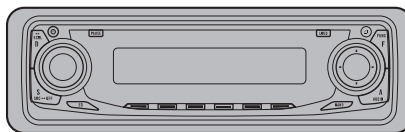


# Service Manual



DEH-P460MP/XM/UC

ORDER NO.  
**CRT3171**

MULTI-CD CONTROL HIGH POWER CD/MP3/WMA PLAYER WITH FM/AM TUNER

# DEH-P460MP

/XM/UC

# DEH-P4600MP

/XM/UC

# DEH-P4650MP

/XM/ES

This service manual should be used together with the following manual(s):

| Model No. | Order No. | Mech.Module | Remarks                                                             |
|-----------|-----------|-------------|---------------------------------------------------------------------|
| CX-3098   | CRT3179   | S10WMAcode2 | CD Mech. Module:Circuit Description, Mech. Description, Disassembly |



For details, refer to "Important symbols for good services".

# SAFETY INFORMATION

## CAUTION

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

### ● CD Player Service Precautions



1. Before disassembling the unit, be sure to turn off the power. Unplugging and plugging the connectors during power-on mode may damage the ICs inside the unit.
2. To protect the pickup unit from electrostatic discharge during servicing, take an appropriate treatment(shorting-solder) by referring to "the DISASSEMBLY" on page 56.
3. After replacing the pickup unit, be sure to check the grating.(See p.52.)

### [ Important symbols for good services ]

In this manual, the symbols shown-below indicate that adjustments, settings or cleaning should be made securely. When you find the procedures bearing any of the symbols, be sure to fulfill them:

#### 1. Product safety



You should conform to the regulations governing the product (safety, radio and noise, and other regulations), and should keep the safety during servicing by following the safety instructions described in this manual.

#### 2. Adjustments



To keep the original performances of the product, optimum adjustments or specification confirmation is indispensable. In accordance with the procedures or instructions described in this manual, adjustments should be performed.

#### 3. Cleaning



For optical pickups, tape-deck heads, lenses and mirrors used in projection monitors, and other parts requiring cleaning, proper cleaning should be performed to restore their performances.

#### 4. Shipping mode and shipping screws



To protect the product from damages or failures that may be caused during transit, the shipping mode should be set or the shipping screws should be installed before shipping out in accordance with this manual, if necessary.

#### 5. Lubricants, glues, and replacement parts



Appropriately applying grease or glue can maintain the product performances. But improper lubrication or applying glue may lead to failures or troubles in the product. By following the instructions in this manual, be sure to apply the prescribed grease or glue to proper portions by the appropriate amount. For replacement parts or tools, the prescribed ones should be used.

**COMPACT**  
**disc**  
**DIGITAL AUDIO**



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# 1. SPECIFICATIONS

## ● DEH-P460MP/XM/UC

### General

|                                |                                               |
|--------------------------------|-----------------------------------------------|
| Power source .....             | 14.4 V DC (10.8 – 15.1 V allowable)           |
| Grounding system .....         | Negative type                                 |
| Max. current consumption ..... | 10.0 A                                        |
| Backup current .....           | 5 mA or less                                  |
| Dimensions (W × H × D):        |                                               |
| DIN                            |                                               |
| Chassis .....                  | 178 × 50 × 157 mm<br>(7 × 2 × 6-1/8 in.)      |
| Nose .....                     | 188 × 58 × 19 mm<br>(7-3/8 × 2-1/4 × 3/4 in.) |
| D                              |                                               |
| Chassis .....                  | 178 × 50 × 162 mm<br>(7 × 2 × 6-3/8 in.)      |
| Nose .....                     | 170 × 46 × 14 mm<br>(6-3/4 × 1-3/4 × 1/2 in.) |
| Weight .....                   | 1.4 kg (3 lbs)                                |

### Audio

Continuous power output is 22 W per channel minimum into 4 ohms, both channels driven 50 to 15,000 Hz with no more than 5% THD.

|                                                |                                       |
|------------------------------------------------|---------------------------------------|
| Maximum power output .....                     | 50 W × 4                              |
| Load impedance .....                           | 4 $\Omega$ (4 – 8 $\Omega$ allowable) |
| Preout max output level/output impedance ..... | 2.2 V/1 k $\Omega$                    |

Equalizer (3-Band Parametric Equalizer):

#### Low

|                 |                                          |
|-----------------|------------------------------------------|
| Frequency ..... | 40/80/100/160 Hz                         |
| Q Factor .....  | 0.35/0.59/0.95/1.15 (+6 dB when boosted) |
| Gain .....      | ±12dB                                    |

#### Mid

|                 |                                          |
|-----------------|------------------------------------------|
| Frequency ..... | 200/500/1k/2k Hz                         |
| Q Factor .....  | 0.35/0.59/0.95/1.15 (+6 dB when boosted) |
| Gain .....      | ±12dB                                    |

#### High

|                 |                                          |
|-----------------|------------------------------------------|
| Frequency ..... | 3.15k/8k/10k/12.5k Hz                    |
| Q Factor .....  | 0.35/0.59/0.95/1.15 (+6 dB when boosted) |
| Gain .....      | ±12dB                                    |

Loudness contour

|           |                                   |
|-----------|-----------------------------------|
| Low ..... | +3.5 dB (100 Hz), +3 dB (10 kHz)  |
| Mid ..... | +10 dB (100 Hz), +6.5 dB (10 kHz) |

|            |                                                      |
|------------|------------------------------------------------------|
| High ..... | +11 dB (100 Hz), +11 dB (10 kHz)<br>(volume: -30 dB) |
|------------|------------------------------------------------------|

### CD player

|                                   |                               |
|-----------------------------------|-------------------------------|
| System .....                      | Compact disc audio system     |
| Usable discs .....                | Compact disc                  |
| Signal format:                    |                               |
| Sampling frequency .....          | 44.1 kHz                      |
| Number of quantization bits ..... | 16; linear                    |
| Frequency characteristics .....   | 5 – 20,000 Hz (±1 dB)         |
| Signal-to-noise ratio .....       | 94 dB (1 kHz) (IHF-A network) |
| Dynamic range .....               | 92 dB (1 kHz)                 |
| Number of channels .....          | 2 (stereo)                    |
| MP3 decoding format .....         | MPEG-1 & 2 Audio Layer 3      |
| WMA decoding format .....         | Ver. 7, 8 & 9                 |
| WAV signal format .....           | Linear PCM & MS ADPCM         |

### FM tuner

|                                                           |                                                                    |
|-----------------------------------------------------------|--------------------------------------------------------------------|
| Frequency range .....                                     | 87.9 – 107.9 MHz                                                   |
| Usable sensitivity .....                                  | 8 dBf (0.7 $\mu$ V/75 $\Omega$ , mono, S/N: 30 dB)                 |
| 50 dB quieting sensitivity .....                          | 10 dBf (0.9 $\mu$ V/75 $\Omega$ , mono)                            |
| Signal-to-noise ratio .....                               | 75 dB (IHF-A network)                                              |
| Distortion .....                                          | 0.3 % (at 65 dBf, 1 kHz, stereo)<br>0.1 % (at 65 dBf, 1 kHz, mono) |
| Frequency response .....                                  | 30 – 15,000 Hz (±3 dB)                                             |
| Stereo separation .....                                   | 45 dB (at 65 dBf, 1 kHz)                                           |
| Selectivity .....                                         | 80 dB (±200 kHz)                                                   |
| Three-signal intermodulation (desired signal level) ..... | 30 dBf (two undesired signal level: 100 dBf)                       |

### AM tuner

|                             |                          |
|-----------------------------|--------------------------|
| Frequency range .....       | 530 – 1,710 kHz (10 kHz) |
| Usable sensitivity .....    | 18 $\mu$ V (S/N: 20 dB)  |
| Signal-to-noise ratio ..... | 65 dB (IHF-A network)    |



### Note

Specifications and the design are subject to possible modifications without notice due to improvements. □

## ● DEH-P4600MP/XM/UC

### General

Power source ..... 14.4 V DC (10.8 – 15.1 V allowable)  
 Grounding system ..... Negative type  
 Max. current consumption ..... 10.0 A

Backup current ..... 5 mA or less

Dimensions (W × H × D):

DIN

Chassis ..... 178 × 50 × 157 mm  
 (7 × 2 × 6-1/8 in.)  
 Nose ..... 188 × 58 × 19 mm  
 (7-3/8 × 2-1/4 × 3/4 in.)

D

Chassis ..... 178 × 50 × 162 mm  
 (7 × 2 × 6-3/8 in.)  
 Nose ..... 170 × 46 × 14 mm  
 (6-3/4 × 1-3/4 × 1/2 in.)

Weight ..... 1.4 kg (3 lbs)

### Audio

Continuous power output is 22 W per channel minimum into 4 ohms, both channels driven 50 to 15,000 Hz with no more than 5% THD.

Maximum power output ..... 50 W × 4

Load impedance ..... 4 Ω (4 – 8 Ω allowable)

Preout max output level/output impedance ..... 2.2 V/1 kΩ

Equalizer (3-Band Parametric Equalizer):

Low

Frequency ..... 40/80/100/160 Hz  
 Q Factor ..... 0.35/0.59/0.95/1.15 (+6 dB when boosted)  
 Gain ..... ±12dB

Mid

Frequency ..... 200/500/1k/2k Hz  
 Q Factor ..... 0.35/0.59/0.95/1.15 (+6 dB when boosted)  
 Gain ..... ±12dB

High

Frequency ..... 3.15k/8k/10k/12.5k Hz  
 Q Factor ..... 0.35/0.59/0.95/1.15 (+6 dB when boosted)  
 Gain ..... ±12dB

Loudness contour

Low ..... +3.5 dB (100 Hz), +3 dB (10 kHz)  
 Mid ..... +10 dB (100 Hz), +6.5 dB (10 kHz)

High ..... +11 dB (100 Hz), +11 dB (10 kHz)  
 (volume: -30 dB)

### CD player

System ..... Compact disc audio system

Usable discs ..... Compact disc

Signal format:

Sampling frequency ..... 44.1 kHz

Number of quantization bits

..... 16; linear

Frequency characteristics ... 5 – 20,000 Hz (±1 dB)

Signal-to-noise ratio ..... 94 dB (1 kHz) (IHF-A network)

Dynamic range ..... 92 dB (1 kHz)

Number of channels ..... 2 (stereo)

MP3 decoding format ..... MPEG-1 & 2 Audio Layer 3

WMA decoding format ..... Ver. 7, 8 & 9

WAV signal format ..... Linear PCM & MS ADPCM

### FM tuner

Frequency range ..... 87.9 – 107.9 MHz

Usable sensitivity ..... 8 dBf (0.7 μV/75 Ω, mono, S/N: 30 dB)

50 dB quieting sensitivity ..... 10 dBf (0.9 μV/75 Ω, mono)

Signal-to-noise ratio ..... 75 dB (IHF-A network)

Distortion ..... 0.3 % (at 65 dBf, 1 kHz, stereo)  
 0.1 % (at 65 dBf, 1 kHz, mono)

Frequency response ..... 30 – 15,000 Hz (±3 dB)

Stereo separation ..... 45 dB (at 65 dBf, 1 kHz)

Selectivity ..... 80 dB (±200 kHz)

Three-signal intermodulation (desired signal level)

..... 30 dBf (two undesired signal level: 100 dBf)

### AM tuner

Frequency range ..... 530 – 1,710 kHz (10 kHz)

Usable sensitivity ..... 18 μV (S/N: 20 dB)

Signal-to-noise ratio ..... 65 dB (IHF-A network)



### Note

Specifications and the design are subject to possible modifications without notice due to improvements. ■

## ● DEH-P4650MP/XM/ES

### General

|                                |                                                |
|--------------------------------|------------------------------------------------|
| Rated power source .....       | 14.4 V DC                                      |
|                                | (allowable voltage range:<br>12.0 – 14.4 V DC) |
| Grounding system .....         | Negative type                                  |
| Max. current consumption ..... | 10.0 A                                         |
| Backup current .....           | 5 mA or less                                   |
| Dimensions (W × H × D):        |                                                |
| DIN                            |                                                |
| Chassis .....                  | 178 × 50 × 157 mm                              |
| Nose .....                     | 188 × 58 × 19 mm                               |
| D                              |                                                |
| Chassis .....                  | 178 × 50 × 162 mm                              |
| Nose .....                     | 170 × 46 × 14 mm                               |
| Weight .....                   | 1.4 kg                                         |

### Audio

Continuous power output is 22 W per channel minimum into 4 ohms, both channels driven 50 to 15,000 Hz with no more than 5% THD.

|                                                |                                                      |
|------------------------------------------------|------------------------------------------------------|
| Maximum power output .....                     | 50 W × 4                                             |
| Load impedance .....                           | 4 $\Omega$ (4 – 8 $\Omega$ allowable)                |
| Preout max output level/output impedance ..... | 2.2 V/1 k $\Omega$                                   |
| Equalizer (3-Band Parametric Equalizer):       |                                                      |
| Low                                            |                                                      |
| Frequency .....                                | 40/80/100/160 Hz                                     |
| Q Factor .....                                 | 0.35/0.59/0.95/1.15 (+6 dB when boosted)             |
| Gain .....                                     | ±12dB                                                |
| Mid                                            |                                                      |
| Frequency .....                                | 200/500/1k/2k Hz                                     |
| Q Factor .....                                 | 0.35/0.59/0.95/1.15 (+6 dB when boosted)             |
| Gain .....                                     | ±12dB                                                |
| High                                           |                                                      |
| Frequency .....                                | 3.15k/8k/10k/12.5k Hz                                |
| Q Factor .....                                 | 0.35/0.59/0.95/1.15 (+6 dB when boosted)             |
| Gain .....                                     | ±12dB                                                |
| Loudness contour                               |                                                      |
| Low .....                                      | +3.5 dB (100 Hz), +3 dB (10 kHz)                     |
| Mid .....                                      | +10 dB (100 Hz), +6.5 dB (10 kHz)                    |
| High .....                                     | +11 dB (100 Hz), +11 dB (10 kHz)<br>(volume: –30 dB) |

### CD player

|                                   |                               |
|-----------------------------------|-------------------------------|
| System .....                      | Compact disc audio system     |
| Usable discs .....                | Compact disc                  |
| Signal format:                    |                               |
| Sampling frequency .....          | 44.1 kHz                      |
| Number of quantization bits ..... | 16; linear                    |
| Frequency characteristics .....   | 5 – 20,000 Hz ( $\pm 1$ dB)   |
| Signal-to-noise ratio .....       | 94 dB (1 kHz) (IEC-A network) |
| Dynamic range .....               | 92 dB (1 kHz)                 |
| Number of channels .....          | 2 (stereo)                    |
| MP3 decoding format .....         | MPEG-1 & 2 Audio Layer 3      |
| WMA decoding format .....         | Ver. 7, 8 & 9                 |
| WAV signal format .....           | Linear PCM & MS ADPCM         |

### FM tuner

|                                  |                                                    |
|----------------------------------|----------------------------------------------------|
| Frequency range .....            | 87.5 – 108.0 MHz                                   |
| Usable sensitivity .....         | 8 dBf (0.7 $\mu$ V/75 $\Omega$ , mono, S/N: 30 dB) |
| 50 dB quieting sensitivity ..... | 10 dBf (0.9 $\mu$ V/75 $\Omega$ , mono)            |
| Signal-to-noise ratio .....      | 75 dB (IEC-A network)                              |
| Distortion .....                 | 0.3 % (at 65 dBf, 1 kHz, stereo)                   |
|                                  | 0.1 % (at 65 dBf, 1 kHz, mono)                     |
| Frequency response .....         | 30 – 15,000 Hz ( $\pm 3$ dB)                       |
| Stereo separation .....          | 45 dB (at 65 dBf, 1 kHz)                           |

### AM tuner

|                             |                          |
|-----------------------------|--------------------------|
| Frequency range .....       | 531 – 1,602 kHz (9 kHz)  |
|                             | 530 – 1,640 kHz (10 kHz) |
| Usable sensitivity .....    | 18 $\mu$ V (S/N: 20 dB)  |
| Signal-to-noise ratio ..... | 65 dB (IEC-A network)    |

### Infrared remote control

|                  |                                |
|------------------|--------------------------------|
| Wavelength ..... | 940 nm $\pm 50$ nm             |
| Output .....     | typ; 12 mw/sr per Infrared LED |



### Note

Specifications and the design are subject to possible modifications without notice due to improvements. ■

## 2. EXPLODED VIEWS AND PARTS LIST

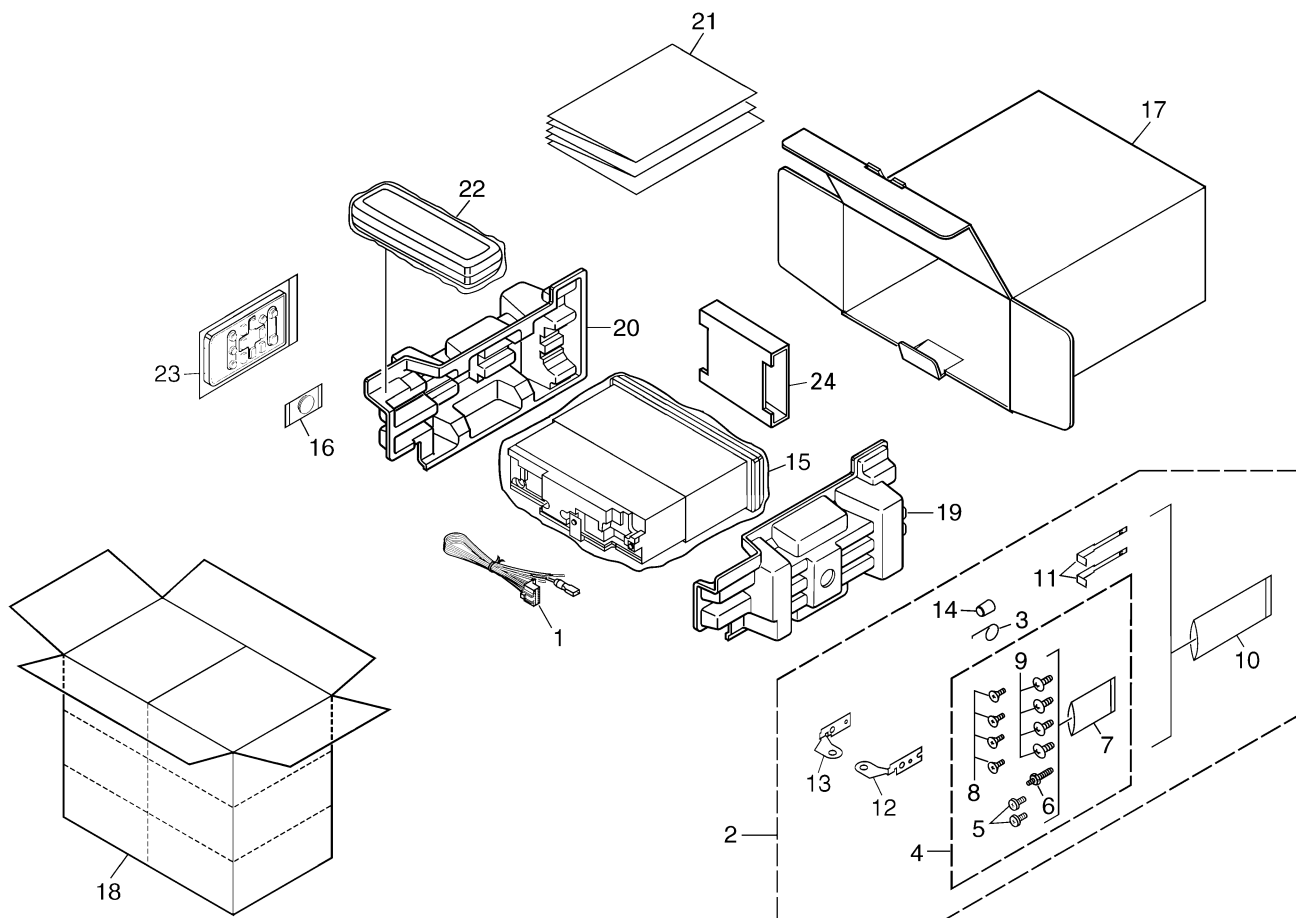
NOTES : • Parts marked by " \* " are generally unavailable because they are not in our Master Spare Parts List.

• Screw adjacent to ▽ mark on the product are used for disassembly.

• For the applying amount of lubricants or glue, follow the instructions in this manual.

(In the case of no amount instructions, apply as you think it appropriate.)

### 2.1 PACKING



#### (1) PACKING SECTION PARTS LIST

| Mark No. | Description      | Part No.              | Mark No. | Description         | Part No.              |
|----------|------------------|-----------------------|----------|---------------------|-----------------------|
| 1        | Cord Assy        | CDE7060               | * 16     | Battery             | CEX1065               |
| 2        | Accessory Assy   | See Contrast table(2) | 17       | Carton              | See Contrast table(2) |
| 3        | Spring           | CBH1650               | 18       | Contain Box         | See Contrast table(2) |
| 4        | Screw Assy       | See Contrast table(2) | 19       | Protector           | CHP2663               |
| 5        | Fixing Screw     | See Contrast table(2) | 20       | Protector           | CHP2664               |
| 6        | Screw            | CBA1650               | 21-1     | Owner's Manual      | See Contrast table(2) |
| * 7      | Polyethylene Bag | CEG-127               | 21-2     | Owner's Manual      | See Contrast table(2) |
| 8        | Screw            | CRZ50P090FTC          | 21-3     | Installation Manual | See Contrast table(2) |
| 9        | Screw            | TRZ50P080FTC          | * 21-4   | Warranty Card       | See Contrast table(2) |
| * 10     | Polyethylene Bag | CEG-158               | * 21-5   | Card                | See Contrast table(2) |
| 11       | Handle           | CNC5395               | * 21-6   | Caution Card        | See Contrast table(2) |
| 12       | Holder           | See Contrast table(2) | 22       | Case Assy           | See Contrast table(2) |
| 13       | Holder           | See Contrast table(2) | 23       | Remote Control Unit | CXC3173               |
| 14       | Bush             | CNV3930               | 24       | Inner Box           | XHW7001               |
| 15       | Polyethylene Bag | See Contrast table(2) |          |                     |                       |



## (2) CONTRAST TABLE

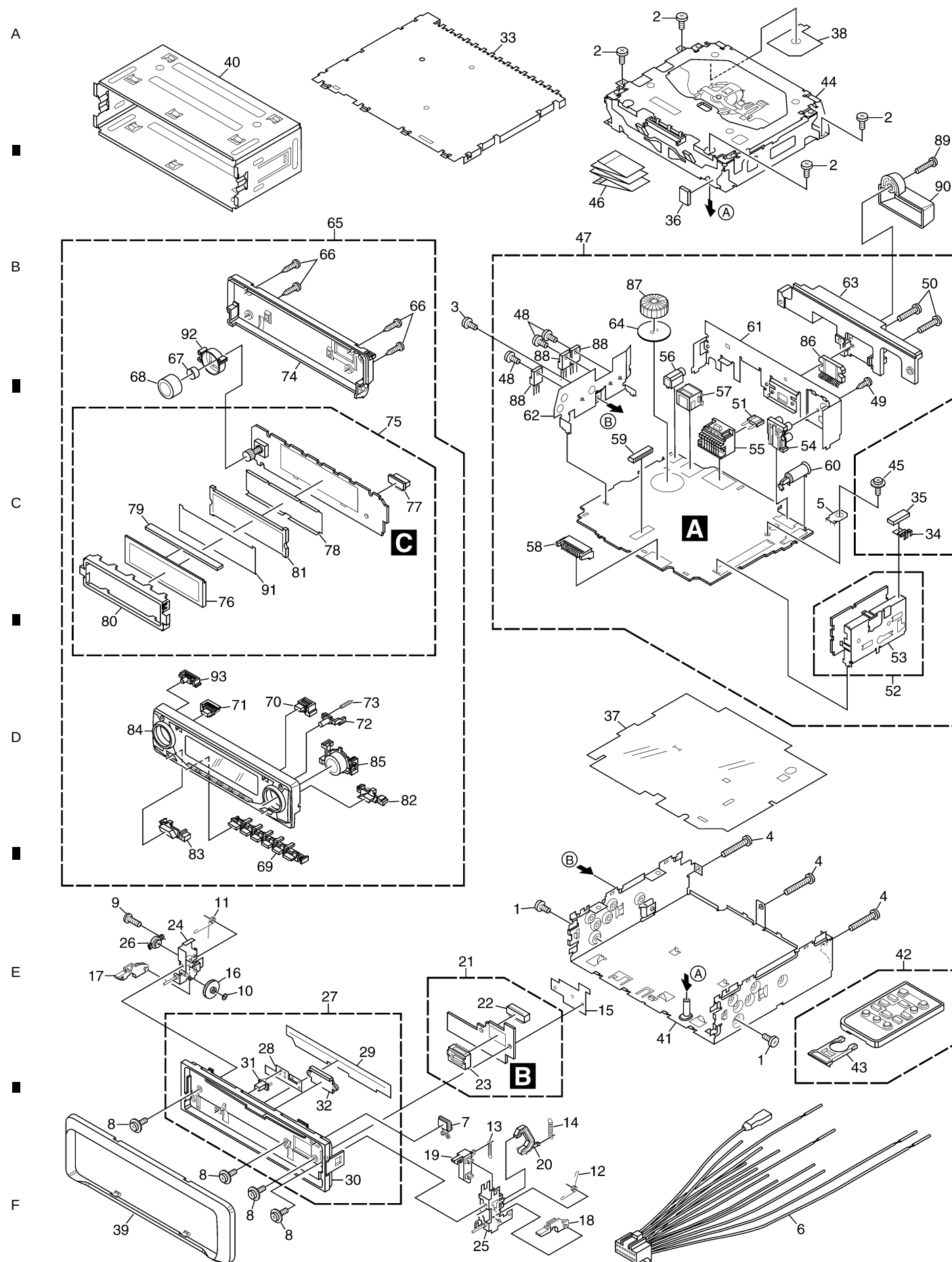
DEH-P460MP/XM/UC, DEH-P4600MP/XM/UC and DEH-P4650MP/XM/ES are constructed the same except for the following:

| Mark No. | Symbol and Description | Parts No.        |                   |                   |
|----------|------------------------|------------------|-------------------|-------------------|
|          |                        | DEH-P460MP/XM/UC | DEH-P4600MP/XM/UC | DEH-P4650MP/XM/ES |
| 2        | Accessory Assy         | CEA3376          | CEA3376           | CEA3439           |
| 4        | Screw Assy             | CEA3848          | CEA3848           | CEA3849           |
| 5        | Fixing Screw           | BPZ20P060FZK     | BPZ20P060FZK      | Not used          |
| 12       | Holder                 | CND1249          | CND1249           | Not used          |
| 13       | Holder                 | CND1250          | CND1250           | Not used          |
| 15       | Polyethylene Bag       | CEG1173          | CEG1173           | CEG-162           |
| 17       | Carton                 | XHG7016          | XHG7013           | XHG7011           |
| 18       | Contain Box            | XHL7016          | XHL7013           | XHL7011           |
| 21-1     | Owner's Manual         | XRD7030          | XRD7028           | XRD7021           |
| 21-2     | Owner's Manual         | Not used         | Not used          | XRD7022           |
| 21-3     | Installation Manual    | XRD7031          | XRD7029           | XRD7023           |
| * 21-4   | Warranty Card          | CRY1070          | Not used          | Not used          |
| * 21-5   | Card                   | Not used         | ARY1048           | Not used          |
| * 21-6   | Caution Card           | Not used         | CRP1294           | Not used          |
| 22       | Case Assy              | Not used         | Not used          | CXB3520           |

### ● Owner's Manual, Installation Manual

| Model             | Parts No. | Language                                                     |
|-------------------|-----------|--------------------------------------------------------------|
| DEH-P460MP/XM/UC  | XRD7030   | English, French, Spanish                                     |
|                   | XRD7031   |                                                              |
| DEH-P4600MP/XM/UC | XRD7028   |                                                              |
|                   | XRD7029   |                                                              |
| DEH-P4650MP/XM/ES | XRD7021   | English, Spanish, Portuguese(B)                              |
|                   | XRD7022   | Arabic, Traditional Chinese                                  |
|                   | XRD7023   | English, Spanish, Portuguese(B), Arabic, Traditional Chinese |

## 2.2 EXTERIOR



**(1) EXTERIOR SECTION PARTS LIST**

| <u>Mark No.</u> | <u>Description</u>            | <u>Part No.</u>       | <u>Mark No.</u> | <u>Description</u>       | <u>Part No.</u>       |   |
|-----------------|-------------------------------|-----------------------|-----------------|--------------------------|-----------------------|---|
| 1               | Screw                         | BMZ30P040FZK          | 51              | Fuse(10A)                | CEK1208               | A |
| 2               | Screw                         | BSZ26P060FTC          | 52              | FM/AM Tuner Unit         | CWE1646               |   |
| 3               | Screw                         | BSZ30P060FTC          | 53              | Holder                   | CND1054               |   |
| 4               | Screw                         | BSZ30P200FTC          | 54              | Pin Jack(CN352)          | See Contrast table(2) |   |
| 5               | Terminal(CN402)               | VNF1084               | 55              | Plug(CN981)              | CKM1376               |   |
| 6               | Cord Assy                     | CDE7060               | 56              | Connector(CN801)         | See Contrast table(2) |   |
| 7               | Button(EJECT)                 | CAC7752               | 57              | Connector(CN101)         | CKS3408               |   |
| 8               | Screw(M2x4.5)                 | CBA1647               | 58              | Plug(CN831)              | CKS3537               |   |
| 9               | Screw(M2x4)                   | CBA1649               | 59              | Connector(CN721)         | CKS3837               |   |
| 10              | Washer                        | CBF1038               | 60              | Antenna Jack(CN401)      | CKX1056               | B |
| 11              | Spring                        | CBH2650               | 61              | Holder                   | See Contrast table(2) |   |
| 12              | Spring                        | CBH2651               | 62              | Holder                   | CND1352               |   |
| 13              | Spring                        | CBH2652               | 63              | Heat Sink                | CNR1668               |   |
| 14              | Spring                        | CBH2653               | 64              | Insulator                | XNM7031               |   |
| 15              | Holder                        | CND1254               | 65              | Detachable Assy          | See Contrast table(2) |   |
| 16              | Gear                          | CNV5997               | 66              | Screw                    | BPZ20P100FZK          |   |
| 17              | Arm                           | CNV7400               | 67              | Spring                   | CBL1470               |   |
| 18              | Arm                           | CNV7401               | 68              | Knob                     | See Contrast table(2) |   |
| 19              | Arm                           | CNV7402               | 69              | Button(1-6)              | XAC7005               | C |
| 20              | Arm                           | CNV7403               | 70              | Button(LOUD)             | XAC7020               |   |
| 21              | Panel Unit                    | CWM8758               | 71              | Button(PAUSE)            | XAC7019               |   |
| 22              | Socket(CN1950)                | CKS3550               | 72              | Button(OPEN)             | See Contrast table(2) |   |
| 23              | Connector(CN1951)             | CKS4806               | 73              | Spring                   | XBH7001               |   |
| 24              | Holder Unit                   | CXB9501               | 74              | Cover                    | XNS7013               |   |
| 25              | Holder Unit                   | CXB9502               | 75              | Keyboard Unit            | See Contrast table(2) |   |
| 26              | Damper Unit                   | CXB9503               | 76              | LCD(LCD1901)             | See Contrast table(2) |   |
| 27              | Service Panel Unit            | CXX1691               | 77              | Connector(CN1901)        | CKS4524               |   |
| 28              | Spring                        | CBL1512               | 78              | Sheet                    | XNM7006               | D |
| 29              | Cover                         | CNM6854               | 79              | Connector                | XNV7006               |   |
| 30              | Panel                         | CNS7245               | 80              | Holder                   | XNC7002               |   |
| 31              | Pin                           | CNV6486               | 81              | Lighting Conductor       | XNV7005               |   |
| 32              | Lighting Conductor            | CNV6487               | 82              | Button(BAND)             | XAC7021               |   |
| 33              | Case                          | CNB2870               | 83              | Button(EQ)               | XAC7022               |   |
| 34              | Earth Plate                   | CNC8915               | 84              | Sub Grille Assy          | See Contrast table(2) |   |
| 35              | Cushion                       | CNM8890               | 85              | Sub Button Assy(SELECT)  | See Contrast table(2) |   |
| 36              | Insulator                     | CNM7682               | 86              | IC(IC301)                | PAL007A               |   |
| 37              | Insulator                     | CNM7935               | 87              | Choke Coil(L981)         | CTH1280               | E |
| 38              | Insulator                     | CNM8174               | 88              | Transistor(Q752,901,911) | 2SD2375               |   |
| 39              | Panel                         | See Contrast table(2) | 89              | Screw                    | See Contrast table(2) |   |
| 40              | Holder Unit                   | CXB6681               | 90              | Holder                   | See Contrast table(2) |   |
| 41              | Chassis Unit                  | CXB9528               | 91              | Sheet                    | See Contrast table(2) |   |
| 42              | Remote Control Unit           | CXC3173               | * 92            | Lighting Conductor       | XNV7012               |   |
| 43              | Cover                         | CNS7068               | 93              | Button(CLOCK)            | See Contrast table(2) |   |
| 44              | CD Mechanism Module(S10CODE2) | CXK5665               |                 |                          |                       |   |
| 45              | Screw                         | ISS26P055FTC          |                 |                          |                       |   |
| 46              | Cable                         | CDE7189               |                 |                          |                       |   |
| 47              | Tuner Amp Unit                | See Contrast table(2) |                 |                          |                       | F |
| 48              | Screw                         | ASZ26P060FTC          |                 |                          |                       |   |
| 49              | Screw                         | BPZ26P080FTC          |                 |                          |                       |   |
| 50              | Screw                         | BSZ26P160FTC          |                 |                          |                       |   |

**(2) CONTRAST TABLE**

**DEH-P460MP/XM/UC, DEH-P4600MP/XM/UC and DEH-P4650MP/XM/ES are constructed the same except for the following:**

| Mark No. | Symbol and Description  | Parts No.        |                   |                   |
|----------|-------------------------|------------------|-------------------|-------------------|
|          |                         | DEH-P460MP/XM/UC | DEH-P4600MP/XM/UC | DEH-P4650MP/XM/ES |
| 39       | Panel                   | CNS6935          | XNS7070           | CNS6935           |
| 47       | Tuner Amp Unit          | XWM7023          | XWM7023           | XWM7024           |
| 54       | Pin Jack(CN352)         | CKB1051          | CKB1051           | CKB1057(CN351)    |
| 56       | Connector(CN801)        | CKS4124          | CKS4124           | Not used          |
| 61       | Holder                  | CND1325          | CND1325           | CND1237           |
| 65       | Detachable Assy         | XXA7132          | XXA7133           | XXA7134           |
| 68       | Knob                    | XAA7009          | XAA7003           | XAA7009           |
| 72       | Button(OPEN)            | XAC7026          | XAC7012           | XAC7026           |
| 75       | Keyboard Unit           | XWM7031          | XWM7031           | XWM7032           |
| 76       | LCD(LCD1901)            | XAW7004          | XAW7004           | XAW7002           |
| 84       | Sub Grille Assy         | XXA7147          | XXA7148           | XXA7149           |
| 85       | Sub Button Assy(SELECT) | XXA7229          | XXA7228           | XXA7229           |
| 89       | Screw                   | Not used         | BMZ40P140FTC      | Not used          |
| 90       | Holder                  | Not used         | CNV7619           | Not used          |
| 91       | Sheet                   | Not used         | Not used          | XNM7008           |
| 93       | Button(CLOCK)           | XAC7016          | XAC7024           | XAC7016           |

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DEH-P460MP/XM/UC

■

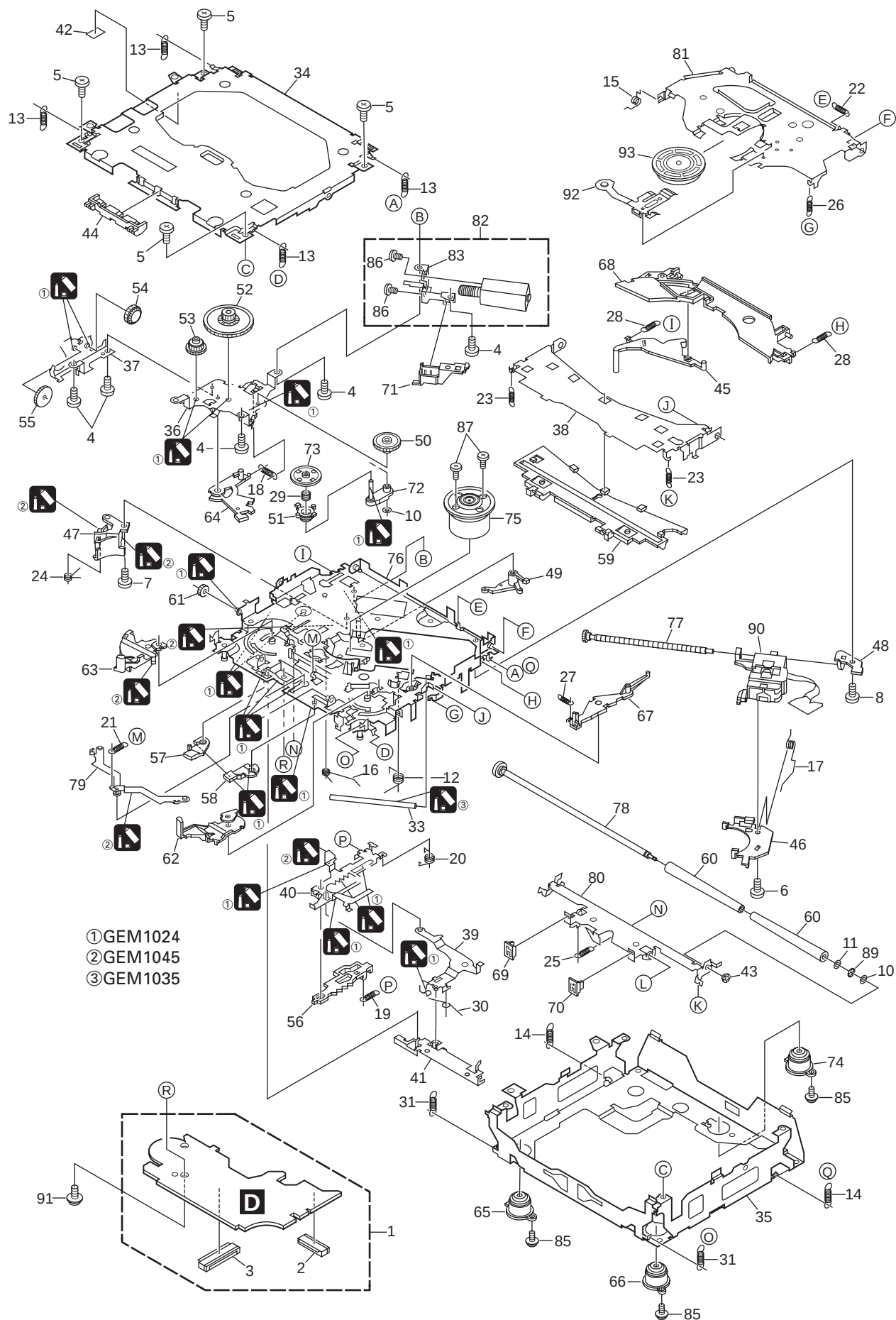
7

■

8

■

## 2.3 CD MECHANISM MODULE



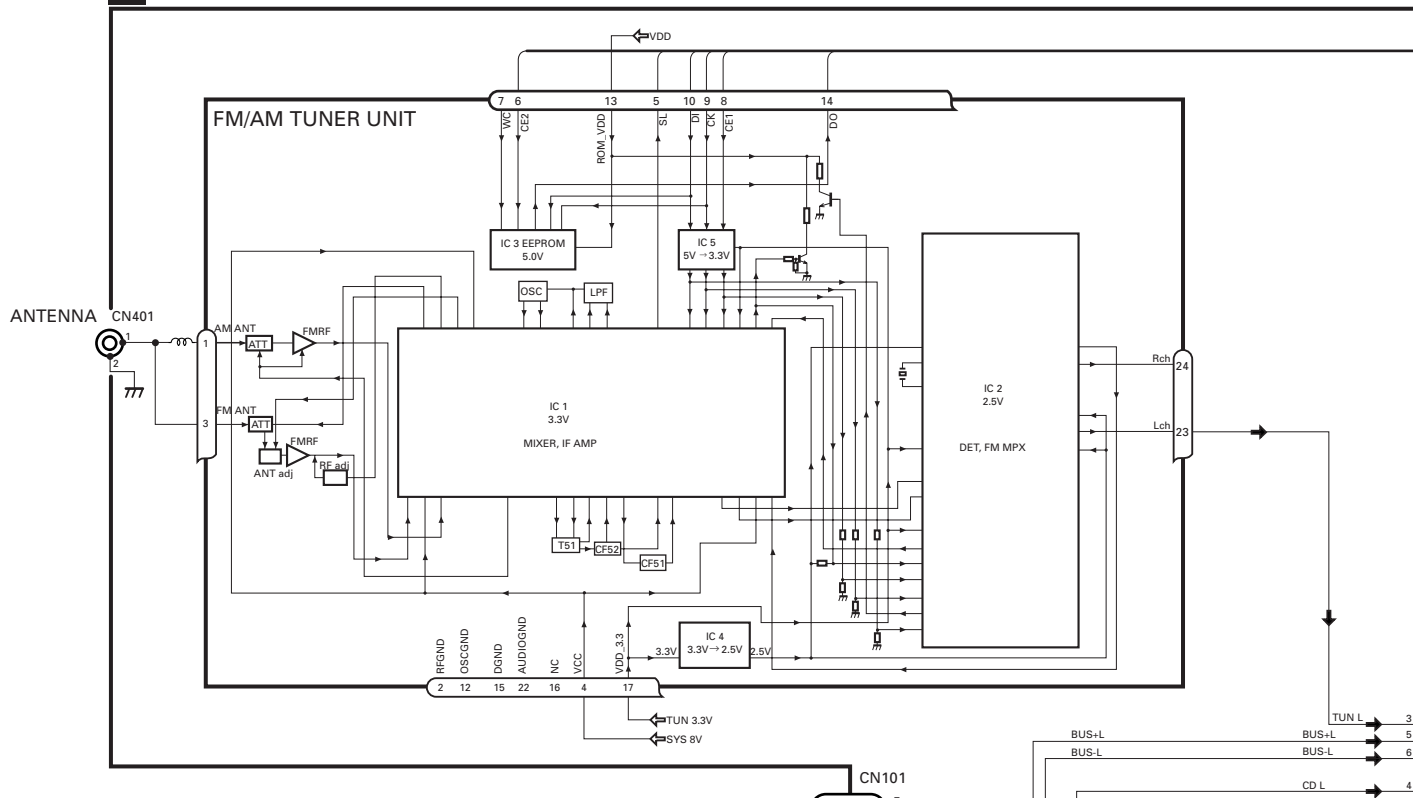
## CD MECHANISM MODULE SECTION PARTS LIST

| Mark No. | Description          | Part No.     | Mark No. | Description               | Part No.     |   |
|----------|----------------------|--------------|----------|---------------------------|--------------|---|
| 1        | CD Core Unit(S10WMA) | CWX2851      | 51       | Gear                      | CNV7208      | A |
| 2        | Connector(CN101)     | CKS4182      | 52       | Gear                      | CNV7209      |   |
| 3        | Connector(CN901)     | CKS4017      | 53       | Gear                      | CNV7210      |   |
| 4        | Screw                | BMZ20P035FTC | 54       | Gear                      | CNV7211      |   |
| 5        | Screw                | BSZ20P040FTC | 55       | Gear                      | CNV7212      |   |
| 6        | Screw(M2x4)          | CBA1362      | 56       | Rack                      | CNV7214      |   |
| 7        | Screw(M2x3)          | CBA1511      | 57       | Arm                       | CNV7215      |   |
| 8        | Screw(M2x3)          | CBA1527      | 58       | Arm                       | CNV7216      |   |
| 9        | .....                |              | 59       | Guide                     | CNV7217      |   |
| 10       | Washer               | CBF1038      | 60       | Roller                    | CNV7218      | B |
| 11       | Washer               | CBF1060      | 61       | Gear                      | CNV7219      |   |
| 12       | Spring               | CBH2390      | 62       | Arm                       | CNV7221      |   |
| 13       | Spring               | CBH2606      | 63       | Arm                       | CNV7220      |   |
| 14       | Spring               | CBH2607      | 64       | Arm                       | CNV7222      |   |
| 15       | Spring               | CBH2608      | 65       | Damper                    | CNV7313      |   |
| 16       | Spring               | CBH2609      | 66       | Damper                    | CNV7314      |   |
| 17       | Spring               | CBH2610      | 67       | Arm                       | CNV7341      |   |
| 18       | Spring               | CBH2735      | 68       | Arm                       | CNV7342      |   |
| 19       | Spring               | CBH2612      | 69       | Guide                     | CNV7360      |   |
| 20       | Spring               | CBH2613      | 70       | Guide                     | CNV7361      | C |
| 21       | Spring               | CBH2614      | 71       | Holder                    | CNV7437      |   |
| 22       | Spring               | CBH2615      | 72       | Arm                       | CNV7805      |   |
| 23       | Spring               | CBH2616      | 73       | Gear                      | CNV7595      |   |
| 24       | Spring               | CBH2617      | 74       | Damper                    | CNV7618      |   |
| 25       | Spring               | CBH2620      | 75       | Motor Unit(M1)            | CXB6007      |   |
| 26       | Spring               | CBH2621      | 76       | Chassis Unit              | CXC2318      |   |
| 27       | Spring               | CBH2641      | 77       | Screw Unit                | CXB8729      |   |
| 28       | Spring               | CBH2642      | 78       | Gear Unit                 | CXC2397      |   |
| 29       | Spring               | CBH2643      | 79       | Arm Unit                  | CXC2316      | D |
| 30       | Spring               | CBH2659      | 80       | Arm                       | CND1896      |   |
| 31       | Spring               | CBH2688      | 81       | Arm                       | CND1894      |   |
| 32       | .....                |              | 82       | Motor Unit(M2)            | CXB8933      |   |
| 33       | Shaft                | CLA4441      | 83       | Bracket                   | CNC9985      |   |
| 34       | Frame                | CNC9962      | 84       | .....                     |              |   |
| 35       | Frame                | CNC9963      | 85       | Screw(M2x5)               | EBA1028      |   |
| 36       | Bracket              | CNC9966      | 86       | Screw                     | JFZ20P020FTC |   |
| 37       | Bracket              | CND1895      | 87       | Screw                     | JGZ17P022FTC | E |
| 38       | Arm                  | CNC9968      | 88       | .....                     |              |   |
| 39       | Arm                  | CND1909      | 89       | Washer                    | YE20FTC      |   |
| 40       | Lever                | CND2032      | 90       | Pickup Unit(P10)(Service) | CXX1641      |   |
| 41       | Lever                | CNC9984      | 91       | Screw                     | IMS26P030FTC |   |
| 42       | Sheet                | CNM8134      | 92       | Spring                    | CBL1635      |   |
| 43       | Collar               | CNV7798      | 93       | Clamper                   | CNV7197      |   |
| 44       | Guide                | CNV7799      |          |                           |              |   |
| 45       | Arm                  | CNV7800      |          |                           |              |   |
| 46       | Rack                 | CNV7199      |          |                           |              |   |
| 47       | Holder               | CNV7201      |          |                           |              | F |
| 48       | Holder               | CNV7202      |          |                           |              |   |
| 49       | Arm                  | CNV7203      |          |                           |              |   |
| 50       | Gear                 | CNV7207      |          |                           |              |   |

# 3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

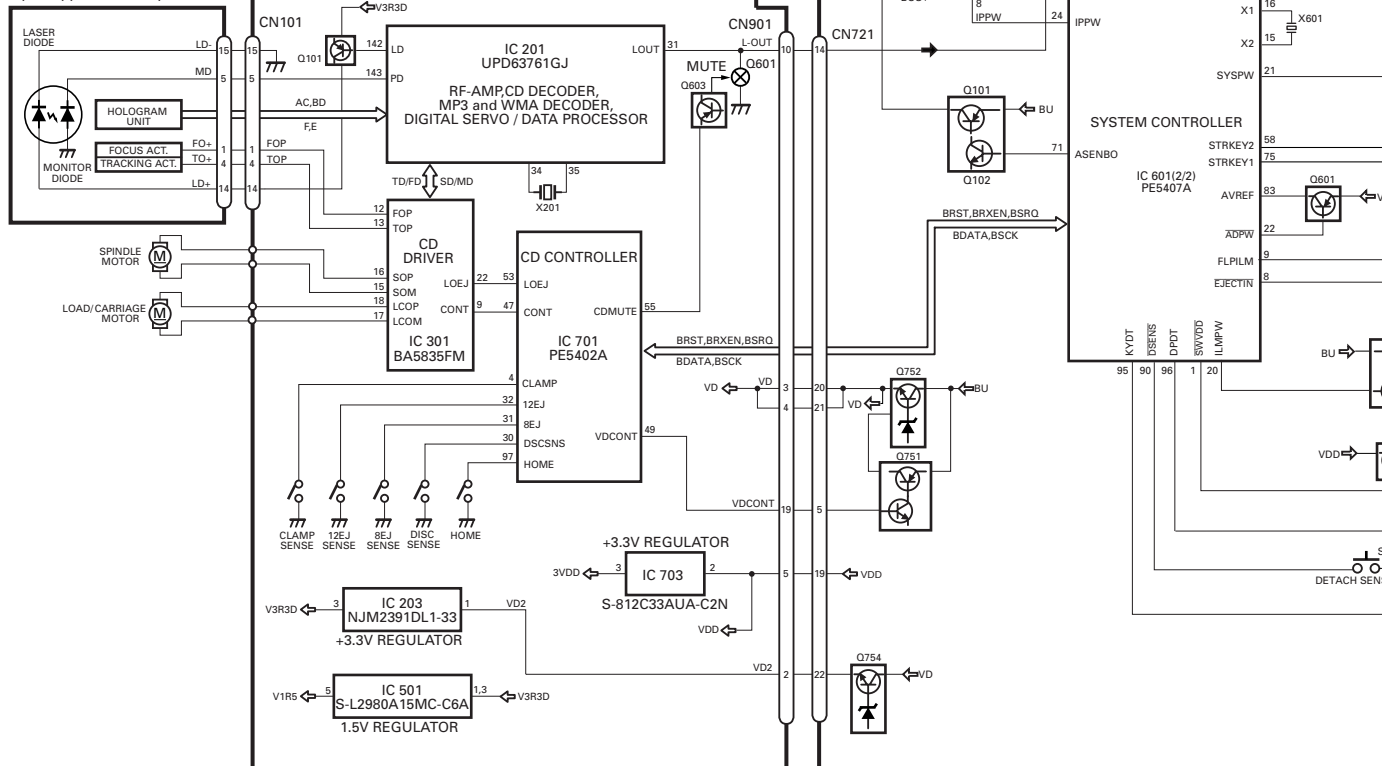
## 3.1 BLOCK DIAGRAM

**A** TUNER AMP UNIT

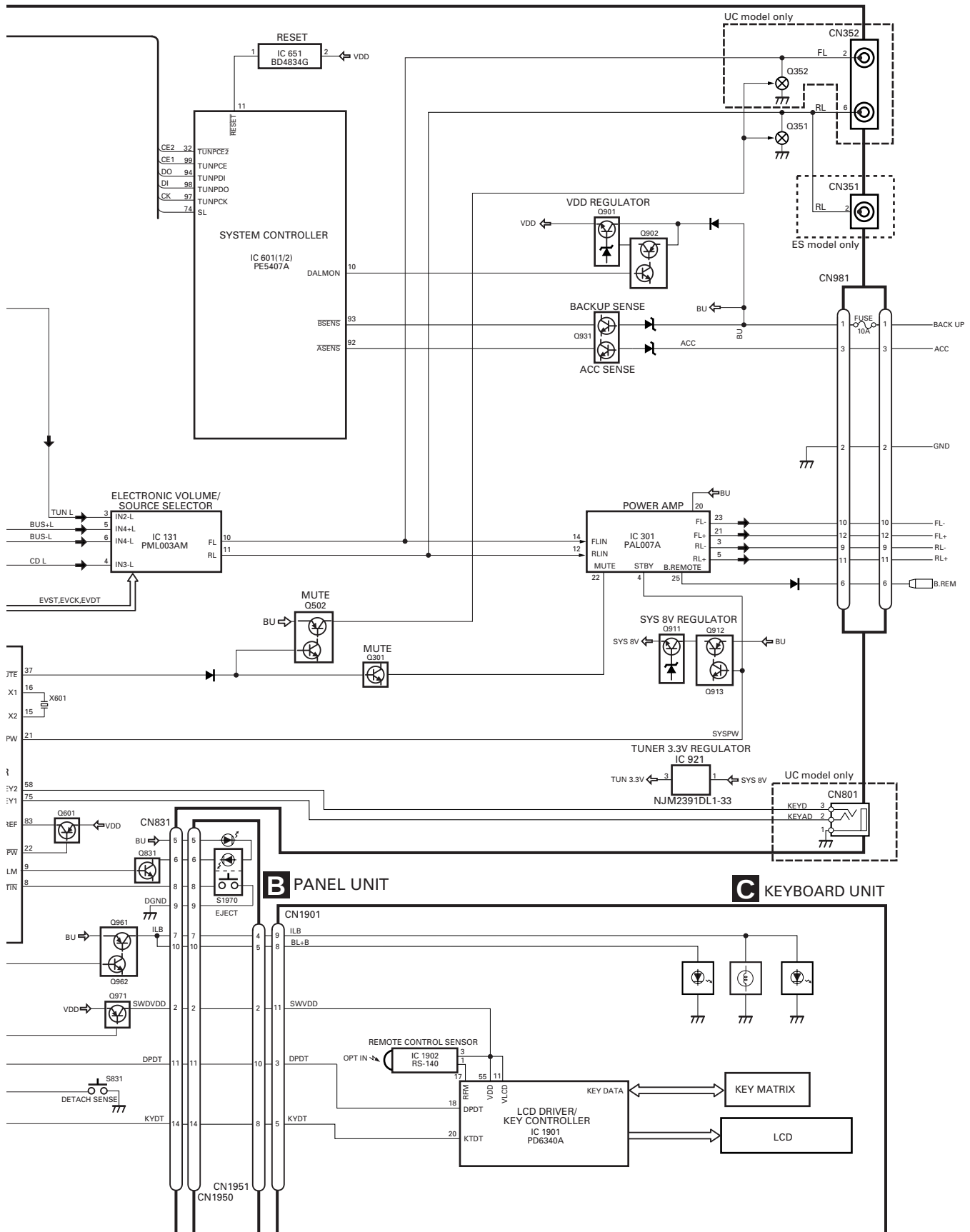


**D** CD CORE UNIT(S10WMA)

**PICKUP UNIT (P10)(SERVICE)**



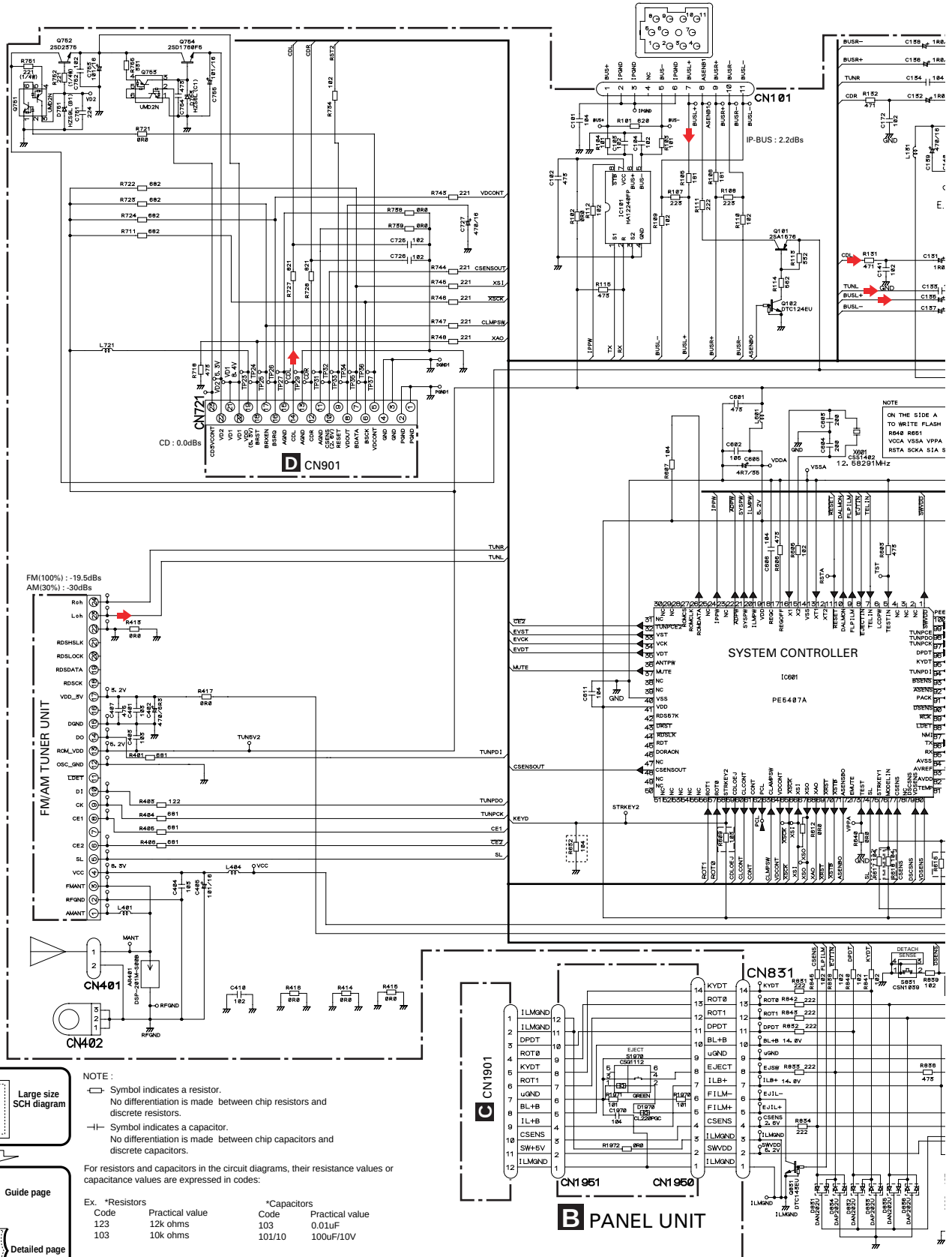




### 3.2 OVERALL CONNECTION DIAGRAM(GUIDE PAGE)

**Note: When ordering service parts, be sure to refer to "EXPLODED VIEWS AND PARTS LIST" or "ELECTRICAL PARTS LIST".**

**A-a**



NOTE :

-  Symbol indicates a resistor.  
No differentiation is made between chip resistors and discrete resistors.
-  Symbol indicates a capacitor.  
No differentiation is made between chip capacitors and discrete capacitors.

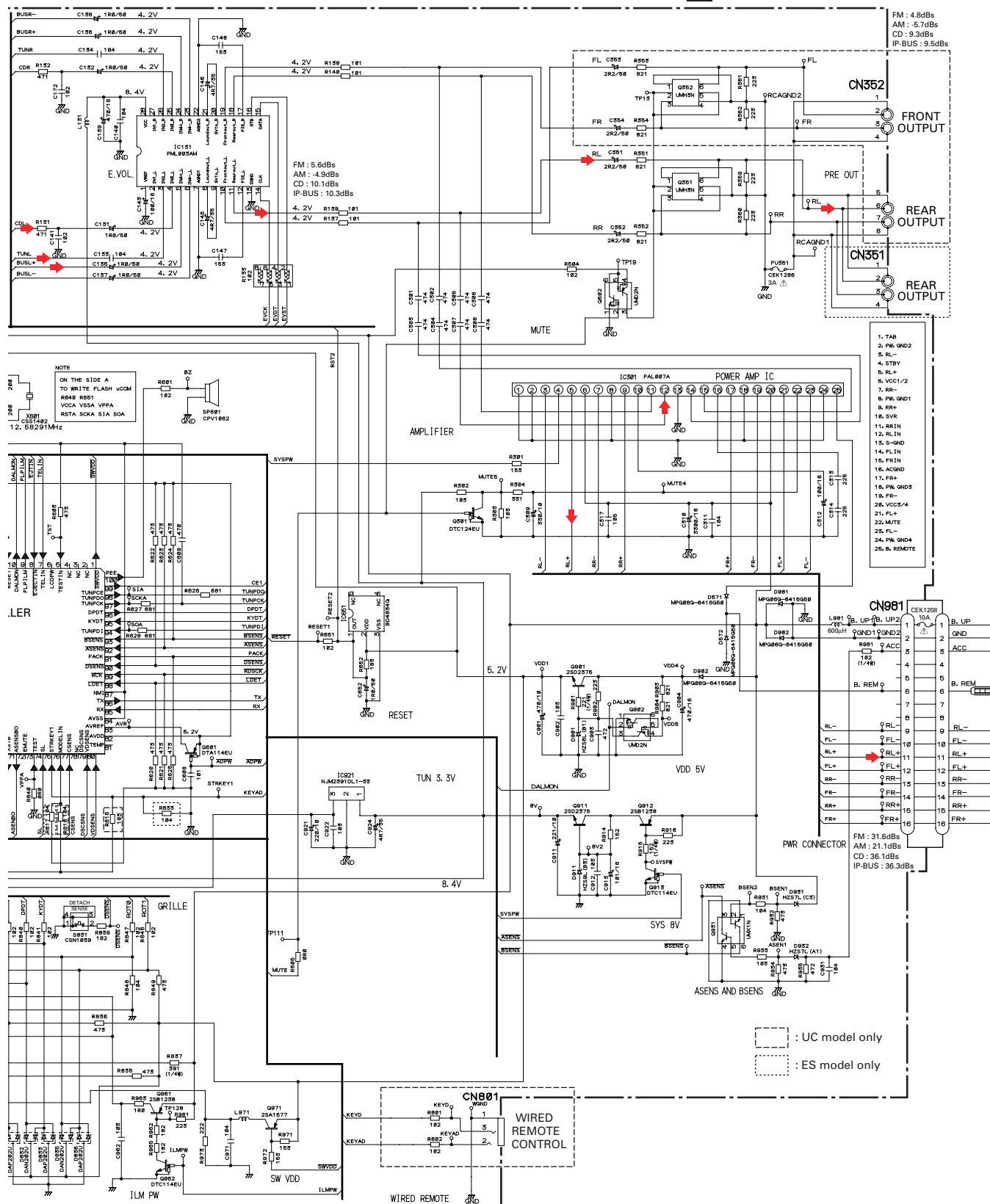
For resistors and capacitors in the circuit diagrams, their resistance values or capacitance values are expressed in codes:

| Ex. *Resistors |                 | *Capacitors |                 |
|----------------|-----------------|-------------|-----------------|
| Code           | Practical value | Code        | Practical value |
| 123            | 12k ohms        | 103         | 0.01uF          |
| 103            | 10k ohms        | 101/10      | 100uF/10V       |

The  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

A-b

## A TUNER AMP UNIT



A

B

C

D

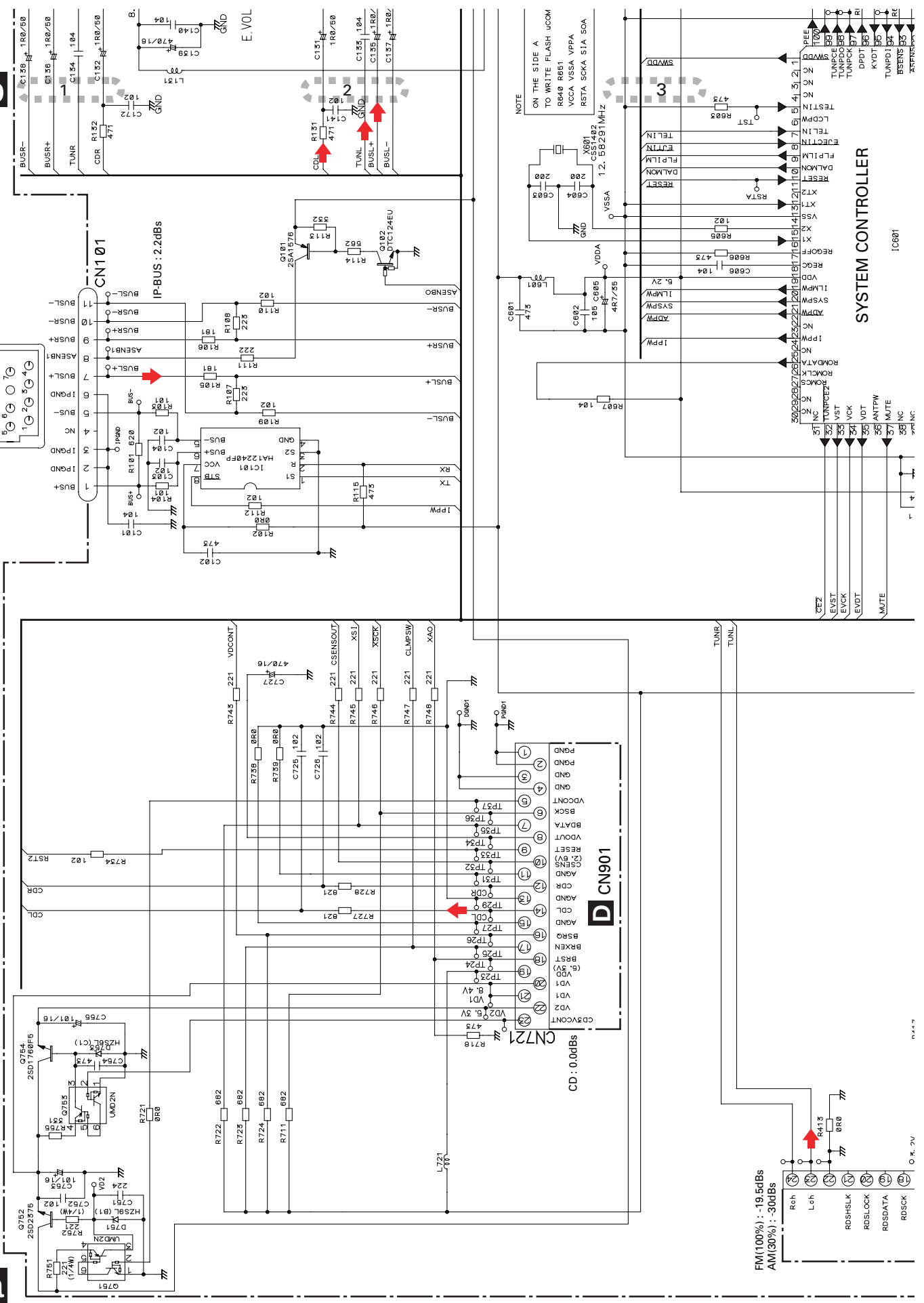
E

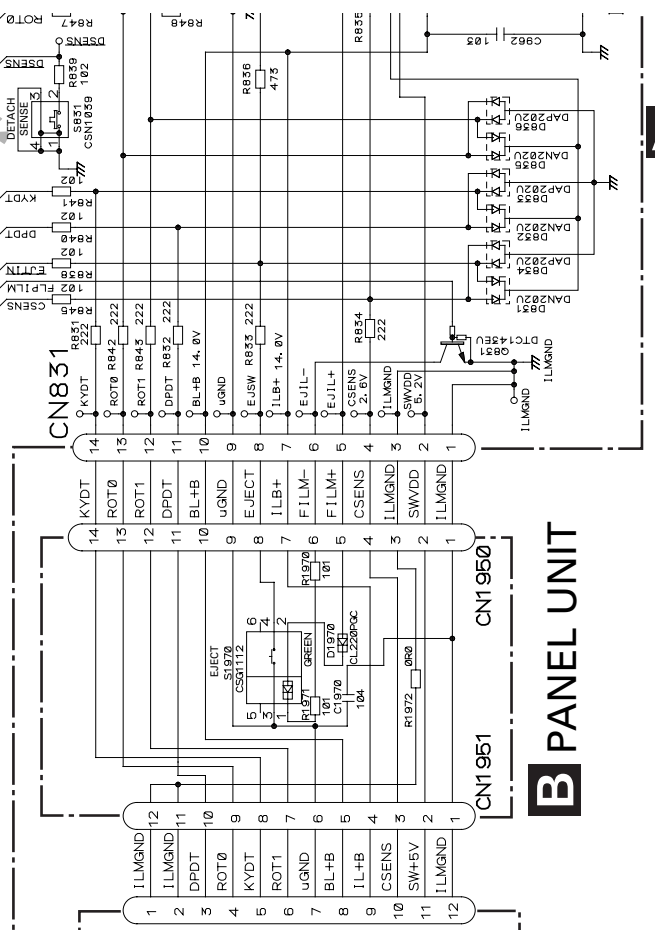
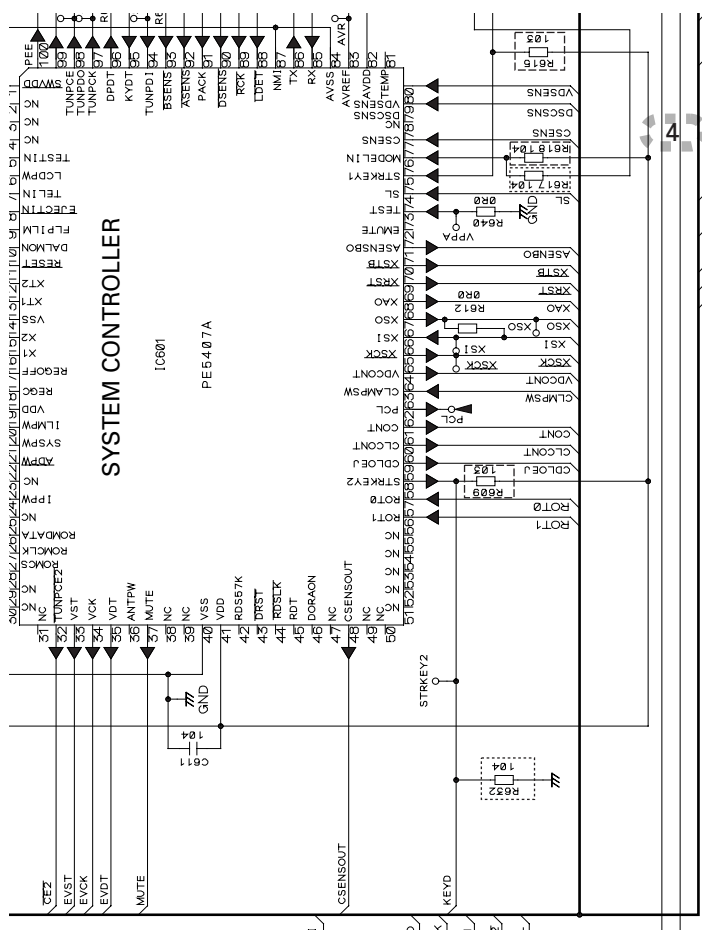
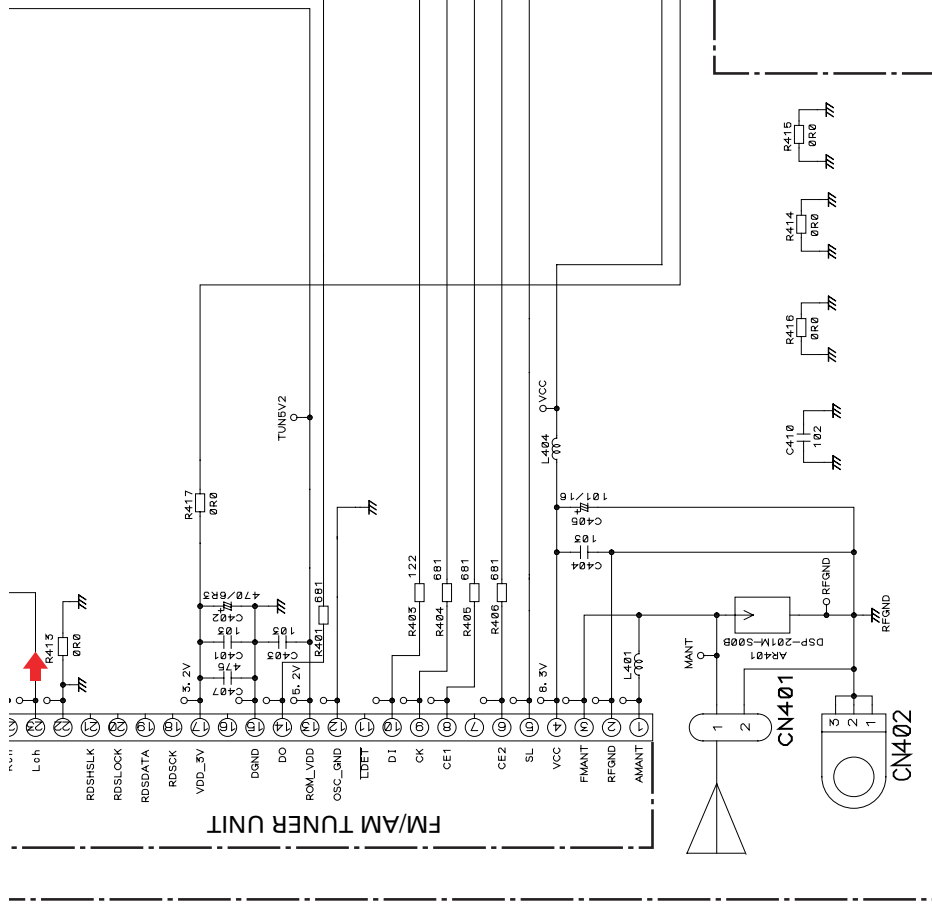
F

A-b

A-a

A-a





NOTE :

- Symbol indicates a resistor.  
No differentiation is made between chip resistors and discrete resistors.
- |— Symbol indicates a capacitor.  
No differentiation is made between chip capacitors and discrete capacitors.

For resistors and capacitors in the circuit diagrams, their resistance values or capacitance values are expressed in codes:

| Ex. *Resistors |                 | *Capacitors |                 |
|----------------|-----------------|-------------|-----------------|
| Code           | Practical value | Code        | Practical value |
| 123            | 12k ohms        | 103         | 0.01uF          |
| 103            | 10k ohms        | 101/10      | 100uF/10V       |

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.

A-a B

1

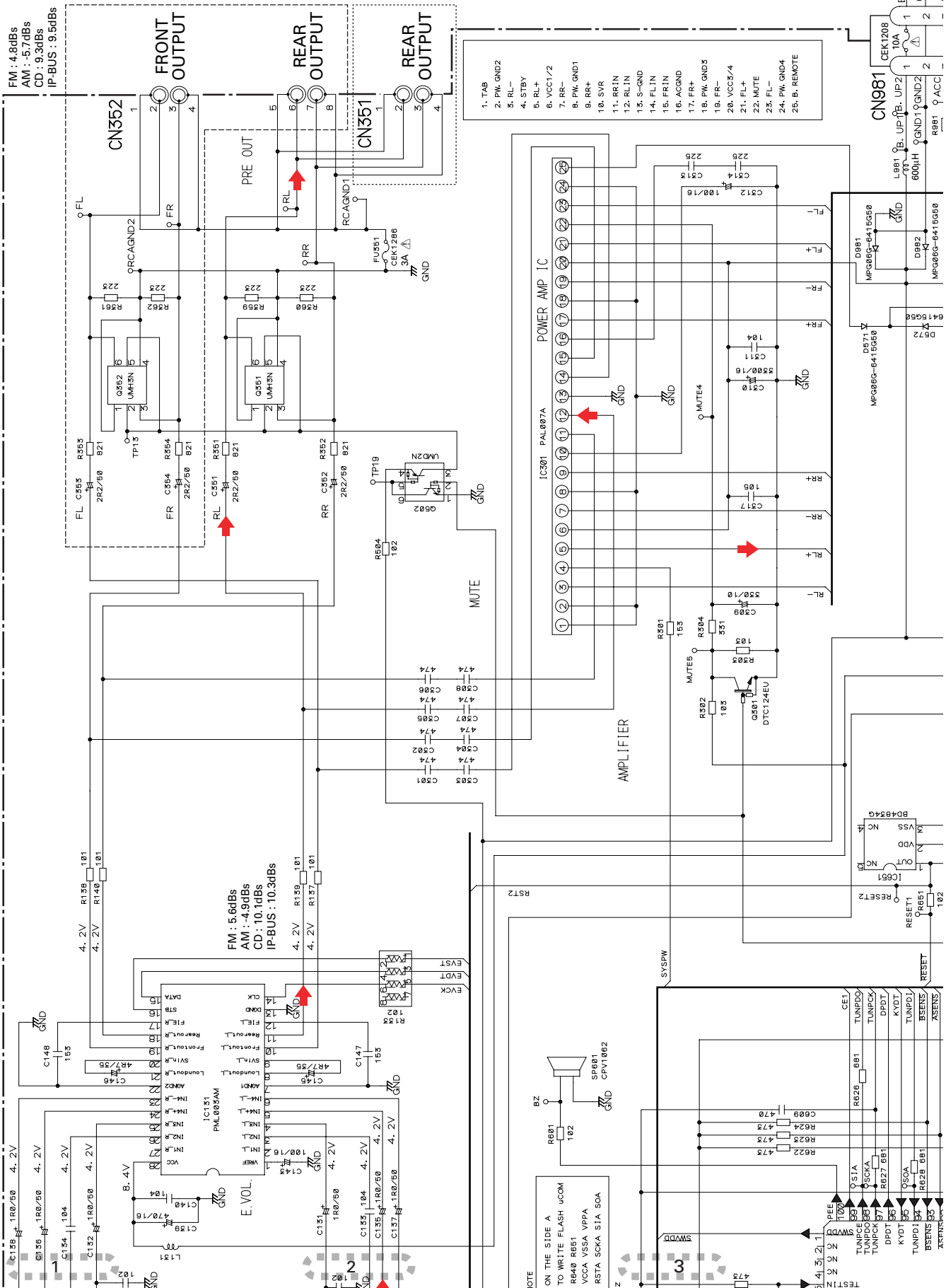
2

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4

# A TUNER AMP UNIT

FM : 4.8dBs  
AM : -5.7dBs  
CD : 9.3dBs  
IP-BUS : 9.5dBs



DEH-P460MP/XM/UC

22

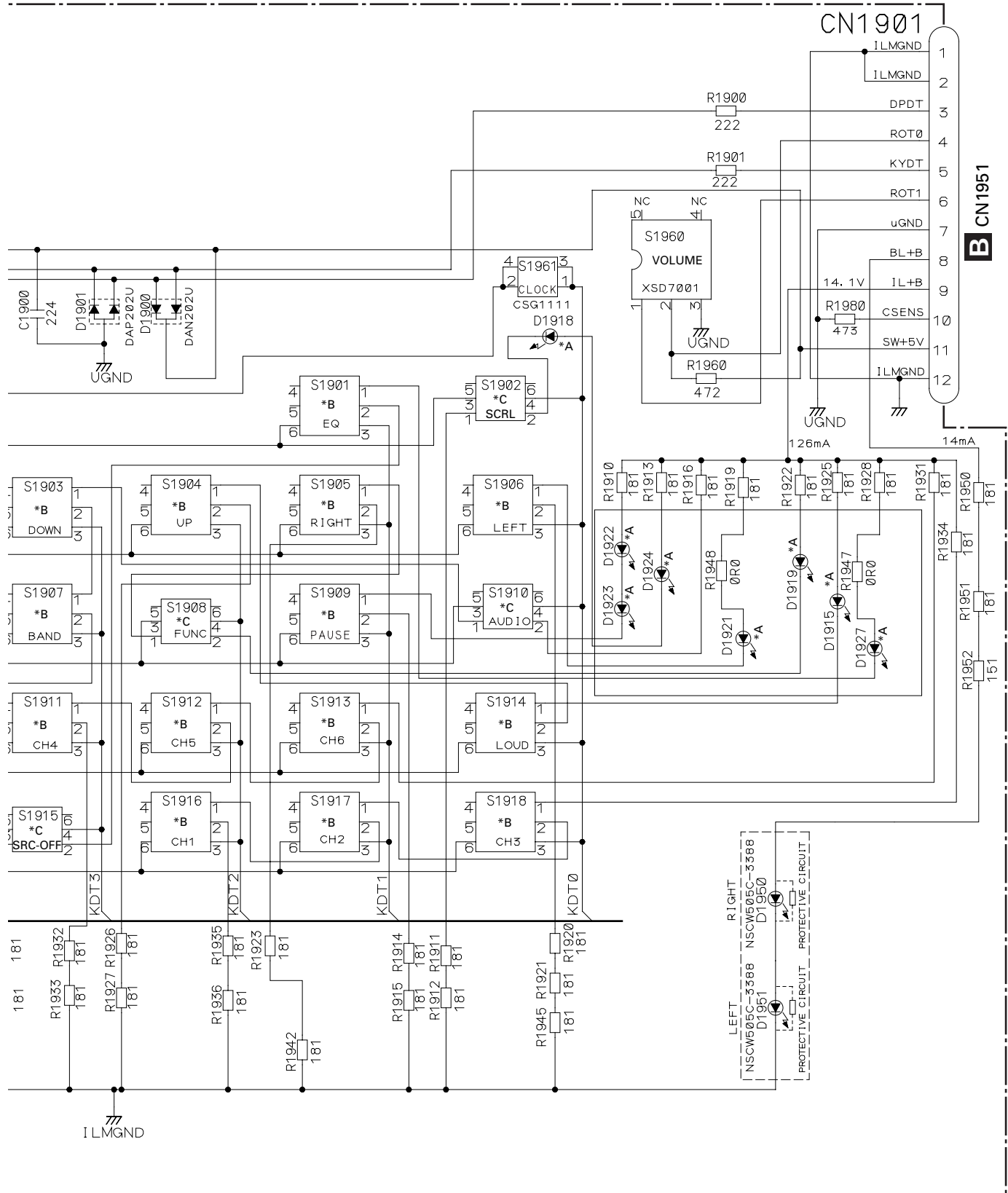


## 4





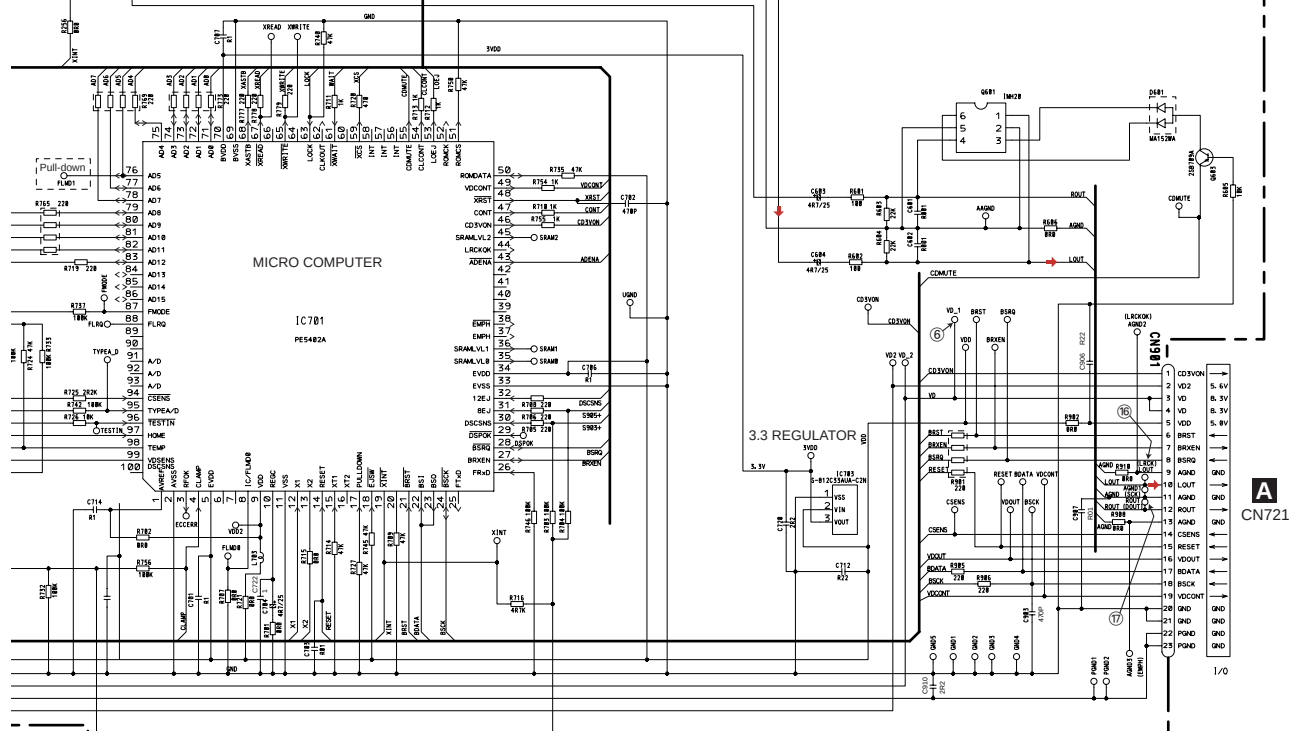
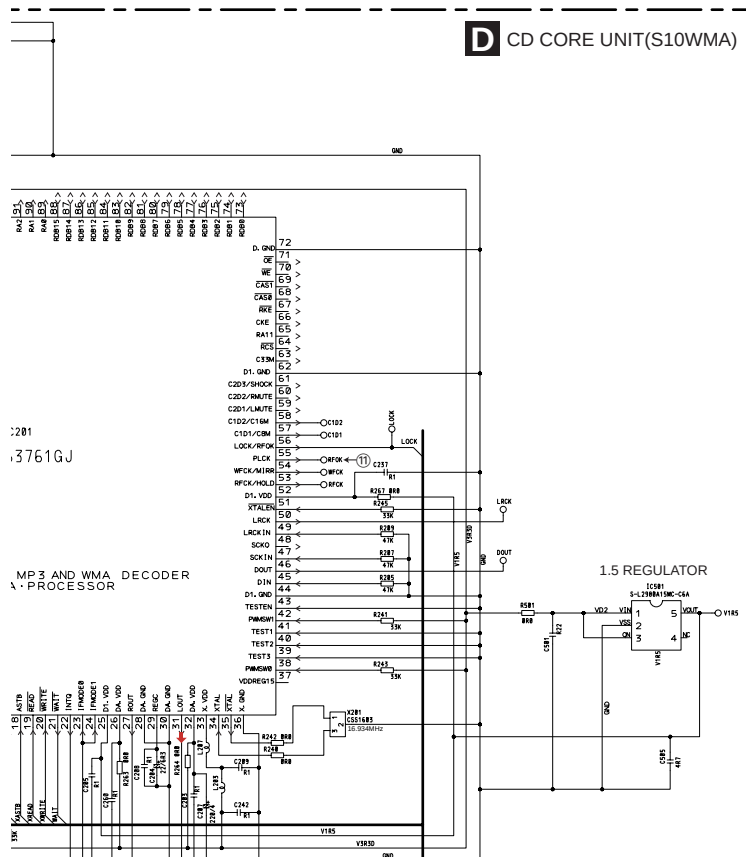
# C KEYBOARD UNIT





D-b

## D CD CORE UNIT(S10WMA)







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1

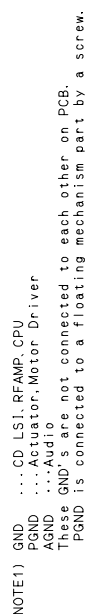
2

3

4



## CD CORE UNIT(S10WMA)



SWITCHES:

CD CORE UNIT(S10WMA)

S901 : HOME SWITCH.....ON-OFF

S902 : CLAMP SWITCH.....ON-OFF

S903 : DSCSNS SWITCH.....ON-OFF

S904 : 12EJ SWITCH.....ON-OFF

S905 : 8EJ SWITCH.....ON-OFF  
The underlined indicates the switch position.

The underlined indicates the switch position.

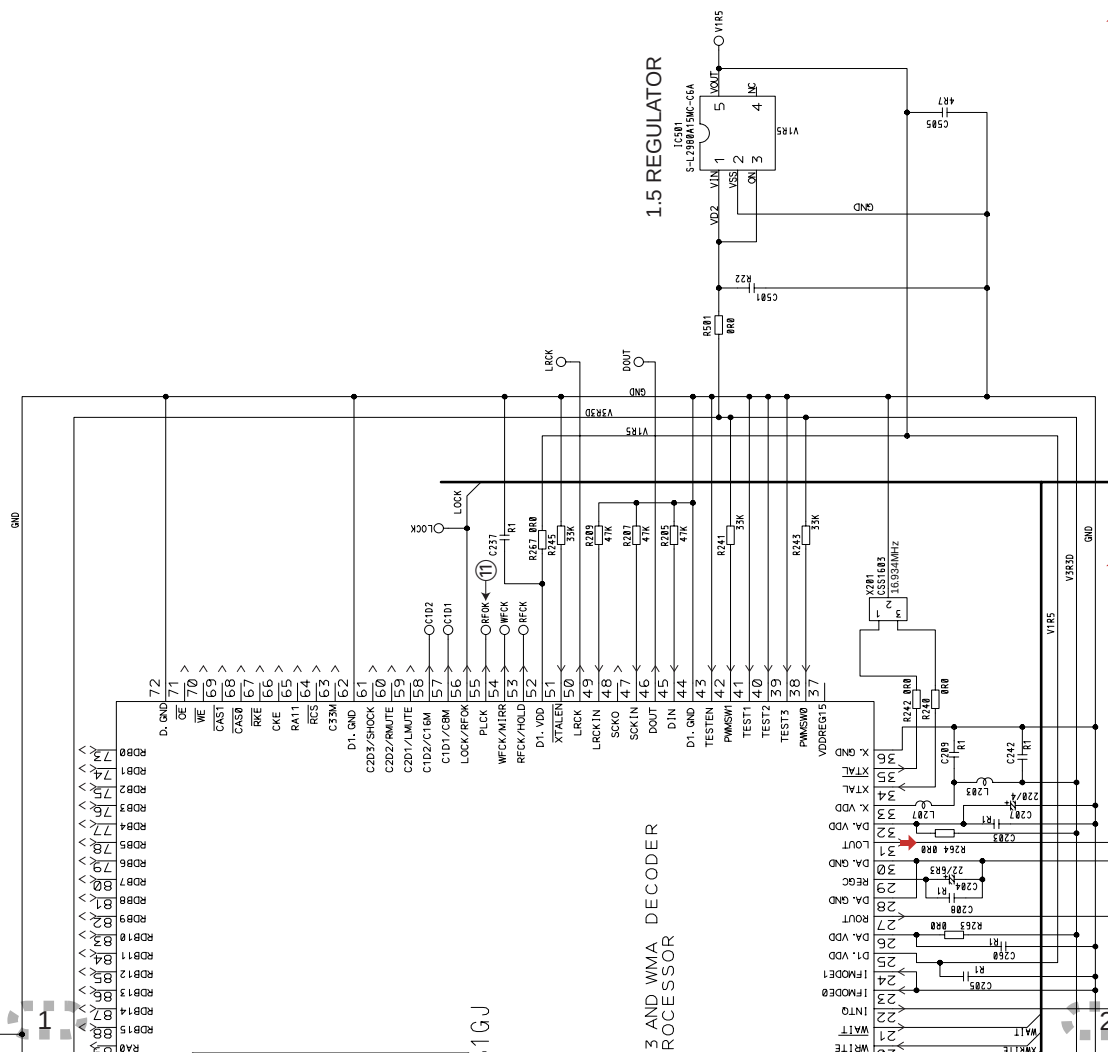
SIGNAL LINE

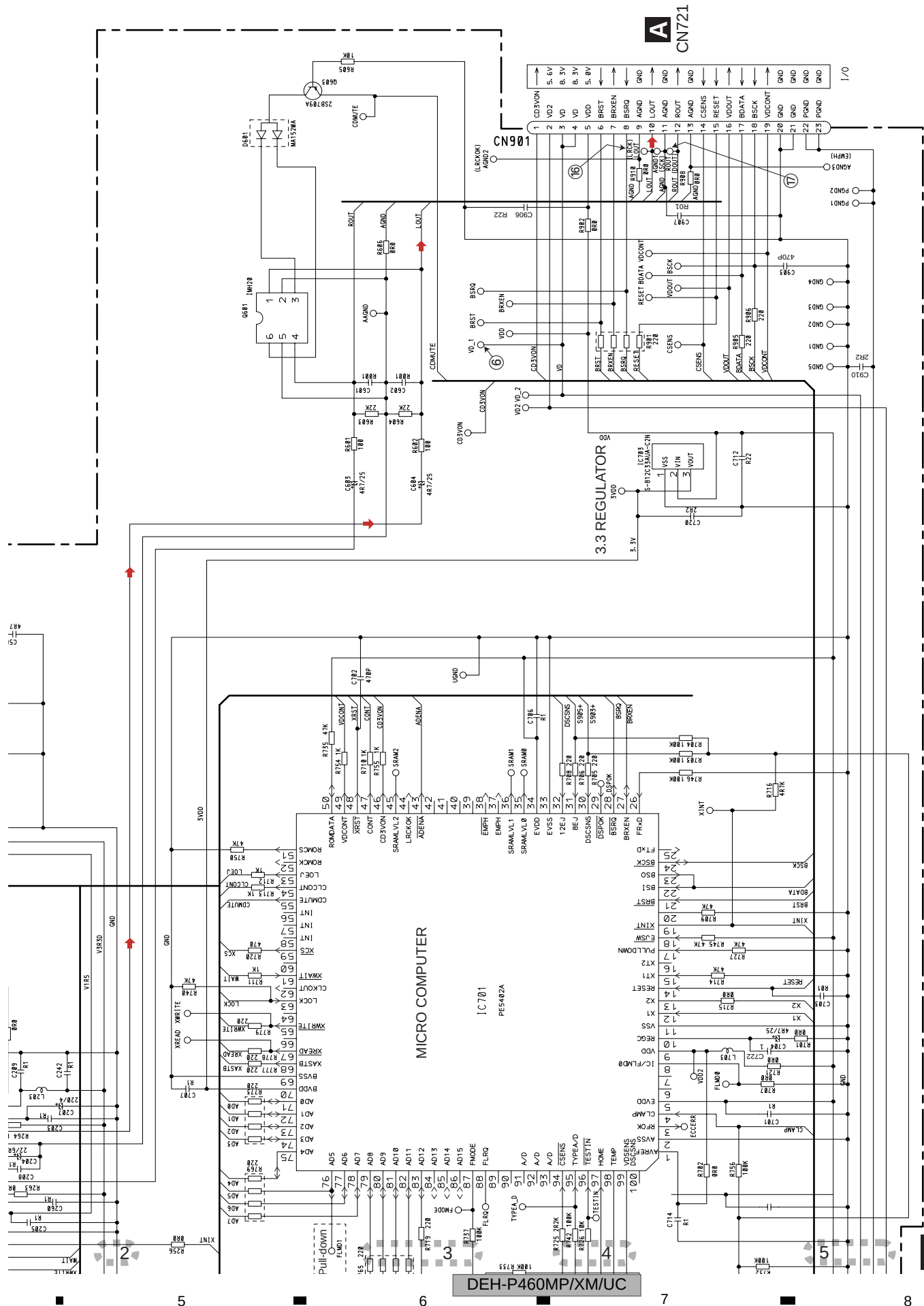
FOCUS SERVO LINE

## TRACKING SERVO LINE

## TRACKING SERVO LINE CARRIAGE SERVO LINE

CARRIAGE SERVVO LINE  
SPINDI E SERVVO LINE



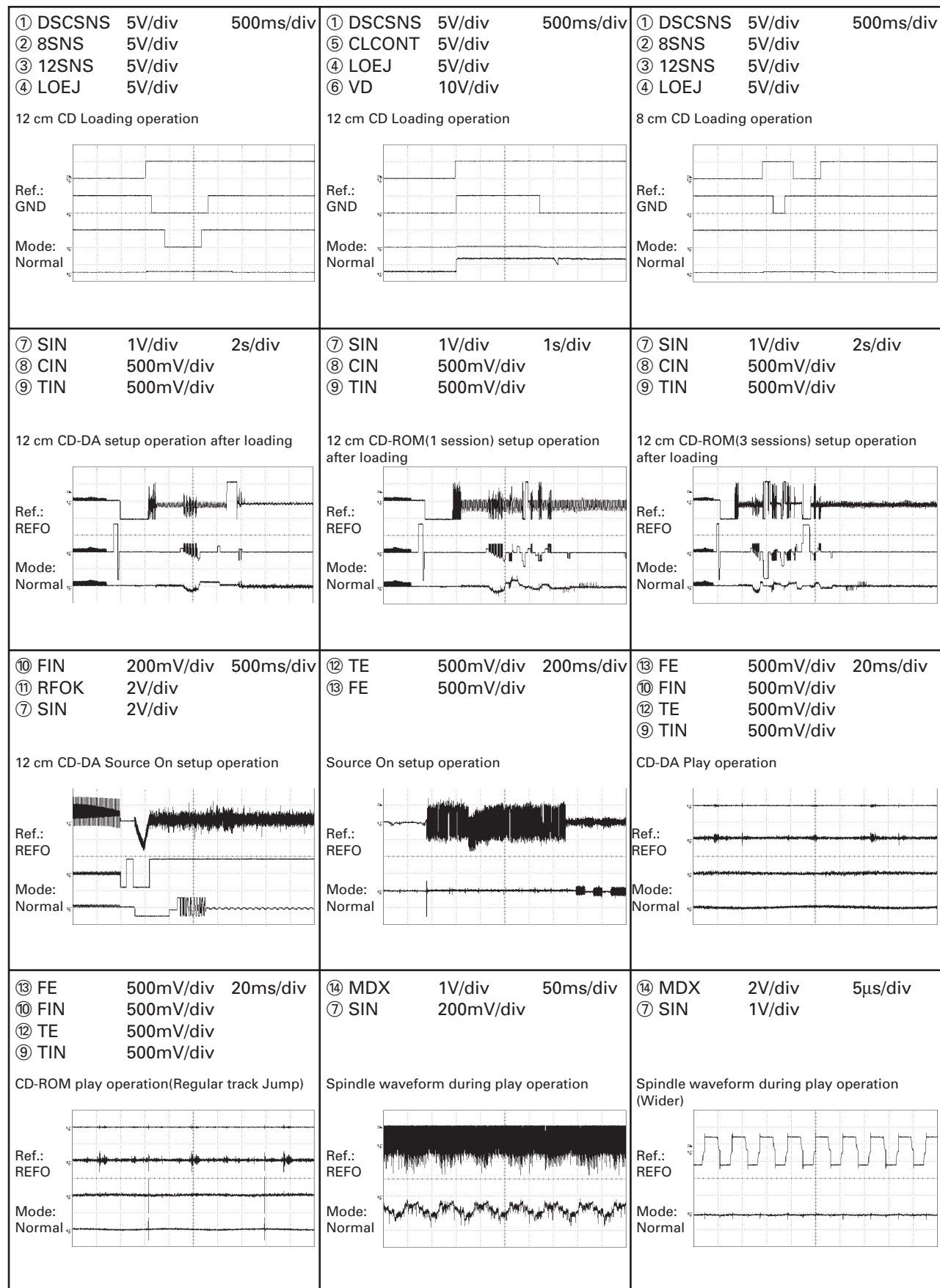


D-a D-b

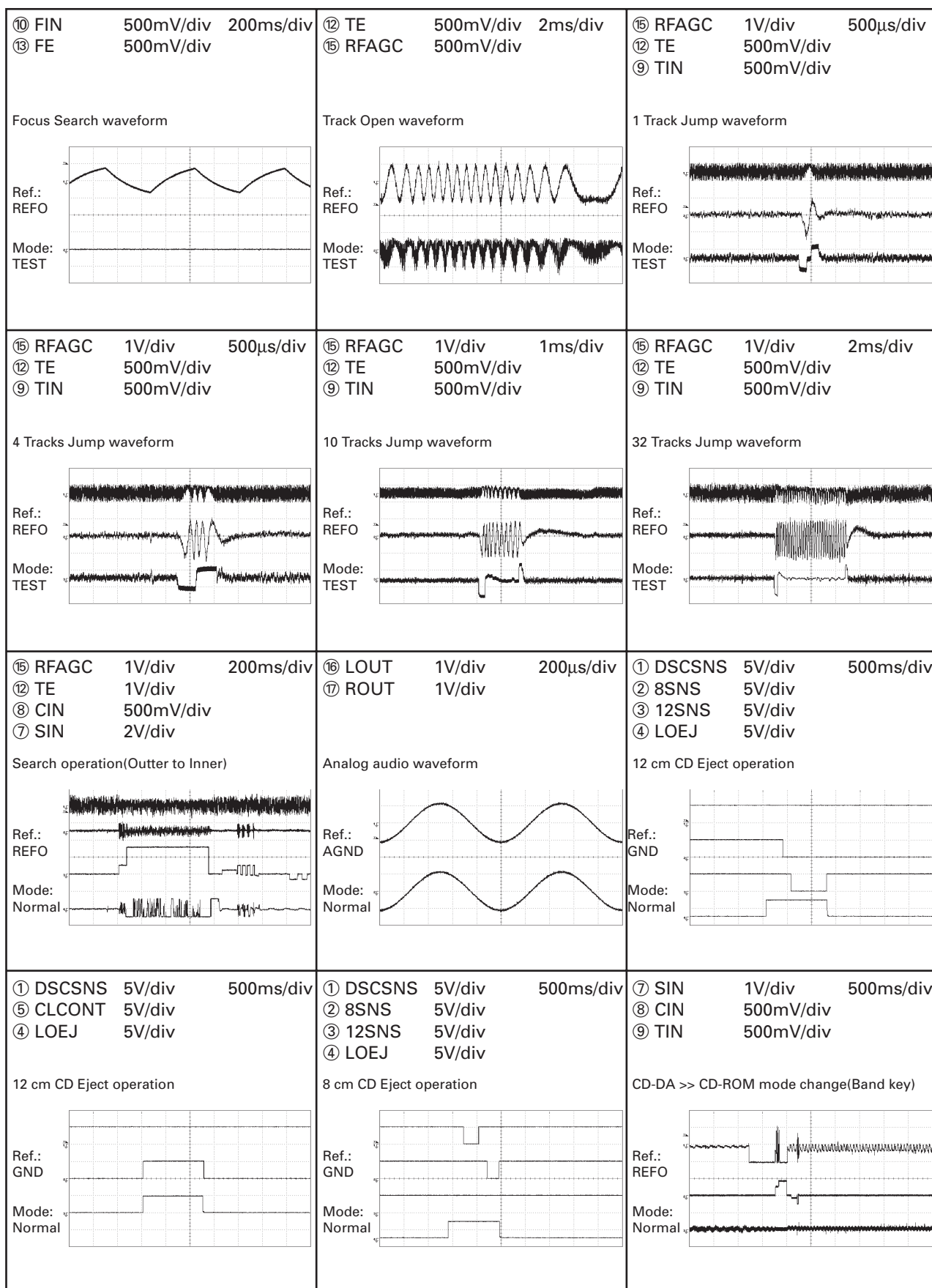
D-b

# Waveforms

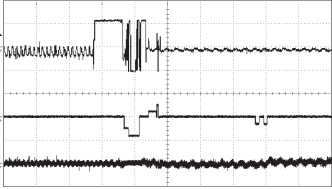
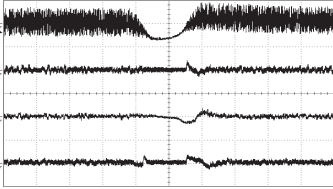
Note : 1. The encircled numbers denote measuring points in the circuit diagram.  
2. Reference voltage REFO1(1.65V)







A

|                                                                                                                                                                                                                                                                                                     |  |                                                                                                                                                                                                                                                                                                       |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <div><div><div>⑦ SIN1V/div500ms/div</div><div>⑧ CIN500mV/div</div><div>⑨ TIN500mV/div</div></div><div>CD-ROM &gt;&gt; CD-DA mode change(Band key)</div><div><div>Ref.:REFO</div><div>Mode:Normal</div></div></div> |  | <div><div><div>⑮ RFAGC1V/div500μs/div</div><div>⑨ TIN1V/div</div><div>⑫ TE1V/div</div><div>⑩ FIN1V/div</div></div><div>Black dot(800μm) during play</div><div><div>Ref.:REFO</div><div>Mode:Normal</div></div></div> |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|

B

C

D

E

F



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7



8



A



B



C



D



E



F



5



6

DEH-P460MP/XM/UC



7



8



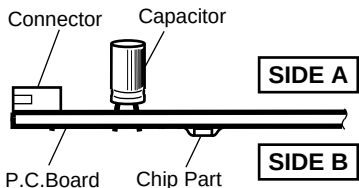
# 4. PCB CONNECTION DIAGRAM

## 4.1 TUNER AMP UNIT

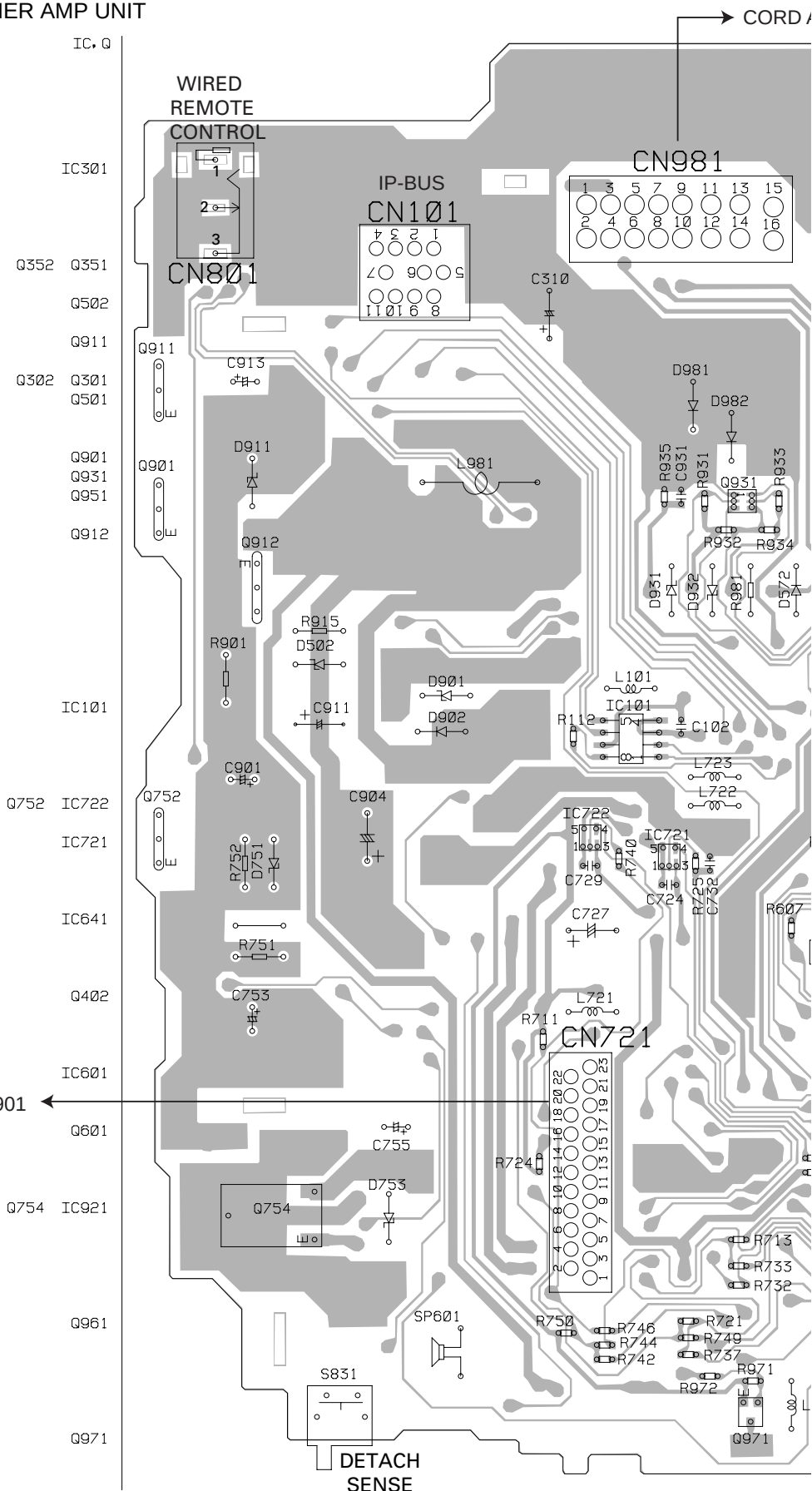
### NOTE FOR PCB DIAGRAMS

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

### 2. Viewpoint of PCB diagrams

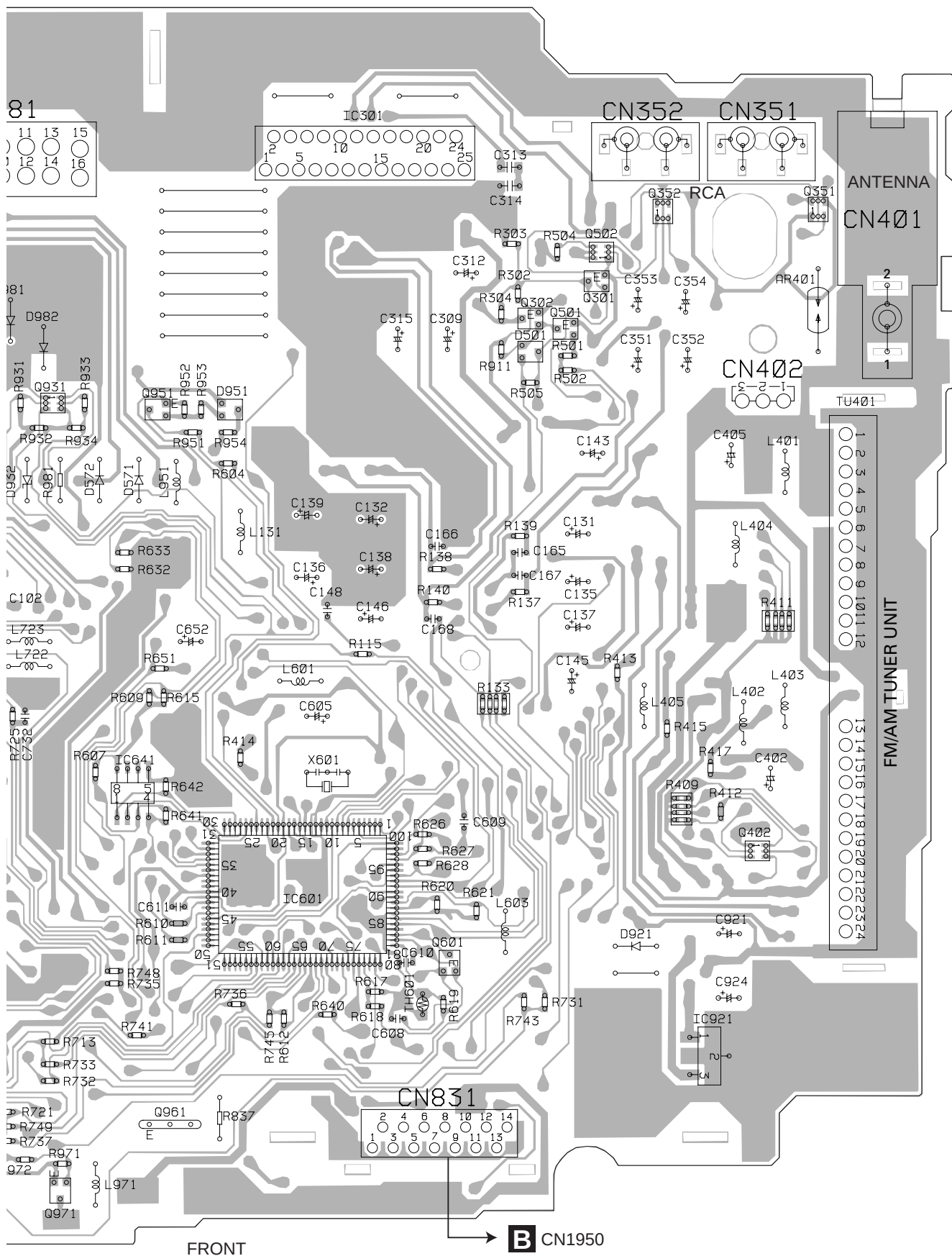


### A TUNER AMP UNIT



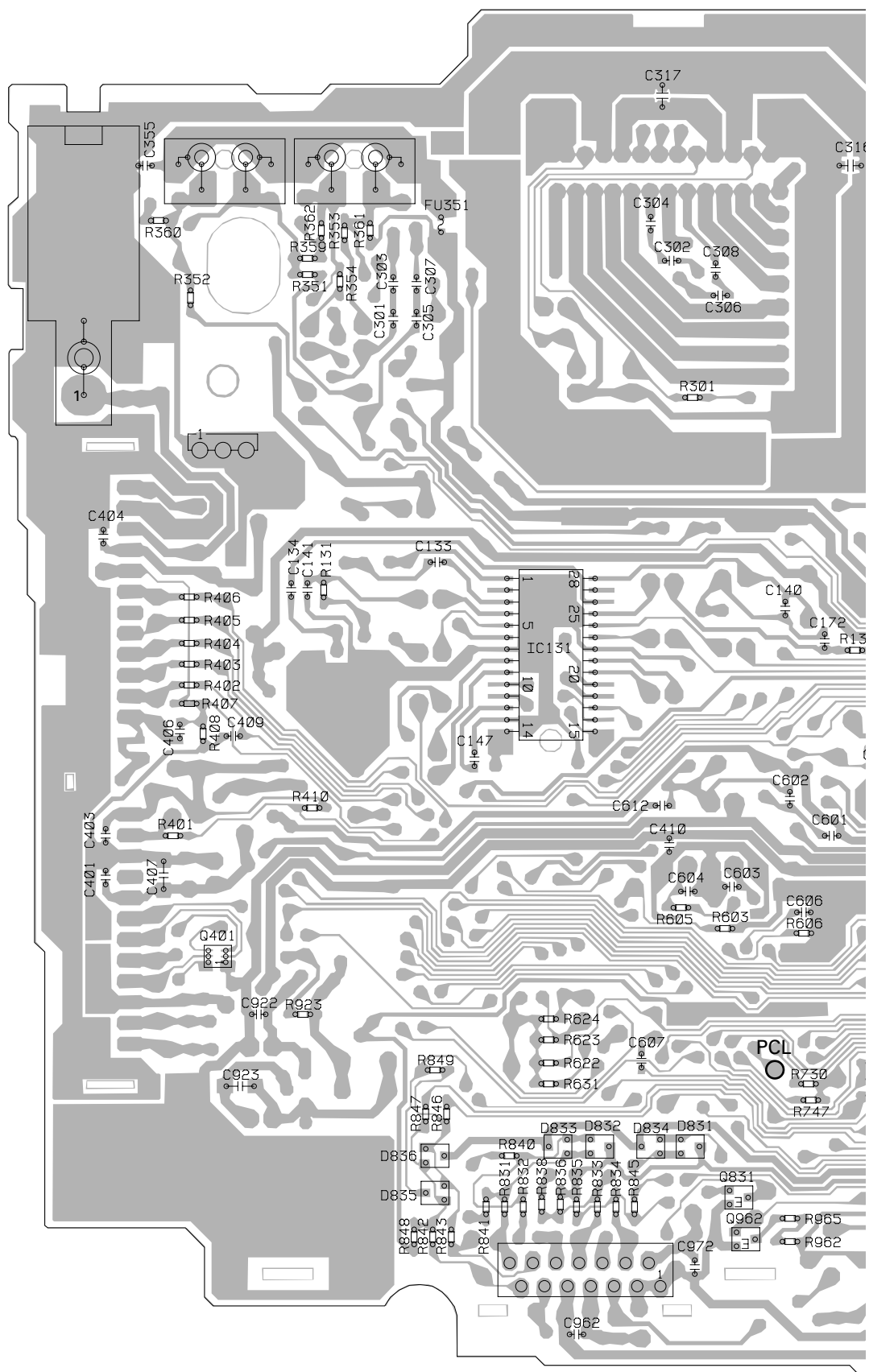
→ CORD ASSY

SIDE A

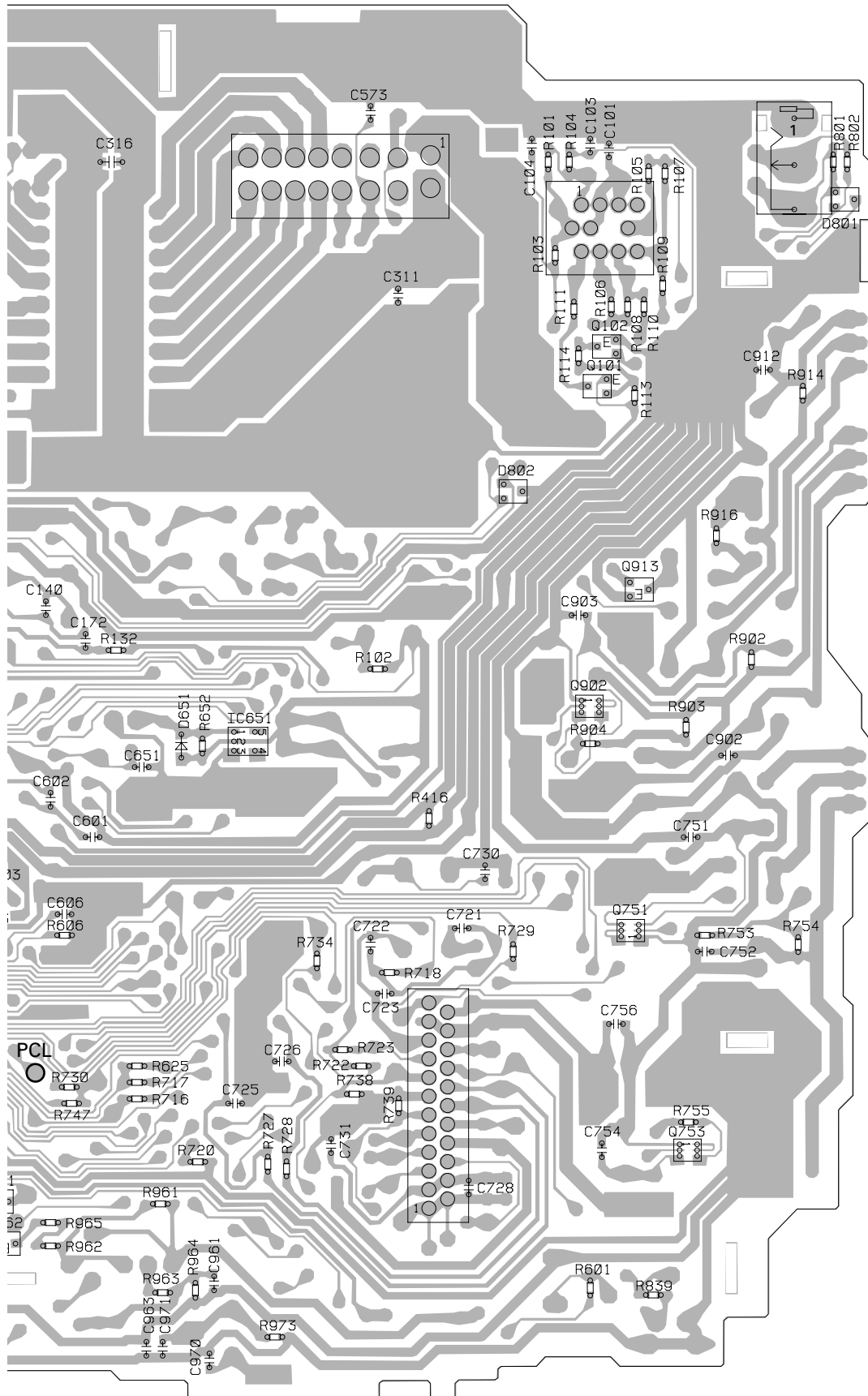




## TUNER AMP UNIT



SIDE B



IC, Q

Q102

Q101

Q913

IC131

Q902

IC651

Q751

Q401

Q753

Q831

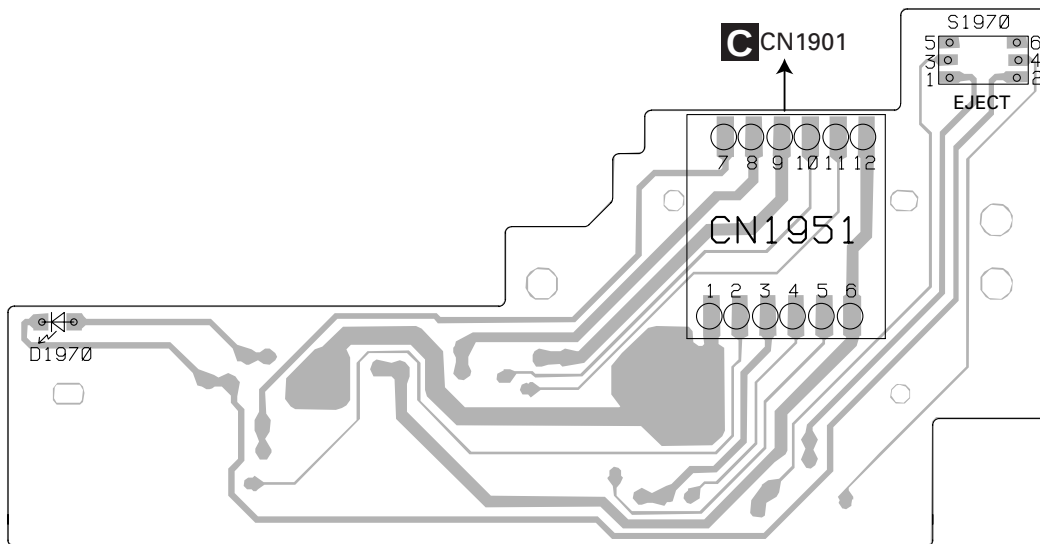
Q962

A

## 4.2 PANEL UNIT

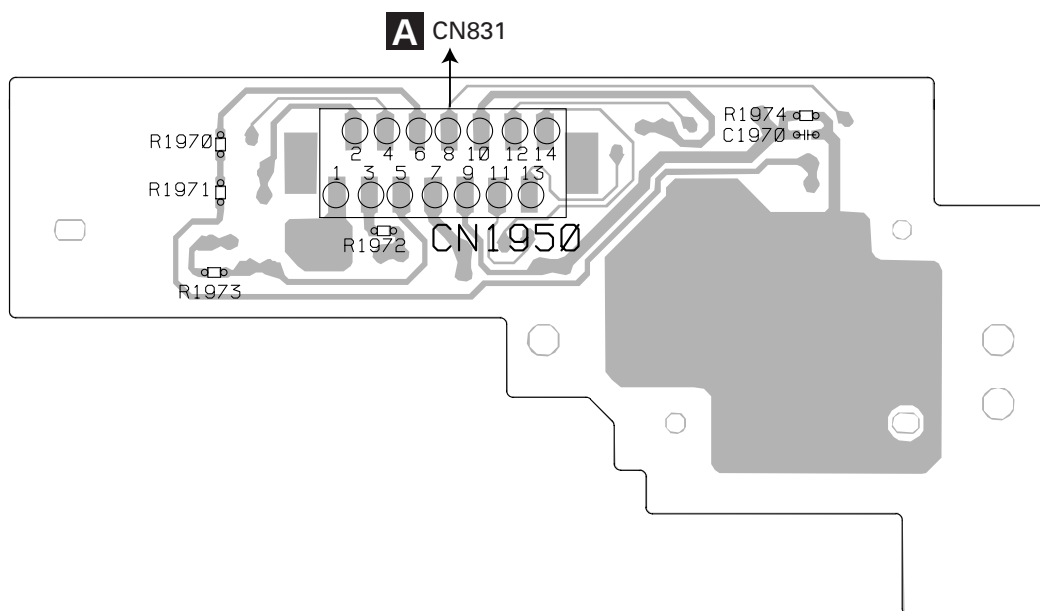
**B** PANEL UNIT

**SIDE A**



**B** PANEL UNIT

**SIDE B**

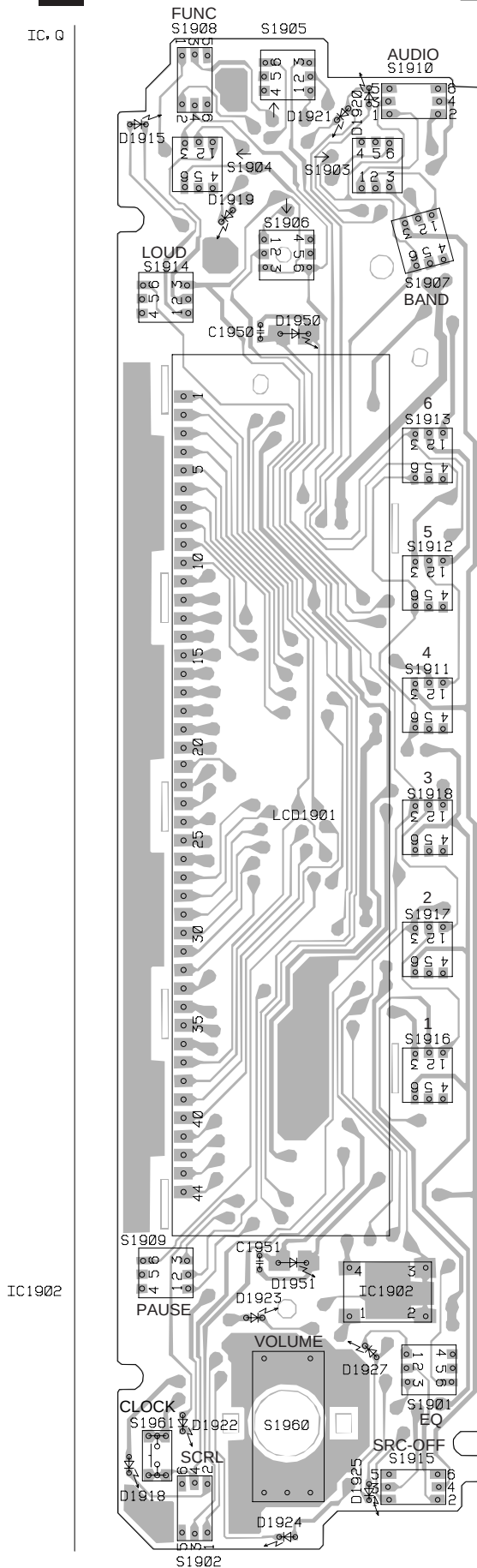




### 4.3 KEYBOARD UNIT

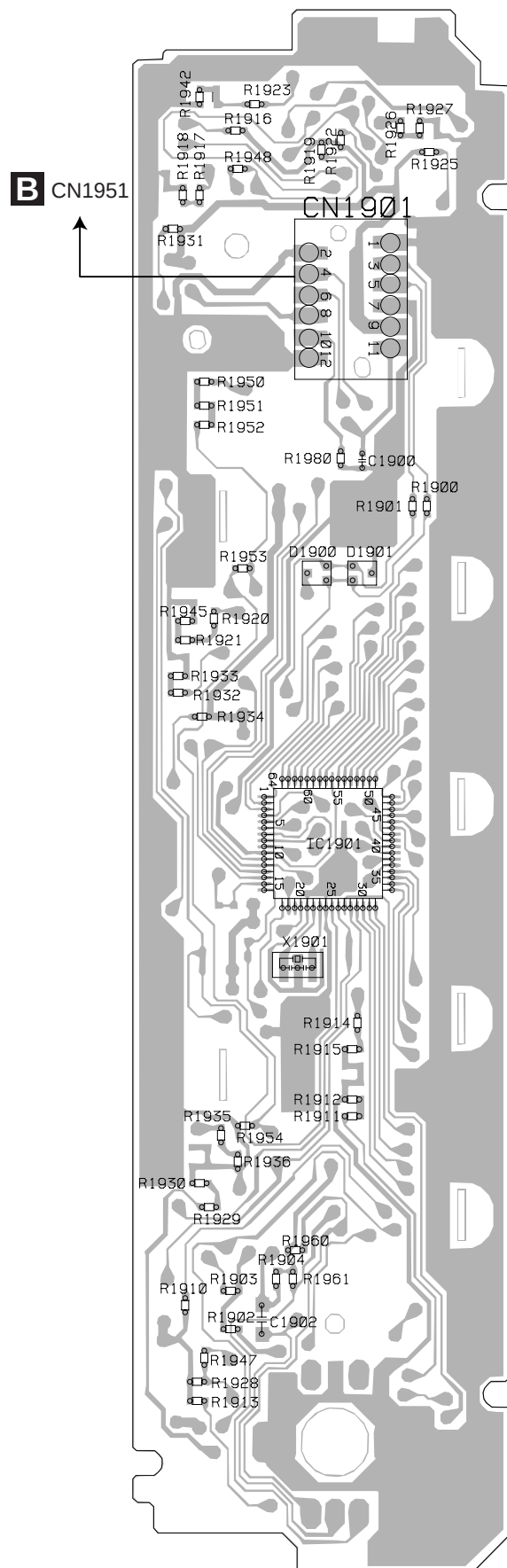
#### C KEYBOARD UNIT

SIDE A



#### C KEYBOARD UNIT

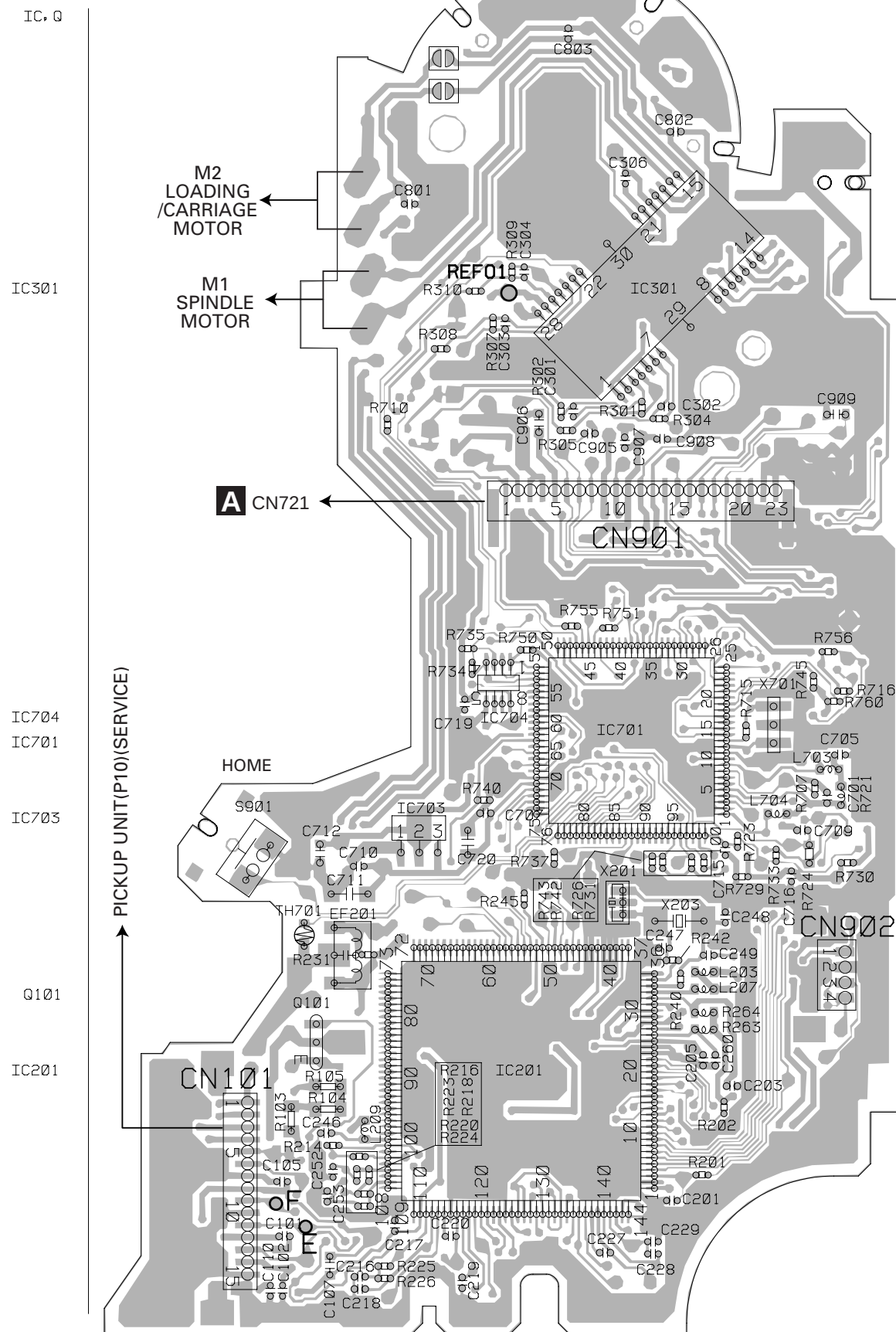
SIDE B



## 4.4 CD CORE UNIT(S10WMA)

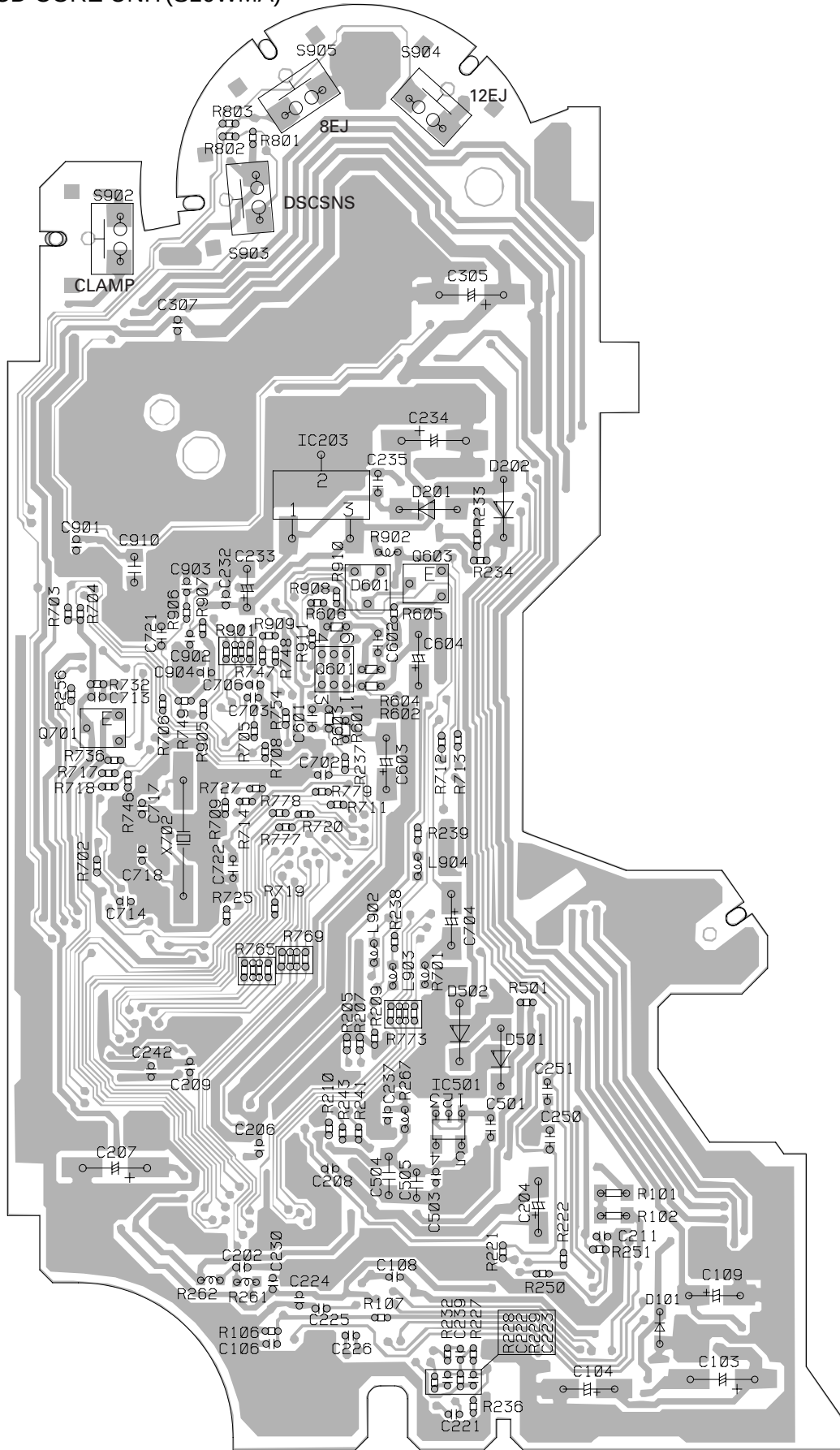
**D** CD CORE UNIT(S10WMA)

**SIDE A**



# D CD CORE UNIT(S10WMA)

SIDE B



## 5. ELECTRICAL PARTS LIST

### NOTE:

- Parts whose parts numbers are omitted are subject to being not supplied.
- The part numbers shown below indicate chip components.

Chip Resistor

RS1/○S○○○○J,RS1/○○S○○○○J

Chip Capacitor (except for CQS.....)

CKS....., CCS....., CSZS.....

Circuit Symbol and No.

Part No.

Circuit Symbol and No.

Part No.

**A**

Unit Number:XWM7023(DEH-P460MP, P4600MP)  
:XWM7024(DEH-P4650MP)

Unit Name:Tuner Amp Unit

### MISCELLANEOUS

|        |    |           |
|--------|----|-----------|
| IC 101 | IC | HA12240FP |
| IC 131 | IC | PML003AM  |
| IC 301 | IC | PAL007A   |
| IC 601 | IC | PE5407A   |
| IC 651 | IC | BD4834G   |

|        |            |               |
|--------|------------|---------------|
| IC 921 | IC         | NJM2391DL1-33 |
| Q 101  | Transistor | 2SA1576       |
| Q 102  | Transistor | DTC124EU      |
| Q 301  | Transistor | DTC124EU      |
| Q 351  | Transistor | UMH3N         |

|       |                                  |          |
|-------|----------------------------------|----------|
| Q 352 | Transistor (DEH-P460MP, P4600MP) | UMH3N    |
| Q 502 | Transistor                       | UMD2N    |
| Q 601 | Transistor                       | DTA114EU |
| Q 751 | Transistor                       | UMD2N    |
| Q 752 | Transistor                       | 2SD2375  |

|       |            |           |
|-------|------------|-----------|
| Q 753 | Transistor | UMD2N     |
| Q 754 | Transistor | 2SD1760F5 |
| Q 831 | Transistor | DTC143EU  |
| Q 901 | Transistor | 2SD2375   |
| Q 902 | Transistor | UMD2N     |

|       |            |          |
|-------|------------|----------|
| Q 911 | Transistor | 2SD2375  |
| Q 912 | Transistor | 2SB1238  |
| Q 913 | Transistor | DTC114EU |
| Q 931 | Transistor | UMX1N    |
| Q 961 | Transistor | 2SB1238  |

|       |            |                |
|-------|------------|----------------|
| Q 962 | Transistor | DTC114EU       |
| Q 971 | Transistor | 2SA1577        |
| D 571 | Diode      | MPG06G-6415G50 |
| D 572 | Diode      | MPG06G-6415G50 |
| D 751 | Diode      | HZS9L(B1)      |

|       |       |           |
|-------|-------|-----------|
| D 753 | Diode | HZS6L(C1) |
| D 831 | Diode | DAN202U   |
| D 832 | Diode | DAN202U   |
| D 833 | Diode | DAP202U   |
| D 834 | Diode | DAP202U   |

|       |       |                |
|-------|-------|----------------|
| D 835 | Diode | DAN202U        |
| D 836 | Diode | DAP202U        |
| D 901 | Diode | HZS6L(B1)      |
| D 902 | Diode | MPG06G-6415G50 |
| D 911 | Diode | HZS9L(B3)      |

|       |          |                |
|-------|----------|----------------|
| D 931 | Diode    | HZS7L(C3)      |
| D 932 | Diode    | HZS7L(A1)      |
| D 981 | Diode    | MPG06G-6415G50 |
| D 982 | Diode    | MPG06G-6415G50 |
| L 131 | Inductor | LACU2R2K       |

|       |          |          |
|-------|----------|----------|
| L 401 | Inductor | LACU4R7K |
| L 404 | Inductor | LACU1R0K |
| L 601 | Inductor | LACU2R2K |
| L 721 | Inductor | LACU2R2K |
| L 971 | Inductor | LACU2R2K |

|       |                      |         |
|-------|----------------------|---------|
| L 981 | Choke Coil 600μH     | CTH1280 |
| X 601 | Radiator 12.58291MHz | CSS1402 |
| S 831 | Switch(DETACH SENSE) | CSN1039 |
| FU351 | Fuse 3A              | CEK1286 |
|       | Fuse 10A             | CEK1208 |

|       |                  |               |
|-------|------------------|---------------|
| SP601 | FM/AM Tuner Unit | CWE1646       |
| AR401 | Buzzer           | CPV1062       |
|       | Surge Protector  | DSP-201M-S00B |

### RESISTORS

|       |             |
|-------|-------------|
| R 101 | RS1/16S620J |
| R 102 | RS1/16S0R0J |
| R 103 | RS1/16S101J |
| R 104 | RS1/16S101J |
| R 105 | RS1/16S181J |

|       |             |
|-------|-------------|
| R 106 | RS1/16S181J |
| R 107 | RS1/16S223J |
| R 108 | RS1/16S223J |
| R 109 | RS1/16S102J |
| R 110 | RS1/16S102J |

|       |             |
|-------|-------------|
| R 111 | RS1/16S222J |
| R 112 | RS1/16S102J |
| R 113 | RS1/16S332J |
| R 114 | RS1/16S562J |
| R 115 | RS1/16S473J |

|       |             |
|-------|-------------|
| R 131 | RS1/16S471J |
| R 132 | RS1/16S471J |
| R 133 | RAB4C102J   |
| R 137 | RS1/16S101J |
| R 138 | RS1/16S101J |

|       |             |
|-------|-------------|
| R 139 | RS1/16S101J |
| R 140 | RS1/16S101J |
| R 301 | RS1/16S153J |
| R 302 | RS1/16S103J |
| R 303 | RS1/16S103J |

|       |             |
|-------|-------------|
| R 304 | RS1/16S331J |
| R 351 | RS1/16S821J |
| R 352 | RS1/16S821J |

DEH-P460MP/XM/UC

| <u>Circuit Symbol and No.</u> |                       | <u>Part No.</u> |
|-------------------------------|-----------------------|-----------------|
| R 353                         | (DEH-P460MP, P4600MP) | RS1/16S821J     |
| R 354                         | (DEH-P460MP, P4600MP) | RS1/16S821J     |
| R 359                         |                       | RS1/16S223J     |
| R 360                         |                       | RS1/16S223J     |
| R 361                         | (DEH-P460MP, P4600MP) | RS1/16S223J     |
| R 362                         | (DEH-P460MP, P4600MP) | RS1/16S223J     |
| R 401                         |                       | RS1/16S681J     |
| R 403                         |                       | RS1/16S122J     |
| R 404                         |                       | RS1/16S681J     |
| R 405                         |                       | RS1/16S681J     |
| R 406                         |                       | RS1/16S681J     |
| R 413                         |                       | RS1/16S0R0J     |
| R 414                         |                       | RS1/16S0R0J     |
| R 415                         |                       | RS1/16S0R0J     |
| R 416                         |                       | RS1/16S0R0J     |
| R 417                         |                       | RS1/16S0R0J     |
| R 504                         |                       | RS1/16S102J     |
| R 505                         |                       | RS1/16S0R0J     |
| R 601                         |                       | RS1/16S102J     |
| R 603                         |                       | RS1/16S473J     |
| R 605                         |                       | RS1/16S102J     |
| R 606                         |                       | RS1/16S473J     |
| R 607                         |                       | RS1/16S104J     |
| R 609                         | (DEH-P460MP, P4600MP) | RS1/16S103J     |
| R 612                         |                       | RS1/16S0R0J     |
| R 615                         | (DEH-P460MP, P4600MP) | RS1/16S103J     |
| R 617                         | (DEH-P4650MP)         | RS1/16S104J     |
| R 618                         | (DEH-P460MP, P4600MP) | RS1/16S104J     |
| R 620                         |                       | RS1/16S473J     |
| R 621                         |                       | RS1/16S473J     |
| R 622                         |                       | RS1/16S473J     |
| R 623                         |                       | RS1/16S473J     |
| R 624                         |                       | RS1/16S473J     |
| R 625                         |                       | RS1/16S473J     |
| R 626                         |                       | RS1/16S681J     |
| R 627                         |                       | RS1/16S681J     |
| R 628                         |                       | RS1/16S681J     |
| R 632                         | (DEH-P4650MP)         | RS1/16S104J     |
| R 633                         | (DEH-P4650MP)         | RS1/16S104J     |
| R 640                         |                       | RS1/16S0R0J     |
| R 651                         |                       | RS1/16S102J     |
| R 652                         |                       | RS1/16S183J     |
| R 711                         |                       | RS1/16S682J     |
| R 718                         |                       | RS1/16S473J     |
| R 721                         |                       | RS1/16S0R0J     |
| R 722                         |                       | RS1/16S682J     |
| R 723                         |                       | RS1/16S682J     |
| R 724                         |                       | RS1/16S682J     |
| R 727                         |                       | RS1/16S821J     |
| R 728                         |                       | RS1/16S821J     |
| R 734                         |                       | RS1/16S102J     |
| R 738                         |                       | RS1/16S0R0J     |
| R 739                         |                       | RS1/16S0R0J     |
| R 743                         |                       | RS1/16S221J     |
| R 744                         |                       | RS1/16S221J     |
| R 745                         |                       | RS1/16S221J     |
| R 746                         |                       | RS1/16S221J     |
| R 747                         |                       | RS1/16S221J     |
| R 748                         |                       | RS1/16S221J     |
| R 751                         |                       | RD1/4PU221J     |

| <u>Circuit Symbol and No.</u> |                       | <u>Part No.</u> |
|-------------------------------|-----------------------|-----------------|
| R 752                         |                       | RD1/4PU221J     |
| R 755                         |                       | RS1/16S331J     |
| R 801                         | (DEH-P460MP, P4600MP) | RS1/16S102J     |
| R 802                         | (DEH-P460MP, P4600MP) | RS1/16S102J     |
| R 831                         |                       | RS1/16S222J     |
| R 832                         |                       | RS1/16S222J     |
| R 833                         |                       | RS1/16S222J     |
| R 834                         |                       | RS1/16S222J     |
| R 835                         |                       | RS1/16S473J     |
| R 836                         |                       | RS1/16S473J     |
| R 837                         |                       | RD1/4PU391J     |
| R 838                         |                       | RS1/16S102J     |
| R 839                         |                       | RS1/16S102J     |
| R 840                         |                       | RS1/16S102J     |
| R 841                         |                       | RS1/16S102J     |
| R 842                         |                       | RS1/16S222J     |
| R 843                         |                       | RS1/16S222J     |
| R 845                         |                       | RS1/16S102J     |
| R 846                         |                       | RS1/16S102J     |
| R 847                         |                       | RS1/16S102J     |
| R 848                         |                       | RS1/16S104J     |
| R 849                         |                       | RS1/16S473J     |
| R 901                         |                       | RD1/4PU221J     |
| R 902                         |                       | RS1/16S223J     |
| R 903                         |                       | RS1/16S821J     |
| R 904                         |                       | RS1/16S821J     |
| R 914                         |                       | RS1/16S152J     |
| R 915                         |                       | RD1/4PU152J     |
| R 916                         |                       | RS1/16S223J     |
| R 931                         |                       | RS1/16S104J     |
| R 932                         |                       | RS1/16S473J     |
| R 933                         |                       | RS1/16S103J     |
| R 934                         |                       | RS1/16S473J     |
| R 935                         |                       | RS1/16S472J     |
| R 961                         |                       | RS1/16S223J     |
| R 962                         |                       | RS1/16S182J     |
| R 963                         |                       | RS1/16S1R0J     |
| R 965                         |                       | RS1/16S182J     |
| R 971                         |                       | RS1/16S153J     |
| R 972                         |                       | RS1/16S153J     |
| R 973                         |                       | RS1/16S222J     |
| R 981                         |                       | RD1/4PU102J     |

### CAPACITORS

|       |              |
|-------|--------------|
| C 101 | CKSRYB104K16 |
| C 102 | CKSRYB473K25 |
| C 103 | CKSRYB102K50 |
| C 104 | CKSRYB102K50 |
| C 131 | CEJQ1R0M50   |
| C 132 | CEJQ1R0M50   |
| C 133 | CKSRYB104K16 |
| C 134 | CKSRYB104K16 |
| C 135 | CEJQ1R0M50   |
| C 136 | CEJQ1R0M50   |
| C 137 | CEJQ1R0M50   |
| C 138 | CEJQ1R0M50   |
| C 139 | CEJQ470M16   |
| C 140 | CKSRYB104K16 |
| C 141 | CKSRYB102K50 |

**Circuit Symbol and No.****Part No.**

|       |              |
|-------|--------------|
| C 143 | CEJQ100M16   |
| C 145 | CEJQ4R7M35   |
| C 146 | CEJQ4R7M35   |
| C 147 | CKSRYB153K50 |
| C 148 | CKSRYB153K50 |

|       |              |
|-------|--------------|
| C 172 | CKSRYB102K50 |
| C 301 | CKSRYB474K10 |
| C 302 | CKSRYB474K10 |
| C 303 | CKSRYB474K10 |
| C 304 | CKSRYB474K10 |

|       |              |
|-------|--------------|
| C 305 | CKSRYB474K10 |
| C 306 | CKSRYB474K10 |
| C 307 | CKSRYB474K10 |
| C 308 | CKSRYB474K10 |
| C 309 | CEJQ330M10   |

|       |            |              |
|-------|------------|--------------|
| C 310 | 3300μF/16V | CCH1486      |
| C 311 |            | CKSRYB104K25 |
| C 312 |            | CEHAR100M16  |
| C 313 |            | CKSQYB225K10 |
| C 314 |            | CKSQYB225K10 |

|       |                       |              |
|-------|-----------------------|--------------|
| C 317 |                       | CKSQYB105K16 |
| C 351 |                       | CEJQ2R2M50   |
| C 352 |                       | CEJQ2R2M50   |
| C 353 | (DEH-P460MP, P4600MP) | CEJQ2R2M50   |
| C 354 | (DEH-P460MP, P4600MP) | CEJQ2R2M50   |

|       |              |
|-------|--------------|
| C 401 | CKSRYB103K50 |
| C 402 | CEJQ470M6R3  |
| C 403 | CKSRYB103K50 |
| C 404 | CKSRYB103K50 |
| C 405 | CEJQ101M16   |

|       |              |
|-------|--------------|
| C 407 | CKSYB475K10  |
| C 410 | CKSRYB102K50 |
| C 601 | CKSRYB473K25 |
| C 602 | CKSRYB105K10 |
| C 603 | CCSRCH200J50 |

|       |              |
|-------|--------------|
| C 604 | CCSRCH200J50 |
| C 605 | CEJQ4R7M35   |
| C 606 | CKSRYB104K16 |
| C 608 | CCSRCH101J50 |
| C 609 | CCSRCH470J50 |

|       |           |              |
|-------|-----------|--------------|
| C 611 |           | CKSRYB104K16 |
| C 652 |           | CEJQ1R0M50   |
| C 725 |           | CKSRYB102K50 |
| C 726 |           | CKSRYB102K50 |
| C 727 | 470μF/16V | CCH1331      |

|       |              |
|-------|--------------|
| C 751 | CKSRYB224K10 |
| C 752 | CKSRYB102K50 |
| C 753 | CEJQ101M16   |
| C 754 | CKSRYB473K25 |
| C 755 | CEJQ101M16   |

|       |           |              |
|-------|-----------|--------------|
| C 901 |           | CEJQ470M10   |
| C 902 |           | CKSRYB103K50 |
| C 903 |           | CKSRYB472K50 |
| C 904 | 470μF/16V | CCH1331      |
| C 911 |           | CEJQ221M10   |

|       |              |
|-------|--------------|
| C 912 | CKSRYB103K50 |
| C 913 | CEJQ101M16   |
| C 921 | CEJQ220M10   |
| C 922 | CKSRYB103K50 |
| C 924 | CEJQ4R7M35   |

**Circuit Symbol and No.****Part No.**

|       |              |
|-------|--------------|
| C 931 | CKSRYB104K25 |
| C 962 | CKSRYB103K50 |
| C 971 | CKSRYB104K25 |



**Unit Number: XWM7031(**DEH-P460MP, P4600MP)  
**:XWM7032(**DEH-P4650MP)

**Unit Name: Keyboard Unit**

**MISCELLANEOUS**

|         |       |             |
|---------|-------|-------------|
| IC 1901 | IC    | PD6340A     |
| IC 1902 | IC    | RS-140      |
| D 1900  | Diode | DAN202U     |
| D 1901  | Diode | DAP202U     |
| D 1915  | LED   | CL-195PG-CD |

|        |     |             |
|--------|-----|-------------|
| D 1918 | LED | CL-195PG-CD |
| D 1919 | LED | CL-195PG-CD |
| D 1921 | LED | CL-195PG-CD |
| D 1922 | LED | CL-195PG-CD |
| D 1923 | LED | CL-195PG-CD |

|        |                           |               |
|--------|---------------------------|---------------|
| D 1924 | LED                       | CL-195PG-CD   |
| D 1927 | LED                       | CL-195PG-CD   |
| D 1950 | LED                       | NSCW505C-3388 |
| D 1951 | LED                       | NSCW505C-3388 |
| X 1901 | Ceramic Resonator 4.97MHz | CSS1573       |

|        |             |         |
|--------|-------------|---------|
| S 1901 | Switch      | CSG1107 |
| S 1902 | Push Switch | CSG1112 |
| S 1903 | Switch      | CSG1107 |
| S 1904 | Switch      | CSG1107 |
| S 1905 | Switch      | CSG1107 |

|        |             |         |
|--------|-------------|---------|
| S 1906 | Switch      | CSG1107 |
| S 1907 | Switch      | CSG1107 |
| S 1908 | Push Switch | CSG1112 |
| S 1909 | Switch      | CSG1107 |
| S 1910 | Push Switch | CSG1112 |

|        |             |         |
|--------|-------------|---------|
| S 1911 | Switch      | CSG1107 |
| S 1912 | Switch      | CSG1107 |
| S 1913 | Switch      | CSG1107 |
| S 1914 | Switch      | CSG1107 |
| S 1915 | Push Switch | CSG1112 |

|        |                 |         |
|--------|-----------------|---------|
| S 1916 | Switch          | CSG1107 |
| S 1917 | Switch          | CSG1107 |
| S 1918 | Switch          | CSG1107 |
| S 1960 | Encoder(VOLUME) | XSD7001 |
| S 1961 | Push Switch     | CSG1111 |

|         |                           |         |
|---------|---------------------------|---------|
| LCD1901 | LCD (DEH-P460MP, P4600MP) | XAW7004 |
| LCD1901 | LCD (DEH-P4650MP)         | XAW7002 |

**RESISTORS**

|        |             |
|--------|-------------|
| R 1900 | RS1/16S222J |
| R 1901 | RS1/16S222J |
| R 1902 | RS1/16S2R2J |
| R 1904 | RS1/16S121J |
| R 1910 | RS1/16S181J |

|        |             |
|--------|-------------|
| R 1911 | RS1/16S181J |
| R 1912 | RS1/16S181J |
| R 1913 | RS1/16S181J |
| R 1914 | RS1/16S181J |
| R 1915 | RS1/16S181J |

| Circuit Symbol and No.                |                    | Part No.     | Circuit Symbol and No. |                             | Part No.         |   |
|---------------------------------------|--------------------|--------------|------------------------|-----------------------------|------------------|---|
| R 1916                                |                    | RS1/16S181J  | IC 203                 | IC                          | NJM2391DL1-33    |   |
| R 1917                                |                    | RS1/16S181J  | IC 301                 | IC                          | BA5835FM         | A |
| R 1918                                |                    | RS1/16S181J  | IC 501                 | IC                          | S-L2980A15MC-C6A |   |
| R 1919                                |                    | RS1/16S181J  | IC 701                 | IC                          | PE5402A          |   |
| R 1920                                |                    | RS1/16S181J  | IC 703                 | IC                          | S-812C33AUA-C2N  |   |
| R 1921                                |                    | RS1/16S181J  | Q 101                  | Transistor                  | 2SB1132          |   |
| R 1922                                |                    | RS1/16S181J  | Q 601                  | Transistor                  | IMH20            |   |
| R 1923                                |                    | RS1/16S181J  | Q 603                  | Transistor                  | 2SB709A          |   |
| R 1925                                |                    | RS1/16S181J  | Q 701                  | Transistor                  | UN2111           |   |
| R 1926                                |                    | RS1/16S181J  | D 101                  | Diode                       | 1SS355           |   |
| R 1927                                |                    | RS1/16S181J  | D 601                  | Diode                       | MA152WA          |   |
| R 1928                                |                    | RS1/16S181J  | L 203                  | Inductor                    | CTF1389          |   |
| R 1929                                |                    | RS1/16S181J  | L 207                  | Inductor                    | CTF1389          | B |
| R 1930                                |                    | RS1/16S181J  | L 209                  | Inductor                    | CTF1389          |   |
| R 1931                                |                    | RS1/16S181J  | L 703                  | Inductor                    | CTF1389          |   |
| R 1932                                |                    | RS1/16S181J  | X 201                  | Ceramic Resonator 16.934MHz | CSS1603          |   |
| R 1933                                |                    | RS1/16S181J  | X 701                  | Ceramic Resonator 4.00MHz   | CSS1652          |   |
| R 1934                                |                    | RS1/16S181J  | S 901                  | Switch(HOME)                | CSN1051          |   |
| R 1935                                |                    | RS1/16S181J  | S 902                  | Switch(CLAMP)               | CSN1051          |   |
| R 1936                                |                    | RS1/16S181J  | S 903                  | Spring Switch(DSCSNS)       | CSN1052          |   |
| R 1942                                |                    | RS1/16S181J  | S 904                  | Switch(12EJ)                | CSN1051          |   |
| R 1945                                |                    | RS1/16S181J  | S 905                  | Switch(8EJ)                 | CSN1051          |   |
| R 1947                                |                    | RS1/16S0R0J  | <b>RESISTORS</b>       |                             |                  |   |
| R 1948                                |                    | RS1/16S0R0J  | R 101                  |                             | RS1/10S1R5J      | C |
| R 1950                                |                    | RS1/16S181J  | R 102                  |                             | RS1/10S1R5J      |   |
| R 1951                                |                    | RS1/16S181J  | R 103                  |                             | RS1/10S1R5J      |   |
| R 1952                                |                    | RS1/16S151J  | R 104                  |                             | RS1/10S1R5J      |   |
| R 1960                                |                    | RS1/16S472J  | R 105                  |                             | RS1/10S1R5J      |   |
| R 1980                                |                    | RS1/16S473J  | R 107                  |                             | RS1/16SS0R0J     |   |
| <b>CAPACITORS</b>                     |                    |              | R 201                  |                             | RS1/16SS102J     |   |
| C 1900                                |                    | CKSRYB224K10 | R 202                  |                             | RS1/16SS333J     |   |
| C 1902                                |                    | CKSYF106Z10  | R 205                  |                             | RS1/16SS473J     |   |
| <b>B</b>                              |                    |              | R 207                  |                             | RS1/16SS473J     |   |
| <b>Unit Number:CWM8758</b>            |                    |              | R 209                  |                             | RS1/16SS473J     | D |
| <b>Unit Name:Panel Unit</b>           |                    |              | R 214                  |                             | RS1/16SS472J     |   |
| <b>MISCELLANEOUS</b>                  |                    |              | R 216                  |                             | RS1/16SS472J     |   |
| D 1970                                | LED                | CL220PGC     | R 218                  |                             | RS1/16SS472J     |   |
| S 1970                                | Push Switch(EJECT) | CSG1112      | R 220                  |                             | RS1/16SS472J     |   |
| <b>RESISTORS</b>                      |                    |              | R 221                  |                             | RS1/16SS103J     |   |
| R 1970                                |                    | RS1/16S101J  | R 222                  |                             | RS1/16SS103J     |   |
| R 1971                                |                    | RS1/16S101J  | R 223                  |                             | RS1/16SS0R0J     |   |
| R 1972                                |                    | RS1/16S0R0J  | R 224                  |                             | RS1/16SS0R0J     |   |
| <b>CAPACITORS</b>                     |                    |              | R 225                  |                             | RS1/16SS103J     |   |
| C 1970                                |                    | CKSRYB104K16 | R 226                  |                             | RS1/16SS393J     |   |
| <b>D</b>                              |                    |              | R 227                  |                             | RS1/16SS562J     | E |
| <b>Unit Number:CWX2851</b>            |                    |              | R 228                  |                             | RS1/16SS122J     |   |
| <b>Unit Name:CD CORE UNIT(S10WMA)</b> |                    |              | R 229                  |                             | RS1/16SS472J     |   |
| <b>MISCELLANEOUS</b>                  |                    |              | R 231                  |                             | RS1/16SS0R0J     |   |
| IC 201                                | IC                 | UPD63761GJ   | R 232                  |                             | RS1/16SS122J     |   |
|                                       |                    |              | R 233                  |                             | RS1/16SS0R0J     |   |
|                                       |                    |              | R 240                  |                             | RS1/16SS0R0J     |   |
|                                       |                    |              | R 241                  |                             | RS1/16SS333J     |   |
|                                       |                    |              | R 242                  |                             | RS1/16SS0R0J     |   |
|                                       |                    |              | R 243                  |                             | RS1/16SS333J     |   |
|                                       |                    |              | R 245                  |                             | RS1/16SS333J     |   |
|                                       |                    |              | R 250                  |                             | RS1/16SS0R0J     | F |
|                                       |                    |              | R 256                  |                             | RS1/16SS0R0J     |   |
|                                       |                    |              | R 261                  |                             | RS1/16S0R0J      |   |

**Circuit Symbol and No.****Part No.****Circuit Symbol and No.****Part No.**

R 262 RS1/16S0R0J  
 R 263 RS1/16S0R0J  
 R 264 RS1/16S0R0J  
 R 267 RS1/16S0R0J  
 R 301 RS1/16SS183J

R 777 RS1/16SS221J  
 R 778 RS1/16SS221J  
 R 779 RS1/16SS221J  
 R 901 RAB4CQ221J  
 R 902 RS1/16S0R0J

R 302 RS1/16SS822J  
 R 304 RS1/16SS183J  
 R 305 RS1/16SS822J  
 R 307 RS1/16SS183J  
 R 308 RS1/16SS183J

R 905 RS1/16SS221J  
 R 906 RS1/16SS221J  
 R 908 RS1/16SS0R0J  
 R 910 RS1/16SS0R0J

**CAPACITORS**

R 309 RS1/16SS183J  
 R 310 RS1/16SS183J  
 R 501 RS1/16SS0R0J  
 R 601 RS1/16S101J  
 R 602 RS1/16S101J

C 101 CKSSYB104K10  
 C 102 CKSSYB104K10  
 C 103 100μF/16V CCH1504  
 C 104 47μF/6.3V CCH1506  
 C 105 CKSSYB104K10

R 603 RS1/16S223J  
 R 604 RS1/16S223J  
 R 605 RS1/16SS103J  
 R 606 RS1/16S0R0J  
 R 701 RS1/16S0R0J

C 106 CCSSCH101J50  
 C 107 CKSRYB224K16  
 C 108 CKSSYB104K10  
 C 110 CKSSYB104K10  
 C 201 CKSSYB471K50

R 702 RS1/16SS0R0J  
 R 703 RS1/16SS104J  
 R 704 RS1/16SS104J  
 R 705 RS1/16SS221J  
 R 706 RS1/16SS221J

C 202 CKSSYB104K10  
 C 203 CKSSYB104K10  
 C 204 22μF/6.3V CCH1507  
 C 205 CKSSYB104K10  
 C 207 220μF/4V CCH1590

R 707 RS1/16SS0R0J  
 R 708 RS1/16SS221J  
 R 709 RS1/16SS473J  
 R 710 RS1/16SS102J  
 R 711 RS1/16SS102J

C 208 CKSSYB104K10  
 C 209 CKSSYB104K10  
 C 216 CKSSYB332K50  
 C 217 CKSSYB104K10  
 C 218 CKSSYB223K16

R 712 RS1/16SS102J  
 R 713 RS1/16SS102J  
 R 714 RS1/16SS473J  
 R 715 RS1/16SS0R0J  
 R 716 RS1/16SS472J

C 219 CKSSYB104K10  
 C 220 CKSSYB103K16  
 C 221 CKSSYB104K10  
 C 222 CCSSCH560J50  
 C 223 CCSSCH5R0C50

R 719 RS1/16SS221J  
 R 720 RS1/16SS471J  
 R 721 RS1/16S0R0J  
 R 724 RS1/16S473J  
 R 725 RS1/16SS222J

C 224 CKSSYB104K10  
 C 225 CKSSYB103K16  
 C 226 CCSSCH680J50  
 C 227 CCSSCH470J50  
 C 228 CKSSYB682K25

R 726 RS1/16SS103J  
 R 727 RS1/16SS473J  
 R 729 RS1/16SS223J  
 R 730 RS1/16SS473J  
 R 731 RS1/16SS104J

C 230 CKSSYB104K10  
 C 232 CKSSYB104K10  
 C 233 10μF/6.3V CCH1470  
 C 234 220μF/4V CCH1590  
 C 235 CKSRYB224K16

R 732 RS1/16SS104J  
 R 733 RS1/16SS104J  
 R 735 RS1/16SS473J  
 R 737 RS1/16SS104J  
 R 740 RS1/16SS473J

C 237 CKSSYB104K10  
 C 239 CCSSCH330J50  
 C 242 CKSSYB104K10  
 C 246 CKSSYB104K10  
 C 250 CKSRYB102K50

R 742 RS1/16SS104J  
 R 745 RS1/16SS473J  
 R 746 RS1/16SS104J  
 R 750 RS1/16SS473J  
 R 754 RS1/16SS102J

C 251 CKSRYB102K50  
 C 260 CKSSYB104K10  
 C 301 CKSSYB221K50  
 C 302 CKSSYB221K50  
 C 303 CKSSYB472K25

R 755 RS1/16SS102J  
 R 756 RS1/16SS104J  
 R 765 RAB4CQ221J  
 R 769 RAB4CQ221J  
 R 773 RAB4CQ221J

C 304 CKSSYB103K16  
 C 305 100μF/16V CCH1504  
 C 306 CKSSYB104K10  
 C 307 CKSSYB104K10



| <u>Circuit Symbol and No.</u> |           | <u>Part No.</u> |
|-------------------------------|-----------|-----------------|
| C 501                         |           | CKSRYB224K16    |
| C 505                         |           | CKSQYB475K6R3   |
| C 601                         |           | CCSRCH102J50    |
| C 602                         |           | CCSRCH102J50    |
| C 603                         | 4.7μF/25V | CCH1568         |
| C 604                         | 4.7μF/25V | CCH1568         |
| C 701                         |           | CKSSYB104K10    |
| C 702                         |           | CKSSYB471K50    |
| C 703                         |           | CKSSYB103K16    |
| C 704                         | 4.7μF/25V | CCH1592         |
| C 706                         |           | CKSSYB104K10    |
| C 707                         |           | CKSSYB104K10    |
| C 712                         |           | CKSRYB224K16    |
| C 713                         |           | CKSSYB104K10    |
| C 714                         |           | CKSSYB104K10    |
| C 716                         |           | CKSSYB103K16    |
| C 720                         |           | CKSQYB225K10    |
| C 722                         |           | CKSRYB105K10    |
| C 903                         |           | CKSSYB471K50    |
| C 906                         |           | CKSRYB224K16    |
| C 907                         |           | CKSSYB103K16    |
| C 910                         |           | CKSQYB225K10    |

Miscellaneous Parts List

|     |                              |         |
|-----|------------------------------|---------|
| M 1 | Pickup Unit(P10)(Service)    | CXX1641 |
| M 1 | Motor Unit(SPINDLE)          | CXB6007 |
| M 2 | Motor Unit(LOADING/CARRIAGE) | CXB8933 |

D

E

F

## 6. ADJUSTMENT

### 6.1 CD ADJUSTMENT

A

#### 1) Cautions on adjustments

- In this product the single voltage (3.3V) is used for the regulator. The reference voltage is the REFO1 (1.65V) instead of the GND.

If you should mistakenly short the REFO1 with the GND during adjustment, accurate voltage will not be obtained, and the servo's misoperation will apply excessive shock to the pickup. To avoid such problems:

- Do not mix up the REFO1 with the GND when connecting the (-) probe of measuring instruments. Especially on an oscilloscope, avoid connecting the (-) probe for CH1 to the GND.
- In many cases, measuring instruments have the same potential as that for the (-) probe. Be sure to set the measuring instruments to the floating state.
- If you have mistakenly connected the REFO1 to the GND, turn off the regulator or the power immediately.

- Before mounting and removing filters or leads for adjustment, be sure to turn off the regulator.

- For stable circuit operation, keep the mechanism operating for about one minute or more after the regulator is turned on.

- In the test mode, any software protections will not work. Avoid applying any mechanical or electrical shock to the mechanism during adjustment.

- The RFI and RFO signals with a wide frequency range are easy to oscillate. When observing the signals, insert a resistor of 1k ohms in series.

- The load and eject operation is not guaranteed with the mechanism upside down. If the mechanism is blocked due to mistaken eject operation, reset the product or turn off and on the ACC to restore it.

#### 2) Test mode

This mode is used to adjust the CD mechanism module.

- To enter the test mode.

While pressing the 4 and 6 keys at the same time, reset.

- To exit from the test mode.

Turn off the ACC and back up.

#### Notes:

- During ejection, do not press any other keys than the EJECT key until the loaded disc is ejected.
- If you have pressed the (→) key or (←) key during focus search, turn off the power immediately to protect the actuator from damage caused by the lens stuck.
- For the TR jump modes except 100TR, the track jump operation will continue even if the key is released.
- For the CRG move and 100TR jump modes, the tracking loop will be closed at the same time when the key is released.
- When the power is turned off and on, the jump mode is reset to the single TR (91), the RF amp gain is set to 0dB, and the auto-adjustment values are reset to the default settings.

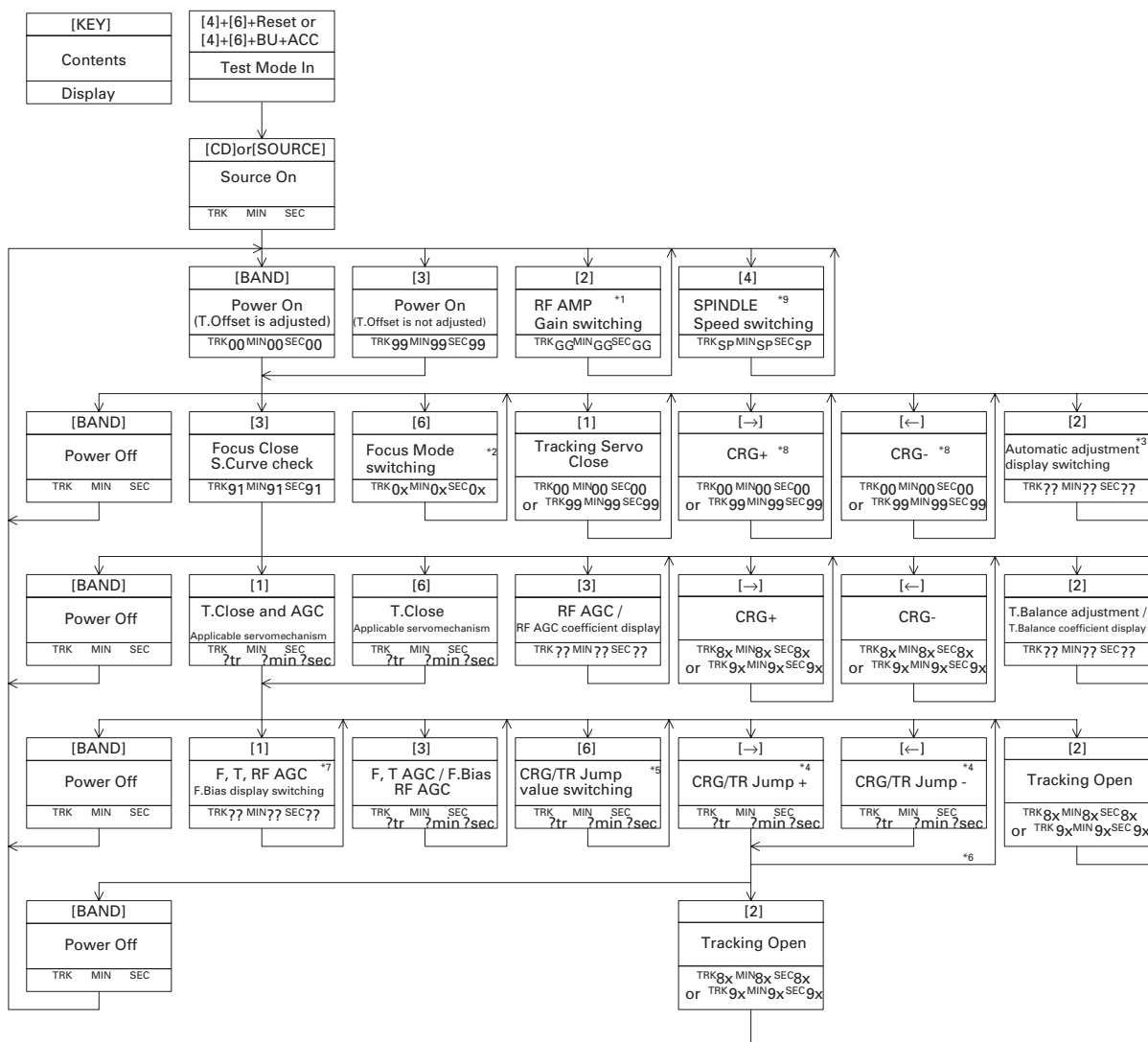
C

D

E

F

## Flow Chart



\*1) TYP → -6dB → -12dB  
TRK MIN SEC → TRK 06 MIN 06 SEC 06 → TRK 12 MIN 12 SEC 12

\*2) Focus Close → S.Curve ckeck setting → F EQ measurement setting  
TRK 00 MIN 00 SEC 00 → TRK 01 MIN 01 SEC 01 → TRK 02 MIN 02 SEC 02  
(TRK 99 MIN 99 SEC 99)

\*3) F.Offset Display → T.Offset Display → Switch to the order of the original display

\*4) 1TR / 32TR / 100TR

\*5) Single TR → 32TR → 100TR → CRG Move  
9x(8x) : 91(81) 92(82) 93(83) 94(84)

\*6) Only at the time of CRG Move, 100TR Jump

\*7) TRK/MIN/SEC → F.AGC → T.AGC → F.Bias → RF AGC

\*8) CRG motor voltage = 2[V]

\*9) TYP(1X) → 2X → 1X  
TRK MIN SEC → TRK 22 MIN 22 SEC 22 → TRK 11 MIN 11 SEC 11

As for the double speed (2x), audio output cannot be supported.

TYP(2X) → 1X → 2X  
TRK MIN SEC → TRK 11 MIN 11 SEC 11 → TRK 22 MIN 22 SEC 22

| [Key]  | Operation                                                                                  |
|--------|--------------------------------------------------------------------------------------------|
| [BAND] | Power On/Off                                                                               |
| [→]    | CRG + / TR Jump +<br>(Direction of the external surface)                                   |
| [←]    | CRG - / TR Jump -<br>(Direction of the internal surface)                                   |
| [1]    | T.CLS and AGC and Applicable servomechanism / AGC, AGC display switching                   |
| [2]    | RF Gain switching / Offset adjustment display / T.Balance adjustment / T.Open              |
| [3]    | F.Close, S.Curve / Rough Servo and RF AGC / F, T, RF AGC                                   |
| [4]    | SPDL 1X/2X switching<br>As for the double speed (2x), audio output cannot be supported.    |
| [5]    | Error Rate measurement 1st-ON : ERR count beginning(30Sec)<br>2nd-ON : BER display data[%] |
| [6]    | F. Mode switching / Tracking Close / CRG, TR Jump switching                                |

## 6.2 CHECKING THE GRATING AFTER CHANGING THE PICKUP UNIT



### • Note :

The grating angle of the PU unit cannot be adjusted after the PU unit is changed. The PU unit in the CD mechanism module is adjusted on the production line to match the CD mechanism module and is thus the best adjusted PU unit for the CD mechanism module. Changing the PU unit is thus best considered as a last resort. However, if the PU unit must be changed, the grating should be checked using the procedure below.

### • Purpose :

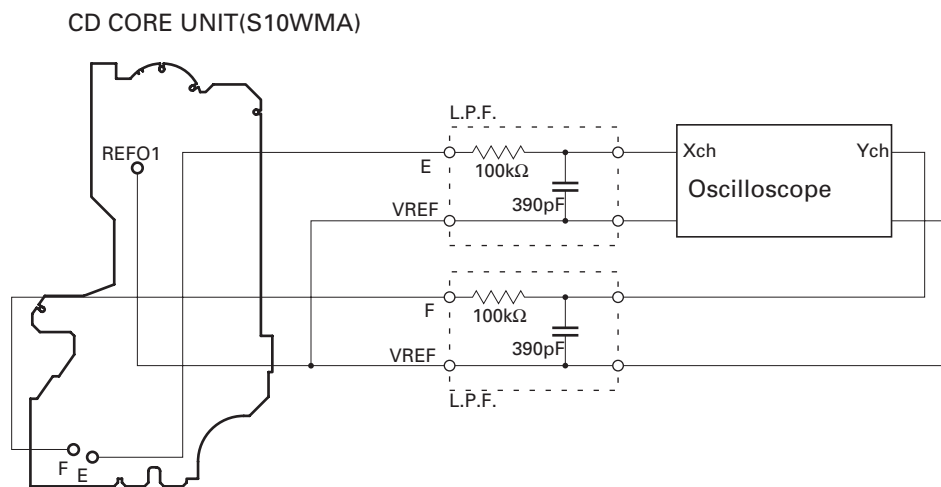
To check that the grating is within an acceptable range when the PU unit is changed.

### • Symptoms of Mal-adjustment :

If the grating is off by a large amount symptoms such as being unable to close tracking, being unable to perform track search operations, or taking a long time for track searching.

### • Method :

- |                       |                            |
|-----------------------|----------------------------|
| • Measuring Equipment | • Oscilloscope, Two L.P.F. |
| • Measuring Points    | • E, F, REFO1              |
| • Disc                | • ABEX TCD-782             |
| • Mode                | • TEST MODE                |



### • Checking Procedure

1. In test mode, load the disc and switch the 3V regulator on.
2. Using the → and ← buttons, move the PU unit to the innermost track.
3. Press key 3 to close focus, the display should read "91". Press key 2 to implement the tracking balance adjustment the display should now read "81". Press key 3. The display will change, returning to "81" on the fourth press.
4. As shown in the diagram above, monitor the LPF outputs using the oscilloscope and check that the phase difference is within  $75^\circ$ . Refer to the photographs supplied to determine the phase angle.
5. If the phase difference is determined to be greater than  $75^\circ$  try changing the PU unit to see if there is any improvement. If, after trying this a number of times, the grating angle does not become less than  $75^\circ$  then the mechanism should be judged to be at fault.

### • Note

Because of eccentricity in the disc and a slight misalignment of the clamping center the grating waveform may be seen to "wobble" ( the phase difference changes as the disc rotates). The angle specified above indicates the average angle.

### • Hint

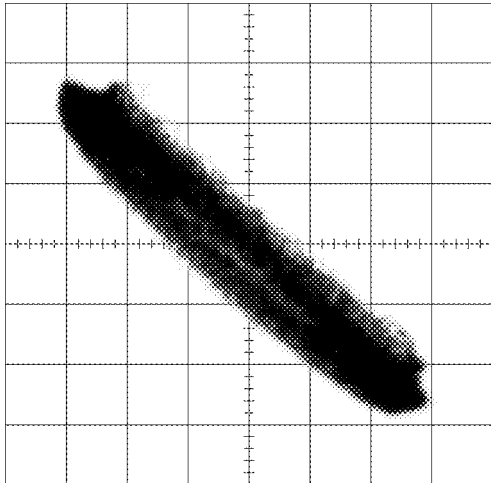
Reloading the disc changes the clamp position and may decrease the "wobble".

**Grating waveform**

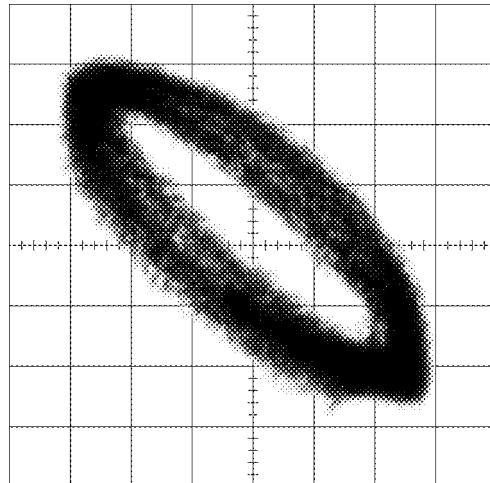
Ech → Xch 20mV/div, AC

Fch → Ych 20mV/div, AC

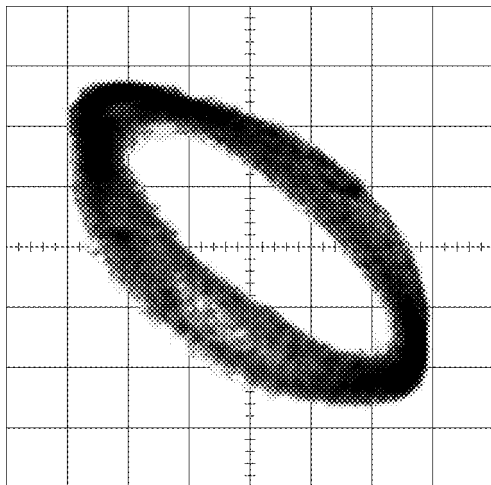
0°



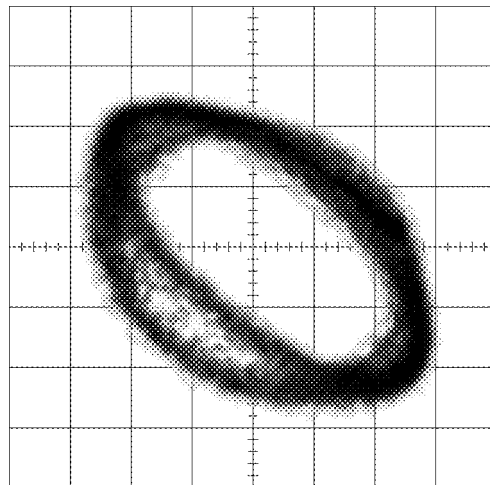
30°



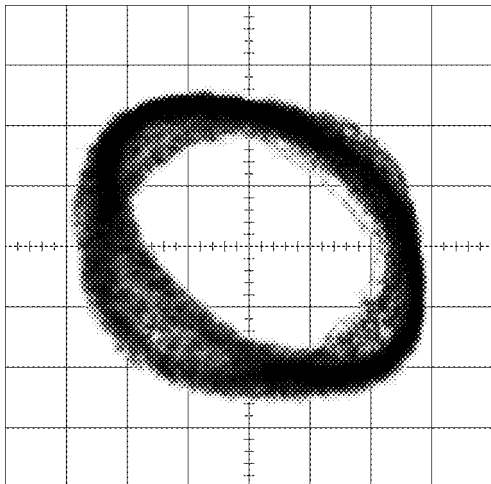
45°



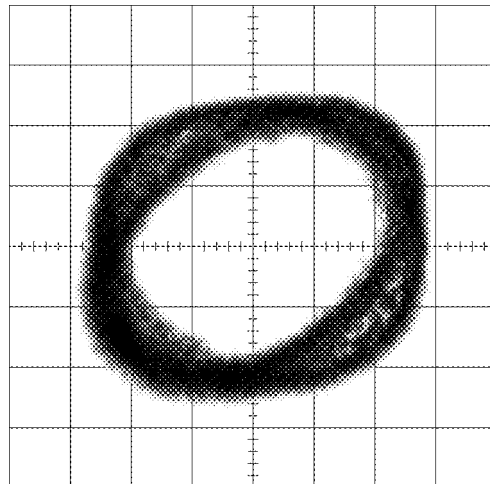
60°



75°



90°



## 6.3 ERROR MODE

### ● Error Messages

If a CD is not operative or stopped during operation due to an error, the error mode is turned on and cause(s) of the error is indicated with a corresponding number. This arrangement is intended at reducing nonsense calls from the users and also for facilitating trouble analysis and repair work in servicing.

#### (1) Basic Indication Method

1) When SERRORM is selected for the CSMOD (CD mode area for the system), error codes are written to DMIN (minutes display area) and DSEC (seconds display area). The same data is written to DMIN and DSEC. DTNO remains in blank as before.

#### 2) Head unit display examples

Depending on display capability of LCD used, display will vary as shown below. xx contains the error number.

| 8-digit display | 6-digit display | 4-digit display |
|-----------------|-----------------|-----------------|
| ERROR-xx        | ERR-xx          | E-xx            |

#### (2) Error Code List

| Code | Class       | Displayed error code                                   | Description of the code and potential cause(s)                                                                                                                                                                                                      |
|------|-------------|--------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10   | Electricity | Carriage Home NG<br>SERVO LSI Com-<br>munication Error | CRG can't be moved to inner diameter.<br>CRG can't be moved from inner diameter.<br>→ Failure on home switch or CRG move mechanism.<br>Communication error between microcomputer and SERVO LSI.                                                     |
| 11   | Electricity | Focus Servo NG                                         | Focusing not available.<br>→ Stains on rear side of disc or excessive vibrations on REWRITABLE.                                                                                                                                                     |
| 12   | Electricity | Spindle Lock NG<br>Subcode NG                          | Spindle not locked. Sub-code is strange (not readable).<br>→ Failure on spindle, stains or damages on disc, or excessive vibrations.<br>A disc not containing CD-R data is found.<br>Turned over disc are found, though rarely.<br>CD signal error. |
| 17   | Electricity | Setup NG                                               | AGC protection doesn't work. Focus can be easily lost.<br>→ Damages or stains on disc, or excessive vibrations on REWRITABLE.                                                                                                                       |
| 30   | Electricity | Search Time Out                                        | Failed to reach target address.<br>→ CRG tracking error or damages on disc.                                                                                                                                                                         |
| 44   | Electricity | ALL Skip                                               | Skip setting for all track.<br>(CD-R/RW)                                                                                                                                                                                                            |
| 50   | Mechanism   | CD On Mech Error                                       | Mechanical error during CD ON.<br>→ Defective loading motor, mechanical lock and mechanical sensor.                                                                                                                                                 |
| A0   | System      | Power Supply NG                                        | Power (VD) is ground faulted.<br>→ Failure on SW transistor or power supply (failure on connector).                                                                                                                                                 |

Remarks: Mechanical errors are not displayed (because a CD is turned off in these errors).

Unreadable TOC does not constitute an error. An intended operation continues in this case.

Upper digits of an error code are subdivided as shown below:

1x: Setup relevant errors, 3x: Search relevant errors, Ax: Other errors.

## 6.4 SYSTEM MICROCOMPUTER TEST PROGRAM



### ● PCL output

In the normal operation mode (with the detachable panel installed, the ACC switched ON, the standby mode cancelled), shift the TESTIN (Pin 5) terminal to H.

The clock signal is output from the PCL terminal (Pin 62).

The frequency of the clock signal is 786.432kHz that is one 4th of the fundamental frequency.

The clock signal should be  $786.432\text{kHz} \pm 32\text{Hz}$ .

If the clock signal is out of the range, the X'tal (X601) should be replaced with new one.

1 2 3 4

# 7. GENERAL INFORMATION

## 7.1 DIAGNOSIS

### 7.1.1 DISASSEMBLY

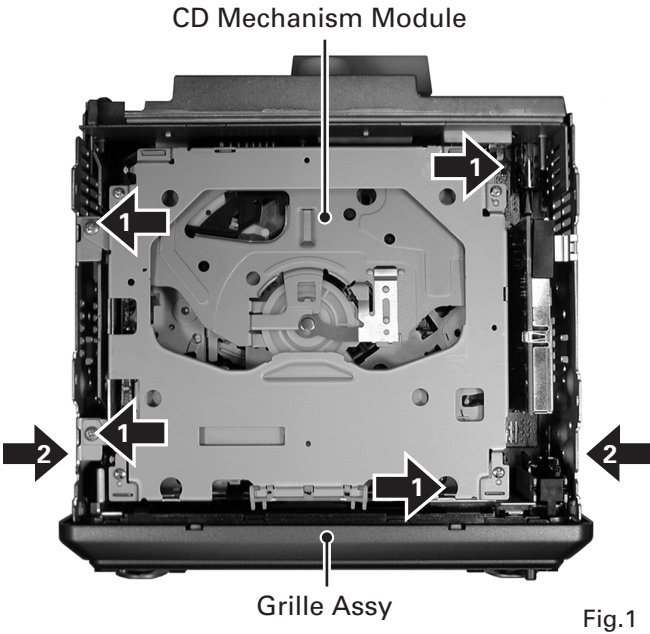
● **Removing the Case (not shown)**

1. Remove the Case.

● **Removing the CD Mechanism Module (Fig.1)**

**1** Remove the four screws.

Disconnect the connector and then remove the CD Mechanism Module.



● **Removing the Grille Assy (Fig.1)**

**2** Remove the two screws and then remove the Grille Assy.

● **Removing the Tuner Amp Unit (Fig.2)**

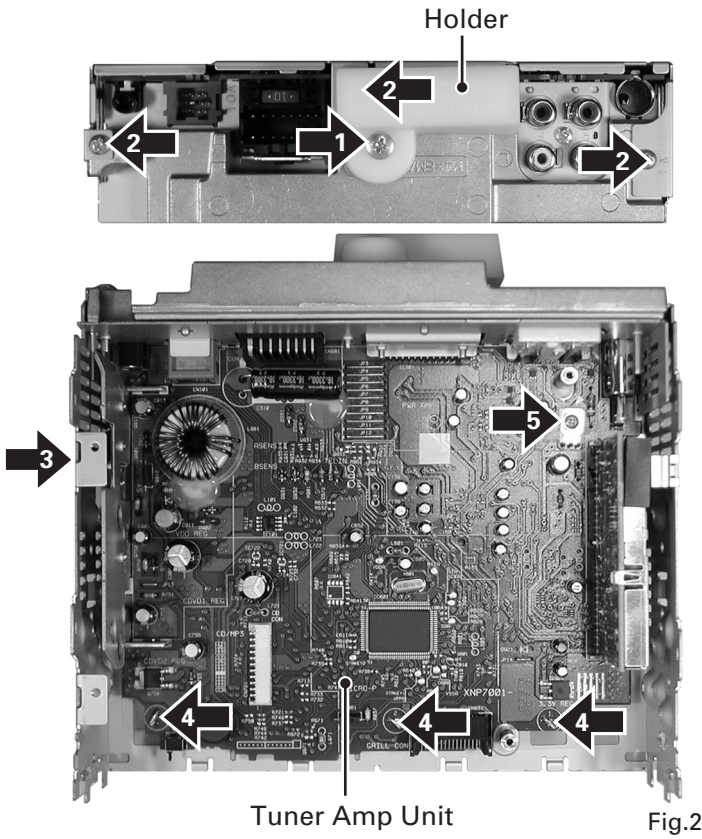
**1** Remove the screw and then remove the Holder.

**2** Remove the three screws.

**3** Remove the screw.

**4** Straighten the tabs at three locations indicated.

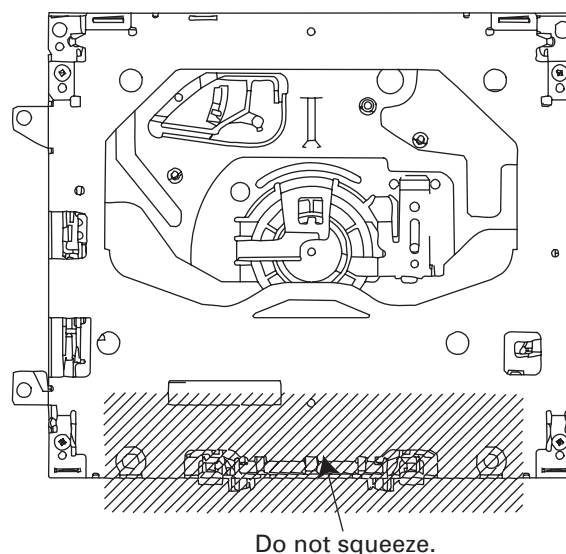
**5** Remove the screw and then remove the Tuner Amp Unit.





### ● How to hold the Mechanism Unit

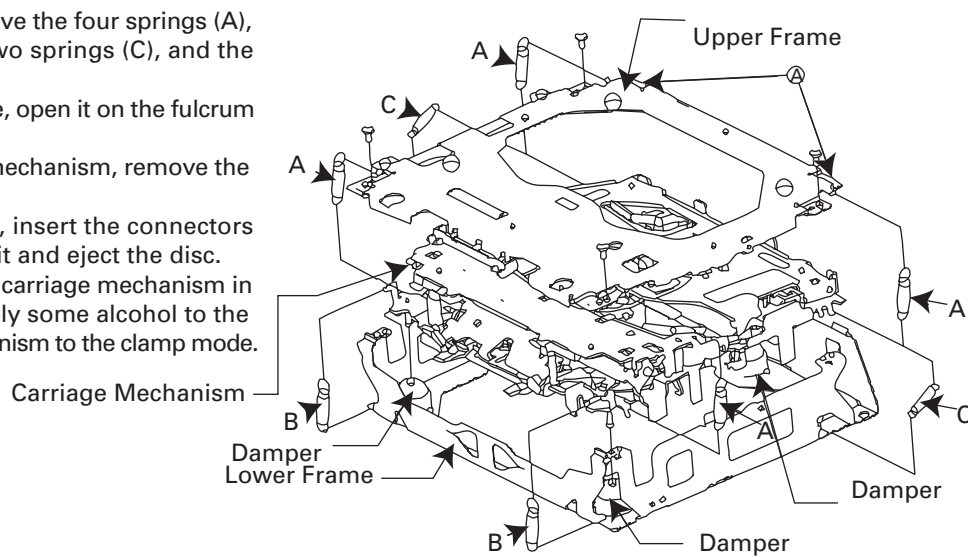
1. Hold the top and bottom frame.
2. Do not squeeze top frame's front portion too tight, because it is fragile.



### ● Removing the Upper and Lower Frames

1. With a disc clamped, remove the four springs (A), the two springs (B), the two springs (C), and the four screws.
2. To remove the upper frame, open it on the fulcrum A.
3. While lifting the carriage mechanism, remove the three dampers.
4. With the frames removed, insert the connectors coming from the main unit and eject the disc.

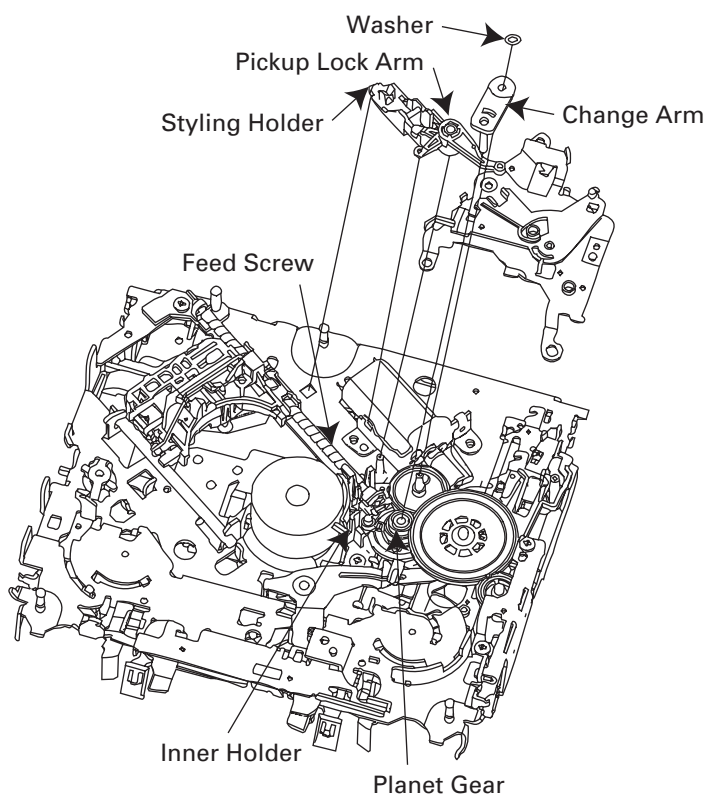
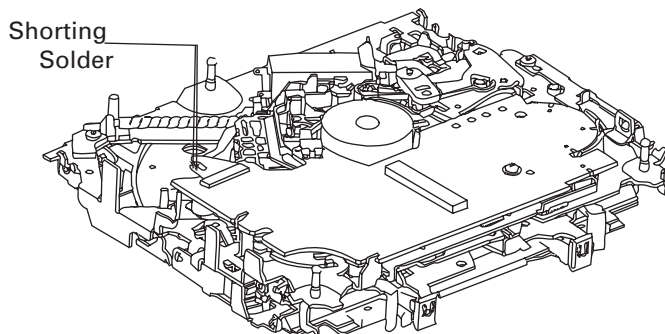
Caution: Before installing the carriage mechanism in the frames, be sure to apply some alcohol to the dampers and set the mechanism to the clamp mode.



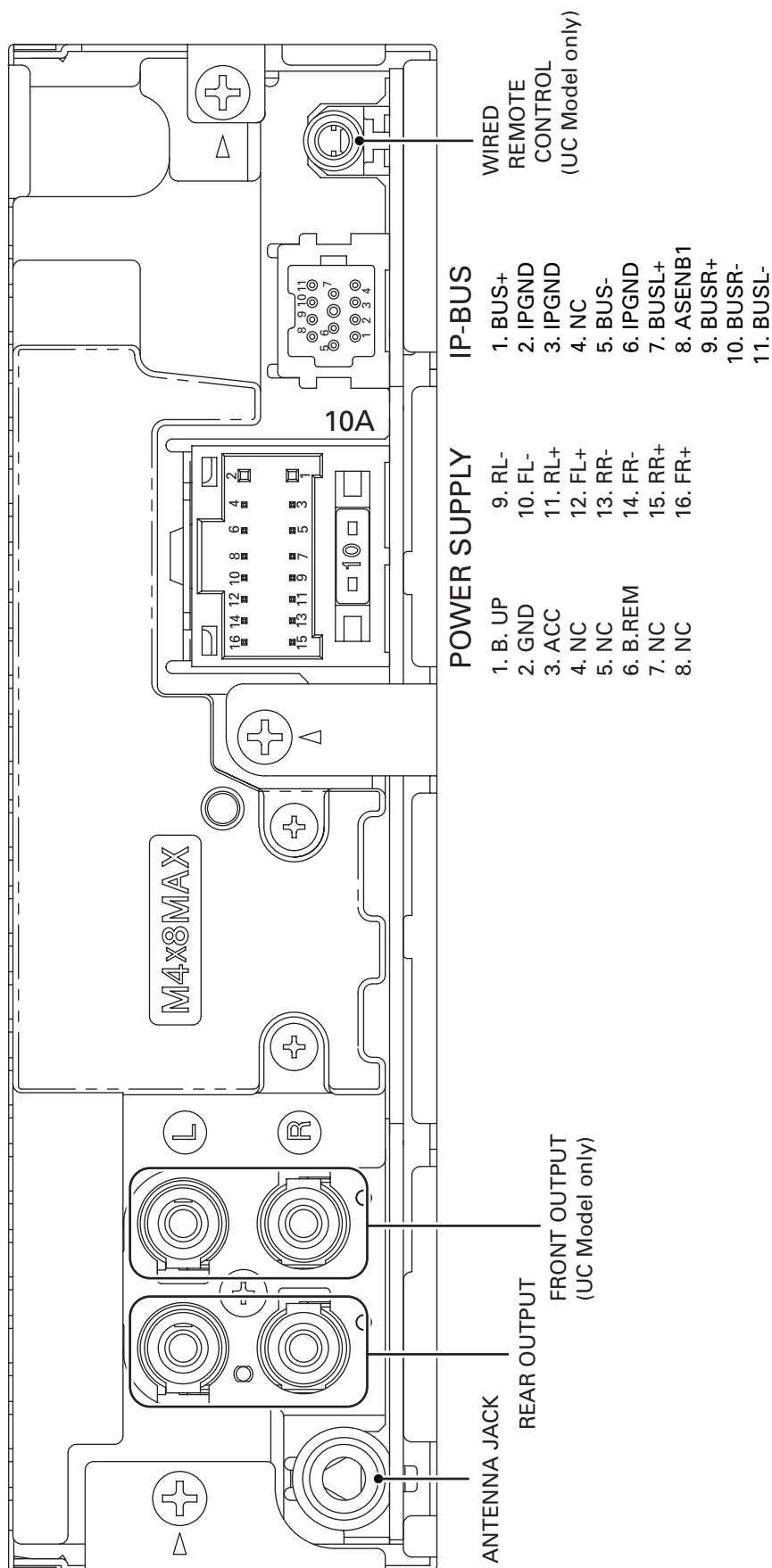
## ● Removing the Pickup Unit

1. Apply shorting solder to the Pickup flexible cable.  
Disconnect the cable.
2. Set the mechanism to the clamp mode.
3. Remove the lead wires from the inner holder.
4. Remove the washer, styling holder, change arm, and pickup lock arm.
5. While releasing from the hook of the inner holder, lift the end of the feed screw.

Caution: In assembling, move the planet gear to the load/eject position before setting the feed screw in the inner holder.



## 7.1.2 CONNECTOR FUNCTION DESCRIPTION



## 7.2 PARTS

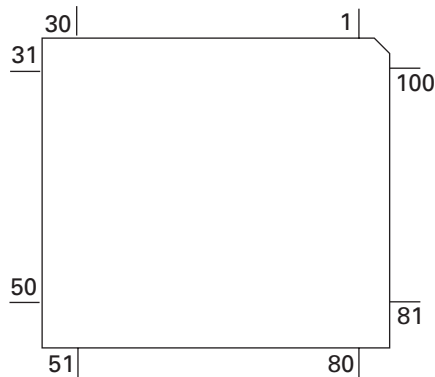
### 7.2.1 IC

#### ● Pin Functions(PE5407A)

| Pin No. | Pin Name | I/O | Format | Function and Operation                              |
|---------|----------|-----|--------|-----------------------------------------------------|
| 1       | SWVDD    | O   | C      | Grille : Chip enable output                         |
| 2-4     | NC       |     |        | Not used                                            |
| 5       | TESTIN   | I   |        | Test program mode input                             |
| 6       | LCDPW    |     |        | Not used                                            |
| 7       | TELIN    | I   |        | Telephone mute input                                |
| 8       | EJECTIN  | I   |        | Eject sense input                                   |
| 9       | FLPILM   | O   | C      | Flap illumination output                            |
| 10      | DALMON   | O   | C      | For consumption low-current output                  |
| 11      | RESET    | I   |        | Reset input                                         |
| 12      | XT2      |     |        | Not used                                            |
| 13      | XT1      | I   |        | Clock connection pin                                |
| 14      | VSS      |     |        | GND                                                 |
| 15      | X2       |     |        | Crystal oscillator connection pin                   |
| 16      | X1       | I   |        | Crystal oscillator connection pin                   |
| 17      | REGOFF   |     |        | Regulator operation specification signal            |
| 18      | REGC     |     |        | Capacitor for regulator connect pin                 |
| 19      | VDD      |     |        | Power supply                                        |
| 20      | ILMPW    | O   | C      | Illumination power supply control output            |
| 21      | SYSPW    | O   | C      | System power control output                         |
| 22      | ADPW     | O   | C      | A/D converter power supply control output           |
| 23      | NC       |     |        | Not used                                            |
| 24      | IPPW     | O   | C      | Power supply control output for IP BUS interface IC |
| 25      | NC       |     |        | Not used                                            |
| 26      | ROMDATA  | O   | C      | ROM correction data output                          |
| 27      | ROMCLK   |     |        | Not used                                            |
| 28      | ROMCS    |     |        | Not used                                            |
| 29-31   | NC       |     |        | Not used                                            |
| 32      | TUNPCE2  | O   | C      | PLL chip enable output2                             |
| 33      | VST      | O   | C      | E.VOL : Strobe output                               |
| 34      | VCK      | O   | C      | E.VOL : Clock output                                |
| 35      | VDT      | O   | C      | E.VOL : Data output                                 |
| 36      | ANTPW    |     |        | Not used                                            |
| 37      | MUTE     | O   | C      | System mute output                                  |
| 38, 39  | NC       |     |        | Not used                                            |
| 40      | VSS      |     |        | GND                                                 |
| 41      | VDD      |     |        | Power supply                                        |
| 42      | RDS57K   |     |        | Not used                                            |
| 43      | DRST     |     |        | Not used                                            |
| 44      | RDSLK    |     |        | Not used                                            |
| 45      | RDT      |     |        | Not used                                            |
| 46      | DORAON   |     |        | Not used                                            |
| 47      | NC       |     |        | Not used                                            |
| 48      | CSENSOUT | O   | C      | CSENS state output                                  |
| 49-55   | NC       |     |        | Not used                                            |
| 56,57   | ROT1,0   | I   |        | Rotary encoder pulse input 1,0                      |
| 58      | STRKEY2  | O   | C      | Steering remote controller output                   |
| 59      | CDLOEJ   | O   | C      | CD : Load Moter Load/Eject output                   |
| 60      | CLCONT   | O   | C      | CD : Driver input switch output                     |
| 61      | CONT     | O   | C      | CD : Servo driver power supply control output       |
| 62      | PCL      | O   | C      | Clock adjustment output                             |
| 63      | CLAMPSW  | I   |        | Clamp SW input                                      |
| 64      | VDCONT   | O   | C      | CD : VD power control output                        |
| 65      | XSCK     | O   | C      | CD LSI clock output                                 |
| 66      | XSI      | I   |        | CD LSI data input                                   |
| 67      | XSO      | O   | C      | CD LSI data output                                  |
| 68      | XAO      | O   | C      | CD LSI command/data control output                  |
| 69      | XRST     | O   | C      | CD LSI reset control output                         |
| 70      | XSTB     | O   | C      | CD LSI strobe output                                |

| Pin No. | Pin Name | I/O | Format | Function and Operation                     |
|---------|----------|-----|--------|--------------------------------------------|
| 71      | ASENSBO  | O   | C      | IP-BUS : Slave power supply control output |
| 72      | EMUTE    |     |        | Not used                                   |
| 73      | TEST     | I   |        | GND                                        |
| 74      | SL       | I   |        | TUNER : Signal level input                 |
| 75      | STRKEY1  | I   |        | Steering remote controller input           |
| 76      | MODELIN  |     |        | Not used                                   |
| 77      | CSENS    | I   |        | Flap close sense input                     |
| 78      | NC       |     |        | Not used                                   |
| 79      | DSCSNS   | I   |        | CD : Disc insert sense input               |
| 80      | VDSSENS  | I   |        | CD : VD voltage sense input                |
| 81      | TEMP     | I   |        | CD : Temperature sense input               |
| 82      | AVDD     |     |        | A/D converter power supply terminal        |
| 83      | AVREF    |     |        | A/D converter reference voltage terminal   |
| 84      | AVSS     |     |        | GND                                        |
| 85      | RX       | I   |        | IP-BUS : Data input                        |
| 86      | TX       | O   | C      | IP-BUS : Data output                       |
| 87      | NMI      |     |        | GND                                        |
| 88      | LDET     | I   |        | PLL lock sense input                       |
| 89      | RCK      | I   |        | RDS : Clock input                          |
| 90      | DSSENS   | I   |        | Grille detach sense input                  |
| 91      | PACK     | I   |        | PACK input                                 |
| 92      | ASENS    | I   |        | ACC power sense input                      |
| 93      | BSSENS   | I   |        | Back up power sense input                  |
| 94      | TUNPDI   | I   |        | PLL IC data input                          |
| 95      | KYDT     | I   |        | Grille data input                          |
| 96      | DPDT     | O   | C      | Grille data output                         |
| 97      | TUNPCK   | O   | C      | PLL clock output                           |
| 98      | TUNPDO   | O   | C      | PLL data output                            |
| 99      | TUNPCE   | O   | C      | PLL chip enable output                     |
| 100     | PEE      | O   | C      | Beep tone output                           |

\* PE5407A

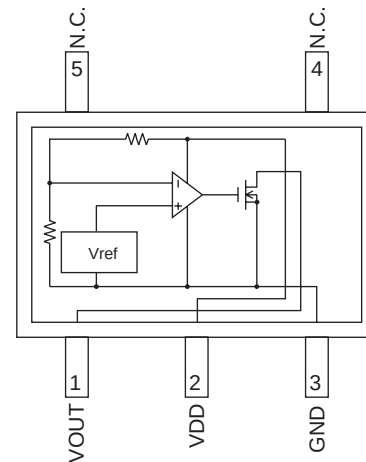


IC's marked by \* are MOS type.

Be careful in handling them because they are very liable to be damaged by electrostatic induction.

| Format | Meaning |
|--------|---------|
| C      | CMOS    |

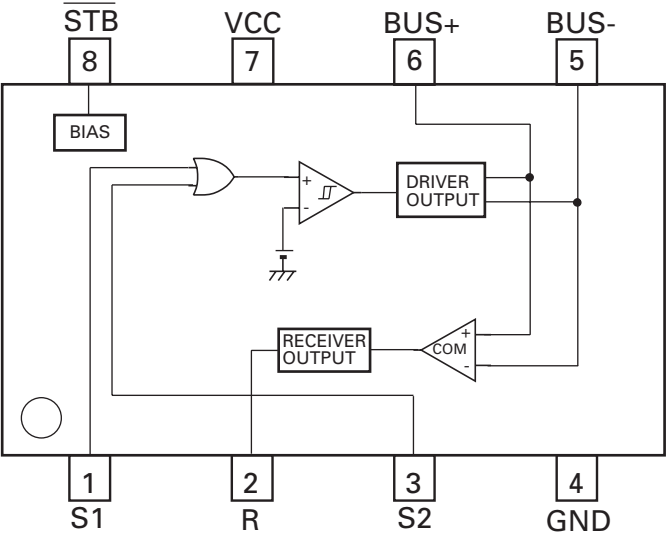
BD4834G



HA12240FP

A

B



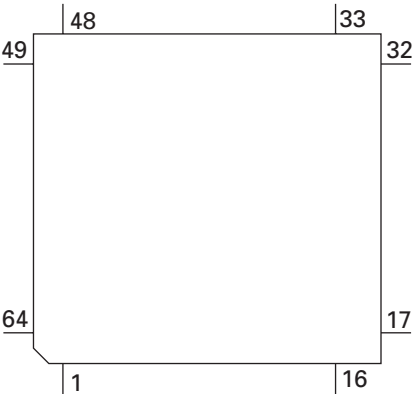
● Pin Functions (PD6340A)

| Pin No. | Pin Name | I/O | Function and Operation            |
|---------|----------|-----|-----------------------------------|
| 1-5     | SEG4-0   | O   | LCD segment output                |
| 6-9     | COM3-0   | O   | LCD common output                 |
| 10      | VLCD     |     | LCD drive power supply            |
| 11-14   | KST3-0   | O   | Key strobe output                 |
| 15,16   | KDT0,1   | I   | Key data input (analogue input)   |
| 17      | REM      | I   | Remote control reception input    |
| 18      | DPDT     | I   | Display data input                |
| 19      | NC       |     | Not used                          |
| 20      | KYDT     | O   | Key data output                   |
| 21      | MODA     |     | GND                               |
| 22      | XO       |     | Crystal oscillator connection pin |
| 23      | XI       |     | Crystal oscillator connection pin |
| 24      | VSS      |     | GND                               |
| 25,26   | KDT2,3   | I   | Key data input                    |
| 27,28   | KST5,4   | O   | Key strobe output                 |
| 29-55   | SEG39-13 | O   | LCD segment output                |
| 56      | VDD      |     | Power supply                      |
| 57-64   | SEG12-5  | O   | LCD segment output                |

\*PD6340A

E

F



# **Pin Functions(PE5402A)**

| Pin No. | Pin Name      | I/O | Format | Function and Operation                                                          |
|---------|---------------|-----|--------|---------------------------------------------------------------------------------|
| 1       | AVREF         |     |        | A power supply Positive power supply(5V)                                        |
| 2       | AVSS          |     |        | A power supply GND                                                              |
| 3       | RFOK          | O   | C      | Output of state of RFOK                                                         |
| 4       | CLAMP         | I   | C      | CLAMP SW sense input                                                            |
| 5       | EVDD          |     |        | E power supply Positive power supply                                            |
| 6       | PWM           |     |        | For changer(PWM)                                                                |
| 7       | NC            |     |        | Not used                                                                        |
| 8       | IC/FLMD0      |     |        | IC : VSS direct connection/FLMOD0 : Pull-down                                   |
| 9       | VDD           |     |        | Positive power supply(5V)                                                       |
| 10      | REGC          |     |        | Connected to the capacity stabilizing output of the regulator                   |
| 11      | VSS           |     |        | GND                                                                             |
| 12      | X1            | I   |        | Oscillator connection for mainclock                                             |
| 13      | X2            |     |        | Oscillator connection for mainclock                                             |
| 14      | RESET         | I   |        | System reset input                                                              |
| 15      | XT1           | I   |        | Connected to the oscillator for subclock<br>(connected to VSS via the resistor) |
| 16      | XT2           |     |        | Connected to the oscillator for subclock(Open)                                  |
| 17      | PULLDOWN      | I   |        | Connected to EVDD or EVSS via the resistor                                      |
| 18      | EJSW          | I   | C      | Eject key input                                                                 |
| 19      | XINT          |     | C      | CD LSI interruption signal input                                                |
| 20      | NC            |     |        | Not used                                                                        |
| 21      | BRST          | I   |        | P-Bus reset input                                                               |
| 22      | BSI           | I   |        | P-Bus serial data input                                                         |
| 23      | BSO           | O   | C      | P-Bus serial data output                                                        |
| 24      | BSCK          | I/O | /C     | P-Bus serial clock input/output                                                 |
| 25      | FTXD          | O   | C      | For flash rewriting(transmitted signal)                                         |
| 26      | FRXD          | I   |        | For flash rewriting(received signal)                                            |
| 27      | BRXEN         | I/O | /C     | It is possible to receive P-Bus                                                 |
| 28      | BSRQ          | I/O | /C     | P-Bus service request demand                                                    |
| 29      | DSPOK         | I   |        | DSP microcomputer initialization OK input                                       |
| 30      | DSCSNS(S903)  | I   |        | Disc state sense input                                                          |
| 31      | 8EJ(S905)     | I   |        | Input of detection of 8 cm disc ejection                                        |
| 32      | 12EJ(S904)    | I   |        | Input of detection of 12 cm disc ejection                                       |
| 33      | EVSS          |     |        | E power supply GND                                                              |
| 34      | EVDD          |     |        | E power supply Positive power supply                                            |
| 35, 36  | SRAMLEVEL0, 1 | O   | C      | SRAM level meter output                                                         |
| 37      | EMPH          | O   | C      | Emphasis information output                                                     |
| 38      | EMPH          | O   | C      | Emphasis information output                                                     |
| 39-42   | NC            |     |        | Not used                                                                        |
| 43      | ADENA         | O   | C      | A/D reference voltage supply control output                                     |
| 44      | LRCKOK        | O   | C      | (DOUT mute output)                                                              |
| 45      | SRAMLEVEL2    | O   | C      | SRAM level meter output                                                         |
| 46      | CD3VON        | O   | C      | CD +3.3V power supply control output                                            |
| 47      | CONT          | O   | C      | Servo driver power supply control output                                        |
| 48      | XRST          | O   | C      | CD LSI reset control output                                                     |
| 49      | VDCONT        | O   | C      | VD power supply control output                                                  |
| 50      | ROMDATA       | I/O | /C     | E2PROM data input/output                                                        |
| 51      | ROMCS         | O   | C      | E2PROM chip selection output                                                    |
| 52      | ROMCK         | O   | C      | E2PROM clock output                                                             |
| 53      | LOEJ          | O   | C      | The direction change output of LOAD/EJECT                                       |
| 54      | CLCONT        | O   | C      | Driver input change output                                                      |
| 55      | CDMUTE        | O   | C      | CD mute control output                                                          |
| 56-58   | INT           |     |        | For changer(Interruption at the edge)                                           |
| 59      | XCS           | O   | C      | CD LSI chip selection output                                                    |
| 60      | NC            |     |        | Not used                                                                        |
| 61      | XWAIT         | I   |        | CD LSI write control signal output                                              |
| 62      | CLKOUT        | O   | C      | Internal system clock output(Open)                                              |
| 63      | LOCK          | I   |        | Spindle lock input                                                              |
| 64      | NC            |     |        | Not used                                                                        |
| 65      | XWRITE        | O   |        | CD LSI write control signal output                                              |

A

B

| Pin No. | Pin Name | I/O | Format | Function and Operation                   |
|---------|----------|-----|--------|------------------------------------------|
| 66      | NC       |     |        | Not used                                 |
| 67      | XREAD    | O   |        | CD LSI read control signal output        |
| 68      | XASTB    | O   |        | CD LSI address strobe output             |
| 69      | BVSS     |     |        | B power supply GND                       |
| 70      | BVDD     |     |        | B power supply Positive power supply     |
| 71-86   | AD0-15   | I/O | /C     | Address/data Bus 0-15                    |
| 87-90   | NC       |     |        | Not used                                 |
| 91-93   | A/D      |     |        | For changer(A/D)                         |
| 94      | CSENS    | I   |        | Flap closing sense input                 |
| 95      | TYPE_A/D | I   |        | CD-DA analog/digital output change setup |
| 96      | TESTIN   | I   |        | Chip check test program starting input   |
| 97      | HOME     | I   |        | Home SW sense input                      |
| 98      | TEMP     |     |        | Temperature information sense input      |
| 99      | VDSSENS  |     |        | VD power supply short sense input        |
| 100     | NC       |     |        | Not used                                 |

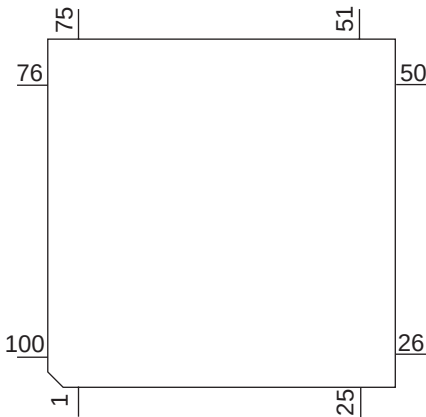
\* PE5402A

C

D

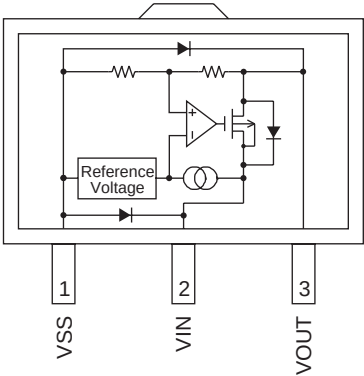
E

F



| Format | Meaning |
|--------|---------|
| C      | CMOS    |

\* S-812C33AUA-C2N



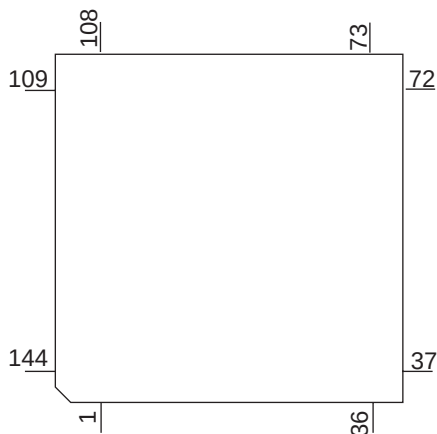


# **Pin Functions(UPD63761GJ)**

| Pin No. | Pin Name                 | I/O | Function and Operation                                 |
|---------|--------------------------|-----|--------------------------------------------------------|
| 1       | D.VDD                    |     | Power supply for digital circuits                      |
| 2       | D1.GND                   |     | GND for 1.6V digital circuits                          |
| 3       | RESET                    | I   | Input of reset                                         |
| 4-8     | AB12-8                   | I   | Address bus 12-8 from the microcomputer                |
| 9-16    | AD7-0                    | I/O | Address/data bus 7-0 to the microcomputer              |
| 17      | $\overline{CS}$          | I   | Chip selection                                         |
| 18      | ASTB                     | I   | Address strobe                                         |
| 19      | READ                     | I   | Control signals(read)                                  |
| 20      | WRITE                    | I   | Control signals(write)                                 |
| 21      | WAIT                     | O   | Control signals(wait)                                  |
| 22      | INTQ                     | O   | Interruption signals to the external microcomputer     |
| 23, 24  | IFMODE0, 1               | I   | Switching the microcomputer I/F 0, 1                   |
| 25      | D1.VDD                   |     | Power supply for 1.6V digital circuits                 |
| 26      | DA.VDD                   |     | Power supply for DAC                                   |
| 27      | ROUT                     | O   | Output of audio for the right channel                  |
| 28      | DA.GND                   |     | GND for DAC                                            |
| 29      | REGC                     |     | Connected to the capacitor for band gap                |
| 30      | DA.GND                   |     | GND for DAC                                            |
| 31      | LOUT                     | O   | Output of audio for the left channel                   |
| 32      | DA.VDD                   |     | Power supply for DAC                                   |
| 33      | X.VDD                    |     | Power supply for the crystal oscillator                |
| 34      | XTAL                     | I   | Connected to the crystal oscillator(16.9344MHz)        |
| 35      | $\overline{XTAL}$        | O   | Connected to the crystal oscillator(16.9344MHz)        |
| 36      | X.GND                    |     | Ground for the crystal oscillator                      |
| 37      | VDDREG15                 |     | Control of 1.6V regulator                              |
| 38      | PWMSW0                   | I   | Setup 0 for PWM output(SD, MD)                         |
| 39-41   | TEST3-1                  | I   | Connected to GND                                       |
| 42      | PWMSW1                   | I   | Setup 1 for PWM output(FD, TD)                         |
| 43      | TESTEN                   | I   | Connected to GND                                       |
| 44      | D1.GND                   |     | GND for 1.6V digital circuits                          |
| 45      | DIN                      | I   | Input of audio data                                    |
| 46      | DOUT                     | O   | Output of audio data                                   |
| 47      | SCKIN                    | I   | Clock input for audio data                             |
| 48      | SCKO                     | O   | Clock output for audio data                            |
| 49      | LRCKIN                   | I   | Input of LRCK for audio data                           |
| 50      | LRCK                     | O   | Output LRCK for audio data                             |
| 51      | $\overline{XTALEN}$      | I   | Permission to oscillate 16.9344MHz                     |
| 52      | D1.VDD                   |     | Power supply for 1.6V digital circuits                 |
| 53      | RFCK/HOLD                | O   | Output of RFCK/HOLD signal                             |
| 54      | WFCK/MIRR                | O   | Output of WFCK/MIRR signal                             |
| 55      | PLCK                     | O   | Output of PLCK                                         |
| 56      | LOCK/RFOK                | O   | Output of LRCK/Output of RFOK                          |
| 57      | C1D1/C8M                 | O   | Information on error correction/C8M : 8MHz             |
| 58      | C1D2/C16M                | O   | Information on error correction/C16M : 16MHz           |
| 59      | C2D1/RMUTE               | O   | Information on error correction/Mute for Rch           |
| 60      | C2D2/LMUTE               | O   | Information on error correction/Mute for Lch           |
| 61      | C2D3/SHOCK               | O   | Information on error correction/Detection of vibration |
| 62      | D1.GND                   |     | GND for 1.6V digital circuits                          |
| 63      | C33M                     | O   | Output of 33.8688MHz(CLK for SDRAM)                    |
| 64      | ( $\overline{RCS}$ )     | O   | DRAM $\overline{CS}$                                   |
| 65      | RA11                     | O   | Output of DRAM address 11                              |
| 66      | (CKE)                    | O   | Output of DRAM CKE                                     |
| 67      | $\overline{RAS}$         | O   | Output of DRAM $\overline{RAS}$                        |
| 68      | $\overline{CAS0}$ (LDQM) | O   | Output of DRAM lower $\overline{CAS}$ (LDQM)           |
| 69      | $\overline{CAS1}$ (UDQM) | O   | Output of DRAM upper $\overline{CAS}$ (UDQM)           |
| 70      | $\overline{WE}$          | O   | Output of DRAM $\overline{WE}$                         |
| 71      | OE(CAS)                  | O   | Output of DRAM OE(CAS)                                 |
| 72      | D.GND                    |     | Ground for digital circuits                            |
| 73-88   | RDB0-15                  | I/O | Input/output of DRAM data0-15                          |
| 89-99   | RA0-10                   | O   | Output of DRAM address0-10                             |

| Pin No.  | Pin Name | I/O | Function and Operation                          |
|----------|----------|-----|-------------------------------------------------|
| 100      | D.VDD    |     | Power supply for digital circuits               |
| 101      | FD+      | O   | Output of focus drive PWM +                     |
| 102      | FD-      | O   | Output of focus drive PWM -                     |
| 103      | TD+      | O   | Output of tracking drive PWM +                  |
| 104      | TD-      | O   | Output of tracking drive PWM -                  |
| 105      | SD+      | O   | Output of thread drive PWM +                    |
| 106      | SD-      | O   | Output of thread drive PWM -                    |
| 107      | MD+      | O   | Output of spindle drive PWM +                   |
| 108      | MD-      | O   | Output of spindle drive PWM -                   |
| 109      | REFOUTSV | O   | REFOUT for servo                                |
| 110      | AD.VDD   |     | Power supply for ADC                            |
| 111      | EFM      | O   | Output of EFM signals                           |
| 112      | ASY      | I   | Input of asymmetry                              |
| 113      | ATEST    | O   | Analog tests                                    |
| 114      | RFI      | I   | Input of RF                                     |
| 115      | AD.GND   |     | Ground for the analog system                    |
| 116      | AGCO     | O   | Output of RF                                    |
| 117      | C3T      | O   | Connection to the capacitor for detecting 3T    |
| 118      | AGCI     | I   | Input of AGC                                    |
| 119      | RFO      | O   | Output of RF(AGC)                               |
| 120, 121 | EQ2, 1   | I   | Equalizer 2, 1                                  |
| 122      | RF2-     | I   | Reversal input of RF2                           |
| 123      | RF-      | I   | Reversal input of RF                            |
| 124      | A.GND    |     | Ground for the analog system                    |
| 125      | A        | I   | Input of A                                      |
| 126      | C        | I   | Input of C                                      |
| 127      | B        | I   | Input of B                                      |
| 128      | D        | I   | Input of D                                      |
| 129      | F        | I   | Input of F                                      |
| 130      | E        | I   | Input of E                                      |
| 131      | VREFIN   | I   | Input of reference voltage                      |
| 132      | A.VDD    |     | Power supply for the analog system              |
| 133      | REFOUT   | O   | Output of reference voltage                     |
| 134      | REFC     | I   | Connected to the capacitor for output of REFOUT |
| 135      | FE-      | I   | Reversal input of FE                            |
| 136      | FEO      | O   | Output of FE                                    |
| 137      | ADIN     | I   | Input of FE, TE A/D converter                   |
| 138      | TE-      | I   | Reversal input of TE                            |
| 139      | TEO      | O   | Output of TE                                    |
| 140      | TE2      | O   | TE2                                             |
| 141      | TEC      | I   | TEC                                             |
| 142      | LD       | O   | Output of LD                                    |
| 143      | PD       | I   | Input of PD                                     |
| 144      | D.GND    |     | Ground for digital circuits                     |

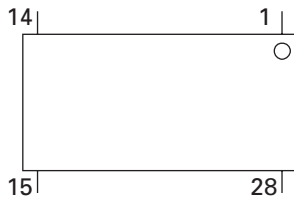
\* UPD63761GJ



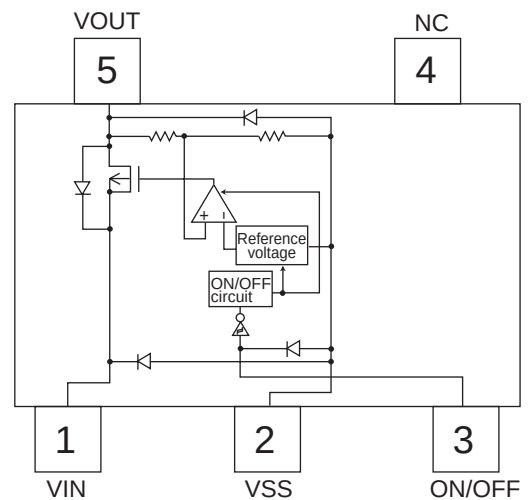
● Pin Functions(BA5835FM)

| Pin No. | Pin Name | Function and Operation                                  |
|---------|----------|---------------------------------------------------------|
| 1       | VR       | Input pin for reference voltage                         |
| 2       | OPIN2(+) | Input pin for non-inverting input for CH2 preamplifier  |
| 3       | OPIN2(-) | Input pin for inverting input for CH2 preamplifier      |
| 4       | OPOUT2   | Output pin for CH2 preamplifier                         |
| 5       | OPIN1(+) | Input pin for non-inverting input for CH1 preamplifier  |
| 6       | OPIN1(-) | Input pin for inverting input from CH1 preamplifier     |
| 7       | OPOUT1   | Output pin for CH1 preamplifier                         |
| 8       | GND      | Ground pin                                              |
| 9       | MUTE     | Mute control pin                                        |
| 10      | POWVCC1  | Power supply pin for CH1, CH2, and CH3 at "Power" stage |
| 11      | VO1(-)   | Driver CH1 - Negative output                            |
| 12      | VO1(+)   | Driver CH2 - Positive output                            |
| 13      | VO2(-)   | Driver CH2 - Negative output                            |
| 14      | VO2(+)   | Driver CH2 - Positive output                            |
| 15      | VO3(+)   | Driver CH2 - Positive output                            |
| 16      | VO3(-)   | Driver CH2 - Negative output                            |
| 17      | VO4(+)   | Driver CH4 - Positive output                            |
| 18      | VO4(-)   | Driver CH4 - Negative output                            |
| 19      | POWVCC2  | Power supply pin for CH4 at "Power" stage               |
| 20      | GND      | Ground pin                                              |
| 21      | CNT      | Control pin                                             |
| 22      | LDIN     | Loading input                                           |
| 23      | OPOUTSL  | Output pin for preamplifier for thread                  |
| 24      | OPINLSL  | Input pin for preamplifier for thread                   |
| 25      | OPOUT3   | CH3 preamplifier output pin                             |
| 26      | OPIN3(-) | Input pin for inverting input for CH3 preamplifier      |
| 27      | OPIN3(+) | Input pin for non-inverting input for CH3 preamplifier  |
| 28      | PREVCC   | PreVcc                                                  |

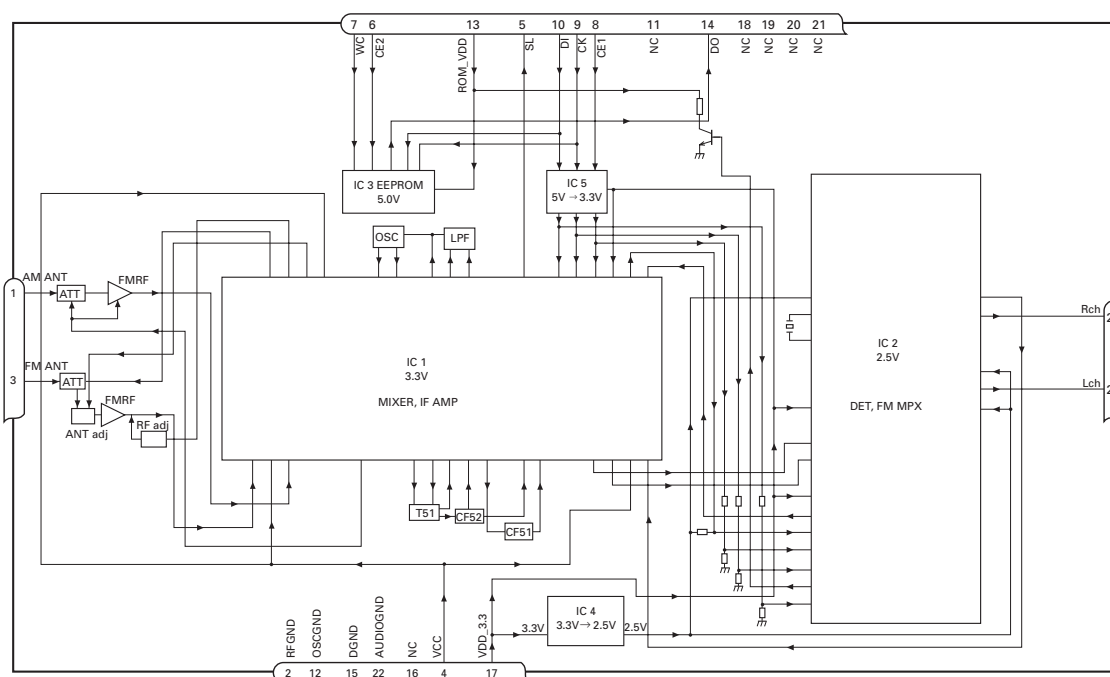
BA5835FM



\* S-L2980A15MC-C6A



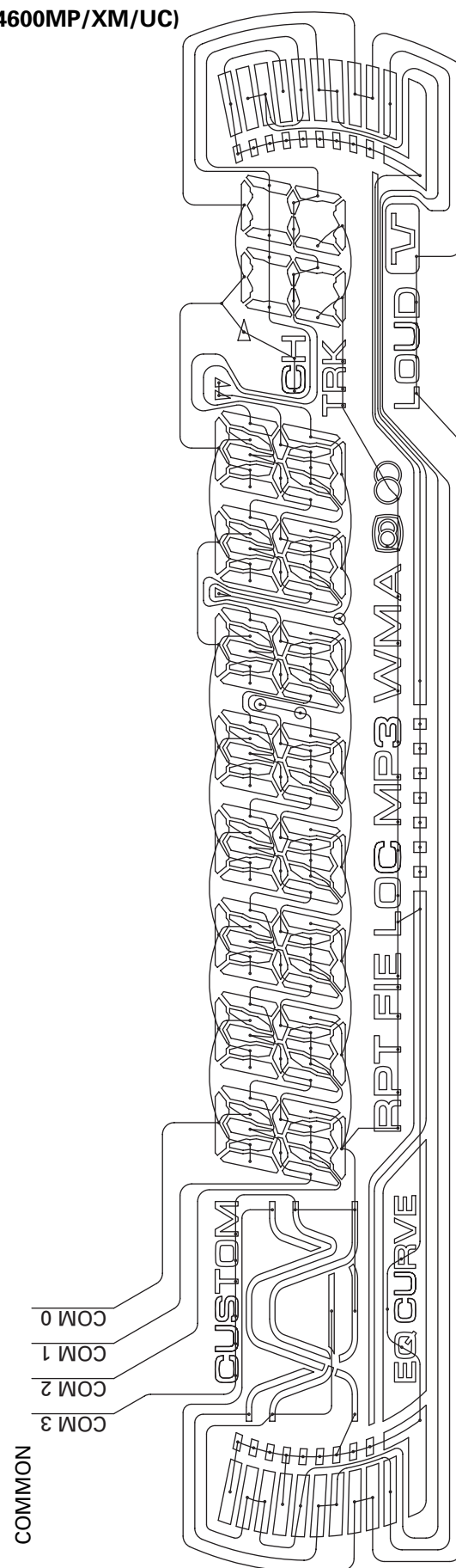
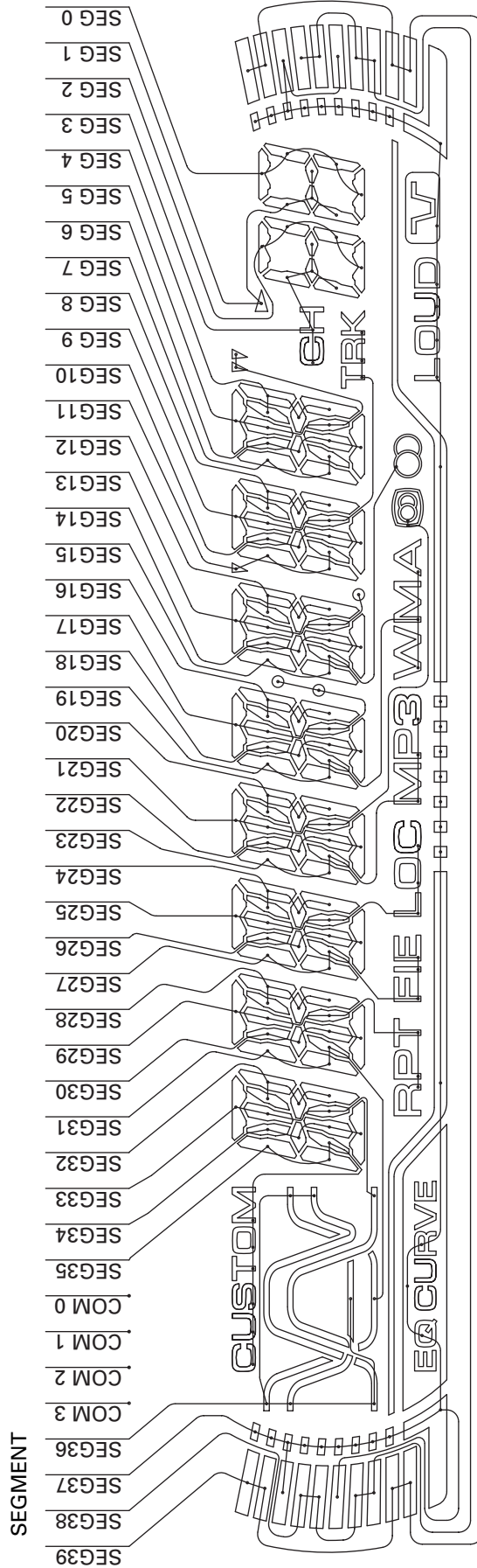
# ● FM/AM Tuner Unit



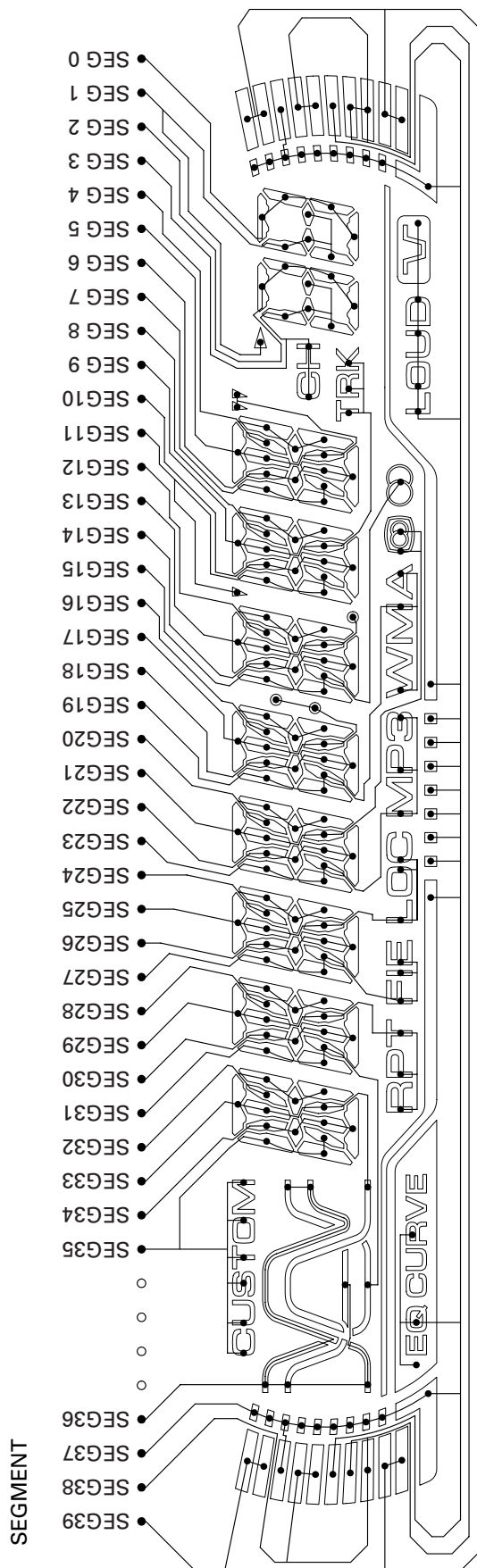
| No. | Symbol   | I/O | Explain                                                                                                                                                                                                                                                                                  |
|-----|----------|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | AMANT    | I   | AM antenna input<br>AM antenna input high impedance AMANT pin is connected with an all antenna by way of 4.7μH. (LAU type inductor) A series circuit including an inductor and a resistor is connected with RF ground for the countermeasure against the hum of power transmission line. |
| 2   | RFGND    |     | RF ground<br>Ground of antenna block                                                                                                                                                                                                                                                     |
| 3   | FMANT    | I   | FM antenna input<br>Input of FM antenna 75Ω Surge absorber(DSP-201M-S00B) is necessary.                                                                                                                                                                                                  |
| 4   | VCC      |     | power supply<br>The power supply for analog block. D.C 8.4V ± 0.3V                                                                                                                                                                                                                       |
| 5   | SL       | O   | signal level<br>Output of FM/AM signals level                                                                                                                                                                                                                                            |
| 6   | CE2      | I   | chip enable-2<br>Chip enable for EEPROM "Low" active                                                                                                                                                                                                                                     |
| 7   | WC       | I   | write control<br>You can write EEPROM, when EEPROM write control is "Low". Ordinary non connection                                                                                                                                                                                       |
| 8   | CE1      | I   | chip enable-1<br>Chip enable for AF•RF "High" active                                                                                                                                                                                                                                     |
| 9   | CK       | I   | clock<br>Clock                                                                                                                                                                                                                                                                           |
| 10  | DI       | I   | data in<br>Data input                                                                                                                                                                                                                                                                    |
| 11  | NC       |     | non connection<br>Not used                                                                                                                                                                                                                                                               |
| 12  | OSCGND   |     | osc ground<br>Ground of oscillator block                                                                                                                                                                                                                                                 |
| 13  | ROM_VDD  |     | power supply<br>Power supply for EEPROM pin 13 is connected with a power supply of micro computer.                                                                                                                                                                                       |
| 14  | DO       | O   | data out<br>Data output                                                                                                                                                                                                                                                                  |
| 15  | DGND     |     | digital ground<br>Ground of digital block                                                                                                                                                                                                                                                |
| 16  | NC       |     | non connection<br>Not used                                                                                                                                                                                                                                                               |
| 17  | VDD_3.3  |     | power supply<br>The power supply for digital block. 3.3V ± 0.2V                                                                                                                                                                                                                          |
| 18  | NC       |     | non connection<br>Not used                                                                                                                                                                                                                                                               |
| 19  | NC       |     | non connection<br>Not used                                                                                                                                                                                                                                                               |
| 20  | NC       |     | non connection<br>Not used                                                                                                                                                                                                                                                               |
| 21  | NC       |     | non connection<br>Not used                                                                                                                                                                                                                                                               |
| 22  | AUDIOGND |     | audio ground<br>Ground of audio block                                                                                                                                                                                                                                                    |
| 23  | L ch     | O   | L channel output<br>FM stereo "L-ch" signal output or AM audio output                                                                                                                                                                                                                    |
| 24  | R ch     | O   | R channel output<br>FM stereo "R-ch" signal output or AM audio output                                                                                                                                                                                                                    |

### 7.2.2 DISPLAY

● LCD(XAW7004)(DEH-P460MP/XM/UC, DEH-P4600MP/XM/UC)

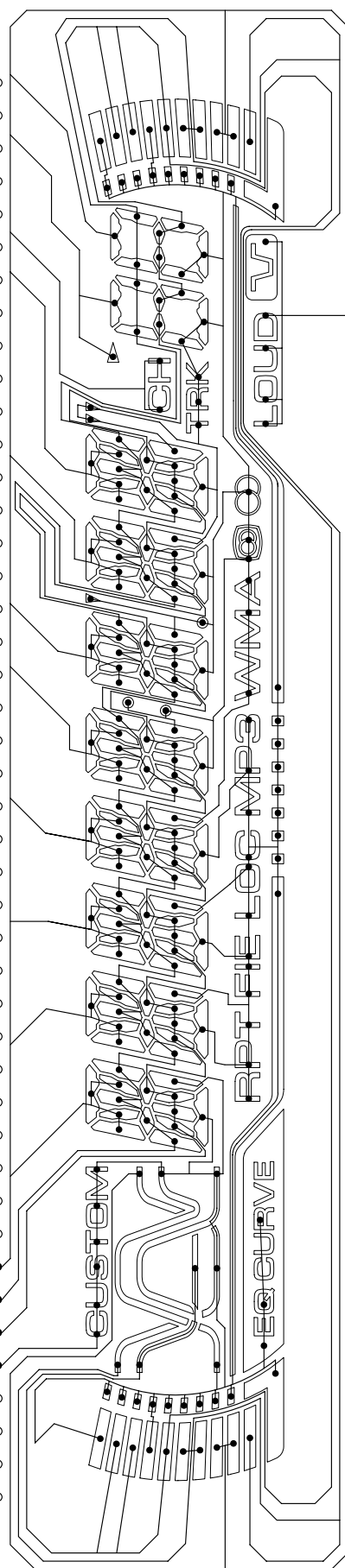


● LCD(XAW7002)/(DEH-P4650MP/XM/ES)

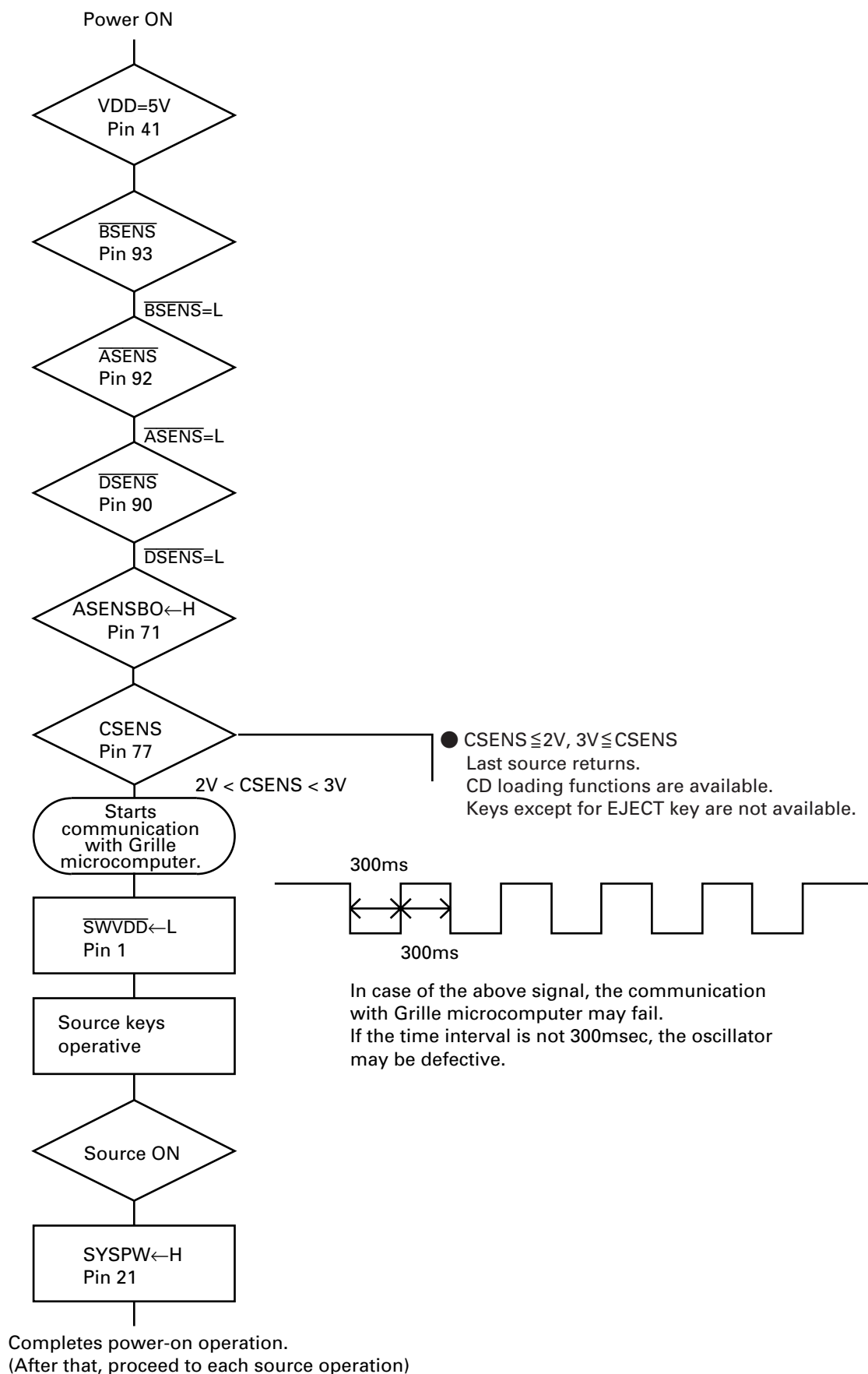


COMMON

COM 0  
COM 1  
COM 2  
COM 3



## 7.3 OPERATIONAL FLOW CHART



## 7.4 CLEANING

A



Before shipping out the product, be sure to clean the following portions by using the prescribed cleaning tools:

| Portions to be cleaned | Cleaning tools                                        |
|------------------------|-------------------------------------------------------|
| CD pickup lenses       | Cleaning liquid : GEM1004<br>Cleaning paper : GED-008 |

B

C

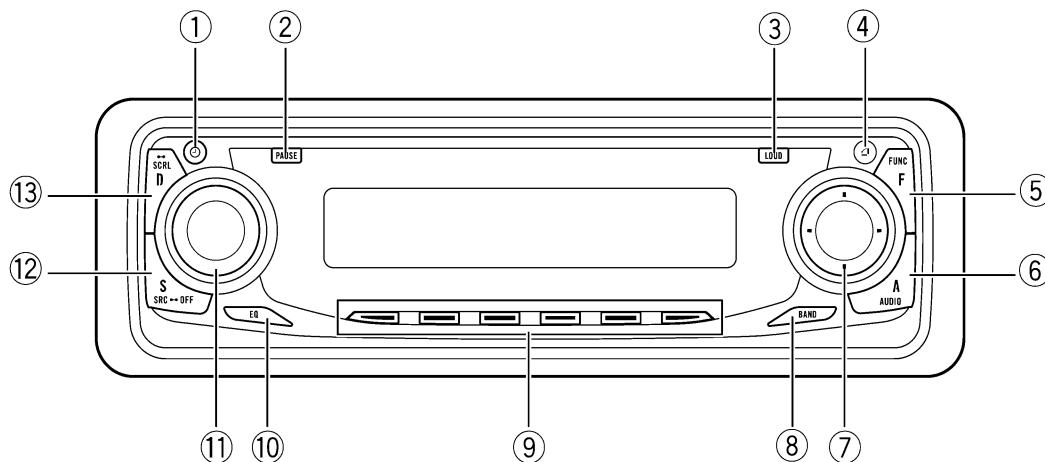
D

E

F

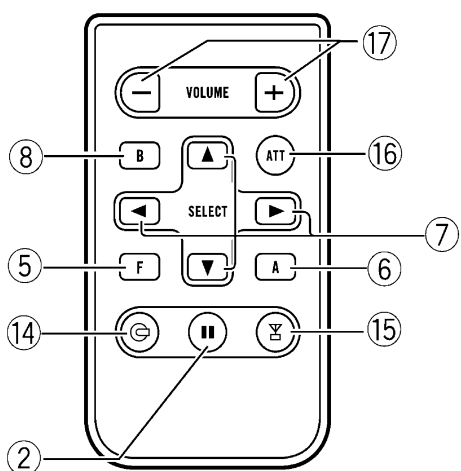


## 8. OPERATIONS



### Head unit

- ① **CLOCK button**  
Press to change to the clock display.
- ② **PAUSE button**  
Press to turn pause on or off.
- ③ **LOUDNESS button**  
Press to turn loudness on or off.
- ④ **OPEN button**  
Press to open the front panel.
- ⑤ **FUNCTION button**  
Press to select functions.
- ⑥ **AUDIO button**  
Press to select various sound quality controls.
- ⑦ **▲/▼/◀/▶ buttons**  
Press to do manual seek tuning, fast forward, reverse and track search controls. Also used for controlling functions.
- ⑧ **BAND button**  
Press to select among three FM and one AM bands and cancel the control mode of functions.
- ⑨ **1-6 buttons**  
Press for preset tuning and disc number search when using a multi-CD player.
- ⑩ **EQ button**  
Press to select various equalizer curves.
- ⑪ **VOLUME**  
When you press **VOLUME**, it extends outward so that it becomes easier to turn. To retract **VOLUME**, press it again. Rotate to increase or decrease the volume.
- ⑫ **SOURCE button**  
This unit is turned on by selecting a source. Press to cycle through all of the available sources.
- ⑬ **DISPLAY button**  
Press to select different displays. 



## Remote control

Operation is the same as when using the button on the head unit. See the explanation of the head unit about the operation of each button with the exception of **ATT**, which is explained below.

### ⑭ **CD button**

Press to select the built-in or multi-CD player as the source.

### ⑮ **TUNER button**

Press to select the tuner as the source.

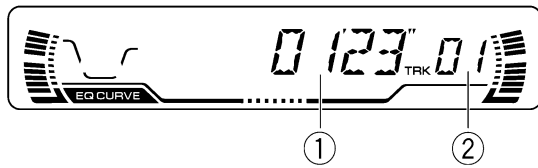
### ⑯ **ATT button**

Press to quickly lower the volume level, by about 90%. Press once more to return to the original volume level.

### ⑰ **VOLUME button**

Press to increase or decrease the volume. ▢

## Playing a CD



These are the basic steps necessary to play a CD with your built-in CD player. More advanced CD operation is explained starting on the next page.

### ① Play time indicator

Shows the elapsed playing time of the current track.

### ② Track number indicator

Shows the track currently playing.

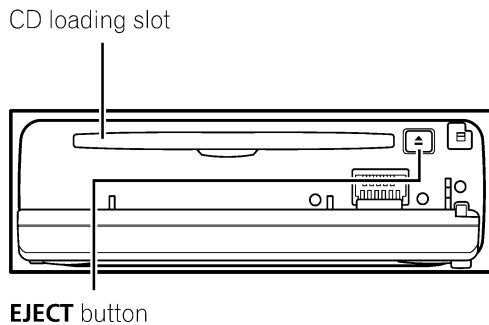
### 1 Press OPEN to open the front panel.

CD loading slot appears.

- After a CD has been inserted, press **SOURCE** to select the built-in CD player.

### 2 Insert a CD into the CD loading slot.

Playback will automatically start.



- You can eject a CD by pressing **EJECT**.
- To avoid a malfunction, make sure that no metal object comes into contact with the terminals when the front panel is open.

### 3 Close the front panel.

### 4 Use VOLUME to adjust the sound level.

Rotate to increase or decrease the volume.

### 5 To perform fast forward or reverse, press and hold ◀ or ▶.

- If you select the search method to **ROUGH**, pressing and holding ◀ or ▶ enables you to search every ten track in the current disc.

### 6 To skip back or forward to another track, press ◀ or ▶.

Pressing ▶ skips to the start of the next track. Pressing ◀ once skips to the start of the current track. Pressing again will skip to the previous track.



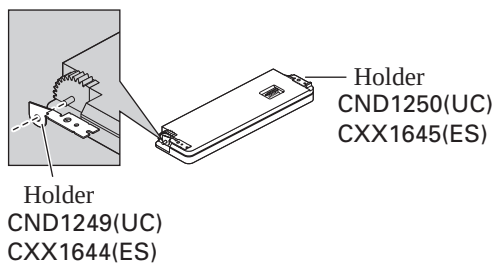
#### Notes

- The built-in CD player plays one, standard, 12-cm or 8-cm (single) CD at a time. Do not use an adapter when playing 8-cm CDs.
- Do not insert anything other than a CD into the CD loading slot.
- If you cannot insert a disc completely or if after you insert a disc the disc does not play, check that the label side of the disc is up. Press **EJECT** to eject the disc, and check the disc for damage before inserting the disc again.
- If the built-in CD player does not operate properly, an error message such as **ERROR-11** may be displayed.
- When a CD TEXT disc is inserted, the disc and track titles begin to scroll to the left automatically. ■

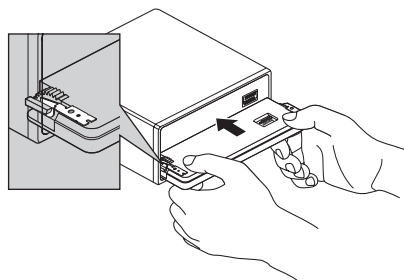
## Fixing the Front Panel

If you do not operate the Detaching and Replacing the Front Panel Function, use the supplied fixing screws and fix the front panel to this unit.

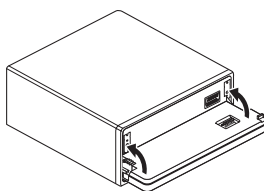
### 1. Attach the holders to both sides of the front panel.



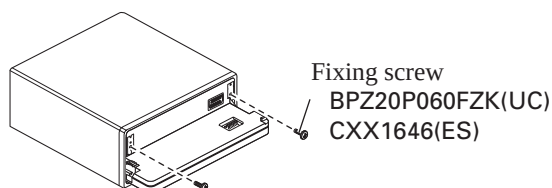
### 2. Replace the front panel to the unit.



### 3. Flip the holders into upright positions.



### 4. Fix the front panel to the unit using fixing screws.



## ● CONNECTION DIAGRAM

