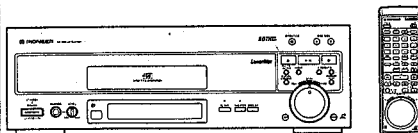


Service Manual

PIONEER®
The Art of Entertainment



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CD CDV LD PLAYER

CLD-D503

CLD-D570

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.
KU	CLD-D503	AC120V	—
KC	CLD-D503	AC120V	—
RD	CLD-D570	AC110—127V/220—240V	With the voltage selector.

• For the circuit and mechanism descriptions, refer to the service guide RRV1066 for CLD-D503.

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CHAPTER 1

1.1 SAFETY INFORMATION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.

Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.



WARNING

Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5).

When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.



NOTICE

(FOR CANADIAN MODEL ONLY)

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

REMARQUE

(POUR MODÈLE CANADIEN SEULEMENT)

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

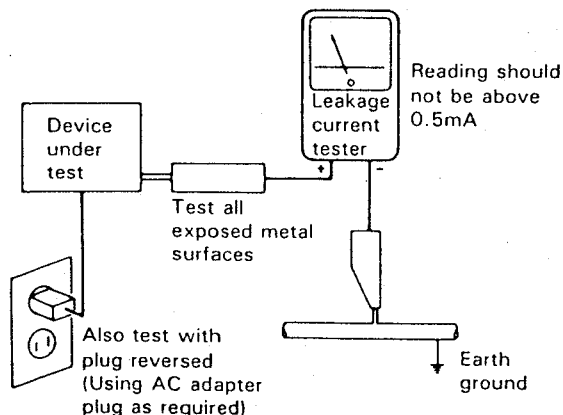
(FOR USA MODEL ONLY)

1. SAFETY PRECAUTIONS

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

LEAKAGE CURRENT CHECK

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



AC Leakage Test

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

2. PRODUCT SAFETY NOTICE

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

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

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

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

1.2 SPECIFICATIONS

1. General

System LaserVision Disc system and
Compact Disc digital audio system
Laser Semiconductor laser wavelength 780 nm
Power requirements
U.S. and Canadian models AC 120 V, 60 Hz
Other models AC 110 - 127 V/220 - 240 V,
(switchable) 50/60 Hz
Power consumption 40 W
Weight 8.0 kg (17 lbs 10 oz)
Dimensions 420 (W) x 434 (D) x 140 (H) mm
16-9/16 (W) x 17-1/16 (D) x 5-1/2 (H) in
Operating temperature +5°C ~ +35°C
(41°F - 95°F)
Operating humidity 5% ~ 85%
(There should be no condensation of moisture.)

2. Disc

LaserVision Discs

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

Compact Discs

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

Compact Discs with Video

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

* Actual playback time differs for each disc.

3. Video characteristics (two pairs)

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

4. S-Video output (CLD-D570 : two pairs)

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

5. Audio characteristics (two pairs)

Output level
During analog audio output 200 mVrms
(1 kHz, 40%)
During digital audio output 200 mVrms
(1 kHz, -20 dB)
Jacks Both RCA jacks

Digital Audio Characteristics

Frequency response	4 Hz - 20 kHz (EIAJ)
SN ratio	115 dB (EIAJ)
Dynamic range	98 dB (EIAJ)
Total harmonic distortion	0.0025% (EIAJ)
Wow and flutter	Limit of measurement (EIAJ)

6. Other Terminals

Control input/output Both miniature jacks
CD-DECK synchro Miniature jacks
Optical digital output Optical digital jack
(except for U.S. and Canadian models)

7. Accessories

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

1.3 PANEL FACILITIES

A detailed description is provided on the indicated page(s).

PHONES LEVEL control

Turn this control in the "MAX" direction to increase the output level from the PHONES jack. Turn this control in the "MIN" direction to decrease the output level from the PHONES jack.

PHONES jack

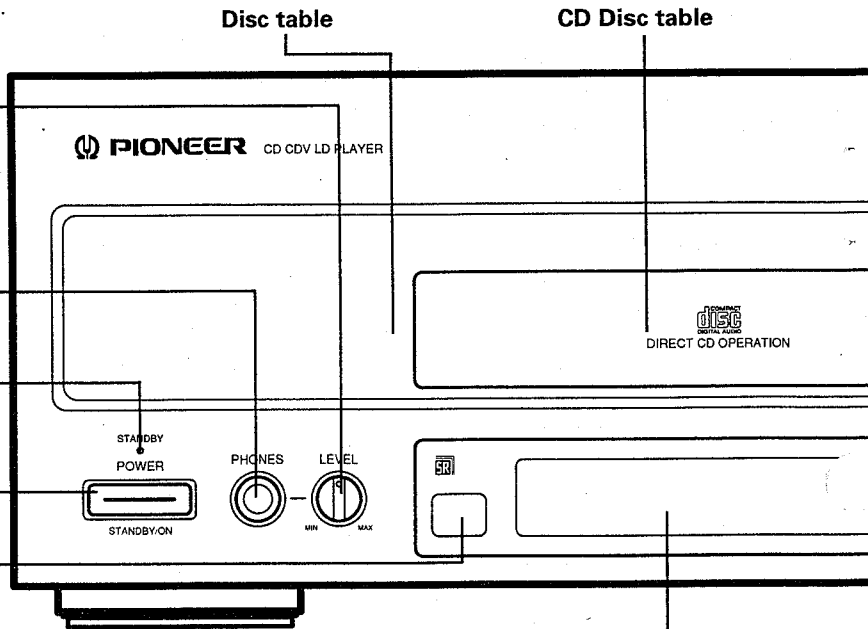
STANDBY indicator

This indicator lights when the power is set to standby and goes out when the power is turned on.

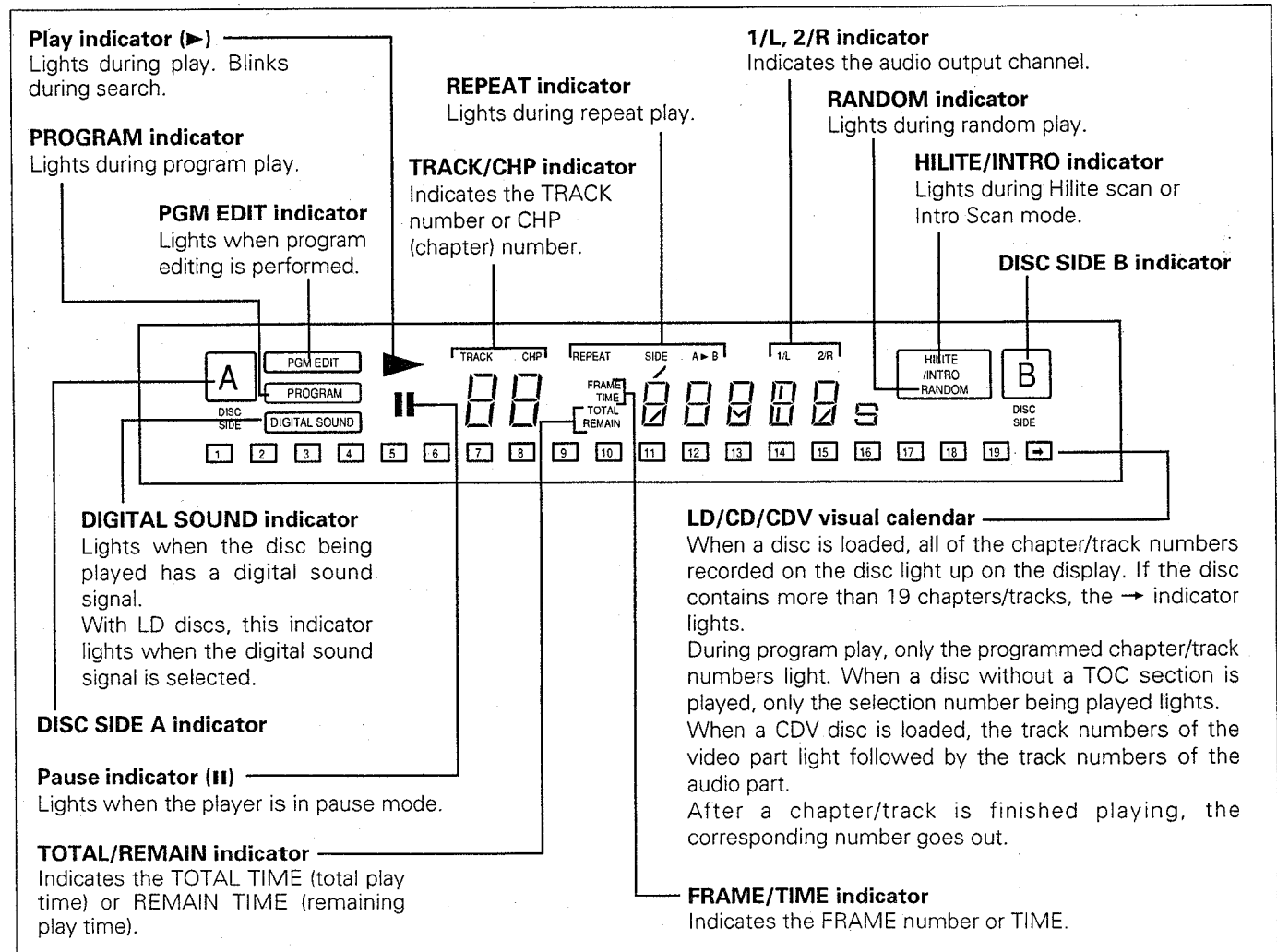
POWER STANDBY/ON switch

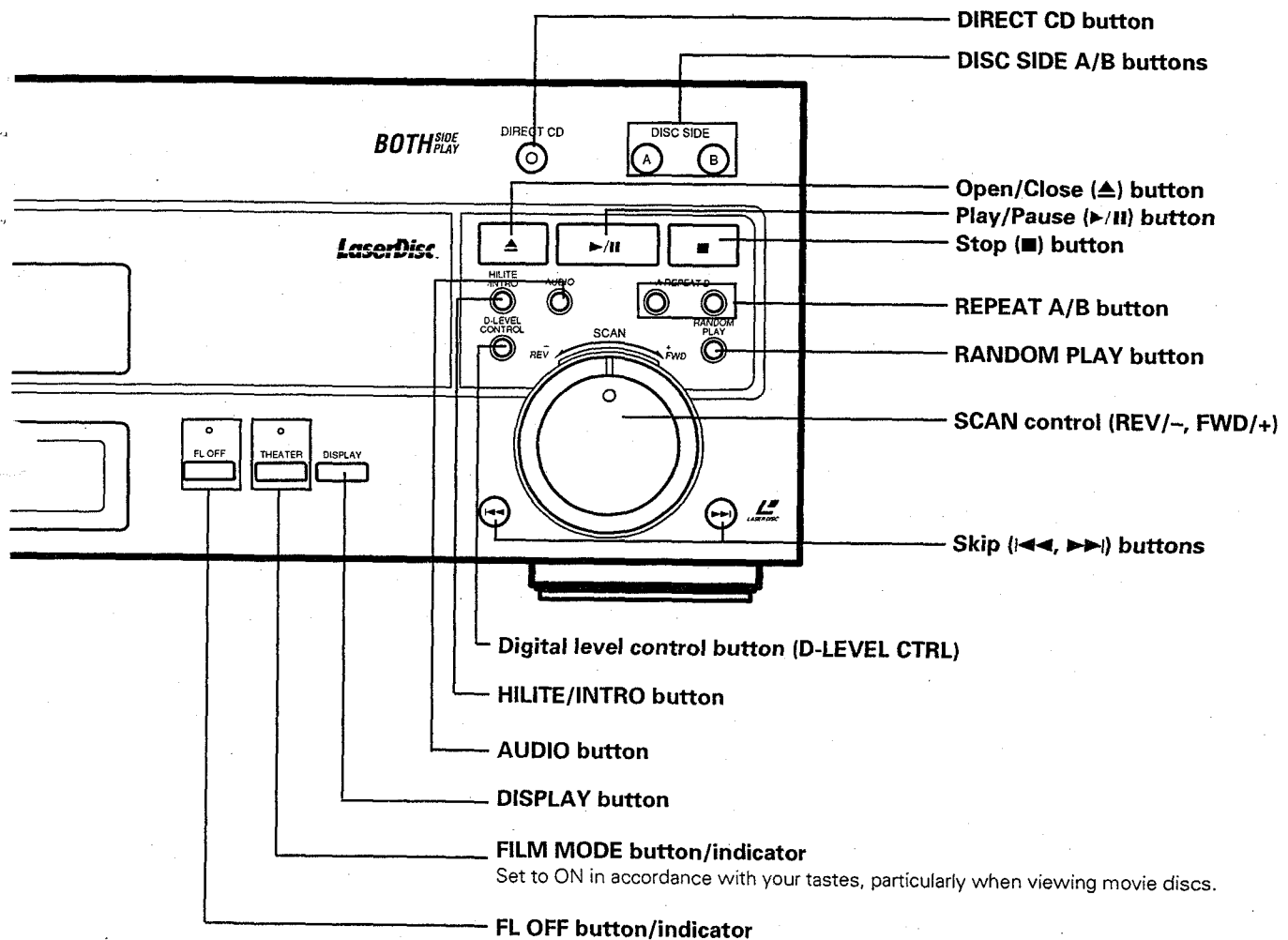
Press to turn the power on and off.

Remote sensor



Display window





FILM MODE button/indicator
 Set to ON in accordance with your tastes, particularly when viewing movie discs.

FL OFF button/indicator
 Pressing this button turns off the display in the front panel display window and causes the FL OFF indicator to light. Press the button again to cause the display to return. Turning off the display prevents low levels of noise from adversely affecting sound quality.

1.4 IC INFORMATION

■ PD3260C (FLKY ASS'Y IC100)

● Mode control IC

● Pin function

No.	Pin name	I/O	Function
1	VCC	I	Power supply (+5V)
2	G-CS	O	Graphics sub microcomputer (PDC014A) communication request
3	XSCK	I/O	Serial communication clock
4	S-MTOF	I	Serial communication data input
5	S-FTOM	O	Serial communication data output
6	XRESET (OUT)	O	Mother board reset output
7	XCS	O	Chara. Gen. (PD0154A) communication request
8	SYNCRO IN	I	CD deck synchro input
9	SYNCRO OUT	O	CD deck synchro output
10	AVCC	I	+5V
11	JOG2	I	Jog dial data input
12	JOG1	I	Jog dial data input
13	KIN0	I	Key data input
14	KIN1		
15	KIN2		
16	KIN3		
17	KIN4		
18		I	Not used (GND)
19	AV _{ss}	I	GND
20	TEST	I	GND
21	X2	O	Not used (N. C)
22	X1	I	+5V
23	V _{ss}	I	GND
24	OSC1	I	Oscillator (8MHz)
25	OSC2	O	
26	XRESET (IN)	I	CPU Reset (L:reset)
27	SHAKE (ACK)	I/O	Mechanism control communication request (Mode control acknowledge output)
28	SEL IR	I	Remote control input
29	P. ON	O	Mother board power supply swiching output
30	LED1	O	LED OUT : theater mode
31	(OEMNO1)	I	OEM Select port (L:PIONNER, H:MARANTZ)
32	LED2	O	LED OUT : One shot memory
33	LED5	O	LEDOUT : FL OFF
34	LED4	O	LED OUT : Direct CD
35	LED3	O	LED OUT : Graphics
36	S-SCAN	O	Shuttle scan output
37	K	O	Display segment output

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

No.	Pin name	I/O	Function
38	J	O	Display segment output
39	I	O	Display segment output
40	H (Ks0)	O	Display segment output/ Key scan output
41	G (Ks1)	O	Display segment output/ Key scan output
42	F (Ks2)	O	Display segment output/ Key scan output
43	E (Ks3)	O	Display segment output/ Key scan output
44	D	O	Display segment output
45	C	O	Display segment output
46	B	O	Display segment output
47	A	O	Display segment output
48	Vdisp	I	FL Power supply (-27V)
49		O	Not used (N. C)
50		O	Not used (N. C)
51	G10	O	Display grid output
52	G9		
53	G8		
54	G7		
55	G6		
56	G5		
57	G4		
58	G3		
59	G2		
60	G1		
61	LED0	O	LED OUT : Standby
62	J/E	I	Destination select power (L : Japan H : north America)
63	W.D.F	O	Pulse output for watchdog timer
64	G-EN	I	Graphics sub microcomputer communication enable

■ PD0185B (VSOP ASSY IC101)

● Mechanism control IC

● Pin function

No.	Pin name	I/O	Function
1	+5V	I	Power connection pin Impresses 5V ±10%.
2	FBA2	O	Focus balance control 1: TEMAX 0: RFMAX
3	XANA	O	Digital/analog audio switch signal output pin "H" = digital, "L" = analog
4	RF CORR	O	RF collection switch signal output pin H = gain up, CAV inner circuit gain up
5	NC	O	Not used
6	SLD POS	I	Pick up position detection switch input pin (A/D input port)
7	SLD ERR	I	Slider error signal input pin (A/D input port)
8	TILT ERR	I	Tilt sensor output signal input pin (A/D input port)
9	TABL ERR	I	Tracking balance error signal input pin (A/D input port)
10	FSEQ	I	Sub-code sync conformity detection signal input pin Conformity: H Other: L
11	WRQ	I	Sub-code Q reading OK signal input pin OK: H NG:L
12	TBAL DRV	O	Tracking Off-set control signal output pin
13	RWC	O	DSP reading/writing command signal output pin READ: L WRITE: H
14	XCD	O	LD/CD switching signal output pin LD: H CD: L
15	SQOUT	I	DSP reading command data input pin. SUBQ is read out.
16	COIN	O	DSP writing command data output pin
17	CQCK	O	DSP reading/writing command clock output pin. Start-up reading.
18	SLD DRV	O	Slider control signal output pin A-side 5V-FWD, 0V-REV (B-side is opposite), 2.5V-STOP
19	SI1	I	Input pin for data from mode control IC
20	SO1	O	Serial data output to mode control IC
21	SCK1	O	Clock for serial communication with mode control IC
22	TZC	I	Tracking error zero cross signal input pin
23	SHAKE	I/O	Handshake signal pin for data communication with mode control IC
24	MUTE	O	Audio line sound mute control signal output pin MUTE: H MUTE CANCEL: L
25	PVCLATCH	O	Latch output of serial control for digital filter IC PD0116A. Latches at falling edge.
26	XPBV	I	LD/CDV play vertical synchronous signal input pin vertical synchronous: L
27	GND	I	GND grounding for A/D conversion
28	XRESET	I	Reset signal input pin "L" = reset "H" = reset cancel
29	XIN	I	9MHz clock oscillation input pin
30	XOUT	O	9MHz clock oscillation output pin
31	NC	O	Not used. Since it is for only ϕ output, it cannot be used for anything else.
32	GND	I	GND grounding
33	DETAMP	I	Spindle overcurrent detection signal input pin overcurrent: L normal: H
34	XFOK	I	Focus servo lock signal input pin lock: L unlock: H
35	MEMORY	I	Memory yes/no determination input pin memory yes: H memory no: L
36	TBCH	I	Input pin for reference H-SYNC signal from DVP
37	FG	I	Spindle motor FG signal input pin 24 outputs per rotation. Used after dividing by 3 in microcomputer.
38	DATA	I	Input pin for Phillips code decoder with built in mechanism controller
39	XPBH	I	Play H-SYNC input for Phillips code decoder
40	XPBV	I	Play V-SYNC input for Phillips code decoder
41	NC	O	Not used
42	DIRECT	O	CD direct video line power off signal output pin Video PWOFF: H normal: L
43	T HOLD	I	Track jump accelerating/decelerating signal input pin accelerating/decelerating: H other: L

■ PA0023AD (MAIN ASSY IC401)
● FM Detector
● Pin Function

No.	Pin name	Function	No.	Pin name	Function
1	NC1	NC	8	NC3	NC
2	VCC	+5V power pin	9	OUT	Output pin
3	BIAS	BIAS pin	10	VREG	Constant voltage pin
4	+IN	RF input pin (positive)	11	NC4	NC
5	-IN	RF input pin (negative)	12	C1	Delay time setting pin
6	VEE	-5V power pin	13	C2	Delay time setting pin
7	NC2	NC	14	NC5	NC

■ PA0058A (MAIN ASSY IC400)
● Video demodulator
● Pin name

No.	Pin name	Function	No.	Pin name	Function
1	VCC1	Power pin	15	VCC2	Power pin
2	DOP	Drop-out pulse output pin Outputs drop-out pulse if drop out is detected. H level (during drop-out) → 4.3V L level (when normal) → 0.2V	16	NRIN2	Noise reduction 2 input pin
			17	NRR2	Adjusts noise reduction level using value of resistance inserted between this pin and GND.
			19	NRR1	
3	CSYNC	Composite sink pulse output pin Open collector output. → 15K Ω H level → Vcc L level → 0.2V	18	NRIN1	Noise reduction 1 Input pin
4	DATA	Phillips code pulse output pin H level → 4.3V L level → 0.2V	20	GND2	GND
5	CSIN	Input pin for synchronization separation Diode clamp input Clamp level → about 1.9V	21	DEEM	De-emphasis amplifier output pin Appropriate feedback circuit is inserted between this pin and de-emphasis amplifier input pin. Output level → 1.1 V p-p
6	PEDIN	Input pin for synchronization separation Hard-clamped at pedestal level Clamp level → about 2.7V				22	DEEMIN	De-emphasis amplifier input pin Input level → 200 mV p-p
7	GND1	GND	23	RDOS	DOS frequency sensitivity adjustment pin Adjusts frequency sensitivity of DOS using resistance inserted between this pin and GND. Recommended resistance → 20 KΩ
8	LPF	LPF output pin for synchronization separation Output level → 1V p-p (GAIN 0dB)				24	GND3	GND
9	BOTTOM	Low side reference voltage pin for A/D conversions	25	CINH	Clamp inhibit pin Controls clamp operation of 5, 6, 13 pins 0V → clamp 5V → clamp inhibit
10	RE20K	Resistance pin for internal constant current supply. Connected to 20K Ω resistance.				26	DINH	Phillips code pulse output control pin 0V → output inhibit 5V → output
11	TOP	HIGH side reference voltage pin for A/D conversion	27	NRINII	Noise reduction 1 Control pin 0V → ON 5V → OFF
12	VOUT	Outputs video signal that is clamped by synchronization chip for A/D conversion. Output level → 2V p-p (GAIN 6dB) Synchronization signal level → about 1.67V				28	DOSIN	DOS input pin Input level → 500 mV p-p
13	SCLPIN	Synchronization signal clamp input pin Input level → 1V p-p Clamp level → about 1.67V	29	VCC3	Power pin
14	NROUT	Noise reduction circuit output pin Output level → 1.1 V p-p	30	NC2	NC pin

■ PD0146A (MAIN ASSY IC500)

● Digital video processor

● Pin Function

No.	Pin name	Function	
1	RVDD	Power pin for reference system Connected to +5V.	
2	XSGCSY	Reference composite synchronization output Reference composite synchronization is output at negative logic. Delay can be controlled by serial command.	
3	WFM	MEMSYS:1	Field monitor output for write system Outputs "H" when in odd field.
	XCHA	MEMSYS:0	Character input pin for write system Inputs "L" during character insertion.
4	XTBCH	MEMSYS:1	TBC H synchronization output Outputs time base-corrected H synchronization at negative logic.
	REFLOCK	MEMSYS:0	SSG phase detection signal output Outputs "H" when phase difference of H, V synchronization between Playback system (after TBC) and SSG system is small enough.
5	XTBCV	MEMSYS:1	TBC V synchronization output Outputs time base-corrected V synchronization at negative logic.
	CHCK	MEMSYS:0	Clock output for character generation Outputs 2Fsc.
6	FCH	MEMSYS:1	Field change input Switches field of SSG when "H".
	XCHB	MEMSYS:0	Character frame input pin Inputs "L" when character frame is inserted.
7	XRCK	Reference inverted CLK output Reference CLK is reversed and output.	
8	RCK	Reference CLK output	
9	DO7	Data output 7	Outputs TBC (time base-corrected) video signal to support memory. Serial interface performs this setting. D07 is MSB, DO0 is LSB.
10	DO6	Data output 6	
11	DO5	Data output 5	
12	DO4	Data output 4	
13	DO3	Data output 3	
14	DO2	Data output 2	
15	DO1	Data output 1	
16	DO0	Data output 0	
17	DCOREF	D/A converter reference for DCO Normally connected to DAGND via 0.1 μF of laminated ceramic capacitor.	
18	INSSY	Synchronization output for insertion Synchronization insert pin. OPEN DRAIN output.	
19	DAREF	D/A converter reference for video Normally connected to DAGND via 0.1 μF of laminated ceramic capacitor.	
20	VOUT	TBC (time base-corrected) video output pin Synchronization must be inserted by pin 18 (INSSY).	

Note) Pin functions of pins 3 - 6 differ depending on the mode (MEMSYS) of interface.

No.	Pin name	Function
21	DAVDD	Power pin for D/A converter Connected to +5V.
22	IBIAS	Bias circuit current control pin for A/D, D/A converter Normally connected to DAGND via external resistance.
23	DAGND	Ground pin for D/A converter Connect to GND.
24	DCOGND	Ground pin for DCO Connect to GND.
25	DCOVDD	Power pin for DCO Connect to +5V.
26	DCO0	DCO output pin ADCK is generated by multiplying this signal by 4.
27	DCO1	Waveform shaping input pin 1 Inputs DCO0 signal via band pass filter of fsc. (self-biased)
28	DCO2	Waveform shaping output pin 2 Outputs signal of waveform of DCO1 signal that is shaped.
29	DCO3	Waveform shaping input pin 3 Inputs signal of DCO2 output signal that is delayed 70 ns (self-biased).
30	DCO4	Waveform shaping output pin 4 Outputs signal multiplied by 2.
31	DCO5	Waveform shaping input pin 5 Inputs signal of DCO4 output signal that is delayed 35 ns (self-biased).
32	DCO6	Waveform shaping output pin 6 Outputs signal multiplied by 4. This signal is filtered through 4 fsc of the ceramic filter, and is used as a write system CLK.
33	WGND	Ground pin for write system Connect to GND.
34	ADCK	CLK input pin for write system Inputs signal of DCO6 output signal that is filtered through 4 fsc ceramic filter. (self-biased)
35	ACOM	Jitter correction control output for audio Outputs signal that has a duty in accord with error amount generated at internal phase comparator. Used to correct audio jitter.
36	XPBV	V synchronization output for playback system Outputs signal that has V synchronization separated from pin 50 (XPBCSY) signal at negative logic.
37	XPBH	H synchronization output for playback system Outputs signal that has H synchronization separated from pin 50 (XPBCSY) signal at negative logic.
38	TBCLOCK	PLL LOCK detection signal Outputs "H" when SPDL servo loop and TBC servo loop are locked.
39	SLATCH	Serial interface latch signal Generates timing to latch data that was input to serial interface (latched at fall edge).
40	SCLK	Serial interface CLK input Inputs CLK for serial interface. SDATA value is read at rise edge.
41	SDATA	Serial interface data input Inputs data to serial interface.
42	XRST	System reset Initializes internal registers of IC at negative logic. (Schmitt trigger input)
43	RTP	A/D converter top reference input Inputs top reference voltage of A/D converter.

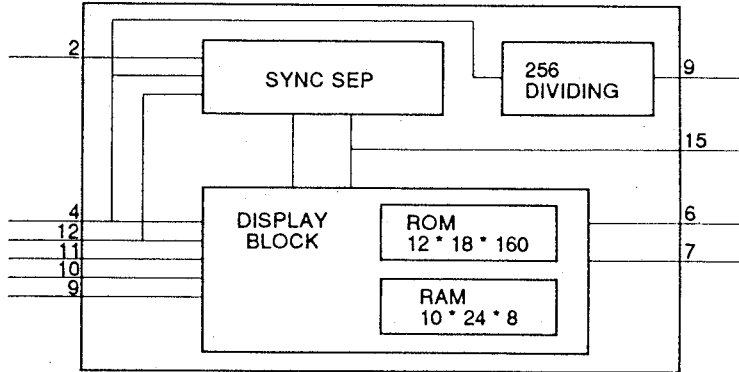
No.	Pin name	Function
44	ADVDD	Power pin for A/D converter Connect to +5V.
45	ADGND	Ground pin for A/D converter Connect to GND.
46	RBT	A/D converter bottom reference input Inputs bottom reference voltage of A/D converter.
47	VIN	A/D converter input pin Inputs composite video signal.
48	WGND	Ground pin for write system Connect to GND.
49	WVDD	Power pin for write system Connect to +5V.
50	XPBCSY	Composite synchronization input for playback system Input composite synchronization at negative logic. (Schmitt trigger input)
51	DOSP	Drop out detection pulse input (Schmitt trigger input)
52	RF	RF signal input Inputs RF signal for spindle servo-circuit.
53	TOO	Tracking open pulse input (Schmitt trigger input)
54	SPERR	Spindle error PFD error output pin Outputs result after performing PFD on PBH and RefH at tri-state.
55	GCONT	Gain control output Outputs PWM signal according to set value (GD0-DG3), using serial instructions.
56	ACCNT	Accelerated control output Outputs acceleration/deceleration signal by forced acceleration/deceleration, by error detection by RF, and by error detection by H synchronization with tri-state.
57	PWMI	Spindle error PWM input Inputs signals that have voltage compared between spindle errors that passed through a loop filter and chopping waves. (Schmitt trigger input)
58	FR	Spindle error direction component input Inputs signals that have voltage compared between spindle errors that passed through a loop filter and target voltage. (Schmitt trigger input)
59	TEST	Input pin for IC test. Fixed to "L".
60	DRVA	Transistor control signal output pin for spindle motor drive This setting is performed by the interface corresponding to the brush motor and brushless motor.
61	DRVB	Transistor control signal output pin for spindle motor drive This setting is performed by the interface corresponding to the brush motor and brushless motor.
62	RGND	Ground pin for reference system Connect to GND.
63	XO	Oscillation output Connects X'tal (4 fsc) for oscillation.
64	XI	Oscillation input Connects X'tal (4 fsc) for oscillation.

CLD-D503, CLD-D570

■ PD0154A (MAIN ASSY IC603)

● On screen display

● Block Diagram



● Pin Function

No.	Pin name	Function
1	$\overline{\text{TESTIN1}}$	Test input 1 Input pin for IC test. Normally set to OPEN (with pull-up resistance).
2	$\overline{\text{C-SYNC}}$	Composite synchronization input Inputs composite synchronization signal at negative logic (Schmitt trigger input).
3	TESTIN2	Test input 2 Input pin for IC test. Normally set to OPEN (with pull-up resistance).
4	2fsc	Master Clock Inputs clock that is 2 times the color sub-carrier frequency (Schmitt trigger input).
5	TESTOUT1	Test output 2 Output pin to IC test. Normally set to OPEN.
6	$\overline{\text{CHA}}$	Channel A output Outputs character timing at negative logic.
7	$\overline{\text{CHB}}$	Channel B output Outputs logical sum of character timing and blanking timing at negative logic when blanking function is ON.
8	VSS	Ground pin Grounded to GND.
9	SCK	Serial clock input Inputs clock for serial communication. SIN value is read at rise edge (with pull-up resistance, Schmitt trigger input).
10	SIN	Serial data input Inputs data for serial communication (with pull-up resistance).
11	$\overline{\text{CS}}$	Chip select input Set to "L" when serial communication is performed (with pull-up resistance).
12	$\overline{\text{AC}}$	Auto clear input Initializes internal IC when "L" content of RAM, that stores character code, does not change (with pull-up resistance, Schmitt trigger input).
13	TESTOUT2	Test output 2 Output pin for IC test. Normally set to OPEN.
14	2fsc/256	Master clock 256 division Outputs clock of master clock (2fsc) that is divided by 256.
15	VS $\overline{\text{SYNC}}$	V synchronization output Outputs signal of V synchronization that is separated from pin 2 signal ($\overline{\text{C-SYNC}}$).
16	VDD	Power pin Connected to +5V.

■ CXD2023Q (MAIN ASSY IC701)

● 3Line digital comb filter

● Pin Function

No.	Pin Name	I/O	Function
1	VI8	I	Digital input (MSB) (connected to DV _{SS} or DV _{DD} when not used)
2	VI7	I	Digital input (connected to DV _{SS} or DV _{DD} when not used)
3	VI6		
4	VI5		
5	VI4		
6	VI3		
7	VI2		
8	VI1	I	Digital input (LSB) (connected to DV _{SS} or DV _{DD})
9	ADCO	I	H: AD converter, outputs video signal fetched from (input pin ADIN) from Y output pins (YA-Y3) as 8-bit digital data. L: normal mode
10	INSL	I	Input switching, switches input of comb filter. H: digital input L: analog input
11	OCLK	I	Clock amplifier input (Inputs clock that has a DC cut at capacitor by 0.8Vp-p or more)
12	DV _{SS}	-	Digital ground
13	DV _{DD}	-	Digital power supply (5V)
14	CLKO	O	Clock amplifier output
15	MCK	I	Clock input (inputs 4 fsc clock, that is locked to color burst). Normally connected to pin 14 clock amplifier output.
16	ADCK	I	Clock input for A/D converter (inputs same clock as MCK). Normally connected to pin 14 clock amplifier output.
17	CLPI	I	Clamp pulse input for A/D converter. Clamps signal voltage between low blocks of clamp pulse (connected to DV _{DD} when clamp function is "OFF").
18	XCPON	I	H: clamp function becomes "OFF", has normal A/D converter function only. L: clamp function operates
19	ADVS	-	Digital ground for A/D converter
20	ICP	I	Voltage integration pin for clamp control, connected to about a 0.01 μF capacitor (connected to ground if clamp is not used).
21	CRV	I	Clamp reference voltage input. Equalizes reference voltage and input voltage of clamp block (connected to ground if clamp is not used).
22	RB	O	Reference voltage (bottom) standard value (0.5V)
23	GR	-	Guard ring (connected to analog ground)
24	AAVS	-	Analog ground for A/D converter
25	ADIN	I	Communication filter analog input (A/D converter input)
26	AAVD	-	Analog power supply for A/D converter (5V)
27	RT	O	Reference voltage (top) standard value (2.6V)
28	ADVD	-	Digital power supply (5V) for A/D converter

CLD-D503, CLD-D570

No.	Pin Name	I/O	Function
29	YV _{DD}	–	Power supply for Y/DA converter (5V)
30	XAYO	O	AYO inverted current output pin (connected to analog ground YV _{ss})
31	AYO	O	Analog luminance signal output (outputs by connecting resistance)
32	YVG	O	Connected to about a 0.1 μF capacitor
33	YVRF	I	Sets full scale value of analog luminance signal
34	YIRF	O	Connected to resistance “16R”, which is 16 times output resistance “R” of AYO pin.
35	YV _{ss}	–	Analog ground for Y/DA converter
36	VB	O	Connected to about a 0.1 μF capacitor
37	CV _{DD}	–	Analog power supply (5V) for C/DA converter
38	XACO	O	ACO inverted current output pin (connected to analog ground CV _{ss})
39	ACO	O	Analog chroma signal output (outputs by connecting resistance)
40	CVG	O	Connected to about a 0.1 μF capacitor
41	CVRF	I	Sets full scale value of analog chroma signal
42	CIRF	O	Connected to resistance “16R”, which is 16 times output resistance “R” of ACO pin
43	CV _{ss}	–	Ground for C/DA converter
44	YA	O	Digital luminance signal output (MSB)
45	Y9	O	Digital luminance output
46	Y8		
47	Y7		
48	Y6		
49	Y5		
50	Y4		
51	Y3		
52	DV _{ss}	–	Digital ground
53	DV _{DD}	–	Digital power supply (5V)
54	Y2	O	Digital luminance signal output
55	Y1	O	Digital luminance signal output (LSB)
56	XYOE	I	Digital luminance signal output control H: high impedance L: enable
57	CA	O	Digital chroma signal output (MSB)
58	C9	O	Digital chroma signal output
59	C8		
60	C7		
61	C6		
62	C5		
63	C4		
64	C3		
65	C2		
66	C1	O	Digital chroma signal output (LSB)
67	XCOE	I	Digital chroma signal output control H: high impedance L: enable
68	APCN	I	Aperture correction H: corrects function deterioration by aperture effect Aperture correction is on Y output, performed by through mode (TST ON) as well. L: standard mode
69	TEST	I	Test pin (fixed to “L”)

No.	Pin Name	I/O	Function
70	TEST	I	Test pin (fixed to "L")
71	TST	I	Y output through mode H: Y output outputs input composite video signal. 1H + 18 clocks of delay occurs to input at this time (during digital input). C signal, in which Y/C are separated, is output as C output. L: Y/C separation mode
72	DV _{SS}	-	Digital ground
73	DV _{DD}	-	Digital power supply (5V)
74	TEST	I	Test pin (fixed to "L")
75	TEST		
76	TEST		
77	TEST		
78	TEST		
79	BPF	I	H: fixed to BPF separation L: standard mode
80	TEST	I	Test pin (fixed to "L")

CLD-D503, CLD-D570

LC78681E (MAIN ASSY IC802)

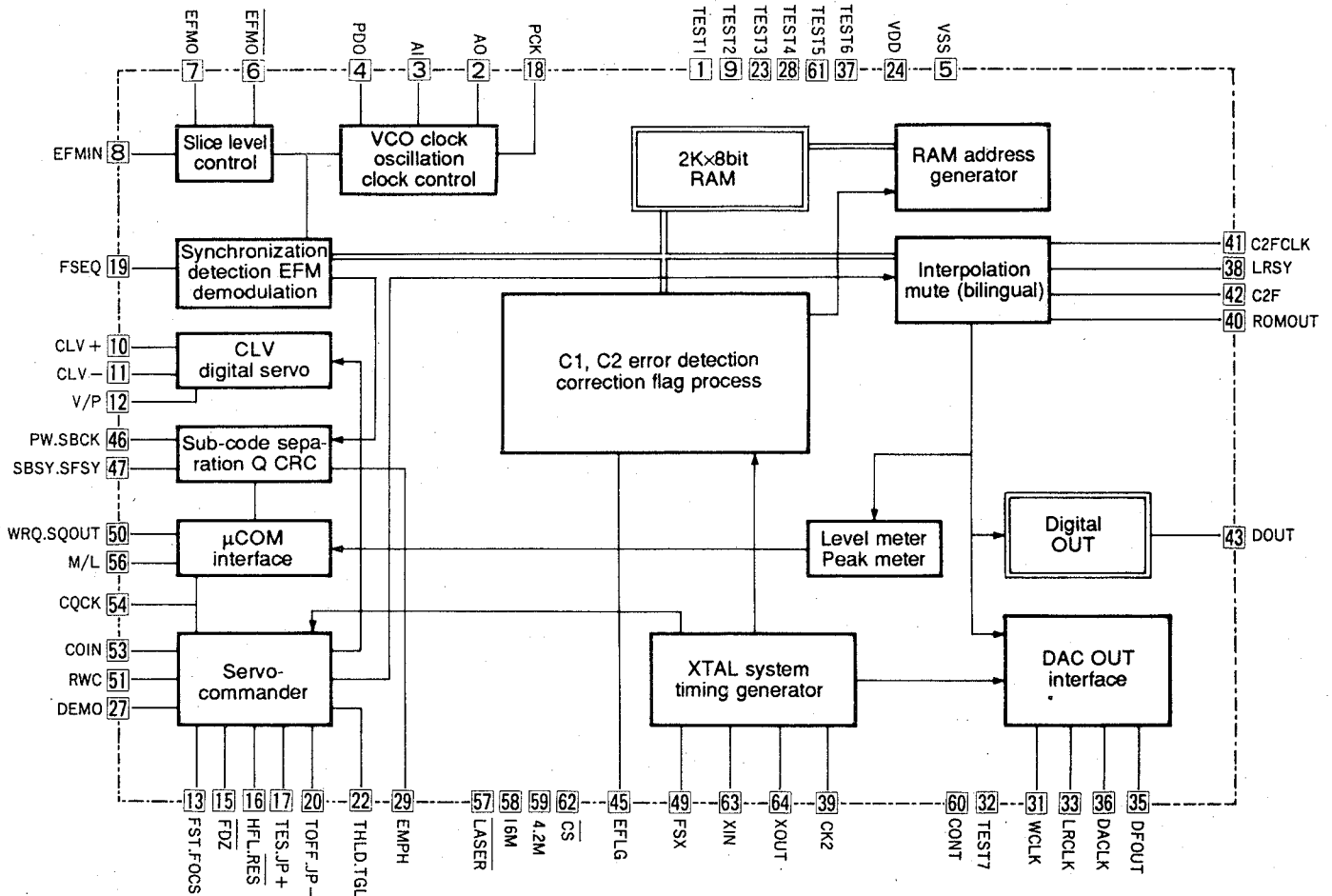
Servo-control & EFM demodulation

Outline of Functions

- 1) If HF signal is input, slices HF signal at accurate level, and converts it to EFM signal. After this compares the phase with VCO, and regenerates an average 4.3218 MHz PLL clock.
- 2) Controls rotation of spindle motor by the frame phase difference signal generated from the playback clock and reference clock.
- 3) Demodulates and converts EFM signal to 8-bit symbol data.

- 4) Separates subcode from EFM demodulation signal, and outputs to external microprocessor.
- 5) Buffers EFM demodulation signal at internal ROM, and performs jitter-absorption by disc rotation fluctuation of ± 4 frames.
- 6) Performs unscramble and deinterleaving to rearrange EFM demodulation signals in a specified order.
- 7) Detects and corrects error signals, and performs a flag process (C1, double; C2, double correction system).

Block Diagram



● Pin function

No.	Pin Name	I/O	Function															
1	TEST1	I	LSI test pin (normally unconnected)															
2	AO	O	Pin to input the output from PAC003A internal VCO (8.6436 MHz)															
3	AI	I																
4	PDO	O	Phase output with EFM signal. Set so that frequency is increased with +.															
5	V _{ss}	-	GND															
6	$\overline{\text{EFMO}}$	O	EFMIN is input pin of 1-2Vp-p of HF signal. EFM signals having reverse phase, that went through the amplitude limiter, are output from EFMO, $\overline{\text{EFMO}}$ pins. These EFM signals are input to the EFMIN pin via the low pass filter in PAC003A. These signals control slice level.															
7	EFMO	O																
8	EFMIN	I																
9	TEST2	I	LSI test pin (normally unconnected)															
10	CLV ⁺	O	Output for disc motor control CLV ⁺ is a signal to accelerate the disc in a positive direction, and CLV ⁻ is a signal to decelerate a disc.															
11	CLV ⁻	O	One mode is selected from accelerate, decelerate, CLV and stop modes by a command from the microcomputer. The CLV ⁺ and CLV ⁻ output in each mode are shown in the table to the right. The TOFF terminal is Low only when the CLV servo control command is in the CLV mode. In other modes, the TOFF terminal is High. Command-driven control of the TOFF terminal is enabled in the CLV mode.															
<table border="1" style="float: right; margin-left: 20px;"> <thead> <tr> <th>MODE</th> <th>CLV⁺</th> <th>CLV⁻</th> </tr> </thead> <tbody> <tr> <td>Accelerate</td> <td>H</td> <td>L</td> </tr> <tr> <td>Decelerate</td> <td>L</td> <td>H</td> </tr> <tr> <td>CLV</td> <td>*</td> <td>*</td> </tr> <tr> <td>Stop</td> <td>L</td> <td>L</td> </tr> </tbody> </table>				MODE	CLV ⁺	CLV ⁻	Accelerate	H	L	Decelerate	L	H	CLV	*	*	Stop	L	L
MODE	CLV ⁺	CLV ⁻																
Accelerate	H	L																
Decelerate	L	H																
CLV	*	*																
Stop	L	L																
12	V/P	O	Outputs "H" during CLV rough servo. Outputs "L" during phase control															
13	FOCS	O	Focus servo becomes OFF when FOCS pin is "H". Lens lowers by FST pin output, and gradually rises when FOCS pin is "H". If FZD is output, FOCS is reset. These pins are for focus retraction.															
14	FST	O																
15	$\overline{\text{FZD}}$	I																
16	HFL	I	Used as a pair with TOFF, TGL, THLD, JP+ and JP- output pins. Generates a kick pulse, JP+, and JP- according to the track jump command. Jumps the specified number of tracks (1, 4, 16, 64).															
17	TES	I																
18	PCK	O	4.3218 MHz. PCK monitor pin															
19	FSEQ	O	Becomes 1 when SYNC (true FS) detected from EFM signal and SYNC (inserted FS) of counter match. (1 frame latch output)															
20	TOFF	O	Generates a kick pulse, JP+, and JP- according to the track jump command. Jumps the specified number of tracks (1, 4, 16, 64).															
21	TGL	O																
22	THLD	O																
23	TEST3	I	LSI test pin (normally not connected)															
24	VDD	-	+5V															
25	JP ⁺	O	Generates a kick pulse, JP+, and JP- according to the track jump command. Jumps the specified number of tracks (1, 4, 16, 64).															
26	JP ⁻	O																
27	DEMO	I	For set adjusting process. Input pin for sound function.															
28	TEST4	I	LSI test pin. (normally not connected)															
29	EMPH	O	De-emphasis is necessary when EMPH is "H".															
30	NC	-	Not connected															
31	WCLK	O	Outputs signal to D/A converter. Signal for sample hold.															
32	TEST7	O	LSI test pin (normally not connected)															
33	LRCLK	O	Outputs signal to D/A converter. L/R switching signal															

CLD-D503, CLD-D570

No.	Pin Name	I/O	Function
34	NC	-	Not connected
35	DFOUT	O	Outputs signal to D/A converter. Data output.
36	DACLK	O	Outputs signal to D/A converter. Data transfer clock.
37	TEST6	O	LSI test pin (not connected)
38	LRSY	O	For CD ROM corresponding signal output
39	CK2	O	
40	ROMOUT	O	
41	C2FCLK	O	
42	C2F	O	
43	DOUT	O	Output for DIGITAL OUT
44	SBSY	O	Outputs synchronous signal of subcode block
45	EFLG	O	For C1, C2, signal, double correction monitor
46	PW	O	SFSY is synchronous signal of subcode frame, reads subcode of P, Q, R, S, T, U, V and W by sending clock to SBCK 8 times.
47	SFSY	O	
48	SBCK	I	
49	FSX	O	Outputs 7.35 kHz synchronous signal
50	WRQ	O	WRQ becomes "H" if data of sub-code Q passed CRC check. By detecting "H" externally, and sending \overline{CQCK} , data is read from SQOUT. After RWC is set to "H" by microcomputer, a command is sent synchronizing with \overline{CQCK} command data.
51	RWC	I	
52	SQOUT	O	
53	COIN	I	
54	CQCK	I	
55	RES	I	Reset input. Set to "L" when power is turned ON.
56	M/L	I	If data of SQOUT pin is needed with LSB first, set this M/L pin to "L".
57	LASER	O	Output pin to control using serial control from microcomputer.
58	16M	O	16.9344 MHz. output pin
59	4M	O	4.2336 MHz. output pin
60	COIN	O	Output pin to control using serial control from microcomputer.
61	TEST5	I	LSI test pin (normally not connected).
62	\overline{CS}	I	Chip select pin. If this pin is "L", LC78681R becomes active (with pull-down resistance)
63	X _{IN}	I	16.9344 MHz. crystal oscillator connection pin.
64	X _{OUT}	O	

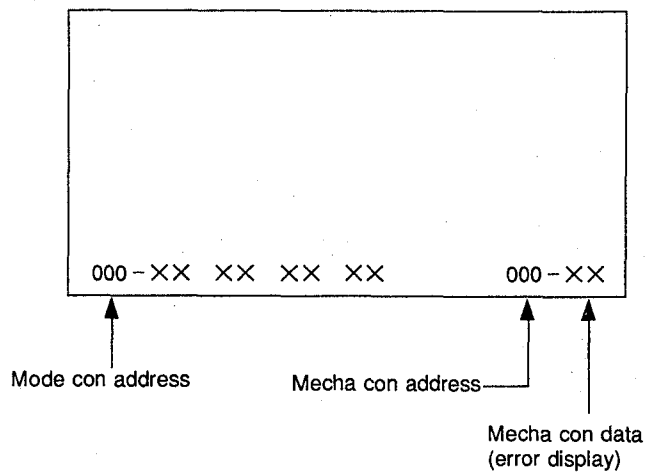
1.5 ERROR CODE TABLE

1) RAM DSP Functions

The interior RAM contents of the Mode Control Microcomputer (hereafter: mode con) and the Mechacontrol Microcomputer (hereafter: mecha con) can be output on a TV screen and error content can be determined. (RAM DSP function)

2) Starting RAM DSP Function

The screen shown below appears if the **ESC** and **DISPLAY** keys on the test mode remote control (GGF1067) are pressed in order.



Contents of mode con are displayed in 4byte units and contents of mecha con are displayed in 1byte units. In this condition, 1 is added to the display address if the TV/LDP key is pressed and 1 is subtracted if the CX key is pressed. Also, the mode con/mecha con address control switching is toggle displayed with the **DISPLAY** key.

Initial setting is set to 14C by pressing 3-digit display of mecha con address with **TV/LDP** key (or **CX** key). By doing so, error code appears as 2-digit mecha con data.

Explanation of information when analyzing the causes of CLD player errors.

Error	Contents	Conditions	Following Processes
00	no error	This is normal condition	
E0	undefined		
E1	undefined		
E2	undefined		
E3	undefined		
E4	spindle overcurrent detection error	When overcurrent to spindle motor is detected in play. When monitor starts and overcurrent port is "L" for 4 seconds after spindle of play or special play is slower than play for 5 seconds.	Spindle stops in free run. Play cannot be done. No recovery as long as set is not unplugged.
E5	FG abnormality error	① When frequency (5 seconds from spindle run) measured from FG is below 15 rpm when LD is started. ② When there is no 1/8 revolution even after 5 seconds have passed from acceleration finish when CD is started. ③ When frequency measured from FG is below 15 rpm even though CD: subcode/LD: Phillips code is readable or spindle is locked during play/search. In other cases, it is assumed that the above conditions appear in the FG sensor and an accurate frequency cannot be measured.	Spindle stops in free run. Free run is 90 sec. for LD and 15 sec. for CD/CDV. Play cannot be done after that. No recovery as long as set is not unplugged.
E6	partial short error	① When 1200 rpm cannot be reached even after a specific time (8 sec.) passes from spindle run when LD is started. ② When a specific frequency (416 rpm) cannot be reached even after 6 seconds pass from spindle acceleration finish when CD is started.	Spindle stops in free run. Normal operation resumes after that.
E7	undefined		
E8	undefined		
E9	undefined		
EA	undefined		
EB	undefined		
EC	undefined		
ED	undefined		

Error	Contents	Conditions	Following Processes
EE	undefined		
EF	undefined		
F0	undefined		
F1	picture stop detection	When Phillips code is decoded and picture stop is read.	Still (still at mecha con detection)
F2	undefined		
F3	segment play finish	When a designated address is reached.	Still or pause
F4	no TOC	When it is determined by sub code that there is no video TOC after lead address is read by LD.	Function or control of indication is carried out.
F5	tray push	When tray is pushed when in open position.	Target goes to TOC lead
F6	no PH code	When Phillips code cannot be read when LD is started even if slider is moved FWD or REV slowly for 5 seconds.	Search, special play, and function are not carried out. When starting, play is carried out without initial search.
	PRD	When program area sub done can be read, but TOC section subcode cannot be read when CD is started.	Treated as CD-R segment recording disc. After initial search, only play is possible. Scanning and search are not possible.
F7	laser active error	When play inhibit or professional use is read from user's code and data track is read from sub code by LD, laser active disc is determined and play is suppressed.	Indicates "LD-ROM" on screen and stops. Play cannot be carried out unless disc is opened.
F8	loading error	① When loading operation goes over time (approx. 10 sec.). ② When assist at disc sense entry ends and is not tilt neutral. ③ When assist at set up entry ends and is not tilt neutral.	Reverses in loading direction once. Even then, if the time limit has been passed, loading is stopped.
F9	slider error	When slide assist goes over time (track count search 20 sec. forced movement 10 sec.).	Power is on, but slider does not move at all. In this situation, push power key to immediately turn power off.
FA	misclamp error	① When NG results from misclamp during set up. (Track loss often) ② When focus is not clear at time of spindle lock waiting. ③ When the spindle is stopped once before CDV A→V area change, but stop is not carried out within 1.6 seconds, it is determined that there are two discs on each other and clamp error is set.	Open (stops at B-side)
FB	spindle error	① When spindle is not locked within 60 seconds from spindle run start during set up. ② When CAV/CLV determination is not finished within 60 seconds from spindle lock. ③ When code cannot be read for 10 - 15 continuous seconds with LD or 7 - 10 continuous seconds with CD/CDV. ④ When FG does not enter for 4 seconds and when not in recover mode at time of CD set up. At this time, it is stopped at free run.	Stop
FC	focus error	① When ND at set up entry and FLAG is standing. ② When LD is out of focus when slider is moved to starting position during set up. In case of CD/CDV is NG even after three focus tries.	Open (stops at B-side)
FD	search error	① At search entry, LD is in sub code search or CD/CDV is in Phillips code search. ② When search does not end in determined time (CLV with TOC: 30 sec. others: 15 sec.) ③ In recover mode, spindle is locked, code is read and RCVCOUNT is 0.	Search is canceled and play carried out.
FE	TOC lead error	When TOC lead does not end within 15 seconds.	LD: no TOC CD: stop
FF	emergency	When recover mode is entered and return is read but cannot be carried out.	Stop

1.6 ADJUSTMENTS

1.6.1 TEST MODE

1) How to start test mode

With the MAIN ASSY test mode TP (W564) dropped to GND, the test mode is started by putting the power switch ON. (Fig. 1)

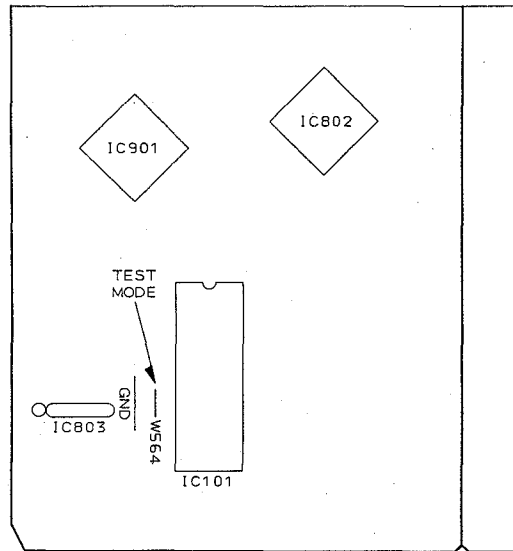
After confirming that all FL indicators are lit, remove test mode jumper wire and GND connection. Or, with power switch ON, press test mode remote control (GGF1067) ESC key and TEST key in order.

2) How to cancel test mode

Turn power switch OFF. Or, press test mode remote control ESC key.

3) Functions and key control when in test mode

Note: For keys not on player or on accompanying remote control, use test mode remote control (GGF1067)



MAIN ASSY

Fig. 1

• Key operation in the Test mode

Player Status	Key Operation	Function	Remarks
Tray Open	⏪/⏩ SKIP (Refer to Note 1)	⏪: Shifts the tray in the closed direction and also raises the turn table while pressing the key. ⏩: Shifts the tray in the open direction and also lowers the turn table while pressing the key.	
Tray Open	▶ PLAY	Clamps	
Clamp	▶ PLAY	Turns the disc through TRK Servo OFF	TRK-OFF
TRK Servo OFF	▶ PLAY	TRK Servo ON	TRK-ON
TRK Servo ON	▶ PLAY	TRK Servo OFF	TRK-OFF
TRK Servo ON	◀|||/|||▶ (STEP)	FOCS balance select	F-0/F-1
TILT Neutral	+ MULTI-SPEED	TILT Servo ON	T-□ : ON
TILT ON	- MULTI-SPEED	TILT Neutral	T-□ : N
TILT Neutral or ON	⏪/⏩ SKIP	Setting TILT Servo to OFF, can force TILT to move.	T-1 to T-E
Clamp	⏪/▶ SCAN	Can force the slider to move	S-LD S-CDV S-CD S-IN
Play	|| PAUSE	Still	
Play	■ STOP	Stop	
Stop	▲ OPEN	Open	
Play	+10 ↓ 0 to 9 ↓ ▶ PLAY	Sets to SEARCH Lead Address Input mode. Designates the SEARCH lead address through keys 0 to 9. Press the CLEAR [C] key if the designated address is incorrect. Searches the designated address upon pressing the PLAY key.	

Note 1: Press SKIP (⏪/⏩) Keys after the tray is set to open state by pressing Open (▲) key. Because, in tray open state, pressing PLAY (▶) key causes it to set to clamp state and SKIP (⏪/⏩) keys can not function properly.

Table 1

● Player Operation in the Test Mode (Disc tray is removed)

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

· CD PLAYBACK

- ① Place the CD disc on the turn table.

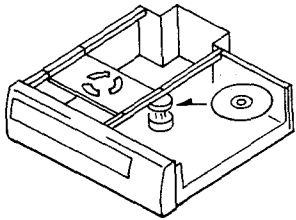


Fig. 2

- ② Press the PLAY (▶) key once.
(Twin gear starts to move.)

- ③ Push the cam plate (Fig. 3) in the direction of the arrow and wait until the CD disc is clamped.

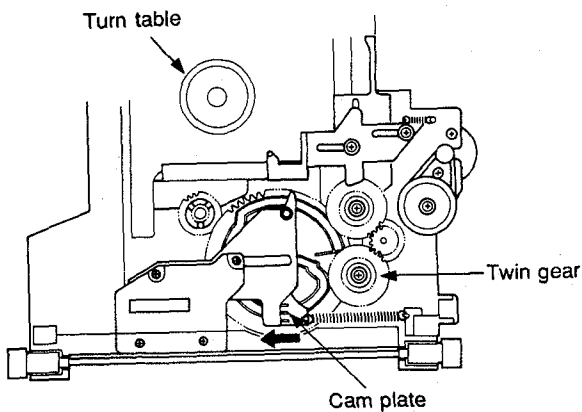


Fig. 3

- ④ Press the ◀◀ or ▶▶ keys to appear "S-CD" on the TV screen display.

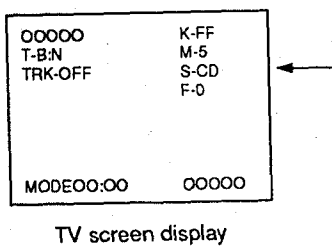


Fig. 4

- ⑤ After pressing the PLAY (▶) key once to clamp the disc, press the PLAY (▶) key twice, disc will be normally played.

· LD PLAYBACK

- ① Place the LD disc on the turn table.

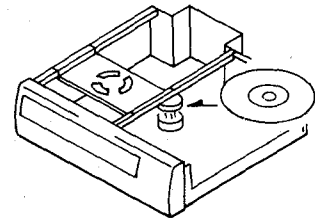


Fig. 5

- ② Press the PLAY (▶) key once.
(Twin gear starts to move.)

- ③ Press the SKIP REV (◀◀) key to raise the turn table (spindle motor section) while pressing the cam plate (Fig. 3) in the direction of the arrow. Raise it to the position where the LD disc can be easily placed on the turn table. If the turn table is raised too high, lower it with the SKIP FWD (▶▶) key.

- ④ Place the LD disc on the turn table and press the PLAY (▶) key once to clamp the disc.
- ⑤ Press the ◀◀ or ▶▶ keys to appear "S-LD" on the TV screen display.

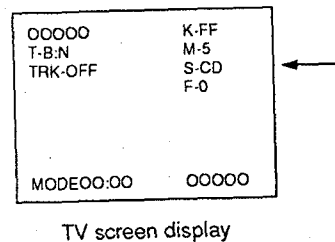


Fig. 6

- ⑥ After pressing the PLAY (▶) key once to clamp the disc, press the PLAY (▶) key twice, disc will be normally played.

1.6.2 ADJUSTMENT PRECAUTIONS

● Equipment and jigs needed for adjustment

- CD test disc (STD-901 or STD-902)
- LD test disc (GGV1003)
- Medium-sized blade screwdriver
- Small blade screwdriver
- Hexagonal wrench (straight type, size: 3mm)
- Resistor (10K Ω \times 2, 47K Ω \times 1)
- Large Phillips screwdriver
- Medium-sized Phillips screwdriver
- Two-channel oscilloscope (with delay)
- AF oscillator
- Frequency counter
- Digital voltmeter
- TV monitor
- Low pass filter

● Preparation for adjustment

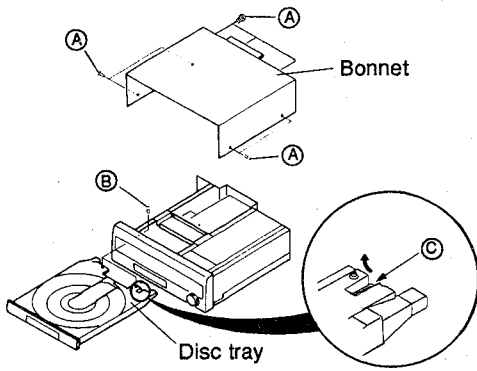


Fig. 1

1. Remove the 7 screws (A) that stabilize the bonnet and take off the bonnet. (Fig. 1)
2. Remove the 2 tray stopper screws (B) and press the OPEN/CLOSE button to put the tray unit in the open position. (Fig. 1)
3. While pushing the hook on the right rear of the disc tray (C) to the left, pull out the tray unit. (Fig. 1)

- As shown in Fig. 2, fit MAIN assy into PCB holder on the chassis and by standing it against the inside of the chassis, the back side of the board (pattern side) can be diagnosed.

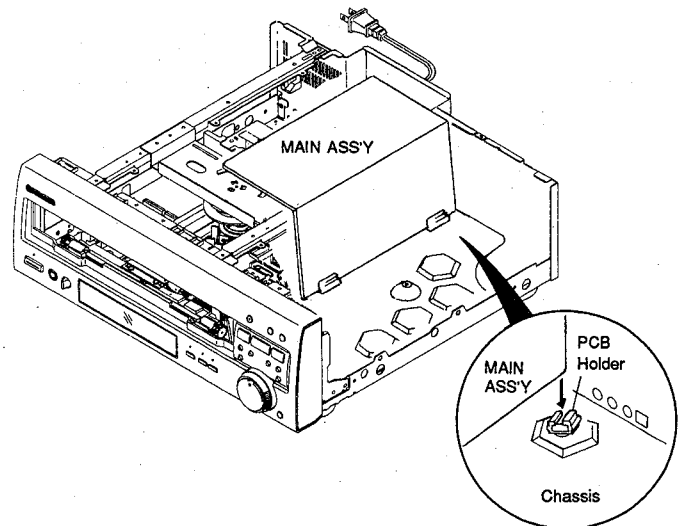


Fig. 2

● Before adjusting mechanism system

Note: Be careful not to turn centering adjustment screw and TAN adjustment screw past their adjustment range.

— Adjustment Range of Centering Adjustment Screw —

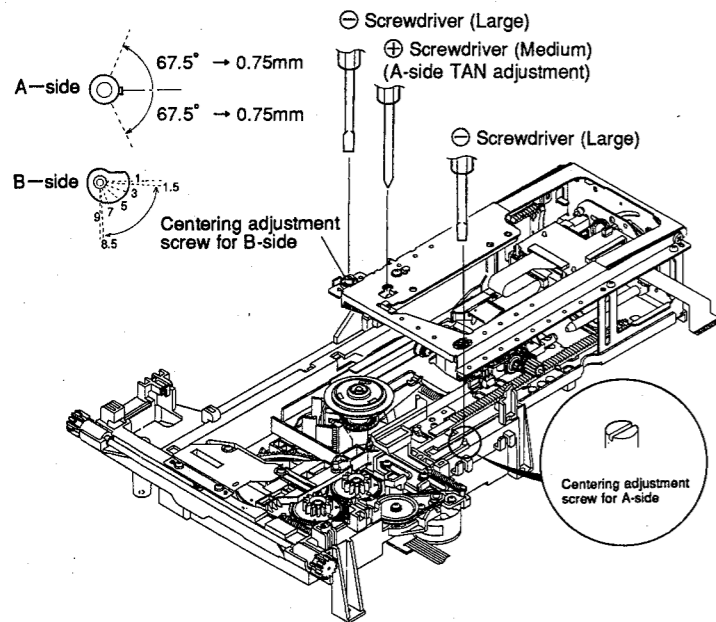


Fig. 3 Mechanism Assy Adjustment

● Notes When Adjusting Centering

For both A-side and B-side, if the amplitude of the error waveform of the disc's innermost and outermost tracks at TRK OFF are about the same, then course adjustment is not necessary.

If waveform S/N is bad and difficult to observe in "2. Coarse centering adjustment for A-Side play" and "6. Fine centering adjustment for A-Side play" use the low pass filter in diagram.

● Rack Assy Position When Adjusting Centering

When moving slider to inner position to adjust the innermost track of disc during centering adjustment, be careful not to keep the mechanism stopper and RACK Assy from bumping each other. (Fig. 5)

● Notes When Adjusting Pickup Assy

Please clean lens first when readjusting the PICKUP Assy that is on this product. Also, when changing PICKUP Assy, change whole CARRIAGE Assy (VWT1100).

— Adjustment Range of TAN Adjustment Screw —

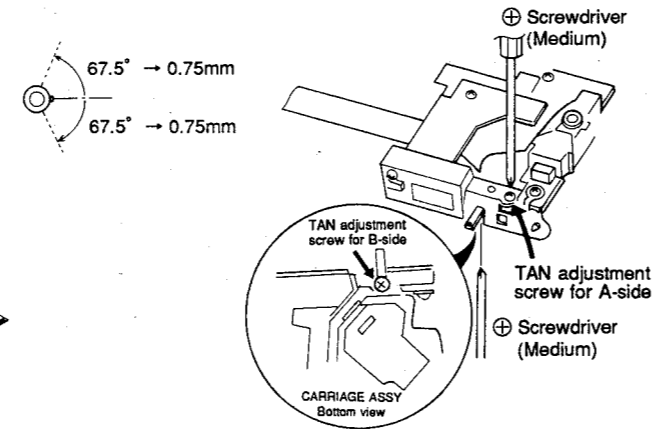


Fig. 4 Carriage Assy Adjustment

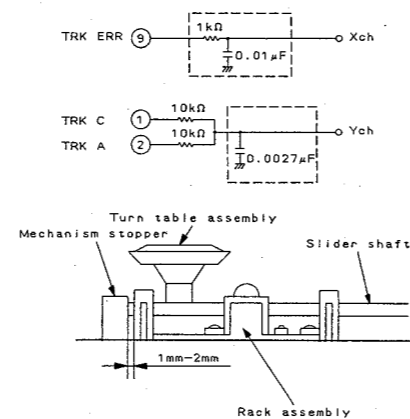


Fig.5

1.6.3 MAIN ASSY ADJUSTMENT LOCATION

● MAIN ASSY

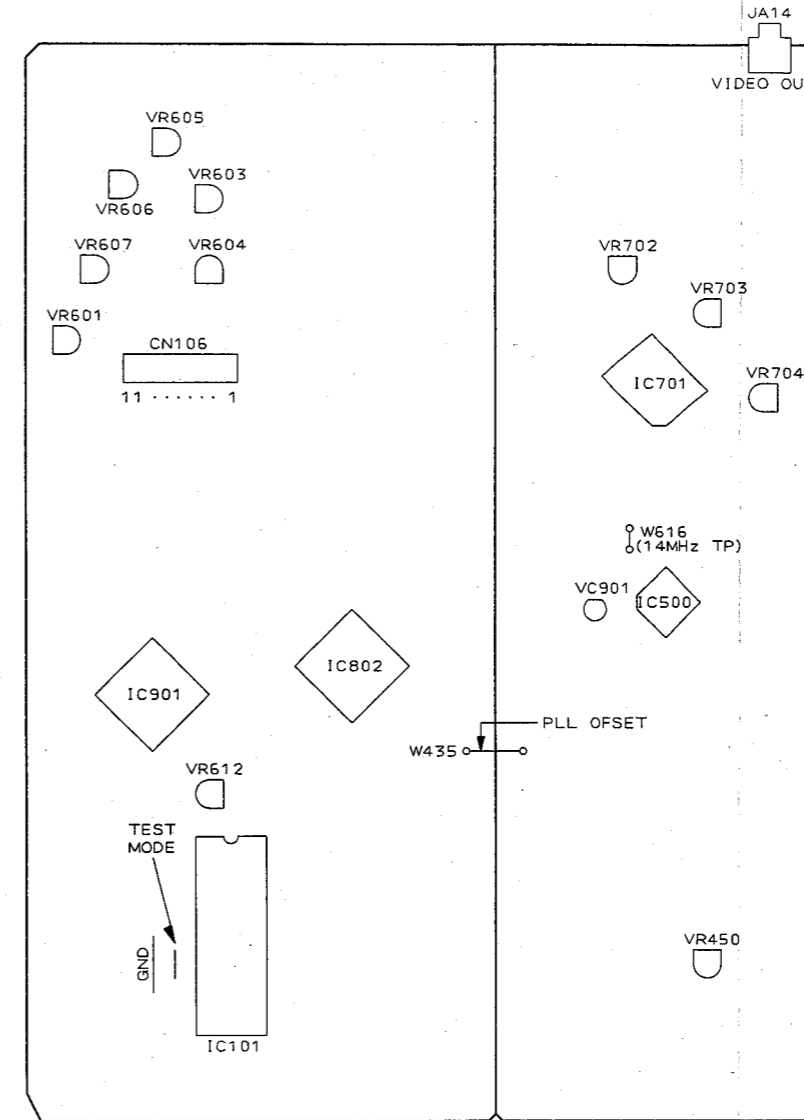


Fig. 1 Adjustment diagram of MAIN ASSY

- VR607: Tilt offset adjustment
 - VR605: FCS Balance adjustment (TRK error max)
 - VR606: FCS Balance adjustment (RF level max)
 - VR604: FCS Servo loop gain adjustment
 - VR603: TRKG Servo loop gain adjustment
 - VR601: RF Level adjustment
 - VR612: PLL Offset adjustment
 - VC901: Master clock adjustment
 - VR450: Video level before A/D adjustment
 - VR702: Y OUT Level adjustment
 - VR704: S-C SYNC Level adjustment
 - VR703: C OUT Level adjustment
- (Order in adjustment)

1.6.4 MECHANICAL ADJUSTMENT

NOTE : All VRs and CNs (connectors) in the tables are parts of MAIN ASSY.

	Adjustment name	Adjustment point	Measuring equipment and jigs	Measurement point	Player condition	Adjustment procedure	Waveform and connection diagram
1	Tilt offset Check and adjustment	VR607	• TV monitor	Tilt indication on Test mode screen	• Power ON • Test mode • Disc not installed	1. Check if the tilt indication on the test mode screen is at T-6 to T-8. 2. If the tilt indication is not at T-6 to T-8, adjust VR607 until the tilt indication reaches T-6 to T-8.	
2	Coarse centering adjustment for A-side play	Mechanism assembly Centering adjustment screw for A-side play	• Screwdriver (Large) • Oscilloscope • STD-901 or STD-902 • MIX resistor 	CN106 X: ⑨ pin (TRK ERR) Y: ①+② pin (TRK SUM)	• Test mode TRK servo OFF Tilt servo ON • Innermost track of STD-901 or STD-902 which does not come in contact with the mechanical stopper.	Note : Be careful not to turn the centering adjustment screw past its limit. 1. Move the slider until it does not come in contact with the mechanical stopper at the slider position indication S-IN. 2. Observe TRK ERR (Xch) and TRK SUM (Ych) at the X-Y mode during TRK Servo OFF. 3. Adjust centering adjustment screw for A-side until the Lissajous' figure is horizontal.	
3	FCS balance adjustment (1) TRK ERR MAX	VR605	• Oscilloscope • STD-901 or STD-902	CN106 ⑨ pin (TRK ERR)	• Test mode TRK servo OFF Tilt servo ON • Inner track of STD-901 or STD-902	1. Observe TRK ERR at CH1 of the oscilloscope during TRK Servo OFF. 2. Adjust VR605 until the amplitude of the waveform reaches its maximum and the envelope is very clear.	
4	FCS balance adjustment (2) RF LEVEL MAX	VR606	• Oscilloscope • STD-901 or STD-902	CN106 ③ pin (RF)	• Test mode TRK servo ON Tilt servo ON • Inner track of STD-901 or STD-902	1. Observe RF at CH1 of the oscilloscope at TRK Servo ON. 2. Adjust VR606 until the amplitude of the waveform reaches its maximum and the envelope is very clear.	
5	Tangential direction angle adjustment for A-side play	Carriage assembly TAN adjustment screw for A-side play	• Oscilloscope • STD-901 or STD-902 • Screwdriver (Medium)	CN106 ③ pin (RF)	• Test mode TRK servo ON Tilt servo ON • Outermost track of STD-901 or STD-902 (position where TAN screw can be seen)	Note : Be careful not to turn the TAN adjustment screw past its limit. 1. Observe RF at CH1 of the oscilloscope at TRK Servo Close. 2. Turn TAN adjustment screw for A-side until the amplitude of the waveform reaches its maximum and the envelope is very clear. After adjustment, stabilize the screw with an adhesive.	
6	Fine centering adjustment for A-side play	Mechanism assembly Centering adjustment screw for A-side play	• Oscilloscope • STD-901 or STD-902 • MIX resistor 	CN106 X: ⑨ pin (TRK ERR) Y: ①+② pin (TRK SUM)	• Test mode TRK servo OFF Tilt servo ON • Innermost track of STD-901 or STD-902 which does not come in contact with the mechanical stopper.	Note : Be careful not to turn the centering adjustment screw past its limit. Perform fine centering adjustment again by following the same procedure as in "Coarse centering adjustment for A-side play" (2). After adjustment, stabilize the screw with an adhesive.	
7	Crosstalk check and tilt offset adjustment.	VR607	• TV monitor • GGV1003	Crosstalk check screen	• Test mode TRK servo ON Tilt servo ON • GGV1003 still #115	1. Search for address 115 of GGV1003 and still the address 2. Check the crosstalk. If the crosstalk is pronounced, adjust VR607 until the crosstalk is not noticeable.	
	When the crosstalk is still noticeable in spite of the adjustment in (7), after carrying out the adjustment in (1) and bringing the tilt indication to T-6 to T-8, use a hexagonal wrench driver (straight type, size : 3mm) to adjust the TAN adjustment screw on the bottom side of the player through the GGV1003 # 115 STILL screen. Afterwards, perform the adjustment procedures from (6).						

Adjustment name	Adjustment point	Measuring equipment and jigs	Measurement point	Player condition	Adjustment procedure	Waveform and connection diagram
8 FCS Servo loop gain adjustment (Perform with either method A or B)	A VR604	<ul style="list-style-type: none"> Oscilloscope GGV1003 AF Oscillator Resistor (47kΩ) 	CN106 X : ⑦ pin FCS IN Y : ⑥ pin FCS ERR	<ul style="list-style-type: none"> Test mode TRK servo ON Tilt servo ON GGV1003 # 15,000still 	<ol style="list-style-type: none"> Xch : Connect to ⑦ pin with 47kΩ Ych : Connect to ⑥ pin Search #15,000 of GGV1003 and still the address. Connect AF oscillator between Xch and 47kΩ and adjust VR604 until Lissajous' figure is a circle. 	
	B VR604	<ul style="list-style-type: none"> Oscilloscope GGV1003 Clip etc. (Short GND—⑦ pin) 	CN106 X : — Y : ⑥ pin FCS ERR ⑦ pin GND (⑦, ⑧ pin Short)	<ul style="list-style-type: none"> Test mode Stop mode F-1 	<ol style="list-style-type: none"> Ych : connect to ⑥ pin. Drop ⑦ pin to GND. Put in GGV1003, press reverse side of skip key and bring F-0 to F-1. Press brake and adjust VR604 until the waveform level is 2.6 Vp-p ±0.1 V. 	
9 TRK Servo loop gain adjustment (Perform with either method A or B)	A VR603	<ul style="list-style-type: none"> Oscilloscope GGV1003 AF Oscillator Resistor (47kΩ) 	CN106 X : ⑩ pin TRK IN Y : ⑨ pin TRK ERR	<ul style="list-style-type: none"> Test mode TRK servo ON Tilt servo ON GGV1003 # 15,000still 	<ol style="list-style-type: none"> Xch : Connect to ⑩ pin with 47kΩ Ych : Connect to ⑨ pin Search #15,000 of GGV1003 and still the address. Connect AF oscillator between Xch and 47kΩ and adjust VR603 until Lissajous' figure is a circle. 	
	B VR603	<ul style="list-style-type: none"> Oscilloscope GGV1003 	CN106 X : — Y : ⑨ pin TRK ERR	<ul style="list-style-type: none"> Test mode TRK servo ON Tilt servo ON F-1 GGV1003 # 15,000still 	<ol style="list-style-type: none"> Ych : connect to ⑨ pin. Search #15,000 of GGV1003 and still the address. Adjust VR603 until the waveform level is 1.6 Vp-p ±0.1 V. 	
10 RF level adjustment	VR601	<ul style="list-style-type: none"> Oscilloscope GGV1003 	CN106 ③ pin (RF)	<ul style="list-style-type: none"> Test mode TRK servo ON Tilt servo ON GGV1003 # 15,000still 	<ol style="list-style-type: none"> Search for address #15,000 of GGV1003, still the address, and observe RF at CH1. Adjust VR601 until RF amplitude is 300mVp-p ±50 mV. 	
11 Coarse centering adjustment for B-side play	Centering adjustment screw for B-side play	<ul style="list-style-type: none"> Oscilloscope GGV1003 MIX resistor ⊖ Screwdriver (Large) 	CH1 : CN106-9 (TRKG ERR) CH2 : CN106-1 and 2 (TRKG SUM) (X-Y mode)	<ul style="list-style-type: none"> Test mode # 100still TRK servo ON/OFF Tilt servo ON 	<p>Note : Be careful not to turn the centering adjustment screw past its limit.</p> <ol style="list-style-type: none"> Move carriage Ass'y toward B-side and still with test disc #100. (TRKG ON) Observe TRK ERR (Xch) and TRK SUM (Ych) at the X-Y mode during TRK Servo OFF. Turn centering adjustment screw for B-side play until the Lissajous' figure is horizontal. 	
12 Tangential direction angle adjustment for B-side play	TAN adjustment screw for B-side play	<ul style="list-style-type: none"> Oscilloscope GGV1003 ⊕ Screwdriver (Medium) 	Video output terminal (TV monitor)	<ul style="list-style-type: none"> Test mode # 115still TRK servo ON Tilt servo ON 	<p>Note : Be careful not to turn the TAN adjustment screw past its limit.</p> <ol style="list-style-type: none"> Move carriage Ass'y toward B-side and still with test disc #115. (TRKG ON) Turn TAN adjustment screw for B-side play until RF waveform amplitude is at its maximum. Check to see that crosstalk on monitor screen is at its minimum. 	
13 Fine centering adjustment for B-side play	Centering adjustment screw for B-side play	<ul style="list-style-type: none"> Oscilloscope GGV1003 MIX resistor ⊖ Screwdriver (Large) 	CH1 : CN106-9 (TRKG ERR) CH2 : CN106-1 and 2 (TRKG SUM) (X-Y mode)	<ul style="list-style-type: none"> Test mode # 100still TRK servo ON/OFF Tilt servo ON 	<p>Perform fine adjustment again following same steps as in procedure (11) "Course centering adjustment."</p>	

1.6.5 ELECTRICAL ADJUSTMENT

ADJUSTMENT TABLE OF MAIN ASSY

Adjustment name	Adjustment point	Measuring equipment and jigs	Measurement point	Player condition	Adjustment procedure	Waveform and connection diagram
1 PLL offset adjustment	VR612	<ul style="list-style-type: none"> Oscilloscope DC Volt meter STD-901 or STD-902 (or LDD disc) 	Digital sound terminal W435	<ul style="list-style-type: none"> Test mode Tilt servo ON TRK servo ON/OFF Digital sound play 	<p>With TRK Servo OFF, play digital sound and coarsely adjust VR612 so that sound is produced.</p> <p>Connect W435 and DC voltmeter and while playing digital sound, turn TRK Servo on and off. Adjust VR612 so that DC voltage difference between ON and OFF conditions is $0 \pm 0.05V$.</p>	
3 Master clock adjustment	VC901	<ul style="list-style-type: none"> Frequency counter 	W616	<ul style="list-style-type: none"> POWER ON STOP 	<p>Connect 14MHz TP(W616) and frequency counter. Adjust VC901 so that frequency with power ON (stop) is $14.31818MHz \pm 10Hz$.</p>	
3 Video level adjustment before A/D	VR450 (VIDEO LEV.1)	<ul style="list-style-type: none"> Oscilloscope GGV1003 	<ul style="list-style-type: none"> IC400 (PA0058A) Ⓜ pin 	<ul style="list-style-type: none"> Normal mode GGV1003 #19,900still 	<p>Connect IC400 Ⓜ pin and oscilloscope. When stilled with GGV1003 #19,900 (composite), measure video signal.</p> <p>Adjust VR450 until level from sync tip to 100% white becomes $1.633Vp-p \pm 3\%$.</p>	
4 Y output level adjustment	VR702	<ul style="list-style-type: none"> TV monitor Oscilloscope GGV1003 	<p>Video output terminal (75Ω terminated) (NOTE1)</p>	<ul style="list-style-type: none"> Normal mode GGV1003 #19,900still 	<p>Connect video output terminal and oscilloscope. (video output terminal is terminated with 75Ω)</p> <p>When stilled with GGV1003 #19,900 (composite), measure video signal and adjust VR702 until level from pedestal to 100% white becomes $0.714Vp-p \pm 5\%$.</p>	
5 S-C SYNC level adjustment	VR704	<ul style="list-style-type: none"> TV monitor Oscilloscope GGV1003 	<p>Video output terminal (75Ω terminated) (NOTE1)</p>	<ul style="list-style-type: none"> Normal mode GGV1003 #19,900still 	<p>Connect video output terminal and oscilloscope. (video output terminal is terminated with 75Ω)</p> <p>When stilled with GGV1003 #19,900 (composite), measure video signal and adjust VR704 until level from sync tip to 100% white becomes $1.0Vp-p \pm 5\%$.</p>	
6 C output level adjustment	VR703	<ul style="list-style-type: none"> TV monitor Oscilloscope GGV1003 	<p>Video output terminal (75Ω terminated) (NOTE1)</p> <p>IC400 (PA0058A)</p> <p>Ⓜ pin</p>	<ul style="list-style-type: none"> Normal mode GGV1003 #19,900still 	<p>Connect video output terminal and CH1 of oscilloscope. (video output terminal is terminated with 75Ω)</p> <p>Connect IC400 Ⓜ pin and CH2 of oscilloscope.</p> <p>With oscilloscope CH2 input level knob (V/Div), adjust so that level from video signal sync tip to 100% white for CH1 and CH2 are equal.</p> <p>Adjust VR703 until chroma signal levels of CH1 and CH2 are same size.</p>	

Note1 : It is possible to terminate video output terminal with 75Ω by connecting TV monitor.

1.7 PCB PARTS LIST

NOTES:

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω	→	56 × 10 ¹	→	561	RD1/8PM	<table border="1"><tr><td>5</td><td>6</td><td>1</td></tr></table> J	5	6	1
5	6	1								
47kΩ	→	47 × 10 ³	→	473	RD1/4PS	<table border="1"><tr><td>4</td><td>7</td><td>3</td></tr></table> J	4	7	3
4	7	3								
0.5Ω	→	0R5			RN2H	<table border="1"><tr><td>0</td><td>R</td><td>5</td></tr></table> K	0	R	5
0	R	5								
1Ω	→	010			RSIP	<table border="1"><tr><td>0</td><td>1</td><td>0</td></tr></table> K	0	1	0
0	1	0								

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

5.62kΩ	→	562 × 10 ¹	→	5621	RN1/4PC	<table border="1"><tr><td>5</td><td>6</td><td>2</td><td>1</td></tr></table> F	5	6	2	1
5	6	2	1								

Mark No.	Description	Parts No.	Mark No.	Description	Parts No.
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LIST OF ASSEMBLIES

NSP	FLKB ASSY	VWM1465
	└─ FLKY ASSY	VWG1518
NSP	└─ PONS ASSY	VWG1519
NSP	└─ HEPB ASSY	VWV1361
NSP	MOTHER ASSY (KU AND KC TYPES)	VWM1466
	└─ MAIN ASSY (KU AND KC TYPES)	VWS1134
NSP	MOTHER ASSY (RD TYPE ONLY)	VWM1468
	└─ MAIN ASSY (RD TYPE ONLY)	VWS1135
NSP	PASB ASSY	VWG1505
NSP	MACB ASSY	VWM1420
NSP	└─ CNNB ASSY	VWG1469
NSP	└─ LOMB ASSY	VWG1470
NSP	└─ LOSB ASSY	VWG1471
NSP	└─ FG ASSY	VWG1472
	POWER SUPPLY ASSY (KU AND KC TYPES)	VWR1200
	POWER SUPPLY ASSY (RD TYPE ONLY)	VWR1201

Note : Although VWR1200 and VWR1201 are different in part number, they have the same service parts.

FLKY ASSY

SEMICONDUCTORS

IC100	PD3259D
IC101	S-806D
Q101	DTA144ES
Q100	DTC114ES
Q102,Q104,Q105,Q107	DTC124ES
D103-D106	1SS252
D100-D102	1SS254
D107,D110	SEL3410ELC05
D109	VEL1017

COILS AND FILTERS

L100	LAU220J
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SWITCHES AND RELAYS

S100-S102,S112-S116	RSG1030
S103-S111	RSG1034
S117	VSD1008

CAPACITORS

C101	CEAL100M16
C104	CEAL101M6R3
C106	CKPUYB101K50
C102,C103,C108	CKPUYF223Z25
C100,C107	CKPUYX472M16
C105	CEAS221M6R3

RESISTORS

R101	RA5T103J
R100	RA6S104J
	Other Resistors
	RD1/6PM□□□J

OTHERS

V100	Remote sensor	GP1U78R
	FL tube	VAW1032
	Spacer	VEC1599
	FL holder (FE)	VNF1082
X100	Ceramic resonator	VSS1031
	4P cable holder	51048-0400

PONS ASSY

SEMICONDUCTORS

D200	SLH34VCF04
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SWITCHES AND RELAYS

S200	RSG1030
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RESISTORS

R200	RD1/6PM151J
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HEPB ASSY

COILS AND FILTERS

L302,L304	VTH1020
L305	VTH1024

CAPACITORS

C301,C302	CKPUYB102K50
C300	CKPUYF223Z25

RESISTORS

VR300 (0.5KB)	VCS1015
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CLD-D503, CLD-D570

Mark No.	Description	Parts No.
OTHERS		
CN300	3P Jumper connector (2MMP)	52151-0310
JA300	Headphone jack	RKN1002

MAIN ASSY

● **CONTRAST OF MAIN ASSY VWS1134 (for KU and KC types) AND VWS1135 (for RD type).**

VWS1134 and VWS1135 have the same construction except for the following:

Mark	Symbol & Description	Part No.	
		VWS1134	VWS1135
	C895	Not used	CEAS101M10
	C896	Not used	CKSQYF104Z25
	JA8	Not used	TOTX178
	JA12	Not used	VKN1072
	R768,R779	Not used	RSI/10S750J
	R895	Not used	RSI/10S102J
	R896	Not used	RSI/10S152J

● For VWS1134

SEMICONDUCTORS

IC202,IC205,IC804,IC903	BA4560F
IC702	BU4053B
IC351	CA0002AM
IC701	CXD2023Q
IC410,IC411	ICP-N5
IC803	LA6510L
IC802	LC78681E
IC206	NJM78L08A
IC207	NJM79L08A
IC401	PA0023AD
IC400	PA0058A
IC801	PAC002A
IC901	PAC003A
IC500	PD0146A
IC603	PD0154A
IC101	PD0184B
IC201	PD2026B
IC770	TA7302P
IC902	TA8464K
Q102,Q154,Q400,Q474,Q580,Q712, Q713,Q770,Q780,Q790,Q793,Q802, Q912,Q963	2SA1037K
Q401,Q834	2SB1237X
Q781,Q782,Q786,Q794,Q795	2SC1740S
Q201,Q202,Q410,Q411,Q442-Q444, Q460,Q475,Q710,Q711,Q791,Q792, Q801,Q805,Q903-Q905,Q907-Q909, Q911,Q913,Q917	2SC2412K

Mark No.	Description	Parts No.
Q152,Q803,Q804		2SC3802K
Q402		2SD1858X
Q204,Q205		2SD2144S
Q962		2SK184
Q203,Q207-Q213,Q497,Q916		DTA124EK
Q103,Q104,Q206,Q461		DTC124EK
D202		11EQS06
D101,D102,D205-D208,D450, D905-D907,D963,D964		1SS254
D903		DAN202K
D201		FC54M

COILS AND FILTERS

L413	LAU100J
L810	LAU101J
L414	LAU120J
L802-L804	LAU121J
L351	LAU181J
L201-L206,L352,L412,L461, L710-L713,L800,L801	LAU220J
L411,L470,L471,L571	LAU270J
L410	LAU330J
L420,L421	LAU390J
L770	LAU470J
L430,L462	LAU560J
L460	LFA561J
F580	VTF1054

CAPACITORS

VC901 (20P)	VCM-008
C562	CCSQCH050D50
C747,C761	CCSQCH060D50
C420,C428,C434,C436,C438,C475	CCSQCH070D50
C159,C552,C796,C809,C811	CCSQCH100D50
C120,C121,C163,C258,C259,C370, C414,C464,C798	CCSQCH101J50
C437	CCSQCH120J50
C416,C814,C846,C848	CCSQCH121J50
C232,C474,C777	CCSQCH150J50
C161,C353,C810	CCSQCH151J50
C352,C477	CCSQCH180J50
C220,C452,C540,C542,C554,C579, C746,C749,C760,C763	CCSQCH220J50
C162,C417,C421,C544,C591,C812, C935	CCSQCH221J50
C371,C418,C419,C433	CCSQCH270J50
C106,C107,C354,C435,C563,C813 C351,C931	CCSQCH330J50
C260-C263,C409,C415,C478,C543, C580,C750,C764,C963	CCSQCH470J50
C476,C748,C762	CCSQCH560J50
C375,C430,C448,C449,C553,C561, C806	CCSQCH680J50
C374	CCSQCH820J50
C462,C463	CCSQCH910J50
C871	CEANP100M25
C985	CEANP101M10
C274,C275,C972	CEANP220M10
C227,C281,C926	CEANP2R2M50
C403,C838	CEANP470M10

Mark No.	Description	Parts No.	Mark No.	Description	Parts No.
C986 C904 C228,C367,C745,C902 C225,C226,C256,C364,C440,C450, C534,C535,C585		CEANPR47M50 CEAS010M50 CEAS100M50 CEAS101M10	C934 C903,C909		CQMA122J50 CQMA222J50
C493 C922 C770,C976 C550 C101,C230,C252,C253,C363,C369, C410,C412,C422,C424,C431,C445, C470,C484,C491,C530,C538,C588, C640,C703,C720,C730,C735,C780, C782,C790,C792,C801,C803,C833, C836,C842,C844,C927,C933,C974, C975		CEAS102M10 CEAS220M10 CEAS220M25 CEAS221M10 CEAS470M10	RESISTORS		
C207,C255,C257,C270,C271,C279, C442 C845 C368,C913 C970		CEAS471M10 CEAS4R7M50 CEASR47M50 CEHAQ010M50	VR606 (15K) VR601,VR704 (2.2K) VR450 VR605 (33K) VR603,VR702,VR703 (4.7K)		VRTB6VSI53 VRTB6VS222 VRTB6VS332 VRTB6VS333 VRTB6VS472
C967,C968 C987 C711,C713,C717,C751,C753,C893 C278,C282 C482,C483,C908,C910,C920		CEHAQ100M50 CEHAQ220M50 CEJA470M10 CFTXA332J50 CFTYA104J50	VR604,VR607,VR612 (47K) R241,R242 (4R,1/6W) R192,R193,R440,R441 R534 R405		VRTB6VS473 DCN1001 RD1/6PM220J RD1/6PM221J RD1/6PM331J
C923 C359,C360,C905 C479 C701,C891,C914,C936,C969 C110,C907		CFTYA124J50 CFTYA224J50 CFTYA683J50 CKSQYB102K50 CKSQYB222K50	R180 R212,R213,R220,R221 R839,R840 R163 R714		RD1/6PM333J RD1/6PM470J RD1/6PM470J RD1/6PM471J RD1/6PM472J
C919 C361,C362 C355-C358,C888 C105,C122,C156-C158,C160,C191, C213,C231,C234,C251,C286,C288, C426,C427,C454,C496,C570-C573, C577,C578,C581,C773-C775,C807, C834,C835,C843,C872,C876,C894, C929,C937,C961,C962		CKSQYB332K50 CKSQYB392K50 CKSQYB472K50 CKSQYF103Z50	R909 R492 R775 R173,R174 R171,R172,R175,R178		RD1/6PM473J RD1/6PM4R7J RD1/6PM681J RN1/10SE103D RN1/10SE333D
C102,C151,C155,C196-C198,C215, C254,C284,C285,C305,C308,C309, C365,C366,C372,C373,C404,C406, C411,C413,C423,C425,C432,C441, C443,C446,C451,C453,C460,C461, C471,C481,C485,C492,C494,C495, C531-C533,C539,C541,C551,C574, C575,C582,C589,C590,C592,C593, C641,C695,C696,C702,C712, C714-C716,C719,C723,C725,C734, C736,C740-C742,C744,C752,C754, C765,C767,C771,C772,C776,C781, C783,C789,C791,C793,C802,C804, C831,C832,C840,C841,C873,C874, C892,C901,C915,C928,C932,C981		CFTYA124J50 CFTYA224J50 CFTYA683J50 CKSQYB102K50 CKSQYB222K50 CKSQYF104Z25	R259-R262 R784 R459,R484 R786		RN1/10SE473D RN1/6PQ1801F RN1/6PQ2002F RN1/6PQ8201F
C921 C837,C930 C103,C214,C465,C808,C815,C847, C875,C877,C911,C912,C924,C925, C964,C971,C983,C984		CKSQYF223Z50 CKSQYF333Z25 CKSQYF473Z25	Other Resistors		
					RS1/10S□□□J
			OTHERS		
			Cable holder (5P) Cable holder (3P) Cable holder (11P) 11P Top post KR connector (3P)		51048-0500 51048-0300 51048-1100 B11P-SHF-1AA B3B-PH-K
			CN106 CN104 CN125 CN126 CN110 J9 J1	3P Top post KR connector 5P Top post 2mm pitch flat cable (5P) 2mm pitch flat cable (11P)	B3P-SHF B4B-PH-K-R B5B-EH D20PDD0515E D20PDY1120G
			JA3,JA4 CN105 CN103 JA14	Remote control jack/12V 2mm pitch jumper connector (6P) 24P connector (straight type) PCB binder 2P pin jack	PKN1004 SBRK06S SLEM24S VEF1040 VKB1064
			JA6 JA11 JA2 J8	4P pin jack 4P Mini DIN socket Mini jack HOUSING ASSY Screw terminal	VKB1065 VKN1072 VKN1165 VKP2008 VNE1841
				IC Heat sink Earth terminal Earth plate	VNE1921 VNE1931 VNF-091
			X550 X101	Crystal resonator Ceramic resonator	VSS1026 VSS1040
			X201	Crystal resonator	VSS1057

CLD-D503, CLD-D570

Mark No.	Description	Parts No.	Mark No.	Description	Parts No.
PASB ASSY					
SEMICONDUCTORS					
IC381		BA10393	Q26		2SD2007
Q992		2SA933S	Q35		DTA114ES
Q993		2SC1740S	Q28		DTA114TS
Q991		DTA124ES	Q33		DTC114ES
D992,D993		1SS254	Q37,Q38		DTC114TS
D991		MTZJ10B	D25-D27,D30,D31		AG01Z-V0
D994		MTZJ6.2A	D28		MTZJ39B/C
			D29		MTZJ7.5A
			D23		RK46
			D24		S2LA20
			D21,D22		S3L20U
CAPACITORS					
C381		CKPUYF223Z25	THY20		3P4J
C991	(1F/5.5)	VCH1039			
RESISTORS			COILS AND FILTERS		
	Other Resistors	RD1/6PM□□□J	L20		VTL1008
OTHERS			RESISTORS		
CN226	KR connector	S4B-PH-K-R	R22-R25 (47Ω, 1/6W)		VCN1033
J127	HOUSING ASSY	VKP2031	R56 (15Ω, 1/4W)		VCN1034
	PCB (PASB)	VNP1448	R61 (4.7Ω, 1/2W)		VCN1035
CNNB ASSY					
RESISTORS					
	All resistors	RD1/6PM□□□J			
OTHERS					
CN205	KR connector	B3B-PH-K			
CN203	24P connector (straight type)	SLEM24S			
CN204	25P side connector	VKN1139			
LOMB ASSY					
OTHERS					
	4P cable holder	51048-0400			
LOSB ASSY					
SWITCHES AND RELAYS					
	S1-S3	DSG1015			
FG ASSY					
SEMICONDUCTORS					
	D1	GP1 S51V			
OTHERS					
J64	HOUSING ASSY (3P)	VKP2024			
POWER SUPPLY ASSY					
SEMICONDUCTORS					
	IC21	UPC358C			
	Q27,Q30,Q32,Q34,Q36	2SA933S			
	Q20,Q22	2SB1134			
	Q24	2SB1331			
	Q25,Q29,Q31	2SC1740S			
	Q21,Q23	2SD1667			

1.8 PARTS LIST FOR PACKING AND EXPLODED VIEWS

NOTES:

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "☉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- Parts list without notice are common for CLD -D503/KU, CLD -D503/KC and CLD -D570/RD.

1.8.1 PACKING

● CONTRAST OF CLD - D503/KU, CLD - D503/KC AND CLD - D570/RD.

CLD -D503/KU, CLD -D503/KC and CLD -D570/RD have the same construction except for the following :

Mark	No.	Symbol & Description	Part No.		
			CLD-D503/KU	CLD-D503/KC	CLD-D570/RD
NSP	2	R. R/G Caution	Not used	Not used	ARR-007
	3	Operating instructions (English)	VRB1117	VRB1117	VRB1109
	4	Operating instructions (French)	Not used	VRD1015	Not used
	4	Operating instructions (Chinese, Spanish)	Not used	Not used	VRD1017
	8	Remote control unit	VXX1836	VXX1836	VXX1922
	16	Packing case	VHG1339	VHG1339	VHG1340
NSP	17	Warranty card	ARY1044	ARY1039	ARW1020
NSP	18	KC label	Not used	VRW1402	Not used

● For CLD -D503/KU

Mark	No.	Description	Parts No.
	1	Caution (UC)	VRR1020
	2	.....
	3	Operating instructions (English)	VRB1117
	4	.....
	5	.....
NSP	6	Polyethylene bag	VHL-014
	7	Battery cover	PZN1012
	8	Remote control unit	VXX1836
NSP	9	Battery (AAA, R3)	VEM-022
	10	Video cable	VDE-056
	11	Connection cord	VDE-055
NSP	12	Polyethylene bag	Z21-029
	13	Pad L	VHA1126
	14	Pad R	VHA1127
	15	Mirror mat	VHL1012
	16	Packing case	VHG1339
NSP	17	Warranty card	ARY1044
	18	.....
	19	Caution label	VRM1044

1.8.2 EXTERIOR AND DISC TRAY

Mark	No.	Description	Parts No.
	1	Bonnet S	VXX1932
	2	Screw	BCZ40P060FZK
	3	Screw	BBT30P080FCC
NSP	4	Damp cushion	VEC1602
	5	Screw	VBA1032
	6	Guide plate (R)	VNE1806
	7	Guide plate (L)	VNE1805
	8	CD tray	VNK2395
	9	Lock plate spring	VBH1188
	10	Lock plate	VNL1513
	11	Stop ring	VEB1091
	12	Screw	BPZ30P060FCU
NSP	13	Cushion	VEC1660
NSP	14	LD tray (ABS)	VNK2394
NSP	15	Damp cushion	VEC1110
	16	Door spring	VBH1223
	17	Door shaft	VLL1441
	18	Screw	IPZ20P050FMC
	19	Door holder	VNE1905
	20	CD door (ABS)	VNK2320
	21	Damper ASSY	VXA1999
NSP	22	Laser disc badge	VAM1029
NSP	23	Tray panel	VNK2319
	24	.....
NSP	25	Tray ASSY - S	VXX2035
	26	Tray panel ASSY - S	VXX1931
	27	Disc pad (L)	VEC1657
	28	Disc pad (C)	VEC1658
NSP	29	Carry label	VRW1289
	30	.....
	31	T back	VNE1946
	32	LD tray ASSY	VXA2085
	33	Screw	BPZ30P080FCU
NSP	34	Speed clamp	VEC1598
NSP	35	Carry label	VRW1289
	36	65 label	ORW1069

1.8.3 UPPER SECTION

Mark	No.	Description	Parts No.
	1	.....
	2	Center angle	VNE1897
	3	PCB holder	VNE1895
	4	.....
	5	Damper plate	VBK1045
	6	.....
	7	.....
	8	Screw	BBZ30P060FCC
	9	Screw	IBZ30P060FCC

1.8.4 FRONT PANEL SECTION

● CONTRAST OF CLD - D503/KU, CLD - D503/KC AND CLD - D570/RD.

CLD - D503/KU, CLD - D503/KC and CLD - D570/RD have the same construction except for the following :

Mark	No.	Symbol & Description	Part No.		
			CLD-D503/KU	CLD-D503/KC	CLD-D570/RD
NSP	1	Front panel	VNK2643	VNK2643	VNK2644
	23	Front panel ASSY - S	VXX2037	VXX2037	VXX2038
NSP	24	Rubber spacer	PEB1216	PEB1216	Not used

● For CLD - D503/KU

Mark	No.	Description	Parts No.
NSP	1	Front panel	VNK2643
	2	FL lens	VEC1674
	3	Sub panel	VNK2362
NSP	4	HEPB ASSY	VWV1361
NSP	5	Jack holder	VNE1609
	6	Snap plate	VNE1102
	7	Headphone knob	PAC1707
	8	L key (A)	VNK2360
	9	LED lens (B)	VNK2316
	10	Main key	VNK2365
	11	Skip key R	VNK2323
	12	Skip key L	VNK2322
	13	LED lens	VNK1755
	14	L key (B)	VNK2361
	15	LED lens	PWN2019
	16	PW button	VNK2329
	17	FLKY ASSY	VWG1518
NSP	18	PONS ASSY	VWG1519
	19	Name plate	VAM1032
	20	Shuttle knob	VNK2321
NSP	21	Damp cushion	VEC1110
	22	Screw	BPZ26P060FCU
	23	Front panel ASSY - S	VXX2037
NSP	24	Rubber spacer	PEB1216

1.8.5 DISC CLAMPER SECTION

Mark	No.	Description	Parts No.
	1	Ball holder	VNL1616
	2	Ball	VNX1013
	3	LD hub	VNT1047
	4	Ball cover	VNL1602
	5	Cover spring	VBH1234
	6	LD spring	VBH1240
	7	Clamper head	VNL1603
	8	Clamper	VNL1604
	9	Clamp spring	VBH1239
	10	Rubber sheet	VEB1114
	11	Ball holder	VNL1289
	12	Center plate	VNE1898
	13	Clamper holder	VNL1605
	14	Stabilizer	VNE1906
	15	Screw	CPZ20P060FMC

CLD-D503, CLD-D570

1.8.6 BOTTOM SECTION

● CONTRAST OF CLD - D503/KU, CLD - D503/KC AND CLD - D570/RD.

CLD - D503/KU, CLD - D503/KC and CLD - D570/RD have the same construction except for the following :

Mark	No.	Symbol & Description	Part No.		
			CLD-D503/KU	CLD-D503/KC	CLD-D570/RD
	6	Power supply ASSY	VWR1200	VWR1200	VWR1201
△	7	AC power cord	PDG1015	PDG1015	PDG1013
△	8	Cord stopper	CM-22C	CM-22C	CM-22B
	9	Rear panel	VNA1407	VNA1408	VNA1409
	11	MAIN ASSY	VWS1134	VWS1134	VWS1135
	33	Voltage selector	Not used	Not used	VS1004
	34	Model label	VRW1397	VRW1397	VRW1398
	36	Tube	Not used	Not used	VEC1675
	37	Housing ASSY	Not used	Not used	VKP2039
	39	ICP caution label	VRW1401	VRW1401	Not used

● For CLD - D503/KU

Mark	No.	Description	Parts No.	Mark	No.	Description	Parts No.
NSP	1	Base chassis	VNA1353		36	.....
	2	Insulator ASSY	VXA1998		37	.....
	3	Board spacer	VEC1623	NSP	38	Mini clamp	VEC1597
NSP	4	PCB spacer	PNY-404		39	ICP caution label	VRW1401
NSP	5	PCB stay	VEC1174	NSP	40	Fuse caution label	VRW-548
	6	Power supply ASSY	VWR1200		41	Card keep	VNC1004
△	7	AC power cord	PDG1015				
△	8	Cord stopper	CM-22C				
	9	Rear panel	VNA1407				
	10	Tray stopper	VNL1600				
	11	MAIN ASSY	VWS1134				
	12	.....				
	13	Carriage stopper	VNE1919				
NSP	14	Damp cushion	VEC1602				
	15	Screw	BBZ30P080FMC				
	16	Screw	BBT30P080FCC				
	17	Screw	BPZ30P140FMC				
	18	Screw	BBZ30P040FMC				
NSP	19	Cord holder	Z09-061	NSP	6	Carriage motor	VXM1033
	20	Front angle	VNE1894		7	Roller	VNL1042
	21	Screw	BBZ30P060FCC		8	Motor pulley	PNW1643
	22	Side stay	VNE1896		9	L-SW lever	VNL1504
NSP	23	Side stay (R)	VNE1810		10	C-SW lever	VNL1505
	24	.....			11	R-SW lever	VNL1506
	25	AC cord tube	VEC1651		12	Center gear	VNL1509
	26	.....			13	Twin gear	VNL1508
NSP	27	Side stay (L)	VNE1809		14	Gear pully	VNL1510
NSP	28	PASB ASSY	VWG1505		15	CDP spring	VBH1191
NSP	29	PC support	VEC1415		16	CAS spring	VBH1190
	30	PCB spacer	VEB1214		17	Shaft holder	VNE1817
	31	Screw	IBZ30P080FCC		18	Rubber belt	VEB1184
NSP	32	HM spacer	VEB1215		19	Synchro gear ASSY	VXA2093
	33	.....		NSP	20	LOSB ASSY	VWG1471
	34	Model label	VRW1397		21	Screw	BMZ26P040FMC
NSP	35	Wire clamp	VEC1217		22	Screw	Z39-019
				NSP	23	LOMB ASSY	VWG1470

1.8.7 MECHANISM SECTION

Mark	No.	Description	Parts No.
	1	Mechanism base	VNK1990
	2	Clamp cam	VNL1621
	3	Cam gear	VNL1507
	4	CD plate	VNL1576
	5	Cam sand	VNL1511
NSP	6	Carriage motor	VXM1033
	7	Roller	VNL1042
	8	Motor pulley	PNW1643
	9	L-SW lever	VNL1504
	10	C-SW lever	VNL1505
	11	R-SW lever	VNL1506
	12	Center gear	VNL1509
	13	Twin gear	VNL1508
	14	Gear pully	VNL1510
	15	CDP spring	VBH1191
	16	CAS spring	VBH1190
	17	Shaft holder	VNE1817
	18	Rubber belt	VEB1184
	19	Synchro gear ASSY	VXA2093
NSP	20	LOSB ASSY	VWG1471
	21	Screw	BMZ26P040FMC
	22	Screw	Z39-019
NSP	23	LOMB ASSY	VWG1470

1.8.8 MECHANISM ASSY

Mark No.	Description	Parts No.
1	Tilt base (Upper)	VNB1027
2	Rack (Upper)	VNL1560
3	Rack spring (Upper)	VBH1213
4	CA shaft (Upper)	VLL1446
5	Screw	PMZ20P070FMC
6	Shaft suport	VNL1563
7	Suport spring	VBH1236
8	Screw	IPZ30P060FMC
9	B cam spring	VBH1233
10	B cam	VNL1564
11	Lever spring	VBH1214
12	Lever SW	DSK1003
13	R plate ASSY	VNL1566
14	Screw	BBZ26P060FMC
15	TM rack	VNL1556
16	Screw	CBZ26P060FMC
17	Turn gear	VNL1565
18	TM suport	VNE1888
19	Washer	YE20FUC
20	Washer	WA32D080D080
21	Head lock	VNL1580
NSP 22	CNNB ASSY	VWG1469
23	TAN guide	VNE1887
24	Rack (lower)	VNL1567
25	Rack spring (lower)	VBH1215
26	Screw	BBZ30P060FMC
27	SW base	VNE1886
28	Screw	PBZ26P060FMC
29	Slide SW	OSH1001
30	Screw	PMZ20P060FMC
31	.....
32	Thrust spring	VBH1235
33	Tilt spring	VBH1218
34	Key lock	VBK1044
35	CB holder	VNL1618
△ 36	Spindle motor ASSY	VXA1986
37	Screw	PMA30P050FMC
38	Y gear	VNL1501
39	Washer	WT26D060D025
40	Tilt cam spring	VBH1189
41	FG base	VNL1577
NSP 42	FG ASSY	VWG1472
43	Tilt base (lower)	VNL1555
44	MK flexible	VNP1439
45	Screw	ABZ30P060FMC
46	TM guide	VNL1558
47	Screw	PPZ20P080FMC
48	CA shaft (lower)	VLL1447
NSP 49	Spindle motor	VXM1053
50	Oil stopper washer	VBF1002
NSP 51	Turn table ASSY	VXA1760
NSP 52	Rubber sheet	VEB1135
53	Centering spring	VBH1024
54	PRC hub	VNL1612
55	PRC table	VNL1613

Mark No.	Description	Parts No.
56	Screw	CPZ20P060FMC
57	Lock lever	VNL1562
58	Tilt cam	VNL1559
NSP 59	Spacer	VEB1020
NSP 60	Earth read unit	VDA1455
61	Screw	Z39-019
62	.....
63	Carriage ASSY	VWT1100
64	Motor base	VNE1889
NSP 65	Stop cushion	VEC1605
66	Screw	CPZ26P080FMC

1.8.9 CARRIAGE ASSY

Mark No.	Description	Parts No.
1	TAN plate ASSY	VXA1981
2	Screw	BMZ20P080FMC
3	TAN spring (B)	VBH1217
4	TAN lever (B)	VNL1569
5	.....
6	TAN lever (A)	VNL1568
7	TAN spring (A)	VBH1237
8	Screw (S)	VBA1016
9	Screw	PBB26P080FMC
NSP 10	Shaft holder	VNT1042
11	Limit SW	OSH1001
12	Screw	PMZ20P060FMC
13	Screw	BBZ26P060FZK
14	Screw	BPZ26P060FMC
15	Flexible holder	VNL1579
NSP 16	Screw	PPZ20P060FZK
17	Washer	WT17D034D050
NSP 18	Gear (C)	VNL1572
19	Gear (B)	VNL1571
20	Screw	PMA20P040FMC
NSP 21	Motor holder	VNL1584
22	Gear (E)	VNL1574
23	Gear (F)	VNL1575
24	.....
NSP 25	Gear (D)	VNL1573
NSP 26	Gear shaft	VLL1448
NSP 27	PCB board	VNP1425
NSP 28	ZH connector	B2B-ZR
NSP 29	Slider motor	VXM1027
30	Gear (A)	VNL1570
31	Box cover	VNL1578
32	Housing ASSY	VKP1852
NSP 33	PICKUP ASSY	VWY1037
34	Motor holder ASSY-S	VXX2015
35	Slider motor ASSY	VXX2014

Service Manual

ORDER NO.
RRZ1065

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CD CDV LD PLAYER

CLD-D503

CLD-D570

CHAPTER 2

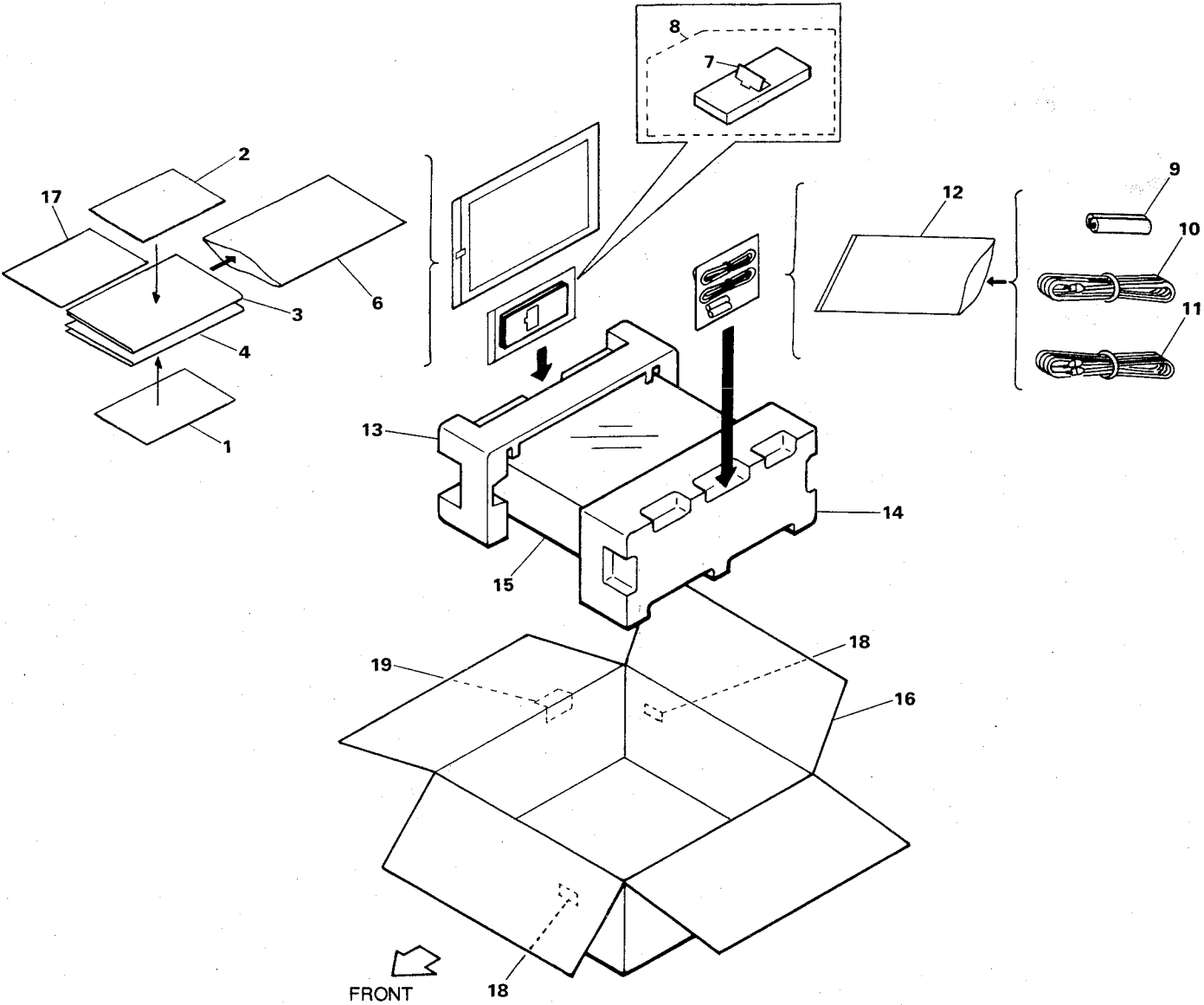
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CHAPTER 2

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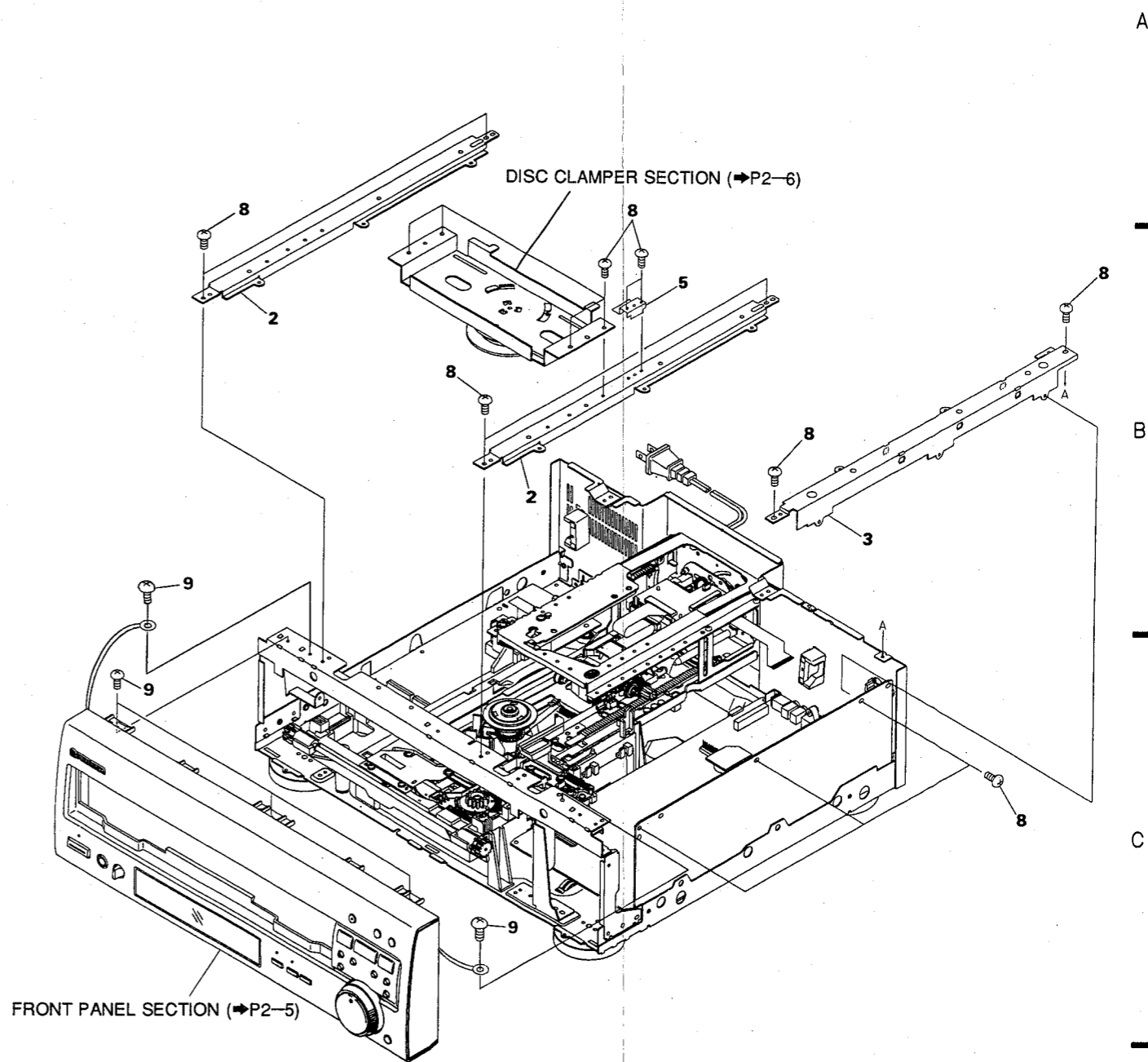
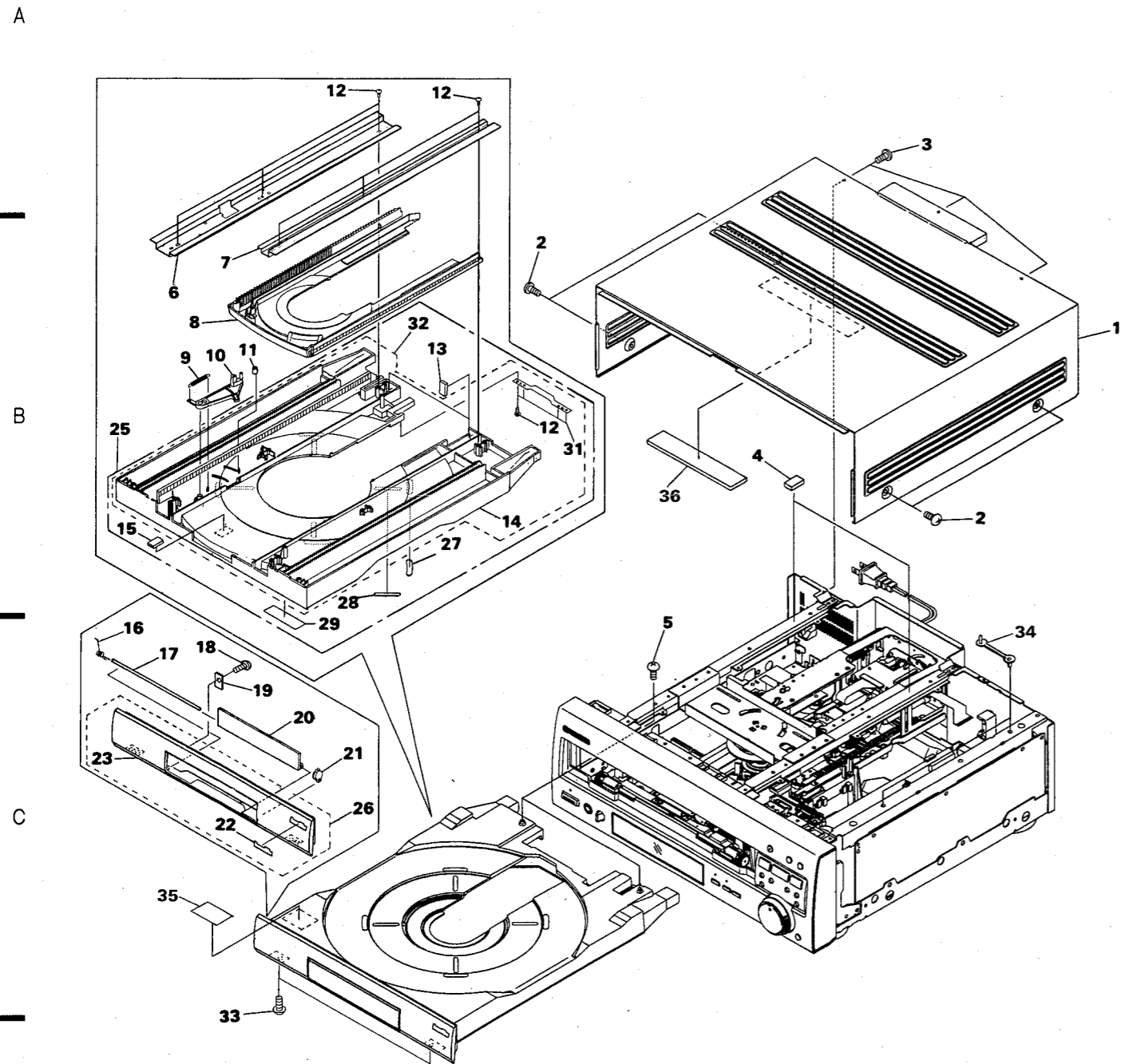
2.1 PACKING AND EXPLODED VIEWS

2.1.1 PACKING



2.1.2 EXTERIOR AND DISC TRAY

2.1.3 UPPER SECTION



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

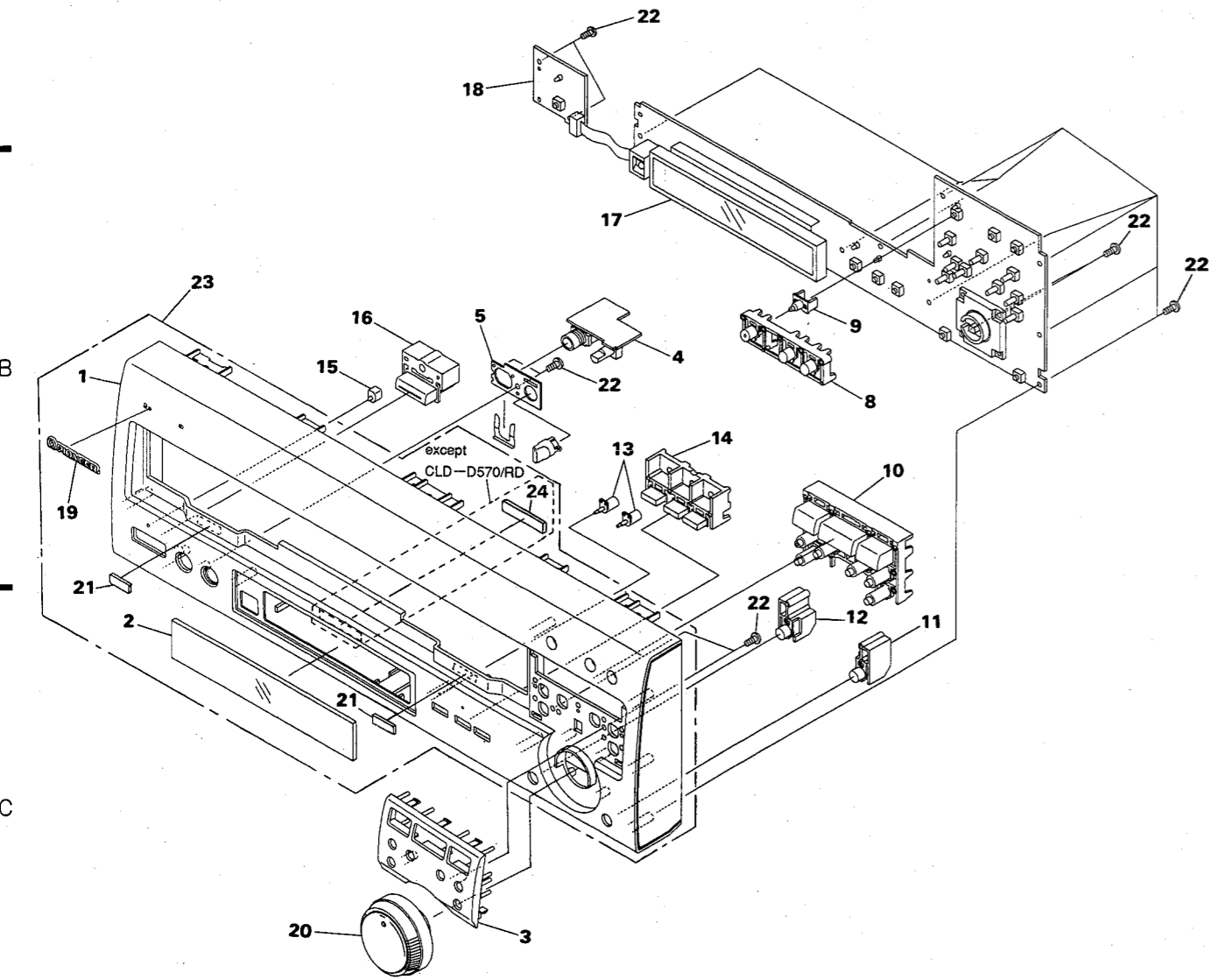
2.1.4 FRONT PANEL SECTION

A

B

C

D



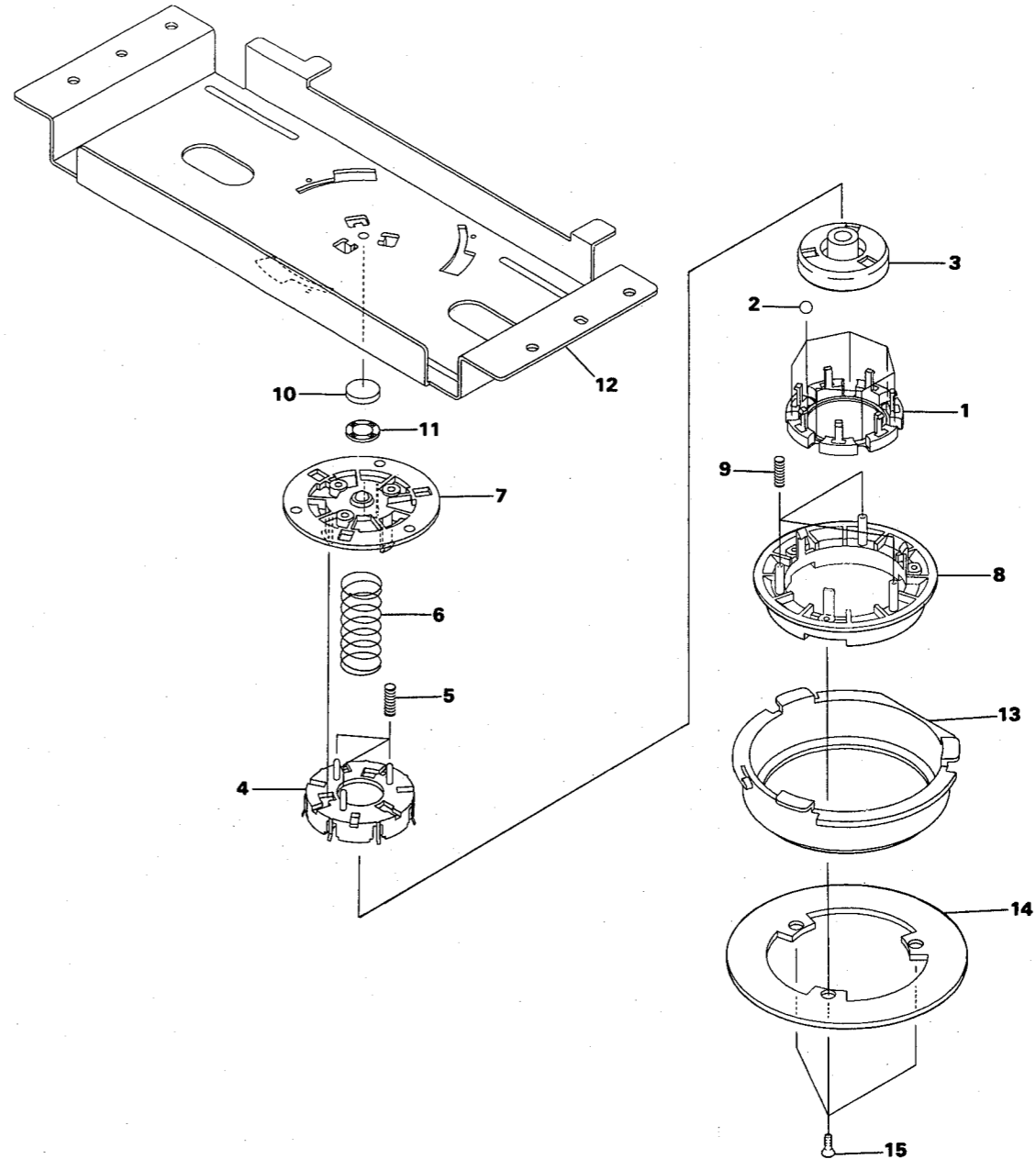
2.1.5 DISC CLAMPER SECTION

A

B

C

D



2.1.6 BOTTOM SECTION

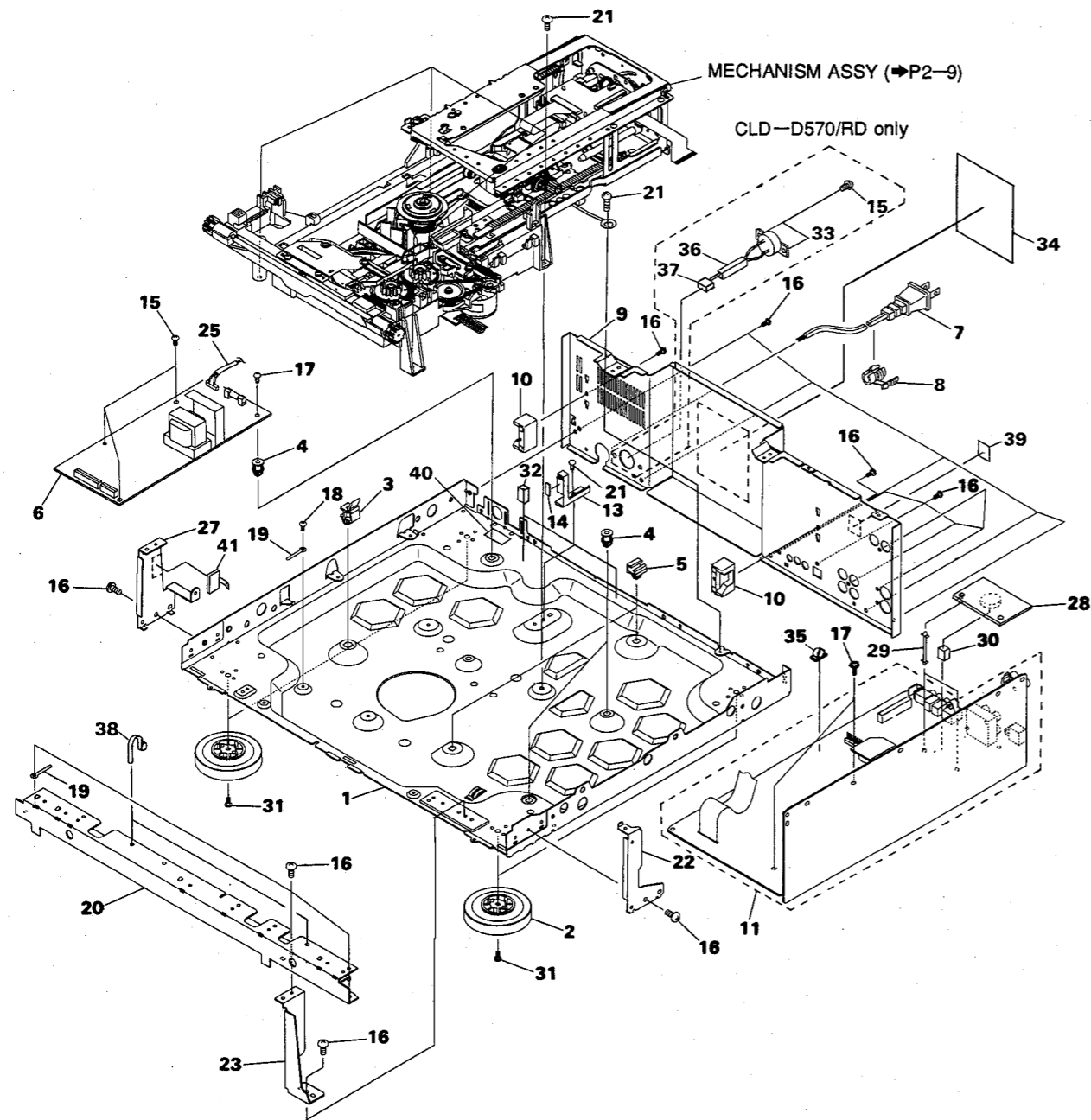
2.1.7 MECHANISM SECTION

A

B

C

D

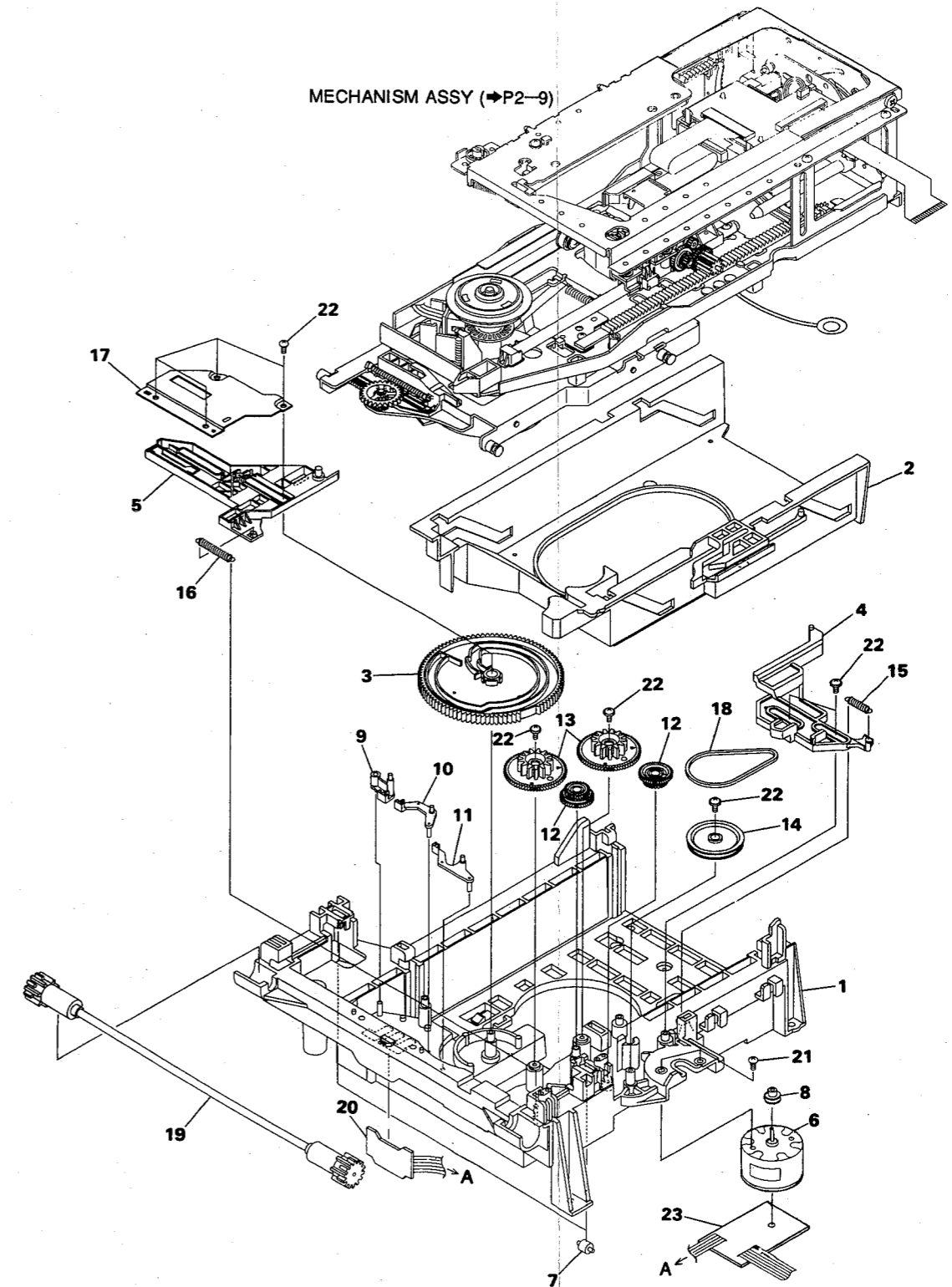


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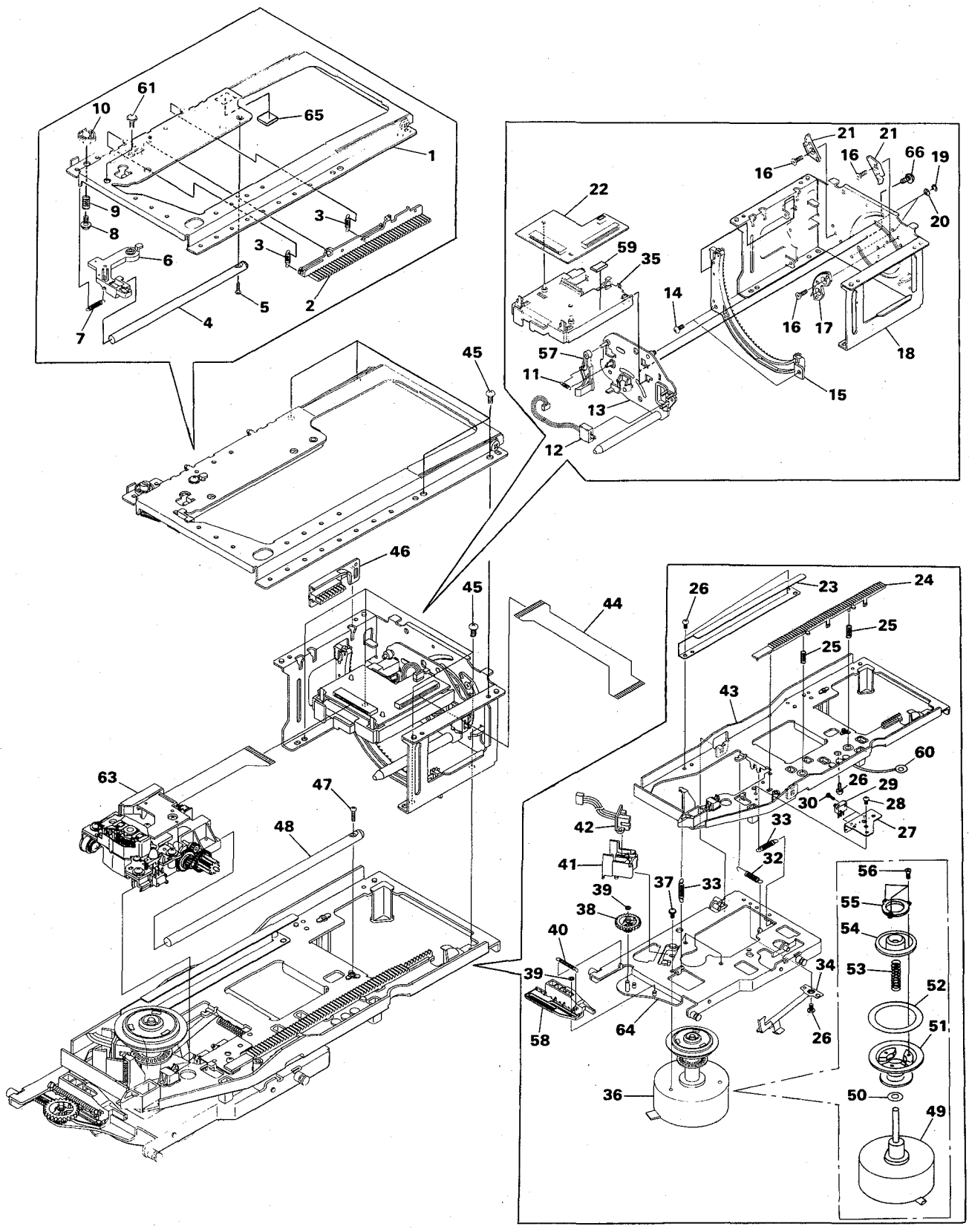
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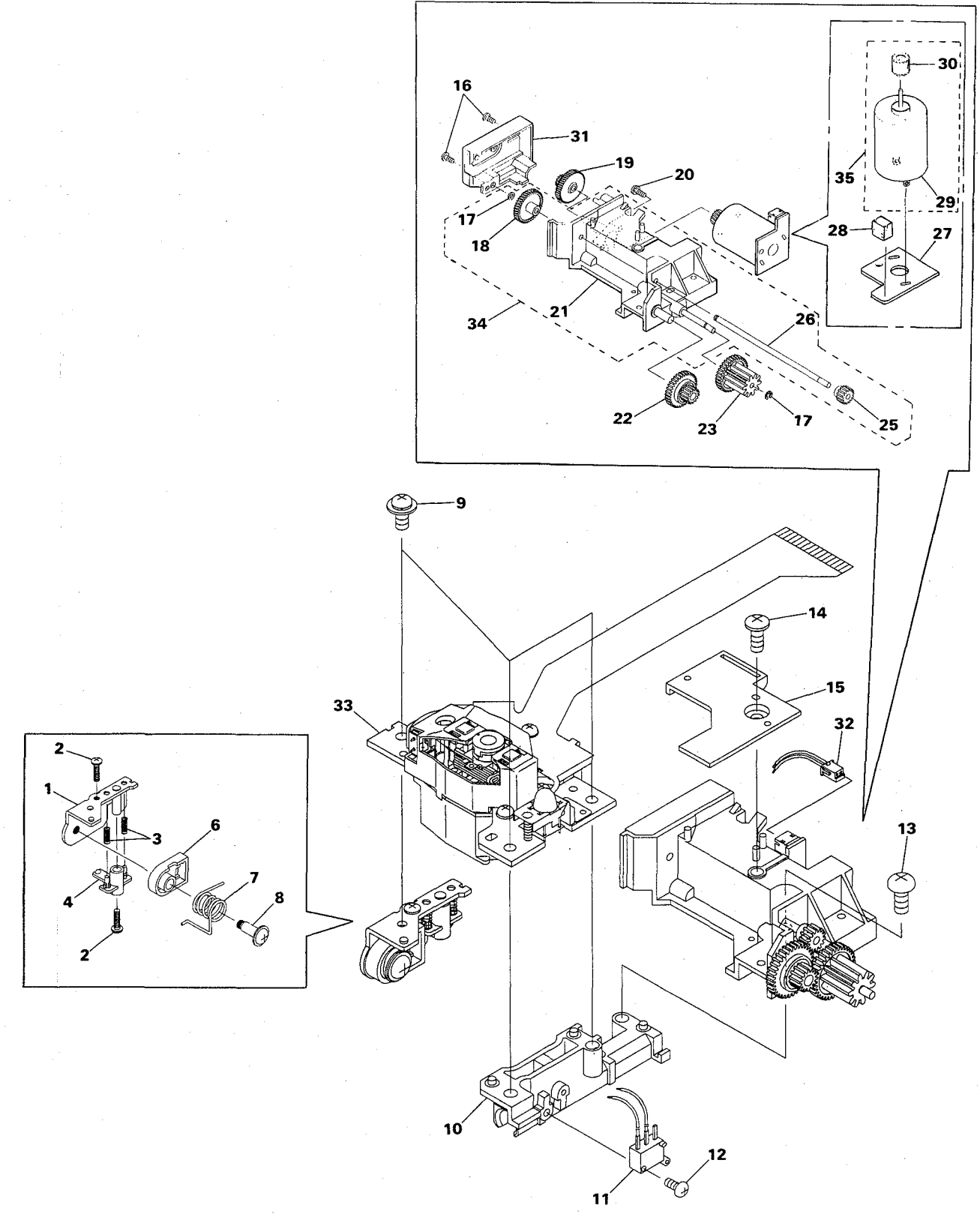
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2.1.8 MECHANISM ASSY



2.1.9 CARRIAGE ASSY



A

B

C

D

2.2 SCHEMATIC AND PCB CONNECTION DIAGRAMS

NOTE FOR SCHEMATIC DIAGRAMS (Type 4A)


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





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

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

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






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

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

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

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


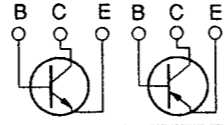

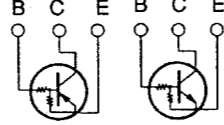

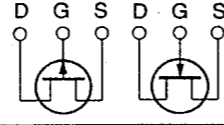

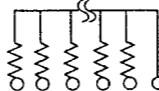

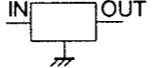
9. **SWITCHES (Underline indicates switch position):**

- | | |
|--|-------------------------|
| FLKY ASSY | PONS ASSY |
| S100 : DIRECT CD | S200 : STANDBY/POWER ON |
| S101 : SIDE A | |
| S102 : SIDE B | LOSB ASSY |
| S103 :  | S1 : SW1 |
| S104 : /\|\| | S2 : SW2 |
| S105 :  | S3 : SW3 |
| S106 : HILITE/INTRO | |
| S107 : AUDIO | |
| S108 : REPEAT A | |
| S109 : REPEAT B | |
| S110 : D-LEVEL CONTROL | |
| S111 : RANDOM PLAY | |
| S112 : FL OFF | |
| S113 : THEATER | |
| S114 : DISPLAY | |
| S115 :  | |
| S116 :  | |

NOTE FOR PCB DIAGRAMS:

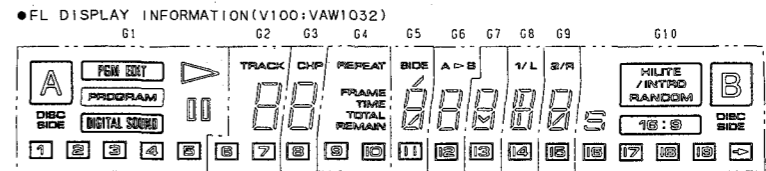
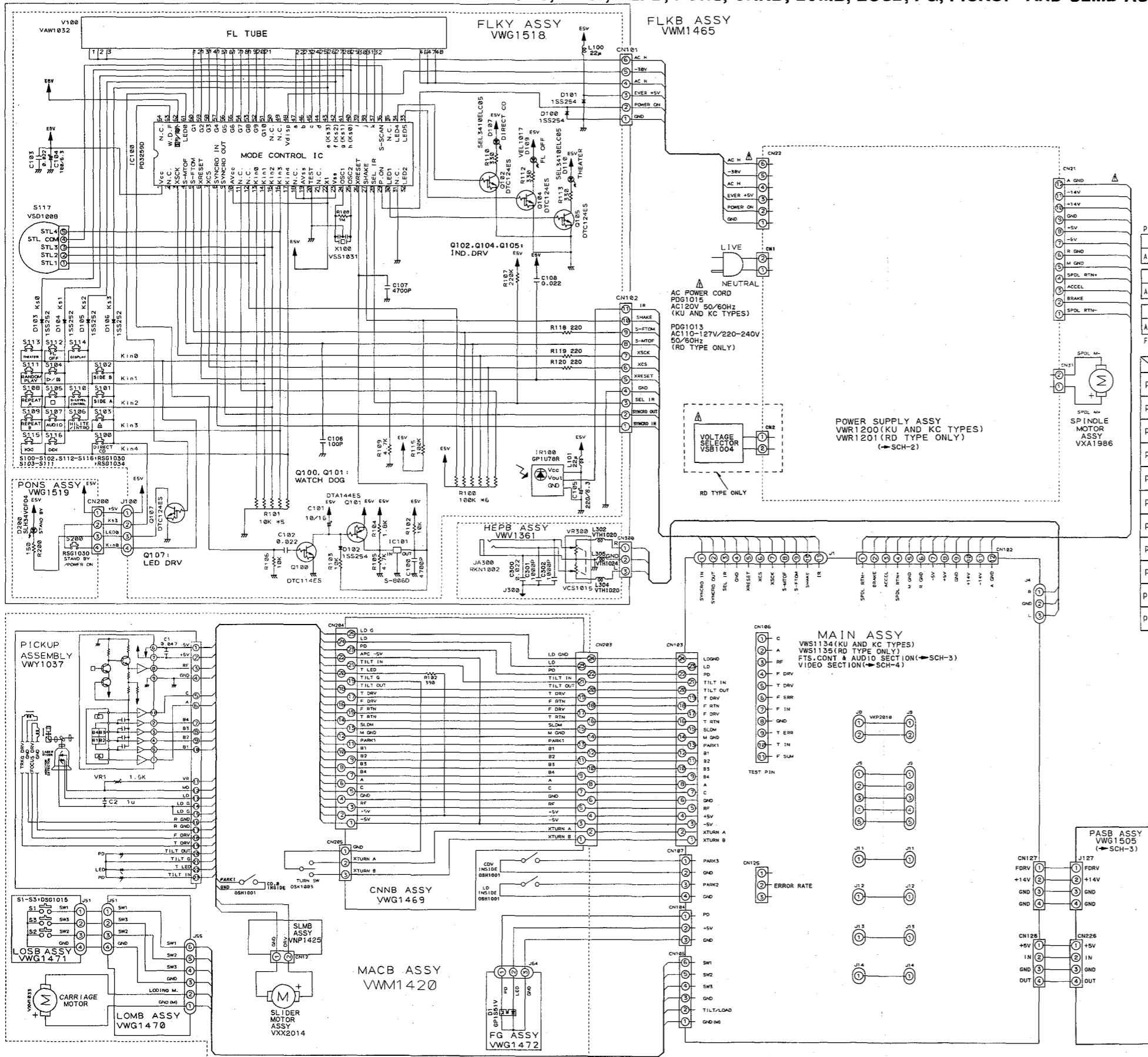
1. Part numbers in PCB diagrams match those in the schematic diagrams.

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

2.2.1 OVERALL CONNECTIONS, FLKY, HEPB, PONS, CNNB, LOMB, LOSB, FG, PICKUP AND SLMB ASSY

SCH-1



PIN ASSIGNMENT

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Assignment	F	F	F	NP	NP	NP	NP	NP	NP	NP	G1	G2	G3	G4	G5	
Pin No.	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Assignment	G6	G7	G8	G9	G10	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11
Pin No.	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
Assignment	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	F	F	F

F: Filament G1-G12: Grid a-1: Anode NP: No pin

	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10
P1	A	a	a	FRAME	a	a	a	a	a	B
P2	PROGRAM	b	b	TIME	b	b	b	b	b	MULTI /INTND
P3	PROGRAM	c	c	TOTAL	c	c	c	c	c	RANDOM
P4	DIGITAL SOUND	d	d	REMAIN	d	d	d	d	d	
P5	▶	e	e		e	e	e	e	e	10:00
P6	||	f	f		f	f	f	f	f	5
P7	1	g	g		g	g	g	g	g	10
P8	2	TRACK CMP REPEAT	SIDE	A	✓					17
P9	3			(UPPER)	▶			1/L 2/R		18
P10	4	6	9	(LOWER)	B					19
P11	5	7	8	10	11	12	13	14	15	▶

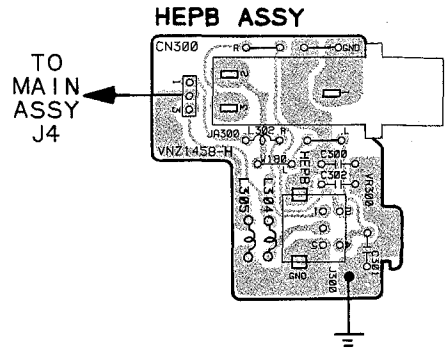
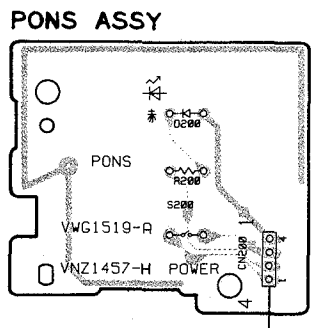
SCH-1

OVERALL
FLKY ASSY, HEPB ASSY, PONS ASSY,
CNNB ASSY, LOMB ASSY, LOSB ASSY,
FG ASSY, PICKUP ASSY, SLMB ASSY

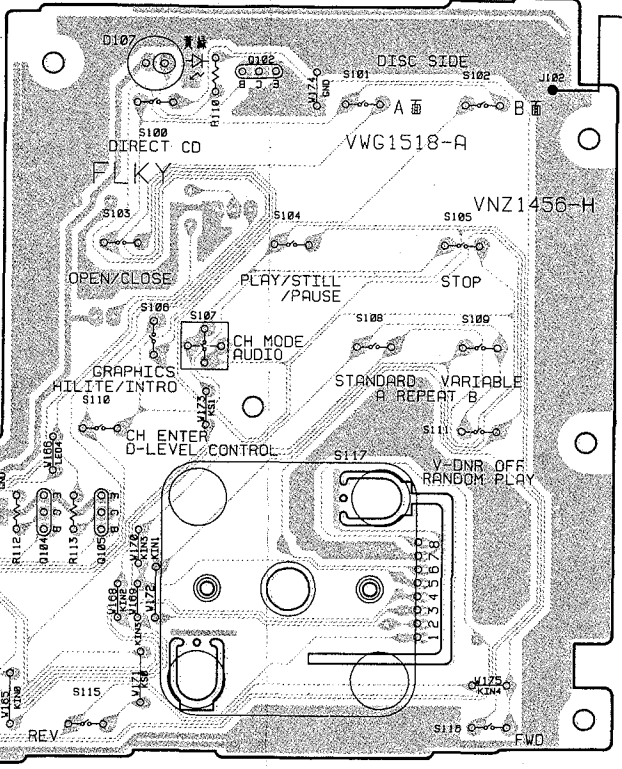
OVERALL
FLKY ASSY, HEPB ASSY, PONS ASSY,
CNNB ASSY, LOMB ASSY, LOSB ASSY,
FG ASSY, PICKUP ASSY, SLMB ASSY

SCH-1

A



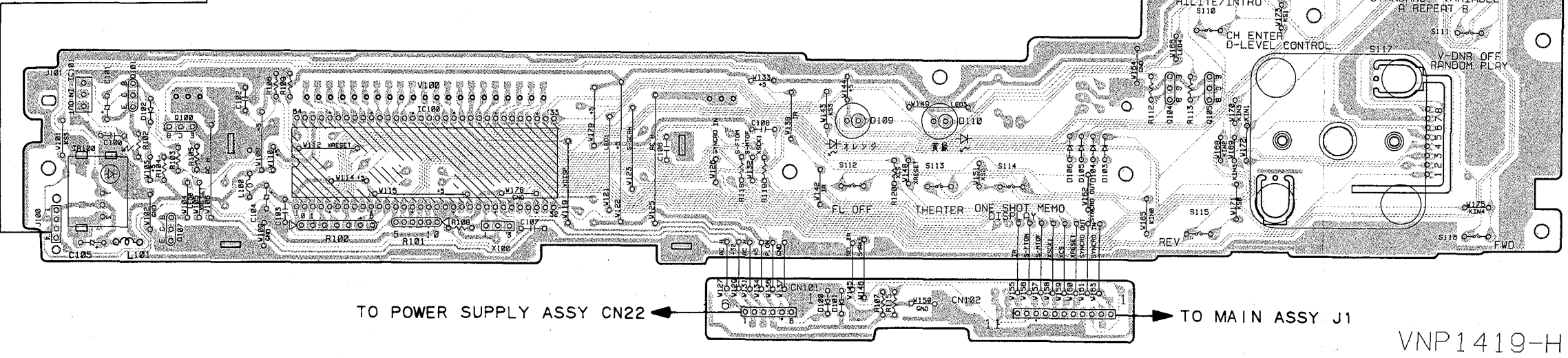
FLKY ASSY



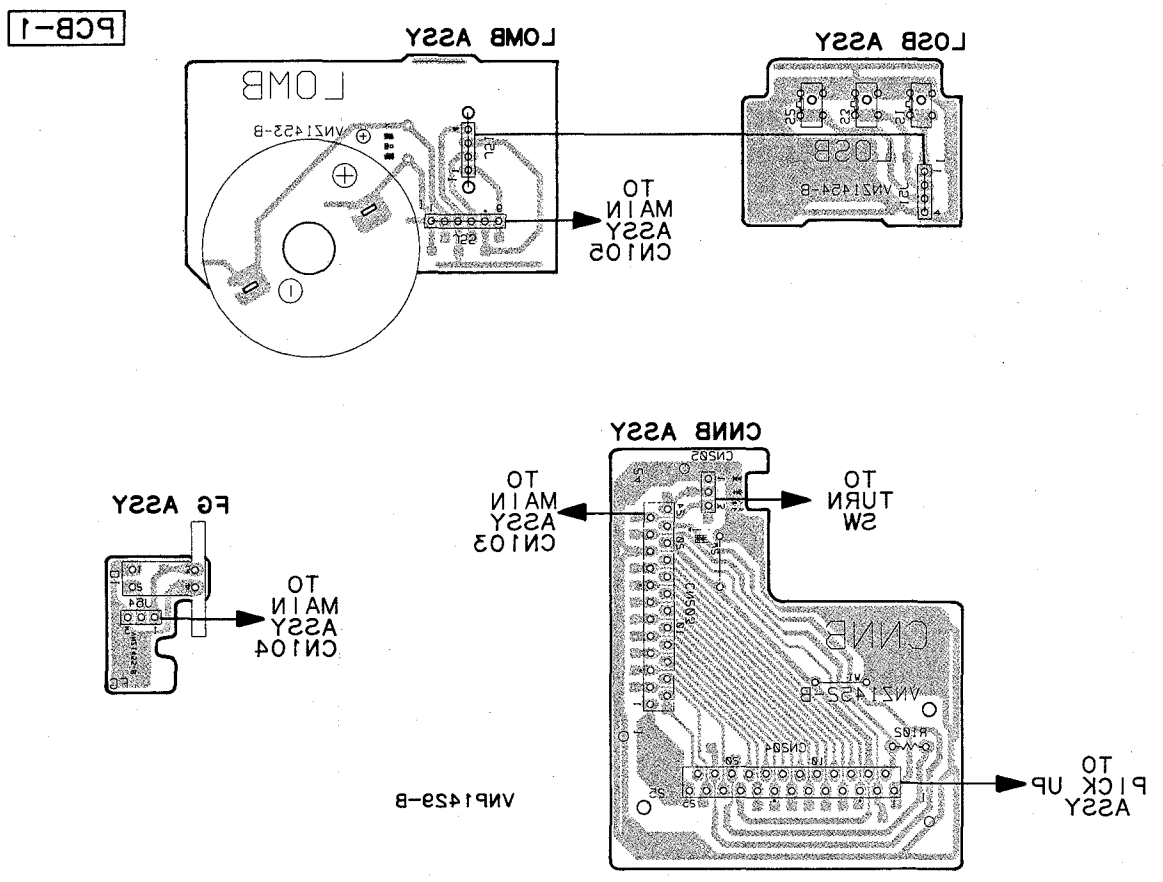
Q102
 Q104 Q105
 IC101 Q101
 Q100
 IC100
 Q107

TO PICK UP ASSY

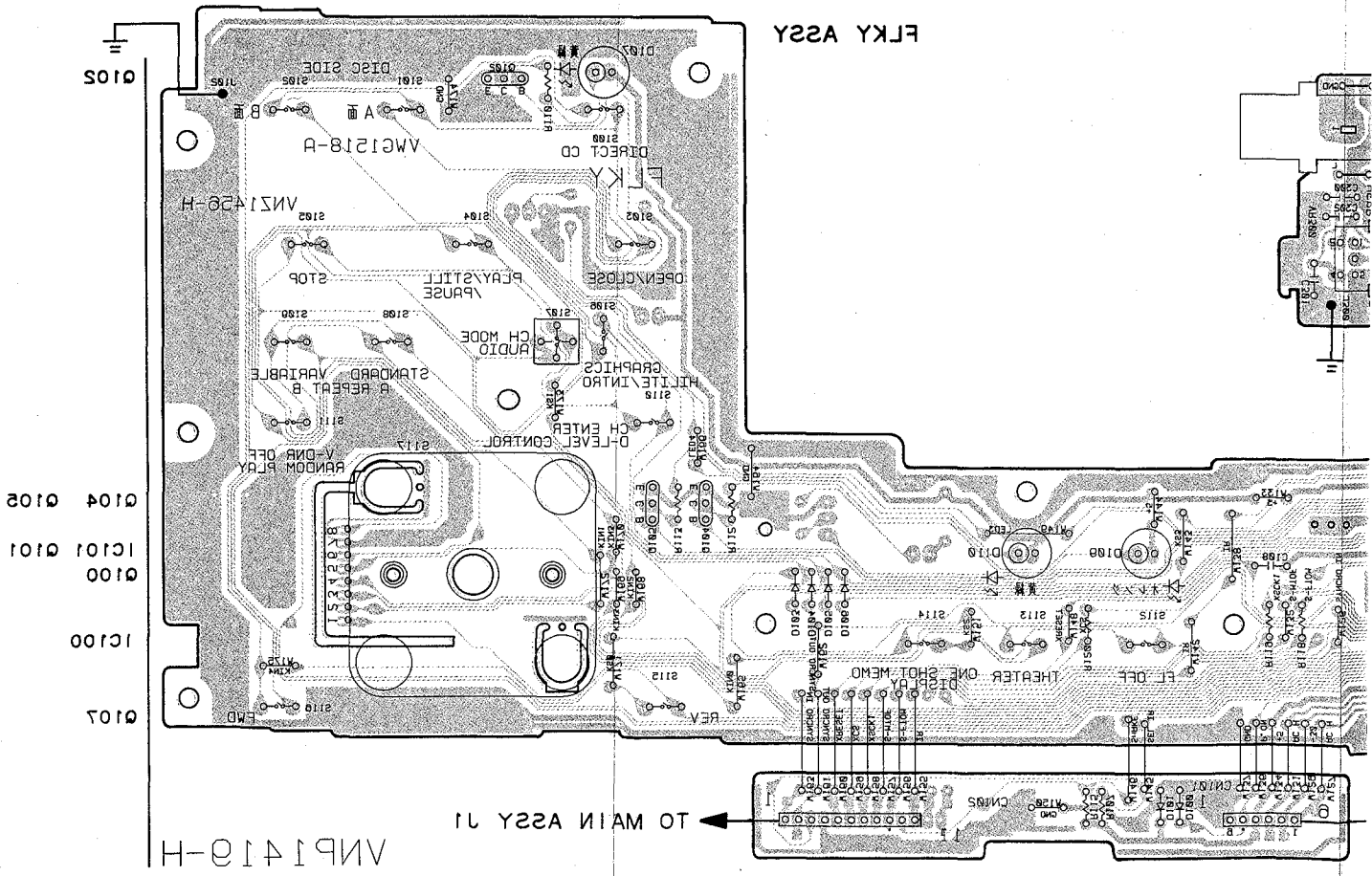
B



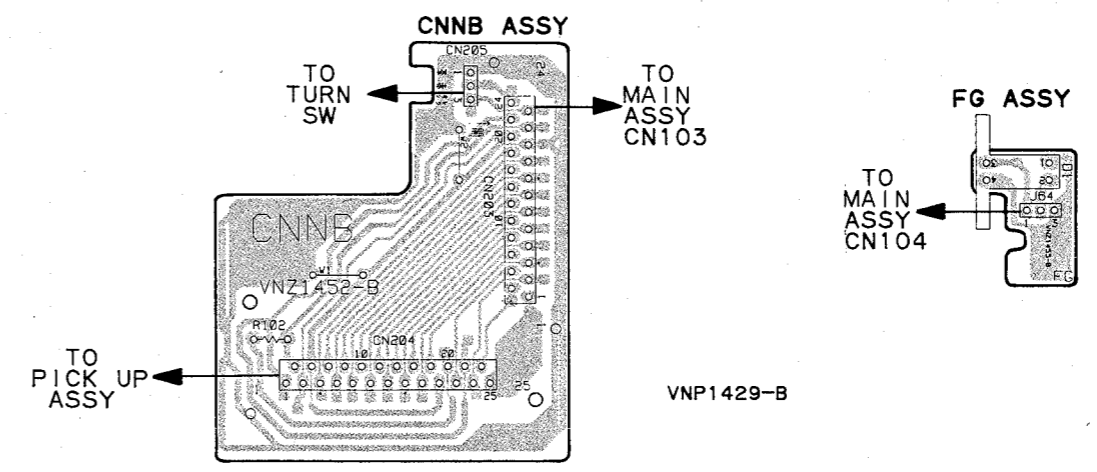
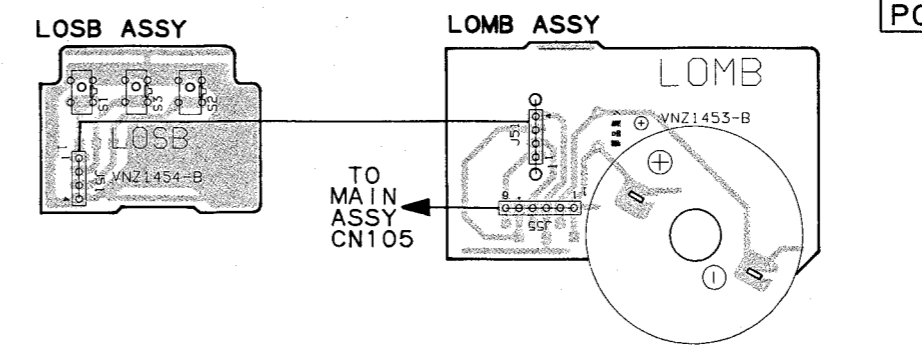
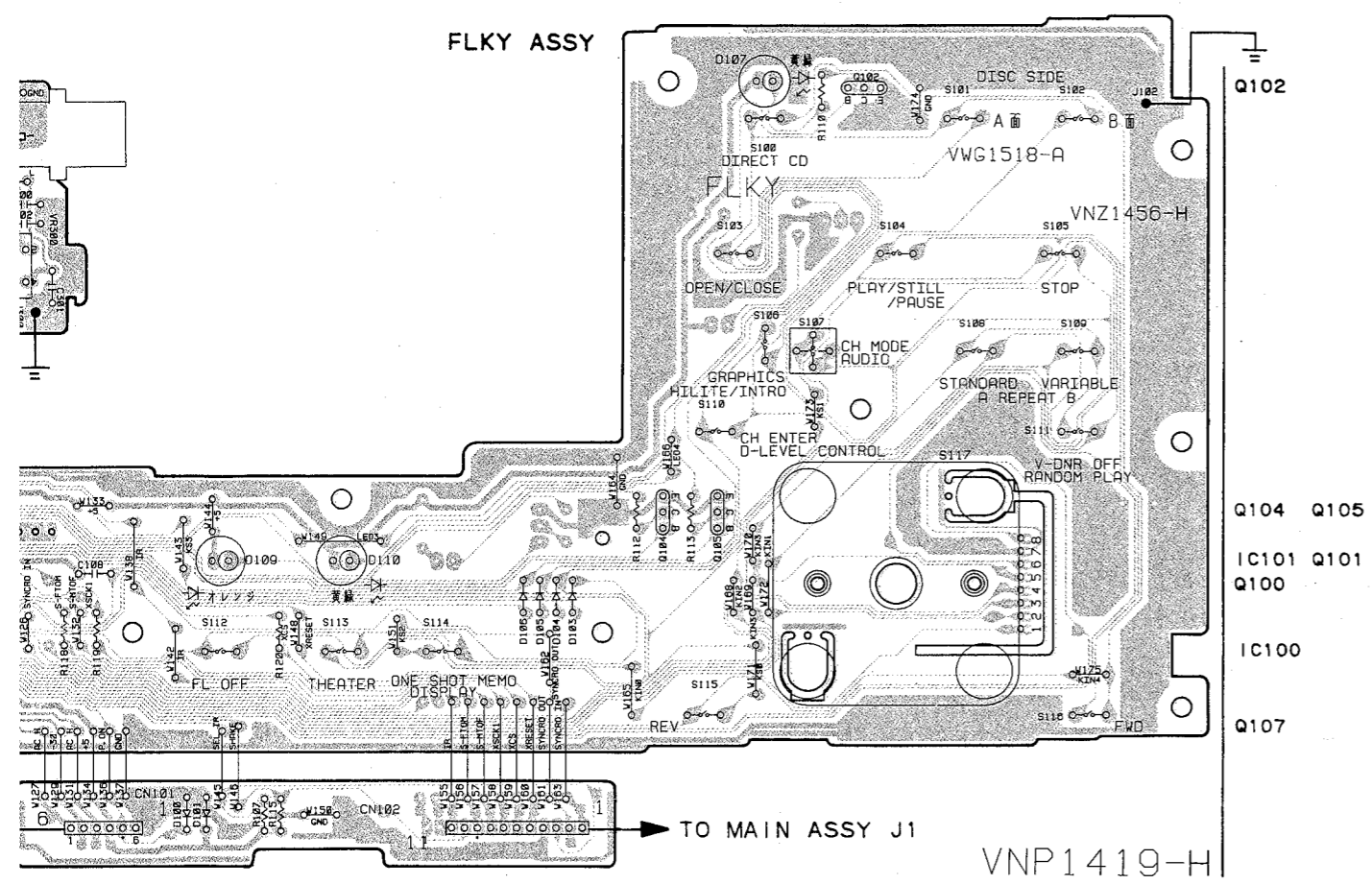
C



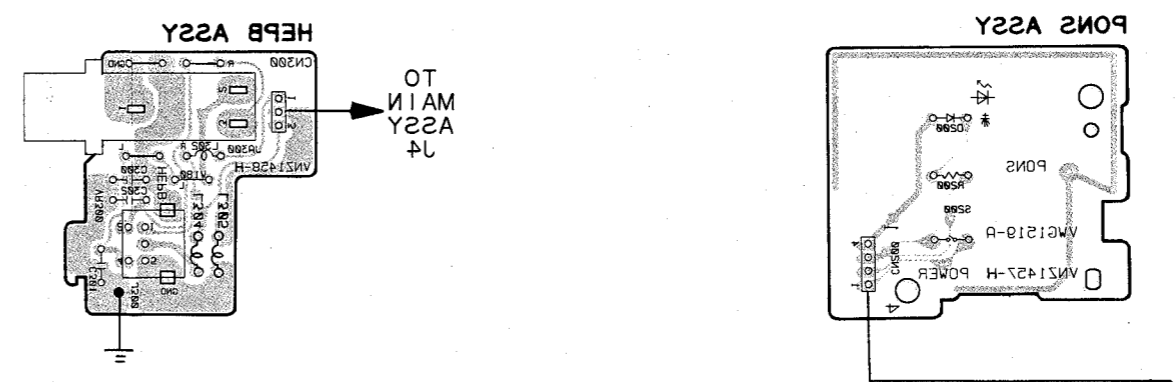
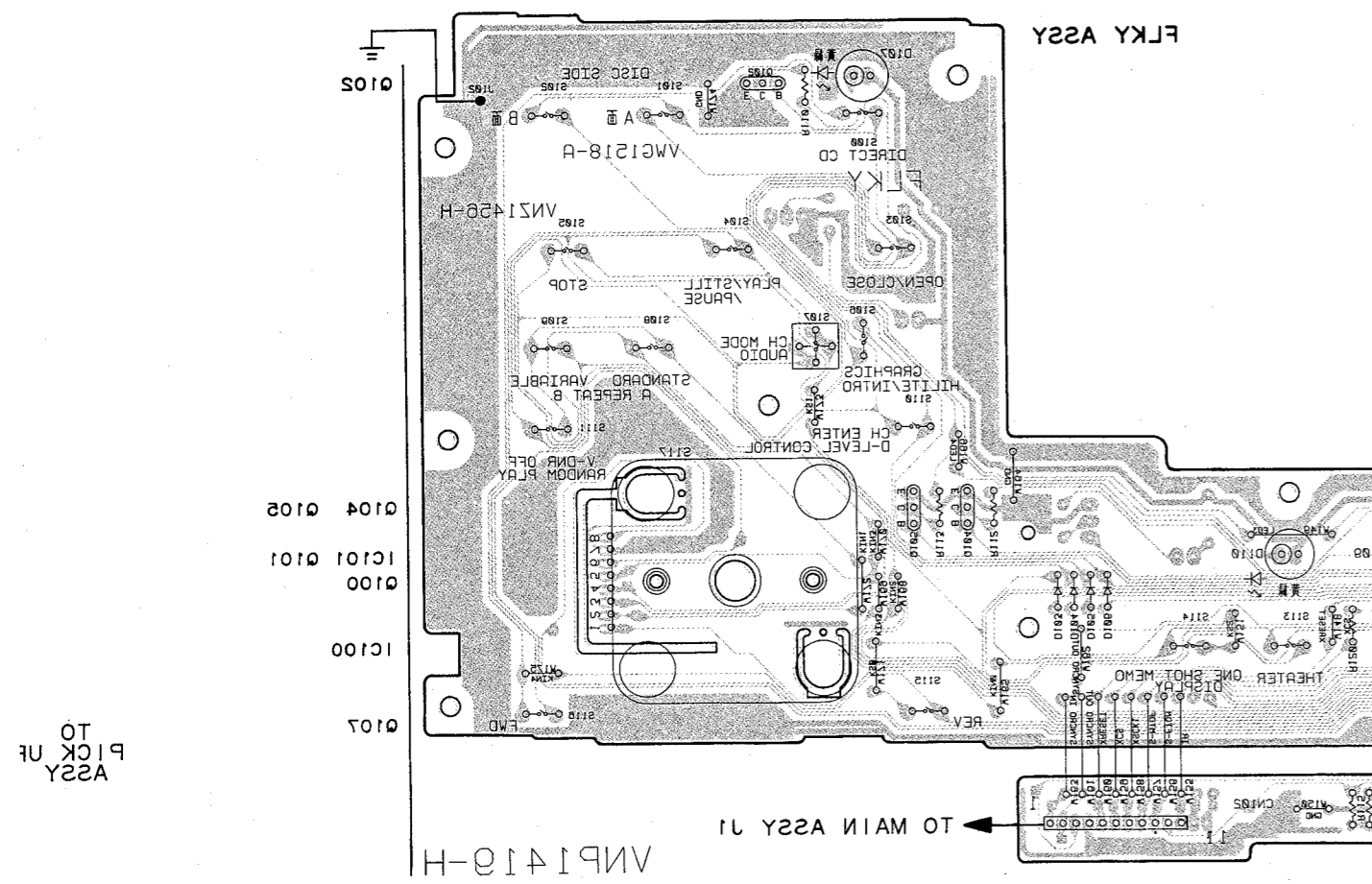
D



● This diagram is viewed from the mounted parts side.



● This diagram is viewed from the foil side.



ASSY TO PICK UP

2.2.2 POWER SUPPLY ASSY

● Power assembly warnings

For this power assy, over current is detected by resistance and transistor. The ±14V wiring is short by the thyristor and all output generation is stopped.

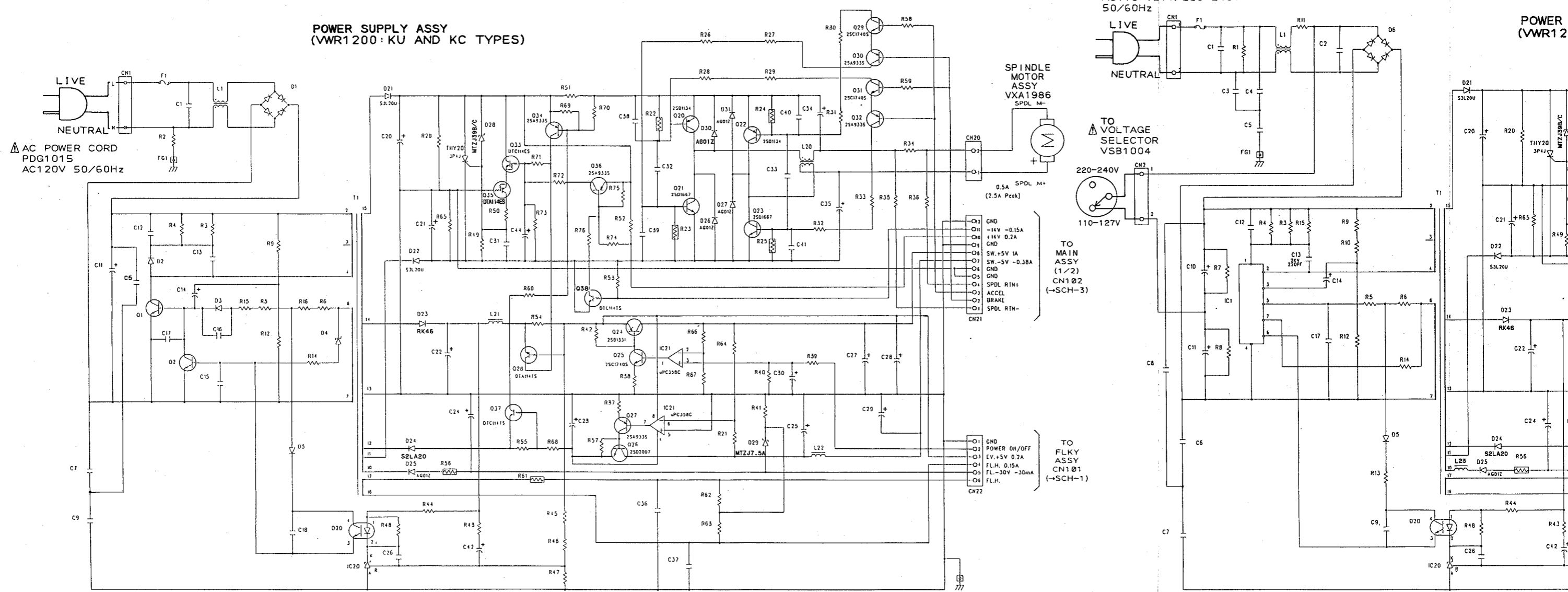
* When the circuit is short and the power goes OFF, unplug the unit and let it discharge for 10-30 seconds and then plug it again and turn on power.

* When output is stopped, a 120V charge remains for about one minute. Be careful not to touch anything.

—Detection circuit (reference)—

- For SPDL use +14V...Q34, R51
- +14V...Q36, R52
- 14V...Q38, R53
- +5V...Q28, R54
- 5V...Q37, R55
- thyristor...THY20

POWER SUPPLY ASSY
(VWR1200: KU AND KC TYPES)



△ AC POWER CORD
PDG1013
AC110-127V/220-240V
50/60Hz

△ TO VOLTAGE SELECTOR
VSB1004

SPINDLE MOTOR ASSY
VXA1986
SPDL M+

0.5A SPDL M+
(2.5A Peak)

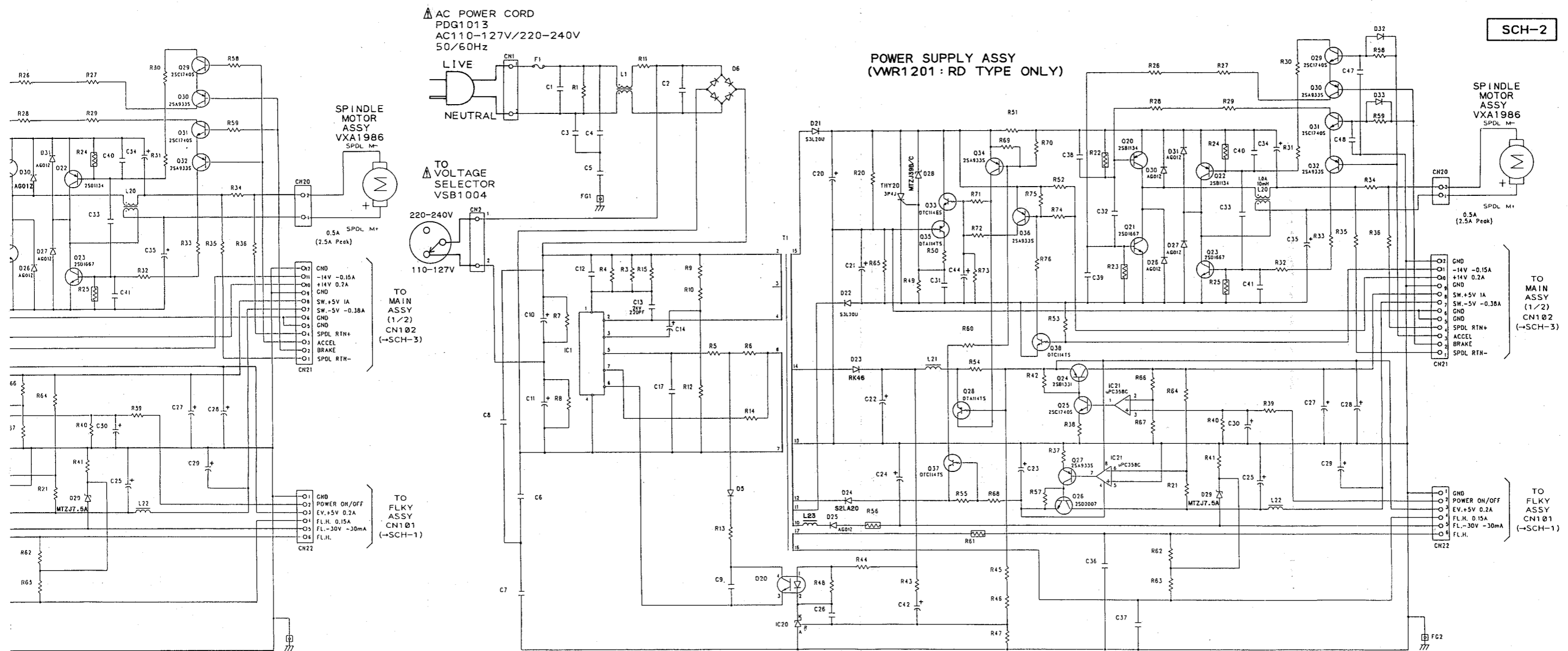
TO MAIN ASSY
CN102
CN102
(→SCH-3)

TO FLKY ASSY
CN101
(→SCH-1)

POWER
(VWR12

SCH-2

POWER SUPPLY ASSY



SCH-2

POWER SUPPLY ASSY SCH-2

● This diagram is viewed from the mounted parts side.

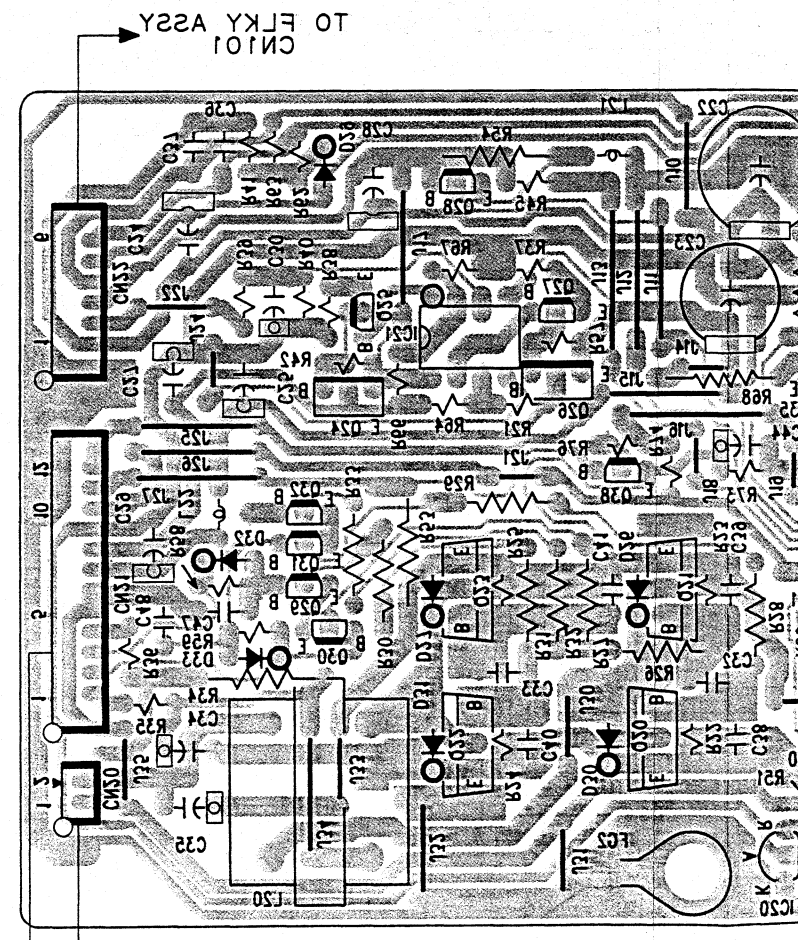
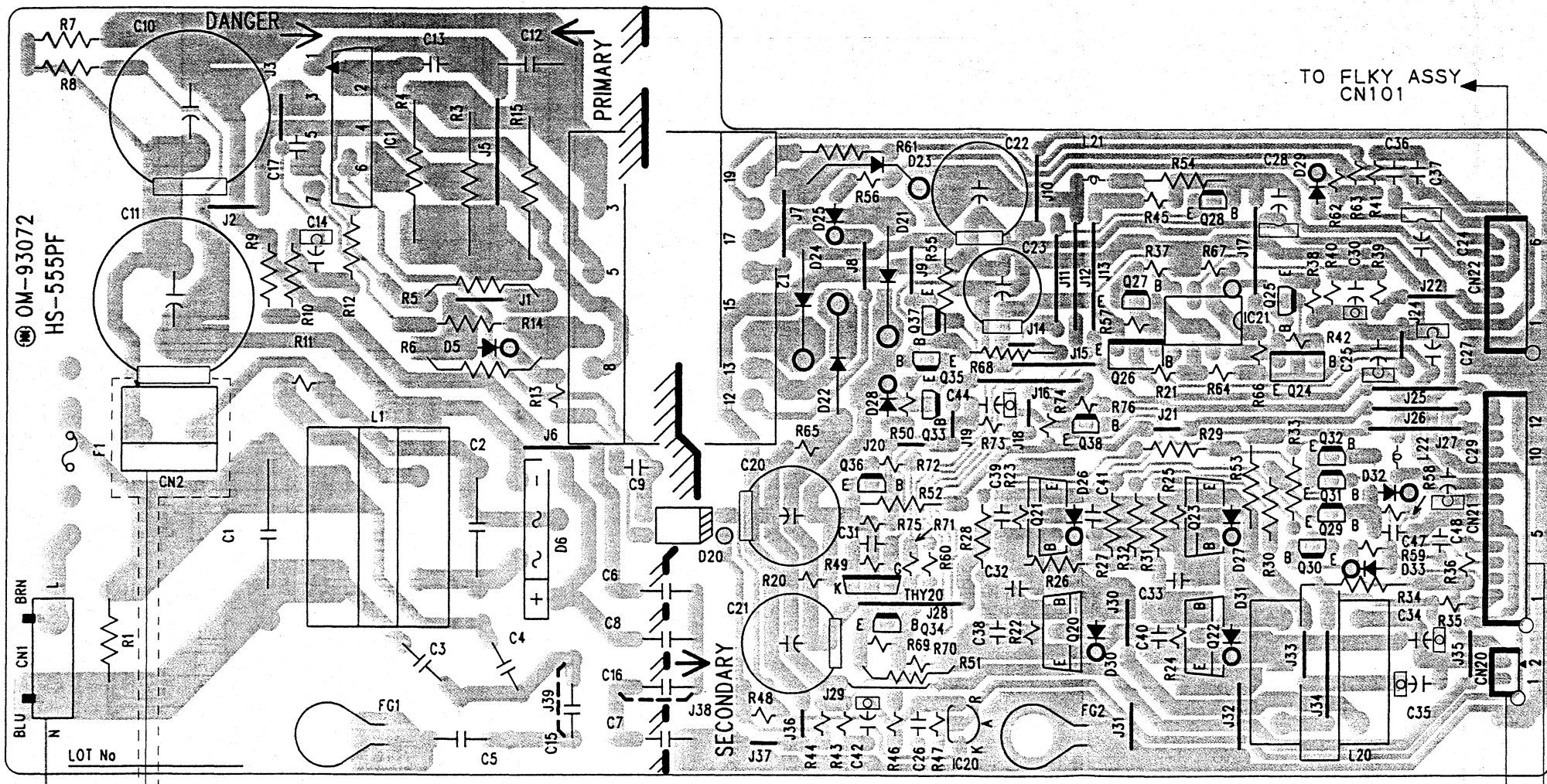
POWER SUPPLY ASSY

PCB-2

PCB-S

Q37	Q28	Q32
Q35	IC21	Q31
Q33	Q23	Q29
Q36	Q22	Q30
IC20	Q20	Q26
Q21	Q27	
Q38	Q25	

Q30	Q34	Q35	Q38	Q39	Q40
Q41	Q42	Q43	Q44	Q45	Q46
Q47	Q48	Q49	Q50	Q51	Q52
Q53	Q54	Q55	Q56	Q57	Q58
Q59	Q60	Q61	Q62	Q63	Q64



mounted parts side.

● This diagram is viewed from the foil side.

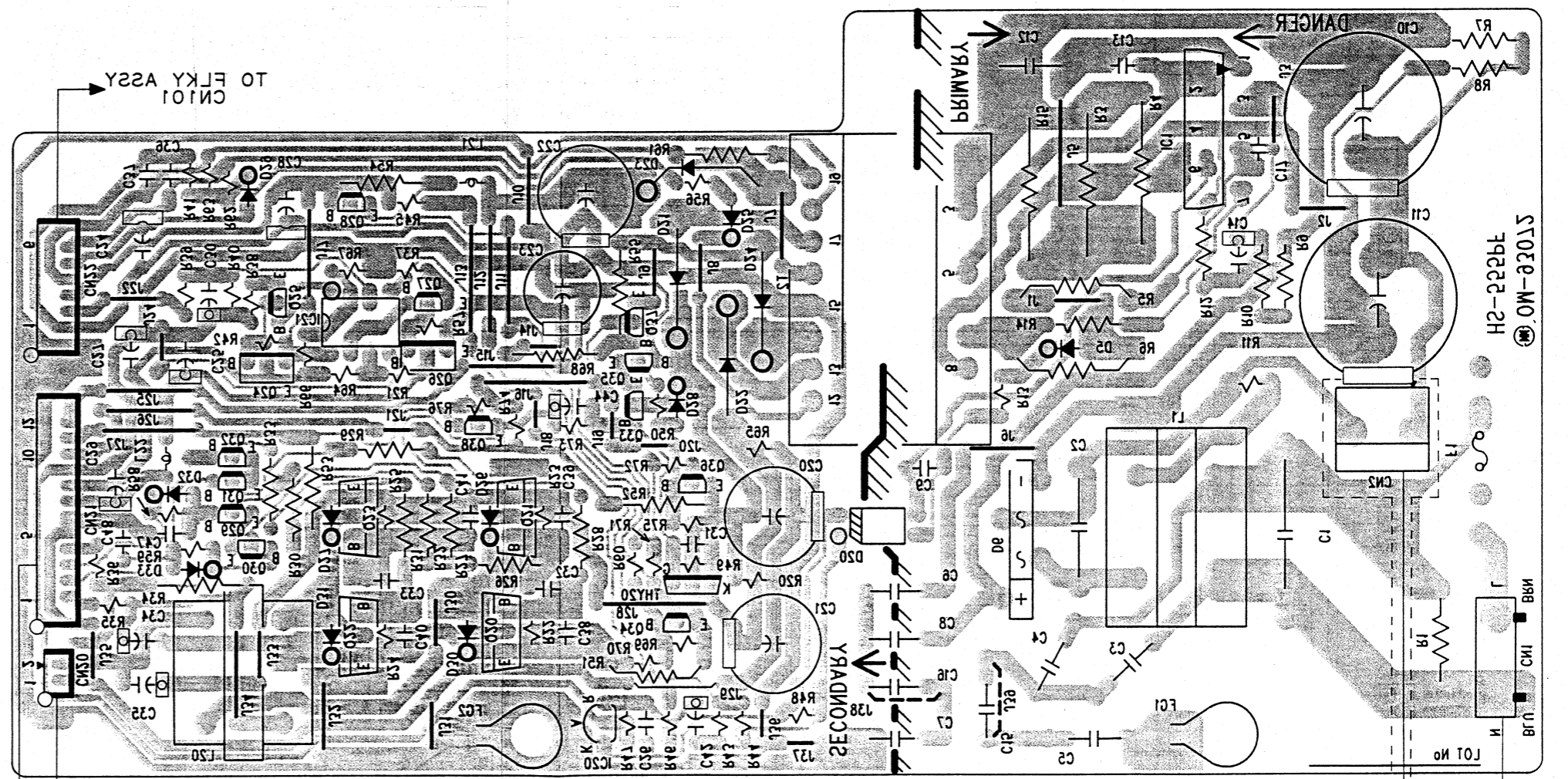
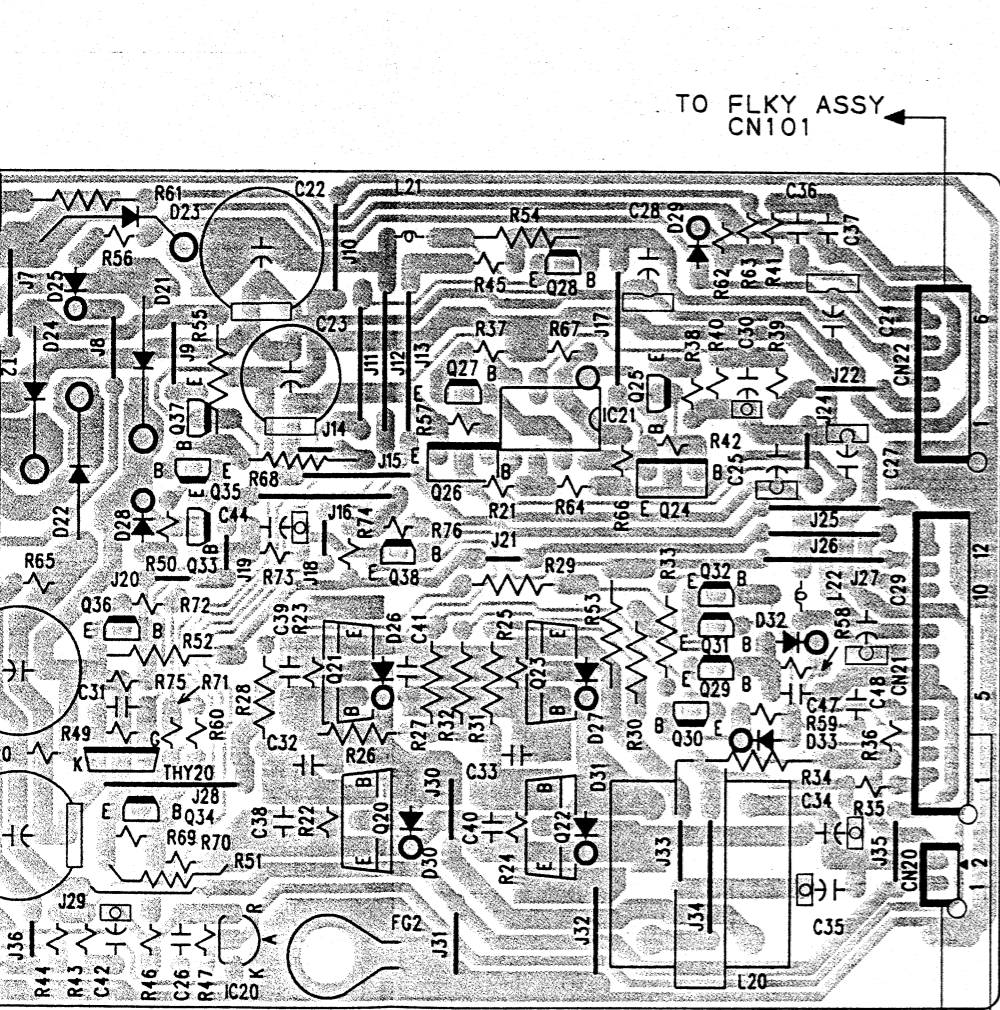
PCB-2

PCB-3

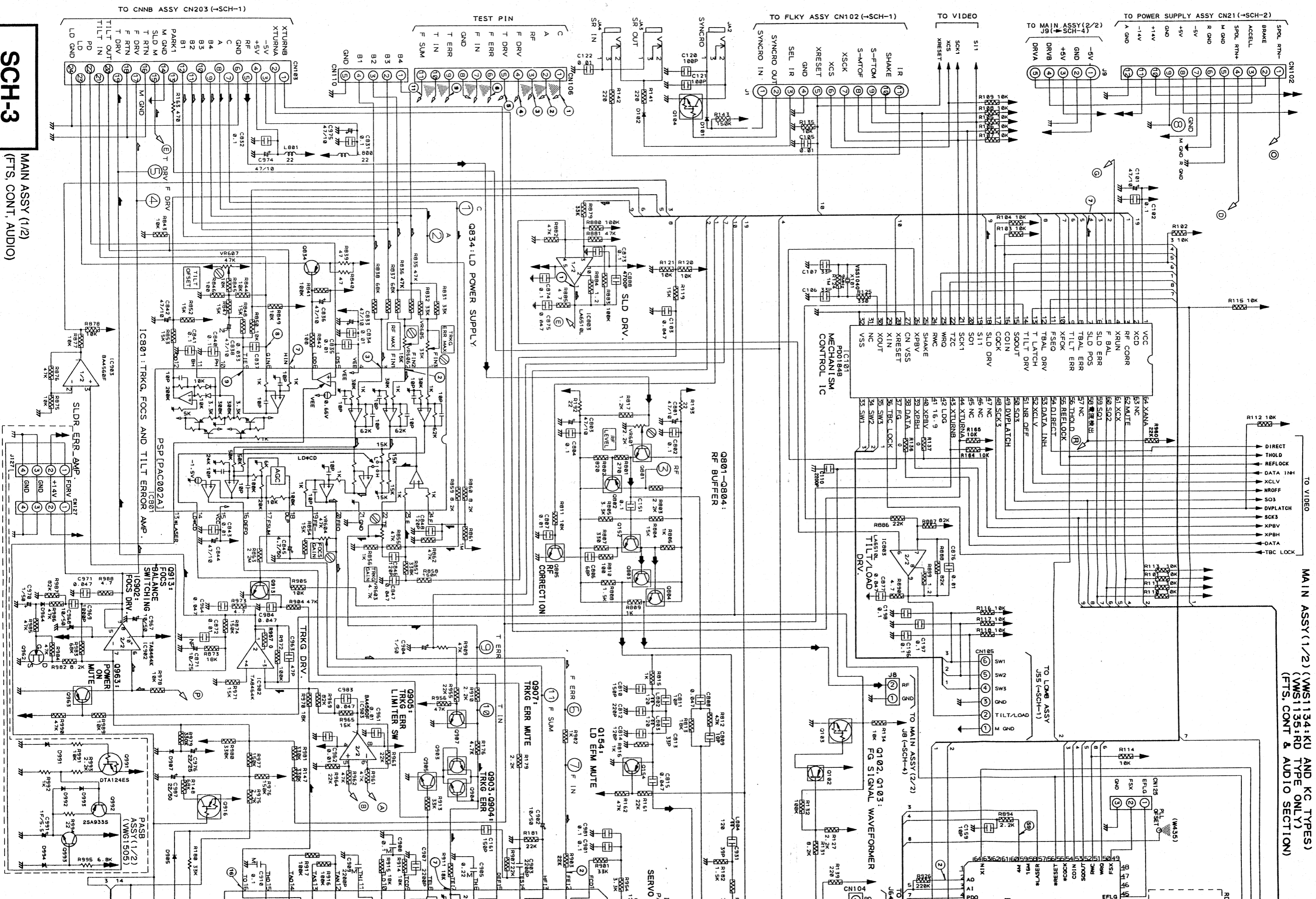
POWER SUPPLY ASSY

Q37	Q28	Q32
Q35	IC21	Q31
Q33	Q21	Q27
Q36	Q20	Q26
Q34	Q23	Q25
IC10	Q22	Q24
Q29	Q30	

Q37	Q58	Q32
Q35	IC51	Q31
Q33	Q52	Q27
Q36	Q53	Q26
Q34	Q54	Q25
IC20	Q55	Q24
Q29	Q56	Q23
Q30	Q57	Q22
Q31	Q58	Q21
Q32	Q59	Q20
Q33	Q60	Q19
Q34	Q61	Q18
Q35	Q62	Q17
Q36	Q63	Q16
Q37	Q64	Q15
Q38	Q65	Q14
Q39	Q66	Q13
Q40	Q67	Q12
Q41	Q68	Q11
Q42	Q69	Q10
Q43	Q70	Q9
Q44	Q71	Q8
Q45	Q72	Q7
Q46	Q73	Q6
Q47	Q74	Q5
Q48	Q75	Q4
Q49	Q76	Q3
Q50	Q77	Q2
Q51	Q78	Q1



2.2.3 MAIN ASSY (1/2) (F.TS, CONT AND AUDIO SECTION) AND PASB ASSY



SCH-3

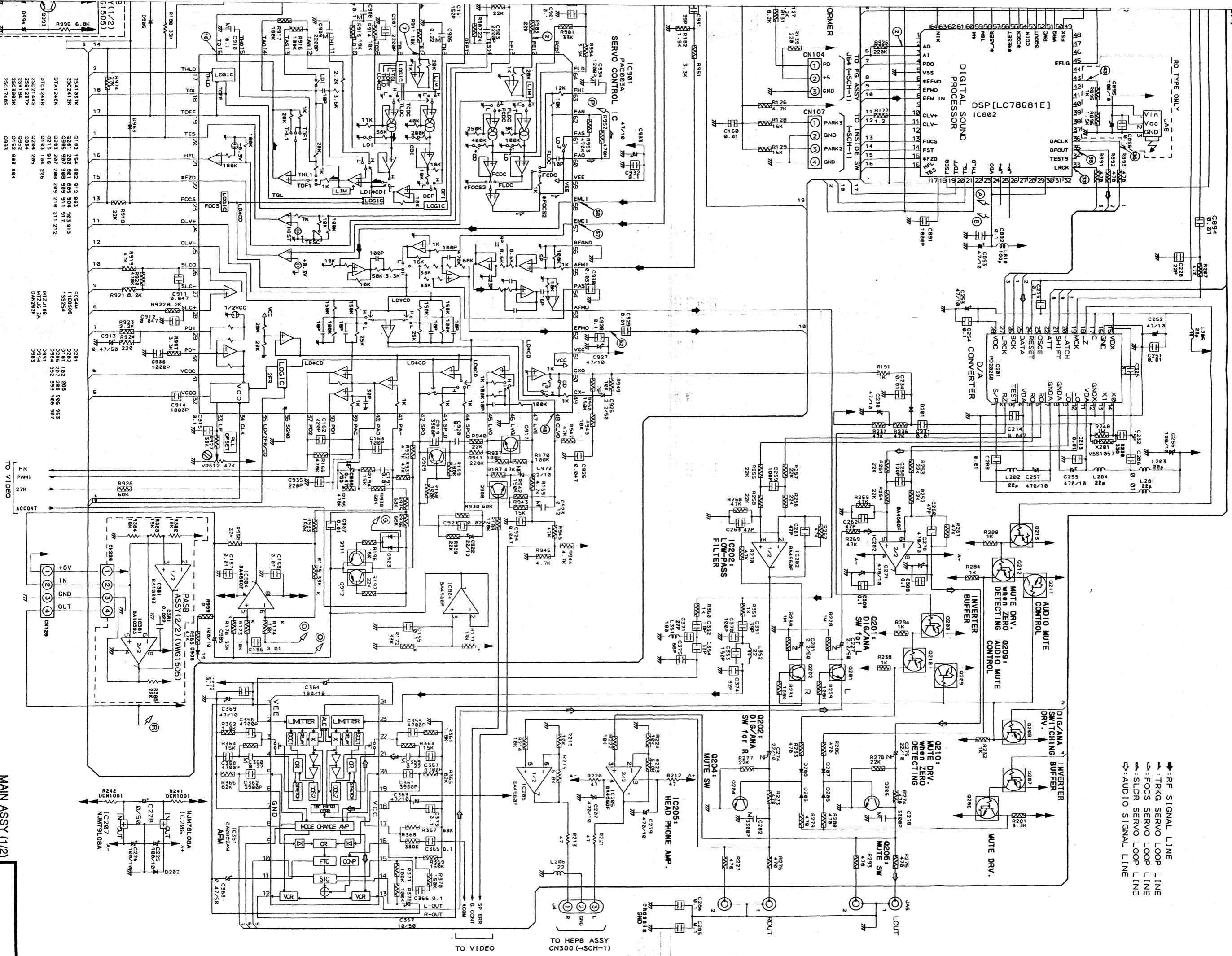
MAIN ASSY (1/2)
F.TS, CONT, AUDIO)
PASB ASSY

Note: Indicates connection destination of schematic diagrams.

VIDEO: SCH-4

SCH-3

- : RF SIGNAL LINE
- : TRKG SERVO LOOP LINE
- : FOCUS SERVO LOOP LINE
- : SLDR SERVO LOOP LINE
- : AUDIO SIGNAL LINE



25A1037K	0182 154 882 912 985	0281
25C2412K	0281 282 981 904 985 913	0282
0285 987 988 989 911 917	11E6S06	0283
0283 287 288 289 218 211 212	155254	0284
0283 916	0285 287 288 985 985	0285
0183 104 285	0286 287 288 985 985	0286
0284 285	0287 592 593 988 987	0287
0284 285	0288 592 593 988 987	0288
0284 285	0289 592 593 988 987	0289
0284 285	0290 592 593 988 987	0290
0284 285	0291 592 593 988 987	0291
0284 285	0292 592 593 988 987	0292
0284 285	0293 592 593 988 987	0293
0284 285	0294 592 593 988 987	0294
0284 285	0295 592 593 988 987	0295
0284 285	0296 592 593 988 987	0296
0284 285	0297 592 593 988 987	0297
0284 285	0298 592 593 988 987	0298
0284 285	0299 592 593 988 987	0299
0284 285	0300 592 593 988 987	0300

FC54M	0281
11E6S06	0282
155254	0283
0285 287 288 985 985	0284
0286 287 288 985 985	0285
0287 592 593 988 987	0286
0288 592 593 988 987	0287
0289 592 593 988 987	0288
0290 592 593 988 987	0289
0291 592 593 988 987	0290
0292 592 593 988 987	0291
0293 592 593 988 987	0292
0294 592 593 988 987	0293
0295 592 593 988 987	0294
0296 592 593 988 987	0295
0297 592 593 988 987	0296
0298 592 593 988 987	0297
0299 592 593 988 987	0298
0300 592 593 988 987	0299

TO VIDEO	FR
27K	PMI
ACCONT	27K

MAIN ASSY (1/2)
F.TS, CONT, AUDIO)
PASB ASSY

SCH-3

WAVEFORMS AND VOLTAGE FTS, CONT AND AUDIO SECTION

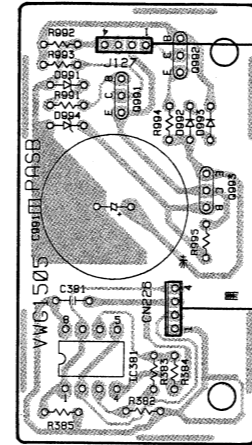
Note: (No.) in the table correspond to the pin number.

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

IC801(PAC002A)	IC802(LC78681E)	IC803(LA6510L)	IC901(PAC003A)	CN106	IC101 (PD0184B)
②, ③ 1mS/Div. 16mVp-p AC mode	② 0.1μS/Div. 4.3Vp-p AC mode(D.audio)	① 2mS/Div. 1.8Vp-p DC mode	② 0.2mS/Div. 74mVp-p DC mode	①, ② 5mS/Div. 65mVp-p DC mode	⑦ 1V/Div 5mS/Div. #1 .2V DC mode (Slidr err)
⑦, ⑧ 1mS/Div. 67mVp-p DC mode	③③ 10μS/Div. 4.2Vp-p AC mode(D.audio)		⑦ 0.2mS/Div. 74mVp-p DC mode	③ 0.5mS/Div. 300mVp-p AC mode	
⑨ 5mS/Div. 0.1Vp-p DC mode	③⑤ 0.2μS/Div. 4.4Vp-p AC mode(D.audio)		①⑥ 0.2mS/Div. 0.61Vp-p DC mode	④ 5mS/Div. 15Vp-p DC mode	
	③⑥ 0.2μS/Div. 4.5Vp-p AC mode(D.audio)		④⑧ 50μS/Div. 6.2Vp-p DC mode	⑤ 5mS/Div. 5.8Vp-p DC mode	
	④③ 0.1μS/Div. 4.5Vp-p AC mode(D.audio)		⑤② 0.2μS/Div. 2.1Vp-p AC mode	⑥ 5mS/Div. 3.5Vp-p DC mode	
	⑤⑨ 0.1μS/Div. 2Vp-p AC mode(D.audio)		⑤⑦ 1mS/Div. 0.53Vp-p DC mode	⑨ 5mS/Div. 1.25Vp-p DC mode	
			⑤⑧ 0.2mS/Div. 0.32Vp-p DC mode	①① 10mS/Div. 1.7Vp-p DC mode	

MAIN ASSY

PASB ASSY



VNP1448-A

IC381 Q991 Q992
Q993

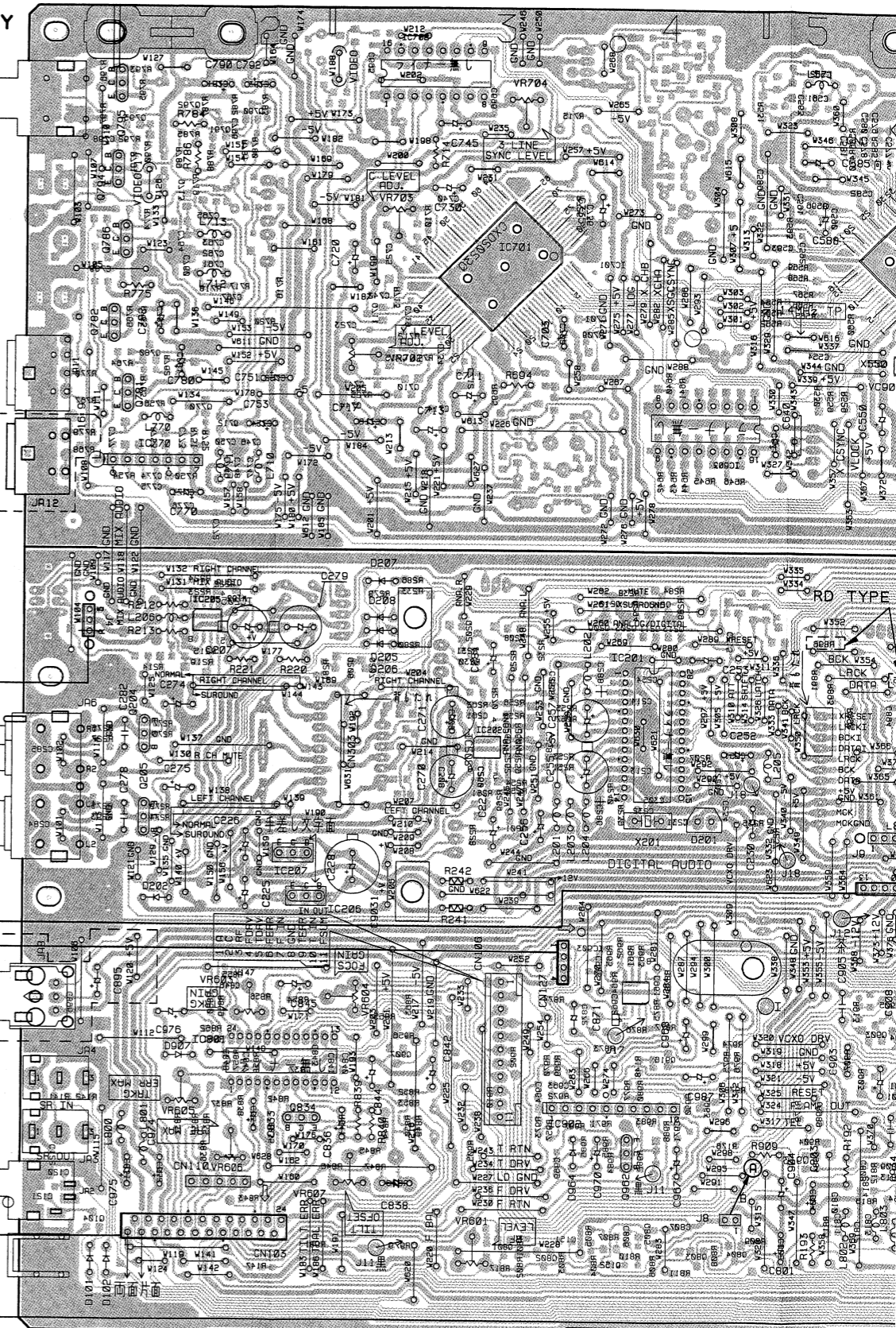
RD TYPE ONLY

TO HEPB ASSY
CN300

TO POWER SUPPLY ASSY
CN21

RD TYPE ONLY

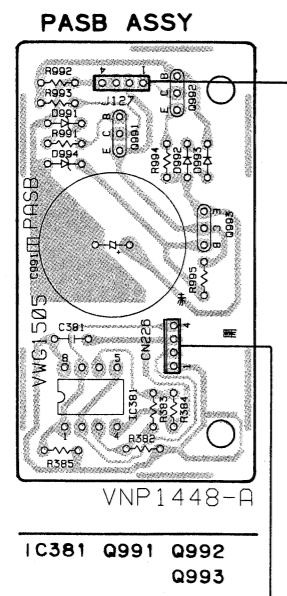
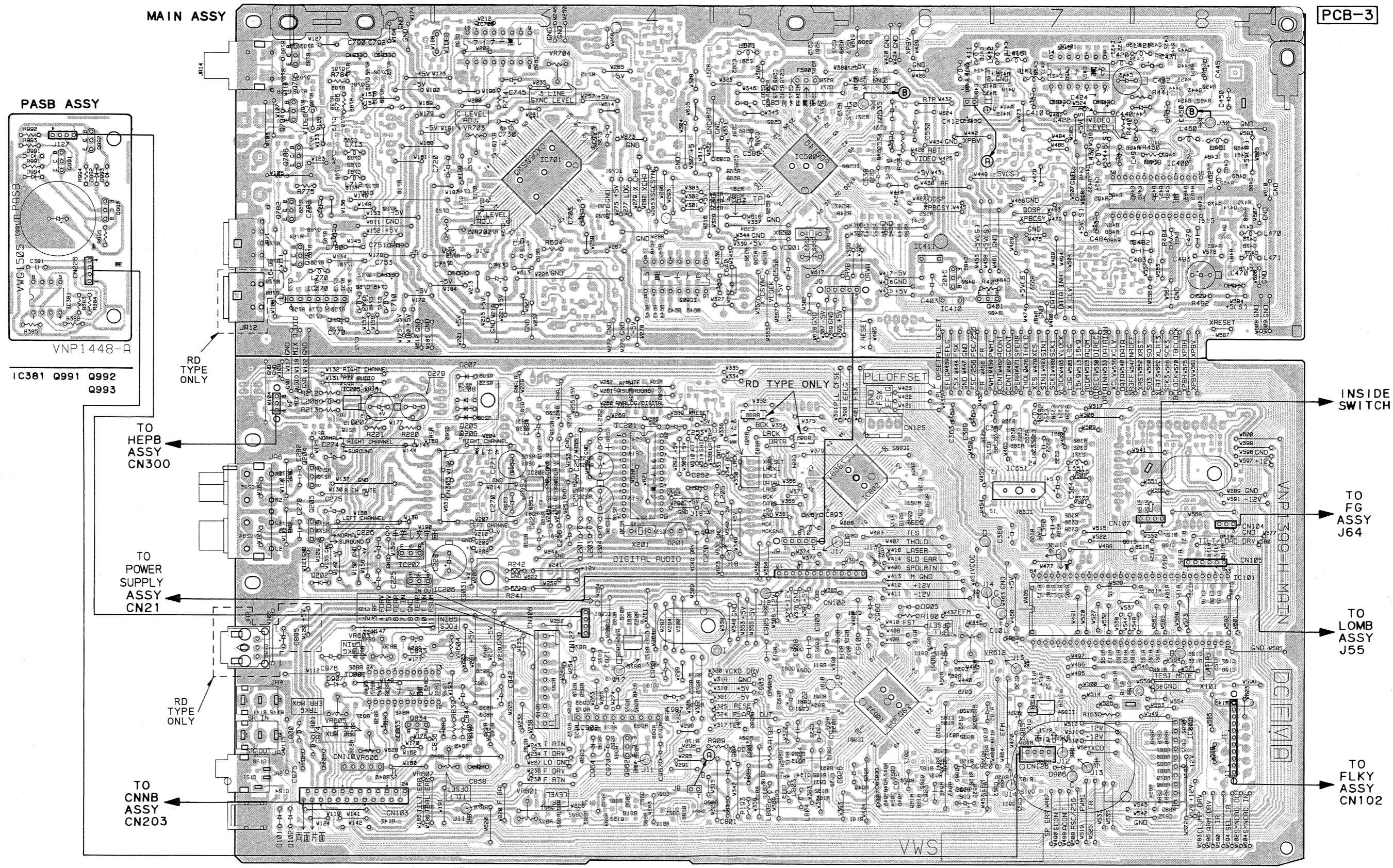
TO CNNB ASSY
CN203



VR605 VR603 VR604 VR702 VR704
VR606 VR607 VR703 VR601

Q795	Q204	IC770	IC207	IC206	IC702	S05D	105C	IC902	Q962	IC603	+08D	ε1ED	208D
Q794	Q205	ε1εD	IC801	ε0S0	1C702	S05D	ε1εD	Q962	IC201				ε0ED
Q786	εεεD	εεεD	Q834	ε0S0	ε10D	S05C	ε1εD	ε0S0	ε0S0				ε0D
Q781	08εD	ε1εD	εεD	ε0S0	ε0S0	ε0S0	ε0S0	ε0S0	ε0S0				εD
Q782	ε0D	ε0S0	ε1εD	ε0S0	ε0S0	ε0S0	ε0S0	ε0S0	ε0S0				εD

• This diagram is viewed from the mounted parts side.



RD TYPE ONLY

TO HEPB ASSY CN300

TO POWER SUPPLY ASSY CN21

TO CNNB ASSY CN203

INSIDE SWITCH

TO FG ASSY J64

TO LOMB ASSY J55

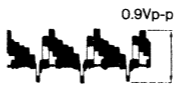
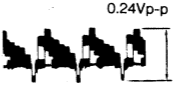

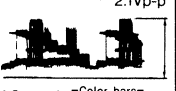
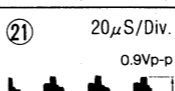
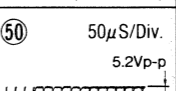
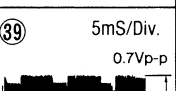
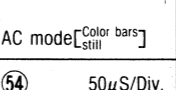
TO FLKY ASSY CN102

VR605	VR603	VR604	VR702	VR704	VR606	VR607	VR703	VR601	VC901	VR612	VR450
Q795	Q204	IC770	IC207	IC206	IC702	S0S0	107CJ1	IC902	Q962	IC603	†080
Q794	Q205	†12D	IC801	†0S0	†12D	†0S0	†12D	†0S0	†12D	IC201	†0S0
Q786	†27D	†27D	†27D	†27D	Q834	†10D	†10D	S0S0	†0S0	†12D	†0S0
Q781	†07D	†07D	†07D	†07D	†07D	†07D	†07D	†07D	†07D	†07D	†07D
Q782	†01D	†01D	†01D	†01D	†01D	†01D	†01D	†01D	†01D	†01D	†01D

WAVEFORMS AND VOLTAGE VIDEO SECTION

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

Measurement condition: Where (Color bars) is written, at time when color bar screen of disc is being played. Where (Still) is written, at time of still.

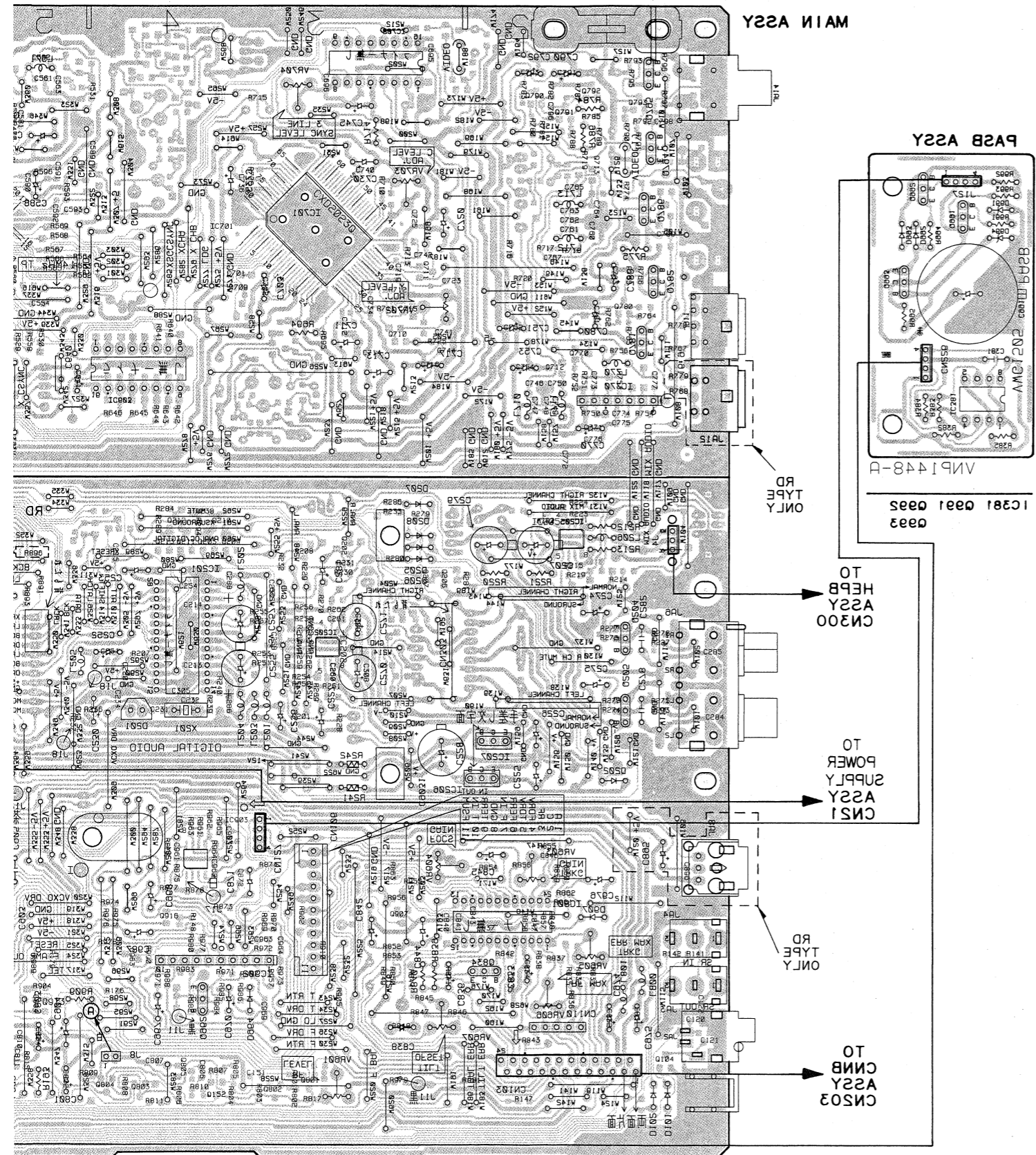
IC400(PA0058A)	IC401(PA0023AD)	IC500(PD0146A)	IC701(CXD2023Q)
(14) 20μS/Div. 0.9Vp-p  AC mode[Color bars]	(10) 20μS/Div. 0.24Vp-p  AC mode[Color bars]	(47) 20μS/Div. 1.7Vp-p  AC mode[Color bars]	(31) 10μS/Div. 2.1Vp-p  AC mode[Color bars] still
(21) 20μS/Div. 0.9Vp-p  AC mode[Color bars]		(50) 50μS/Div. 5.2Vp-p  AC mode[Color bars] still	(39) 5mS/Div. 0.7Vp-p  AC mode[Color bars] still
		(54) 50μS/Div. 2.5Vp-p  AC mode[Color bars] still	

A

B

C

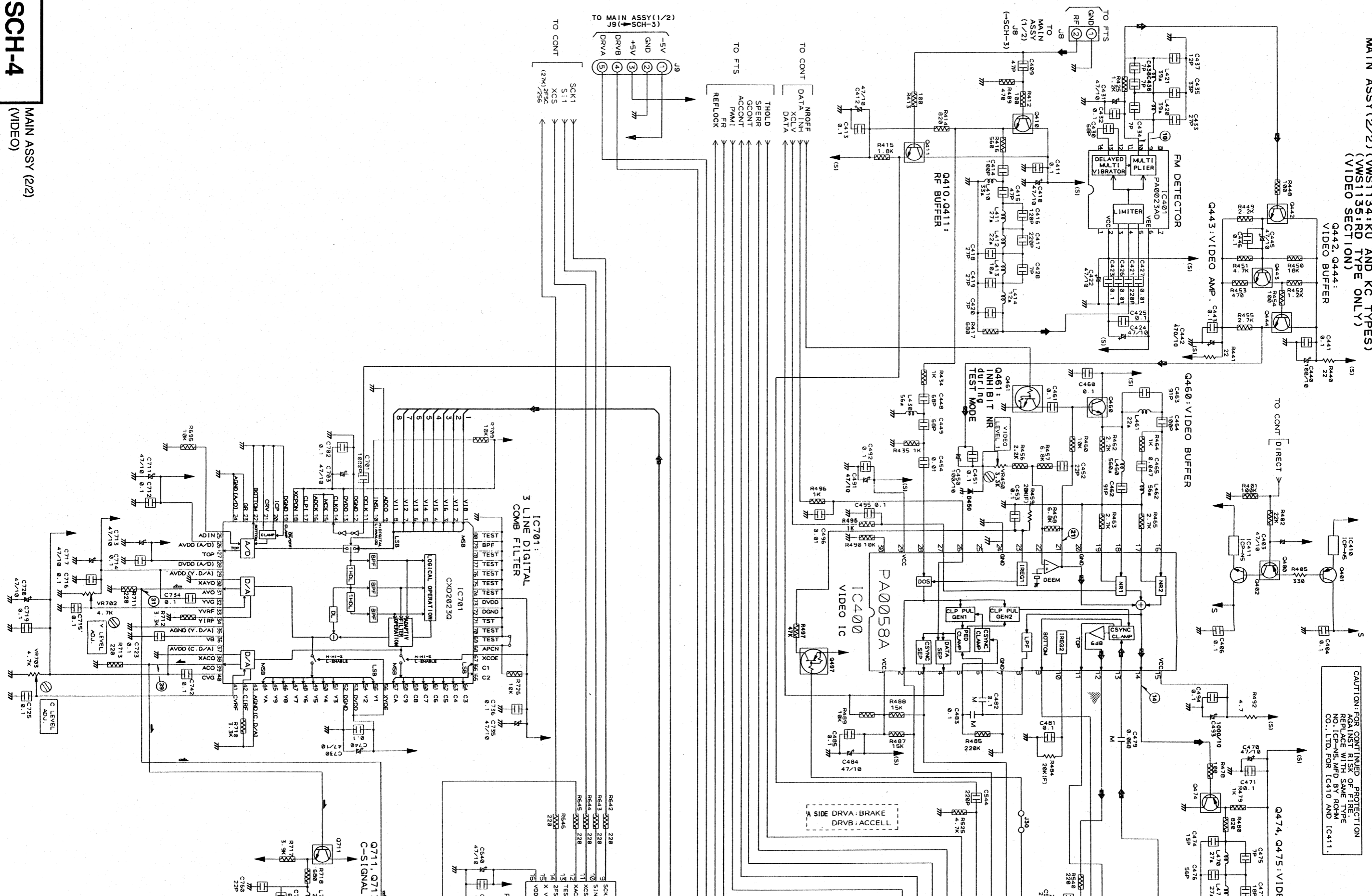
D



Q785	Q104	Q105	Q712	Q907
Q780	Q770	Q790	Q207	Q201
Q870	Q793	Q791	Q710	Q202
Q713	Q717	Q801	Q206	Q711
Q208	Q208	Q203	Q152	Q203
Q803	Q209-Q213	Q802	Q202	Q803
Q963	Q903	Q201	Q963	Q963
Q805	Q801	Q801	Q916	Q805

MAIN ASSY (2/2) (W51134:KU AND KC TYPES)
(W51135:RD TYPE ONLY)
(VIDEO SECTION)

CAUTION: FOR CONTINUED PROTECTION
AGAINST RISK OF FIRE
REPLACE WITH SAME TYPE
NO. ICP-N5 MFD BY ROHM
CO., LTD. FOR IC410 AND IC411.



SCH-4 MAIN ASSY (2/2) (VIDEO)

F

E

D

C

B

A

1

2

3

4

