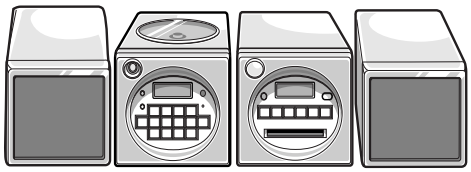
Service Manual



ORDER NO.
RRV2132

MD/CD RECEIVER SYSTEM

X-HMD01
X-HMD03

CD RECEIVER SYSTEM

X-HX99
X-HX05

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

Type	Model				Power Requirement	Remarks
	X-HMD01	X-HMD03	X-HX99	X-HX05		
KBWXCN	○	○	○	○	AC120V	

System Component Table

Component	Model				Remarks
	X-HMD01	X-HMD03	X-HX99	X-HX05	
CD Receiver	XC-HMD01	XC-HMD03	XC-HX99	XC-HX05	
MD Recorder	MJ-HMD01	MJ-HMD03	• • • • •	• • • • •	
Speaker System (L ch)	S-HMD01LR	S-HMD03L	S-HX99LR	S-HX05LR	
Speaker System (R ch)	S-HMD01LR	S-HMD03R	S-HX99LR	S-HX05LR	

CONTENTS

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T – IZR MAY 1999 Printed in Japan

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
This product contains lead in solder and certain electrical parts contain chemicals which are known to the state of California to cause cancer, birth defects or other reproductive harm.

Health & Safety Code Section 25249.6 – Proposition 65

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.

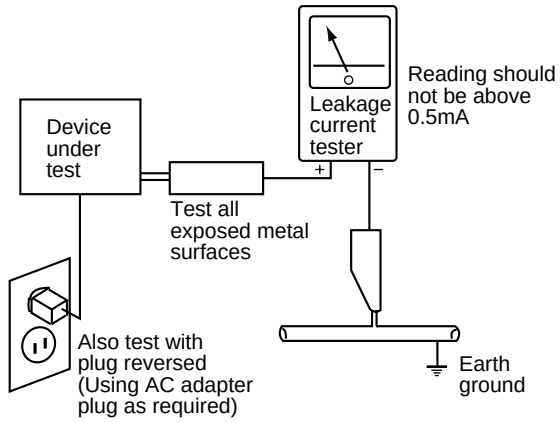
(FOR USA MODEL ONLY)

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 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.

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

ADVARSEL :
USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHED SAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSÆTTELSE 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

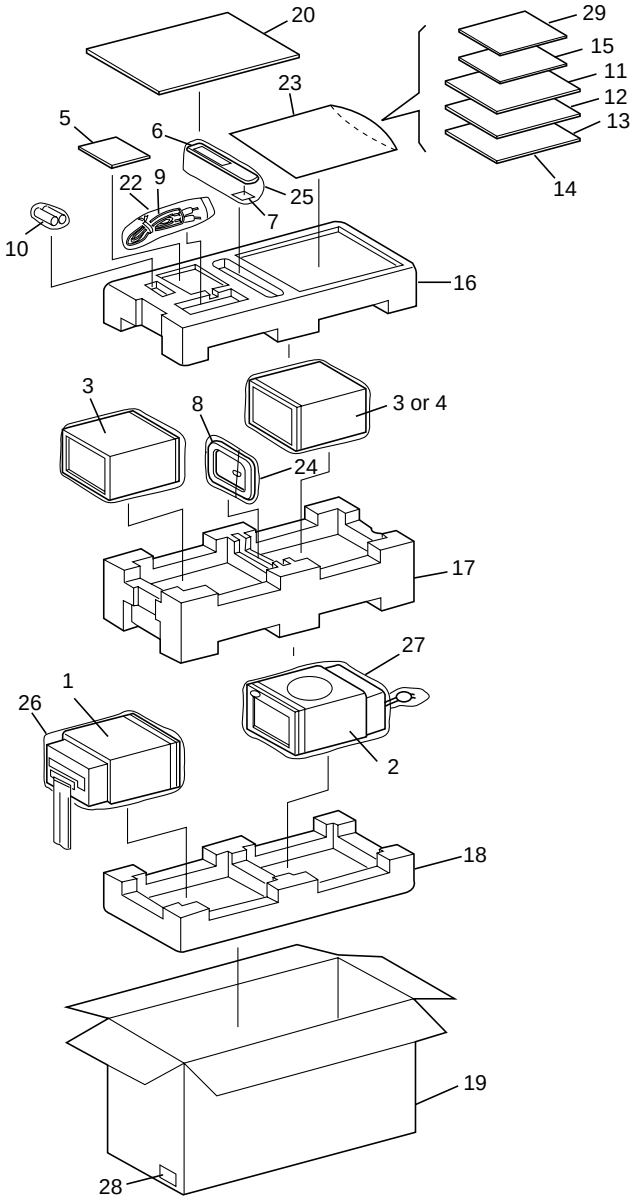
LASER
Picture 1
Warning sign for
laser radiation

2. EXPLODED VIEWS AND 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.*
● *Screws adjacent to ▼ mark on the product are used for disassembly.*

2.1 PACKING

2.1.1 X-HMD01 and X-HMD03



(1) PACKING PARTS LIST

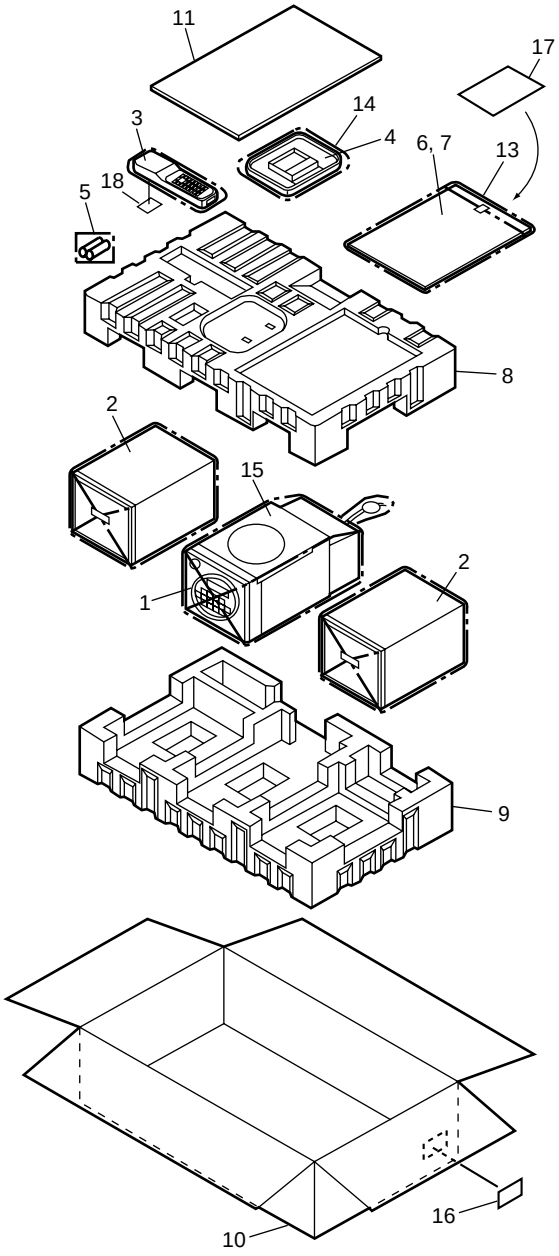
Mark	No.	Description	Part No.
NSP	1	MD Recorder	See Contrast table (2)
NSP	2	CD Receiver	See Contrast table (2)
NSP	3	Speaker System (L ch)	See Contrast table (2)
NSp	4	Speaker System (R ch)	See Contrast table (2)
	5	Sound Scape Disc	See Contrast table (2)
	6	Remote Control Unit (REA-22C)	60231A
	7	Remote Control Battery Cover	60231-1
	8	AM Loop Antenna	60232
	9	CD/MD Cable	60233
	10	Dry Cell Battery (AA, R6P)	60235
	11	Operating Instructions (CD) (English)	66780-CDU
	12	Operating Instructions (CD) (Chinese)	66780-CDC
	13	Operating Instructions (MD) (English)	66780-MDU
	14	Operating Instructions (MD) (Chinese)	66780-MDC
	15	Initial Instruction Manual	66783
	16	Polyform (TOP)	66753
	17	Polyform (MIDD)	66754
	18	Polyform (BOTTOM)	66755
	19	Display Carton	See Contrast table (2)
	20	Carton Paper	66782
	21	•••••	
	22	Polybag	53110
	23	Polybag	53117
	24	Polybag	53101
	25	Polybag	53110
	26	Mirror Mat (MD)	66694
	27	Mirror Mat (CD)	66794
	28	JAN Cord Label	See Contrast table (2)
	29	Safety Directions	See Contrast table (2)

(2) CONTRAST TABLE

X-HMD01 and X-HMD03 are constructed the same except for the following :

Mark	No.	Symbol and Description	Part No.		Remaks
			X-HMD01	X-HMD03	
NSP	1	MD Recorder	MJ-HMD01	MJ-HMD03	
NSP	2	CD Receiver	XC-HMD01	XC-HMD03	
NSP	3	Speaker System (L ch)	S-HMD01LR	S-HMD03L	
NSP	4	Speaker System (R ch)	S-HMD01LR	S-HMD03R	
	5	Sound Scape Disc	60234-01	60234-03	
	19	Display Carton	66781-01B	66781-03B	
	28	JAN Cord Seal	66790-01B	66790-03B	
	29	Safety Directions	66784-01B	66784-03B	

2.1.2 X-HX99 and X-HX05



(1) PACKING PARTS LIST

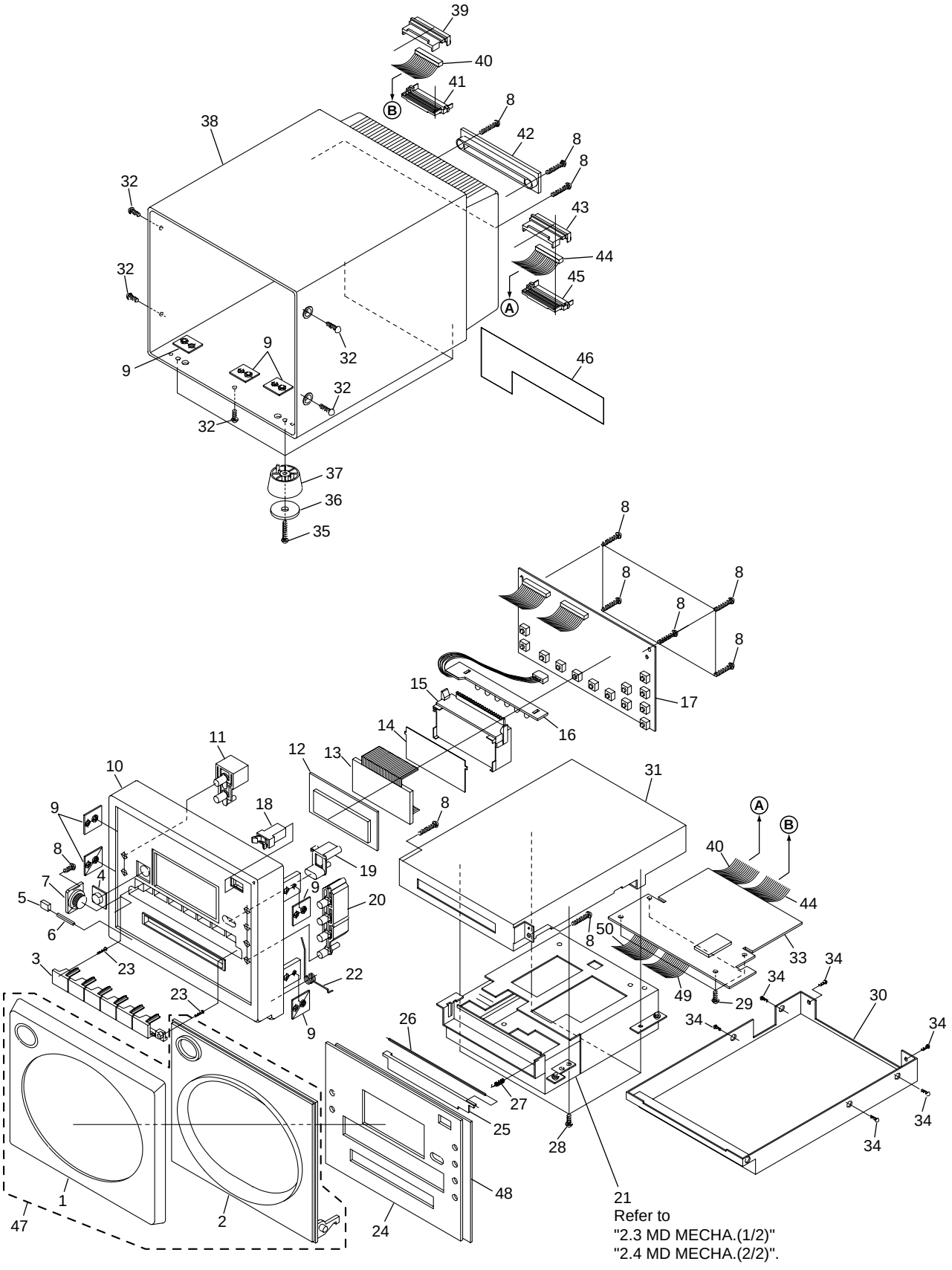
Mark	No.	Description	Part No.
NSP	1	CD Receiver	See Contrast table (2)
NSP	2	Speaker System	See Contrast table (2)
	3	Remote Control Unit (REA-22C)	60231A
	4	AM Loop Antenna	60232
	5	Dry Cell Battery (AA, R6P)	60235
	6	Operating Instructions (CD) (English)	66780-CDU
	7	Operating Instructions (CD) (Chinese)	66780-CDC
	8	Polyform B (TOP)	66682
	9	Polyform B (BOTTOM)	66683
	10	Display Carton	See Contrast table (2)
	11	Carton Sheet B	66678
	12	• • • • •	
	13	Polybag	53117
	14	Polybag	53101
	15	Mirror Mat (CD)	66794
	16	POS Code Seal	See Contrast table (2)
	17	Safety Directions	See Contrast table (2)
	18	Remote Control Battery Cover	60231-1

(2) CONTRAST TABLE

X-HX99 and X-HX05 are constructed the same except for the following :

Mark	No.	Symbol and Description	Part No.		Remaks
			X-HX99	X-HX05	
NSP	1	CD Receiver	XC-HX99	XC-HX05	
NSP	2	Speaker System	S-HX99-LR	S-HX05-LR	
	10	Display Carton	66677-99B	66677-05B	
	16	POS Code Seal	66668-99B	66668-05B	
	17	Safety Directions	66784-99B	66784-05B	

2.2 MD RECORDER SECTION



(1) MD RECORDER SECTION PARTS LIST

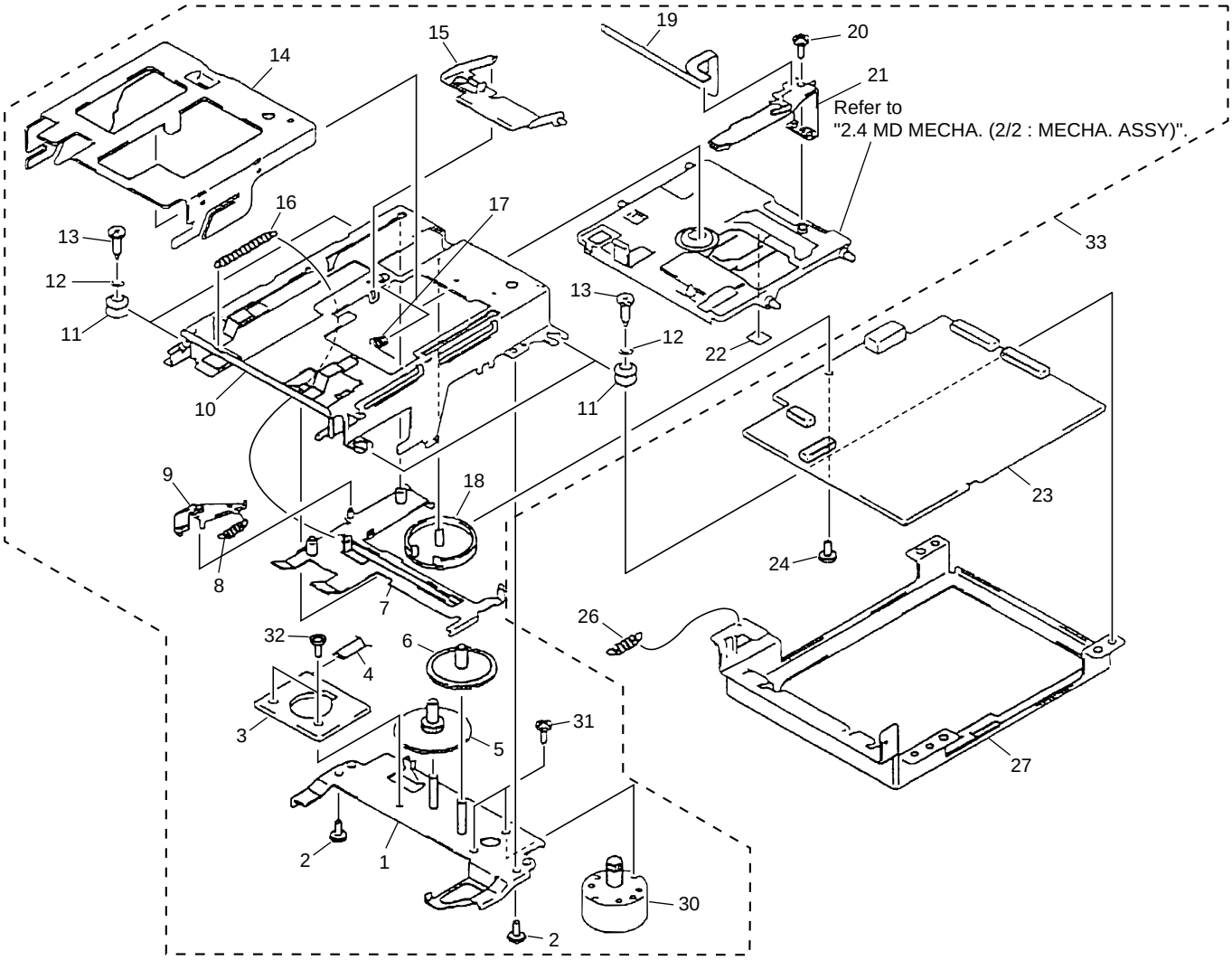
Mark	No.	Description	Part No.
NSP	1	Front Cover (MD)	See Contrast table (2)
NSP	2	Front Door (MD)	See Contrast table (2)
	3	Button B (MD)	See Contrast table (2)
	4	Lens	66734-MD
	5	Cushion A	66795
	6	Door Shaft A	66746
	7	Dumper Gear	60227
	8	Screw PAN TAPP. T3×10	PMZ30P100FNI
	9	Plate Nut	66741
	10	MD Front Case	See Contrast table (2)
	11	Button D (REC)	See Contrast table (2)
	12	LCD Window	66735
	13	LCD Assy	52715
	14	LCD Sheet	66756
	15	LCD Holder	66727
	16	MD COMBI PCB Assy (LED PCB)	66785C
	17	MD COMBI PCB Assy (FRONT PCB)	66785A
	18	Push Door Lock	60226
	19	Eject Button	See Contrast table (2)
	20	Button C (MD EDIT)	See Contrast table (2)
	21	MD Mecha. (KMK-260)	61416
	22	Front Door Spring	66748
	23	Screw PAN TAPP. T2×8	PBZ20P080FMC
	24	Inner Panel (MD)	See Contrast table (2)
	25	MD Door	66732
	26	MD Door Shaft	66750
	27	MD Door Spring	66751
	28	Screw PAN M3×6	PMZ30P060FZK
	29	Screw BIND TAPP. M3×6	BMZ30P060FZK
	30	Shield Case (Bottom)	66739
	31	Shield Case (Up)	66738
	32	Screw PLAT M3×6	CMZ30P060FNI
	33	MD COMBI PCB Assy (AD/DA PCB)	66785B
	34	Screw PAN M2×4	PMZ20P040FZK
	35	Screw PAN M3×10	PBZ30P100FMC
	36	Leg Rubber (A, B)	See Contrast table (2)
	37	Foot (A, B)	See Contrast table (2)
	38	MD Rear Case	See Contrast table (2)
	39	12P Connector Holder A	66728
NSP	40	12P Connector Assy	66763
	41	12P Connector Holder B	66729
	42	Wire Clamper	66726
	43	10P Connector Holder A	66730
NSP	44	10P Connector Assy	66778
	45	10P Connector Holder B	66731
	46	Back Plate (MD)	See Contrast table (2)
	47	Front Door Assy (MD)	See Contrast table (2)
	48	Panel Tape B	66761
	49	16P FFC (SUMI Card)	66775
	50	19P FFC (SUMI Card)	66776

(2) CONTRAST TABLE

X-HMD01 and X-HMD03 are constructed the same except for the following :

Mark	No.	Symbol and Description	Part No.		Remaks
			X-HMD01	X-HMD03	
NSP	1	Front Cover A	66714-01M	Not used	
NSP	1	Front Cover B	Not used	66715-03M	
	2	Front Door A	66708-01M	Not used	
	2	Front Door B	Not used	66709-03M	
	3	Button B (MD)	66717-01M	66717-03M	
	10	MD Front Case	66702-01	66702-03	
	11	Button D (REC)	66791-01R	66719-03R	
	19	Eject Button	66721-01	66721-03	
	20	Button C (MD EDIT)	66718-01ME	66718-03ME	
	24	Inner Panel (MD)	66711-01M	66711-03M	
	36	Leg Rubber A	66758-01	Not used	
	36	Leg Rubber B	Not used	66759-02	
	37	Foot A	66722-01	Not used	
	37	Foot B	Not used	66723-03	
	38	MD Rear Case	66704-01	66704-03	
	46	Back Plate (MD)	66762-01B	66762-03B	
	47	Front Door A Assy (MD)	10000-01M	Not used	
	47	Front Door B Assy (MD)	Not used	10100-03M	

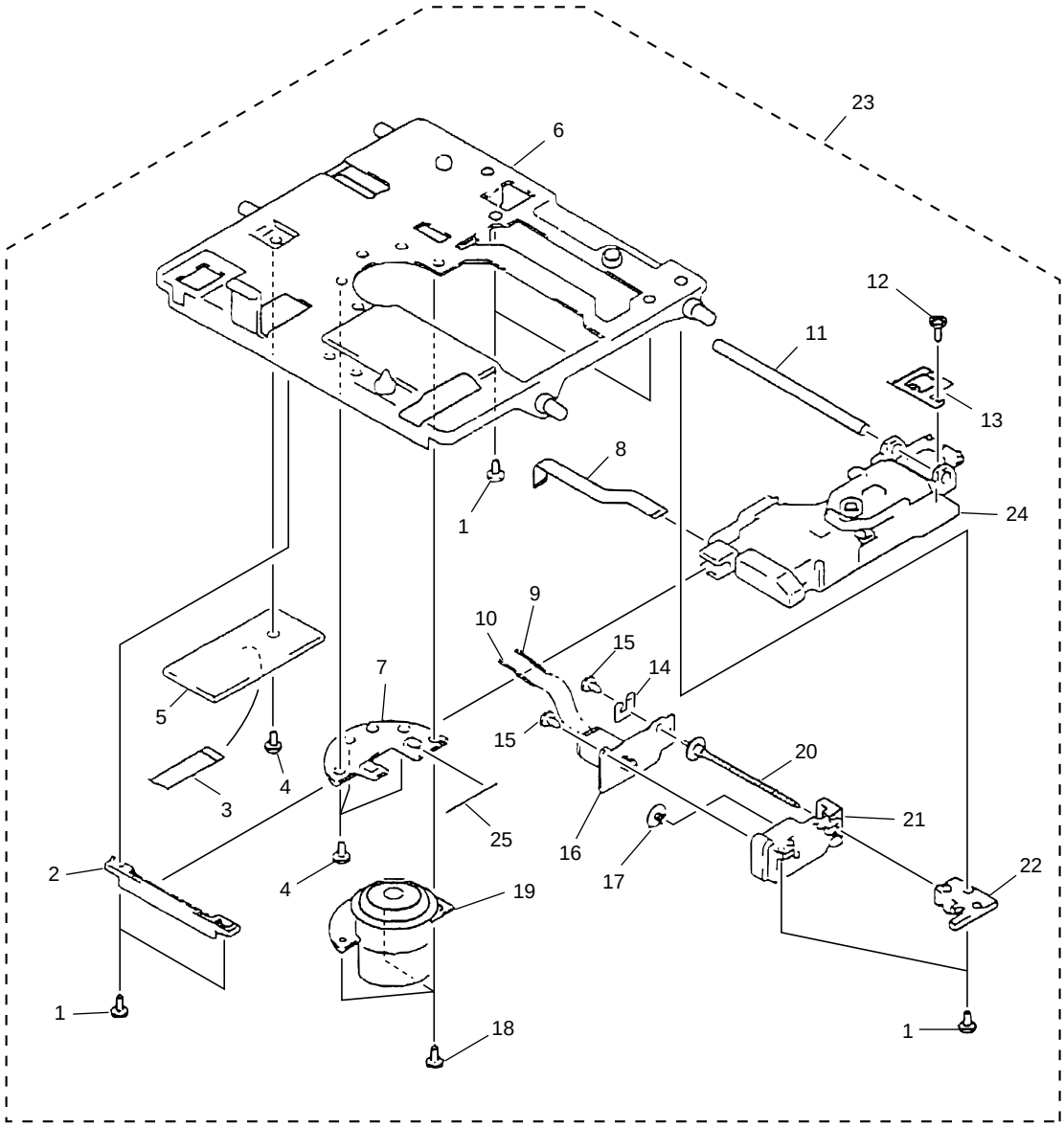
2.3 MD MECHA. (1/2 : LOADING ASSY) SECTION



● MD MECHA. (1/2 : LOADING ASSY) SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	Motor Plate Assy	X-2646-247-1
	2	Screw +P2.6×4.5 Type3	7-627-854-28
	3	L-SW PCB	1-668-261-11
	4	Flexible Cable (6P)	1-783-386-11
	5	Gear (Joint B)	2-646-555-02
	6	Gear (Joint A)	2-646-554-01
	7	Slot Frame Assy	X-2646-249-2
	8	Coil Spring (Slot Arm)	2-646-563-01
	9	Slot Arm	2-646-556-01
	10	Load Frame Assy	X-2646-248-2
	11	Insulator	2-646-548-01
	12	Screw W2.6,Middle	7-688-002-11
	13	Screw	4-628-167-01
	14	Slide Frame	2-646-557-01
	15	Head Arm	2-646-559-01
	16	Coil Spring (Slot Frame)	2-646-562-01
	17	Coil Spring (Head Arm)	2-646-561-01
	18	Mode Cam	2-646-560-01
	19	Head Flexible Cable	1-669-181-11
	20	Screw +P1.7×2.5Type2	2-627-529-01
	21	Overwrite Head for MD	1-500-518-12
	22	Double Sided Paper	2-646-549-02
	23	MD Mount	A-4917-020-A
	24	Small Screw	2-643-228-01
	25	• • • • •	
	26	Coil Spring (Door Arm)	2-646-545-01
	27	Main Frame	2-646-547-02
	28	• • • • •	
	29	• • • • •	
	30	Loading Motor Assy	X-2626-328-1
	31	Screw +P1.7×1.8TYP.3	7-627-852-38
	32	Screw +P2×3 TYP.3	7-627-853-37
	33	Loading Assy	A-4912-117-A

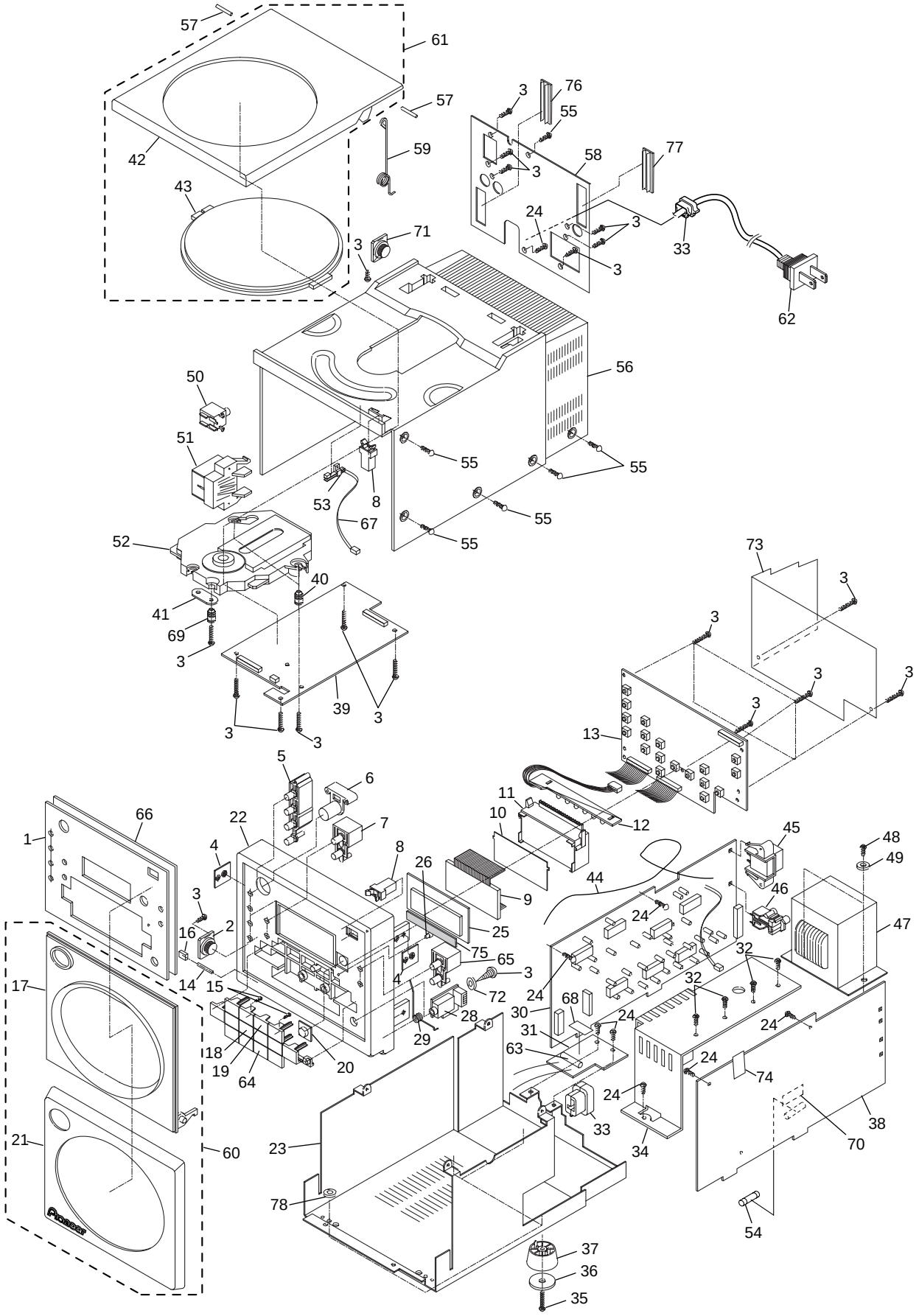
2.4 MD MECHA. (2/2 : MECHANISM ASSY) SECTION



● MD MECHA. (2/2 : MECHANISM ASSY) SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	Screw Grip +P1.4×3.5 Type3	2-627-404-01
	2	Sub Guide	2-646-453-01
	3	Flexible Cable (7P)	1-783-387-11
	4	Screw +P1.4×1.8 Type3	7-627-850-79
	5	D-SW PCB	1-668-262-11
	6	Mechanism Chassis	2-646-575-01
	7	SP Motor Fixing Plate	2-646-566-01
	8	OP Flexible Cable	1-669-180-11
	9	SL Motor Lead Wire	1-783-318-11
	10	SL Motor Lead Wire	1-783-318-21
	11	Guide Shaft	2-646-452-01
	12	Screw Grip +P1.4×1.4 Type2	2-627-530-D1
	13	Rack (Insert)	4-963-914-02
	14	Pri-Load Plate	2-646-567-01
	15	Screw	2-627-431-01
	16	SL Motor Assy	X-2626-329-1
	17	Gear (MD)	2-646-571-01
	18	Screw +P1.7×4 Type3	7-627-852-18
	19	SP Motor Assy	X-2626-327-1
	20	Lead Screw Assy	X-2626-330-1
	21	Lead Holder Assy	X-2626-331-1
	22	Lead Holder (B)	2-646-573-01
	23	Deck Mechanism Assy	A-4912-118-A
	24	Mini Disc Device KMS-260A	KMS-260A
	25	SP Tension Spring	2-646-564-01

2.5 CD RECEIVER SECTION



(1) CD RECEIVER SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	Inner Panel (CD)	See Contrast table (2)
	2	Dumper Gear	60108
	3	Screw PAN TAPP. T3×10	PBZ30P100FZK
	4	Plate Nut	66741
	5	Button C (SET)	See Contrast table (2)
	6	Power Button	See Contrast table (2)
	7	Button D (TIMER)	66719
	8	Push Door Lock	60226
	9	LCD Assy (KSG4149)	52716
	10	LCD Sheet	66756
	11	LCD Holder	66727
NSP	12	LED PCB Assy	66788B
	13	FRONT CD PCB Assy	66788A
	14	Door Shaft A	66746
	15	Screw PAN TAPP. T2×8	PBZ20P080FMC
	16	Cushion A	66795
NSP	17	Front Door (CD)	See Contrast table (2)
	18	Button B (CD-2)	See Contrast table (2)
	19	Button A (CD-1)	See Contrast table (2)
	20	Lens	66734-CD
NSP	21	Front Cover (CD)	See Contrast table (2)
	22	CD Front Case	See Contrast table (2)
NSP	23	CD Rear Chassis	66737
	24	Screw BIND M3×6	BMZ30P060FZK
	25	LCD Window	66735
	26	Lens (STANDBY)	66736
	27	Screw BIND TAPP. T3×8	BBZ30P080FZK
	28	AMP COMBI PCB Assy (HEADPHONE PCB)	66789C
	29	Front Door Spring	66748
	30	TUNER PCB Assy	66675
	31	AMP COMBI PCB Assy (FUSE PCB)	66789B
	32	Screw BTT-S T3×8	BSZ30P080FMC
	33	AC Cord Bushing	60228
	34	Heat Sink	66743
	35	Screw PAN M3×8	PMZ30P080FZK
	36	Leg Rubber (A, B)	See Contrast table (2)
	37	Foot (A, B)	See Contrast table (2)
	38	AMP COMBI PCB Assy (POWER PCB)	66789A

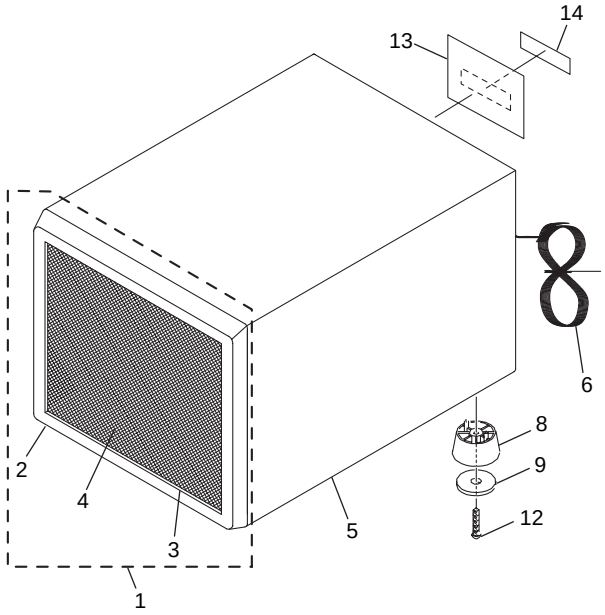
Mark	No.	Description	Part No.
	39	CD PCB Assy	66786
	40	Cushion Rubber	60230
	41	Holder Plate	66742
NSP	42	CD Door	See Contrast table (2)
NSP	43	CD Door Window	See Contrast table (2)
NSP	44	Antenna Cord Assy	66779
	45	AM Antenna Jack	60243
	46	Pin Jack	52526
⚠	47	Power Transformer	54515
	48	Screw BIND M4×6	BMZ40P060FMC
	49	Washer	WS40FMC
	50	1P Jack	52525
	51	Speaker Terminal (4P)	60246
	52	CD Mechanism Assy	61417
	53	Leaf Switch	52802
⚠	54	Fuse (F302 : 750mA/250V)	51607
	55	Screw FLAT M3×6	CMZ30P060FNI
	56	CD Rear Case	See Contrast table (2)
	57	Door Shaft B	66747
	58	Rear Panel	See Contrast table (2)
	59	CD Door Spring	66749
	60	Front Door A Assy (CD)	See Contrast table (2)
	60	Front Door B Assy (CD)	See Contrast table (2)
	61	CD Door Assy	See Contrast table (2)
⚠	62	AC Power Cord	50319
⚠	63	Fuse (F301 : 5A/125V)	51604
	64	Button A (CD-3)	See Contrast table (2)
	65	Button D (DISPLAY)	See Contrast table (2)
	66	Panel Tape A	66760
	67	Connector Assy (2P)	66772
	68	Fuse Label	60224
	69	Cushion Rubber	60229
	70	Fuse Label	60268
	71	Dumper Gear	60227
	72	Washer	55003
	73	Shield Plate	66797
	74	Hymeron	51907
	75	Barrier Plate	66693
	76	10P Connector Cover	See Contrast table (2)
	77	12P Connector Cover	See Contrast table (2)
	78	Cushion Washer	66699

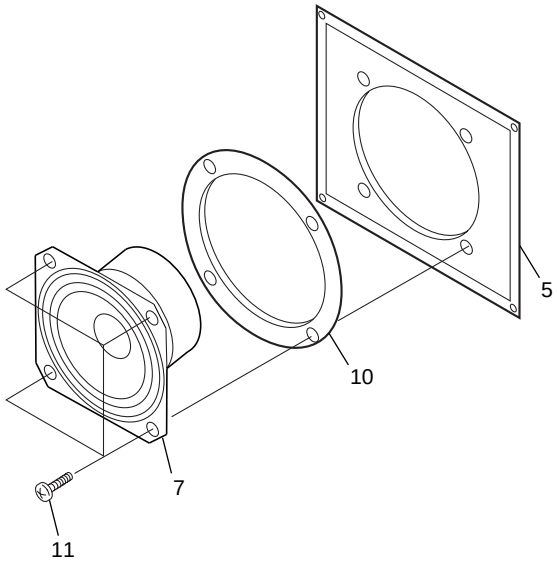
(2) CONTRAST TABLE

X-HMD01, X-HMD03, X-HX99 and X-HX05 are constructed the same except for the following :

Mark	No.	Symbol and Description	Part No.				Remaks
			X-HMD01	X-HMD03	X-HX99	X-HX05	
	1	Inner Panel (CD)	66710-01C	66710-03C	66710-99B	66710-05C	
	5	Button C (SET)	66718-01S	66718-03S	66718-05S	66718-05S	
	6	Power Button	66720-01	66720-03	66720-05	66720-05	
NSP	17	Front Door A (CD)	66706-01C	Not used	66706-05C	66706-05C	
NSP	17	Front Door B (CD)	Not used	66707-03C	Not used	Not used	
	18	Button B (CD-2)	66717-01C2	66717-03C2	66717-05C2	66717-05C2	
	19	Button A (CD-1)	66716-01C1	66716-03C1	66716-05C1	66716-05C1	
NSP	21	Front Cover A (CD)	66712-01C	Not used	Not used	Not used	
NSP	21	Front Cover B (CD)	Not used	66713-03C	66712-05C	66712-05C	
	22	CD Front Case	66701-01	66701-03	66701-05	66701-05	
	36	Leg Rubber A	66758-01	Not used	66758-01	66758-01	
	36	Leg Rubber B	Not used	66759-02	Not used	Not used	
	37	Foot A	66722-01	Not used	66722-05	66722-05	
	37	Foot B	Not used	66723-03	Not used	Not used	
NSP	42	CD Door	67705-01	67705-03	67705-05	67705-05	
NSP	43	CD Door Window	66733-01	66733-03	66733-99B	66733-OV	
	56	CD Rear Case	66703-01	66703-03	66703-05	66703-05	
	58	Rear Panel	66740-01B	66740-03B	66740-99B	66740-05B	
	60	Front Door A Assy (CD)	10200-01C	Not used	10200-05C	10200-05C	
	60	Front Door B Assy (CD)	Not used	10300-03C	Not used	Not used	
	61	CD Door Assy	10400-01	10400-03	10400-05	10400-05	
	64	Button A (CD-3)	66716-01C3	66716-03C3	66716-05C3	66716-05C3	
	65	Button D (DISPLAY)	66719-01D	66719-03D	66719-05D	66719-05D	
	76	10P Connector Cover	Not used	Not used	66685	66685	
	77	12P Connector Cover	Not used	Not used	66684	66684	

2.6 SPEAKER SYSTEM





● SPEAKER SYSTEM PARTS LIST (S-HMD01LR)

Mark	No.	Description	Part No.
	1	Speaker Frame Assy	10500-01
	2	Speaker Frame	66724-01
	3	Grille Frame	66725-01
	4	Speaker Net	66744-01
NSP	5	Speaker Box Assy	10600-01
	6	Speaker Cord	50318
	7	Speaker Unit	54407
	8	Foot A	66722-01
	9	Leg Rubber A	66758-01
	10	Packing	66697
	11	Screw	BBZ30P120FZK
	12	Screw	PBZ30P120FZK
	13	Back Plate A Label	66673-01B
	14	Label Plate B	6672

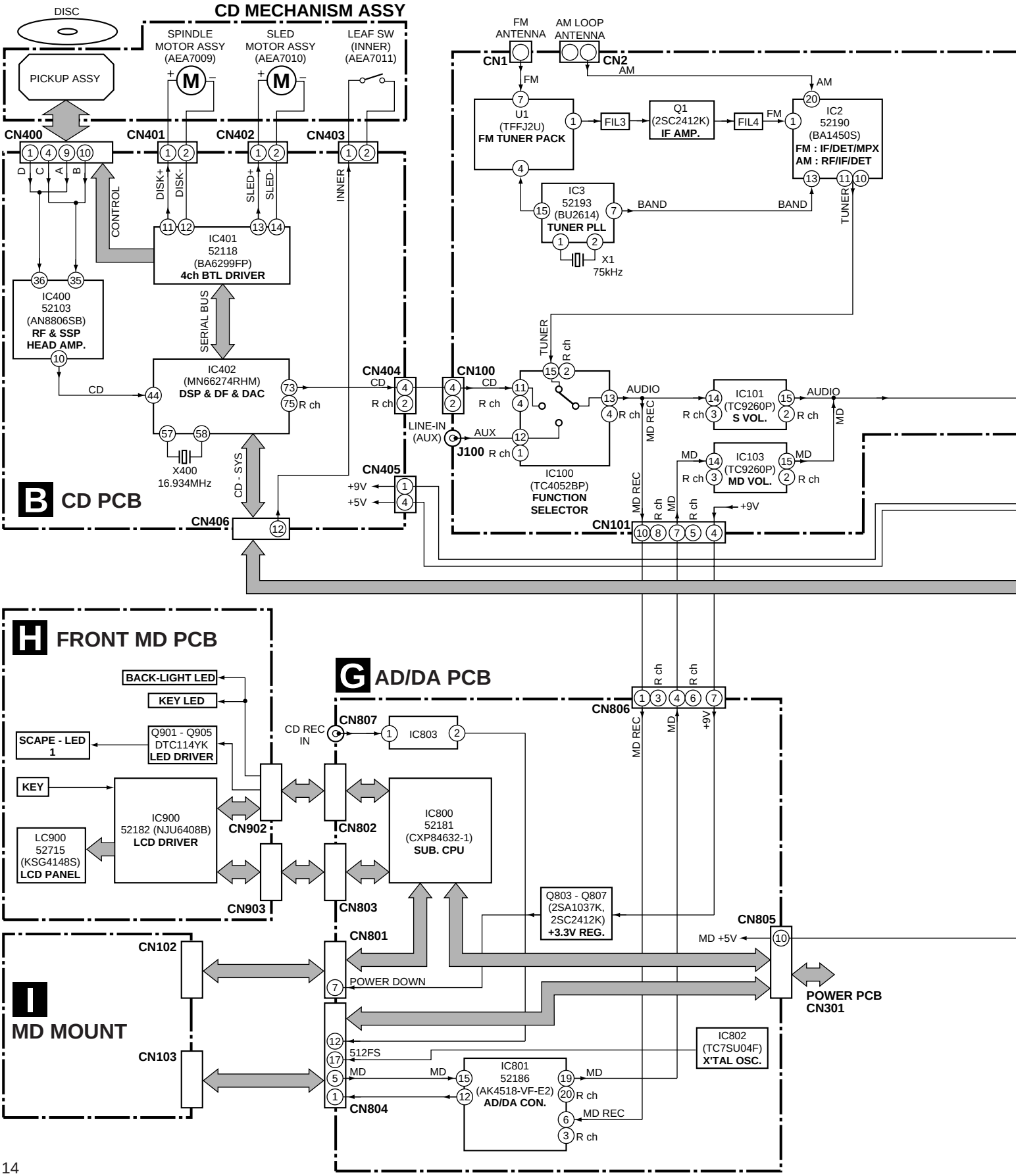
● SPEAKER SYSTEM PARTS LIST (S-HMD03L and S-HMD03R)

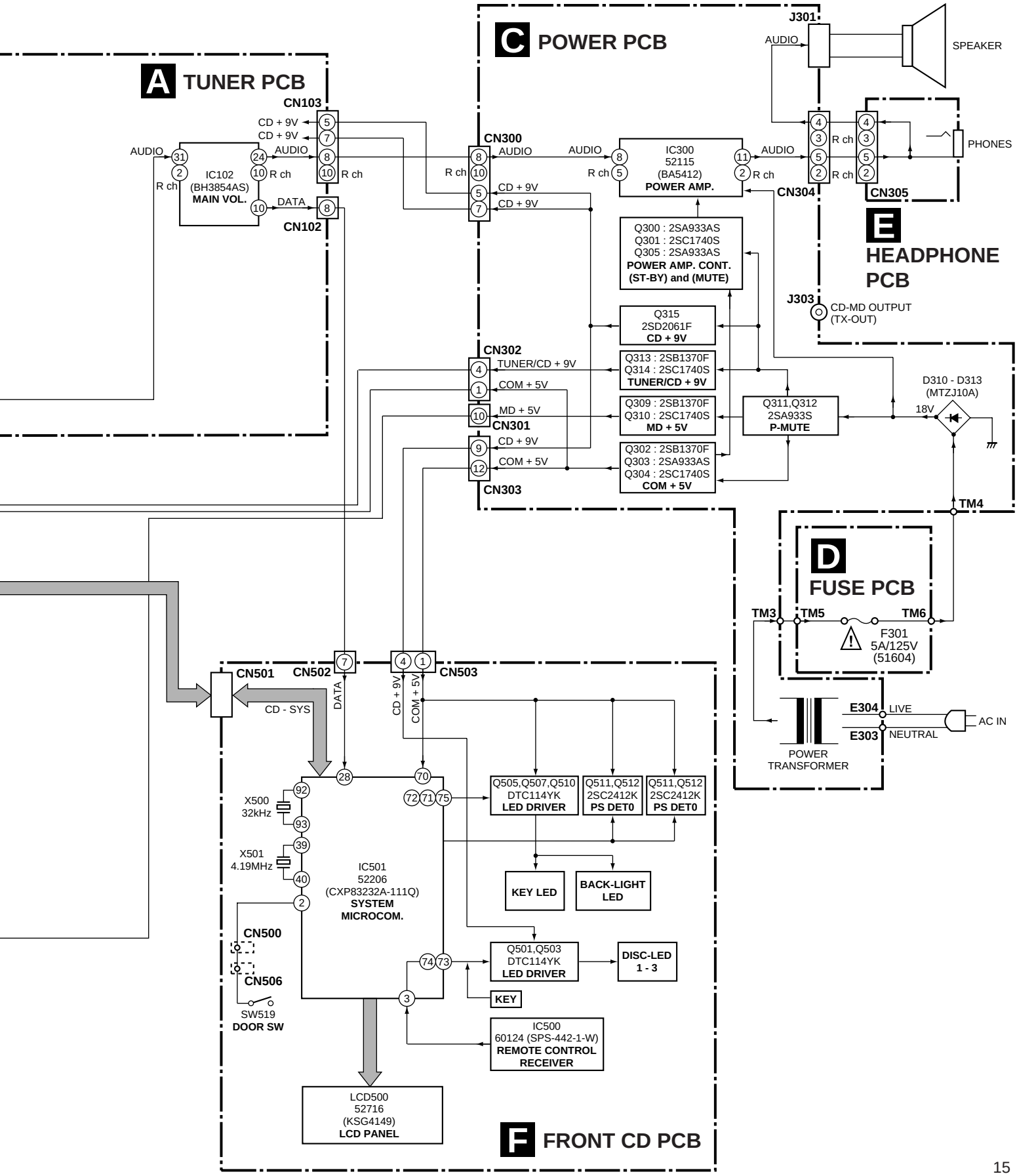
Mark	No.	Description	Part No.
	1	Speaker Frame Assy L (S-HMD03L)	10500-03L
	1	Speaker Frame Assy R (S-HMD03R)	10500-03R
	2	Speaker Frame	66724-03
	3	Grille Frame	66725-03
	4	Speaker Net L (S-HMD03L)	66744-03L
	4	Speaker Net R (S-HMD03R)	66744-03R
NSP	5	Speaker Box Assy	10600-03
	6	Speaker Cord	50318
	7	Speaker Unit	54407
	8	Foot B	66723-03
	9	Leg Rubber B	66759-02
	10	Packing	66697
	11	Screw	BBZ30P120FZK
	12	Screw	PBZ30P120FZK
	13	Back Plate A Label	66673-03B
	14	Label Plate B	6672

● SPEAKER SYSTEM PARTS LIST (S-HX99LR and S-HX05LR)

Mark	No.	Description	Part No.
	1	Speaker Frame Assy	10500-05
	2	Speaker Frame	66724-05
	3	Grille Frame	66725-05
	4	Speaker Net (S-HX99LR)	66744-99B
	4	Speaker Net (S-HX05LR)	66744-05
NSP	5	Speaker Box Assy	10600-05
	6	Speaker Cord	50318
	7	Speaker Unit	54407
	8	Foot A	66722-05
	9	Leg Rubber A	66758-01
	10	Packing	66697
	11	Screw	BBZ30P120FZK
	12	Screw	PBZ30P120FZK
	13	Back Plate A Label (S-HX99LR)	66673-99B
	13	Back Plate A Label (S-HX05LR)	66673-05B
	14	Label Plate B	6672

3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM
3.1 BLOCK DIAGRAM

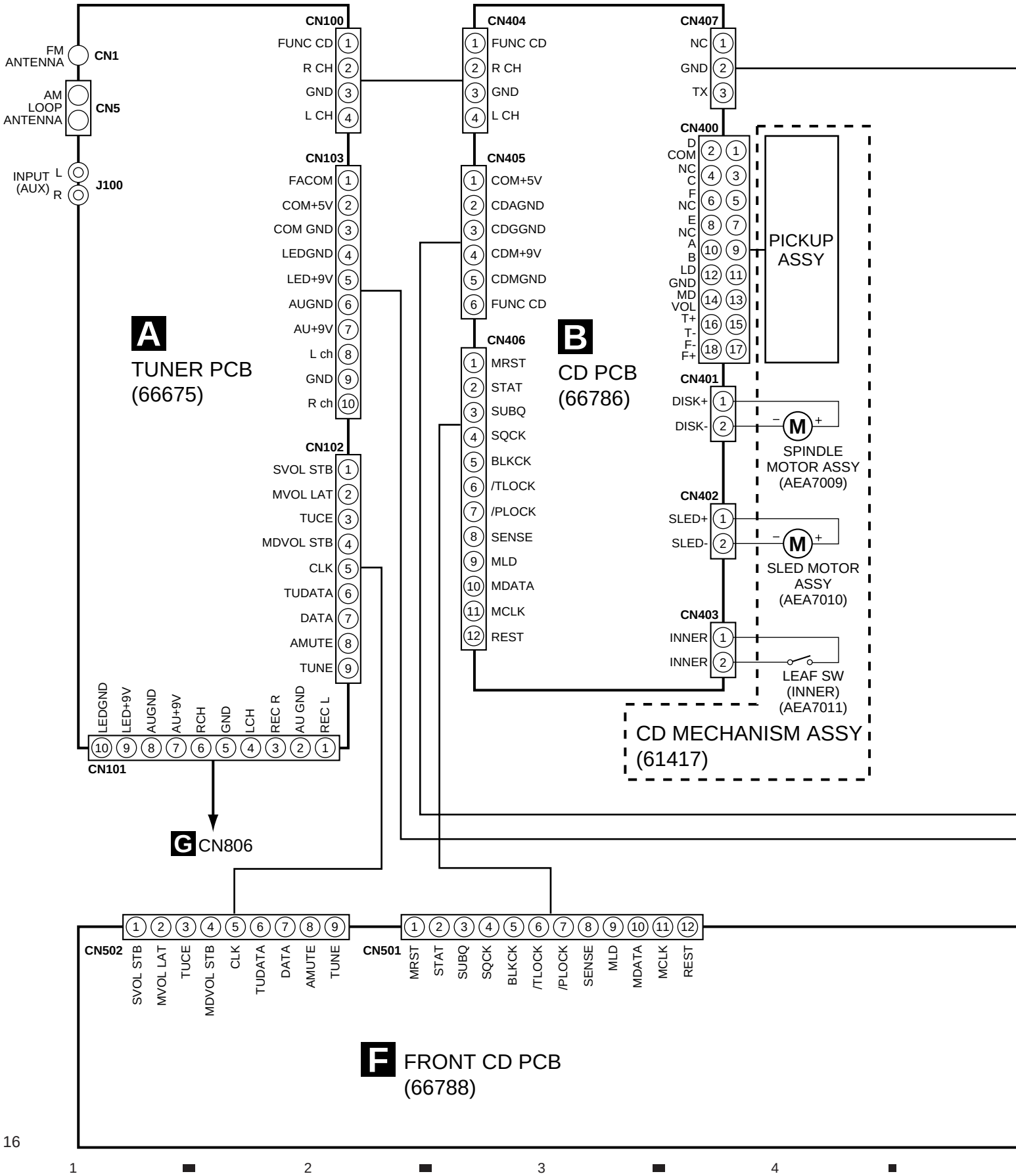



A TUNER PCB
CN103
CD + 9V
CD + 9V
AUDIO
AUDIO
R ch
IC102
(BH3854AS)
MAIN VOL.
R ch
DATA
CN102
C POWER PCB
CN300
AUDIO
R ch
CD + 9V
CD + 9V
IC300
52115
(BA5412)
POWER AMP.
CN304
J301
SPEAKER
PHONES
CN305
E HEADPHONE PCB
Q300 : 2SA933AS
Q301 : 2SC1740S
Q305 : 2SA933AS
POWER AMP. CONT.
(ST-BY) and (MUTE)
J303
CD-MD OUTPUT
(TX-OUT)
Q315
2SD2061F
CD + 9V
CN302
TUNER/CD + 9V
COM + 5V
MD + 5V
CN301
CD + 9V
COM + 5V
CN303
Q313 : 2SB1370F
Q314 : 2SC1740S
TUNER/CD + 9V
Q309 : 2SB1370F
Q310 : 2SC1740S
MD + 5V
Q302 : 2SB1370F
Q303 : 2SA933AS
Q304 : 2SC1740S
COM + 5V
Q311,Q312
2SA933S
P-MUTE
D310 - D313
(MTZJ10A)
18V
TM4
D FUSE PCB
TM3
TM5
TM6
F301
5A/125V
(51604)
E304
LIVE
E303
NEUTRAL
AC IN
POWER
TRANSFORMER
CN501
CN502
CN503
CD - SYS
DATA
CD + 9V
COM + 5V
X500
32kHz
X501
4.19MHz
IC501
52206
(CXP83232A-111Q)
SYSTEM
MICROCOM.
CN500
CN506
SW519
DOOR SW
Q505,Q507,Q510
DTC114YK
LED DRIVER
Q511,Q512
2SC2412K
PS DET0
Q511,Q512
2SC2412K
PS DET0
KEY LED
BACK-LIGHT
LED
Q501,Q503
DTC114YK
LED DRIVER
DISC-LED
1 - 3
KEY
IC500
60124 (SPS-442-1-W)
REMOTE CONTROL
RECEIVER
LCD500
52716
(KSG4149)
LCD PANEL
F FRONT CD PCB

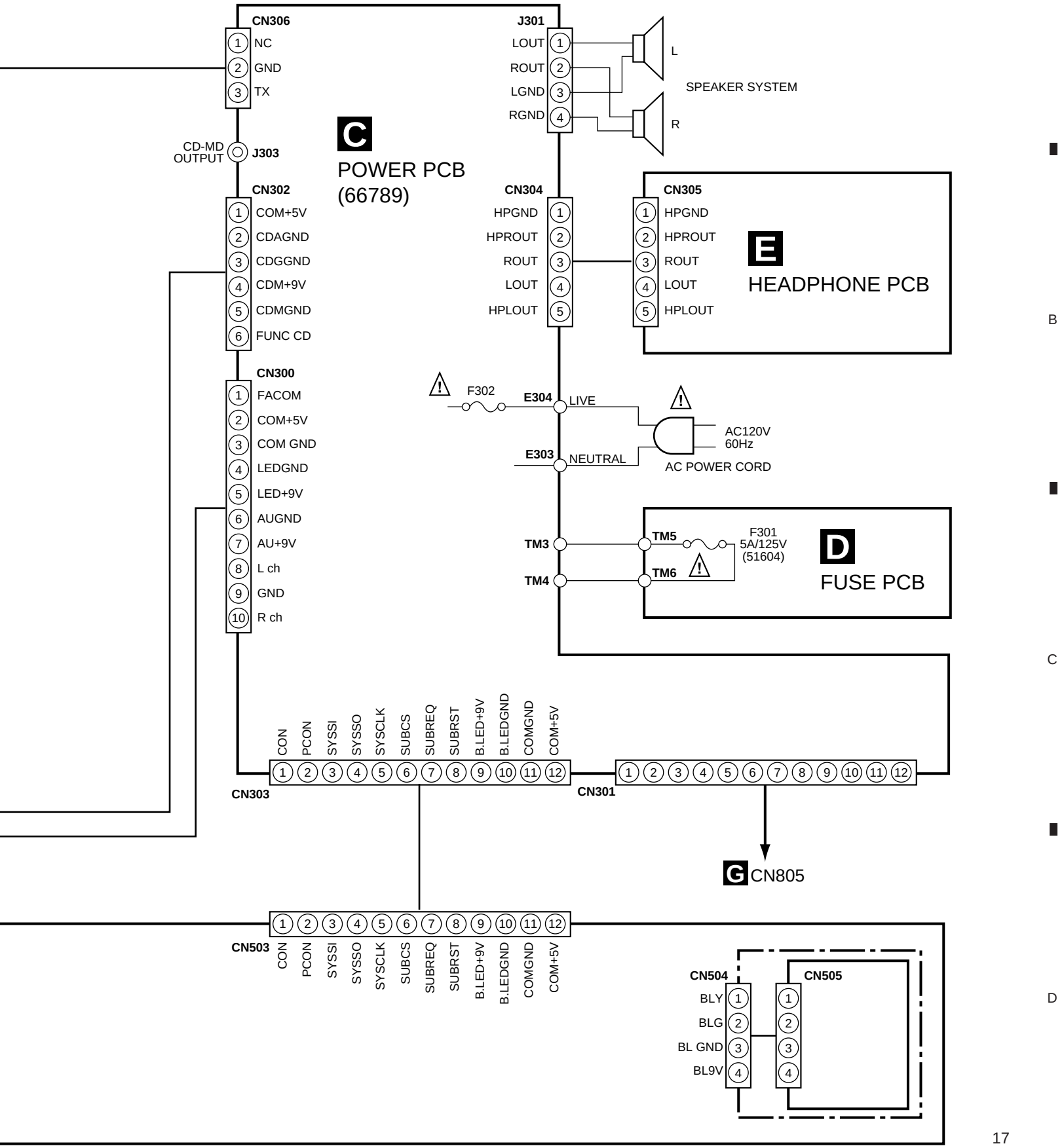
3.2 SCHEMATIC DIAGRAM

3.2.1 CD RECEIVER SECTION

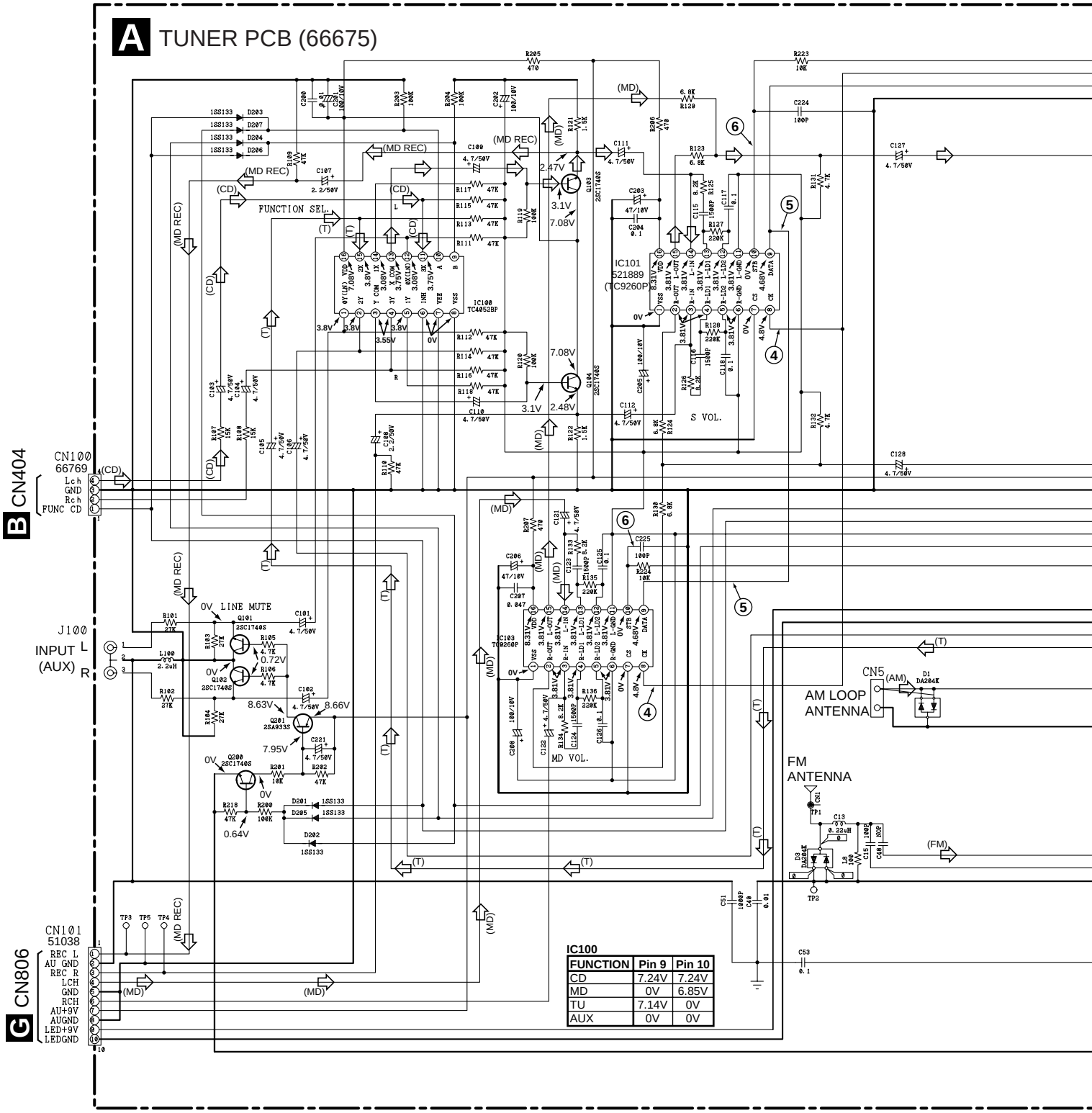
3.2.1.1 OVERALL WIRING DIAGRAM



Note : When ordering service parts, be sure to refer to "EXPLODED VIEWS and PARTS LIST" or "PCB PARTS LIST".



3.2.1.2 TUNER PCB



IC100

FUNCTION	Pin 9	Pin 10
CD	7.24V	7.24V
MD	0V	6.85V
TU	7.14V	0V
AUX	0V	0V

: AUDIO SIGNAL ROUTE

(CD) : CD AUDIO SIGNAL ROUTE

(MD) : MD AUDIO SIGNAL ROUTE

(MD REC) : MD REC ANALOG AUDIO SIGNAL ROUTE

(AM) : AM SIGNAL ROUTE

(FM) : FM SIGNAL ROUTE

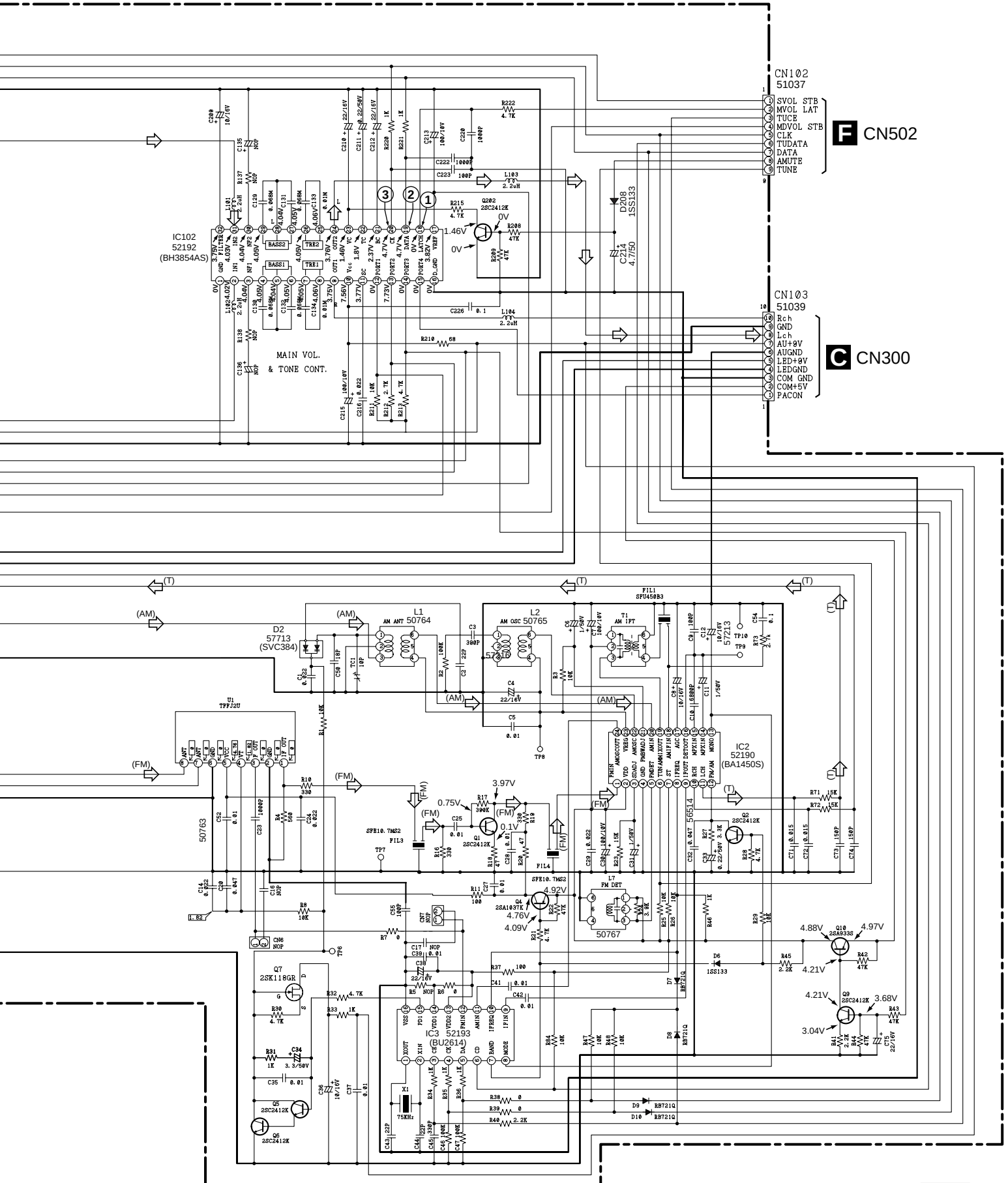
(T) : TUNER AUDIO SIGNAL ROUTE

IC2 Voltage (V)

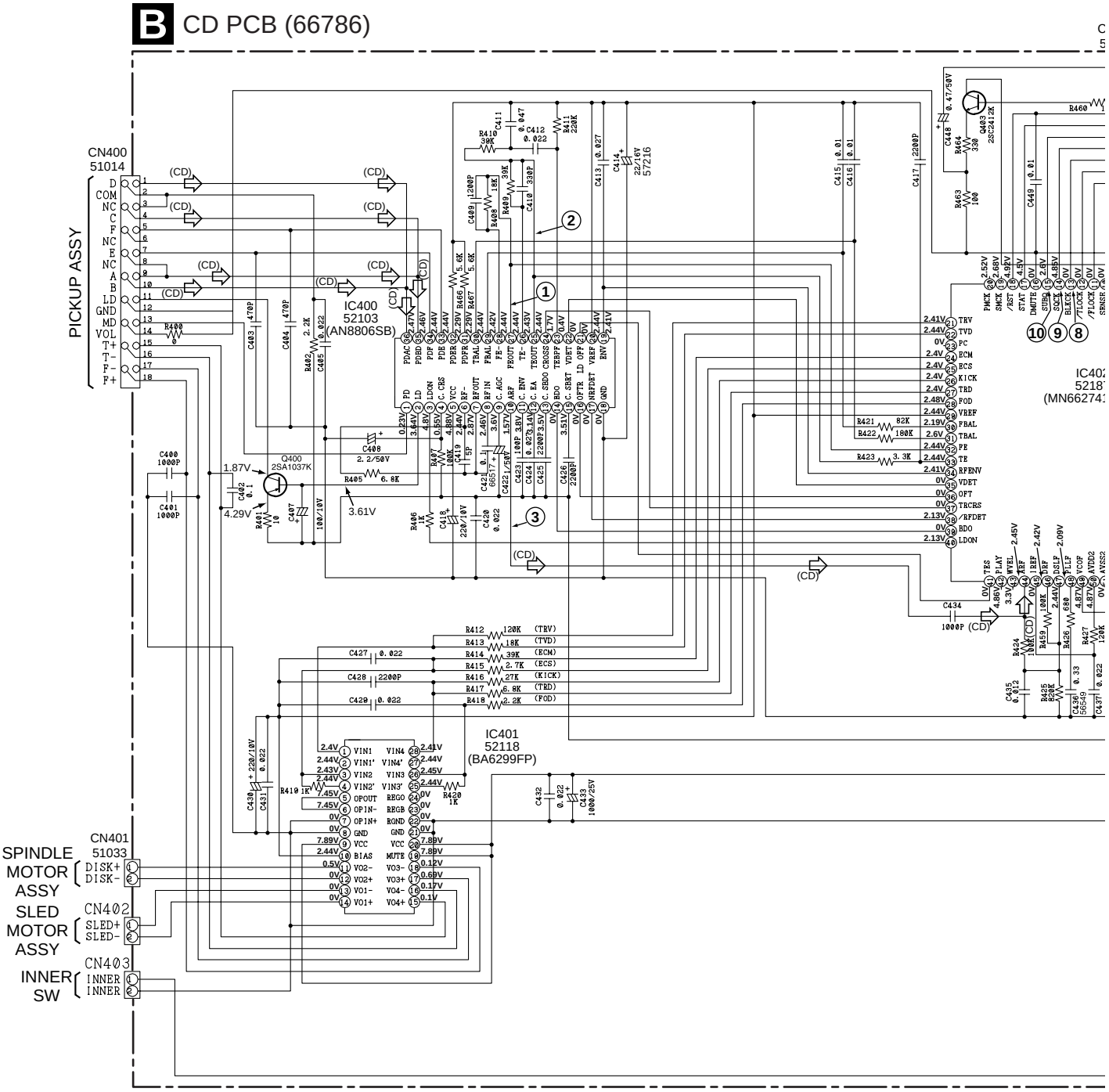
Pin No.	1	2	3	4	5	6	7	8	9	10	11	12
AM	2.09	4.9	0	0	4.9	4.9	4.9	0.49	4.14	1.56	1.61	0
FM	2.08	4.82	1.01	0	4.82	4.83	4.81	0.5	4.06	1.57	1.63	2.03
Pin No.	13	14	15	16	17	18	19	20	21	22	23	24
AM	1.87	2.08	2.05	2.13	0	4.88	4.89	2.09	2.07	2.1	2.09	1.47
FM	2.08	2.08	2.07	2.39	0	4.83	4.83	2.09	2.65	2.09	2.09	1.53

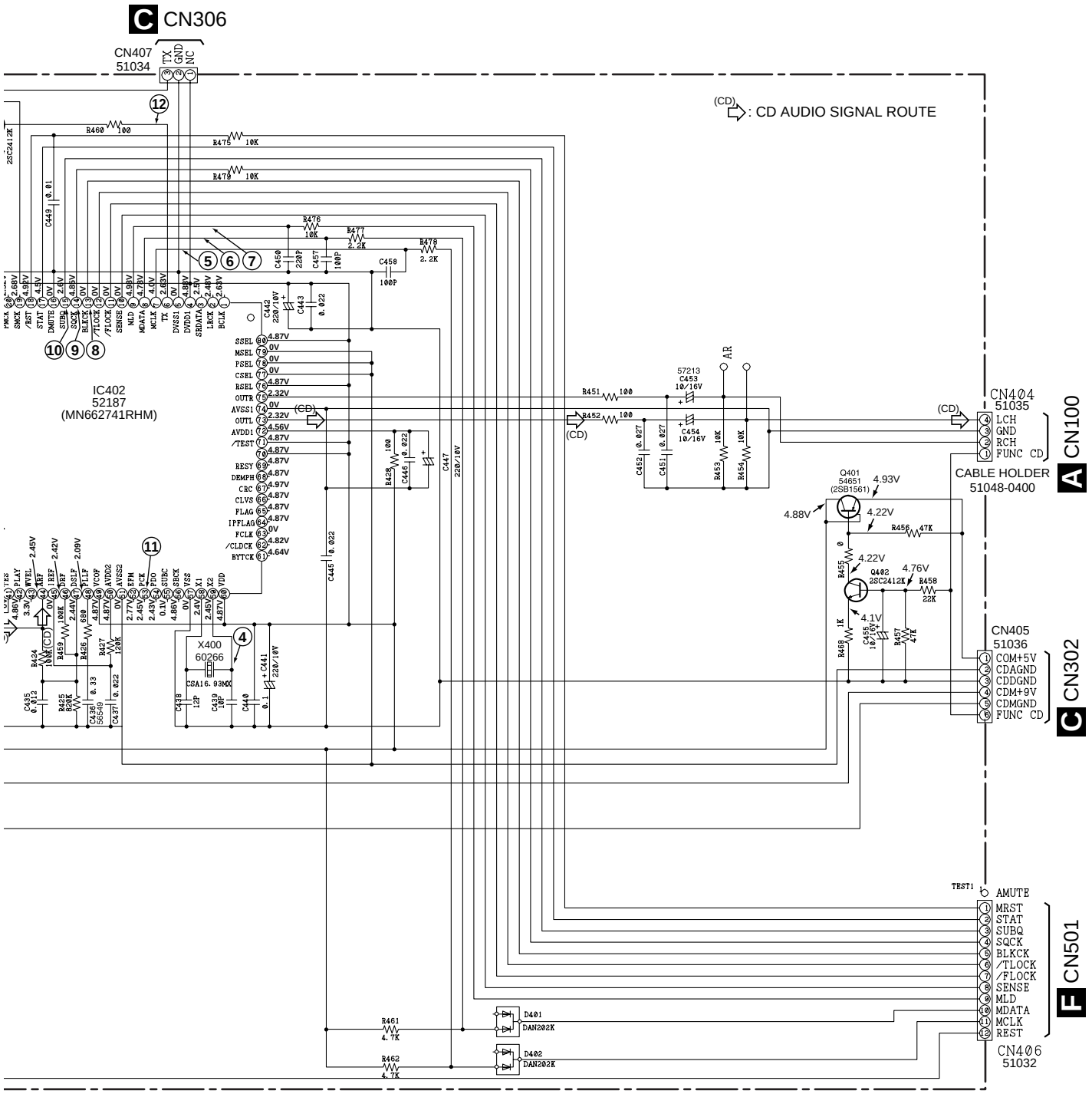
IC3 Voltage (V)

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
AM	2.37	1.8	0	0.28	0.19	4.89	4.87	1.87	0	0	2.31	0	4.85	4.85	1.16	0
FM	2.18	1.18	0	0	0	4.83	0.3	2.08	0	0	0	2.2	4.57	4.57	1.16	0

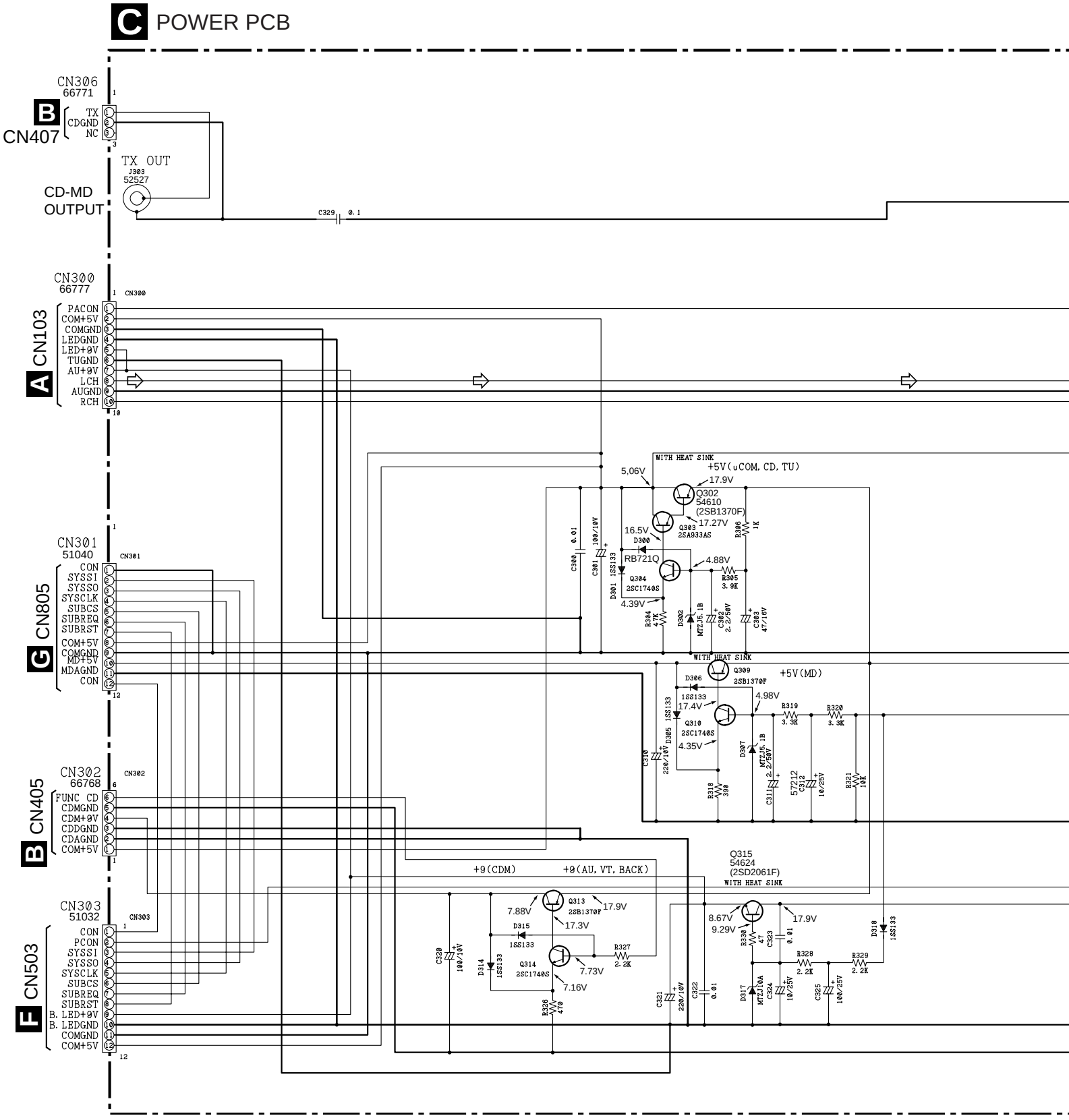

CN102
51037
SVOL STB
MVOL LAT
TUCE
MDVOL STB
CLK
TUDATA
DATA
AMUTE
TUNE
F CN502
CN103
51039
Rch
GND
Lch
AU+9V
AUGND
LED+9V
LEDGND
COM GND
COM+5V
PACON
C CN300
IC102
52192
(BH3854AS)
MAIN VOL.
& TONE CONT.
IC2
52190
(BA1450S)
IC3 52193
(BU2614)
L1
50764
L2
AM OSC 50765
57216
D2
57713
(SVC384)
57213
50763
56514
50767
Q1
2SC2412K
Q2
2SC2412K
Q4
2SA1037K
Q5
2SC2412K
Q6
2SC2412K
Q7
2SK118GR
Q9
2SC2412K
Q10
2SA933S
D208
1SS133
D6
1SS133
D7
RB721Q
D8
RB721Q
D9
RB721Q
D10
RB721Q
X1
75KHz
SFE10.7MS2
FIL3
SFE10.7MS2
FIL4
SFU450B3
FIL1
TP7
TP8
TP9
TP10
CN6
NOP
(AM)
(FM)
(T)
3.97V
0.75V
0.1V
4.92V
4.76V
4.09V
4.88V
4.97V
4.21V
3.68V
3.04V
1.46V
0V

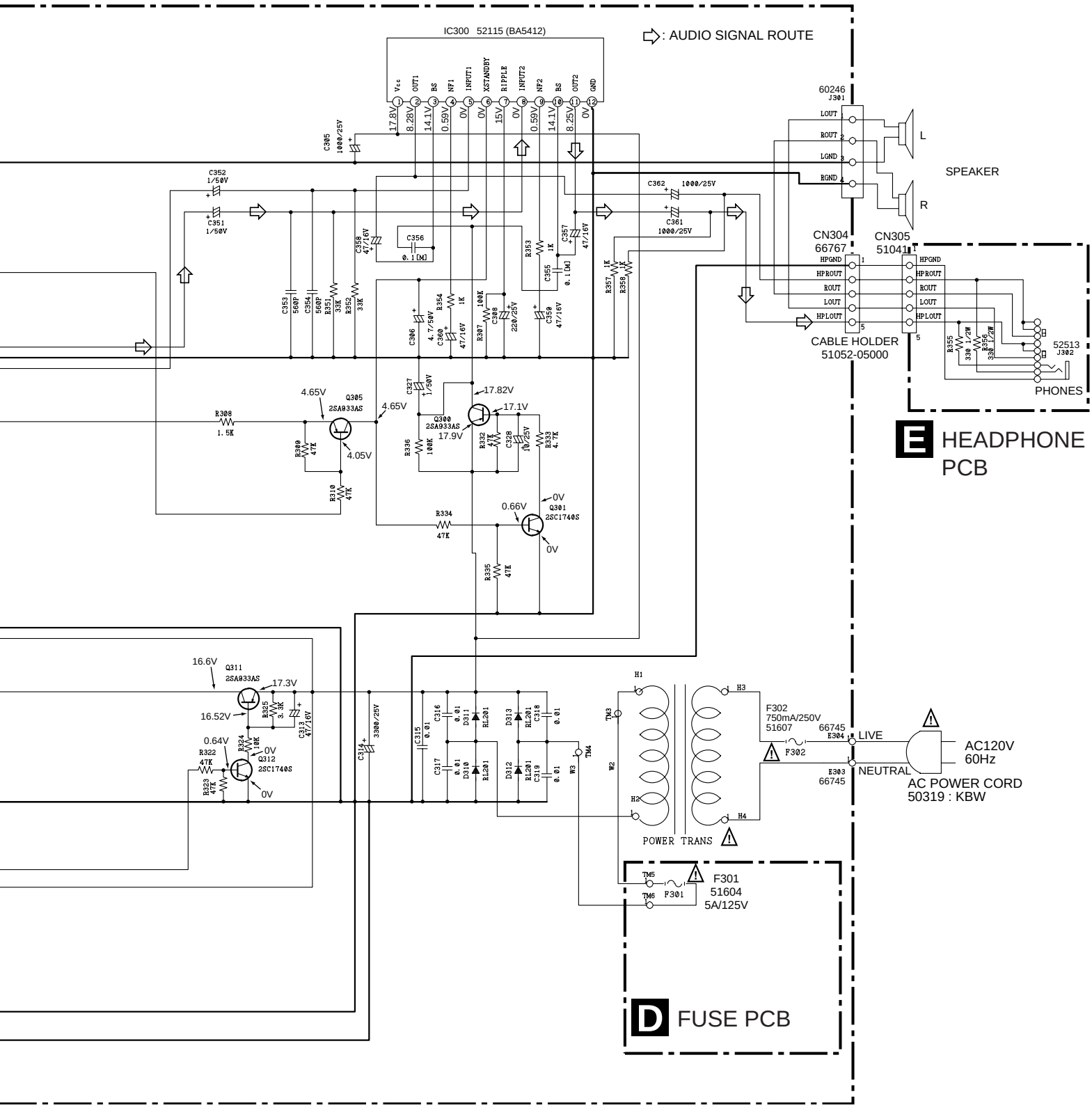
3.2.1.3 CD PCB


B CD PCB (66786)
CN400
51014
PICKUP ASSY
D
COM
NC
C
F
NC
E
NC
A
B
LD
GND
MD
VOL
T+
T-
F-
F+
IC400
52103
(AN8806SB)
IC401
52118
(BA6299FP)
Q400
2SA1037K
Q403
2SC2412K
IC402
52187
(MN662741
CN401
51033
SPINDLE MOTOR ASSY
DISK+
DISK-
CN402
SLED MOTOR ASSY
SLED+
SLED-
CN403
INNER SW
INNER
INNER
(CD)

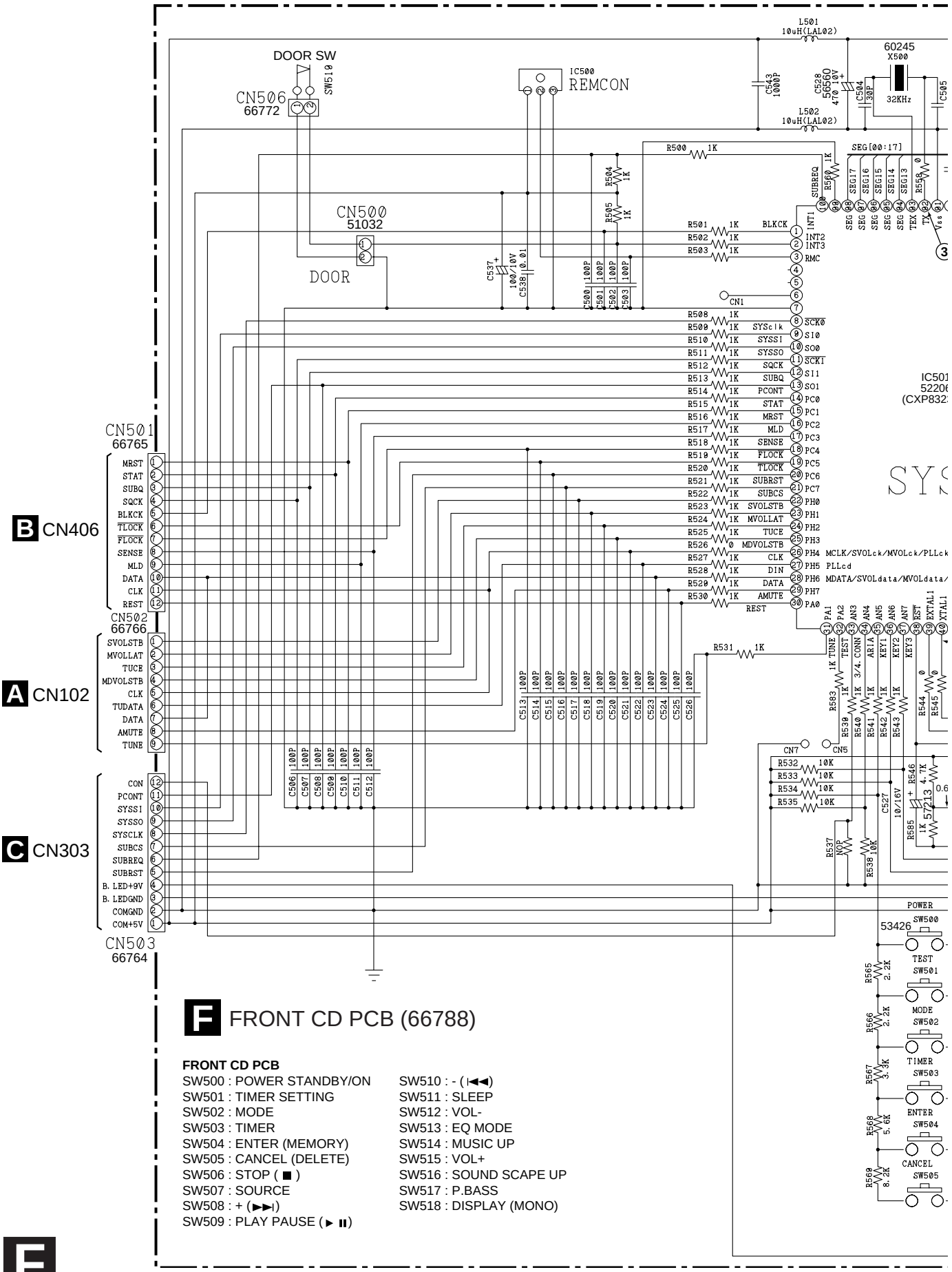

C CN306
CN407
51034
TX
GND
NC
(CD): CD AUDIO SIGNAL ROUTE
IC402
52187
(MN662741RHM)
CN404
51035
LCH
GND
RCH
FUNC CD
A CN100
CABLE HOLDER
51048-0400
CN405
51036
COM+5V
CDAGND
CDDGND
CDM+9V
CDMGND
FUNC CD
C CN302
TEST1
AMUTE
MRST
STAT
SUBQ
SQCK
BLKCK
/TLOCK
/FLOCK
SENSE
MLD
MDATA
MCLK
REST
F CN501
CN406
51032
D401
DAN202K
D402
DAN202K
X400
60266
CSA16.93MX
Q401
54651
(2SB1561)
Q402
2SC2412K
AR

3.2.1.4 POWER, FUSE and HEADPHONE PCB




IC300 52115 (BA5412)
: AUDIO SIGNAL ROUTE
SPEAKER
L
R
CN304
66767
CN305
51041
CABLE HOLDER
51052-05000
52513
J302
PHONES
E HEADPHONE PCB
F302
750mA/250V
51607
66745
LIVE
NEUTRAL
AC120V
60Hz
AC POWER CORD
50319 : KBW
POWER TRANS
F301
51604
5A/125V
D FUSE PCB

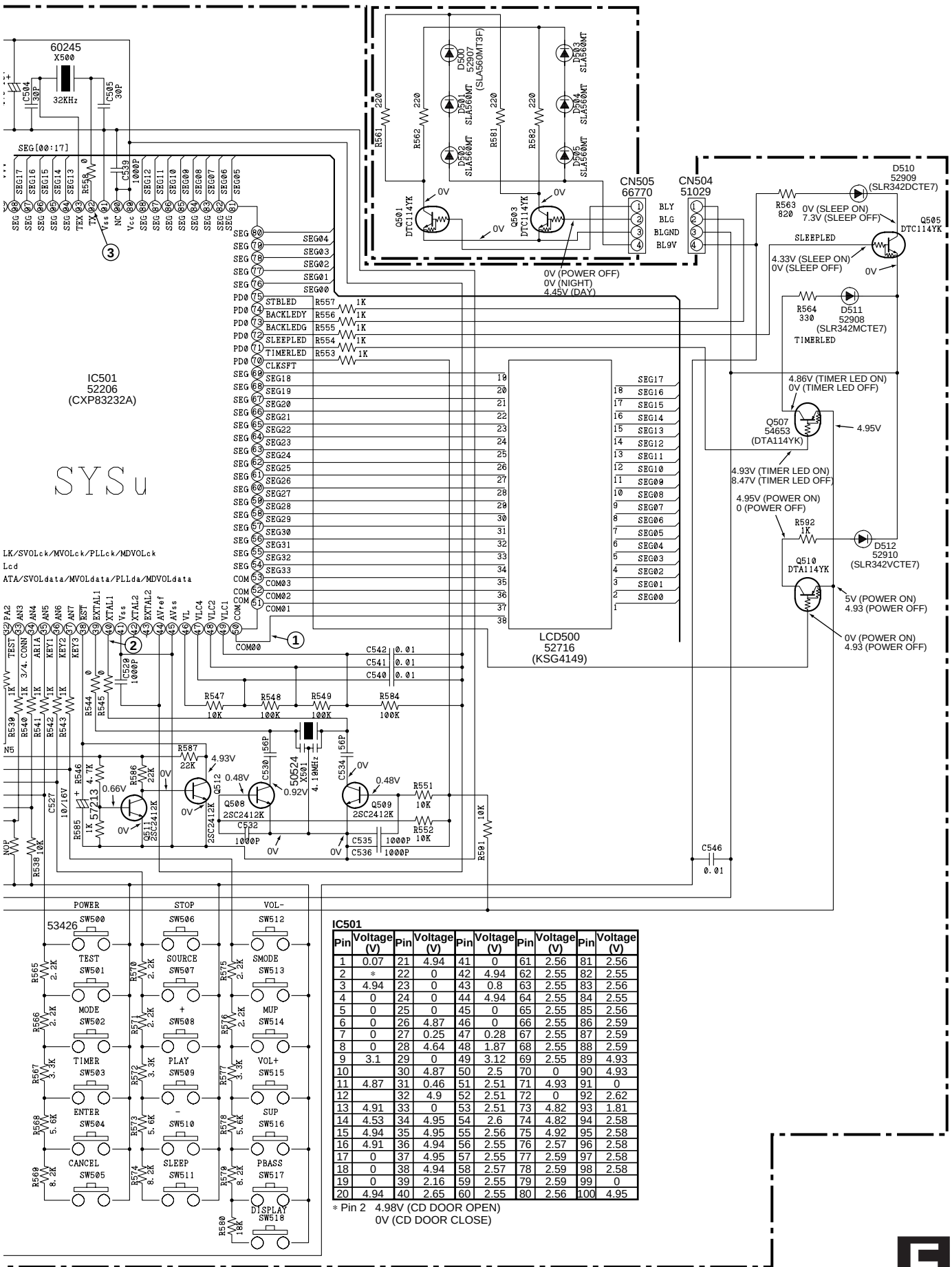
3.2.1.5 FRONT CD PCB



F FRONT CD PCB (66788)

FRONT CD PCB

SW500 : POWER STANDBY/ON
SW501 : TIMER SETTING
SW502 : MODE
SW503 : TIMER
SW504 : ENTER (MEMORY)
SW505 : CANCEL (DELETE)
SW506 : STOP (■)
SW507 : SOURCE
SW508 : + (►►I)
SW509 : PLAY PAUSE (► II)
SW510 : - (I◄◄)
SW511 : SLEEP
SW512 : VOL-
SW513 : EQ MODE
SW514 : MUSIC UP
SW515 : VOL+
SW516 : SOUND SCAPE UP
SW517 : P.BASS
SW518 : DISPLAY (MONO)



IC501

Pin	Voltage (V)	Pin	Voltage (V)	Pin	Voltage (V)	Pin	Voltage (V)	Pin	Voltage (V)
1	0.07	21	4.94	41	0	61	2.56	81	2.56
2	*	22	0	42	4.94	62	2.55	82	2.55
3	4.94	23	0	43	0.8	63	2.55	83	2.56
4	0	24	0	44	4.94	64	2.55	84	2.55
5	0	25	0	45	0	65	2.55	85	2.56
6	0	26	4.87	46	0	66	2.55	86	2.59
7	0	27	0.25	47	0.28	67	2.55	87	2.59
8	0	28	4.64	48	1.87	68	2.55	88	2.59
9	3.1	29	0	49	3.12	69	2.55	89	4.93
10		30	4.87	50	2.5	70	0	90	4.93
11	4.87	31	0.46	51	2.51	71	4.93	91	0
12		32	4.9	52	2.51	72	0	92	2.62
13	4.91	33	0	53	2.51	73	4.82	93	1.81
14	4.53	34	4.95	54	2.6	74	4.82	94	2.58
15	4.94	35	4.95	55	2.56	75	4.92	95	2.58
16	4.91	36	4.94	56	2.55	76	2.57	96	2.58
17	0	37	4.95	57	2.55	77	2.59	97	2.58
18	0	38	4.94	58	2.57	78	2.59	98	2.58
19	0	39	2.16	59	2.55	79	2.59	99	0
20	4.94	40	2.65	60	2.55	80	2.56	100	4.95

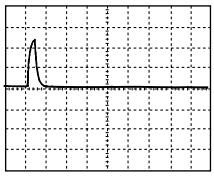
* Pin 2 4.98V (CD DOOR OPEN)
0V (CD DOOR CLOSE)

WAVEFORMS (CD RECEIVER)

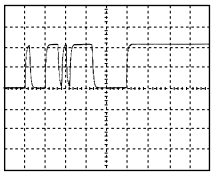
Note : The encircled numbers denote measuring point in the schematic diagram.

A TUNER PCB

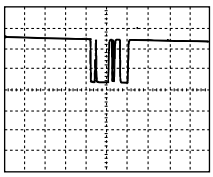
1
LATCH (IC102 - pin 18)
V : 2V/div. H : 50µsec/div.



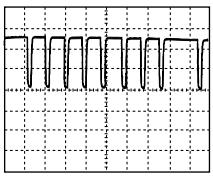
2-1
DATA (IC102 - pin 19)
V : 2V/div. H : 50µsec/div.



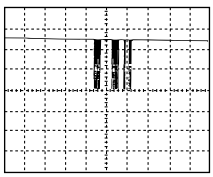
2-2
DATA (IC102 - pin 19)
V : 2V/div. H : 200µsec/div.



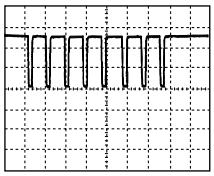
3-1
CK (IC102 - pin 20)
V : 2V/div. H : 10µsec/div.



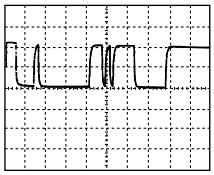
3-2
CK (IC102 - pin 20)
V : 2V/div. H : 200µsec/div.



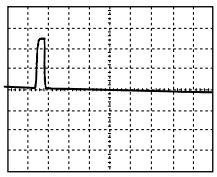
4
CK
(IC101 - pin 8)(IC103 - pin 8)
V : 2V/div. H : 10µsec/div.



5
DATA
(IC101 - pin 9)(IC103 - pin 9)
V : 2V/div. H : 50µsec/div.

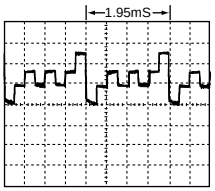


6
STB
(IC101 - pin 10)(IC103 - pin 10)
V : 2V/div. H : 50µsec/div.

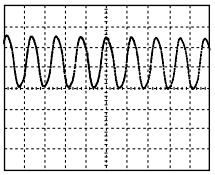


F FRONT CD PCB

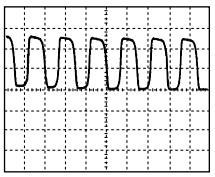
1
COM
(IC501 - pin 50)
V : 2V/div. H : 500µsec/div.



2
XTAL1
(IC501 - pin 40)
V : 2V/div. H : 200nsec/div.

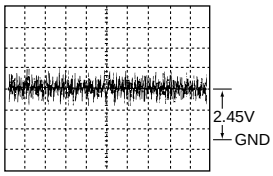


3
TX
(IC501 - pin 92)
V : 2V/div. H : 20µsec/div.

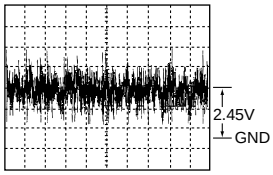


B CD PCB

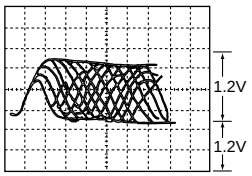
1
FEOUT (IC400 - pin 27)
V : 50mV/div. H : 10msec/div.



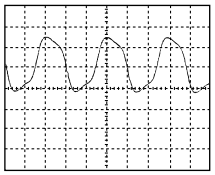
2
TEOUT (IC400 - pin 25)
V : 100mV/div. H : 2msec/div.



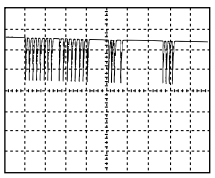
3
ARF (IC400 - pin 10)
V : 500mV/div. H : 5µsec/div.



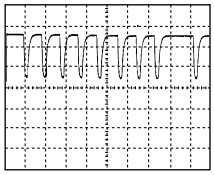
4
X2 (IC402 - pin 59)
V : 2V/div. H : 20µsec/div.
(f = 16.9MHz)



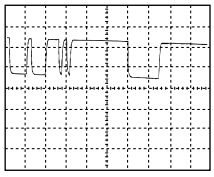
5 -1
MCLK (IC402 - pin 7)
V : 2V/div. H : 50µsec/div.



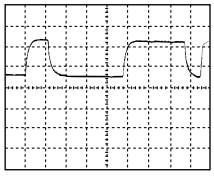
5 -2
MCLK (IC402 - pin 7)
V : 2V/div. H : 10µsec/div.



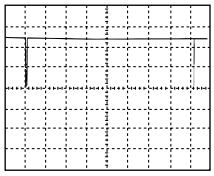
6 -1
MDATA (IC402 - pin 8)
V : 2V/div. H : 50µsec/div.



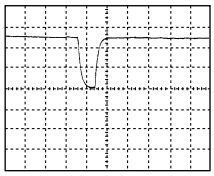
6 -2
MDATA (IC402 - pin 8)
V : 2V/div. H : 10µsec/div.



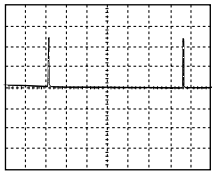
7 -1
MLD (IC402 - pin 9)
V : 2V/div. H : 2msec/div.



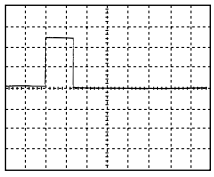
7 -2
MLD (IC402 - pin 9)
V : 2V/div. H : 20µsec/div.



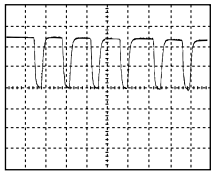
8 -1
BLKCK (IC402 - pin 13)
V : 2V/div. H : 2msec/div.



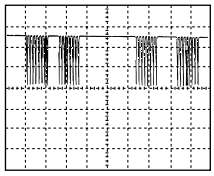
8 -2
BLKCK (IC402 - pin 13)
V : 2V/div. H : 100µsec/div.



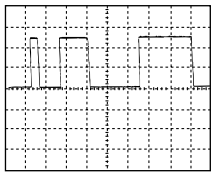
9 -1
SQCK (IC402 - pin 14)
V : 2V/div. H : 5µsec/div.



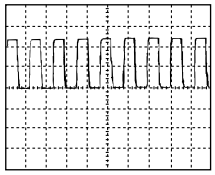
9 -2
SQCK (IC402 - pin 14)
V : 2V/div. H : 50µsec/div.



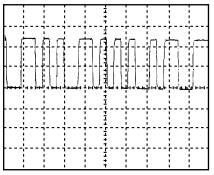
10
SUBQ (IC402 - pin 15)
V : 2V/div. H : 20µsec/div.



11
PCK (IC402 - pin 53)
V : 2V/div. H : 200nsec/div.

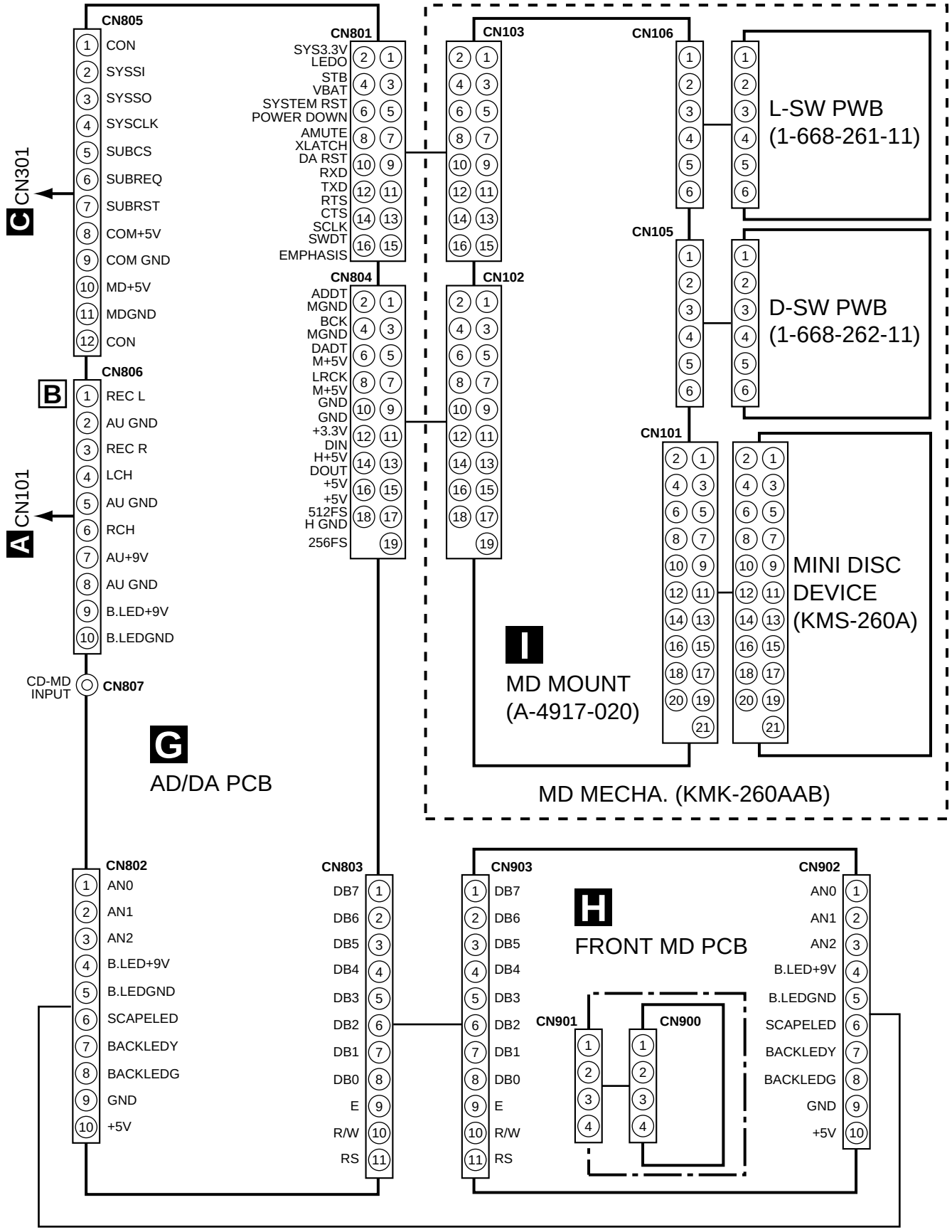


12
TX (IC402 - pin 6)
V : 2V/div. H : 500nsec/div.

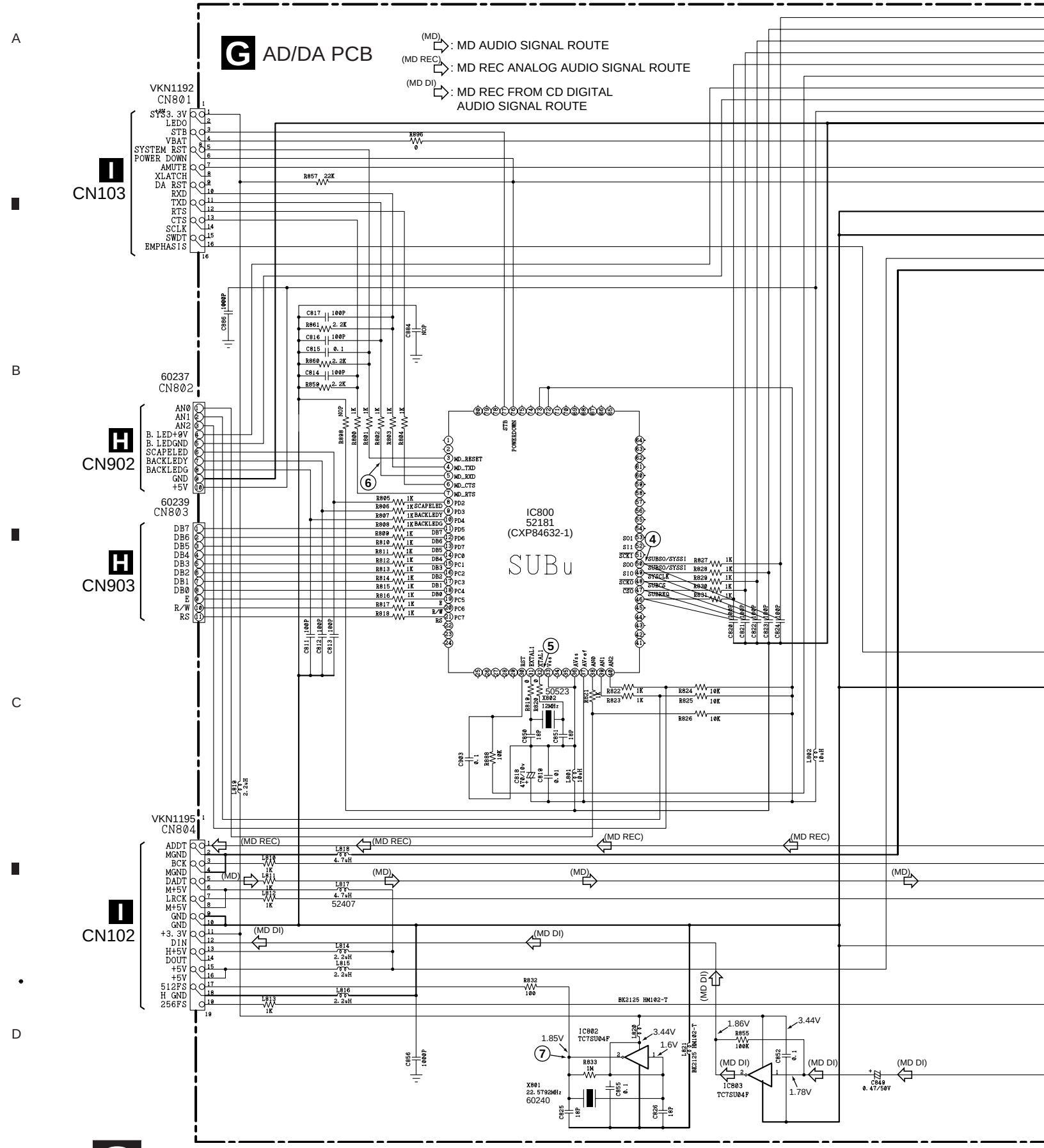


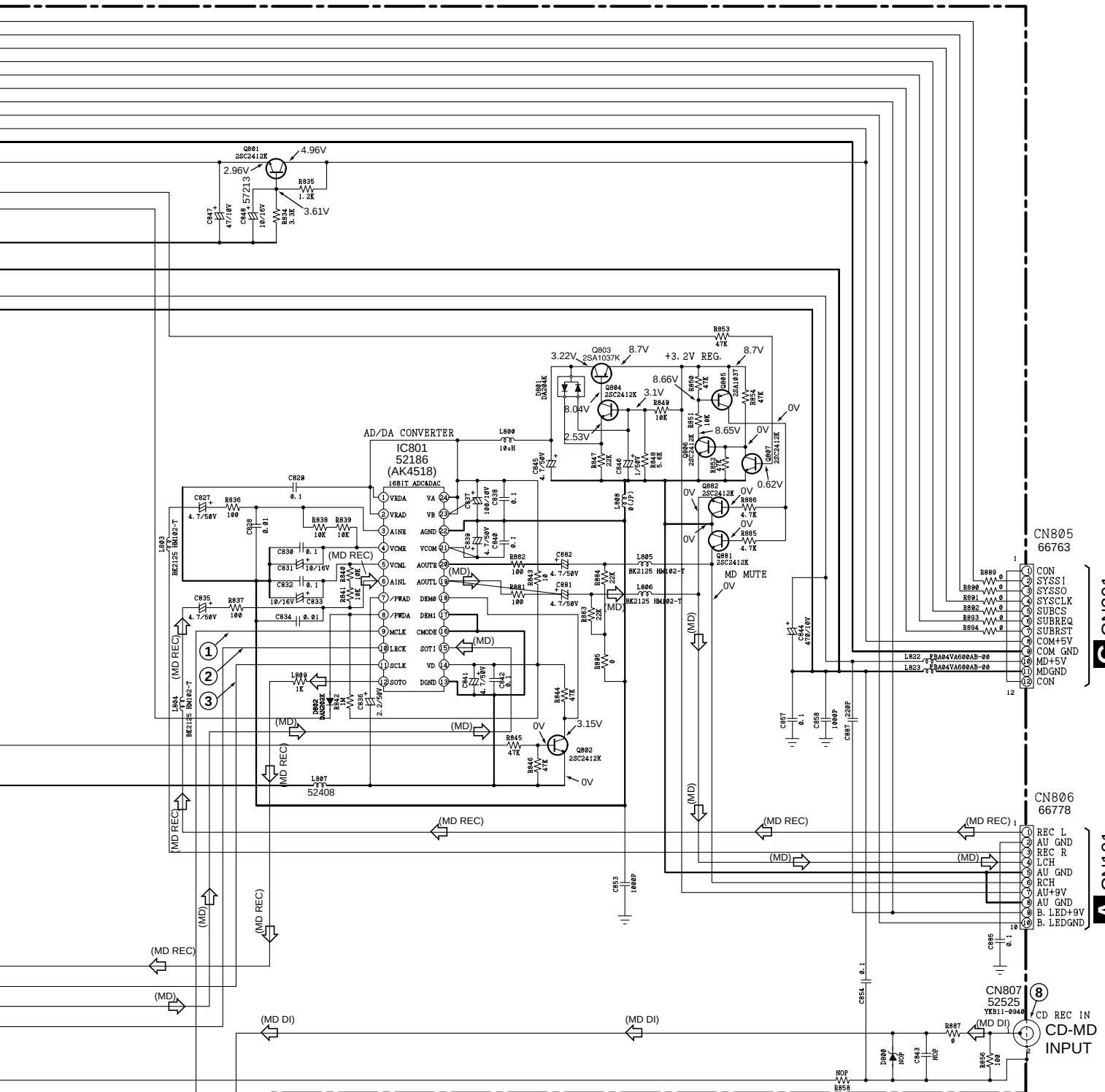
3.2.2 MD RECORDER SECTION

3.2.2.1 OVEALL WIRING DIAGRAM



3.2.2.2 AD/DA PCB





IC801

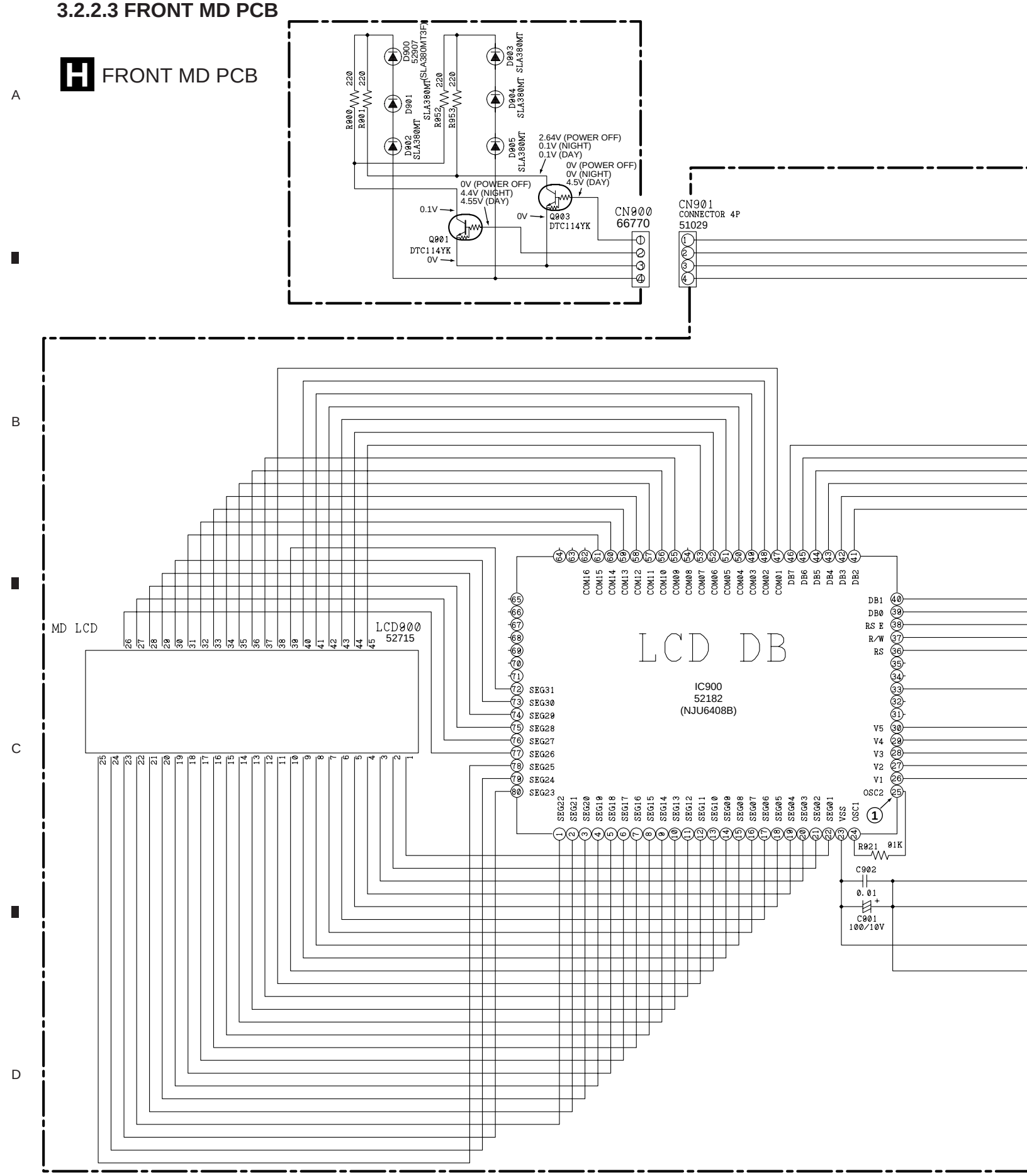
Pin	Voltage (V)	Pin	Voltage (V)
1	3.21	13	0
2	3.21	14	3.17
3	1.44	15	0.93
4	1.44	16	0
5	1.44	17	0
6	1.44	18	3.15
7	2.87	19	1.41
8	2.87	20	1.41
9	1.75	21	1.44
10	1.75	22	0
11	1.8	23	3.21
12	0.9	24	3.21

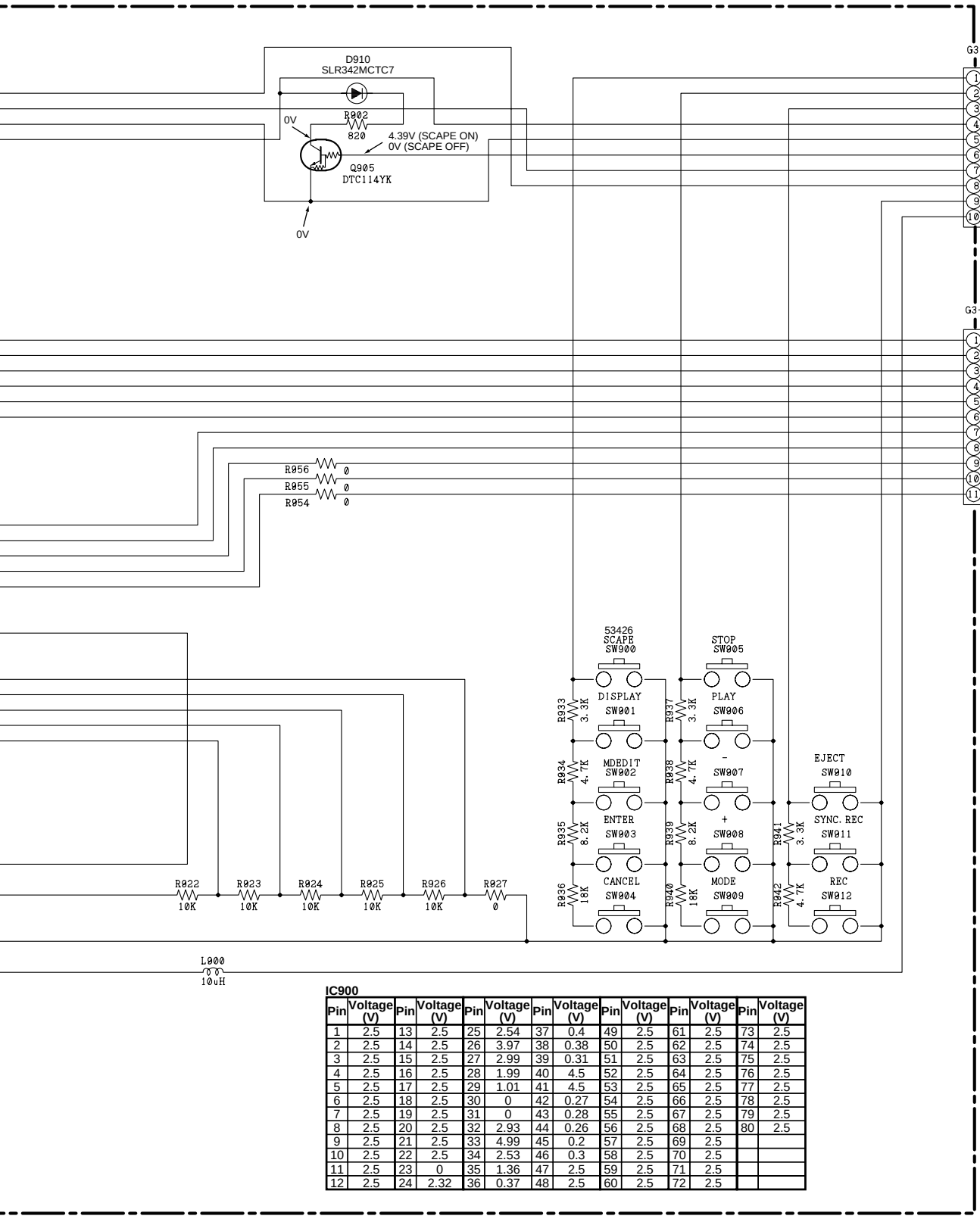
IC800

Pin	Voltage (V)	Pin	Voltage (V)	Pin	Voltage (V)	Pin	Voltage (V)	Pin	Voltage (V)	Pin	Voltage (V)	Pin	Voltage (V)
1	0	13	0.07	25	0	37	4.97	49	4.95	61	0	73	-
2	0	14	0.08	26	0	38	4.96	50	4.96	62	0	74	0
3	4.48	15	0.13	27	0	39	4.96	51	0	63	0	75	0
4	4.48	16	4.62	28	0	40	4.96	52	0	64	0	76	-
5	3.4	17	4.62	29	0	41	0	53	0	65	0	77	0
6	0	18	0.17	30	4.83	42	0	54	0	66	0	78	0
7	0	19	0.2	31	1.63	43	0	55	0	67	0	79	0
8	4.78	20	0.24	32	4.96	44	0	56	0	68	0	80	0
9	4.82	21	0.2	33	0	45	0	57	0	69	0		
10	4.82	22	0	34	2.49	46	4.97	58	0	70	0		
11	0.16	23	0	35	0.98	47	0	59	0	71	0		
12	0.11	24	0	36	0	48	0	60	0	72	-		

3.2.2.3 FRONT MD PCB

FRONT MD PCB





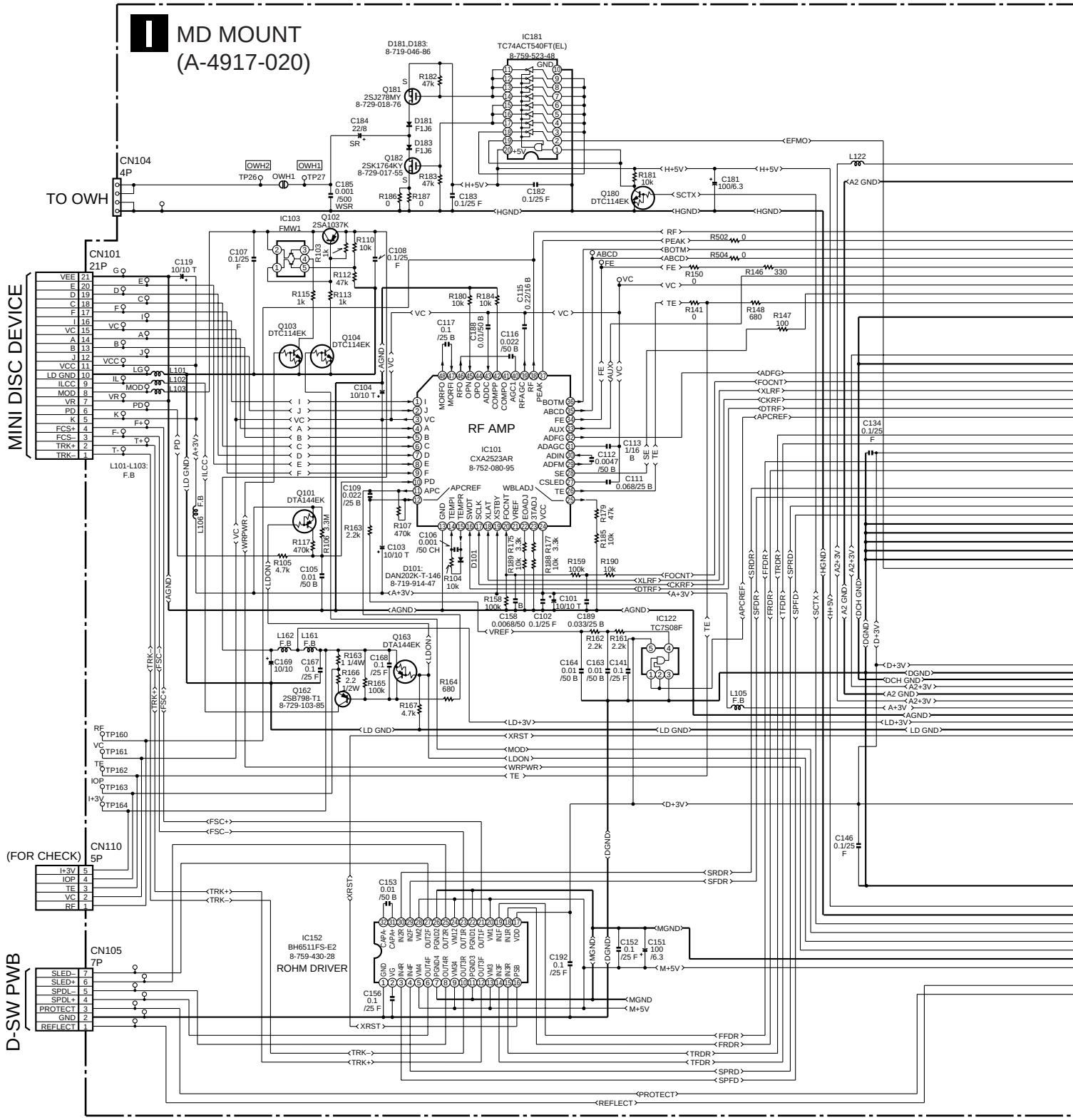
FRONT MD PCB

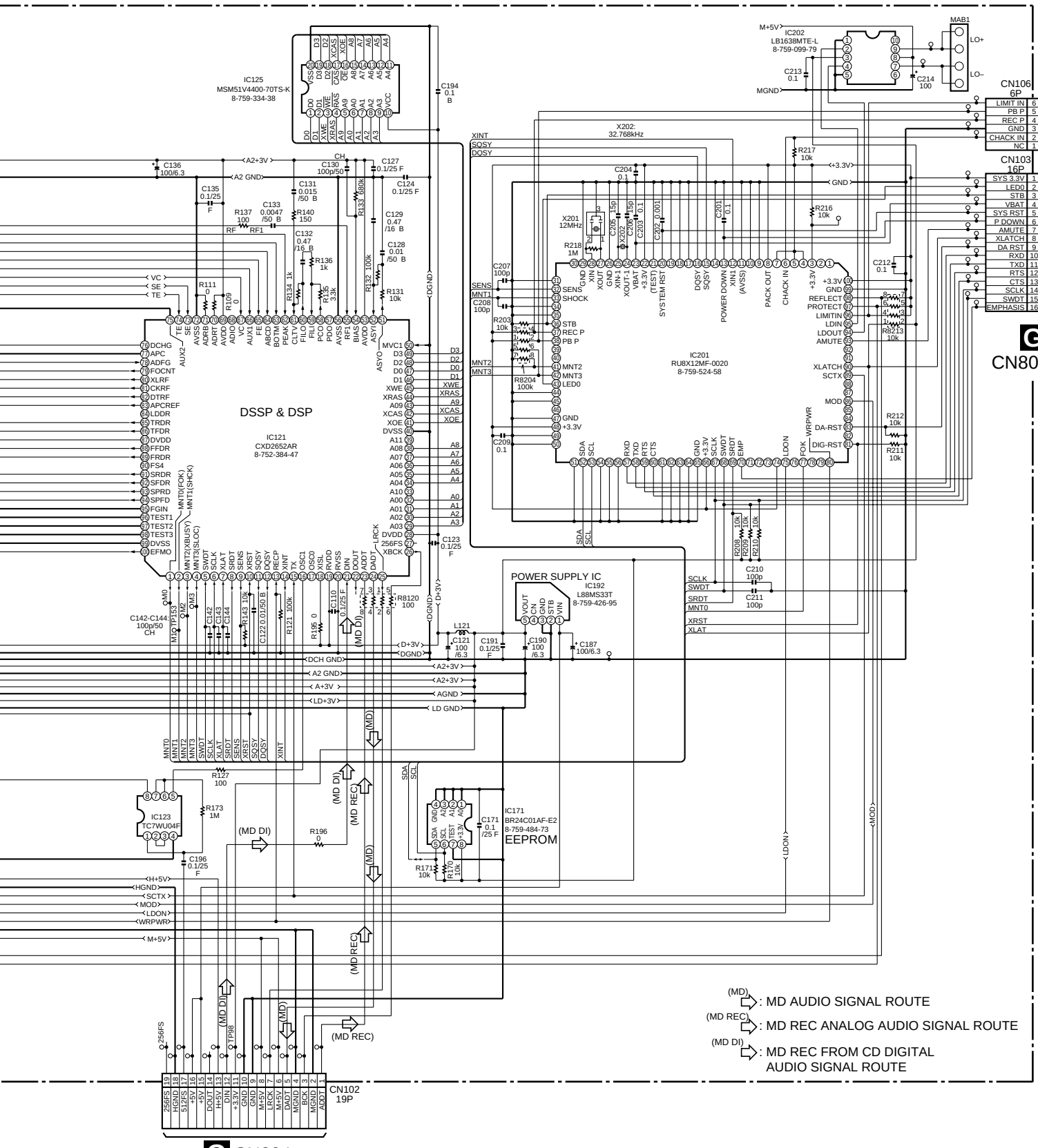
SW900 : SOUND SCAPE
SW901 : DISPLAY (LANGUAGE)
SW902 : MD EDIT
SW903 : ENTER
SW904 : CANCEL
SW905 : STOP (■)
SW906 : PLAY PAUSE (► ❚❚)
SW907 : - (|◄◄)
SW908 : + (►►|)
SW909 : MODE
SW910 : EJECT (▲)
SW911 : CD► MD REC
SW912 : REC

IC900

Pin	Voltage (V)	Pin	Voltage (V)	Pin	Voltage (V)	Pin	Voltage (V)	Pin	Voltage (V)	Pin	Voltage (V)	Pin	Voltage (V)
1	2.5	13	2.5	25	2.54	37	0.4	49	2.5	61	2.5	73	2.5
2	2.5	14	2.5	26	3.97	38	0.38	50	2.5	62	2.5	74	2.5
3	2.5	15	2.5	27	2.99	39	0.31	51	2.5	63	2.5	75	2.5
4	2.5	16	2.5	28	1.99	40	4.5	52	2.5	64	2.5	76	2.5
5	2.5	17	2.5	29	1.01	41	4.5	53	2.5	65	2.5	77	2.5
6	2.5	18	2.5	30	0	42	0.27	54	2.5	66	2.5	78	2.5
7	2.5	19	2.5	31	0	43	0.28	55	2.5	67	2.5	79	2.5
8	2.5	20	2.5	32	2.93	44	0.26	56	2.5	68	2.5	80	2.5
9	2.5	21	2.5	33	4.99	45	0.2	57	2.5	69	2.5		
10	2.5	22	2.5	34	2.53	46	0.3	58	2.5	70	2.5		
11	2.5	23	0	35	1.36	47	2.5	59	2.5	71	2.5		
12	2.5	24	2.32	36	0.37	48	2.5	60	2.5	72	2.5		

3.2.2.4 MD MOUNT



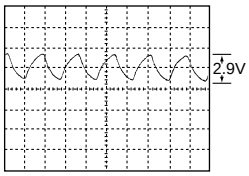

DSSP & DSP
IC121
CXD2652AR
8-752-384-47
IC125
MSM51V4400-70TS-K
8-759-334-38
IC201
RU8X12MF-0020
8-759-524-58
IC202
LB1638MTE-L
8-759-099-79
IC123
TC7WU04F
IC171
BR24C01AF-E2
8-759-484-73
EEPROM
IC192
L88MS33T
8-759-426-95
POWER SUPPLY IC
X201
12MHz
X202:
32.768kHz
MAB1
LO+
LO–
CN106
6P
LIMIT IN
PB P
REC P
GND
CHACK IN
NC
L-SW PWB
CN103
16P
SYS 3.3V
LED0
STB
VBAT
SYS RST
P DOWN
AMUTE
XLATCH
DA RST
RXD
TXD
RTS
CTS
SCLK
SWDT
EMPHASIS
G
CN801
CN102
19P
CN804
(MD): MD AUDIO SIGNAL ROUTE
(MD REC): MD REC ANALOG AUDIO SIGNAL ROUTE
(MD DI): MD REC FROM CD DIGITAL AUDIO SIGNAL ROUTE

WAVEFORMS (MD RECORDER)

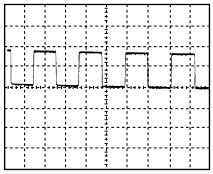
Note : The encircled numbers denote measuring point in the schematic diagram.

G AD/DA PCB

1
MCLK (IC801 - pin 9)
V : 2V/div. H : 50nsec/div.

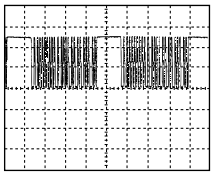


2
LRCK (IC801 - pin 10)
V : 2V/div. H : 2µsec/div.

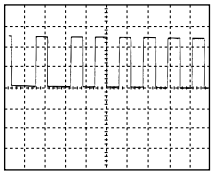


3
SCLK (IC801 - pin 11)
V : 2V/div. H : 200nsec/div.

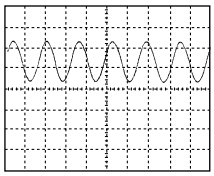
4 -1
SOO (IC800 - pin 50)
V : 2V/div. H : 20msec/div.



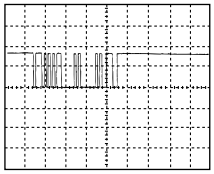
4 -2
SOO (IC800 - pin 50)
V : 2V/div. H : 2msec/div.



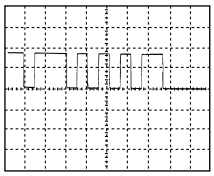
5
XTAL1 (IC800 - pin 32)
V : 2V/div. H : 50nsec/div.



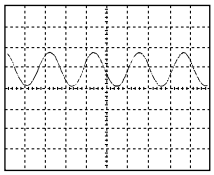
6 -1
MD_RXD (IC800 - pin 5)
V : 2V/div. H : 1msec/div.



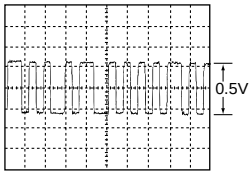
6 -2
MD_RXD (IC800 - pin 5)
V : 2V/div. H : 200µsec/div.



7
(IC802 - pin 2)
V : 2V/div. H : 20nsec/div.

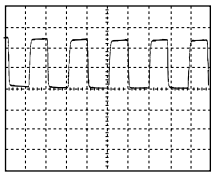


8
CD REC IN (CN807)
V : 200mV/div. H : 500nsec/div.



H FRONT MD PCB

1
OSC2 (IC900 - pin 25)
V : 2V/div. H : 2µsec/div.



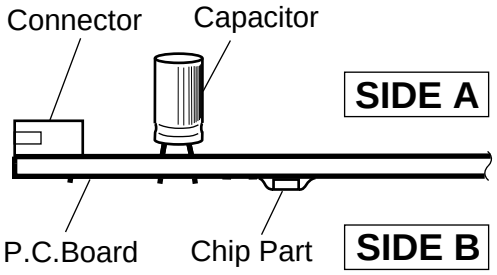
4. PCB CONNECTION DIAGRAM

NOTE FOR PCB DIAGRAMS :

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

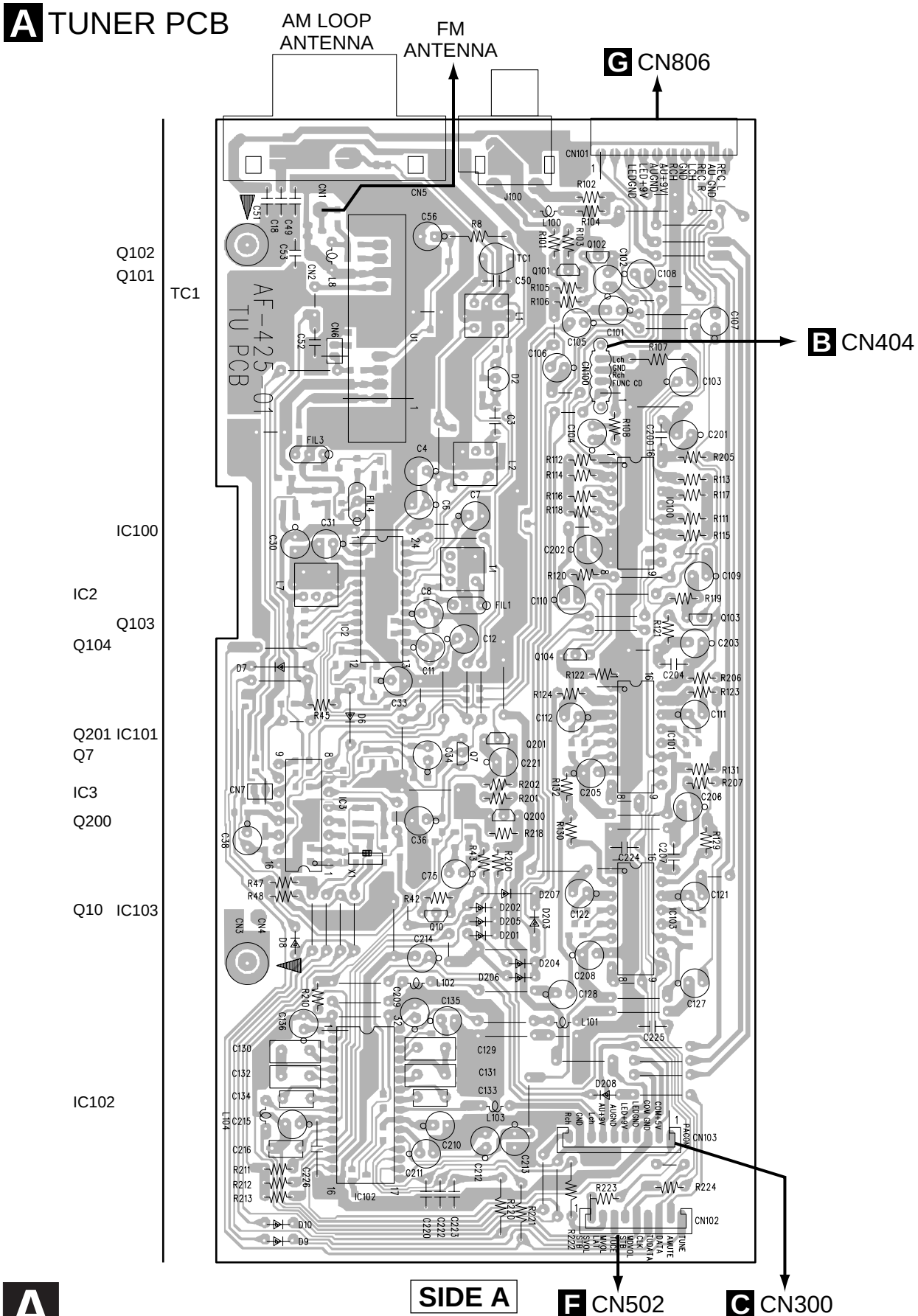
Symbol In PCB Diagrams	Symbol In Schematic Diagrams	Part Name
B C E	B C E B C E	Transistor
B C E	B C E B C E	Transistor with resistor
D G S	D G S D G S	Field effect transistor
		Resistor array
		3-terminal regulator

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

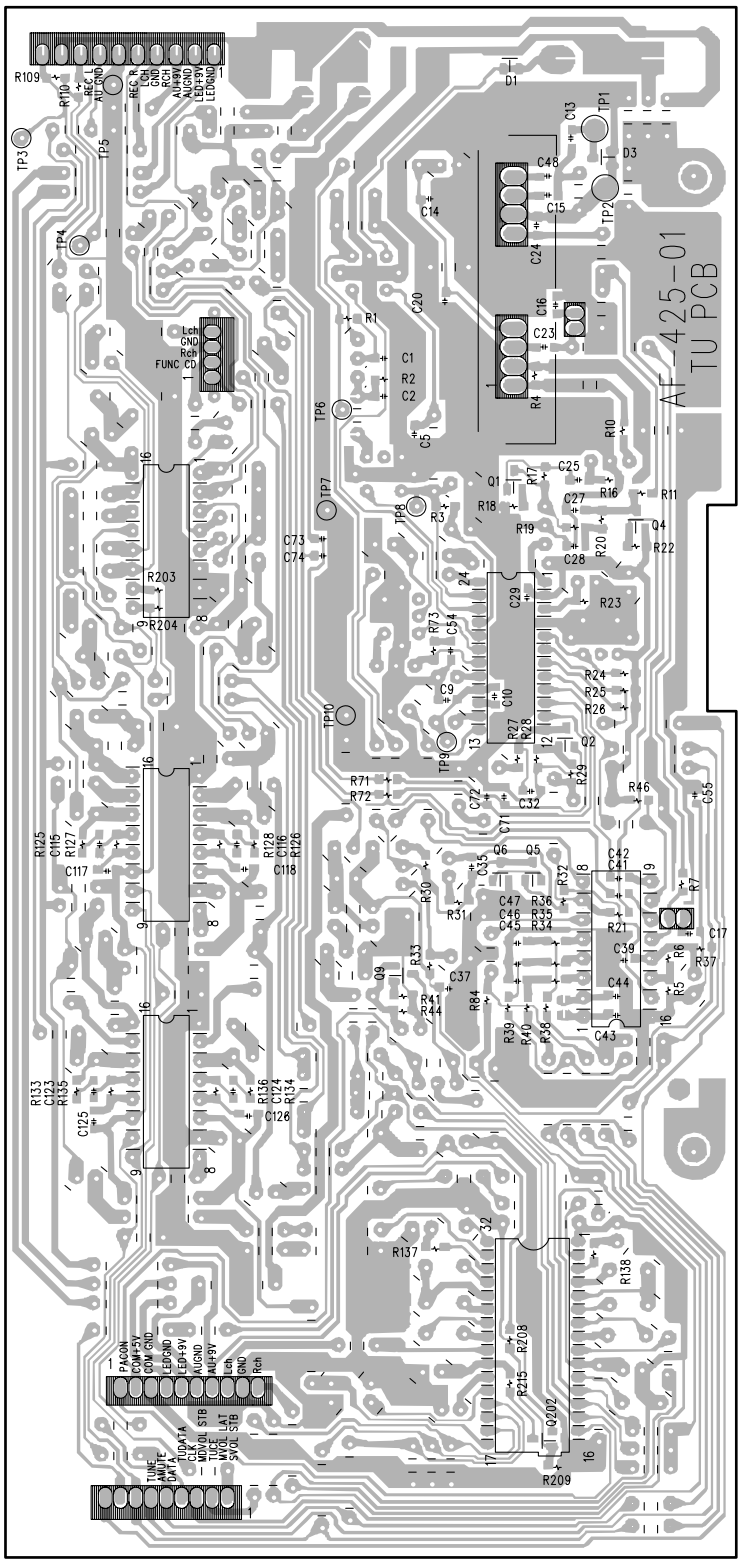


4.1 CD RECEIVER

4.1.1 TUNER PCB

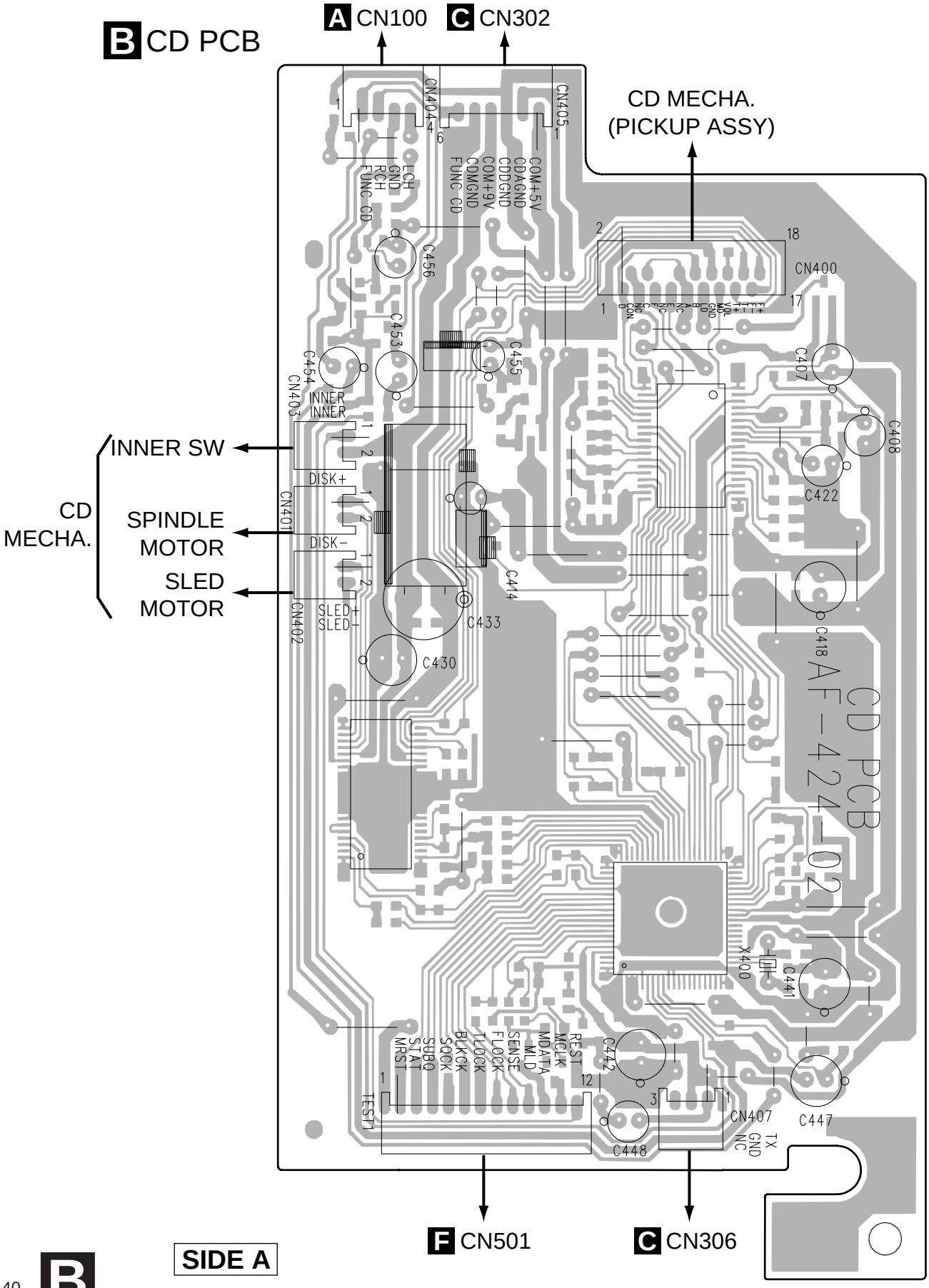


A TUNER PCB

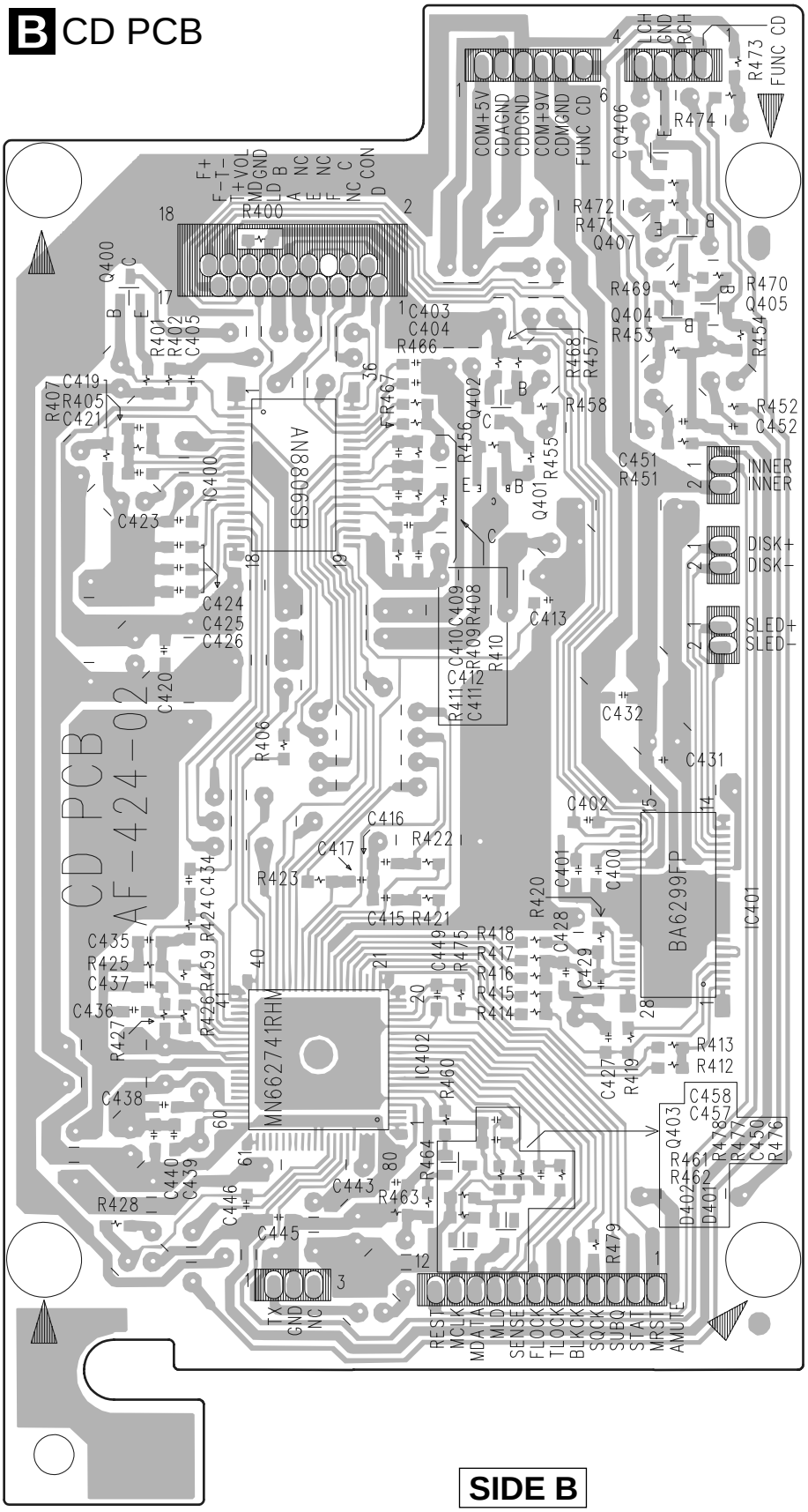


SIDE B

4.1.2 CD PCB

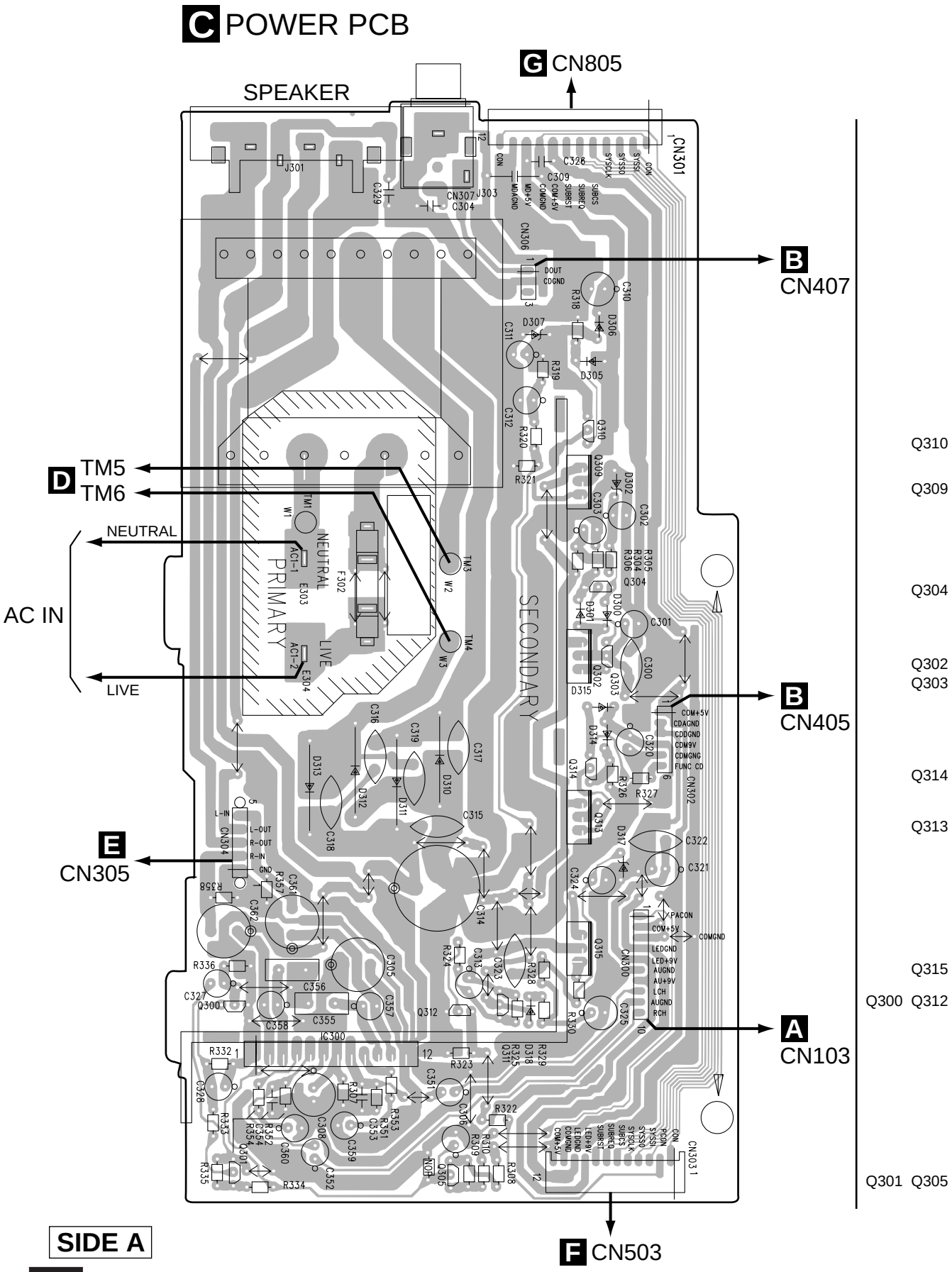

A CN100
C CN302
B CD PCB
CD MECHA.
(PICKUP ASSY)
INNER SW
CD
MECHA.
SPINDLE
MOTOR
SLED
MOTOR
F CN501
C CN306
SIDE A
CD PCB AF-424-02
CN404
CN405
CN400
CN403
CN401
CN402
CN407
C456
C453
C454
C455
C407
C408
C422
C414
C433
C430
C418
C441
X400
C442
C447
C448
LCH
GND
RCH
FUNC CD
COM+5V
CDAGND
CDDGND
COM+9V
CDMGND
FUNC CD
INNER
INNER
DISK+
DISK-
SLED+
SLED-
REST
MCLK
MDATA
MLD
SENSE
FLOCK
TLOCK
BLKCK
SQCK
SUBQ
STAT
MRST
TEST1
TX
GND
NC

B CD PCB

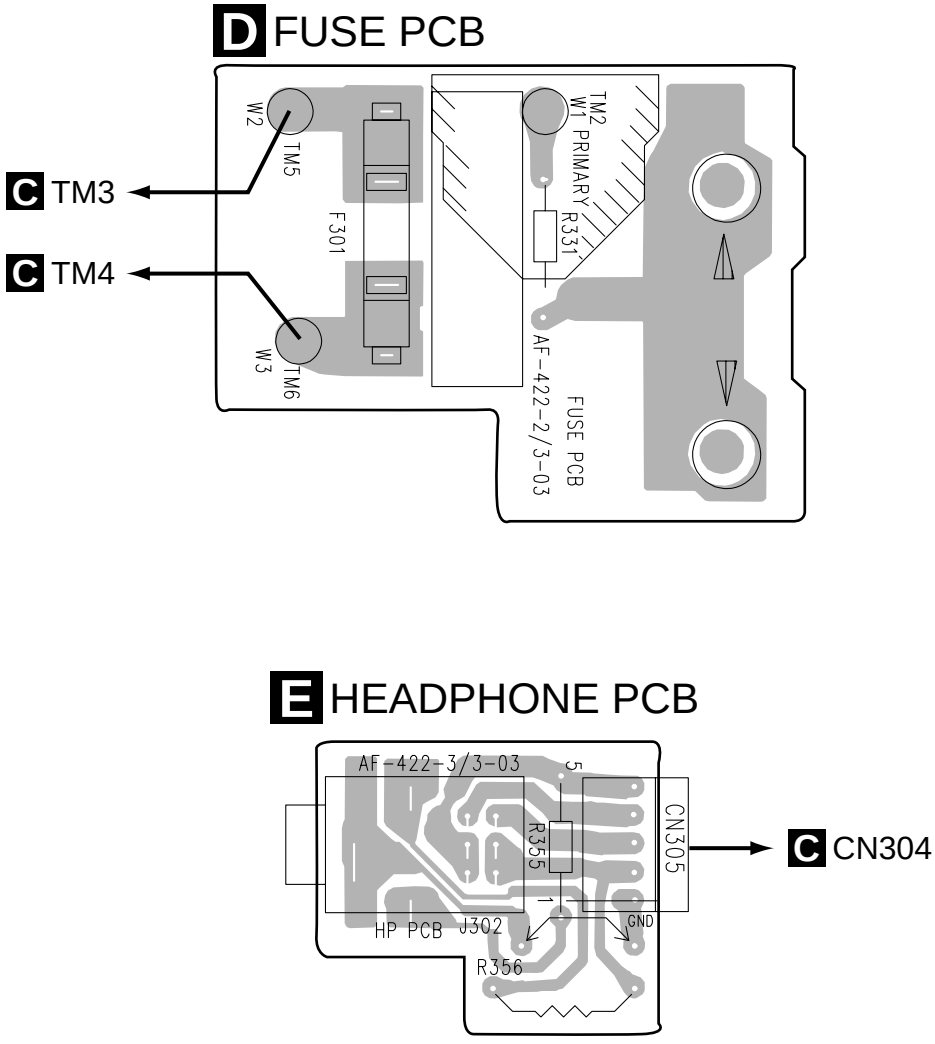


SIDE B

4.1.3 POWER PCB

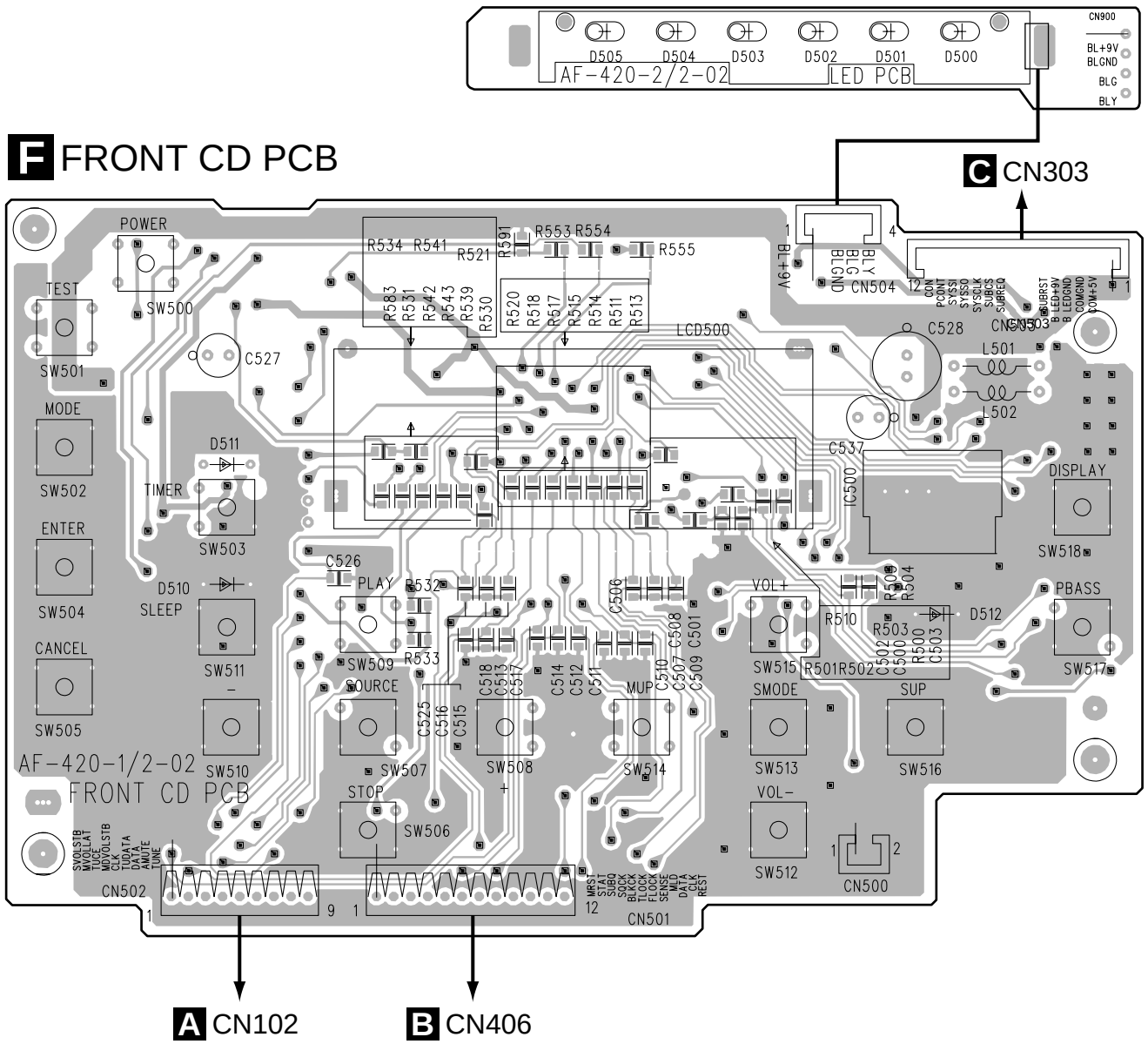


4.1.4 FUSE and HEADPHONE PCB



SIDE A

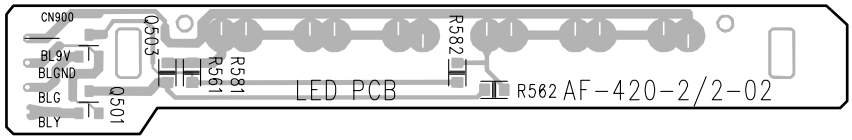
4.1.5 FRONT CD PCB



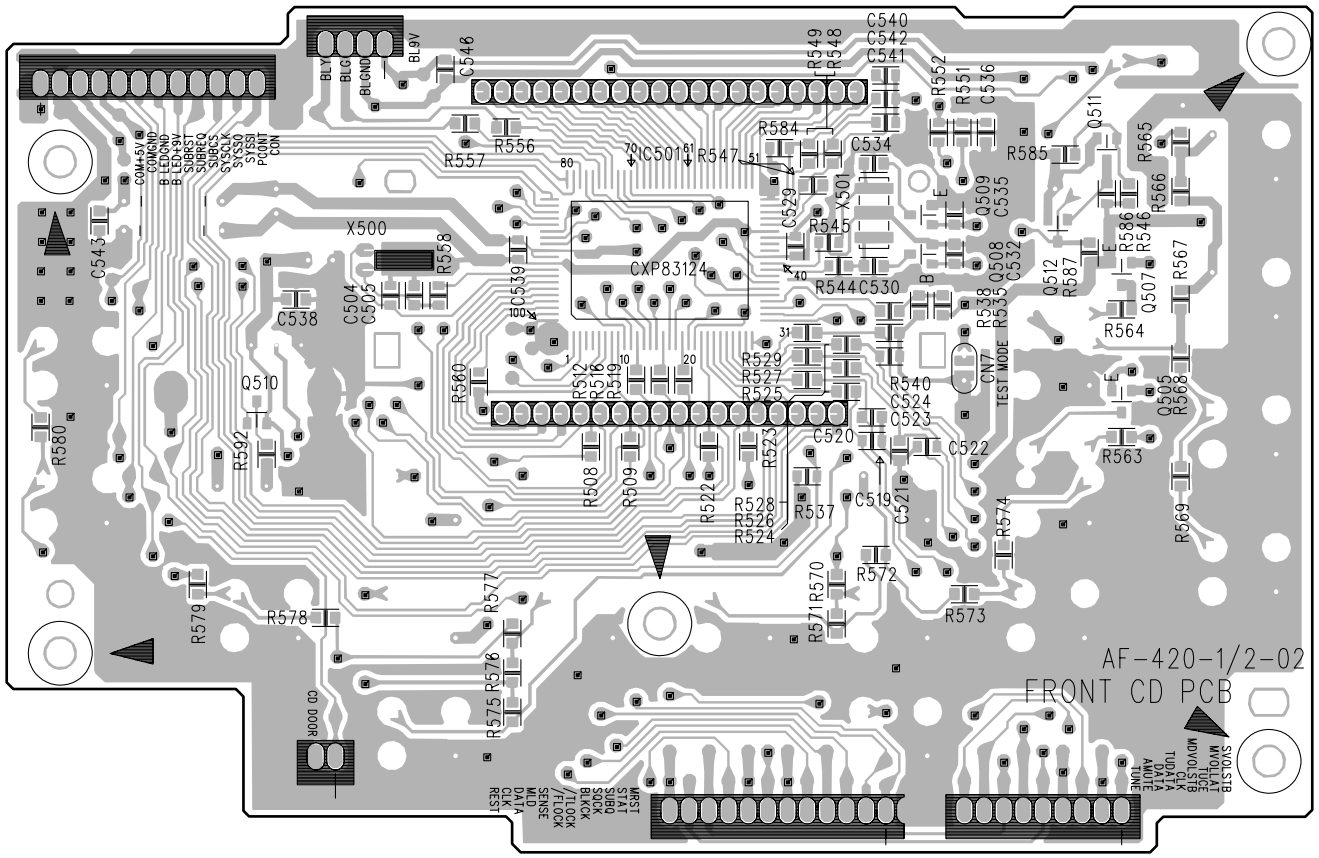
Note : ▣ is connected to side B.

SIDE A

Q503
Q501



F FRONT CD PCB



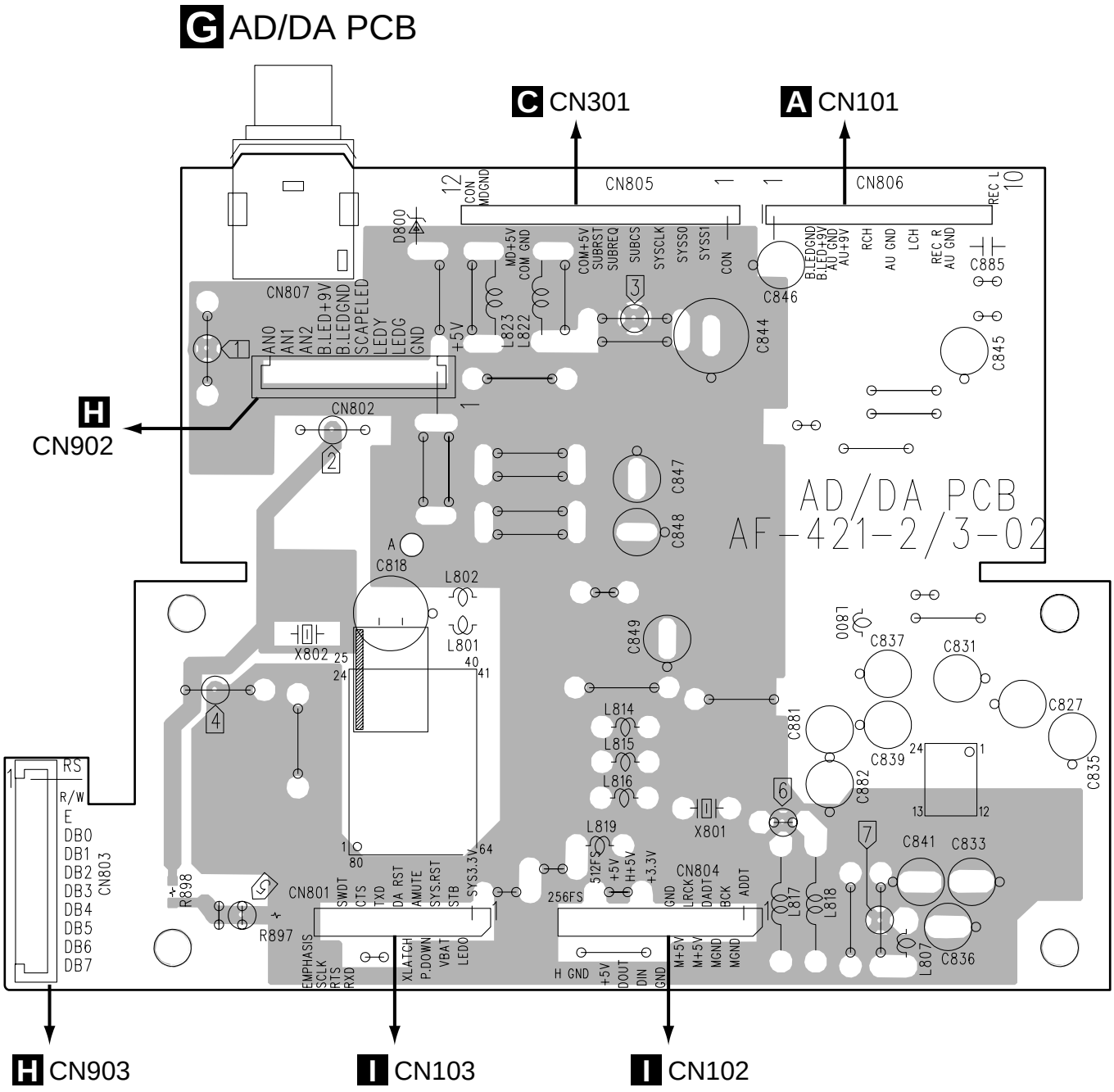
Q510 IC501 Q509 Q508 Q511 Q512 Q507 Q505

Note : ⊠ is connected to side A.

SIDE B

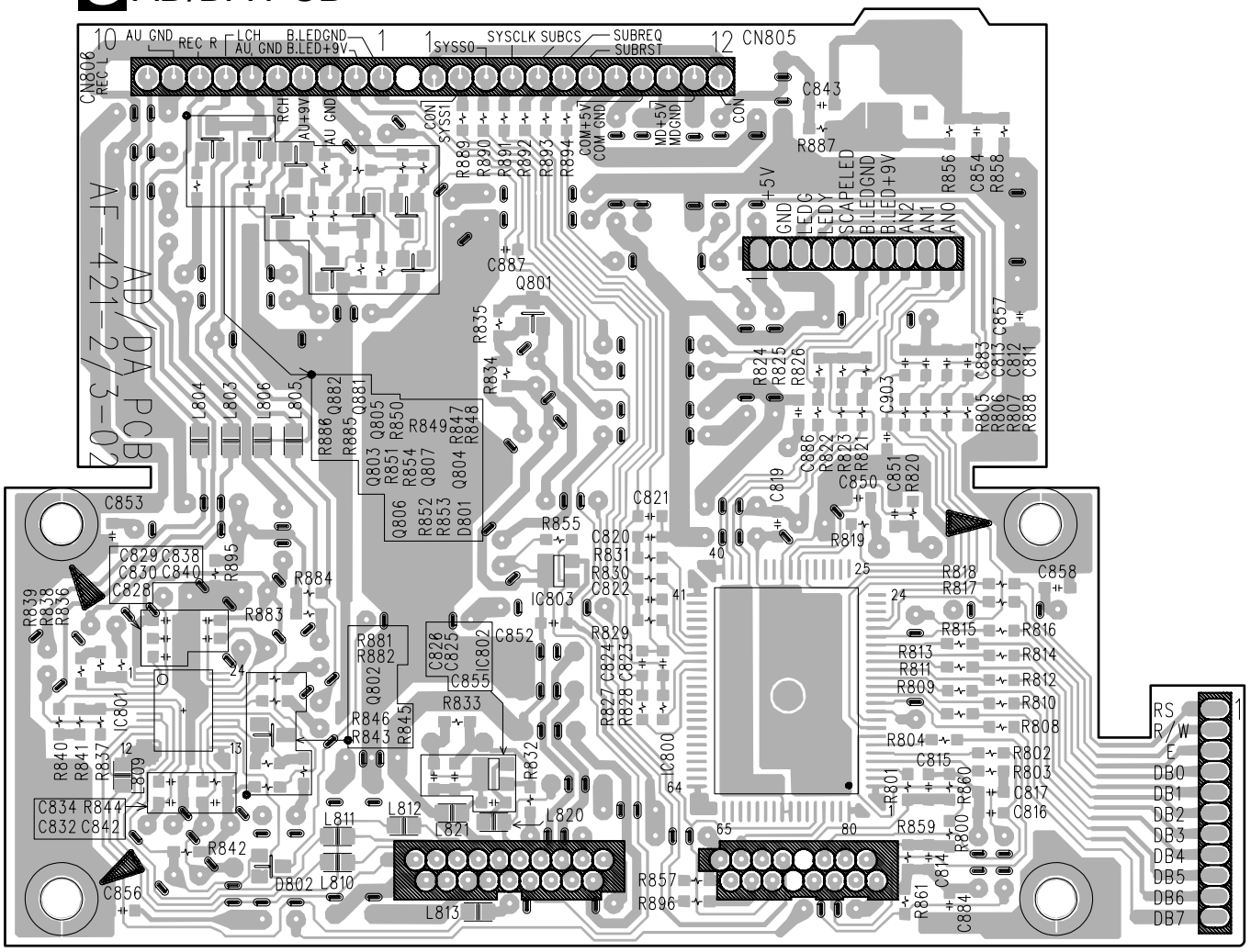
4.2 MD RECORDER

4.2.1 AD/DA PCB



SIDE A

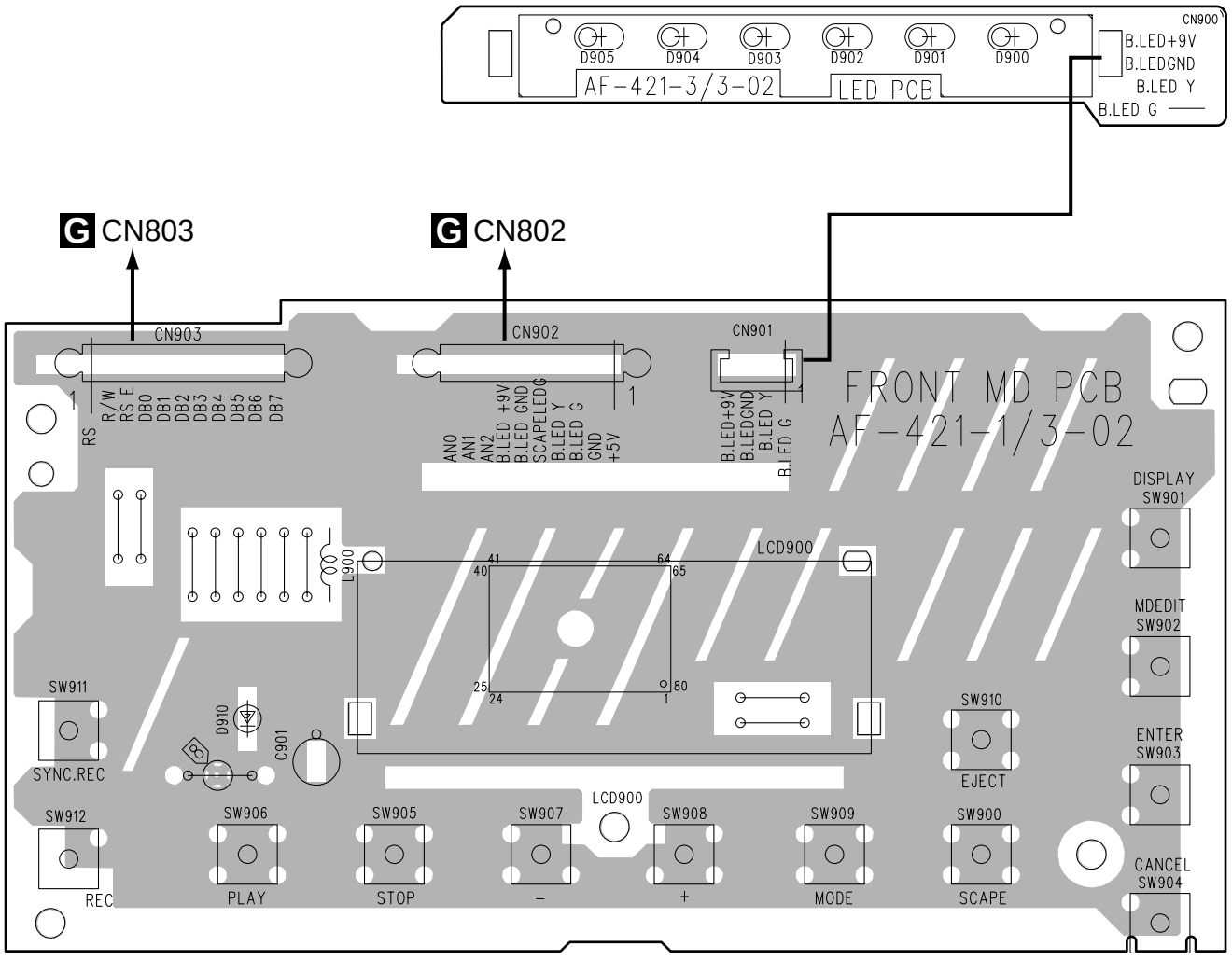
G AD/DA PCB



SIDE B

4.2.2 FRONT MD PCB

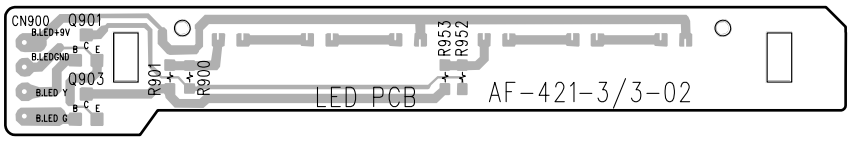
H FRONT MD PCB

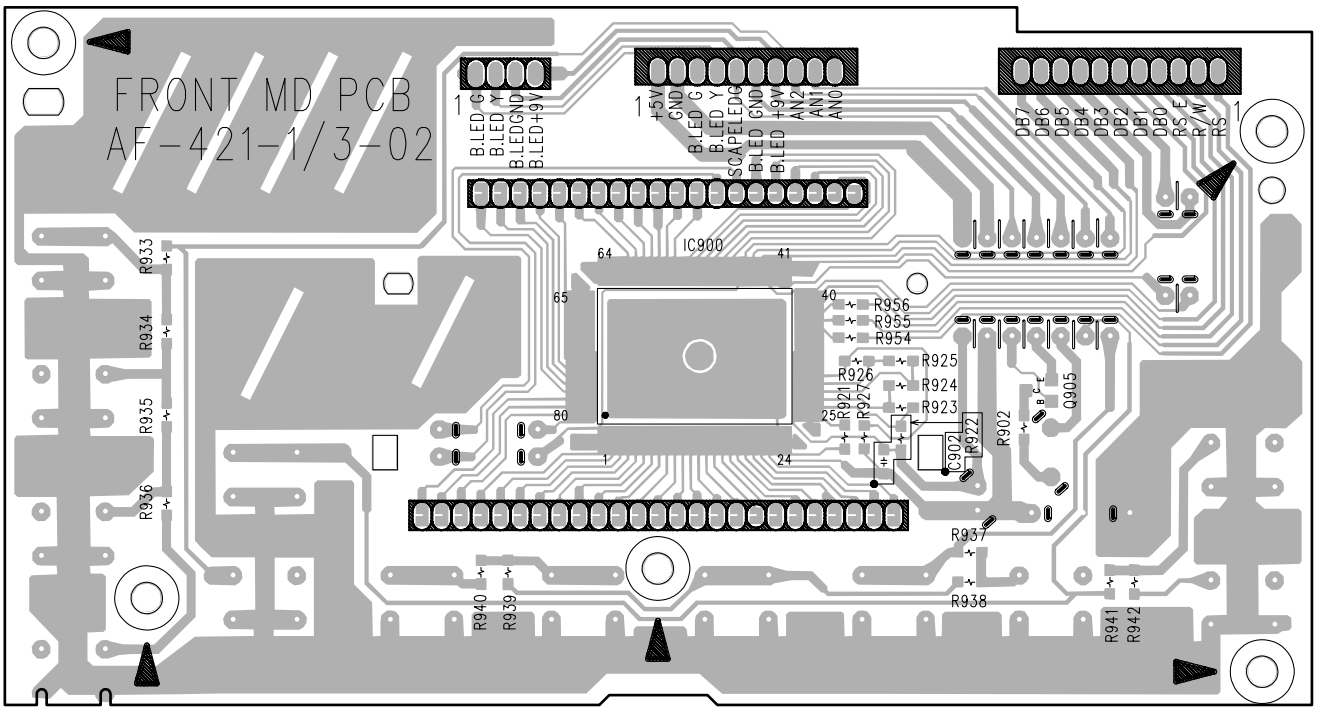


SIDE A

H FRONT MD PCB

Q901
Q903

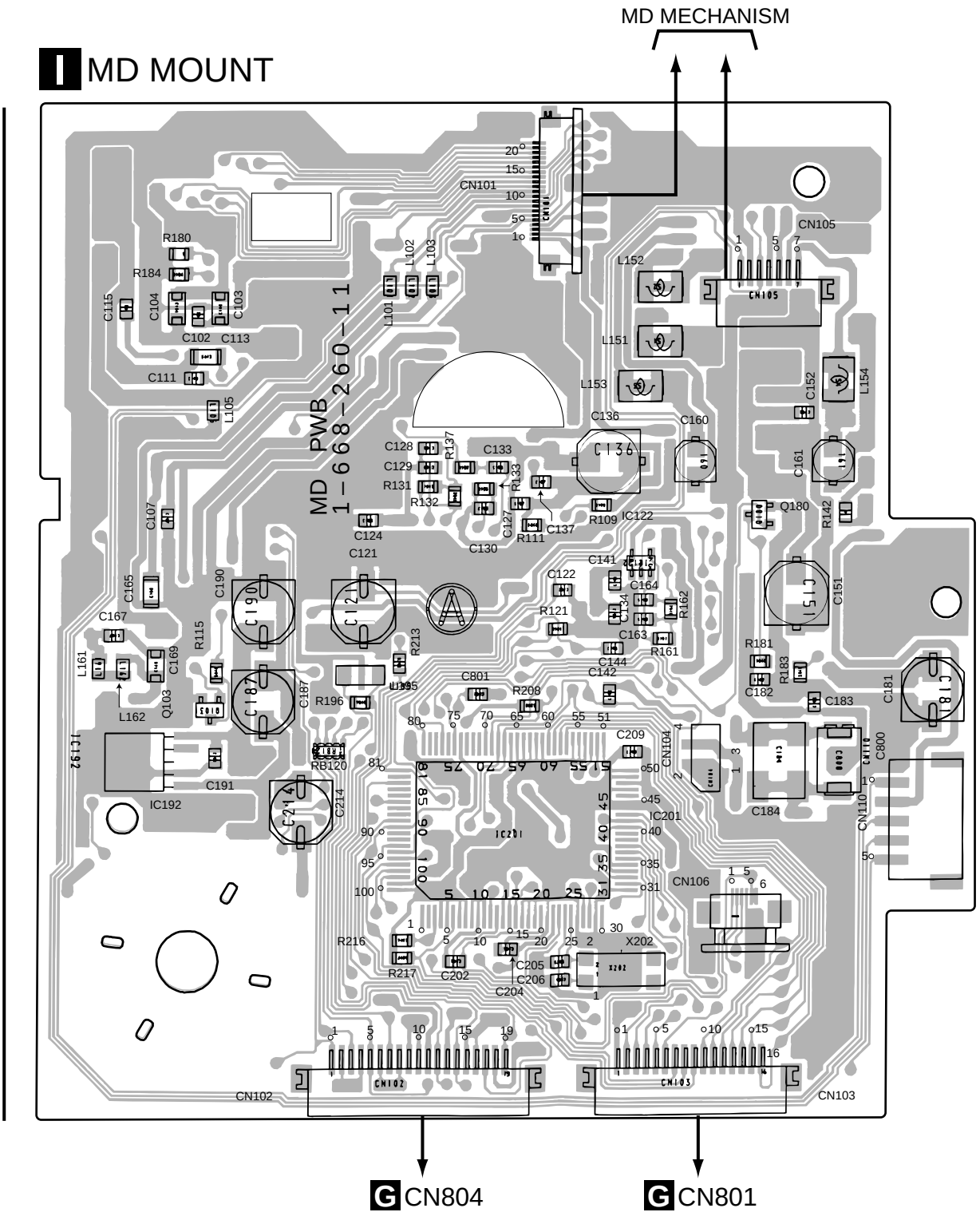




Q905

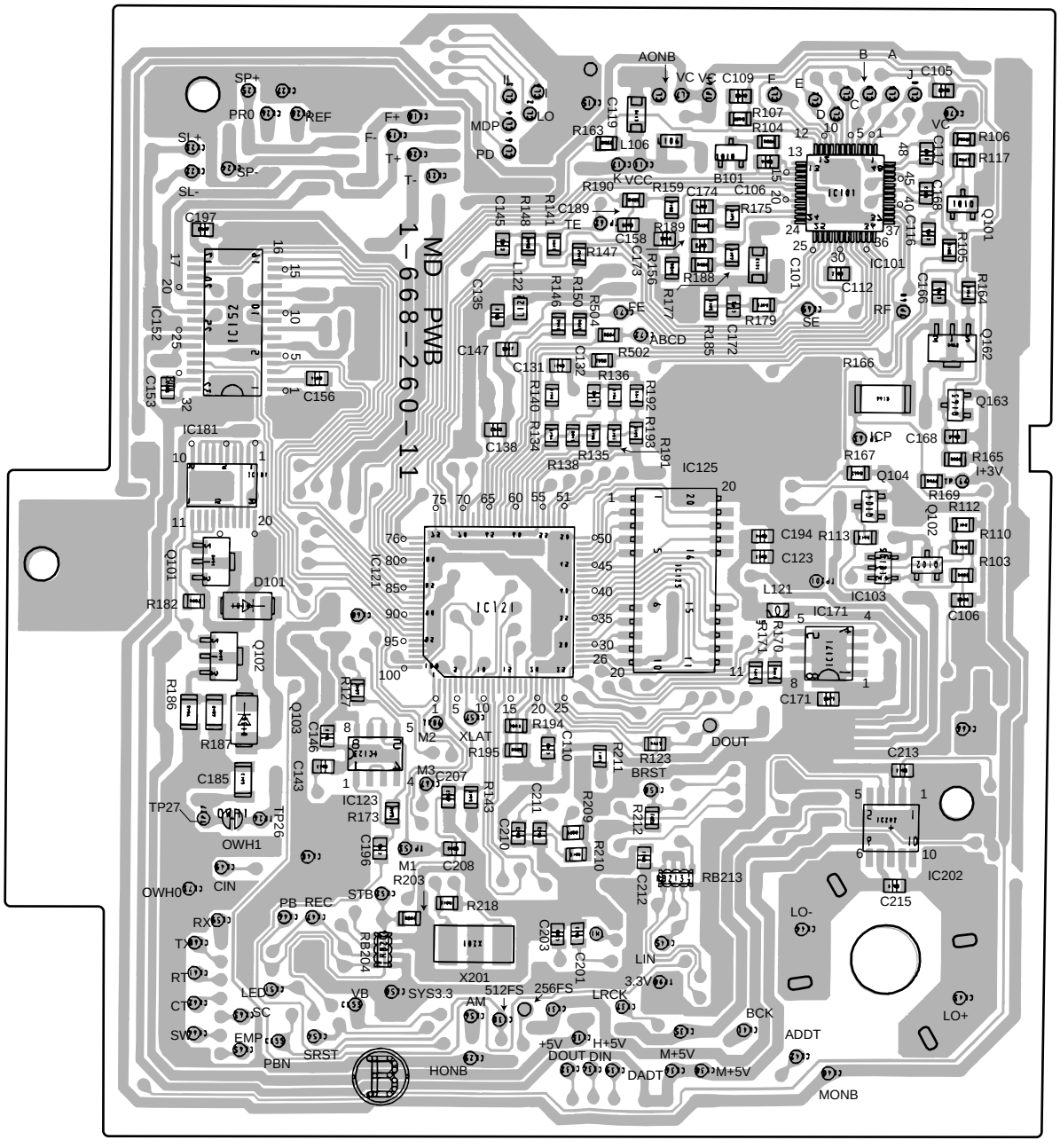
SIDE B

4.2.3 MD MOUNT



SIDE A

MD MOUNT



SIDE B

5. 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.*
●*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 ..... RD1/4PU 5 6 1 J
47k Ω → 47 × 10³ → 473 ..... RD1/4PU 4 7 3 J
0.5 Ω → R50 ..... RN2H R 5 0 K
1 Ω → 1R0 ..... RS1P 1 R 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	RECEIVER	
	├TUNER PCB	66675
	├CD PCB	66786
	├AMP COMBI PCB	66789
	│ ├POWER PCB	• • • • •
	│ ├FUSE PCB	• • • • •
	│ └HEADPHONE PCB	• • • • •
	├FRONT CD PCB	66788
	└CD MECHANISM ASSY	61417
NSP	MD RECORDER	
	├MD COMBI PCB	66785
	│ ├AD/DA PCB	• • • • •
	│ └FRONT MD PCB	• • • • •
	└MD MECHA.	KMK-260AAB
	├MD MOUNT	A-4917-020
	├L-SW PWB	1-668-261-11
	└D-SW PWB	1-668-262-11

A TUNER PCB

SEMICONDUCTORS

IC101,IC103 (TC9260P)	52189
IC2 (BA1450S)	52190
IC102 (BH3854AS)	52192
IC3 (BU2614)	52193
U1	TFFJ2U581A
IC100	TC4052BP
Q7	2SK118GR
Q4	2SA1037AK
Q10,Q201	2SA933S
Q101-Q104,Q200	2SC1740S
Q1,Q2,Q5,Q6,Q9,Q202	2SC2412K
Q3 (2SC2413KT146P)	54652
D6,D201-D207,D208	1SS133
D4,D5 (SVC234)	57712
D2 (SVC384)	57713
D1,D3	DA204K
D7-D10 (RB721Q)	51435

COIL AND FILTER

L1	AM ANT	839741
L2	AM OSC	839739
L7	FM DET	839737
T1	AM IFT	839740
L100-L104	AXIAL INDUCTOR	LAU2R2J
C13	CHIP INDUCTOR LK2125	52411

CAPACITORS

C20,C32 (0.047µF/2V)	56514
C8,C12,C36,C209 (10µF/16V)	57213
C4,C38,C75,C210,C212 (22µF/16V)	57216
C50	CCPUSL180J50
C43,C44	CCSQCH220J50
C9,C15,C55	CCSQSL101J50
C73,C74	CCSQSL151J50
C23	CCSQSL2R0C50
C22	CCSQSL3R0C50
C2	CCSQUJ220J50
C7,C30,C201,C202,C205,C208	CEAT101M10
C213,C215	CEAT101M10
C6,C11,C31	CEAT1R0M50
C107,C108	CEAT2R2M50
C1	CKSQYBJ104K50
C34	CEAT3R3M50
C203,C206	CEAT470M10
C101-C106,C109-C112,C121,C122	CEAT4R7M50
C127,C128,C214,C221	CEAT4R7M50
C33,C211	CEATR22M50
C223-C225	CKPUYB101K50
C51,C220,C222	CKPUYB102K50
C53,C204,C226	CKPUYF104Z50
C20,C32,C207	CKPUYF473Z50
C49,C52,C200	CKPUYY103M16
C16,C17,C40	CKSQYB102K50
C5,C25-C28,C35,C37,C39,C41,C42	CKSQYB103K50
C115,C116,C123,C124	CKSQYB152K50
C71,C72	CKSQYB153K50
C45	CKSQYB331K50
C10	CKSQYB682K50
C54,C117,C118,C125,C126	CKSQYF104Z50
C14,C24,C29	CKSQYF223Z50
C3	CQHA391J50
C133,C134	CQMBA103J50
C216	CQMBA223J50
C129-C132	CQMBA683J50
TC1 TRIMMER CAPACITOR	TZ03Z100ER

Mark	No.	Description	Part No.
RESISTORS			
	L8		RD1/8PU101J
	R220,R221		RD1/4PU102J
	R107		RD1/4PU153J
	R108		RD1/8PU153J
	R201,R211,R223,R224		RD1/8PU103J
	R45		RD1/8PU222J
	R8		RD1/8PU103J
	R101-R104		RD1/8PU273J
	R119,R120,R200		RD1/8PU104J
	R121,R122		RD1/8PU152J
	R105,R106,R213		RD1/8PU472J
	R222		RD1/4PU472J
	R205-R207		RD1/8PU471J
	R42,R43,R111-R118,R202		RD1/8PU473J
	R210		RD1/8PU680J
	R123,R124,R129,R130		RD1/8PU682J
	R212		RD1/8PU272J
	Other Resistors		RS1/10S□□□J
OTHERS			
	FIL3,FIL4	CERAMIC FILTER SFE10	50508A
	FIL1	CERAMIC FILTER SFU45	50518
	CN102	CONNECTOR (53254-0910)	51037
	CN101	CONNECTOR (5268-10A)	51038
	CN103	CONNECTOR (53253-1010)	51039
	CN100	4P CABLE HOLDER	51048-0400
	J100	PIN JACK YKC21-3035	52526
	CN5	PUSH TERMINAL YKD21	60243
	X1	CRYSTAL DT-381 (75kHz)	60244
		4P CONNECTOR ASSY	66769

B CD PCB

SEMICONDUCTORS

	IC400 (AN8806SB)	52103
	IC401 (BA6299FP)	52118
	IC402 (MN662741RHM)	52187
	Q400	2SA1037K
	Q402,Q403	2SC2412K
	Q401 (2SB1561)	54651
	D401,D402	DAN202K

CAPACITORS

	C421 (0.1µF/25V)	56517
	C436 (0.33µF/25V)	56549
	C453-C455 (10µF/16V)	57212
	C414 (22µF/16V)	57112
	C439	CCSQCH100J50
	C438	CCSQCH120J50
	C450	CCSQSL221J50
	C423,C457,C458	CCSQSL101J50
	C410	CCSQSL331J50
	C403,C404	CCSQSL471J50
	C411	CKSQYB473K50
	C419	CCSQSL5R0J50
	C407	CEAT101M10
	C433	CEAT102M25
	C422	CEAT1R0M50
	C418,C430,C441,C442,C447	CEAT221M10
	C408	CEAT2R2M50
	C448	CEATR47M50
	C400,C401,C434	CKSQYB102K50
	C415,C416,C449	CKSQYB103K50
	C409	CKSQYB122K50
	C435	CKSQYB123K50
	C417,C425,C426,C428	CKSQYB222K50
	C412,C427,C429	CKSQYB223K50
	C413,C424,C451,C452	CKSQYB273K50
	C402,C440	CKSQYF104Z50
	C405,C412,C420,C427	CKSQYF223Z50
	C431,C432,C437,C443,C445,C446	CKSQYF223Z50

RESISTORS

	All Resistors	RS1/10S□□□J

OTHERS

	X400	RESONATOR CSA16.93MHz	60266
	424	CD PCB	66786
	CN400	CONNECTOR 52043-1810	51014
	CN406	CONNECTOR 53254-1210	51032
	CN401-CN403		51033
		CONNECTOR S2B-PH-K-S	
	CN407	CONNECTOR 53254-0310	51034
	CN404	CONNECTOR 53254-0410	51035
	CN405	CONNECTOR 53254-0610	51036

C D E AMP COMBI PCB

SEMICONDUCTORS

	IC300 (BA5412)	52115
	Q300,Q303,Q305,Q311	2SA933SR
	Q301,Q304,Q310,Q312,Q314	2SC1740SR
	Q302,Q309,Q313 (2SB1370F)	54610
	Q315 (2SD2061F)	54624
	D301,D305,D306,D314,D315	1SS133
	D318	1SS133
	D317	MTZJ10A
	D302,D307	MTZJ5.1B
	D310-D313	RL201

CAPACITORS

	C312,C324,C328 (10µF/25V)	57212
	C301,C320	CEAT101M10
	C325	CEAT101M25
	C305,C361,C362	CEAT102M25
	C327,C351,C352	CEAT1R0M50
	C310,C321	CEAT221M10
	C308	CEAT221M25
	C302,C311	CEAT2R2M50
	C314	CEAT332M25
	C303,C313,C357-C360	CEAT470M16
	C306	CEAT4R7M50
	C300,C315-C319,C322,C323	CKCYF103Z50
	C353,C354	CKPUYB561K50
	C329	CKPUYF104Z50
	C355,C356	CQMBA104J50

RESISTORS

	R355,R356	RD1/2PU331J
	Other Resistors	RD1/8PU□□□J

Mark	No.	Description	Part No.
OTHERS			
		FUSE HOLDER FH-V-0307	51606
	J302	HEADPHONE JACK	52513
	J303	1P PIN JACK YKB11-0940	52527
	J301	PUSH TERMINAL 4P	60246
		AC TERMINAL	66745
		AMP COMBI PCB	66789
		AMP PCB	66789A
		FUSE PCB	66789B
		H/P PCB	66789C
	CN303	CONNECTOR 53254-1210	51032
	CN301	CONNECTOR 5268-12A	51040
	CN305	CONNECTOR 5129-5A	51041
	CN302	6P CONNECTOR ASSY	66768
	CN306	3P CONNECTOR ASSY	66771
	CN300	10P CONNECTOR ASSY	66777
		5P CONNECTOR	66767
	CN304	CABLE HOLDER (5P)	51052-0500

F FRONT CD PCB

SEMICONDUCTORS

IC501 (CXP83232A)		52206
Q508,Q509,Q511,Q512		2SC2412K
Q507,Q510 (DTA114YKAT146)		54653
Q501,Q503,Q505		DTC114YK
D500-D505 (SLA380MT3F)		52907
D511 (SLR342MCTE7)		52908
D510 (SLR342DCTE7)		52909
D512 (SLR342VCTE7)		52910

SWITCHES

SW500-SW518 (SOA-111HS)		53426

COILS

L501,L502 AXIAL INDUCTOR (10µH)		LAU100J

CAPACITORS

C504,C505 (30pF/50V)		56560
C527 (10µF/16V)		57213
C500-C503,C506-C526		CCSQSL101J50
C530,C534		CCSQSL560J50
C537		CEAT101M10
C528		CEAT471M10
C529,C532,C535,C536,C539,C543		CKSQYB102K50
C538,C540-C542,C546		CKSQYB103K50

RESISTORS

All Resistors		RS1/10S□□□J

OTHERS

X501	RESONATOR CSTCS (4.19MHz)	50524	
LCD500	LCD KSG4149(FTN)	52716	
IC500	REMOTE CONTROL RECEIVER		60124
X500	CRYSTAL QRT-26 (32.76kHz)	60245	
	LCD HOLDER	66727	
	LCD SHEET	66756	
	FRONT CD COMBI PCB	66788	
	FRONT CD PCB	66788A	
	LED PCB	66788B	

Mark	No.	Description	Part No.
	CN504	CONNECTOR 53253-0410	51029
	CN500	CONNECTOR 53254-0210	51032
	CN503	CONNECTOR ASSY (12P)	66764
	CN501	CONNECTOR ASSY (12P)	66765
	CN502	CONNECTOR ASSY (9P)	66766
	CN505	4P CONNECTOR	66770
	CN506	2P CONNECTOR	66772

G H MD COMBI PCB ASSY

SEMICONDUCTORS

IC800 (CXP84632-128Q)		52181
IC900 (NJU6408BFC1-01A)		52182
IC801 (AK4518-VF-E2)		52186
IC802,IC803		TC7SU04F-TE85L
Q803,Q805		2SA1037K
Q801,Q802,Q804,Q806,Q807		2SC2412K
Q881,Q882		2SC2412K
Q901,Q903,Q905		DTC114YK
D900-D905 (SLA380MT3F)		52907
D801		DA204K
D910		SLR342MCTC7
D802		DAN202K

COILS AND FILTERS

L817,L818 INDUCTOR (LAN04KB4R7K)		52407
L803-L806,L820,L821 CHIP INDUCTOR		BK2125HM102
L800-L802		LAU100J
L807,L814-L816,L819 (LAN02TA2R2)		52408
L822,L823	FERRITE BEADS	FBA04VA600AB

SWITCHES

SW900-SW912 (SOA-111HS)		53426

CAPACITORS

C831,C833,C848 (10µF/16V)		57213
C811-C814,C816,C817,C820-C824		CCSQSL101J50
C825,C826,C850,C851		CCSQSL180J50
C837,C901		CEAT101M10
C846		CEAT1R0M50
C887		CCSQSL221J50
C836		CEAT2R2M50
C847		CEAT470M10
C818,C844		CEAT471M10
C827,C835,C839,C841,C845,C881		CEAT4R7M50
C882		CEAT4R7M50
C885		CKPUYF104Z50
C849		CEATR47M50
C853,C856,C858,C886		CKSQYB102K50
C819,C828,C834,C902		CKSQYB103K50
C829,C830,C832,C838,C840,C842		CKSQYF104Z50
C815,C852,C854,C855,C857,C903		CKSQYF104Z50

RESISTORS

All Resistors		RS1/10S□□□J

Mark	No.	Description	Part No.
OTHERS			
	X802	RESONATOR CSA12.0MTZ	50523
	CN902	10P CABLE HOLDER	51048-1000
	CN903	11P CABLE HOLDER	51048-1100
	CN807	1P PIN JACK YKB11-0940	52525
	LCD900	LCD KSG4148S(STN)	52715
	CN801	16P FFC CONNECTOR	VKN1192
	CN804	19P FFC CONNECTOR	VKN1195
	CN802	WIRE TRAP 10P	60237
	CN803	WIRE TRAP 11P	60239
	X801	CRYSTAL HC49US (22.5792MHz)	60240
		FERRITE BEAD FBA04	60241
		LCD HOLDER	66727
		LCD SHEET	66756
		11P FLAT CABLE	66773
		10P FLAT CABLE	66774
		MD COMBI PCB	66785
		FRONT MD PCB	66785A
		AD/DA PCB	66785B
		LED PCB	66785C
	CN901	CONNECTOR 53253-0410	51029
	CN805	12P CONNECTOR ASSY	66763
	CN900	4P CONNECTOR ASSY	66770
	CN806	10P CONNECTOR ASSY	66778

I MD MOUNT (Reference Information)

SEMICONDUCTORS

	IC122	TC7S08F
	IC123	TC7WU04F
	IC101 (CXA2523AR)	8-752-080-95
	IC121 (CXD2652AR)	8-752-384-47
	IC202 LB1638MTE-L	8-759-099-79
	IC125 (MSM51V4400-70TS-K)	8-759-334-38
	IC192 (L88MS33T-TL)	8-759-426-95
	IC152 (BH6511FS-E2)	8-759-430-28
	IC171 (BR24C01AF-E2)	8-759-484-73
	IC181 (TC74ACT540FT)	8-759-523-48
	IC201 (RU8X12MF-0020)	8-759-524-58
	Q101	DTA144EK
	Q103	DTC114EK
	Q102	2SA1037K
	Q182 (2SK1764KY)	8-729-017-55
	Q181 (2SJ278MYT)	8-729-018-76
	Q162 (2SB798-T1)	8-729-103-85
	IC103 (FMW1-T-14)	8-729-803-11
	D181 (F1J6TP)	8-719-046-86
	D101 (DAN202K-T-146)	8-719-914-47

COIL

	L101	FERRITE BEED INDUCTOR	1-414-235-21

CAPACITORS

	C142	CCSQCH101J50
	C106	CCSQCH102J50
	C105	CKSQYB103K50
	C117	CKSQYB104K25
	C131	CKSQYB153K50
	C116	CKSQYB223K50
	C115	CKSQYB224K16
	C189	CKSQYB333K25
	C112	CKSQYB472K50
	C158	CKSQYB682K50
	C111	CKSQYB683K25
	C107	CKSQYF104Z25

RESISTORS

	R SQA TYPE CHIP CONDUCTOR	1-216-295-91
	R SQA TYPE CHIP RESISTOR (1Ω, 1/8W)	1-217-806-91
	R163 METAL COATING RESISTOR (1Ω, 1/4W)	1-219-724-91
	R213 CHIP NETWORK RESISTOR (10kΩ×4)	1-233-415-21
	R120 CHIP NETWORK RESISTOR (100Ω×4)	1-233-575-21
	R204 NETWORK RESISTOR (100kΩ×4)	1-233-810-21
	R166 SQA TYPE CHIP RESISTOR (2.2Ω, 1/2W)	1-240-032-91
	Other Resistors	RS1/10S□□□J

OTHERS

	CN101 FFC/FPC CONNECTOR 21P	1-691-385-21
	CN106 FFC/FPC CONNECTOR 6P	1-768-338-21
	CN103 FFC/FPC CONNECTOR 16P	1-770-425-11
	CN110 CONNECTOR PIN 5P	1-774-731-21
	CN104 FFC/FPC CONNECTOR 4P	1-778-289-11
	CN102 FFC/FPC CONNECTOR 19P	1-778-460-11
	CN105 FFC/FPC CONNECTOR 7P	1-779-345-11
	X202 CERAMIC RESONATOR (32.768kHz)	1-760-174-41
	X201 X"TAL RESONATOR (12MHz)	1-780-872-21

L-SW PWB (Reference Information)

OTHERS

	FFC/FPC CONNECTOR 6P	1-768-338-21
	PUSH SWITCH(1KEY)	1-771-082-21
	PUSH LEVER SW(1KEY)	1-771-326-11

D-SW PWB (Reference Information)

OTHERS

	2PIN PUSH SW(2KEY)	1-771-327-11
	FFC/FPC CONNECTOR 7P	1-779-345-11

6. ADJUSTMENT

6.1 CD SECTION

Note : There is no information to be shown in this section.

6.2 MD SECTION

Note : There is no information to be shown in this section.

6.3 TUNER SECTION

6.3.1 FM Tuner Section

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

Step No.	Adjustment Title	FM SG (1kHz, ± 75kHz dev.)		Reception Frequency Display	Adjustment Location	Specifications
		Frequency (MHz)	Level (dBμV)			
1	DET. waveform Coil Adjustment	98	60	98MHz	L7	• Adjust L7 so that the voltaghe between TP8 (+) and TP9 (–) becomes 0V ± 50mV. • Check the waveform with the oscilloscope, and confirm so that the output level is about –11 ± 2dBV and THD is about 0.5 ± 0.1%. Confirm that the "TUNE" indicator in the LCD is turned on.

6.3.2 AM Tuner Section

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

Step No.	Adjustment Title	AM SG (400Hz, 30% Mod.)		Reception Frequency Display	Adjustment Location	Specifications
		Frequency (kHz)	Level (dBμV/m)			
1	Vt (Tuning Voltage Adjustment)	530 1700	– –	530kHz 1700kHz	L2 –	• Adjust L2 so that the voltage between TP6 (+) and TP7 (–) becomes 1.0V. • Set the reception frequency to 1700 kHz and confirm that the voltage is about 6.6V.
2	IFT Adjustment	1000	S/N about 10dB	1000kHz	T1	1. Connect an electrolytic capacitor of about 10μF to TP9 (TP9 side is +), and terminate with TP10 by a resistor of about 47kΩ. Connect the sweep input to the both ends of terminated resistor. 2. Adjust T1 so that the marker of 450kHz ± 3kHz becomes the same level (single-peak characteristic of IF becomes symmetrical). 3. Input 74dBμV from the SSG, confirm the waveform of output signal so that the output level is –27V ± 2dBV and THD is about 1 ± 0.5%. And confirm that the "TUNE" indicator in the LCD is turned on.
3	Tracking Adjustment	600 1400	50 (S/N about 10dB)	600kHz 1400kHz	L1 TC1	Connect an oscilloscope to TP3 (L) and TP4 (R), and adjust L1 (600kHz) and TC1 (1400kHz) repeatedly so that the output level becomes maximum.

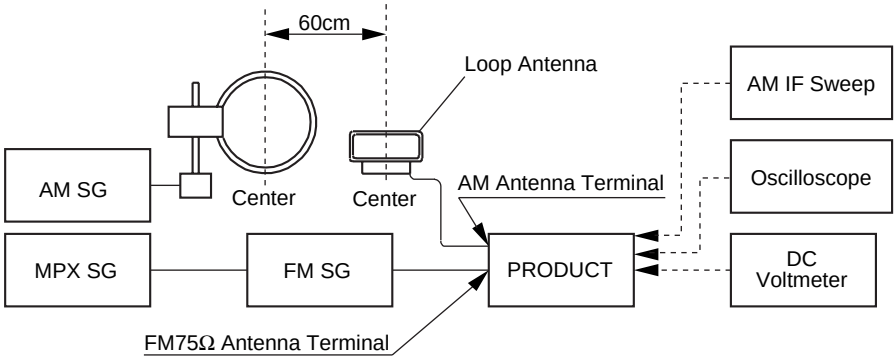


Fig.1 Adjustment Wiring Diagram

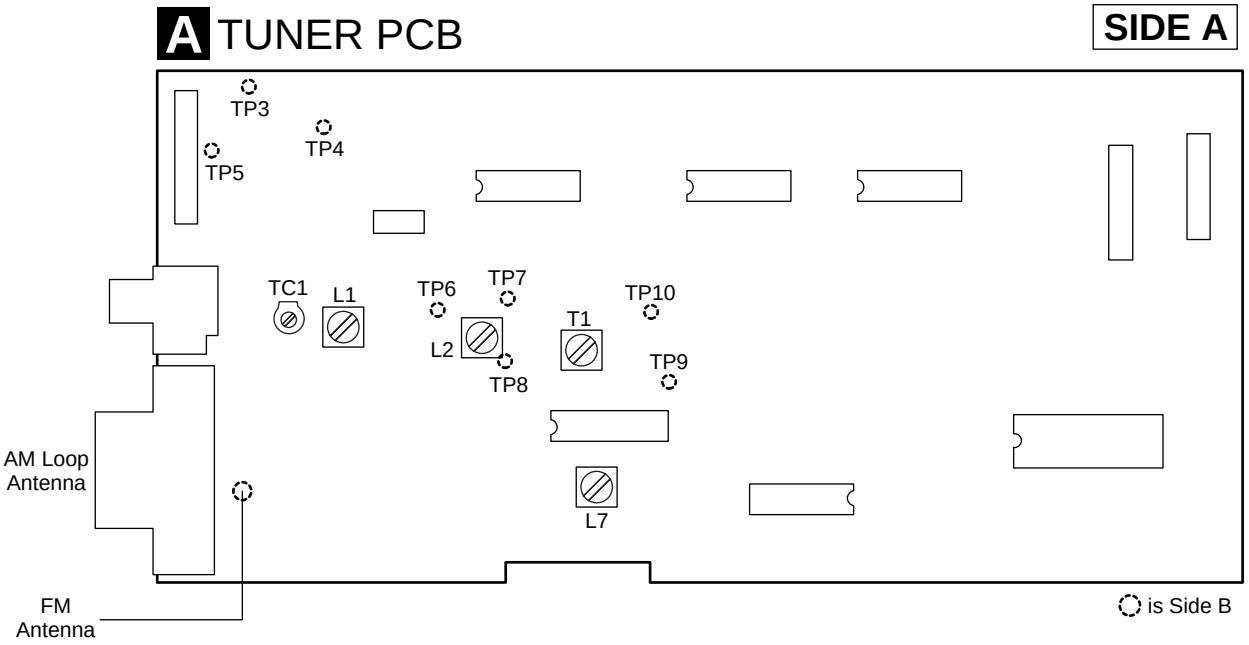


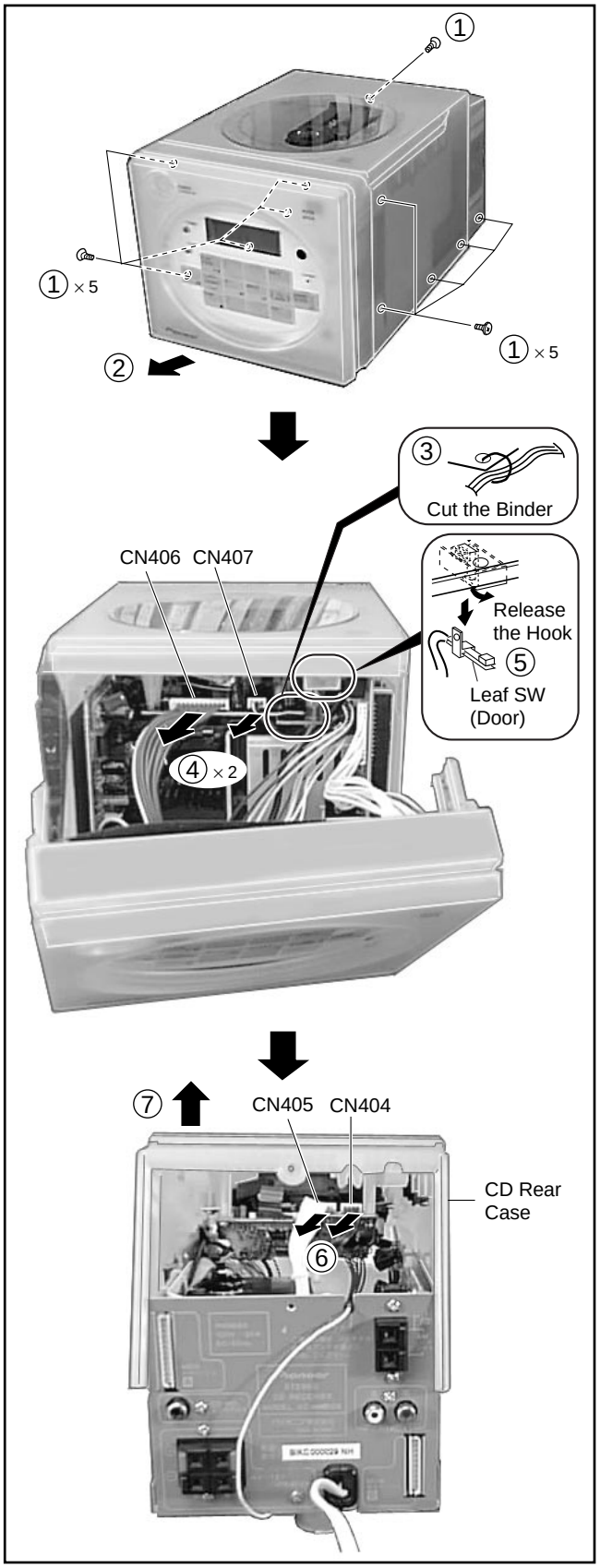
Fig.2 Adjustment Point

7. DIAGNOSIS

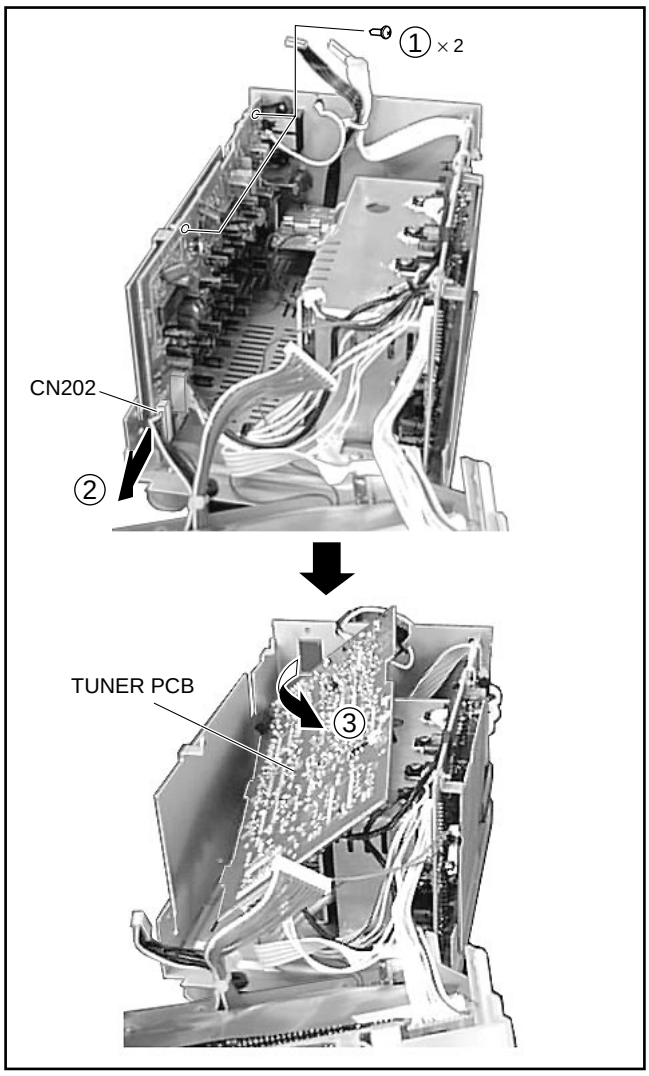
7.1 DISASSEMBLY

7.1.1 CD RECEIVER

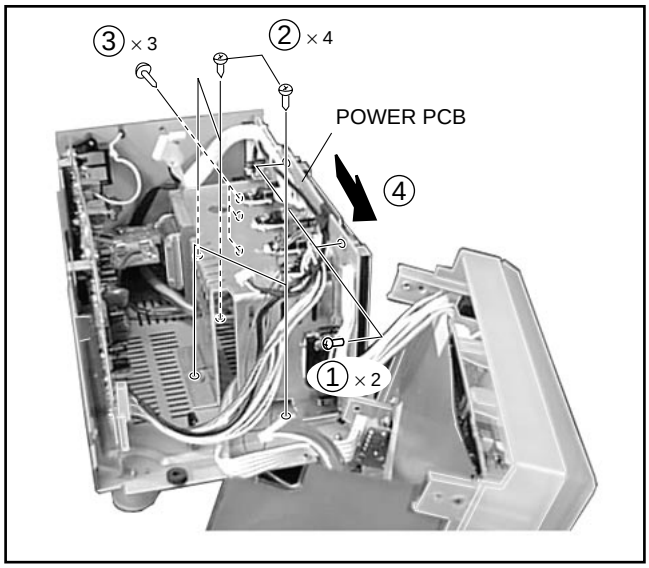
CD REAR CASE



TUNER PCB

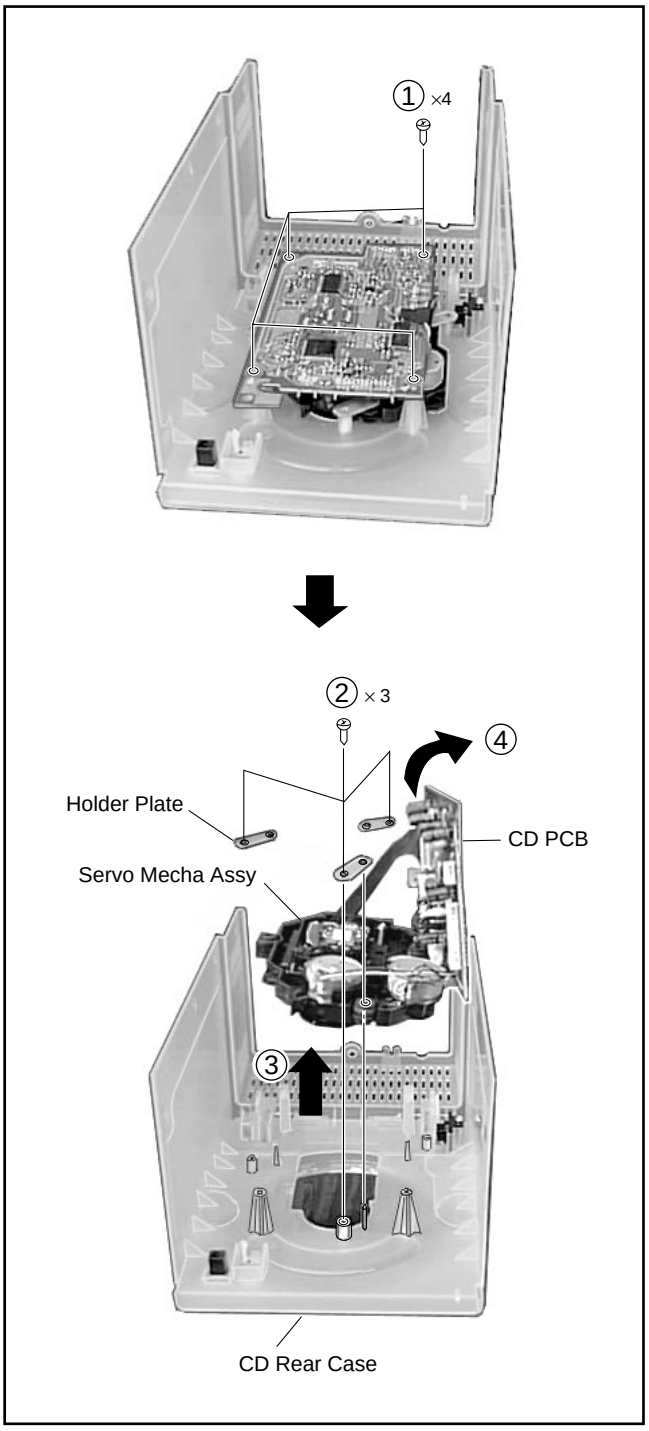


POWER PCB

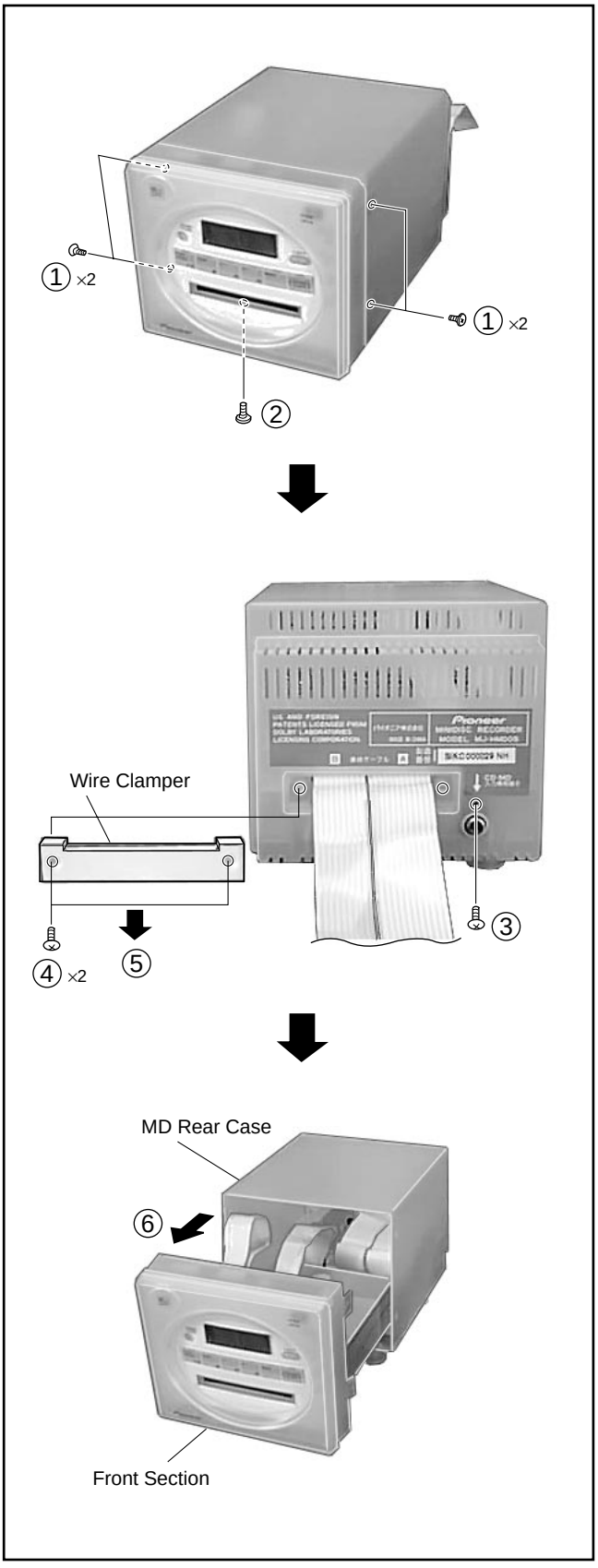


7.1.2 MD RECORDER

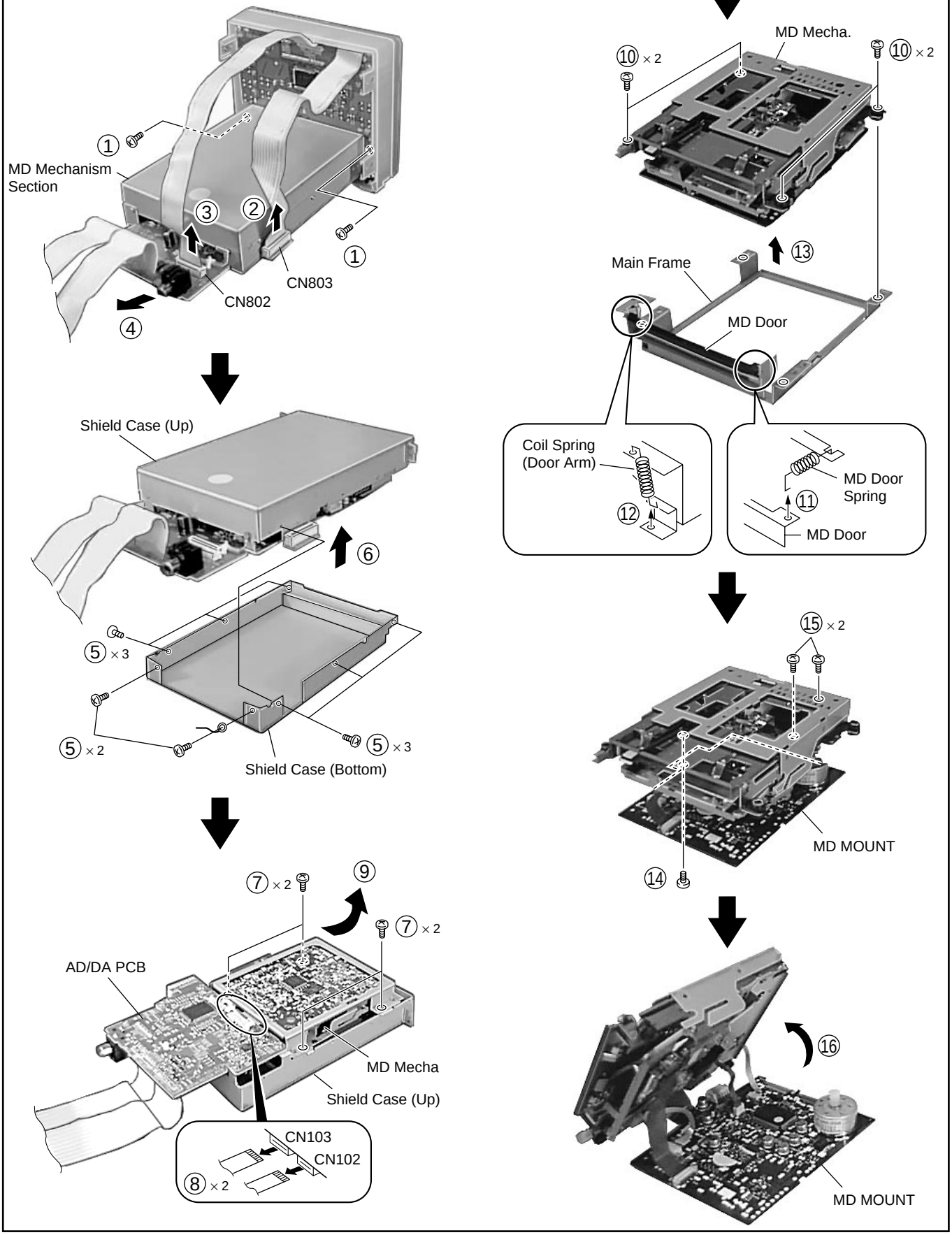
CD MECHANISM ASSY



MD REAR CASE



MD Mechanism Section



7.2 PARTS

7.2.1 IC

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

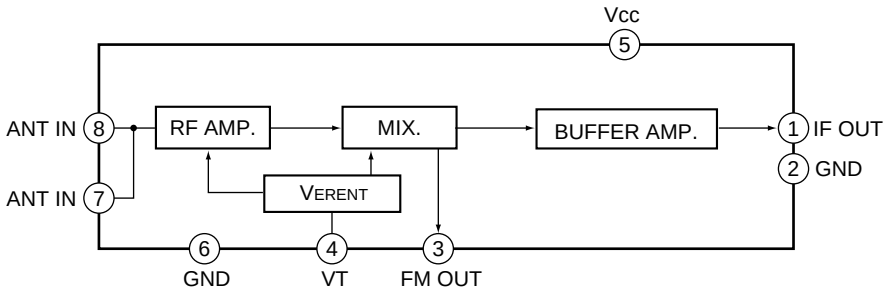
● List of IC

TFFJ2U, 52193 (BU2614), 52192 (BH3854AS), 52103 (AN8806SB), 52118 (BA6299FP), 52187 (MN662741RHM), 52194 (CXP83124A), 52186 (AK4518-VF-E2)

■ TFFJ2U (TUNER PCB : U1)

• FM Front End

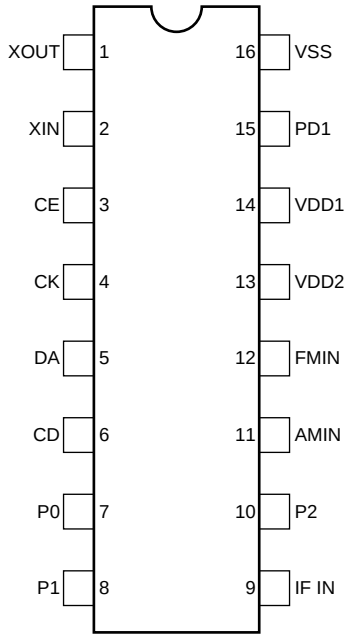
● Block Diagram



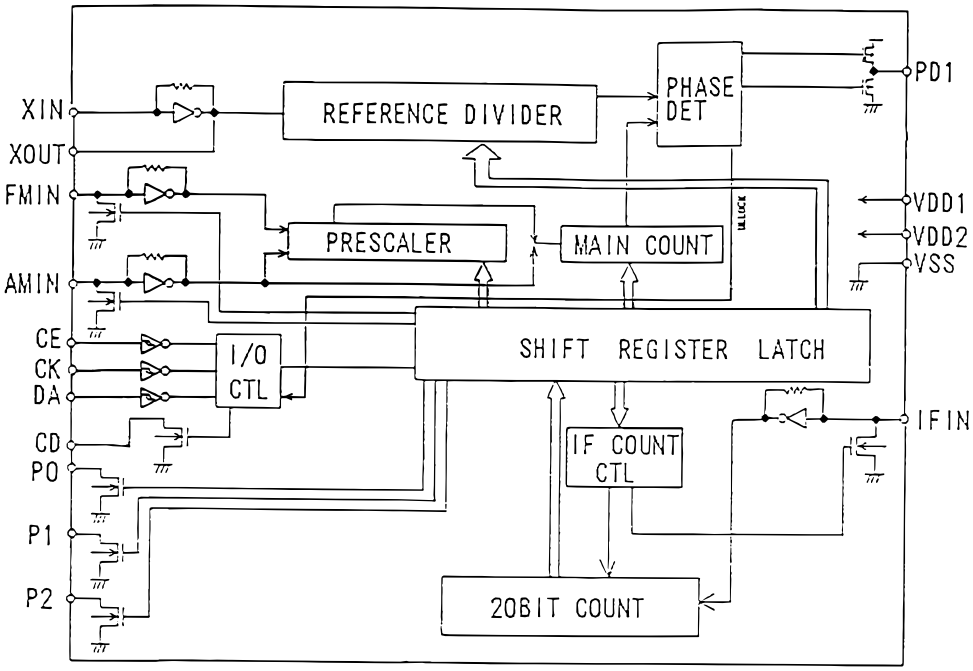
■ 52193 (BU2614) (TUNER PCB : IC3)

• PLL IC

● Pin Arrangement (Top view)



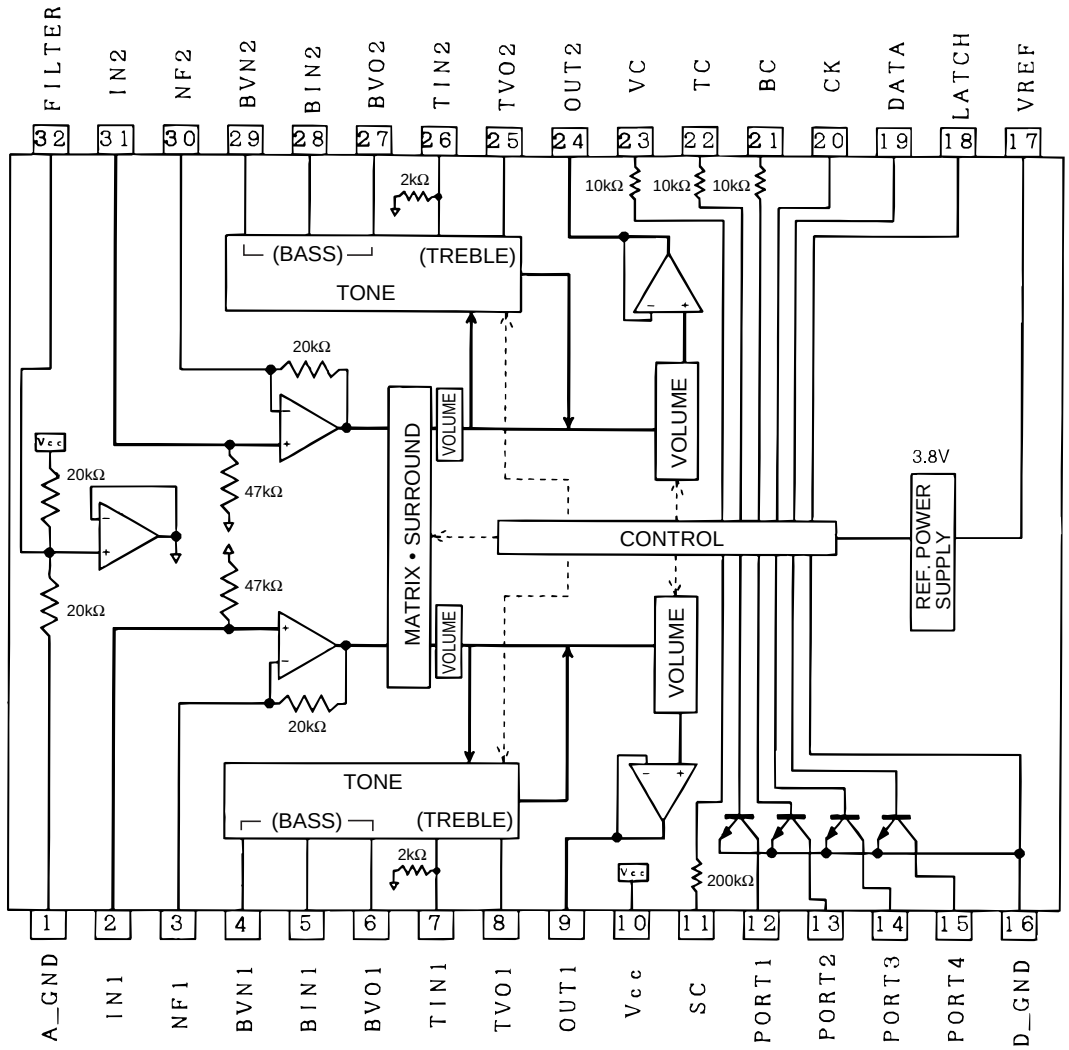
● Block Diagram



52192 (BH3854AS) (TUNER PCB : IC102)

- **Main Control and TONE Control IC**

● Block Diagram



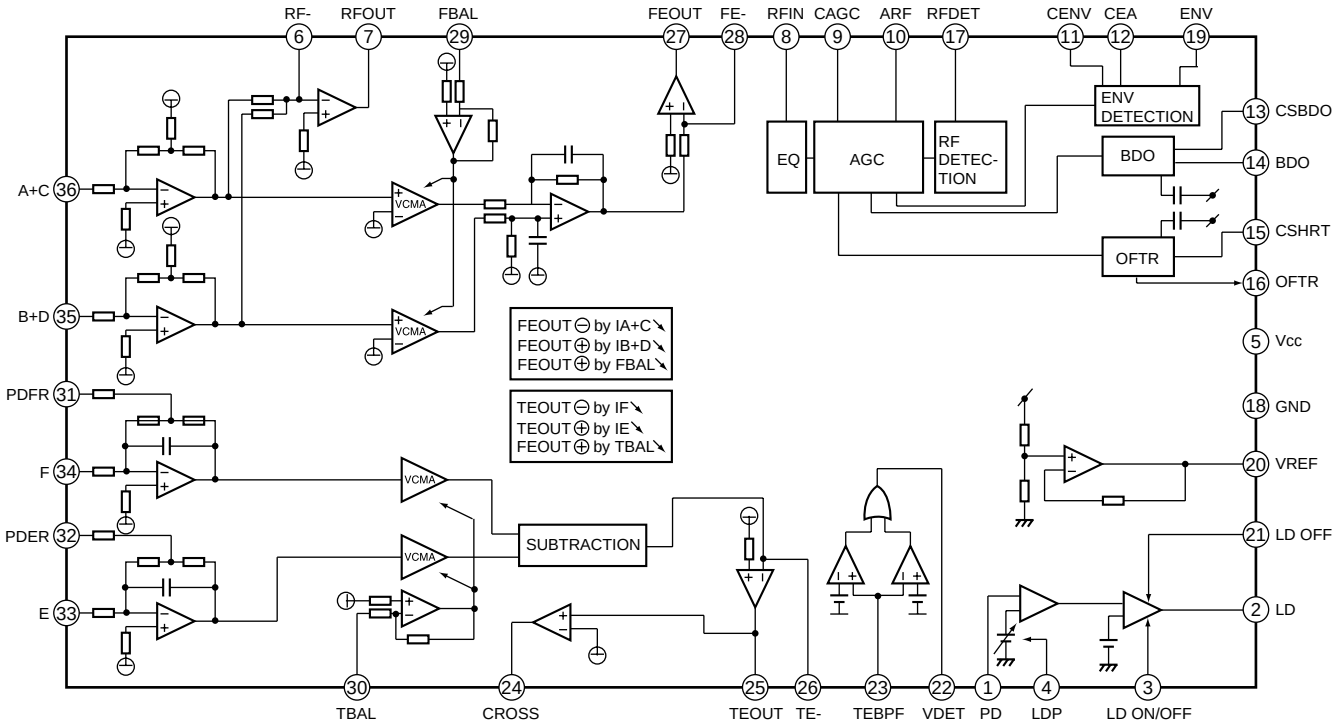
● Pin Function

No.	Pin Name	Function	No.	Pin Name	Function
1	A_GND	Analog ground	17	VREF	3.8V reference voltage output pin
2	IN1	1 ch volume input pin	18	LATCH	Latch data reception pin
3	NF1	Gain adjustment pin of input stage amp.	19	DATA	Data reception pin
4	BVN1	Pins for 1 ch low-pass filter connection	20	CK	Clock reception pin
5	BIN1		21	BC	Time constant install pins for change shock protection
6	BVO1		22	TC	
7	TIN1	Pins for 1 ch high-pass filter connection	23	VC	
8	TVO1		24	OUT2	2 ch volume output pin
9	OUT1	1 ch volume output pin	25	TVO2	2 ch high-pass filter connection pins
10	Vcc	Power supply pin	26	TIN2	
11	SC	Time constant install pin for change shock	27	BVO2	2 ch low-pass filter connection pins
12	PORT1	Port output pins	28	BIN2	
13	PORT2		29	BVN2	
14	PORT3		30	NF2	Gain adjustment pin of input stage amp.
15	PORT4		31	IN2	2 ch volume input pin
16	D_GND	Digital ground	32	FILTER	Filter pin

52103 (AN8806SB) (CD PCB : IC400)

- **Digital Servo Head Amplifier IC**

● Block Diagram



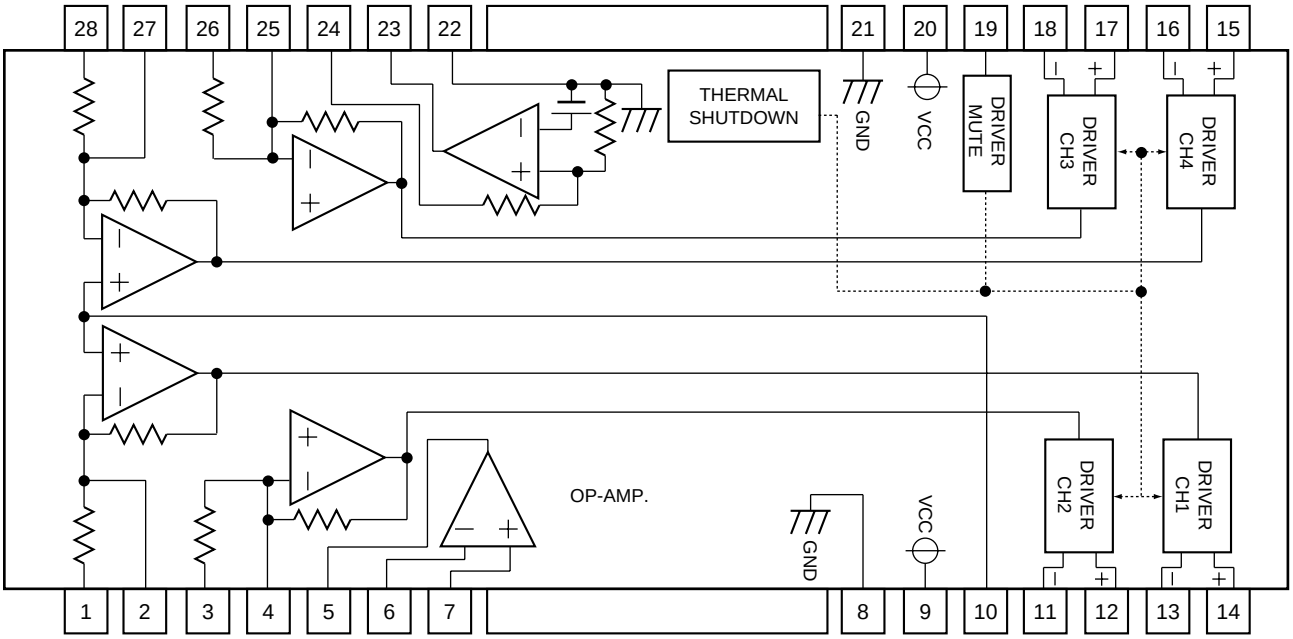
● Pin Function

No.	Pin Name	Function	No.	Pin Name	Function
1	PD	APC Amp input	19	ENV	3TENV output
2	LD	APC Amp output	20	VREF	VREF output
3	LD ON/OFF	APC ON/OFF control	21	LD OFF	APC OFF control
4	LDP	APC reference voltage setting	22	VDET	VDET output
5	Vcc	Power supply pin	23	TEBPF	VDET input
6	RF-	RF Amp inverting input	24	CROSS	CROSS output
7	RFOUT	RF Amp output	25	TEOUT	TE. Amp output
8	RFIN	AGC input	26	TE-	TE. Amp inverting input
9	CAGC	AGC loop filter connection pin	27	FEOUT	FE. Amp output
10	ARF	AGC output	28	FE-	FE. Amp inverting input
11	CENV	Capacitor connection pin for RF detection	29	FBAL	F. BAL control
12	CEA	Capacitor connection pin for HPF-Amp	30	TBAL	T. BAL control
13	CSBDO	Capacitor connection pin for RF dark side envelope	31	PDFR	I-V Amp conversion resistor adjustment
14	BDO	BDO output	32	PDER	
15	CSHRT	Capacitor connection pin for RF light side envelope	33	E	I-V Amp input
16	OFTR	OFTR output	34	F	
17	RFDET	RFDET output	35	B+D	
18	GND	Ground	36	A+C	

52118 (BA6299FP) (CD PCB : IC401)

- **CD Driver IC**

● Block Diagram



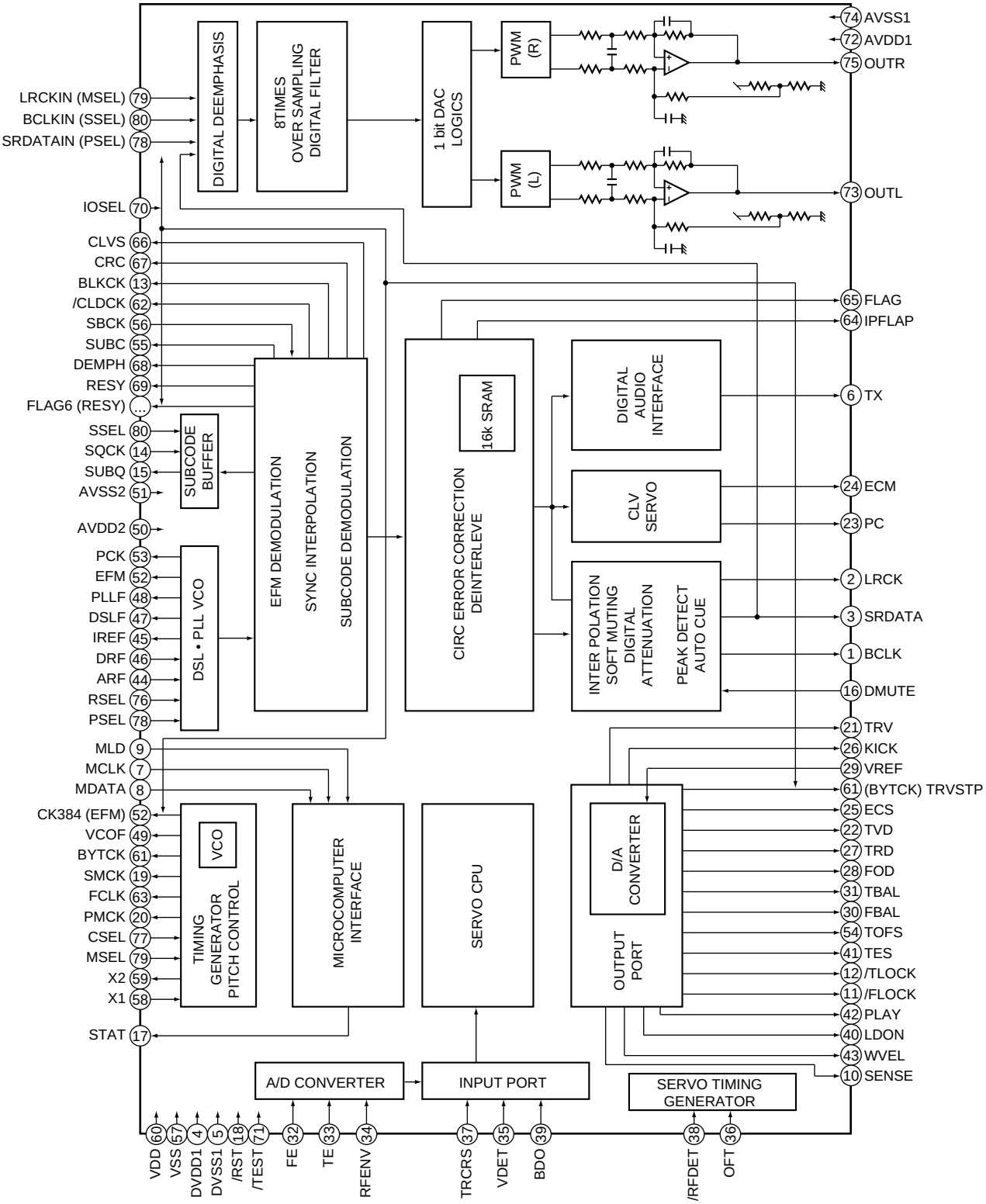
● Pin Function

No.	Pin Name	Function	No.	Pin Name	Function
1	VIN1	CH1 input	15	VO4 +	CH4 positive output
2	VIN1'	CH1 gain change	16	VO4 -	CH4 negative output
3	VIN2	CH2 input	17	VO3 +	CH3 positive output
4	VIN2'	CH2 gain change	18	VO3 -	CH3 negative output
5	OPOUT	OP Amp output	19	MUTE	Mute control
6	OPIN -	OP Amp negative input	20	VCC	VCC
7	OPIN +	OP Amp positive input	21	GND	Sub-straight GND
8	GND	Sub-straight GND	22	RGND	GND (regulator GND)
9	VCC	VCC	23	REGB	External TR base connection pin
10	BIAS	Bias input	24	REGOUT	5V output (connect a external PNP Tr collector)
11	VO2 -	CH2 negative output	25	VIN3'	CH3 gain change
12	VO2 +	CH2 positive output	26	VIN3	CH3 input
13	VO1 -	CH1 negative output	27	VIN4'	CH4 gain change
14	VO1 +	CH1 positive output	28	VIN4	CH4 input

52187 (MN662741RHM) (CD PCB : IC402)

• **DSP IC**

● **Block Diagram**



● Pin Function

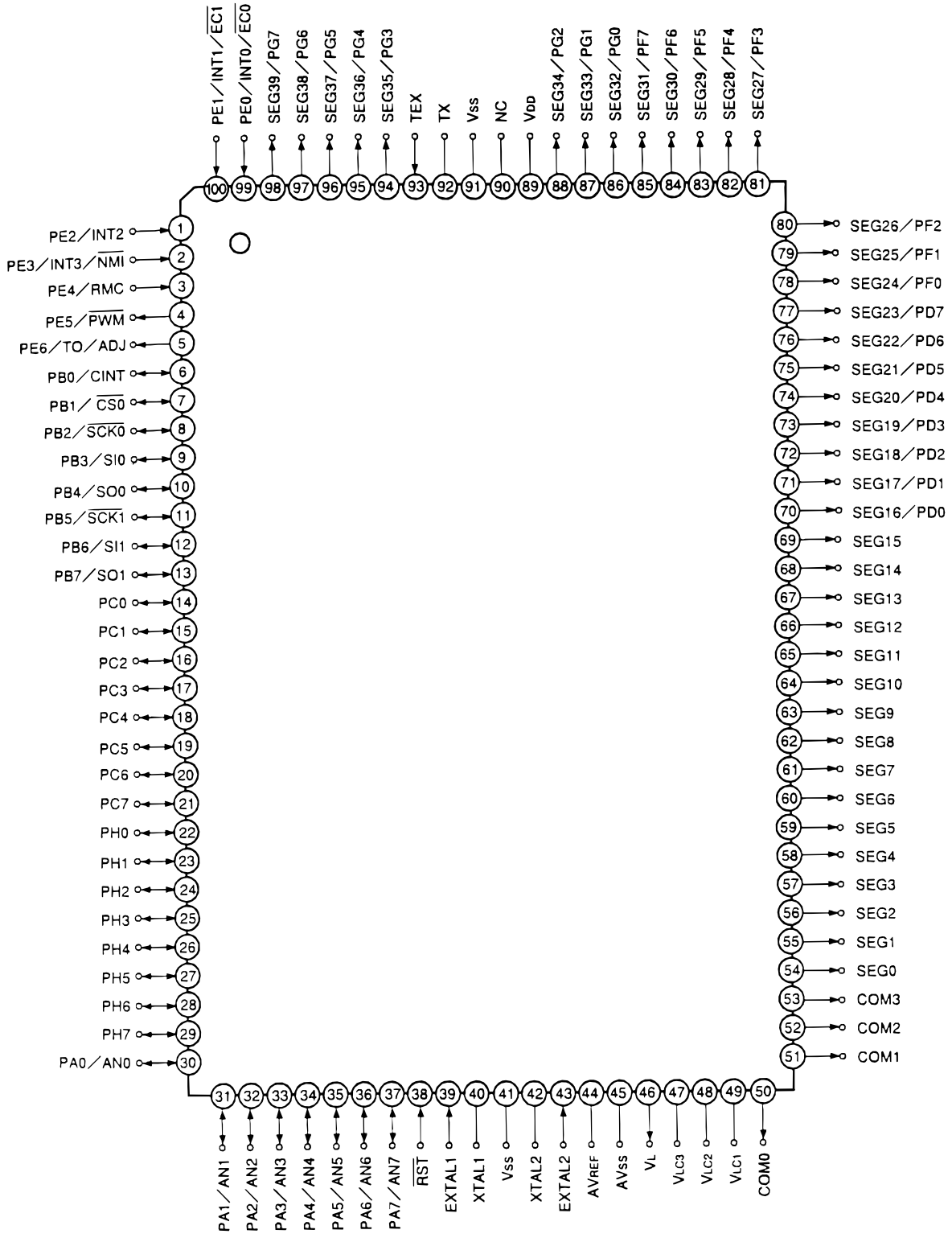
No.	Pin Name	I/O	Function	No.	Pin Name	I/O	Function
1	BCLK	O	Bit clock output for SRDATA	31	TBAL	O	Tracking balance adjustment output
2	LRCK	O	L, R discrimination signal output H: Lch audio data , L: Rch audio data	32	FE	I	Focus error signal input (analog input)
3	SRDATA	O	Serial data output	33	TE	I	Tracking error signal input (analog input)
4	DVDD1	I	Power supply for digital circuit	34	RFENV	I	RF envelope signal input (analog input)
5	DVSS1	I	Ground for digital circuit	35	VDET	I	Vibration detection signal input (H: detection)
6	TX	O	Digital audio interface output signal	36	OFT	I	Off track signal input (H: Off track)
7	MCLK	I	Microcomputer command clock signal input (Data latches at rising edge.)	37	TRCRS	I	Track cross signal input
8	MDATA	I	Microcomputer command data input	38	/RFDET	I	RF detection signal input (L: detection)
9	MLD	I	Microcomputer command load signal input L:	39	BDO	I	Drop out signal input (H: drop out)
10	SENSE	O	Sense signal output (OFT, FESL, NACEND, NAJEND, SFG, NWTEND)	40	LDON	O	Laser ON signal outputÅiH: ON)
11	/FLOCK	O	Focus servo incoming signal (L:incoming	41	TES	O	Tracking error shunt signal output (H: shunt)
12	/TLOCK	O	Tracking servo incoming signal (L:incoming	42	PLAY	O	Play signal output (H: PLAY)
13	BLKCK	O	Subcode block clock signal (fBLKCK=75Hz)	43	WVEL	O	Double speed status signal output
14	SQCK	I	External clock input for subcode Q register	44	ARF	I	RF signal input
15	SUBQ	O	Subcode Q data output	45	IREF	I	Reference current input
16	DMUTE	I	Muting output H:Mute	46	DRF	I	Bias pin for DSL
17	STAT	O	Status signal (CRC, CUE, CLVS, TTSTOP, FCLV, SQOK, FLAG6, SENSE, /FLOCK, /TLOCK)	47	DSLF	I/O	Loop filter pin for DSL
18	/RST	I	Reset input (Reset at IOSEL=L and more than 472ns) L:Reset	48	PLLF	I/O	Loop filter pin for PLL
19	SMCK	O	When MSEL=H, 8.4672MHz clock signal output	49	VCOF	I/O	Loop filter pin for VCO
20	PMCK	O	88.2kHz clock signal output	50	AVDD2	I	Power supply for analog circuit (for DSL, PLL, AD input and DA output)
21	TRV	O	Traverse forced forward output	51	AVSS2	I	GND for analog circuit (for DSL, PLL, AD input and DA output)
22	TVD	O	Traverse drive output	52	EFM	O	EFM signal output When IOSEL=H, EFM signal output. When IOSEL=L,
23	PC	O	Spindle motor ON signal L: ON	53	PCK	O	PLL extract clock output (fPCK=4.32MHz)
24	ECM	O	Spindle motor drive signal (forced mode output) 3-state	54	TOFS	O	Tracking offset adjustment output
25	ECS	O	Spindle motor drive signal (servo error signal output)	55	SUBC	O	Subcode serial output
26	KICK	O	Kick pulse output 3-state	56	SBCK	I	Clock input for subcode serial output (with pull-up resistor)
27	TRD	O	Trscking drive output	57	VSS	I	GND for oscillation circuit
28	FOD	O	Focus drive output	58	X1	I	Crystal oscillation circuit input (f=16.9344MHz, 33.8688MHz)
29	VREF	I	Reference voltage for DA output section (TVD, ECS, TRD, FOD, FBAL, TBAL, TOFS)	59	X2	O	Crystal oscillation circuit output (f=16.9344MHz, 33.8688MHz)
30	FBAL	O	Focus balance adjustment output	60	VDD	I	Power supply for oscillation circuit

No.	Pin Name	I/O	Function	No.	Pin Name	I/O	Function
61	BYTCK	O	When IOSEL=H, byte clock signal output When IOSEL=L, Traverse STOP signal output H: STOP mode	71	/TEST	I	Test pin (Normal: H)
62	/CLDCK	O	Subcode frame clock signal output (fCLDCK=7.35kHz)	72	AVDD1	I	Power supply for analog circuit [for audio output (use both as L ch and R ch)]
63	FCLK	O	Crustal frame clock signal output (fFCLK=7.35kHz)	73	OUTL	O	L ch audio output
64	IPFLAG	O	Interpolate flag signal output H: Interpolate	74	AVSS1	I	Ground for analog circuit [for audio output (use both as L ch and R ch)]
65	FLAG	O	Flag signal output	75	OUTR	O	R ch audio output
66	CLVS	O	Phase sync. state signal output of spindle servo H: CLV , L: Rough servo	76	RSEL	I	RF signal polarity specify pin When light level is "H", RSEL=H When light level is "L", RSEL=L
67	CRC	O	Subcode CRC check result output H: OK , L: NG	77	CSEL	I	Crystal oscillator frequency specify pin H : Oscillation frequency = 33.8688MHz L : Oscillation frequency = 16.9344MHz
68	DEMPH	O	Deemphasis detection signal output H: ON	78	PSEL	I	When IOSEL=H, test pin (normal: L) When IOSEL=L, SRDATA input
69	RESY	O	When IOSEL=H, playback sync signal RESY output of frame sync. H: synchronize, L: not synchronize When IOSEL=L, address reset signal FLAG6 output of RAM for deinterleave. L: generate address reset	79	MSEL	I	When IOSEL=H, SMCK pin output frequency switch H : SMCK= 8.4672MHz L : SMCK= 4.2336MHz When IOSEL=L, LRCK input H: Lch data, L: Rch data SMCK= 4.2336MHz fixed
70	IOSEL	I	Mode switch pin	80	SSEL	I	When IOSEL=H, SUBQpin output mode switch H: Q code buffer use mode When IOSEL=L, BCLK input Q code buffer mode fixed

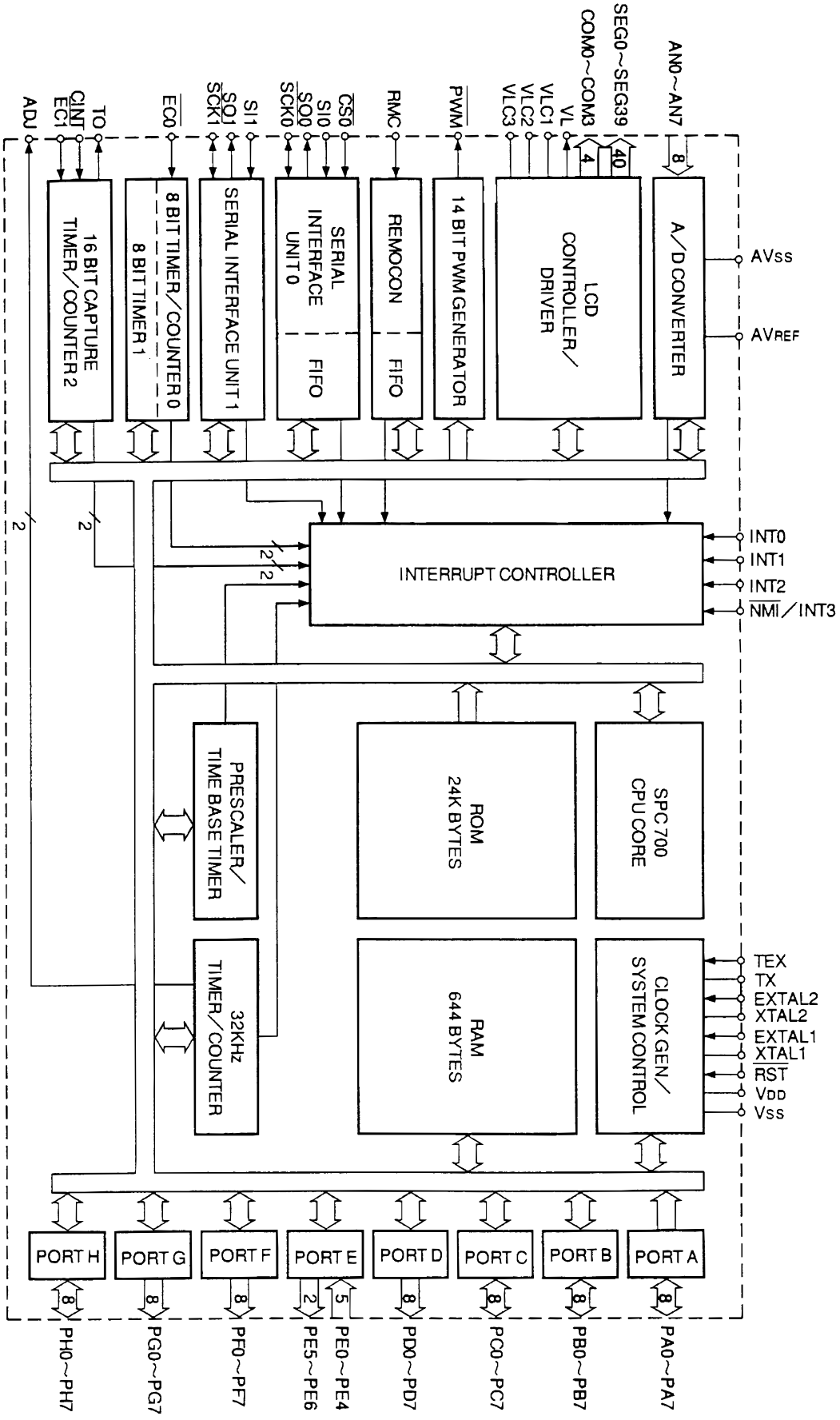
52206 (CXP83232A) (FRONT CD PCB : IC501)

- **System Microcomputer IC**

● **Pin Arrangement (Top view)**



● **Block Diagram**



● Pin Function

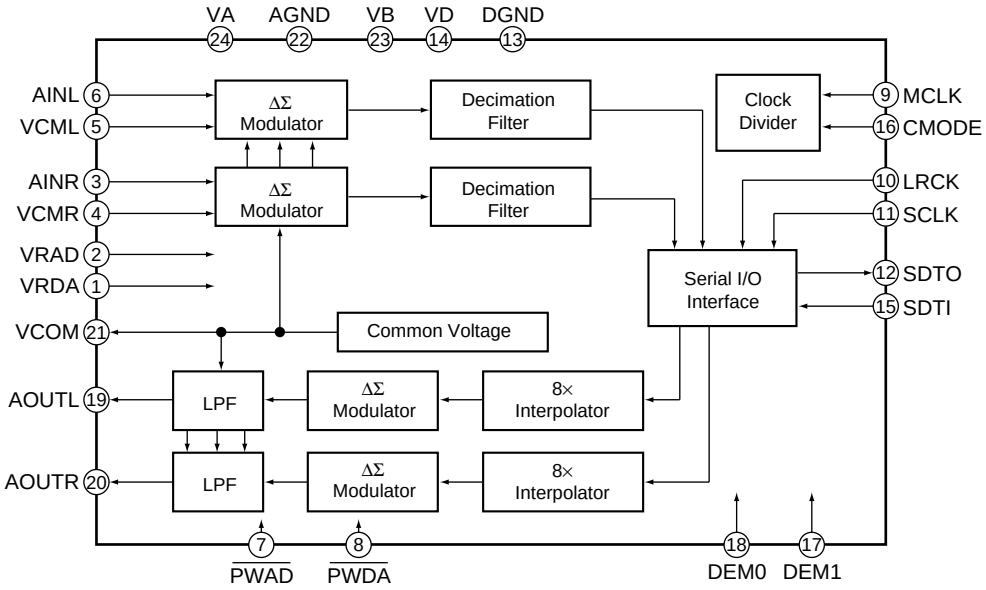
No.	Pin Name	I/O	Function
1	PE2/INT2	I	Port (E) / External interrupt request input
2	PE3/INT3/NMI	I	Port (E) / External interrupt request input / Nonmaskable interrupt input
3	PE4/RMC	I	Port (E) / Remote control reception circuit input
4	PE5/PWM	O	Port (E) / 14 bit PWM output
5	PE6/TO/ADJ	O	Port (E) / 16 bit timer/Rectangle waveform output of counter (duty 50% output) /32 kHz oscillation frequency
6	PB0/CINT	I/O	8 bit input/output port (port B) / 16 bit timer / External capture input of counter
7	PB1/CS0	I/O	8 bit input/output port (port B) / Chip select input of serial interface (CH0)
8	PB2/SCK0	I/O	8 bit input/output port (port B) / serial interface (CH0) input/output
9	PB3/SI0	I/O	8 bit input/output port (port B) / serial data (CH0) input
10	PB4/SO0	I/O	8 bit input/output port (port B) / serial data (CH0) output
11	PB5/SCK1	I/O	8 bit input/output port (port B) / serial clock (CH1) input/output
12	PB6/SI1	I/O	8 bit input/output port (port B) / serial data (CH1) input
13	PB7/SO1	I/O	8 bit input/output port (port B) / serial data (CH1) output
14	PC0	I/O	8 bit input/output port (port C)
15	PC1		
16	PC2		
17	PC3		
18	PC4		
19	PC5		
20	PC6		
21	PC7		
22	PH0	I/O	8 bit input/output port (port H)
23	PH1		
24	PH2		
25	PH3		
26	PH4		
27	PH5		
28	PH6		
29	PH7		
30	PA0/AN0	I/O	8 bit input/output port (port A) / Analog input to A/D converter
31	PA1/AN1		
32	PA2/AN2		
33	PA3/AN3		
34	PA4/AN4		
35	PA5/AN5		
36	PA6/AN6		
37	PA7/AN7		
38	RST	I	System reset of "L" level active
39	EXTAL1	I	Crystal connection pin for system clock oscillation When apply a clock from the external, input to EXTAL1 pin and input the reverse clock to XTAL1 pin.System clock oscillation use for normal operation mode (Max. 10MHz).
40	XTAL1	–	
41	VSS	–	GND pin
42	XTAL2	–	Crystal connection pin for system clock oscillation When apply a clock from the external, input to EXTAL2 pin and input the reverse clock to XTAL2 pin.System clock oscillation use for sub-clock mode (Typ. 500kHz).
43	EXTAL2	I	
44	AVREF	–	Reference voltage input of A/D converter
45	AVSS	–	GND pin of A/D converter
46	VL	O	Control pin for cutoff the current which flows to the bias resistor for external LCD at standby.
47	VLC3	–	Bias power supply pin for LCD
48	VLC2	–	
49	VLC1	–	
50	COM0	O	Common signal output pin for LCD

No.	Pin Name	I/O	Function
51	COM1	O	Common signal output for LCD
52	COM2		
53	COM3		
54	SEG0	O	Segment signal output for LCD
55	SEG1		
56	SEG2		
57	SEG3		
58	SEG4		
59	SEG5		
60	SEG6		
61	SEG7		
62	SEG8		
63	SEG9		
64	SEG10		
65	SEG11		
66	SEG12		
67	SEG13		
68	SEG14		
69	SEG15		
70	SEG16/PD0	O	8 bit output port (port D) / Segment signal output for LCD
71	SEG17/PD1		
72	SEG18/PD2		
73	SEG19/PD3		
74	SEG20/PD4		
75	SEG21/PD5		
76	SEG22/PD6		
77	DEG23/PD7		
78	SEG24/PF0	O	8 bit output port (port F) / Segment signal output for LCD
79	SEG25/PF1		
80	SEG26/PF2		
81	SEG27/PF3		
82	SEG28/PF4		
83	SEG29/PF5		
84	SEG30/PF6		
85	SEG31/PF7		
86	SEG32/PG0	O	8 bit output port (port G) / Segment signal output for LCD
87	SEG33/PG1		
88	SEG34/PG2		
89	VDD	–	Positive power supply pin
90	NC	–	NC pin Connect to VDD at normal operation.
91	VSS	–	GND pin
92	TX	O	Crystal connection pin of the clock generating circuit for 32kHz timer counter Connect a 32.768kHz crystal between TEX and TX. When using for event input, connect the source of clock generation to TEX and TX pin set to open.
93	TEX	I	
94	SEG35/PG3	O	8 bit output port (port G) / Segment signal output for LCD
95	SEG36/PG4		
96	SEG37/PG5		
97	SEG38/PG6		
98	SEG39/PG7		
99	PE0/INT0/EC0	I	(Port E) / External interrupt request input / Timer / External event input of the timer
100	PE1/INT1/EC1		

52186 (AK4518-VF-E2) (AD/DA PCB : IC801)

- **AD/DA Converter IC**

● Block Diagram



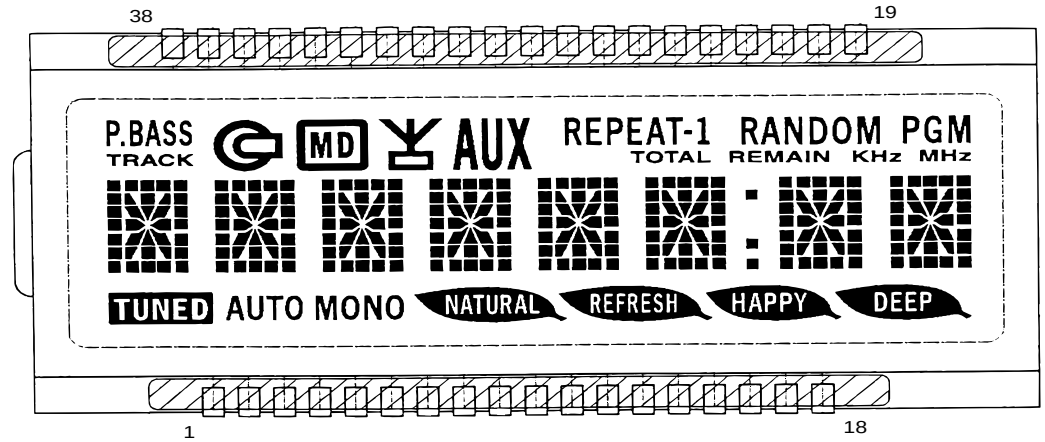
● Pin Function

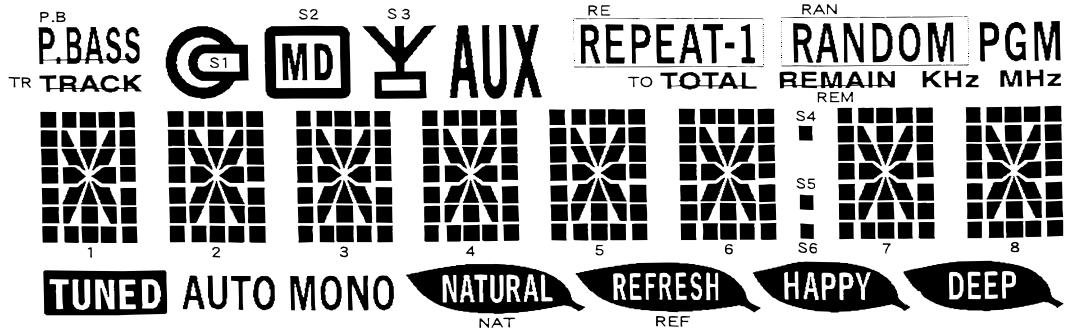
No.	Pin Name	I/O	Function
1	VRDA	I	Reference voltage input for DAC and VA
2	VRAD	I	Reference voltage input for ADC and VA
3	AINR	I	R ch analog input
4	VCMR	O	R ch common voltage output , 0.45 × VA Connect an electrolytic capacitor (about 4.7μF) and a ceramic capacitor (0.1μF) between this pin and AGND.
5	VCML	O	L ch common voltage output , 0.45 × VA Connect an electrolytic capacitor (about 4.7μF) and a ceramic capacitor (0.1μF) between this pin and AGND.
6	AINL	I	L ch analog input
7	PWAD	I	ADC power down mode L: power down
8	PWDA	I	DAC power down mode L: power down
9	MCLK	I	Master clock input
10	LRCK	I	Input/output channel clock pin
11	SCLK	I	Audio serial data clock pin
12	SDTO	O	Audio serial data output
13	DGND	–	Digital ground
14	VD	–	Digital power supply
15	SDTI	I	Audio serial data input
16	CMODE	I	Master clock selection "H": 384fs or 512fs, "L": 256fs
17	DEM1	I	Deemphasis frequency selection
18	DEM0		
19	AOUTL	O	L ch analog output
20	AOUTR	O	R ch analog output
21	VCOM	O	Common voltage output , 0.45 × VA Connect an electrolytic capacitor (about 4.7μF) and a ceramic capacitor (0.1μF) between this pin and AGND.
22	AGND	–	Analog ground pin
23	VB	–	Substraight pin
24	VA	–	Analog power supply

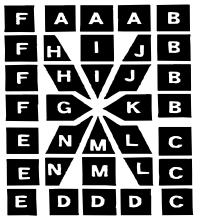
7.2.2 DISPLAY

■ 52716 (KSG4149) (FRONT CD PCB : LCD500)

• **LCD**







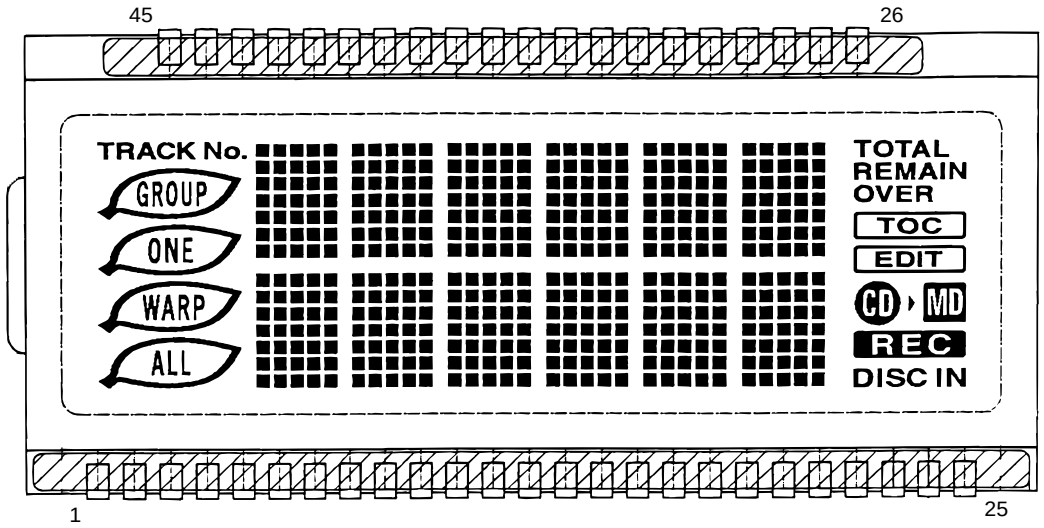
● Pin Connection

NO	COM1	COM2	COM3	COM4
1	1M	1N	1G	1H
2	TUNED	1C	1B	1A
3	2M	2N	2G	2H
4	AUTO	2C	2B	2A
5	3M	3N	3G	3H
6	MONO	3C	3B	3A
7	4M	4N	4C	4H
8	NAT	4C	4B	4A
9	5M	5N	5G	5H
10	REF	5C	5B	5A
11	6M	6N	6G	6H
12.	HAPPY	6C	6B	6A
13	S6	S5	S4	TO
14	7M	7N	7G	7H
15	DEEP	7C	7B	7A
16	8D	8E	8F	REM
17	8M	8N	8G	8H
18	PGM	8C	8B	8A
19	RAN	—	MHz	KHz
20	8L	8K	8J	8I

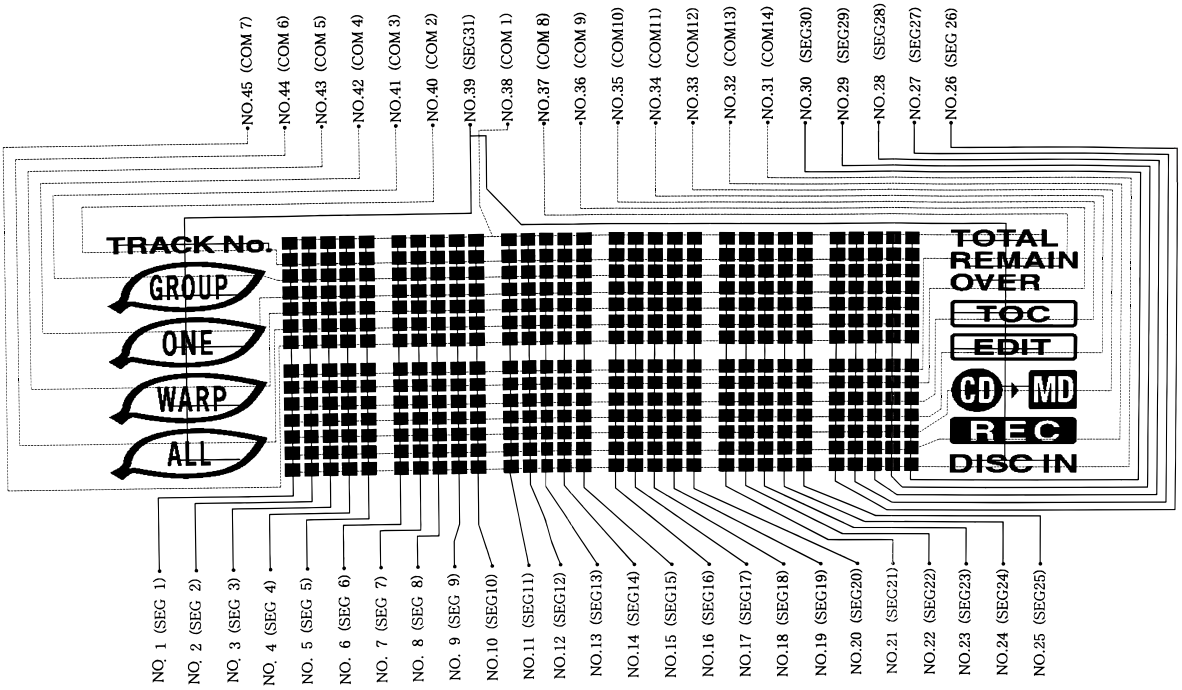
NO	COM1	COM2	COM3	COM4
21	7L	7K	7J	7I
22	7D	7E	7F	RE
23	6L	6K	6J	6I
24	6D	6E	6F	AUX
25	5L	5K	5J	5I
26	5D	5E	5F	S3
27	4L	4K	4J	4I
28	4D	4E	4F	S2
29	3L	3K	3J	3I
30	3D	3E	3F	S1
31	2L	2K	2J	2I
32	2D	2E	2F	P.B
33	1L	1K	1J	1I
34	1L	1L	1L	1L
35	—	—	—	COM4
36	—	—	COM3	—
37	—	COM2	—	—
38	COM1	—	—	—

52715 (KSG4148) (FRONT MD PCB : LCD900)

• **LCD**



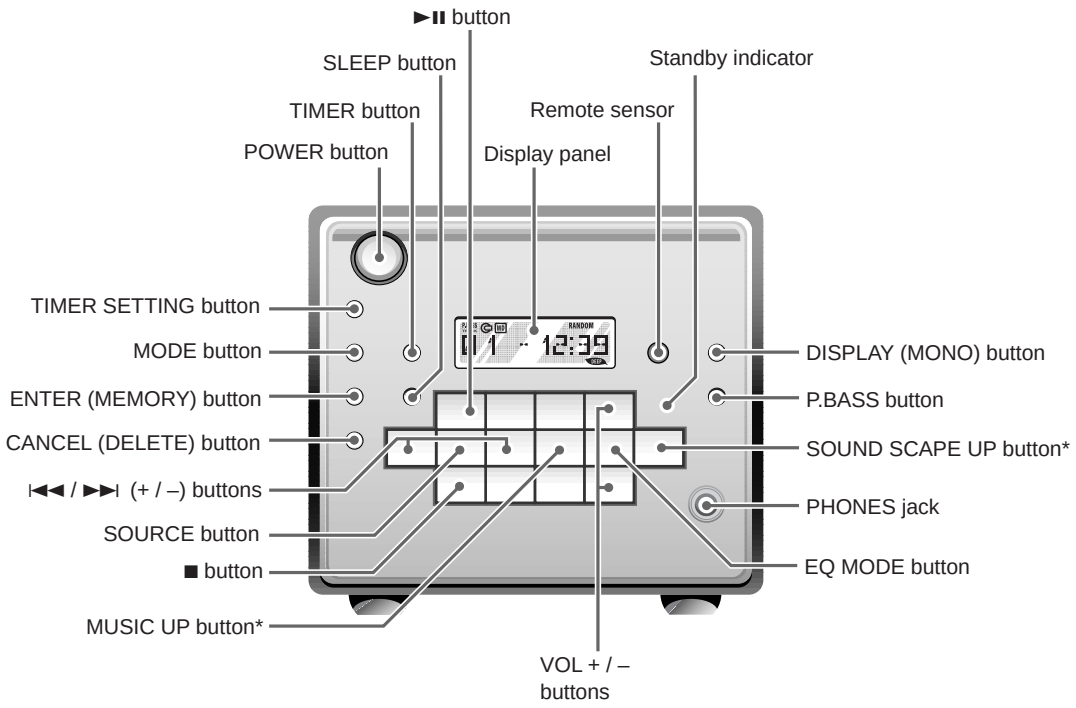
● Pin Connection



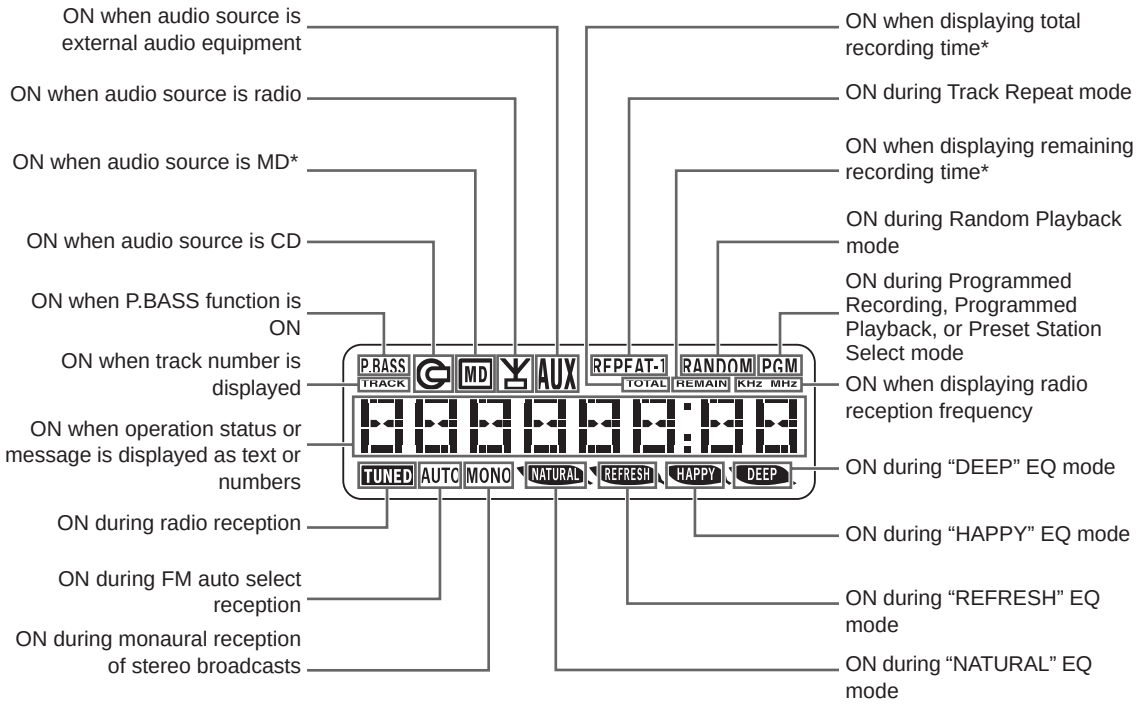
8. PANEL FACILITIES AND SPECIFICATIONS

8.1 PANEL FACILITIES

■ CD RECEIVER

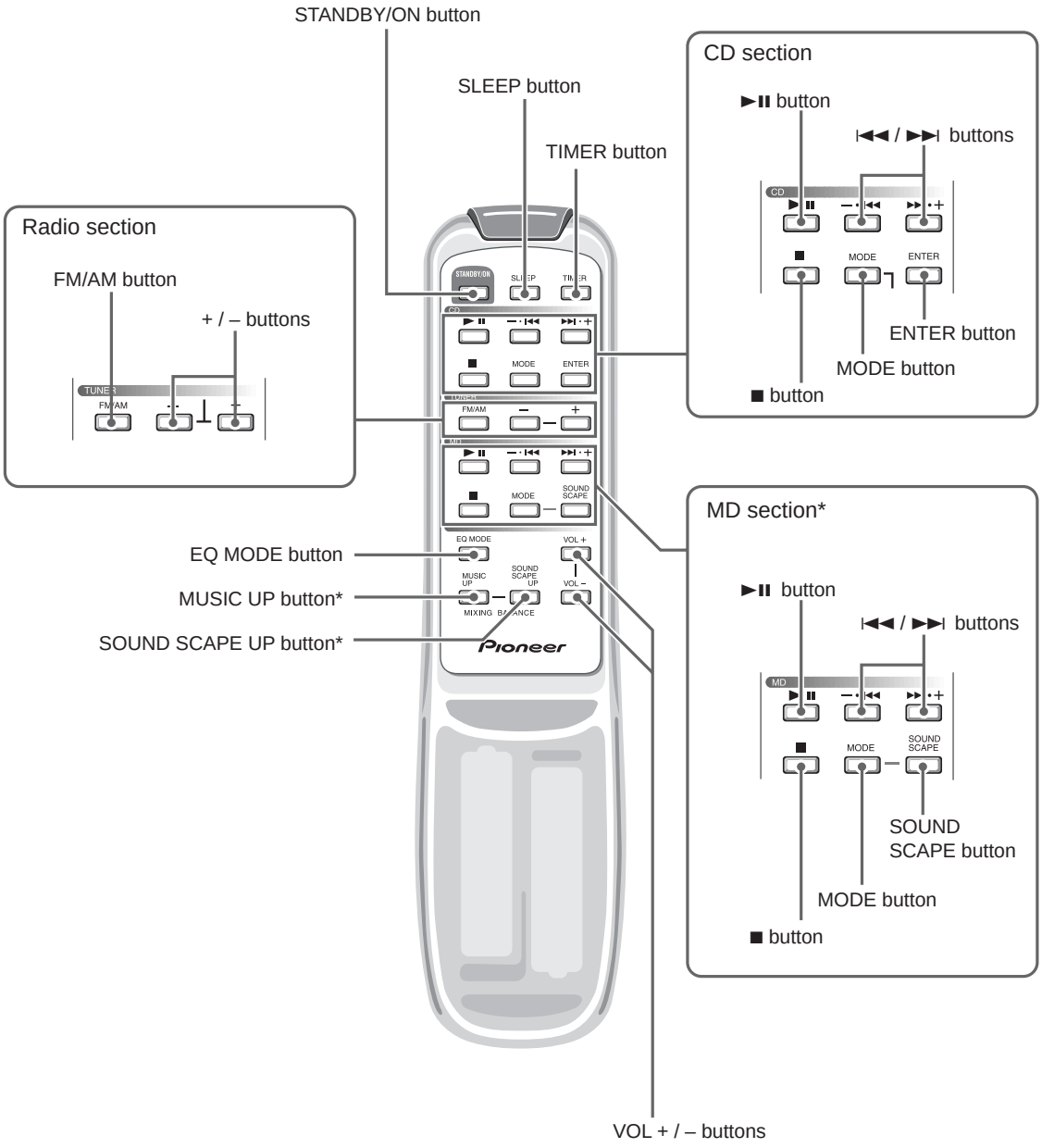


Display panel



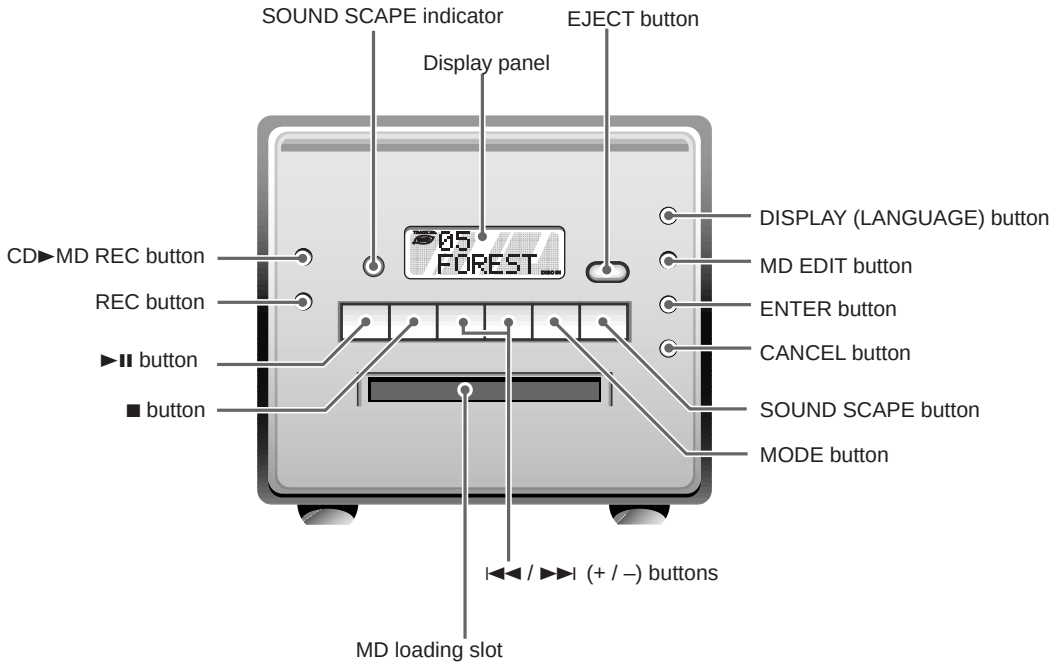
* These buttons and indicators function only when the MD recorder (sold separately) is connected to this system.

■ REMOTE CONTROL UNIT

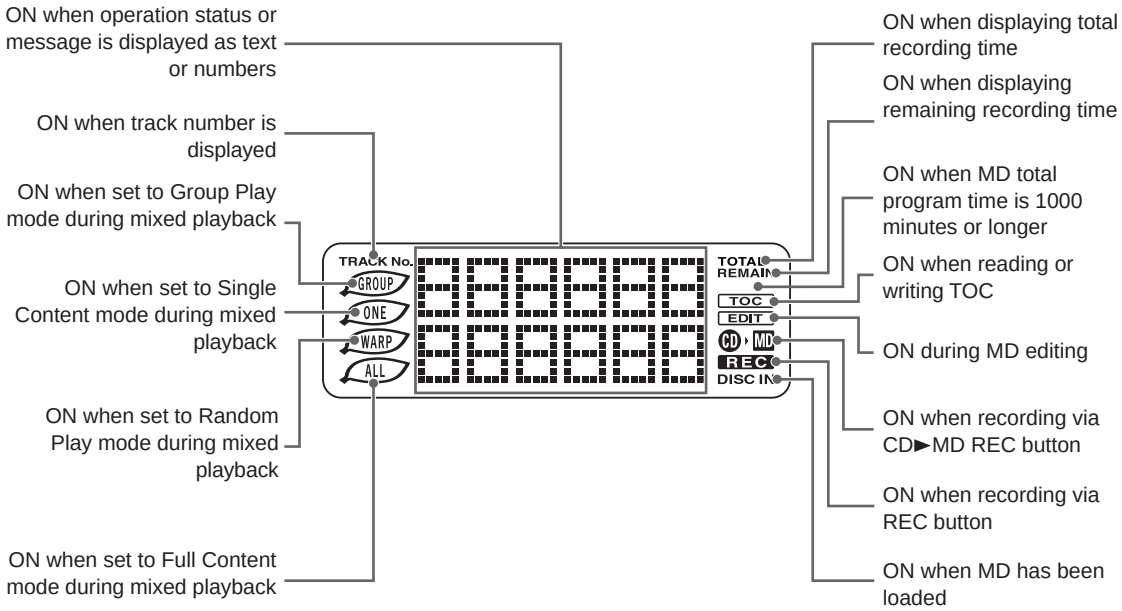


* All buttons of the MD section, the SOUND SCAPE UP button and the MUSIC UP button function only when the MD recorder (sold separately) is connected to this system. See the Operating Instructions of the MD recorder for the detailed operation of these buttons.

■ MD RECORDER



Display Panel



8.2 SPECIFICATIONS

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

■ CD RECEIVER

CD player unit

Type ..... Compact disc audio system
Medium ..... Compact disc (CD)
No. of channels ..... Two (stereo)
Program steps 32

Amplifier unit

Maximum practical output (RMS)
..... 5 W + 5 W (1 kHz, T.H.D. 10 %, 4 Ω)

FM (UKW)/AM (MW/LW) tuner section

Reception frequency
FM ..... 87.50 to 108.00 MHz in 50-kHz steps
FMW ..... 88.0 to 108.0 MHz in 100-kHz steps
AM ..... 531 to 1,602 kHz in 9-kHz steps
AMW ..... 530 to 1,600 kHz in 10-kHz steps

Antenna
AM ..... Loop antenna (supplied)
FM ..... 75 W unbalanced type
(extends from rear of set)

Power supply, etc.

Power supply voltage ..... AC 120 V, 60 Hz
Power consumption (based on electrical product regulations)
..... 30 W
Power consumption in standby mode ..... less than 3 W
External dimensions ..... 145 (W) × 137 (H) × 250 (D) mm
($5\ ^3/_4$ (W) × $5\ ^1/_2$ (H) × $9\ ^7/_8$ (D) inches)
Weight ..... 2.6 kg (5 lb 11.7 oz)

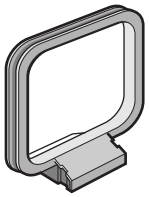
Speaker system

Type ..... Book-shelf style, bass reflex type magnetically shielded
Speakers ..... 10-cm full range cone type
Nominal impedance ..... 4 Ω
Playback frequency range ..... 50 Hz to 20 kHz
Maximum input ..... 25 W
External dimensions ..... 145 (W) × 137 (H) × 200 (D) mm
($5\ ^3/_4$ (W) × $5\ ^1/_2$ (H) × $7\ ^7/_8$ (D) inches)
Weight ..... 1.3 kg (2 lb 13.8 oz) each

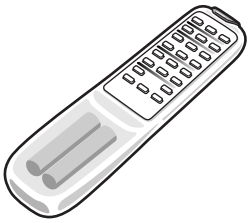
■ MD RECORDER

Type ..... Mini disc digital audio system
Medium ..... Mini disc (MD)
Frequency characteristics ..... 20 Hz to 20 kHz (+/– 3 dB)
Error correction method
..... Advanced Cross Interleave Code (ACIRC) Solomon code
Coding ..... Adaptive Transform Acoustic Coding (ATRAC)
Power supply voltage ..... DC 5 V, 230 mA
DC 9 V, 14 mA
External dimensions ..... 145 (W) × 137 (H) × 235 (D) mm
($5\ ^3/_4 \times 5\ ^1/_2 \times 9\ ^3/_8$ inches)
Weight ..... 1.4 kg (3.3 lb)

■ ACCESSORIES

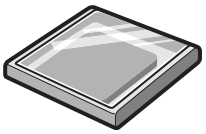


AM loop antenna (60232)
(The illustration shows the AM loop antenna after assembly)



Remote Control
(60231A)

"AA" (R6) Batteries
for Remote Control (2)
(60235)



Sound Scape Disc
(60234-01, 60234-03)

CD/MD Cable
(60233)

There are two front panel types :

Oval Type

and

Square Type

Both types include the same functions and operate in the same way. The illustrations in this manual are of the oval type.