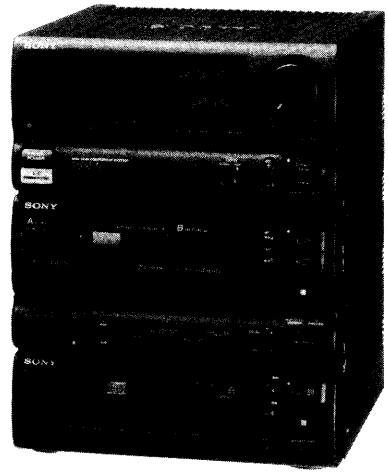
# HCD-H650J

# SERVICE MANUAL

*Tourist Model*



HCD-H650J is the tuner, cassette deck, CD palyer, and amplifier section in FH-B811.

| | | | |
|---|---|---|---|
| CD SECTION | Model Name Using Similer Mechanism | | NEW |
| | CD Mechanism Type | | CDM28-5BD15 |
| | Base Unit Type | | BU-5BD15 |
| | Optical Pick-up Type | | KSS-390A |
| TAPE DECK SECTION | Model Name Using Similer Mechanism | | HCD-H71 |
| | Tape Transport Mechanism Type | DECK–A | TCM-190RA12A |
| | | DECK–B | TCM-190RB43A |

## SPECIFICATIONS

**CD player**

System: Compact disc digital audio system
Laser: Semiconductor laser
Wavelength: 780 – 790 nm

**Tuner**

FM stereo, FM/AM superheterodyne tuner

***FM tuner section***

Tuning range: 76.0 – 108.0 MHz (50 kHz step)
Aerial: FM lead aerial
Aerial terminals: 75 ohm unbalanced
Intermediate frequency: 10.7 MHz

***AM tuner section***

Tuning range: AM: 531 – 1,602 kHz (9 kHz step)
530 – 1,710 kHz (10 kHz step)
Aerial: AM loop aerial
External aerial terminals
Intermediate frequency: 450 kHz

**Cassette deck**

Recording system: 4-track 2-channel stereo
Frequency response: (DOLBY NR OFF)
60 – 13,000 Hz (±3 dB), using TYPE I cassette (Sony HF-S)
60 – 14,000 Hz (±3 dB), using TYPE II cassette (Sony UX-S)
Wow and flutter: 0.1% WRMS +0.3% (DIN)

**Amplifier**

Coutinuous RMS Power output: 40 + 40 watta (6 ohms at 1 kHz ,5% THD)
Peak music power output: 450 watts
Inputs
MIX MIC (mini jack): Sensitivity 1 mV, impedance 600 ohms
MD/AUX: Sensitivity 450 mV, impedance 47 kilohms
Outputs
HEADPHONES (stereo mini jack): accept headphones of 8 ohms or more.
SPEAKER: accept impedance of 6 to 16 ohms.

**— Continued on next page —**

使用説明書および付属品も参照のこと
Refer to the peripheral documents

## COMPACT DISC DECK RECEVIER

SONY®

**Gen ral**

Power requirement
110 V – 120 V
220 V – 240 V 50/60 Hz
Adjustable with the voltage selector

Power consumption
120 W

Dimensions Approx. 225 x 285 x 275 mm (w/h/d) incl. projecting parts and controls

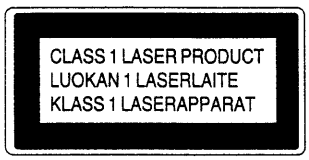
Mass Approx. 6.1 kg

**Supplied accessories**

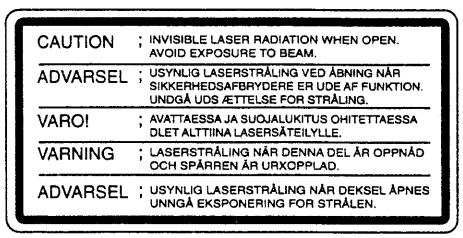
FM lead antenna (1)
AM loop antenna (1)
Remote commander (1)
Sony SUM-3 (NS) batteries (2)
Speaker cords (2)

Design and specifications are subject to change without notice.

Laser component in this product is capable of emitting radiation exceeding the limit for Class 1.




This appliance is classified as a CLASS 1 LASER product. The CLASS 1 LASER PRODUCT MARKING is located on the rear exterior.




This caution label is located inside the unit.



## Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

## TABLE OF CONTENTS



**SAFETY-RELATED COMPONENT WARNING !!**

**COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.**

# SECTION 1
# SERVICING NOTE

## NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

The laser diode in the optical pick-up block may suffer electrostatic break-down because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.
During repair, pay attention to electrostatic break-down and also use the procedure in the printed matter which is included in the repain parts.
The flexible board is easily damaged and should be handled with care.

## NOTES ON LASER DIODE EMISSION CHECK

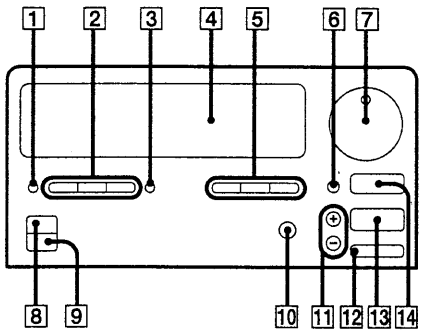
The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe from more than 30 cm away from the objective lens.

# SECTION 2
# GENERAL

This section is extracted from instruction manual.

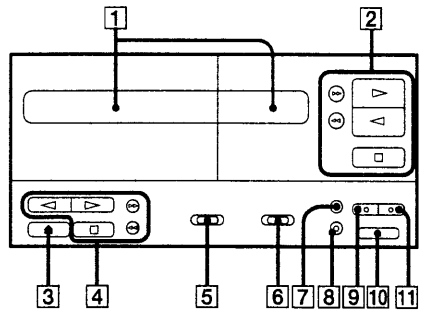
## Front Panel

### Tuner/Amplifier



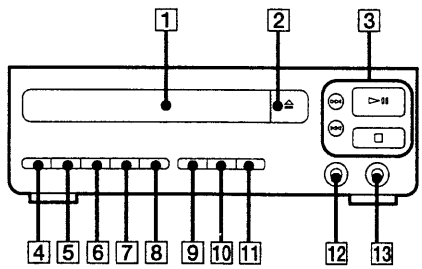

1 Remote sensor
2 TIMER SET button (22, 23)
DAILY button (22, 23)
REC TIMER button (23)
3 CLOCK SET button (9)
4 Display window (10)
5 KARAOKE PON button (24)
EFFECT button (21)
EQ PRESET button (21)
6 MEMORY/NEXT button (9, 14, 22)
7 VOLUME control (10, 21)
8 SYSTEM POWER ON/STANDBY switch (10)
9 EZ button (4)
10 DBFB button (21)
11 TUNER/TIMER (+/–) buttons (9, 13, 14, 22)
12 PRESET/TUNING button (13)
13 TUNER/BAND button (13, 19)
14 FUNCTION button (20, 24)

### Tape player




1 Tape compartments (15)
2 Tape operating buttons and lamp (for deck B) (15)
3 ⏏ button (for deck A) (15)
4 Tape operating buttons and lamp (for deck A) (15)
5 DIRECTION switch (15)
6 DOLBY NR switch (15)
7 ⏸ PAUSE button (15)
8 ● REC button (17, 19, 20)
9 HIGH SPEED DUBBING button (20)
10 ⏏ button (for deck B) (15)
11 CD SYNCHRO button (16, 17, 18,)

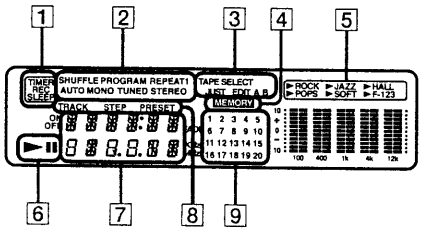
### CD player




1 CD tray (10)
2 ⏏ OPEN/CLOSE button (10)
3 CD player operating buttons (10)
4 CONTINUE button (11)
5 SHUFFLE button (11)
6 PROGRAM button (11)
7 REPEAT button (12)
8 TIME button (11)
9 CHECK button (12)
10 CLEAR button (12)
11 EDIT button (17)
12 MIX MIC jack (24)
13 HEADPHONES jack (21)

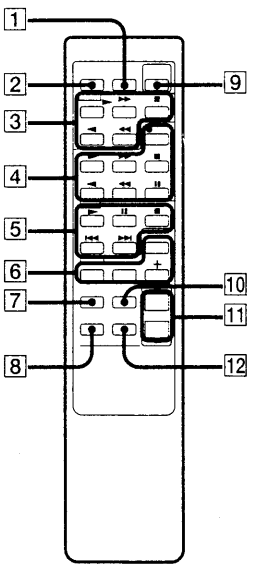
**continu to next pag →**

## Display Window




1 Timer indications (22)
2 CD play and Tuner indication (10, 13)
3 CD recording indication (17)
4 MEMORY indication (14)
5 Audio emphasis indication (21)
6 CD play and pause indication (10)
7 Time/frequency indication (9, 13)
8 TRACK/STEP/PRESET indication (10, 11, 14)
9 Music calendar/preset radio station numbers (10, 14)

## Remote commander




1 SLEEP button (22)
2 FUNCTION button (20, 24)
3 Deck A operating buttons
► (front side play) (15)
◄ (reverse side play) (15)
►► (fast rightward) (15)
◄◄ (fast leftward) (15)
■ (stop) (15)
4 Deck B operating buttons
► (front side play) (15)
◄ (reverse side play) (15)
►► (fast rightward) (15)
◄◄ (fast leftward) (15)
II (pause) (15)
■ (stop) (15)
● REC (recording) (17, 19, 20)
5 CD operating buttons
► (play) (10)
I◄◄ / ►►I AMS* (10)
II (pause) (10)
■ (stop) (10)
* AMS: Automatic Music Sensor.
6 Tuner operating buttons
BAND button (13)
PRESET (+/–) buttons (13)
STEREO/MONO button (13)
7 DISPLAY button (21)
8 CLOCK DISPLAY (9)
9 SYSTEM POWER button (10)
10 EQ PRESET button (21)
11 VOL (+/–) (volume) buttons (10, 21)
12 EFFECT button (21)

# SECTION 3
# MECHANICAL ADJUSTMENTS

**PRECAUTION**

1. Clean the following parts with a denatured-alcohol-moistened swab :
   record/playback head　　pinch roller
   erase head　　rubber belt
   capstan　　idler
2. Demagnetize the record/playback head with a head demagnetizer.
3. Do not use a magnetized screwdriver for the adjustment.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustment should be performed with the rated power supply voltage unless otherwise noted.

**• Torque Measurement**

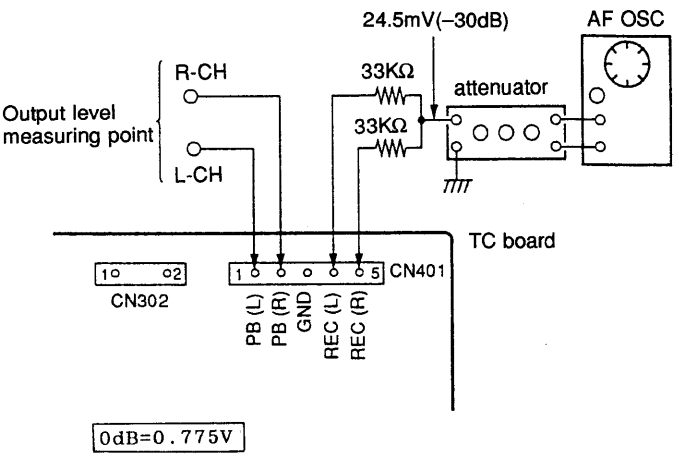
| Torque | Torque Meter | Meter Reading |
|---|---|---|
| Forward | CQ-102C | 35 to 60 g • cm (0.49 — 0.82 oz • inch) |
| Forward Back Tension | CQ-102C | 2 to 6 g • cm (0.026 — 0.082 oz • inch) |
| Reverse | CQ-102RC | 35 to 60 g•cm (0.49 — 0.82 oz • inch) |
| Reverse Back Tension | CQ-102RC | 2 to 6 g•cm (0.026 — 0.082 oz • inch) |
| FF, REV | CQ-201B | 70 to 110 g • cm (0.97 oz to 1.53 oz • inch) |

# SECTION 4
# ELECTRICAL ADJUSTMENTS

**DECK SECTION**

1. The adjustment should be performed in the publication. (Be sure to make playback adjustment at first.)
2. The adjustment and measurement should be performed for both L-CH and R-CH.
   • Switch position
   DOLBY NR switch : OFF
   Function Button : CD
3. Perior to electrical adjustments of Deck Section, short the CN302 on the TC board (test mode).
4. Input point and output level measuring point.

**• Output level measuring point　　• Input point**




**• Test Tape**

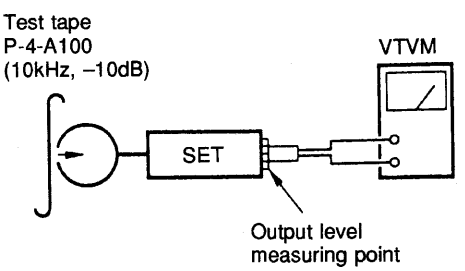
| Tape | Contents | Use |
|---|---|---|
| P-4-A100 | 10kH, –10dB | Head Azimuth Adjustment |
| P-4-L300 | 315Hz, 0dB | Level Adjustment |
| WS-48B | 3kHz, 0dB | Tape Speed Adjustment |

**Record/Playback Head Azimuth Adjustment**

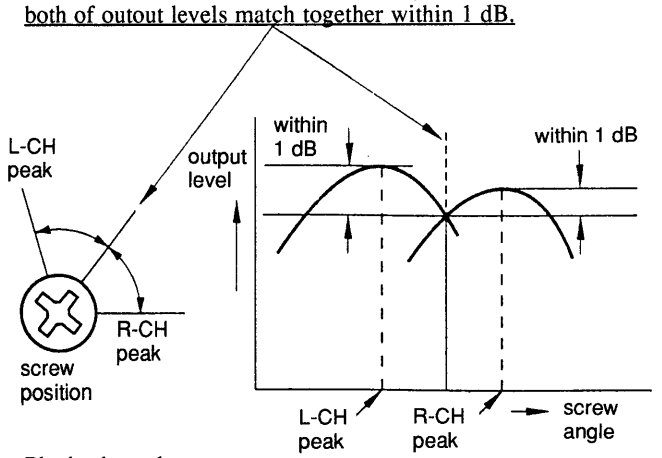
**DECK A** **DECK B**

**Procedure :**

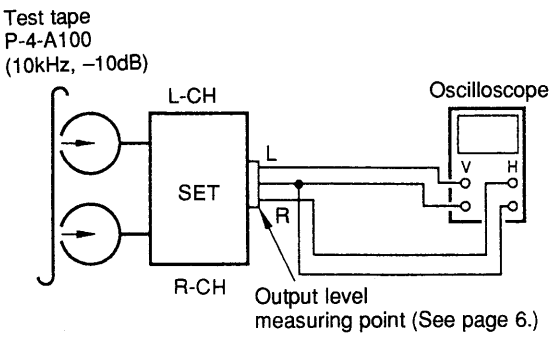
1. Forward Playback Mode
   Reverse Playback Mode

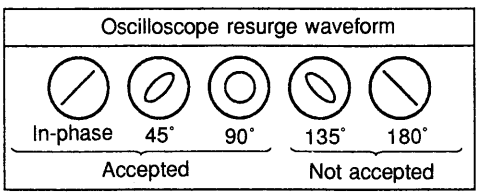


2. Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw until both of outout levels match together within 1 dB.



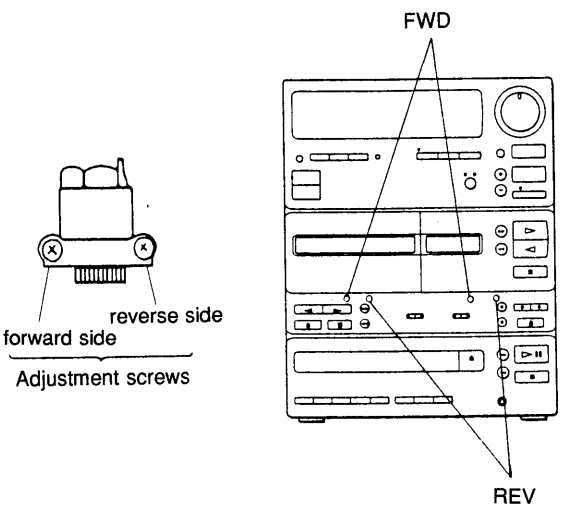

3. Playback mode




4. Change the review playback mode and repent the steps 1 to 3.
5. After the adjustment, lock the adjustment screw with suitable locking compound.

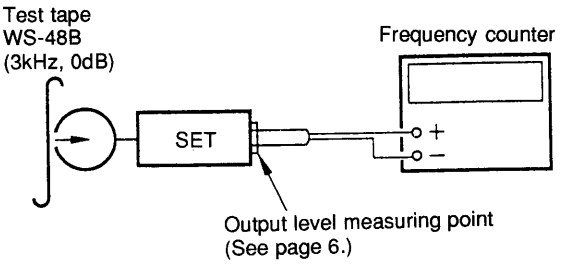
**Adjustment Location :** Record/Playback head (DECK A, B)




## Tape Speed Adjustment DECK A DECK B

**Procedure :**

- Perform high speed adjustment before normal speed adjustment.
  Mode : Forward playback




| Speed | Deck | Adjustment point | Frequency counter |
|---|---|---|---|
| ※High | A | RV72A | 5,970 to 6,030 HZ |
| | B | RV72B | |
| Normal | A | RV71A | 2,985 to 3,015 HZ |
| | B | RV71B | |

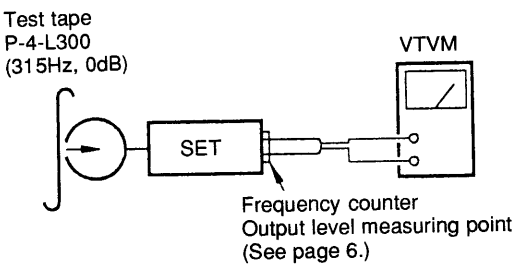
※ Continue to press HIGH SPEED DUBBING switch (S3019) in playback mode : High speed playback.

Frequency difference between the begining and the end of the tape should be within ± 3%.
Frequency difference between deck A and deck B the begining of the tape should be within 1.5%.

**Adjustment Location :** MD-A and MD-B boards.

## Playback Level Adjustment DECK A DECK B

**Procedure :**
Mode : Forward playback




Adjust RV11 (L-CH) and RV21 (R-CH) of deck A and deck B respectively so that the VTVM reading satisfies the following specification.

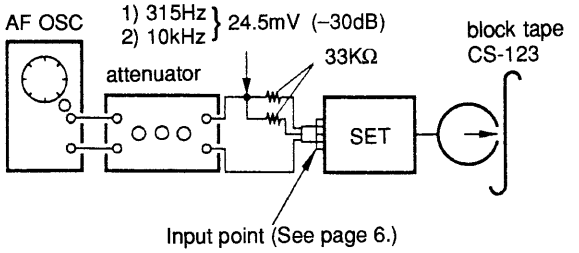
**Adjustment Level :**
LINE OUT level : –11.4 ± 1.0dB (0.186 to 0.234V)
Level Difference between Channels : within 0.5dB

**Adjustment Location :** MD-A and MD-B boards.

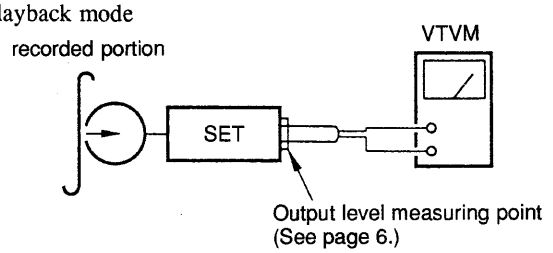
## Record Bias Adjustment DECK B

**Procedure :**

1. record mode




2. Playback mode




3. Playback the signal recorded in step 1, and make sure that the playback output level 315 Hz satisfies the following specification when measured with the VTVM.
4. If the specification is not satisfied, adjust RV12 (L-CH) and RV22 (R-CH) and repeat steps 1 through 4.

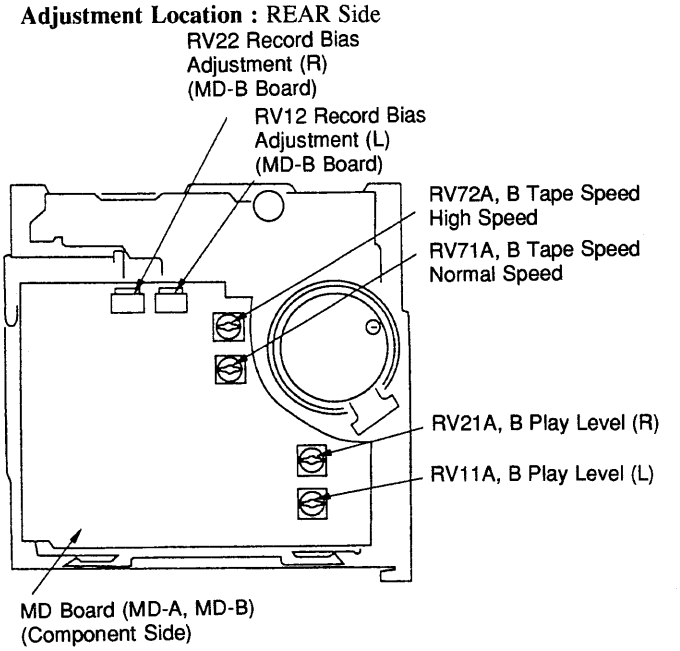
**Adjustment Level :** Playback output of 10kHz to playback output of 315Hz : –0.5dB to 0.5dB

**Adjustment Location :** MD-B board

3. Playback the signal recorded in step 1, and make sure that the playback output level 315 Hz satisfies the following specification when measured with the VTVM.
4. If the specification is not satisfied, adjust RV401 (L-CH) and RV451 (R-CH) and repeat steps 1 through 4.

**Adjustment Level :**
DOLBY OUT level : –30 ± 0.5dB (23.1 to 25.9mV)

**Adjustment Location :** REAR Side

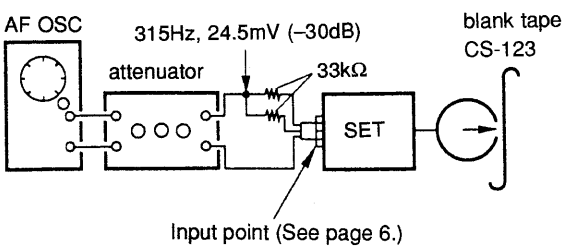



## Record Level Adjustment DECK B

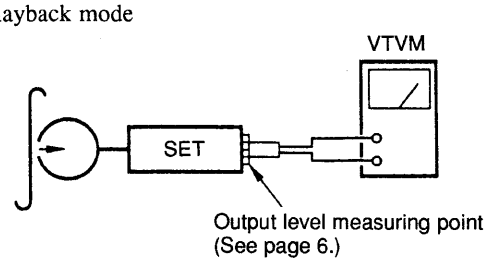
Sound select (function) button : CD

**Procedure :**

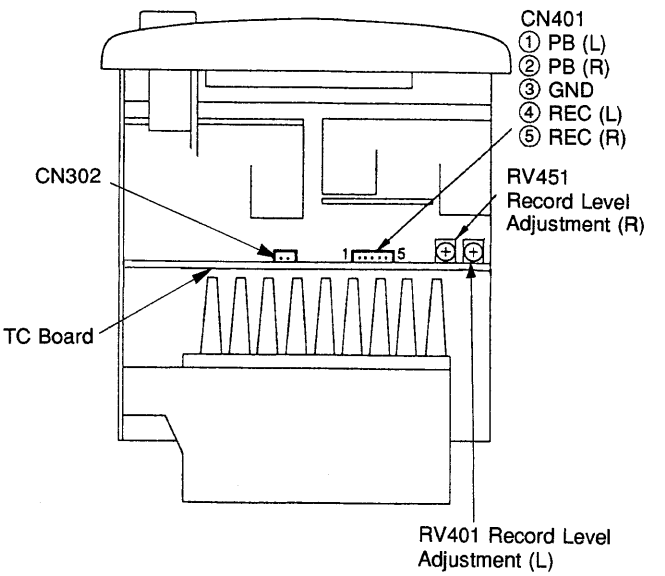
1. record mode




2. Playback mode




TC BOARD (Component Side)



## TUNER SECTION

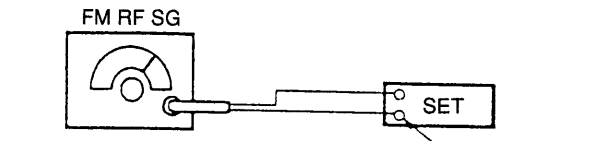
**Note :** The FM front-end is carefully adjustment at the factory and is supplied as one whole block for replacement.

### FM SECTION ADJUSTMENTS

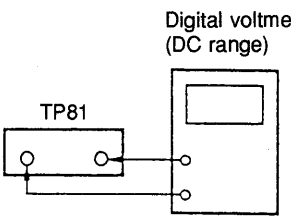
FM NULL Adjustment

**Setting :**

BAND SW : FM




Carrier frequency : 98MHz
Modulation : 1kHz, 75kHz deviation (100%)
Output level : 1mV (60dBμ)



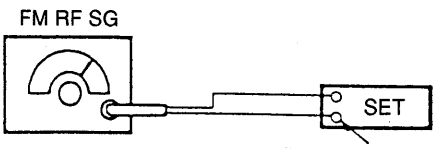

**Procedure :**

1. Tune the set to 98 MHz.
2. Connect the digital voltmeter to NULL test point (TP81).
3. Adjust IFT51 for 0mVdc reading on the digital voltmeter.

### FM Tuned Level Adjustment

**Setting :**

BAND SW : FM




Carrier frequency : 98MHz
Modulation : 1kHz, 75kHz deviation (100%)
Output level : 0.018mV (25dBμ)

**Procedure :**

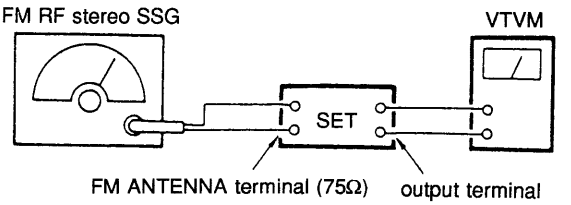
1. Tune the set to 98 MHz.
2. Adjust RV52 so that the TUNED indicator goes on.

### FM Stereo Separation Adjustmens

**Setting :**

BAND SW : FM

**Procedure :**




Carrier frequency : 98MHz
Output level : 1mV (60dBμ)
Main channel : 1kHz, 33.75kHz deviation (45%)
Subchannel : 38kHz, 33.75kHz deviation (45%)
Pilot signal : 19kHz, 7.5kHz deviation (10%)

| FM stereo SSG output channel | VTVM connection | VTVM reading (dB) |
|---|---|---|
| L-CH | L-CH | Ⓐ |
| R-CH | L-CH | Ⓑ Adjust RV53 so that the VTVM reading becomes minimum. |
| R-CH | R-CH | Ⓒ |
| L-CH | R-CH | Ⓓ Adjust RV53 so that the VTVM reading becomes minimum. |

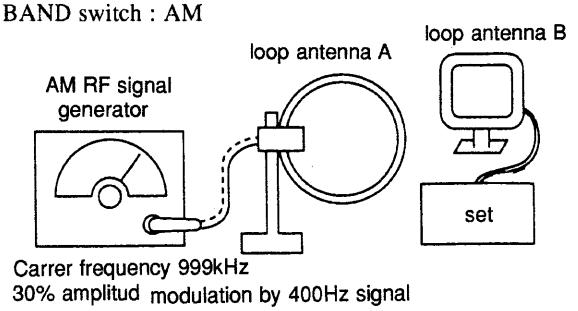
L-CH stereo separation : Ⓐ – Ⓑ
R-CH stereo separation : Ⓒ – Ⓓ
The separation values of both channels should be more or less the same.

## AM SECTION ADJUSTMENTS

AM TUNER Level Adjustment

**Setting :**

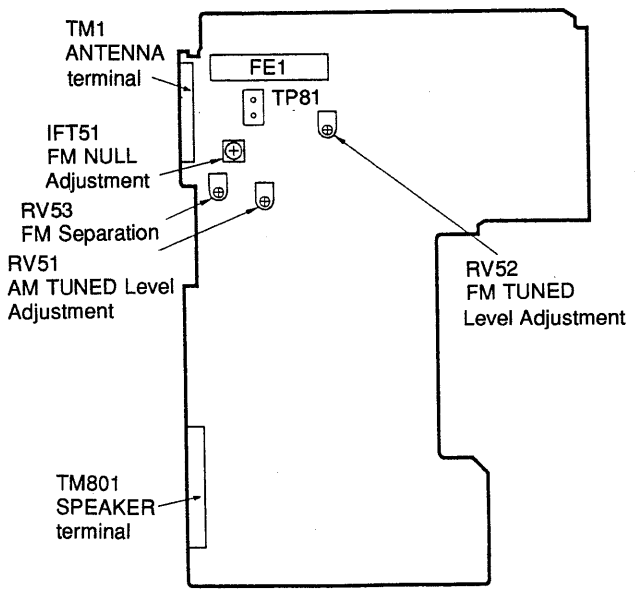
BAND switch : AM




**Procedure :**

1. Adjustment AM RF SSG so that the AM antenna input level of the set becomes 55 dBμ/m (0.8mV/m).
2. Adjustment the set to 999 kHz.
3. Rotate RV51 until the TUNED indicator changes from "off" to "lit".

**Adjust Location :** MAIN BOARD (Component Side)

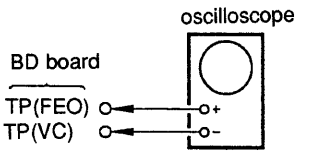



## CD SECTION

**Note :**

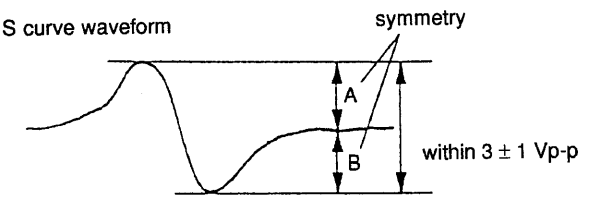
1. CD Block basically constructed to operate without adjustment. Therefore, check each item in order given.
2. Use YEDS-18 disc (3-702-101-01) unless otherwise indicated.
3. Use the oscilloscope with more than 10MΩ impedance.
4. Clean an object lens by an applicator with neutral detergent when the signal lever is low than specified value with the following checks.

**S Curve Check**




**Procedure :**

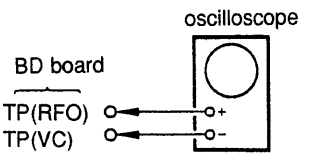
1. Connect oscilloscope to test point TP (FEO) on BD board.
2. Connect between test point TP (FES) and TP (VC) by lead wire.
3. Turned Power switch on.
4. Put disc (YEDS-18) in and turned Power switch on again and actuate the focus search. (actuate the focus search when disc table is moving in and out.)
5. Check the oscilloscope waveform (S-curve) is symmetrical between A and B. And confirm peak to peak level within 3±1 Vp-p.




6. After check, remove the lead wire connected in step 2.

**Note :**
- Try to measure several times to make sure than the retio of A : B or B : A is more than 10 : 7.
- Take sweep time as long as possible and light up the brightness to obtain best waveform.

**RF Level Check**



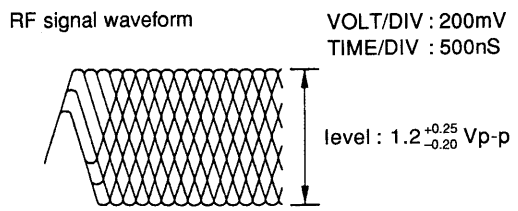

**Procedure :**

1. Connect oscilloscope to test point TP (RFO) on BD board.
2. Turned Power switch on.

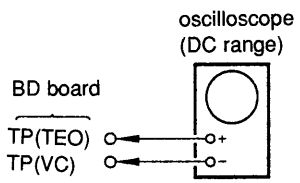
3. Put disc (YEDS-18) in and playback.
4. Confirm that oscilloscope waveform is clear and check RF signal level is correct or not.

**Note :**

Clear RF signal waveform means that the shape " ◊ " can be clearly distinguished at the center of the waveform.

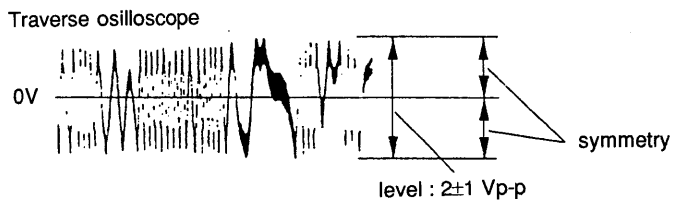



### E-F Balance Check




**Procedure :**

1. Connect test point TP (ADJ) to ground and TP (TES :IC101 ㊸ PIN) to TP (VC) with lead wire.
2. Connect oscilloscope to test point TP (TEO) on BD board.
3. Turnd Power switch on.
4. Put disc (YEDS-18) in and playback:
5. Confirm that the oscilloscope waveform is symmetrical on the top and bottom in relation to 0Vdc, and check this level.

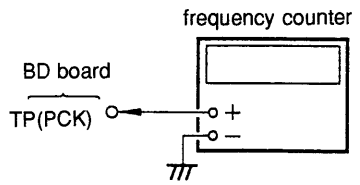



6. Remove the lead wire connected in step 1.

### RF Free-run Frequency Check

**Procedure :**

1. Connect frequency counter to test point (PCK : IC201 ㊶ PIN) with lead wire.



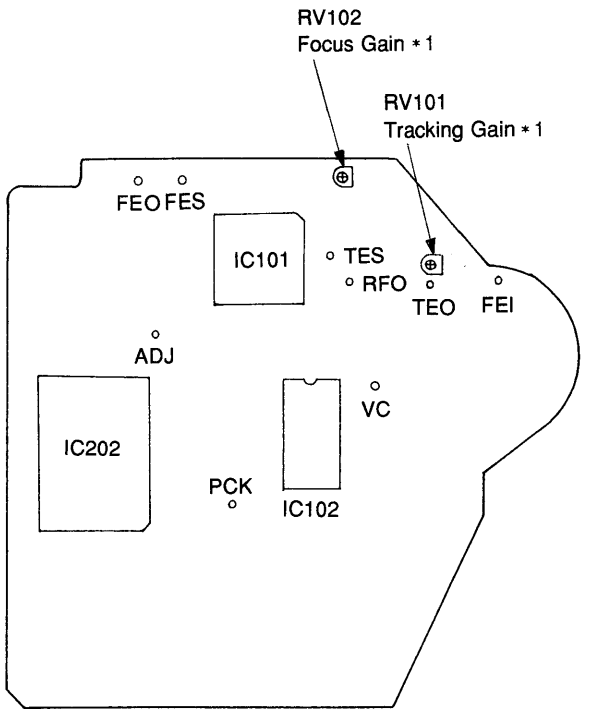

2. Turned Power switch on.
3. Confirm that reading on frequency counter is 4.3218MHz.

### Focus/Tracking Gain

This gain has a margin, so even if it is slightly off. There is no problem.
Therefore, do not perform, this adjustment.
Please note that it should be fixed to mechanical center position when you moved and do not know original position.

**Adjustment Location :**

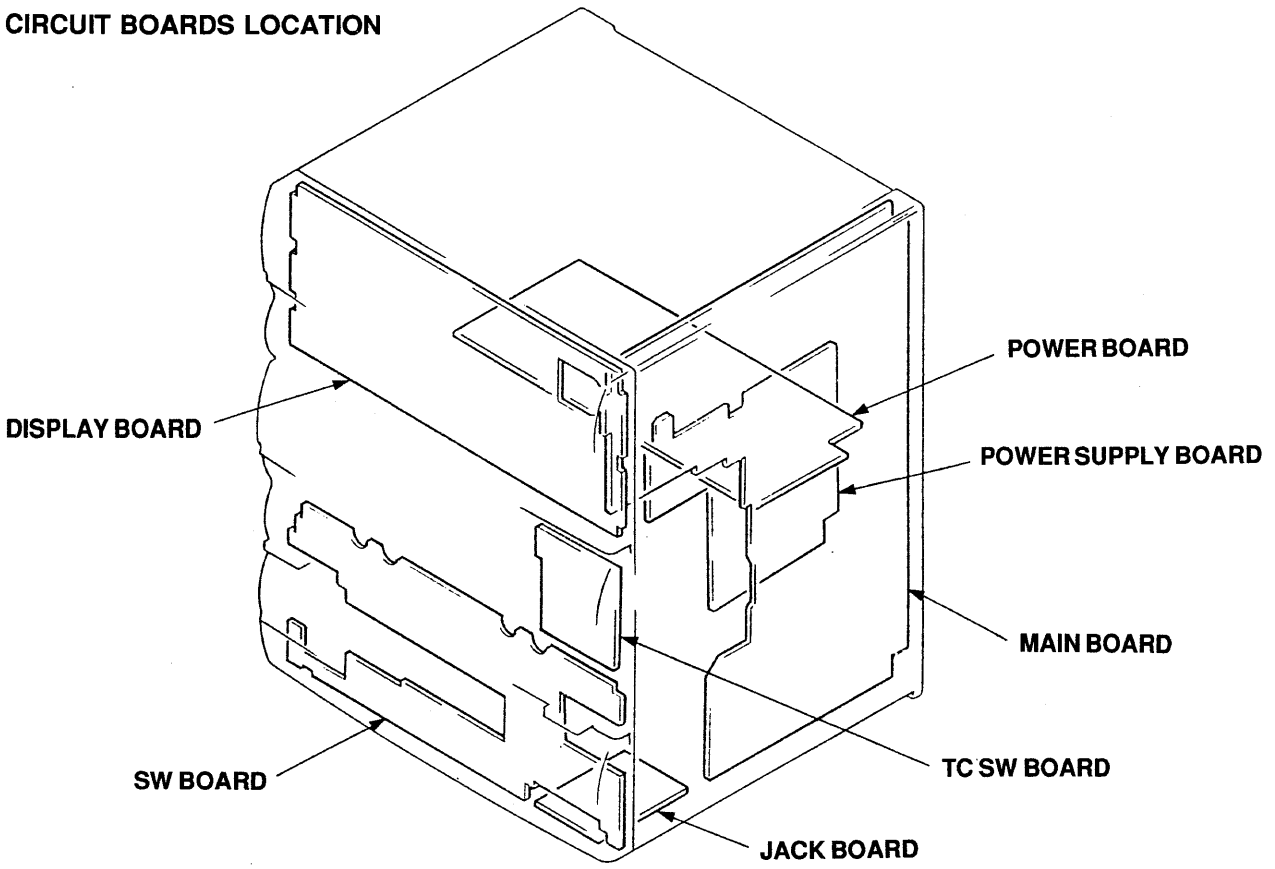
**[ BD BOARD ]** — Side A —

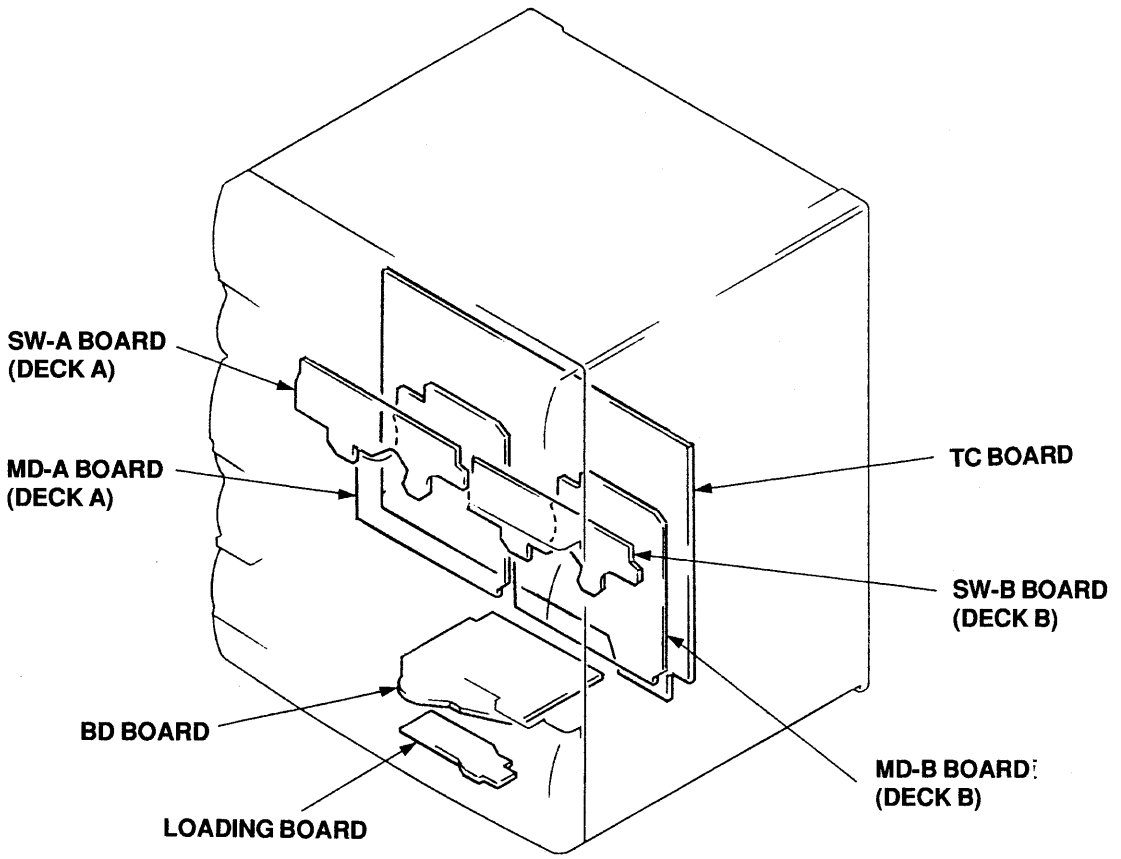



*1. Therefore,do not perform, this adjustment

# SECTION 5
# DIAGRAMS

## 5-1. CIRCUIT BOARDS LOCATION

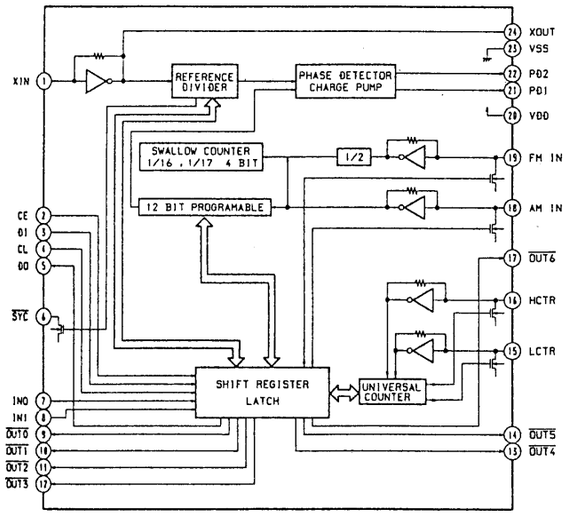


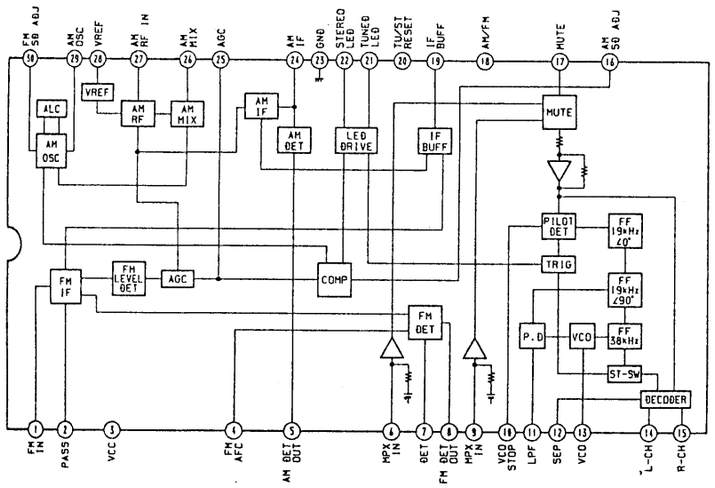
## 5-2. IC BLOCK DIAGRAMS

### — MAIN SECTION —

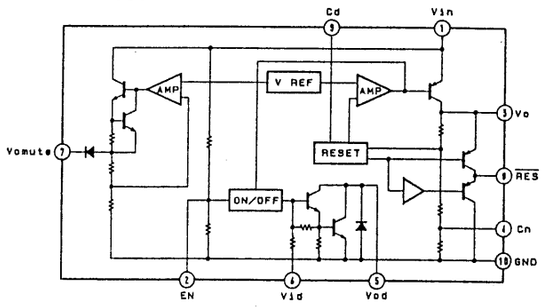
### IC21 LC7218-ST



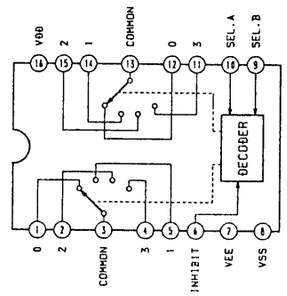

### IC51 LA1851N



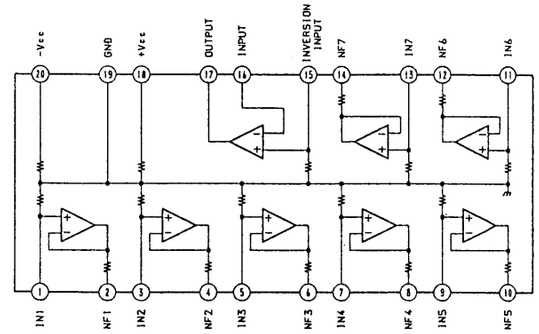

### IC501 LA5601



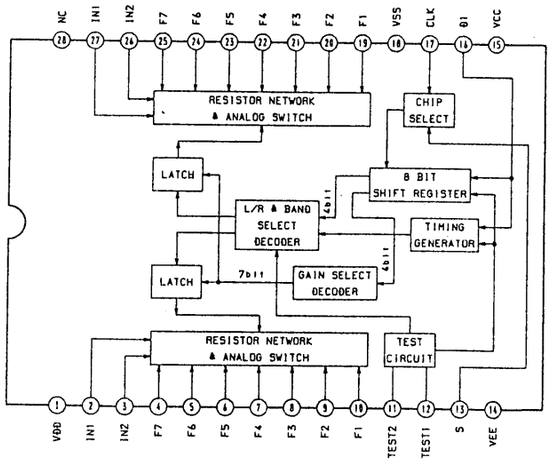

### IC602 MC14052BCP



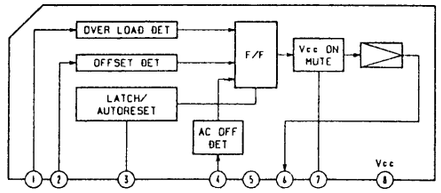

### IC701 M5229P



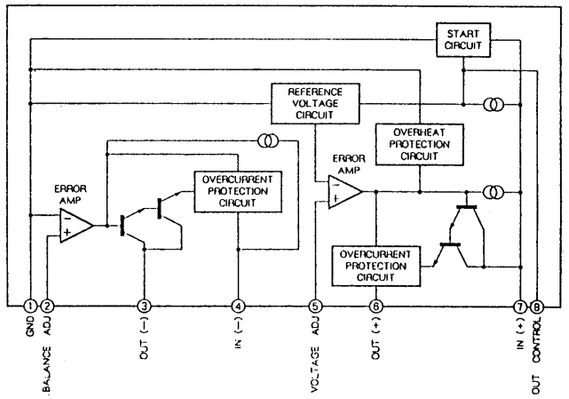

### IC731 NJU7305L




### IC802 μPC1237HA

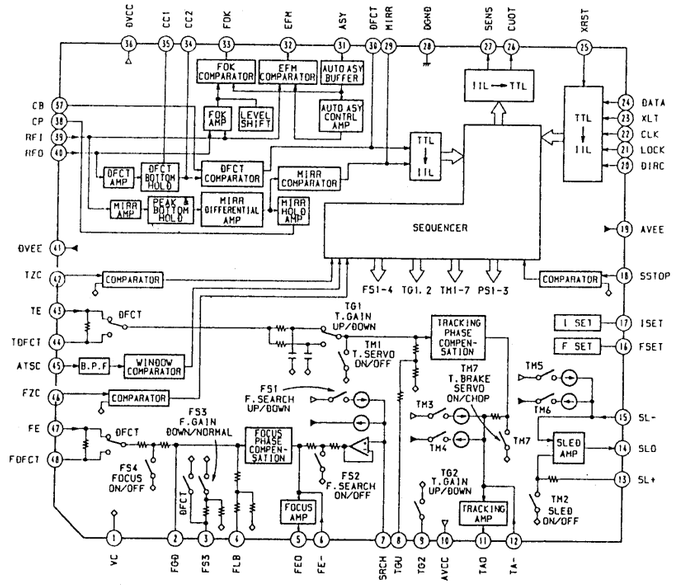



### IC901 M5230L-A

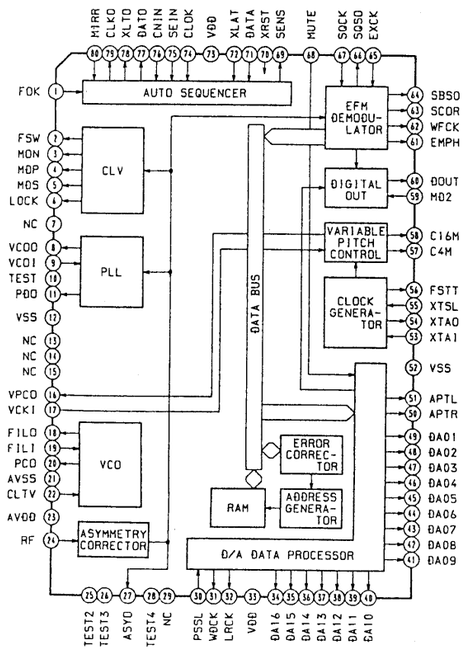


## — CD SECTION —

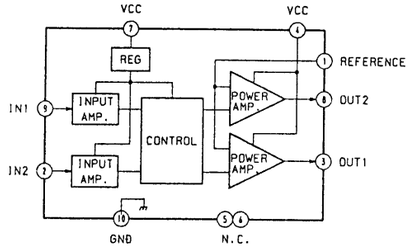
### IC101 CXA1372AQ



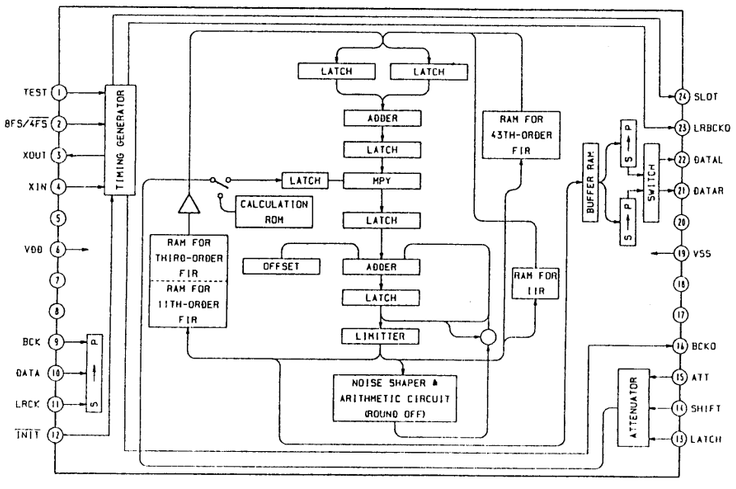

### IC201 CXD2500BQ




### IC103 M54641FP



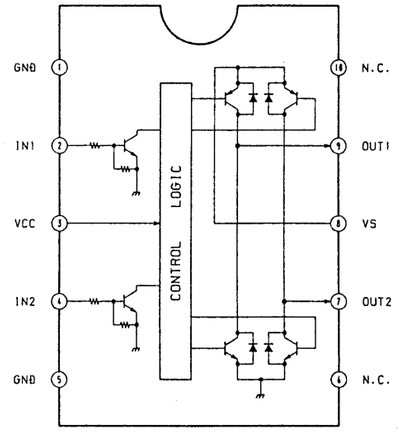

### IC203 MSM538-01GS-VKR1



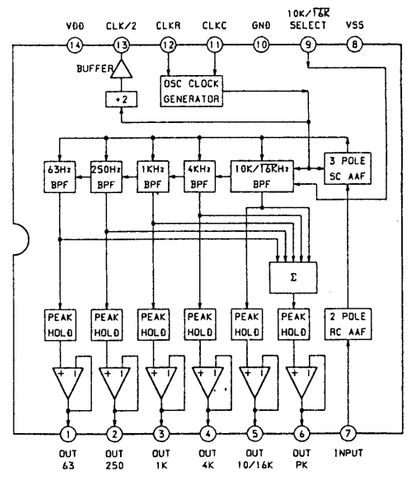



## — DISPLAY SECTION —

### IC2000 LB1638

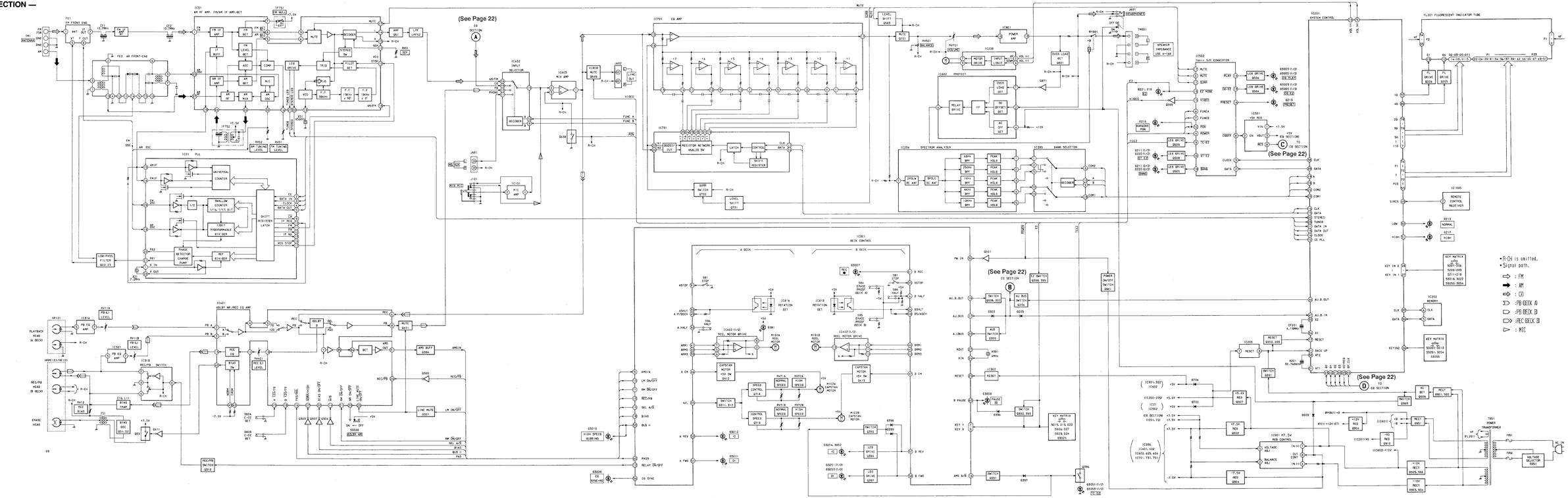



### IC206 XR1093

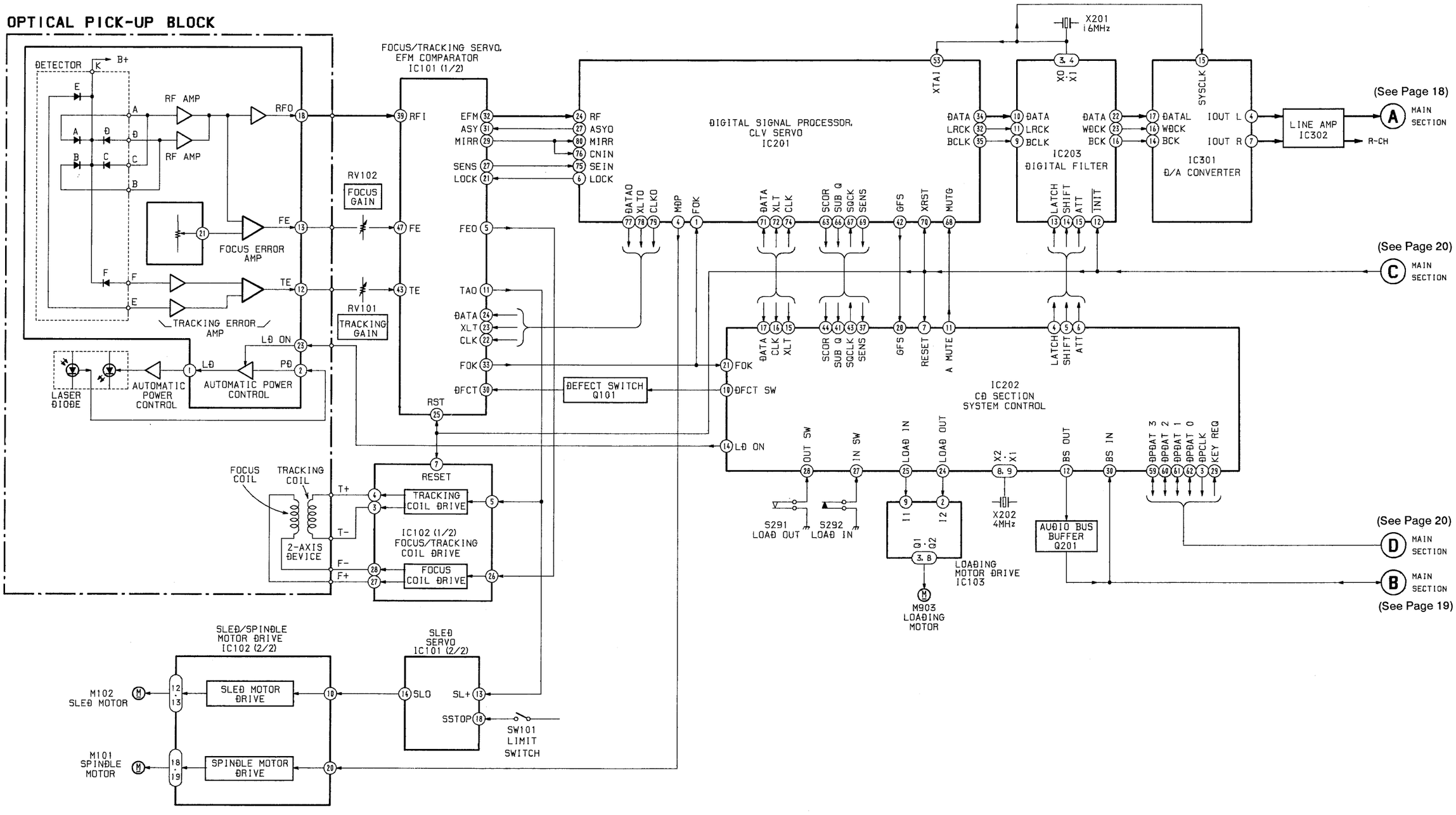


## 5-3. BLOCK DIAGRAMS

### — MAIN SECTION —



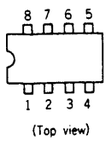
## — CD SECTION —




09

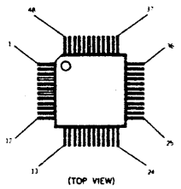
## 5-4. SEMICONDUCTOR LEAD LAYOUTS

**AT24C01-10PC**
**M5218AP**
**UPC4558C**

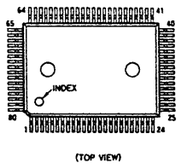


(Top view)

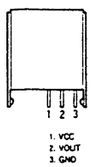
**CXA1372AQ**



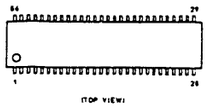

**CXD2500BQ**
**UPD78043GF-078-3B9**



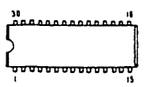

**GP1U90XB**



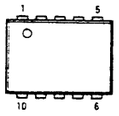

**HA1217NT**



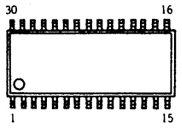

**LA1851N**


(Top view)

**LA5601**
**LB1638**

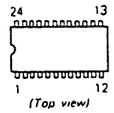



**LA6525M**



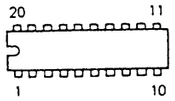
TOP VIEW

**LC7218-ST**



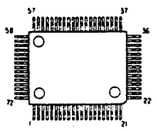
(Top view)

**M50255P**
**M5229P**



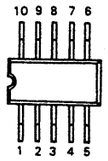
(Top view)

**M50964-260FP**

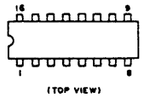


**M5230L-A**
**UPC1237HA**

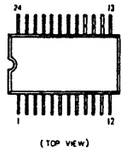

**M54641FP**



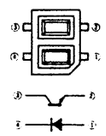

**MC14052BCP**



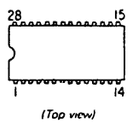

**MSM6538-01GS-VKR1**




**NJL5165K-B**

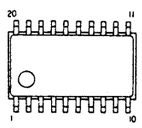


**NJU7305L**

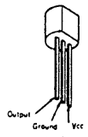


(Top view)

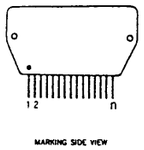
**PCM-67U-B**



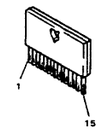

**PST600E**



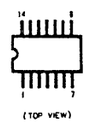

**STK4152MK2K**



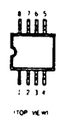

**TA8242K**



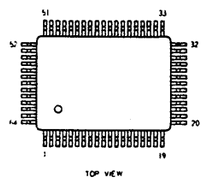

**UPC1330GR**



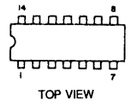

**UPC4558G2**
**UPC4570G2**




**UPD75116-GF-J06-3BE**




**XR1093**

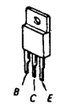



**DTA114ES**
**DTA124ES**
**DTA144ES**
**DTC114ES**
**DTC114TS**
**DTC144ES**
**2SA1524**
**2SC2603-EF**
**2SC2724-CD**
**2SC3622A-LK**

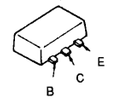

**2SA1602-F**
**2SC3395**
**2SC4154-F**


**2SB1013-4**
**2SC1841-PAFAEA**
**2SC3112-A**


**2SB1094-LK**
**2SD2012**

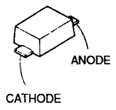



**2SD1622-S**

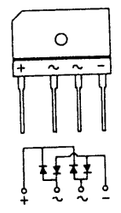



**2SK246-GR3**

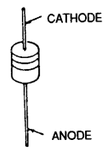

**MA8043-M**



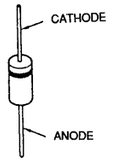

**RBV-406H-01**



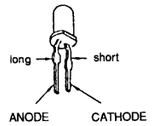

**RD6.2ESB2**



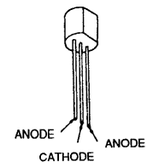

**UZ-5.6BS**
**UZ-12BSC**
**UZ-27BSB**
**UZP-7.5B**
**1N4148M**
**11ES-B2**



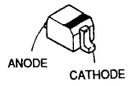

**SEL4425GM**
**SEL5220S**
**SEL5920A**
**SEL5921A**




**SML1260S**
**SML1460E**
**SML19416W**




**1SS352**



• **Semiconductor Location**

| Ref. No. | Location | Ref. No. | Location |
|---|---|---|---|
| D51 | C-5 | Q1 | D-3 |
| D501 | D-8 | Q22 | D-1 |
| D502 | I-3 | Q23 | C-1 |
| D505 | J-4 | Q51 | B-6 |
| D551 | C-9 | Q52 | A-5 |
| D552 | C-9 | Q501 | I-4 |
| D702 | C-7 | Q503 | I-4 |
| D703 | C-13 | Q504 | I-4 |
| D704 | C-7 | Q505 | J-3 |
| D801 | C-22 | Q506 | I-5 |
| D851 | B-24 | Q508 | I-3 |
| D899 | B-11 | Q509 | I-5 |
| D901 | E-18 | Q599 | E-6 |
| D902 | E-18 | Q638 | C-9 |
| D903 | C-18 | Q639 | B-8 |
| D904 | D-17 | Q688 | C-9 |
| D905 | C-18 | Q689 | A-9 |
| D906 | D-17 | Q701 | H-12 |
| D909 | D-22 | Q702 | F-12 |
| D910 | D-23 | Q731 | C-12 |
| D911 | D-24 | Q751 | G-12 |
| D912 | C-20 | Q801 | C-22 |
| D951 | F-22 | Q851 | B-24 |
| | | Q871 | C-22 |
| IC21 | F-2 | Q901 | D-21 |
| IC51 | D-4 | Q902 | A-17 |
| IC501 | E-11 | Q904 | A-18 |
| IC502 | H-2 | Q906 | D-22 |
| IC602 | D-8 | Q907 | D-24 |
| IC605 | C-9 | Q908 | E-22 |
| IC701 | G-13 | Q909 | D-22 |
| IC731 | E-13 | Q910 | D-19 |
| IC751 | D-14 | | |
| IC801 | A-22 | | |
| IC802 | C-23 | | |
| IC901 | D-21 | | |

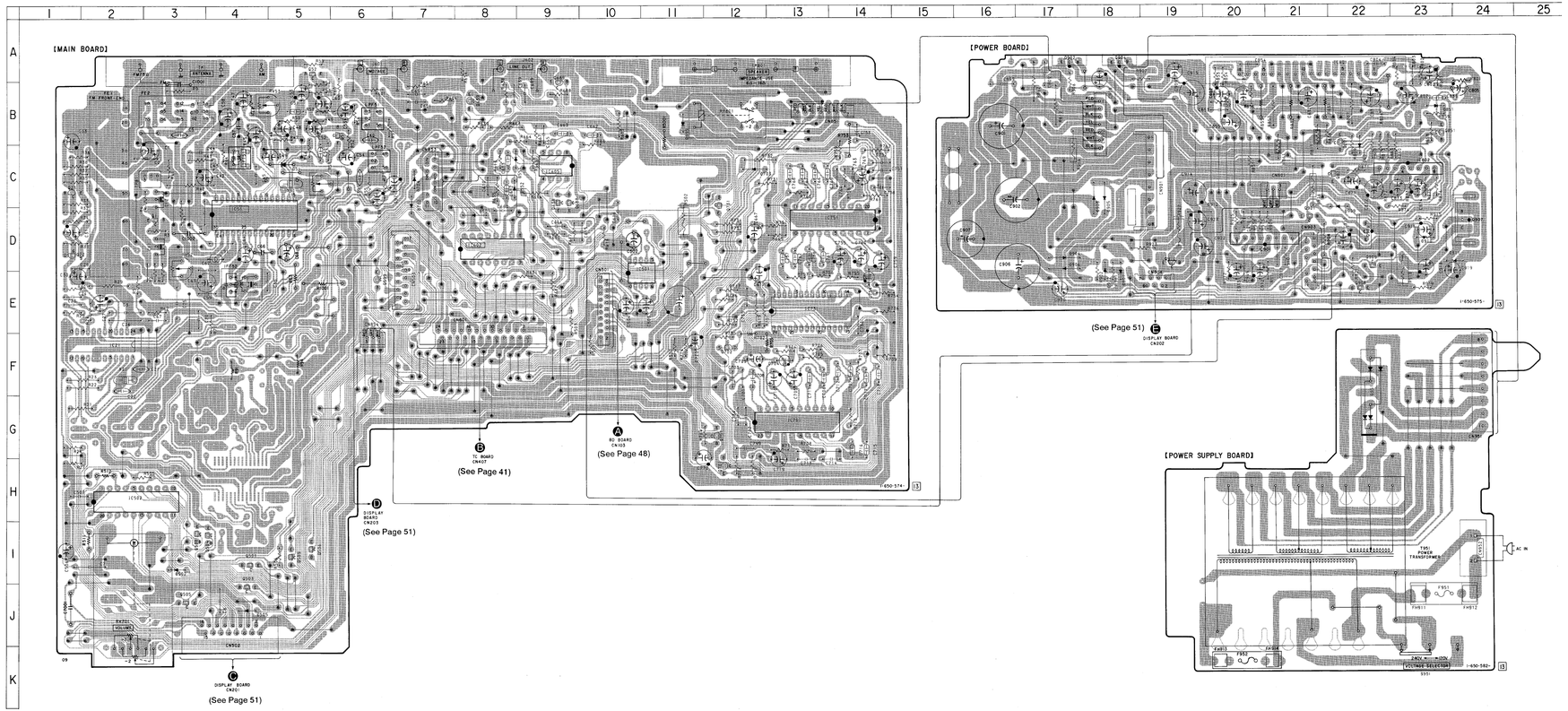
**Note:**

- o—— : parts extracted from the component side.
- △ : internal component.
- ▒▒ : Pattern from the side which enable seeing.



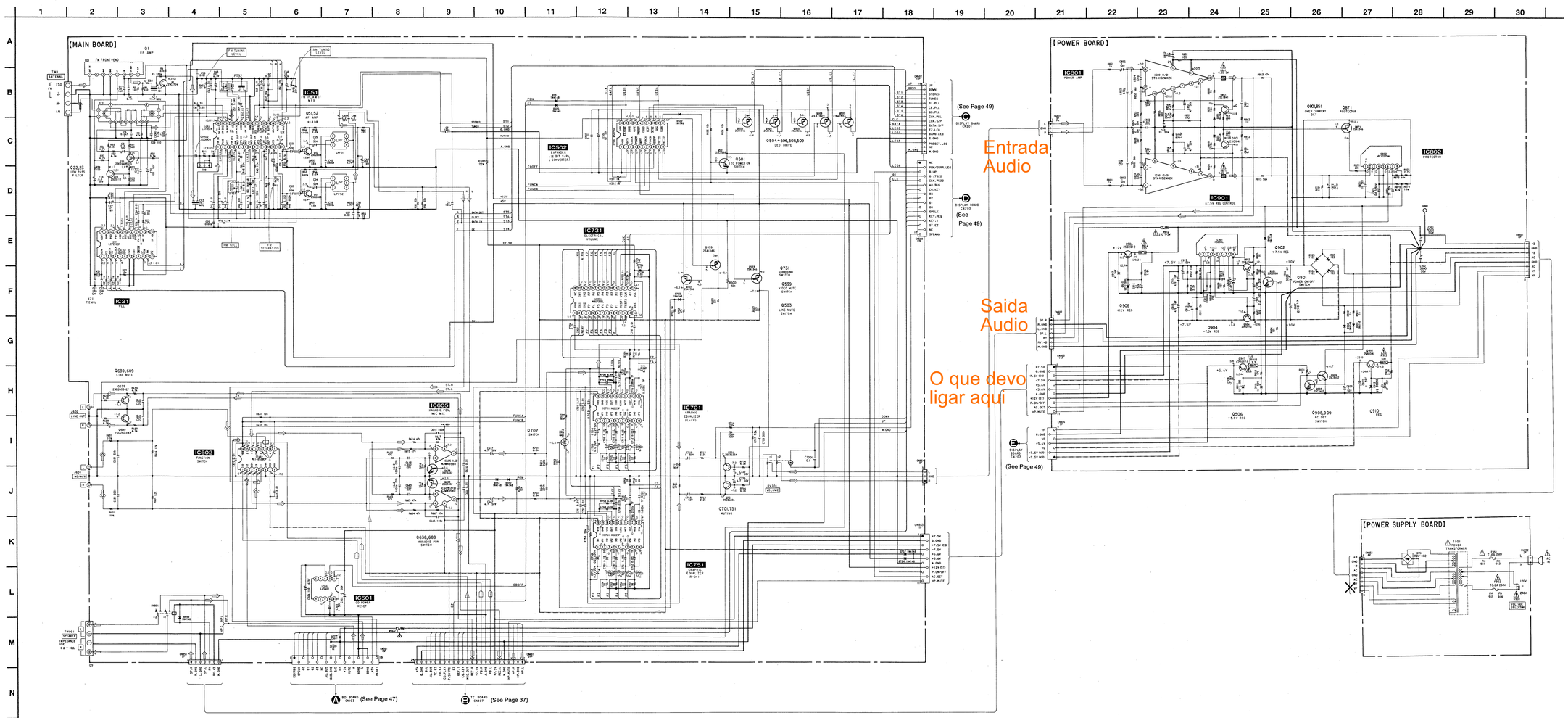
**5-5. PRINTED WIRING BOARDS — MAIN SECTION —**

- **See page 12 for Circuit Boards Location.**
- **See pages 23, 24 for Semiconductor Lead Layouts.**



## 5-6. SCHEMATIC DIAGRAM — MAIN SECTION —

• See pages 13 to 14 for IC Block Diagrams.




**Note:**

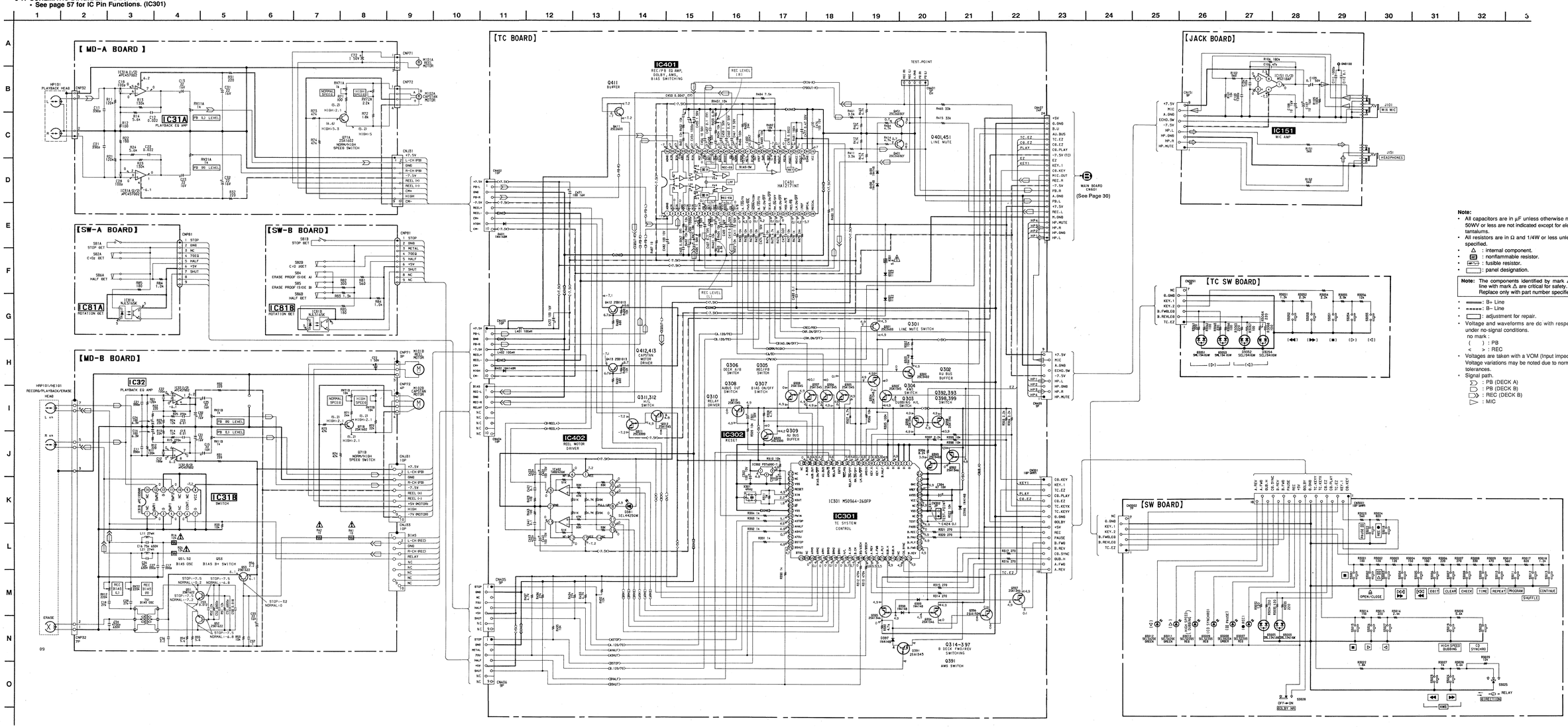
- All capacitors are in µF unless otherwise noted. pF:µµF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- △ : internal component.
- ▭ : nonflammable resistor.
- ▭ : fusible resistor.
- ▭ : panel designation.

**Note:** The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

- ▬▬ : B+ Line
- ▭▭▭ : B– Line
- ▭ : adjustment for repair.
- Voltage and waveforms are dc with respect to ground under no-signal conditions.
  no mark : FM
  ( ) : AM
- Voltages are taken with a VOM (Input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : FM
  ⇨ : AM
  ⇨ : AUX
  ⇨ : PB (DECK B)
  ⇨ : REC (DECK B)
  ⇨ : CD
  ▷ : MIC

## 5-7. SCHEMATIC DIAGRAM — DECK SECTION —

• See page 57 for IC Pin Functions. (IC301)




**Note:**

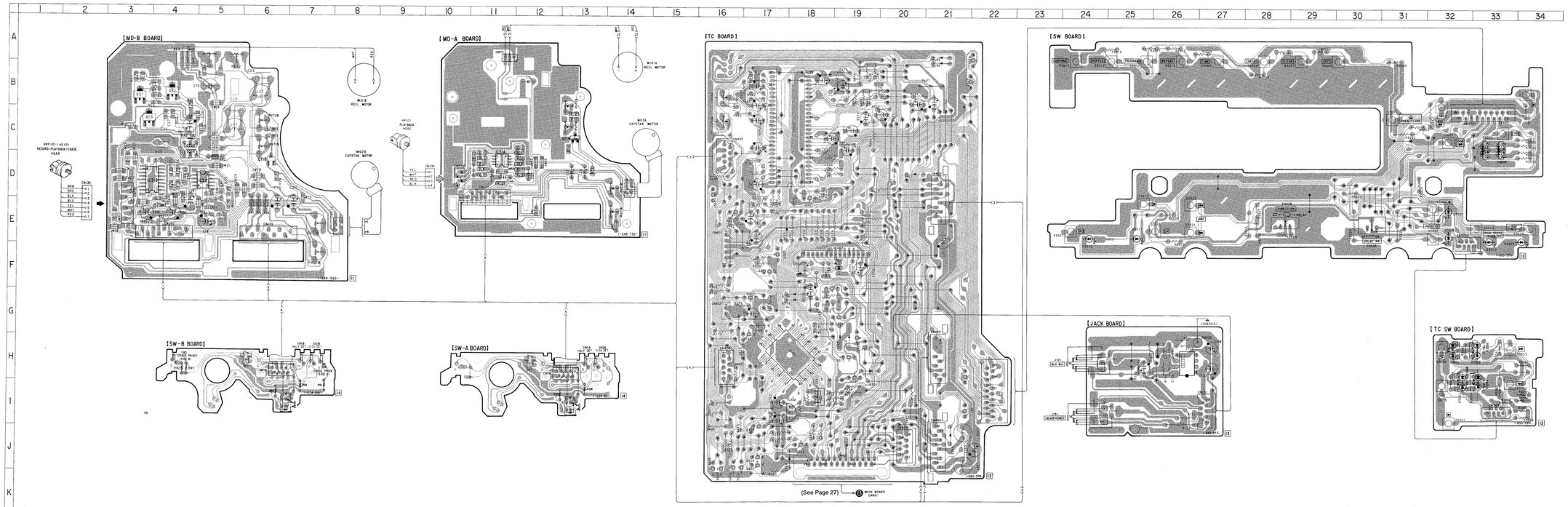
- All capacitors are in μF unless otherwise noted. pF: μμF
  50WV or less are not indicated except for electrolytics and tantaliums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- △ : internal component.
- ▭ : nonflammable resistor.
- ▭ : fusible resistor.
- ▭ : panel designation.

**Note:** The components identified by mark △ or dotted line with mark △ are critical for safety.
Replace only with part number specified.

- ▬▬ : B+ Line
- ▬▬ : B- Line
- ▭ : adjustment for repair.
- Voltage and waveforms are dc with respect to ground under no-signal conditions.
  no mark : ( ) : PB
  < > : REC
- Voltages are taken with a VOM (Input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
  : PB (DECK A)
  : PB (DECK B)
  : REC (DECK B)
  : MIC

## 5-8. PRINTED WIRING BOARDS — DECK SECTION —

- See page 12 for Circuit Boards Location.
- See pages 23, 24 for Semiconductor Lead Layouts.




— 39 —

— 40 —

— 41 —

— 42 —

— 43 —

- Semiconductor Location

| Ref. No. | Location |
|---|---|
| D301 | H-19 |
| D302 | H-19 |
| D303 | J-17 |
| D381 | F-19 |
| D396 | E-17 |
| D397 | H-19 |
| D398 | G-17 |
| D399 | G-17 |
| D401 | D-20 |
| D402 | J-20 |
| D498 | B-21 |
| D499 | A-21 |
| D3003 | C-33 |
| D3005 | D-33 |
| D3007 | E-32 |
| D3008 | E-32 |
| D3009 | F-33 |
| D3010 | F-33 |
| D3011 | E-25 |
| D3012 | F-24 |
| D3051 | H-32 |
| D3052 | I-32 |
| D3053 | H-33 |
| D3054 | I-33 |
| IC31A | C-11 |
| IC31B | D-3 |
| IC32 | D-5 |
| IC81A | I-13 |
| IC81B | I-6 |
| IC151 | H-26 |
| IC301 | H-18 |
| IC302 | I-18 |
| IC401 | C-18 |
| IC402 | F-19 |
| Q51 | B-3 |
| Q52 | B-4 |
| Q53 | C-3 |
| Q71A | C-13 |
| Q71B | D-6 |
| Q301 | E-16 |
| Q302 | J-18 |
| Q303 | F-17 |
| Q304 | F-17 |
| Q305 | K-16 |
| Q306 | K-16 |
| Q307 | J-17 |
| Q308 | J-17 |
| Q309 | J-17 |
| Q310 | G-18 |
| Q311 | G-19 |
| Q312 | H-19 |
| Q391 | H-19 |
| Q392 | G-17 |
| Q393 | H-17 |
| Q394 | A-21 |
| Q395 | H-19 |
| Q396 | H-21 |
| Q397 | B-21 |
| Q398 | K-16 |
| Q399 | J-16 |
| Q401 | E-16 |
| Q411 | I-22 |
| Q412 | G-18 |
| Q413 | G-18 |
| Q451 | E-18 |

Note:

- ⊙——: parts extracted from the component side.
- ⌜⌝: indicates side identified with part number.
- △: internal component.
- ▩: Pattern from the side which enable seeing.

## 5-9. SCHEMATIC DIAGRAM — CD SECTION —


- See page 15 for IC Block Diagrams.
- See page 56 for IC Pin Functions. (IC202)


### • Waveforms

| | |
|---|---|
| 1 1.5Vp-p<br>IC101 ㊻ PLAY | 7 5.0Vp-p<br>22.7 μsec<br>IC203 ㊶ |
| 2 2.5V<br>APPROX 500mVp-p<br>IC101 ㊸ PLAY | 8 5.5Vp-p<br>470nsec<br>IC203 ㊵ |
| 3 2.5V<br>APPROX 100mVp-p<br>IC101 ㊼ PLAY | 9 5.5Vp-p<br>230nsec<br>IC201 ㊸ PLAY |
| 4 5Vp-p<br>4MHz<br>IC202 ⑧ | 10 5.2V<br>136 μsec<br>IC201 ㊷ |
| 5 6Vp-p<br>4MHz<br>IC202 ⑨ | 5Vp-p<br>16MHz<br>IC203 ③ |
| 6 2.2Vp-p<br>7.5 μsec<br>IC201 ④ PLAY | 5Vp-p<br>16MHz<br>IC203 ④ |

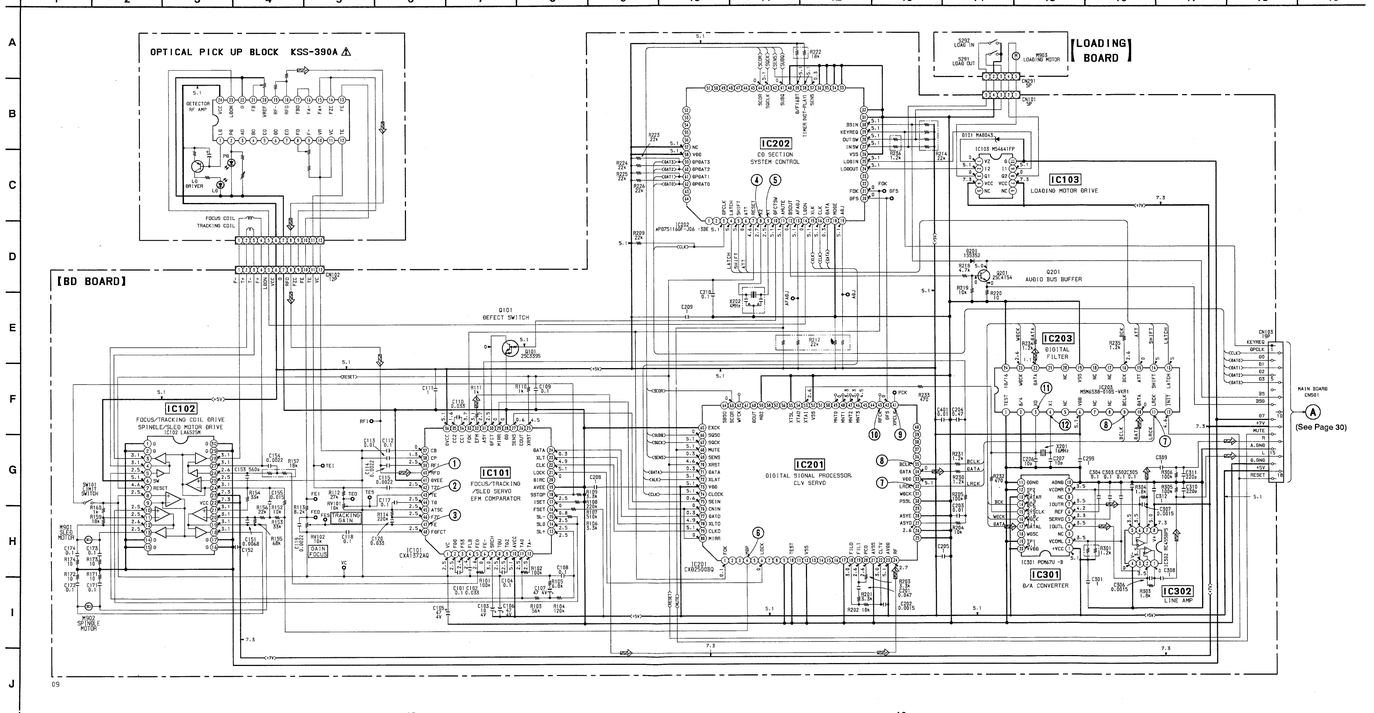
**Note:**

- All capacitors are in μF unless otherwise noted. pF μμF 50WV or less are not indicated except for electrolytics and tantaliums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- △ : internal component.

**Note:** The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

- ▬▬ : B+ Line
- ▪▪▪▪ : B− Line
- ▭ : adjustment for repair.
- Voltage and waveforms are dc with respect to ground under no-signal conditions. no mark : STOP
- Voltages are taken with a VOM (Input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope.
- Circled numbers refer to waveforms.
- Signal path. ⇨ : CD



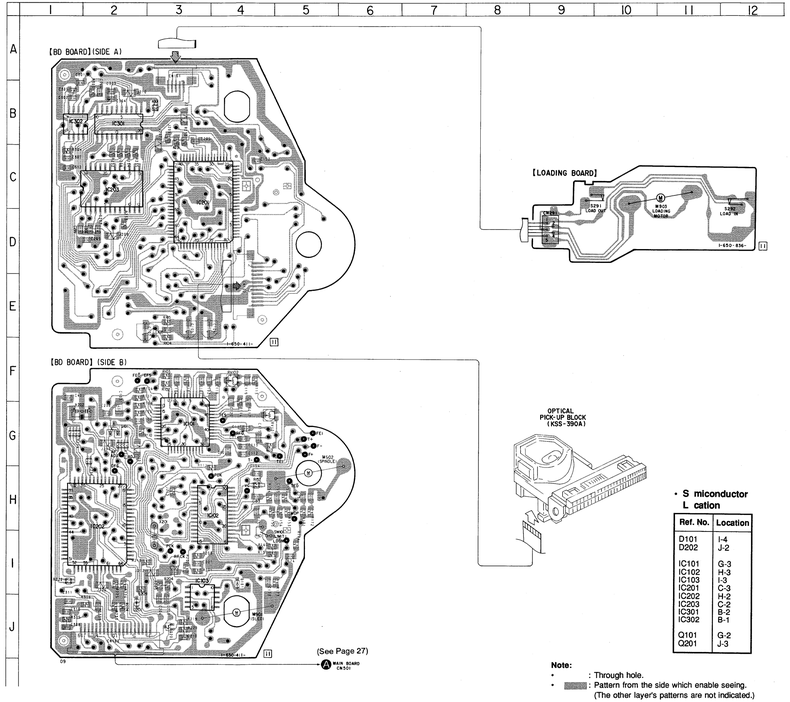







## 5-10. PRINTED WIRING BOARDS — CD SECTION —


- See page 12 for Circuit Boards Location.
- See pages 23, 24 for Semiconductor Lead Lay uts.




### • Semiconductor Location

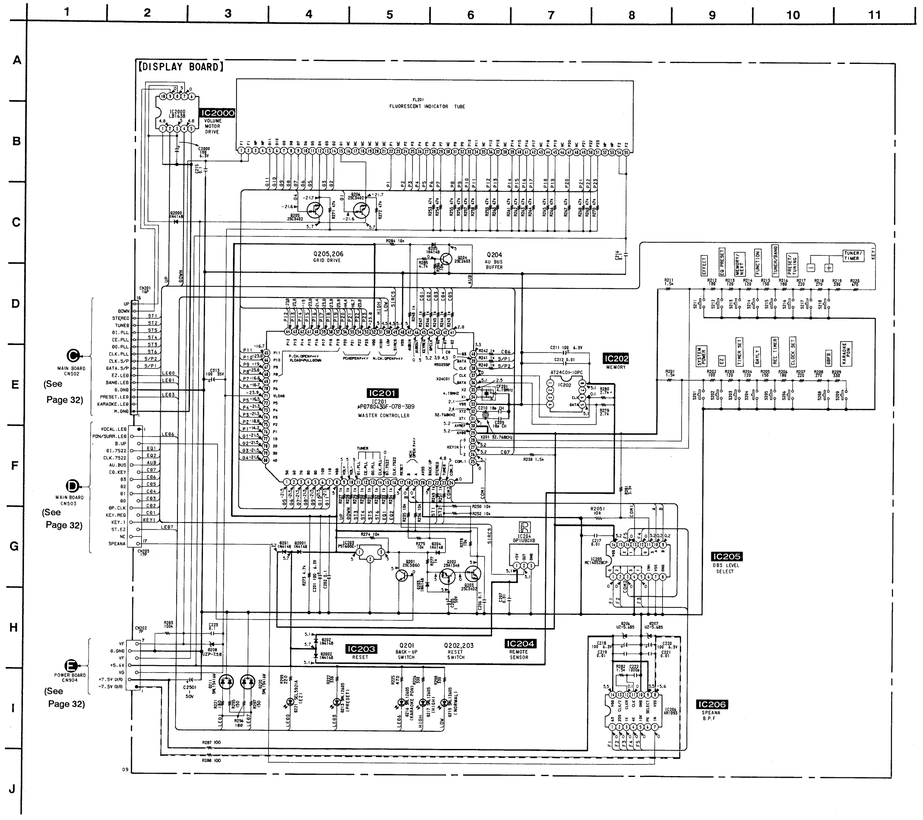
| Ref. No. | Location |
|---|---|
| D101 | I-4 |
| D202 | J-2 |
| IC101 | G-3 |
| IC102 | H-3 |
| IC103 | I-3 |
| IC201 | C-3 |
| IC202 | H-2 |
| IC203 | C-2 |
| IC301 | B-2 |
| IC302 | B-1 |
| Q101 | G-2 |
| Q201 | J-3 |

**Note:**

- : Through hole.
- : Pattern from the side which enable seeing. (The other layer's patterns are not indicated.)

## 5-11. SCHEMATIC DIAGRAM — DISPLAY SECTION —


• S pag 16 for IC Bl ck Diagrams.
• See page 53 for IC Pin Functions. (IC201)

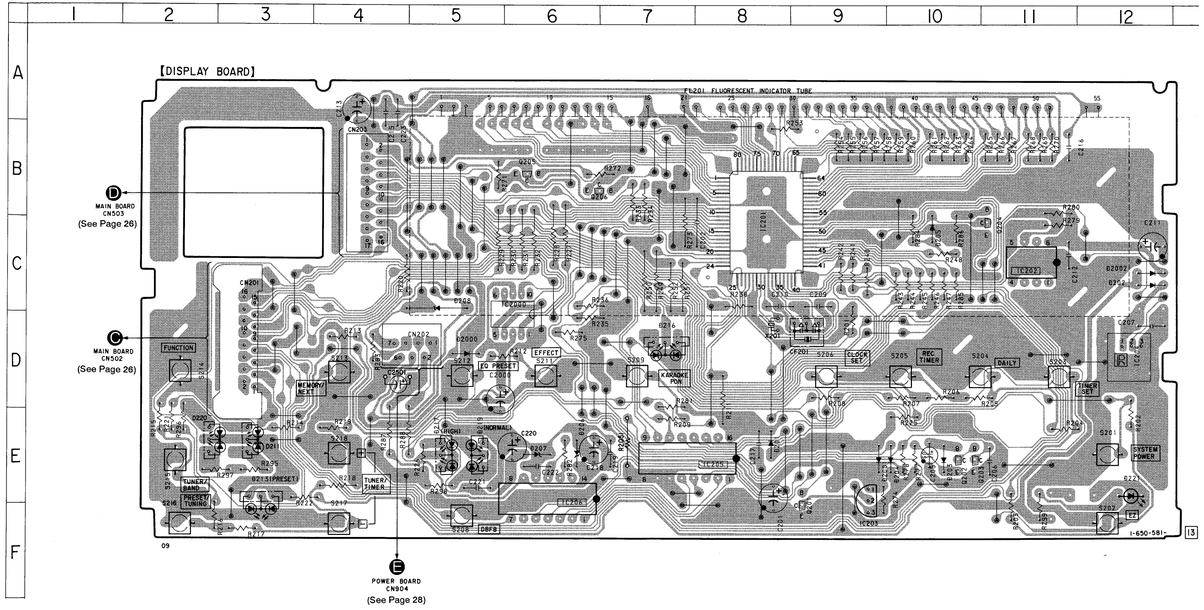

• Semiconductor Location

| Ref. No. | Location |
|---|---|
| D201 | E-8 |
| D202 | C-12 |
| D203 | E-10 |
| D204 | E-10 |
| D205 | C-10 |
| D206 | E-6 |
| D207 | E-6 |
| D208 | C-5 |
| D211 | E-3 |
| D213 | E-3 |
| D216 | D-7 |
| D217 | E-5 |
| D219 | E-5 |
| D220 | E-2 |
| D221 | E-12 |
| D2000 | D-5 |
| D2001 | E-10 |
| D2002 | C-12 |
| IC201 | C-8 |
| IC202 | C-11 |
| IC203 | F-9 |
| IC204 | D-12 |
| IC205 | E-8 |
| IC206 | F-6 |
| IC2000 | C-6 |
| Q201 | F-9 |
| Q202 | E-10 |
| Q203 | E-11 |
| Q204 | C-11 |
| Q205 | B-6 |
| Q206 | B-6 |

**Note:**
- All capacitors are in µF unless otherwise noted. pF:µµF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- △ : internal component.
- ▭ : panel designation.
- ▬▬▬ : B+ Line
- ▬▬▬ : 5– Line
- Voltage and waveforms are dc with respect to ground under no-signal conditions. no mark : FM
- Voltages are taken with a VOM (input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.

## 5-12. PRINTED WIRING BOARDS — DISPLAY SECTION —


• Se page 12 for Circuit Boards Location.
• Se pages 23, 24 for Semiconductor Lead Layouts.


**Note:**
- ○—— : parts extracted from the component side.
- △ : internal component.
- ▒▒▒ : Pattern from the side which enable seeing.

## 5-13. IC PIN FUNCTIONS

- **IC201 DISPLAY CONTROLLER ( μPD78043GF-078-3B9)**

| Pin No. | Pin Nam | I/O | D cription |
|---|---|---|---|
| 1 | 5G | O | FL display drive |
| 2 | 6G | O | |
| 3 | 7G | O | |
| 4 | 8G | O | |
| 5 | 9G | O | |
| 6 | 10G | O | |
| 7 | 11G | O | |
| 8 | VDD | – | +5V |
| 9 | VOL + | O | Volume motor control output. "H": Volume up |
| 10 | VOL – | O | Volume motor control output. "H": Volume down |
| 11 | DATA.IN | I | Serial data input from tuner PLL IC (LC7218) |
| 12 | CE | O | Chip select output to tuner PLL IC (LC7218) |
| 13 | DATA.OUT | O | Serial data output to tuner PLL IC (LC7218) |
| 14 | CLOCK | O | Serial clock output to tuner PLL IC (LC7218) |
| 15 | DATA 7522 | O | Serial data output to equalizer controller (IC731, LC7522) |
| 16 | CLK 7522 | O | Serial clock output to equalizer controller (IC731, LC7522) |
| 17 | RESET | I | Reset. "L": Reset |
| 18 | B | O | Spectrum analyzer input switching output |
| 19 | A | O | |
| 20 | AVss | – | GND |
| 21 | BACK UP | I | Backup mode detection input. "L": Backup mode |
| 22 | STEREO | I | Stereo discrimination from FM/AM IF amplifier (LA1851N) and AM stereo decoder (MC13022). "L": Stereo |
| 23 | TUNED | I | Tuning discrimination from FM/AM IF amplifier (LA1851N). "L": Tuning |
| 24 | COM2 | I | Spectrum analyzer input (63 Hz, 250 Hz, 1 KHz) |
| 25 | COM1 | I | Spectrum analyzer input (4 Hz, 10 Hz) |
| 26 | KEY.IN2 | I | Key input *1 |
| 27 | KEY.IN1 | I | |
| 28 | KEY.IN0 | I | |
| 29 | AVDD | – | +5V power supply |
| 30 | AV.REF | – | +5V power supply |
| 31 | XT1 | I | Subsystem clock (32.768 KHz). Connected to crystal oscillator |
| 32 | XT2 | O | |
| 33 | Vss | – | GND |
| 34 | X1 | I | System clock (4.19 MHz). Connected to crystal oscillator |
| 35 | X2 | O | |
| 36 | X24C01 DATA | I/O | Write/read data I/O with EEPROM (X24C01P) |
| 37 | X24C01 CLOCK | O | Serial clock output to EEPROM (X24C01P) |
| 38 | M50255P CLK | O | Serial clock output to 16-bit serial/parallel converter (M50255P) |
| 39 | M50255P DATA | O | Serial data output to 16-bit serial/parallel converter (M50255P) |
| 40 | CD.DATA D3 | I/O | Display data 3 input and key data 3 output with CD controller ( μPD75116GF) |
| 41 | CD.DATA D2 | I/O | Display data 2 input and key data 2 output with CD controller ( μPD75116GF) |
| 42 | CD.DATA D1 | I/O | Display data 1 input and key data 1 output with CD controller ( μPD75116GF) |
| 43 | CD.DATA D0 | I/O | Display data 0 input and key data 0 output with CD controller ( μPD75116GF) |
| 44 | CD.DPCLK | I | Serial clock input from CD controller ( μPD75116GF) |
| 45 | CD.KEYREQ | O | Key data output request to CD controller ( μPD75116GF) |

| Pin N . | Pin Nam | I/O | D scription |
|---|---|---|---|
| 46 | AUBOUT | O | Audio bus output |
| 47 | AUBIN | I | Audio bus input |
| 48 | Vss | – | GND |
| 49 | SIRCS.IN | I | Infrared remote commander signal input |
| 50 | LOW | O | DBS LOW LED output |
| 51 | HIGH | O | DBS HIGH LED output |
| 52 | VDD | – | +5V power supply |
| 53 | P23 | O | FL display drive |
| 54 | P22 | O | |
| 55 | P21 | O | |
| 56 | P20 | O | |
| 57 | P19 | O | |
| 58 | P18 | O | |
| 59 | P17 | O | |
| 60 | P16 | O | |
| 61 | P15 | O | |
| 62 | P14 | O | |
| 63 | P13 | O | |
| 64 | P12 | O | |
| 65 | P11 | O | |
| 66 | P10 | O | |
| 67 | P9 | O | |
| 68 | P8 | O | |
| 69 | P7 | O | |
| 70 | P6 | O | |
| 71 | VLOAD | – | –27V power supply for driving FL display |
| 72 | P5 | O | FL display drive |
| 73 | P4 | O | |
| 74 | P3 | O | |
| 75 | P2 | O | |
| 76 | P1 | O | |
| 77 | 1G | O | |
| 78 | 2G | O | |
| 79 | 3G | O | |
| 80 | 4G | O | |

*1

| Voltage (Vdc) | 0.0 | 0.3 | 0.6 | 0.9 | 1.2 | 1.5 | 1.9 | 2.2 | 2.5 |
|---|---|---|---|---|---|---|---|---|---|
| Pin 26 | STOP | OPEN CLOSE | PLAY | FF | REW | EDIT | CLEAR | CHECK | TIME |
| Pin 27 | EFFECT | EQ PRESET | MEMORY | FUNCTION | TUNER/ BAND | MODE | – | + | |
| Pin 28 | POWER | EZ START | TIMER SET | DAYLY | REC TIMER | CLOCK SET | | DBFB/ DBS | PON/ SURR |

| Voltag (Vdc) | 2.8 | 3.1 | 3.5 | 3.8 | 4.1 | 4.4 | 4.7 | 5.0 |
|---|---|---|---|---|---|---|---|---|
| Pin 26 | REPEAT | PROG | SHUF | CONT | B.STOP | B.FWD | B.REV | No input |
| Pin 27 | | B.PAUSE | B.REC | B.REW | B.FF | | | No input |
| Pin 28 | | | | | | | | No input |

*1 Loading motor control

| | IN | OUT | BRAKE |
|---|---|---|---|
| LOD OUT ㉔ | L | H | H |
| LOD IN ㉕ | H | L | H |

- **IC202 CD SYSTEM CONTROLLER ( μPD75116GF-JO6-3BE)**

This IC controls data communication, audio bus input, etc. to/from CXA1372AQ (RF signal and servo processor), CXD2500BQ (digital signal processor), MSM6538–01GS–VKR1 (digital filter), and μPD78043GF (display controller) of CD block.

| Pin N . | Pin Name | I/O | D scription |
|---|---|---|---|
| 1, 2 | | O | Not used (open) |
| 3 | DPCLK | O | Display data transfer clock to display controller ( μPD78043GF) |
| 4 | LATCH | O | Latch output to digital filter (MSM6538) |
| 5 | SHIFT | O | Attenuator output to digital filter (MSM6538) |
| 6 | ATT | O | Shift output to digital filter (MSM6538) |
| 7 | $\overline{\text{RESET}}$ | I | System reset input |
| 8 | X2 | O | Clock (4 MHz) |
| 9 | X1 | I | |
| 10 | DFCT SW | O | Defect circuit of EFM comparator (CXA1372AQ) ON/OFF switching output |
| 11 | AMUTE | O | Muting control output. "H": Mute |
| 12 | BSOUT | O | Audio bus output |
| 13 | AFADJ | I | CD test mode input 2. Fixed at "H" ("L": Test mode) |
| 14 | LDON | O | Optical pickup laser diode ON/OFF switching output. "H": 0N |
| 15 | XLT | O | Serial data latch output to DSP (CXD2500BQ) |
| 16 | CLK | O | Serial data transfer clock output to DSP (CXD2500BQ) |
| 17 | DATA | O | Serial data output to DSP (CXD2500BQ) |
| 18 | MODE | I | Not used. (Fixed at "H".) |
| 19 | ADJ | I | CD test mode input 1. "L": Stops GSF check. Continues rotating the spindle even if a frame sync is not generated during PLAY, PAUSE, and SEARCH |
| 20 | GFS | I | GFS signal input from DSP (CXD2500BQ). "L": NG, "H": OK |
| 21 | FOK | I | Focus OK signal input from focus servo (CXA1372AQ). "H": OK |
| 22, 23 | | O | Not used (open) |
| 24 | LOD OUT | O | Output for rotating M291 (loading motor) in the loading–out direction *1 |
| 25 | LOD IN | O | Output for rotating M291 (loading motor) in the loading–in direction *1 |
| 26 | Vss | – | GND |
| 27 | $\overline{\text{IN SW}}$ | I | S292 (loading–in switch) input |
| 28 | $\overline{\text{OUT SW}}$ | I | S291 (loading–out switch) input |
| 29 | KEYREQ | I | Key data request input from display controller ( μPD78043GF) |
| 30 | BSIN | I | Audio bus input |
| 31~36 | | I | Not used (connected to GND) |
| 37 | SENSE | I | SENSE input from DSP (CXD2500BQ) |
| 38 | $\overline{\text{TIMER}}$ | I | Not used (fixed at "H") |
| 39 | DF/16BT | I | Digital filter mode setting input of DSP (CXD2500BQ). (Fixed at "H".) |
| 40 | | I | Not used (connected to GND) |
| 41 | SUBQ | I | Subcode Q data input from DSP (CXD2500BQ) |
| 42 | | O | Not used (open) |
| 43 | SQCLK | O | Subcode Q data read clock output to DSP (CXD2500BQ) |
| 44 | SCOR | I | Subcode sync S0+S1 detection input from DSP (CXD2500BQ) |
| 45~56 | | O | Not used (open) |
| 57 | NC | I | Not used (connected to +5V) |
| 58 | $V_{DD}$ | – | +5V power supply |
| 59 | DPDAT3 | I/O | Key data input and display data output to/from display controller ( μPD78043GF) |
| 60 | DPDAT2 | I/O | |
| 61 | DPDAT1 | I/O | |
| 62 | DPDAT0 | I/O | |
| 63, 64 | | O | Not used (open) |

- **IC301 DECK CONTROLLER (M50964-260FP)**

| Pin No. | Pin Name | I/O | Symbol | D scription |
|---|---|---|---|---|
| 1 | P62 | | G | GND |
| 2 | P61 | | G | GND |
| 3 | P60 | | G | GND |
| 4 | P47 | | | Connected +5V |
| 5 | P46 | | G | GND |
| 6 | AN5 | I | B HALF | Deck B record prevention claw A, B detection input (Analog)<br>Voltage (V) / 1V / 1.9V / 2.8V / 3.9V / 5V<br>Half / ON / ON / ON / ON / OFF<br>E. PROOF A / OFF / ON / OFF / ON / OFF<br>E. PROOF B / ON / ON / OFF / OFF / OFF |
| 7 | AN4 | I | KEY Y | KEY input<br>Voltage (V) / 0 / 0.3 / 0.7 / 1.2 / 1.7 / 2.3 / 2.8 / 3.4 / 4.0 / 4.5 / 5.0<br>KEY Y / / / / / / A◀◀ / A▶▶ / / / RELAY / OFF<br>KEY X / A■ / A▶ / A◀ / / / / HIGH SPEED DUBBING / / CD / / |
| 8 | AN3 | I | KEY X | |
| 9 | AN2 | I | AMS IN | AMS signal input |
| 10 | P41 | O | L MUTE | Line mute output |
| 11 | P40 | O | $\overline{\text{R MUTE}}$ | Mute output |
| 12 | P37 | O | $\overline{\text{RELAY}}$(B MD) | Control output to REC/PB select switch (IC31) |
| 13 | P36 | O | $\overline{\text{R}}$/P | Dolby IC REC/PB select output |
| 14 | P35 | O | EQ70 | Playback EQ output for playing deck (Not used) (Open) |
| 15 | P34 | O | SEL A/$\overline{\text{B}}$ | Dolby IC PB input Deck A/B select output |
| 16 | P33 | O | AMS A/$\overline{\text{B}}$ | AMS AMP input Deck A/B select output (Not used) (Open) |
| 17 | P32 | I | AU BUS | AUDIO BUS input |
| 18 | P31 | O | $\overline{\text{BIAS}}$ | Bias oscillation output |
| 19 | P30 | O | AUB OUT | AUDIO BUS output |
| 20 | INT1 | I | A BUS | AUDIO BUS normal input |
| 21 | NC | – | —— | —— |
| 22 | NC | – | —— | —— |
| 23 | NC | – | —— | —— |
| 24 | VSS | | VSS | GND |
| 25 | $\overline{\text{RESET}}$ | I | $\overline{\text{RESET}}$ | Microcomputer reset input |
| 26 | XIN | I | XIN | Clock input (4 MHz) |
| 27 | Xo | O | XOUT | Clock output (4 MHz) |
| 28 | $\phi$ | O | $\phi$ | Not used (Open) |
| 29 | Vss | | Vss | GND |
| 30 | P57 | I | PW IN | POWER OFF detection input |
| 31 | P56 | I | A STOP | Deck A STOP switch input |
| 32 | P55 | I | $\overline{\text{A HLAF}}$ | Deck A Half switch input |
| 33 | P54 | I | A SHUT | Deck A Reel table signal input |
| 34 | P53 | I | A70 U | Deck A TYPE switch input (Not used) (Open) |
| 35 | P52 | I | B STOP | Deck B STOP switch input |
| 36 | P51 | I | B SHUT | Deck B Reel table signal input |
| 37 | P50 | I | B70 U | Deck B TYPE switch input (Not used) (Open) |
| 38 | NC | – | —— | —— |
| 39 | P17 | O | ARM 3 | Deck A Reel Motor control out |
| 40 | P16 | O | ARM 2 | Deck A Reel Motor control out |

| Pin N . | Pin Name | I/O | Symb l | D scription |
|---|---|---|---|---|
| 41 | P15 | O | ARM 1 | Deck A Reel Motor control out |
| 42 | P14 | O | BRM 3 | Deck B Reel Motor control out |
| 43 | P13 | O | BRM 2 | Deck B Reel Motor control out |
| 44 | P12 | O | BRM 1 | Deck B Reel Motor control out |
| 45 | P11 | O | H/L | Capstan motor speed select |
| 46 | P10 | O | A CM | A Capstan motor ON/OFF |
| 47 | P07 | O | B CM | B Capstan motor ON/OFF |
| 48 | P06 | I | BS/ASCH | Deck A Reel table/BS signal input |
| 49 | P05 | I | A•P/BSCH | Deck B Reel table/A • P signal input |
| 50 | P04 | O | A◁ | Deck A RVS LED output |
| 51 | P03 | O | A▷ | Deck A FWD LED output |
| 52 | P02 | O | A PLAY | Deck B RVS/FWD LED control output (Not used) (Open) |
| 53 | P01 | O | DUB H | High Speed Dubbing LED output |
| 54 | P00 | O | DUB N | Normal Speed Dubbing LED output (Not used) (Open) |
| 55 | NC | – | —— | —— |
| 56 | P27 | O | CD SYNC | Auto CD Synchro LED output |
| 57 | P26 | O | B◁ | Deck B RVS LED output |
| 58 | P25 | O | B▷ | Deck B FWD LED output |
| 59 | P24 | O | B PLAY | Deck B RVS/FWD LED control output (Not used) (Open) |
| 60 | P23 | O | B PAUSE | Deck B PAUSE LED output |
| 61 | P22 | O | B ● | Deck B REC LED output |
| 62 | P21 | O | PASS | PASS amplifier switch output to Dolby IC (IC401) |
| 63 | P20 | I | TEST | Electrical adjustment test mode setting |
| 64 | NC | – | —— | —— |
| 65 | Vss | | Vss | GND |
| 66 | NC | – | —— | —— |
| 67 | Vcc | | Vcc | POWER 5 ± 0.5V |
| 68 | AVss | | AVss | Analog system GND |
| 69 | VREF | I | VREF | Analog system reference voltage input |
| 70 | D•A | | DAC | GND |
| 71 | PWM | | —— | GND |
| 72 | P63 | | —— | GND |

**[TEST MODE]**

When making pin ⑥③ low (connect TP1 to ground with jumper wire), following function operates.

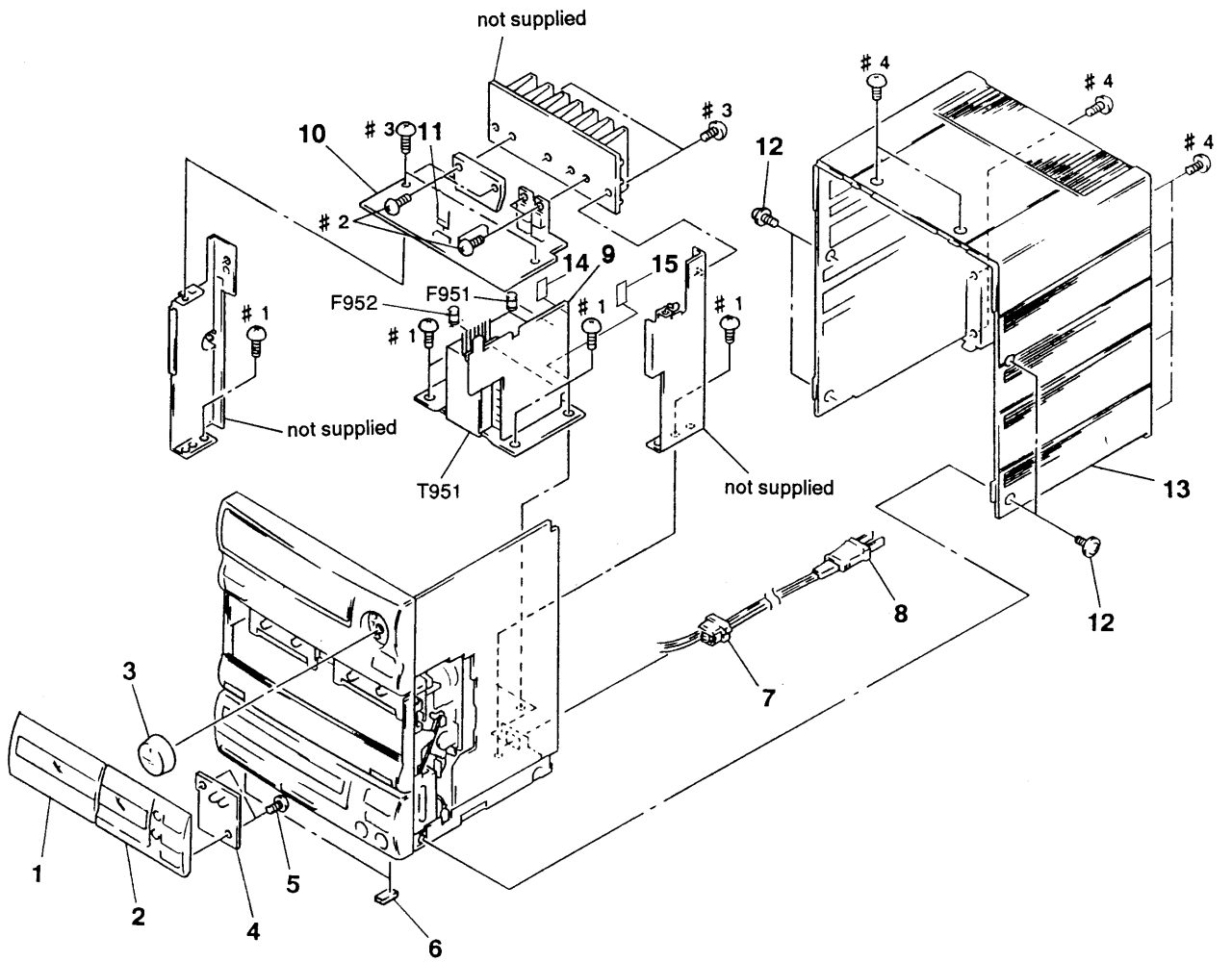
1. Source monitor
   Release the line mute while recording.

# SECTION 6
# EXPLODED VIEWS

NOTE:
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Color Indication of Appearance Parts Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ ↑
  Parts color Cabinet's color
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.

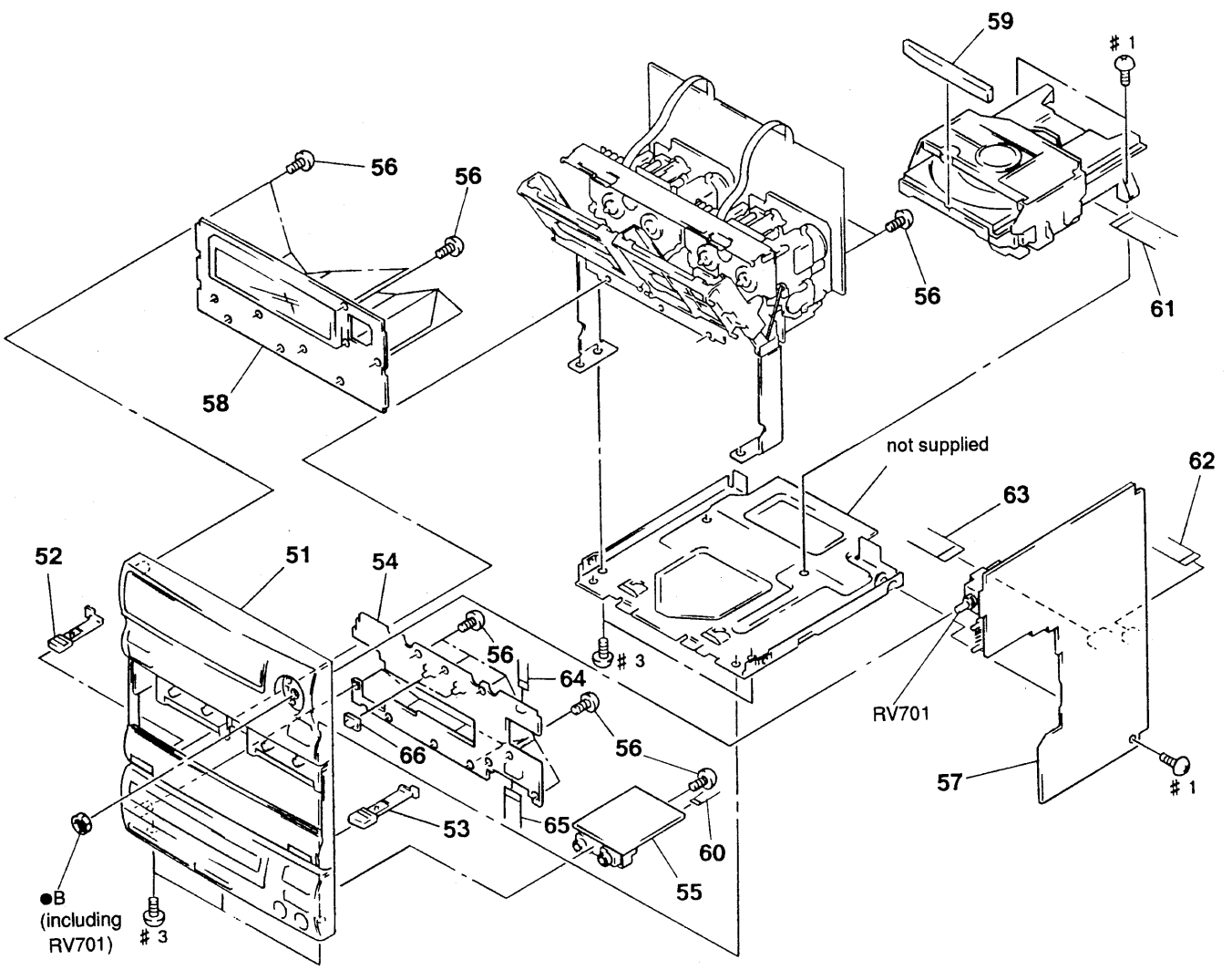
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

## 6-1. UPPER COVER, POWER SECTION




| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| 1 | X-4944-335-1 | LID (A) ASSY, CASSETTE | |
| 2 | X-4944-336-1 | LID (B) ASSY, CASSETTE | |
| 3 | 4-963-285-01 | KNOB (V) | |
| * 4 | 1-650-580-11 | TC-SW BOARD | |
| 5 | 4-951-620-01 | SCREW (2.6X8), +BVTP | |
| 6 | 4-930-336-21 | FOOT (FELT) | |
| * 7 | 3-703-571-11 | BUSHING (S) (4516), CORD | |
| ⚠8 | 1-574-902-11 | CORD, POWER | |
| * 9 | 1-650-582-11 | POWER SUPPLY BOARD | |
| * 10 | A-4371-144-A | POWER BOARD, COMPLETE | |
| 11 | 1-751-965-11 | WIRE (FLAT TYPE) (7 CORE) | |
| 12 | 3-704-366-01 | SCREW (CASE) (M3X8) | |
| * 13 | 4-963-306-61 | CASE | |
| 14 | 3-701-947-13 | LABEL (T1.6A), FUSE | |
| 15 | 3-701-947-10 | LABEL (T800MA), FUSE | |
| ⚠F951 | 1-532-259-00 | FUSE (T1.6A, 250V) | |
| ⚠F952 | 1-532-215-00 | FUSE (T0.8A, 250V) | |
| ⚠T951 | 1-423-969-21 | TRANSFORMER, POWER | |

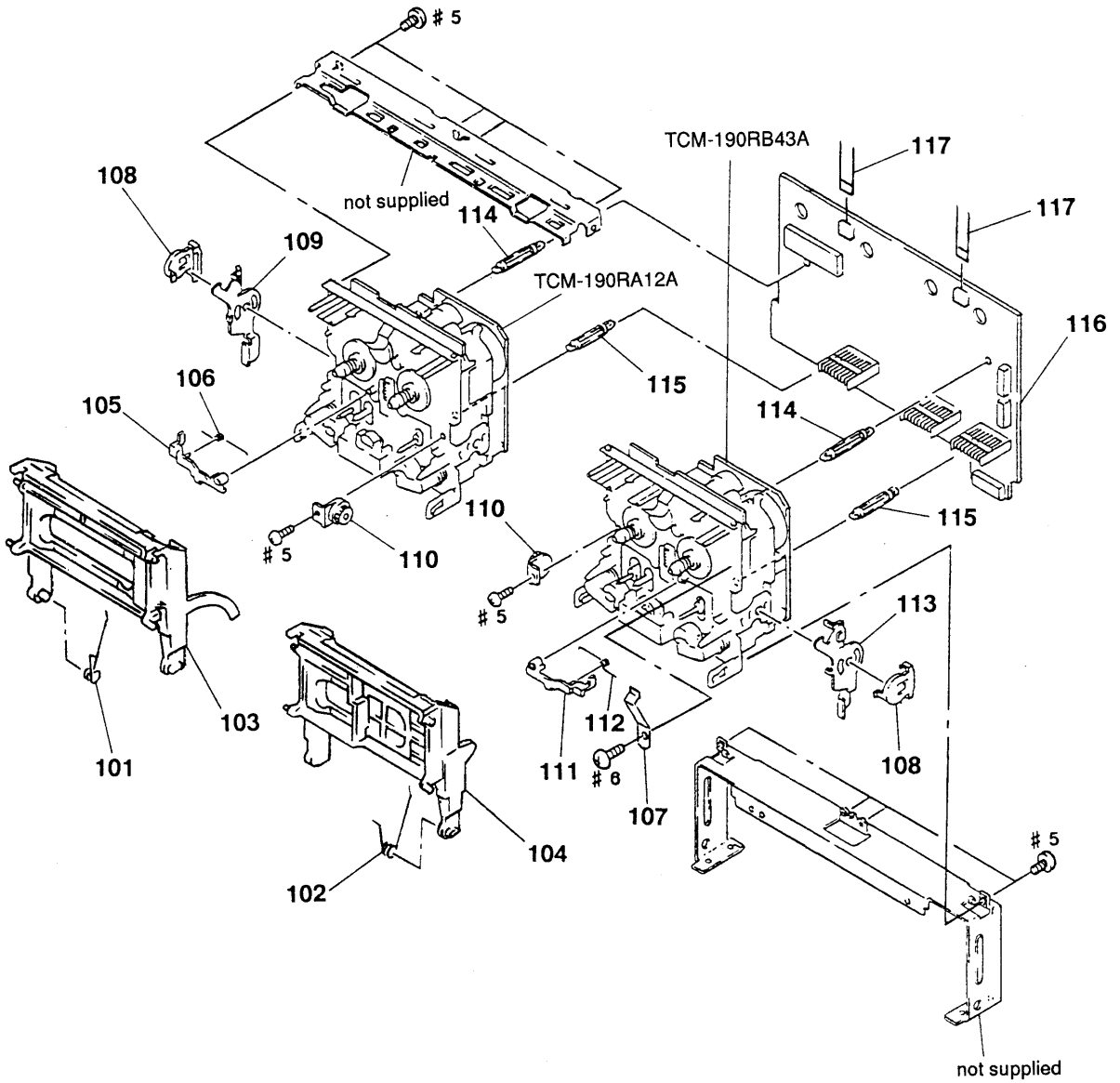
## 6-2. FRONT PANEL SECTION




| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| 51 | X-4944-888-2 | PANEL ASSY, FRONT | |
| 52 | 4-963-713-01 | BUTTON (E) (L) | |
| 53 | 4-963-714-01 | BUTTON (E) (R) | |
| * 54 | A-4371-147-A | SW BOARD, COMPLETE | |
| * 55 | 1-650-577-11 | JACK BOARD | |
| 56 | 4-951-620-01 | SCREW (2.6X8), +BVTP | |
| * 57 | A-4371-143-A | MAIN BOARD, COMPLETE | |
| * 58 | A-4371-150-A | DISPLAY BOARD, COMPLETE | |
| 59 | 4-963-286-01 | PANEL, LOADING | |

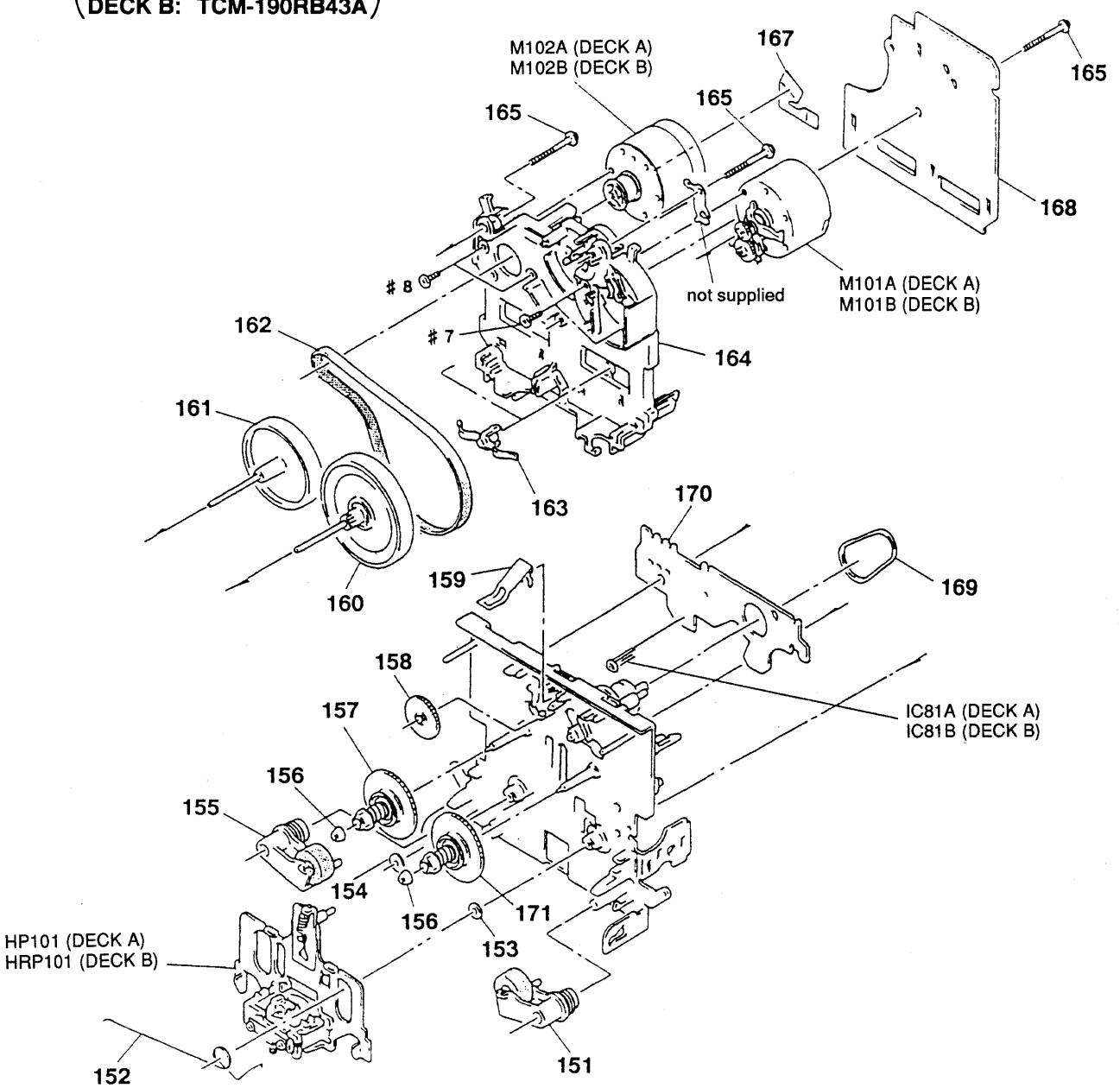
| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| 60 | 1-751-961-11 | WIRE (FLAT TYPE) (9 CORE) | |
| 61 | 1-751-960-11 | WIRE (FLAT TYPE) (19 CORE) | |
| 62 | 1-751-962-11 | WIRE (FLAT TYPE) (11 CORE) | |
| 63 | 1-751-966-11 | WIRE (FLAT TYPE) (17 CORE) | |
| 64 | 1-751-964-11 | WIRE (FLAT TYPE) (7 CORE) | |
| 65 | 1-751-963-11 | WIRE (FLAT TYPE) (18 CORE) | |
| 66 | 4-963-284-01 | KNOB (S) | |

## 6-3. CASSETTE HOLDER SECTION




| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| 101 | 4-959-231-01 | SPRING (L), TORSION | |
| 102 | 4-959-232-01 | SPRING (R), TORSION | |
| 103 | X-4944-338-1 | HOLDER (L) ASSY, CASSETTE | |
| 104 | X-4944-339-1 | HOLDER (R) ASSY, CASSETTE | |
| 105 | 3-354-955-01 | LEVER (EJ SAFTY LEVER L) | |
| 106 | 3-354-961-01 | SPRING (EJ SAFTY SPRING L) | |
| 107 | 3-384-275-01 | DETENT, HOLDER | |
| 108 | 3-354-957-01 | JOINT (LOCK LEVER) | |
| * 109 | 3-367-709-01 | LEVER (LOCK LEVER L) | |
| 110 | 3-354-963-01 | DAMPER | |
| 111 | 3-354-956-01 | LEVER (EJ SAFTY LEVER R) | |
| 112 | 3-354-962-01 | SPRING (EJ SAFTY SPRING R) | |
| * 113 | 3-367-710-01 | LEVER (LOCK LEVER R) | |
| * 114 | 3-682-419-31 | HOLDER, P.C.B | |
| * 115 | 3-682-419-21 | HOLDER, P.C.B | |
| * 116 | A-4371-146-A | TC BOARD, COMPLETE | |
| 117 | 1-751-967-11 | WIRE (FLAT TYPE) (9 CORE) | |

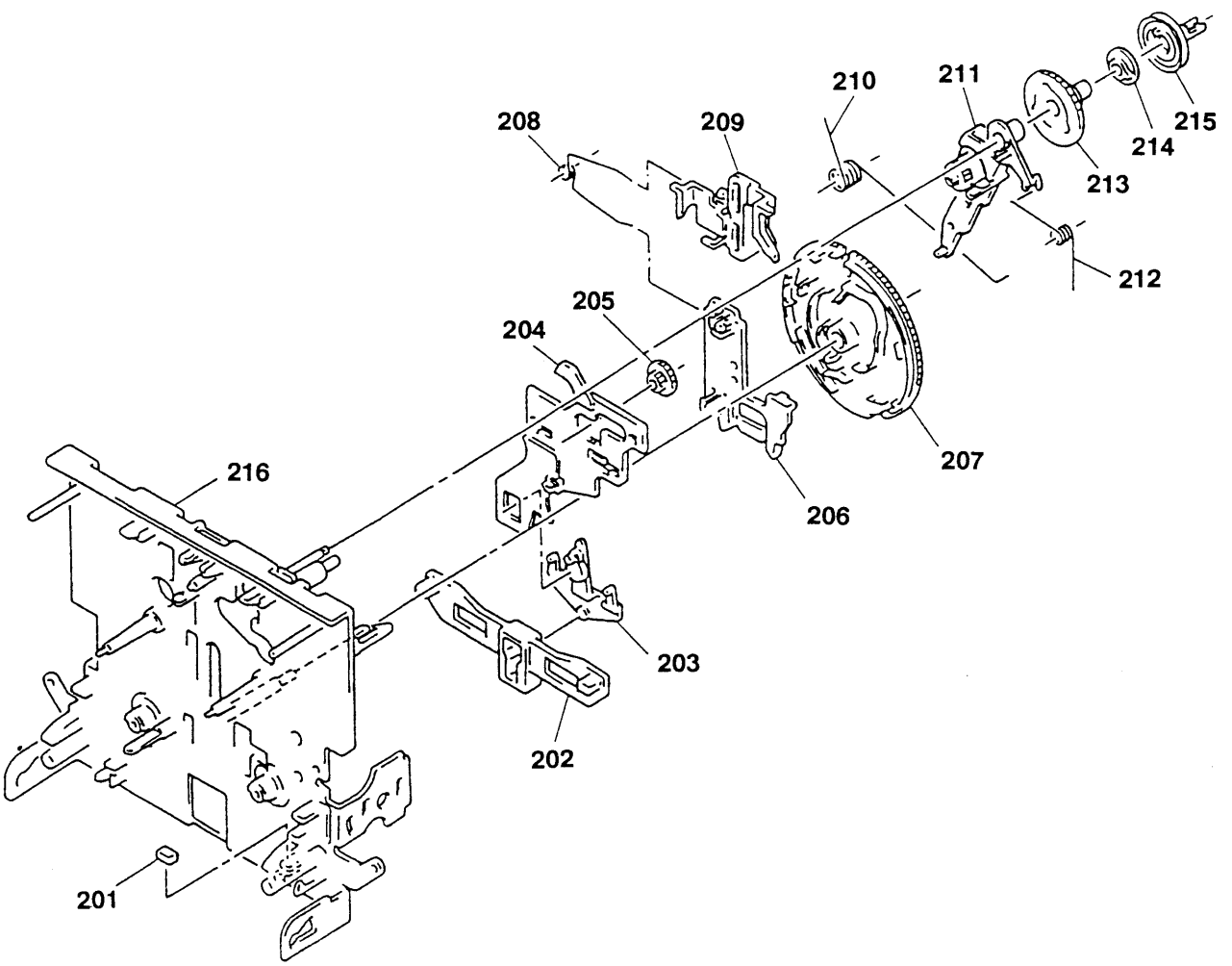
## 6-4. MECHANISM DECK SECTION 1
## (DECK A: TCM-190RA12A)
## (DECK B: TCM-190RB43A)




| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| 151 | X-3359-408-1 | LEVER (PINCH LEVER FWD) ASSY | |
| 152 | 3-359-455-01 | SPRING, TORSION | |
| 153 | 3-356-713-01 | WASHER | |
| 154 | 3-356-714-01 | WASHER | |
| 155 | X-3359-409-1 | LEVER (PINCH LEVER REV) ASSY | |
| 156 | 3-362-308-01 | CAP (REEL) | |
| 157 | X-3362-078-1 | TABLE ASSY, REEL | |
| 158 | 3-359-424-01 | GEAR (REV GEAR) | |
| 159 | 3-359-430-01 | SPRING(CASSETTE RETAINER), LEAF | |
| 160 | X-3359-406-1 | FLYWHEEL (FWD) ASSY | |
| 161 | X-3359-410-1 | FLYWHEEL (REV) ASSY | |
| 162 | 3-359-417-01 | BELT (FLAT), CAPSTAN | |
| 163 | 3-575-321-00 | RETAINER, THRUST, CAPSTAN | |
| * 164 | 3-359-436-01 | BASE (THRUST RETAINER), FITTING | |
| 165 | 3-359-414-01 | SCREW (+PTPWH 2X23) | |

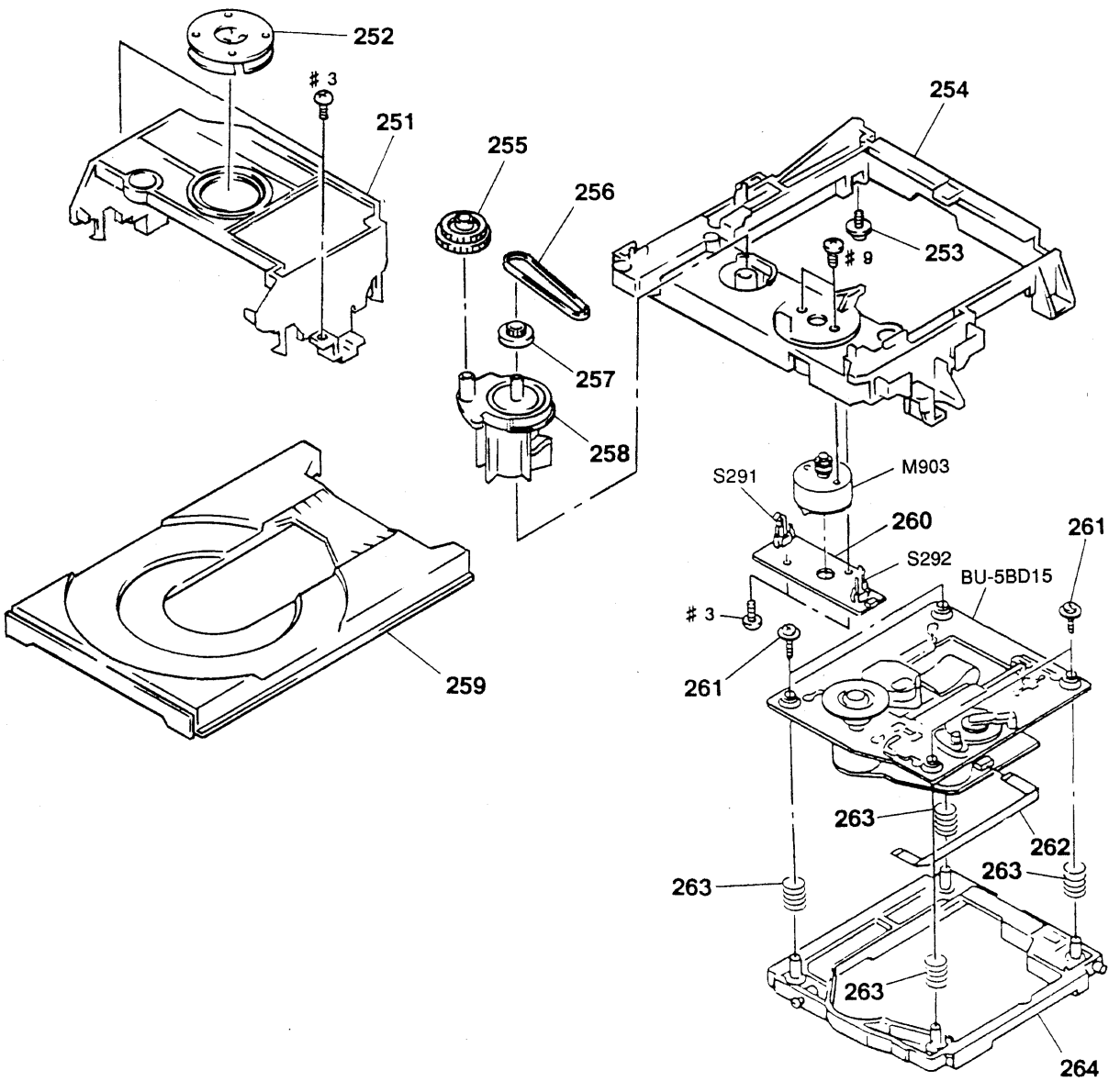
| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| 167 | 1-638-983-11 | MOTOR FLEXIBLE BOARD | |
| * 168 | A-2006-399-A | MD-A BOARD, COMPLETE (RA12A) (DECK A) | |
| * 168 | A-2007-136-A | MD-B BOARD, COMPLETE (RB43A) (DECK B) | |
| 169 | 3-359-466-01 | BELT (FR), SQUARE | |
| * 170 | 1-634-841-11 | SW-A BOARD (DECK A) | |
| * 170 | 1-634-841-11 | SW-B BOARD (DECK B) | |
| 171 | X-3359-404-1 | TABLE (A) ASSY, REEL | |
| HP101 | A-2003-837-F | DECK ASSY, HEAD (DECK A) | |
| HRP101 | A-2003-838-L | DECK ASSY, HEAD (DECK B) | |
| IC81A | 8-749-924-10 | IC NJL5165K-B (H1) | |
| IC81B | 8-749-924-10 | IC NJL5165K-B (H1) | |
| M101A | X-3363-501-1 | MOTOR, REEL ASSY (DECK A) | |
| M101B | X-3363-501-1 | MOTOR, REEL ASSY (DECK B) | |
| M102A | X-3365-377-1 | MOTOR ASSY (CAPSTAN) (DECK A) | |
| M102B | X-3365-277-1 | MOTOR ASSY (CAPSTAN) (DECK B) | |

## 6-5. MECHANISM DECK SECTION 2
## (DECK A: TCM-190RA12A)
## (DECK B: TCM-190RB43A)




| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| 201 | 3-359-469-01 | SPACER | |
| * 202 | 3-359-425-01 | SLIDER (REVERSE SLIDER) | |
| 203 | 3-359-426-01 | LEVER (REVERSE LEVER) | |
| * 204 | 3-359-415-01 | SLIDER (TRIGGER SLIDER) | |
| 205 | 3-359-448-01 | GEAR (TRIGGER) | |
| * 206 | 3-359-427-01 | SLIDER (LEVERSE SLIDER) | |
| 207 | 3-359-420-01 | GEAR (CAM GEAR) | |
| 208 | 3-359-454-01 | SPRING, TORSION | |
| 209 | 3-359-429-01 | SLIDER (BRAKE PLATE) | |
| 210 | 3-359-456-01 | SPRING(TRIGGER SPRING), TORSION | |
| 211 | X-3359-405-1 | LEVER (FR ARM) ASSY | |
| 212 | 3-359-453-01 | SPRING (FR ARM), TORSION | |
| 213 | 3-359-419-01 | GEAR (FR GEAR) | |
| 214 | 3-359-421-01 | CLUTCH (REEL DISK) | |
| 215 | 3-359-418-01 | PULLEY (FR PULLEY) | |
| 216 | X-3363-790-1 | CHASSIS, MECHANICAL ASSY | |

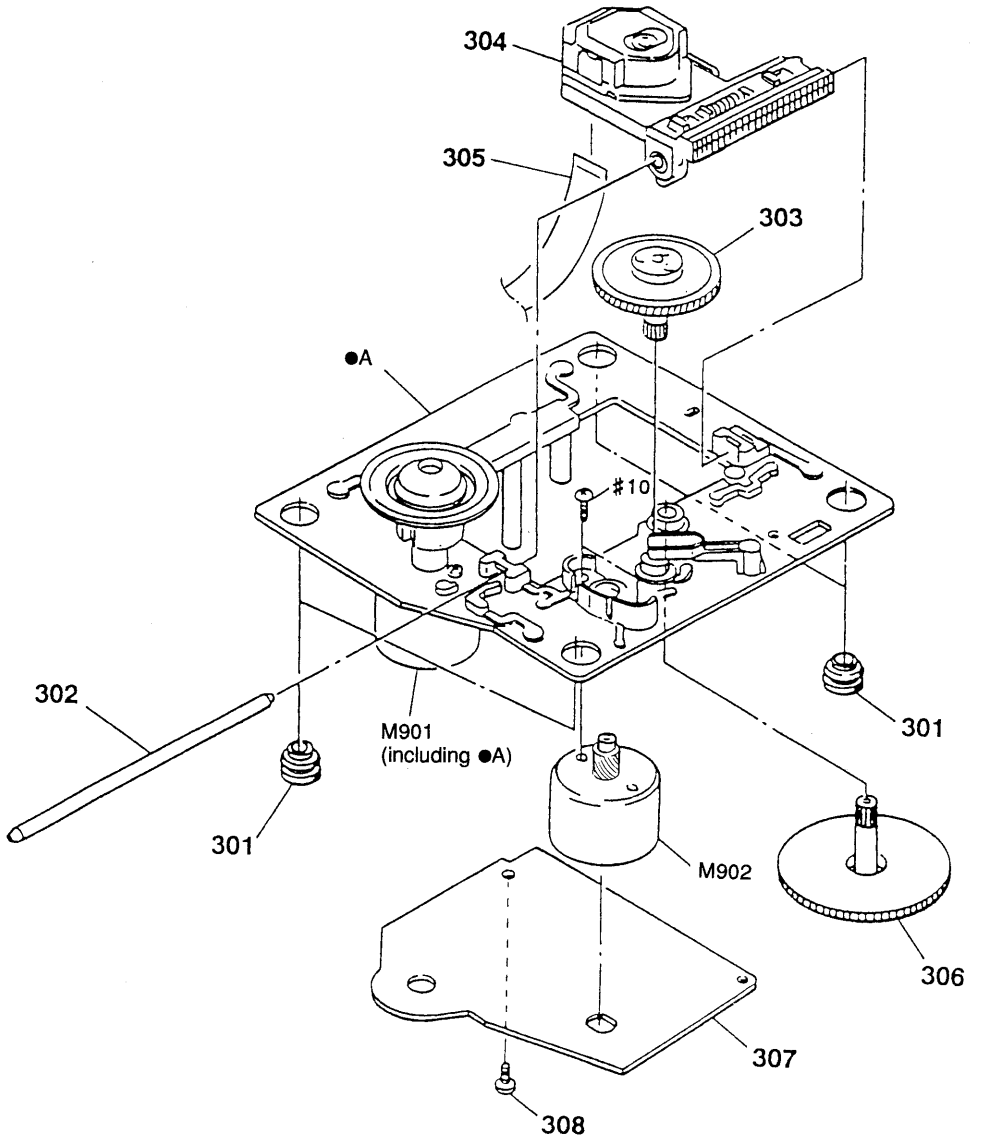
## 6-6. CD MECHANISM SECTION 1 (CDM28-5BD15)




| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| * 251 | 4-960-835-01 | HOLDER (M) | |
| 252 | 1-452-719-11 | MAGNET ASSY | |
| * 253 | 4-917-583-21 | BRACKET, YOKE | |
| * 254 | 4-960-838-03 | BASE (MD) | |
| 255 | 4-960-842-01 | GEAR (P) | |
| 256 | 4-927-649-01 | BELT | |
| 257 | 4-960-841-01 | PULLEY (S) | |
| * 258 | 4-960-839-01 | CAM | |
| * 259 | 4-960-836-01 | TABLE, DISK | |

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| * 260 | 1-650-836-11 | LOADING BOARD | |
| 261 | 4-933-134-01 | SCREW (+PTPWH M2.6X6) | |
| 262 | 1-751-806-11 | WIRE (FLAT TYPE) (5 CORE) | |
| 263 | 4-959-996-01 | SPRING (932), COMPRESSION | |
| * 264 | 4-960-834-01 | HOLDER (BU) | |
| M903 | A-4604-363-A | MOTOR (L) ASSY (LOADING) | |
| S291 | 1-572-086-11 | SWITCH, LEAF (LOAD OUT) | |
| S292 | 1-572-086-11 | SWITCH, LEAF (LOAD IN) | |

## 6-7. CD MECHANISM SECTION 2 (BU-5BD15)




The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| 301 | 4-951-940-01 | INSULATOR (BU) | |
| 302 | 4-917-565-01 | SHAFT, SLED | |
| 303 | 4-917-567-01 | GEAR (M) | |
| ⚠304 | 8-848-281-11 | OPTICAL PICK-UP BLOCK (KSS-390A) | |
| 305 | 1-647-341-11 | FLEXIBLE BOARD | |
| 306 | 4-917-564-01 | GEAR (P), FLATNESS | |
| * 307 | A-4649-989-A | BD (A) BOARD, COMPLETE | |
| 308 | 4-951-620-01 | SCREW (2.6X8), +BVTP | |
| M901 | X-4917-504-1 | MOTOR ASSY (SLED) | |
| M902 | X-4917-523-3 | MOTOR ASSY (SPINDLE) | |

BD

# SECTION 7
# ELECTRICAL PARTS LIST

NOTE:

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ Parts color ↑ Cabinet's color
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.

- RESISTORS
  All resistors are in ohms
  METAL: Metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F : nonflammable
- SEMICONDUCTORS
  In each case, u: μ , for example:
  uA...: μA..., uPA...: μPA...,
  uPB...: μPB..., uPC...: μPC...,
  uPD...: μPD...
- CAPACITORS
  uF : μF
- COILS
  uH : μH

| Ref.No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| * | A-4649-989-A | BD BOARD, COMPLETE | | | |
| | | ********** | | | |
| | | < CAPACITOR > | | | |
| C101 | 1-163-038-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C102 | 1-163-989-11 | CERAMIC CHIP | 0.033uF | 10% | 25V |
| C103 | 1-135-157-21 | TANTALUM CHIP | 10uF | 20% | 6.3V |
| C104 | 1-163-038-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C105 | 1-126-607-11 | ELECT CHIP | 47uF | 20% | 4V |
| C106 | 1-126-607-11 | ELECT CHIP | 47uF | 20% | 4V |
| C107 | 1-126-607-11 | ELECT CHIP | 47uF | 20% | 4V |
| C108 | 1-163-038-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C109 | 1-163-038-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C110 | 1-163-989-11 | CERAMIC CHIP | 0.033uF | 10% | 25V |
| C111 | 1-164-346-11 | CERAMIC CHIP | 1uF | | 16V |
| C112 | 1-164-004-11 | CERAMIC CHIP | 0.1uF | 10% | 25V |
| C113 | 1-164-232-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C114 | 1-164-695-11 | CERAMIC CHIP | 0.0022uF | 5% | 50V |
| C115 | 1-164-695-11 | CERAMIC CHIP | 0.0022uF | 5% | 50V |
| C117 | 1-163-038-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C118 | 1-163-038-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C119 | 1-164-695-11 | CERAMIC CHIP | 0.0022uF | 5% | 50V |
| C120 | 1-163-989-11 | CERAMIC CHIP | 0.033uF | 10% | 25V |
| C151 | 1-163-019-00 | CERAMIC CHIP | 0.0068uF | 10% | 50V |
| C152 | 1-164-346-11 | CERAMIC CHIP | 1uF | | 16V |
| C153 | 1-163-135-00 | CERAMIC CHIP | 560PF | 5% | 50V |
| C154 | 1-164-695-11 | CERAMIC CHIP | 0.0022uF | 5% | 50V |
| C155 | 1-163-023-00 | CERAMIC CHIP | 0.015uF | 5% | 50V |
| C171 | 1-163-038-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C172 | 1-163-038-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C173 | 1-163-038-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C174 | 1-163-038-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C201 | 1-163-809-11 | CERAMIC CHIP | 0.047uF | 10% | 25V |
| C202 | 1-163-145-00 | CERAMIC CHIP | 0.0015uF | 5% | 50V |
| C203 | 1-164-232-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C204 | 1-164-005-11 | CERAMIC CHIP | 0.47uF | | 25V |
| C205 | 1-164-346-11 | CERAMIC CHIP | 1uF | | 16V |
| C206 | 1-163-093-00 | CERAMIC CHIP | 10PF | 5% | 50V |
| C207 | 1-163-093-00 | CERAMIC CHIP | 10PF | 5% | 50V |
| C208 | 1-164-346-11 | CERAMIC CHIP | 1uF | | 16V |
| C209 | 1-164-346-11 | CERAMIC CHIP | 1uF | | 16V |
| C210 | 1-163-038-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C299 | 1-164-346-11 | CERAMIC CHIP | 1uF | | 16V |
| C301 | 1-164-346-11 | CERAMIC CHIP | 1uF | | 16V |
| C302 | 1-163-038-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C303 | 1-163-038-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C304 | 1-163-038-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C305 | 1-163-038-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C306 | 1-163-145-00 | CERAMIC CHIP | 0.0015uF | 5% | 50V |
| C307 | 1-163-145-00 | CERAMIC CHIP | 0.0015uF | 5% | 50V |
| C308 | 1-164-346-11 | CERAMIC CHIP | 1uF | | 16V |
| C309 | 1-164-346-11 | CERAMIC CHIP | 1uF | | 16V |
| C310 | 1-163-125-00 | CERAMIC CHIP | 220PF | 5% | 50V |
| C311 | 1-163-125-00 | CERAMIC CHIP | 220PF | 5% | 50V |
| C312 | 1-164-346-11 | CERAMIC CHIP | 1uF | | 16V |
| C401 | 1-164-232-11 | CERAMIC CHIP | 0.01uF | | 50V |
| | | < CONNECTOR > | | | |
| CN101 | 1-580-858-11 | SOCKET, CONNECTOR (SMT) 5P | | | |
| CN102 | 1-580-866-11 | SOCKET, CONNECTOR (SMT) 12P | | | |
| CN103 | 1-580-872-41 | SOCKET, CONNECTOR (SMT) 19P | | | |
| | | < DIODE > | | | |
| D101 | 8-719-421-82 | DIODE MA8043-M | | | |
| D201 | 8-719-016-74 | DIODE 1SS352 | | | |
| | | < IC > | | | |
| IC101 | 8-752-058-77 | IC CXA1372AQ | | | |
| IC102 | 8-759-823-48 | IC LA6525M | | | |
| IC103 | 8-759-636-20 | IC M54641FP | | | |
| IC201 | 8-752-351-78 | IC CXD2500BQ | | | |
| IC202 | 8-759-248-71 | IC UPD75116GF-J06-3BE | | | |
| IC203 | 8-759-098-27 | IC MSM6538-01GS-VKR1 | | | |
| IC301 | 8-759-155-52 | IC PCM-67U-B | | | |
| IC302 | 8-759-100-96 | IC uPC4558G2 | | | |
| | | < JUMPER RESISTOR > | | | |
| J201 | 1-216-296-00 | METAL CHIP | 0 | 5% | 1/8W |
| J203 | 1-216-296-00 | METAL CHIP | 0 | 5% | 1/8W |
| J205 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W |
| J206 | 1-216-296-00 | METAL CHIP | 0 | 5% | 1/8W |
| J207 | 1-216-296-00 | METAL CHIP | 0 | 5% | 1/8W |
| J208 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W |
| J209 | 1-216-296-00 | METAL CHIP | 0 | 5% | 1/8W |
| J210 | 1-216-296-00 | METAL CHIP | 0 | 5% | 1/8W |

# BD DISPLAY

| Ref.No. | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| J211 | 1-216-296-00 | METAL CHIP | 0 | 5% | 1/8W | |
| J212 | 1-216-296-00 | METAL CHIP | 0 | 5% | 1/8W | |
| J215 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | |
| | | < MOTOR > | | | | |
| M901 | X-4917-504-1 | MOTOR ASSY (SLED) | | | | |
| M902 | X-4917-523-3 | MOTOR ASSY (SPINDLE) | | | | |
| | | < TRANSISTOR > | | | | |
| Q101 | 8-729-805-45 | TRANSISTOR | 2SC3395 | | | |
| Q201 | 8-729-602-21 | TRANSISTOR | 2SC4154-F | | | |
| | | < RESISTOR > | | | | |
| R101 | 1-216-097-00 | METAL CHIP | 100K | 5% | 1/10W | |
| R102 | 1-216-097-00 | METAL CHIP | 100K | 5% | 1/10W | |
| R103 | 1-216-091-00 | METAL CHIP | 56K | 5% | 1/10W | |
| R104 | 1-216-099-00 | METAL CHIP | 120K | 5% | 1/10W | |
| R105 | 1-216-069-00 | METAL CHIP | 6.8K | 5% | 1/10W | |
| R106 | 1-216-061-00 | METAL CHIP | 3.3K | 5% | 1/10W | |
| R107 | 1-216-114-00 | METAL GLAZE | 510K | 5% | 1/10W | |
| R108 | 1-216-105-00 | METAL CHIP | 220K | 5% | 1/10W | |
| R109 | 1-216-061-00 | METAL CHIP | 3.3K | 5% | 1/10W | |
| R110 | 1-216-049-00 | METAL CHIP | 1K | 5% | 1/10W | |
| R111 | 1-216-049-00 | METAL CHIP | 1K | 5% | 1/10W | |
| R112 | 1-216-083-00 | METAL CHIP | 27K | 5% | 1/10W | |
| R113 | 1-216-071-00 | METAL CHIP | 8.2K | 5% | 1/10W | |
| R114 | 1-216-105-00 | METAL CHIP | 220K | 5% | 1/10W | |
| R152 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W | |
| R153 | 1-216-085-00 | METAL CHIP | 33K | 5% | 1/10W | |
| R154 | 1-216-085-00 | METAL CHIP | 33K | 5% | 1/10W | |
| R155 | 1-216-093-00 | METAL CHIP | 68K | 5% | 1/10W | |
| R156 | 1-216-081-00 | METAL CHIP | 22K | 5% | 1/10W | |
| R157 | 1-236-427-11 | NETWORK, RES | 18K | | | |
| R159 | 1-216-079-00 | METAL CHIP | 18K | 5% | 1/10W | |
| R160 | 1-216-049-00 | METAL CHIP | 1K | 5% | 1/10W | |
| R171 | 1-216-001-00 | METAL CHIP | 10 | 5% | 1/10W | |
| R172 | 1-216-001-00 | METAL CHIP | 10 | 5% | 1/10W | |
| R173 | 1-216-001-00 | METAL CHIP | 10 | 5% | 1/10W | |
| R174 | 1-216-001-00 | METAL CHIP | 10 | 5% | 1/10W | |
| R201 | 1-216-061-00 | METAL CHIP | 3.3K | 5% | 1/10W | |
| R202 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W | |
| R203 | 1-216-061-00 | METAL CHIP | 3.3K | 5% | 1/10W | |
| R204 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W | |
| R205 | 1-216-097-00 | METAL CHIP | 100K | 5% | 1/10W | |
| R209 | 1-216-081-00 | METAL CHIP | 22K | 5% | 1/10W | |
| R212 | 1-239-039-11 | RESISTOR, NETWORK (1608) | 22K | | | |
| R214 | 1-239-039-11 | RESISTOR, NETWORK (1608) | 22K | | | |
| R218 | 1-216-065-00 | METAL CHIP | 4.7K | 5% | 1/10W | |
| R219 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W | |
| R220 | 1-216-001-00 | METAL CHIP | 10 | 5% | 1/10W | |
| R222 | 1-236-427-11 | NETWORK, RES | 18K | | | |
| R223 | 1-216-081-00 | METAL CHIP | 22K | 5% | 1/10W | |
| R224 | 1-216-081-00 | METAL CHIP | 22K | 5% | 1/10W | |
| R225 | 1-216-081-00 | METAL CHIP | 22K | 5% | 1/10W | |
| R226 | 1-216-081-00 | METAL CHIP | 22K | 5% | 1/10W | |
| R230 | 1-216-051-00 | METAL CHIP | 1.2K | 5% | 1/10W | |
| R231 | 1-216-051-00 | METAL CHIP | 1.2K | 5% | 1/10W | |
| R232 | 1-216-041-00 | METAL CHIP | 470 | 5% | 1/10W | |
| R233 | 1-216-041-00 | METAL CHIP | 470 | 5% | 1/10W | |
| R234 | 1-216-051-00 | METAL CHIP | 1.2K | 5% | 1/10W | |
| R235 | 1-216-051-00 | METAL CHIP | 1.2K | 5% | 1/10W | |
| R236 | 1-236-413-11 | NETWORK, RES | 1.2K | | | |
| R301 | 1-236-413-11 | NETWORK, RES | 1.2K | | | |
| R303 | 1-216-055-00 | METAL CHIP | 1.8K | 5% | 1/10W | |
| R304 | 1-216-055-00 | METAL CHIP | 1.8K | 5% | 1/10W | |
| R305 | 1-216-097-00 | METAL CHIP | 100K | 5% | 1/10W | |
| R306 | 1-216-097-00 | METAL CHIP | 100K | 5% | 1/10W | |
| | | < VARIABLE RESISTOR > | | | | |
| RV101 | 1-241-395-11 | RES, ADJ, METAL GLAZE | 10K | | | |
| RV102 | 1-241-395-11 | RES, ADJ, METAL GLAZE | 10K | | | |
| | | < SWITCH > | | | | |
| SW101 | 1-572-085-11 | SWITCH, LEAF (LIMIT) | | | | |
| | | < VIBRATOR > | | | | |
| X201 | 1-567-908-11 | VIBRATOR, CRYSTAL (16MHz) | | | | |
| X202 | 1-579-216-11 | VIBRATOR, CERAMIC (4MHz) | | | | |
| ********** | | | | | | |
| * | A-4371-150-A | DISPLAY BOARD, COMPLETE | | | | |
| | | ********** | | | | |
| * | 4-932-810-11 | CUSHION (FL) | | | | |
| * | 4-963-277-01 | HOLDER (FL) | | | | |
| | | < CAPACITOR > | | | | |
| C201 | 1-126-177-11 | ELECT | 100uF | 20% | 10V | |
| C202 | 1-164-159-11 | CERAMIC | 0.1uF | | 50V | |
| C205 | 1-126-301-11 | ELECT | 1uF | 20% | 50V | |
| C206 | 1-164-159-11 | CERAMIC | 0.1uF | | 50V | |
| C207 | 1-161-379-00 | CERAMIC | 0.01uF | 20% | 25V | |
| C209 | 1-162-205-31 | CERAMIC | 18PF | 5% | 50V | |
| C210 | 1-162-205-31 | CERAMIC | 18PF | 5% | 50V | |
| C211 | 1-126-177-11 | ELECT | 100uF | 20% | 10V | |
| C212 | 1-161-379-00 | CERAMIC | 0.01uF | 20% | 25V | |
| C213 | 1-126-948-11 | ELECT | 100uF | 20% | 35V | |
| C215 | 1-164-159-11 | CERAMIC | 0.1uF | | 50V | |
| C216 | 1-164-159-11 | CERAMIC | 0.1uF | | 50V | |

# DISPLAY

| Ref.No. | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| C217 | 1-161-379-00 | CERAMIC | 0.01uF | 20% | 25V | |
| C218 | 1-126-177-11 | ELECT | 100uF | 20% | 10V | |
| C219 | 1-161-379-00 | CERAMIC | 0.01uF | 20% | 25V | |
| C220 | 1-126-177-11 | ELECT | 100uF | 20% | 10V | |
| C221 | 1-161-379-00 | CERAMIC | 0.01uF | 20% | 25V | |
| C222 | 1-162-294-31 | CERAMIC | 0.001uF | 10% | 50V | |
| C223 | 1-164-159-11 | CERAMIC | 0.1uF | | 50V | |
| C2000 | 1-126-177-11 | ELECT | 100uF | 20% | 10V | |
| C2501 | 1-126-301-11 | ELECT | 1uF | 20% | 50V | |
| | | < FILTER > | | | | |
| CF201 | 1-567-775-11 | VIBRATOR, CERAMIC (4.19MHz) | | | | |
| | | < CONNECTOR > | | | | |
| CN201 | 1-764-298-11 | HOUSING, CONNECTOR(PC BOARD)16P | | | | |
| CN202 | 1-691-644-11 | SOCKET, CONNECTOR 7P | | | | |
| CN203 | 1-691-649-11 | SOCKET, CONNECTOR 17P | | | | |
| | | < DIODE > | | | | |
| D201 | 8-719-987-63 | DIODE | 1N4148M | | | |
| D202 | 8-719-987-63 | DIODE | 1N4148M | | | |
| D203 | 8-719-987-63 | DIODE | 1N4148M | | | |
| D204 | 8-719-987-63 | DIODE | 1N4148M | | | |
| D205 | 8-719-987-63 | DIODE | 1N4148M | | | |
| D206 | 8-719-010-40 | DIODE | UZ-5.6BS | | | |
| D207 | 8-719-010-40 | DIODE | UZ-5.6BS | | | |
| D208 | 8-719-014-90 | DIODE | UZP-7.5B | | | |
| D211 | 8-719-046-80 | DIODE | SML19416W | | | |
| D213 | 8-719-026-64 | DIODE | SML1260S (RESET) | | | |
| D216 | 8-719-026-64 | DIODE | SML1260S (KARAOKE PON) | | | |
| D217 | 8-719-026-64 | DIODE | SML1260S (HIGH) | | | |
| D219 | 8-719-026-64 | DIODE | SML1260S (NORMAL) | | | |
| D220 | 8-719-046-80 | DIODE | SML19416W | | | |
| D221 | 8-719-046-36 | DIODE | SEL5921A (EZ) | | | |
| D2000 | 8-719-987-63 | DIODE | 1N4148M | | | |
| D2001 | 8-719-987-63 | DIODE | 1N4148M | | | |
| D2002 | 8-719-987-63 | DIODE | 1N4148M | | | |
| | | < FLUORESCENT INDICATOR > | | | | |
| FL201 | 1-517-247-11 | INDICATOR TUBE, FLUORESCENT | | | | |
| | | < IC > | | | | |
| IC201 | 8-759-271-00 | IC | uPD78043GF-078-3B9 | | | |
| IC202 | 8-759-248-66 | IC | AT24C01-10PC | | | |
| IC203 | 8-759-165-82 | IC | PST600E | | | |
| IC204 | 8-749-923-80 | IC | GP1U90XB | | | |
| IC205 | 8-759-000-48 | IC | MC14052BCP | | | |
| IC206 | 8-759-248-70 | IC | XR1093 | | | |
| IC2000 | 8-759-184-40 | IC | LB1638 | | | |

| Ref.No. | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| | | < TRANSISTOR > | | | | |
| Q201 | 8-729-904-39 | TRANSISTOR | DTC114TS | | | |
| Q202 | 8-729-900-61 | TRANSISTOR | DTA114ES | | | |
| Q203 | 8-729-900-80 | TRANSISTOR | DTC114ES | | | |
| Q204 | 8-729-620-05 | TRANSISTOR | 2SC2603-EF | | | |
| Q205 | 8-729-900-80 | TRANSISTOR | DTC114ES | | | |
| Q206 | 8-729-900-80 | TRANSISTOR | DTC114ES | | | |
| | | < RESISTOR > | | | | |
| R201 | 1-249-419-11 | CARBON | 1.5K | 5% | 1/4W | F |
| R202 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W | |
| R203 | 1-249-406-11 | CARBON | 120 | 5% | 1/4W | F |
| R204 | 1-249-406-11 | CARBON | 120 | 5% | 1/4W | F |
| R205 | 1-247-811-31 | CARBON | 150 | 5% | 1/4W | |
| R206 | 1-249-408-11 | CARBON | 180 | 5% | 1/4W | F |
| R207 | 1-249-409-11 | CARBON | 220 | 5% | 1/4W | F |
| R208 | 1-249-410-11 | CARBON | 270 | 5% | 1/4W | F |
| R209 | 1-249-411-11 | CARBON | 330 | 5% | 1/4W | |
| R211 | 1-249-419-11 | CARBON | 1.5K | 5% | 1/4W | F |
| R212 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W | |
| R213 | 1-249-406-11 | CARBON | 120 | 5% | 1/4W | F |
| R214 | 1-249-406-11 | CARBON | 120 | 5% | 1/4W | F |
| R215 | 1-247-811-31 | CARBON | 150 | 5% | 1/4W | |
| R216 | 1-249-408-11 | CARBON | 180 | 5% | 1/4W | F |
| R217 | 1-249-409-11 | CARBON | 220 | 5% | 1/4W | F |
| R218 | 1-249-410-11 | CARBON | 270 | 5% | 1/4W | F |
| R219 | 1-249-411-11 | CARBON | 330 | 5% | 1/4W | |
| R220 | 1-249-413-11 | CARBON | 470 | 5% | 1/4W | F |
| R221 | 1-249-408-11 | CARBON | 180 | 5% | 1/4W | F |
| R222 | 1-249-411-11 | CARBON | 330 | 5% | 1/4W | |
| R225 | 1-249-413-11 | CARBON | 470 | 5% | 1/4W | F |
| R226 | 1-249-411-11 | CARBON | 330 | 5% | 1/4W | |
| R227 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | F |
| R228 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | F |
| R229 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | F |
| R230 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | F |
| R231 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | F |
| R232 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | F |
| R233 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | F |
| R234 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | F |
| R235 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R236 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R238 | 1-249-419-11 | CARBON | 1.5K | 5% | 1/4W | F |
| R240 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | F |
| R241 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | F |
| R242 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | F |
| R243 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | F |
| R244 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | F |
| R245 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | F |

| Ref.No. | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| R246 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | F |
| R247 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | F |
| R248 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | F |
| R249 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | F |
| R250 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R251 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | F |
| R252 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R253 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W | |
| R254 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W | |
| R255 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W | |
| R256 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W | |
| R257 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W | |
| R258 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W | |
| R259 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W | |
| R260 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W | |
| R261 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W | |
| R262 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W | |
| R263 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W | |
| R264 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W | |
| R265 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W | |
| R266 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W | |
| R267 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W | |
| R268 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W | |
| R269 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W | |
| R270 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W | |
| R271 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W | |
| R272 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W | |
| R273 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | F |
| R274 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R275 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R277 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | F |
| R278 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R279 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W | F |
| R280 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W | F |
| R281 | 1-249-423-11 | CARBON | 3.3K | 5% | 1/4W | F |
| R282 | 1-249-419-11 | CARBON | 1.5K | 5% | 1/4W | F |
| R283 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W | |
| R284 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R285 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | F |
| R286 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R287 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W | |
| R288 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W | |
| R295 | 1-247-811-31 | CARBON | 150 | 5% | 1/4W | |
| R296 | 1-249-408-11 | CARBON | 180 | 5% | 1/4W | F |
| R297 | 1-247-811-31 | CARBON | 150 | 5% | 1/4W | |
| R298 | 1-249-411-11 | CARBON | 330 | 5% | 1/4W | |
| R299 | 1-249-409-11 | CARBON | 220 | 5% | 1/4W | F |
| R2051 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |

| Ref.No. | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| | | < SWITCH > | | | | |
| S201 | 1-692-014-11 | SWITCH, KEY BOARD (SYSTEM POWER) | | | | |
| S202 | 1-692-014-11 | SWITCH, KEY BOARD (EZ) | | | | |
| S203 | 1-692-014-11 | SWITCH, KEY BOARD (TIMER SET) | | | | |
| S204 | 1-692-014-11 | SWITCH, KEY BOARD (DAILY) | | | | |
| S205 | 1-692-014-11 | SWITCH, KEY BOARD (REC TIMER) | | | | |
| S206 | 1-692-014-11 | SWITCH, KEY BOARD (CLOCK SET) | | | | |
| S208 | 1-692-014-11 | SWITCH, KEY BOARD (DBFB) | | | | |
| S209 | 1-692-014-11 | SWITCH, KEY BOARD (KARAOKE PON) | | | | |
| S211 | 1-692-014-11 | SWITCH, KEY BOARD (EFFECT) | | | | |
| S212 | 1-692-014-11 | SWITCH, KEY BOARD (EQ RESET) | | | | |
| S213 | 1-692-014-11 | SWITCH, KEY BOARD (MEMORY/NEXT) | | | | |
| S214 | 1-692-014-11 | SWITCH, KEY BOARD (FUNCTION) | | | | |
| S215 | 1-692-014-11 | SWITCH, KEY BOARD (TUNER/BAND) | | | | |
| S216 | 1-692-014-11 | SWITCH, KEY BOARD (PRESET/TUNING) | | | | |
| S217 | 1-692-014-11 | SWITCH, KEY BOARD (TUNER/TIMER -) | | | | |
| S218 | 1-692-014-11 | SWITCH, KEY BOARD(TUNER/TIMER +) | | | | |
| | | < VIBRATOR > | | | | |
| X201 | 1-567-098-41 | VIBRATOR, CRYSTAL (32.768kHz) | | | | |
| ********** | | | | | | |
| * | 1-650-577-11 | JACK BOARD<br>********** | | | | |
| | | < CAPACITOR > | | | | |
| C103 | 1-162-294-31 | CERAMIC | 0.001uF | 10% | 50V | |
| C104 | 1-162-282-31 | CERAMIC | 100PF | 10% | 50V | |
| C106 | 1-162-215-31 | CERAMIC | 47PF | 5% | 50V | |
| C107 | 1-126-157-11 | ELECT | 10uF | 20% | 16V | |
| C108 | 1-126-157-11 | ELECT | 10uF | 20% | 16V | |
| C109 | 1-124-463-00 | ELECT | 0.1uF | 20% | 50V | |
| C111 | 1-162-294-31 | CERAMIC | 0.001uF | 10% | 50V | |
| C112 | 1-164-159-11 | CERAMIC | 0.1uF | | 50V | |
| | | < CONNECTOR > | | | | |
| CN151 | 1-568-852-11 | PIN, CONNECTOR (PC BOARD) 9P | | | | |
| | | < IC > | | | | |
| IC151 | 8-759-634-51 | IC M5218AP | | | | |
| | | < JACK > | | | | |
| J101 | 1-750-032-11 | JACK (DIA. 3.5)(MIC MIX) | | | | |
| J151 | 1-750-032-11 | JACK (DIA. 3.5)(HEADPHONES) | | | | |
| | | < RESISTOR > | | | | |
| R101 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R102 | 1-249-414-11 | CARBON | 560 | 5% | 1/4W | F |

# JACK | LOADING | MAIN

| Ref.No. | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| R104 | 1-247-885-00 | CARBON | 180K | 5% | 1/4W | |
| R105 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W | |
| R151 | 1-249-414-11 | CARBON | 560 | 5% | 1/4W | F |
| R152 | 1-249-414-11 | CARBON | 560 | 5% | 1/4W | F |
| ********** | | | | | | |
| * | 1-650-836-11 | LOADING BOARD | | | | |
| | | ********** | | | | |
| | | < CONNECTOR > | | | | |
| CN291 | 1-580-918-11 | HOUSING, CONNECTOR 5P | | | | |
| | | < MOTOR > | | | | |
| M903 | A-4604-363-A | MOTOR (L) ASSY (LOADING) | | | | |
| | | < SWITCH > | | | | |
| S291 | 1-572-086-11 | SWITCH, LEAF (LOAD OUT) | | | | |
| S292 | 1-572-086-11 | SWITCH, LEAF (LOAD IN) | | | | |
| ********** | | | | | | |
| * | A-4371-143-A | MAIN BOARD, COMPLETE | | | | |
| | | ********** | | | | |
| | | < CAPACITOR > | | | | |
| C1 | 1-126-101-11 | ELECT | 100uF | 20% | 16V | |
| C2 | 1-161-379-00 | CERAMIC | 0.01uF | 20% | 25V | |
| C3 | 1-162-294-31 | CERAMIC | 0.001uF | 10% | 50V | |
| C5 | 1-101-006-00 | CERAMIC | 0.047uF | | 50V | |
| C7 | 1-162-282-31 | CERAMIC | 100PF | 10% | 50V | |
| C8 | 1-162-282-31 | CERAMIC | 100PF | 10% | 50V | |
| C20 | 1-161-379-00 | CERAMIC | 0.01uF | 20% | 25V | |
| C21 | 1-164-025-51 | CERAMIC | 18PF | 5% | 50V | |
| C22 | 1-164-023-11 | CERAMIC | 15PF | 5% | 50V | |
| C23 | 1-161-379-00 | CERAMIC | 0.01uF | 20% | 25V | |
| C24 | 1-161-379-00 | CERAMIC | 0.01uF | 20% | 25V | |
| C25 | 1-161-379-00 | CERAMIC | 0.01uF | 20% | 25V | |
| C26 | 1-161-379-00 | CERAMIC | 0.01uF | 20% | 25V | |
| C27 | 1-124-477-11 | ELECT | 47uF | 20% | 25V | |
| C29 | 1-161-379-00 | CERAMIC | 0.01uF | 20% | 25V | |
| C30 | 1-126-101-11 | ELECT | 100uF | 20% | 16V | |
| C31 | 1-124-925-11 | ELECT | 2.2uF | 20% | 100V | |
| C33 | 1-124-463-00 | ELECT | 0.1uF | 20% | 50V | |
| C39 | 1-102-124-00 | CERAMIC | 0.0039uF | 10% | 50V | |
| C40 | 1-102-124-00 | CERAMIC | 0.0039uF | 10% | 50V | |
| C41 | 1-161-379-00 | CERAMIC | 0.01uF | 20% | 25V | |
| C42 | 1-124-925-11 | ELECT | 2.2uF | 20% | 100V | |
| C43 | 1-161-379-00 | CERAMIC | 0.01uF | 20% | 25V | |
| C44 | 1-161-379-00 | CERAMIC | 0.01uF | 20% | 25V | |
| C45 | 1-162-211-31 | CERAMIC | 33PF | 5% | 50V | |

| Ref.No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| C46 | 1-124-903-11 | ELECT | 1uF | 20% | 50V |
| C47 | 1-124-903-11 | ELECT | 1uF | 20% | 50V |
| C48 | 1-124-903-11 | ELECT | 1uF | 20% | 50V |
| C49 | 1-124-463-00 | ELECT | 0.1uF | 20% | 50V |
| C50 | 1-130-484-00 | MYLAR | 0.012uF | 5% | 50V |
| C51 | 1-130-484-00 | MYLAR | 0.012uF | 5% | 50V |
| C52 | 1-124-903-11 | ELECT | 1uF | 20% | 50V |
| C53 | 1-124-903-11 | ELECT | 1uF | 20% | 50V |
| C54 | 1-124-903-11 | ELECT | 1uF | 20% | 50V |
| C55 | 1-124-903-11 | ELECT | 1uF | 20% | 50V |
| C57 | 1-161-379-00 | CERAMIC | 0.01uF | 20% | 25V |
| C58 | 1-126-176-11 | ELECT | 220uF | 20% | 10V |
| C59 | 1-161-379-00 | CERAMIC | 0.01uF | 20% | 25V |
| C60 | 1-124-443-00 | ELECT | 100uF | 20% | 10V |
| C61 | 1-161-379-00 | CERAMIC | 0.01uF | 20% | 25V |
| C62 | 1-161-379-00 | CERAMIC | 0.01uF | 20% | 25V |
| C63 | 1-126-176-11 | ELECT | 220uF | 20% | 10V |
| C64 | 1-124-907-11 | ELECT | 10uF | 20% | 50V |
| C65 | 1-161-379-00 | CERAMIC | 0.01uF | 20% | 25V |
| C66 | 1-162-282-31 | CERAMIC | 100PF | 10% | 50V |
| C67 | 1-161-379-00 | CERAMIC | 0.01uF | 20% | 25V |
| C68 | 1-124-907-11 | ELECT | 10uF | 20% | 50V |
| C97 | 1-124-925-11 | ELECT | 2.2uF | 20% | 100V |
| C98 | 1-124-925-11 | ELECT | 2.2uF | 20% | 100V |
| C501 | 1-126-926-11 | ELECT | 1000uF | 20% | 10V |
| C502 | 1-124-907-11 | ELECT | 10uF | 20% | 50V |
| C503 | 1-126-160-11 | ELECT | 1uF | 20% | 50V |
| C504 | 1-124-584-00 | ELECT | 100uF | 20% | 10V |
| C506 | 1-124-907-11 | ELECT | 10uF | 20% | 50V |
| C507 | 1-161-379-00 | CERAMIC | 0.01uF | 20% | 25V |
| C601 | 1-162-286-31 | CERAMIC | 220PF | 10% | 50V |
| C610 | 1-161-379-00 | CERAMIC | 0.01uF | 20% | 25V |
| C612 | 1-164-085-11 | CERAMIC | 0.001uF | 10% | 50V |
| C613 | 1-130-487-00 | MYLAR | 0.022uF | 5% | 50V |
| C615 | 1-162-282-31 | CERAMIC | 100PF | 10% | 50V |
| C616 | 1-161-379-00 | CERAMIC | 0.01uF | 20% | 25V |
| C617 | 1-124-927-11 | ELECT | 4.7uF | 20% | 100V |
| C639 | 1-162-286-31 | CERAMIC | 220PF | 10% | 50V |
| C651 | 1-162-286-31 | CERAMIC | 220PF | 10% | 50V |
| C660 | 1-161-379-00 | CERAMIC | 0.01uF | 20% | 25V |
| C662 | 1-164-085-11 | CERAMIC | 0.001uF | 10% | 50V |
| C663 | 1-130-487-00 | MYLAR | 0.022uF | 5% | 50V |
| C665 | 1-162-282-31 | CERAMIC | 100PF | 10% | 50V |
| C666 | 1-161-379-00 | CERAMIC | 0.01uF | 20% | 25V |
| C667 | 1-124-927-11 | ELECT | 4.7uF | 20% | 100V |
| C689 | 1-162-286-31 | CERAMIC | 220PF | 10% | 50V |
| C701 | 1-161-379-00 | CERAMIC | 0.01uF | 20% | 25V |
| C702 | 1-161-379-00 | CERAMIC | 0.01uF | 20% | 25V |
| C703 | 1-124-463-00 | ELECT | 0.1uF | 20% | 50V |
| C704 | 1-124-252-00 | ELECT | 0.33uF | 20% | 50V |

| Ref. No. | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| C705 | 1-124-902-00 | ELECT | 0.47uF | 20% | 50V | |
| C706 | 1-136-166-00 | FILM | 0.12uF | 5% | 50V | |
| C707 | 1-136-161-00 | FILM | 0.047uF | 5% | 50V | |
| C708 | 1-124-464-11 | ELECT | 0.22uF | 20% | 50V | |
| C709 | 1-124-252-00 | ELECT | 0.33uF | 20% | 50V | |
| C710 | 1-124-464-11 | ELECT | 0.22uF | 20% | 50V | |
| C711 | 1-136-162-00 | FILM | 0.056uF | 5% | 50V | |
| C712 | 1-136-157-00 | FILM | 0.022uF | 5% | 50V | |
| C713 | 1-162-286-31 | CERAMIC | 220PF | 10% | 50V | |
| C714 | 1-162-286-31 | CERAMIC | 220PF | 10% | 50V | |
| C715 | 1-164-093-11 | CERAMIC | 0.0047uF | 10% | 25V | |
| C716 | 1-164-091-11 | CERAMIC | 0.0022uF | 10% | 50V | |
| C717 | 1-130-480-00 | MYLAR | 0.0056uF | 5% | 50V | |
| C718 | 1-130-484-00 | MYLAR | 0.012uF | 5% | 50V | |
| C719 | 1-124-903-11 | ELECT | 1uF | 20% | 50V | |
| C720 | 1-124-927-11 | ELECT | 4.7uF | 20% | 100V | |
| C734 | 1-161-379-00 | CERAMIC | 0.01uF | 20% | 25V | |
| C735 | 1-161-379-00 | CERAMIC | 0.01uF | 20% | 25V | |
| C736 | 1-161-379-00 | CERAMIC | 0.01uF | 20% | 25V | |
| C751 | 1-161-379-00 | CERAMIC | 0.01uF | 20% | 25V | |
| C752 | 1-161-379-00 | CERAMIC | 0.01uF | 20% | 25V | |
| C753 | 1-124-463-00 | ELECT | 0.1uF | 20% | 50V | |
| C754 | 1-124-252-00 | ELECT | 0.33uF | 20% | 50V | |
| C755 | 1-124-902-00 | ELECT | 0.47uF | 20% | 50V | |
| C756 | 1-136-166-00 | FILM | 0.12uF | 5% | 50V | |
| C757 | 1-136-161-00 | FILM | 0.047uF | 5% | 50V | |
| C758 | 1-124-464-11 | ELECT | 0.22uF | 20% | 50V | |
| C759 | 1-124-252-00 | ELECT | 0.33uF | 20% | 50V | |
| C760 | 1-124-464-11 | ELECT | 0.22uF | 20% | 50V | |
| C761 | 1-136-162-00 | FILM | 0.056uF | 5% | 50V | |
| C762 | 1-136-157-00 | FILM | 0.022uF | 5% | 50V | |
| C763 | 1-162-286-31 | CERAMIC | 220PF | 10% | 50V | |
| C764 | 1-162-286-31 | CERAMIC | 220PF | 10% | 50V | |
| C765 | 1-164-093-11 | CERAMIC | 0.0047uF | 10% | 25V | |
| C766 | 1-164-091-11 | CERAMIC | 0.0022uF | 10% | 50V | |
| C767 | 1-130-480-00 | MYLAR | 0.0056uF | 5% | 50V | |
| C768 | 1-130-484-00 | MYLAR | 0.012uF | 5% | 50V | |
| C769 | 1-124-903-11 | ELECT | 1uF | 20% | 50V | |
| C770 | 1-124-927-11 | ELECT | 4.7uF | 20% | 100V | |
| C799 | 1-162-289-31 | CERAMIC | 390PF | 10% | 50V | |
| C1001 | 1-162-198-31 | CERAMIC | 8.2PF | 10% | 50V | |
| C1002 | 1-161-379-00 | CERAMIC | 0.01uF | 20% | 25V | |
| C7001 | 1-164-159-11 | CERAMIC | 0.1uF | | 50V | |
| | | < FILTER > | | | | |
| CF1 | 1-567-389-11 | FILTER, CERAMIC (10.7MHz) | | | | |
| CF2 | 1-567-389-11 | FILTER, CERAMIC (10.7MHz) | | | | |
| | | < CONNECTOR > | | | | |
| * CN501 | 1-573-085-11 | CONNECTOR, FPC (NON ZIF) 19P | | | | |
| CN502 | 1-764-286-11 | PIN, CONNECTOR (PC BOARD) 16P | | | | |
| CN503 | 1-695-340-21 | PIN, CONNECTOR (PC BOARD) 17P | | | | |
| CN601 | 1-764-290-11 | PIN, CONNECTOR (PC BOARD) 24P | | | | |
| CN851 | 1-564-510-11 | PLUG, CONNECTOR 7P | | | | |
| CN853 | 1-695-659-11 | CONNECTOR, FFC/FPC 11P | | | | |
| * CN854 | 1-564-705-11 | PIN, CONNECTOR (SMALL TYPE) 3P | | | | |
| | | < DIODE > | | | | |
| D51 | 8-719-987-63 | DIODE 1N4148M | | | | |
| D501 | 8-719-987-63 | DIODE 1N4148M | | | | |
| D502 | 8-719-987-63 | DIODE 1N4148M | | | | |
| D505 | 8-719-987-63 | DIODE 1N4148M | | | | |
| D551 | 8-719-987-63 | DIODE 1N4148M | | | | |
| D552 | 8-719-987-63 | DIODE 1N4148M | | | | |
| D702 | 8-719-987-63 | DIODE 1N4148M | | | | |
| D703 | 8-719-987-63 | DIODE 1N4148M | | | | |
| D704 | 8-719-987-63 | DIODE 1N4148M | | | | |
| D899 | 8-719-987-63 | DIODE 1N4148M | | | | |
| | | < FRONT END > | | | | |
| FE1 | 1-693-216-11 | FRONT END | | | | |
| FE2 | 1-239-260-11 | ENCAPSULATED COMPONENT (MW RF BLOCK) | | | | |
| | | < IC > | | | | |
| IC21 | 8-759-175-87 | IC LC7218-ST | | | | |
| IC51 | 8-759-821-45 | IC LA1851N | | | | |
| IC501 | 8-759-821-93 | IC LA5601 | | | | |
| IC502 | 8-759-634-84 | IC M50255P | | | | |
| IC602 | 8-759-000-48 | IC MC14052BCP | | | | |
| IC605 | 8-759-145-58 | IC uPC4558C | | | | |
| IC701 | 8-759-603-14 | IC M5229P | | | | |
| IC731 | 8-759-081-01 | IC NJU7305L | | | | |
| IC751 | 8-759-603-14 | IC M5229P | | | | |
| | | < IFT > | | | | |
| IFT51 | 1-404-807-11 | TRANSFORMER, DISCRIMINATOR | | | | |
| IFT52 | 1-404-713-11 | TRANSFORMER, IF (CERAMIC FILTER) | | | | |
| | | < JACK > | | | | |
| J601 | 1-569-181-11 | JACK, PIN 2P (MD/AUX) | | | | |
| J602 | 1-569-181-11 | JACK, PIN 2P (LINE OUT) | | | | |
| | | < COIL > | | | | |
| L51 | 1-410-496-11 | INDUCTOR 1.5mH | | | | |
| | | < FILTER > | | | | |
| LPF51 | 1-239-597-11 | FILTER, LOW PASS | | | | |
| LPF52 | 1-239-597-11 | FILTER, LOW PASS | | | | |

# MAIN

| Ref.No. | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| | | < TRANSISTOR > | | | | |
| Q1 | 8-729-620-19 | TRANSISTOR | 2SC2724-CD | | | |
| Q22 | 8-729-202-67 | TRANSISTOR | 2SK246-GR3 | | | |
| Q23 | 8-729-201-83 | TRANSISTOR | 2SC3112-A | | | |
| Q51 | 8-729-620-05 | TRANSISTOR | 2SC2603-EF | | | |
| Q52 | 8-729-620-05 | TRANSISTOR | 2SC2603-EF | | | |
| Q501 | 8-729-900-89 | TRANSISTOR | DTC144ES | | | |
| Q503 | 8-729-900-63 | TRANSISTOR | DTA124ES | | | |
| Q504 | 8-729-900-63 | TRANSISTOR | DTA124ES | | | |
| Q505 | 8-729-900-63 | TRANSISTOR | DTA124ES | | | |
| Q506 | 8-729-900-63 | TRANSISTOR | DTA124ES | | | |
| Q508 | 8-729-822-44 | TRANSISTOR | 2SA1524 | | | |
| Q509 | 8-729-822-44 | TRANSISTOR | 2SA1524 | | | |
| Q599 | 8-729-900-63 | TRANSISTOR | DTA124ES | | | |
| Q638 | 8-729-900-80 | TRANSISTOR | DTC114ES | | | |
| Q639 | 8-729-620-05 | TRANSISTOR | 2SC2603-EF | | | |
| Q688 | 8-729-900-80 | TRANSISTOR | DTC114ES | | | |
| Q689 | 8-729-620-05 | TRANSISTOR | 2SC2603-EF | | | |
| Q701 | 8-729-141-26 | TRANSISTOR | 2SC3622A-LK | | | |
| Q702 | 8-729-202-67 | TRANSISTOR | 2SK246-GR3 | | | |
| Q731 | 8-729-900-63 | TRANSISTOR | DTA124ES | | | |
| Q751 | 8-729-141-26 | TRANSISTOR | 2SC3622A-LK | | | |
| | | < RESISTOR > | | | | |
| R1 | 1-249-411-11 | CARBON | 330 | 5% | 1/4W | |
| R2 | 1-249-411-11 | CARBON | 330 | 5% | 1/4W | |
| R3 | 1-247-891-00 | CARBON | 330K | 5% | 1/4W | |
| R4 | 1-249-411-11 | CARBON | 330 | 5% | 1/4W | |
| R5 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W | |
| R9 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W | |
| R21 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | F |
| R22 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | F |
| R23 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | F |
| R24 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | F |
| R25 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | F |
| R26 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | F |
| R27 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R29 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W | |
| R30 | 1-249-423-11 | CARBON | 3.3K | 5% | 1/4W | F |
| R31 | 1-249-414-11 | CARBON | 560 | 5% | 1/4W | F |
| R32 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | F |
| R33 | 1-249-410-11 | CARBON | 270 | 5% | 1/4W | F |
| R34 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | F |
| R35 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W | F |
| R36 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | F |
| R37 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | F |
| R38 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W | |
| R41 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | F |
| R42 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R43 | 1-249-435-11 | CARBON | 33K | 5% | 1/4W | |
| R44 | 1-249-428-11 | CARBON | 8.2K | 5% | 1/4W | F |
| R45 | 1-249-430-11 | CARBON | 12K | 5% | 1/4W | |
| R46 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W | F |
| R47 | 1-247-848-11 | CARBON | 5.1K | 5% | 1/4W | |
| R48 | 1-249-419-11 | CARBON | 1.5K | 5% | 1/4W | F |
| R49 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | F |
| R50 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | F |
| R51 | 1-249-420-11 | CARBON | 1.8K | 5% | 1/4W | F |
| R52 | 1-247-899-11 | CARBON | 680K | 5% | 1/4W | |
| R53 | 1-249-420-11 | CARBON | 1.8K | 5% | 1/4W | F |
| R54 | 1-247-899-11 | CARBON | 680K | 5% | 1/4W | |
| R55 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | F |
| R56 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W | F |
| R57 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | F |
| R58 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W | F |
| R59 | 1-249-393-11 | CARBON | 10 | 5% | 1/4W | F |
| R60 | 1-249-409-11 | CARBON | 220 | 5% | 1/4W | F |
| R61 | 1-249-399-11 | CARBON | 33 | 5% | 1/4W | F |
| R62 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R63 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R70 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | F |
| R91 | 1-249-435-11 | CARBON | 33K | 5% | 1/4W | |
| R94 | 1-249-435-11 | CARBON | 33K | 5% | 1/4W | |
| R501 | 1-249-393-11 | CARBON | 10 | 5% | 1/4W | F |
| ⚠R502 | 1-217-637-00 | FUSIBLE | 1 | 5% | 1/4W | F |
| R503 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R505 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R506 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R507 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R511 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | F |
| R512 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | F |
| R601 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R604 | 1-249-430-11 | CARBON | 12K | 5% | 1/4W | |
| R613 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W | |
| R614 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W | |
| R615 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W | |
| R616 | 1-247-864-11 | CARBON | 24K | 5% | 1/4W | |
| R617 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W | |
| R619 | 1-247-887-00 | CARBON | 220K | 5% | 1/4W | |
| R631 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R632 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R635 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R638 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | F |
| R639 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | F |
| R651 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R654 | 1-249-430-11 | CARBON | 12K | 5% | 1/4W | |
| R663 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W | |
| R664 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W | |
| R665 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W | |

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

| Ref.No. | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| R666 | 1-247-864-11 | CARBON | 24K | 5% | 1/4W | |
| R667 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W | |
| R669 | 1-247-887-00 | CARBON | 220K | 5% | 1/4W | |
| R688 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | F |
| R689 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | F |
| R701 | 1-249-427-11 | CARBON | 6.8K | 5% | 1/4W | F |
| R702 | 1-247-854-11 | CARBON | 9.1K | 5% | 1/4W | |
| R703 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R704 | 1-247-903-00 | CARBON | 1M | 5% | 1/4W | |
| R705 | 1-247-903-00 | CARBON | 1M | 5% | 1/4W | |
| R706 | 1-247-903-00 | CARBON | 1M | 5% | 1/4W | |
| R707 | 1-247-903-00 | CARBON | 1M | 5% | 1/4W | |
| R708 | 1-249-427-11 | CARBON | 6.8K | 5% | 1/4W | F |
| R709 | 1-247-903-00 | CARBON | 1M | 5% | 1/4W | |
| R710 | 1-247-903-00 | CARBON | 1M | 5% | 1/4W | |
| R711 | 1-247-895-00 | CARBON | 470K | 5% | 1/4W | |
| R712 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W | F |
| R714 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | F |
| R716 | 1-247-887-00 | CARBON | 220K | 5% | 1/4W | |
| R717 | 1-247-876-11 | CARBON | 75K | 5% | 1/4W | |
| R731 | 1-247-903-00 | CARBON | 1M | 5% | 1/4W | |
| R732 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W | |
| R733 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | F |
| R734 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | F |
| R735 | 1-247-816-11 | CARBON | 240 | 5% | 1/4W | |
| R736 | 1-249-442-11 | CARBON | 510 | 5% | 1/4W | |
| R751 | 1-249-427-11 | CARBON | 6.8K | 5% | 1/4W | F |
| R752 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W | |
| R753 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R754 | 1-247-903-00 | CARBON | 1M | 5% | 1/4W | |
| R755 | 1-247-903-00 | CARBON | 1M | 5% | 1/4W | |
| R756 | 1-247-903-00 | CARBON | 1M | 5% | 1/4W | |
| R757 | 1-247-903-00 | CARBON | 1M | 5% | 1/4W | |
| R758 | 1-249-427-11 | CARBON | 6.8K | 5% | 1/4W | F |
| R759 | 1-247-903-00 | CARBON | 1M | 5% | 1/4W | |
| R760 | 1-247-903-00 | CARBON | 1M | 5% | 1/4W | |
| R761 | 1-247-895-00 | CARBON | 470K | 5% | 1/4W | |
| R762 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W | F |
| R764 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | F |
| R766 | 1-247-887-00 | CARBON | 220K | 5% | 1/4W | |
| R1001 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R5001 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| | | < VARIABLE RESISTOR > | | | | |
| RV51 | 1-238-601-11 | RES, ADJ, CARBON 22K | | | | |
| RV52 | 1-238-601-11 | RES, ADJ, CARBON 22K | | | | |
| RV53 | 1-238-601-11 | RES, ADJ, CARBON 22K | | | | |
| RV701 | 1-223-308-11 | RES, VAR, CARBON (MOTOR)100KX2 | | | | |

| Ref.No. | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| | | < RELAY > | | | | |
| RY801 | 1-515-920-11 | RELAY (24V) | | | | |
| | | < TERMINAL > | | | | |
| TM1 | 1-537-238-21 | TERMINAL BOARD (ANTENNA) | | | | |
| TM801 | 1-537-238-11 | TERMINAL BOARD (SPEAKER) | | | | |
| | | < CONNECTOR > | | | | |
| * TP81 | 1-568-449-11 | HOUSING, CONNECTOR (PC BOARD) 3P | | | | |
| | | < VIBRATOR > | | | | |
| X21 | 1-579-585-11 | VIBRATOR, CRYSTAL | | | | |
| X51 | 1-577-075-11 | OSCILLATOR, CERAMIC (456kHz) | | | | |
| ********** | | | | | | |
| * | A-2006-399-A | MD-A BOARD, COMPLETE | | | | |
| | | ********** | | | | |
| | | < CAPACITOR > | | | | |
| C11 | 1-163-131-00 | CERAMIC CHIP | 390PF | 5% | 50V | |
| C12 | 1-136-157-00 | FILM | 0.022uF | 5% | 50V | |
| C13 | 1-124-234-00 | ELECT | 22uF | 20% | 16V | |
| C18 | 1-163-117-00 | CERAMIC CHIP | 100PF | 5% | 50V | |
| C21 | 1-163-131-00 | CERAMIC CHIP | 390PF | 5% | 50V | |
| C22 | 1-136-157-00 | FILM | 0.022uF | 5% | 50V | |
| C23 | 1-124-234-00 | ELECT | 22uF | 20% | 16V | |
| C28 | 1-163-117-00 | CERAMIC CHIP | 100PF | 5% | 50V | |
| C31 | 1-124-234-00 | ELECT | 22uF | 20% | 16V | |
| C32 | 1-124-234-00 | ELECT | 22uF | 20% | 16V | |
| C72 | 1-124-499-11 | ELECT, NONPOLAR | 1uF | 20% | 50V | |
| | | < CONNECTOR > | | | | |
| * CNJ31 | 1-580-782-11 | CONNECTOR, BOARD TO BOARD 10P | | | | |
| CNJ72 | 1-764-902-11 | CONNECTOR, FFC/FPC 4P | | | | |
| * CNP32 | 1-580-772-11 | PIN, CONNECTOR (PC BOARD) 4P | | | | |
| * CNP71 | 1-564-719-11 | PIN, CONNECTOR (SMALL TYPE) 3P | | | | |
| | | < HEAD > | | | | |
| HP101 | A-2003-837-F | DECK ASSY, HEAD (DECK A) | | | | |
| | | < IC > | | | | |
| IC31A | 8-759-106-02 | IC uPC4570G2 | | | | |
| | | < JUMPER RESISTOR > | | | | |
| JW1 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | |
| JW51 | 1-216-296-00 | METAL CHIP | 0 | 5% | 1/8W | |
| JW52 | 1-216-296-00 | METAL CHIP | 0 | 5% | 1/8W | |
| JW53 | 1-216-296-00 | METAL CHIP | 0 | 5% | 1/8W | |

# MD-A MD-B

| Ref.No. | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| JW54 | 1-216-296-00 | METAL CHIP | 0 | 5% | 1/8W | |
| | | < MOTOR > | | | | |
| M101A | X-3363-501-1 | MOTOR, REEL ASSY (DECK A) | | | | |
| M102A | X-3365-377-1 | MOTOR ASSY (CAPSTAN) (DECK A) | | | | |
| | | < TRANSISTOR > | | | | |
| Q71A | 8-729-602-36 | TRANSISTOR | 2SA1602 | | | |
| | | < RESISTOR > | | | | |
| R11 | 1-216-099-00 | METAL CHIP | 120K | 5% | 1/10W | |
| R12 | 1-216-025-00 | METAL CHIP | 100 | 5% | 1/10W | |
| R13 | 1-216-100-00 | METAL GLAZE | 130K | 5% | 1/10W | |
| R14 | 1-216-067-00 | METAL CHIP | 5.6K | 5% | 1/10W | |
| R21 | 1-216-099-00 | METAL CHIP | 120K | 5% | 1/10W | |
| R22 | 1-216-025-00 | METAL CHIP | 100 | 5% | 1/10W | |
| R23 | 1-216-100-00 | METAL GLAZE | 130K | 5% | 1/10W | |
| R24 | 1-216-067-00 | METAL CHIP | 5.6K | 5% | 1/10W | |
| R31 | 1-216-033-00 | METAL CHIP | 220 | 5% | 1/10W | |
| R32 | 1-216-033-00 | METAL CHIP | 220 | 5% | 1/10W | |
| R71 | 1-216-025-00 | METAL CHIP | 100 | 5% | 1/10W | |
| R72 | 1-216-055-00 | METAL CHIP | 1.8K | 5% | 1/10W | |
| R73 | 1-216-089-00 | METAL CHIP | 47K | 5% | 1/10W | |
| R74 | 1-216-089-00 | METAL CHIP | 47K | 5% | 1/10W | |
| | | < VARIABLE RESISTOR > | | | | |
| RV11A | 1-241-761-11 | RES, ADJ, CARBON 1K | | | | |
| RV21A | 1-241-761-11 | RES, ADJ, CARBON 1K | | | | |
| RV71A | 1-241-761-11 | RES, ADJ, CARBON 1K | | | | |
| RV72A | 1-241-628-11 | RES, ADJ, CARBON 2.2K | | | | |
| ********** | | | | | | |
| * | A-2007-136-A | MD-B BOARD, COMPLETE | | | | |
| | | ********** | | | | |
| | | < CAPACITOR > | | | | |
| C11 | 1-163-131-00 | CERAMIC CHIP | 390PF | 5% | 50V | |
| C12 | 1-163-117-00 | CERAMIC CHIP | 100PF | 5% | 50V | |
| C13 | 1-136-153-00 | FILM | 0.01uF | 5% | 50V | |
| C14 | 1-126-177-11 | ELECT | 100uF | 20% | 10V | |
| C15 | 1-124-234-00 | ELECT | 22uF | 20% | 16V | |
| C16 | 1-136-273-00 | FILM | 75PF | 5% | 630V | |
| C17 | 1-164-080-11 | CERAMIC | 390PF | 10% | 50V | |
| C18 | 1-163-103-00 | CERAMIC CHIP | 27PF | 5% | 50V | |
| C21 | 1-163-131-00 | CERAMIC CHIP | 390PF | 5% | 50V | |
| C22 | 1-163-117-00 | CERAMIC CHIP | 100PF | 5% | 50V | |
| C23 | 1-136-153-00 | FILM | 0.01uF | 5% | 50V | |
| C24 | 1-126-177-11 | ELECT | 100uF | 20% | 10V | |
| C25 | 1-124-234-00 | ELECT | 22uF | 20% | 16V | |
| C26 | 1-136-273-00 | FILM | 75PF | 5% | 630V | |
| C27 | 1-164-080-11 | CERAMIC | 390PF | 10% | 50V | |
| C28 | 1-163-103-00 | CERAMIC CHIP | 27PF | 5% | 50V | |
| C31 | 1-124-234-00 | ELECT | 22uF | 20% | 16V | |
| C32 | 1-124-234-00 | ELECT | 22uF | 20% | 16V | |
| C33 | 1-124-234-00 | ELECT | 22uF | 20% | 16V | |
| C51 | 1-163-019-00 | CERAMIC CHIP | 0.0068uF | 10% | 50V | |
| C52 | 1-163-019-00 | CERAMIC CHIP | 0.0068uF | 10% | 50V | |
| C53 | 1-163-022-00 | CERAMIC CHIP | 0.012uF | 10% | 50V | |
| C54 | 1-136-559-11 | FILM | 0.0047uF | 5% | 630V | |
| C56 | 1-164-505-11 | CERAMIC CHIP | 2.2uF | | 16V | |
| C57 | 1-164-346-11 | CERAMIC CHIP | 1uF | | 16V | |
| C58 | 1-163-024-00 | CERAMIC CHIP | 0.018uF | 10% | 50V | |
| C72 | 1-124-499-11 | ELECT, NONPOLAR | 1uF | 20% | 50V | |
| | | < CONNECTOR > | | | | |
| * CNJ31 | 1-580-782-11 | CONNECTOR, BOARD TO BOARD | | | | |
| * CNJ33 | 1-580-782-11 | CONNECTOR, BOARD TO BOARD | | | | |
| CNJ72 | 1-764-902-11 | CONNECTOR, FFC/FPC 4P | | | | |
| * CNP32 | 1-580-781-11 | PIN, CONNECTOR (PC BOARD) 7P | | | | |
| * CNP71 | 1-564-719-11 | PIN, CONNECTOR (SMALL TYPE) 3P | | | | |
| | | < HEAD > | | | | |
| HRP101 | A-2003-838-L | DECK ASSY, HEAD (DECK B) | | | | |
| | | < IC > | | | | |
| IC31B | 8-759-249-21 | IC | uPC1330AGR | | | |
| IC32 | 8-759-106-02 | IC | uPC4570G2 | | | |
| | | < JUMPER RESISTOR > | | | | |
| JW1 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | |
| JW2 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | |
| JW11 | 1-216-296-00 | METAL CHIP | 0 | 5% | 1/8W | |
| JW12 | 1-216-296-00 | METAL CHIP | 0 | 5% | 1/8W | |
| JW13 | 1-216-296-00 | METAL CHIP | 0 | 5% | 1/8W | |
| JW14 | 1-216-296-00 | METAL CHIP | 0 | 5% | 1/8W | |
| JW15 | 1-216-296-00 | METAL CHIP | 0 | 5% | 1/8W | |
| JW16 | 1-216-296-00 | METAL CHIP | 0 | 5% | 1/8W | |
| JW17 | 1-216-296-00 | METAL CHIP | 0 | 5% | 1/8W | |
| JW18 | 1-216-296-00 | METAL CHIP | 0 | 5% | 1/8W | |
| JW19 | 1-216-296-00 | METAL CHIP | 0 | 5% | 1/8W | |
| JW20 | 1-216-296-00 | METAL CHIP | 0 | 5% | 1/8W | |
| JW21 | 1-216-296-00 | METAL CHIP | 0 | 5% | 1/8W | |
| JW22 | 1-216-296-00 | METAL CHIP | 0 | 5% | 1/8W | |
| JW23 | 1-216-296-00 | METAL CHIP | 0 | 5% | 1/8W | |
| JW24 | 1-216-296-00 | METAL CHIP | 0 | 5% | 1/8W | |
| JW25 | 1-216-296-00 | METAL CHIP | 0 | 5% | 1/8W | |
| | | < COIL > | | | | |
| L11 | 1-410-780-11 | INDUCTOR | 27mH | | | |

| Ref.No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| L21 | 1-410-780-11 | INDUCTOR | 27mH | | |
| | | < MOTOR > | | | |
| M101B | X-3363-501-1 | MOTOR, REEL ASSY (DECK B) | | | |
| M102B | X-3365-277-1 | MOTOR ASSY (CAPSTAN) (DECK B) | | | |
| | | < TRANSISTOR > | | | |
| Q51 | 8-729-808-01 | TRANSISTOR | 2SD1622-S | | |
| Q52 | 8-729-808-01 | TRANSISTOR | 2SD1622-S | | |
| Q53 | 8-729-808-01 | TRANSISTOR | 2SD1622-S | | |
| Q71B | 8-729-602-36 | TRANSISTOR | 2SA1602-F | | |
| | | < RESISTOR > | | | |
| R11 | 1-216-099-00 | METAL CHIP | 120K | 5% 1/10W | |
| R12 | 1-216-033-00 | METAL CHIP | 220 | 5% 1/10W | |
| R13 | 1-216-081-00 | METAL CHIP | 22K | 5% 1/10W | |
| R14 | 1-216-075-00 | METAL CHIP | 12K | 5% 1/10W | |
| R15 | 1-216-107-00 | METAL CHIP | 270K | 5% 1/10W | |
| ⚠R16 | 1-249-430-11 | CARBON | 12K | 5% 1/4W | |
| R21 | 1-216-099-00 | METAL CHIP | 120K | 5% 1/10W | |
| R22 | 1-216-033-00 | METAL CHIP | 220 | 5% 1/10W | |
| R23 | 1-216-081-00 | METAL CHIP | 22K | 5% 1/10W | |
| R24 | 1-216-075-00 | METAL CHIP | 12K | 5% 1/10W | |
| R25 | 1-216-107-00 | METAL CHIP | 270K | 5% 1/10W | |
| ⚠R26 | 1-249-430-11 | CARBON | 12K | 5% 1/4W | |
| R31 | 1-216-033-00 | METAL CHIP | 220 | 5% 1/10W | |
| R32 | 1-216-033-00 | METAL CHIP | 220 | 5% 1/10W | |
| R33 | 1-216-073-00 | METAL CHIP | 10K | 5% 1/10W | |
| ⚠R41 | 1-249-393-11 | CARBON | 10 | 5% 1/4W F | |
| ⚠R42 | 1-249-393-11 | CARBON | 10 | 5% 1/4W F | |
| R51 | 1-216-075-00 | METAL CHIP | 12K | 5% 1/10W | |
| R52 | 1-216-075-00 | METAL CHIP | 12K | 5% 1/10W | |
| R53 | 1-216-073-00 | METAL CHIP | 10K | 5% 1/10W | |
| R54 | 1-216-309-00 | METAL CHIP | 5.6 | 5% 1/10W | |
| R55 | 1-216-309-00 | METAL CHIP | 5.6 | 5% 1/10W | |
| R56 | 1-216-298-00 | METAL CHIP | 2.2 | 5% 1/10W | |
| R71 | 1-216-082-00 | METAL GLAZE | 24K | 5% 1/10W | |
| R72 | 1-216-081-00 | METAL CHIP | 22K | 5% 1/10W | |
| R73 | 1-216-089-00 | METAL CHIP | 47K | 5% 1/10W | |
| R74 | 1-216-089-00 | METAL CHIP | 47K | 5% 1/10W | |
| | | < VARIABLE RESISTOR > | | | |
| RV11B | 1-241-761-11 | RES, ADJ, CARBON | 1K | | |
| RV12 | 1-238-551-11 | RES, ADJ, CARBON | 220K | | |
| RV21B | 1-241-761-11 | RES, ADJ, CARBON | 1K | | |
| RV22 | 1-238-551-11 | RES, ADJ, CARBON | 220K | | |
| RV71B | 1-241-630-11 | RES, ADJ, CARBON | 10K | | |
| RV72B | 1-241-630-11 | RES, ADJ, CARBON | 10K | | |

| Ref.No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| | | < TRANSFORMER > | | | |
| T51 | 1-406-419-11 | COIL, BIAS OSCILLATION | | | |
| ********** | | | | | |
| * | A-4371-144-A | POWER BOARD, COMPLETE | | | |
| | | ********** | | | |
| * | 3-309-144-21 | HEAT SINK | | | |
| | 7-682-548-04 | SCREW +BVTT 3X8 (S) | | | |
| | | < CAPACITOR > | | | |
| C802 | 1-124-903-11 | ELECT | 1uF | 20% 50V | |
| C803 | 1-162-290-31 | CERAMIC | 470PF | 10% 50V | |
| C804 | 1-162-282-31 | CERAMIC | 100PF | 10% 50V | |
| C805 | 1-124-910-11 | ELECT | 47uF | 20% 50V | |
| C807 | 1-124-910-11 | ELECT | 47uF | 20% 50V | |
| C809 | 1-164-159-11 | CERAMIC | 0.1uF | 50V | |
| C831 | 1-124-917-11 | ELECT | 33uF | 20% 63V | |
| C832 | 1-124-917-11 | ELECT | 33uF | 20% 63V | |
| C833 | 1-136-161-00 | FILM | 0.047uF | 5% 50V | |
| C852 | 1-124-903-11 | ELECT | 1uF | 20% 50V | |
| C853 | 1-162-290-31 | CERAMIC | 470PF | 10% 50V | |
| C854 | 1-162-282-31 | CERAMIC | 100PF | 10% 50V | |
| C855 | 1-124-910-11 | ELECT | 47uF | 20% 50V | |
| C857 | 1-124-910-11 | ELECT | 47uF | 20% 50V | |
| C859 | 1-164-159-11 | CERAMIC | 0.1uF | 50V | |
| C871 | 1-124-907-11 | ELECT | 10uF | 20% 50V | |
| C872 | 1-126-176-11 | ELECT | 220uF | 20% 10V | |
| C873 | 1-124-902-00 | ELECT | 0.47uF | 20% 50V | |
| C874 | 1-124-916-11 | ELECT | 22uF | 20% 63V | |
| C901 | 1-126-974-11 | ELECT | 3300uF | 20% 50V | |
| C902 | 1-126-974-11 | ELECT | 3300uF | 20% 50V | |
| C906 | 1-124-887-00 | ELECT | 3300uF | 20% 16V | |
| C907 | 1-124-556-11 | ELECT | 2200uF | 20% 16V | |
| C908 | 1-124-925-11 | ELECT | 2.2uF | 20% 100V | |
| C909 | 1-124-925-11 | ELECT | 2.2uF | 20% 100V | |
| C910 | 1-124-925-11 | ELECT | 2.2uF | 20% 100V | |
| C911 | 1-161-379-00 | CERAMIC | 0.01uF | 20% 25V | |
| C912 | 1-124-903-11 | ELECT | 1uF | 20% 50V | |
| C913 | 1-124-925-11 | ELECT | 2.2uF | 20% 100V | |
| C914 | 1-126-935-11 | ELECT | 470uF | 20% 16V | |
| C915 | 1-126-935-11 | ELECT | 470uF | 20% 16V | |
| C916 | 1-124-907-11 | ELECT | 10uF | 20% 50V | |
| C917 | 1-124-477-11 | ELECT | 47uF | 20% 25V | |
| C918 | 1-124-477-11 | ELECT | 47uF | 20% 25V | |
| C919 | 1-124-907-11 | ELECT | 10uF | 20% 50V | |
| C920 | 1-124-903-11 | ELECT | 1uF | 20% 50V | |
| C922 | 1-124-903-11 | ELECT | 1uF | 20% 50V | |
| C923 | 1-124-910-11 | ELECT | 47uF | 20% 50V | |
| C949 | 1-161-379-00 | CERAMIC | 0.01uF | 20% 25V | |

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

# POWER | POWER SUPPLY

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| | | < CONNECTOR > | |
| * CN801 | 1-564-705-11 | PIN, CONNECTOR (SMALL TYPE) 3P | |
| CN901 | 1-764-308-11 | HOUSING, CONNECTOR(PC BOARD) 8P | |
| CN902 | 1-564-510-11 | PLUG, CONNECTOR 7P | |
| CN903 | 1-695-695-11 | CONNECTOR, FFC/FPC 11P | |
| CN904 | 1-695-330-31 | PIN, CONNECTOR (PC BOARD) 7P | |
| | | < DIODE > | |
| D801 | 8-719-987-63 | DIODE 1N4148M | |
| D851 | 8-719-987-63 | DIODE 1N4148M | |
| D901 | 8-719-987-63 | DIODE 1N4148M | |
| D902 | 8-719-987-63 | DIODE 1N4148M | |
| D903 | 8-719-200-02 | DIODE 10E2 | |
| D904 | 8-719-200-02 | DIODE 10E2 | |
| D905 | 8-719-200-02 | DIODE 10E2 | |
| D906 | 8-719-200-02 | DIODE 10E2 | |
| D909 | 8-719-987-63 | DIODE 1N4148M | |
| D910 | 8-719-010-75 | DIODE UZ-12BSC | |
| D911 | 8-719-109-93 | DIODE RD6.2ES-B2 | |
| D912 | 8-719-011-13 | DIODE UZ-30BSC | |
| | | < IC > | |
| IC801 | 8-749-920-09 | IC STK-4152MK2K | |
| IC802 | 8-759-111-68 | IC uPC1237HA | |
| IC901 | 8-759-602-66 | IC M5230L-A | |
| | | < TRANSISTOR > | |
| Q801 | 8-729-140-84 | TRANSISTOR 2SC1841-PAFAEA | |
| Q851 | 8-729-140-84 | TRANSISTOR 2SC1841-PAFAEA | |
| Q871 | 8-729-900-63 | TRANSISTOR DTA124ES | |
| Q901 | 8-729-900-89 | TRANSISTOR DTC144ES | |
| Q902 | 8-729-141-83 | TRANSISTOR 2SA473 | |
| Q904 | 8-729-209-15 | TRANSISTOR 2SD2012 | |
| Q906 | 8-729-018-60 | TRANSISTOR 2SD2012-LC | |
| Q907 | 8-729-209-15 | TRANSISTOR 2SD2012 | |
| Q908 | 8-729-900-80 | TRANSISTOR DTC114ES | |
| Q909 | 8-729-900-80 | TRANSISTOR DTC114ES | |
| Q910 | 8-729-118-01 | TRANSISTOR 2SB1116-K | |
| | | < RESISTOR > | |
| R801 | 1-249-417-11 | CARBON 1K 5% 1/4W | F |
| R802 | 1-249-438-11 | CARBON 56K 5% 1/4W | |
| R803 | 1-249-414-11 | CARBON 560 5% 1/4W | F |
| R804 | 1-249-438-11 | CARBON 56K 5% 1/4W | |
| R806 | 1-249-421-11 | CARBON 2.2K 5% 1/4W | F |
| R807 | 1-247-756-11 | CARBON 2.2K 5% 1/2W | |
| R808 | 1-249-417-11 | CARBON 1K 5% 1/4W | F |
| R809 | 1-249-431-11 | CARBON 15K 5% 1/4W | |
| R810 | 1-249-441-11 | CARBON 100K 5% 1/4W | |
| R811 | 1-217-151-00 | RES, METAL PLATE 0.22 2W | |
| R812 | 1-249-393-11 | CARBON 10 5% 1/4W | F |
| R813 | 1-249-438-11 | CARBON 56K 5% 1/4W | |
| R831 | 1-247-807-31 | CARBON 100 5% 1/4W | |
| R832 | 1-247-807-31 | CARBON 100 5% 1/4W | |
| R851 | 1-249-417-11 | CARBON 1K 5% 1/4W | F |
| R852 | 1-249-438-11 | CARBON 56K 5% 1/4W | |
| R853 | 1-249-414-11 | CARBON 560 5% 1/4W | F |
| R854 | 1-249-438-11 | CARBON 56K 5% 1/4W | |
| R855 | 1-247-807-31 | CARBON 100 5% 1/4W | |
| R856 | 1-249-421-11 | CARBON 2.2K 5% 1/4W | F |
| R857 | 1-247-756-11 | CARBON 2.2K 5% 1/2W | |
| R858 | 1-249-417-11 | CARBON 1K 5% 1/4W | F |
| R859 | 1-249-431-11 | CARBON 15K 5% 1/4W | |
| R860 | 1-249-441-11 | CARBON 100K 5% 1/4W | |
| R861 | 1-217-151-00 | RES, METAL PLATE 0.22 2W | |
| R862 | 1-249-393-11 | CARBON 10 5% 1/4W | F |
| R863 | 1-249-437-11 | CARBON 47K 5% 1/4W | |
| R871 | 1-249-433-11 | CARBON 22K 5% 1/4W | |
| R872 | 1-249-441-11 | CARBON 100K 5% 1/4W | |
| R873 | 1-249-425-11 | CARBON 4.7K 5% 1/4W | F |
| R874 | 1-249-431-11 | CARBON 15K 5% 1/4W | |
| R875 | 1-249-439-11 | CARBON 68K 5% 1/4W | |
| R876 | 1-249-422-11 | CARBON 2.7K 5% 1/4W | F |
| R901 | 1-249-417-11 | CARBON 1K 5% 1/4W | F |
| R902 | 1-249-417-11 | CARBON 1K 5% 1/4W | F |
| R904 | 1-249-429-11 | CARBON 10K 5% 1/4W | |
| R905 | 1-247-903-00 | CARBON 1M 5% 1/4W | |
| R906 | 1-249-409-11 | CARBON 220 5% 1/4W | F |
| R907 | 1-249-409-11 | CARBON 220 5% 1/4W | F |
| R908 | 1-247-811-31 | CARBON 150 5% 1/4W | |
| R909 | 1-247-811-31 | CARBON 150 5% 1/4W | |
| R910 | 1-249-431-11 | CARBON 15K 5% 1/4W | |
| R911 | 1-249-431-11 | CARBON 15K 5% 1/4W | |
| R912 | 1-249-429-11 | CARBON 10K 5% 1/4W | |
| R913 | 1-249-423-11 | CARBON 3.3K 5% 1/4W | F |
| ⚠R914 | 1-212-889-00 | FUSIBLE 220 5% 1/4W | F |
| R915 | 1-249-420-11 | CARBON 1.8K 5% 1/4W | F |
| ⚠R916 | 1-212-992-00 | FUSIBLE 270 5% 1/2W | F |
| ⚠R918 | 1-217-640-11 | FUSIBLE 3.3 5% 1/4W | F |
| R919 | 1-249-413-11 | CARBON 470 5% 1/4W | F |
| R921 | 1-249-417-11 | CARBON 1K 5% 1/4W | F |
| ⚠R922 | 1-212-881-11 | FUSIBLE 100 5% 1/4W | F |
| R923 | 1-249-421-11 | CARBON 2.2K 5% 1/4W | F |
| ********** | | | |
| * | 1-650-582-11 | POWER SUPPLY BOARD | |
| | | ********** | |
| | | < CONNECTOR > | |
| CN951 | 1-764-309-11 | PIN, CONNECTOR (PC BOARD) 8P | |

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

| Ref.No. | Part No. | Description | Remark |
|---|---|---|---|
| CN952 | 1-564-321-00 | PIN, CONNECTOR 2P | |
| | | < DIODE > | |
| D951 | 8-719-311-72 | DIODE RBV-406H-01 | |
| | | < FUSE HOLDER > | |
| FH911 | 1-533-293-11 | FUSE HOLDER | |
| FH912 | 1-533-293-11 | FUSE HOLDER | |
| FH913 | 1-533-293-11 | FUSE HOLDER | |
| FH914 | 1-533-293-11 | FUSE HOLDER | |
| | | < FUSE > | |
| ⚠F951 | 1-532-259-00 | FUSE TIME-LAG (T1.6A, 250V) | |
| ⚠F952 | 1-532-215-00 | FUSE TIME-LAG (T0.8A, 250V) | |
| | | < SWITCH > | |
| ⚠S951 | 1-572-675-11 | SWITCH, POWER VOLTAGE CHANGE | |
| | | < TRANSFORMER > | |
| ⚠T951 | 1-423-969-21 | TRANSFORMER, POWER | |
| ********** | | | |
| * | A-4371-147-A | SW BOARD, COMPLETE | |
| | | ********** | |
| | | < CONNECTOR > | |
| CN3001 | 1-695-738-11 | CONNECTOR, FFC/FPC 18P | |
| CN3002 | 1-580-482-11 | SOCKET, CONNECTOR 7P | |
| | | < DIODE > | |
| D3003 | 8-719-046-80 | DIODE SML19416W | |
| D3005 | 8-719-046-80 | DIODE SML19416W | |
| D3007 | 8-719-032-83 | DIODE SEL5220S (REC ●) | |
| D3008 | 8-719-033-06 | DIODE SEL5920A (PAUSE ▯▯) | |
| D3009 | 8-719-032-83 | DIODE SEL5220S (CD SYNCHRO) | |
| D3010 | 8-719-032-83 | DIODE SEL5220S (HIGH SPEED DUBBING) | |
| D3011 | 8-719-032-87 | DIODE SEL5420E (▷) | |
| D3012 | 8-719-032-87 | DIODE SEL5420E (◁) | |
| | | < RESISTOR > | |
| R3001 | 1-247-807-31 | CARBON 100 5% 1/4W | |
| R3002 | 1-249-406-11 | CARBON 120 5% 1/4W | F |
| R3003 | 1-249-406-11 | CARBON 120 5% 1/4W | F |
| R3004 | 1-247-811-31 | CARBON 150 5% 1/4W | |
| R3005 | 1-249-408-11 | CARBON 180 5% 1/4W | F |
| R3006 | 1-249-409-11 | CARBON 220 5% 1/4W | F |
| R3007 | 1-249-410-11 | CARBON 270 5% 1/4W | F |
| R3008 | 1-249-411-11 | CARBON 330 5% 1/4W | |
| R3009 | 1-249-413-11 | CARBON 470 5% 1/4W | F |
| R3010 | 1-249-414-11 | CARBON 560 5% 1/4W | F |
| R3014 | 1-247-811-31 | CARBON 150 5% 1/4W | |
| R3015 | 1-249-409-11 | CARBON 220 5% 1/4W | F |
| R3016 | 1-247-840-00 | CARBON 2.4K 5% 1/4W | |
| R3017 | 1-249-416-11 | CARBON 820 5% 1/4W | F |
| R3018 | 1-249-418-11 | CARBON 1.2K 5% 1/4W | F |
| R3020 | 1-249-426-11 | CARBON 5.6K 5% 1/4W | |
| R3022 | 1-249-420-11 | CARBON 1.8K 5% 1/4W | F |
| R3023 | 1-249-414-11 | CARBON 560 5% 1/4W | F |
| R3024 | 1-249-416-11 | CARBON 820 5% 1/4W | F |
| R3027 | 1-249-417-11 | CARBON 1K 5% 1/4W | F |
| R3028 | 1-249-426-11 | CARBON 5.6K 5% 1/4W | |
| R3029 | 1-249-430-11 | CARBON 12K 5% 1/4W | |
| R3032 | 1-249-406-11 | CARBON 120 5% 1/4W | F |
| R3033 | 1-249-409-11 | CARBON 220 5% 1/4W | F |
| R3034 | 1-249-409-11 | CARBON 220 5% 1/4W | F |
| R3035 | 1-249-406-11 | CARBON 120 5% 1/4W | F |
| | | < SWITCH > | |
| S3001 | 1-692-014-11 | SWITCH, KEY BOARD (■) | |
| S3002 | 1-692-014-11 | SWITCH, KEY BOARD (OPEN CLOSE ⏏) | |
| S3003 | 1-692-014-11 | SWITCH, KEY BOARD (▷▯▯) | |
| S3004 | 1-692-014-11 | SWITCH, KEY BOARD (▷▷▯, ▶▶) | |
| S3005 | 1-692-014-11 | SWITCH, KEY BOARD (▯◁◁, ◀◀) | |
| S3006 | 1-692-014-11 | SWITCH, KEY BOARD (EDIT) | |
| S3007 | 1-692-014-11 | SWITCH, KEY BOARD (CLEAR) | |
| S3008 | 1-692-014-11 | SWITCH, KEY BOARD (CHECK) | |
| S3009 | 1-692-014-11 | SWITCH, KEY BOARD (TIME) | |
| S3010 | 1-692-014-11 | SWITCH, KEY BOARD (REPEAT) | |
| S3011 | 1-692-014-11 | SWITCH, KEY BOARD (PROGRAM) | |
| S3012 | 1-692-014-11 | SWITCH, KEY BOARD (SHUFFLE) | |
| S3013 | 1-692-014-11 | SWITCH, KEY BOARD (CONTINUE) | |
| S3015 | 1-692-014-11 | SWITCH, KEY BOARD (■) | |
| S3018 | 1-692-014-11 | SWITCH, KEY BOARD (REC ●) | |
| S3019 | 1-692-014-11 | SWITCH, KEY BOARD (HIGH SPEED DUBBING) | |
| S3020 | 1-692-014-11 | SWITCH, KEY BOARD (CD SYNCHRO) | |
| S3022 | 1-692-014-11 | SWITCH, KEY BOARD (PAUSE ▯▯) | |
| S3023 | 1-692-014-11 | SWITCH, KEY BOARD (◀◀) | |
| S3024 | 1-692-014-11 | SWITCH, KEY BOARD (▶▶) | |
| S3025 | 1-572-378-11 | SWITCH, SLIDE (DIRECTION) | |
| S3026 | 1-692-014-11 | SWITCH, KEY BOARD (▷) | |
| S3027 | 1-692-014-11 | SWITCH, KEY BOARD (◁) | |
| S3028 | 1-572-347-31 | SWITCH, SLIDE (DOLBY NR) | |
| ********** | | | |

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

# SW-A SW-B TC

| Ref.No. | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| * | 1-634-841-14 | SW-A BOARD | | | | |
| | | ********** | | | | |
| | | < CONNECTOR > | | | | |
| * CNP81 | 1-568-852-11 | SOCKET, CONNECTOR 9P | | | | |
| | | < IC > | | | | |
| IC81A | 8-749-924-10 | IC PHONT REFLECTOR NJL5165K-B | | | | |
| | | < RESISTOR > | | | | |
| R84 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | F |
| R85 | 1-249-408-11 | CARBON | 180 | 5% | 1/4W | F |
| | | < SWITCH > | | | | |
| S81A | 1-571-958-11 | SWITCH, PUSH (1 KEY) (STOP DET) | | | | |
| S82A | 1-571-281-21 | SWITCH, LEAF (CrO2 DET) | | | | |
| S86A | 1-571-281-21 | SWITCH, LEAF (HALF DET) | | | | |
| ********** | | | | | | |
| * | 1-634-841-14 | SW-B BOARD | | | | |
| | | ********** | | | | |
| | | < CONNECTOR > | | | | |
| * CNP81 | 1-568-852-11 | SOCKET, CONNECTOR 9P | | | | |
| | | < IC > | | | | |
| IC81B | 8-749-924-10 | IC PHONT REFLECTOR NJL5165K-B | | | | |
| | | < RESISTOR > | | | | |
| R81 | 1-249-414-11 | CARBON | 560 | 5% | 1/4W | F |
| R82 | 1-247-818-11 | CARBON | 300 | 5% | 1/4W | |
| R83 | 1-247-834-11 | CARBON | 1.3K | 5% | 1/4W | |
| R84 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | F |
| R85 | 1-249-408-11 | CARBON | 180 | 5% | 1/4W | F |
| | | < SWITCH > | | | | |
| S81B | 1-571-958-11 | SWITCH, PUSH (1 KEY) (STOP DET) | | | | |
| S82B | 1-571-281-21 | SWITCH, LEAF (CrO2 DET) | | | | |
| S84 | 1-571-281-21 | SWITCH, LEAF (ERASE PROOF SIDE A) | | | | |
| S85 | 1-571-281-21 | SWITCH, LEAF (ERASE PROOF SIDE B) | | | | |
| S86B | 1-571-281-21 | SWITCH, LEAF (HALF DET) | | | | |
| ********** | | | | | | |
| * | A-4371-146-A | TC BOARD, COMPLETE | | | | |
| | | ********** | | | | |
| | | < CAPACITOR > | | | | |
| C301 | 1-126-301-11 | ELECT | 1uF | 20% | 50V | |
| C302 | 1-124-443-00 | ELECT | 100uF | 20% | 10V | |
| C303 | 1-124-907-11 | ELECT | 10uF | 20% | 50V | |
| C304 | 1-124-126-00 | ELECT | 47uF | 20% | 10V | |
| C403 | 1-130-479-00 | MYLAR | 0.0047uF | 5% | 50V | |
| C404 | 1-162-294-31 | CERAMIC | 0.001uF | 10% | 50V | |
| C405 | 1-124-903-11 | ELECT | 1uF | 20% | 50V | |
| C406 | 1-124-907-11 | ELECT | 10uF | 20% | 50V | |
| C407 | 1-136-165-00 | FILM | 0.1uF | 5% | 50V | |
| C408 | 1-124-907-11 | ELECT | 10uF | 20% | 50V | |
| C409 | 1-124-903-11 | ELECT | 1uF | 20% | 50V | |
| C410 | 1-124-902-00 | ELECT | 0.47uF | 20% | 50V | |
| C411 | 1-124-907-11 | ELECT | 10uF | 20% | 50V | |
| C421 | 1-164-159-11 | CERAMIC | 0.1uF | | 50V | |
| C422 | 1-124-584-00 | ELECT | 100uF | 20% | 10V | |
| C423 | 1-162-290-31 | CERAMIC | 470PF | 10% | 50V | |
| C424 | 1-164-159-11 | CERAMIC | 0.1uF | | 50V | |
| C441 | 1-164-159-11 | CERAMIC | 0.1uF | | 50V | |
| C442 | 1-124-584-00 | ELECT | 100uF | 20% | 10V | |
| C443 | 1-162-290-31 | CERAMIC | 470PF | 10% | 50V | |
| C453 | 1-130-479-00 | MYLAR | 0.0047uF | 5% | 50V | |
| C454 | 1-162-294-31 | CERAMIC | 0.001uF | 10% | 50V | |
| C455 | 1-124-903-11 | ELECT | 1uF | 20% | 50V | |
| C456 | 1-124-907-11 | ELECT | 10uF | 20% | 50V | |
| C457 | 1-136-165-00 | FILM | 0.1uF | 5% | 50V | |
| C458 | 1-124-907-11 | ELECT | 10uF | 20% | 50V | |
| C459 | 1-124-903-11 | ELECT | 1uF | 20% | 50V | |
| C460 | 1-124-902-00 | ELECT | 0.47uF | 20% | 50V | |
| C461 | 1-124-907-11 | ELECT | 10uF | 20% | 50V | |
| C471 | 1-126-101-11 | ELECT | 100uF | 20% | 16V | |
| C472 | 1-126-101-11 | ELECT | 100uF | 20% | 16V | |
| C474 | 1-124-907-11 | ELECT | 10uF | 20% | 50V | |
| C475 | 1-161-379-00 | CERAMIC | 0.01uF | 20% | 25V | |
| C476 | 1-124-584-00 | ELECT | 100uF | 20% | 10V | |
| C477 | 1-124-465-00 | ELECT | 0.47uF | 20% | 50V | |
| C478 | 1-161-375-00 | CERAMIC | 0.0022uF | 20% | 50V | |
| C480 | 1-161-377-00 | CERAMIC | 0.0047uF | 30% | 16V | |
| C482 | 1-124-443-00 | ELECT | 100uF | 20% | 10V | |
| C483 | 1-164-159-11 | CERAMIC | 0.1uF | | 50V | |
| | | < CONNECTOR > | | | | |
| CN301 | 1-764-560-11 | CONNECTOR, FFC/FPC 18P | | | | |
| CN302 | 1-564-517-11 | PLUG, CONNECTOR 2P | | | | |
| * CN401 | 1-564-520-11 | PLUG, CONNECTOR 5P | | | | |
| CN402 | 1-580-783-11 | CONNECTOR, BOARD TO BOARD 10P | | | | |
| CN403 | 1-580-783-11 | CONNECTOR, BOARD TO BOARD 10P | | | | |
| CN404 | 1-580-783-11 | CONNECTOR, BOARD TO BOARD 10P | | | | |
| CN405 | 1-750-741-11 | CONNECTOR, FFC/FPC 9P | | | | |
| CN406 | 1-750-741-11 | CONNECTOR, FFC/FPC 9P | | | | |
| CN407 | 1-764-302-11 | HOUSING, CONNECTOR (PC BOARD) 24P | | | | |
| CN409 | 1-691-645-11 | SOCKET, CONNECTOR 9P | | | | |

TC

| Ref. No. | Part No. | Description | | Remark |
|---|---|---|---|---|
| | | < DIODE > | | |
| D301 | 8-719-200-02 | DIODE | 10E2 | |
| D302 | 8-719-200-02 | DIODE | 10E2 | |
| D303 | 8-719-987-63 | DIODE | 1N4148M | |
| D381 | 8-719-047-27 | DIODE | SEL4425GM | |
| D396 | 8-719-987-63 | DIODE | 1N4148M | |
| D397 | 8-719-987-63 | DIODE | 1N4148M | |
| D398 | 8-719-987-63 | DIODE | 1N4148M | |
| D399 | 8-719-987-63 | DIODE | 1N4148M | |
| D401 | 8-719-987-63 | DIODE | 1N4148M | |
| D402 | 8-719-987-63 | DIODE | 1N4148M | |
| D498 | 8-719-987-63 | DIODE | 1N4148M | |
| D499 | 8-719-987-63 | DIODE | 1N4148M | |
| | | < IC > | | |
| IC301 | 8-759-099-08 | IC | M50964-260FP | |
| IC302 | 8-759-165-82 | IC | PST600E-T | |
| IC401 | 8-759-098-75 | IC | HA12171NT | |
| IC402 | 8-759-266-35 | IC | TA8242-AK | |
| | | < COIL > | | |
| L401 | 1-410-482-31 | INDUCTOR | 100uH | |
| L402 | 1-410-482-31 | INDUCTOR | 100uH | |
| | | < TRANSISTOR > | | |
| Q301 | 8-729-620-05 | TRANSISTOR | 2SC2603-EF | |
| Q302 | 8-729-900-80 | TRANSISTOR | DTC114ES | |
| Q303 | 8-729-900-65 | TRANSISTOR | DTA144ES | |
| Q304 | 8-729-900-61 | TRANSISTOR | DTA114ES | |
| Q305 | 8-729-900-65 | TRANSISTOR | DTA144ES | |
| Q306 | 8-729-900-65 | TRANSISTOR | DTA144ES | |
| Q307 | 8-729-900-65 | TRANSISTOR | DTA144ES | |
| Q308 | 8-729-900-65 | TRANSISTOR | DTA144ES | |
| Q309 | 8-729-900-89 | TRANSISTOR | DTC144ES | |
| Q310 | 8-729-900-65 | TRANSISTOR | DTA144ES | |
| Q311 | 8-729-900-89 | TRANSISTOR | DTC144ES | |
| Q312 | 8-729-900-65 | TRANSISTOR | DTA144ES | |
| Q391 | 8-729-900-65 | TRANSISTOR | DTA144ES | |
| Q392 | 8-729-900-63 | TRANSISTOR | DTA124ES | |
| Q393 | 8-729-900-80 | TRANSISTOR | DTC114ES | |
| Q394 | 8-729-900-63 | TRANSISTOR | DTA124ES | |
| Q395 | 8-729-900-63 | TRANSISTOR | DTA124ES | |
| Q396 | 8-729-822-44 | TRANSISTOR | 2SA1524 | |
| Q397 | 8-729-900-63 | TRANSISTOR | DTA124ES | |
| Q398 | 8-729-900-63 | TRANSISTOR | DTA124ES | |
| Q399 | 8-729-900-63 | TRANSISTOR | DTA124ES | |
| Q401 | 8-729-620-05 | TRANSISTOR | 2SC2603-EF | |
| Q411 | 8-729-620-05 | TRANSISTOR | 2SC2603-EF | |
| Q412 | 8-729-801-84 | TRANSISTOR | 2SB1013-4 | |
| Q413 | 8-729-801-84 | TRANSISTOR | 2SB1013-4 | |

| Ref. No. | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| Q451 | 8-729-620-05 | TRANSISTOR | 2SC2603-EF | | | |
| | | < RESISTOR > | | | | |
| ⚠R301 | 1-249-390-11 | CARBON | 5.6 | 5% | 1/6W | F |
| R302 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R303 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W | F |
| R304 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W | F |
| R305 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W | |
| R306 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R307 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | F |
| R308 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | F |
| R309 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R310 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R311 | 1-247-903-00 | CARBON | 1M | 5% | 1/4W | |
| R312 | 1-247-895-00 | CARBON | 470K | 5% | 1/4W | |
| R313 | 1-247-895-00 | CARBON | 470K | 5% | 1/4W | |
| R314 | 1-249-410-11 | CARBON | 270 | 5% | 1/4W | F |
| R315 | 1-249-410-11 | CARBON | 270 | 5% | 1/4W | F |
| R316 | 1-249-410-11 | CARBON | 270 | 5% | 1/4W | F |
| R317 | 1-249-410-11 | CARBON | 270 | 5% | 1/4W | F |
| R320 | 1-249-410-11 | CARBON | 270 | 5% | 1/4W | F |
| R321 | 1-249-410-11 | CARBON | 270 | 5% | 1/4W | F |
| R322 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R380 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | F |
| R390 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | F |
| R391 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | F |
| R392 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | F |
| R393 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | F |
| R394 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | F |
| R396 | 1-249-428-11 | CARBON | 8.2K | 5% | 1/4W | F |
| R397 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W | F |
| R398 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R399 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R401 | 1-249-430-11 | CARBON | 12K | 5% | 1/4W | |
| R402 | 1-249-431-11 | CARBON | 15K | 5% | 1/4W | |
| R403 | 1-249-427-11 | CARBON | 6.8K | 5% | 1/4W | F |
| R404 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R411 | 1-249-423-11 | CARBON | 3.3K | 5% | 1/4W | F |
| R412 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | F |
| R413 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | F |
| R414 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | F |
| R415 | 1-249-435-11 | CARBON | 33K | 5% | 1/4W | |
| R423 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W | |
| R437 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R438 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R439 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R443 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W | |
| R451 | 1-249-430-11 | CARBON | 12K | 5% | 1/4W | |
| R452 | 1-249-431-11 | CARBON | 15K | 5% | 1/4W | |
| R453 | 1-249-427-11 | CARBON | 6.8K | 5% | 1/4W | F |

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

# TC TC-SW

| Ref.No. | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| R454 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R461 | 1-249-423-11 | CARBON | 3.3K | 5% | 1/4W | F |
| R462 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | F |
| R463 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | F |
| R464 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | F |
| R465 | 1-249-435-11 | CARBON | 33K | 5% | 1/4W | |
| R471 | 1-215-451-00 | METAL | 18K | 1% | 1/6W | |
| R472 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R473 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R474 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R475 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | F |
| R476 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R477 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R478 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | F |
| R479 | 1-247-864-11 | CARBON | 24K | 5% | 1/4W | |
| R480 | 1-249-393-11 | CARBON | 10 | 5% | 1/4W | F |
| R481 | 1-247-885-00 | CARBON | 180K | 5% | 1/4W | |
| R482 | 1-249-432-11 | CARBON | 18K | 5% | 1/4W | |
| R483 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R484 | 1-247-852-11 | CARBON | 7.5K | 5% | 1/4W | |
| R485 | 1-247-864-11 | CARBON | 24K | 5% | 1/4W | |
| R486 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W | |
| R487 | 1-249-393-11 | CARBON | 10 | 5% | 1/4W | F |
| R488 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R489 | 1-249-415-11 | CARBON | 680 | 5% | 1/4W | F |
| R490 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R491 | 1-249-415-11 | CARBON | 680 | 5% | 1/4W | F |
| R492 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R493 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | F |
| R494 | 1-249-434-11 | CARBON | 27K | 5% | 1/4W | |
| R495 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R496 | 1-249-434-11 | CARBON | 27K | 5% | 1/4W | |
| R497 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | F |

< VARIABLE RESISTOR >

| | | |
|---|---|---|
| RV401 | 1-241-785-11 | RES, ADJ, CARBON 10K |
| RV451 | 1-241-785-11 | RES, ADJ, CARBON 10K |

< VIBRATOR >

| | | |
|---|---|---|
| X301 | 1-577-358-21 | VIBRATOR, CERAMIC (4MHz) |

**********

| | | |
|---|---|---|
| * | 1-650-580-11 | TC-SW BOARD |

**********

< CONNECTOR >

| | | |
|---|---|---|
| CN3051 | 1-580-482-11 | SOCKET, CONNECTOR 7P |

| Ref.No. | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|

< DIODE >

| | | |
|---|---|---|
| D3051 | 8-719-046-80 | DIODE SML19416W |
| D3052 | 8-719-046-80 | DIODE SML19416W |
| D3053 | 8-719-046-80 | DIODE SML19416W |
| D3054 | 8-719-046-80 | DIODE SML19416W |

< RESISTOR >

| | | | | | | |
|---|---|---|---|---|---|---|
| R3051 | 1-249-418-11 | CARBON | 1.2K | 5% | 1/4W | F |
| R3052 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W | F |
| R3054 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W | F |
| R3055 | 1-249-424-11 | CARBON | 3.9K | 5% | 1/4W | F |
| R3056 | 1-249-430-11 | CARBON | 12K | 5% | 1/4W | |
| R3061 | 1-249-409-11 | CARBON | 220 | 5% | 1/4W | F |
| R3062 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W | |
| R3063 | 1-249-409-11 | CARBON | 220 | 5% | 1/4W | F |
| R3064 | 1-249-409-11 | CARBON | 220 | 5% | 1/4W | F |
| R3065 | 1-249-409-11 | CARBON | 220 | 5% | 1/4W | F |
| R3066 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W | |
| R3067 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W | |
| R3068 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W | |

< SWITCH >

| | | |
|---|---|---|
| S3051 | 1-692-014-11 | SWITCH, KEY BOARD (■) |
| S3052 | 1-692-014-11 | SWITCH, KEY BOARD (◀◀) |
| S3053 | 1-692-014-11 | SWITCH, KEY BOARD (▶▶) |
| S3054 | 1-692-014-11 | SWITCH, KEY BOARD (▷) |
| S3055 | 1-692-014-11 | SWITCH, KEY BOARD (◁) |

**********

MISCELLANEOUS

**********

| | | |
|---|---|---|
| ⚠8 | 1-574-902-11 | CORD, POWER |
| 11 | 1-751-965-11 | WIRE (FLAT TYPE) (7 CORE) |
| 60 | 1-751-961-11 | WIRE (FLAT TYPE) (9 CORE) |
| 61 | 1-751-960-11 | WIRE (FLAT TYPE) (19 CORE) |
| 62 | 1-751-962-11 | WIRE (FLAT TYPE) (11 CORE) |
| 63 | 1-751-966-11 | WIRE (FLAT TYPE) (17 CORE) |
| 64 | 1-751-964-11 | WIRE (FLAT TYPE) (7 CORE) |
| 65 | 1-751-963-11 | WIRE (FLAT TYPE) (18 CORE) |
| 117 | 1-751-967-11 | WIRE (FLAT TYPE) (9 CORE) |
| 252 | 1-452-719-11 | MAGNET ASSY |
| 262 | 1-751-806-11 | WIRE (FLAT TYPE) (5 CORE) |
| ⚠304 | 8-848-281-11 | OPTICAL PICK-UP BLOCK (KSS-390A) |
| ⚠F951 | 1-532-259-00 | FUSE (T1.6A, 250V) |
| ⚠F952 | 1-532-215-00 | FUSE (T0.8A, 250V) |
| HP101 | A-2003-837-F | DECK ASSY, HEAD (DECK A) |
| HRP101 | A-2003-838-L | DECK ASSY, HEAD (DECK B) |
| IC81A | 8-749-924-10 | IC NJL5165K-B (H1) |
| IC81B | 8-749-924-10 | IC NJL5165K-B (H1) |
| M101A | X-3363-501-1 | MOTOR, REEL ASSY (DECK A) |

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| M101B | X-3363-501-1 | MOTOR, REEL ASSY (DECK B) | |
| M102A | X-3365-377-1 | MOTOR ASSY (CAPSTAN) (DECK A) | |
| M102B | X-3365-277-1 | MOTOR ASSY (CAPSTAN) (DECK B) | |
| M901 | X-4917-504-1 | MOTOR ASSY (SLED) | |
| M902 | X-4917-523-3 | MOTOR ASSY (SPINDLE) | |
| M903 | A-4604-363-A | MOTOR (L) ASSY (LOADING) | |
| S291 | 1-572-086-11 | SWITCH, LEAF (LOAD OUT) | |
| S292 | 1-572-086-11 | SWITCH, LEAF (LOAD IN) | |
| ⚠T951 | 1-423-969-21 | TRANSFORMER, POWER | |

**********

ACCESSORIES & PACKING MATERIALS

**********

| | | | |
|---|---|---|---|
| * | 4-963-380-01 | CUSHION (FRONT) | |
| * | 4-963-381-01 | CUSHION (REAR) | |
| | 3-758-278-61 | MANUAL, INSTRUCTION (KOREAN, PORTUGUESE) | |
| | 3-758-278-81 | MANUAL, INSTRUCTION (ENGLISH, SPANISH, CHINESE) | |

**********

**********
HARDWARE LIST
**********

| | | | |
|---|---|---|---|
| #1 | 7-682-547-09 | SCREW +BVTT 3X6 (S) | |
| #2 | 7-685-649-79 | SCREW +BVTP 3X14 TYPE2 IT-3 | |
| #3 | 7-685-646-79 | SCREW +BVTP 3X8 TYPE2 N-S | |
| #4 | 7-685-648-79 | SCREW +BVTP 3X12 TYPE2 N-S | |
| #5 | 7-621-770-67 | SCREW +PTT 2.6X6 (S) | |
| #6 | 7-685-780-01 | SCREW +PTT 2X3 (S) | |
| #7 | 7-627-556-08 | SCREW +P 2.6X2.8 | |
| #8 | 7-621-775-00 | SCREW +B 2.6X3 | |
| #9 | 7-685-647-79 | SCREW +BVTP 3X10 TYPE2 N-S | |
| #10 | 7-621-255-15 | SCREW +P 2X3 | |

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

9-959-410-11

Sony Corporation
Audio Group

English
94C0970040-1
Printed in Singapore

Published by Audio Sector Quality Assurance Dept.

# HCD-H650J

SONY

# SERVICE MANUAL

*Tourist Model*

## SUPPLEMENT-1

File this supplement with the service manual.

**Subject : BD BOARD Circuit change (CD section base unit)**

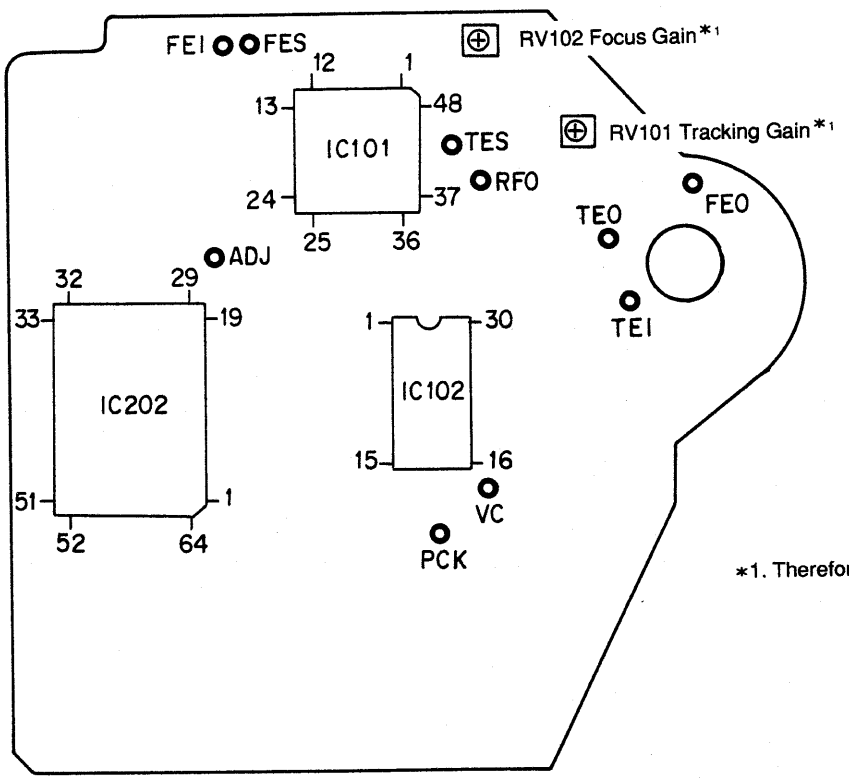
(ECN-CD400432)

- The two of base unit BU-5BD17 and BU-5BD15 in the CD section are used for this model.
  Refer to this service manual supplement-1 for the BD board of a set used BU-5BD17, and to the service manual is issued previously for the BD board of a set used BU-5BD15.

## ELECTRICAL ADJUSTMENTS

- The two of base unit BU-5BD17 and BU-5BD15 in the CD section are used for this model.
  Refer to the following arrangement plan of parts since only points of adjustment confirmation are different as for a set used BU-5BD17.

**[BD BOARD] (SIDE B)**




*1. Therefore, do not perform, this adjustment.

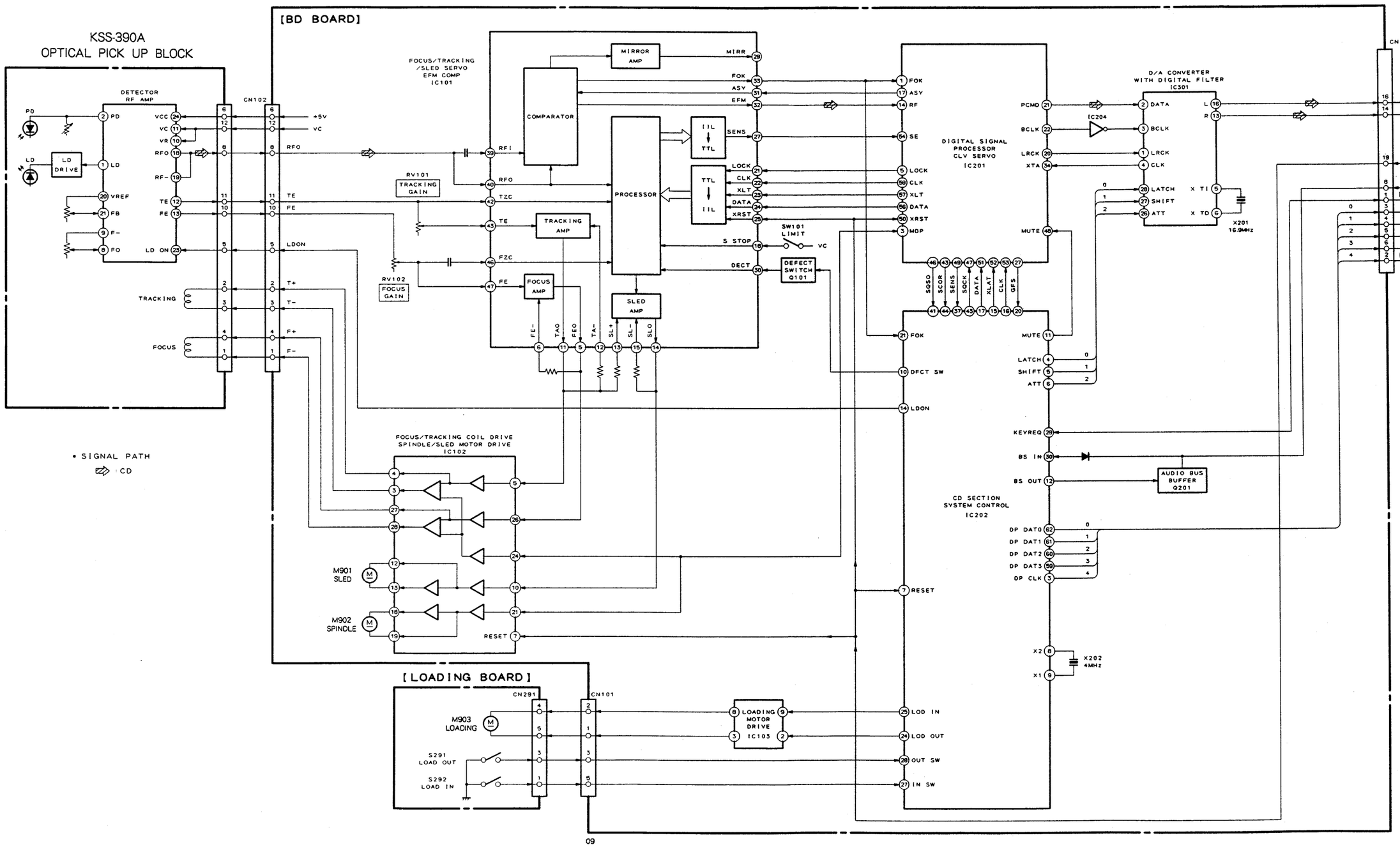
Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

**SAFETY-RELATED COMPONENT WARNING !!**

**COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.**

## BLOCK DIAGRAM — CD SECTION —

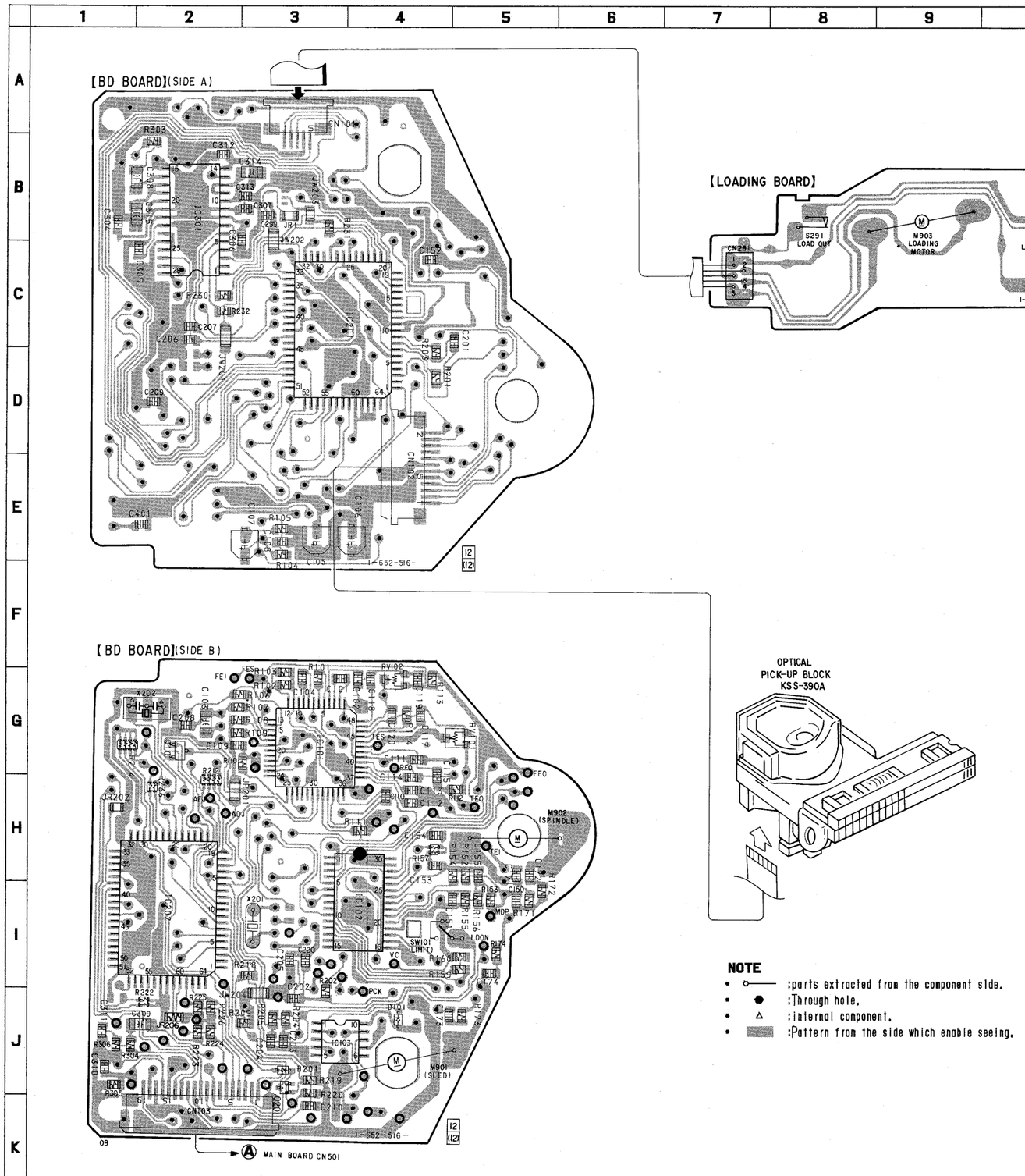



09

## PRINTED WIRING BOARD — CD SECTION —

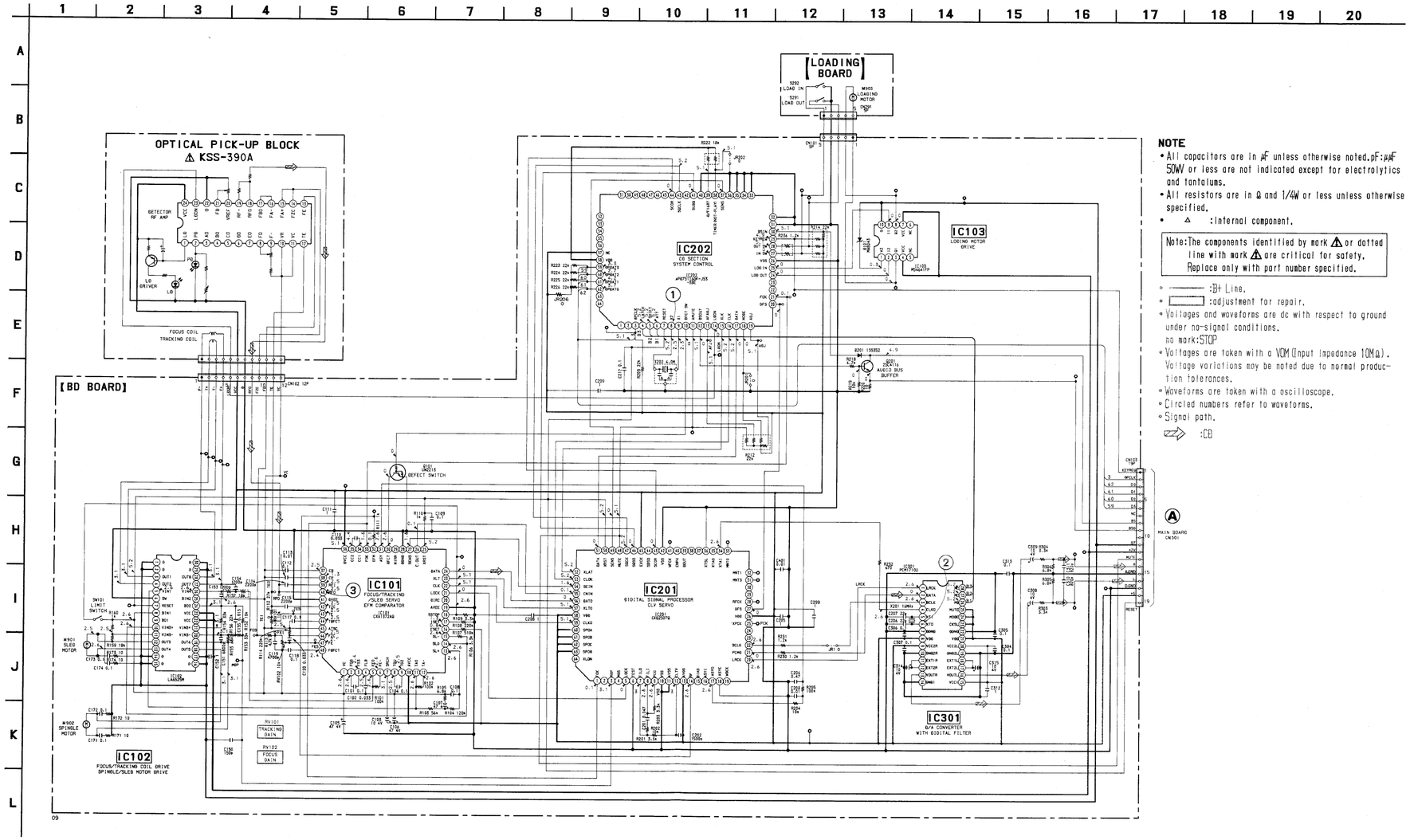
- **Semiconductor Location**

| Ref. No. | Location |
|---|---|
| D101 | J-4 |
| D201 | J-3 |
| IC101 | G-3 |
| IC102 | I-4 |
| IC103 | J-3 |
| IC201 | C-4 |
| IC202 | I-2 |
| IC301 | B-2 |
| Q101 | G-2 |
| Q201 | J-3 |



**SCHEMATIC DIAGRAM — CD SECTION —**

- See page 10 for IC Block Diagrams.
- See page 11 for IC Pin Functions. (IC202)



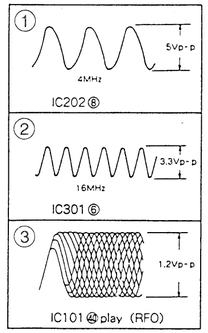

**NOTE**

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- ⚠ : Internal component.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

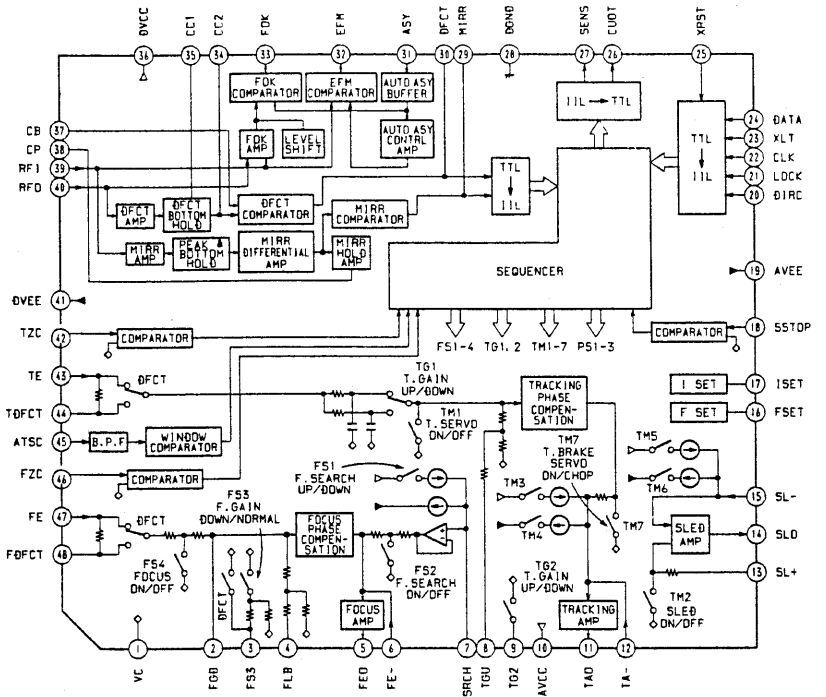
- ▭ : B+ Line.
- ▭ : adjustment for repair.
- Voltages and waveforms are dc with respect to ground under no-signal conditions. no mark: STOP
- Voltages are taken with a VOM (Input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope.
- Circled numbers refer to waveforms.
- Signal path. ⇨ : CD

**• Waveforms**

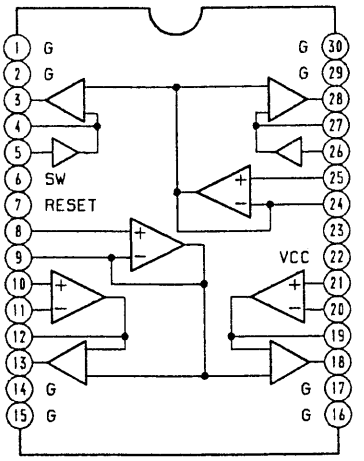


## IC BLOCK DIAGRAMS

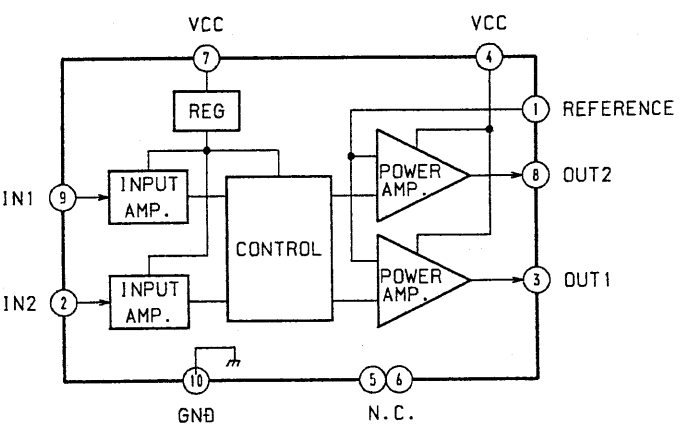
### IC101 CXA1372AQ



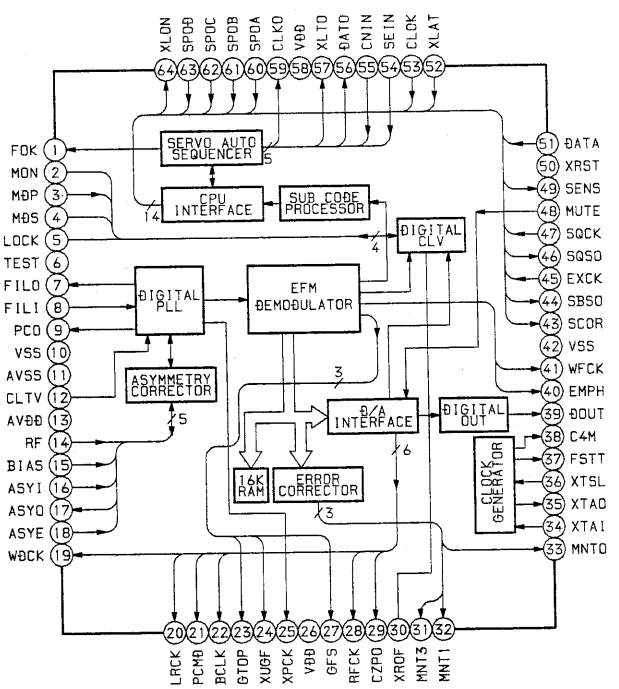

### IC102 LA6525M



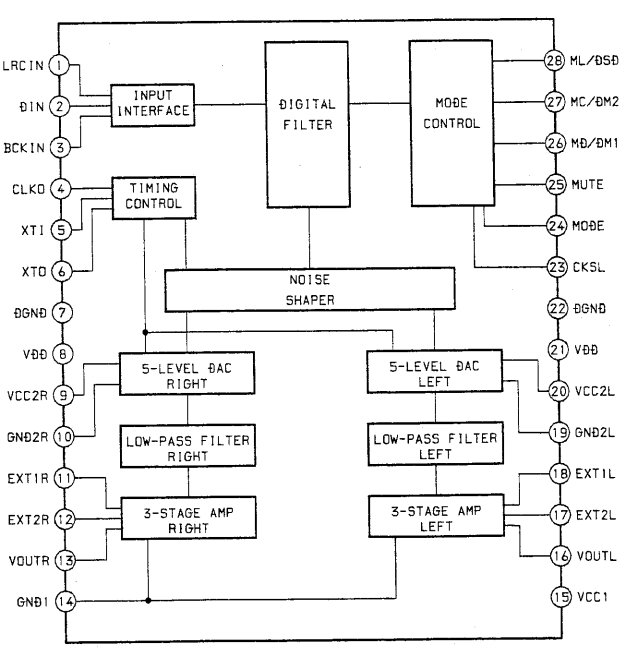

### IC103 M54641FP




### IC201 CXD2507Q




### IC301 PCM1710U



*1 Loading motor control

| | IN | OUT | BRAKE |
|---|---|---|---|
| LOD OUT ㉔ | L | H | H |
| LOD IN ㉕ | H | L | H |

## IC PIN FUNCTION

- **IC202 CD SYSTEM CONTROLLER ( μPD75116GF-J53-3BE)**

This IC controls data communication, audio bus input, etc. to/from CXA1372AQ (RF signal and servo processor), CXD2507Q (digital signal processor), PCM1710U (digital filter), and μPD78043GF (display controller) of CD block.

| Pin No. | Pin Name | I/O | D scription |
|---|---|---|---|
| 1, 2 | | O | Not used (open) |
| 3 | DPCLK | O | Display data transfer clock to display controller ( μPD78043GF) |
| 4 | LATCH | O | Latch output to digital filter (PCM1710U) |
| 5 | SHIFT | O | Attenuator output to digital filter (PCM1710U) |
| 6 | ATT | O | Shift output to digital filter (PCM1710U) |
| 7 | RESET | I | System reset input |
| 8 | X2 | O | Clock (4 MHz) |
| 9 | X1 | I | |
| 10 | DFCT SW | O | Defect circuit of EFM comparator (CXA1372AQ) ON/OFF switching output |
| 11 | AMUTE | O | Muting control output. "H": Mute |
| 12 | BSOUT | O | Audio bus output |
| 13 | AFADJ | I | CD test mode input 2. Fixed at "H" ("L": Test mode) |
| 14 | LDON | O | Optical pickup laser diode ON/OFF switching output. "H": 0N |
| 15 | XLT | O | Serial data latch output to DSP (CXD2507Q) |
| 16 | CLK | O | Serial data transfer clock output to DSP (CXD2507Q) |
| 17 | DATA | O | Serial data output to DSP (CXD2507Q) |
| 18 | MODE | I | Not used. (Fixed at "H".) |
| 19 | ADJ | I | CD test mode input 1. "L": Stops GSF check. Continues rotating the spindle even if a frame sync is not generated during PLAY, PAUSE, and SEARCH |
| 20 | GFS | I | GFS signal input from DSP (CXD2507Q). "L": NG, "H": OK |
| 21 | FOK | I | Focus OK signal input from focus servo (CXA1372AQ). "H": OK |
| 22, 23 | | O | Not used (open) |
| 24 | LOD OUT | O | Output for rotating M903 (loading motor) in the loading–out direction *1 |
| 25 | LOD IN | O | Output for rotating M903 (loading motor) in the loading–in direction *1 |
| 26 | Vss | – | GND |
| 27 | $\overline{\text{IN SW}}$ | I | S292 (loading–in switch) input |
| 28 | $\overline{\text{OUT SW}}$ | I | S291 (loading–out switch) input |
| 29 | KEYREQ | I | Key data request input from display controller ( μPD78043GF) |
| 30 | BSIN | I | Audio bus input |
| 31~36 | | I | Not used (connected to GND) |
| 37 | SENSE | I | SENSE input from DSP (CXD2507Q) |
| 38 | $\overline{\text{TIMER}}$ | I | Not used (fixed at "H") |
| 39 | DF/16BT | I | Digital filter mode setting input of DSP (CXD2507Q). (Fixed at "H".) |
| 40 | | I | Not used (connected to GND) |
| 41 | SUBQ | I | Subcode Q data input from DSP (CXD2507Q) |
| 42 | | O | Not used (open) |
| 43 | SQCLK | O | Subcode Q data read clock output to DSP (CXD2507Q) |
| 44 | SCOR | I | Subcode sync S0+S1 detection input from DSP (CXD2507Q) |
| 45~56 | | O | Not used (open) |
| 57 | NC | I | Not used (connected to +5V) |
| 58 | $V_{DD}$ | – | +5V power supply |
| 59 | DPDAT3 | I/O | Key data input and display data output to/from display controller ( μPD78043GF) |
| 60 | DPDAT2 | I/O | |
| 61 | DPDAT1 | I/O | |
| 62 | DPDAT0 | I/O | |
| 63, 64 | | O | Not used (open) |

# ELECTRICAL PARTS LIST

**BD**

NOTE:

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- RESISTORS
  All resistors are in ohms
  METAL: Metal-film resistor
- SEMICONDUCTORS
  In each case, u: μ , for example:
  uA...: μA..., uPA...: μPA..., uPB...: μPB..., uPC...: μPC..., uPD...: μPD...
- CAPACITORS
  uF : μF
- COILS
  uH : μH

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| * | A-4673-204-A | BD BOARD, COMPLETE | | | |
| | | ********** | | | |
| | | < CAPACITOR > | | | |
| C101 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V |
| C102 | 1-163-989-11 | CERAMIC CHIP | 0.033uF | 10% | 25V |
| C103 | 1-135-157-21 | TANTALUM CHIP | 10uF | 20% | 6.3V |
| C104 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V |
| C105 | 1-126-607-11 | ELECT CHIP | 47uF | 20% | 4V |
| C106 | 1-126-607-11 | ELECT CHIP | 47uF | 20% | 4V |
| C107 | 1-126-607-11 | ELECT CHIP | 47uF | 20% | 4V |
| C108 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V |
| C109 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V |
| C110 | 1-163-989-11 | CERAMIC CHIP | 0.033uF | 10% | 25V |
| C111 | 1-164-346-11 | CERAMIC CHIP | 1uF | | 16V |
| C112 | 1-164-004-11 | CERAMIC CHIP | 0.1uF | 10% | 25V |
| C113 | 1-164-232-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C114 | 1-164-695-11 | CERAMIC CHIP | 0.0022uF | 5% | 50V |
| C115 | 1-164-695-11 | CERAMIC CHIP | 0.0022uF | 5% | 50V |
| C117 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V |
| C118 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V |
| C119 | 1-163-017-00 | CERAMIC CHIP | 0.0047uF | 5% | 50V |
| C120 | 1-163-989-11 | CERAMIC CHIP | 0.033uF | 10% | 25V |
| C150 | 1-163-121-00 | CERAMIC CHIP | 150PF | 5% | 50V |
| C151 | 1-163-019-00 | CERAMIC CHIP | 0.0068uF | 10% | 50V |
| C152 | 1-164-346-11 | CERAMIC CHIP | 1uF | | 16V |
| C153 | 1-163-143-00 | CERAMIC CHIP | 0.0012uF | 5% | 50V |
| C154 | 1-163-143-00 | CERAMIC CHIP | 0.0012uF | 5% | 50V |
| C155 | 1-163-023-00 | CERAMIC CHIP | 0.015uF | 5% | 50V |
| C171 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V |
| C172 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V |
| C173 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V |
| C174 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V |
| C201 | 1-163-809-11 | CERAMIC CHIP | 0.047uF | 10% | 25V |
| C202 | 1-163-145-00 | CERAMIC CHIP | 0.0015uF | 5% | 50V |
| C203 | 1-164-232-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C204 | 1-164-005-11 | CERAMIC CHIP | 0.47uF | | 25V |
| C205 | 1-164-346-11 | CERAMIC CHIP | 1uF | | 16V |
| C206 | 1-163-235-11 | CERAMIC CHIP | 22PF | 5% | 50V |
| C207 | 1-163-235-11 | CERAMIC CHIP | 22PF | 5% | 50V |
| C208 | 1-164-346-11 | CERAMIC CHIP | 1uF | | 16V |
| C209 | 1-164-346-11 | CERAMIC CHIP | 1uF | | 16V |
| C210 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V |
| C299 | 1-164-346-11 | CERAMIC CHIP | 1uF | | 16V |
| C304 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V |
| C305 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V |
| C306 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V |
| C307 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V |
| C308 | 1-135-157-21 | TANTALUM CHIP | 10uF | 20% | 6.3V |
| C309 | 1-135-157-21 | TANTALUM CHIP | 10uF | 20% | 6.3V |
| C310 | 1-163-139-00 | CERAMIC CHIP | 820PF | 5% | 50V |
| C311 | 1-163-139-00 | CERAMIC CHIP | 820PF | 5% | 50V |
| C312 | 1-164-346-11 | CERAMIC CHIP | 1uF | | 16V |
| C313 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V |
| C314 | 1-135-157-21 | TANTALUM CHIP | 10uF | 20% | 6.3V |
| C315 | 1-135-157-21 | TANTALUM CHIP | 10uF | 20% | 6.3V |
| C401 | 1-164-232-11 | CERAMIC CHIP | 0.01uF | | 50V |
| | | < CONNECTOR > | | | |
| CN101 | 1-580-858-11 | SOCKET, CONNECTOR (SMT) 5P | | | |
| CN102 | 1-565-771-11 | CONNECTOR, FPC (1.0MM) (ZIF) 12P | | | |
| CN103 | 1-569-364-21 | CONNECTOR, FPC 19P | | | |
| | | < DIODE > | | | |
| D101 | 8-719-421-82 | DIODE MA8043-M | | | |
| D201 | 8-719-016-74 | DIODE 1SS352 | | | |
| | | < IC > | | | |
| IC101 | 8-752-058-77 | IC CXA1372AQ | | | |
| IC102 | 8-759-823-48 | IC LA6525M | | | |
| IC103 | 8-759-636-20 | IC M54641FP | | | |
| IC201 | 8-752-371-46 | IC CXD2507Q | | | |
| IC202 | 8-759-267-51 | IC uPD75116GF-J53-3BE | | | |
| IC301 | 8-759-185-29 | IC PCM1710U-BT1 | | | |
| | | < JUMPER RESISTOR > | | | |
| JR1 | 1-216-295-91 | METAL CHIP | 0 | 5% | 1/8W |
| JR201 | 1-216-296-00 | METAL CHIP | 0 | 5% | 1/8W |
| JR202 | 1-216-295-91 | METAL CHIP | 0 | 5% | 1/8W |
| JR206 | 1-216-296-00 | METAL CHIP | 0 | 5% | 1/8W |
| JW201 | 1-216-296-00 | METAL CHIP | 0 | 5% | 1/8W |
| JW202 | 1-216-296-00 | METAL CHIP | 0 | 5% | 1/8W |
| JW203 | 1-216-295-91 | METAL CHIP | 0 | 5% | 1/8W |
| JW204 | 1-216-296-00 | METAL CHIP | 0 | 5% | 1/8W |

| Ref. No. | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| | | < MOTOR > | | | | |
| M901 | X-4917-504-1 | MOTOR ASSY (SLED) | | | | |
| M902 | X-4917-523-3 | MOTOR ASSY (SPINDLE) | | | | |
| | | < TRANSISTOR > | | | | |
| Q101 | 8-729-805-45 | TRANSISTOR | 2SC3395 | | | |
| Q201 | 8-729-602-21 | TRANSISTOR | 2SC4154 | | | |
| | | < RESISTOR > | | | | |
| R101 | 1-216-097-00 | METAL CHIP | 100K | 5% | 1/10W | |
| R102 | 1-216-097-00 | METAL CHIP | 100K | 5% | 1/10W | |
| R103 | 1-216-091-00 | METAL CHIP | 56K | 5% | 1/10W | |
| R104 | 1-216-099-00 | METAL CHIP | 120K | 5% | 1/10W | |
| R105 | 1-216-069-00 | METAL CHIP | 6.8K | 5% | 1/10W | |
| R106 | 1-216-061-00 | METAL CHIP | 3.3K | 5% | 1/10W | |
| R107 | 1-216-114-00 | METAL GLAZE | 510K | 5% | 1/10W | |
| R108 | 1-216-105-91 | METAL GLAZE | 220K | 5% | 1/10W | |
| R109 | 1-216-061-00 | METAL CHIP | 3.3K | 5% | 1/10W | |
| R110 | 1-216-049-00 | METAL CHIP | 1K | 5% | 1/10W | |
| R111 | 1-216-049-00 | METAL CHIP | 1K | 5% | 1/10W | |
| R112 | 1-216-083-00 | METAL CHIP | 27K | 5% | 1/10W | |
| R113 | 1-216-065-00 | METAL CHIP | 4.7K | 5% | 1/10W | |
| R114 | 1-216-105-91 | METAL GLAZE | 220K | 5% | 1/10W | |
| R152 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W | |
| R153 | 1-216-085-00 | METAL CHIP | 33K | 5% | 1/10W | |
| R154 | 1-216-085-00 | METAL CHIP | 33K | 5% | 1/10W | |
| R155 | 1-216-093-00 | METAL CHIP | 68K | 5% | 1/10W | |
| R156 | 1-216-081-00 | METAL CHIP | 22K | 5% | 1/10W | |
| R157 | 1-236-427-11 | NETWORK, RES | 18K X2 | | | |
| R159 | 1-216-079-00 | METAL CHIP | 18K | 5% | 1/10W | |
| R160 | 1-216-049-00 | METAL CHIP | 1K | 5% | 1/10W | |
| R171 | 1-216-001-00 | METAL CHIP | 10 | 5% | 1/10W | |
| R172 | 1-216-001-00 | METAL CHIP | 10 | 5% | 1/10W | |
| R173 | 1-216-001-00 | METAL CHIP | 10 | 5% | 1/10W | |
| R174 | 1-216-001-00 | METAL CHIP | 10 | 5% | 1/10W | |
| R201 | 1-216-061-00 | METAL CHIP | 3.3K | 5% | 1/10W | |
| R202 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W | |
| R203 | 1-216-061-00 | METAL CHIP | 3.3K | 5% | 1/10W | |
| R204 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W | |
| R205 | 1-216-097-00 | METAL CHIP | 100K | 5% | 1/10W | |
| R209 | 1-216-081-00 | METAL CHIP | 22K | 5% | 1/10W | |
| R212 | 1-239-039-11 | NETWORK, RES | 22K X4 | | | |
| R214 | 1-239-039-11 | NETWORK, RES | 22K X4 | | | |
| R218 | 1-216-065-00 | METAL CHIP | 4.7K | 5% | 1/10W | |
| R219 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W | |
| R220 | 1-216-001-00 | METAL CHIP | 10 | 5% | 1/10W | |
| R222 | 1-236-427-11 | NETWORK, RES | 18K X2 | | | |
| R223 | 1-216-081-00 | METAL CHIP | 22K | 5% | 1/10W | |
| R224 | 1-216-081-00 | METAL CHIP | 22K | 5% | 1/10W | |
| R225 | 1-216-081-00 | METAL CHIP | 22K | 5% | 1/10W | |
| R226 | 1-216-081-00 | METAL CHIP | 22K | 5% | 1/10W | |
| R230 | 1-216-051-00 | METAL CHIP | 1.2K | 5% | 1/10W | |
| R231 | 1-216-051-00 | METAL CHIP | 1.2K | 5% | 1/10W | |
| R232 | 1-216-041-00 | METAL CHIP | 470 | 5% | 1/10W | |
| R236 | 1-236-413-11 | NETWORK, RES | 1.2K X2 | | | |
| R303 | 1-216-061-00 | METAL CHIP | 3.3K | 5% | 1/10W | |
| R304 | 1-216-061-00 | METAL CHIP | 3.3K | 5% | 1/10W | |
| R305 | 1-216-069-00 | METAL CHIP | 6.8K | 5% | 1/10W | |
| R306 | 1-216-069-00 | METAL CHIP | 6.8K | 5% | 1/10W | |
| | | < VARIABLE RESISTOR > | | | | |
| RV101 | 1-241-395-11 | RES, ADJ, METAL GLAZE 10K | | | | |
| RV102 | 1-241-395-11 | RES, ADJ, METAL GLAZE 10K | | | | |
| | | < SWITCH > | | | | |
| SW101 | 1-572-085-11 | SWITCH, LEAF (LIMIT) | | | | |
| | | < VIBRATOR > | | | | |
| X201 | 1-567-908-11 | VIBRATOR, CRYSTAL (16MHz) | | | | |
| X202 | 1-579-216-11 | VIBRATOR, CERAMIC (4MHz) | | | | |

**********

9-959-410-81

Sony Corporation
Consumer A&V Products Company
Home A&V Products Div.



English
95A0970041-1
Printed in Singapore

Published by Home A&V Products Div.
Quality Engineering Dept.

# HCD-H650J

SONY
# SERVICE MANUAL

*Tourist Model*

# SUPPLEMENT-2

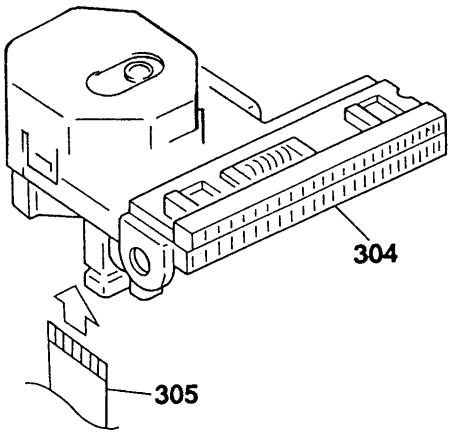
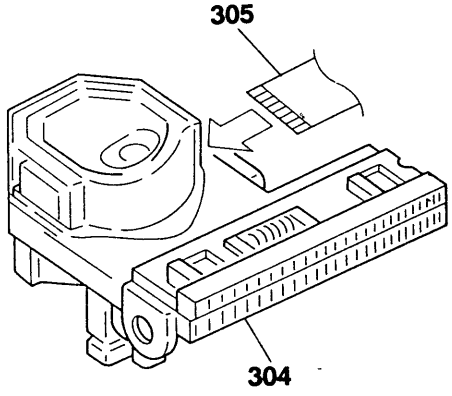
File this Supplement with the Service Manual.

**Subject : • Change of the optical pick-up (Change of the base unit)**
**• Correction**

(ECN-TA501261)

- The optical pick-up of CD section is changed from KSS-390A to KSS-240A for this unit. The base unit of CD section is also changed from BU-5BD17 to BU-5BD17A.
  As each base unit has no interchangeability, judge which base unit is used refering to the following "How to distinct between KSS-390A and KSS-240A."
  There are two kinds of base unit BU-5BD15 and BU-5BD17 for use KSS-390A, refer to the previous service manual supplement-1.
  The differences of electrical parts compared with the previous service manual supplement-1 and the differences of exploded views compared with the previous service manual (original) are appeared in this "Service Manual Supplement-2".

**How to distinct between KSS-390A and KSS-240A.**

| Optical pick-up KSS-390A (for BU-5BD17) | Optical pick-up KSS-240A (for BU-5BD17A) |
|---|---|
|  |  |

**Refer th f ll wing chart when y u plac an rd r the parts.**

## EXPLODED VIEWS

NOTE:

- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

| For optical Pick-up KSS-390A (for BU-5BD17) | | | | For optical Pick-up KSS-240A (for BU-5BD17A) | | | |
|---|---|---|---|---|---|---|---|
| Ref. No | Part No | Description | Remark | Ref. No | Part No | Description | Remark |
| ⚠304 | 8-848-281-11 | DEVICE, OPTICAL KSS-390A | | ⚠304 | 8-848-144-11 | DEVICE, OPTICAL KSS-240A | |
| 305 | 1-647-341-11 | PC BOARD, FLEXIBLE | | 305 | 1-575-001-11 | WIRE, FLAT TYPE (12 CORE) | |
| * 307 | A-4673-204-A | BD BOARD, COMPLETE | | * 307 | A-4673-564-A | BD BOARD, COMPLETE | |

## ELECTRICAL PARTS LIST

NOTE:

When indicating parts by reference number, please include the board name.

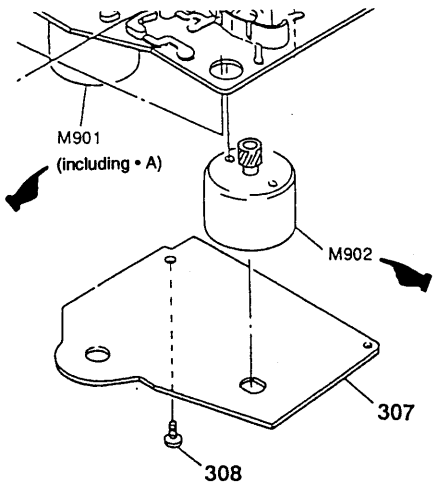
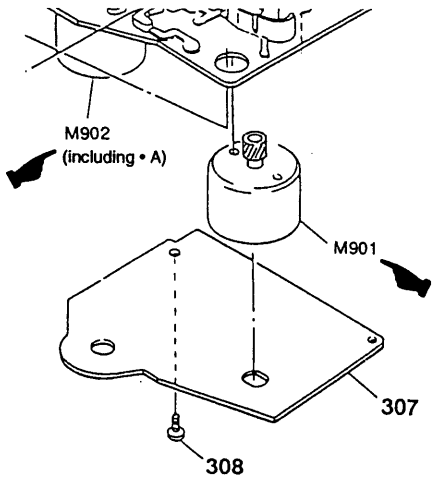
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- RESISTORS
  All resistors are in ohms
  METAL: Metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F : nonflammable
- CAPACITORS
  uF : μF

| For optical Pick-up KSS-390A (for BU-5BD17) | | | | | | For optical Pick-up KSS-240A (for BU-5BD17A) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ref. No | Part No | Description | | | Remark | Ref. No | Part No | Description | | | Remark |
| * | A-4673-204-A | BD BOARD, COMPLETE | | | | * | A-4673-564-A | BD BOARD, COMPLETE | | | |
| | | ********** | | | | | | ********** | | | |
| C112 | 1-164-004-11 | CERAMIC CHIP | 0.1uF | 10% | 25V | C112 | 1-164-232-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C153 | 1-163-143-00 | CERAMIC CHIP | 0.0012uF | 5% | 50V | C153 | 1-163-135-00 | CERAMIC CHIP | 560PF | 5% | 50V |
| C154 | 1-163-143-00 | CERAMIC CHIP | 0.0012uF | 5% | 50V | C154 | 1-164-695-11 | CERAMIC CHIP | 0.0022uF | 5% | 50V |
| R113 | 1-216-065-00 | METAL CHIP | 4.7K | 5% | 1/10W | R113 | 1-216-071-00 | METAL CHIP | 8.2K | 5% | 1/10W |

**C rrecti n**

- Correct your service manual as shown below.

☛ : indicates corrected portion.

| Page | INCORRECT | CORRECT |
|---|---|---|
| 65 |  |  |

English
95F09023-1D
Printed in Japan

Published by Hom A&V Products Div.
Quality Engineering Dept.

9-959-410-82

Sony Corporation
Consumer A&V Products Company
Hom A&V Products Div.