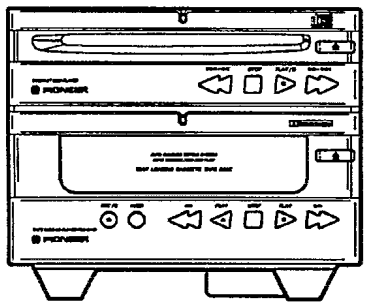
PIONEER®
The Art of Entertainment

Service Manual



ORDER NO.
RRV1227

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TAPE DECK CD PLAYER

PDC-Q180

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

Type	Model	Power Requirement	Remarks
	PDC-Q180		
AU	○	AC power supplied from power transformer's secondary of other system component.	
AEBM	○		

- **This product is a component of a system.**
  For the system composition, packing, accessories, instruction manuals etc., refer to the service manual RRV1229 for X-Q180/KU/CA.
- **This product does not function properly when independent ; to avoid malfunctions, be sure to connect it to the prescribed system component (s), otherwise damage may result.**

CONTENTS

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CHAPTER 1

1. SAFETY INFORMATION

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

WARNING

Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5).
When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

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

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

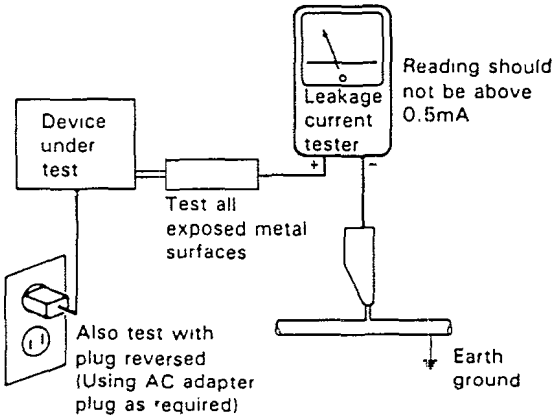
(FOR USA MODEL ONLY)

1. SAFETY PRECAUTIONS

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

LEAKAGE CURRENT CHECK

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



AC Leakage Test

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

2. PRODUCT SAFETY NOTICE

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

Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.
The use of a substitute replacement component which dose not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

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

(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

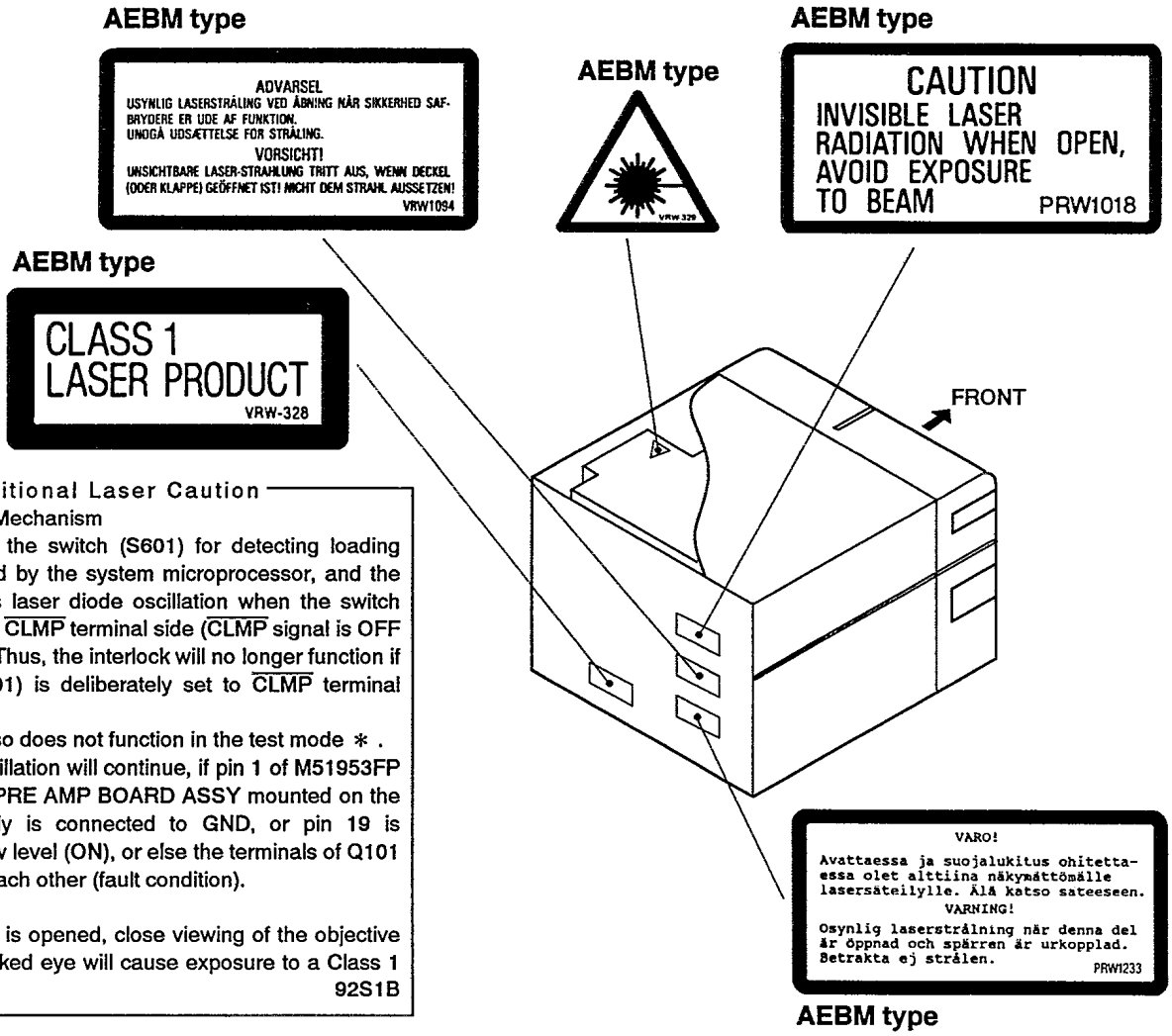
WARNING!
DEVICE INCLUDES LASER DIODE WHICH EMITS INVISIBLE INFRARED RADIATION WHICH IS DANGEROUS TO EYES. THERE IS A WARNING SIGN ACCORDING TO PICTURE 1 INSIDE THE DEVICE CLOSE TO THE LASER DIODE.

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



Additional Laser Caution

1. Laser Interlock Mechanism
   The position of the switch (S601) for detecting loading state is detected by the system microprocessor, and the design prevents laser diode oscillation when the switch (S601) is not on $\overline{\text{CLMP}}$ terminal side ($\overline{\text{CLMP}}$ signal is OFF or high level.). Thus, the interlock will no longer function if the switch (S601) is deliberately set to $\overline{\text{CLMP}}$ terminal side. (low level)
   The interlock also does not function in the test mode ＊ .
   Laser diode oscillation will continue, if pin 1 of M51953FP (IC101) on the PRE AMP BOARD ASSY mounted on the pickup assembly is connected to GND, or pin 19 is connected to low level (ON), or else the terminals of Q101 are shorted to each other (fault condition).

2. When the cover is opened, close viewing of the objective lens with the naked eye will cause exposure to a Class 1 laser beam. 92S1B

＊ Refer to page 1 - 16.

2. SPECIFICATIONS

■ CD player section

Type ..... Compact disc audio system
Usable discs ..... Compact audio discs
Channels ..... 2 channels (stereo)
Program steps ..... 24 steps maximum

■ Cassette deck section

Tracks ..... 4-track, 2-channel stereo
Heads ..... Recording/playback head x 1
Erasing head x 1
Motor ..... DC servo motor x 1
Wow and flutter ..... 0.1 %(WRMS)
0.2 %(DIN)
Frequency response (recorded at –20 dB)
Type II (High/CrO_2) tape ..... 35 Hz—15,000 Hz ±6 dB
Type I (Normal) tape ..... 35 Hz—14,000 Hz ±6 dB
Signal-to-Noise Ratio .....56 dB
Dolby B-type NR on .....10 dB compensation at 5kHz

■ Electrical requirements, etc.

Power requirements
U.S. and Canadian models ..... AC 120 V, 60 Hz
U.K. model ..... a.c. 230 V, 50/60 Hz
Power consumption
U.S. and Canadian models ..... 99 W
U.K. model ..... 256 W

External dimensions

Tape deck CD player ..... 180 (W) x 148 (H) x 238 (D) mm
7-1/16 (W) x 5-13/16 (H) x 9-3/8 (D) in.

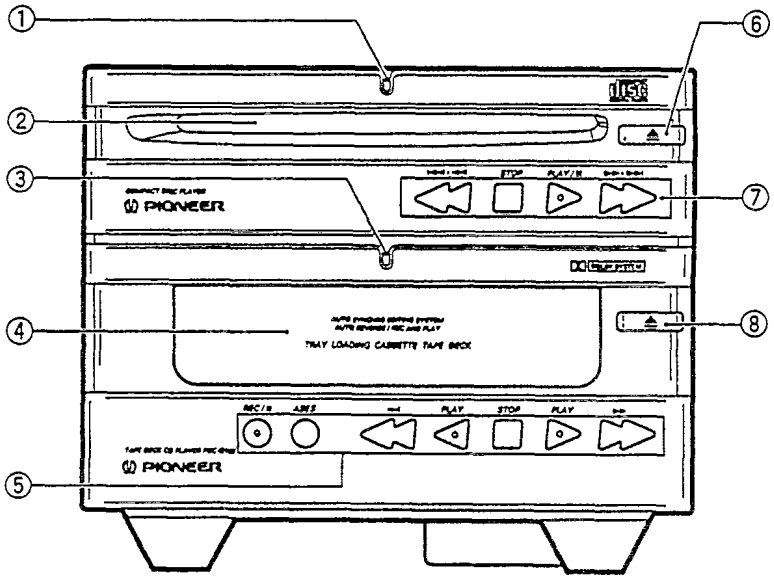
Weight

Tape deck CD player ..... 2.6 kg (5 lb 12 oz)

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

3. PANEL FACILITIES

① **CD clamp indicator**
Lights when a CD is loaded, even in the standby mode. Flashes when a CD is being inserted or removed.
② **CD insertion slot**
③ **Cassette clamp indicator**
Lights when a cassette is inserted, even during standby mode. Flashes during insertion and removal operation.
④ **Cassette tray**
⑤ **TAPE DECK operation buttons**
REC/II: Recording/Pause button/indicator
ASES: A.S.E.S. button
◄◄, ►►: Fast forward/rewind buttons
PLAY: Play buttons/indicators
STOP: Stop button
⑥ **CD eject button (⏏)**
⑦ **CD operation buttons**
I◄◄ ◄◄, ►► ►►I: Manual/Track search buttons
STOP: Stop button
PLAY/II: Play/pause button/indicator
⑧ **Cassette tray open/close button (⏏)**



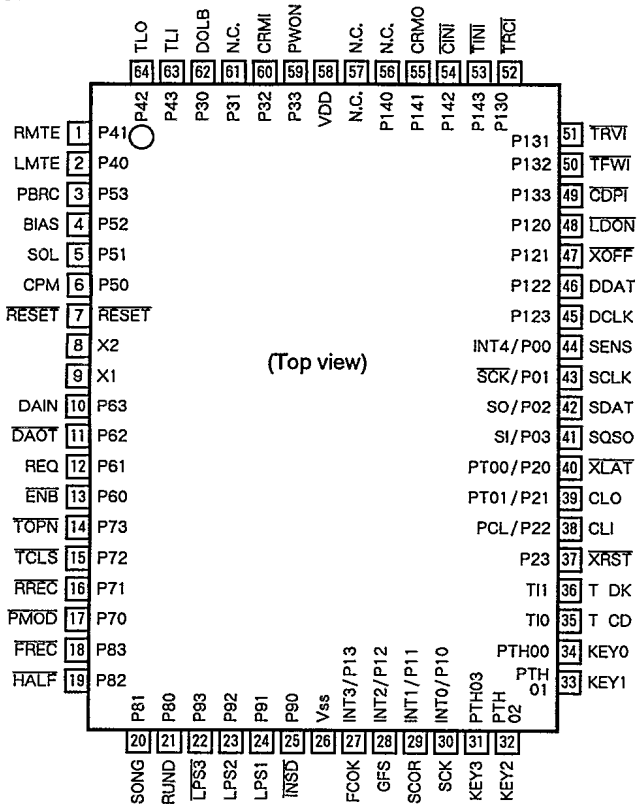
4. IC INFORMATION

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

■ PD4566A (CD UNIT : IC151)

•SYSTEM CONTROL

• Pin Arrangement



• Pin Function

No.	Mark	Pin Name	I/O	Function
1	P41	RMTE	O	REC mute output. (OFF at REC, H : MUTE ON)
2	P40	LMTE	O	Line mute output. (OFF at PLAY, H : MUTE ON)
3	P53	PBRC	O	PB/REC head operating switch output. (L : PB, H : REC)
4	P52	BIAS	O	Bias control output. (L : OFF, H : ON)
5	P51	SOL	O	Solenoid control output. (L : OFF, H : ON)
6	P50	CPM	O	DECK motor operating control output. (L : OFF, H : ON)
7	$\overline{\text{RESET}}$	$\overline{\text{RESET}}$	I	CPU reset. (L : Reset)
8	X1	———	—	Connect pins for the main system clock oscillation. 4.19MHz
9	X2	———	—	
10	P63	DAIN	I	Bus communication serial data input.
11	P62	$\overline{\text{DAOT}}$	O	Bus communication serial data output.
12	P61	REQ	O	Bus communication request output. (H : Request)
13	P60	$\overline{\text{ENB}}$	I	Bus communication transfer permit input.. (L : OK, H : NOT)
14	P73	$\overline{\text{TOPN}}$	I	DECK tray OPEN end SW. (L : ON, H : OFF)
15	P72	$\overline{\text{TCLS}}$	I	DECK tray CLOSE end SW. (L : ON, H : OFF)
16	P71	$\overline{\text{RREC}}$	I	REV side REC possible/impossible judgment SW. (L : Possible, H : Impossible)

No.	Mark	Pin Name	I/O	Function
17	P70	$\overline{\text{PMOD}}$	I	DECK mecha. mode SW. (L : ON, H : OFF)
18	P83	$\overline{\text{FREC}}$	I	FWD side REC possible/impossible judgment SW. (L : Possible, H : Impossible)
19	P82	$\overline{\text{HALF}}$	I	Cassette half presence/absence judgment SW. (L : Presence, H : Absence)
20	P81	SONG	I	Deck audio signal for MS music interval detection. (L : Music interval, H : During music)
21	P80	RUND	I	DECK motor rotating pulse signal input.
22	P93	$\overline{\text{LPS3}}$	I	Clamp end mecha. SW. (L : ON, H : OFF)
23	P92	LPS2	I	Photo SW for disc detection. (Note 1)
24	P91	LPS1	I	
25	P90	$\overline{\text{INSD}}$	I	Slider inside SW. (L : ON, H : OFF)
26	VSS	———	–	GND.
27	P13	FCOK	I	Focus OK input. (L : NG, H : OK)
28	P12	GFS	I	Frame sync. lock input. (L : NG, H : OK)
29	INT1	SCOR	I	Subcode sync. S0+S1 input.
30	INT0	SCK	I	System bus clock input.
31	PTH03	KEY3	I	Key scan analog input.
32	PTH02	KEY2	I	
33	PTH01	KEY1	I	
34	PTH00	KEY0	I	
35	TI0	T CD	I	CD TEST mode requirement input. (Note 2)
36	TI1	T DK	I	DECK TEST mode requirement input. (Not used.)
37	P23	$\overline{\text{XRST}}$	O	LSI reset output. (L : RESET, H : RUN)
38	P22	CLI	O	Disc IN/OUT. (Note 3)
39	P21	CLO	O	
40	P20	$\overline{\text{XLAT}}$	O	LSI control data latch pulse.
41	SI	SQSO	I	Subcode Q data serial input.
42	SO	SDAT	O	LSI control data serial output.
43	SCK	SCLK	O	Serial clock.
44	P00	SENS	I	LSI operating state multi-mode input.
45	P123	DCLK	O	Display data transferring serial clock output.
46	P122	DDAT	O	Display data serial output.
47	P121	$\overline{\text{XOFF}}$	O	LSI clock oscillation control output. (L : OFF, H : ON)
48	P120	$\overline{\text{LDON}}$	O	Laser diode output. (L : ON, H : OFF)
49	P133	$\overline{\text{CDPI}}$	O	CD PLAY indicator output. (L : ON, H : OFF)
50	P132	$\overline{\text{TFWI}}$	O	DECK FWD indicator output. (L : ON, H : OFF)
51	P131	$\overline{\text{TRVI}}$	O	DECK REV indicator output. (L : ON, H : OFF)
52	P130	$\overline{\text{TRCI}}$	O	DECK REC indicator output. (L : ON, H : OFF)
53	P143	$\overline{\text{TINI}}$	O	DECK IN indicator output. (L : ON, H : OFF)
54	P142	$\overline{\text{CINI}}$	O	CD IN indicator output. (L : ON, H : OFF)
55	P141	CRMO	O	Bias equalizer switching output. (L : NORMAL, H : CrO_2)
56	P140	NC	O	N.C. (OPEN)
57	N.C	———	–	N.C.
58	VDD	VDD	–	+5V.
59	P33	PWON	O	Switching power supply control output. (L : OFF, H : ON)
60	P32	CRMI	I	Tape type judgment SW. (L : NORMAL, H : CrO_2)

No.	Mark	Pin Name	I/O	Function
61	P31	NC	O	N.C. (OPEN)
62	P30	DOLB	O	DOLBY B NR switching output. (L : ON, H : OFF)
63	P43	TLI	O	DECK tray IN/OUT. (Note 3)
64	P42	TLO	O	

(Note 1)
Slot-in photo SW

		LPS1(pin 24)	LPS2(pin 23)
No disc		L	L
Disc insert		H	L
Clamp end,	8cm	L	H
	12cm	H	H
Eject end,	8cm	H	L
	12cm	H	L
Disc reload		–	H
Pull out Disc		L	L

(Note 2)
Judge at POWER ON.

TEST | NORMAL

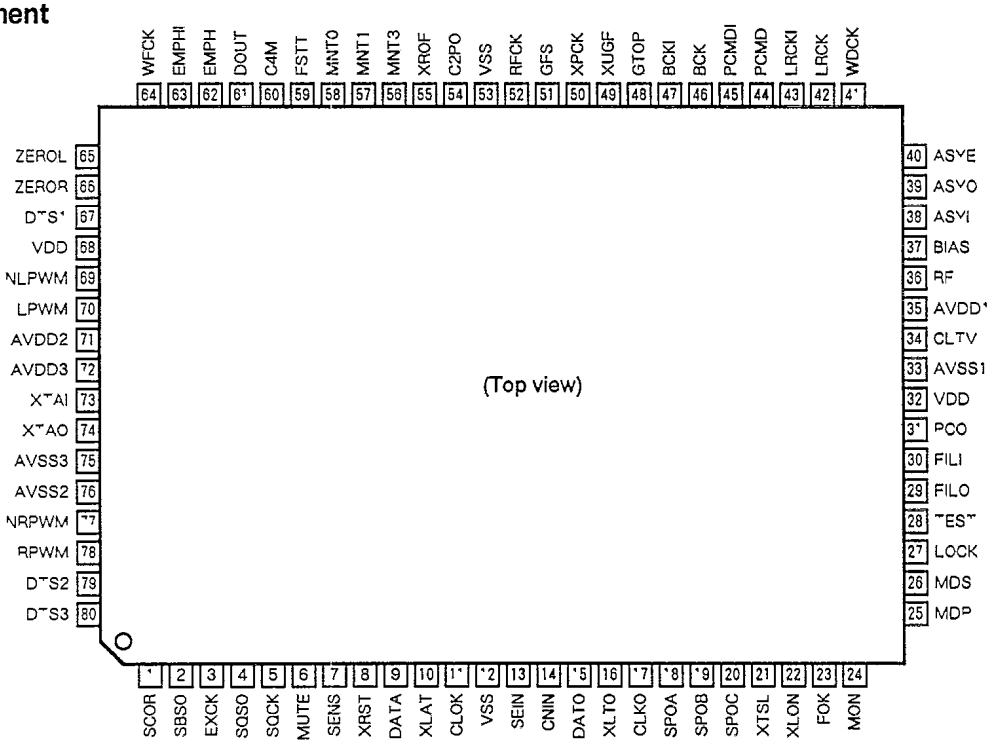
(Note 3)
Loading selector

		CLO(pin 39) /TLO(pin 64)	CLI(pin 38) /TLI(pin 63)
Tray	IN	L	H
	OUT	H	L
	STOP	L	L

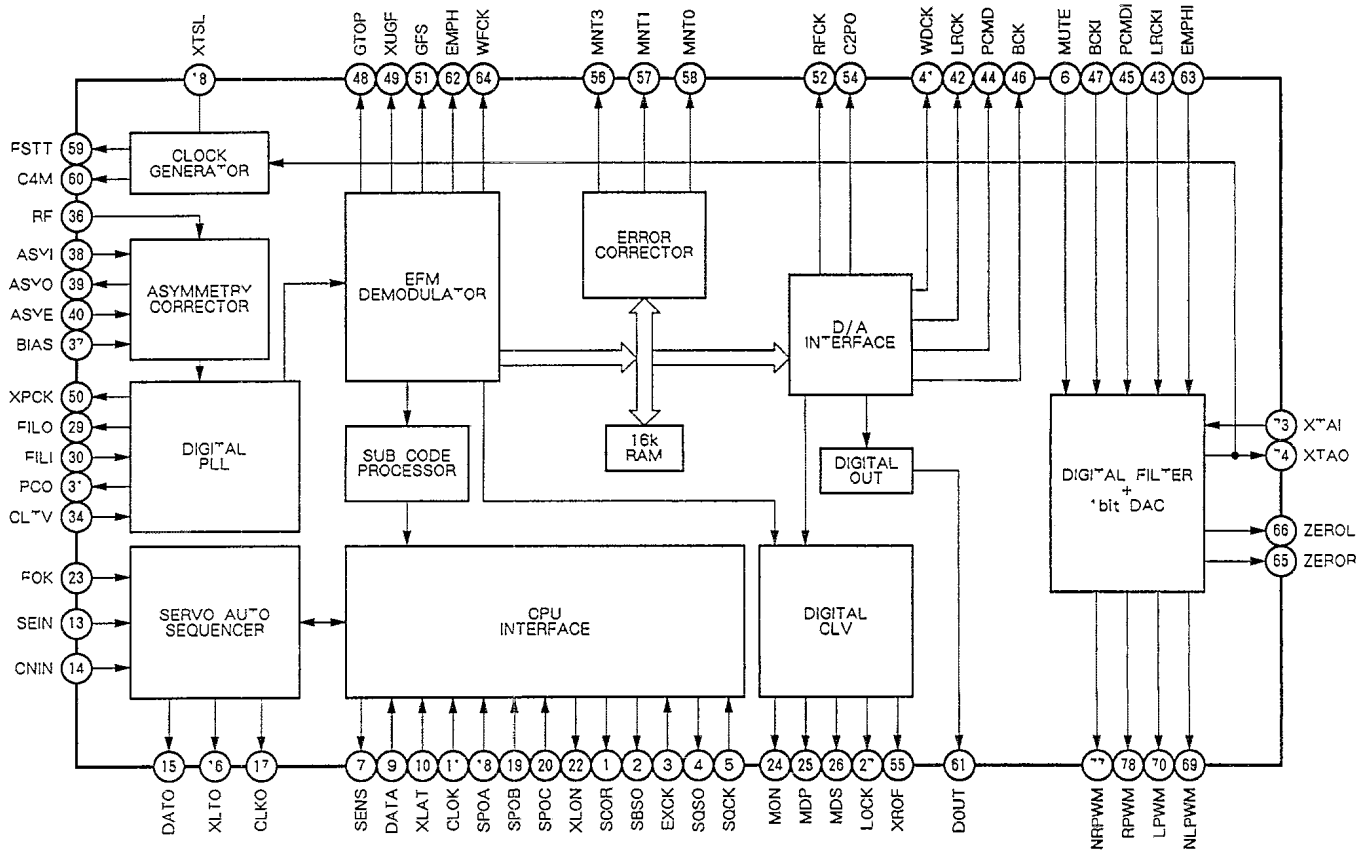
■ CXD2508AQ (CD UNIT : IC801)

•Digital signal processor for CD

• Pin Arrangement



• Block Diagram



• Pin Function

No.	Pin Name	I/O	Function
1	SCOR	O	H when detecting subcode sync. either S0 or S1.
2	SBSO	O	Serial output of SUBP – W.
3	EXCK	I	Clock input for SBSO lead out.
4	SQSO	O	Serial output of SUBQ 80 bit.
5	SQCK	I	Clock input for SQSO lead out.
6	MUTE	I	Mute for H and release for L (DAC section).
7	SENS	O	SENS output to CPU.
8	XRST	I	System reset. Reset for L.
9	DATA	I	Serial data input from CPU.
10	XLAT	I	Latch input from CPU and latch the serial data at falling edge.
11	CLOK	I	Serial data transferring clock input from CPU.
12	VSS	—	GND.
13	SEIN	I	Sens input from SSP.
14	CNIN	I	Count signal siput of track jump.
15	DATO	O	Serial data output to SSP.
16	XLTO	O	Serial data latch output to SSP and latch at falling edge.
17	CLKO	O	Serial data transferring clock output to SSP.
18	SPOA	I	Microcomputer expansion interface. (Input A)
19	SPOB	I	Microcomputer expansion interface. (Input B)
20	SPOC	I	Microcomputer expansion interface. (Input C)
21	XTSL	I	Xtal selection input pin, L when Xtal is 16.9344MHz and H when Xtal is 33.8688MHz.
22	XLON	O	Microcomputer expansion interface. (Output)
23	FOK	I	Focus OK input pin. Use for SENS output and servo auto sequencer.
24	MON	O	ON/OFF control output of spindle motor.
25	MDP	O	Servo control of spindle motor.
26	MDS	O	Servo control of spindle motor.
27	LOCK	O	Sample the GFS with 460Hz. H output when GFS is H and L output when GFS is L for series of eight times.
28	TEST	I	TEST pin. GND at normal use.
29	FILO	O	Filter output for master PLL (sleave=digital PLL).
30	FILI	I	Filter input for master PLL.
31	PCO	O	Charge pump output for master PLL.
32	VDD	—	Digital power supply for DSP.
33	AVSS1	—	Analog GND for DSP.
34	CLTV	I	VCO control voltage input for master PLL.
35	AVDD1	—	Analog power supply for DSP.
36	RF	I	EFM signal input.
37	BIAS	I	Constant-current input of the asymmetry correction circuit.
38	ASYI	I	Comparison voltage input of the asymmetry correction circuit.
39	ASYO	O	EFM full swing output. (L=VSS, H=VDD).
40	ASYE	I	L : Asymmetry correction OFF, H : Asymmetry correction ON.
41	WDCK	O	D/A interface for 48 bit slot and word clock (2FS) .
42	LRCK	O	D/A interface for 48 bit slot and LR clock (FS).
43	LRCKI	I	LR clock input to DAC (48 bit slot).

No.	Pin Name	I/O	Function
44	PCMD	O	D/A interface and serial data (2'SCOMP, MSB fast)
45	PCMDI	I	Audio data input to DAC (48 bit slot).
46	BCK	O	D/A interface and bit clock.
47	BCKI	I	Bit clock input to DAC (48 bit slot).
48	GTOP	O	GTOP output.
49	XUGF	O	XUGF output.
50	XPCK	O	XPLCK output.
51	GFS	O	GFS output.
52	RFCK	O	RFCK output.
53	VSS	—	GND.
54	C2PO	O	C2PO output.
55	XROF	O	XROF output.
56	MNT3	O	MNT3 output.
57	MNT1	O	MNT1 output.
58	MNT0	O	MNT0 output.
59	FSTT	O	2 divided 3 frequency output of pins 73 and 74.
60	C4M	O	4.2336MHz output.
61	DOUT	O	Digital Out output pin.
62	EMPH	O	H when emphasis of playback disc is present and L for absent.
63	EMPHI	I	Deemphasis ON/OFF of DAC. (H : ON, L : OFF)
64	WFCK	O	WFCK(WRITE FRAME CLOCK) output.
65	ZEROL	O	Blank sound data detecting output. "H"(Lch) when detecting blank sound data.
66	ZEROR	O	Blank sound data detecting output. "H" (Rch) when detecting blank sound data.
67	DTS1	I	Test pin 1 for DAC. Normally L.
68	VDD	—	Digital power supply for DAC.
69	NLPWM	O	Lch PWM output. (Negative phase)
70	LPWM	O	Lch PWM output. (Positive phase)
71	AVDD2	—	Power supply for Lch PWM driver.
72	AVDD3	—	Power supply for Xtal.
73	XTAI	I	Xtal oscillation circuit input of 33.8688MHz
74	XTAO	O	Xtal oscillation circuit output of 33.8688MHz
75	AVSS3	—	GND for Xtal.
76	AVSS2	—	GND for PWM driver.
77	NRPWM	O	Rch PWM output. (Negative phase)
78	RPWM	O	Rch PWM output. (Positive phase)
79	DTS2	I	Test pin 2 for DAC. Normally L.
80	DTS3	I	Test pin 3 for DAC. Normally L.

Note:
- PCMD is 2'S complement output of MSB fast.
- GTOP is monitored the protection state of Frame sync. (H : Open the sync. protection window)
- XUGF is frame sync. which is obtained from the EFM signal, is the negative pulse. This signal is former sync. protection.
- XPLCK is made PLL to agree the change point of the clock inversion of EFM PLL, falling edge and EFM signal.
- GFS signal will be H when agreeing with the frame sync. and internal insertion protection timing.
- RFCK is 136 μ period signal which is obtained by Xtal precision.
- C2PO is the signal which indicating the data error state.
- XRAOF signal is generated when 16K RAM is overed the jitter margin of $\pm$ 4F .

5. DISASSEMBLY

• Checking the tape deck operations

1. Remove the bonnnet.
2. Remove two screws Ⓐ which holding the front panel, a earth lead (one screw) from the front panel and the binder which holds lead wires. (See Fig. 5 - 1.)
3. Remove two hooks in the lower position of front panel and pull the front panel towards you. (See Fig. 5 - 4.)

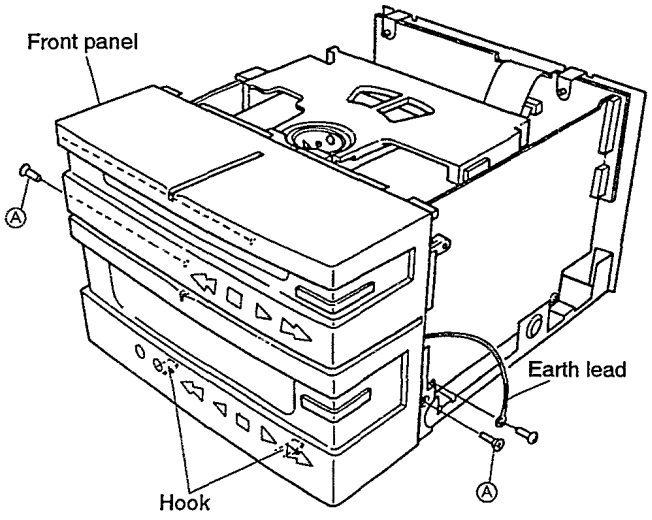


Fig 5 - 1

4. Turn the front panel to the right side. (See Fig. 5 - 2.)

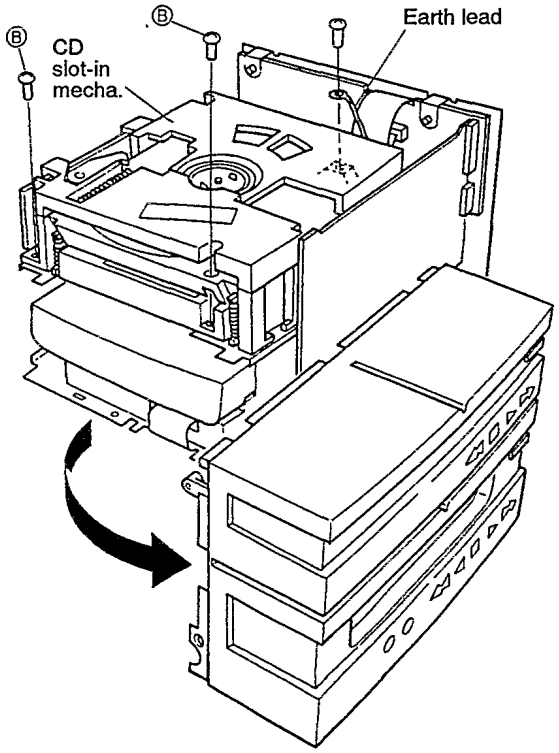


Fig. 5 - 2

5. Remove two screws Ⓑ which holding the the CD slot-in mecha. and a earth lead (one screw). (See Fig. 5 - 2.)
6. Remove the CD slot-in mecha. from the mecha. stay and remove the shield plate. (See Fig. 5 - 3.)
7. In this status check the operations of the tape deck.

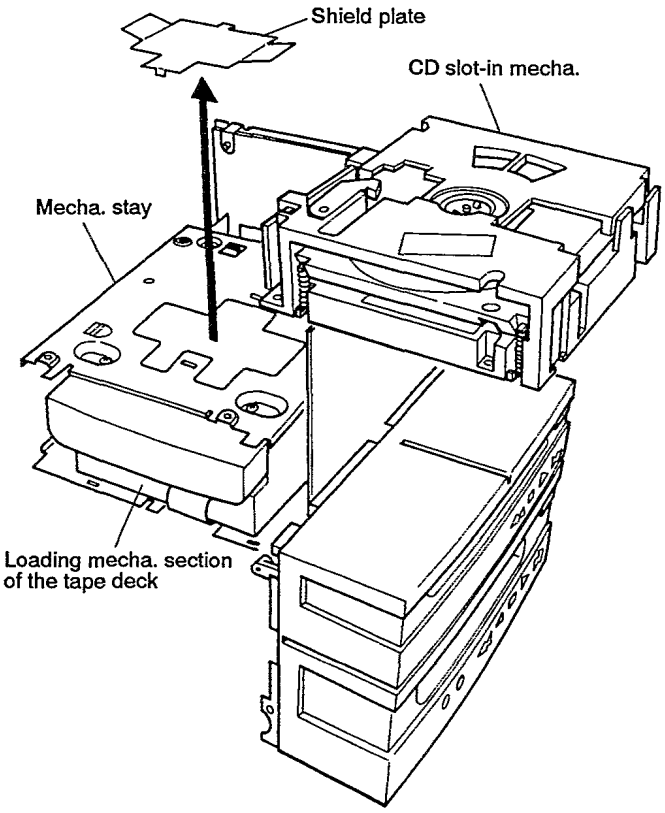


Fig. 5 - 3

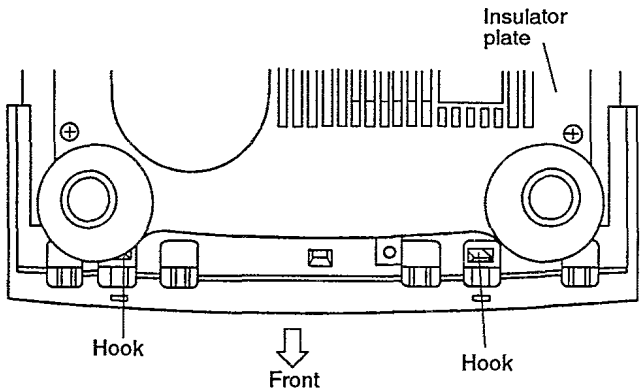


Fig. 5 - 4 Bottom view

6. ADJUSTMENTS

6.1 DECK SECTION

6.1.1 Mechanism Adjustment

1. Adjustment and verification of the tape speed					
No.	Mode	Test tape	Adjustment point	Standard value (playback frequency)	Remarks
1	Normal-speed PLAY	STD-301E (3kHz)	VR551	3.000Hz ± 5Hz (Pins 14 or 15 of CN51 in DENG UNIT.)	

Note : VR551 are located in the CD unit. See Figure 1 Adjusting points in "6.2 CD SECTION".

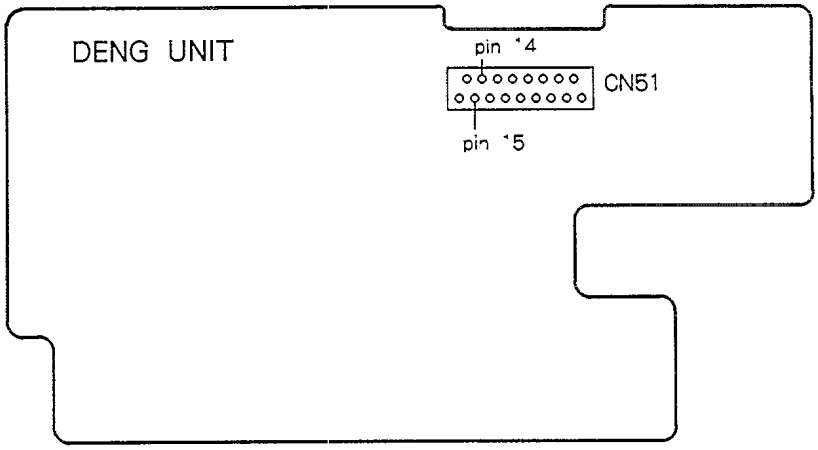


Fig. 1 Measuring points

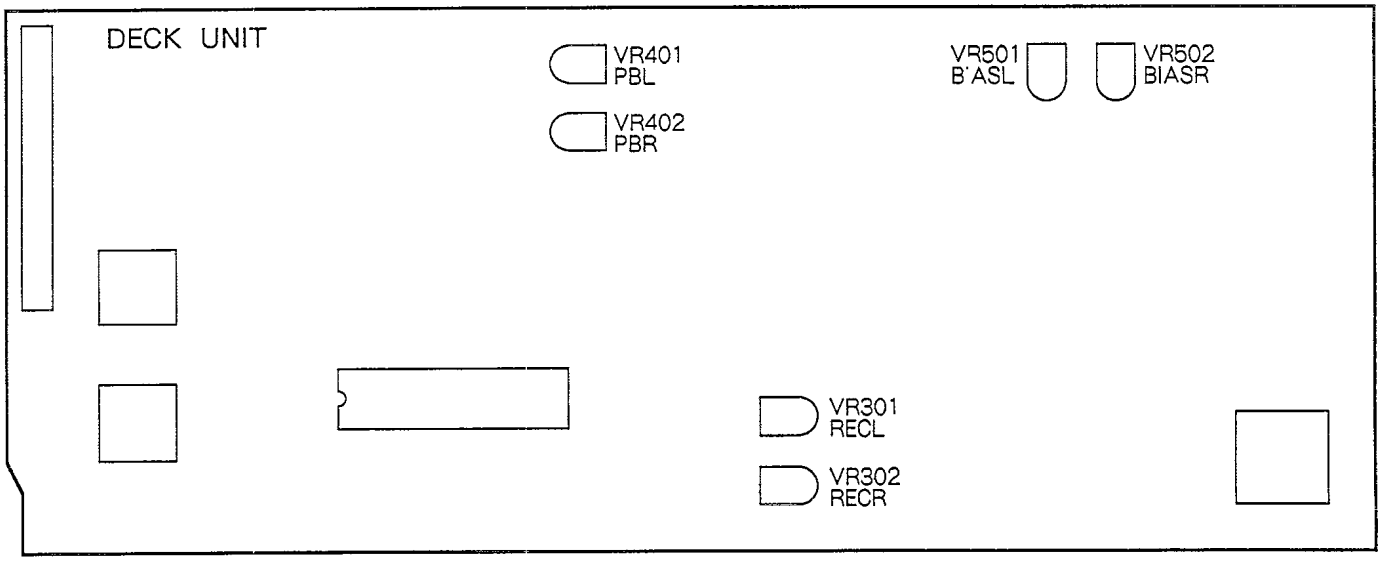


Fig. 2 Adjusting points

6.1.2 Electrical Adjustment

Requirements for adjustments

1. Mechanical adjustments have been completed.
2. The heads have been cleaned and demagnetized.
3. Wait for a few minutes before making the adjustments.
4. The signal level must be 0 dBV = 1 Vrms.
5. Connect a load resistance of 50k ohms (47 to 52k ohms accepted) to the line output connectors. (*1)
6. Set the DOLBY NR switch to OFF unless otherwise specified

Test tapes

For adjustments of the playback system:

	STD – 331E (Fig. 3)
NORMAL blank tape:	STD – 631 or STD – 632
CrO2 blank tape:	STD – 621

Note: The reference recording level of the STD – 331E is 250 nwb/m, which is 4 dB higher than that of STD – 331B (160 nwb/m) in recording. Be sure to check the tape type before adjustment.

- **Playback system**

1. Head angle adjustment
2. Playback level adjustment

- **Recording system**

1. Recording bias adjustment
2. Recording level adjustment

The automatic tape selector mechanism is incorporated.

Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
"DOLBY" and the double – D system ◧ are trademarks of Dolby Laboratories Licensing Corporation.

Note *1: • Connect about 60k ohms when the GGF1148 jig is used.
• The load resistance is not necessary when the prescribed system component is connected.

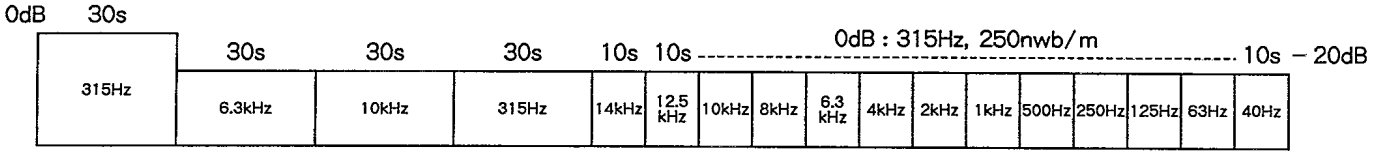


Fig. 3 Test tape STD-331E

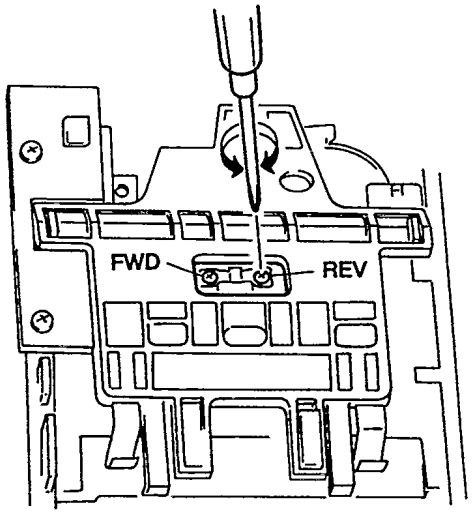


Fig. 4 Head angle adjustment

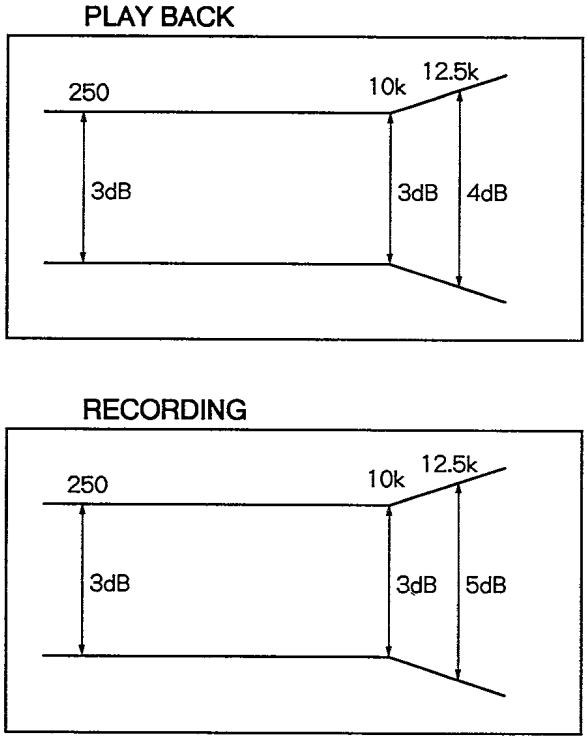


Fig. 5 Frequency response

Playback System

1. Head Angle Adjustment

No.	Mode	Input signal/test tape	Adjusting point	Measuring point	Adjustment value	Remarks
1	PLAY	Play 10 kHz/-20 dB of the STD-331E test tape.	Head-azimuth adjustment screw (Fig. 4)	Pins 14 or 15 of CN51	Maximum playback signal level	
2	STOP	When the adjustment is completed, apply adhesive to secure the screws.				

2. Playback Level Adjustment

No.	Mode	Input signal/test tape	Adjusting point	Measuring point	Adjustment value	Remarks
1	PLAY	Play 315 Hz/0 dB of the STD-331E test tape.	VR401 (L ch)	Pins 14 or 15 of CN51	- 6dBV	This adjustment must be accurate, as it determines the DOLBY level.
			VR402 (R ch)			

Recording System

1. Recording Bias Adjustment

No.	Mode	Input signal/test tape	Adjusting point	Measuring point	Adjustment value	Remarks
1	REC	Apply a signal to the line input from an external oscillator and adjust the oscillator so that the line output is 315 Hz/-26dBV. Then load the STD-631 or STD-632 (NORM) tape.	The output level control of the oscillator	Pins 14 or 15 of CN51	——	Line input: CN51-16 or 17 pin Line output: CN51-14 or 15 pin
2	REC →PLAY	Record the 315 Hz and 10 kHz signals at the above-mentioned level and reproduce the recorded signals.	VR501 (L ch)		Repeat the recording and playback operations for compensation until the playback level of the 10kHz signal is +0.5 dB ± 0.5 dB with respect to that of the 315 Hz signal.	
			VR502 (R ch)			
3	When the adjustment is completed, check the distortion to eliminate underbiasing.					

2. Recording Level Adjustment

No.	Mode	Input signal/test tape	Adjusting point	Measuring point	Adjustment value	Remarks
1	REC	Load the STD-631 or STD-632 (NORM) tape and apply a signal to the line input from an external oscillator. Gradually increase the input level so that the line output is 315 Hz/-10 dBV.	The output level control of the oscillator	Pins 14 or 15 of CN51	——	Line input: CN51-16 or 17 pin Line output: CN51-14 or 15 pin
2	REC →PLAY	Record the above-mentioned input signal and reproduce the recorded signal.	VR301 (L ch)		Repeat the recording and playback operations for compensation until the playback level is -10dBV.	
			VR5302 (R ch)			
3	REC →PLAY	Record the above-mentioned input signal on the STD-621 (CrO_2) tape and reproduce the recorded signal.	Verification		- 10dBV ± 1.5dB	

Note: Line input : CN51-16 pin (L ch) or 17 pin (R ch) , Line output : CN51-14 pin (L ch) or 15 pin (R ch)

6.2 CD SECTION

Adjustment Methods

If a disc player is adjusted incorrectly or inadequately, it may malfunction or not work at all even though there is nothing at all wrong with the pickup or the circuitry. Adjust correctly following the adjustment procedure.

• Adjustment Items/Verification Items and Order

If the specified values cannot be obtained or no adjustment is possible by performing the verifications or adjustments described in steps 1 − 4, the pickup block may be defective.

Step	Item	Test Point	Adjustment Location
1	Focus offset verification	TP1, Pin 6 (FCS. ERR)	None
2	Tracking error balance verification	TP1, Pin 2 (TRK. ERR)	None
3	Pickup radial/tangential direction tilt adjustment	TP1, Pin 1 (RF)	Radial tilt adjustment screw, Tangential tilt adjustment screw
4	RF level verification	TP1, Pin 1 (RF)	None
5	Focus servo loop gain adjustment	TP1, Pin 5 (FCS. IN) TP1, Pin 6 (FCS. ERR)	VR701 (FCS. GAN)
6	Tracking servo loop gain adjustment	TP1, Pin 3 (TRK. IN) TP1, Pin 2 (TRK. ERR)	VR702 (TRK. GAN)

• **Abbreviation table**

FCS. ERR :Focus Error
TRK. ERR :Tracking Error
FCS GAN :Focus Gain
TRK GAN :Tracking Gain
FCS. IN :Focus In
TRK. IN :Tracking In

• Measuring Instruments and Tools

1. Dual trace oscilloscope (10:1 probe)
2. Low-frequency oscillator
3. Test disc (YEDS-7)
4. 8-cm disc (With at least about 20 minutes recording)
5. Low pass filter (39kΩ +0.001 μF)
6. Resistor (100 kΩ)
7. Ball point hexagon wrench (size: 1.5mm) GGK1002
8. Standard tools

● Test Point and Adjustment Variable Resistor Positions

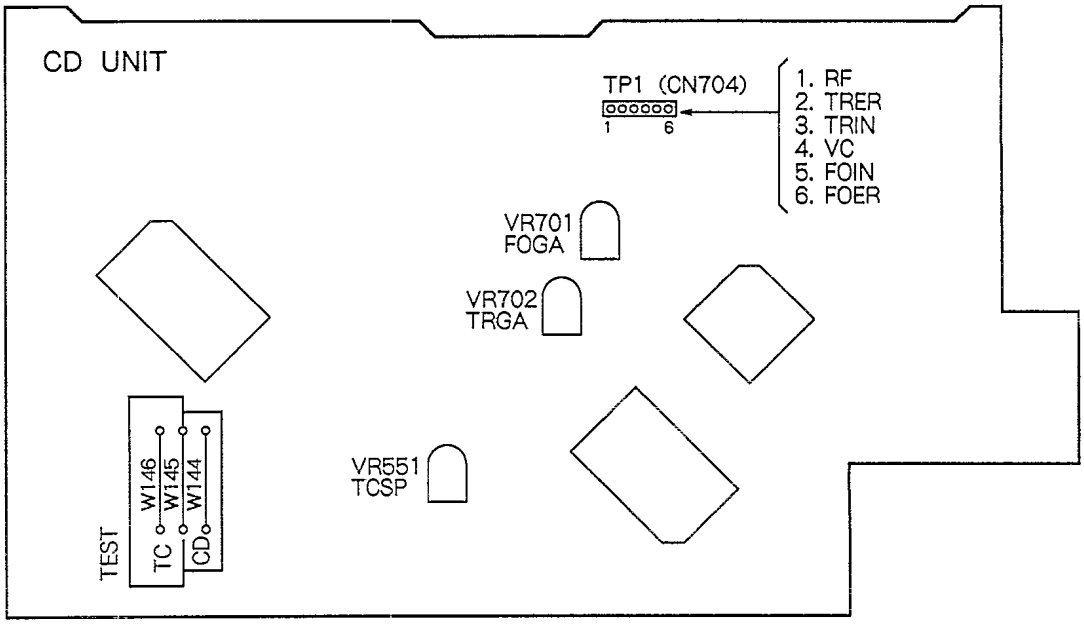


Figure 1 Adjusting points

● Notes

1. Use a 10:1 probe for the oscilloscope.
2. All the knob positions (settings) for the oscilloscope in the adjustment procedures are for when a 10:1 probe is used.
3. GND of the oscilloscope connect to TP1, pin 4 (VC). If GND is shorted to the ground of the player, the player should be damaged.

● Test Mode

These models have a test mode so that the adjustments and checks required for service can be carried out easily. When these models are in test mode, the keys on the front panel work differently from normal. Adjustments and checks can be carried out by operating these keys with the correct procedure. For these models. all adjustments are carried out in test mode.

[Setting these models to test mode]

How to set this model into test mode.

1. Unplug the power cord from the AC socket.
2. Short-circuit jumer wires (W144 and W145) for the test mode (See Figure 1).
3. Plug the power cord back into the AC socket.

When the test mode is set correctly, the display is different from what it usually is when the power is turned on. If the display is still the same as usual, test mode has not been set correctly, so repeat Steps 1 – 3.

[Release from Test Mode]

Here is the procedure for releasing the test mode:

1. Press the STOP key and stop all operations.
2. Unplug the power cord from the AC socket.

[Operations of the keys in test mode]

Code	Key Name	Function In Test Mode	Explanation
TC ▷	TC FWD/PLAY	Closes focus servo	The laser diode is lit up and the focus actuator is lifted up, then lowered slowly and the focus servo is closed at the point where the objective lens is focused on the disc. With the player in this state, if you lightly rotate the stopped disc by hand, you can hear the sound the focus servo. If you can hear this sound, the focus servo is operating correctly. If you press this key with no disc mounted, the laser diode lights up, the focus actuator is pulled up, then the actuator is lowered and raised three times and returned to its original position.
CD ▷/❚❚	CD PLAY/PAUSE	Spindle servo ON	Starts the spindle motor in the clockwise direction and when the disc rotation reaches the prescribed speed (about 500 rpm at the inner periphery), sets the spindle servo in a closed loop. Be careful. Pressing this key when there is no disc mounted makes the spindle motor run at the maximum speed. If the focus servo does not go correctly into a closed loop or the laser light shines on the mirror section at the outermost periphery of the disc, the same symptom is occured.
		Tracking servo close/open	Pressing this key when the focus servo and spindle servo are operating correctly in closed loops puts the tracking servo into a closed loop, displays the track number being played back and the elapsed time on the front panel, and outputs the playback signal. If the elapsed time is not displayed or not counted correctly or the audio is not played back correctly, it may be that the laser is shining on the section with no sound recorded at the outer edge of the disc, that something is out of adjustment, or that there is some other problem. This key is a toggle key and open/close the tracking servo alternately. This key has no effect if no disc is mounted.

Code	Key Name	Function In Test Mode	Explanation
CD ◁◁ • ⏮	CD MANUAL / TRACK SEARCH REV	Carriage reverse (inwards)	Moves the pickup position toward the inner diameter of the disc. When this key is pressed with the tracking servo in a closed loop, the tracking servo automatically goes into an open loop. Since the motor does not automatically stop at the mechanical end point in test mode, be careful with this operation.
CD ▷▷ • ⏭	CD MANUAL / TRACK SEARCH FWD	Carriage forward (outwards)	Moves the pickup position toward the outer diameter of the disc. When this key is pressed with the tracking servo in a closed loop, the tracking servo automatically goes into an open loop. Since the motor does not automatically stop at the mechanical end point in test mode, be careful with this operation.
CD □	CD STOP	Stop	Initializes and the disc rotation stops. The pickup and disc remain where they are when this key is pressed.
CD ⏏	CD EJECT	Disc load in / load out	Load in / load out the disc. This key is a toggle key and load in / load out the disc alternately. (Pickup position is not changed.) When this key is pressed at the disc is turned, load out the disc after the disc is stopped. Pickup position is not changed in this key operation.

[How to play back a disc in test mode]

In test mode, since the servos operate independently, playing back a disc requires that you operate the keys in the correct order to close the servos.
Here is the key operation sequence for playing back a disc in test mode.

TC FWD - PLAY	Lights up the laser diode and closes the focus servo.
⇩	
CD ▷/ ▯▯	Starts the spindle motor and closes the spindle servo.
⇩	
CD ▷ / ▯▯	Closes the tracking servo.

Wait at least 2-3 seconds between each of these operations.

1. Focus Offset Verification

● Objective ● Symptom when out of adjustment	Verify the DC offset for the focus error amp. The model does not focus in and the RF signal is dirty.		
● Measurement instrument connections	Connect the oscilloscope to TP1, Pin 6 (FCS. ERR) and GND is to TP1, Pin 4 (VC). [Settings] 5 mV/division 10 ms/division DC mode	● Player state ● Adjustment location ● Disc	Test mode, stopped (just the Power switch on) None None needed

[Procedure]

Verify the DC voltage at TP1, Pin 6 (FCS. ERR) is 0 ± 50 mV.

Note : If the specified values cannot be obtained or no adjustment is possible by performing the verifications or adjustments described in adjustment items 1 – 4, the pickup block may be defective.

2. Tracking Error Balance Verification

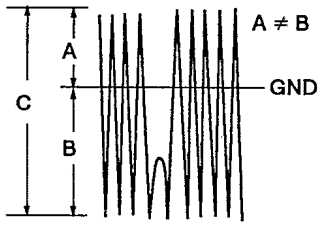
● Objective ● Symptom when out of adjustment	To verify that there is no variation in the sensitivity of the tracking photo diode. Play does not start or track search is impossible.		
● Measurement instrument connections	Connect the oscilloscope to TP1, Pin 2 (TRK. ERR) and GND is to TP1, Pin 4 (VC). This connection may be via a low pass filter. [Settings] 50 mV/division 5 ms/division DC mode	● Player state ● Adjustment location ● Disc	Test mode, focus and spindle servos closed and tracking servo open None YEDS-7

[Procedure]

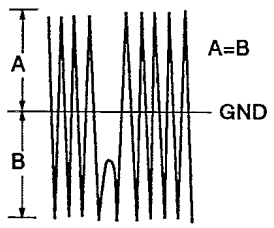
1. Move the pickup to midway across the disc (R=35 mm) with the MANUAL/TRACK SEARCH FWD ▷▷ • ▷▷| or REV |◁◁ • ◁◁ key.
2. Press the TC FWD - PLAY key, then the CD PLAY/PAUSE ▷/ ▯▯ key in that order to close the focus servo then the spindle servo.
3. Line up the bright line (ground) at the center of the oscilloscope screen and put the oscilloscope into DC mode.
4. Supposing that the positive amplitude of the tracking error signal at TP1, pin 2 (TRK ERR) is (A) and the negative amplitude is (B), the following expression is satisfied.

When $A \geqq B$, $\frac{A-B}{C} \times \frac{1}{2} \leqq 0.1$

When $A < B$, $\frac{B-A}{C} \times \frac{1}{2} \leqq 0.1$



When there is a DC component



When there is no DC component

3. Pickup Radial/Tangential Tilt Adjustment

● Objective	To adjust the angle of the pickup relative to the disc so that the laser beams are shone straight down into the disc for the best read out of the RF signals.		
● Symptom when out of adjustment	Sound broken;some discs can be played but not others.		
● Measurement instrument connections	Connect the oscilloscope to TP1, Pin 1 (RF) and GND is to TP1, Pin 4 (VC). [Settings] 20 mV/division 200 ns/division AC mode	● Player state ● Adjustment location ● Disc	Test mode, play Pickup radial tilt adjustment screw and tangential tilt adjustment screw 8 cm disc (With a least about 20 minutes recording)

[Procedure]

1. Press the MANUAL/TRACK SEARCH FWD ▷▷ • ▷▷| or REV |◁◁ • ◁◁ key to move the pickup to the external circumference of the disc.
2. Press the TC FWD - PLAY key, the CD PLAY/PAUSE ▷/ ▯▯ key twice in that order to close the respective servos and put the player into play mode.
3. First, adjust the radial tilt adjustment screw with the hexagon wrench GGK1002 so that the eye pattern (the diamond shape at the center of the RF signal) can be seen the most clearly.
4. Next, adjust the tangential tilt adjustment screw with the hexagon wrench GGK1002 so that the eye pattern (the diamond shape at the center of the RF signal) can be seen the most clearly (Figure 3).
5. Adjust the radial tilt adjustment screw and the tangential tilt adjustment screw again so that the eye pattern can be seen the most clearly. As necessary, adjust the two screws alternately so that the eye pattern can be seen the most clearly.
6. When the adjustment is completed, lock the radial and tangential adjustment screw.

Note : Radial and tangential mean the directions relative to the disc shown in Figure 2.

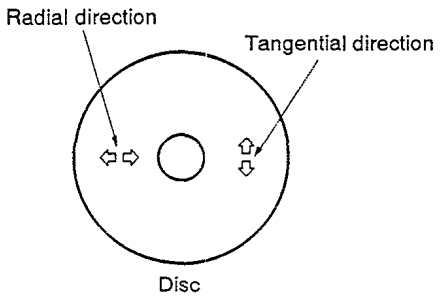
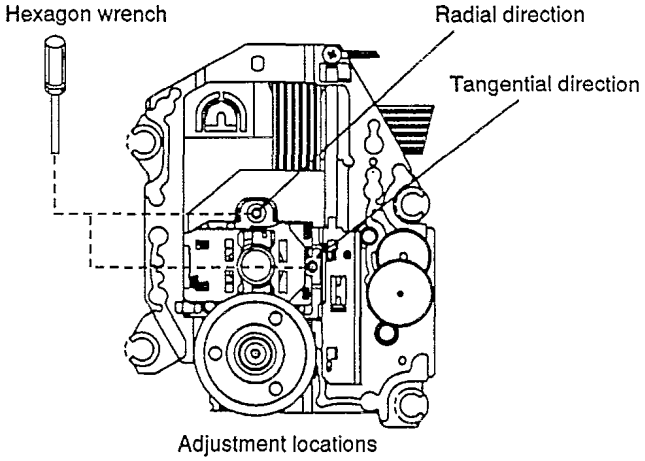


Figure 2



Adjustment locations

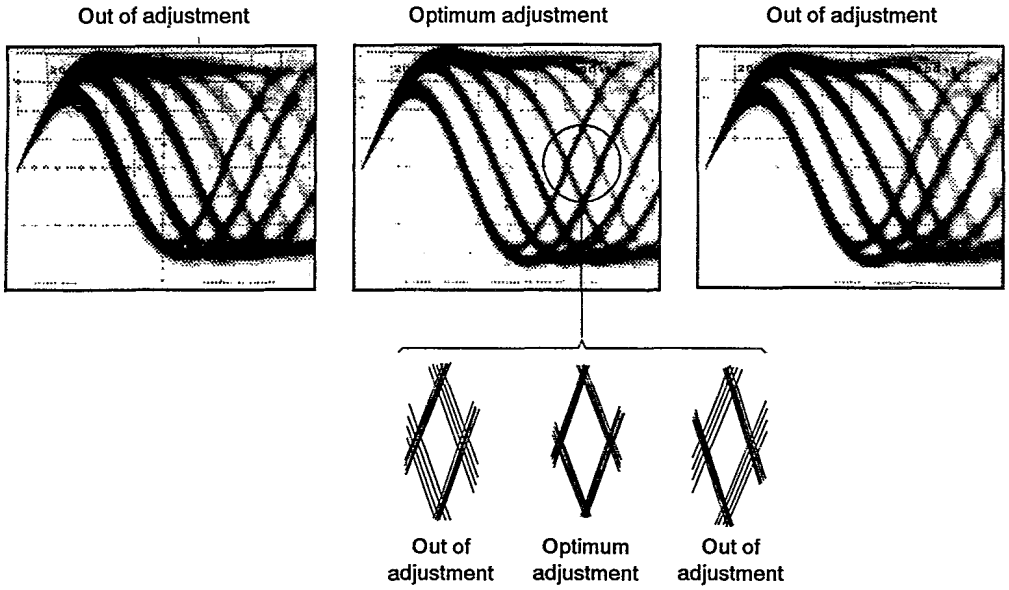


Figure 3. Eye pattern

4. RF Level Verification

● Objective ● Symptom when out of adjustment	To verify the playback RF signal amplitude No play or no search		
● Measurement instrument connections	Connect the oscilloscope to TP1, Pin 1 (RF) and GND is to TP1, Pin 4 (VC). [Settings] 50 mV/division 10 ms/division AC mode	● Player state ● Adjustment location ● Disc	Test mode, play None YEDS-7

[Procedure]

1. Move the pickup to midway across the disc (R=35 mm) with the MANUAL/TRACK SEARCH FWD ▷▷ • ▷▷| or REV |◁◁ • ◁◁ key.
2. Press the TC FWD-PLAY key, the CD PLAY/PAUSE ▷/ ▯▯ key twice in that order to close the respective servos and put the player into play mode.
3. Verify the RF signal amplitude is 1.2 Vp-p ± 0.2 V.

5. Focus Servo Loop Gain Adjustment

● Objective	To optimize the focus servo loop gain.		
● Symptom when out of adjustment	Playback does not start or focus actuator noisy.		
● Measurement instrument connections	See figure 4. [Settings] CH1 CH2 20 mV/division 5 mV/division X-Y mode	● Player state ● Adjustment location ● Disc	Test mode, play VR701(FCS. GAN) YEDS-7

[Procedure]

1. Set the AF generator output to 1.2 kHz and 1 Vp-p.
2. Press the MANUAL/TRACK SEARCH FWD ▷▷ • ▷▷| or REV |◁◁ • ◁◁ key to move the pickup to halfway across the disc (R=35 mm).
3. Press the TC FWD - PLAY key, the CD PLAY/PAUSE ▷/ ▯▯ key twice in that order to close the corresponding servos and put the player into play mode.
4. Adjust VR701(FCS. GAN) so that the Lissajous waveform is symmetrical about the X axis and the Y axis.

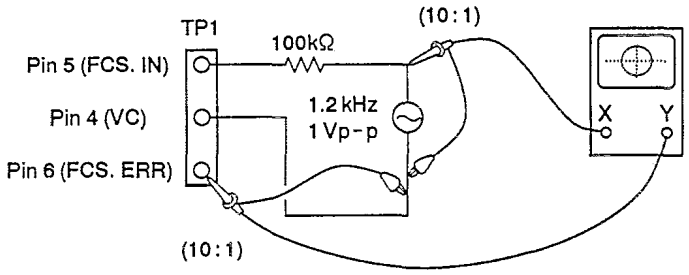
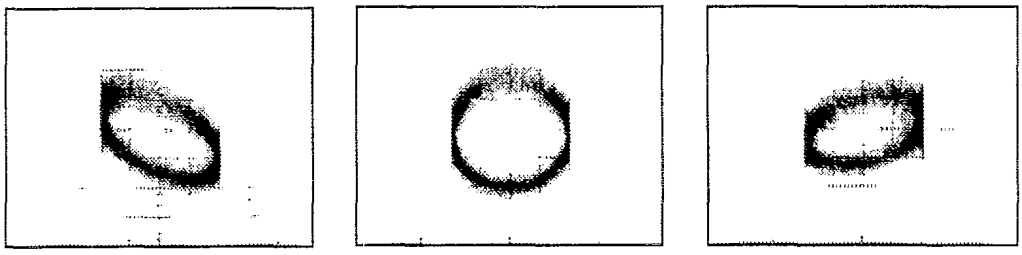


Figure 4

Focus Gain Adjustment



Higher gain | Optimum gain | Lower gain

6. Tracking Servo Loop Gain Adjustment

● Objective	To optimize the tracking servo loop gain.		
● Symptom when out of adjustment	Playback does not start, during searches the actuator is noisy, or tracks are skipped.		
● Measurement instrument connections	See Figure 5. [Settings] CH1 CH2 50 mV/division 20 mV/division X-Y mode	● Player state ● Adjustment location ● Disc	Test mode, play VR702 (TRK. GAN) YEDS-7

[Procedure]

1. Set the AF generator output to 1.2 kHz and 2 Vp-p.
2. Press the MANUAL/TRACK SEARCH FWD ▷▷ • ▷▷| or REV |◁◁ • ◁◁ key to move the pickup to halfway across the disc (R=35 mm).
3. Press the TC FWD-PLAY key, the CD PLAY/PAUSE ▷/ ▯▯ key twice in that order to close the corresponding servos and put the player into play mode.
4. Adjust VR702 (TRK. GAN) so that the Lissajous waveform is symmetrical about the X axis and the Y axis.

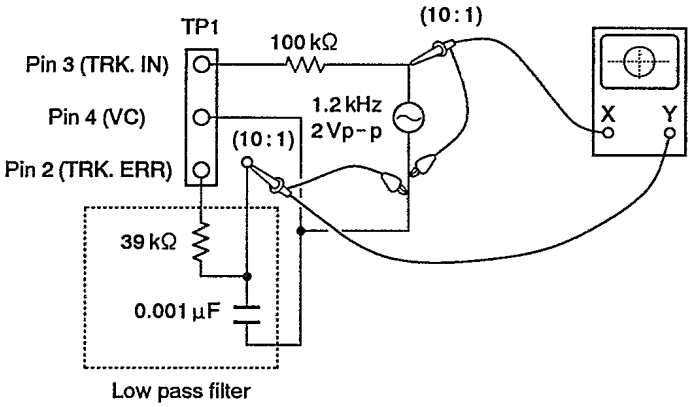
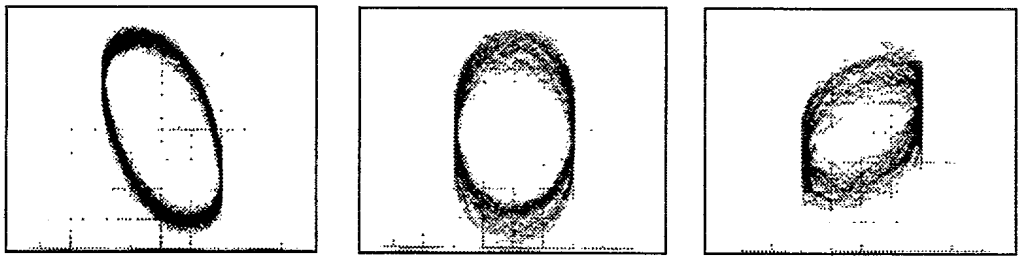


Figure 5

Tracking Gain Adjustment



Higher gain | Optimum gain | Lower gain

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 PDC-Q180/AU and PDC-Q180/AEBM.*

7.1 PACKING (PDC-Q180/AEBM ONLY)

Mark	No.	Description	Part No.
	1	FM antenna assy	ADH1019
	2	Loop antenna assy	ATB1012
	3	Remote control unit (CU-SX090)	AXD7040
	4	Battery cover	AZA7049
NSP	5	Warranty card	ARW-088
NSP	6	Caution tag	ARW7003
NSP	7	Battery (R03,AAA)	VEM-022
NSP	8	Polyethylene bag	Z21-019
	9	CT protector F	AHA7031
	10	CT protector R	AHA7032
	11	Packing case	AHD7122
	12	Mirror mat sheet	Z23-017

7.2 EXTERIOR

(1) CONTRAST OF PDC-Q180/AU AND PDC-Q180/AEBM

PDC-Q180/AU and PDC-Q180/AEBM have the same construction except for the following :

Mark	No.	Symbol & Description	Part No.	
			PDC-Q180/AU	PDC-Q180/AEBM
NSP	1	CD UNIT	AWZ7498	Not used
	1	CD UNIT	Not used	AWZ7485
	2	DECK UNIT	AWZ7499	AWZ7486
NSP	3	DENG UNIT	AWZ7500	Not used
	3	DENG UNIT	Not used	AWZ7487
	20	Rear panel CT	ANC7181	ANC7180
	66	65 label	ORW1069	Not used
	68	Caution label HE	Not used	PRW1233
NSP	69	Caution label (F)	Not used	VRW-328
	70	Caution label (G)	Not used	VRW-329
	71	Caution label	Not used	VRW1094
	72	Caution label	Not used	PRW1018

(2) PARTS LIST FOR PDC-Q180/AU

Mark	No.	Description	Part No.
NSP	1	CD UNIT	AWZ7498
	2	DECK UNIT	AWZ7499
NSP	3	DENG UNIT	AWZ7500
	4	TCSW UNIT	AWZ7700
NSP	5	CDSW UNIT	AWZ7701
NSP	6	EJSW UNIT	AWZ7477
NSP	7	LED UNIT	AWZ7478
NSP	8	REG UNIT	AWZ7479
	9	Connnection cable 17P	ADE7005
	10	Connector assy 5P	ADX7035
	11	2mm pitch connector assy 5P	ADX7036
	12	Lever switch	DSK1003
NSP	13	2mm pitch parallel wire 13P	D20PYY1330E
	14	DC motor / 0.75W	PXM1010
	15	Mecha. UNIT	RYM1236
	16	Rubber sheet	AEB7019
	17	Insulator plate CT	AMR7016
	18	Barrier	AMR7032
NSP	19	Chassis CT	ANA7011
	20	Rear panel CT	ANC7181
	21	Mecha. stay	AND7000
	22	Shield plate	ANK7005
NSP	23	CD slot-in mecha.	AXA-014
	24	Motor pulley	PNW1634
	25	Earth SP	RBH1280
	26	Plate holder SP	RBH1377
	27	Half pressure spring	RBK1037
	28	Drive belt	REB1250
	29	Plate	RNE1755
	30	Clamp arm	RNK1666
	31	Pulley gear	RNK2033
	32	Drive gear	RNK2034
	33	Plate holder L	RNK2035
	34	Loading base	RNK2036
	35	Tray	RNK2037
	36	Cassette plate	RNK2038
	37	Plate holder R	RNK2039
	38	Eject knob	AAD7082
	39	CD knob assy	AAD7090
NSP	40	Play cap	AAD7084
NSP	41	CD knob	AAD7089
NSP	42	Indicator lens	AAK7085
	43	TCknob assy	AAD7092
NSP	44	REVcap	AAD7085

Mark	No.	Description	Part No.
NSP	45	TC knob	AAD7091
	46	Center lens	AAK7081
	47	Inner panel CD	AAK7143
	48	Inner panel TC	AAK7144
	49	Tray panel	AAK7145
	50	Front panel CT assy	AMB7136
NSP	51	Front panel CT	AMB7123
NSP	52	Cover unit	AWL7010
	53	Bonnet	ANE7034
	54	Screw	BBZ26P050FZK
	55	Screw	BBZ26P060FMC
	56	Screw	BBZ30P060FMC
	57	Screw	BBZ30P060FNI
	58	Screw	BBZ30P080FZK
	59	Screw	BBZ30P120FMC
	60	Screw	BMZ26P040FMC
	61	Screw	CBZ30P060FMC
	62	Screw	IPZ20P080FMC
	63	Binder	Z09-056
	64	Plate	AND7001
NSP	65	Front panel CT assy	AMB7199
	66	65 label	ORW1069
NSP	67	Label	VRW-386

7.3 MECHA. UNIT SECTION

Mark	No.	Description	Part No.
	1	PLUNGER	RLA1288
	2	PCB CONTROL BLK	RXA1624
	3	PUSH SW	RSG1018
	4	SPLF	RSN1023
	5	PHOTO-TRANSISTOR	SPI33534FG
	6	MTR MAIN BLK	RXM1078
	7	SOLENOID BLK	RXP1021
	8	CHASSIS BASE BLK	RXA1626
	9	SP BRAKE	RBH1387
	10	MAIN BELT	REB1157
	11	F/R BELT	REB1254
	12	LEVER BRAKE	RNK2071
	13	F/W ASSY	RXA1428
	14	ROLLER PINCH BLK R	RXA1628
	15	ROLLER PINCH BLK L	RXA1629
	16	CLUTCH ASSY BLK	RXA1631
	17	SCREW TT 2 × 13 ZN	RBA1113
	18	WASHER 2.1 × 0.25 T	RBF1038
	19	SP REEL(L)	RBH1388
	20	SP REEL(R)	RBH1389
	21	CAM SP	RBH1393
	22	SPACER	RLA1286
	23	LEVER F/R	RNE1782
	24	REEL FEATHER	RNK2072
	25	REEL BASE	RNK2073
	26	PLAY GEAR(A)	RNK2074
	27	FF GEAR(A)	RNK2075
	28	F/R PULLEY	RNK2076
	29	CLUTCH ASSY BLK	RXA1632
	30	WASHER	WA17D040D025
	31	WASHER	WA23F060M040
	32	SCREW	PCZ20P040FMC
	33	SCREW TT 2.0 × 5 ZN	RBA1077
	34	SPRING HB	RBH1390
	35	HEAD BASE	RNE1783
	36	PLATE HD BLK	RXA1657
	37	HD PCB 5P	RXA1635
	38	WASHER 2.0 × 0.3	RBE1009
	39	SP ARM PLAY	RBH1392
	40	PLATE SLIDE	RNE1785
	41	CAM GEAR	RNK2078
	42	ARM PLAY	RNK2079
	43	SP CASSETTE	RNE1786
	44	SCREW	BMZ26P040FZK
	45	WASHER	WA26D045D025
	46	WASHER	WA26D047D050
	47	STOP RING	YE15FUC

7.4 CD SLOT-IN MECHA. SECTION

Mark	No.	Description	Part No.
NSP	1	SENSOR PCB assy	AWZ7328
NSP	2	LED PCB assy	AWZ7329
NSP	3	SW PCB assy	AWZ7330
NSP	4	MOTOR PCB assy	AWZ7331
	5	Centering plate spring	ABH7035
	6	Lock lever spring	ABH7019
	7	Clamp spring	ABH7020
	8	Rack spring	ABH7021
	9	P spring	ABH7022
	10	Roller holder spring	ABH7023
	11	Motive spring B	ABH7024
	12	Cam plate spring	ABH7025
	13	Belt A	AEB7012
	14	Silence washer	AEB7018
	15	Pin	ALA7005
	16	Mecha. base	ANW7022
	17	Disc plate	ANW7023
	18	Centering plate	ANW7024
	19	Clamper holder	ANW7025
	20	Roller holder	ANW7026
	21	Gear holder	ANW7027
	22	Drive rack	ANW7028
	23	Lock lever	ANW7029
	24	Motive lever	ANW7030
	25	Cam plate	ANW7031
	26	Gear pulley	ANW7032
	27	Gear A	ANW7033
	28	Gear B	ANW7034
	29	Gear C	ANW7035
	30	Gear D	ANW7036
	31	Drive gear	ANW7037
	32	Motive plate	ANW7038
	33	Clamper	ANW7044
	34	Roller assy L	AXA7019
	35	Roller assy R	AXA7020

Mark	No.	Description	Part No.
	36	Float screw	PBA1048
NSP	37	H spacer	PEB1249
	38	Clamp magnet (Ferrite)	PMF1014
	39	Yoke	PNB1216
	40	Motor pulley	PNW1634
NSP	41	Motor	PXM1002
NSP	42	Servo mecha. assy SL	AXA7017
	43	2mm pitch connector assy 4P	PDE1238
	44	Float rubber	PEB1014
	45	Float rubber	PEB1132
	46	Screw	BMZ20P040FMC
	47	Screw	PPZ30P060FMC
	48	Washer	WT12D032D025
	49	• • • • •	
	50	Washer	WT17D034D025
	51	Motor assy	AEA7000
NSP	52	MECHA. PCB assy	PWX1192
	53	Earth lead unit /300V	PDF1104
	54	Guide bar	PLA1094
NSP	55	Gear holder	PNB1303
	56	Disc table	PNW1608
	57	Gear 1	PNW2052
	58	Gear 2	PNW2053
	59	Gear 3	PNW2054
	60	Pinion gear	PNW2055
	61	Flexible holder	PNW2057
	62	Carriage base	PNW2445
NSP	63	Carriage DC motor /0.3W	PXM1027
	64	Screw	BBZ26P060FMC
	65	Screw	BPZ20P060FMC
	66	Screw	BPZ26P100FMC
	67	Screw	JFZ17P025FZK
	68	Screw	JFZ20P030FNI
	69	D.C.motor assy	PEA1235
	70	Carriage DC motor assy	PEA1246
	71	Pickup assy	PEA1291
	72	AV sheet	AEB7021
	73	Disc plate sheet	AEB7022

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%).

560 Ω → 56 × 10¹ → 561 ····· RD1/8PM 5 6 1 J
47k Ω → 47 × 10³ → 473 ····· RD1/4PS 4 7 3 J
0.5 Ω → 0R5 ····· RN2H 0 R 5 K
1 Ω → 010 ····· RS1P 0 1 0 K

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

5.62k Ω → 562 × 10¹ → 5621 ····· RN1/4PC 5 6 2 1 F

Mark	No.	Description	Part No.
LIST OF ASSEMBLIES			
NSP		MOTH ASSY (PDC-Q180/AU)	AWM7145
NSP		MOTH ASSY (PDC-Q180/AEBM)	AWM7144
NSP		├ CD UNIT (PDC-Q180/AU)	AWZ7498
		├ CD UNIT (PDC-Q180/AEBM)	AWZ7485
		├ DECK UNIT (PDC-Q180/AU)	AWZ7499
		├ DECK UNIT (PDC-Q180/AEBM)	AWZ7486
NSP		├ DENG UNIT (PDC-Q180/AU)	AWZ7500
		├ DENG UNIT (PDC-Q180/AEBM)	AWZ7487
		├ TCSW UNIT	AWZ7700
NSP		├ CDSW UNIT	AWZ7701
NSP		├ EJSW UNIT	AWZ7477
NSP		├ LED UNIT	AWZ7478
NSP		└ REG UNIT	AWZ7479
NSP		SL MECHA. PCB ASSY	AWX7007
NSP		├ SENSOR PCB ASSY	AWZ7328
NSP		├ LED PCB ASSY	AWZ7329
NSP		├ SW PCB ASSY	AWZ7330
NSP		└ MOTOR PCB ASSY	AWZ7331
NSP		MECHA. PCB ASSY	PWX1192

CD UNIT

Althrough AWZ7498 and AWZ7485 are different in part number, they consist of the same components.

SEMICONDUCTORS

	IC701	CXA1372Q
	IC801	CXD2508AQ
	IC702, IC703	LA6520
	IC852	NJM4558M
	IC151	PD4566A
	Q863, Q864	2SA1037K
	Q551, Q552	2SA1515
	Q191	2SC2412K
	Q851	2SK246
	Q553, Q801, Q861, Q862	DTA124EK
	Q151-Q154	DTC124EK
	Q554, Q555	DTC143EK
	D151-D158, D191, D551-D556	1SS254
	D801, D851	1SS254
	D557	MTZJ4.7B
	D192	MTZJ5.1B

Mark	No.	Description	Part No.
COILS			
		L801	LAU100J
		L821	LAU1R2J
CAPACITORS			
		C851	CCSQCH100D50
		C863-C866	CCSQCH101J50
		C821	CCSQCH220J50
		C871-C874	CCSQCH271J50
		C861, C862	CCSQCH391J50
		C717, C852	CCSQSL102J50
		C701	CCSQSL561J50
		C191	CEJA010M50
		C155	CEJA100M16
		C706, C733, C811	CEJA101M10
		C551	CEJA101M16
		C553, C731, C732, C741, C742	CEJA330M16
		C881, C882	CEJA470M6R3
		C704, C708	CEJA4R7M50
		C867, C868	CEJANP2R2M50
		C805	CEJAR47M50
		C154	CKSQYB103K50
		C803	CKSQYB152K50
		C716	CKSQYB332K50
		C151-C153	CKSQYB681K50
		C575, C707, C710, C713, C715	CKSQYF103Z50
		C720-C726, C804	CKSQYF103Z50
		C702, C703, C705, C709, C801	CKSQYF104Z50
		C807, C853	CKSQYF104Z50
		C714, C719	CKSQYF333Z50
		C718	CKSQYF472Z50
		C192, C802	CKSQYF473Z50
RESISTORS			
		R553	RA5T472J
		R554	RA5T473J
		R561	RD1/6PM102J
		R565	RD1/6PM471J
		R562	RD1/6PM561J
		VR551 (4.7kΩ)	RCP1020
		VR701 , VR702 (22kΩ)	RCP1046
		Other Resistors	RS1/10S□□□J

Mark	No.	Description	Part No.
OTHERS			
	CN701	CONNECTOR (12P)	12FMZ-AST
	CN702	CONNECTOR (4P)	173979-4
	CN571	CONNECTOR (5P)	173979-5
	CN703	6P JUMPER CONNECTOR	52147-0610
	CN155	8P JUMPER CONNECTOR	52147-0810
	CN551	13P JUMPER CONNECTOR	52147-1310
	CN154	7P JUMPER CONNECTOR	52151-0710
	CN153	CONNECTOR (8P)	TUC-P08X-B1
	CN152	CONNECTOR (15P)	TUC-P15X-B1
	X151	CERAMIC RESONATOR(4.19MHz)	VSS1014
	X851	CRYATAL RESONATOR(33.8688MHz)	ASS7000
	PCB BINDER		VEF1008
	CN704	6P SIDE POST	VKN-004

DECK UNIT

Althrough AWZ7499 and AWZ7486 are different in part number, they consist of the same components.

SEMICONDUCTORS

	IC251	CXA1101P
	IC301 , IC401 , IC651	NJM4558M
	Q504	2SA1515
	Q201, Q202	2SC1740SLN
	Q206, Q207	2SC2412K
	Q501, Q502	2SD1302
	Q203, Q204, Q301, Q302, Q503	2SD2144S
	Q401, Q402	2SK373
	Q205, Q251	DTA114EK
	Q252, Q407, Q506	DTA143EK
	Q303, Q304, Q403-Q406	DTC114TK
	Q505	DTC143EK
	D201, D202, D401-D406	1SS254
	D502-D504, D651, D652	1SS254

COILS AND FILTERS

	L502	LFA121K
	L301, L302	LTA392J
	L501	RTD1065
	L311, L312	RTF1004
	F201, F202	RTF1209

CAPACITORS

	C501, C502	CCCSL101K500
	C317, C318	CCCSL221K500
	C401, C402	CCSQCH100D50
	C405, C406, C652	CCSQCH101J50
	C403, C404, C654	CCSQCH271J50
	C315, C316	CCSQSL681J50
	C203, C301, C302, C653	CEAS010M50
	C255	CEAS100M16
	C409, C410	CEAS100M50
	C313, C314	CEAS2R2M50
	C303, C304, C417, C418	CEAS330M16
	C322, C323, C413, C414	CEAS470M16
	C257	CEAS4R7M50
	C655	CEASR22M50
	C206	CEASR33M50
	C321	CEASR47M50
	C204, C259, C260	CEJA010M50
	C205, C253	CEJA100M16
	C510	CEJA100M35
	C251, C252	CEJA101M10
	C511	CEJA470M16
	C504, C505	CEJA470M6R3
	C258	CEJA4R7M50
	C254, C256	CEJAR68M50
	C508, C509	CFTXA332J50
	C507	CFTXA472J50
	C201, C202	CFTYA103J50
	C311, C312	CKSQYB222K50
	C307, C308	CKSQYB393K50
	C651	CKSQYF473Z50
	C506	CQMA223J50
	C305, C306	CQMA273K50
	C407, C408	CQMA682J50
	C309, C310	CQMA683J50
	C503	CQPA822J100

RESISTORS

	R501	RD1/2VM010J
	R505	RD1/2VM470J
	R212	RD1/6PM102J
	R215	RD1/6PM103J
	R502, R503	RD1/6PM153J
	R251, R252	RD1/6PM220J
	R221	RD1/6PM222J
	R421	RD1/6PM473J
	R504	RD1/6PM4R7J
	R509	RD1/6PM682J
	R331, R332	RD1/6PM820J
	VR401 , VR402 (4.7kΩ)	RCP1020
	VR301 , VR302 (22kΩ)	RCP1046
	VR501 , VR502 (220kΩ)	RCP1049
	Other Resistors	RS1/10S□□□J

OTHERS

	CN401 KR CONNECTOR	B5B-PH-K-E
	CN204 CONNECTOR (15P)	TUC-P15X-B1
	PCB BINDER	VEF1008
	KN301 , KN302 EARTH METAL FITTING	VNF1084

DENG UNIT

Althrough AWZ7500 and AWZ7487 are different in part number, they consist of the same components.

SEMICONDUCTORS

⚠	IC22	NJM79M05FA
	Q22	2SA1037K
	Q24, Q32	2SA1515
	Q21, Q31	2SC2412K
	Q25	2SC3377
⚠	D21-D24	11ES2
	D31	MTZJ3.6B

Mark	No.	Description	Part No.
CAPACITORS			
	C25		CEAS010M50
	C23, C24		CEAS101M10
	C31		CEAS220M50
⚠	C22		CEAS222M16
	C26		CEAS330M16
⚠	C27		CEAS330M35
⚠	C21		CEAS332M16
	C11, C12		CKSQYF103Z50
RESISTORS			
	R33		RD1/6PM471J
	Other Resistors		RS1/10S□□□J
OTHERS			
	CN53	CONNECTOR (8P)	TUC-P08P-B1
	CN52, CN54	CONNECTOR (15P)	TUC-P15P-B1
	PCB BINDER		VEF1008
	KN11	EARTH METAL FITTING	VNF1084

TCSW UNIT

SEMICONDUCTORS			
	Q923-Q925		2SA1037K
	D925, D926		SEL6410G-TS
	D924		SEL6C10R-TS
SWITCHES			
	S907, S908, S911-S913		ASG7005
	S909, S910		PSG-064
CAPACITOR			
	C905		CKSQYF104Z50
RESISTORS			
	All Resistors		RS1/10S□□□J

CDSW UNIT

SEMICONDUCTORS			
	Q921, Q922, Q926		2SA1037K
	D922, D923		SEL6410G-TS
SWITCHES			
	S902-S904		ASG7005
	S905		PSG-064
RESISTORS			
	All Resistors		RS1/10S□□□J

EJSW UNIT

SWITCHES			
	S901, S906		PSG-065
OTHERS			
	KN901, KN902	EARTH METAL FITTING	ANK7008
	J905	EARTH LEAD UNIT	XDF-511

Mark	No.	Description	Part No.
LED UNIT			
SEMICONDUCTORS			
	D921		SEL6410G-TS
REG UNIT			
SEMICONDUCTORS			
⚠	IC21		LM2940CT-5.0
⚠	IC24		NJM7912FA
SENSOR PCB ASSY			
SEMICONDUCTORS			
	Q601, Q602		PS3062
RESISTORS			
	All Resistors		RD1/6PM□□□J
LED PCB ASSY			
SEMICONDUCTORS			
	D601, D602		AN306
RESISTORS			
	All Resistors		RD1/6PM□□□J
SW PCB ASSY			
SWITCH			
	S601		DSG1017
MOTOR PCB ASSY			
	No service part		
MECHA. PCB ASSY			
SWITCH			
	S610		DSG1016
OTHERS			
	CN610	MT CONNECTOR (4P)	173979-4

PIONEER®
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Service Manual

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TAPE DECK CD PLAYER

PDC-Q180

CHAPTER 2

CONTENTS

PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan
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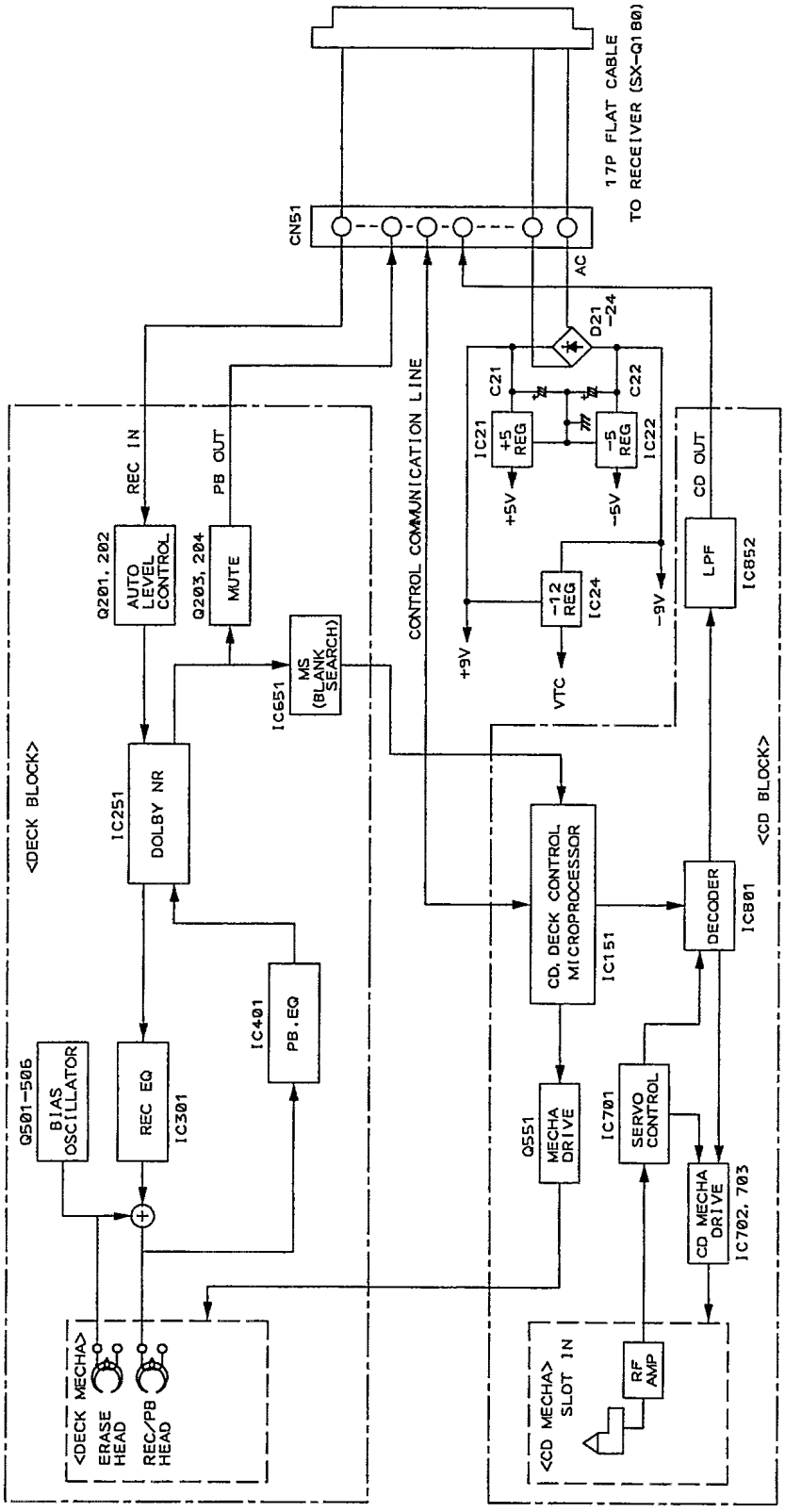
PIONEER ELECTRONICS AUSTRALIA PTY. LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia TEL: [03] 580-9911

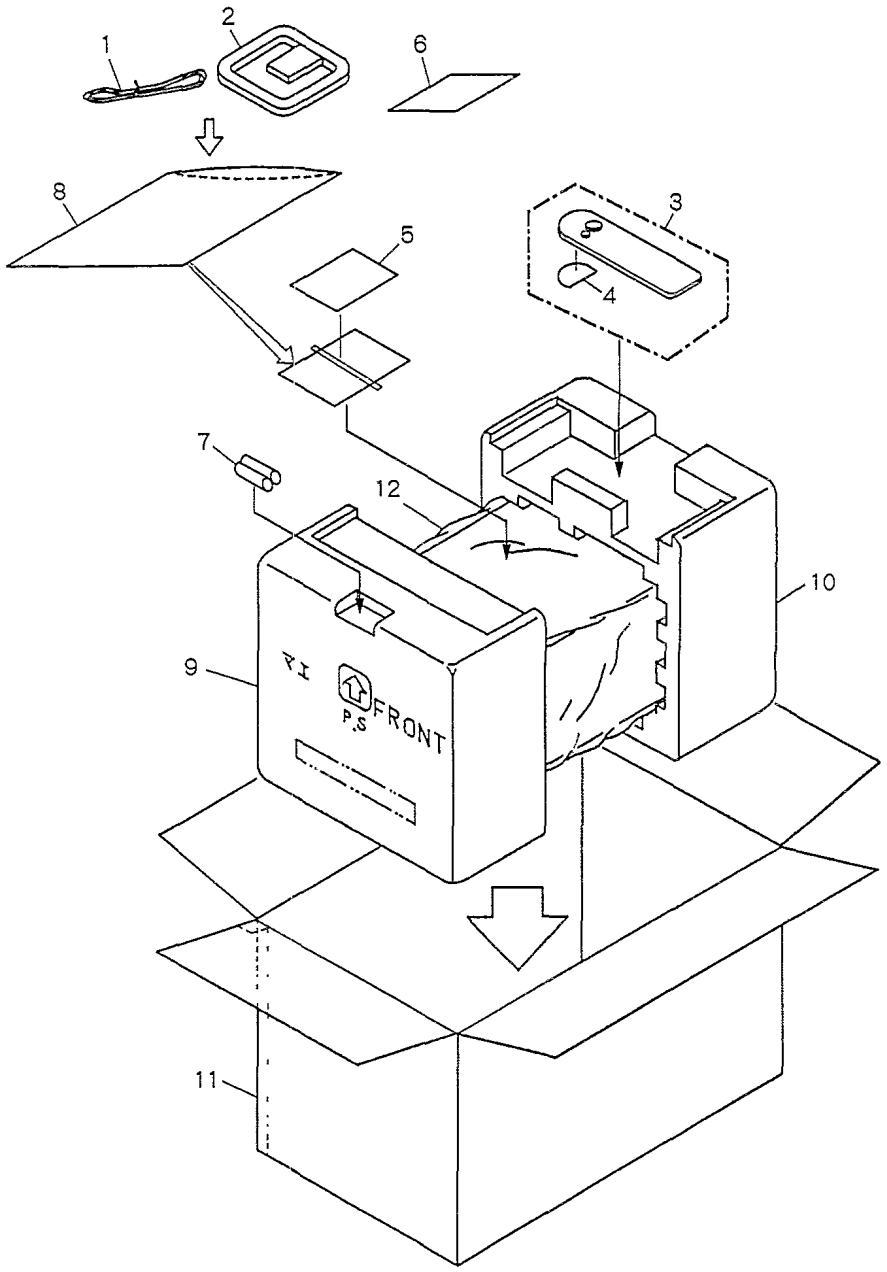
T-IFK JAN. 1995 Printed in Japan

1. BLOCK DIAGRAM

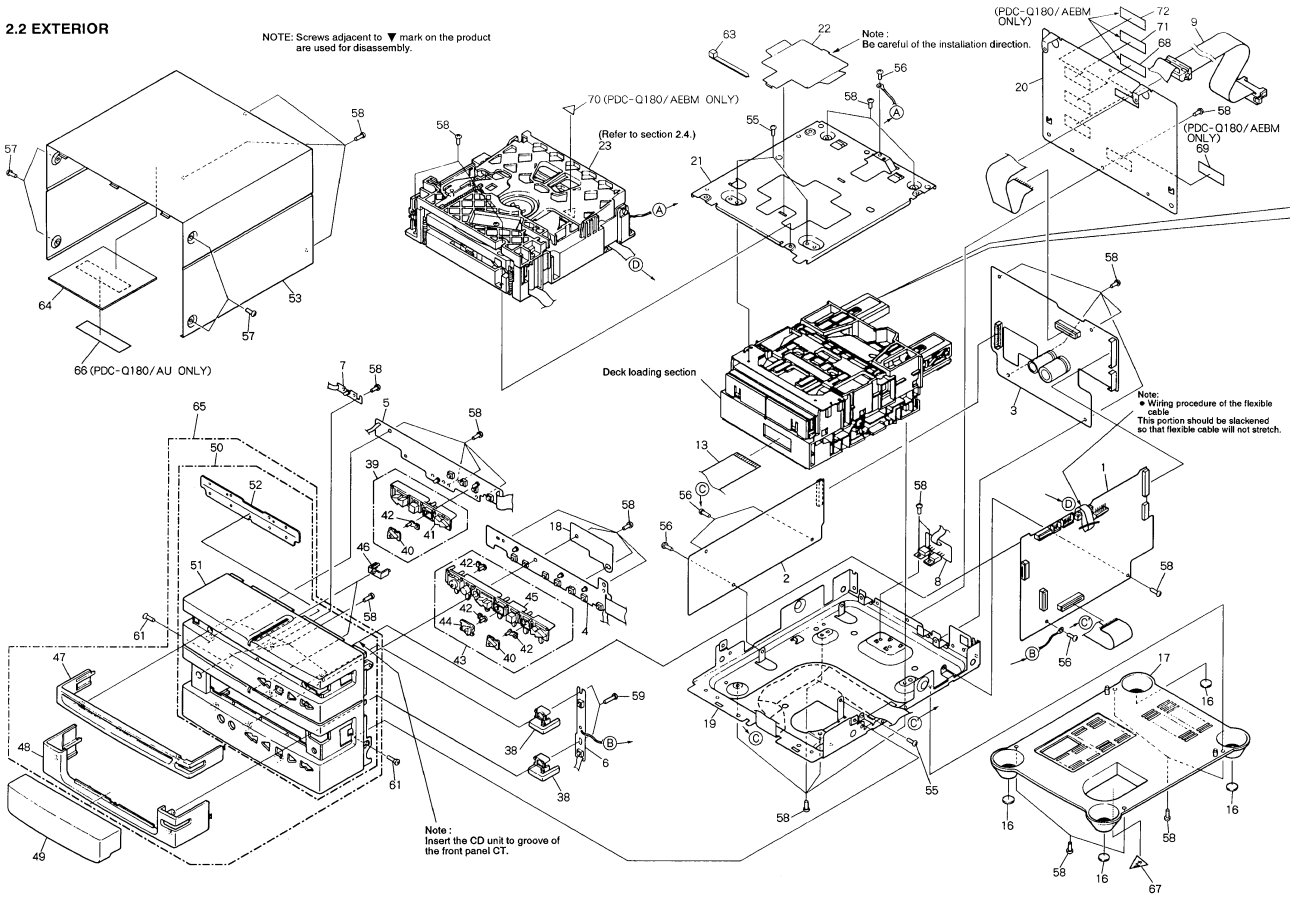


2. PACKING AND EXPLODED VIEWS

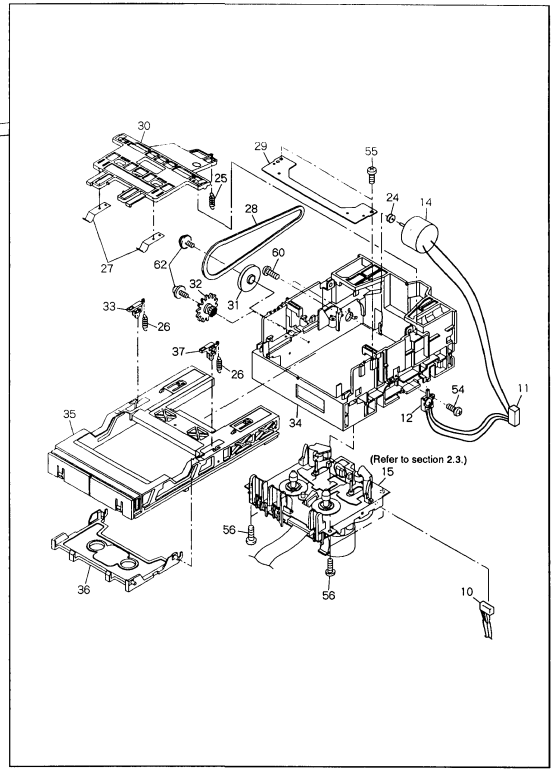
2.1 PACKING (PDC-Q180/AEBM ONLY)



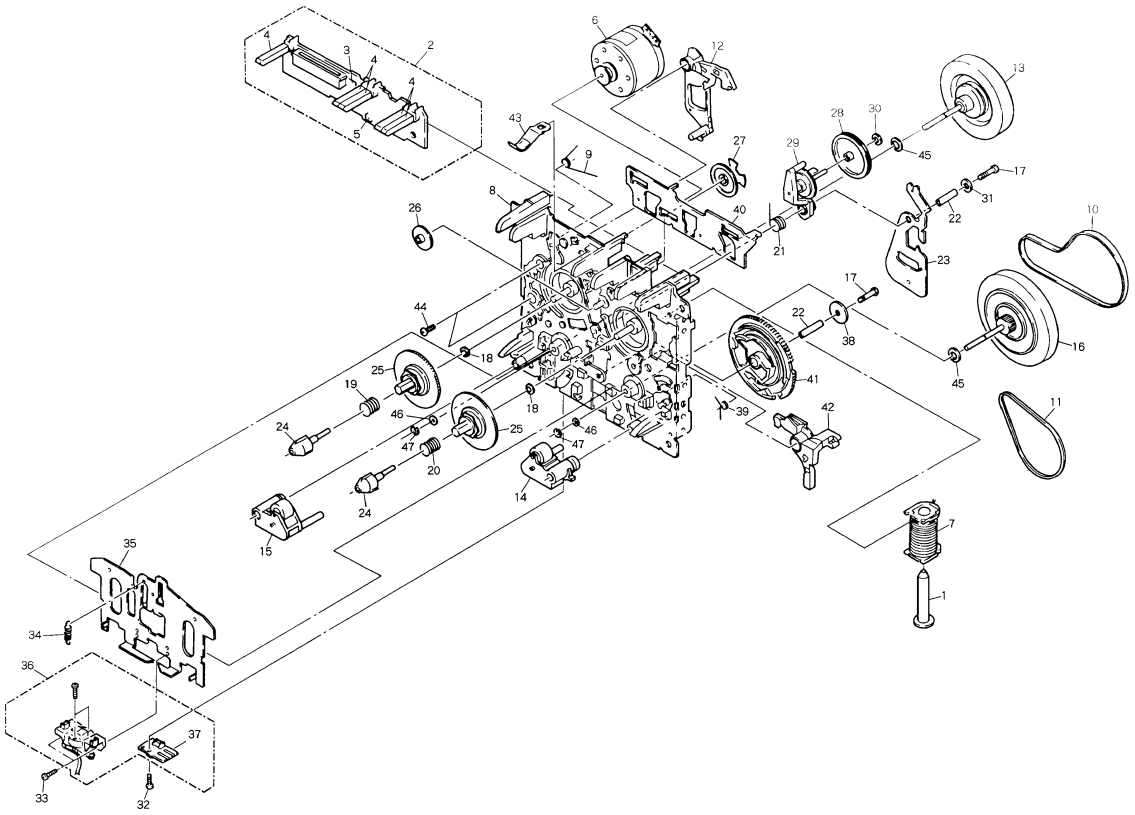
2.2 EXTERIOR



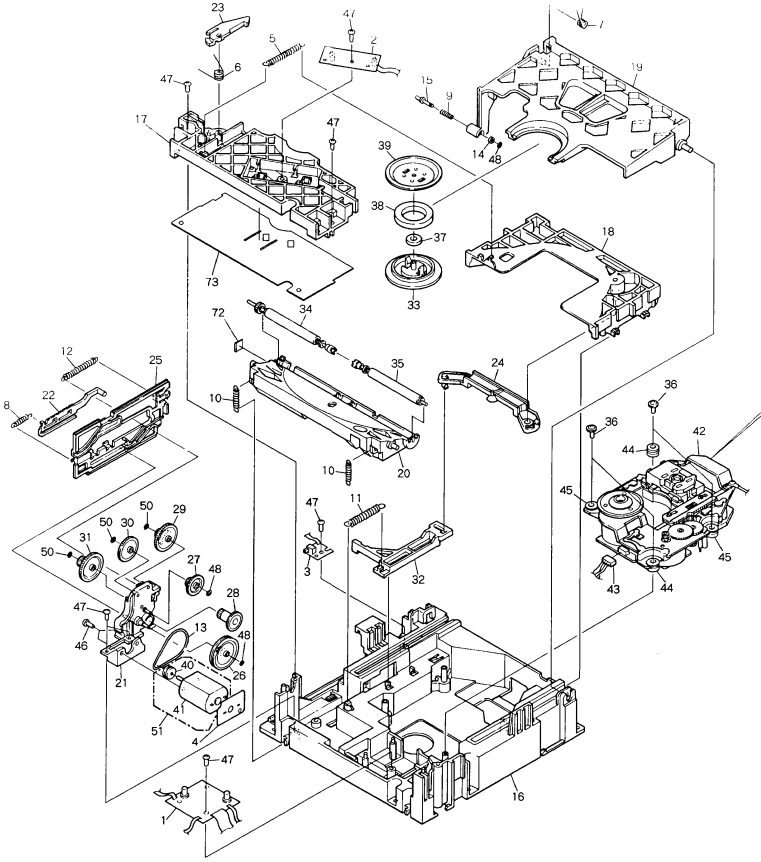
DECK LOADING SECTION



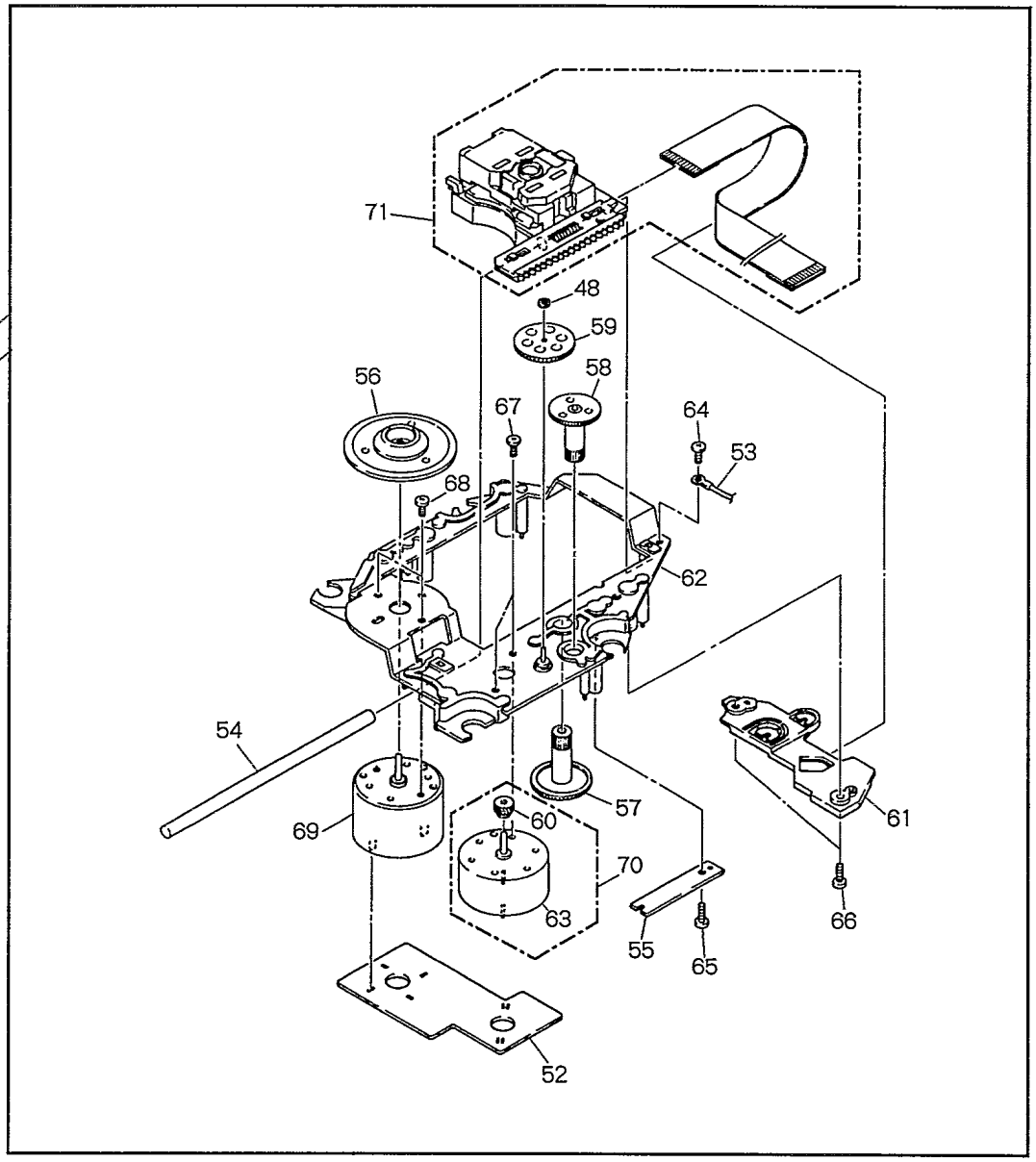
2.3 MECHA UNIT SECTION



2.4 CD SLOT-IN MECHA. SECTION



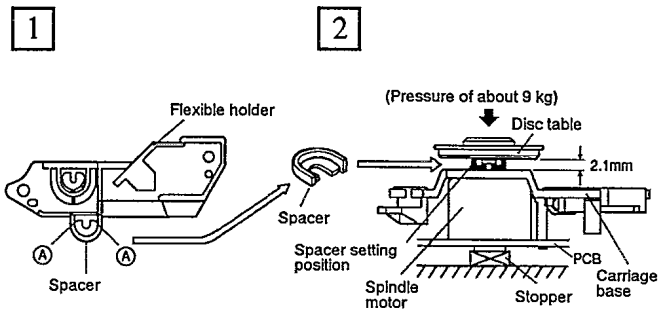
SERVO MECHA. ASSY SL



- How to install the disc table

1 Use nipper or other tool to cut the two sections marked Ⓐ figure 1. Then remove the spacer.

2 While supporting the spindle motor shaft with the stopper, put spacer on top of the carriage base, and stick the disc table on top (takes about 9 kg pressure). Take off the spacer.



3. 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):

TCSW UNIT
S907 : STOP
S908 : REC/ ❚❚
S909 : PLAY(FWD)
S910 : PLAY(REV)
S911 : ▶▶ (FF)
S912 : ◀◀ (REW)
S913 : ASES

CDSW UNIT
S902 : ⏮ · ◀◀ (TRACK/MANUAL SEARCH REV)
S903 : ▶▶ · ⏭ (TRACK/MANUAL SEARCH FWD)
S904 : STOP
S905 : PLAY/ ❚❚

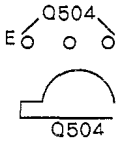
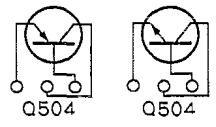
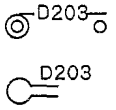
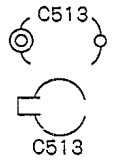
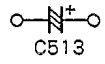
EJSW UNIT
S901 : ⏏ (CD EJECT)
S906 : ⏏ (TC EJECT)

SW PCB ASSY
S601 : CLAMP

MECHA. PCB ASSY
S610 : INSIDE

NOTE FOR PCB DIAGRAMS:

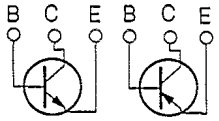
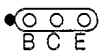
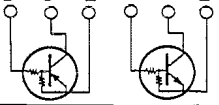
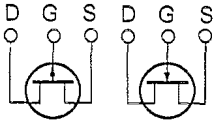
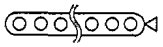
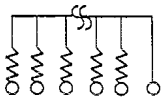
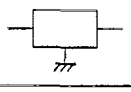
1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

Symbol in PCB Diagrams	Symbol in Schematic Diagrams	Part Name
		Transistor
		Diode
		Capacitor (Polarized)

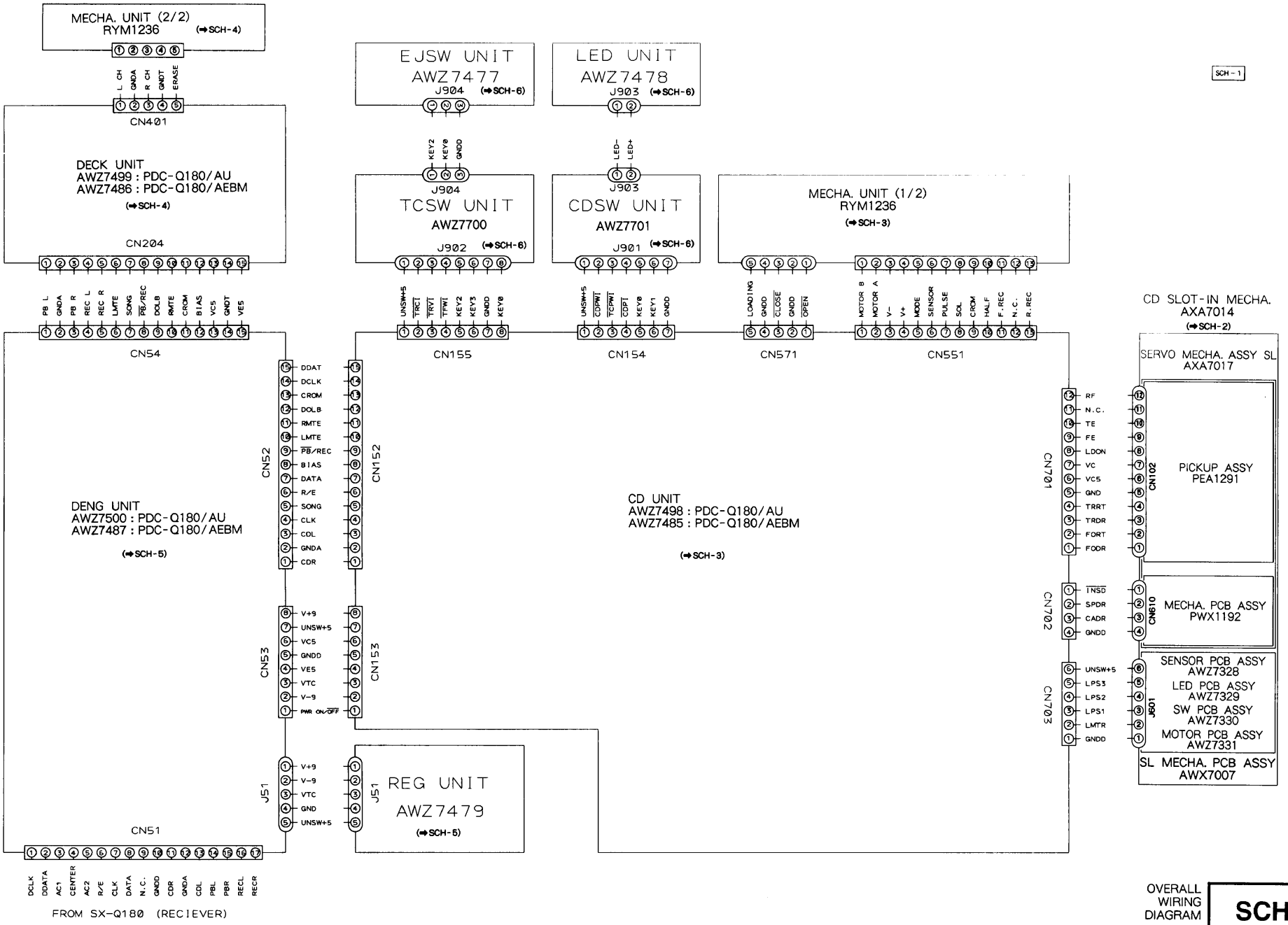
3. The transistor terminal marked with E or ⊏ shows the emitter.
4. The diode terminal marked with ◎ or ⊂ shows cathode side.
5. The capacitor terminal marked with ◎ or ⊏ shows negative terminal.

NOTE FOR PCB DIAGRAMS:

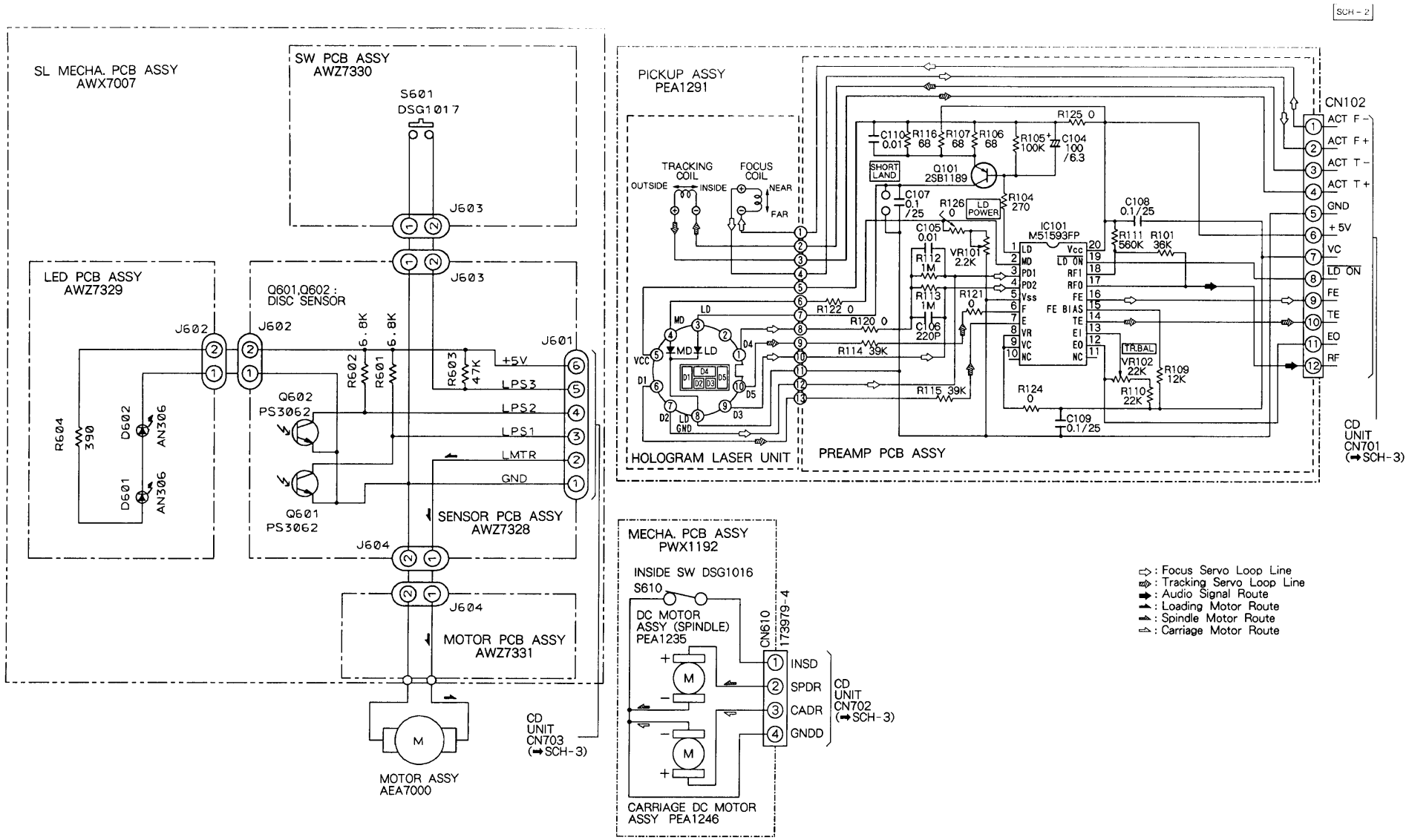
1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

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

3.1 OVERALL WIRING DIAGRAM



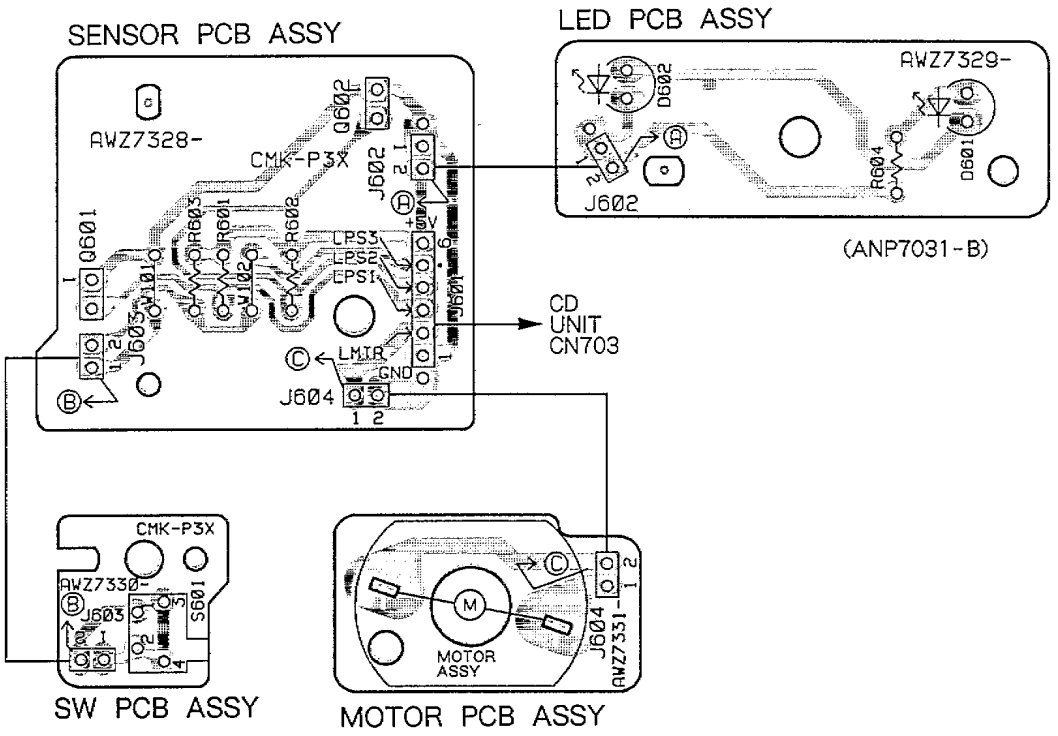
3.2 LED PCB, SW PCB, SENSOR PCB, MOTOR PCB, MECHA. PCB AND PICKUP ASSEMBLIES



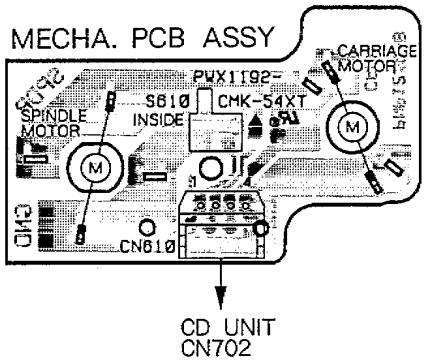
SCH-2 LED PCB ASSY, SW PCB ASSY, SENSOR PCB ASSY, MOTOR PCB ASSY, MECHA. PCB ASSY, PICKUP ASSY

LED PCB ASSY, SW PCB ASSY, SENSOR PCB ASSY, MOTOR PCB ASSY, MECHA. PCB ASSY, PICKUP ASSY **SCH-2**

PCB – 1



• This diagram is viewed from the mounted parts side.



PCB - 1

● This diagram is viewed from the foil side.

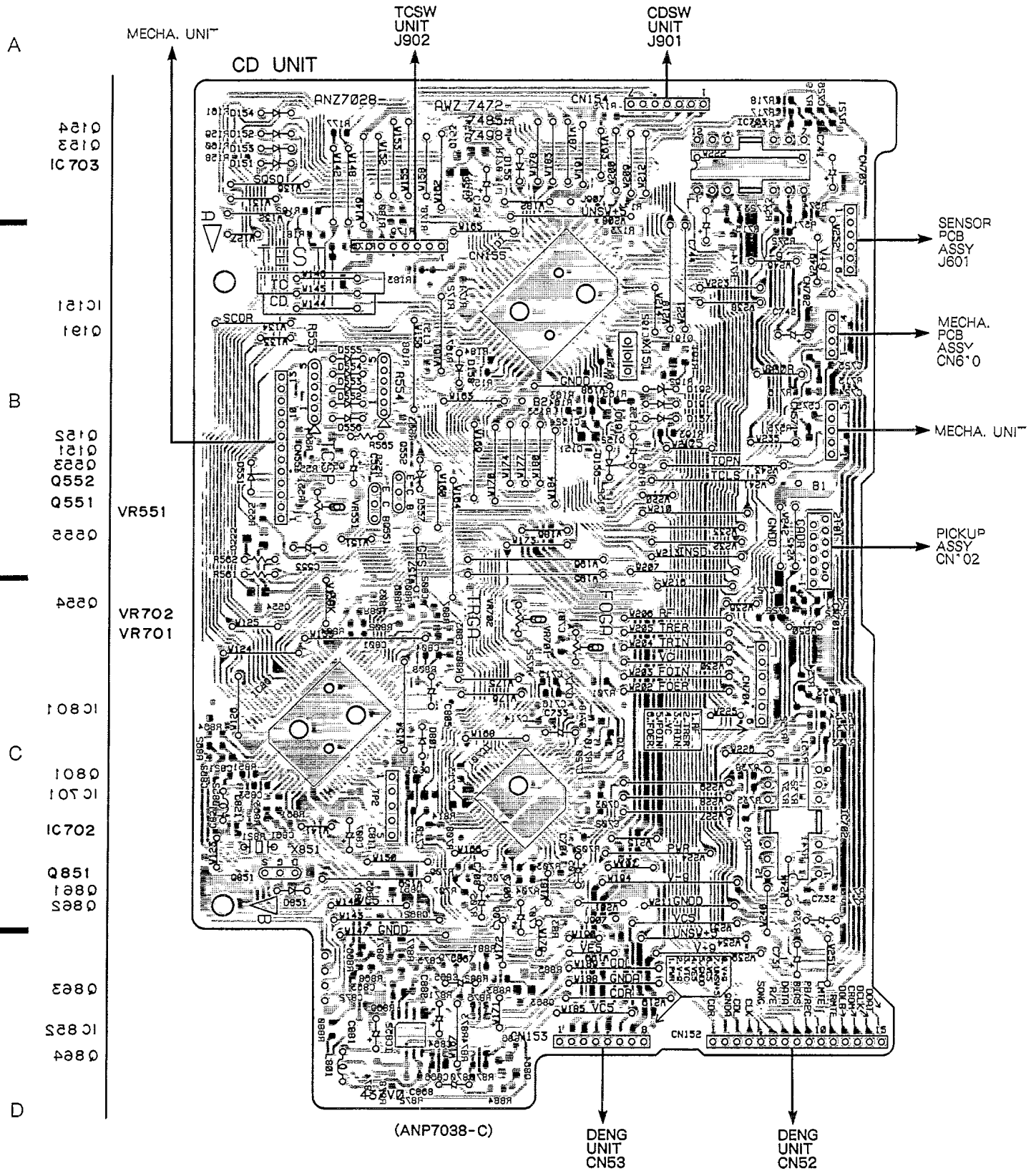
3.3 CD UNIT AND MECHA. UNIT(1/2)

PCB - 2

● This diagram is viewed from the foil side.

3.3 CD UNIT AND MECHA. UNIT(1/2)

PCB - 2



● This diagram is viewed from the mounted parts side.

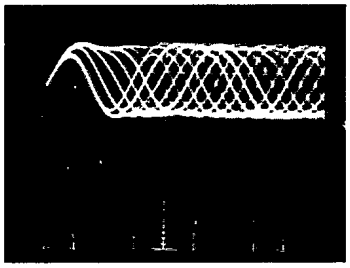
WAVEFORMS

Note : The encircled numbers denote measuring points in the schematic diagram.

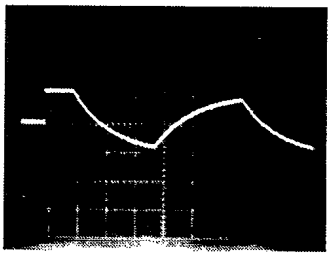
*1 50T-JUMP : After switching to the pause mode, press the manual search key.

*2 FOCUS-IN : Press the key without loading a disc.

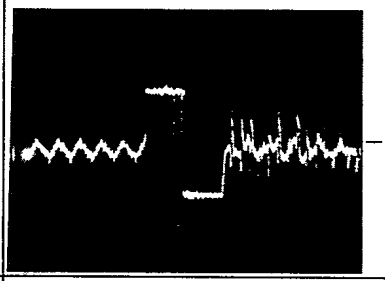
② CN704-Pin 1 : PLAY MODE (RF)
500mV/div 500nsec/div



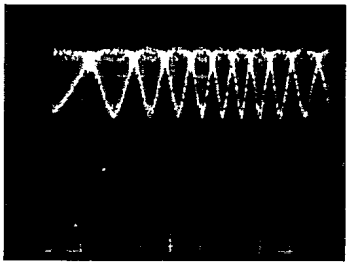
⑤ IC702-Pin 4 : FOCUS-IN (*2) MODE (FODR)
1V/div 200msec/div



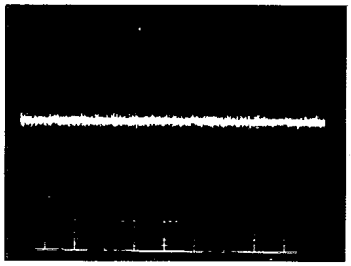
⑦ IC703-Pin 3 : TRACK SEARCH MODE (SPDR)
2V/div 200msec/div



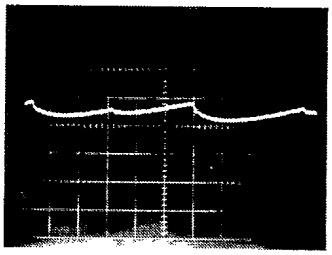
② CN704-Pin 1 : TRACK SEARCH MODE (RF)
500mV/div 200 µsec/div



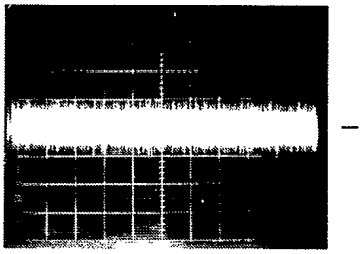
⑤ IC702-Pin 4 : PLAY MODE (FODR)
1V/div 1msec/div



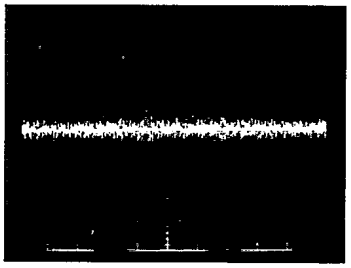
⑧ IC702-Pin 3 : PLAY MODE (CADR)
0.5V/div 2sec/div



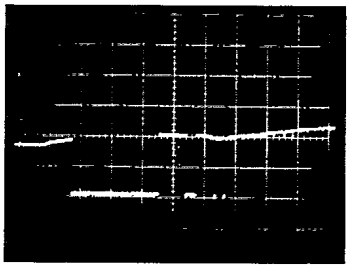
③ CN704-Pin 6 : PLAY MODE (FOER)
100mV/div 10msec/div



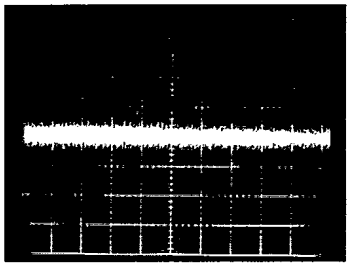
⑥ IC702-Pin 9 : PLAY MODE (TRDR)
500mV/div 1msec/div



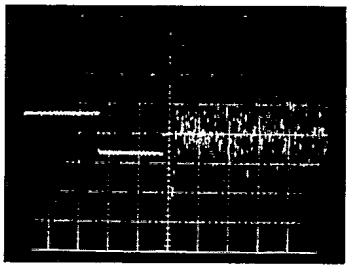
⑧ IC702-Pin 3 : TRACK SEARCH MODE (CADR)
2V/div 200msec/div



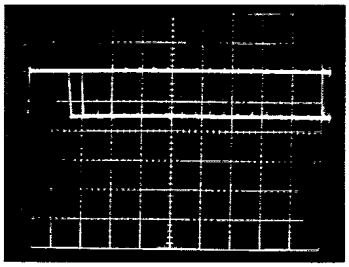
④ CN704-Pin 2 : PLAY MODE (TRER)
1V/div 10msec/div



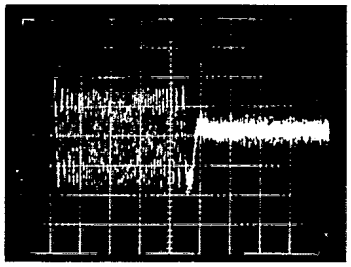
⑥ IC702-Pin 9 : 50T-JUMP (*1) MODE (TRDR)
500mV/div 1msec/div



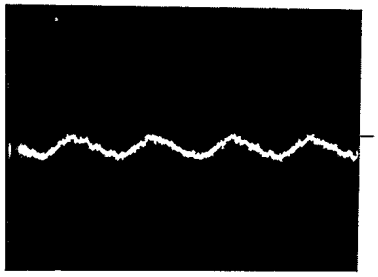
⑨ IC701-Pin 32 : PLAY MODE (EFM)
2V/div 500nsec/div



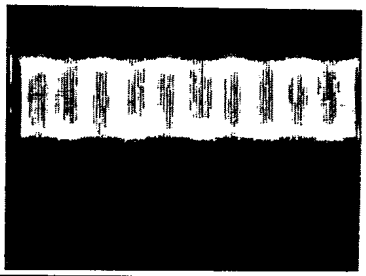
④ CN704-Pin 2 : 50T-JUMP (*1) MODE (TRER)
1V/div 1msec/div



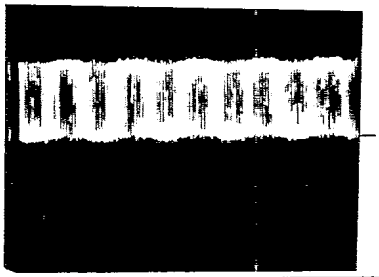
⑦ IC703-Pin 3 : PLAY MODE (SPDR)
2V/div 50msec/div



⑩ IC801-Pin 69 : PLAY MODE (1kHz) (NLPWM) (D/A DATA OUT)
2V/div 500 µsec/div



(11) IC801 - Pin 70 : PLAY MODE (1kHz) (LPWM) (D/A DATA OUT)
2V/div 500 µsec/div



(22)

(26)

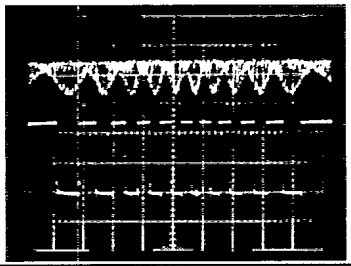
(16)

(22)

(27)

(18)

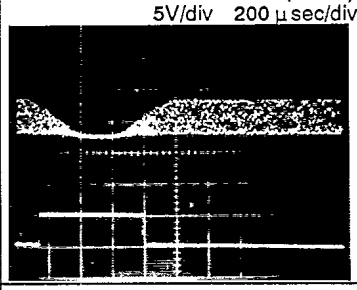
(23) : TRACK SEARCH MODE
Upper : CN704 - Pin 1 (RF) 1V/div
Lower : IC701 - Pin 29 (MIRR)
2V/div 200 µsec/div



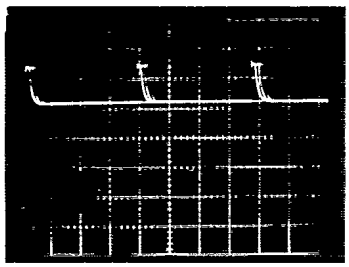
(28)

(19)

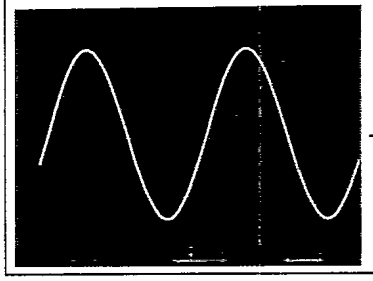
(24) : PLAY MODE
Upper : CN704 - Pin 1 (RF) 1V/div
Lower : IC701 - Pin 30 (DFCT)
5V/div 200 µsec/div



(33) IC801 - Pin 25 : PLAY MODE (MDP)
2V/div 2 µsec/div

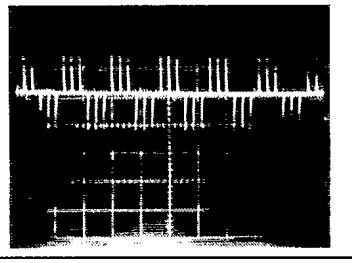


(21) CN152 - Pin 3 : PLAY MODE(1kHz) (CDL)
1V/div 200 µsec/div



(25)

(53) IC801 - Pin 31 : PLAY MODE (PCO)
2V/div 10 µsec/div



NOTES

CAPACITORS μF

YB : Seramic CKSQYB
CH : Seramic CCSQCH
SL : Seramic CCSQSL
AS : Elector CEAS
Unmarked type
Seramic : CKSQYF
Elector : CEJA

RESISTORS Ω

Unmarked type : 1/10W TYPE

INDUCTORS μH

Unmarked type Axial type : LAU

OTHERS

⏚ : Chassic Ground
$\overline{ABC}$: Low Active Signal

IC151 (PD4566A)

Pin No.	Voltage(V)	Pin No.	Voltage(V)	Pin No.	Voltage(V)	Pin No.	Voltage(V)
1	4.8	17	4.1	33	4.9	49	0
2	4.6	18	0	34	4.9	50	4.9
3	4.9	19	0	35	4.9	51	0
4	0	20	3.8	36	4.9	52	4.9
5	0	21	0	37	4.9	53	0
6	0	22	0	38	0	54	0
7	4.1	23	5	39	0	55	0
8	2.8	24	5	40	4.9	56	0
9	2.6	25	4.9	41	0	57	4.3
10	4.9	26	0	42	4.8	58	5
11	0	27	4.9	43	4.9	59	4.7
12	0	28	4.9	44	0.1	60	0
13	4.9	29	0	45	0	61	0
14	4.9	30	4.9	46	0	62	4.9
15	0	31	4.9	47	4.9	63	0
16	4.1	32	4.9	48	0	64	0

IC801 (CXD2508AQ)

Pin No.	Voltage(V)	Pin No.	Voltage(V)	Pin No.	Voltage(V)	Pin No.	Voltage(V)
1	0.1	21	5	41	2.4	61	2
2	0.1	22	0	42	2.4	62	0
3	5	23	5	43	2.4	63	0
4	0.1	24	5	44	2.4	64	2.5
5	4.9	25	2.6 to 2.7	45	2.4	65	0
6	0	26	0.1	46	1.8	66	0
7	2.2 to 2.5	27	5	47	1.8	67	0
8	5	28	0	48	0	68	5
9	4.9	29	2.7	49	4.9	69	2.5
10	5	30	2.6	50	1.2	70	2.5
11	4.9	31	2.6	51	4.9	71	5
12	0	32	5	52	2.5	72	5
13	4.9	33	0	53	0	73	2.4
14	0.1	34	2.7	54	0	74	2.4
15	4.9 to 5	35	5	55	4.9	75	0
16	5	36	2.7	56	4.5	76	0
17	4.9	37	0	57	0	77	2.5
18	0	38	0	58	0 to 0.3	78	2.5
19	0	39	2.5	59	2.8	79	0
20	0	40	0	60	1.4	80	0

⇨ : Focus Servo Loop Line
⇨ : Tracking Servo Loop Line
➡ : Audio Signal Route
➡ : Loading Motor Route
➡ : Spindle Motor Route
⇨ : Carriage Motor Route

SCH-3

CD UNIT
AWZ7498 : PDC-Q180/AU
AWZ7485 : PDC-Q180/AEBM

MECHA. UNIT (1/2)
RYM1236

TO TC TRAY MECHA.

MECHA CONTROL

AL MECHA (RYM1236)

CDSW UNIT J901 (➡SCH-6)

TCSW UNIT J902 (➡SCH-6)

Q191 : RESET

IC703(2/3) : LOADING DRIVE

Q551-Q555 : MECHA CONTROL

IC151 PD4566A (SYSTEM CONTROL)

Q153,Q154 : INVERTER BUFFER

Q151,Q152 : INVERTER BUFFER

CD TEST (W144, W145 SHORT)

TC TEST (W145, W146 SHORT)

DENG UNIT CN52 (➡SCH-5)

DENG UNIT CN53 (➡SCH-5)

IC852(2/2) : LOWPASS FILTER

IC852(1/2) : LOWPASS FILTER

Q801,Q851 : X'tal OFF

Q861-Q864 : ZERO DETECTING ATTENUATOR

IC701 CXA1372Q (SERVO CONTROL)

IC801 CXD2508AQ (DECODER)

IC702(3/3) LA6520 (TRACKING DRIVE)

IC702(2/3) LA6520 (FOCUS DRIVE)

IC702(1/3) LA6520 (CARRIAGE DRIVE)

IC703(1/3) LA6520 (SPINDLE DRIVE)

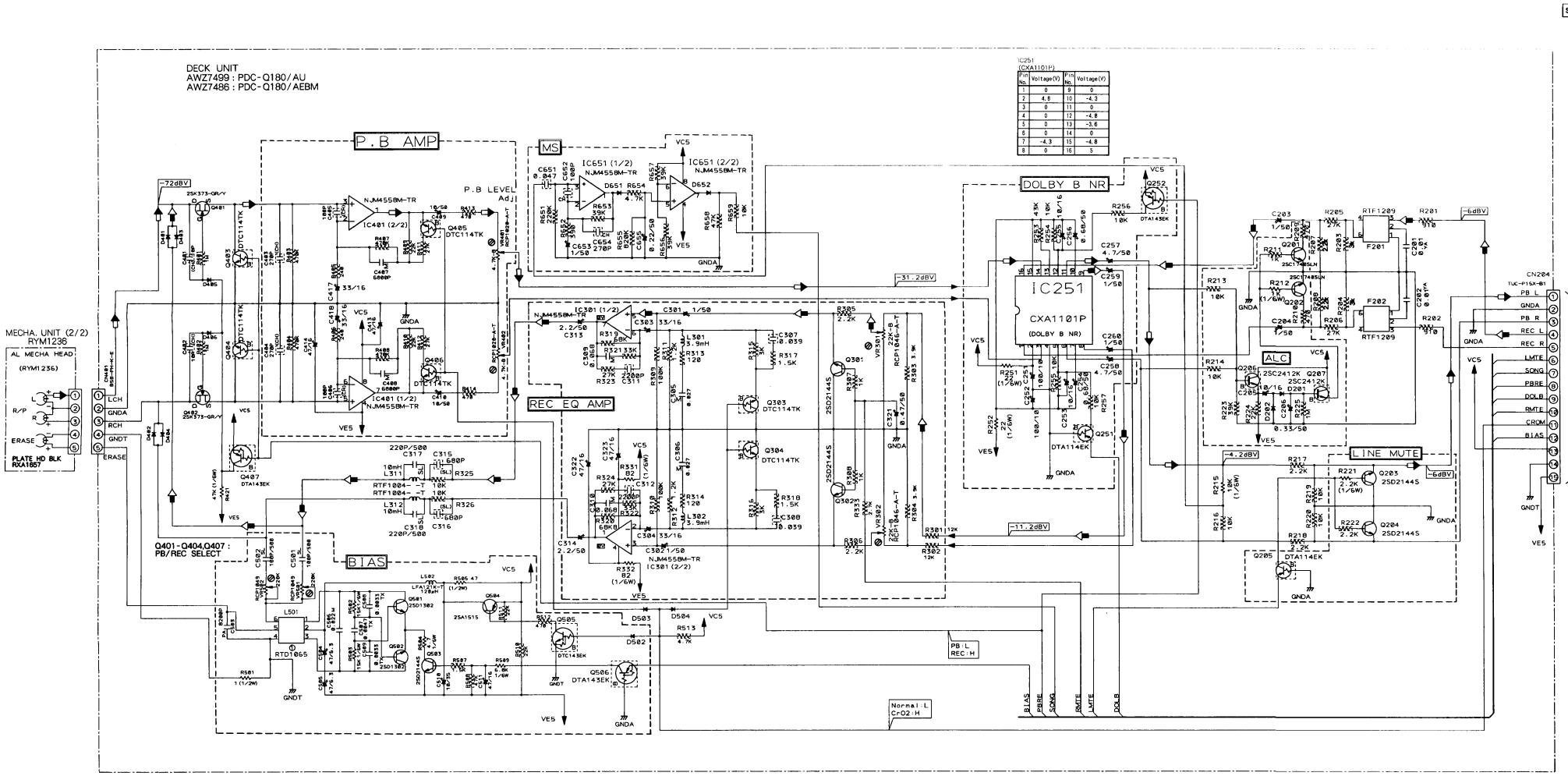
IC703(3/3) LA6520 (LOADING DRIVE)

PICKUP ASSY CN102 (➡SCH-2)

MECHA. PCB ASSY CN810 (➡SCH-2)

SENSOR PCB ASSY J801 (➡SCH-2)

3.4 DECK UNIT AND MECHA. UNIT(2/2)



IC251 (CXA1101P)

Pin No.	Voltage(V)	Pin No.	Voltage(V)
1	0	9	0
2	4.8	10	-4.3
3	0	11	0
4	0	12	-4.8
5	0	13	-3.6
6	0	14	0
7	-4.3	15	-4.8
8	0	16	5

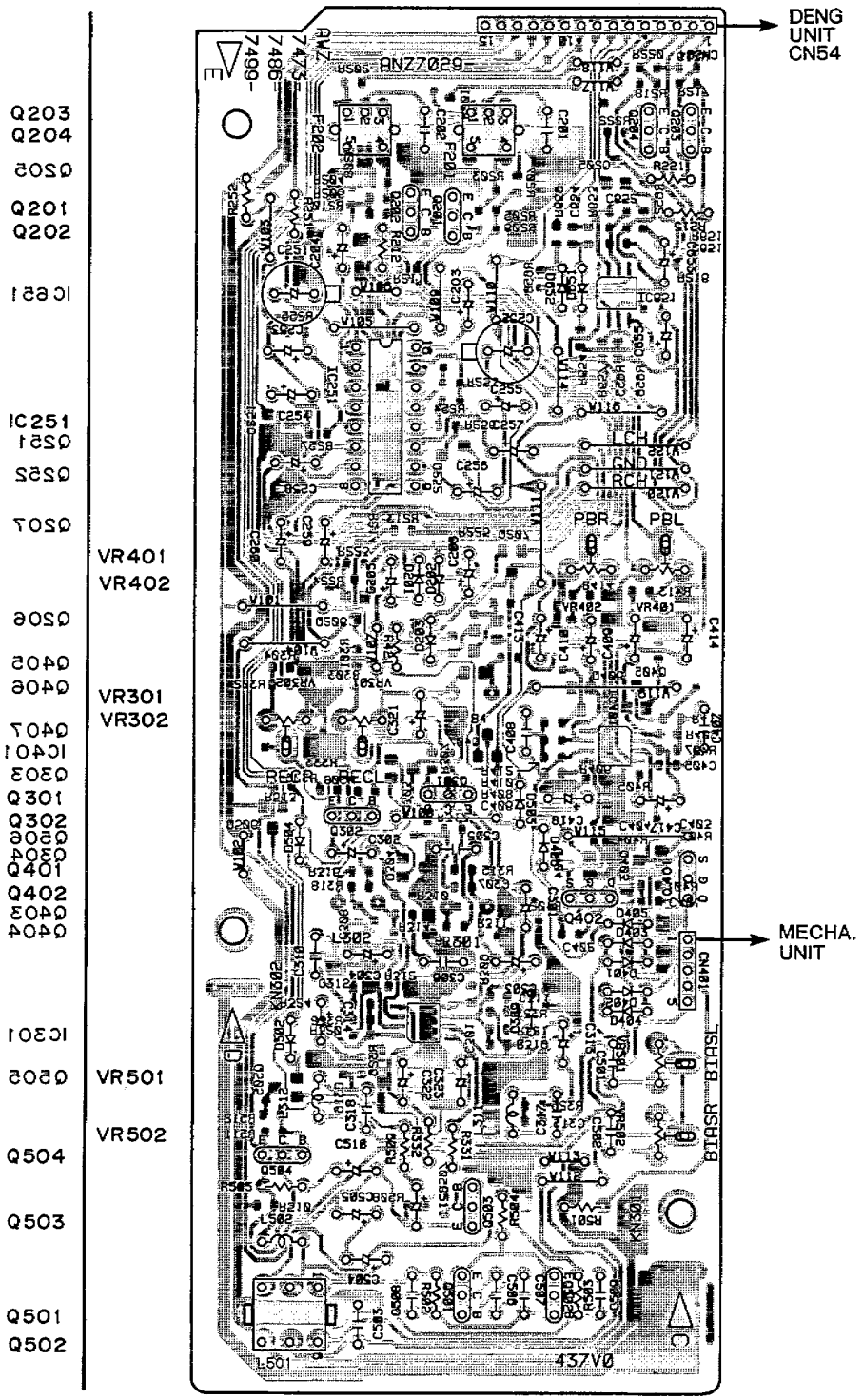
NOTES

1. Resistors:
   Indicated in Ω, 1/10W, ±5% tolerance unless otherwise noted K:KΩ M:MΩ.
2. Capacitors:
   Indicated in μF/voltage unless otherwise noted p:pF. Indication without voltage is 50V except electoric capacitors.
   - *Ceramic capacitors
     - CH:CCSQCH
     - SL:CCCSL, CCSQSL
   - *Film capacitors
     - TX:CFTXA
     - TY:CFTYA
     - M:CQMA
     - PA:CQPA
3. Diodes:1SS254
4. VOLTAGE AND CURRENT:
   - ⊐ or ←V: DC voltage (V) in STOP mode unless otherwise noted.
   - ⇦mA or ←mA: DC current in STOP mode unless otherwise noted.

⇨: Playback Signal Route
⇨: Recording Signal Route

PCB - 3

DECK UNIT



(ANP7038-C)

● This diagram is viewed from the mounted parts side.

PCB - 3

DECK UNIT

(ANP1038-C)

● This diagram is viewed from the foil side.

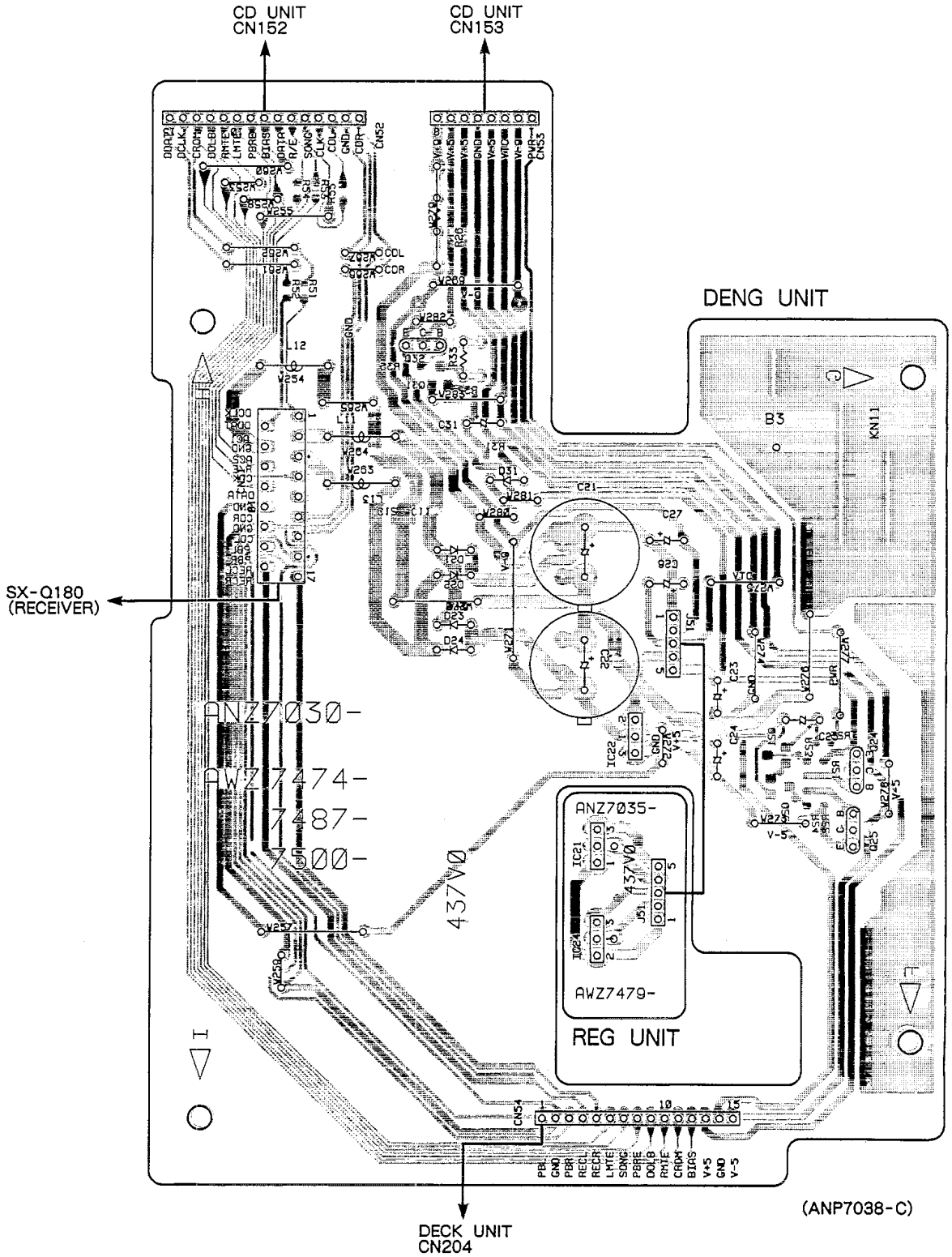
3.5 DENG AND REG UNITS

PCB - 4

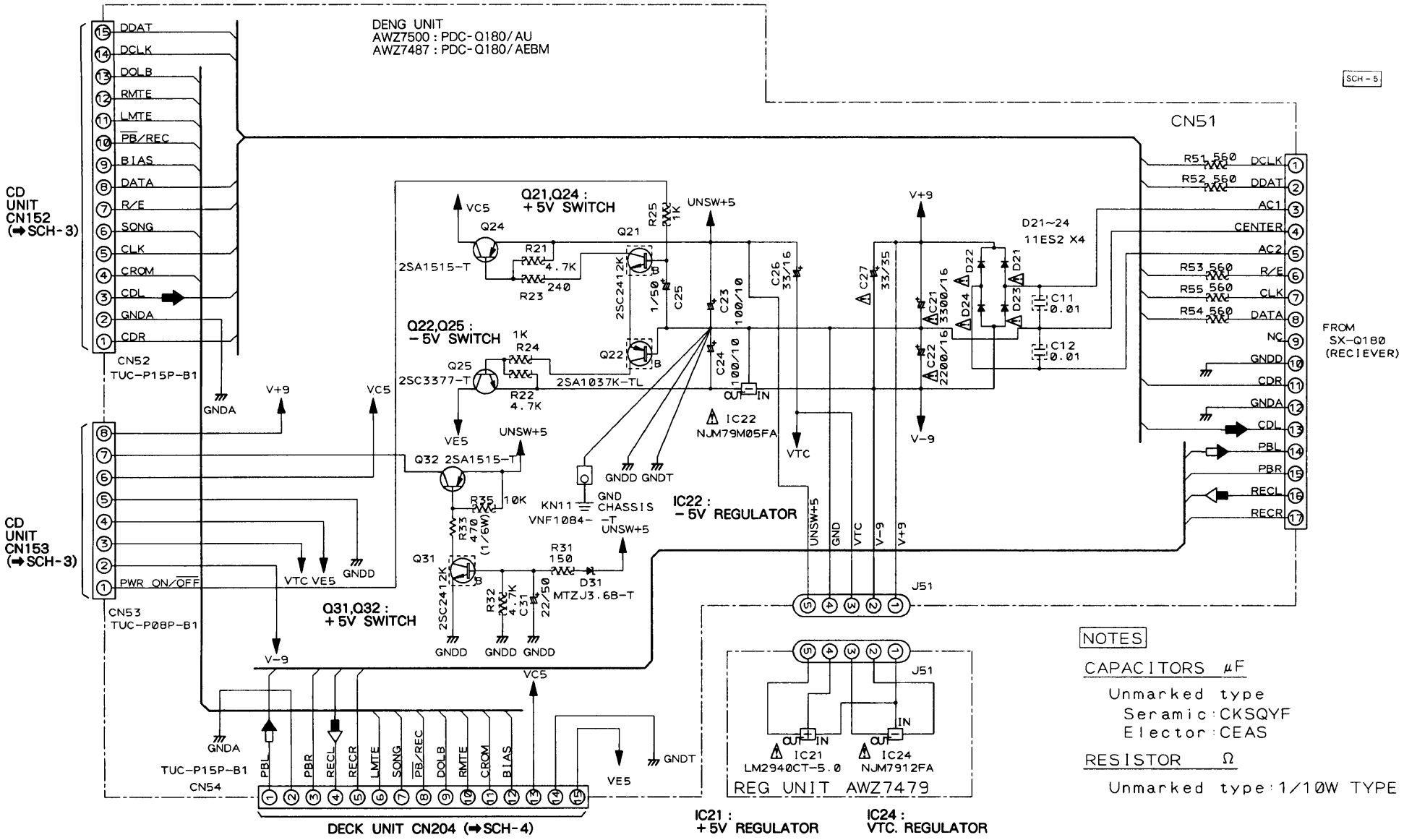
● This diagram is viewed from the foil side.

3.5 DENG AND REG UNITS

PCB - 4



• This diagram is viewed from the mounted parts side.



NOTES

CAPACITORS μF

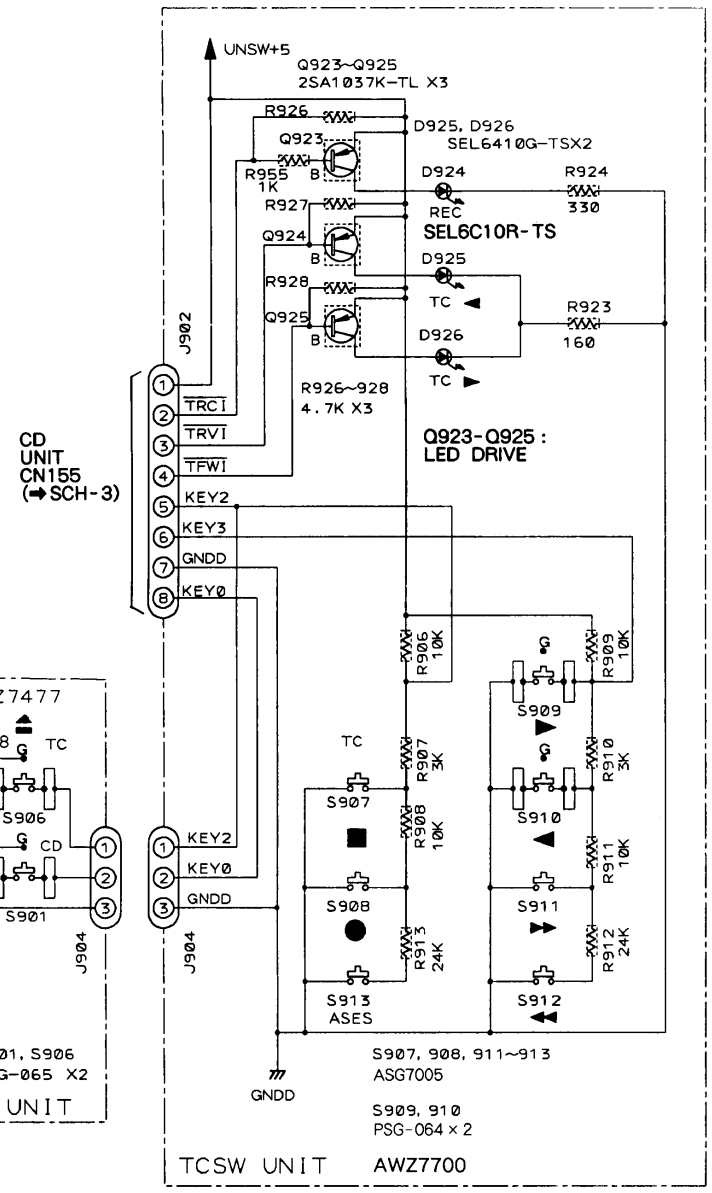
Unmarked type
Seramic : CKSQYF
Elector : CEAS

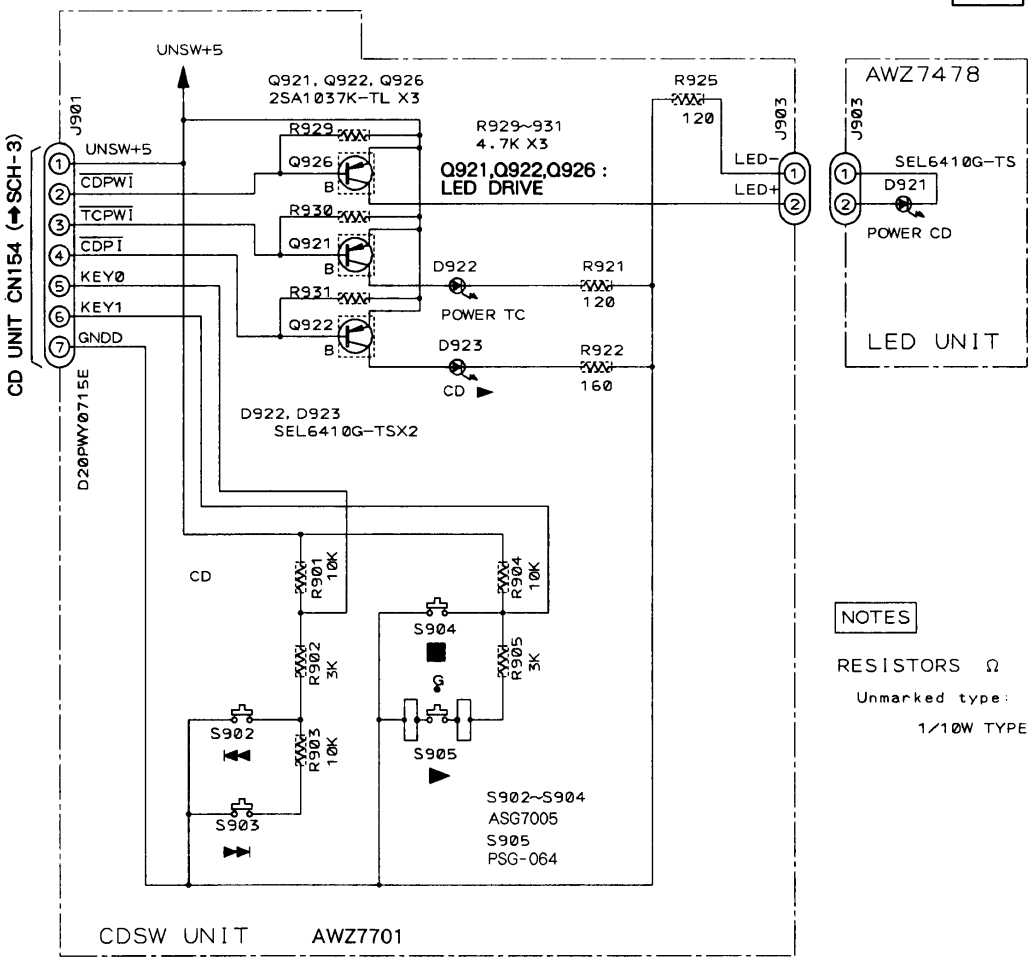
RESISTOR Ω

Unmarked type : 1/10W TYPE

➡ : Audio Signal Route
➡ : Playback Signal Route
➡ : Recording Signal Route

3.6 EJSW, TCSW, CDSW AND LED UNITS





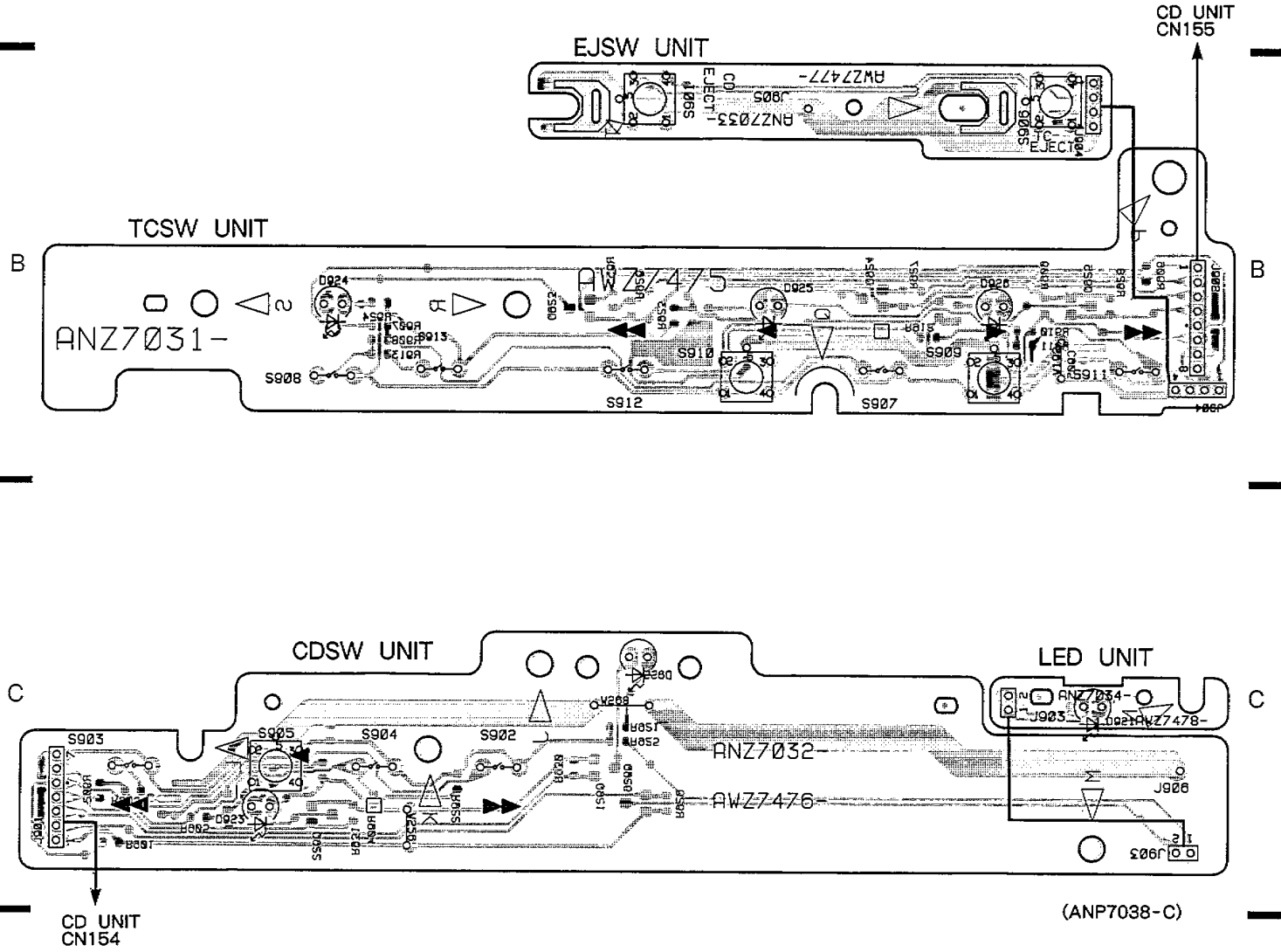
SCH - 6

NOTES

RESISTORS Ω

Unmarked type:

1/10W TYPE



PCB - 5

A B C D

● This diagram is viewed from the mounted parts side.

PCB - 5

● This diagram is viewed from the foil side.