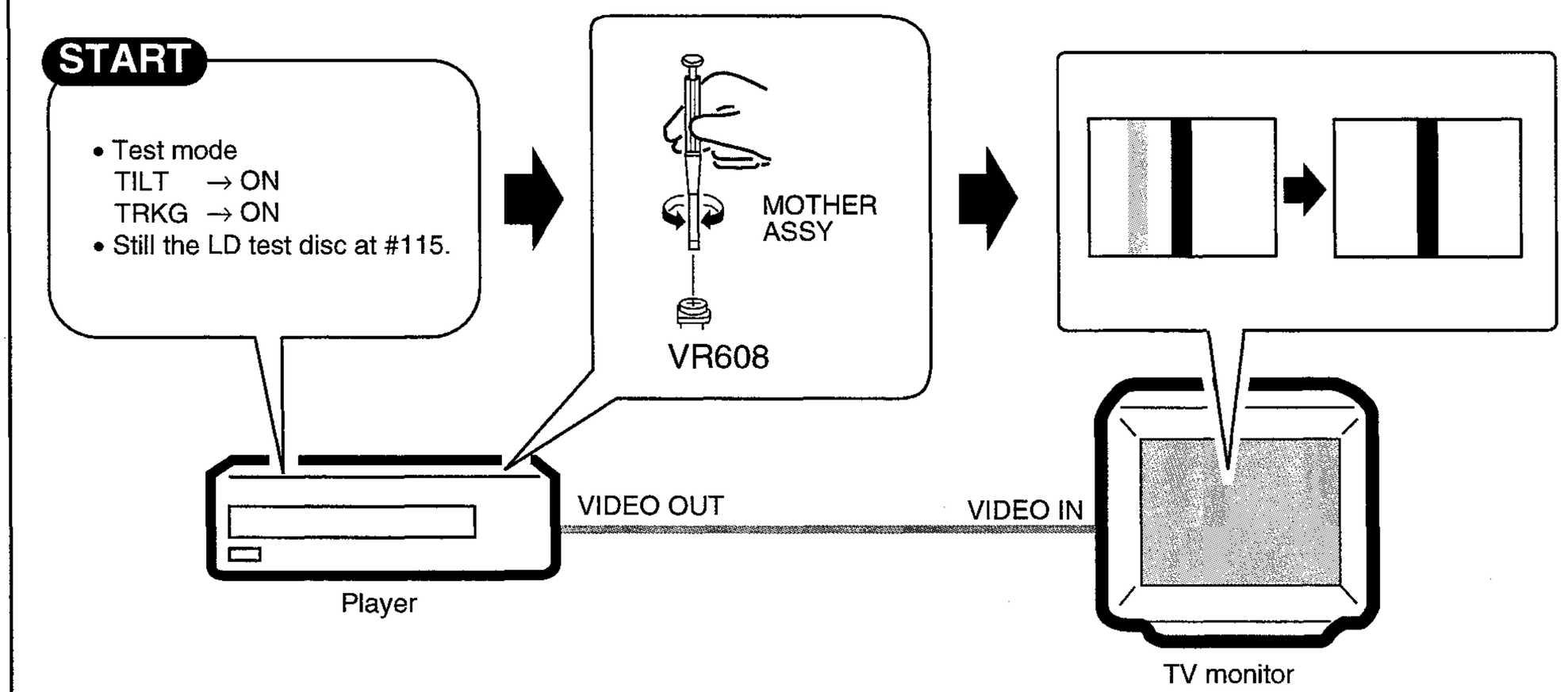
7 Tangential Direction Angle Adjustment for Side B



8 Spindle Motor Centering Adjustment for Side B

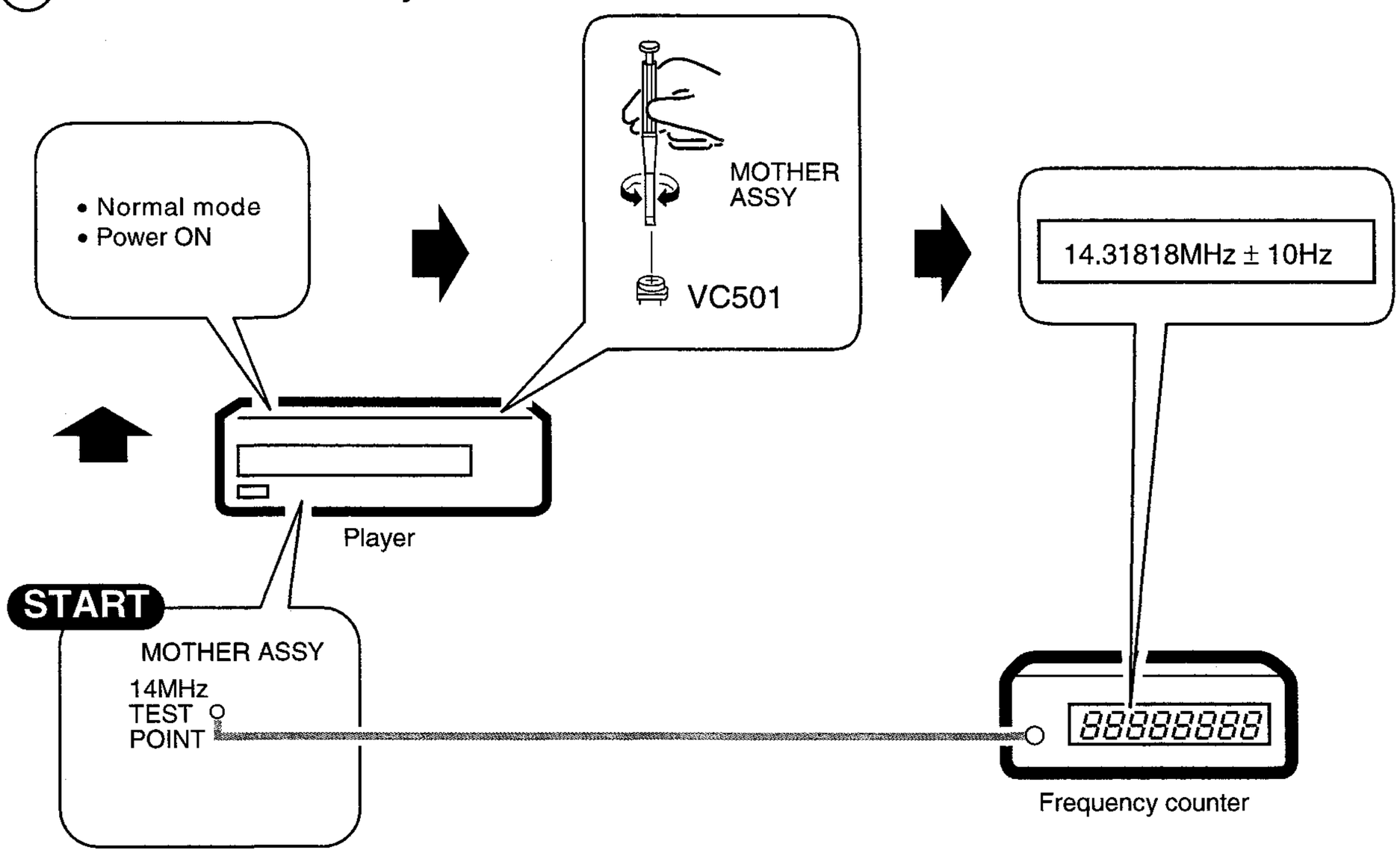


9 Crosstalk Check and Fine Tilt Offset Adjustment for Side B

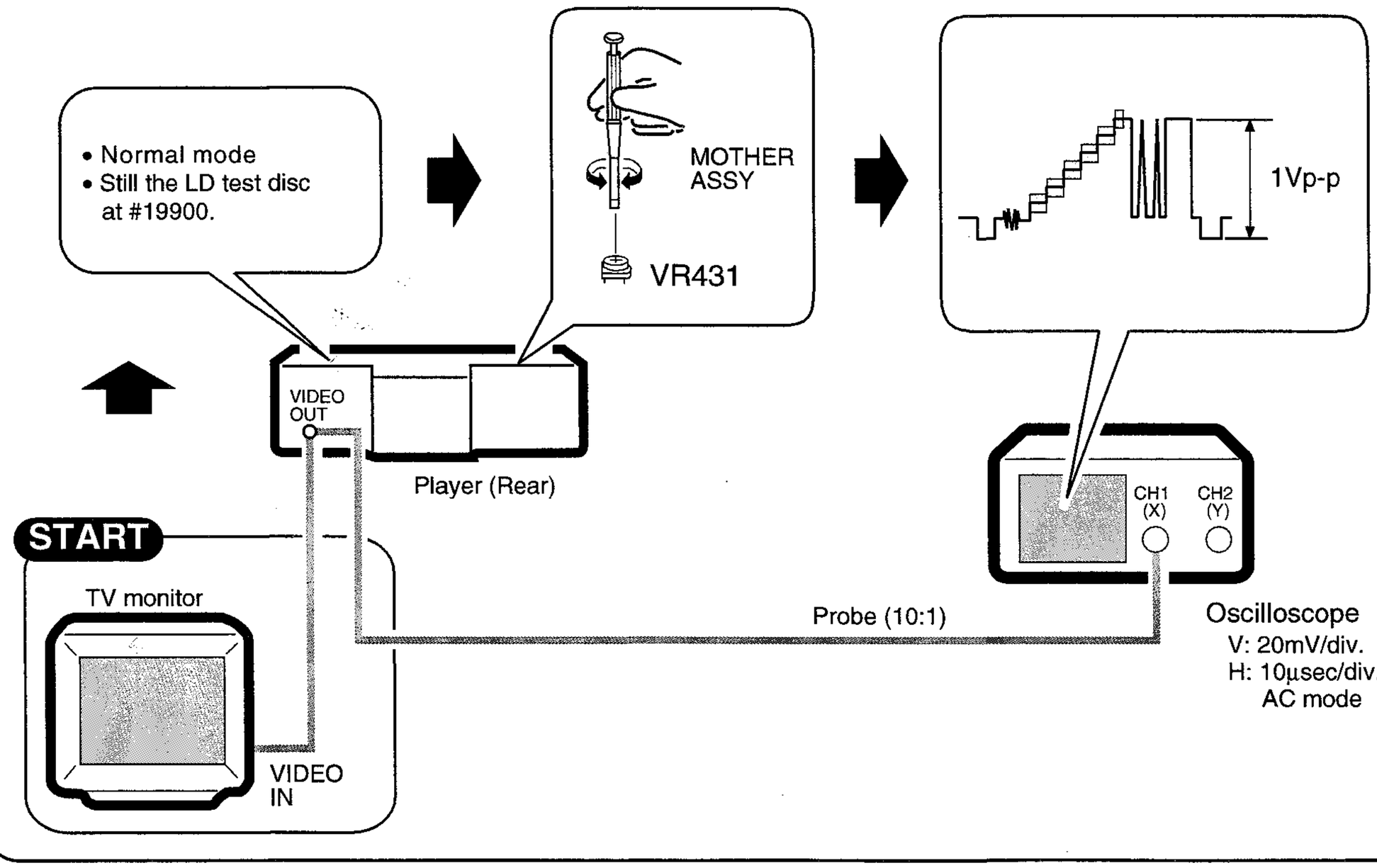


6.6 ELECTRICAL ADJUSTMENT

① Master Clock Adjustment

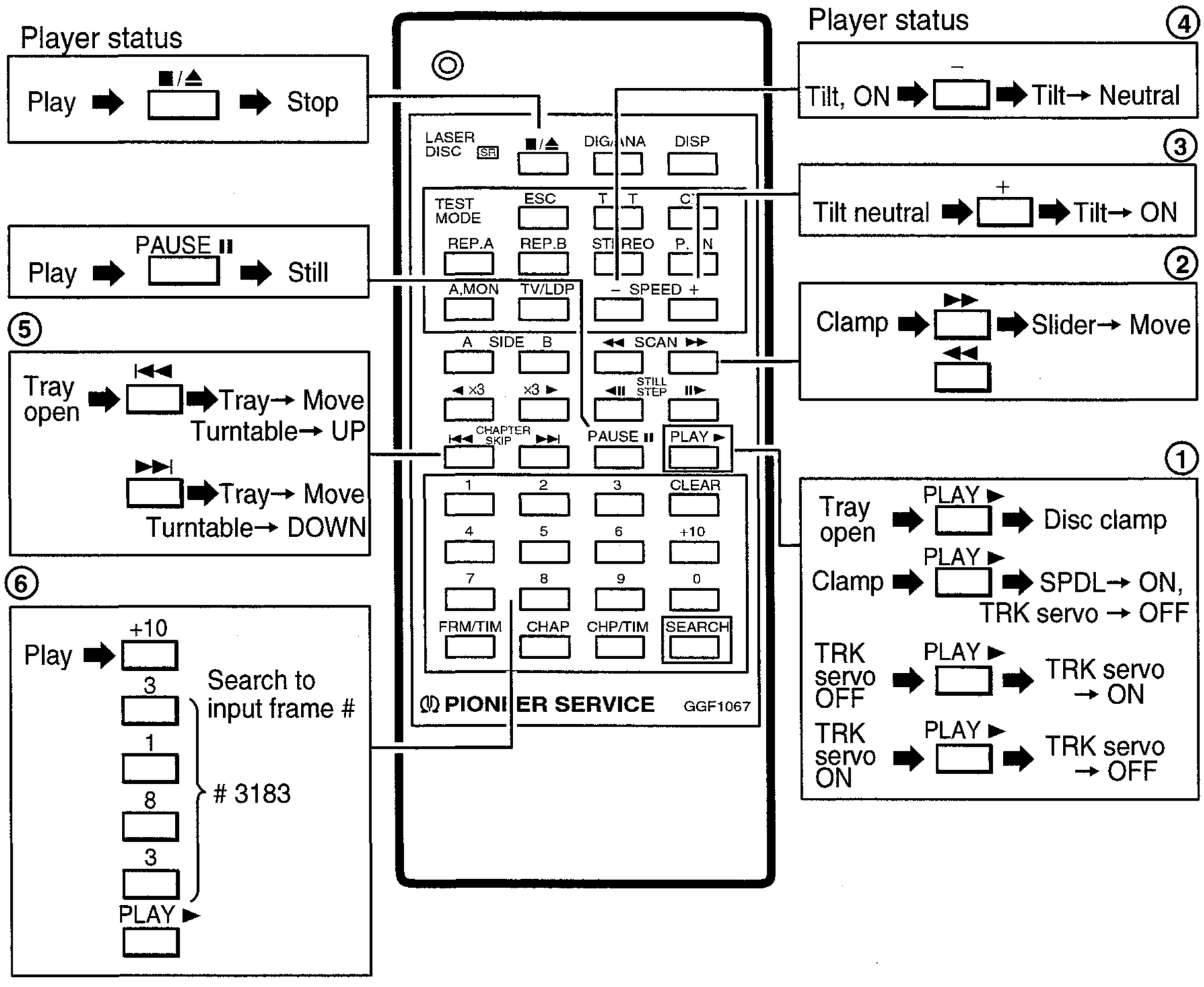


② Output Video Level Adjustment

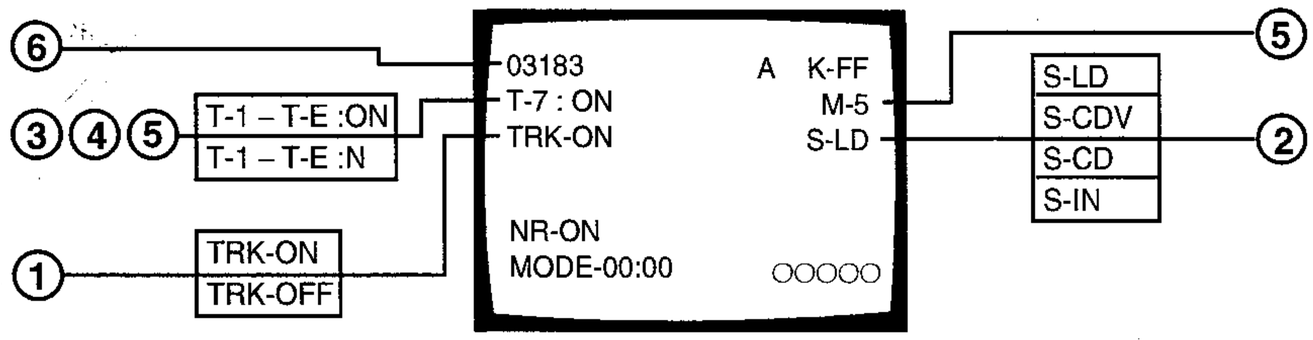


6.7 OPERATIONS IN THE TEST MODE

■ Test Mode Remote Control Unit (GGF1067)



■ TV Monitor Display



7. GENERAL INFORMATION

7.1 PARTS

7.1.1 IC

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

● List of IC

PD3374B, TC9409BF-001, PD0256B2, LC78625E, LA7134M, NJM2209S, PD0234A, CXD2046Q, LA9430M, CXD1852AR, CXD1913Q, PD6230B

■ PD3374B (FLKY ASSY : IC301)

• MODE CONTROL IC

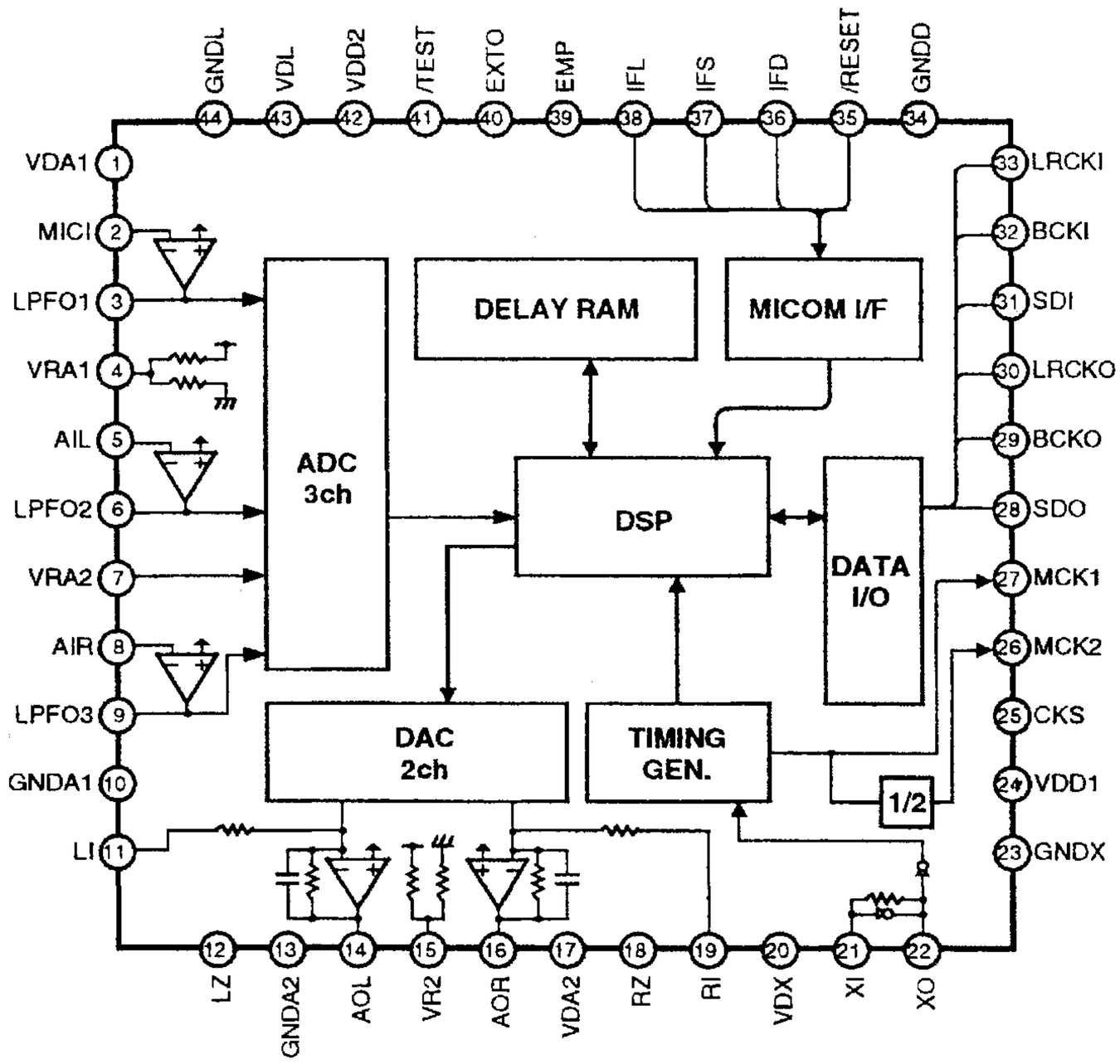
● Pin Function

No.	Pin Name	I/O	Function	No.	Pin Name	I/O	Function
1	MODESEL	I	Mic control input (AD input)	41	G1	O	Display grid output
2	KIN0	I	Key data input (AD input)	42	G2		
3	KIN1			43	G3		
4	KIN2			44	G4		
5	AVSS	I	GND	45	G5		
6	TEST	I	GND	46	G6		
7	X2	O	Not used (N.C.)	47	G7		
8	X1	I	GND	48	G8		
9	VSS	I	GND	49	G9		
10	OSC1	I	Oscillator (8.0MHz)	50	SIDE B (LED)	O	Side B LED output
11	OSC2	O		51	PBC (LED)	O	PBC LED output
12	XRESET (IN)	I	CPU reset input (L : Reset)	52	NR (LED)	O	VCD NR LED output
13	SHAKE (ACK)	I/O	Mechanism control communications request input (Mode control communications enabled output)	53	DIGEST (LED)	O	DIGEST LED output
14	SEL IR	I	Remote control input	54	XMIC ON	O	Mic line switching output (L:ON, H:OFF)
15	V-CD	I/O	VCD control communications request input (Mode control communications enabled output)	55	XINT/EXT	O	Analog audio switching output (L:Player, H:External input)
16	POWER ON	O	Mother board power supply swiching output	56	GUIDE Vo. (LED)	O	Guide vocal LED output
17	EFLG	I	For error rate mesurement	57	VCC	I	Power supply (+5V)
18	FSX	I		58	KARAOKE/ NORMAL	I	Model switch port
19	P1/6	O	Not used (N.C.)	59	TRAY SEL	I	
20	DOG FOOD	O	Pulse output for watch dog	60	P8/2	O	Not used (N.C.)
21	NOR/KARA (LED)	O	Normal/karaoke LED output	61	SIDE A (LED)	O	Side A LED output
22	SINGLE (LED)	O	SINGLE LED output	62	XCS (OSD)	O	Charactor generator (PD0234A), communications request
23	STAND-BY (LED)	O	STAND-BY LED output	63	XRESET (OUT)	O	Mother board reset output
24	P	O	Display segment output	64	P8/6	O	Not used (N.C.)
25	O			65	XCS (G)	O	Not used (N.C.)
26	N			66	PAL	O	Not used (N.C.)
27	M			67	XCSK	I/O	Serial communications clock input/output
28	L			68	S:MtoF	I	Serial communications data input
29	K			69	S:FtoM	O	Serial communications data output
30	J			70	CDGM	I	Not used (N.C.)
31	I			71	GMUTE	O	Not used (N.C.)
32	H			72	XCS (DASP)	O	DSP (TC9409BF-001), communications request output
33	G			73	P9/7	O	Not used (N.C.)
34	F			74	TRAY SW	I	Tray position detect
35	E			75	XSINGELE/BOTH	I	Model switch port
36	D			76	AVCC	I	Power supply (+5V)
37	C			77	GUID Vo VR	I	Vocal volume data value (AD input)
38	B			78	ECHO VR	I	Echo volume data value (AD input)
39	A			79	MODEL SEL	I	Model switch port (AD input)
40	VDISP	I	-29V	80	PAL/NTSC	I	Video output format detect (AD input)

■ TC9409BF-001 (KARAB ASSY : IC101)

• DIGITAL AUDIO SIGNAL PROCESSOR

● Block Diagram



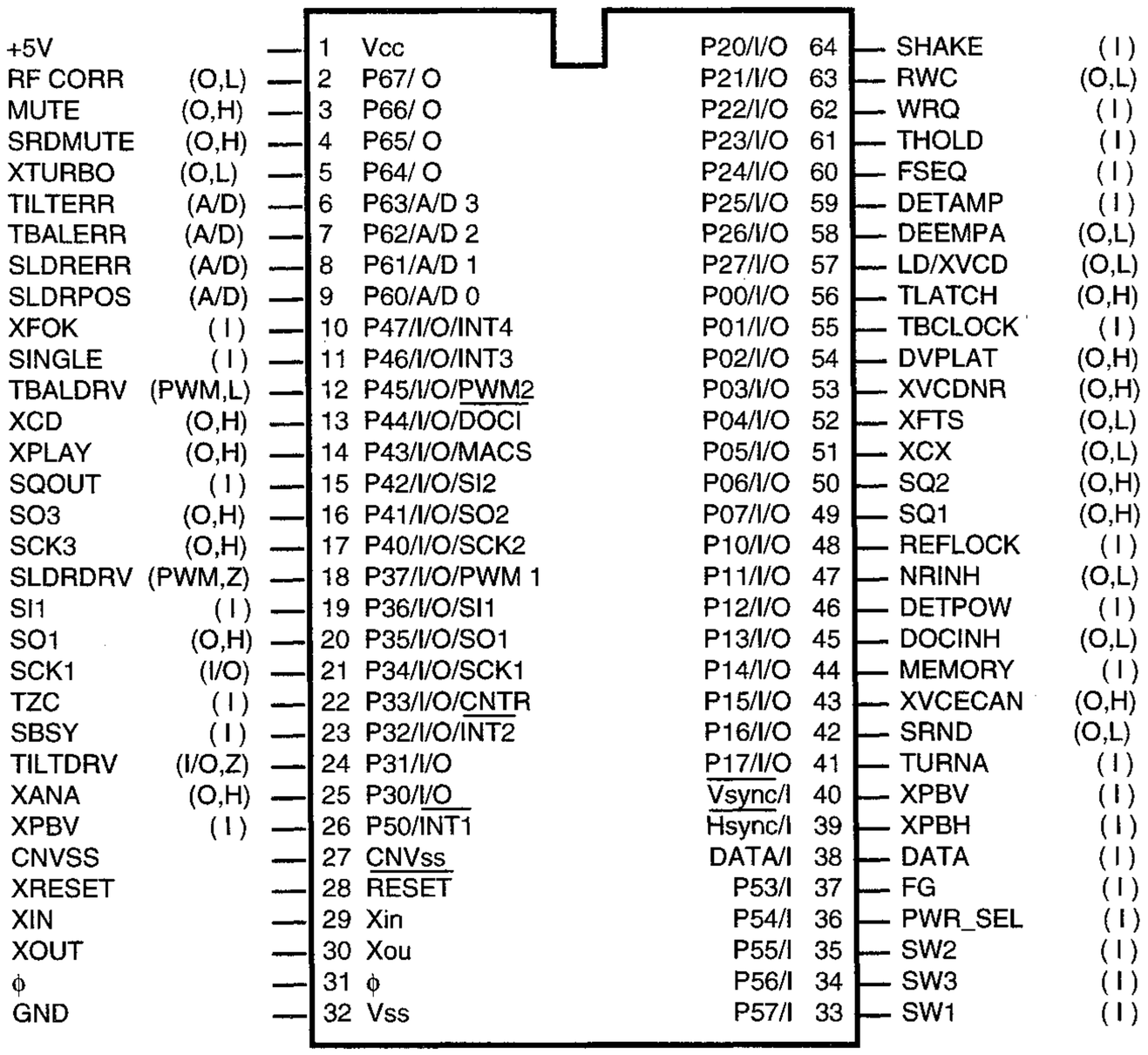
● Pin Function

No.	Pin Name	I/O	Function	No.	Pin Name	I/O	Function
1	VDA1	–	ADC power supply	23	GNDX	–	Ground for oscillation section
2	MICI	I(A)	LPF input for MIC input	24	VDD1	–	Digital power supply
3	LPFO1	O(A)	LPF output for MIC input	25	CKS	I	Master clock selection (H : 256/384fs, L : 512/768fs)
4	VRA1	–	ADC reference voltage	26	MCK2	O	Oscillation clock output for frequency divided by 2
5	AIL	I(A)	LPF input for L ch line input	27	MCK1	O	Oscillation clock output
6	LPFO2	O(A)	LPF output for L ch line input	28	SDO	O	Digital audio data output
7	VRA2	–	Reference power supply for ADC	29	BCKO	O	Bit clock output
8	AIR	I(A)	LPF input for R ch line input	30	LRCKO	O	Channel clock output
9	LPFO3	O(A)	LPF output for R ch line input	31	SDI	I	Digital audio data input
10	GNDA1	–	ADC ground	32	BCKI	I	Bit clock input
11	LI	I	L ch analog adder input	33	LRCKI	I	Channel clock input
12	LZ	O	L ch digital input zero detection	34	GNDD	–	Digital ground
13	GNDA2	–	DAC ground	35	/RESET	I(UP)	Reset (Reset for L)
14	AOL	O(A)	L ch DAC output	36	IFD	I	Microcomputer I/F data input
15	VR2	–	DAC reference voltage	37	IFS	I	Microcomputer I/F data shift clock input
16	AOR	O(A)	R ch DAC output	38	IFL	I	Microcomputer I/F latch pulse input
17	VDA2	–	DAC power supply	39	EMP	I	Deemphasis setting (Deemphasis ON for H)
18	RZ	O	R ch digital input zero detection	40	EXTO	O	Expansion output
19	RI	I	R ch analog adder input	41	/TEST	I(UP)	Test mode setting (Normally, fixed for H)
20	VDX	–	Power supply for oscillation section	42	VDD2	–	Digital power supply
21	XI	I	Connect a oscillator (any of 256, 384, 512 or 768fs)	43	VDL	–	Digital power supply for DRAM
22	XO	O		44	GNDL	–	Digital ground for DRAM

■ PD0256B2 (MOTHER ASSY : IC101)

- **Mechanism Control IC**

● Pin Arrangement (Top View)



● Pin Function

No.	Pin Name	I/O	Function
1	VCC	I	Power supply pin Apply 5V±10%
2	RFCORR	O	RF correction switch signal output H : Gain UP CD, CDV-A : Low, CAV inner circuit gain up, others are High
3	MUTE	O	Audio mute control signal output of audio system L : Release MUTE H : MUTE
4	SRDMUTE	O	Mute control signal output for AC3 Release MUTE during playback. L : Release MUTE H : MUTE
5	XTURBO	O	Loading turbo control L : Turbo Voltage ups about 10 % with the electrical circuit in the OPEN/CLOSE state by using this port.
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	XFOK	I	Focus servo lock signal input L : Lock H : Unlock Use for lock detection of focus servo.
11	SINGLE	I	Information of this port transmit to mode control by communication. L : Port high H : Port low Use for the signal mode before.
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	XCD	O	LD/CD switch signal output L : CD, H : LD
14	XPLAY	O	Signal output during spindle servo L : During servo H : During acceleration, brake and stop
15	SQOUT	I	Command data input from DSP Read out subcode Q data
16	SO3	O	Serial 3 data signals output Serial signals are common used and signal distinguishes from the latch signals (DVPLAT and TLAT).
17	SCK3	O	Serial 3 clock signals output
18	SLDDRV	O PWM	Slider control signal output 5V=FWD, 0V=REV, 2.5V=STOP 910µsec period, tri-state control H, L, Z

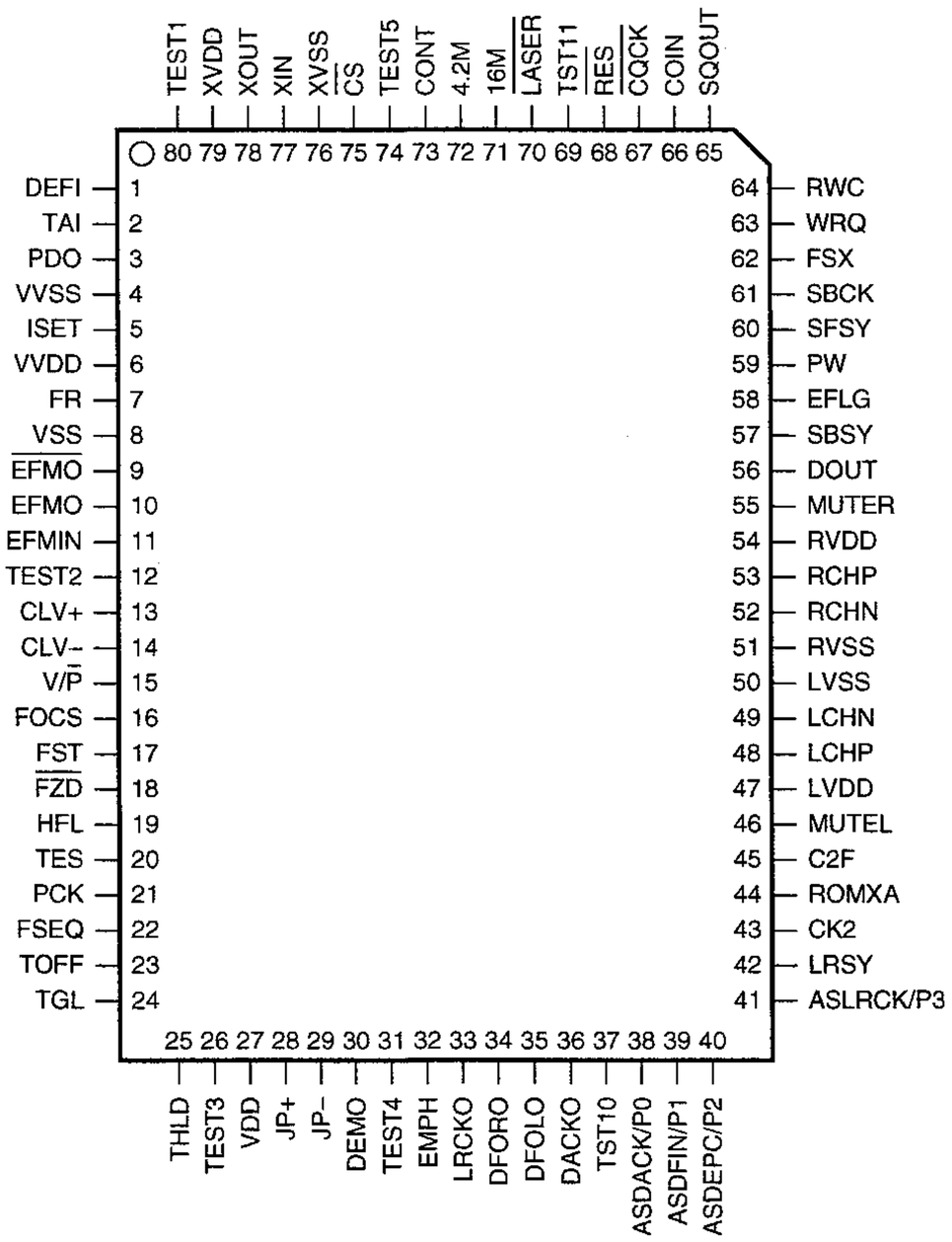
No.	Pin Name	I/O	Function
19	SI1	I	Data input from the mode control IC
20	SO1	O	Serial data output to the mode control IC
21	SCK1	I/O	Clock for serial communication with the mode control IC Becomes input mode without communicate with the mode control IC
22	TZC	I INT	Tracking error zero cross signal input Monitor this signal when searching track count in the miss clamp detection.
23	SBSY	I	Interrupt input for reading sub-code Q data from DSP
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	XANA	O	Digital/Analog audio switch signal output L : Analog H : Digital
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 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	PWR_SEL	I	Use power supply setting port H : Use the double sides power L : Use the single side power
37	FG	I	Spindle motor FG signal input 16 outputs per rotation Used after dividing by 2 in microprocessor
38	DATA	I	Input pin for Phillips code decoder of 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	TURNA	I	Turn switch input H : side A L : side B
42	SRND	O	Surround control H : ON L : OFF
43	XVCECAN	O	Voice cancel output H : OFF L : Cancel
44	MEMORY	I	Memory model discrimination H : Memory model L : Non-memory model
45	DOCINH	O	Control the clamp pulse and clamp killer by tri-state value
46	DETPOW	I	Use for power abnormal signal input port. L : Normal H : Abnormal
47	NRINH	O	Control output of the noise reduction control by VDEM L : Normal H : not NR
48	REFLOCK	I	Reference signal input from DVP L : Phase not aligned H : Phase aligned (Non-memory)
49	SQ1	O	Analog audio switch signal output 1/L L : Squelch OFF H : Squelch ON
50	SQ2	O	Analog audio switch signal output 2/R L : Squelch OFF H : Squelch ON
51	XCX	O	Analog audio CX noise reduction switch switch signal output L : CX ON H : CX OFF
52	XFTS	O	Serial command output switch signal output of DSP/others L : DSP H : others
53	XVCDNR	O	VCD-NR control L : ON H : OFF
54	DVPLAT	O	PD0234 serial latch signal output Latches at falling edge.
55	TBCLOCK	I	Spindle lock signal input L : Unlock H : Lock
56	TLATCH	O	DAC (TC9400) serial control latch signal output Latches at falling edge.
57	XVCD	O	LD and VCD switch signal output L : VCD H : LD
58	DEEMPA	O	DSP deemphasis control L : OFF H : ON
59	DETAMP	I	Spindle over-current detection signal input L : Over current H : Normal
60	FSEQ	I	Subcode sync. conformity detection signal input L : Not conformity H : Conformity
61	THOLD	I	Track jump accelerating / decelerating signal input L : others H : during accelerating / decelerating
62	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.
63	RWC	O	DSP read / write command signal output L : Read H : Write
64	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.

CLD-210KVT,
CLD-210KVT-G

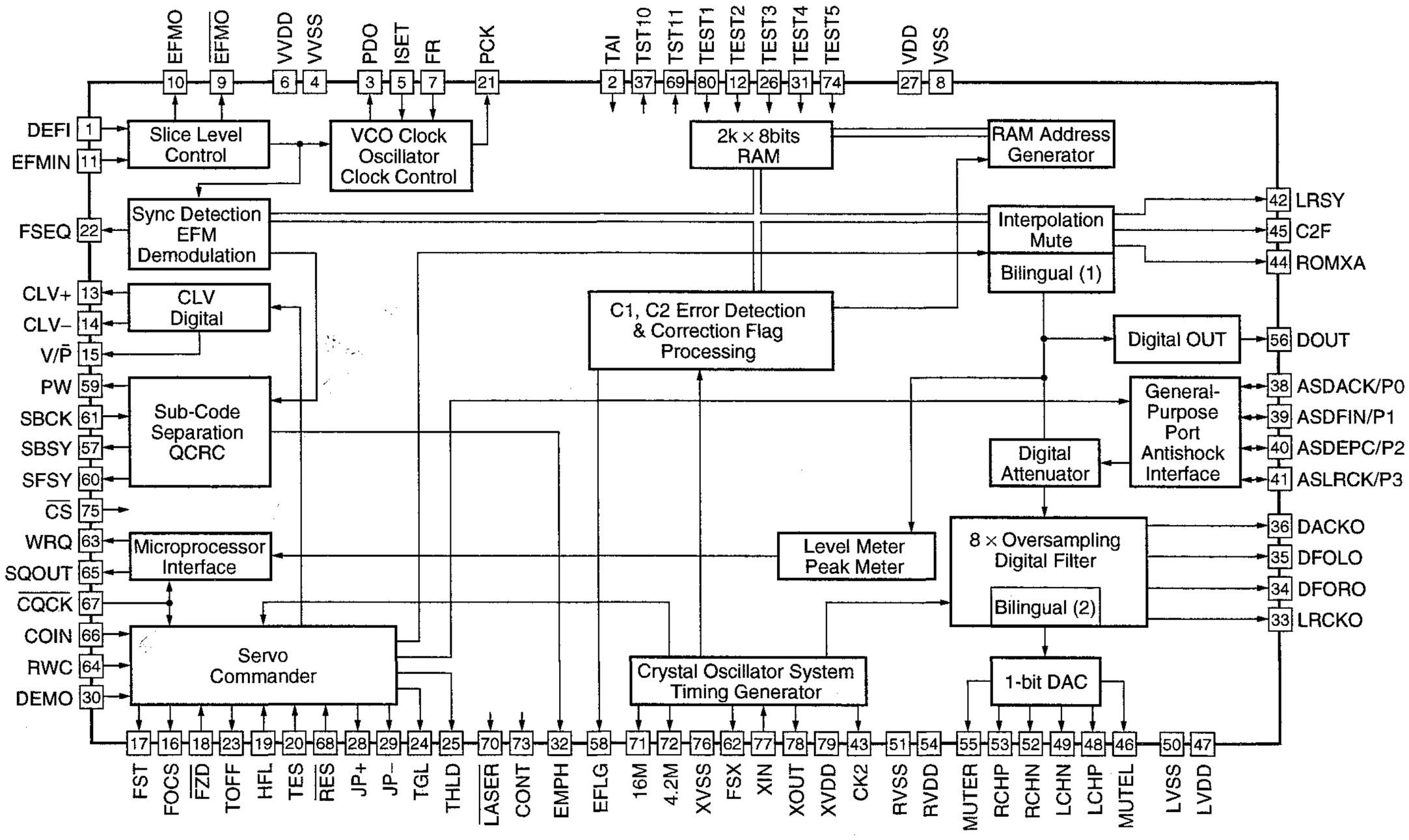
■ LC78625E (MOTHER ASSY : IC201)

• DIGITAL SIGNAL PROCESSOR (DSP)

● Pin Arrangement (Top view)



● Block Diagram



● Pin Function

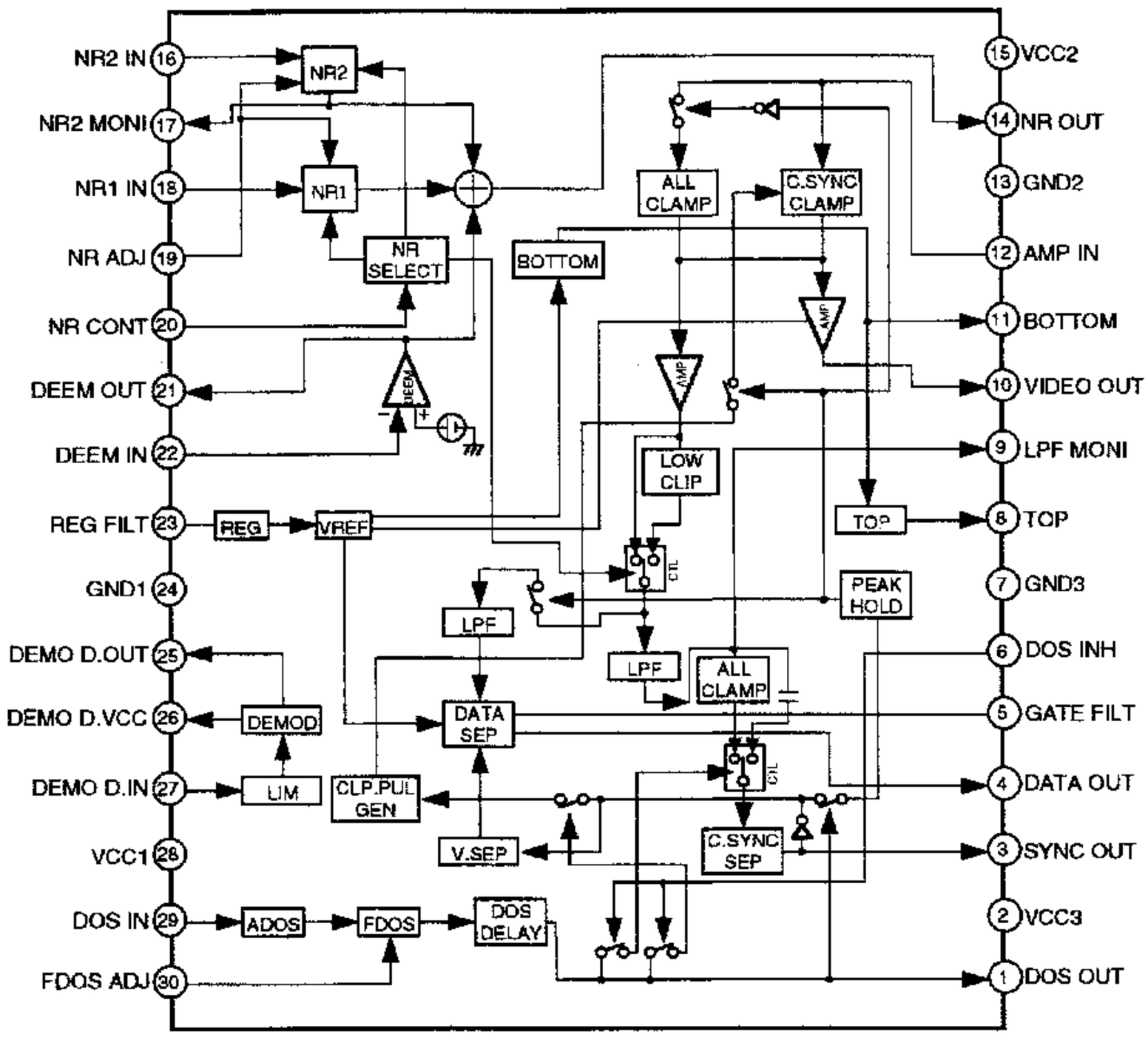
No.	Pin Name	I/O	Function			
1	DEFI	I	Defect detection signal (DEF) input (Must be connected to 0V when unused)			
2	TAI	I	PLL pins	Test input A pull-down resistor is built in Must be connected to 0V		
3	PDO	O		External VCO control phase comparator output		
4	VVSS	–		Internal VCO ground Must be connected to 0V		
5	ISET	AI		PDO output current adjustment resistor connection		
6	VVDD	–		Internal VOO power supply		
7	FR	AI		VCO frequency range adjustment		
8	VSS	–	Digital system ground Must be connected to 0V			
9	$\overline{\text{EFMO}}$	O	Slice level control	EFM signal inversion output		
10	EFMO	O		EFM signal output		
11	EFMIN	I		EFM signal input		
12	TEST2	I	Test input A pull-down resistor is built in Must be connected to 0V			
13	CLV+	O	Spindle servo control output CLV+ "H" specifies acceleration ; CLV- "H" specifies deceleration Can be set up for 3-value output by microprocessor command			
14	CLV-	O				
15	V/$\overline{\text{P}}$	O	Rought servo/phase control automatic switching monitor output Outputs a high level during rough servo and a low level during phase control			
16	FOCS	O	Focus servo on/off output Focus servo on when low			
17	FST	O	Focus start pulse output Open-drain output			
18	$\overline{\text{FZD}}$	I	Focus error zero cross signal input Must be connected to 0V when unused			
19	HFL	I	Track detection signal input This is a schmitt input			
20	TES	I	Tracking error signal input This is a schmitt input			
21	PCK	O	EFM data playback clock monitor Outputs 4.3218MHz when the phase is locked			
22	FSEQ	O	Synchronization signal detection output Outputs a high level when the synchronization signal detected from the EFM signal and the internally generated synchronization signal agree			
23	TOFF	O	Tracking off output			
24	TGL	O	Tracking gain switching output Increase the gain when low			
25	THLD	O	Tracking hold output pin			
26	TEST3	I	Test input A pull-down resistor is built in Must be connected to 0V			
27	VDD	–	Digital system power supply			
28	JP+	O	Track jump output JP+ "H" outputs a high level both for acceleration during outward direction jumps and for deceleration during inward direction jump JP- outputs a high level both for acceleration during inward direction jumps and for deceleration during outward direction jumps Can be set up for 3-value output by microprocessor command			
29	JP-					
30	DEMO	I	Set adjustment process-use sound generation function input A pull-down resistor is built in Must be connected to 0V			
31	TEST4	I	Test input A pull-down resistor is built in Must be connected to 0V			
32	EMPH	O	De-emphasis monitor output A high level indicates playback of a de-emphasis disk			
33	LRCKO	O	Digital filter output	Word clock output		
34	DFORO			R channel data output		
35	DFOLO			L channel data output		
36	DACKO			Bit clock output		
37	TST10	O	Test output Must be used in open state (Normally low output)			
38	ASDACK/P0	I/O	General-purpose input/output port (P0-3) when in antishock unused mode Must be connected to 0V with input specification selected or must be left open with output specification selected when in antishock unused mode		Antishock-supported input when in antishock unused mode	Bit clock input
39	ASDFIN/P1					L/R channel data output
40	ASDEPC/P2					Built-in de-emphasis filter on/off switching (H:ON, L:OFF)
41	ASLRCK/P3					L/R clock input

No.	Pin Name	I/O	Function		
42	LRSY	O	ROMX-supported output	L/R clock output	
43	CK2			Bit-clock output (reset)	Polarity inversion clock output (CK2CON mode)
44	ROMXA			Interpolation data output (reset)	ROM data output (ROMXA mode)
45	C2F			C2 flag output	
46	MUTEL	O	1 bit DAC use	Left channel must output	
47	LVDD	–		Left channel power supply	
48	LCHP	O		Left channel P output	
49	LCHN	O		Left channel N output	
50	LVSS	–		Left channel ground Must be connected to 0V	
51	RVSS	–		Right channel ground Must be connected to 0V	
52	RCHN	O		Right channel N output	
53	RCHP	O		Right channel P output	
54	RVDD	–		Right channel power supply	
55	MUTER	O		Right channel mute output	
56	DOUT	O	Digital output		
57	SBSY	O	Subcode clock synchronization signal output		
58	EFLG	O	C1, C2, single and double error correction monitor		
59	PW	O	Subcode P, Q, R, S, T, U and W output		
60	SFSY	O	Subcode frame synchronization signal output This signal falls when the subcodes are in the standby state		
61	SBCK	I	Sunned readout clock input This is a schmitt input (Must be connected to 0V when unused)		
62	FSX	O	Output for 7.35kHz synchronization signal divided from the crystal oscillator		
63	WRQ	O	Subcode Q output standby output		
64	RWC	I	Read/write control input This is a schmitt input		
65	SQOUT	O	Subcode Q output		
66	COIN	I	Command input from the control microprocessor		
67	$\overline{\text{CQCK}}$	I	Input for both command input acquisition clock and the SQOUT pin subcode readout clock input This is a schmitt input		
68	$\overline{\text{RES}}$	I	Chip reset input This pin must be set low briefly after power is first applied		
69	TST11	O	Test output Leave open (Normally outputs a low level)		
70	$\overline{\text{LASER}}$	O	Laser on/off output Controlled by serial data commands from the microprocessor		
71	16M	O	16.9344MHz output		
72	4.2M	O	4.2336MHz output		
73	CONT	O	Spare control output Controlled by serial data commands from the microprocessor		
74	TEST5	I	Test input A pull-down resistor is built in Must be connected to 0V		
75	$\overline{\text{CS}}$	I	Chip select input A pull-down resistor is built in Must be connected to 0V if not controlled		
76	XVSS	–	Crystal oscillator ground Must be connected to 0V		
77	XIN	I	Connections for a 16.9344MHz crystal oscillator element (Normal, double-speed playback)		
78	XOUT	O			
79	XVDD	–	Crystal oscillator power supply		
80	TEST1	I	Test input A pull-down resistor is built in Must be connected to 0V		

■ LA7134M (MOTHER ASSY : IC400)

• VIDEO IC

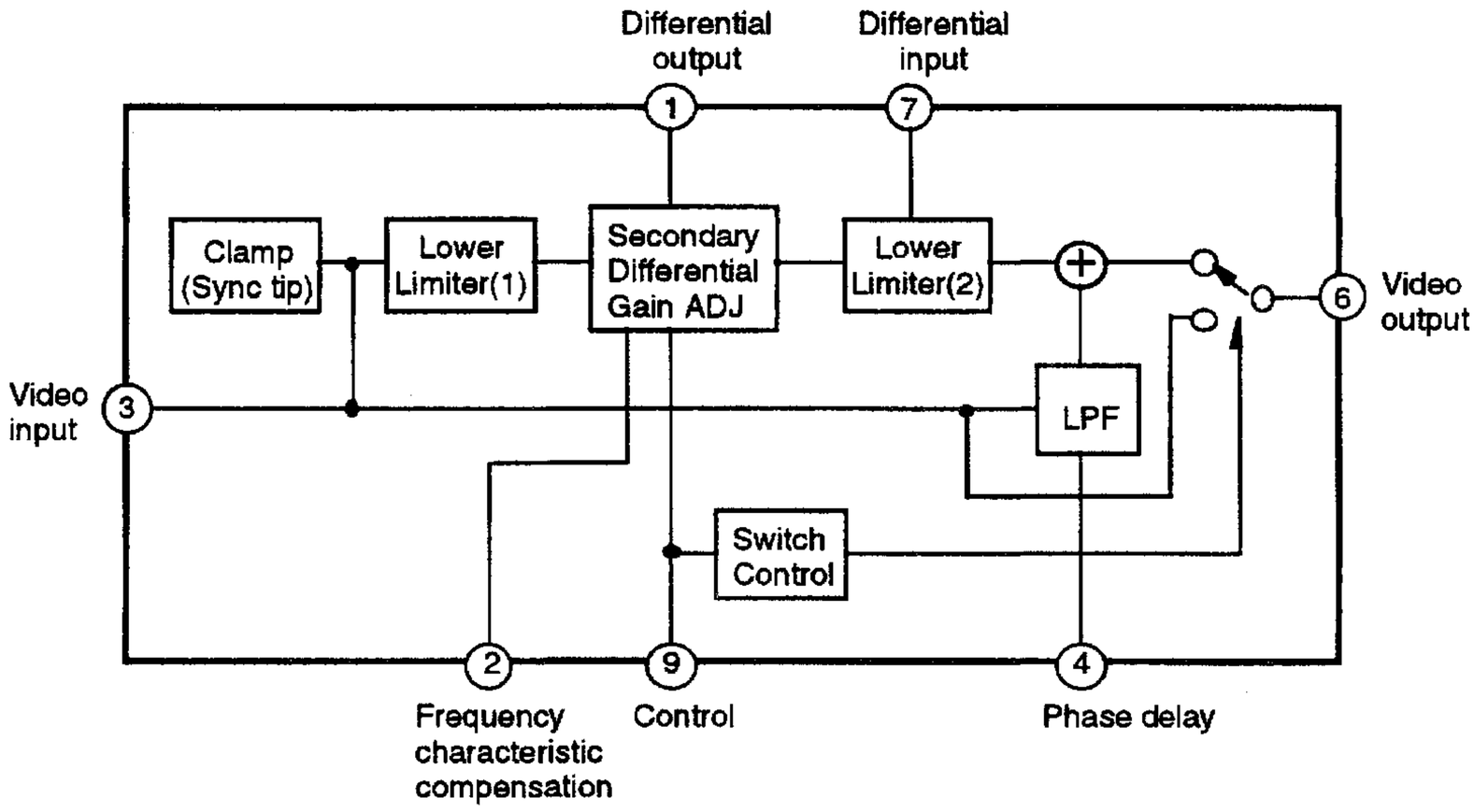
● Block Diagram



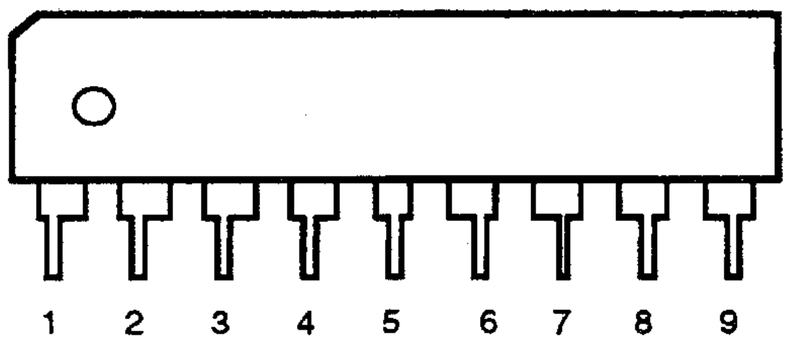
■ NJM2209S (MOTHER ASSY : IC401)

- VIDEO ENHANCER

● Block Diagram



● Pin Arrangement (Top view)



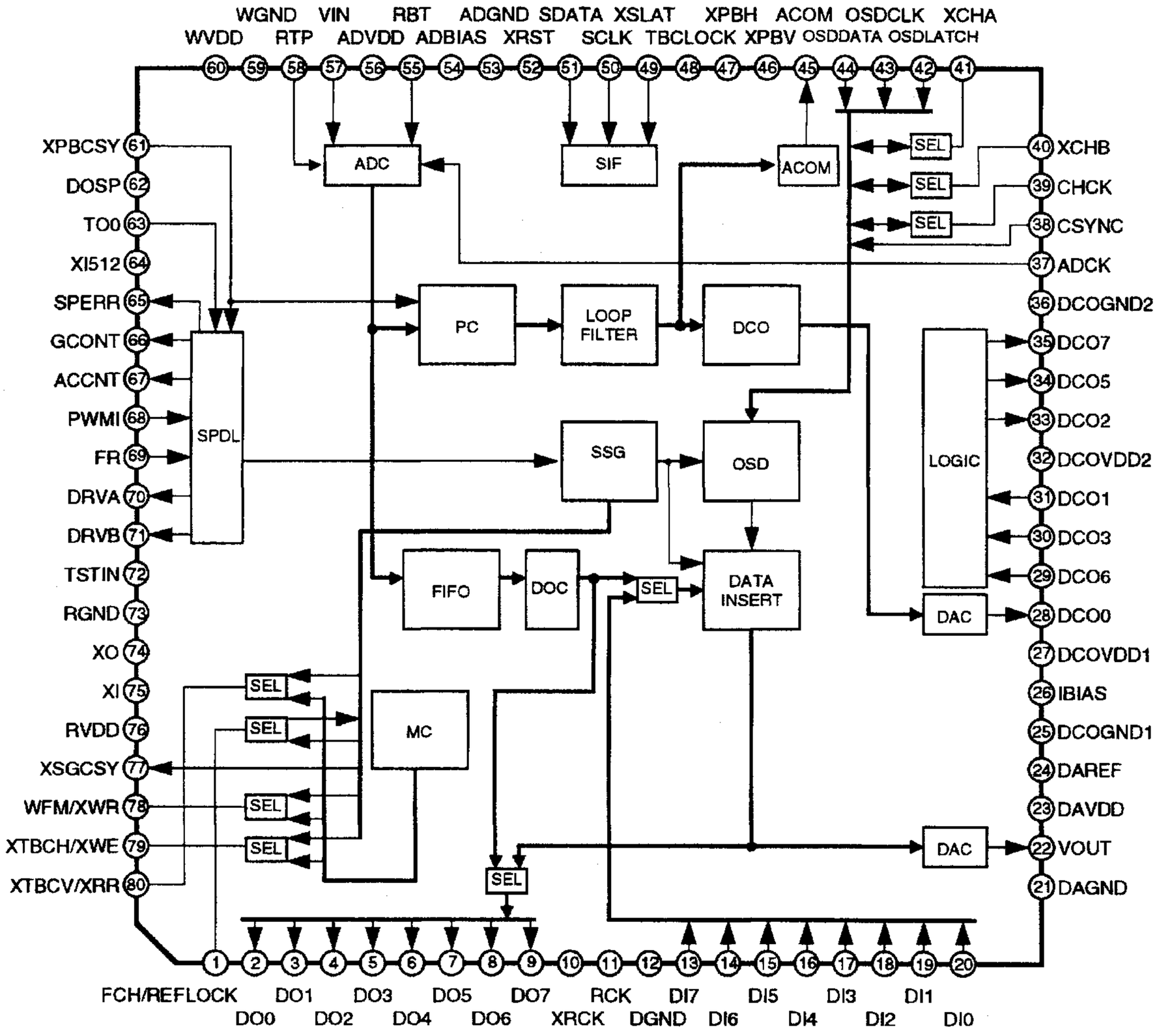
● Pin Function

No.	Function
1	Differential output (open-collector)
2	Frequency characteristic compensation
3	Video input
4	Phase delay
5	GND
6	Video output
7	Differential input
8	V+5V
9	Control input (open and not used)

■ PD0234A (MOTHER ASSY : IC500)

- DVP

● Block Diagram



CLD-210KVT,
CLD-210KVT-G

● Pin Function

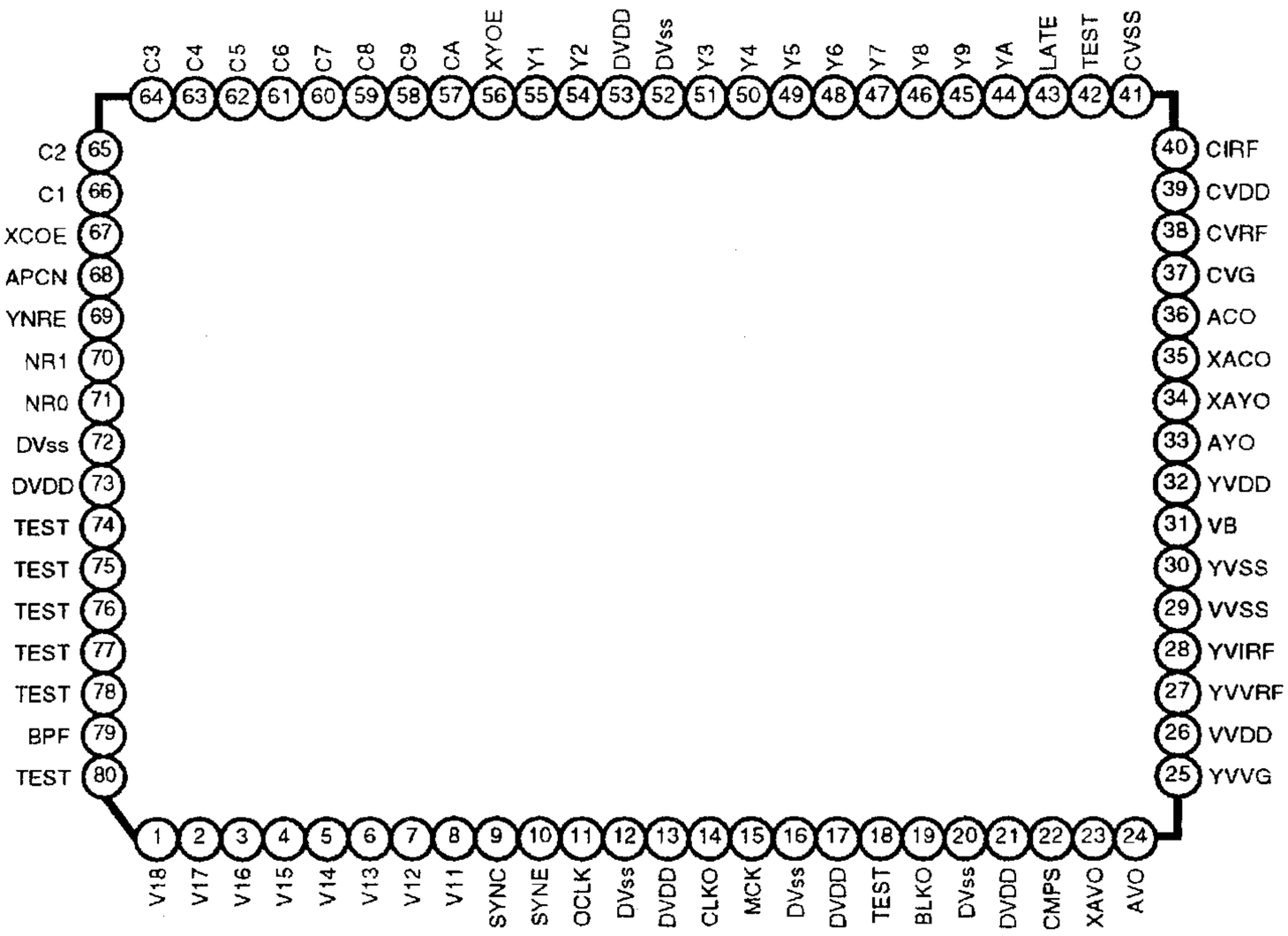
No.	Pin Name	I/O	Function	
1	FCH	I	MEMSYS:1	Switch the field of SSG by "H"
	REFLOCK	O	MEMSYS:0	Outputs "H" when the phase difference of H/V sync. signal associated with the time-base-corrected video signal and those associated with SSG is small enough.
2	DO0	O	Outputs the digital data of the time-base-corrected video signal for the memory system. When using the internal memory controller (MEMSYS:1 & EXTMC:0), output for field memory and external output are common used. Perform the data output setting with the serial command. DO7 : MSB , DO0 : LSB	
3	DO1			
4	DO2			
5	DO3			
6	DO4			
7	DO5			
8	DO6			
9	DO7			
10	XRCK	O	Inverting outputs the CLK of the reading system. When using the internal memory controller (MEMSYS:1 & EXTMC:0), phase is able to control with the serial command.	
11	RCK	O	Outputs the CLK of the reading system. When using the internal memory controller (MEMSYS:1 & EXTMC:0), phase is able to control with the serial command.	
12	DGND	–	Ground of digital system Connect to GND.	
13	DI7	I	Digital video signal input Outputs the field memory when using the internal memory controller (MEMSYS:1 & EXTMC:0) and inputs the external signal when using the external A/D. DI7 : MSB , DI0 : LSB	
14	DI6			
15	DI5			
16	DI4			
17	DI3			
18	DI2			
19	DI1			
20	DI0			
21	DAGND	–	Ground for DAC Connect to GND.	
22	VOUT	O	DAC output of the time-base-corrected video signal	
23	DAVDD	–	Power supply for DAC Connect to GND.	
24	DAREF	–	Reference pin for DAC Normally, decoupling to the DAGND through the 0.1μF laminated ceramic capacitor.	
25	DCOGND1	–	Ground for DCO Connect to GND.	
26	IBIAS	–	Current setting pin of the bias circuit Normally, connect to DAGND through the 10kΩ resistor.	
27	DCOVDD1	–	Power supply for DCO Connect to +5V.	
28	DCO0	O	DCO output pin Outputs a fsc in synchronization with the input video signal. This signal is multiplied by 4 to produce CLK of writing system.	
29	DCO6	I	Waveform shaping input pin 6 Inputs a signal obtained by delaying the DCO5 output signal by 35 ns. (to be self biased)	
30	DCO3	I	Waveform shaping input pin 3 Inputs a signal obtained by delaying the DCO5 output signal by 70 ns. (to be self biased)	
31	DCO1	I	Waveform shaping input pin 1 Inputs a DCO0 output signal via the fsc BPF. (to be self biased)	
32	DCOVDD2	–	Power supply for output multiplied by 4 Connect to +5V.	
33	DCO2	O	Waveform shaping input pin 2 Outputs a signal obtained through waveform shaping of the DCO0 output signal.	
34	DCO5	O	Waveform shaping input pin 5 Outputs a signal multiplied by 2.	
35	DCO7	O	Waveform shaping input pin 7 Outputs a signal multiplied by 4.	
36	DCOGND2	–	Ground for output multiplied by 4 Connect to GND.	
37	ADCK	I	CLK input for writing system Inputs DCO7 output signal via a 4fsc BPF. (to be self biased)	
38	CSYNC	I	Composite sync. input for character generator When using the OSD for single (EXTMIX:1), input the composite sync. for generating the character.	
39	CHCK	I	EXTMIX :1	CLK input for character generator Inputs 2fsc.
	CHCK	O	EXTMIX :0	CLK output for character generator Outputs 2fsc.
40	XCHB	O	EXTMIX :1	Blanking signal output
	XCHB	I	EXTMIX :0	Blanking signal input Inputs "L" when inserting the blanking signal.
41	XCHA	O	EXTMIX :1	Character signal output
	XCHA	I	EXTMIX :0	Character signal input Inputs "L" when inserting the bcharacter signal.
42	OSDLATCH	I	Latch input for OSD Serial transmission of the OSD control data is able to accept by this pin set to "L".	
43	OSDCLK	I	CLK input for reading the OSD data	

No.	Pin Name	I/O	Function
44	OSDDATA	I	Control data input for OSD Read the data in synchronization with CLK which input to OSDCLK pin.
45	ACOM	O	Jitter correction signal output for analog audio Use for cancelling the jitter element of analog audio.
46	XPBV	O	PB system V sync. output Outputs the signal obtained by separating V sync. signal from the signal at pin 61 (XPBCSY) with negative logic.
47	XPBH	O	PB system H sync. output Outputs the signal obtained by separating H sync. signal from the signal at pin 61 (XPBCSY) with negative logic.
48	TBCLOCK	O	PLL lock detection signal output Outputs "H" when the spindle loop and the TBC loop are locked.
49	XSLAT	I	Serial interface latch input Gives the latch timing for data applied to the serial interface. Latches at "L".
50	SCLK	I	CLK input for the serial interface SDATA value will be read at the rising edge.
51	SDATA	I	Data input pin for the serial interface
52	XRST	I	System reset input Input for initializing the internal register of IC with negative logic.
53	ADGND	–	Ground for ADC Connect to GND.
54	ADBIAS	–	NC or connect to AGND.
55	RBT	I	ADC bottom reference input Gives the bottom reference voltage of ADC.
56	ADVDD	–	Power supply for ADC Connect to +5V.
57	VIN	I	ADC input Inputs the composite video signal.
58	RTP	I	ADC top reference input Gives the top reference voltage of ADC.
59	WGND	–	Ground for writing system Connect to GND.
60	WVDD	–	Power supply for writing system Connect to +5V.
61	XPBCSY	I	Inputs the composite sync. signal of PB system with negative logic.
62	DOSP	I	Inputs the dropout detection pulse with positive logic.
63	TO0	I	Inputs the tracking-servo open signal with positive logic.
64	XI512	O	Outputs a 1/512th division of the CLK of reading system.
65	SPERR	O	PFD error output of the spindle error It outputs the result of comparison (PFD) between PBH and reading system H in tristate.
66	GCONT	O	Spindle gain control output Outputs a PWM signal according to the serial-command specified value.
67	ACCNT	O	Acceleration control output Tristate output of the acceleration/deceleration signal, which depends either on the forced acceleration/deceleration signal, the error detection by serial command or error detection by H sync. signal.
68	PWMI	I	Spindle error PWM input Inputs a signal obtained through the voltage comparison between the spindle error signal which has passed through a loop filter and the chopping wave.
69	FR	I	Spindle error direction element input Inputs a signal obtained through the voltage comparison between the spindle error which has passed through a loop filter and the destination voltage.
70	DRVA	O	Output for driving the spindle motor driver It is applicable to either a brush or brushless motor, selection of which is by a serial command.
71	DRVB		
72	TSTIN	I	Input for IC test Fixed to "L".
73	RGND	–	Ground for reference system Connect to GND.
74	XO	O	Connect the X'tal. Connect the 8fsc when using the internal memory controller (MEMSYS:1 & EXTMC:0) and the 4fsc is at others.
75	XI	I	
76	RVDD	–	Power supply for reference system Connect to +5V.
77	XSGCSY	O	Internal SSG composite sync. output Outputs the composite sync. signal of the internal SSG with negative logic. It can be delayed by a serial command with a specified delay duration.
78	WFM	O	MEMSYS:1 & EXTMC:1 — Field monitor output of write system Outputs "H" for the odd field.
	XWR	O	MEMSYS:1 & EXTMC:0 — Write reset output Outputs a signal to initializing the writing address of field memory. Outputs "L" pulse for 1CLK on every field of write system. Connect to XWRST input of field memory.
79	XTBCH	O	MEMSYS:1 & EXTMC:1 — TBC H sync. output Outputs the time-base-corrected H sync. signal with negative logic.
	XWE	O	MEMSYS:1 & EXTMC:0 — Write enable output Control the writing operation of field memory. "L" for enable and "H" for disenable. Connect to XWE input of field memory.
80	XTBCV	O	MEMSYS:1 & EXTMC:1 — TBC V sync output Outputs the time-base-correcter V sync. signal with negative logic.
	XRR	O	MEMSYS:1 & EXTMC:0 — Read reset output Outputs a signal to initializing the reading address of field memory. Outputs "L" pulse for 1CLK on every each field of read system. Connect to XRRST input of field memory.

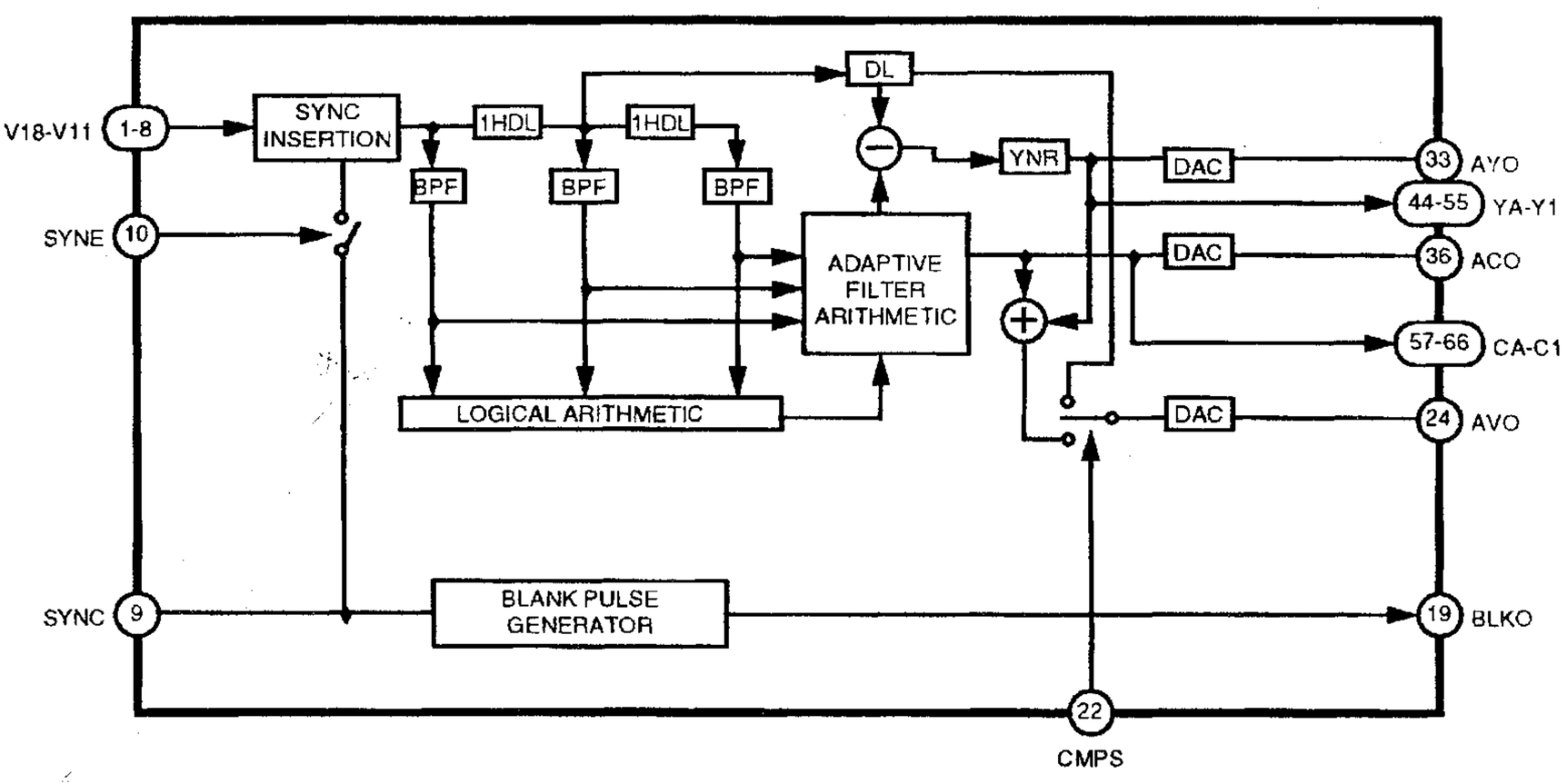
■ CXD2046Q (MOTHER ASSY : IC701)

- 3 LINE DIGITAL COMB FILTER

● Pin Arrangement (Top view)



● Block Diagram



● Pin Function

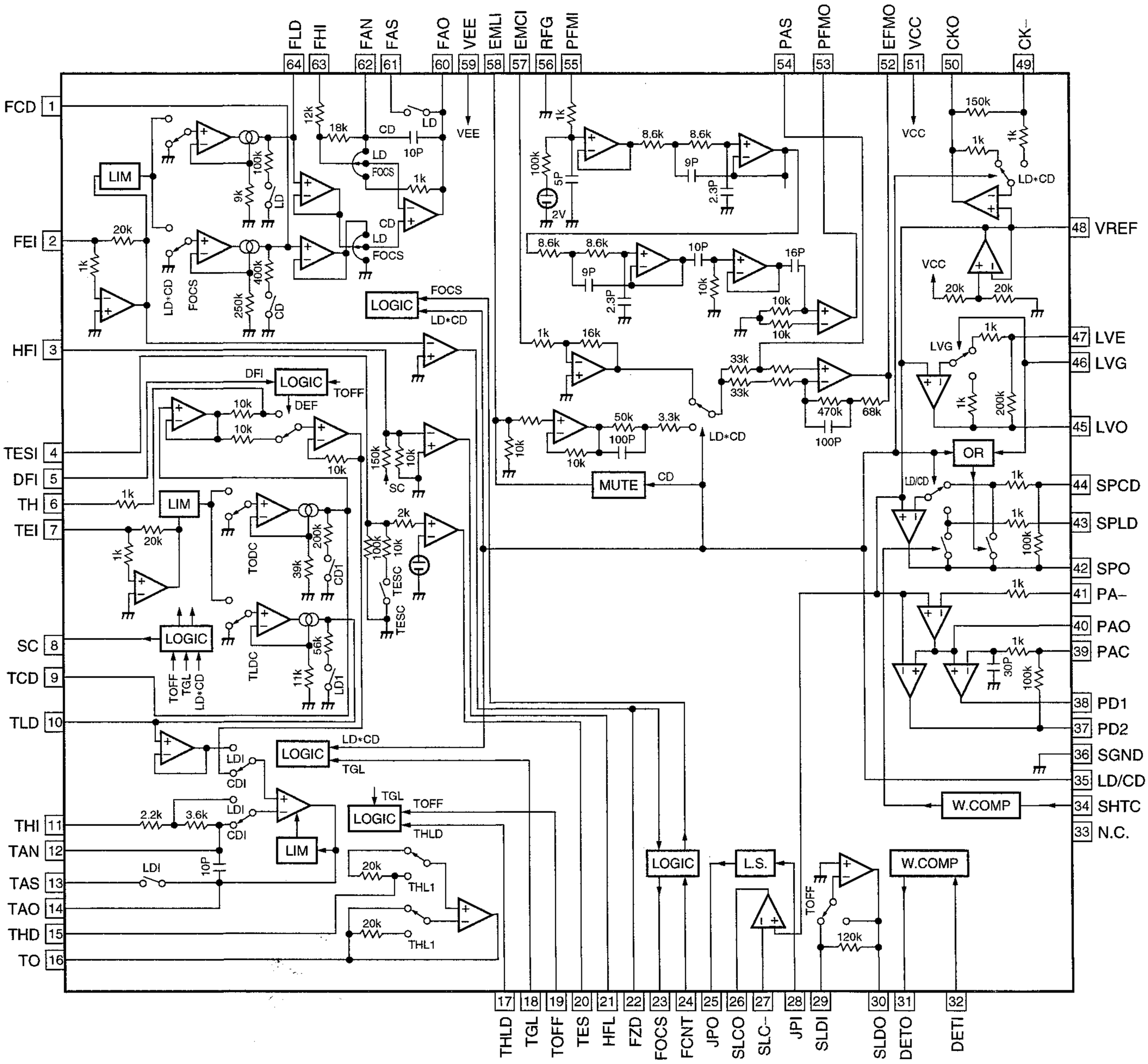
No.	Pin Name	I/O	Function	No.	Pin Name	I/O	Function
1	V18	I	Digital input (MSB) Connect to DVDD or DVss in not used.	41	CVSS	–	Analog ground for C/DA converter
2	V17	I	Digital input Connect to DVDD or DVss in not used.	42	TEST	I	Test pin Normally, fix to Low.
3	V16			43	LATE	I	Clock polarity switch for the digital output L : Positive phase (at rising edge) H : Negative phase (at falling edge)
4	V15			44	YA	O	Digital luminance signal output (MSB)
5	V14			45	Y9	O	Digital luminance signal
6	V13			46	Y8		
7	V12			47	Y7		
8	V11	I	Digital input (LSB) Connect to DVDD or DVss in not used.	48	Y6		
9	SYNC	I	External sync. input (insert 00 level)	49	Y5		
10	SYNE	O	Sync. insertion control L : External sync. does not insert H : When sync. input is L level, digital input set to 00 level.	50	Y4		
11	OCLK	I	Clock amp. input Inputs a clock which is DC cutted with capacitor more than 0.8 Vp-p. When clock amp. is not used, connect to DVss.	51	Y3		
12	DVss	–	Digital ground	52	DVss	–	Digital ground
13	DVDD	–	Digital power supply (5V)	53	DVDD	–	Digital power supply
14	CLKO	O	Clock amp. output When clock amp. is not used, set to open.	54	Y2	O	Digital luminance signal output
15	MCK	I	Master clock input Inputs a 4fsc clock which is locked to the color-burst. Normally, connect the clock amp. output (CLKO : pin 14).	55	Y1	O	Digital luminance signal output (LSB)
16	DVss	–	Digital ground	56	XYOE	I	Output control of digital luminance signal L : Standard output , H : Hi-impedance
17	DVDD	–	Digital power supply (5V)	57	CA	O	Digital chroma signal output (MSB)
18	TEST	I	Test pin Normally, fix to Low.	58	C9	O	Digital chroma signal output
19	BLKO	O	Blank pulse output	59	C8		
20	DVss	–	Digital ground	60	C7		
21	DVDD	–	Digital power supply (5V)	61	C6		
22	CMPS	I	Switch the composite output L : Outputs the signal which was Y/C mixed the comb-filter output. H : Through output (aperture correction is not correct.)	62	C5		
23	XAVO	O	AVO inversion output Connect to VVSS.	63	C4		
24	AVO	O	Analog composite signal output When composite output is not neccessary, connect to VVSS.	64	C3		
25	YVVG	O	Connect to VVDD via a about 0.1mF capacitor.	65	C2		
26	VVDD	–	Analog power supply (5V) for V/DA converter	66	C1	O	Digital chroma signal output (LSB)
27	YVVRF	I	Common VRF of Y and V Set the full-scale value.	67	XCOE	I	Output control of digital chroma signal L : Standard output , H : Hi-impedance
28	YVIRF	O	Connect a "16R" (16-times) resistor against to the output resistor "R" of AVO and AYO. (against VVSS)	68	APCN	I	Aperture correction switch L : Aperture correction OFF H : Aperture correction ON
29	VVSS	–	Analog ground for V/DA converter	69	YNRE	I	YNR switch L : YNR OFF , H : YNR ON
30	YVSS	–	Analog ground for Y/DA converter	70	NR1	I	YNR setting
31	VB	O	Connect to YVSS via a about 0.1mF capacitor	71	NR0		
32	YVDD	–	Analog power supply (5V) for Y/DA converter	72	DVss	–	Digital ground
33	AYO	O	Analog luminance signal output	73	DVDD	–	Digital power supply (5V)
34	XAYO	O	AYO inversion output Connect to YVSS.	74	TEST	I	Test pin Normally, fix to Low.
35	XACO	O	ACO inversion output Connect to CVSS.	75	TEST		
36	ACO	O	Analog chroma signal output	76	TEST		
37	CVG	O	Connect to CVDD via a about 0.1mF capacitor	77	TEST		
38	CVRF	I	VRF for C Set the full-scal value.	78	TEST		
39	CVDD	–	Analog power supply (5V) for C/DA converter	79	BPF	I	Setting pin of Y/C separation process mode L : Adaptive process mode H : Fix to BPF separation mode
40	CIRF	O	Connect a "16R" (16-times) resistor against to the output resistor "R" of ACO. (against CVSS)	80	TEST	I	Test pin Normally, fix to Low.

NR1	NR0	
L	L	feeble
L	H	weak
H	L	middle
H	H	strong

■ LA9430M (MOTHER ASSY : IC901)

- SERVO CONTROL IC

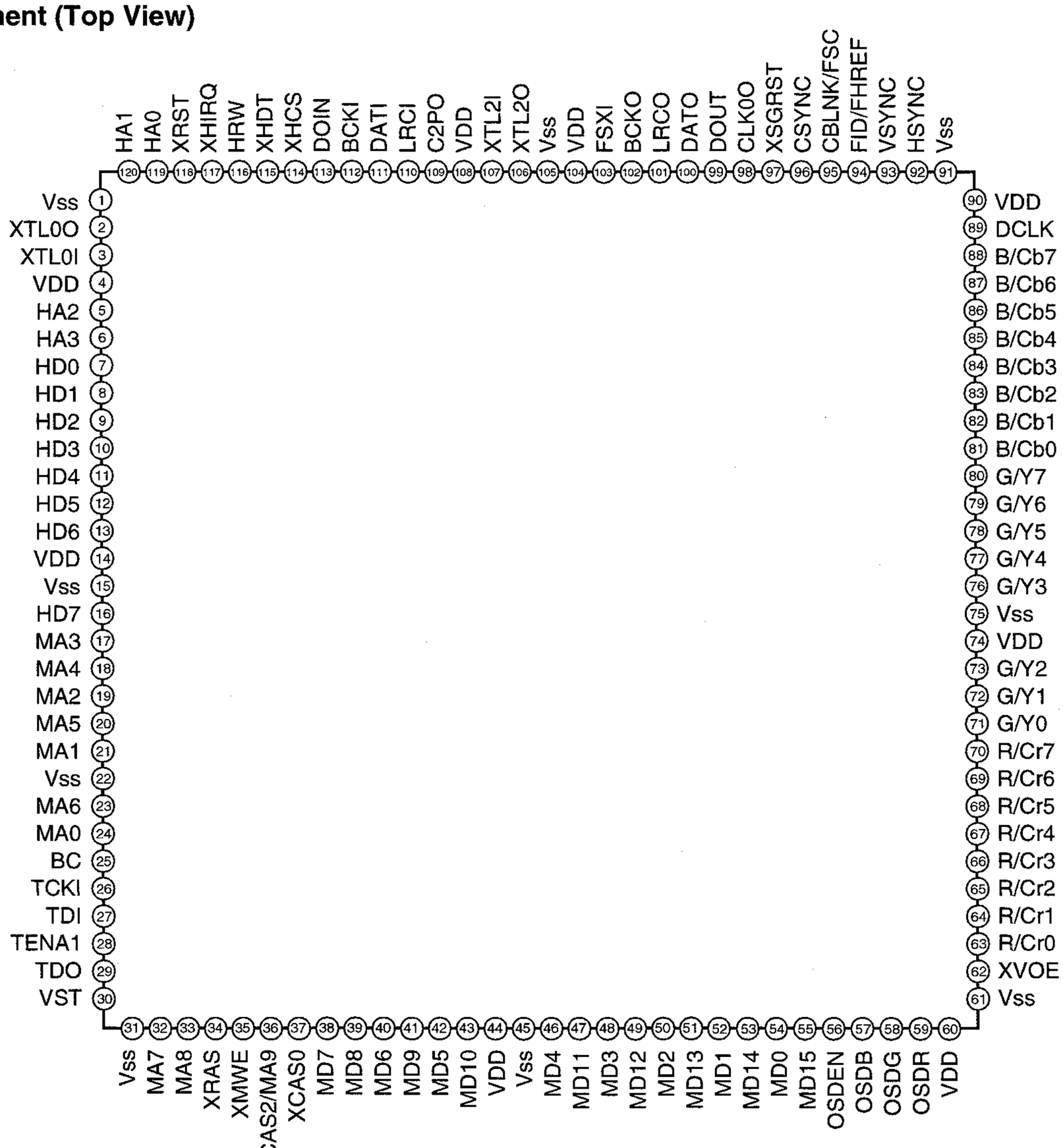
● Block Diagram



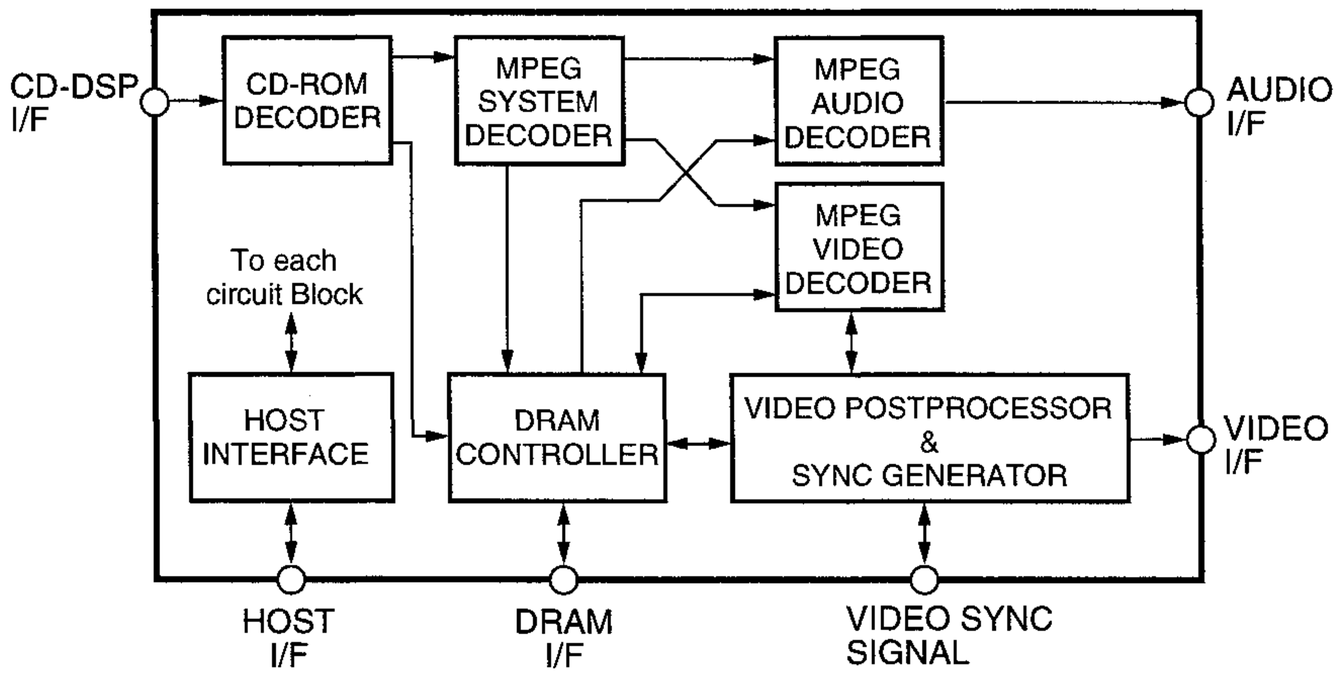
■ CXD1852AR (VCDB ASSY : IC101)

- **MPEG1 Decoder**

● Pin Assignment (Top View)



● Block Diagram



● Pin Function

No.	Pin Name	I/O	Function
1	VSS	—	Connect to ground
2	XTL0O	O	Master clock of video decoder Clock input to XTL0I or connect a oscillator between XTL0I and XTL0O. Frequency is 27MHz, 28.6363MHz (NTSC 8fsc), 35.4686MHz (PAL 8fsc).
3	XTL0I	I	
4	VDD	—	+3.3V power supply
5	HA2	I	When host interface is parallel mode, HA0 to HA3 become register address input pins. When host interface is serial mode, HA0 becomes serial data input pin, and HA1 to HA3 are fixed to "L" level.
6	HA3		
7	HD0	I/O	When host interface is parallel mode, HD0 to HD7 become register data input/output pins. When host interface is serial mode, HD0 becomes serial data output pin, and HD1 to HD7 are fixed to "L" level.
8	HD1		
9	HD2		
10	HD3		
11	HD4		
12	HD5		
13	HD6		
14	VDD	—	+3.3V power supply
15	VSS	—	Connect to ground
16	HD7	I/O	When host interface is parallel mode, HD0 to HD7 become register data input/output pins. When host interface is serial mode, HD0 becomes serial data output pin, and HD1 to HD7 are fixed to "L" level.
17	MA3	O	DRAM address signal output Connect to DRAM address pins agree with number.
18	MA4		
19	MA2		
20	MA5		
21	MA1		
22	VSS	—	Connect to ground
23	MA6	O	DRAM address signal output Connect to DRAM address pins agree with number.
24	MA0		
25	BC	—	Test pin Set to open.
26	TCKI		
27	TDI		
28	TENAI		
29	TDO		
30	VST	—	Test pin Connect to ground.
31	VSS	—	Connect to ground
32	MA7	O	DRAM address signal output Connect to DRAM address pins agree with number.
33	MA8		
34	XRAS	O	Low address strobe signal output Connect to $\overline{\text{RAS}}$ signal pin of DRAM.
35	XMWE	O	Write enable signal output of DRAM Connect to $\overline{\text{WE}}$ signal pin of DRAM.
36	XCAS2/MA9	O	Use for when connecting the 8 bit DRAM When construction of DRAM is 256kw x 16bit x 2, connect to $\overline{\text{CAS}}$ signal pin of upper word (256k to 512k-1) side DRAM (upper and lower bytes are common used). When DRAM is 512kw x 8bit x 2, connect to MA9 pin (two DRAMs).
37	XCAS0	O	Column address strobe signal output of DRAM. When construction of DRAM is 256kw x 16bit x 2, connect to $\overline{\text{CAS}}$ signal pin of lower word (0 to 256k-1) side DRAM (upper and lower bytes are common used). In other case, connect to all $\overline{\text{CAS}}$ signal pins of DRAM.
38	MD7	I/O	Data signal input/output of DRAM Connect to DRAM data pins agree with number.
39	MD8		
40	MD6		
41	MD9		
42	MD5		
43	MD10		
44	VDD	—	+3.3V power supply
45	VSS	—	Connect to ground

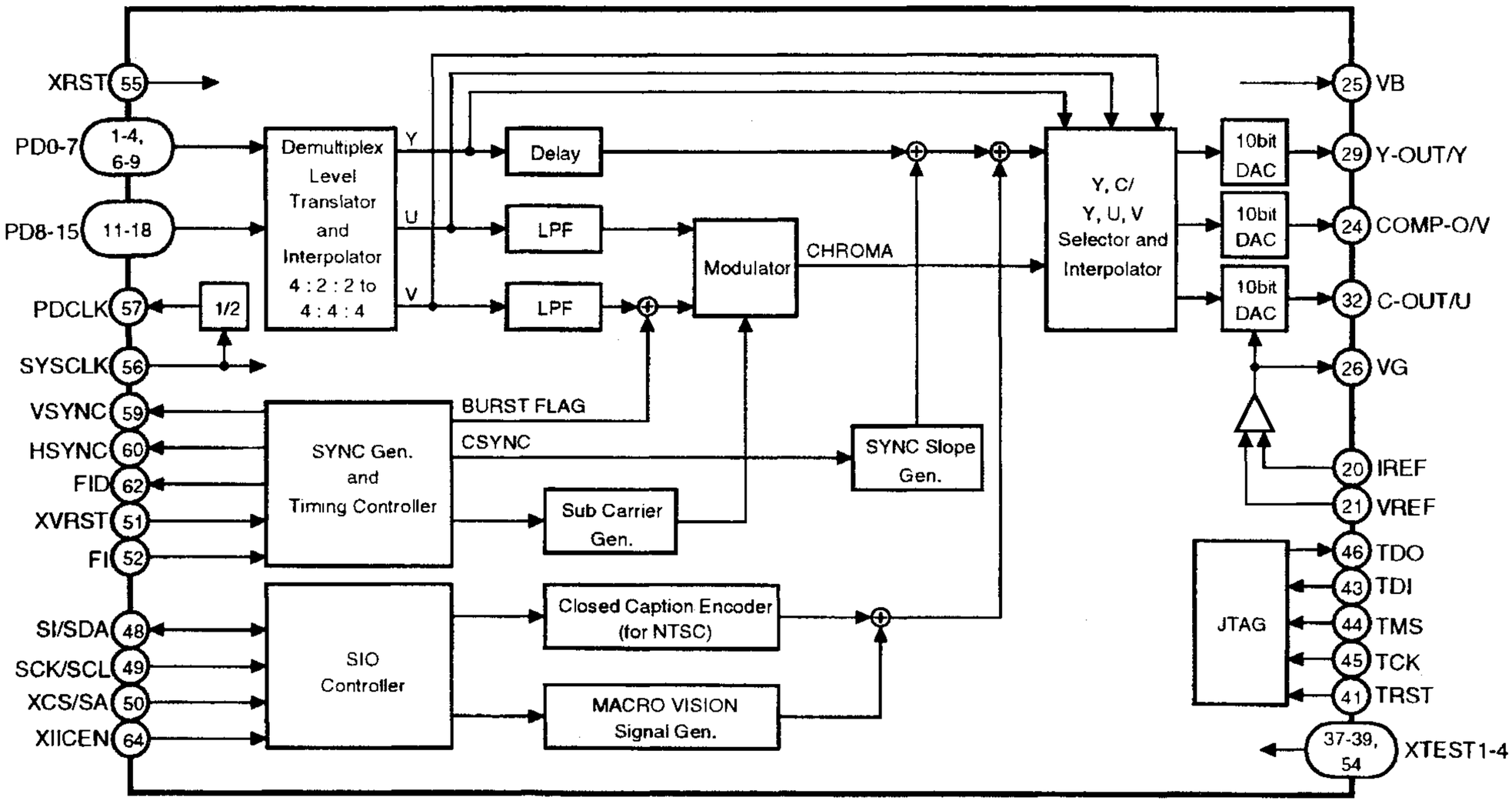
No.	Pin Name	I/O	Function
46	MD4	I/O	Data signal input/output of DRAM Connect to DRAM data pins gree with number.
47	MD11		
48	MD3		
49	MD12		
50	MD2		
51	MD13		
52	MD1		
53	MD14		
54	MD0		
55	MD15		
56	OSDEN	I	OSD enable signal Polarity of enable is changed by register setting.
57	OSDB	I	OSD data input When input signal which input to OSDEN is enable state, entered color in the color table which setting with there inputs (3 bit) is output to the picture data.
58	OSDG		
59	OSDR		
60	VDD	—	+3.3V power supply
61	VSS	—	Connect to ground
62	XVOE	I	Video output enable signal pin L : Picture data output and DCLK output are enabled. H : Disable (High impedance)
63	R/Cr0	O	Picture data output Correspondence of output data format (RGB, YCbCr, etc.) and output data are able to changed by register setting.
64	R/Cr1		
65	R/Cr2		
66	R/Cr3		
67	R/Cr4		
68	R/Cr5		
69	R/Cr6		
70	R/Cr7		
71	G/Y0		
72	G/Y1		
73	G/Y2		
74	VDD	—	+3.3V power supply
75	VSS	—	Connect to ground
76	G/Y3	O	Picture data output Correspondence of output data format (RGB, YCbCr, etc.) and output data are able to changed by register setting.
77	G/Y4		
78	G/Y5		
79	G/Y6		
80	G/Y7		
81	B/Cb0		
82	B/Cb1		
83	B/Cb2		
84	B/Cb3		
85	B/Cb4		
86	B/Cb5		
87	B/Cb6		
88	B/Cb7		
89	DCLK	I/O	Dot clock (DCLK) signal pin Normally, DCLK frequency is 13.5MHz. DCLK is able to input from this pin and output from this pin by dividing from clock input.
90	VDD	—	+3.3V power supply

No.	Pin Name	I/O	Function
91	VSS	—	Connect to ground
92	HSYNC	I/O	Horizontal sync. signal pin When internal sync. generator is used, outputs dot clock (DCLK) by frequency divided. When internal sync. generator is not used, it becomes input.
93	VSYNC	I/O	Vertical sync. signal pin When internal sync. generator is used, outputs dot clock (DCLK) by frequency divided. When internal sync. generator is not used, it becomes input.
94	FID/FHREF	I/O	Field discrimination signal (FID) and horizontal sync. phase reference signal (FHREF) pin Set this pin by register setting. When set to FID, outputs by using the internal sync. generator and inputs by not using it. "H" is correspond to odd field. When set to FHREF, outputs signal divided by XTL0. When XTL0 is 8fsc, signal becomes suitable HSYNC period and we for phase compare with HSYNC signal.
95	CBLNK/FSC	I/O	Composite blanking signal (CBLNK) and fsc signal pin Set this pin by register setting. When set to CBLK, outputs by using the internal sync. generator and inputs by not using it. When set to fsc, outputs signal divided by XTL0. Divided ratio is able to selected 1/8 or 1/16.
96	CSYNC	O	Composite sync. signal pin divided by DCLK. Signal is not able to input.
97	XSGRST	I	Reset signal input of sync. generator "L" for initialize the internal sync. generator.
98	CLK0O	O	Outputs clock divided by XTL0 Divided ratio is able to selected 1, 1/2, 1/4 or 1/8.
99	DOUT	O	Audio digital output
100	DATO	O	Audio serial data output to DAC
101	LRCO	O	L/R clock output to DAC
102	BCKO	O	Bit clock output to DAC
103	FSXI	I	Clock input for audio interface Input 256fs (11.2896MHz), 384fs (16.9344MHz), 512fs (22.5792MHz) and 768fs (33.8688MHz).
104	VDD	—	+3.3V power supply
105	VSS	—	Connect to ground
106	XTL2O	O	Master clock of CD-ROM decoder and audio decoder Clock input to XTL2I or connect a oscillator between XTL2I and XTL2O. Frequency is 45MHz. This clock is for internal circuit, then not synchronize the input and output.
107	XTL2I	I	
108	VDD	—	+3.3V power supply
109	C2PO	I	C2 pointer input from CD-DSP Indicate the error of DATI input.
110	LRCI	I	LR clock input from CD-DSP Indicate the L ch and R ch of DATI.
111	DATI	I	Serial data input from CD-DSP
112	BCKI	I	Bit clock input from CD-DSP Clock for strobe the DATI input.
113	DOIN	I	Digital data input from CD-DSP
114	XHCS	I	Chip select signal input at register access
115	XHDT	I/O	Wait signal output at register access When host interface is pararell mode only, this pin is effective. Use to pull-up for open drain operation. In the serial mode, use to pull-up.
116	HRW	I	When host interface is parallel mode, this pin becomes R/$\overline{W}$ signal input. When host interface is serial mode, it becomes serial clock input.
117	XHIRQ	O	Interrupt request signal output Use to pull-up for open drain operation.
118	XRST	I	Hardware reset signal input When this pin set to "L", initialize the all operation.
119	HA0	I	When host interface is parallel mode, HA0 to HA3 become register address input pins. When host interface is serial mode, HA0 becomes serial data input pin, and HA1 to HA3 are fixed to "L" level.
120	HA1		

■ CXD1913Q (VCDB ASSY : IC301)

- **Digital Video Encoder**

● Block Diagram



● Pin Function

No.	Pin Name	I/O	Function
1	PD7	I	8bit pixel data input When PIF MODE = 0, input for Y, Cb and Cr signals which are multiplexed. When PIF MODE = 1, input for Y signal.
2	PD6		
3	PD5		
4	PD4		
5	VSS	—	Ground for digital
6	PD3	I	8bit pixel data input When PIF MODE = 0, input for Y, Cb and Cr signals which are multiplexed. When PIF MODE = 1, input for Y signal.
7	PD2		
8	PD1		
9	PD0		
10	VDD	—	Power supply for digital
11	PD15/TD7	I/O	8bit pixel data input/test data bus When PIF MODE = 0, there pins are not able to we. When PIF MODE = 1, input for Cb and Cr signals which are multiplexed. In the test mode, use for the internal circuit test data bus. Test mode is opened for device vender only.
12	PD14/TD6		
13	PD13/TD5		
14	PD12/TD4		
15	PD11/TD3		
16	PD10/TD2		
17	PD9/TD1		
18	PD8/TD0		
19	VSS	—	Ground for digital
20	IREF	I	Reference current input Connect a 16-times resister ("16R") of output resistor value"R".
21	VREF	I	Reference voltage input Set the output full scale.
22	AVDD1	—	Power supply for analog
23	AVSS1	—	Ground for analog
24	COMP-O/V	O	10bit D/A converter output When YC/YUV = 1, outputs conposite signal. When YC/YUV = 0, outputs color-difference (V) signal.
25	VB	O	Connect a about 0.1μF capacitor to VSS.

No.	Pin Name	I/O	Function
26	VG	O	Connect a about 0.1µF capacitor to AVDD.
27	AVDD2	—	Power supply for analog
28	AVSS2	—	Ground for analog
29	Y-OUT/Y	O	10bit D/A converter output Outputs luminance (Y) signal.
30	AVDD3	—	Power supply for analog
31	AVSS3	—	Ground for analog
32	C-OUT/U	O	10bit D/A converter output When YC/YUV = 1, outputs chroma (C) signal. When YC/YUV = 0, outputs color-difference (U) signal.
33	TD10	I/O	Test data bus Set to open. In the test mode, we for the internal circuit test data bus. Test mode is opened for device vender only.
34	VDD	—	Power supply for digital
35	TD9	I/O	Test data bus Set to open. In the test mode, we for the internal circuit test data bus. Test mode is opened for device vender only.
36	TD8		
37	XTEST1	I	Test mode control input with pull-up When these pins are "H", CXD1910AQ is not test mode. Test mode is opened for device vender only.
38	XTEST2		
39	XTEST3		
40	VSS	—	Ground for digital
41	TRST	I	Reset signal input for JTAG of active "L" with pull-up.
42	VDD	—	Power supply for digital
43	TDI	I	Serial data input for JTAG with pull-up
44	TMS	I	Control signal input for JTAG with pull-up
45	TCK	I	Clock input for JTAG
46	TDO	O	Serial data output for JTAG
47	VSS	—	Ground for digital
48	SI/SDA	I	This pins function is selected by XIICEN (pin 64). When XIICEN is "H", it becomes SONY SIO mode and SI serial data input. When XIICEN is "L", it becomes I2C-BUS mode and SDA input/output.
49	SCK/SCL	I	This pins function is selected by XIICEN (pin 64). When XIICEN is "H", it becomes SONY SIO mode and SCK serial clock input. When XIICEN is "L", it becomes I2C-BUS mode and SCL input.
50	XCS/SA	I	This pins function is selected by XIICEN (pin 64). When XIICEN is "H", it becomes SONY SIO mode and XCS chip select input. When XIICEN is "L", it becomes I2C-BUS mode and SA slave address selection input signal which selecting slave address of I2C-BUS.
51	XVRST	I	Vertical sync. reset input of active "L" with pull-up Use for synchronize the external and internal vertical sync. When XVRST is "L", reset the internal digital sync. generator according to FI.
52	FI	I	Field ID input Indicates the field ID at vertical sync. reset. H : 1st field L : 2nd field
53	VDD	—	Power supply for digital
54	XTEST4	I	Test mode control input with pull-up When these pins are H, CXD1910AQ is not test mode. Test mode is opened for device vender only.
55	XRST	I	System reset input at active "L" "L" for more than 40 clocks (SYSCLK) at power on reset.
56	SYSCLK	I	System clock input It needs to correctly 27MHz for generating the correctly sub-carrier frequency.
57	PDCLK	O	Pixel data clock output for 13.5MHz This clock is SYSCLK divided by 2. Use for 16bit pixel data mode.
58	VSS	—	Ground for digital
59	VSYNC	O	Vertical sync. signal output
60	HSYNC	O	Horizontal sync. signal output
61	SO	O	This pin's function is selectedby XIICEN (pin 64). When XIICEN is "H", it becomes SONY SIO mode and SO serial out output. When XIICEN is "L", this pin is not used and output becomes Hi-impedance.
62	FID	O	Field ID output When FIDS = 1, L : 1st field, H : 2nd field. When FIDS = 0, H : 1st field, L : 2nd field.
63	VDD	—	Power supply for digital
64	XIICEN	I	Serial interface mode selection input with pull-up When this pin is "L", pins 48 to 50 and 61 become I2-C-BUS mode. When this pin is "H", pins 48 to 50 and 61 become SONY SIO mode.

■ PD6230B (VCDB ASSY : IC501)

- **VCD Control IC**

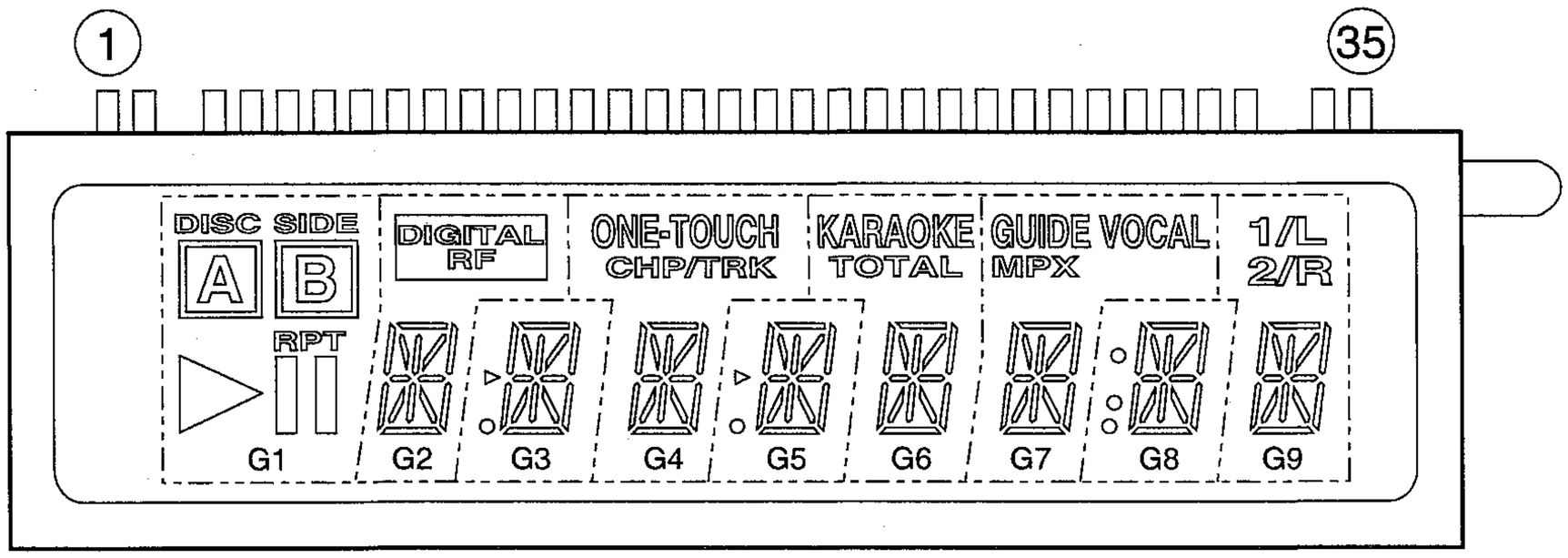
● Pin Function

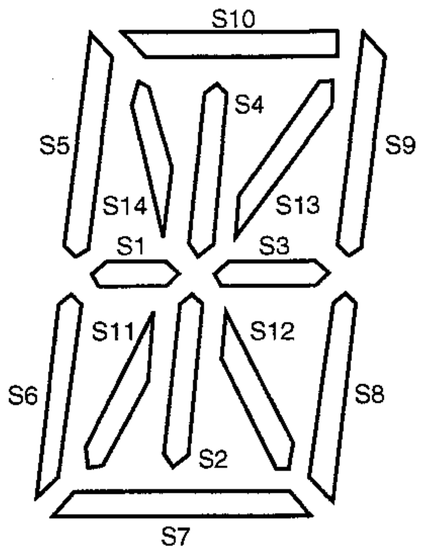
No.	Pin Name	I/O	Function	No.	Pin Name	I/O	Function
1	A0	I/O	Address bus for MPEG decoder IC control	51	MD2	I	Input for operating mode designation Connect to GND.
2	A1			52	HSTS	I	Hardware standby input Connect to +5V line.
3	A2			53	Color-bar	I	Color-bar display mode selection Connect to +5V line.
4	A3			54	NC	I	Connect to GND
5	NC	I/O	Not used	55	SIN0	I	Serial communication input data for mode controller
6	NC			56	SOUT0	O	Serial communication output data for mode controller
7	NC			57	SCK0	O	Serial communication clock for mode controller
8	NC			58	SINV	I	Serial communication input data for RGB encoder
9	NC			59	SOUTV	O	Serial communication output data for RGB encoder
10	NC			60	SCKV	O	Serial communication clock for RGB encoder
11	VSS	–	Digital GND	61	CSV	O	Chip select for RGB encoder
12	NC	I/O	Not used	62	RSTV	O	Reset for RGB encoder
13	NC			63	RSTM	O	Reset for MPEG decoder IC
14	NC			64	NC	I	Connect to GND
15	NC			65	NC		
16	NC			66	NC	O	Not used
17	NC			67	NC	I	Connect to GND
18	NC			68	NC		
19	NC			69	NC		
20	NC			70	NC		
21	NC			71	NC		
22	NC			72	NC		
23	VCC	–	Digital +5V power supply	73	XWAIT	I	Wait for MPEG decoder IC control
24	NC	I/O	Not used	74	NC	I	Connect to GND
25	NC			75	NC		
26	NC			76	NC		
27	C	–	Capacitor pin for stabilizing power supply	77	RSTX	I	Reset input
28	IRQM	I	Interrupt request from the MPEG decoder IC	78	XWR	O	Write for MPEG decoder IC control
29	NC	I	Connect to +5V line	79	XRD	O	Read for MPEG decoder IC control
30	VSYNC	I	VSYNC interrupt request from the RGB encoder	80	NC	I	Not used
31	NC	I	Connect to GND	81	VSS	–	Digital GND
32	NC			82	X0	–	For crystal oscillation
33	NC			83	X1		
34	AVCC	–	Digital +5V power supply	84	VCC	–	Digital +5V power supply
35	AVR +	–	Digital +5V power supply	85	D0	I/O	Data bus for MPEG decoder IC control
36	AVR–	–	Digital GND	86	D1		
37	AVSS	–	Digital GND	87	D2		
38	NC	I	Connect to +5V line	88	D3		
39	NC			89	D4		
40	NC			90	D5		
41	NC			91	D6		
42	VSS	–	Digital GND	92	D7		
43	NC	I	Connect to +5V line	93	NC	I	Connect to GND
44	NC			94	NC		
45	NC			95	NC		
46	NC			96	NC		
47	OSD	I	Polarity selection pin of blanking signal Connect to GND.	97	NC		
48	REQACK	I	Communication interrupt for mode controller	98	NC		
49	MD0	I	Input for operating mode designation Connect to +5V line.	99	NC		
50	MD1			100	NC		

7.1.2 DISPLAY

■ VAW1045 (FLKY ASSY : V301)

• **FL DISPLAY**





G2~G9

• **ANODE AND GRID ASSIGNMENT**

	G1	G2	G3	G4	G5	G6	G7	G8	G9
S1	DISC	S1	S1	S1	S1	S1	S1	S1	S1
S2	SIDE	S2	S2	S2	S2	S2	S2	S2	S2
S3	□ (A)	S3	S3	S3	S3	S3	S3	S3	S3
S4	□ (B)	S4	S4	S4	S4	S4	S4	S4	S4
S5	A	S5	S5	S5	S5	S5	S5	S5	S5
S6	B	S6	S6	S6	S6	S6	S6	S6	S6
S7	RPT	S7	S7	S7	S7	S7	S7	S7	S7
S8	▷	S8	S8	S8	S8	S8	S8	S8	S8
S9	▯▯	S9	S9	S9	S9	S9	S9	S9	S9
S10		S10	S10	S10	S10	S10	S10	S10	S10
S11		S11	S11	S11	S11	S11	S11	S11	S11
S12		S12	S12	S12	S12	S12	S12	S12	S12
S13		S13	S13	S13	S13	S13	S13	S13	S13
S14		S14	S14	S14	S14	S14	S14	S14	S14
S15		DIGITAL RF	▷	ONE-TOUCH	▷	KARAOKE	GUIDE VOCAL	○ ○	1/L
S16			○	CHP/TRK	○	TOTAL	MPX	○	2/R

• **PIN ASSIGNMENT**

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Assignment	F1	F1	NP	S16	S15	S14	S13	S12	S11	S10	S9	S8	S7	S6	S5	S4	S3	S2

Pin No.	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
Assignment	S1	NL	NL	NL	NL	G1	G2	G3	G4	G5	G6	G7	G8	G9	NP	F2	F2

F1, F2 : Filament G1~G9 : Grid S1~S16 : Anode NP : No Pin NL : No Lead

7.2 DIAGNOSIS

7.2.1 SELF-DIAGNOSTIC FUNCTIONS

(1) SELF-DIAGNOSTIC FUNCTIONS

The self-diagnostic functions automatically display an error code on the TV screen and front panel fluorescent display section when there is an error. The customer checks the error code and conveys it to the service personnel to make repairs more efficient.
After an error occurs, even if the error code goes off, you can display the error code again by holding down the CLEAR key for 5 seconds (except a loading error L* display). At that time, partial error is displayed with the mechanism switch information. However, if the power cord is unplugged, the error code information is lost.

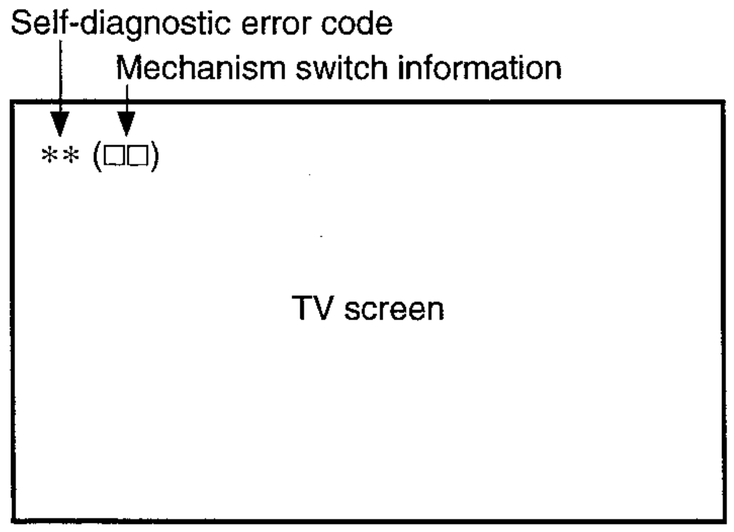


Fig.1 TV Screen Display

This table explains the information for analyzing the cause when an error occurs with the CLD player

Self-diagnostic error code	Contents	Conditions	Probable cause
H0	Spindle overcurrent detection error.	In the play state, overcurrent was detected in the spindle motor. Monitoring starts 5 seconds after the start of play or special playback mode, this error is detected if the overcurrent port is "L" for 4 seconds.	• Motor NG • Clamper rubbing
U0	FG abnormality error	①At LD start-up, the rate of rotation calculated from the FG was less than 15 rpm for 5 consecutive seconds from the spindle run command. ②At CD start-up, there was less than 1/8th rotation even after 5 seconds had passed since the end of acceleration. ③During play search, CD : subcodes are being read /LD : Phillips codes are being read and the spindle is locked, but a atate in which the rate of rotation calculated from the FG was less than 15 rpm continued for 5 seconds or more. In the above case, it is judged that an abnormality has occurred in the FG sensor and that accurate rotation rate caliculation has become impossible.	• FG sensor abnormality, FG signal not coming to mechanism controller • FG sensor clogged • Rubbing between FG sensor and Slit • Turntable dropped • FG slit deposition NG
H1	Partial short error	①At LD start-up, the speed did not reach 1200 rpm within a certain time (12 seconds) after the spindle run command. ②At CD start-up, a certain speed (313 rpm) was not reached within 6 seconds from the end of spindle acceleration.	• Spindle motor NG • Commutator NG • Bearing too tight • Power supply NG
H2 A0	Power supply abnormality error	-5V power supply abnormality detected. The power supply abnormality port is constantly monitored and if its signal stays high for about 1 second consecutively, the power supply is judged to be abnormal.	• – 5V not fed from POWER SUPPLY assy • Parts shorted
L*	Loading error	①When loading operation goes over time (approx. 10 sec.). ②When assist at disc sense entry ends and is not tilt neutral. ③When assist at set up entry ends and is not tilt neutral.	• Tilt switch 1, 2, 3 abnormal, so tilt/loading state not read in correctly • Tilt/loading mechanism mechanically locked • Drive IC NG • Power supply NG
E*	Slider error	During slider movement, a time over-run occurred (track count search 20 seconds, mandatory movement 10 seconds)	• Slider ceased being able to run • The slider mechanism is mechanically locked and can no longer move to its target. • Slider position switch NG • Flexible cable pulled out • Drive IC NG • Power supply abnormal
U1	Miss clamp error	①During LD setup, after 1/8th rotation, the track count during 1/8 rotation exeeded 511. ②During start-up, the focus was lost once and refocusing was attempted, but the focus could not be locked. ③Two FG pulses did not come within 800 ms from the start of LD start-up. ④The disc clamp operation did not end within 5 seconds.	• Disc sandwiched • Disc shifted • Spindle motor NG • Disc scratched or dirty defocused during start-up • Two discs loaded • PU actuator NG • Tilt sensor NG • Tilt neutral NG (tilt base NG)

Self-diagnostic error code	Contents	Conditions	Probable cause
P*	Spindle error	①During TOC reading with an LD, the spindle servo was not locked within 60 seconds from the start of the spindle run. ②When CAV/CLV determination is not finished within 60 seconds from spindle servo lock. ③The codes could not be read for 10-15 seconds consecutively for an LD or 7-10 seconds for a CD/CDV and the spindle servo was not locked. ④The speed exceeded 2100 rpm during LD start-up.	P0:• PH code, SUB-Q code can not be read • VCO, PLL offset out of adjustment • Disc defect P5:• PAL disc, mirror disc, etc. PLAY • No RF P6:• Spindle servo does not lock • Spindle motor NG
F*	Focus error	①In the "no disc" state, a setup command was received from the mode controller. ②When LD is out of focus when slider is moved to starting position during set up. In case of CD/CDV is NG even after three focus tries. ③During start-up, the maximum slider servo duty cotinued for 3 loops or more.	F5:• CD, LD on top of each other • LD scratched or dirty defocused during slider movement • Disc NG • Slider position switch NG F6:• Inner edge of disc scratched or dirty • Slider run into inner edge mechanical stopper
J1	VCD μ COM communi-cation error	Communication error between the microcomputer (IC501) on the VCDB Assy and the mode control IC.	• Wire break of communication line (connector CN101 NG) • Power supply NG • VCD microcomputer(IC501) NG • Communication line buffer IC (IC802) NG
J2	VCD μ COM communi-cation error	Communication error between the microcomputer (IC501) on the VCDB Assy and the VCD decoder (IC101).	• VCD microcomputer(IC501) NG • Communication line buffer IC (IC802) NG • Buffer IC (IC805) NG • MPEG decoder IC (IC101) NG
J3	VCD μ COM communi-cation error	Communication error between the microcomputer (IC501) on the VCDB Assy and the video encoder (IC301)	• VIDEO encoder IC (IC301) NG • Wire break of communication line between IC501 and IC301
H4	CD disc change error	CD disc tables A and B change incorrectry.	• The disc tables is abnormal. • The disc is set on the table incorrectry. • The switch (S801) in the MSWB assy is abnormal.

* ; Besides the above errors, there is the "U2" communications error (the mode controller could not communicate normaly with the mechanism controller) The probable cause is a defective mechanism controller, disconnected cable, etc..

* ; Mechanism mode contents (meaning of * for L * etc.)

0 : Play	5 : Setup (rotation start)	9 : Side A → Side B
1 : Open	6 : TOC read	A : Side B → Side A
2 : Standby	7 : Play	C : CD disc change
3 : Clamp	8 : Search	F : Recovery mode
4 : Disc sense		

* ; 0 : Normal playing
7 : Moving to play operation

(2) FORMAT OF THE MECHANISM SWITCH INFORMATION WHICH IS TRANSMITTED TO THE MODE CONTROL IN THE ERROR OCCURRENCE

● Mechanism switch information (1 7)

Example

Hexadecimal number system

Mechanism control → Mode control
Communication byte address 5 (COMBUF5)
(Mode control displays this value as it is.)

Hexadecimal number system	Binary number system
0	0 0 0 0
1	0 0 0 1
2	0 0 1 0
3	0 0 1 1
4	0 1 0 0
5	0 1 0 1
6	0 1 1 0
7	0 1 1 1
8	1 0 0 0
9	1 0 0 1
A	1 0 1 0
B	1 0 1 1
C	1 1 0 0
D	1 1 0 1
E	1 1 1 0
F	1 1 1 1

Example

Example 1 — Example 7

Hexadecimal number system 1 7

Binary number system

0	0	0	1	0	1	1	1
bit 7	bit 6	bit 5	bit 4	bit 3	bit 2	bit 1	bit 0
TURN A	0 Not used	LTSW1	LTSW2	LTSW3	SLDP1	SLDP2	SLDP3

TURN A	Slider position
0	Side B
1	Side A

Example of 1 7 is indicated as follows.

Slider : Side B
Tilt : Tilt +
Position : B -INSIDE

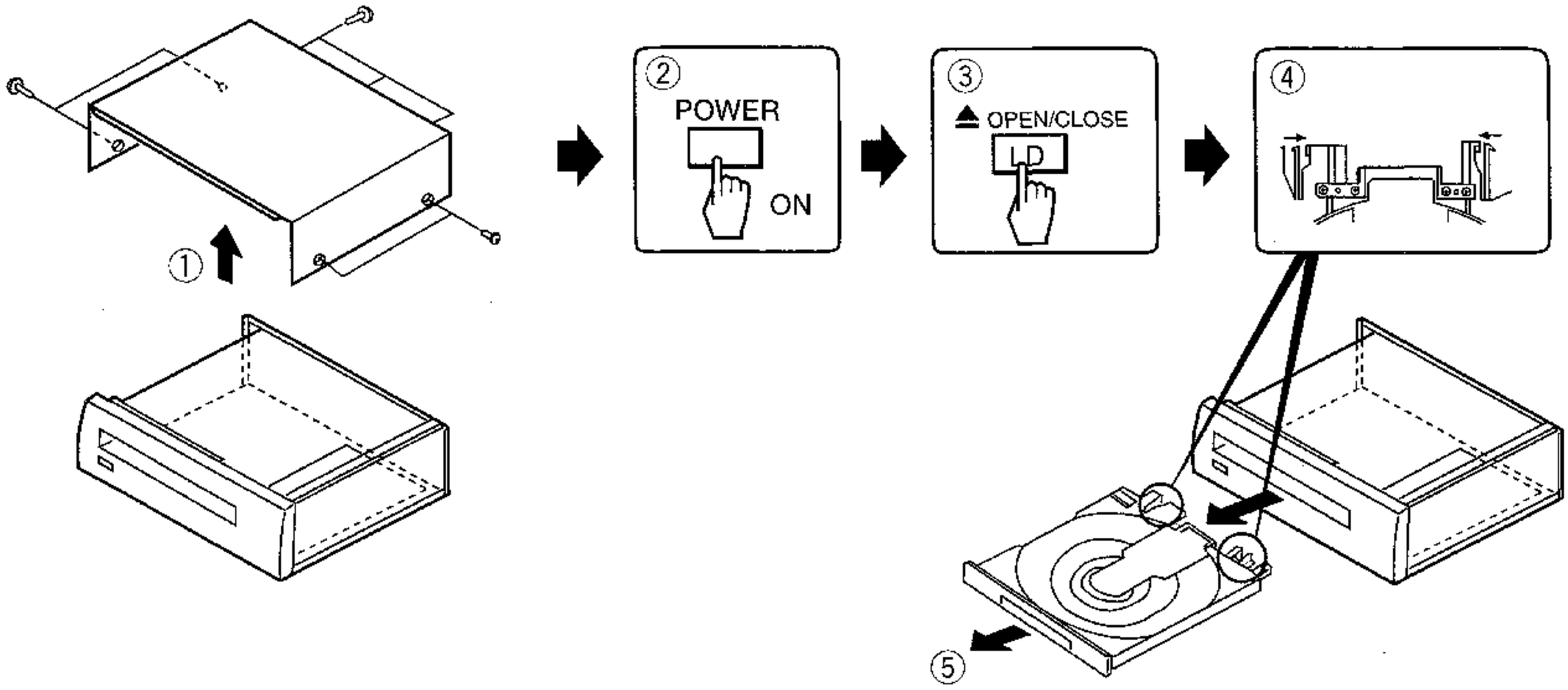
LTSW 1	2	3	Loading/tilt position
0	1	1	Open (Tray open state)
0	0	1	Loading (During move the tray horizontally)
1	0	1	Standby (Tray close & spindle down state)
1	0	0	Clamp (During spindle up or down)
0	0	0	Tilt – (Clamp state)
0	1	0	Tilt + (Clamp state)
1	1	0	Tilt limit (Clamp state)

SLDP 1	2	3	Slider position
1	0	0	CD active position
1	0	1	CDV active position
1	1	0	LD active position
0	1	1	CD inside position
1	1	1	Side B inside position

7.2.2 DISASSEMBLY/ASSEMBLY

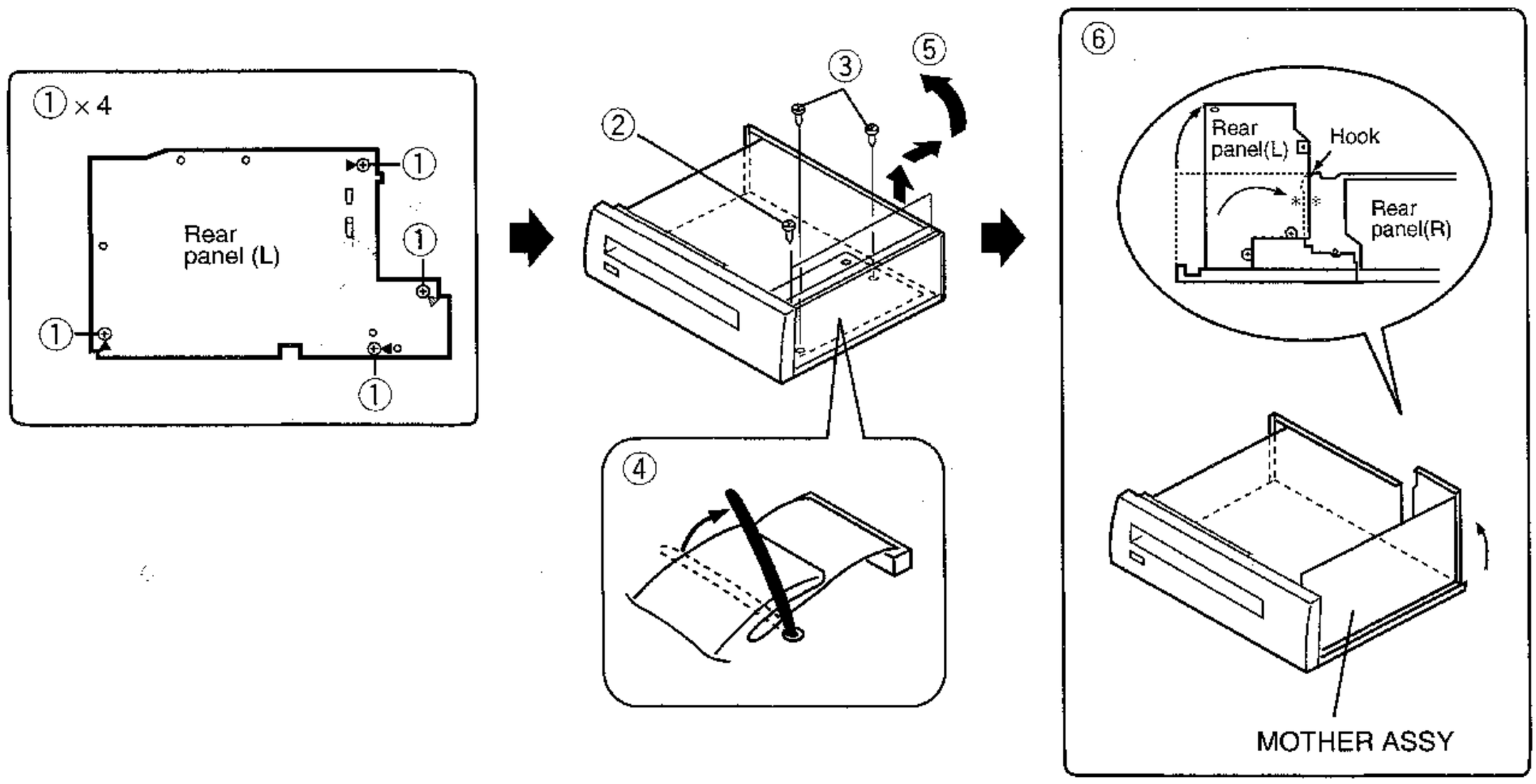
(1) DISC TRAY

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



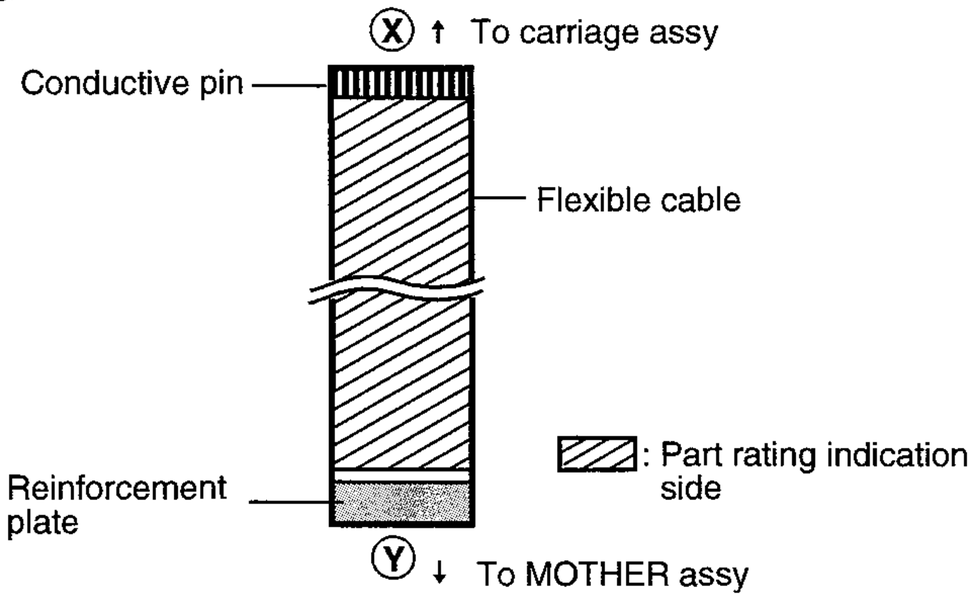
(2) MOTHER ASSY

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

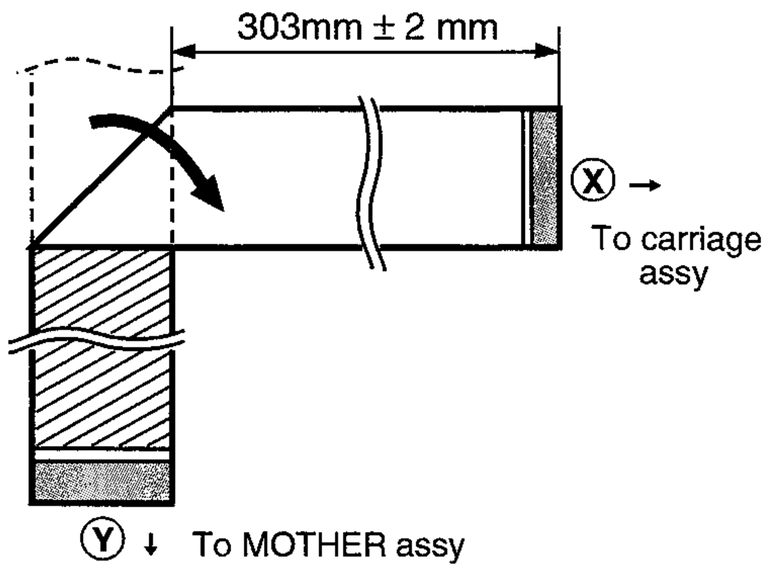


(3) HOW TO INSTALL THE FLEXIBLE CABLE FOR CARRIAGE ASSY

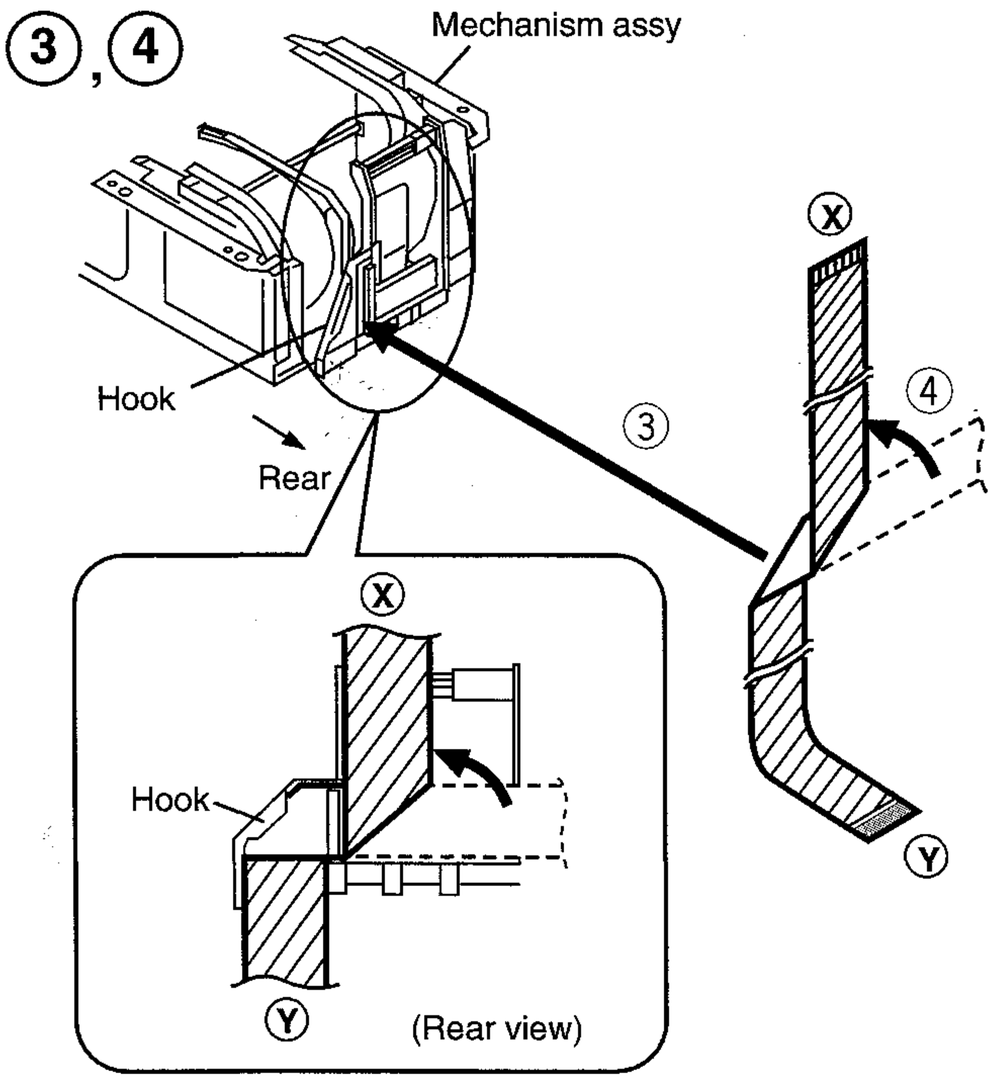
1 New Flexible cable



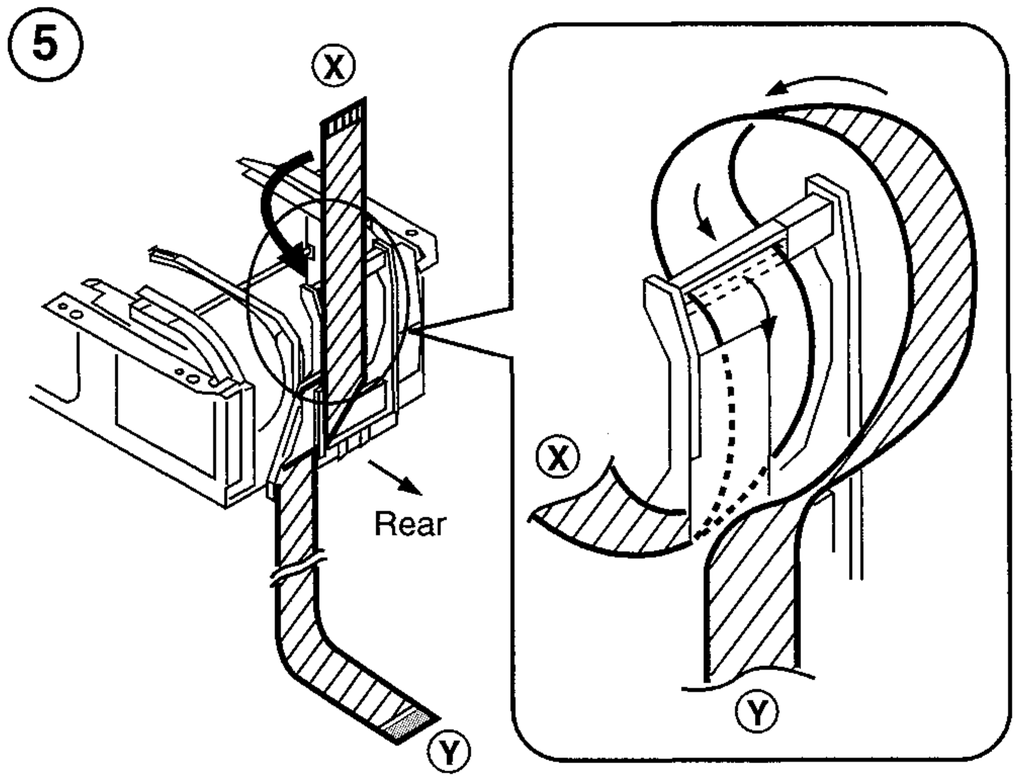
2 Bend the Flexible cable



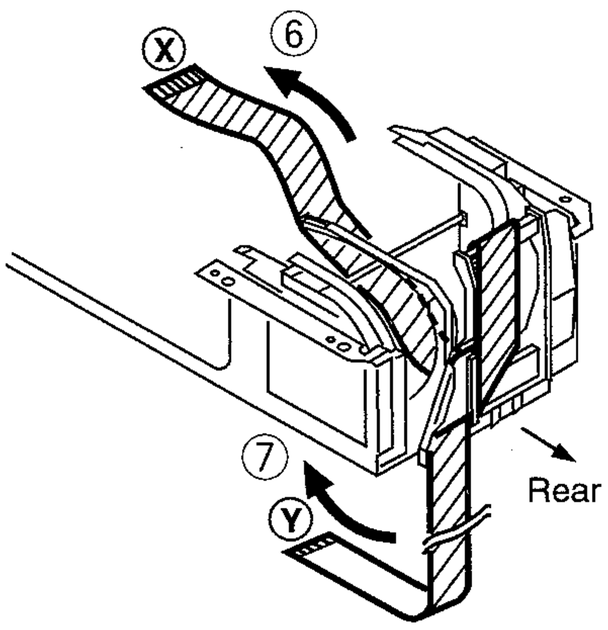
3, 4



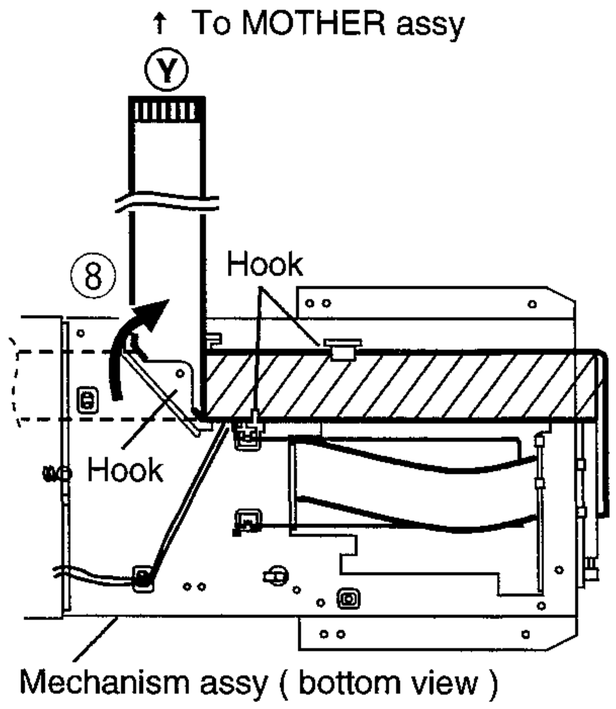
5



6, 7

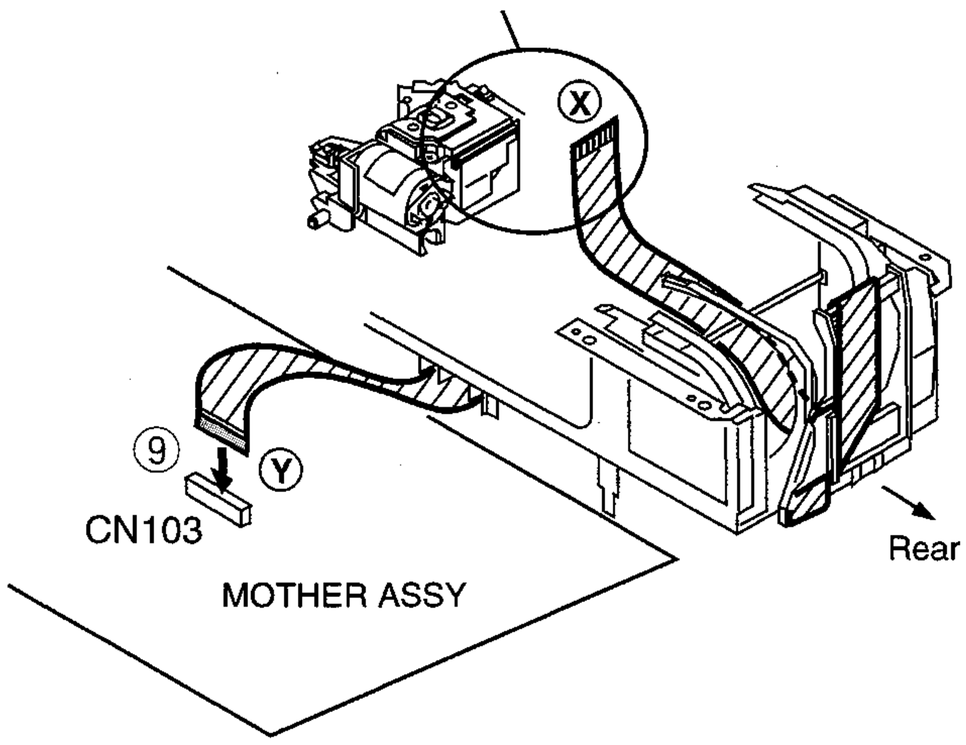


8 Turn the mechanism assy upside down

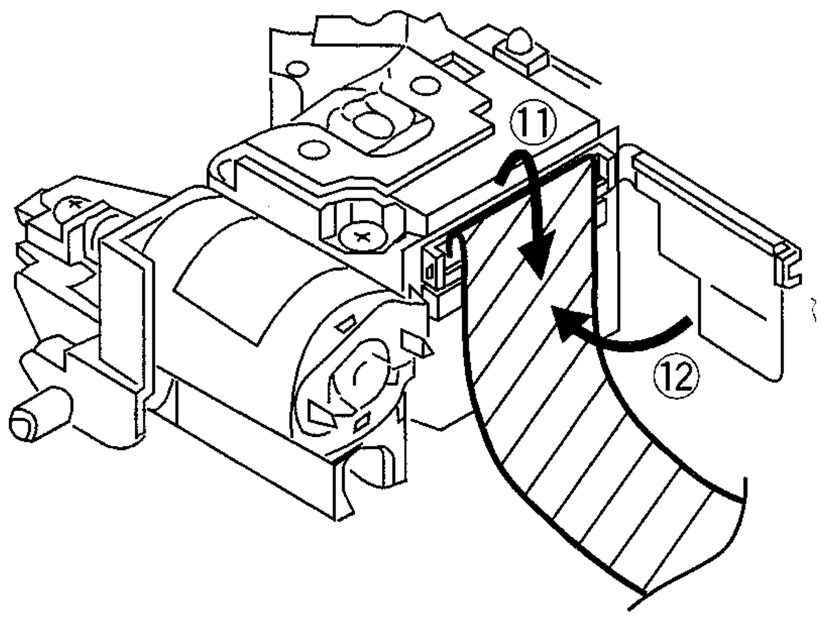


9

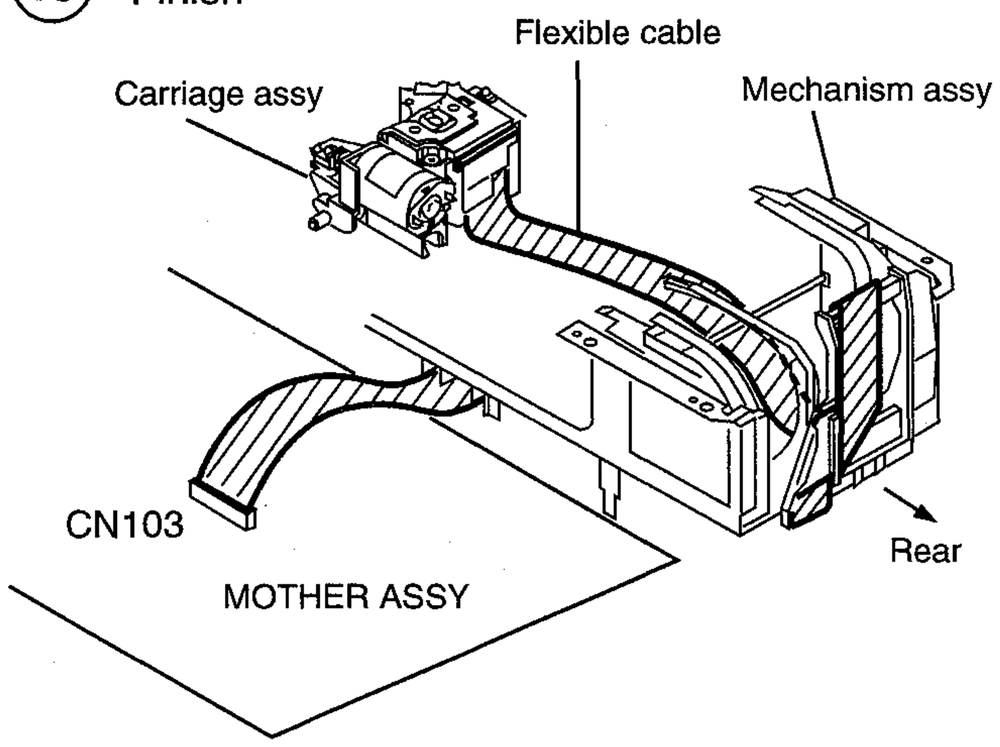
Caution:
Don't connect the Ⓧ side of flexible cable to the carriage assy in this step.
If connect it, the laser diode might be damaged by the static electricity.



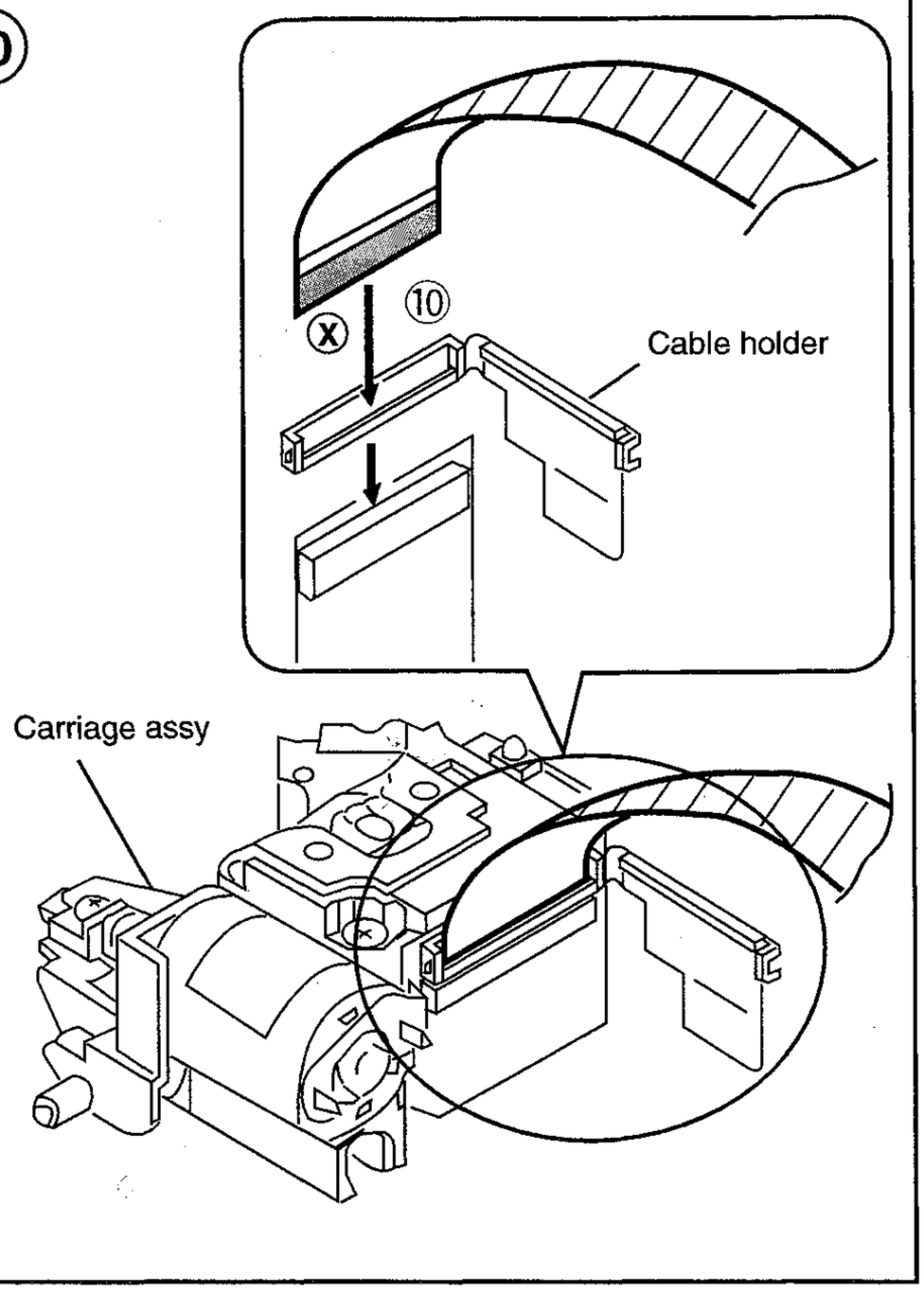
11, **12**



13 Finish

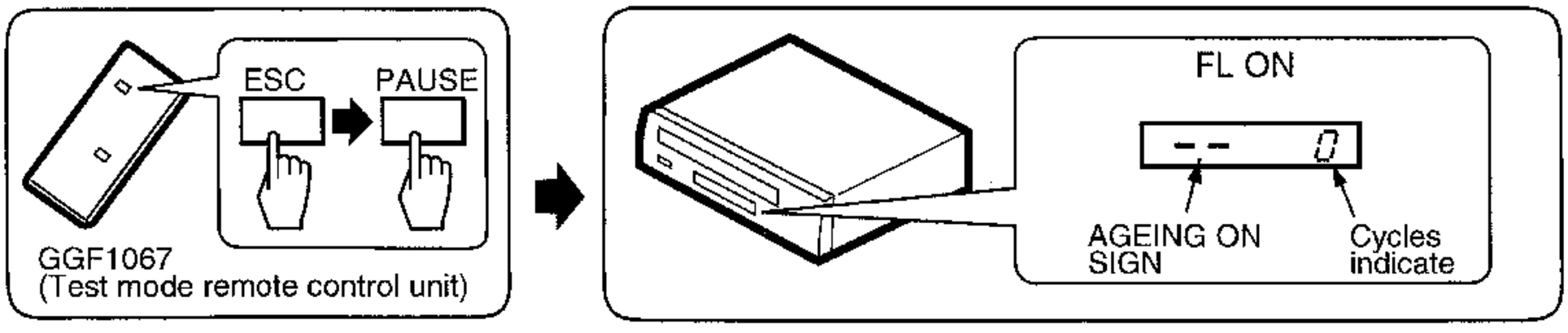


10

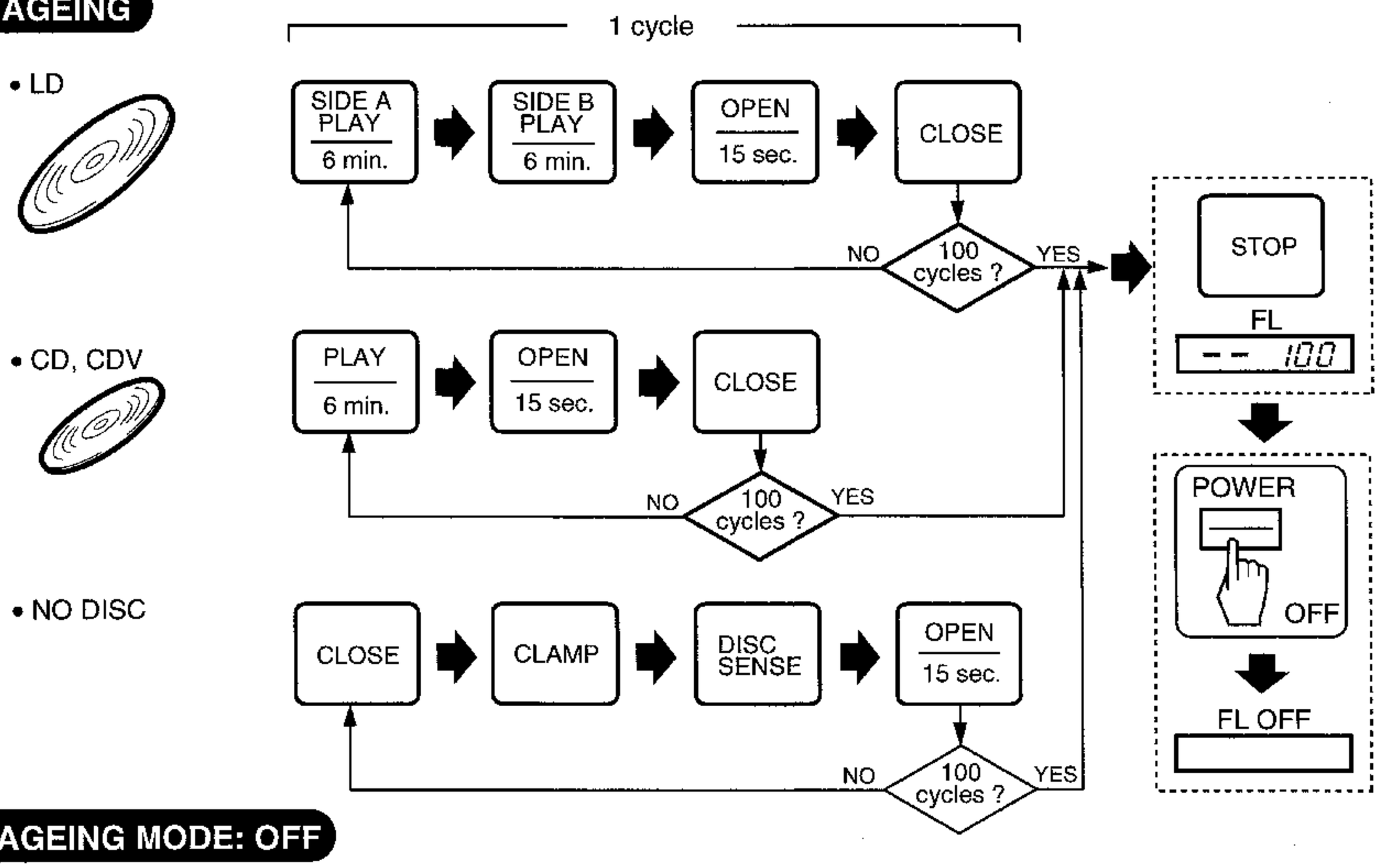


7.2.3 AGEING MODE

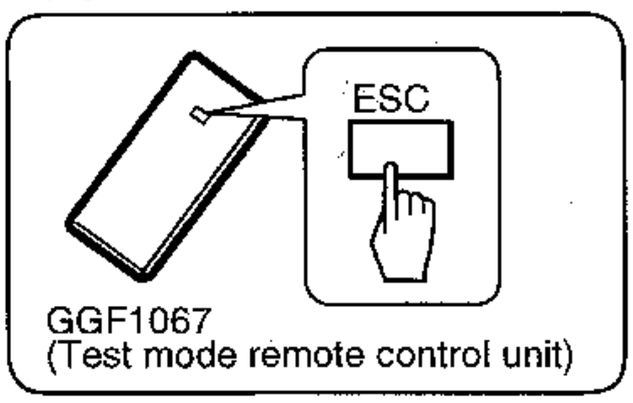
AGEING MODE: ON • Note for KARAOKE model : Set the SINGLE PLAY mode to OFF.



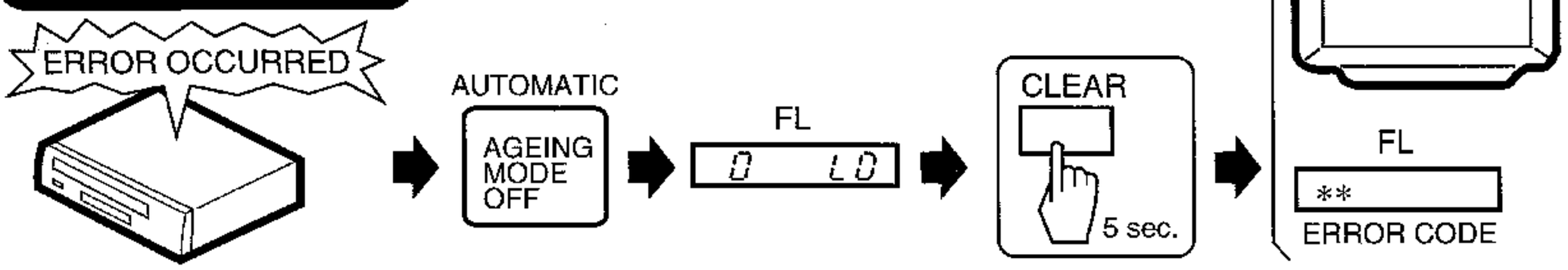
AGEING



AGEING MODE: OFF



ERROR OCCURRED



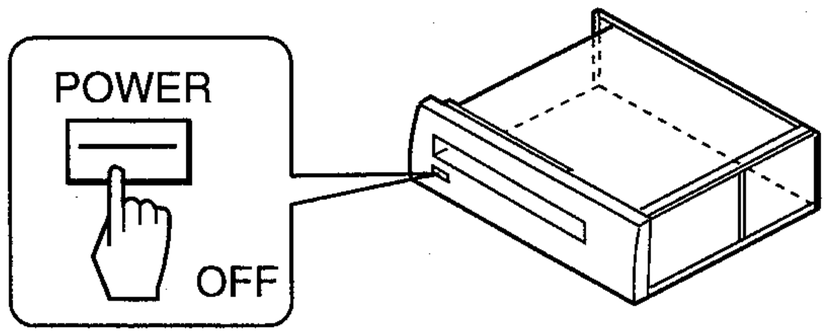
7.2.4 VCD COLOR-BAR Output

The VCDB Assy have the test mode which output the color-bar signal independently.

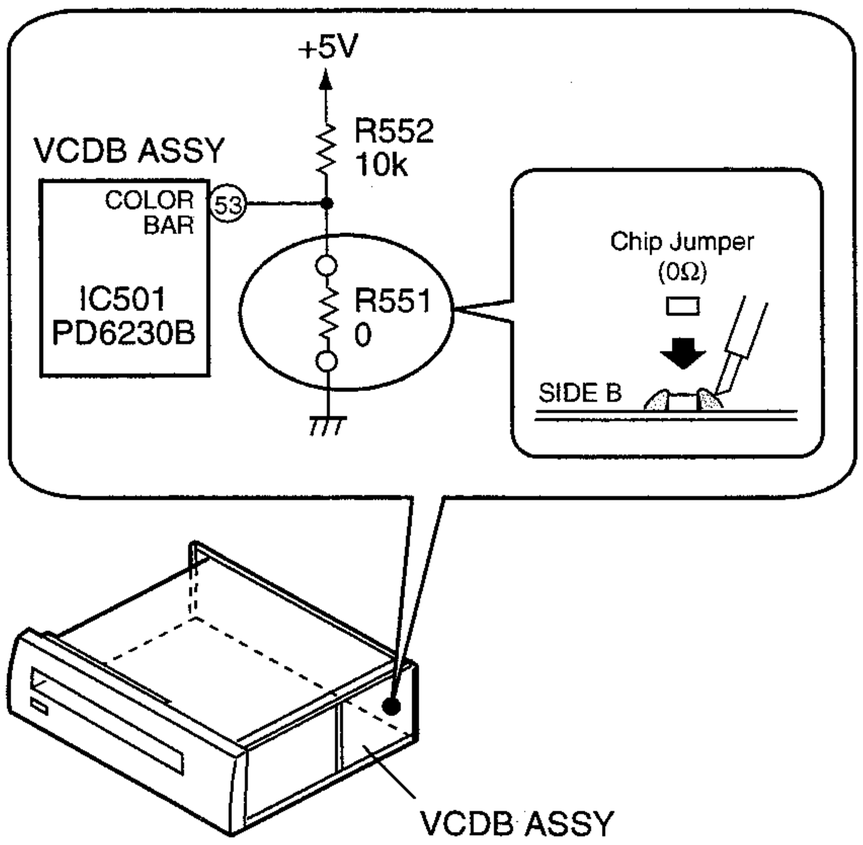
VCD Color-bar Test Mode

Color-bar TEST MODE: ON

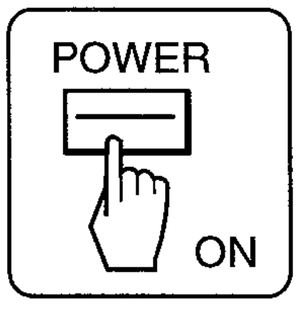
① Power OFF



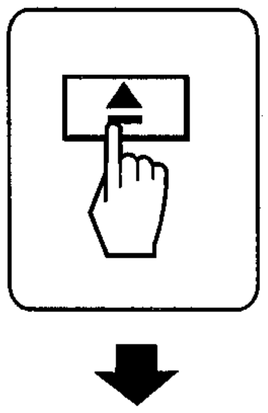
② Mount R551 (0Ω)



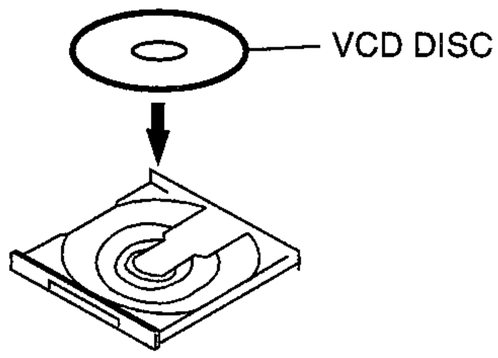
③ Power ON



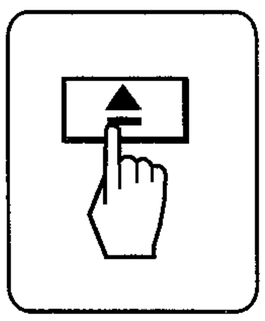
④ Tray Open



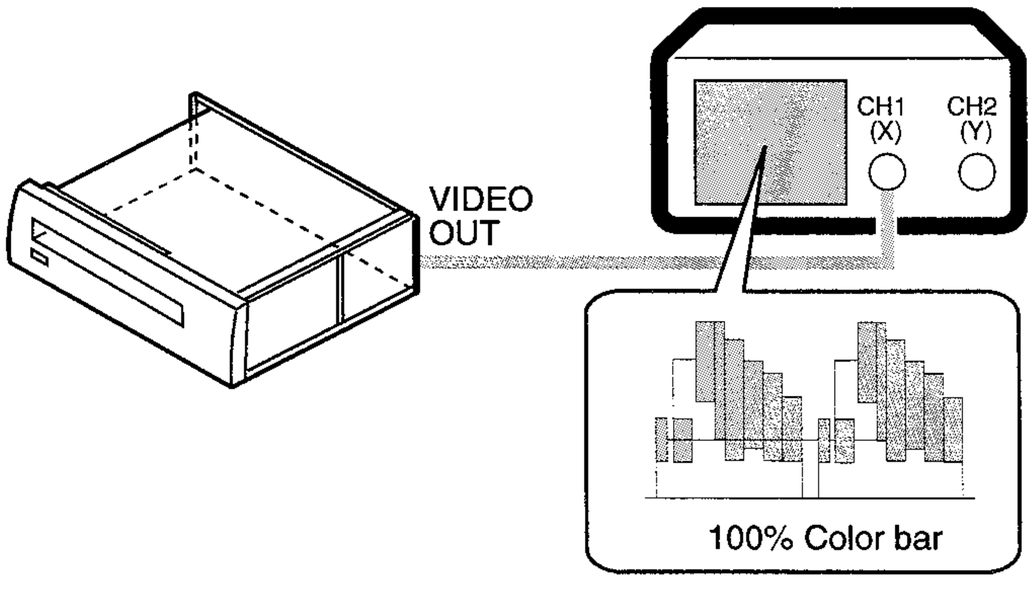
⑤ VCD Disc Set



⑥ Tray Close



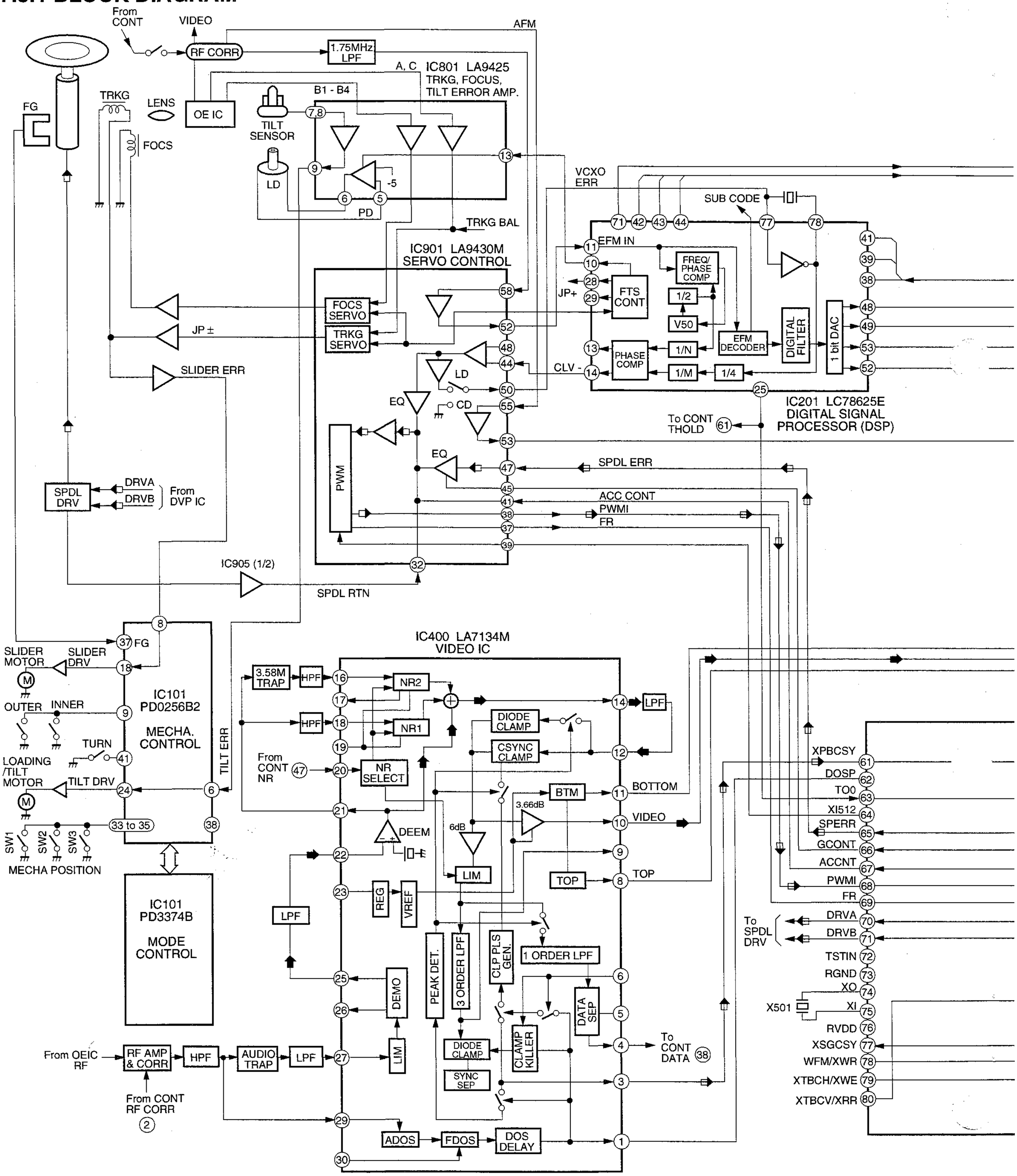
⑦ 100% Color-bar Output

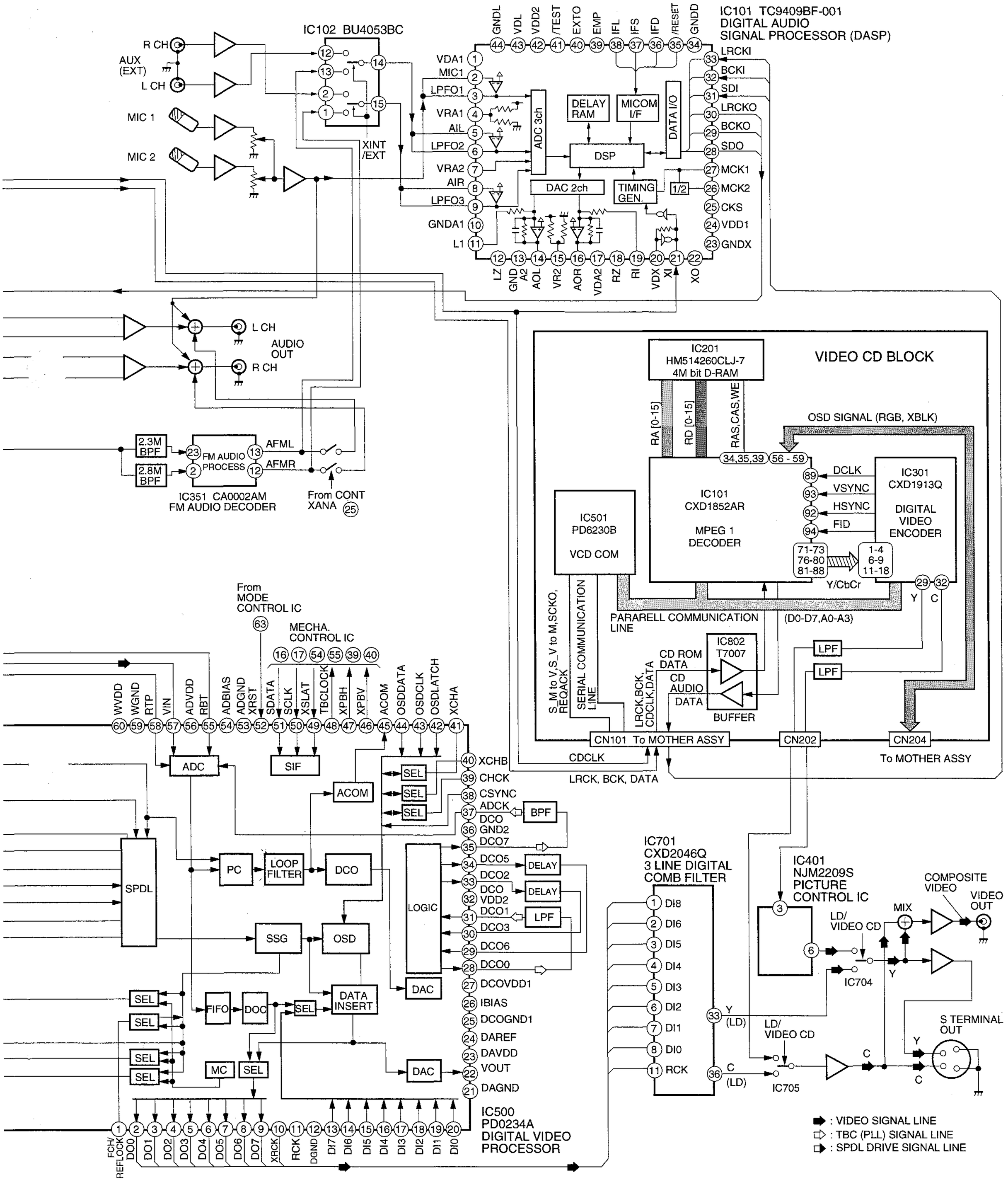


CLD-210KVT, CLD-210KVT-G

7.3 EXPLANATION

7.3.1 BLOCK DIAGRAM




IC101 TC9409BF-001
DIGITAL AUDIO
SIGNAL PROCESSOR (DASP)
GNDL VDL VDD2 /TEST EXTO EMP IFL IFS IFD /RESET GNDD
44 43 42 41 40 39 38 37 36 35 34
VDA1 1
MIC1 2
LPFO1 3
VRA1 4
AIL 5
LPFO2 6
VRA2 7
AIR 8
LPFO3 9
GNDA1 10
L1 11
ADC 3ch
DELAY RAM
MICOM I/F
DATA I/O
DSP
DAC 2ch
TIMING GEN.
1/2
LRCKI 33
BCKI 32
SDI 31
LRCKO 30
BCKO 29
SDO 28
MCK1 27
MCK2 26
CKS 25
VDD1 24
GNDX 23
12 13 14 15 16 17 18 19 20 21 22
LZ GND A2 AOL VR2 AOR VDA2 RZ RI VDX XI XO
IC102 BU4053BC
R CH
AUX (EXT)
L CH
MIC 1
MIC 2
XINT /EXT
L CH
AUDIO OUT
R CH
2.3M BPF
2.8M BPF
FM AUDIO PROCESS
AFML
AFMR
IC351 CA0002AM
FM AUDIO DECODER
From CONT XANA 25
VIDEO CD BLOCK
IC201
HM514260CLJ-7
4M bit D-RAM
RA [0-15]
RD [0-15]
RAS,CAS,WE
OSD SIGNAL (RGB, XBLK)
34,35,39
56 - 59
IC101
CXD1852AR
MPEG 1
DECODER
IC501
PD6230B
VCD COM
DCLK
VSYNC
HSYNC
FID
IC301
CXD1913Q
DIGITAL
VIDEO
ENCODER
71-73
76-80
81-88
1-4
6-9
11-18
Y/CbCr
29
32
Y
C
S_M to V,S_V to M,SCKO, REQACK
SERIAL COMMUNICATION LINE
PARARELL COMMUNICATION LINE
(D0-D7,A0-A3)
IC802
T7007
CD ROM DATA
CD AUDIO DATA
BUFFER
LRCK,BCK, CDCLK,DATA
LPF
LPF
CN101 To MOTHER ASSY
CN202
CN204
To MOTHER ASSY
CDCLK
LRCK, BCK, DATA
From MODE CONTROL IC
63
MECHA. CONTROL IC
16 17 54 55 39 40
WVDD WGND RTP VIN ADVDD RBT ADBIAS ADGND XRST SDATA SCLK XSLAT TBCLOCK XPBH XPBV ACOM OSDDATA OSDCLK OSDLATCH XCHA
60 59 58 57 56 55 54 53 52 51 50 49 48 47 46 45 44 43 42 41
ADC
SIF
ACOM
SEL
SEL
SEL
40 XCHB
39 CHCK
38 CSYNC
37 ADCK
DCO
BPF
36 GND2
DCO7 35
DCO5 34
DCO2 33
DCO 32
VDD2
DCO1 31
DCO3 30
DCO6 29
DCO0 28
DELAY
DELAY
LPF
SPDL
PC
LOOP FILTER
DCO
LOGIC
SSG
OSD
DAC
DAC
27 DCOVDD1
26 IBIAS
25 DCOGND1
24 DAREF
23 DAVDD
22 VOUT
21 DAGND
SEL
SEL
SEL
SEL
FIFO
DOC
SEL
DATA INSERT
MC
SEL
IC500
PD0234A
DIGITAL VIDEO
PROCESSOR
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
FCH/REFLOCK DO0 DO1 DO2 DO3 DO4 DO5 DO6 DO7 XRCK RCK DGND DI7 DI6 DI5 DI4 DI3 DI2 DI1 DI0
IC701
CXD2046Q
3 LINE DIGITAL
COMB FILTER
1 DI8
2 DI6
3 DI5
4 DI4
5 DI3
6 DI2
7 DI1
8 DI0
11 RCK
33 Y (LD)
36 C (LD)
IC401
NJM2209S
PICTURE
CONTROL IC
3
6
LD/ VIDEO CD
IC704
IC705
MIX
COMPOSITE VIDEO
VIDEO OUT
Y
C
S TERMINAL OUT
: VIDEO SIGNAL LINE
: TBC (PLL) SIGNAL LINE
: SPDL DRIVE SIGNAL LINE

7.3.2 EXPLANATION OF CD TRAY

■OUTLINE OF CD TRAY CHANGE OPERATION

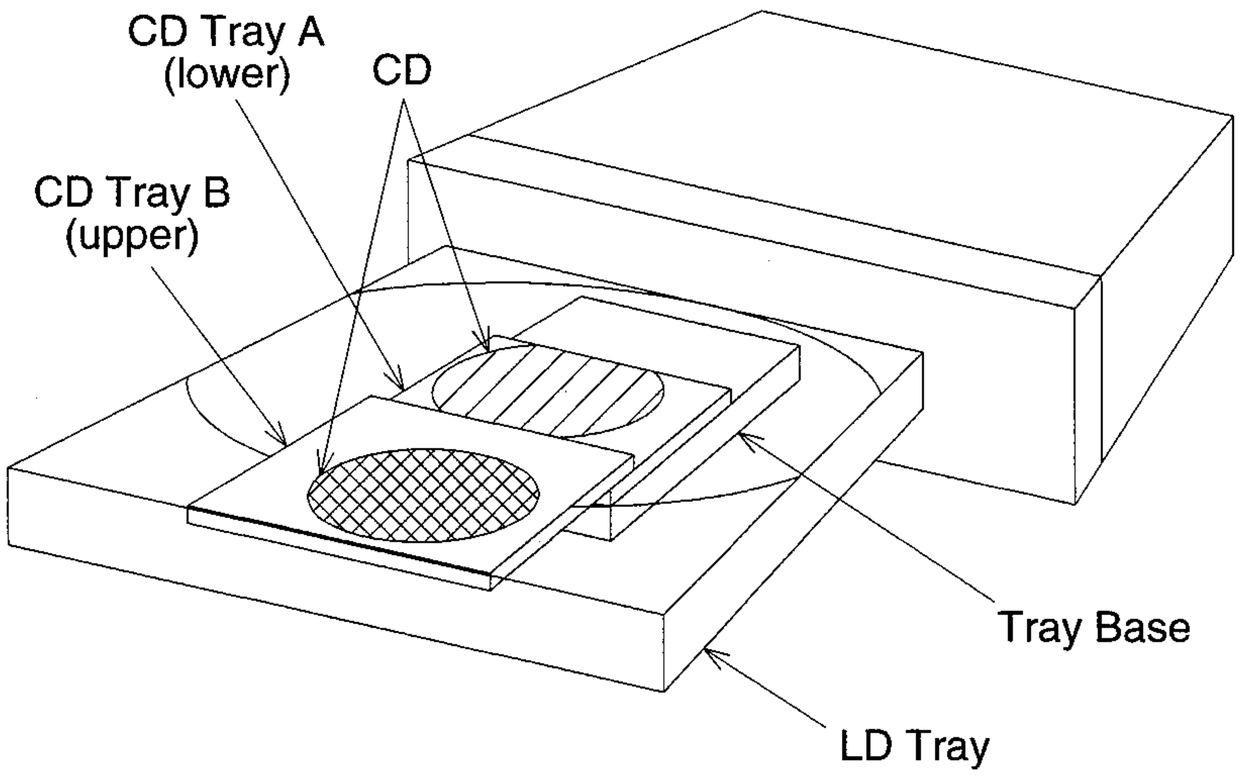


Fig.1-1 Operation of CD Tray Change

PU mechanism elevates.
Lower CD playback.

PU mechanism lowers.

CD Trays change.
(CD Tray A moves together with Tray Base.)

Both CD Tray A and B completes shifting.
Tray Base separates from CD Tray A.

Tray Base shifts.

Tray Base completes shifting.

PU mechanism elevates.
Upper CD playback.

PU mechanism lowers.

Tray Base shifts.

Tray Base is combined with CD Tray A.

CD Trays are changing.
(CD Tray A moves together with Tray Base.)

CD Tray A, CD Tray B and Tray Base complete shifting.

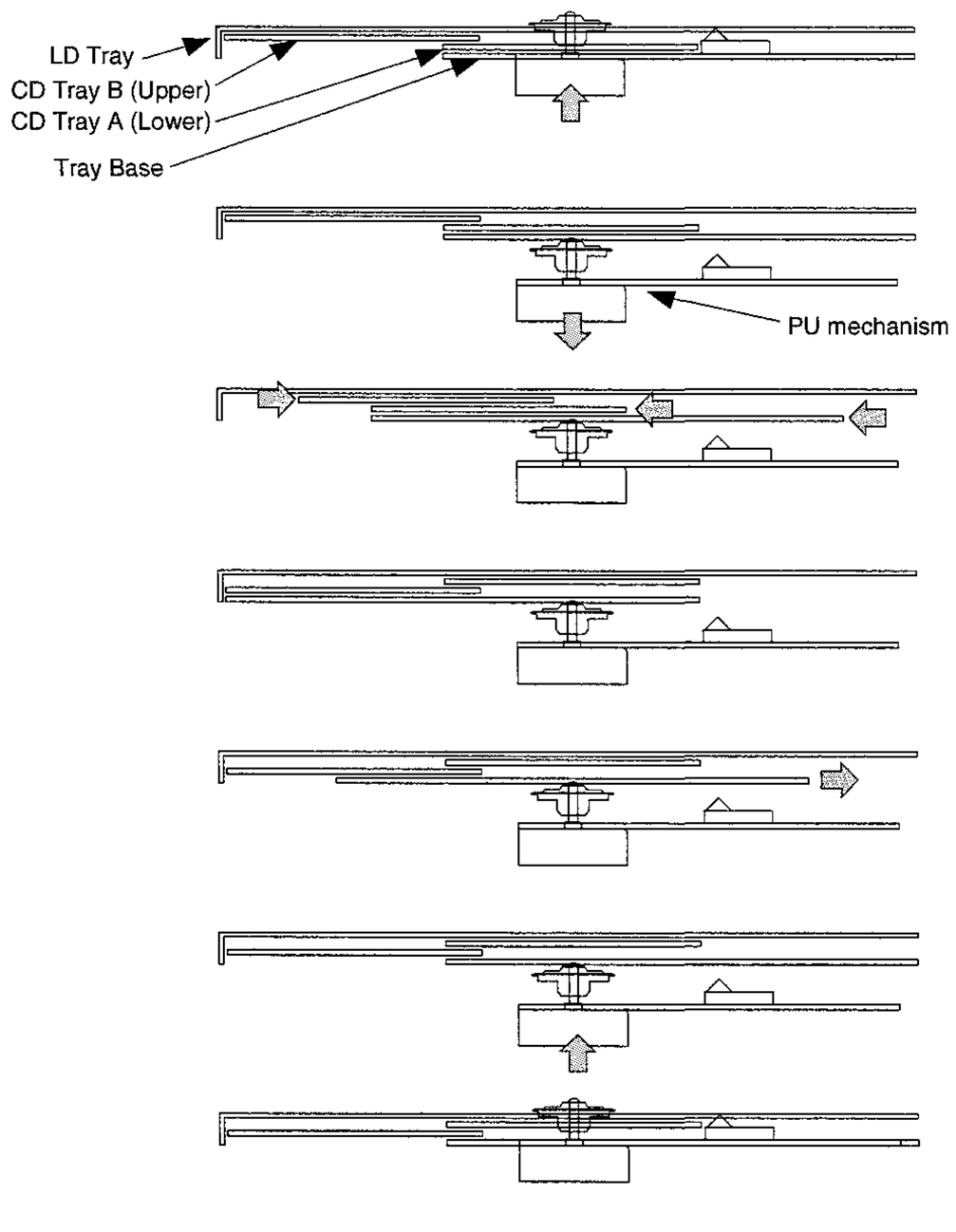


Fig.1-2 CD Tray Change (See also Fig.1-1.)

■ CONFIGRATION OF THE TRAY ASSEMBLY

This section outlines the configuration of parts used in the Tray Assy (see Fig. 2-1).

- (a) LD Tray has a (a-3) Cam, with a (b) Cam Valve attached to a (a-2) U-groove, and a (h) Change Lever that moves onto the (a-1) Boss. (See Fig. 2-3 for details.)

- (b) Cam Valve has a (b-1) Shaft that engages (a) LD Tray, and can rotate around the shaft. Force is applied to (b) Cam Valve by a Torsion Spring. (See Fig. 2-3 for details.)

- (c) CD Tray B is placed between (a) LD Tray and (e) CD Guide Z. As a result, movement of (c) CD Tray B is restricted in the directions of height as well as left and right. However, (c) CD Tray B can move toward the front and rear freely. Through a (d) T18 Gears, (c) CD Tray B synchronizes with (g) CD Tray A in terms of operation in the proportion of 1:1.

- Each of (d)T18 Gear is used with (c) CD Tray B and (g) CD Tray A, respectively, to convey the operation of travel toward the front and rear of (c) CD Tray B and (g) CD Tray A in the opposite direction in the proportion of 1:1.

- Each of (e) CD Guide Z is secured on the left and right of (a) LD Tray together with (i) CD Guide I to hold (c) CD Tray B with (a) LD Tray.

- (f) Lock Pin consist of a (f-1) Pin in contact with the (a-3) Cam and a (f-2) Pin in contact with the (j-1) Tray Base cam. (f) Lock Pin engage a (g-1) Sliding Part of (g) CD Tray A and can move in the directions of left and right. Force is applied to the left edge of the (f) Lock Pin by the Locking Pin Spring. (See Fig. 2-2 for details)

- (g) CD Tray A is placed between (e) CD Guide Z and (i) CD Guide I. As a result, the movement of (g) CD Tray A is restricted in the directions of height as well as left and right. However, (g) CD Tray A can move toward the front and rear freely. Through a (d) T18 Gear, (g) CD Tray A synchronizes with (c) CD Tray B in terms of operation in the proportion of 1:1. Held by the (f) Lock Pin, (g) CD Tray A moves together with the (j) Tray Base.

- (h) Change Lever has a (h-1) Hollow that engages (a) LD Tray, and can rotate around the shaft. Additional force is imparted to a (h) Change Lever by the Lock Plate Spring. Though this additional force imparted by the spring, the (h-2) CD Tray Pusher of the change lever pushes (g) CD Tray A toward the rear.

- Each of (i) CD Guide I is secured on the left and right of (a) LD Tray together with (e) CD Guide Z to hold (g) CD Tray A with (e) CD Guide Z, and (j) Tray Base with (k) Guide Plate L and (l) Guide Plate R.

- (j) Tray Base has a (j-1) Cam that engages a (f-2) Pin, as well as a rack for forward/backward movement. (j) Tray Base is placed between (i) CD Guide I and (k) Guide Plate L or (l) Guide Plate R. As a result, movement of (j) Tray Base is restricted in the directions of height as well as left and right. However, (j) Tray Base can move toward the front and rear freely.

- (k) Guide Plate L and (l) Guide Plate R are secured on the left and right of (a) LD Tray to hold the (j) Tray Base with (i) CD Guide I.

- (m) Center Lock :
  Center Lock is secured on the LD tray, and can rotate around the shaft. Force is applied to Center Lock by a Valve Spring.
  Center Lock has role to maintain CD tray B in CD tray B playback.

- (n) Lock Plate :
  Lock Plate is secured on the LD tray, and can rotate around the boss. Force is applied to Lock Plate by a Lock Plate Spring.
  Lock plate has role to fix the tray base.

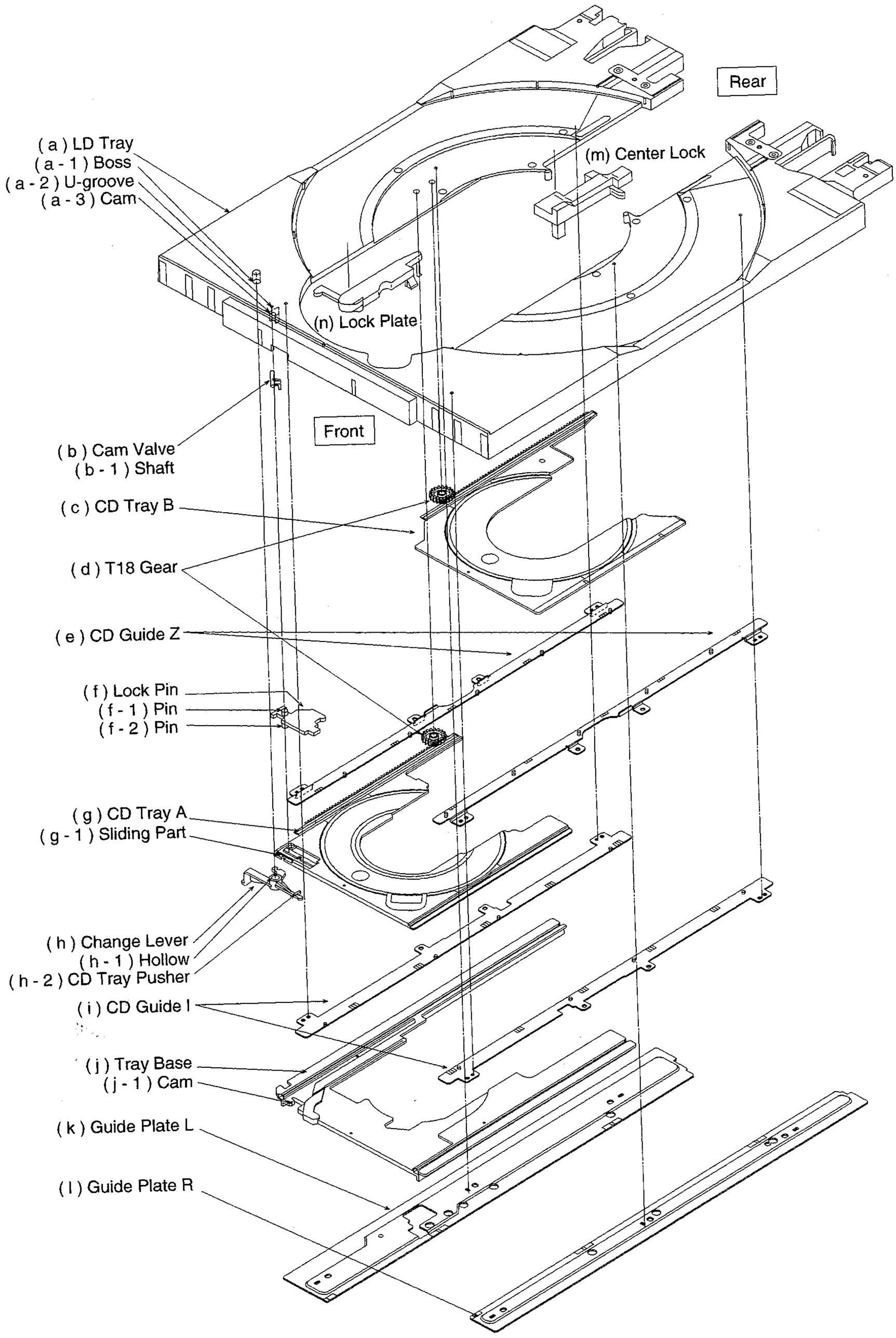


Fig.2-1 Configuration of the Tray Assy

■OPERATION OF CD TRAYS A AND B

This section outlines operation of forward/backward movement of CD Tray A and B (see Fig. 2-2 and 2-3).

(1) CD Tray A: from the center of LD Tray to the front

- When (g) CD Tray A is positioned in the center of LD Tray, (f) Lock Pin engages a (j) Tray Base. Thus, (j) Tray Base moves together with (g) CD Tray A.
- When (j) Tray Base moves toward the front of the LD Tray and reaches the (b) Cam Valve, (f-1) upper Pin is positioned along the (b) Cam Valve and (a-3) Cam, according to the movement of (j) Tray Base. Thus, (f) Lock Pin moves toward the right side of the LD Tray. (Fig. 2-3 ①)
- Once the (f) Lock Pin have shifted toward the right, (f-2) lower Pin disengages from (j-1) Cam of (j) Tray Base. However, (g) CD Tray A is continuously pushed forward by (j) Tray Base and (f) Lock Pin. (Fig. 2-3 ②)
- After (j) Tray Base and (g) CD Tray A have shifted forward, (f) Lock Pin passes the end of (a-3) Cam of LD Tray and move toward the left under the force imparted by the spring. (Fig. 2-3 ③ and ④)
- (j) Tray Base is stopped by the switching of the Mechanism Assy at the position where the (f) Lock Pin has passed the end of (a-3) Cam of LD Tray. Then, (j) Tray Base moves toward the rear by reversed rotation of Loading Motor of the Mechanism Assy.
- At this time, (g) CD Tray A comes in contact with (h) Change Lever and is pushed toward the rear. Thus, (f-2) lower Pin is held in the valley of (a-3) Cam of LD Tray. (Fig. 2-3 ④) Thus, (g) CD Tray A is secured in a position in front of LD Tray, and (c) CD Tray B in the center of LD Tray.

(2) CD Tray A: from the front to the center of LD Tray

- (j)Tray Base moves forward again. As a result, (j-1) Cam pushes (f-2) lower Pin.
- (f-1) upper Pin slips from the valley of the (a-3) Cam of LD Tray, then moves toward the left under the force of the spring and reengages (j-1) Cam of Tray Base. (Fig. 2-3 ⑤)
- The forward motion of (j) Tray Base is stopped by the switching of the Mechanism Assy. Then, (j) Tray Base moves toward the rear by reversed rotation of Loading Motor for the Mechanism Assy.
- (g) CD Tray A moves to the center of LD Tray together with (j) Tray Base. (Fig. 2-3 ⑥) At this time, the (f-1) upper Pin pushes the (b) Cam Valve to open. (Fig. 2-3 operation from ⑥ to ①)

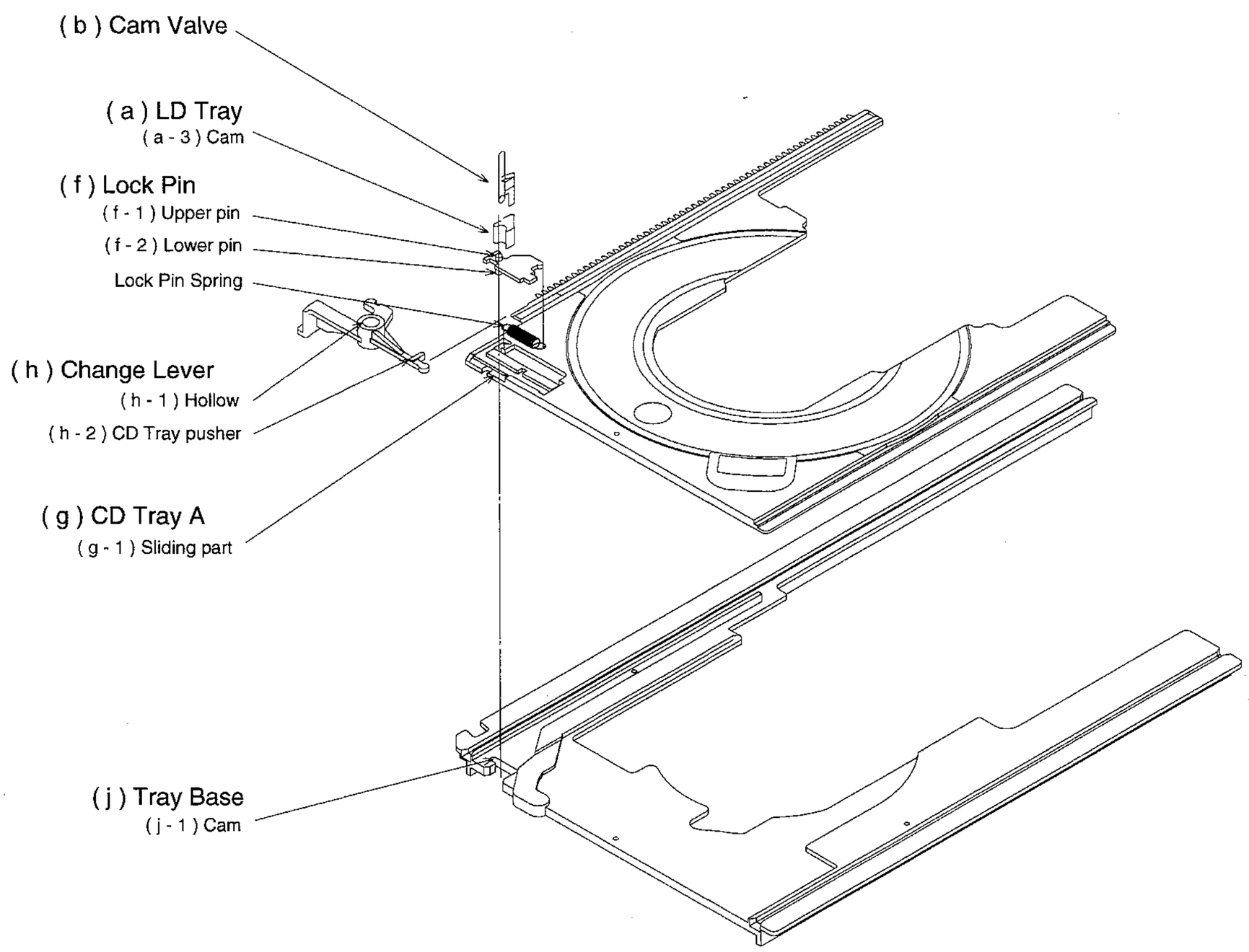


Fig.2-2 Configuration of the Tray Assy in Detail (Top View)

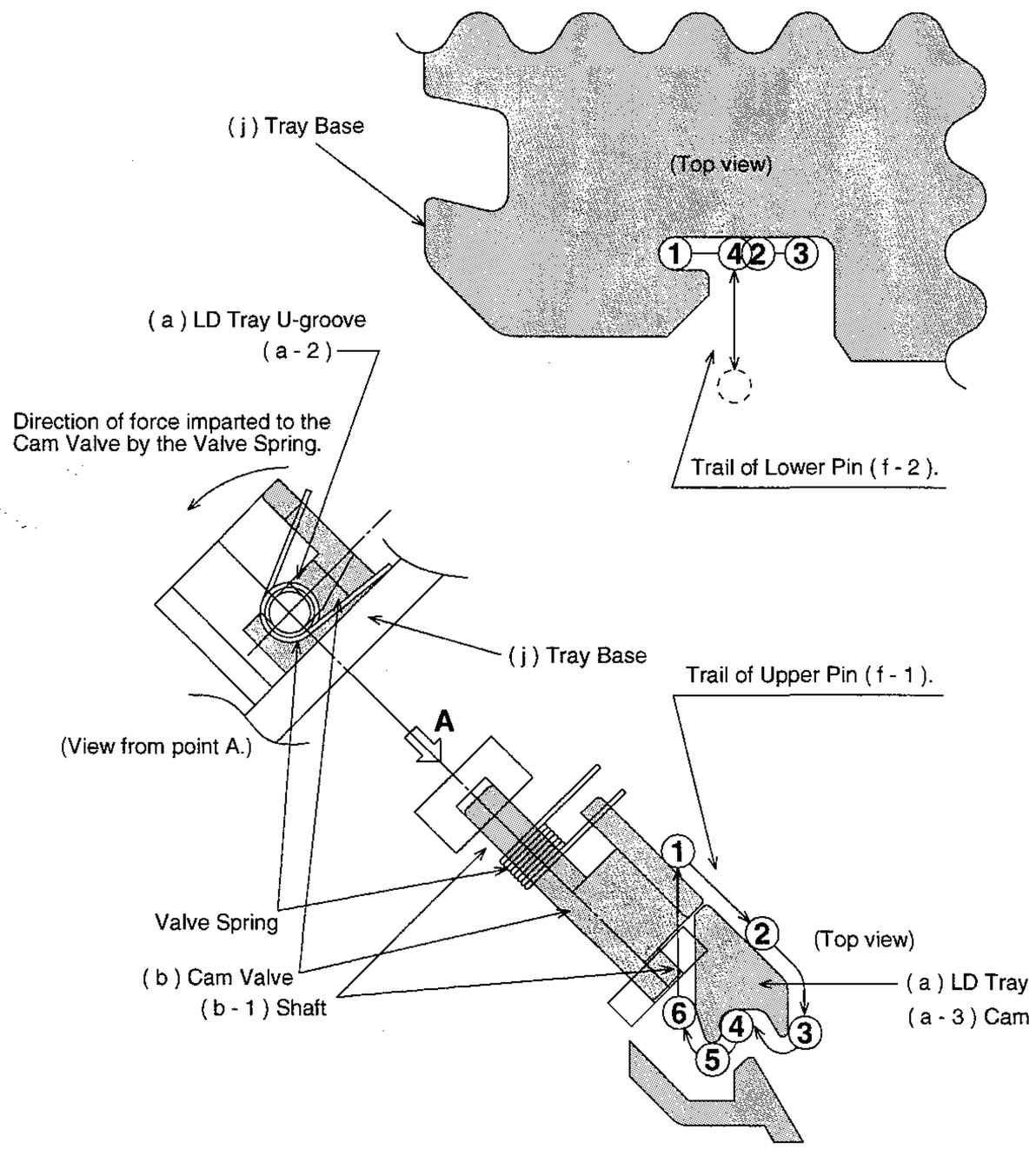


Fig.2-3 Trails of the Upper Pin (f-1) and Lower Pin (f-2) of the Lock Pin

■DISASSEMBLING CD TRAYS A AND B (Fig. 3-1)

① Remove the Screws from (k) Guide Plate L and (l) Guide Plate R. (BPZ30P080FMC × 6)
② Remove (k) Guide Plate L and (l) Guide Plate R.
③ Remove (j) Tray Base.
④ Remove the Screws from left and right (i) CD Guide I. (IPZ20P060FMC × 7)
⑤ Remove left and right (i) CD Guide I.
⑥ Remove (g) CD Tray A.
⑦ Remove left and right (e) CD Guide Z.
⑧ Remove (c) CD Tray B.

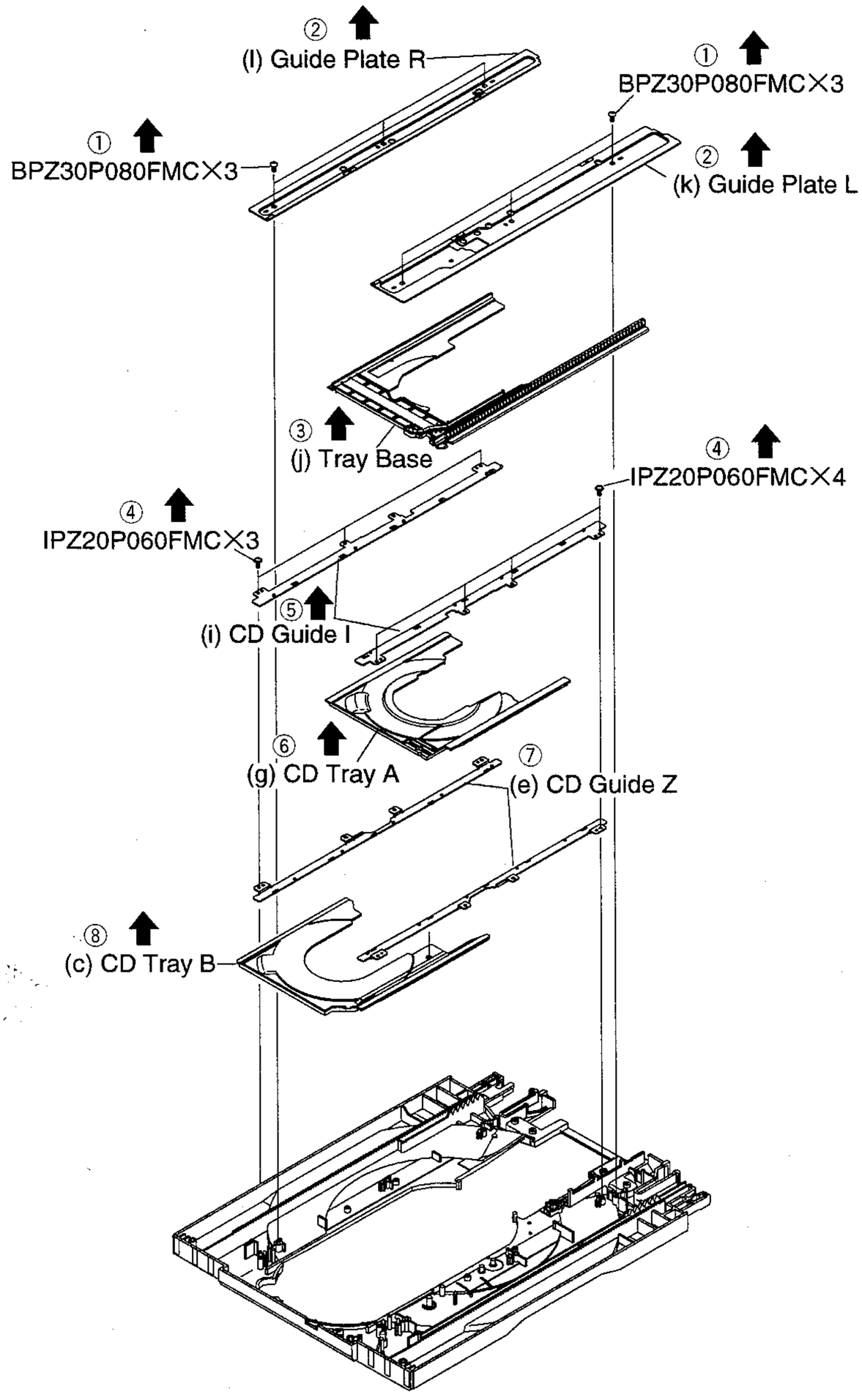


Fig.3-1 Disassembling (Bottom View)

■ASSEMBLING CD TRAYS A AND B (Fig. 3-2)

① Confirm that the ▼ mark of (d) T18 Gear is in the alignment position indicated in Fig. 3-2.
② Align (c) CD Tray B with Guide Pin of (a) LD Tray. Align the ▼ mark in the rear of Rack Gear of (c) CD Tray B with the ▼ mark of (d) T18 Gear.
③ Align left and right (e) CD Guide Z with the pin and boss of (a) LD Tray.
④ Align (g) CD Tray A with Guide Pin of (e) CD Guide Z. Align the ▼ mark in the front of Rack Gear of (g) CD Tray A with the ▼ mark of (d) T18 Gear.
⑤ Align left and right (i) CD Guide I with the pin and boss of (a) LD Tray and tighten the Screws. Tighten (e) CD Guide Z, as well. (IPZ20P060FMC × 7)
⑥ Align the (j-1) Cam of the (j) Tray Base with Guide Pin of (i) CD Guide I, while aligning the (j-1) Cam with (f-1) upper Pin of (f) Lock Pin.
⑦ Align (k) Guide Plate L and (l) Guide Plate R with the pin and boss of (a) LD Tray, and tighten the Screws. (BPZ30P080FMC × 6)

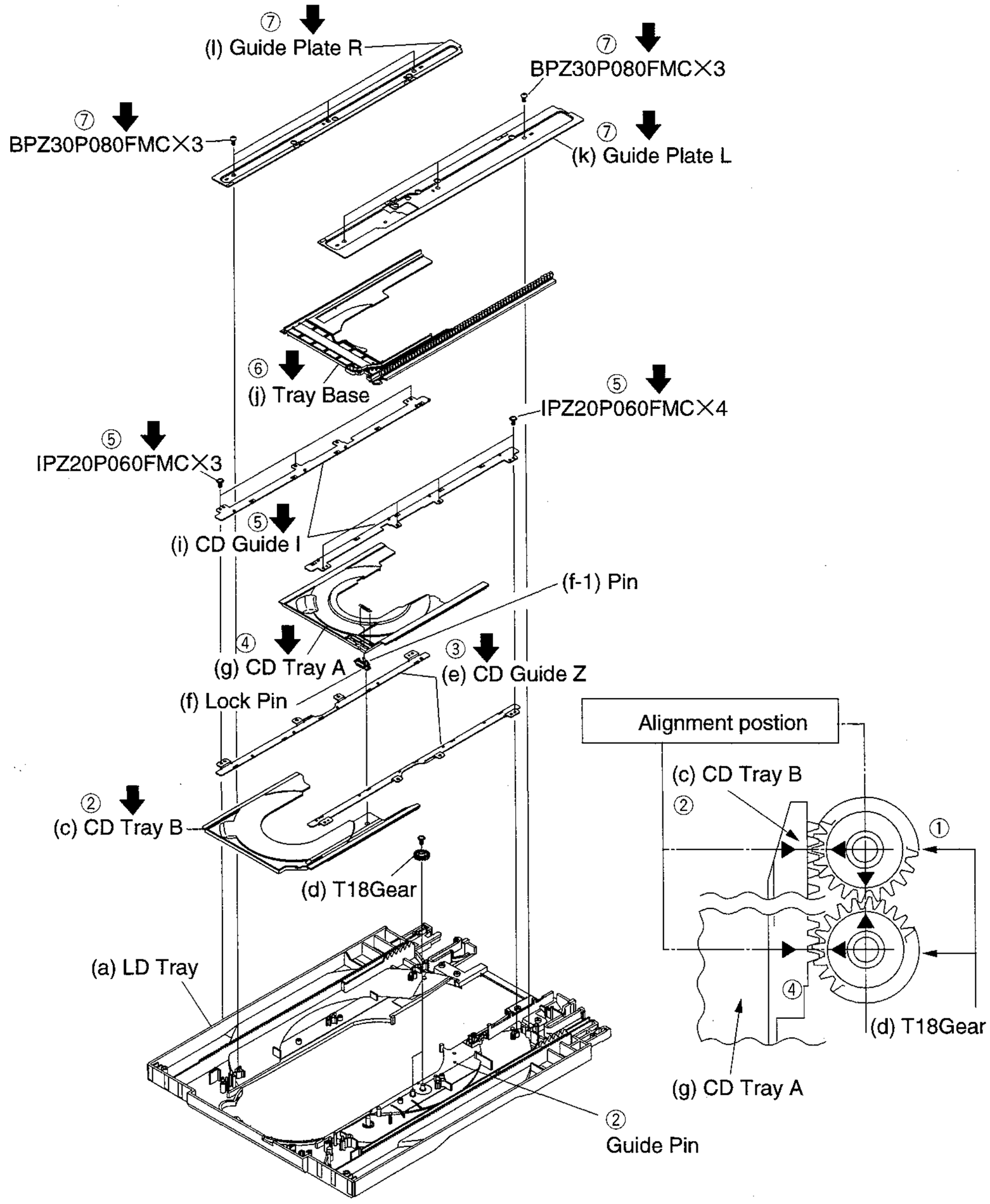
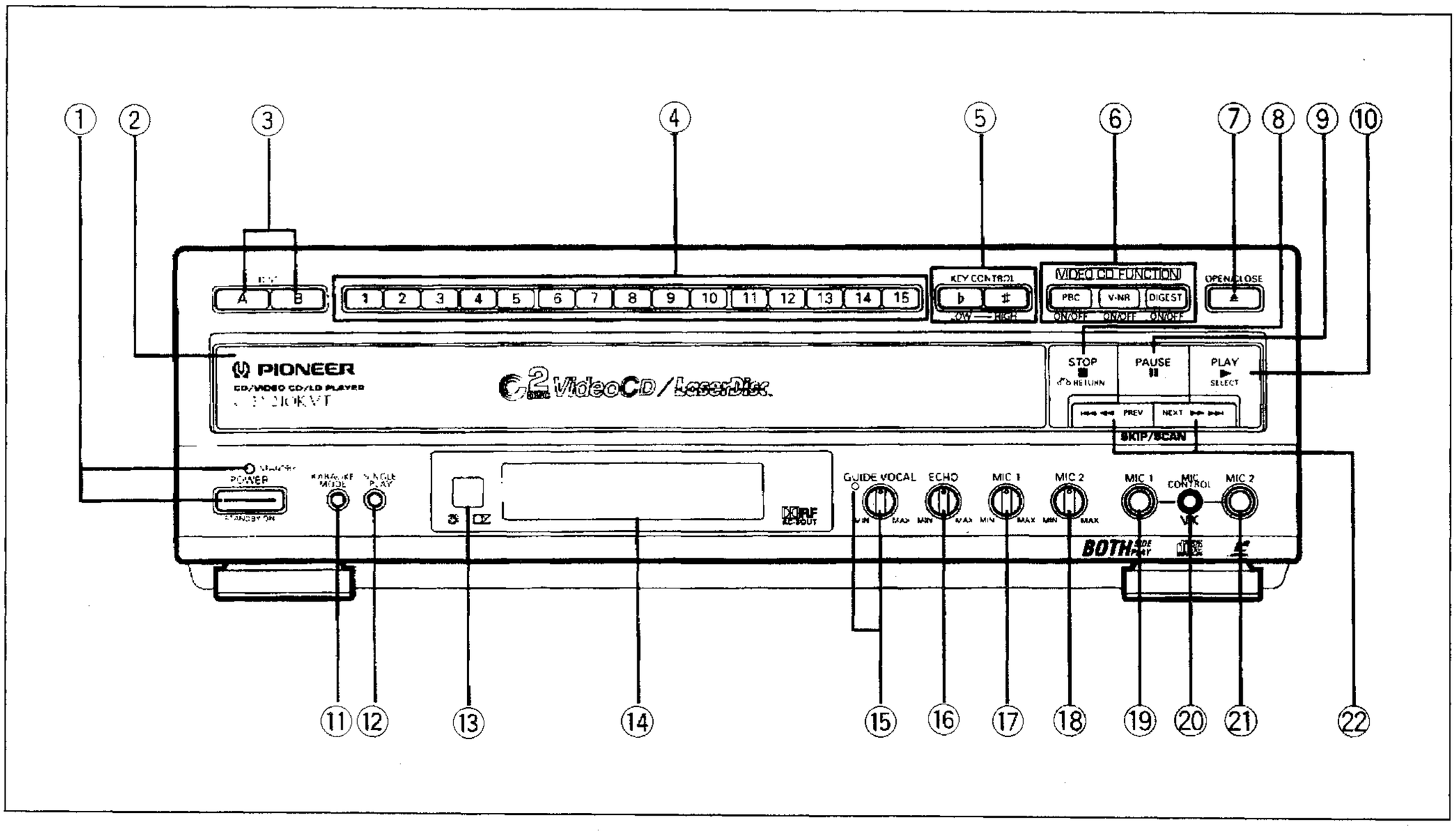


Fig.3-2 Assembling (Bottom View)

8. PANEL FACILITIES AND SPECIFICATIONS

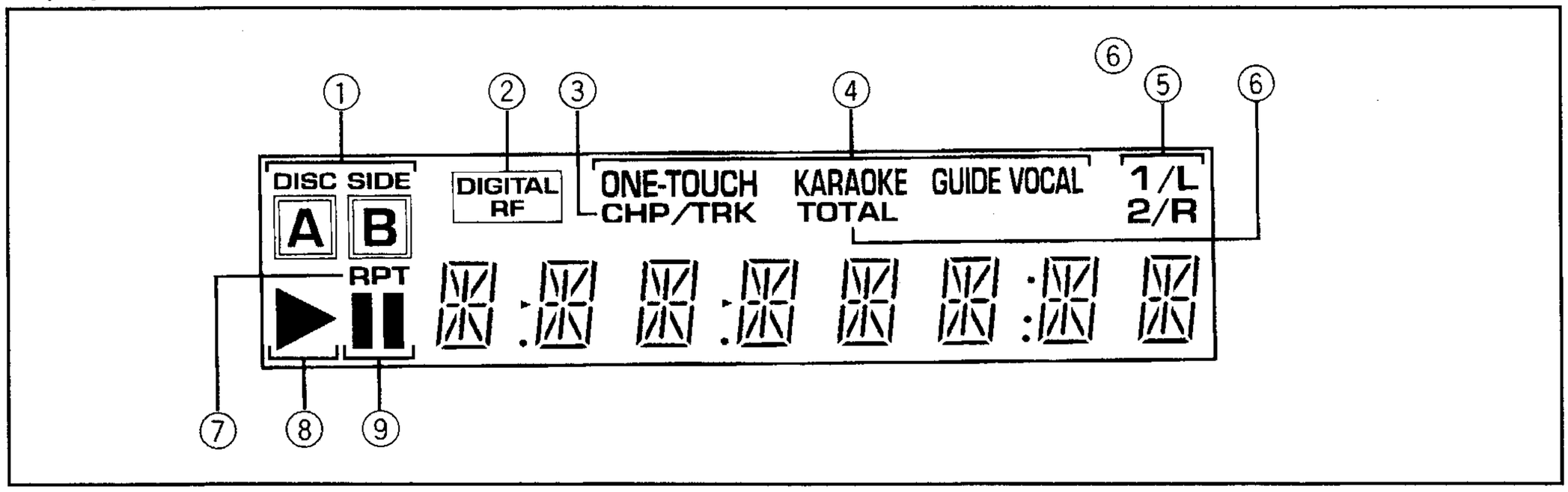
8.1 PANEL FACILITIES



① **POWER STANDBY/ON switch and STANDBY indicator**
Press to turn the power on and off.
② **Disc table**
③ **DISC/SIDE A/B buttons/indicators**
④ **Direct music search buttons**
⑤ **KEY CONTROL buttons**
⑥ **VIDEO CD FUNCTION (PBC/V-NR/DIGEST) buttons/ indicators**
⑦ **OPEN/CLOSE (≜) button**
⑧ **STOP (■)/RETURN (↩) button**
⑨ **PAUSE (II) button**
⑩ **PLAY (►)/SELECT button**
⑪ **KARAOKE MODE button/indicator**
⑫ **SINGLE PLAY button/indicator**
⑬ **Remote sensor**
⑭ **Display window**
⑮ **GUIDE VOCAL level control/indicator**
⑯ **ECHO level control**
⑰ **MIC 1 level control**
⑱ **MIC 2 level control**
⑲ **MIC 1 jack**
⑳ **MIC CONTROL jack**
㉑ **MIC 2 jack**
㉒ **SKIP (|◄◄/PREV ►►|/NEXT)/SCAN (|◄◄/fast reverse ►►|/fast forward) buttons**

VIDEO CD functions are displayed in green.

Display window



① **DISC A/B**: CD disc table indicator
SIDE A/B: Indicates the LD side played back.

② **DIGITAL RF indicator**
Lights when a Dolby AC-3 compatible LD is being played.

③ **Chapter number/Track number indicator**

④ **ONE-TOUCH KARAOKE/ONE-TOUCH GUIDE VOCAL indicator**

⑤ **1/L, 2/R indicator**
Lights to indicate the audio channels being output.

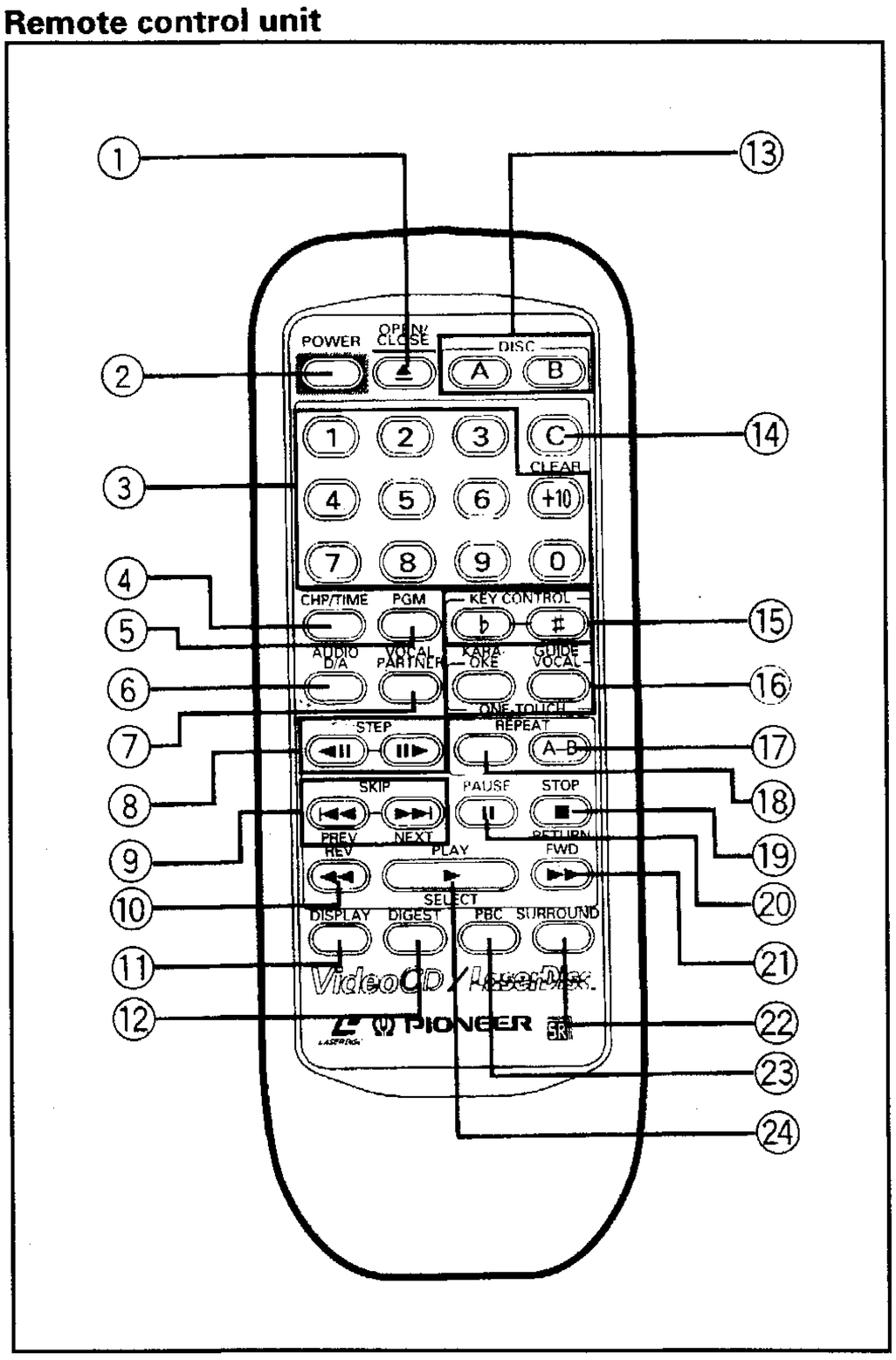
⑥ **TOTAL indicator**

⑦ **RPT (Repeat) indicator**

⑧ **► Play indicator**

⑨ **II Pause indicator**

Remote control unit



① **OPEN/CLOSE (▲) button**

② **POWER button**

③ **Digit buttons**

④ **CHP/TIME (Chapter/Time) button**

⑤ **PGM (Program) button**

⑥ **AUDIO D/A button**

⑦ **VOCAL PARTNER button**

⑧ **STEP (◄II II►) buttons**

⑨ **SKIP (I◄◄/PREV ►►I/NEXT) buttons**

⑩ **REV (◄◄ scan) button**

⑪ **DISPLAY button**

⑫ **DIGEST button**

⑬ **DISC/SIDE A/B**

⑭ **CLEAR button**

⑮ **KEY CONTROL buttons**

⑯ **ONE-TOUCH KARAOKE button**
ONE-TOUCH GUIDE VOCAL button

⑰ **REPEAT A-B button**

⑱ **REPEAT button**

⑲ **STOP (■)/RETURN button**

⑳ **PAUSE (II) button**

㉑ **FWD (►► scan) button**

㉒ **SURROUND button**

㉓ **PBC button**

㉔ **PLAY (►)/SELECT button**

VIDEO CD functions are displayed in orange.

8.2 SPECIFICATIONS

General

System ..... LaserVision Disc system and Compact Disc digital audio system
Laser ..... Semiconductor laser wavelength 780 nm
Power requirements ..... AC 110 - 240 V, 50/60 Hz
Power consumption ..... 35 W
Weight ..... 7.2 kg
Dimensions ..... 420 (W) x 439 (D) x 132 (H) mm
Operating temperature ..... +5 °C ~ +35 °C
Operating humidity ..... 5 % ~ 85 %
(There should be no condensation of moisture.)

S-Video characteristics (two pairs)

Format ..... NTSC specifications
PAL (VIDEO CD only)

VIDEO output
- Y separate output ..... 1 Vp-p
- C separate output ..... 286 mVp-p
- Impedance ..... 75 Ω unbalanced
- Jack ..... S-VIDEO jacks

Video characteristics (two pairs)

Format ..... NTSC specifications
PAL (VIDEO CD only)

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

Audio characteristics (two pairs)

Output level
- During analog audio output ..... 200 mVrms (1 kHz, 40 %)
- During digital audio output ..... 200 mVrms (1 kHz, –20 dB)

Jacks ..... Both RCA jacks
Number of channels ..... 2 (Stereo)

Other terminals

Control input/output ..... Both miniature jacks
AUX ..... RCA jacks
DOLBY DIGITAL RF (AC-3) output ..... RCA jack

Accessories

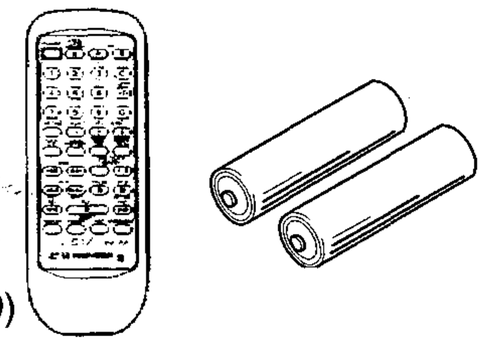
Remote control unit 1
Size "AA" (IEC R6P) dry cell batteries 2
Video cord 1
Audio cord 1
Power cord 1
Operating instructions 1

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

"Dolby", "Digital (AC-3)" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

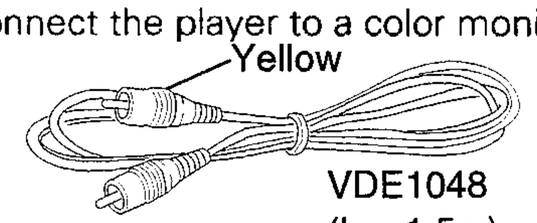
●Accessories

- Remote control unit
- Size "AA" (IEC R6P) dry cell battery x 2



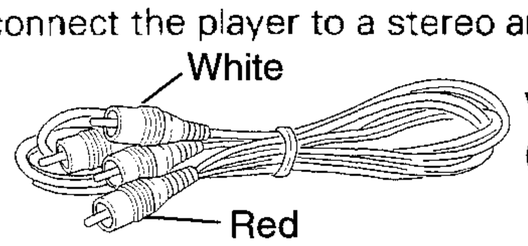
VXX2527
(CU-CLD149)

- Video cord
(Pin plug ←→ Pin plug)
Use to connect the player to a color monitor etc.



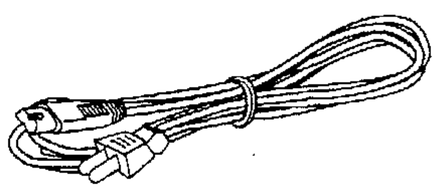
VDE1048
(L = 1.5m)

- Audio cord
(Pin plug x 2 ←→ Pin plug x 2)
Use to connect the player to a stereo amplifier etc.



VDE1033
(L = 1.5m)

- Power cord



- Operating instructions