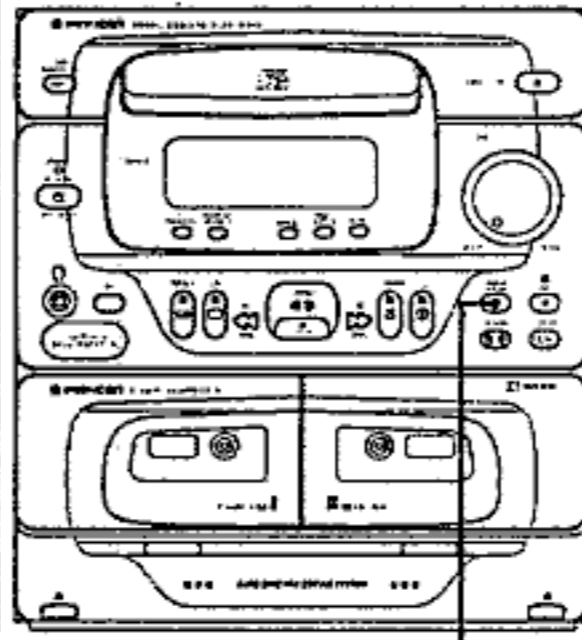


Service Manual



(DEMO)

ORDER NO.
RRV1271

STEREO CD CASSETTE DECK RECEIVER

XR-P150

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.
	XR-P150		
NBXX	○	AC230V	—
MEXK/EA	○	AC220V-230V	—
MEXK/EB	○	AC220V-230V	—
SD	○	AC110-115V/120-127V/220-230V/240V	With the voltage selector

● For the circuit and mechanism descriptions, refer to the service guide RRV1301 for XR-P150.

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1. SAFETY INFORMATION

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

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

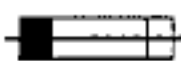
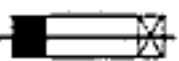
WARNING

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.

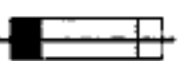
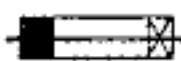
NOTICE

(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.

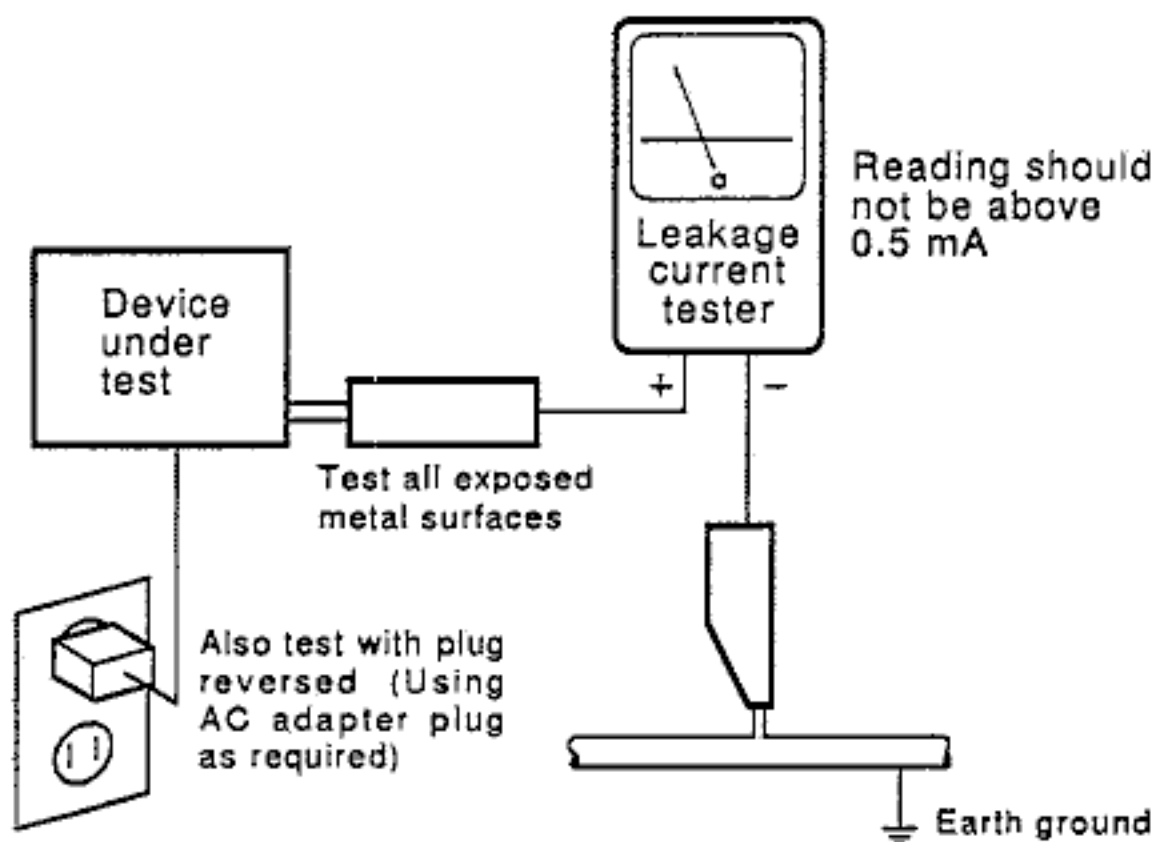
(FOR USA MODEL ONLY)

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 60 Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5 mA.



AC Leakage Test

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

2. PRODUCT SAFETY NOTICE

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

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

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

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

(FOR EUROPEAN MODEL ONLY)

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



LASER
 Kuva 1
 Lasersäteilyn
 varoitusmerkki

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

VARNING!
 OSYNLIG LASERSTRÅLNING NÅR DENNA
 DEL ÄR ÖPPNAD OCH SPÄRREN
 ÄR URKOPPLAD. BETRAKTA EJ STRALEN.

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.



LASER
 Picture 1
 Warning sign for
 laser radiation

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

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

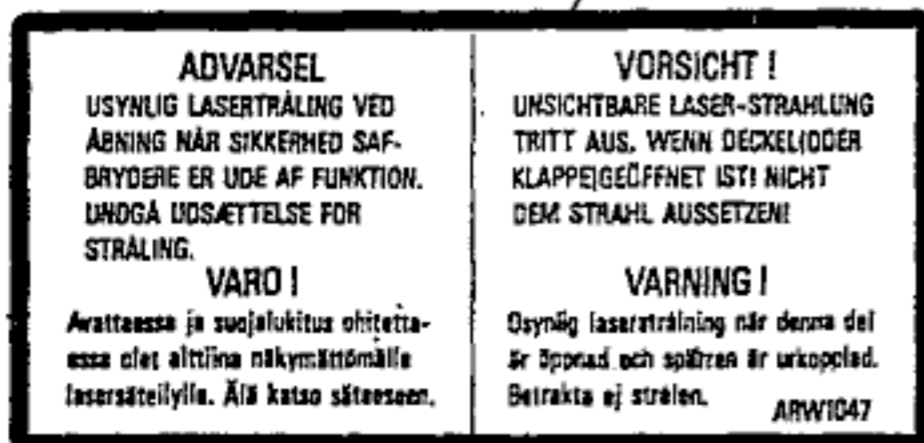
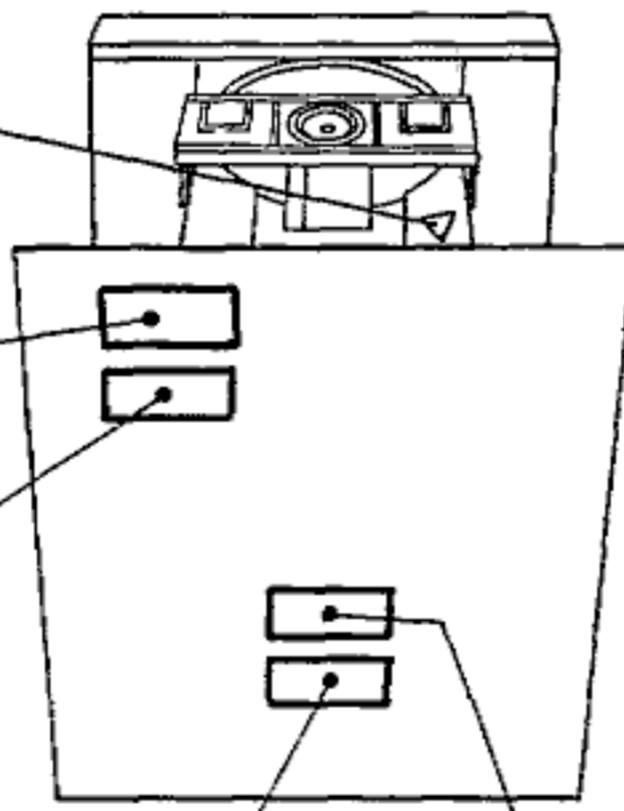
LABEL CHECK



NBXK type



NBXK type



MEXK/EA and MEXK/EB types



MEXK/EA and MEXK/EB types

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 CLMP terminal side (CLMP signal is OFF or high level.) Thus, the interlock will no longer function if the switch (S601) is deliberately set to CLMP terminal side. (low level)
 The interlock also does not function in the test mode*. Laser diode oscillation will continue, if pin 1 of M51593FP (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.**

9251B

* Refer to page 48.

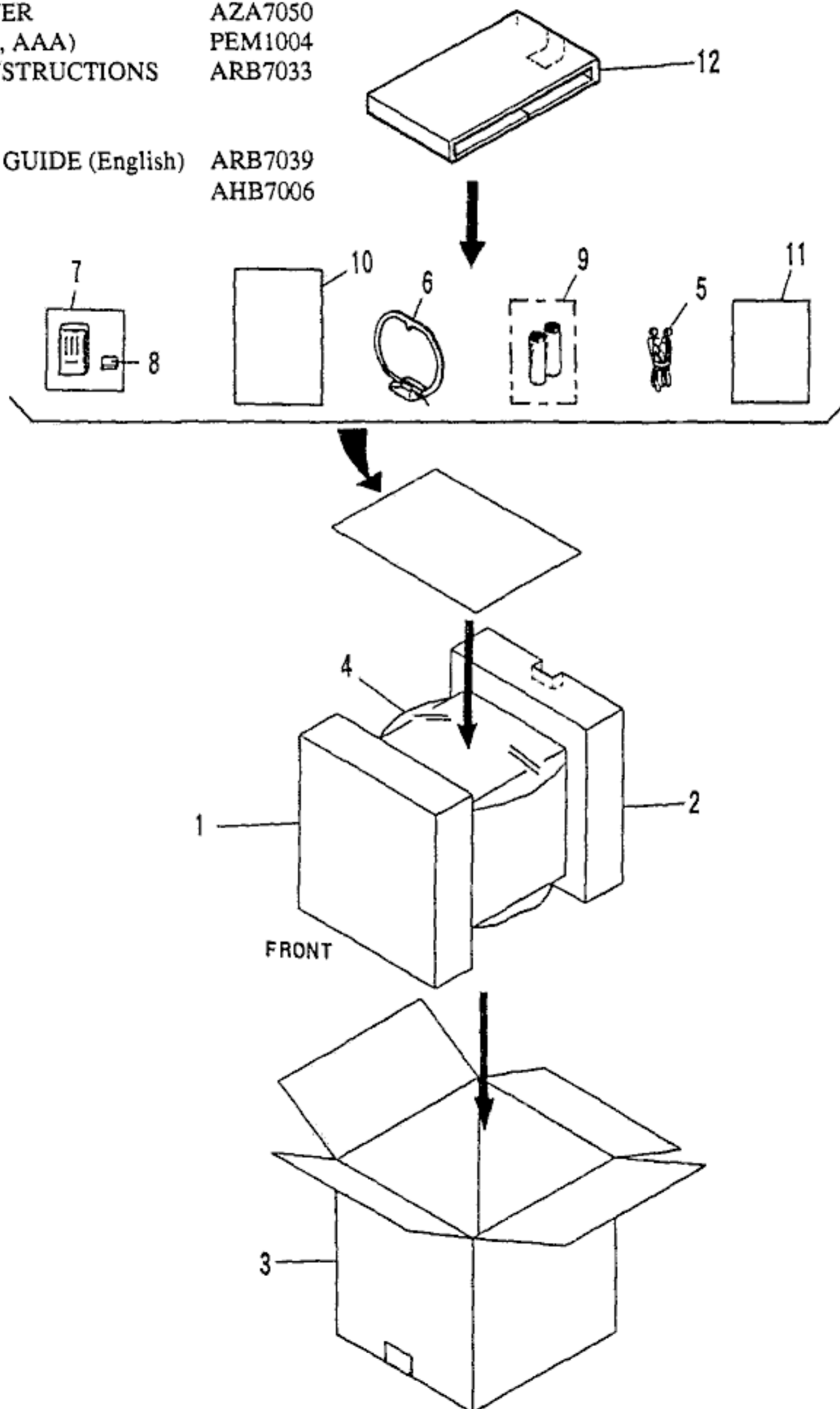
2. EXPLODED VIEWS, PACKING AND PARTS LIST

NOTES :

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The \triangle 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.

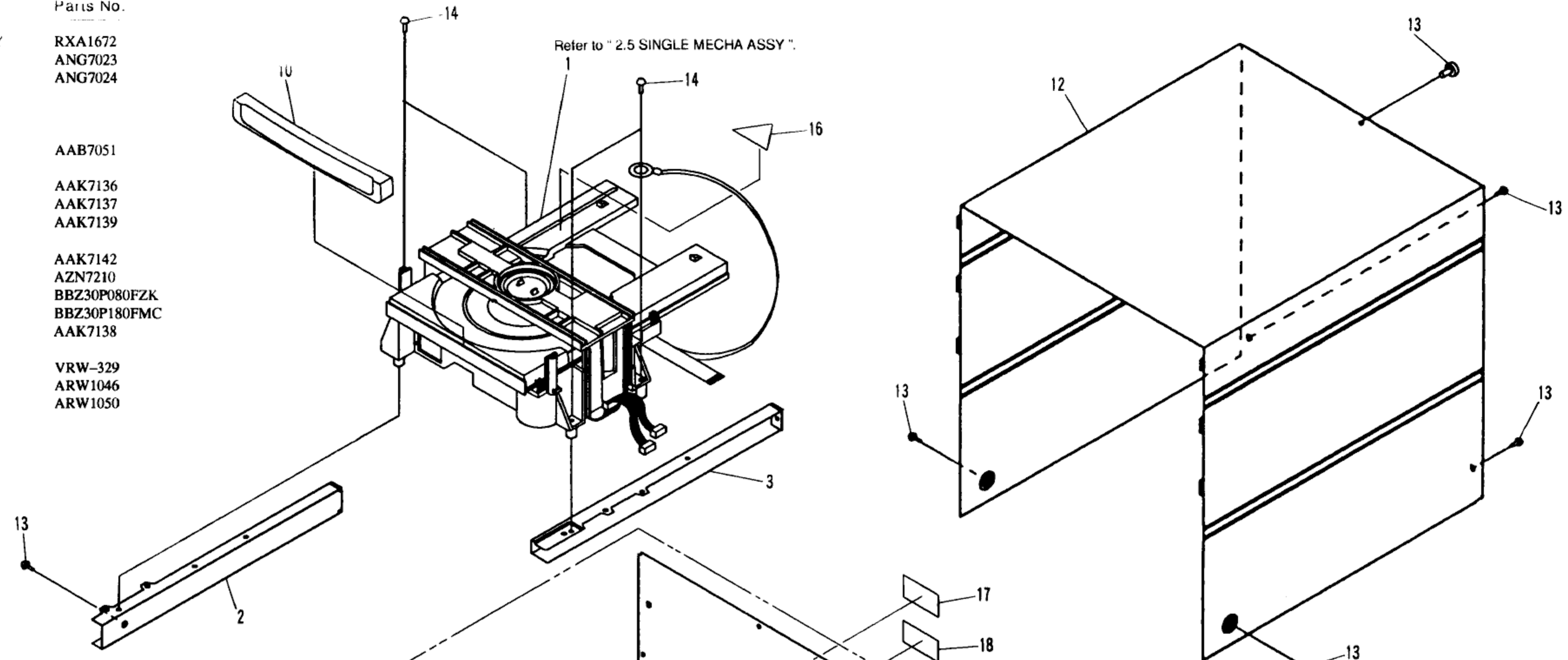
2.1 PACKING

Mark No.	Description	Parts No.
1	FRONT PAD	AHA7054
2	REAR PAD	AHA7055
3	PACKING CASE	AHD7135
4	PACKING SHEET	AHG7001
5	FM ANTENNA ASSY	ADH1019
6	LOOP ANTENNA ASSY	ATB1012
7	REMOTE CONTROL UNIT (CU-XR015)	AXD7030
8	BATTERY COVER	AZA7050
NSP 9	BATTERY (R03, AAA)	PEM1004
10	OPERATING INSTRUCTIONS (English)	ARB7033
11	QUICK SET UP GUIDE (English)	ARB7039
12	SPACER	AHB7006

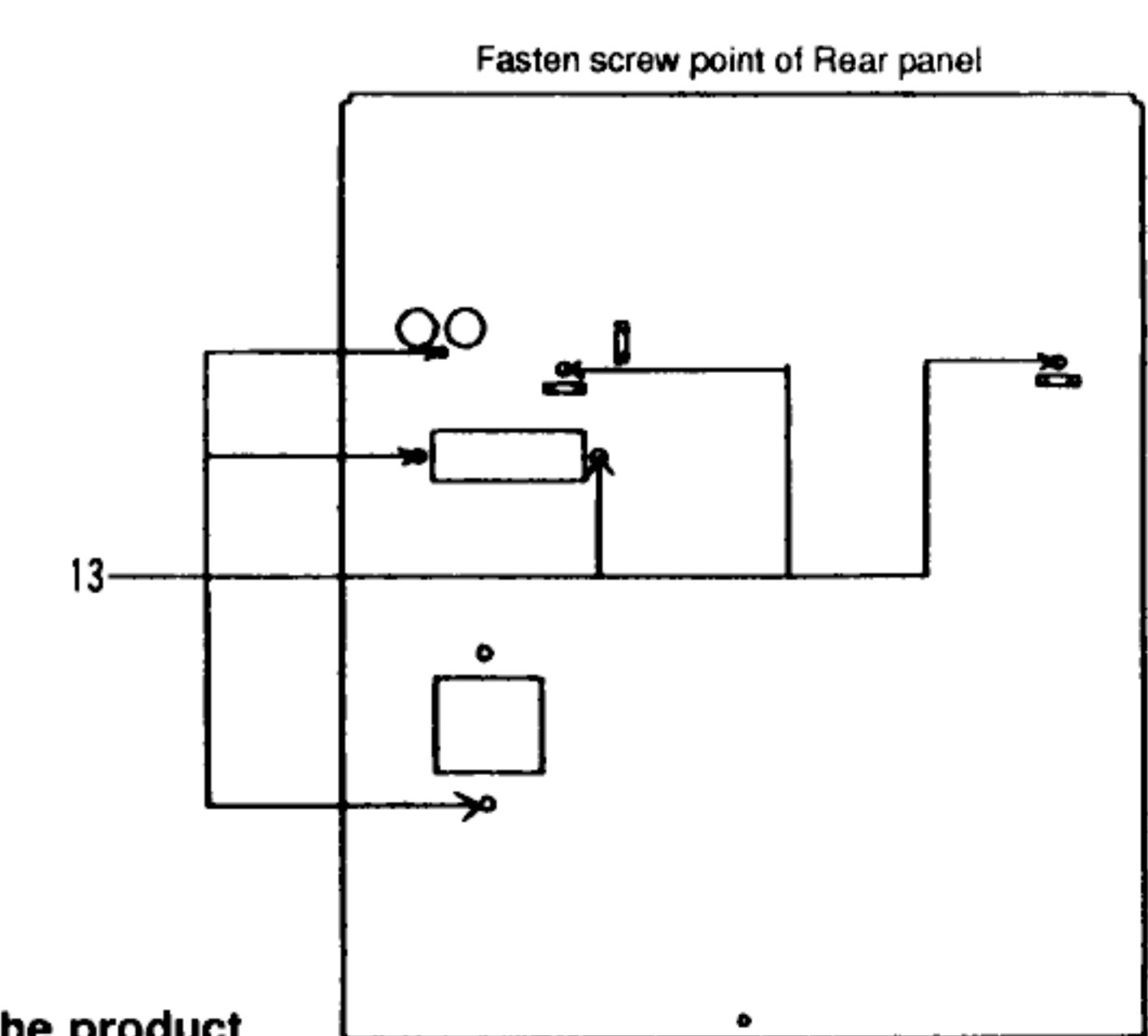
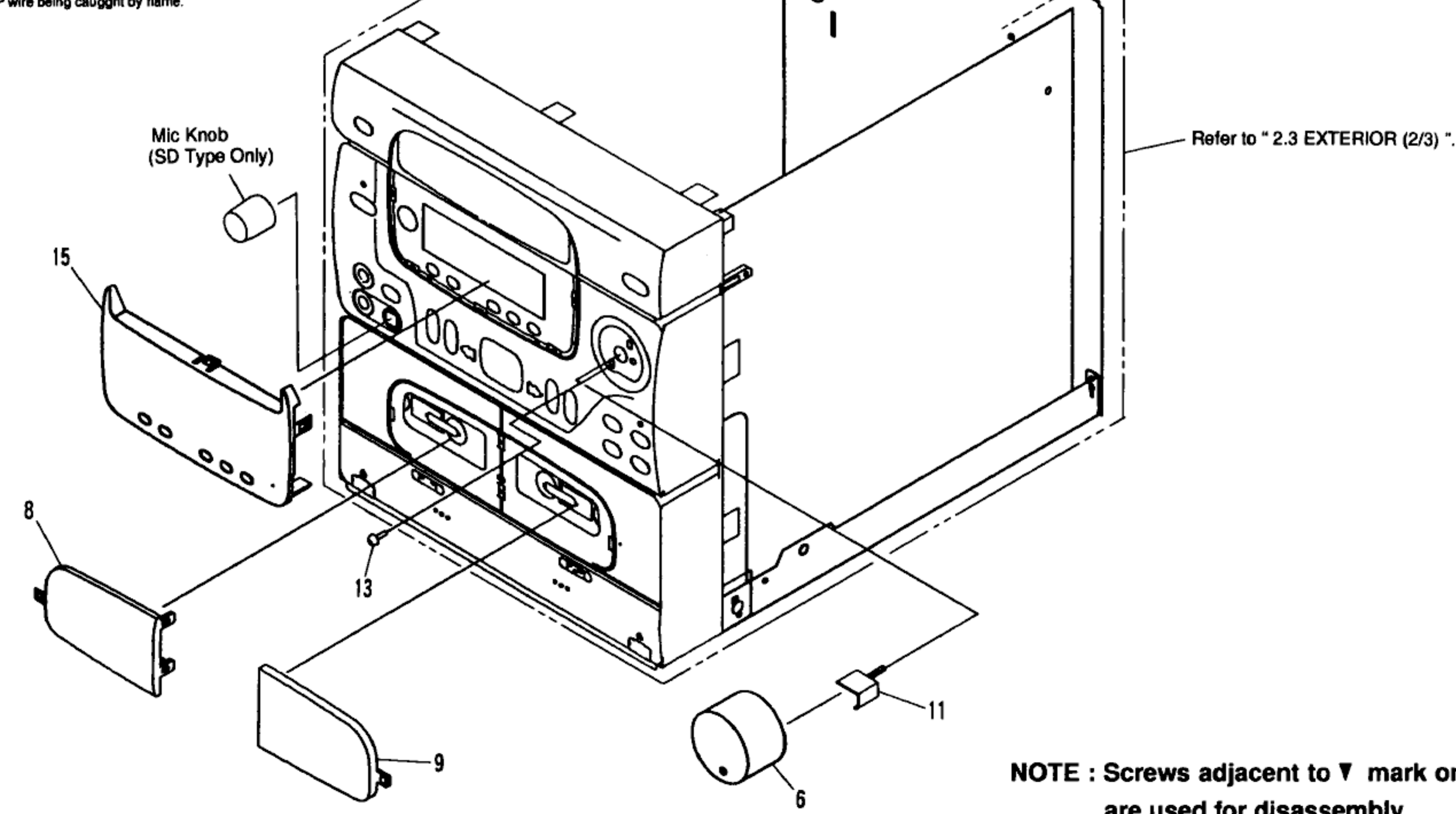


2.2 EXTERIOR (1/3)

Mark No.	Description	Parts No.
NSP 1	CD SINGLE MECHA ASSY	RXA1672
2	CD HOLDER L	ANG7023
3	CD HOLDER R	ANG7024
4	
5	
A 6	VOL. KNOB	AAB7051
7	
8	DECK WINDOW L	AAK7136
9	DECK WINDOW R	AAK7137
10	TRAY CAP	AAK7139
11	MOLD	AAK7142
12	BONNET	AZN7210
13	SCREW	BBZ30P080FZK
14	SCREW	BBZ30P180FMC
15	FL WINDOW	AAK7138
16	CAUTION LABEL (G)	VRW-329
NSP 17	CAUTION LABEL (F)	ARW1046
NSP 18	CAUTION LABEL	ARW1050



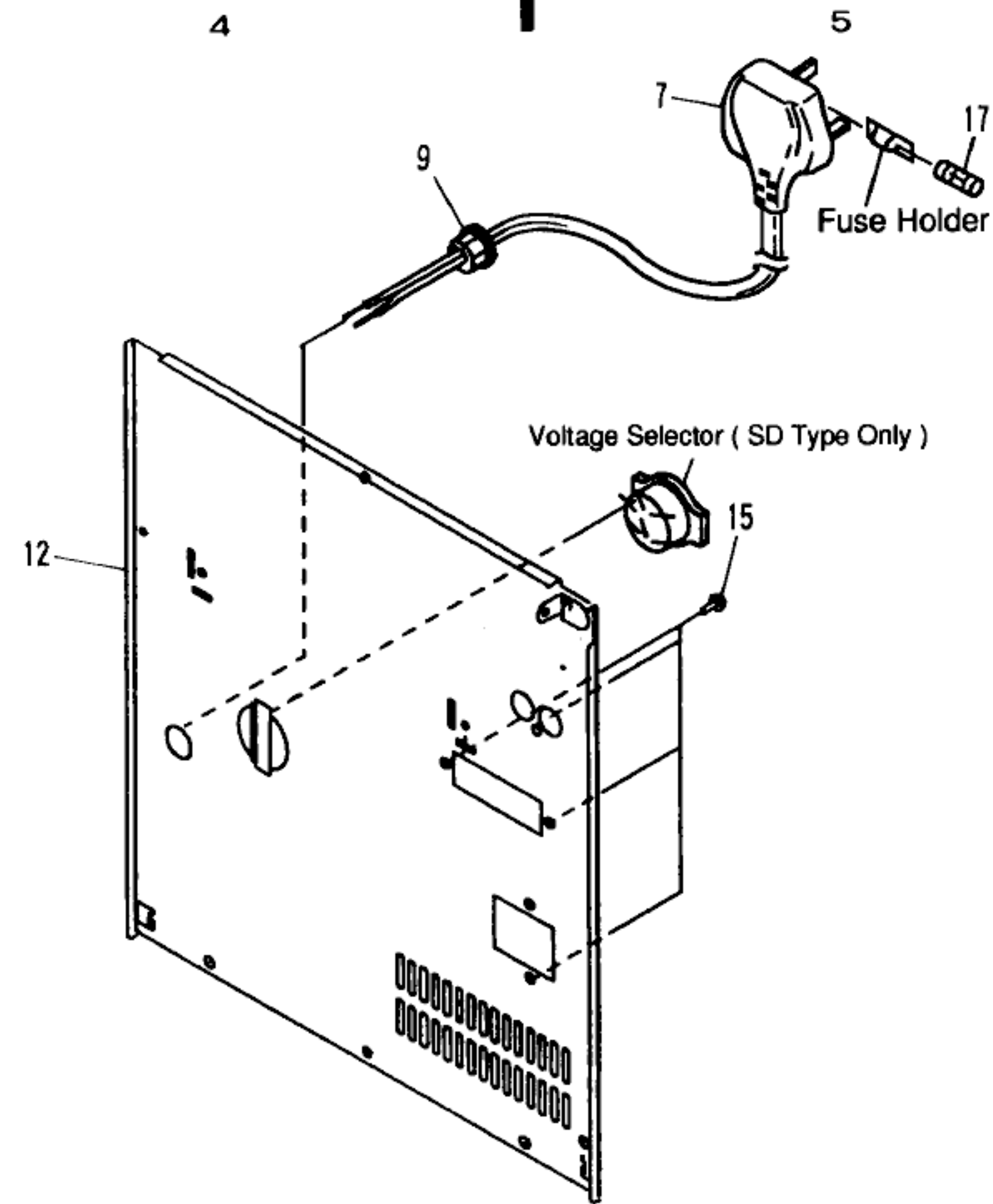
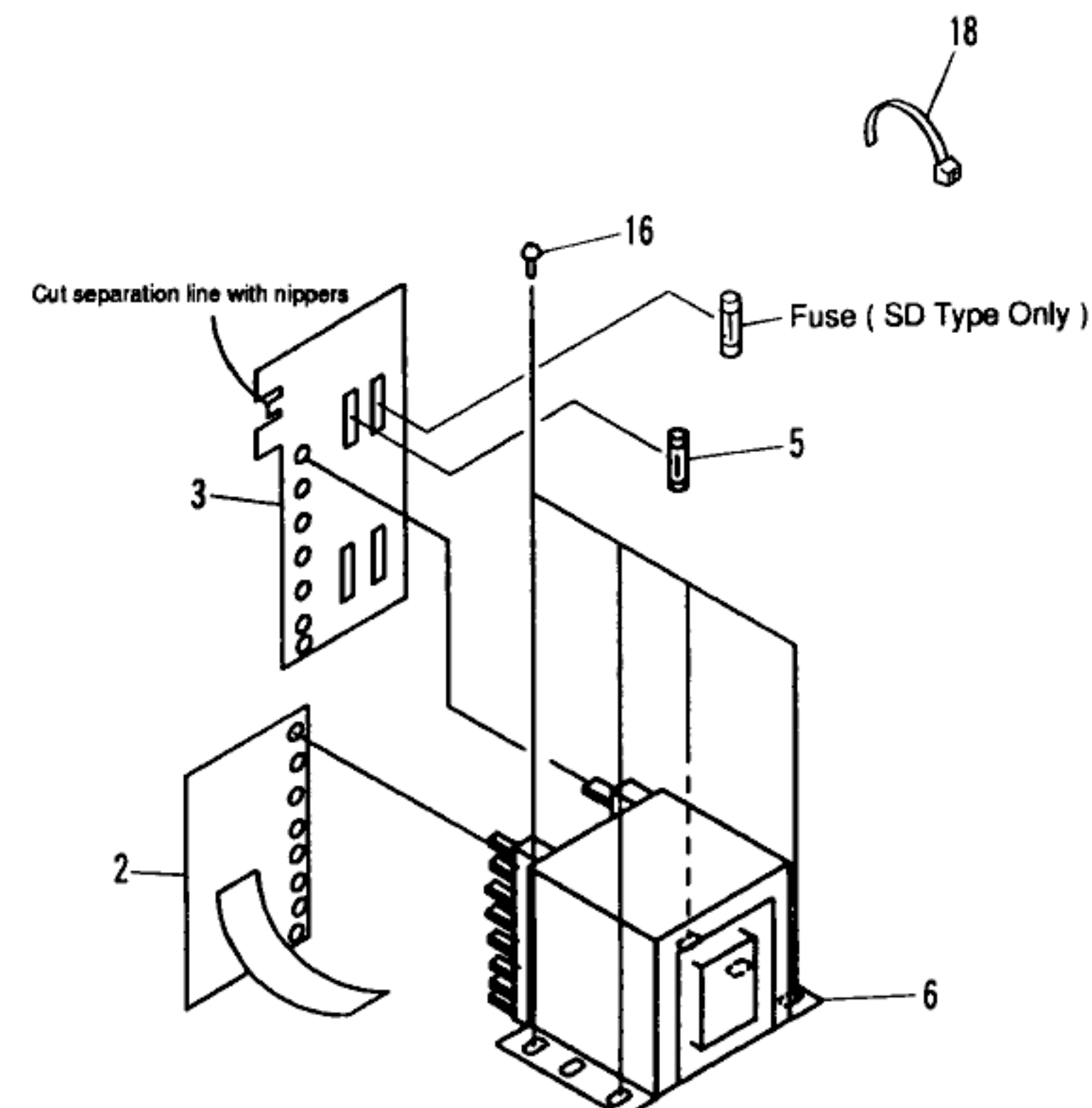
Avoid flexible JP wire being caught by flame.



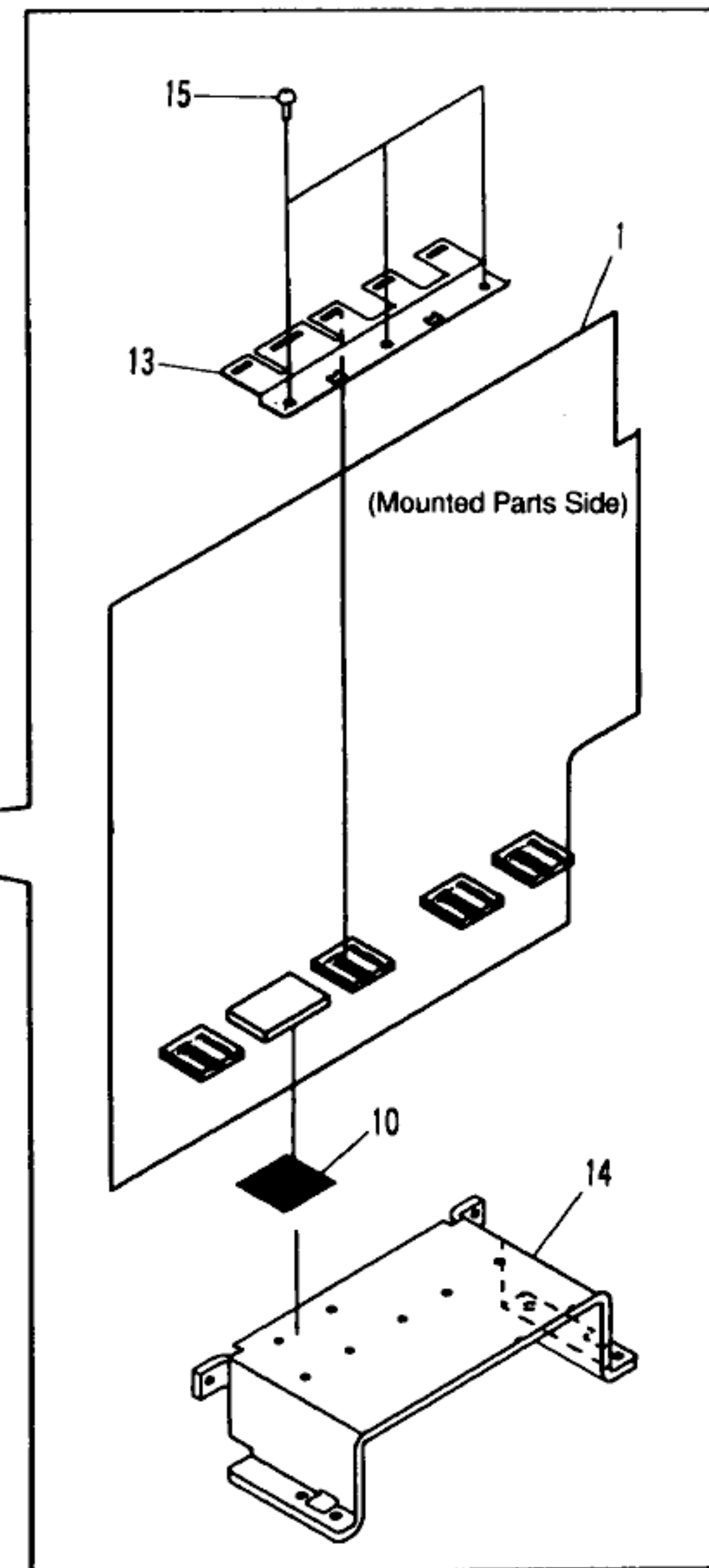
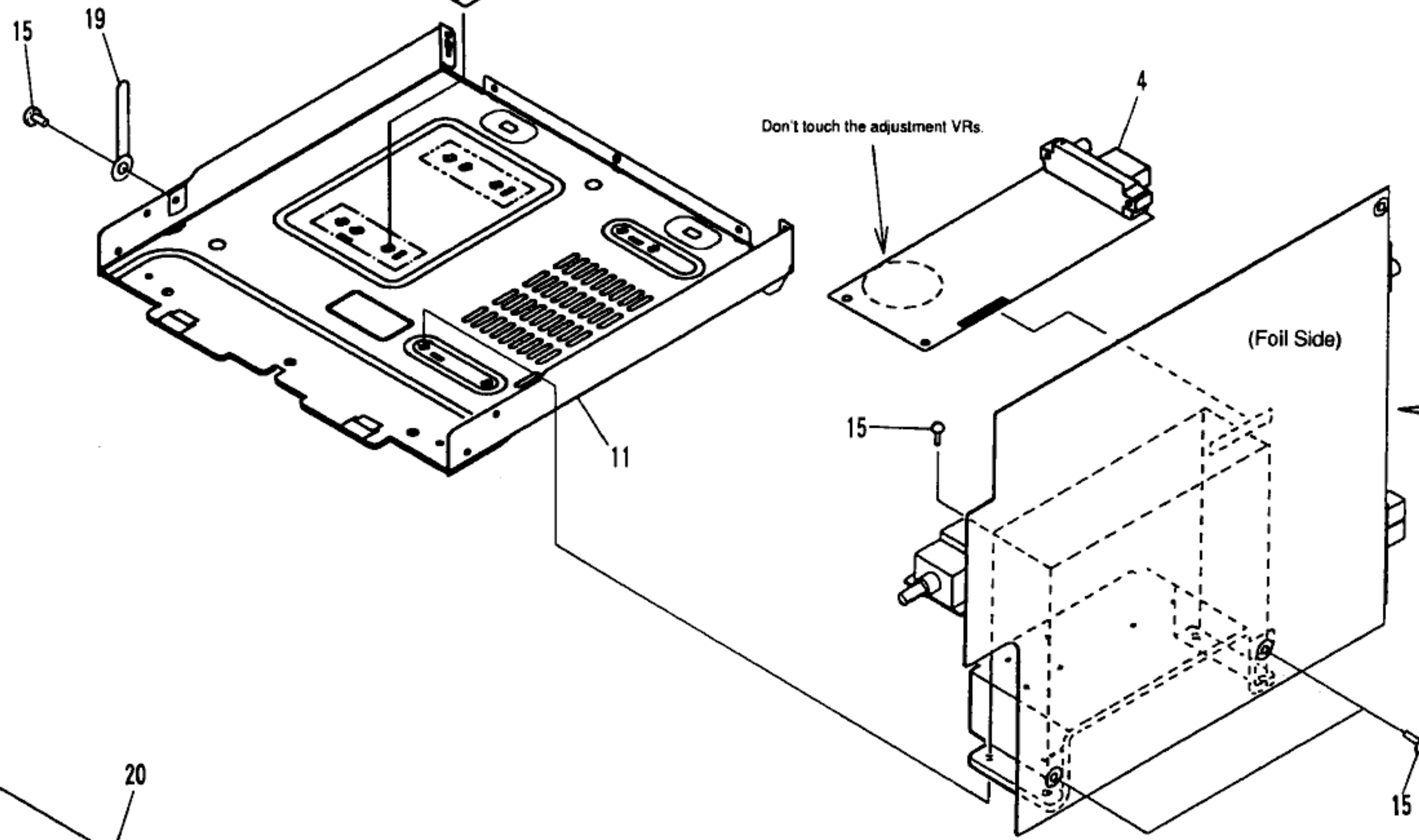
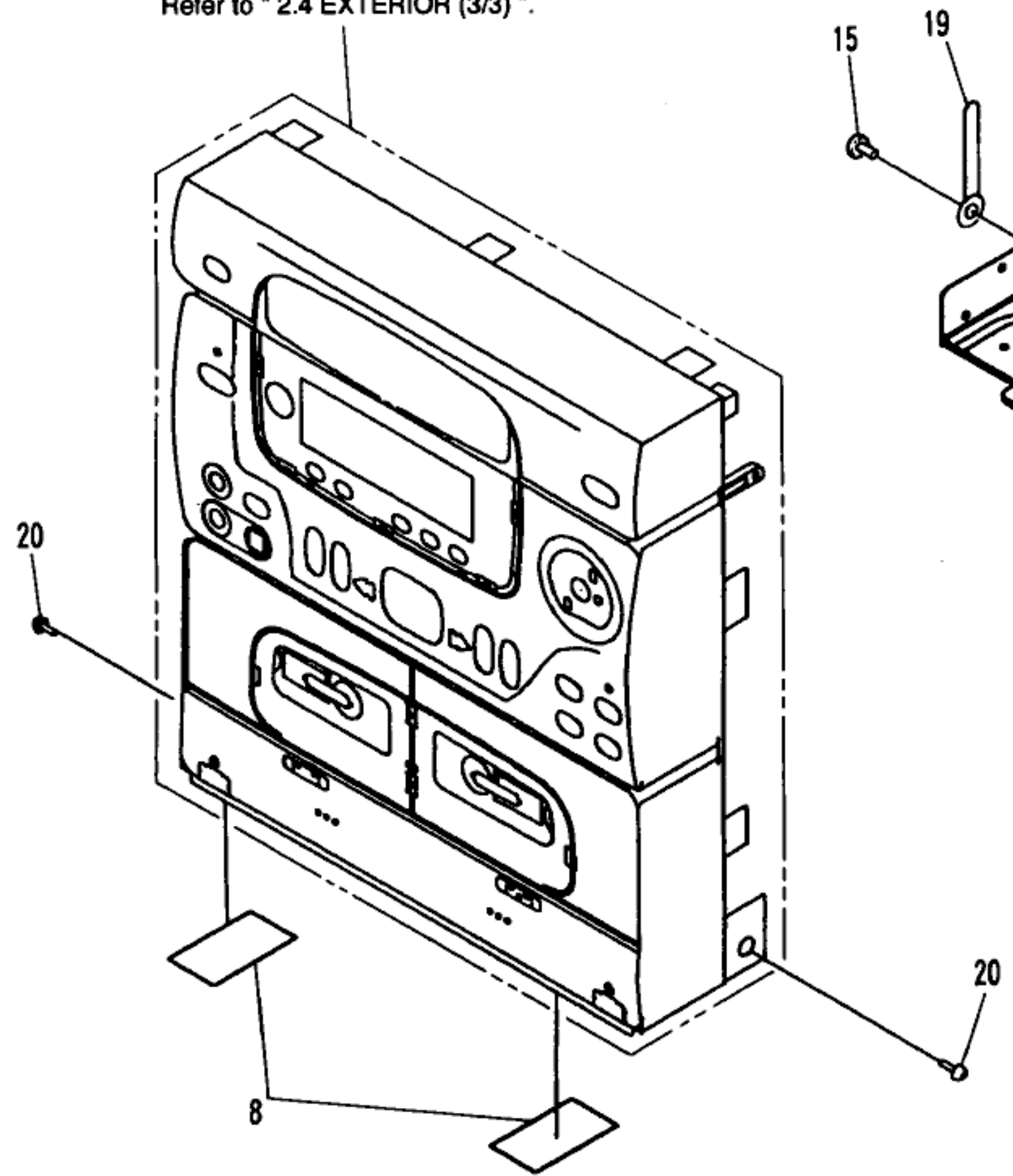
NOTE : Screws adjacent to ▼ mark on the product are used for disassembly.

2.3 EXTERIOR (2/3)

Mark	No.	Description	Parts No.
	1	AF ASSY	AWZ7501
NSP	2	SECONDARY ASSY	AWZ7508
	3	PRIMARY ASSY	AWZ7509
A	4	FM/AM TUNER MODULE	AXQ3213
△	5	FUSE (T500mA, FU1)	AEK1051
△	6	POWER TRANSFORMER (T)	ATS7054
△	7	AC POWER CORD	ADG1148
	8	RUBBER SHEET	AEB1111
	9	STRAIN RELIEF	AEC-882
	10	MICA SHEET	AEE7003
NSP	11	CHASSIS	ANA7020
	12	REAR PANEL	ANC7215
	13	POWER PACK HOLDER	ANG7025
NSP	14	HEAT SINK	ANH7015
	15	SCREW	BBZ30P080FZK
	16	SCREW	BBZ40P060FMC
△	17	FUSE (T5A)	AEK1046
	18	BINDER	Z09-056
NSP	19	CORD BINDER	DNF1128
B	20	SCREW	CBZ30P080FZK

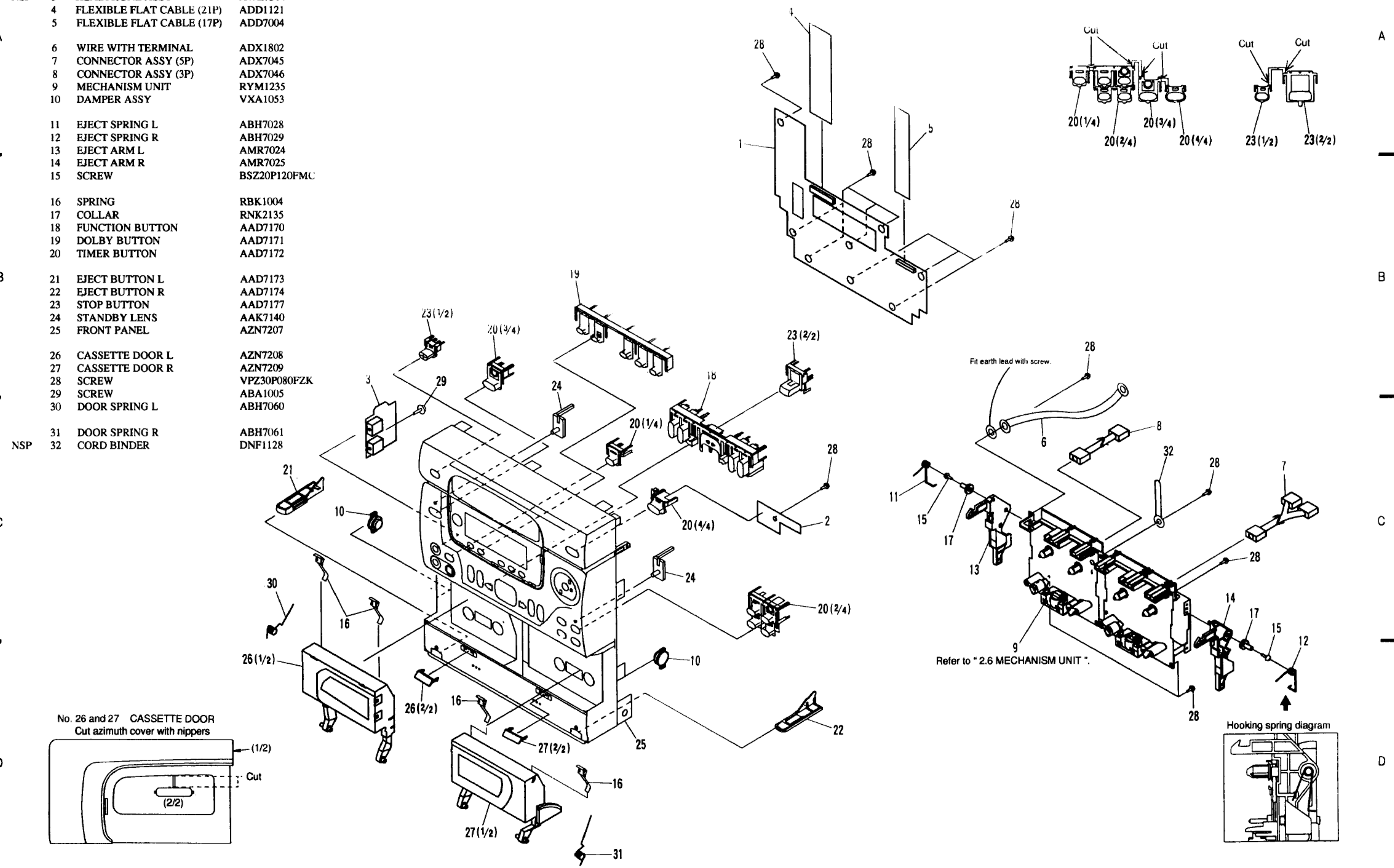


Refer to "2.4 EXTERIOR (3/3)".



2.4 EXTERIOR (3/3)

Mark No.	Description	Parts No.
	1 DISPLAY ASSY	AWZ7504
NSP	2 EJECT SW ASSY	AWZ7513
NSP	3 HEADPHONE ASSY	AWZ7514
	4 FLEXIBLE FLAT CABLE (21P)	ADD1121
	5 FLEXIBLE FLAT CABLE (17P)	ADD7004
A	6 WIRE WITH TERMINAL	ADX1802
	7 CONNECTOR ASSY (5P)	ADX7045
	8 CONNECTOR ASSY (3P)	ADX7046
	9 MECHANISM UNIT	RYM1235
	10 DAMPER ASSY	VXA1053
	11 EJECT SPRING L	ABH7028
	12 EJECT SPRING R	ABH7029
	13 EJECT ARM L	AMR7024
	14 EJECT ARM R	AMR7025
	15 SCREW	BSZ20P120FMC
	16 SPRING	RBK1004
	17 COLLAR	RNK2135
	18 FUNCTION BUTTON	AAD7170
	19 DOLBY BUTTON	AAD7171
	20 TIMER BUTTON	AAD7172
B	21 EJECT BUTTON L	AAD7173
	22 EJECT BUTTON R	AAD7174
	23 STOP BUTTON	AAD7177
	24 STANDBY LENS	AAK7140
	25 FRONT PANEL	AZN7207
	26 CASSETTE DOOR L	AZN7208
	27 CASSETTE DOOR R	AZN7209
	28 SCREW	VPZ30P080FZK
	29 SCREW	ABA1005
	30 DOOR SPRING L	ABH7060
NSP	31 DOOR SPRING R	ABH7061
	32 CORD BINDER	DNF1128



2.5 CD SINGLE MECHA ASSY

Mark No. Description Parts No.

A

1 LEVER SWITCH (CLAMP, S601) DSK1003
 2 FLOAT SCREW PBA1048
 3 RUBBER BELT PEB1193
 4 MOTOR PULLEY PNW1634
 5 TRAY PNW2455

6 FROAT BASE PNW2032
 7 DRIVE GEAR 2 PNW2369
 8 GEAR PULLEY PNW2034
 9 CLAMPER BASE PNW2375
 10 CLAMP CAM PNW2364

11 DC MOTOR/0.75W (LOADING) PXM1010
 12 FLOAT RUBBER B PEB1287
 (NBXK, MEXK/EA, MEXK/EB TYPES)
 12 FLOAT RUBBER (SD TYPE) PEB1014
 13 FLOAT RUBBER G PEB1288
 (NBXK, MEXK/EA, MEXK/EB TYPES)
 13 FLOAT RUBBER (SD TYPE) PEB1132
 14 SCREW BPZ26P080FMC
 15 SCREW Z39-019

B

16 SCREW PMZ26P040FMC
 17 PINION GEAR PNW2055
 18 DC MOTOR (CARRIAGE) PXM1027
 19 DC MOTOR ASSY (SPINDLE) PEA1235
 20 CARRIAGE BASE PNW2445

21 DISC TABLE PNW1608
 22 SCREW JFZ20P030FNI
 23 SCREW JFZ17P025FZK
 24 GEAR 3 PNW2054
 25 GEAR 2 PNW2053

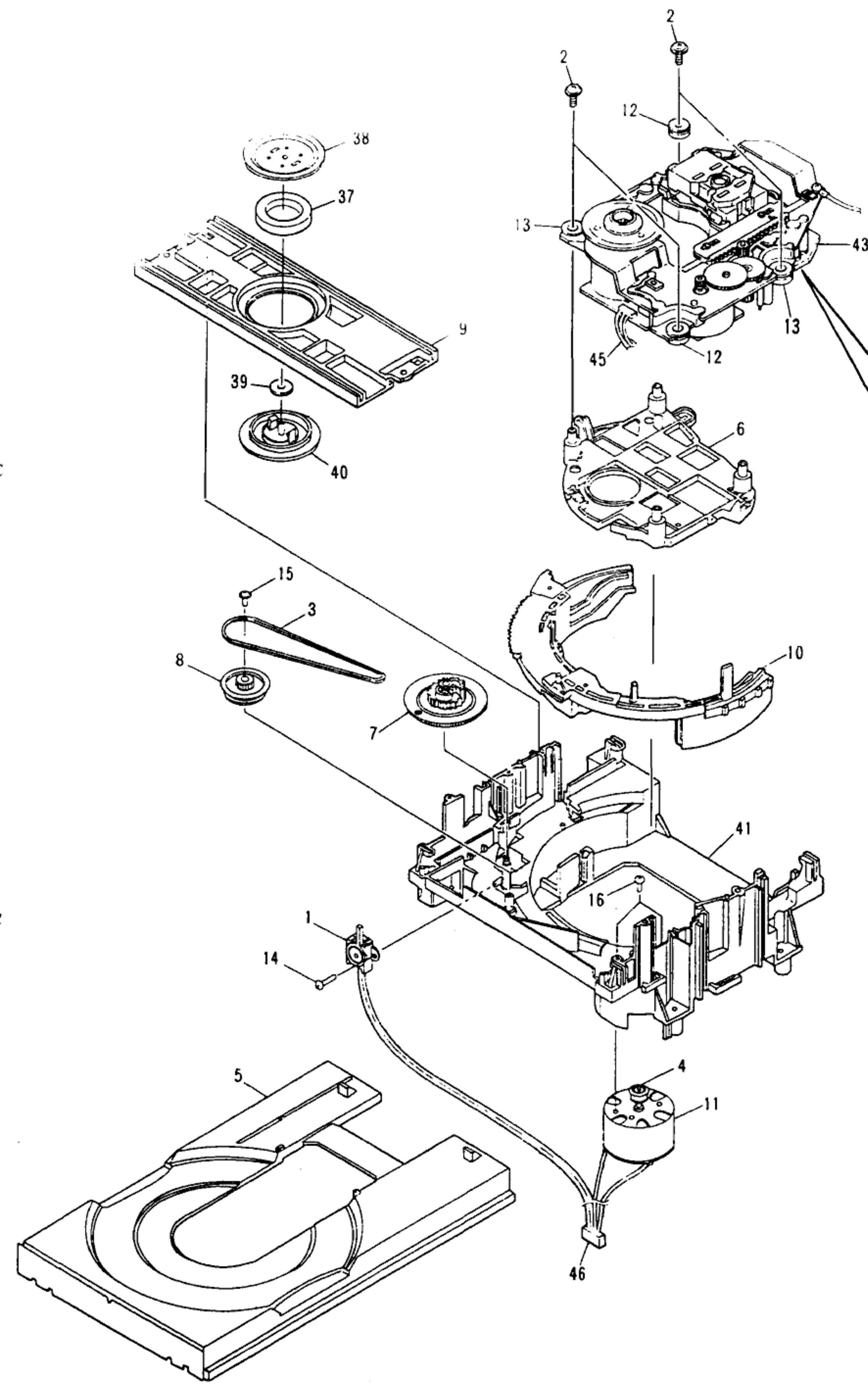
26 WASHER WT12D032D025
 27 PICKUP ASSY PEA1291
 28 GUIDE BAR PLA1094
 29 GEAR 1 PNW2052
 30 GEAR STOPPER PNB1303

C

31 SCREW BPZ20P060FMC
 32 PWB HOLDER PNW2057
 33 SCREW BPZ26P100FMC
 34 EARTH LEAD UNIT PDF1104
 35 SCREW BBZ26P060FMC

NSP 36 MECHANISM BOARD ASSY PWX1192
 37 CLAMP MAGNET PMF1014
 38 YOKE PNB1216
 NSP 39 H RUBBER PEB1249
 40 CLAMPER S PNW1609

41 LOADING BASE PNW2376
 42 DC MOTOR ASSY (CARRIAGE) PEA1246
 43 SERVO MECHANISM ASSY AXA7017
 44
 45 CONNECTOR ASSY (4P) RDE1043
 46 CONNECTOR ASSY (5P) PDE1239

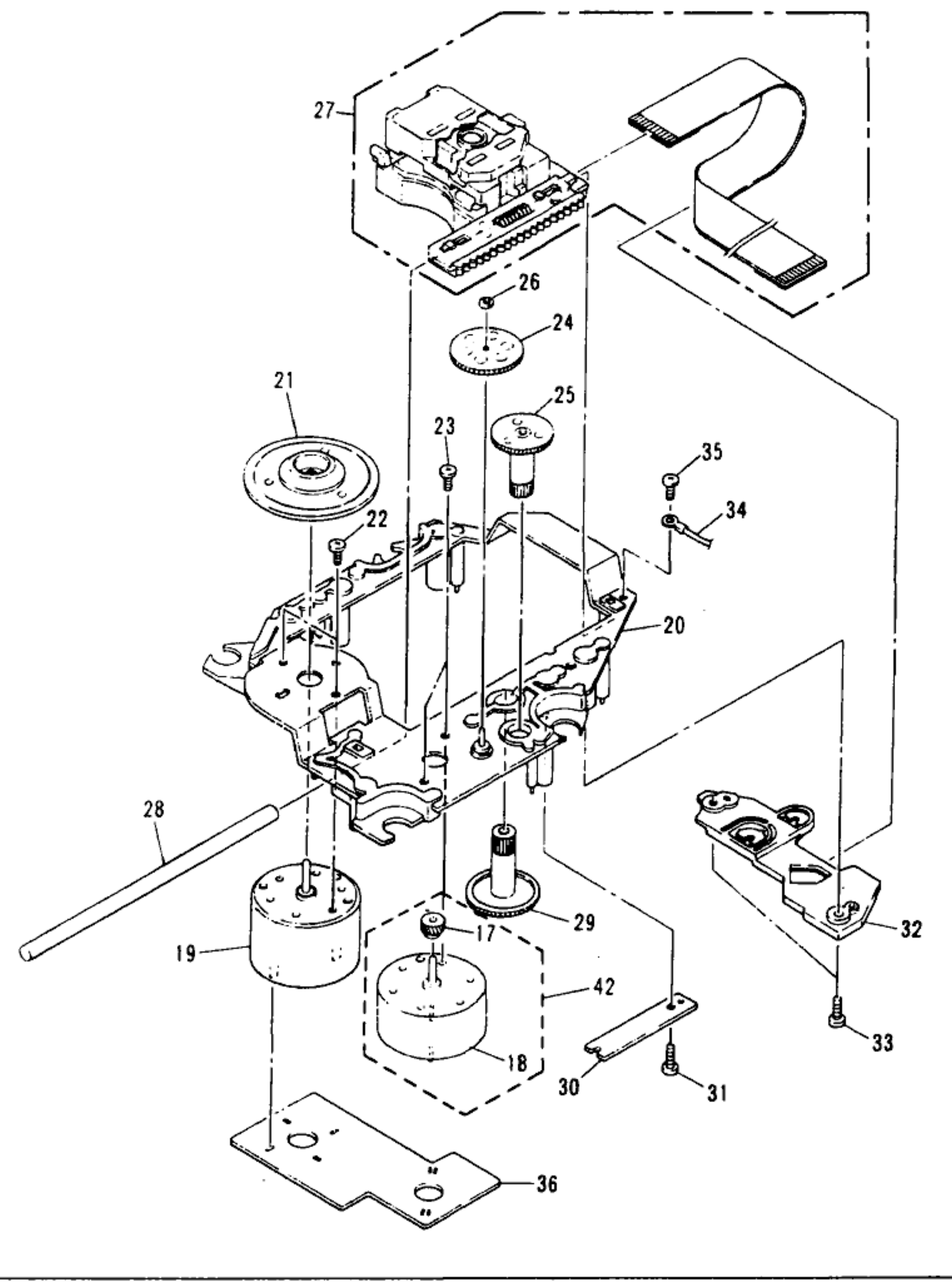


● How to install the disc table

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

2 While supporting the spindle motor shaft with the stopper, put spacer on top of the motor base (angled so it doesn't touch section (B)), and stick the disc table on top (takes about 9kg pressure). Take off the spacer.

The diagram illustrates the two-step process of installing the disc table. Step 1 shows the removal of a spacer from the PWB holder. Step 2 shows the disc table being placed on the spindle motor shaft, supported by a spacer. Dimensions are provided: a pressure of about 9kg, a disc table thickness of 3.1 mm ± 0.05 mm, and a carriage base height of 6.9 mm.



2.6 MECHANISM UNIT

● Mechanism unit I and II (1/2)

Mark No.	Description	Parts No.
1	ASSY MOTOR	RXM1080
2	JUMPER WIRE	RDD1012
3	BRACKET MOTOR	RNE1830
4	SPACER	RNK1822
5	SCREW	RBA1100
6	SCREW	PCZ20P040FMC

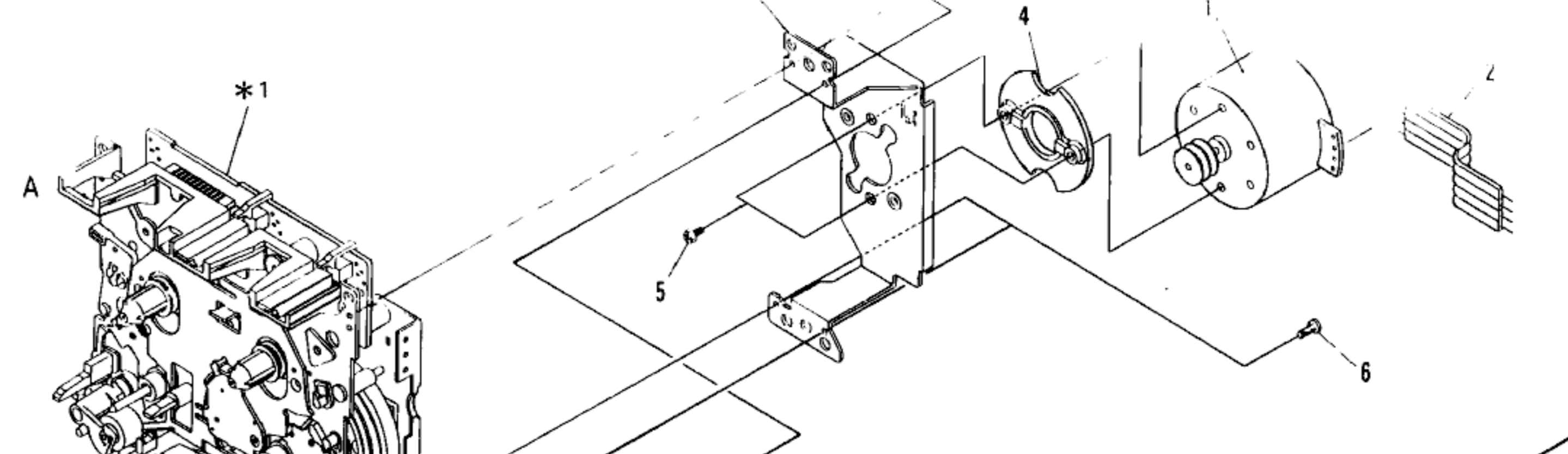
● Mechanism unit I and II (2/2)

Mark No.	Description	Parts No.
1	ASSY HOLDER HEAD (*1)	RXA1400
1	ASSY HOLDER HEAD (*2)	RXA1664
2	FRAME HEAD	RNK1715
3	LEVER HEAD	RNK1716
4	SPRING AZIMUTH	RBK1006
5	ASSY ARM ASSIST	RXA1401
6	GEAR ARM HEAD	RNK1717
7	SPRING CASSETTE	RBK1039
8	EJECT LOCK	RNK1718
9	CAP REEL	RNK1719
10	ASSY PINCH ARM L	RXA1403
11	CHASSIS HEAD	RNE1437
12	ASSY PINCH ARM R	RXA1404
13	ARM PLAY L	RNK1866
14	GEAR PLAY	RNK1867
15	ARM PLAY R	RNK1868
16	CHASSIS OS	RXA1411
17	ASSY SUB REEL L	RXA1407
18	SOLENOID	RXP1020
19	WIRE	RDC1006
20	ARM RVS	RNK1721
21	GEAR FF	RNK1723
22	ASSY ARM FR	RXA1412
23	ASSY PULLEY FR	RXA1413
24	BELT FR	REB1158
25	METAL	RNG1048
26	ASSY FLYWHEEL L (*1)	RXA1666
26	ASSY FLYWHEEL L2 (*2)	RXA1668
27	METAL	RNG1005
28	ARM BRAKE	RNK1724
29	ASSY SUB REEL R	RXA1408
30	ARM TRIGER	RNK1722
31	GEAR CAM	RNK1725
32	METAL	RNG1049
33	ASSY FLYWHEEL R (*1)	RXA1667
33	ASSY FLYWHEEL R2 (*2)	RXA1669
34	METAL	RNG1004
35	

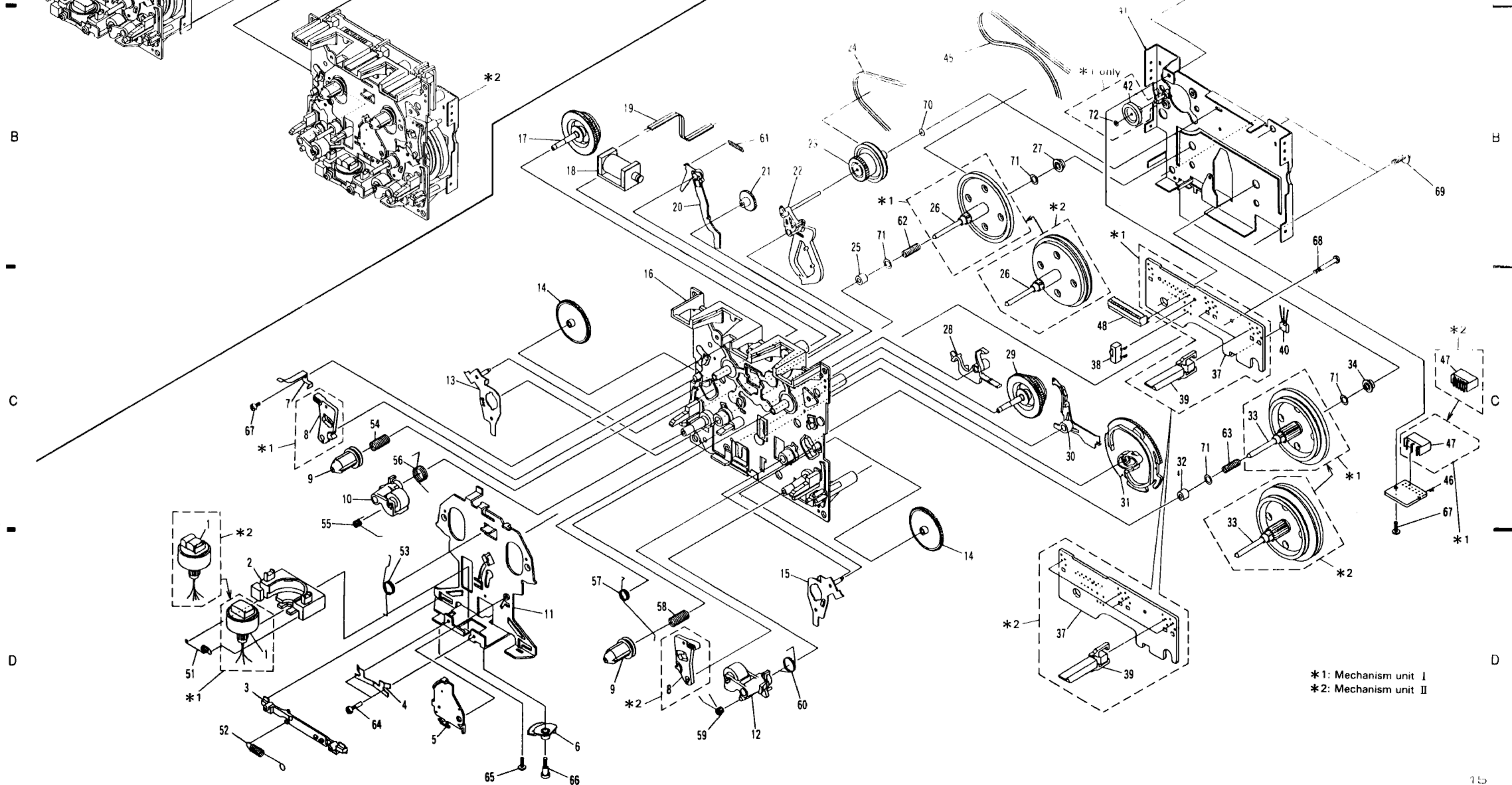
Mark No.	Description	Parts No.
36	
37	P. C. BOARD	RNP1610
38	SWITCH MODE	RSN1020
39	SWITCH (LEAF)	RSN1019
40	HALL IC	DN6851A
41	ASSY BRACKET (*1)	RXA1665
41	BRACKET FW (*2)	RNE1438
42	PULLEY (*1 only)	RNK2132
43	
44	
45	BELT MAIN (*1)	REB1273
45	BELT MAIN (*2)	REB1272
46	P. C. BOARD	RNP1348
47	HOUSING (*1)	RKP1396
47	HOUSING (*2)	RKP1397
48	CONNECTOR (*1)	RKP1713
48	CONNECTOR (*2)	RKP1714
49	
50	
51	SPRING	RBH1282
52	SPRING	RBH1283
53	SPRING	RBH1284
54	SPRING	RBH1286
55	SPRING	RBH1288
56	SPRING	RBH1291
57	SPRING	RBH1285
58	SPRING	RBH1287
59	SPRING	RBH1289
60	SPRING	RBH1290
61	SPRING	RBH1292
62	FWP SP (SPRING)	RBH1061
63	SPRING	RBH1325
64	SCREW (FOR AZIMUTH)	RBA1023
65	SCREW	RBA1027
66	SCREW	RBA1030
67	SCREW	PCZ20P040FMC
68	SCREW	RBA1093
69	SCREW	RBA1094
70	WASHER	RBF1046
71	WASHER	WA26D047D013
72	WASHER (*1 only)	WT13D030D025

Note)
 *1: Mechanism Unit I
 *2: Mechanism Unit II

● Mechanism unit I and II (1/2)



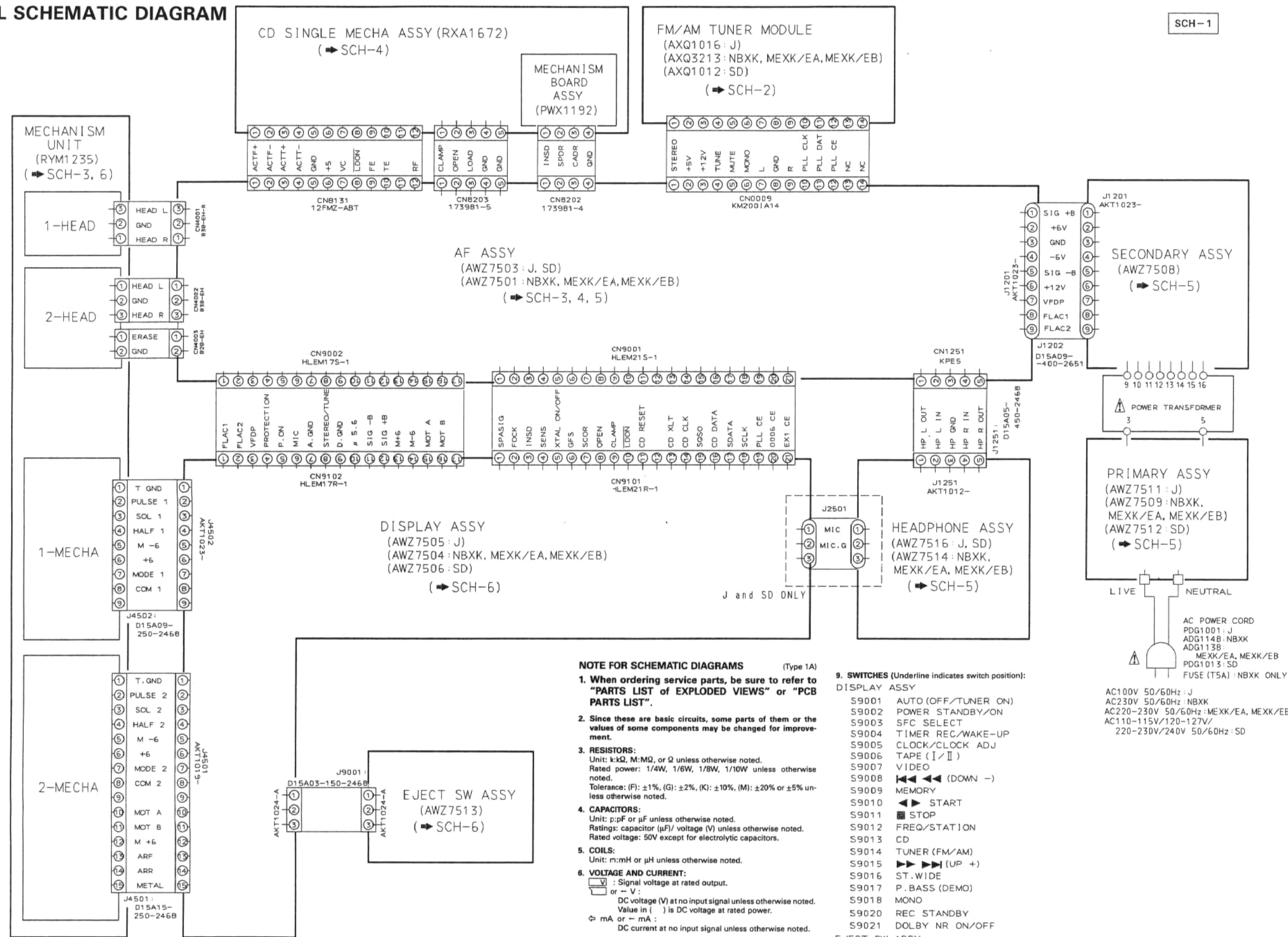
● Mechanism unit I and II (2/2)



*1: Mechanism unit I
 *2: Mechanism unit II

3. SCHEMATIC AND PCB CONNECTION DIAGRAMS

3.1 OVERALL SCHEMATIC DIAGRAM



NOTE FOR SCHEMATIC DIAGRAMS (Type 1A)

- When ordering service parts, be sure to refer to "PARTS LIST OF EXPLODED VIEWS" or "PCB PARTS LIST".**
- Since these are basic circuits, some parts of them or the values of some components may be changed for improvement.
- RESISTORS:**
Unit: 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.
- CAPACITORS:**
Unit: pF or μF unless otherwise noted.
Ratings: capacitor (μF)/voltage (V) unless otherwise noted.
Rated voltage: 50V except for electrolytic capacitors.
- COILS:**
Unit: mH or μH unless otherwise noted.
- VOLTAGE AND CURRENT:**
V: Signal voltage at rated output.
or -V: DC voltage (V) at no input signal unless otherwise noted. Value in () is DC voltage at rated power.
mA or -mA: DC current at no input signal unless otherwise noted.
- OTHERS:**
⊙ or ⊚: Adjusting point.
•: Measurement point.
The Δ mark found on some component parts indicates the importance of the safety factor of the parts. Therefore, when replacing, be sure to use parts of identical designation.
- SCH-□ ON THE SCHEMATIC DIAGRAM:**
• SCH-□ indicates the drawing number of the schematic diagram. (SCH stands for schematic diagram.)

9. SWITCHES (Underline indicates switch position):

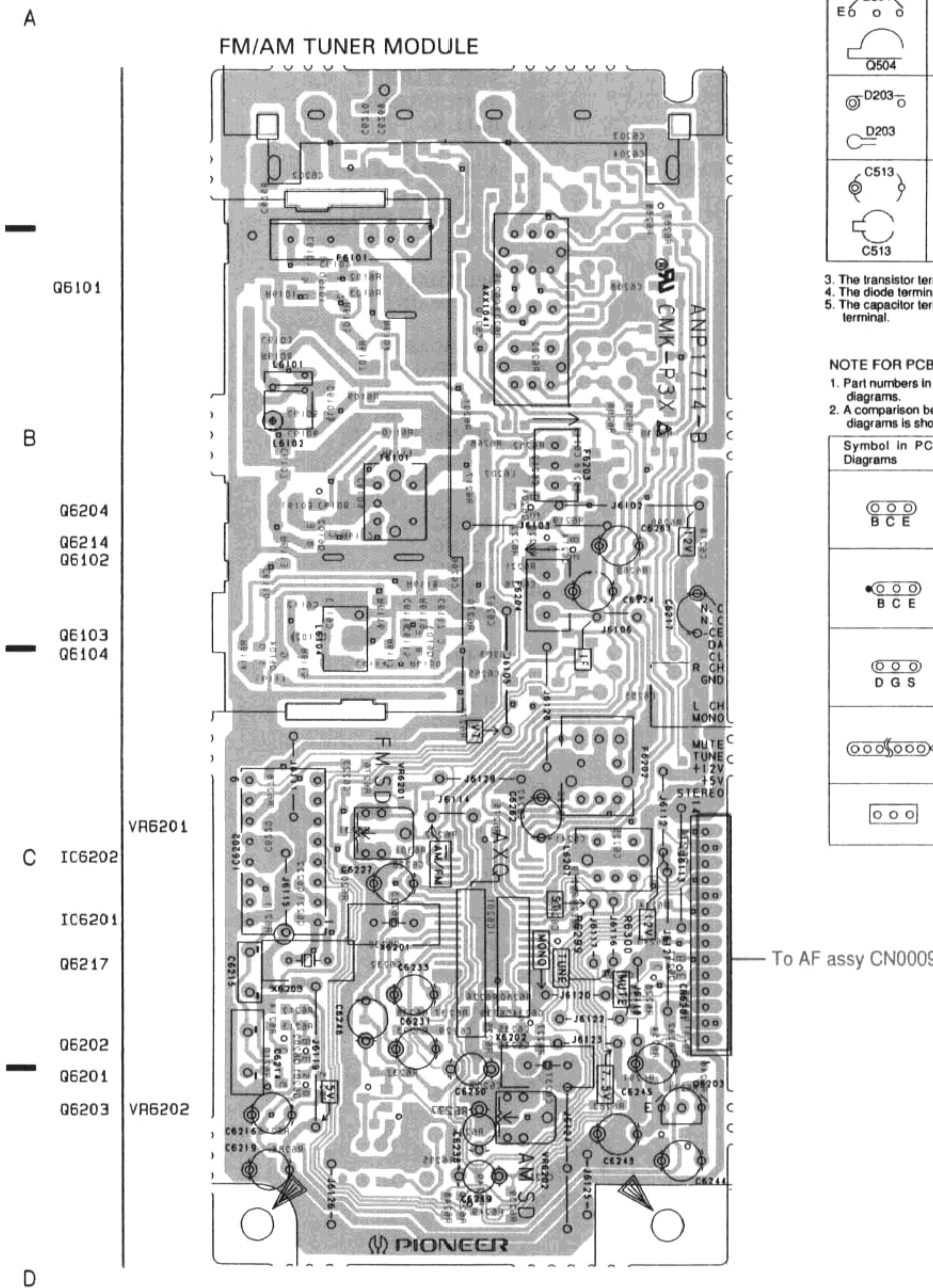
- DISPLAY ASSY**
- S9001 AUTO (OFF/TUNER ON)
 - S9002 POWER STANDBY/ON
 - S9003 SFC SELECT
 - S9004 TIMER REC/WAKE-UP
 - S9005 CLOCK/CLOCK ADJ
 - S9006 TAPE (I/II)
 - S9007 VIDEO
 - S9008 (DOWN -)
 - S9009 MEMORY
 - S9010 START
 - S9011 STOP
 - S9012 FREQ./STATION
 - S9013 CD
 - S9014 TUNER (FM/AM)
 - S9015 (UP +)
 - S9016 ST. WIDE
 - S9017 P. BASS (DEMO)
 - S9018 MONO
 - S9020 REC STANDBY
 - S9021 DOLBY NR ON/OFF
- EJECT SW ASSY**
- S9019 ▲ CD OPEN/CLOSE
- MECHANISM BOARD ASSY**
- S610 INSIDE SW

SCH-1

OVERALL SCHEMATIC DIAGRAM

3.2 FM/AM TUNER MODULE

- This diagram is viewed from the mounted parts side.



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.

SCH-1

OVERALL SCHEMATIC DIAGRAM

NOTE FOR PCB DIAGRAMS:

- Part numbers in PCB diagrams match those in the schematic diagrams.
- 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)

- The transistor terminal marked with E or C shows the emitter.
- The diode terminal marked with ⊕ or ⊖ shows cathode side.
- The capacitor terminal marked with ⊕ or ⊖ shows negative terminal.

NOTE FOR PCB DIAGRAMS:

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

FM/AM TUNER MODULE (AXQ3213: NBXK, MEXK/EA, MEXK/EB) (AXQ1012: SD)

NOTE: VOLTAGE AND CURRENT
 mV : Signal voltage at FM 1kHz, 100% MOD.
 or - V :
 DC voltage (V) at no input signal unless otherwise noted.
 Value in () is DC voltage at rated power.
 mA : DC current at no input signal unless otherwise noted.

SCH-2

A

B

C

D

A

B

C

D

	AXQ3213	AXQ1012
*1	R6288	0
*2	C6230	0.027
*3	C6232	0.027
*4	C6252	8200p
*5	C6251	8200p

N.C.
 N.C.
 CE
 DA
 CL
 R CH
 GND
 L CH
 MONO
 MUTE
 TUNE
 +12V
 +5V
 STEREO

To AF assy (3/3) CNO009 (SCH-5)

SIGNAL ROUTE
 (AM) : AUDIO SIGNAL ROUTE
 (AM) : AM SIGNAL ROUTE
 (FM) : FM SIGNAL ROUTE

SCH-2

FM/AM TUNER MODULE

SCH-2

FM/AM TUNER MODULE

3.3 AF ASSY, SECONDARY ASSY, PRIMARY ASSY, HEADPHONE ASSY, CD SINGLE MECHA ASSY, MECHANISM UNIT (1/2)

10 AF ASSY (3/3) (SCH 5)

SCH-3

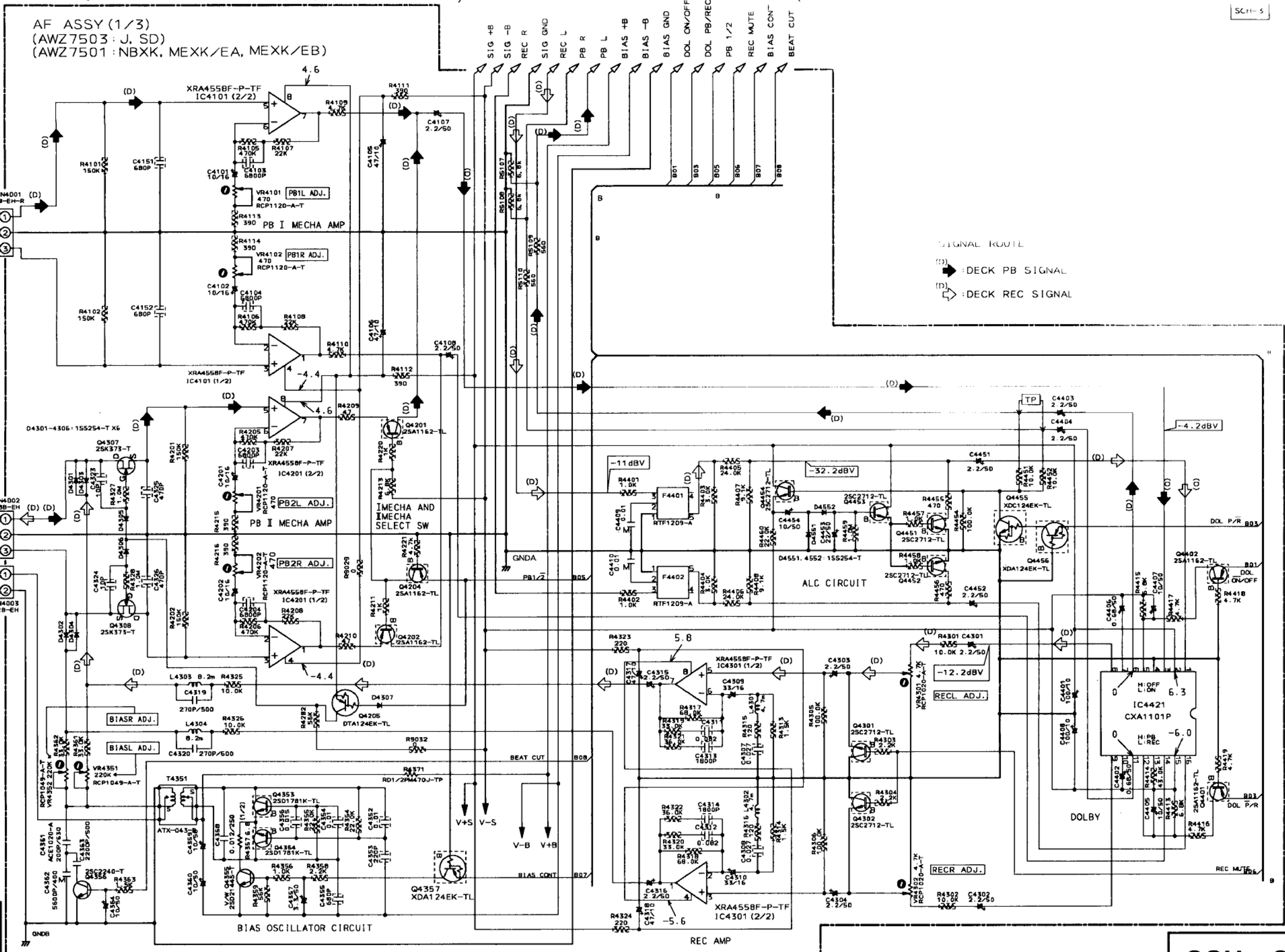
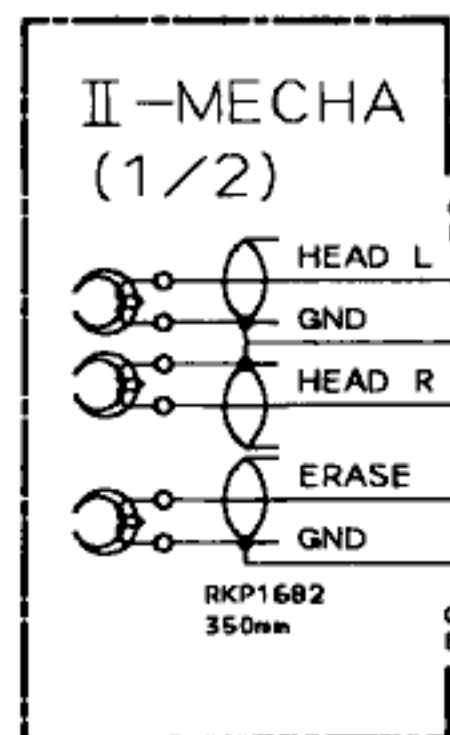
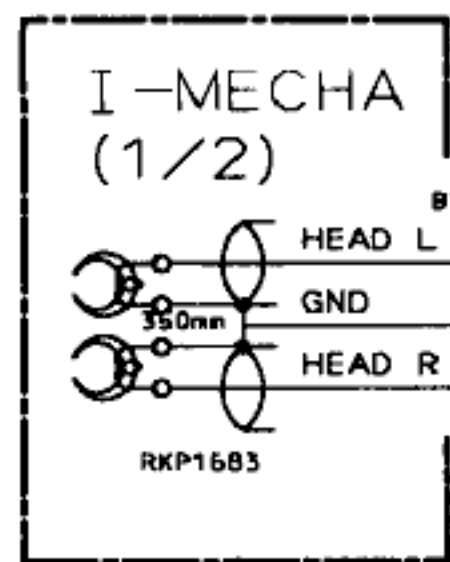
AF ASSY (1/3)
(AWZ7503 : J, SD)
(AWZ7501 : NBXK, MEXK/EA, MEXK/EB)

A

B

C

D



SIGNAL ROUTE
(D) : DECK PB SIGNAL
(D) : DECK REC SIGNAL

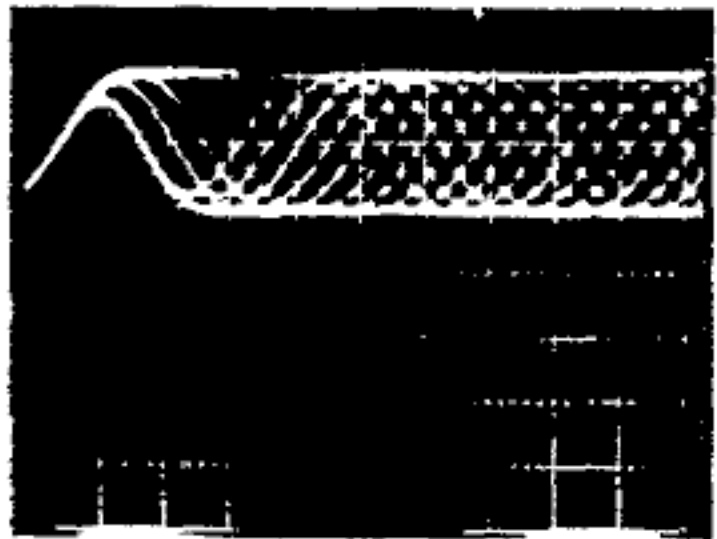
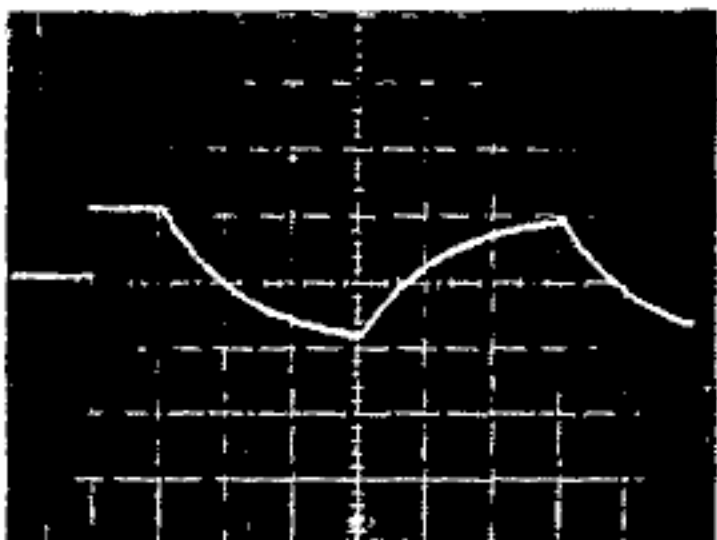
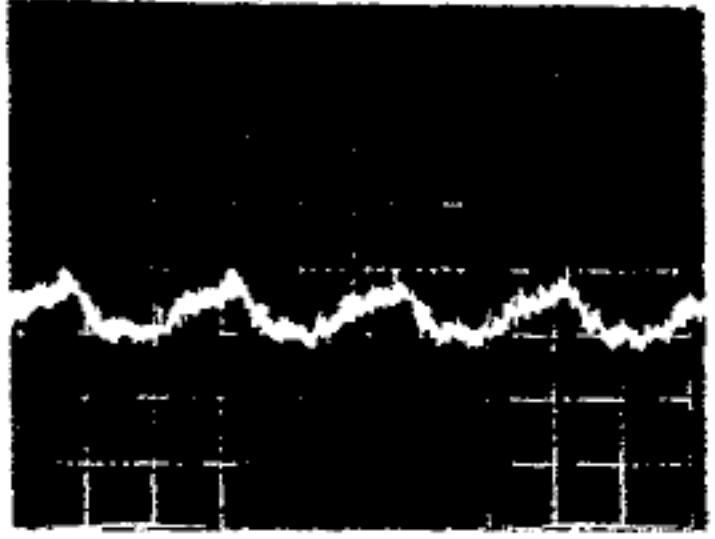
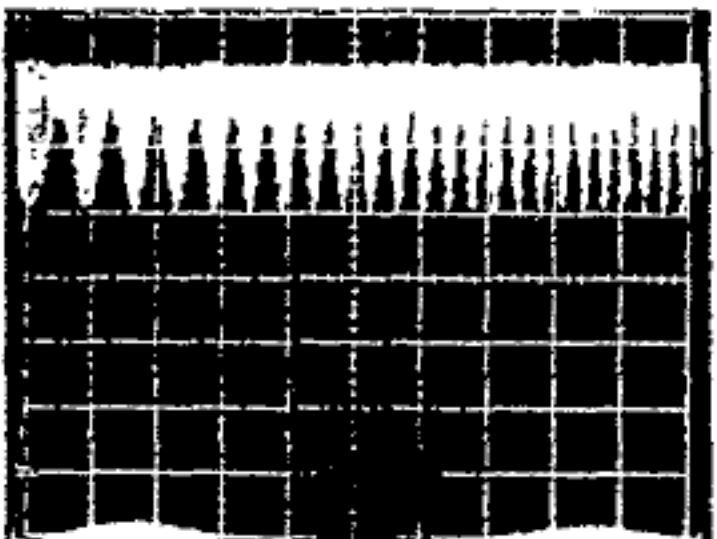
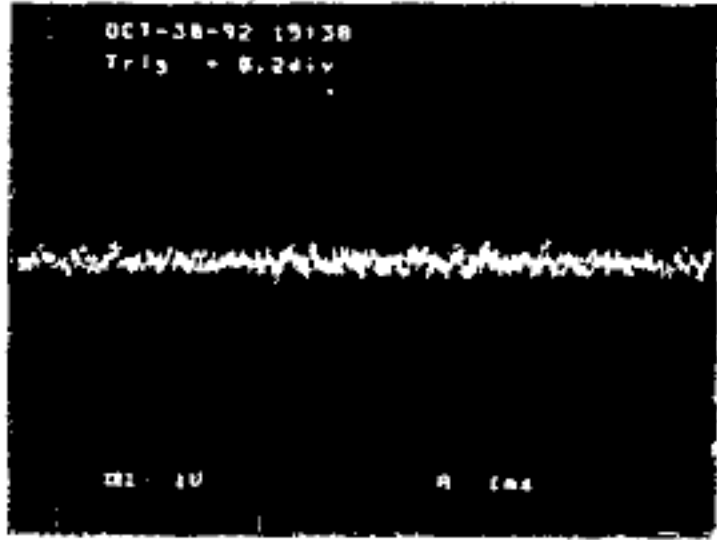
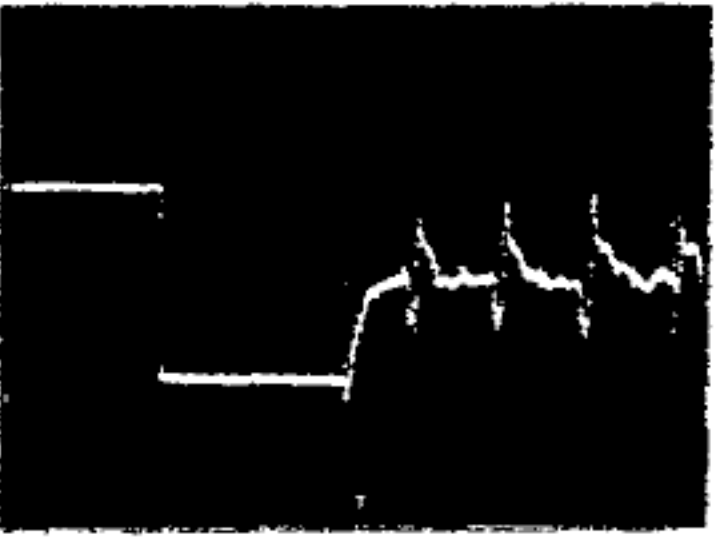
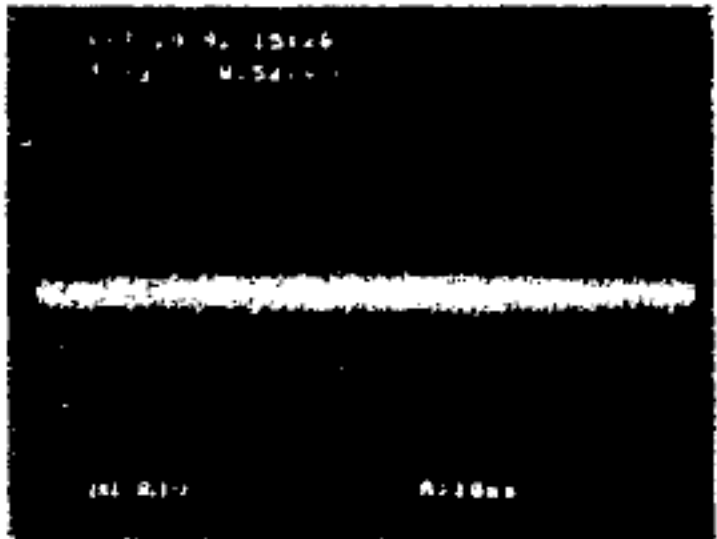
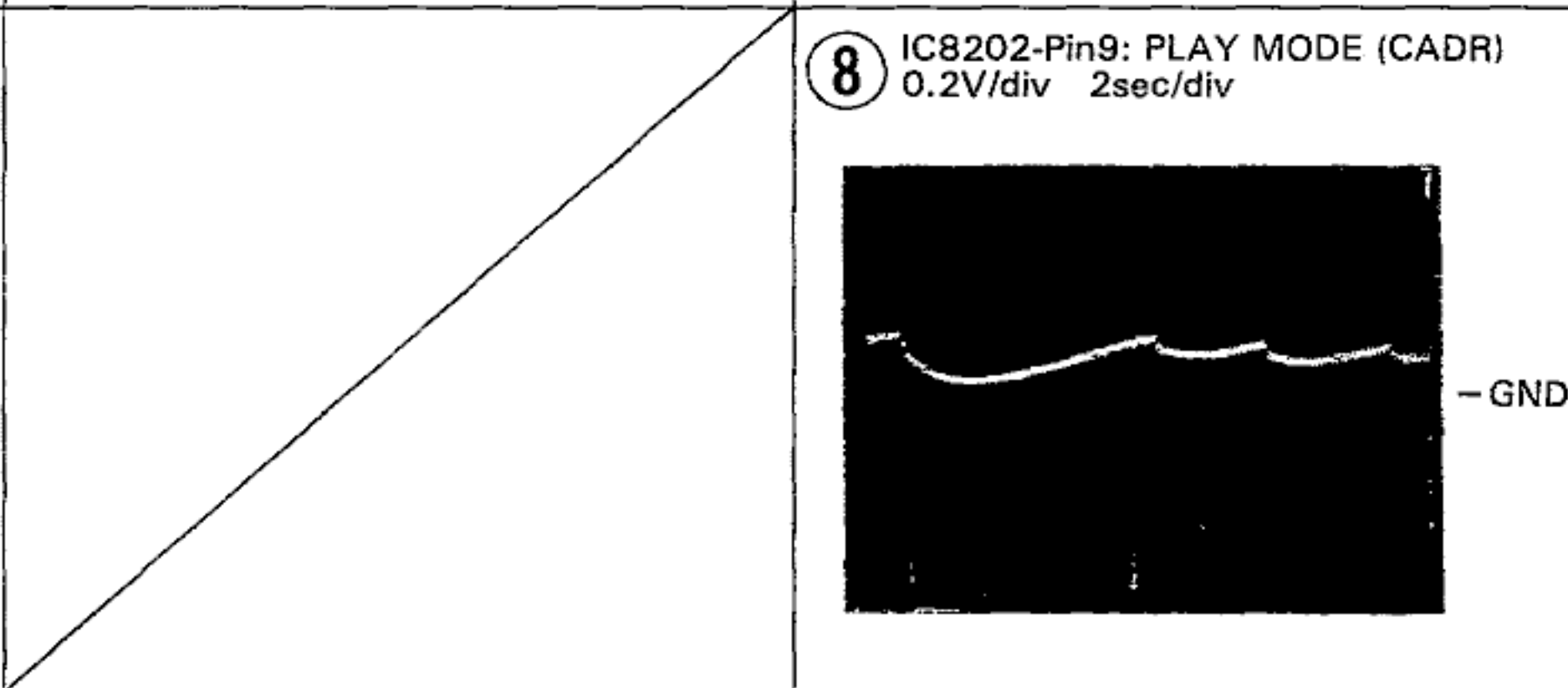
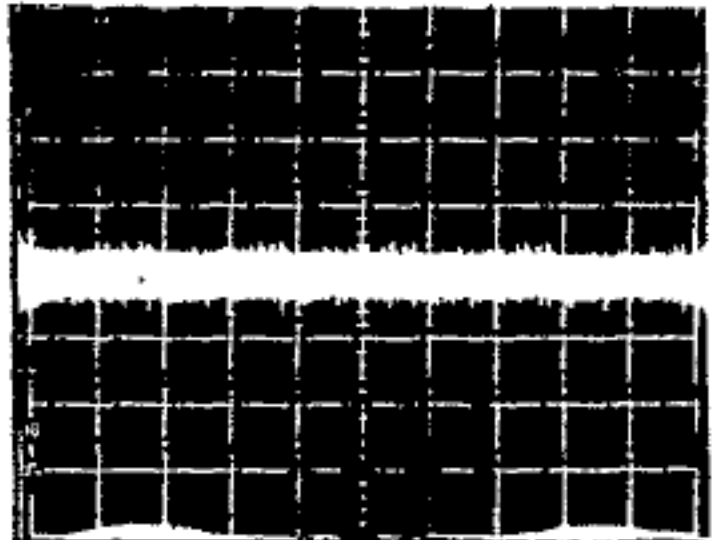
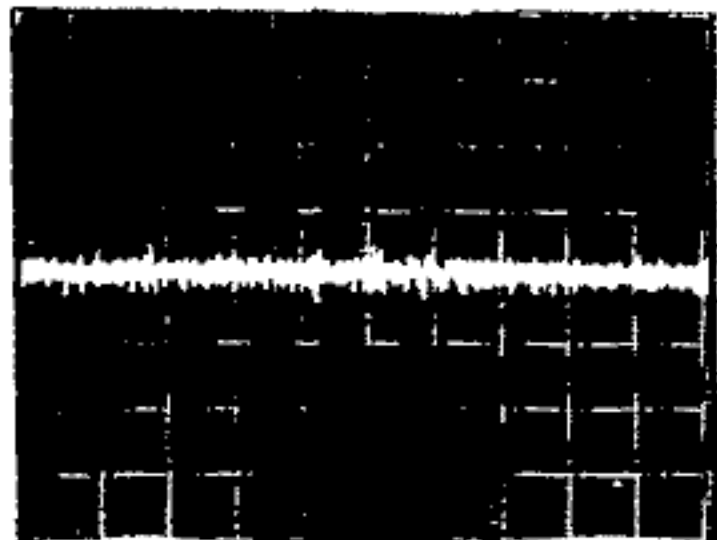
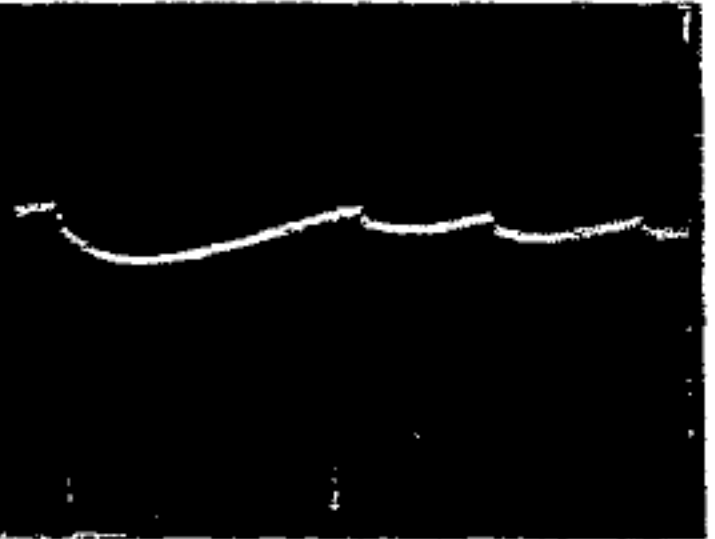
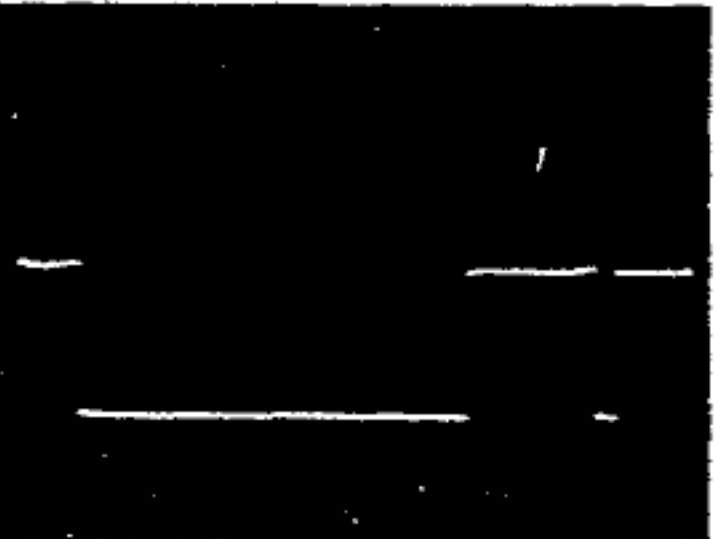
SCH-3

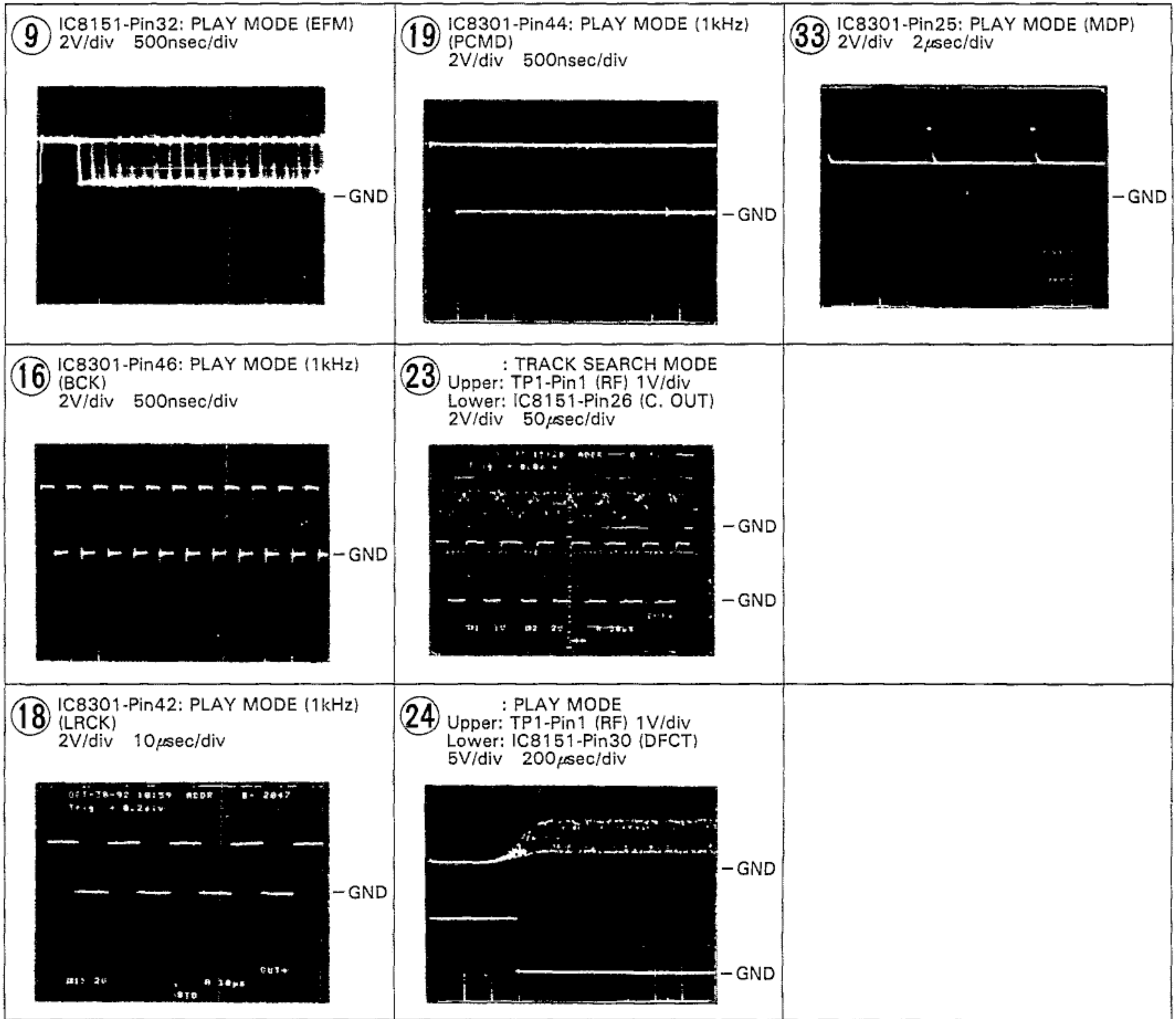
SCH-3

Waveforms

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

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

<p>② TP1-Pin1: PLAY MODE (RF) 500mV/div 500nsec/div</p>  <p>-VC</p>	<p>⑤ IC8202-Pin3: FOCUS-IN (*2) MODE (FODR) 1V/div 200msec/div</p>  <p>-GND</p>	<p>⑦ IC8201-Pin3: PLAY MODE (SPDR) 1V/div 50msec/div</p>  <p>-GND</p>
<p>② TP1-Pin1: TRACK SEARCH MODE (RF) 500mV/div 200µsec/div</p>  <p>-VC</p>	<p>⑤ IC8202-Pin3: PLAY MODE (FODR) 1V/div 1msec/div</p>  <p>-GND</p>	<p>⑦ IC8201-Pin3: TRACK SEARCH MODE (SPDR) 2V/div 50msec/div</p>  <p>-GND</p>
<p>③ TP1-Pin6: PLAY MODE (FOER) 100mV/div 10msec/div</p>  <p>-VC</p>		
<p>④ TP1-Pin2: PLAY MODE (TRER) 1V/div 1msec/div</p>  <p>-VC</p>	<p>⑥ IC8202-Pin4: PLAY MODE (TRDR) 500mV/div 1msec/div</p>  <p>-GND</p>	<p>⑧ IC8202-Pin9: PLAY MODE (CADR) 0.2V/div 2sec/div</p>  <p>-GND</p>
	<p>⑧ IC8202-Pin9: TRACK SEARCH MODE (CADR) 2V/div 200msec/div</p>  <p>-GND</p>	

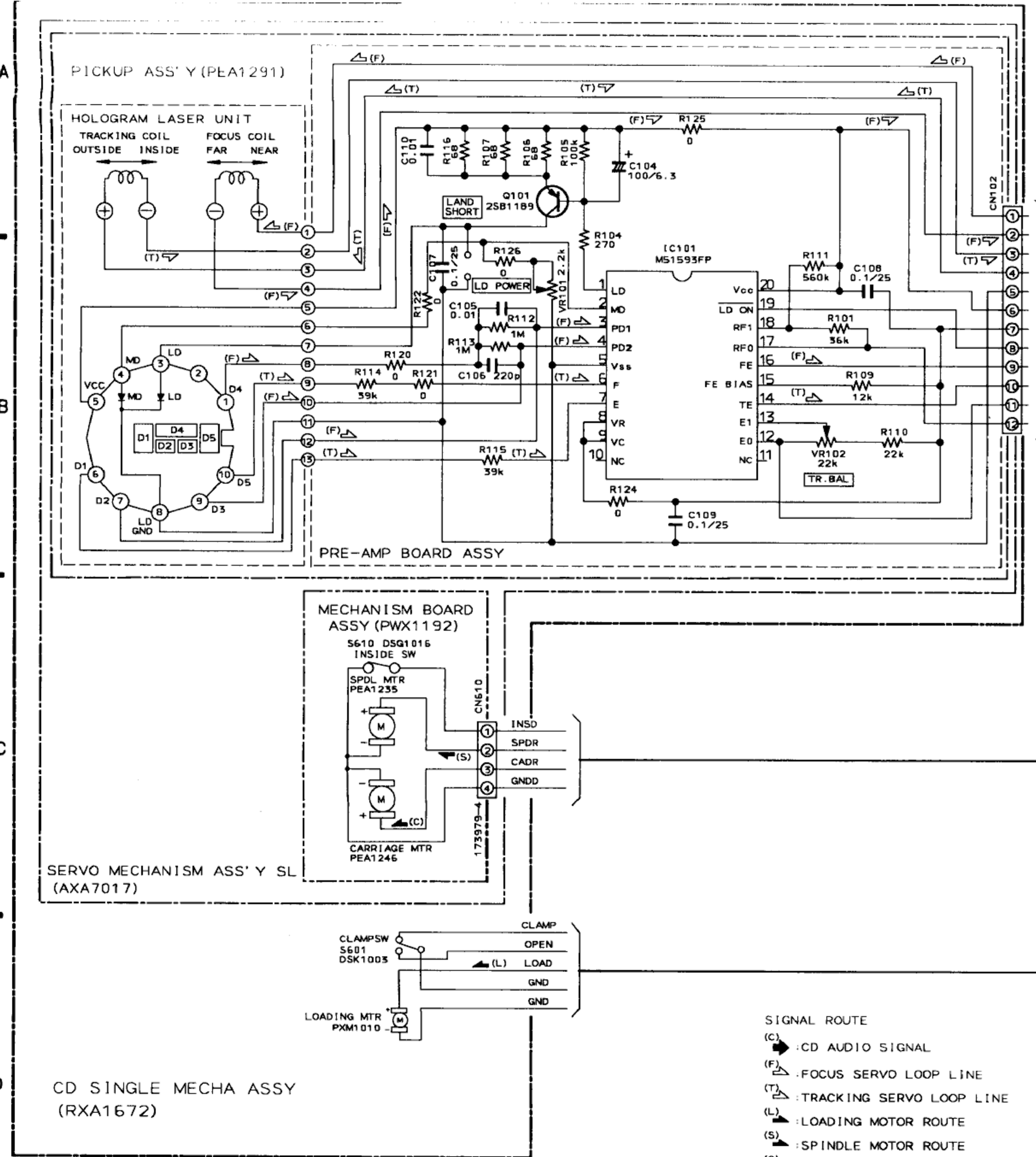


IC8151 (CXA1372Q)

Pin No.	Voltage [V]	Pin No.	Voltage [V]	Pin No.	Voltage [V]	Pin No.	Voltage [V]
1	2.5	13	2.5	25	5.0	37	2.0
2	2.5	14	2.5 to 2.8	26	0.1	38	2.7 to 2.8
3	2.5	15	2.5	27	4.9	39	2.5
4	2.5	16	0.8	28	0	40	3.2
5	2.4	17	1.3	29	0	41	0
6	2.5	18	2.5	30	0	42	2.5
7	2.6	19	0	31	0	43	2.5
8	2.5	20	5.0	32	2.7	44	2.5
9	2.5	21	5.0	33	5.0	45	2.5
10	5.0	22	4.9	34	1.3	46	2.5
11	2.5	23	5.0	35	1.0	47	2.5
12	2.5	24	4.9 to 5.0	36	5.0	48	2.4

IC8301 (CXD2508AQ)

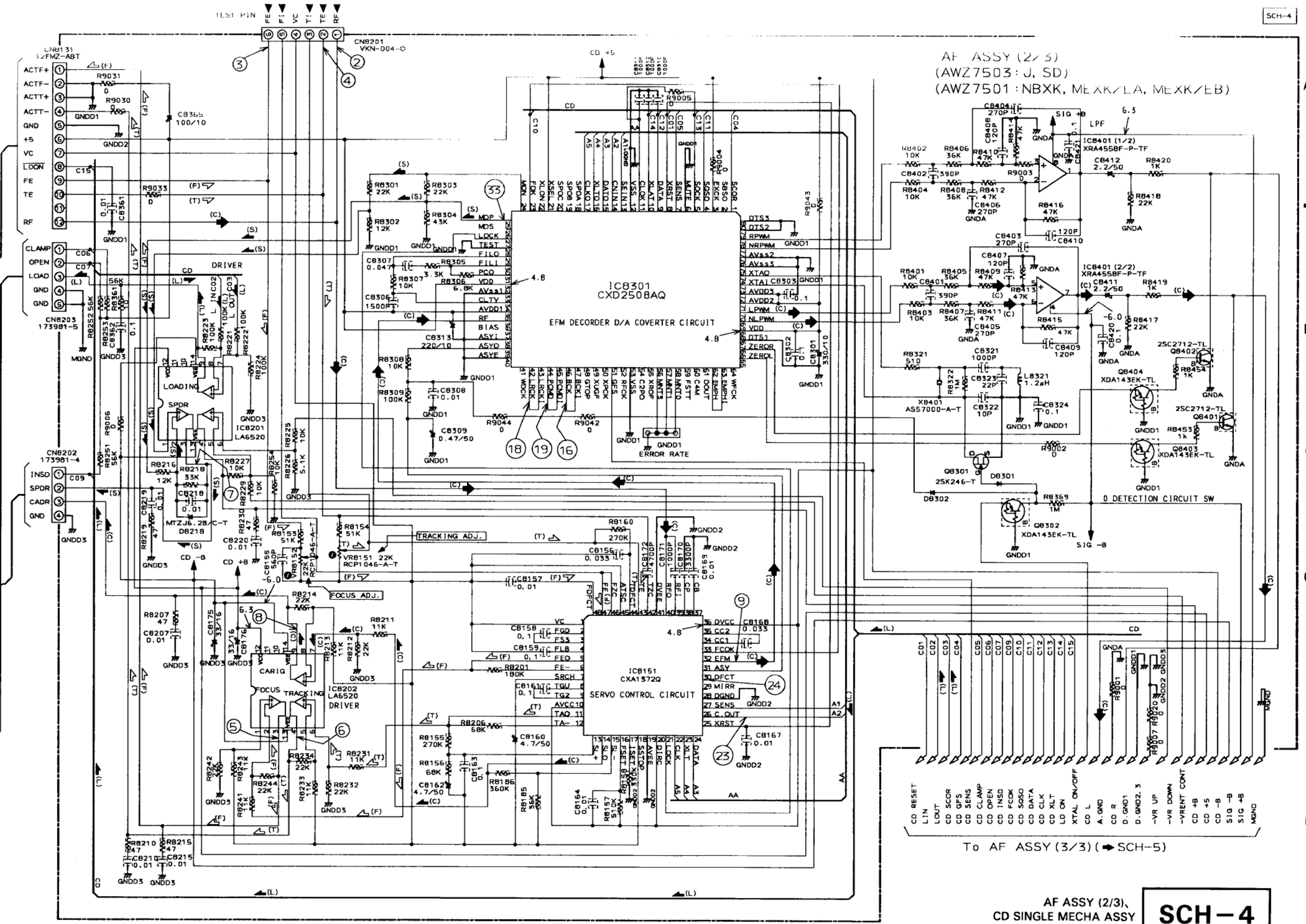
Pin No.	Voltage [V]	Pin No.	Voltage [V]	Pin No.	Voltage [V]	Pin No.	Voltage [V]
1	0.1	21	5.0	41	2.4	61	2.0
2	0.1	22	0	42	2.4	62	0
3	5.0	23	5.0	43	2.4	63	0
4	0.1	24	5.0	44	2.4	64	2.5
5	4.9	25	2.6 to 2.7	45	2.4	65	0
6	0	26	0.1	46	1.8	66	0
7	2.2 to 2.5	27	5.0	47	1.8	67	0
8	5.0	28	0	48	0	68	5.0
9	4.9	29	2.7	49	4.9	69	2.5
10	5.0	30	2.6	50	1.2	70	2.5
11	4.9	31	2.6	51	4.9	71	5.0
12	0	32	5.0	52	2.5	72	5.0
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 5.0	35	5.0	55	4.9	75	0
16	5.0	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



SCH-4 AF ASSY (2/3), CD SINGLE MECHA ASSY (MECHANISM BOARD ASSY)

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

SIGNAL ROUTE
 (C) : CD AUDIO SIGNAL
 (F) : FOCUS SERVO LOOP LINE
 (T) : TRACKING SERVO LOOP LINE
 (L) : LOADING MOTOR ROUTE
 (S) : SPINDLE MOTOR ROUTE
 (C) : CARRIAGE MOTOR ROUTE



AF ASSY (2/3), CD SINGLE MECHA ASSY (MECHANISM BOARD ASSY)

To FM/AM TUNER MODULE CN6201 (NBXK, MEXK/EA, MEXK/EB, SD TYPES) (J TYPE) (SCH-2)

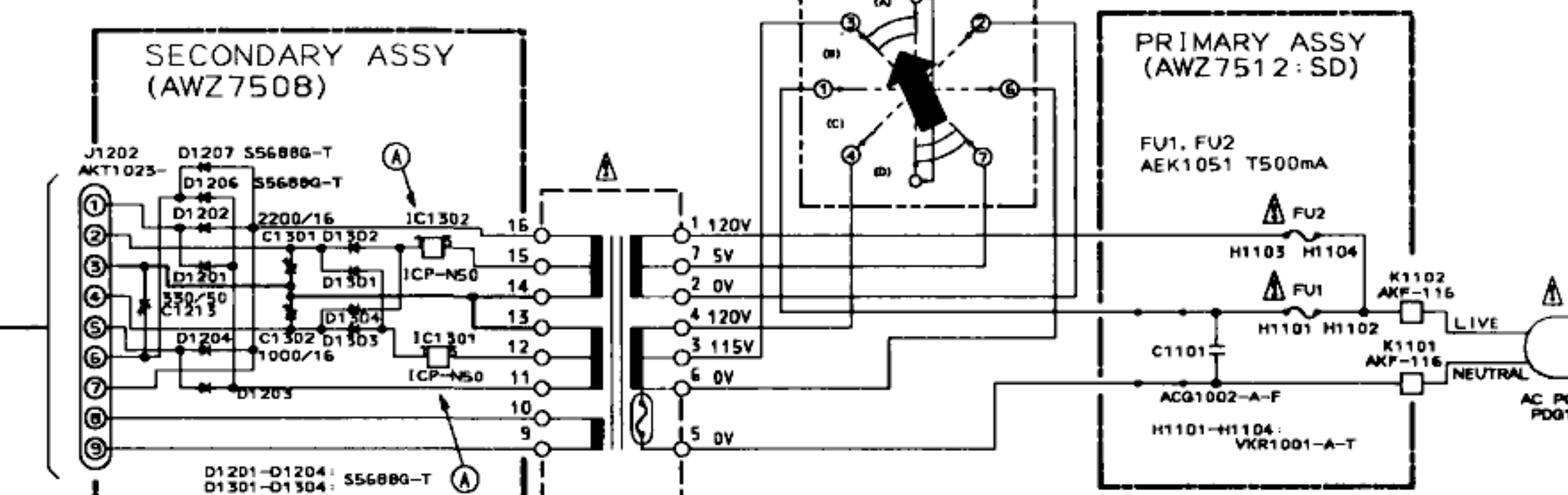
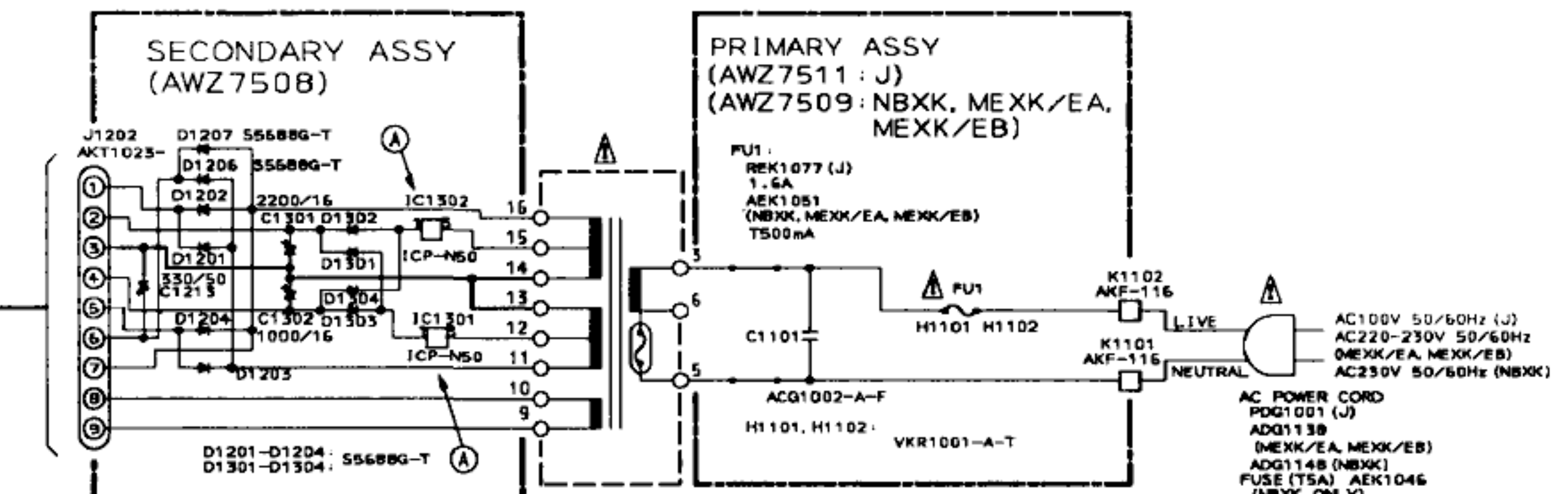
To AF ASSY (2/3) (SCH-4)

SCH-5

AF ASSY (3/3) (AWZ7503: J, SD) (AWZ7501: NBXK, MEXK/EA, MEXK/EB)

CAUTION: FOR CONTINUED PROTECTION AGAINST RISK OF FIRE. REPLACE ONLY WITH SAME TYPE NO. ICP-N50, MFD BY ROHM CO., LTD. FOR IC1301, AND IC1302.

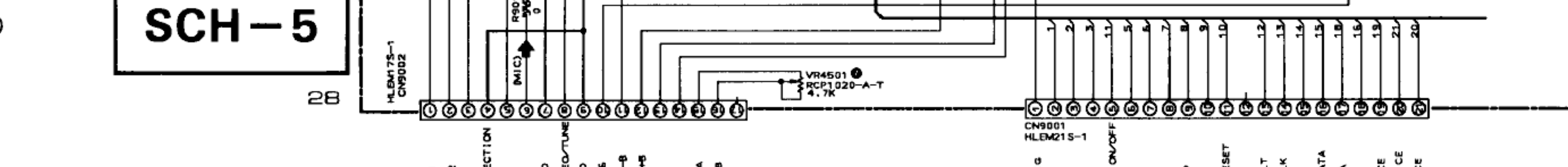
SIGNAL ROUTE: AUDIO SIGNAL, MIC AUDIO SIGNAL, CD AUDIO SIGNAL, AUX AUDIO SIGNAL, DECK PB SIGNAL, DECK REC SIGNAL



AF ASSY (3/3), SECONDARY ASSY, PRIMARY ASSY, HEADPHONE ASSY

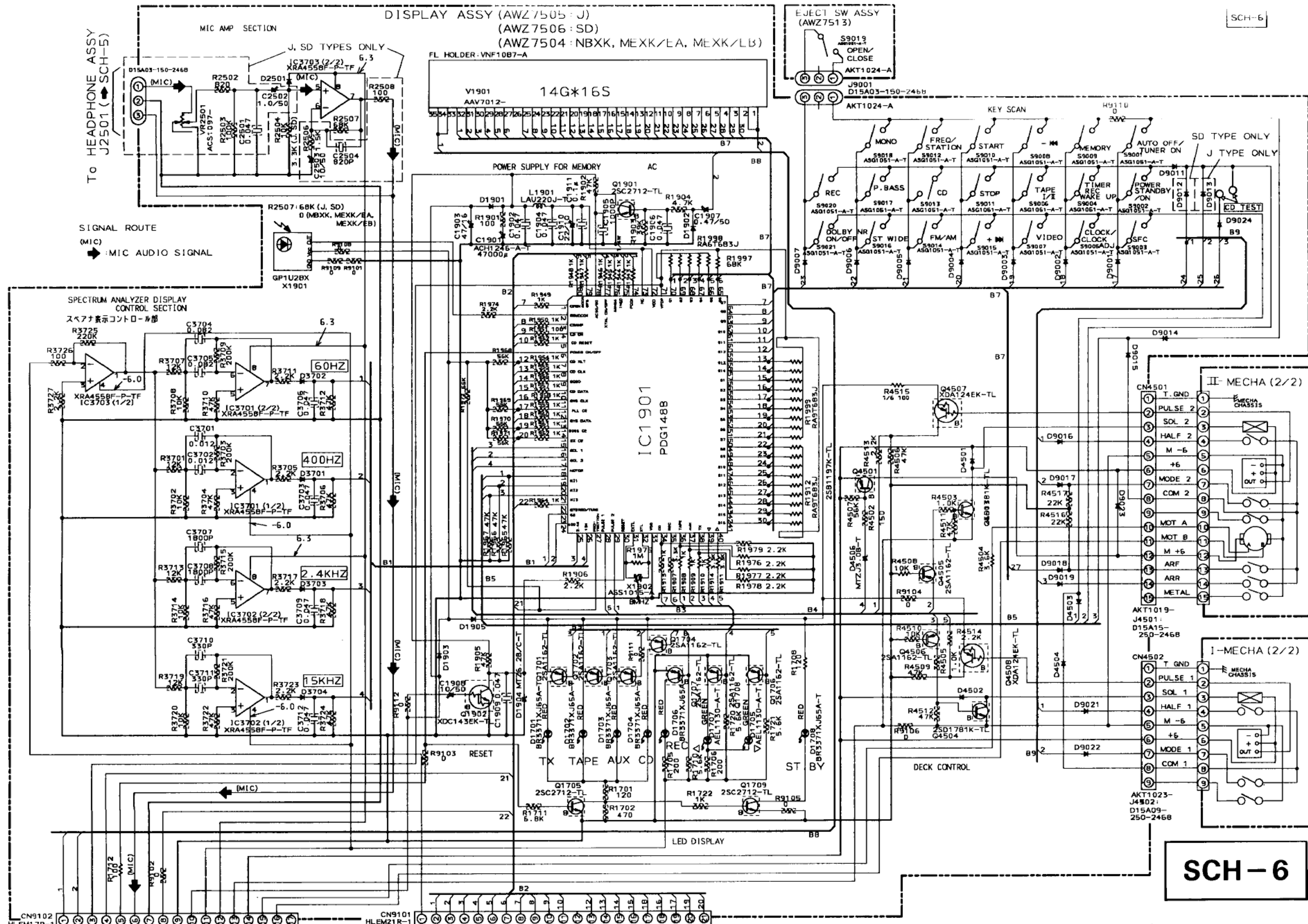
AF ASSY (3/3), SECONDARY ASSY, PRIMARY ASSY, HEADPHONE ASSY To DISPLAY ASSY CN9102 (SCH-6)

To DISPLAY ASSY CN9101 (SCH-6)



3.4 DISPLAY ASSY, EJECT SW ASSY, MECHANISM UNIT (2/2)

SCH-6



A

B

C

D

A

B

C

D

SCH-6

SCH-6

To AF ASSY CN9002 (SCH-5)

FLAC1
FLAC2
VFDP
PROTECTION
P ON
MIC
A GND
STEREO
TUNE
u5, 6
SIG -B
SIG -B
M -5
M +6
MOT A
MOT B

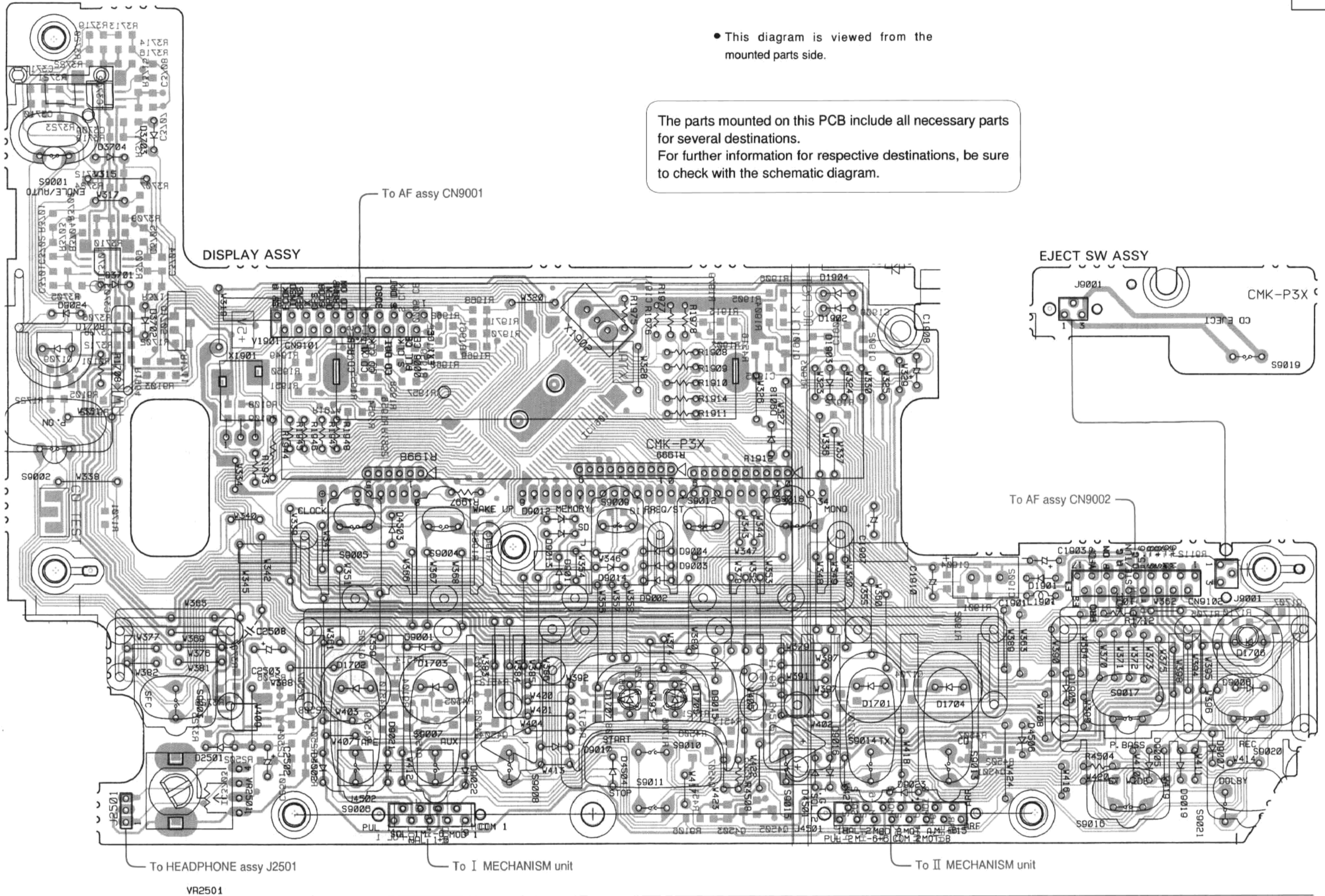
To AF ASSY CN9001 (SCH-5)

SP ASIG
FCOK
INSD
SENS
XTAL
ON/OFF
GFS
SCOR
OPEN
CRAMP
LD ON
CD RESET
CD XLT
CD CLK
SGSO
CD DATA
S DATA
S CLK
PLL CE
0006 CE
EX1 CE

DISPLAY ASSY, EJECT SW ASSY,
MECHANISM UNIT (2/2)

• This diagram is viewed from the mounted parts side.

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.



Q1709	IC3701	IC3702	Q1705	IC1901	Q1901	Q1902	Q1701	Q1704	Q4501	Q1707
IC3703	Q1702	Q4506	Q1703	Q4508	Q4504	Q1708	Q1706	Q4507	Q4503	Q4505

4. PCB PARTS LIST

NOTES :

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

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

560Ω → 56 × 10¹ → 561 RD1/8PM $\overline{5}$ $\overline{6}$ $\overline{1}$ J
 47kΩ → 47 × 10³ → 473 RD1/4PS $\overline{4}$ $\overline{7}$ $\overline{3}$ J
 0.5Ω → 0R5 RN2H $\overline{0}$ \overline{R} $\overline{5}$ K
 1Ω → 010 RS1P $\overline{0}$ $\overline{1}$ $\overline{0}$ K

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

5.62kΩ → 562 × 10¹ → 5621 RM1/4PC $\overline{5}$ $\overline{6}$ $\overline{2}$ $\overline{1}$ F

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

LIST OF ASSEMBLIES

NSP	COMPLEX ASSY	AWK7113
	└ AF ASSY	AWZ7501
	└ DISPLAY ASSY	AWZ7504
NSP	SECONDARY ASSY	AWZ7508
	└ PRIMARY ASSY	AWZ7509
NSP	EJECT SW ASSY	AWZ7513
NSP	HEADPHONE ASSY	AWZ7514
	FM/AM TUNER MODULE	AXQ3213
NSP	CD SINGLE MECHA ASSY	RXA1672
NSP	└ SERVO MECHANISM ASSY SL	AXA7017
NSP	└ MECHANISM BOARD ASSY	PWX1192

AF ASSY

SEMICONDUCTORS		
IC1981, IC1982	BU4094BCF	
IC4421	CXA1101P	
IC8151	CXA1372Q	
IC8301	CXD2508AQ	
IC8201, IC8202	LA6520	
IC1001	NJM7806FA	
IC1005	NJM78M12FA	
IC1002	NJM7906FA	
IC2201	PM0006A	
IC1201	TDA7265	
IC1501, IC4101, IC4201, IC4301, IC8401	XRA4558F-P	
IC2101	XRU4052BCF	
Q1104, Q1108, Q1261, Q4201, Q4202	2SA1162	
Q4204, Q4401, Q4402	2SA1162	
Q1101	2SB1340	
Q1009	2SB560	
Q4356	2SC2240	
Q1103, Q1107, Q1202, Q1262	2SC2712	
Q4301, Q4302, Q4451-Q4454	2SC2712	
Q8401, Q8402	2SC2712	
Q4353, Q4354	2SD1781K	
Q1102	2SD1889	
Q4355	2SD2144S	
Q8301	2SK246	
Q4307, Q4308	2SK373	

Q4205, Q4357, Q4456	XDA124EK
Q8302, Q8403, Q8404	XDA143EK
Q4455	XDC124EK
Q1983	XDC143EK
D1007, D1103-D1106, D1981, D1984	1SS254
D4301-D4307, D4551, D4552	1SS254
D8301, D8302	1SS254
D1101, D1102	MTZJ11B
D1010	MTZJ30B
D8218	MTZJ6.2B
D1011	MTZJ7.5B
D1001, D1005, D1006, D1009	S5688G
D1012-D1015, D1021-D1028, D1983	S5688G
D2201, D2202	S5688G

COILS AND FILTERS

L1201, L1202 (5.3μ H)	ATH-059
L8321	LAU1R2J
L4301, L4302	LTA472J
L4303, L4304	LTA822J
F4401, F4402	RTF1209

TRANSFORMERS

T4351	ATX-043
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CAPACITORS

C4361 (2000pF/630V)	ACE1020
C4319, C4320	CCCSL271K500
C4323, C4324, C8322	CCSQCH100D50
C8407-C8410	CCSQCH121J50
C1505, C1506, C8323	CCSQCH220J50

C4353	CCSQCH221J50
C8403-C8406	CCSQCH271J50
C8401, C8402	CCSQCH391J50
C4325, C4326	CCSQCH471J50
C8155	CCSQCH561J50

C4151, C4152, C4355	CCSQCH681J50
C4101, C4102, C4201, C4202	CEAS100M16
C1009, C1010, C4359, C4360, C4364	CEAS100M50
C4405, C4407, C4454	CEAS100M50
C4401, C4408, C8365	CEAS101M10

C1103, C1104	CEAS101M16
C1217, C1218	CEAS220M25
C1002, C4453	CEAS220M50
C1001	CEAS220M63
C2213, C2214, C8313	CEAS221M10

Mark No.	Description	Parts No.	Mark No.	Description	Parts No.
C1105, C1106		CEAS221M25			
C1211, C1212		CEAS222M35	R1507		RD1/6PM221J
C1005, C1006, C1008, C1501-C1504		CEAS2R2M50	R1987, R1988		RD1/6PM473J
C4107, C4108		CEAS2R2M50	R1205		RD1/6PM4R7J
C4301-C4304, C4315, C4316		CEAS2R2M50	R2202		RD1/6PM513J
			R2201		RD1/6PM752J
C4403, C4404, C4451, C4452		CEAS2R2M50	Other Resistors		
C8411, C8412		CEAS2R2M50	RS1/10S□□□J		
C4309, C4310, C8175, C8176		CEAS330M16	OTHERS		
C8301		CEAS331M10	CN8131	CONNECTOR	12FMZ-ABT
C4357		CEAS3R3M50	CN8202	MT CONNECTOR 4P	173981-4
			CN8203	MT CONNECTOR 5P	173981-5
C4105, C4106, C4317, C4318		CEAS470M10	CN2101	PIN JACK 2P (VIDEO/AUX)	AKB1100
C1261, C4218		CEAS470M16	CN1201	SPEAKER TERMINAL 4-P	AKE7001
C8160, C8162		CEAS4R7M50			
C8309, C1513, C1514		CEASR47M50			
C4402, C4406		CEASR68M50			
C1220		CKCYB103K50			
C4363		CKCYB222K500	CN4003	CABLE HOLDER	AKT1023
C4212-C4217		CKCYF473Z50	CN4002	2P TOP POST	B2B-EH
C2212		CKCYX104M16	CN4001	3P TOP POST	B3B-EH
C2203, C2209, C8171, C8310-C8312		CKSQYB102K50	CN9002	3P TOP POST	B3B-EH-R
		CKSQYB152K50		FFC CONNECTOR 17P	HLEM17S-1
C8321		CKSQYB182K50	CN9001	FFC CONNECTOR 21P	HLEM21S-1
C8306		CKSQYB221K50	CN9	14P PLUG	KM2001A14
C4313, C4314		CKSQYB273K50	CN1251	CONNECTOR (5P)	KPE5
C2152-C2154		CKSQYB273K50		HEAT SINK	PNB1233
C4307, C4308		CKSQYB332K50	CN8201	6P SIDE POST	VKN-004
		CKSQYB472K50	X8401	(33.8688MHz)	ASS7000
C8170		CKSQYB473K50			
C1102, C1107, C8172		CKSQYB562K50			
C1557, C1558		CKSQYB682K50			
C2208		CKSQYF822K50			
C4103, C4104, C4203, C4204		CKSQYF823K25			
		CKSQYF103Z50			
C2210, C2211		CKSQYF103Z50			
C4311, C4312		CKSQYF104Z50			
C1981, C1982, C4352, C4354, C8157		CKSQYF104Z50			
C8164, C8167, C8169, C8207, C8210		CKSQYF104Z50			
C8215, C8218-C8220, C8308, C8361		CKSQYF153Z50			
		CKSQYF224Z25			
C1003, C1004, C1007, C1551		CKSQYF333Z50			
C2206, C2207, C8158, C8159, C8161		CKSQYF473Z50			
C8163, C8302, C8303, C8324, C8362		CQMA103J50			
C8420, C8421		CQMA123K250			
C4356		CQMA562K400			
		CQMA683J50			
C1203-C1206					
C8156, C8168					
C1509, C1510, C8307					
C4409, C4410					
C4358					
C4362					
C2204, C2205					
RESISTORS					
VR4301, VR4302, VR4501 (4.7k)		RCP1020			
VR8151, VR8152 (22k)		RCP1046			
VR4351, VR4352 (220k)		RCP1049			
VR4101, VR4102, VR4201, VR4202 (470Ω)		RCP1120			
VR301 (100k-B x 2)		RCX7010			
R4371		RD1/2PM470J			
R4357		RD1/2PM6R8J			
R1201, R1202		RD1/4PM102J			
R1221		RD1/4PM123J			
R1206		RD1/4PM4R7J			
R1017		RD1/4PMF272J			
R1213, R1214		RD1/4PMFL100J			
R4281		RD1/6PM101J			
R1993-R1995, R2105, R2106		RD1/6PM102J			
R1207		RD1/6PM103J			
R4363		RD1/6PM152J			

DISPLAY ASSY

SEMICONDUCTORS		
IC1901	PDG148B	
IC3701-IC3703	XRA4558F-P	
Q1701-Q1704, Q1706-Q1708	2SA1162	
Q4505, Q4506	2SA1162	
Q4501	2SB1197K	
Q1705, Q1709, Q1901	2SC2712	
Q4503, Q4504	2SD1781K	
Q4507, Q4508	XDA124EK	
Q1902	XDC143EK	
D1901-D1903, D1905, D3701-D3704	1SS254	
D4501-D4504, D9001-D9007, D9011	1SS254	
D9014-D9019, D9021-D9024	1SS254	
D1705, D1707	AEL1130	
D1701-D1704, D1706, D1708	BR3371XJ30A	
D4506	MTZJ3.0B	
D1904	MTZJ6.2B/C	

COILS AND FILTERS

L1901	LAU220J
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SWITCHES AND RELAYS

S9001-S9018, S9020, S9021	ASG1051
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CAPACITORS

C1901 (4700μ F)	ACH1246
C1905	CCSQCH102J50
C3710, C3711	CCSQCH331J50
C1908	CEAS100M50
C1910	CEAS220M10
C1903	CEAS470M16
C1907	CEASR47M50
C3701, C3702	CKSQYB123K50
C3707, C3708	CKSQYB182K50
C3704, C3705	CKSQYB823K25

Mark No.	Description	Parts No.	Mark No.	Description	Parts No.
	C1902, C1904, C1906, C1909, C1911 C3703, C3706, C3709, C3712	CKSQYF473Z50 CKSQYF473Z50		FM/AM TUNER MODULE	
	RESISTORS			SEMICONDUCTORS	
	R1944	RD1/4PM102J		IC6201	LA1836M
	R1712	RD1/6PM101J		IC6202	LM7001J
	R1908-R1910, R1943, R1945-R1948	RD1/6PM102J		Q6102	2SC2223
	R4508	RD1/6PM103J		Q6203	2SC2235
	R1975	RD1/6PM105J		Q6202	2SC2712
	R1708	RD1/6PM121J		Q6103, Q6214	2SC2714
	R1976-R1978	RD1/6PM222J		Q6201	2SK208
	R1911, R1914	RD1/6PM332J		Q6104	2SK302
	R4504	RD1/6PM362J		Q6101	3SK194
	Other Resistors	RS1/10S□□□J		Q6204	XDA124EK
	OTHERS			Q6217	XDC124EK
	V1901 FL TUBE	AAV7012		D6101, D6102	1T33
	CABLE HOLDER	AKT1023			
	REMOTE RECEIVER UNIT	GP1U28X		COILS AND FILTERS	
	CN9102 FFC CONNECTOR 17P	HLEM17R-1		L6104	ATC1003
	CN9101 FFC CONNECTOR 21P	HLEM21R-1		L6101	ATC1020
	FL HOLDER	VNF1087		L6102	ATC1021
	X1902 (8.00MHZ)	ASS1015		L6207 (10.7MHZ)	ATE1013
				F6203, F6204	ATF-119
	SECONDARY ASSY			F6101	ATF-155
	SEMICONDUCTORS			F6202 (450KHZ)	ATF1155
	IC1301, IC1302	ICP-N50		L6103 (2.2μ H)	ATH1043
	D1201-D1204, D1206, D1207	S5688G		L6202, L6203, L6208	LCTA2R2J3225
	D1301-D1304	S5688G			
	CAPACITORS			TRANSFORMERS	
	C1302	CEAS102M16		T6101	ATE-063
	C1301	CEAS222M16			
	C1213	CEAS331M50		CAPACITORS	
	OTHERS			C6234, C6236, C6270 (1μ F/16V)	ACG1051
	CABLE HOLDER	AKT1023		C6107	CCSCH010C50
	PRIMARY ASSY			C6229	CCSCH821J50
	CAPACITORS			C6110	CCSQCH020C50
	C1101 (0.01μ F/400V)	ACG1002		C6101	CCSQCH050C50
	OTHERS			C6108, C6203, C6269	CCSQCH101J50
	H1101, H1102 FUSE HOLDER	VKR1001		C6111, C6116, C6208, C6221, C6222	CCSQCH150J50
	EJECT SW ASSY			C6115	CCSQCH330J50
	SWITCHES AND RELAYS			C6114	CCSQRH080D50
	S9019	ASG1051		C6113	CCSQRH180J50
	HEADPHONE ASSY			C6105	CCSQTH150J50
	SEMICONDUCTORS			C6261	CEAS010M50
	D2502	MTZJ2.4A/B		C6224, C6246, C6262	CEAS100M50
	COILS AND FILTERS			C6216, C6217	CEAS330M16
	L2502	LAU100J		C6231, C6233	CEAS3R3M50
	RESISTORS			C6219	CEAS470M10
	R1251, R1252	RS1LMF331J		C6243-C6245	CEAS470M16
	Other Resistors	RS1/10S□□□J		C6227	CEAS470M25
	OTHERS			C6238	CEJA100M16
	CN1252 JACK	AKN1028		C6249, C6250	CEJA4R7M35
	CABLE HOLDER	AKT1012		C6215	CFTXA103J50
				C6214	CFTXA224J50
				C6103, C6106, C6112, C6204	CKSQYB102K50
				C6102, C6109, C6117, C6210, C6264	CKSQYB103K50
				C6213	CKSQYB223K50
				C6230	CKSQYB273K50
				C6228	CKSQYB472K50
				C6209, C6237, C6265, C6267	CKSQYB473K50
				C6252	CKSQYB822K50
				C6212, C6218	CKSQYF103Z50
				C6220, C6226, C6239, C6242, C6255	CKSQYF223Z50
				C6235	CKSQYF224Z25
				C6225, C6241, C6266	CKSQYF473Z50
				C6232	CKSYB273K50
				C6251	CKSYB822K50

Mark No.	Description	Parts No.
C6223		CKSYF103Z50
C6263		CKSYF473Z50
RESISTORS		
VR6201 (10k)		ACP1056
VR6202		VRTB6VS223
R6299, R6300		RD1/6PM102J
R6113, R6116, R6118, R6268-R6271		RS1/8S000J
R6275, R6276, R6278, R6283, R6284		RS1/8S000J
R6290, R6293, R6294, R6297		RS1/8S000J
R6243, R6244		RS1/8S101J
R6211		RS1/8S103J
R6237		RS1/8S182J
R6209		RS1/8S221J
R6239		RS1/8S332J
R6101		RS1/8S470J
Other Resistors		RS1/10S□□□J
OTHERS		
BN6201	2P TERMINAL WITH PAL	AKA1017
CN6201	AM RF TUNING BLOCK	KP200IA14L
		AXX1041
X6203	(7.200MHZ)	ASS1042
X6201	(456KHZ)	ASS1066
X6202	(450KHZ)	ATF1027
MEGHANISM BOARD ASSY		
SWITCHES AND RELAYS		
S610		DSG1016
OTHERS		
CN610	MT CONNECTOR 4P	173979-4

5. ADJUSTMENTS

5.1 TUNER SECTION

■ FM Tuner Section

- Set the mode selector to FM BAND.
- Connect the wiring as shown in Fig. 1-1.

Step No.	Adjustment Title	FM SG (1kHz, ±75kHz dev.)		Reception Frequency Display	Adjustment Location	Specifications
		Frequency (MHz)	Level (dBμV)			
1	Center Adjustment	98 Non modulation	80 or more	—	L6207	Adjust so that the DC voltage between IC6201-Pin 4 and Pin 28 (or ⊕ leads of C6224 and C6261) becomes 0V ± 50mV.
2	Front End Sensitivity Adjustment	98	Low input (0 to 30)	98MHz	L6102 T6101	Adjust so that the DC voltage between the IC6201-Pin 12 and GND (or ⊕ leads of C6238 and GND) becomes at maximum level.
3	Stereo Distortion	98	80	98MHz	T6101	Minimize the distortion with 1/8 rotation of the core.
4	TUNED IND. Lighting Level	98	15 ± 2	98MHz	VR6201	Adjust so that the indicator of TUNED IND. starts to light up.

Notes:

- Before adjusting, make sure there is no gap between L6101 and L6102. If there is a gap between them, bring them into contact with each other first, and then make adjustments.
- Make indicator adjustments in order of AM → FM.

■ AM Tuner Section

- Set the mode selector to AM BAND.
- Connect the wiring as shown in Fig. 1-1.

Step No.	Adjustment Title	AM SG (400Hz, 30% Mod.)		Reception Frequency Display	Adjustment Location	Specifications
		Frequency (kHz)	Level (dBμV/m)			
1	TUNED IND. Lighting Level	999*1	47 (±2dB)	999kHz*1	VR6202	Adjust so that the indicator of TUNED IND. starts to light up.

*1: For the area using 10 kHz step, frequencies should be 1000 kHz.

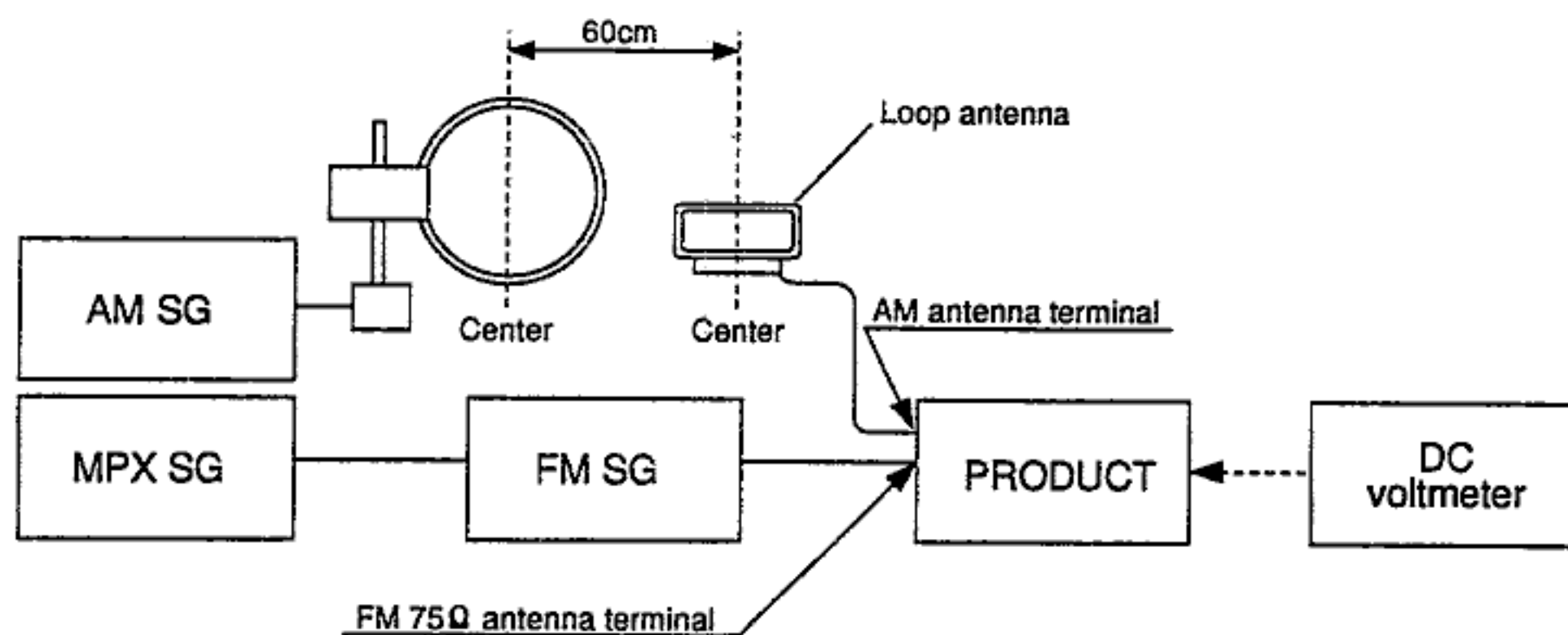


Fig. 1-1 AM and FM Adjustment Wiring Diagram

FM/AM TUNER MODULE (AXQ3213 and AXQ1012)

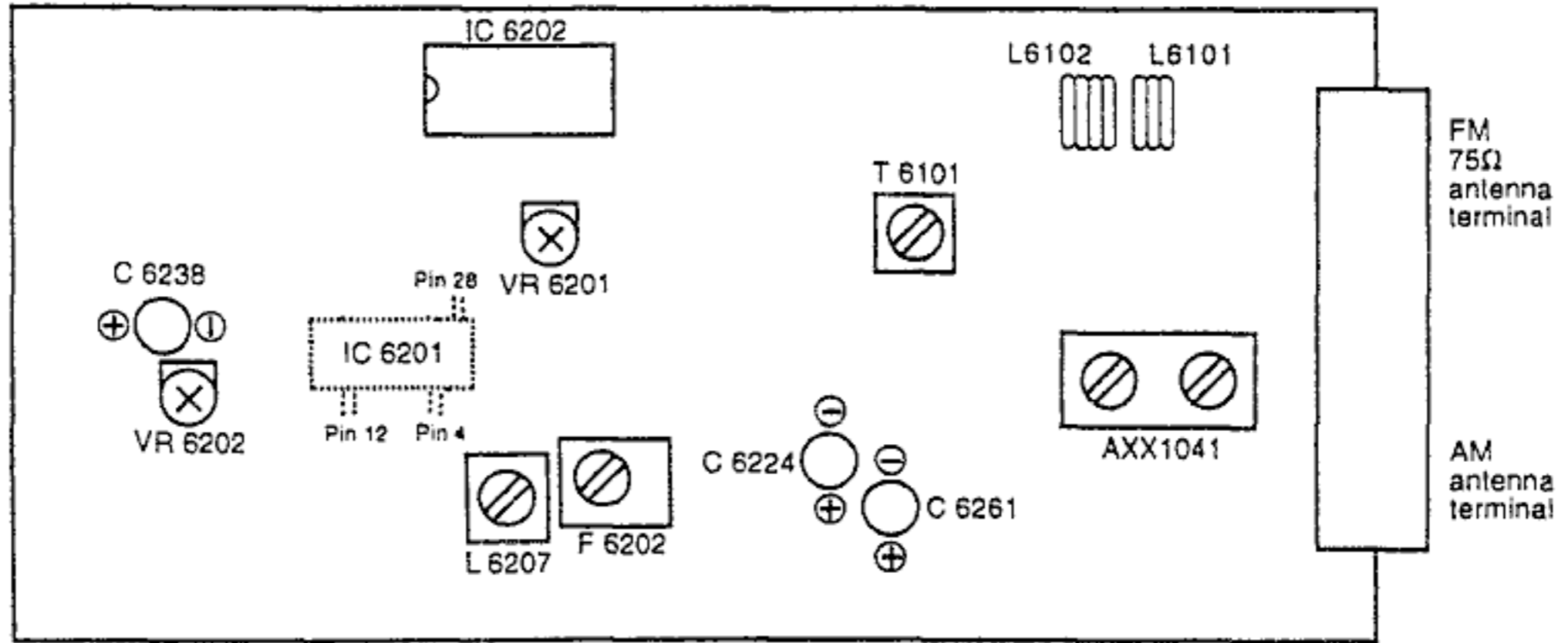


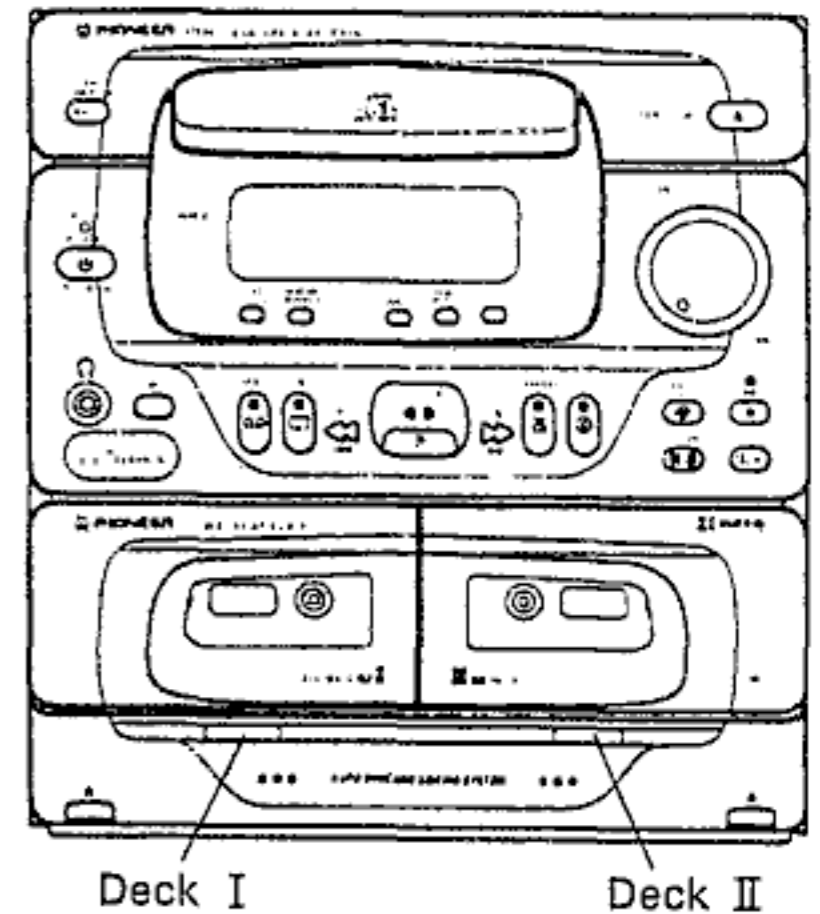
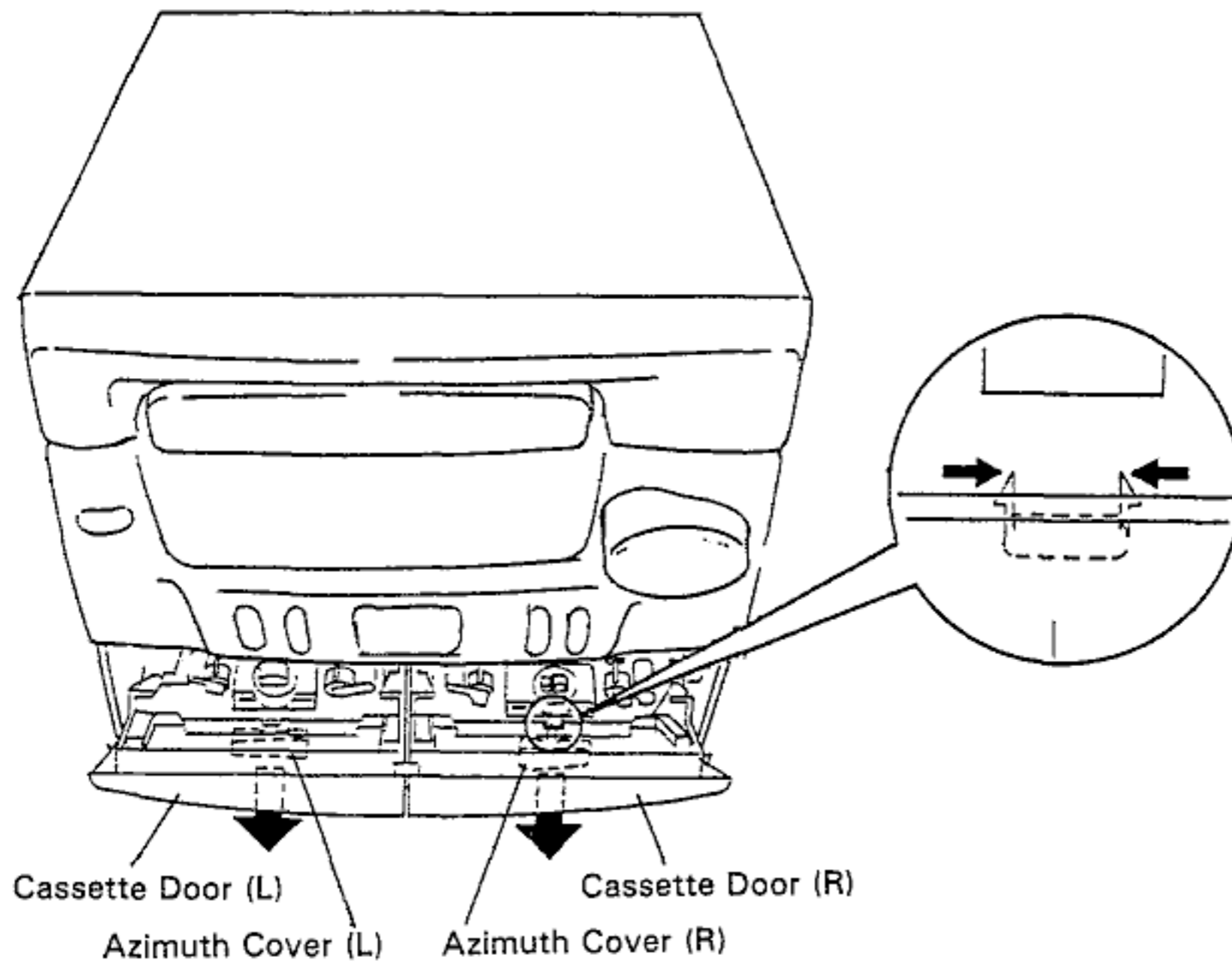
Fig. 1-2 Adjustment Points

5.2 CASSETTE DECK SECTION

● Adjustment points and test points are shown in Fig. 2-2 and Fig. 2-4.

■ When adjusting the Head azimuth, remove the azimuth cover (L) and (R) before adjustment.

1. Open the cassette doors (L) and (R).
2. Insert your fingers into the cassette doors, grasp both ends of the azimuth cover with your fingers, and push it a little to the front. When the azimuth cover is pushed too much at this time, the cassette doors possibly may not close.
3. Confirm that the azimuth covers (L) and (R) have been moved a little to the front, close the cassette doors (L) and (R), and remove the azimuth covers.



Mechanical Adjustment

- Set the TAPE function.
- Test tape: STD-301 (3kHz, 30min).

1. Tape Speed Adjustment

No.	Mode	Test Tape	Adjusting Points	Measurement Points	Adjustment Procedure	Remarks
1	Deck I PLAY	STD-301 (Playback: 3kHz)	AF Assy VR4501	TAPE TEST POINT (Rch) (AF Assy)	Press the PLAY SW and adjust so that the reading becomes 3000Hz±20Hz. Confirm that wow & flutter level is below 0.2% (in the reverse direction, confirm that the reading is within 3000Hz±60Hz).	

Electrical Adjustment

Check the following before starting.

1. Confirm that the tape speed adjustment has been completed.
2. Clean the heads and demagnetize them using a head eraser.
3. Set the measurement level to 0 dBV = 1 Vrms.
4. Use the specified tape for adjustment. Use the labeled (A) side of the test tape.

STD-331E: For playback adjustment
 STD-631 or STD-632: Normal blank tape

5. Provide yourself with the following measuring devices:
 - AC millivoltmeter
 - Low-frequency oscillator
 - Attenuator
 - Oscilloscope
6. Adjust both right and left channels unless otherwise specified.
7. Turn the DOLBY NR switch off unless otherwise specified.
8. Warm up the unit for several minutes before adjustment. In particular, be sure to warm up the unit in the REC/PLAY mode for 3 to 5 minutes before starting recording/playback frequency characteristics adjustment.
9. Always follow the indicated adjustment order. Otherwise, a complete adjustment may not be achieved.


Playback Adjustment (Decks I and II)

1. Head Azimuth Adjustment
2. Playback Level Adjustment

Recording Adjustment (Deck II)

1. Bias Oscillation Frequency Adjustment
2. Recording Bias Adjustment
3. Recording Level Adjustment.
4. ALC Operation Check

**As the reference recording level is 250nwb/m for STD-331E, the recording level will be higher by 4 dB for STD-331B (160nwb/m). When adjusting, pay carefull attention to the type of tape used.*

*Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
 "DOLBY" and the double-D symbol  are trademarks of Dolby Laboratories Licensing Corporation.*

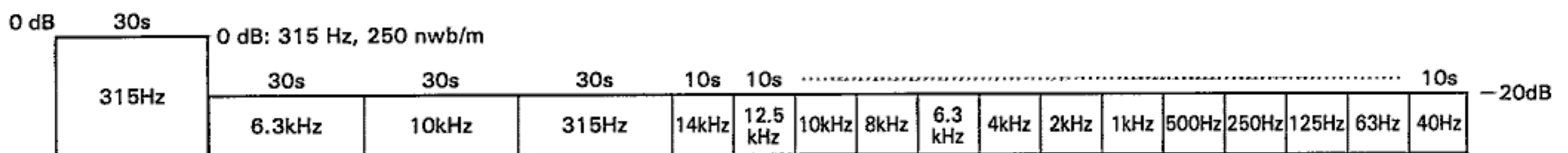


Fig. 2-1 STD-331E Test Tape

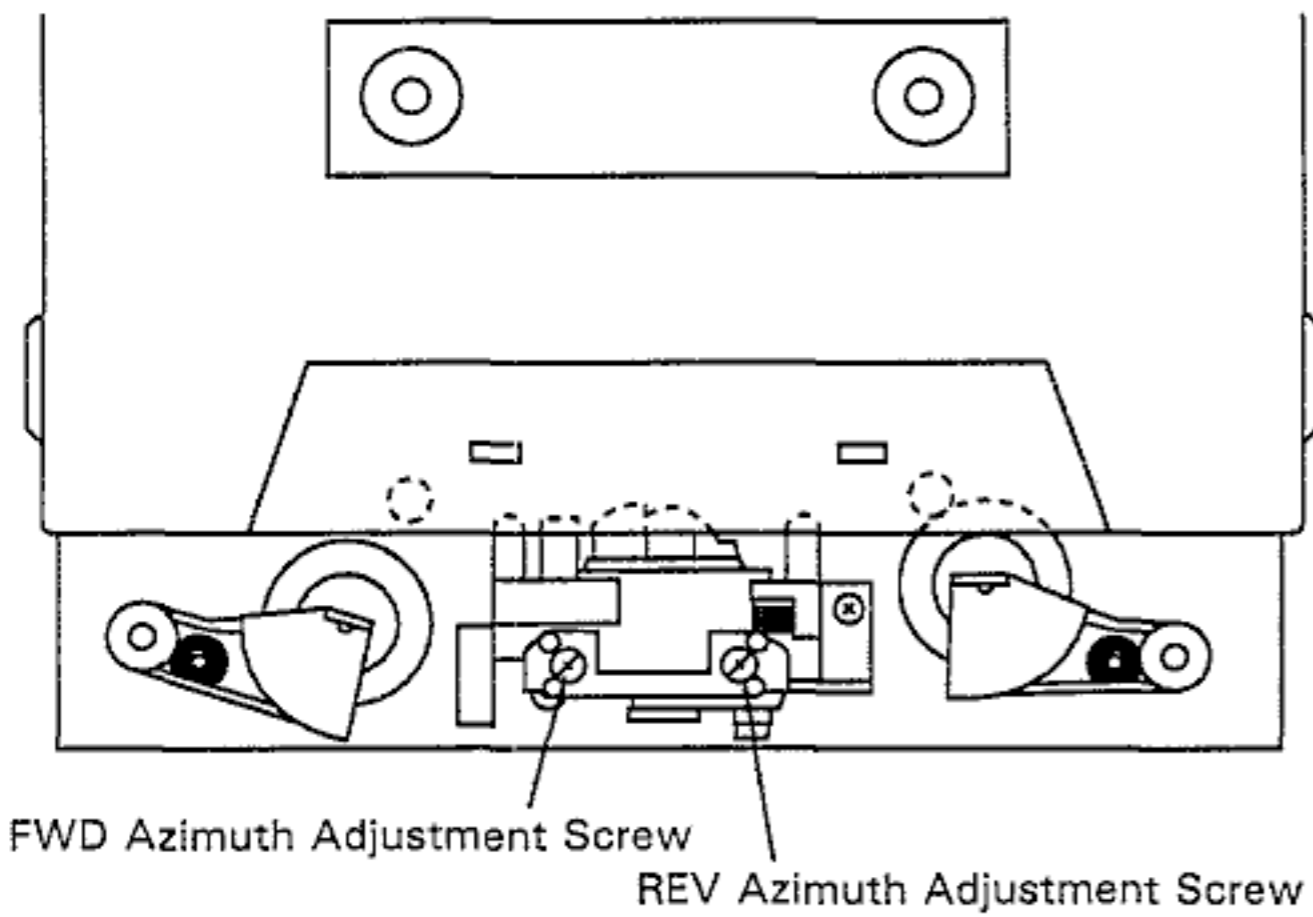
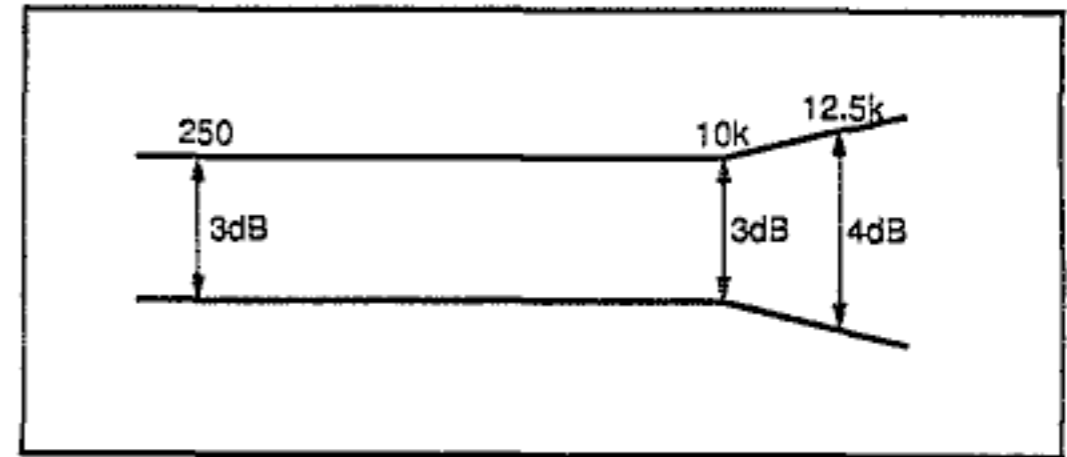


Fig. 2-2 Head Azimuth Adjustment

PLAY BACK



RECORDING

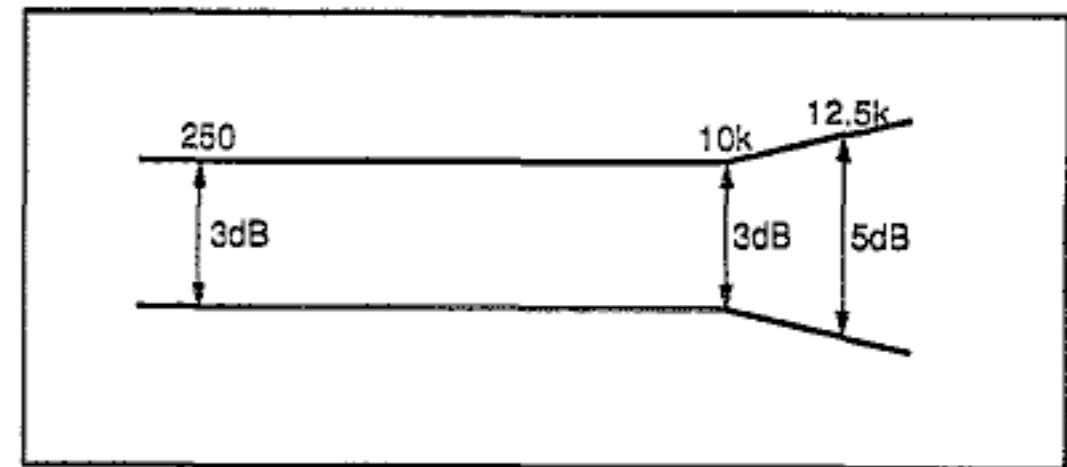


Fig. 2-3 Frequency Characteristics

● Playback Adjustment

1. Head Azimuth Adjustment

- This unit is equipped with auto tape selector.
- Do not switch between forward and reverse operation with the screwdriver inserted.

Step	Tape Selector (AUTO)	Mode	Input Signal / Test Tape	Adjusting Points		Measurement Points	Adjustment Value	Remarks
1	NORMAL	PLAY	STD-331E test tape (Playback: 10kHz, -20dB)	Deck I	Head azimuth adjustment screw (Fig. 2-2)	TAPE TEST POINT (L, Rch) (AF Assy)	Max. playback signal level	After adjustment, apply lock paint to the head azimuth adjustment screw.
				Deck II				

2. Playback Level Adjustment

- Since this adjustment determines playback Dolby NR level, perform it carefully.

Step	Tape Selector (AUTO)	Mode	Input Signal / Test Tape	Adjusting Points		Measurement Points	Adjustment Value	Remarks
1	NORMAL	PLAY	STD-331E test tape (Playback: 315Hz, 0dB)	Deck I	VR4101 (Lch) VR4102 (Rch)	TAPE TEST POINT (L, Rch) (AF Assy)	-4.2 dBV	
				Deck II	VR4201 (Lch) VR4202 (Rch)			

● Recording Adjustment

1. Bias Oscillation Frequency Adjustment

Step	Tape Selector (AUTO)	Mode	Input Signal/ Test Tape	Adjusting Points	Measurement Points	Adjustment Value	Remarks
1	NORMAL	REC	Load the STD-631 or STD-632 test tape and set the recording mode.	Deck I	—	Oscillation frequency to be 105.0kHz ±2kHz.	When the power is turned ON while the MONO button is depressed, the frequency will decrease 2-3 kHz.
				Deck II	T4351		

● After the adjustment, caution should be exercised so as not to become under bias by checking the distortion rate.

2. Recording Bias Adjustment

Step	Tape Selector (AUTO)	Mode	Input Signal/ Test Tape	Adjusting Points	Measurement Points	Adjustment Value	Remarks
1	NORMAL	REC	Input a 315Hz signal to the VIDEO/AUX IN terminal and set the input selector to VIDEO.	Deck I Deck II	— Input signal level	TAPE TEST POINT (L, Rch) (AF Assy) -25.2 dBV	
2	NORMAL	REC → PLAY	Load the STD-631 or STD-632 test tape and record/playback the 315Hz and 10kHz signals. (see the Note below)	Deck I	—	TAPE TEST POINT (L, Rch) (AF Assy)	Repeat adjustment until playback level of the 10kHz signal is within 0±0.5dB from that of the 315Hz signal.
				Deck II	VR4351 (Lch) VR4352 (Rch)		

Note: Set the 10 kHz input signal level to the same value as the 315 Hz input signal level of step 1.

3. Recording Level Adjustment

Step	Tape Selector (AUTO)	Mode	Input Signal/ Test Tape	Adjusting Points	Measurement Points	Adjustment Value	Remarks
1	NORMAL	REC	Input a 315Hz signal to the VIDEO/AUX IN terminal and set the input selector to VIDEO.	Deck I	Input signal level	TAPE TEST POINT (L, Rch) (AF Assy)	-8.2 dBV
				Deck II			
2	NORMAL	REC → PLAY	STD-631 or STD-632 test tape and record/playback the 315Hz signal.	Deck I	—	TAPE TEST POINT (L, Rch) (AF Assy)	Repeat recording, playback and adjustment until playback level of the 315Hz signal becomes -8.2dBV.
				Deck II	VR4301 (Lch) VR4302 (Rch)		

4. ALC Operation Check

Step	Tape Selector (AUTO)	Mode	Input Signal/ Test Tape	Adjusting Points	Measurement Points	Adjustment Value	Remarks
1	NORMAL	REC/ PAUSE	Input a 315Hz signal to the VIDEO/AUX IN terminal and set the input selector to VIDEO.	Input signal level		-8.2 dBV	
2				Set to a level +10dB above the input level at step 1.	TAPE TEST POINT (L, Rch) (AF Assy)	-3.2±2.5dBV	

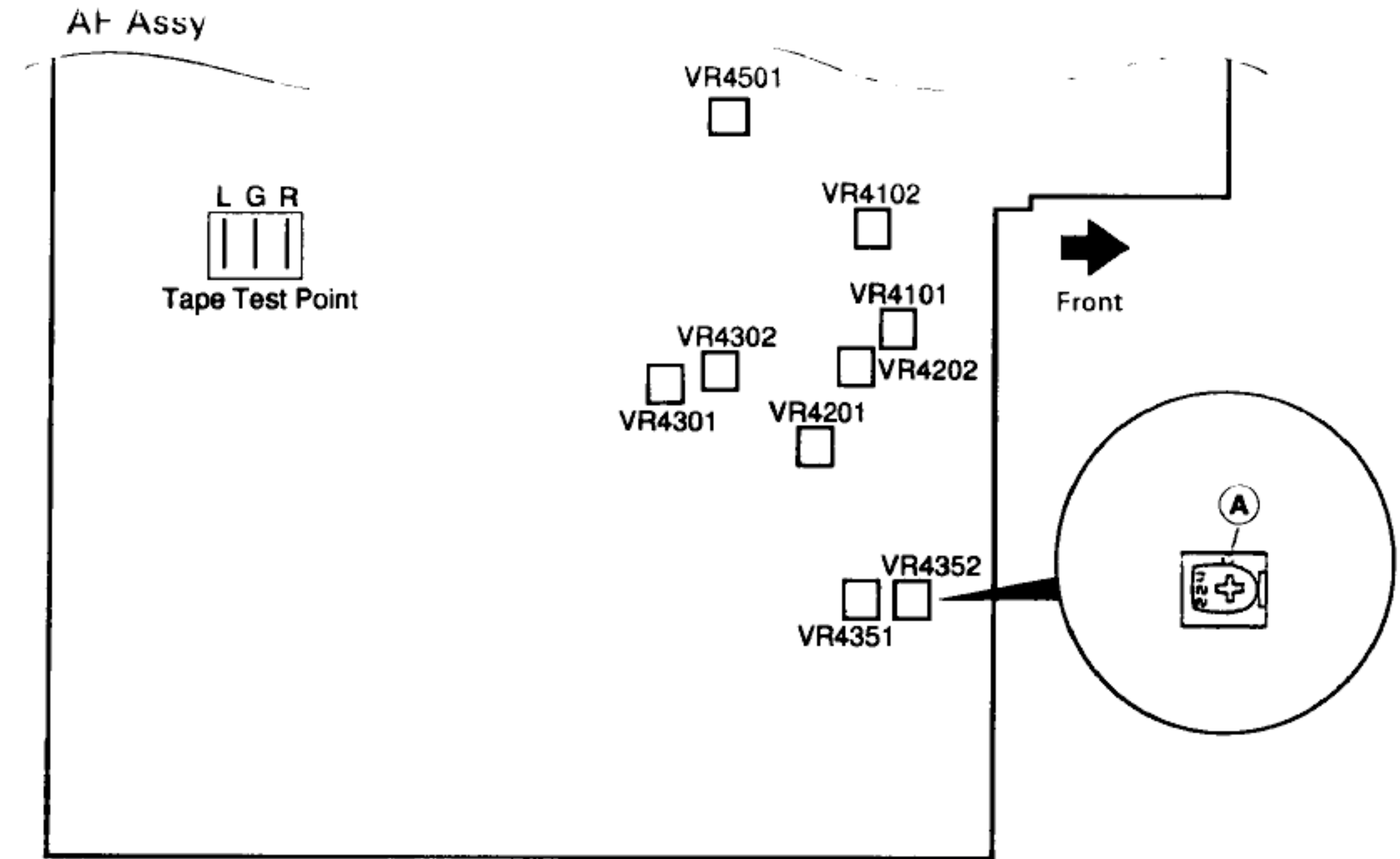


Fig. 2-4 Adjusting Points and Measurement Points

5.3 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	CN8201, Pin6 (FE)	None
2	Tracking error balance verification	CN8201, Pin2 (TE)	None
3	Pickup radial/tangential direction tilt adjustment	CN8201, Pin1 (RF)	Radial tilt adjustment screw, Tangential tilt adjustment screw
4	RF level verification	CN8201, Pin1 (RF)	None
5	Focus servo loop gain adjustment	CN8201, Pin5 (FI) CN8201, Pin6 (FE)	VR8152 (FOCUS)
6	Tracking servo loop gain adjustment	CN8201, Pin3 (TI) CN8201, Pin2 (TE)	VR8151 (TRACKING)

Abbreviation Table

FE	: Focus Error
TE	: Tracking Error
FI	: Focus In
TI	: Tracking In

● Measuring Instruments and Tools

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

● Test Point and Adjustment Variable Resistor Positions

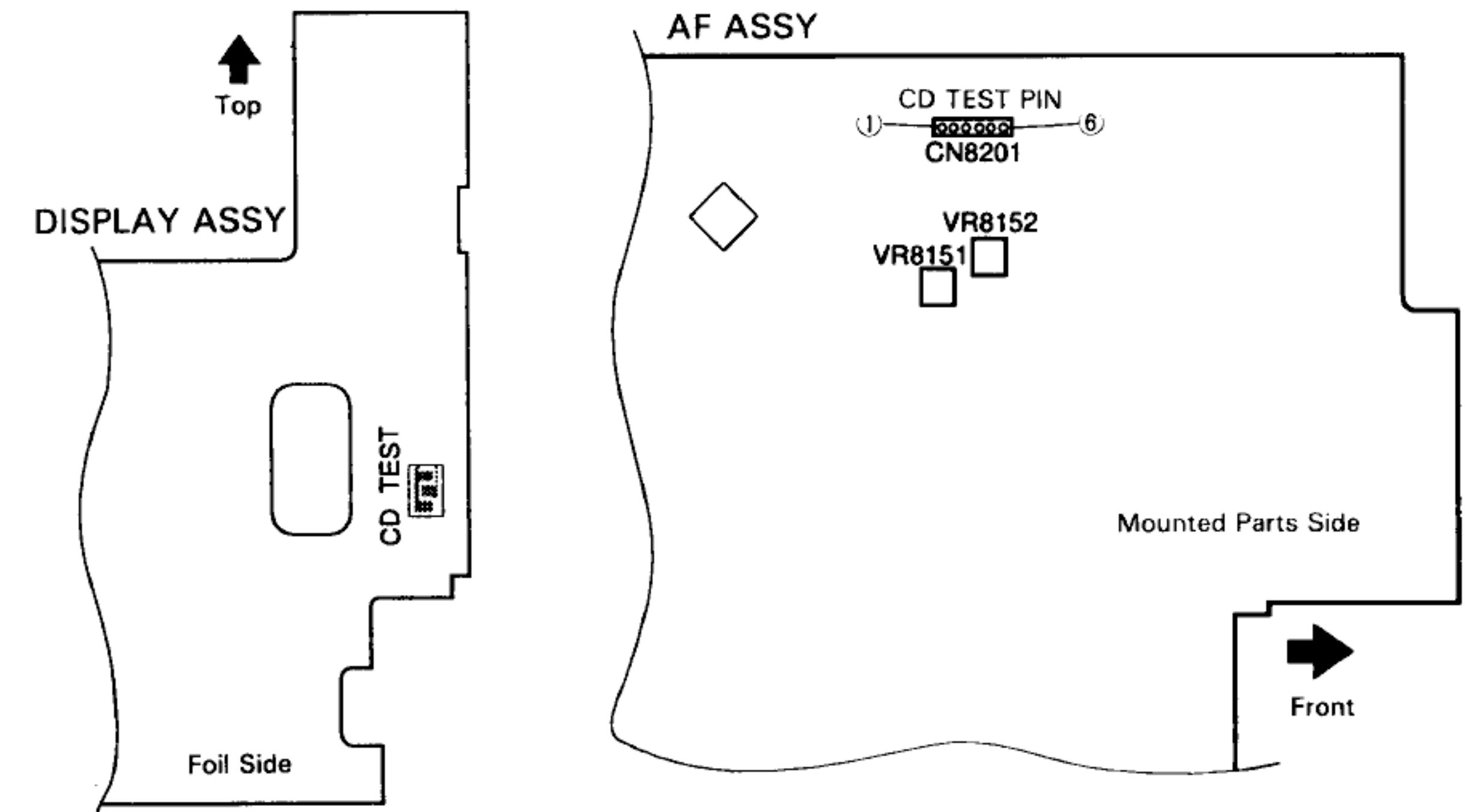


Fig. 3-1 Adjustment Location

● 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 CN8201, pin4 (VC). If GND is shorted to the ground of the product, the product should be damaged.

● Test Mode

These models have a test mode so that the adjustment 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. When the Power switch is activated, set the FUNCTION button to CD stop mode.
2. Short-circuit between both CD TEST points. (See Fig. 3-1)

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 1–2.

[Release from test mode]

Here is the procedure for releasing the test mode:

1. Press the STOP key and stop all operations.
2. Turn off the power switch on the front panel.

[Operations of the keys in test mode]

Code	Key Name	Function in Test Mode	Explanation
□□	DOLBY NR ON/OFF	Focus servo close	<p>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.</p> <p>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.</p>
◁▷	START	Spindle servo ON	<p>Starts the spindle motor in the clockwise direction and when the disc rotation reaches the prescribed speed (about 500rpm at the inner periphery), sets the spindle servo in a closed loop.</p> <p>Be careful. Pressing this key when there is no disc mounted makes the spindle motor run at the maximum speed.</p> <p>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 occurred.</p>
		Tracking servo close/open	<p>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.</p> <p>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.</p> <p>This key is a toggle key and open/close the tracking servo alternately. This key has no effect if no disc is mounted.</p>

Code	Key Name	Function in Test Mode	Explanation
- ◀◀ ◻◀◀	FAST REVERSE/ TRACK SEARCH	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.
+ ▶▶ ▶▶◻	FAST FORWARD/ TRACK SEARCH	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.
◻	STOP	Stop	Initializes and the disc rotation stops. The pickup and disc remain where they are when this key is pressed.
△ ▱	OPEN/CLOSE	Disc tray open/close	Open /close the disc tray. This key is a toggle key and open /close tray alternately. Pressing this key when the disc is turning stops the disc, then opens the tray. This key operation does not affect the position of the pickup.

[How to playback 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.

- DOLBY NR ◻◻

 Lights up the laser diode and closes the focus servo.
- ↓
- START ◀▶

 Starts the spindle motor and closes the spindle servo.
- ↓
- START ◀▶

 Closes the tracking servo.

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

1. Focus Offset Verification

● Objective	Verify the DC offset for the focus error amp.		
● Symptom when out of adjustment	The model does not focus in and the RF signal is dirty.		
● Measurement Instrument Connections	Connect the oscilloscope to CN8201, Pin6 (FE) and GND is to CN8201, Pin4 (VC). [Settings] 5mV/division 10ms/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 CN8201, Pin6 (FE) is $0 \pm 50\text{mV}$.			

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

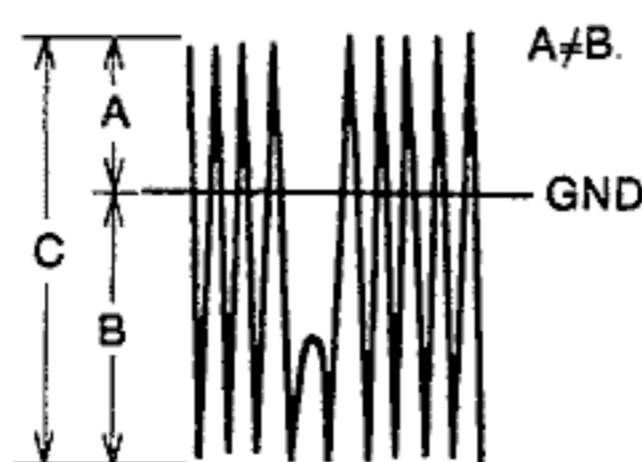
● Objective	To verify that there is no variation in the sensitivity of the tracking photo diode.		
● Symptom when out of adjustment	Play does not start or track search is impossible.		
● Measurement Instrument Connections	Connect the oscilloscope to CN8201, Pin2 (TE) and GND is to CN8201, Pin4 (VC). This connection may be via a low pass filter. [Settings] 50mV/division 5ms/division DC mode	● Player State ● Adjustment Location ● Disc	Test mode, focus and spindle servos closed and tracking servo open. None YEDS-7

[Procedure]

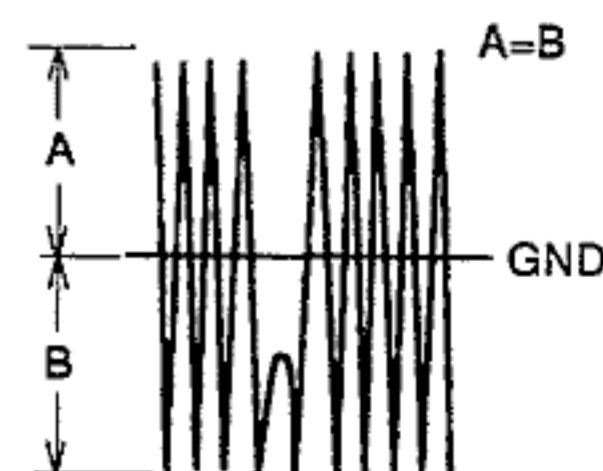
1. Move the pickup to midway across the disc (R=35mm) with the FORWARD/TRACK SEARCH + $\triangleright\triangleright\triangleright\triangleright$ key or REVERSE $\triangleleft\triangleleft\triangleleft\triangleleft$ - key.
2. Press the DOLBY NR $\square\square$ key, then the START $\triangleleft\triangleright$ 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 CN8201, pin2 (TE) is (A) and the negative amplitude is (B), the following expression is satisfied.

When $A \geq B$, $\frac{A-B}{C} \times \frac{1}{2} \leq 0.1$

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



When there is a DC component



When there is a 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 CN8201, Pin1 (RF) and GND is to CN8201, Pin4 (VC). [Settings] 20mV/division 200ns/division AC mode	● Player State ● Adjustment Location ● Disc	Test mode, play Pickup radial tilt adjustment screw and tangential tilt adjustment screw 8 cm disc [However, those with approx. 20 min of audio signal (music).]

[Procedure]

1. Press the FORWARD/TRACK SEARCH + ▷▷ ▷▷ key or REVERSE ◁◁◁◁ - key to move the pickup to the external circumference of the disc.
Press the DOLBY NR ◻◻ key, the START ◁ ▷ key twice in that order to close the respective servos and put the player into play mode.
2. 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.
3. 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 (Fig. 3-3).
※ The ball-point type hexagonal wrench is used because the disc will get in the way if a normal hexagonal wrench is used.
4. 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.
5. 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 Fig. 3-2.

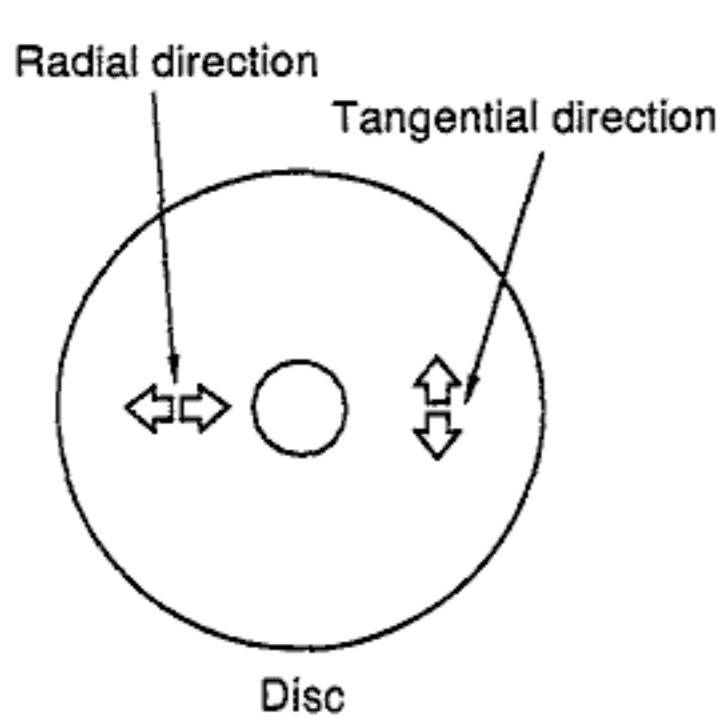
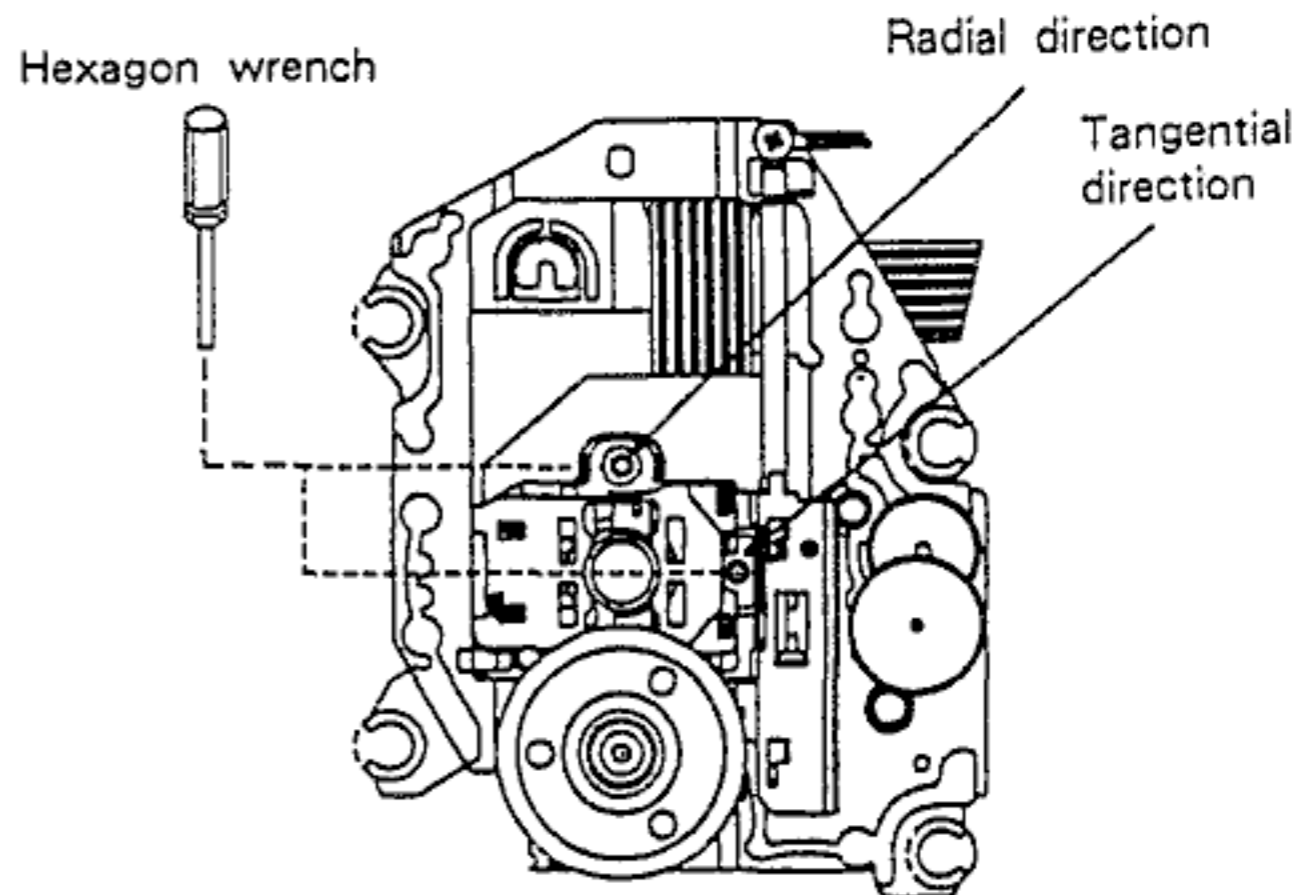


Fig. 3-2



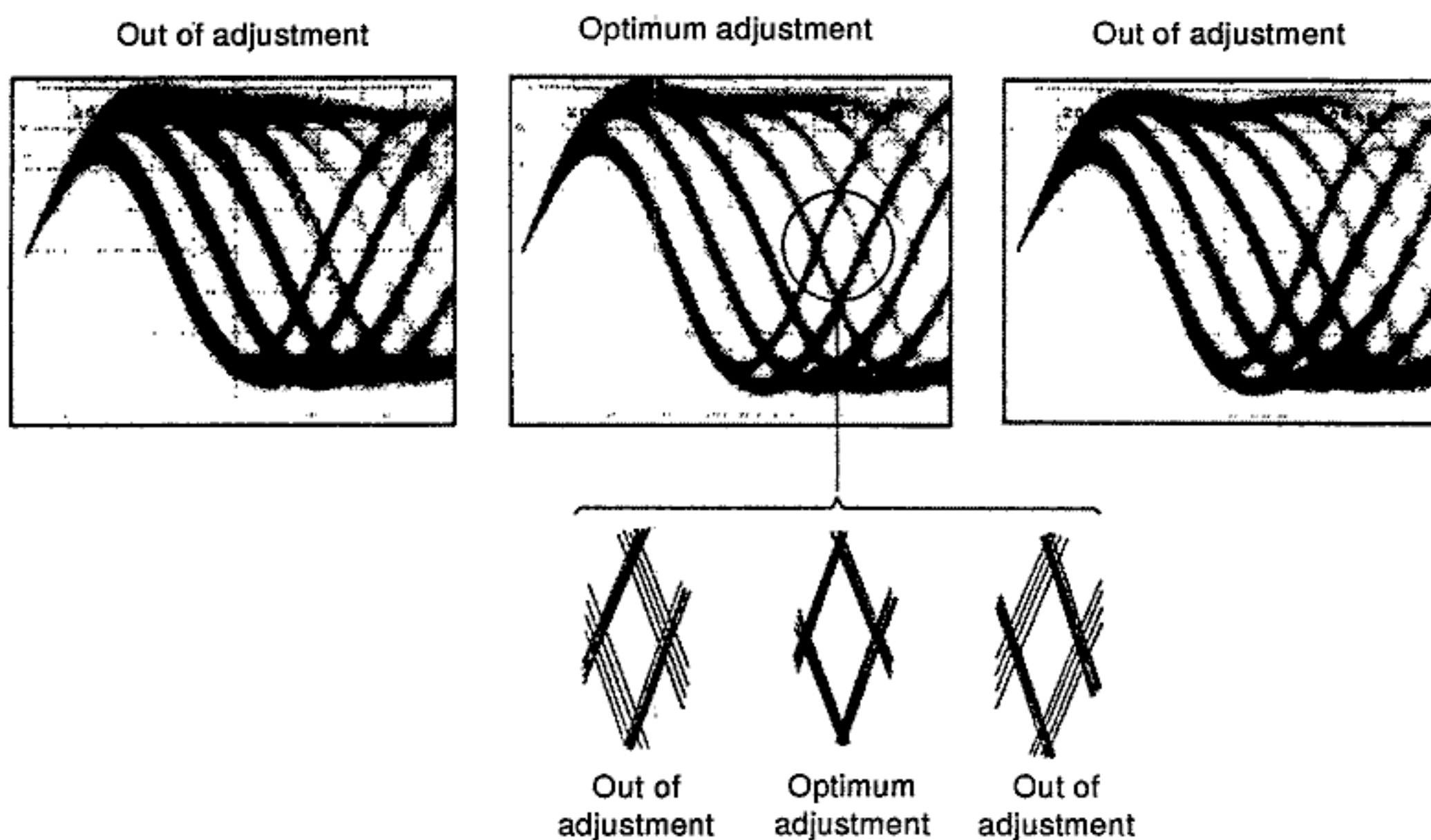


Fig. 3-3 Eye Pattern

4. RF Level Verification

● Objective	To verify the playback RF signal amplitude.		
● Symptom when out of adjustment	No play or no search		
● Measurement Instrument Connections	Connect the oscilloscope to CN8201, Pin1 (RF) and GND is to CN8201, Pin4 (VC). [Settings] 50mV/division 10ms/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=35mm) with the FORWARD/TRACK SEARCH + ▷▷ ▷▷ key or REVERSE ◁◁◁◁ - key, then press the DOLBY NR ◻◻ key, the START ◁ ▷ key twice in that order to close the respective servos and put the player into play mode.
2. Verify the RF signal amplitude is 1.2V_{p-p} ± 0.2V.

5. Focus Servo Loop Gain Adjustment

<ul style="list-style-type: none"> ● Objective 	To optimize the focus servo loop gain.		
<ul style="list-style-type: none"> ● Symptom when out of adjustment 	Playback does not start or focus actuator noisy.		
<ul style="list-style-type: none"> ● Measurement Instrument Connections 	See Fig. 3-4. [Settings] CH1 20mV/division X-Y mode CH2 5mV/division	<ul style="list-style-type: none"> ● Player State ● Adjustment Location ● Disc 	Test mode, play VR8152 (FOCUS) YEDS-7

[Procedure]

1. Set the AF generator output to 1.2kHz and 1Vp-p.
2. Press the FORWARD/TRACK SEARCH + ▷▷ ▷▷ key or REVERSE ◁◁◁◁ - key to move the pickup to halfway across the disc (R=35mm), then press the DOLBY NR ◻◻ key, the START ◁ ▷ key twice in that order to close the corresponding servos and put the player into play mode.
3. Adjust VR8152 (FOCUS) so that the Lissajous waveform is symmetrical about the X axis and the Y axis.

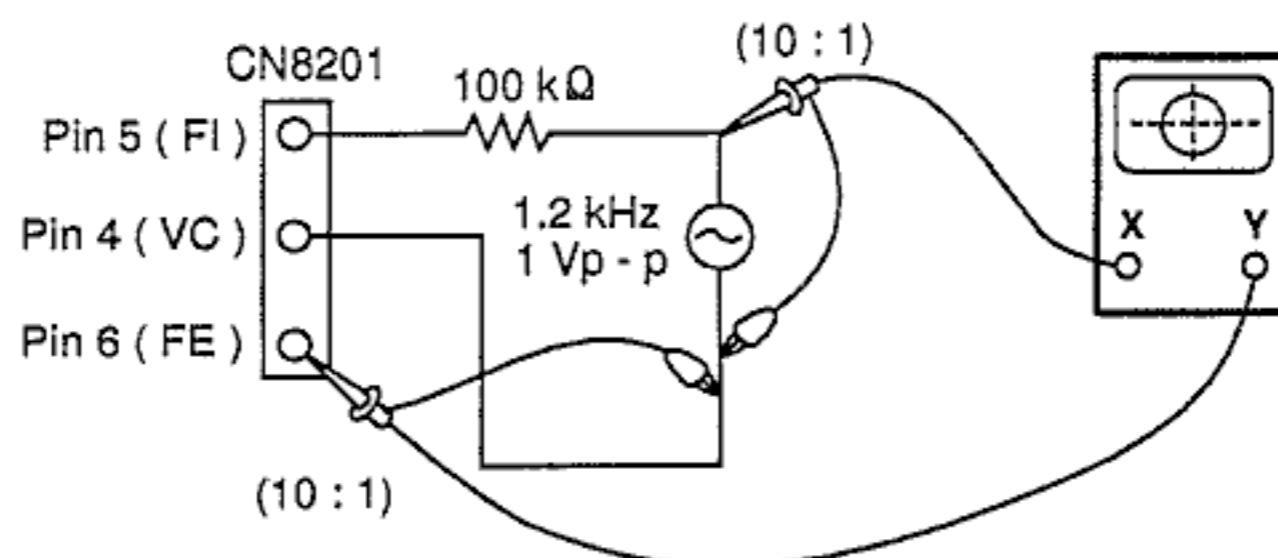
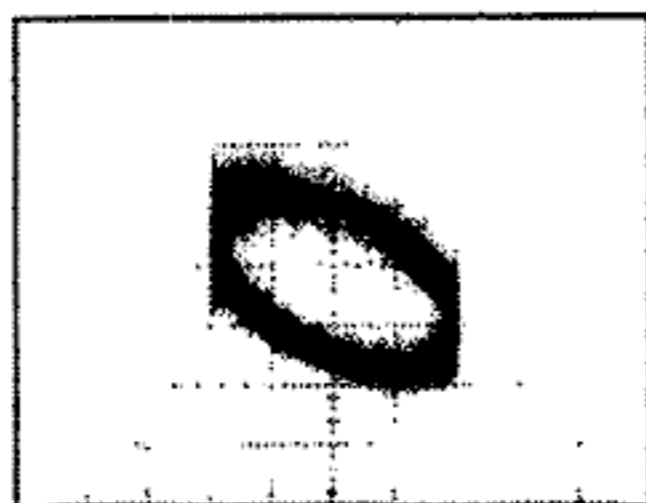
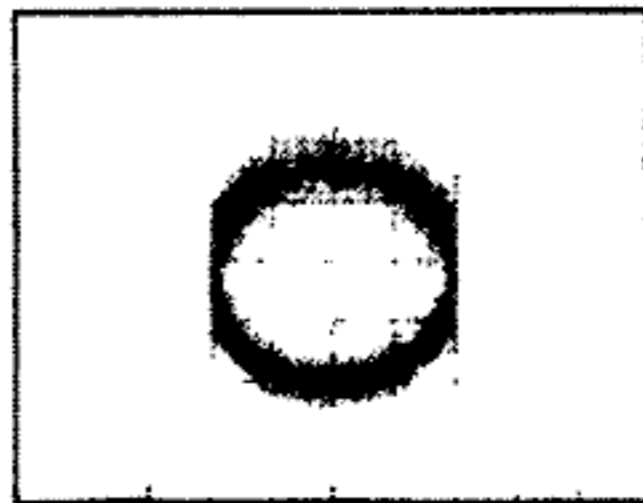


Fig. 3-4

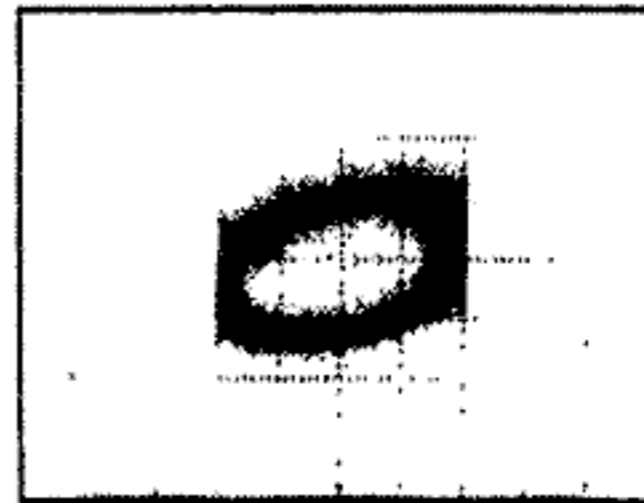
Focus Gain Adjustment



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 Fig. 3-5. [Settings] CH1 50mV/division X-Y mode CH2 20mV/division	● Player State ● Adjustment Location ● Disc	Test mode, play VR8151 (TRACKING) YEDS-7

[Procedure]

1. Set the AF generator output to 1.2kHz and 2Vp-p.
2. Press the FORWARD/TRACK SEARCH + ▷▷ ▷▷ key or REVERSE ◁◁◁◁ - key to move the pickup to halfway across the disc (R=35mm), then press the DOLBY NR ◻◻ key, the START ◁ ▷ key twice in that order to close the corresponding servos and put the player into play mode.
3. Adjust VR8151 (TRACKING) so that the Lissajous waveform is symmetrical about the X axis and the Y axis.

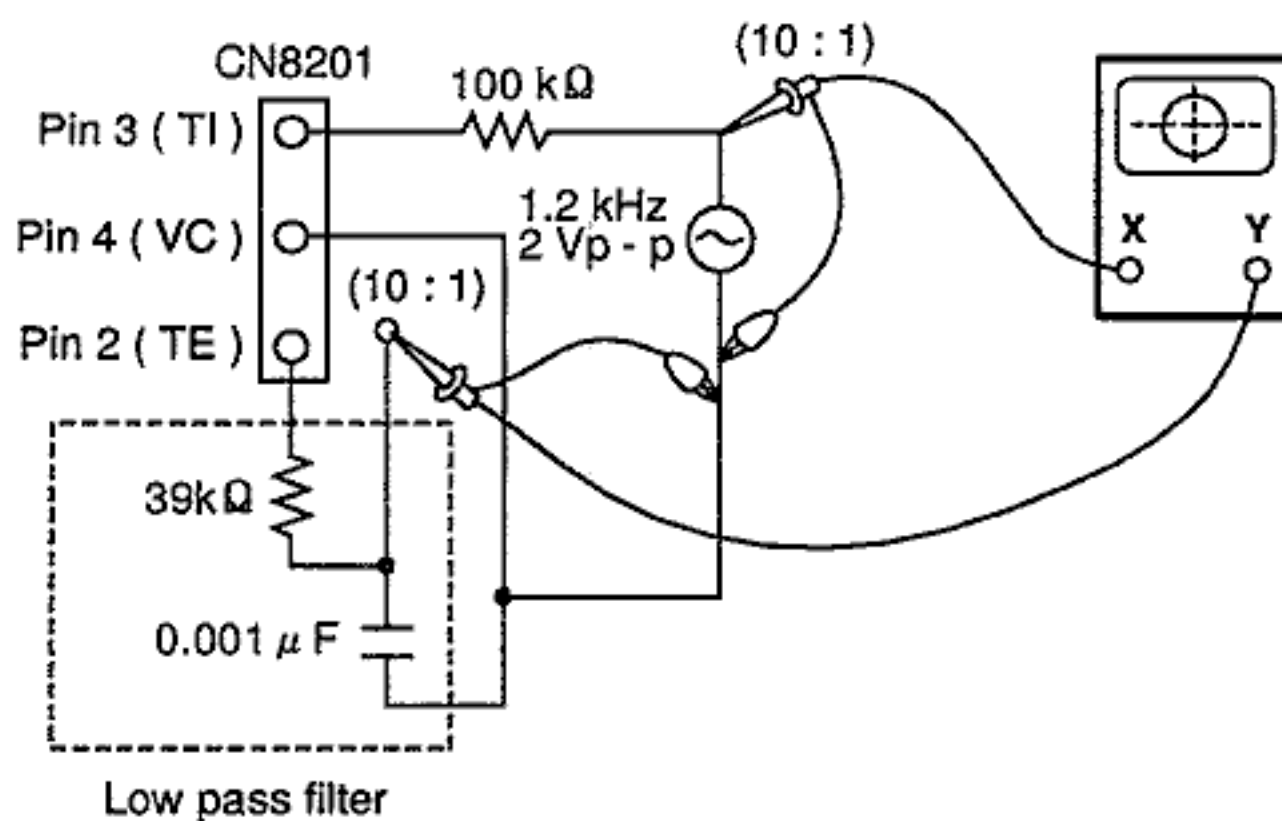
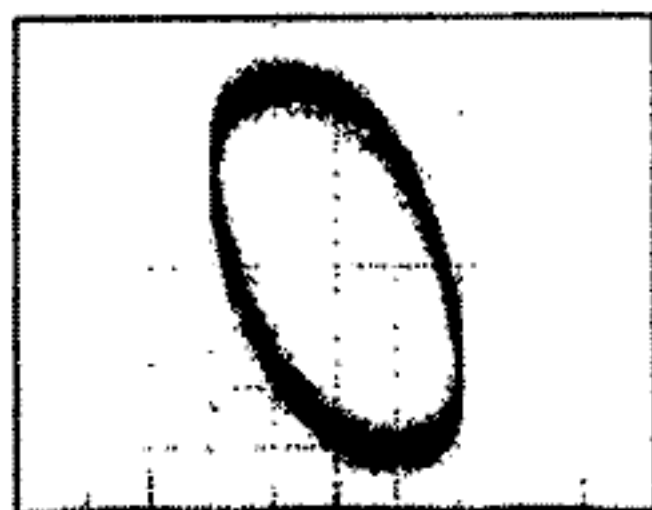


Fig. 3-5

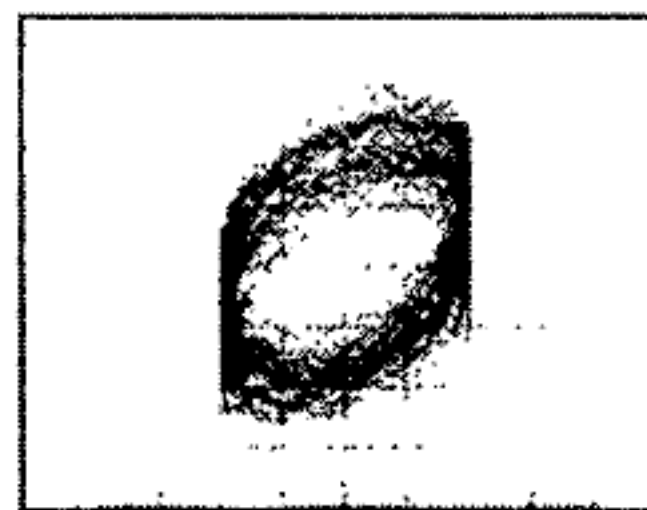
Tracking Gain Adjustment



Higher gain



Optimum gain



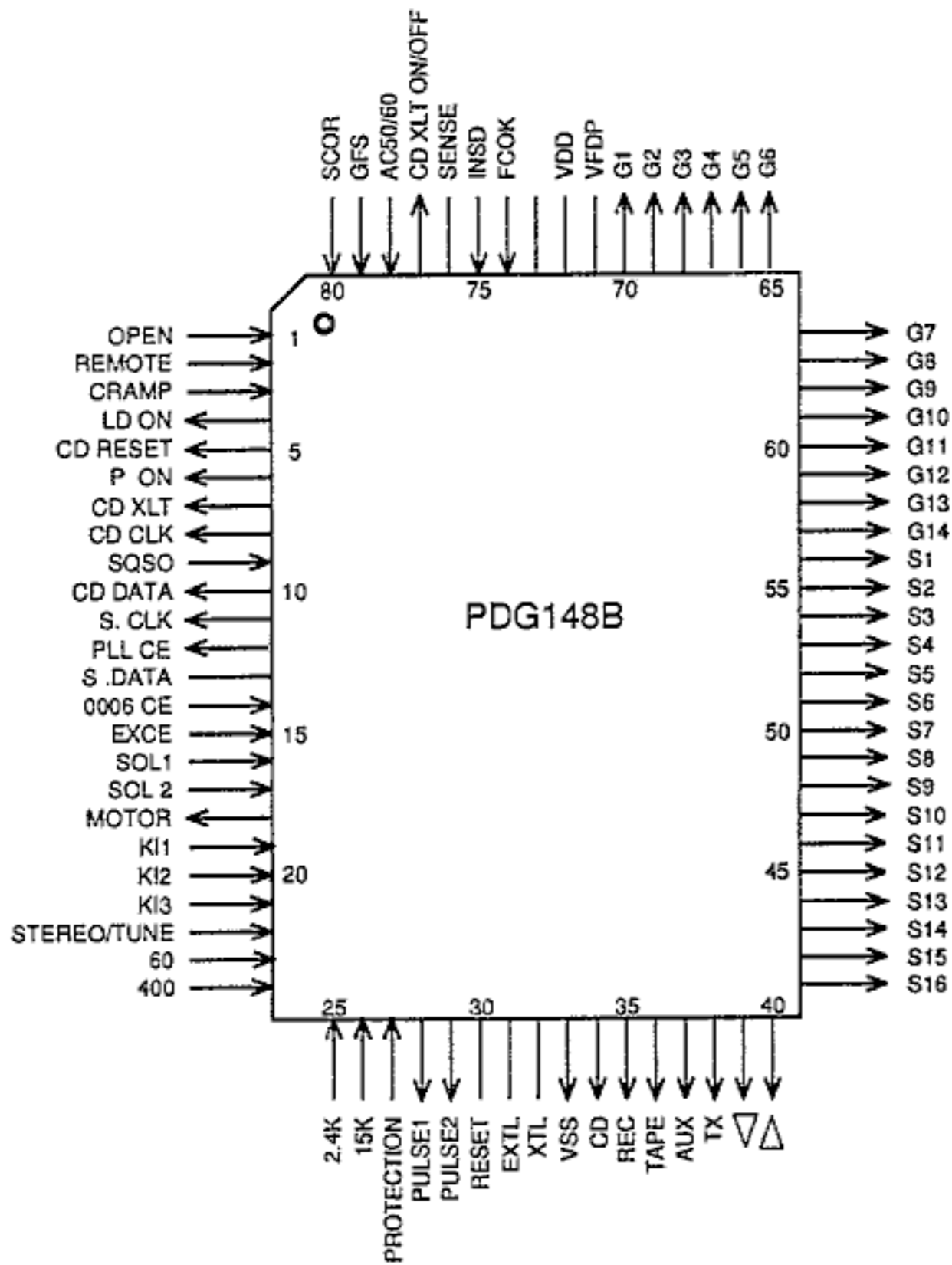
Lower gain

6. IC INFORMATION

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

■ PDG148B (IC1901 : DISPLAY ASSY)

- Display Control Micro-computer
- Pin Assignment (Top view)



● Pin Function

No.	Pin Name	I/O	Description	ACT
1	OPEN	I	Tray open acknowledge	L
2	REMOTE	I	Remote control signal input	
3	CLAMP	I	CD clump acknowledge	L
4	LD ON	O	Laser diode light up	L
5	CD RESET	O	Decoder (2508) reset	L
6	P. ON	O	System power	H
7	CD XLT	O	Latch after decoder transfer	
8	CD CLK	O	Decoder clock	
9	SQSO	I	Disc time information	H
10	CD DATA	O	Decoder data	
11	S. CLK	O	PLL, PM0006, 4094 clock	

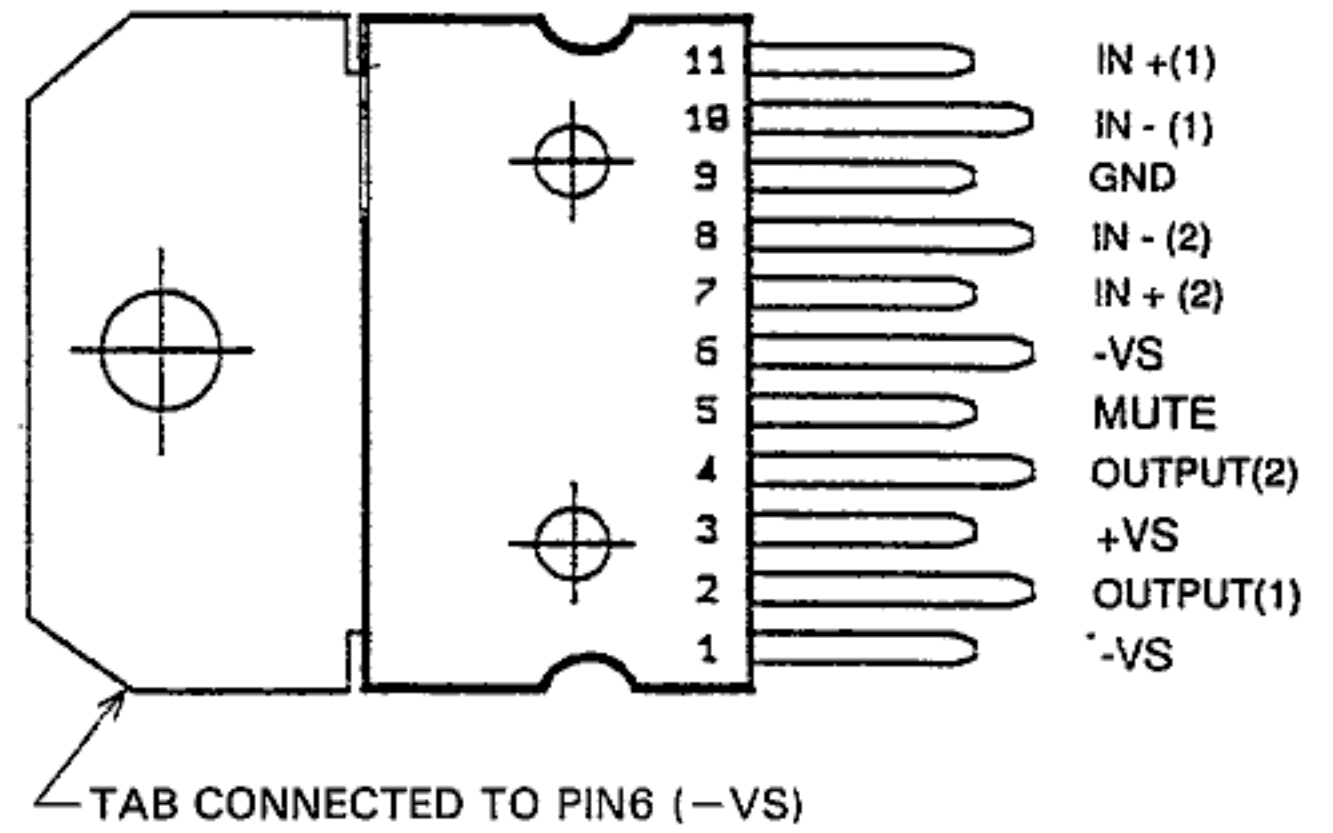
No.	Pin Name	I/O	Description	ACT						
12	PLL CE	O	PLL Enable/Request							
13	S. DATA	O	PLL, PM0006, 4094 data							
14	0006CE	O	0006 Enable/Request							
15	EXCE	O	BU4094 Enable/Request							
16	SOL1	O	Deck mechanism I solenoid control	H						
17	SOL2	O	Deck mechanism II solenoid control	H						
18	MOTOR	O	MOTOR ON/OFF	L						
19	KI1	I	Key return input I	H						
20	KI2	I	Key return input II	H						
21	KI3	I	Key return input III	H						
22	STEREO/TUNE	I	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">0</td> <td style="text-align: center;">2.5</td> <td style="text-align: center;">5.0</td> </tr> <tr> <td colspan="3" style="text-align: center;">STEREO/TUNE TUNE</td> </tr> </table>	0	2.5	5.0	STEREO/TUNE TUNE			
0	2.5	5.0								
STEREO/TUNE TUNE										
23	60	I	Detection signal input for spectrum analyzer							
24	400	I								
25	2.4K	I								
26	15K	I								
27	PROTECTION	I	Power IC protection circuit. Standby at 1.0V. Indication during protection operation.	H						
28	PULSE1	I	Deck mechanism I operation acknowledge	H						
29	PULSE2	I	Deck mechanism II operation acknowledge	H						
30	RESET	I	Reset input							
31	EXTL	I	Connected to oscillator (8MHz)							
32	XTL	I								
33	VSS	-	Connected to GND							
34	CD	O	Function LED	L						
35	REC	O								

TDA7265 (IC1201: AF ASSY)

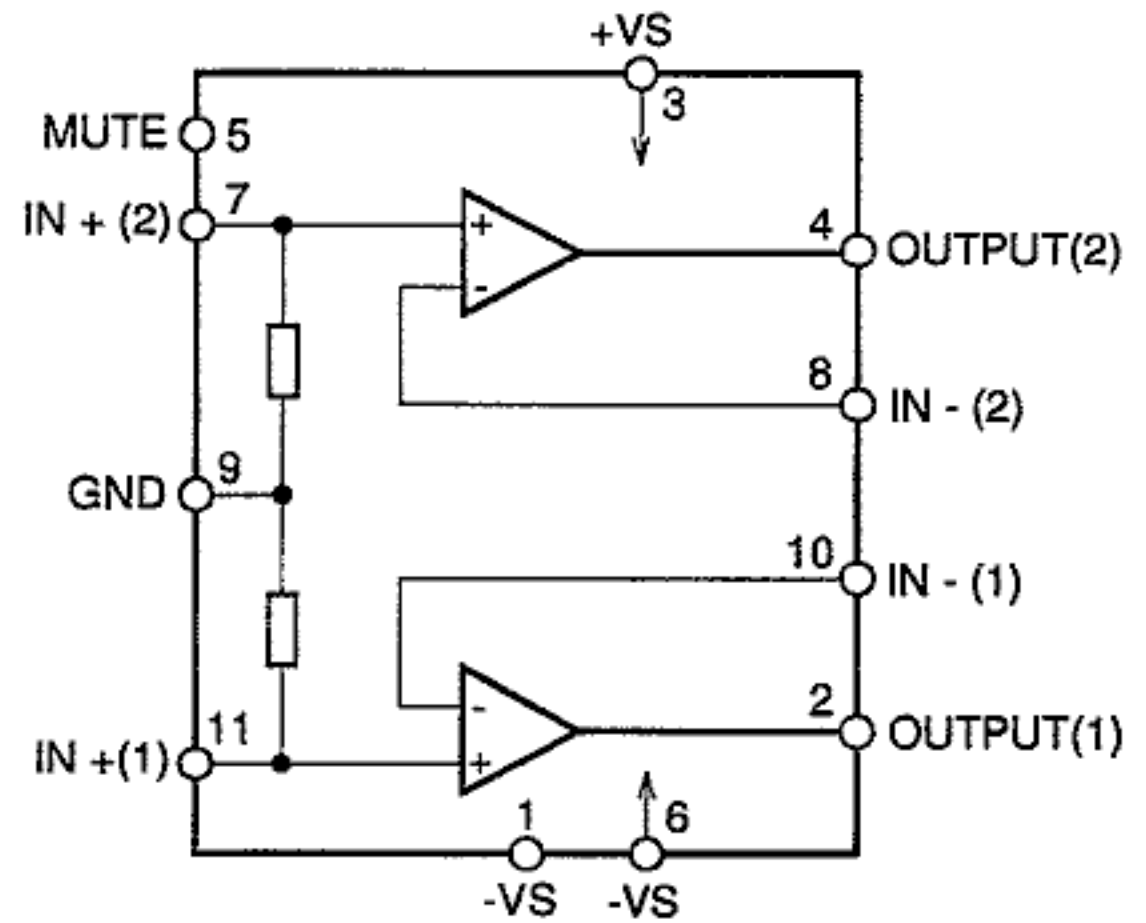
● **25W + 25W Stereo Amplifier with Mute & ST-BY**

● Pin Assignment (Top view)

No.	Pin Name	I/O	Description	ACT
36	TAPE	O	Function LED	L
37	AUX	O		
38	TX	O		
39	◁	O		
40	▷	O		
41 56	S16 S1	O	FL segment output/Key scan output	
57 70	G14 G1	O	FL grid output	
71	VFDP	-	Connected to -30V	
72	VDD	-	Connected to +5V	
73		-	Connected to +5V	
74	FCOK	I	Decoder monitor H: FOCUS OK	H
75	INSD	I	Pickup home position acknowledge	L
76	SENSE	I	Decoder monitor	
77	CD XLT ON/OFF	O	XTAL ON/OFF	L/H
78	AC50/60	I	AC Clock (reading power supply frequency)	
79	GFS	I	Decoder monitor Rotation speed frame check	H: OK
80	SCOR	I	Decoder monitor Q data interrupt signal	H



● Block Diagram



BU4094BCF (IC1981: AF ASSY)

- Expander I
- Pin Function

No.	Pin Name	I/O	Description	ACT
1	ST	I	STROB	
2	DT	I	DATA	
3	CK	I	CLOCK	
4	PB/REC	O	Dolby IC (CXA1101P) Switching PB/REC H: PB L: REC	
5	ON/OFF	O	Dolby IC (CXA1101P) □□ ON/OFF H: OFF L: ON	
6	PB 1/2	O	Switching playback I / II H: I, L: II	
7	REC MUTE	O	REC mute	H
8	VSS	-	GND	
9	Qs			
10	Q's			
11	BIAS CONT	O	Bias ON/OFF	H
12	BEAT CUT	O	Beat cut ON/OFF	H
13	S. MUTE	O	System mute	L
14		O	Not used	
15	OE			
16	VDD	-	+5V power supply	

BU4094BCF (IC1982: AF ASSY)

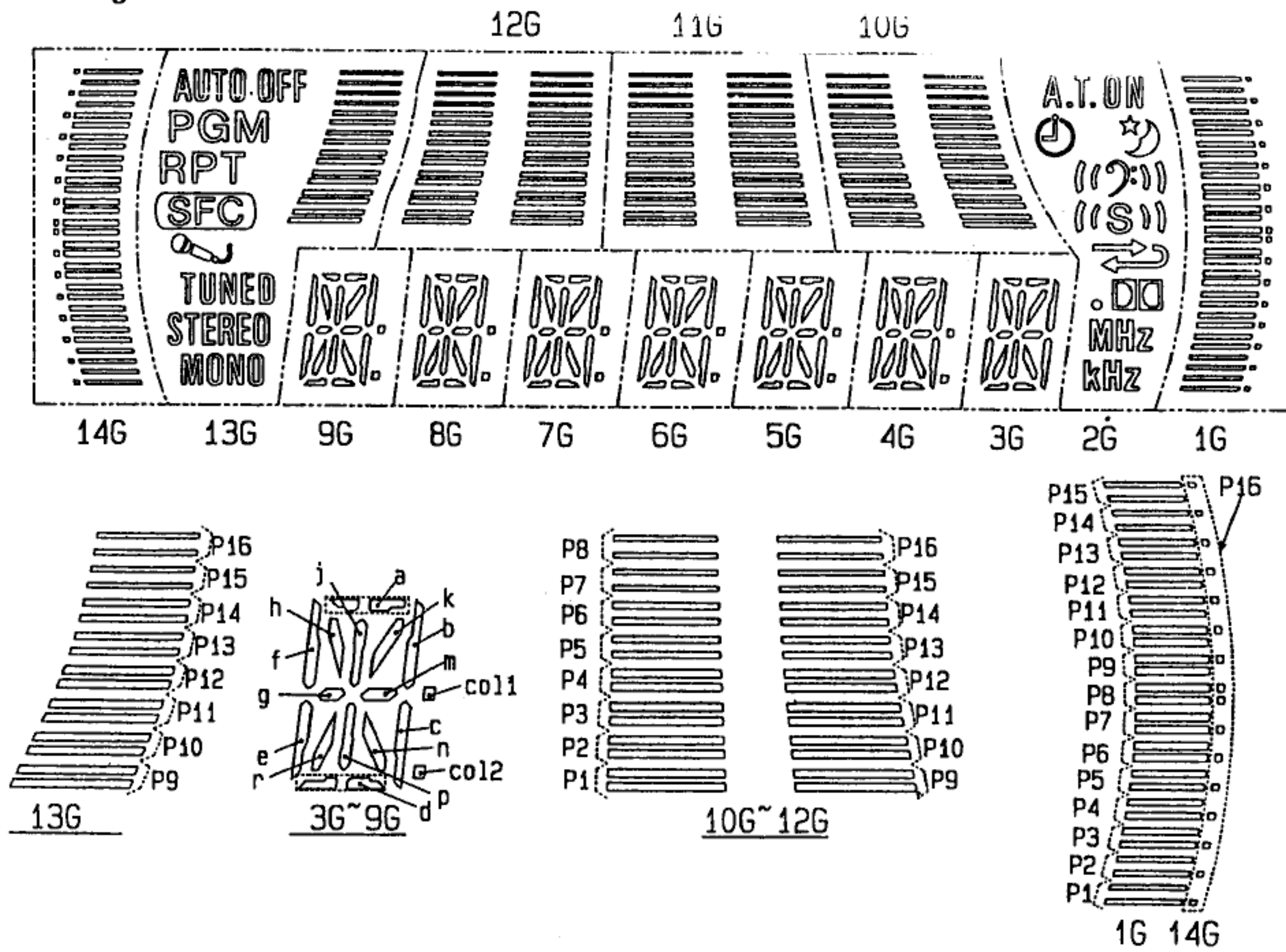
- Expander II
- Pin Function

No.	Pin Name	I/O	Description	ACT																				
1	ST	I	STROB																					
2	DT	I	DATA																					
3	CK	I	CLOCK																					
4	A	O	Switching function <table border="1" style="margin-left: 20px;"> <thead> <tr> <th></th> <th>A</th> <th>B</th> <th>INH</th> </tr> </thead> <tbody> <tr> <td>TX</td> <td>L</td> <td>L</td> <td>L</td> </tr> <tr> <td>TAPE</td> <td>L</td> <td>H</td> <td>L/(H)</td> </tr> <tr> <td>CD</td> <td>H</td> <td>L</td> <td>L</td> </tr> <tr> <td>AUX</td> <td>H</td> <td>H</td> <td>L</td> </tr> </tbody> </table> Function Tape: INH H		A	B	INH	TX	L	L	L	TAPE	L	H	L/(H)	CD	H	L	L	AUX	H	H	L	
	A	B		INH																				
TX	L	L		L																				
TAPE	L	H		L/(H)																				
CD	H	L	L																					
AUX	H	H	L																					
5	B	O																						
6	INH	O																						
7	L IN	O	Tray load in	H																				
8	VSS	-	GND																					
9	Qs																							
10	Q's																							
11	DOWN	O	Volume UP/DOWN <table border="1" style="margin-left: 20px;"> <thead> <tr> <th></th> <th>No. 11</th> <th>No. 12</th> </tr> </thead> <tbody> <tr> <td>UP</td> <td>H</td> <td>L</td> </tr> <tr> <td>DOWN</td> <td>L</td> <td>H</td> </tr> <tr> <td>STOP</td> <td>L</td> <td>L</td> </tr> </tbody> </table>		No. 11	No. 12	UP	H	L	DOWN	L	H	STOP	L	L									
	No. 11	No. 12																						
UP	H	L																						
DOWN	L	H																						
STOP	L	L																						
12	UP	O																						
13	MONO	O	TX Execution MONO	H																				
14	LOUT	O	Tray load out	H																				
15	OE																							
16	VDD	-	+5V power supply																					

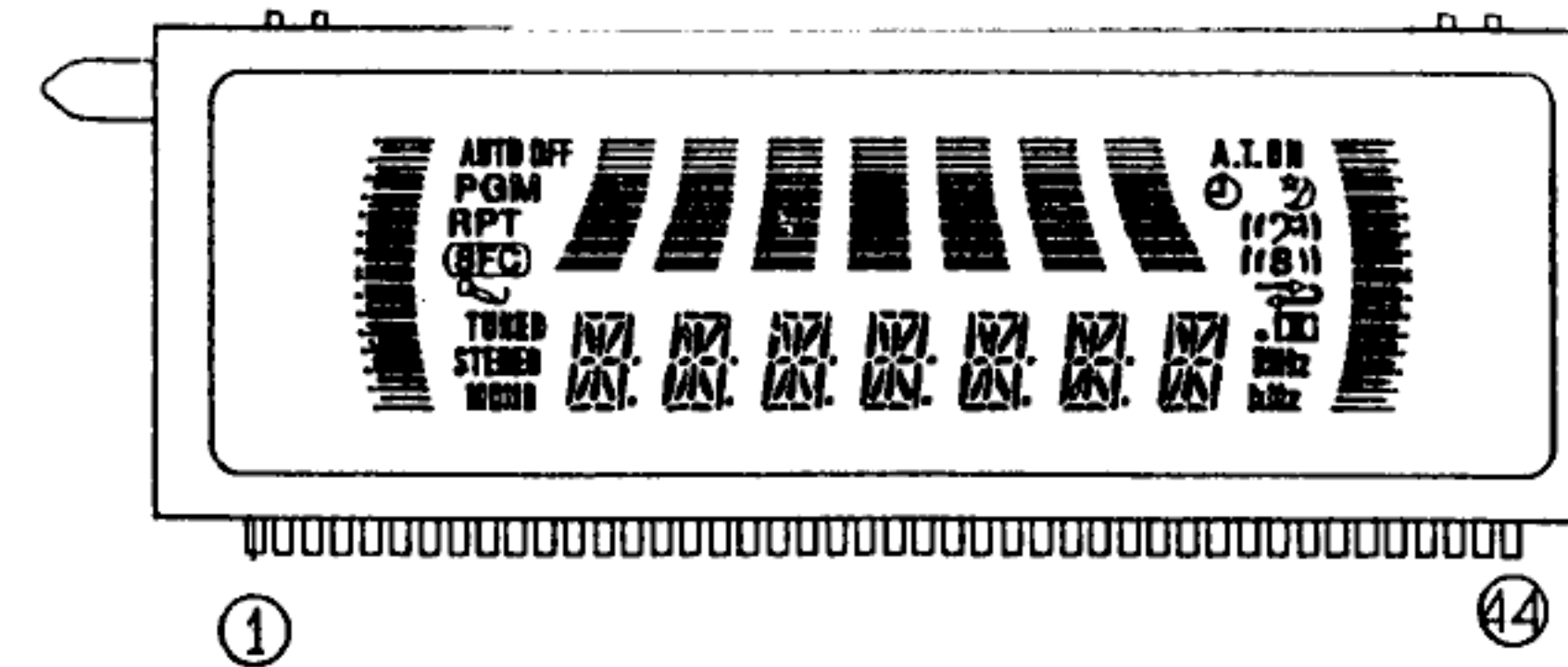
7. FL INFORMATION

AAV7012 (V1901: DISPLAY ASSY)

- FL Tube
- Grid Assignment



● Pin Assignment



● Pin Connection

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Assignment	F1	F1	NL	G14	G13	G12	G11	G10	G1	NL	NL	NL	NL	NL	NL	NL	NL	G9	G8	G7	G6	G5
Pin No.	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
Assignment	G4	G3	G2	S9	S10	S11	S12	S13	S14	S8	S7	S6	S5	S4	S3	S2	S1	S15	S16	NL	F2	F2

F1, F2: Filament G1~G14: Grid S1~S16: Anode NL: No Lead NP: No Pin

● Segment Assignment

	14G	13G	12G	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G
S1	P1	RPT	P1	P1	P1	m	m	m	m	m	m	m		P1
S2	P2	STEREO	P2	P2	P2	g	g	g	g	g	g	g		P2
S3	P3	PGM	P3	P3	P3	c	c	c	c	c	c	c		P3
S4	P4	AUTO OFF	P4	P4	P4	r	r	r	r	r	r	r	↩	P4
S5	P5	MONO	P5	P5	P5	n	n	n	n	n	n	n	⊠	P5
S6	P6	TUNED	P6	P6	P6	p	p	p	p	p	p	p	⊠	P6
S7	P7	(SEC)	P7	P7	P7	e	e	e	e	e	e	e	MHz	P7
S8	P8	P8	P8	P8	P8	d	d	d	d	d	d	d	kHz	P8
S9	P9	P9	P9	P9	P9	a	a	a	a	a	a	a	↔	P9
S10	P10	P10	P10	P10	P10	b	b	b	b	b	b	b	(S)	P10
S11	P11	P11	P11	P11	P11	j	j	j	j	j	j	j	(S)	P11
S12	P12	P12	P12	P12	P12	k	k	k	k	k	k	k	(S)	P12
S13	P13	P13	P13	P13	P13	h	h	h	h	h	h	h	(S)	P13
S14	P14	P14	P14	P14	P14	f	f	f	f	f	f	f	⊠	P14
S15	P15	P15	P15	P15	P15	col 1	col 1	col 1	col 1	col 1	col 1	col 1	↩	P15
S16	P16	P16	P16	P16	P16	col 2	col 2	col 2	col 2	col 2	col 2	col 2	A.T.ON	P16

8. FOR MEXK/EA, MEXK/EB AND SD TYPES

NOTES :

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

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

560Ω → 56 × 10¹ → 561 RD1/8PM $\begin{matrix} 5 & 6 & 1 \\ \hline & & J \end{matrix}$
 47kΩ → 47 × 10³ → 473 RD1/4PS $\begin{matrix} 4 & 7 & 3 \\ \hline & & J \end{matrix}$
 0.5Ω → 0R5 RN2H $\begin{matrix} 0 & R & 5 \\ \hline & & K \end{matrix}$
 1Ω → 010 RS1P $\begin{matrix} 0 & 1 & 0 \\ \hline & & K \end{matrix}$

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

5.62kΩ → 562 × 10¹ → 5621 RM1/4PC $\begin{matrix} 5 & 6 & 2 & 1 \\ \hline & & & F \end{matrix}$

MEXK/EA, MEXK/EB, SD types and NBXK type have the same construction except for the following :

Mark	Symbol & Description	Part No.				Remarks
		NBXK type	MEXK/EA type	MEXK/EB type	SD type	
NSP	COMPLEX assy	AWK7113	AWK7113	AWK7113	AWK7116	
	AF assy	AWZ7501	AWZ7501	AWZ7501	AWZ7503	
	DISPLAY assy	AWZ7504	AWZ7504	AWZ7504	AWZ7506	
	PRIMARY assy	AWZ7509	AWZ7509	AWZ7509	AWZ7512	
NSP	HEADPHONE assy	AWZ7514	AWZ7514	AWZ7514	AWZ7516	
	FM/AM TUNER MODULE	AXQ3213	AXQ3213	AXQ3213	AXQ1012	
Δ	Voltage selector	Not used	Not used	Not used	AKX-507	*1
Δ	Power transformer (AC220-230V)	ATS7054	ATS7054	ATS7054	Not used	
Δ	Power transformer (AC110-115V/120-127V/220-230V/240V)	Not used	Not used	Not used	ATS7056	
Δ	AC power cord	ADG1148	ADG1138	ADG1138	PDG1013	
Δ	Fuse (T5A)	AEK1046	Not used	Not used	Not used	
Δ	Fuse (T500mA, FU2)	Not used	Not used	Not used	AEK1051	*1
	Front panel	AZN7207	AZN7207	AZN7207	AZN7203	
	Cassette door L	AZN7208	AZN7208	AZN7208	AZN7204	
	Cassette door R	AZN7209	AZN7209	AZN7209	AZN7205	
	Mic knob	Not used	Not used	Not used	AAB7052	*1
NSP	Chassis	ANA7020	ANA7020	ANA7020	ANA7017	
	Bonnet	AZN7210	AZN7210	AZN7210	AZN7206	
	Rear panel	ANC7215	ANC7216	ANC7216	ANC7213	
	Eject spring L	ABH7028	ABH7028	ABH7028	RBH1411	
	Eject spring R	ABH7029	ABH7029	ABH7029	RBH1412	
	Door spring L	ABH7060	ABH7060	ABH7060	ABH7058	
	Door spring R	ABH7061	ABH7061	ABH7061	ABH7059	
	Connector assy (5P)	ADX7045	ADX7045	ADX7045	RKP1582	
	Connector assy (3P)	ADX7046	ADX7046	ADX7046	RKP1583	
	Eject arm L	AMR7024	AMR7024	AMR7024	AMR7020	
	Eject arm R	AMR7025	AMR7025	AMR7025	AMR7021	
	CD holder L	ANG7023	ANG7023	ANG7023	ANG7018	
	CD holder R	ANG7024	ANG7024	ANG7024	ANG7019	

Note *1: Refer to "2. EXPLODED VIEWS, PACKING AND PARTS LIST".

Mark	Symbol & Description	Part No.				Remarks
		NBXK type	MEXK/EA type	MEXK/EB type	SD type	
NSP	Power pack holder	ANG7025	ANG7025	ANG7025	ANG7020	
	Heat sink	ANH7015	ANH7015	ANH7015	ANH7014	
NSP	FM antenna	ADH1019	ADH1019	ADH1019	ADH1016	
	Battery (R03, AAA)	PEM1004	PEM1004	PEM1004	VEM-009	
	Packing case	AHD7135	AHD7182	AHD7182	AHD7126	
	Front pad	AHA7054	AHA7054	AHA7054	AHA7052	
	Rear pad	AHA7055	AHA7055	AHA7055	AHA7053	
	Packing sheet	AHG7001	AHG7001	AHG7001	AHG7003	
	Spacer	AHB7006	Not used	Not used	Not used	
	Caution label (G)	VRW-329	VRW-329	VRW-329	Not used	
NSP	Caution label (F)	ARW1046	ARW1046	ARW1046	Not used	
NSP	Caution label	ARW1050	ARW1047	ARW1047	Not used	
	Operating instructions (English)	ARB7033	Not used	ARB7033	Not used	
	Operating instructions (French/ Swedish/ Spanish/Portuguese)	Not used	Not used	ARC7057	Not used	
	Operating instructions (German/ Italian)	Not used	ARC7053	Not used	Not used	
	Operating instructions (French/Dutch)	Not used	ARC7054	Not used	Not used	
	Operating instructions (English/Spanish/Chinese)	Not used	Not used	Not used	ARE7034	
	Quick set up guide (English)	ARB7039	Not used	Not used	Not used	

AF Assy

AWZ7503 and AWZ7501 have the same construction except for the following :

Mark	Symbol & Description	Part No.		Remarks
		AWZ7501	AWZ7503	
	C1984, C2507	Not used	CKSQYB102K50	*2
	C1220	CKCYB103K50	CKSQYB103K50	
	C2202	Not used	CEAS100M50	*2
	C2213, C2214	CEAS221M10	CEAS221M16	
	R1996	Not used	RS1/10S222J	*2
	R2000	Not used	RS1/6PM222J	*2
	R2213	Not used	RS1/10S102J	*2
	R2218	RS1/10S102J	Not used	
	R9019	Not used	RS1/10S000J	*2

Note *2: Refer to "SCH-3 to SCH-5".

PRIMARY Assy

AWZ7512 and AWZ7509 have the same construction except for the following :

Mark	Symbol & Description	Part No.		Remarks
		AWZ7509	AWZ7512	
	H1103, H1104 Fuse holder	Not used	VKR1001	

DISPLAY Assy

AWZ7506 and AWZ7504 have the same construction except for the following :

Mark	Symbol & Description	Part No.		Remarks
		AWZ7504	AWZ7506	
	D9001	1SS254	Not used	
	D9008, D9012	Not used	1SS254	*3
	C2501, C2508	Not used	CKSQYB473K50	*3
	C2502	Not used	CEAS010M50	*3
	C2503	Not used	CEAS100M50	*3
	C2504	Not used	CKSQYB821K50	*3
	VR2501 (10k-B)	Not used	ACS1097	*3
	R2502	Not used	RS1/10S821J	*3
	R2503	Not used	RS1/10S104J	*3
	R2504	RS1/10S103J	RS1/10S332J	
	R2506	Not used	RS1/10S152J	*3
	R2507	RS1/10S000J	RS1/10S683J	
	R2508	Not used	RS1/10S101J	*3

Note *3: Refer to "SCH-6".

HEADPHONE Assy

AWZ7516 and AWZ7514 have the same construction except for the following :

Mark	Symbol & Description	Part No.		Remarks
		AWZ7514	AWZ7516	
	L2501	Not used	LAU2R2J	*4
	L2502	LAU100J	LAU2R2J	
	C2505	Not used	CKSQYF104Z50	*4
	CN2501	Not used	AKN1028	*4

Note *4: Refer to "SCH-5".

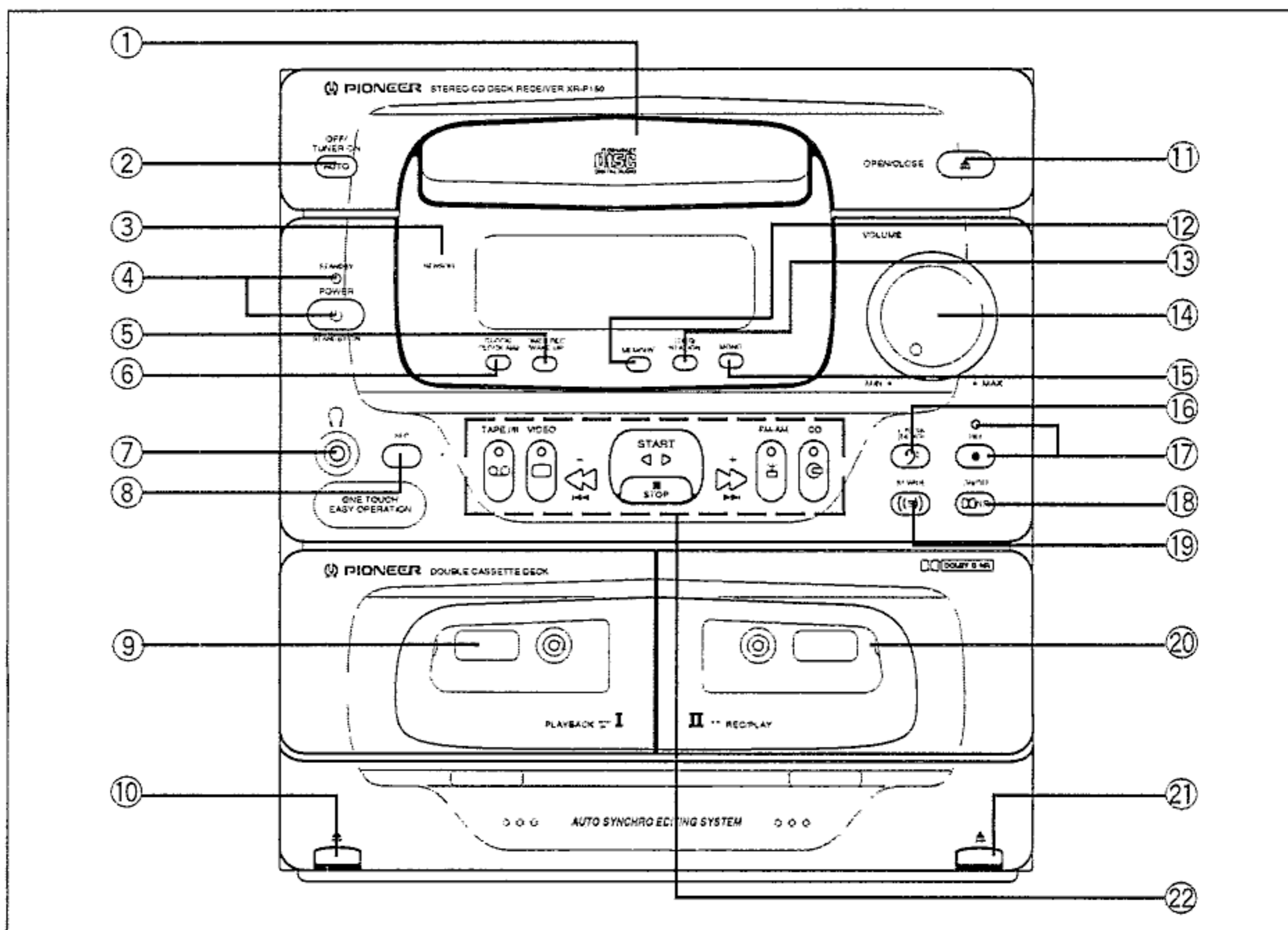
FM/AM TUNER MODULE

AXQ1012 and AXQ3213 have the same construction except for the following :

Mark	Symbol & Description	Part No.		Remarks
		AXQ3213	AXQ1012	
	C6202 (1 μ F/16V)	Not used	ACG1051	*5
	C6230	CKSQYB273K50	CKSQYB333K50	
	C6232	CKSYB273K50	CKSYB333K50	
	C6251	CKSYB822K50	CKSYB472K50	
	C6252	CKSQYB822K50	CKSQYB472K50	
	C6268	Not used	CCSQCH101J50	*5
	C6269	CCSQCH101J50	Not used	
	C6270 (1 μ F/16V)	ACG1051	Not used	
	R6288	RS1/10S000J	RS1/10S471J	
	BN6201 Terminal 2P with PAL	AKA1017	Not used	
	BN6201 Terminal 4P	Not used	AKA1016	*5

Note *5: Refer to "SCH-2".

9. PANEL FACILITIES

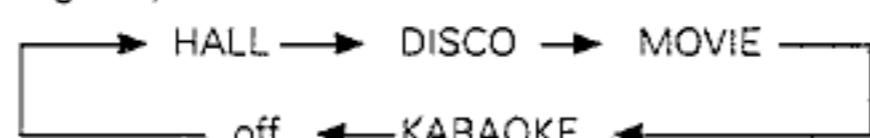


- ① CD Disc tray
- ② AUTO button
- ③ Remote sensor
- ④ POWER STANDBY/ON switch and STANDBY indicator

This is the switch for electric power.
ON: When set to the ON position, power is supplied and the unit becomes operational.
STANDBY: When set to the STANDBY position, the main power flow is cut and the unit is no longer fully operational. A minute flow of power feeds the unit to maintain operation readiness. (The STANDBY indicator lights.)

- ⑤ TIMER REC/WAKE-UP button
- ⑥ CLOCK/CLOCK ADJ button
- ⑦ Headphones jack
- ⑧ SFC button

Each time this button is pressed, the mode changes in the following sequence:



NOTE:

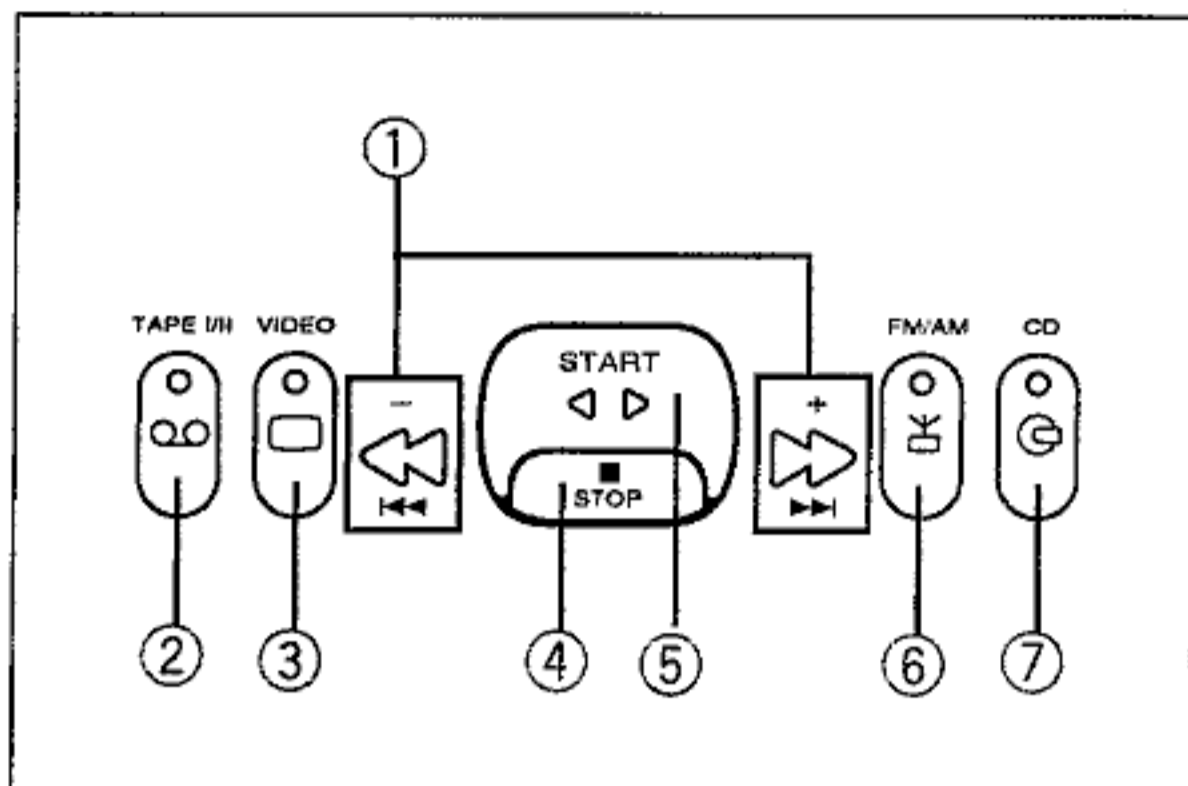
If KARAOKE is selected, the vocal part in songs is muted and only the instrumental accompaniment (backing) is played.

- ⑨ TAPE I cassette door
- ⑩ TAPE I eject button (▲)
- ⑪ CD OPEN/CLOSE button (▲)
- ⑫ MEMORY button
- ⑬ FREQ/STATION button
- ⑭ VOLUME control
- ⑮ MONO button
- ⑯ P.BASS (DEMO) button
- ⑰ Rec standby button and indicator (●)
- ⑱ DOLBY* NR ON/OFF button
Each time this button is pressed, the Dolby NR system turns on and off.
- ⑲ ST.WIDE button
- ⑳ TAPE II cassette door
- ㉑ TAPE II eject button (▲)
- ㉒ Function buttons (Refer to p. 65)

*

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

Function button section



- ① **←, → buttons**
- ② **TAPE (I/II) function button and indicator**
- ③ **VIDEO function button and indicator**
- ④ **STOP button (■)**
- ⑤ **START button (◀▶)**
- ⑥ **Tuner (FM/AM) function button and indicator**
- ⑦ **CD function button and indicator**

● **Roles of the common operation buttons (The rules of the buttons vary depending on the input functions as shown below.)**

During CD input

- START: Play/pause button
- STOP: Stop button
- ▶▶: Fast forward/track search button
- ◀◀: Fast reverse/track search button

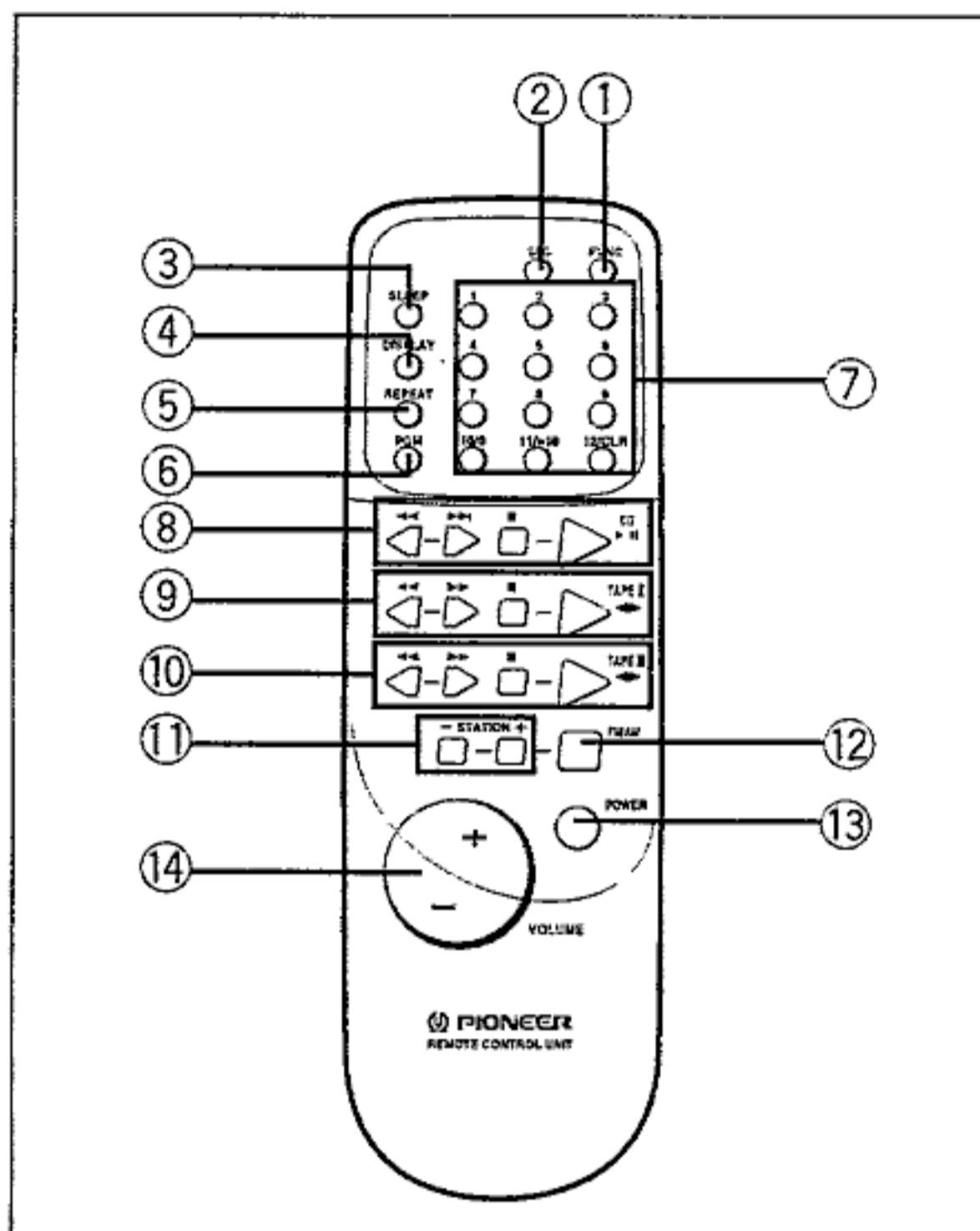
During cassette deck input

- START: Play button/Tape transport direction
- STOP: Stop button
- ▶▶: Fast forward button
- ◀◀: Rewind button

During tuner operation

- ▶: Frequency Up button
- ◀: Frequency Down button

REMOTE CONTROL UNIT



- ① **Function button (FUNC)**
Each time this button is pressed, the function changes in the following sequence:

→ TAPE → VIDEO → TUNER → CD
- ② **SFC mode button**
- ③ **SLEEP timer button**
- ④ **DISPLAY button**
- ⑤ **REPEAT button**
- ⑥ **PGM button**
- ⑦ **Number buttons**
These buttons are used for selecting track numbers of a CD and for scanning preset stations.
- ⑧ **CD operation buttons**
(Track search ◀◀▶▶, Stop ■, Play/Pause ▶/II)
- ⑨ **TAPE I operation buttons**
(Fast ◀◀▶▶, Stop ■, Play ▶▶)
- ⑩ **TAPE II operation buttons**
(Fast ◀◀▶▶, Stop ■, Play ▶▶)
- ⑪ **STATION - (down), + (up) buttons**
Before operation, memorize broadcast stations with the STATION -, + buttons.
+ Stations change in order in the upward direction.
- Stations change in order in the downward direction.
- ⑫ **FM/AM band button**
- ⑬ **POWER button**
- ⑭ **VOLUME + (up), - (down) button**
Increase/decrease the sound volume of the unit.

10. SPECIFICATIONS

STEREO CD CASSETTE DECK RECEIVER

Amplifier section

Continuous Power Output (RMS) 25 W + 25 W
 (1 kHz, T.H.D. 10 % 8)

Continuous Power Output (DIN) 20 W + 20 W
 (1 kHz, T.H.D. 1 % 8)

- Above specifications are for when power supply is 230 V.

FM/AM Tuner section

FM tuner section

Frequency Range 87.5 MHz to 108 MHz

Antenna input 75 unbalanced

AM tuner section

Frequency Range

With 9 kHz step 531 kHz to 1,602 kHz

Antenna Loop antenna

CD section

Type Compact disc digital audio system

Wow and Flutter Limit of measurement
 (±0.001 % W.PEAK) or less

Cassette deck section

Systems 4 track, 2-channel stereo

Heads Recording/playback head x 1

Playback head x 1

Erasing head x 1

Motor DC servo motor x 1

Tape type TYPE I (Normal) tape

Miscellaneous

Power Requirements ... AC 230 V AC, 50/60 Hz (U K model)

AC 220 - 230 V AC, 50/60 Hz (European model)

Power Consumption 100 W

Dimensions 240 (W) x 270 (H) x 293 (D) mm

Weight (without package) 5.3 kg

Accessories

Operating instructions 1

Remote control unit 1

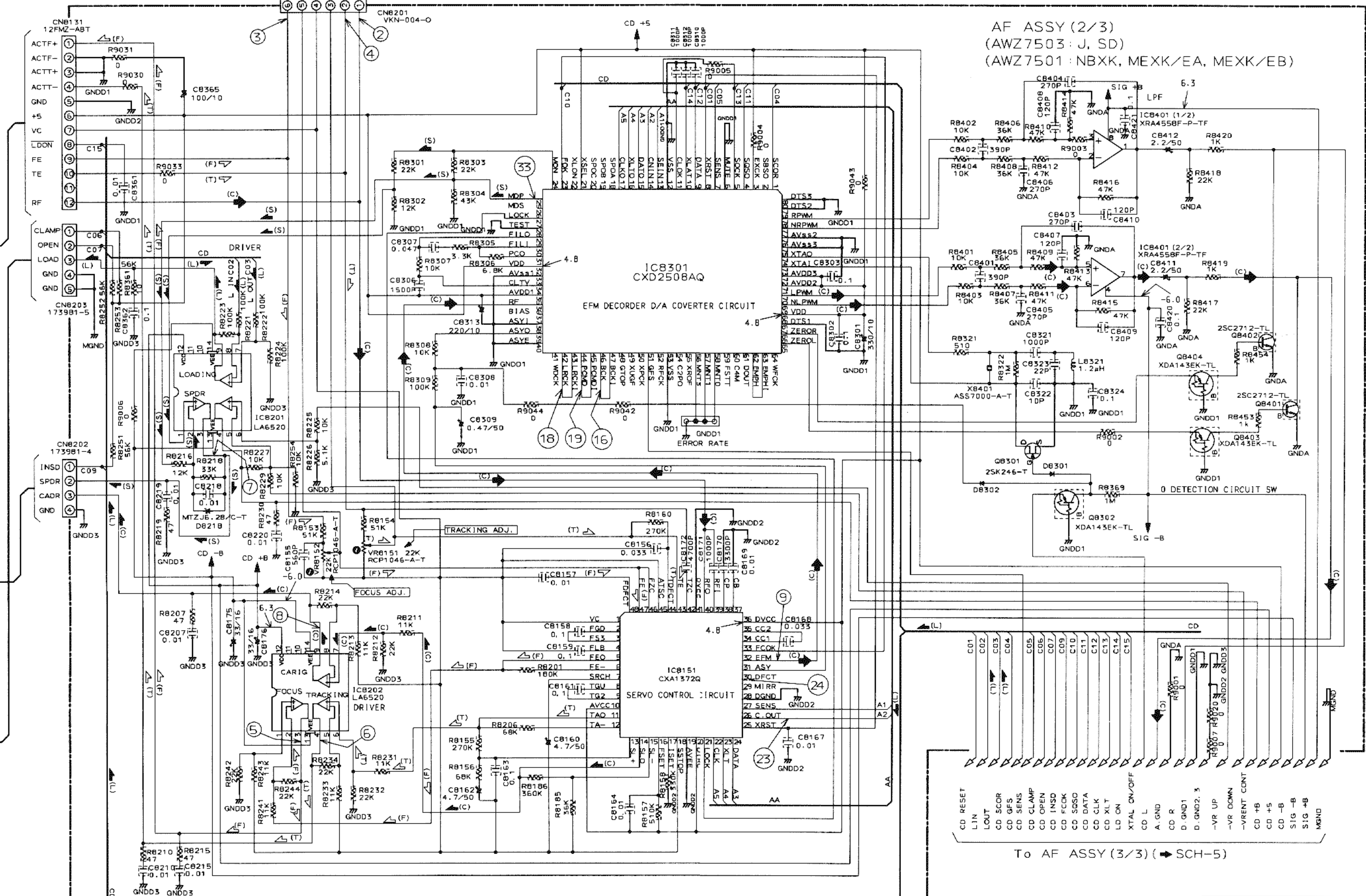
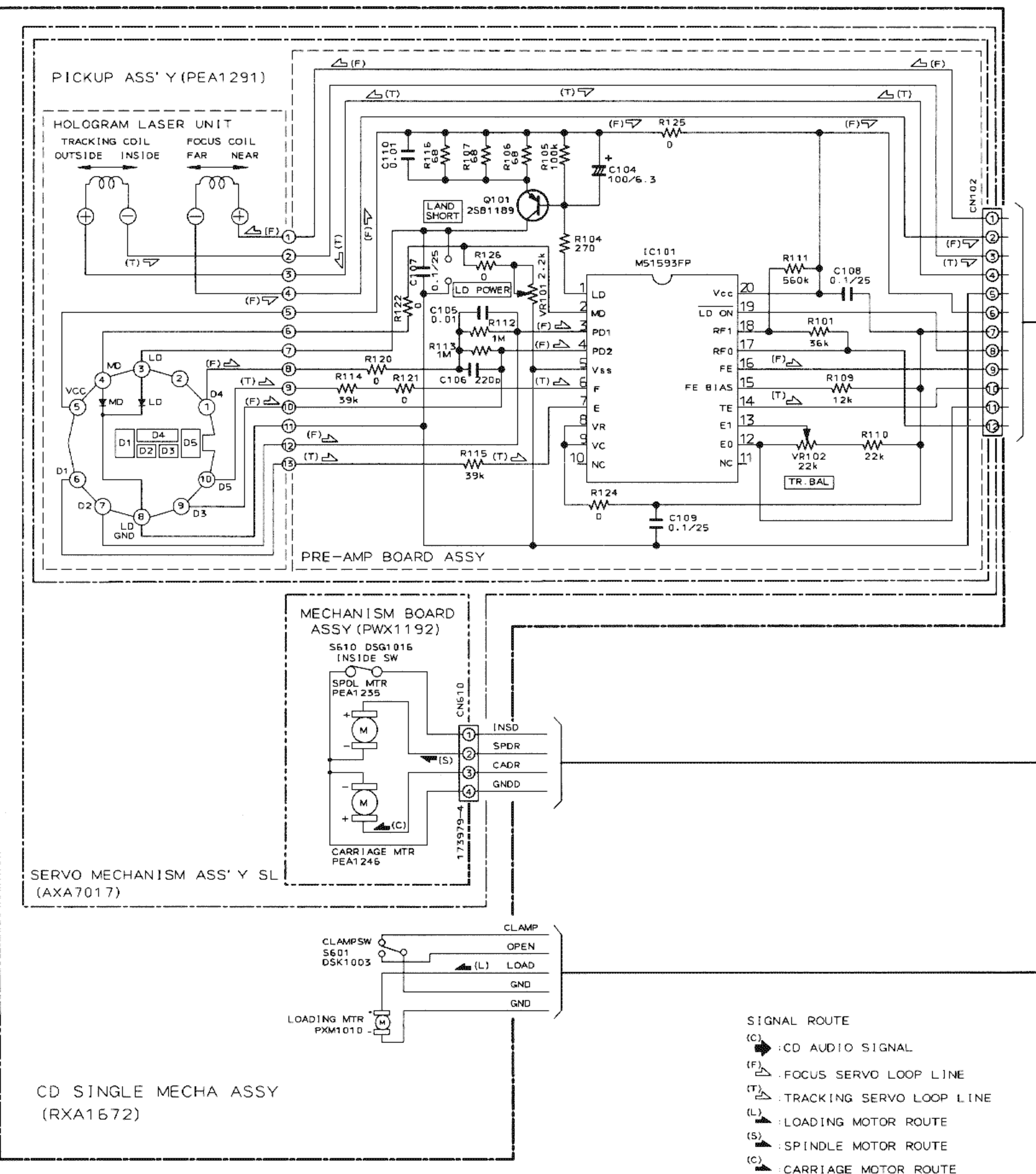
AAA/R03 dry cell batteries 2

FM T-type antenna 1

AM loop antenna 1

NOTE:

Specifications and design subject to possible modification without notice, due to improvement.



- SIGNAL ROUTE
- (C) : CD AUDIO SIGNAL
 - (F) : FOCUS SERVO LOOP LINE
 - (T) : TRACKING SERVO LOOP LINE
 - (L) : LOADING MOTOR ROUTE
 - (S) : SPINDLE MOTOR ROUTE
 - (C) : CARRIAGE MOTOR ROUTE

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