PIONEER
The Art of Entertainment

Service Manual

ORDER NO.
RRV1378

CD CDV LD PLAYER

CLD-160K
CLD-1850K

● Refer to the service manual RRV1160 for CLD-160K/HB.

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.
	CLD-160K	CLD-1850K		
HB8	O	–	AC220 – 230V	AC240V, *
HEZ8	O	–	AC220 – 230V	AC240V, *
N	–	O	AC220V	AC240V, *

* : Alter the wiring of the Power-supply block at the primary winding of Power-transformer referring to the "Line Voltage Selection" described in Service Manual.

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T-FFM SEPT. 1995 Printed in Japan

1. CONTRAST OF MISCELLANEOUS PARTS

NOTES:
- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

CLD-160K/HB8, CLD-160K/HEZ8, CLD-1850K/N and CLD-160K/HB have the same construction except for the following:

Mark	Symbol & Description	Part No.				Remarks
		CLD-160K/HB	CLD-160K/HB8	CLD-160K/HEZ8	CLD-1850K/N	
NSP	Warranty card	ARW – 088	ARW – 088	ARW – 088	ARW1020	
⚠	Cord stopper	CM – 22B	CM – 22B	PDG1003	CM – 22	
⚠	Power cord	PDG1055	PDG1055	Not used	PDG1013	
⚠	Fuse(T5A)	PEK1003	PEK1003	Not used	Not used	
	Caution label	PRW1018	PRW1018	Not used	Not used	
NSP	CE label	Not used	RRW1222	RRW1222	Not used	
NSP	Getter	Not used	Not used	Not used	VAX1003	
	FL panel	VEC1718	VEC1718	VEC1718	VEC1853	
	Pad(R)	VHA1123	VHA1123	VHA1106	VHA1106	
	Packing case	VHG1387	VHG1387	VHG1386	VHG1533	
	Rear panel	VNA1476	VNA1436	VNA1436	VNA1678	
	Ten key(L)	VNK2663	VNK2663	VNK2663	VNK3589	
	Ten key(R)	VNK2665	VNK2665	VNK2665	VNK3588	
NSP	Tray panel	VNK2836	VNK2836	VNK2836	VNK3561	
NSP	Front panel	VNK3003	VNK3003	VNK3003	VNK2719	
	Operating instructions (English/French/ German/Italian)	VRE1030	VRE1030	VRE1030	Not used	
	Operating instructions (Dutch/Swedish/ Spanish/Portuguese)	Not used	Not used	VRF1032	Not used	
	Operating instructions (English/Chinese)	Not used	Not used	Not used	VRD1047	
NSP	Caution(EW)	Not used	Not used	VRM1027	VRM1027	
NSP	Caution	Not used	Not used	VRR1009	VRR1009	
NSP	Caution label(F)	VRW – 328	VRW – 328	VRW – 328	Not used	
	Caution label(G)	VRW – 329	VRW – 329	VRW – 329	Not used	
	Caution label	Not used	Not used	VRW1094	Not used	
NSP	Caution label(HE)	Not used	Not used	VRW1297	Not used	
	FLKB ASSY	VWG1567	VWG1719	VWG1719	VWG1719	
	SYPS ASSY	VWR1220	VWR1219	VWR1219	VWR1219	*
NSP	JACB ASSY	VWV1396	VWV1465	VWV1465	VWV1465	
	Remote control unit	VXX2071	VXX2071	VXX2071	VXX1603	
	Tray panel ASSY – S	VXX2128	VXX2128	VXX2128	VXX2392	
	Front panel ASSY – S	VXX2192	VXX2192	VXX2192	VXX2393	

Note ∗ : Although VWR1220 and VWR1219 are different in part number, they have the same service parts.

● CONTRAST OF PCB ASSEMBLIES

FLKB ASSY

VWG1719 and VWG1567 have the same construction except for the following:

Mark	Symbol & Description	Part No.		Remarks
		VWG1567	VWG1719	
	C116, C118	Not used	CKPUYF223Z25	∗
	X101	VSS1031	EFOEC8004A4	8.00MHz

Note ∗ : Refer to 2.SCHEMATIC AND PCB DIAGRAMS.

JACB ASSY

VWV1465 and VWV1396 have the same construction except for the following:

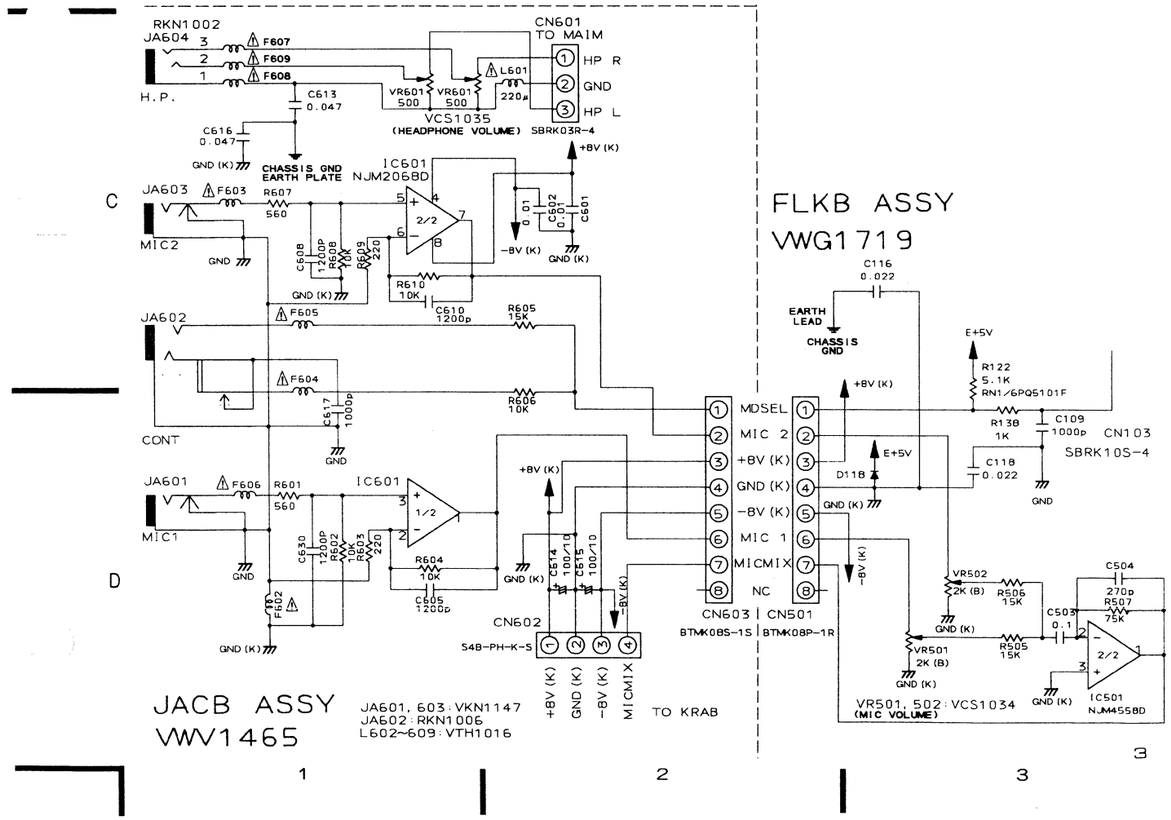
Mark	Symbol & Description	Part No.		Remarks
		VWV1396	VWV1465	
	C611, C612	CKPUYB101K50	Not used	
	Earth plate	Not used	VNF1092	

Note : ⚠ mark is added to F602 - F609 in JACB ASSY VWV1465.

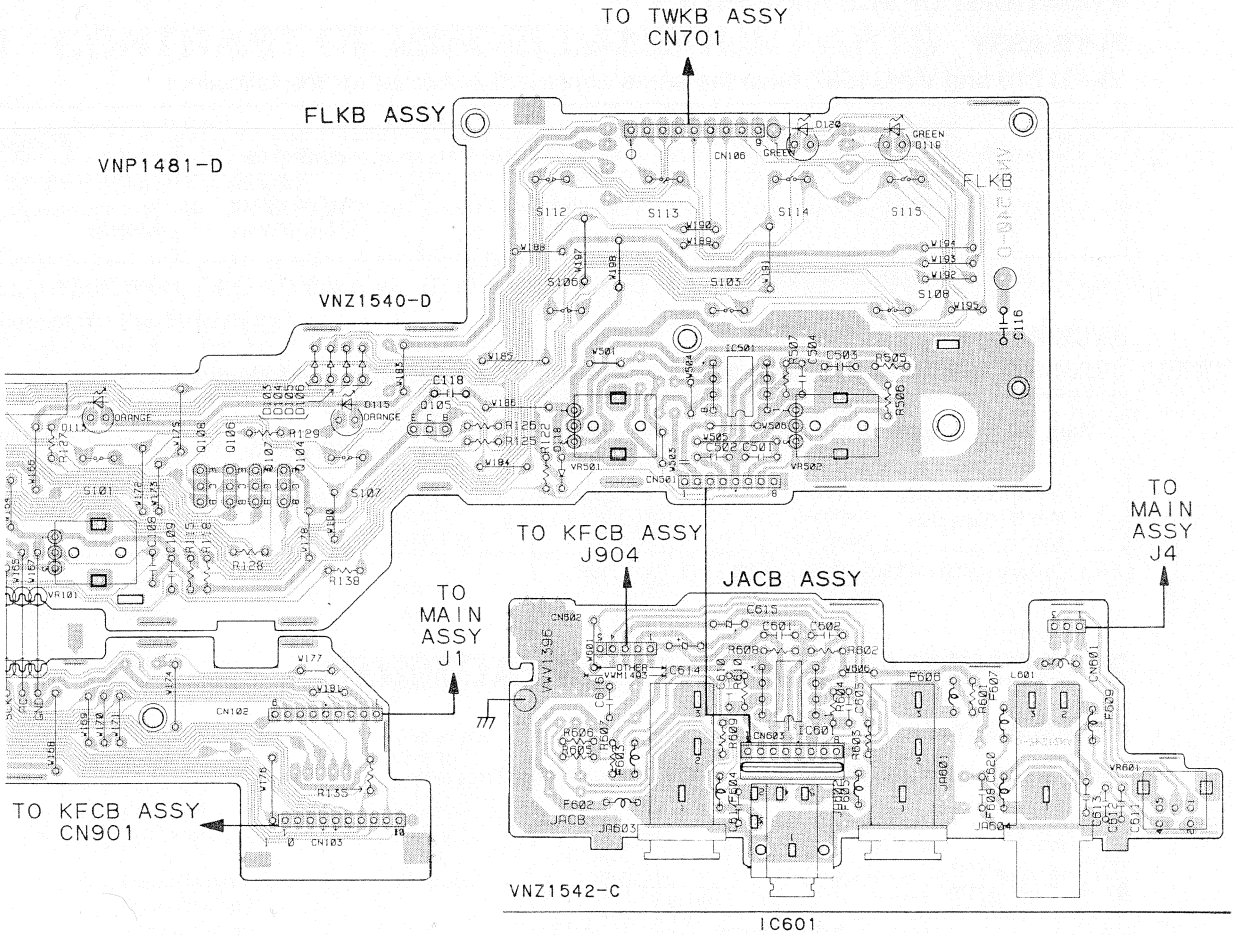
2. SCHEMATIC AND PCB DIAGRAMS

● FLKB ASSY, JACB ASSY

Note : For FLKB assy, only the differences between VWG1719 and VWG1567 are shown.



● 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 between the main parts of PCB and schematic diagrams is shown below.

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

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

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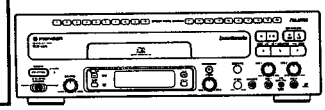

ORDER NO.
RRV1160

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-160K

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.
	CLD-160K		
HB	○	AC240V	AC220—230V, *
HEZ	○	AC220—230V	AC240V, *

* : Alter the wiring of the Power-supply block at the primary winding of Power-transformer referring to the "Line Voltage Selection" described in Service Manual.

CONTENTS

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CHAPTER 1

1.1 SAFETY INFORMATION

(FOR EUROPEAN MODEL ONLY)

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

ADVERSEL:
USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION UNDGÅ UDSAETTELSE FOR STRÅLING.

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

LASER
Kuva 1
Lasersateilyn varoitusmerkki

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

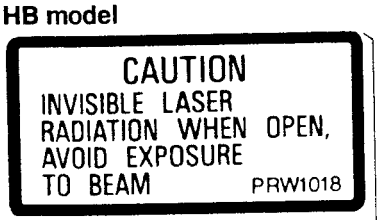
IMPORTANT
THIS PIONEER APPARATUS CONTAINS LASER OF CLASS 1.
SERVICING OPERATION OF THE APPARATUS SHOULD BE DONE BY A SPECIALLY INSTRUCTED PERSON.

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

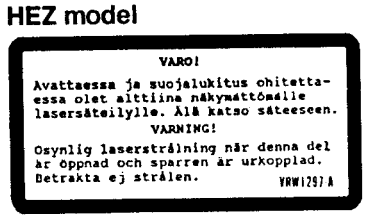
LASER
Picture 1
Warning sign for laser radiation

LABEL CHECK

HB model

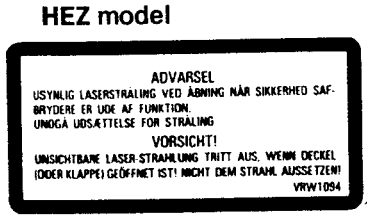


HEZ model

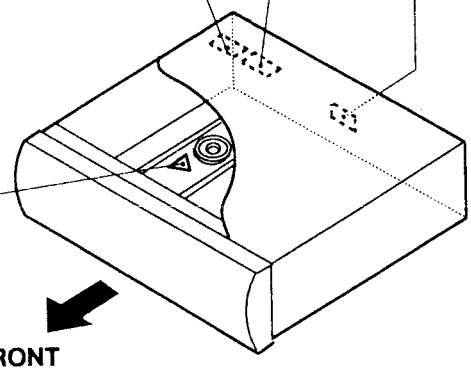


HEZ and HB models

HEZ model



HEZ and HB models



FRONT

Additional Laser Caution

1. The ON/OFF statuses of the slider - position detection switches (PARK INNER, PARK OUTER on the PASB assembly), loading - status detection switches (SW 1,2 and 3 on LOSB assembly) are detected by the microprocessor (IC101 in the MAIN ASSY). To permit the laser diode to oscillate, it is required to set the slider - position detection switch for the LD ACTIVE status (PARK INNER: OFF, PARK OUTER: OFF), and to set the loading - status detection switch for tilt neutral state (SW1: ON, SW2: OFF, SW3: ON). As long as these requirements are not satisfied, the laser diode will not oscillate. When the requirements are met in any way, the laser diode can oscillate. The laser diode oscillation will continue if pin 13 of IC801 is shorted to GND or the emitter and collector of Q834 are shorted each other (fault condition) in MAIN ASSY.
   In the test mode* , the laser diode oscillates when microprocessor detects a PLAY signal, or when the PLAY key is pressed (S207 ON in the FLKY assembly), with the above requirements satisfied.
2. When the cover is open, close viewing through the objective lens with the naked eye will cause exposure to a Class 1 laser beam.

* Refer to page 1—10.

1.2 SPECIFICATIONS

General

System ..... LaserVision Disc system and Compact Disc digital audio system
Laser ..... Semiconductor laser wavelength 780 nm
Power requirements
  European model ..... AC 220 - 230 V, 50/60 Hz
  U.K. model ..... AC 240 V, 50/60 Hz
Power consumption ..... 43 W
Weight
  European model ..... 7.5 kg
  U.K. model ..... 7.6 kg
Dimensions ..... 420 (W) x 385 (D) x 122 (H) mm
Operating temperature ..... +5 °C ~ +35 °C
Operating humidity ..... 5 % ~ 85 %
(There should be no condensation of moisture.)

Video characteristics

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

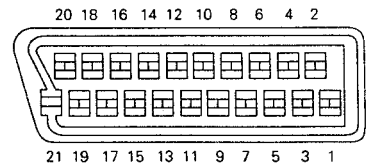
Audio characteristics

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)

Other terminals

Control input/output ..... Both miniature jacks
AUX ..... RCA jacks
Microphone input 2
MIC control input ..... miniature jack
Headphone input 1
AV connector output ..... 21-pin connector
This connector provides the video and audio signals for connection to a colour video TV monitor (or TV set) which has a "AV CONNECTOR" terminal.

21-pin connector assignment



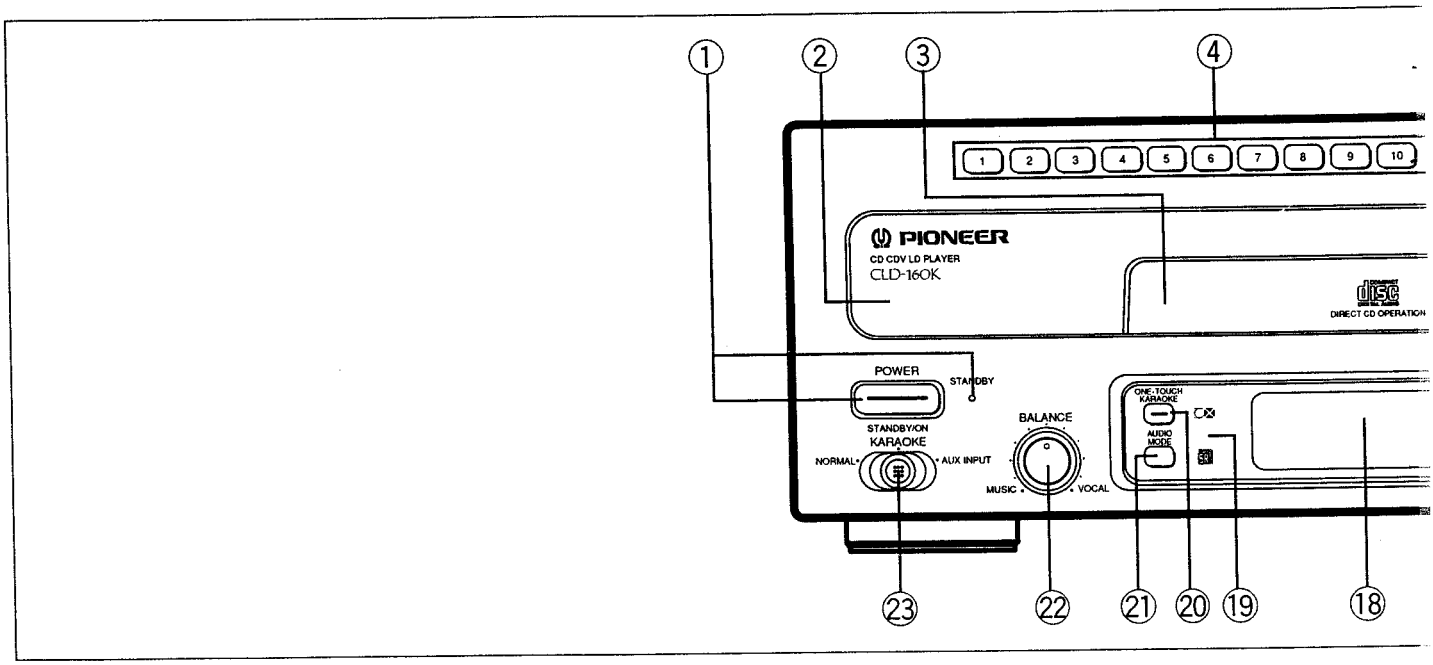
PIN no.			
	1 Audio 2/R out		17 GND
	3 Audio 1/L out		19 Video out
	4 GND		21 GND
	8 Status		

Accessories

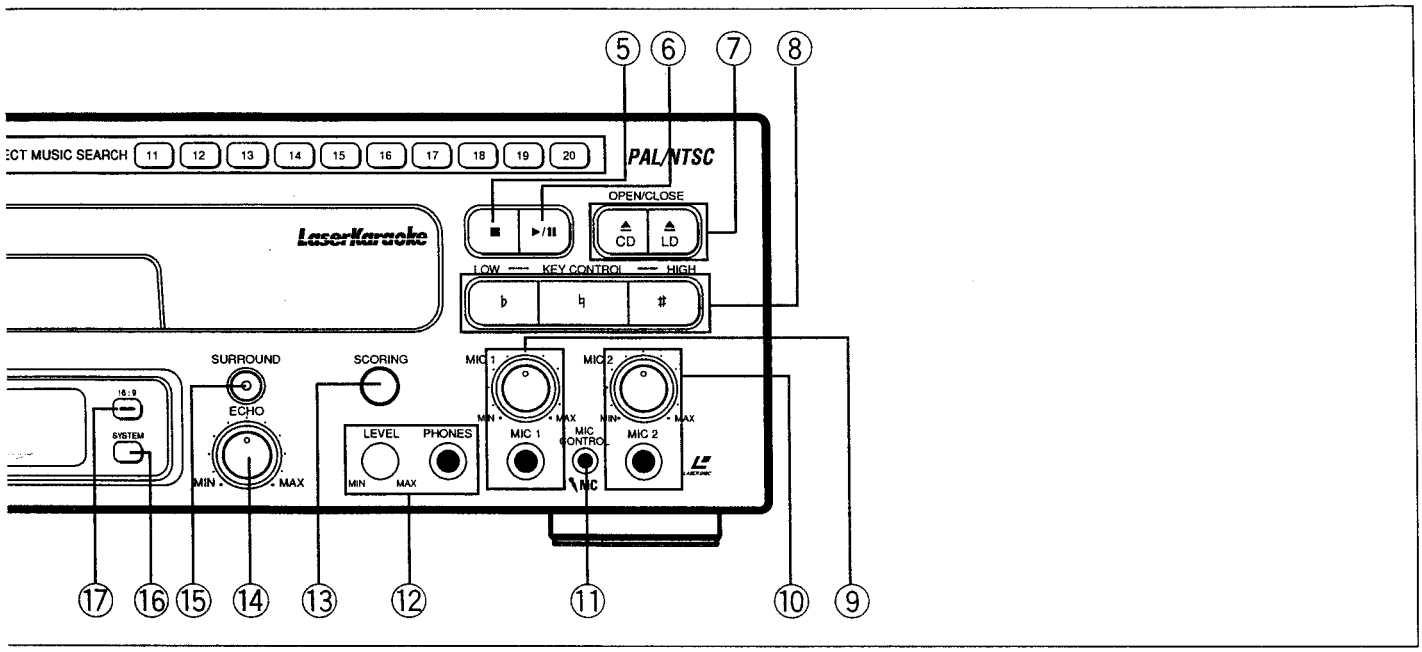
Remote control unit 1
Size "AAA" (IEC R03) dry cell batteries 2
Audio cord 1
Video cord 1
Operating instructions 1
Warranty card 1

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

1.3 PANEL FACILITIES



① **POWER STANDBY/ON switch and STANDBY indicator**
Press to turn the power on and off.
② **Disc table**
③ **CD Disc table**
④ **DIRECT MUSIC SEARCH buttons**
⑤ **Stop (■) button**
⑥ **Play/Pause (▶/II) button**
⑦ **OPEN/CLOSE (CD ▲/LD ▲) buttons**
⑧ **KEY CONTROL buttons**
⑨ **MIC 1 jack and MIC 1 level control**
⑩ **MIC 2 jack and MIC 2 level control**
⑪ **MIC CONTROL jack**
⑫ **PHONES jack and LEVEL control**
⑬ **SCORING button/indicator**
⑭ **ECHO level control**
⑮ **SURROUND button/indicator**
⑯ **SYSTEM button**
⑰ **16:9 button**
⑱ **Display window**
⑲ **Remote sensor**
⑳ **ONE-TOUCH KARAOKE button/indicator**
㉑ **AUDIO MODE button**
㉒ **BALANCE control**
㉓ **NORMAL/KARAOKE/AUX INPUT selector**


⑤ ⑥ ⑦ ⑧
ECT MUSIC SEARCH 11 12 13 14 15 16 17 18 19 20
PAL/NTSC
OPEN/CLOSE
CD
LD
LaserKaraoke
LOW KEY CONTROL HIGH
♭ ♮ ♯
SURROUND
SCORING
MIC 1
MIC 2
ECHO
MIN MAX
LEVEL
PHONES
MIC CONTROL
MIC
⑰ ⑯ ⑮ ⑭ ⑬ ⑫ ⑪ ⑩ ⑨

1.4 IC INFORMATION

■ PD3286B (FLKB ASSY IC101)

● Mode control IC

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

● Pin function

No.	Symbol	Pin name	I/O	Function
1	AN4	xREQ	I	Request for DSP L: Request
2	AN5	MICSENS	I	Microphone detection H: Installed L: Not installed
3	AN6	MODESW	I	Audio mode (A/D) Karaoke/Normal/AUX input
4	AN7	Not Used	I	GND
5	AVSS	Not Used	I	
6	TEST	Not Used	I	
7	X2	– – –	O	Not connected (Open)
8	X1	– – –	I	GND
9	VSS	GND	I	
10	OSC1	– – –	I	Main system clock oscillation (8 MHz)
11	OSC2	– – –	O	
12	xRST	RESET	I	CPU Reset (L: Reset)
13	IRQ0	SHAKE	I	Mechanism controller serial communication request
14	IRQ1	SEL IR	I	Remote control input
15	P12	DOGFOOD	O	Pulse output for watchdog timer
16	P13	POWERON	O	Switching output for mother board power supply
17	P14	THRU	O	Through output for DSP H: Through L: DSP ON
18	P15	EXTXINT	O	External/Internal H: External L: Internal
19	P16	XPOWKEY	I	Power-key input L: Key ON H: OFF
20	P33	Not Used	I	GND
21	P32	Not Used	I	
22	P31	Not Used	I	
23	P30	Not Used	O	Not connected (Open)
24	P47	xMICON	O	Microphone input ON/OFF H: Disable microphone input L: Enable
25	P46	LEDWKV	O	LED for the VOCAL PARTNER
26	P45	LEDONT	O	LED for the one-touch karaoke
27	P44	STDBYL	O	LED for standby
28	P43	Not Used	O	Not connected (Open)
29	P42	SEG k	O	
30	P41	SEG j	O	
31	P40	SEG I	O	
32	P50	KSCAN0/SEG h	O	Key scan output/ Display segment output
33	P51	KSCAN1/SEG g	O	
34	P52	KSCAN2/SEG f	O	
35	P53	KSCAN3/SEG e	O	
36	P54	KSCAN4/SEG d	O	
37	P55	KSCAN5/SEG c	O	
38	P56	SEG b	O	
39	P57	SEG a	O	
40	VDISP	– – –	I	–27V (FL bias)
41	P60	G1	O	Display grid output
42	P61	G2	O	
43	P62	G3	O	
44	P63	G4	O	
45	P64	G5	O	
46	P65	G6	O	
47	P66	G7	O	
48	P67	G8	O	
49	P70	G9	O	
50	P71	G10	O	
51	P72	LEDSCR	O	LED output for the scoring mode
52	P73	LEDSRD	O	LED output for the DSP surround
53	P74	LEDWID	O	LED output for the 16:9 H: 16:9
54	P75	LEDLDO	O	LED output for the CD tray control
55	P76	LEDCDO	O	LED output for the LD tray control
56	P77	Not Used	O	Not connected (Open)
57	VCC	– – –	I	+5V
58	P80	KIN0	I	Key data input
59	P81	KIN1	I	
60	P82	KIN2	I	
61	P83	KIN3	I	
62	P84	KIN4	I	
63	P85	KIN5	I	
64	P86	Not Used	I	Not connected (Open)
65	P87	Not Used	I	
66	P90	Not Used	I	
67	xSCK1	XSCK	I/O	Serial communication clock for the mechanism controller and the character generator DSP.
68	SI1	S–MTOF	I	Serial communication data input from the mechanism controller
69	SO1	S–FTOM	O	Serial communication data output for the mechanism controller and the character generator DSP.
70	P94	XRESET	O	Reset output for the mother board
71	P95	XCSOSD	O	Chip select of the character generator DSP L: Active
72	P96	Not Used	O	Not connected (Open)
73	P97	Not Used	I	
74	PA0	XCSDSP	O	Chip select of DSP L: Active
75	PA1	A/D	O	For DSP H: Address L: Data
76	AVCC	– – –	I	+5V
77	AN0	ECHVOL	I	Echo volume (A/D)
78	AN1	MPXBAL	I	Multiplex onta balance (A/D)
79	AN2	MICSW	I	Microphone status input (A/D)
80	AN3	XD_RDY	I	READY input for DSP H: Busy L: Ready

■ PD0193A (MAIN ASSY IC101)

● Mechanism control IC

● Pin function

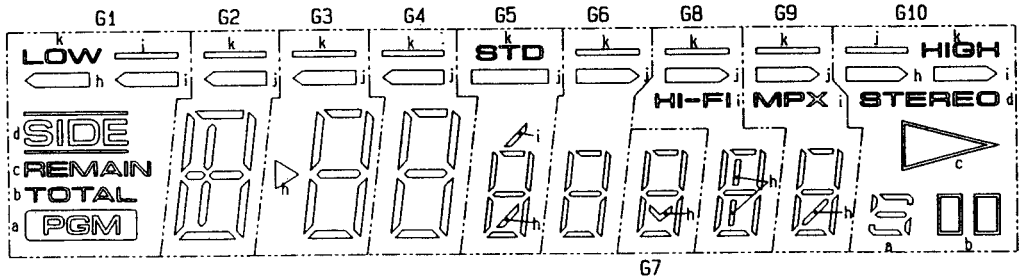
No.	Pin name	I/O	Function
1	VCC	I	Power connection pin Impresses 5V±10%.
2	XCD	O	LD/CD switching signal output pin. "L" = CD "H" = LD
3	RFCORR	O	RF collection switch signal output pin. "H" = gain up CD,CDV-A:Low Raise the gain with the CAV inner circuit, otherwise High.
4	GPWM	O	Duty pulse signal output terminal for spindle gain switching. CLV inner circuit : L Outer circuit : H
5	FBAL	O	Focus balance control H: TEMAX L: RFMAX
6	SLDERR	I A/D	Carries out A/D conversion of this signal and controlled input of the slider servo. Control the slider motor so that this signal becomes 2.5V.
7	SLDPOS	I A/D	Pick up position detection switch input pin. Divides the resistance of each switch and detects the reading position of the A/D input value.
8	TBALERR	I A/D	Tracking balance error signal input pin. Carries out A/D conversion of this signal and controlled input of the tracking offset.
9	TILTERR	I A/D	Carries out A/D conversion of this signal and controlled input of the tilt servo. Control the tilt motor so that this signal becomes 2.5V.
10	XFOK	I	Focus servo lock signal input pin. "L" = lock "H" = unlock Used for detecting focus servo locking.
11	FSEQ	I	Sub−code sync conformity detection signal input pin. "L" = Others "H" = Conformity
12	TBALDRV	O PWM	Carries out PWM output of the tracking offset, and is used for auto tracking offset. 910μsec cycles, 3 value control H, L, Z.
13	TLATCH	O	DAC & digital filter PD2026 serial control latch signal output terminal. Startup is latched.
14	TILTDRV	I/O	Load/tilt control output pin. 0, 5V−tray IN, OUT/tilt DOWN, UP 2.5V−STOP Carries out PWM output of the tilt drive, and is used for the tilt servo.
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 PWM	Slider control signal output pin. 5V = FWD, 0V = REV, 2.5V = STOP 910μsec cycles, 3 value control H, L, Z.
19	SI1	I	Input pin for data from mode control IC.
20	SO1	O	Serial data output to mode control IC.
21	SCK1	I/O	Clock for serial communication with mode control IC. Is set to input mode at all times when not used for communication with the mode control IC.
22	TZC	I INT	Tracking error zero cross signal input pin. At the time of miss clamp detection, this signal is monitored during track count search.
23	WRQ	I	Sub−code Q reading OK signal input pin. "L" = NG "H" = OK This terminal becomes H when the sub−code Q data passes the CRC check.
24	RWC	O	DSP reading/writing command signal output pin. "L" = READ "H" = WRITE
25	SHAKE	I/O	Handshake signal pin for data communication with mode control IC. This terminal is used as a data line for both directions, and each microcomputer carries out input/output control.
26	XPBV	I	LD/CDV play vertical synchronous signal input pin. "L" = vertical synchronous
27	CNVss	I	GND grounding for A/D conversion.
28	XRESET	I	Reset signal input pin. "L" = reset "H" = reset cancel Controlled by mode control IC.
29	XIN	I	9MHz clock oscillation input pin.
30	XOUT	O	9MHz clock oscillation output pin.
31	N. C.	O	Not used. Since it is for only φ output, it cannot be used for anything else.
32	GND	I	GND grounding.
33	SW1	I	Switch input pin for loading/tilt position detection.

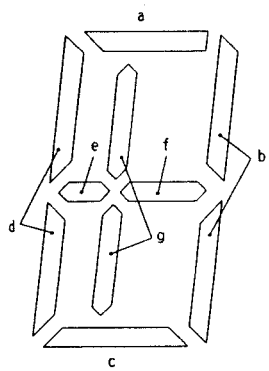
No.	Pin name	I/O	Function
34	SW2	I	Switch input pin for loading/tilt position detection.
35	SW3	I	Switch input pin for loading/tilt position detection.
36	XSLOCK	I	Spindle lock signal input pin. "H" = unlock "L" = lock
37	FG	I	Spindle motor FG signal input pin 24 outputs per rotation. Used after dividing by 3 in microcomputer.
38	DATA	I	Input pin for Phillips code decoder with built in mechanism controller.
39	PBH	I	Play H−SYNC input for Phillips code decoder.
40	XPBV	I	Play V−SYNC input for Phillips code decoder.
41	16:9	O	16:9 switching signal output pin. 16:9 "H" 4:3 (normal) "L"
42	VLOCK	I	Vertical synchronous lock detection signal input pin. "L" = phase is not correct "H" = phase is correct.
43	N. C.	O	Not used
44	N. C.	O	Not used
45	XPAL	O	PAL/NTSC signal output pin. L : PAL, H : NTSC
46	XPLAY	O	PLAY signal output terminal for PAL. L : PLAY H : NOT PLAY
47	JF/R	I/O	JUMP FWD signal output terminal for PAL. FWD jump : H REV jump : L Others : Z
48	SCK3	O	Serial 3 clock signal output pin.
49	XLATCH3	O	Serial 3 latch signal output pin TBC.
50	SO3	O	Serial 3 data signal output pin. The serial signal is a common one, and the signals are distinguished with latch signals (XLAT3, TLAT).
51	DIRECT	O	CD direct video line power off signal output pin. Video PWOFF: H normal: L
52	XCLV	O	CAV/CLV switching signal output pin. "H" = CAV, "L" = CLV
53	VSQ	O	Switching signal output terminal for the video signal. H : squelch ON L : squelch OFF
54	SENA	O	Shift enable signal output terminal. H : H is picked and REFV is made closer to PBV. L : Normal
55	CLRSCN	O	Clear scan signal output terminal. H : During clear scanning. L : Others
56	T HOLD	I	Track jump accelerating/decelerating signal input pin. "H" = accelerating/decelerating "L" = Others
57	HQON	O	High quality circuit control signal output terminal. H : HQ circuit ON. L : HQ circuit OFF.
58	AMPDET	I	Spindle overcurrent detection signal input pin. "L" = overcurrent "H" = normal
59	SQ1	O	Analog sound switching signal output pin. 1/L "L" = squelch OFF "H" = squelch ON
60	SQ2	O	Analog sound switching signal output pin. 2/R "L" = squelch OFF "H" = squelch ON
61	XCX	O	Analog sound CX noise reduction switching signal output pin. "L" = CX ON "H" = CX OFF
62	MUTE	O	Audio line sound mute control signal output pin. "H" = MUTE "L" = MUTE CANCEL
63	ACCONT	I/O	Output terminal for signal increasing/reducing the spindle speed. H : Accelerator L : Brake Z : Others
64	XANA	O	Digital/analog audio switch signal output pin. "H" = digital "L" = analog

1.5 FL INFORMATION

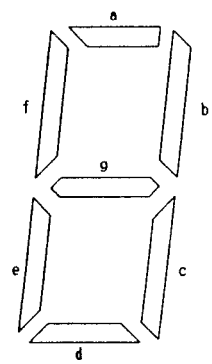
● VAW1034 (FLKB ASSY : V101)

ANODE GRID ASSIGNMENT





G2



G3~G9

	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10
P1	PGM	a	a	a	a	a	a	a	a	
P2	TOTAL	b	b	b	b	b	b	b	b	
P3	REMAIN	c	c	c	c	c	c	c	c	
P4	SIDE	d	d	d	d	d	d	d	d	STEREO
P5		e	e	e	e	e	e	e	e	
P6		f	f	f	f	f	f	f	f	
P7		g	g	g	g	g	g	g	g	
P8	(L)				(Lower)					(L)
P9	(R)				(Upper)			HI-FI	MPX	(R)
P10										
P11	LOW				STD					HIGH

PIN ASSIGNMENT

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Assignment	F	F	NP	NL	NL	NL	NL	P11	P10	P9	P8	P7	P6	P5	P4	P3	P2

Pin No.	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
Assignment	P1	NL	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10	NL	NL	NP	F	F

F:Filament G1~G10:Grid P1~P11:Anode NP:No pin NL:No lead

1.6 ADJUSTMENTS

1.6.1 TEST MODE

1) How to start test mode

With the MAIN ASSY test mode TP (W407) 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.

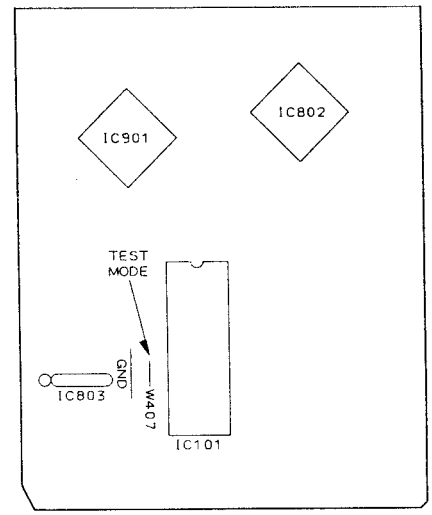
- When entering the test mode, the FL display and the LED will light until an operation is carried out with a key.
- When entering the test mode, the TV system will become that of NTSC.
- During the test mode, the background will be blue if an LD or a CDV is not playing (When NTSC and PAL), or black (in the case of quasi−PAL).
- The TV system is unconditionally toggled between the 3 systems of PAL → NTSC → quasi−PAL.

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	◀II/II▶ (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	II 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.

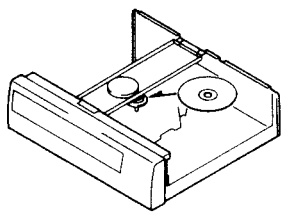
Table 1

● PLAYER OPERATION IN THE TEST MODE

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.



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

③ Push the cam plate (Fig. 4) in the direction of the arrow and wait until the CD disc is clamped.

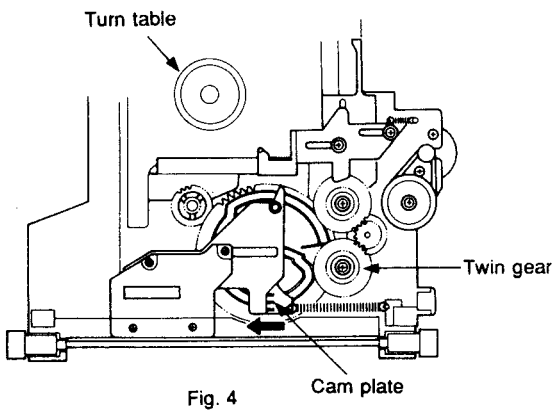
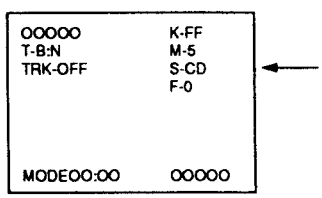


Fig. 4

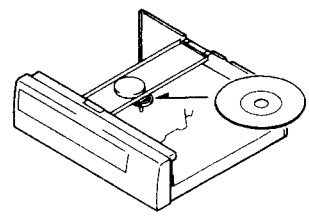
④ Press the ◀◀ or ▶▶ keys to appear "S-CD" on the TV screen display.



TV screen display

⑤ Press the PLAY (▶) key twice, disc will be normally playbacked.

- LD PLAYBACK

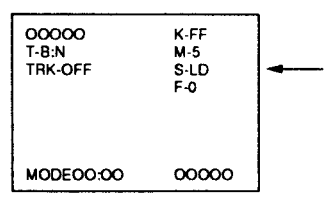


① Press the PLAY (▶) key once. (Twin gear starts to move.)

② Press the SKIP REV (⏮) key to raise the turn table (spindle motor section) while pressing the cam plate (Fig. 4) 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

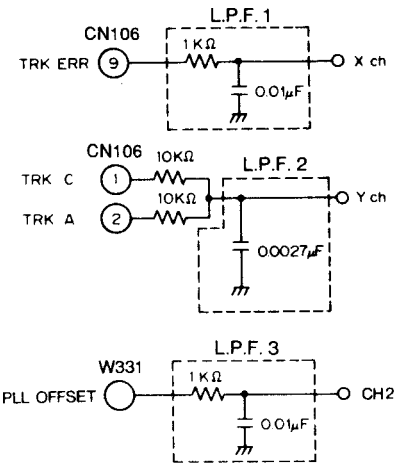
⑤ Press the PLAY (▶) key twice, disc will be normally playbacked.

1.6.2 ADJUSTMENT PRECAUTIONS

● JIGS FOR ADJUSTMENT

- CD test disc (STD−901 or STD−902)
- LD test disc (GGV1003 and GGV1007)
- (−) Screwdriver (medium)
- (−) Screwdriver (small)
- Hexagonal wrench driver (straight type, size : 3mm)
- Resistor (10kΩ × 2, 47kΩ)
- Dual-trace oscilloscope (with delay)
- AF oscillator
- Frequency counter
- Digital voltmeter
- TV monitor
- Low-pass filter

Use the low-pass filters below in the coarse centering adjustment 2. and fine centering adjustment (L.P.F.1 and L.P.F.2) 6. and PLL OFFSET adjustment (L.P.F.3) 1. when the S/N of the waveform is hard to observe.



● RACK ASSEMBLY DURING CENTERING ADJUSTMENT

The S-IN position (without hitting the mechanism stopper) of the rack assembly during centering adjustment is indicated below.

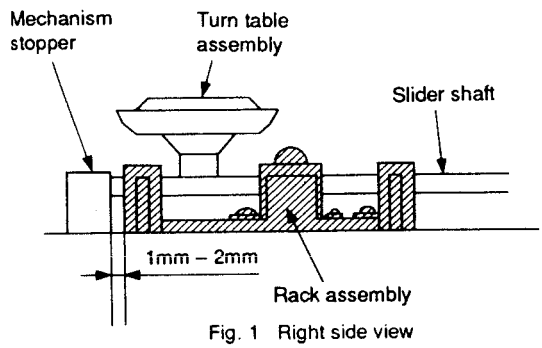
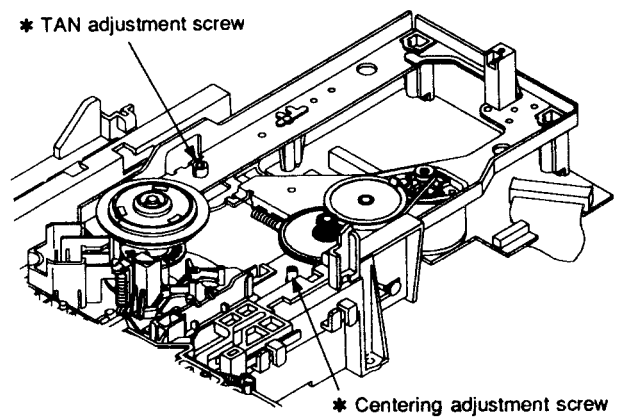


Fig. 1 Right side view



✱ : As the adjustment range of both the TAN and centering adjustment screws is only ±90° from the center, do not turn the screws beyond this range.

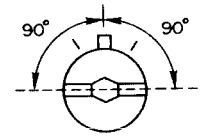
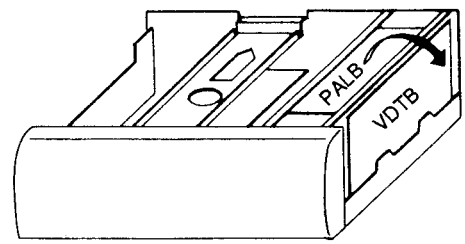


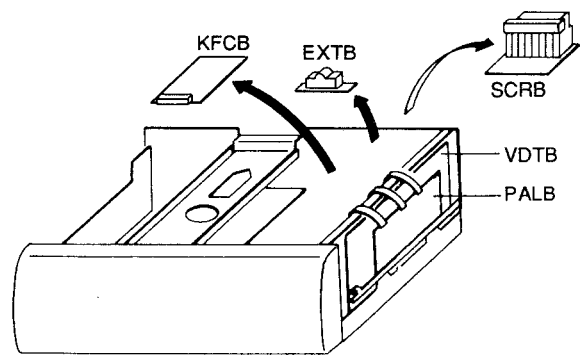
Fig. 2 TILT base section

• DISASSEMBLY ORDER
(When diagnosing the MAIN ASSY)

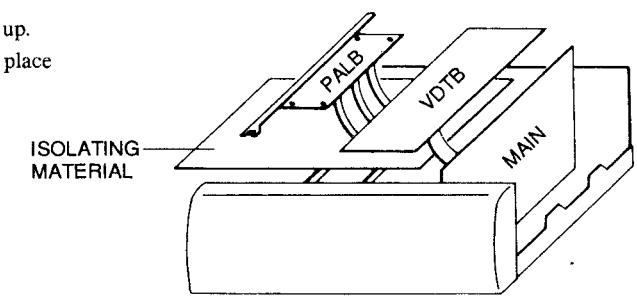
① Remove the tray, open PALB assy, and fix it to the holder.



② Removes SCRB, KFCB and EXTB assy.



③ Remove VDTB and MAIN assy, and stand MAIN assy up.
Put isolating material on top of the clamper, and then place the VDTB and PALB assy on top.



1.6.3 MAIN ASSY, VDTB ASSY AND PALB ASSY ADJUSTMENT LOCATION

● MAIN ASSY

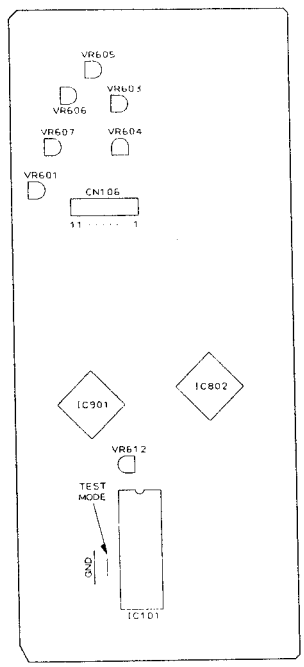


Fig. 1 Adjustment diagram of MAIN ASSY

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 : TRK Servo loop gain adjustment
VR601 : RF level adjustment
VR612 : PLL offset adjustment
(Order in adjustment)

● VDTB ASSY AND PALB ASSY

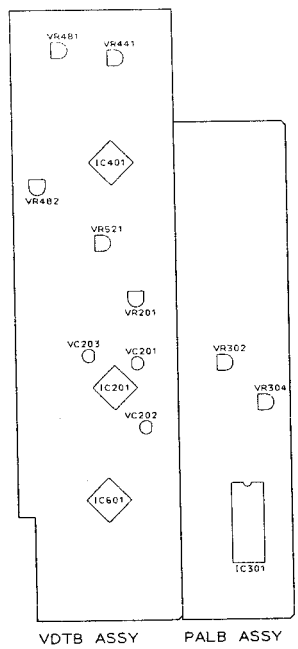
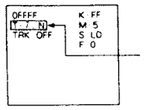
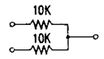
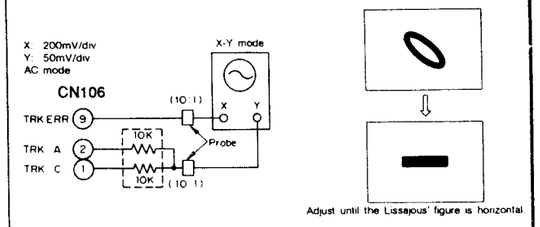
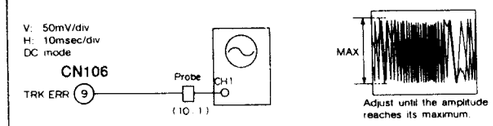
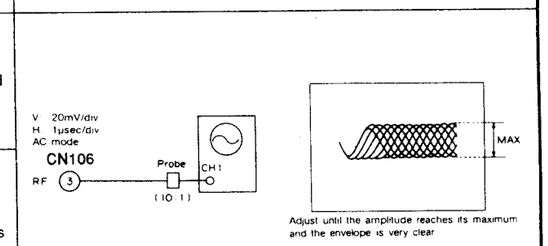
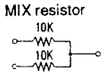
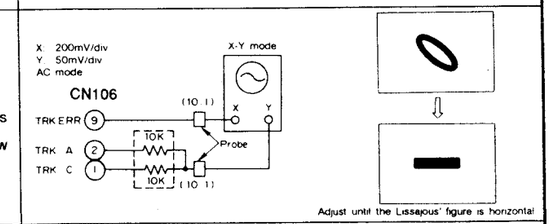
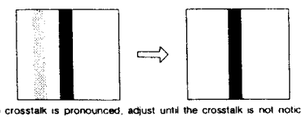


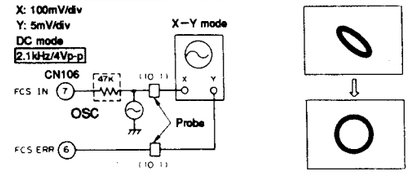
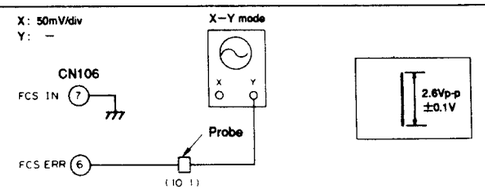
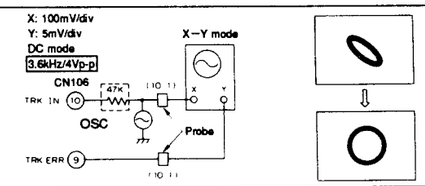
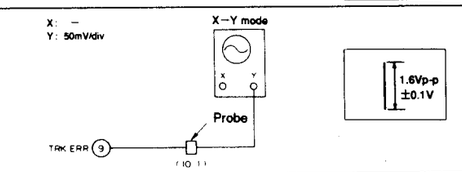
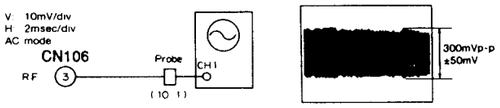
Fig. 2 Adjustment diagram of VDTB ASSY AND PALB ASSY

VC202 : NTSC Reference clock adjustment
VC201 : PAL Reference clock 910fH adjustment
VC203 : PAL Reference clock adjustment
VR481 : VCO Center frequency adjustment
VR482 : Output video level adjustment
VR441 : 1H Delay video level adjustment
VR521 : VPS Error adjustment
VR304 : MOD Y − Signal level adjustment
VR302 : MOD C − Signal level adjustment
VR201 : PAL Inverting SC phase adjustment
(Order in adjustment)

1.6.4 MECHANICAL ADJUSTMENT

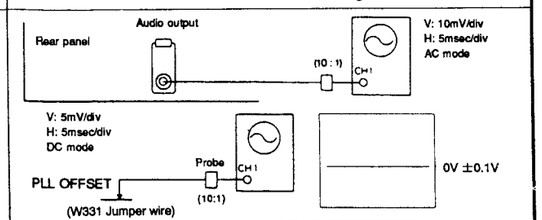
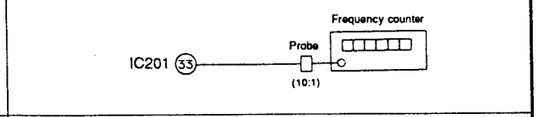
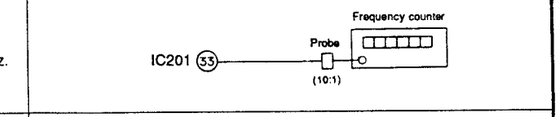
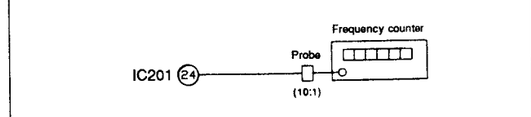
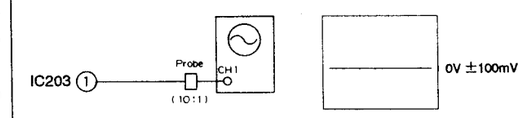
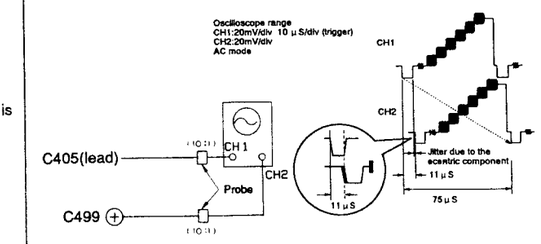
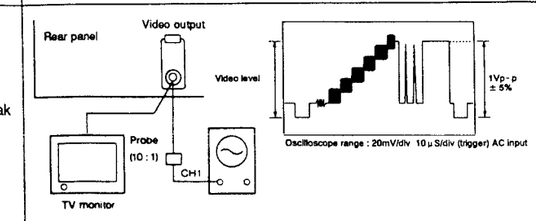
NOTE : All VRs and CNs (connectors) in the tables are parts of MAIN ASSY.

	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.	 Adjusts this figure while looking at it on the test mode screen.
2	Coarse centering adjustment	Mechanism assembly Centering adjustment screw	· ⊖ Screwdriver (Large) · Oscilloscope · STD − 901 or STD − 902 · MIX resistor 	CN106 X : ⑨pin (TRK ERR) Y : ①+②pin (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 until the Lissajous' figure is horizontal.	 Adjust until the Lissajous' figure is horizontal
3	FCS balance adjustment (1) TRK ERR MAX	VR605	· Oscilloscope · STD − 901 or STD − 902	CN106 ⑨pin (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.	 Adjust until the amplitude reaches its maximum.
4	FCS balance adjustment (2) RF LEVEL MAX	VR606	· Oscilloscope · STD − 901 or STD − 902	CN106 ③pin (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.	 Adjust until the amplitude reaches its maximum and the envelope is very clear
5	Tangential direction angle adjustment	Carriage assembly TAN adjustment screw	· Oscilloscope · STD − 901 or STD − 902 · ⊕ Screwdriver (Medium)	CN106 ③pin (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 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	Mechanism assembly Centering adjustment screw	· Oscilloscope · STD − 901 or STD − 902 · MIX resistor 	CN106 X : ⑨pin (TRK ERR) Y : ①+②pin (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" (2). After adjustment, stabilize the screw with an adhesive.	 Adjust until the Lissajous' figure is horizontal
7	Crosstalk check and tilt offset adjustment.	VR607	· TV monitor · GGV1003	Crosstalk check screen	· Test mode TRK servo ON Tilt servo ON · GGV1003still #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.	 If the crosstalk is pronounced, adjust 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).						

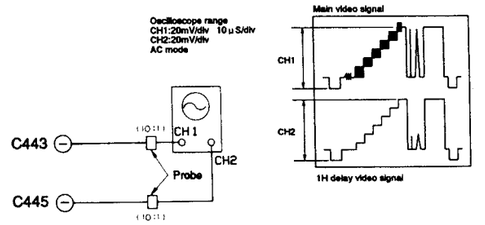
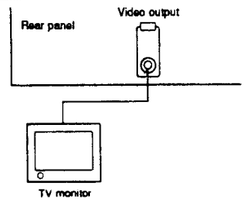
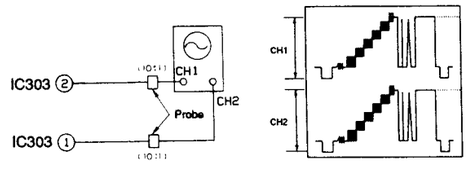
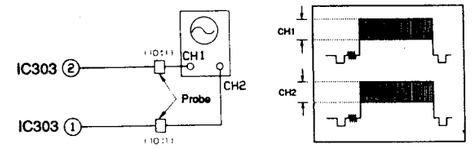
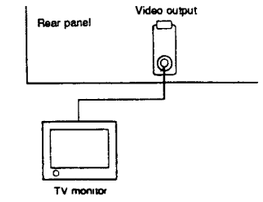
	Adjustment name	Adjustment point		Measuring equipment and jigs	Measurement point	Player condition	Adjustment procedure	Waveform and connection diagram
8	FCS Servo loop gain adjustment	A	VR604	· Oscilloscope · GGV1003 · AF Oscillator · Resistor (47kΩ)	CN106 X : ⑦ pin FCS IN Y : ⑥ pin FCS ERR	· Test mode TRK servo ON Tilt servo ON · GGV1003 #15,000still	1. Xch : Connect to ⑦ pin with 47kΩ Ych : Connect to ⑥ pin 2. Search #15,000 of GGV1003 and still the address. 3. Connect AF oscillator between Xch and 47kΩ and adjust VR604 until Lissajous' figure is a circle.	
		B	VR604	· Oscilloscope · GGV1003 · Clip etc. (Short GND−⑦ pin)	CN106 X : − Y : ⑥ pin FCS ERR ⑦ pinGND (⑦, ⑧ pin Short)	· Test mode · Stop mode · F−1	1. Ych : connect to ⑥ pin. Drop ⑦ pin to GND. 2. Put in GGV1003, press reverse side of skip key and bring F−0 to F−1. 3. Press brake and adjust VR604 until the waveform level is 2.6 Vp−p±0.1 V.	
9	TRK Servo loop gain adjustment	A	VR603	· Oscilloscope · GGV1003 · AF Oscillator · Resistor (47kΩ)	CN106 X : ⑩ pin TRK IN Y : ⑨ pin TRK ERR	· Test mode TRK servo ON Tilt servo ON · GGV1003 #15,000still	1. Xch : Connect to ⑩ pin with 47kΩ Ych : Connect to ⑨ pin 2. Search #15,000 of GGV1003 and still the address. 3. Connect AF oscillator between Xch and 47kΩ and adjust VR603 until Lissajous' figure is a circle.	
		B	VR603	· Oscilloscope · GGV1003	CN106 X : − Y : ⑨ pin TRK ERR	· Test mode · TRK servo ON Tilt servo ON · F−1 · GGV1003 #15,000still	1. Ych : connect to ⑨ pin. 2. Search #15,000 of GGV1003 and still the address. 3. Adjust VR603 until the waveform level is 1.6 Vp−p±0.1 V.	
10	RF level adjustment	VR601		· Oscilloscope · GGV1003	CN106 ③ pin (RF)	· Test mode TRK servo ON Tilt servo ON · GGV1003 #15,000still	1. Search for address #15,000 of GGV1003, still the address, and observe RF at CH1. 2. Adjust VR601 until RF amplitude is 300mVp−p±50 mV.	

1.6.5 ELECTRICAL ADJUSTMENT

ADJUSTMENT TABLE OF MAIN ASSY, VDTB ASSY, PALB ASSY AND YCNR ASSY

	Adjustment name	Adjustment point	Measuring equipment and jigs	Measurement point	Player condition	Adjustment procedure	Waveform and connection diagram
1	PLL offset adjustment	VR612 (MAIN ASSY)	· Oscilloscope · DC Volt meter · STD−901 or STD−902 (or LDD disc)	Digital sound terminal W331	· Test mode Tilt servo ON TRK servo ON/OFF · Digital sound play	With TRK Servo OFF, play digital sound and coarsely adjust VR612 so that sound is produced. Connect W331 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 ±0.1V.	
2	NTSC Reference clock adjustment	VC202 (VDTB ASSY)	· Frequency counter · GGV1003	IC201−33(TBC CLK)	· NTSC PLAY mode. Play the NTSC disc. or Select the NTSC mode with the SYSTEM button of the front panel. (Note1)	Adjust VC202 so that the 4fsc frequency becomes 14.31818MHz ±0.1kHz.	
3	PAL Reference clock 910fH adjustment	VC201 (VDTB ASSY)	· Frequency counter · GGV1007	IC201−33(TBC CLK)	· PAL PLAY mode. Play the PAL disc. or Select the PAL mode with the SYSTEM button of the front panel. (Note1)	Adjust VC201 so that the 910fH frequency becomes 14.21875MHz ±0.1kHz.	
4	PAL Reference clock adjustment	VC203 (VDTB ASSY)	· Frequency counter · GGV1007	IC201−24(OSD CLK)	· PAL PAUSE mode. Play the PAL disc and set to pause state. or Select the PAL mode with the SYSTEM button of the front panel. (Note1)	Adjust VC203 so that the 4fsc frequency becomes 17.734475MHz ±0.1kHz.	
5	PAL VCXO ERR Offset check	VC201 (VDTB ASSY)	· Oscilloscope · GGV1007	IC203−1	· Play the PAL disc.	Play the PAL disc and check that the voltage of VCXO ERR at IC203−1pin is 0V±100mV. If the specified voltage is not obtained, adjust VC201 so that the voltage becomes 0V ±100mV. Note : The adjustment of VC201 in this step should have priority over that in step 2.	
6	VCO Center frequency adjustment	VR481 (VDTB ASSY)	· Oscilloscope · GGV1007	CH1 : C405 lead wire CH2 : C499 + lead wire	· Normal mode · GGV1007 #4,000 still	Adjust VR481 so that the center position of jitter of CH2 video signal is delayed to 75μS(1H + 11 μS) ±1.4μS as compared with CH1 video signal.	
7	Output video level adjustment	VR482 (VDTB ASSY)	· Oscilloscope · TV monitor · GGV1003	Video output terminal (75Ω termination or TV monitor connection)	· Normal mode · GGV1003 #19,900 still · HQ circuit OFF	Adjust VR482 so that the voltage between the sync tip and the white peak becomes 1.0Vp−p ±5%.	

Note1 : PAL mode → NTSC mode → MOD PAL mode (Cyclic change)

	Adjustment name	Adjustment point	Measuring equipment and jigs	Measurement point	Player condition	Adjustment procedure	Waveform and connection diagram
8	1H Delay video level adjustment	VR441 (VDTB ASSY)	· Oscilloscope · GGV1003	CH1 : C443—(minus) lead wire CH2 : C445—(minus) lead wire	· Normal mode · GGV1003 #19,900 still	Adjust VR441 so that the level of the 1H delay video signal becomes the same as that of the main video signal.	
9	VPS Error adjustment	VR521 (VDTB ASSY)	· TV monitor · GGV1003	Video output terminal (TV monitor)	· Normal mode · GGV1003 #8,000 still	Color irregularity on the magenta screen is minimized.	
10	MOD Y— Signal level adjustment	VR304 (PALB ASSY)	· Oscilloscope · GGV1003	CH1 : IC303—2 (REFERENCE) CH2 : IC303—1	· Normal mode · GGV1003 #19,900 still · HQ circuit ON	Adjust VR304 so that the level of Y signal at IC303—1 pin between the sync tip and the white 100% becomes the same as that of the Y signal at IC303—2 pin.	
11	MOD C—Signal level adjustment	VR302 (PALB ASSY)	· Oscilloscope · GGV1003	CH1 : IC303—2 (REFERENCE) CH2 : IC303—1	· Normal mode · GGV1003 #8,000 still	Adjust VR302 so that the level of C signal at IC303—1 pin becomes the same as that of the C signal at IC303—2 pin.	
12	PAL Inverting SC phase adjustment	VR201 (VDTB ASSY)	· TV monitor · GGV1007	Video output terminal (TV monitor)	· Normal mode GGV1007 test disc #6,500 still	Adjust VR201 so that the color irregularity on the magenta screen is minimized at still.	

Note2 : It is possible to terminate video output terminal with 75Ω by connecting TV monitor.

1.7 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 ⚠ 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 −160K/HB and CLD −160K/HEZ.*

1.7.1 PACKING

(1) CONTRAST OF CLD −160K/HB AND CLD −160K/HEZ.

CLD −160K/HB and CLD −160K/HEZ have the same construction except for the following :

Mark	No.	Symbol & Description	Part No.	
			CLD −160K/HB	CLD −160K/HEZ
	1	Pad (R)	VHA1123	VHA1106
	3	Packing case	VHG1387	VHG1386
	15	Operating instructions (Dutch/Swedish/Spanish/Portuguese)	Not used	VRF1032
	16	Caution(UC)	VRR1020	Not used
NSP	16	Caution(EW)	Not used	VRM1027
NSP	17	Caution	Not used	VRR1009

(2) FOR CLD−160K/HB

Mark	No.	Description	Parts No.
	1	Pad (R)	VHA1123
	2	Pad (F)	VHA1149
	3	Packing case	VHG1387
	4	.....	
	5	.....	
	6	Battery cover	PZN1012
	7	Remote control unit	VXX2071
	8	Mirror mat sheet	VHL1006
	9	Audio cord	VDE1033
	10	Video cord	VDE1034
NSP	11	Battery (R03, AAA)	VEM−022
NSP	12	Polyethylene bag	Z21−029
NSP	13	Warranty card	ARW−088
	14	Operating instructions (English/French/German/Italian)	VRE1030
	15	.....	
	16	Caution (UC)	VRR1020
	17	.....	
NSP	18	Polyethylene bag	VHL−014

1.7.2 EXTERIOR SECTION

(1) CONTRAST OF CLD-160K/HB AND CLD-160K/HEZ.

CLD-160K/HB and CLD-160K/HEZ have the same construction except for the following :

Mark	No.	Symbol & Description	Part No.	
			CLD-160K/HB	CLD-160K/HEZ
	32	Caution label	PRW1018	VRW1094
	33	Caution label(HE)	Not used	VRW1297

(2) FOR CLD-160K/HB

Mark	No.	Description	Parts No.
	1	Guide plate (L)	VNE1805
	2	Guide plate (R)	VNE1806
	3	Lock plate spring	VBH1188
	4	Lock plate	VNL1513
	5	CD tray	VNK1992
	6	Tray ASSY-S	VXX2066
NSP	7	LD tray	VNK2550
	8	Disc pad (L)	VEC1657
	9	Disc pad (C)	VEC1658
NSP	10	Carry label	VRW1289
	11	Bonnet case S	VXX1898
	12	Door spring	VBH1223
NSP	13	KARAOKE badge	VAM1034
	14	Tray panel ASSY-S	VXX2128
	15	CD door	VNK2716
NSP	16	Tray panel	VNK2836
	17	Door holder	VNE1905
	18	Door shaft	VLL1441
	19	Name plate	VAM1032
	20	Damper ASSY	VXA2112

Mark	No.	Description	Parts No.
NSP	21	Damp cushion	VEC1110
	22	.....	
	23	Screw	BPZ30P060FCU
	24	Screw	BPZ30P080FCU
	25	Screw	BBZ30P080FCC
	26	Screw	BCZ40P060FZK
	27	Screw	BPZ20P040FZK
	28	Screw	VBA1032
	29	Tray rubber	VEB1091
NSP	30	Cushion	VEC1618
	31	Caution label(G)	VRW-329
	32	Caution label	PRW1018
	33	.....	

1.7.3 TOP VIEW SECTION

Mark	No.	Description	Parts No.
	1	Clamper holder	VNL1514
	2	Rubber sheet	VEB1114
	3	Thrust holder	VNL1289
	4	Clamper head	VNL1615
	5	Clamper	VNL1515
	6	Clamp spring	VBH1192
	7	Clamper arm	VNE1804
	8	Stabilizer	VNE1807
	9	Rack ASSY	VWT1099
	10	Carriage shaft	VLL1434
NSP	11	Side stay (R)	VNE1810
NSP	12	Front angle	VNE1808
	13	Screw	CPZ20P050FMC
	14	Screw	BBZ30P080FCC
	15	Screw	IBZ30P060FCC
	16	Screw	IPZ30P060FMC
NSP	17	Earth plate	VNE1518
	18	Screw	PCZ30P060FMC

Mark	No.	Description	Parts No.
	19	Flexible cable (22P)	VDA1448
	20	Screw	BBZ30P060FMC
NSP	21	Mechanism ASSY	VWT1108
NSP	22	Caution label (F)	VRW-328
NSP	23	PALB ASSY	VWV1383
	24	.....	
NSP	25	SCRB ASSY	VWV1384
	26	.....	
NSP	27	PCB holder(A)	VNE1875
NSP	28	PCB holder(B)	VNE1880
NSP	29	P plate holder	PNY-405
NSP	30	Wire clamp (A)	VEC1217
	31	Housing ASSY (2P)	VKP2048
	32	Flexible cable (28P)	VDA1461
	33	Connector ASSY	PF06PP-C20
	34	Connector ASSY	PF03PP2C22

1.7.4 FRONT PANEL SECTION

Mark	No.	Description	Parts No.
NSP	1	Front panel	VNK3003
	2	FL panel(4)	VEC1718
	3	LED lens	PNW2019
	4	PW button	VNK2668
	5	L key (L)	VNK2761
	6	L key (R)	VNK2670
	7	Main key	VNK2667
	8	Ten key (R)	VNK2665
	9	Ten key (L)	VNK2663
	10	FLKB ASSY	VWG1567
NSP	11	PONB ASSY	VWG1552
	12	Slide knob	VNK2675
NSP	13	JACB ASSY	VWV1396
	14	Headphones knob	PAC1707
NSP	15	TWKB ASSY	VWG1551
	16	Volume holder	VNE1933
	17	Cushion	VEC1497
	18	VR knob (L)	VNK2674
	19	VR knob (S)	VNK2671
	20	Front panel ASSY－S	VXX2192
	21	Screw	BPZ26P080FMC
	22	Plastic rivet	VEC1298
NSP	23	NRPB (PC board)	VNZ1546
NSP	24	Rubber spacer	VEB1219
	25	Cushion	VEC1717

1.7.5 BASE SECTION

(1) CONTRAST OF CLD－160K/HB AND CLD－160K/HEZ.

CLD－160K/HB and CLD－160K/HEZ have the same construction except for the following :

Mark	No.	Symbol & Description	Part No.	
			CLD－160K/HB	CLD－160K/HEZ
	3	SYPS ASSY	VWR1220	VWR1219
⚠	5	Power cord with plug	PDG1055	PDG1003
	7	Rear panel	VNA1476	VNA1436
⚠	28	Fuse(T5A)	PEK1003	Not used

(2) FOR CLD－160K/HB

Mark	No.	Description	Parts No.
NSP	1	MAIN ASSY	VWX1211
⚠	2	Cord stopper	CM－22B
	3	SYPS ASSY	VWR1220
	4	Tray stopper	VNL1519
⚠	5	Power cord with plug	PDG1055
	6	PCB spacer	PNY－404
	7	Rear panel	VNA1476
⚠	8	Fuse (T500mA) (FU3)	REK－097
NSP	9	Cord clamper	Z09－060
NSP	10	PCB hinge	VEC1174
⚠	11	Power transformer	VTT1138
⚠	12	Fuse (T3.15A) (FU1, FU2)	REK.－105
NSP	13	P. plate holder	PNY－405
NSP	14	Side stay (L)	VNE1809
NSP	15	Cord clamper	Z09－061
	16	Insulator	PNW1912
NSP	17	Base chassis	VNA1255
	18	Insulator ASSY	VXA1881
	19	Screw	BBZ30P080FCC
	20	Screw	BBZ30P040FMC
	21	Screw	BCZ40P060FZK
	22	Screw	BCZ30P080FMC
	23	Screw	BPZ30P140FMC
NSP	24	Heat shink	VNE1854
	25	PCB holder	VEC1624
	26	Screw	BCZ30P060FCC
NSP	27	VDTB ASSY	VWS1141
⚠	28	Fuse(T5A)	PEK1003
NSP	29	Rear angle	VNE1844
NSP	30	Damp cushion	VEC1110
NSP	31	EXTB ASSY	VWG1559
	32	KFCB ASSY	VWV1403
	33	Flat cable (10P)	D20PDY1035B
	34	Flat cable (6P)	D20PDY0610G

1.7.6 MECHANISM SECTION

Mark	No.	Description	Parts No.
	1	Mechanism base	VNK1990
	2	.....	
	3	Clamp cam	VNL1621
	4	Shaft holder	VNE1817
	5	Cam plate	VNL1511
	6	CAS spring	VBH1190
	7	Cam gear	VNL1507
	8	CD plate	VNL1512
	9	CDP spring	VBH1191
	10	Rubber belt	VEB1184
	11	Gear pulley	VNL1510
	12	Twin gear	VNL1508
	13	Center gear	VNL1509
	14	L−SW lever	VNL1504
	15	C−SW lever	VNL1505
	16	R−SW lever	VNL1506
NSP	17	LOSB ASSY	VWG1419
	18	Synchro gear ASSY	VXA1822
	19	Roller	VNL1042
NSP	20	LOMB ASSY	VWG1420
	21	Loading motor ASSY	VXX1712
NSP	22	Slider motor	VXM1033
	23	Motor pulley	PNW1643
	24	Screw	Z39−019
	25	Screw	BMZ26P040FMC

1.7.7 MECHANISM ASSY

Mark	No.	Description	Parts No.
	1	CA belt	VEB1077
	2	CA pulley (2)	VNL1496
	3	CA gear (3)	VNL1497
	4	Tilt base	VNL1499
	5	CA−SW lever	VNL1498
NSP	6	CAMB ASSY	VWG1418
	7	Carriage motor ASSY	VXX1261
NSP	8	Carriage motor	VXM1033
	9	CA pulley (1)	VNL1197
NSP	10	PASB ASSY	VWG1417
	11	Radial spring	VBH1201
	12	Thrust spring	VBH1200
	13	Tilt tension spring	VBH1187
NSP	14	FG ASSY	VWG1416
	15	FG. base	VNL1503
	16	Y gear	VNL1501
	17	Tilt cam spring	VBH1189
	18	Tilt cam	VNL1502
	19	Spindle motor ASSY	VXA2108
	20	Centering hab	VNL1174
	21	Centering spring	VBH1083
NSP	22	Rubber sheet	VEB1103
NSP	23	Turn table ASSY	VXA1283
NSP	24	Oil stopper	VBF1002
NSP	25	Spindle motor	VXM1053
	26	Motor base	VNE1803
	27	Screw	BMZ26P040FMC
	28	Screw	ABZ30P300FMC
	29	Screw	PMA30P050FMC
	30	Washer	WT26D060D025
	31	Housing ASSY	VKP2020

1.7.8 RACK ASSY

Mark	No.	Description	Parts No.
NSP	1	Sensor stay	VBK1036
NSP	2	Tilt sensor	SG−302
NSP	3	Pickup ASSY	VWY1036
	4	Rack	VNL1495
	5	Tan.base	VNL1494
	6	Screw	PBB26P080FMC
	7	Screw	PMA20P060FMC
	8	Screw	PMA20P080FMC
	9	Screw	PMH20P040FMC
	10	Screw	SMZ20H120FZK

1.8 PCB PARTS LIST

NOTES:

- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *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	→ *56×10¹* → *561*	.....	*RD1/8PM 5 6 1 J*
47kΩ	→ *47×10³* → *473*	.....	*RD1/4PS 4 7 3 J*
0.5Ω	→ *0R5*	.....	*RN2H 0 R 5 K*
1Ω	→ *010*	.....	*RS1P 0 1 0 K*

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

5.62kΩ	→ *562×10¹* → *5621*	.....	*RN1/4PC 5 6 2 1 F*

Mark	No.	Description	Parts No.

LIST OF ASSEMBLIES

NSP		MACBS ASSY	VWM1358
NSP		├─ FG ASSY	VWG1416
NSP		├─ PASB ASSY	VWG1417
NSP		├─ CAMB ASSY	VWG1418
NSP		├─ LOSB ASSY	VWG1419
NSP		└─ LOMB ASSY	VWG1420
		SYPS ASSY(HB TYPE)	VWR1220
		SYPS ASSY(HEZ TYPE)	VWR1219

Note : Although VWR1220 and VWR1219 are different in part number, they have the same service parts.

NSP		FRPB ASSY	VWM1521
		├─ FLKB ASSY	VWG1567
NSP		├─ TWKB ASSY	VWG1551
NSP		├─ PONB ASSY	VWG1552
NSP		└─ JACB ASSY	VWV1396
		MOTHER ASSY	VWM1499
NSP		└─ MAIN ASSY	VWX1211
		VTPB ASSY	VWM1501
NSP		├─ VDTB ASSY	VWS1141
NSP		├─ PALB ASSY	VWV1383
NSP		└─ SCRB ASSY	VWV1384
NSP		KRAB ASSY	VWM1512
NSP		├─ EXTB ASSY	VWG1559
		└─ KFCB ASSY	VWV1403

MACBS ASSY

OTHERS

		PCB(MACBS)	VNP1396

FG ASSY

SEMICONDUCTORS

	D1	Photo interruptor	GP1S51V

OTHERS

		HOUSING ASS'Y	VKP1950

PASB ASSY

SWITCHES AND RELAYS

	S4,S5		DSG1015

OTHERS

		HOUSING ASS'Y	VKP1951

CAMB ASSY

SEMICONDUCTORS

	Q10		2SC1740S

RESISTORS

	R10		RD1/4VM182J
	R11		RD1/4VM470J
		Other Resistors	RD1/6PM□□□J

OTHERS

	CN403	22P Connector	52045−2245
	CN404	Connector post	B3B−PH−K−S
	CN402	KR Connector	B3B−PH−K−R
	CN401	23P FFC Connector(Top)	SLEM23S−2
		HOUSING ASS'Y	VKP2009

LOSB ASSY

SWITCHES AND RELAYS

	S1−S3		DSG1015

LOMB ASSY

CAPACITORS

	C1		CGCYX473M25

OTHERS

		4P Cable holder	51048−0400
	J55	2mm Pitch flat cable(6P)	D20PWY0615G

SYPS ASSY

SEMICONDUCTORS

⚠	IC205		ICP−N10
⚠	IC204		ICP−N15
⚠	IC201−IC203		ICP−N20
⚠	IC2		NJM4558D
⚠	IC1		NJM78L05A

Mark	No.	Description	Parts No.
⚠	IC41		NJM78M12FA
	Q22,Q23,Q29,Q5		2SA933S
⚠	Q60,Q61		2SB1185
	Q31		2SB1240
⚠	Q25,Q27		2SB1566
	Q21,Q24,Q4		2SC1740S
⚠	Q3		2SD1762
⚠	Q26,Q28		2SD2395
	Q32		DTC114TS
	Q30		DTC124ES
⚠	D23,D26		10ELS2
⚠	D3,D41,D42		11ES2
⚠	D2,D24,D25		1SR35−100AVL
⚠	D21,D22		1SS254
⚠	D7		MTZJ12B
⚠	D1		S4VB20F
COILS AND FILTERS			
⚠	L51		VTL−004
⚠	L1		VTL1043
CAPACITORS			
	C31		CEAS100M16
	C30		CEAS101M10
	C10,C29		CEAS101M50
	C42		CEAS220M25
	C26		CEAS2R2M50
	C3−C6		CEAS470M10
	C13		CEAS471M16
	C41		CEAS471M35
	C25		CEJA2R2M50
⚠	C14,C23,C24		CGCYX473M25
	C11,C12		CKPUYF103Z25
⚠	C61−C63		CKPUYF223Z25
	C27,C28		CQMA223J50
	C21,C22		CQMA272J50
⚠	C52	(0.01,AC400V)	VCG−048
⚠	C1,C2	(16MM,3L)	VCH1053
RESISTORS			
	R41	(4R7,1/6W)	DCN1001
⚠	R27−R30	(47,1/6W)	DCN1003
	R36		RD1/2PMR47J
⚠	R32		RD1/2VM1R5J
⚠	R23−R26		RD1/2VM221J
		Other Resistors	RD1/6PM□□□J
OTHERS			
		6P Cable holder	51048−0600
	CN31	Connector post	B2B−PH−K−S
		Capacitor cover	REC−150
⚠		Power supply terminal	VKC−019
⚠		Fuse holder	VKR1001
		Coil cover	VNE1857
		Earth plate	VNF−091
	J1	Earth lead unit	XDF−511

FRPB ASSY

OTHERS

		PCB(FRPB)	VNP1481

Mark	No.	Description	Parts No.

FLKB ASSY

SEMICONDUCTORS

	IC501		NJM4558D
	IC101		PD3286B
	IC102		S−806D
	Q102		DTA144ES
	Q101,Q104−Q109		DTC114ES
	D101−D107,D118		1SS252
	D114,D119,D120		SEL6410E−TS
	D113,D115,D116		SEL6910A−TS

SWITCHES AND RELAYS

	S101−S108,S110,S112−S115		RSG1030

CAPACITORS

	C114,C117		CCPUSL330J50
	C105		CEAL100M16
	C101		CEAL100M50
	C103,C113		CEAL101M6R3
	C503		CFTYA104J50
	C106,C109		CKPUYB102K50
	C504		CKPUYB271K50
	C104		CKPUYF223Z25
	C102,C107,C108,C112		CKPUYY103N16
	C501,C502		CKPUYY103N16

RESISTORS

	R122		RN1/6PQ5101F
	VR101,VR501,VR502 (2K · B)		VCS1034
		Other Resistors	RD1/6PM□□□J

OTHERS

	CN105	FJ Connector(8P)	08R−FJ
	CN101	6P Jumper connector	52147−0610
	CN102	9P Jumper connector	52147−0910
	CN106	Board to board connector(9P)	9133S−09A
	CN501	2mm Pitch bottom connector plug	BTMK08P−1R
		Remote sensor	GP1U58X
	V101	FL Tube	VAW1034
		Spacer	VEC1599
		PCB Binder	VEF1008
		FL Holder	VNF1085
	X101	Ceramic resonator	VSS1031

TWKB ASSY

SWITCHES AND RELAYS

	S701−S720		RSG1030

OTHERS

	CN701	2.5mm Pitch pin header	1068−09C−PP

PONB ASSY

SEMICONDUCTORS

	Q201		DTC114ES
	D201		SEL6C10S−TS

SWITCHES AND RELAYS

	S202		RSG1030
	S201		VSH1005

Mark	No.	Description	Parts No.
CAPACITORS			
	C201		CKPUYY103N16
RESISTORS			
	VR201	(2K · B)	VCS1034
		Other Resistors	RD1/6PM□□□J
OTHERS			
	CN201	FJ Connector(8P)	08P−FJ

JACB ASSY

SEMICONDUCTORS			
	IC601		NJM2068D
COILS AND FILTERS			
	L601		LFA221J
	F602−F609		VTH1016
CAPACITORS			
	C614,C615		CEJA101M10
	C613,C616		CKCYF473Z50
	C611,C612		CKPUYB101K50
	C617		CKPUYB102K50
	C605,C608,C610,C630		CKPUYX122M16
	C601,C602		CKPUYY103N16
RESISTORS			
	VR601	(0.5KB)	VCS1035
		Other Resistors	RD1/6PM□□□J
OTHERS			
	CN603	2mm Pitch bottom connector	BTMK08S−1S
	JA604	Headphone jack	RKN1002
	JA602	Headphone jack	RKN1006
	CN602	KR Connector	S4B−PH−K−S
	JA601,JA603	Mic jack	VKN1147
		Snap plate	VNE1102
		Jack holder(FE)	VNE1932

MAIN ASSY

SEMICONDUCTORS			
	IC202,IC205,IC903		BA4560F
	IC351		CA0002AM
	IC803		LA6510L
	IC802		LC78681E
	IC206		NJM78L08A
	IC207		NJM79L08A
	IC801		PAC002A
	IC901		PAC003A
	IC101		PD0193A
	IC201		PD2026B(L)
	IC902		TA8464K
	Q102,Q154,Q802,Q963		2SA1037K
	Q501		2SA933S
	Q834		2SB1237X
	Q201,Q202,Q801,Q805		2SC2412K
	Q903−Q905,Q907,Q913		2SC2412K
	Q152,Q803,Q804		2SC3802K
	Q204,Q205,Q214		2SD2144S
	Q962		2SK184
	Q207,Q208,Q216		DTA124EK
	Q103,Q206,Q217,Q502,Q503		DTC124EK
	D202		11EQS06
	D102,D502,D520,D905		1SS254
	D963,D964		1SS254
	D201		FC54M
COILS AND FILTERS			
	L802−L804		LAU121J
	L351		LAU181J
	L201−L205,L352,L800,L801		LAU220J
	F201,F206−F208		VTH1016
SWITCHES AND RELAYS			
	S201		VSH1009
CAPACITORS			
	C159,C809,C811		CCSQCH100D50
	C108,C109,C258,C259,C370		CCSQCH101J50
	C814,C846,C848		CCSQCH121J50
	C232		CCSQCH150J50
	C161,C353,C810		CCSQCH151J50
	C352		CCSQCH180J50
	C812		CCSQCH221J50
	C371		CCSQCH270J50
	C208,C209		CCSQCH271J50
	C106,C107,C354,C813		CCSQCH330J50
	C351,C931		CCSQCH390J50
	C260−C263,C963		CCSQCH470J50
	C375,C806		CCSQCH680J50
	C374		CCSQCH820J50
	C902		CEAL2R2M50
	C893,C933		CEAL470M6R3
	C871		CEALNP100M16
	C522		CEANP100M16
	C926		CEANP2R2M50
	C838		CEANP470M6R3
	C904		CEAS010M50
	C228,C367,C845		CEAS100M50
	C225,C226,C256,C364		CEAS101M10
	C274,C275		CEAS220M10
	C227,C281		CEAS2R2M50
	C101,C230,C252,C253,C363		CEAS470M10
	C369,C801,C803,C833,C836		CEAS470M10
	C842,C844,C927,C974,C975		CEAS470M10
	C207,C255,C257,C270,C271		CEAS471M10
	C279		CEAS471M10
	C368,C913		CEASR47M50
	C970		CEHAQ010M50
	C967,C968		CEHAQ100M50
	C987		CEHAQ220M50
	C278,C282		CFTXA152J50
	C365,C908,C910		CFTYA104J50
	C359,C360,C905		CFTYA224J50
	C521		CFTYA563J50
	C891,C914,C936,C969		CKSQYB102K50
	C110,C888,C907		CKSQYB222K50
	C361,C362		CKSQYB392K50
	C355−C358		CKSQYB472K50
	C105,C122,C160,C213,C231		CKSQYF103Z50
	C234,C251,C286,C288,C376		CKSQYF103Z50
	C523,C807,C834,C835,C843		CKSQYF103Z50

Mark	No.	Description	Parts No.
	C872,C876,C894,C929		CKSQYF103Z50
	C961,C962		CKSQYF103Z50
	C102,C151,C196－C198,C215		CKSQYF104Z25
	C254,C284,C285,C305		CKSQYF104Z25
	C308,C309,C366,C372,C373		CKSQYF104Z25
	C802,C804,C831,C832		CKSQYF104Z25
	C840,C841,C873,C874,C892		CKSQYF104Z25
	C901,C915,C928,C932,C981		CKSQYF104Z25
	C837,C930		CKSQYF333Z25
	C103,C210,C214,C808,C815		CKSQYF473Z25
	C847,C875,C877,C911,C912		CKSQYF473Z25
	C925,C964,C971,C983,C984		CKSQYF473Z25
	C934		CQMA122J50
	C903,C909		CQMA222J50
RESISTORS			
⚠	R241,R242 (4R7,1/6W)		DCN1001
	R192,R193		RD1/6PM220J
	R505		RD1/6PM331J
	R180		RD1/6PM333J
	R212,R213,R220,R221		RD1/6PM470J
	R839,R840		RD1/6PM470J
	R501		RD1/6PM471J
	R909		RD1/6PM473J
	R502		RD1/6PM563J
	R507		RD1/6PM822J
	R259－R262		RN1/10SE473D
	VR606		VRTB6VS153
	VR601		VRTB6VS222
	VR605		VRTB6VS333
	VR603		VRTB6VS472
	VR604,VR607,VR612		VRTB6VS473
		Other Resistors	RS1/10S□□□J
OTHERS			
		3P Cable holder	51048－0300
		5P Cable holder	51048－0500
		11P Cable holder	51048－1100
	CN103	22P Connector	52045－2245
	CN303	6P Jumper connector	52147－0610
	CN302	2mm Pitch wafer	53064－1010
	CN106	11P Top post	B11P－SHF－1AA
	CN516	KR Connector	B3B－PH－K－R
	CN110	5P Top post	B5B－EH
	CN101	KR Connector	B5B－PH－K－S
	CN504	KR Connector	B6B－PH－K－S
	J4	2mm Pitch flat cable(3P)	D20PDY0345G
	JA3,JA4	Remote control jack	RKN1004
	CN105	2mm Pitch jumper connector(6P)	SBRK06S－4
	CN501	1.0mm Pitch FFC Connector	SLW28S－1C7
		PCB Binder	VEF1040
	JA6	2P Pin jack	VKB1031
		Screw terminal	VNE1841
		IC Heat sink(AL)	VNE1921
		Earth plate	VNF－091
	X101	Ceramic resonator	VSS1040
	X201	Crystal resonator(16MHz)	VSS1057

Mark	No.	Description	Parts No.
VDTB ASSY			
SEMICONDUCTORS			
	IC203,IC602		BA4560F
	IC403		CXL1009P
	IC404		PA0017－P
	IC401		PA5013A
	IC201		PD3239A
	IC402		PM0001
	IC601		PM3002
	IC202		TC7SU04F
	Q204,Q207,Q406,Q407,Q411		2SA1037K
	Q456,Q496,Q502,Q511		2SA1037K
	Q703,Q704		2SA1037K
	Q401		2SB1237X
	Q431		2SC1740S
	Q202,Q203,Q205,Q206,Q209		2SC2412K
	Q404,Q408,Q497－Q501		2SC2412K
	Q601－Q605,Q608,Q700－Q702		2SC2412K
	Q409		2SC3802K
	Q402		2SD1858X
	Q201,Q403,Q405,Q606,Q609		DTA124EK
	Q621－Q623		DTA124EK
	Q607,Q610,Q612,Q613		DTC124EK
	Q624,Q625		DTC124EK
	D401,D601,D602,D609,D610		1SS254
	D201		DAN202K
	D203		SVC201SPA
COILS AND FILTERS			
	L203,L204,L208,L412－L415		LAU120J
	L521		LAU120J
	L430		LAU150J
	L497		LAU151J
	L201,L202,L209		LAU1R2J
	L496,L701		LAU220J
	L702		LAU270J
	L525		LAU330J
	L523		LAU390J
	L432		LAU430J
	L433		LAU470J
	L522		LAU560J
	L411,L431		LAU680J
	L458		LFA221J
	L457,L524		LFA561J
	F201		VTF1051
CAPACITORS			
	C203,C431,C438,C441		CCSQCH050C50
	C207,C231,C241,C415,C417		CCSQCH100D50
	C500,C532,C774		CCSQCH100D50
	C212,C419,C461,C496		CCSQCH101J50
	C430		CCSQCH120J50
	C456		CCSQCH121J50
	C439,C440,C516,C520		CCSQCH150J50
	C509,C550,C771,C772		CCSQCH151J50
	C409,C423,C424,C485,C529		CCSQCH180J50
	C612,C633		CCSQCH180J50

Mark	No.	Description	Parts No.
	C410,C437		CCSQCH220J50
	C204,C208,C416,C495,C510		CCSQCH270J50
	C775,C779		CCSQCH270J50
	C402,C463,C507,C508		CCSQCH271J50
	C206,C240,C462		CCSQCH330J50
	C211,C433,C524,C528		CCSQCH390J50
	C406		CCSQCH391J50
	C205,C239,C455		CCSQCH470J50
	C549,C778		CCSQCH560J50
	C411,C412,C498,C609		CCSQCH820J50
	C536		CCSQCH910J50
	C651		CCSQSL102J50
	C530		CEANP100M25
	C551,C613,C620		CEANP220M10
	C537		CEAS010M50
	C472,C477		CEAS3R3M50
	C484,C522		CEJA100M16
	C473		CEJA3R3M50
	C201,C213,C220－C222,C227		CEJA470M6R3
	C428,C434,C445,C452,C457		CEJA470M6R3
	C474,C489,C490,C499		CEJA470M6R3
	C501,C502,C512,C521,C525		CEJA470M6R3
	C533,C622,C624,C643,C647		CEJA470M6R3
	C675,C676		CEJA470M6R3
	C401,C405,C619		CEJANP2R2M50
	C443,C625,C628		CEJANP4R7M16
	C223		CEJANPR47M50
	C446,C618		CFTYA103J50
	C514		CFTYA104J50
	C224		CFTYA223J50
	C471,C603		CFTYA224J50
	C610,C617		CFTYA563J50
	C515,C517		CFTYA683J50
	C202,C209,C214－C217		CKSQYF103Z50
	C225,C226,C230,C232,C233		CKSQYF103Z50
	C242,C414,C418,C421,C422		CKSQYF103Z50
	C425,C426,C458－C460		CKSQYF103Z50
	C475,C476,C486,C535,C602		CKSQYF103Z50
	C604,C615,C616,C621,C644		CKSQYF103Z50
	C776,C777,C780,C781,C783		CKSQYF103Z50
	C403,C404,C427,C429,C435		CKSQYF104Z25
	C442,C479－C481,C483		CKSQYF104Z25
	C503－C506,C511,C513,C526		CKSQYF104Z25
	C531		CKSQYF104Z25
	C407,C408,C466,C467		CKSQYF473Z25
	C487,C488,C527,C601,C629		CKSQYF473Z25
	C219,C605－C607,C626		CQMA102J50
	C608		CQMA152J50
	C627		CQMA222J50
	C444,C611		CQMA272J50
	C614		CQMA332J50
	C218		CQMA472J50
	VC201		PCM1001
	VC202		VCM－008
	VC203		VCM1005

Mark	No.	Description	Parts No.
RESISTORS			
	R496		RD1/6PM101J
	R406		RD1/6PM224J
	R403		RD1/6PM271J
	R431		RD1/6PM510J
	R512		RD1/6PM680J
	R612,R613		RN1/10SE103D
	R771		RN1/10SE202D
	R475,R521		RN1/10SE562D
	R438		RN1/6PQ1803F
	R511		RN1/6PQ2002F
	R415,R416		RN1/6PQ3002F
	R434		RN1/6PQ5101F
	VR201		VRTB6VS222
	VR441		VRTB6VS223
	VR481,VR482,VR521		VRTB6VS472
		Other Resistors	RS1/10S□□□J
OTHERS			
		5P Cable holder	51048－0500
		7P Cable holder	51048－0700
		12P Cable holder	51048－1200
	CN603	1.0mm Pitch FFC Connector	SLW28S－1C7
		PCB Binder	VEF1040
	JA14	1P Pin jack	VKB1063
		Screw terminal	VNE1841
	X202	Crystal resonator(14.32MHz)	VSS1029
	X203	Crystal resonator(17.734MHz)	VSS1059
	X201	Crystal resonator(14.22MHz)	VSS1060

PALB ASSY

SEMICONDUCTORS			
	IC303		BU4053BCF
	IC301		M50552－132SP
	IC302		TA7320P
	Q303,Q310,Q363,Q951		2SA1037K
	Q361,Q365		2SC1740S
	Q308,Q309,Q311,Q352,Q353		2SC2412K
	Q355,Q356,Q359,Q360		2SC2412K
	Q952,Q953		2SC2412K
	Q304,Q307,Q317,Q351		DTA124EK
	Q305,Q306,Q318		DTC124EK
	D302		DAP202K
COILS AND FILTERS			
	L302,L303,L355,L951,L952		LAU120J
	L304		LAU220J
	F951		VTF1011
	F303		VTF1034
	F952		VTF1064
CAPACITORS			
	C356,C364,C392,C958		CCSQCH101J50
	C327,C959		CCSQCH151J50
	C957		CCSQCH221J50
	C325		CCSQCH330J50
	C326		CCSQCH390J50

Mark	No.	Description	Parts No.
	C960		CCSQCH820J50
	C352		CCSQSL391J50
	C383		CEALNP470M6R3
	C384		CEANP220M10
	C951,C952		CEANP470M10
	C953,C955		CEAS470M16
	C319,C323,C336,C354,C358		CEJA470M6R3
	C360,C362,C373,C375		CEJA470M6R3
	C380－C382,C386,C388,C390		CEJA470M6R3
	C318,C320－C322,C324		CKSQYF103Z50
	C328,C329,C335,C351,C353		CKSQYF103Z50
	C355,C357,C359,C361,C363		CKSQYF103Z50
	C369,C374,C376,C385,C954		CKSQYF103Z50
	C956		CKSQYF103Z50
	C389,C391		CKSQYF104Z25
RESISTORS			
	R387		RD1/6PM101J
	R355,R361		RD1/6PM470J
	R316		RN1/10SE562D
	VR304		VRTB6VS222
	VR302		VRTB6VS471
		Other Resistors	RS1/10S□□□J
OTHERS			
		7P Cable holder	51048－0700
		12P Cable holder	51048－1200
	CN302	KR Connector	B3B－PH－K－R
	CN303	KR Connector	B6B－PH－K－S
	CN301	3P Side post	BS3P－SHF－1AA
	C330,C331	Chip capacitor	CCSQSL102J50

SCRB ASSY

Mark	No.	Description	Parts No.
SEMICONDUCTORS			
	Q181		2SC1740S
CAPACITORS			
	C183,C184		CCSQCH271J50
	C181,C182		CEAS470M16
	C186		CEAS471M10
	C187,C188		CKSQYB103K50
	C185		CKSQYF104Z25
RESISTORS			
⚠	R185	(47,1/6W)	DCN1003
	R189		RD1/6PM103J
	R184		RD1/6PM391J
	R186		RD1/6PM750J
		Other Resistors	RS1/10S□□□J
OTHERS			
	JA181	Connector	VKB1037

KRAB ASSY

Mark	No.	Description	Parts No.
OTHERS			
		PCB(KRAB)	VNP1480

EXTB ASSY

Mark	No.	Description	Parts No.
CAPACITORS			
	C401,C402		CCSQCH331J50

Mark	No.	Description	Parts No.
OTHERS			
		4P Cable holder	51048－0400
	J401	2mm Pitch flat cable(4P)	D20PDY0410B
	JA401	2P Pin jack	VKB1031
		PCB Holder(S)	VNE1952

KFCB ASSY

Mark	No.	Description	Parts No.
SEMICONDUCTORS			
	IC101,IC102,IC105,IC106		BA4560F
	IC103		BU4053BCF
	IC107		MB81464－12P
	IC104		PM0005A
	Q102		2SD2144S
	Q101		DTC124EK
	D103－D105		DA204K
COILS AND FILTERS			
	L102		LFA100K
	L103		LFA3R9J
	L104		LFA102J
CAPACITORS			
	C135－C139		CCSQCH100D50
	C120,C152－C154		CCSQCH101J50
	C133		CCSQCH181J50
	C111,C115		CCSQCH680J50
	C101,C102		CEALNP010M50
	C105,C106		CEALNP100M16
	C141		CEAS102M6R3
	C125,C127,C134		CEJA100M16
	C148,C149		CEJA101M10
	C147		CEJA101M6R3
	C126		CEJA330M16
	C112,C118		CEJA470M6R3
	C128		CFTYA104J50
	C110,C114,C132		CFTYA223J50
	C119		CFTYA473J50
	C109,C113		CKSQYB332K50
	C131		CKSQYB472K50
	C103,C104,C108,C116,C117		CKSQYF103Z50
	C123,C124,C129,C130,C140		CKSQYF103Z50
	C142－C146,C150,C151		CKSQYF103Z50
RESISTORS			
		All Resistors	RS1/10S□□□J
OTHERS			
	CN106	2mm Pitch bottom connector	52084－1010
	CN105	6P Jumper connector	52147－0610
	J904	Connector	PF04PG－D37
		PCB Binder	VEF1040

PIONEER®
The Art of Entertainment

Service Manual

ORDER NO.
RRZ1160

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-160K

CHAPTER 2

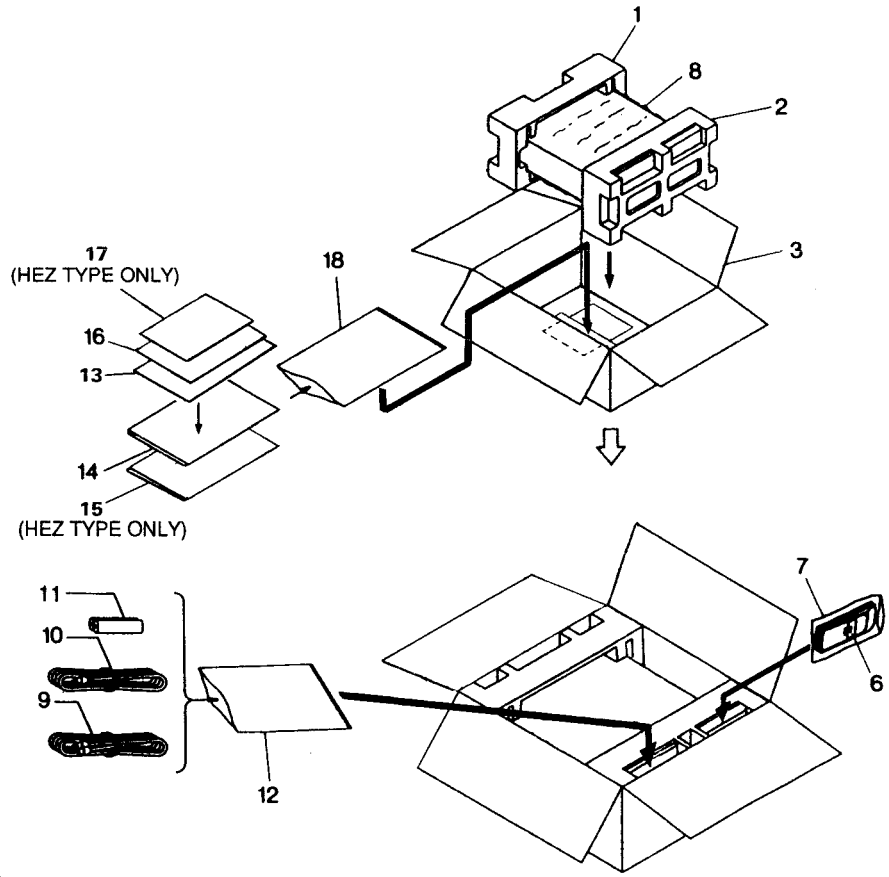
CONTENTS

PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan
PIONEER ELECTRONICS SERVICE INC. P.O. Box 1760, Long Beach, California 90801 U.S.A.
PIONEER ELECTRONICS OF CANADA, INC. 300 Allstate Parkway Markham, Ontario L3R 0P2 Canada
PIONEER ELECTRONIC [EUROPE] N.V. Haven 1087 Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS AUSTRALIA PTY. LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia TEL: [03] 580-9911

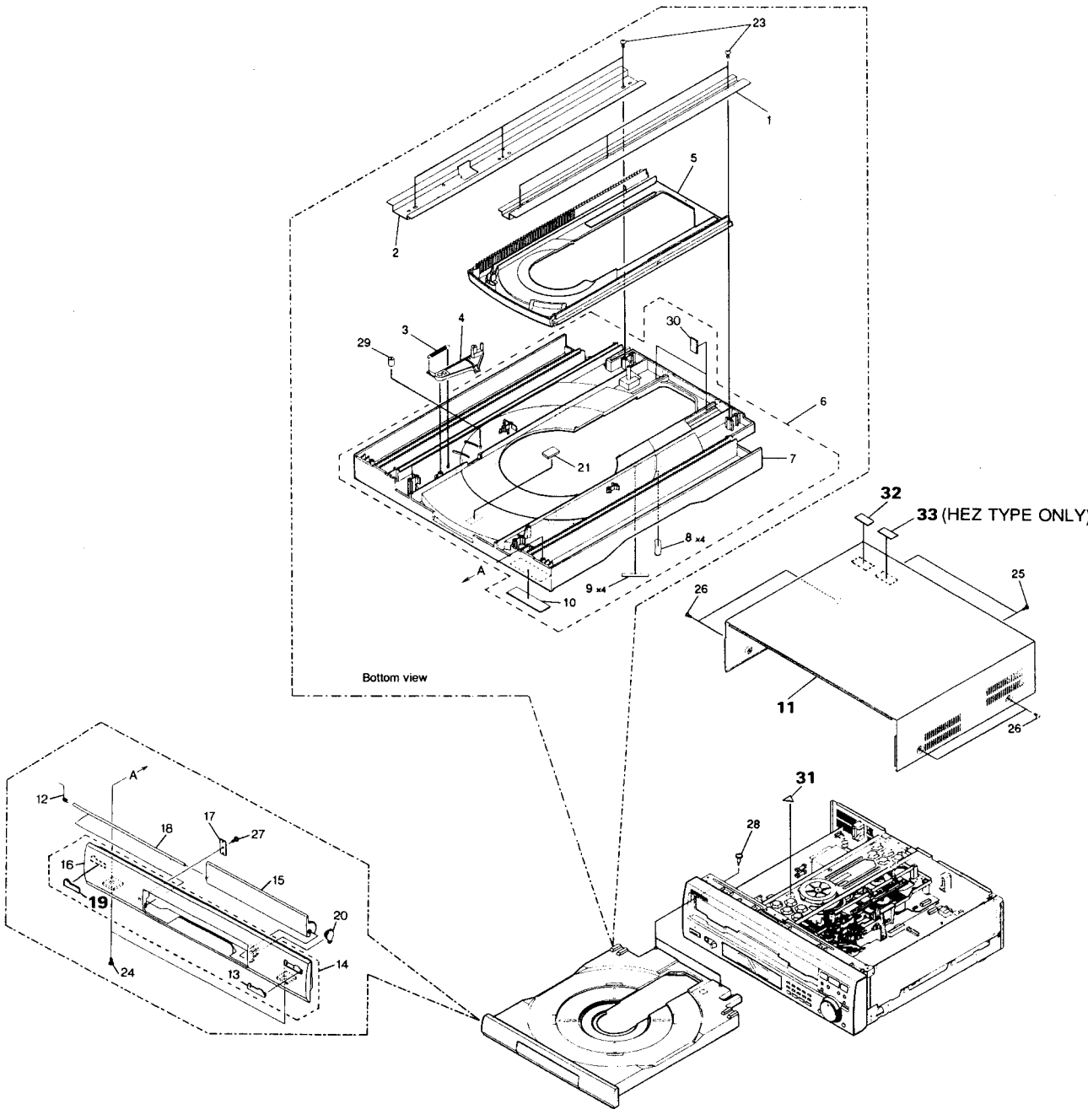
T-FFM AUG. 1994 Printed in Japan

2.1 PACKING AND EXPLODED VIEWS

2.1.1 PACKING

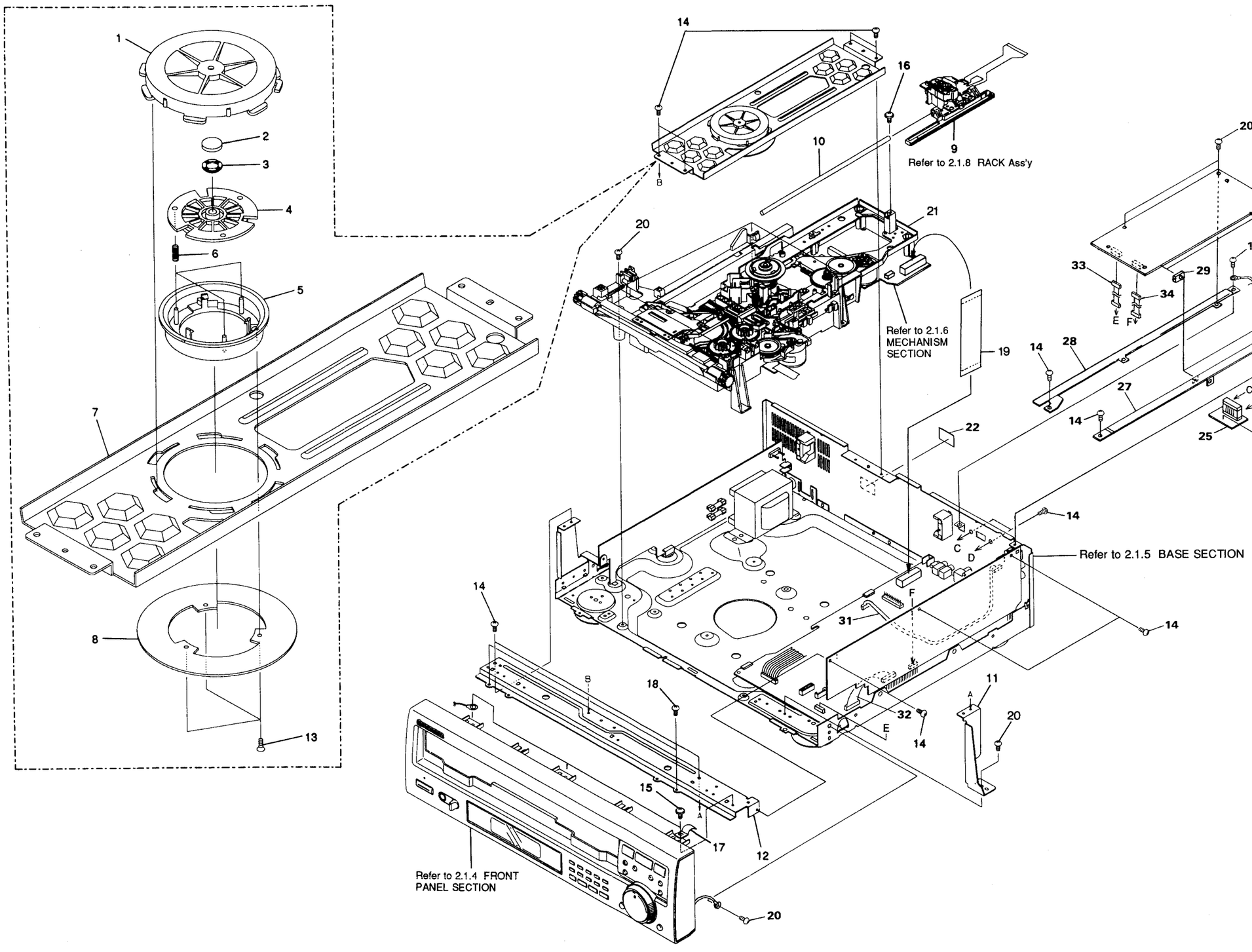


2.1.2 EXTERIOR SECTION

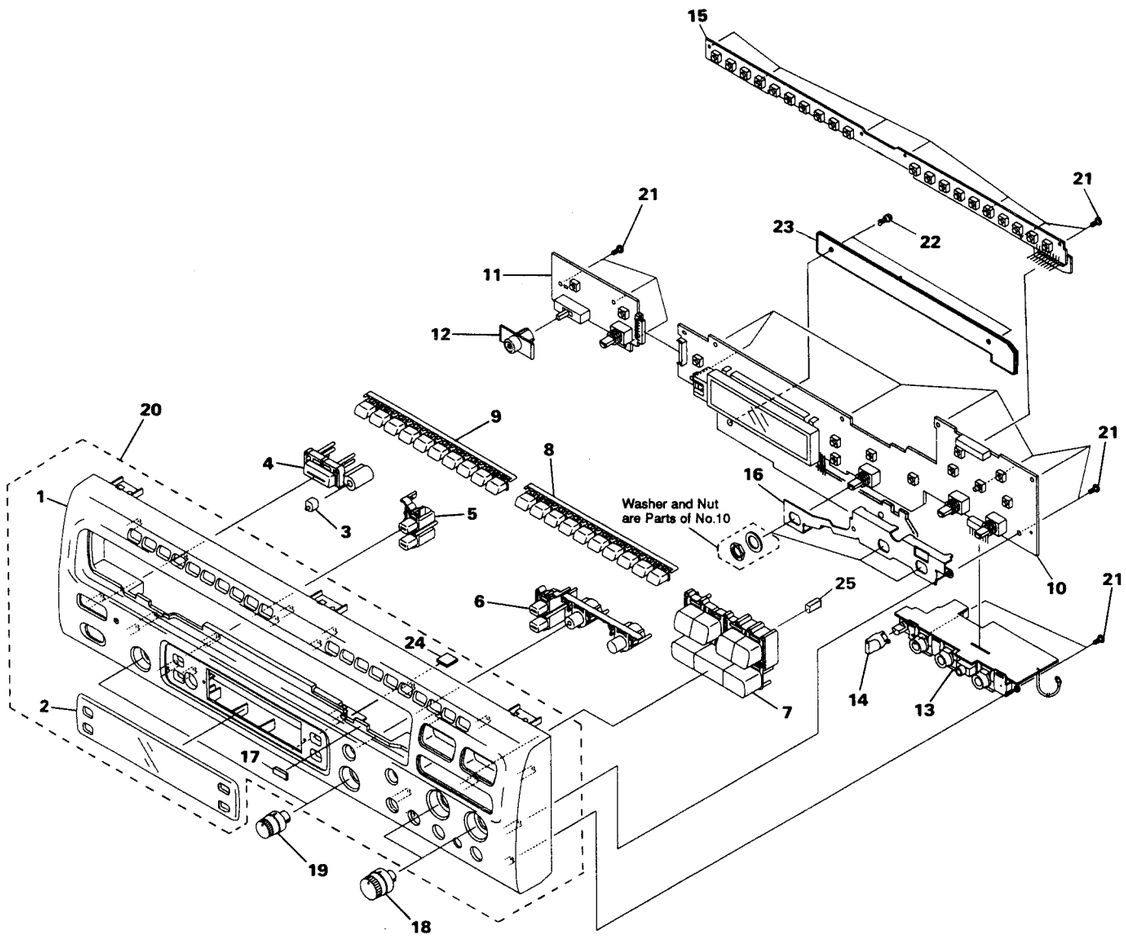


NOTE : Screws adjacent to ▼ mark on product are used for disassembly.

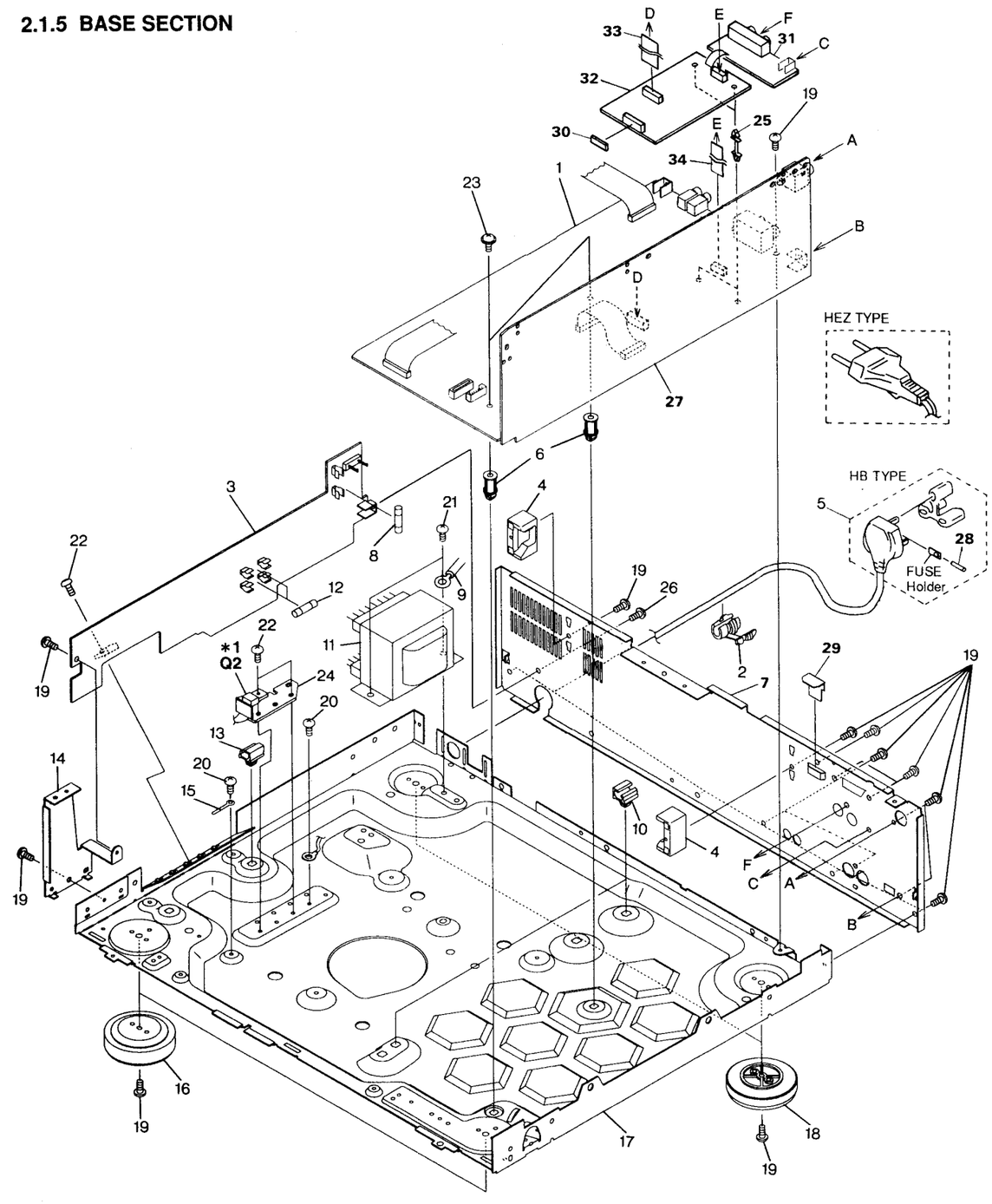
2.1.3 TOP VIEW SECTION



2.1.4 FRONT PANEL SECTION

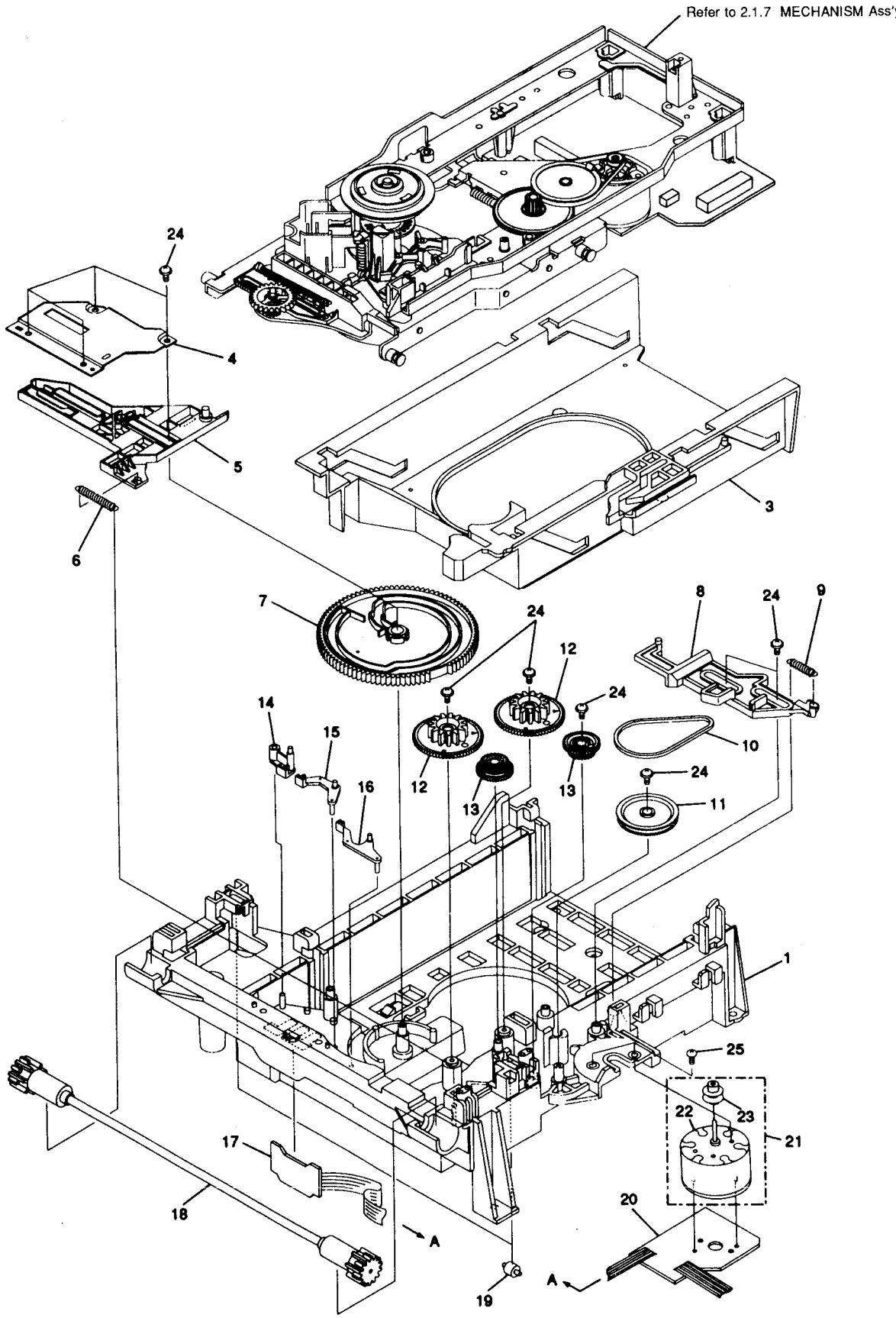


2.1.5 BASE SECTION

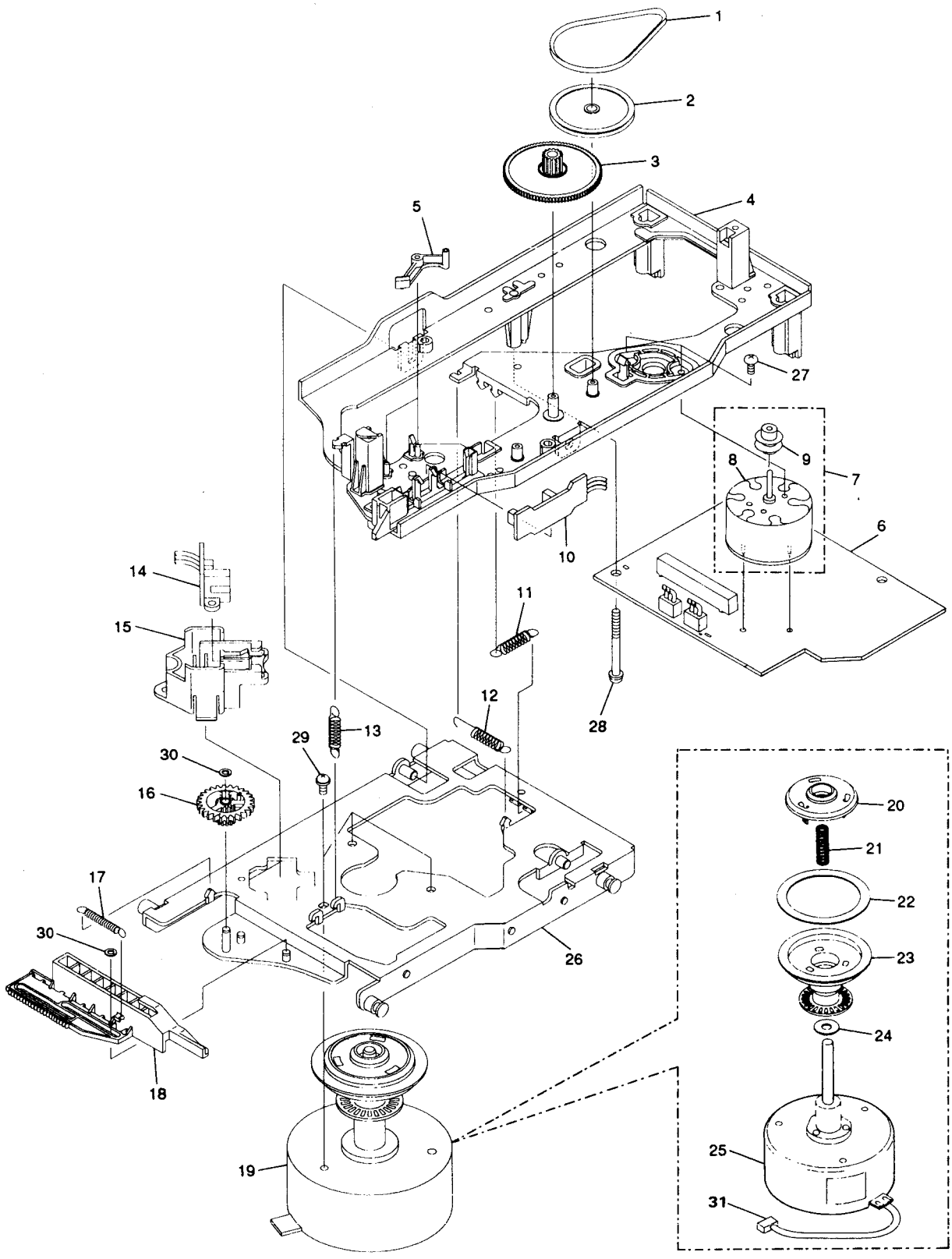


Note :
***1** : Q2 is component of the SYPS Ass'y.

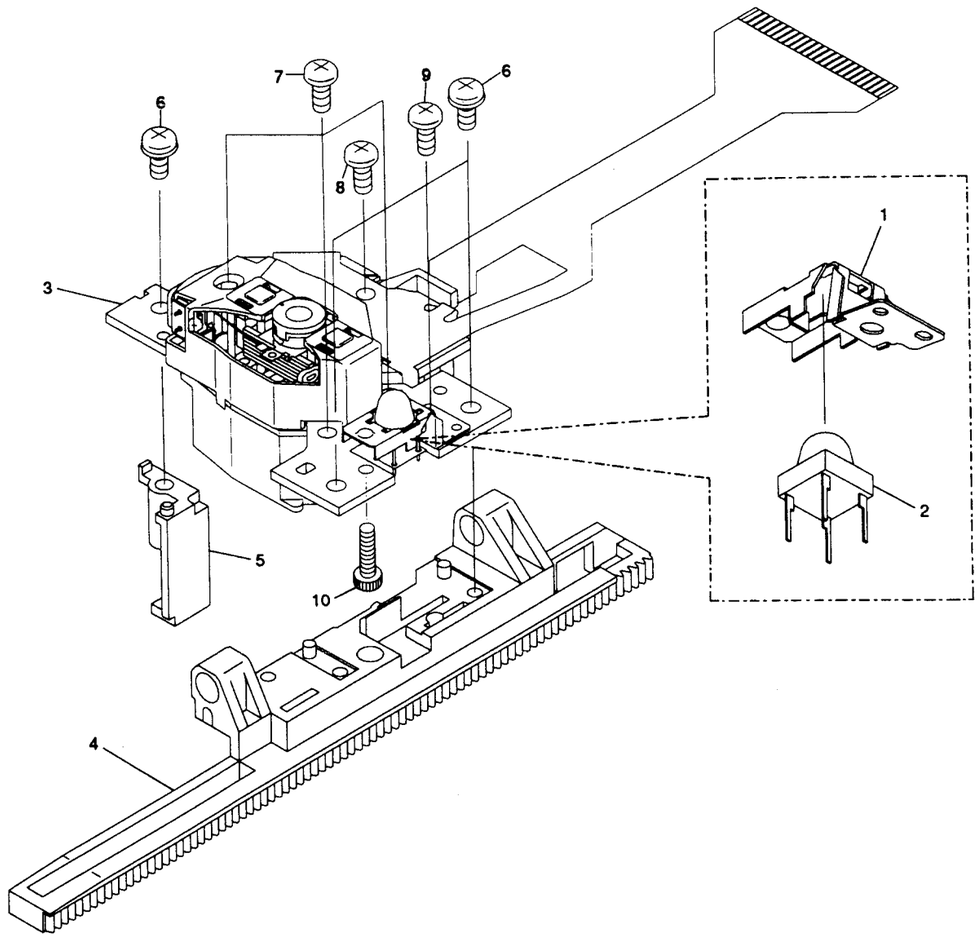
2.1.6 MECHANISM SECTION



2.1.7 MECHANISM ASSY



2.1.8 RACK ASSY



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):

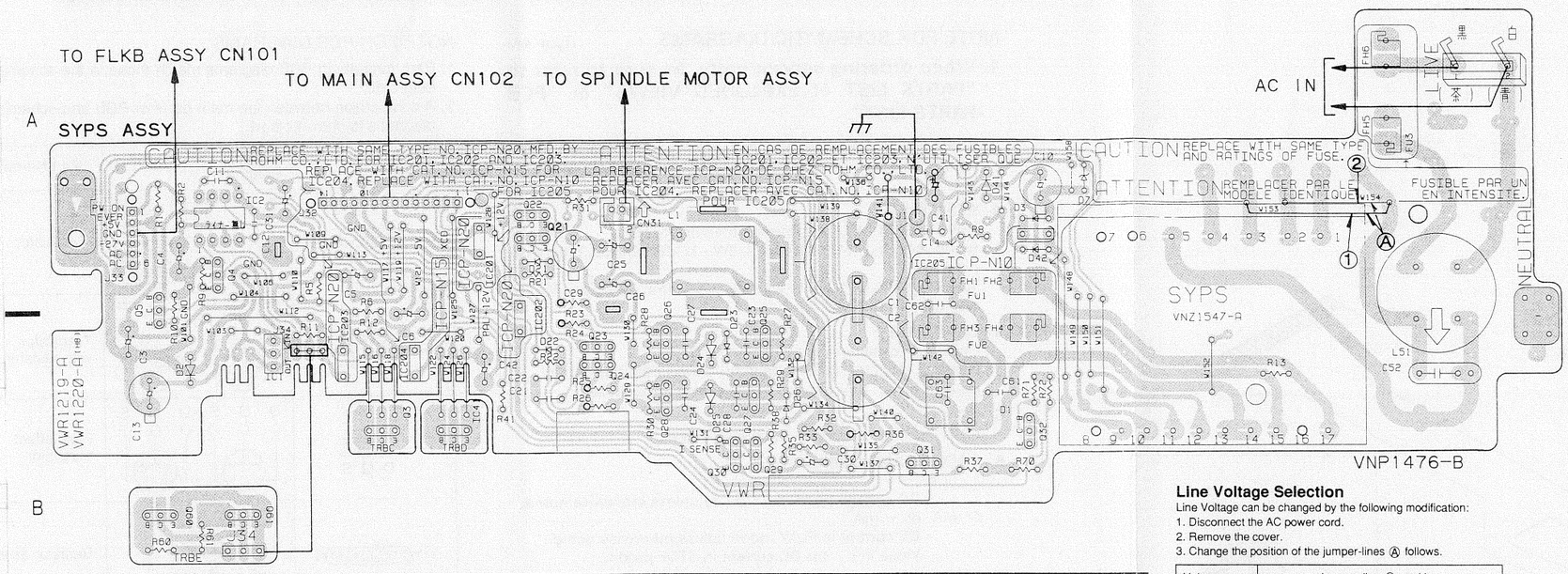
FLKB ASSY	TWKB ASSY
S101 : SURROUND	S701 : 1
S102 : SYSTEM	S702 : 2
S103 : ♮	S703 : 3
S104 : ONE-TOUCH KARAOKE	S704 : 4
S105 : 16 : 9	S705 : 5
S106 : ♭	S706 : 6
S107 : SCORING	S707 : 7
S108 : #	S708 : 8
S110 : AUDIO MODE	S709 : 9
S112 : ■	S710 : 10
S113 : ▶/II	S711 : 11
S114 : ⏏CD (OPEN/CLOSE)	S712 : 12
S115 : ⏏LD (OPEN/CLOSE)	S713 : 13
	S714 : 14
PONB ASSY	S715 : 15
S201 : NORMAL/KARAOKE/AUX INPUT	S716 : 16
S202 : POWER (STANDBY/ON)	S717 : 17
	S718 : 18
	S719 : 19
	S720 : 20

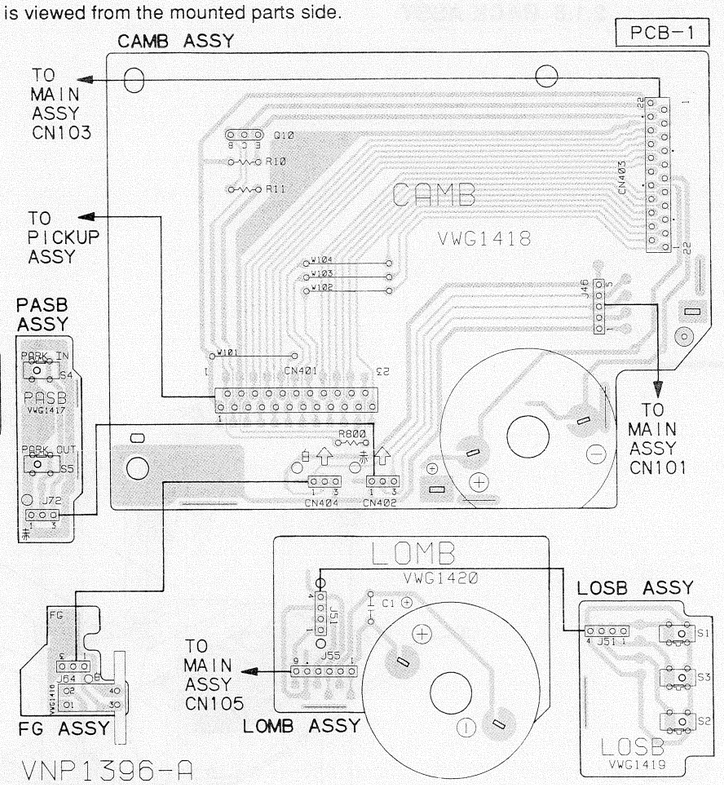
NOTE FOR PCB DIAGRAMS:

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

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

2.2.1 OVERALL CONNECTIONS, SYPS, FG, PASB, CAMB, LOSB, LOMB AND PICKUP ASSEMBLIES





● This diagram is viewed from the mounted parts side.

Line Voltage Selection

Line Voltage can be changed by the following modification:

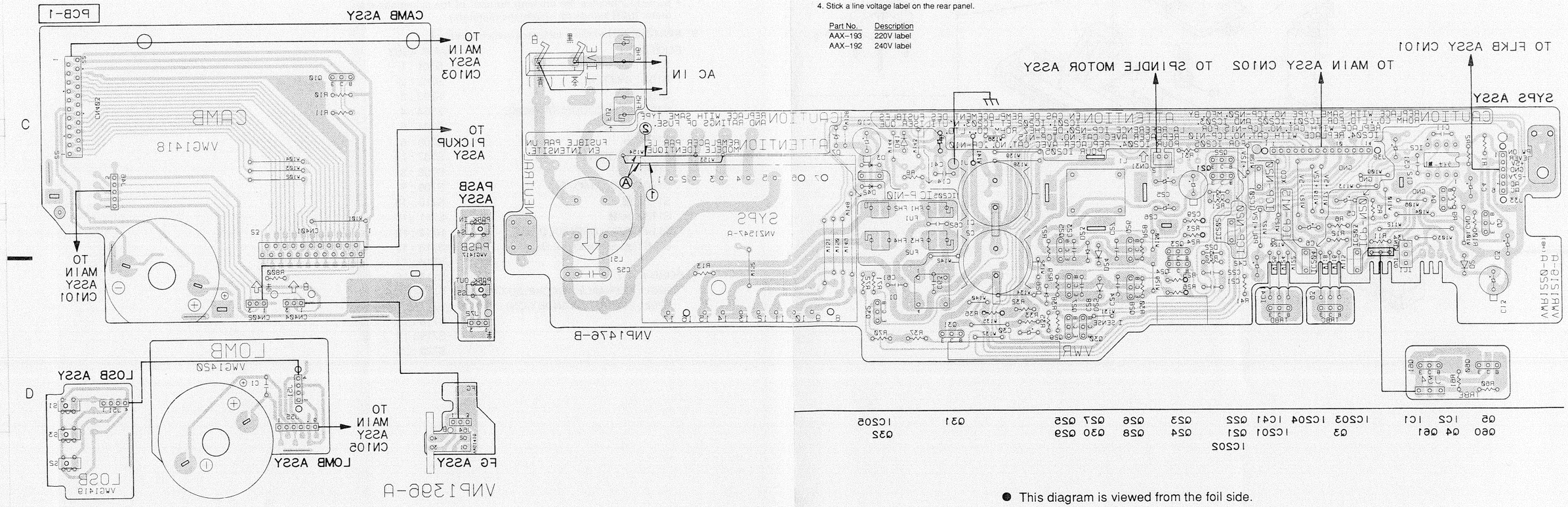
1. Disconnect the AC power cord.
2. Remove the cover.
3. Change the position of the jumper-lines Ⓐ follows.

Voltage	jumper-line Ⓐ position
220V–230V	①
240V	②

NOTE: When replacing a PCB which has the primary winding circuit of Power-transformer, be sure to compare its circuit with the diagram in Service Manual. jumper-lines on the PCB may have to be removed. Forgetting this check-up will cause a serious damage.

4. Stick a line voltage label on the rear panel.

Part No.	Description
AAX–193	220V label
AAX–192	240V label



● This diagram is viewed from the foil side.

FRPB ASSY
(VWM1521)
(→SCH-2)

(TWKB ASSY : VWG1551
PONB ASSY : VWG1552
FLKB ASSY : VWG1567
JACB ASSY : VWV1396)

CN103: XREQ, TDATA, XCS, XDRDY, RDATA, XSCK, A/XD, THRU, XINT/EXT, XMIC ON
CN602: +8V (K), GND (K), -8V (K), MIC MIX
CN601: HP R, GND, HP L
CN102: SEL IR, GND, XRESET, XCS, XSCK, S-MTOF, S-FTOM, SHAKE, IR
CN101: AC, AC, -27V, GND, EVER +5V, POWER ON

CN901, J904

CN902: EXT L, GND, EXT R, GND
J401

EXTB ASSY
(VWG1559)
(→SCH-6)

KFCB ASSY
(VWV1403)
(→SCH-6)

KRAB ASSY
(VWM1512)

CN106: MCK, GND, +5V, DATAI, BCKI, LRCKI, DATAO, BCKO, LRCKO, XRESET
CN103: ANA L, GND, ANA R
CN105: +8V, GND, -8V, MIC MIX, +5V, XMIC ON

CN304: ANA L, GND, ANA R
CN303: +8V, GND, -8V, +5V, MIC IN, XMIC ON
J4: R OUT, GND, L OUT

PICKUP ASSY
VWY1036

C1 0.047
-5V, +5V, RF, GND, C, A, B4, B3, B2, B1
TRKG DRV, GND, FOCUS DRV, GND, LASER DIODE, MONITOR DETECTOR
VR1 1.5K
C2 1u
VR, MD, LD, LD G, LD G, R GND, R GND, F DRV, T DRV, TILT OUT, TILT G, T LED, TILT IN
PD, LED, PD

CN401: -5V, +5V, RF, GND, C, A, B4, B3, B2, B1, VR, MD, LD, LD G, LD G, T RTN, F RTN, F DRV, T DRV, TILT OUT, TILT G, T LED, TILT IN
Q10 2SC1740S R/S
R11 47
R10 1.8K
R800 390
CN403: -5V, +5V, RF, GND, C, A, B4, B3, B2, B1, PARK1, M GND, SLDM, T RTN, F DRV, F RTN, T DRV, TILT OUT, TILT IN, PD, LD, LD G

CAMB ASSY
(VWG1418)

CN302: MCK, GND, +5V, DATAO, BCKO, LRCKO, DATAI, BCKI, LRCKI, XRESET
CN103: -5V, +5V, RF, GND, C, A, B4, B3, B2, B1, NC, M GND, SLDM, T RTN, F DRV, F RTN, T DRV, TILT OUT, TILT IN, PD, LD, LD G
CN101: LED, PD, PARK IN, PARK OUT, GND

J46: LED, PD, PARK IN, PARK OUT, GND

S1 SW1, S3 SW3, S2 SW2, GND
J51, J51
LOSB ASSY
(VWG1419)

SW1, SW2, SW3, GND, LODING M., GND (M)
J55
C1 0.047
LOMB ASSY
(VWG1420)
LOADING MOTOR ASSY
VXX1712

CN404, CN402
J64: GND, LED, PD — D1, GP1S51V
J72: PARK IN, PARK OUT, GND — S5, S4
MACBS ASSY
(VWM1358)
FG ASSY
(VWG1416)
PASB ASSY
(VWG1417)

CARRIAGE MOTOR ASSY
VXX1261

CN105: GND (M), TILT/LOAD DRV, GND, SW3, SW2, SW1
CN5504 CLR SCAN: S IN1, XCS, SCK1, +12V, 16·9
CN516: EFLG, FSX, GND

MAIN A
(VWX12
(→SCH-

J53 GPW
J12 CURRENT
J13 XCD
J51 SCRT
J52 TEL

SCH-1 OVERALL CONNECTIONS, SYPS ASSY, FG ASSY, PASB ASSY, CAMB ASSY, LOSB ASSY, LOMB ASSY, PICKUP ASSY

CAUTION: FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE WITH SAME TYPE NO. ICP-N10, MFD BY ROHM CO., LTD. FOR IC205.

CAUTION: FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE WITH SAME TYPE NO. ICP-N20, MFD BY ROHM CO., LTD. FOR IC201-IC203.

CAUTION: FOR CONTINUED PROTEC AGAINST RISK OF FIRE REPLACE WITH SAME TY NO. ICP-N15, MFD BY RO CO., LTD. FOR IC204.

SYPS ASSY
(VWR1220: HB TYPE)
(VWR1219: HEZ TYPE)

CN101: AC, AC, -27V, GND, EVER +5V, POWER ON

J33: AC, AC, -27V, GND, EVER +5V, POWER ON

CN102: SEL IR, GND, XRESET, XCS, XSCK, S-MTOF, S-FTOM, SHAKE, IR

NEUTRAL
LIVE

AC POWER CORD

PDG1055
AC240V
50/60Hz
(HB TYPE ONLY)

PDG1003
AC220-230V
50/60Hz
(HEZ TYPE ONLY)

HEZ TYPE ONLY
HB TYPE ONLY

L51 VTL-004 or 157
C52 0.01 VCG-048
FU3 T500mAL 250V
FU1 T3.15AL 250V
FU2 T3.15AL 250V
VTT1138
POWER TRANSFORMER

IC205 ICP-N10
IC203 ICP-N20
IC1 NJM78L05A
IC41 NJM78M12FA
IC2 NJM4558D
IC201 ICP-N20
IC204 ICP-N15
IC202 ICP-N20

D1 S4VB20F
D2 1SR35-100AVL
D3 11ES2
D7 MTZJ12B
D21 1SS254
D22 1SS254
D23 10ELS2
D24 1SR35-100AVL
D25 1SR35-100AVL
D26 10ELS2
D41 11ES2
D42 11ES2

IC41: EVER +12V REGULATOR

IC2 (1/2), Q4, Q60, Q61: +5V REGULATOR

IC1: EVER +5V REGULATOR

IC2 (2/2), Q3, Q5: -5V REGULATOR

TRBE

Q1 2SC1740S
Q2 2SC1740S
Q3 2SD1762
Q4 2SC1740S
Q5 2SA933S
Q21 2SC1740S
Q22 2SA933S
Q23 2SA933S
Q24 2SC1740S
Q25 2SB1566
Q26 2SD2395
Q27 2SB1566
Q28 2SD2395
Q29 2SA933S
Q30 DTC124ES
Q31 2SB1240
Q32 DTC114TS
Q60 2SB1185
Q61 2SB1185

Q29-Q32: CURRENT DETECTOR

Q21-Q24: SPINDLE PRE-DRIVE

Q25-Q28: SPINDLE DRIVE

CHASSIS GND

EXTB ASSY
(VWG1559)
(→SCH-6)

J401: 1, 2, 3, 4

KRAB ASSY
(VWM1512)

MAIN ASSY
(VWX1211)
(→SCH-3)

CN304: 1 ANA L, 2 GND, 3 ANA R
CN303: 1 +8V, 2 GND, 3 -8V, 4 +5V, 5 MIC IN, 6 XMIC ON
J4: 1 R OUT, 2 GND, 3 L OUT
J1: 1 SEL IR, 2 GND, 3 XRESET, 4 XCS, 5 XSCK1, 6 S-MTOF, 7 S-FTOM, 8 SHAKE, 9 IR

CN302: 1 MCK, 2 GND, 3 +5V, 4 DATAO, 5 BCKO, 6 LRCKO, 7 DATAI, 8 BCKI, 9 LRCKI, 10 XRESET

CN103: 1 -5V, 2 +5V, 3 RF, 4 GND, 5 C, 6 A, 7 B4, 8 B3, 9 B2, 10 B1, 11 NC, 12 M GND, 13 SLDM, 14 T RTN, 15 F DRV, 16 F RTN, 17 T DRV, 18 TILT OUT, 19 TILT IN, 20 PD, 21 LD, 22 LD G

CN101: 5 LED, 4 PD, 3 PARK IN, 2 PARK OUT, 1 GND

CN102: 14 SCRT +12V, 13 CURRENT DET, 12 GND, 11 -12V, 10 +12V, 9 GND, 8 +5V, 7 -5V, 6 GND (R), 5 GND (M), 4 SPDL RET, 3 ACC, 2 BRK, 1 XCD

CN501: 1 CCD ERR, 2 GPWM, 3 THOLD, 4 ACCONT, 5 SENA, 6 CLVO, 7 VSQ, 8 TEL, 9 XCLV, 10 VREF, 11 SO3, 12 XCD, 13 XLAT3, 14 SPDLRTN, 15 SCK3, 16 VLOCK, 17 J F/R, 18 DATA, 19 XPAL, 20 XRESET, 21 DIRECT, 22 XPBV, 23 XPLAY, 24 XPBH, 25 NR, 26 XSLOCK, 27 S+10V, 28 S+12V

CN603: CCD ERR, GPWM, THOLD, ACCONT, SENA, CLVO, VSQ, TEL, XCLV, VREF, SO3, XCD, XLAT3, SPDLRTN, SCK3, VLOCK, J F/R, DATA, XPAL, XRESET, DIRECT, XPBV, XPLAY, XPBH, NR, XSLOCK, S+10V, S+12V

VTPB ASSY
(VWM1501)

J602: 1 Y, 2 GND, 3 C, 4 GND, 5 VIDEO OUT, 6 GND, 7 VIDEO

J603: 1 +5V, 2 -5V, 3 GND, 4 VKILL, 5 T2FSC, 6 B.F, 7 SYEX, 8 VERT, 9 REFCSYNC, 10 OSDCLK, 11 90/0, 12 4fsc

J604: 1 PBH, 2 XRESET, 3 VSQ, 4 XPAL, 5 DIRECT, 6 XPLAY, 7 NR

VDTB ASSY
(VWS1141)
(→SCH-4)

CN601: 1 RF, 2 GND

CN602: 1 -5V, 2 GND, 3 +5V, 4 ACCELL, 5 BRAKE

J501: 1 S+10V, 2 +12V, 3 S VIDEO, 4 +5V, 5 GND

CN302: 1 EFLG, 2 FSX, 3 GND

CN8: 1 RF, 2 GND

SCRB ASSY CN182
(VWV1384) (→SCH-5)
1 S+10V, 2 +12V, 3 S VIDEO, 4 +5V, 5 GND

CN181: 1 Rch, 2 GND, 3 Lch

CN105: 1 GND (M), 2 TILT/LOAD DRV, 3 GND, 4 SW3, 5 SW2, 6 SW1

CN504: 1 CLR SCAN, 2 S.IN1, 3 XCS, 4 SCK1, 5 +12V, 6 16-9

CN516: 1 EFLG, 2 FSX, 3 GND

J501: 1 Rch, 2 GND, 3 Lch

J9: 1 -5V, 2 GND, 3 +5V, 4 ACCELL, 5 BRAKE

J53 GPW M ORANGE

J12 CURRENT DET BROWN

J13 XCD RED

J51 SCRT +12V PURPLE

J52 TEL WHITE

OVERALL CONNECTI
SYPS ASSY, FG ASSY, PASB A
CAMB ASSY, LOSB A
LOMB ASSY, PICKUP A

SCH-1

CAUTION: FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE WITH SAME TYPE NO. ICP-N10, MFD BY ROHM CO., LTD. FOR IC205.

CAUTION: FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE WITH SAME TYPE NO. ICP-N20, MFD BY ROHM CO., LTD. FOR IC201-IC203.

CAUTION: FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE WITH SAME TYPE NO. ICP-N15, MFD BY ROHM CO., LTD. FOR IC204.

SYPS ASSY
(VWR1220: HB TYPE)
(VWR1219: HEZ TYPE)

IC201-IC205: IC PROTECTOR

IC2 (1/2), Q4, Q60, Q61: +5V REGULATOR

IC41: EVER +12V REGULATOR

IC1: EVER +5V REGULATOR

IC2 (2/2), Q3, Q5: -5V REGULATOR

Q29-Q32: CURRENT DETECTOR

Q21-Q24: SPINDLE PRE-DRIVE

Q25-Q28: SPINDLE DRIVE

SPINDLE MOROR ASSY VXA2108

HEZ TYPE ONLY

HB TYPE ONLY

POWER TRANSFORMER VTT1138

NEUTRAL

LIVE

POWER CORD

PDG1055
AC240V
50/60Hz
(HB TYPE ONLY)

PDG1003
AC220-230V
50/60Hz
(HEZ TYPE ONLY)

CHASSIS GND

VTPB ASSY
(VWM1501)

VDTB ASSY
(VWS1141)
(→SCH-4)

PALB ASSY
(VWV1383)
(→SCH-5)

SCRB ASSY
(VWV1384)
(→SCH-5)

ORANGE

BROWN

RED

PURPLE

WHITE

OVERALL CONNECTIONS,
SYPS ASSY, FG ASSY, PASB ASSY,
CAMB ASSY, LOSB ASSY,
LOMB ASSY, PICKUP ASSY

SCH-1

2.2.2 FLKB, JACB, TWKB AND PONB ASSEMBLIES

	KIN0	KIN1	KIN2	KIN3	KIN4	KIN5
KS0		SCORING	CD	LD	AUDIO	#
KS1	16:9	SURROUND	♭	♮	ONE-TOUCH KARAOKE	SYSTEM
KS2	5	PLAY/ PAUSE	4	2	3	1
KS3	6	STOP	10	8	9	7
KS4	15		11	13	14	12
KS5	19		16	17	18	20

F602-609:VTH1016
JA601, 603:VKN1147
JA602:RKN1006

FLKB ASSY
VWG1567

S-09A
06

GND
KIN1
KIN5
KIN3
KIN4
KIN0
KIN2

R113 10K
R114 10K
R115 10K
R116 10K
R117 10K
R118 10K

SURROUND S101
SYSTEM S102
♮ S103
ONE TOUCH S104
16:9 S105
♭ S106
SCORING S107
S108
S115 LD
AUDIO S110
S114 CD
C117 33p
GND

S112 STOP
S113 PLAY/PAUSE
KS1
KS0
KS5
KS4
KS3
KS2

FL
V101
VAW1034
GRID 10 9 8 7 6 5 4 3 2 1
SEGMENT a b c d e f g h i j k
AC

D102
D101
D106
D105
D104
D103

LD D119
D120 (GREEN)
R125
180
R126
Q104
Q105

E+5V
C113 100/6.3
C112 0.01
C103 0.01
C102 0.01
C114 33p

R107 220K
R108 100K
R109 220K
R110 220K
R111 220K
R112 220K

R131 220 SCK
R132 220 SI
SO
R133 220 RESETO
CS (OSD)
CS (GRP)
EN (GRP)
CS (DASP)
A/D (DASP)
AVCC
ECHO VOL
ONTA BAL
MODE SEL
DRDY (DASP)

IC101
PD3286B
MODE CONTROL μ-COM

KIN5 KIN4 KIN3 KIN2 KIN1 KIN0 VCC LED5 LED4 LED3 LED2 LED1 G10 G9 G8 G7 G6 G5 G4 G3 G2 G1 VDISP a b c (KS5) d (KS4) e (KS3) f (KS2) g (KS1) h (KS0) i j k LED9 LED8
REQ (DASP) MODESW AVSS VSS OSC1 OSC2 RESETI SHAKE SEL IR DOG FOOD POWER THRU (DASP) INT/EXT POWKEY OHM JAP LDG MIC ON

IR
GND
SET
XCS
SCK
ITOF
ITOM
AKE
IR
CN102
2147-0910
R105 10K

Vcc
Vout
GND
GP1U58X
C107 0.01

ECHO VR
VR101
2K (B)
VCS1034
C108 0.01

R121 1M
8.0MHz
X101
VSS1031

JP
JP

Q102 DTA144ES
C105 10/16
Q101
C104 0.022
R103 1.8K
R104 4.7K
D107
R102 10K
R101 10K

R135 10K
CN103
REQ TDATA CS DRDY RDATA SCK A/D THRU INT/EXT MIC ON

TO KFCB ASSY
CN901 (→SCH-6)

CN105
08R-FJ
CN201
08P-FJ
ONTABAL MODESW POWKEY S.B.LED NC NC GND E.+5V

FRPB ASSY
VWM1521

PONB ASSY
VWG1552

R122 5.1K
R138 1K
C109 1000p
D118
+8V (K)
GND (K)
-8V (K)

VR502 2K (B)
R506 15K
C504 270p
R507 75K
C503 0.1
VR501 2K (B)
R505 15K
IC501 2/2
NJM4558D
VR501, 502: VCS1034
(MIC VOLUME)

C501 0.01
C502 0.01
IC501 1/2

VR201 2K (B)
VCS1034
C201 0.01
R204 10K
ONTA BALANCE
C202
R202 10K
R203 10K
NORMAL/KARAOKE/
AUX INPUT

R205 10K
R201 180
D201 STAND-BY (RED)
S202
Q201
DTC114ES
S201 POWER
VSH1005

SCH-2

FL

V101
VAW1034

GRID 1 2 3 4 5 6 7 8 9 10
SEGMENT a b c d e f g h i j k
AC AC

R113 10K R114 10K R115 10K R116 10K R117 10K R118 10K

GND

KIN1 KIN5 KIN3 KIN4 KIN0 KIN2

S106 b
S114
CD
C117 33p
GND

KS1 KS0 KS5 KS4 KS3 KS2

D102 D101 D106 D105 D104 D103

R123 12

E+5V

CN101
52147-0610
1 POWER ON
2 E.+5V ON
3 GND
4 -27V
5 AC
6 AC

C101 10/50

TO SYPS ASSY J33 (→SCH-1)

GND

E+5V

R127 180 (ORANGE) D113 SURROUND
R128 180 (GREEN) D114 16:9

Q106 Q107

GND

E+5V

ONE TOUCH D116 R130 180 (ORANGE)
R129 180 (ORANGE) D115 SCORING

Q109 Q108

GND

+5V
0.01 C103 100/6.3 C102 0.01
GND

IC101

PD3286B

MODE CONTROL μ-COM

KIN5 KIN4 KIN3 KIN2 KIN1 KIN0 VCC LED5 LED4 LED3 LED2 LED1 G10 G9 G8 G7 G6 G5 G4 G3 G2 G1 VDISP
a b c (KS5) d (KS4) e (KS3) f (KS2) g (KS1) h (KS0) i j k

SCK SI SO RESETO CS (OSD) CS (GRP) EN (GRP) CS (DASP) D (DASP) AVCC ECHO VOL ONTA BAL MODE SEL RDY (DASP)

REQ (DASP) MODESW AVSS VSS OSC1 OSC2 RESETI SHAKE SEL. IR DOG FOOD POWER THRU (DASP) INT/EXT POWKEY OHM JAP LDG MIC ON LED9 LED8

ECHO VR
VR101
2K (B)
VCS1034

E+5V

R121 1M
8.0MHz X101
GND VSS1031

GND

JP JP

E+5V

C104 0.022

R101 10K

Q101

C105 10/16

Q102 DTA144ES

S-806D IC102

R103 1.8K R105 10K R104 4.7K C106 1000P

D107

R102 10K

GND

D201 SEL6C10S
D113, 115-116 : SEL6910A
D114, 119, 120 : SEL6410E
D101-107, 118 : 1SS252
S101-108, 110, 202, 301-320, 112-115 : RSG1030
Q102 : DTA144ES
Q101, Q104-109, Q201 : DTC114ES

FRPB ASSY
VWM1521

CN105
08R-FJ
1 ONTABAL 2 MODESW 3 POWKEY 4 S.B.LED 5 NC 6 NC 7 GND 8 E.+5V

CN201
08P-FJ

PONB ASSY
VWG1552

E+5V

VR201
2K (B)
VCS1034

C201 0.01 R204 10K E+5V

GND

ONTA BALANCE

C202 R202 10K R203 10K

NORMAL/KARAOKE/
AUX INPUT

R205 10K E+5V

R201 180 D201 STAND-BY (RED)

S202 Q201 DTC114ES

S201 POWER
GND VSH1005

GND

FLKB ASSY, JACB ASSY,
TWKB ASSY, PONB ASSY

SCH-2

A

B

C

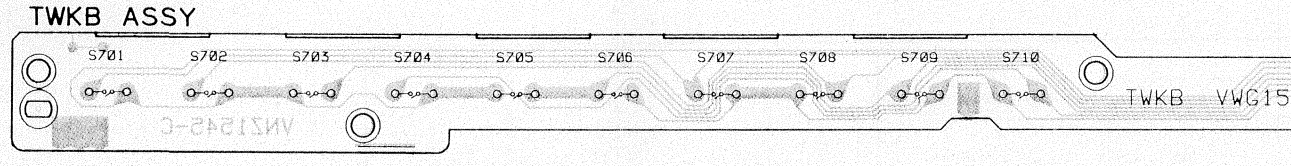
D

E

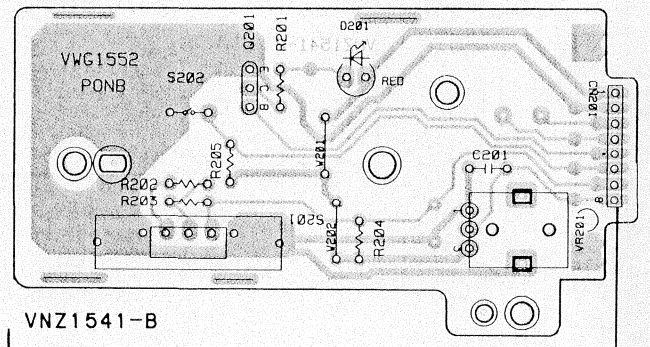
F

● This d

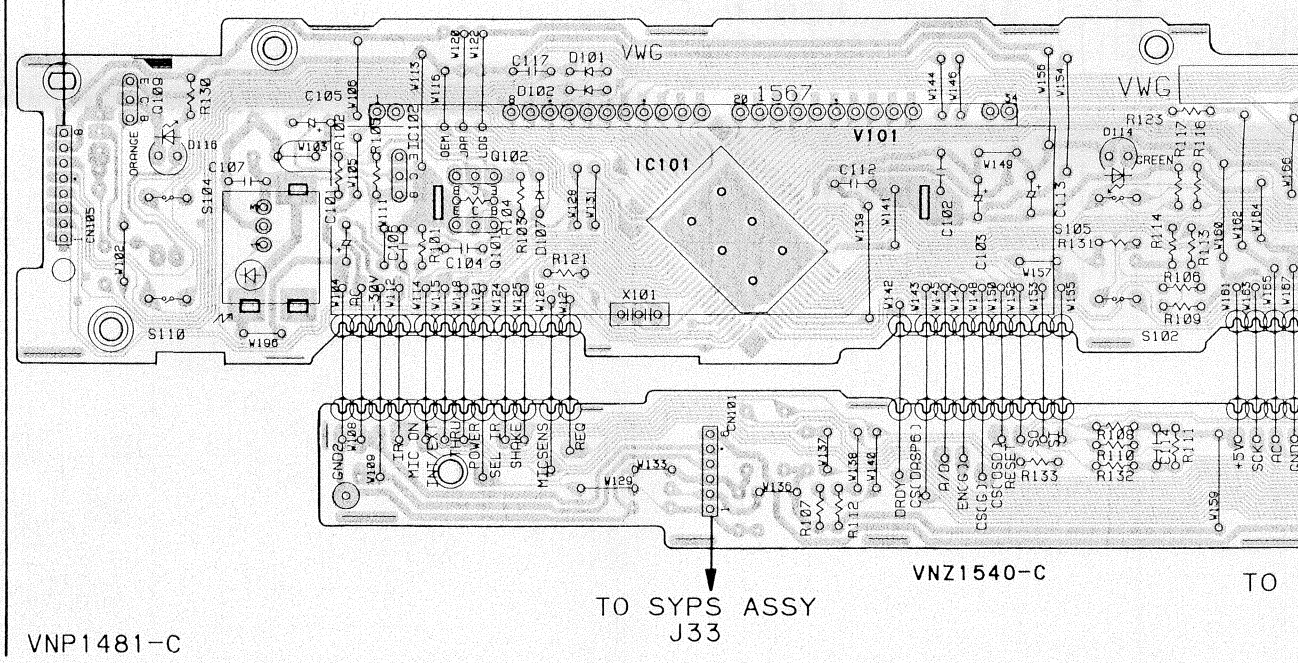
TWKB ASSY



PONB ASSY



VNZ1541-B



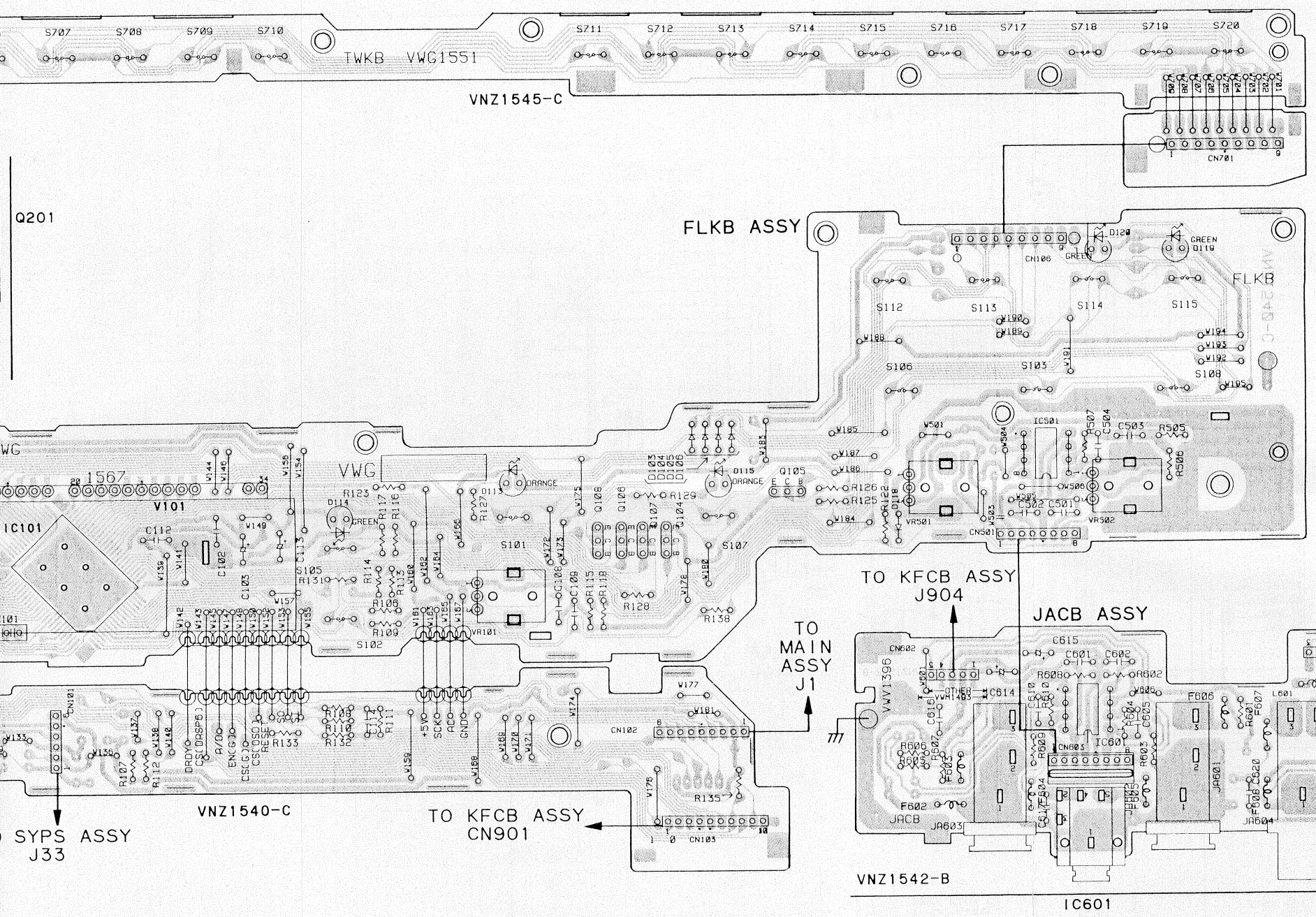
VNP1481-C

● This di

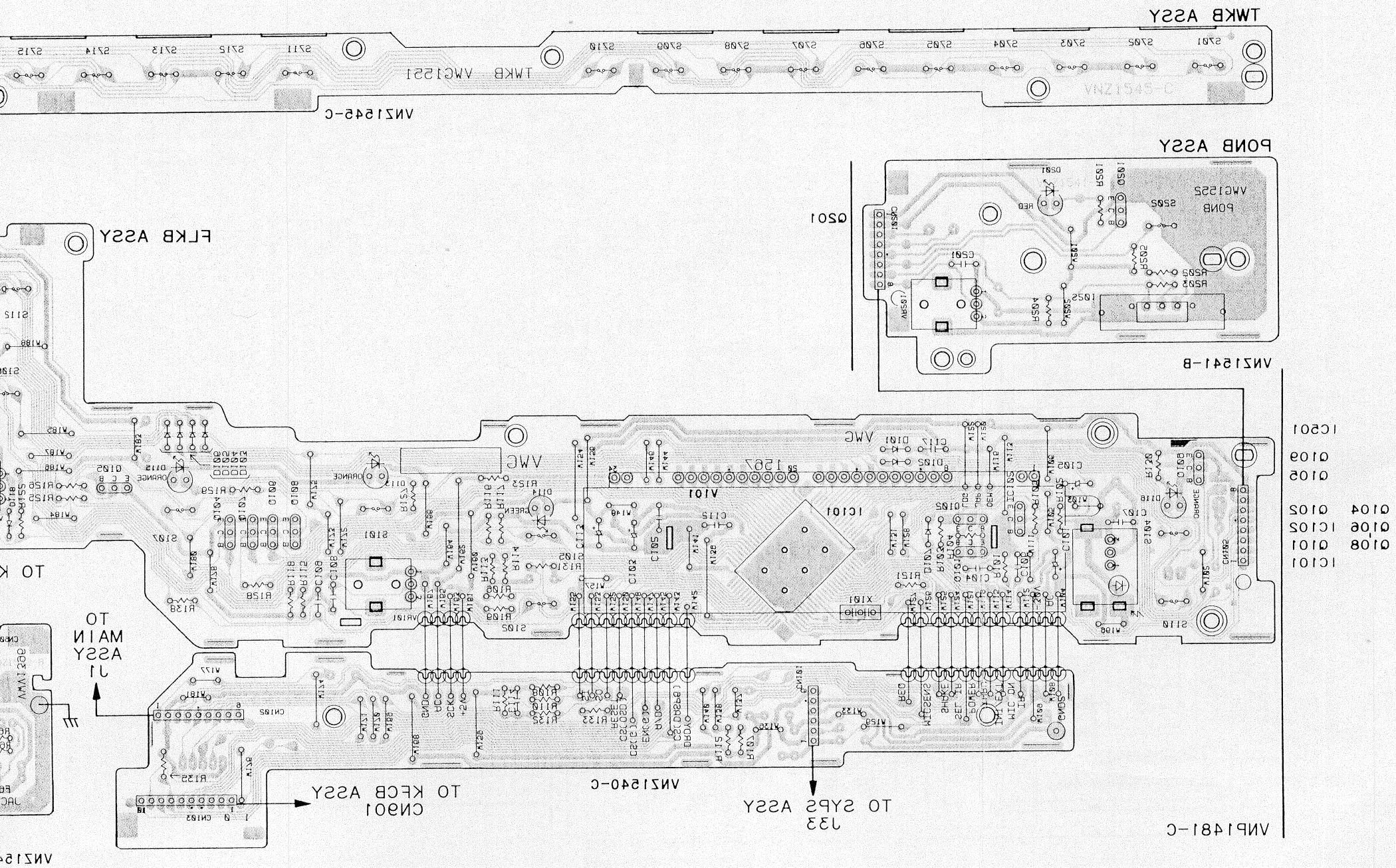
PCB-2

● This diagram is viewed from the mounted parts side.

PCB-2

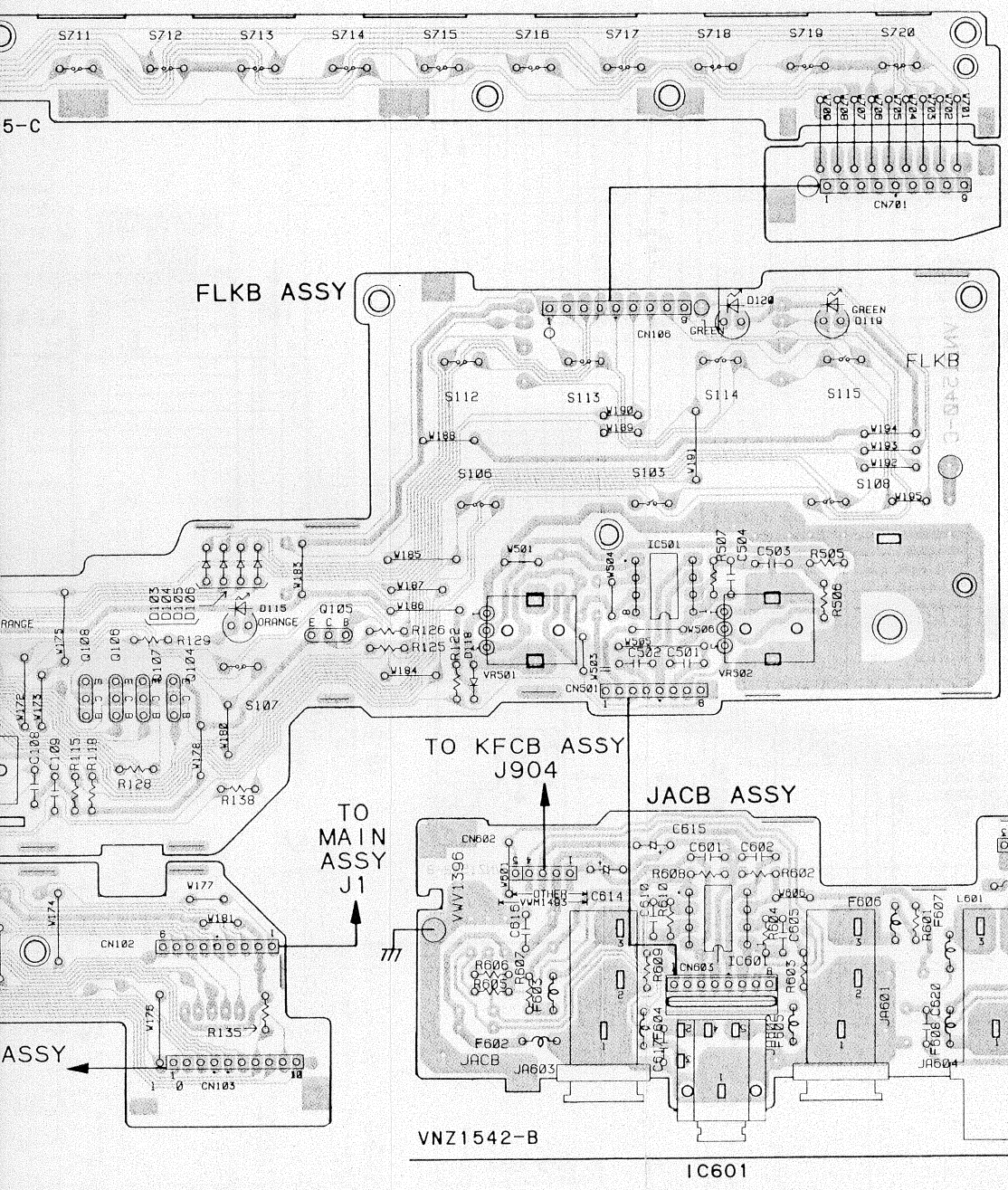


● This diagram is viewed from the foil side.



viewed from the mounted parts side.

PCB-2



2.2.3 MAIN ASSEMBLY

MAIN ASSY (VWX1211)

CN603 (→SCH-4)

TO KFCB ASSY CN106 (→SCH-6)

53064-1010 CN302

TO PALB ASSY CN302 (→SCH-5)

CN516

DSP [LC78681E] IC802

DIGITAL SOUND PROCESSOR

D/A CONVERTER

IC201 PD20268 (L)

Q208: DIG/ANA SWITCHING DRV.

Q206: MUTE DRV.

Q205: MUTE SW

IC202: LOW-PASS FILTER

IC202 BA4560F

TO LOMB ASSY J55 (→SCH-1)

TO CAMB ASSY J46 (→SCH-1)

CN101

52147-0610 CN303

TO KFCB ASSY CN105 (→SCH-6)

Q216

Q217

TO VDTB ASSY CN601 (→SCH-4)

Q102, Q103: FG SIGNAL WAVEFORMER

TO KFCB ASSY CN103 (→SCH-6)

CN304

Q201: DIG/ANA SW for L

Q202: DIG/ANA SW for R

SERVO CONTROL IC901 PAC003A

Q154: LD EFM MUTE

Q907: TRKG ERR MUTE

Q903, Q904: TRKG ERR

Q905: TRKG ERR LIMITTER SW

TRKG DRV.

IC902 TA8464K

IC903 BA4560F

Q963: POWER ON MUTE

IC902(2/2): FOCS DRV.

IC351: AFM

2SA1037K	Q102 154 802 963
2SC2412K	Q801 805 913 903 Q905 907 201 202
DTA124EK	Q216 207 208
2SA933S	Q501
DTC124EK	Q103 217 206 502
2SD2144S	Q204 205 214
2SB1237X	Q834
2SK184	Q962
2SC3802K	Q152 803 804
FC54M	D201
11EQS06	D202
1SS254	D102 502 520 905 D963 964
NJM78L08A	IC206
NJM79L08A	IC207

:RF SIGNAL LINE
:TRKG SERVO LOOP LINE
:FOCS SERVO LOOP LINE
:SLDR SERVO LOOP LINE
:AUDIO SIGNAL LINE

TO KFCB ASSY CN106 (→SCH-6)

53064-1010 CN302: MCK, GND, +5V, DATA, BCK, LRCK, DATA IN, BCK IN, LRCK IN, XRESET

F201 VTH1016

IC201 PD2026B (L): D/A CONVERTER

IC202 BA4560F: LOW-PASS FILTER

Q208: DIG/ANA SWITCHING DRV.

Q207: INVERTER BUFFER

Q206: MUTE DRV.

Q205: MUTE SW

Q204: MUTE SW

Q201: DIG/ANA SW for L

Q202: DIG/ANA SW for R

IC205 BA4560F: HEAD PHONE AMP.

IC351 CA0002AM: AFM

52147-0610 CN303: +8V, GND, -8V, +5V, MIC IN, MIC ON

TO KFCB ASSY CN105 (→SCH-6)

TO KFCB ASSY CN103 (→SCH-6): ANA L, GND, ANA R

J501: Lch, GND, Rch

TO SCRB ASSY CN181 (→SCH-5)

S201

LOUT, ROUT

CHASSIS GND

J4: L OUT, GND, R OUT

TO JACB ASSY CN601 (→SCH-2)

2SA1037K	Q102 154 802 963
2SC2412K	Q801 805 **913** 903 904 Q905 907 **201 202**
DTA124EK	**Q216** 207 208
2SA933S	Q501
DTC124EK	Q103 217 206 502 503
2SD2144S	Q204 205 **214**
2SB1237X	Q834
2SK184	Q962
2SC3802K	Q152 803 804
FC54M	D201
11EQS06	D202
1SS254	**D102 502 520 905 D963 964**
NJM78L08A	IC206
NJM79L08A	IC207

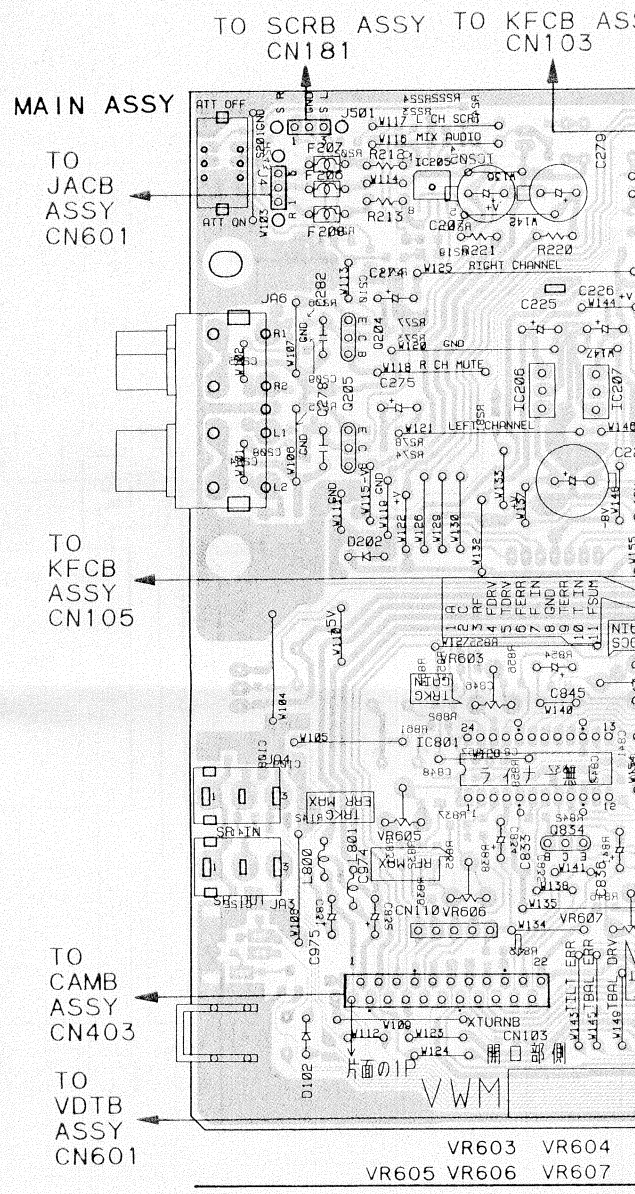
MAIN ASSY **SCH-3**

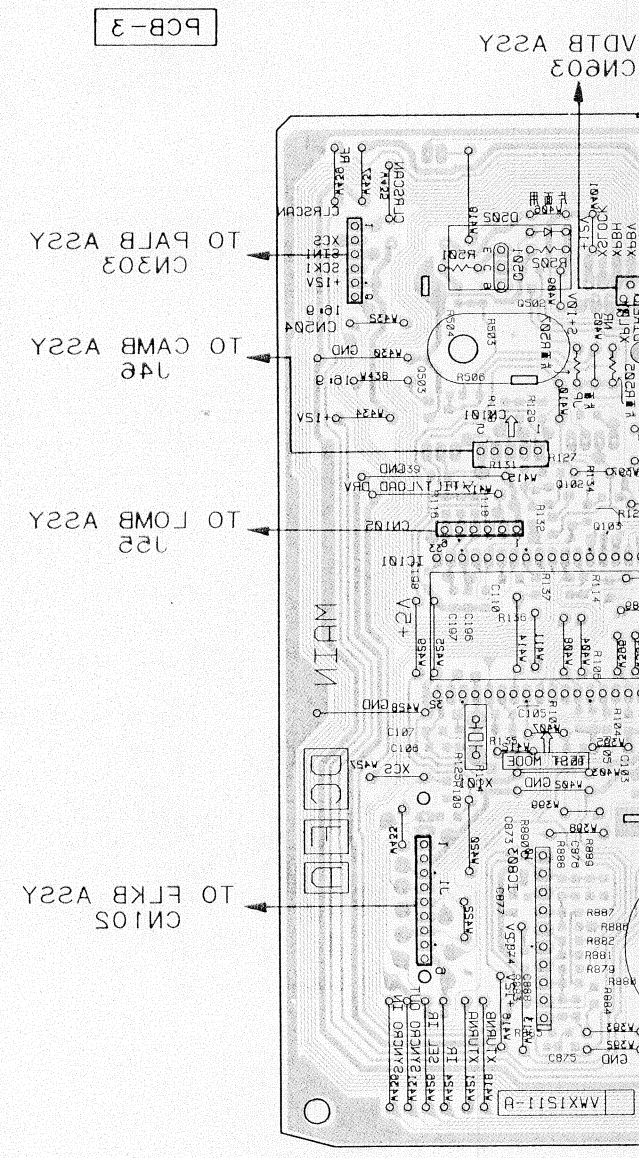
MAIN ASSEMBLY

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(LC78681E)	IC803(LA6510L)	IC901(PAC003A)	CN106	IC101 (PD0193A)
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	⑥ 1V/Div 5mS/Div approx. 1.8V DC mode (Sldr 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)		㊷ 0.2μS/Div. 2.1Vp-p AC mode	⑥ 5mS/Div. 3.5Vp-p DC mode	
	㊾ 0.1μS/Div. 2Vp-p AC mode(D.audio)		㊼ 1mS/Div. 0.53Vp-p DC mode	⑨ 5mS/Div. 1.25Vp-p DC mode	
			㊽ 0.2mS/Div. 0.32Vp-p DC mode	⑪ 10mS/Div. 1.7Vp-p DC mode	





4 | 5 | 6 | 7 | 8

● This diagram is viewed from the mounted parts

MAIN ASSY

TO SCRB ASSY CN181

TO KFCB ASSY CN103

TO SYPS ASSY J32

TO KFCB ASSY CN106

TO VDTB ASSY CN602

TO PALB ASSY CN302

TO VDTB ASSY CN603

TO JACB ASSY CN601

TO KFCB ASSY CN105

TO CAMB ASSY CN403

TO VDTB ASSY CN601

VWM

VNP1462-B

VNZ1528-B

VWX

VWX1211-A

VR603 VR604 VR605 VR606 VR607

VR601

VR612

Q204 Q205 IC206 IC207 IC801 Q834 IC205 Q214 IC902 IC201 Q962 IC303 Q803 Q804 Q913 Q903 Q904 Q905 Q154 Q805 IC903 Q152 Q963 IC501 Q805 IC902 Q801 Q802 Q208 Q202 Q201 IC202 Q214 Q206 Q207 Q907 Q216 Q217 IC207 IC801 Q834 IC2

IC351 IC101 IC803 Q502 Q102 Q103 Q501

● This diagram is viewed from the foil side.

PCB-3

4 | 5 | 6 | 7 | 8

6 7 8

● This diagram is viewed from the mounted parts side.

PCB-3

TO SYPS ASSY J32

TO KFCB ASSY CN106

TO VDTB ASSY CN602

TO PALB ASSY CN302

TO VDTB ASSY CN603

TO PALB ASSY CN303

TO CAMB ASSY J46

TO LOMB ASSY J55

TO FLKB ASSY CN102

A

B

C

VNP1462-B
VNZ1528-B

VR601

VR612

Q214 IC902 IC201 Q963 Q803 Q913 Q903 IC802 Q805 IC901 Q804 Q801 IC351 Q208 Q202 Q201 IC202 Q214 Q206 Q207 Q907 Q216 Q217 IC205 IC803 Q501 IC101

● This diagram is viewed from the foil side.

TO KFCB ASSY CN106

TO VDTB ASSY CN602

TO PALB ASSY CN302

TO SYPS ASSY J32

TO KFCB ASSY CN103

TO SCRB ASSY CN181

MAIN ASSY

TO JACB ASSY CN601

TO KFCB ASSY CN105

TO CAMB ASSY CN403

TO VDTB ASSY CN601

D

E

F

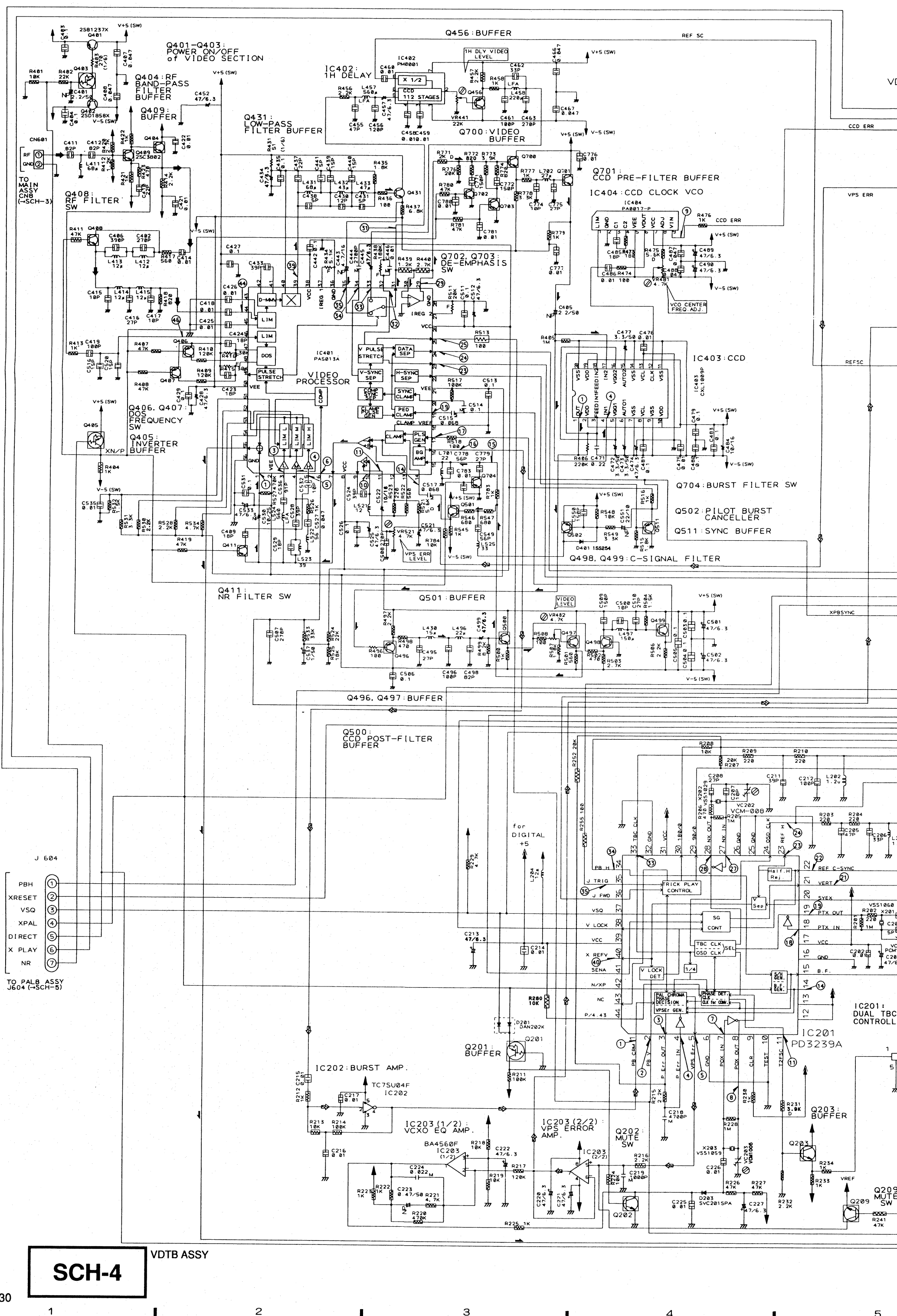
VNP1462-B
VNZ1528-B

VR601 VR612 VR603 VR604 VR605 VR606 VR607

Q214 IC902 IC201 Q963 Q803 Q913 Q903 IC802 Q805 IC901 Q804 Q801 IC351 Q208 Q202 Q201 IC202 Q214 Q206 Q207 Q907 Q216 Q217 IC205 IC803 Q501 IC101

6 7 8 9

2.2.4 VDTB ASSEMBLY



SCH-4 VDTB ASSY

VDTB ASSY (VWS1141)

DTA124EK Q201 403 405 606 609 621 622 623
2SC2412K Q202 203 205 206 209 404 408 497 498
Q499 500 501 601 602 603 604 605 608 700 701 702
2SA1037K Q204 207 406 407 411 456 496 502 511 703 704
2SB1237X Q401
2SD1858X Q402
2SC3802K Q409
2SC1740S Q431
DTC124EK Q607 610 612 613 624 625

➡: RF
➞: VI
⇨: SP

REF SC
CCD ERR
VPS ERR
REFSC
XPBSYNC

Q701: CCD PRE-FILTER BUFFER

IC404: CCD CLOCK VCO

IC404 PA8017-P

VCO CENTER FREQ. ADJ.

IC403: CCD

IC403 CXL1009P

Q704: BURST FILTER SW

Q502: PILOT BURST CANCELLER

Q511: SYNC BUFFER

Q498, Q499: C-SIGNAL FILTER

Q608: BUFFER

Q625: MUTE SW

Q602: TBC GAIN SWITCHING

Q603, Q604: TRAPEZOIDE WAVEFORMER

Q601, Q605, Q606: TBC ERROR DETECTOR

LOGIC BLOCK
SYNC SIGNAL GEN
REF H GEN
REF SC GEN
PBH TIMING GEN
LOCK DETECTOR

PFC

IC601: TBC SERVO
IC601
PM3002

SPINDLE DRIVE LOGIC

SERIAL–PARALEL DECORDER

Q607: INVERTER BUFFER

Q624: MUTE SW

Q621: BUFFER

Q622, Q623: BUFFER

Q613: INVERTER BUFFER

Q202: MUTE SW

Q203: BUFFER

Q209: MUTE SW

Q207: PHASE EQUALIZER

Q206: BUFFER

Q205: BUFFER

Q204: PHASE EQUALIZER

IC201: DUAL TBC CONTROLLER
IC201 PD3239A

F201 6M B.P.F VTF1051

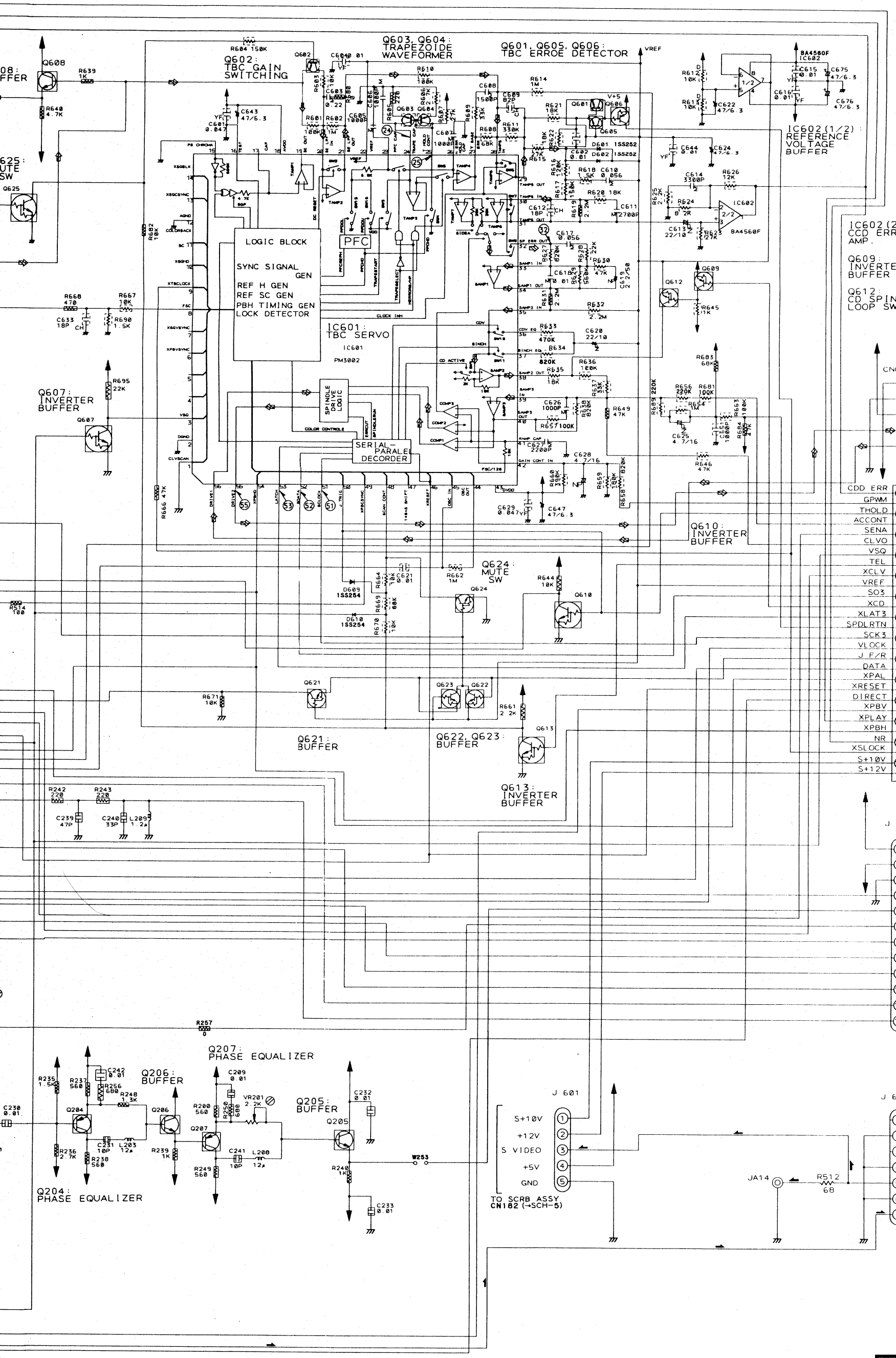
J 601
S+10V
+12V
S VIDEO
+5V
GND
TO SCRB ASSY CN182 (→SCH-5)

SCH-4

ASSY (VWS1141)

DTA124EK Q201 403 405 606 609 621 622 623
2SC2412K Q202 203 205 206 209 404 408 497 498
Q499 500 501 601 602 603 604 605 608 700 701 702
2SA1037K Q204 207 406 407 411 456 496 502 511 703 704
2SB1237K Q401
2SD1858K Q402
2SC3802K Q409
2SC1740S Q431
DTC124EK Q607 610 612 613 624 625

➡: RF SIGNAL LINE
➖: VIDEO SIGNAL LINE
⇨: SPINDLE SERVO LOOP LINE



VDTB ASSY

SCH-4

VDTB ASSEMBLY

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

IC401 (PA5013A)

(1) H:20μs/div, 2.0V, 0V, DC mode	(15) H:20μs/div, 300mVp-p, AC mode	(31) H:20μs/div, 1Vp-p, AC mode
(3) H:20μs/div, 0V, -2.32V, DC mode	(16) H:20μs/div, 2.5V, 0V, DC mode	(32) 4Vp-p, 20mS
(4) H:20μs/div, 0V, -1.14V, DC mode	(17) H:20μs/div, 4.95V, 0V, 64μS, DC mode	(33) H:20μs/div, 400mVp-p, AC mode
(5) H:20μs/div, 0V, -1.14V, DC mode	(19) H:20μs/div, 1.5Vp-p, 64μS, AC mode	(34) 2.5Vp-p, 20mS
(6) H:5ms/div, 5.05V, 0V, 20mS, DC mode	(23) 5Vp-p, 64μS	(35) H:20μs/div, 1Vp-p, AC mode
(10) H:20μs/div, 0V, -1.62V, DC mode	(24) 4Vp-p, 20mS	(39) H:20μs/div, 3.12V, 0V, DC mode
(11) H:2ms/div, 0V, -2.8V, DC mode	(25) 5Vp-p, 20mS	(44) 600mVp-p, Range H:2mS/div
(14) H:20μs/div, 0.525V, 0V, DC mode	(29) H:20μs/div, 2.5Vp-p, AC mode	(46) 500mVp-p, Range H:2mS/div

IC403 (CXL1009P)

(1) H:20μs/div, 0V, DC mode, -2.25V	(24) 5Vp-p
(4) H:20μs/div, 1.8V, DC mode, 0V	(25) 3Vp-p

IC404 (PA0017-P)

(9) approx. 300mVp-p	(51) 5Vp-p, 22.5μS

IC601 (PM3002)

(24) 5Vp-p	(32) H:20mS/div, 5Vp-p, DC mode, 0V
(51) 5Vp-p, 22.5μS	(52) 5Vp-p, 20ms, 0V
(52) 5Vp-p, 20ms, 0V	(53) 5Vp-p
(53) 5Vp-p	(55) 5Vp-p
(55) 5Vp-p	

IC201 (PD3239A)

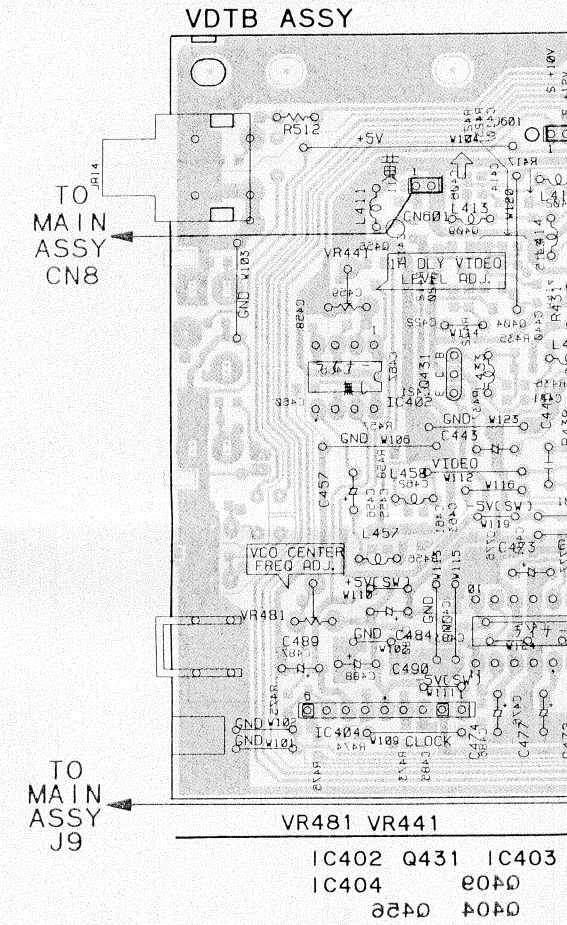
(1) 4.8Vp-p, 65μS	(14) 64μS, 5.0Vp-p	(28) 70nS, 4.24Vp-p
(2) 5.0Vp-p, 20mS	(18) 70nS, 4.24Vp-p	(33) 70nS, 5.0V
(3) 20mS, 5.0Vp-p	(19) 70nS, 4.24Vp-p	(34) 58μS, 5.0Vp-p
(4) 20mS, 5.0Vp-p	(21) 5.0Vp-p, 20mS	(35) 5.0Vp-p, 64μS
(5) 4.9Vp-p, 64μS	(22) 5.0Vp-p, 64μS	(40) 20mS, 5.0Vp-p
(7) 55nS, 4.9Vp-p	(23) 5.0Vp-p, 64μS	
(8) 56nS, 3.76Vp-p	(24) 57nS, 5.0V	
(11) 110nS, 5.0V	(27) 70nS, 3.9Vp-p	

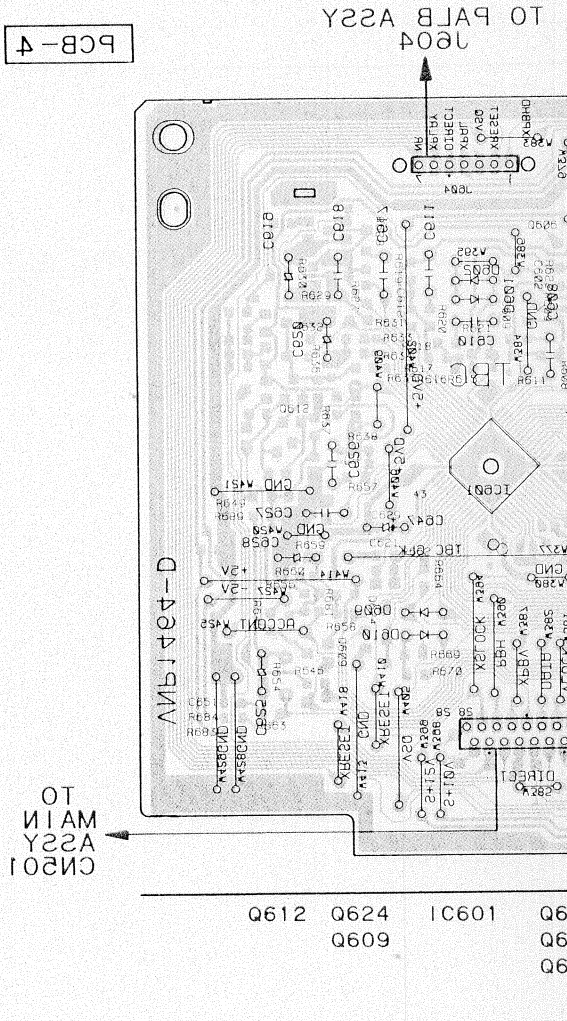
Note : These waveforms and voltage are in the PAL DISC playback.

- IC201 (PD3239A)

Pin No.	Voltage (V)	Pin No.	Voltage (V)	Pin No.	Voltage (V)	Pin No.	Voltage (V)
1	*	12	5.0	23	*	34	*
2	*	13	5.0	24	*	35	*
3	*	14	*	25	0	36	5.0
4	*	15	5.0	26	0	37	5.0
5	*	16	0	27	*	38	5.0
6	0	17	5.0	28	*	39	5.0
7	*	18	*	29	5.0	40	*
8	*	19	*	30	5.0	41	0
9	5.0	20	5.0	31	5.0	42	0
10	0	21	*	32	0	43	5.0
11	*	22	*	33	*	44	5.0

* : Refer to waveforms





4 5 6 7 8

● This diagram is viewed from the mounted p

TO SCRB ASSY CN182

TO PALB ASSY J602

TO PALB ASSY J603

TO

VDTB ASSY

TO MAIN ASSY CN8

TO MAIN ASSY J9

VR481 VR441 VR482 VR521 VR201 VC203 VC201 VC202

IC402 Q431 IC403 Q408 Q703 Q407 IC401 Q511 Q411 Q402 Q205 IC201 Q621 Q601 Q606 IC602 Q403 Q408 C403
IC404 Q409 Q700 Q496 Q406 Q498 Q497 Q501 Q205 Q204 Q206 IC202 Q623 Q625 Q604 Q609 Q610 Q404 Q407 Q409
Q456 Q404 Q701 Q702 Q499 Q704 Q207 Q403 Q405 Q603 Q602 Q607 Q613 Q701 Q4
Q499 Q209 IC203 Q608 Q401 Q405 Q502

● This diagram is viewed from the foil side.

PCB-4

TO PALB ASSY J604

TO PALB ASSY J603

TO PALB ASSY J602

TO SCRB ASSY CN182

TO MAIN ASSY CN501

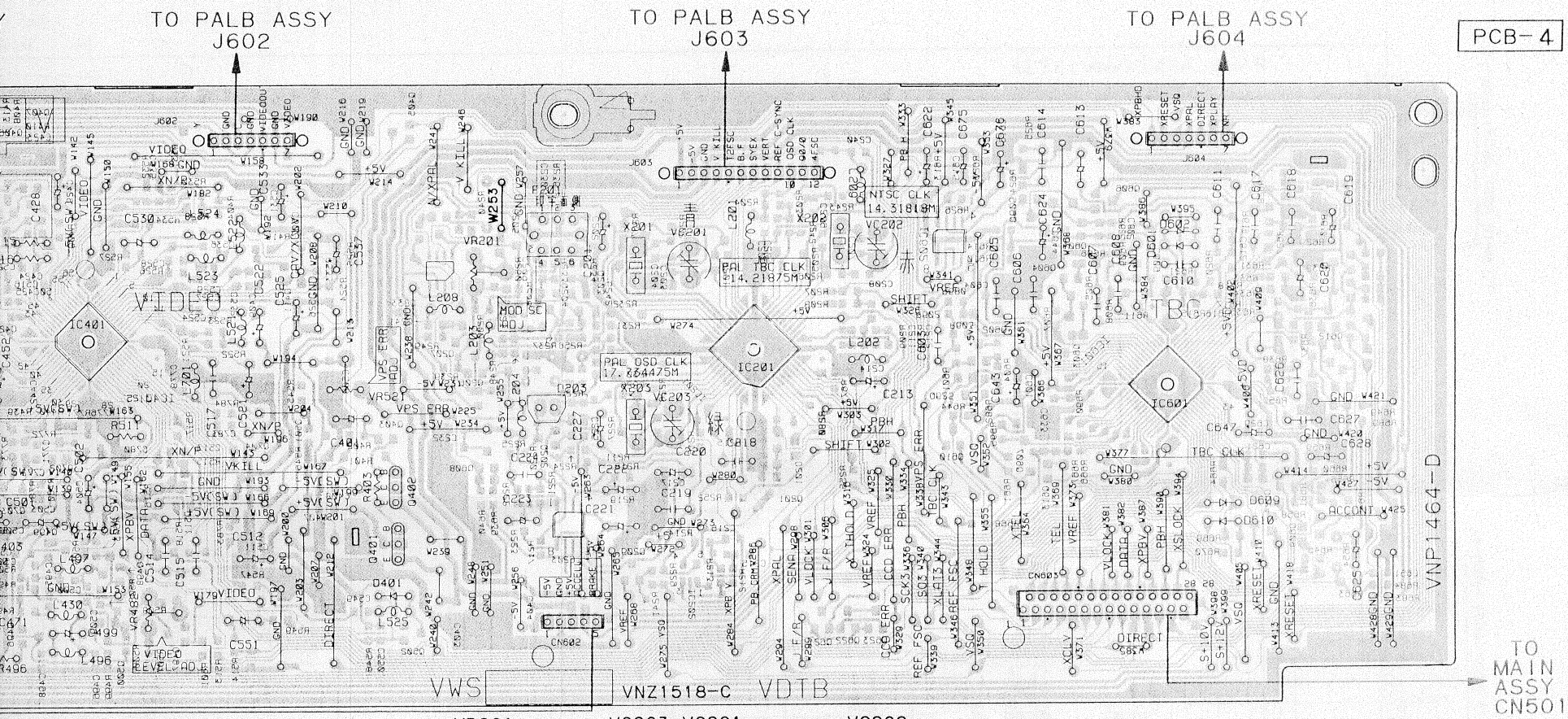
VDTB ASSY

VC202 VC203 VC201 VR201 VR521 VR482

Q612 Q624 IC601 Q606 Q605 IC602 Q621 Q201 IC201 Q202 Q205 Q402 Q411 Q511 IC401 Q407 Q703 Q408 C403
Q609 Q601 Q604 Q625 Q623 IC202 Q204 Q206 Q207 Q401 Q501 Q497 Q498 Q406 Q496 Q700 Q4
Q603 Q602 Q610 Q209 Q403 Q405 Q704 Q500 Q702 Q701 Q4
Q607 IC203 Q608 Q499
Q613 Q502

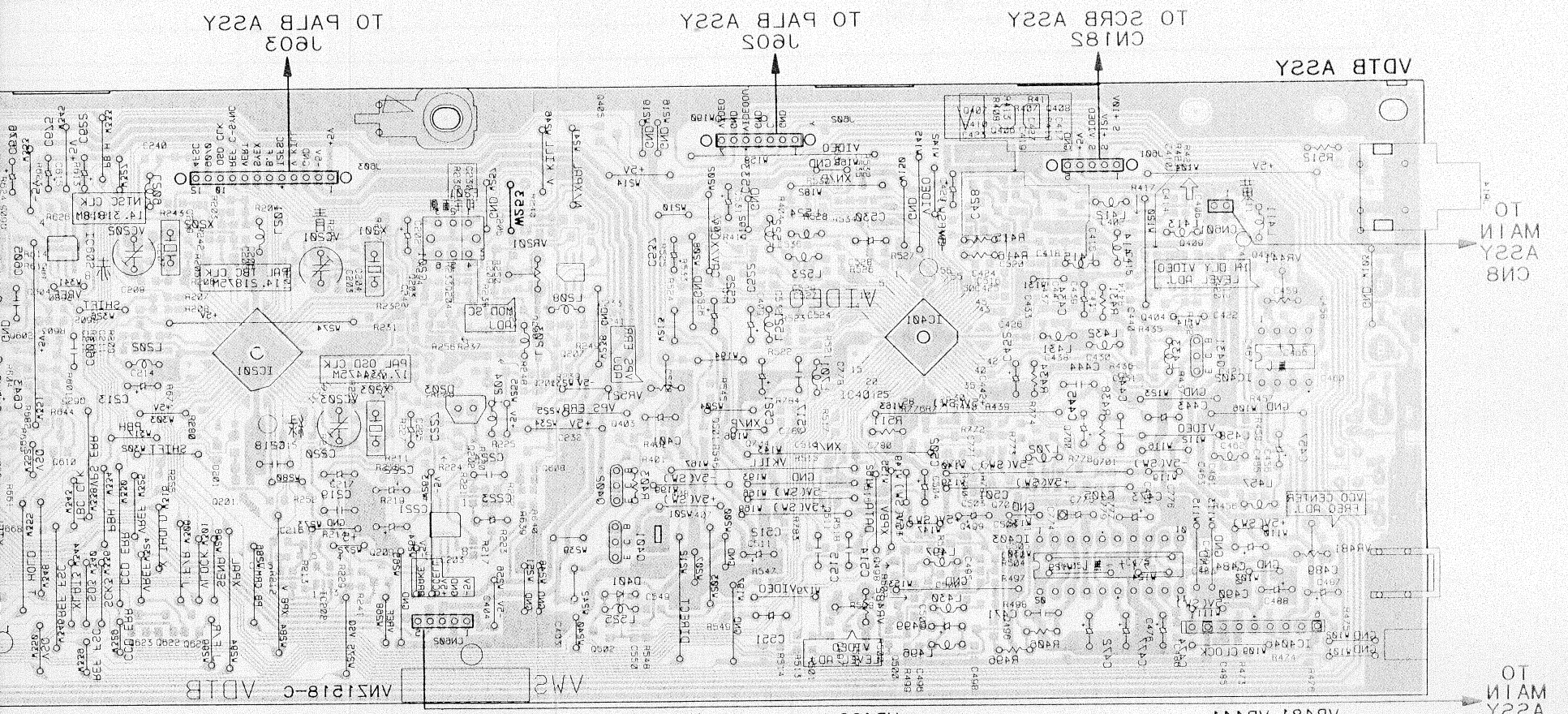
4 5 6 7 8

● This diagram is viewed from the mounted parts side.



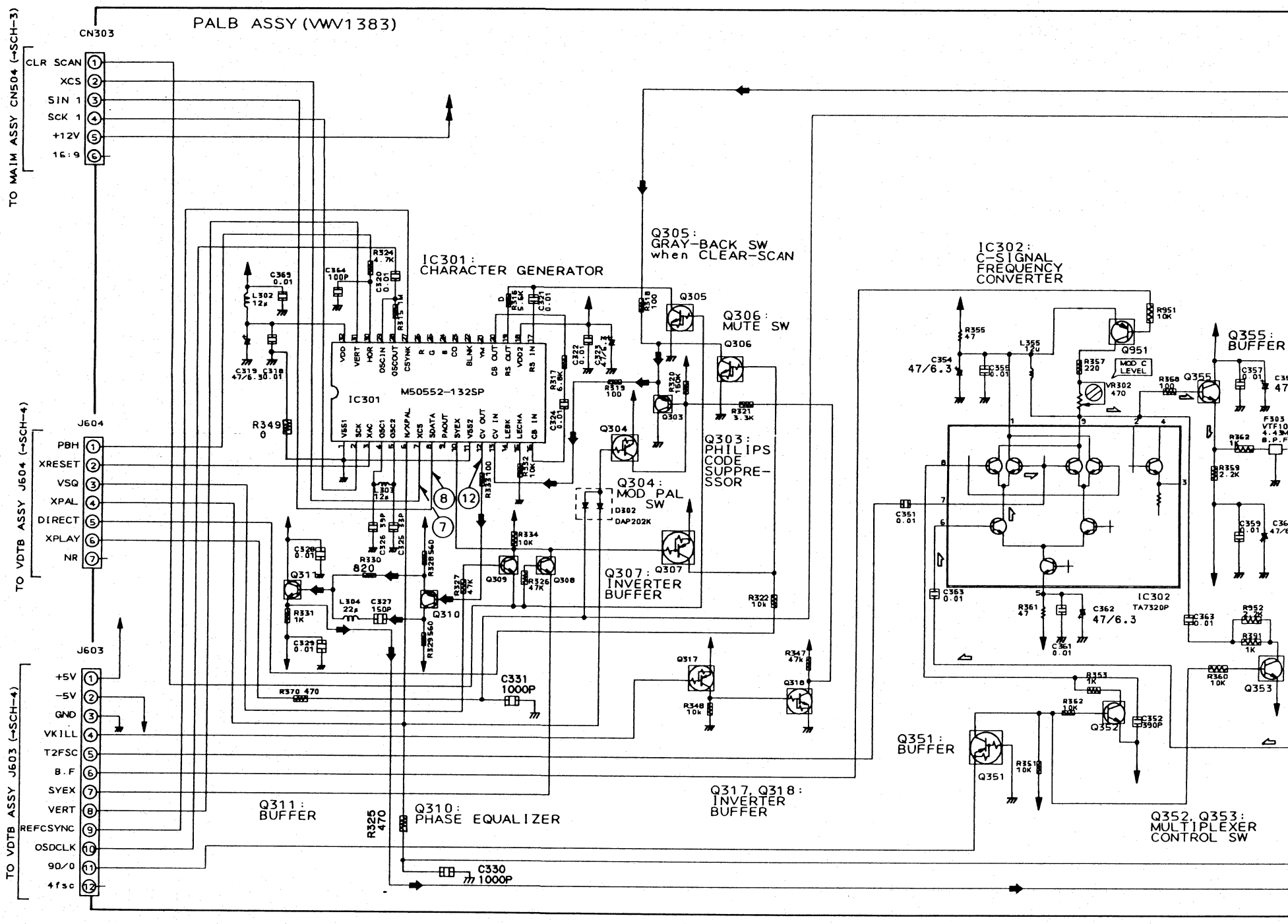
VR482			VR521		VR201		VC203	VC201		VC202													
Q411	IC401	Q511	Q402			Q502	Q205	IC201	Q621	Q201	Q621	IC602	Q605	Q606		IC601	Q624	Q612					
Q501	Q498	Q501	Q401	Q207		Q504	Q206	IC202	Q623		Q623	Q625	Q604	Q601			Q609						
Q704		Q500	Q405			Q503	Q209					Q610	Q602	Q603									
			Q403	Q404		Q608	IC203	IC203	Q608				Q607										
			Q502										Q613										

● This diagram is viewed from the foil side.



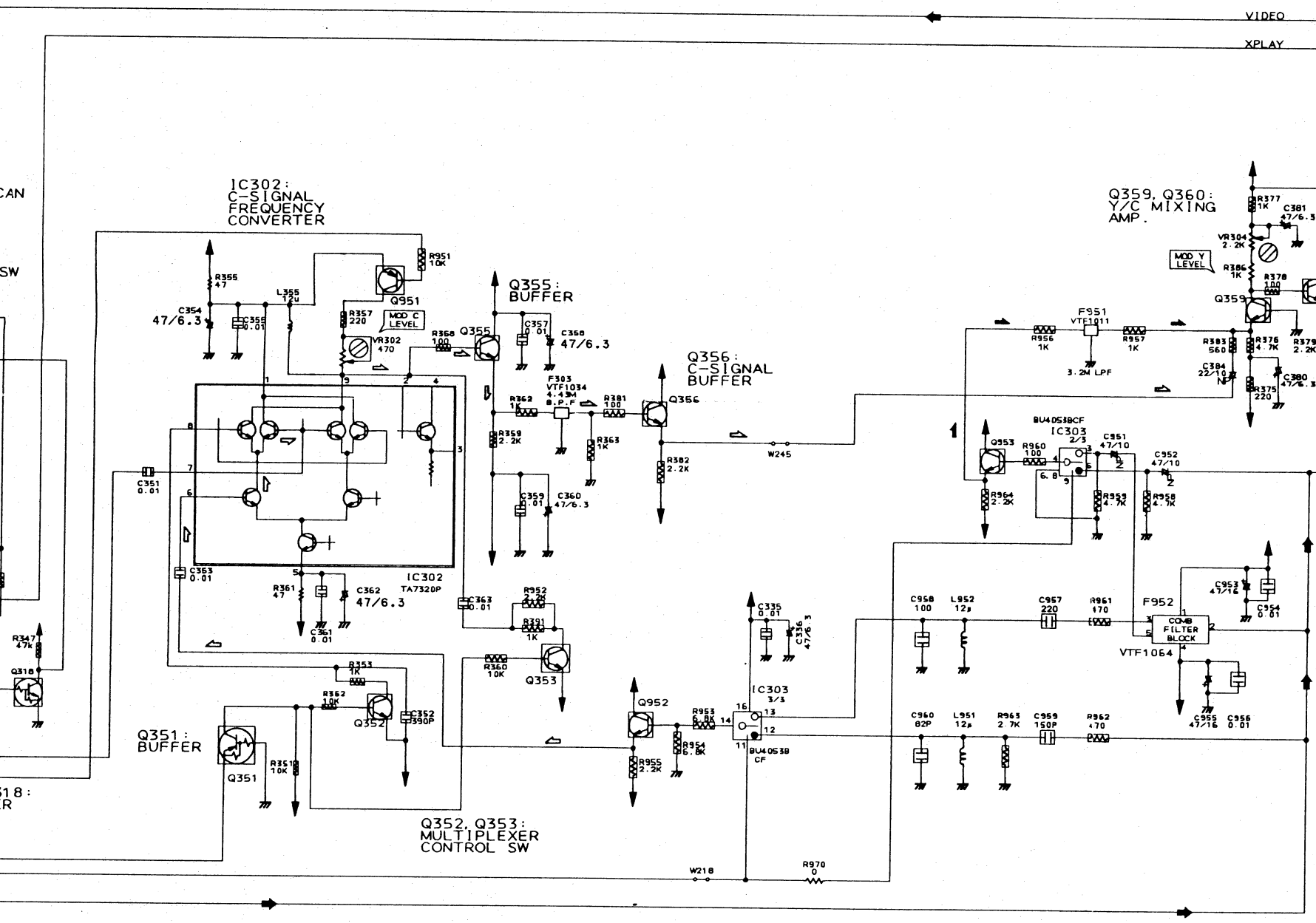
VR482			VR521		VR201		VC203	VC201		VC202													
Q411	IC401	Q511	Q402			Q502	Q205	IC201	Q621	Q201	Q621	IC602	Q605	Q606		IC601	Q624	Q612					
Q501	Q498	Q501	Q401	Q207		Q504	Q206	IC202	Q623		Q623	Q625	Q604	Q601			Q609						
Q704		Q500	Q405			Q503	Q209					Q610	Q602	Q603									
			Q403	Q404		Q608	IC203	IC203	Q608				Q607										
			Q502										Q613										

2.2.5 PALB AND SCRB ASSEMBLIES



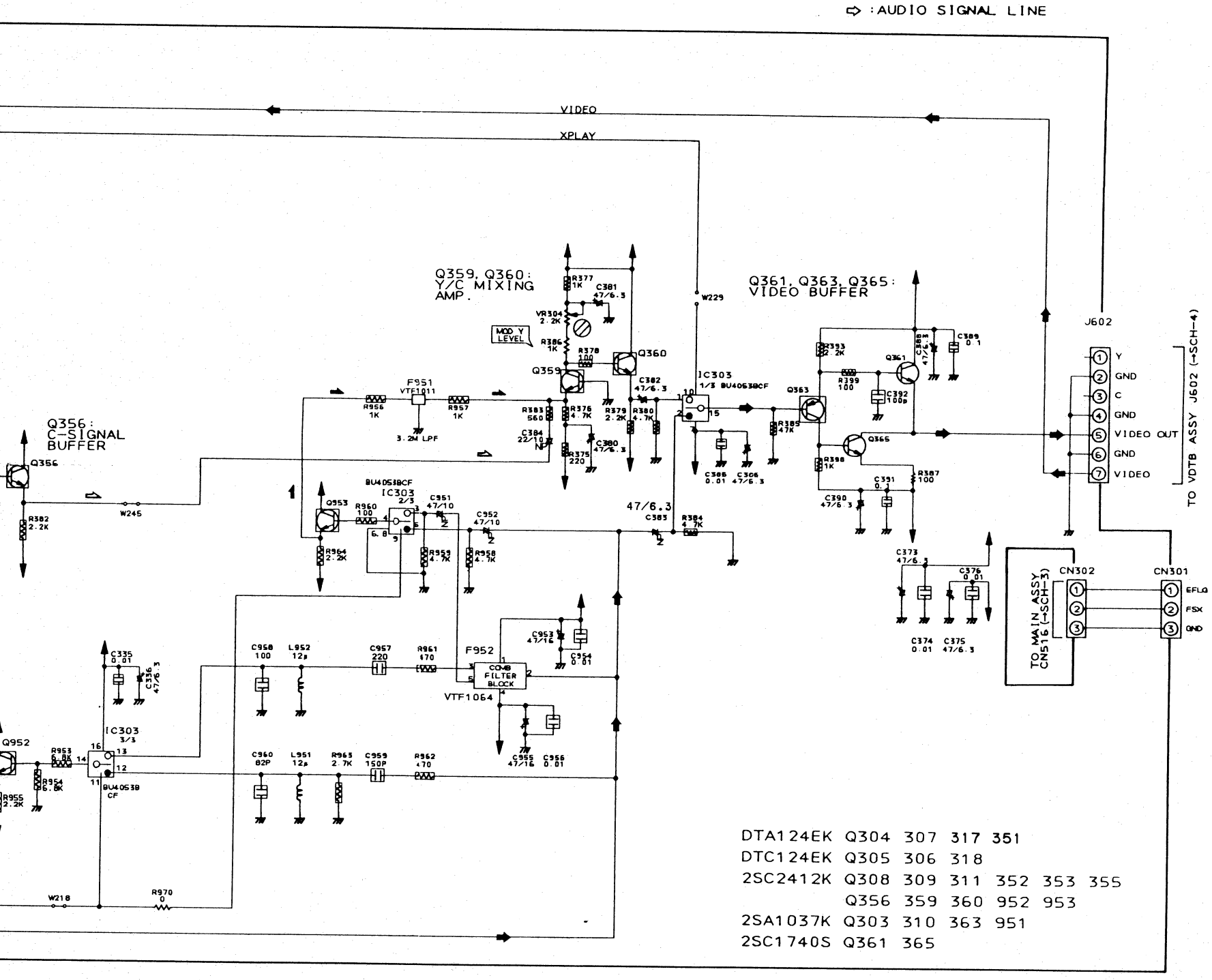
SCH-5 PALB ASSY, SCRB ASSY

: VIDEO
: Y-SIG
: C-SIG
: AUDIO



➡ :VIDEO SIGNAL LINE
➡ :Y-SIGNAL LINE
⇨ :C-SIGNAL LINE
⇨ :AUDIO SIGNAL LINE

SCH-5

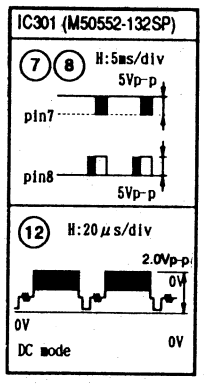


DTA124EK Q304 307 317 351
DTC124EK Q305 306 318
2SC2412K Q308 309 311 352 353 355
Q356 359 360 952 953
2SA1037K Q303 310 363 951
2SC1740S Q361 365

PALB ASSEMBLY

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

IC301 (M50552-132SP)



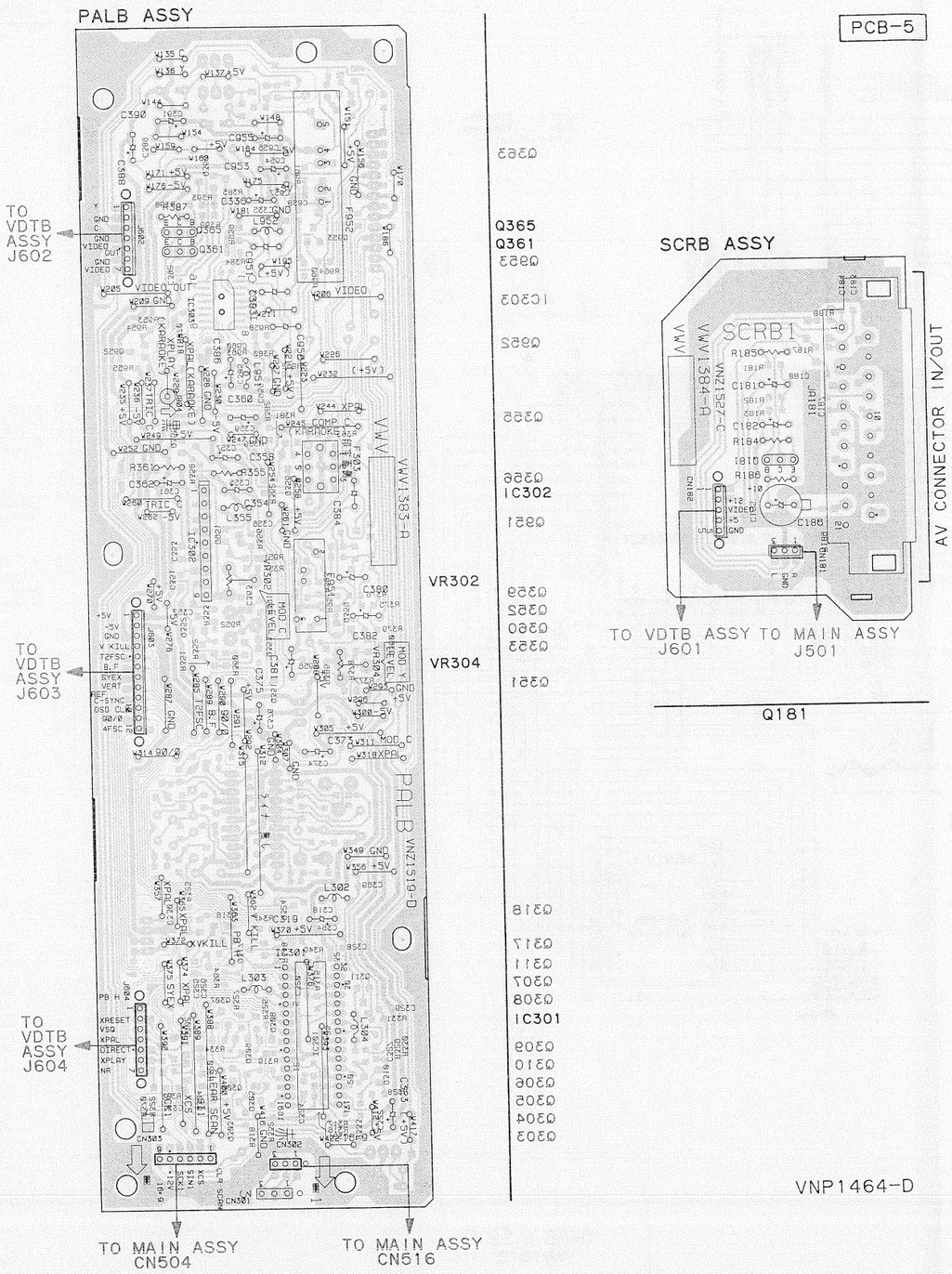
[PALB ASSY]

Note : These waveforms and voltage are in the play mode.

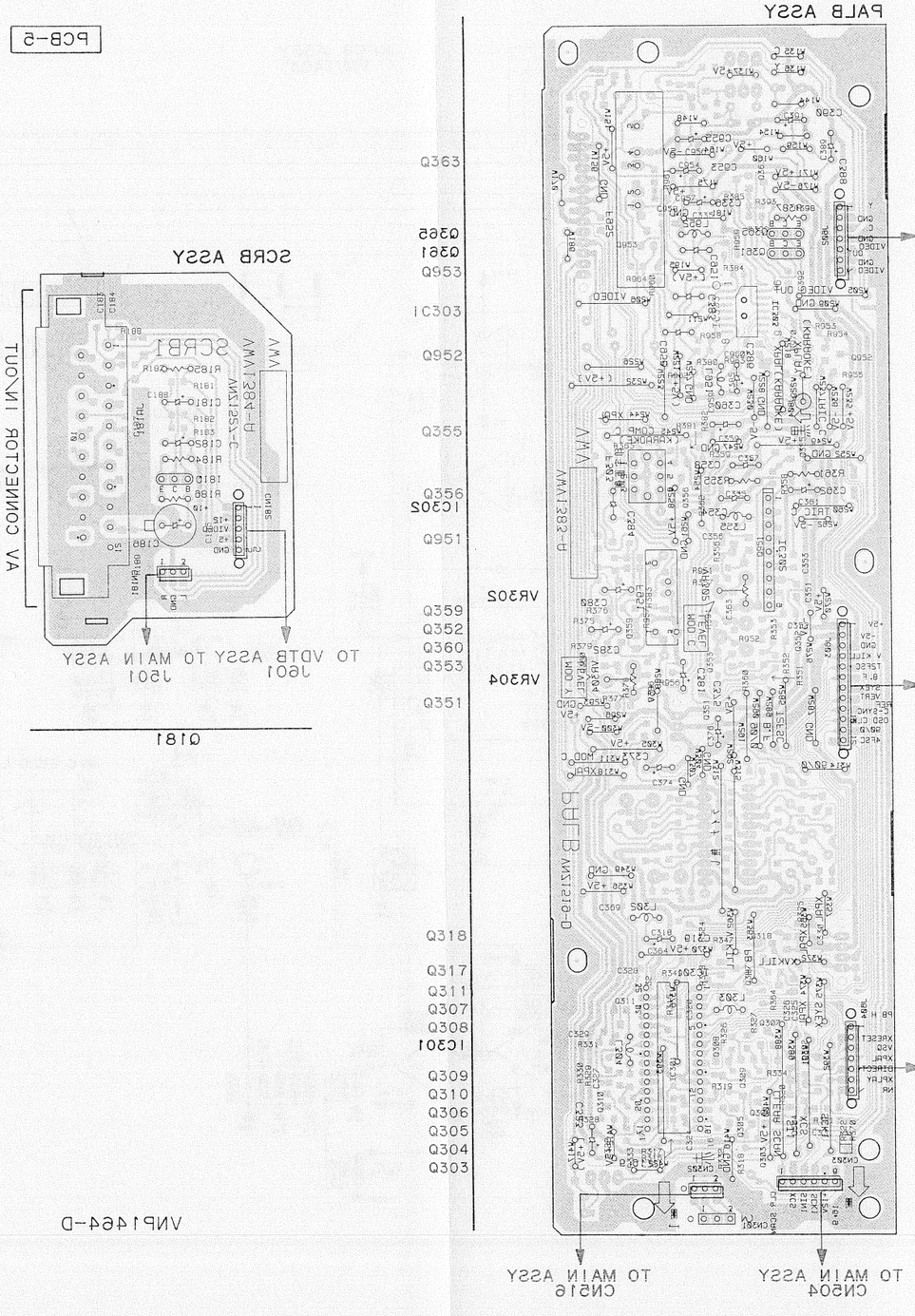
● IC301 (M50552-132SP)

Pin No.	Voltage (V)	Pin No.	Voltage (V)	Pin No.	Voltage (V)	Pin No.	Voltage (V)
1	0	9	–	17	0.8	25	–
2	5	10	5	18	–	26	–
3	5	11	0	19	0	27	–
4	2.4	12	1.1	20	0	28	2.3
5	2.4	13	1.1	21	–	29	2.3
6	–	14	–	22	–	30	–
7	5	15	1.8	23	–	31	–
8	0.4	16	0.6	24	–	32	–

● This diagram is viewed from the mounted parts side.



● This diagram is viewed from the foil side.



2.2.6 KFCB AND EXTB ASSEMBLIES

NOTE : Measuring condition of voltages and waveforms in the schematic diagram is follows:
Karaoke mode
Playing the disc contains analog and digital audio signals.

(MIC-E) : AUDIO SIGNAL LINE for ECHO
(MIC) : AUDIO SIGNAL LINE(MIC)
(D) : AUDIO SIGNAL LINE(Digital)
: AUDIO SIGNAL LINE(Lch)

SCH-6

KFCB ASSY
VWV1403

CN901
TO FLKB ASSY CN103 (→SCH-2)
REQ
TDATA
CS
DRDY
RDATA
SCK
A/D
THRU
INT/EXT
MIC ON

CN902
TO EXTB ASSY J401 (→SCH-6)
EXT L
GND
EXT R
CLMIC GND

CN103
TO MAIN ASSY CN304 (→SCH-3)
ANAL
GND
ANAR

J904
TO JACB ASSY CN602 (→SCH-2)
+8V
GND
-8V
MICMIX

IC103 BU4053BCF
ANALOG MULTI-PLEXER

ANALOG Lch LPF
ANALOG Rch LPF
MIC ECHO LPF
IC101 BA4560F
IC102 BA4560F
IC105 BA4560F
IC106 BA4560F

IC104
PM0005A
DIGITAL AUDIO SIGNAL PROCESSOR

IC107
MEMORY
256K DRAM
MB81464-12P

Q101 : DTC124EK
Q102 : 2SD2144S
D103-D105 : DA204K

CN105
TO MAIN ASSY CN303 (→SCH-3)
+8V
GND
-8V
MIC MIX
+5V
XMIC ON

CN106
TO MAIN ASSY CN302 (→SCH-3)
MCK
GND
+5V
DATAI
BCKI
LRCKI
DATAO
BCKO
LRCKO
XRESET
52084-1010

57pin, 64pin
2.5V
0V

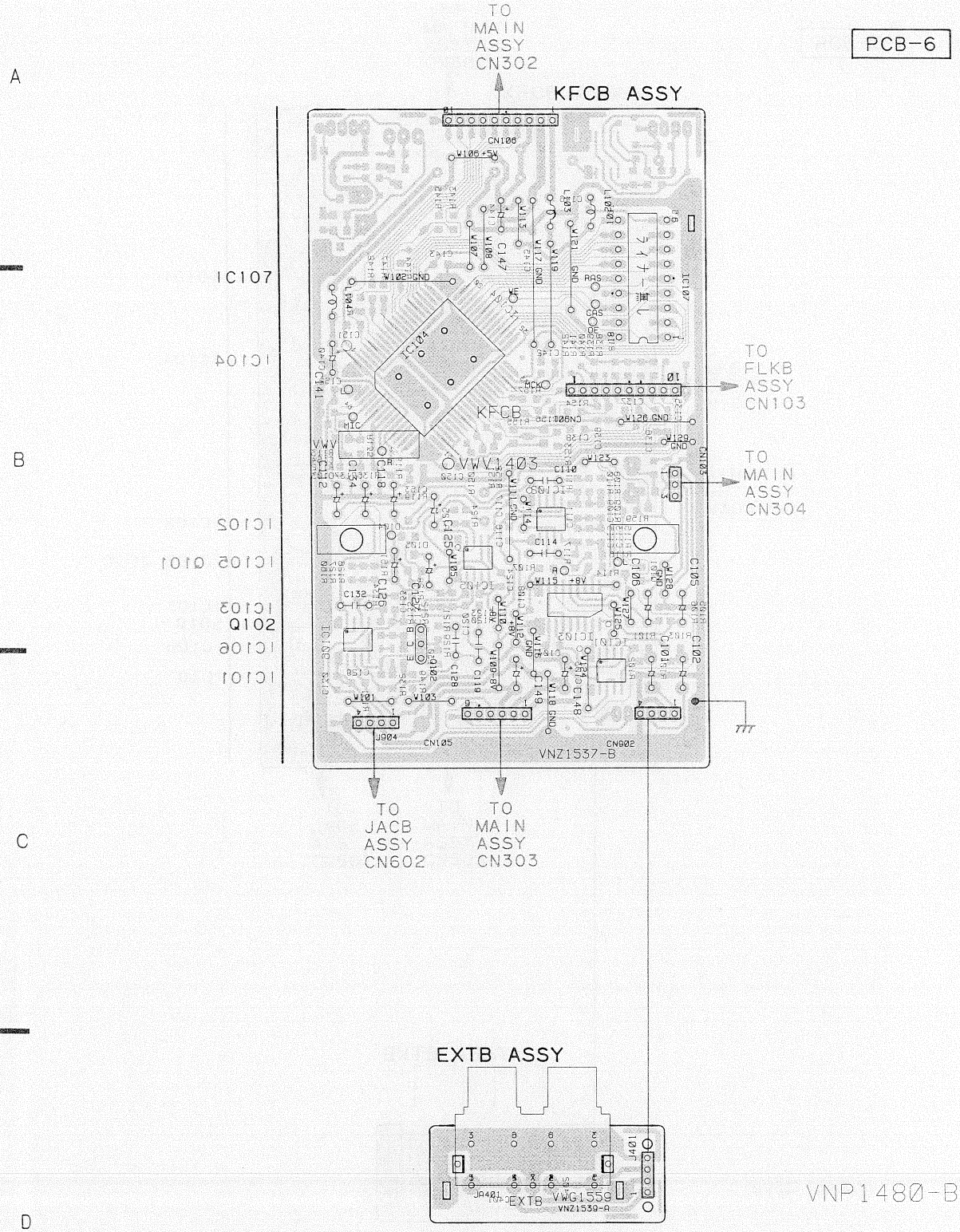
KRAB ASSY
VWM1512

EXTB ASSY
VWG1559

J401
EXT L
GND
EXT R
CLMIC GND
TO KFCB ASSY CN902 (→SCH-6)
JA401 VKB1031
GND CHASSIS GND

● This diagram is viewed from the mounted parts side.

PCB-6



● This diagram is viewed from the foil side.

PCB-6