

Pioneer

Service Manual

ORDER NO.
RRV2095

DVD LD PLAYER

DVL-919E

- Refer to the service manual RRV1888 for DVL-909/WY.

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

Type	Model	Power Requirement	Region No.	Remarks
	DVL-919E			
WY	○	AC220-240V	2	
WY/RD	○	AC220-240V	4	
WY/RE	○	AC220-240V	5	

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1. CONTRAST OF MISCELLANEOUS PARTS

- NOTES :
- Parts marked by “ NSP ” are generally unavailable because they are not in our Master Spare Parts List.
 - The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
 - Reference Nos. indicate the pages and Nos. in the service manual for the base model.
 - When ordering resistors, first convert resistance values into code form as shown in the following examples.
- Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).
- 560 Ω \rightarrow $56 \times 10^1 \rightarrow 561$ RD1/4PU $\boxed{5} \boxed{6} \boxed{1} J$
 47k Ω \rightarrow $47 \times 10^3 \rightarrow 473$ RD1/4PU $\boxed{4} \boxed{7} \boxed{3} J$
 0.5 Ω \rightarrow R50 RN2H $\boxed{R} \boxed{5} \boxed{0} K$
 1 Ω \rightarrow 1R0 RS1P $\boxed{1} \boxed{R} \boxed{0} K$
- Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).
- 5.62k Ω \rightarrow $562 \times 10^1 \rightarrow 5621$ RN1/4PC $\boxed{5} \boxed{6} \boxed{2} \boxed{1} F$

■ CONTRAST TABLE

DVL-919E/WY, WY/RD, WY/RE and DVL-909/WY are constructed the same except for the following:

Ref. No.	Mark	Symbol and Description	Part No.				Remarks
			DVL-909	DVL-919E			
			WY	WY	WY/RD	WY/RE	
P9 - 13 P7 - 21 P7 - 26	NSP	PCB ASSEMBLIES					
		CLDGM ASSY	VWM1806	VWM1886	VWM1886	VWM1886	*1
		└ CLDM ASSY	VWS1332	VWS1365	VWS1365	VWS1365	*2
		└ JCKB ASSY	VWV1578	VWV1639	VWV1639	VWV1639	*3
		└ MSWB ASSY	VWG1895	VWG2017	VWG2017	VWG2017	*3
		DVDM ASSY	VWS1328	VWS1373	VWS1373	VWS1373	*4
		PACKING					
P3 - 6		Remote Control Unit (CU-DV013)	VXX2534	Not used	Not used	Not used	
P3 - 6		Remote Control Unit (CU-DV029)	Not used	VXX2608	VXX2608	VXX2608	
P3 - 9		Operating Instructions (English/French/German/Italian)	VRE1069	VRE1076	VRE1076	VRE1076	
P3 - 10		Operating Instructions (Spanish/Portuguese/Dutch/Swedish)	VRF1043	VRF1047	Not used	Not used	
P3 - 11	NSP	Warranty Card	ARY7008	ARY7022	Not used	ARY7022	
P3 - 15		Packing Case	VHG1724	VHG1769	VHG1769	VHG1769	
P3 - 16		Label	Not used	Not used	VRW1761	VRW1756	
P3 - 17		Label (Region)	VRW1701	VRW1701	VRW1705	VRW1755	
		FRONT PANEL SECTION					
P5 - 1		Front Almi	VAH1280	VAH1304	VAH1304	VAH1304	
P5 - 18		Name Plate	VAM1051	PAN1377	PAN1377	PAN1377	
		TOP VIEW SECTION					
P7 - 9		Heat Sink	VNE2134	Not used	Not used	Not used	
P7 - 10		Radiation Seat	VEB1282	Not used	Not used	Not used	
		BOTTOM VIEW SECTION					
P9 - 29		Rear Cover	VNA1925	VNA2030	VNA2052	VNA2052	
P9 - 35		Housing Assy (13P)	VKP2162	VKP2199	VKP2199	VKP2199	
P9 - 39		Label (Region)	VRW1700	Not used	VRW1704	VRW1754	

*1 : Refer to “ PCB PARTS LIST ”, “ 2. SCHEMATIC DIAGRAM ” and “ 3. PCB CONNECTION DIAGRAM ”.
 *2 : Although VWV1639 and VWV1578 are different in part number, they have same service parts.
 *3 : Although VWG2017 and VWG1895 are different in part number, they have same service parts.
 *4 : Refer to “ CONTRAST OF PCB ASSEMBLIES ”.

■ CONTRAST OF PCB ASSEMBLIES

■ F DVDM ASSY

VWS1373 and VWS1328 are constructed the same except for the following:

Mark	Symbol and Description	Part No.		Remarks
		VWS1328	VWS1373	
	IC602 IC801 IC6003 R2 R137, R501, R502, R505, R506, R604–R607	PDK026C MB86371 VYW1615 RS1/16S103J RA4C220J	PDK036A MB86371C VYW1597 RS1/16S223J DCN1104 (20Ω)	
	R712, R713, R719, R724, R748, R749, R791	RA4C220J	DCN1104 (20Ω)	
	R802, R803, R808, R901, R905, R907	RA4C220J	DCN1104 (20Ω)	
	R909, R910, R912, R913, R916–R919	RA4C220J	DCN1104 (20Ω)	
	R507, R508, R624, R628, R633, R703, R704	RA4C103J	DCN1094 (10Ω)	
	R717, R718, R745, R746, R761, R762, R792	RA4C103J	DCN1094 (10Ω)	
	R812, R813	RA4C103J	DCN1094 (10Ω)	
	R602, R603, R610, R613, R618	RA4C470J	DCN1090 (47Ω)	

■ PCB PARTS LIST

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
JF CLDM ASSY							
SEMICONDUCTORS							
	IC761		BA10393F		IC102		TC7S32F
	IC251, IC680, IC905, IC906		BA4560F		IC205, IC207		TC7SH02F
	IC203		CY2081SL-611		IC550		TC7SU04F
	IC171, IC803		LA6510		IC650		TC7W00F
	IC400		LA7134M		IC204, IC208		TC7WU04F
	IC801		LA9425		Q121, Q182, Q351, Q353, Q354		2PB709A
	IC901		LA9430M		Q356, Q411, Q451, Q456, Q461		2PB709A
	IC908		LC78625E		Q482, Q484, Q485, Q580, Q645		2PB709A
	IC182, IC183		MM6558XF		Q672		2PB709A
⚠	IC221		NJM78L08A		Q269, Q270, Q391–Q393, Q401		2PD601A
⚠	IC222		NJM79L08A		Q425, Q441, Q481, Q486, Q626		2PD601A
	IC351		PA0061AM		Q631, Q632, Q636, Q646, Q647		2PD601A
	IC202		PD0236AM		Q655–Q658, Q661, Q662, Q671		2PD601A
	IC101		PD0261A2		Q803, Q811, Q903–Q906		2PD601A
	IC500		PD6159B		Q834		2SA854S
	IC201		PE8001A		Q141		2SA933S
	IC902		TA8410AK		Q152		2SC3082K
	IC181, IC410, IC762, IC907		TC4W53F		Q261, Q262		2SD2114K
	IC620		TC74HC4053AF		Q211, Q213, Q217, Q357, Q358		PDTA124EK
	IC206		TC7S02F		Q394, Q466, Q467, Q483, Q651		PDTA124EK
					Q981		PDTA124EK
					Q122, Q142, Q143, Q181, Q215		PDTC124EK
					Q218, Q233, Q652, Q901, Q908		PDTC124EK
					D221		EC10QS04
					D311, D505, D510		KV1851

DVL-919E

Mark	No.	Description	Part No.
	D101, D141, D181, D250, D480		MA111
	D650, D655, D902, D981		MA111
	D355, D356		MA152WA
	D115, D142, D143		UDZS5.1B

COILS AND FILTERS

F590	CHIP BEAD	DTF1069
L9231, L9232, L9584	CHIP INPEDER	DTL1028
L413, L414		LAU120J
L401		LAU121J
L482		LAU180J
L352, L821-L823		LAU181J
L201, L209, L251, L311, L312		LAU220J
L351, L461, L831		LAU220J
L412, L587		LAU270J
L431, L484		LAU330J
L432		LAU390J
L433, L575		LAU430J
L411		LAU470J
L671		LAU4R7J
L462		LAU560J
L483		LAU8R2J
L832		LFA220J
L463		LFA561J
F361	684KHz FILTER	VTF1035
F362	1066KHz FILTER	VTF1036
F571	15.0MHz FILTER	VTF1068
F238-F240	CHIP SOLID INDUCTOR	VTF1096
F573	14.3MHz FILTER	VTF1099
L403, L404	(22μH)	VTL1058
L223, L230	CHIP BEADS	VTL1098
L233	CHIP BEADS	VTL1101

CAPACITORS

C229, C414, C418, C421, C429		CCSQCH100D50
C483, C543, C577		CCSQCH100D50
C353, C412, C655, C821		CCSQCH101J50
C837-C839, C843, C864, C865		CCSQCH101J50
C921, C943		CCSQCH102J50
C484		CCSQCH120J50
C413		CCSQCH121J50
C497, C569		CCSQCH150J50
C355, C494, C823, C901		CCSQCH151J50
C313, C352, C432		CCSQCH180J50
C205, C504, C509, C824, C973		CCSQCH220J50
C255, C256, C489, C555		CCSQCH221J50
C230, C354, C416, C428, C433		CCSQCH270J50
C485, C830		CCSQCH270J50
C104, C105, C257, C258, C356		CCSQCH330J50
C431, C451, C458, C579, C596		CCSQCH330J50
C456		CCSQCH360J50
C351, C405, C672		CCSQCH390J50
C671		CCSQCH391J50
C217, C222, C461		CCSQCH470J50

Mark	No.	Description	Part No.
	C371, C372, C925		CCSQCH471J50
	C459		CCSQCH560J50
	C941		CCSQCH561J50
	C597		CCSQCH5R0C50
	C358, C408, C598, C806		CCSQCH680J50
	C920		CCSQCH681J50
	C434-C436, C822, C829		CCSQCH7R0D50
	C357, C825		CCSQCH820J50
	C462		CCSQCH910J50
	C123		CCSQSL102J50
	C656		CEANP100M16
	C629, C639		CEANP220M10
	C986		CEANP3R3M50
	C187, C441, C856		CEANP470M6R3
	C221, C394, C975		CEAT100M50
	C391, C437, C832, C834, C884		CEAT101M10
	C259		CEAT102M6R3
	C269, C270, C867, C929		CEAT1R0M50
	C495, C927, C928, C931		CEAT220M50
	C981, C982		CEAT220M50
	C102, C204, C209, C223, C224		CEAT470M16
	C244, C251, C316, C317, C382		CEAT470M16
	C390, C802, C804, C842, C852		CEAT470M16
	C854, C859, C860		CEAT470M16
	C253, C254, C261-C264		CEAT470M25
	C984		CEAT4R7M50
	C383, C922		CEATR47M50
	C936, C940		CEJA101M6R3
	C902		CEJA220M50
	C863, C934		CEJA2R2M50
	C862		CEJA4R7M50
	C439		CEV100M16
	C471, C473, C475, C507, C531		CEV101M6R3
	C535, C537, C539, C541, C561		CEV101M6R3
	C571, C581, C591, C593		CEV101M6R3
	C631		CEV470M6R3
	C477		CFTLA154J50
	C478		CFTLA683J50
	C425, C910		CKSQYB102K50
	C620, C845, C881, C917, C942		CKSQYB104K25
	C506, C511, C933		CKSQYB105K10
	C923		CKSQYB153K25
	C911		CKSQYB154K16
	C903		CKSQYB222K50
	C379, C380		CKSQYB392K50
	C373-C376, C388, C912, C932		CKSQYB472K50
	C963		CKSQYB473K25
	C763		CKSQYB682K50
	C106-C112, C117, C121, C124		CKSQYF103Z50
	C153, C155, C173, C181		CKSQYF103Z50
	C183, C184, C188, C189, C203		CKSQYF103Z50
	C206, C208, C210, C231-C235		CKSQYF103Z50
	C240-C242, C245-C247		CKSQYF103Z50
	C249, C250, C252, C281, C282		CKSQYF103Z50
	C311, C315, C318, C359-C362		CKSQYF103Z50

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	C381, C386, C389, C411, C419		CKSQYF103Z50	OTHERS			
	C422, C426, C442, C452, C457		CKSQYF103Z50	CN103, CN404	6P FFC CONNECTOR	52045-0645	
	C466, C505, C510, C558, C573		CKSQYF103Z50	CN102	10P FFC CONNECTOR	52045-1045	
	C575, C576, C580, C583, C587		CKSQYF103Z50	CN101	15P FFC CONNECTOR	52045-1545	
	C761, C762, C801, C803, C811		CKSQYF103Z50	CN802	11P CONNECTOR	B11P-SHF-1AA	
				CN403	KR CONNECTOR	B13B-PH-K-S	
	C831, C833, C836, C841, C846		CKSQYF103Z50				
	C851, C853, C861, C882, C883		CKSQYF103Z50	CN201	KR CONNECTOR	B4B-PH-K-S	
	C885, C924, C935, C937, C939		CKSQYF103Z50	CN202	KR CONNECTOR	B7B-PH-K-S	
	C945-C947, C962, C974, C983		CKSQYF103Z50		SCREW	BBZ30P060FCC	
	C101, C103, C122, C151, C152		CKSQYF104Z25	CN402	14P CONNECTOR	BTFN14S-3SB7	
				CN401	20P CONNECTOR	BTFN20S-3SB7	
	C171, C172, C182, C199		CKSQYF104Z25				
	C267, C268, C385, C387, C392		CKSQYF104Z25	JA252	2P JACK	PKB1024	
	C402, C404, C430, C438, C440		CKSQYF104Z25	JA101, JA102	JACK	RKN1004	
	C445, C447, C467, C468, C472		CKSQYF104Z25		PCB BINDER	VEF1040	
	C474, C476, C491, C493, C496		CKSQYF104Z25	CN111, CN122	22P FFC CONNECTOR	VKN1253	
				CN801	27P FFC CONNECTOR	VKN1258	
	C498, C508, C524, C532, C536		CKSQYF104Z25		SCREW PLATE	VNE1948	
	C538, C540, C542, C556, C557		CKSQYF104Z25	S102	SLIDE SWITCH	VSH1020	
	C562, C572, C582, C586, C589		CKSQYF104Z25	X101	CERAMIC RESONATOR(9MHz)	VSS1040	
	C592, C594, C622, C626-C628		CKSQYF104Z25	X311	CRYSTAL RESONATOR(16MHz)	VSS1081	
	C630, C636, C638, C660		CKSQYF104Z25	X505	CRYSTAL RESONATOR(14MHz)	VSS1103	
	C681-C683, C764, C805, C847		CKSQYF104Z25	X312	CRYSTAL RESONATOR(18.432MHz)	VSS1116	
	C857, C858, C866, C913, C914		CKSQYF104Z25	X510	CRYSTAL RESONATOR(15MHz)	VSS1125	
	C919, C971, C972, C976		CKSQYF104Z25				
	C186, C685, C855, C926, C930		CKSQYF223Z50				
	C938		CKSQYF223Z50				
	C377, C378, C908, C909		CKSQYF224Z25				
	C154, C156, C174, C312, C460		CKSQYF473Z50				
	C826, C828		CKSQYF473Z50				
	C265, C266		CQMBA332J50				
	VC301 (20pF)		VCM1008				

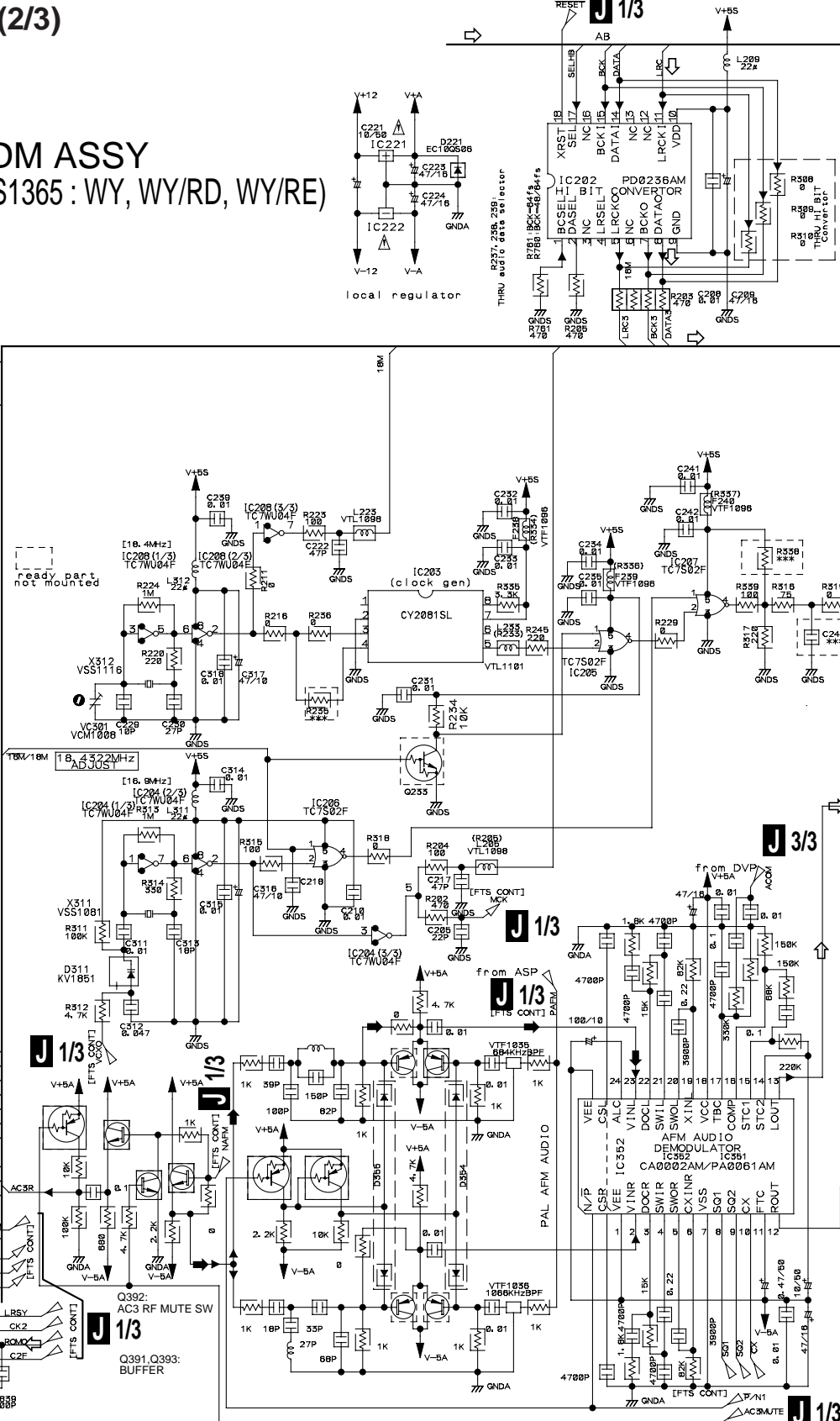
RESISTORS

R753		RA4C221J
R203, R752		RA4C471J
R591, R592		RA4C681J
R833, R834, R837, R839		RN1/10SE1002D
R891, R892		RN1/10SE1002D
R152, R156, R618		RN1/10SE1003D
R532		RN1/10SE1100D
R425		RN1/10SE1202D
R251, R252		RN1/10SE1602D
R531		RN1/10SE1800D
R631		RN1/10SE2201D
R635		RN1/10SE2701D
R151, R259, R260, R277, R278		RN1/10SE3302D
R893, R894		RN1/10SE3302D
R153, R154		RN1/10SE4702D
R653		RN1/10SE5601D
R650		RN1/10SE6800D
VR450 (2.2kΩ)		PCP1025
VR603 (4.7kΩ)		PCP1028
VR604, VR607, VR609 (47kΩ)		PCP1031
Other Resistors		RS1/10S□□□J

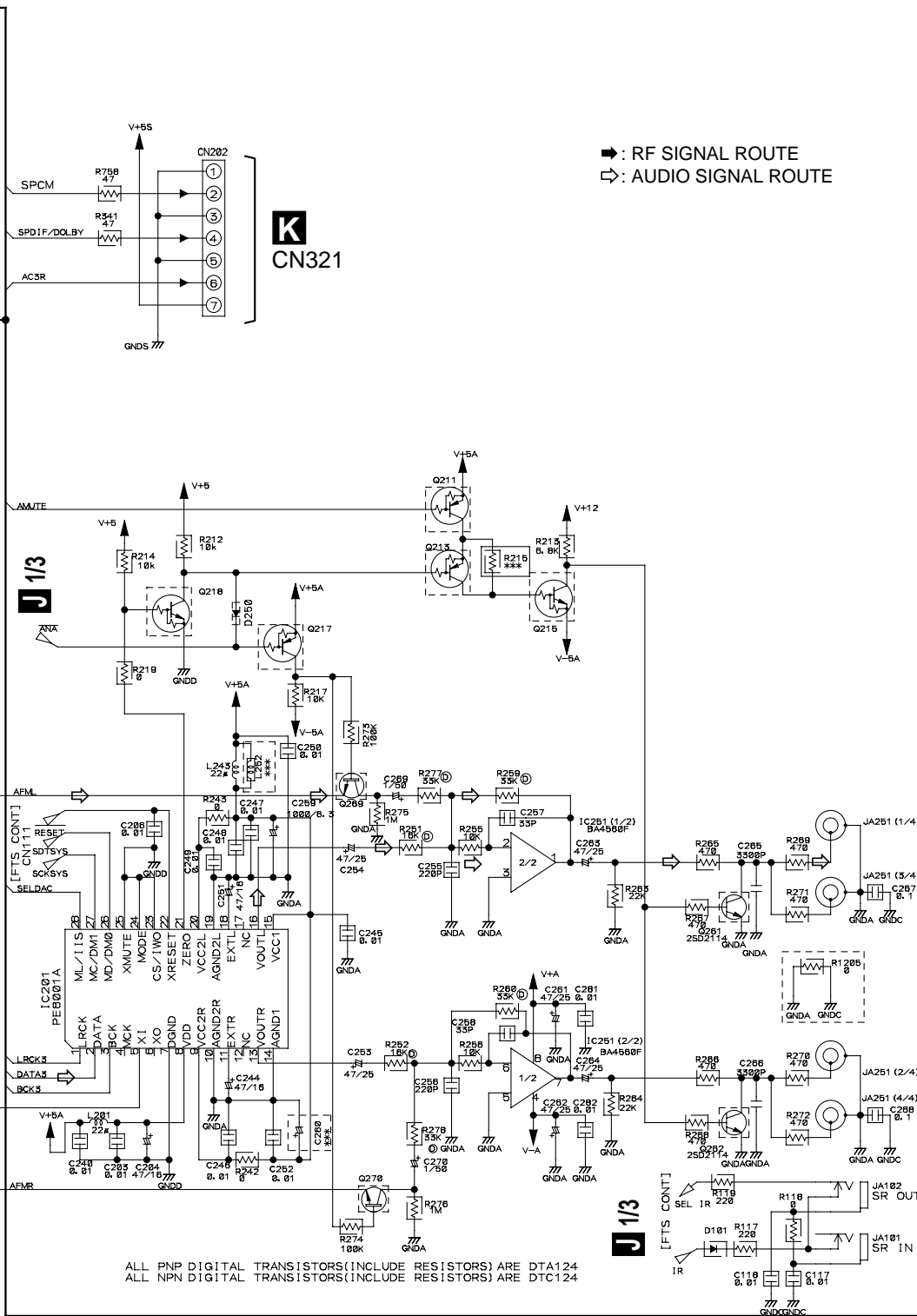
2. SCHEMATIC DIAGRAM

2.1 CLDM ASSY (2/3)

J 2/3 F CLDM ASSY (VWS1365 : WY, WY/RD, WY/RE)

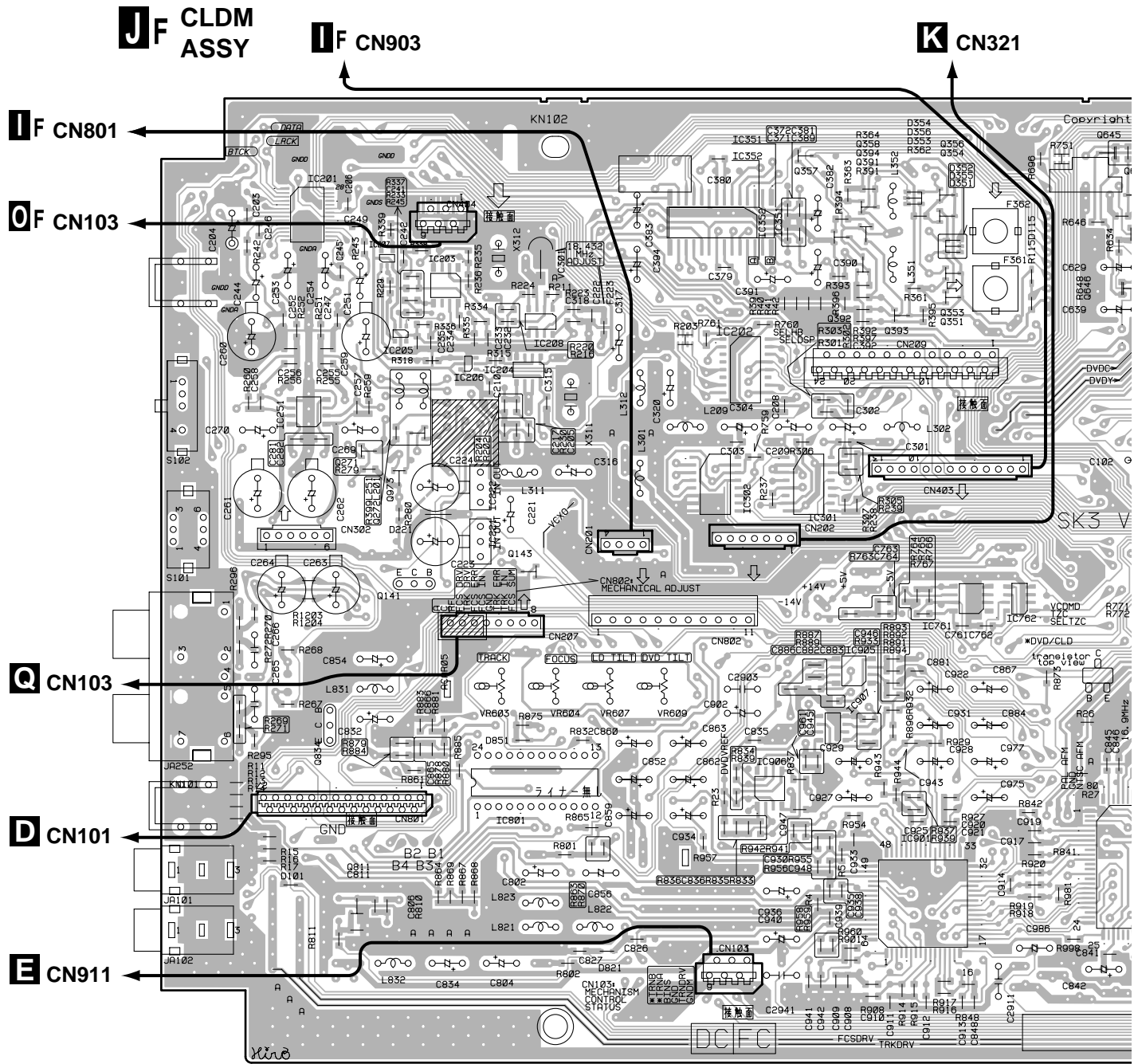


Note : When ordering service parts, be sure to refer to "EXPLODED VIEWS and PARTS LIST" or "PCB PARTS LIST".



3. PCB CONNECTION DIAGRAM

3.1 CLDM ASSY



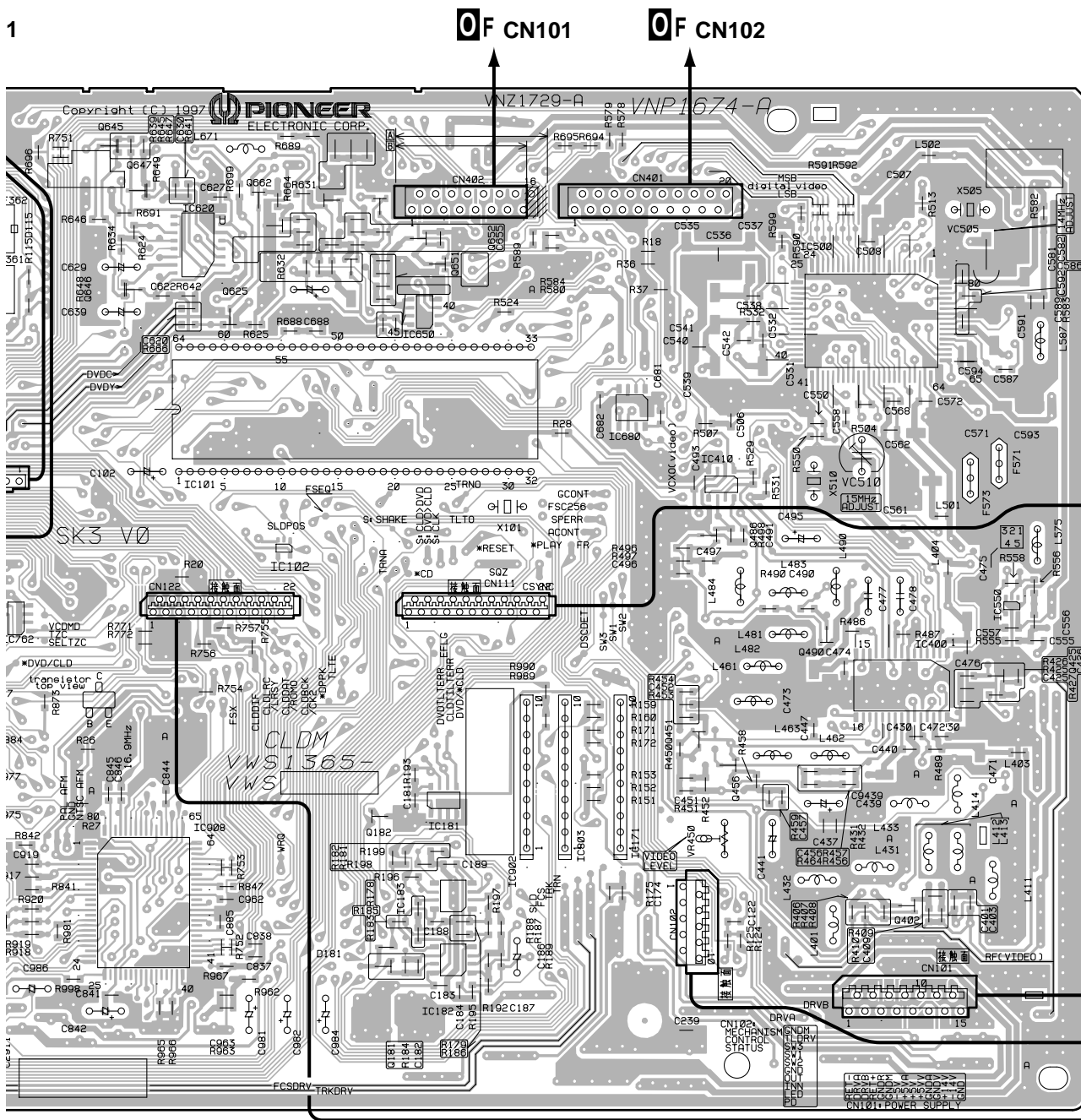
VC301
VR603 VR604 VR607VR609

IC201	IC251	IC203—IC206	IC208	IC209	IC352	IC351	Q357	Q358	Q356	Q353	Q645
Q834	Q271	Q973	Q272		IC202				Q354	Q351	
		Q141	IC222	Q143	IC302	IC301	Q391—	Q394	IC761	IC762	IC
	Q811	IC221	IC801			IC905—IC907		IC901			

SIDE A



1



○F CN101 **○F** CN102

○F CN902

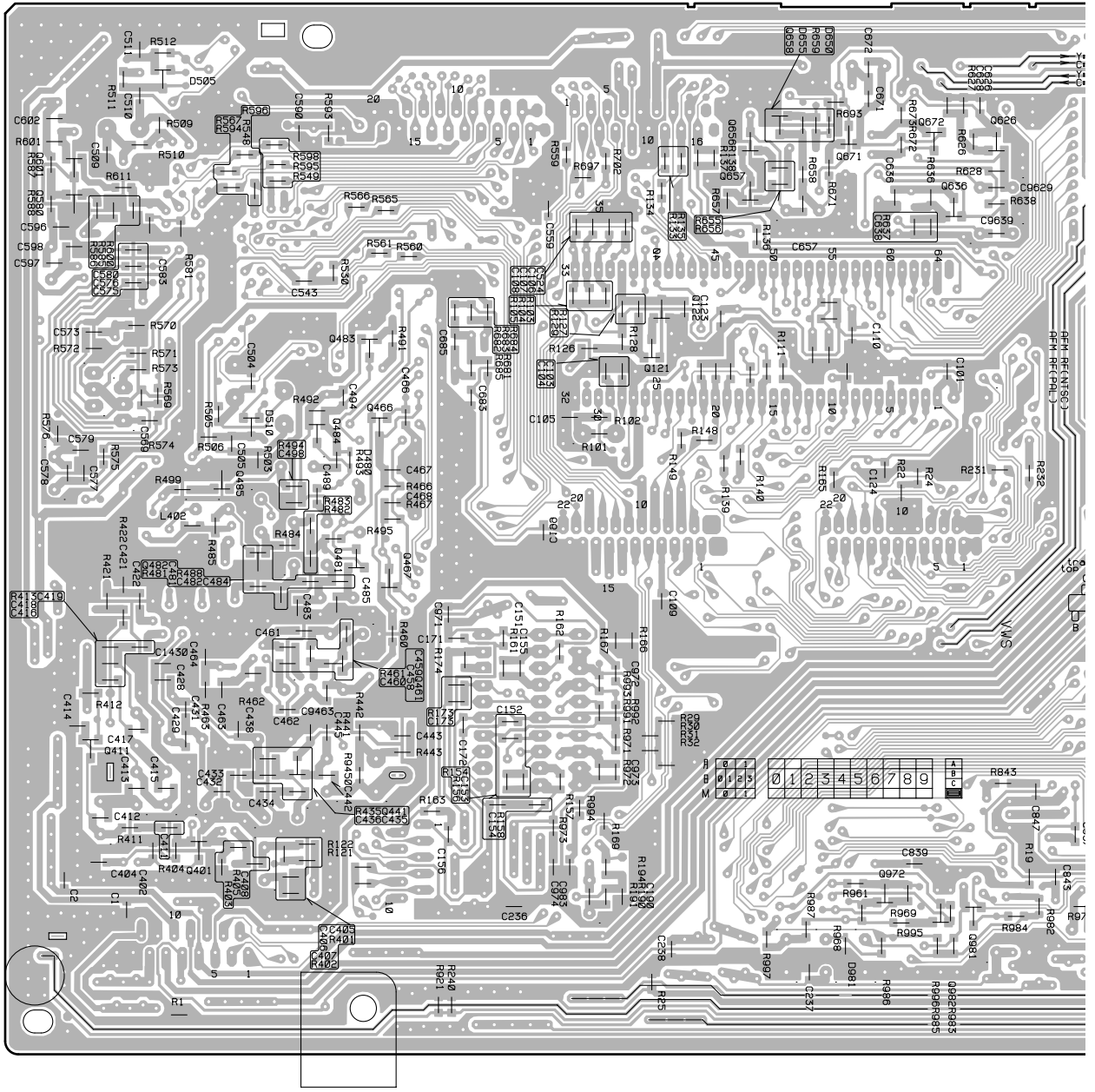
R CN203
A CN101
○F CN901

Q645—Q647	Q662	Q652 Q651	IC680	IC410	VC510	VC505
IC620	Q625	IC650	IC902 IC803	Q486	IC500	IC550
C762	IC908	IC101	IC102	Q451 Q456	Q490	IC400
		Q182	IC181—IC183		Q402	Q425
		Q181				

(VNP1674-A)

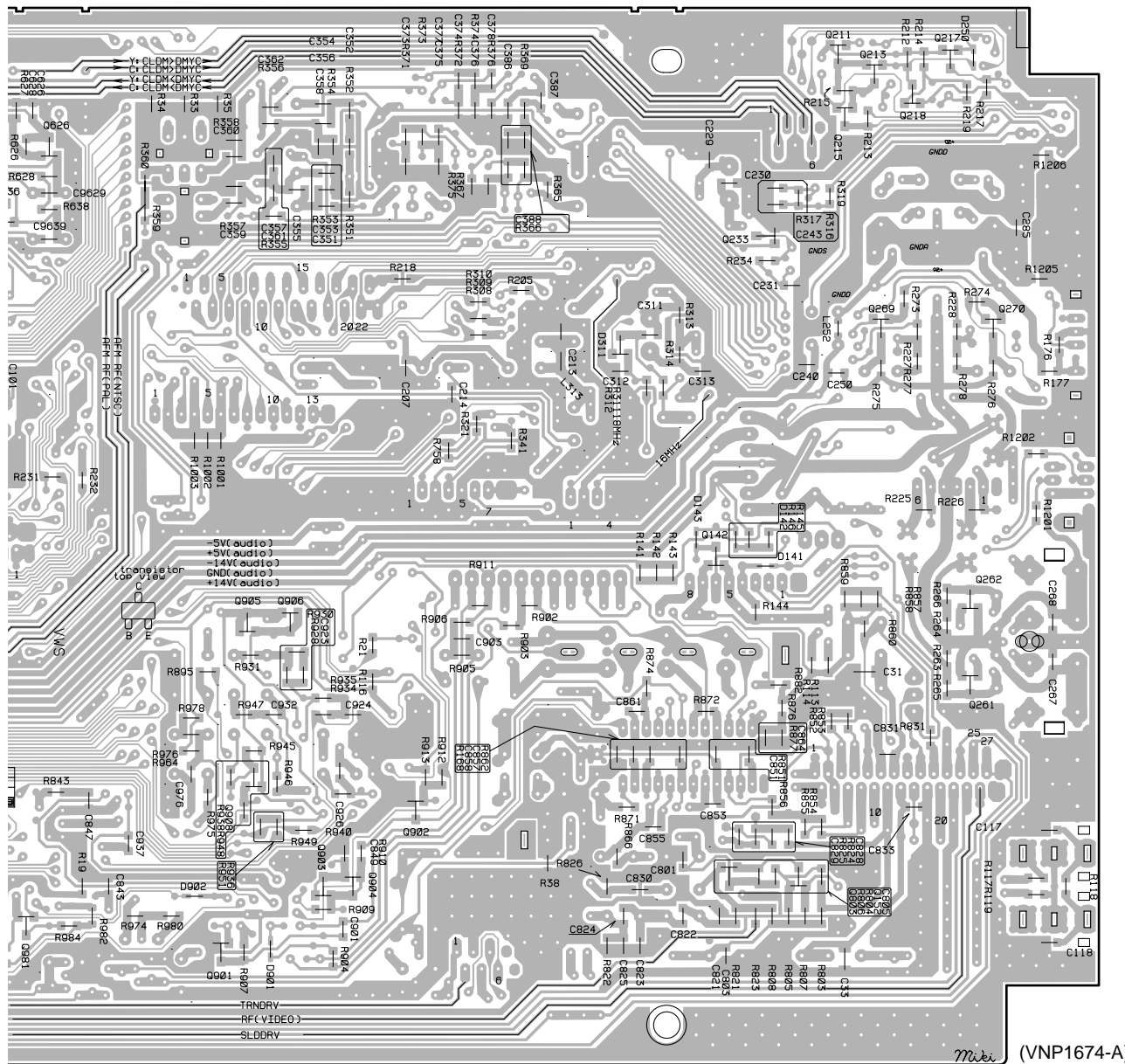
SIDE A

JF CLDM ASSY



- Q601 Q485 Q484 Q483 Q122 Q656—Q658 Q671 Q672 Q626
- Q580 Q482 Q481 Q466 Q121 Q636
- Q411 Q401 Q461 Q467 Q972 Q982 Q981
- Q441

SIDE B

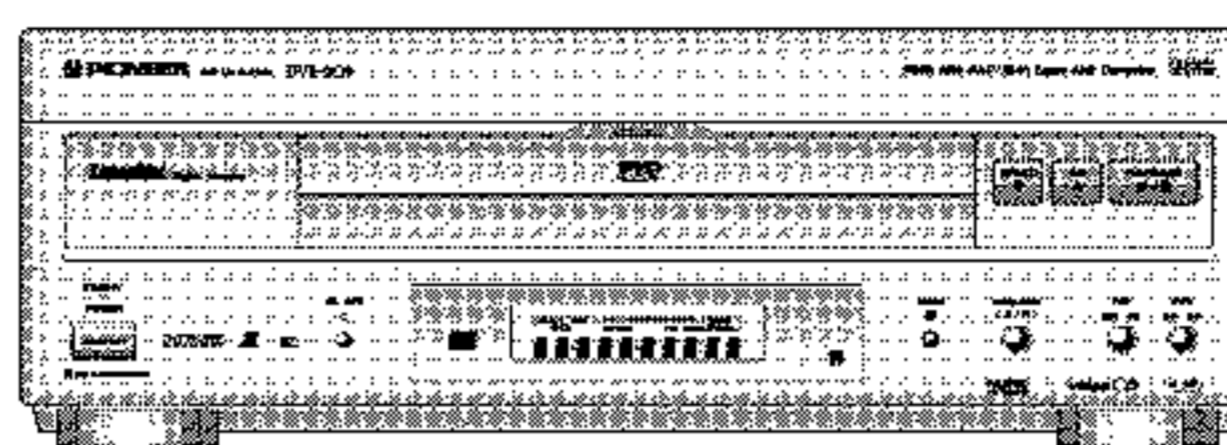


- | | | | | |
|--------|-------------|------|-------------|------|
| Q626 | Q908 | Q142 | Q211 - Q217 | Q270 |
| U636 | Q901 - Q906 | Q803 | Q152 Q269 | Q262 |
| 2 Q981 | | | | Q261 |

SIDE B

Service Manual

PIONEER
The Art of Entertainment



ORDER NO.
RRV1888

DVD LD PLAYER

DVL-909

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

Type	Model	Power Requirement	The voltage can be converted by the following method.	Regional restriction codes (region number)
	DVL-909			
WY	○	AC 220 – 240V	_____	2
WY/RD	○	AC 220 – 240V	_____	4
RD/RA	○	AC 110 – 127/220 – 240V	Automatic select	1
RD/RC	○	AC 110 – 127/220 – 240V	Automatic select	3
RAM	○	AC 110 – 127/220 – 240V	Automatic select	6
RL	○	AC 110 – 127/220 – 240V	Automatic select	3

●Refer to the service guide RRV1896 for DV-505.
IC information is described in the service guide.

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1. SAFETY INFORMATION

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

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

LASER DIODE CHARACTERISTICS

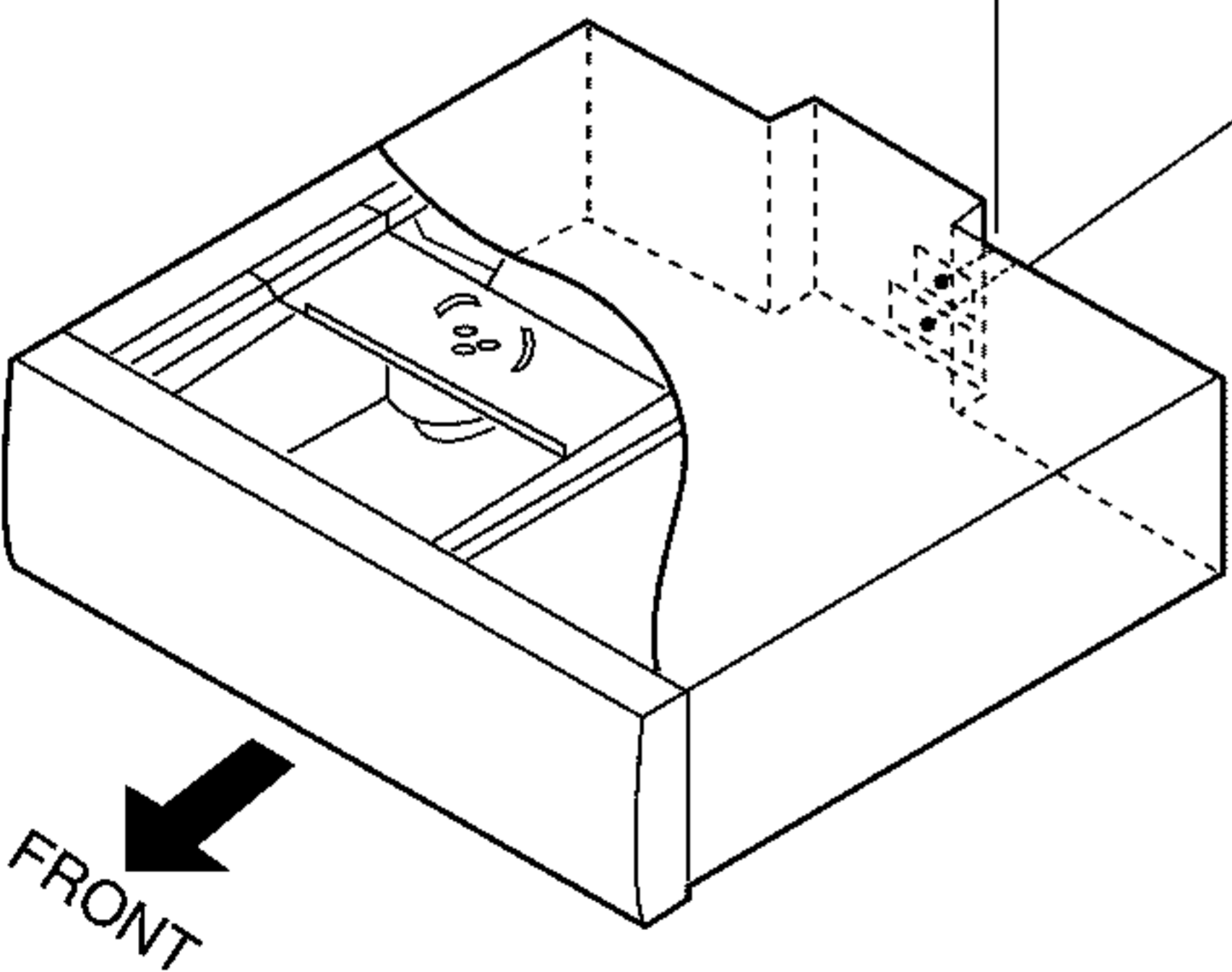
- FOR DVD
MAXIMUM OUTPUT POWER : 7 mw
WAVELENGTH : 650 nm
- FOR CD/LD
MAXIMUM OUTPUT POWER : 5 mw
WAVELENGTH : 780-785 nm

LABEL CHECK

CAUTION	: VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. : AVOID EXPOSURE TO BEAM.
VORSICHT	: SICHTBARE UND UNSICHTBARE LASERSTRAHLUNG, WENN : ABDECKUNG GEÖFFNET NICHT DEM STRAHL AUSSETZEN!
ADVARSEL	: SYNLIG OG USYNLIG LASERSTRÅLING VED ÅBNING : UNDGÅ UDSÆTTELSE FOR STRÅLING.
VARNING	: SYNLIG OCH OSYNLIG LASERSTRÅLNING NÄR DENNA : DEL ÄR ÖPPNAD BETRAKTA EJ STRÅLEN.
VARO!	: AVATTAESSA ALTISTUT NÄKYVÄ JA NÄKYMÄTTÖMÄLLE : LASERSATEILYLLE. ÄLÄ KATSO SÄTEESÄN.

VRW1699

**CLASS 1
LASER PRODUCT**
(Printed on the Rear Cover)



Additional Laser Caution

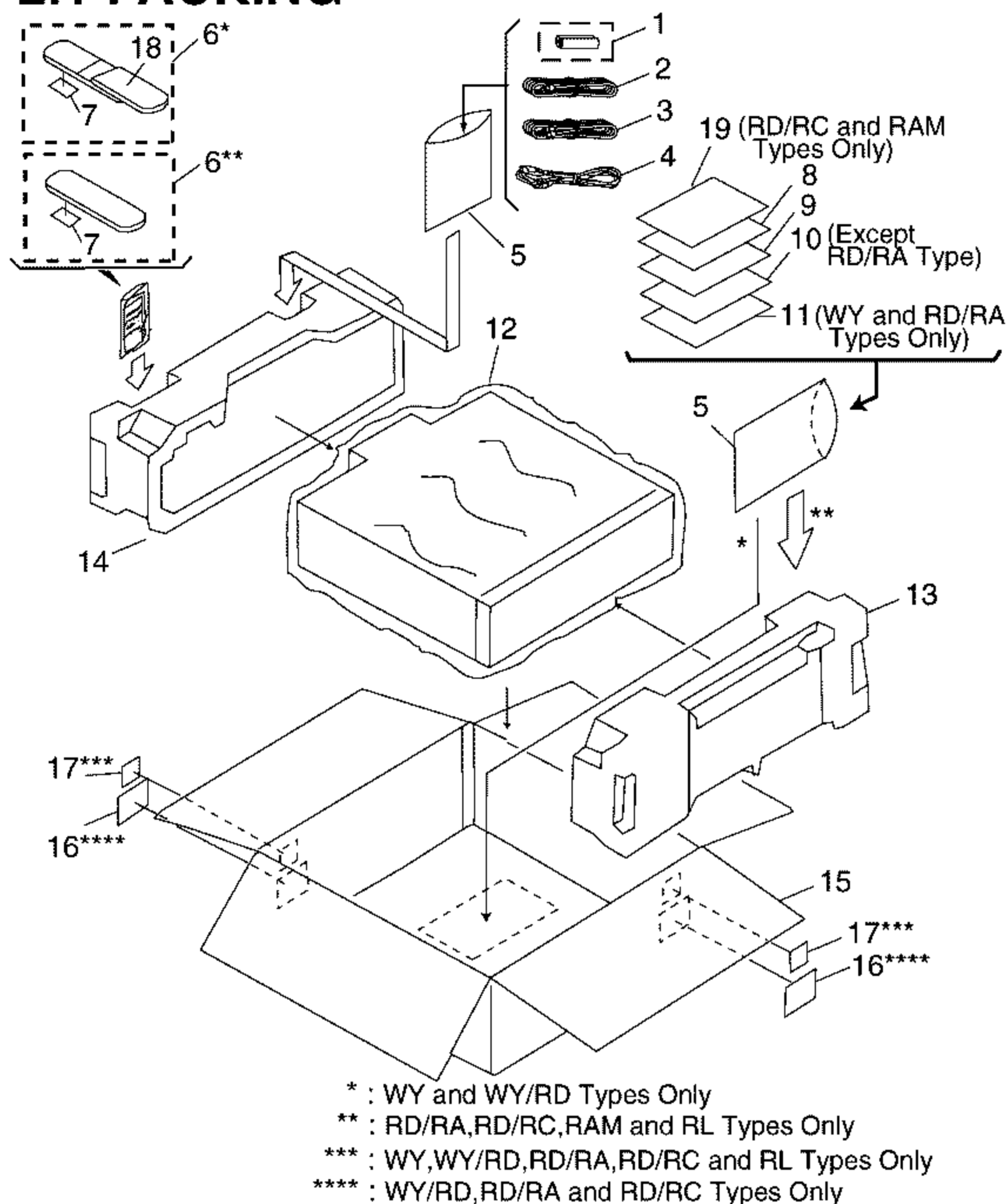
1. The ON/OFF statuses of the side-A/B detection switch (Lever switch connecting to the TNMB assy), slider-position detection switches (INNER and OUTER on the PKSB assy), loading-status detection switches (SW1, 2 and 3 on the LMSB assy), side B inside detection switch (S901 on the BISB assy) and CLD pickup active detection switch (S903 on the LCSB assy) are detected by the microprocessor (IC101 in the CLD MAIN assy). Also the DVD pickup active detection switch (S902 on the DCSB assy) is detected by the microprocessor (IC501 in the DVD MAIN assy).
 - To permit the laser diode of CLD pickup to oscillate, it is required to set the CLD pickup active detection switch (S903 : 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 (SW1 : ON, SW2 : OFF, SW3 : 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 the CLD MAIN assy.
 - To permit the laser diode of DVD pickup to oscillate, it is required to set the DVD pickup active detection switch (S902 :OFF) and each switch and a state of laser diode are contents same as state of CLD pickup mentioned above. The laser diode oscillation will continue if pin 13 of IC101 is shorted to +5V (fault condition) in the DVD MAIN assy. In the test mode *, the laser diode oscillates when the microprocessor detects a PLAY signal, or when the PLAY key is pressed (S107 ON in the FLKB 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 page 79.

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 product are used for disassembly.

2.1 PACKING



(1) PARTS LIST

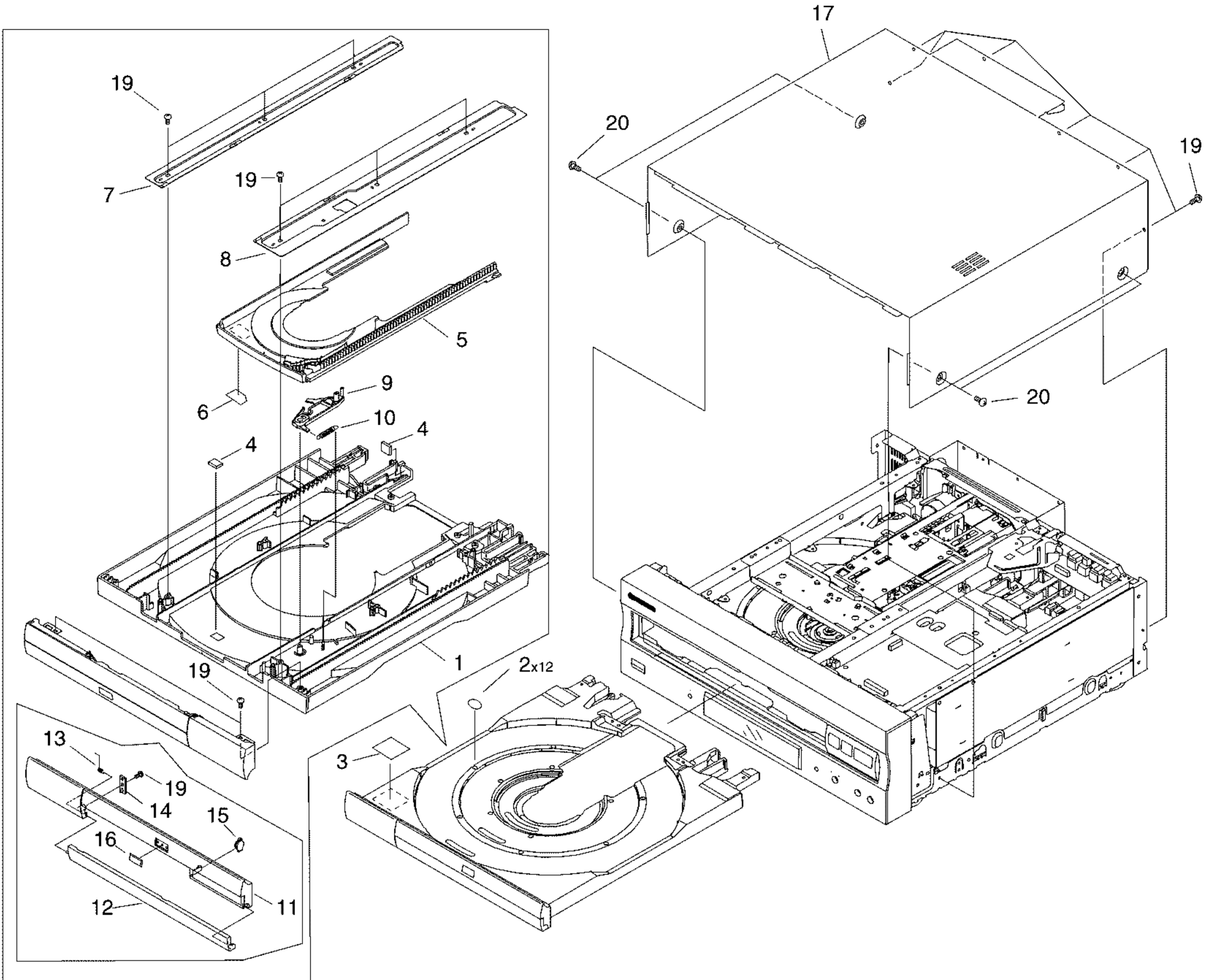
Mark	No.	Description	Part No.
NSP	1	DRY CELL BATTERY	See Contrast table (2)
	2	VIDEO CORD(L=1.5m)	VDE1048
	3	AUDIO CORD(L=1.5m)	VDE1033
⚠	4	AC POWER CORD	See Contrast table (2)
	5	POLYETHYLENE BAG	Z21-038
	6	REMOTE CONTROL UNIT	See Contrast table (2)
	7	BATTERY COVER	See Contrast table (2)
NSP	8	CAUTION	VRM1071
	9	OPERATING INSTRUCTIONS	See Contrast table (2)
	10	OPERATING INSTRUCTIONS	See Contrast table (2)
NSP	11	WARRANTY CARD	See Contrast table (2)
	12	MIRROR MAT SHEET	VHL1018
	13	PAD F	VHA1206
	14	PAD R	VHA1207
	15	PACKING CASE	See Contrast table (2)
	16	LABEL	See Contrast table (2)
	17	LABEL(REGION)	See Contrast table (2)
	18	UPPER COVER	See Contrast table (2)
NSP	19	CARD	See Contrast table (2)

(2) CONTRAST TABLE

DVL-909/WY, WY/RD, RD/RA, RD/RC, RAM and RL are constructed the same except for the following :

Mark	No.	Symbol and Description	Part No.						Remarks
			WY	WY/RD	RD/RA	RD/RC	RAM	RL	
NSP	1	DRY CELL BATTERY (R03,AAA)	VEM-022	VEM-022	Not used	Not used	Not used	Not used	
NSP	1	DRY CELL BATTERY (R6P,AA)	Not used	Not used	VEM-013	VEM-013	VEM-013	VEM-013	
⚠	4	AC POWER CORD	ADG1127	ADG1127	ADG7003	ADG7003	ADG7017	ADG1154	
	6	REMOTE CONTROL UNIT	VXX2534	VXX2534	Not used	Not used	Not used	Not used	(CU-DV013)
	6	REMOTE CONTROL UNIT	Not used	Not used	VXX2549	VXX2549	VXX2549	VXX2549	(CU-DV018)
	7	BATTERY COVER	VNK4203	VNK4203	VNK3703	VNK3703	VNK3703	VNK3703	
	9	OPERATING INSTRUCTIONS (English/French/German/Italian)	VRE1069	VRE1069	Not used	Not used	Not used	Not used	
	9	OPERATING INSTRUCTIONS	Not used	Not used	VRB1193	VRB1193	VRB1193	VRB1193	(English)
	10	OPERATING INSTRUCTIONS (Spanish/Portuguese/Dutch/Swedish)	VRF1043	VRF1043	Not used	Not used	Not used	Not used	
	10	OPERATING INSTRUCTIONS	Not used	Not used	Not used	VRC1064	Not used	VRC1064	(Trad-Chinese)
	10	OPERATING INSTRUCTIONS	Not used	Not used	Not used	Not used	VRC1062	Not used	(Simp-Chinese)
NSP	11	WARRANTY CARD	ARY7008	Not used	ARW1020	Not used	Not used	Not used	
	15	PACKING CASE	VHG1724	VHG1724	VHG1734	VHG1734	VHG1744	VHG1734	
	16	LABEL	Not used	VRW1713	VRW1711	VRW1710	Not used	Not used	
	17	LABEL(REGION)	VRW1701	VRW1705	VRW1708	VRW1702	Not used	VRW1702	
	18	UPPER COVER	VNK4204	VNK4204	Not used	Not used	Not used	Not used	
NSP	19	CARD	Not used	Not used	Not used	VRY1110	VRY1109	Not used	

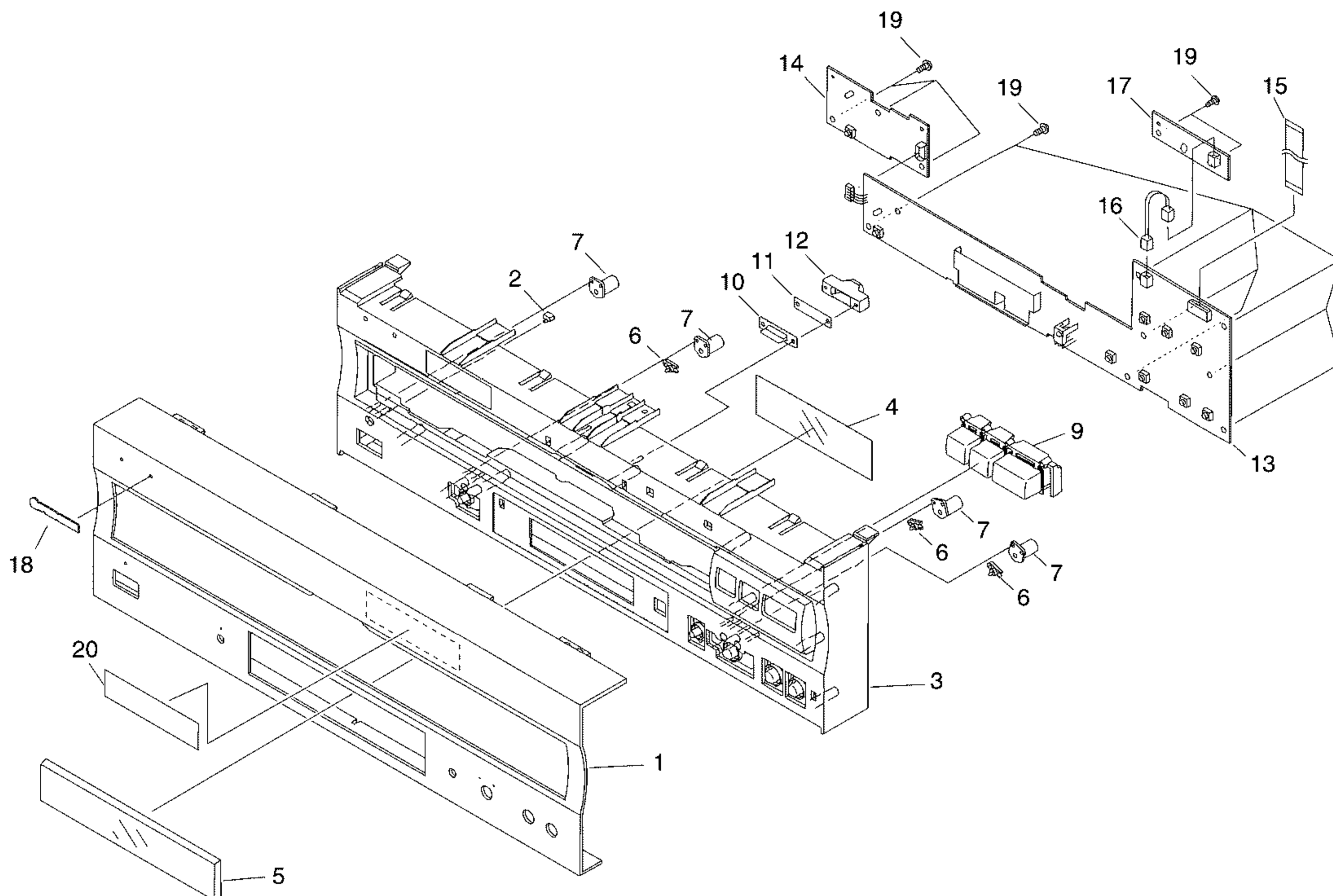
2.2 EXTERIOR SECTION



●PARTS LIST

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	1	LD TRAY ASSY	VXA2302		11	TRAY PANEL	VNK4065
	2	CUSHION	VEC1881		12	DVD DOOR ASSY	VXA2338
NSP	3	LABEL	VRW1289		13	DOOR SPRING	VBH1248
	4	DAMP CUSHION	VEC1683		14	DOOR HOLDER	VNL1697
	5	CD TRAY	VNK3664		15	DAMPER	VXA1999
	6	LABEL	VRW1628		16	DVD PLATE	VAM1077
	7	GUIDE PLATE (R)	VNE1939		17	BONNET CASE S	VXX2560
	8	GUIDE PLATE (L)	VNE1938		18	•••••	
	9	LOCK PLATE	VNL1703		19	SCREW	BBZ30P080FMC
	10	LOCK PLATE SPRING	VBH1188		20	SCREW	BCZ40P060FZK

2.3 FRONT PANEL SECTION



(1) PARTS LIST

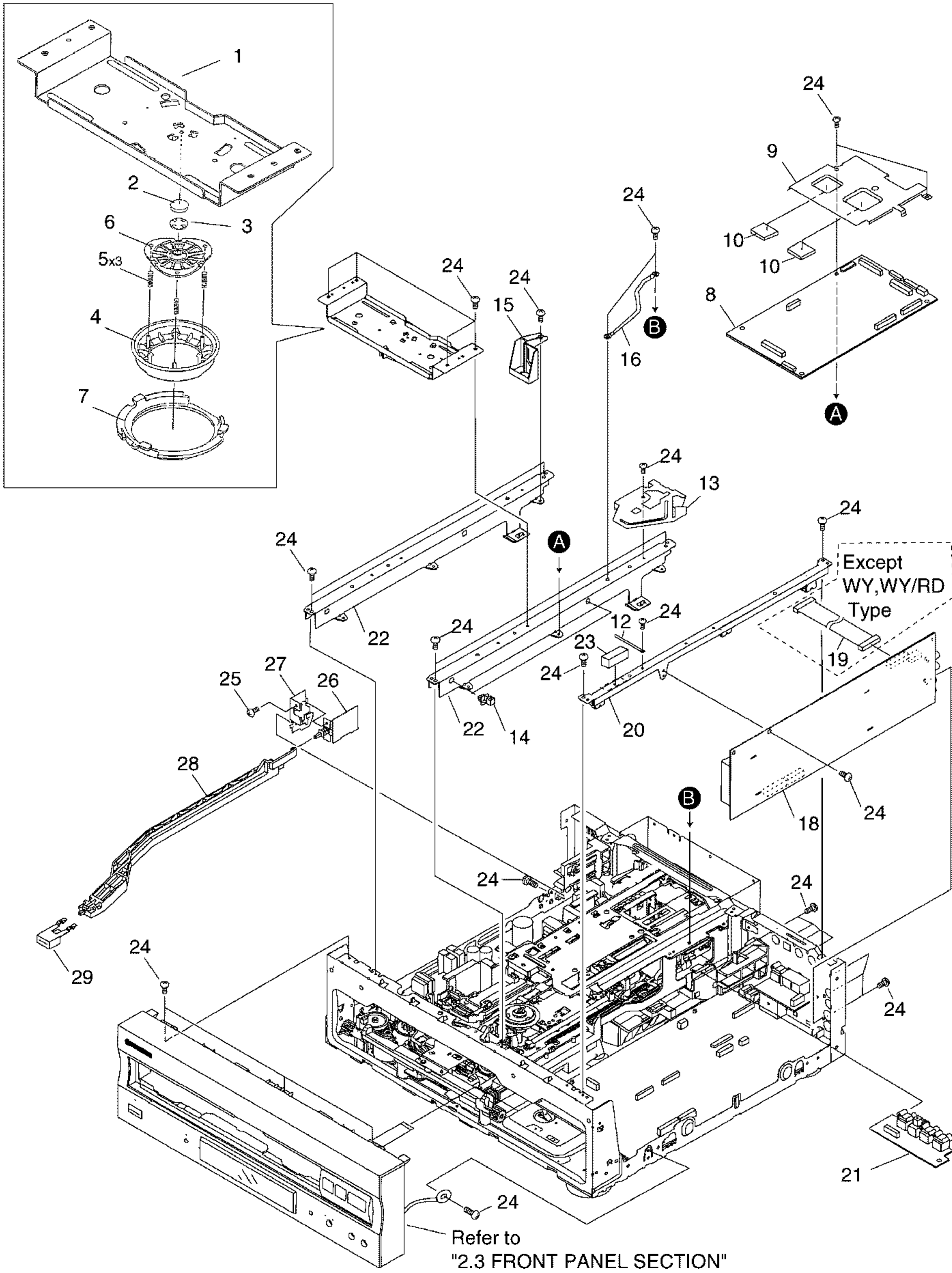
Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	1	FRONTALMI	See Contrast table (2)		11	ILLUMINATION FILTER	VEC1950
	2	LED LENS 1	RNK2066		12	ILLUMI HOLDER	VNK4289
	3	PANEL BASE	VNK4064		13	FLKB ASSY	See Contrast table (2)
	4	FL FILTER	VEC1643	NSP	14	PWSB ASSY	See Contrast table (2)
	5	FL LENS	VEC1943		15	FLEXIBLE CABLE(14P)	VDA1638
	6	INDICATOR LENS	VNK1538		16	CONNECTOR ASSY	PG02KK-E12
	7	LENS HOLDER	VNK4151	NSP	17	DILB ASSY	VWG1894
	8	•••••			18	NAME PLATE	VAM1051
	9	PLAY BUTTON	VNK4067		19	SCREW	BBZ30P080FMC
	10	ILLUMINATION LENS	VNK4168	NSP	20	GETTER	See Contrast table (2)

(2) CONTRAST TABLE

DVL-909/WY, WY/RD, RD/RA, RD/RC, RAM and RL are constructed the same except for the following :

Mark	No.	Symbol and Description	Part No.						Remarks
			WY	WY/RD	RD/RA	RD/RC	RAM	RL	
NSP	1	FRONTALMI	VAH1280	VAH1280	VAH1279	VAH1279	VAH1279	VAH1279	
NSP	20	GETTER	Not used	Not used	VRW1694	VRW1694	VRW1694	VRW1694	
NSP	13	FLKB ASSY	VWG1890	VWG1890	VWG1936	VWG1936	VWG1935	VWG1889	
NSP	14	PWSB ASSY	VWG1938	VWG1938	VWG1893	VWG1893	VWG1893	VWG1893	

2.4 TOP VIEW SECTION



(1) TOP VIEW SECTION PARTS LIST

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	1	CENTER PLATE	VNE2127	NSP	16	CORD WITH PLUG	DE007VF0
	2	RUBBER MAT	VEB1114		17	•••••	
	3	THRUST HOLDER	VNL1663		18	DMYC or MYCB ASSY	See Contrast table (2)
	4	CLAMPER	VNL1648		19	HOUSING ASSY(13P)	See Contrast table (2)
	5	CLAMPER SPRING	VBH1192	NSP	20	PCB-HOLDER	VNE2121
	6	CLAMPER HEAD	VNL1649		21	JCKB ASSY	See Contrast table (2)
	7	CLAMPER HOLDER	VNL1788	NSP	22	CENTER ANGLE	VNE2126
	8	DVDM ASSY	VWS1328		23	CUSHION	VEC1982
	9	HEAT SINK	VNE2134		24	SCREW	BBZ30P080FMC
	10	RADIATION SEAT	VEB1282		25	SCREW	PMB30P080FZK
	11	•••••			26	MSWB ASSY	VWG1895
	12	CORD CLAMPER	RNH-184	NSP	27	POWER HOLDER	VNE2123
	13	CABLE HOLDER	VEC1958		28	POWER JOINT	VNK4148
NSP	14	CORNER POST	DEC1212		29	POWER BUTTON	VNK4159
	15	SHIPPING CAM	VNL1729				

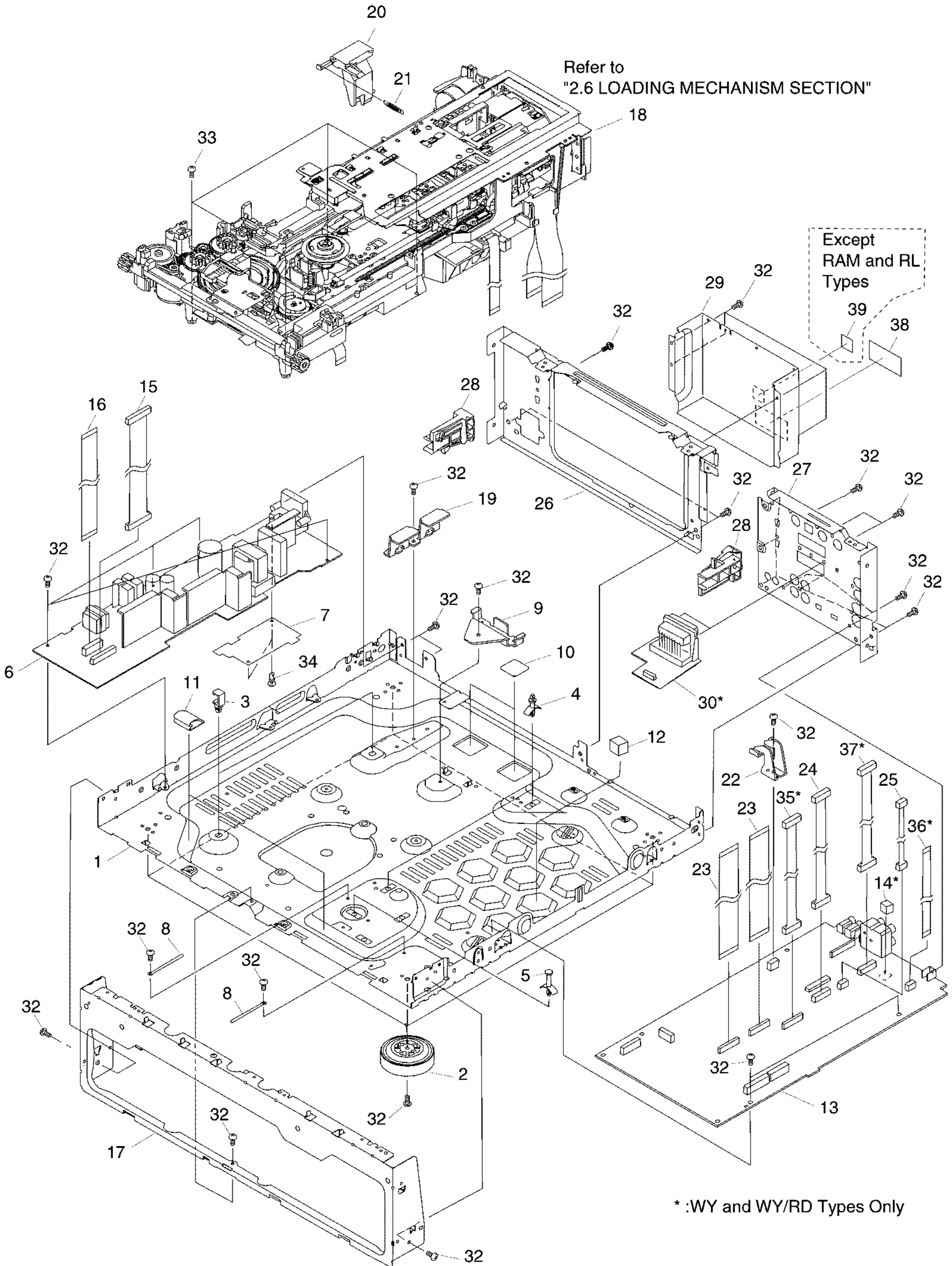
(2) CONTRAST TABLE

DVL-909/WY, WY/RD, RD/RA, RD/RC, RAM and RL are constructed the same except for the following :

Mark	No.	Symbol and Description	Part No.						Remarks
			WY	WY/RD	RD/RA	RD/RC	RAM	RL	
	18	DMYC ASSY	VWV1584	VWV1584	Not used	Not used	Not used	Not used	
	18	MYCB ASSY	Not used	Not used	VWV1596	VWV1596	VWV1596	VWV1596	
	19	HOUSING ASSY(13P)	Not used	Not used	VKP2154	VKP2154	VKP2154	VKP2154	
	21	JCKB ASSY	VWV1578	VWV1578	VWV1579	VWV1579	VWV1579	VWV1579	

DVL-909

2.5 BOTTOM VIEW SECTION



(1) BOTTOM VIEW SECTION PARTS LIST

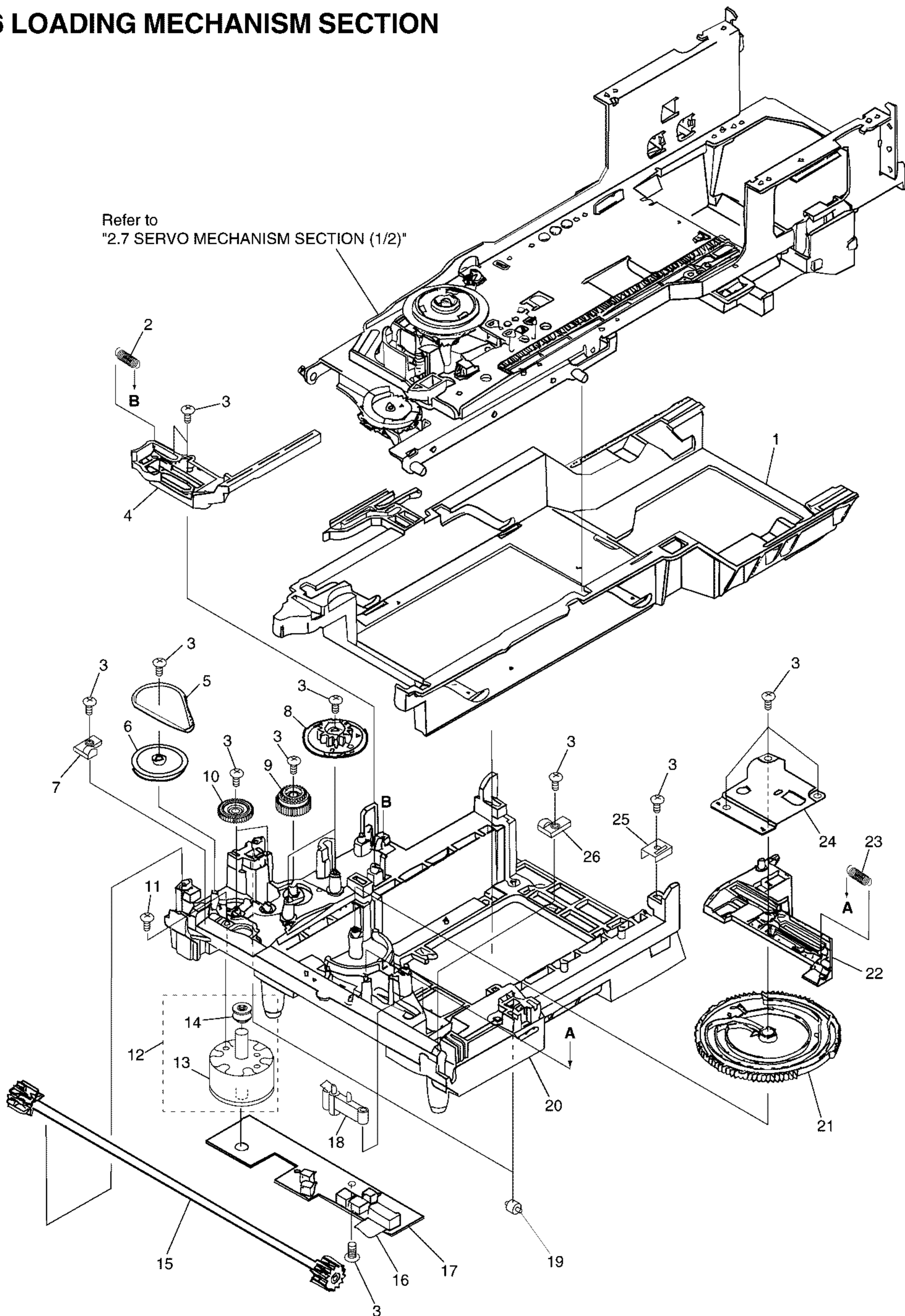
Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
NSP	1	CHASSIS	VNA1887		21	SHIPPING SPRING	VBH1275
	2	INSULATOR ASSY	VXA2356	NSP	22	CAM HOLDER R	VNE2090
	3	PCB HINGE	VEC1174		23	FLEXIBLE CABLE(22P)	VDA1652
NSP	4	PCB SPACER	AEC1188		24	HOUSING ASSY (7P)	VKP2155
NSP	5	CIRCUIT BOARD SPACER	VEC1957		25	HOUSING ASSY (4P)	VKP2153
⚠	6	POWER SUPPLY ASSY	VWR1287		26	REAR PANEL R	VNA1892
	7	SHEET P	VEC1874		27	REAR PANEL L	See Contrast table (2)
	8	CORD CLAMPER	RNH-184		28	TRAY STOPPER	VNL1707
NSP	9	STOPPER	VNE2088		29	REAR COVER	See Contrast table (2)
	10	SPACER	VEC1939		30	SCRB ASSY	See Contrast table (2)
	11	SHELL CLIP	DEC1184		31	•••••	
NSP	12	SPACER A	VEC1989		32	SCREW	BBZ30P080FMC
	13	CLDM ASSY	See Contrast table (2)		33	SCREW	BBZ30P100FMC
NSP	14	SPACER B	See Contrast table (2)		34	RIVET	RBM-003
	15	HOUSING ASSY (14P)	VKP2151		35	HOUSING ASSY(13P)	See Contrast table (2)
	16	FLEXIBLE CABLE(15P)	VDA1644		36	FLEXIBLE CABLE(6P)	See Contrast table (2)
NSP	17	PANEL HOLDER	VNA1686		37	CONNECTOR ASSY	See Contrast table (2)
NSP	18	MECHANISM ASSY	VWT1149		38	LABEL(CAUTION)	VRW1699
NSP	19	CAM HOLDER L	VNE2089		39	LABEL(REAGION)	See Contrast table (2)
	20	SHIPPING LEVER	VNL1728				

(2) CONTRAST TABLE

DVL-909/WY, WY/RD, RD/RA, RD/RC, RAM and RL are constructed the same except for the following :

Mark	No.	Symbol and Description	Part No.						Remarks
			WY	WY/RD	RD/RA	RD/RC	RAM	RL	
NSP	13	CLDM ASSY	VWS1332	VWS1332	VWS1331	VWS1331	VWS1331	VWS1331	
	14	SPACER B	VEC1979	VEC1979	Not used	Not used	Not used	Not used	
	27	REAR PANEL L	VNA1920	VNA1920	VNA1908	VNA1908	VNA1908	VNA1908	
	29	REAR COVER	VNA1925	VNA1925	VNA1895	VNA1895	VNA1893	VNA1894	
	30	SCRB ASSY	VWV1470	VWV1470	Not used	Not used	Not used	Not used	
	35	HOUSING ASSY(13P)	VKP2162	VKP2162	Not used	Not used	Not used	Not used	
	36	FLEXIBLE CABLE(6P)	VDA1635	VDA1635	Not used	Not used	Not used	Not used	
	37	CONNECTOR ASSY	PG08KK-F10	PG08KK-F10	Not used	Not used	Not used	Not used	
	39	LABEL(REAGION)	VRW1700	VRW1704	VRW1709	VRW1703	Not used	Not used	

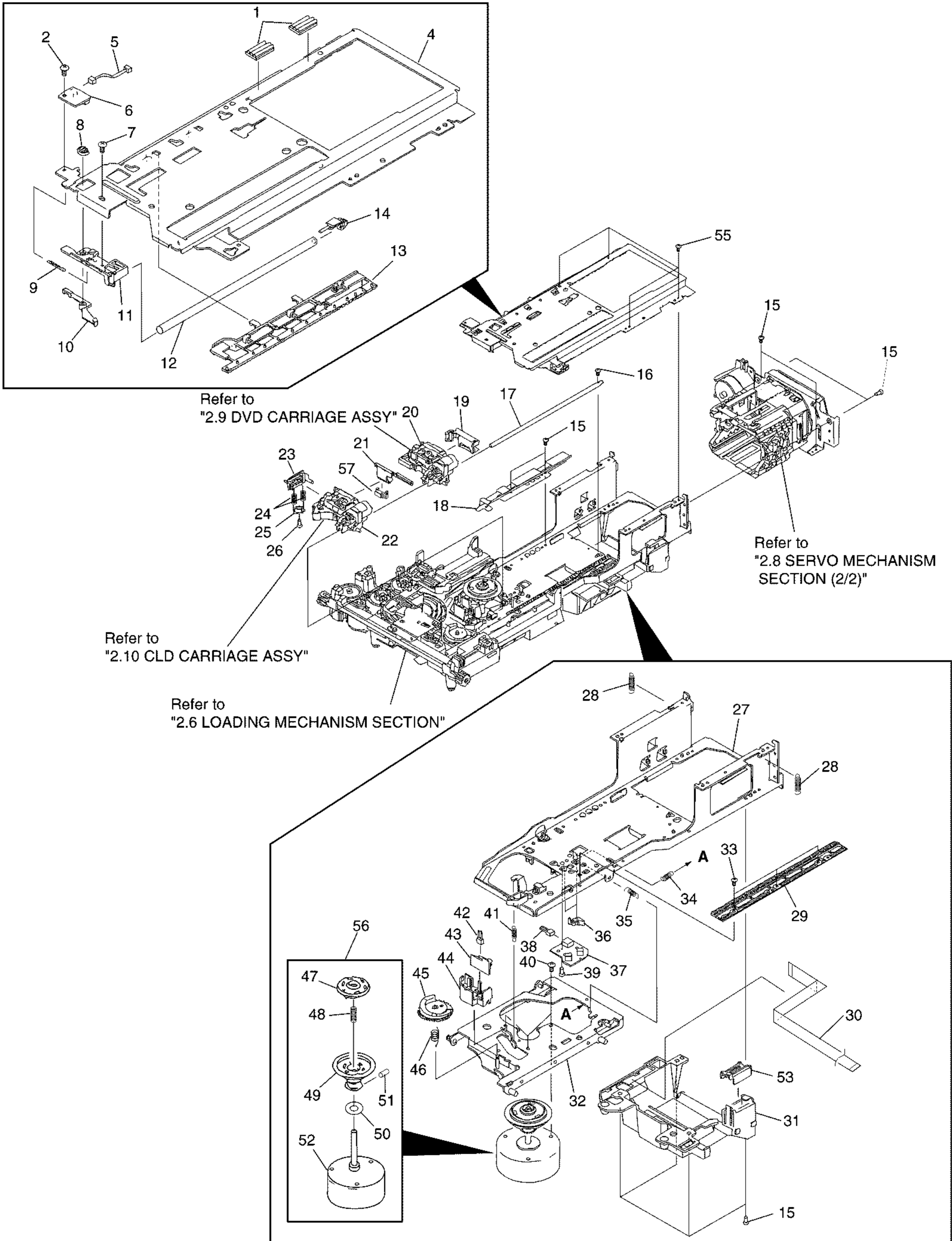
2.6 LOADING MECHANISM SECTION



● **LOADING MECHANISM SECTION PARTS LIST**

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	1	Clamp Cam B	VNL1765		16	Flexible Cable (10P)	VDA1645
	2	CDP Spring	VBH1191	NSP	17	LMSB Assy	VWG1554
	3	Screw	Z39-019		18	MB Switch Lever	VNL1664
	4	CD Plate	VNL1685		19	Roller	VNL1042
	5	Rubber Belt	VEB1184		20	Mechanism Base	VNK3239
	6	Gear Pulley	VNL1662		21	Cam Gear	VNL1625
	7	Slider (L)	VNL1665		22	Cam Plate	VNL1631
	8	Twin Gear	VNL1626		23	CAS Spring	VBH1190
	9	Center Gear	VNL1660		24	Shaft Holder	VNE1942
	10	Double Gear	VNL1661		25	CAM Holder	VNE2032
	11	Screw	BMZ26P040FMC		26	Slider (R)	VNL1666
	12	Loading Motor Assy	VXX2045				
	13	Carriage Motor	VXM1033				
NSP	14	Motor Pulley	VNL1630				
	15	Synchro Gear Assy	VXA2105				

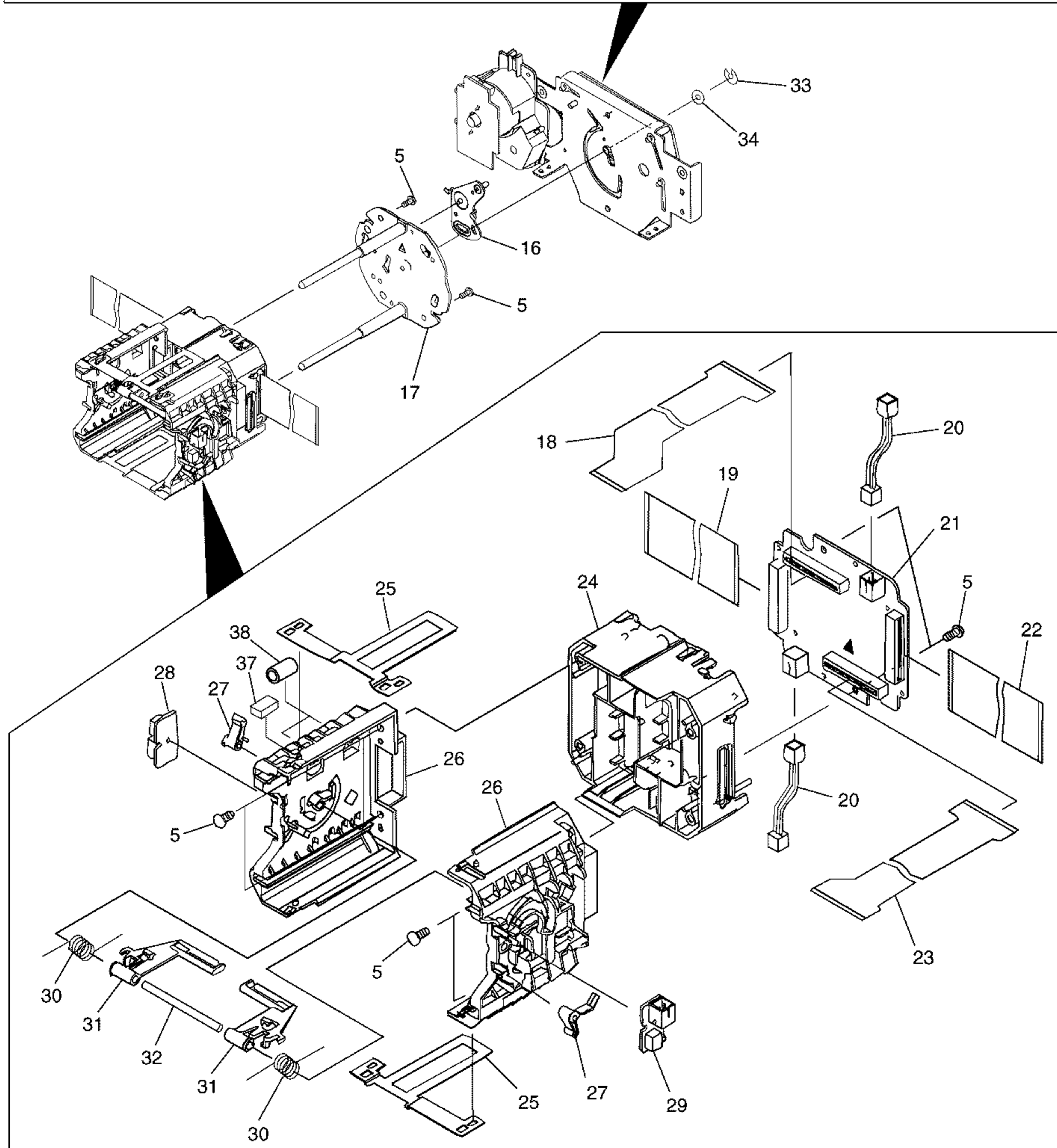
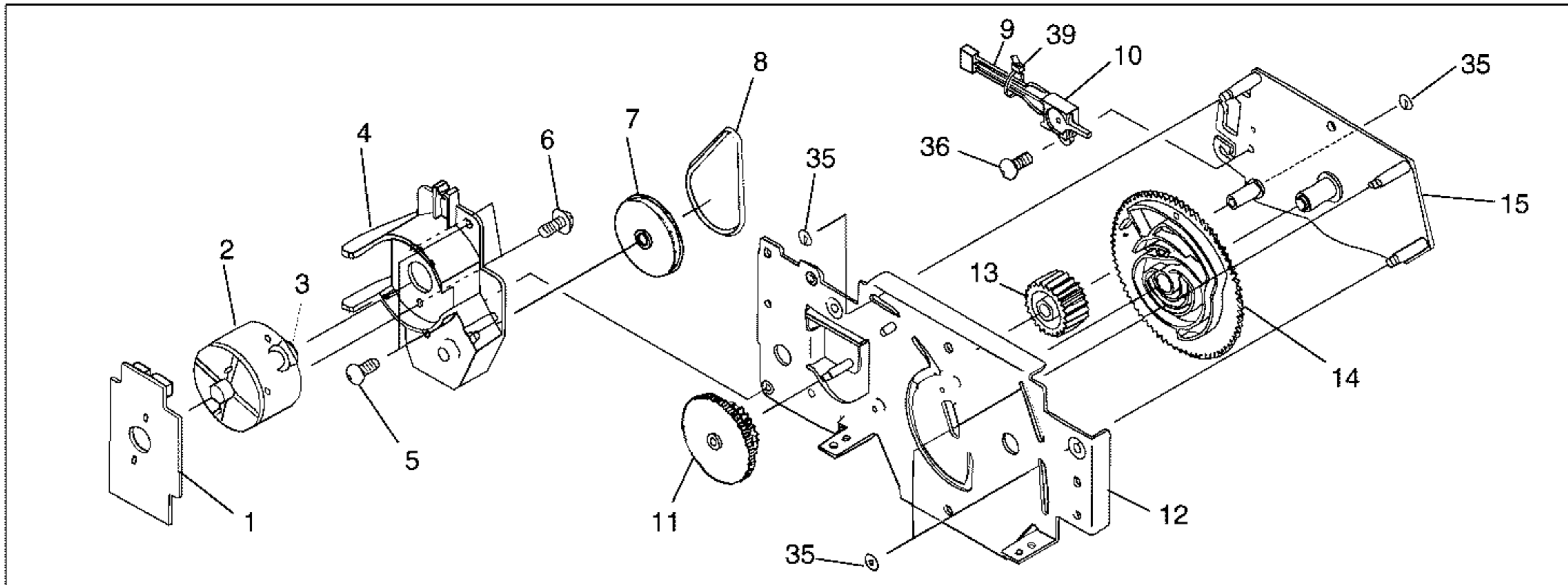
2.7 SERVO MECHANISM SECTION (1/2)



● SERVO MECHANISM SECTION (1/2) PARTS LIST

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	1	Mini Clamp	VEC1905		26	Screw	PMZ20P060FZK
	2	Screw	BBZ26P060FMC		27	Tilt Base (Under)	VNL1711
	3	•••••			28	Tilt Rear Spring	VBH1274
	4	Tilt Base (Upper)	VNE2062		29	CA Rack (Lower)	VNL1712
	5	Housing Assy (2P)	VKP2136		30	Flexible Cable (6P)	VDA1642
NSP	6	BISB Assy	VWG1796		31	Flexible Cable Cover	VNL1727
	7	Screw	BPZ20P040FZK		32	Motor Base	VNE1941
	8	B Cam	VNL1725		33	Screw	IBZ26P060FMC
	9	Support Spring	VBH1273		34	Tilt Spring	VBH1263
	10	SW Lever B	VNL1723		35	Thrust Spring	VBH1245
	11	Shaft Holder	VNL1724		36	CA Switch Lever	VNL1644
	12	CA Shaft (Upper)	VLL1486	NSP	37	PKSB Assy	VWG1555
	13	CA Rack (Upper)	VNL1722		38	Housing Assy (3P)	VKP2045
	14	Shaft Stay	VNL1726		39	Screw	IBZ26P120FMC
	15	Screw	BBZ30P080FMC		40	Screw	PMA30P050FMC
	16	Screw	PPZ20P060FMC		41	Tilt Spring B	VBH1287
	17	CA Shaft (Lower)	VLL1496		42	Housing Assy (3P)	VKP2046
	18	TAN Guide	VNE2061	NSP	43	FG Assy	VWG1556
	19	FPC Holder A	VNL1751		44	FG Base	VNL1781
†	20	DVD Carriage Assy	VWT1146		45	Tilt Cam	VNL1643
	21	FPC Holder B	VNL1801		46	Tilt Cam Spring	VBH1243
†	22	CLD Carriage Assy	VWT1141		47	PRC Hub	VNL1684
	23	CA Guide	VNL1668		48	Centering Spring	VBH1269
	24	TAN Spring (B)	VBH1264		49	R Turn Table Assy	VXA2354
	25	TAN Lever (B)	VNL1669	NSP	50	Oil Stopper	VPF1002
					51	Screw	ZMD30H030FBT
				NSP	52	Spindle Motor	VXM1057
					53	Cover S	VNL1780
					54	•••••	
					55	Screw	BBZ30P050FZK
					56	Spindle Motor Assy	VXX2579
					57	FPC Holder	VNL1789

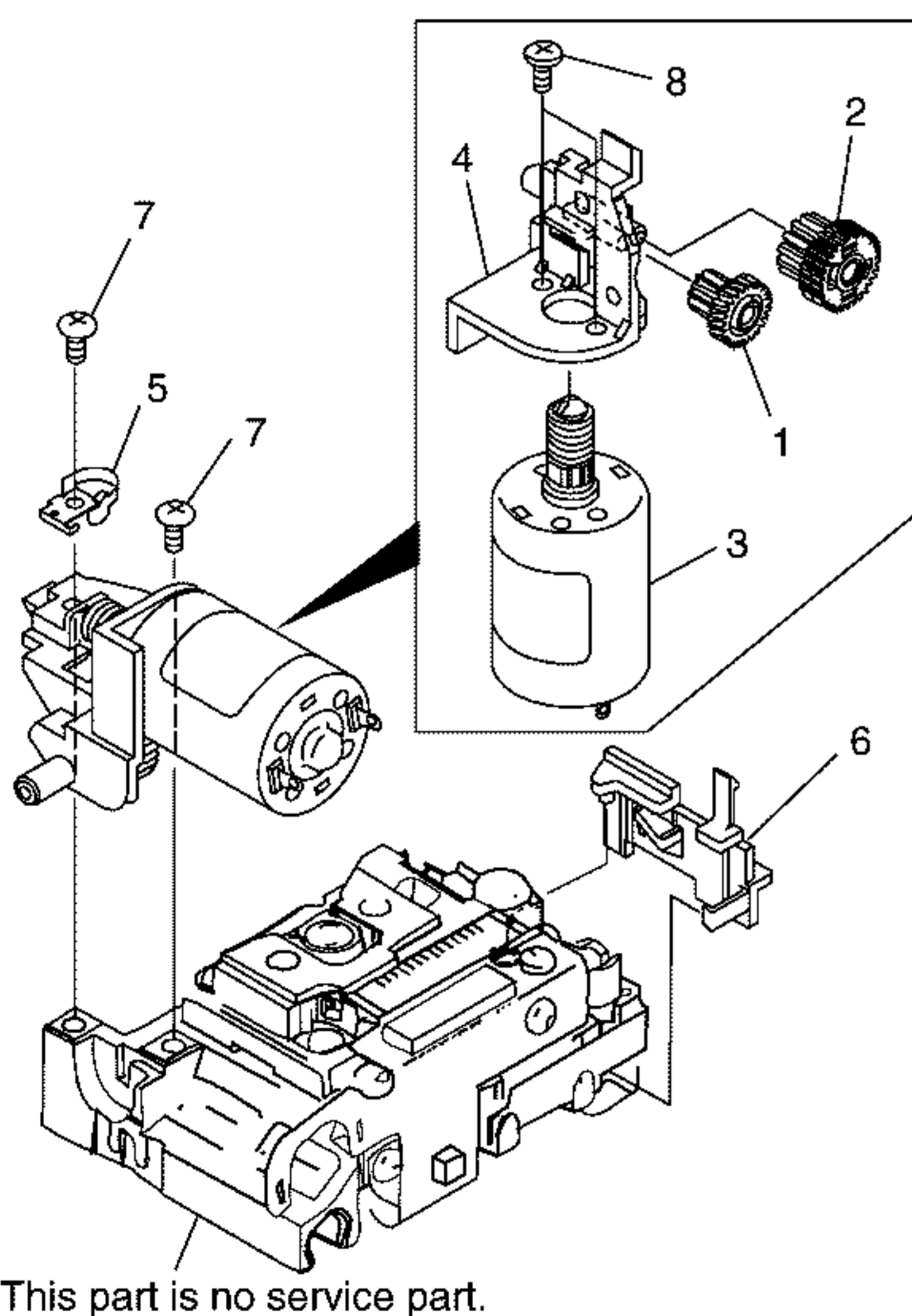
2.8 SERVO MECHANISM SECTION (2/2)



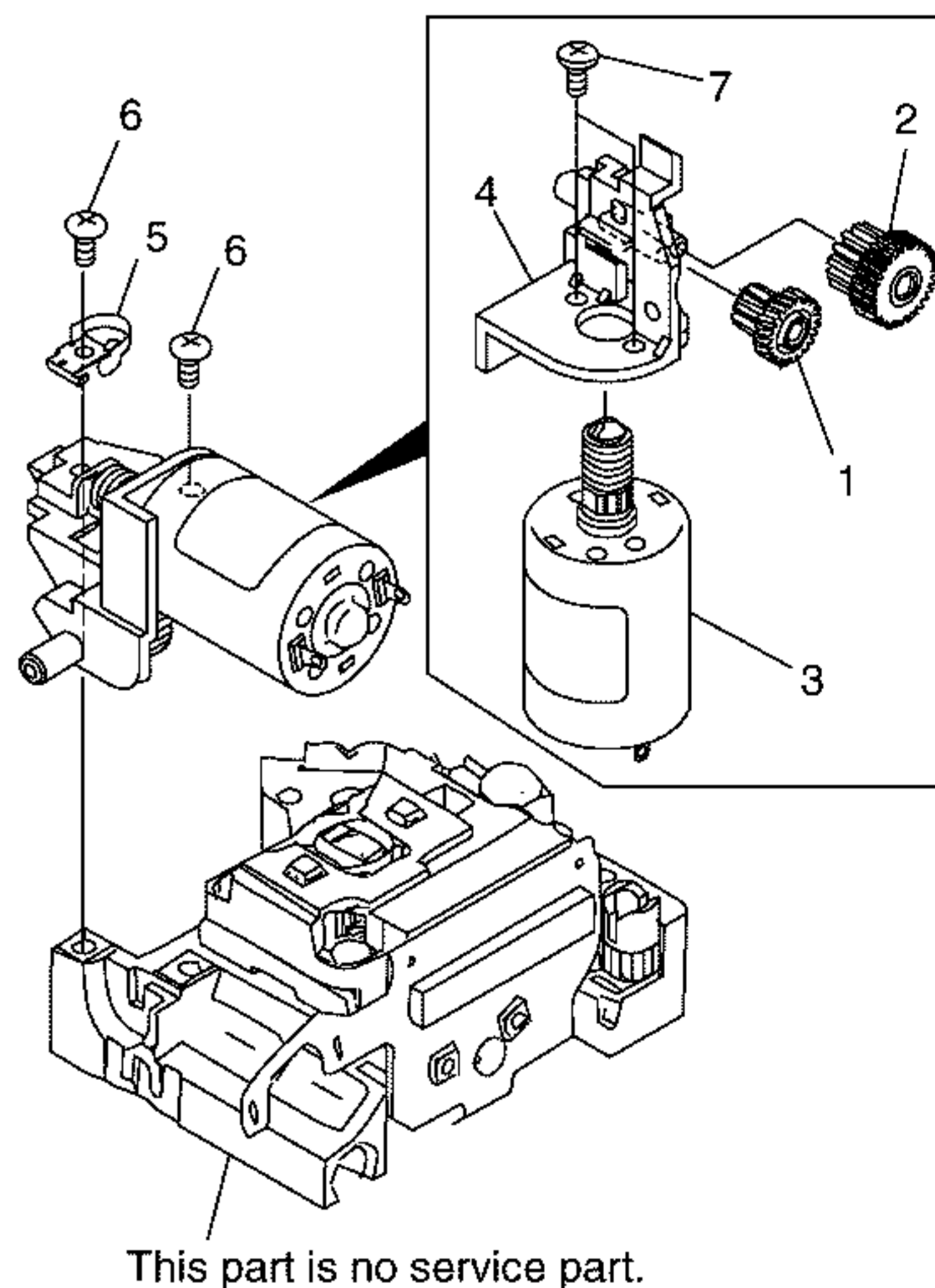
● SERVO MECHANISM SECTION (2/2) PARTS LIST

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
NSP	1	TNMB Assy	VWG1793	NSP	21	CNNB Assy	VWG1792
	2	Carriage Motor	VXM1033		22	Flexible Cable (27P)	VDA1643
NSP	3	Motor Pulley	VNL1630		23	PU FPC-A	VNP1582
	4	Motor Holder	VNL1717		24	PCB Holder	VNL1716
	5	Screw	BBZ30P080FMC		25	FC Guide	VNE2059
	6	Screw	BMZ26P040FMC		26	PU Holder	VNL1715
	7	Gear Pulley	VNL1662		27	SW Lever C	VNL1714
	8	Rubber Belt	VEB1184	NSP	28	LCSB Assy	VWG1795
	9	Housing Assy (3P)	VKP2137	NSP	29	DCSB Assy	VWG1794
	10	Lever Switch	DSK1003		30	FC Arm Spring	VBH1272
	11	Middle Gear	VNL1720		31	FC Arm	VNL1713
	12	Turn Panel Assy	VXA2337		32	Tilt Shaft	VLL1175
	13	Gear S	VNL1719		33	E Ring	YE30FUC
	14	Turn Cam Gear	VNL1718		34	Washer	WA42D080D050
	15	Swing Plate Assy	VXA2289		35	Washer	WT26D070D050
	16	Turn Lever Assy	VXA2292		36	Screw	PMA26P060FMC
	17	Turn Plate Assy	VXA2290		37	Cushion	VEC1917
	18	PU FPC-B	VNP1583		38	Tube	VEB1273
	19	Flexible Cable (26P)	VDA1653		39	Binder	Z09-056
	20	Connector Assy	PG02KK-E10				

2.9 DVD CARRIAGE ASSY



2.10 CLD CARRIAGE ASSY



● DVD CARRIAGE ASSY PARTS LIST

Mark	No.	Description	Part No.
	1	CA Gear (A)	VNL1782
	2	CA Gear B Assy	VXX2471
	3	Slider Motor Assy	VXX2472
	4	Motor Holder	VNL1779
	5	Thrust Holder	VBK1058
	6	CA Guide B	VNL1721
	7	Screw	BBZ20P050FZK
	8	Screw	PMA20P033FUC

● CLD CARRIAGE ASSY 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	PMA20P033FUC

3. SCHEMATIC DIAGRAM

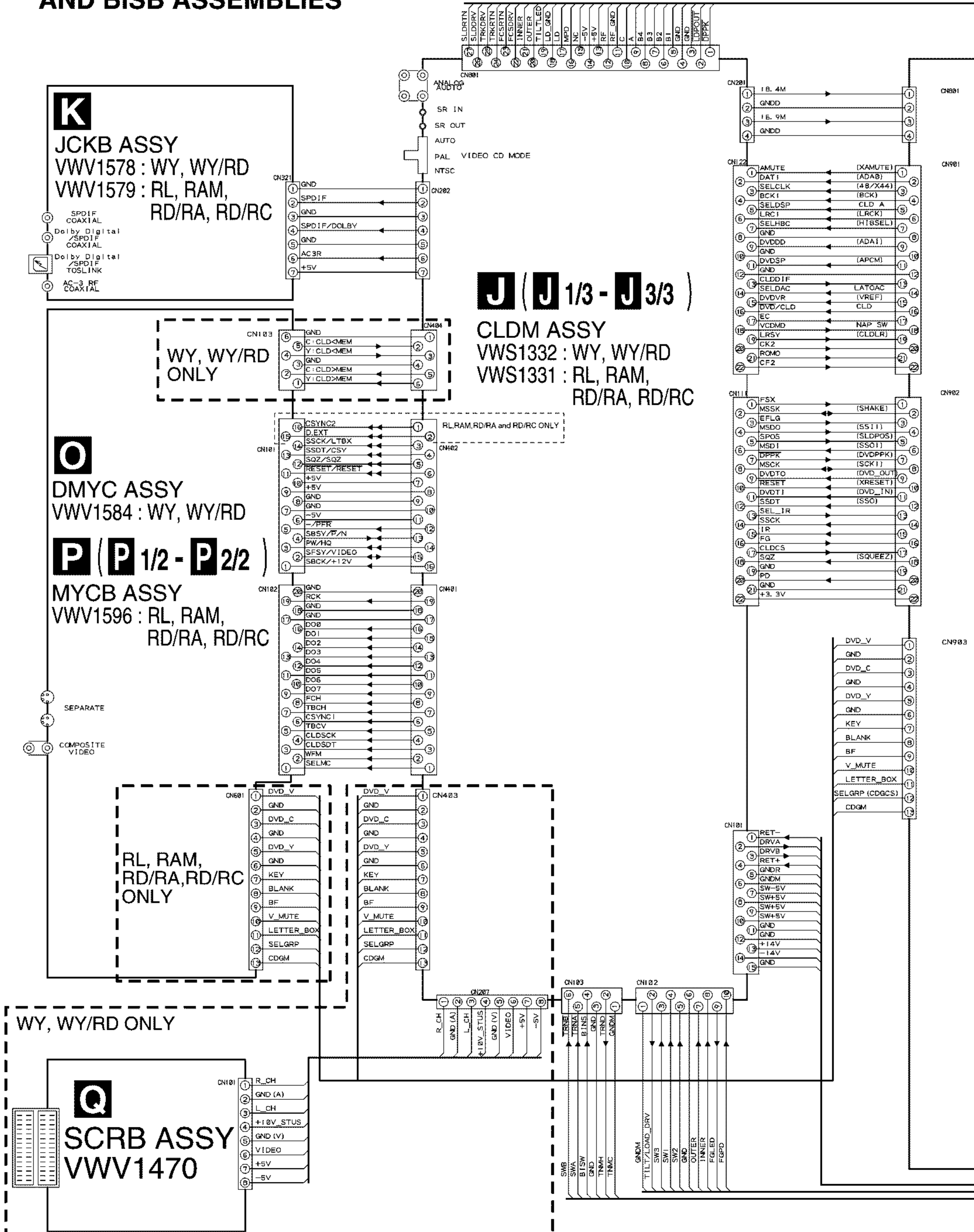
3.1 OVERALL WIRING DIAGRAM, LMSB, PKSB, FG, CNNB, TNMB, DCSB, LCSB AND BISB ASSEMBLIES

A

B

C

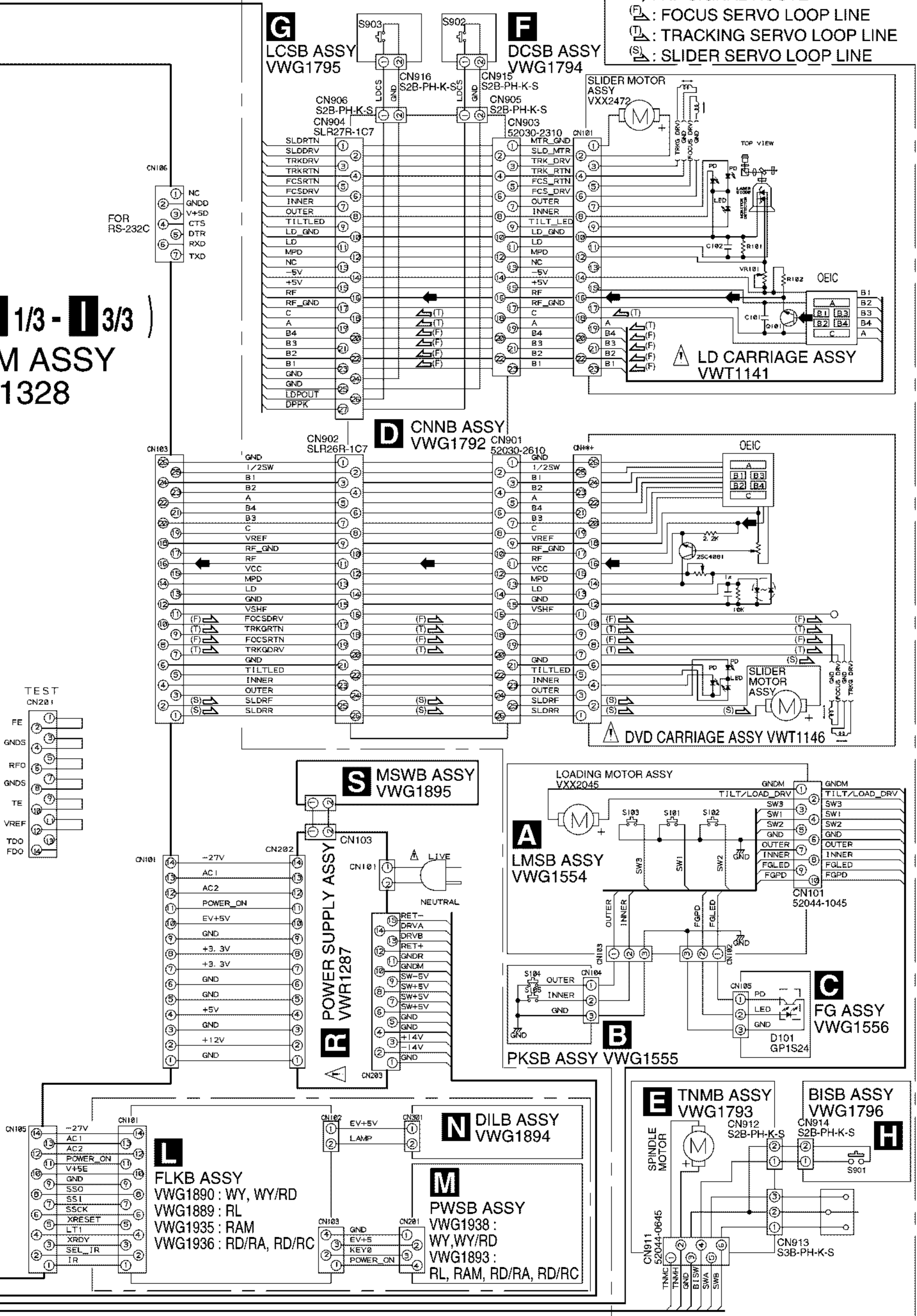
D



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

- ➡ : RF SIGNAL ROUTE
- (F) : FOCUS SERVO LOOP LINE
- (T) : TRACKING SERVO LOOP LINE
- (S) : SLIDER SERVO LOOP LINE

1 (1/3 - 3/3)
DVDM ASSY
VWS1328



A B C D E F G H

3.2 DVDM ASSY (1/3)

A

B

C

D

DVD CARRIAGE ASSY
CN202
CN103 VKN1430

1/3

DVDM ASSY
VWS1328

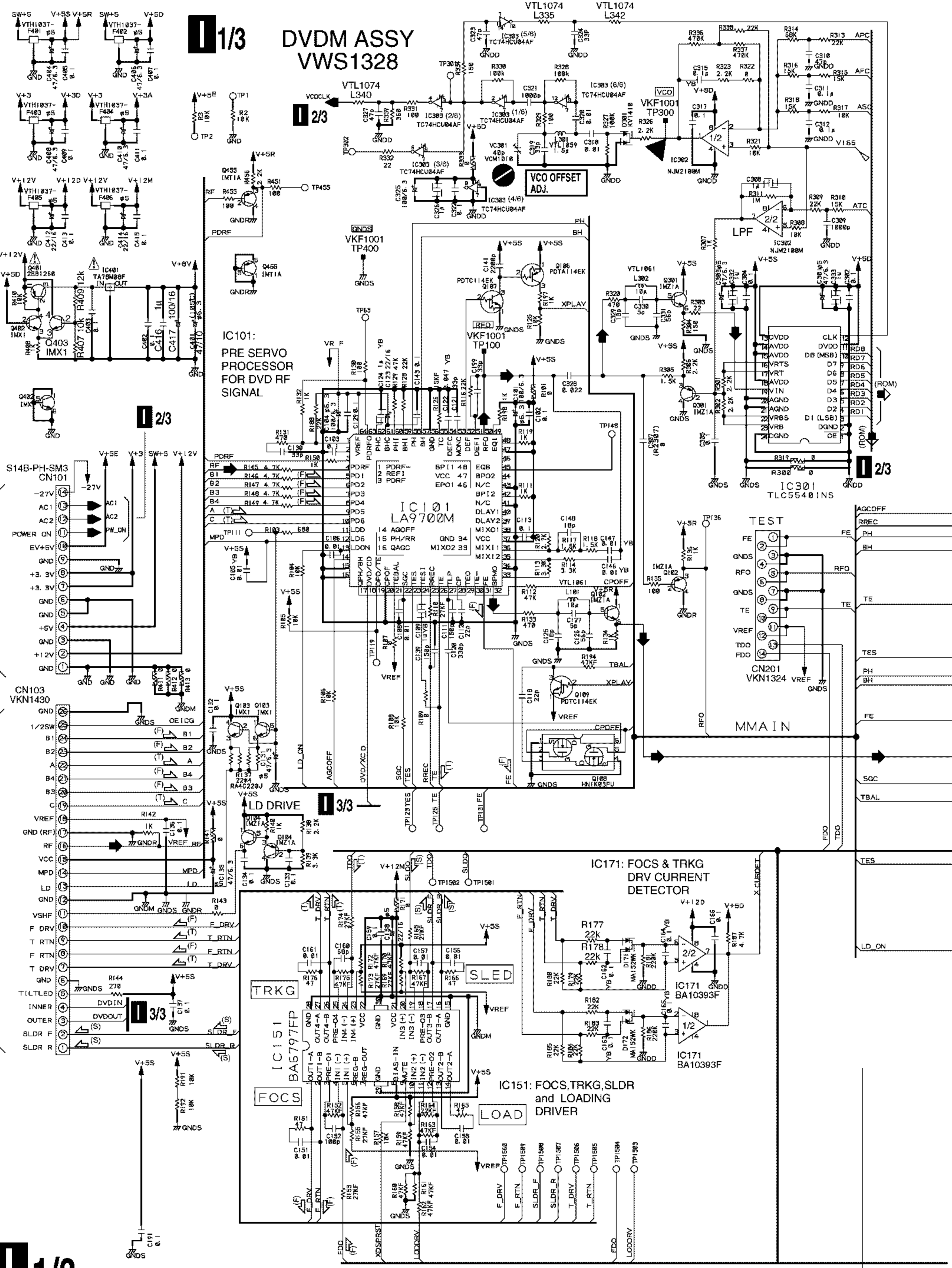
2/3

3/3

2/3

3/3

18
1/3



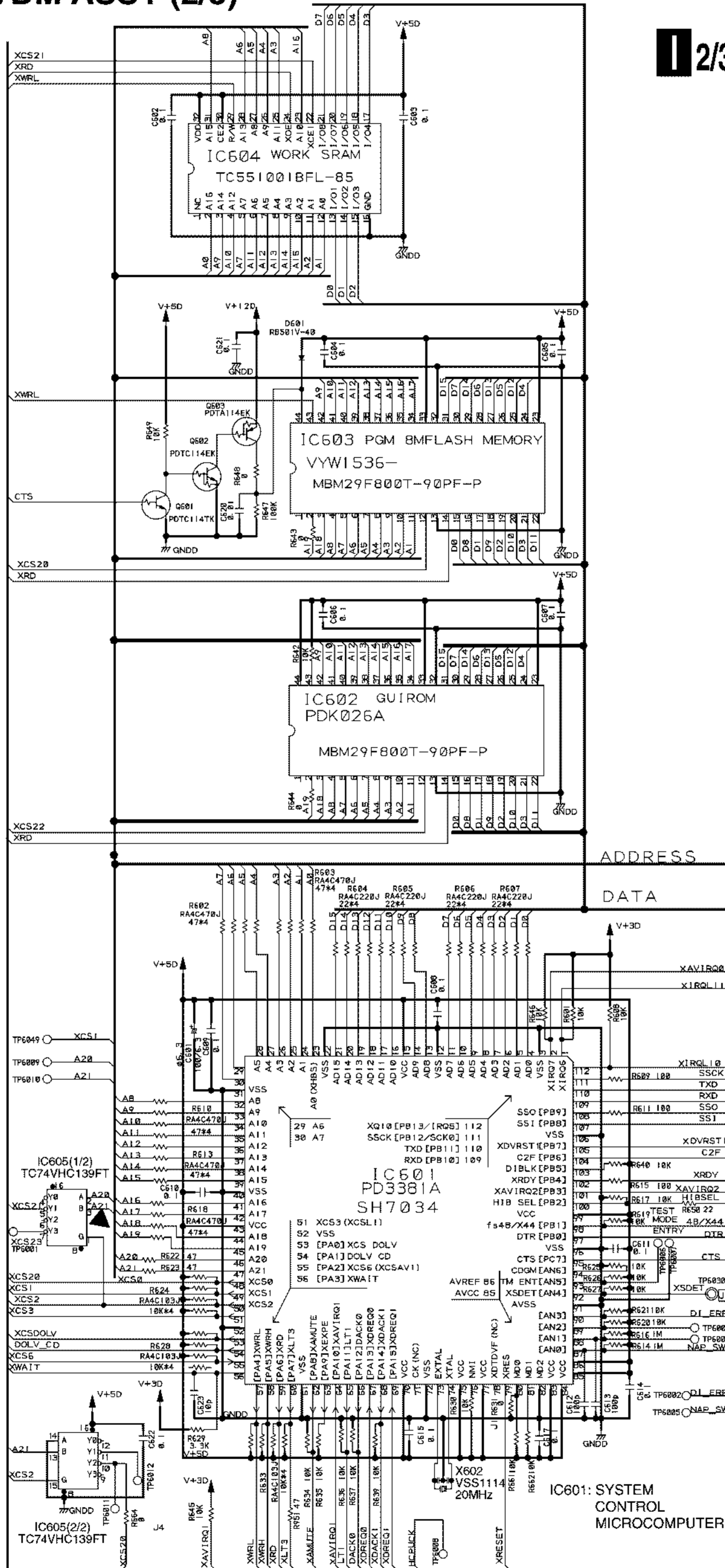
3.3 DVDM ASSY (2/3)

A

B

C

D

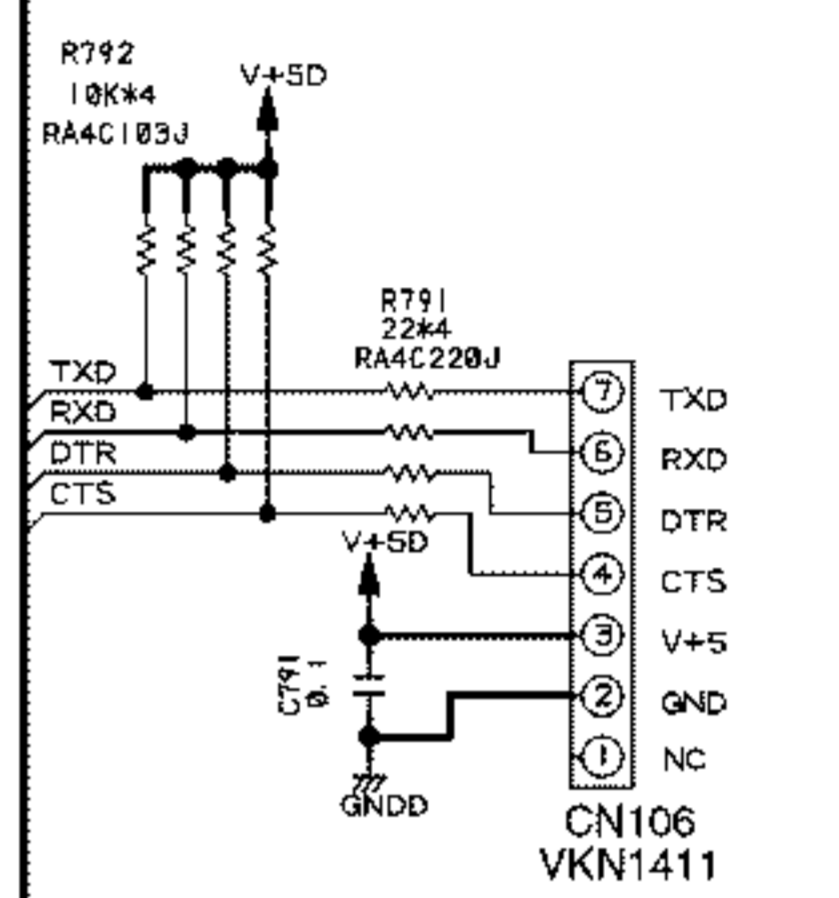


1/3

DVDM ASSY
VWS1328

1/3
C2F,XRESET

3/3
XCSDOLV,DOLV-CD,XWRL,XWRH,
XRD,XLT3,XAMUTE,XDREQ1,CDGM,
HCPUCK,IR,SEL-IR,XDVRST1,
XAVIRQ0,48/X44,HIBSEL,XCS6,
XDACK1,NAP SW,C2F



MAIN

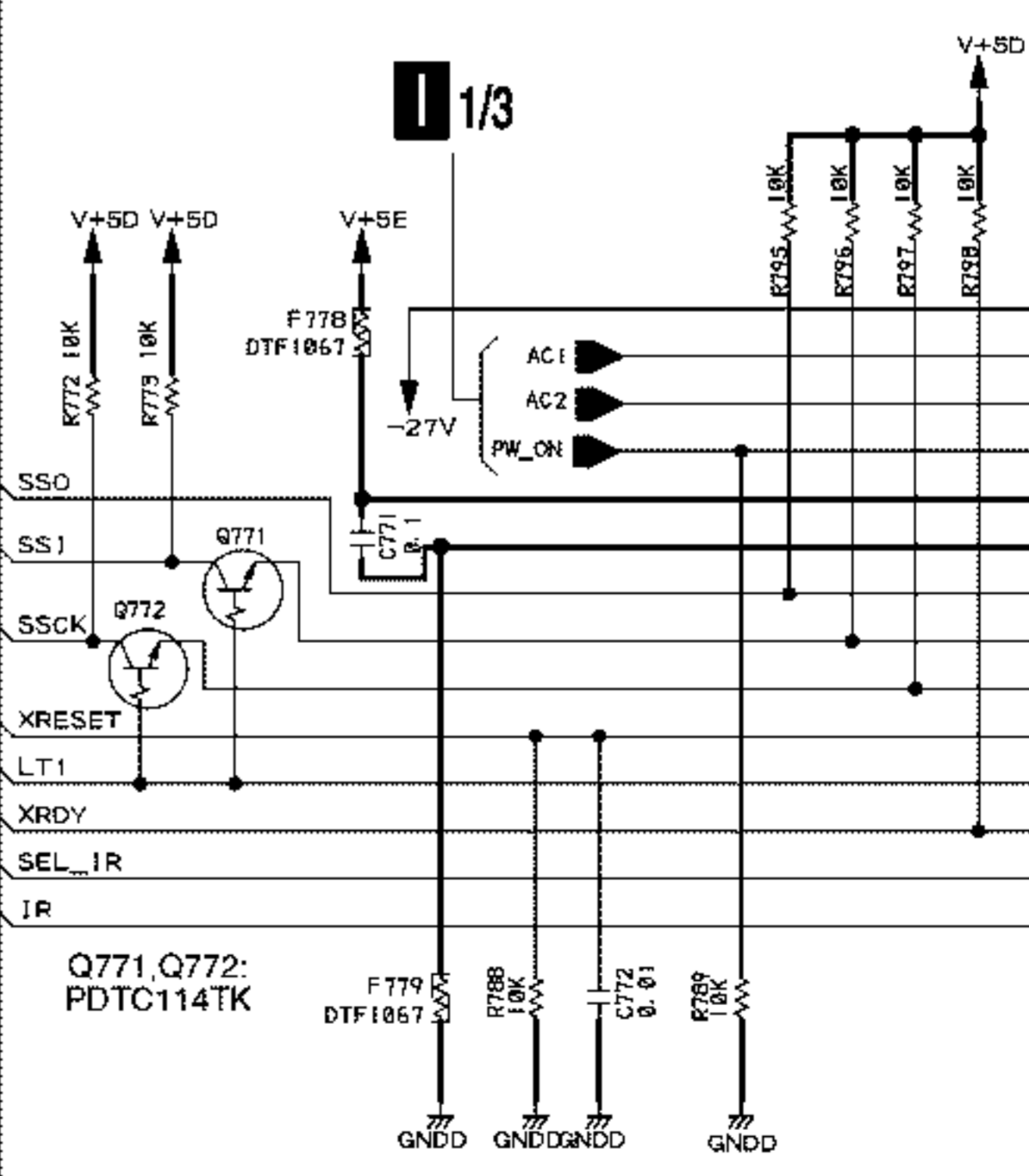
3/3
ADDRESS
A2-A10



ADDRESS

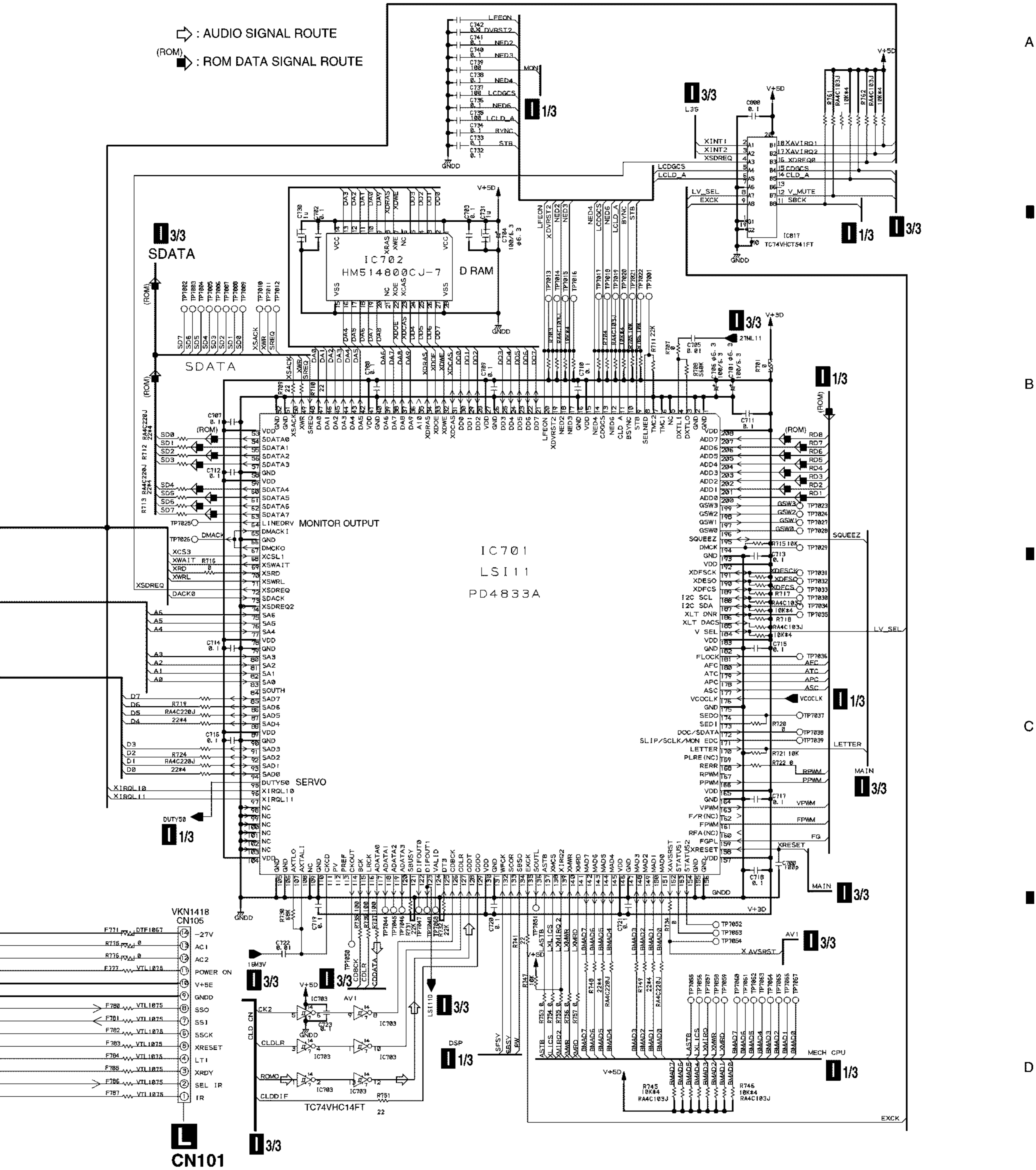
3/3
DATA

DATA

1/3



 : AUDIO SIGNAL ROUTE
 (ROM) : ROM DATA SIGNAL ROUTE



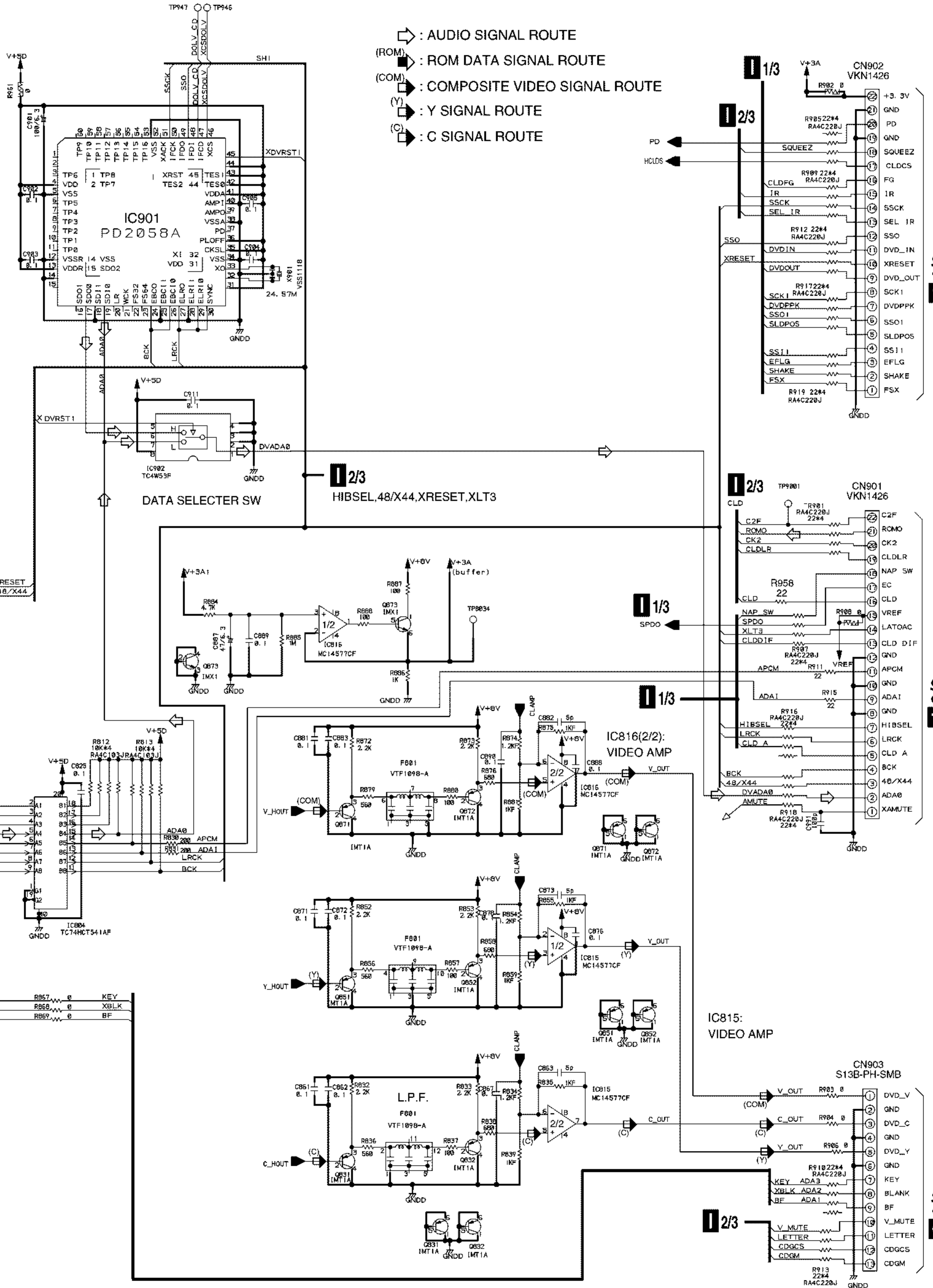
A

B

C

D

- ⇨ : AUDIO SIGNAL ROUTE
- (ROM) ⇨ : ROM DATA SIGNAL ROUTE
- (COM) ⇨ : COMPOSITE VIDEO SIGNAL ROUTE
- (Y) ⇨ : Y SIGNAL ROUTE
- (C) ⇨ : C SIGNAL ROUTE

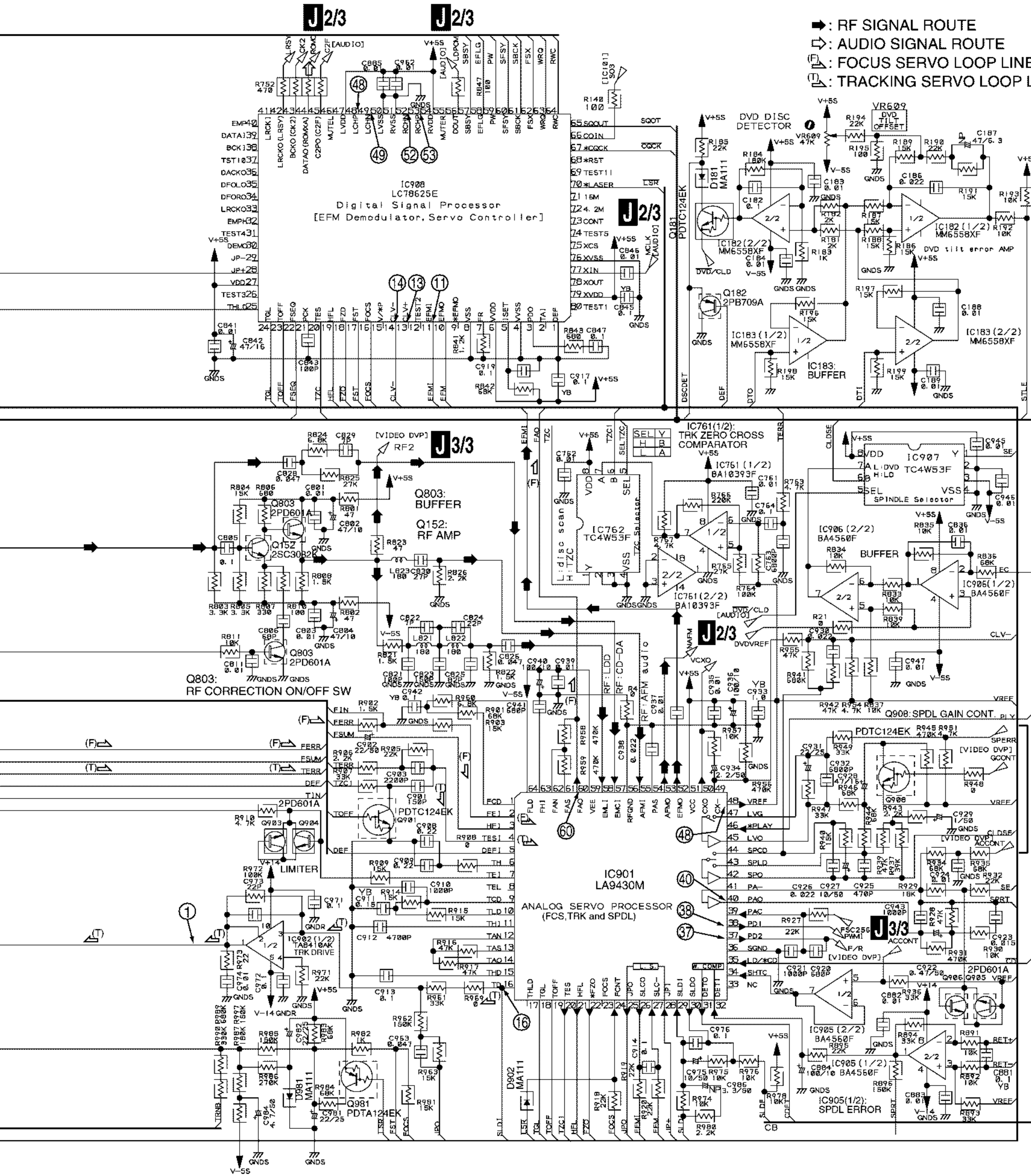


A

B

C

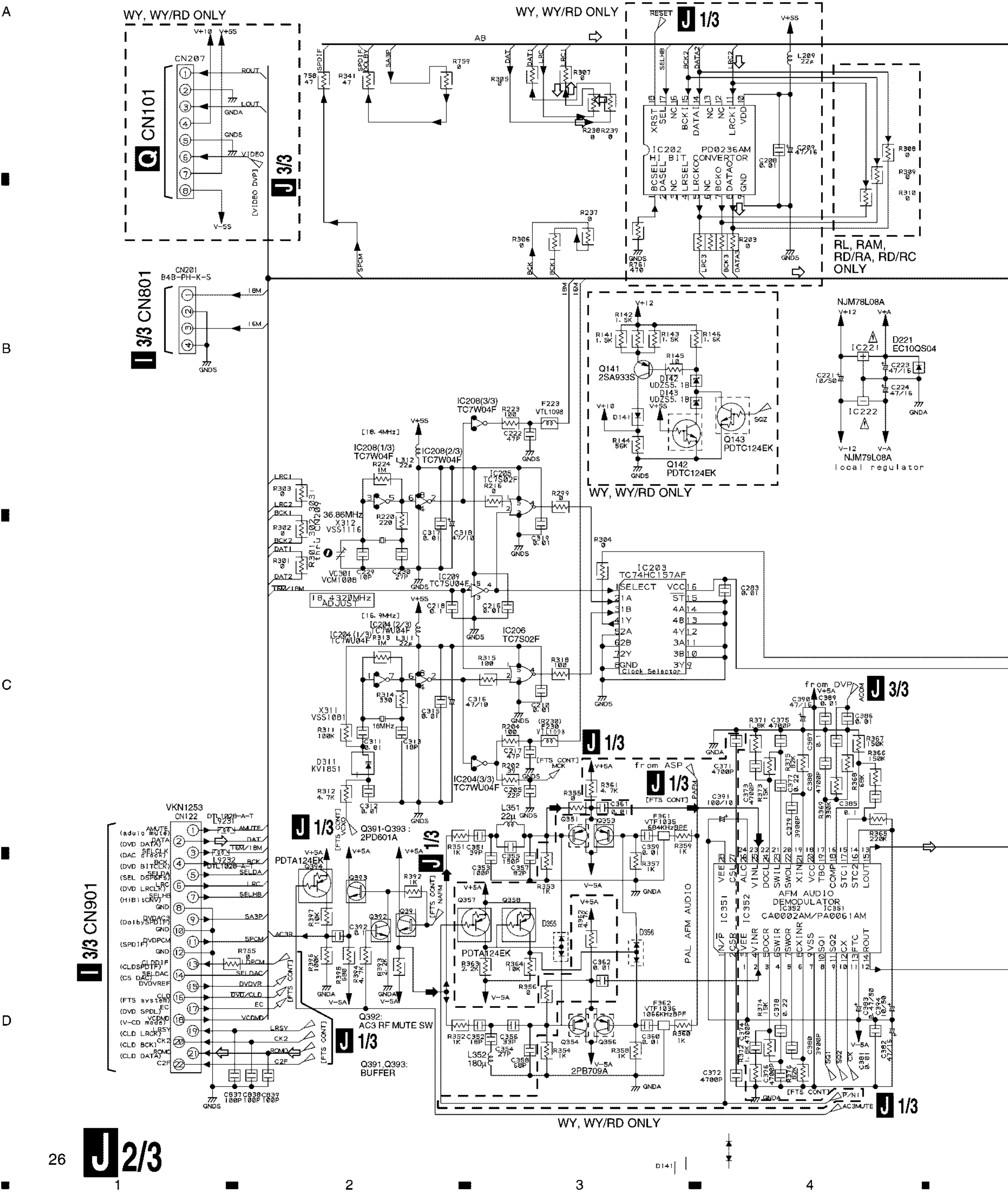
D



➔: RF SIGNAL ROUTE
 ⇄: AUDIO SIGNAL ROUTE
 (F): FOCUS SERVO LOOP LINE
 (T): TRACKING SERVO LOOP LINE

A
B
C
D

3.6 CLDM ASSY (2/3) AND JCKB ASSY



CLDM ASSY

(VWS1332 : WY, WY/RD)

(VWS1331 : RL, RAM, RD/RA, RD/RC)

J 2/3

➡ : RF SIGNAL ROUTE

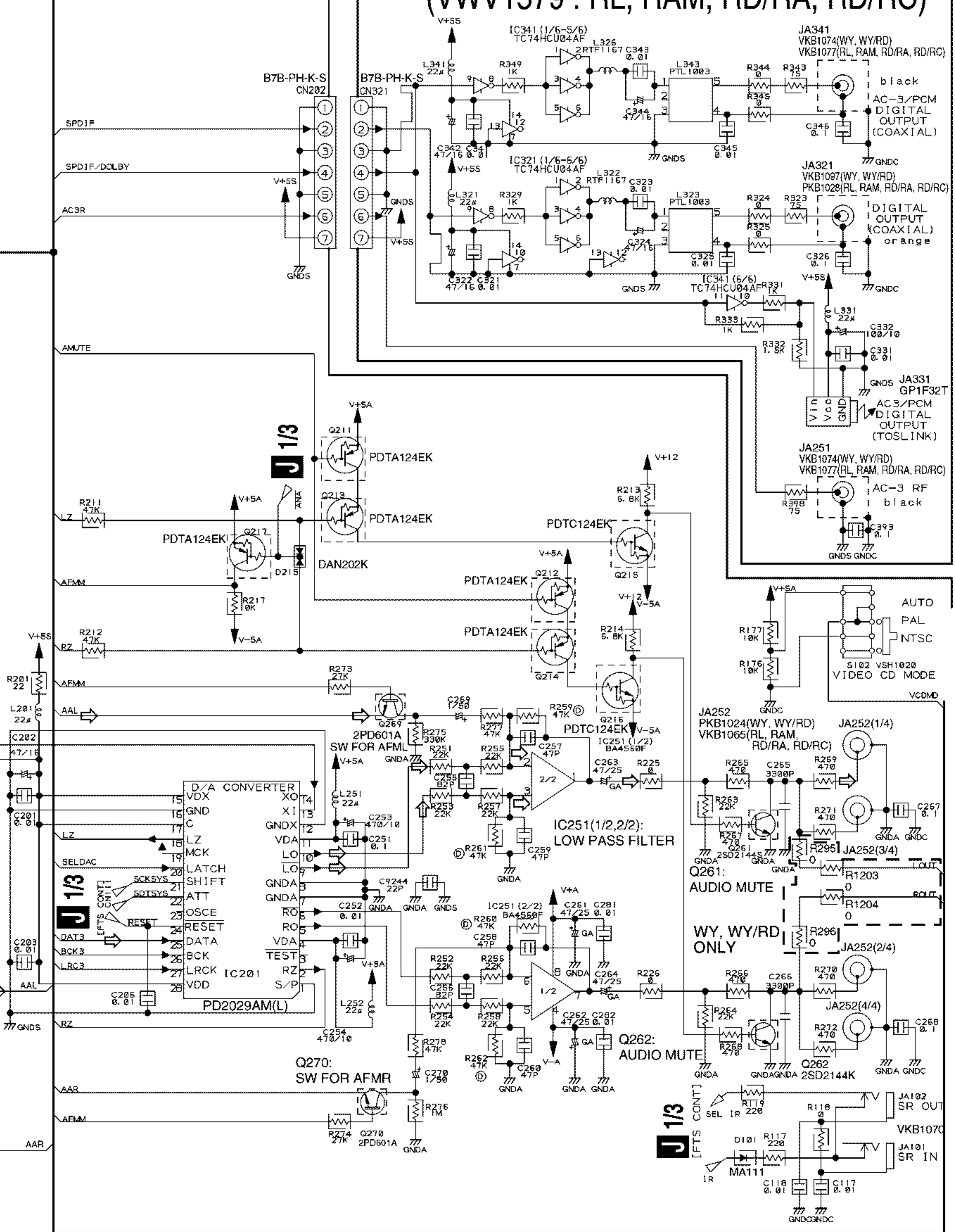
⇨ : AUDIO SIGNAL ROUTE

K

JCKB ASSY

(VWV1578 : WY, WY/RD)

(VWV1579 : RL, RAM, RD/RA, RD/RC)



J 2/3

K

3.7 CLDM ASSY (3/3)(FOR WY AND WY/RD TYPES)

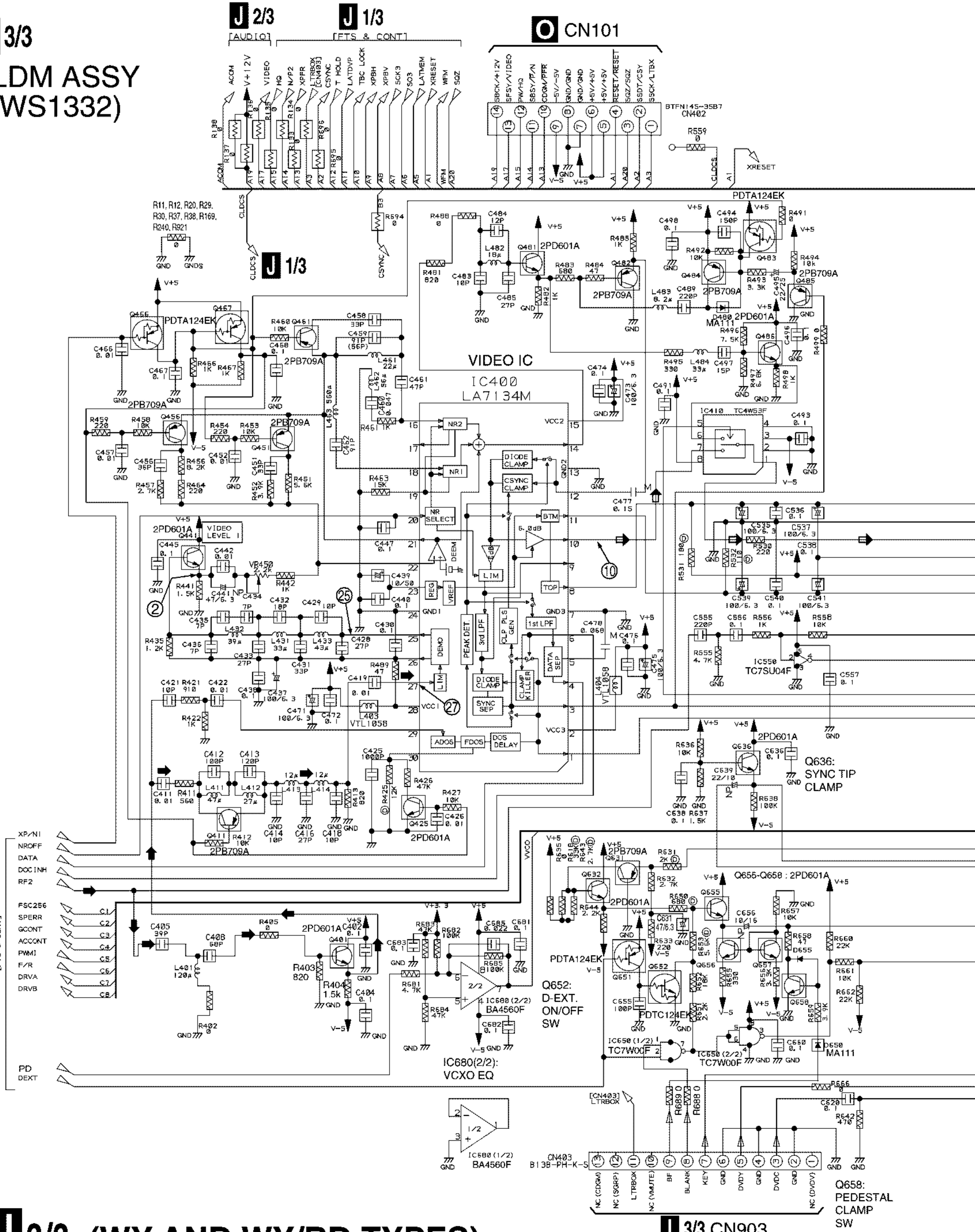
A

J 3/3
CLDM ASSY
(VWS1332)

B

C

D

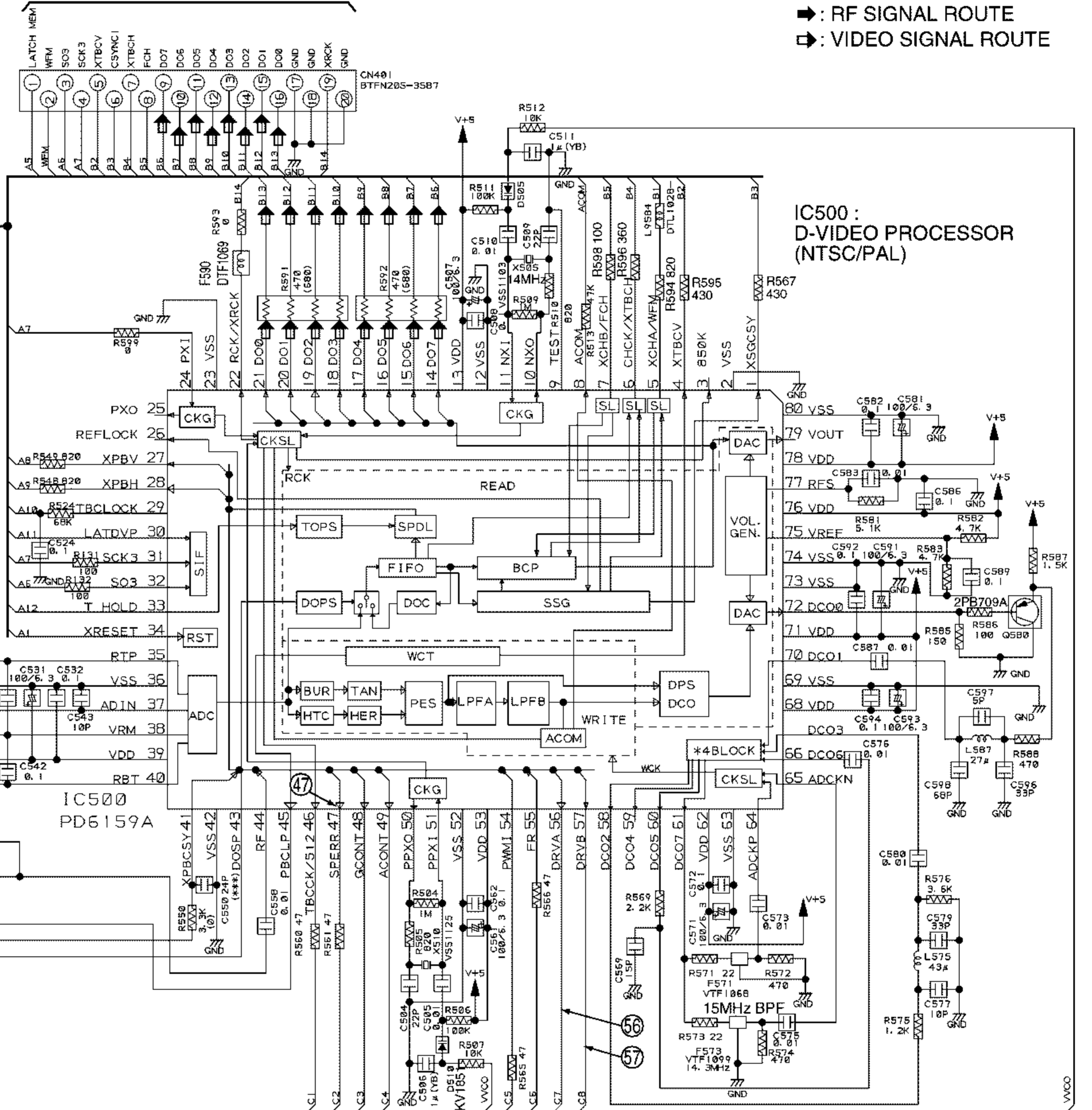


28 **J 3/3** (WY AND WY/RD TYPES)

I 3/3 CN903

○ CN102

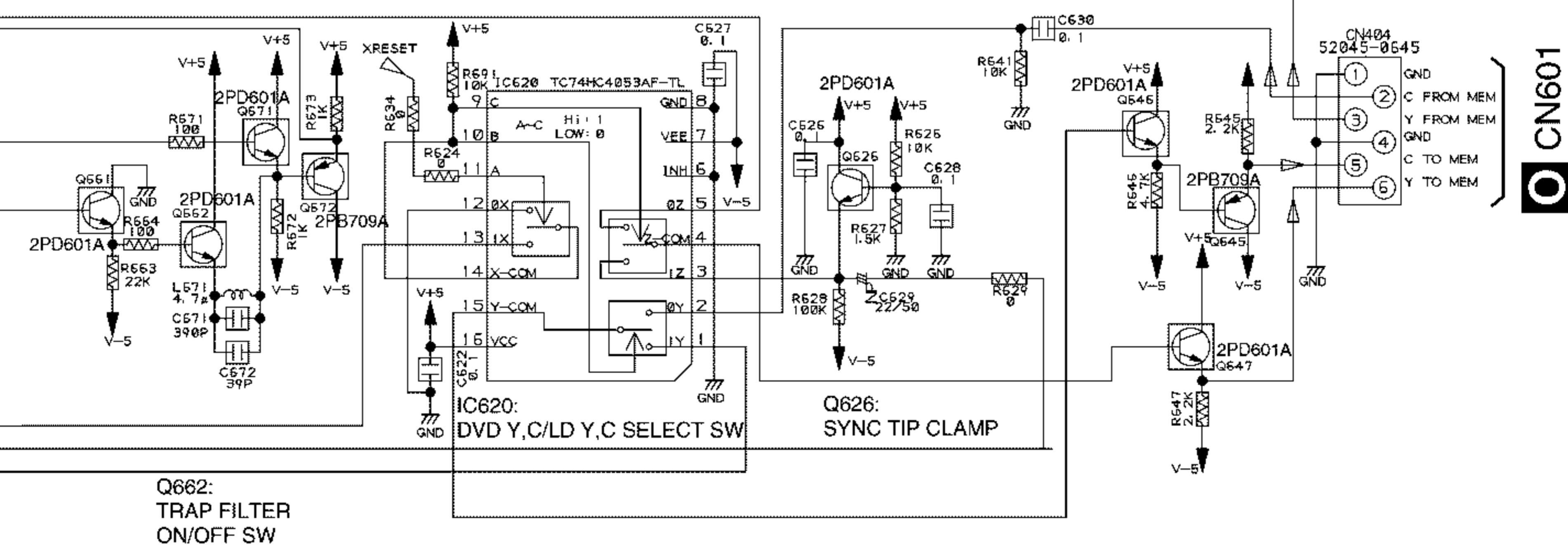
➡: RF SIGNAL ROUTE
⇨: VIDEO SIGNAL ROUTE



IC500 :
D-VIDEO PROCESSOR
(NTSC/PAL)

IC500
PD6159A

15MHz BPF

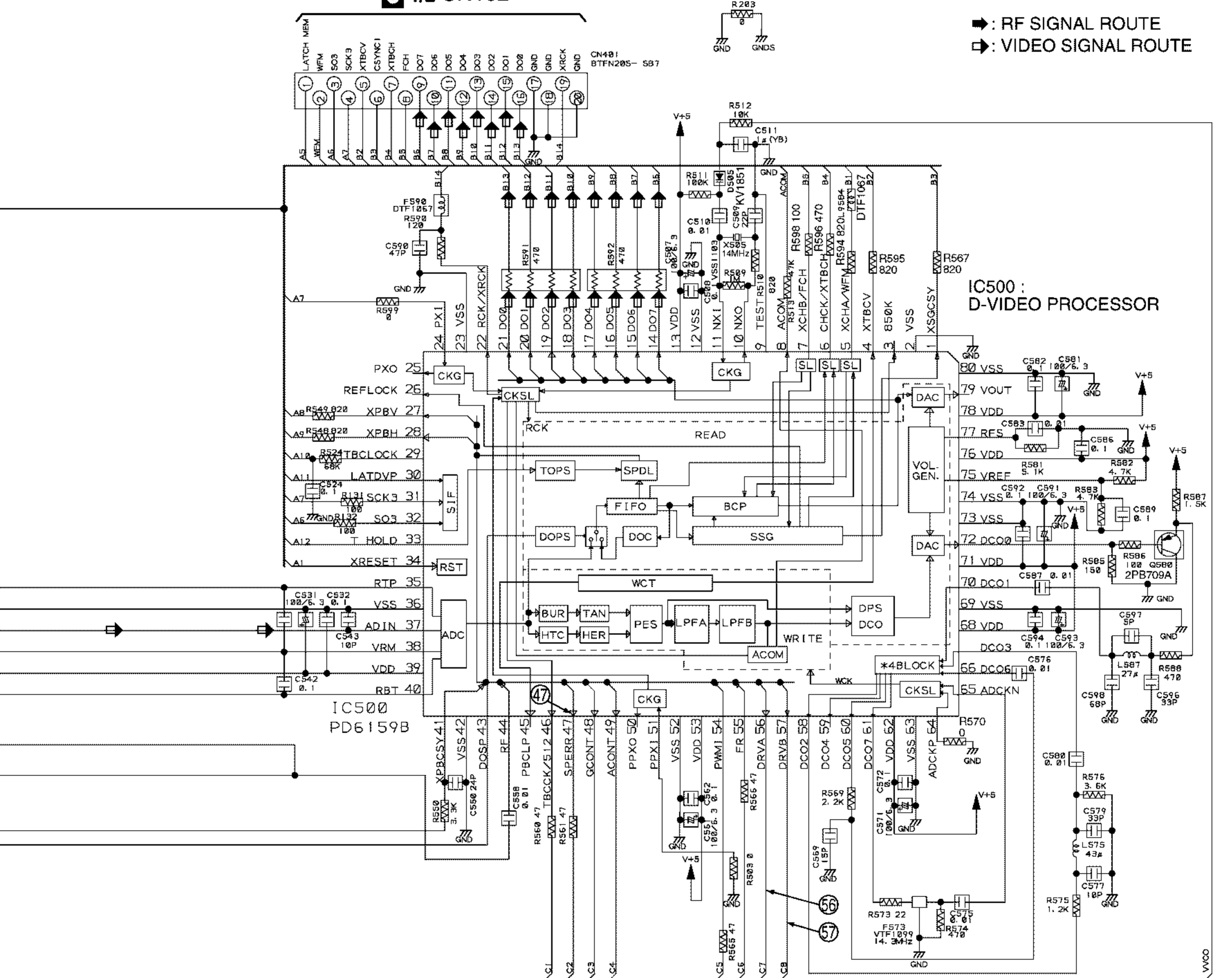


Q662:
TRAP FILTER
ON/OFF SW

○ CN601

1/2 CN102

➔ : RF SIGNAL ROUTE
➤ : VIDEO SIGNAL ROUTE



A

B

C

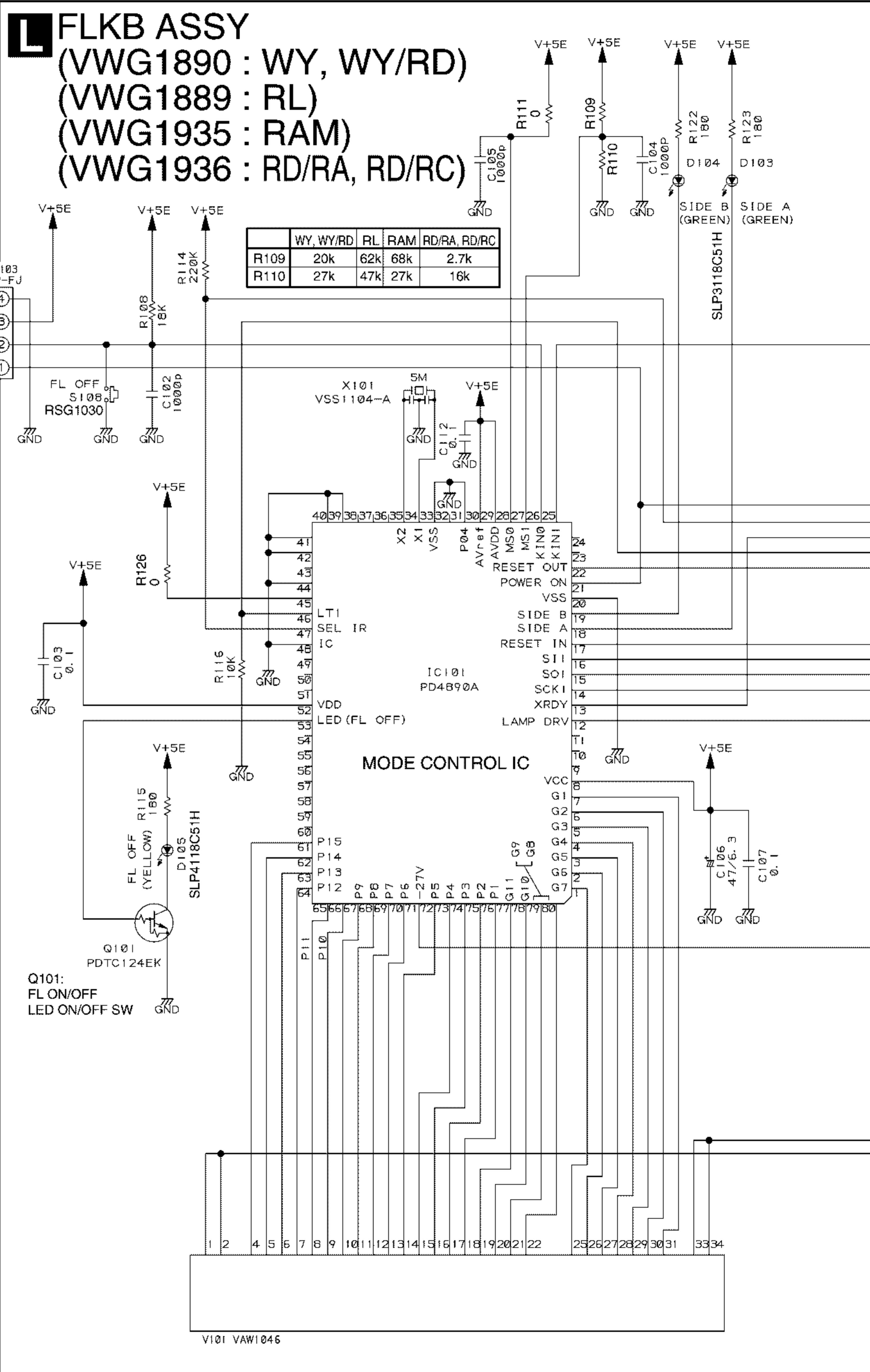
D

(RL, RAM, RD/RA AND RD/RC TYPES)

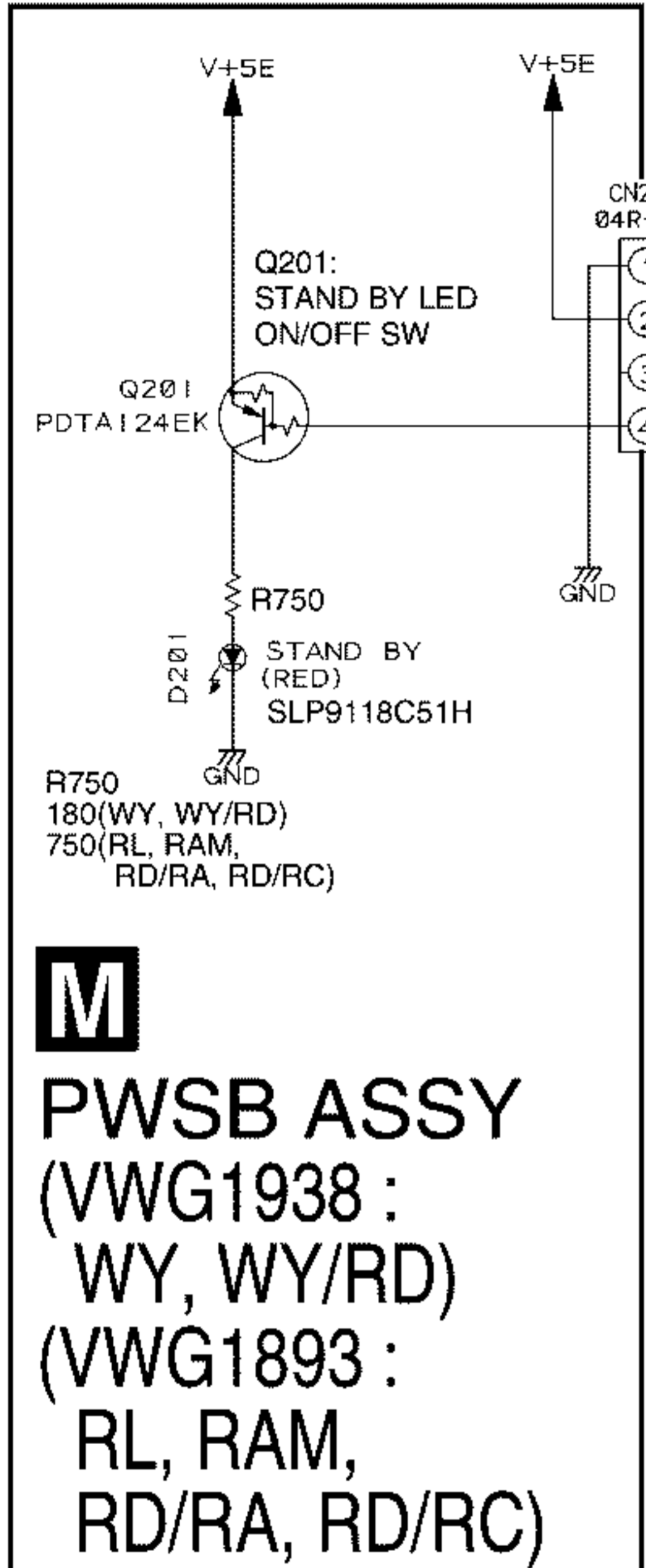
J 3/3

3.9 FLKB, PWSB AND DILB ASSEMBLIES

A



B



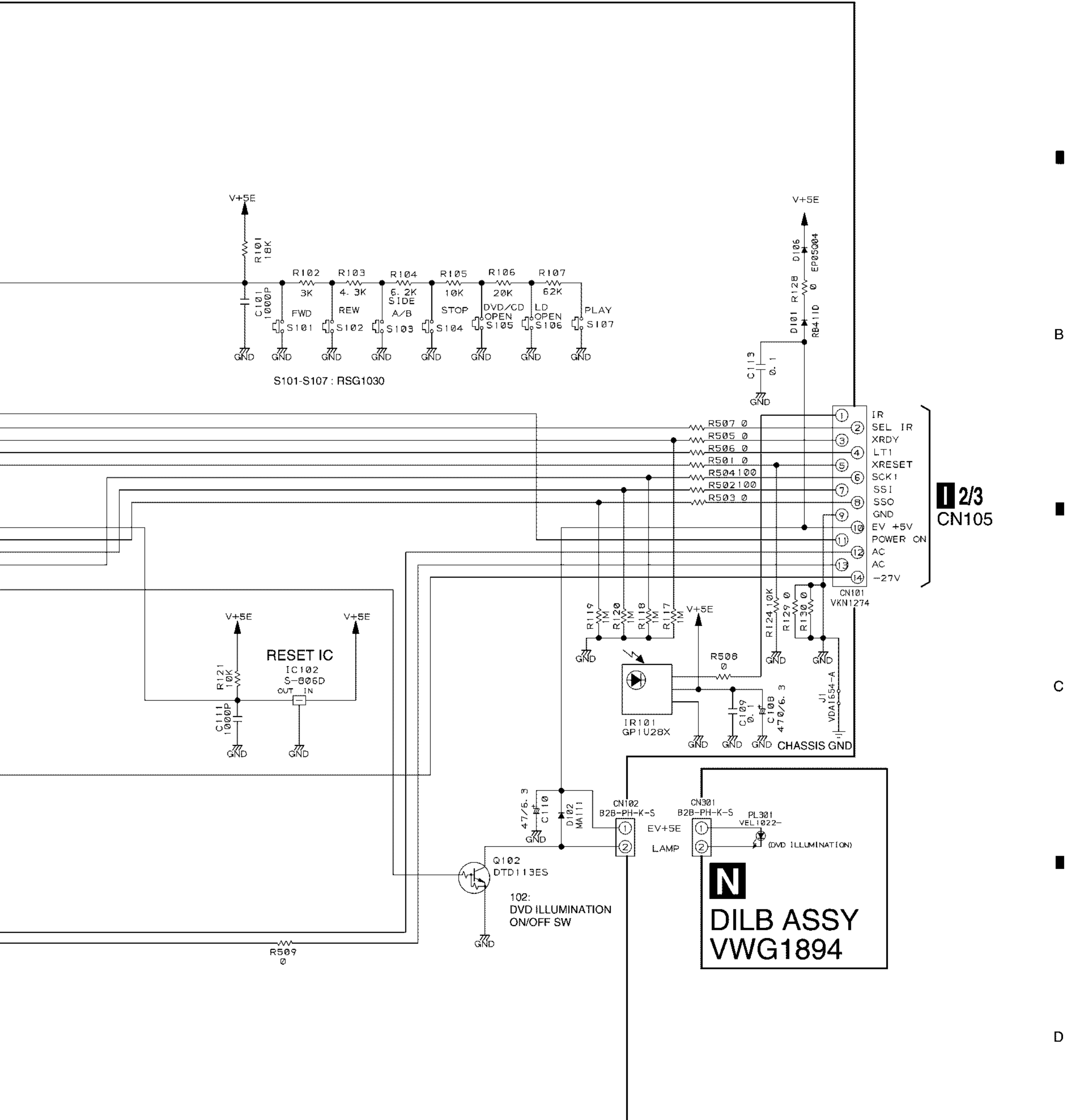
M
PWSB ASSY
(VWG1938 :
WY, WY/RD)
(VWG1893 :
RL, RAM,
RD/RA, RD/RC)

C

- FLKB ASSY
- S101:FWD(▶▶▶▶▶)
 - S102:REV(◀◀◀◀◀)
 - S103:DISC SIDE A/B
 - S104:STOP(■)
 - S105:DVD/CD OPEN/CLOSE(▲)
 - S106:LD OPEN/CLOSE(▲)
 - S107:PLAY/PAUSE(▶||)
 - S108:FL OFF

D





2/3
CN105

3.10 DMYC ASSY (WY AND WY/RD TYPES ONLY)

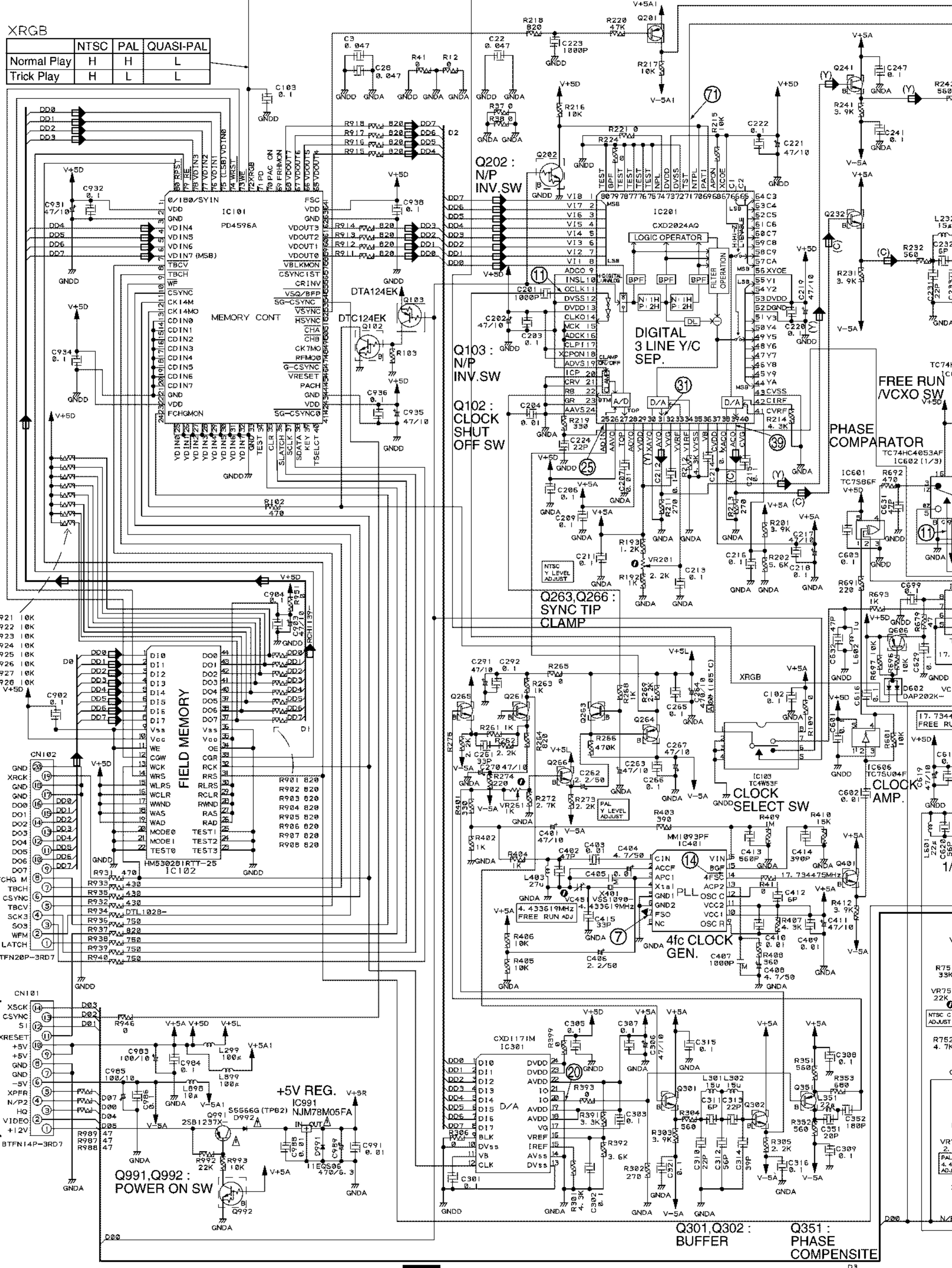
XRGB	NTSC	PAL	QUASI-PAL
Normal Play	H	H	L
Trick Play	H	L	L

A

B

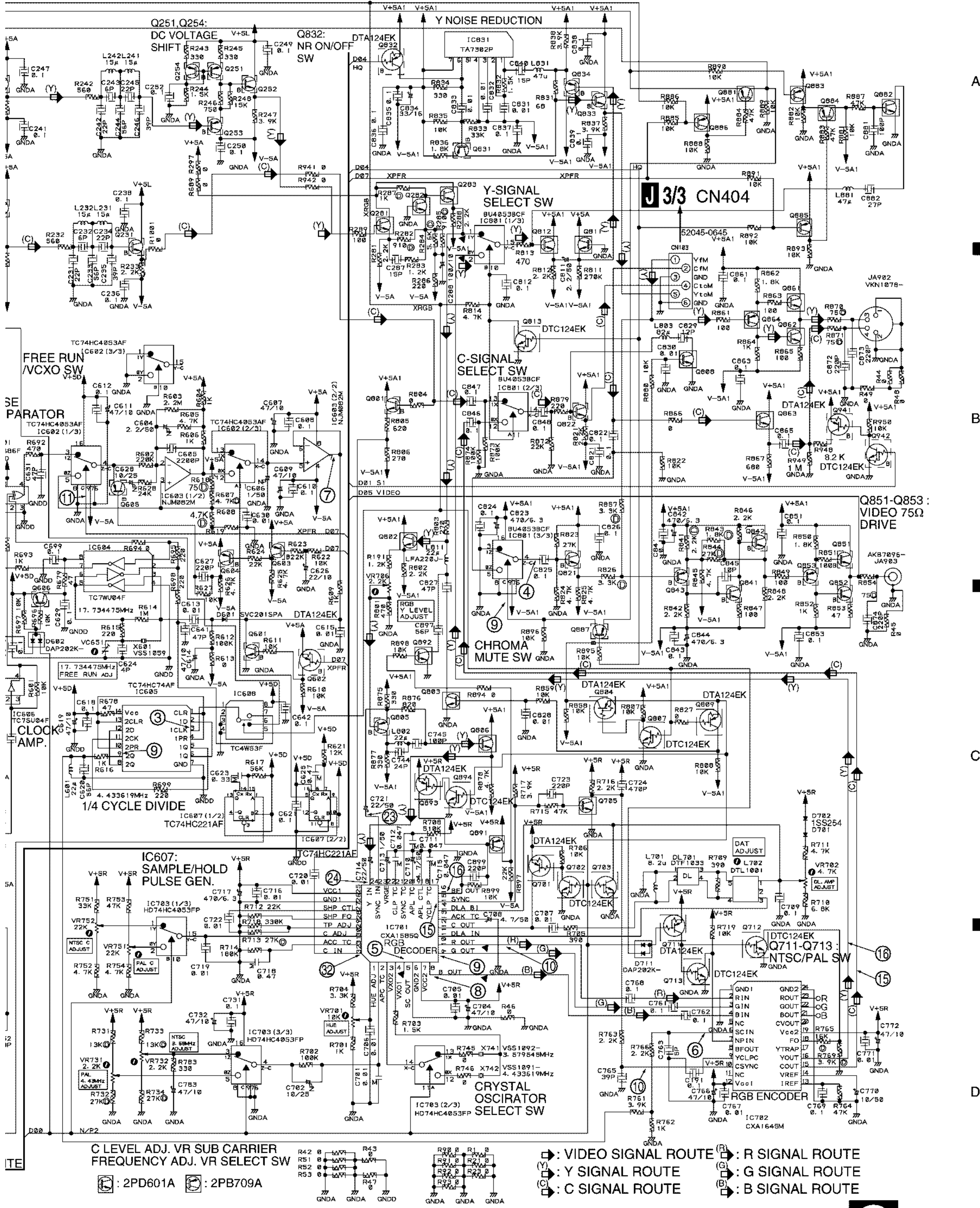
C

D



DMYC ASSY (VWV1584)

(WY AND WY/RD TYPES ONLY)



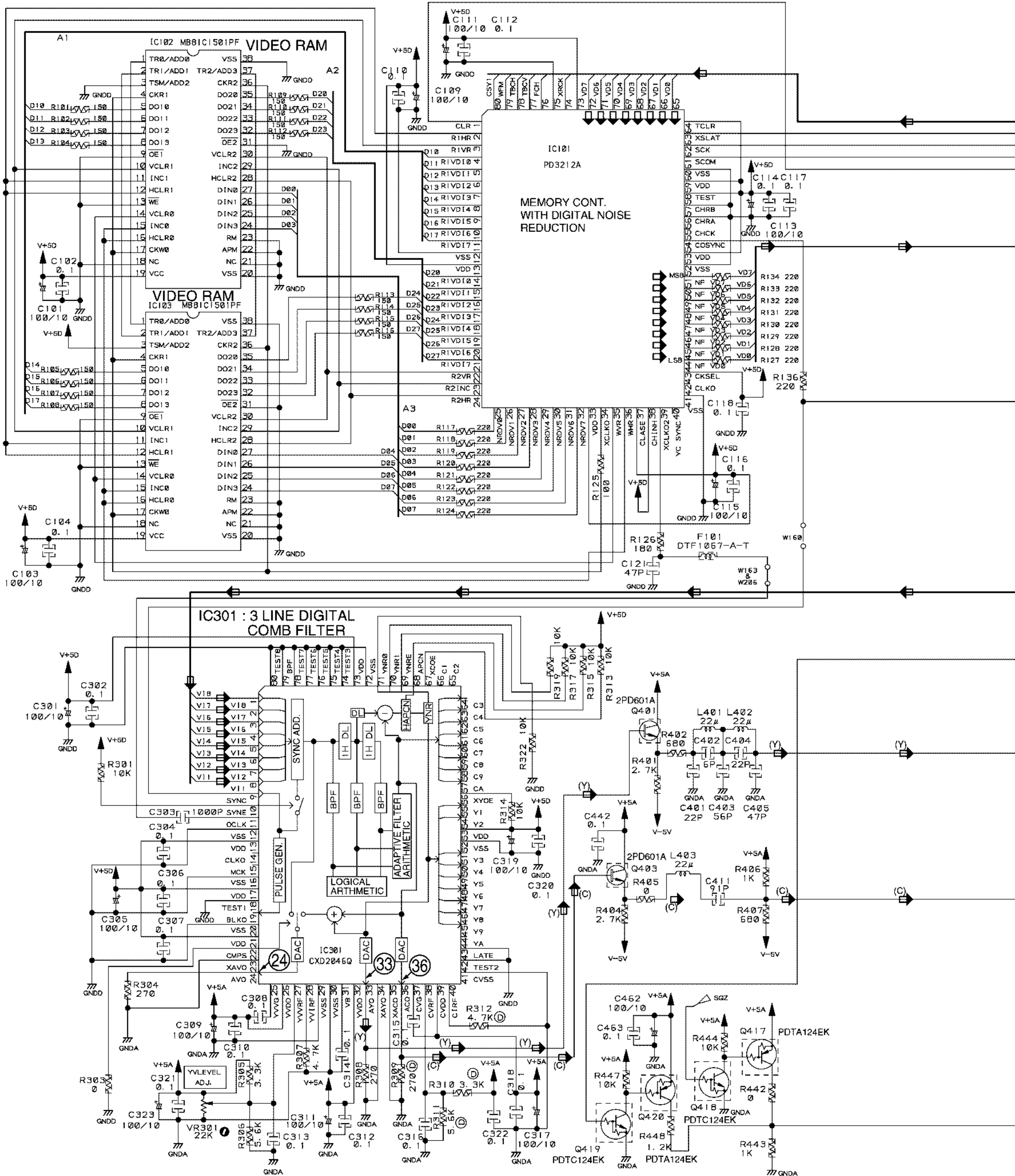
(WY AND WY/RD TYPES ONLY)

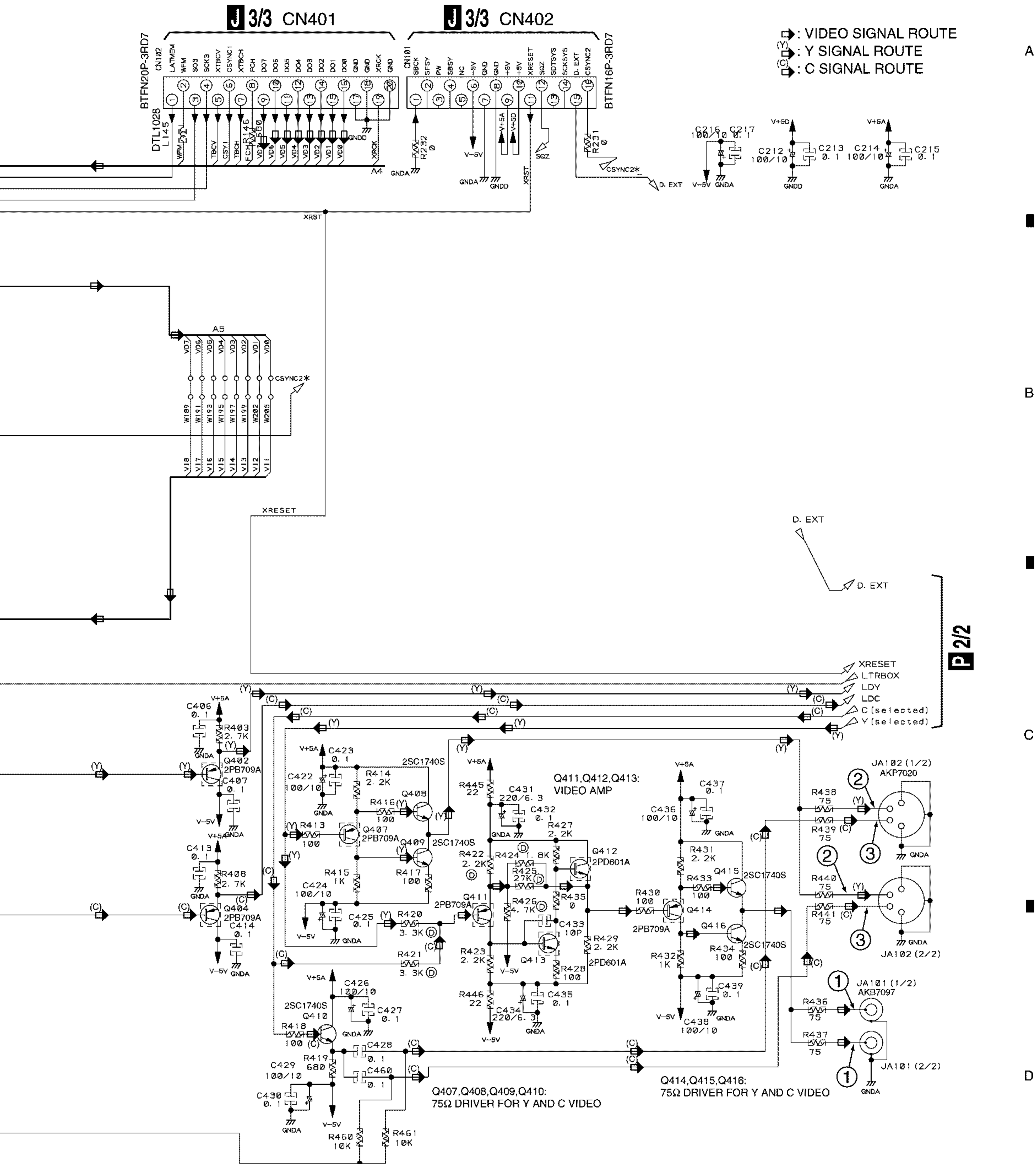


DVL-909

3.11 MYCB ASSY (1/2)(RL, RAM, RD/RA AND RD/RC TYPES ONLY)

P 1/2 MYCB ASSY (VWV1596)





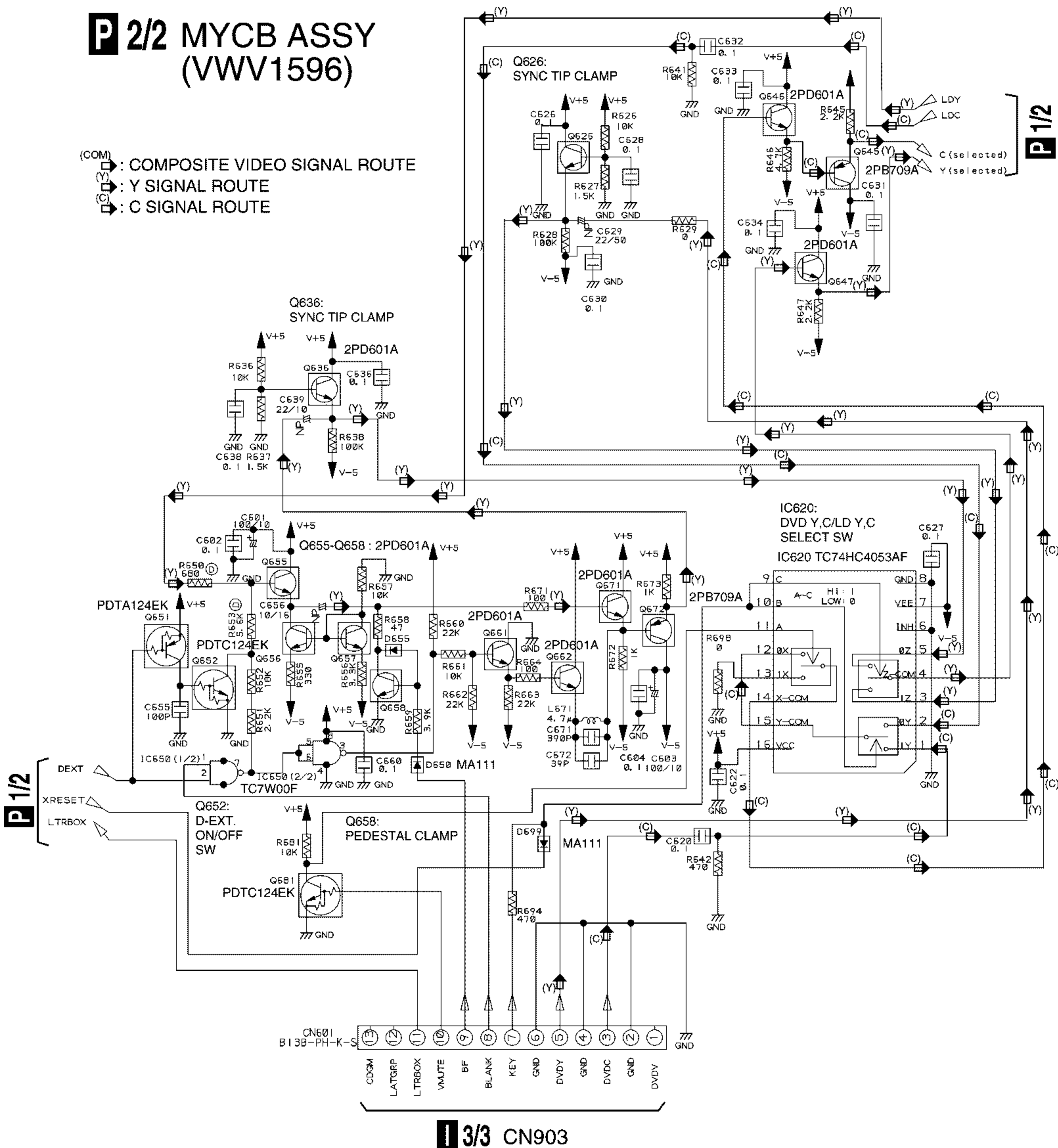
(RL, RAM, RD/RA AND RD/RC TYPES ONLY) **P 1/2**

3.12 MYCB ASSY (2/2)(RL, RAM, RD/RA AND RD/RC TYPES ONLY)

A

P 2/2 MYCB ASSY (VWV1596)

(COM) : COMPOSITE VIDEO SIGNAL ROUTE
 (Y) : Y SIGNAL ROUTE
 (C) : C SIGNAL ROUTE

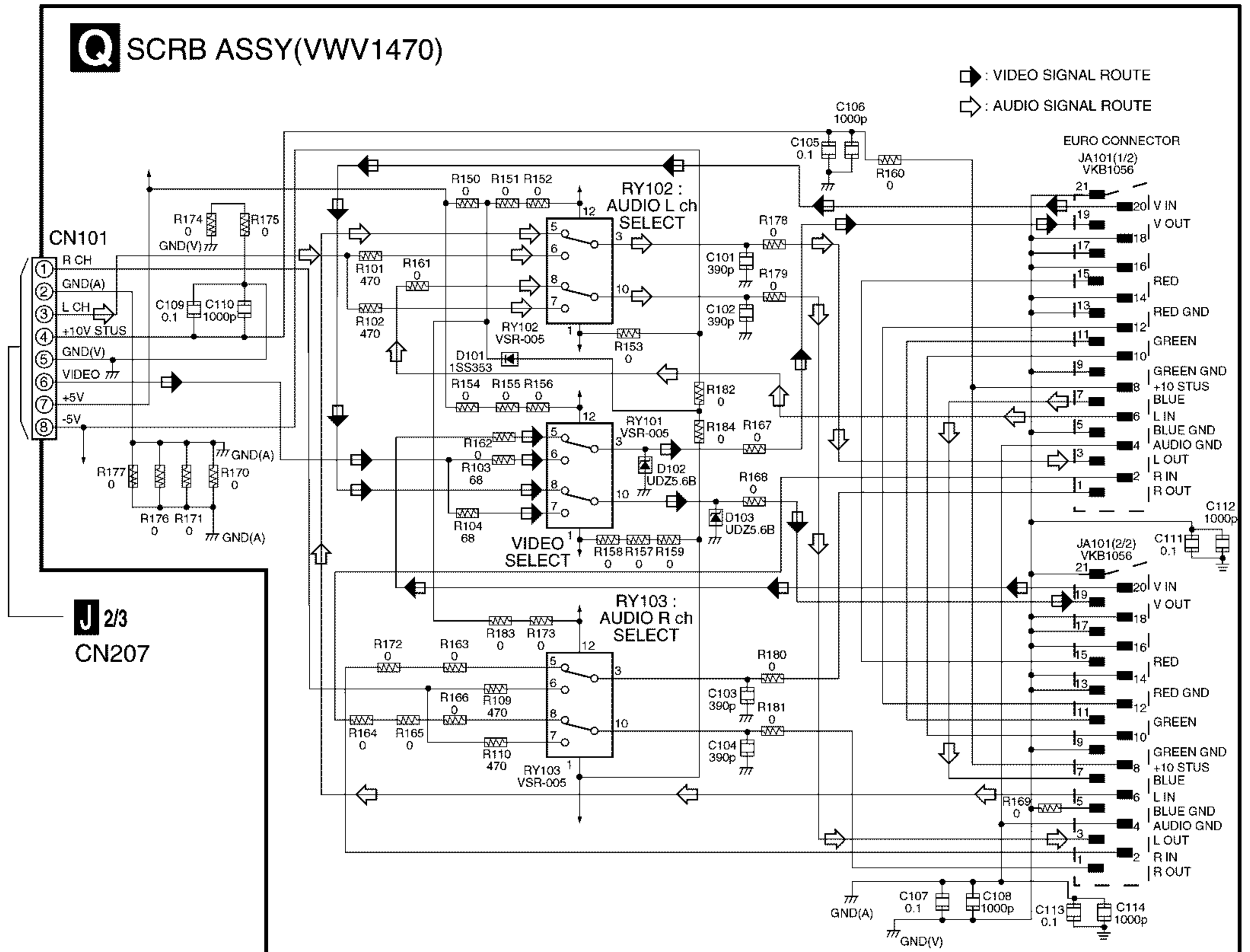


B

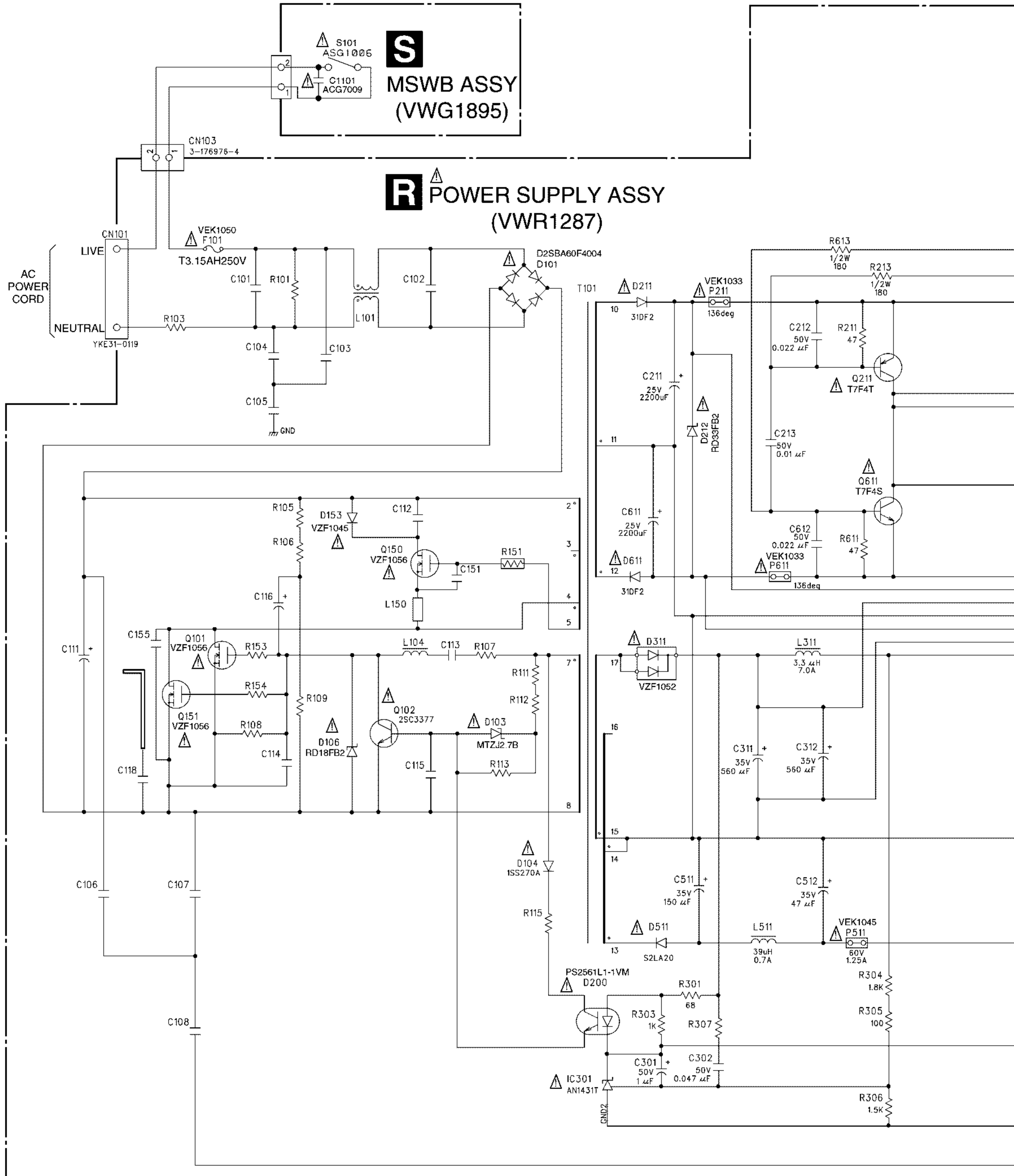
C

D

3.13 SCRB ASSY (WY AND WY/RD TYPES ONLY)

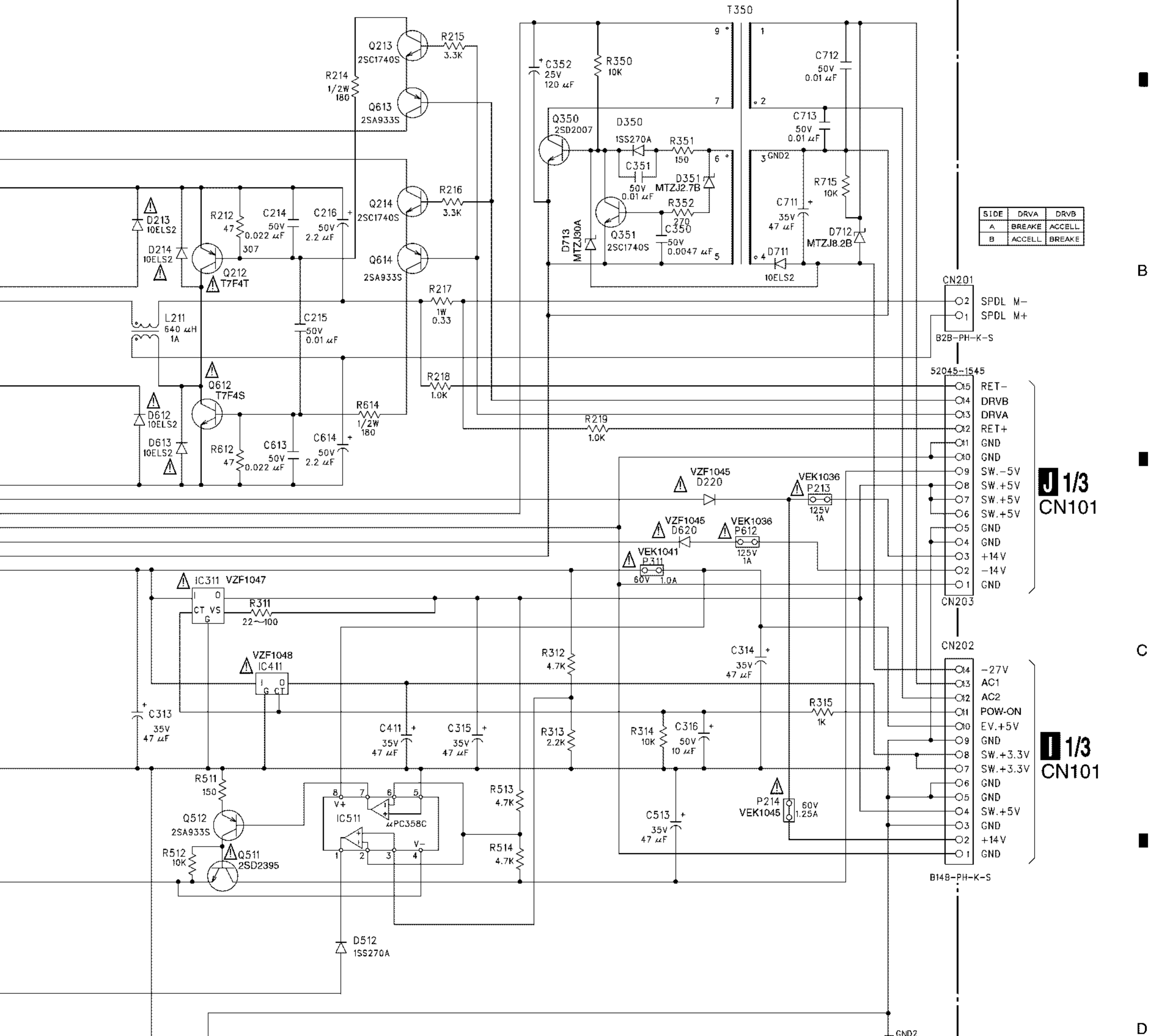


3.14 POWER SUPPLY AND MSWB ASSEMBLIES



《 NOTE OF SPARE PARTS IN POWER SUPPLY 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 Assy is repaired.
- Please take care to keep the space, not touching other parts when replacing the parts.



SIDE	DRVA	DRVB
A	BREAKE	ACCELL
B	ACCELL	BREAKE

J 1/3
CN101

I 1/3
CN101

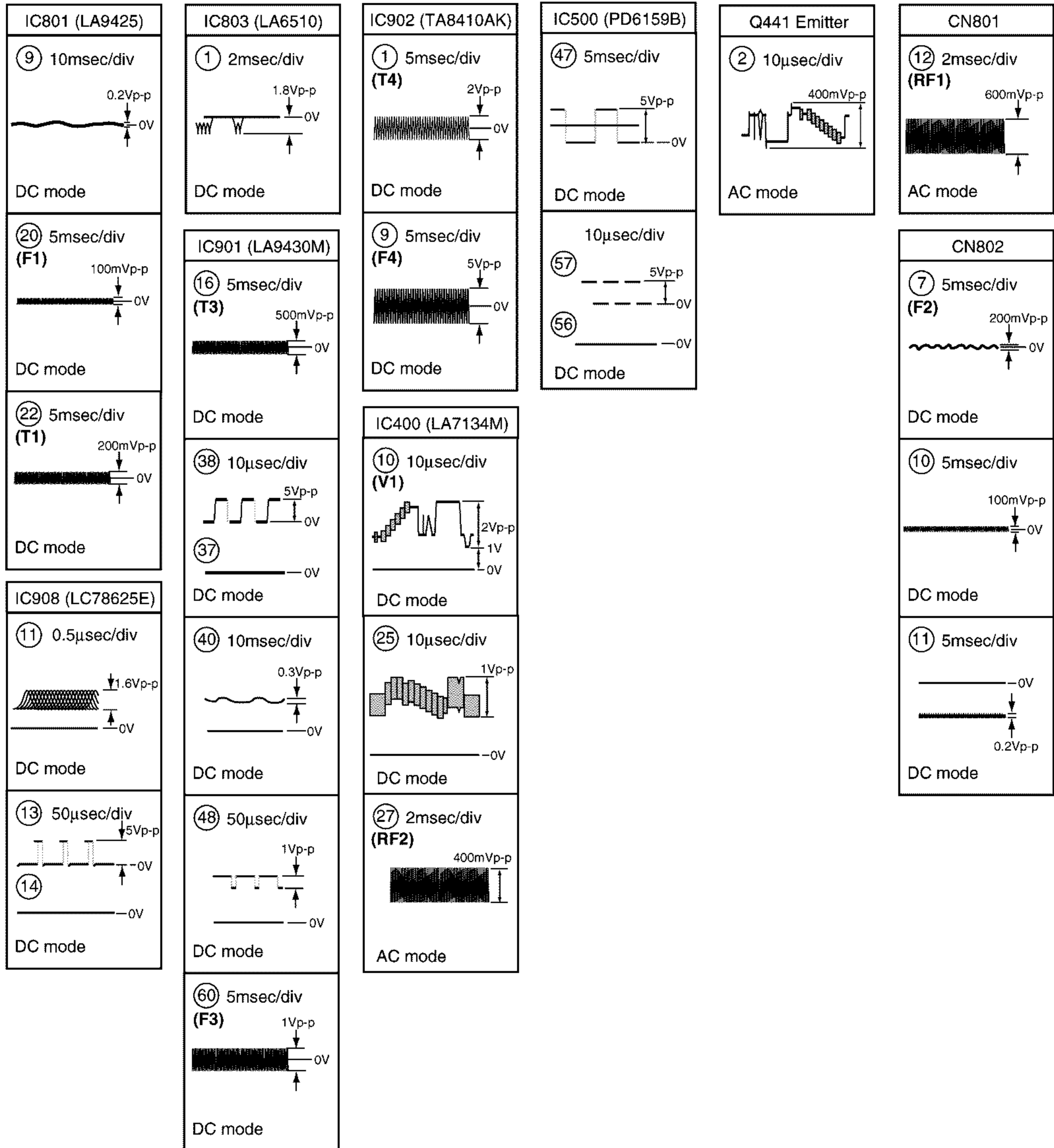
• NOTE FOR FUSE REPLACEMENT
CAUTION - FOR CONTINUED PROTECTION AGAINST RISK OF FIRE.
 REPLACE ONLY WITH SAME TYPE AND RATINGS ONLY.

● WAVEFORMS AND VOLTAGES

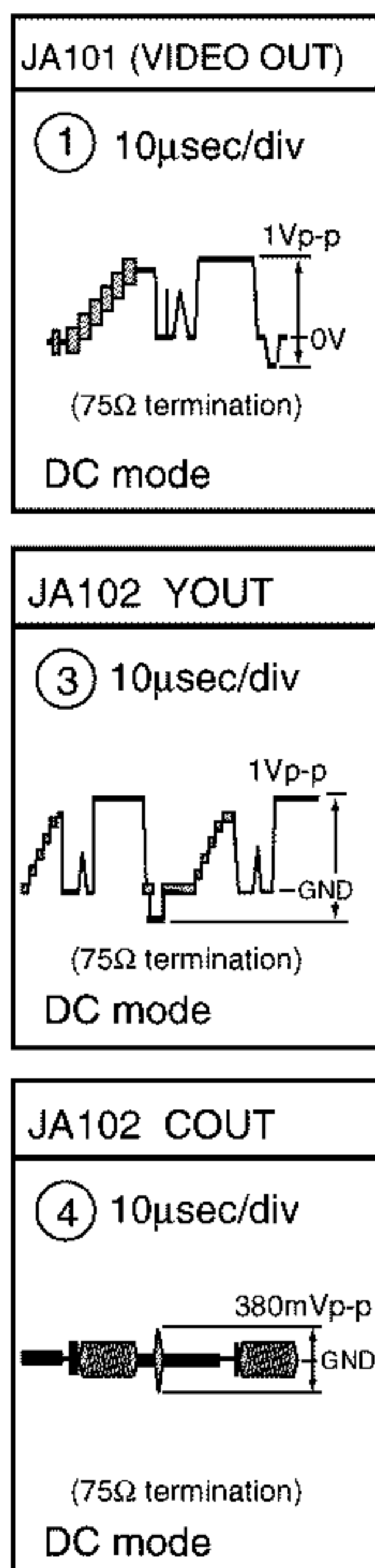
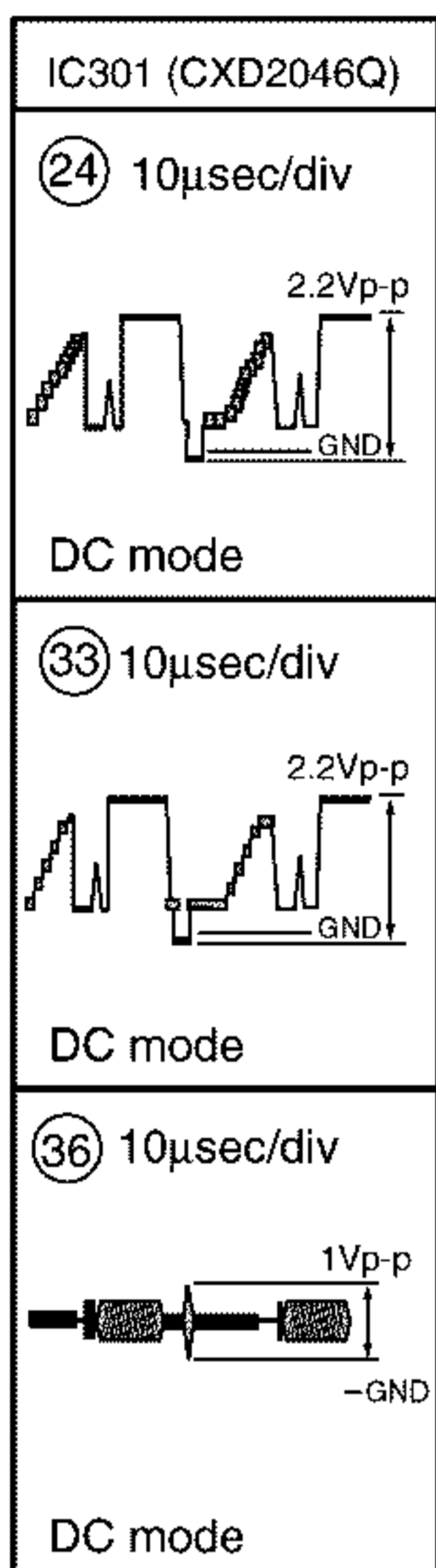
Note : (No) in the table correspond to the pin number.

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

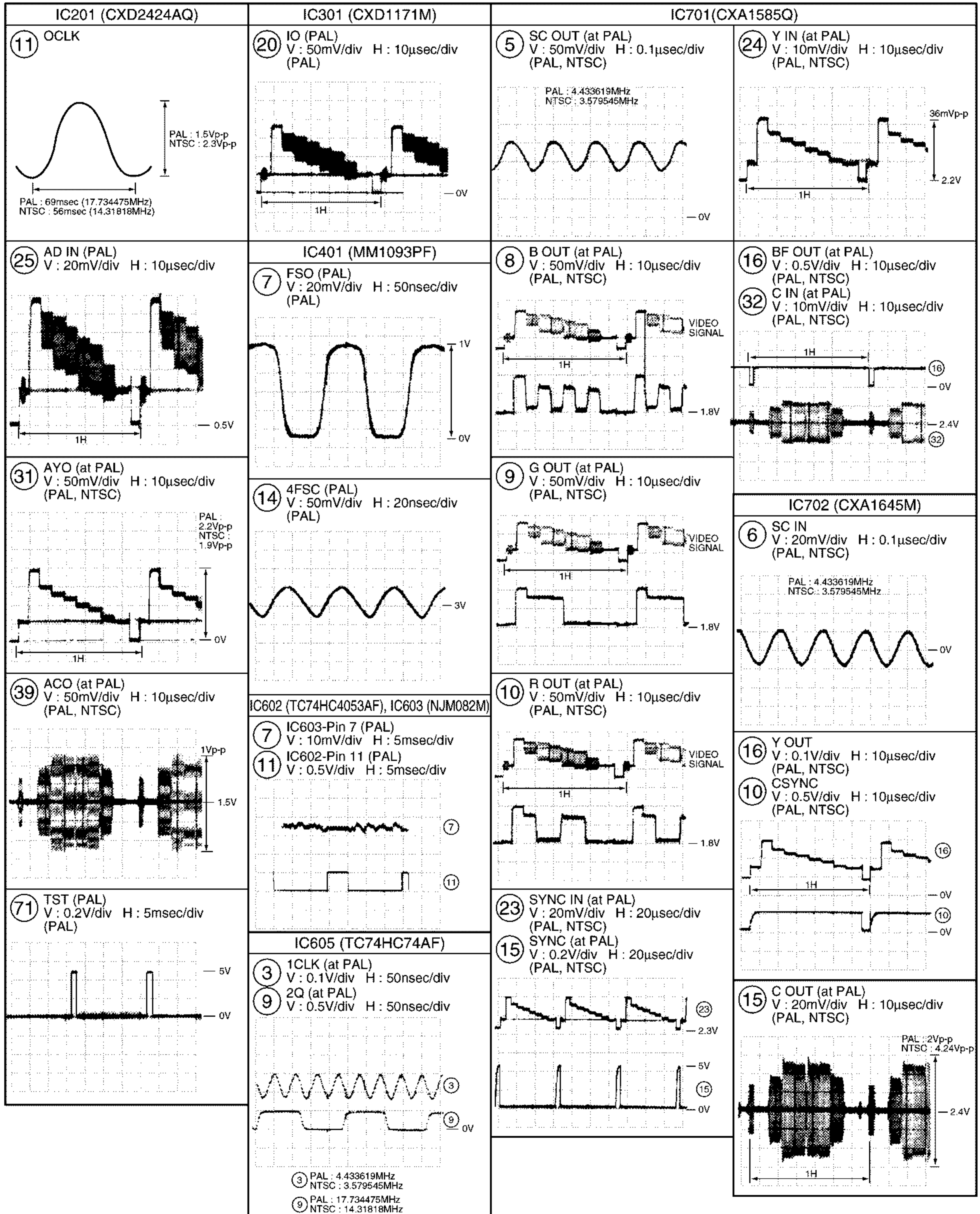
CLDM ASSY

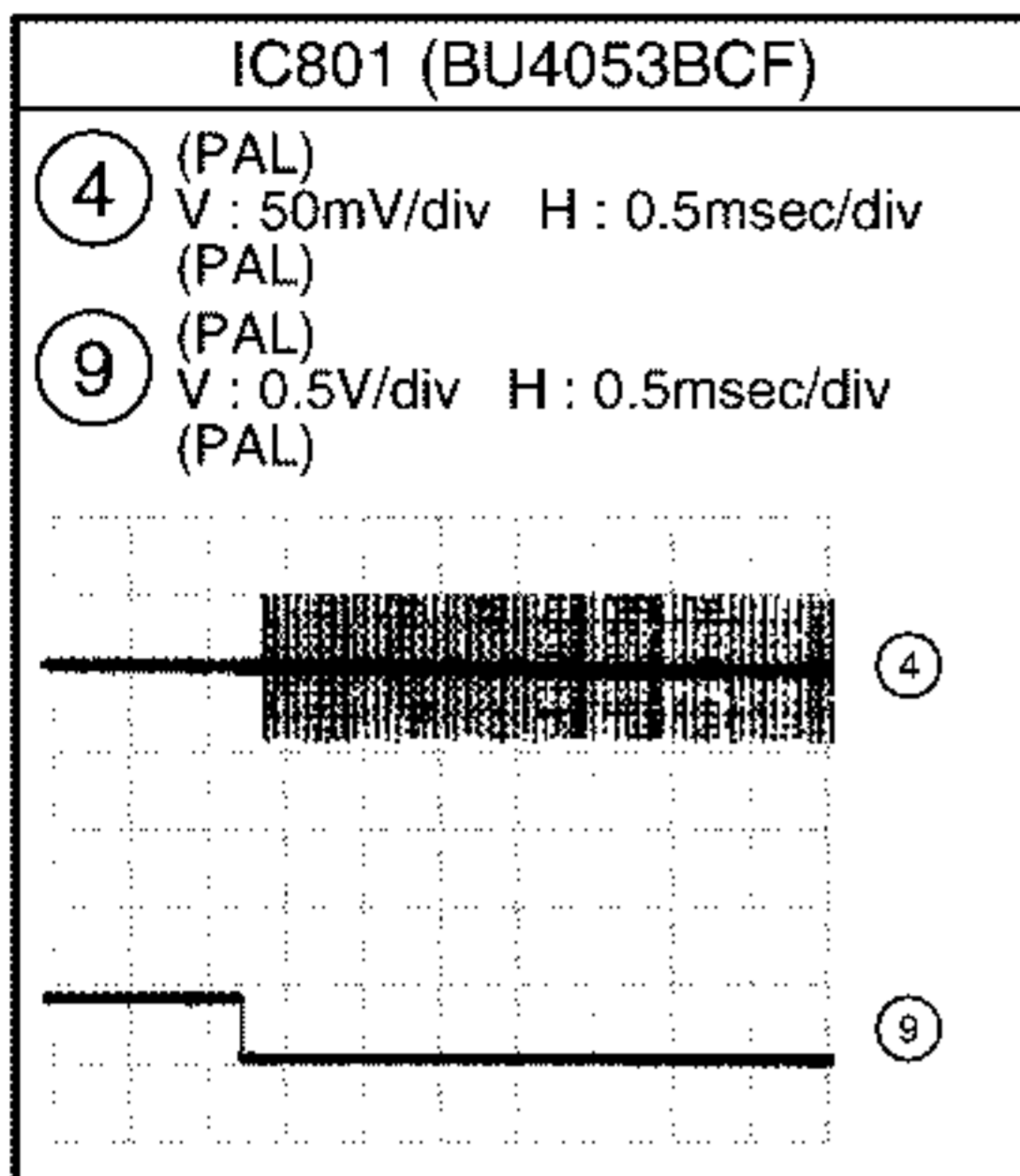


MYCB ASSY



DMYC ASSY





IC201 (CXD2024AQ)

Pin No.	Voltage (V)	Pin No.	Voltage (V)	Pin No.	Voltage (V)	Pin No.	Voltage (V)
1	0	21	0	41	2.6	61	0
2	0	22	0.5	42	2.6	62	0
3	0	23	0	43	0	63	0
4	0	24	0	44	0	64	0
5	0	25	-	45	0	65	0
6	0	26	5	46	0	66	0
7	0	27	2.6	47	0	67	5
8	0	28	5	48	0	68	5
9	0	29	5	49	0	69	-
10	0	30	0	50	0	70	-
11	2.3	31	-	51	0	71	-
12	0	32	3.4	52	0	72	0
13	5	33	2.6	53	5	73	5
14	2.4	34	2.6	54	0	74	0
15	2.4	35	0	55	0	75	0
16	2.5	36	1.1	56	5	76	0
17	5	37	5	57	0	77	0
18	5	38	0	58	0	78	0
19	0	39	1.3	59	0	79	0
20	0	40	3.4	60	0	80	0

IC301 (CXD1171M)

Pin No.	Voltage (V)	Pin No.	Voltage (V)
1	-	13	0
2	-	14	0
3	-	15	2.1
4	-	16	2.1
5	-	17	2.5
6	-	18	4
7	-	19	4
8	-	20	-
9	0	21	0
10	0	22	4
11	0.5	23	5
12	2.4	24	5

IC401 (MM1093PF)

Pin No.	Voltage (V)	Pin No.	Voltage (V)
1	3.3	9	3.4
2	0.7	10	5
3	2.4	11	5
4	3.2	12	3.2
5	0	13	2
6	0	14	2.9
7	-	15	-
8	0	16	-

IC701 (CXA1585Q)

Pin No.	Voltage (V)	Pin No.	Voltage (V)
1	2	17	3.1
2	3.4	18	3
3	3.1	19	2.5
4	3.2	20	3.1
5	1.6	21	3.1
6	0	22	4.2
7	5	23	2.5
8	2	24	2.5
9	2	25	0
10	2	26	0
11	0(NTSC) 2.3(PAL)	27	2.5
12	3.15	28	2.1
13	3.1	29	1.23
14	0(NTSC) 2.3(PAL)	30	2.5
15	H:4 over L:0.5 under	31	2.2
16	H:4 over L:0.5 under	32	2.3

IC702 (CXA1645M)

Pin No.	Voltage (V)	Pin No.	Voltage (V)
1	0*	13	2
2	2 (Black level at CLAMP)	14	4
3		15	2.2
4	-	16	1.3 (Black level)
5		17	1.6 (Black level)
6	-	18	2
7	1.7	19	5*
8	H:3.6 L:3.2	20	1.2 (Black level)
9	2.5	21	1.7 (Black level)
10	2.2	22	
11	-	23	
12	5*	24	0*

* : External apply voltage.

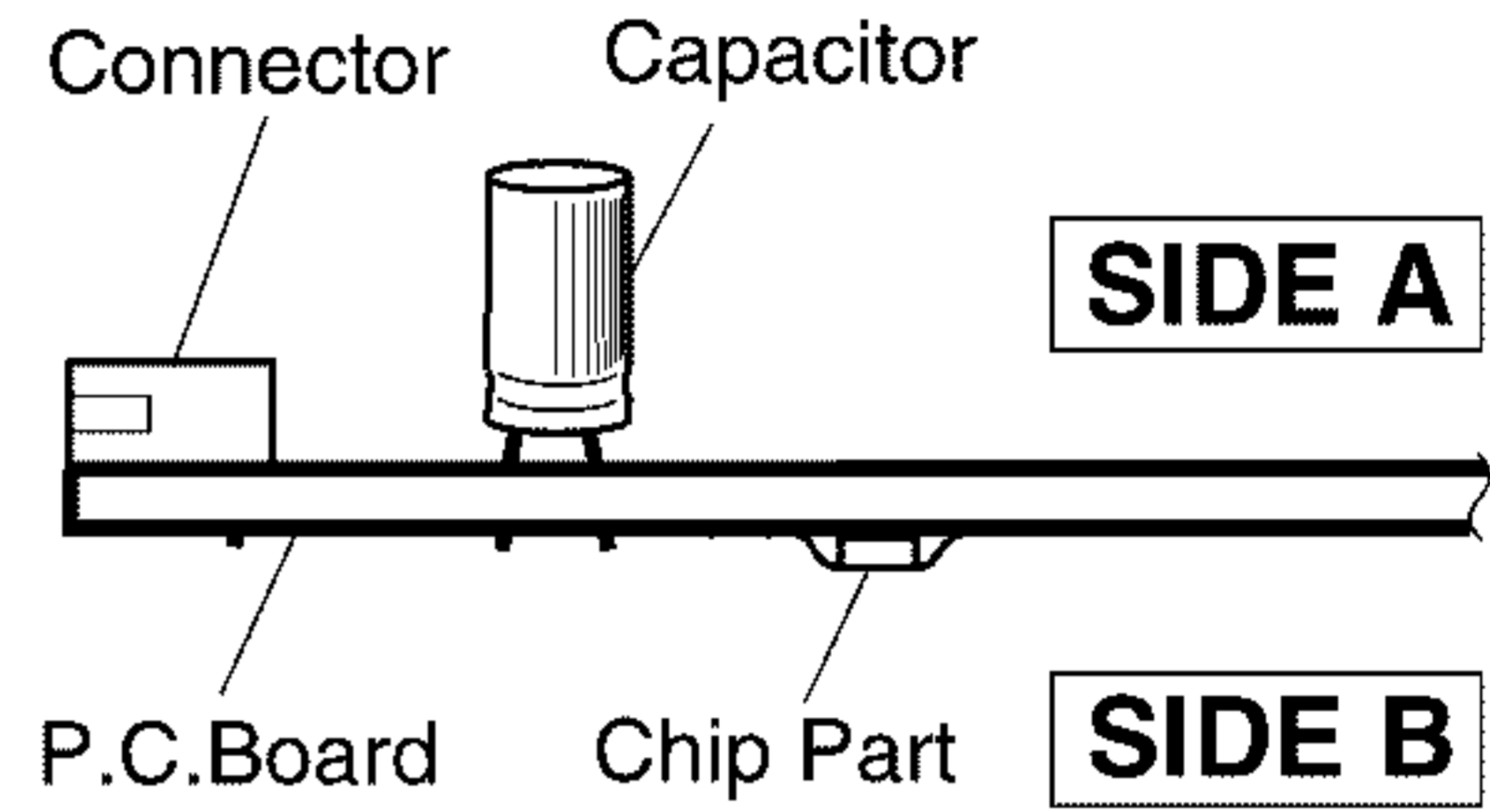
4. PCB CONNECTION DIAGRAM

NOTE FOR PCB DIAGRAMS :

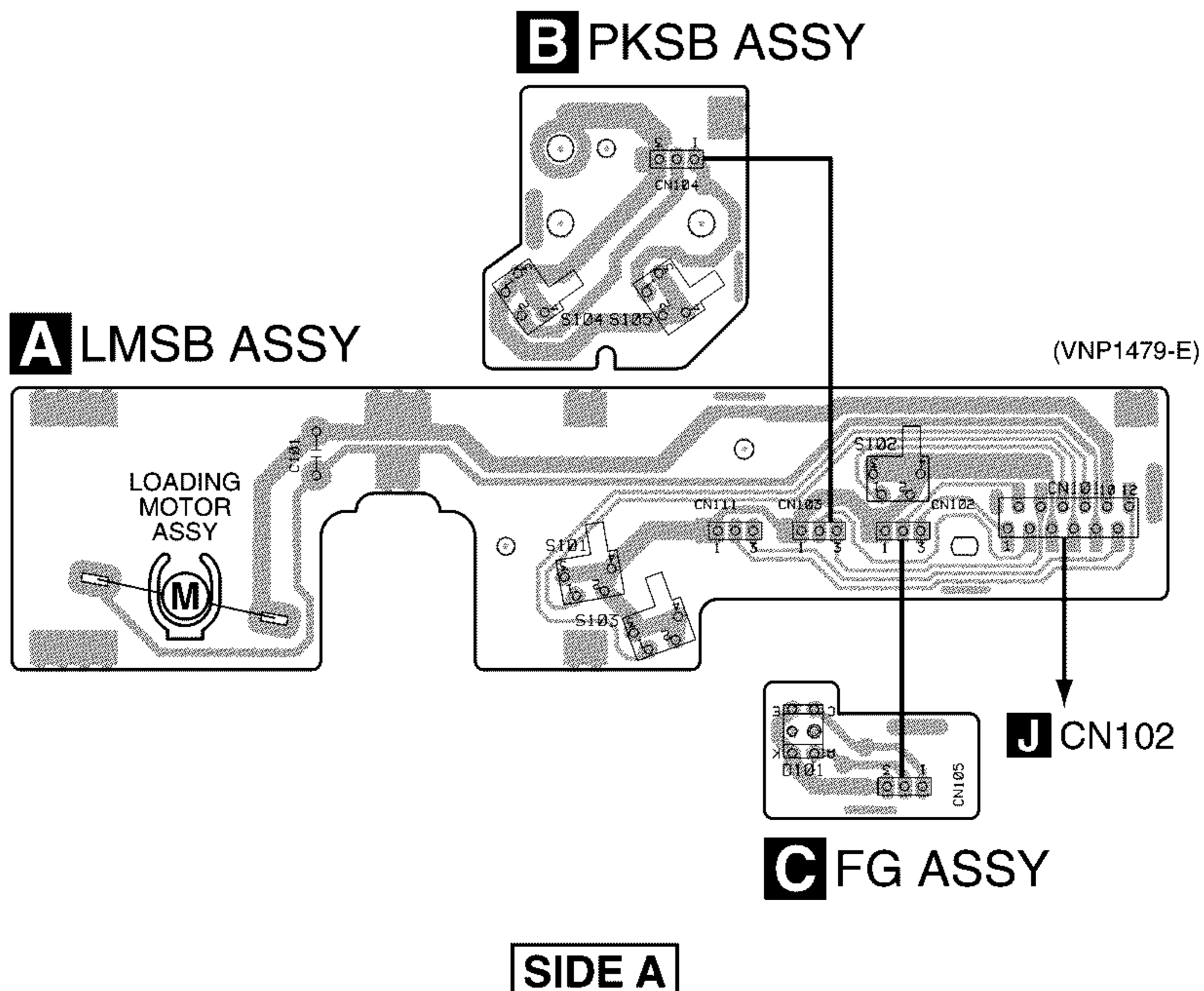
1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

Symbol In PCB Diagrams	Symbol In Schematic Diagrams	Part Name
		Transistor
		Transistor with resistor
		Field effect transistor
		Resistor array
		3-terminal regulator

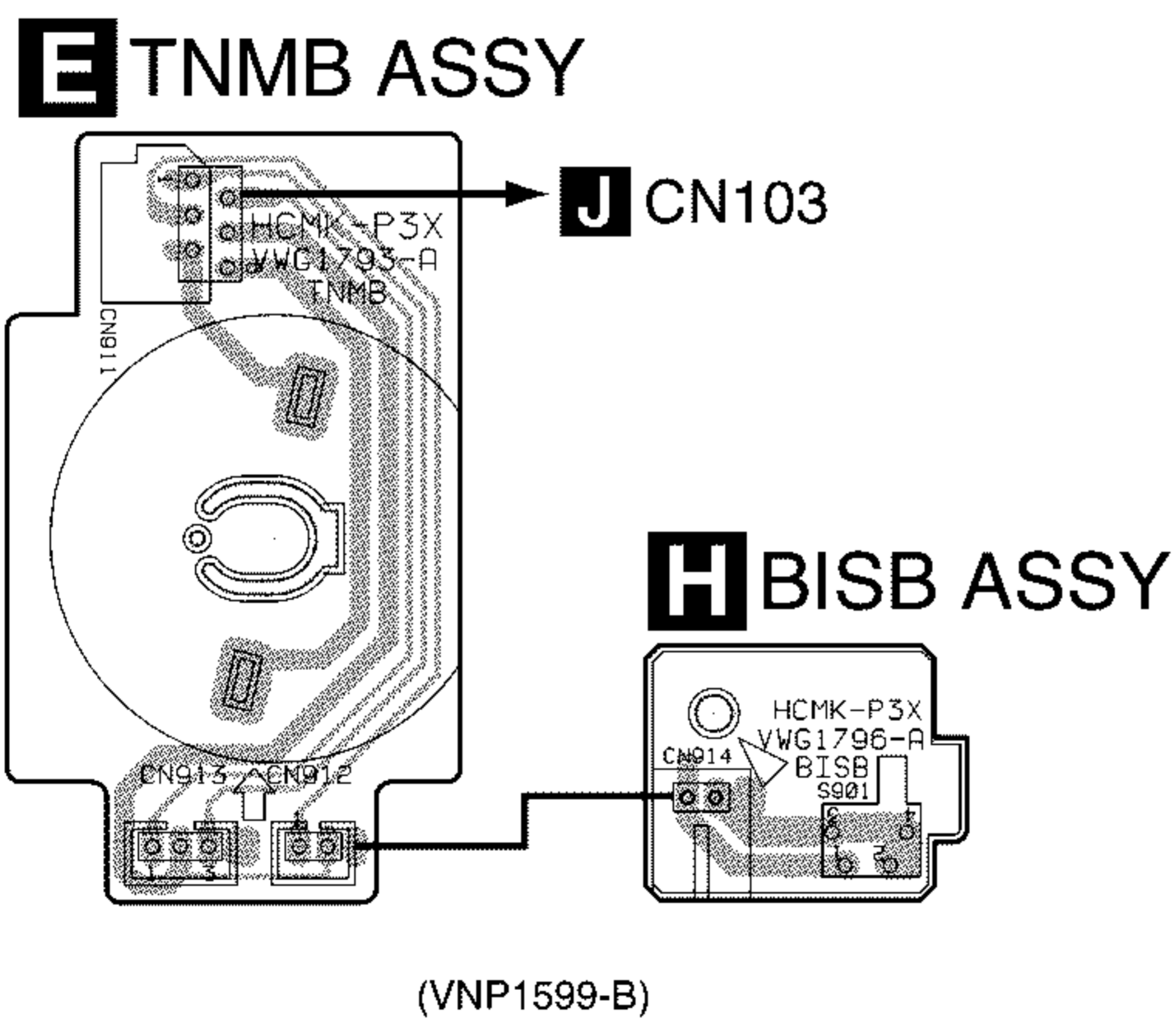
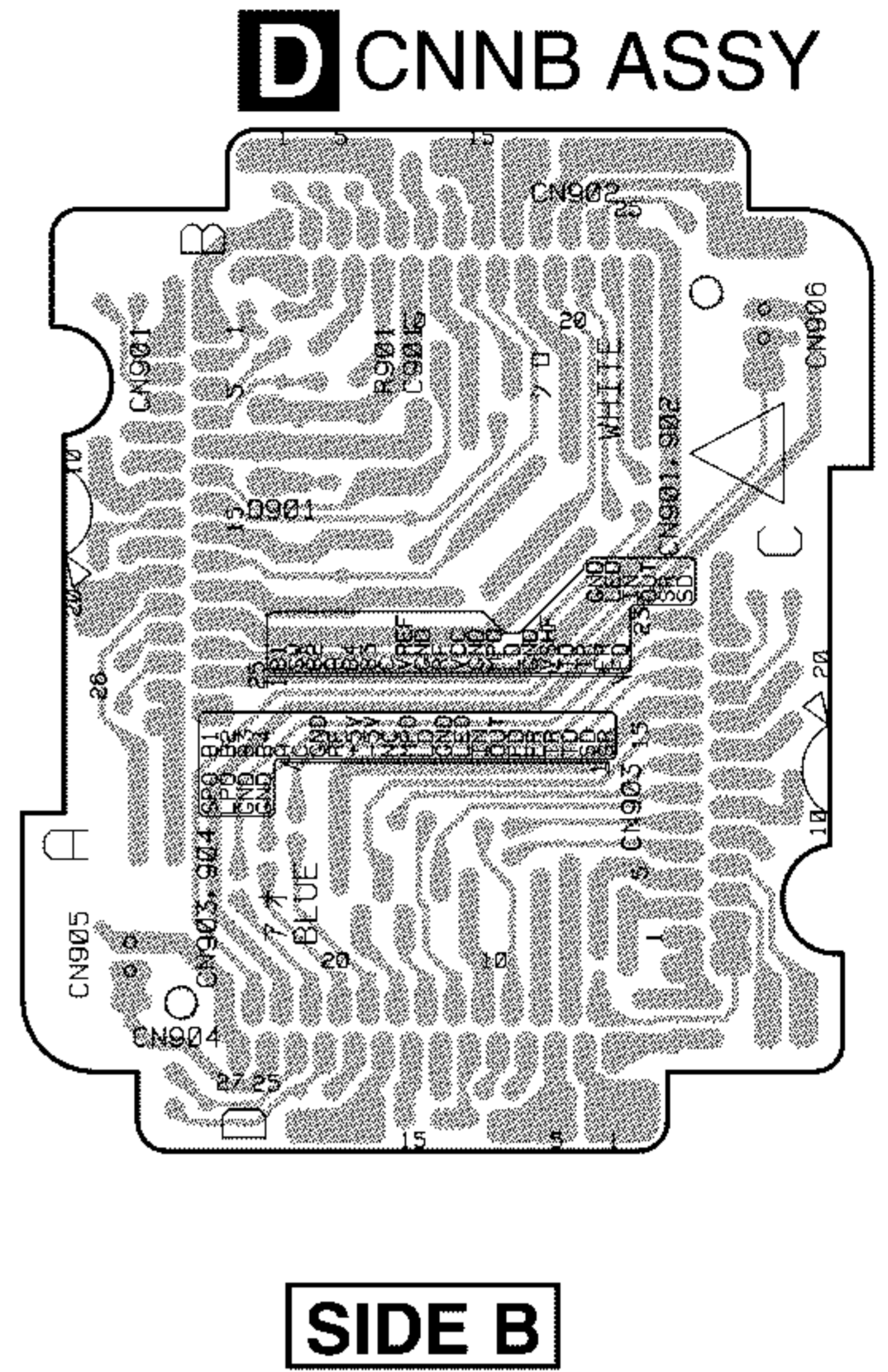
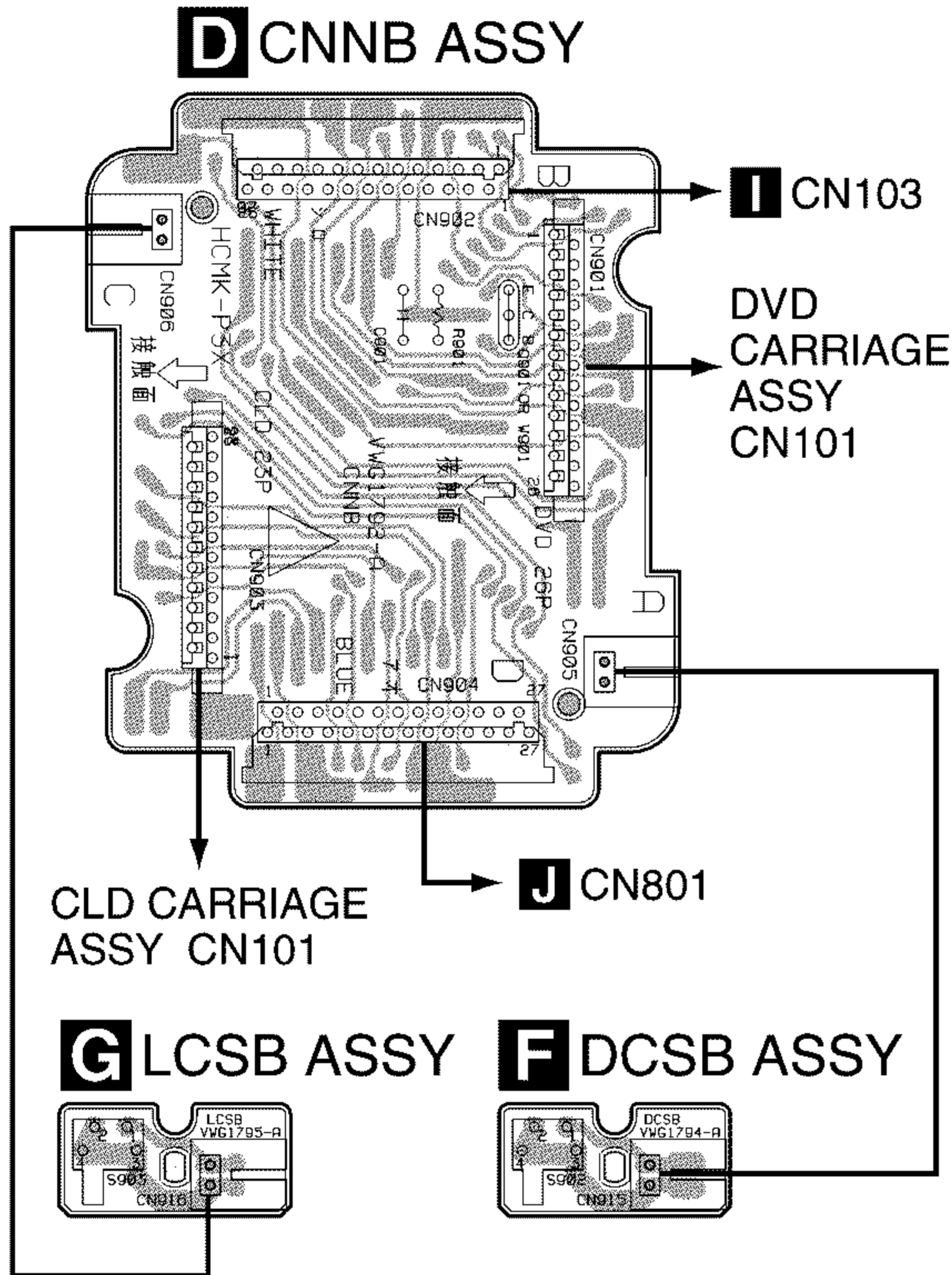
3. The parts mounted on this PCB include all necessary parts for several destinations.
- For further information for respective destinations, be sure to check with the schematic diagram.
4. View point of PCB diagrams.



4.1 LMSB, PKSB AND FG ASSEMBLIES



4.2 CNNB, TNMB, DCSB, LCSB AND BISB ASSEMBLIES



SIDE A

4.3 DVDM ASSY

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

L CN101 **R** CN202 **I** DVDM ASSY

A

B

C

D

IC601
IC501
Q401
Q403

IC506
IC401
VC301

IC302
IC303

Q301

IC701

IC203

IC202

IC807 IC806
Q291
IC204

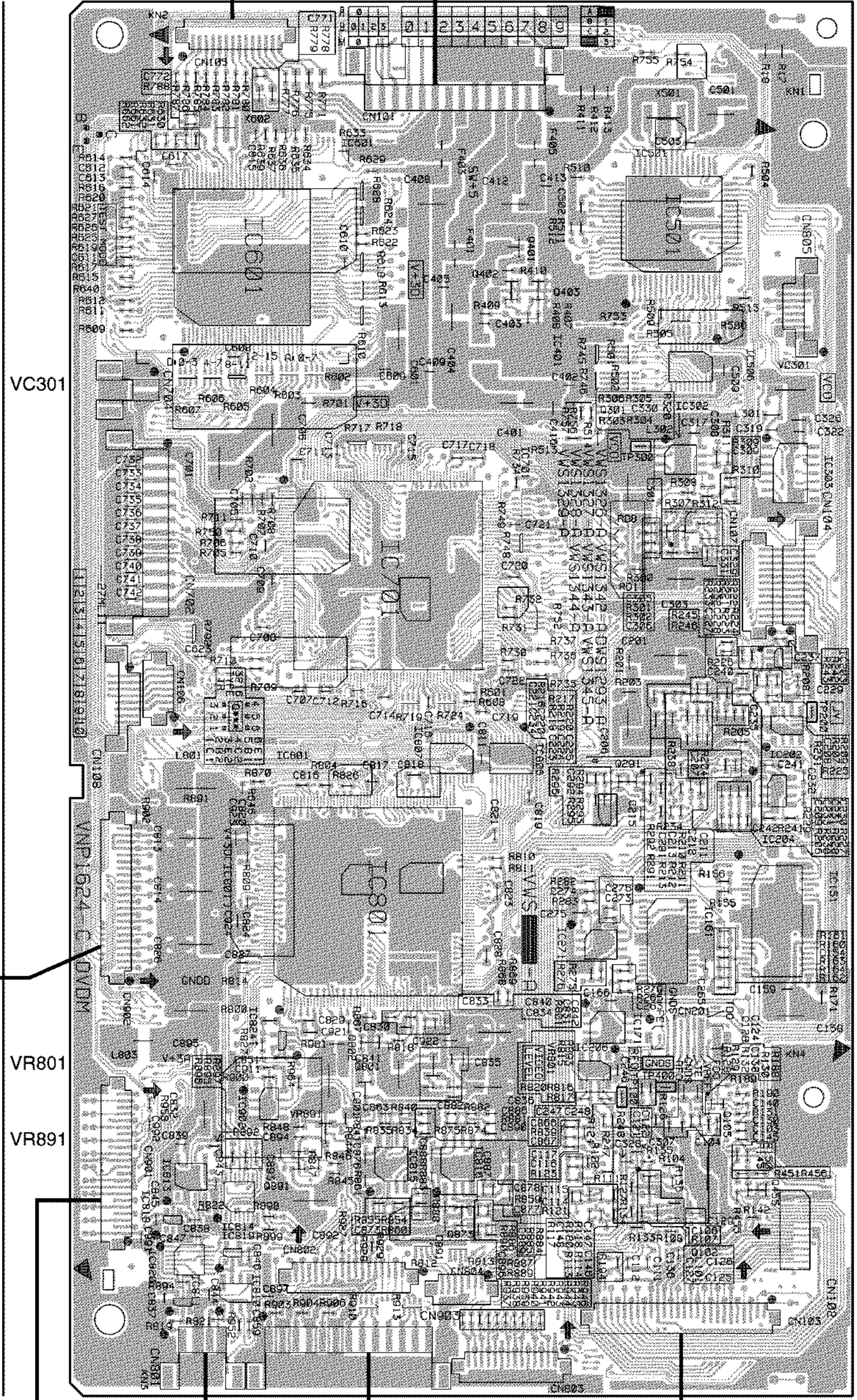
IC801 IC151
IC161
IC271

J CN111

IC171
IC824
Q802 IC206
Q801 Q105
IC902

IC815 IC816
Q891 Q455
IC813 Q102
IC814 Q873

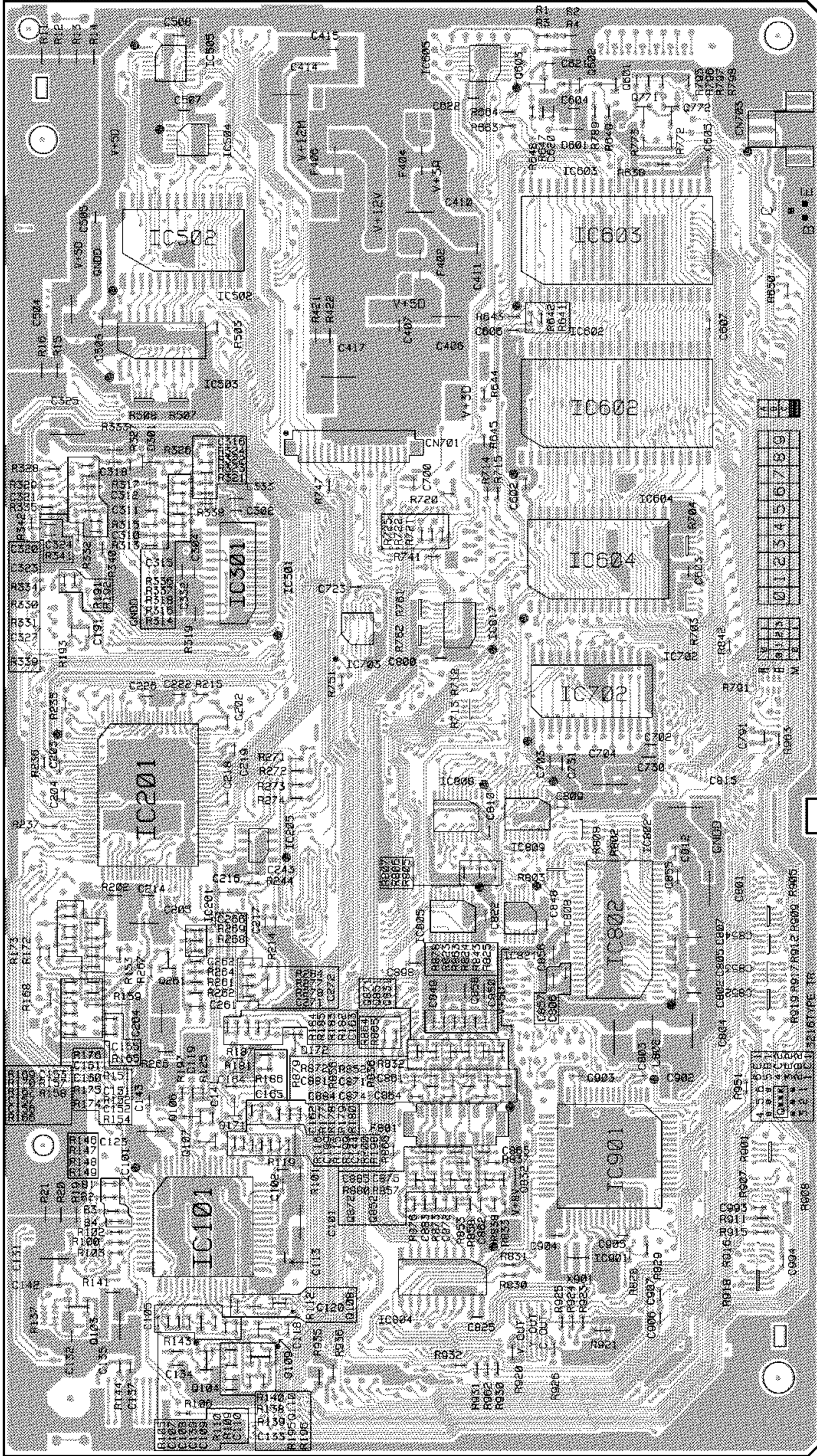
IC820
IC810
IC811



J CN122 **J** CN201 **J** CN403 (WY, WY/RD) **D** CN902
P CN601
(RL, RAM, RD/RA, RD/RC)

SIDE A

DVDM ASSY



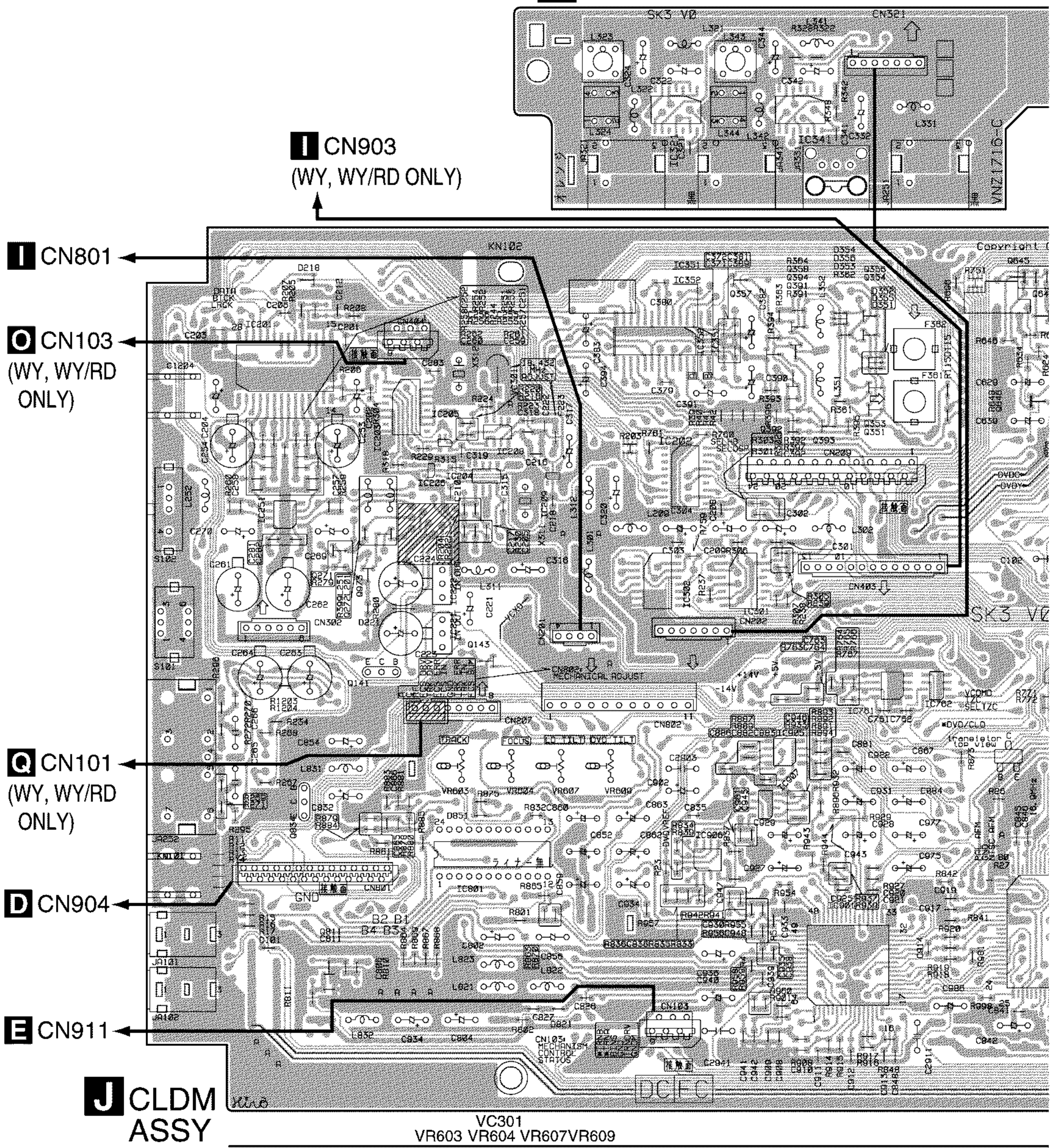
(VNP1624-C)

IC505	Q601	A
IC605	Q603	
IC504	Q771	
	Q772	
IC502	IC603	
IC503		
	IC602	
IC301	IC604	B
IC703	IC817	
	IC702	
IC201	IC808	
	IC809	
IC205		
	IC805	
	IC821	
Q261	IC802	C
	Q871	
	Q851	
	Q831	
Q106		
Q107	IC901	
	Q872	
	Q852	
	Q832	
IC101		
Q103	IC804	
Q108		
Q110		
Q104		D

SIDE B

4.4 CLDM AND JCKB ASSEMBLIES

K JCKB ASSY



I CN903
(WY, WY/RD ONLY)

I CN801

O CN103
(WY, WY/RD ONLY)

Q CN101
(WY, WY/RD ONLY)

D CN904

E CN911

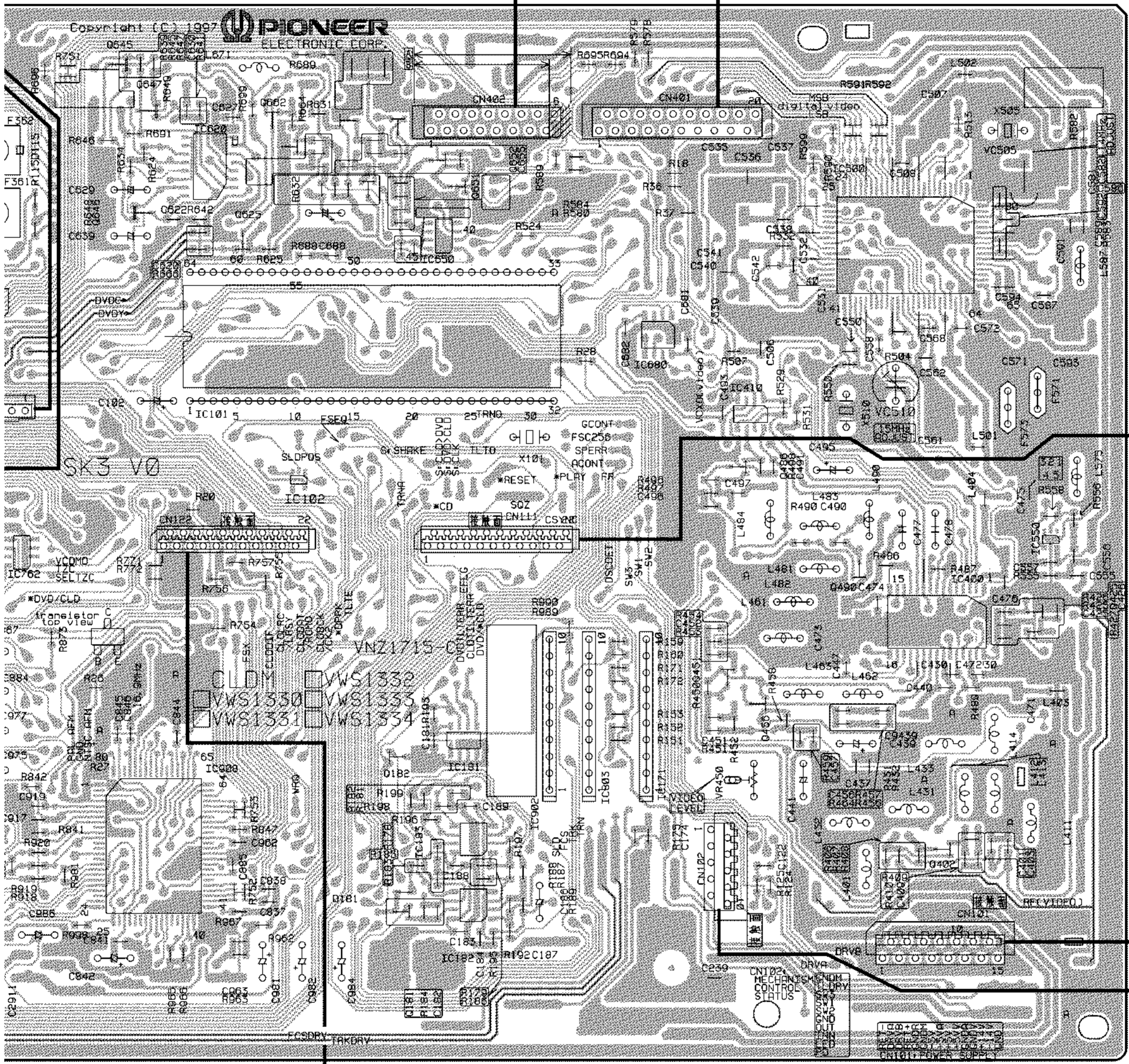
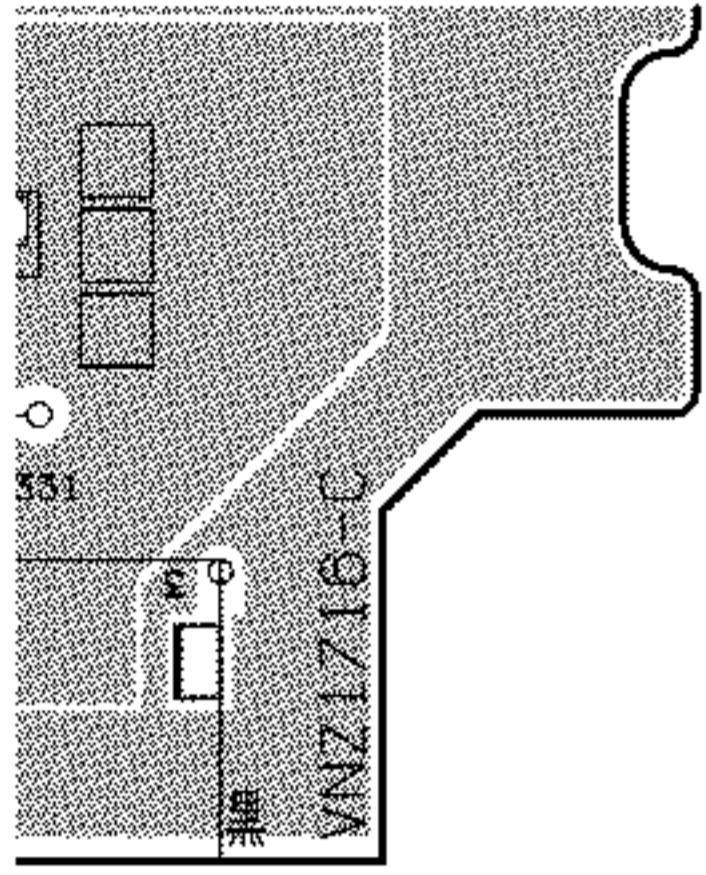
J CLDM ASSY

IC201	IC251	IC203—IC206	IC208	IC209	IC352	IC351	Q357	Q358	Q356	Q353	Q645—
Q834	Q271	Q973	Q272		IC202				Q354	Q351	
Q811		Q141	IC222	Q143	IC302	IC301	Q391—	Q394	IC761	IC762	IC9
		IC221	IC801			IC905—IC907		IC901			

SIDE A

50 **J K**

- CN101 (WY, WY/RD)
- P** CN101 (RL, RAM, RD/RA, RD/RC)
- CN102 (WY, WY/RD)
- P** CN102 (RL, RAM, RD/RA, RD/RC)



I CN902

R CN203
A CN101
I CN901

- | | | | | | | |
|-----------|------------|-------------|-------------------|-----------|------------|-------|
| Q645-Q647 | Q662 | Q652 Q651 | IC680 | IC410 | VC510 | VC505 |
| IC762 | IC620 Q625 | IC650 | IC902 IC803 IC171 | Q486 | IC500 | IC550 |
| | IC908 | IC101 IC102 | Q182 IC181-IC183 | Q451 Q456 | Q490 IC400 | Q425 |
| | | | Q181 | | Q402 | |

(VNP1630-C)

SIDE A

J K

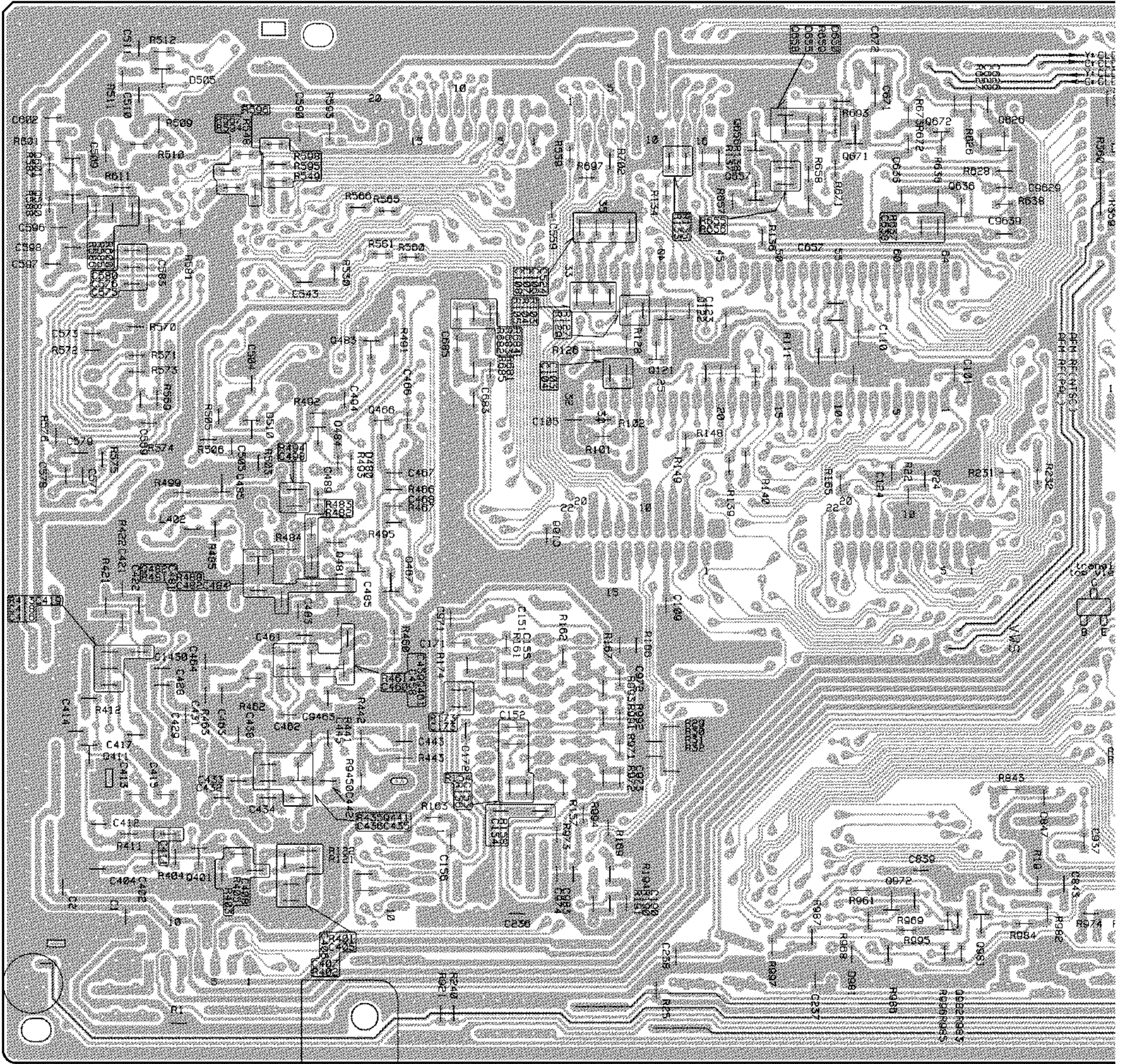
A

B

C

D

J CLDM ASSY

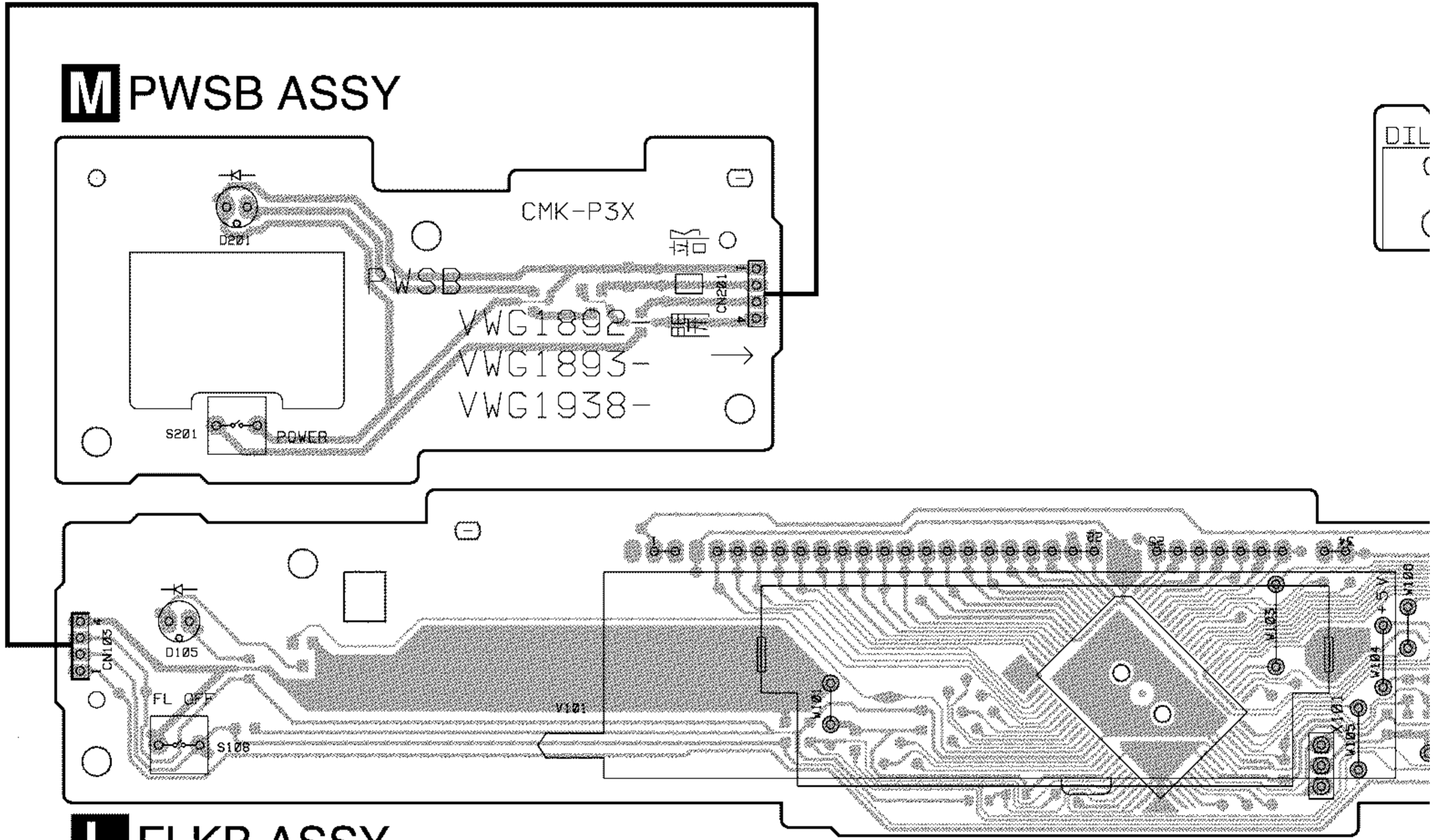


- Q601 Q485 Q484 Q483 Q122 Q656-Q658 Q671 Q672 Q626
- Q580 Q482 Q481 Q466 Q121 Q636
- Q411 Q401 Q461 Q467 Q972 Q982 Q981
- Q441

SIDE B

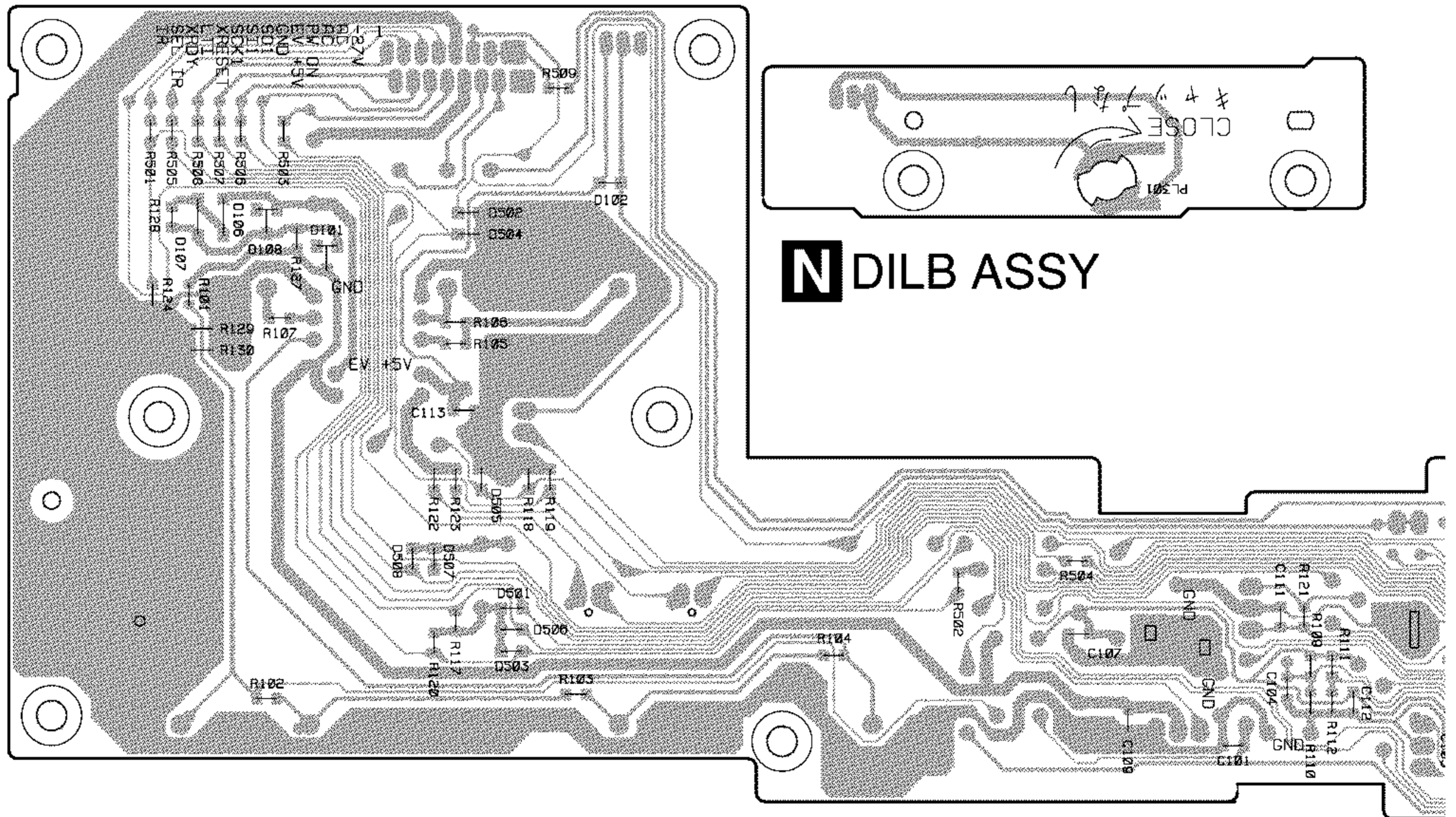
4.5 FLKB, PWSB AND DILB ASSEMBLIES

A

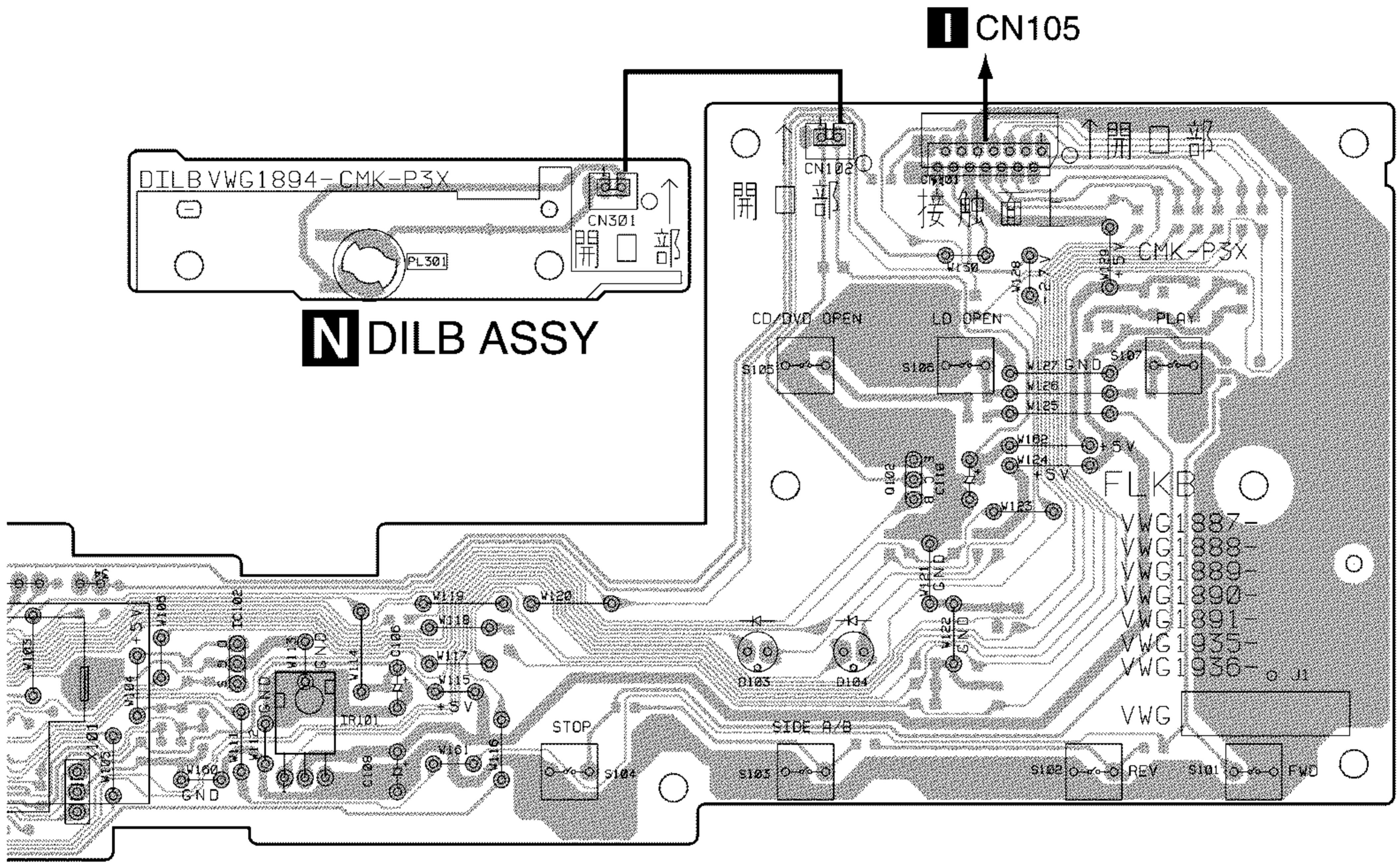


SIDE A

C



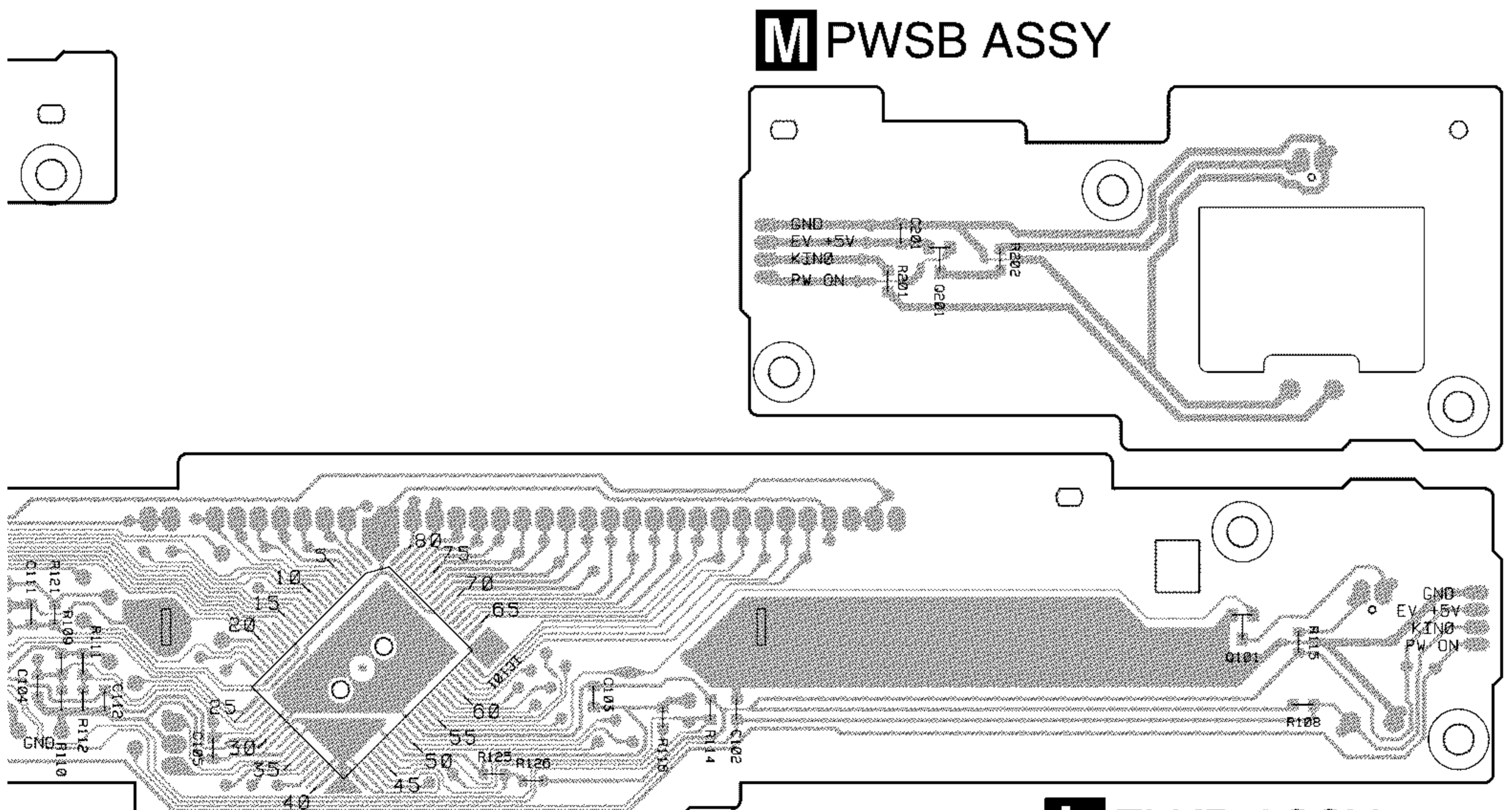
SIDE B



N DILB ASSY

SIDE A

(VNP1631-B)



M PWSB ASSY

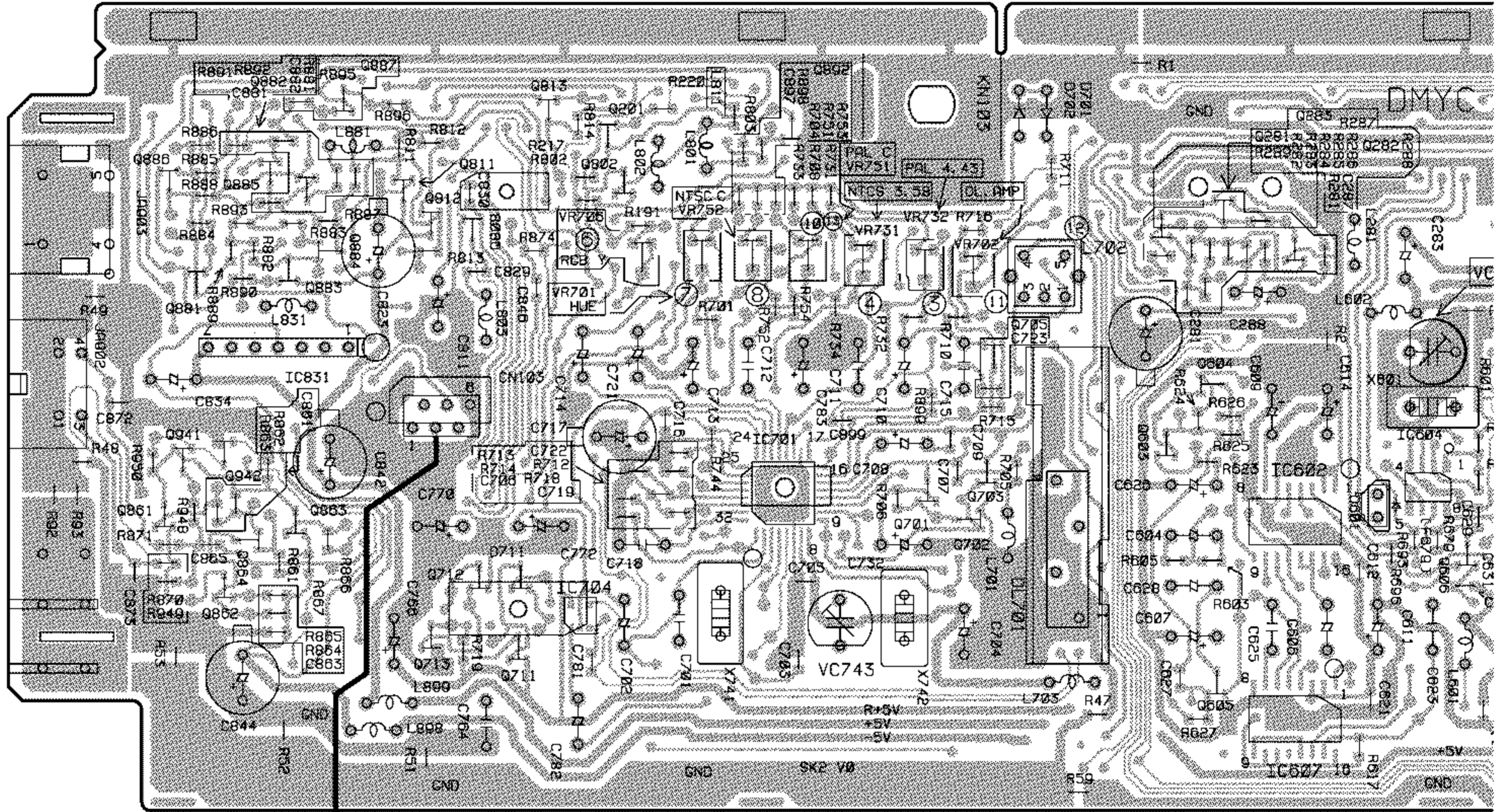
SIDE B

L FLKB ASSY

4.6 DMYC ASSY (WY AND WY/RD TYPES ONLY)

- | |
|---|
| Q886 Q885 Q882 Q887 Q811 Q813 Q201 Q892 Q281 - Q283 |
| Q881 Q883 Q884 Q812 Q808 Q802 Q603 Q604 IC604 |
| Q941 Q942 IC831 Q705 IC602 |
| Q861 - Q864 Q711 - Q713 IC704 IC701 Q701 - Q703 Q605 IC607 Q606 |
| VR701 VR752 VR751 VR732 VR706 VC743 VR731 VR702 VC651 |

DMYC ASSY

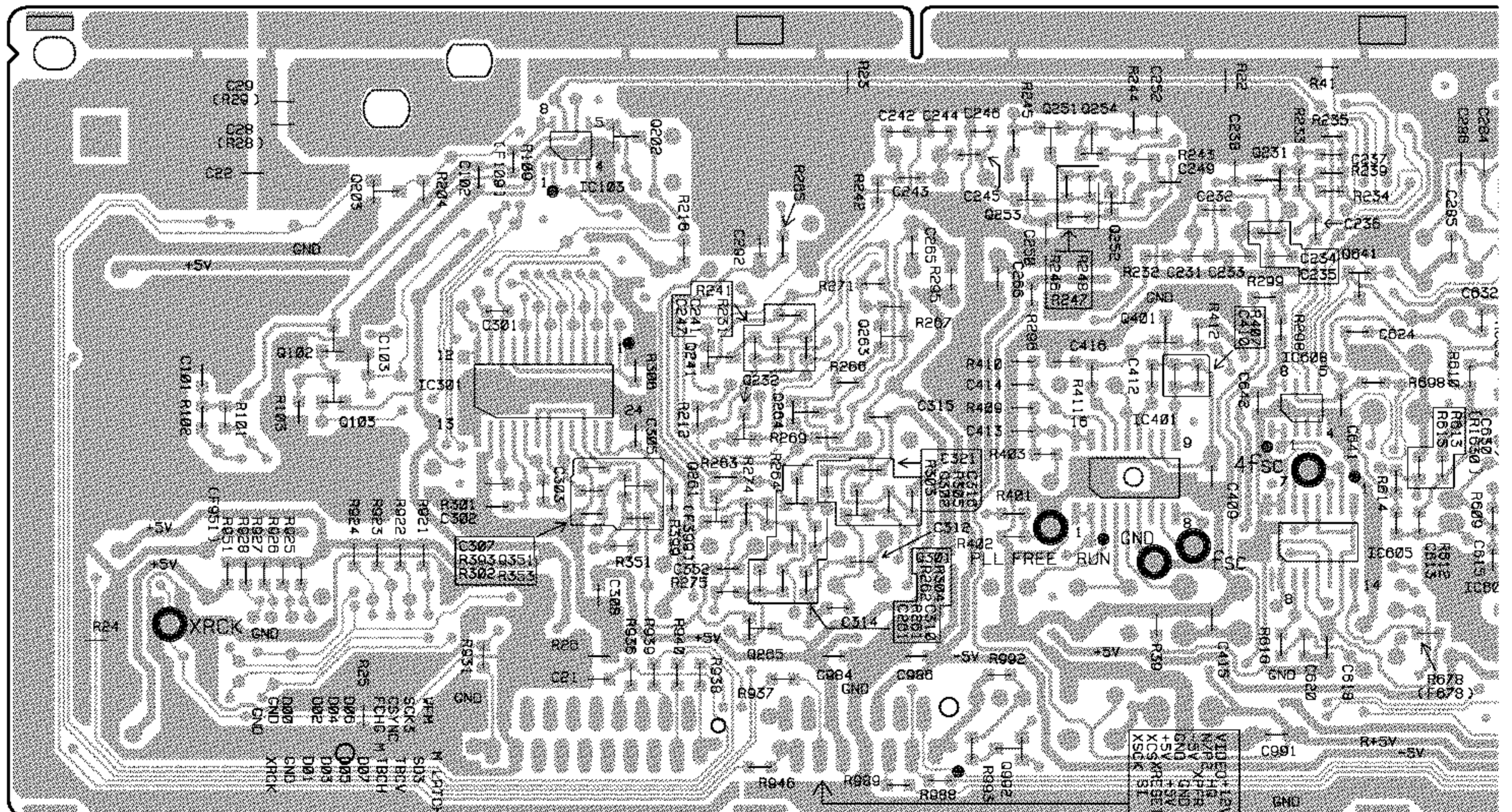


SIDE A

J CN404

- | | | | |
|----------------|--|------------------------|-----------------------|
| Q203 Q102 Q103 | IC103 Q202 IC301 | Q251 - Q254 IC401 Q401 | Q231 Q641 IC608 IC605 |
| | Q241 Q232 Q264 Q263 Q351 Q261 Q301 Q302 Q265 | Q992 | |

DMYC ASSY



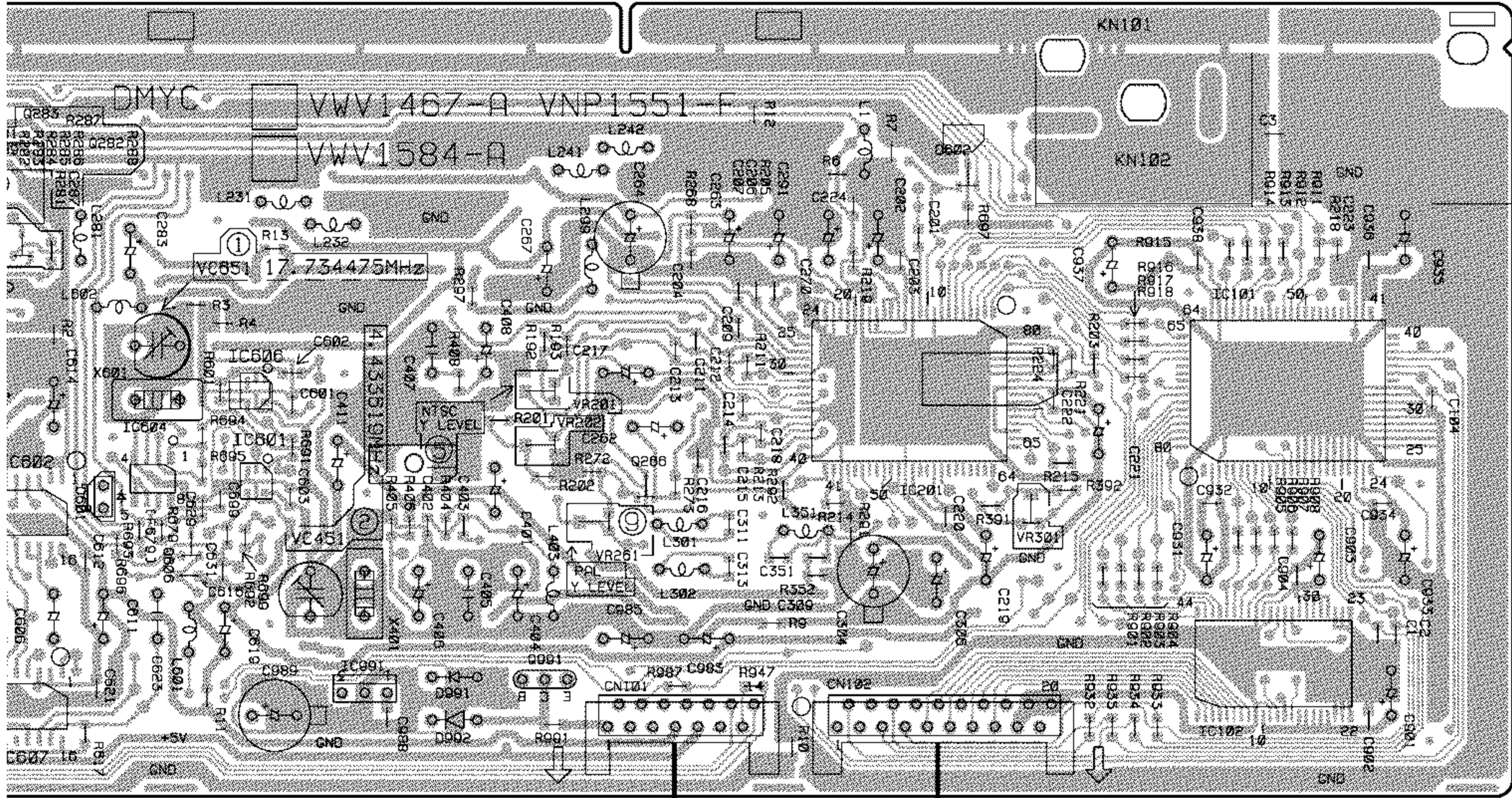
SIDE B

56 **(WY AND WY/RD TYPES ONLY)**

83

IC604	IC606						
Q602	IC601		Q266	IC201		IC101	
Q607	Q606	IC991	Q991			IC102	

VC651		VR201		VR301
VC451		VR202 VR261		



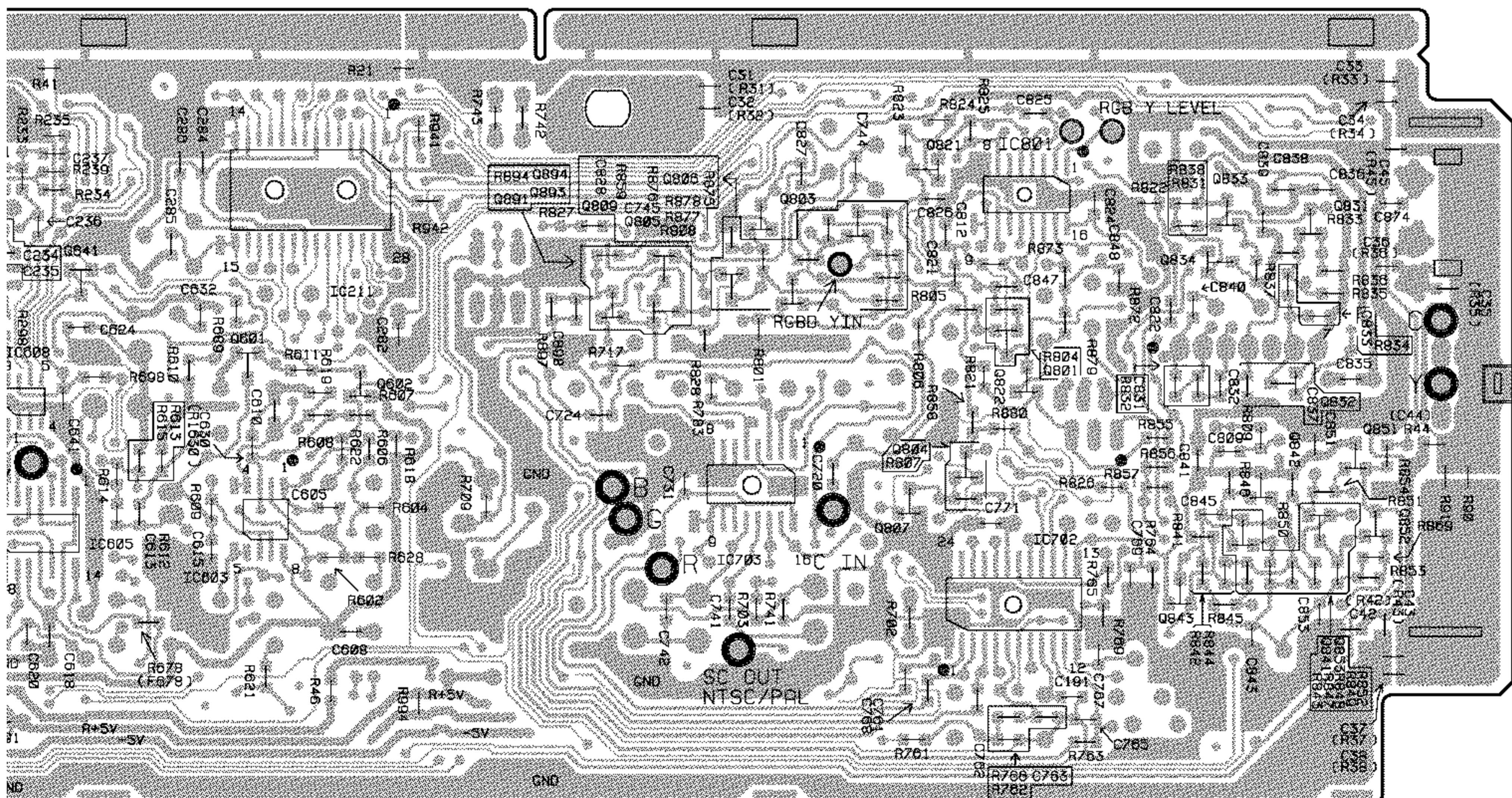
J CN402

J CN401

SIDE A

(VNP1551-F)

Q641	IC211	Q894	Q803	Q806	Q821	IC801	Q834	Q833	Q831	
C608	Q601	Q602	Q891	Q893	Q805	Q804	Q801	Q822	Q832	Q851
IC605	IC603		IC703		Q807	IC702	Q841	Q842	Q853	Q852
							Q843			



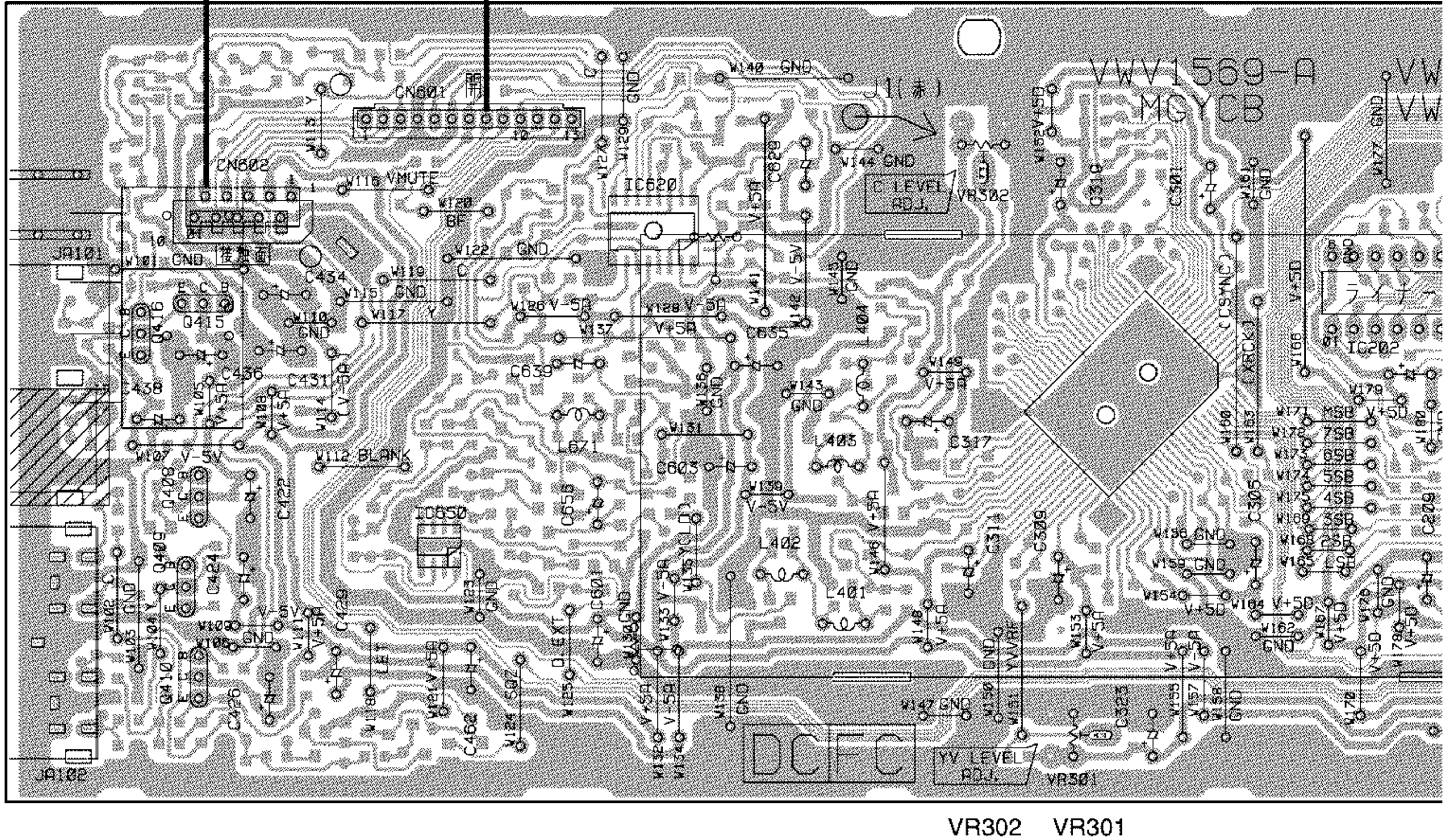
SIDE B

(WY AND WY/RD TYPES ONLY)



4.7 MYCB ASSY (RL, RAM, RD/RA AND RD/RC TYPES ONLY)

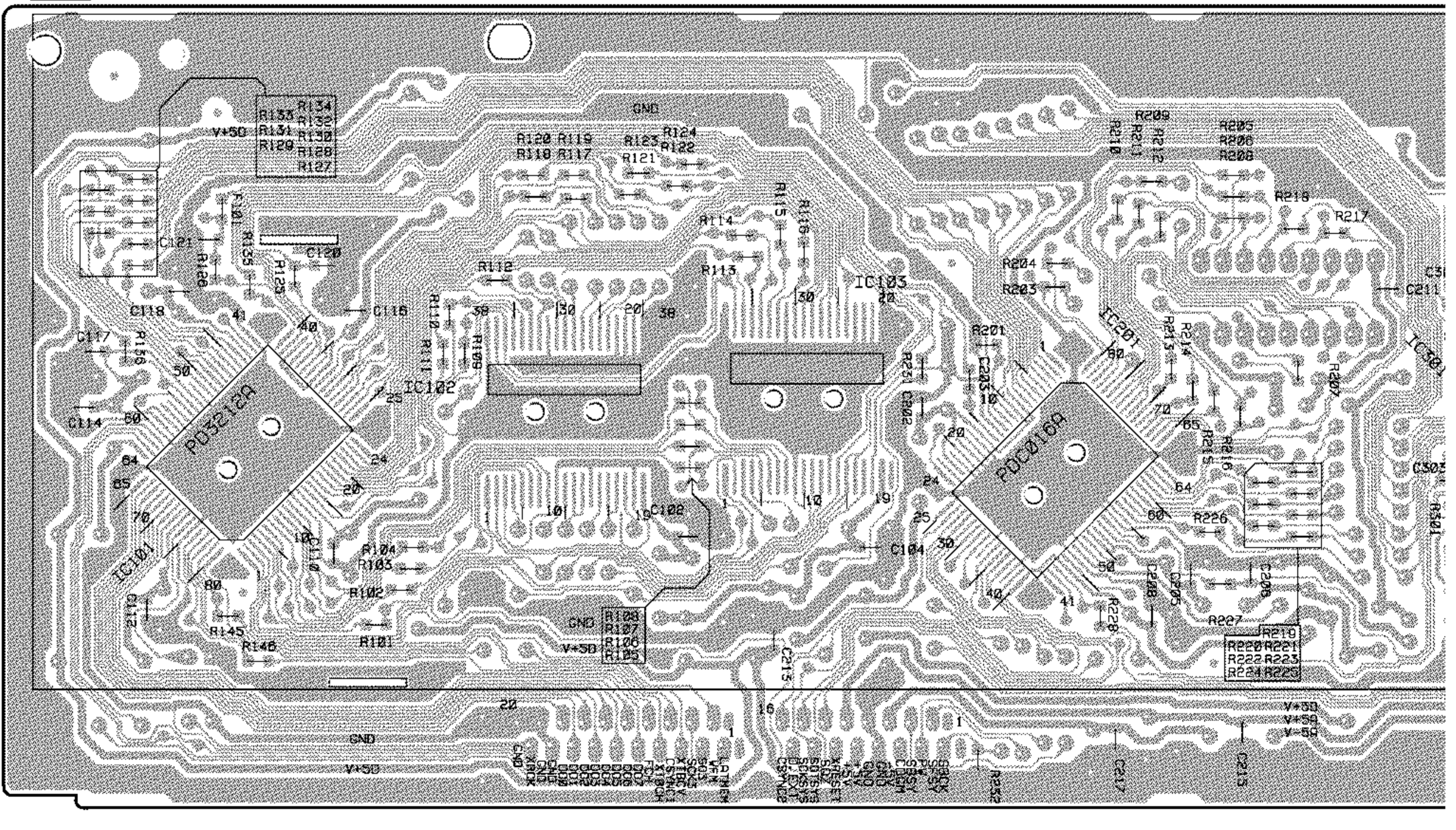
P CN405 **I** CN903 **O** MYCB ASSY



Q416 Q415
Q408 - Q410

SIDE A

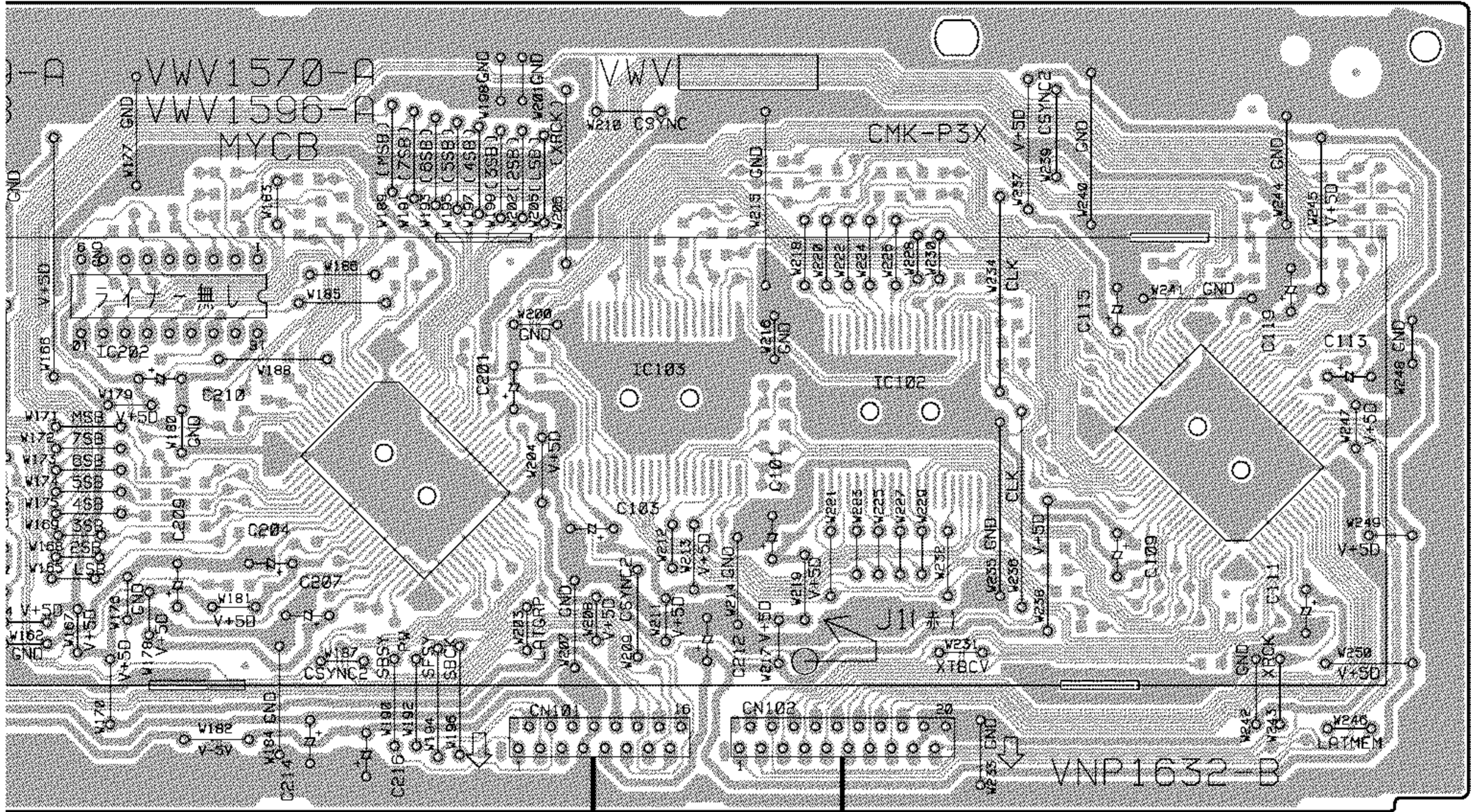
O MYCB ASSY



IC101 IC102 IC103 IC201

SIDE B

58 **P** (RL, RAM, RD/RA AND RD/RC TYPES ONLY)



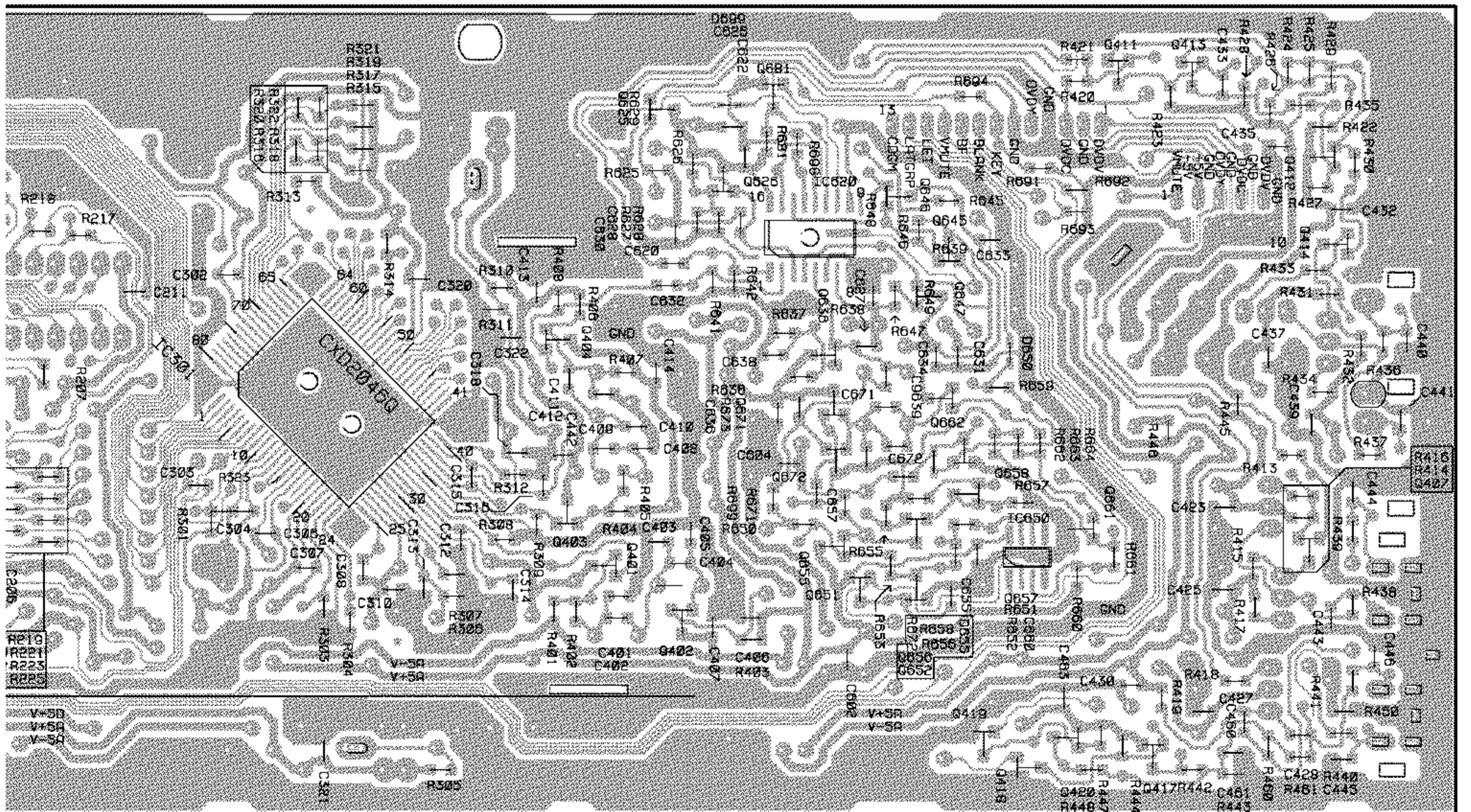
IC202

J CN402

J CN401

SIDE A

(VNP1632-B)



IC301

Q625 Q681 IC620 Q645-Q647 Q411 Q413 Q412
 Q626 Q636 Q662 IC650 Q661 Q414
 Q401-Q404 Q671 Q656 Q658 Q407
 Q672 Q652 Q657
 Q655 Q651 Q417-Q420

SIDE B

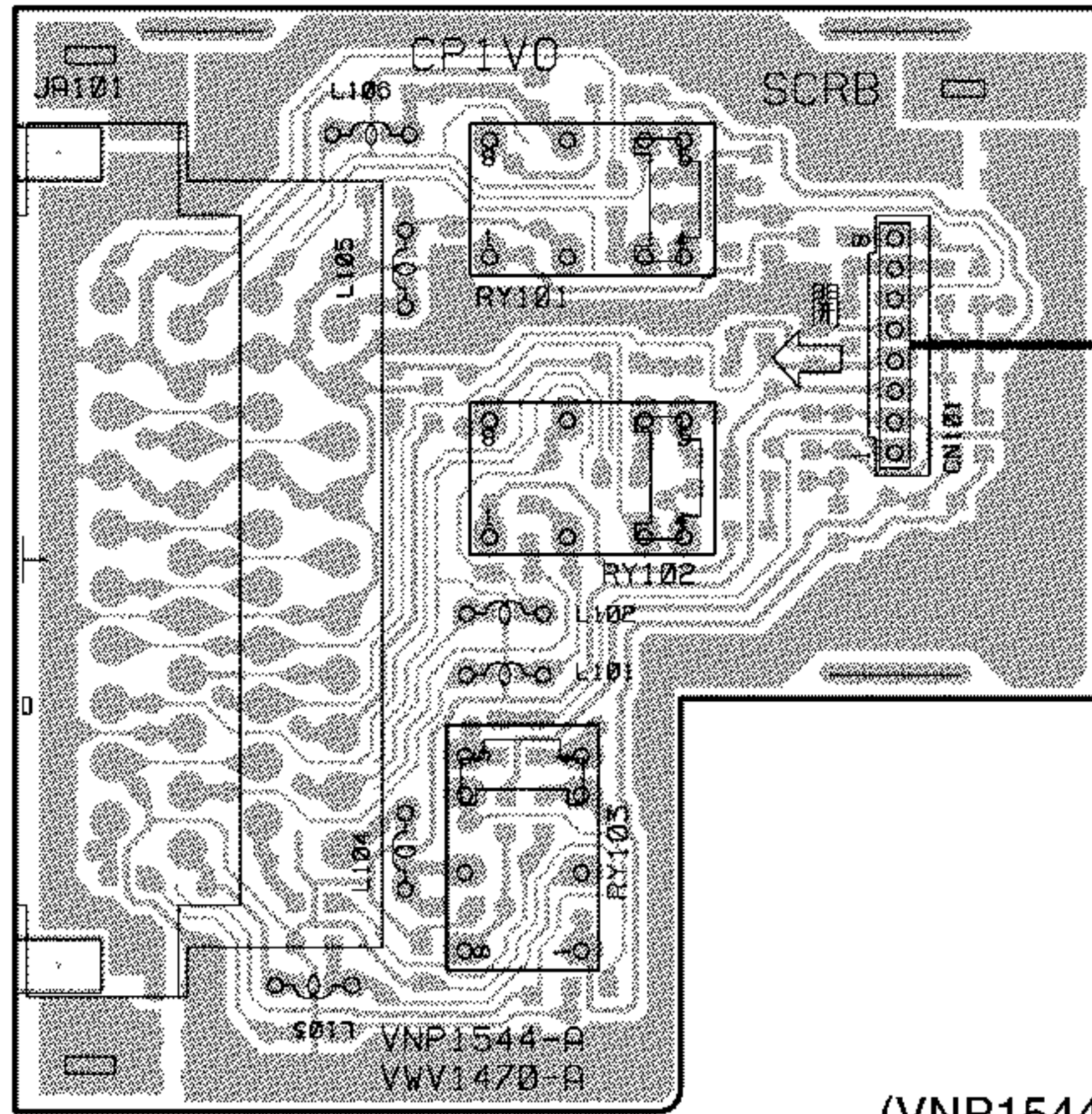
(RL, RAM, RD/RA AND RD/RC TYPES ONLY)



4.8 SCRIB ASSY (WY AND WY/RD TYPES ONLY)

A

Q SCRIB ASSY



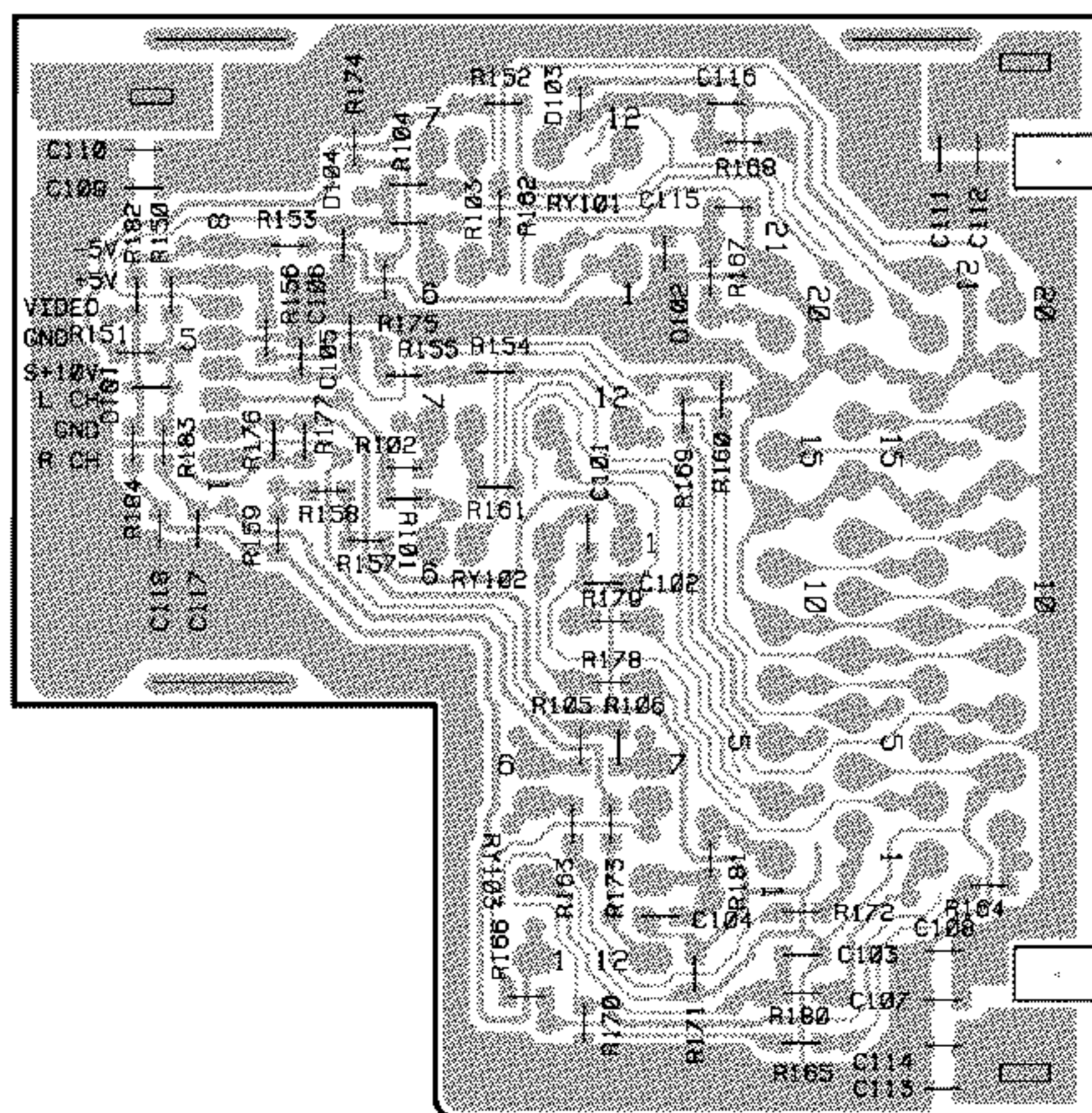
J CN207

(VNP1544-A)

SIDE A

B

Q SCRIB ASSY



SIDE B

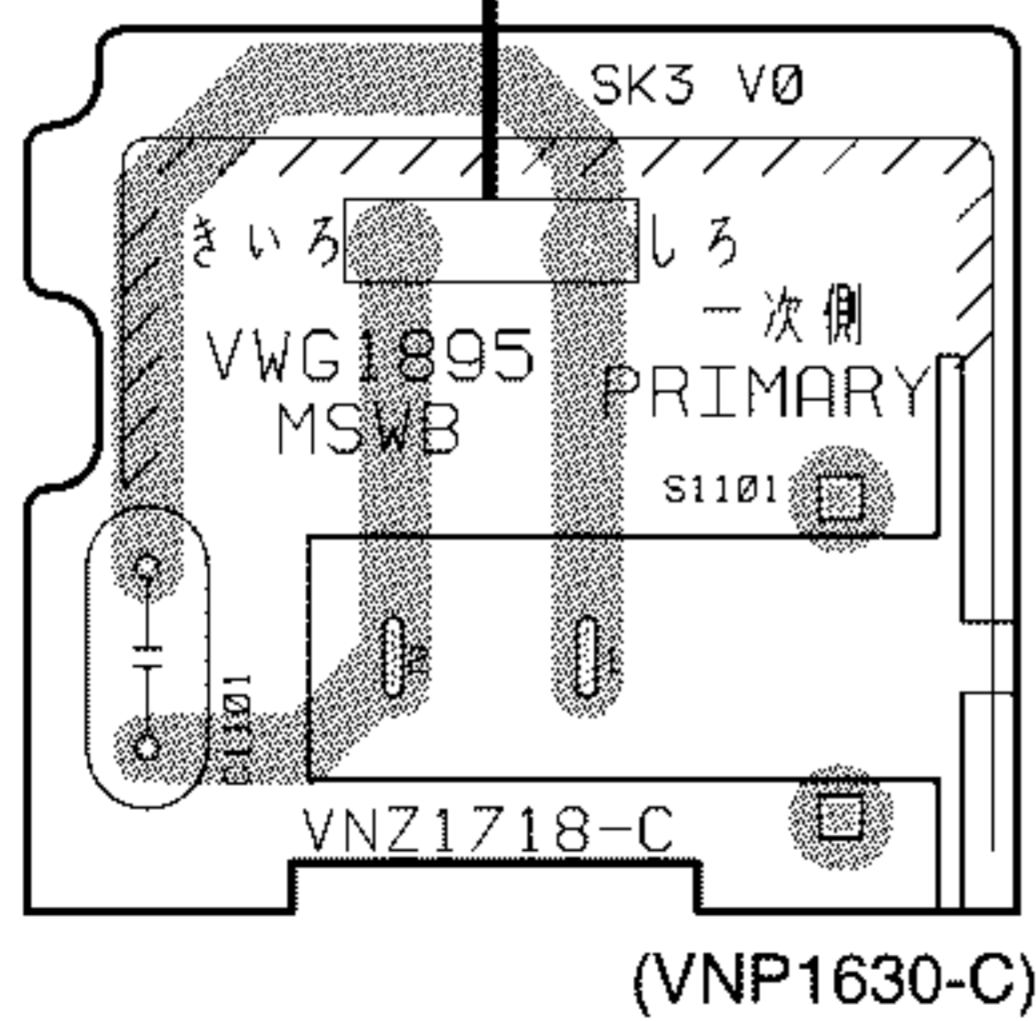
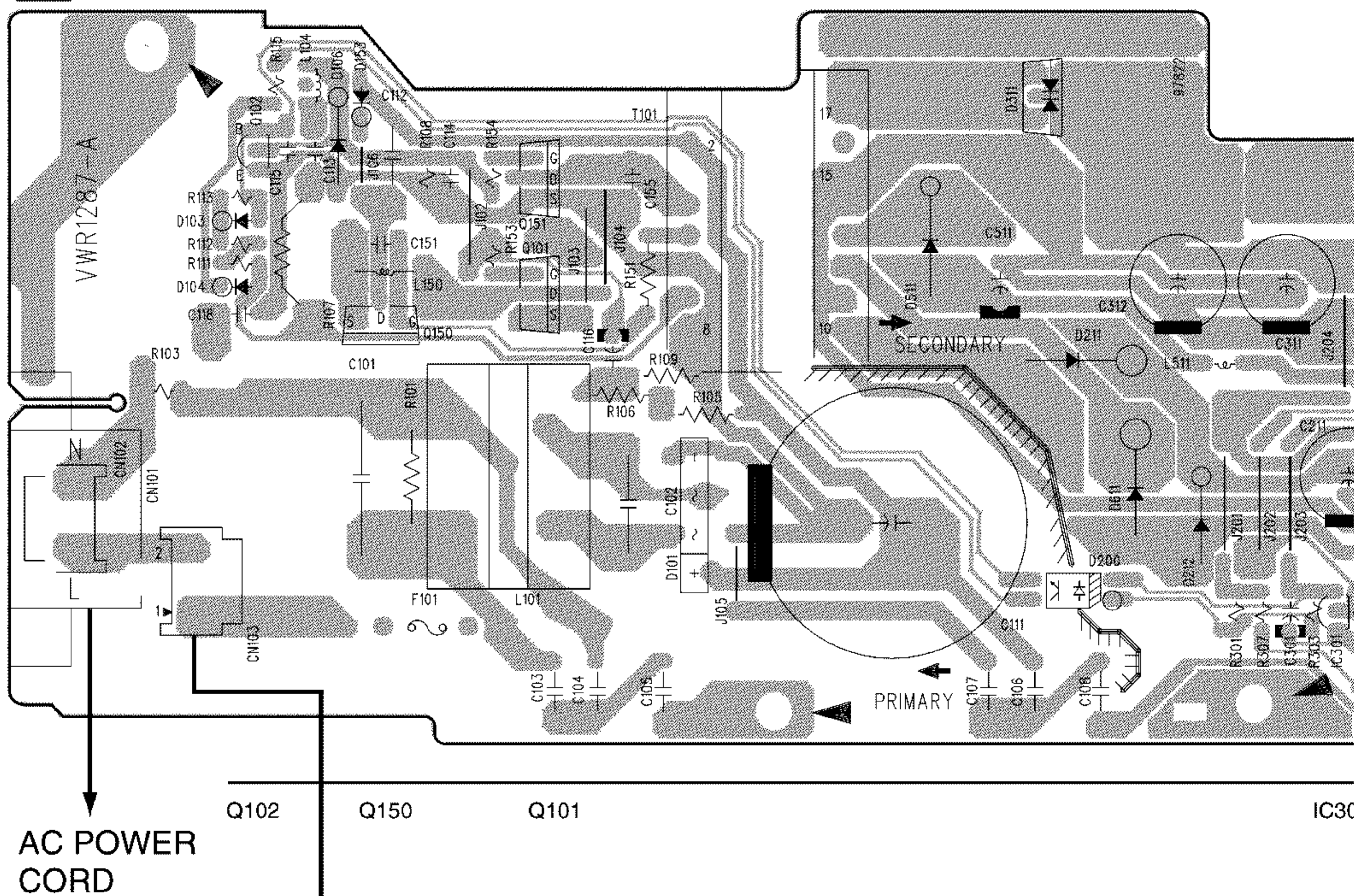
C

D

60 **Q** (WY AND WY/RD TYPES ONLY)

4.9 POWER SUPPLY AND MSWB ASSEMBLIES

R POWER SUPPLY ASSY



S MSWB ASSY

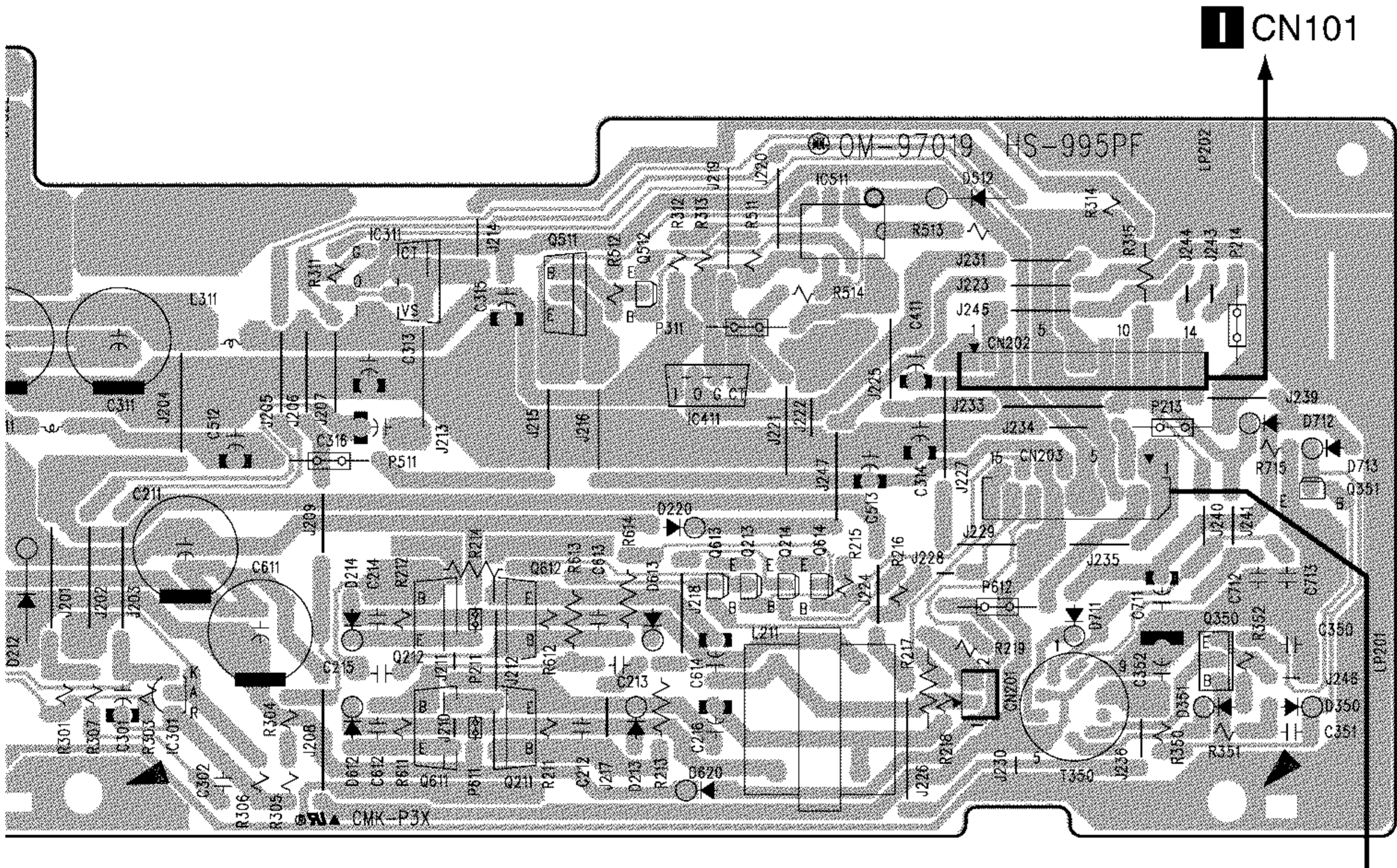
SIDE A

A

B

C

D



I CN101

IC301 IC311 Q511 Q512 IC411 IC511 Q350 Q351

 Q212 Q612 Q613 Q214

 Q611 Q211 Q213 Q614

J CN101

SIDE A

5. PCB PARTS LIST

NOTES: ● Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.

● The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

● 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 → 56 × 10¹ → 561 RD1/4PU561J
 47k → 47 × 10³ → 473 RD1/4PU473J
 0.5 → R50 RN2H R50 K
 1 → 1R0 RS1P 1R0 K

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

5.62k → 562 × 10¹ → 5621 RN1/4PC5621F

■ LIST OF WHOLE PCB ASSEMBLIES

Mark	Symbol and Description	Part No.						Remarks
		WY	WY/RD	RD/RA	RD/RC	RAM	RL	
NSP	MACB ASSY	VWM1507	VWM1507	VWM1507	VWM1507	VWM1507	VWM1507	
NSP	└ LMSB ASSY	VWG1554	VWG1554	VWG1554	VWG1554	VWG1554	VWG1554	
NSP	└ PKSB ASSY	VWG1555	VWG1555	VWG1555	VWG1555	VWG1555	VWG1555	
NSP	└ FG ASSY	VWG1556	VWG1556	VWG1556	VWG1556	VWG1556	VWG1556	
NSP	MECHB ASSY	VWM1721	VWM1721	VWM1721	VWM1721	VWM1721	VWM1721	
NSP	└ CNNB ASSY	VWG1792	VWG1792	VWG1792	VWG1792	VWG1792	VWG1792	
NSP	└ TNMB ASSY	VWG1793	VWG1793	VWG1793	VWG1793	VWG1793	VWG1793	
NSP	└ DCSB ASSY	VWG1794	VWG1794	VWG1794	VWG1794	VWG1794	VWG1794	
NSP	└ LCSB ASSY	VWG1795	VWG1795	VWG1795	VWG1795	VWG1795	VWG1795	
NSP	└ BISB ASSY	VWG1796	VWG1796	VWG1796	VWG1796	VWG1796	VWG1796	
NSP	FLKY ASSY	VWM1802	VWM1802	VWM1823	VWM1823	VWM1822	VWM1801	
NSP	└ FLKB ASSY	VWG1890	VWG1890	VWG1936	VWG1936	VWG1935	VWG1889	*1
NSP	└ PWSB ASSY	VWG1938	VWG1938	VWG1893	VWG1893	VWG1893	VWG1893	*2
NSP	└ DILB ASSY	VWG1894	VWG1894	VWG1894	VWG1894	VWG1894	VWG1894	
NSP	CLDGM ASSY	VWM1806	VWM1806	VWM1805	VWM1805	VWM1805	VWM1805	
	└ CLDM ASSY	VWS1332	VWS1332	VWS1331	VWS1331	VWS1331	VWS1331	
	└ JCKB ASSY	VWV1578	VWV1578	VWV1579	VWV1579	VWV1579	VWV1579	
	└ MSWB ASSY	VWG1895	VWG1895	VWG1895	VWG1895	VWG1895	VWG1895	
	DVDM ASSY	VWS1328	VWS1328	VWS1328	VWS1328	VWS1328	VWS1328	
	DMYC ASSY	VWV1584	VWV1584	Not used	Not used	Not used	Not used	
	MYCB ASSY	Not used	Not used	VWV1596	VWV1596	VWV1596	VWV1596	
	SCRB ASSY	VWV1470	VWV1470	Not used	Not used	Not used	Not used	
Δ	POWER SUPPLY ASSY	VWR1287	VWR1287	VWR1287	VWR1287	VWR1287	VWR1287	

*1:Although VWG1890,VWG1936,VWG1935 and VWG1889 are different in part number,they have the same service parts list.

*2:Although VWG1938 and VWG1893 are different in part number,they have the same service parts list.

■ PARTS LIST

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
		MACB ASSY				LMSB ASSY	
		OTHERS				SWITCHES	
		PC BOARD (MACB)	VNP1479			S101-S103	DSG1017

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

OTHERS

CN101	10P CONNECTOR	52044-1045
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B PKSB ASSY**SWITCHES**

S104,S105		DSG1017
-----------	--	---------

C FG ASSY**SEMICONDUCTOR**

D101		GP1S24
------	--	--------

MECHB ASSY**OTHERS**

PC BOARD (MECHB)		VNP1599
------------------	--	---------

D CNNB ASSY**OTHERS**

CN903	23P FFC CONNECTOR	52030-2310
CN901	26P FFC CONNECTOR	52030-2610
CN905,CN906	KR CONNECTOR	S2B-PH-K-S
CN902	26P FFC CONNECTOR	SLW26R-1C7
CN904	27P FFC CONNECTOR	SLW27R-1C7

E TNMB ASSY**OTHERS**

CN911	6P FFC CONNECTOR	52044-0645
CN912	KR CONNECTOR	B2B-PH-K-S
CN913	KR CONNECTOR	B3B-PH-K-S

F DCSB ASSY**SWITCH**

S902		DSG1017
------	--	---------

OTHERS

CN915	KR CONNECTOR	S2B-PH-K-S
-------	--------------	------------

G LCSB ASSY**SWITCH**

S903		DSG1017
------	--	---------

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

OTHERS

CN916	KR CONNECTOR	S2B-PH-K-S
-------	--------------	------------

H BISB ASSY**SWITCH**

S901		DSG1017
------	--	---------

OTHERS

CN914	KR CONNECTOR	S2B-PH-K-S
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FLKY ASSY**OTHERS**

PC BOARD (FLKY)		VNP1631
-----------------	--	---------

L FLKB ASSY**SEMICONDUCTORS**

IC101	PD4890A
IC102	S-806D
Q102	DTD113ES
Q101	PDTC124EK
D106	EP05Q04
D102	MA111
D101	RB411D
D103,D104	SLP3118C51H
D105	SLP4118C51H

SWITCHES

S101-S108	RSG1030
-----------	---------

CAPACITORS

C110	CEAL470M6R3
C108	CEHAQ471M6R3
C106	CEJA470M6R3
C101,C102,C104,C105,C111	CKSQYB102K50
C103,C107,C109,C112,C113	CKSQYF104Z25

RESISTORS

All Resistors	RS1/10S□□□J
---------------	-------------

OTHERS

CN103	FJ CONNECTOR 4P	04P-FJ
CN102	KR CONNECTOR	B2B-PH-K-S
	REMOTE RECEIVER UNIT	GP1U28X
V101	FL TUBE	VAW1046
J1	EARTH CABLE	VDA1654
	SPACER	VEC1599
CN101	14P CONNECTOR	VKN1274
	HOLDER	VNF1087
X101	CERAMIC RESONATOR(5MHz)	VSS1104

DVL-909

Mark	No.	Description	Part No.
M PWSB ASSY			
SEMICONDUCTORS			
	Q201		PDTA124EK
	D201		SLP9118C51H
SWITCH			
	S201		RSG1030
RESISTORS			
	All Resistors		RS1/10S□□□J
OTHERS			
	CN201	FJ CONNECTOR 4P	04R-FJ

N DILB ASSY

OTHERS			
	CN301	KR CONNECTOR	B2B-PH-K-S
	PL301	LAMP	VEL1022

CLDGM ASSY

OTHERS			
		PC BOARD (CLDGM)	VNP1630

R POWER SUPPLY ASSY

SEMICONDUCTORS			
	IC301		AN1431T
	IC311	(SI-3050CA)	VZF1047
	IC411	(PQ3RD13)	VZF1048
	IC511		UPC358C
	Q101,Q150,Q151	FET(2SK2333)	VZF1056
	Q102		2SC3377
	Q211,Q212		T7F4T
	Q213,Q214,Q351		2SC1740S
	Q512,Q613,Q614		2SA933S
	Q611,Q612		T7F4S
	Q350		2SD2007
	Q511		2SD2395
	D101		D2SB60F4004
	D103		MTZJ2.7B
	D351		MTZJ2.7B
	D104		1SS270A
	D350,D512		1SS270A
	D106		RD18FB2
	D153,D220,D620	DIODE(D1N60)	VZF1045
	D200		PS2561L1-1VM
	D211,D611		31DF2 D712

Mark	No.	Description	Part No.
	D212		RD33FB2
	D213,D214,D612,D613		10ELS2MTZJ8.2B
	D711		10ELS2MTZJ8.2B
	D311	DIODE(F10P04Q)	VZF1052
	D511		S2LA20
	D713		MTZJ30A
OTHERS			
	F101	FUSE(3.15A/250V)	VEK1050
	P211,P611	FUSE(136°C)	VEK1033
	P213,P612	FUSE(1A/125V)	VEK1036
	P214,P511	FUSE(1.25A/60V)	VEK1045
	P311	FUSE(1A/60V)	VEK1041

I DVDM ASSY

SEMICONDUCTORS			
	IC171		BA10393F
	IC151		BA6797FP
	IC813		CY2081SL-611
	IC702		HM514800CJ-7
	IC101		LA9700M
	IC201		LC78650E-P
	IC802		MB811171622A-100FN
	IC801		MB86371
	IC815,IC816		MC14577CF
	IC271,IC302		NJM2100M
	IC203		NJM2107F
	IC901		PD2058A
	IC601		PD3381A
	IC701		PD4833A
	IC501		PD4889A
	IC602		PDK026A
	IC502		SRM2B256SLMX70
	IC401		TA78M08F
	IC202,IC204,IC206,IC902		TC4W53F
	IC604		TC551001BFL-85
	IC503		TC74HC573AF
	IC804		TC74HCT541AF
	IC303		TC74HCU04AF
	IC807,IC808		TC74LCX245FT
	IC821		TC74VHC00FT
	IC814,IC820		TC74VHC02FT
	IC505,IC605		TC74VHC139FT
	IC703		TC74VHC14FT
	IC504		TC74VHC20FT
	IC805,IC806,IC809		TC74VHC541FT
	IC506		TC74VHCT245AFT
	IC817		TC74VHCT541AFT

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	IC811,IC818,IC819		TC7SHU04F		C131,C135,C205,C206,C301		CEV470M6R3
	IC810		TC7WU04F		C303,C404,C406,C408,C410		CEV470M6R3
	IC301		TLC5540INS		C501,C504,C832,C836,C841		CEV470M6R3
	IC603		VKH1012		C887		CEV470M6R3
	IC6003		VYW1536		C211		CKSQYB104K25
	Q401		2SB1260		C109,C124,C216,C220,C229		CKSQYB105K10
	Q108		HN1K03FU		C234,C275,C308,C326		CKSQYB105K10
	Q455,Q831,Q832,Q851,Q852		IMT1A		C332,C333,C730,C731		CKSQYB105K10
	Q871,Q872		IMT1A		C416,C818,C823,C828		CKSQYF105Z16
	Q103,Q402,Q403,Q873		IMX1		C213,C292,C309,C321		CKSRYB102K50
	Q102,Q104,Q291,Q301		IMZ1A		C105,C106,C108,C146,C147		CKSRYB103K50
	Q106,Q603		PDTA114EK		C151,C154-C157,C161,C207		CKSRYB103K50
	Q107,Q109,Q602		PDTC114EK		C217,C221,C247,C276,C318		CKSRYB103K50
	Q601,Q771,Q772		PDTC114TK		C320,C620,C705,C722,C772		CKSRYB103K50
	D301		KV1410		C859		CKSRYB103K50
	D171,D172		MA152WK		C143,C162-C165,C223,C224		CKSRYB104K16
	D601		RB501V-40		C242,C273,C274,C311,C312		CKSRYB104K16
					C315		CKSRYB104K16
					C141,C271		CKSRYB222K50
					C328		CKSRYB223K25
					C122		CKSRYB473K16
					C102,C103,C113,C129		CKSRYF104Z16
					C132-C134,C136,C137,C159		CKSRYF104Z16
					C166,C191,C202-C204,C209		CKSRYF104Z16
					C214,C218,C219,C222		CKSRYF104Z16
					C226-C228,C235,C237,C241		CKSRYF104Z16
					C246,C302,C304,C305,C317		CKSRYF104Z16
					C322,C402,C403,C405,C407		CKSRYF104Z16
					C409,C411,C413,C415		CKSRYF104Z16
					C502,C503,C505-C509		CKSRYF104Z16
					C602-C611,C614,C615,C617		CKSRYF104Z16
					C621,C622,C702,C703		CKSRYF104Z16
					C707-C721,C723,C732-C734		CKSRYF104Z16
					C736,C738,C740-C742,C771		CKSRYF104Z16
					C791,C800,C802,C805-C812		CKSRYF104Z16
					C816,C817,C819-C822		CKSRYF104Z16
					C824,C825,C827,C829,C830		CKSRYF104Z16
					C833,C834,C837,C839,C840		CKSRYF104Z16
					C842-C848,C861,C862,C867		CKSRYF104Z16
					C871,C872,C876,C878,C881		CKSRYF104Z16
					C883,C888-C890,C902-C905		CKSRYF104Z16
					C911		CKSRYF104Z16
					C852,C855,C857,C858 (2.2μF)		VCG1030
					C922-C924 (2.2μF)		VCG1030
					VC301 (40pF)		VCM1010
COILS AND FILTERS				RESISTORS			
	F771,F778,F779	CHIP BEADS	DTF1067		R507,R508,R624,R628,R633		RA4C103J
	F896	FERRITE CORE	VTF1077		R703,R704,R717,R718		RA4C103J
	F952	FERRITE CORE	VTF1080		R745,R746,R761,R762,R792		RA4C103J
	F801	VIDEO FILTER	VTF1098		R812,R813		RA4C103J
	F401-F406	CHIP EMI FILTER	VTH1037		R137,R501,R502,R505,R506		RA4C220J
	L301	(1.5μH)	VTL1059		R604-R607,R712,R713,R719		RA4C220J
	L101,L302	(10μH)	VTL1061		R724,R748,R749,R791		RA4C220J
	L802,L803	(22μH)	VTL1067				
	L335,L340,L342	CHIP BEADS	VTL1074				
	L777,L780-L787,L895	CHIP BEADS	VTL1075				
	L897-L899	CHIP BEADS	VTL1075				
CAPACITORS							
	C623		CCSRCH100D50				
	C152,C208,C291,C612,C613		CCSRCH101J50				
	C700,C735,C737,C739		CCSRCH101J50				
	C897,C898,C991		CCSRCH101J50				
	C111,C139,C215,C231,C232		CCSRCH151J50				
	C248		CCSRCH151J50				
	C125,C148,C329		CCSRCH180J50				
	C112,C118		CCSRCH220J50				
	C121,C130,C199,C319,C324		CCSRCH330J50				
	C120		CCSRCH331J50				
	C310,C323,C327		CCSRCH470J50				
	C230		CCSRCH471J50				
	C126,C331,C838		CCSRCH560J50				
	C127,C330,C863,C873,C882		CCSRCH5R0C50				
	C160		CCSRCH680J50				
	C401,C417,C892		CEHV470M10				
	C101,C104,C201,C325,C601		CEV101M6R3				
	C701,C704,C706,C801		CEV101M6R3				
	C803,C804,C813-C815,C826		CEV101M6R3				
	C901		CEV101M6R3				
	C123,C158,C412,C414		CEV220M16				
	C835,C895		CEV221M4				

DVL-909

Mark	No.	Description	Part No.
	R802,R803,R808,R901,R905 R907,R909,R910,R912,R913 R916-R919		RA4C220J RA4C220J RA4C220J
	R602,R603,R610,R613,R618 R101,R11-R14,R141 R15-R17,R171,R18 R201-R203,R300,R319,R333 R411-R413,R701,R775,R776		RA4C470J RS1/10S0R0J RS1/10S0R0J RS1/10S0R0J RS1/10S0R0J
	R891,R893,R902,R908,R961 R205 R835,R839,R855,R859,R875 R881 R834,R854,R874		RS1/10S0R0J RS1/10S101J RS1/16S1001F RS1/16S1001F RS1/16S1201F
	R823-R825 R117,R118 R126 R241,R247 R110,R153,R155,R168,R169		RS1/16S1500F RS1/16S1501F RS1/16S1502F RS1/16S2202F RS1/16S2702F
	R173,R174,R213,R228,R229 R248 R152,R156,R158-R164,R167 R170,R172,R175,R194,R227 VR801 (1kΩ)		RS1/16S2702F RS1/16S2702F RS1/16S4702F RS1/16S4702F VCP1125
	Other Resistors		RS1/16S□□□J

OTHERS

CN903	PH CONNECTOR	S13B-PH-SM3
CN101	PH CONNECTOR	S14B-PH-SM3
CN801	PH CONNECTOR	S4B-PH-SM3
TP100,TP200,TP300,TP400	CHECKER-CHIP	VKF1001
CN201	14P CONNECTOR	VKN1324
CN106	7P FFC CONNECTOR	VKN1411
CN105	14P FFC CONNECTOR	VKN1418
CN901,CN902	22P FFC CONNECTOR	VKN1426
CN103	26P FFC CONNECTOR	VKN1430
KN1-KN3	EARTH METAL FITTING LABEL	VNF1109 VRW1634
X602	CERAMIC RESONATOR(20MHz)	VSS1114
X501	CERAMIC RESONATOR(10MHz)	VSS1115
X901	CERAMIC RESONATOR(24MHz)	VSS1118

J CLDM ASSY (VWS1332)

SEMICONDUCTORS

IC761	BA10393F
IC251,IC680,IC905,IC906	BA4560F
IC171,IC803	LA6510
IC400	LA7134M
IC801	LA9425
IC901	LA9430M
IC908	LC78625E
IC182,IC183	MM6558XF
△ IC221	NJM78L08A
△ IC222	NJM79L08A

Mark	No.	Description	Part No.
	IC351		PA0061AM
	IC202		PD0236AM
	IC101		PD0261A2
	IC201		PD2029AM(L)
	IC500		PD6159B
	IC902		TA8410AK
	IC181,IC410,IC762,IC907		TC4W53F
	IC203		TC74HC157AF
	IC620		TC74HC4053AF
	IC205,IC206		TC7S02F
	IC102		TC7S32F
	IC209,IC550		TC7SU04F
	IC650		TC7W00F
	IC204,IC208		TC7WU04F
	Q121,Q182,Q351,Q353,Q354		2PB709A
	Q356,Q411,Q451,Q456,Q461		2PB709A
	Q482,Q484,Q485,Q580,Q645		2PB709A
	Q672		2PB709A
	Q269,Q270,Q391-Q393,Q401		2PD601A
	Q425,Q441,Q481,Q486,Q626		2PD601A
	Q631,Q632,Q636,Q646,Q647		2PD601A
	Q655-Q658,Q661,Q662,Q671		2PD601A
	Q803,Q811,Q903-Q906		2PD601A
	Q834		2SA854S
	Q141		2SA933S
	Q152		2SC3082K
	Q261,Q262		2SD2114K
	Q211-Q214,Q217,Q357,Q358		PDTA124EK
	Q394,Q466,Q467,Q483,Q651		PDTA124EK
	Q981		PDTA124EK
	Q122,Q142,Q143,Q181		PDTC124EK
	Q215,Q216,Q652,Q901,Q908		PDTC124EK
	D215		DAN202K
	D221		EC10QS04
	D311,D505,D510		KV1851
	D101,D141,D181,D480,D650		MA111
	D655,D902,D981		MA111
	D355,D356		MA152WA
	D115,D142,D143		UDZS5.1B

COILS AND FILTERS

F590	DTF1069
L9231,L9232,L9584	DTL1028
L413,L414	LAU120J
L401	LAU121J
L482	LAU180J
L352,L821-L823	LAU181J
L201,L209,L251,L252	LAU220J
L311,L312,L351,L461	LAU220J
L831,L832	LAU220J
L412,L587	LAU270J
L431,L484	LAU330J
L432	LAU390J
L433,L575	LAU430J
L411	LAU470J
L671	LAU4R7J

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Mark	No.	Description	Part No.
	C377,C378,C908,C909		CKSQYF224Z25

C154,C156,C174,C312,C460	CKSQYF473Z50
C826,C828	CKSQYF473Z50
C265,C266	CQMBA332J50
VC301 (20pF)	VCM1008

RESISTORS

R753	RA4C221J
R203,R752	RA4C471J
R591,R592	RA4C681J
R833,R834,R837,R839	RN1/10SE1002D
R891,R892	RN1/10SE1002D

R152,R156	RN1/10SE1003D
R532	RN1/10SE1100D
R425	RN1/10SE1202D
R531	RN1/10SE1800D
R631	RN1/10SE2001D

R635	RN1/10SE2701D
R151,R618,R893,R894	RN1/10SE3302D
R153,R154,R259-R262	RN1/10SE4702D
R653	RN1/10SE5601D
R650	RN1/10SE6800D

VR450 (2.2kΩ)	PCP1025
VR603 (4.7kΩ)	PCP1028
VR604,VR607,VR609 (47kΩ)	PCP1031
Other Resistors	RS1/10S□□□J

OTHERS

CN103,CN404	6P FFC CONNECTOR	52045-0645
CN102	10P FFC CONNECTOR	52045-1045
CN101	15P FFC CONNECTOR	52045-1545
CN802	11P CONNECTOR	B11P-SHF-1AA
CN403	KR CONNECTOR	B13B-PH-K-S

CN201	KR CONNECTOR	B4B-PH-K-S
CN202	KR CONNECTOR	B7B-PH-K-S
	SCREW	BBZ30P060FCC
CN402	14P CONNECTOR	BTFN14S-3SB7
CN401	20P CONNECTOR	BTFN20S-3SB7

JA252	2P PIN JACK	PKB1024
JA101,JA102	JACK	RKN1004
	PCB BINDER	VEF1040
	64P IC SOCKET	VKH1004
CN111,CN122	22P FFC CONNECTOR	VKN1253

CN801	27P FFC CONNECTOR	VKN1258
	SCREW PLATE	VNE1948
S102	SLIDE SWITCH	VSH1020
X101	CERAMIC RESONATOR(9MHz)	VSS1040
X311	CRYSTAL RESONATOR(16MHz)	VSS1081

X505	CRYSTAL RESONATOR(14MHz)	VSS1103
X312	CRYSTAL RESONATOR	VSS1116
	(18.432MHz)	
X510	CRYSTAL RESONATOR(15MHz)	VSS1125

Mark	No.	Description	Part No.
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J CLDM ASSY (VWS1331)

SEMICONDUCTORS

IC761	BA10393F
IC251,IC680,IC905,IC906	BA4560F
IC352	CA0002AM
IC171,IC803	LA6510
IC400	LA7134M

IC801	LA9425
IC901	LA9430M
IC908	LC78625E
IC182,IC183	MM6558XF
IC221	NJM78L08A

IC222	NJM79L08A
IC101	PD0260A2
IC201	PD2029AM(L)
IC500	PD6159B
IC902	TA8410AK

IC181,IC762,IC907	TC4W53F
IC203	TC74HC157AF
IC205,IC206	TC7S02F
IC102	TC7S32F
IC209,IC550	TC7SU04F

IC204,IC208	TC7WU04F
Q121,Q182,Q482,Q580	2PB709A
Q269,Q270,Q391-Q393,Q401	2PD601A
Q441,Q481,Q803,Q811	2PD601A
Q903-Q906	2PD601A

Q834	2SA854S
Q152	2SC3082K
Q261,Q262	2SD2114K
Q211-Q214,Q217,Q394,Q981	PDTA124EK
Q122,Q181,Q215,Q216,Q901	PDTC124EK

Q908	PDTC124EK
D215	DAN202K
D221	EC10QS04
D311,D505	KV1851

D101,D181,D902,D981	MA111
D115	UDZS5.1B

SWITCH

S102	VSH1020
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COILS AND FILTERS

F590	CHIP BEADS	DTF1067
L9231,L9232,L9584	CHIP INPEDER	DTL1028
L413		LAU100J
L401		LAU101J
L352,L821-L823		LAU181J

L201,L251,L252	LAU220J
L311,L312,L351,L412,L461	LAU220J
L482,L831,L832	LAU220J
L411,L587	LAU270J

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Mark No.	Description	Part No.
RESISTORS		
R751,R203		RA4C0R0J
R753		RA4C221J
R591,R592,R752		RA4C471J
R425,R833,R834,R837,R839		RN1/10SE1002D
R891,R892		RN1/10SE1002D
R152,R156		RN1/10SE1003D
R532		RN1/10SE1100D
R531		RN1/10SE1800D
R151,R893,R894		RN1/10SE3302D
R153,R154,R259-R262		RN1/10SE4702D
VR450 (2.2kΩ)		PCP1025
VR603 (4.7kΩ)		PCP1028
VR604,VR607,VR609 (47kΩ)		PCP1031
Other Resistors		RS1/10S□□□J

OTHERS

CN103	6P FFC CONNECTOR	52045-0645
CN102	10P FFC CONNECTOR	52045-1045
CN101	15P FFC CONNECTOR	52045-1545
CN802	11P CONNECTOR	B11P-SHF-1AA
CN201	KR CONNECTOR	B4B-PH-K-S
CN202	KR CONNECTOR SCREW	B7B-PH-K-S BBZ30P060FCC
CN402	16P CONNECTOR	BTFN16S-3SB7
CN401	20P CONNECTOR	BTFN20S-3SB7
JA101,JA102	JACK	RKN1004
	PCB BINDER	VEF1040
JA252	4P JACK	VKB1065
	64P SHRINK IC SOCKET	VKH1004
CN111,CN122	22P FFC CONNECTOR	VKN1253
CN801	27P FFC CONNECTOR	VKN1258
	SCREW PLATE	VNE1948
X101	CERAMIC RESONATOR(9MHz)	VSS1040
X311	CRYSTAL RESONATOR(16MHz)	VSS1081
X505	CRYSTAL RESONATOR(14MHz)	VSS1103
X312	CRYSTAL RESONATOR (18.432MHz)	VSS1116

P MYCB ASSY

SEMICONDUCTORS

IC301		CXD2046Q
IC102,IC103		MB81C1501PF
IC101		PD3212A
IC620		TC74HC4053AF
IC650		TC7W00F
Q402,Q404,Q407,Q411,Q414		2PB709A
Q645,Q672		2PB709A
Q401,Q403,Q412,Q413,Q626		2PD601A
Q636,Q646,Q647,Q655-Q658		2PD601A
Q661,Q662,Q671		2PD601A
Q408-Q410,Q415,Q416		2SC1740S
Q417,Q420,Q651		PDTA124EK
Q418,Q419,Q652,Q681		PDTC124EK

Mark No.	Description	Part No.
D650,D655,D699		MA111

COILS AND FILTERS

F101	CHIP BEADS	DTF1067
L145	CHIP INPEDER	DTL1028
L401-L403		LAU220J
L671		LAU4R7J

CAPACITORS

C433		CCSQCH100D50
C655		CCSQCH101J50
C401,C404		CCSQCH220J50
C672		CCSQCH390J50
C671		CCSQCH391J50
C121,C405		CCSQCH470J50
C403		CCSQCH560J50
C402		CCSQCH6R0D50
C411		CCSQCH910J50
C656		CEANP100M16
C629,C639		CEANP220M10
C101,C103,C109,C111,C113		CEAT101M10
C115,C212,C214,C216,C301		CEAT101M10
C305,C309,C311,C317,C319		CEAT101M10
C323,C422,C424,C426,C429		CEAT101M10
C462,C601,C603,C635		CEAT101M10
C431,C434		CEAT221M6R3
C436,C438		CEJA101M6R3
C303		CKSQYB102K50
C620,C632		CKSQYB104K25
C102,C104,C110,C112,C114		CKSQYF104Z25
C116-C118,C213,C215,C217		CKSQYF104Z25
C302,C304,C306-C308,C310		CKSQYF104Z25
C312-C316,C318,C320-C322		CKSQYF104Z25
C406,C407,C413,C414,C423		CKSQYF104Z25
C425,C427,C428,C430,C432		CKSQYF104Z25
C435,C437,C439,C442,C460		CKSQYF104Z25
C463,C602,C604,C622		CKSQYF104Z25
C626-C628,C630,C631		CKSQYF104Z25
C633,C634,C636,C638,C660		CKSQYF104Z25

RESISTORS

R424		RN1/10SE1801D
R422		RN1/10SE2201D
R309		RN1/10SE2700D
R425		RN1/10SE2702D
R310,R420,R421		RN1/10SE3301D
R312,R426		RN1/10SE4701D
R311,R653		RN1/10SE5601D
R650		RN1/10SE6800D
VR301 (22kΩ)		PCP1030
Other Resistors		RS1/10S□□□J

OTHERS

CN602	10P FFC CONNECTOR	52045-1045
CN	4P MIN.DIN SOCKET	AKP7023
CN601	KR CONNECTOR	B13B-PH-K-S

Mark	No.	Description	Part No.
	CN101	CONNECTOR 16P	BTFN16P-3RD7
	CN102	CONNECTOR 20P	BTFN20P-3RD7
	J1	JUMPER WIRE	DB218NS0
	JA101	2P JACK	VKB1094

K JCKB ASSY

SEMICONDUCTORS

IC321,IC341 TC74HCU04AF

COILS

L321,L331,L341 LAU220J
 L323,L343 PULSE TRANSFORMER PTL1003
 L322,L342 FERRITE BEADS RTF1167

CAPACITORS

C332 CEAT101M10
 C322,C324,C342,C344 CEAT470M16
 C321,C323,C325,C331,C341 CKSQYF103Z50
 C343,C345 CKSQYF103Z50
 C326,C346 CKSQYF104Z25
 C393 CKSQYF224Z25

RESISTORS

All Resistors RS1/10S□□□J

OTHERS

CN321 KR CONNECTOR B7B-PH-K-S
 JA331 OPTICAL LINK OUT GP1F32T
 PCB BINDER VEF1040
 JA251,JA341 1P PIN JACK
 (FOR VWV1578) VKB1074
 (FOR VWV1579) VKB1077
 JA321 1P PIN JACK
 (FOR VWV1578) VKB1097
 (FOR VWV1579) PKB1028

Q SCR B ASSY

SEMICONDUCTORS

D101 1SS353
 D102,D103 UDZ5.6B

SWITCHES AND RELAYS

RY101-RY103 VSR-005

CAPACITORS

C101-C104 CCSQCH391J50
 C106,C108,C110,C112,C114 CKSQYB102K50
 C105,C107,C109,C111,C113 CKSQYF104Z25

Mark	No.	Description	Part No.
RESISTORS			
		All Resistors	RS1/10S□□□J

OTHERS

JA101 PCB BINDER VEF1040
 VKB1056
 EARTH PLATE VNF1097

O DMYC ASSY

SEMICONDUCTORS

IC801 BU4053BCF
 IC701 CXA1585Q
 IC702 CXA1645M
 IC301 CXD1171M
 IC201 CXD2024AQ

IC703 HD74HC4053FP
 IC102 HM530281RTT-25
 IC401 MM1093PF
 IC603 NJM082M
 IC991 NJM78M05FA

IC101 PD4596A
 IC831 TA7302P
 IC103,IC608 TC4W53F
 IC607 TC74HC221AF
 IC602 TC74HC4053AF

IC605 TC74HC74AF
 IC601 TC7S86F
 IC606 TC7SU04F
 IC604 TC7WU04F
 Q201,Q251,Q253,Q254,Q264 2PB709A

Q351,Q603-Q606,Q805,Q831 2PB709A
 Q834,Q843,Q853,Q864,Q881 2PB709A
 Q883-Q887,Q891 2PB709A
 Q231,Q232,Q241,Q252,Q261 2PD601A
 Q263,Q265,Q266,Q281-Q283 2PD601A

Q301,Q302,Q401,Q601,Q705 2PD601A
 Q801-Q803,Q806,Q808 2PD601A
 Q811,Q812,Q821,Q822,Q833 2PD601A
 Q841,Q842,Q851,Q852 2PD601A
 Q861-Q863,Q882,Q892 2PD601A

Q991 2SB1237X
 Q103,Q602,Q701,Q711,Q804 DTA124EK
 Q809,Q832,Q893,Q941 DTA124EK
 Q102,Q202,Q702,Q703 DTC124EK
 Q712,Q713,Q807,Q813,Q894 DTC124EK

Q942,Q992 DTC124EK
 D991 11EQS06
 D701,D702 1SS254
 D602,D711 DAP202K
 D992 S5566G(TPB2)

D601 SVC201SPA

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Mark No.	Description	Part No.
COILS AND FILTERS		
L702	1H DELAY ADJUST COIL	DTL1001
L898		LAU100J
L299		LAU101J
L231,L232,L241,L242		LAU150J
L301,L302		LAU150J
L602		LAU1R0J
L351,L601,L802,L899		LAU220J
L403		LAU270J
L831,L881		LAU470J
L803		LAU820J
L701		LAU8R2J
L811		LFA220J
CAPACITORS		
C845		CCSQCH100D50
C745,C881		CCSQCH101J50
C829		CCSQCH120J50
C287,C840		CCSQCH150J50
C352		CCSQCH181J50
C351		CCSQCH200J50
C224,C231,C234,C242,C245		CCSQCH220J50
C310,C313		CCSQCH220J50
C627,C723,C872-C874,C899		CCSQCH221J50
C744		CCSQCH240J50
C882		CCSQCH270J50
C261,C415		CCSQCH330J50
C235,C246,C314,C765		CCSQCH390J50
C414		CCSQCH391J50
C402,C631,C632,C641,C827		CCSQCH470J50
C724		CCSQCH471J50
C624		CCSQCH4R0C50
C233,C244,C312,C620,C897		CCSQCH560J50
C413		CCSQCH561J50
C763		CCSQCH5R0C50
C232,C243,C311,C412		CCSQCH6R0D50
C628,C702		CEANP100M25
C606		CEANP1R0M50
C604		CEANP2R2M50
C770		CEAT100M50
C288,C983,C985		CEAT101M10
C713		CEAT1R0M50
C626,C714,C721		CEAT220M50
C262,C406		CEAT2R2M50
C834		CEAT330M16
C202,C217,C219,C221,C263		CEAT470M10
C267,C270,C291,C306,C401		CEAT470M10
C411,C607,C609,C611,C614		CEAT470M10
C619,C704,C732,C772,C783		CEAT470M10
C931,C935		CEAT470M10
C264,C281,C304,C717,C823		CEAT471M6R3
C842,C844,C989		CEAT471M6R3
C404,C408,C708,C710		CEAT4R7M50
C811		CEJA2R2M50

Mark No.	Description	Part No.
C766		CEJA470M10
C623		CFTLA334J50
C625,C718		CFTLA474J50
C201,C223		CKSQYB102K50
C191		CKSQYB104K25
C605		CKSQYB222K50
C204,C207,C403,C409,C410		CKSQYF103Z50
C602,C613,C615,C705-C707		CKSQYF103Z50
C716,C719,C720,C722,C767		CKSQYF103Z50
C771,C828,C830-C833,C988		CKSQYF103Z50
C991		CKSQYF103Z50
C102,C103,C203,C206,C209		CKSQYF104Z25
C211-C216,C218,C220,C222		CKSQYF104Z25
C236,C238,C241,C247		CKSQYF104Z25
C249,C250,C252,C265,C266		CKSQYF104Z25
C282,C292,C301-C303,C305		CKSQYF104Z25
C307-C309,C315,C316,C321		CKSQYF104Z25
C601,C603,C608,C610,C612		CKSQYF104Z25
C616,C618,C621,C629,C642		CKSQYF104Z25
C709,C731,C761,C762		CKSQYF104Z25
C768,C769,C812,C821,C822		CKSQYF104Z25
C824-C826,C835-C839,C841		CKSQYF104Z25
C843,C846-C848,C851,C853		CKSQYF104Z25
C861,C863,C865,C902,C904		CKSQYF104Z25
C932,C934,C936,C938,C984		CKSQYF104Z25
C986		CKSQYF104Z25
C699		CKSQYF104Z50
C22,C28,C3		CKSQYF473Z25
C407		CQMA102J50
C405,C701		CQMA103J50
C711,C712,C715		CQMA473J50
C903	(47μF/10V)	RCH1139
VC651	(20pF)	VCM-008
VC451	(45pF)	VCM1002
RESISTORS		
R854,R870,R871,R618		RN1/10SC75R0D
R287		RN1/10SE1001D
R731,R733		RN1/10SE1302D
R765		RN1/10SE1602D
R843		RN1/10SE1801D
R841		RN1/10SE2201D
R713,R732,R734,R844		RN1/10SE2702D
R826,R857		RN1/10SE3301D
R769		RN1/10SE3901D
R607,R845,R608		RN1/10SE4701D
R284		RN1/10SE5601D
R282,R285		RN1/10SE9100D
VR261	(1kΩ)	VCP1105
VR201,VR706,VR731,VR732	(2.2kΩ)	VCP1107
VR702	(4.7kΩ)	VCP1109
VR701	(10kΩ)	VCP1111
VR751,VR752	(22kΩ)	VCP1113
Other Resistors		RS1/10S□□□J

Mark No.	Description	Part No.
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OTHERS

CN103	6P FFC CONNECTOR	52045-0645
JA903	1P PIN JACK	AKB7096
CN101	14P CONNECTOR	BTFN14P-3RD7
CN102	20P CONNECTOR	BTFN20P-3RD7
DL701	DELAY LINE	DTF1033
902	4P DIN SOCKET	VKN1078
	SCREW PLATE	VNE1948
X601	(17.734475MHz)	VSS1059
X401	(4.433619MHz)	VSS1090
X742	(4.433619MHz)	VSS1091
X741	(3.579545MHz)	VSS1092

S MSWB ASSY**CAPACITORS**

⚠ C1101	(4700pF/AC250V)	ACG7009
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OTHERS

⚠ S1101	PUSH SWITCH	ASG1006
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6. ADJUSTMENT

6.1 ADJUSTMENT ITEMS AND LOCATION

■ Adjustment Items

[Mechanical Part]

CLD

- ① Tilt Offset Adjustment
- ② 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

DVD

- ⑩ RF MAX Adjustment
- ⑪ DVD Jitter Adjustment

[Electrical Part]

CLDM ASSY

- ① Video Level Adjustment
- ② 18MHz Master Clock Adjustment

DVDM ASSY

- ① VCO Offset Adjustment
- ② Video Output Level Adjustment

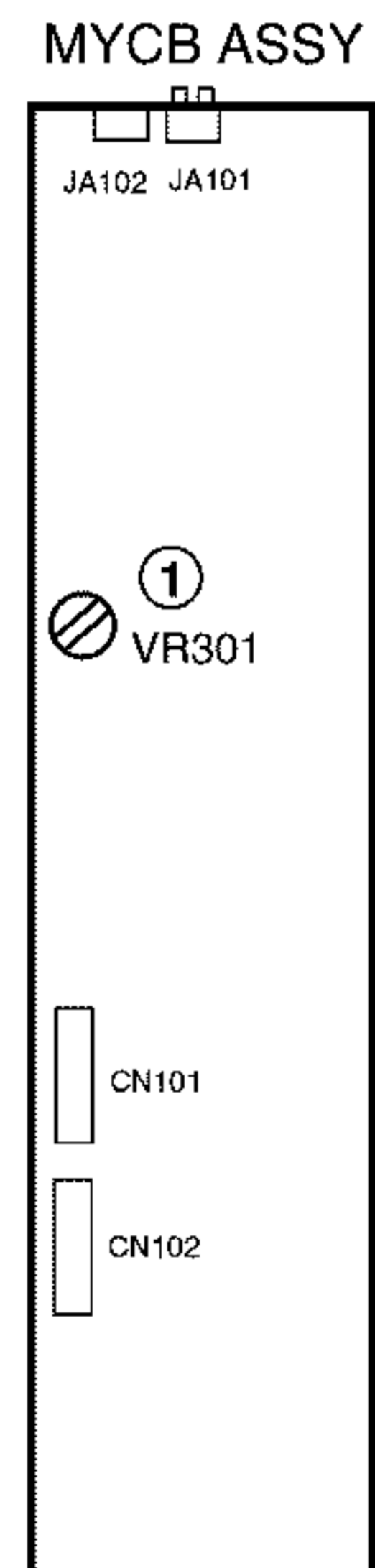
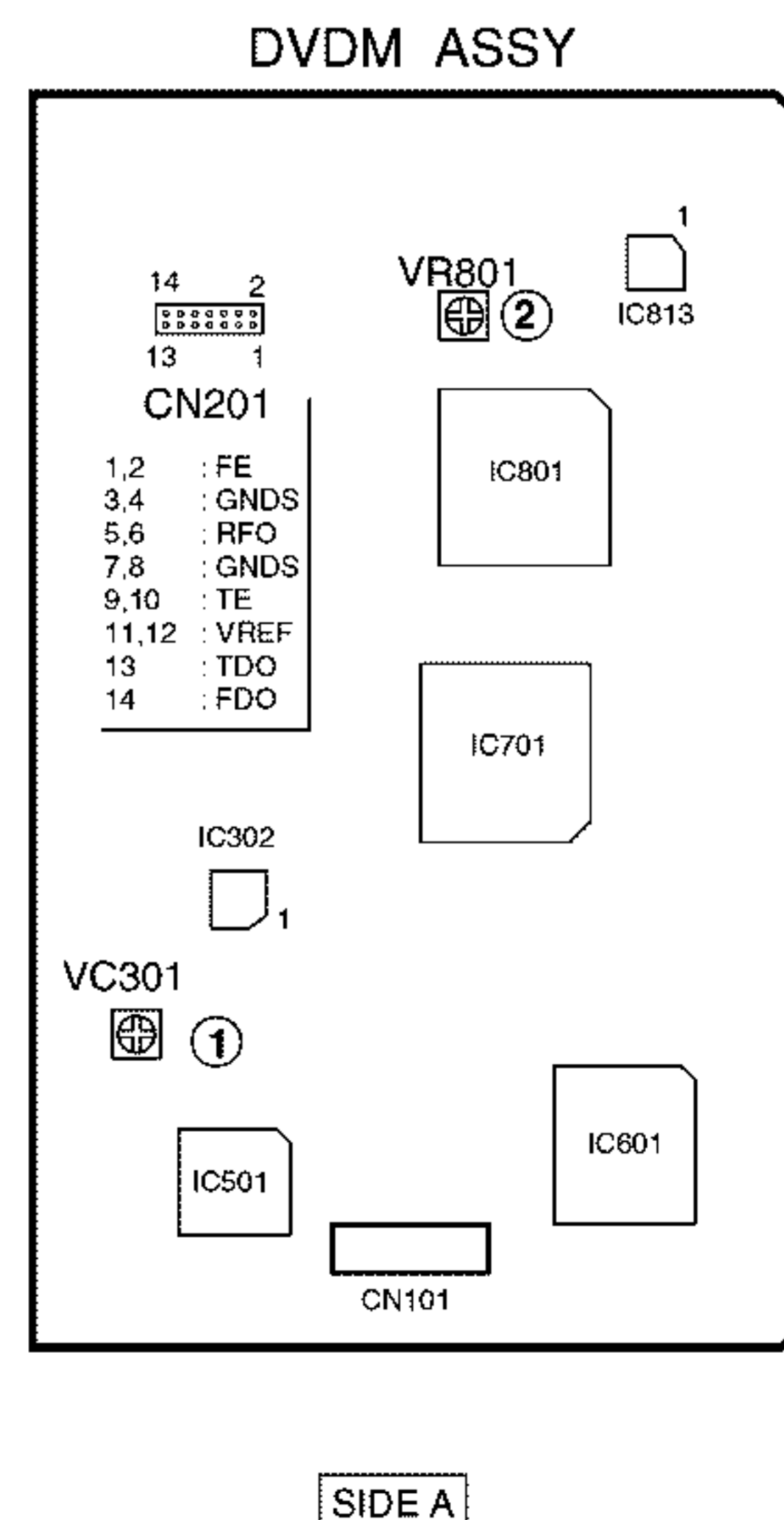
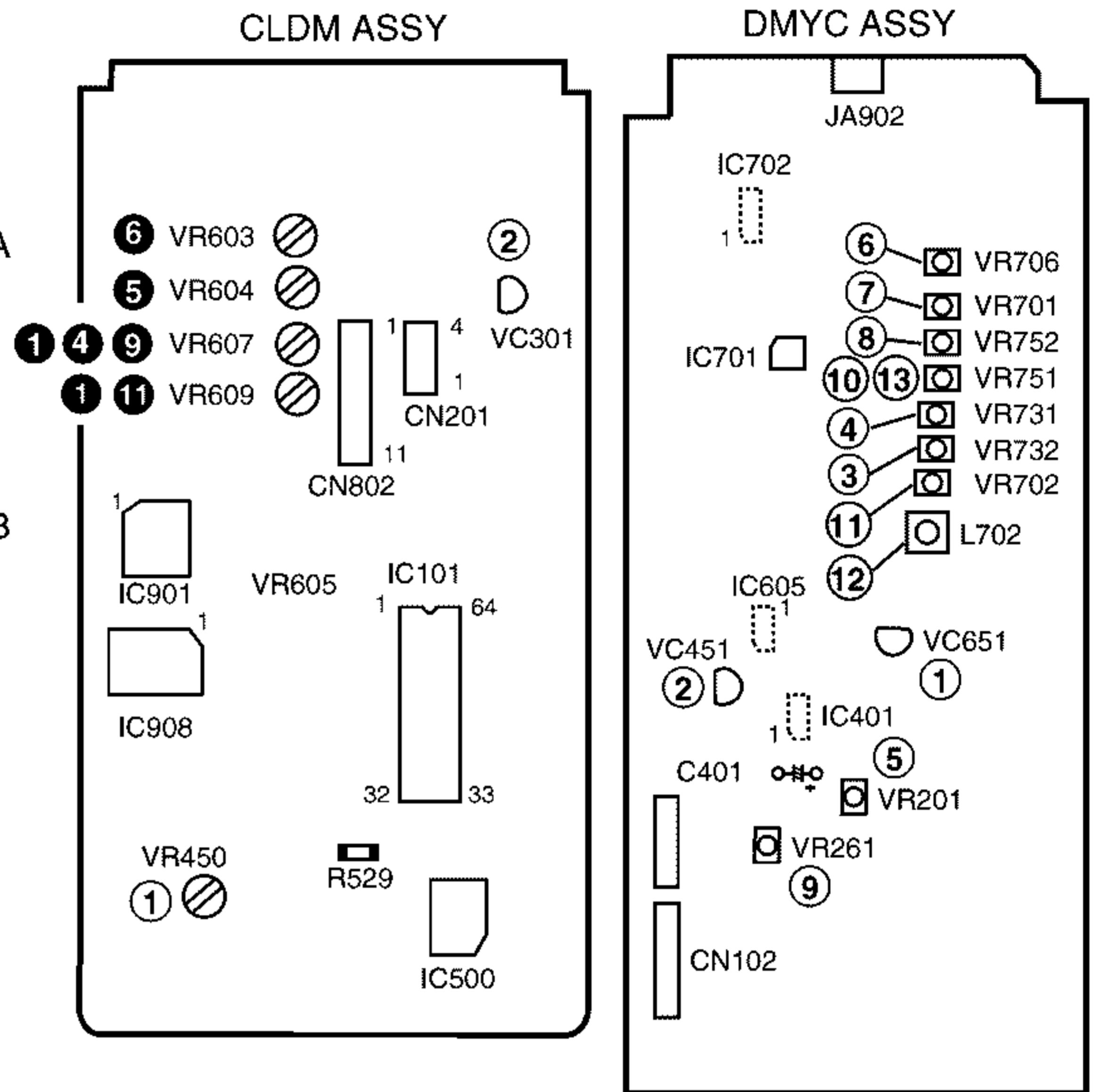
DMYC ASSY

- ① 17MHz Free-run Frequency Adjustment
- ② 4.43MHz Free-run Frequency Adjustment for Y/C Separation
- ③ PAL 4.43MHz Free-run Frequency Adjustment for RGB Decoder
- ④ NTSC 3.58MHz Free-run Frequency Adjustment for RGB Decoder
- ⑤ NTSC Y Level Adjustment
- ⑥ RGB Decoder Y Level Adjustment
- ⑦ RGB Decoder HUE Adjustment
- ⑧ RGB Decoder NTSC Chroma Level Adjustment
- ⑨ PAL Y Level Adjustment
- ⑩ Coarse RGB Decoder PAL Chroma Level Adjustment
- ⑪ RGB Decoder PAL Delay Line Amp Gain Adjustment
- ⑫ RGB Decoder PAL DAT Adjustment
- ⑬ Fine RGB Decoder PAL Chroma Level Adjustment

MYCB ASSY

- ① Y Output Level Adjustment

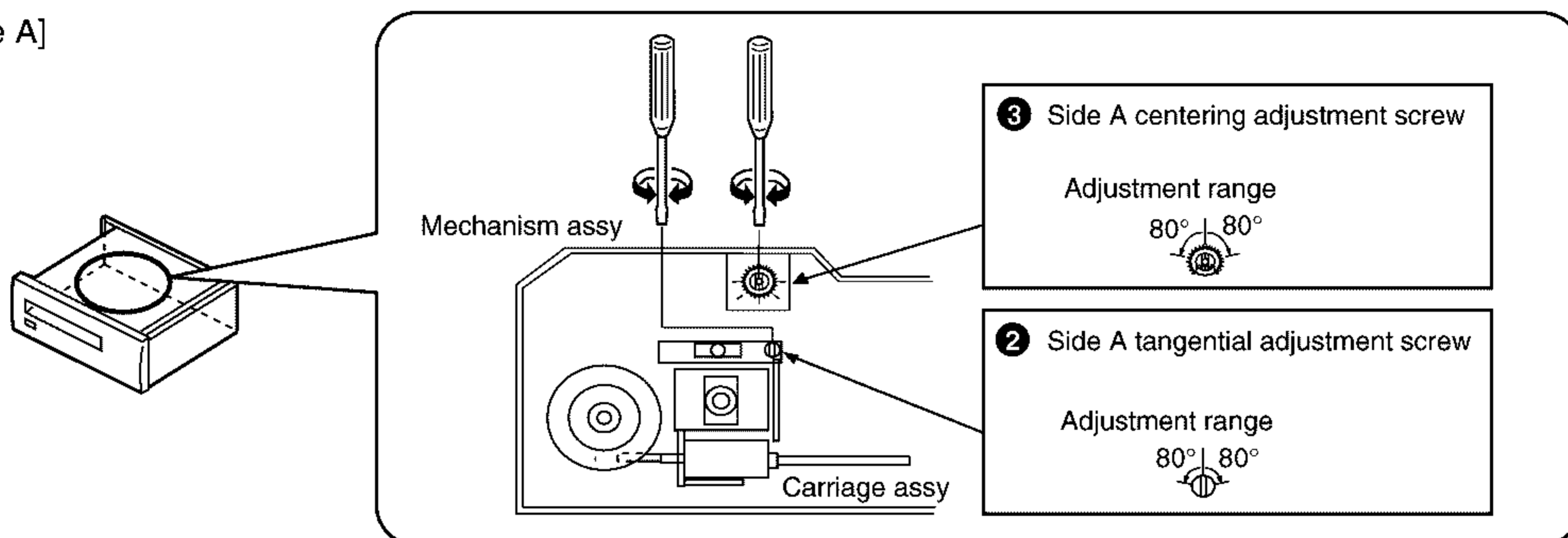
■ Adjustment Points (PCB Part)



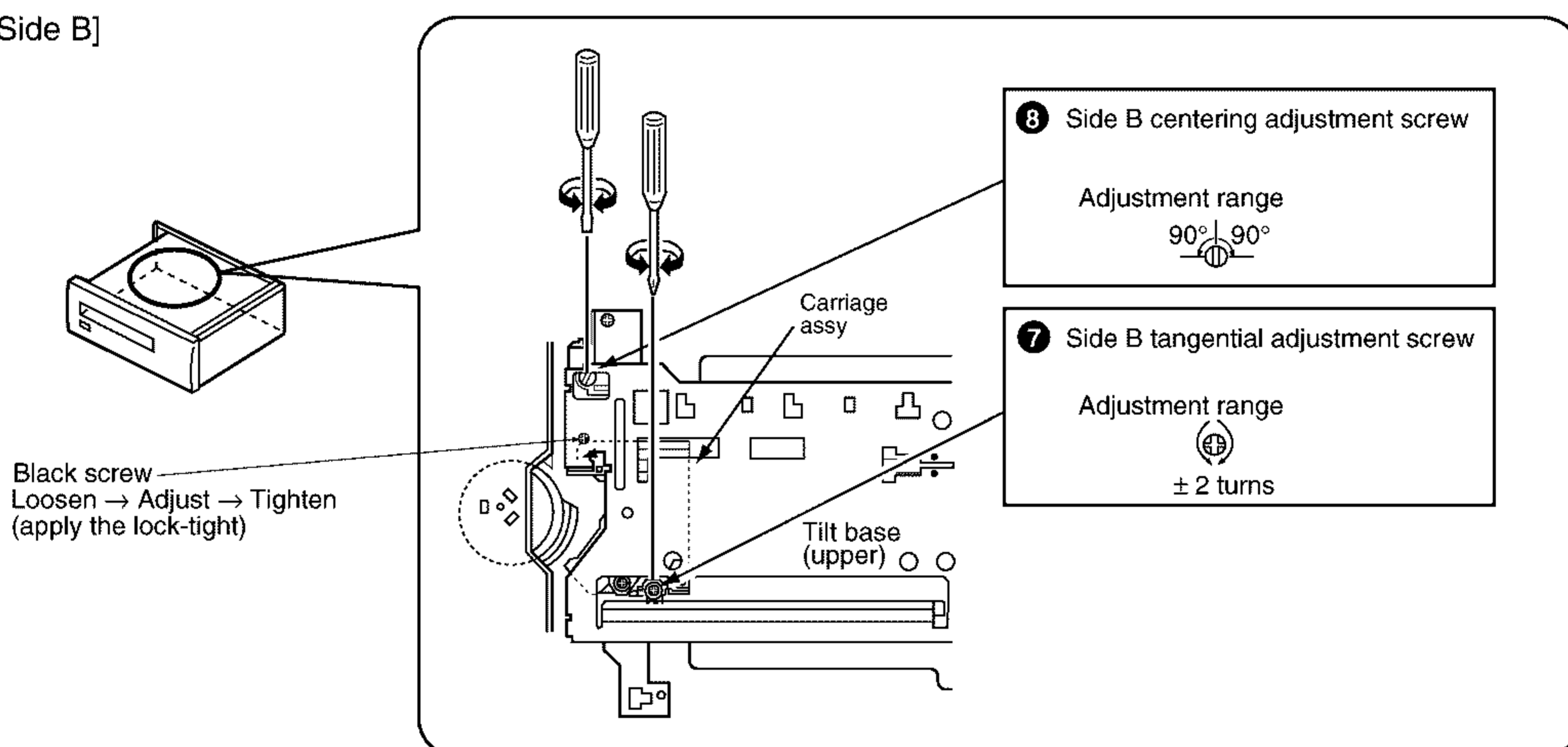
■ Adjustment Points (Mechanism Part)

CLD

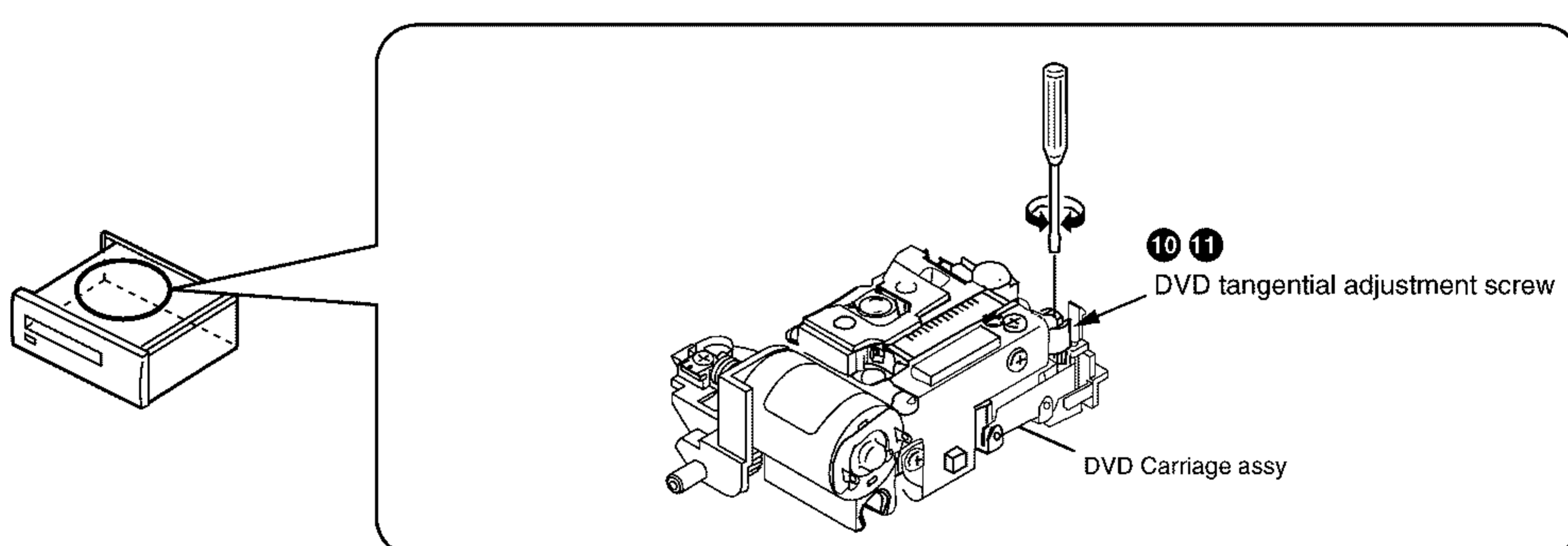
[Side A]



[Side B]


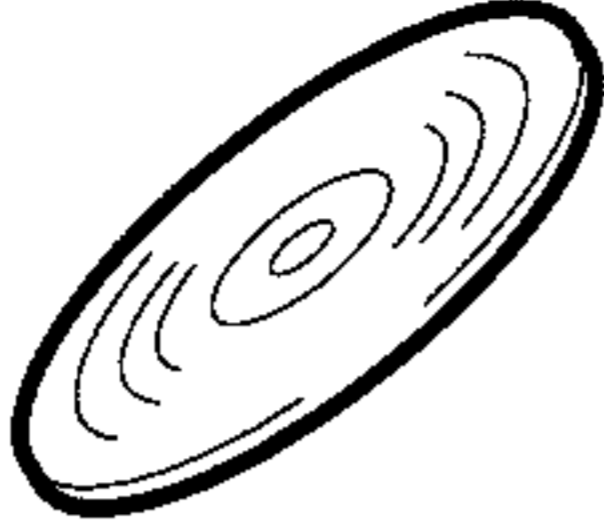



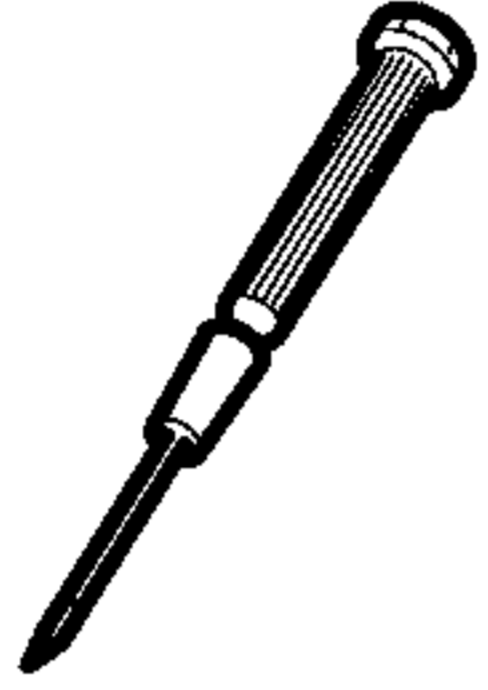
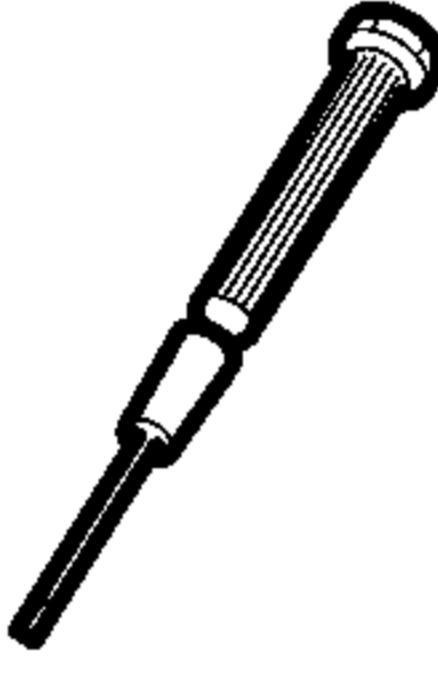

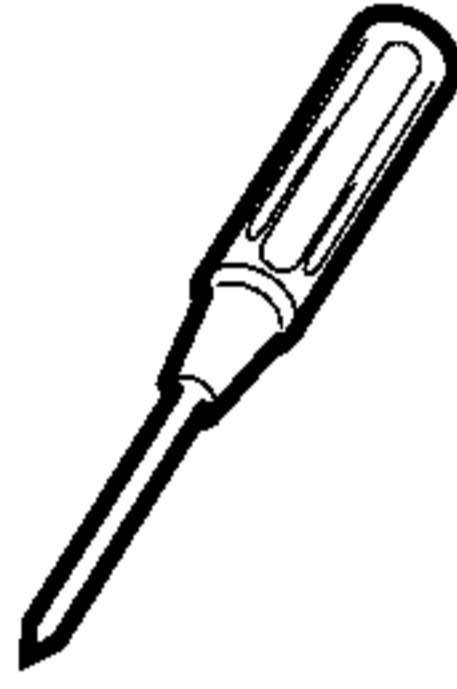
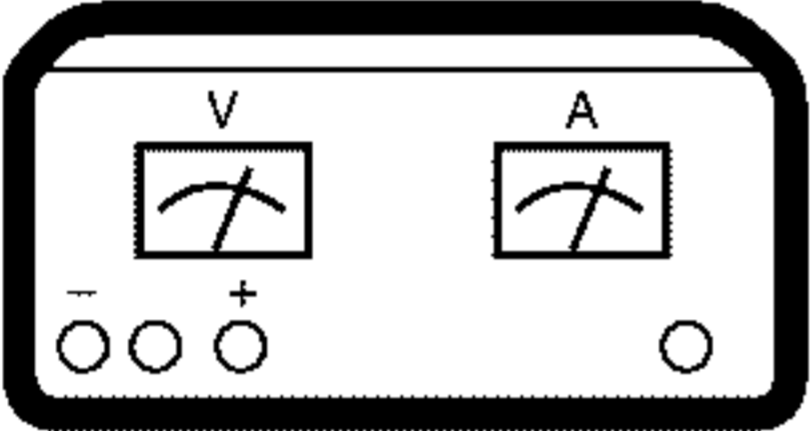
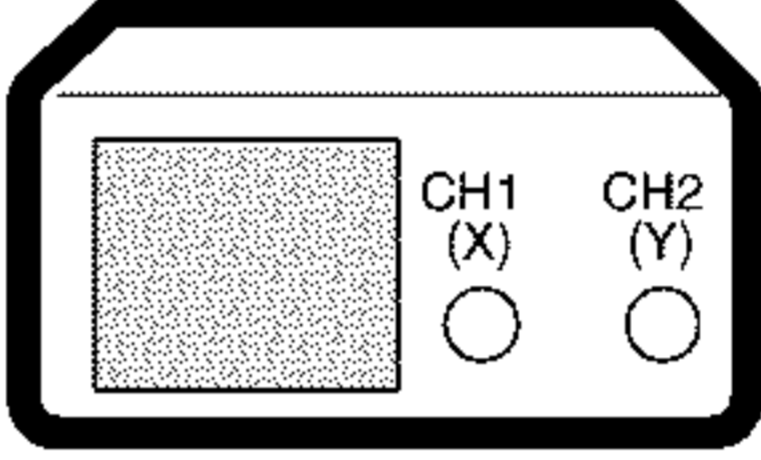

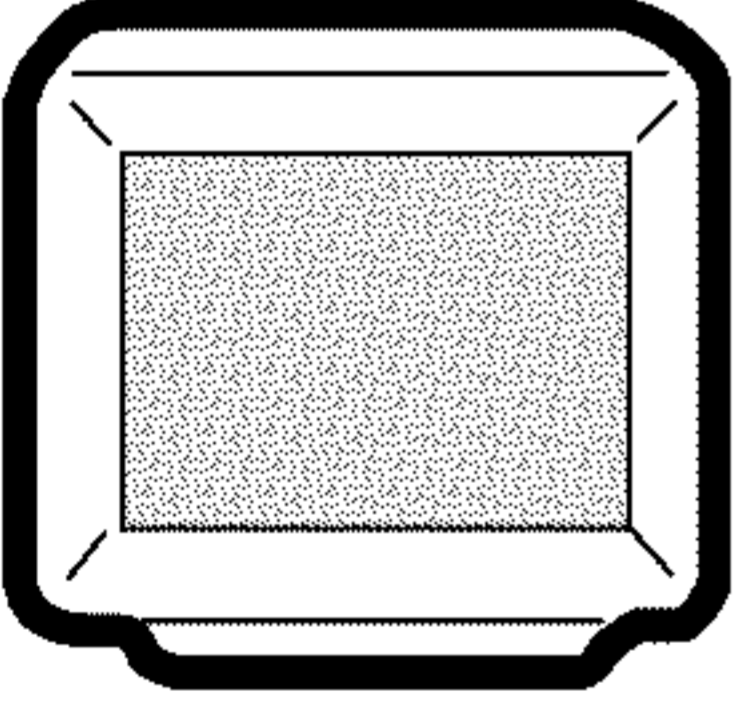
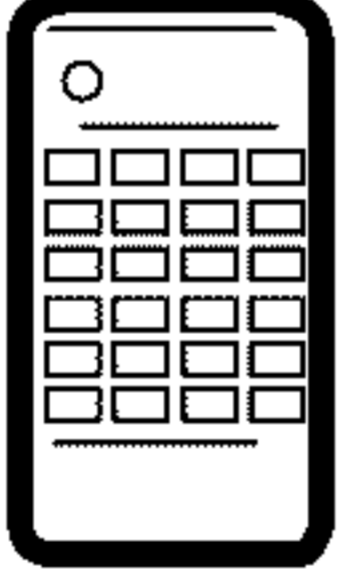
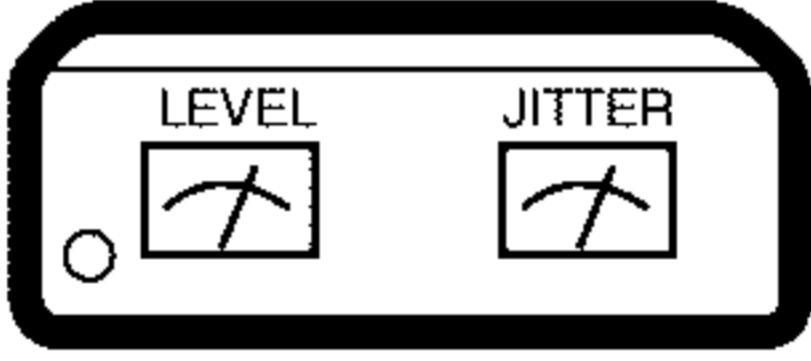

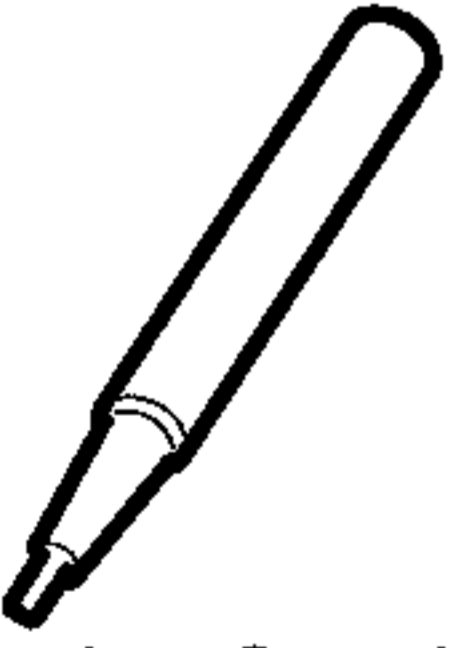


DVD



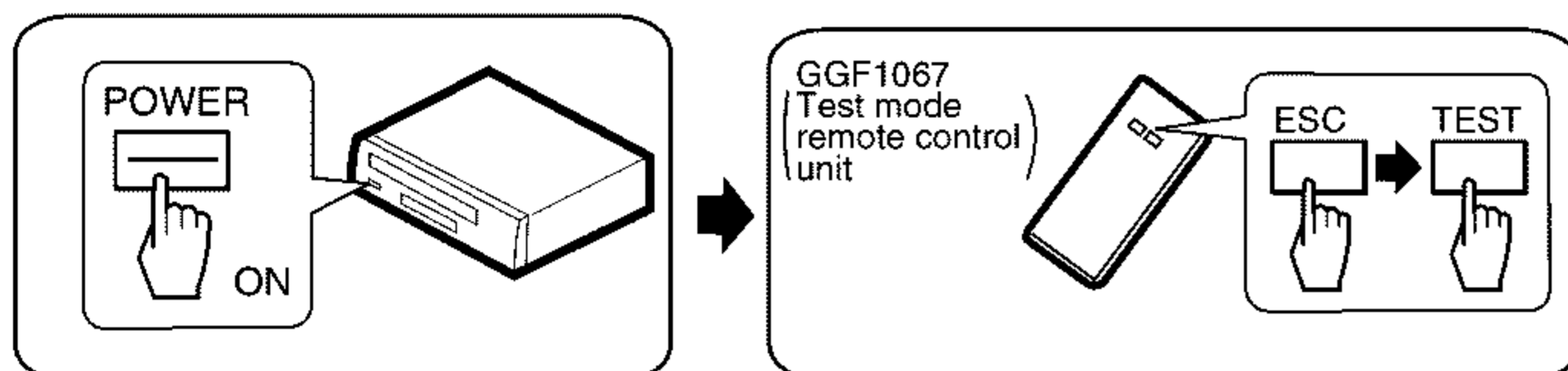
Note : Apply the lock-tight.

6.2 JIGS AND MEASURING INSTRUMENTS

 <p>CD test disc (YEDS-7)</p>	 <p>LD test disc (NTSC :GGV1012) (PAL :GGV1007)</p>	 <p>DVD test disc (DVD-MJK1)</p>	 <p>⊖ Screwdriver (medium)</p>
 <p>⊖ Screwdriver (small)</p>	 <p>⊕ Precise screwdriver</p>	 <p>⊖ Precise screwdriver</p>	 <p>⊕ Screwdriver (large)</p>
 <p>⊕ Screwdriver (medium)</p>	 <p>DC power supply</p>	 <p>Dual-trace oscilloscope (with delay) Frequency band $\geq 40\text{MHz}$</p>	 <p>Frequency counter Display digit $\geq 8\text{-digit}$</p>
 <p>TV monitor</p>	 <p>Test mode remote control unit (GGF1067)</p>	 <p>Jitter meter</p>	 <p>Equalizer unit</p>
 <p>Plastic or Ceramic ⊖ Screwdriver (small)</p>			

6.3 TEST MODE

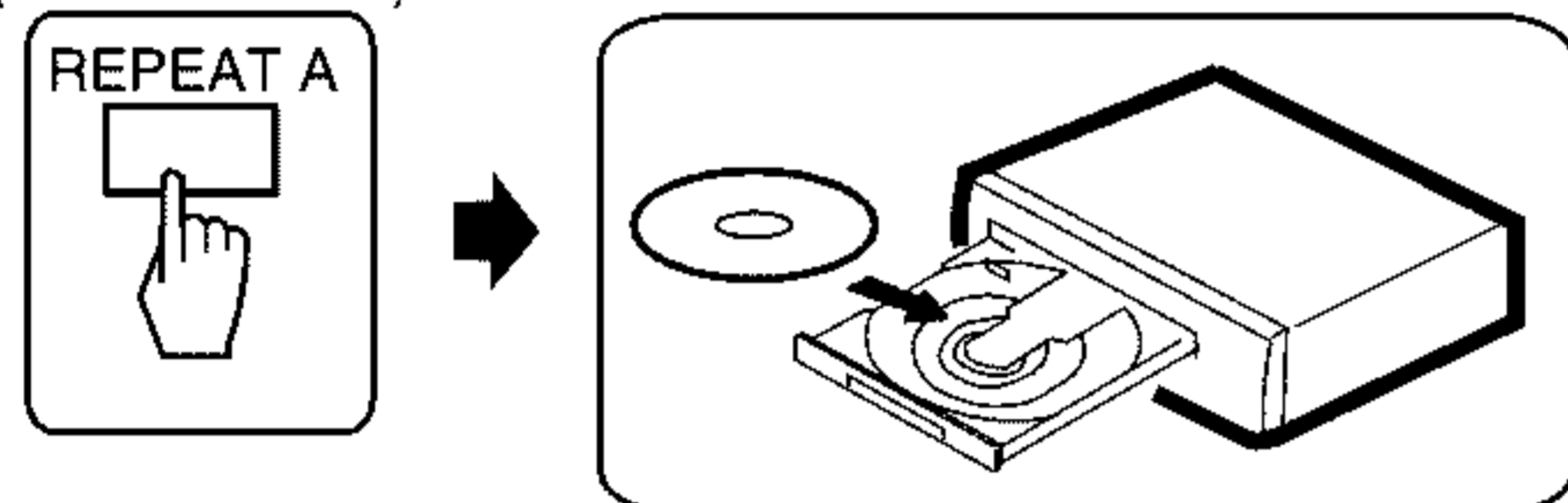
TEST MODE: ON



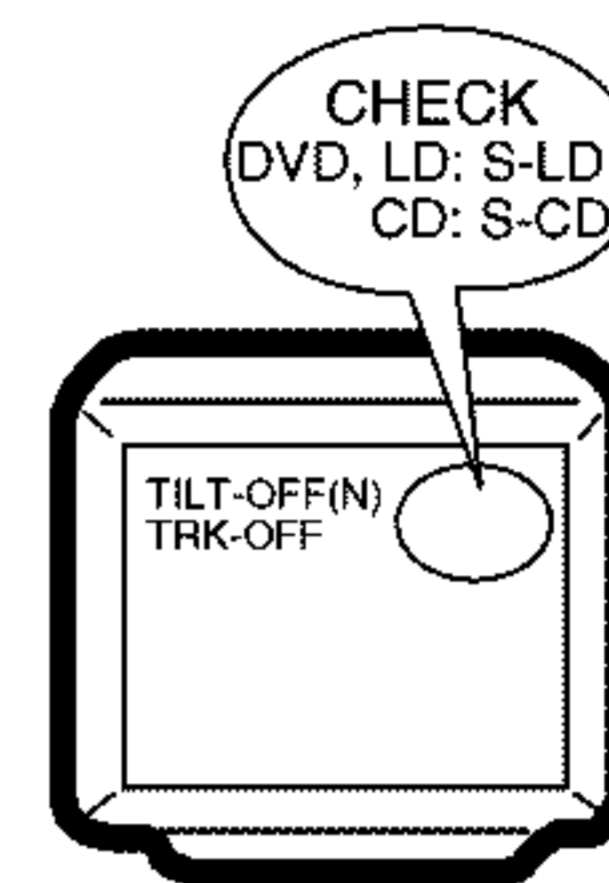
TEST MODE: DISC SET

• With TRAY

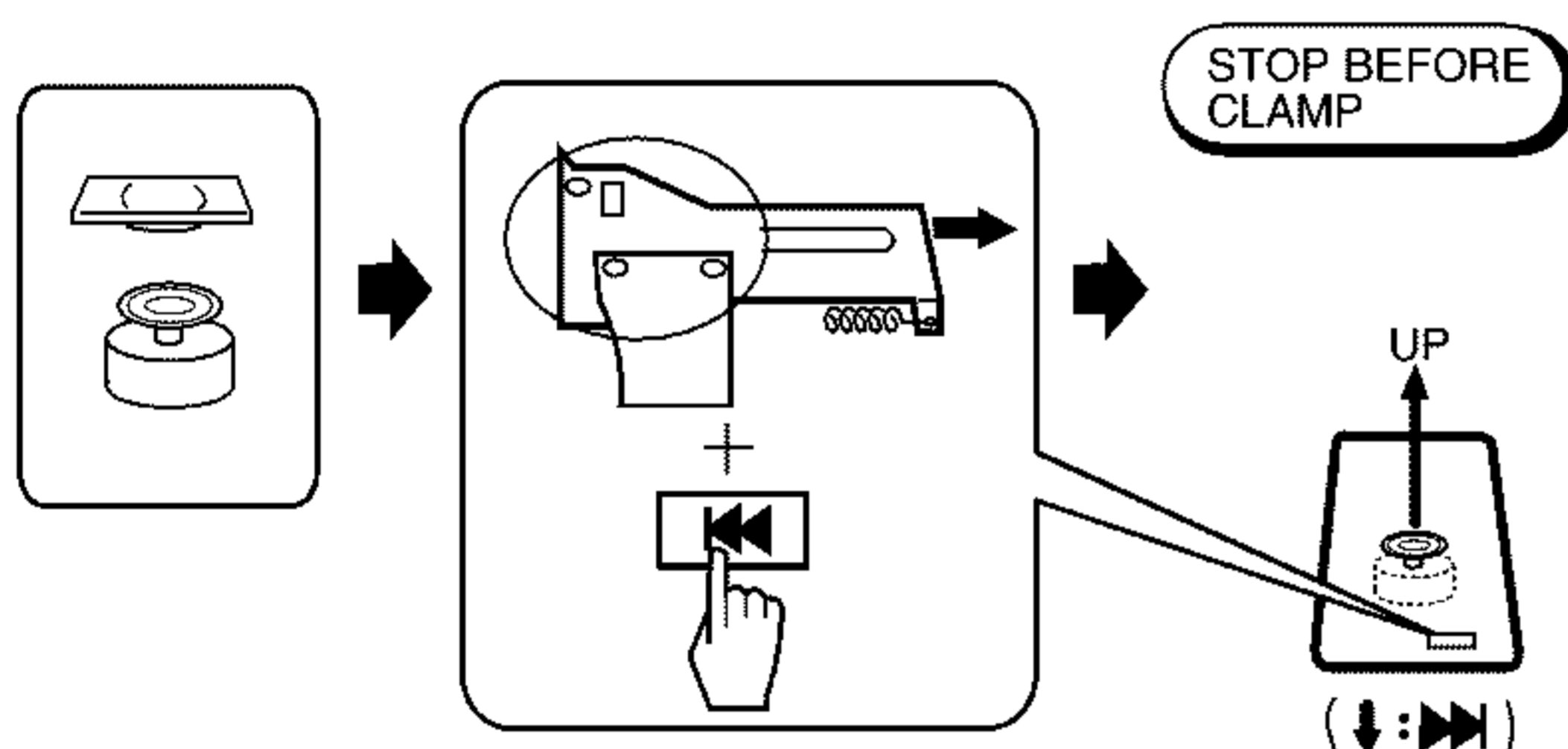
<TRAY OPEN>



<TRAY CLOSE>

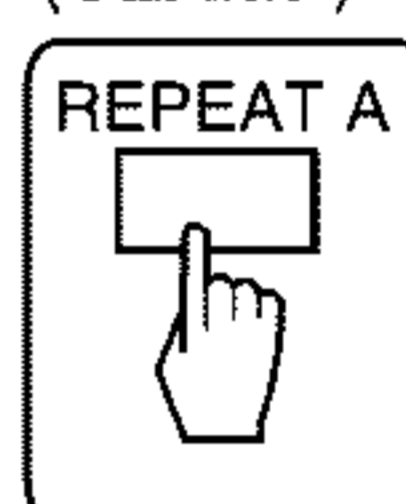


• No TRAY



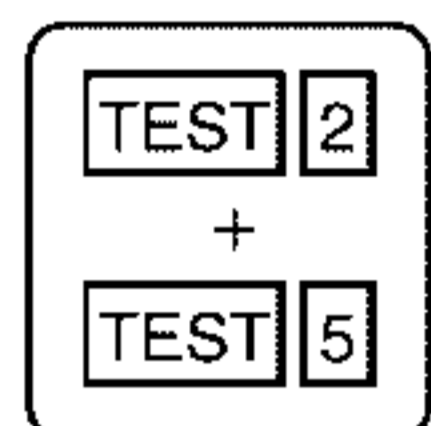
<DISC SET>

<CLAMP>

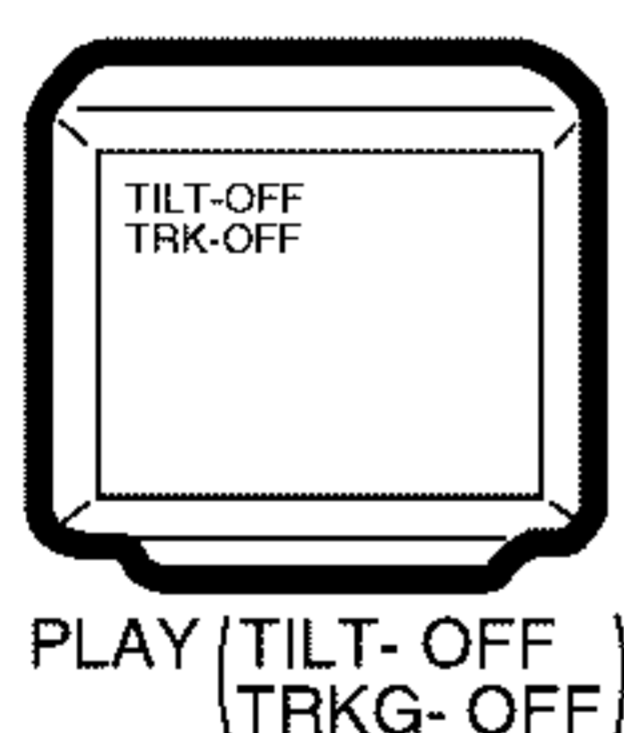
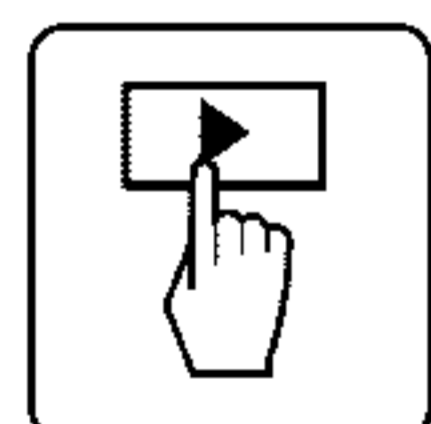


TEST MODE: PLAY

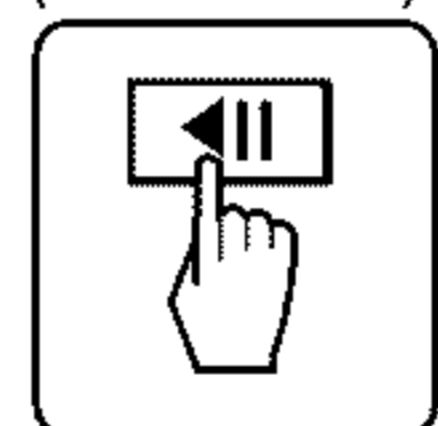
<TRKG OFF PLAY>



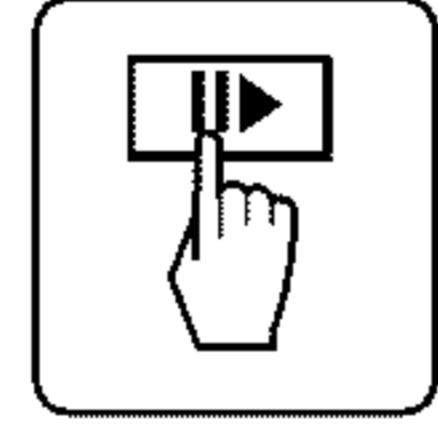
<TRKG ON PLAY>



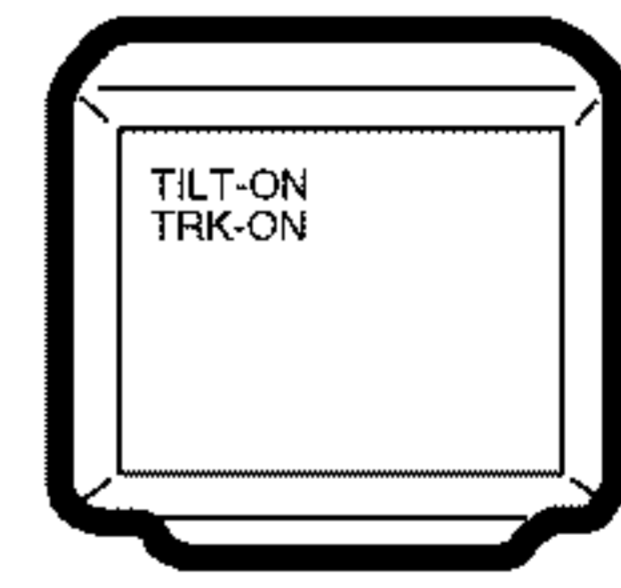
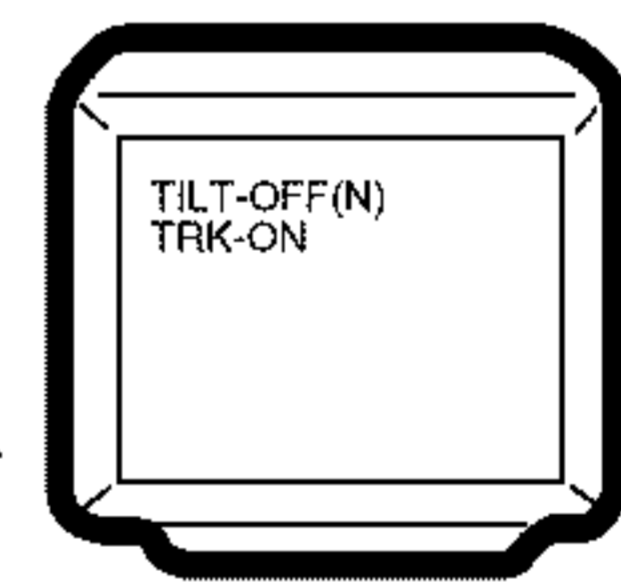
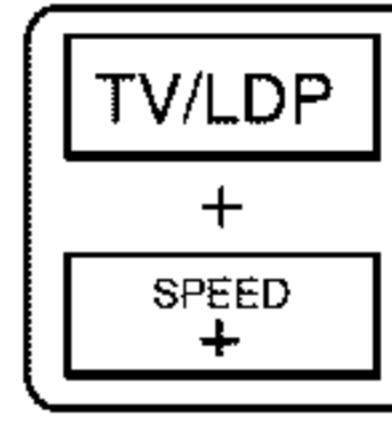
<TRKG ON>



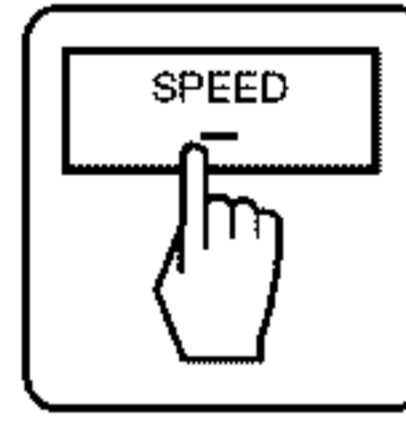
<TRKG OFF>



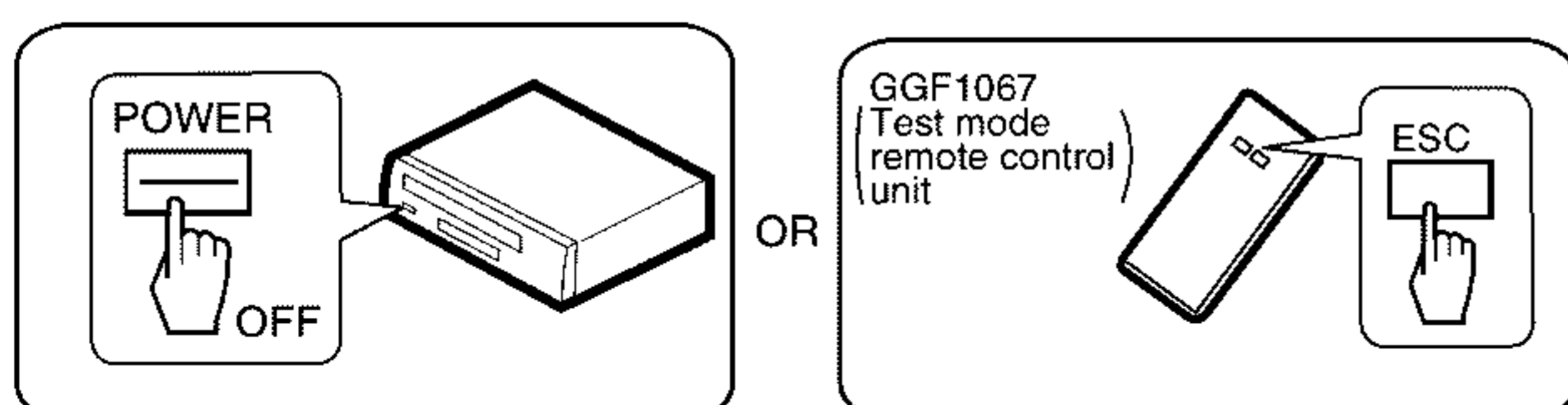
<TILT ON>



<TILT OFF>



TEST MODE: OFF



DVL-909

6.4 NECESSARY ADJUSTMENT POINTS

When

Adjustment Points

■ EXCHANGE MECHANISM ASSY PARTS

Exchange pickup (CLD)	➔	Mechanical point	①, ②, ③, ④, ⑤, ⑥, ⑦, ⑧, ⑨
		Electric point	_____
Exchange pickup (DVD)	➔	Mechanical point	⑩, ⑪
		Electric point	_____
Exchange spindle motor	➔	Mechanical point	③, ⑧
		Electric point	_____

■ EXCHANGE PCB ASSY

Exchange board CLDM ASSY	➔	Mechanical point	①, ④, ⑤, ⑥, ⑨
		Electric point	_____
Exchange board DVDM ASSY	➔	Mechanical point	⑩, ⑪
		Electric point	_____

Note : ① and ② are adjusted already.

Note : ① and ② are adjusted already.

- When replacing the FLASH MEMORY (IC603) on the DVDM Assy, follow the "6.5 REGION SETTING".

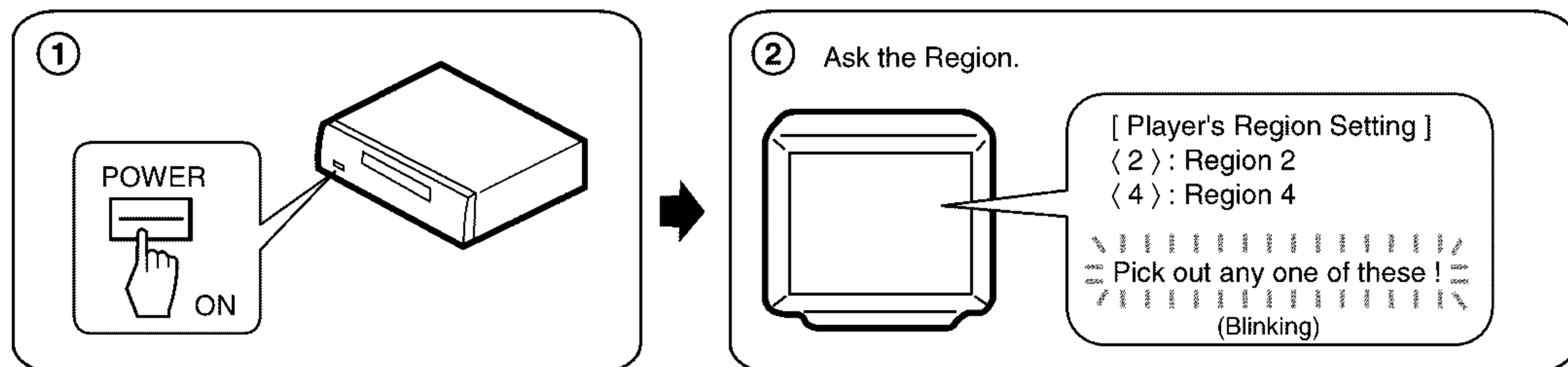
Exchange board DMYC ASSY	➔	Mechanical point	_____
		Electric point	_____
Exchange board MYCB ASSY	➔	Mechanical point	_____
		Electric point	_____

Note : ① - ⑬ are adjusted already.

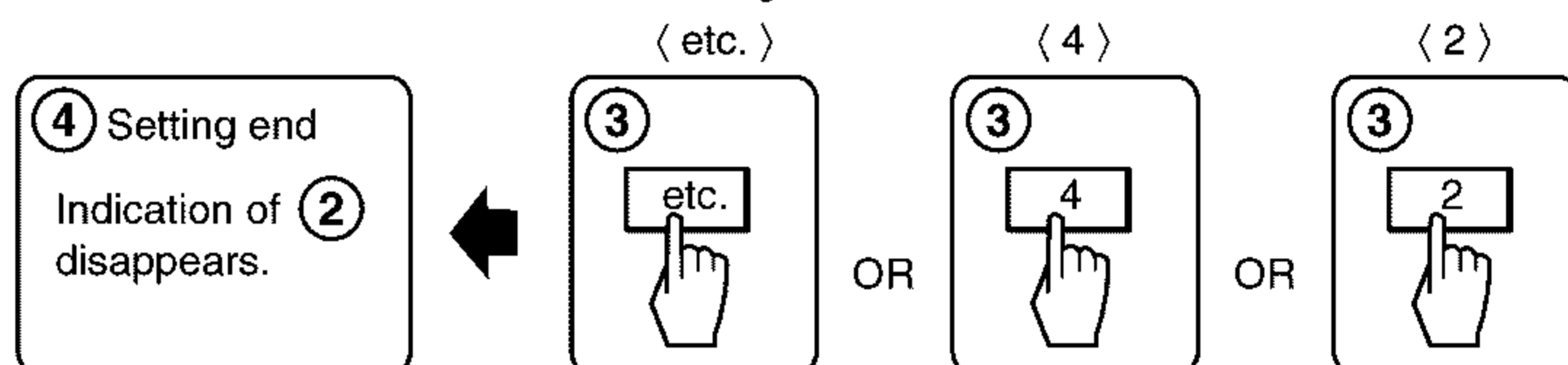
Note : ① is adjusted already.

6.5 REGION SETTING

Perform this operation after confirming the region number of each destination on the cover.
 Region number decided once can be changed never again.



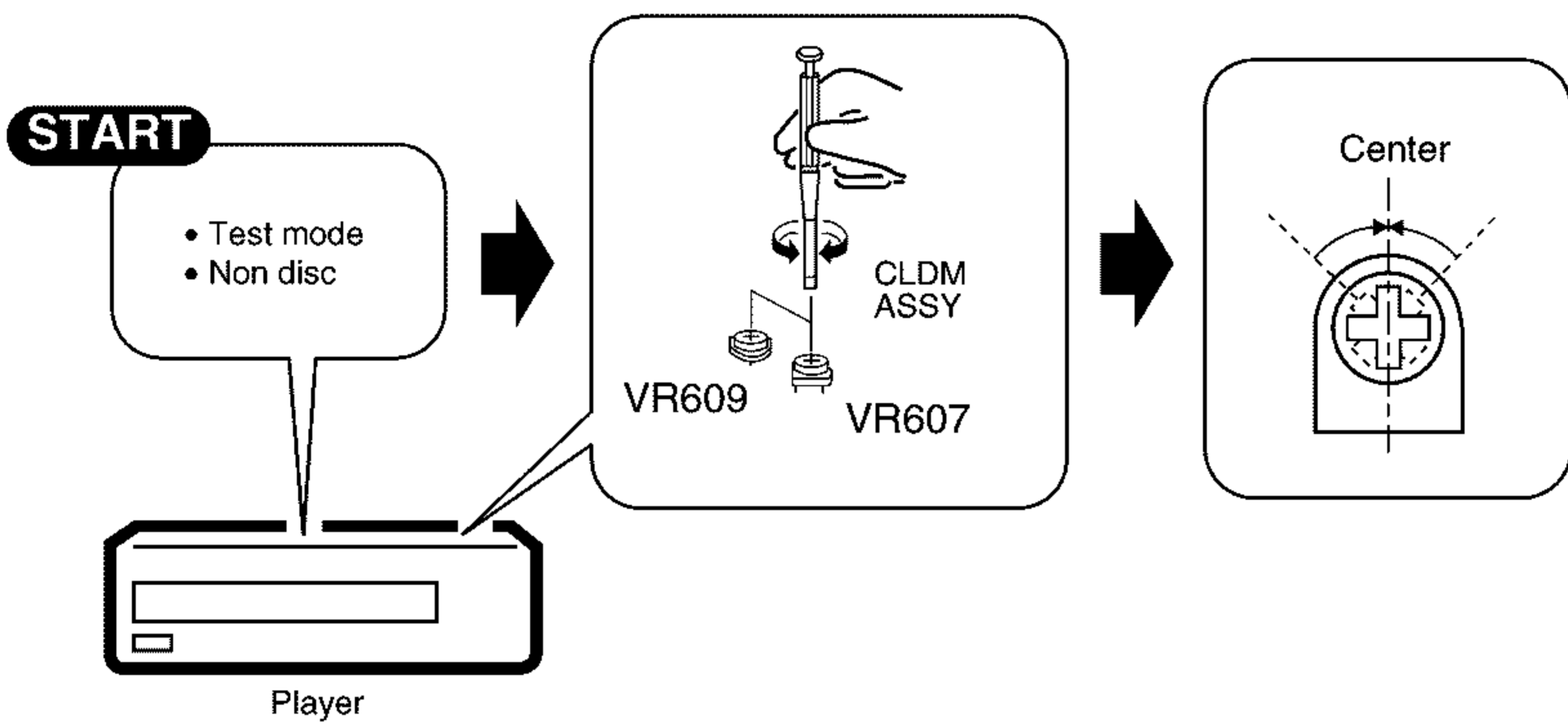
Note : Region is decided by destination of the player automatically, and there is a case when it doesn't ask on this screen. There is not need of this setting at that occasion.



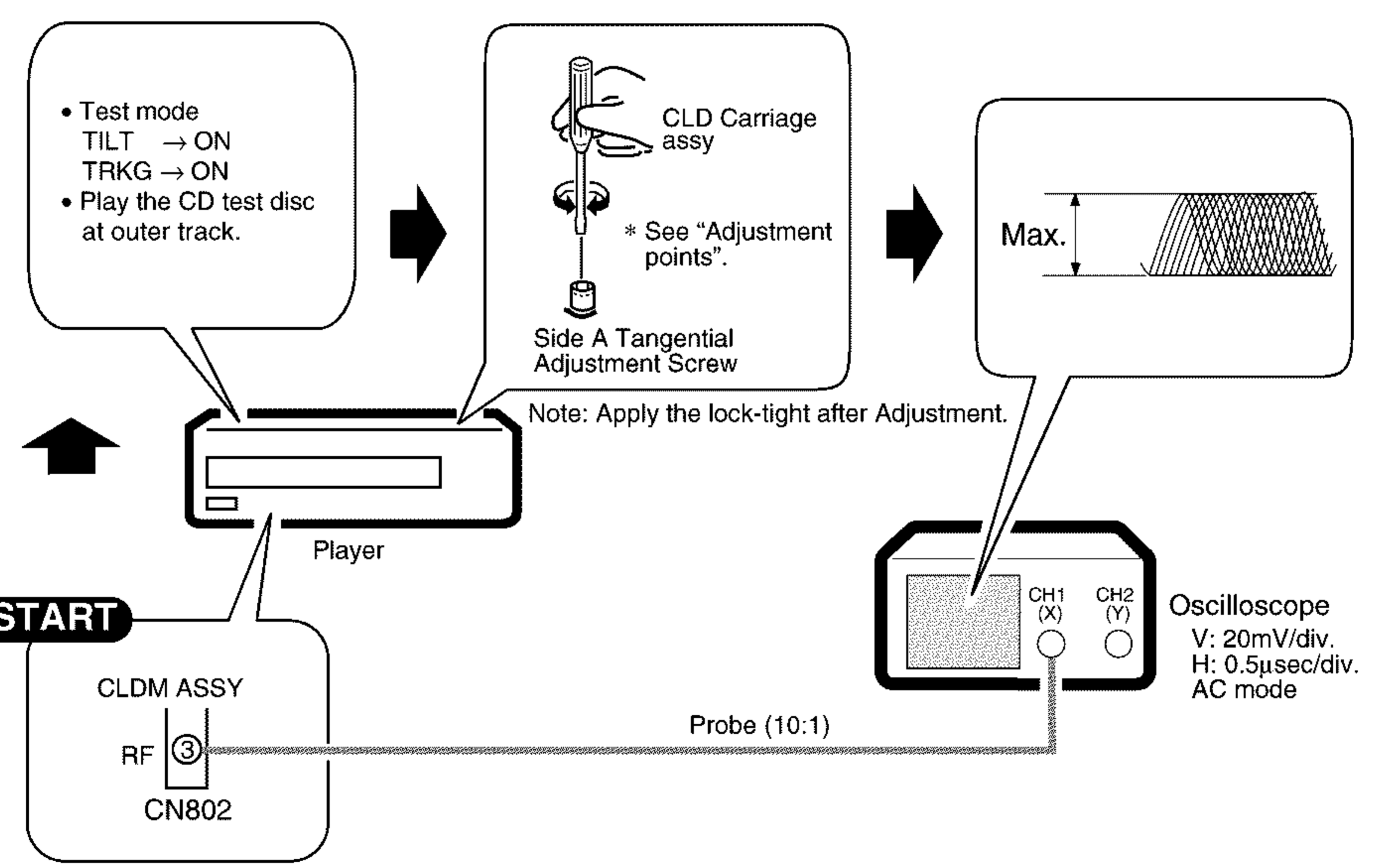
Key input the number with the test mode remote control unit (GGF1067).

6.6 MECHANICAL ADJUSTMENT

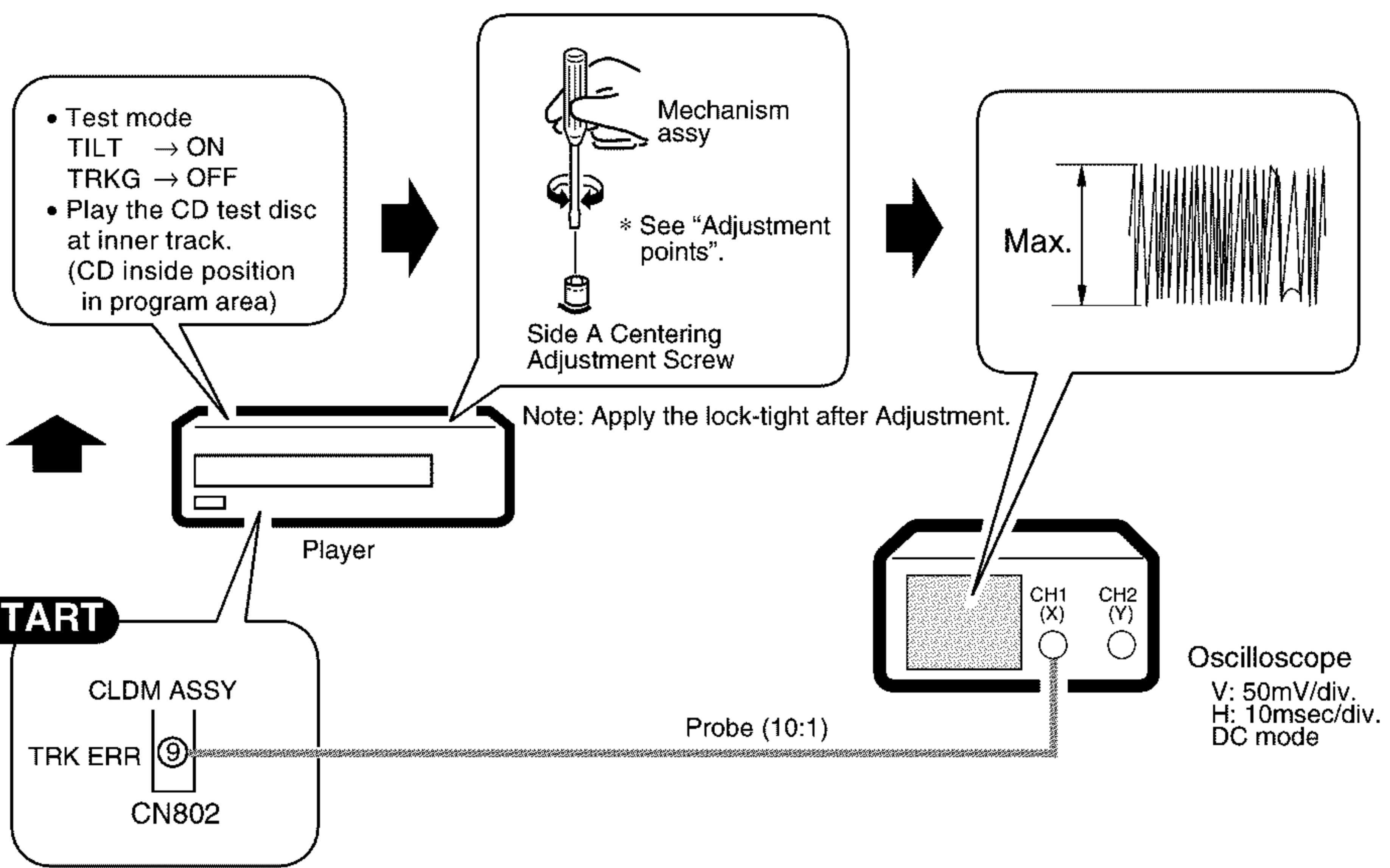
1 Tilt Offset Adjustment



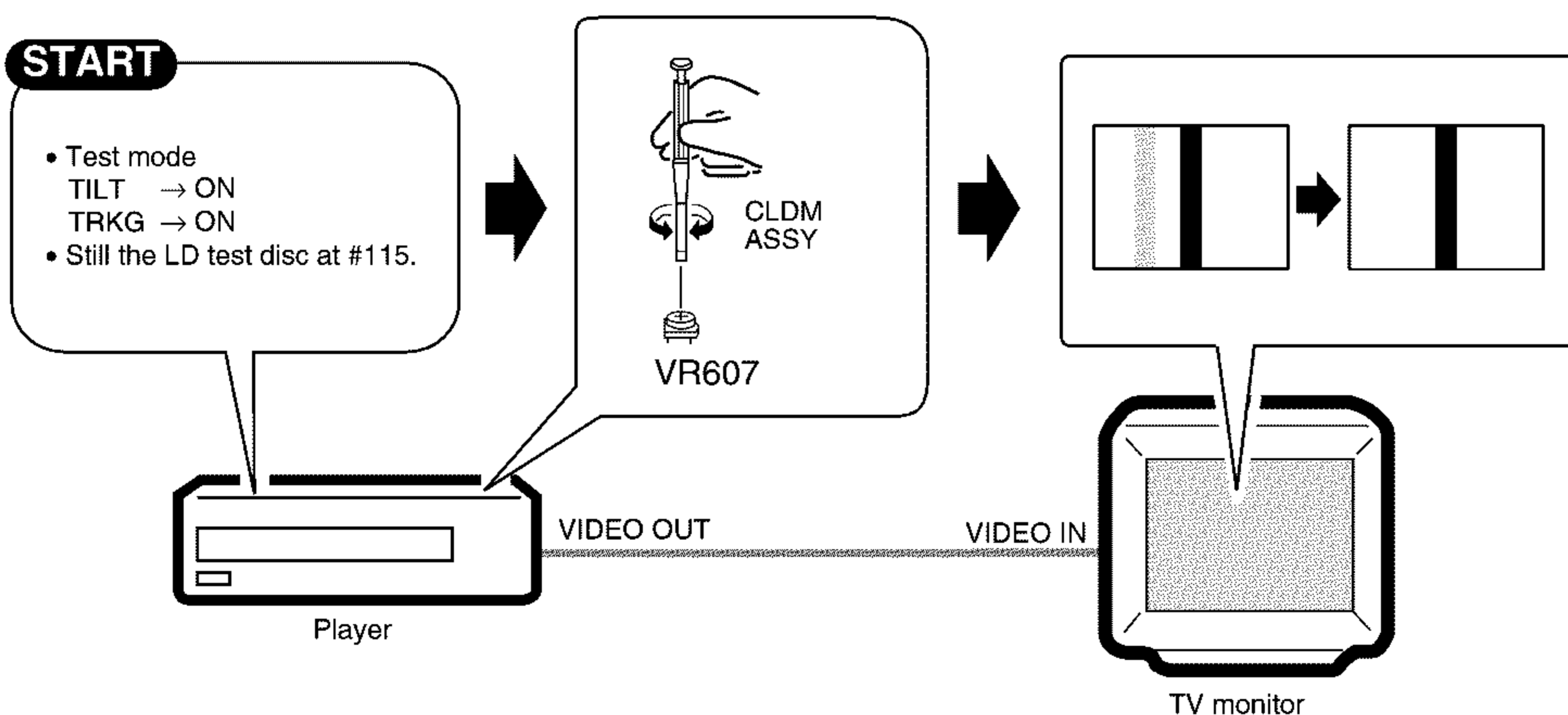
2 Tangential Direction Angle Adjustment for Side A

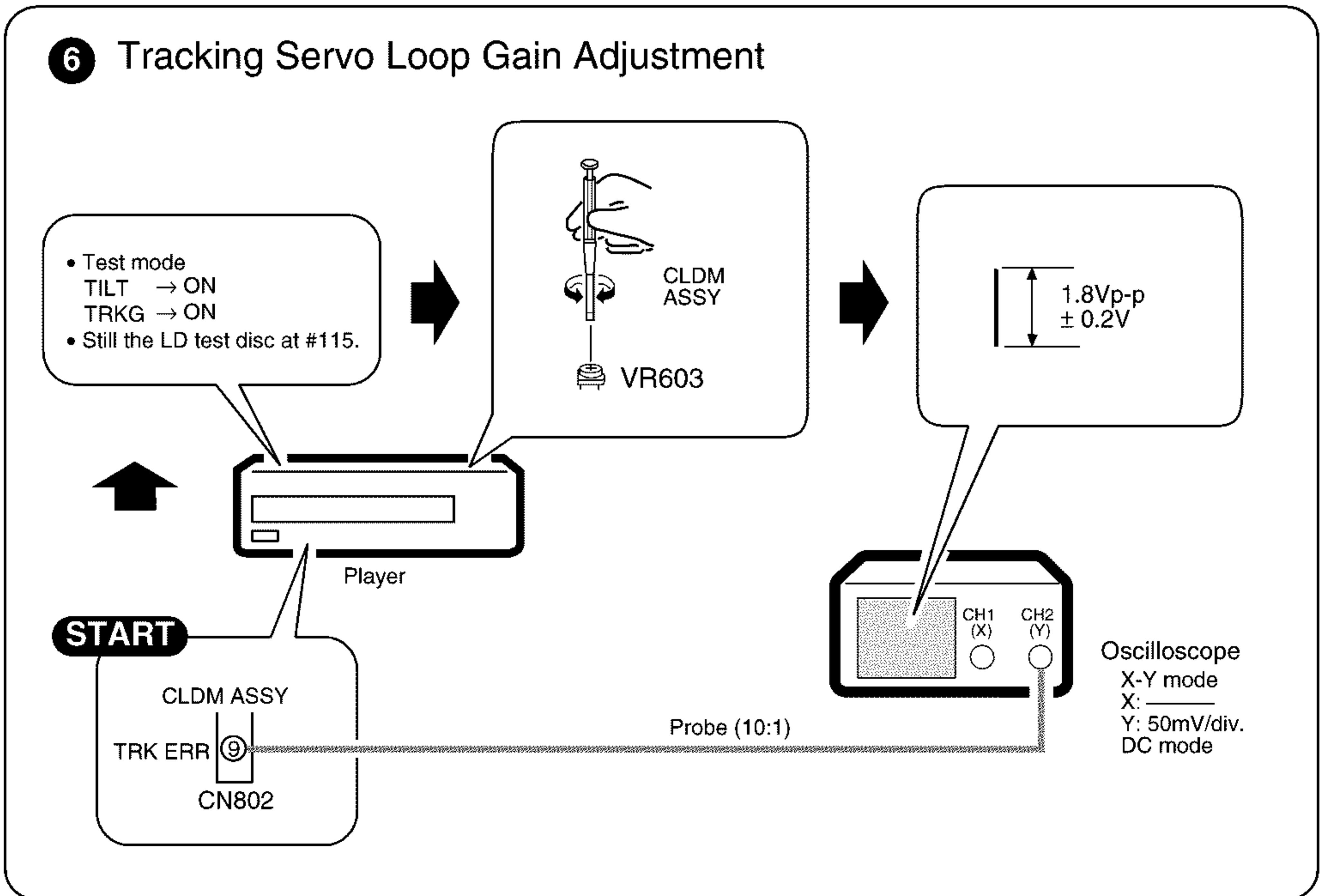
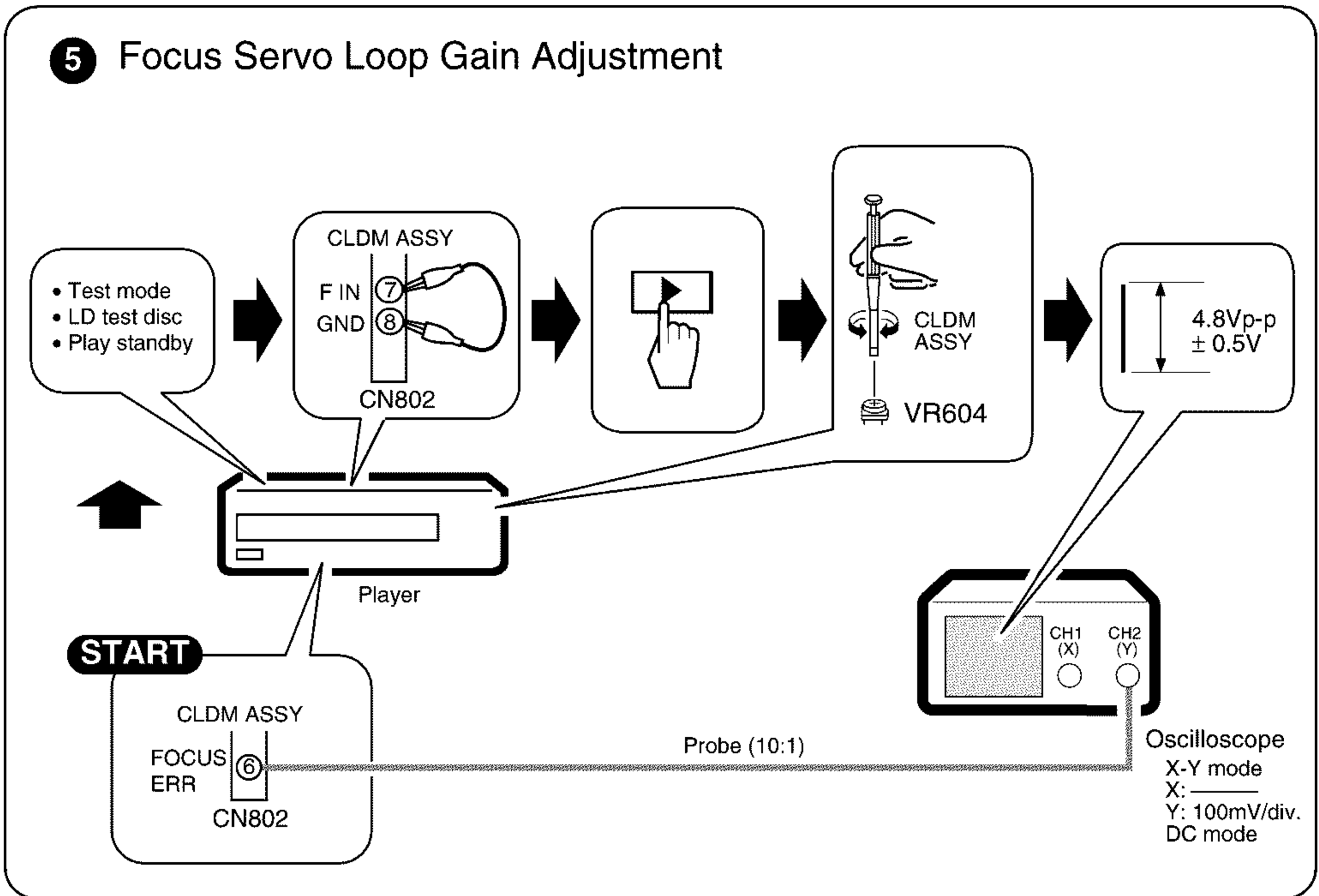


3 Spindle Motor Centering Adjustment for Side A

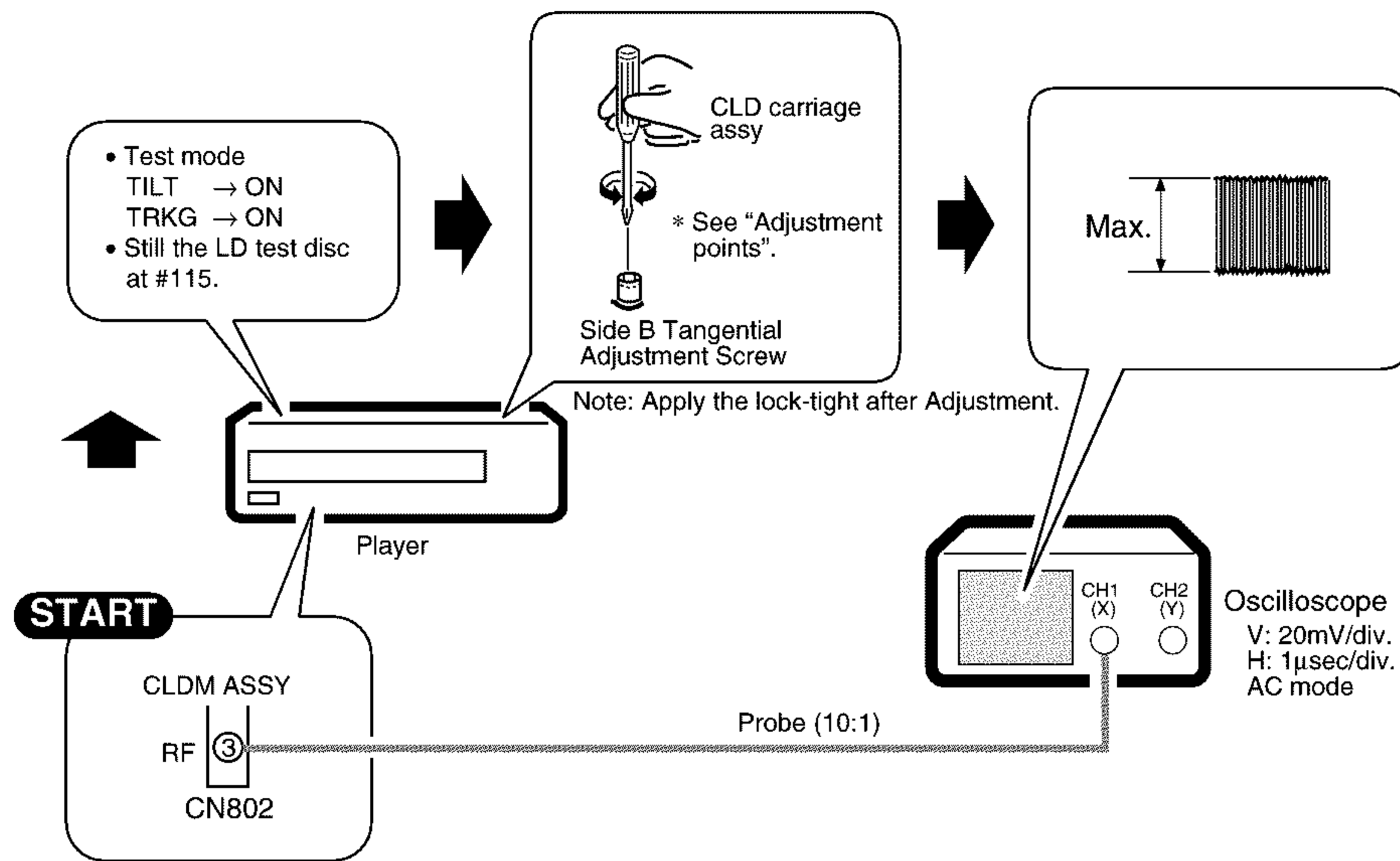


4 Crosstalk Check and Fine Tilt Offset Adjustment for Side A

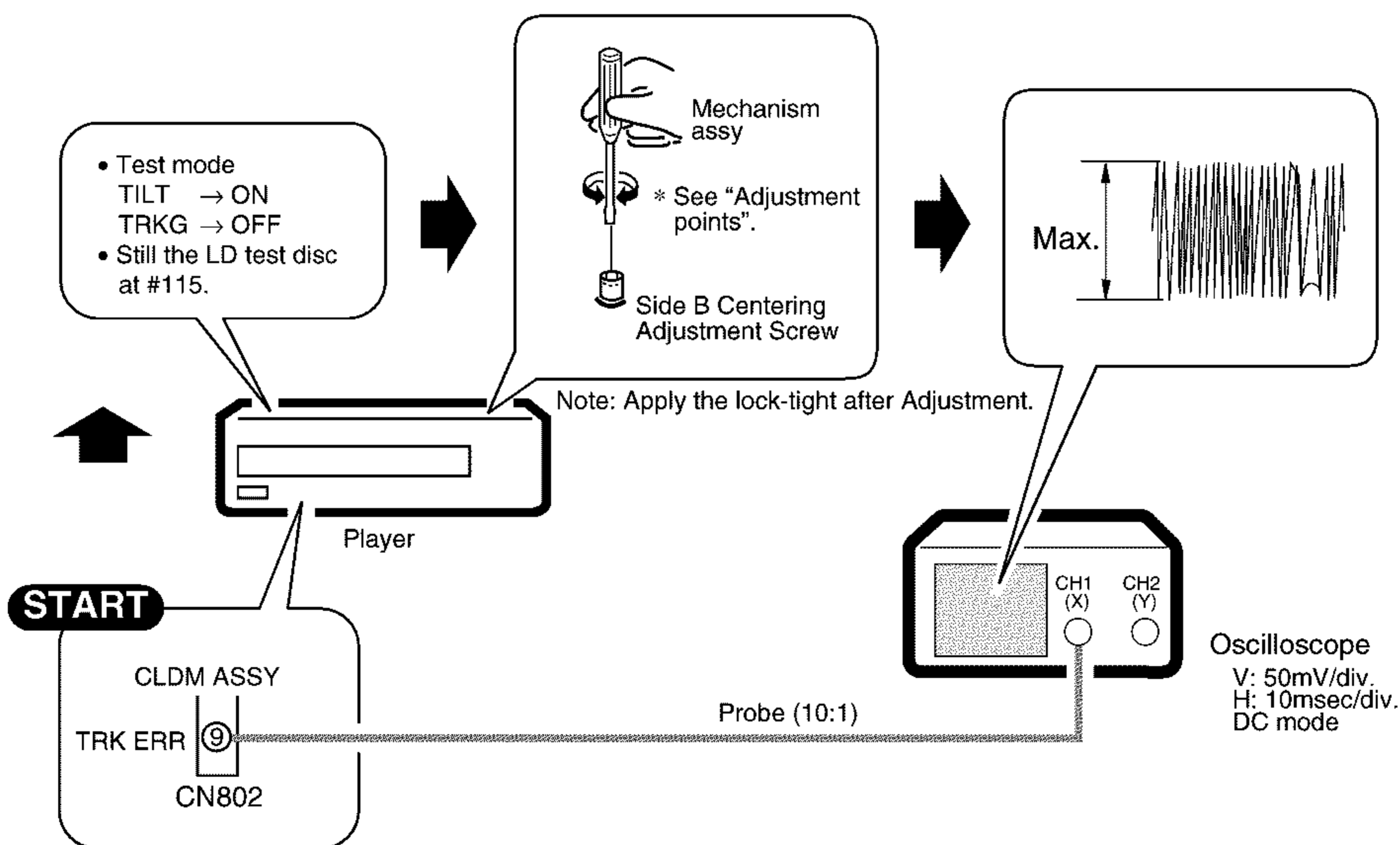




7 Tangential Direction Angle Adjustment for Side B



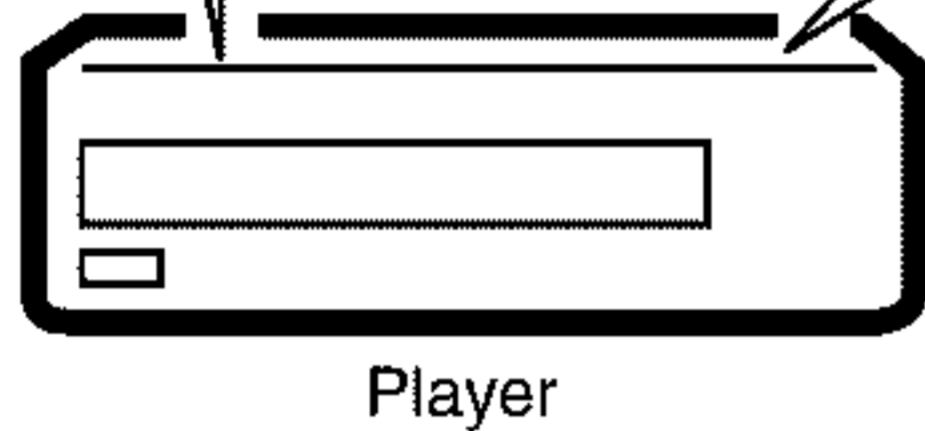
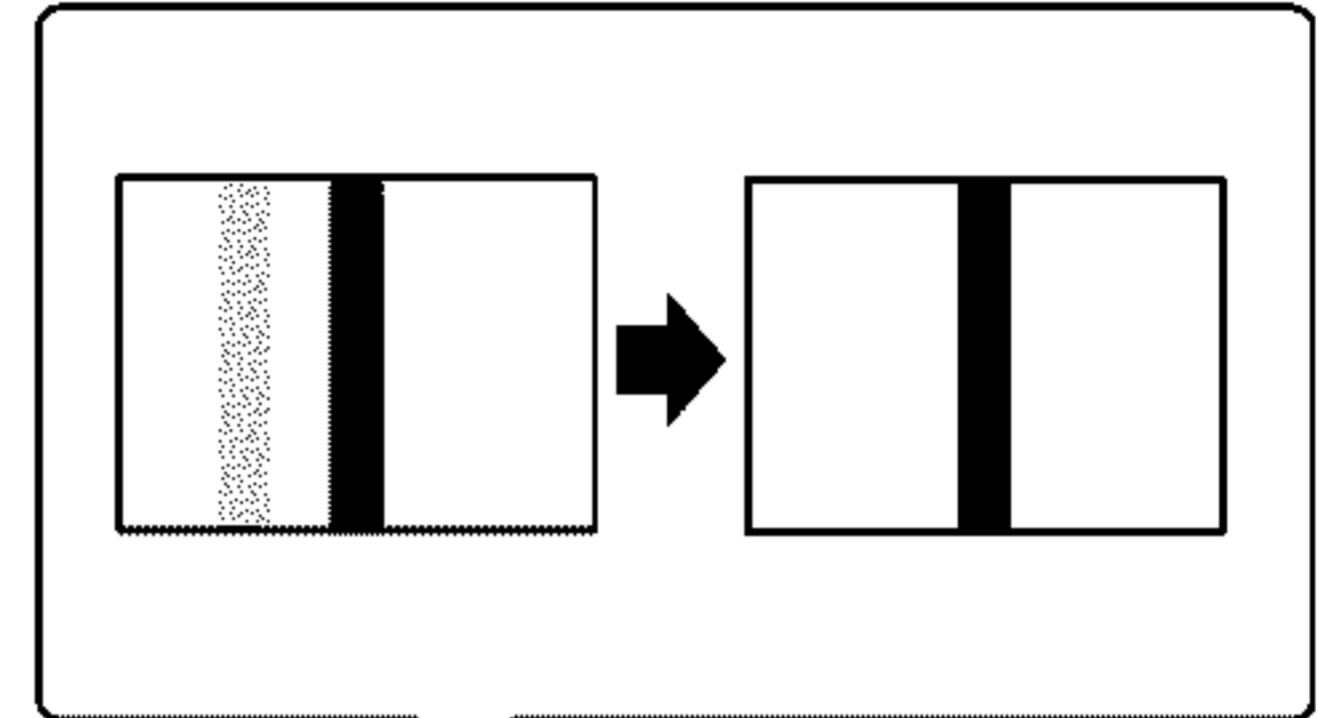
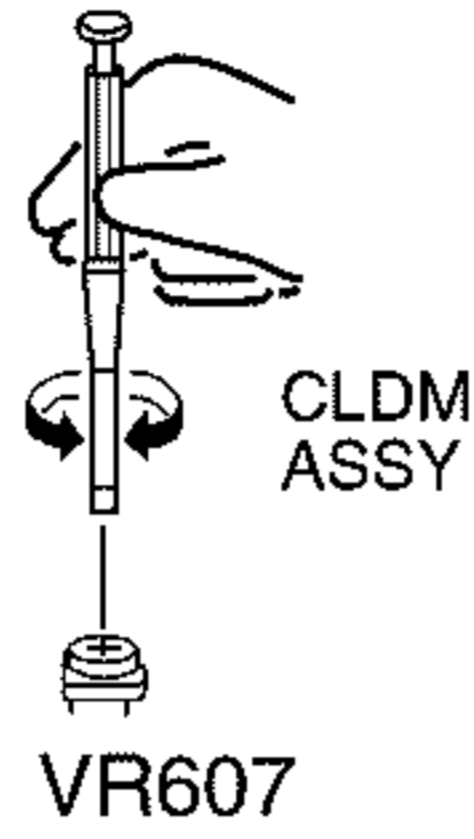
8 Spindle Motor Centering Adjustment for Side B



9 Crosstalk Check and Fine Tilt Offset Adjustment for Side B

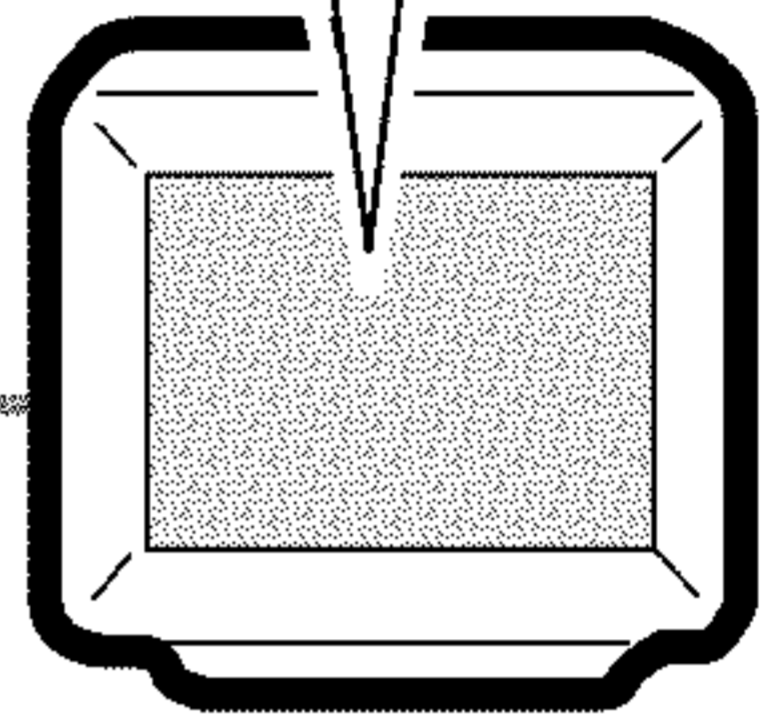
START

- Test mode
TILT → ON
TRKG → ON
- Still the LD test disc at #115.

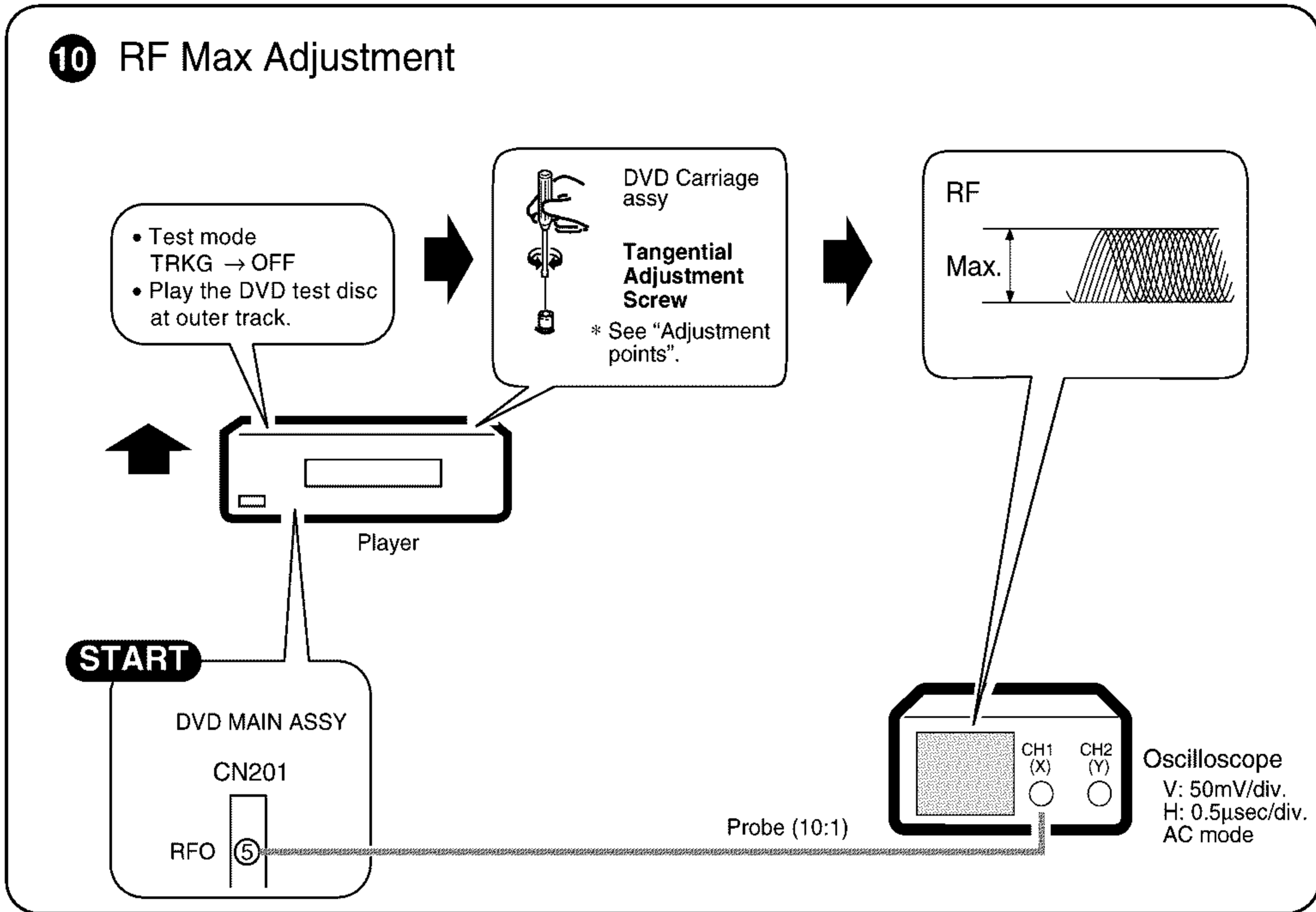


VIDEO OUT

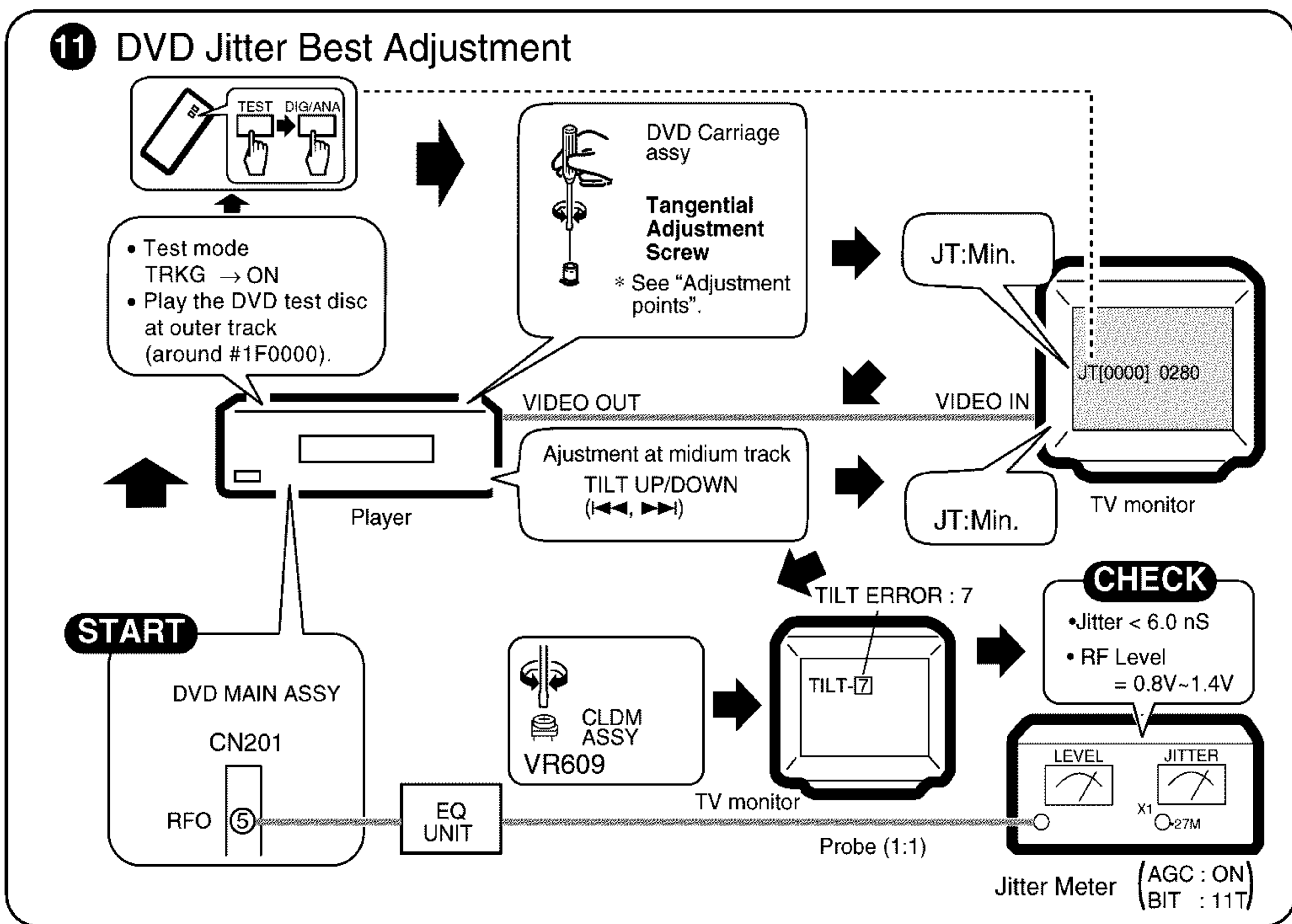
VIDEO IN



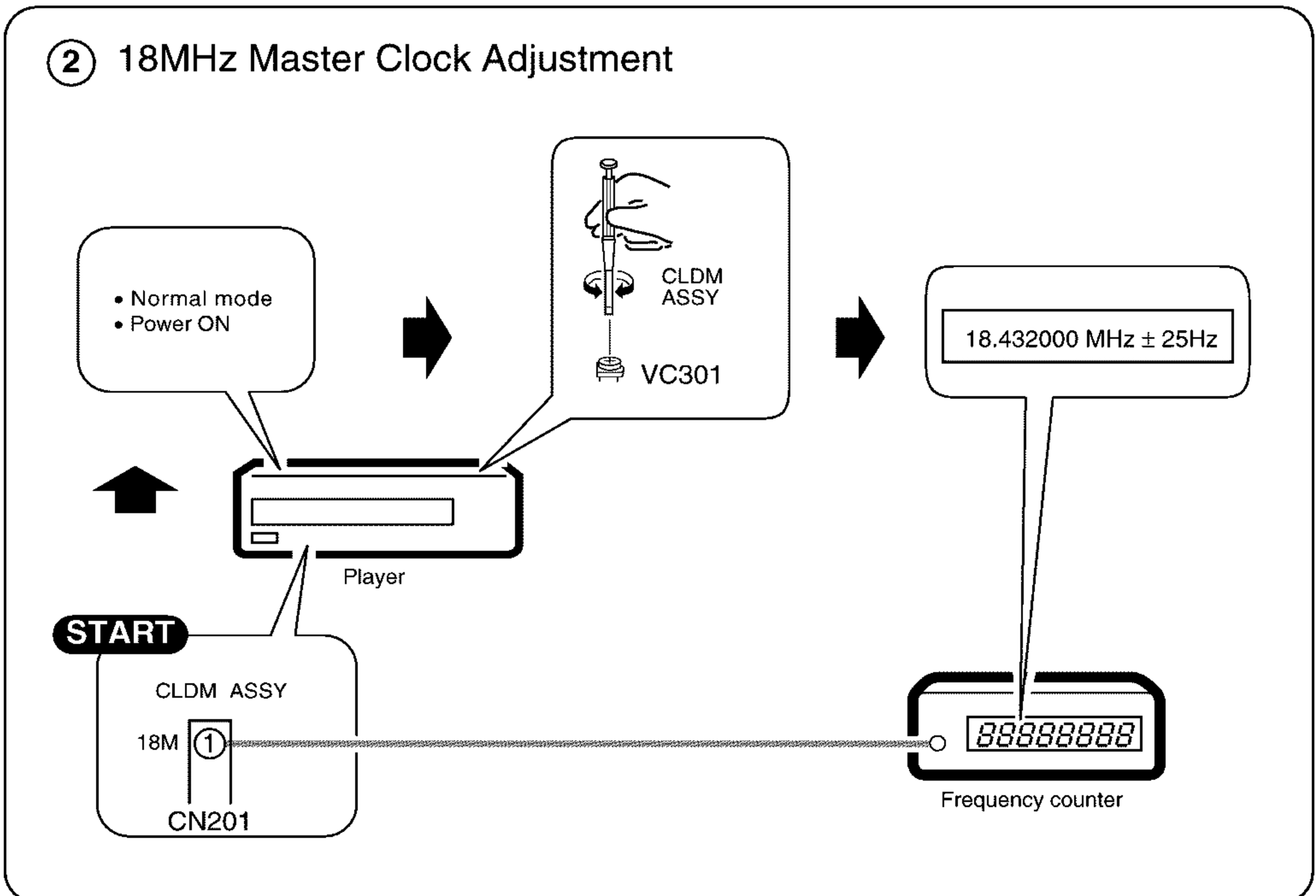
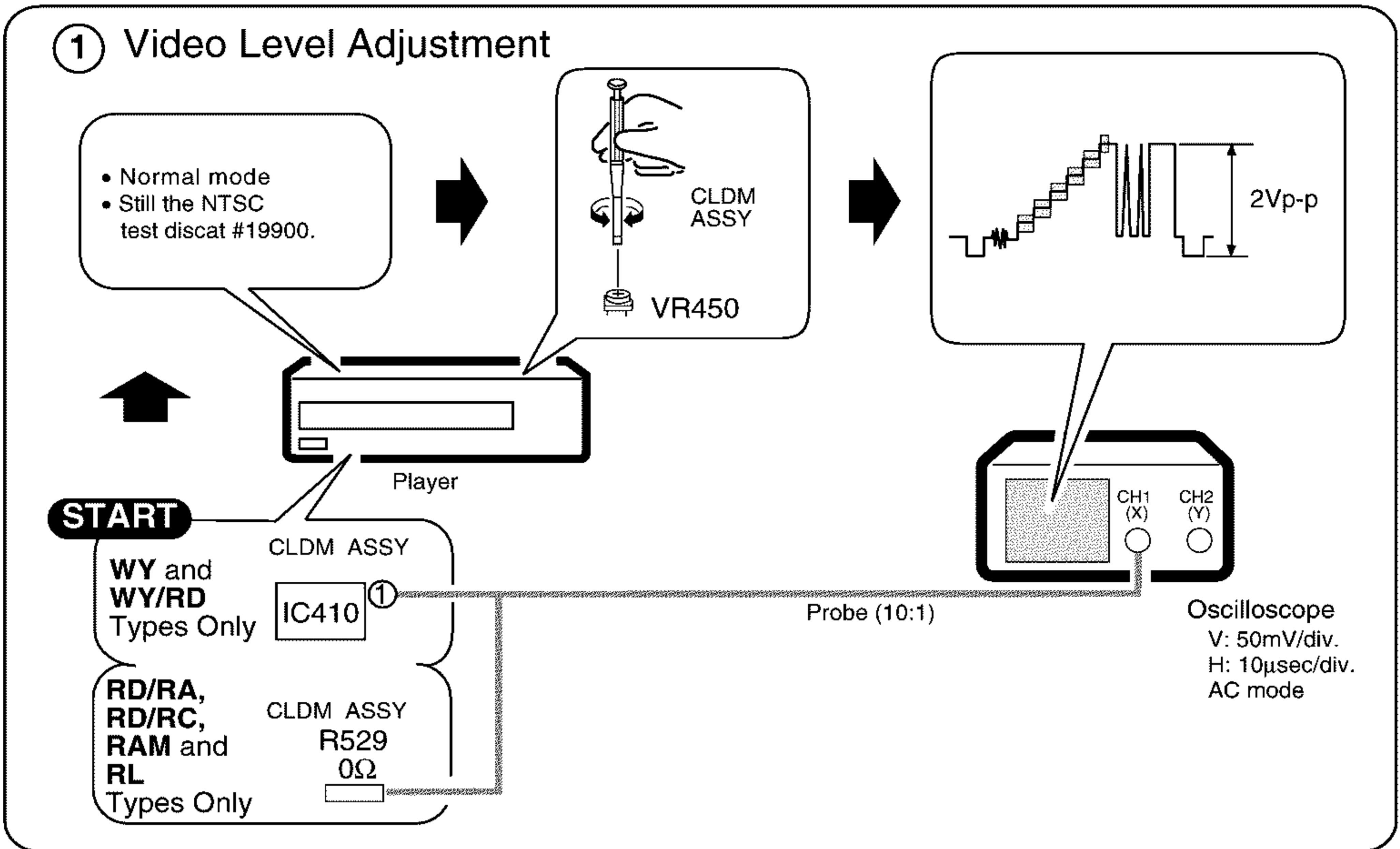
10 RF Max Adjustment



11 DVD Jitter Best Adjustment



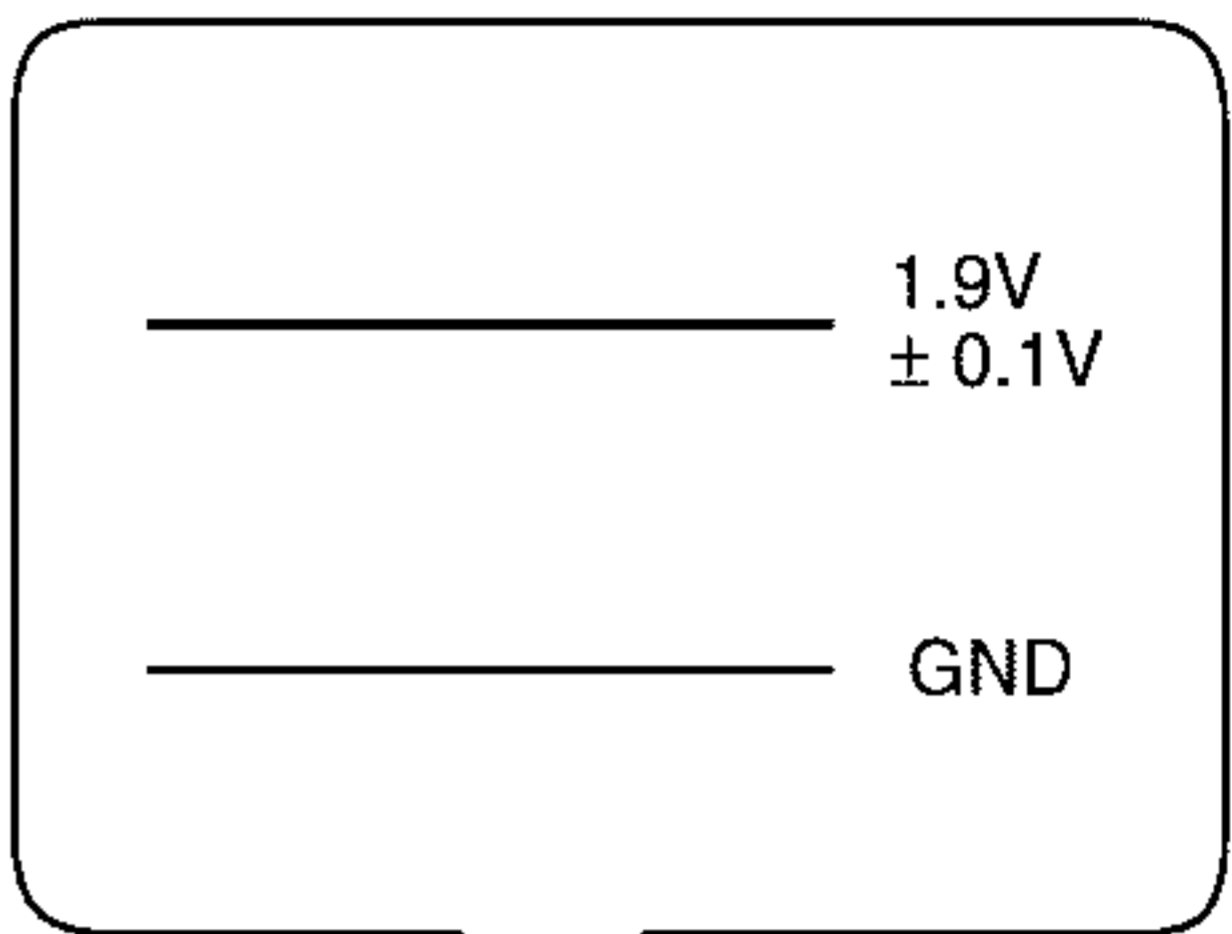
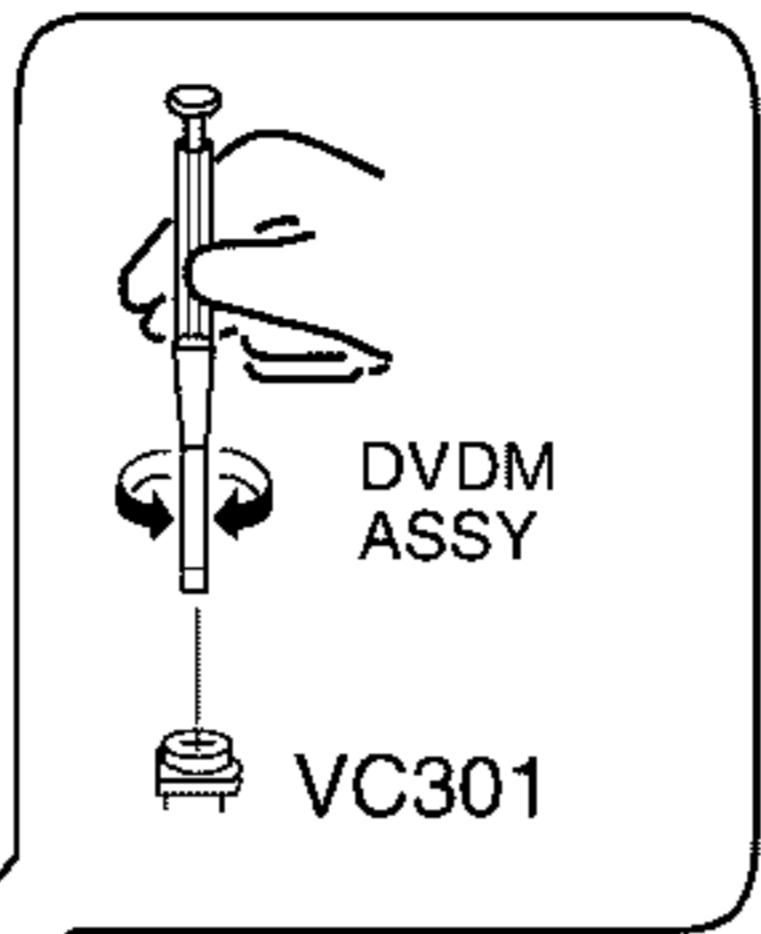
6.7 ELECTRICAL ADJUSTMENT FOR CLDM ASSY



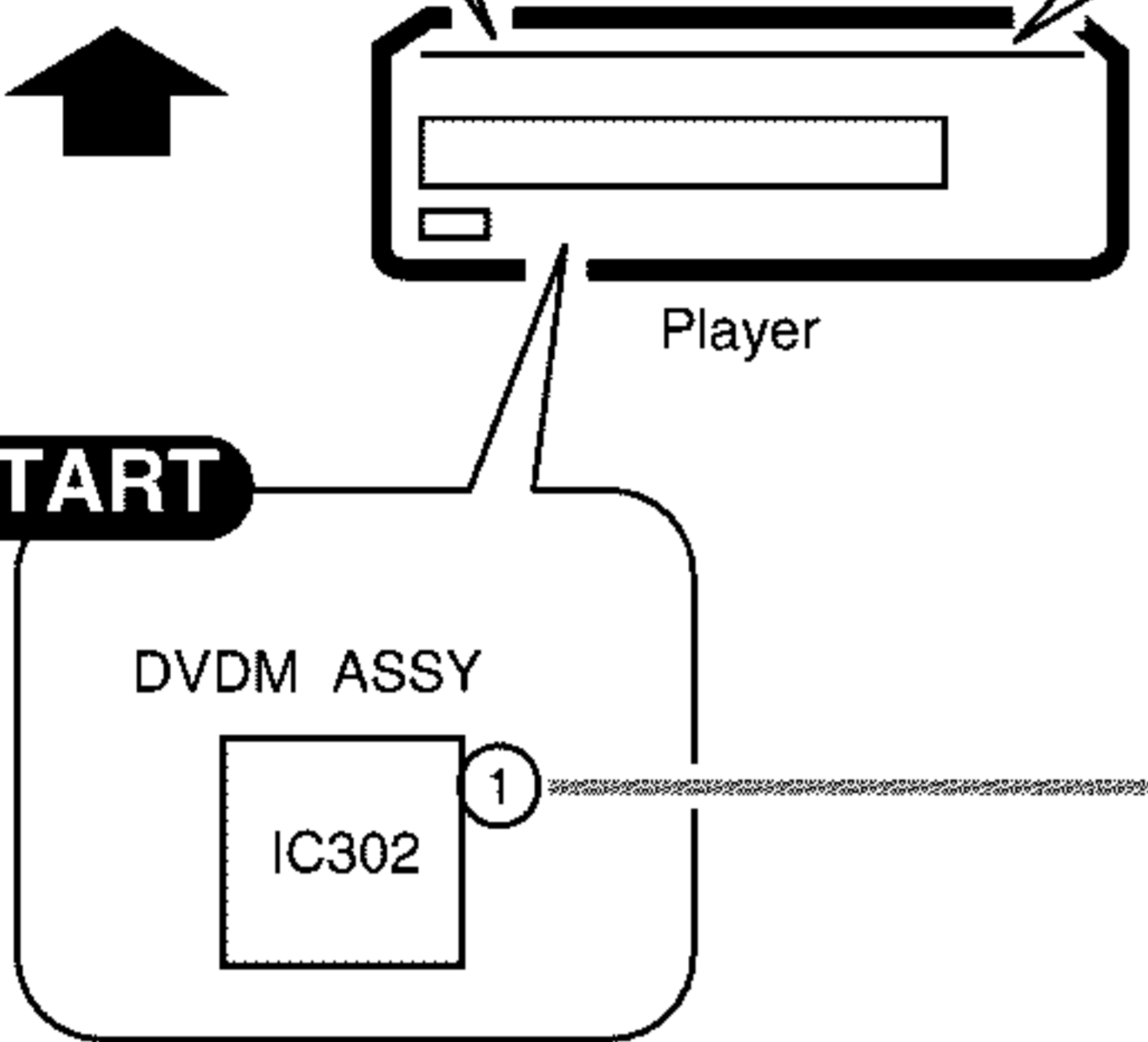
6.8 ELECTRICAL ADJUSTMENT FOR DVDM ASSY

① VCO Offset Adjustment

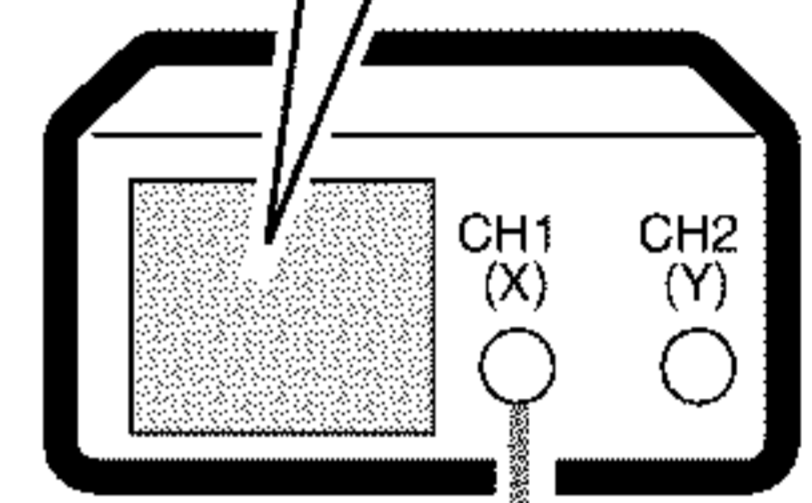
- Normal mode
- Play the DVD test disc



START



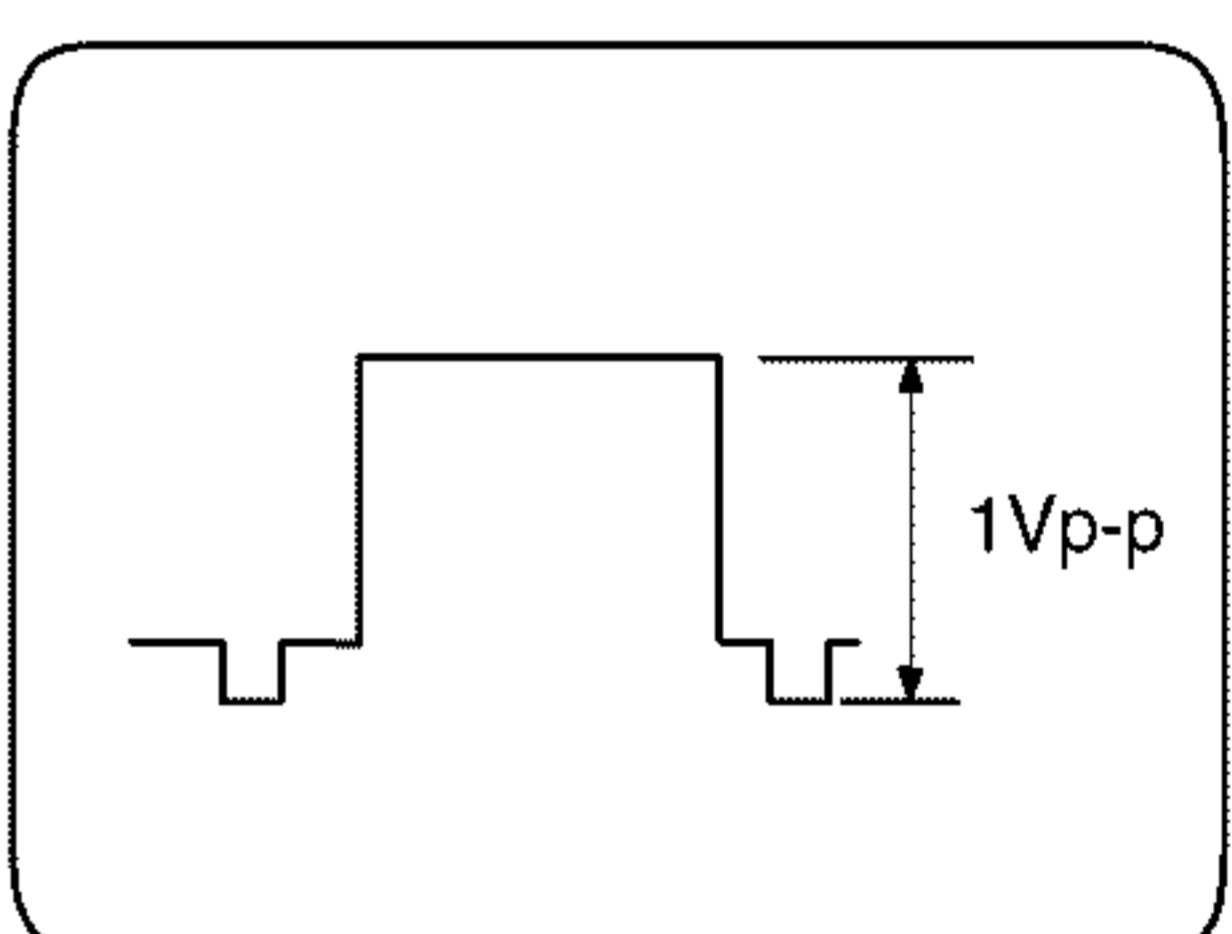
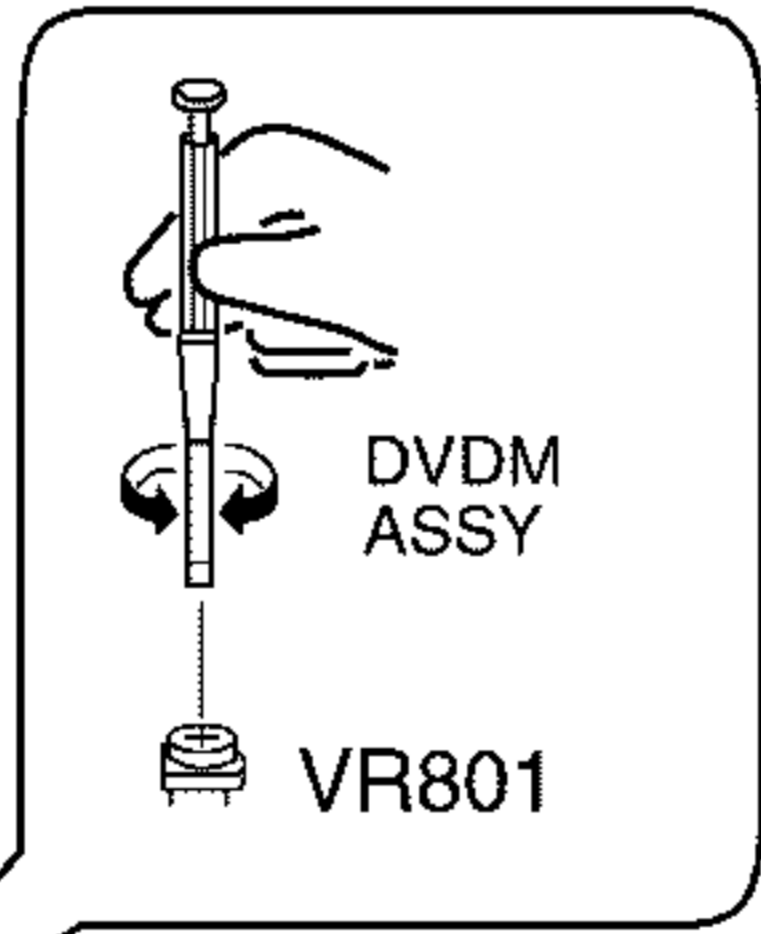
Probe (10:1)



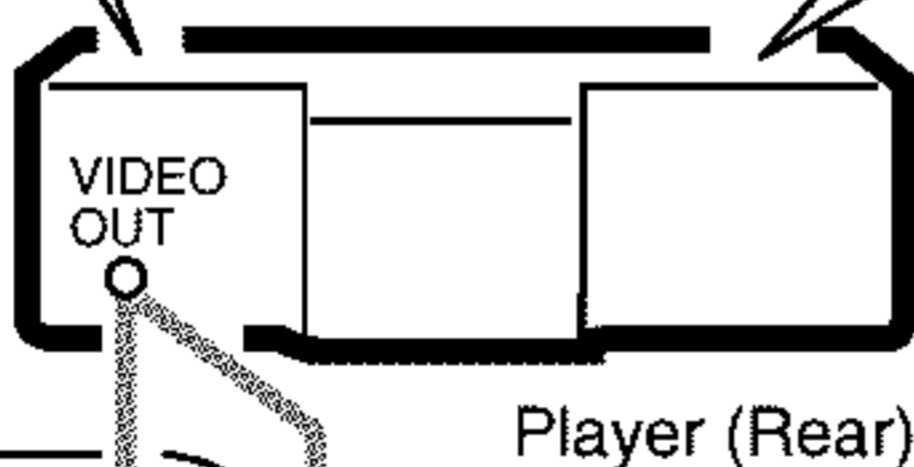
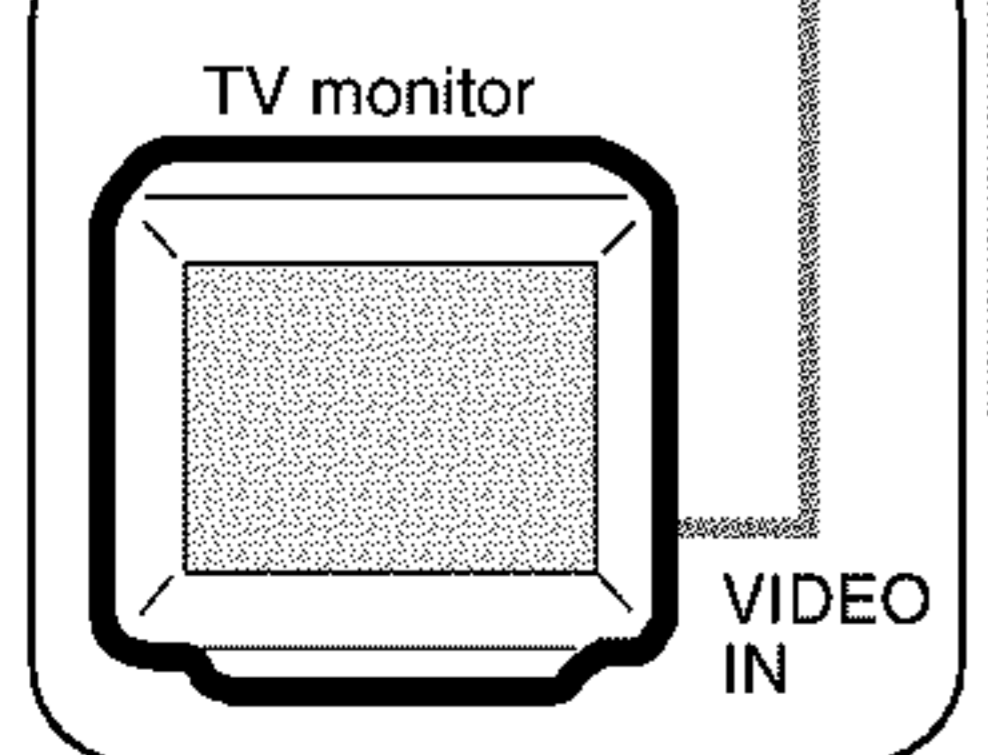
Oscilloscope
V: 50mV/div.
H: 10msec/div.
DC mode
TV trigger

② Video Output Level Adjustment

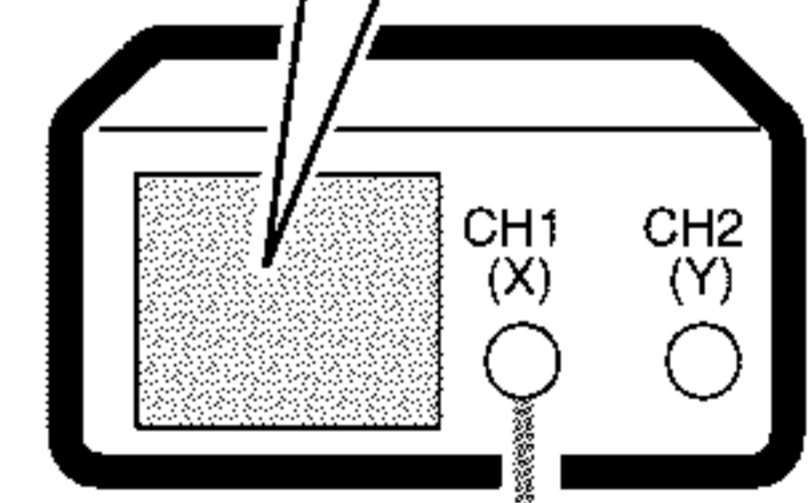
- Normal mode
- Still the DVD test disc at 100% white screen part



START

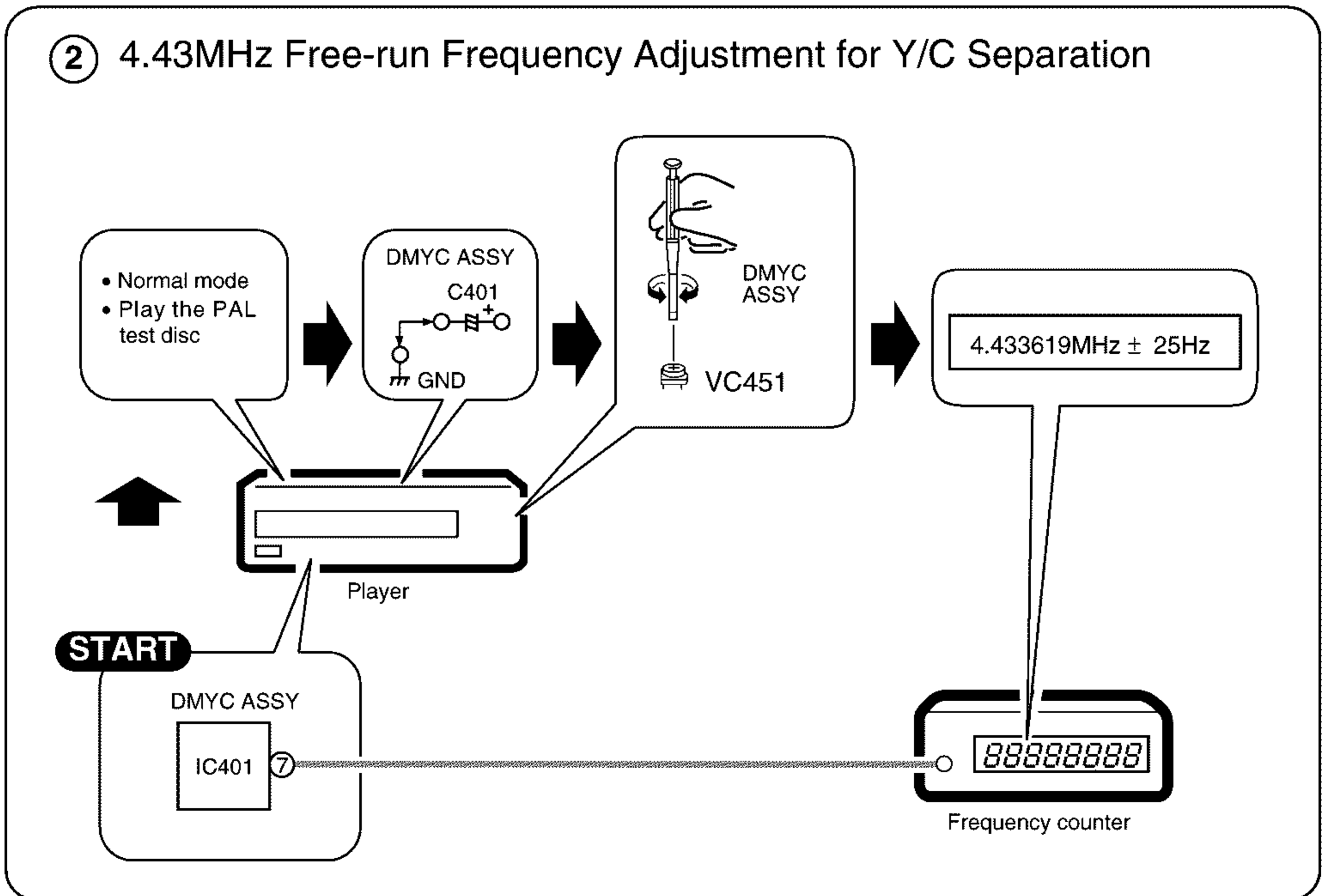
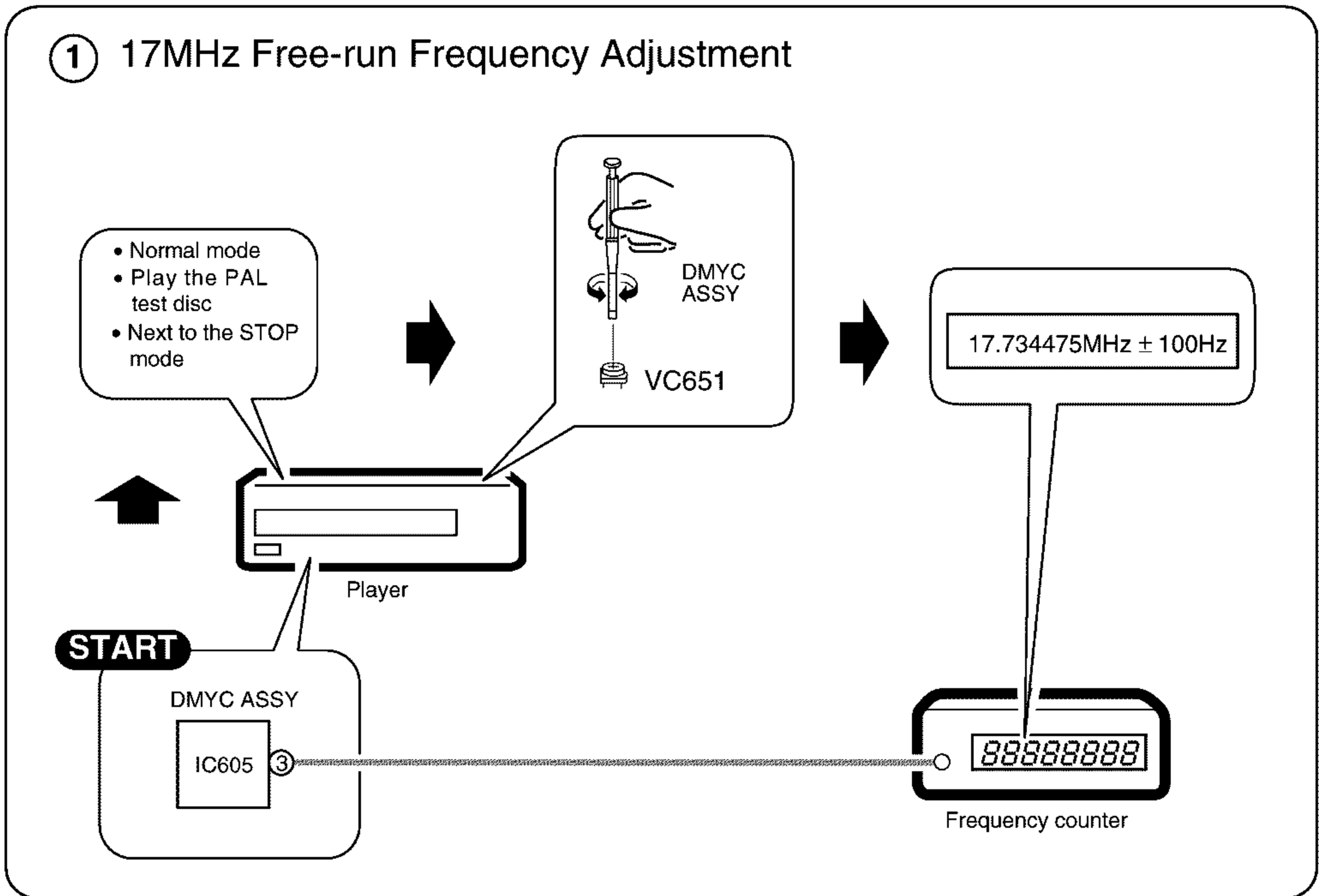


Probe (10:1)

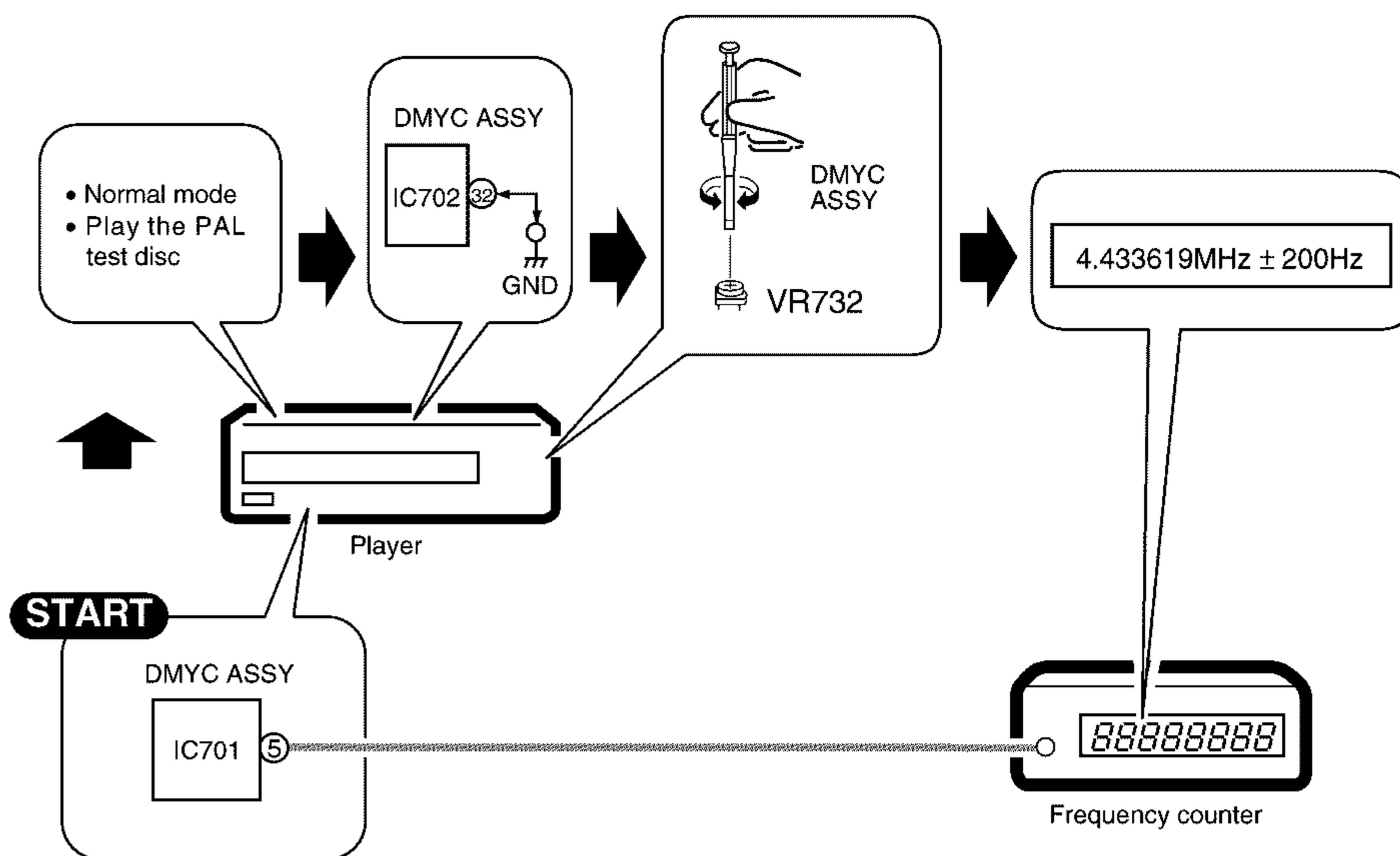


Oscilloscope
V: 20mV/div.
H: 10μsec/div.
AC mode
TV trigger

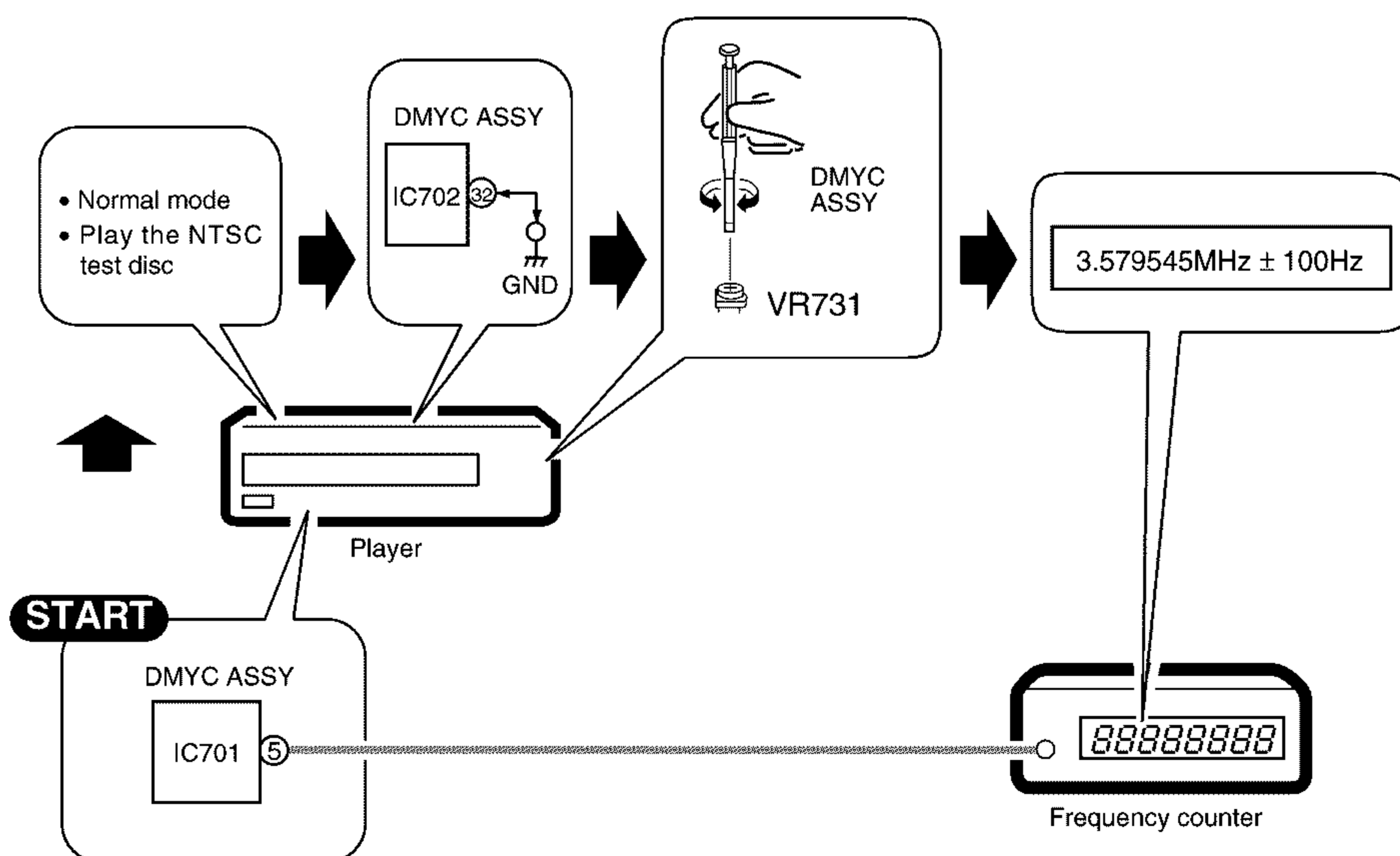
6.9 ELECTRICAL ADJUSTMENT for DMYC ASSY



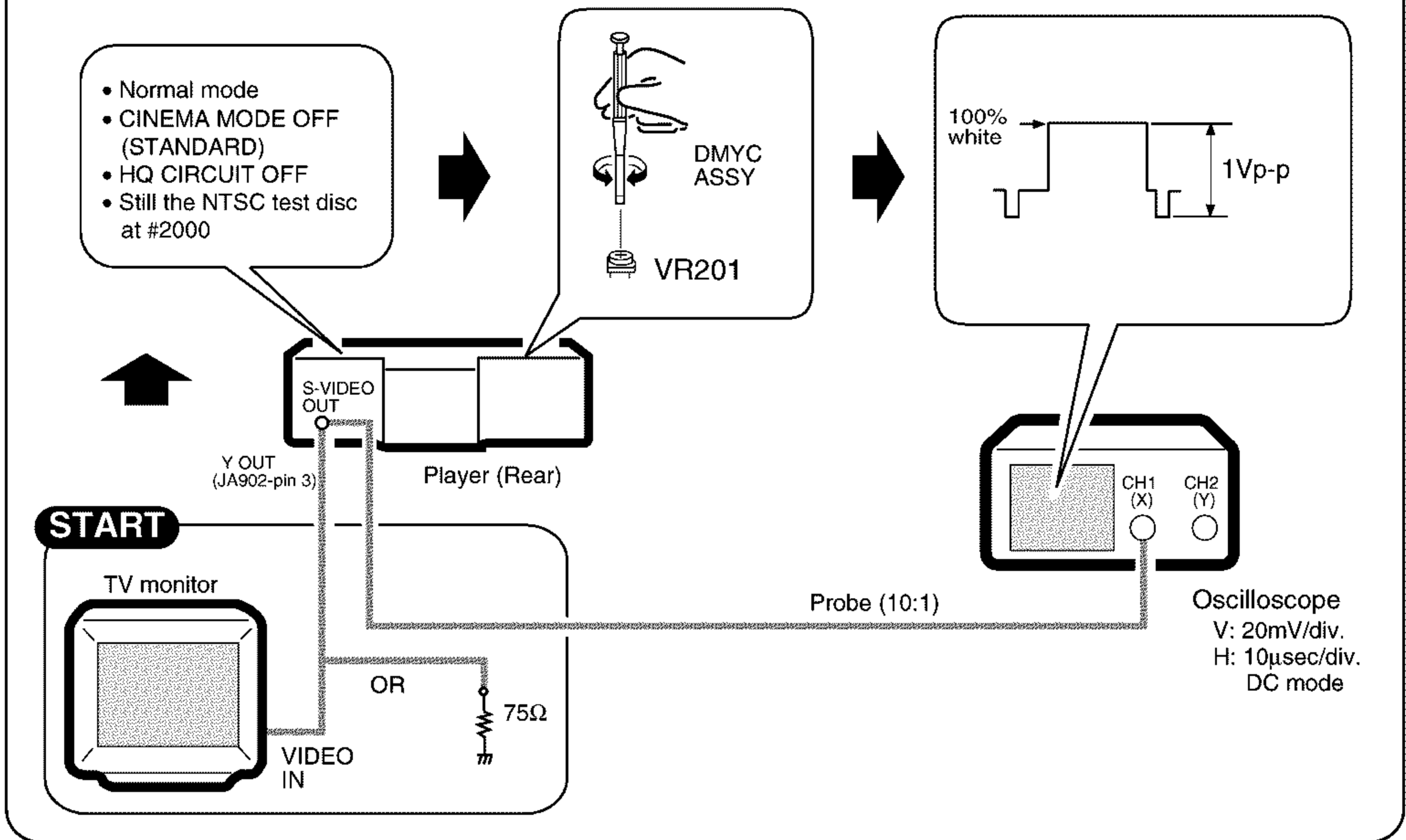
③ PAL 4.43MHz Free-run Frequency Adjustment for RGB Decoder



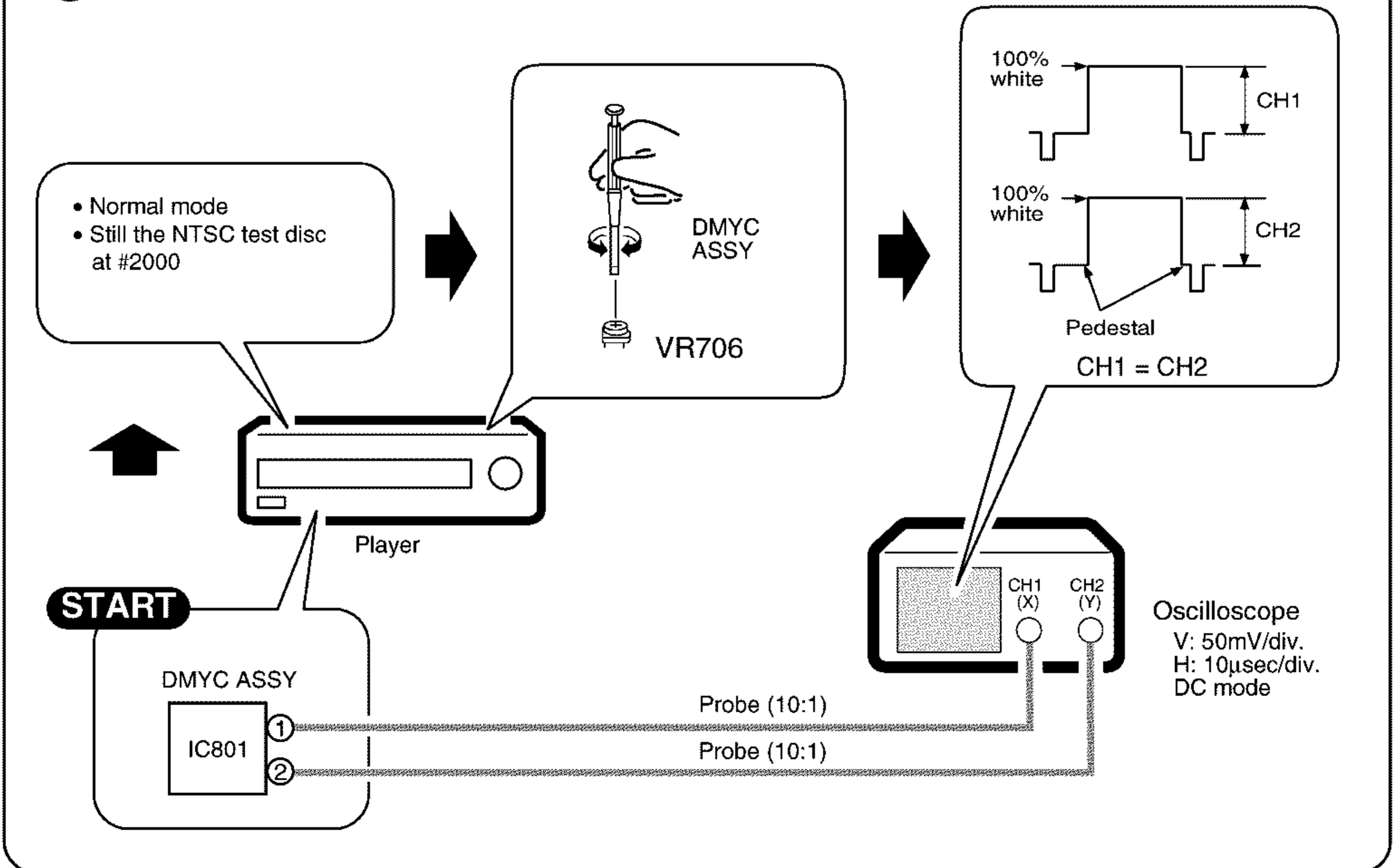
④ NTSC 3.58MHz Free-run Frequency Adjustment for RGB Decoder



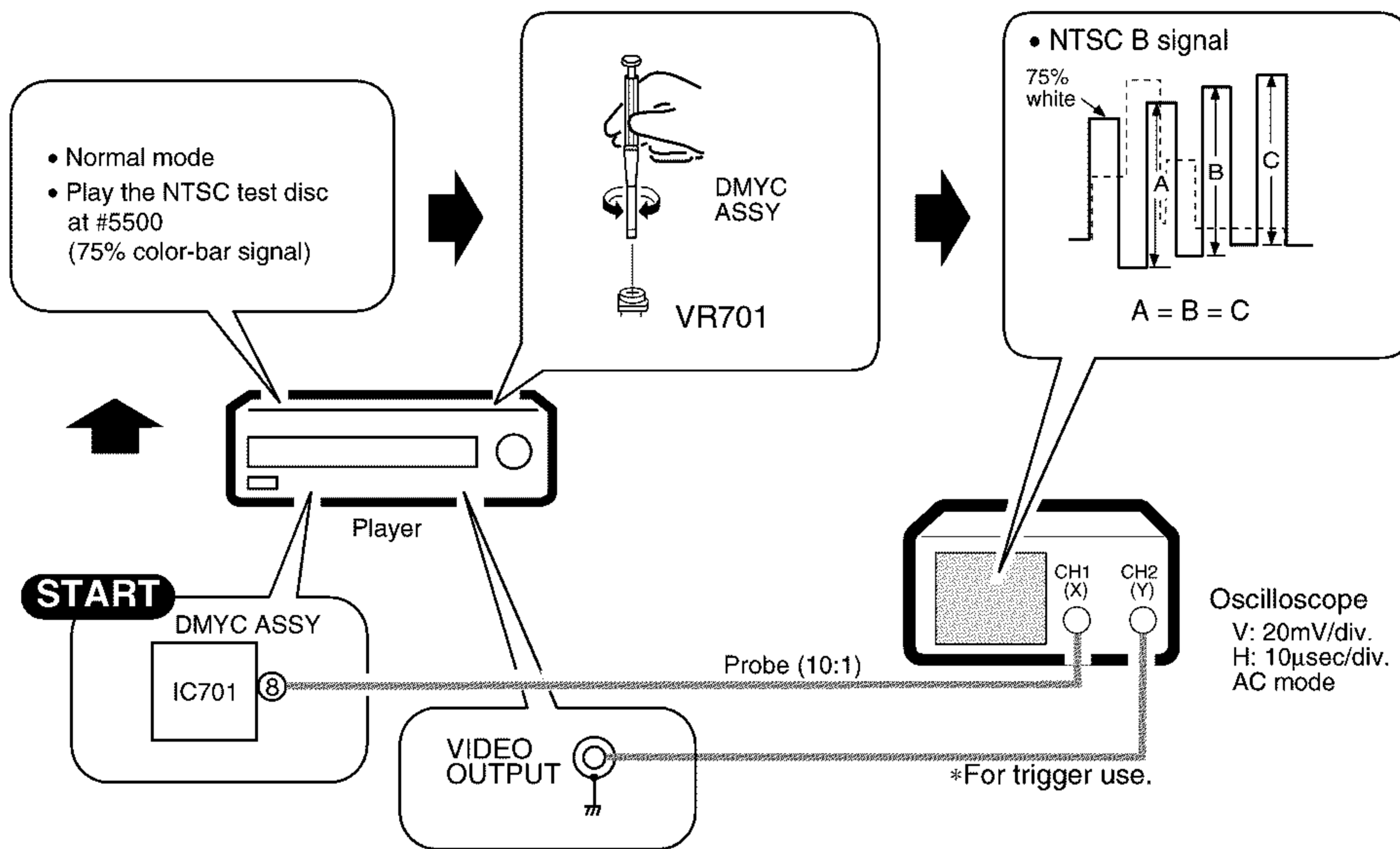
5) NTSC Y Level Adjustment



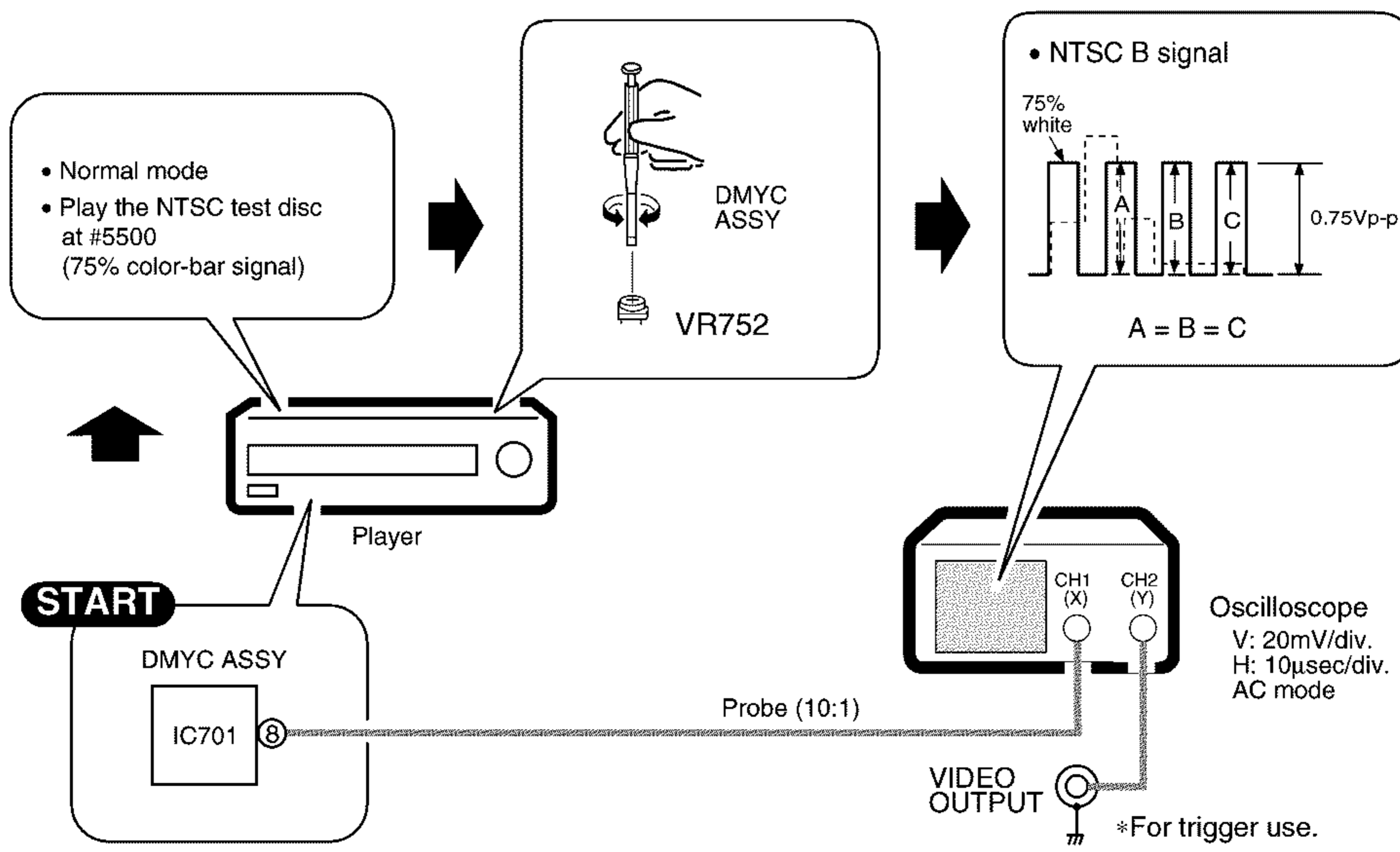
6) RGB Decoder Y Level Adjustment



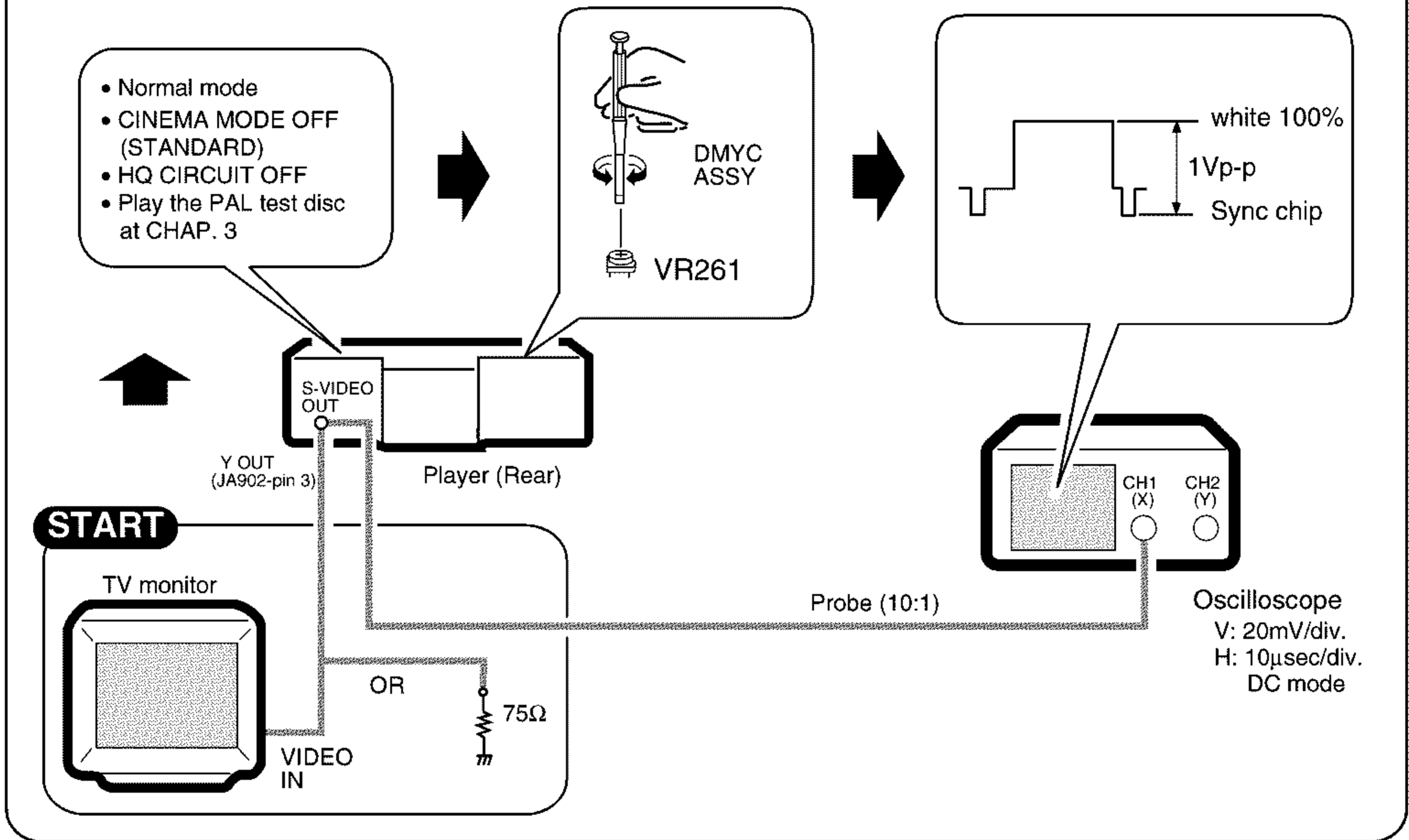
⑦ RGB Decoder HUE Adjustment



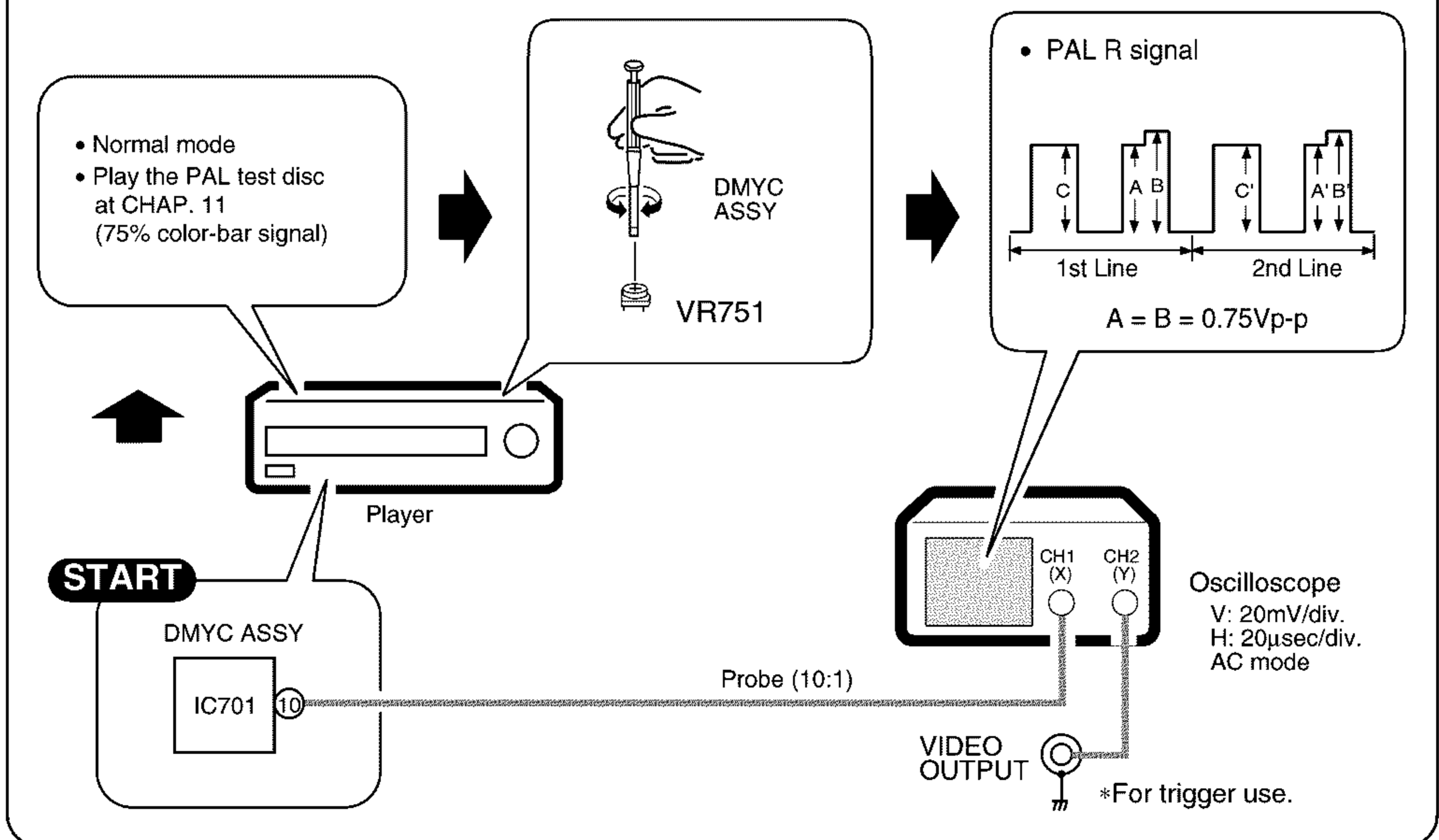
⑧ RGB Decoder NTSC Chroma Level Adjustment



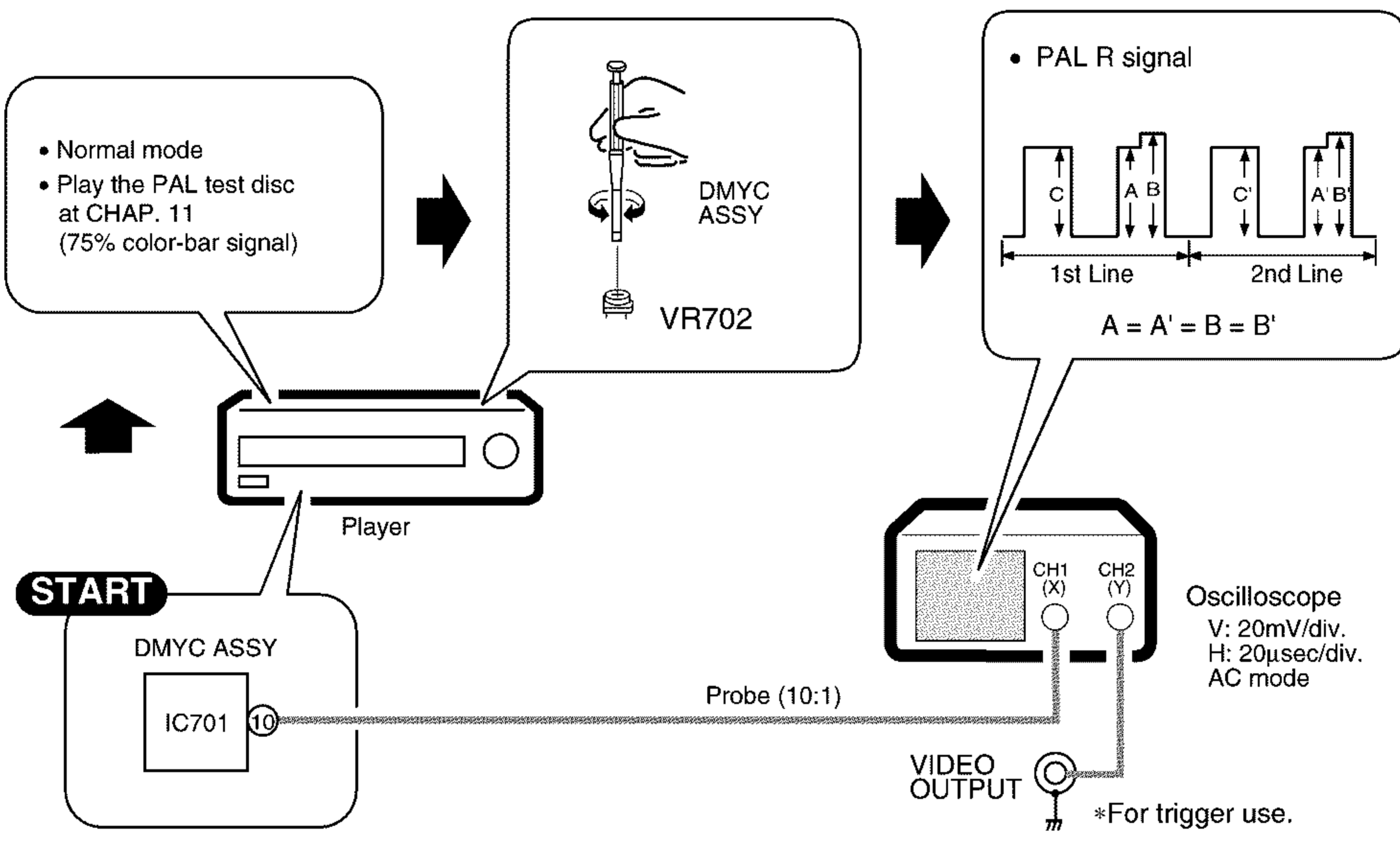
9) PAL Y Level Adjustment



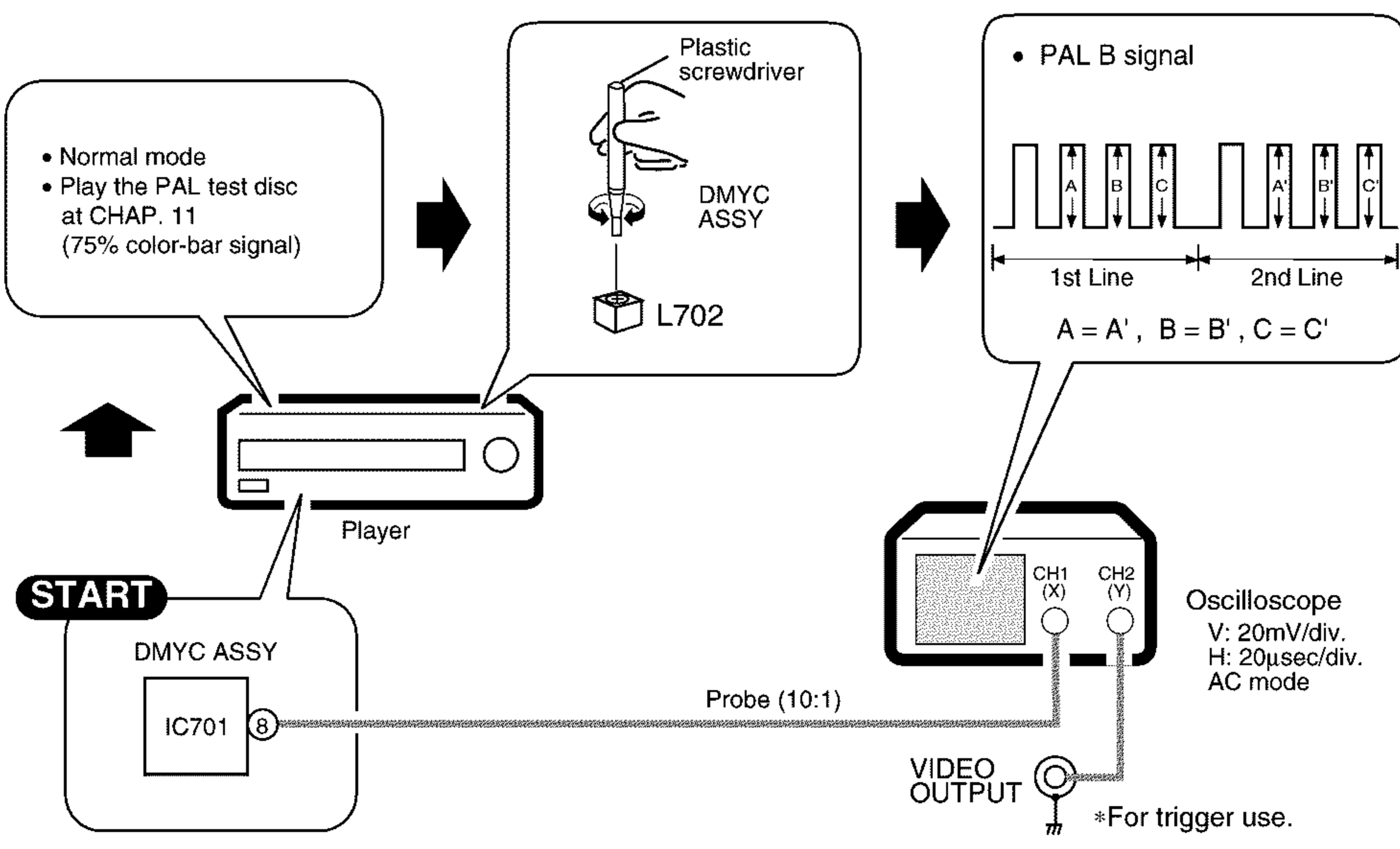
10) Coarse RGB Decoder PAL Chroma Level Adjustment



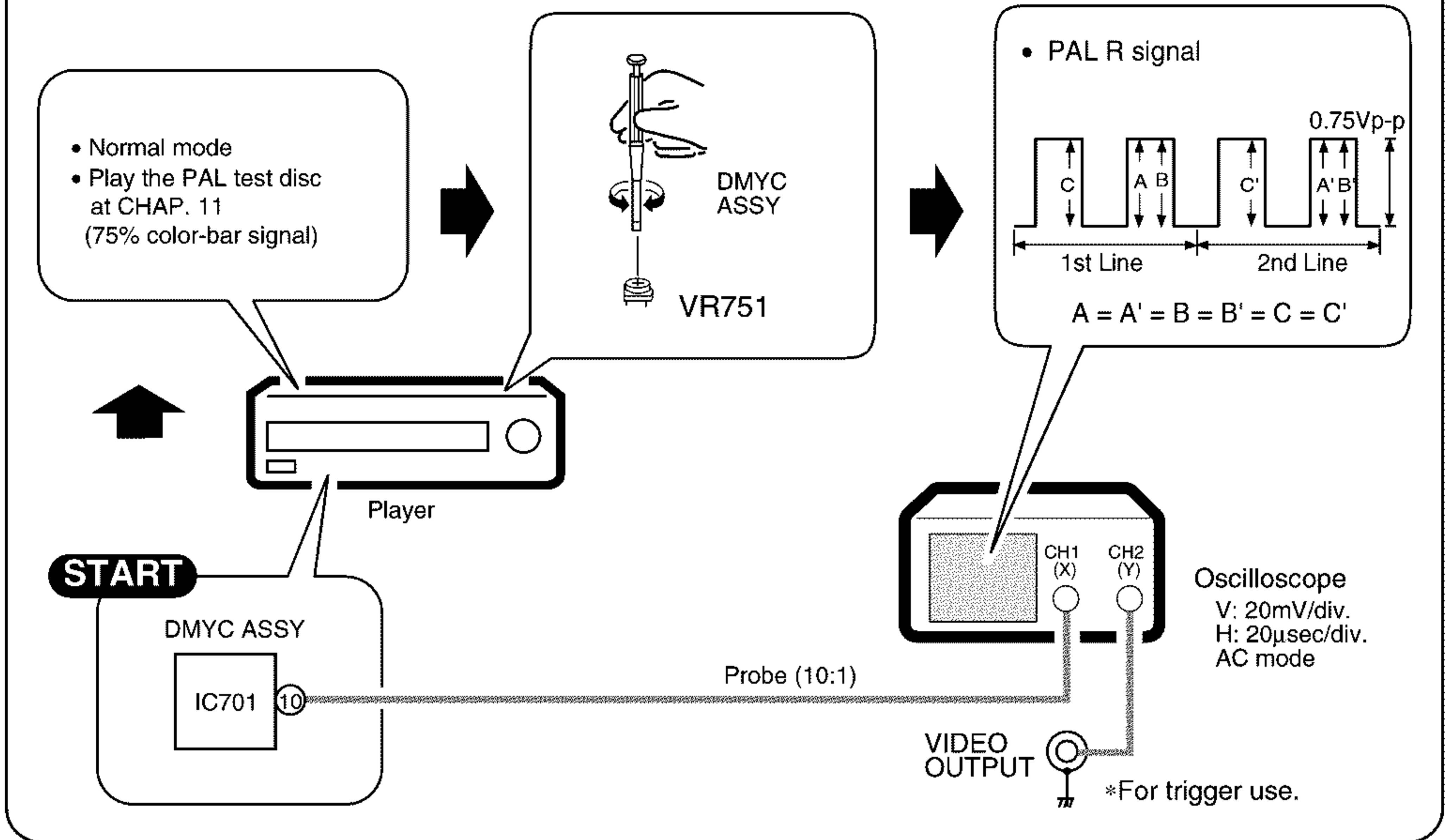
11 RGB Decoder PAL Delay Line Amp. Gain Adjustment



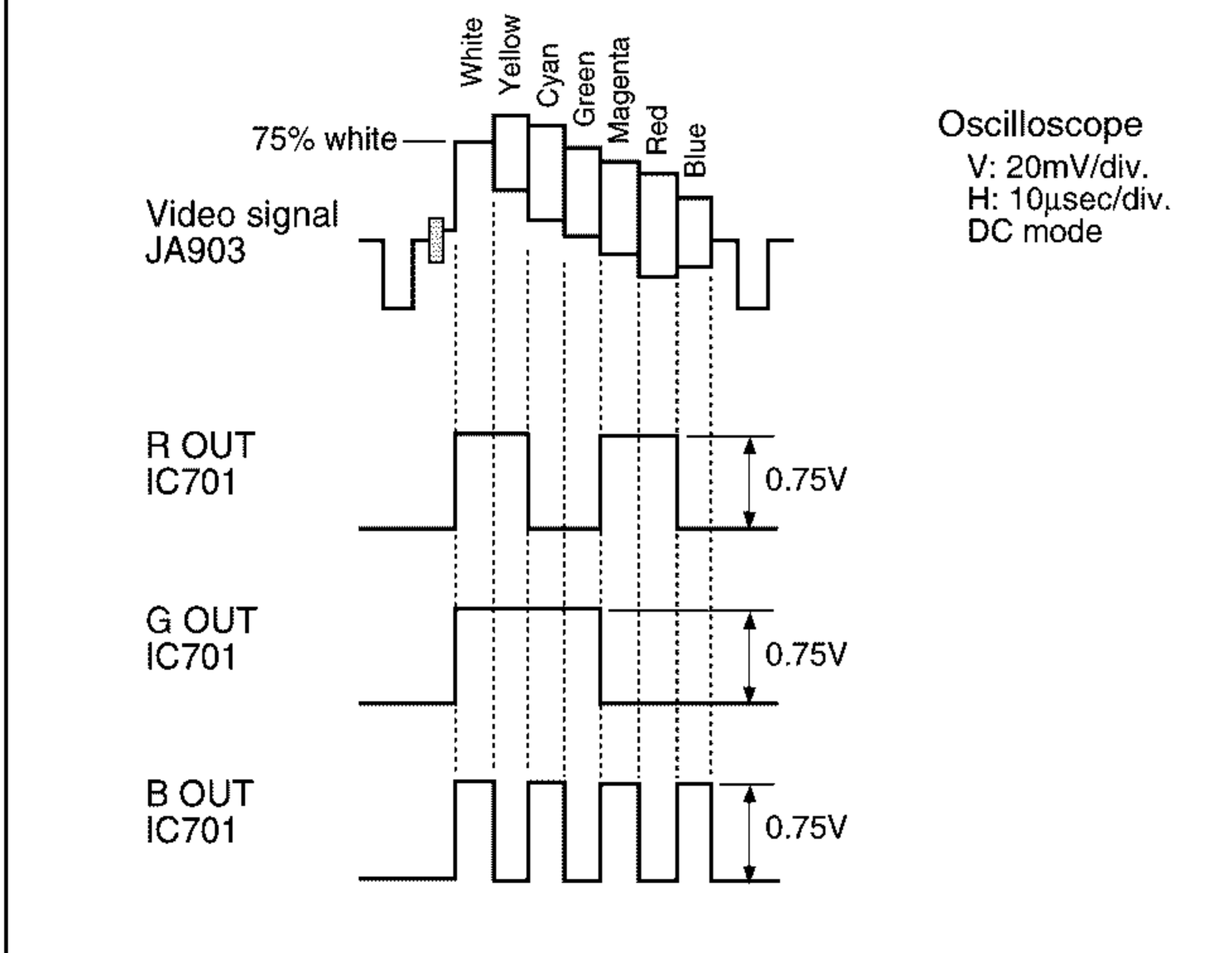
12 RGB Decoder PAL DAT Adjustment



13 Fine RGB Decoder PAL Chroma Level Adjustment

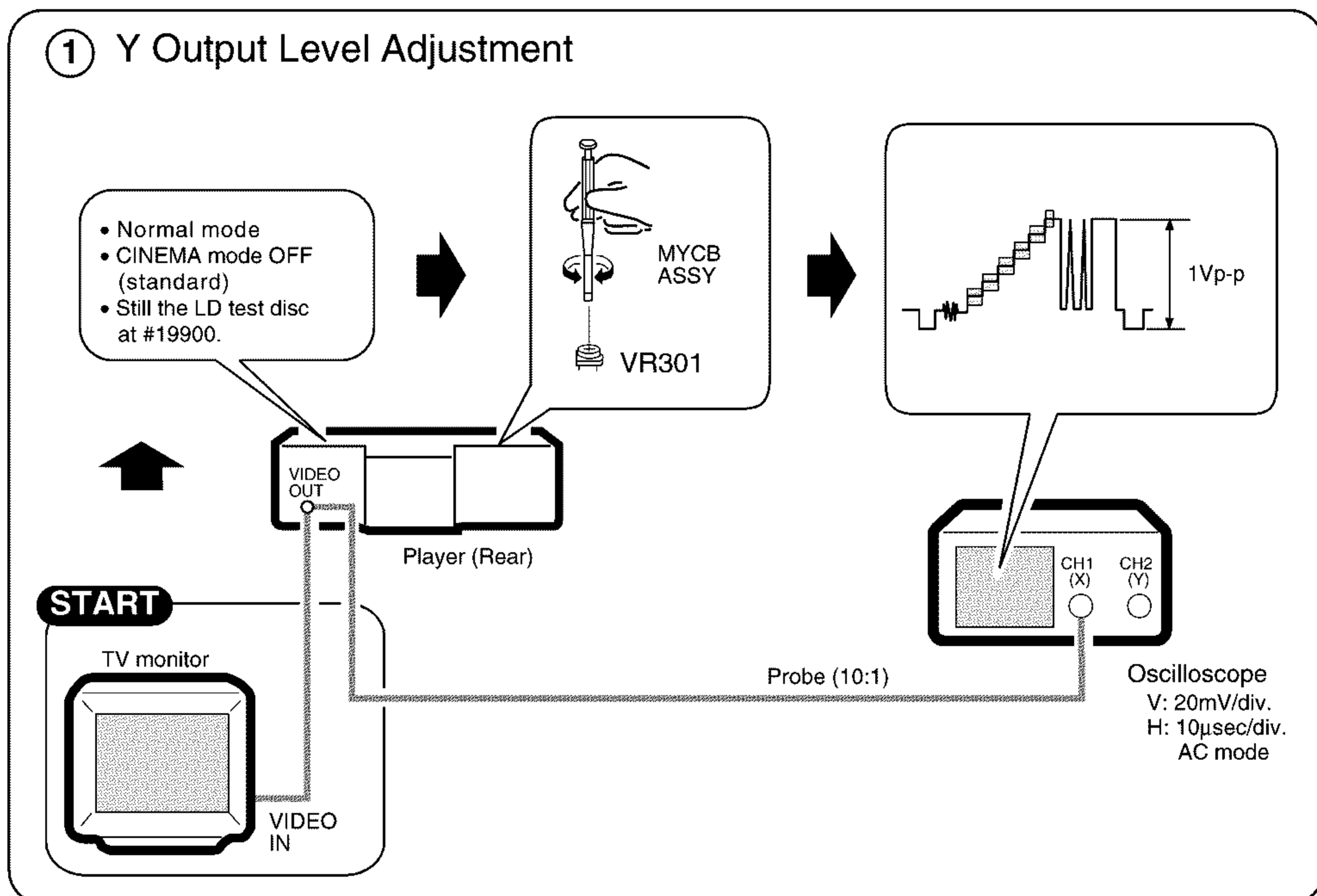


• The signal relations between the 75% color-bar signal and each R,G,B signal



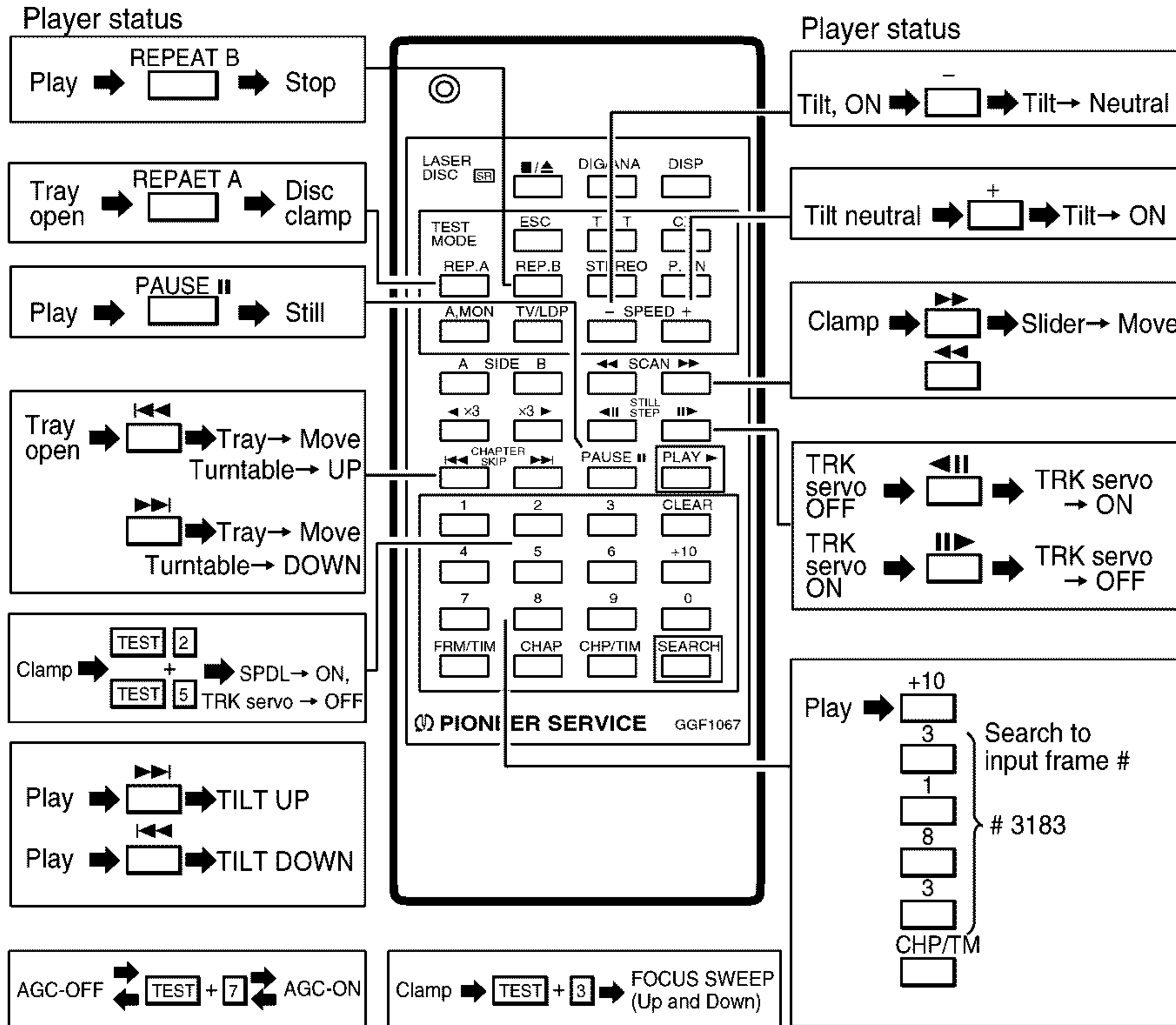
6.10 ELECTRICAL ADJUSTMENT FOR MYCB ASSY

① Y Output Level Adjustment

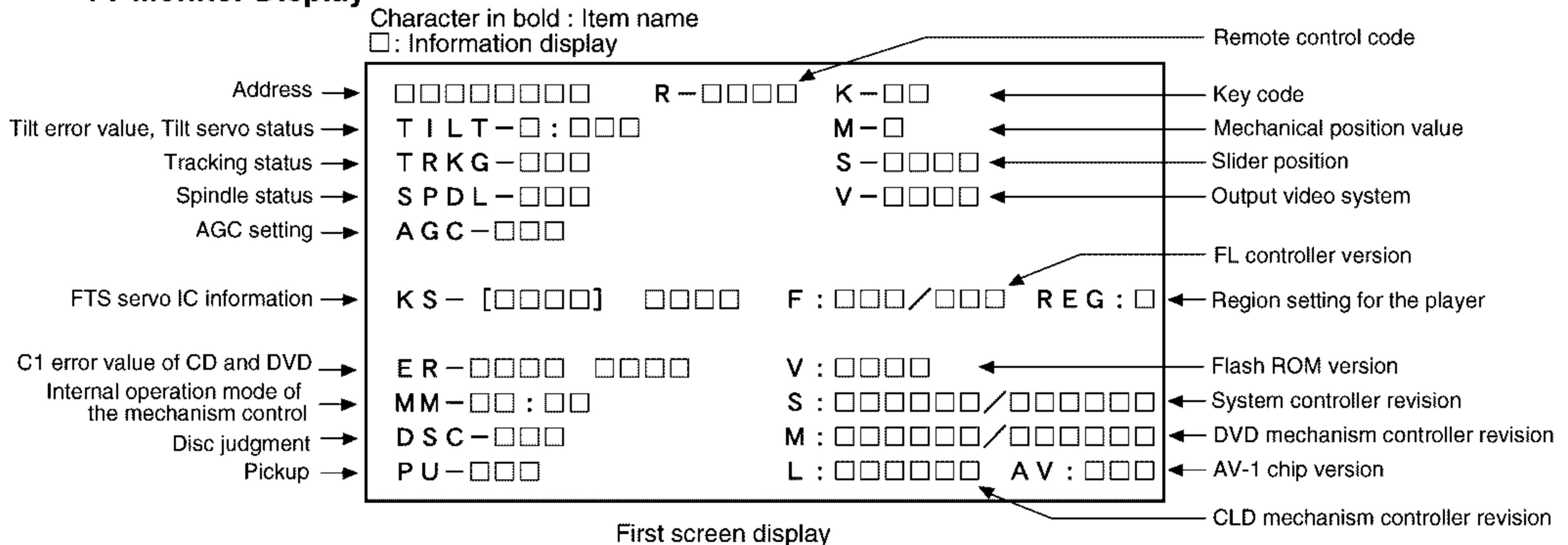


6.11 OPERATIONS IN THE TEST MODE

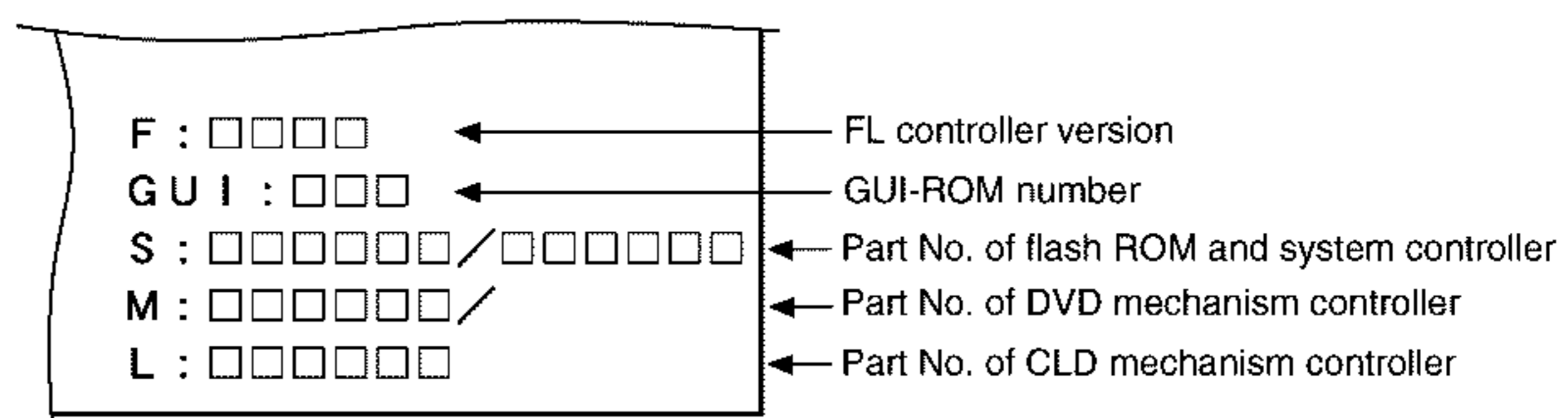
■ Test Mode Remote Control Unit (GGF1067)



■ TV Monitor Display



Note : Switch the first and second screen by pressing the [DISPLAY] key on the remote control unit.



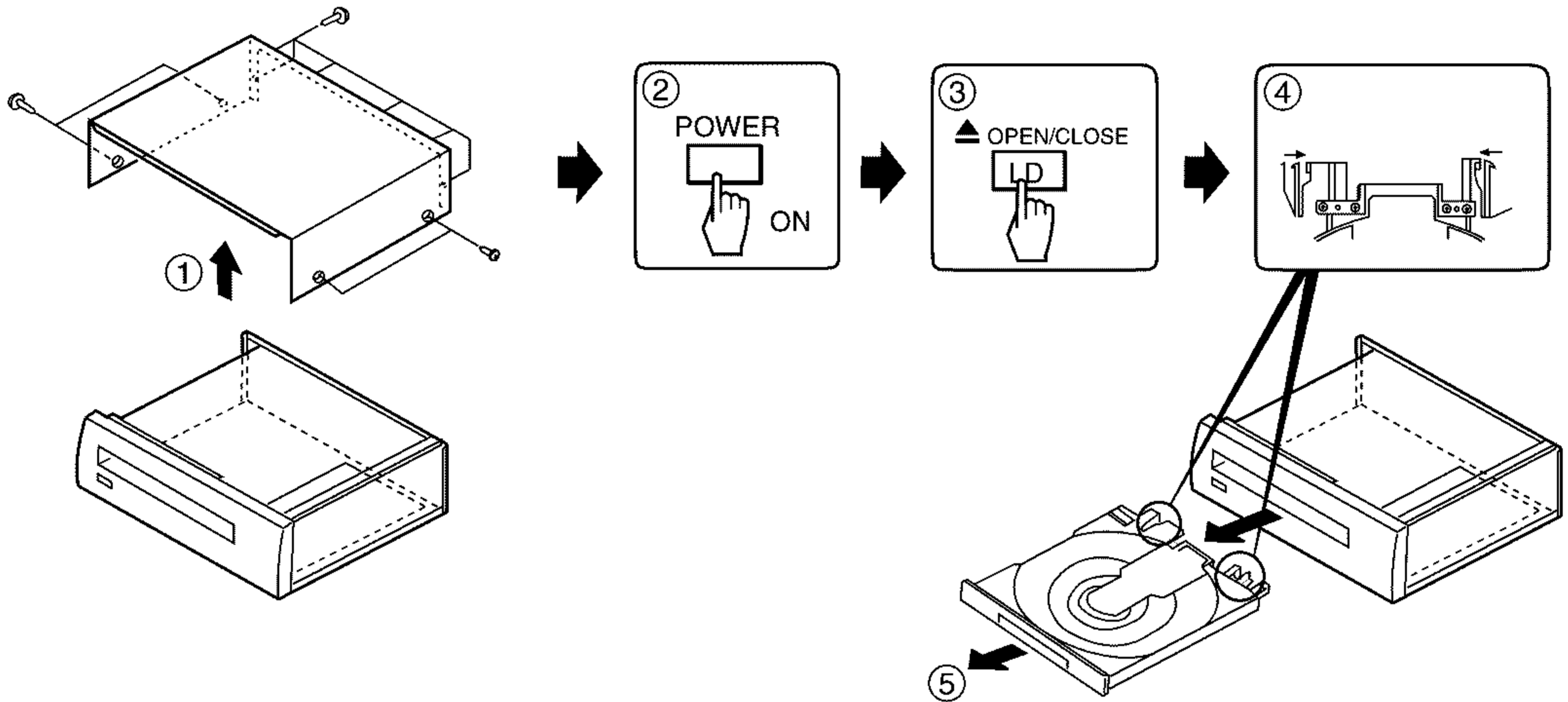
Second screen display (at lower right portion of the screen)

7. GENERAL INFORMATION

7.1 DISASSEMBLY/ASSEMBLY

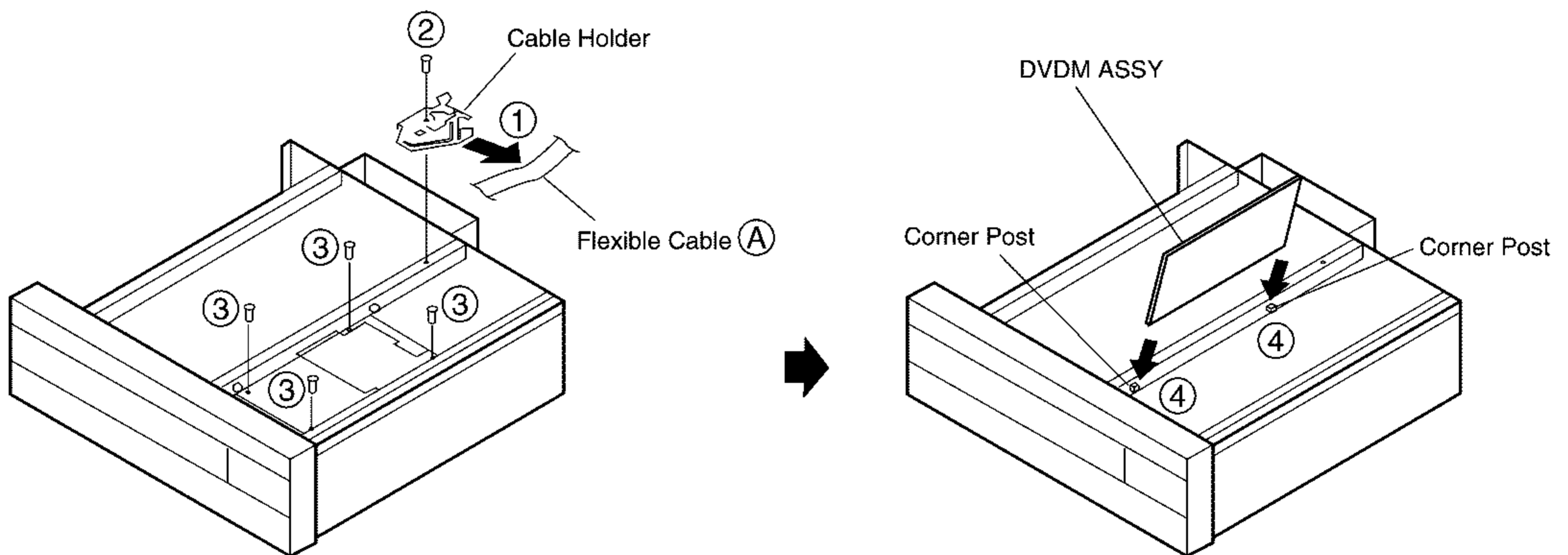
(1) DISC TRAY

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



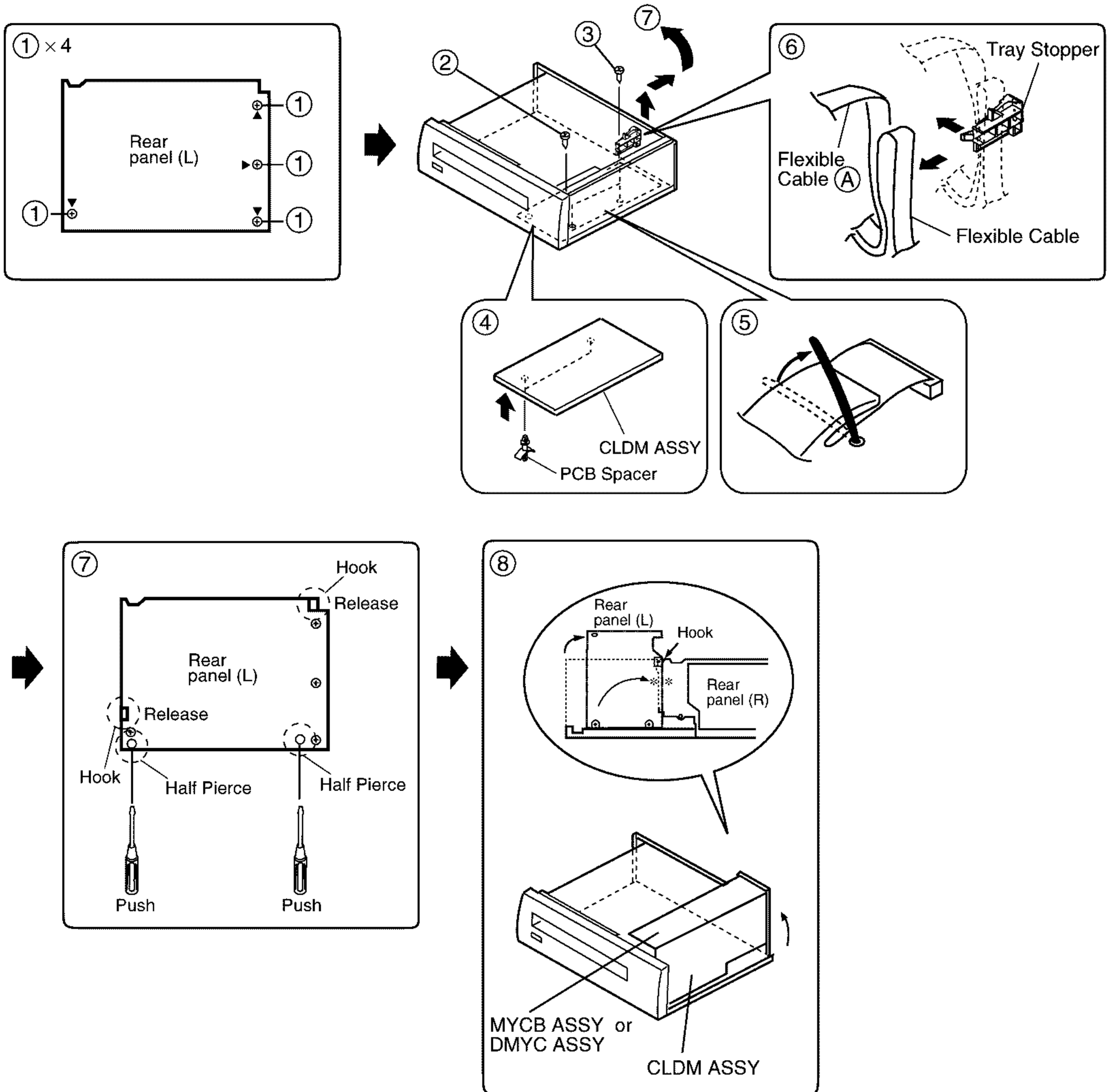
(2) DVDM ASSY

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



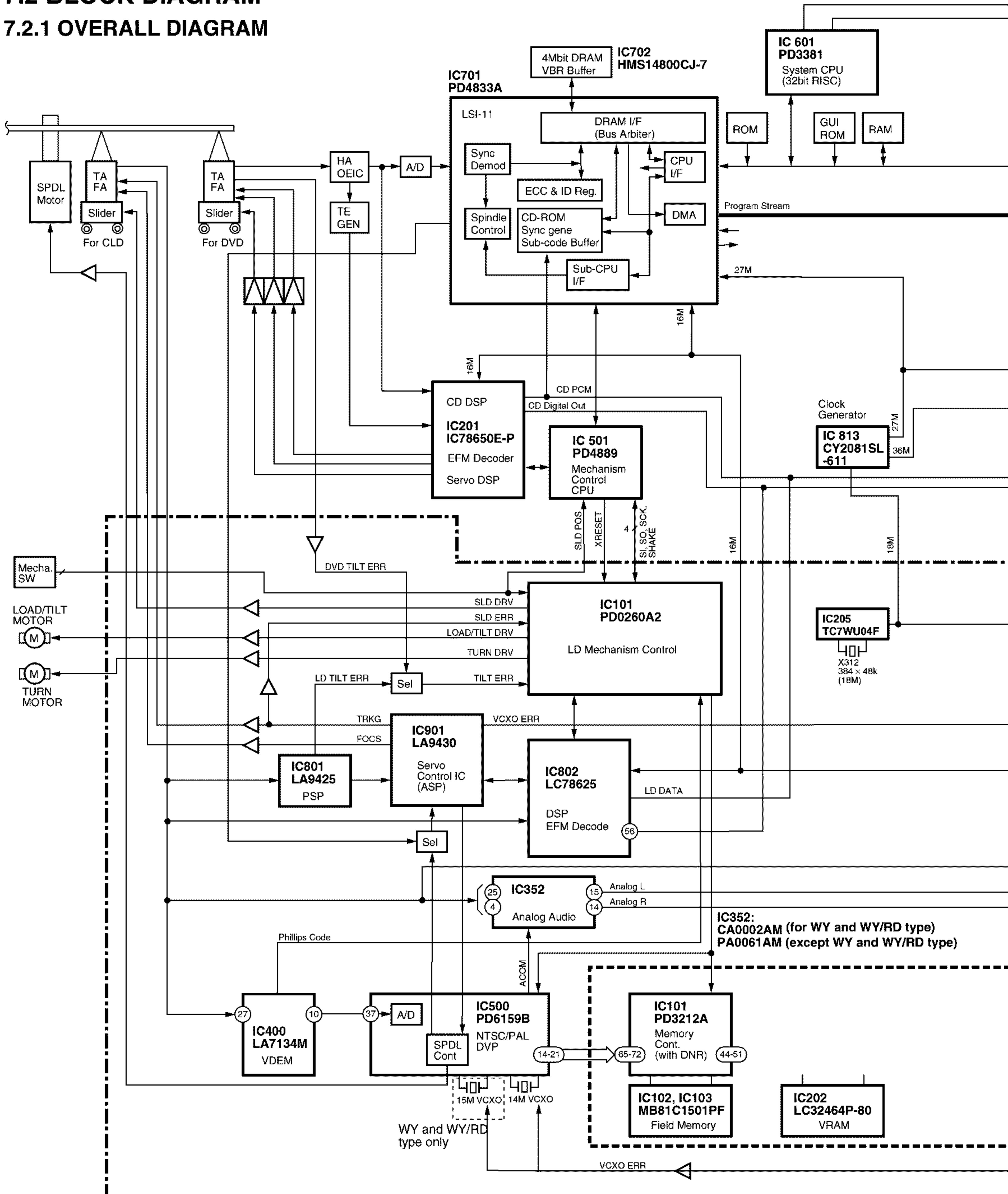
(3) CLDM ASSY

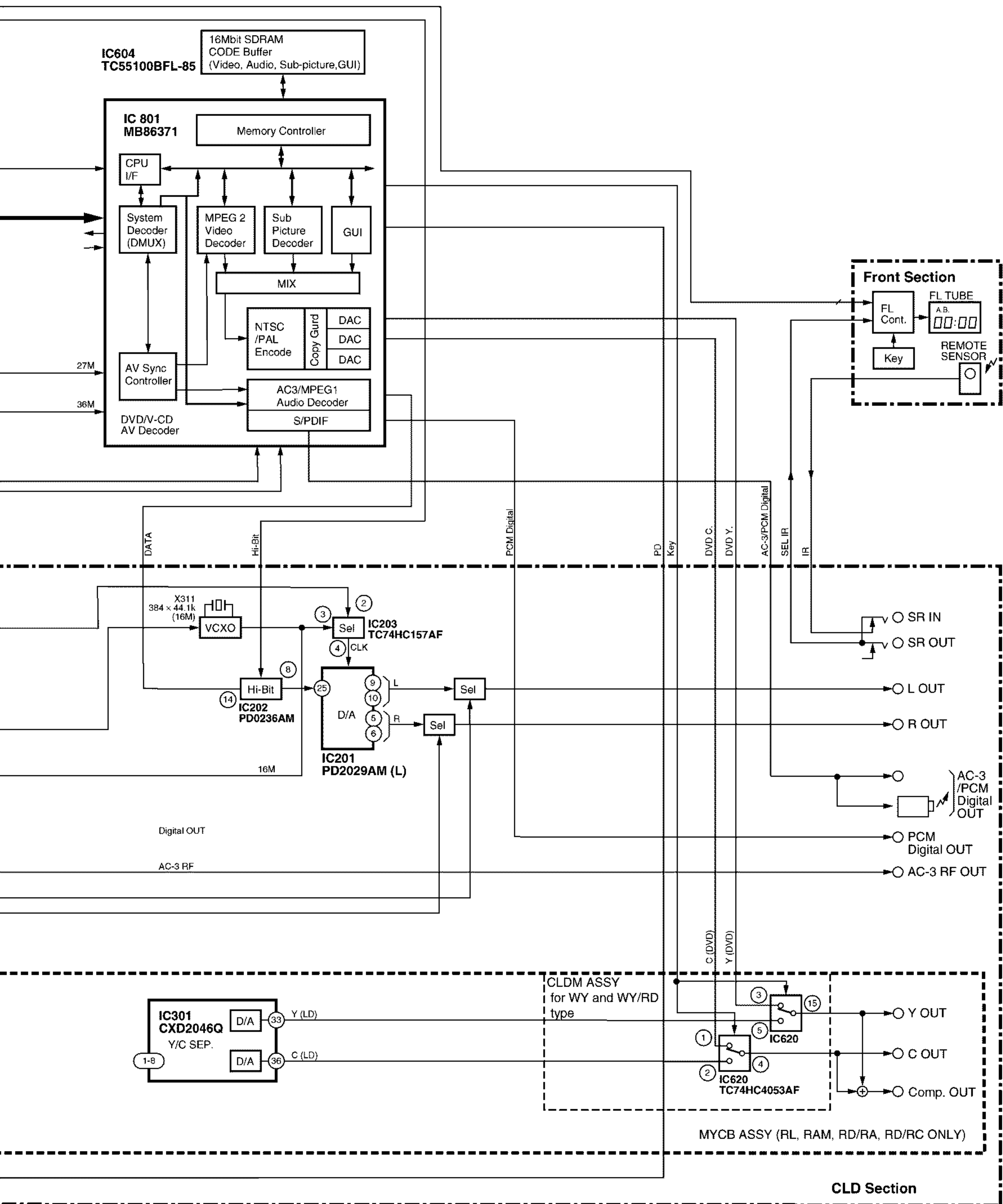
- Disassembly : ① → ② → ③ → ④ → ⑤ → ⑥ → ⑦ → ⑧
- Assembly : ⑧ → ⑦ → ⑥ → ⑤ → ④ → ③ → ② → ①



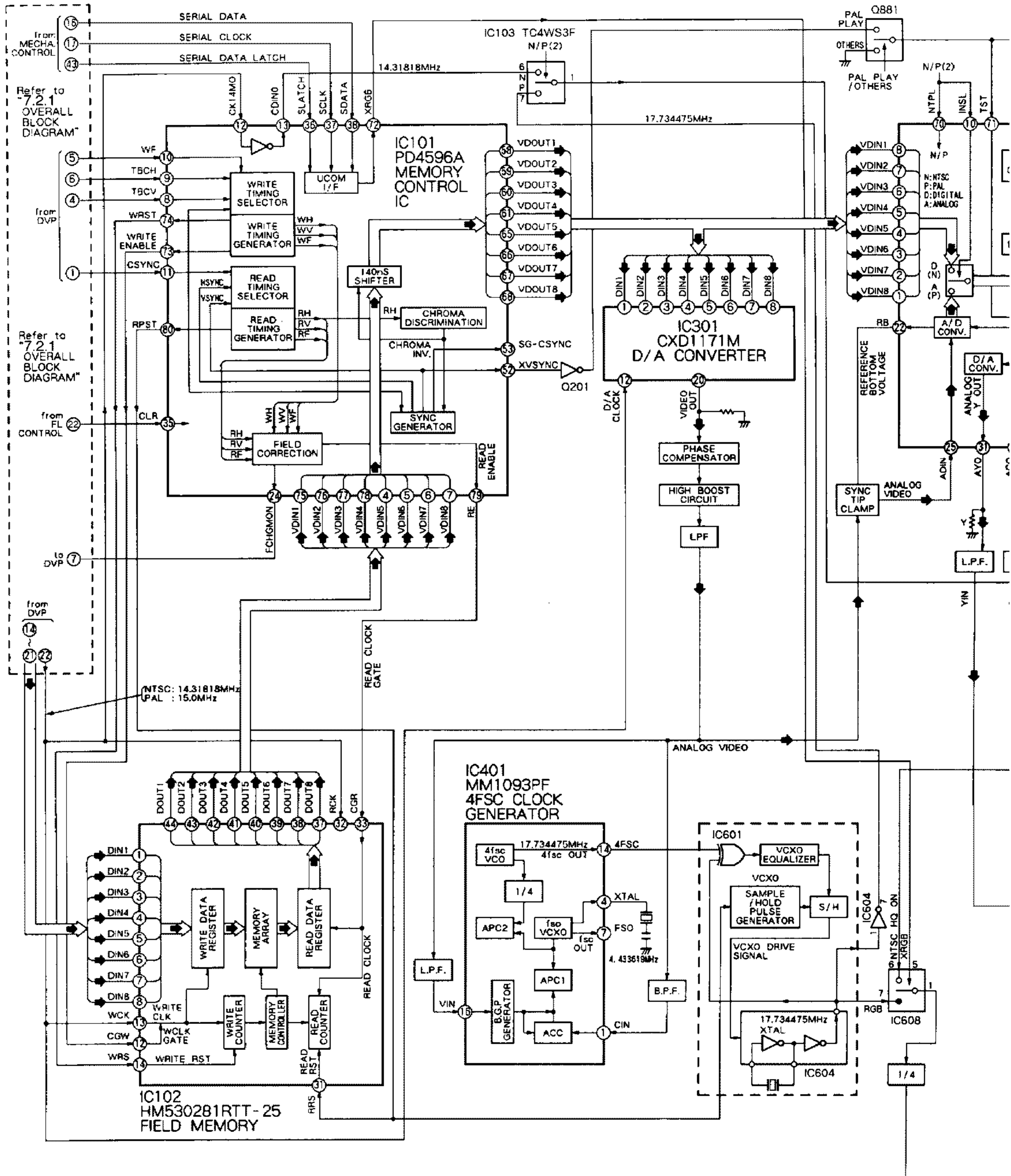
7.2 BLOCK DIAGRAM

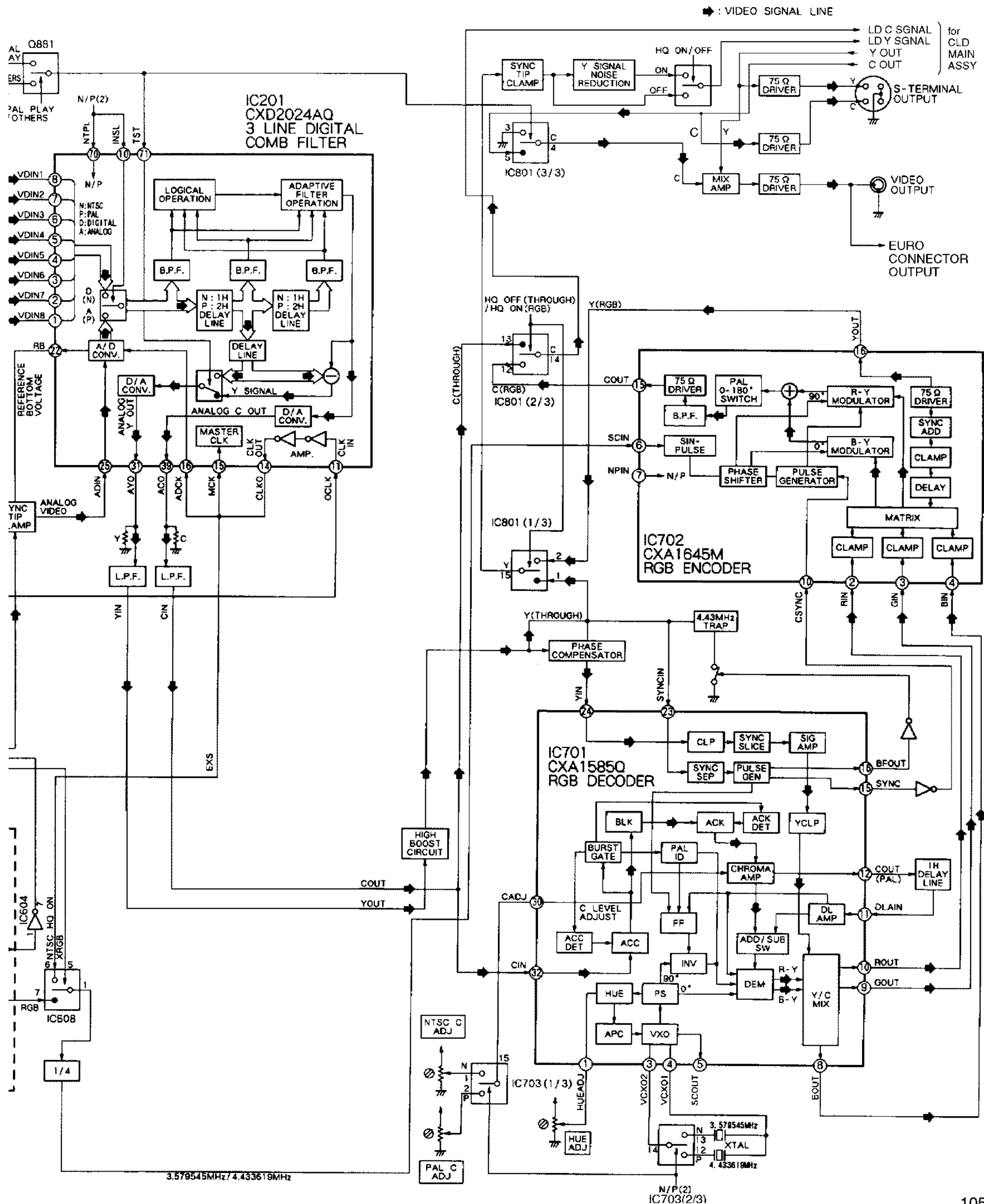
7.2.1 OVERALL DIAGRAM





7.2.2 DMYC BLOCK (WY and WY/RD TYPES ONLY)

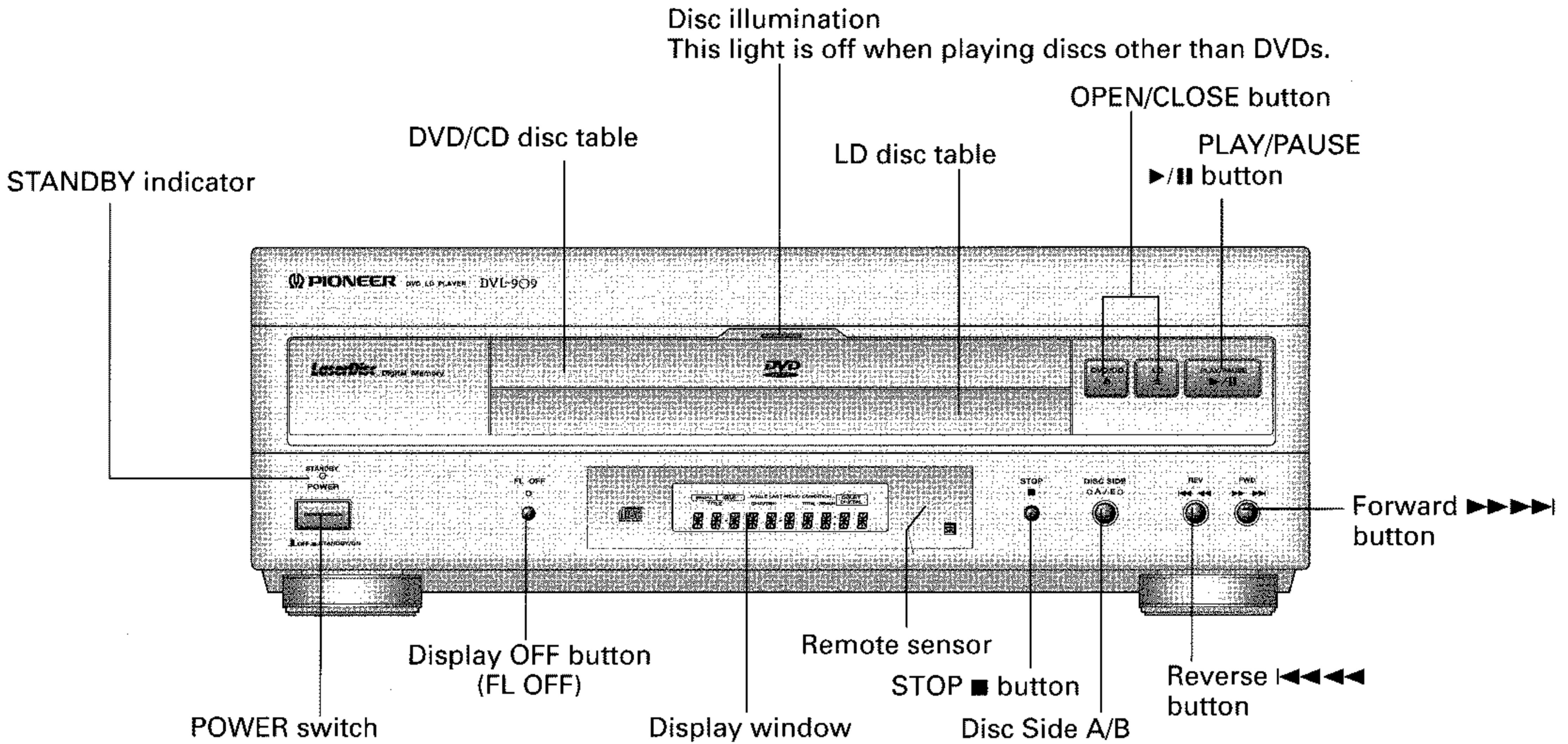




8. PANEL FACILITIES AND SPECIFICATIONS

• For DVL-909/RD/RA, RD/RC, RAM and RL types

FRONT PANEL



REAR PANEL

Digital Output Jack (Coaxial)

This is used for output of the digital audio signal recorded on CDs, Video CDs and digital audio LDs. Depending on the components connect, noise may be generated.

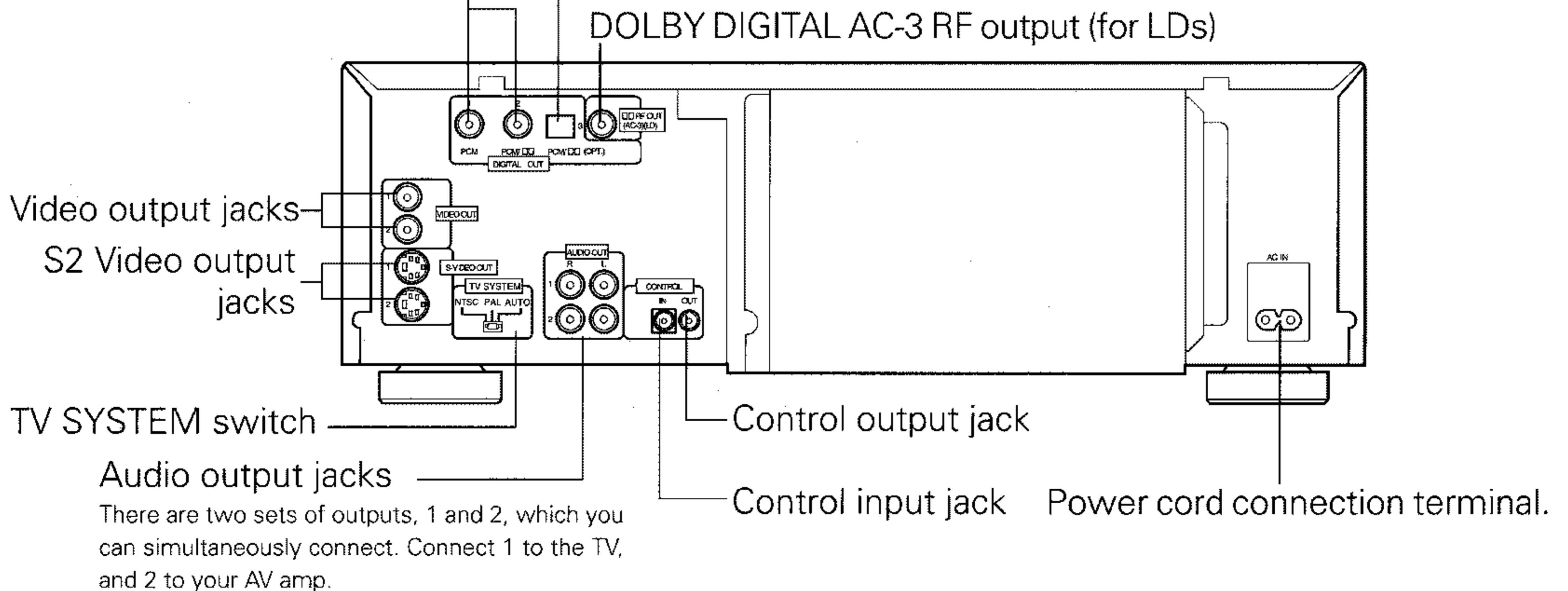
Your amp	Regular digital amplifier	Coaxial	Connect to the PCM jack, and select PCM from a menu.
		Optical	Connect to the optical jack, and select PCM from the menu.
	AC-3 compatible amplifier	Coaxial	Connect to the PCM/DOLBY DIGITAL jack, and select PCM/DOLBY DIGITAL from the menu.
		Optical	Connect to the optical jack, and select PCM/DOLBY DIGITAL from the menu.

Digital Output

When connecting to an AC-3 compatible component, use the PCM/DOLBY DIGITAL jack. Use the PCM jack for all other components. (Refer to the chart on the right.)

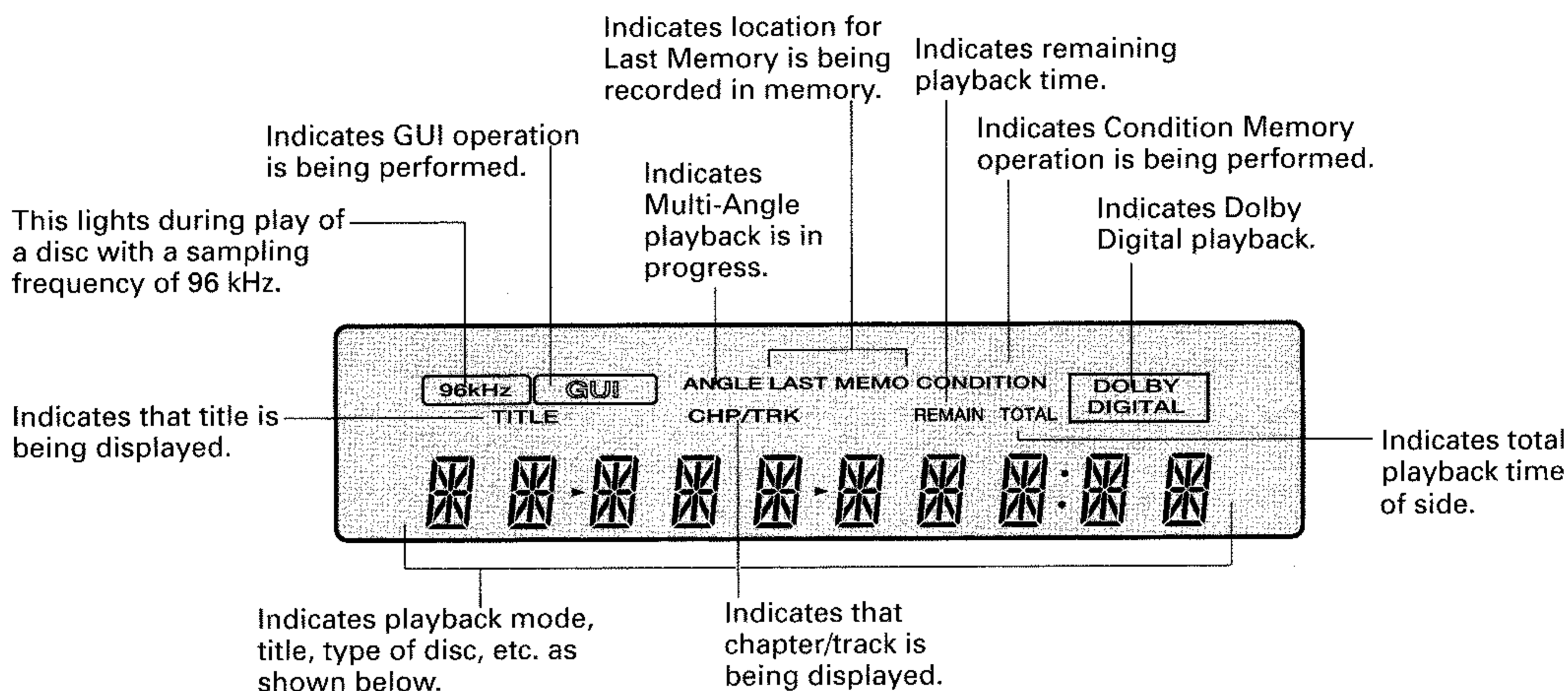
Optical Digital Output

Audio optical digital output. Switchable between PCM/DOLBY DIGITAL and PCM output.



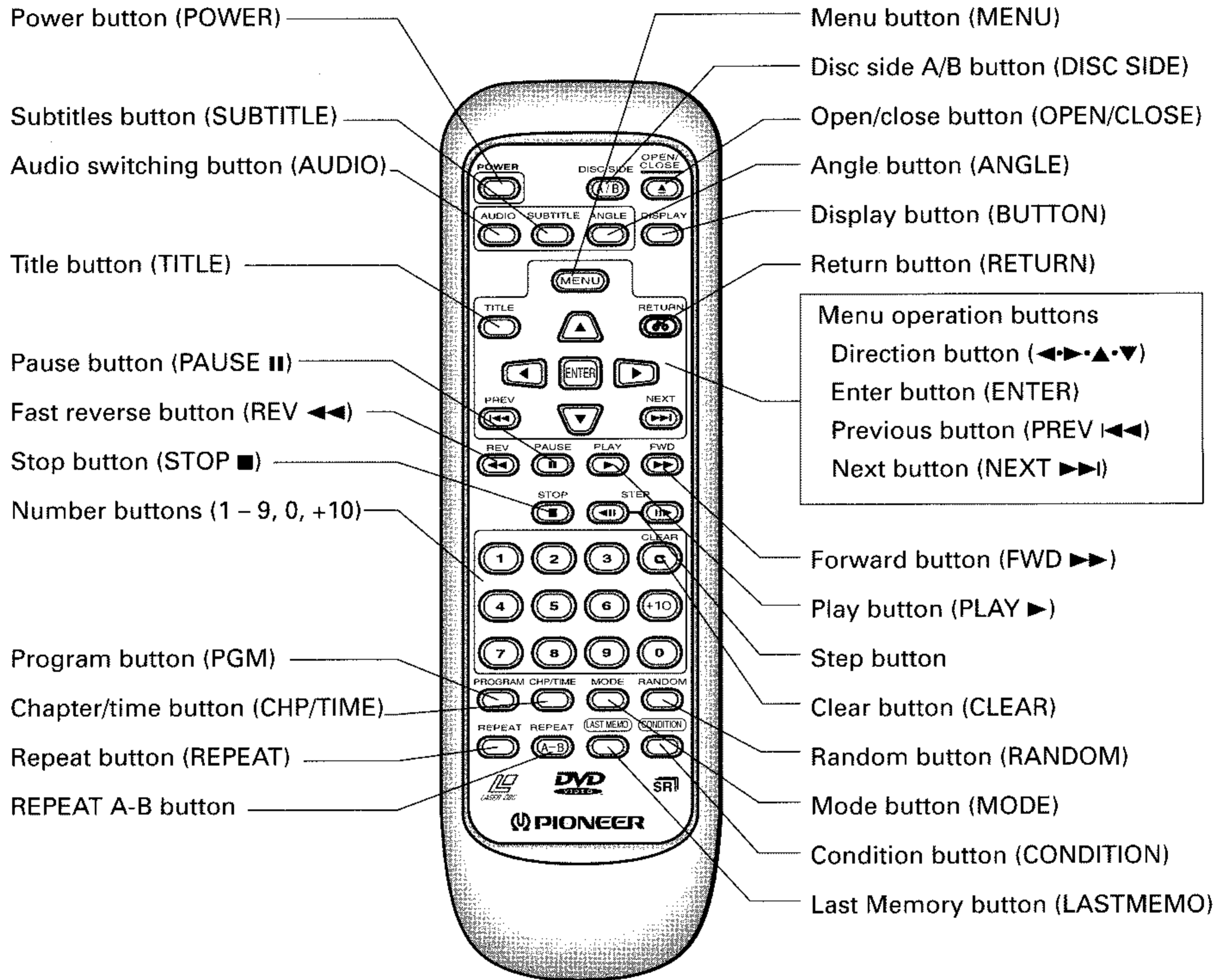
There are two sets of outputs, 1 and 2, which you can simultaneously connect. Connect 1 to the TV, and 2 to your AV amp.

■ DISPLAY WINDOW



LD	:Laser Disc	STOP	:Stop
CD	:Compact disc	PAUSE	:Pause
CDV	:CD video	NO DISC	:No disc
DVD	:DVD	-- OFF --	:Power is turned off
VED	:Video CD	MENU	:Menu mode
PBC PLAY	:During Video CD PBC play	TITLE	:Title menu
OPEN	:Disc table is opening or is open	CHAPTER	:Chapter menu
CLOSE	:Disc table is closing	SUB-TITLE	:Subtitle menu
RDM	:Random playback	SETUP	:Set-up menu
PROGRAM	:Program mode	AUDIO	:Audio menu
PGM	:Program playback	COND-MEM	:Condition Memory
R-TRK	:Repeat mode	LAST-MEM	:Last Memory
R-A	:Start point of 2 point repeat playback		
R-AB	:2 point repeat playback		
R-TTL	:Repeat playback of the title		
R-CHP	:Repeat playback of the chapter		
R-SID	:Both sides of LD repeat playback		
STEREO	:Stereo		
PLAY	:Playback		

■ REMOTE CONTROL



■ SPECIFICATIONS

● For DVL-909/RD/RA,RD/RC, RAM and RL types

General

System DVD system, LaserVision Disc system and Compact Disc digital audio system
 Laser Semiconductor laser: wavelength 650 nm, 780 nm
 Power requirements: AC 110 – 127/220 – 240 V, 50/60 Hz
 Power consumption 57 W
 Weight 8.9 kg
 Dimensions 420 (W) x 464 (D) x 146 (H) mm
 (Not including protruding cables, etc.)
 Operating temperature +5°C to +35°C
 Operating humidity 5% to 85% (no condensation)

Video Output (2 pairs)

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

S-Video Output level (2 pairs)

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

Audio Output (2 pairs)

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

Digital audio characteristics

Frequency response	4 Hz to 22 kHz (DVD fs: 48 kHz) 4 Hz to 20 kHz (LD, CD)
S/N ratio	115 dB (EIAJ)
Dynamic range	97 dB (EIAJ)
Total harmonic distortion	0.003 %
Wow and flutter	Limit of measurement (±0.001% W. PEAK) or lower (EIAJ)

Other Terminals

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

Accessories

Remote control unit 1
 AA/R6P dry cell batteries 2
 Audio cord 1
 Video cord 1
 Power cord 1
 Operating Instructions 1
 Warranty card 1
 (With region number "1" models only)

NOTE:

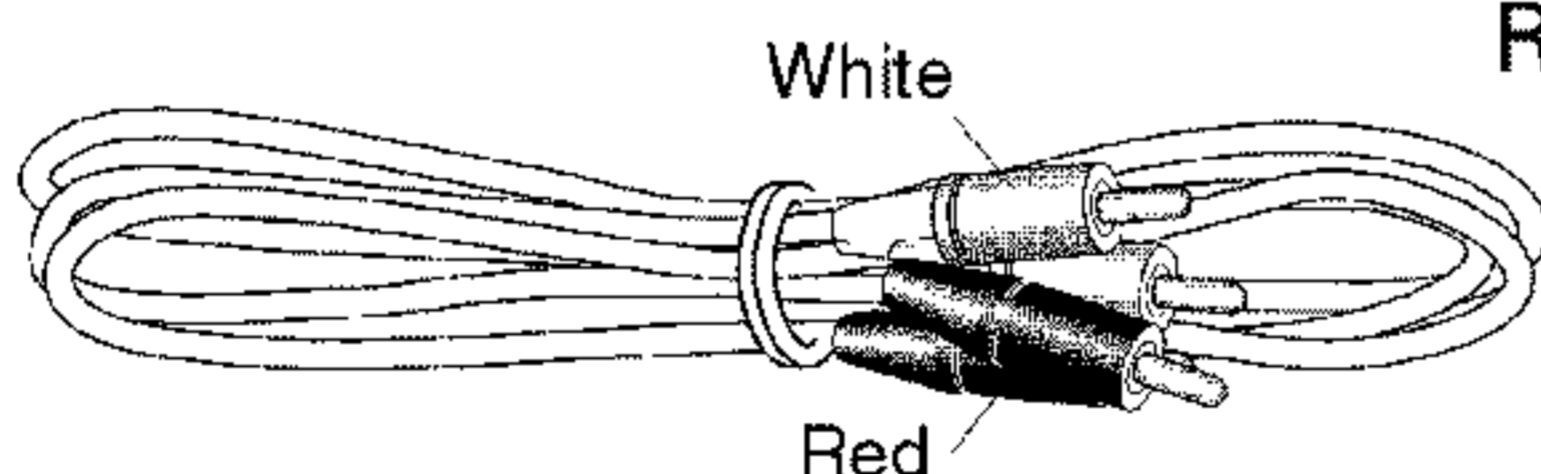
The specifications and design of this product are subject to change without notice, due to improvement.

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

■ ACCESSORIES

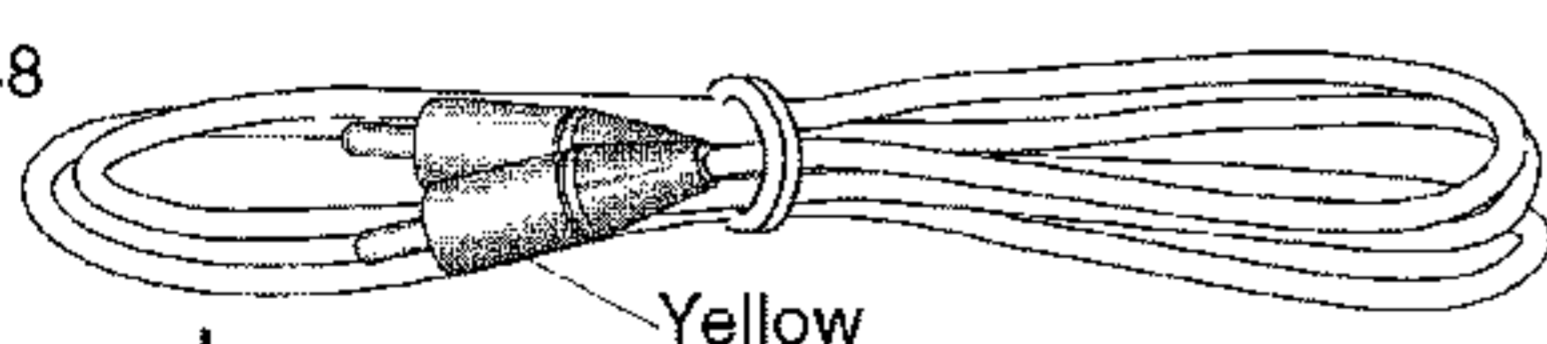
Audio cord

VDE1033
 L=1.5m



Video cord

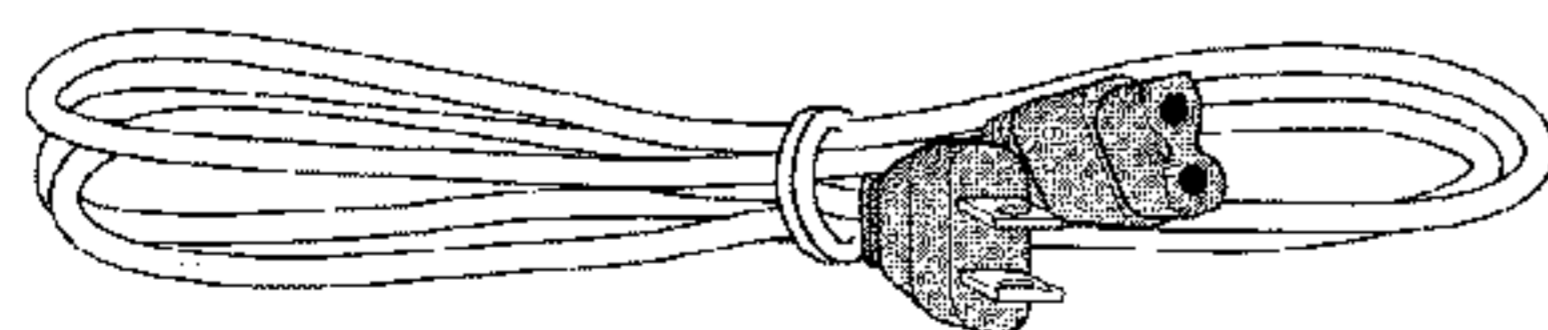
VDE1048
 L=1.5m



Power cord

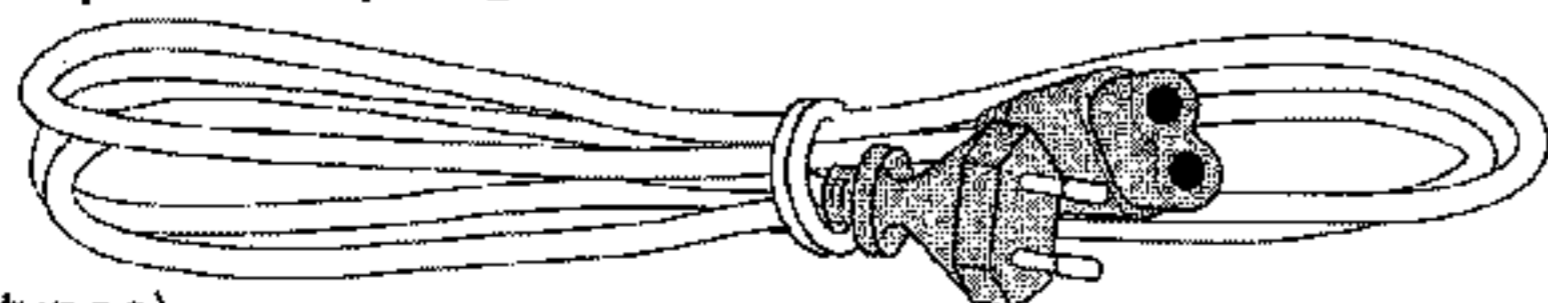
<Flat blade 2-pin AC plug model>

ADG7003
 (RD/RA and RD/RC types)
 ADG7017
 (RAM type)

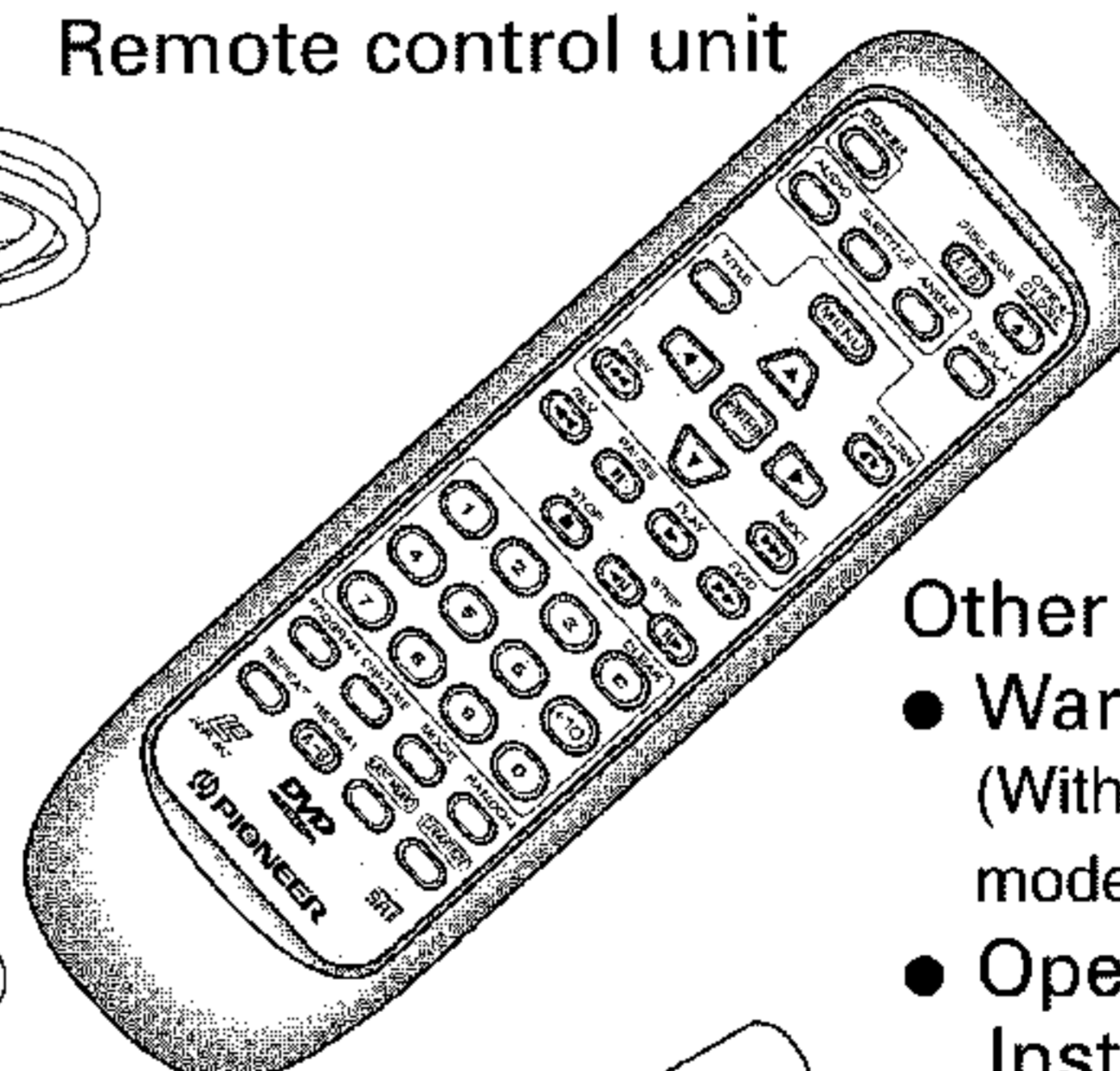


<Round blade 2-pin AC plug model>

ADG1154
 (RL type)
 ADG1127
 (WY and WY/RD types)



Remote control unit



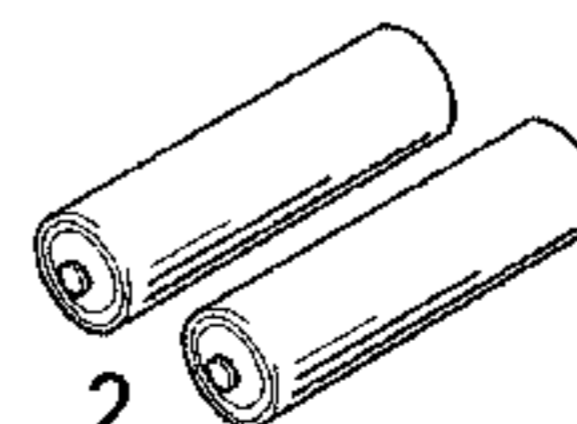
VXX2534(CU-DV013)
 (WY and WY/RD types)

VXX2549(CU-DV018)
 (RD/RA,RD/RC, RAM and RL types)

Other included items

- Warranty card (With region number "1" models only.)
- Operating Instructions

Batteries....2



Service Manual

SERVICE GUIDE

ORDER NO.
RRV1896

DVD PLAYER

DV-505

DV-S9

DVD LD PLAYER

DVL-909

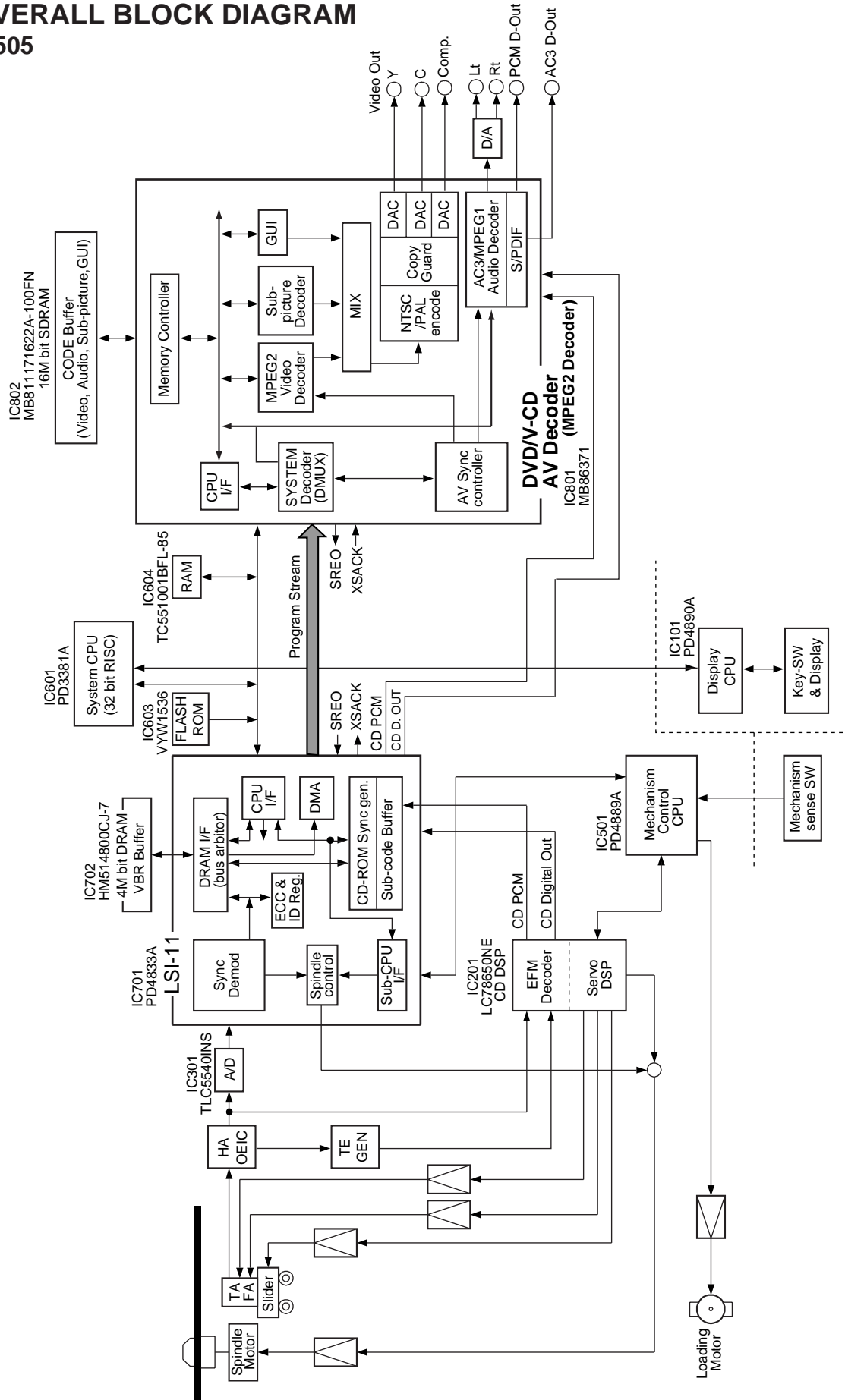
CONTENTS

1. CIRCUIT DESCRIPTION	2
2. CIRCUIT DESCRIPTIONS	
FOR DV-S9 AND DV-09	10
3. TEST MODE	13
4. IC INFORMATION	22
5. FL INFORMATION	47

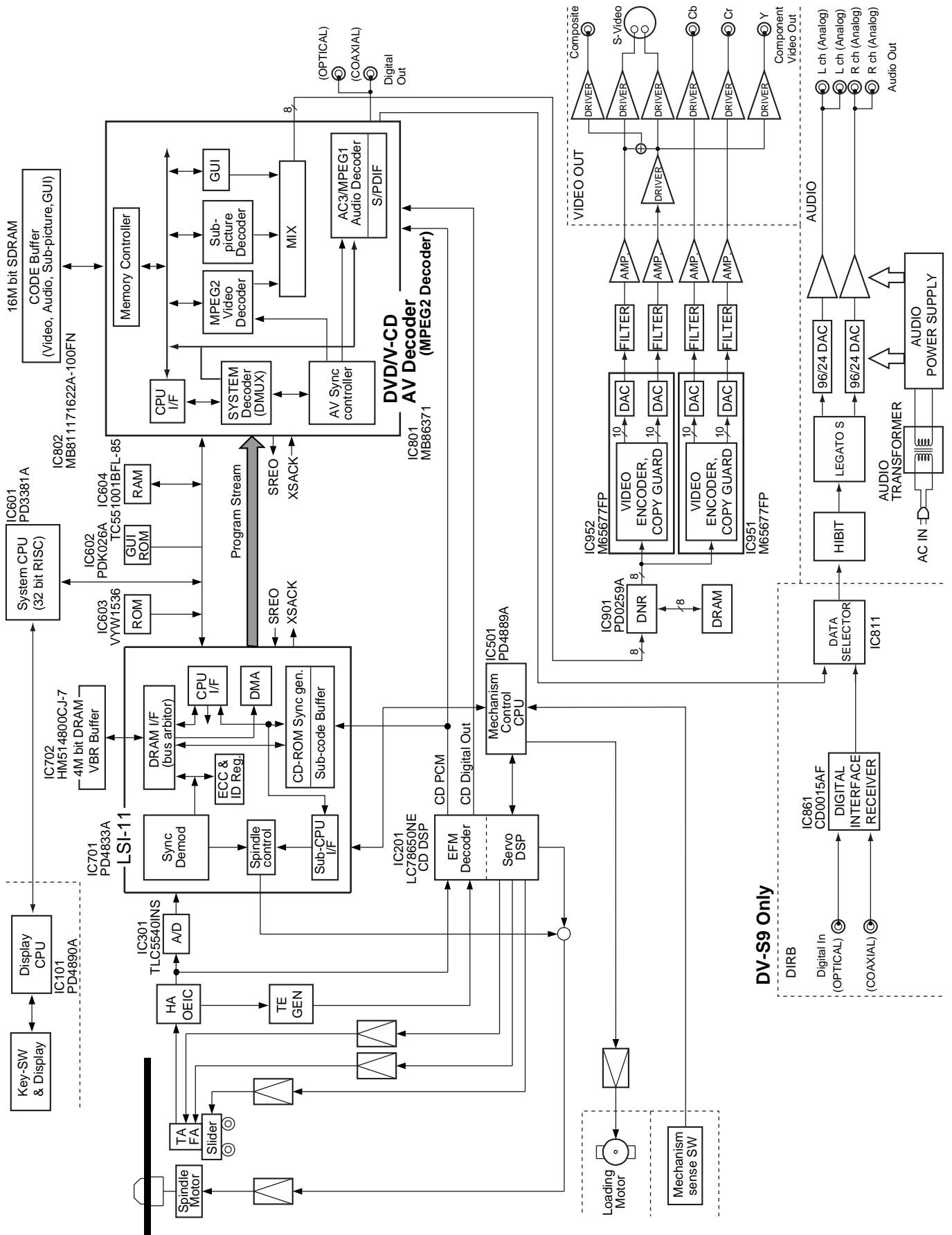
1. CIRCUIT DESCRIPTION

1.1 OVERALL BLOCK DIAGRAM

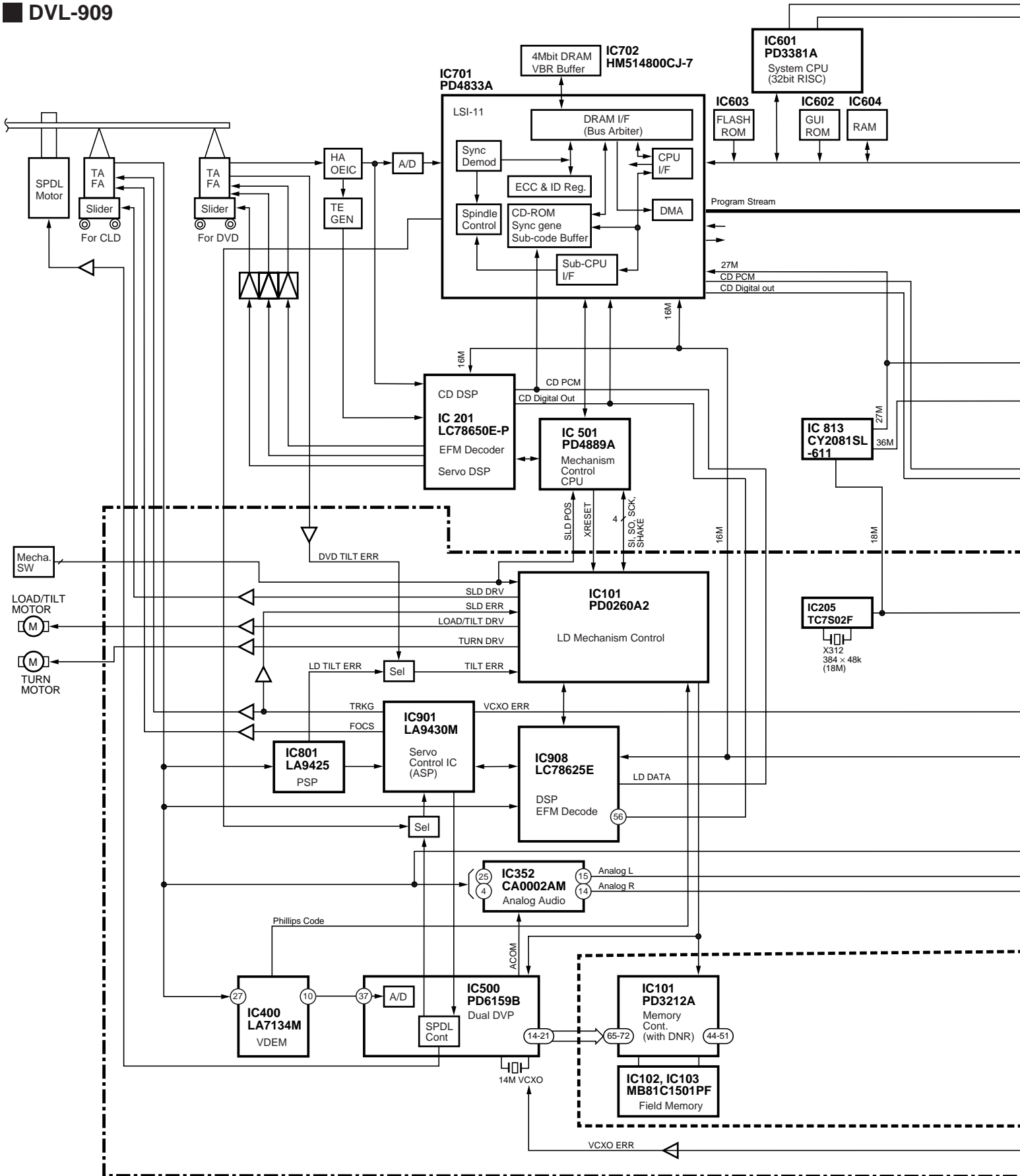
■ DV-505

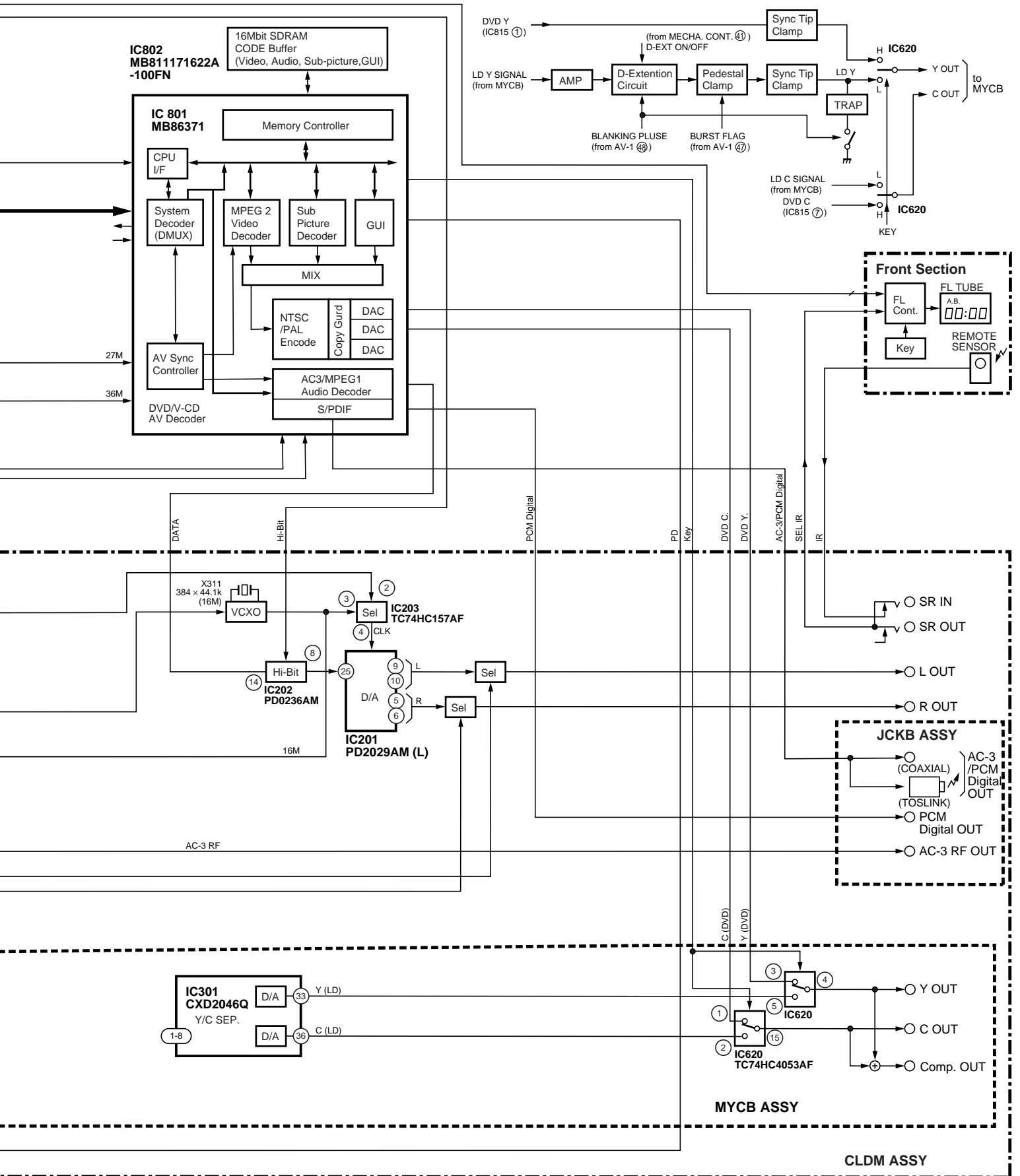


DV-S9 and DV-09



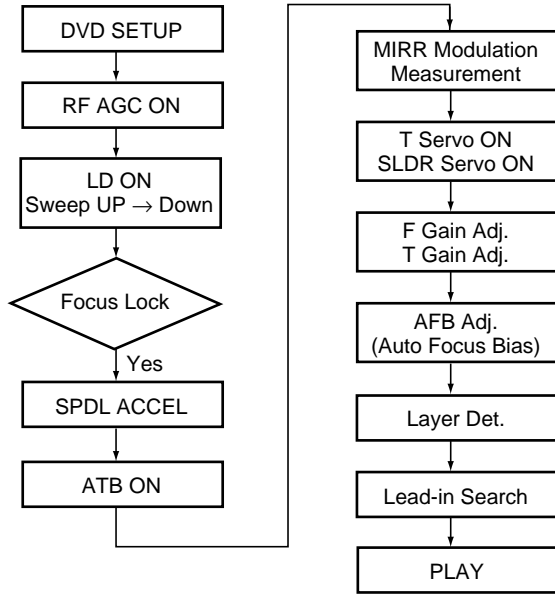
DVL-909





1.2 EXPLANATION OF EACH MOVEMENT

1.2.1 Sequence Up to Playback



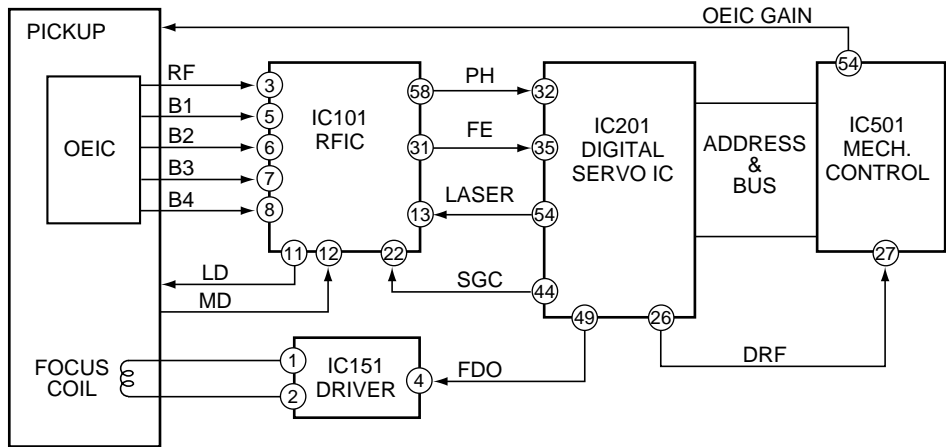
1.2.2 Focus Servo

FE generated in the RF IC is sent to the Digital servo IC.

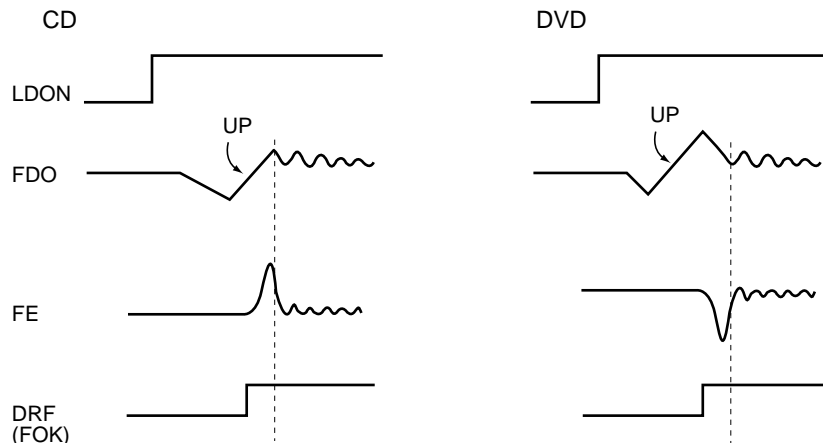
For a DVD, the servo is turned on during the transition from “Up” to “Down” of the first-order sine wave. For a CD, it turns on during the transition from “Down” to “Up” of the first-order sine wave.

When the servo is turned on, the level of PH (the envelope of the bright side of RF) increases, and DRF becomes H. The kick-brake pulses, such as those for FOCUS jump, are also output from pin 49 of IC201.

• FOCUS SERVO



• FOCUS LOCK TIMING



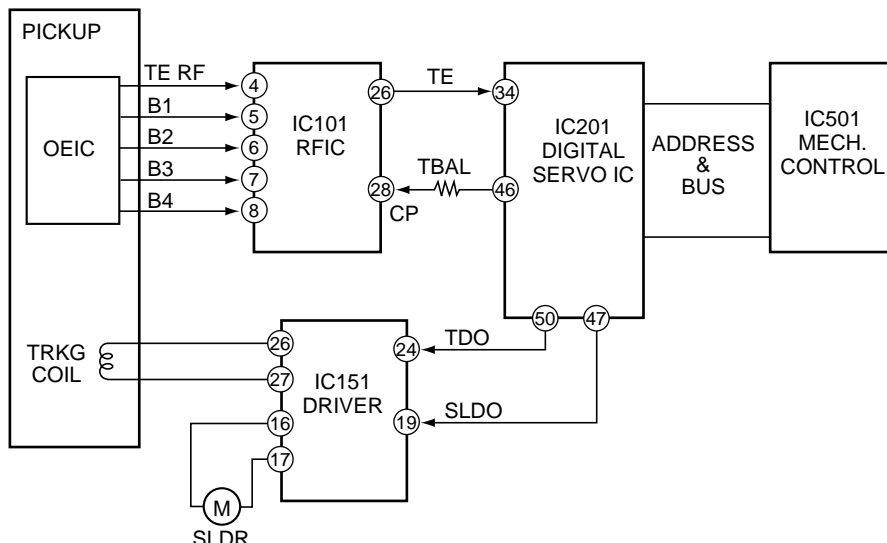
1.2.3 Tracking / Slider Servo

ATB: The tracking balance compensation is achieved by outputting the offset from the TBAL output at pin 46 of the digital servo IC, and by biasing the charge pump resistor for phase-difference error of RFIC.
 The difference is detected by processing TE at pin 34 of IC 201 with an internal digital equalizer.

TDO: In addition to the servo output, the low-band components, such as the kick-brake for jump, are added for TDO output.

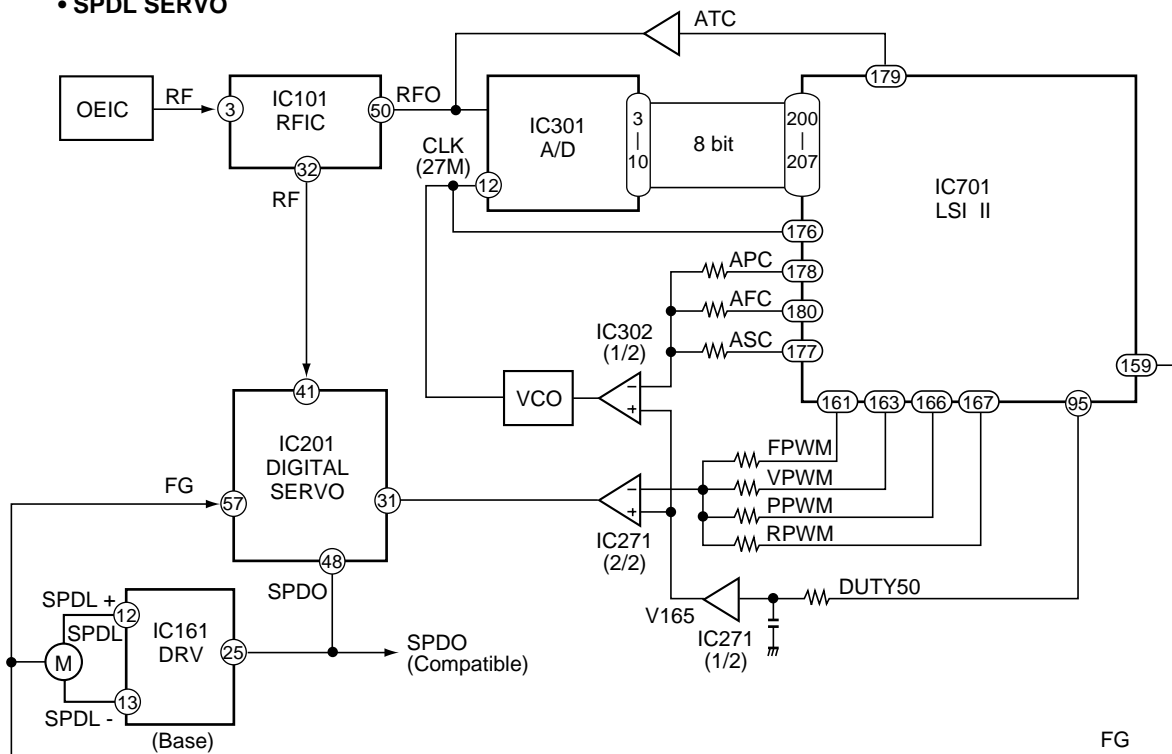
SLDO: The low-band components of TE are processed by the internal digital equalizer, and deadband is added for SLDO output. The offset voltage for pickup movement is also included in the SLDO output.

• TRACKING / SLIDER SERVO



1.2.4 SPINDLE SERVO

• SPDL SERVO



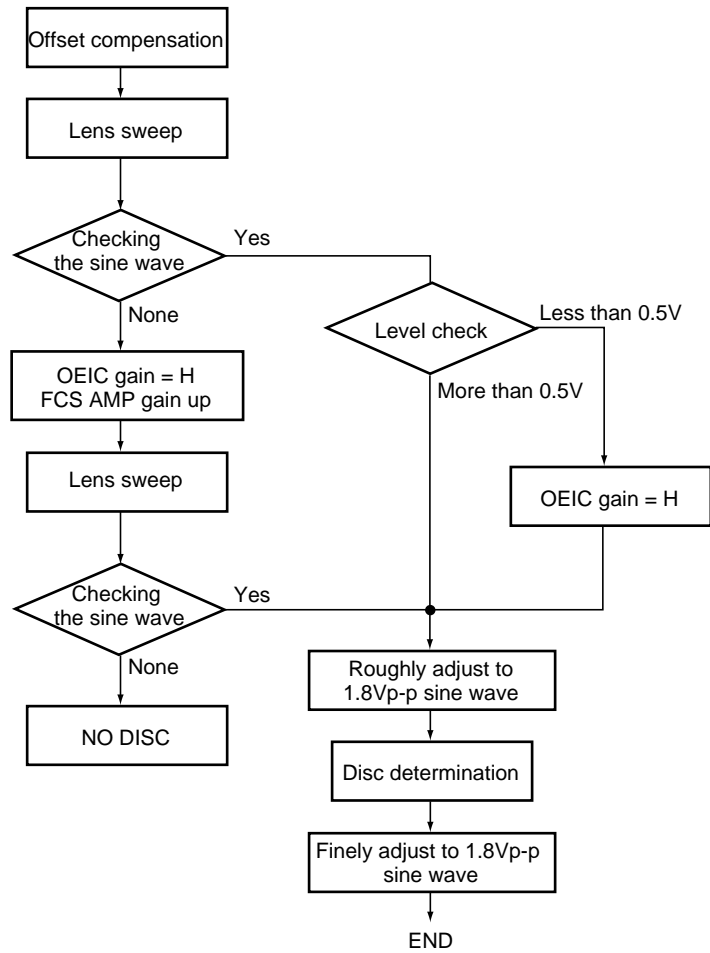
For a CD, the RF signal output from pin 32 of the RF IC is converted to binary in IC201. By comparing the binary value with the reference CLK (clock), the SPDL ERR signal is output from pin 48.

For a DVD, the SPDL ERR signal is generated from the PWM signal output from LSI-II. Upon receiving this signal via pin 31, IC201 also outputs it from pin 48, switching from the CD SPDL ERR signal.

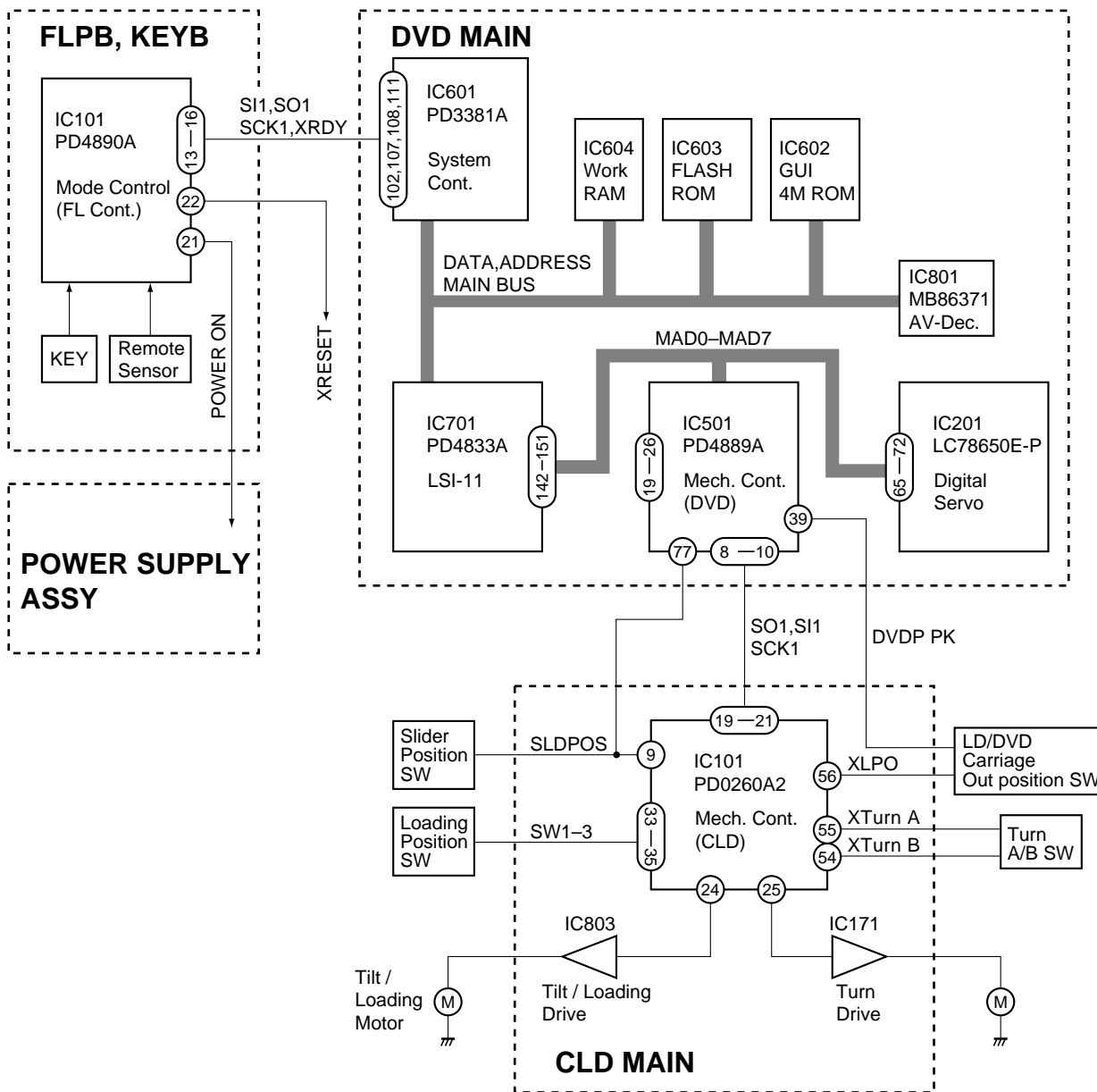
1.2.5 Disc Determination

Determination is achieved by checking the sine wave by sweeping the lens with the OE IC gain at L and the FSC error amplifier (SGC) at the default setting. If no sine wave is detected, checking is retried after switching the OE IC gain to H and increasing the gain of the FSC error amplifier (SGC). If no sine wave is detected again, it is regarded as the NO DISC condition.

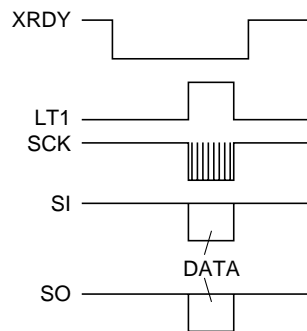
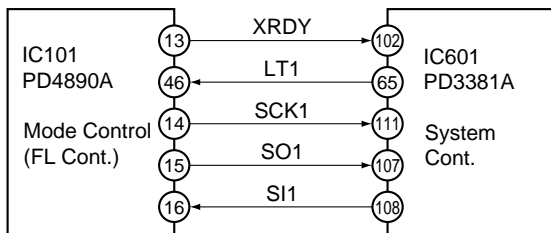
If one half of the sine wave detected at the first lens sweep is of a value less than 0.5 V, the OE IC gain is set to H and the peak-to-peak value of the sine wave is roughly adjusted to 1.8 Vp-p. By sweeping the lens around the height where the sine wave has been detected, disc determination is performed, and the sine wave is finely adjusted to 1.8 Vp-p.



1.2.6 System Control (DVL-909)



1) Interface between Mode Cont. and System Cont.



Timing Chart

If there is no communication for 2 sec., Mode Cont. turn off the power and reset.

2. CIRCUIT DESCRIPTIONS FOR DV-S9 AND DV-09

2.1 VIDEO SIGNAL PROCESSING BLOCK

2.1.1 PD0259A Block

The major purposes of the PD0259A block are;

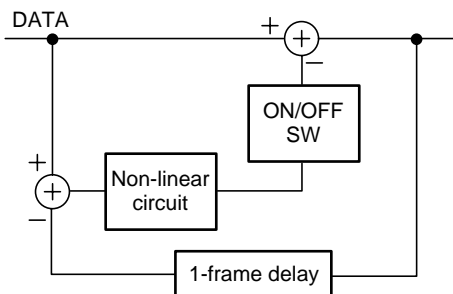
- (1) Frame-correlative cyclic digital noise reduction
- (2) Horizontal and vertical contour compensation
- (3) Y/C timing adjustment
- (4) Frame freezing

(1) Frame-Correlative Cyclic Digital Noise Reduction

For eight-bit digital video data input to the PD0259A, noise reduction is performed through subtraction between the data and those of the corresponding points 1 frame before, delayed for the subtraction via a 4-bit DRAM by 1 frame.

The noise signal detected as a result is sent to a non-linear circuit. If the difference is larger than a specific value, it is regarded as “a change in picture,” and no canceling calculation is made.

This function is the same as that which has been performed in conventional laser-disc players. The only difference is that the input video signal here is a DVD digital component signal (4:2:2), while it is an LD digital composite signal in conventional laser-disc players.



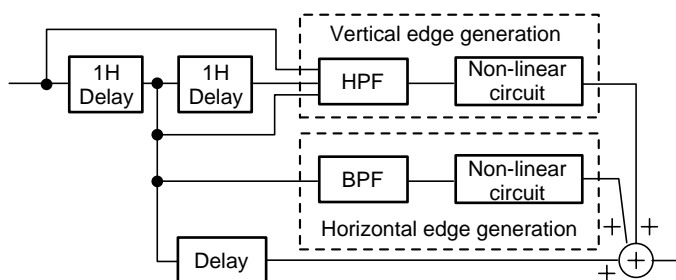
(2) Horizontal and Vertical Contour Compensations

For data after digital noise reduction, horizontal and vertical contour compensations are made only for the Y-signal.

Horizontal compensation is performed by detecting edge components from the information of the reference picture elements and those that horizontally proceed and succeed by several pixels, and then generating edge-emphasizing components through non-linear processing of the detected components.

Vertical compensation is performed by detecting edge components from information on the reference picture elements and those which vertically proceed and succeed by one line, and then generating edge-emphasizing components through non-linear processing of the detected components.

These edge-emphasizing components are added to the main-line digital data to achieve contour compensations.



(3) Y/C-timing Adjustment

This function changes the output phase of the Y signal with respect to the Cb and Cr signals in units of the 13.5-MHz clock cycle (approx. 74 ns).

(4) Frame Freezing

In response to a command sent from the system control computer by serial transmission, data for one frame are frozen, and the frozen picture is output.

This function is specific to the DV-S9 and is used only for picture-by-picture reversing by jog/shuttle operation or “Slow 1” playback operation.

2.1.2 M65677FP Block

The M65677FP block functions as an NTSC encoder that converts digital component signals to analog Y, C, Cb and Cr signals. While our popular models other than the DV-S9 use the built-in encoder in the MB86371 block, an external NTSC encoder is added to the DV-S9, as it performs digital processing in the PD0259A block.

In addition to NTSC encoding, the M65677FP also performs:

- (1) D.EXT(DV-S9)/BLACK LVL(DV-09)
- (2) C.LEVEL adjustment

(1) D.EXT(DV-S9)/BLACK LVL(DV-09)

Setup of -7.5 IRE is added to the Y signal. D.EXT(DV-S9)/BLACK LVL(DV-09) processing using analog signals in conventional laser disc players is achieved by using digital signals.

(2) C.LEVEL Adjustments

The burst level of the C signal can be varied centering around 40 IRE.

Therefore, it is performed for the S-connector and CVBS-connector outputs, but not for the color-difference output.

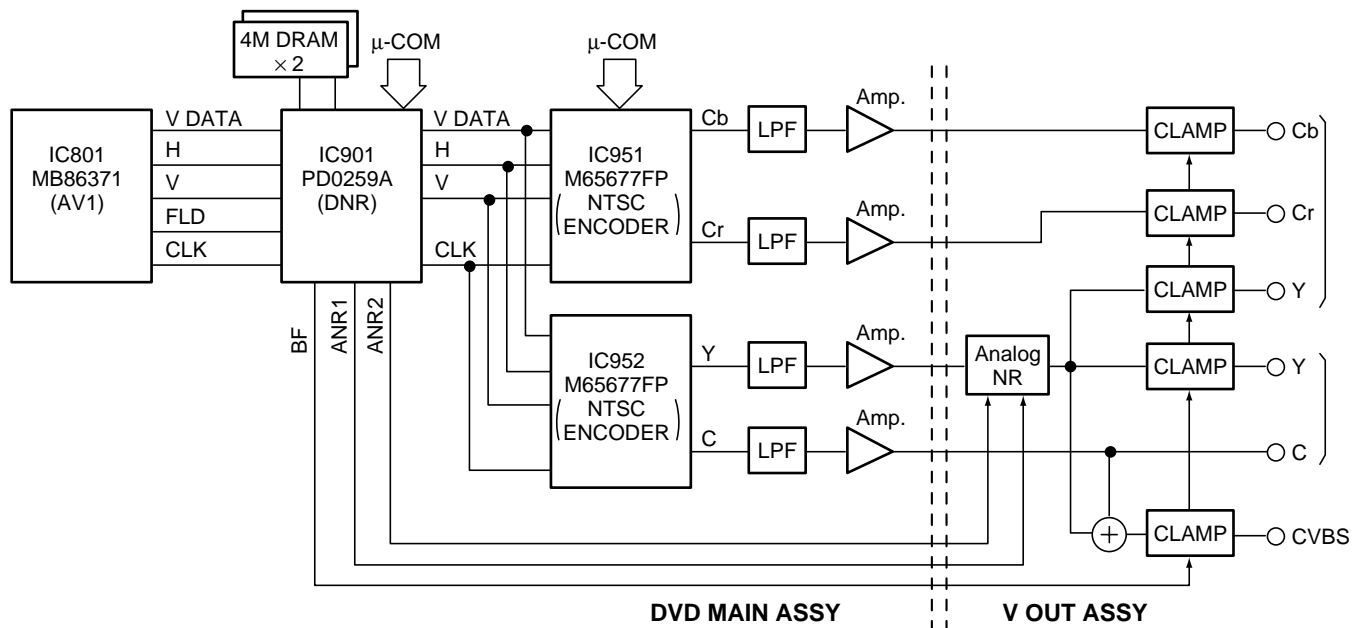
This function is also not available if the connected TV receiver has no AGC circuit.

2.1.3 Analog Video Signal Processing Block

The video signals output from the built-in 10-bit DA converter of the M65677FP pass through a low-pass filter and amplifier, and are output from the DVD MAIN Assy and sent to the VOUT Assy.

In the VOUT Assy, analog noise-reduction processing having three levels (OFF, low, and high) is initially applied only to the Y signal. This analog noise reduction is the same as that performed by conventional laser-disc players. The register port output in serial communication that the PD0259A receives from the system-control computer is used as the control signal for analog noise reduction.

After analog noise reduction, a CVBS signal is generated by composing the Y and C signals (no clamping is performed for the C signal). The timing pulse BF to be used for pedestal clamping is supplied from the PD0259A. This signal is adjusted within the PD0259A so that it provides the timing for the burst portions of the output video signals.



2.2 DIRB BLOCK (DIRB ASSY) (DV-S9 ONLY)

The two major purposes of the DIRB block are the following:

- (1) Switching between data reproduced from a disc and a data signal in DAC mode
- (2) Data decoding in external input mode (DAC mode)

(1) Switching Between Data Reproduced from a Disc and a Data Signal in DAC Mode

The signal switching is performed at IC811, sending 3-line data (LRCK, BCK and DATA) to the AUDIO Assy. The switching control line (DAC MODE) is supplied from the DVD MAIN Assy. The master clock (MCK) is generated by a crystal on the AUDIO Assy when reproducing a disc, and by IC861 in DAC mode. MCK is sent to the AUDIO Assy via RXP.

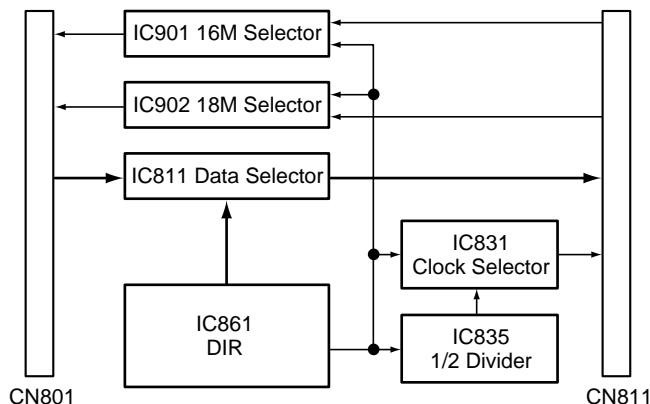
(2) Data Decoding in External Input Mode (DAC Mode)

When the user selects DAC mode, the DAC MODE port is set to H and VCO in IC861 starts oscillating. (VCO does not oscillate in any other modes than DAC mode.) When there is a loss of an external input or a coaxial digital input, the digital input signal is sent to IC861 from RXP of CN801, generating 3-line data corresponding to the input sampling frequency. At the same time, the master clock (MCK) to be used in DAC mode is also generated. For a 96kHz input, the MCK frequency is divided by 2 by IC831.

When the user selects the internal clock as the system clock, the clock generated by the crystal on the AUDIO Assy is sent to the DVD MAIN Assy. When the user selects an external sync as the system clock, the following parameters are used.

FS(kHz)	16M clock in the AUDIO Assy	18M clock in the AUDIO Assy	16M clock sent to the DVD MAIN Assy	18M clock sent to the DVD MAIN Assy
32	Oscillates	Oscillates	Crystal 16M clock	Crystal 18M clock
44.1	Stops oscillating	Oscillates	DIR 16M clock	Crystal 18M clock
48	Oscillates	Stops oscillating	Crystal 16M clock	DIR 18M clock
96	Oscillates	Stops oscillating	Crystal 16M clock	DIR 18M clock

If there is no external input or locking onto the input digital signal cannot be achieved, the ERR signal at pin 43 of IC861 is set to H, and the crystal in the AUDIO Assy immediately starts oscillating. In such cases, the clock sent to the DVD MAIN Assy will always be a crystal clock.



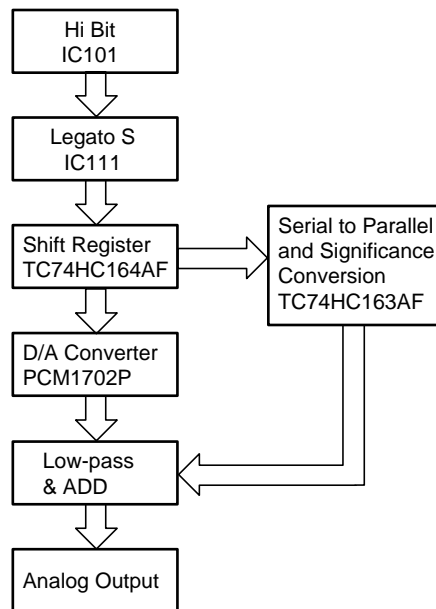
2.3 96K, 24-Bit, HIBIT LEGATO S SYSTEM (AUDIO ASSY)

All 16-bit and 20-bit sources are converted to 24-bit data by IC101, which lets a 24-bit data pass through.

As PCM1702P is a 20-bit D/A converter, processing of the upper 20 bits is assigned to it by the shift register.

The lower 4 bits are converted from serial to parallel, then the significance of each bit is converted digital to analog, functioning as a 4-bit D/A converter for the lower 4 bits.

By adding the lower 4 bits to the upper 20 bits in the low-pass & ADD block, D/A conversion is achieved for 24 bits.



3. TEST MODE

3.1 HOW TO ENTER THE TEST MODE

There is the three following methods in an enters of the test mode.

1. Short-circuit the terminals (TP6006 and TP6007) for test mode entry at the side of the system control IC (IC601) of DVDM ASSY, and turn the power on.
2. Input [ESC] key and [TEST/RANDOM] key of the test mode remote control unit in order under the power on condition.
3. Connect a personal computer with the RS232C terminal (CN106), and input entry command (TE) of test mode from the personal computer.

Note: FL indication and LED come all to light until key operation is done when entering the test mode.

3.2 RELEASE THE TEST MODE

There is the three following methods in a release of the test mode.

1. Turn the power off.
2. Press [ESC] key of the remote control unit. At this time, reset it for a while except for during the LD and CDV set.
3. Connect a personal computer with the RS232C terminal (CN106), and input normal mode entry command (NE) from the personal computer.

3.3 THE EXPLANATION OF EACH FUNCTION

The function that can be operated in the test mode is as the following. Use a LD remote control unit in the test mode.

(1) Door Open/Close

1. Press [REPEAT A-B] (48) key of the remote control unit.
2. Press [OPEN/CLOSE] key of the player from the stop condition.

(2) Stop

1. Press [REPEAT] (44) key of the remote control unit.
2. Press [STOP] key of the remote control unit or the player from the stop condition.

(3) Play 1 (Demultiplex exist which it tries to output the playback screen)

1. Press [PLAY] (17) key of the remote control unit.
 - CLD rise up at the tracking open condition. However, it becomes tracking close when entering the test mode during the play.
 - DVD rise up at the tracking close. Playback screen may not appear because the NAVI information isn't read in the test mode.

(4) Play 2 (Demultiplex is absent which performing trace only)

1. Press [TV/LDP] (0F) key of the remote control unit.
 - It is equal to the play 1 with CLD.
 - Perform only tracing with DVD, and there are no video and audio output.

(5) Pause

1. It becomes pause condition by pressing [CX] (0E) key of the remote control unit in the play.
2. Pause ON/OFF changes alternately by pressing [PAUSE] (18) key in the play.

(6) Search Address Input Entry

It becomes the address input mode when [+10] key (1F) is pressed. (indication for the most significant digit : >)

Indicate the last address as the initial condition in this time.

Only in case of DVD, addition search (indication for the most significant digit : +) and subtraction search (indication for the most significant digit : -) are able to select in order by pressing [+10] key continuously.

The address where input value was added to the present address is make to search with addition search.

The address where input value was subtracted to the present address is make to search with subtraction search.

In case of CD is only absolute time search.

Also address clear and release from the address input mode are able to perform by 2 steps by pressing [CLEAR] (45) key.

(7) Search Address Input

Press [0] to [9] keys of the remote control unit.

Set up the address by the hexadecimal number with DVD.

When [PROGRAM] (4C) key is pressed in the address input mode, input mode changes to hexadecimal number input (Indicates "*" mark), and [1] to [6] keys are input as [A] to [F].

At this time, [7], [8], [9] and [0] keys are not accepted.

Also the hexadecimal number input and the decimal number input can be changed with toggle.

(8) Search Practice

1. Press [CHP/TIM] (13) key of the remote control unit.
 - Practice the on screen no playback (Doesn't demultiplex) after the search with DVD.
2. Press [PLAY] (17) key of the remote control unit.
 - Practice the on screen playback (demultiplex exists) after the search with DVD.

(9) Side Change

This function becomes effective when a set disk is LD.

1. Change a side on the side A from the side B when pressing [SIDE A] (4D) key of the remote control unit.
2. Change a side on the side B from the side A when pressing [SIDE B] (4E) key of the remote control unit

(10) Tracking Open

1. Press [STEP FWD] (54) key of the remote control unit in the play condition.
2. Switch the open/close by pressing [PLAY] key of the remote control unit or the player during the play (CD only).

(11) Tracking Close

1. Press [STEP RVS] (50) key of the remote control unit in the play condition.
2. Switch the open/close by pressing [PLAY] key of the remote control unit or the player during the play (CD only).

(12) Slider In

1. Press [SCAN RVS] (11) key of the remote control unit in the tracking off condition.
2. Turn the shuttle of the remote control unit in the REV direction (2C to 2F) in the tracking off condition. (DVD only)

(13) Slider Out

1. Press [SCAN FWD] (10) key of the remote control unit in the tracking off condition.
2. Turn the shuttle of the remote control unit in the FWD direction (28 to 2A) in the tracking off condition. (DVD only)

(14) Scan In

1. Press [SCAN RVS] (11) key of the remote control unit in the tracking on condition.
2. Turn the shuttle of the remote control unit in the REV direction (2C to 2F) in the tracking on condition.
 - DVD can be scanned only in the case of the play 2 (playback without demultiplex).

(15) Scan Out

1. Press [SCAN FWD] (10) key of the remote control unit in the tracking on condition.
2. Turn the shuttle of the remote control unit in the FWD direction (28 to 2A) in the tracking on condition.
 - DVD can be scanned only in the case of the play 2 (playback without demultiplex).

(16) Loading In/Out

When pressing [SKIP REV] (53) key of the remote control unit in the open condition, it loads in the clamp direction. Then it loads in the open direction when pressing [SKIP FWD] (52) key.

- This function can practice only when it is indicated with "OPEN" in FL.

(17) Tilt Neutral

Press [SPEED DOWN] (46) key of the remote control unit.

(18) Tilt Servo On/Off

- a. On
Press [SPEED UP] (47) key of the remote control unit.
- b. Off
Press [SKIP REV] (53) key and [SKIP FWD] (52) key of the remote control unit at the tilt servo on or the tilt neutral.

(19) Tilt Down

A manual moves in the going down direction when [SKIP REV] (53) key of the remote control unit is pressed during the play at the time of tilt off.

(20) Tilt Up

A manual moves in the going up direction when [SKIP FWD] (52) key of the remote control unit is pressed during the play at the time of tilt off.

(21) Focus Jump +

Focus jumps in 1 layer from 0 layer when [MULTI FWD] (58) key of the remote control unit is pressed. (DVD only)

(22) Focus Jump -

Focus jumps in 0 layer from 1 layer when [MULTI REV] (55) key of the remote control unit is pressed. (DVD only)

(23) The First And The Second Screen Switching

Every time [DISPLAY] (43) key of the remote control unit is pressed, the contents of the version indication part (the bottom right of the screen) change. (Refer to page 17.)

(24) Screen Display On

1. Press [DISPLAY] (43) key of the remote control unit.
2. Display on/off switches every time [PROGRAM] (4C) key of the remote control unit is pressed.
 - When [DISPLAY] key is pressed in the display on, change the part number indication of the microprocessor and revision indication.
 - Initial state is screen display on and it becomes the part number indication of the microprocessor.

(25) Screen Display Off

1. Press [AUDIO] (1E) key of the remote control unit.
2. Display on/off switches every time [PROGRAM] (4C) key of the remote control unit is pressed.

(26) Background Color Switching

1. Change the background color (eight colors) prepared for in advance every time [2/R] (49) key of the remote control unit is pressed in order.
[Blue→Green→Light blue→Red→Purple→Yellow→Gray→Black→Blue ...]
2. Change the background color (eight colors) prepared for in advance every time [1/L] (4B) key of the remote control unit is pressed in order.
[Blue→Black→Gray→Yellow→Purple→Red→Light blue→Green→Blue ...]

(27) Video Output Switching

1. It becomes component output when pressing [DIGITAL EFFECT] (5C) key of the remote control unit.
2. It becomes composite output when pressing [STILL WITH SOUND] (5B) key of the remote control unit.

3.4 EXPANSION FUNCTION 1

Set the reception mode of expansion function by pressing [TEST] (5E) key of the test mode remote control unit, then expansion function is able to execute by pressing the key of [0] to [9].

Indication for the most significant digit becomes "T" during the reception mode of expansion function. (This mode can on and off with toggle.)

(1) LD On

Turn the laser diode to on by pressing [TEST] and [1] keys in order.

(2) Focus On

Focus locks by pressing [TEST] and [2] keys in order.

(3) Focus Sweep

Repeat focus sweep by pressing [TEST] and [3] keys in order.

(4) Spindle FG Servo

Rising up the spindle and FG servo becomes on by pressing [TEST] and [5] keys in order.

(5) AGC On/Off

Switch the AGC on and off with toggle by pressing [TEST] and [7] keys in order.

(6) Jitter Value Indication.

It becomes the jitter-value indication mode by pressing [TEST] and [DIG/ANA] keys in order.

(7) DSP coefficient indication of FTS system.

Set up the address (four digits) of the coefficient that it wants to see by the point of search address input, then real time indicates the coefficient in OSD by pressing [TEST] and [9] keys in order.

(8) CD Error Rate Indication

Indicate the value in OSD after measuring is completed by pressing [TEST] and [0] keys in order after set up the measuring time (1 to 8 seconds) by the point of search address input.

3.5 EXPANSION FUNCTION 2

Set the reception mode of expansion function 2 by pressing [HILITE/INTRO] (55) key of the remote control unit, then expansion function 2 is able to execute by pressing the key of [0] to [9].

(1) Forced DVD Setting

In the checker mode, set up the condition that DVD is attached forcibly except for the result of disc distinction by pressing [HILITE/INTRO] and [1] keys in order.

In the no checker mode (normal test mode), once execute the setting but abandon it soon.

Therefore, perform the disc distinction again for the safety when rising up the player in this condition.

(2) Forced CD Setting

In the checker mode, set up the condition that CD is attached forcibly except for the result of disc distinction by pressing [HILITE/INTRO] and [3] keys in order.

In the no checker mode (normal test mode), once execute the setting but abandon it soon.

Therefore, perform the disc distinction again for the safety when rising up the player in this condition.

(3) Execute The Disk Distinction

In the checker mode, execute the disc distinction result by pressing [HILITE/INTRO] and [0] keys in order.

3.6 List of Test Mode Function

Contents of Command	Condition	Key Name of Remote Control Unit	Mode of Remote Control Unit
Open	STOP	REPEAT A	A8-48
Close	OPEN	REPEAT A	A8-48
Stop	PLAY	REPEAT B	A8-44
Play (DVD is only tracing.)	STOP	TV/LDP	A8-0F
Play (DVD is with decode.)	STOP	PLAY	A8-17
Pause on	PLAY	CX	A8-0E
Pause on/off	PLAY/PAUSE	PAUSE	A8-18
Search address input (0 to 9) *Use for other numerical value input		0 to 9	A8-00 to 09

DV-505, DVL-909, DV-S9

Contents of Command	Condition	Key Name of Remote Control Unit	Mode of Remote Control Unit
Search address input (A to F)	During address input	PGM+1 to 6	
① Search address clear	During address input	CLEAR	A8-45
② Escape the search input mode	Address = 0		
Change the search address input mode (Off→absolute address→addition→subtraction→Off) *Use for other numerical value input.		+10	A8-1F
Search execution (ignore the wrong address)		CHAP/TIME	A8-13
Side change (side B→side A)	LD	SIDE A	A8-4D
Side change (side A→side B)	LD	SIDE B	A8-4E
Tracking open	PLAY	STEP FWD	A8-54
Tracking close	PLAY	STEP REV	A8-50
Slider in	TR : Off	SCAN REV Shuttle REV	A8-11 A8-2C to 2F
Low speed scan REV	TR : On	SCAN REV	A8-11
Scan REV (Jump number is variable)	TR : On	Shuttle REV	A8-2C to 2F
Slider out	TR : Off	SCAN FWD Shuttle FWD	A8-10 A8-28 to 2B
Low speed scan FWD	TR : On	SCAN FWD	A8-10
Scan FWD (Jump number is variable)	TR : On	Shuttle FWD	A8-28 to 2B
Loading in	STOP	SKIP REV	A8-53
Loading out	STOP	SKIP FWD	A8-52
Tilt neutral		SPEED DOWN	A8-46
Tilt servo on		SPEED UP	A8-47
Tilt servo off	Tilt : On/N	SKIP REV SKIP FWD	A8-53 A8-52
Tilt up	PLAY	SKIP FWD	A8-52
Tilt down	PLAY	SKIP REV	A8-53
LD on		TEST + 1	A8-5E + A8-01
Focus on		TEST + 2	A8-5E + A8-02
Focus sweep		TEST + 3	A8-5E + A8-03
Focus jump +		MULTI FWD	A8-58
Focus jump -		MULTI REV	A8-55
Spindle FG on		TEST + 5	A8-5E + A8-05
AGC on/off	AGC : Off/On	TEST + 7	A8-5E + A8-07
Indication of the FTS coefficient	After the address four-digit input	TEST + 9	A8-5E + A8-09
CD error rate indication	PLAY	TEST + 0	A8-5E + A8-00
Jitter indication		TEST + DIG/ANA	A8-5E + A8-0C
Screen indication on/Switching of the first screen and second screen	OSD Off/On	DISPLAY	A8-43
Screen indication off	OSD : On	AUDIO	A8-1E
Screen indication on/off		PROGRAM	A8-4C
Switching of ID display methods (decimal/hexadecimal)		DIG/ANA	A8-0C
DISC type designation	STOP	HILITE/INTRO	A8-5A
• Forced designation to DVD		+1	+A8-01
• Forced designation to CD		+3	+A8-03
• Request for Disk sensing		+0	+A8-00
Tray close of disk sense inhibition	Checker mode	REPEAT A	A8-48
Background color (eight colors) switching		2/R	A8-49
Background color (eight colors) switching (reverse toggle)		1/L	A8-4B
Video : component output		DIGITAL EFFECT	A8-5C
Video : composite output		STILL WITH SOUND	A8-5B

● Special Mention Item

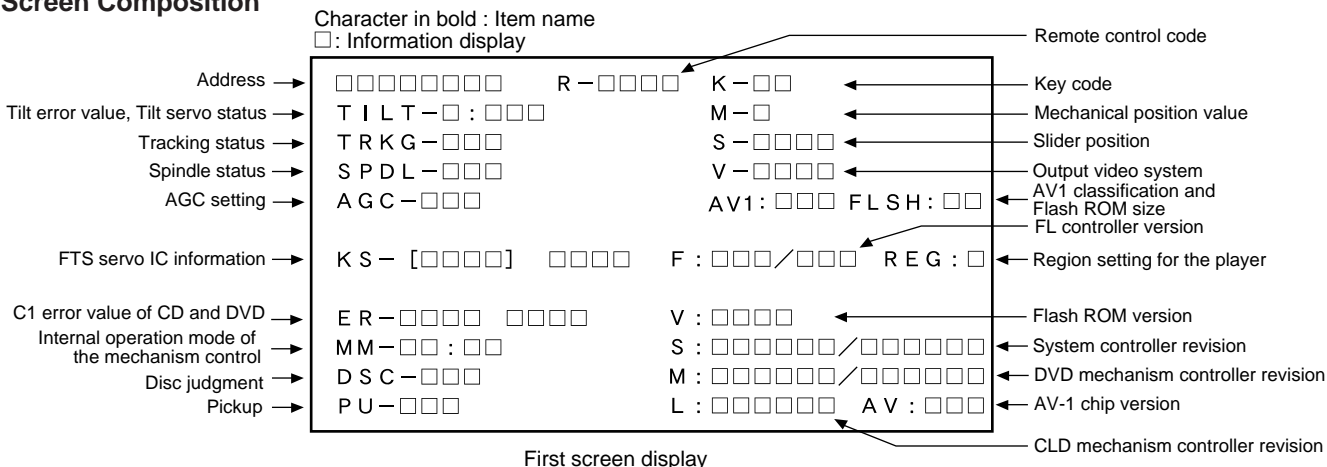
- (1) Indications for the spindle status are as follows:
 A/B : Spindle accelerator and brake
 FG : FG servo
 SRV : Rough, velocity/phase servo
 O_S : Offset addition, rough, velocity/phase servo
- (2) The movement of loading in/out starts from the tray open status. After that, this function is executed unless a play and close operation are done.
- (3) There are three methods for entering a search address:
 - ① Absolute address designation
 → Searching for the address entered (indication for the most significant digit :>)
 - ② Additional input
 → Searching for the address with the current ID number plus an entered number (indication for the most significant digit :+)
 - ③ Subtractive input
 → Searching for the address with the current ID number minus an entered number(indication for the most significant digit :-)
 The above modes can be changed by pressing [10] key.

Note : A number for addition or subtraction must be entered in hexadecimal.
- (4) If you turn the power on while short-circuiting the short-circuit terminal at the side of the system controller, the player will forcibly enter the test mode. If the FL controller is set to Checker mode, disc sensing will not be started, even if a disc is loaded. Disc sensing will also not be performed if the tray is open/closed by your pressing [REPEAT A] key while in Checker mode. However, disc sensing will be started if the [OPEN/CLOSE] key on the player or on the remote control unit is pressed.
- (5) If disc-type designation is forcibly executed during a mode other than Checker mode, the system controller will abandon disc-type designation after setting the mechanism controller. Therefore, after startup of the player, disc sensing will be performed again for safety. If disc-type designation is forcibly executed during Checker mode, as disc-type designation is not abandoned, playback will be immediately started.
- (6) A background color change in order of blue → green → light blue → red → purple → yellow → gray → black → with the [2/R] key. It changes in order of gray → yellow → purple → red → light blue → green → blue → black → in the case of the [1/L] key.
- (7) In case of PD0260A*, tilt servo on function may not move with DVD.

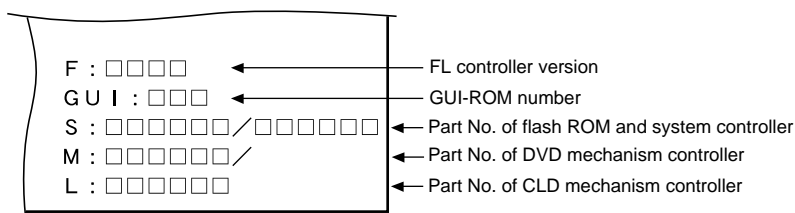
3.7 Test Mode Screen Display (The Second Generation)

Consecutive double-OSD display is supported during test mode. The screen is composed 10 lines with a maximum of 32 characters per line. It can't be used with the debugging display mode together.

• Screen Composition



Caution :
 The first screen and second screen switch by pressing [DISPLAY] key of the remote control unit.
 It is only a version display part on the lower right of the screen those contents of display change.
 ATB : ON/OFF information display and AGC manual establishment display deleted with the second generation.



Second screen display (at lower right portion of the screen)

• Description of Each Item on the Display

(1) Address indication

The address being traced is displayed in number.

DVD : ID indication (hexadecimal number, 8 digits) [*****]
 CD/LD (CLV) : A-TIME (min. sec.) [○○○○****]
 LD (CAV) : FRAME [○○○****]
 (Note : For DVDs, decimal-number indication is possible.)

(2) Code indication of the remote control unit [R-****]

The code for the key pressed on the remote control unit, which is received by the FL controller, is displayed while the key is pressed. In the case of the double code, the second code will be displayed.

(3) Key code indication for the main unit [K-**]

The code for the key pressed on the main unit, which is received by the system controller, is displayed while the key is pressed.

(4) Tilt error value, Tilt servo status [TILT-***]

Tilt error value : [0] to [F]
 Tilt servo status :
 Tilt neutral [N]
 Tilt servo on [ON]
 Tilt servo off [OFF]

(5) Tracking status [TRKG-***]

Tracking on [ON]
 Tracking off [OFF]

(6) Spindle status [SPDL-***]

Spindle accelerator and brake [A/B]
 FG servo [FG]
 Rough, velocity phase servo [SRV]
 Offset addition, rough, velocity phase servo [O_S]

(7) Mechanism position value [M-*]

Position code [0] to [8]

(8) Slider position [S-****]

CD TOC area [IN]
 CD active area [CD]
 CDV video area [CDV]
 LD active area [LD]
 Side B inside [B IN]

(9) AGC setting [AGC-**]

AGC on [ON]
 AGC off [OFF]

(10) Output video system [V-****]

NTSC system [NTSC]
 PAL system [PAL]
 Auto-setting [AUTO]

(11) FTS servo IC information

Indications for the following two types of information can be switched:

- ① DSP coefficient indication [KS-[****] ****]
 Displays the address (four digits) of the specified coefficient and the setting value (four digits) with [TEST] and [9] keys.
- ② Jitter value indication [JT-[○○○○]****]
 Displays the jitter value (four digits) with [TEST] and [DIG/ANA] keys.

(12) Error rate indication

- ① C1 error value of CD [ER-C1 ****]
- ② C1 error value of DVD [ER-**** ****]

(13) Internal operation mode of mechanism controller [MM-***]

Internal mechanism mode (2 digits) and internal mechanism step (2 digits) of the mechanism controller
 Note : For details, see the specifications of the mechanism controller.

(14) Disk sensing [DSC-***]

The type of discs loaded is displayed.
 [DVD], [CD], [CDV], [LD], [VCD], []

(15) Pickup [PU-***]

The pickup being operating is displayed.
 DVD [DVD]
 CLD [CLD]

(16) Destination setting of the FL controller [F-***/*]

Three characters in front represent the type of model:
 505: DV-505, S9: DV-S9
 606 : DV-606D, EDU: for education
 909: DVL-909, K88: DVL-K88.

Three characters that follow represent the destination code.
 J : /J, K: /KU, /KC, /KU/KC, RAM: /RAM (China)
 RL : /RL, WY: /WY, RD: /RD.

* Furthermore DVL-91/KU/CA indicates as L91/K.

(17) Region setting of the player [REG:*]

Setting value [1] to [6]

(18) Version of the flash ROM [V:*.**]

(19) Revision of the system controller [S:*.**/*]**

- ① Revision number of the external ROM part (flash ROM) of the system controller <Front>
- ② Revision of the internal ROM part of the system controller <Rear>

(20) Revision of the DVD mechanism controller**[M:*.***/*.***]**

- ① Revision number of the external ROM part (flash ROM) of the DVD mechanism controller <Front>
- ② Revision of the internal ROM (core part) of the DVD mechanism controller <Rear>

(21) Revision of the CLD mechanism controller**[L:*.***]****(22) Version of the AV-1 chip [AV:*.]*****(23) Version of the FL controller [F:*.]*****(24) Control number of the GUI-ROM [GUI:***]****(25) The part number of the flash ROM and system controller [S : *****/*****]**

- ① Part number of the flash ROM <Front>
(Example) VYW1536-A → W1536A
(Example) PD626A9 → 6256A9
- ② Part number of the system controller <Rear>
(Example) PD3381T1 → 3381T1

(26) Part number of the DVD mechanism controller

(Example) PD4889A0 → 4889A0

(27) Part number of the CLD mechanism controller

(Example) PD0260A2 → 0260A2

(28) AV1 classification [AV1 : *]**

RAM, E/A, S/C

(29) Flash ROM size [FLSH : **]

8M : 8M bit, 4M : 4M bit

3.8 DESCRIPTIONS OF NEW FUNCTIONS IN TEST MODE**3.8.1 Error Rate****● Overview**

The error rate of CDs can be measured on basic models, such as the DV-505, and that of CDs as well as LDs with sub-Q codes can be measured on DVD/LD-compatible models, such as the DVL-909. The value is displayed in decimal and indicates the number of C1 errors (including the corrected ones) counted during the specified measurement time.

An indeterminate measurement result may be caused by a dirty disc, decentering, surface deflection, birefringence (double reflection), or a pickup problem (dirty lens, etc.), misadjustments of the pickup, improper automatic adjustment, or incomplete adjustments. On the manufacturing line, the value is used for yes/no decision of pickups. Normally, for a measurement for 5 seconds, the value may be less than 10 with a clean disc and less than 100 with a disc with some damage.

● Using the Function in Test Mode (The Remote Control Keys to be Used are Indicated in Brackets)

- (1) Set the CD to trace (playback) state.
- (2) Set the player to Number input mode by pressing [+10] and enter the measurement time in a range of 1 to 5 (sec.).
- (3) Start measurement by pressing [TEST] + [0]. The SubQ counter stops during measurement, but this is not a malfunction. When the specified measurement time has elapsed, the result is indicated to the right of "ER C1 -" on the screen. If you skip step 2, the measurement time is set to 5 (sec).

3.8.2 Jitter Value**● Overview**

The jitter values of DVDs and CDs can be displayed on basic models, such as the DV-505, and those of DVDs can be displayed on DVD/LD-compatible models, such as the DVL-909.

The displayed value shows a voltage in three-digit decimal as ○○○V. For example, the indication "0278" means 2.78 V. The larger the value, the worse the jitter. The worst value is 3.25 V. When playing a DVD or a video CD with which the jitter value is extremely high, mosaics may be seen. As with the error rate, the jitter depends on the disc and pickup. The jitter value to be displayed has no close correlation with a jitter measuring device, and is to be regarded just for reference.

Reference : When the jitter value is 2.9 V or more with a DVD, or 3.0 V or more with a CD (or a video CD), it may cause a problem (mosaic, audio distortion, etc.) in playback.

● Using the Function in Test Mode (The Remote Control Keys to be Used are Indicated in Brackets)

- (1) Set the DVD or CD to trace (playback) state with AGC OFF.
- (2) Press [TEST] and [DIGITAL/ANALOG].
The current jitter value appears to the right of "JT:○○○○" on the display. The jitter value keeps changing unless any additional key operation is made.

Note : Although a value may be displayed on the screen even with AGC ON, this is NOT a jitter value.

The jitter value with AFB ON cannot be displayed (see the next section). The jitter value with AFB ON can be obtained only by directly measuring the voltage at the JV connector (pin 94) of the servo DSP (LC78650).

3.8.3 Startup Sequence

The basic flow is shown below. The parentheses indicate a limitation: “base” represents base models, such as the DV-505 and DV-S9, and “compatibles” represents DVD-LD compatible models, such as the DVL-909.

- (1) Closes the tray.
- (2) Runs the tilt servo for 1.5 seconds (compatibles).
- (3) Detects the peak.
- (4) Distinguishes the disc.
- (5) SGC
- (6) Turns on the focus servo.
- (7) Turns on the tilt servo (compatibles).
- (8) Starts the spindle rotation.
- (9) ATB
- (10) Measures the MIRR modulation degree.
- (11) Turns on the tracking servo.
- (12) Turns on the slider servo.
- (13) Turns on the spindle servo.
- (14) Focus AGC
- (15) Tracking AGC
- (16) AFB
- (17) Plays AGC (base for CDs)
- (18) Plays back.

* For a 2-layer DVD, steps (9) through (16) are repeated for each layer.

* When starting up with [TV/LDP] in Test mode, all the steps (1) to (18) are performed for a DVD, and steps (1) to (10) are performed for a CD.

3.8.4 Peak Detection

● Overview

This is a new function to measure the size and location of the sine wave related to focus errors at the beginning. The measurement is performed in the normal startup process and in Test mode, as well. If the sine wave is small, the OE IC gain is switched. Only the judgment for NO DISC is accomplished at this time. The operation is in effect as for judgment for DISC.

● Using the Function in Test Mode

This function is not assigned to any remote control keys. Only an open/close operation can trigger the function.

3.8.5 Disc Distinction

● Overview

This function is almost the same as that with the first-generation models. The only difference is as follows: If an error occurs in the startup sequence and playback cannot be started, startup is retried after forcibly switching the disc distinction from DVD to CD or vice versa by a backup process. If startup fails again, it is canceled, and an error is generated. The types of error that triggers the backup process for disc distinction are discussed in the next section.

● Using the Function in Test Mode

This function is not assigned to any remote control keys. Only an open/close operation can trigger the function.

3.8.6 SGC

● Overview

This is a new function to maintain the sine wave related to focus errors to a certain size so that the sine wave shows 1.8 V for the P-to-P value.

This operation is performed each time after judging disc presence and distinction in the normal startup process and in Test mode, as well. The operation is achieved by switching the FE gain inside the RF IC (LA9700) by using the voltage at the SGC connector (pin 22) of the RF IC.

● Using the Function in Test Mode

This function is not assigned to any remote control keys. Only an open/close operation can trigger the function.

3.8.7 Measurement of MIRR Modulation Degree

● Overview

The slice voltage of the RF signal is measured and used in the calculation to generate the MIRR signal. This operation is made in synchronization with ATB ON/OFF in normal startup and in Test mode, as well.

3.8.8 AFB (Auto Focus Bias) Function

● Overview

Among the first-generation models, this function supports only CDs with the basic models, such as the DV-7. Among the new models, this function supports DVDs with all models, but CDs only with the basic models. The operation is executed only once (once for each layer for a 2-layer DVD) after the focus and tracking AGC at startup. The operation is accomplished not by centering the focus servo to Vref (2.5 V), but by gradually changing the center value for the optimum jitter value. Thus, performance with an improper or dirty disc (by fingerprints, etc.), or the temperature characteristics (at 0°C, 35°C, etc.) will be improved.

● Overview Using the Function in Test mode (the Remote Control Keys to be Used are Indicated in Brackets)

As the function is to be synchronized with AGC, turn on and off AFB by pressing [TEST] + [7]. The jitter value measurement cannot be made with AFB ON.

3.8.9 PLAY AGC

● Overview

The SGC voltage is adjusted during playback according to the RF signal level. (For details on SGC, see section 3.8.6.)

Only for CDs in basic models, such as the DV-505 (including the DV-S9), this adjustment is made only once immediately after AFB during startup. In Test mode, it synchronizes with AGC ON/OFF. The operation is achieved through adjustment in the Servo DSP (LC78650), and the SGC voltage is output via AUX0 (pin 44).

● Using the Function in Test Mode (the Remote Control Keys to be Used are Indicated in Brackets)

As the function is to be synchronized with AGC, turn on and off AFB by pressing [TEST] + [7].

3.9 Additional Descriptions of Error Generation

This section describes the major errors of the mechanism-control computer.

(1) DISC Distinction Error (Error 38)

The most common error. The tracking overcurrent error (Error c3), Defocus error (Error 33), spindle errors (Errors 41 to 4b), auto sequence errors (Errors 51 to 55) and code misread errors (71 to 74) often lead to this error.

(2) Search Errors (Errors 11, 12, 19)

Almost all cases where playback suddenly stops may involve these errors. They may be generated because of defects on the disc, or if the pickup goes too far over the inner periphery with DVD/LD-compatible models. As with the code misread errors below, they can also be generated by a dirty disc or bad jitters.

(3) Code Misread Errors (Errors 71 to 74)

Almost all cases where the inserted disc does not start or immediately stops playing may involve these errors. They may be generated because of a dirty disc or bad jitters. A bad jitter may be caused by a dirty disc, decentering, surface deflection, birefringence (double reflection), or a pickup problem (dirty lens, etc.), misadjustments of the pickup, improper automatic adjustment, or incomplete adjustments.

(4) Spindle Errors (Errors 48, 49)

An FG transition timeout (Error 48) may be generated because of instability of the FG signal or unavailability of spindle drive voltage. A PLL transition timeout (Error 49) can be generated with a dirty disc.

(5) Automatic Sequence Errors (Errors 51 to 55)

If any automatic sequence (auto execution command) of the servo DSP is not completed, these errors are generated. The causes differ among error numbers. They may be caused by abnormalities in the communication line between the mechanism-control computer (PD4889A) and the servo DSP or instability of the XABUSY connector (pin 38) of the mechanism-control computer.

(6) DSP Communication Errors (Errors a1 to a6)

These errors will be generated if the mechanism-control computer cannot properly communicate with the servo DSP. They may be caused by instability of the XCBUSY connector (pin 8) of the mechanism-control computer, instability of the communication line between the mechanism-control computer and the servo DSP, or a defect in the servo DSP.

(7) DVD Block Noise, etc.

Block noise and momentary picture freeze (*) with a DVD are not regarded as errors, but the causes of these symptoms in the Servo system may be:

- (1) A search takes a long time (leading to a search error if it worsens).
- (2) Codes cannot be read clearly (leading to a code misread error if it worsens).

If the value to the right in the "ER: ○:○e-" indication displayed on the screen by pressing the ESC and DISP keys of the remote control in Test mode is greater than 5, the cause may be (1). If the value is less than 3, the cause may be (2).

- (*) With a specific 2-layer disc with which playback continues from layer 1 to 2 or vice versa, the picture may be seen momentarily stop. This may be attributed to the performance of the player. Players of other manufacturers have the same symptoms to varying degrees.

4. IC INFORMATION

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

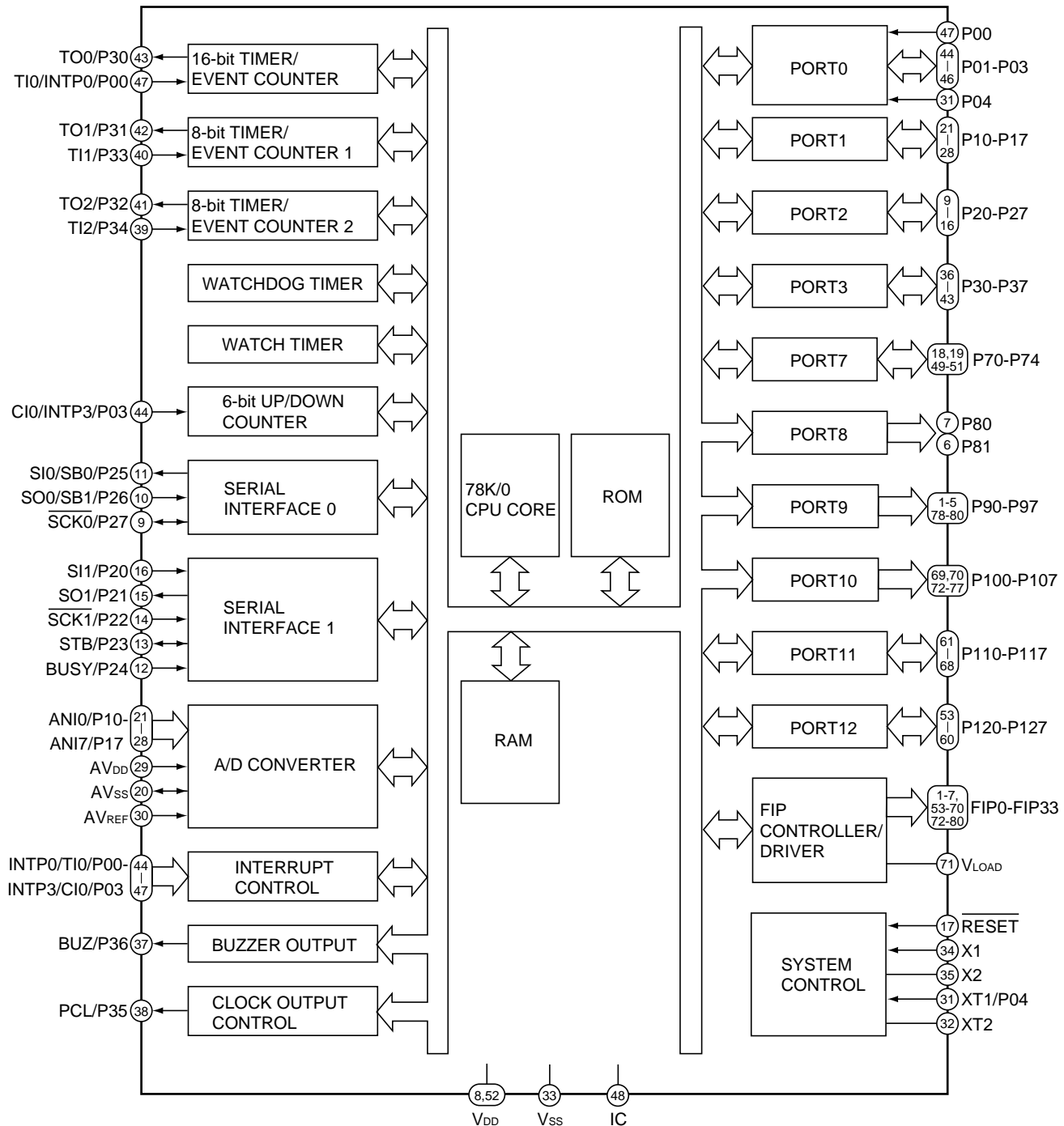
• List of IC

PD4890A, PD0260A2, PD0261A2, LA9700M, BA6195FP, LC78650E-P, PD4889A, SRM2B256SLMX70, VYW1536, PD3381A, MB86371, MB811171622A-100FN, CY2081SL-611, PD2058A

■ PD4890A (FLKB ASSY : IC101)

• Mode Control IC

• Block Diagram



● Pin Function

No.	Mark	Pin Name	I/O	Function
1	P94	G7	O	FL timing output H : ON
2	P93	G6		
3	P92	G5		
4	P91	G4		
5	P90	G3		
6	P81	G2		
7	P80	G1		
8	VDD	VCC	-	Power supply pin
9	P27	(NC)	O	Not used
10	P26	(NC)		
11	P25	(NC)		
12	P24	LAMP	O	DVD lamp ON/OFF H : ON
13	P23	XREADY	O	Communication handshake line with the system controller L : Permit the communication
14	P22	SCK	I/O	Communication clock output with the system controller
15	P21	SO	I/O	Communication data output with the system controller
16	P20	SI	I	Communication data input with the system controller
17	RESET	RESET IN	I	Reset input L : reset
18	P74	(NC) (DV-505)	O	Not used
		SIDE A LED (DVL-909)	O	SIDE A LED ON/OFF L : ON
19	P73	(NC) (DV-505)	O	Not used
		SIDE B LED (DVL-909)	O	SIDE B LED ON/OFF L : ON
20	AVss	Vss	-	GND pin
21	P17	POWER ON	O	SW 5V ON/OFF H : ON
22	P16	RESET OUT	O	System reset output L : reset
23	P15	(NC)	O	Not used
24	P14	(NC)		
25	P13	KIN1	I	Key input
26	P12	KIN0		
27	P11	MS1	I	Destination judgement input
28	P10	MS0		
29	AVDD	AVDD	-	Power supply pin
30	AVREF	AVREF	-	Reference voltage
31	P04	P04	I	Not used
32	XT2	(NC)	-	Not used
33	VSS	VSS	-	GND pin
34	X1	X1	I	Connect a microprocessor clock
35	X2	X2	-	
36	P37	(NC)	O	Not used
37	P36	(NC)		
38	P35	(NC)		
39	P34	P34	I	Not used
40	P33	P33		

DV-505, DVL-909, DV-S9

No.	Mark	Pin Name	I/O	Function
41	P32	P32	I	Not used
42	P31	P31		
43	P30	(NC)	I	Not used
44	P03	P03	I	Not used
45	P02	ON POWER	I	Switch the STBY/POWER ON at rising edge the FL controller L : STBY
46	P01	LT	I	Communication handshake line with the system controller H : Permit the communication
47	P00	SEL IR	I	Remote control signal input
48	IC	IC	-	-----
49	P72	(NC)	O	Not used
50	P71	FL OFF LED (DV-505)	O	FL OFF LED ON/OFF L : ON
		(NC) (DVL-909)	O	Not used
51	P70	(NC)	O	Not used
52	VDD	VDD	-	Power supply pin
53	P127	(NC) (DV-505)	O	Not used
		FL OFF LED (DVL-909)	O	FL OFF LED ON/OFF H : ON
54	P126	(NC)	O	Not used
55	P125	(NC)		
56	P124	(NC)		
57	P123	(NC)		
58	P122	(NC)		
59	P121	(NC)		
60	P120	(NC)		
61	P117	P15	O	FL segment output H : ON
62	P116	P14		
63	P115	P13		
64	P114	P12		
65	P113	P11		
66	P112	P10		
67	P111	P9		
68	P110	P8		
69	P107	P7		
70	P106	P6		
71	VLOAD	-27V	-	- 27V input H : ON
72	P105	P5	O	FL segment output H : ON
73	P104	P4		
74	P103	P3		
75	P102	P2		
76	P101	P1		
77	P100	G11	O	FL timing output H : ON
78	P97	G10		
79	P96	G9		
80	P95	G8		

■ PD0260A2, PD0261A2 (CLDM ASSY : IC101)(DVL-909 ONLY)

• Mechanism Control IC

• Pin Function

No.	Pin Name	I/O	Function
1	VCC	I	Power supply pin Apply 5V ± 10%
2	RWC	O	DSP read/write command signal output "L"= Read "H"= Write
3	XPLAY	O	Signal output during spindle servo "L"= During servo "H"= During acceleration, brake and stop
4	CLK:SCK3/CQCK	O	DVP/DSP clock switch "H"= DVP "L"= DSP
5	XCD	O	LD/CD switch signal output "L"= CD "H"= LD
6	TILT ERR	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	TRK BAL ERR	I	A/D • Tracking balance error signal input This signal is A/D converted as the tracking offset control input.
8	SLD ERR	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	SLD POS	I	A/D • Pickup position detection switch input Detect the position by reading A/D input value which each switches are resistance divided.
10	FSEQ	I	Subcode sync. confirmity detection signal input "L"= Not confirmity "H"= Confirmity
11	C DETECT	I	Spindle over-current detection signal input "L" = Over current "H"= Normal
12	TRK BAL DRV	O	PWM • Output the tracking offset signal to PWM output, then use for auto tracking offset. 910 μsec period, tri-state control H, L, Z
13	SHAKE	I/O	Handshake signal for data communication with the DVD mechanism control IC This pin is the bilateral data line and each microprocessor control the Input/Output.
14	RF CORRECTION	O	RF correction switch signal output "H"= Gain UP CD, CDV-A:Low, CAV inner circuit gain up, others are High.
15	SQOUT	I	Command data input from DSP Read out SUBQ
16	SO3/COIN	O	Command data output to DVP/DSP
17	SCK3/CQCK	O	DVP/DSP read/write command clock output Read-in at rising edge
18	SLD OUT	O	PWM • Slider control signal output 5V= FWD, 0V= REV, 2.5V= STOP 910 μsec period, tri-state control
19	SI1	I	Data input from the DVD mechanism control IC
20	SO1	O	Serial data output to the DVD mechanism control IC
21	SCK	I/O	Clock for serial communication with the DVD mechanism control IC Becomes input mode without communicate with the DVD mechanism control IC
22	TRK 0 CRS	I	INT • Tracking error zero cross signal input Monitor this signal when searching track count in the miss clamp detection
23	SBSY	I	Subcode block sync. input
24	TILT OUT	I/O	LOAD/TILT control output PWM output 0V : Tray IN / Tilt DOWN, 5V : Tray OUT / Tilt UP, 2.5V : STOP
25	TURN OUT	O	Turn drive signal output
26	XPBV	I	Playback vertical sync. signal input of LD/CDV "L"= During vertical sync.
27	CNVSS	I	Ground for A/D conversion
28	XRESET	I	Reset signal input "L"= Reset "H"= Release reset Control with the DVD mechanism control IC.
29	XIN	I	9MHz clock oscillation input
30	XOUT	O	9MHz clock oscillation output

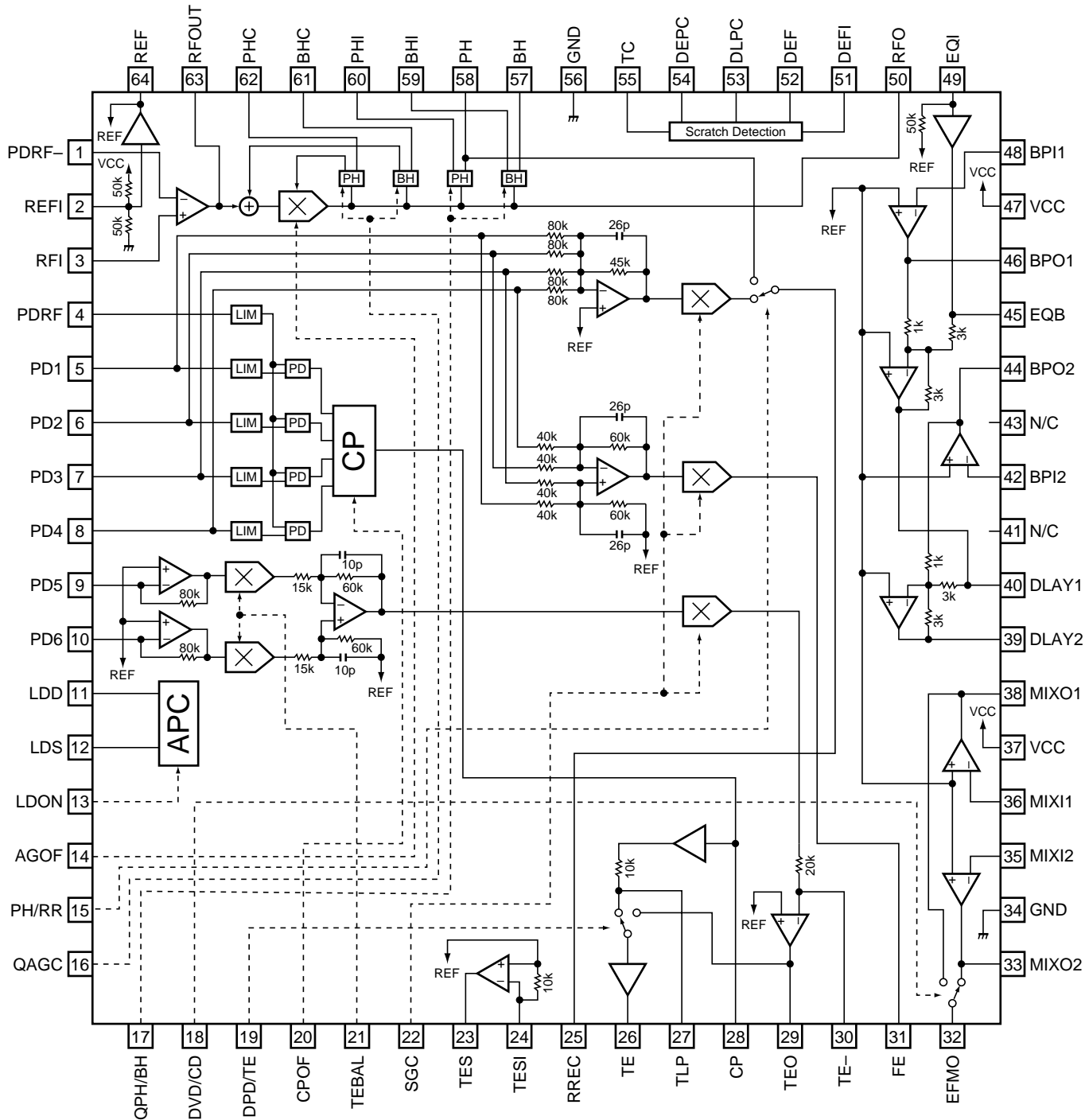
DV-505, DVL-909, DV-S9

No.	Pin Name	I/O	Function
31	PHAI	O	Not used
32	GND	I	Ground
33	SW1	I	Switch input for Loading/Tilt position detection
34	SW3		
35	SW2		
36	TBCLOCK	I	Spindle lock signal input "L"= Unlock "H"= Lock
37	FG	I	Spindle motor FG signal input 16 outputs per rotation Used after dividing by 2 in the microprocessor
38	DATA	I	Input for Phillips code decoder with built-in mechanism controller
39	XPBH	I	Playback H-SYNC input for Phillips code decoder
40	XPBV	I	Playback V-SYNC input for Phillips code decoder
41	DEXT	O	Control signal output of video dynamic range extension "H"= ON "L"= OFF
42	WFM/VLOCK	I	Field discrimination signal from DVP "H"= ODD "L"= EVEN (with memory) VLOCK signal at clear scan (with no memory)
43	LATMEM	O	Serial control latch output of memory control IC PD3212A Latches at falling edge.
44	XPFR	O	PD0260A2 : 17MHz PLL control signal output H : Phase comparison L : Free-run PD0261A2 : Not used
45	XP/N2	O	PD0260A2 : NTSC/XPAL circuit switching signal output excepting VDEM H : NTSC L : PAL PD0261A2 : Not used
46	HQ	O	PD0260A2 : Control signal output of the High Quality circuit (analog NR) H : Through the HQ circuit L : Not through PD0261A2 : Not used
47	THLD	I	Track jump accelerating / decelerating signal input "L"= Others "H"= During accelerating / decelerating
48	LATDVP	O	PD6159B serial latch signal output Latches at falling edge.
49	SELTZC	O	TZC switch signal output "H"= at normal "L"= at CD/DVD disc discrimination
50	DOCINH	O	Control the clamp pulse and clamp killer circuit by tri-state value
51	XP/N1	O	PD0260A2 : NTSC/XPAL circuit switching signal output for VDEM H : NTSC L : PAL PD0261A2 : Not used
52	NROFF	O	Noise reduction control output by VDEM "L"= Normal "H"= Not NR
53	DSCDET	I	Disc present/absent detecting signal input by the tilt sum in the DVD P.U. mode "H"= Absent "L"= Present DEFECT input at LD P.U.
54	XTURNB	I	Turn switch input "H"= Side A / turn "L"= Side B
55	XTURNA	I	Turn switch input "H"= Side B / turn "L"= Side A
56	XLPO	I	LD P.U. out position detecting switch input "H"= LD P.U. active "L"= LD P.U. out position
57	VDET	I	Use for power abnormal signal input port "L"= Normal "H"= Abnormal
58	XFOK	I	Focus servo lock signal input "L"= Lock "H"= Unlock Use for lock detection of focus servo
59	WRQ	I	Subcode Q reading OK signal input "L"= NG "H"= OK This pin will be H when subcode Q data passed by CRC check.
60	AC3MUTE	O	Mute control signal output for AC3 Release MUTE during playback. "L"= Release MUTE "H"= MUTE
61	SQ1	O	Analog audio switching signal output 1/L "L"= Squelch OFF "H"= Squelch ON
62	SQ2	O	Analog audio switching signal output 2/R "L"= Squelch OFF "H"= Squelch ON
63	XCX	O	Analog audio CX noise reduction switching signal output "L"= CX ON "H"= CX OFF
64	XANA	O	Digital / Analog audio switching signal output "L"= Analog "H"= Digital

■ LA9700M (DVDM ASSY : IC101)

• RF IC

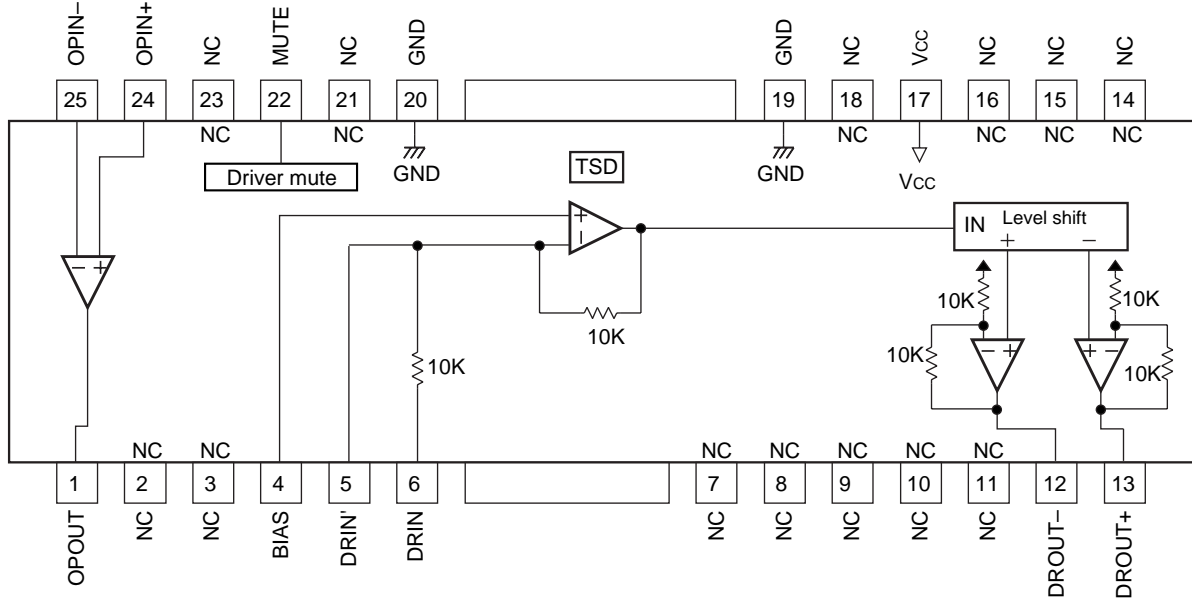
• Block Diagram



■ BA6195FP (DVDM ASSY : IC161)

• Spindle Driver

• Block Diagram



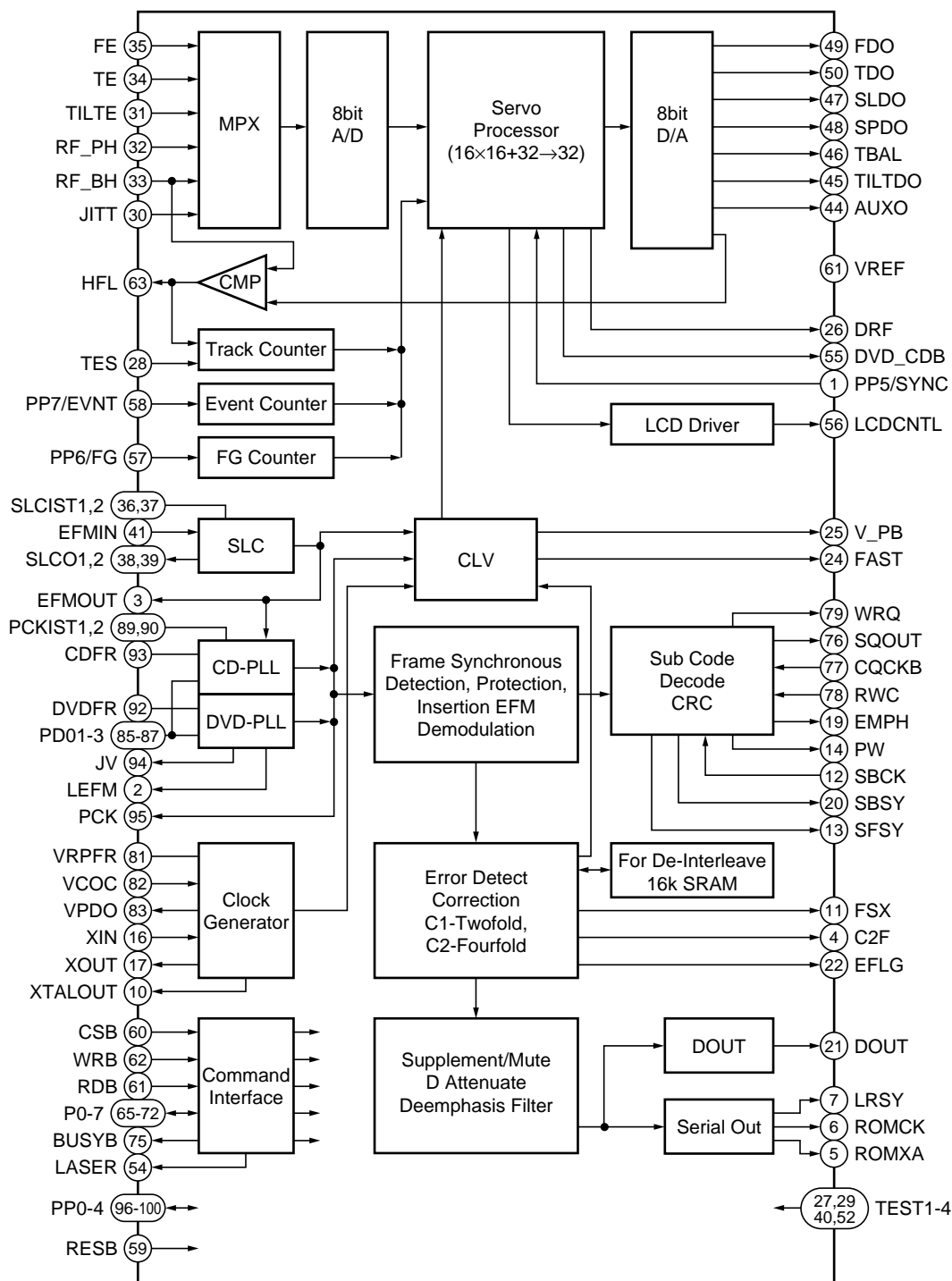
• Pin Function

No.	Pin Name	Function	No.	Pin Name	Function
1	OPOUT	OP amp. output pin	14	N.C.	Non Connection
2	N.C.	Non Connection	15	N.C.	
3	N.C.		16	N.C.	
4	BIAS	Bias pin	17	VCC	Power supply pin
5	DRIN'	Driver gain adjustment pin	18	N.C.	Non Connection
6	DRIN	Driver gain input pin	19	GND	Sub-strait GND pin
7	N.C.	Non Connection	20	GND	
8	N.C.		21	N.C.	
9	N.C.		22	MUTE	Mute pin
10	N.C.		23	N.C.	Non Connection
11	N.C.		24	OPIN +	OP amp. non-inverting input pin
12	DROUT -	Driver negative output pin (for input)	25	OPIN -	OP amp. inverting input pin
13	DROUT +	Driver positive output pin (for input)			

■ LC78650E-P (DVDM ASSY : IC201)(DVL-909 only)

• Servo DSP LSI

• Block Diagram



DV-505, DVL-909, DV-S9

● Pin Function

No.	Pin Name	I/O	Function
1	PP5/SYNC	I/O	General-purpose port input/output / DVD sync. signal input
2	LEFM	O	Output the state that cut and out a signal which was binary-stated value EFM/EFM + with PCK.
3	EFMOUT	O	Output the state that was binary-stated value EFM/EFM + .
4	C2F	O	C2 flag output
5	ROMXA	O	ROMXA data output
6	ROMCK	O	Shift clock output for ROMXA data output
7	LRSY	O	L/R clock output for ROMXA data output
8	DVDD2	–	5V power supply
9	VSS	–	GND
10	XTALOUT	O	External system clock output
11	FSX	O	CD 1 frame sync. signal output
12	SBCK	I	Subcode reading out clock input
13	SFSY	O	Frame sync. signal output of subcode
14	PW	O	Subcode P, Q, R, S, T, U, V and W output
15	VSS	–	GND for oscillation circuit
16	XIN	I	Connect a crystal resonator (16.9344MHz)
17	XOUT	O	Connect a crystal resonator
18	DVDD1	–	3.3V power supply of the oscillation circuit
19	EMPH	O	Monitor the deemphasis
20	SBSY	O	Sync. signal output of the subcode block
21	DOUT	O	Output for the digital audio I/F
22	EFLG	O	Error correction state monitor of the error correction C1 and C2
23	FSEQ	O	Detection monitor of the CD/DVD frame sync. signal
24	FAST	O	Playback speed monitor
25	V_PB	O	Monitor output of the rough servo/CLV control
26	DRF	O	In focus monitor
27	TEST3	I	Test input 3
28	TES	I	Tracking error signal input
29	TEST2	I	Test input 2
30	JITT	I	Jitter quantity detecting signal input of EFM/EFM + PLL
31	TILTE	I	Tilt error signal input
32	RF_PH	I	RF peak hold signal input
33	RF_BH	I	RF bottom hold signal input
34	TE	I	Tracking error signal input
35	FE	I	Focus error signal input
36	SLCIST1	–	Current setting pin 1 of the constant current charge pump for SLC
37	SLCIST2	–	Current setting pin 2 of the constant current charge pump for SLC
38	SLCO1	–	Control output 1 for SLC
39	SLCO2	–	Control output 2 for SLC
40	TEST1	I	Test input 1
41	EFMIN	I	EFM/EFM + input
42	AVDD	–	5V power supply of A/D and D/A for servo
43	AVSS	–	GND of A/D and D/A for servo
44	AUXO	O	DA auxiliary output
45	TILTDO	O	Tilt control signal output
46	TBAL	O	Tracking balance control signal output
47	SLDO	O	Sled control signal output
48	SPDO	O	Spindle control signal output
49	FDO	O	Focus control signal output
50	TDO	O	Tracking control signal output

No.	Pin Name	I/O	Function
51	VREF	–	Reference level of A/D and D/A for servo
52	TEST4	I	Test input 4
53	HFL	O	Track detection signal output
54	LASER	O	For laser ON/OFF control
55	DVD_CDB	O	Disc discrimination result output
56	LCDCNTL	O	Pickup liquid shutter control signal output
57	PP6/FG	I/O	General-purpose port input/output / FG signal input
58	PP7/EVNT	I/O	General-purpose port input/output / Event counter input
59	RESB	I	Reset input
60	CSB	I	Chip select input
61	RDB	I	Internal state reading signal input
62	WRB	I	Command / data writing signal input
63	DVDD2	–	5V power supply
64	VSS	–	GND
65	P0	I/O	Command / data input/output
66	P1		
67	P2		
68	P3		
69	P4		
70	P5		
71	P6		
72	P7		
73	VSS	–	GND
74	DVDD1	–	3.3V power supply for internal logic
75	BUSYB	O	Busy signal output of command process
76	SQOUT	O	Serial output of subcode Q
77	CQCKB	I	Data read-out shift clock input of subcode Q
78	RWC	I	Serial output update permission input of subcode Q
79	WRQ	O	Read out ready monitor of subcode Q
80	VSS	–	PLL GND for internal system clock
81	VRPFR	–	VCO oscillation range setting of PLL for internal system clock
82	VCOC	–	Connect a PLL filter for internal system clock
83	VPDO		
84	DVDD2	–	PLL 5V power supply for internal system clock
85	PDO1	–	PLL filter connection pin 1 for EFM/EFM + playback
86	PDO2	–	PLL filter connection pin 2 for EFM/EFM + playback
87	PDO3	–	PLL filter connection pin 3 for EFM/EFM + playback
88	VSS	–	PLL GND for EFM/EFM + playback
89	PCKIST1	–	Current setting 1 of PLL constant current charge pump for EFM/EFM + playback
90	PCKIST2	–	Current setting 2 of PLL constant current charge pump for EFM/EFM + playback
91	DVDD2	–	PLL 5V power supply for EFM/EFM + playback
92	DVDFR	–	VCO oscillation range setting of PLL for EFM + playback
93	CDFR	–	VCO oscillation range setting of PLL for EFM playback
94	JV	O	Jitter monitor of PLL clock for EFM/EFM + playback
95	PCK	O	Bit clock output for EFM/EFM + playback
96	PP0	I/O	General-purpose port input/output
97	PP1		
98	PP2		
99	PP3		
100	PP4		

■ PD4889A (DVDM ASSY : IC501)

• Mechanism Control IC

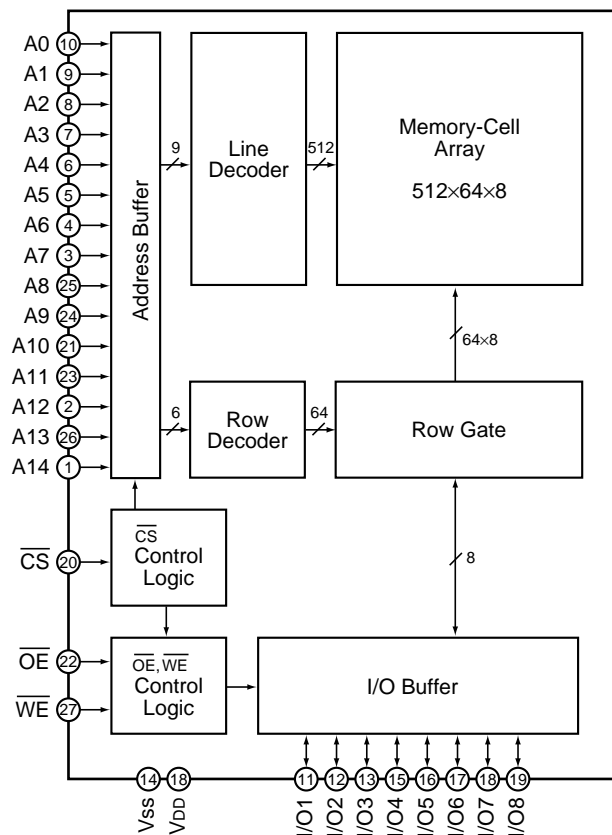
• Pin Function

No.	Pin Name	I/O	Function	No.	Pin Name	I/O	Function
1	LODDRIV	I/O	Loading motor drive output	33	XDSPRST	-	Reset pulse for servo DSP "L"
2	DVD/XCD	O	Clock switch H : DVD , L : CD	34	ASTB	O	Address strobe of multiplexed address/data bus "H"
3	AGOFF	O	Turn AGC of RF IC to OFF for "H"	35	XRST	I	CPU reset input "L"
4	EFLG	I	Count data input of error rate Measureable by using timer 1 and 2.	36	SBSY	INT	Subcode frame sync. input (H : S0+S1 period)
5	FSX	I	Error rate count area input (EFM frame sync.) H : C1 , L : C2	37	SHAKE	INT	Communication handshake of CLD mechanism controller "L" (DVL-909 only)
6	P35/PCL	-	Not used (pull down)	38	XABUSY	INT	DSP auto sequence busy input "L"
7	XTOFF	I/O	High impedance (input) at DEFECT ON "L" output at DEFECT OFF	39	XIRQ2	INT	LSI-11 interrupt input "L"
8	XCBUSY	I	DVD command reception is possible "L"	40	VDD	-	Power supply pin
9	VSS	-	GND	41	X2	-	Connect a ceramic resonator
10	MAD0	I/O	External address / data bus	42	X1	-	
11	MAD1			43	IC (Vpp)	-	GND
12	MAD2			44	XT2	-	Not used
13	MAD3			45	DVDPPK	I	Park position detection of compatible DVD pickup "L" (DVL-909 only)
14	MAD4			46	AVss	-	GND
15	MAD5			47	LODPOS	I	Loading and clamp position SW input
16	MAD6			48	SLDPOS	I	Slider position SW input
17	MAD7			49	DORPOS	I	Panel position SW input (DV-S9 only)
18	MA8	O	External address bus	50	XCURDET	I	Acuator over-current detection input (former TRDLMT) "L" Servo OFF for 300 ms.
19	MA9			51	DR/XLD	O	Panel and loading switch of PWM output Panel : H , loading : L (DV-S9 only)
20	MA10			52	MON	O	Spindle motor ON output "H"
21	MA11			53	XCD2X	O	Not used
22	MA12			54	OEICG	O	"H" : OEIC gain up to 6dB
23	MA13			55	AVDD	-	Power supply pin
24	VSS	-	GND	56	AVREF	-	Reference power supply pin
25	MA14	O	External address bus	57	P_ERR	O	Not used
26	MA15			58	P21/SO1	-	Not used (pull down)
27	DRF	I	(FOK) Focus OK input	59	P22/XSK1	-	Not used (pull down)
28	V_PB	I	(LOCK) EFM servo lock signal "H"/"L" = rough servo / phase servo	60	XCSB	O	DSP parallel command setting output "L"
29	P62	-	Not used (pull down)	61	CLD	O	CLD circuit block switch (DVL-909 only)
30	WRQ	I	Readable flag of subcode Q	62	LDSO	I	Inputs serial communication output of CLD mechanism controller (DVL-909 only)
31	XRD	O	CPU read pulse "L"	63	LDSI	O	Outputs serial communication input of CLD mechanism controller (DVL-909 only)
32	XWR	O	CPU write pulse "L"	64	LDSCK	I	Inputs serial communication clock output of CLD mechanism controller (DVL-909 only)

■ SRM2B256SLMX70 (DVDM ASSY : IC502)

- 256 K SRAM (For Mechanism Control IC)

● Block Diagram



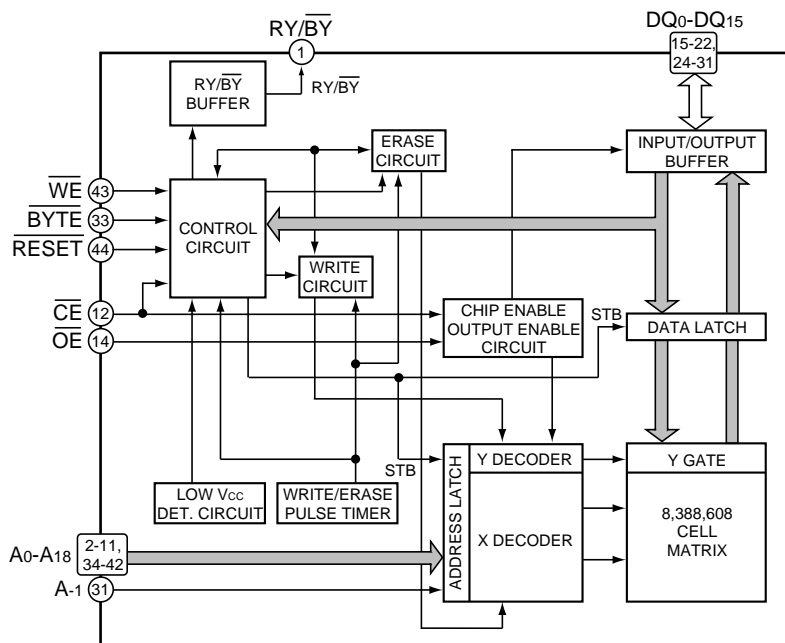
● Pin Function

No.	Pin Name	Function	No.	Pin Name	Function
1	A14	Address input	15	I/O4	Data input/output
2	A12		16	I/O5	
3	A7		17	I/O6	
4	A6		18	I/O7	
5	A5		19	I/O8	
6	A4		20	$\overline{\text{CS}}$	Chip select
7	A3		21	A10	Address input
8	A2		22	$\overline{\text{OE}}$	Output enable
9	A1		23	A11	Address input
10	A0		24	A9	
11	I/O1	25	A8		
12	I/O2	Data input/output	26	A13	Write enable
13	I/O3		27	$\overline{\text{WE}}$	
14	VSS	GND (0V)	28	VDD	Power supply (2.7 to 5.5V)

■ VYW1536 (DVDM ASSY : IC603)(DV-505 and DVL-909 only)

- Flash ROM

● Block Diagram



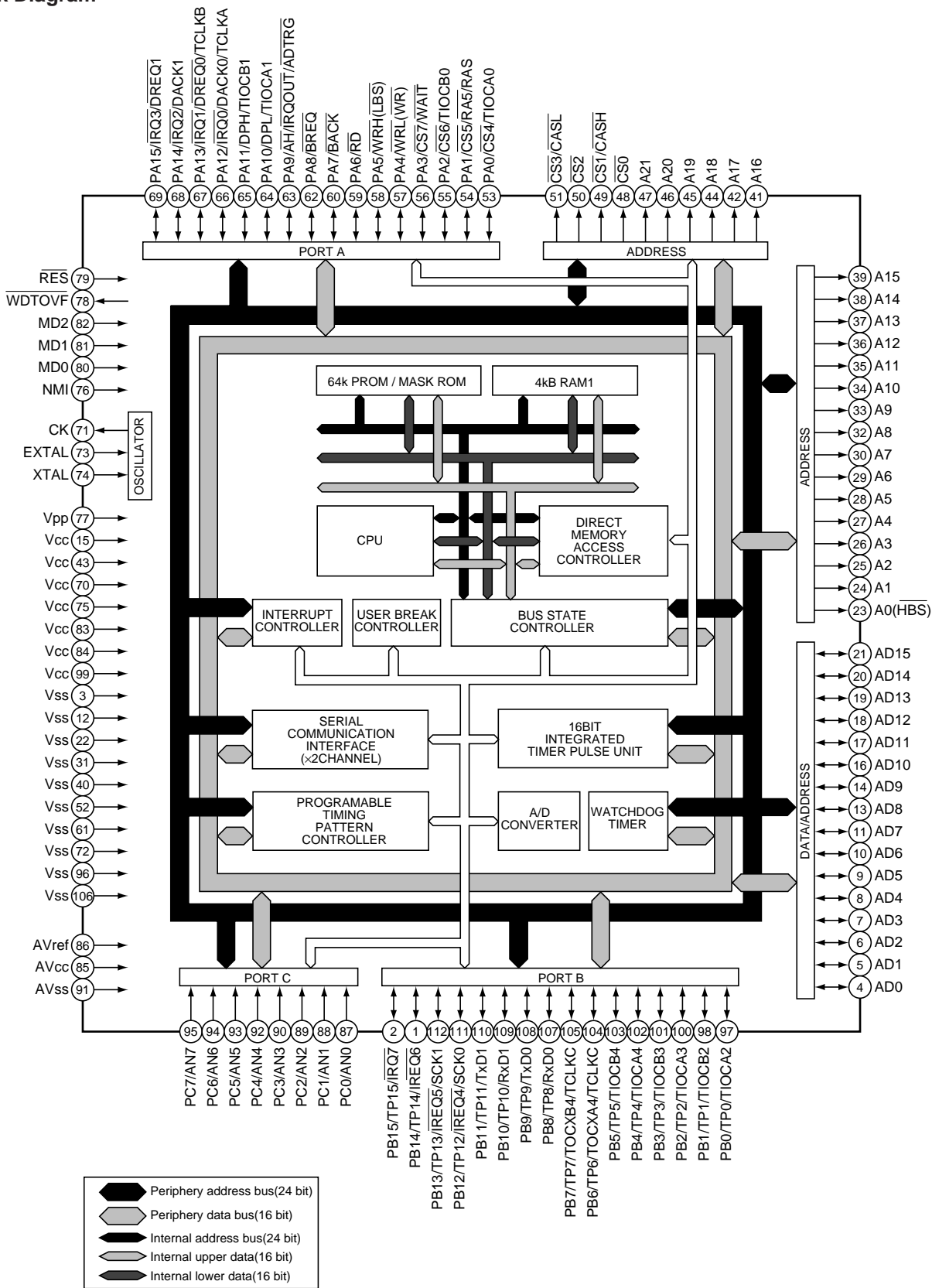
● Pin Function

No.	Pin Name	Function	No.	Pin Name	Function	
1	RY/B \bar{Y}	Ready / Busy output	23	VCC	Power supply (+5.0V \pm 10% or \pm 5%)	
2	A18	Address input	24	DQ4	Data input / output	
3	A17					
4	A7					
5	A6					
6	A5					
7	A4					
8	A3					
9	A2					
10	A1					
11	A0			27	DQ13	
12	$\bar{C}E$	Chip enable	28	DQ6		
13	VSS	Ground	29	DQ14		
14	$\bar{O}E$	Output enable	30	DQ7		
15	DQ0	Data input/output	31	DQ15/A-1	Data input/output / address input	
16	DQ8					
17	DQ1					
18	DQ9					
19	DQ2					
20	DQ10					
21	DQ3					
22	DQ11					
				32	VSS	Ground
				33	BYTE	Switch the 8 bit and 16 bit modes
			34	A16	Address input	
			35	A15		
			36	A14		
			37	A13		
			38	A12		
			39	A11		
			40	A10		
			41	A9		
			42	A8		
			43	$\bar{W}E$	Write enable	
			44	RESET	Hardware reset	

■ PD3381A (DVDM ASSY : IC601)

• System Control CPU

• Block Diagram



● Pin Function

No.	Pin Name	I/O	Function
1	PB14/TP14/ $\overline{\text{IRQ6}}$	I/O	16 bit input/output (port B) / Timing pattern output / Interruption request
2	PB15/TP15/ $\overline{\text{IRQ7}}$		
3	VSS	I	Ground
4	AD0	I/O	16 bit bilateral data bus
5	AD1		
6	AD2		
7	AD3		
8	AD4		
9	AD5		
10	AD6		
11	AD7		
12	VSS	I	Ground
13	AD8	I/O	16 bit bilateral data bus
14	AD9		
15	VCC	I	Power supply
16	AD10	I/O	16 bit bilateral data bus
17	AD11		
18	AD12		
19	AD13		
20	AD14		
21	AD15		
22	VSS	I	Ground
23	A0 ($\overline{\text{HBS}}$)	O	Address bus output (upper byte strobe signal)
24	A1	O	Address bus output
25	A2		
26	A3		
27	A4		
28	A5		
29	A6		
30	A7		
31	VSS	I	Ground
32	A8	O	Address bus output
33	A9		
34	A10		
35	A11		
36	A12		
37	A13		
38	A14		
39	A15		
40	VSS	I	Ground
41	A16	O	Address bus output
42	A17		
43	VCC	I	Power supply

No.	Pin Name	I/O	Function
44	A18	O	Address bus output
45	A19		
46	A20		
47	A21		
48	$\overline{CS0}$	O	Chip select signal
49	$\overline{CS1}/\overline{CASH}$	O	Chip select signal / Column address strobe timing signal on the upper side of DRAM
50	$\overline{CS2}$	O	Chip select signal
51	$\overline{CS3}/\overline{CASL}$	O	Chip select signal / Column address strobe timing signal on the lower side of DRAM
52	VSS	I	Ground
53	$\overline{PA0}/\overline{CS4}/\overline{TIOCA0}$	I/O	16 bit input/output (port A) / Chip select signal / ITU input capture input/ITU output compare output (channel 0)
54	$\overline{PA1}/\overline{CS5}/\overline{RAS}$	I/O	16 bit input/output (port A) / Chip select signal / Low address strobe timing signal of DRAM
55	$\overline{PA2}/\overline{CS6}/\overline{TIOCB0}$	I/O	16 bit input/output (port A) / Chip select signal / ITU input capture input/ITU output compare output (channel 0)
56	$\overline{PA3}/\overline{CS7}/\overline{WAIT}$	I/O	16 bit input/output (port A) / Chip select signal / Wait input for bus cycle
57	$\overline{PA4}/\overline{WRL}$ (\overline{WR})	I/O	16 bit input/output (port A) / External lower 8 bit writing (output at writing)
58	$\overline{PA5}/\overline{WRH}$ (\overline{LBS})	I/O	16 bit input/output (port A) / External upper 8 bit writing (lower byte strobe signal)
59	$\overline{PA6}/\overline{RD}$	I/O	16 bit input/output (port A) / External reading out
60	$\overline{PA7}/\overline{BACK}$	I/O	16 bit input/output (port A) / Bus claim request acknowledge
61	VSS	I	Ground
62	$\overline{PA8}/\overline{BREQ}$	I/O	16 bit input/output (port A) / Bus claim request
63	$\overline{PA9}/\overline{AH}/\overline{IRQOUT}/\overline{ADTRG}$	I/O	16 bit input/output (port A) / Address hold timing signal / Interruption request output at slave / A/D conversion trigger input
64	$\overline{PA10}/\overline{DPL}/\overline{TIOCA1}$	I/O	16 bit input/output (port A) / Data bus parity on the lower side / ITU input capture input/ITU output compare output (channel 1)
65	$\overline{PA11}/\overline{DPH}/\overline{TIOCB1}$	I/O	16 bit input/output (port A) / Data bus parity on the upper side / ITU input capture input/ITU output compare output (channel 1)
66	$\overline{PA12}/\overline{IRQ0}/\overline{DACK0}/\overline{TCLKA}$	I/O	16 bit input/output (port A) / Interruption request / DMA transfer request reception (channel 0) / ITU timer clock input
67	$\overline{PA13}/\overline{IRQ1}/\overline{DREQ0}/\overline{TCLKB}$	I/O	16 bit input/output (port A) / Interruption request / DMA transfer request (channel 0) / ITU timer clock input
68	$\overline{PA14}/\overline{IRQ2}/\overline{DACK1}$	I/O	16 bit input/output (port A) / Interruption request / DMA transfer request reception (channel 1)
69	$\overline{PA15}/\overline{IRQ3}/\overline{DREQ1}$	I/O	16 bit input/output (port A) / Interruption request / DMA transfer request (channel 1)
70	VCC	I	Power supply
71	CK	O	System clock output
72	VSS	I	Ground
73	EXTAL	I	Crystal oscillator input External clock input
74	XTAL	I	Crystal oscillator input
75	VCC	I	Power supply
76	NMI	I	Non-maskable interruption input
77	VPP	I	Power supply of PROM program
78	\overline{WDOVF}	O	Watchdog timer over-flow output
79	\overline{RES}	I	Reset input
80	MD0	I	Mode setting pins
81	MD1		
82	MD2		
83	VCC	I	Power supply
84	VCC		

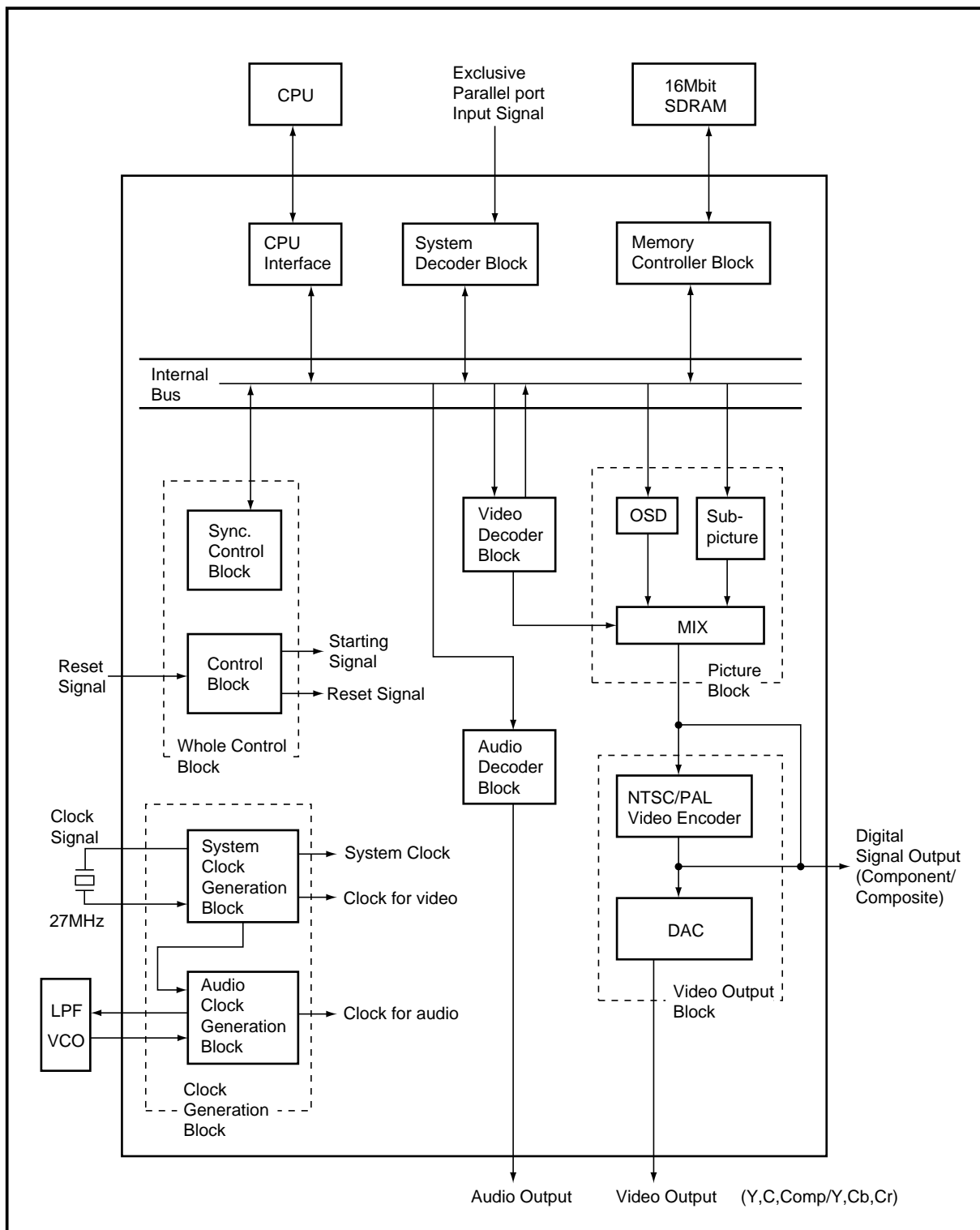
DV-505, DVL-909, DV-S9

No.	Pin Name	I/O	Function
85	AVCC	I	Analog power supply
86	AVREF	I	Analog reference power supply
87	PC0/AN0	I	8 bit input (port C) / Analog signal input
88	PC1/AN1		
89	PC2/AN2		
90	PC3/AN3		
91	AVSS	I	Analog Ground
92	PC4/AN4	I	8 bit input (port C) / Analog signal input
93	PC5/AN5		
94	PC6/AN6		
95	PC7/AN7		
96	VSS	I	Ground
97	PB0/TP0/TIOCA2	I/O	16 bit input/output (port B) / Timing pattern output / ITU input capture input/ITU output compare output (channel 2)
98	PB1/TP1/TIOCB2		
99	VCC	I	Power supply
100	PB2/TP2/TIOCA3	I/O	16 bit input/output (port B) / Timing pattern output / ITU input capture input/ITU output compare output (channel 3)
101	PB3/TP3/TIOCB3		
102	PB4/TP4/TIOCA4	I/O	16 bit input/output (port B) / Timing pattern output / ITU input capture input/ITU output compare output (channel 4)
103	PB5/TP5/TIOCB4		
104	PB6/TP6/TOCXA4/TCLKC	I/O	16 bit input/output (port B) / Timing pattern output / ITU output compare output (channel 4) / ITU timer clock input
105	PB7/TP7/TOCXB4/TCLKD		
106	VSS	I	Ground
107	PB8/TP8/RXD0	I/O	16 bit input/output (port B) / Timing pattern output / Receive data input (channel 0)
108	PB9/TP9/TXD0	I/O	16 bit input/output (port B) / Timing pattern output / Transmission data output (channel 0)
109	PB10/TP10/RXD1	I/O	16 bit input/output (port B) / Timing pattern output / Receive data input (channel 1)
110	PB11/TP11/TXD1	I/O	16 bit input/output (port B) / Timing pattern output / Transmission data output (channel 1)
111	PB12/TP12/IRQ4/SCK0	I/O	16 bit input/output (port B) / Timing pattern output / Interruption request / Serial clock input/output (channel 0)
112	PB13/TP13/IRQ5/SCK1	I/O	16 bit input/output (port B) / Timing pattern output / Interruption request / Serial clock input/output (channel 1)

■ MB86371 (DVDM ASSY : IC801)

- MPEG2 Decoder LSI For DVD

• Block Diagram



● Pin Function

No.	Pin Name	I/O	Function	No.	Pin Name	I/O	Function	
1	CLKSEL	I	ON/OFF signal of PLL ("H" : ON, "L" : OFF)	27	VDD	-	3.3V power supply	
2	DIGCPN7	O	Digital component signal output (MSB) Digital Y signal output (9-bit) (MSB)	28	DIGCOMP4	O	Digital composite signal output Digital C signal output	
3	VSS	-	GND	29	DIGCOMP3			
4	DIGCPN6	O	Digital component signal output Digital Y signal output (9-bit)	30	DIGCOMP2			
5	DIGCPN5			31	DIGCOMP1			
6	DIGCPN4			32	DIGCOMP0		Digital composite signal output (LSB) Digital C signal output (LSB)	
7	DIGCPN3			33	DACK		O	27 MHz clock output
8	DIGCPN2			34	N.C.		-	Non connection
9	DIGCPN1			35	VSSA3		-	GND (D/A converter)
10	VDD	-	3.3V power supply	36	ANAC	O	Analog color (C) output signal	
11	DIGCPN0	O	Digital component signal output (LSB) Digital Y signal output (9-bit) (LSB)	37	VDDA3	-	3.3V power supply (for built-in D/A converter only)	
12	RBSEL	O	Cb and Cr discrimination signal at the digital component signal output. LSB at the digital Y signal output.	38	VSSA2	-	GND (D/A converter)	
13	XHS	O	Horizontal sync. output signal	39	ANAY	O	Analog luminance (Y) output signal	
14	XVS	O	Vertical sync. output signal	40	VDDA2	-	3.3V power supply (for built-in D/A converter only)	
15	VSS	-	GND	41	VREF	I	Reference voltage for D/A converter	
16	XRESET	I	LSI reset signal	42	VRO	O	Internal current setting pin of D/A converter	
17	XLDCSYNC	I	External sync. signal input (LD mode)	43	N.C.	-	Non connection	
18	KEY	O	KEY signal for LD and OSD overlay (LD mode)	44	VSSA1	-	GND (D/A converter)	
19	PD	O	Phase comparison result output signal of horizontal sync. (LD mode)	45	ANACOMP	O	Analog composite output signal	
20	VFLD	O	Field discrimination signal at the digital signal output H : even field L : odd field	46	VDDA1	-	3.3V power supply (for built-in D/A converter only)	
21	DIGCOMP9	O	Digital composite signal output (MSB) Digital C signal output (MSB)	47	BF	O	Burst flag signal	
22	DIGCOMP8			48	XBLK	O	H/V composite blanking signal	
23	DIGCOMP7			49	N.C.	-	Non connection	
24	DIGCOMP6			50	VSS	-	GND	
25	DIGCOMP5			51	TEST0	-	Normally, set to "open".	
26	VSS			-	GND	52	TEST1	-

No.	Pin Name	I/O	Function	No.	Pin Name	I/O	Function		
53	DAIIN	I	Digital data input of external input (SPDIF)	92	HADRS10	I	CPU address bus signal (MSB)		
54	CDDATA	I	Audio data input of external input (correspond to CD)	93	HADRS9	I	CPU address bus signal		
55	CDLR	I	Data channel clock input of external input (correspond to CD)	94	HADRS8				
56	CDBCK	I	Data clock input of external input (correspond to CD)	95	HADRS7				
57	AODATA3	O	Audio decode data	96	VSS	-	GND		
58	AODATA2			97	VDD	-	3.3V power supply		
59	AODATA1			98	HADRS6	I	CPU address bus signal		
60	VSS	-	GND						
61	VDD	-	3.3V power supply						
62	AODATA0	O	Audio decode data	99	HADRS5				
63	AOPCM	O	Digital audio interface output (compression data)	100	HADRS4	I	CPU address bus signal (LSB)		
64	AODAI	O	Digital audio interface output (decode data)	101	HADRS3				
65	LRCK	O	Data channel clock for D/A and digital filter	102	HADRS2	I/O	CPU data bus signal		
66	AOMCK	O	Master clock for D/A and digital filter	103	HDATA15				
67	BCK	O	Bit clock for D/A and digital filter	104	HDATA14				
68	ICED1	-	Pin for emulator Normally, set to "open".	105	HDATA13				
69	ICED0			106	HDATA12				
70	ICEBRK			107	VSS	-	GND		
71	XDSPRST			108	HDATA11	I/O	CPU data bus signal		
72	VSS	-	GND						
73	N.C.	-	Non connection						
74	TEST2	-	Normally, set to "open".	109	HDATA10				
75	TEST3			110	HDATA9				
76	TEST4			111	HDATA8				
77	TEST5			112	HDATA7				
78	SD7	I	Parallel data input	113	HDATA6	I/O	CPU data bus signal		
79	VDD	-	3.3V power supply						
80	SD6	I	Parallel data input	114	VDD			-	3.3V power supply
81	SD5			115	HDATA5				
82	SD4			116	HDATA4				
83	SD3			117	HDATA3				
84	SD2	-	GND	118	HDATA2	I/O	CPU data bus signal (LSB)		
85	VSS			-	GND				
86	SD1			I	Parallel data input	119	VSS	-	GND
87	SD0	I	Parallel data input	120	HDATA1	I/O	CPU data bus signal		
88	XERR	I	Error input signal	121	HDATA0				
89	XSACK	I	Acknowledge signal	122	BUSSEL	I	Bus width selection signal (0 : 8-bit bus, 1 : 16-bit bus)		
90	XTEST	I	Set to "H" at normal use	123	XOSDACK	I	OSD data acknowledge signal		
91	SREQ	O	Data request signal	124	XOSDREQ	O	OSD data request signal		
				125	HCPUSEL1	I	CPU selection signal (00 :SPARC, 01 :86 system, 10 :68 system, 11 :Reserve)		
				126	HCPUSEL0				
				127	XINT3	O	Interrupt request signal to the CPU		
				128	XINT2				
				129	XINT1				
				130	VSS	-	GND		

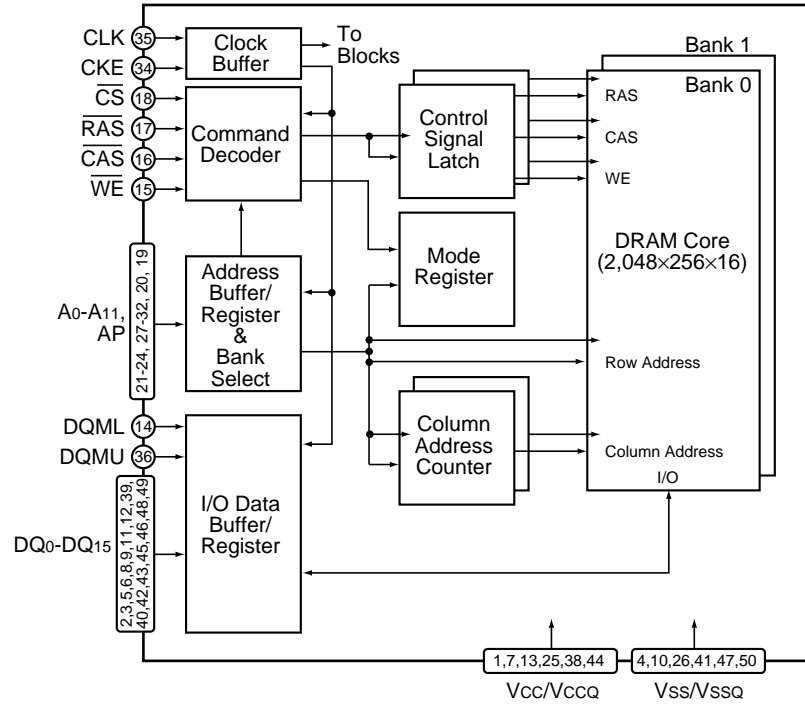
DV-505, DVL-909, DV-S9

No.	Pin Name	I/O	Function	No.	Pin Name	I/O	Function
131	VDD	–	3.3V power supply	170	XMDRCAS	O	CAS signal for SDRAM
132	XINT0	O	Interrupt request signal to CPU	171	XMDRDQM1	O	Input mask / output enable signal for SDRAM
133	XEXTRDY	O	SPARC, 68 system : Ready signal to CPU 86 system : Acknowledge (ACK) signal to CPU	172	VSS	–	GND
134	HRW	I	CPU read / write signal	173	XMDRWE	O	Write enable signal for SDRAM
135	HCLKIN	I	Host clock input	174	XMDRDQM0	O	Input mask / output enable signal for SDRAM
136	XHCS	I	LSI chip select signal	175	MDRDAT8	I/O	Data bus signal for SDRAM
137	XHAS	I	SPARC, 68 system : CPU address strobe 86 system : CPU address status	176	VSS	–	GND
138	XHBE3	I	CPU byte enable signal	177	MDRDAT7	I/O	Data bus signal for SDRAM
139	XHBE2			178	MDRDAT9		
140	XHBE1			179	MDRDAT6		
141	XHBE0			180	MDRDAT10		
142	VSS	–	GND	181	MDRDAT5		
143	MDRADR4	O	Address signal for SDRAM	182	VSS	–	GND
144	MDRADR3			183	VDD	–	3.3V power supply
145	MDRADR5			184	MDRDAT11	I/O	Data bus signal for SDRAM
146	MDRADR2			185	MDRDAT4		
147	VDD	–	3.3V power supply	186	MDRDAT12	I/O	Data bus signal for SDRAM
148	VSS	–	GND	187	MDRDAT3		
149	MDRADR6	O	Address signal for SDRAM	188	MDRDAT13		
150	MDRADR1			189	VSS	–	GND
151	MDRADR7			190	MDRDAT2	I/O	Data bus signal for SDRAM
152	MDRADR0			191	MDRDAT14		
153	MDRADR8		Address signal for SDRAM (LSB)	192	MDRDAT1		
154	VSS	–	GND	193	MDRDAT15		Data bus signal for SDRAM (MSB)
155	TEST6	–	"L" status normally	194	MDRDAT0	I/O	Data bus signal for SDRAM (LSB)
156	TEST7			195	VSS	–	GND
157	TEST8			196	N.C.	–	Non connection
158	TEST9			197	ICK27M	I	System clock input
159	MDRADR10	O	Address signal for SDRAM	198	VSS	–	GND
160	MDRADR9			199	OCK27M	O	System clock output
161	MDRADR11			Address signal for SDRAM (MSB)	200	VSSA(VCO)	–
162	XMDRCS	O	Chip select signal for SDRAM	201	VDDA(VCO)	–	3.3V power supply (for VCO only)
163	MDRCKE	O	Clock enable signal for SDRAM	202	ILPF	O	PLL block inverter output for audio
164	VSS	–	GND	203	MLPF	I	PLL block inverter input for audio
165	VDD	–	3.3V power supply	204	OLPF	O	Phase detector output for audio
166	XMDRRAS	O	RAS signal for SDRAM	205	OVCO	I	VCO input for audio clock
167	MDRCLK	O	Clock output signal for SDRAM	206	VSS	–	GND
168	VSS	–	GND	207	XPLLST	I	PLL section reset signal
169	MDRCLKIN	I	Clock input signal for SDRAM	208	XSYNCRST	I	SYNC reset signal

■ MB811171622A-100FN (DVDM ASSY : IC802)

- Code Buffer (16M bit SDRAM)

● Block Diagram



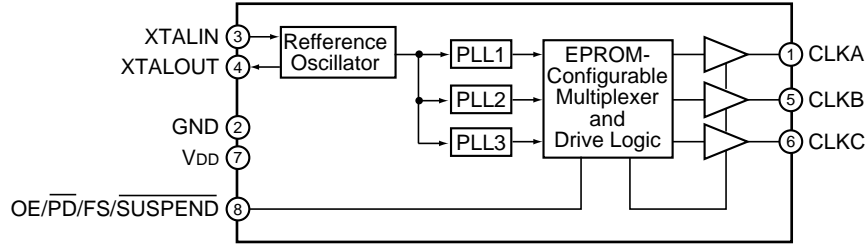
● Pin Function

No.	Pin Name	Function	No.	Pin Name	Function
1	VCC	Power supply (+ 3.3V)	26	VSS	Ground
2	DQ0	Data input/output	27	A4	Address input Row : A0 to A10 , Column : A0 to A7
3	DQ1		28	A5	
4	VSSQ	Ground	29	A6	
5	DQ2	Data input/output	30	A7	
6	DQ3		31	A8	
7	VCCQ	Power supply (+ 3.3V)	32	A9	
8	DQ4	Data input/output	33	DU	Don't use (use for open)
9	DQ5		34	CKE	Clock enable
10	VSSQ	Ground	35	CLK	Clock input
11	DQ6	Data input/output	36	DQMU	Input mask / Output enable
12	DQ7		37	DU	Don't use (use for open)
13	VCCQ	Power supply (+ 3.3V)	38	VCCQ	Power supply (+ 3.3V)
14	DQML	Input mask / Output enable	39	DQ8	Data input/output
15	WE	Write enable	40	DQ9	
16	CAS	Column address strobe	41	VSSQ	Ground
17	RAS	Row address strobe	42	DQ10	Data input/output
18	CS	Chip select	43	DQ11	
19	A11 (BA)	Bank select	44	VCCQ	Power supply (+ 3.3V)
20	A10/AP	Address input Row : A0 to A10 , Column : A0 to A7 / Auto pre-charge enable	45	DQ12	Data input/output
21	A0	Address input Row : A0 to A10 , Column : A0 to A7	46	DQ13	
22	A1		47	VSSQ	Ground
23	A2		48	DQ14	Data input/output
24	A3		49	DQ15	
25	VCC		Power supply (+ 3.3V)	50	VSS

■ **CY2081SL-611 (DVDM ASSY : IC813)**

- Clock Generate IC

• **Block Diagram**



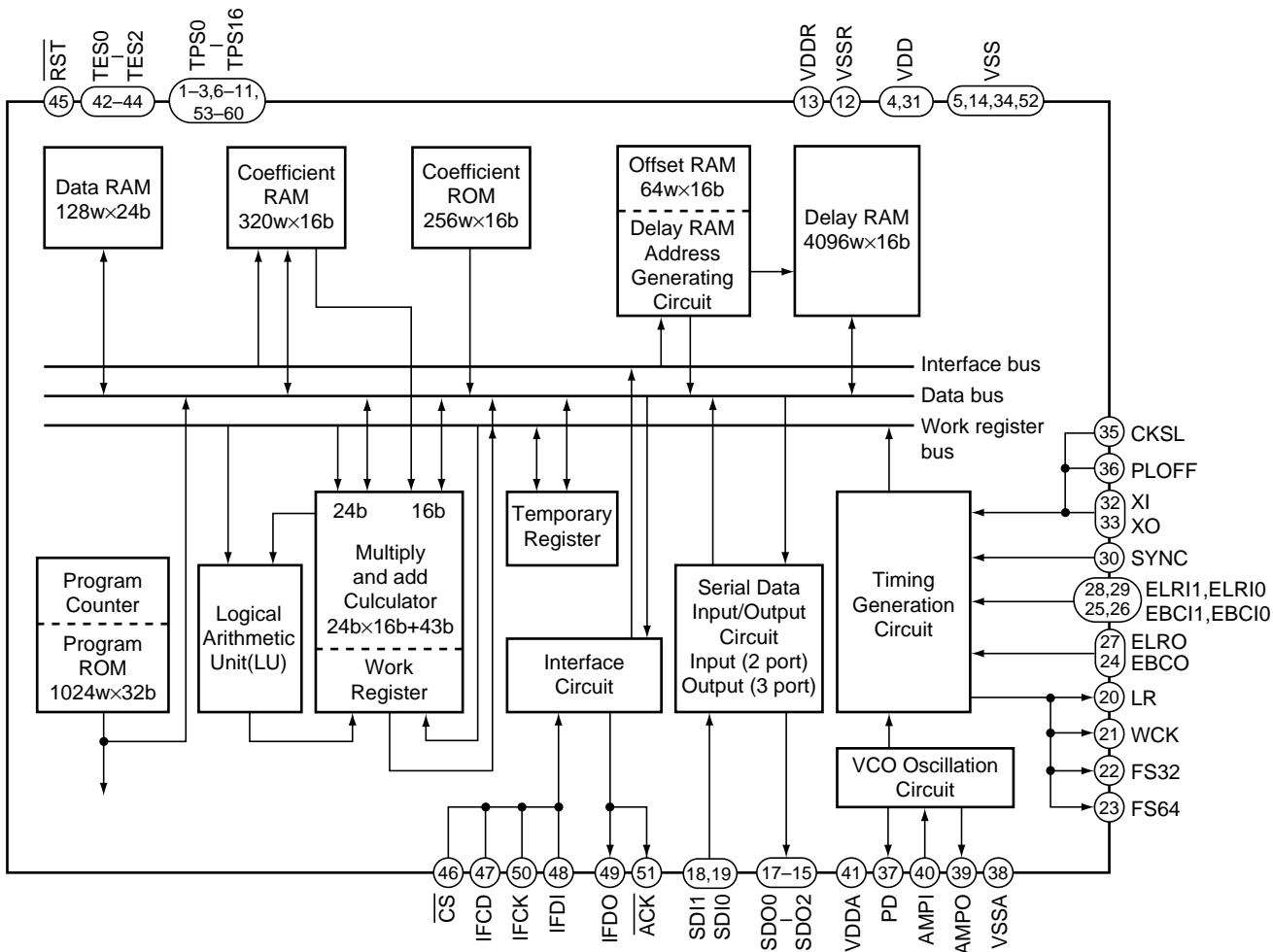
• **Pin Function**

No.	Pin Name	Function
1	CLKA	Configurable clock output
2	GND	Ground
3	XTALIN	Reference crystal input or external reference clock input
4	XTALOUT	Reference crystal feedback
5	CLKB	Configurable clock output
6	CLKC	Configurable clock output
7	VDD	Voltage supply
8	OE/PD/FS/SUSPEND	Output control pin Either active-High output enable, active-Low power down, CLKA frequency select, or active-Low suspend input

■ PD2058A (DVDM ASSY : IC901)(DV-505 and DVL-909 only)

• Digital Signal Processor For Audio

• Block Diagram



• Pin Function

No.	Pin Name	I/O	Function
1	TP8	○	Test data output pin Normally, use with open.
2	TP7		
3	TP6		
4	VDD	-	Power supply pin
5	VSS	-	Ground pin
6	TP5	○	Test data output pin Normally, use with open.
7	TP4		
8	TP3		
9	TP2		
10	TP1		
11	TP0		

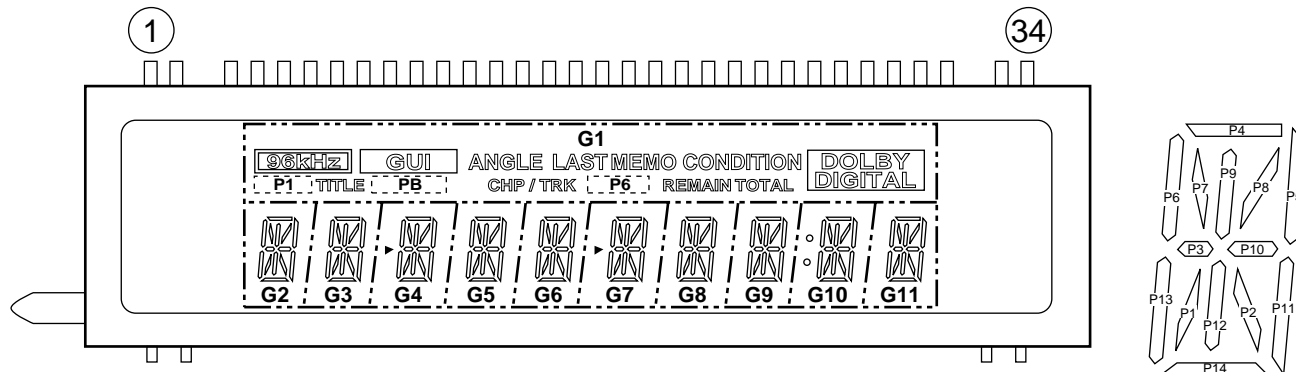
DV-505, DVL-909, DV-S9

No.	Pin Name	I/O	Function	
12	VSSR	–	Ground pin for internal delay RAM (DLRAM)	
13	VDDR	–	Power supply pin for internal delay RAM (DLRAM)	
14	VSS	–	Ground pin	
15	SDO2	O	Serial data output pin Output data length is able to select the 24-bit or 16-bit by controlling the microprocessor.	
16	SDO1			
17	SDO0			
18	SDI1	I	Serial data input pin Input data length is able to select the 24-bit or 16-bit by controlling the microprocessor.	
19	SDI0			
20	LR	O	LR clock output pin (1 fs)	
21	WCK	O	Word clock output pin (2 fs)	
22	FS32	O	Bit clock output pin (32 fs)	
23	FS64	O	Bit clock output pin (64 fs)	
24	EBC0	I	Bit clock input pin Inputs shift clock for SDO0/1/2 data output.	
25	EBC11	I	Bit clock input pin	For SDI1 data input
26	EBC10		Inputs shift clock for SDI0/1 data input.	For SDI0 data input
27	ELRO	I	LR clock input pin Inputs LR clock for SDO0/1/2 data output.	
28	ELR11	I	LR clock input pin	For SDI1 data input
29	ELR10		Inputs LR clock for SDI0/1 data input.	For SDI0 data input
30	SYNC	I	Sync. signal input pin Turn the program counter into "0" forcibly by the edge of SYNC signal. Moreover, set the polarity by controlling the microprocessor.	
31	VDD	–	Power supply pin	
32	XI	I	Crystal oscillator connection pin / external clock input pin	
33	XO	O	Crystal oscillator connection pin	
34	VSS	–	Ground pin	
35	CKSL	I	Oscillation clock switch pin L : correspond to 384 fs H : correspond to 512 fs	
36	PLOFF	I	X'tal oscillation mode / VCO oscillation mode switch pin L :built-in VCO oscillation mode H :X'tal oscillation mode	
37	PD	O	Phase comparison data output pin	
38	VSSA	–	Analog ground pin	
39	AMPO	O	Amp. output pin for low-pass filter	
40	AMPI	I	Amp. input pin for low-pass filter	
41	VDDA	–	Analog power supply pin	
42	TES0	I	Test pin Normally, use for "H" or open.	
43	TES1			
44	TES2			
45	RST	I	Reset signal input pin	
46	CS	I	Chip select signal input pin When CS is L active, data is able to transfer from the microprocessor.	
47	IFCD	I	Command or data input mode selection pin from the microprocessor Recognize the command for "H" period and the data for "L" period.	
48	IFDI	I	Microprocessor data input pin Receive the command and data by LSB first.	
49	IFDO	O	Data output pin of data bus (DBUS) Transmit the data of data bus to the microprocessor by LSB first.	
50	IFCK	I	Shift clock input pin for microprocessor data	
51	ACK	O	Acknowledge signal output pin for microprocessor When parity of command and data is OK, outputs the acknowledge signal.	
52	VSS	–	Ground pin	
53	TP16	O	Test data output pin Normally, use with open.	
54	TP15			
55	TP14			
56	TP13			
57	TP12			
58	TP11			
59	TP10			
60	TP9			

5. FL INFORMATION

■ VAW1046 (FLKB ASSY : V101)(DV-505 and DVL-909 only)

• FL DISPLAY



• ANODE AND GRID ASSIGNMENT

	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10	G11
P1	P1	P1	P1	P1	P1	P1	P1	P1	P1	P1	P1
P2	ANGLE	P2	P2	P2	P2	P2	P2	P2	P2	P2	P2
P3	TITLE	P3	P3	P3	P3	P3	P3	P3	P3	P3	P3
P4	LAST MEMO	P4	P4	P4	P4	P4	P4	P4	P4	P4	P4
P5	CONDITION	P5	P5	P5	P5	P5	P5	P5	P5	P5	P5
P6	P6	P6	P6	P6	P6	P6	P6	P6	P6	P6	P6
P7	CHP/TRK	P7	P7	P7	P7	P7	P7	P7	P7	P7	P7
P8	P8	P8	P8	P8	P8	P8	P8	P8	P8	P8	P8
P9	REMAIN	P9	P9	P9	P9	P9	P9	P9	P9	P9	P9
P10	DOLBY DIGITAL	P10	P10	P10	P10	P10	P10	P10	P10	P10	P10
P11	GUI	P11	P11	P11	P11	P11	P11	P11	P11	P11	P11
P12	96kHz	P12	P12	P12	P12	P12	P12	P12	P12	P12	P12
P13		P13	P13	P13	P13	P13	P13	P13	P13	P13	P13
P14		P14	P14	P14	P14	P14	P14	P14	P14	P14	P14
P15	TOTAL			▷			▷			◦	

• PIN ASSIGNMENT

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Assignment	F1	F1	NP	P15	P14	P13	P12	P11	P10	P9	P8	P7	P6	P5	P4	P3	P2
Pin No.	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
Assignment	P1	G11	G10	G9	G8	NL	NL	G7	G6	G5	G4	G3	G2	G1	NP	F2	F2

F1, F2 : Filament G1~G11 : Grid P1~P15 : Anode NP : No Pin NL : No Lead