

# Service Manual

**Pioneer**



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 |         |

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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.

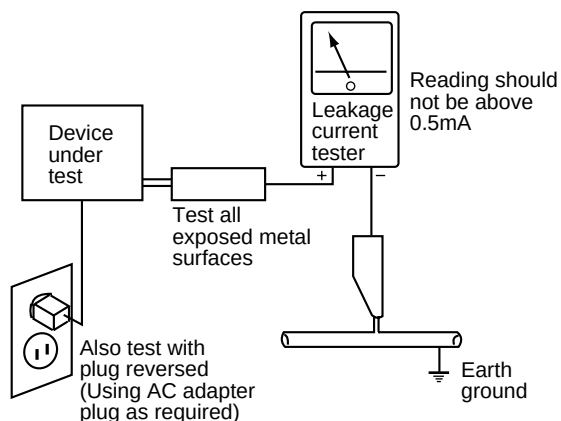
(FOR USA MODEL ONLY)

## 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  $\Delta$  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.



LASER  
kuva 1  
Lasersäteilyn  
varoituserkki

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

WARNING! —  
OSYNLIG LASERSTRÅLNING NÅR DENNA  
DEL ÄR ÖPPNAD OCH SPÄRREN  
ÄR URKOPPLAD. BETRAKTA EJ STRÅLEN.

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  
INSTRUCTED PERSON.

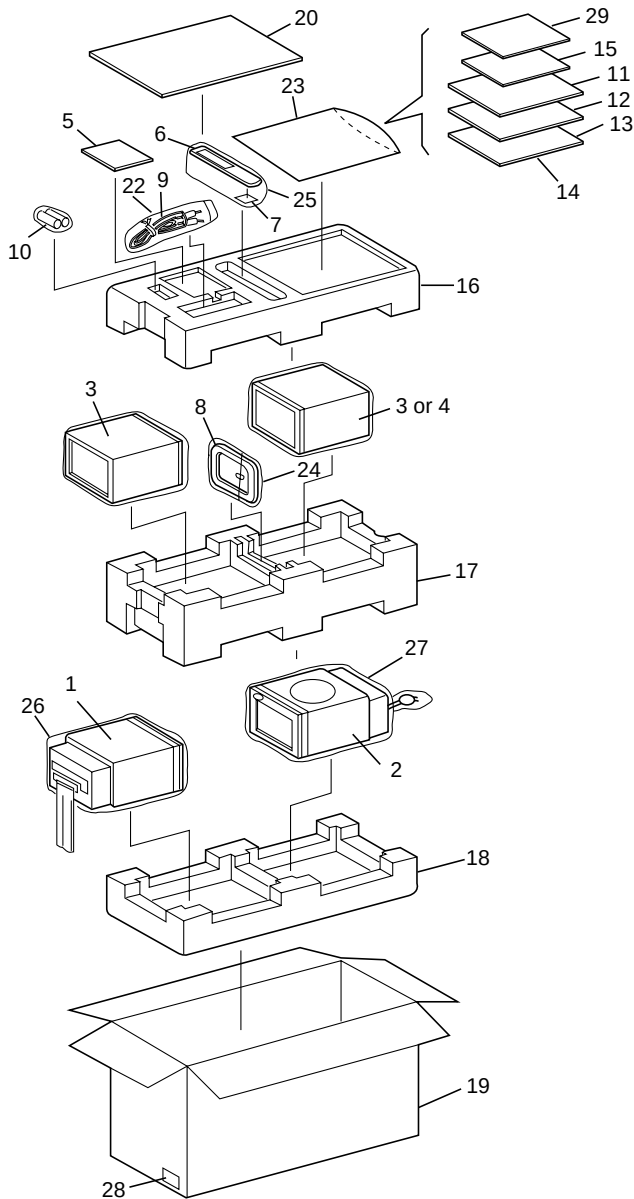
— LASER DIODE CHARACTERISTICS —  
MAXIMUM OUTPUT POWER : 5 mW  
WAVELENGTH : 780-785 nm

## 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  $\Delta$  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

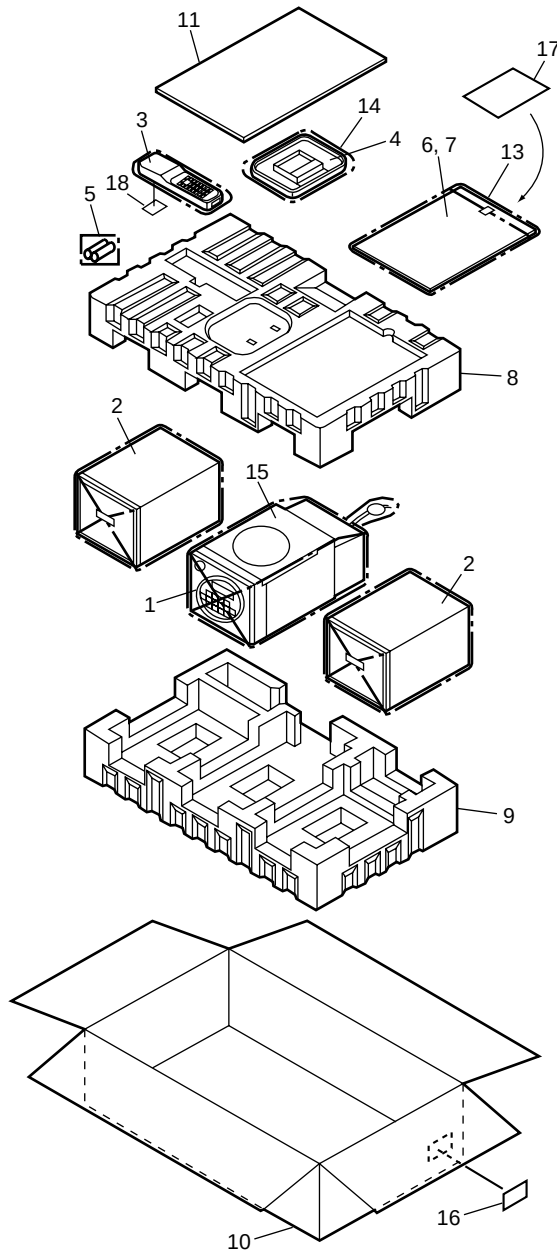
| Mark | No. | Description                           | Part No.               |
|------|-----|---------------------------------------|------------------------|
| NSP  | 1   | MD Recorder                           | See Contrast table (2) |
| NSP  | 2   | CD Receiver                           | See Contrast table (2) |
| NSP  | 3   | Speaker System (L ch)                 | See Contrast table (2) |
| NSP  | 4   | Speaker System (R ch)                 | See Contrast table (2) |
| NSP  | 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.  |           | Remarks |
|------|-----|------------------------|-----------|-----------|---------|
|      |     |                        | 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

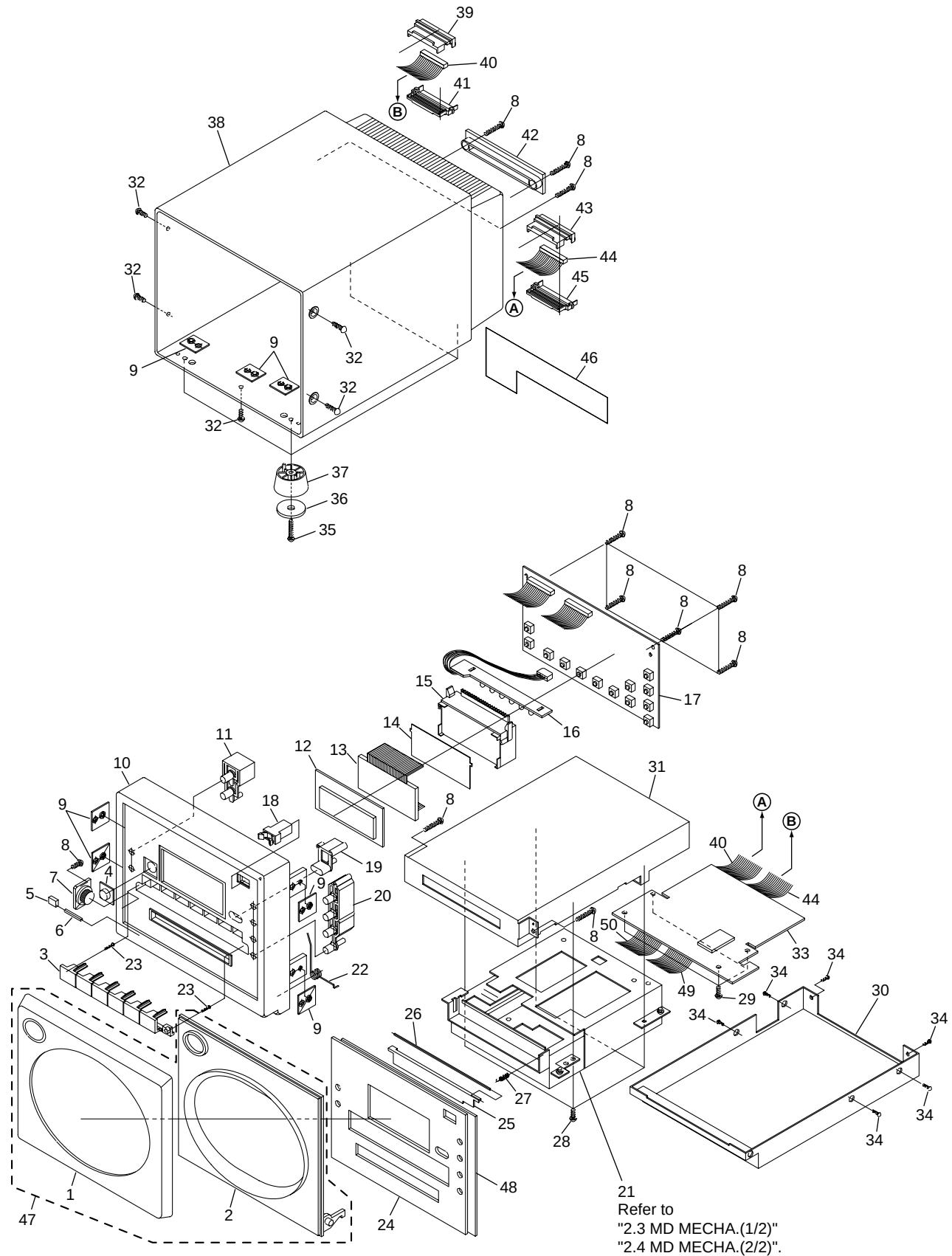
| Mark | No. | Description                           | Part No.               |
|------|-----|---------------------------------------|------------------------|
| NSP  | 1   | CD Receiver                           | See Contrast table (2) |
| NSP  | 2   | Speaker System                        | See Contrast 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.  |           | Remarks |
|------|-----|------------------------|-----------|-----------|---------|
|      |     |                        | 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

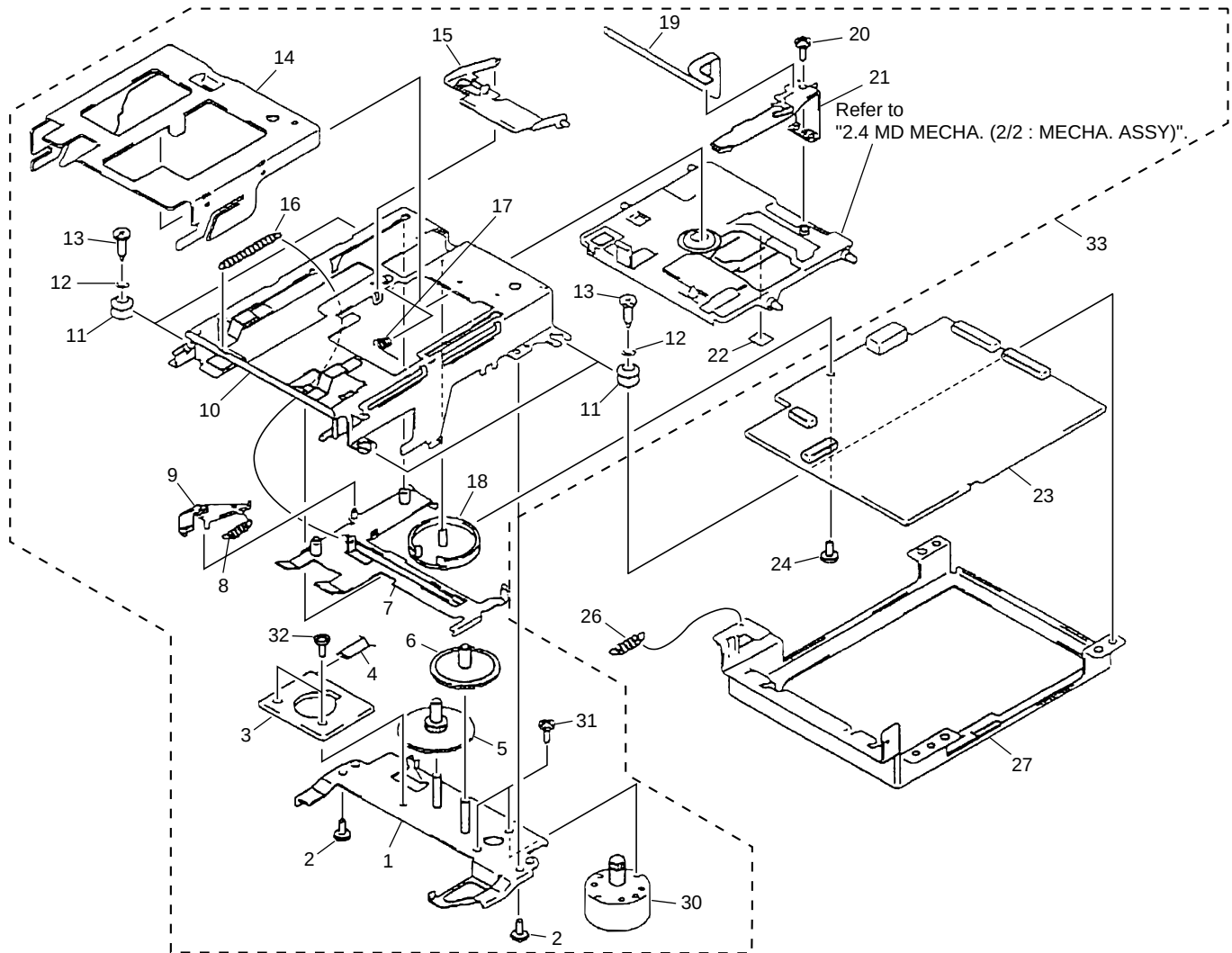
| Mark | No. | Description                   | Part No.               | Mark | No. | Description                   | Part No.               |
|------|-----|-------------------------------|------------------------|------|-----|-------------------------------|------------------------|
| NSP  | 1   | Front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

## (2) CONTRAST TABLE

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

| Mark | No. | Symbol and Description | Part No.   |            | Remarks |
|------|-----|------------------------|------------|------------|---------|
|      |     |                        | 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  |         |

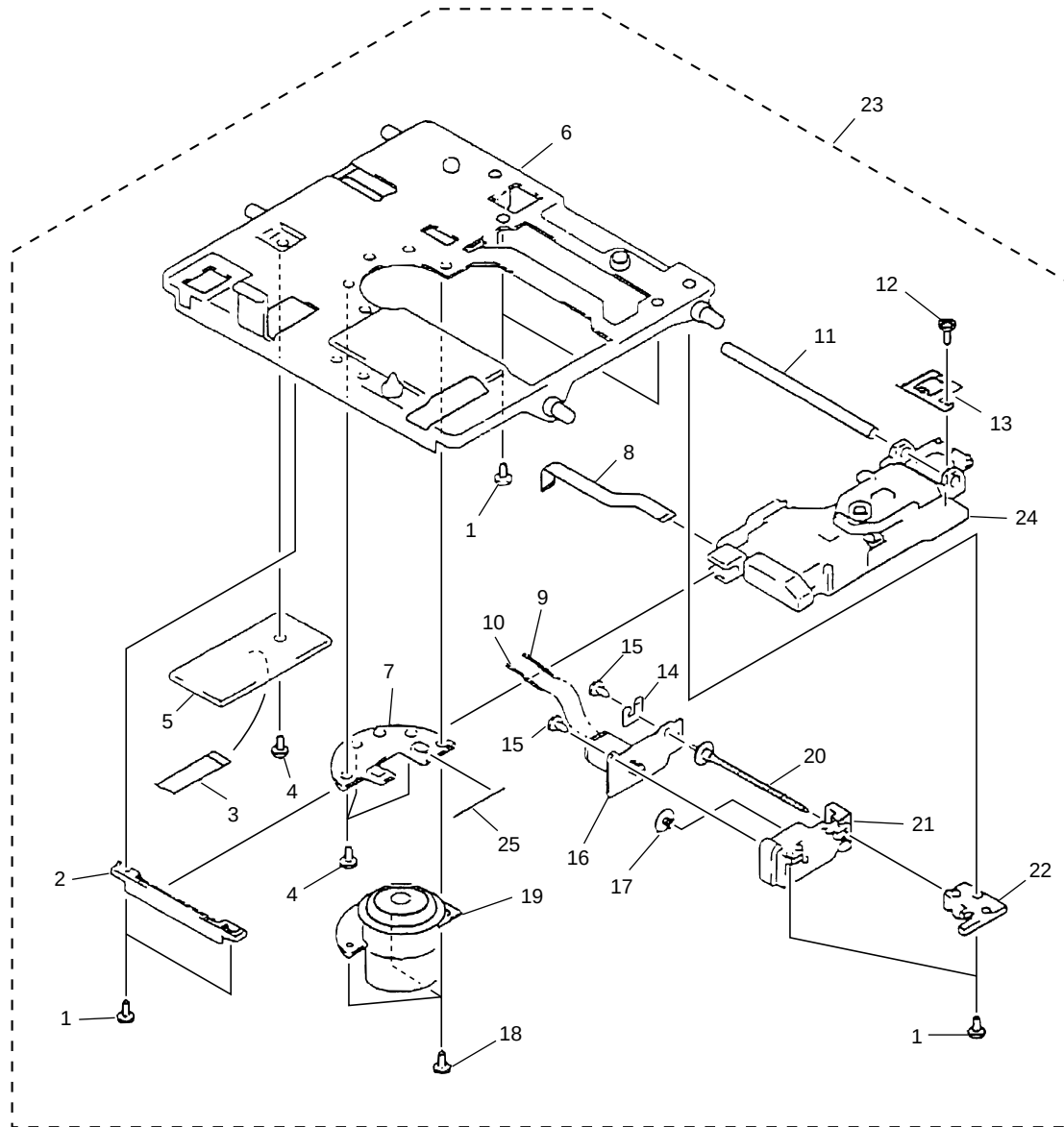
## 2.3 MD MECHA. (1/2 : LOADING ASSY) SECTION



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

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

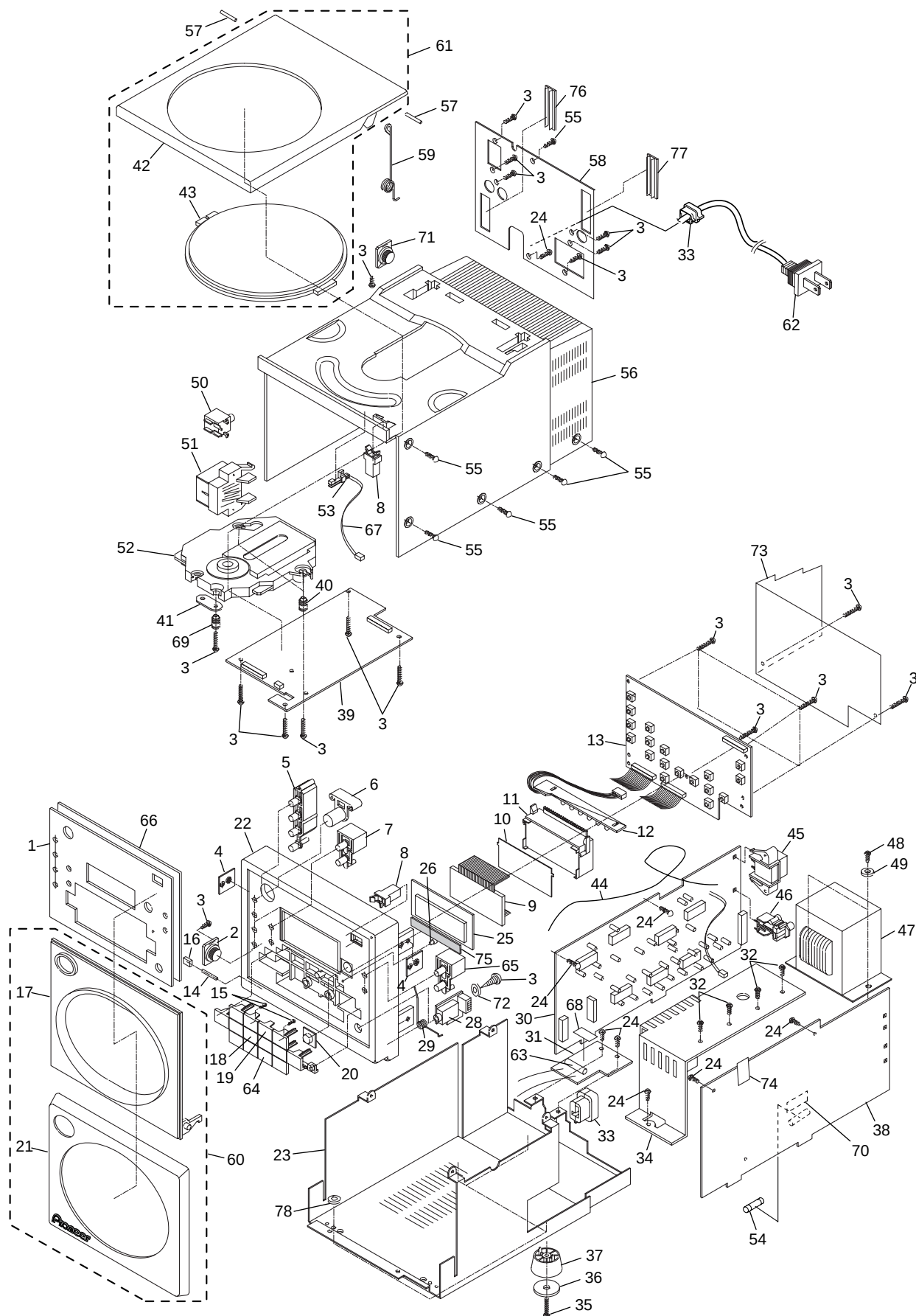
## 2.4 MD MECHA. (2/2 : MECHANISM ASSY) SECTION



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

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

## 2.5 CD RECEIVER SECTION



## (1) CD RECEIVER SECTION PARTS LIST

| Mark | No. | Description                        | Part No.               | Mark | No. | Description              | Part No.               |
|------|-----|------------------------------------|------------------------|------|-----|--------------------------|------------------------|
|      | 1   | Inner Panel (CD)                   | See Contrast table (2) |      | 39  | CD PCB Assy              | 66786                  |
|      | 2   | Dumper Gear                        | 60108                  |      | 40  | Cushion Rubber           | 60230                  |
|      | 3   | Screw PAN TAPP. T3×10              | PBZ30P100FZK           |      | 41  | Holder Plate             | 66742                  |
|      | 4   | Plate Nut                          | 66741                  | NSP  | 42  | CD Door                  | See Contrast table (2) |
|      | 5   | Button C (SET)                     | See Contrast table (2) | NSP  | 43  | CD Door Window           | See Contrast table (2) |
|      | 6   | Power Button                       | See Contrast table (2) | NSP  | 44  | Antenna Cord Assy        | 66779                  |
|      | 7   | Button D (TIMER)                   | 66719                  |      | 45  | AM Antenna Jack          | 60243                  |
|      | 8   | Push Door Lock                     | 60226                  |      | 46  | Pin Jack                 | 52526                  |
|      | 9   | LCD Assy (KSG4149)                 | 52716                  | △    | 47  | Power Transformer        | 54515                  |
|      | 10  | LCD Sheet                          | 66756                  |      | 48  | Screw BIND M4×6          | BMZ40P060FMC           |
| NSP  | 11  | LCD Holder                         | 66727                  |      | 49  | Washer                   | WS40FMC                |
|      | 12  | LED PCB Assy                       | 66788B                 |      | 50  | 1P Jack                  | 52525                  |
|      | 13  | FRONT CD PCB Assy                  | 66788A                 |      | 51  | Speaker Terminal (4P)    | 60246                  |
|      | 14  | Door Shaft A                       | 66746                  |      | 52  | CD Mechanism Assy        | 61417                  |
|      | 15  | Screw PAN TAPP. T2×8               | PBZ20P080FMC           |      | 53  | Leaf Switch              | 52802                  |
| NSP  | 16  | Cushion A                          | 66795                  | △    | 54  | Fuse (F302 : 750mA/250V) | 51607                  |
|      | 17  | Front Door (CD)                    | See Contrast table (2) |      | 55  | Screw FLAT M3×6          | CMZ30P060FNI           |
|      | 18  | Button B (CD-2)                    | See Contrast table (2) |      | 56  | CD Rear Case             | See Contrast table (2) |
|      | 19  | Button A (CD-1)                    | See Contrast table (2) |      | 57  | Door Shaft B             | 66747                  |
|      | 20  | Lens                               | 66734-CD               |      | 58  | Rear Panel               | See Contrast table (2) |
| NSP  | 21  | Front Cover (CD)                   | See Contrast table (2) |      | 59  | CD Door Spring           | 66749                  |
|      | 22  | CD Front Case                      | See Contrast table (2) |      | 60  | Front Door A Assy (CD)   | See Contrast table (2) |
| NSP  | 23  | CD Rear Chassis                    | 66737                  |      | 60  | Front Door B Assy (CD)   | See Contrast table (2) |
|      | 24  | Screw BIND M3×6                    | BMZ30P060FZK           |      | 61  | CD Door Assy             | See Contrast table (2) |
|      | 25  | LCD Window                         | 66735                  | △    | 62  | AC Power Cord            | 50319                  |
|      | 26  | Lens (STANDBY)                     | 66736                  | △    | 63  | Fuse (F301 : 5A/125V)    | 51604                  |
|      | 27  | Screw BIND TAPP. T3×8              | BBZ30P080FZK           |      | 64  | Button A (CD-3)          | See Contrast table (2) |
|      | 28  | AMP COMBI PCB Assy (HEADPHONE PCB) | 66789C                 |      | 65  | Button D (DISPLAY)       | See Contrast table (2) |
|      | 29  | Front Door Spring                  | 66748                  |      | 66  | Panel Tape A             | 66760                  |
|      | 30  | TUNER PCB Assy                     | 66675                  |      | 67  | Connector Assy (2P)      | 66772                  |
|      | 31  | AMP COMBI PCB Assy (FUSE PCB)      | 66789B                 |      | 68  | Fuse Label               | 60224                  |
|      | 32  | Screw BTT-S T3×8                   | BSZ30P080FMC           |      | 69  | Cushion Rubber           | 60229                  |
|      | 33  | AC Cord Bushing                    | 60228                  |      | 70  | Fuse Label               | 60268                  |
|      | 34  | Heat Sink                          | 66743                  |      | 71  | Dumper Gear              | 60227                  |
|      | 35  | Screw PAN M3×8                     | PMZ30P080FZK           |      | 72  | Washer                   | 55003                  |
|      | 36  | Leg Rubber (A, B)                  | See Contrast table (2) |      | 73  | Shield Plate             | 66797                  |
|      | 37  | Foot (A, B)                        | See Contrast table (2) |      | 74  | Hymeron                  | 51907                  |
|      | 38  | AMP COMBI PCB Assy (POWER PCB)     | 66789A                 |      | 75  | Barrier Plate            | 66693                  |
|      |     |                                    |                        |      | 76  | 10P Connector Cover      | See Contrast table (2) |
|      |     |                                    |                        |      | 77  | 12P Connector Cover      | See Contrast table (2) |
|      |     |                                    |                        |      | 78  | Cushion Washer           | 66699                  |

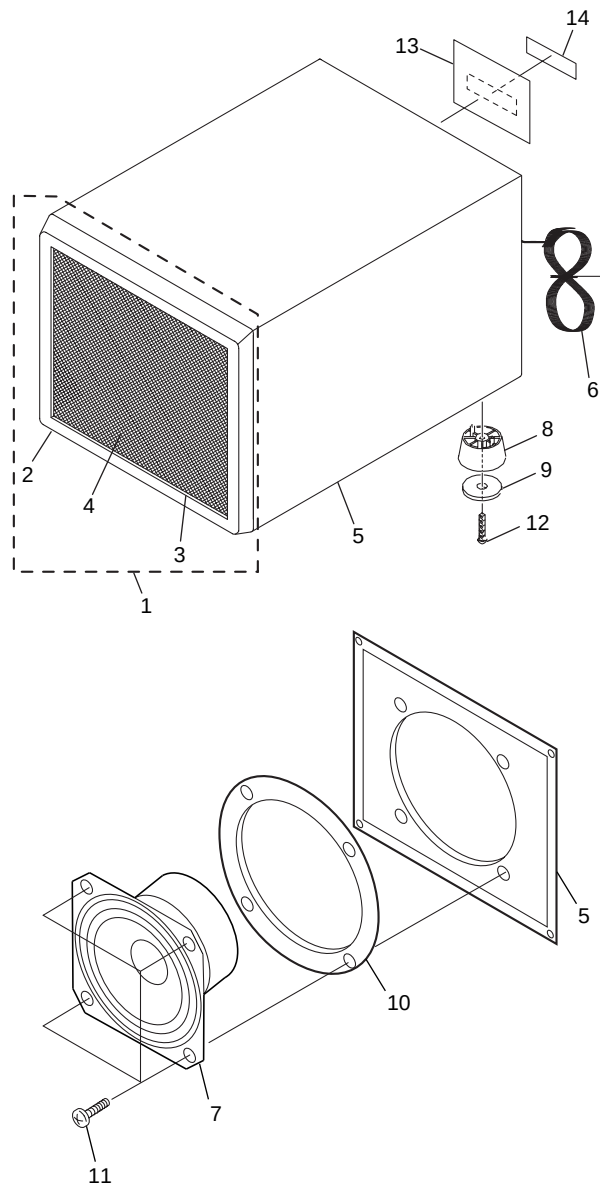
# X-HMD01, X-HMD03, X-HX99, X-HX05

## (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.   |            |            |            | Remarks |
|------|-----|------------------------|------------|------------|------------|------------|---------|
|      |     |                        | X-HMD01    | X-HMD03    | X-HX99     | X-HX05     |         |
| NSP  | 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   |         |
|      | 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   |         |
| NSP  | 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 |         |
|      | 21  | Front Cover A (CD)     | 66712-01C  | Not used   | Not used   | Not used   |         |
|      | 21  | Front Cover B (CD)     | Not used   | 66713-03C  | 66712-05C  | 66712-05C  |         |
| NSP  | 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   |         |
| NSP  | 37  | Foot B                 | Not used   | 66723-03   | Not used   | Not used   |         |
|      | 42  | CD Door                | 67705-01   | 67705-03   | 67705-05   | 67705-05   |         |
|      | 43  | CD Door Window         | 66733-01   | 66733-03   | 66733-99B  | 66733-OV   |         |
|      | 56  | CD Rear Case           | 66703-01   | 66703-03   | 66703-05   | 66703-05   |         |
| NSP  | 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   |         |
| NSP  | 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.     |
|------|-----|--------------------|--------------|
| NSP  | 1   | Speaker Frame Assy | 10500-01     |
|      | 2   | Speaker Frame      | 66724-01     |
|      | 3   | Grille Frame       | 66725-01     |
|      | 4   | Speaker Net        | 66744-01     |
|      | 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)

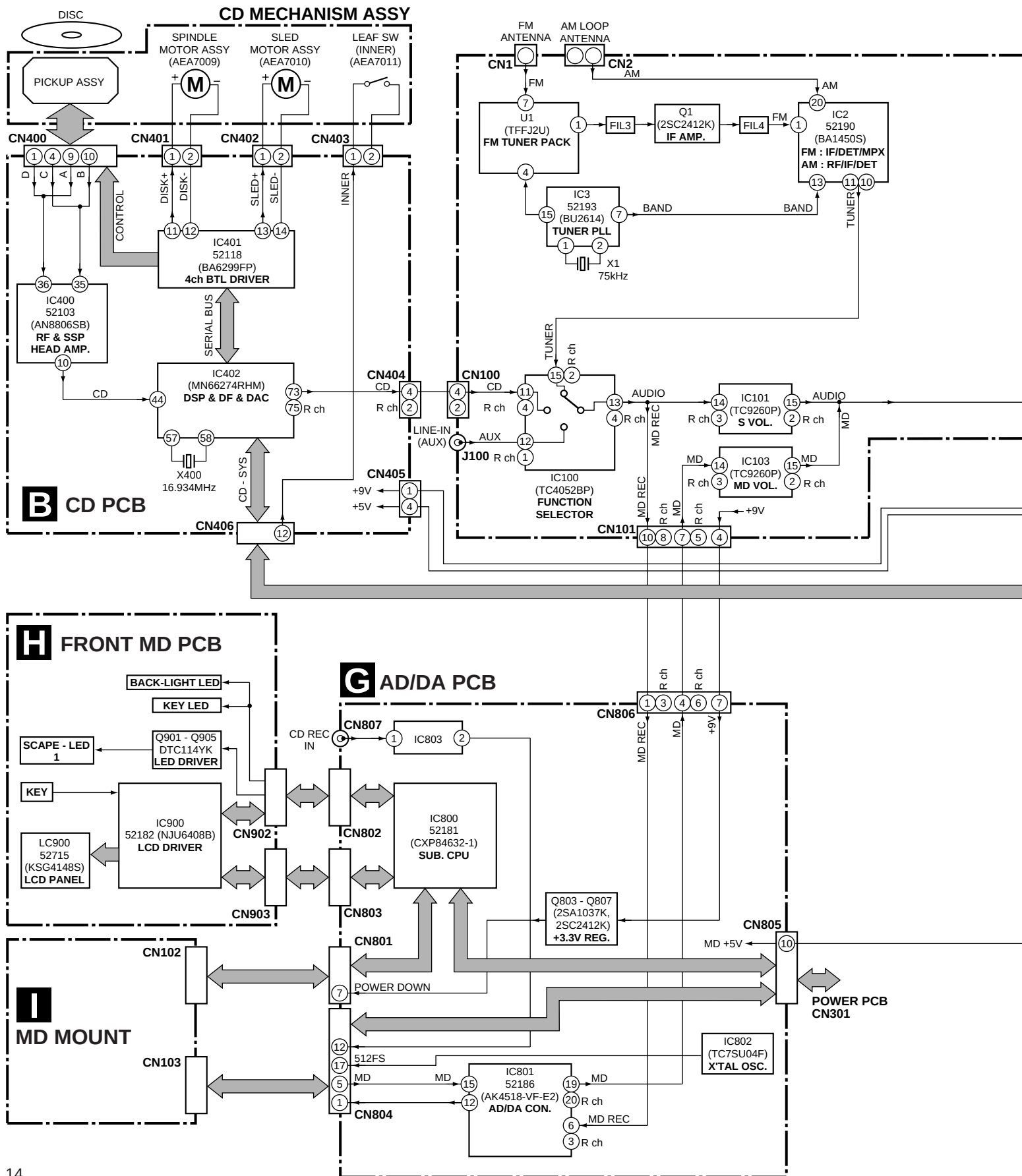
| Mark | No. | Description                     | Part No.     |
|------|-----|---------------------------------|--------------|
| NSP  | 1   | Speaker Frame Assy L (S-HMD03L) | 10500-03L    |
|      | 1   | Speaker Frame Assy R (S-HMD03R) | 10500-03R    |
|      | 2   | Speaker Frame                   | 66724-03     |
|      | 3   | Grille Frame                    | 66725-03     |
|      | 4   | Speaker Net L (S-HMD03L)        | 66744-03L    |
|      | 4   | Speaker Net R (S-HMD03R)        | 66744-03R    |
|      | 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         |

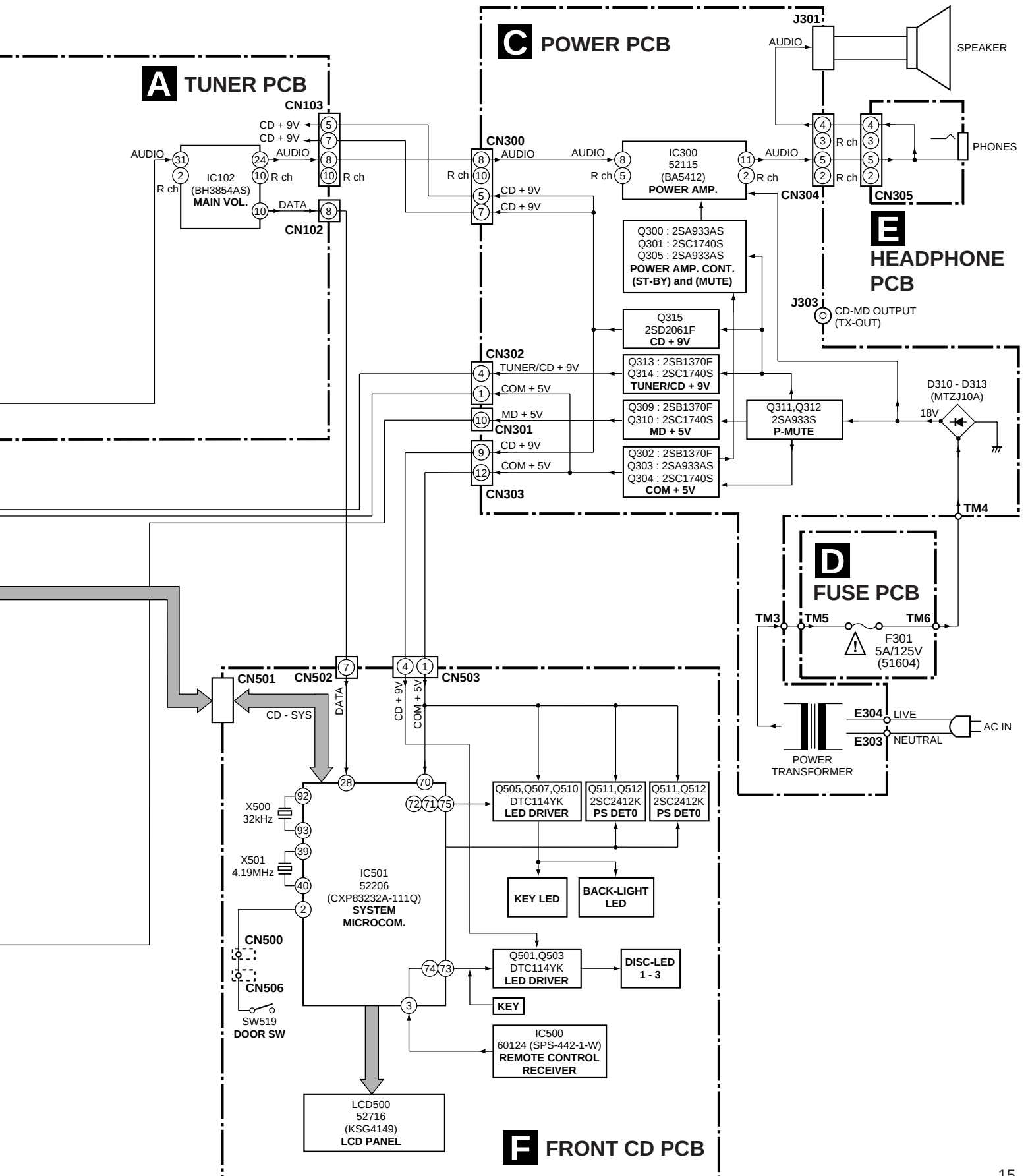
### ● SPEAKER SYSTEM PARTS LIST (S-HX99LR and S-HX05LR)

| Mark | No. | Description                   | Part No.     |
|------|-----|-------------------------------|--------------|
| NSP  | 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     |
|      | 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





3.2 SCHEMATIC DIAGRAM

3.2.1 CD RECEIVER SECTION

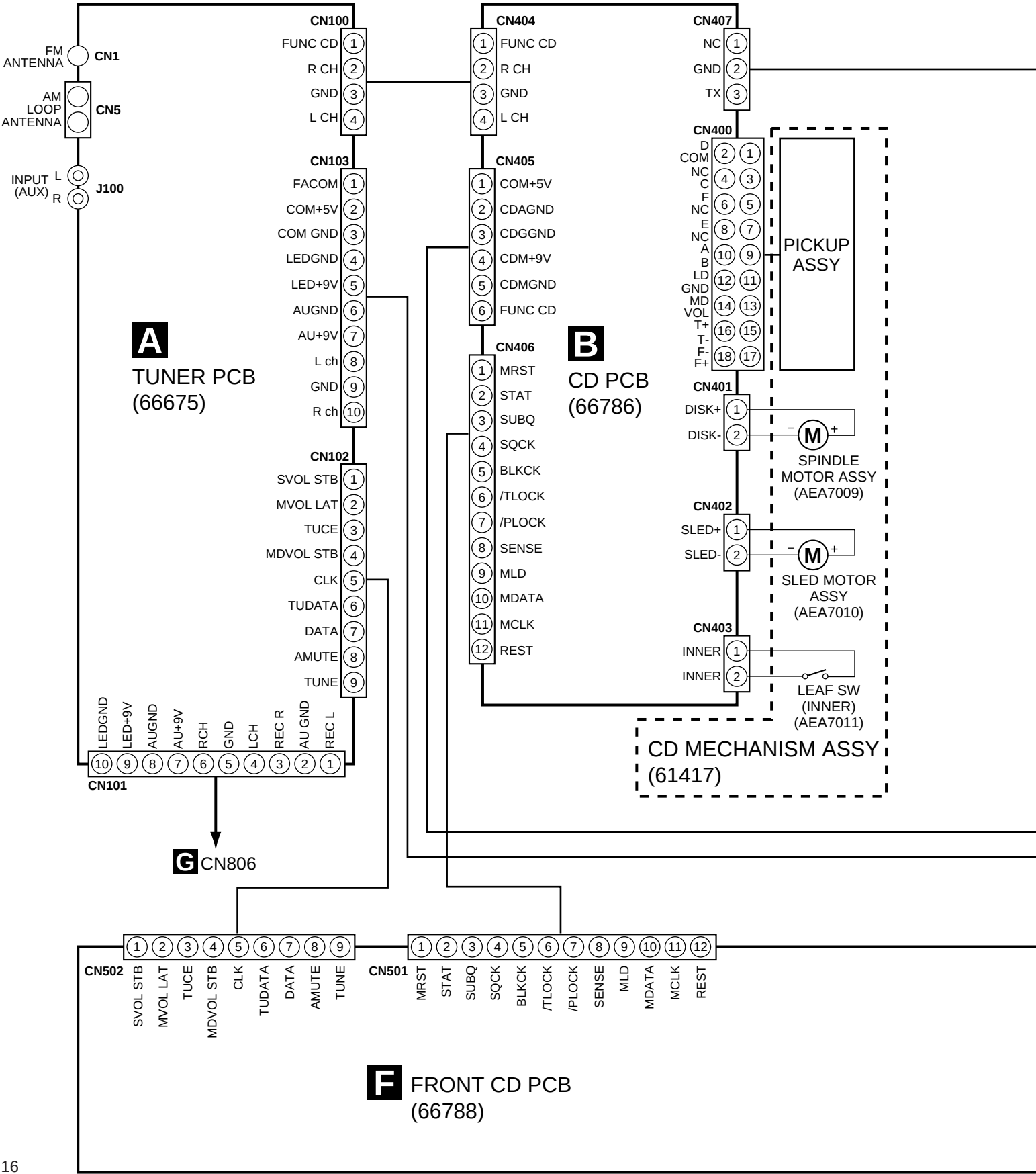
3.2.1.1 OVERALL WIRING DIAGRAM

A

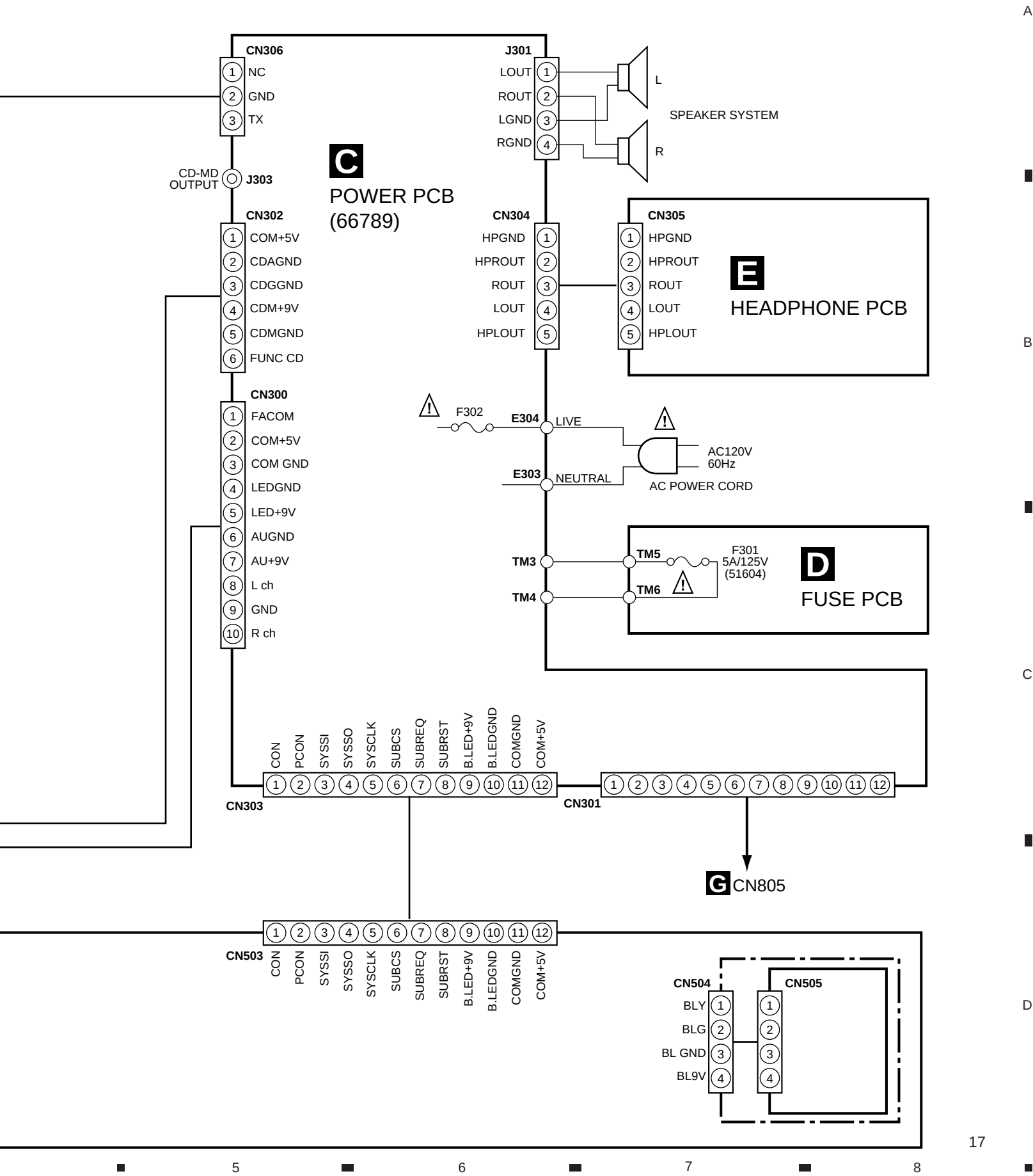
B

C

D

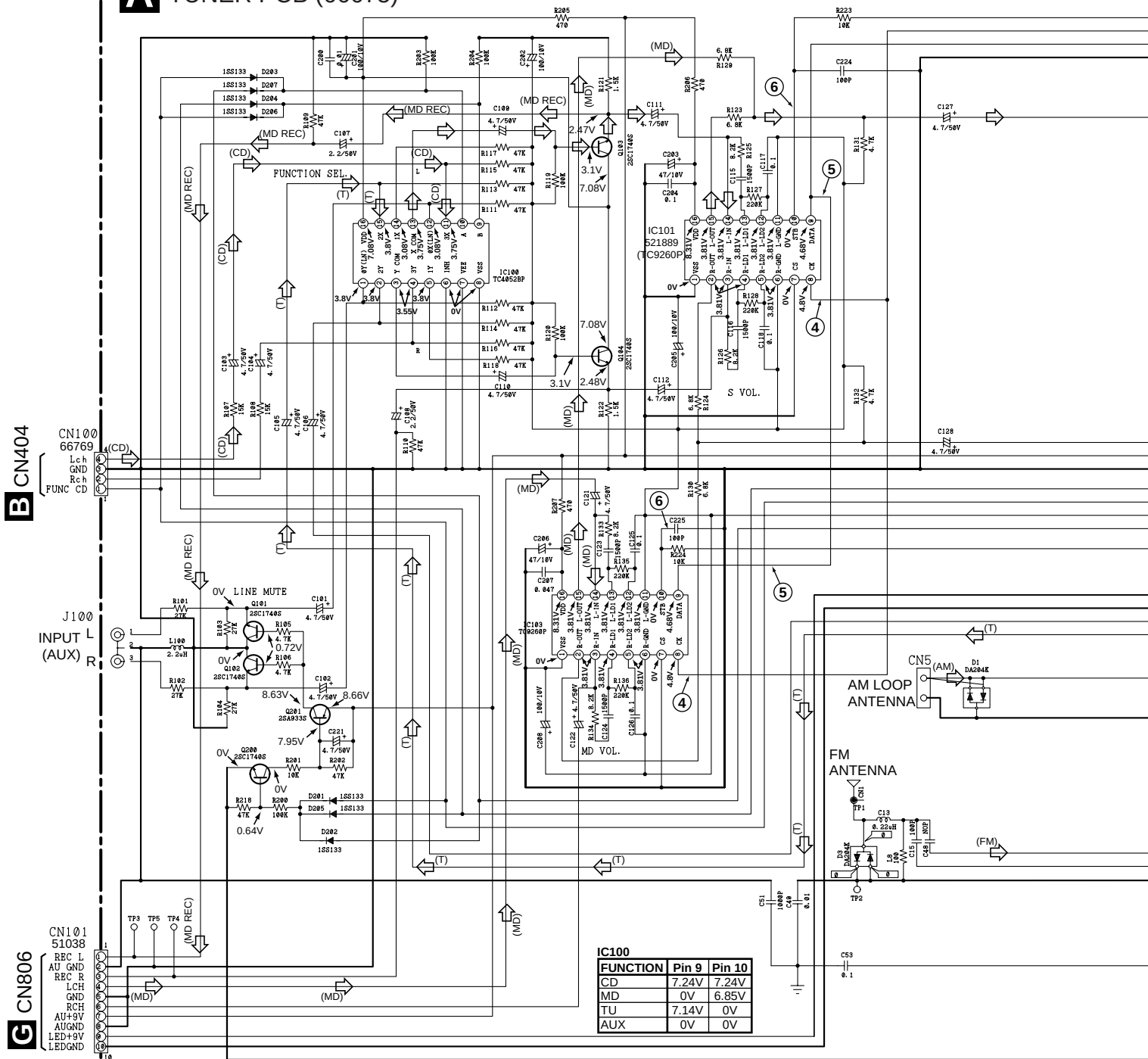


Note : When ordering service parts, be sure to refer to "EXPLODED VIEWS and PARTS LIST" or "PCB PARTS LIST".



### 3.2.1.2 TUNER PCB

## A TUNER PCB (66675)



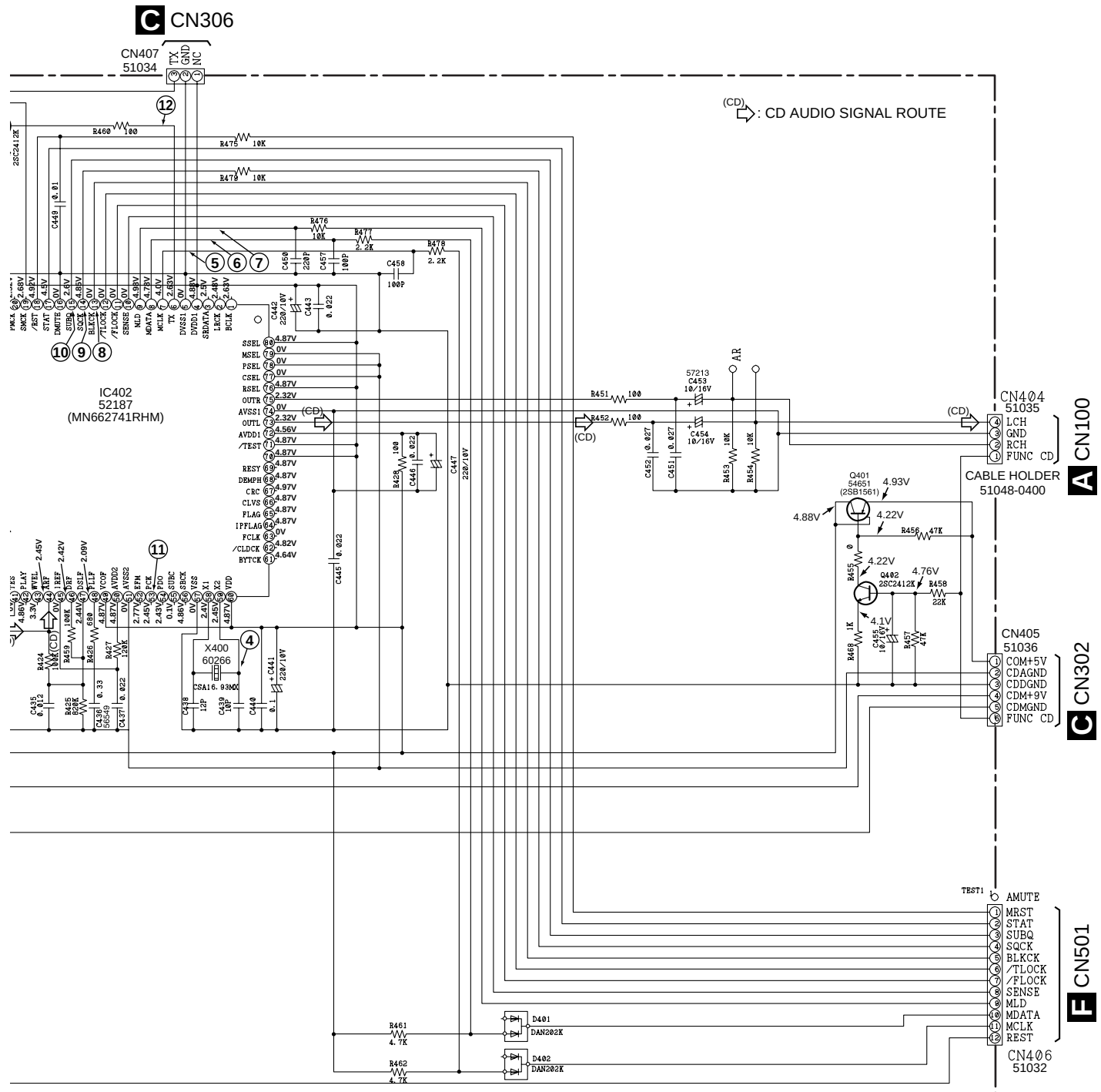
□: AUDIO SIGNAL ROUTE  
 (CD) □: CD AUDIO SIGNAL ROUTE  
 (MD) □: MD AUDIO SIGNAL ROUTE  
 (MD REC) □: MD REC ANALOG AUDIO SIGNAL ROUTE  
 (AM) □: AM SIGNAL ROUTE  
 (FM) □: FM SIGNAL ROUTE  
 (T) □: TUNER AUDIO SIGNAL ROUTE

| 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  |

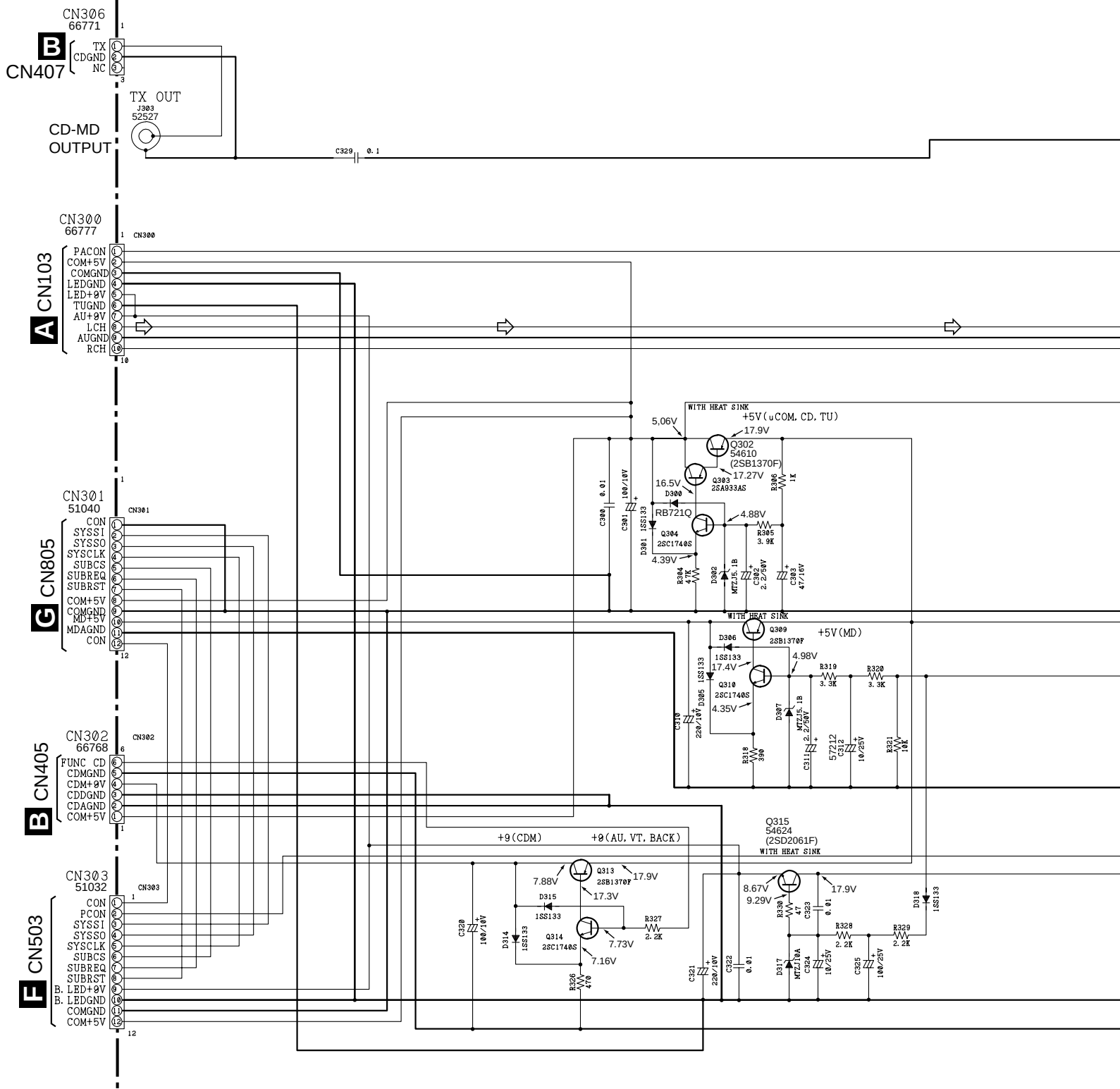






3.2.1.4 POWER, FUSE and HEADPHONE PCB

C POWER PCB





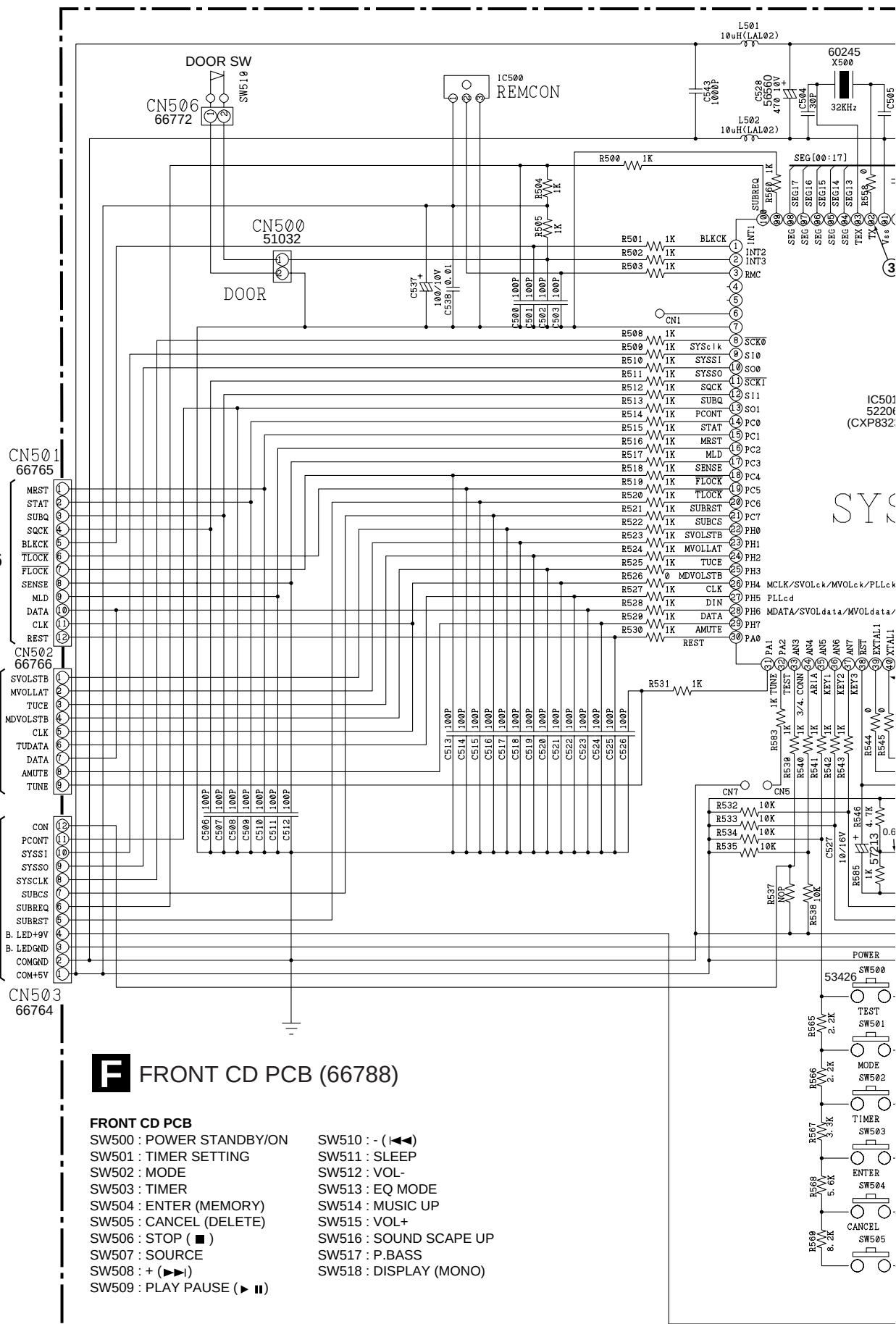
### 3.2.1.5 FRONT CD PCB

A

B

C

D

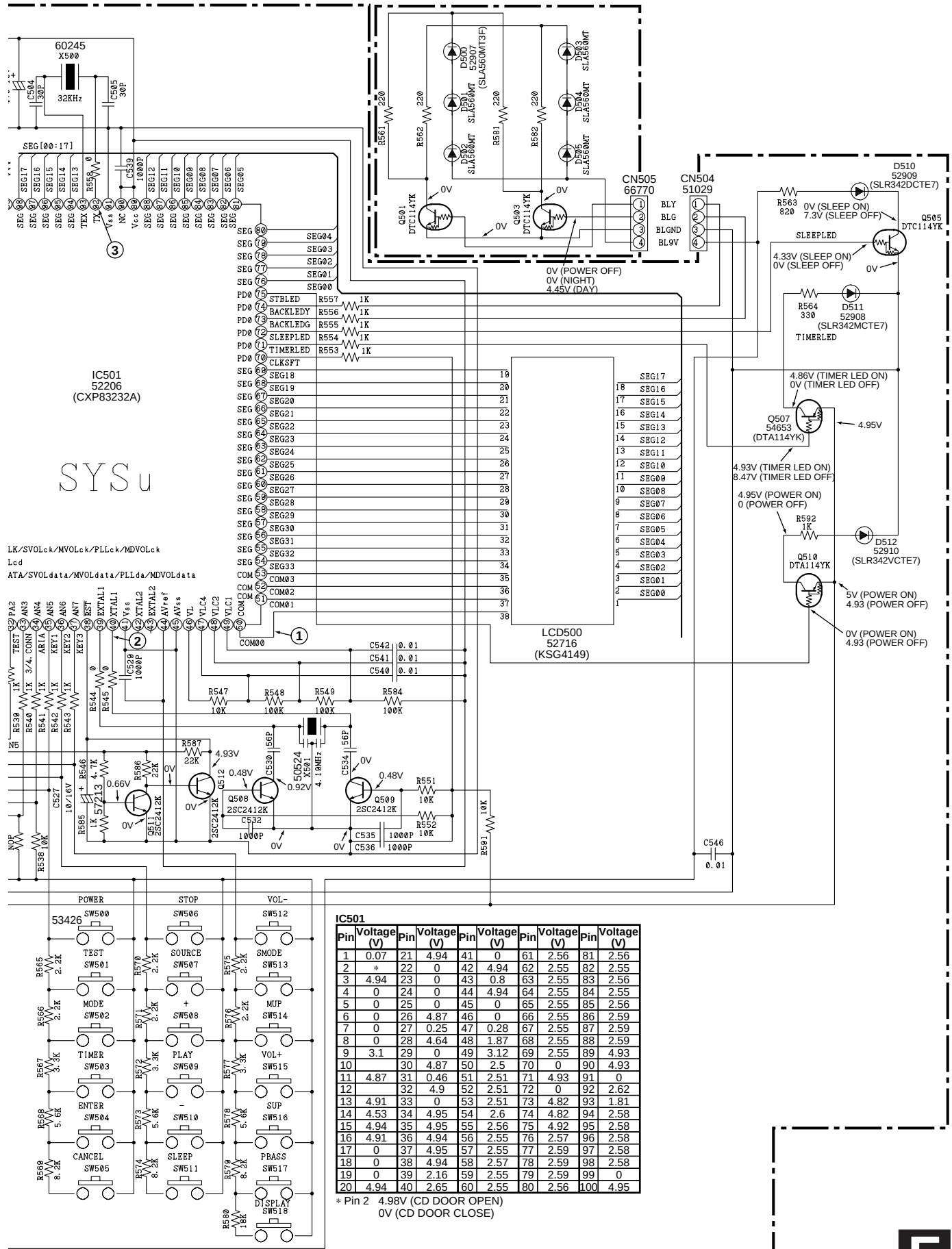


### FRONT CD PCB (66788)

#### 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)

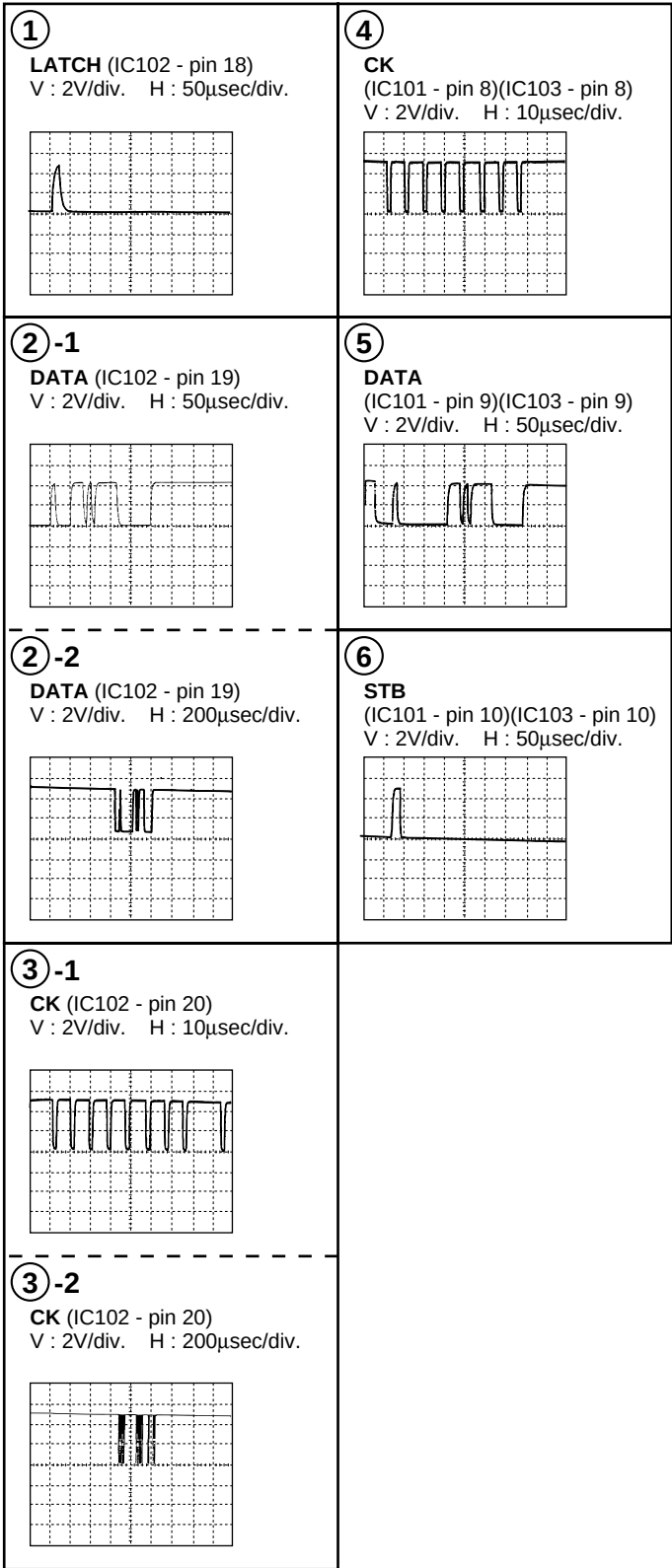
SW510 : - (◀◀)  
 SW511 : SLEEP  
 SW512 : VOL-  
 SW513 : EQ MODE  
 SW514 : MUSIC UP  
 SW515 : VOL+  
 SW516 : SOUND SCAPPE UP  
 SW517 : P.BASS  
 SW518 : DISPLAY (MONO)



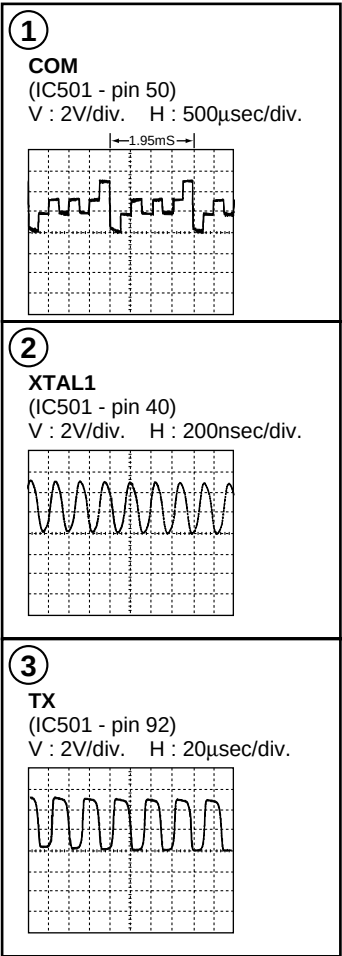
■ WAVEFORMS (CD RECEIVER)

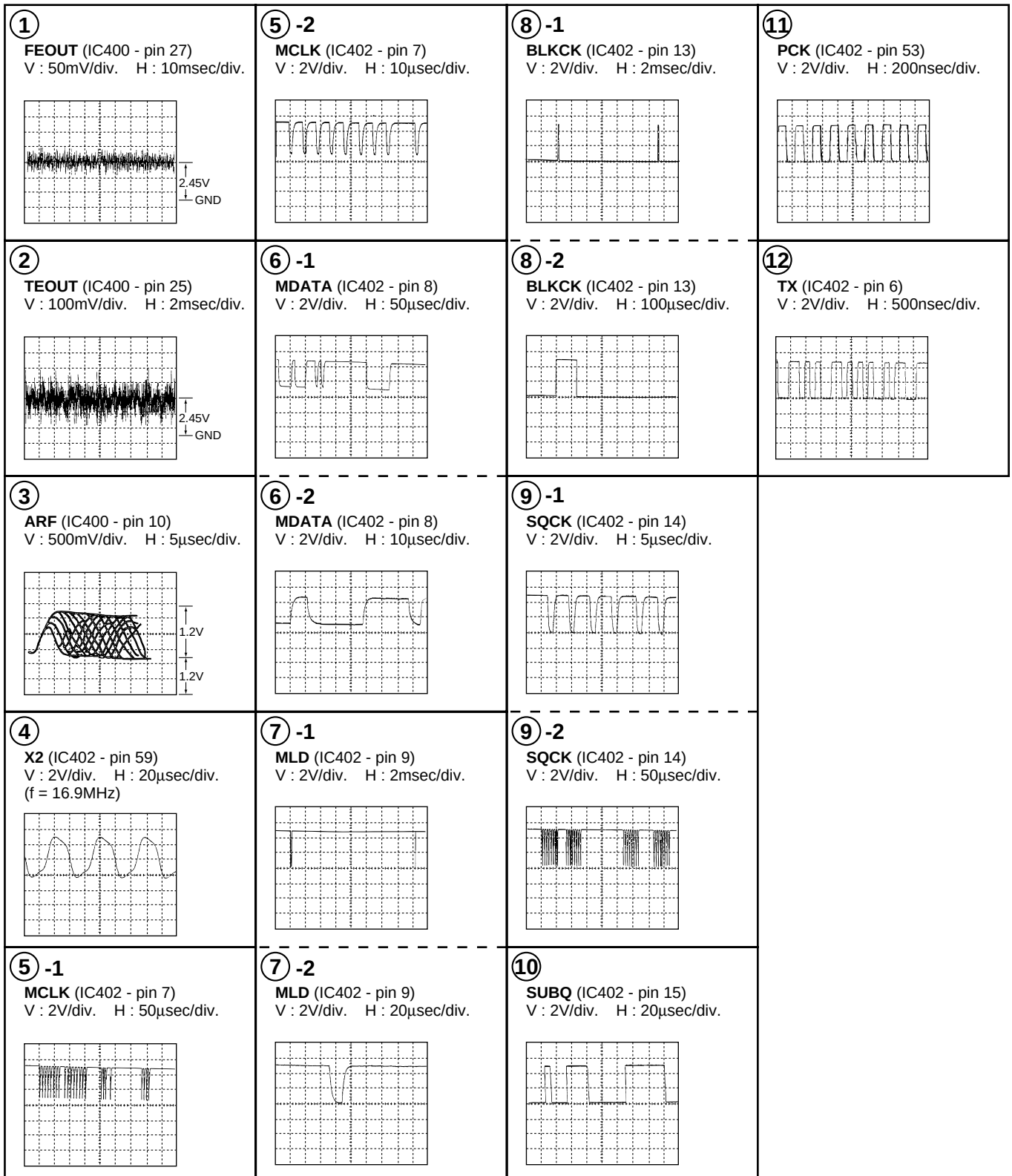
Note : The encircled numbers denote measuring point in the schematic diagram.

**A** TUNER PCB



**F** FRONT CD PCB

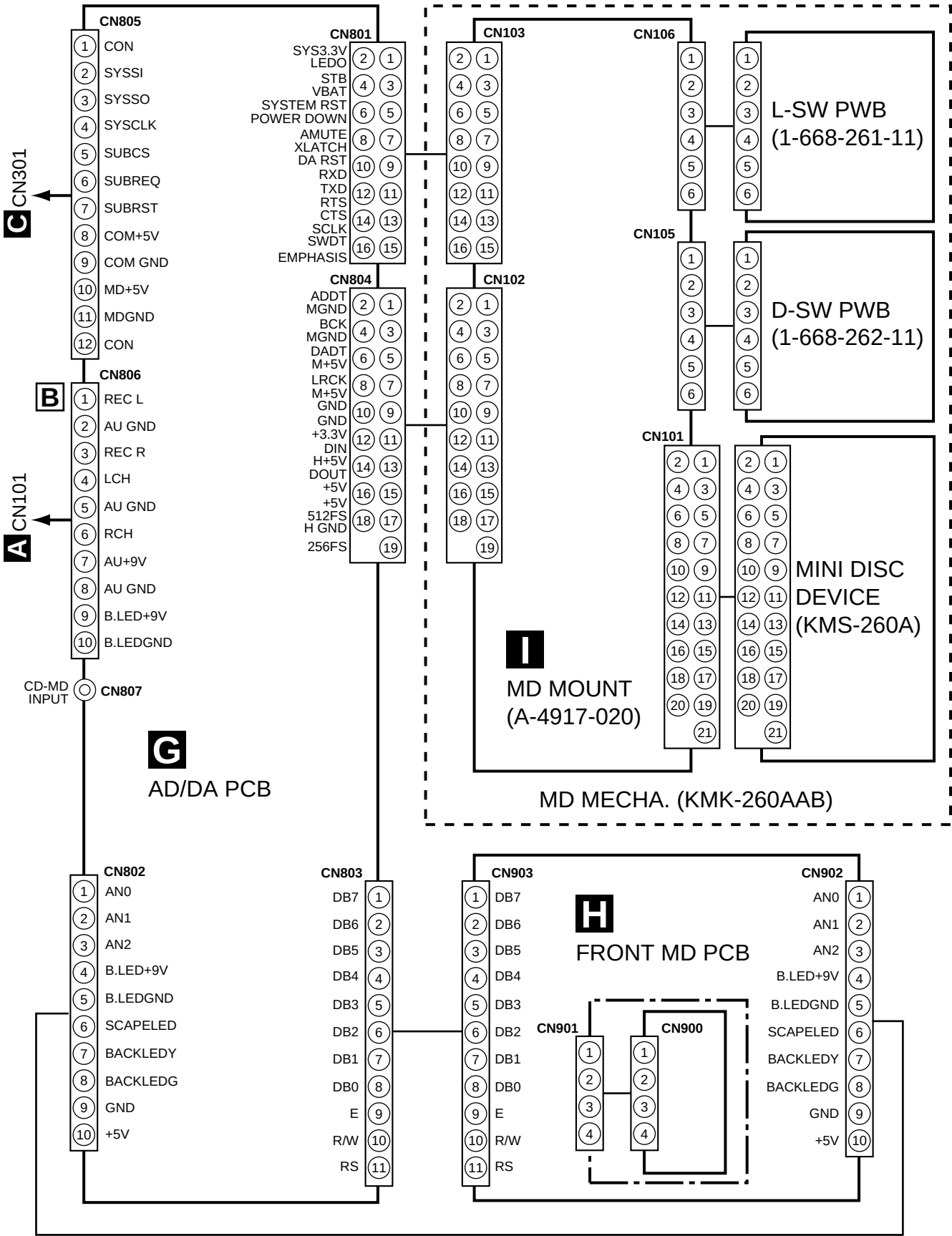


**B** CD PCB

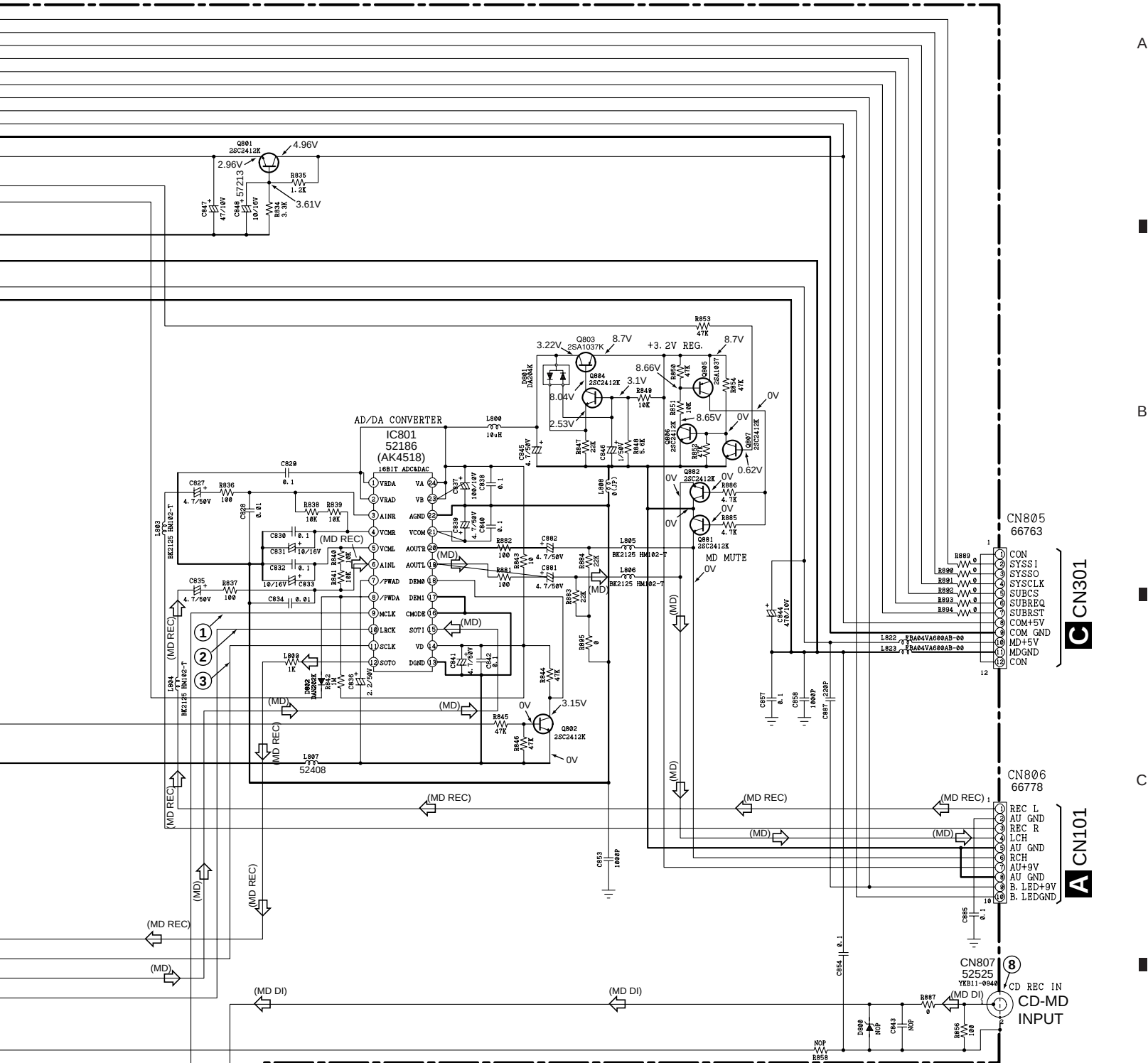


3.2.2 MD RECORDER SECTION

3.2.2.1 OVEALL WIRING DIAGRAM



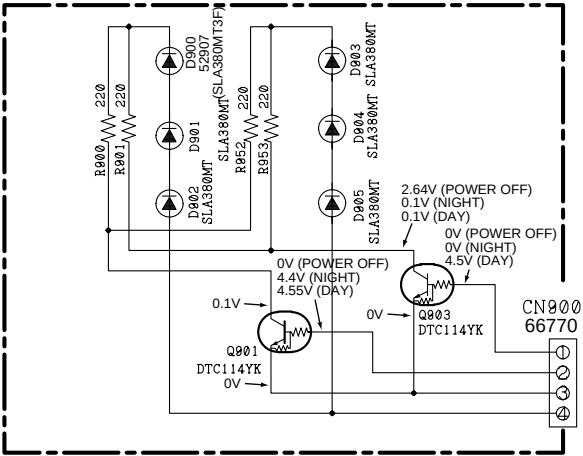




| IC801 |             |     |             | IC800 |             |     |             |
|-------|-------------|-----|-------------|-------|-------------|-----|-------------|
| Pin   | Voltage (V) | Pin | Voltage (V) | Pin   | Voltage (V) | Pin | Voltage (V) |
| 1     | 3.21        | 13  | 0           | 1     | 0           | 13  | 0.07        |
| 2     | 3.21        | 14  | 3.17        | 2     | 0           | 14  | 0.08        |
| 3     | 1.44        | 15  | 0.93        | 3     | 4.48        | 15  | 0.13        |
| 4     | 1.44        | 16  | 0           | 4     | 4.48        | 16  | 4.62        |
| 5     | 1.44        | 17  | 0           | 5     | 3.4         | 17  | 4.62        |
| 6     | 1.44        | 18  | 3.15        | 6     | 0           | 18  | 0.17        |
| 7     | 2.87        | 19  | 1.41        | 7     | 0           | 19  | 0.2         |
| 8     | 2.87        | 20  | 1.41        | 8     | 4.78        | 20  | 0.24        |
| 9     | 1.75        | 21  | 1.44        | 9     | 4.82        | 21  | 0.2         |
| 10    | 1.75        | 22  | 0           | 10    | 4.82        | 22  | 0           |
| 11    | 1.8         | 23  | 3.21        | 11    | 0.16        | 23  | 0           |
| 12    | 0.9         | 24  | 3.21        | 12    | 0.11        | 24  | 0           |

3.2.2.3 FRONT MD PCB

**H** FRONT MD PCB



CN901  
CONNECTOR 4P  
51029

MD LCD

LCD900  
52715

LCD DB

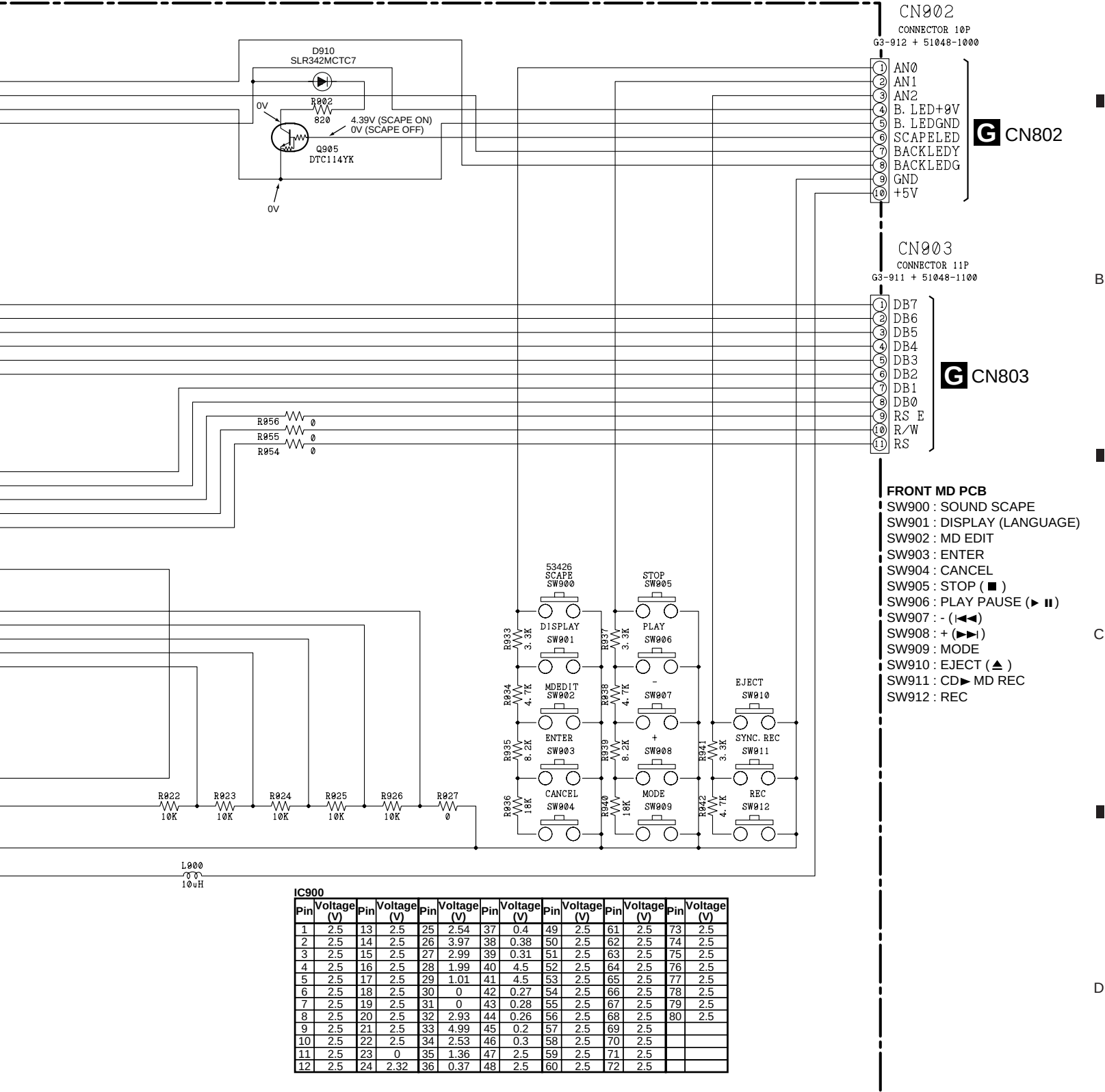
IC900  
52182  
(NJU6408B)

DB1  
DB0  
RS E  
R/W  
RS

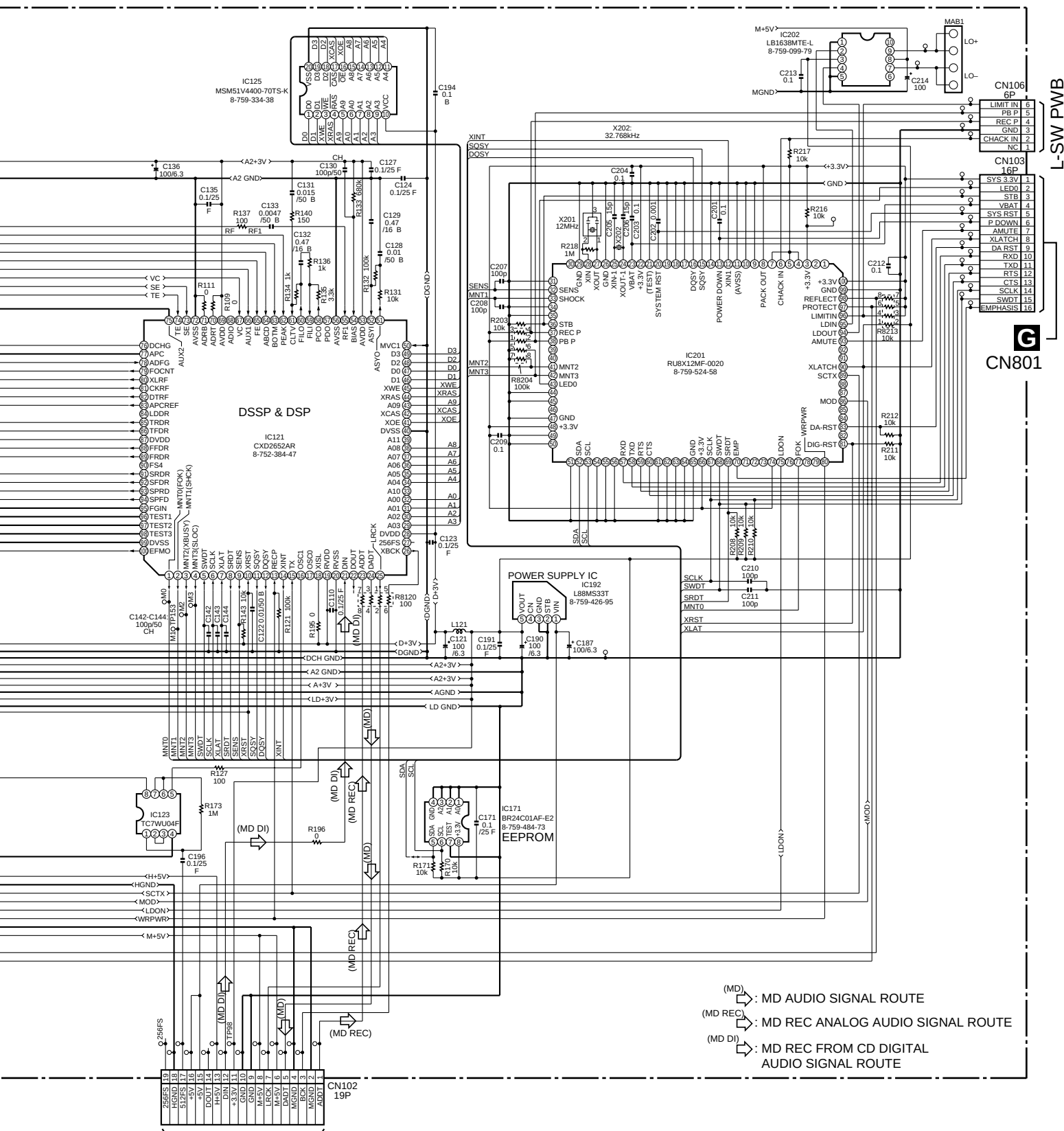
V5  
V4  
V3  
V2  
V1

OSC2  
OSC1  
VSS

R921 01K  
C902  
0.01  
C901  
100/10V





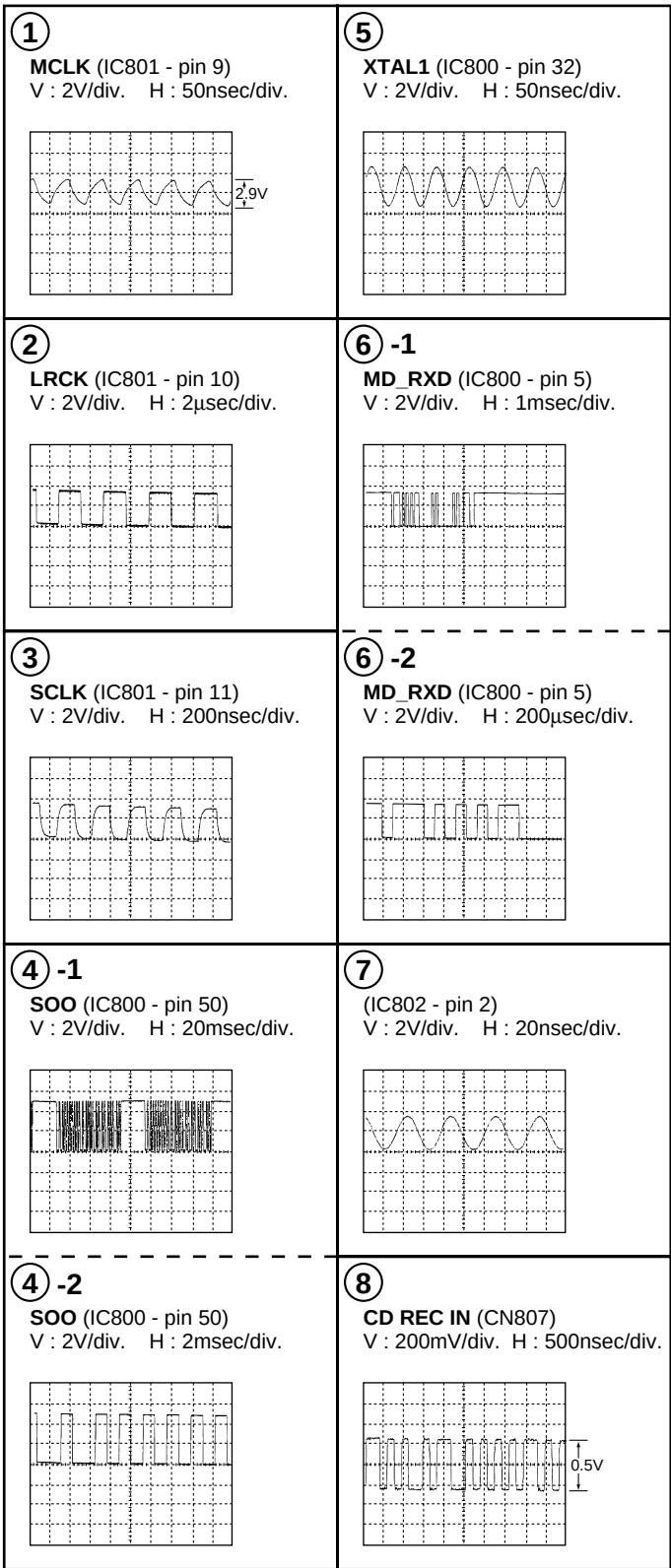
**G** CN804

1

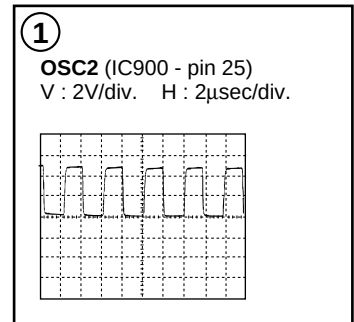
WAVEFORMS (MD RECORDER)

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

G AD/DA PCB



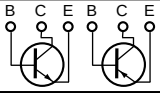
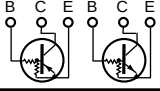
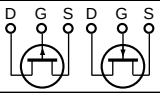
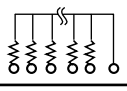
H FRONT MD PCB



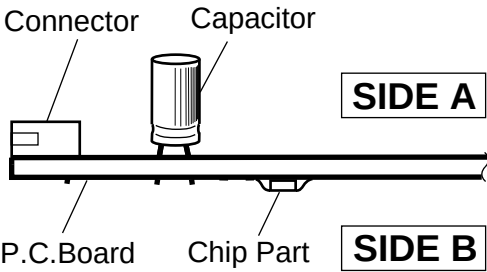
# 4. PCB CONNECTION DIAGRAM

**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                |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--------------------------|
|  |  | Transistor               |
|  |  | Transistor with resistor |
|  |  | Field effect transistor  |
|  |  | Resistor array           |
|  |  | 3-terminal regulator     |

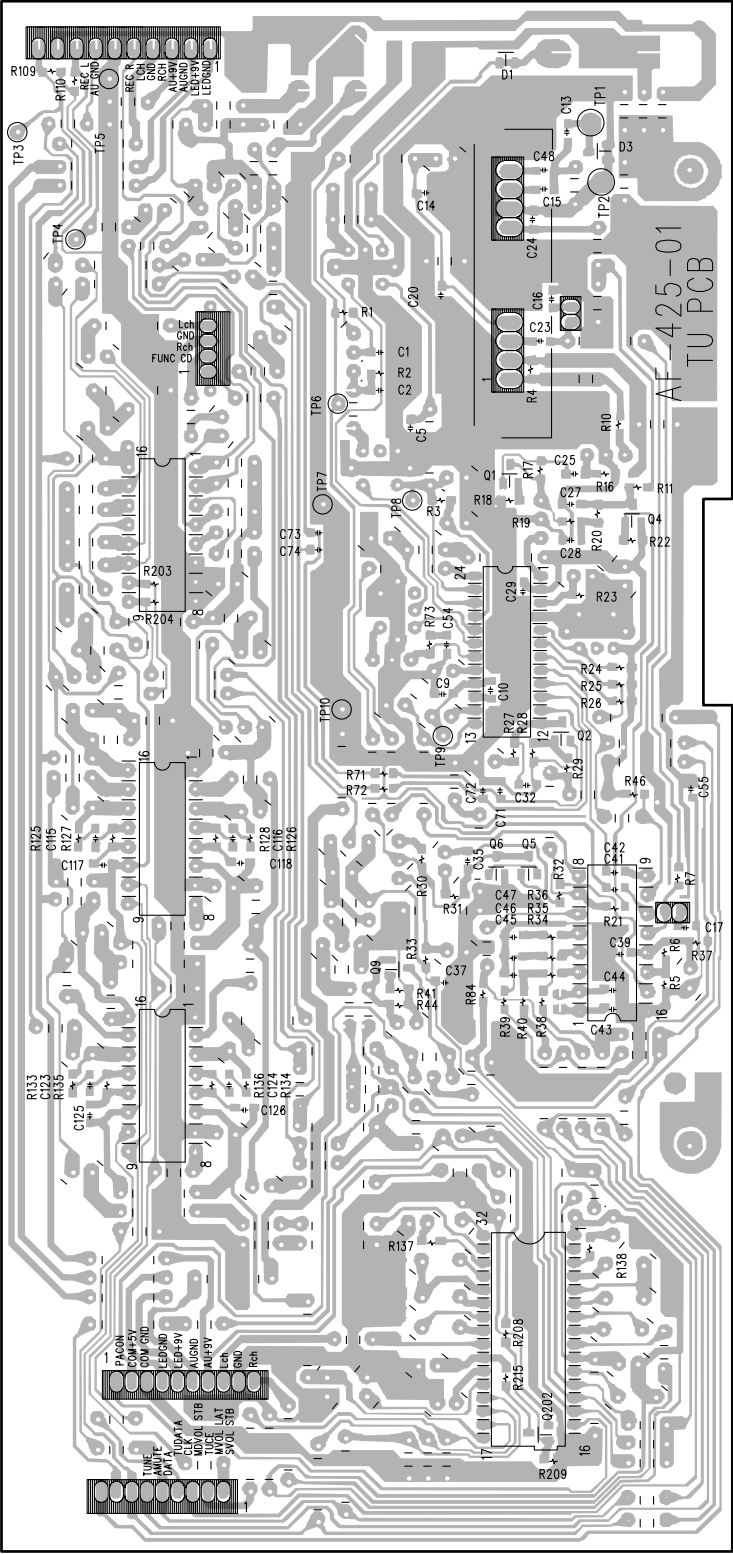
- 3. The parts mounted on this PCB include all necessary parts for several destinations.  
For further information for respective destinations, be sure to check with the schematic diagram.
- 4. View point of PCB diagrams.





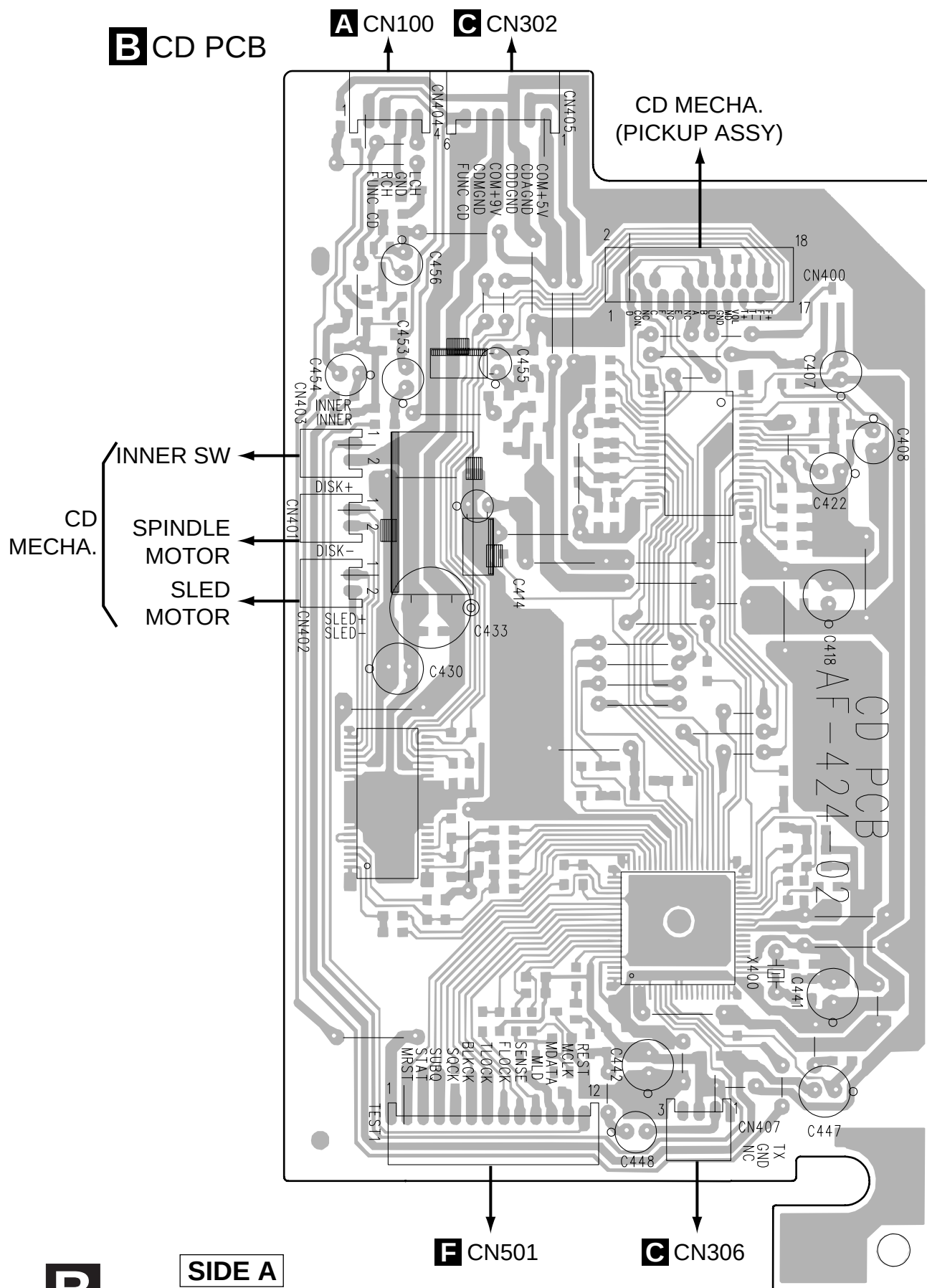
A TUNER PCB

Q1  
Q4  
Q2  
Q6 Q5  
Q9  
Q202

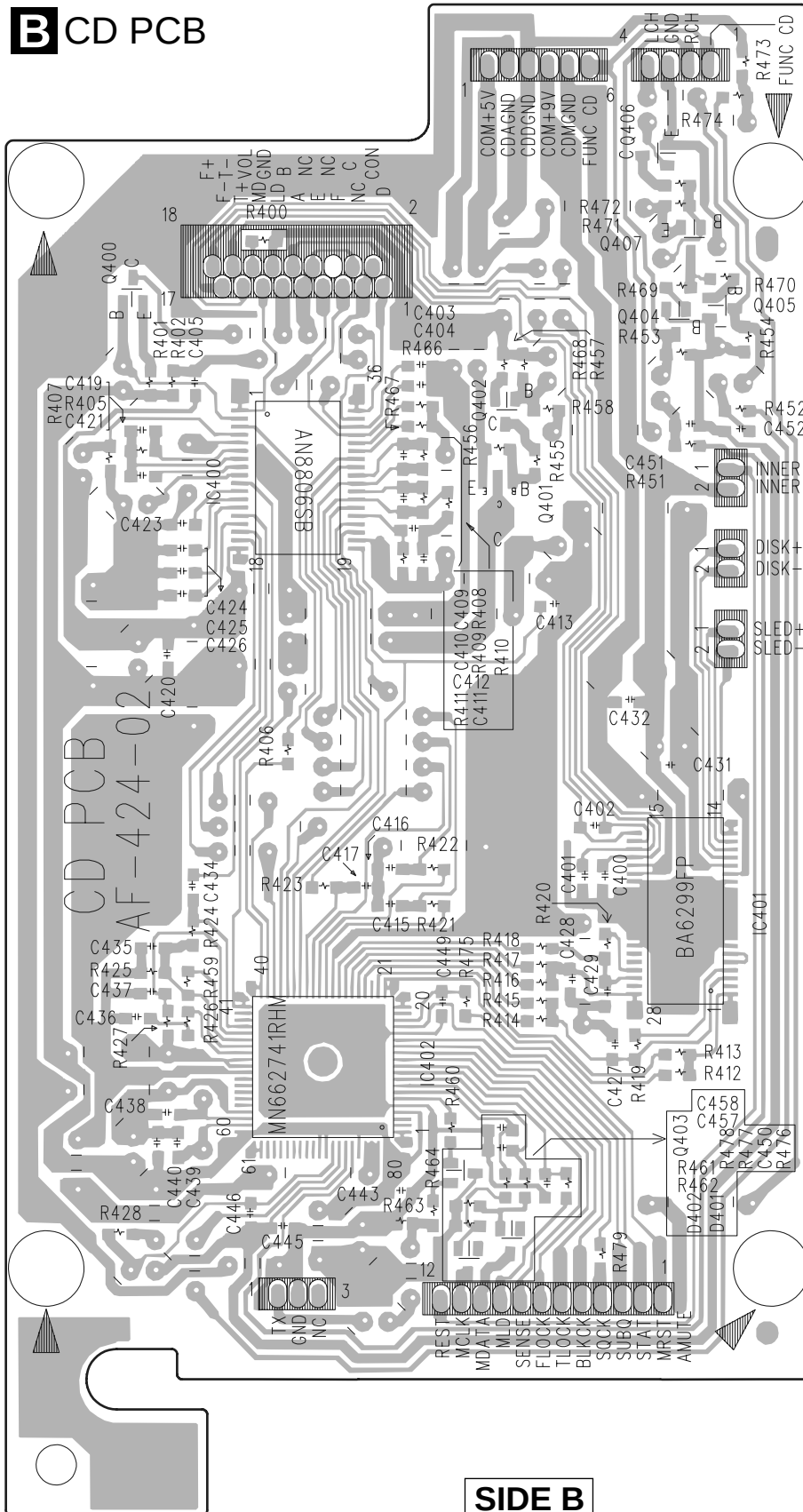


SIDE B

4.1.2 CD PCB



**B** CD PCB

**SIDE B**

Q406

Q407

|      |      |      |
|------|------|------|
| Q400 | Q404 | Q405 |
|------|------|------|

Q402

|       |      |
|-------|------|
| IC400 | Q401 |
|-------|------|

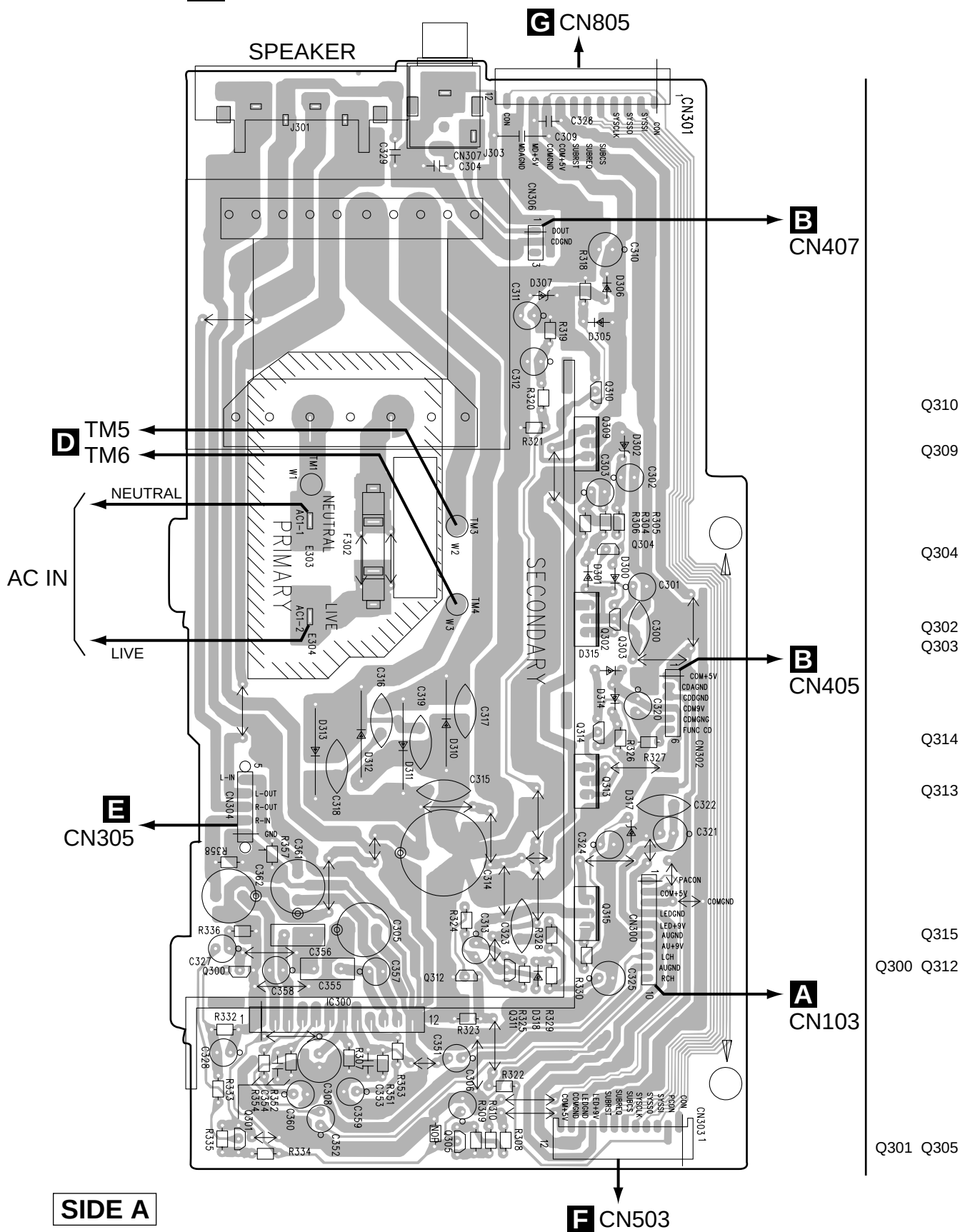
IC401

IC402

Q403

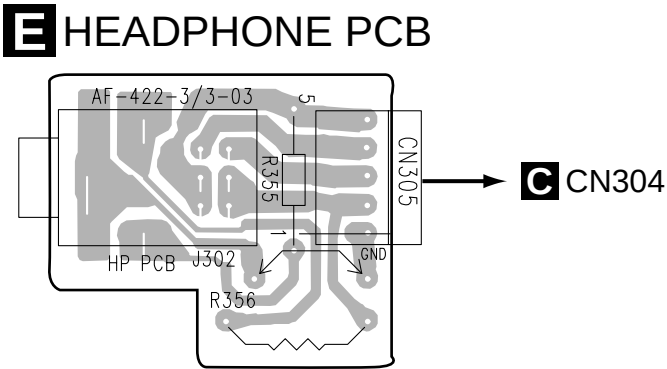
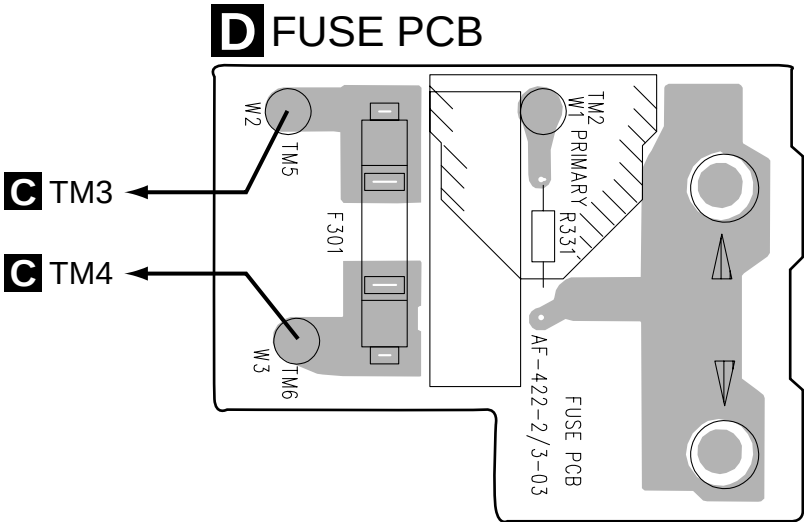
### 4.1.3 POWER PCB

## C POWER PCB



SIDE A

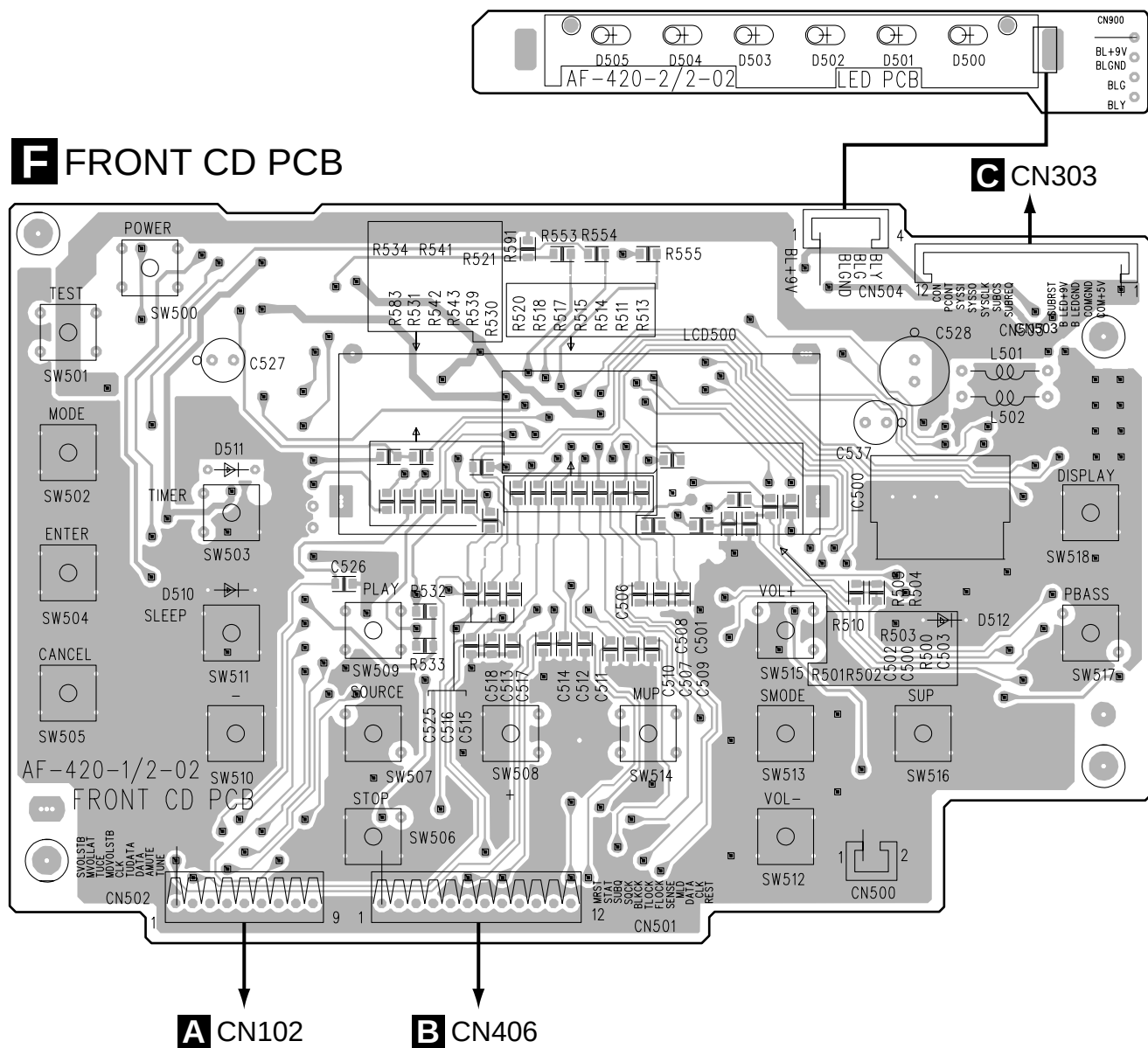
4.1.4 FUSE and HEADPHONE PCB



SIDE A

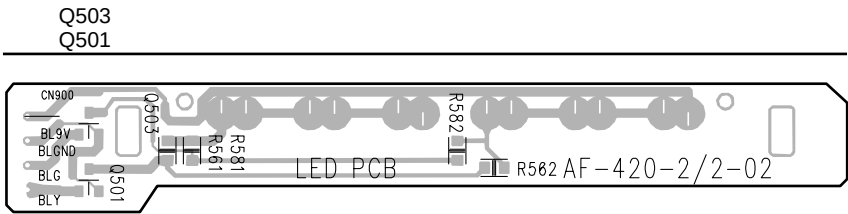
#### 4.1.5 FRONT CD PCB

**F** FRONT CD PCB

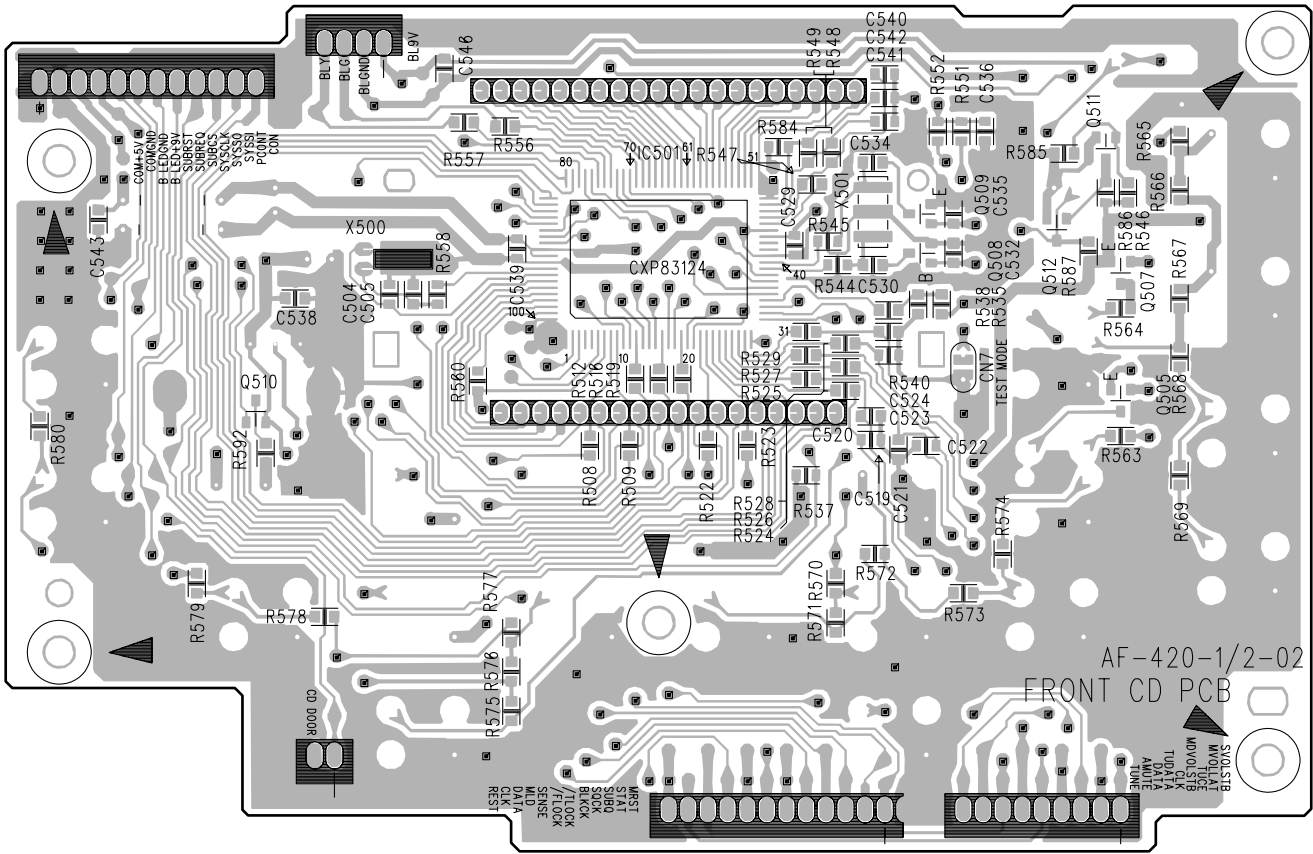


Note :  is connected to side B.

## SIDE A



**F** FRONT CD PCB



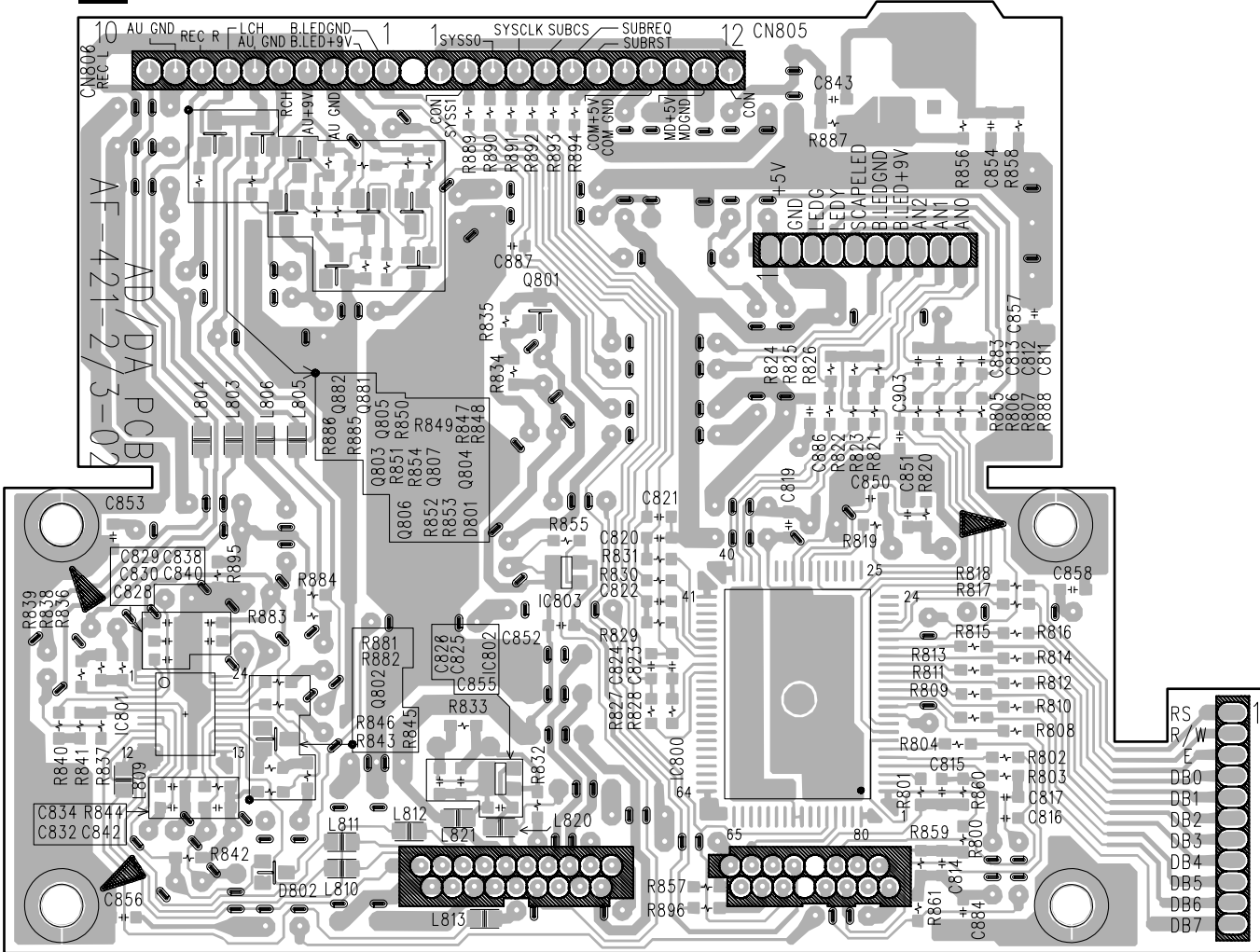
Q510 IC501 Q509 Q511 Q507 Q508 Q512 Q505

Note :  is connected to side A.

**SIDE B**



**G** AD/DA PCB

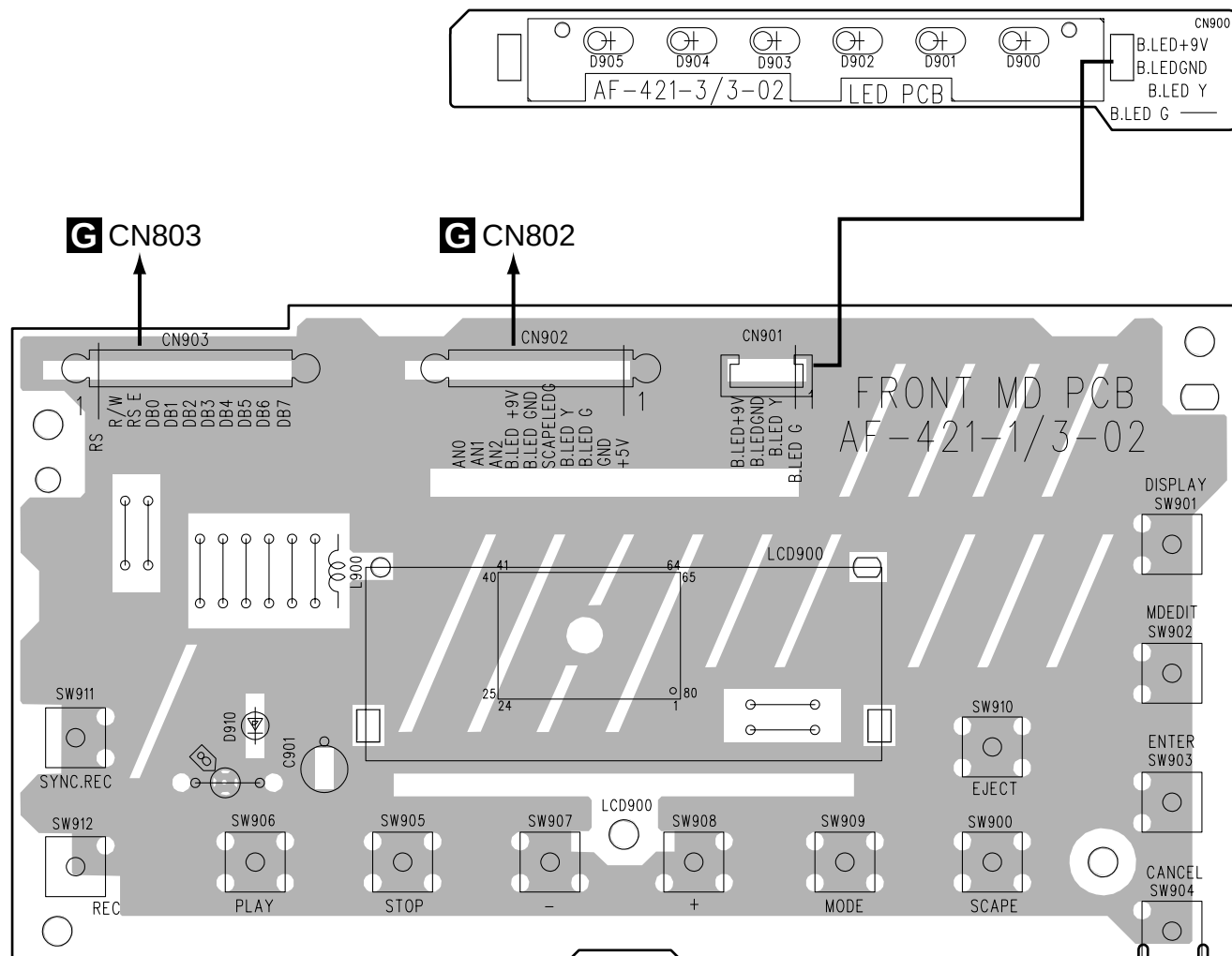


Q882 Q881 Q805  
Q803 Q807 Q804  
Q806 Q801  
IC801 Q802 IC802 IC800

**SIDE B**

## 4.2.2 FRONT MD PCB

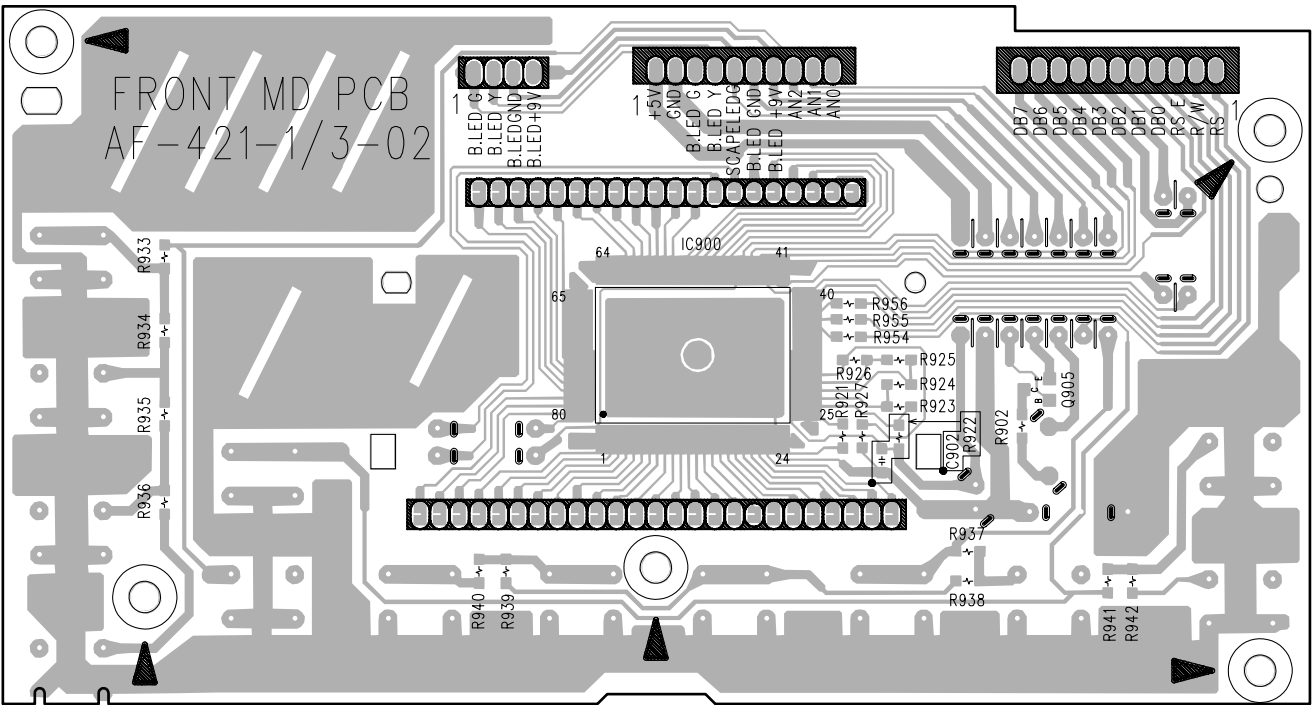
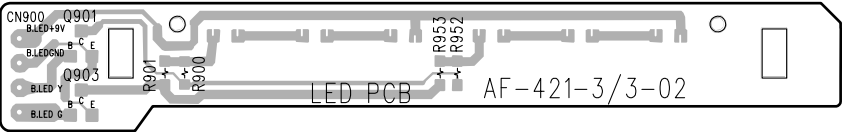
### **H** FRONT MD PCB



**SIDE A**

**H** FRONT MD PCB

Q901  
Q903



Q905

**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 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.  
●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 × 10<sup>1</sup> → 561 ..... RD1/4PU 5 6 1 J  
47k Ω → 47 × 10<sup>3</sup> → 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 × 10<sup>1</sup> → 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      |

| Mark       | No.                             | Description | Part No.      |
|------------|---------------------------------|-------------|---------------|
| 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.    |
|------------------|------------------------|-------------|-------------|
| <b>RESISTORS</b> |                        |             |             |
|                  | 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   |

| Mark | No.                           | Description | Part No.     |
|------|-------------------------------|-------------|--------------|
|      | 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 | CONNECTOR S2B-PH-K-S  | 51033 |
| CN407       | CONNECTOR 53254-0310  | 51034 |
| CN404       | CONNECTOR 53254-0410  | 51035 |
| CN405       | CONNECTOR 53254-0610  | 51036 |

## CDE 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 |

# X-HMD01, X-HMD03, X-HX99, X-HX05

| Mark          | No. | Description            | Part No.   |
|---------------|-----|------------------------|------------|
| <b>OTHERS</b> |     |                        |            |
|               |     | 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 |

## 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              | BK2125HM102  |
| CHIP INDUCTOR                    |              |
| L800-L802                        | LAU100J      |
| L807,L814-L816,L819              | 52408        |
| (LAN02TA2R2)                     |              |
| 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.   |
|---------------|--------|--------------------------------|------------|
| <b>OTHERS</b> |        |                                |            |
|               | 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<br>(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 |

| Mark | No.  | Description | Part No.     |
|------|------|-------------|--------------|
|      | 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<br>(1Ω, 1/8W)      | 1-217-806-91 |
| R163 METAL COATING RESISTOR<br>(1Ω, 1/4W)   | 1-219-724-91 |
| R213 CHIP NETWORK RESISTOR<br>(10kΩ×4)      | 1-233-415-21 |
| R120 CHIP NETWORK RESISTOR<br>(100Ω×4)      | 1-233-575-21 |
| R204 NETWORK RESISTOR<br>(100kΩ×4)          | 1-233-810-21 |
| R166 SQA TYPE CHIP RESISTOR<br>(2.2Ω, 1/2W) | 1-240-032-91 |
| Other Resistors                             | RS1/10S□□□□  |

### 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<br>(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, $\pm 75$ kHz dev.) |                    | Reception Frequency Display | Adjustment Location | Specifications                                                                                                                                                                                                                                                                                                                                                                       |
|----------|----------------------------------|---------------------------------|--------------------|-----------------------------|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          |                                  | Frequency (MHz)                 | Level (dB $\mu$ V) |                             |                     |                                                                                                                                                                                                                                                                                                                                                                                      |
| 1        | DET. waveform<br>Coil Adjustment | 98                              | 60                 | 98MHz                       | L7                  | <ul style="list-style-type: none"> <li>• Adjust L7 so that the voltage between TP8 (+) and TP9 (–) becomes <math>0V \pm 50mV</math>.</li> <li>• Check the waveform with the oscilloscope, and confirm so that the output level is about <math>-11 \pm 2dBV</math> and THD is about <math>0.5 \pm 0.1\%</math>. Confirm that the "TUNE" indicator in the LCD is turned on.</li> </ul> |

#### 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 (dB $\mu$ V/m)   |                             |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 1        | Vt<br>(Tuning Voltage Adjustment) | 530<br>1700             | –<br>–                 | 530kHz<br>1700kHz           | L2<br>–             | <ul style="list-style-type: none"> <li>• Adjust L2 so that the voltage between TP6 (+) and TP7 (–) becomes 1.0V.</li> <li>• Set the reception frequency to 1700 kHz and confirm that the voltage is about 6.6V.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 2        | IFT Adjustment                    | 1000                    | S/N about 10dB         | 1000kHz                     | T1                  | <ol style="list-style-type: none"> <li>1. Connect an electrolytic capacitor of about 10<math>\mu</math>F to TP9 (TP9 side is +), and terminate with TP10 by a resistor of about 47k<math>\Omega</math>. Connect the sweep input to the both ends of terminated resistor.</li> <li>2. Adjust T1 so that the marker of 450kHz <math>\pm</math> 3kHz becomes the same level (single-peak characteristic of IF becomes symmetrical).</li> <li>3. Input 74dB<math>\mu</math>V from the SSG, confirm the waveform of output signal so that the output level is <math>-27V \pm 2dBV</math> and THD is about <math>1 \pm 0.5\%</math>. And confirm that the "TUNE" indicator in the LCD is turned on.</li> </ol> |
| 3        | Tracking Adjustment               | 600<br>1400             | 50<br>(S/N about 10dB) | 600kHz<br>1400kHz           | L1<br>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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

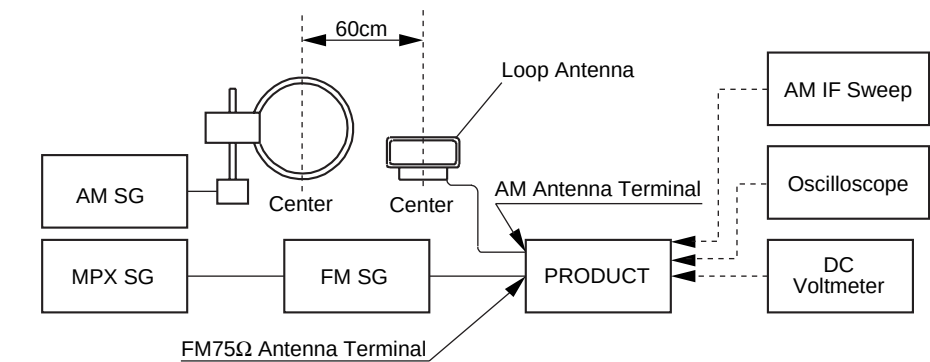


Fig.1 Adjustment Wiring Diagram

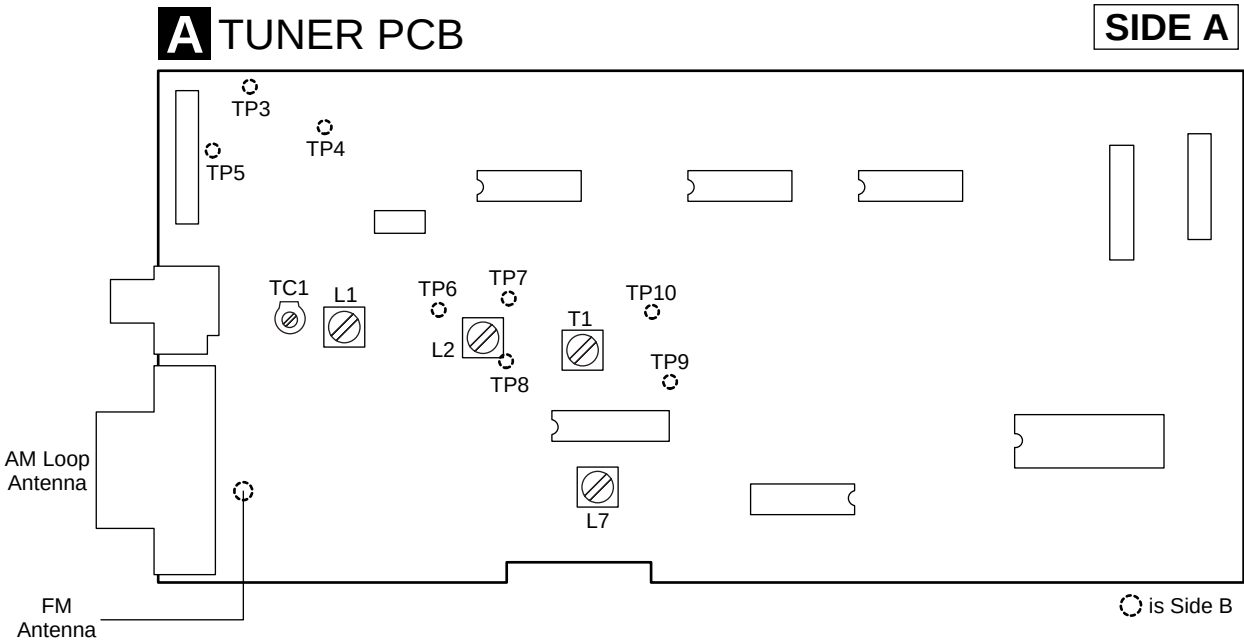


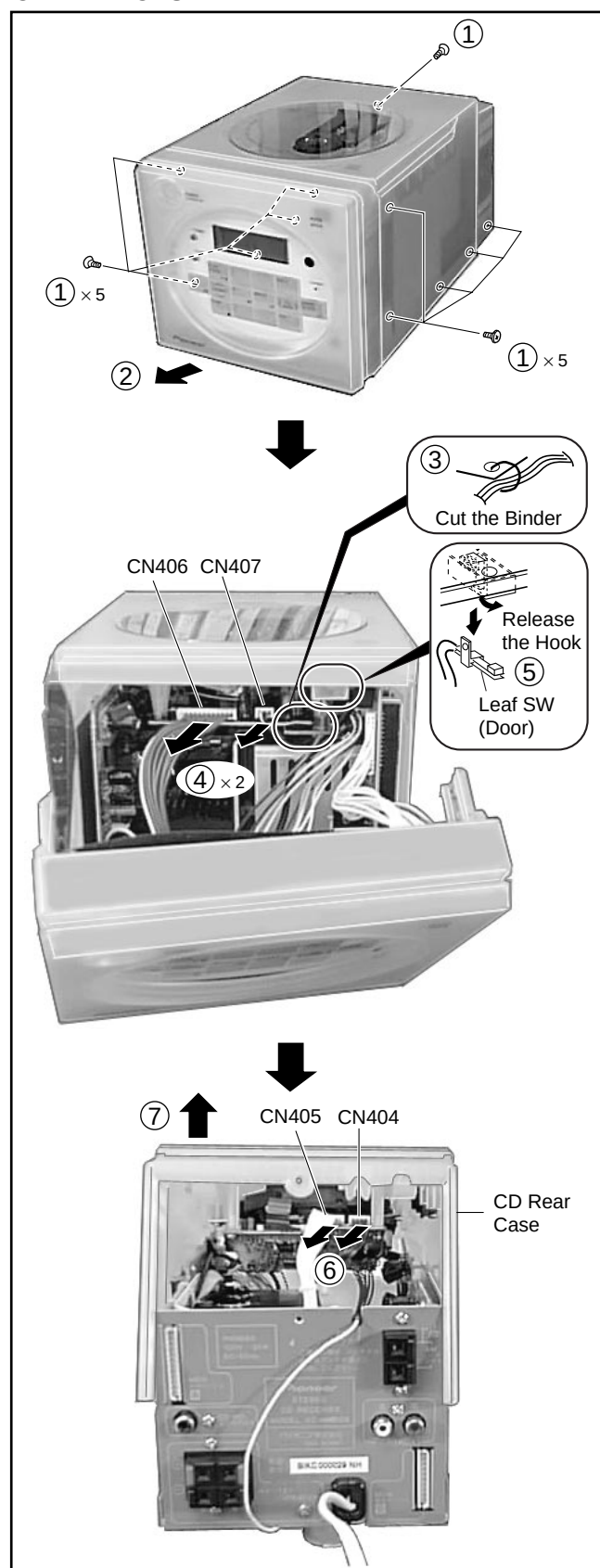
Fig.2 Adjustment Point

## 7. DIAGNOSIS

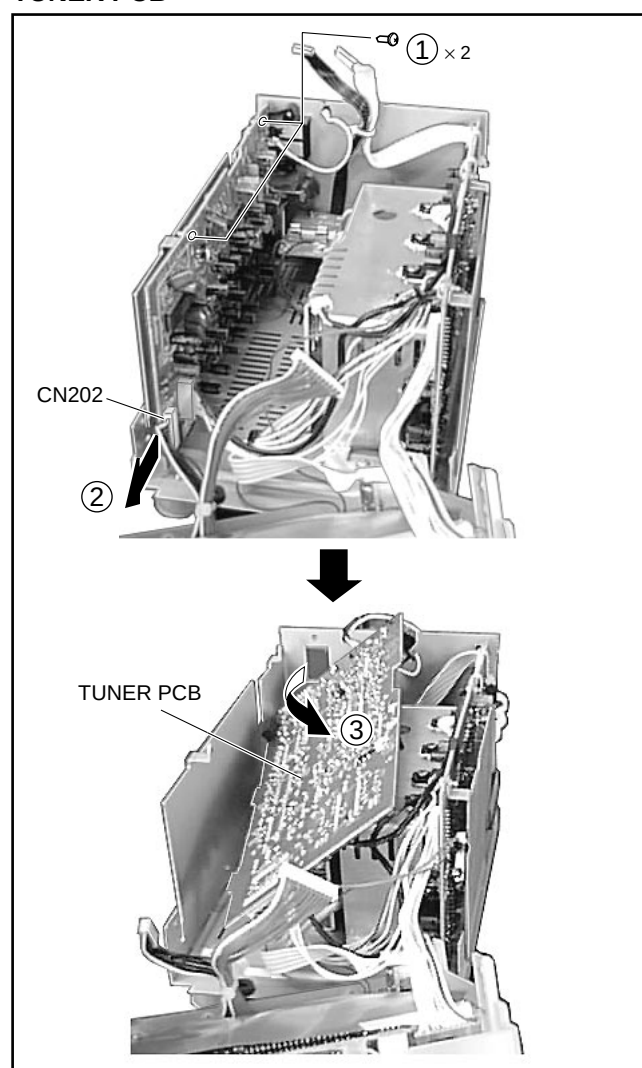
### 7.1 DISASSEMBLY

#### 7.1.1 CD RECEIVER

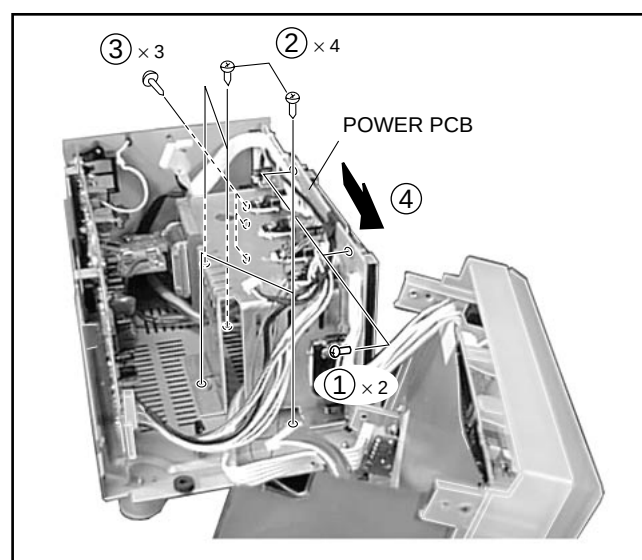
##### CD REAR CASE



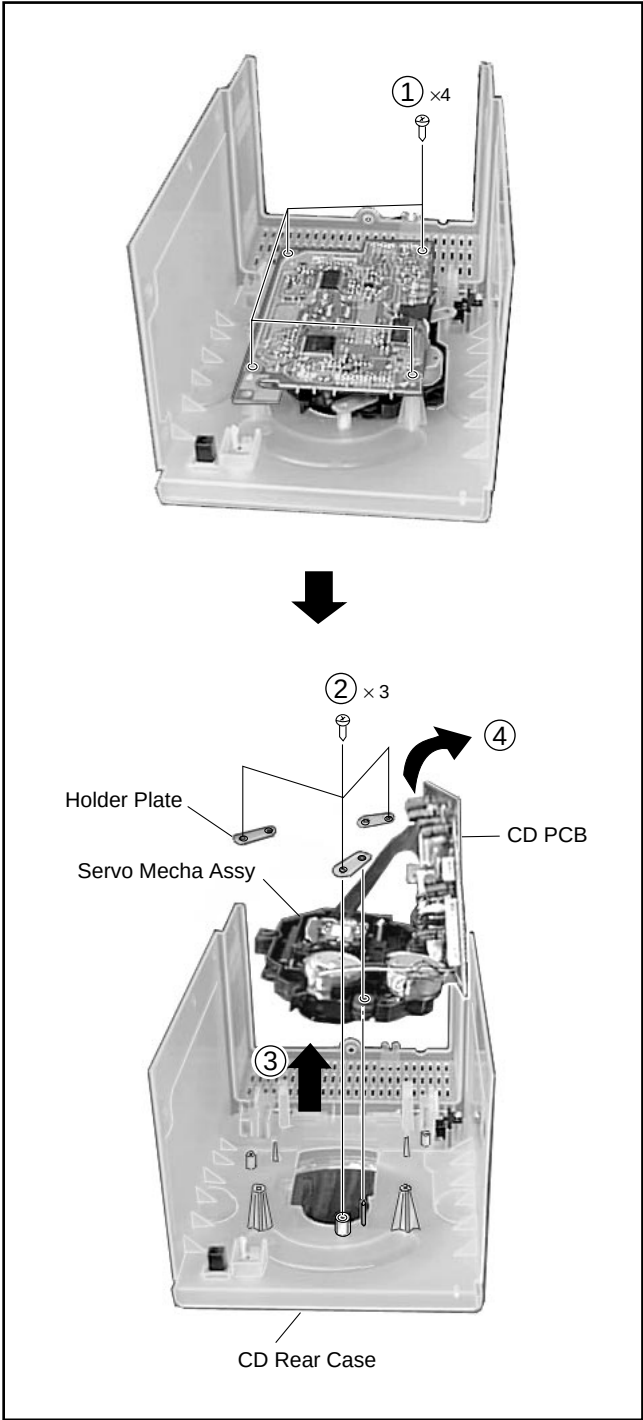
##### TUNER PCB



##### POWER PCB

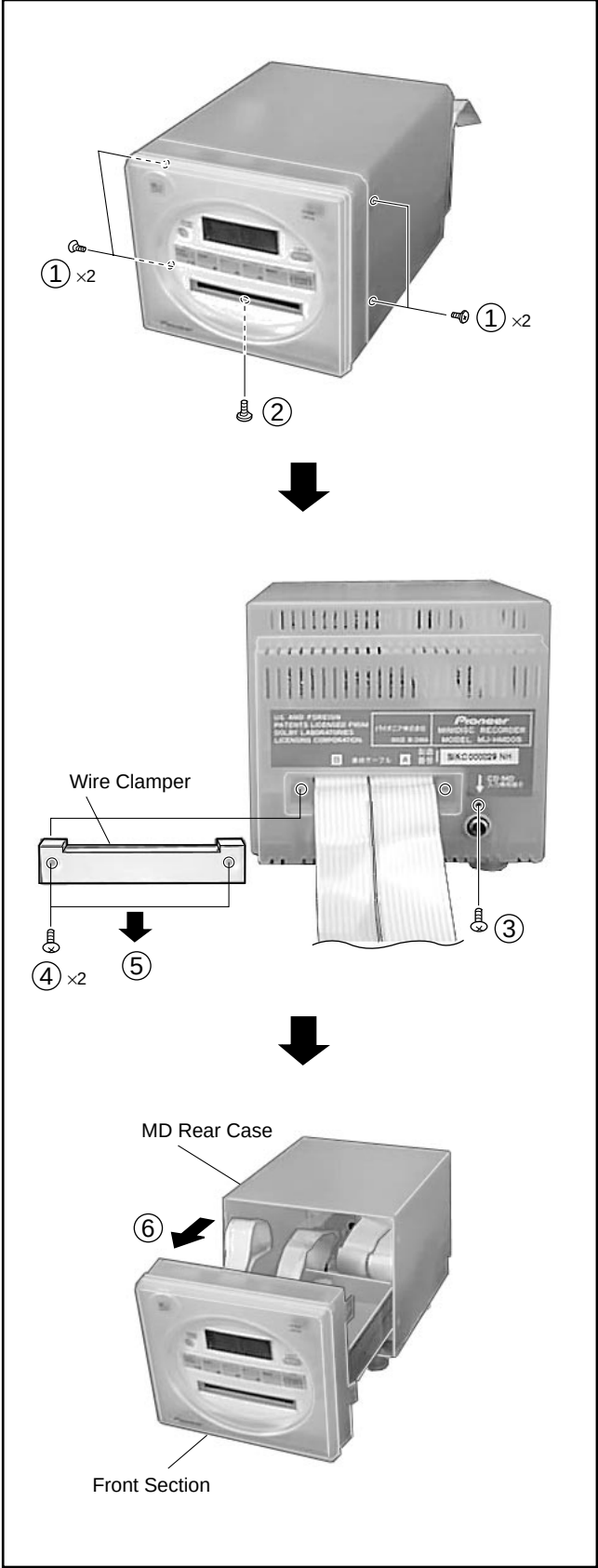


CD MECHANISM ASSY

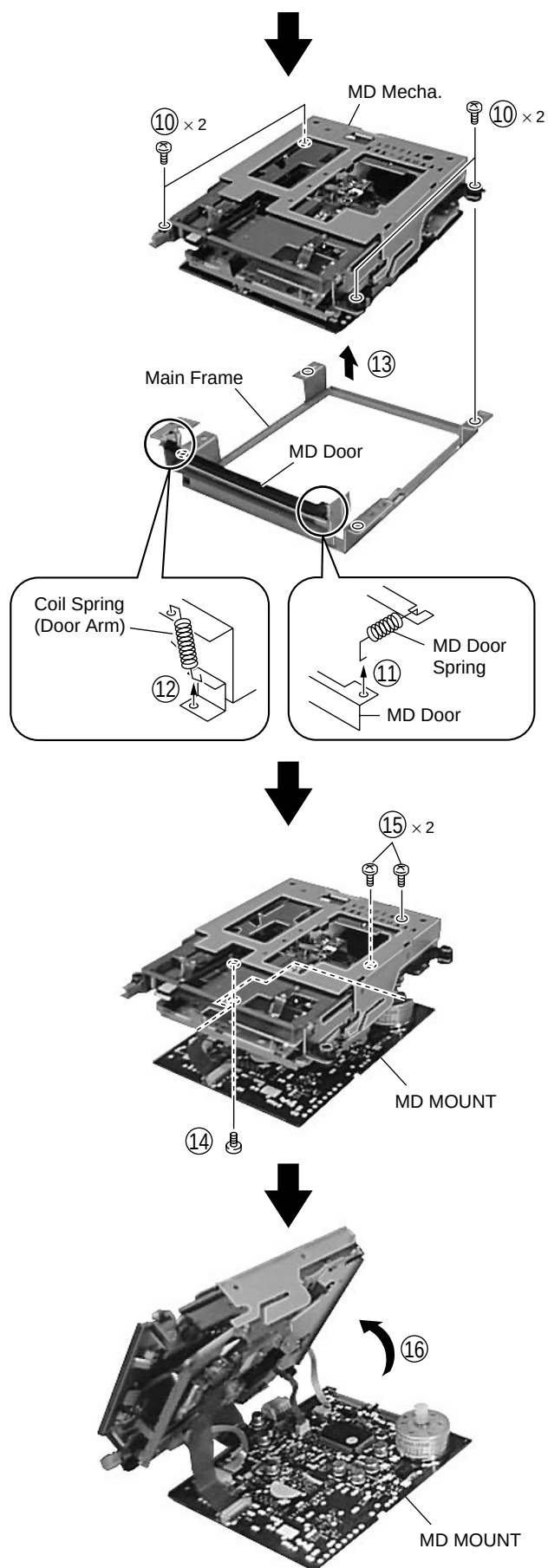
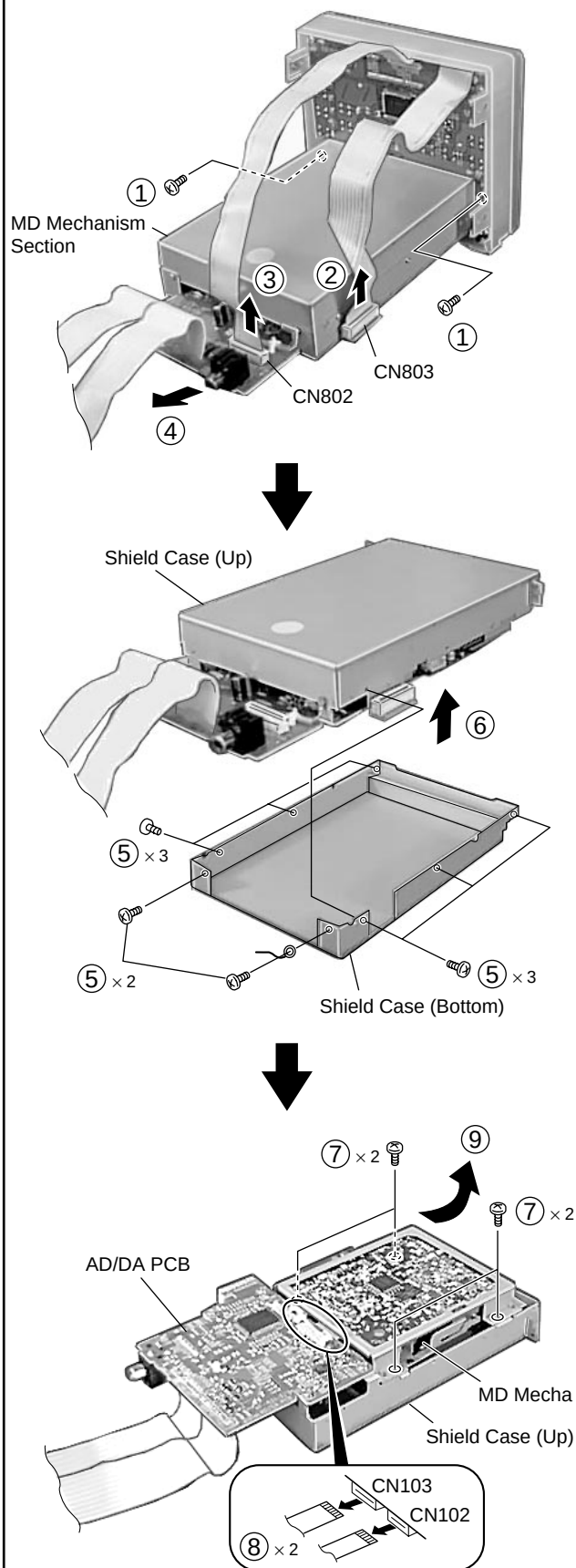


7.1.2 MD RECORDER

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.

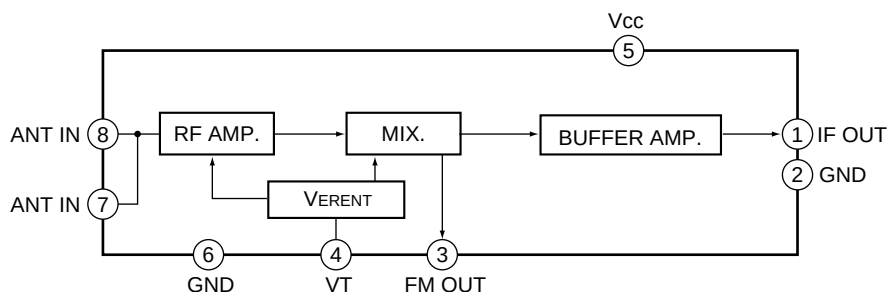
#### • List of IC

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

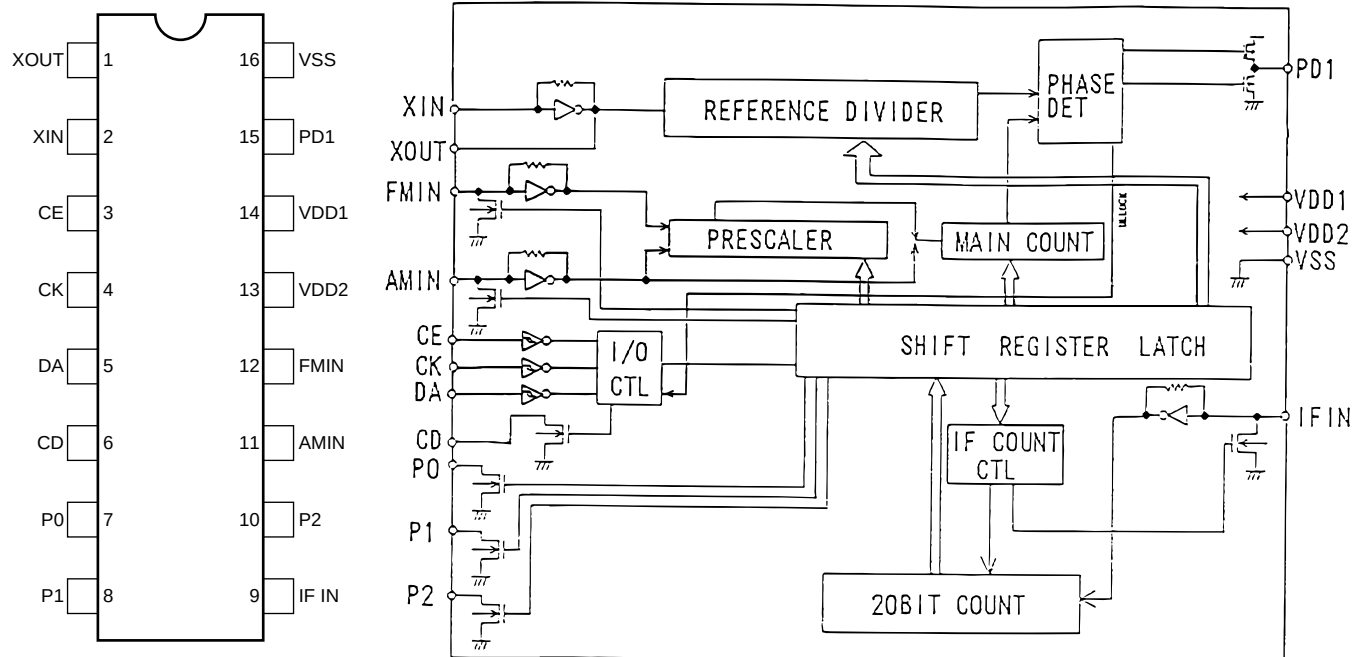


#### ■ 52193 (BU2614) (TUNER PCB : IC3)

##### • PLL IC

##### • Pin Arrangement (Top view)

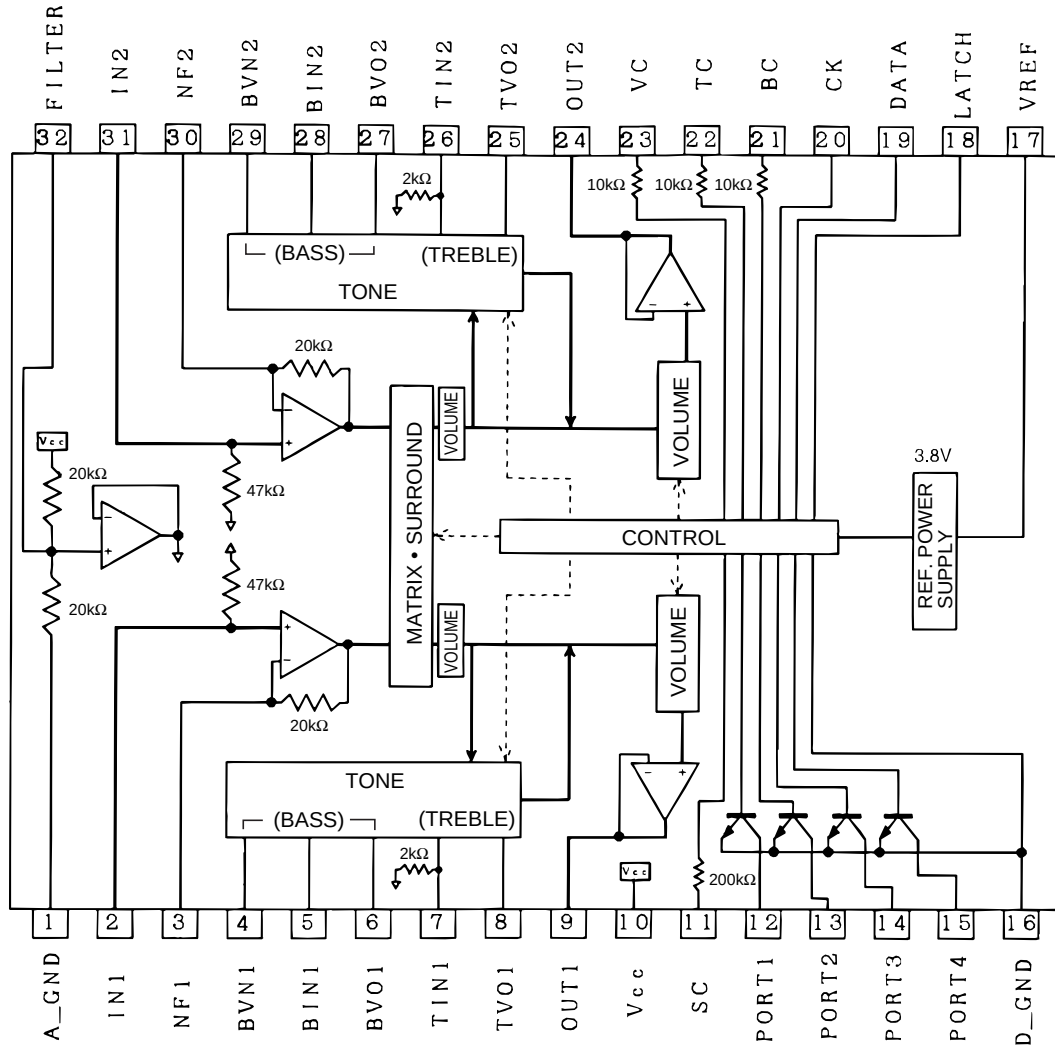
##### • Block Diagram



## 52192 (BH3854AS) (TUNER PCB : IC102)

• Main Control and TONE Control IC

### • Block Diagram



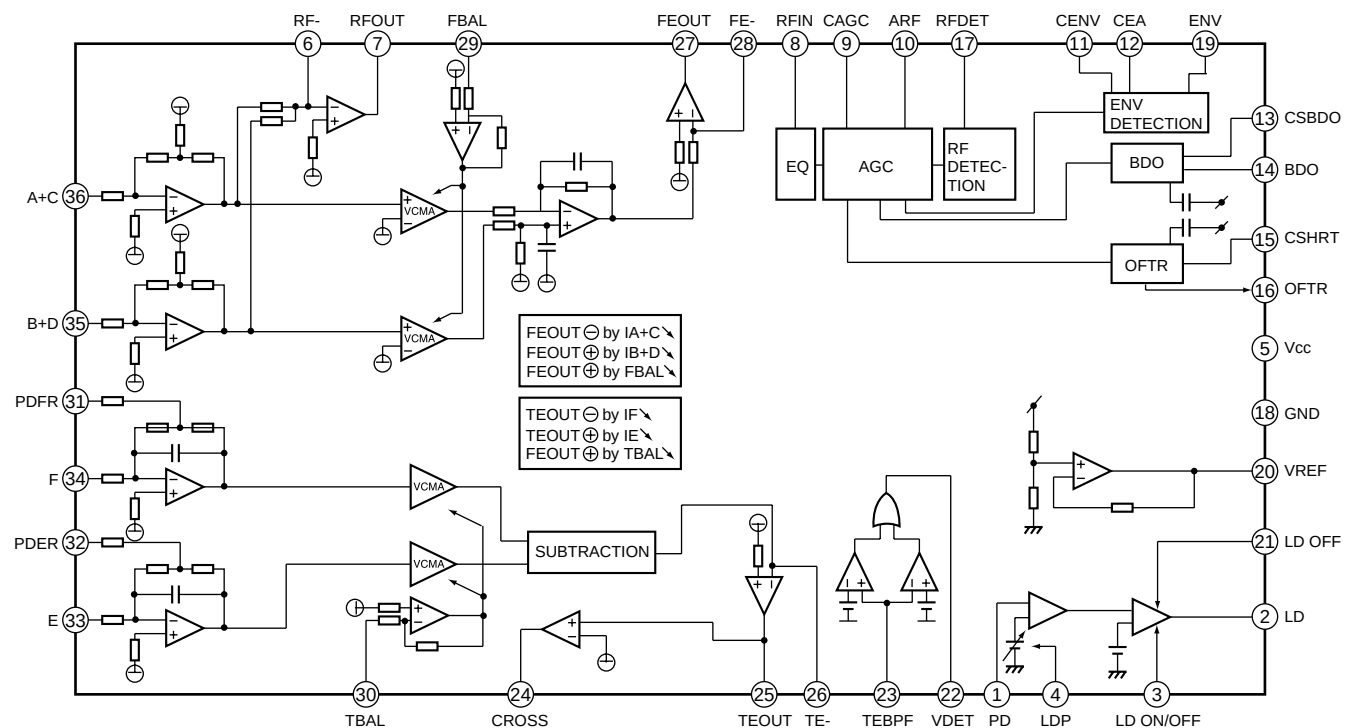
### • Pin Function

| 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       | 2 ch volume output pin                                 |
| 8   | TVO1     |                                            | 24  | OUT2     |                                                        |
| 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     | Gain adjustment pin of input stage amp.                |
| 14  | PORT3    |                                            | 30  | NF2      |                                                        |
| 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



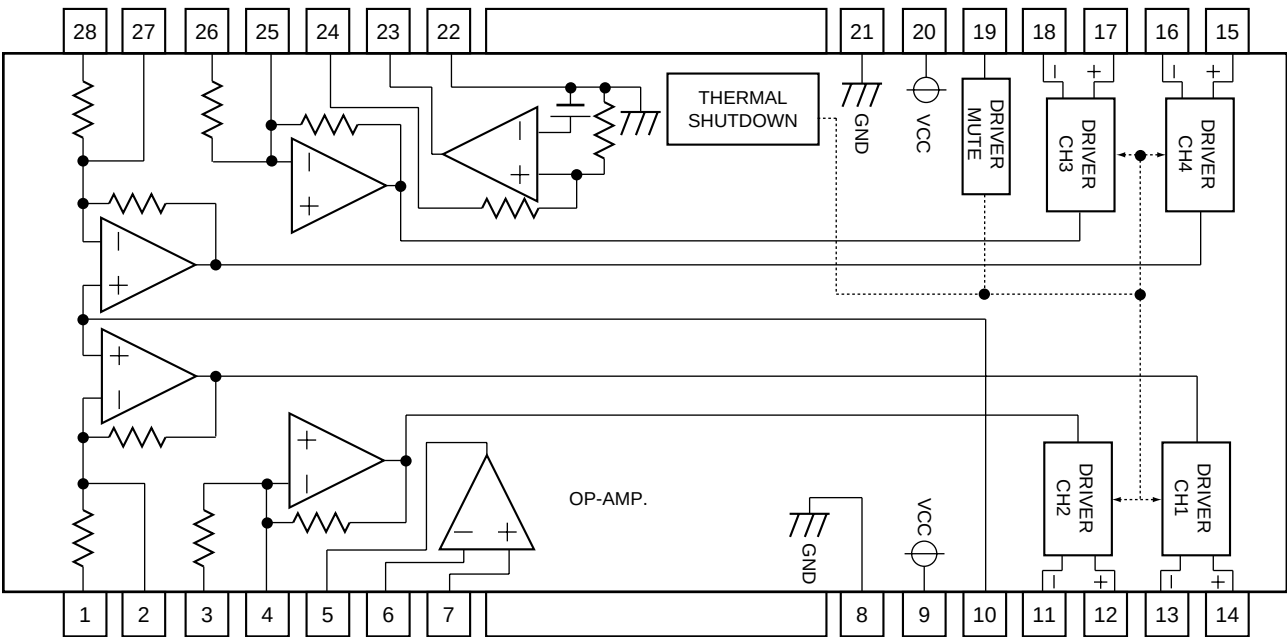
## • Pin Function

| 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        |                                        |
| 16  | OFTR      | OFTR output                                         | 34  | F        |                                        |
| 17  | RFDET     | RFDET output                                        | 35  | B+D      | I-V Amp input                          |
| 18  | GND       | Ground                                              | 36  | A+C      |                                        |

52118 (BA6299FP) (CD PCB : IC401)

• CD Driver IC

• Block Diagram



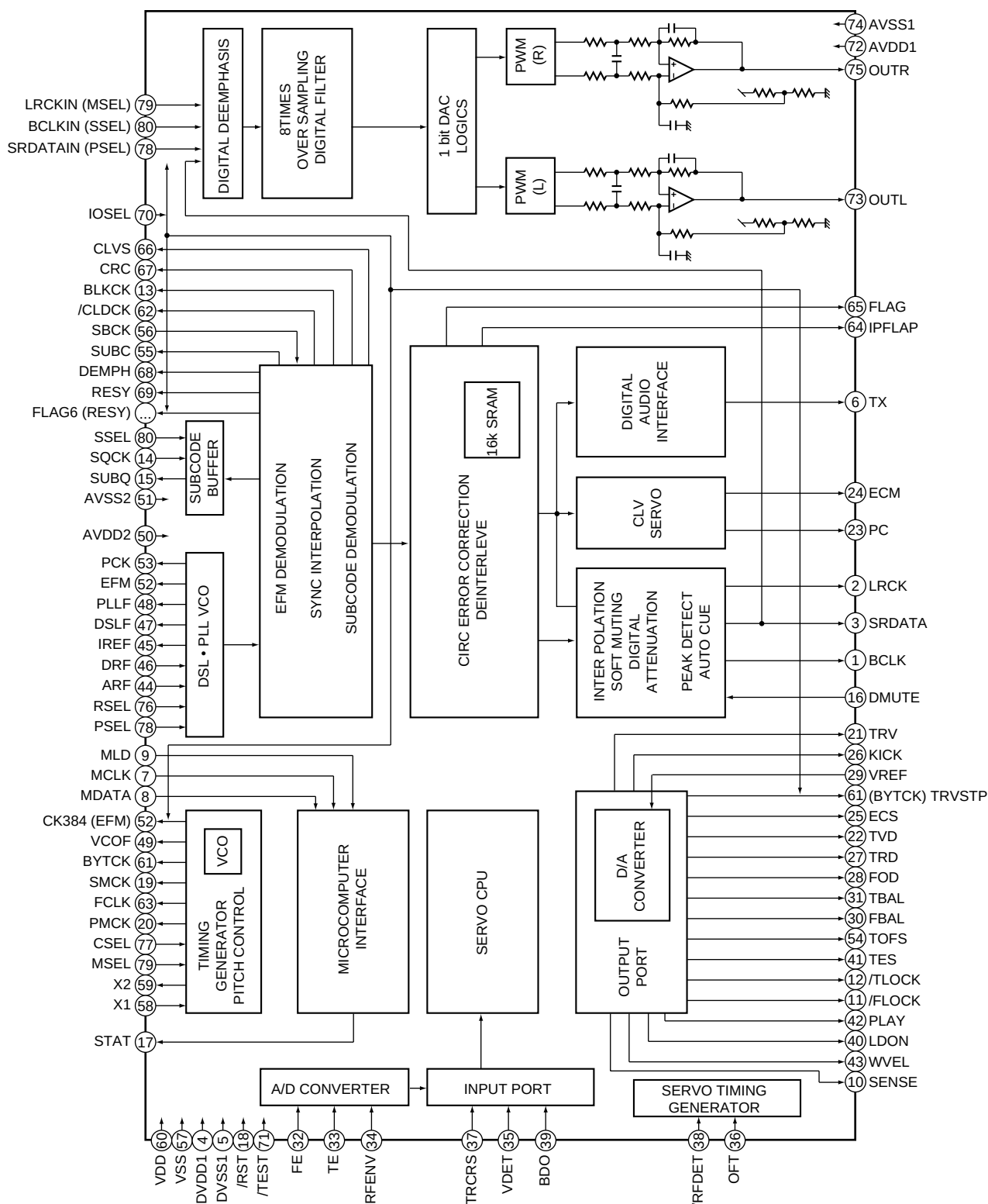
• Pin Function

| 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**



# X-HMD01, X-HMD03, X-HX99, X-HX05

## ● Pin Function

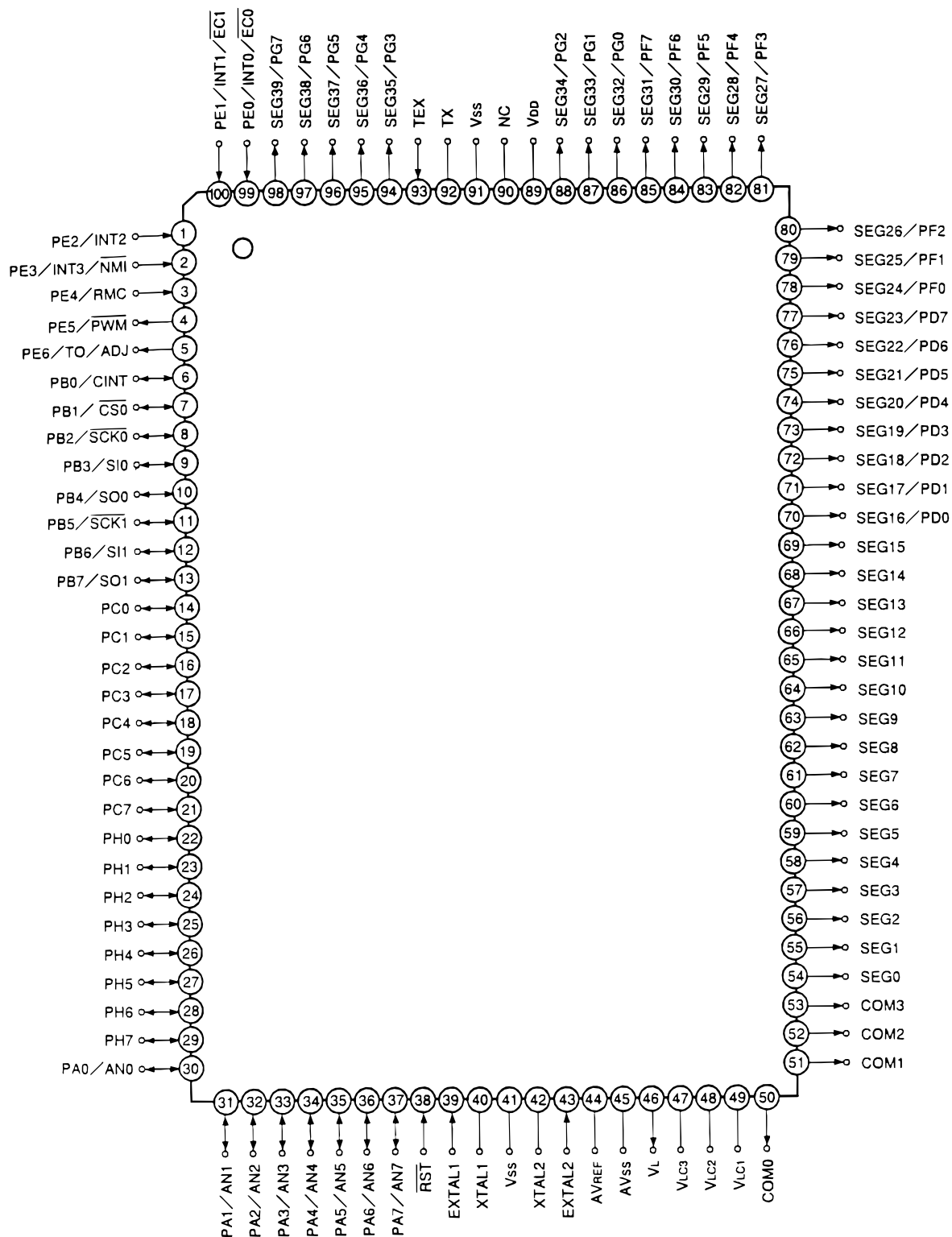
| No. | Pin Name | I/O | Function                                                                               | No. | Pin Name | I/O | Function                                                                  |
|-----|----------|-----|----------------------------------------------------------------------------------------|-----|----------|-----|---------------------------------------------------------------------------|
| 1   | BCLK     | O   | Bit clock output for SRDATA                                                            | 31  | TBAL     | O   | Tracking balance adjustment output                                        |
| 2   | LRCK     | O   | L, R discrimination signal output<br>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<br>(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,<br>NAJEND, SFG, NWTEND)                        | 40  | LDON     | O   | Laser ON signal output (H: 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,<br>FCLV, SQOK, FLAG6, SENSE, /FLOCK,<br>/TLOCK) | 47  | DSLIF    | I/O | Loop filter pin for DSL                                                   |
| 18  | /RST     | I   | Reset input (Reset at IOSEL=L and more than<br>472ns) L: Reset                         | 48  | PLLIF    | I/O | Loop filter pin for PLL                                                   |
| 19  | SMCK     | O   | When MSEL=H, 8.4672MHz clock signal<br>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<br>(for DSL, PLL, AD input and DA output) |
| 21  | TRV      | O   | Traverse forced forward output                                                         | 51  | AVSS2    | I   | GND for analog circuit<br>(for DSL, PLL, AD input and DA output)          |
| 22  | TVD      | O   | Traverse drive output                                                                  | 52  | EFM      | O   | EFM signal output When IOSEL=H, EFM<br>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<br>output) 3-state                             | 54  | TOFS     | O   | Tracking offset adjustment output                                         |
| 25  | ECS      | O   | Spindle motor drive signal<br>(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<br>(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<br>(f=16.9344MHz, 33.8688MHz)           |
| 29  | VREF     | I   | Reference voltage for DA output section<br>(TVD, ECS, TRD, FOD, FBAL, TBAL, TOFS)      | 59  | X2       | O   | Crystal oscillation circuit output<br>(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<br>When IOSEL=L, Traverse STOP signal output<br>H: STOP mode                                                                                                                | 71  | /TEST    | I   | Test pin (Normal: H)                                                                                                                                                        |
| 62  | /CLDCK   | O   | Subcode frame clock signal output<br>(fCLDCK=7.35kHz)                                                                                                                                                              | 72  | AVDD1    | I   | Power supply for analog circuit<br>[for audio output (use both as L ch and R ch)]                                                                                           |
| 63  | FCLK     | O   | Crustal frame clock signal output<br>(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<br>[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<br>servo H: CLV, L: Rough servo                                                                                                                                         | 76  | RSEL     | I   | RF signal polarity specify pin<br>When light level is "H", RSEL=H<br>When light level is "L", RSEL=L                                                                        |
| 67  | CRC      | O   | Subcode CRC check result output<br>H: OK, L: NG                                                                                                                                                                    | 77  | CSEL     | I   | Crystal oscillator frequency specify pin<br>H: Oscillation frequency = 33.8688MHz<br>L: Oscillation frequency = 16.9344MHz                                                  |
| 68  | DEMPH    | O   | Deemphasis detection signal output H: ON                                                                                                                                                                           | 78  | PSEL     | I   | When IOSEL=H, test pin (normal: L)<br>When IOSEL=L, SRDATA input                                                                                                            |
| 69  | RESY     | O   | When IOSEL=H, playback sync signal RESY<br>output of frame sync.<br>H: synchronize, L: not synchronize<br>When IOSEL=L, address reset signal FLAG6<br>output of RAM for deinterleave.<br>L: generate address reset | 79  | MSEL     | I   | When IOSEL=H, SMCK pin output frequency<br>switch H: SMCK= 8.4672MHz<br>L: SMCK= 4.2336MHz<br>When IOSEL=L, LRCK input<br>H: Lch data, L: Rch data<br>SMCK= 4.2336MHz fixed |
| 70  | IOSEL    | I   | Mode switch pin                                                                                                                                                                                                    | 80  | SSEL     | I   | When IOSEL=H, SUBQpin output mode<br>switch H: Q code buffer use mode<br>When IOSEL=L, BCLK input<br>Q code buffer mode fixed                                               |

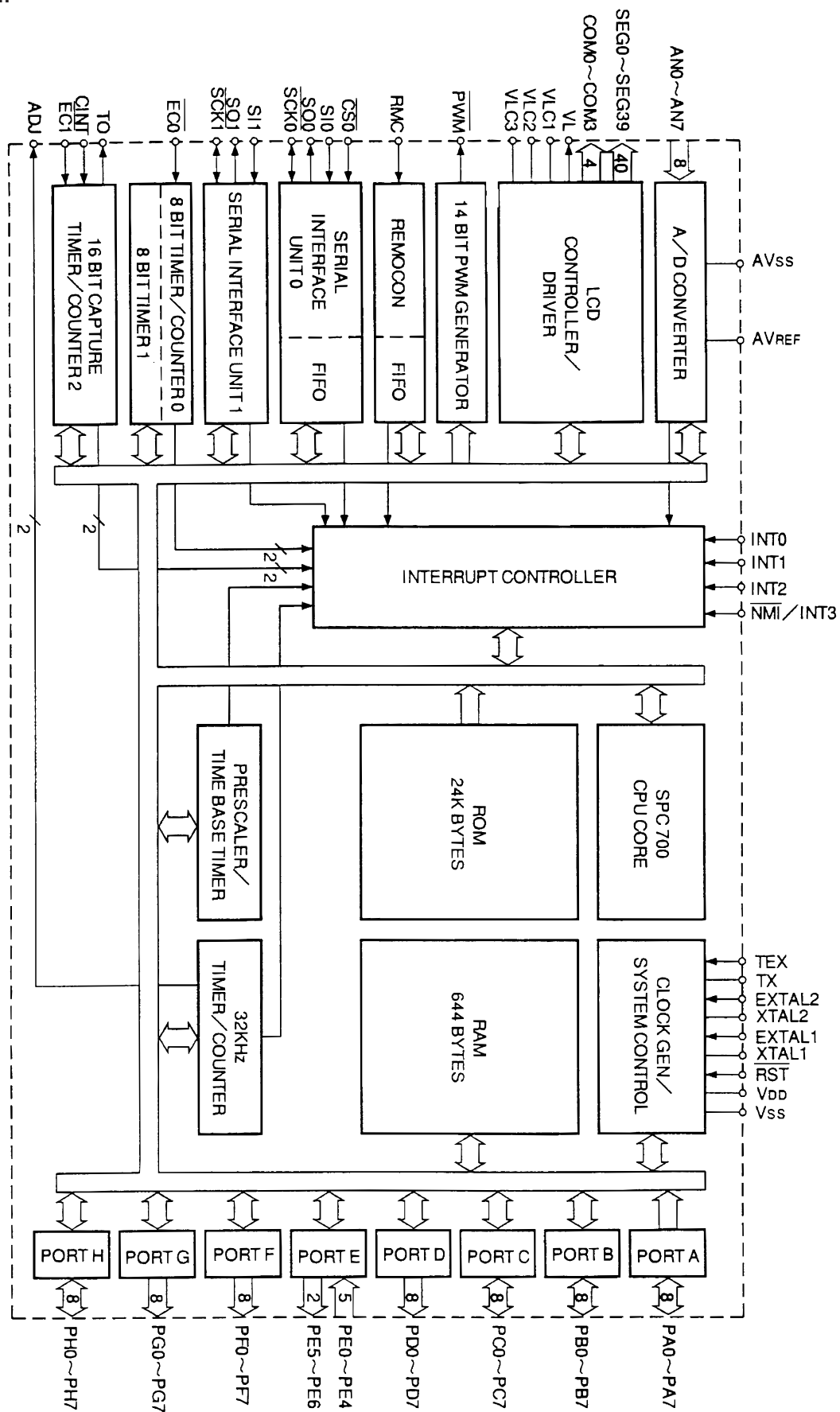
## 52206 (CXP83232A) (FRONT CD PCB : IC501)

• System Microcomputer IC

### • Pin Arrangement (Top view)



● Block Diagram



# X-HMD01, X-HMD03, X-HX99, X-HX05

## ● Pin Function

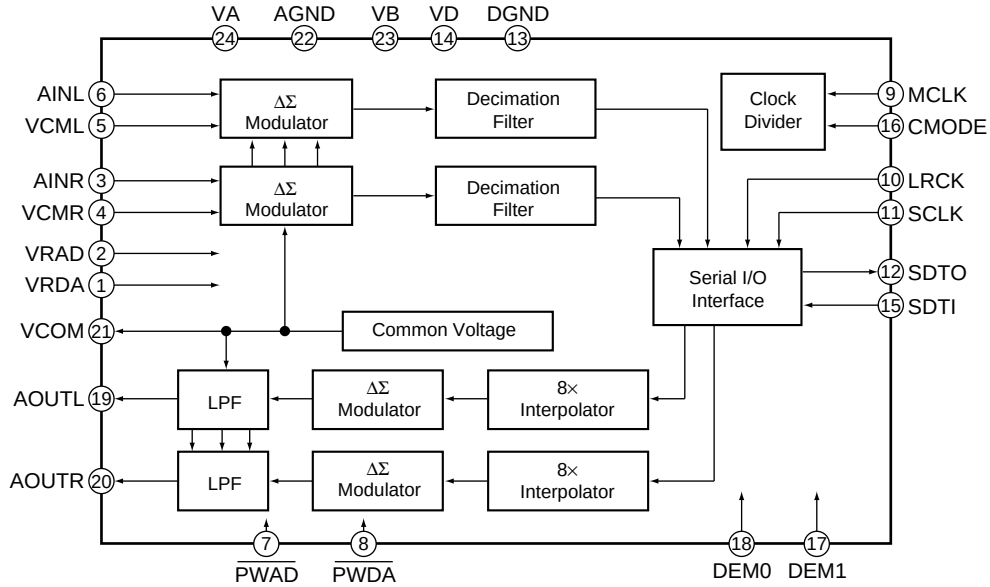
| No. | Pin Name     | I/O | Function                                                                                                                                                                                                                    |
|-----|--------------|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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  | SEG23/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



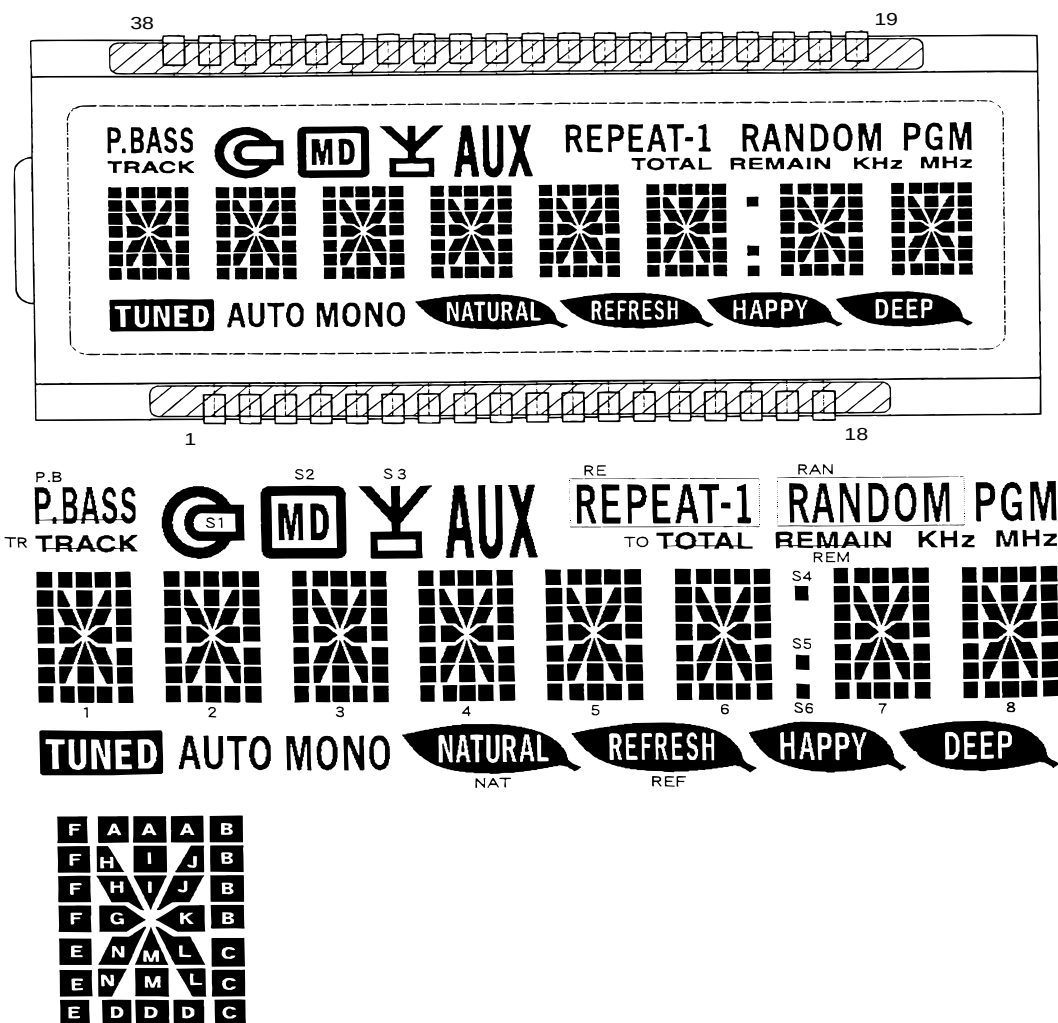
### • Pin Function

| 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 , $0.45 \times VA$<br>Connect an electrolytic capacitor (about 4.7 $\mu$ F) and a ceramic capacitor (0.1 $\mu$ F) between this pin and AGND. |
| 5   | VCML     | O   | L ch common voltage output , $0.45 \times VA$<br>Connect an electrolytic capacitor (about 4.7 $\mu$ F) and a ceramic capacitor (0.1 $\mu$ F) 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 , $0.45 \times VA$<br>Connect an electrolytic capacitor (about 4.7 $\mu$ F) and a ceramic capacitor (0.1 $\mu$ F) 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

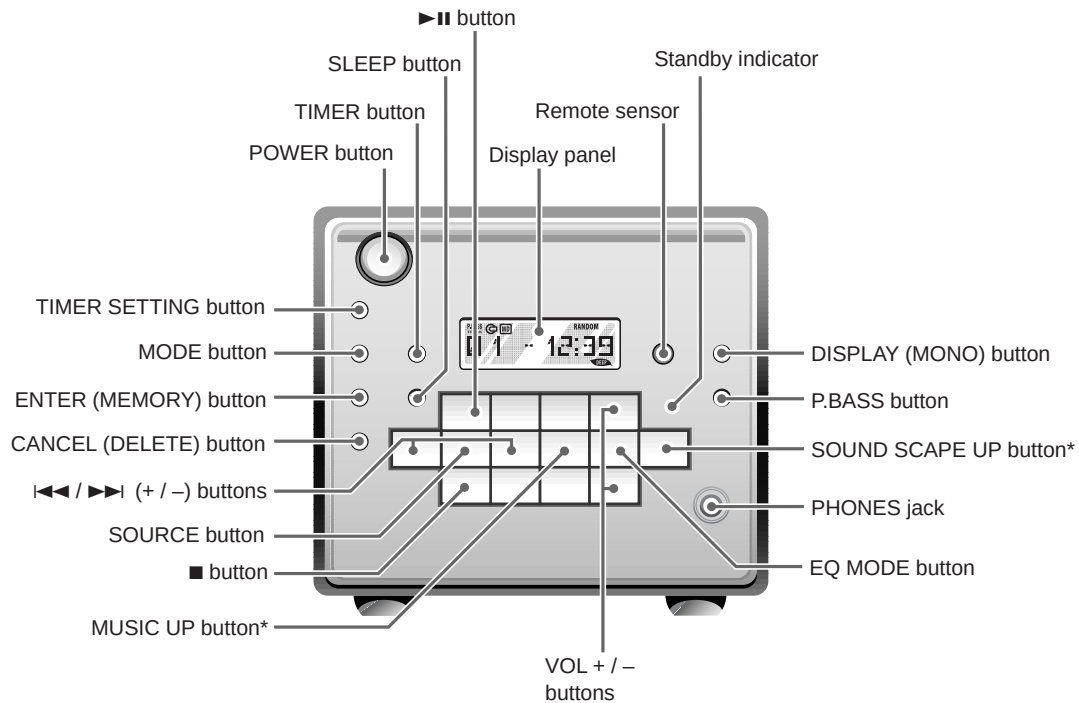
| NO | COM1  | COM2 | COM3 | COM4 | NO | COM1 | COM2 | COM3 | COM4 |
|----|-------|------|------|------|----|------|------|------|------|
| 1  | 1M    | 1N   | 1G   | 1H   | 21 | 7L   | 7K   | 7J   | 7I   |
| 2  | TUNED | 1C   | 1B   | 1A   | 22 | 7D   | 7E   | 7F   | RE   |
| 3  | 2M    | 2N   | 2G   | 2H   | 23 | 6L   | 6K   | 6J   | 6I   |
| 4  | AUTO  | 2C   | 2B   | 2A   | 24 | 6D   | 6E   | 6F   | AUX  |
| 5  | 3M    | 3N   | 3G   | 3H   | 25 | 5L   | 5K   | 5J   | 5I   |
| 6  | MONO  | 3C   | 3B   | 3A   | 26 | 5D   | 5E   | 5F   | S3   |
| 7  | 4M    | 4N   | 4C   | 4H   | 27 | 4L   | 4K   | 4J   | 4I   |
| 8  | NAT   | 4C   | 4B   | 4A   | 28 | 4D   | 4E   | 4F   | S2   |
| 9  | 5M    | 5N   | 5G   | 5H   | 29 | 3L   | 3K   | 3J   | 3I   |
| 10 | REF   | 5C   | 5B   | 5A   | 30 | 3D   | 3E   | 3F   | S1   |
| 11 | 6M    | 6N   | 6G   | 6H   | 31 | 2L   | 2K   | 2J   | 2I   |
| 12 | HAPPY | 6C   | 6B   | 6A   | 32 | 2D   | 2E   | 2F   | P.B  |
| 13 | S6    | S5   | S4   | TO   | 33 | 1L   | 1K   | 1J   | 1I   |
| 14 | 7M    | 7N   | 7G   | 7H   | 34 | 1L   | 1L   | 1L   | 1L   |
| 15 | DEEP  | 7C   | 7B   | 7A   | 35 | —    | —    | —    | COM4 |
| 16 | 8D    | 8E   | 8F   | REM  | 36 | —    | —    | COM3 | —    |
| 17 | 8M    | 8N   | 8G   | 8H   | 37 | —    | COM2 | —    | —    |
| 18 | PGM   | 8C   | 8B   | 8A   | 38 | COM1 | —    | —    | —    |
| 19 | RAN   | —    | MHz  | KHz  |    |      |      |      |      |
| 20 | 8L    | 8K   | 8J   | 8I   |    |      |      |      |      |



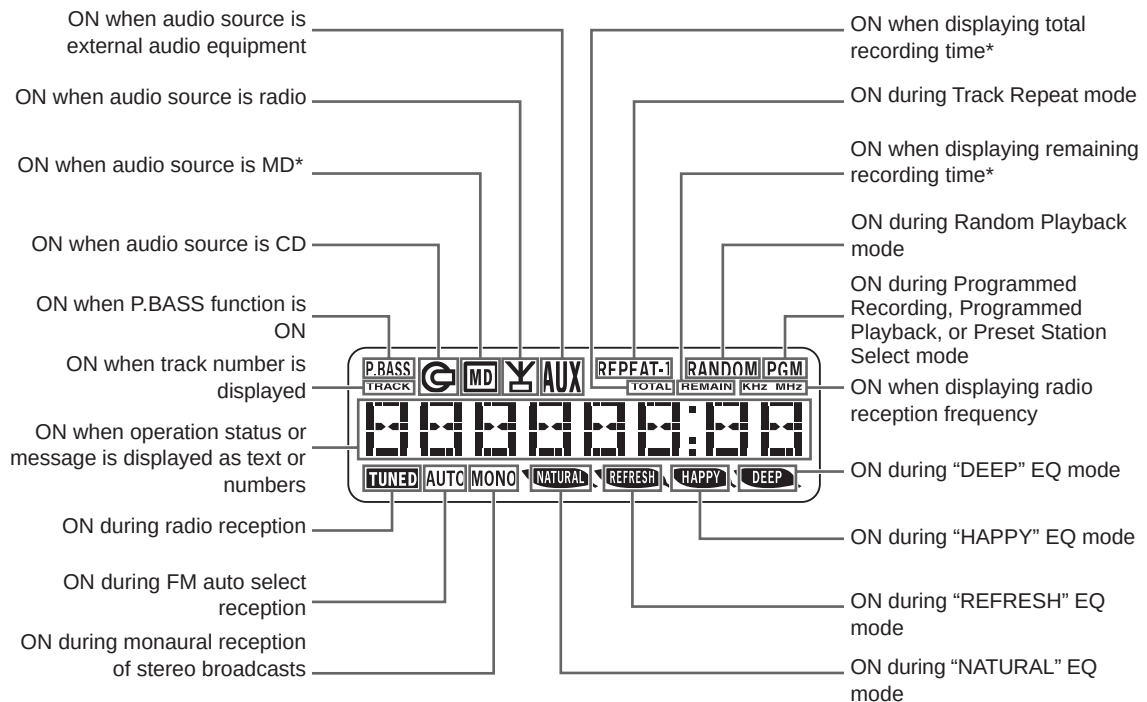
## 8. PANEL FACILITIES AND SPECIFICATIONS

### 8.1 PANEL FACILITIES

#### ■ CD RECEIVER

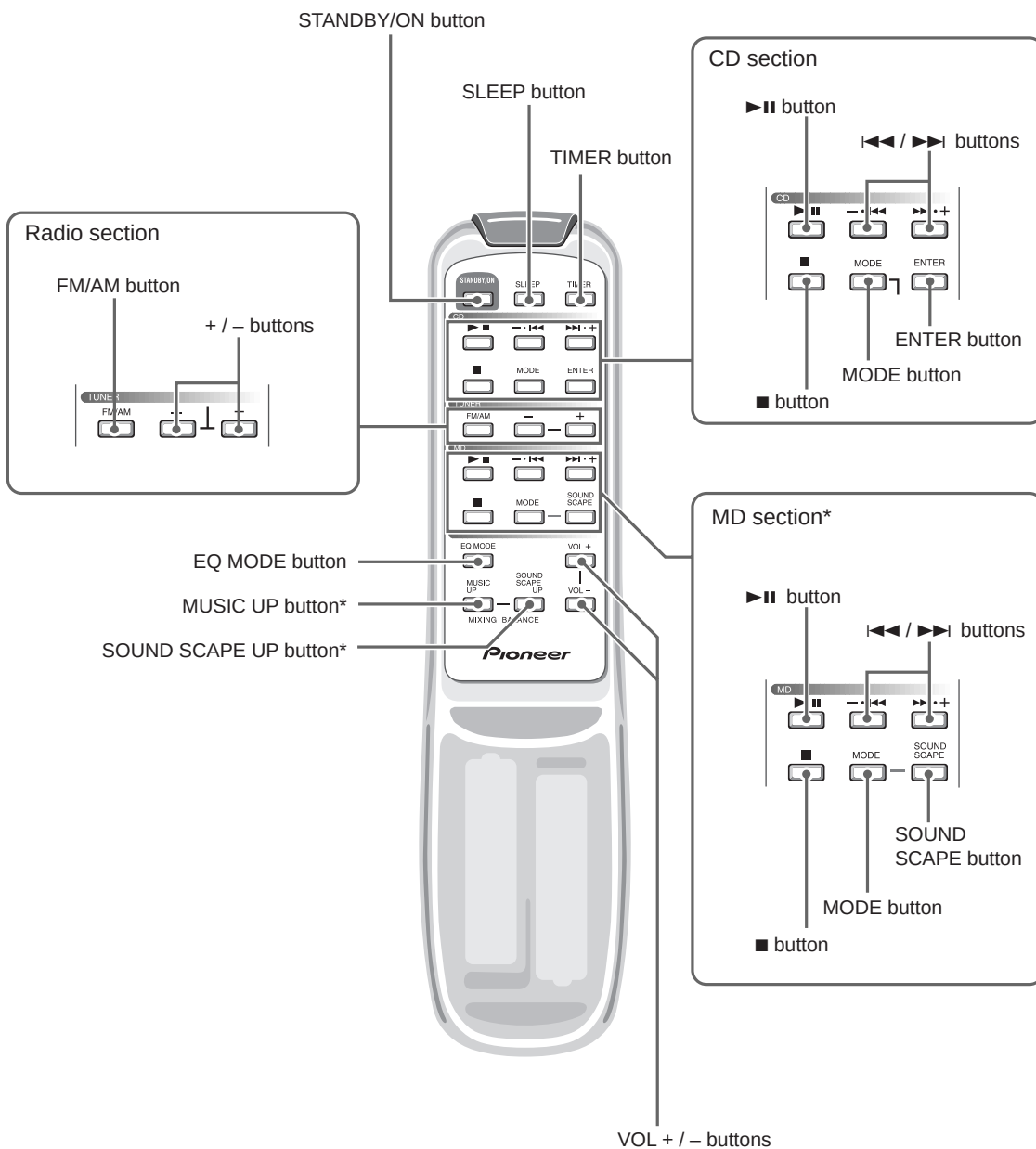


#### Display panel



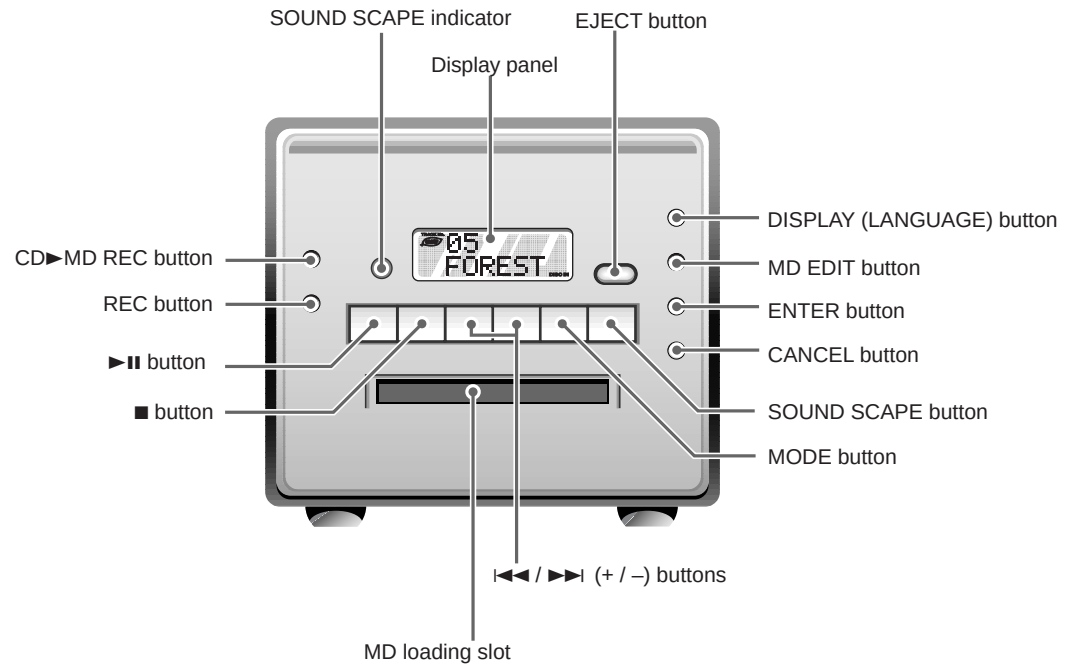
\* These buttons and indicators function only when the MD recorder (sold separately) is connected to this system.

## ■ REMOTE CONTROL UNIT

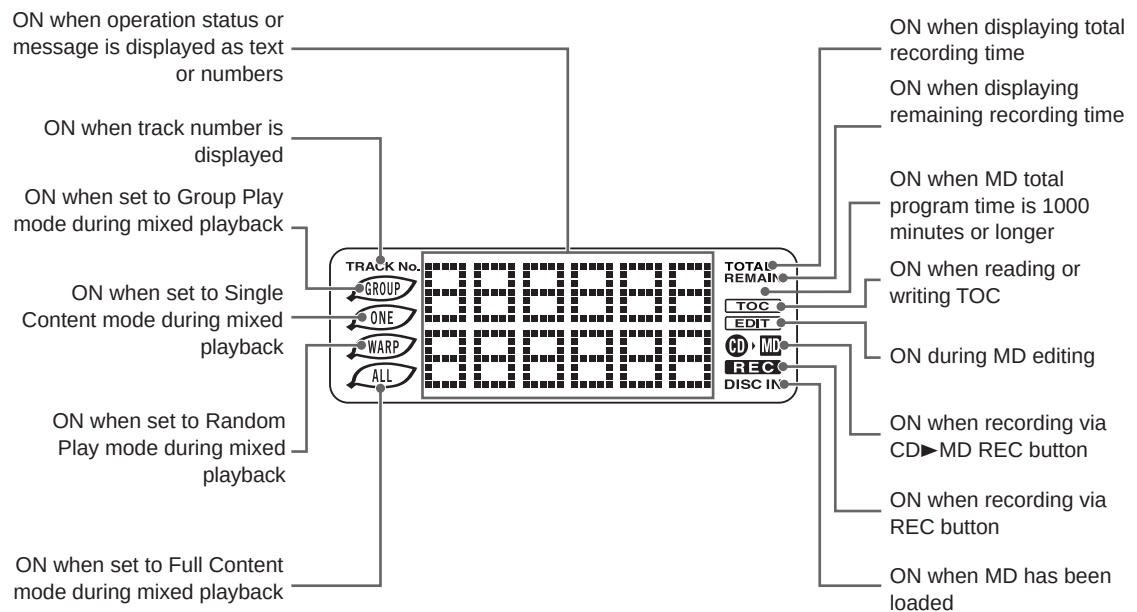


\* All buttons of the MD section, the SOUND SCAPE UP button and the MUSIC UP button function only when the MD recorder (sold separately) is connected to this system. See the Operating Instructions of the MD recorder for the detailed operation of these buttons.

## ■ 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  $\Omega$ )

#### 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  $\Omega$  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)  $\times$  137 (H)  $\times$  250 (D) mm  
 (5  $\frac{3}{4}$  (W)  $\times$  5  $\frac{1}{2}$  (H)  $\times$  9  $\frac{7}{8}$  (D) inches)  
 Weight ..... 2.6 kg (5 lb 11.7 oz)

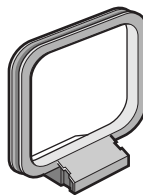
#### Speaker system

Type ..... Book-shelf style, bass reflex type magnetically shielded  
 Speakers ..... 10-cm full range cone type  
 Nominal impedance ..... 4  $\Omega$   
 Playback frequency range ..... 50 Hz to 20 kHz  
 Maximum input ..... 25 W  
 External dimensions ..... 145 (W)  $\times$  137 (H)  $\times$  200 (D) mm  
 (5  $\frac{3}{4}$  (W)  $\times$  5  $\frac{1}{2}$  (H)  $\times$  7  $\frac{7}{8}$  (D) inches)  
 Weight ..... 1.3 kg (2 lb 13.8 oz) each

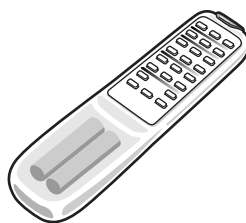
### ■ MD RECORDER

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)  $\times$  137 (H)  $\times$  235 (D) mm  
 (5  $\frac{3}{4}$   $\times$  5  $\frac{1}{2}$   $\times$  9  $\frac{3}{8}$  inches)  
 Weight ..... 1.4 kg (3.3 lb)

### ■ ACCESSORIES



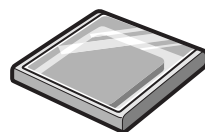
AM loop antenna (60232)  
 (The illustration shows the AM loop antenna after assembly)



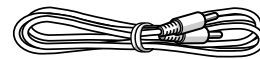
Remote Control  
 (60231A)



"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.