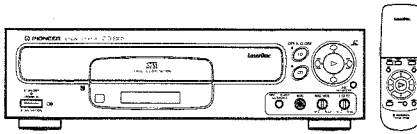


Service Manual



ORDER NO.
RRV1184

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CD CDV LD PLAYER

CLD-S370

CLD-S270

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

Type	Model		Power Requirement	Remarks
	CLD-S370	CLD-S270		
TD	○	○	AC110-240V	

- For the circuit and mechanism descriptions, refer to the service guide RRV1188 for CLD-S370/TD.

CONTENTS

CHAPTER 1

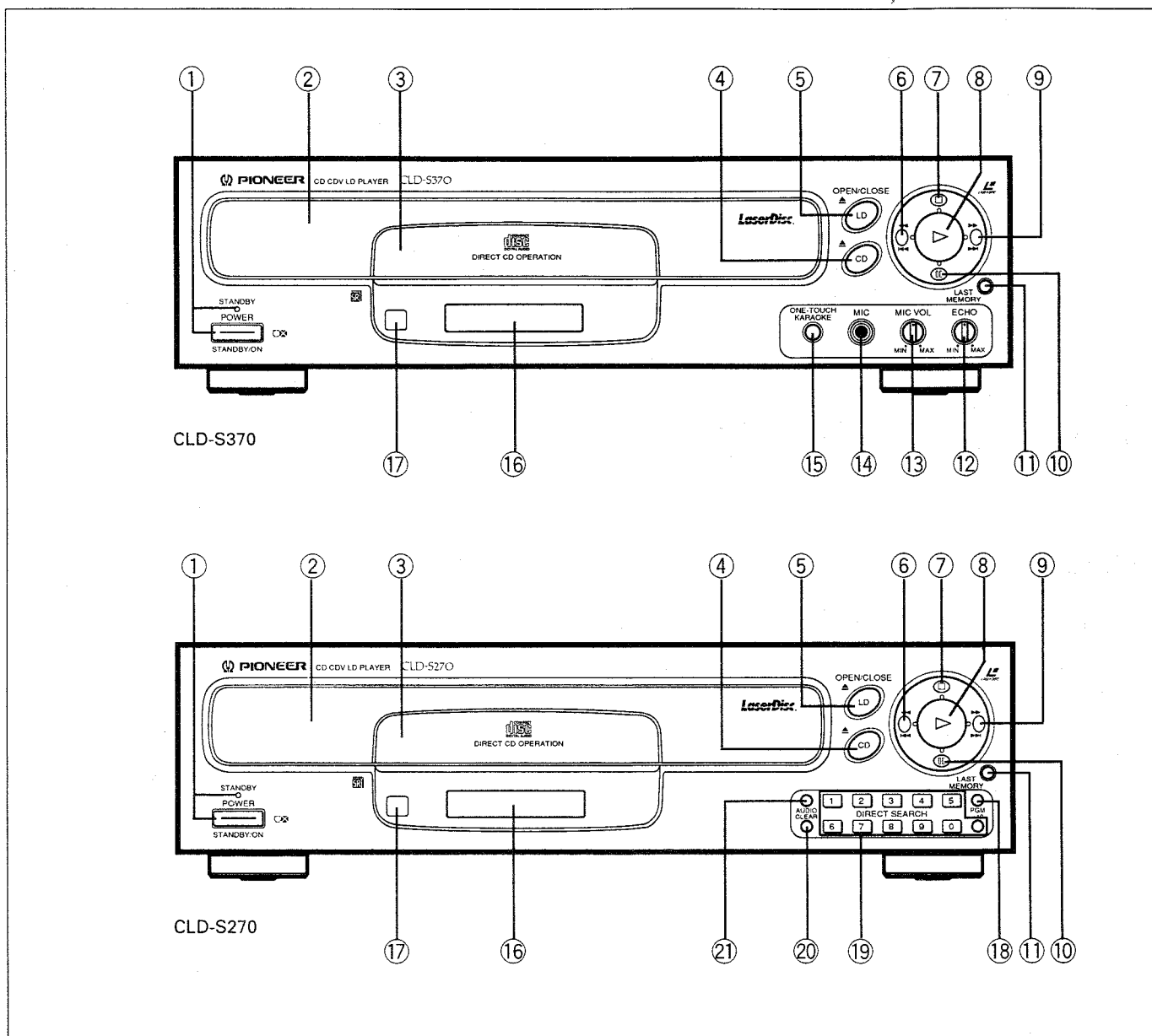
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CHAPTER 2

2.1 PACKING AND EXPLODED VIEWS ...	2-3
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CHAPTER 1

1.1 SPECIFICATIONS



- ① **POWERSTANDBY/ON switch and STANDBY indicator**
Press to turn the power on and off.
- ② **Disc table**
- ③ **CD Disc table**
- ④ **CD OPEN/CLOSE (▲) button**
- ⑤ **LD OPEN/CLOSE (▲) button**
- ⑥ **Track/manual search (|◀◀, ◀◀|) button**
- ⑦ **Stop (■) button**
- ⑧ **Play (▶) button**
- ⑨ **Track/manual search (▶▶, ▶▶|) button**
- ⑩ **Pause (||) button**

- ⑪ **LAST MEMORY button**
- ⑫ **ECHO level control**
- ⑬ **MIC VOL control**
- ⑭ **MIC jack**
- ⑮ **ONE-TOUCH KARAOKE button**
- ⑯ **Display window**
- ⑰ **Remote sensor**
- ⑱ **PGM button**
- ⑲ **DIRECT SEARCH/digit buttons**
- ⑳ **CLEAR button**
- ㉑ **AUDIO button**

1.2 PANEL FACILITIES

General

System	LaserVision Disc system and Compact Disc digital audio system
Laser	Semiconductor laser wavelength 780 nm
Power requirements	
CLD-S370, CLD-S270	AC 110 - 240 V, 50/60 Hz
Power consumption	
CLD-S370	30 W
CLD-S270	30 W
Weight	
CLD-S370	5.9 kg (13 lbs 0 oz)
CLD-S270	5.7 kg (12 lbs 9 oz)
Dimensions	
CLD-S370	420 (W) x 384 (D) x 120 (H) mm 16-9/16 (W) x 15-1/8 (D) x 4-3/4 (H) in
CLD-S270	420 (W) x 381 (D) x 120 (H) mm 16-9/16 (W) x 15 (D) x 4-3/4 (H) in
Operating temperature	+5 °C ~ +35 °C (41 °F ~ 95 °F)
Operating humidity	5 % ~ 85 % (There should be no condensation of moisture.)

Video characteristics

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

Audio characteristics

Output level	
During analog audio output	200 mVrms (1 kHz, 40 %)
During digital audio output	200 mVrms (1 kHz, -20 dB)
Jacks	Both RCA jacks
Number of channels	2 (Stereo)

Digital Audio Characteristics

CLD-S370:

Frequency response	4 Hz - 20 kHz
SN ratio	115 dB (EIAJ)
Dynamic range	96 dB (EIAJ)
Total harmonic distortion	0.0035 % (EIAJ)
Wow and flutter	Limit of measurement (EIAJ)

CLD-S270:

Frequency response	4 Hz - 20 kHz
SN ratio	98 dB (EIAJ)
Dynamic range	94 dB (EIAJ)
Total harmonic distortion	0.0045 % (EIAJ)
Wow and flutter	Limit of measurement (EIAJ)

Other terminals

Control input/output	Both miniature jacks
VHF adapter output (Video/Audio)	Both RCA jacks with DC jack

Accessories

Remote control unit	1
Size "AAA" (IEC R03) dry cell batteries (CLD-S370)	2
Size "AA" (IEC R6P) dry cell batteries (CLD-S270)	2
Video cord	1
Audio cord	1
Operating instructions	1
Warranty card	1

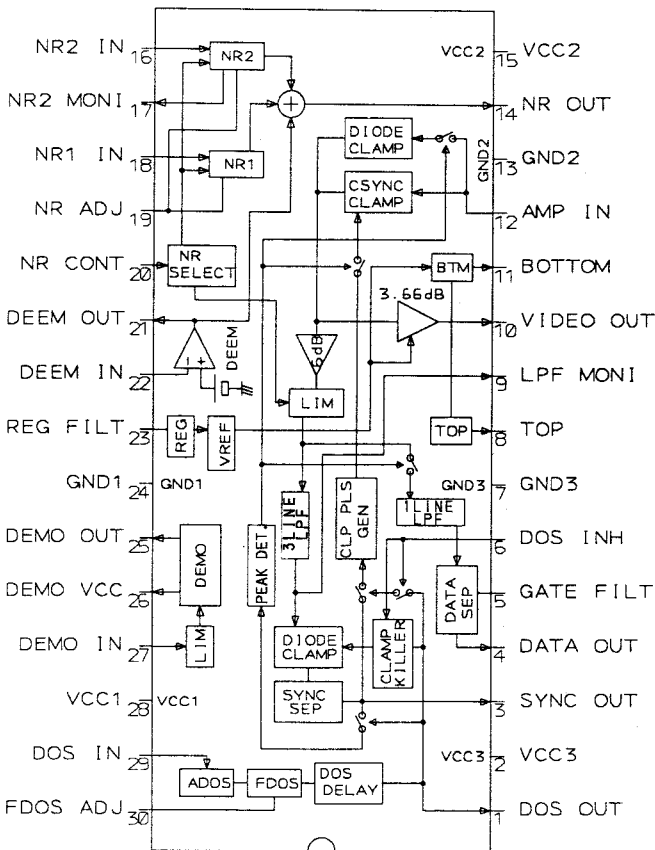
NOTE:

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

1.3 IC INFORMATION

- PAC005A (MOTHER ASSY : IC400)
- VIDEO IC

● Block Diagram



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

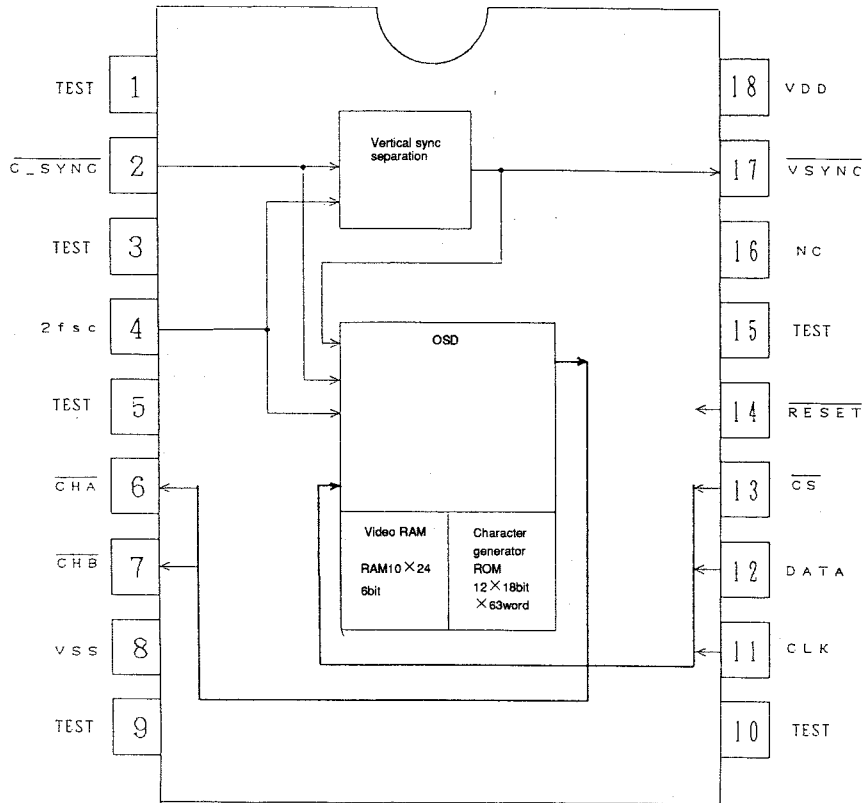
● Pin Function

PIN No.	Code	Function
1	DOS OUT	drop out pulse output
2	VCC3	sync separation VCC
3	SYNC OUT	composite sync output
4	DATA OUT	data pulse output
5	GATE FILT	data - gate capacitor pin
6	DOS INH	clamp pulse, clamp killer control
7	GND3	sync separation ground
8	TOP	A/D reference DC (top)
9	LPF MONI	sync separation LPF monitor
10	VIDEO OUT	A/D signal output
11	BOTTOM	A/D reference DC (bottom)
12	AMP IN	sync tip clamp input
13	GND2	video ground
14	NR OUT	noise reduction output
15	VCC2	video VCC
16	NR2 IN	noise reduction signal input (2)
17	NR2 MONI	noise reduction limiter output
18	NR1 IN	noise reduction signal input (2)
19	NR ADJ	noise reduction limiter level adjust pin
20	NR CONT	noise reduction (1, 2) select and limiter control
21	DEEM OUT	deemphasis output
22	DEEM IN	deemphasis input
23	REG FILT	regulator capacitor pin
24	GND1	RF ground
25	DEMO OUT	RF signal demodulation output
26	DEMO VCC	FM demodulation output VCC
27	DEMO IN	FM demodulation RF input
28	VCC1	RF VCC
29	DOS IN	DOS RF input
30	FDOS ADJ	FDOS sensitivity adjustment

■ PD9004A (MOTHER ASSY : IC603)

● OSD IC

● Block Diagram



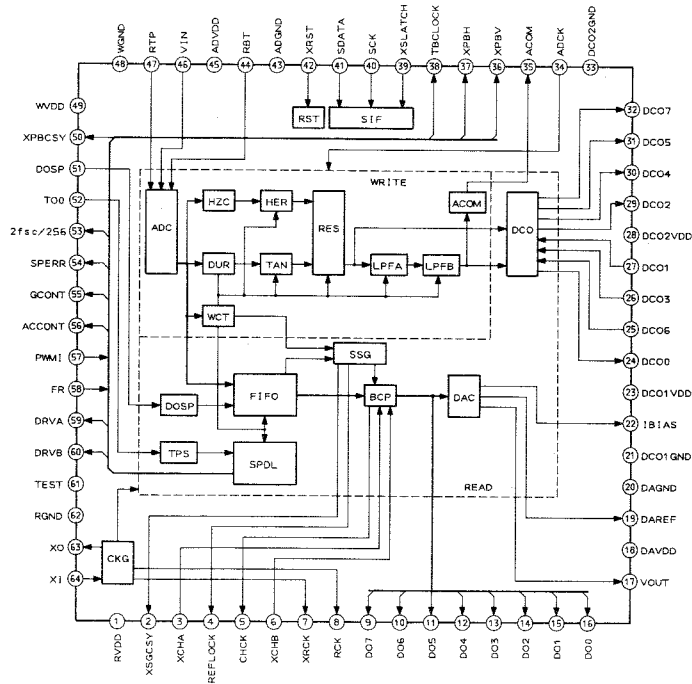
● Pin Function

Pin No	Code	I/O	Logic	Function
1	TEST	—	—	Do not connect any external components.
2	CSYNC	I	Negative	Composite sync signal input
3	TEST	—	—	Do not connect any external components.
4	2fsc	I	—	Color subcarrier frequency 2 × clock input (NTSC about 7.14 MHz PAL about 8.8 MHz)
5	TEST	—	—	Do not connect any external components.
6	CHA	O	Negative	Character timing output
7	CHB	O	Negative	Blanking timing output
8	VSS	—	—	Connected to system ground
9	TEST	—	—	Do not connect any external components.
10	TEST	—	—	Do not connect any external components.
11	CLK	I	↑	Data read-in clock input pin; the data applied to the Data pin is read-in at the rising edge of the clock.
12	DATA	I	Positive	Control data input pin; the data is read-in synchronized with the clock applied to the CLK pin.
13	CS	I	Negative	Low for serial communications
14	RESET	I	Negative	Hardware reset with pull-up resistance
15	TEST	—	—	Do not connect any external components.
16	NC	—	—	Not connected
17	VSYNC	O	Negative	Signal with V sync separated from C sync
18	VDD	—	—	Power supply (+5V) pin

PD0192A (MOTHER ASSY : IC500)

DIGITAL VIDEO PROCESSOR

● **Block Diagram**



● **Pin Function**

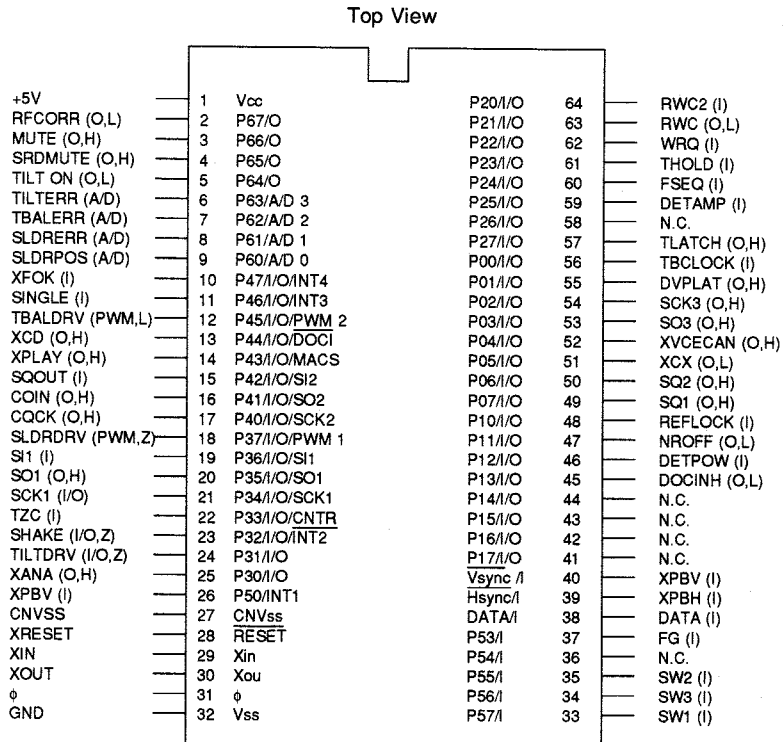
Pin No.	Code	I/O	Function
1	RVDD	Reference power supply pin	Reference power supply pin; connected to +5 V.
2	XSGCSY	Reference composite output	Output the reference composite sync with negative logic. The amount of delay is controlled with serial commands.
3	WFM	Write field monitor output	MEMSYS : 1 High output for odd field
	XCHA	Character input pin	MEMSYS : 0 Low input for character insertion
4	XTBCH	TBC H sync output	MEMSYS : 1 Output the horizontal sync for which the time axis has been corrected with negative logic.
	REFLOCK	SSG phase detection signal output	MEMSYS : 0 High output when the phase difference for the PB (after TBC) and SSG horizontal and vertical sync phase difference is small enough
5	XTBCV	TBC vertical sync output	MEMSYS : 1 Vertical sync with time axis corrected is output with negative logic.
	GHCK	CLK output for character generator	MEMSYS : 0 2fsc out
6	FCH	Field change input	MEMSYS : 1 High switches SSG field
	XCHB	Character frame input pin	MEMSYS : 0 Low input for character frame insertion
7	XRCK	Reference inverted clock output	The reference clock is inverted and output.
8	RCK	Reference clock output	The reference clock is output.
9	DO7	Data Output 7	TBC processed video signals can be output for memory support. This setting is made with serial commands. DO7 is the most significant bit; DO0 is the least significant bit.
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	VOUT	Video output pin	TBC processed video output pin
18	DAVDD	D/A converter power supply pin	D/A converter power supply pin; connect to +5 V.
19	DAREF	Video D/A reference	D/A converter reference normally connected to DAGND via a 0.1 μF laminar ceramic capacitor.
20	DAGND	Video converter ground pin	D/A converter ground pin connected to ground.

PD0192A

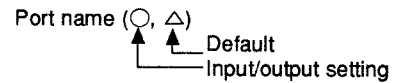
Pin No.	Code	I/O	Function
21	DCO1GND	DCO ground pin	DCO ground pin; connect to ground.
22	IBIAS	Bias current setting pin	A/D and D/A converter bias circuit current control pin; normally connected to DAGND via externally connected resistance.
23	DCO1VDD	DCO power supply pin	DCO power supply pin; connected to + 5V.
24	DCO0	DCO output pin	DCO output; this signal is multiplied by 4 to make ADCK.
25	DCO6	Wave forming input pin 6	The DCO4 output signal is delayed 35 ns and input (self biased).
26	DCO3	Wave forming input pin 3	The DCO2 output signal is delayed 70 ns and input (self biased).
27	DCO1	Wave forming input pin 1	The DCO0 signal is passed through an fsc band pass filter and input (self biased).
28	DCO2VDD	4 multiply section power supply pin	4× power supply pin; connect to + 5V.
29	DCO2	Wave form output pin 2	Forms the DCO1 signal and outputs it.
30	DCO4	Wave form output pin 4	Outputs 2× signal
31	DCO5	Wave form output pin 5	Outputs 2× signal
32	DCO7	Wave form output pin 7	Outputs 4× signal; this signal is passed through a 4fsc ceramic filter to serve as the write system clock.
33	DCO2GND	4 multiply section ground pin	Ground pin for 4× section; connect to ground.
34	ADCK	Write system clock input pin	Write system clock input pin; the DCO7 output signal is passed through a 4fsc ceramic filter and input (self biased).
35	ACOM	Audio jitter correction control output	Outputs a signal whose duty follows the amount of the error obtained with the internal phase comparator. Used for audio jitter correction.
36	XPBV	PB vertical sync output	The V sync is separated from the Pin 50 (XPBCSY) signal and output with negative logic.
37	XPBH	PB horizontal sync output	The H sync is separated from the Pin 50 (XPBCSY) signal and output with negative logic.
38	TBCLOCK	PLL lock detection signal output	High output when spindle system loop and TBC loop are locked.
39	XSLATCH	Serial interface latch signal input	Provides the latch timing for data input to the serial interface (for low segment, latch and Schmidt trigger input).
40	SCK	Serial interface clock input	Serial interface clock input; value of SDATA read-in at rising edge (Schmidt trigger input).
41	SDATA	Serial interface data input	Provides data to the serial interface (Schmidt trigger input).
42	XRST	System reset input	Initializes registers within IC with negative logic (Schmidt trigger input).
43	ADGND	A/D converter ground pin	A/D converter ground pin; connect to ground.
44	RBT	A/D converter bottom reference input	Provides A/D converter bottom reference voltage.
45	ADVDD	A/D converter power supply pin	A/D converter power supply pin; connect to +5 V.
46	VIN	A/D converter input	A/D converter input pin; input composite video signal
47	RTP	A/D converter top reference input	Provides A/D converter top reference voltage.
48	WGND	Write ground pin	Write ground pin; connect to ground.
49	WVDD	Write power supply pin	Write power supply pin; connect to +5 V.
50	XPBCSY	PB composite sync input	Inputs PB composite sync with negative logic (Schmidt trigger input)
51	DOSP	Drop out pulse input	Inputs drop out detection pulses (Schmidt trigger input)
52	TO0	Tracking open pulse input	Inputs tracking open pulses (Schmidt trigger input).
53	2fsc/256		Outputs a clock dividing the master clock (4fsc) by 512.
54	SPERR	Spindle error output	Spindle error PFD error output pin; the results of PFDing PBH and RefH is output with tristate.
55	GCONT	Spindle gain control output	Output PWM signals corresponding to the value (GD0-GD3) set with serial command.
56	ACCNT	Acceleration control output	Output forcible acceleration/deceleration signals and acceleration/deceleration signals according to PBH sync frequency detection with tristate.
57	PWMI	Spindle error PWM input	Inputs a signal comparing the voltages of a triangular wave with the spindle error that has passed through the loop filter (Schmidt trigger input).
58	FR	Spindle error direction component input	Inputs a signal comparing the target voltage and the spindle error that has passed through a loop filter (Schmidt trigger input).
59	DRVA	Driver interface output A	Spindle motor drive transistor control signal output pin; supports brush motors and brushless motors; the setting is made with serial commands.
60	DRVB	Driver interface output B	Spindle motor drive transistor control signal output pin; the setting is made with serial commands.
61	TEST	Test input	IC test input pin; always low
62	RGND	Reference ground pin	Reference ground pin; connect to ground.
63	XO	Oscillation output	Oscillation crystal (4fsc) connected.
64	XI	Oscillation input	Oscillation crystal (4fsc) connected.

■ PD0196C (MOTHER ASSY : IC101)
● MECHANISM CONTROL IC

● Pin Assignment



● Pin Functions



No.	Pin name	I/O	Function
1	Vcc	I	Power supply connection pin 5 V ±10% applied.
2	RFCORR	O	RF collection switch signal output pin. "H"=gain up CD, CDV - A : Low, gain raised with CAV internal adjustment, otherwise high.
3	MUTE	O	Audio system audio mute control signal output pin. "L"=mute off, "H"=mute
4	SRDMUTE	O	AC3 mute control signal output pin. Mute off only during play. "L"=mute off, "H"=Mute
5	TILT_ON	O	Tilt operating data. (for debugging) "H"=operating For tilt operation verification
6	TILTERR	I A/D	This signal is converted from analog to digital and used as tilt servo control input. The tilt motor is controlled to make this signal 2.5 V.
7	TBALERR	I A/D	Tracking balance error signal input pin. This signal is converted from analog to digital and used for tracking offset control input.
8	SLDERR	I A/D	This signal is converted from analog to digital and used for tracking offset control input. The slide motor is controlled to make this signal 2.5 V.
9	SLDPOS	I A/D	Pickup position detection switch input pin. The switches are resistance divided, the A/D input value read in, and the position detected.
10	XFOK	I	Focus servo lock signal input pin. "L"=lock, "H"=unlock Used for focus servo lock detection.
11	SINGLE	I	Uses the rear panel ATT switch in single mode and communicates this data to the mode controller. "L"=single, "H"=normal
12	TBAL DRV	O PMW	PWM outputs the tracking offset for use as the auto tracking offset. 910μsec, 3-value control: H, L, Z
13	XCD	O	LD/CD switching signal output pin. "L"=CD, "H"=LD
14	XPLAY	O	Spindle servo signal output pin. "L"=servo underway, "H"=acceleration, brake, stop underway
15	SQOUT	I	Input pin for command data from DSP. SUBQ is read out.
16	COIN	O	Pin for command data output to DSP
17	CQCK	O	DSP read/write command clock output pin. Rising edge read in.
18	SLDDRDRV	O PMW	Slider control signal output pin. 5V=FWD, 0V=REV, 2.5V=STOP 910μsec, 3-value control: H, L, Z
19	SI1	I	Pin for data input from mode controller IC
20	SO1	O	Output for serial data to mode controller IC

PD0196B

No.	Pin name	I/O	Function
21	SCK1	I/O	Mode controller IC and serial communications clock. Other than when communicating with mode controller IC, input mode.
22	TZC	I INT	Tracking error zero cross signal input pin. This signal monitored for misclamping detection and tracking count search.
23	SHAKE	I/O	Handshake signal pin for data communications with mode controller IC. This pin is a bidirectional data pin and its input and output are controlled by the respective microcomputers.
24	TILT DRV	I/O	Load/tilt control output pin 0.5 V – tray in, out/tilt down, up 2.5V – stop tilt drive PWM output for tilt servo.
25	XANA	O	Digital analog audio switching signal output pin. “L”=analog, “H”=digital
26	XPBV	I	LD/CDV playback vertical sync signal input pin. “L”=vertical sync underway
27	CNV _{ss}	I	A/D conversion ground
28	XRESET	I	Reset signal input pin. “L”=reset, “H”=reset off Controlled by mode controller.
29	XIN	I	9MHz clock oscillation input pin
30	XOUT	O	9MHz clock oscillation output pin
31	N.C.	O	Dedicated output pin, so other uses prohibited.
32	GND	I	Ground
33	SW1	I	Loading/tilt position detection switch input pin
34	SW3	I	Loading/tilt position detection switch input pin
35	SW2	I	Loading/tilt position detection switch input pin
36	N.C.	I	Not used
37	FG	I	Spindle motor FG signal input pin. 16 pulses per rotation, used within microcomputer frequency divided by 2.
38	DATA	I	Mechanism controller built-in Phillips code/decode input pin
39	XPBH	I	Playback H-sync input For Phillips coding/decoding
40	XPBV	I	Playback V-sync input For Phillips coding/decoding
41	N.C.	O	Not used
42	N.C.	O	Not used
43	N.C.	O	Not used
44	N.C.	O	Not used
45	DOCINH	O	3-value clamp pulse and clamp killer circuit control
46	DETPOW	I	Used as power supply abnormality signal input port. “L”=normal, “H”=abnormal
47	NROFF	O	VDEM noise reduction control output pin. “L”=normal, “H”=no NR
48	REFLOCK	I	Input pin for reference signal from DVP. “L”=phase not aligned, “H”=phase aligned
49	SQ1	O	Analog audio switching signal output pin. 1/L “L”=squelch off, “H”=squelch on
50	SQ2	O	Analog audio switching signal output pin. 2/R “L”=squelch off, “H”=squelch on
51	XCX	O	Analog audio CX noise reduction switching signal output pin. “L”=CX on, “H”=CX off
52	XVCECAN	O	Voice cancel output “L”=cancel on, “H”=cancel off
53	SO3	O	Serial 3 data signal output pin. The serial signals are common and are distinguished with the latch signals (DVPLAT, TLAT).
54	SCK3	O	Serial 3 clock signal output pin
55	DVPLAT	O	PD0192 serial latch signal output pin. Latch at rising edge
56	TBC LOCK	I	Spindle power on detection signal input pin. “L”=overcurrent, “H”=normal
57	T LATCH	O	Latch output of serial control for DAC & digital filter IC PD2026A. Latches at falling edge
58	N.C.	O	Not used
59	DETAMP	I	Spindle overcurrent detection signal input pin “L”=overcurrent “H”=normal
60	FSEQ	I	Subcode sync match detection signal input pin “L”=does not match, “H”=matches
61	THOLD	I	Track jump accelerating/decelerating signal input pin “L”=neither, “H”=accelerating/decelerating
62	WRQ	I	Subcode Q read OK signal input pin “L”=NG, “H”=OK This pin goes high when the subcode Q data passes the CRC check.
63	RWC	O	DSP read/write command signal output pin. “L”=read, “H”=write
64	RWC2	I	Set to input port, when shorted to Pin 63, input so that there is no effect.

■ PDG122A (FLKY ASSY : IC101)

● MODE CONTROL IC

● Pin Function

No.	Pin name	I/O	Function
1	PH0	I	Connected to +5V (not used)
2	PH1	I	Connected to +5V (not used)
3	NC	I	Connected to +5V (not used)
4	STDBY LED	O	LED output : standby indication
5	ACK	O	Response to mechanism controller serial communications request
6	XCS	O	Character generator (PD9004A) chip select output (L : enable)
7	MODSEL1	I	H : overseas, L : domestic
8	WDF	O	Watchdog pulse output.
9	PB4	O	Not connected (open) (not used)
10	XSCK	I/O	Serial communications clock (mechanism controller, character generator)
11	SO	I	Serial communications data input (mechanism controller)
12	SI	O	Serial communications data output (mechanism controller, character generator)
13	KIN0	I	Key data input
14	KIN1	I	
15	KIN2	I	
16	KIN3	I	
17	KIN4	I	
18	POWER ON	O	Mother board power feed switching output
19	XMIC ON	O	Mic circuit output mode (L : enable)
20	MODSEL2	I	H : AC-3 supported, L : AC-3 not supported.
21	PA0	I	Connected to 0 V. (not used)
22	LED1	O	LED output : CD tray open/closed indication
23	PA2	O	Not connected (open) (not used)
24	LED3	O	LED output : LD tray open/closed indicated.
25	XRESET	O	Mother board reset output
26	MIC SW	I	Mic pin mic detection switch (H: switch on)
27	PA6	O	Not connected (open) (not used)
28	PA7	O	Not connected (open) (not used)
29	RESET	I	CPU reset (L : reset)
30	OSC1	I	Main system clock oscillation (8 MHz)
31	OSC2	O	
32	Vss		Ground
33	KS4	O	Key scan output.
34	KS3	O	
35	KS2/n	O	Key scan output/display segment output
36	KS1/m	O	
37	KS0/l	O	
38	k	O	Display segment output
39	j	O	
40	i	O	
41	h	O	
42	g	O	
43	f	O	

PDG122A

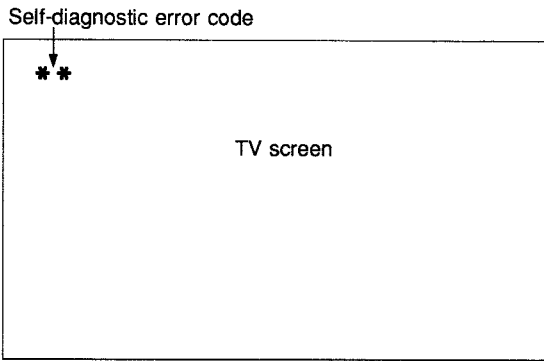
No.	Pin name	I/O	Function
44	e	O	Display segment output
45	d	O	
46	c	O	
47	b	O	
48	a	O	
49	G8	O	Display grid output
50	G7	O	
51	G6	O	
52	G5	O	
53	G4	O	
54	G3	O	
55	G2	O	
56	G1	O	
57	-29V	I	-29 V
58	EFLAG	I	EFM decoder error correction status signal
59	FSX	I	EFM decoder 7.35MHz frame sync signal
60	SHAKE	I	Mechanism controller serial communications request
61	PE3	I	Connected to +5 V. (not used)
62	SEL IR	I	Input to remote control
63	PE5	I	Connected to +5 V. (not used)
64	Vdd		+5 V

1.4 SELF-DIAGNOSTIC FUNCTIONS

1.4.1 SELF-DIAGNOSTIC FUNCTIONS

The self-diagnostic functions automatically display an error code on the TV screen and front panel fluorescent display section when there is an error. The customer checks the error code and conveys it to the service personnel to make repairs more efficient.

After an error occurs, even if the error code goes off, you can display the error code again by holding down the CLEAR key for 10 seconds (except a loading error [L*] display). However, if the power cord is unplugged, the error code information is lost.



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

Self-diagnostic error code	Contents	Conditions	Probable cause
H0	Spindle overcurrent detection error.	In the play state, overcurrent was detected in the spindle motor. Monitoring starts 5 seconds after the start of play or special playback mode, this error is detected if the overcurrent port is "L" for 4 seconds.	<ul style="list-style-type: none"> · Motor NG · Clamper rubbing
U0	FG abnormality error	<ol style="list-style-type: none"> ① At LD startup, the rate of rotation calculated from the FG was less than 15 rpm for 5 consecutive seconds from the spindle Run command. ② At CD startup, there was less than 1/8th rotation even after 5 seconds had passed since the end of acceleration. ③ During play search, CD : subcodes are being read/LD : Phillips codes are being read and the spindle is locked, but a state in which the rate of rotation calculated from the FG was less than 15 rpm continued for 5 seconds or more. In the above case, it is judged that an abnormality has occurred in the FG sensor and that accurate rotation rate calculation has become impossible. 	<ul style="list-style-type: none"> · FG sensor abnormality, FG signal not coming to mechanism controller · FG sensor clogged · Rubbing between FG sensor and slit · Turntable dropped · FG slit deposition NG
H1	Partial short error	<ol style="list-style-type: none"> ① At LD startup, the speed did not reach 1200 rpm within a certain time (12 seconds) after the spindle Run command. ② At CD startup, a certain speed (313 rpm) was not reached within 6 seconds from the end of spindle acceleration. 	<ul style="list-style-type: none"> · Spindle motor NG · Commutator NG · Bearing too tight · Power supply NG
H2	Power supply abnormality error	<p>-5 V power supply abnormality detected.</p> <p>The power supply abnormality port is constantly monitored and if its signal stays high for about 1 second consecutively, the power supply is judged to be abnormal.</p>	<ul style="list-style-type: none"> · -5V not fed from SYPS assy · Parts shorted
L*	Loading error	<ol style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> · Tilt switch 1,2,3 abnormal, so tilt/loading state not read in correctly. · tilt/loading mechanism mechanically locked · Drive IC NG · Power supply NG

Self-diagnostic error code	Contents	Conditions	Probable cause
E*	Slider error	During slider movement, a time overrun occurred (track count search 20 seconds, mandatory movement 10 seconds).	<ul style="list-style-type: none"> ·Slider ceased being able to run ·The slider mechanism is mechanically locked and can no longer move to its target. ·Slider position switch NG ·Flexible cable pulled out ·Drive IC NG ·Power supply abnormal
U1	Misclamp error	<ul style="list-style-type: none"> ①During LD setup, after 1/8th rotation, the track count during 1/8 rotation exceeded 511. ②During startup, the focus was lost once and refocusing was attempted, but the focus could not be locked. ③When the spindle motor rotation is stopped once before CDV A←→V area change, but stop is not carried out within 2.0 seconds, it is determined that there are two discs on each other and clamp error is set. ④Two FG pulses did not come within 800 ms from the start of LD startup. ⑤During CD startup, it took more than 860 ms to reach 416 rpm (CD+LD both mounted detected). ⑥The disc clamp operation did not end within 5 seconds. 	<ul style="list-style-type: none"> ·Disc sandwiched ·Disc Shifted ·Spindle motor NG ·Disc scratched or dirty ·defocused during start up ·Two discs loaded ·PU actuator NG ·Tilt sensor NG ·Tilt neutral NG (tilt base NG)
P*	Spindle error	<ul style="list-style-type: none"> ①During TOC reading with an LD, the spindle servo was not locked within 60 seconds from the start of the spindle run. ②When CAV/CLV determination is not finished within 60 seconds from spindle servo lock. ③The codes could not be read for 10-15 seconds consecutively for an LD or 7-10 seconds for a CD/CDV and the spindle servo was not locked. ④The speed exceeded 2100 rpm during LD startup. 	<ul style="list-style-type: none"> P0 : ·PH code, sub-Q code can not be read ·VCO, PLL Offset out of adjustment ·Disc defect P5 : ·PAL disc, mirror disc, etc. PLAY ·No RF P6 : ·Spindle servo does not lock ·Spindle motor NG
F*	Focus error	<ul style="list-style-type: none"> ①In the "no disc" state, a setup command was received from the mode controller. ②When LD is out of focus when slider is moved to starting position during set up. In case of CD/CDV is NG even after three focus tries. ③During startup, the maximum slider servo duty continued for 3 loops or more. 	<ul style="list-style-type: none"> F5 : ·CD, LD on top of each other ·LD scratched or dirty defocused during slider movement ·Disc NG ·Slider position switch NG F6 : ·Inner edge of disc scratched or dirty ·Slider ran into inner edge mechanical stopper

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

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

0 : Play 1 : Open 2 : Standby 3 : Clamp 4 : Disc sense
5 : Setup (rotation start) 6 : TOC read 7 : Play 8 : Search F : Recovery mode

* 0 : Normal playing
7 : Moving to play operation

1.5 ADJUSTMENTS

1.5.1 TEST MODE

1) How to start test mode

On the MOTHER ASSY, Short circuit the test mode JP W490 and W491, the test mode is started by putting the power switch ON. (Fig. 1)

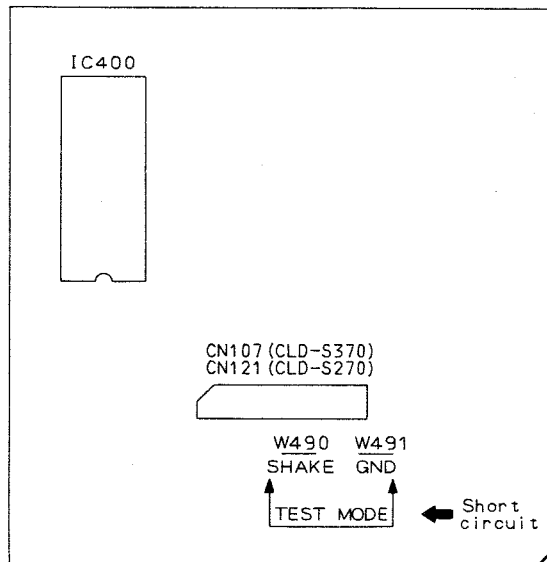
After confirming that all FL indicators are lit, remove test mode jumper wire and GND connection. If you have test mode remote control unit (GGF1067), press ESC key and TEST key in order with power switch ON.

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).



MOTHER ASSY

Fig. 1

Note: When you open the tray in test mode, the screen displays goes out. To display the screen again, press the **DISPLAY** key.

• Key operation in the Test mode

Player Status	Key Operation	Function	Display
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
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	<div style="text-align: center;"> +10 ↓ 0 to 9 ↓ ▶ PLAY </div>	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.

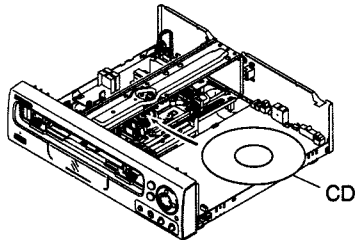


Fig. 2

- 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.

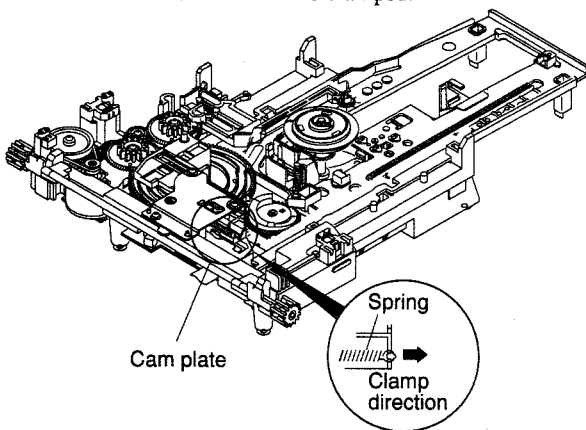
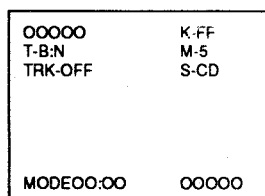


Fig. 3

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



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

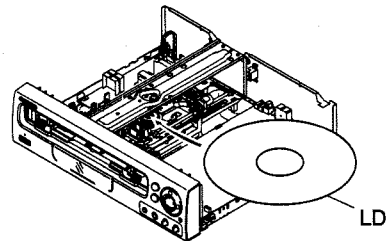
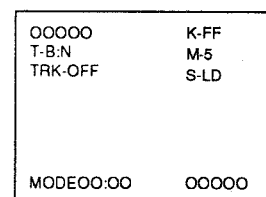


Fig. 5

- ① Press the PLAY (▶) key once.
(Twin gear starts to move.)
- ② 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.
- ③ Place the LD disc on the turn table and press the PLAY (▶) key once to clamp the disc.
- ④ Press the ◀◀ or ▶▶ keys to appear "S-LD" on the TV screen display.



TV screen display

Fig. 6

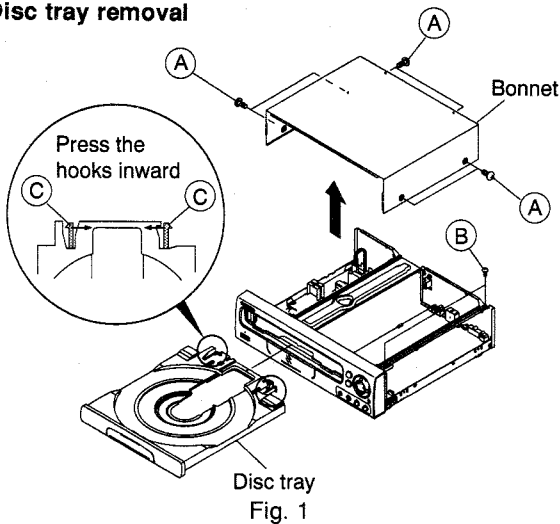
- ⑤ After pressing the PLAY (▶) key once to clamp the disc, press the PLAY (▶) key twice, disc will be normally played.

1.5.2 ADJUSTMENT PRECAUTIONS

● Equipment and jigs needed for adjustment

- CD test disc (STD-901 or STD-902)
- LD test disc (GGV1012)
- Medium-sized blade screwdriver
- Small blade screwdriver
- Large Phillips screwdriver
- Medium-sized Phillips screwdriver
- Two-channel oscilloscope (with delay)
- Frequency counter
- TV monitor

● Disc tray removal



1. Remove the six screws **A** fastening the bonnet and remove the bonnet.
Remove the two screws **B** holding the PCB holder.
2. With the power supply on, press the OPEN/CLOSE (LD) button and put the disc tray in the open position.
3. While pushing the hooks **C** on both sides of the rear of the disc tray inwards, pull out the disc tray.

Note: The adjustments other than Electrical Adjustments 3. PLL OFFSET Adjustment can be carried out with the disc tray mounted.

● Diagnostic method of MOTHER ASSY

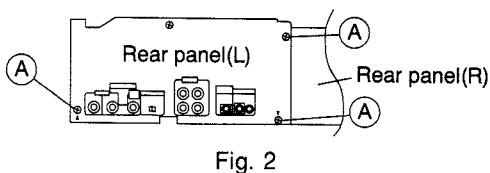


Fig. 2

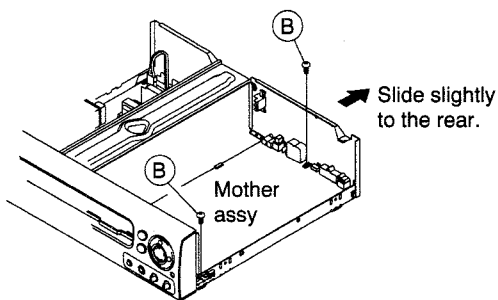


Fig. 3

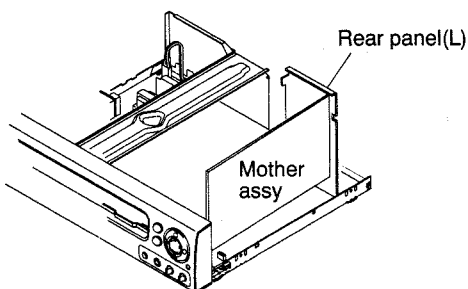


Fig. 4

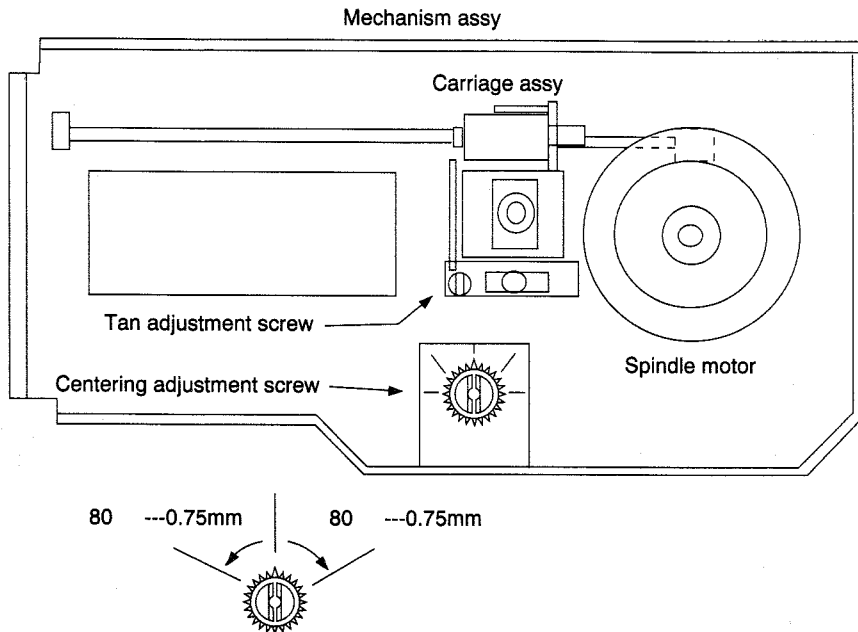
1. Remove the three screws **A** fastening the rear panel (L) (Fig 2).
2. Remove the two screws **B** fastening the MOTHER ASSY (Fig 3).
· The ► mark is printed near the **A** and **B** screws.
3. When you slide the rear panel (L) slightly to the rear, you can remove it together with the MOTHER ASSY. You can stand it up within the set as in the figure and diagnose the MOTHER ASSY (Fig 4).

Note: The mother assembly can be diagnosed with the disc tray mounted.

● **BEFORE ADJUSTING MECHANISM SYSTEM**

- Centering adjustment screw and TAN adjustment screw

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



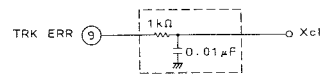
Do not turn the Centering and Tan adjustment screws past their ranges, which are ± 0.75 mm and $\pm 80^\circ$ from center.
 After the completion of adjustment, apply locktite or the like to the Centering and tan adjustment screws.
 Apply at least 1/3 the circumference about 1/2 half the circumference as in the figure.

Fig. 5 Mechanism Assy Adjustment

- The mechanical adjustments can all be carried out with disc tray mounted.

● **Notes When Adjusting Centering**

If waveform S/N is bad and difficult to observe in “3. SPDL motor centering adjustment” use the low pass filter in diagram.



● **Carriage 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 Carriage Assy from bumping each other. (Fig. 6)

● **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 (VWT1110).

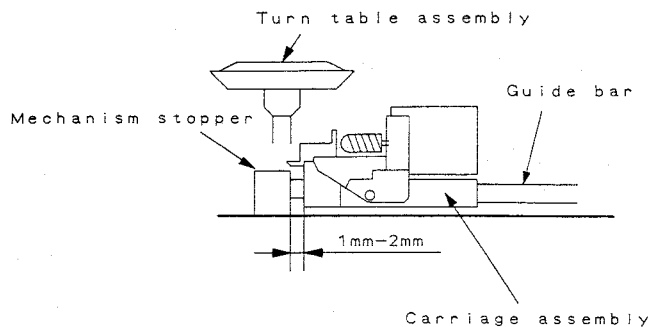
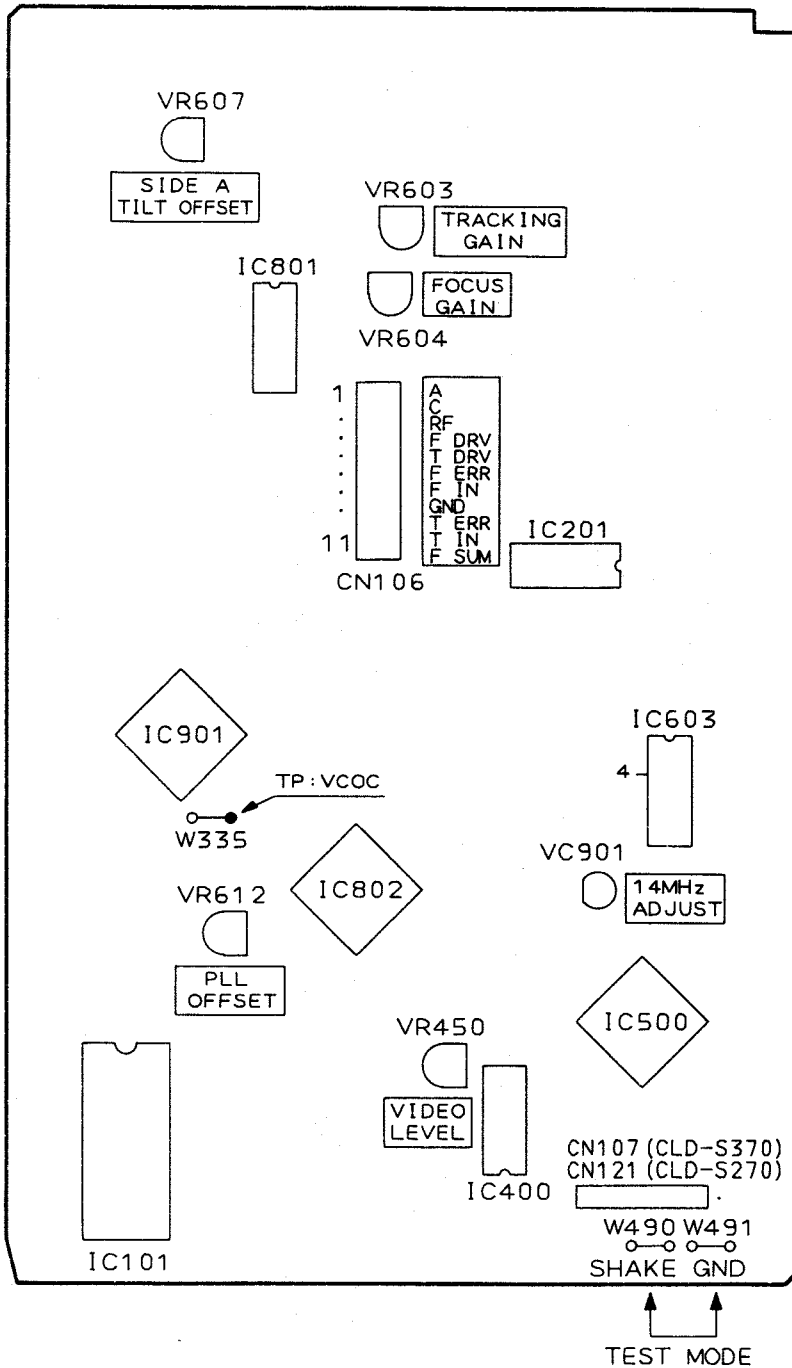


Fig. 6

1.5.3 MOTHER ASSY ADJUSTMENT LOCATION

● MOTHER ASSY



- VR607 : Tilt offset adjustment
 - VR604 : Focs servo loop gain adjustment
 - VR603 : Traking servo loop gain adjustment
 - VC901 : Master clock adjustment
 - VR450 : Output video level adjustment
 - VR612 : PLL OFFSET adjustment
- (Order in adjustment)

Fig. 1 Adjustment diagram of MOTHER ASSY

MOTHER ASSY ADJUSTMENT

● MECHANICAL ADJUSTMENT

NO.	Adjustment name	Adjustment point	Measuring point and measuring mode	Player condition	Adjustment procedure	Waveform and connection diagram
1	Tilt offset adjustment	MOTHER Ass'y VR 607 (TILT OFFSET)	TV monitor	Test mode Disc not installed	Adjust VR 607 so that the tilt indication reaches T-6 to T-8. (See test mode function and key operation)	
2	Tangential direction angle adjustment	Carriage ass'y TAN adjustment screw	CN 106-3 (RF)	CD play (CD INSIDE POSITION) TRKG-ON, TILT-ON	Adjust so that the amplitude of the RF wave form reaches its maximum and the envelope is very clear.	
3	SPDL motor centering adjustment	Mechanism Ass'y Centering adjustment screw	CN 106-9 (TRKG error)	CD play (CD INSIDE POSITION) TRKG-OFF, TILT-ON	Adjust so that the amplitude of the Tracking error wave form reaches its maximum and the envelope is very clear.	
4	Cross talk check and tilt offset adjustment	MOTHER Ass'y VR 607	TV monitor Crosstalk Monitor check	GGV 1012 #115 STILL TRKG-ON, TILT-ON	If the crosstalk is pronounced, adjust VR 607 until the crosstalk is not noticeable.	
5	Focs servo loop gain adjustment	MOTHER Ass'y VR 604 (FOCUS GAIN)	CN 106-6 (FOCS error) CH 2 <X-Y mode>	GGV 1012 (PLAY STANDBY) Short CN 106-7(F IN) and 8(GND), then PLAY (Disc not run)	Adjust VR 604 until the waveform level is 4.8 ± 0.5 V.	
6	Tracking servo loop gain adjustment	MOTHER Ass'y VR 603	CN 106-9 (TRKG error) CH 2 <X-Y mode>	GGV 1012 #115 STILL TRKG-ON, TILT-ON	Adjust VR 603 until the waveform level is 1.8 ± 0.2 V.	
7	RF level check	-	CN 106-3 (RF)	GGV 1012 #115 STILL TRKG-ON, TILT-ON	Check that the RF waveform amplitude is within the range 280 mVp-p to 630 mVp-p. ※There is some variation according to the pickup, but it is about 400 mVp-p.	

(NOTE)

- This adjustment can be thought to be about the same adjustment as on the manufacturing line with differing adjustment tools. Follow the adjustment procedures even for checking the adjustments.
- The test disc is a GGV 1012 (8-inch LD test disc) and corresponds to STD-901 or STD-902 (CD).
- When you open the tray in test mode, the screen displays goes out. To display the screen again, press the **DISPLAY** key.
- The mechanical adjustment can be all carried out with disc tray mounted.

● ELECTRICAL ADJUSTMENT

NO.	Adjustment name	Adjustment point	Measurement point	Player condition	Adjustment procedure	Waveform and connection diagram
1	Master clock adjustment	VC 901	IC 603-4 (2 fsc)	POWER ON	Adjust VC 901 so that frequency with power on is 14.31818 MHz \pm 10 Hz. Connect video output terminal and oscilloscope. (Video output terminal is terminated with 75 Ω)	
2	Output video level adjustment	VR 450 (VIDEO LEVEL)	Video output terminal	Normal mode GGV 1012 #19900 still	Adjust VR 450 so that level from video signal sync tip to 100% white become 1 V _{p-p} \pm 5%. (It is possible to terminate video output terminal with 75 Ω by connecting TV monitor)	
3	PLL OFFSET adjustment	VR 612 (PLL OFFSET)	W 335 (PLL OFFSET TP)	Test mode CD play TRKG servo OFF/ON	Note : Before adjusting remove disc tray. (P 1-16) With the tracking servo off, playback digital audio and roughly adjust VR 612 so that the sound is audible. Connect W 335 and a DC voltmeter and while playing back digital audio, switch the tracking servo on and off and adjust VR 612 so that the difference between the DC voltage when the tracking servo is on and when it is off is no greater than 0 \pm 0.1 V.	

1.6 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-S370/TD and CLD-S270/TD.

1.6.1 PACKING

(1) CONTRAST OF CLD-S370/TD AND CLD-S270/TD .

- CLD-S370/TD and CLD-S270/TD have the same construction except for the following :

Mark	No.	Symbol & Description	Part No.	
			CLD-S370/TD	CLD-S270/TD
NSP	1	UPC cord label	VRW1471	VRW1470
	9	Battery (R03, AAA)	VEM-022	VEM-013
	10	Remote control unit	VXX2148	VXX2115
	11	Battery cover	VNK2805	VNK2806
	16	Remote control unit label	VRW1485	Not used
	17	Packing case	VHG1411	VHG1409
	18	Top cover	VNK2828	Not used

(2) PARTS LIST FOR CLD-S370/TD

Mark	No.	Description	Parts No.	Mark	No.	Description	Parts No.
	1	UPC cord label	VRW1471		10	Remote control unit	VXX2148
	2	Caution	VRR1020		11	Battery cover	VNK2805
	3	.....		NSP	12	Polyethylene bag(205×315×0.05)	Z21-029
	4	Operating instructions(English)	VRB1128		13	Protector B	VHB1012
	5	Operating instructions(Chinese/Spanish)	VRD1026		14	Mirror mat sheet	Z23-007
	6	Protector	VHB1007	NSP	15	Warranty card	ARW1020
	7	Audio cord	VDE1033		16	Remote control unit label	VRW1485
	8	Video cord	VDE1034		17	Packing case	VHG1411
NSP	9	Battery (R03, AAA)	VEM-022		18	Top cover	VNK2828

1.6.2 EXTERIOR AND DISC TRAY SECTION

(1) CONTRAST OF CLD-S370/TD AND CLD-S270/TD .

- CLD-S370/TD and CLD-S270/TD have the same construction except for the following :

Mark	No.	Symbol & Description	Part No.	
			CLD-S370/TD	CLD-S270/TD
NSP	18	Tray panel	VNK2790	VNK2801
	22	Laser disc badge	VAM1029	Not used

(2) PARTS LIST FOR CLD-S370/TD

Mark	No.	Description	Parts No.	Mark	No.	Description	Parts No.
	1	Bonnet-S	VXX2117		12	Door spring	VBH1247
	2	Screw	BBZ30P080FMC		13	Door holder	VNL1658
	3	Screw	BCZ40P060FZK		14	Screw	BBZ30P080FMC
	4	.....			15	Door shaft	VLL1455
	5	Guide plate(R)	VNE1939		16	CD door	VNK2791
	6	Guide plate(L)	VNE1938		17	Damper ASSY	VXA1999
	7	CD tray	VNK2687		18	Tray panel	VNK2790
	8	Lock plate	VNL1635		19	Cushion	VEC1682
	9	Lock plate spring	VBH1188		20	Tray ASSY-S	VXX2171
NSP	10	LD tray	VNK2686	NSP	21	Label	VRW1289
	11	Damp cushion	VEC1683		22	Laser disc badge	VAM1029

1.6.3 TOP VIEW SECTION

Mark No.	Description	Parts No.	Mark No.	Description	Parts No.
1	Clamper arm	VNE1940	11	CA hook	VNL1641
2	Screw	BBZ30P080FMC	NSP 12	PCB holder	VNE1954
3	Rubber mat	VEB1114	13	FFC holder	VNL1656
4	Thrust holder	VNL1663	14	Screw	BBZ30P100FMC
5	Clamper head	VNL1649	NSP 15	Panel holder	VNA1464
6	Clamp spring	VBH1192	16	Carriage ASSY	VWT1110
7	Clamper	VNL1648			
8	Clamper holder	VNL1636			
9	Shaft	VLL1453			
10	Screw	IBZ30P080FMC			

1.6.4 FRONT PANEL SECTION

(1) CONTRAST OF CLD—S370/TD AND CLD—S270/TD .

● CLD—S370/TD and CLD—S270/TD have the same construction except for the following :

Mark	No.	Symbol & Description	Part No.	
			CLD—S370/TD	CLD—S270/TD
NSP	1	Front panel	VNK2796	VNK2804
	3	FL lens	VEC1705	VEC1704
	8	Key K	VNK2794	Not used
	11	FLKY ASSY	VWG1574	VWG1583
NSP	12	KEYB ASSY	VWG1575	VWG1586
	13	Snap plate	VNE1102	Not used
NSP	14	Head phone knob	PAC1707	Not used
	15	Jack holder	VNE1955	Not used
	16	MJAB ASSY	VWV1399	Not used
	17	ECHB ASSY	VWV1398	Not used
	18	PC support	VEC1428	Not used
NSP	19	Front panel ASSY—S	VXX2173	VXX2172
	20	Ten key	Not used	VNK2795
	21	TKYB ASSY	Not used	VWG1580
	22	Shield sheet	VE F1047	Not used

(2) PARTS LIST FOR CLD—S370/TD

Mark No.	Description	Parts No.	Mark No.	Description	Parts No.
NSP 1	Front panel	VNK2796	11	FLKY ASSY	VWG1574
2	Pioneer badge	PAM1608	NSP 12	KEYB ASSY	VWG1575
3	FL lens	VEC1705	13	Snap plate	VNE1102
4	Key A	VNK2793	14	Head phone knob	PAC1707
5	LED lens	PNW2019	15	Jack holder	VNE1955
6	PW button	VNK2329	NSP 16	MJAB ASSY	VWV1399
7	L key	VNK2812	17	ECHB ASSY	VWV1398
8	Key K	VNK2794	18	PC support	VEC1428
9	Main key	VNK2792	19	Front panel assy—S	VXX2173
10	Screw	BBZ30P080FMC	20	.....
			21	.....
			22	Shield sheet	VE F1047 (SI-V49 070)

1.6.5 BOTTOM VIEW SECTION

(1) CONTRAST OF CLD—S370/TD AND CLD—S270/TD .

● CLD—S370/TD and CLD—S270/TD have the same construction except for the following :

Mark	No.	Symbol & Description	Part No.	
			CLD—S370/TD	CLD—S270/TD
	1	MOTHER ASSY	VWS1156	VWS1155
	15	Rear panel (L)	VNA1462	VNA1466
	19	Flexible cable(7P)	VDA1468	Not used
	20	Flexible cable(18P)	VDA1467	Not used
	20	Flexible cable(16P)	Not used	VDA1469

(2) PARTS LIST FOR CLD—S370/TD

Mark	No.	Description	Parts No.	Mark	No.	Description	Parts No.
	1	MOTHER ASSY	VWS1156	NSP	11	Wire clip (H)	VEC1181
	2	Screw	BBZ30P080FMC		12	Insulator	PNW1912
	3	SYPS ASSY	VWR1233		13	Card spacer	VEC1708
△	4	AC power cord	VDG1058	NSP	14	Chassis	VNA1461
△	5	Cord stopper	CM—22B		15	Rear panel(L)	VNA1462
	6	Tray stopper	VNL1657		16	Flexible cable(23P)	VDA1464
	7	Rear panel (R)	VNA1463		17	Flexible cable(21P)	VDA1465
NSP	8	P plate holder	PNY—405		18	.....
NSP	9	PC support	VEC—269		19	Flexible cable(7P)	VDA1468
NSP	10	PCB hinge	VEC1174		20	Flexible cable(18P)	VDA1467
				NSP	21	Earth lead unit	XDF—507

1.6.6 MECHANISM ASSY (1/2)

Mark	No.	Description	Parts No.	Mark	No.	Description	Parts No.
	1	Clamp cam	VNL1633	NSP	16	Slider motor	VXM1033
	2	CDP spring	VBH1191		17	Shaft holder	VNE1942
	3	Screw	Z39—019		18	CAS spring	VBH1190
	4	CD plate	VNL1632		19	Cam plate	VNL1631
	5	Rubber belt	VEB1184		20	Cam gear	VNL1625
	6	Gear pulley	VNL1662		21	Loading motor ASSY	VXX2045
	7	Twin gear	VNL1626		22	MB—switch lever	VNL1664
	8	Center gear	VNL1660		23	Slider(R)	VNL1666
	9	Mechanism base	VNK2685		24	Slider(L)	VNL1665
	10	Screw	BMZ26P040FMC		25	Double gear	VNL1661
	11	Roller	VNL1042		26	Flexible cable	VDA1466
NSP	12	Motor pulley	VNL1630				
	13	Synchro gear ASSY	VXA2105				
NSP	14	LMSB ASSY	VWG1554				
	15	.....				

CLD-S370, CLD-S270

1.6.7 MECHANISM ASSY (2/2)

Mark	No.	Description	Parts No.	Mark	No.	Description	Parts No.
	1	CA rack	VNL1647		16	Screw	IBZ26P120FMC
	2	Screw	IBZ26P060FMC		17	.....
	3	Tilt base	VNL1642		18	Centering hab	VNL1623
	4	Radial spring	VBH1246		19	Centering spring	VBH1083
	5	Thrust spring	VBH1245		20	Rubber sheet	VEB1237
	6	CA—switch lever	VNL1644	NSP	21	Turn table ASSY	VXA2106
NSP	7	PKSB ASSY	VWG1555		22	.....
	8	Tilt tension spring	VBH1244	NSP	23	Spindle motor	VXM1057
NSP	9	FG ASSY	VWG1556		24	Housing ASSY(3P : blue)	VKP2045
	10	Screw	PMA30P050FMC		25	Housing ASSY(3P : yellow)	VKP2046
	11	FG base	VNL1645	NSP	26	Earth lead unit	XDF—507
	12	Tilt cam	VNL1643				
	13	Tilt cam spring	VBH1243				
	14	Motor base	VNE1941				
	15	Spindle motor ASSY	VXA2125				

1.6.8 CARRIAGE ASSY + VWT1110

Mark	No.	Description	Parts No.
	1	CA gear(A)	VNL1638
	2	CA gear(B)	VNL1639
	3	Slider motor ASSY	VXX2082
	4	Motor holder	VNL1637
	5	Screw	PBZ20P050FMC
	6	.....
	7	Screw	PMZ20P030FMC

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	5 6 1 J
47kΩ	→	47 × 10 ³	→	473	.....	RD1/4PS	4 7 3 J
0.5Ω	→	0R5	.....			RN2H	0 R 5 K
1Ω	→	010	.....			RSIP	0 1 0 K

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

5.62kΩ	→	562 × 10 ¹	→	5621	RN1/4PC	5 6 2 1 F
--------	---	-----------------------	---	------	-------	---------	---

● LIST OF WHOLE PCB ASSEMBLIES

Mark	PCB Assemblies	Part No.		Remarks
		CLD-S370/TD	CLD-S270/TD	
NSP	MOTHER ASSY	VWS1156	VWS1155	
	FLKB ASSY	VWM1523	VWM1524	
NSP	— FLKY ASSY	VWG1574	VWG1583	
	— KEYB ASSY	VWG1575	VWG1586	
NSP	— ECHB ASSY	VWV1398	Not used	
NSP	— MJAB ASSY	VWV1399	Not used	
NSP	— TKYB ASSY	Not used	VWG1580	
NSP	MACB ASSY	VWM1507	VWM1507	
NSP	— LMSB ASSY	VWG1554	VWG1554	
NSP	— PKSB ASSY	VWG1555	VWG1555	
NSP	— FG ASSY	VWG1556	VWG1556	
	SYPS ASSY	VWR1233	VWR1233	

● CONTRAST OF PCB ASSEMBLIES

FLKY ASSY

VWG1574 and VWG1583 have the same construction except for the following:

Mark	Symbol & Description	Part No.	
		VWG1574	VWG1583
	C107,C108	CKPUYF223Z25	Not used
	CN101	52492-1820	Not used
	CN102	09R-1.25FJ	Not used
	CN103	Not used	59492-1620
	CN104	Not used	13R-1.25FJ
	S102	RSG1030	Not used
	S103,S104	Not used	RSG1030

KEYB ASSY

VWG1575 and VWG1586 have the same construction except for the following:

Mark	Symbol & Description	Part No.	
		VWG1575	VWG1586
	CN401	09P-1.25FJ	Not used
	CN402	Not used	13P-1.25FJ

MOTHER ASSY

VWS1156 and VWS1155 have the same construction except for the following:

Mark	Symbol & Description	Part No.	
		VWS1156	VWS1155
	C208,C211,C212,C221	CKSQYF103Z50	Not used
	C209,C216	CEAS470M10	Not used
	C210,C217	CCSQCH220J50	Not used
	C218	CQMA184J50	Not used
	C219	CCSQL681J50	Not used
	C222	CKSQYB273K50	Not used
	C228,C240,C241	CEAS100M50	Not used
	CN105	52045-0745	Not used
	CN107	52045-1845	Not used
	CN121	Not used	52045-1645
	D202	11EQS06	Not used
	D205-D208	1SS254	Not used
	IC203,IC204	BA4560F	Not used
	IC206	NJM78L08A	Not used
	IC207	NJM79L08A	Not used
	IC210	BU4551BF	Not used
	Q206,Q214	UN2212	Not used
	Q210-Q212,Q221	UN2112	Not used

Mark	Symbol & Description	Part No.	
		VWS1156	VWS1155
	Q220	2SD2144S	Not used
	R145	RSI/10S104J	Not used
	R201,R202	RSI/10S154J	Not used
	R203,R204	RSI/10S753J	Not used
	R205,R206,R225	RSI/10S223J	Not used
	R208,R217,R218,R220, R226,R242	RSI/10S473J	Not used
	R209	RSI/10S752J	Not used
	R210,R212,R213,R216	RSI/10S153J	Not used
	R233,R234	RSI/10S103J	Not used
	R244	RSI/10S104J	Not used
	R235	Not used	RSI/10S472J
	R243,R248,R296,R297	RSI/10S102J	Not used
	R252,R254,R256,R258	RSI/10S183J	RSI/10S223J
	R265	RSI/10S000J	Not used
	R273,R274	RSI/10S102J	RSI/10S471J
	R280	RSI/10S471J	Not used
	R281	RSI/10S682J	Not used
	R283	Not used	RSI/10S471J
	R295	Not used	RSI/10S104J

● PARTS LIST FOR CLD-S370/TD

Mark No.	Description	Parts No.
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MOTHER ASSY

SEMICONDUCTORS

IC202-IC205,IC903,IC905	BA4560F
IC210	BU4551BF
IC351	CA0002AM
IC803	LA6510
IC802	LC78681KE
IC206	NJM78L08A
IC207	NJM79L08A
IC801	PAC002A
IC901	PAC003A
IC400	PAC005A
IC500	PD0192A
IC101	PD0196C
IC201	PD2026B(L)
IC603	PD9004A
IC902	TA8410AK
IC501	TC7S04F
Q102,Q501,Q916,Q919	2PB709A
Q201,Q202,Q451,Q475	2PD601A
Q611-Q613,Q805,Q840	2PD601A
Q903,Q904,Q907,Q908	2PD601A
Q915,Q917	2PD601A
Q834	2SA854S
Q615,Q616	2SC1740S
Q411,Q803	2SC2412K

Mark No.	Description	Parts No.
----------	-------------	-----------

Q152	2SC3802K
Q204,Q205,Q220	2SD2144S
Q208-Q212,Q221	UN2112
Q103,Q206,Q207,Q214	UN2212
Q901,Q909,Q910	UN2212
D202	11EQS06
D102,D180,D203-D208,D801	1SS254
D901,D902,D905,D963	1SS254
D201	KV1851
D110	MTZJ5.1B

COILS AND FILTERS

L413	LAU100J
L410	LAU101J
L351,L802-L804	LAU181J
L202,L204,L205,L352,L412	LAU220J
L461,L470,L800,L801	LAU220J
L411,L571,L590,L591	LAU270J
L420,L421,L580	LAU430J
L462	LAU560J
L414	LAU8R2J
L460	LFA561J
F501 (14.3MHz FILTER)	VTF1055

SWITCHES AND RELAYS

S12	VSH1009
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Mark No.	Description	Parts No.	Mark No.	Description	Parts No.
CAPACITORS					
C562		CCSQCH050C50	C413, C422, C451, C454, C485		CKSQYF103Z50
C436, C617, C809, C811		CCSQCH070D50	C531 - C533, C539, C570, C571		CKSQYF103Z50
C159, C420, C421, C438, C466		CCSQCH100D50	C577, C578, C581, C589, C612		CKSQYF103Z50
C583, C620		CCSQCH100D50	C614, C641, C788, C802, C804		CKSQYF103Z50
C258, C259, C370, C810, C846		CCSQCH101J50	C807, C831, C832, C834, C835		CKSQYF103Z50
C848, C891, C944		CCSQCH101J50	C843, C872, C876, C888, C892		CKSQYF103Z50
C437, C474		CCSQCH120J50	C894, C918, C928, C929, C932		CKSQYF103Z50
C416		CCSQCH121J50	C937, C938, C941, C961, C962, C964		CKSQYF103Z50
C415, C418, C434, C475, C594		CCSQCH150J50	C971, C976, C982		CKSQYF103Z50
C161, C353, C812		CCSQCH151J50	C102, C103, C151, C284, C285		CKSQYF104Z25
C352, C552		CCSQCH180J50	C305, C365, C366, C423, C453		CKSQYF104Z25
C210, C217, C220, C232, C579		CCSQCH220J50	C457, C458, C492, C494, C551		CKSQYF104Z25
C618, C813, C950		CCSQCH220J50	C574, C582, C587, C592		CKSQYF104Z25
C162, C417, C591, C935		CCSQCH221J50	C840, C841, C847, C873, C874		CKSQYF104Z25
C371, C419, C433, C467, C931		CCSQCH270J50	C910 - C912, C915, C981, C983		CKSQYF104Z25
C106, C107, C354, C435, C452		CCSQCH330J50	C837, C921, C930		CKSQYF223Z50
C553, C563, C580		CCSQCH330J50	C359, C360, C905, C951		CKSQYF224Z25
C351, C425, C476, C598		CCSQCH390J50	C280		CKSQYF333Z25
C260 - C263, C464, C468, C596		CCSQCH470J50	C465, C616, C808, C815, C875		CKSQYF473Z25
C787		CCSQCH471J50	C877, C924, C925		CKSQYF473Z25
C375, C561, C806		CCSQCH680J50	C942		CQMA103J50
C374, C814		CCSQCH820J50	C479, C920		CQMA104J50
C460, C462		CCSQCH910J50	C908		CQMA154J50
C219		CCSQSL681J50	C218		CQMA184J50
C439		CEAL100M16	C903		CQMA222J50
C412, C484, C491, C613, C836		CEAL470M6R3	C973		CQMA224J50
C838		CEALNP470M6R3	C278, C282		CQMA332J50
C871		CEANP100M16	C934		CQMA681J50
C972		CEANP220M10	C483, C923		CQMA683J50
C450		CEANP470M6R3	VC901		VCM-008
C227, C281, C904, C917		CEAS010M50			
C228, C240, C241, C274, C275		CEAS100M50	RESISTORS		
C367		CEAS100M50	R521		RD1/6PM100J
C364, C424		CEAS101M10	R420		RD1/6PM470J
C922, C967, C968, C987		CEAS220M25	R259 - R262		RD1/6PM473J
C845, C902, C926		CEAS2R2M50	R490, R987, R989		RN1/10SE103D
C101, C207, C209, C216		CEAS470M10	R986, R990		RN1/10SE333D
C225, C226, C252, C253, C256		CEAS470M10	VR450 (2.2K, 0.1W)		PCP1025
C270, C271, C279, C363, C369		CEAS470M10	VR603 (4.7K, 0.1W)		PCP1028
C493, C530, C534, C538, C550		CEAS470M10	VR604, VR607, VR612 (47K, 0.1W)		PCP1031
C572, C585, C588, C611, C801		CEAS470M10	Other Resistors		RS1/10S□□□J
C803, C833, C842, C844, C893		CEAS470M10			
C927, C933, C974, C975		CEAS470M10	OTHERS		
C255, C257		CEAS471M10	CN105	7P FFC Connector	52045-0745
C850, C870		CEAS4R7M50	CN101	10P FFC Connector	52045-1045
C368, C913, C943		CEASR47M50	CN107	18P FFC Connector	52045-1845
C490, C907, C914, C936		CKSQYB102K50	CN102	21P FFC Connector	52045-2145
C222		CKSQYB273K50	CN103	23P FFC Connector	52233-2310
C919		CKSQYB332K50	CN106	11P Top post	B11P-SHF-1AA
C361, C362		CKSQYB392K50	JA3, JA4	Remote control jack	RKN1004
C355 - C358, C377, C909		CKSQYB472K50		PCB Binder	VEF1040
C105, C110, C122, C160		CKSQYF103Z50	JA15	1P Pin jack	VKB1063
C196 - C198, C208, C211 - C215		CKSQYF103Z50	JA6	4P Pin jack	VKB1065
C221, C231, C234, C251, C254		CKSQYF103Z50	JA13	RF Pin jack	VKB1068
C286, C288, C372, C373, C376		CKSQYF103Z50		Screw terminal	VNE1841
			KN101, KN102	Earth metal fitting	VNF1084
			X101	Ceramic resonator	VSSI040
			X201	Crystal resonator(16MHz)	VSSI057
			X550	Crystal resonator	VSSI073

CLD-S370, CLD-S270

Mark No.	Description	Parts No.	Mark No.	Description	Parts No.
FLKY ASSY			C213,C219,C221		CEAS470M10
SEMICONDUCTORS			C203,C204		CKPUYB101K50
IC101		PDG122A	C206,C215		CKPUYB102K50
IC102		S-806D	C209		CKPUYF103Z25
Q103		DTA124ES	C202,C222,C224		CKPUYF223Z25
Q102		DTA144ES	C210-C212,C214		CQMA104J50
Q101		DTC114ES	C207,C217		CQMA562J50
Q104,Q105,Q107		DTC124ES	RESISTORS		
D103-D105		1SS252	All Resistors		
D101		1SS254	RD1/6PM□□□J		
D102		SEL6C10STP6	OTHERS		
SWITCHES AND RELAYS			CN201	7P FFC Connector	52045-0745
S101,S102		RSG1030	CN202	2mm Pitch bottom connector plug	BTMK06P-1R
CAPACITORS			X201	Ceramic resonator(2MHz)	VSS1063
C104,C106		CEAL100M16	MJAB ASSY		
C101		CEAS470M10	SEMICONDUCTORS		
C102,C103,C105,C107-C109		CKPUYF223Z25	IC301		NJM2068D
RESISTORS			COILS AND FILTERS		
Other Resistors		RD1/6PM□□□J	L304		LAU120J
OTHERS			CAPACITORS		
CN102	1.25FJ Connector	09R-1.25FJ	C305		CEAL2R2M50
CN101	FFC Bottom connector 18P	52492-1820	C308		CEAL470M10
X101	Ceramic resonator	EFOEC8004A4	C309		CEAS470M10
V101	FL Tube	GP1U58X	C302		CFTXA333J50
	Spacer	VAW1035	C303		CKCYF473Z50
	FL Holder(FE)	VEC1599	C307		CKPUYB151K50
		VNF1085	C306		CKPUYB681K50
KEYB ASSY			C301		CKPUYF103Z25
SEMICONDUCTORS			C304		CQMA152J50
D401,D402		SEL6410E-TS	RESISTORS		
SWITCHES AND RELAYS			VR301,VR302 (10K · B)		VCS1036
S401,S402,S405,S408		RSG1030	Other Resistors		
S403,S404,S406,S407		RSG1034	RD1/6PM□□□J		
OTHERS			OTHERS		
CN401	1.25FJ Bottom connector	09P-1.25FJ	CN301	2mm Pitch bottom connector	BTMK06S-1S
ECHB ASSY			JA301	Headphone jack	RKB1014
SEMICONDUCTORS			J301	Earth lead unit	VDA1481
IC203		BA15218N	LMSB ASSY		
IC202		M5222L	SWITCHES AND RELAYS		
IC201		M65831P	S101-S103		DSG1017
Q201		2SC1740S	OTHERS		
COILS AND FILTERS			CN101	10P FFC Connector	52044-1045
L201		LAU220J	PKSB ASSY		
CAPACITORS			SWITCHES AND RELAYS		
C220		CCPUSL220J50	S104,S105		DSG1017
C208,C218		CEAL010M50	FG ASSY		
C216		CEANP010M50	SEMICONDUCTORS		
C223		CEAS010M50	D101		GP1S24
C201		CEAS101M6R3			

Mark No. Description Parts No.

SYPS ASSY

SEMICONDUCTORS

Q27,Q30,Q32	2SA933S
Q20,Q22	2SB1566
Q25,Q29,Q31	2SC1740S
Q26	2SD2007
Q21,Q23	2SD2395
Q24	2SB891F (SI-V49064)
IC1	ICP-N20
IC2	ICP-N15
D25-D27,D30,D31	AG01Z-VO
D29	MTZJ8.2B
IC21	NJM4558D
IC20	HA17431P (SI-V49064)
D23	RK36
D21,D22,D24	S2LA20
D40	FD30FB3 (SI-V49064)

RESISTORS

R22-R25 (47,1/6W)	VCN1033
R29 VCN1046, R29 VCN1048, R31 VCN1050 (SI-V49064)	

● FOR CLD-S270/TD ONLY

TKYB ASSY

SWITCHES AND RELAYS

S501-S512	RSG1030
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OTHERS

FU2 (136°C) VEK1033 (SI-V49064)
 FU3,4 (136°C) VEK1034 (")
 FU5,6 (0.75A) VEK1035 (")
 K

SYPS ASSY

D1	D2SB60F4004 (SI-V50043)
D2	EG01C
D3	R-D18FB2
D5	MTZJ3.6A
D7	ISS270A
D20	PS2501LI-7M
Q1	2SK1460
Q2,3	ZSC3377
Fu1	AEK1057



Service Manual

ORDER NO.
RRZ1184

The chapter 1 of this Service Manual will not be reprinted. On your additional orders, we may supply only the chapter 2. For the chapter 1, please make copies and attach to the chapter 2 at your side if necessary.

CD CDV LD PLAYER

CLD-S370

CLD-S270

CHAPTER 2

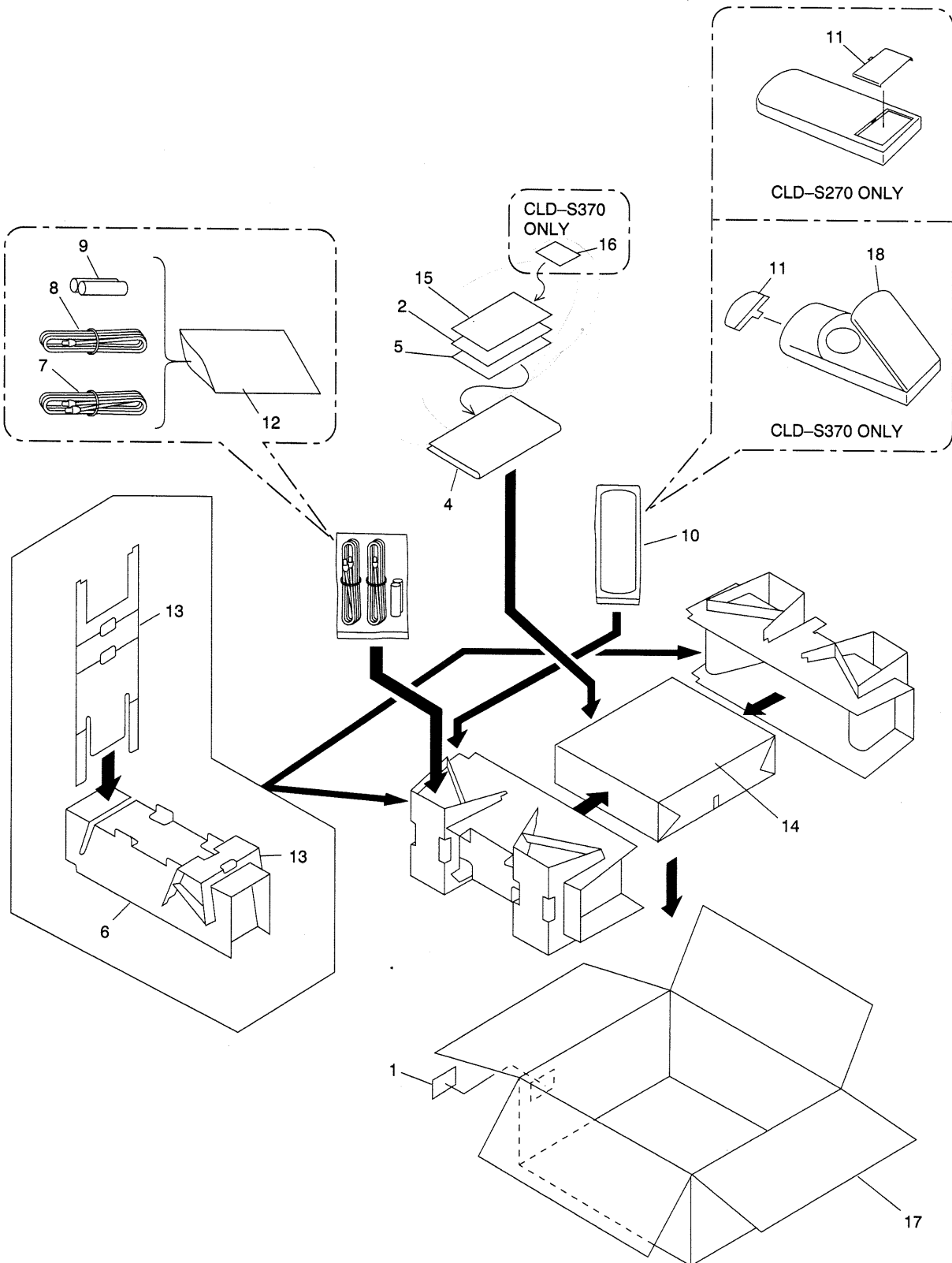
CONTENTS

CHAPTER 2

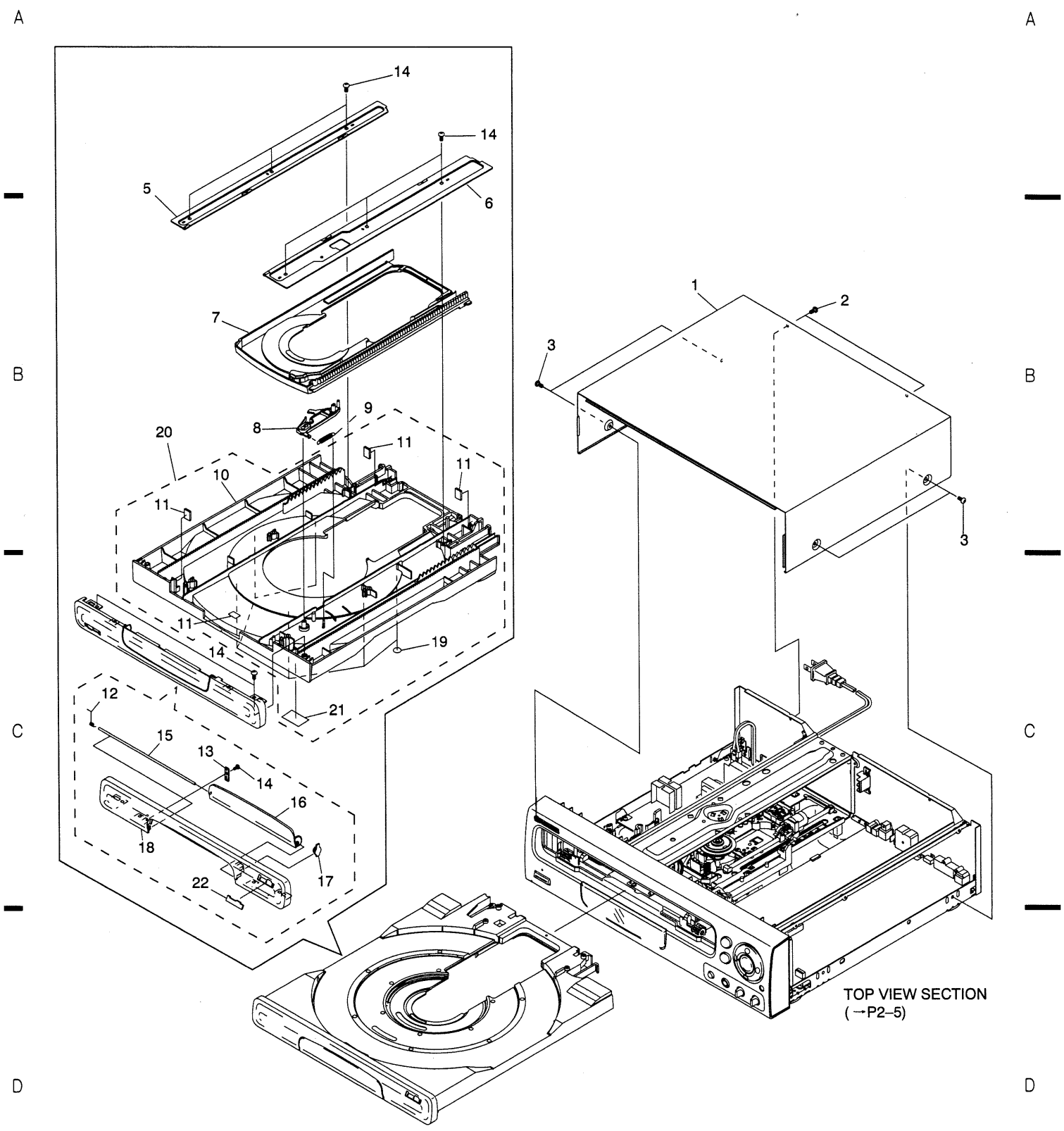
- 2.1 PACKING AND EXPLODED VIEWS ... 2-3
- 2.2 SCHEMATIC AND PCB CONNECTION
DIAGRAMS..... 2-10

2.1 PACKING AND EXPLODED VIEWS

2.1.1 PACKING



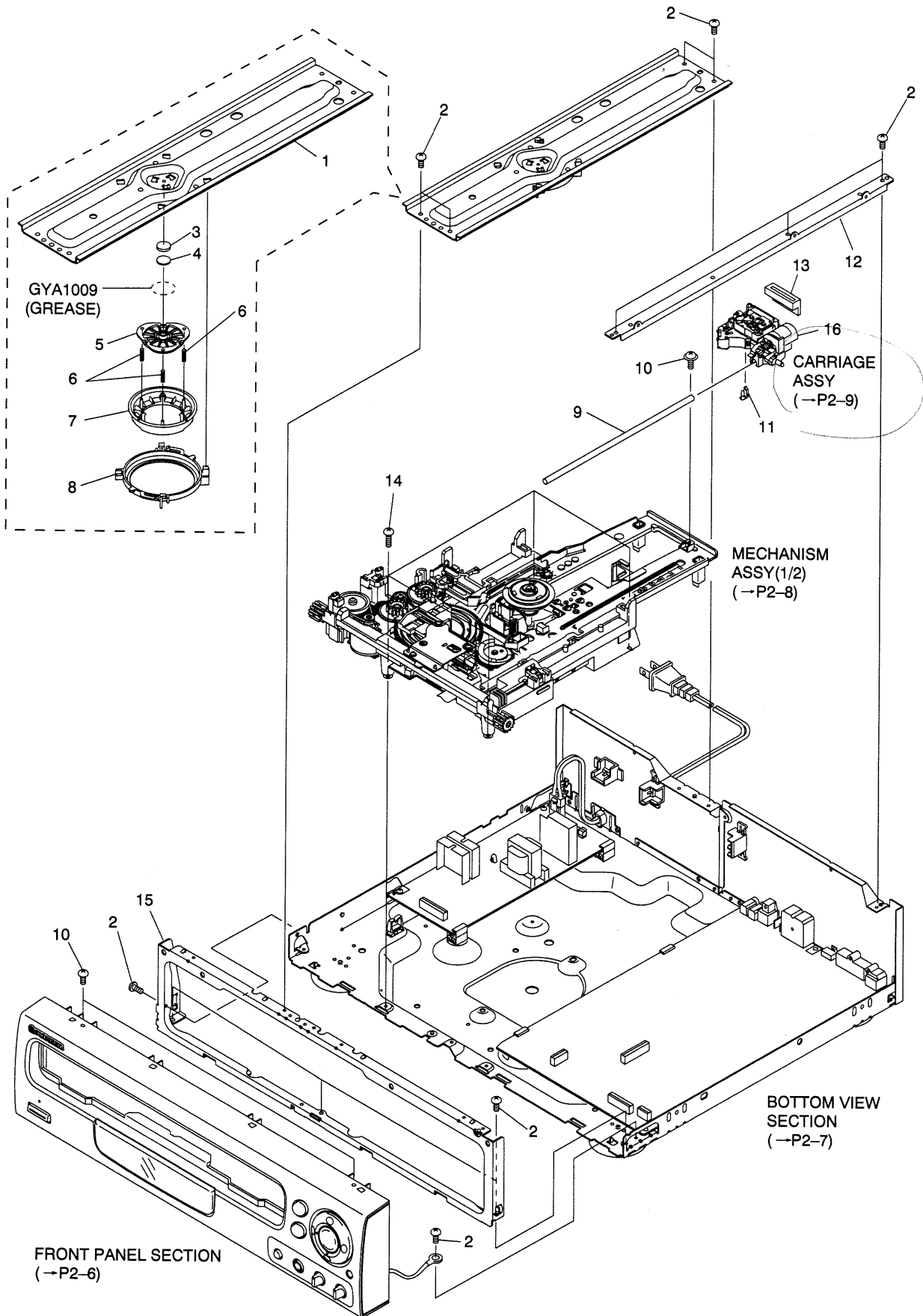
2.1.2 EXTERIOR AND DISC TRAY SECTION



TOP VIEW SECTION
(→P2-5)

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

2.1.3 TOP VIEW SECTION



2.1.4 FRONT PANEL SECTION

A

A

B

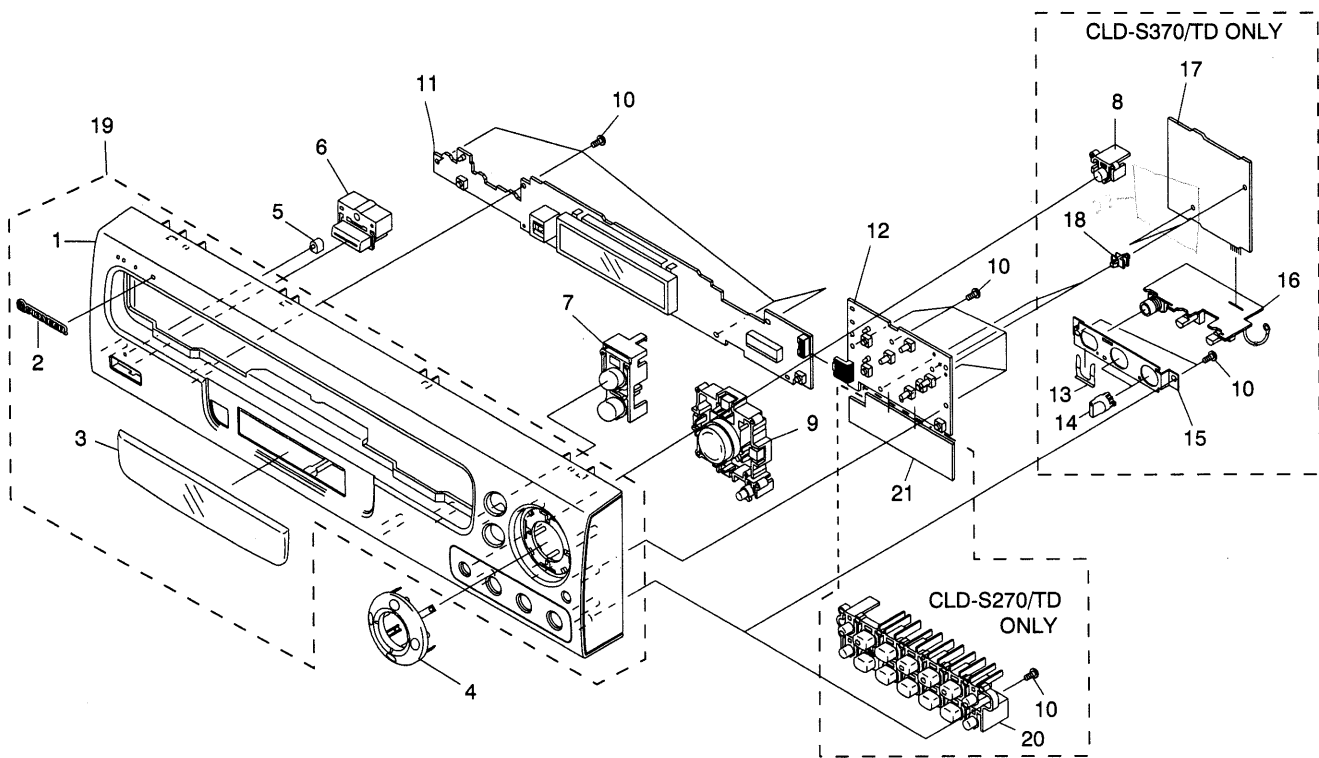
B

C

C

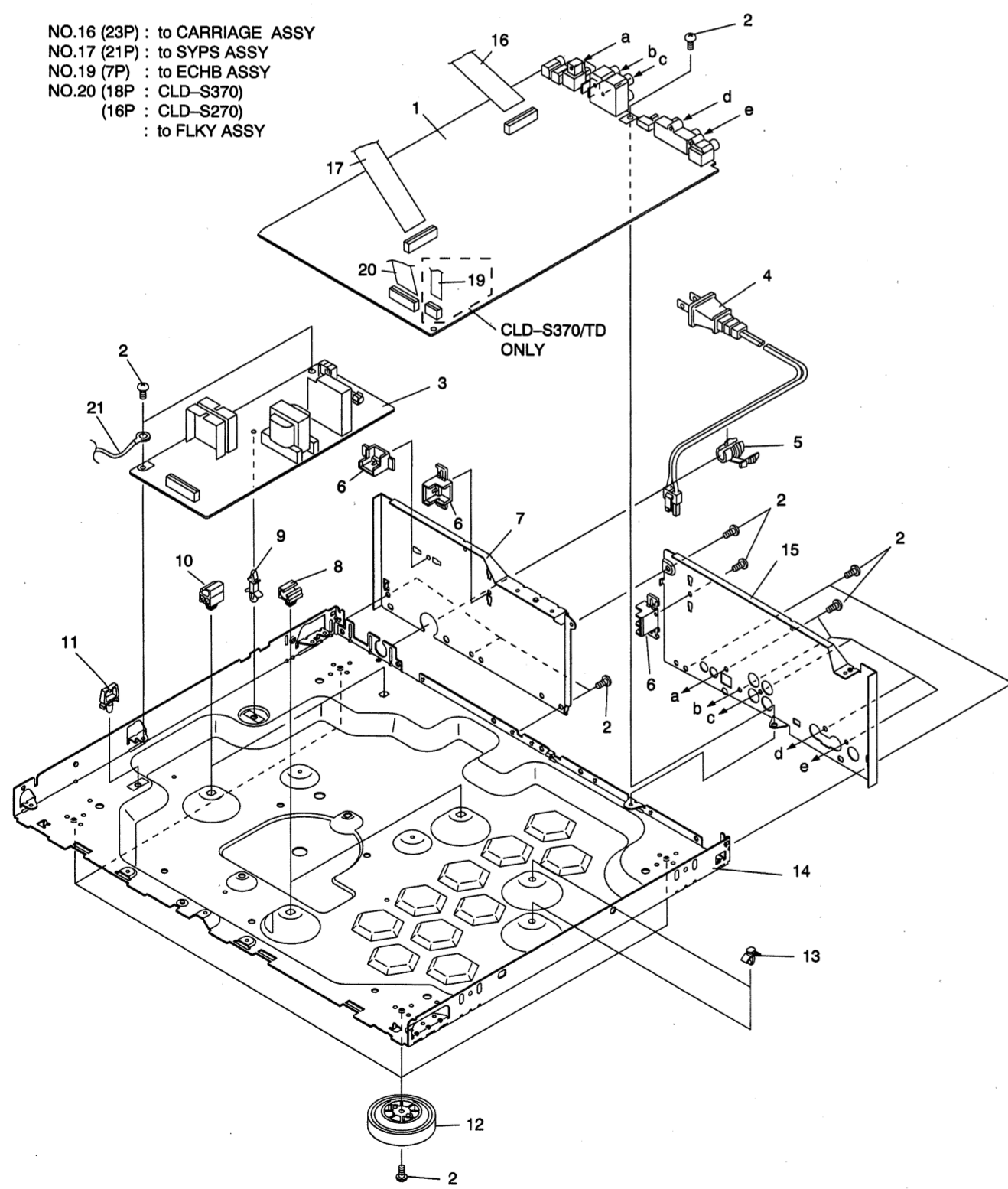
D

D



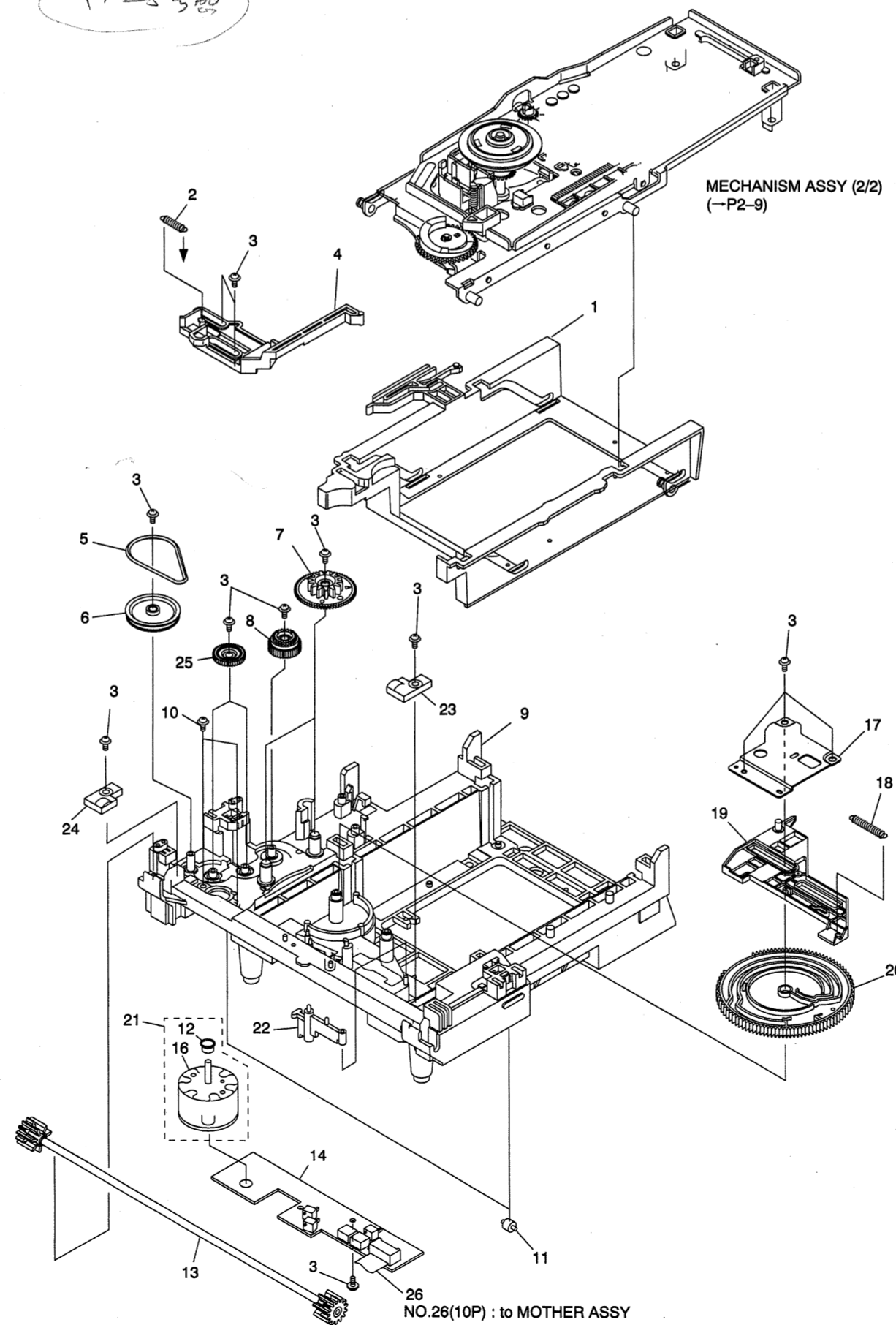
2.1.5 BOTTOM VIEW SECTION

- NO.16 (23P) : to CARRIAGE ASSY
- NO.17 (21P) : to SYPS ASSY
- NO.19 (7P) : to ECHB ASSY
- NO.20 (18P) : CLD-S370
- (16P) : CLD-S270
- : to FLKY ASSY



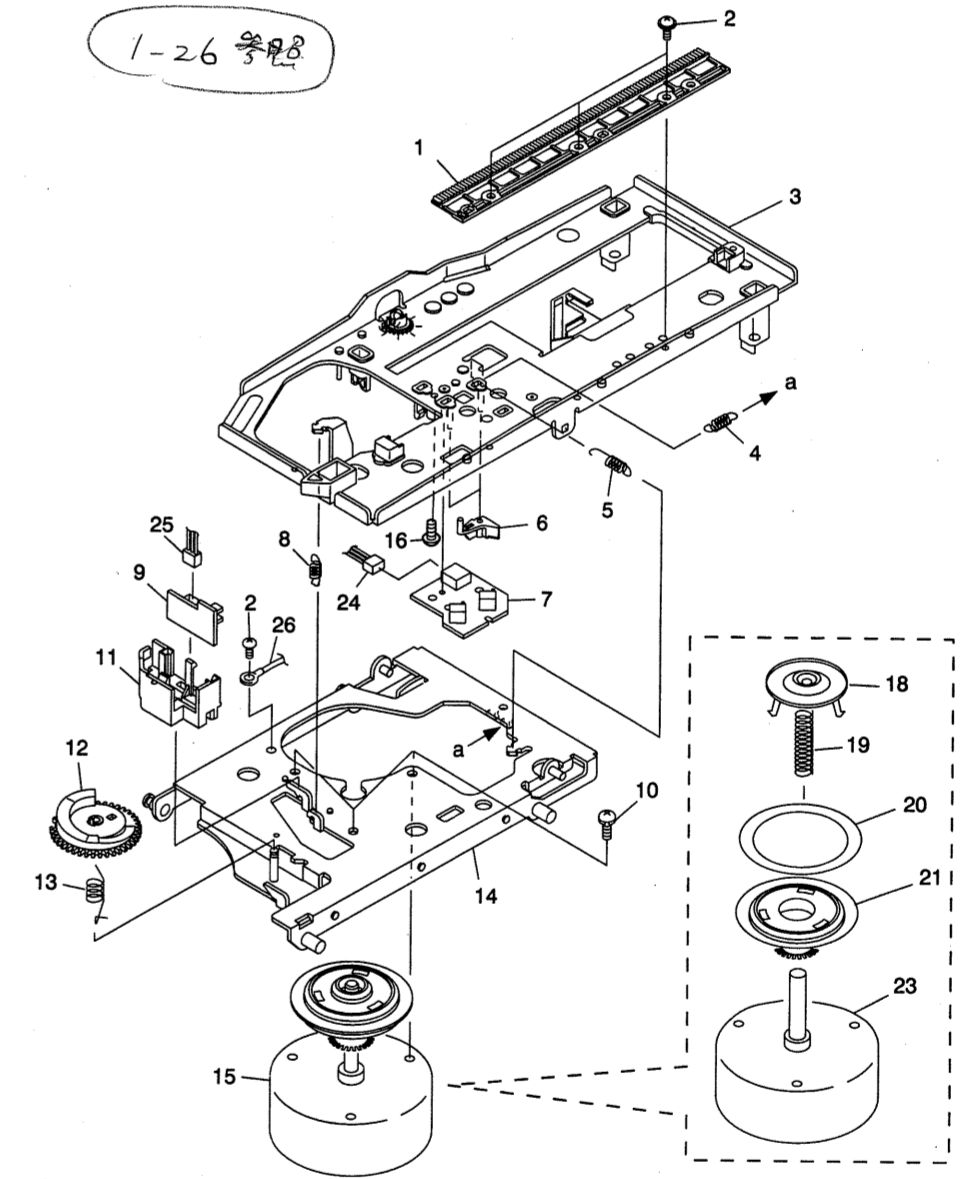
2.1.6 MECHANISM ASSY (1/2)

1-25 参照

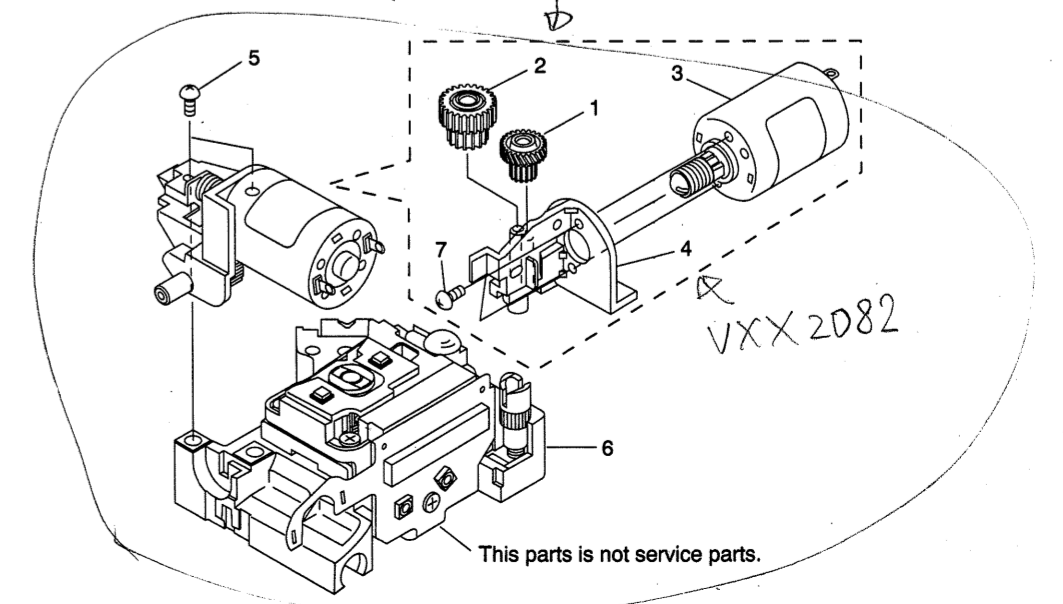


2.1.7 MECHANISM ASSY (2/2)

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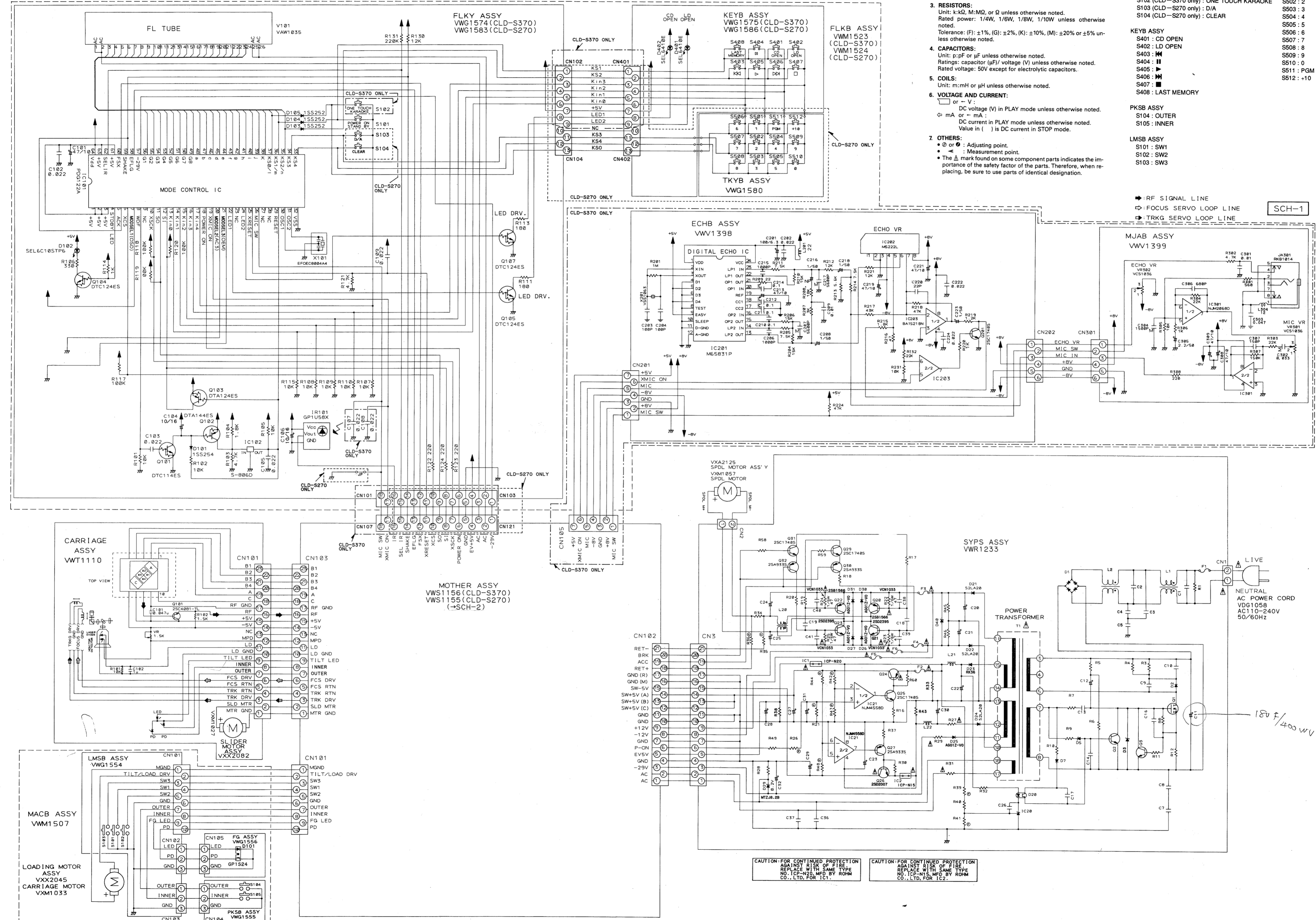


2.1.8 CARRIAGE ASSY



2.2 SCHEMATIC AND PCB CONNECTION DIAGRAMS

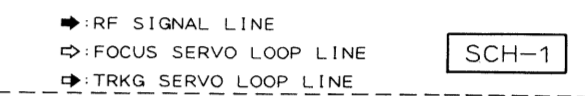
2.2.1 OVERALL CONNECTIONS, FLKY, KEYB, ECHB, MJAB, TKYB, SYPS, LMSB, FG, PKSB AND CARRIAGE ASSEMBLIES



NOTE FOR SCHEMATIC DIAGRAMS (Type 4A)

- When ordering service parts, be sure to refer to "PARTS LIST OF EXPLODED VIEWS" or "PCB PARTS LIST".
- Since these are basic circuits, some parts of them or the values of some components may be changed for improvement.
- RESISTORS:**
Unit: k:K, M:M, Ω 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.
- CAPACITORS:**
Unit: p:pF or μF unless otherwise noted.
Ratings: capacitor (μF)/voltage (V) unless otherwise noted.
Rated voltage: 50V except for electrolytic capacitors.
- COILS:**
Unit: m:mH or μH unless otherwise noted.
- VOLTAGE AND CURRENT:**
DC voltage (V) in PLAY mode unless otherwise noted.
DC current in PLAY mode unless otherwise noted.
Value in () is DC current in STOP mode.
- OTHERS:**
• ⊙ or ⊘ : Adjusting point.
• ⊕ : Measurement point.
• The Δ mark found on some component parts indicates the importance of the safety factor of the parts. Therefore, when replacing, be sure to use parts of identical designation.

- SCH-□ ON THE SCHEMATIC DIAGRAM:
• SCH-□ indicates the drawing number of the schematic diagram. (SCH stands for schematic diagram.)
- SWITCHES** (Underline indicates switch position):
FLKY ASSY
S101 : POEWR ON/STAND BY
S102 (CLD-S370 only) : ONE TOUCH KARAOKE
S103 (CLD-S270 only) : D/A
S104 (CLD-S270 only) : CLEAR
KEYB ASSY
S401 : CD OPEN
S402 : LD OPEN
S403 :
S404 :
S405 :
S406 :
S407 :
S408 : LAST MEMORY
PKSB ASSY
S104 : OUTER
S105 : INNER
LMSB ASSY
S101 : SW1
S102 : SW2
S103 : SW3
TKYB ASSY (CLD-S270 only)
S501 : 1
S502 : 2
S503 : 3
S504 : 4
S505 : 5
S506 : 6
S507 : 7
S508 : 8
S509 : 9
S510 : 0
S511 : PGM
S512 : +10



OVERALL CONNECTIONS, FLKY ASSY, KEYB ASSY, ECHB ASSY, MJAB ASSY, TKYB ASSY, SYPS ASSY, LMSB ASSY, FG ASSY, PKSB ASSY, CARRIAGE ASSY

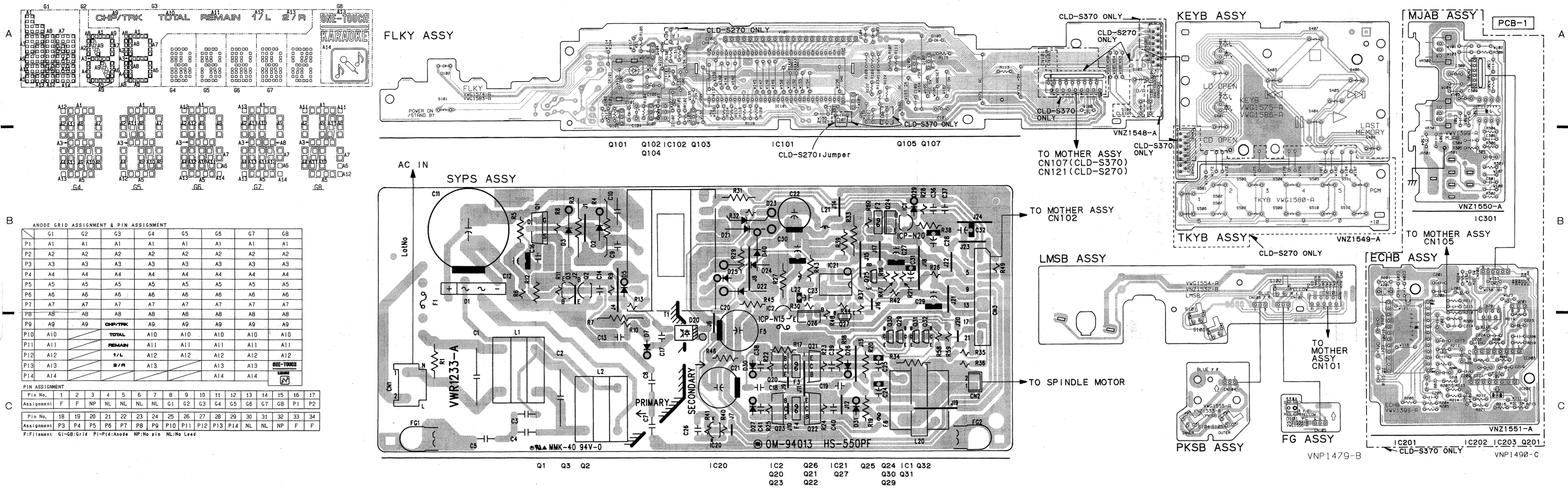
OVERALL CONNECTIONS, FLKY ASSY, KEYB ASSY, ECHB ASSY, MJAB ASSY, TKYB ASSY, SYPS ASSY, LMSB ASSY, FG ASSY, PKSB ASSY, CARRIAGE ASSY

SCH-1

SCH-1

● FL INFORMATION (V101, VAW1035)

● This diagram is viewed from the mounted parts side.

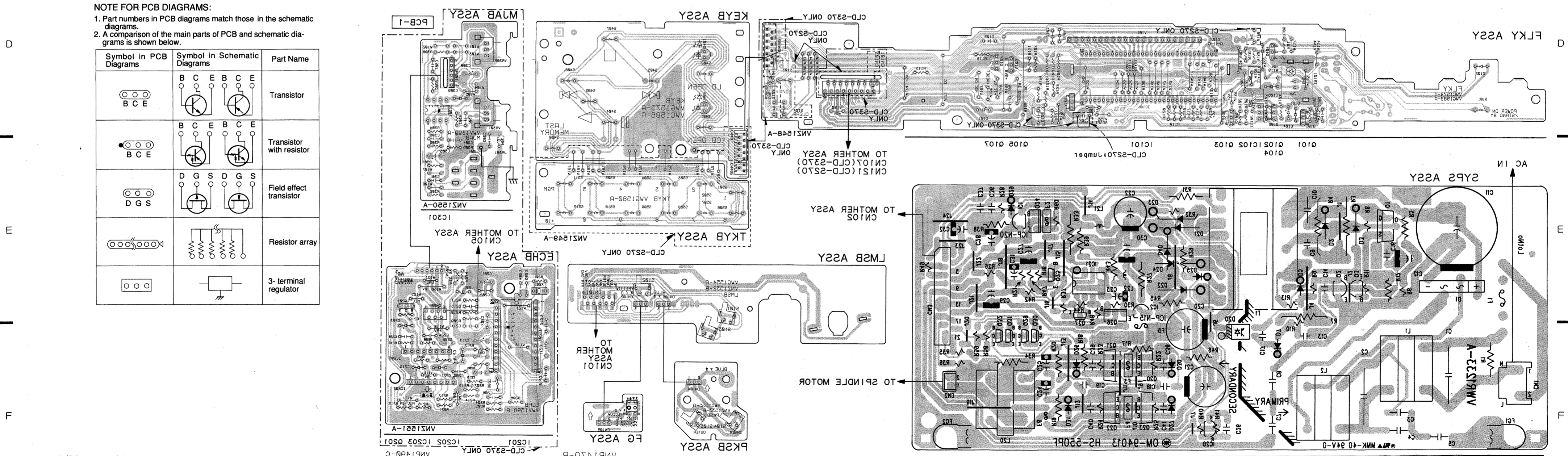


NOTE FOR PCB DIAGRAMS:

1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison of 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

● This diagram is viewed from the foil side.

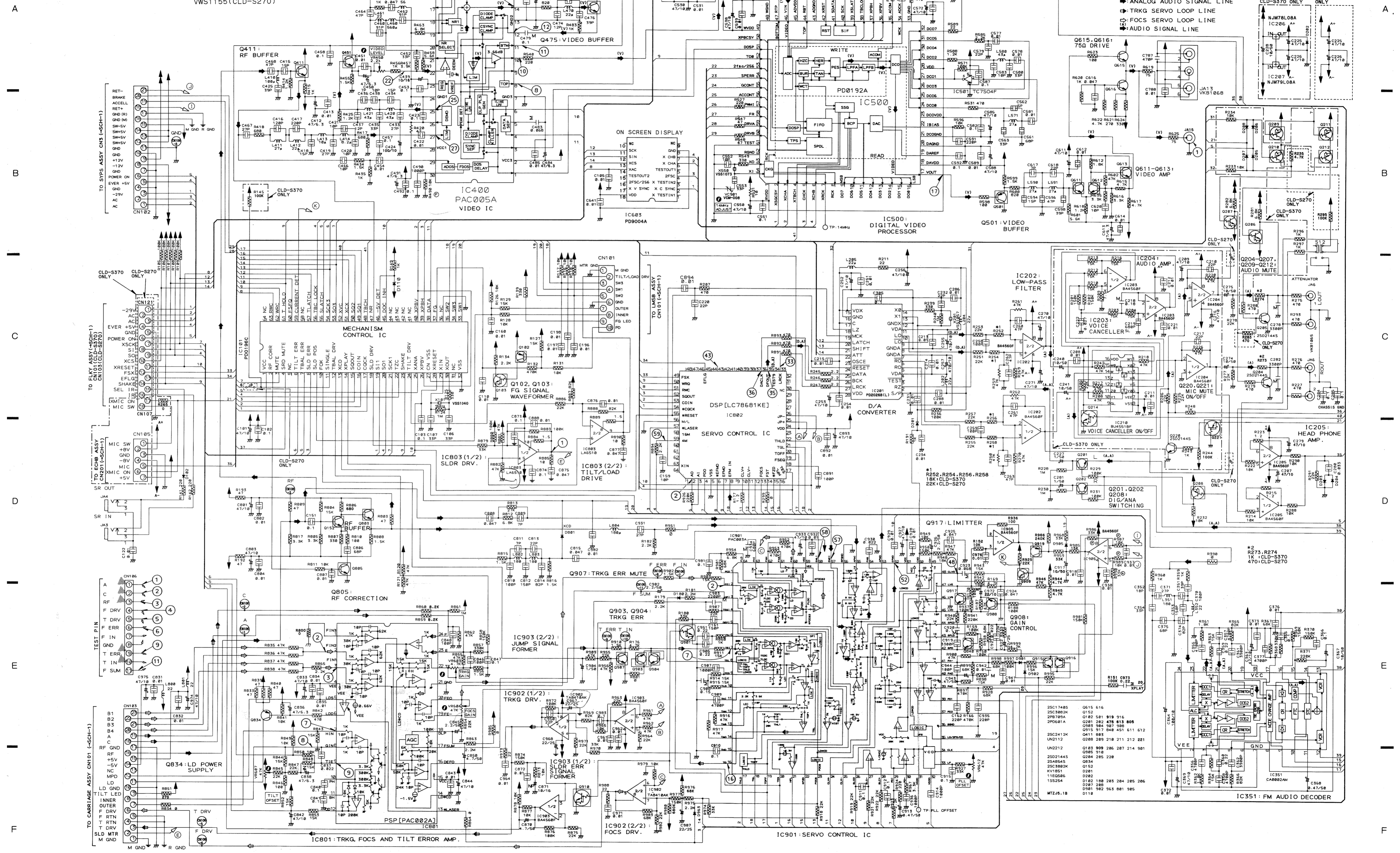


2.2.2 MOTHER ASSEMBLY

MOTHER ASSY
WVS1156 (CLD-S370)
WVS1155 (CLD-S270)

- RF SIGNAL LINE
- VIDEO SIGNAL LINE
- DIGITAL AUDIO SIGNAL LINE
- ANALOG AUDIO SIGNAL LINE
- TRKG SERVO LOOP LINE
- FOCS SERVO LOOP LINE
- AUDIO SIGNAL LINE

SCH-2



SCH-2

MOTHER ASSY

MOTHER ASSY

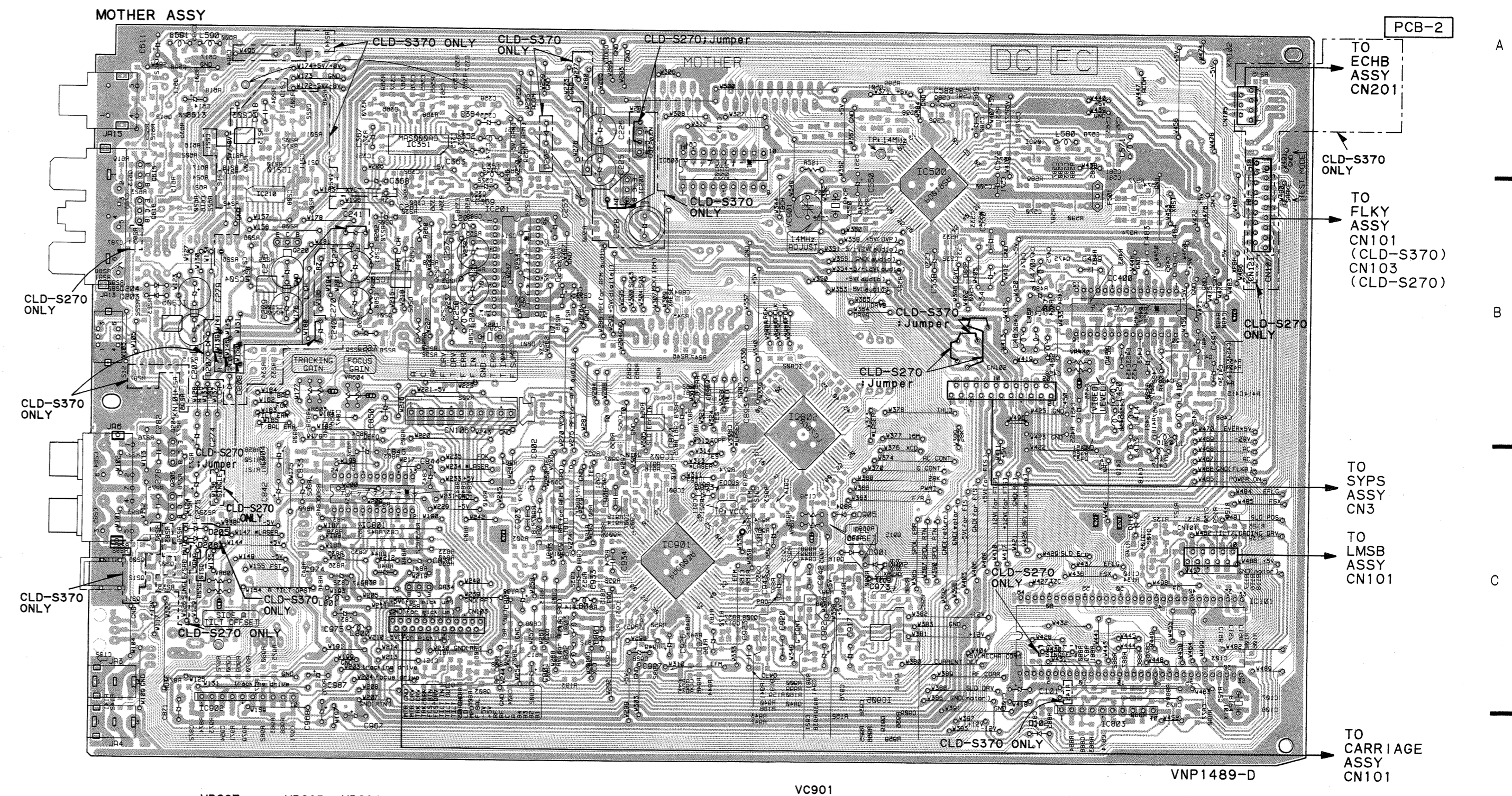
SCH-2

● This diagram is viewed from the mounted parts side.

WAVEFORMS AND VOLTAGE
MOTHER ASSEMBLY

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(LC78681KE)	IC803(LA6510)	IC901(PAC003A)	CN106	IC400(PAC005A)
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	⑩ 1.52Vp-p 0.55V V: 20mV/Div H: 10mS/Div
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	⑧ (TOP) 2.4V ⑪ (BOTTOM) 0.55V V: 20mV/Div H: 10mS/Div
⑨ 5mS/Div. 0.1Vp-p DC mode	③⑤ 0.2μS/Div. 4.4Vp-p AC mode(D.audio)		⑩ 0.2mS/Div. 0.61Vp-p DC mode	④ 5mS/Div. 15Vp-p DC mode	⑫ 1Vp-p 1.65V V: 20mV/Div H: 10mS/Div
	③⑥ 0.2μS/Div. 4.5Vp-p AC mode(D.audio)		⑩ 50μS/Div. 6.2Vp-p DC mode	⑤ 5mS/Div. 5.8Vp-p DC mode	⑭ 1Vp-p V: 20mV/Div H: 10mS/Div
	④③ 0.1μS/Div. 4.5Vp-p AC mode(D.audio)		⑩ 0.2μS/Div. 2.1Vp-p AC mode	⑥ 5mS/Div. 3.5Vp-p DC mode	⑯ (No noise) ⑰ (With limiter noise) V: 20mV/Div H: 10mS/Div about 330mVp-p
	⑤⑨ 0.1μS/Div. 2Vp-p AC mode(D.audio)		⑩ 1mS/Div. 0.53Vp-p DC mode	⑨ 5mS/Div. 1.25Vp-p DC mode	⑱ about 1Vp-p 0.5mS/Div
			⑩ 0.2mS/Div. 0.32Vp-p DC mode	⑪ 10mS/Div. 1.7Vp-p DC mode	⑲ about 1Vp-p 75Ω termination V: 20mV/Div H: 10mS/Div
					Video output pin ⑲ about 1Vp-p 75Ω termination V: 20mV/Div H: 10mS/Div



VR607	VR603	VR604	VC901 VR612	VR450
①⑩③ Q615 Q204 ⑩⑩③① Q220 ①⑩③①			①⑩③① Q834 ①⑩③① ①⑩③① ①⑩③①	①⑩③① ①⑩③① ①⑩③① ①⑩③① ①⑩③① ①⑩③① ①⑩③① ①⑩③① ①⑩③① ①⑩③①
①⑩③① Q616 Q205 ①⑩③①			①⑩③① ①⑩③① ①⑩③① ①⑩③① ①⑩③① ①⑩③① ①⑩③① ①⑩③① ①⑩③① ①⑩③①	①⑩③① ①⑩③① ①⑩③① ①⑩③① ①⑩③① ①⑩③① ①⑩③① ①⑩③① ①⑩③① ①⑩③①
①⑩③① ①⑩③① ①⑩③① ①⑩③①			①⑩③① ①⑩③① ①⑩③① ①⑩③① ①⑩③① ①⑩③① ①⑩③① ①⑩③① ①⑩③① ①⑩③①	①⑩③① ①⑩③① ①⑩③① ①⑩③① ①⑩③① ①⑩③① ①⑩③① ①⑩③① ①⑩③① ①⑩③①
①⑩③① ①⑩③① ①⑩③① ①⑩③①			①⑩③① ①⑩③① ①⑩③① ①⑩③① ①⑩③① ①⑩③① ①⑩③① ①⑩③① ①⑩③① ①⑩③①	①⑩③① ①⑩③① ①⑩③① ①⑩③① ①⑩③① ①⑩③① ①⑩③① ①⑩③① ①⑩③① ①⑩③①

