

# MDX-M690

## SERVICE MANUAL

Ver 1.0 2001.03

AEP Model  
UK Model



US and foreign patents licensed from Dolby Laboratories.

Model Name Using Similar Mechanism	MDX-CA680
Base Mechanism Type	MG-164MA-138
Optical Pick-up Name	KMS-241C

### SPECIFICATIONS

#### MD Player section

Signal-to-noise ratio 90 dB  
Frequency response 10 – 20,000 Hz  
Wow and flutter Below measurable limit

#### Tuner section

##### FM

Tuning range 87.5 – 108.0 MHz  
Aerial terminal External aerial connector  
Intermediate frequency 10.7 MHz/450 kHz  
Usable sensitivity 8 dBf  
Selectivity 75 dB at 400 kHz  
Signal-to-noise ratio 66 dB (stereo),  
72 dB (mono)

Harmonic distortion at 1 kHz  
0.6 % (stereo),  
0.3 % (mono)

Separation 35 dB at 1 kHz  
Frequency response 30 – 15,000 Hz

##### MW/LW

Tuning range MW: 531 – 1,602 kHz  
LW: 153 – 279 kHz  
Aerial terminal External aerial connector  
Intermediate frequency 10.7 MHz/450 kHz  
Sensitivity MW: 30  $\mu$ V  
LW: 40  $\mu$ V

#### Power amplifier section

Outputs Speaker outputs  
(sure seal connectors)  
Speaker impedance 4 – 8 ohms  
Maximum power output 52 W  $\times$  4 (at 4 ohms)

#### General

Outputs Audio outputs (front/rear)  
Subwoofer output (mono)  
Power aerial relay control lead  
Power amplifier control lead  
Telephone ATT control lead  
Illumination control lead  
Inputs BUS control input  
connector  
BUS audio input connector  
Remote controller input  
connector  
Aerial input connector  
Tone controls Bass  $\pm$ 8 dB at 100 Hz  
Treble  $\pm$ 8 dB at 10 kHz

Loudness +8 dB at 100 Hz  
+2 dB at 10 kHz  
Power requirements 12 V DC car battery  
(negative earth)  
Dimensions Approx. 178  $\times$  50  $\times$  182 mm  
(w/h/d)  
Mounting dimensions Approx. 182  $\times$  53  $\times$  160 mm  
(w/h/d)  
Mass Approx. 1.5 kg  
Supplied accessories Parts for installation and  
connections (1 set)  
Front panel case (1)  
Card remote commander  
RM-X111

**Note**  
*This unit cannot be connected to a digital preamplifier  
or an equalizer.*

*Design and specifications are subject to change  
without notice.*

## FM/MW/LW MINI DISC PLAYER

9-870-294-11  
2001C0500-1  
© 2001.3

**Sony Corporation**  
Audio Entertainment Group  
General Engineering Dept.

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**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 repair parts.

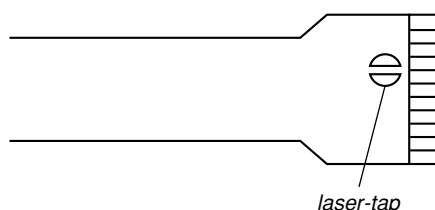
The flexible board is easily damaged and should be handled with care.

**NOTES ON LASER DIODE EMISSION CHECK**

Never look into the laser diode emission from right above when checking it for adjustment. It is feared that you will lose your sight.

**NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK (KMS-241C).**

The laser diode in the optical pick-up block may suffer electrostatic break-down easily. When handling it, perform soldering bridge to the laser-tap on the flexible board. Also perform measures against electrostatic break-down sufficiently before the operation. The flexible board is easily damaged and should be handled with care.



**OPTICAL PICK-UP FLEXIBLE BOARD**

**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.

**Flexible Circuit Board Repairing**

- Keep the temperature of the soldering iron around 270 °C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

**CAUTION**

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

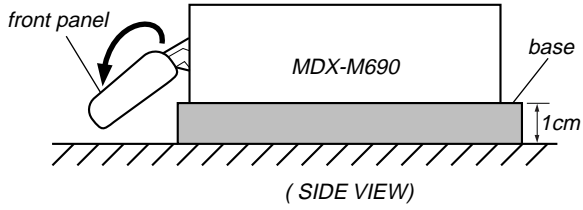
**SAFETY-RELATED COMPONENT WARNING!!**

**COMPONENTS IDENTIFIED BY MARK  $\triangle$  OR DOTTED LINE WITH MARK  $\triangle$  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 NOTES

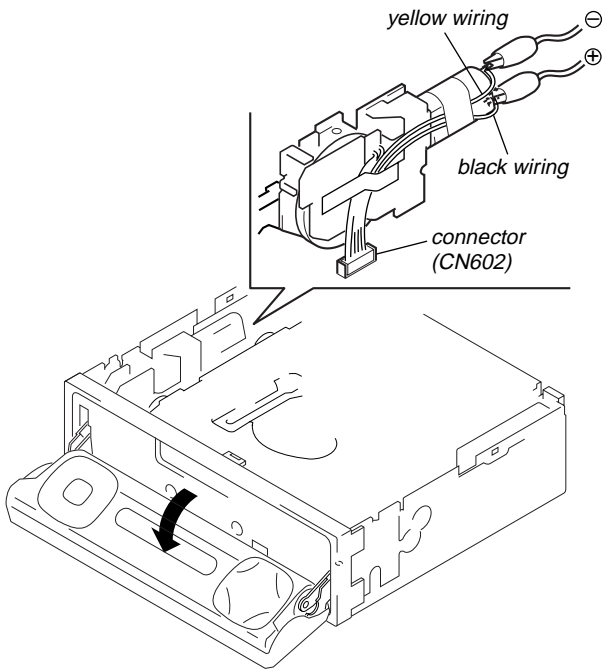
### PRECAUTION ON OPEN/CLOSE FRONT PANEL

The front panel opens to the bottom of main unit.  
In performing the repair, place the main unit on the base having the height exceeding 1 cm.



Open the front panel by supplying the power through the following steps:

1. Disconnect the motor connector (CN602) from main board.
2. Supply the power to the motor.  
Voltage : 9 V  
Yellow wiring : MOTOR -  
Black wiring : MOTOR +



### DETACHING THE DISPLAY PANEL IN THE TEST MODE

In the normal mode, after pressing the **OPEN** key for two seconds to set the front panel in detaching position and detaching the display panel is complete, the front panel closes automatically. But in the test mode, the front panel opens automatically. (refer to page 20 for test mode)

**SECTION 2  
GENERAL**

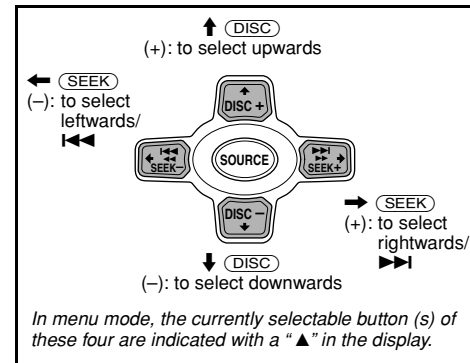
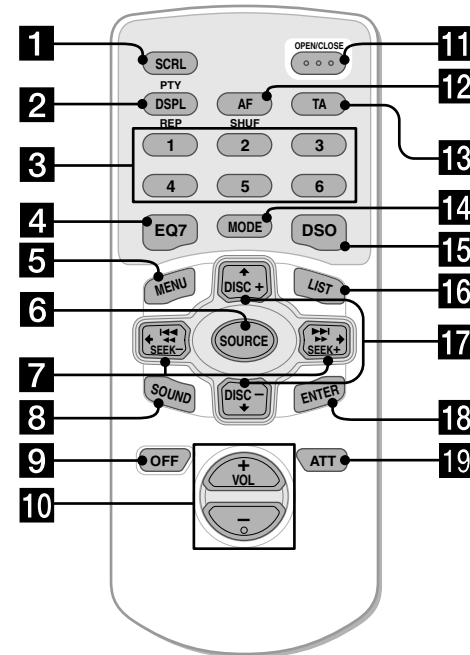
This section is extracted from instruction manual.

**Location of controls**

**Card remote commander RM-X111**

Refer to the pages listed for details.

**CD/MD** : During Playback **RADIO** : During radio reception **MENU** : During menu mode



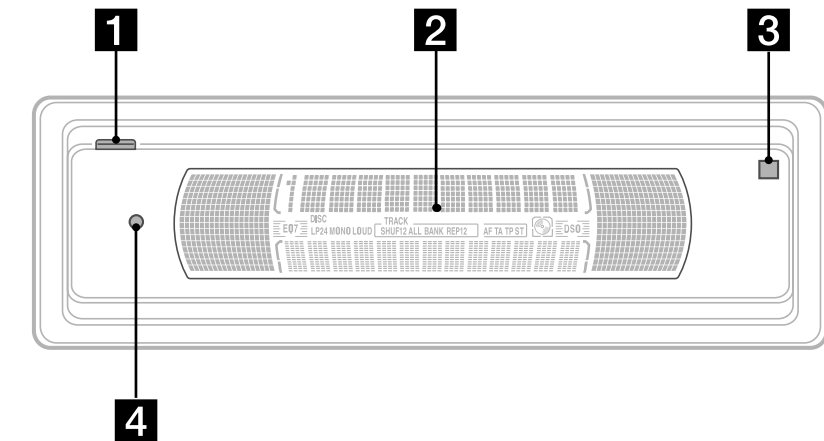
**Note**  
If the unit is turned off by pressing **OFF** for 2 seconds, the unit cannot be operated with the card remote commander unless **SOURCE** on the unit is pressed, or a disc is inserted to activate the unit first.

**Tip**  
Refer to "Replacing the lithium battery" for details on how to replace the batteries (page 36).

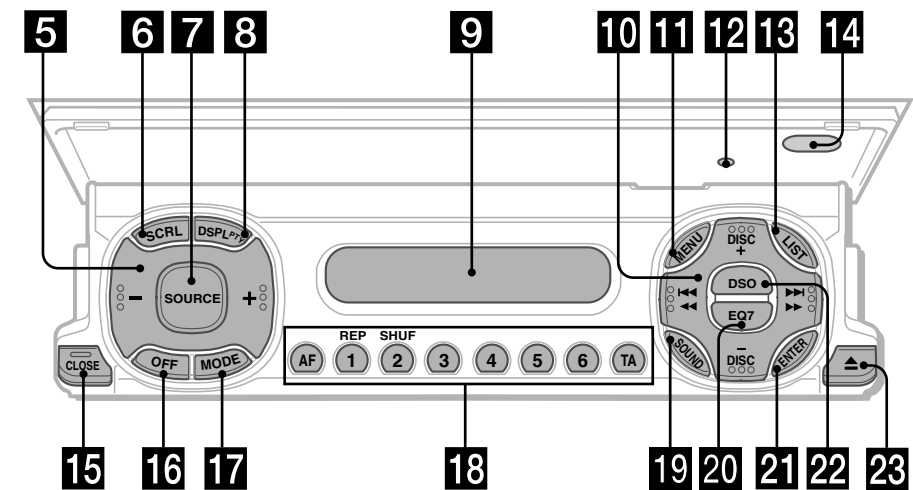
- 1** SCRL (scroll) button 12
- 2** DSPL/PTY (display mode change/programme type) button 12, 13, 17, 20, 25, 35
- 3** Number buttons  
  - 1** REP 12
  - 2** SHUF 12
- 4** EQ7 button 26
- 5** MENU button 10, 13, 14, 15, 19, 21, 23, 25, 26, 27, 28, 30, 31, 33, 34, 35
- 6** SOURCE (Power on/Radio/CD/MD) button 10, 11, 13, 15, 16, 19, 22, 26, 27, 29, 30, 31, 33, 35
- 7** ←/→ SEEK +/- buttons 10, 28, 29, 30, 31  
  - CD/MD** 11
  - RADIO** 16, 18, 22
  - MENU** 10, 13, 14, 15, 21, 23, 25, 26, 27, 28, 30, 31, 33, 34, 35
- 8** SOUND button 28, 29, 30, 31

- 9** OFF (Stop/Power off) button 11, 35
- 10** VOL +/- buttons 19
- 11** OPEN/CLOSE button 11, 37
- 12** AF button 18, 19
- 13** TA button 19
- 14** MODE button  
  - CD/MD** 11, 13
  - RADIO** 15, 16, 19, 22
- 15** DSO button 27
- 16** LIST button  
  - CD/MD** 13, 14
  - RADIO** 17, 24
- 17** ↑/↓ DISC +/- buttons  
  - CD/MD** 11, 14
  - RADIO** 16, 17, 20, 22, 23, 24, 25
  - MENU** 10, 13, 14, 15, 19, 21, 23, 25, 26, 27, 28, 30, 31, 33, 34, 35
- 18** ENTER button  
  - CD/MD** 14
  - RADIO** 17, 20, 23, 24, 25
  - MENU** 10, 13, 14, 15, 19, 21, 23, 25, 26, 27, 30, 31, 33, 34, 35
- 19** ATT button 33

**Main display panel**



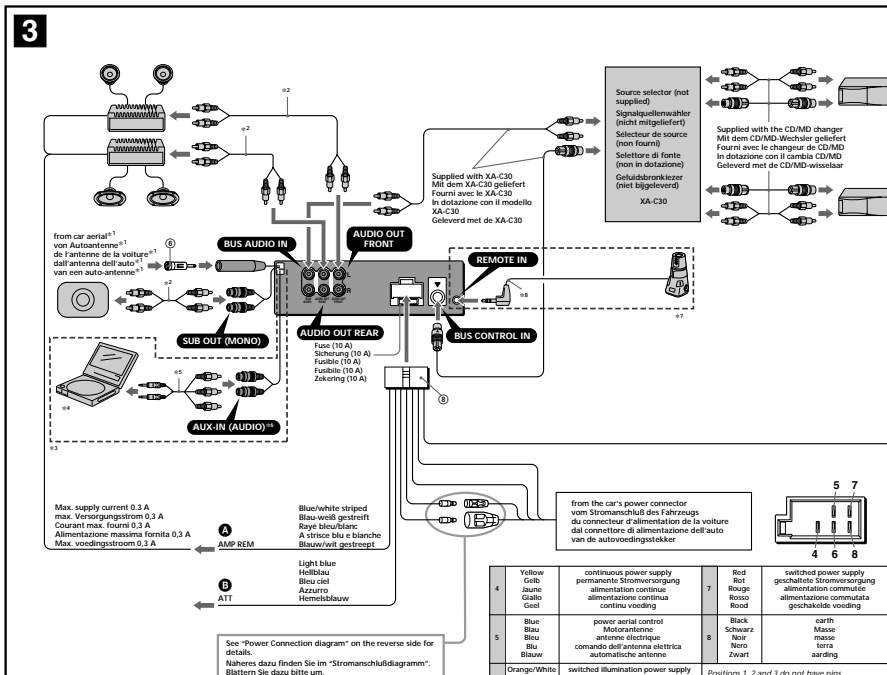
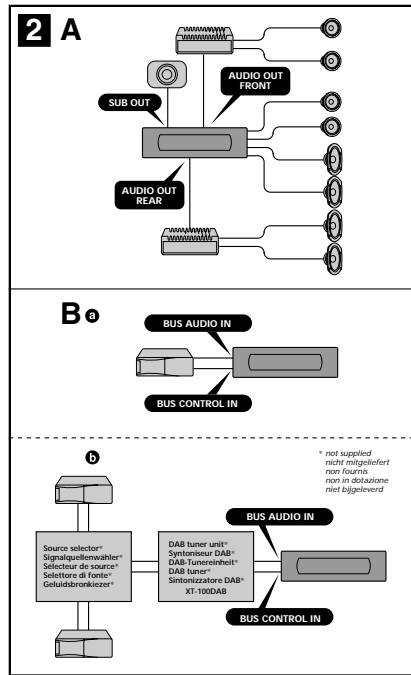
**Operation side**



The corresponding buttons of the unit control the same functions as those on the card remote commander.

- 1** OPEN button 9, 11, 37
- 2** Main display window
- 3** **14** Receptor for the card remote commander
- 4** **12** Reset button 9
- 5** Volume adjust buttons
- 6** SCRL (scroll) button
- 7** SOURCE button
- 8** DSPL/PTY (display mode change/programme type) button
- 9** Sub display window

- 10** DISC +/- (cursor up/down) buttons
- 11** MENU button
- 13** LIST button
- 15** CLOSE (front panel close) button 9, 11
- 16** OFF (Stop/Power off) button\*
- 17** MODE button
- 18** Number buttons
- 19** SOUND button
- 20** EQ7 button
- 21** ENTER button
- 22** DSO button
- 23** ▲ (eject) button 11



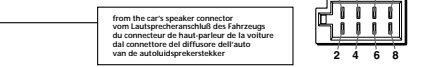
See "Power Connection diagram" on the reverse side for details.

Yellow Geld	continuous power supply permanente Stromversorgung	Red Rot	switched power supply geschaltete Stromversorgung
Orange Orange	alarm illumination Alarmleuchte	Black Schwarz	Mass Masse
Blue Blau	Motor Motor	Blue Blau	terra Erde
Green Grün	commando dell'antenna elettrica elektronische Antennensteuerung	White Weiß	airing Abblende
Light blue Hellblau	Blue/white striped Blau/weiß gestreift	Grey Grün	Mass Masse
Light blue Hellblau	Blue/white striped Blau/weiß gestreift	Grey Grün	Mass Masse
Light blue Hellblau	Blue/white striped Blau/weiß gestreift	Grey Grün	Mass Masse

**Note for the aerial connecting**  
If your car is an ISO International Organization for Standardization type, use the supplied adaptor (B) to connect it. For cars that are not ISO standard, connect it to the aerial jack of the master antenna. Connect the antenna cable to the antenna jack of the master antenna.

**Nota per il collegamento dell'antenna**  
Se la vostra antenna della macchina è di tipo ISO (International Organization for Standardization), utilizzare l'adattatore (B) in dotazione per collegarla. Collegare quindi l'antenna della macchina all'adattatore in dotazione, quindi collegarla alla presa dell'antenna dell'apparecchio principale.

**Nota per il collegamento dell'antenna**  
Si la vostra antenna della macchina è di tipo ISO (International Organization for Standardization), utilizzare l'adattatore (B) in dotazione per collegarla. Collegare quindi l'antenna della macchina all'adattatore in dotazione, quindi collegarla alla presa dell'antenna dell'apparecchio principale.



1	Purple Violetto	Speaker, Rear, Right Lautsprecher hinten rechts	5	White Weiß	Speaker, Front, Left Lautsprecher vorne links
2	White Weiß	Speaker, Rear, Right Lautsprecher hinten rechts	6	Black Schwarz	Speaker, Front, Left Lautsprecher vorne links
3	Blue Blau	Speaker, Rear, Right Lautsprecher hinten rechts	7	Green Grün	Speaker, Rear, Left Lautsprecher hinten links
4	Grey Grün	Speaker, Rear, Right Lautsprecher hinten rechts	8	White Weiß	Speaker, Front, Left Lautsprecher vorne links

Negative polarity positions 2, 4, 6 and 8 have striped cords. An den negativ gepolten Positionen (2, 4, 6 und 8) befinden sich gestreifte Adern. The positions of polarity negative 2, 4, 6 and 8 have striped cords. Die negative positivities 2, 4, 6 and 8 hebben gestreepte kabels.

**Cautions**  
This unit is designed for negative earth 12 V DC operation only. Do not get the wires under a screw, or caught in moving parts (e.g. seat ralling). Before making connections, turn the car ignition off to avoid short circuits. Connect the power connecting cord (C) to the unit and speaker before connecting it to the auxiliary power connector. Run all earth wires to a common earth point. Be sure to insulate any loose unconnected wires with electrical tape for safety.

**Notes on the power supply cord (yellow)**  
When connecting this unit in combination with other stereo components, the connected car circuit's rating must be higher than the sum of each component's fuse. When no car circuits are rated high enough, connect the unit directly to the battery.

**Parts list (1)**  
The numbers in the list are keyed to those in the instructions. For the use of release key (K), see the supplied operating instructions. Caution: Handle the bracket (C) carefully to avoid injuring your fingers.

**Connection example (2)**  
Be sure to connect the earth cord before connecting the amplifier. If you connect an optional power amplifier and do not use the built-in amplifier, the beep sound will be disabled.

**Connection diagram (3)**  
This connection is only for amplifiers. Connecting any other system may damage the unit. To the interface cable of a car telephone. Warning: If you have a power aerial without a relay box, connecting this unit with the supplied power connecting cord (C) may damage the aerial.

**Notes on the control leads**  
The power aerial control lead (blue) supplies +12 V DC when you turn on the tuner or when you activate the AF (Alternative Frequency), TA (Traffic Announcement) function. When your car has built-in FM/AM/MW aerial in the rear-trunk lid, connect the power aerial control lead (blue) to the accessory power input lead (red) in the power terminal of the wiring aerial booster. For details, consult your dealer. A power aerial without a relay box cannot be used with this unit.

**Memory hold connection**  
When the yellow power input lead is connected power will always be supplied to the memory circuit even when the ignition switch is turned off.

**Vorsicht**  
Dieses Gerät ist ausschließlich für den Betrieb bei 12 V Gleichstrom mit negativer Erdung bestimmt. Achten Sie darauf, daß die Kabel nicht unter einer Schraube oder zwischen beweglichen Teilen wie z. B. in einer Sitzschiene eingeklemmt werden. Schalten Sie, bevor Sie irgendwelche Anschlüsse vornehmen, die Zündung des Fahrzeuges aus, um Kurzschlüsse zu vermeiden. Verbinden Sie das Stromversorgungs-kabel (C) mit dem Gerät und den Lautsprechern, bevor Sie es mit dem Hilfsstromversorgungs-kabel verbinden. Schließen Sie alle Erdungskabel an einen gemeinsamen Massepunkt an. Aus Sicherheitsgründen müssen alle lösen, nicht angeordneten Drähte mit Isolierband absolut isoliert werden.

**Hinweise zum Stromversorgungs-kabel (gelb)**  
Längere oder kürzere Stromversorgungs-kabel mit anderen Steckern, die angeschlossen sind, muß der Autostromkreis, an dem die Geräte angeschlossen sind, eine höhere Leistung aufweisen als die Summe der Sicherungen der einzelnen Komponenten. Wenn kein Autostromkreis eine so hohe Leistung aufweist, schließen Sie das Gerät direkt an die Batterie an.

**Teiliste (1)**  
Die Nummern in der Liste sind dieselben wie in den Anleitungen. Für die Verwendung der Freigabe-Taste (K), siehe die mitgelieferten Bedienungsanleitungen. Achtung: Halten Sie die Klammer (C) vorsichtig, um Verletzungen der Finger zu vermeiden.

**Anschlußbeispiel (2)**  
Achten Sie darauf, daß Sie das Massekabel an, bevor Sie den Verstärker anschließen. Wenn Sie einen optionalen Verstärker verwenden und nicht den eingebauten Verstärker, wird der Biepschall unterdrückt.

**Anschlußdiagramm (3)**  
Dieses Anschlußdiagramm ist ausschließlich für Verstärker geeignet. Schließen Sie nichts anderes daran an. Andernfalls kann das Gerät beschädigt werden. Achten Sie auf die Schnittstellen eines Autotelefon.

**Warnung**  
Wenn Sie eine Motorantenne ohne Relaiskabel verwenden, kann durch Anschließen dieses Geräts mit dem mitgelieferten Stromversorgungs-kabel (C) die Antenne beschädigt werden. Hinweis zu Lautsprecheranschlüssen: Schließen Sie das Gerät aus, bevor Sie die Lautsprecher anschließen. Verwenden Sie einen Impedanz-Belastwiderstand. Ansonsten können die Lautsprecher beschädigt werden. Verbinden Sie die Lautsprecheranschlüsse nicht mit dem Wagenbus, und verbinden Sie auch nicht die Anschlüsse des rechten mit denen des linken Lautspeakers. Verbinden Sie die Masseleitung dieses Geräts nicht mit dem negativen (-) Lautsprecheranschluß. Versuchen Sie nicht, Lautsprecher parallel anzuschließen. An die Lautsprecheranschlüsse dieses Geräts dürfen nur Passivlautsprecher angeschlossen werden. Schließen Sie keine Aktivlautsprecher (Lautsprecher mit eingebautem Verstärker) an, da diese nicht beschädigt werden können. Um Funktionsstörungen zu vermeiden, verwenden Sie nicht die im Fahrzeug installierten, integrierten Lautsprecherleitungen, wenn ein Antennenverstärker (1) angeschlossen ist. Verwenden Sie nicht die rechten und linken Lautsprecher verbunden mit. Verbinden Sie nicht die Lautsprecherkabel des Geräts miteinander.

**Notes on the power supply cord (yellow)**  
When connecting this unit in combination with other stereo components, the connected car circuit's rating must be higher than the sum of each component's fuse. When no car circuits are rated high enough, connect the unit directly to the battery.

**Pr cautions**  
Cet appareil est conçu pour fonctionner sur courant continu de 12 V, avec masse négative. Évitez de faire des vifs sur les câbles ou de coincer ceux-ci dans des pièces mobiles (par exemple, armature de siège). Avant d'effectuer des raccordements, débranchez le moteur pour éviter les courts-circuits. Branchez le cordon d'alimentation (C) sur l'appareil et les haut-parleurs avant de le brancher sur le connecteur d'alimentation auxiliaire. Rassemblez tous les fils de terre en un point de masse commun. Veillez à isoler avec du chatterton tout fil lâche non raccordé.

**Remarques sur le cordon d'alimentation (jaune)**  
Lorsque cet appareil est raccordé à d'autres éléments stéréos, la valeur nominale des circuits de la voiture raccorder doit être supérieure à la somme des fusibles de chaque composant. Si aucun circuit de la voiture n'est assez puissant, raccordez directement l'appareil à la batterie.

**Liste des composants (1)**  
Les numéros de l'énumération correspondent à ceux des instructions. Pour l'utilisation de la clé de déblocage (K), reportez-vous au mode d'emploi. Attention: Manipulez précautionneusement le support (C) pour éviter de vous blesser aux doigts.

**Exemple de raccordement (2)**  
Raccordez d'abord le fil de masse avant de raccorder l'amplificateur. Si vous raccordez un amplificateur de puissance externe et n'utilisez pas l'amplificateur intégré, le bip sonore est désactivé.

**Sch ma de raccordement (3)**  
Cet raccordement est réservé aux amplificateurs. Toute autre connexion peut endommager l'appareil. Attention: Si vous avez une antenne sans relais, la connexion de cet appareil avec le câble de masse peut être dommageable pour l'antenne.

**Remarques sur les fils de contrôle**  
Le fil de commande (bleu) de l'antenne électrique assure une alimentation de +12 V CC lorsque vous activez la fonction AF (fréquence alternative) ou TA (information routière). Lorsque votre voiture est équipée d'une antenne FM/AM/MW intégrée dans le coffre arrière, connectez le fil de commande de l'antenne (bleu) au terminal d'alimentation des accessoires (rouge) au bornier de l'amplificateur d'antenne externe. Pour plus de détails, consultez votre revendeur. Une antenne électrique sans boîtier de relais ne peut pas être utilisée avec cet appareil.

**Notes on the power supply cord (yellow)**  
When connecting this unit in combination with other stereo components, the connected car circuit's rating must be higher than the sum of each component's fuse. When no car circuits are rated high enough, connect the unit directly to the battery.

**Attenzione**  
Questo apparecchio è stato progettato per l'uso solo a 12 V CC, con massa negativa. Evitare di fare dei viti sui fili o incastrarli nelle parti mobili (ad esempio nelle guide scorrevoli dei sedili). Prima di effettuare i collegamenti, spegnere il motore dell'automobile ed evitare di causare cortocircuiti. Collegare il cavo di collegamento dell'alimentazione (C) all'apparecchio e ai diffusori prima di collegarlo al connettore di alimentazione ausiliario. Raccogliere tutti i cavi di massa in un punto di massa comune. Precauzione: assicurarsi di isolare qualsiasi cavo non collegato mediante apposito nastro.

**Note sul cavo di alimentazione (giallo)**  
Se questo apparecchio viene collegato con altri componenti stereo, la potenza nominale dei circuiti dell'automobile deve essere superiore a quella prodotta dalla somma dei fusibili di ciascun componente. Se la potenza nominale dei circuiti dell'automobile non è sufficiente, collegare l'apparecchio direttamente alla batteria.

**Elenco dei componenti (1)**  
I numeri nella lista corrispondono a quelli riportati nelle istruzioni. Per informazioni sull'uso del tasto di rilascio (K), vedere le istruzioni per l'uso in dotazione. Attenzione: Maneggiare la staffa (C) con cautela per evitare di ferirsi le mani.

**Esempi di collegamento (2)**  
Assicurarsi di collegare il cavo di terra prima di collegare l'amplificatore. Se si collega un amplificatore di potenza esterna e non si utilizza l'amplificatore incorporato, il segnale acustico verrà disattivato.

**Schema di collegamento (3)**  
Questo collegamento è riservato esclusivamente agli amplificatori. Non collegare un tipo di sistema che non eviti cortocircuiti e causi danni all'apparecchio. Attenzione: Se si ha un'antenna senza scatola a relè con questo apparecchio, la connessione di questo apparecchio con il cavo di massa potrebbe danneggiare l'antenna.

**Note sui cavi di controllo**  
Il cavo di controllo dell'antenna elettrica (blu) fornisce corrente continua +12 V CC quando si attiva la funzione AF (frequenza alternativa) o TA (informazione routinaria). Se l'automobile è dotata di antenna FM/AM/MW incorporata nel vano posteriore, collegare il cavo (blu) al terminale di alimentazione dei accessori (rosso) all'ingresso dell'amplificatore esterno al terminale di alimentazione dell'amplificatore dell'antenna esterna. Per ulteriori informazioni, consultare il proprio rivenditore. Una antenna elettrica senza scatola a relè con questo apparecchio, non può essere utilizzata con questo apparecchio.

**Notes on the power supply cord (yellow)**  
When connecting this unit in combination with other stereo components, the connected car circuit's rating must be higher than the sum of each component's fuse. When no car circuits are rated high enough, connect the unit directly to the battery.

**Let op!**  
Dit apparaat is ontworpen voor gebruik op gelijkstroom van 12 Volt auto-auc, negatief aarded. Vermijd de draden niet onder een schroef of tussen bewegende onderdelen (bv. zitrails). Voordat u de aansluitingen maakt, zet de motor van de auto uit en voorkom kortsluitingen. Sluit de voedingskabel (C) op het apparaat en de luidsprekers voordat u het op de aansluiting aansluit. Zamen alle aardkabels op een gemeenschappelijk aardpunt aan. Wees voorzichtig bij het aansluiten van draadjes die niet zijn aangesloten op de luidsprekers.

**Onderdelenlijst (1)**  
De nummers in de afbeelding verwijzen naar die in de montage-aanwijzingen. Raadpleeg de meegeleverde gebruiksaanwijzing op de speciale sleutel (bedrukt). Voorzichtig: Houd de beugel (C) voorzichtig vast zodat u uw vingers niet verwondt.

**Voorbeeldaansluitingen (2)**  
Zorg ervoor dat u de massa-ader eerst aansluit, voordat u de luidsprekers aansluit. Indien u een externe luidspreker aansluit, wordt het geluid van de ingebouwde luidspreker uitgeschakeld.

**Aansluitschema (3)**  
Dit aansluitschema is uitsluitend bestemd voor versterkers. Het aansluittype van het systeem kan schade aan het apparaat veroorzaken. Let op: Als u een antenne hebt die niet is voorzien van een relaiskast, kan het aansluiten van dit apparaat met de meegeleverde voedingskabel (C) de antenne beschadigen.

**Opmerkingen bij de voedingskabel (geel)**  
Wanneer dit apparaat wordt aangesloten op andere stereo-componenten, moet de nominale stroomsterkte van de auto-circuits hoger zijn dan de som van de zekeringen van elke component afzonderlijk. Wanneer de nominale stroomsterkte van de auto-circuits niet hoog genoeg is, moet het apparaat rechtstreeks aan de batterij worden aangesloten.

**Opmerkingen bij de aansluitingen**  
Zorg ervoor dat de draadjes die niet zijn aangesloten op de luidsprekers eerst zijn aangesloten op de aansluiting. Wanneer u een externe luidspreker aansluit, wordt het geluid van de ingebouwde luidspreker uitgeschakeld. Wees voorzichtig bij het aansluiten van draadjes die niet zijn aangesloten op de luidsprekers.

**Notes on the power supply cord (yellow)**  
When connecting this unit in combination with other stereo components, the connected car circuit's rating must be higher than the sum of each component's fuse. When no car circuits are rated high enough, connect the unit directly to the battery.



## SECTION 3 DISASSEMBLY

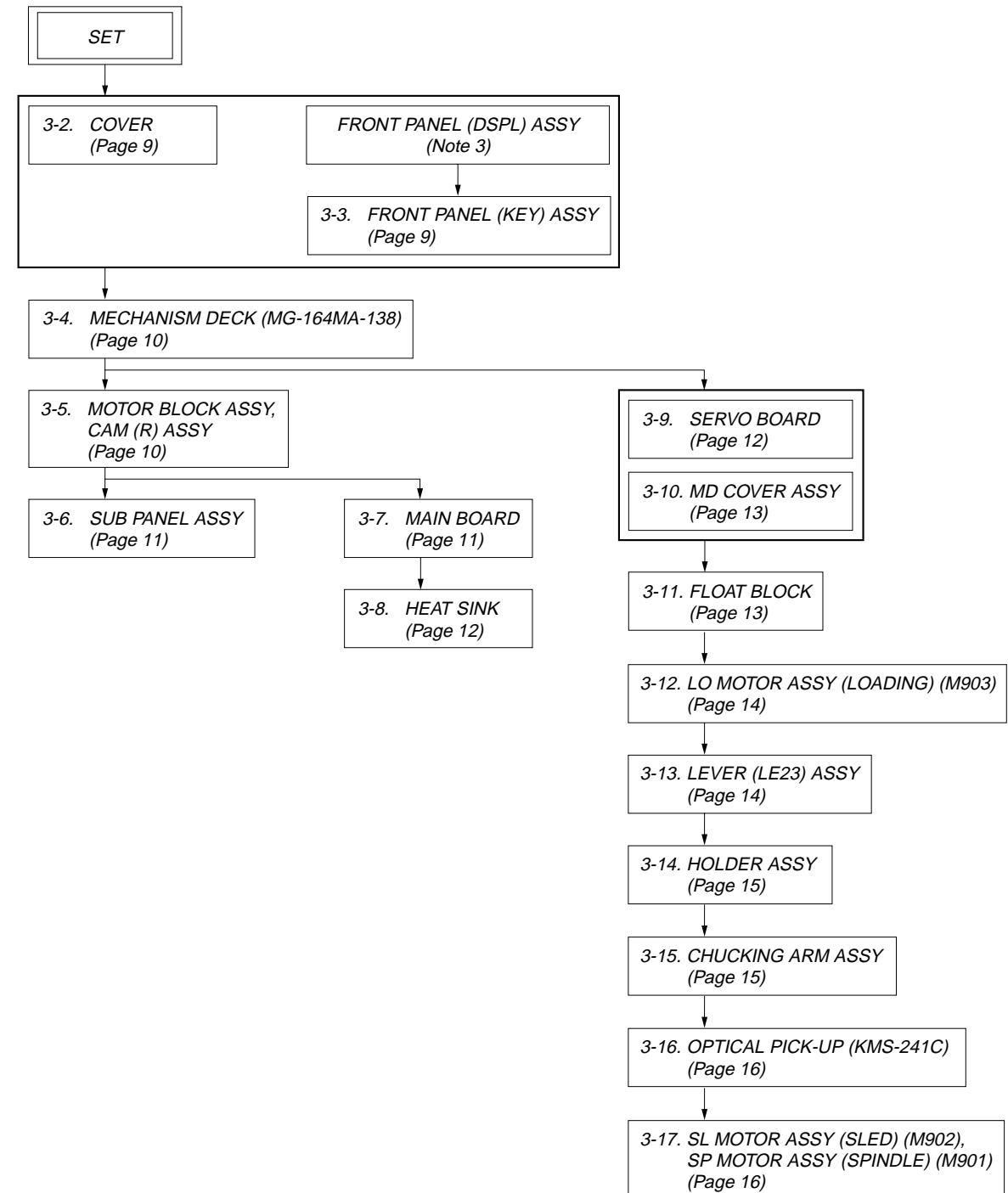
• This set can be disassembled in the order shown below.

### 3-1. DISASSEMBLY FLOW

**Note 1:** The process described in  can be performed in any order.

**Note 2:** Without completing the process described in , the next process can not be performed.

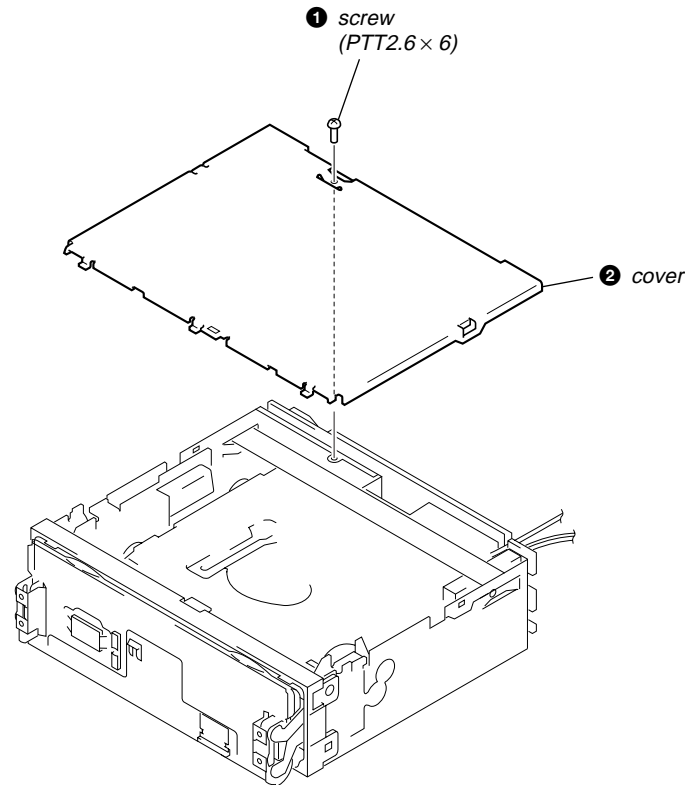
**Note 3:** Illustration of disassembly is omitted.



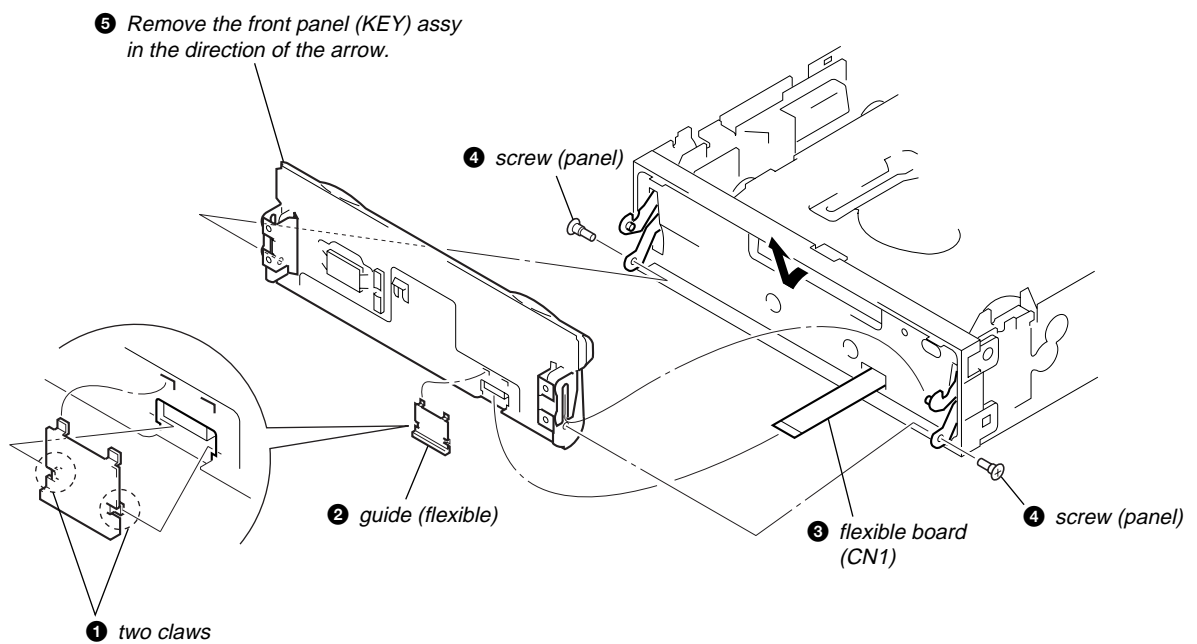


**Note:** Follow the disassembly procedure in the numerical order given.

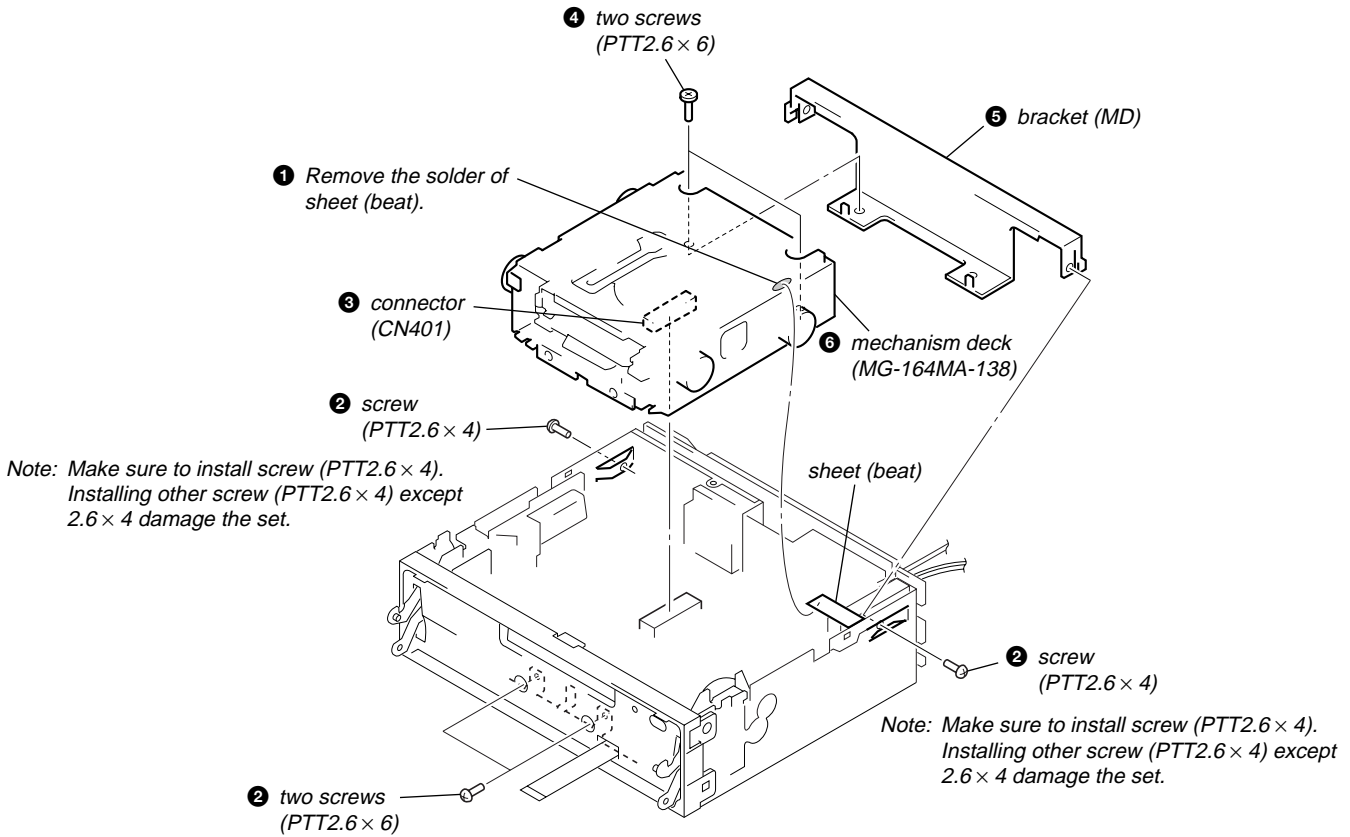
### 3-2. COVER



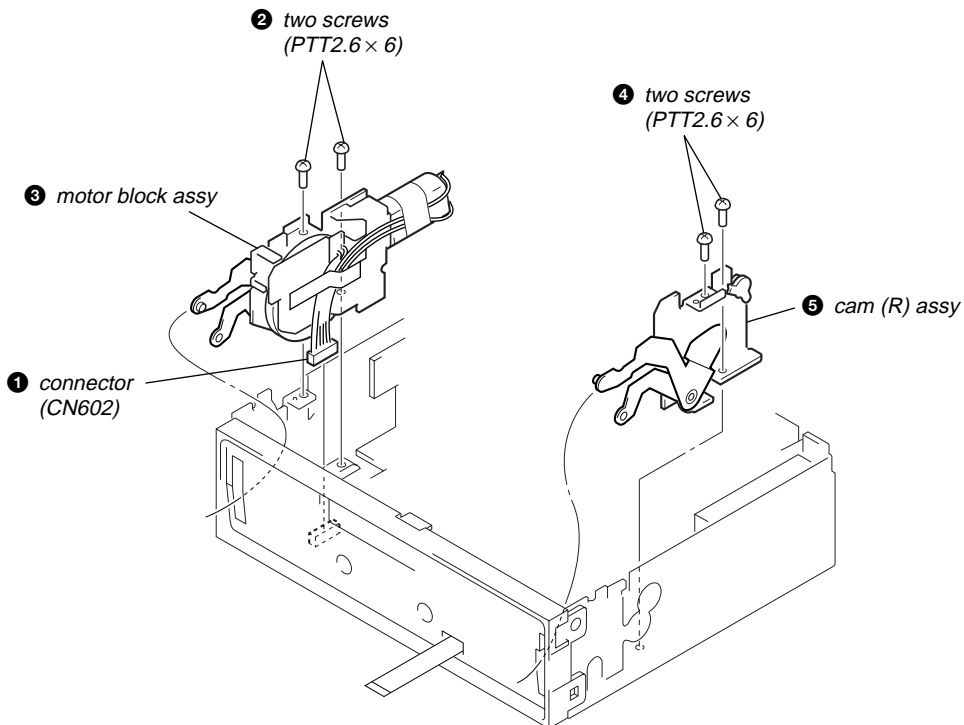
### 3-3. FRONT PANEL (KEY) ASSY



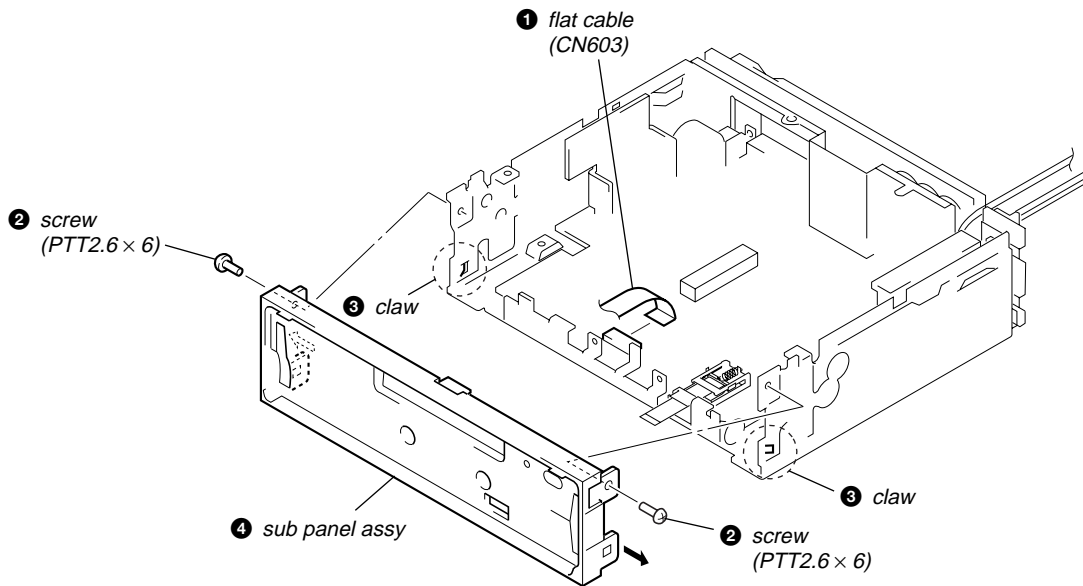
3-4. MECHANISM DECK (MG-164MA-138)



3-5. MOTOR BLOCK ASSY, CAM (R) ASSY

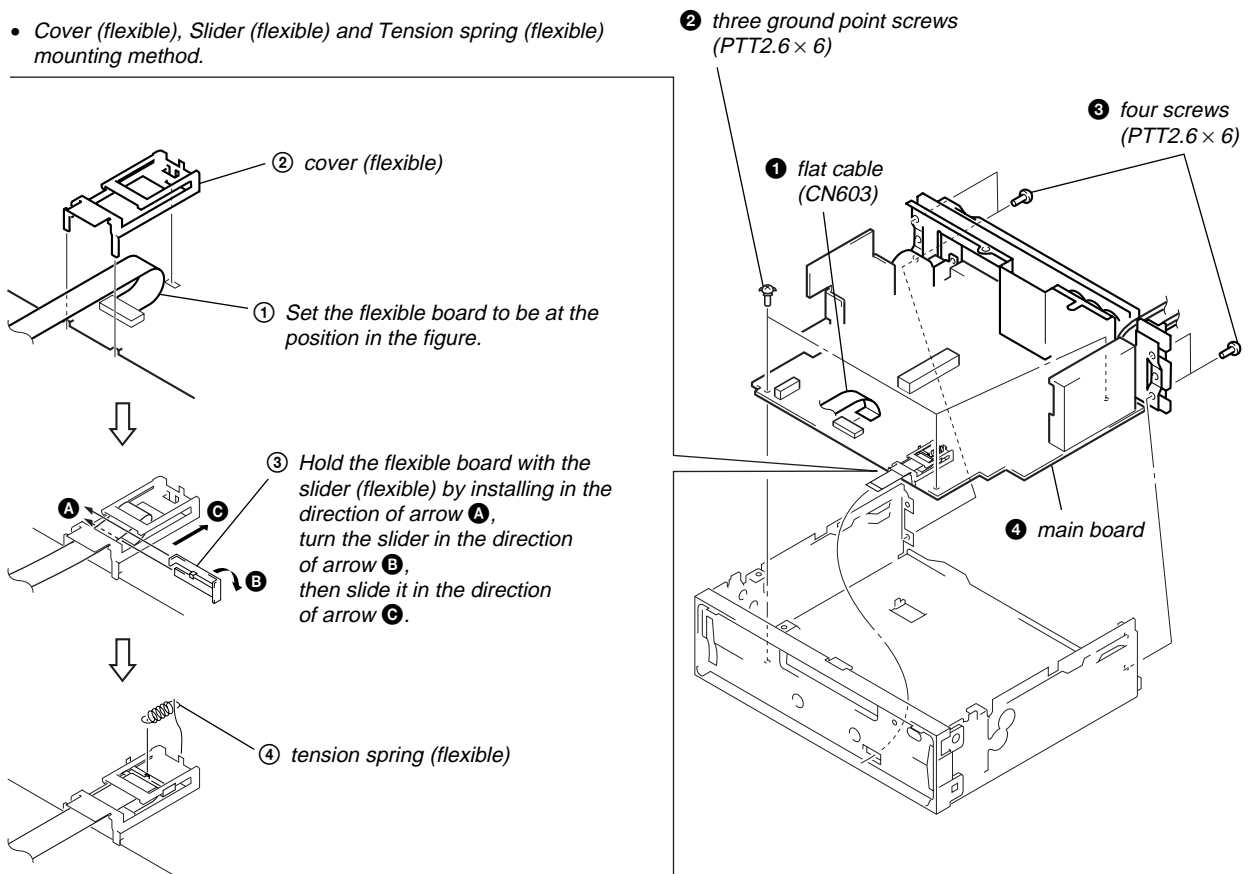


3-6. SUB PANEL ASSY

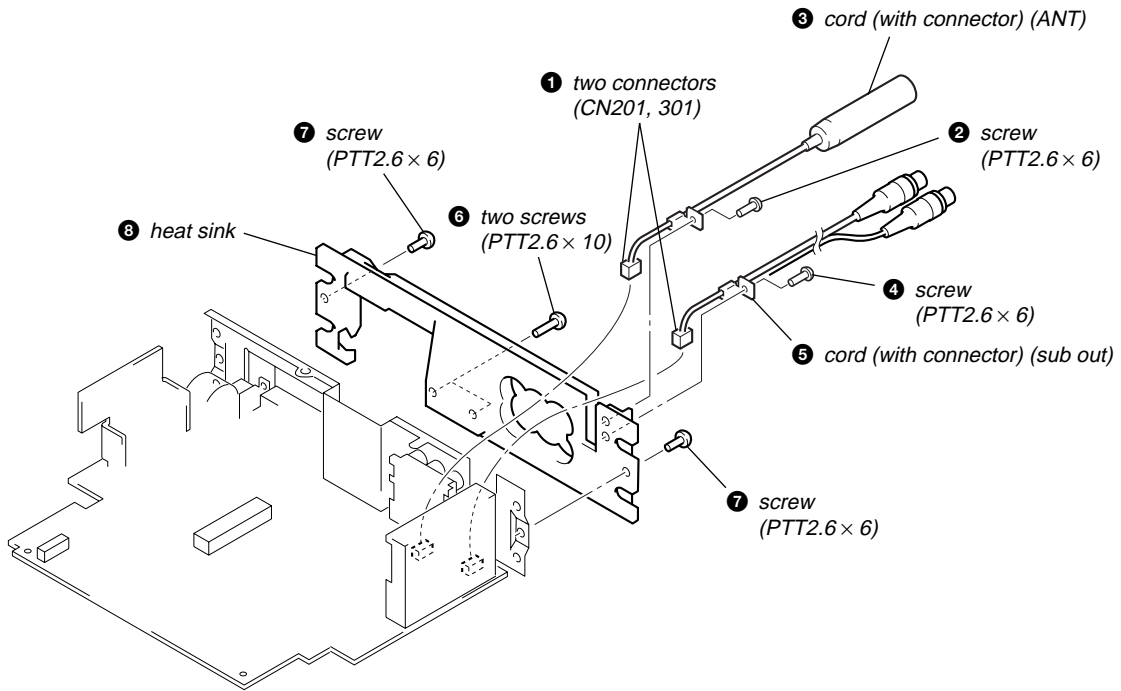


3-7. MAIN BOARD

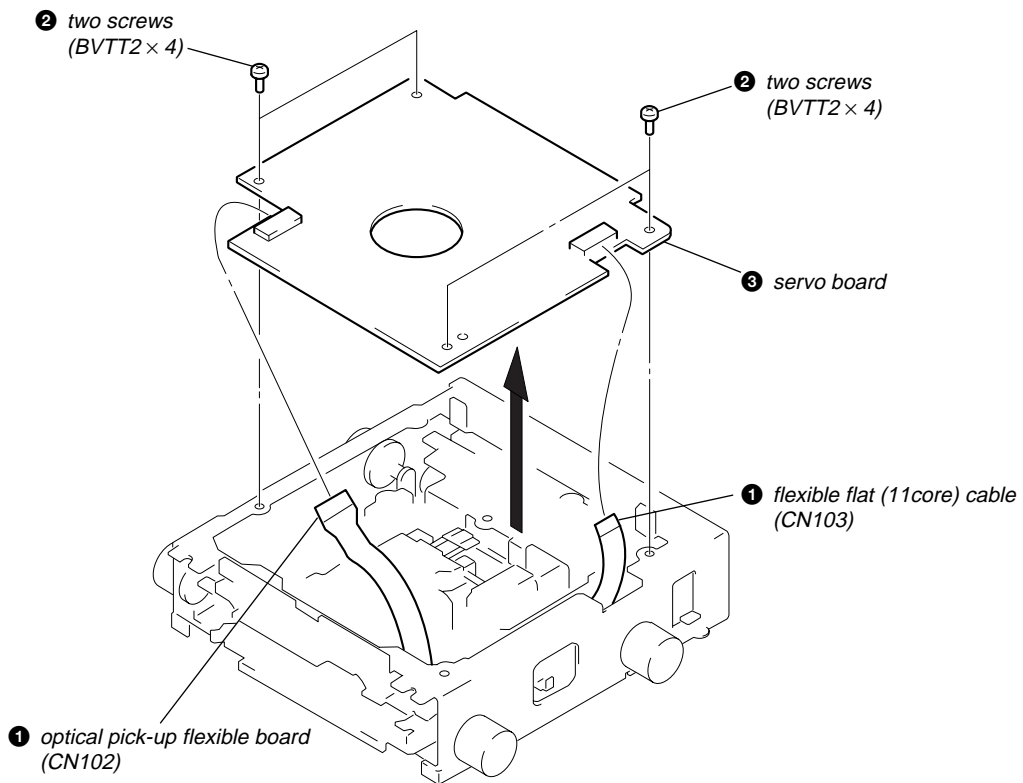
- Cover (flexible), Slider (flexible) and Tension spring (flexible) mounting method.



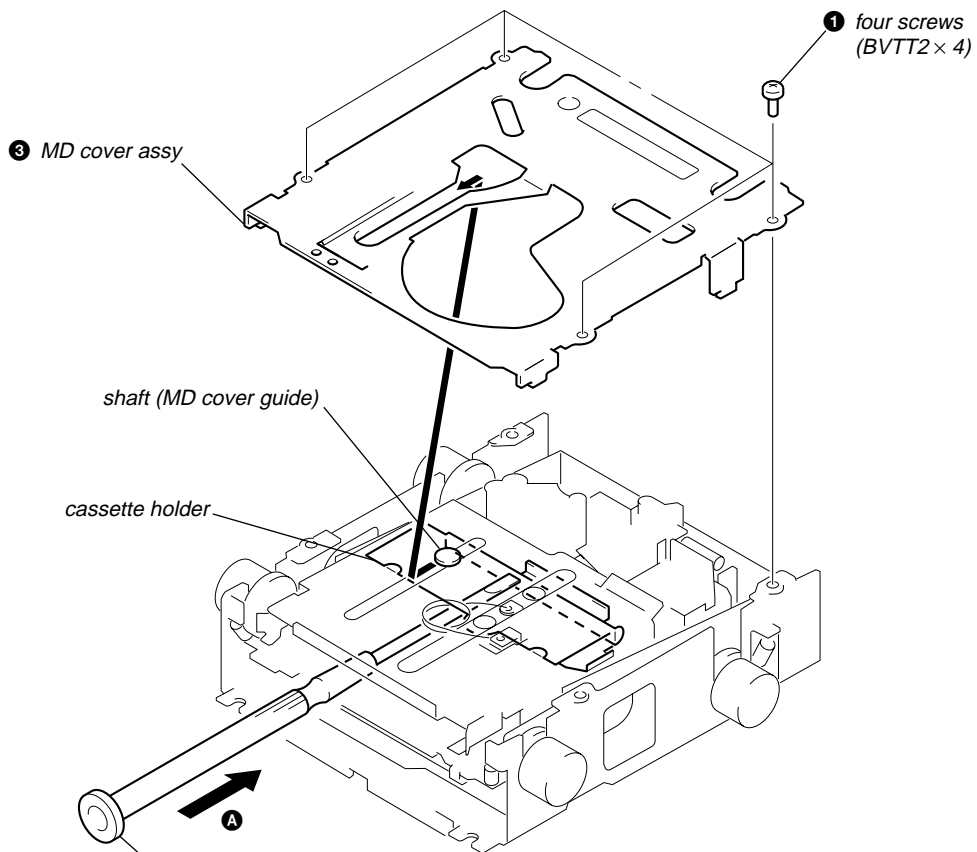
3-8. HEAT SINK



3-9. SERVO BOARD

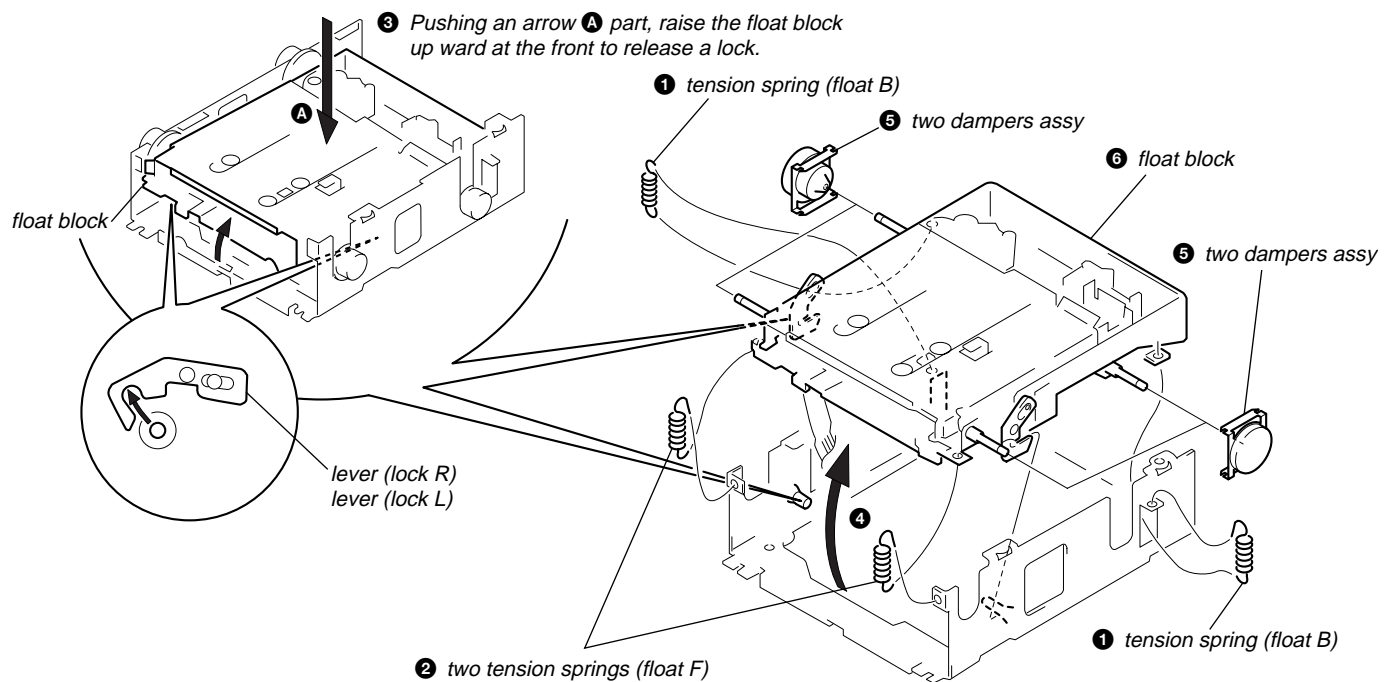


3-10. MD COVER ASSY

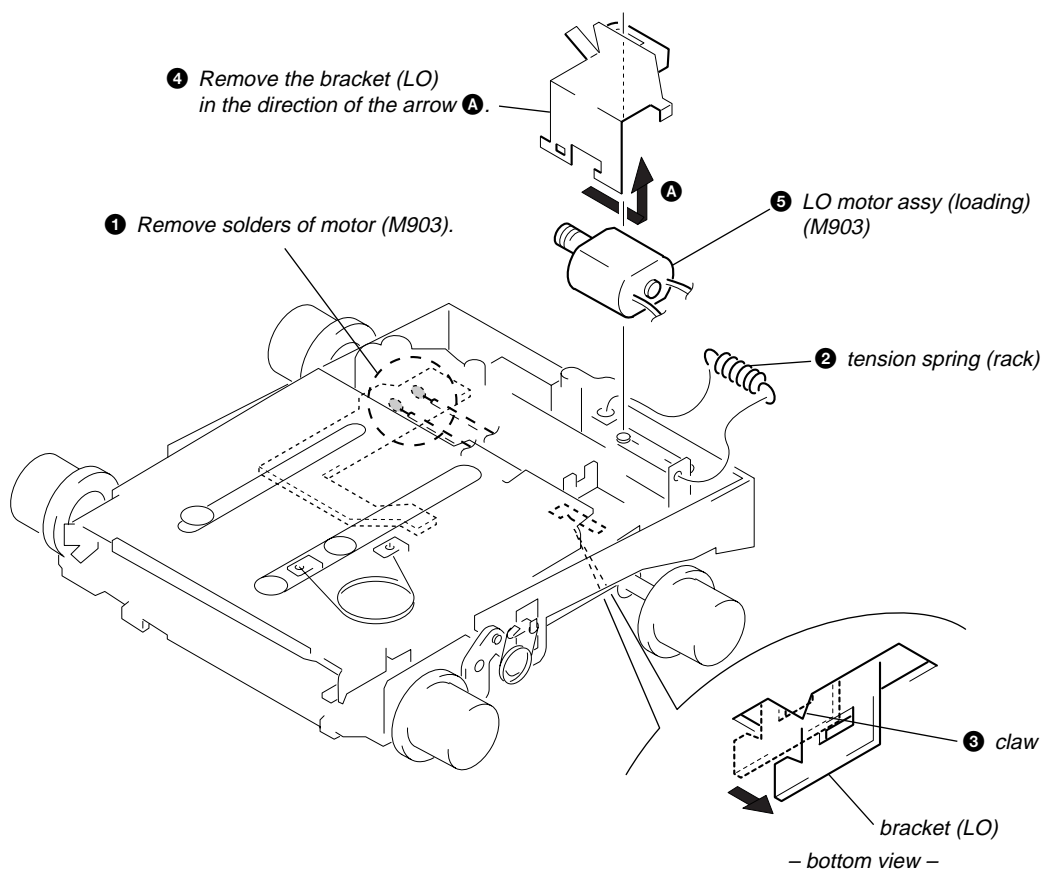


- 2 Pushing the cassette holder in the direction of the arrow A with a screwdriver, etc., disengage the shaft (MD cover guide) from the slot in the MD cover assy.  
 Note: Take care not to scratch the optical pick-up when pushing the cassette holder with a screwdriver, etc.

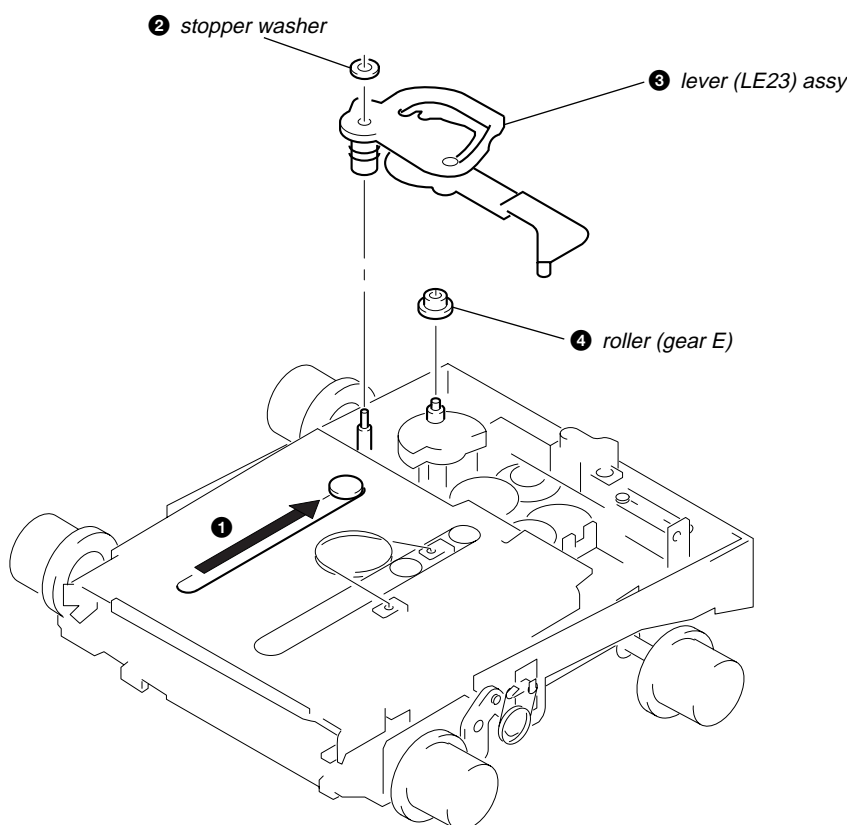
3-11. FLOAT BLOCK



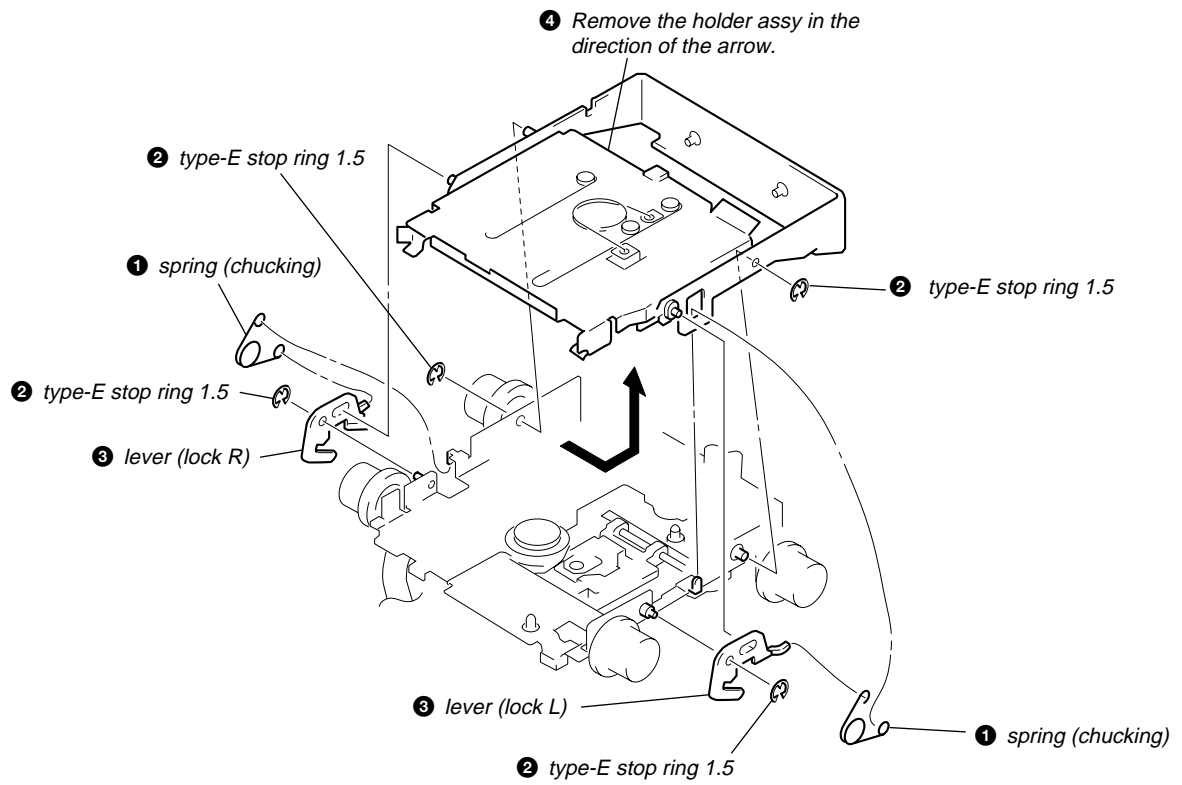
3-12. LO MOTOR ASSY (LOADING) (M903)



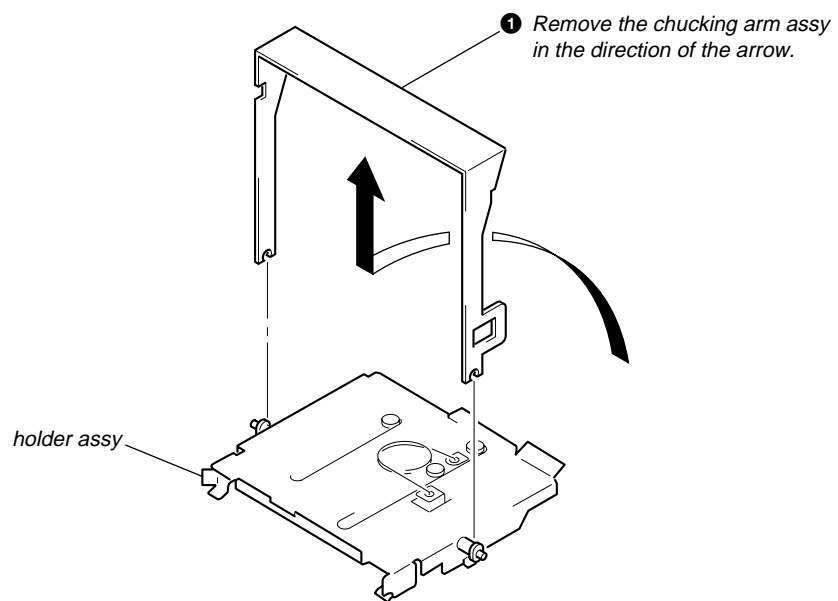
3-13. LEVER (LE23) ASSY



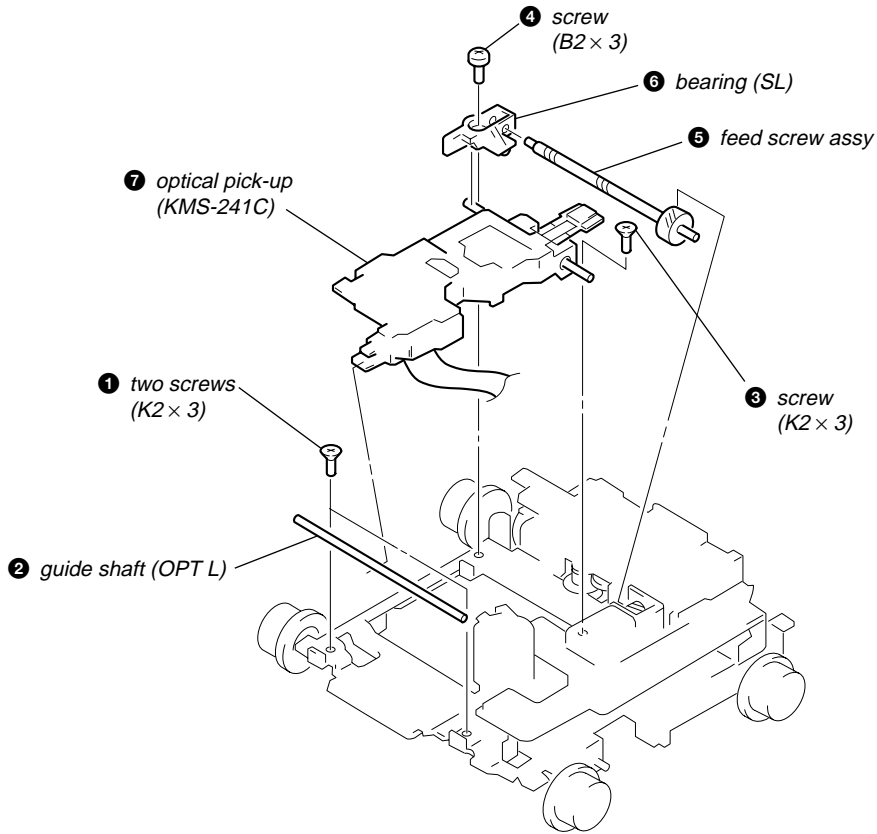
3-14. HOLDER ASSY



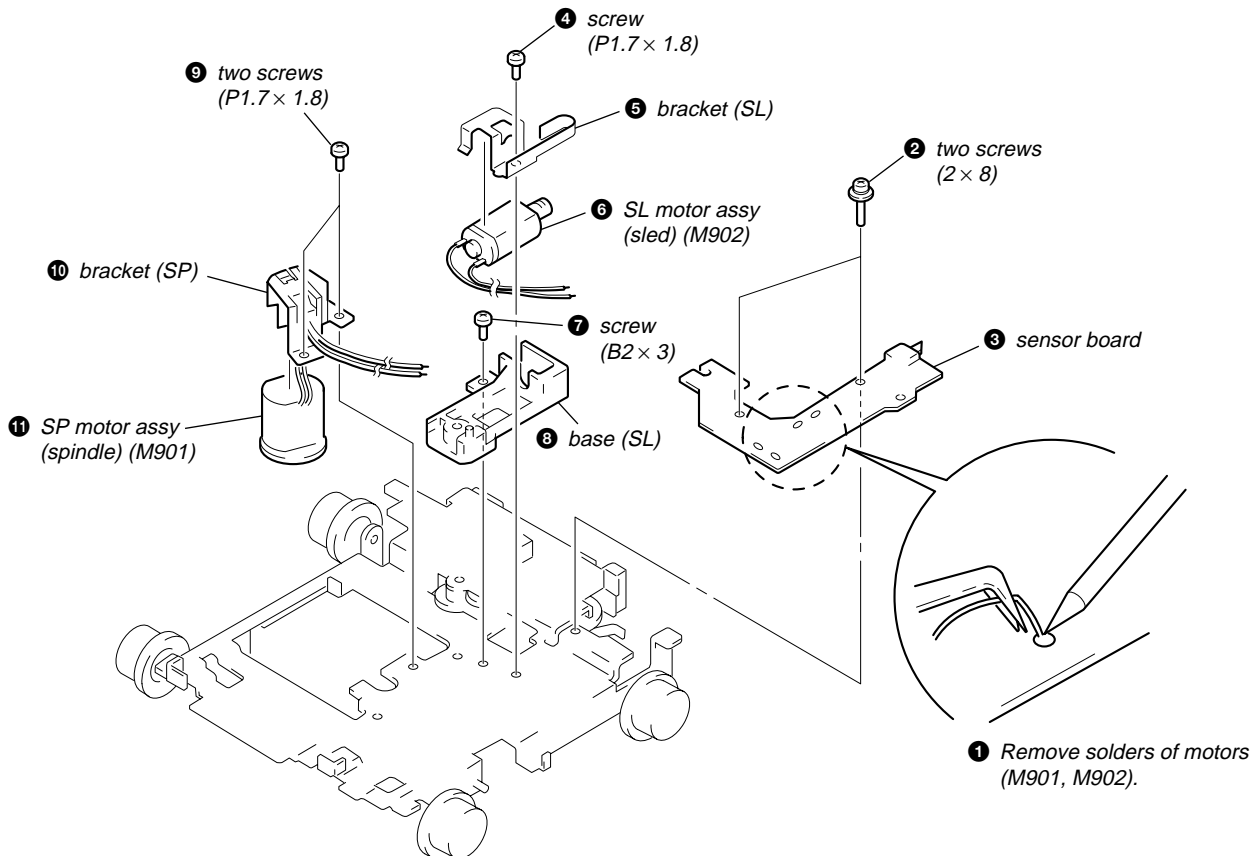
3-15. CHUCKING ARM ASSY



3-16. OPTICAL PICK-UP (KMS-241C)



3-17. SL MOTOR ASSY (SLED) (M902), SP MOTOR ASSY (SPINDLE) (M901)

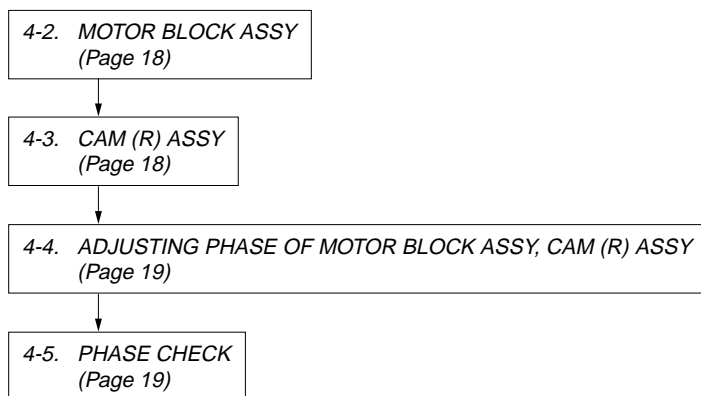




## SECTION 4 ASSEMBLY

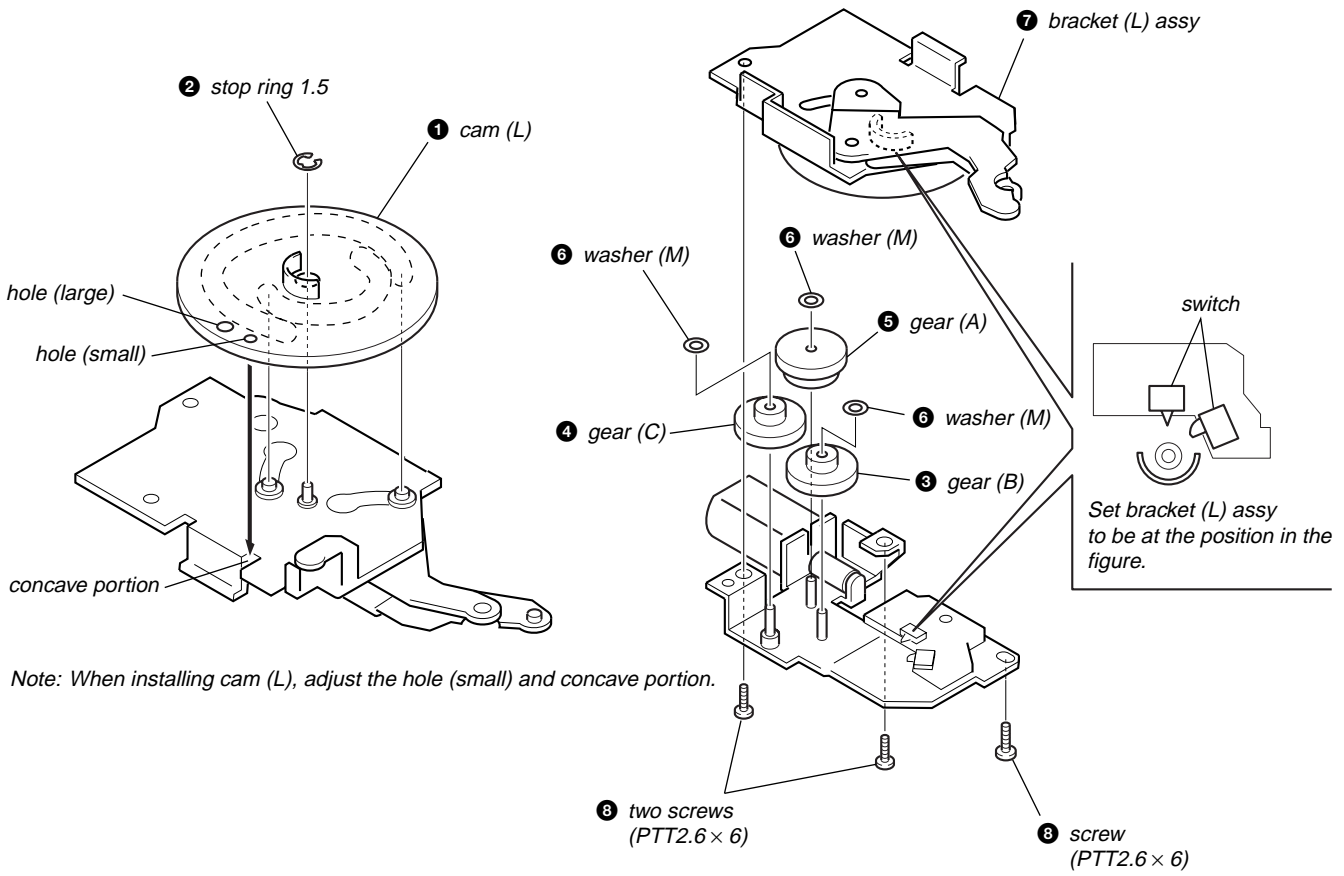
- This set can be assembled in the order shown below.

### 4-1. ASSEMBLY FLOW

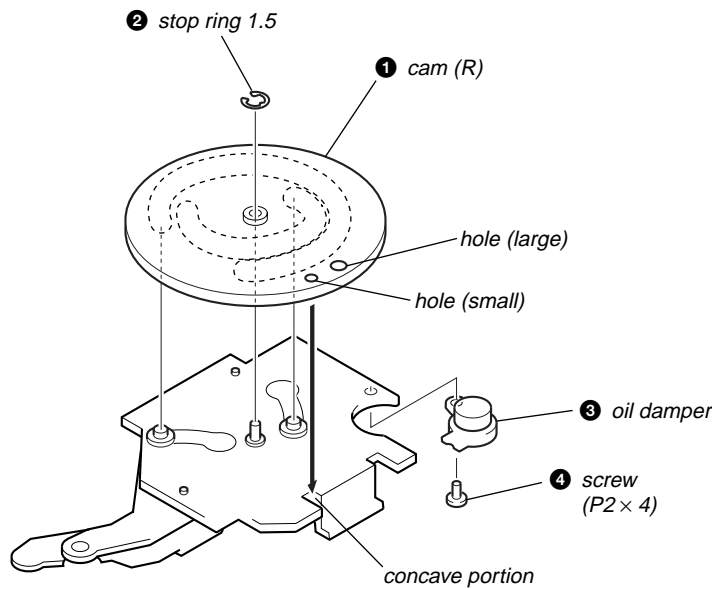


**Note:** Follow the assembly procedure in the numerical order given.

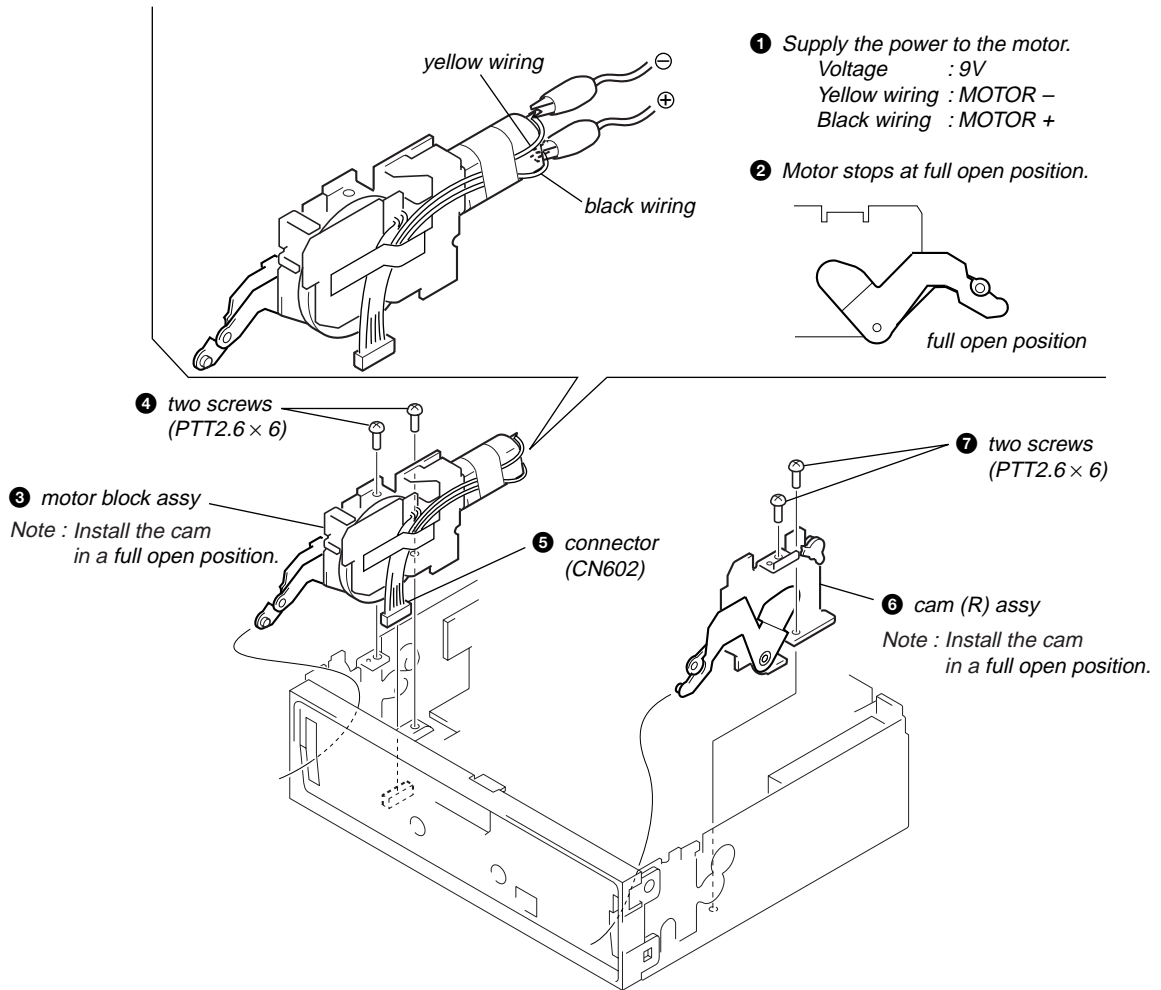
**4-2. MOTOR BLOCK ASSY**



**4-3. CAM (R) ASSY**

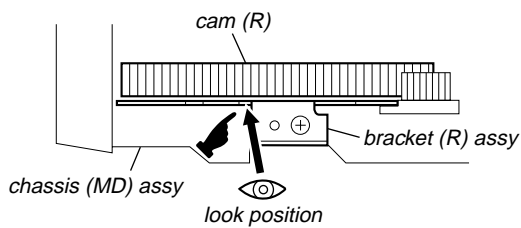



4-4. ADJUSTING PHASE OF MOTOR BLOCK ASSY, CAM (R) ASSY



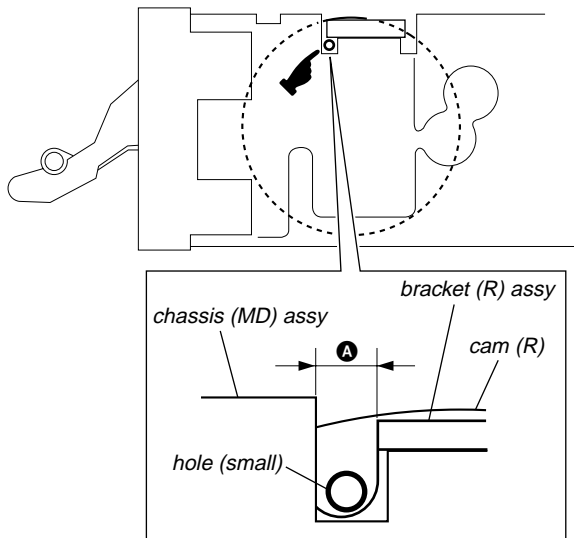
4-5. PHASE CHECK

- Up view -



1. Look into the position pointed by  in the figure from the direction of the arrow.
2. Check that the hole (small) of the cam (R) is within the range of **A**.
3. Check 2 with both L and R side.  
If it is OK in both sides, the cam is in phase.  
(If not, adjust it.)

- Right side view -



**SECTION 5  
ELECTRICAL ADJUSTMENTS****TEST MODE**

This set have the test mode function.

<Set the Test Mode>

1. Turn ON the regulated power supply. (The clock is displayed)  
**Note:** Press the **OFF** button, if the clock is not displayed.
2. Push the preset **4** button.
3. Push the preset **5** button.
4. Press the preset **1** button for more than two seconds.
5. Then the display indicates all lights, the test mode is set.

<Release the Test mode>

1. Push the **OFF** button.

**Note:**

In the normal mode, after pressing the **OPEN** key for two seconds to set the front panel in detaching position and detaching the display panel is complete, the front panel closes automatically.

But in the test mode, the front panel opens automatically.

**MD SECTION**

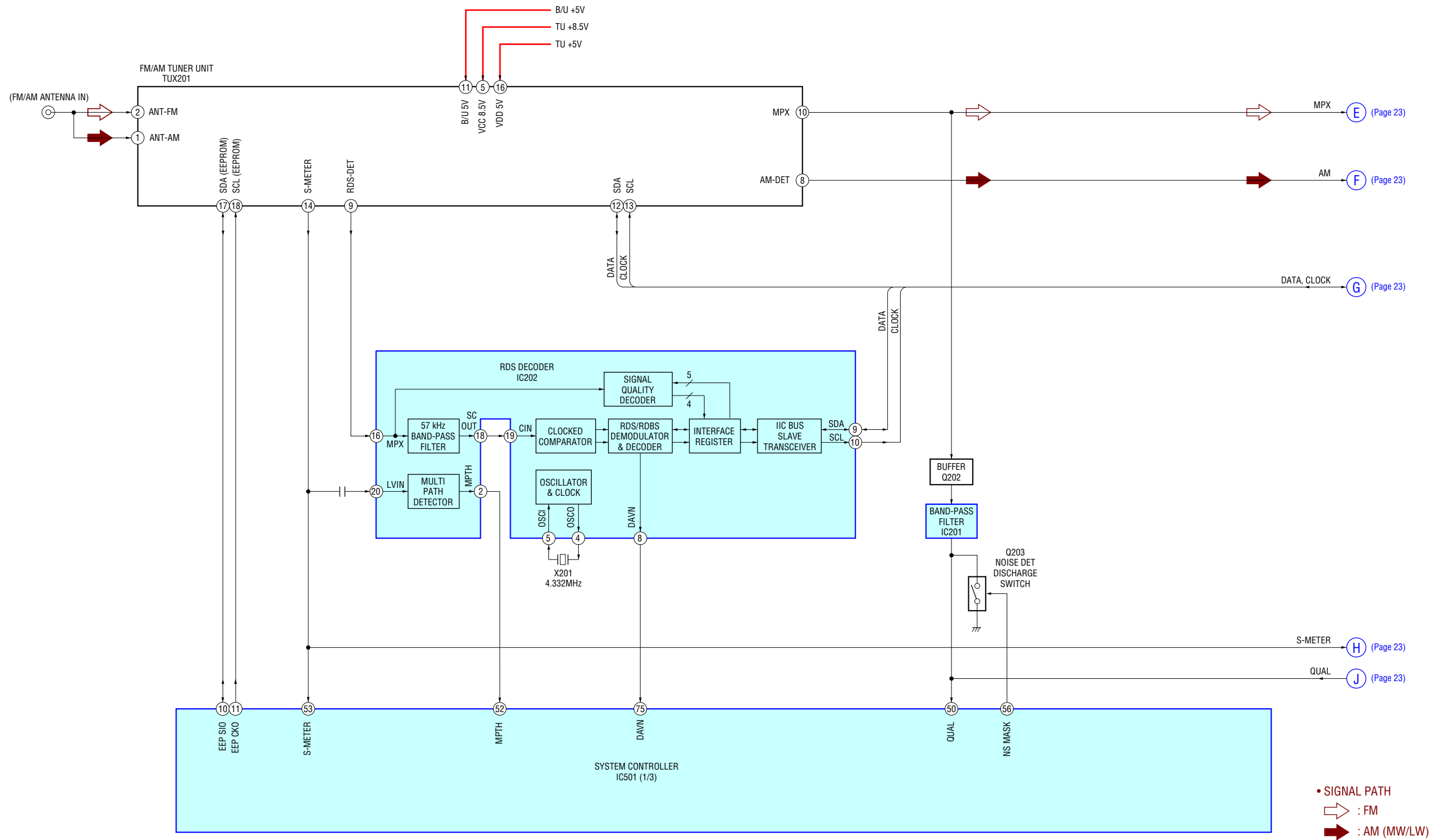
MD section adjustments are done automatically in this set.

**TUNER SECTION**

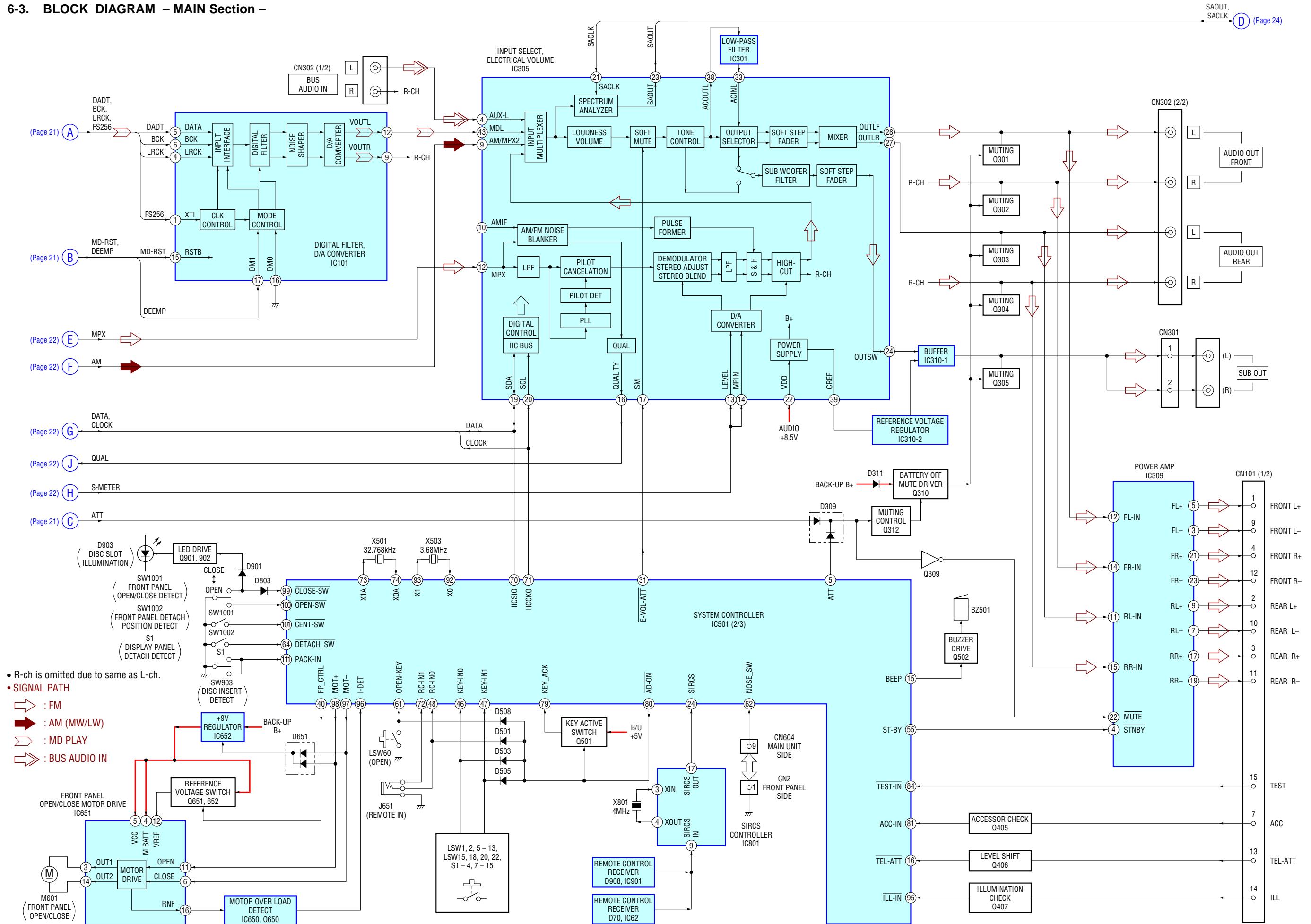
Tuner section adjustments are done automatically in this set.



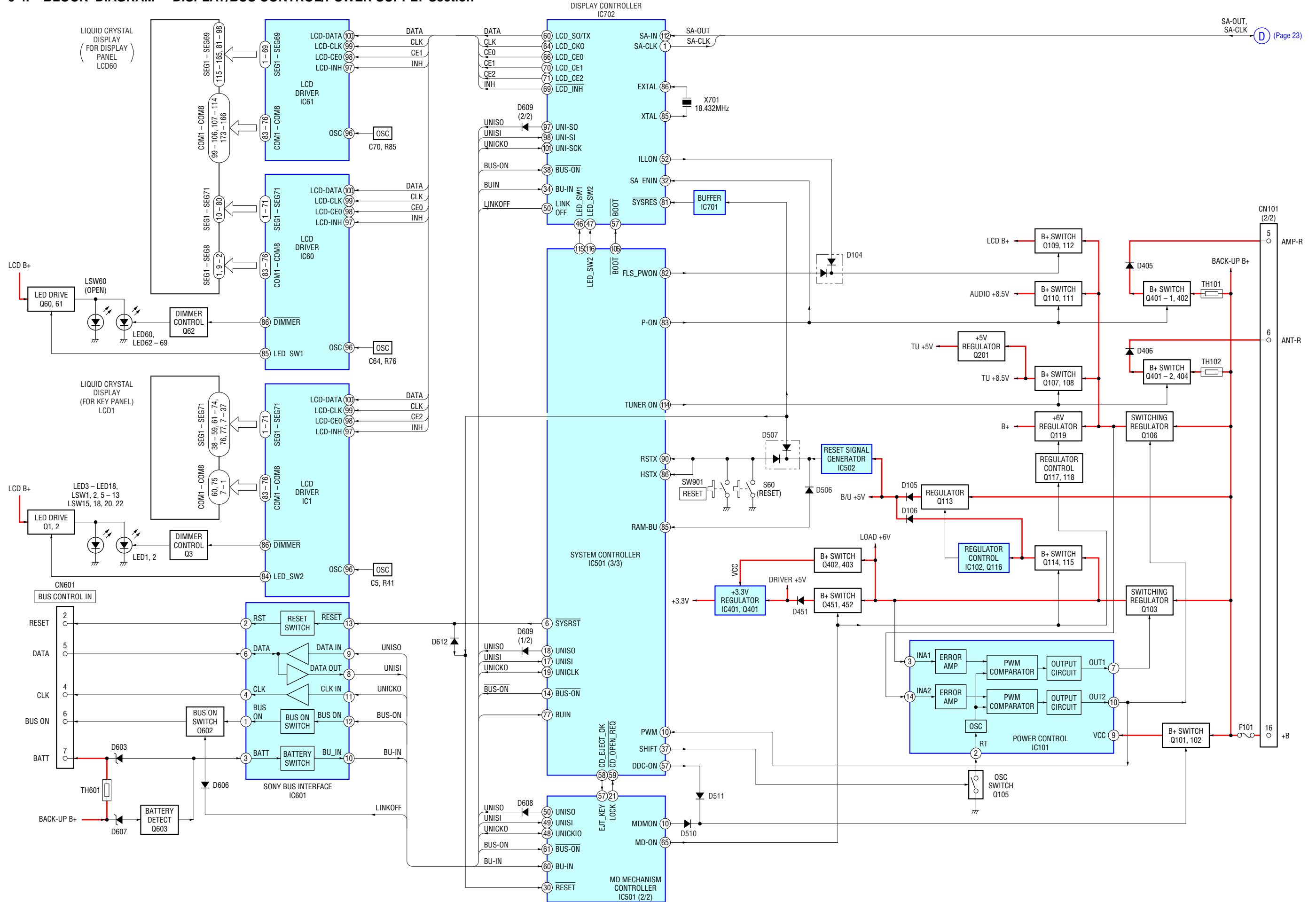
6-2. BLOCK DIAGRAM –TUNER Section –



6-3. BLOCK DIAGRAM – MAIN Section –








6-4. BLOCK DIAGRAM – DISPLAY/BUS CONTROL/POWER SUPPLY Section –





## 6-5. NOTE FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS



### Note on Printed Wiring Board:



-  : parts extracted from the component side.
  -  : parts extracted from the conductor side.
  -  : Through hole.
  -  : internal component.
  -  : Pattern from the side which enables seeing.
- (The other layers' patterns are not indicated.)






#### Caution:

Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component Side)	Parts on the parts face side seen from the parts face are indicated.

### Note on Schematic Diagram:

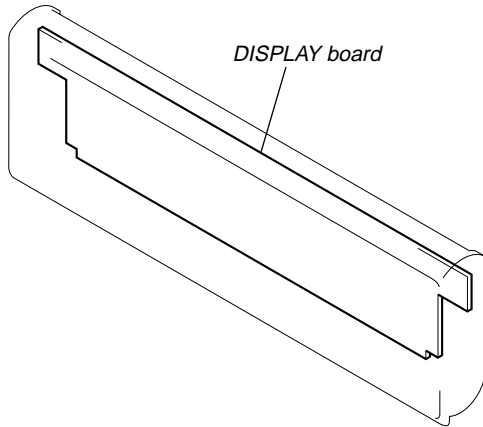
- All capacitors are in  $\mu\text{F}$  unless otherwise noted. pF:  $\mu\mu\text{F}$  50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in  $\Omega$  and  $1/4\text{W}$  or less unless otherwise specified.
-  : internal component.
-  : panel designation.

<p><b>Note:</b> The components identified by mark  or dotted line with mark  are critical for safety. Replace only with part number specified.</p>
--

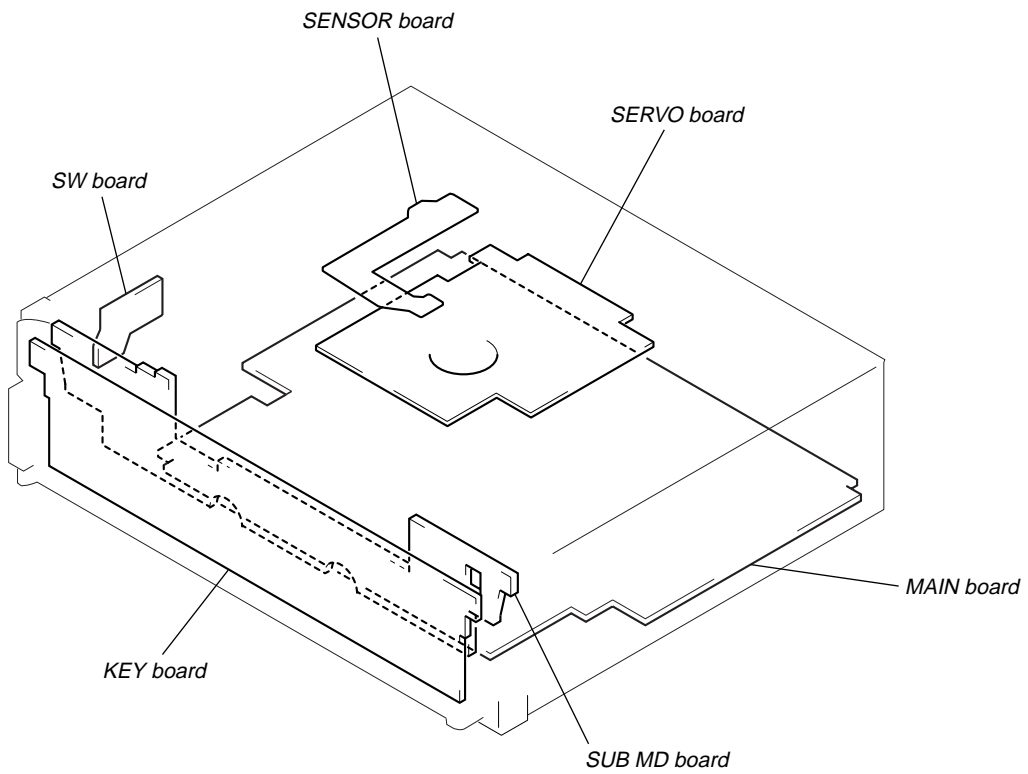
-  : B+ Line.
- Power voltage is dc 14.4V and fed with regulated dc power supply from ACC and BATT cords.
- Voltages are taken with a VOM (Input impedance 10 M $\Omega$ ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  -  : MD PLAY
  -  : FM
  -  : AM (MW/LW)
  -  : BUS AUDIO IN

- **Circuit Boards Location**

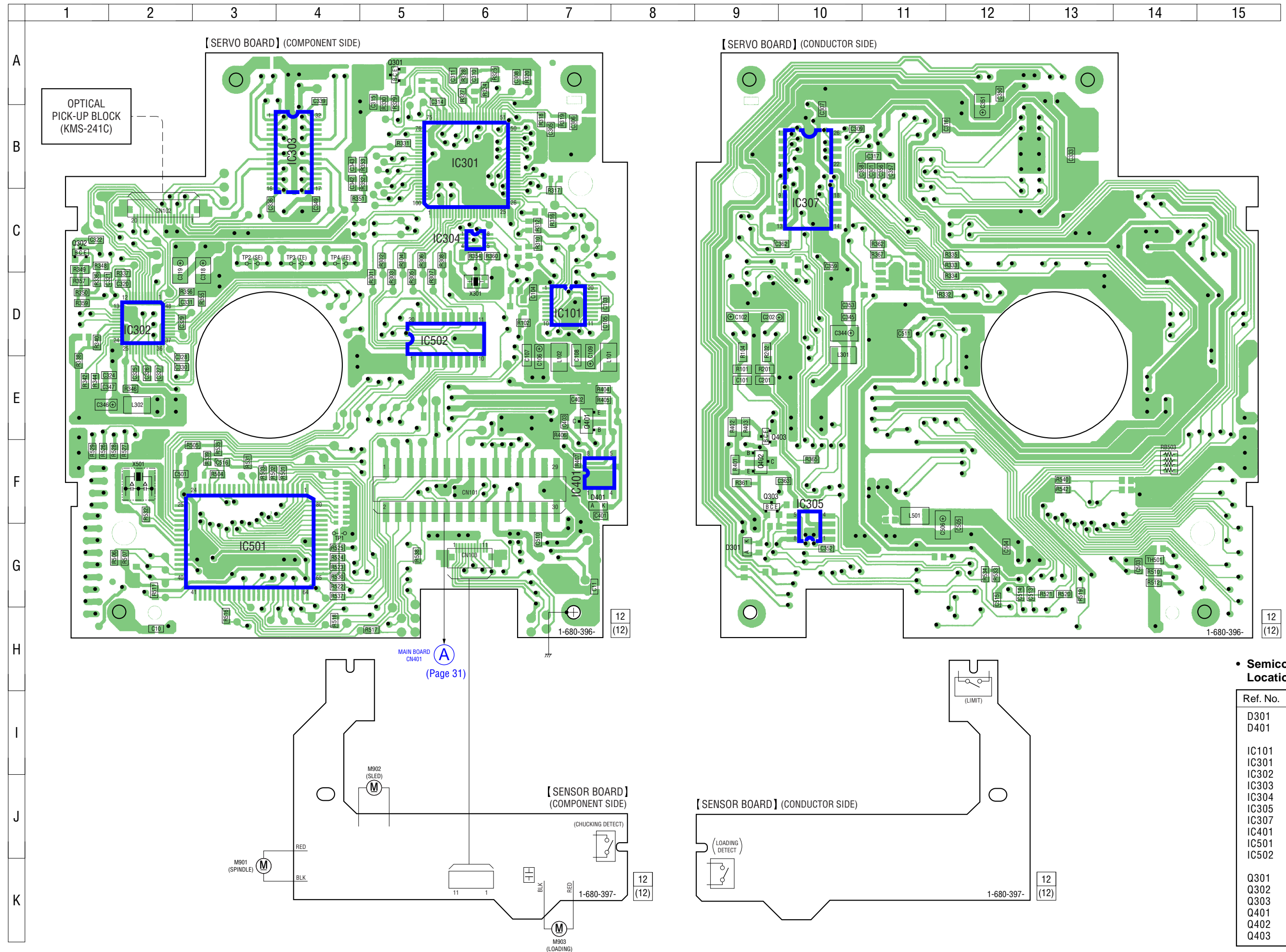
- **FRONT PANEL (DSPL) SECTION**



- **GENERAL SECTION**



6-6. PRINTED WIRING BOARDS – SERVO Section – • See page 26 for Circuit Boards Location.

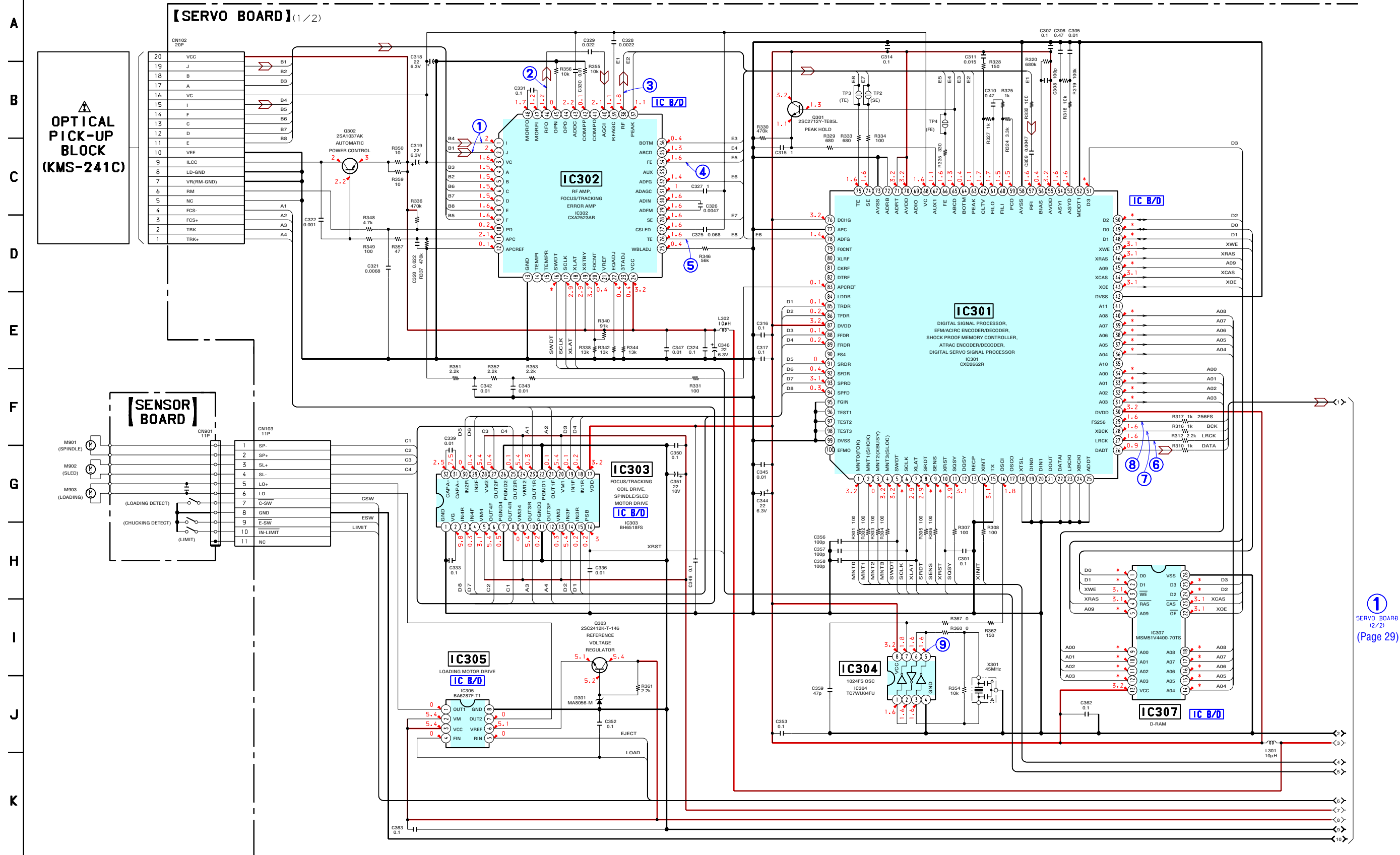


• Semiconductor Location

Ref. No.	Location
D301	G-9
D401	F-7
IC101	D-7
IC301	B-6
IC302	D-2
IC303	B-4
IC304	C-6
IC305	G-10
IC307	B-10
IC401	F-7
IC501	G-3
IC502	D-6
Q301	A-5
Q302	C-1
Q303	F-9
Q401	E-7
Q402	F-9
Q403	E-9

6-7. SCHEMATIC DIAGRAM – SERVO Section (1/2) – • See page 42 for Waveforms. • See page 43 for IC Block Diagrams.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18



1 SERVO BOARD (2/2) (Page 29)

• Voltages and waveforms are dc with respect to ground under no-signal conditions.  
no mark : MD PLAY  
\* : Impossible to measure

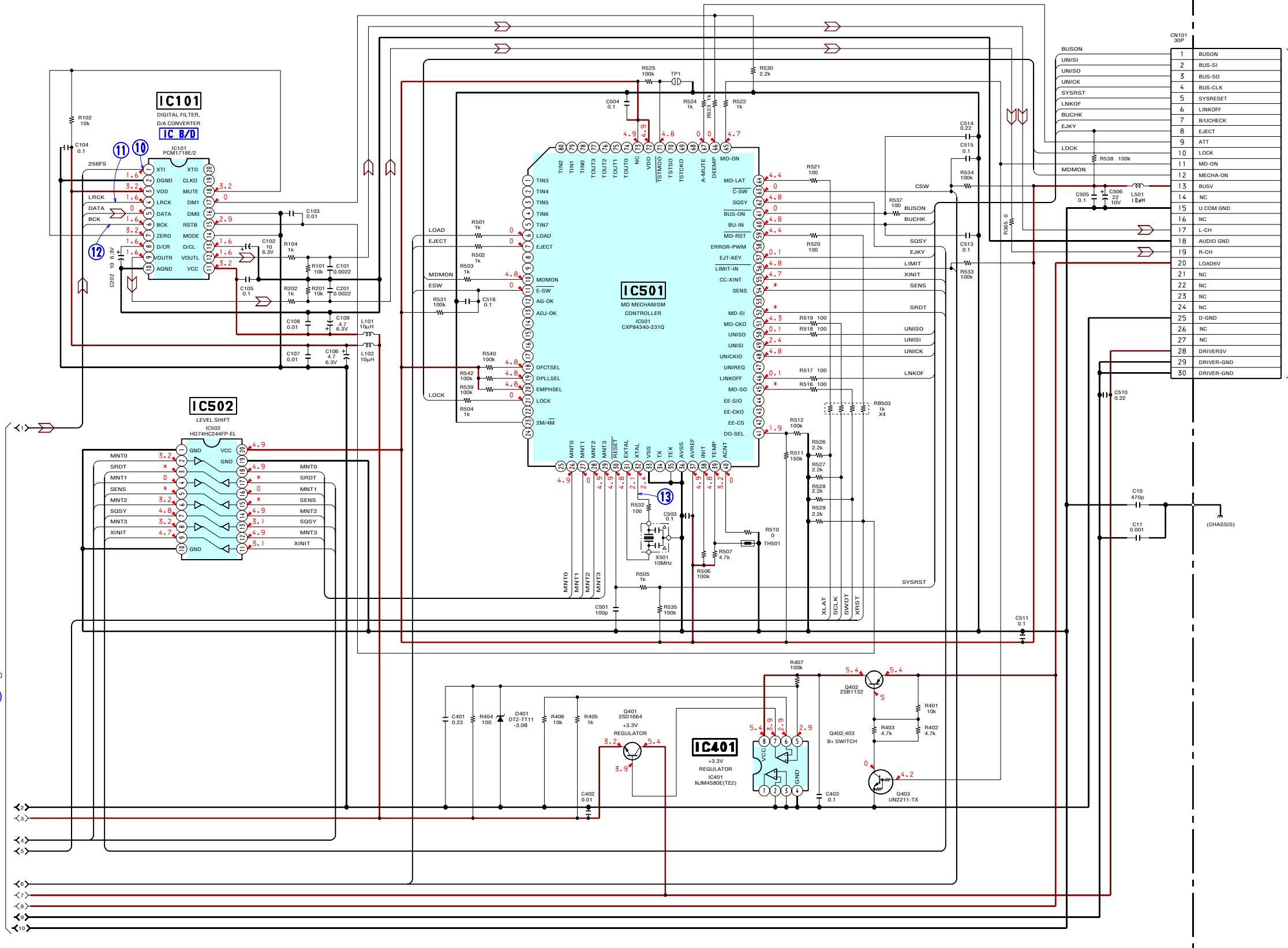
The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

6-8. SCHEMATIC DIAGRAM – SERVO Section (2/2) – • See page 42 for Waveforms. • See page 43 for IC Block Diagram.

19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34

**【SERVO BOARD】(2/2)**

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K



①  
SERVO BOARD  
(1/2)  
(Page 28)

Ⓐ  
MAIN BOARD  
(3/4)  
CN401  
(Page 34)

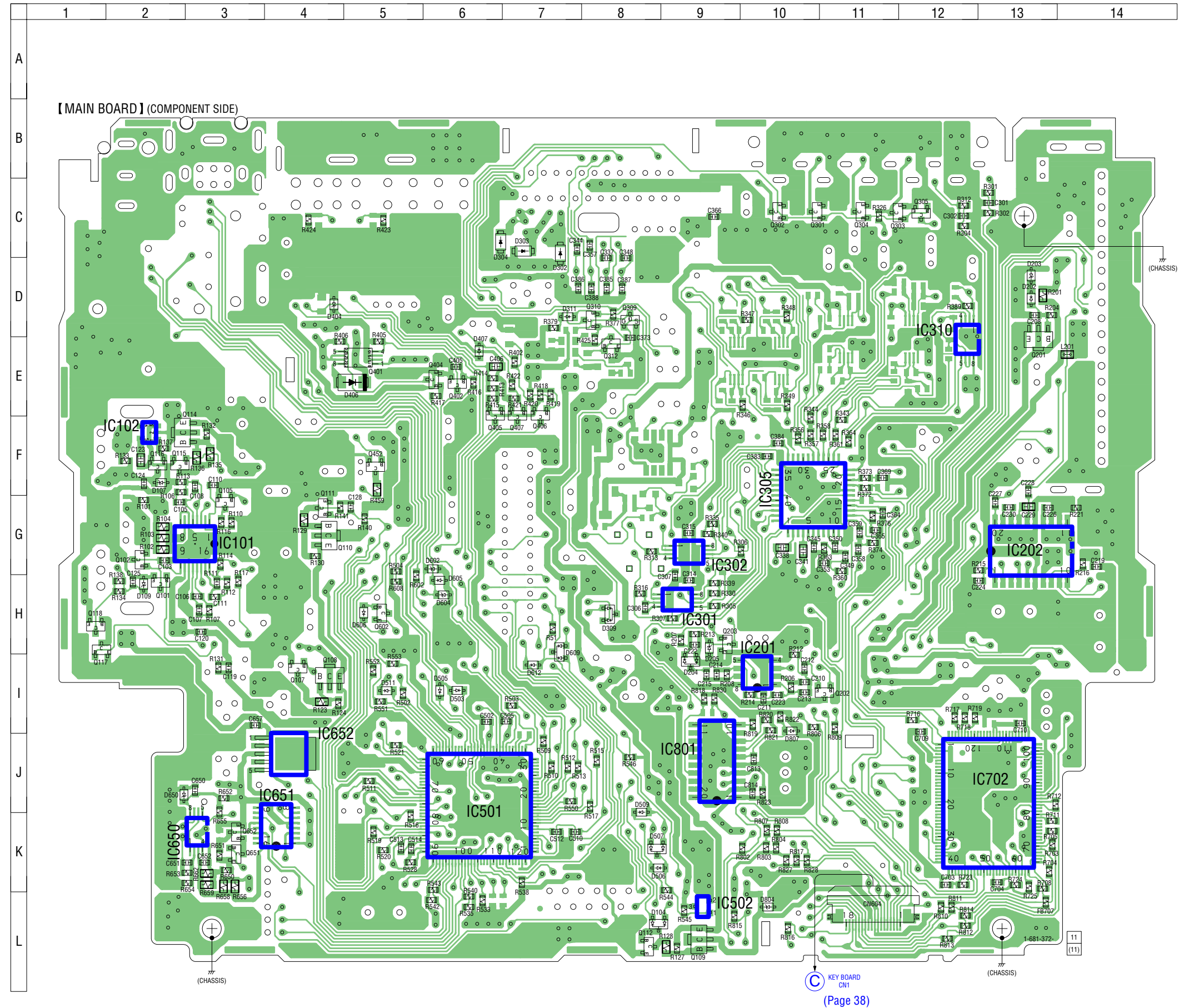
• Voltages and waveforms are dc with respect to ground under no-signal conditions.  
no mark : MD PLAY  
\* : Impossible to measure



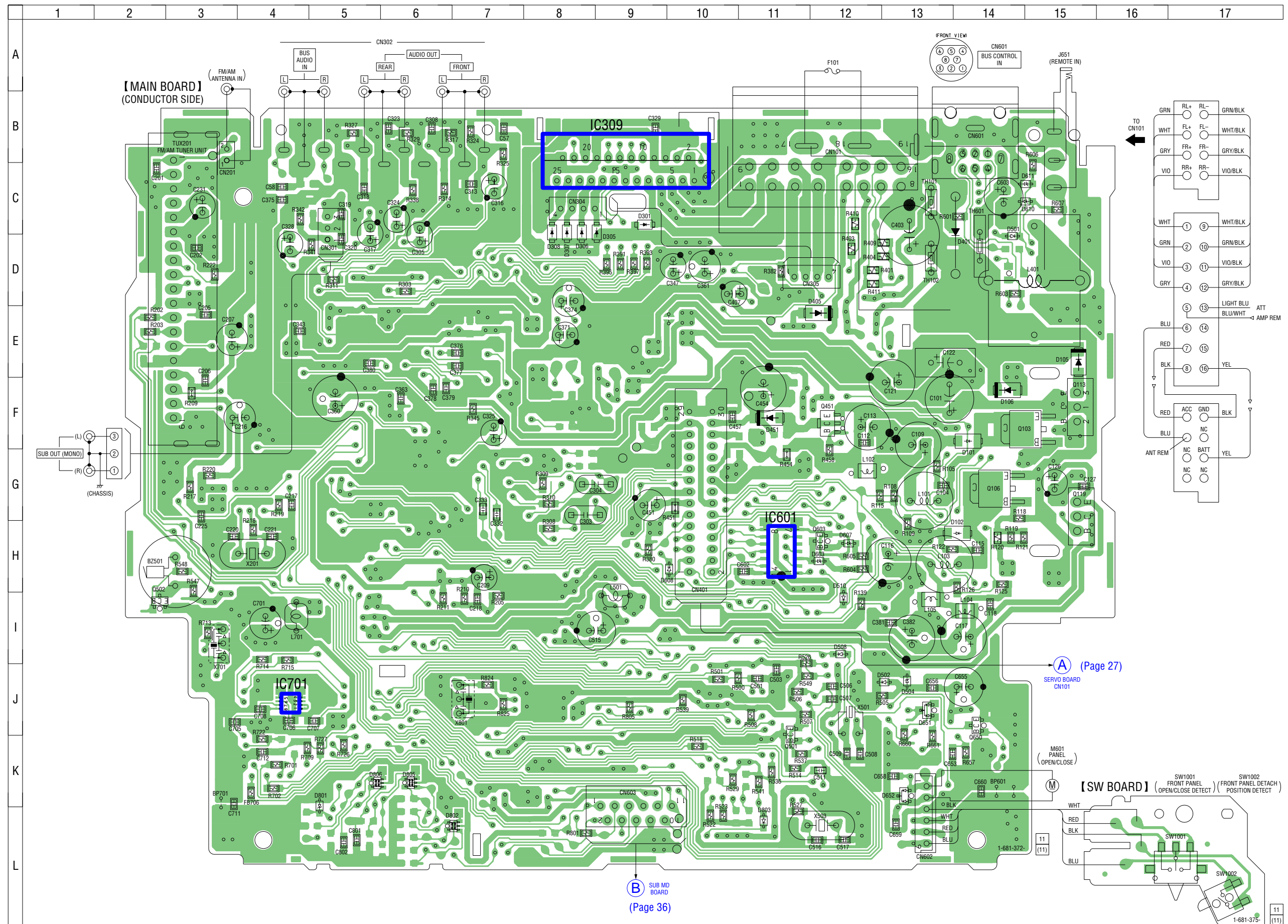
6-9. PRINTED WIRING BOARD – MAIN Section (1/2) – • See page 26 for Circuit Boards Location.

• Semiconductor Location

Ref. No.	Location	Ref. No.	Location
D104	L-8	IC650	K-3
D107	F-2	IC651	K-4
D109	H-9	IC652	J-2
D202	D-13	IC702	J-13
D203	D-13	IC801	J-9
D204	I-9		
D205	H-9	Q101	H-2
D302	C-7	Q102	G-2
D303	C-7	Q105	G-3
D304	C-6	Q107	I-4
D309	H-8	Q108	I-4
D311	D-7	Q109	L-9
D404	D-4	Q110	G-4
D406	E-5	Q111	G-4
D407	E-6	Q112	L-8
D503	I-6	Q114	F-2
D505	I-6	Q115	F-2
D506	K-8	Q116	F-2
D507	K-8	Q117	H-1
D509	J-8	Q118	H-1
D511	I-5	Q201	E-13
D602	G-6	Q202	I-11
D604	H-6	Q203	H-9
D605	H-6	Q301	C-10
D606	H-5	Q302	C-10
D609	H-7	Q303	C-11
D612	I-7	Q304	C-11
D650	J-2	Q305	C-12
D804	L-10	Q309	D-8
D807	I-10	Q310	D-8
		Q312	E-8
IC101	G-3	Q401	E-5
IC102	F-2	Q402	E-6
IC201	I-10	Q404	E-6
IC202	G-13	Q405	E-6
IC301	H-9	Q406	E-7
IC302	G-9	Q407	E-7
IC305	F-10	Q452	F-5
IC310	E-12	Q602	H-5
IC501	J-6	Q651	K-3
IC502	L-9	Q652	K-3



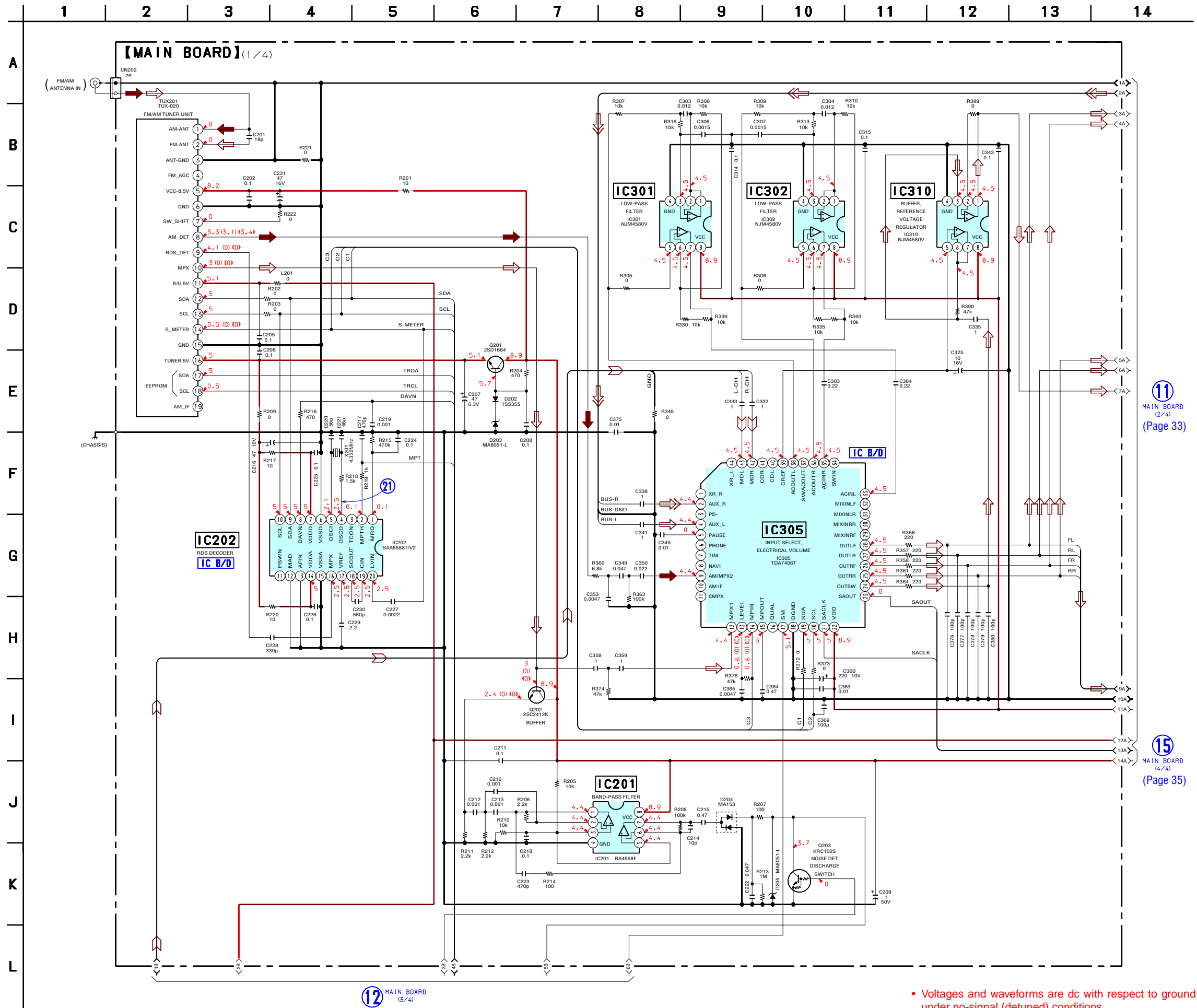
6-10. PRINTED WIRING BOARDS – MAIN Section (2/2) – • See page 26 for Circuit Boards Location.



• Semiconductor Location

Ref. No.	Location
D101	F-14
D102	H-14
D105	E-15
D106	F-14
D301	C-9
D305	C-9
D306	C-8
D307	C-8
D308	C-8
D401	C-14
D405	E-12
D451	F-11
D501	D-14
D502	J-13
D504	J-13
D508	I-12
D510	I-12
D603	H-12
D607	H-12
D608	H-10
D610	C-15
D611	C-15
D651	J-13
D652	K-13
D801	K-5
D802	L-7
D803	L-11
D805	K-6
D806	K-5
IC309	B-9
IC601	H-11
IC701	J-4
Q103	F-15
Q106	G-14
Q113	F-15
Q119	G-15
Q451	F-12
Q501	J-11
Q502	I-2
Q603	H-12
Q650	J-14

6-11. SCHEMATIC DIAGRAM – MAIN Section (1/4) – • See page 42 for Waveform. • See page 43 for IC Block Diagrams.



12 MAIN BOARD (3/4) (Page 34)

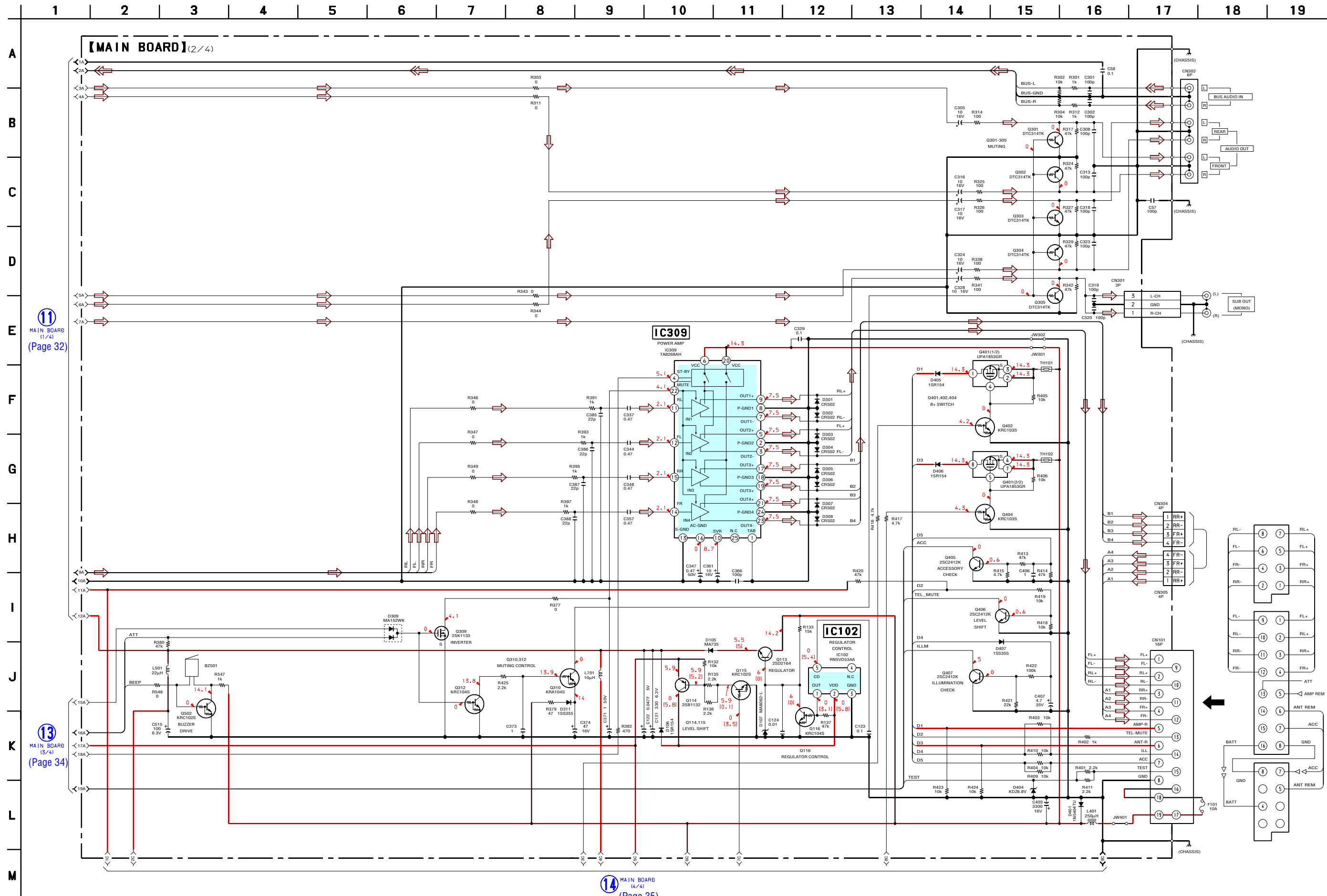
11 MAIN BOARD (2/4) (Page 33)

15 MAIN BOARD (4/4) (Page 35)

• Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.  
 no mark : FM  
 ( ) : MW  
 << >> : LW



6-12. SCHEMATIC DIAGRAM – MAIN Section (2/4) –



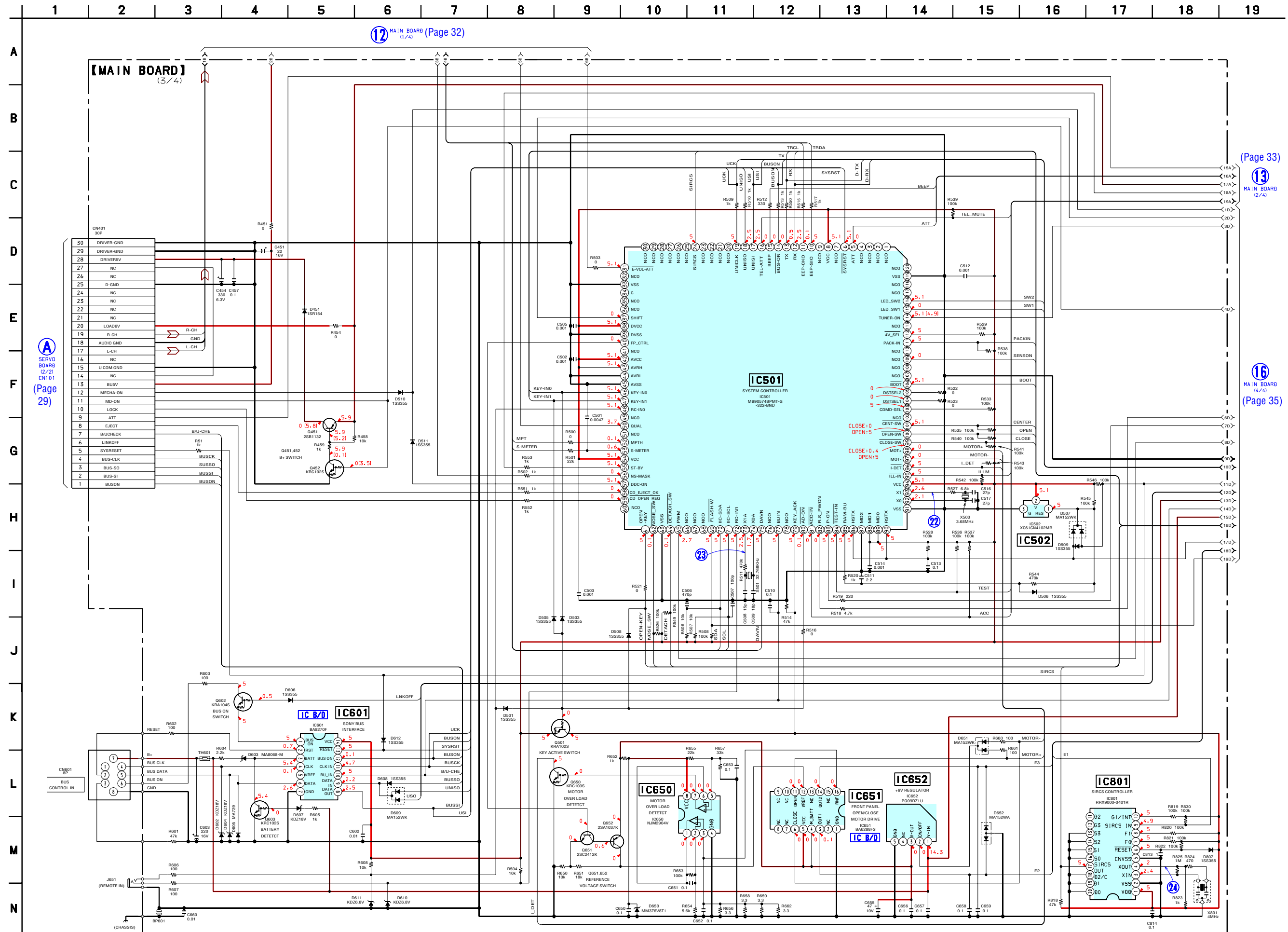
11 MAIN BOARD (1/4) (Page 32)

13 MAIN BOARD (3/4) (Page 34)

14 MAIN BOARD (4/4) (Page 35)

• Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.  
 no mark : FM  
 [ ] : MD PLAY

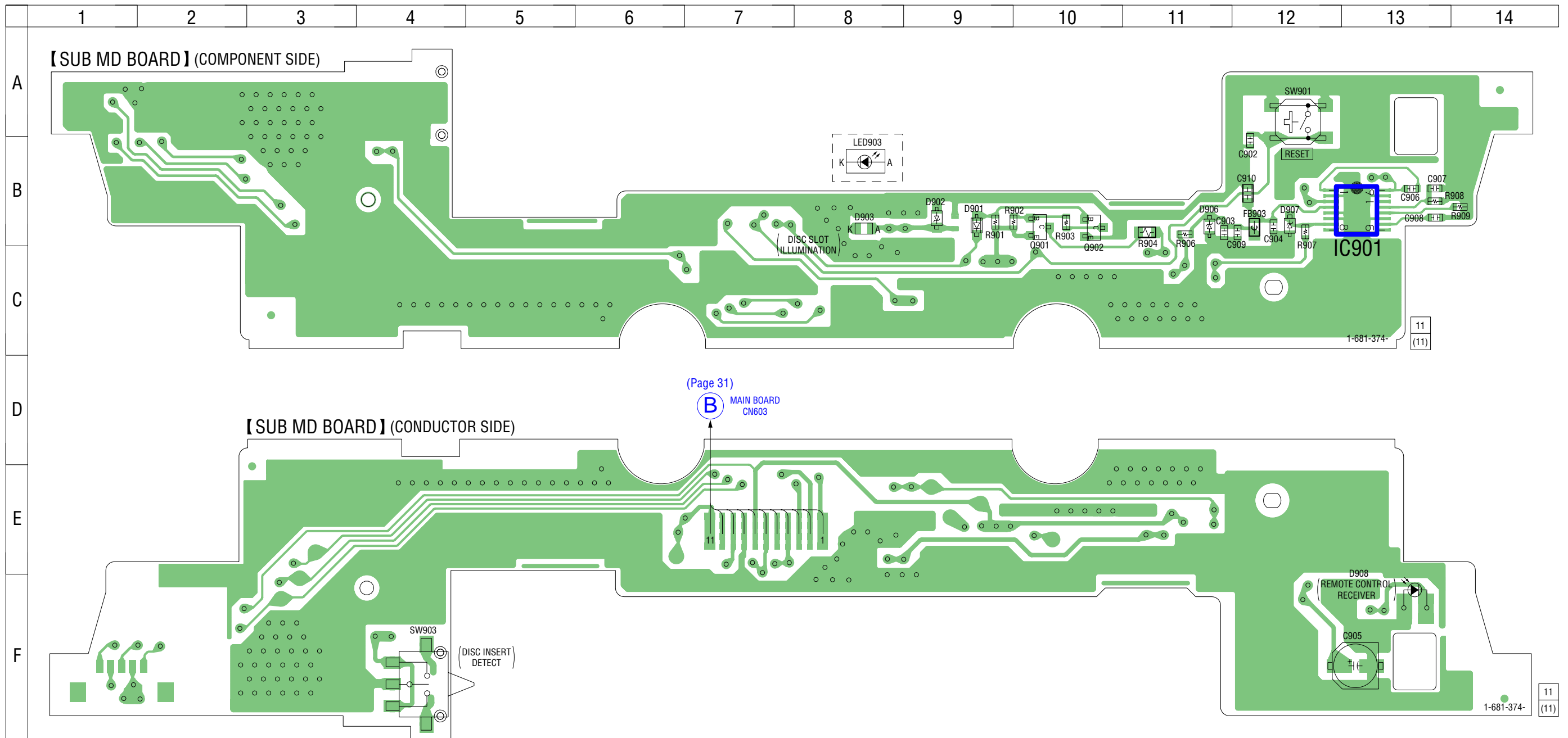
6-13. SCHEMATIC DIAGRAM – MAIN Section (3/4) – • See page 42 for Waveforms. • See page 43 for IC Block Diagrams.



• Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.  
 no mark : FM  
 [ ] : MD PLAY



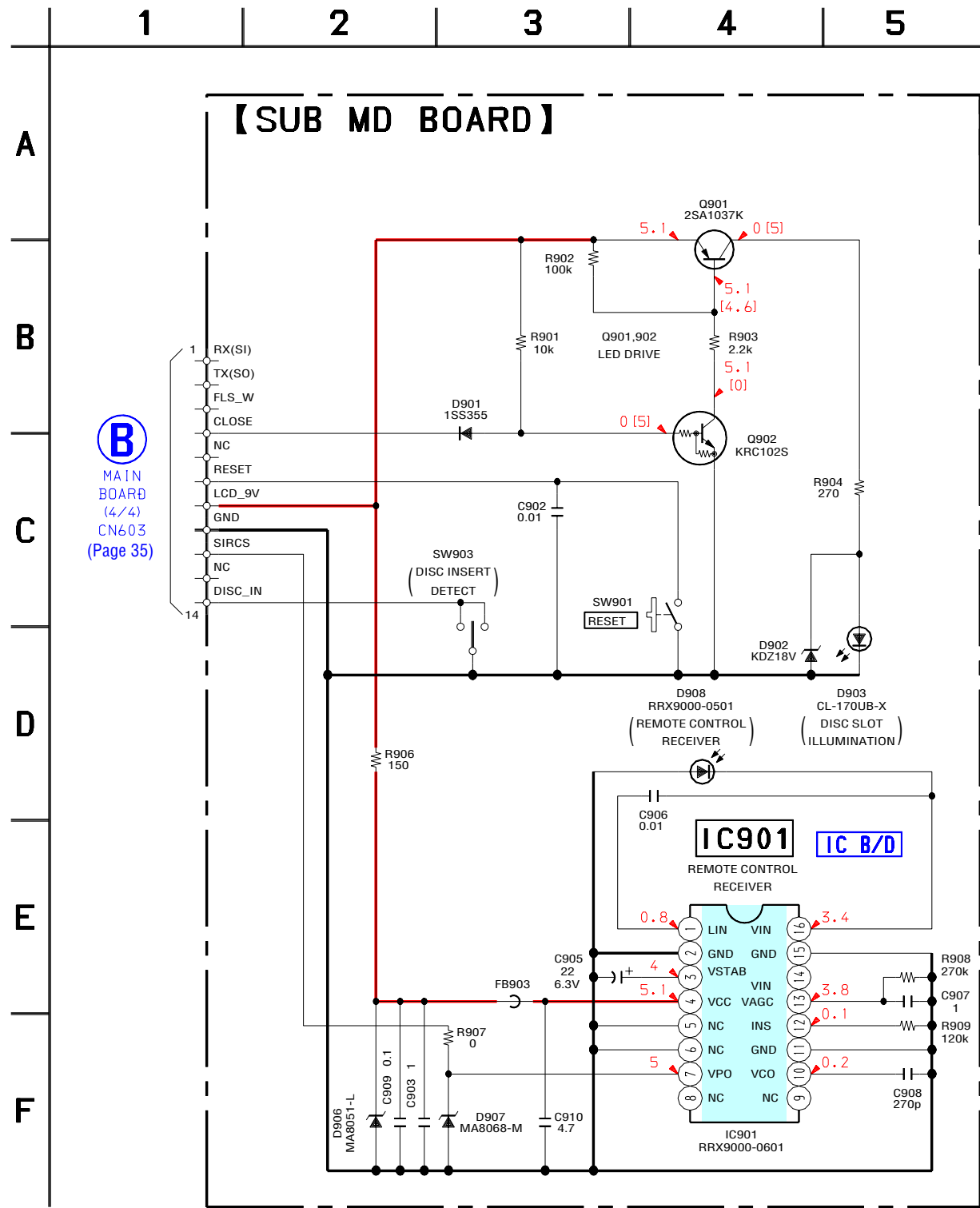
6-15. PRINTED WIRING BOARD – SUB MD Board – • See page 26 for Circuit Boards Location.



• Semiconductor Location

Ref. No.	Location
D901	B-9
D902	B-9
D903	B-8
D906	B-11
D907	B-12
D908	F-13
IC901	B-13
Q901	B-10
Q902	B-10

6-16. SCHEMATIC DIAGRAM – SUB MD Board – • See page 43 for IC Block Diagram.

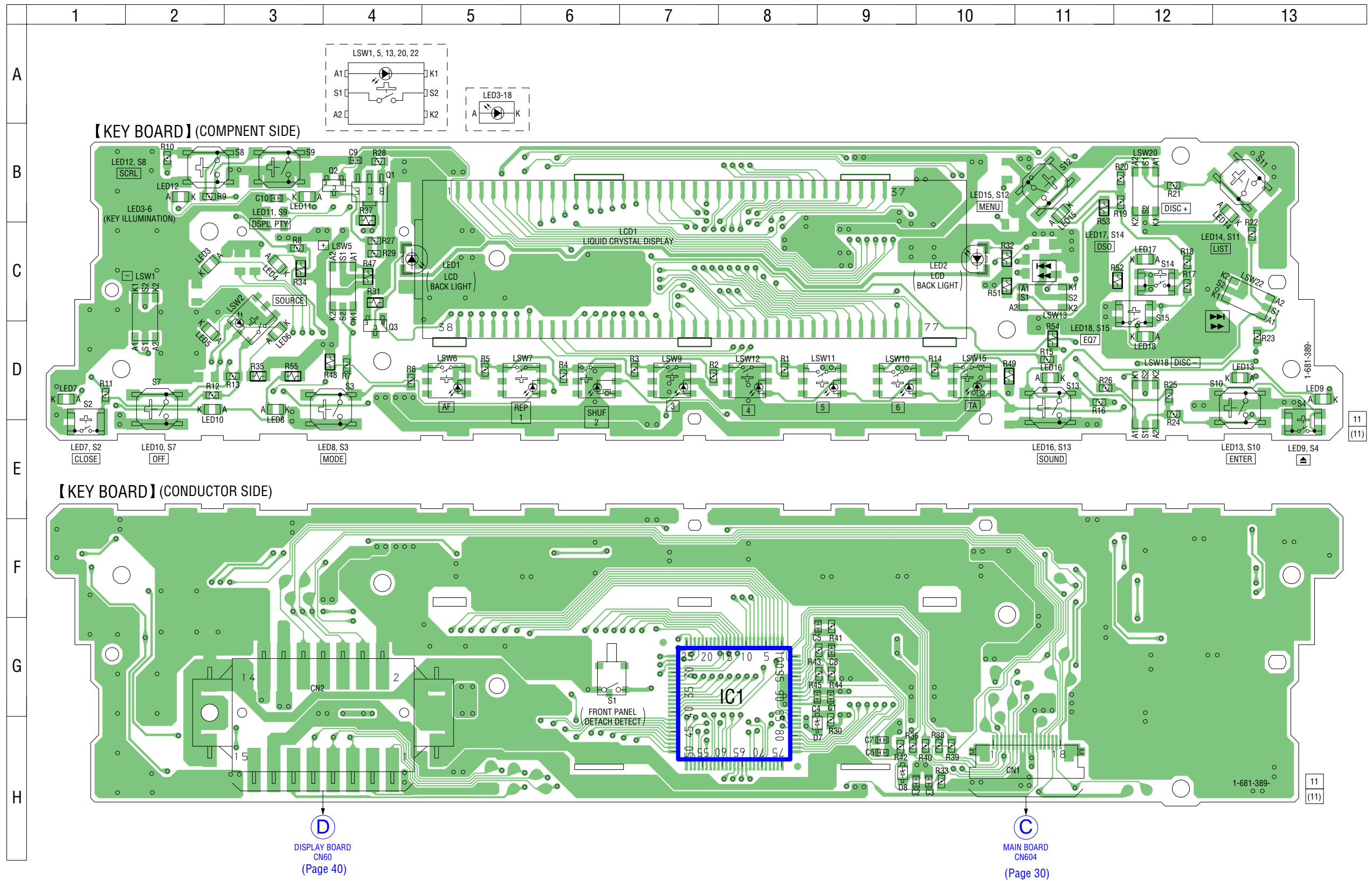


• Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions. no mark : FM

6-17. PRINTED WIRING BOARD – KEY Board – • See page 26 for Circuit Boards Location.

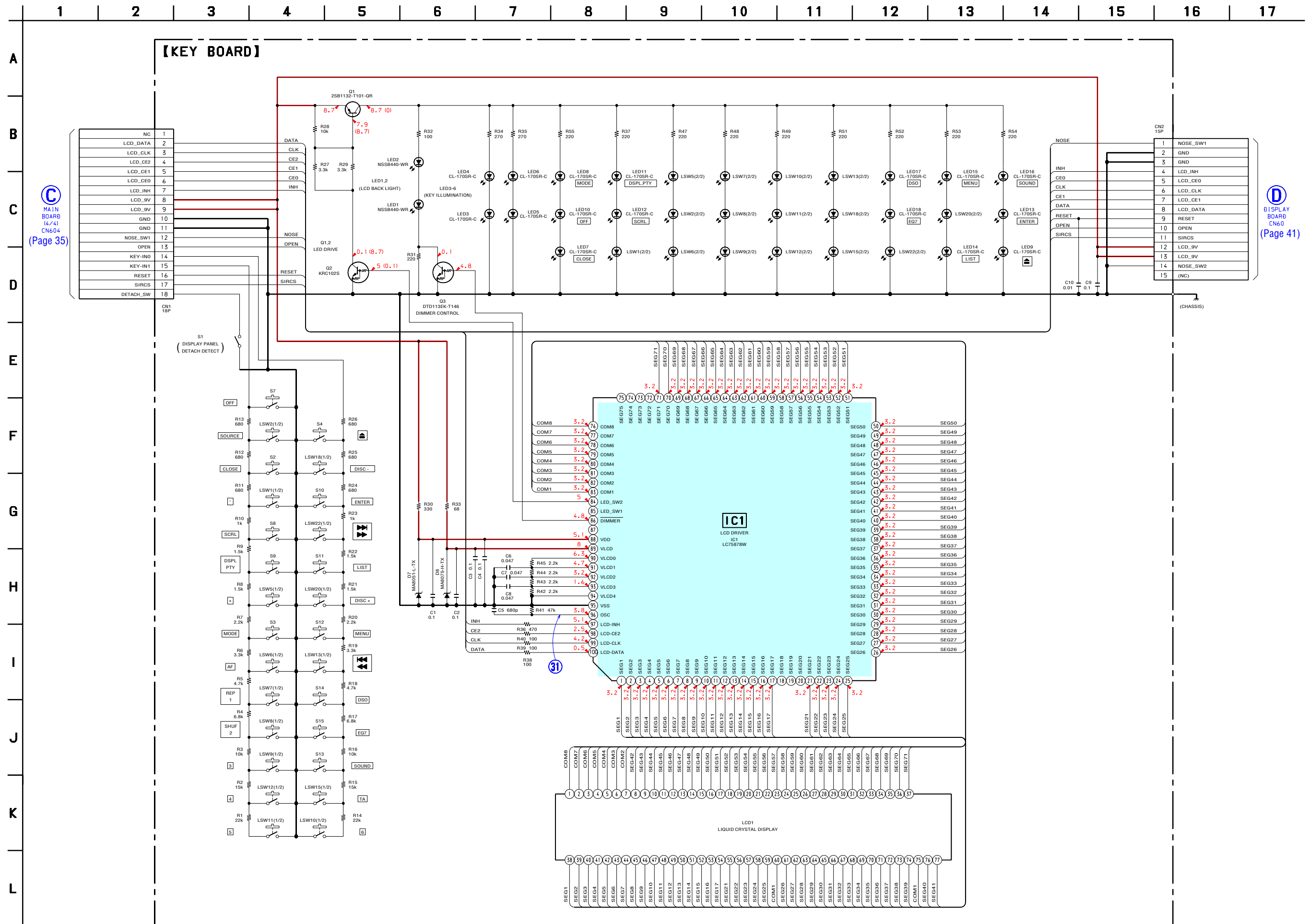
• Semiconductor Location

Ref. No.	Location
D7	H-8
D8	H-9
IC1	G-8
LED1	C-4
LED2	C-10
LED3	D-2
LED4	C-3
LED5	D-2
LED6	D-3
LED7	D-1
LED8	D-3
LED9	D-13
LED10	D-10
LED11	B-3
LED12	B-2
LED13	D-13
LED14	B-13
LED15	B-11
LED16	D-11
LED17	C-12
LED18	D-12
Q1	B-4
Q2	B-4
Q3	D-4



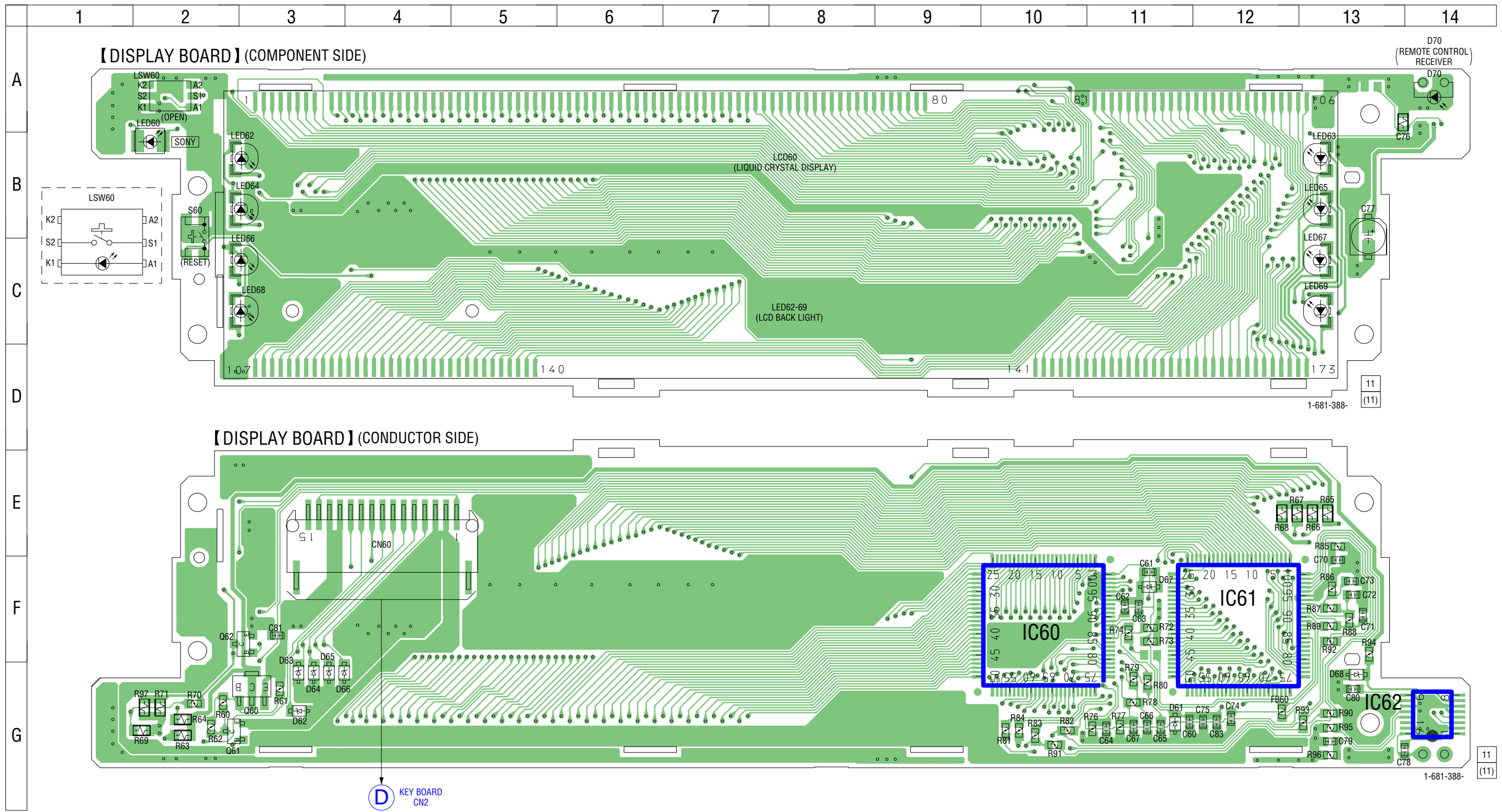


6-18. SCHEMATIC DIAGRAM – KEY Board – • See page 42 for Waveform.



• Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions. no mark : FM

6-19. PRINTED WIRING BOARD – DISPLAY Board – • See page 26 for Circuit Boards Location.

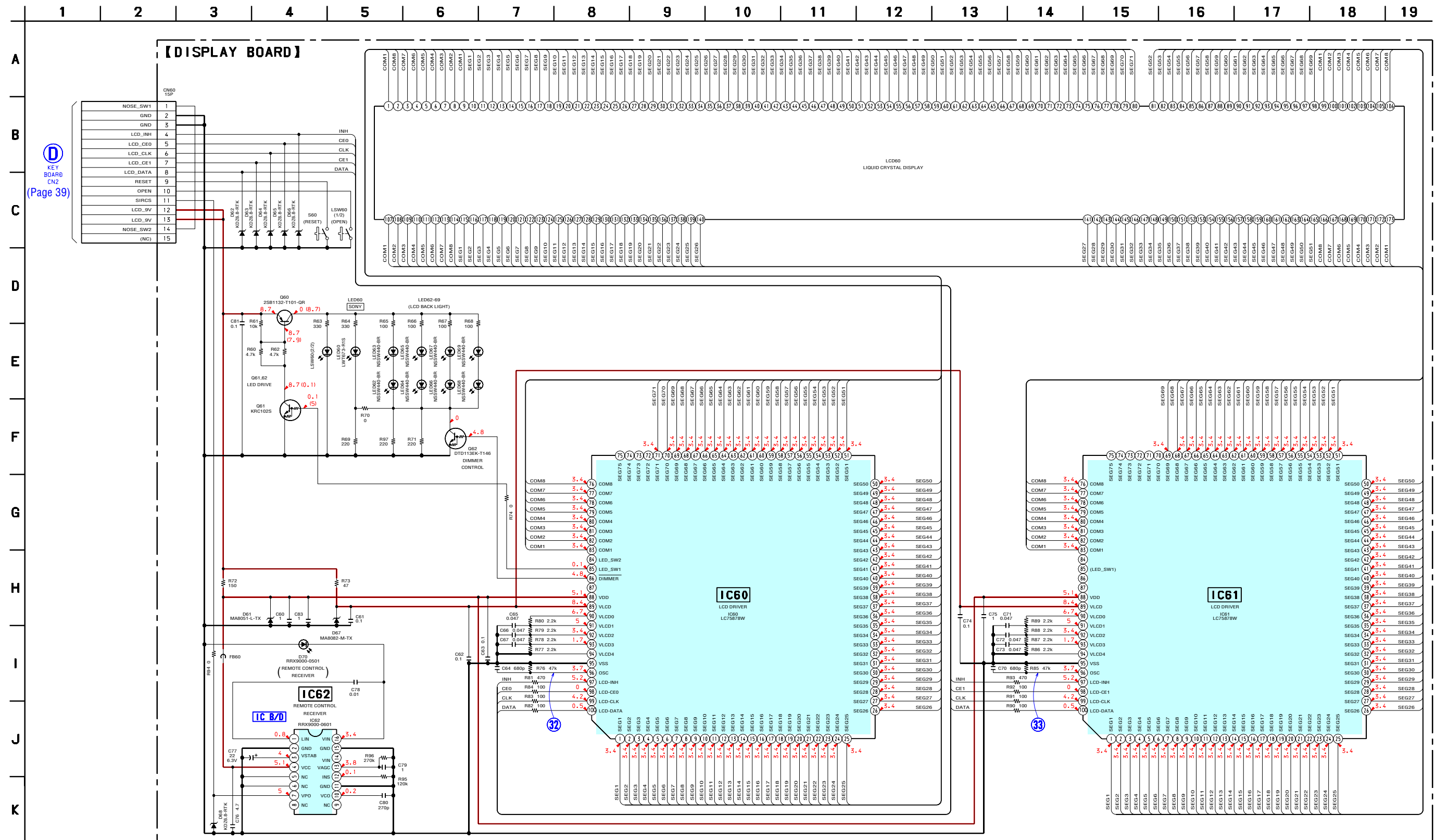


• Semiconductor Location

Ref. No.	Location	Ref. No.	Location
D61	G-11	LED60	B-2
D62	G-3	LED62	B-3
D63	G-3	LED63	B-13
D64	G-3	LED64	B-3
D65	G-3	LED65	B-13
D66	G-3	LED66	C-3
D67	F-11	LED67	C-13
D68	G-13	LED68	C-3
D70	A-14	LED69	C-13
IC60	F-10	Q60	G-3
IC61	F-12	Q61	G-2
IC62	G-14	Q62	F-3



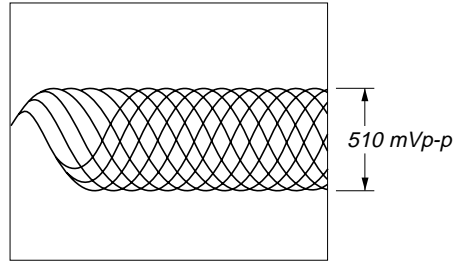
6-20. SCHEMATIC DIAGRAM – DISPLAY Board – • See page 42 for Waveforms. • See page 43 for IC Block Diagram.



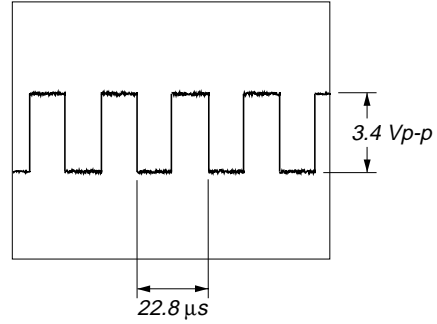
• Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.  
no mark : FM

• Waveforms  
– SERVO Board –

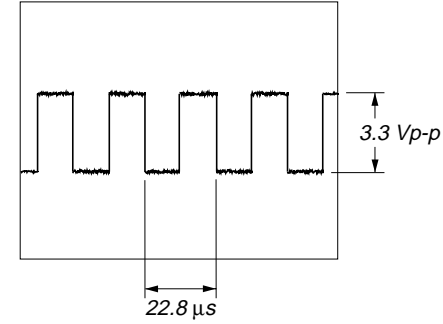
1 IC302 ①, ② (I, J) (MD Play Mode)



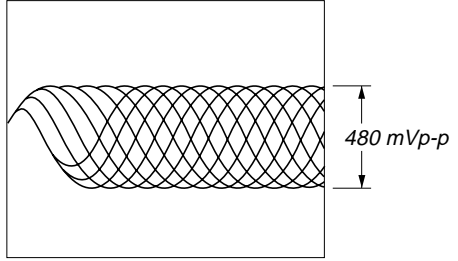
6 IC301 ⑳ (LRCK) (MD Play Mode)



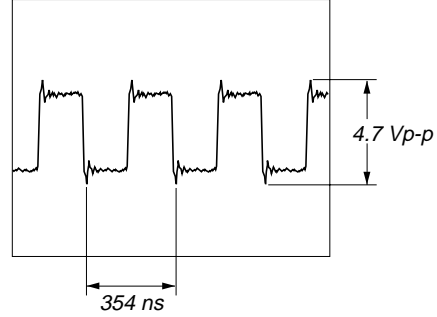
11 IC101 ④ (LRCK) (MD Play Mode)



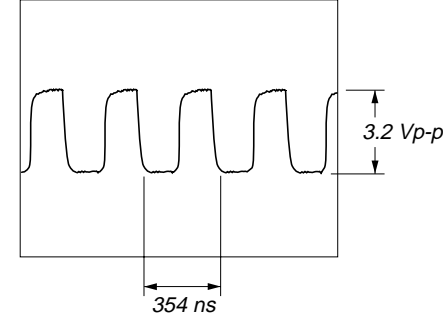
2 IC302 ④ (RFO) (MD Play Mode)



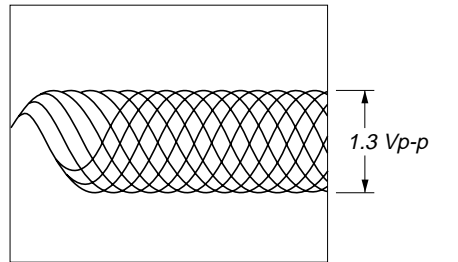
7 IC301 ㉑ (XBCK) (MD Play Mode)



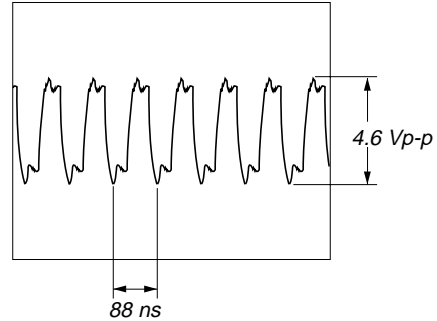
12 IC101 ⑥ (BCK) (MD Play Mode)



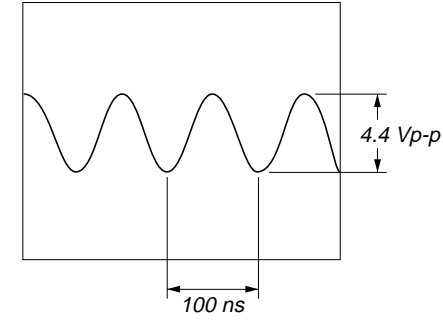
3 IC302 ③ (RF) (MD Play Mode)



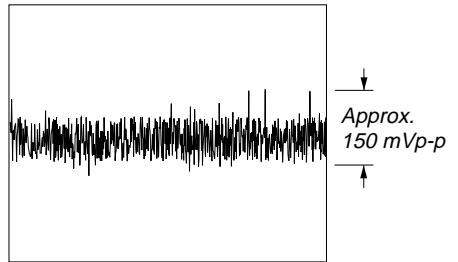
8 IC301 ㉒ (FS256) (MD Play Mode)



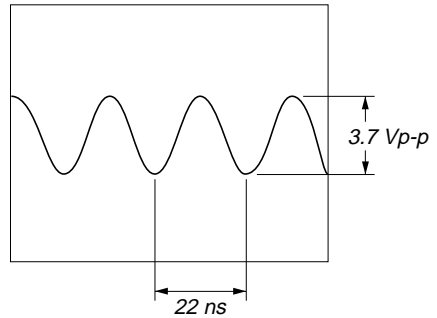
13 IC501 ㉓ (XTAL)



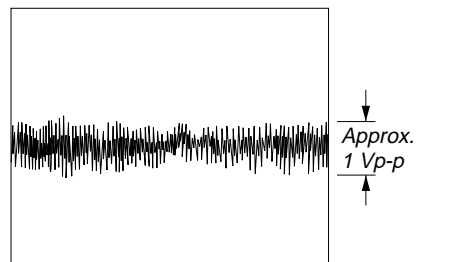
4 IC302 ③ (FE) (MD Play Mode)



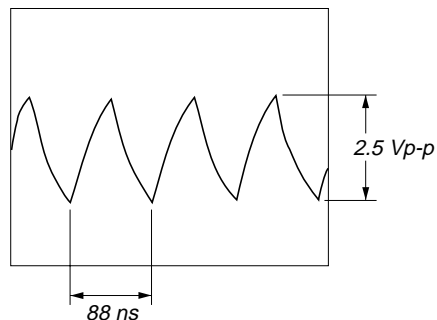
9 IC304 ⑤ (MD Play Mode)



5 IC302 ③ (TE) (MD Play Mode)

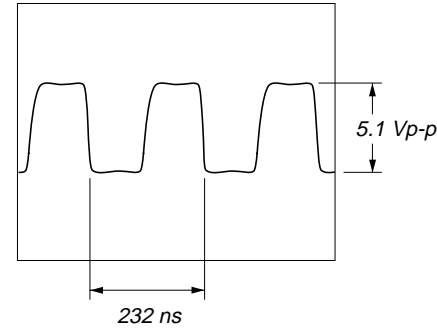


10 IC101 ① (XTI) (MD Play Mode)

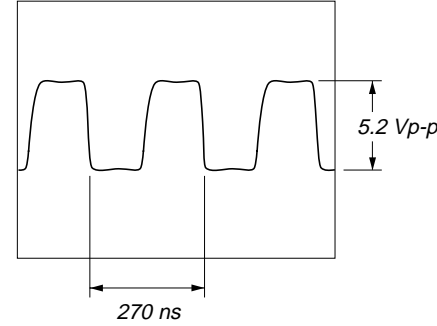


– MAIN Board –

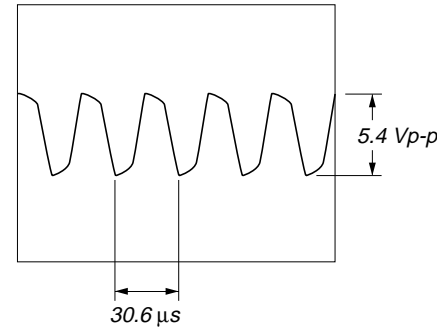
21 IC202 ④ (OSCO)



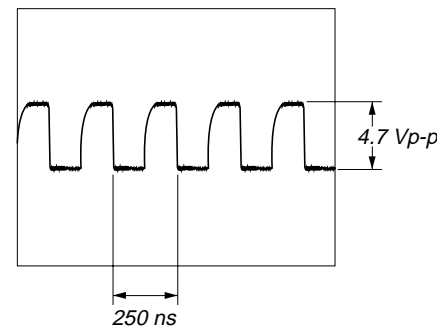
22 IC501 ㉓ (X1)



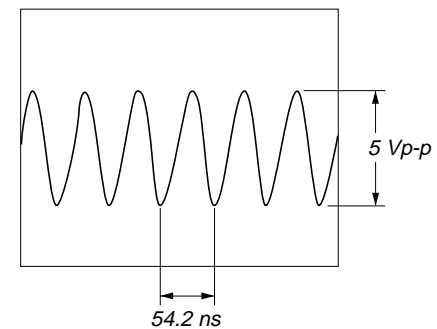
23 IC501 ㉓ (X1A)



24 IC801 ④ (XOUT)

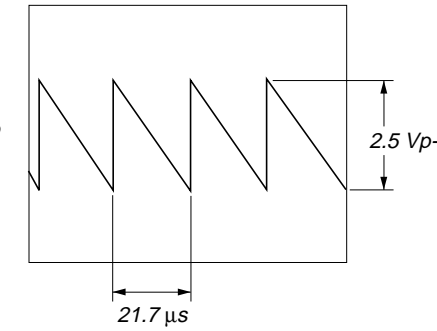


25 IC702



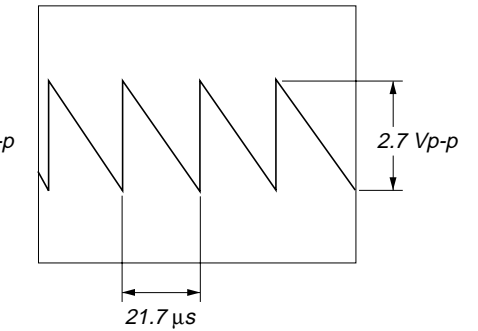
– KEY Board –

31 IC1 ⑨ (OSC)

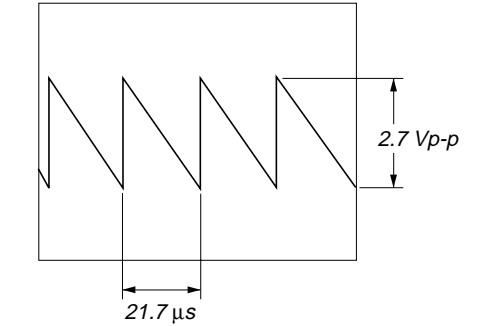


– DISPLAY Board –

32 IC60 ⑨ (OSC)

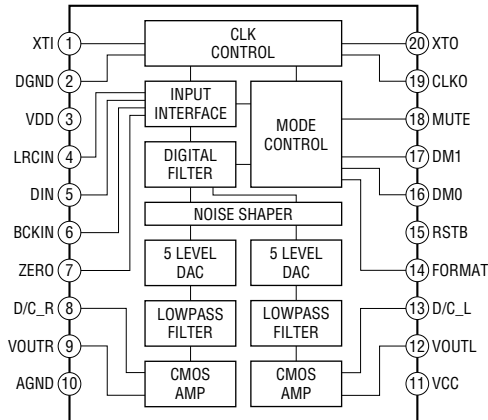


33 IC61 ⑨ (OSC)

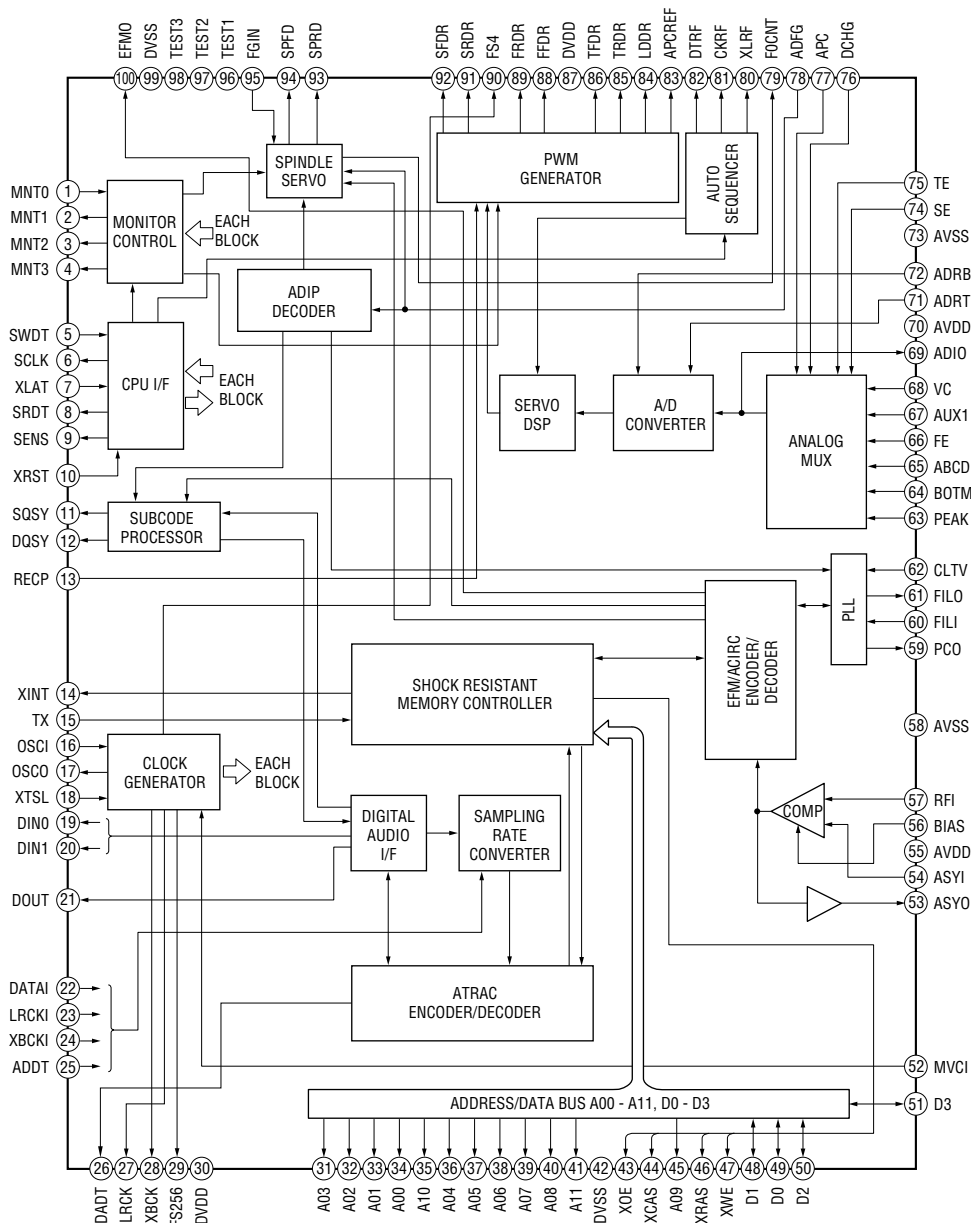


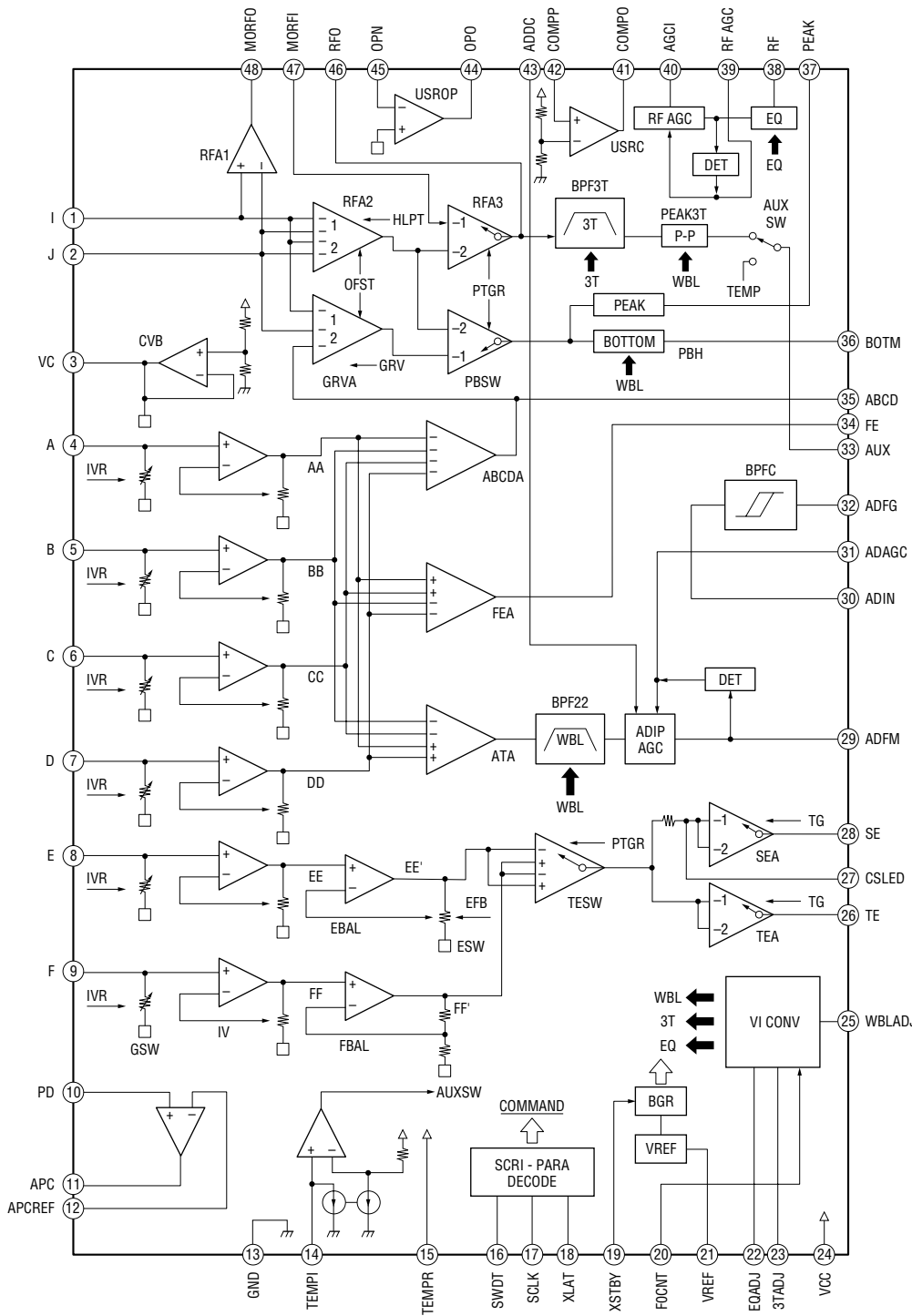
• IC Block Diagrams  
– SERVO Board –

IC101 PCM1718E/2K

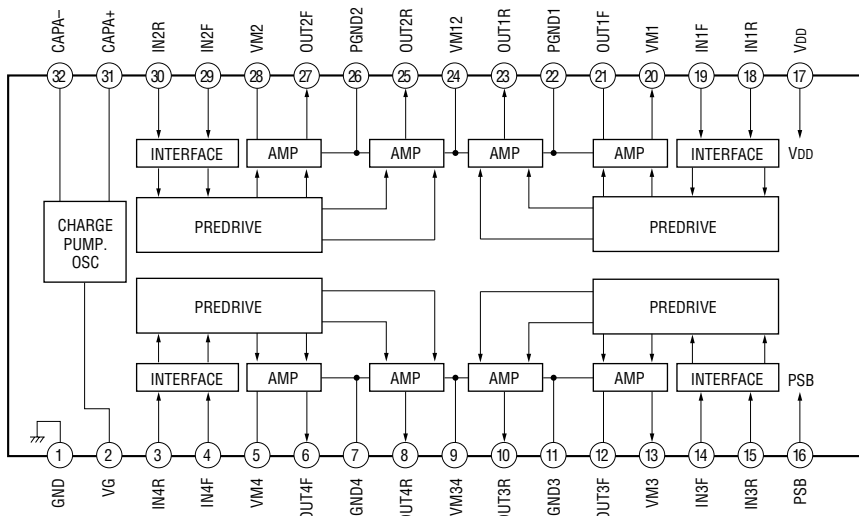


IC301 CXD2662R

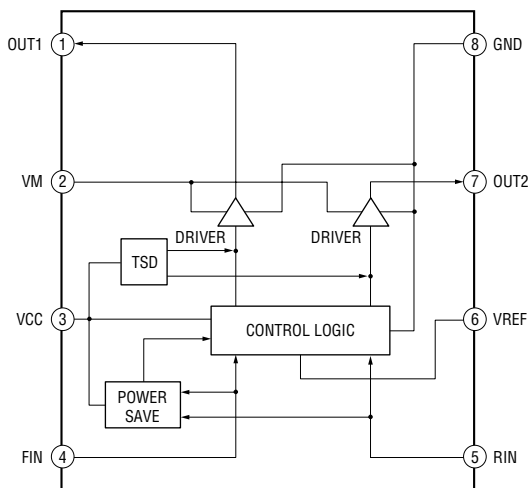




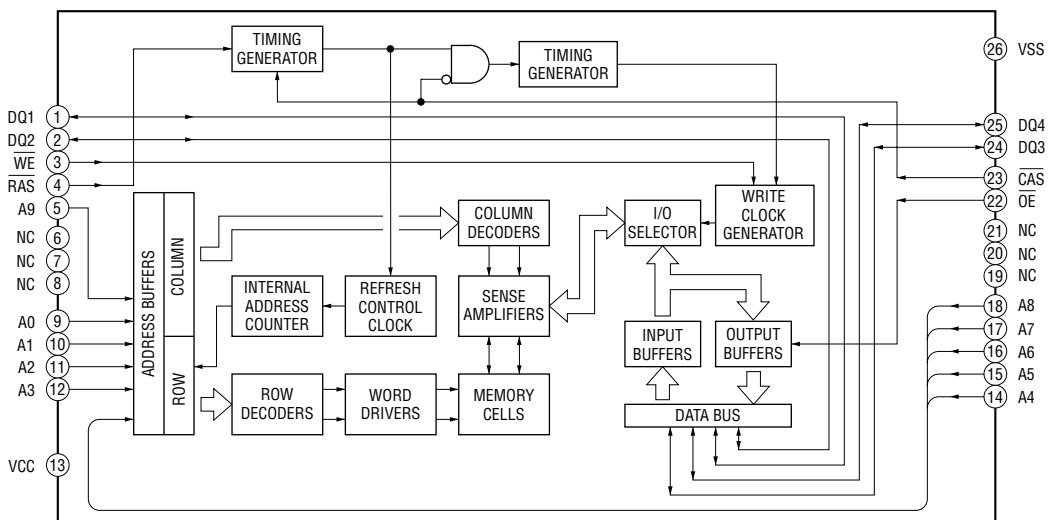
IC303 BH6518FS-E2



IC305 BA6287F



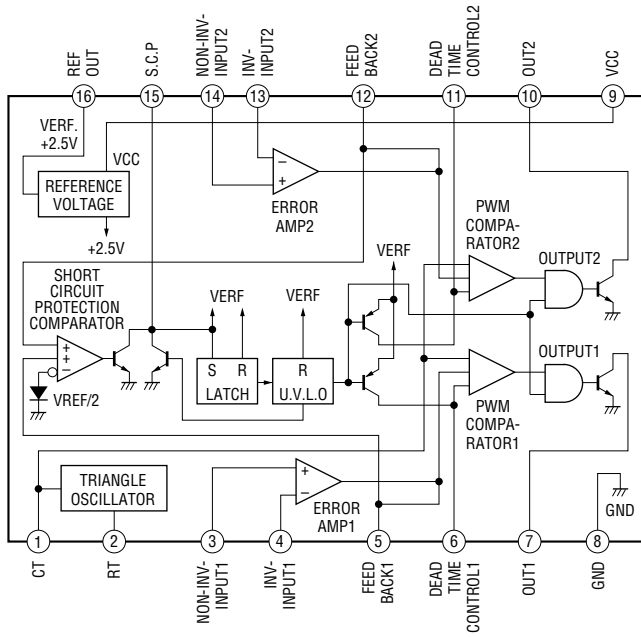
IC307 MSM51V4400E-70TS-K



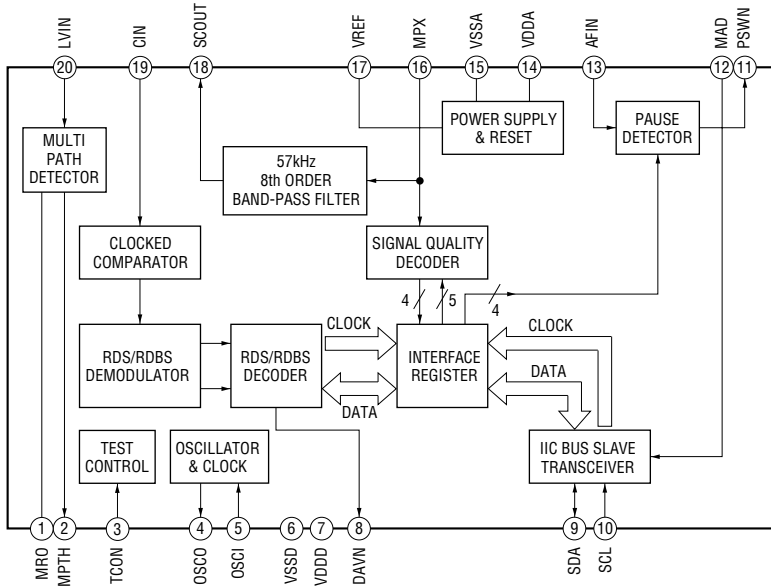
# MDX-M690

– MAIN Board –

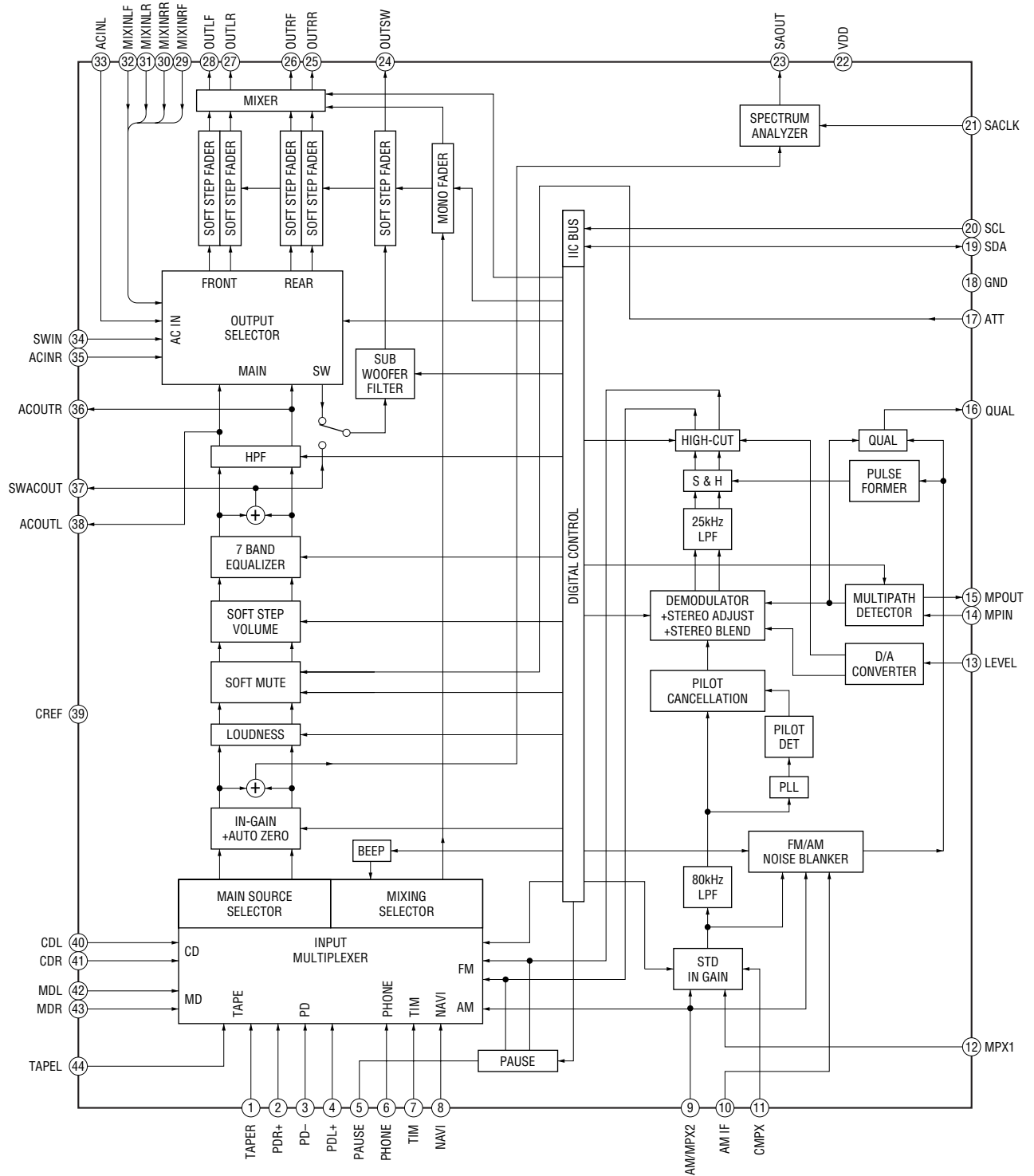
## IC101 TL1451ACDB-E20



## IC202 SAA6588T-118

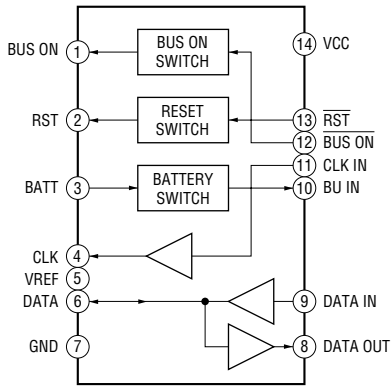


IC305 TDA7406T

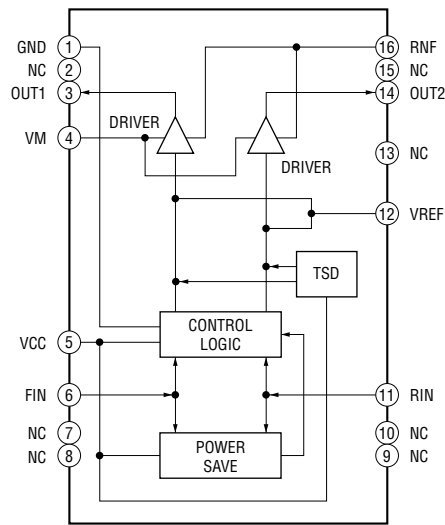


# MDX-M690

## IC601 BA8270F-E2

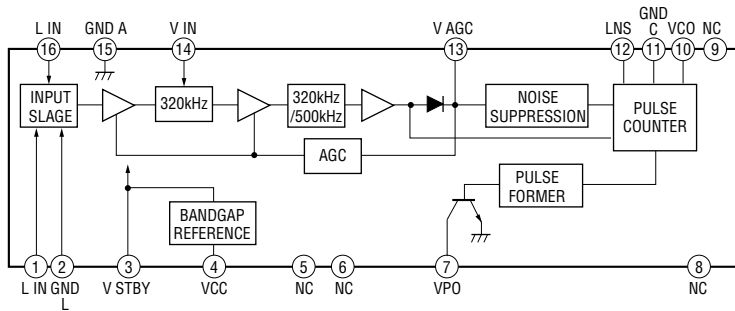


## IC651 BA6288FS-E2



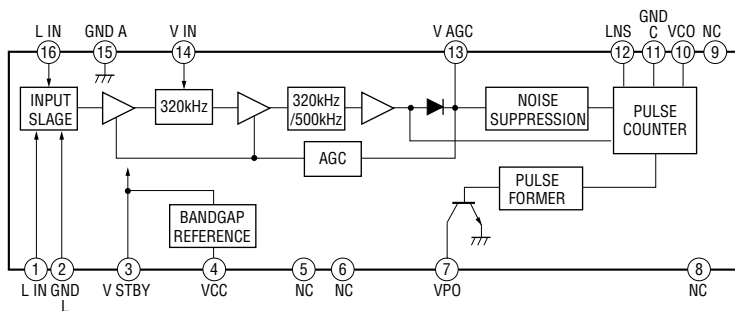
## - SUB MD Board -

### IC901 RRX9000-0601#1



## - DISPLAY Board -

### IC62 RRX9000-0601#1





## 6-21. IC PIN FUNCTION DESCRIPTION

## • SERVO BOARD IC301 CXD2662R

(DIGITAL SIGNAL PROCESSOR, DIGITAL SERVO PROCESSOR, EFM/ACIRC ENCODER/DECODER, SHOCK PROOF MEMORY CONTROLLER, ATRAC ENCODER/DECODER)

Pin No.	Pin Name	I/O	Description
1	MNT0 (FOK)	O	Focus OK signal output to the MD mechanism controller (IC501) “H” is output when focus is on (“L”: NG)
2	MNT1 (SHOCK)	O	Track jump detection signal output to the MD mechanism controller (IC501)
3	MNT2 (XBUSY)	O	Busy monitor signal output to the MD mechanism controller (IC501)
4	MNT3 (SLOCK)	O	Spindle servo lock status monitor signal output to the MD mechanism controller (IC501)
5	SWDT	I	Writing serial data signal input from the MD mechanism controller (IC501)
6	SCLK	I	Serial data transfer clock signal input from the MD mechanism controller (IC501)
7	XLAT	I	Serial data latch pulse signal input from the MD mechanism controller (IC501)
8	SRDT	O (3)	Reading serial data signal output to the MD mechanism controller (IC501)
9	SENS	O (3)	Internal status (SENSE) output to the MD mechanism controller (IC501)
10	XRST	I	Reset signal input from the MD mechanism controller (IC501) “L”: reset
11	SQSY	O	Subcode Q sync (SCOR) output to the MD mechanism controller (IC501) “L” is output every 13.3 msec Almost all, “H” is output
12	DQSY	O	Digital In U-bit CD format subcode Q sync (SCOR) output terminal “L” is output every 13.3 msec Almost all, “H” is output Not used (open)
13	RECP	I	Laser power selection signal input terminal “L”: playback mode, “H”: recording mode (fixed at “L” in this set)
14	XINT	O	Interrupt status output to the MD mechanism controller (IC501)
15	TX	O	Recording data output enable signal input terminal Writing data transmission timing input (Also serves as the magnetic head on/off output) Not used (fixed at “L”)
16	OSCI	I	System clock signal (1024Fs=45 MHz) input from the oscillator circuit
17	OSCO	O	System clock signal (1024Fs=45 MHz) output terminal Not used (open)
18	XTSL	I	Input terminal for the system clock frequency setting “L”: 45.1584 MHz, “H”: 22.5792 MHz (fixed at “L” in this set)
19	DIN0	I	Digital audio signal input terminal when recording mode Not used (fixed at “L”)
20	DIN1	I	Digital audio signal input terminal when recording mode Not used (fixed at “L”)
21	DOUT	O	Digital audio signal output terminal when playback mode Not used
22	DADTAI	I	Recording data input terminal Not used (fixed at “L”)
23	LRCKI	I	L/R sampling clock signal (44.1 kHz) input terminal Not used (fixed at “L”)
24	XBCKI	I	Bit clock signal (2.8224 MHz) input terminal Not used (fixed at “L”)
25	ADDT	I	Recording data input terminal Not used (fixed at “L”)
26	DADT	O	Playback data output to the PCM1718E (IC101)
27	LRCK	O	L/R sampling clock signal (44.1 kHz) output to the PCM1718E (IC101)
28	XBCK	O	Bit clock signal (2.8224 MHz) output to the PCM1718E (IC101)
29	FS256	O	Clock signal (11.2896 MHz) output to the PCM1718E (IC101)
30	DVDD	—	Power supply terminal (+3.3V) (digital system)
31 to 34	A03 to A00	O	Address signal output to the D-RAM (IC307)
35	A10	O	Address signal output to the external D-RAM Not used (open)
36 to 40	A04 to A08	O	Address signal output to the D-RAM (IC307)
41	A11	O	Address signal output to the external D-RAM Not used (open)
42	DVSS	—	Ground terminal (digital system)
43	XOE	O	Output enable signal output to the D-RAM (IC307) “L” active
44	XCAS	O	Column address strobe signal output to the D-RAM (IC307) “L” active
45	A09	O	Address signal output to the D-RAM (IC307)

Pin No.	Pin Name	I/O	Description
46	XRAS	O	Row address strobe signal output to the D-RAM (IC307) "L" active
47	XWE	O	Write enable signal output to the D-RAM (IC307) "L" active
48	D1	I/O	Two-way data bus with the D-RAM (IC307)
49	D0	I/O	
50	D2	I/O	
51	D3	I/O	
52	MVCI	I	Digital in PLL oscillation input from the external VCO Not used (fixed at "L")
53	ASYO	O	Playback EFM full-swing output terminal
54	ASYI	I (A)	Playback EFM asymmetry comparator voltage input terminal
55	AVDD	—	Power supply terminal (+3.3V) (analog system)
56	BIAS	I (A)	Playback EFM asymmetry circuit constant current input terminal
57	RFI	I (A)	Playback EFM RF signal input from the CXA2523AR (IC302)
58	AVSS	—	Ground terminal (analog system)
59	PCO	O (3)	Phase comparison output for master clock of the recording/playback EFM master PLL
60	FILI	I (A)	Filter input for master clock of the recording/playback master PLL
61	FILO	O (A)	Filter output for master clock of the recording/playback master PLL
62	CLTV	I (A)	Internal VCO control voltage input of the recording/playback master PLL
63	PEAK	I (A)	Light amount signal (RF/ABCD) peak hold input from the CXA2523AR (IC302)
64	BOTM	I (A)	Light amount signal (RF/ABCD) bottom hold input from the CXA2523AR (IC302)
65	ABCD	I (A)	Light amount signal (ABCD) input from the CXA2523AR (IC302)
66	FE	I (A)	Focus error signal input from the CXA2523AR (IC302)
67	AUX1	I (A)	Auxiliary signal (I <sub>3</sub> signal/temperature signal) input from the CXA2523AR (IC302)
68	VC	I (A)	Middle point voltage (+1.65V) input from the CXA2523AR (IC302)
69	ADIO	O (A)	Monitor output of the A/D converter input signal Not used (open)
70	AVDD	—	Power supply terminal (+3.3V) (analog system)
71	ADRT	I (A)	A/D converter operational range upper limit voltage input terminal (fixed at "H" in this set)
72	ADRB	I (A)	A/D converter operational range lower limit voltage input terminal (fixed at "L" in this set)
73	AVSS	—	Ground terminal (analog system)
74	SE	I (A)	Sled error signal input from the CXA2523AR (IC302)
75	TE	I (A)	Tracking error signal input from the CXA2523AR (IC302)
76	DCHG	I (A)	Connected to the +3.3V power supply
77	APC	I (A)	Error signal input for the laser automatic power control Not used (fixed at "L")
78	ADFG	I	ADIP duplex FM signal (22.05 kHz ± 1 kHz) input from the CXA2523AR (IC302)
79	F0CNT	O	Filter f <sub>0</sub> control signal output terminal Not used (open)
80	XLRF	O	Serial data latch pulse signal output terminal Not used (open)
81	CKRF	O	Serial data transfer clock signal output terminal Not used (open)
82	DTRF	O	Writing serial data output terminal Not used (open)
83	APCREF	O	Control signal output to the reference voltage generator circuit for the laser automatic power control
84	TEST0	O	Input terminal for the test Not used (open)
85	TRDR	O	Tracking servo drive PWM signal (-) output to the BH6518FS (IC303)
86	TFDR	O	Tracking servo drive PWM signal (+) output to the BH6518FS (IC303)
87	DVDD	—	Power supply terminal (+3.3V) (digital system)
88	FFDR	O	Focus servo drive PWM signal (+) output to the BH6518FS (IC303)
89	FRDR	O	Focus servo drive PWM signal (-) output to the BH6518FS (IC303)
90	FS4	O	Clock signal (176.4 kHz) output terminal (X'tal system) Not used (open)

Pin No.	Pin Name	I/O	Description
91	SRDR	O	Sled servo drive PWM signal (-) output to the BH6518FS (IC303)
92	SFDR	O	Sled servo drive PWM signal (+) output to the BH6518FS (IC303)
93	SPRD	O	Spindle servo drive PWM signal (-) output to the BH6518FS (IC303)
94	SPFD	O	Spindle servo drive PWM signal (+) output to the BH6518FS (IC303)
95	FGIN	I	Input terminal for the test (fixed at "L")
96	TEST1	I	
97	TEST2	I	
98	TEST3	I	
99	DVSS	—	Ground terminal (digital system)
100	EFMO	O	EFM signal output terminal when recording mode Not used (open)

\* I (A) for analog input, O (3) for 3-state output, and O (A) for analog output in the column I/O.

• SERVO BOARD IC302 CXA2523AR (RF AMP, FOCUS/TRACKING ERROR AMP)

Pin No.	Pin Name	I/O	Description
1	I	I	I-V converted RF signal I input from the optical pick-up block detector
2	J	I	I-V converted RF signal J input from the optical pick-up block detector
3	VC	O	Middle point voltage (+1.65V) generation output terminal
4 to 9	A to F	I	Signal input from the optical pick-up detector
10	PD	I	Light amount monitor input from the optical pick-up block laser diode
11	APC	O	Laser amplifier output terminal to the automatic power control circuit
12	APCREF	I	Reference voltage input terminal for setting laser power
13	GND	—	Ground terminal
14	TEMPI	I	Connected to the temperature sensor Not used (open)
15	TEMPR	O	Output terminal for a temperature sensor reference voltage Not used (open)
16	SWDT	I	Writing serial data input from the MD mechanism controller (IC501)
17	SCLK	I	Serial data transfer clock signal input from the MD mechanism controller (IC501)
18	XLAT	I	Serial data latch pulse signal input from the MD mechanism controller (IC501)
19	XSTBY	I	Standby signal input terminal “L”: standby (fixed at “H” in this set)
20	F0CNT	I	Center frequency control voltage input terminal of internal circuit (BPF22, BPF3T, EQ) input terminal
21	VREF	O	Reference voltage output terminal Not used (open)
22	EQADJ	I	Center frequency setting terminal for the internal circuit (EQ)
23	3TADJ	I	Center frequency setting terminal for the internal circuit (BPF3T)
24	VCC	—	Power supply terminal (+3.3V)
25	WBLADJ	I	Center frequency setting terminal for the internal circuit (BPF22)
26	TE	O	Tracking error signal output to the CXD2662R (IC301)
27	CSLED	I	Connected to the external capacitor for low-pass filter of the sled error signal
28	SE	O	Sled error signal output to the CXD2662R (IC301)
29	ADFM	O	FM signal output of the ADIP
30	ADIN	I	Receives a ADIP FM signal in AC coupling
31	ADAGC	I	Connected to the external capacitor for ADIP AGC
32	ADFG	O	ADIP duplex signal (22.05 kHz $\pm$ 1 kHz) output to the CXD2662R (IC301)
33	AUX	O	Auxiliary signal (I <sub>3</sub> signal/temperature signal) output terminal Not used (open)
34	FE	O	Focus error signal output to the CXD2662R (IC301)
35	ABCD	O	Light amount signal (ABCD) output to the CXD2662R (IC301)
36	BOTM	O	Light amount signal (RF/ABCD) bottom hold output to the CXD2662R (IC301)
37	PEAK	O	Light amount signal (RF/ABCD) peak hold output to the CXD2662R (IC301)
38	RF	O	Playback EFM RF signal output to the CXD2662R (IC301)
39	RFAGC	I	Connected to the external capacitor for RF auto gain control circuit
40	AGCI	I	Receives a RF signal in AC coupling
41	COMPO	O	User comparator output terminal Not used (open)
42	COMPP	I	User comparator input terminal Not used (fixed at “L”)
43	ADDC	I	Connected to the external capacitor for cutting the low band of the ADIP amplifier
44	OPO	O	User operational amplifier output terminal Not used (open)
45	OPN	I	User operational amplifier inversion input terminal Not used (fixed at “L”)
46	RFO	O	RF signal output
47	MORFI	I	Receives a MO RF signal in AC coupling
48	MORFO	O	MO RF signal output

• SERVO BOARD IC501 CXP84340-231Q (MD MECHANISM CONTROLLER)

Pin No.	Pin Name	I/O	Description
1 to 5	TIN3 to TIN7	I/O	Input of the 4×8 matrix test keys (“L” is always output, except in test mode) Not used (open)
6	LOAD	O	Loading motor control signal output to the motor driver (IC305) “H” active *1
7	EJECT	O	Loading motor control signal output to the motor driver (IC305) “H” active *1
8, 9	—	O	Not used (open)
10	MDMON	O	Power supply on/off control signal output of the power controller (IC101) “H”: power on
11	$\overline{\text{E-SW}}$	I	Inputs a disc loading completion detect switch detection signal “L”: When completed of a disc loading operation
12	AG-OK	O	Output of aging status in test mode “L”: under aging, “H”: aging completed Not used (open)
13	ADJ-OK	O	Output of status when aging completed in test mode “L”: aging NG, “H”: aging OK Not used (open)
14 to 17	—	O	Not used (open)
18	DFCTSEL	I	Select whether defect function is used for the CXD2662R (IC301) “L”: used this function, “H”: not used this function (fixed at “H” in this set)
19	DPLLSEL	I	Select whether double PLL function is used for the CXD2662R (IC301) “L”: used this function, “H”: not used this function (fixed at “H” in this set)
20	EMPHSEL	I	Select whether emphasis signal output from pin or unilink data “L”: outputs from both pin and unilink data, “H”: output from pin only (fixed at “H” in this set)
21	LOCK	O	Mini-disc lock detection signal output to the system controller (IC501)
22	—	O	Not used (open)
23	2M/4M	I	Select whether D-RAM capacitance 2M bit or 4M bit “L”: 4M bit (external D-RAM), “H”: 2M bit (internal D-RAM of CXD2652AR) (fixed at “L” in this set)
24, 25	—	O	Not used (open)
26	MNT0	I	Focus OK signal input from the CXD2662R (IC301) “H” is input when focus is on (“L”: NG)
27	MNT1	I	Track jump detection signal input from the CXD2662R (IC301)
28	MNT2	I	Busy monitor signal input from the CXD2662R (IC301)
29	MNT3	I	Spindle servo lock status monitor signal input from the CXD2662R (IC301)
30	$\overline{\text{RESET}}$	I	System reset signal input from the system controller (IC501) and reset signal generator (IC502) “L”: reset For several hundreds msec. after the power supply rises, “L” is input, then it changes to “H”
31	EXTAL	I	Main system clock input terminal (10 MHz)
32	XTAL	O	Main system clock output terminal (10 MHz)
33	VSS	—	Ground terminal
34	TX	O	Sub system clock output terminal (32.768 kHz) Not used (open)
35	TEX	I	Sub system clock input terminal (32.768 kHz) Not used (fixed at “L”)
36	AVSS	—	Ground terminal (for A/D converter)
37	AVREF	I	Reference voltage input terminal (+5V) (for A/D converter)
38	INIT	I	Initial reset signal input terminal (A/D input) (fixed at “H”)
39	TEMP	I	Temperature sensor (TH501) input terminal (A/D input)
40	ACNT	I	Select the number of load/eject aging times (A/D input) 0h – 54h (30 times), 55h – 0A9h (20 times), 0AAh – 0FFh (10 times)
41	DO-SEL	I	Select the digital output bits (A/D input)
42	EE-CS	O	Chip select signal output to the external EEPROM device Not used (open)
43	EE-CKO	O	Serial data transfer clock signal output to the external EEPROM device Not used (open)
44	EE-SIO	I/O	Two way data bus with the external EEPROM device Not used (open)
45	MD-SO	O	Writing serial data signal output to the CXD2662R (IC301) and CXA2523AR (IC302)

Pin No.	Pin Name	I/O	Description
46	LINKOFF	O	Unilink on/off control signal output for the SONY bus “H”: link off Not used (open)
47	UNIREQ	O	Data request signal output terminal (for SONY bus) “H”: request on Not used (open)
48	UNICKIO	I/O	Serial clock signal input from the system controller (IC501) or serial clock signal output to the system controller (IC501) and SONY bus interface (IC601)
49	UNISI	I	Serial data input from the SONY bus interface (IC601)
50	UNISO	O	Serial data output to the SONY bus interface (IC601)
51	MD-CKO	O	Serial data transfer clock signal output to the CXD2662R (IC301) and CXA2523AR (IC302)
52	MD-SI	I	Reading serial data signal input from the CXD2662R (IC301)
53	—	O	Not used (open)
54	SENS	I	Internal status (SENSE) input from the CXD2662R (IC301)
55	CC-XINT	I	Interrupt status input from the CXD2662R (IC301)
56	$\overline{\text{LIMIT-IN}}$	I	Detection input from the sled limit-in detect switch The optical pick-up is inner position when “L”
57	EJT-OK	I	Front panel open detection signal input from the system controller (IC501) “L”: eject possible
58	ERROR-PWM	O	PWM error monitor output terminal (C1 and ATER is output when test mode) Not used (open)
59	$\overline{\text{MD-RST}}$	O	Reset signal output to the PCM1718E (IC101), CXD2662R (IC301) and BH6518FS (IC303) “L”: reset
60	BU-IN	I	Battery detect signal input from the SONY bus interface (IC601) and battery check circuit “H”: battery on
61	$\overline{\text{BUS-ON}}$	I	SONY bus on/off control signal input from the system controller (IC501) “L”: bus on
62	SQSY	I	Subcode Q sync (SCOR) input from the CXD2662R (IC301) “L” is input every 13.3 msec Almost all, “H” is input
63	$\overline{\text{C-SW}}$	I	Inputs a disc loading start or a disc eject completion detect switch detection signal “L”: When loading start or eject completed of a disc loading operation
64	MD-LAT	O	Serial data latch pulse signal output to the CXD2662R (IC301) and CXA2523AR (IC302)
65	MD-ON	O	Power supply on/off control signal output of the MD mechanism deck section main power supply “H”: power on
66	DEEMP	O	De-emphasis on/off control signal output to the PCM1718E (IC101) “H”: de-emphasis on
67	A-MUTE	O	Power amplifier muting on/off control signal output to the power amplifier (IC309) and audio line muting on/off control signal output “H”: muting on
68	—	O	Not used (open)
69	TSTCKO	O	Output of clock signal for the test mode display Not used (open)
70	TSTSO	O	Output of data for the test mode display Not used (open)
71	$\overline{\text{TSTMOD}}$	I	Setting terminal for the test mode “L”: test mode, “H”: normal mode
72	VCC	—	Power supply terminal (+5V)
73	NC	I	Not used (fixed at “H”)
74 to 77	TOUT0 to TOUT3	O	Output of the 4×8 matrix test keys Not used (open)
78 to 80	TIN0 to TIN2	I/O	Input of the 4×8 matrix test keys (“L” is always output, except in test mode) Not used (open)

\*1 Loading motor (M903) control

Terminal \ Operation	IN	OUT	BRAKE	STOP
LOAD (pin ⑥)	“H”	“L”	“H”	“L”
EJECT (pin ⑦)	“L”	“H”	“H”	“L”

• MAIN BOARD IC501 MB90574BPMT-G-322-BND (SYSTEM CONTROLLER)

Pin No.	Pin Name	I/O	Description
1 to 4	NCO	O	Not used (open)
5	ATT	O	Power amplifier muting on/off control signal output to the power amplifier (IC309) and audio line muting on/off control signal output "H": muting on
6	$\overline{\text{SYSRST}}$	O	Reset signal output to the MD mechanism controller (IC501) SONY bus interface (IC601) "L": reset
7 to 9	NCO	O	Not used (open)
10	EEP SIO	I/O	Two-way data EEPROM bus with the FM/AM tuner unit (TUX201)
11	EEP CKO	O	EEPROM bus clock signal output to the FM/AM tuner unit (TUX201)
12	RX	I	Input terminal for UART transfer data when writing into internal flash memory data
13	TX	O	Output terminal for UART transfer data when writing into internal flash memory data
14	$\overline{\text{BUS-ON}}$	O	Bus on/off control signal output to the MD mechanism controller (IC501), SONY bus interface (IC601) and display controller (IC702) "L": bus on
15	BEEP	O	Beep sound drive signal output terminal
16	TEL-ATT	I	Telephone muting signal input terminal "H": muting on
17	UNISI	I	Serial data input from the SONY bus interface (IC601)
18	UNISO	O	Serial data output to the SONY bus interface (IC601)
19	UNICLK	I/O	Serial clock signal output to the MD mechanism controller (IC501), SONY bus interface (IC601) and display controller (IC702) or serial clock signal input from the MD mechanism controller (IC501)
20 to 23	NCO	O	Not used (open)
24	SIRCS	I	Sircs remote control signal input from the SIRCS controller (IC801)
25 to 30	NCO	O	Not used (open)
31	$\overline{\text{E-VOL-ATT}}$	O	Pre amplifier muting on/off control signal output to the TDA7406T (IC305) "L": muting on
32	NCO	O	Not used (open)
33	VSS	—	Ground terminal
34	C	—	Connected to coupling capacitor for the power supply
35, 36	NCO	O	Not used (open)
37	SHIFT	O	Oscillation frequency shift signal output to the power controller (IC101)
38	DVCC	—	Power supply terminal (+5V) (for D/A converter)
39	DVSS	—	Ground terminal (for D/A converter)
40	FR_CTRL	O	Reference voltage control signal output for front panel open/close motor driver (IC651)
41	NCO	O	Not used (open)
42	AVCC	—	Power supply terminal (+5V) (for A/D converter)
43	AVRH	I	Reference voltage (+5V) input terminal (for A/D converter)
44	AVRL	I	Reference voltage (0V) input terminal (for A/D converter)
45	AVSS	—	Ground terminal (for A/D converter)
46	KEY-IN0	I	Key input terminal (A/D input) (LSW10, LSW13, LSW15, LSW18, LSW20, LSW22, S4, S10 to S15) 6, ◀◀◀ ◀◀, TA, DISC -, DISC +, ▶▶▶ ▶▶, ▲, ENTER, LIST, MENU, SOUND, DSO, EQ7 keys input
47	KEY-IN1	I	Key input terminal (A/D input) (LSW1, LSW2, LSW5 to LSW9, LSW11, LSW12, S2, S3, S7 to S9) -, SOURCE, +, AF, REP 1, SHUF 2, 3, 5, 4, CLOSE, MODE, OFF, SCRL, DSPL PTY keys input
48	RC-IN0	I	Rotary remote commander key input terminal (A/D input)
49	NCO	O	Not used (open)
50	QUAL	I	Noise level detection signal input at SEEK mode (A/D input)
51	NCO	O	Not used (open)
52	MPTH	I	Multi-path detection signal input from the RDS decoder (IC202) (A/D input)

Pin No.	Pin Name	I/O	Description
53	S-METER	I	FM and AM signal meter voltage detection signal input from the FM/AM tuner unit (TUX201) (A/D input)
54	VCC	—	Power supply terminal (+5V)
55	ST-BY	O	Standby on/off control signal output to the power amplifier (IC309) “L”: standby mode, “H”: amp on
56	NS-MASK	O	Discharge control signal output for the noise detection circuit “H”: discharge
57	DDC-ON	O	Power supply on/off control signal output of the power controller (IC101) “H”: power on
58	CD_EJECT_OK	O	Front panel open detection signal output to the MD mechanism controller (IC501) “L”: eject possible
59	CD_OPEN_REQ	I	Mini-disc lock detection signal input to the MD mechanism controller (IC501)
60	NCO	O	Not used (open)
61	OPEN-KEY	I	Open key (LSW60) input terminal When “L” is input, open the front panel
62	NOSE-SW	I	Display panel attach detection signal input terminal “L”: front panel is attached
63	VSS	—	Ground terminal
64	DETACH_SW	I	Display panel detach detection signal input terminal “L”: front panel is detached
65	PWM	I	For frequency counting signal input terminal from the power controller (IC101)
66 to 68	NCO	O	Not used (open)
69	FLASH-W	I	Internal flash memory data write mode detection signal input terminal “L”: data write mode
70	IIC-SDA	I/O	Two-way data IIC bus with the FM/AM tuner unit (TUX201), RDS decoder (IC202) and TDA7406T (IC305)
71	IIC-SCL	O	IIC bus clock signal output to the FM/AM tuner unit (TUX201), RDS decoder (IC202) and TDA7406T (IC305)
72	RC-IN1	I	Rotary remote commander shift key input terminal “L”: shift key on
73	X1A	O	Sub system clock output terminal (32.768 kHz)
74	X0A	I	Sub system clock input terminal (32.768 kHz)
75	DAVN	I	Synchronized detection signal of RDS data block input from the RDS decoder (IC202) “H”: active
76	NCO	O	Not used (open)
77	BUIN	I	Battery detection signal input from the SONY bus interface (IC601) “L” is input at low voltage
78	NCO	O	Not used (open)
79	KEY_ACK	I	Input of acknowledge signal for the key entry Acknowledge signal is input to accept function and eject keys in the power off status On at input of “H”
80	AD-ON	O	A/D converter power control signal output When the KEY_ACK (pin 79) that controls reference voltage power for key A/D conversion input is active, “L” is output from this terminal to enable the input
81	ACC IN	I	Accessory detect signal input terminal “L”: accessory on
82	FLS_PWON	O	Display power supply on/off control signal output “H”: display power on
83	P-ON	O	Audio power supply on/off control signal output “H”: audio power on
84	TEST-IN	I	Setting terminal for the test mode “L”: test mode, Normally: fixed at “H”
85	RAMBU	I	Internal RAM reset detection signal input from the reset signal generator (IC502) Input terminal to check that RAM data are not destroyed due to low voltage This checking is made within 100 msec after reset
86	HSTX	I	Hardware standby input terminal “L”: hardware standby mode Reset signal input in this set
87	MD2	I	Setting terminal for the CPU operational mode (fixed at “L” in this set)
88	MD1	I	Setting terminal for the CPU operational mode (fixed at “H” in this set)
89	MD0	I	Setting terminal for the CPU operational mode (fixed at “H” in this set)
90	RSTX	I	System reset signal input from the reset signal generator (IC502) and reset switch (SW901, S60) “L”: reset “L” is input for several 100 msec after power on, then it changes to “H”



Pin No.	Pin Name	I/O	Description
91	VSS	—	Ground terminal
92	X0	I	Main system clock input terminal (3.68 MHz)
93	X1	O	Main system clock output terminal (3.68 MHz)
94	VCC	—	Power supply terminal (+5V)
95	$\overline{\text{ILL IN}}$	I	Auto dimmer control illumination line detection signal input terminal “L” is input at dimmer detection
96	I-DET	I	Detection signal input from the motor overload detection circuit for the front panel open/close motor (M601) “L” is input when the motor current exceeds the specified value
97	MOT-	O	Front panel open/close motor (M601) drive signal (in panel close direction) output to the BA6288FS (IC651)
98	MOT+	O	Front panel open/close motor (M601) drive signal (in panel open direction) output to the BA6288FS (IC651)
99	$\overline{\text{CLOSE-SW}}$	I	Front panel open/close detection switch input terminal “L” is input when the front panel is closed
100	$\overline{\text{OPEN-SW}}$	I	Front panel open/close detection switch input terminal “L” is input when the front panel is opened
101	$\overline{\text{CENT-SW}}$	I	Front panel detach position detection switch input terminal “L” is input when the front panel is detach position
102	NCO	O	Not used (open)
103	CDMD-SEL	I	CD or MD mechanism deck setting terminal “L”: CD, “H”: MD (fixed at “H” in this set)
104, 105	DSTSEL1, DESTSEL2	I	Destination setting terminal (fixed at “L”)
106	$\overline{\text{BOOT}}$	O	Serial data output to the display controller (IC702) “L” is output when writing change
107 to 110	NCO	O	Not used (open)
111	PACK-IN	I	Disc insert detection switch input terminal “L” is input when the disc is inserting
112	4V SEL	I	Input terminal of whether line driver is mounted or not is detected “L”: line driver is mounted (fixed at “H” in this set)
113	NCO	O	Not used (open)
114	TUNER-ON	O	Tuner system power supply on/off control signal output terminal “H”: tuner power on
115, 116	LED SW1, LED SW2	O	Security/operation side select control signal output to the display controller (IC702)
117 to 120	NCO	O	Not used (open)

• MAIN BOARD IC702 HD6432355A36F (DISPLAY CONTROLLER)

Pin No.	Pin Name	I/O	Description
1	SA-CLK	O	Spectrum analyzer display serial data transfer clock signal output to the TDA7406T (IC305)
2	NCO	O	Not used (open)
3	VSS	—	Ground terminal
4	NCO	O	Not used (open)
5	VCC	—	Power supply terminal (+5V)
6 to 9	NCO	O	Not used (open)
10	VSS	—	Ground terminal
11 to 18	NCO	O	Not used (open)
19	VSS	—	Ground terminal
20 to 27	NCO	O	Not used (open)
28	VSS	—	Ground terminal
29 to 31	NCO	O	Not used (open)
32	SA_ENIN	I	Enable signal input for spectrum analyzer display from the system controller (IC500) “H”: active
33	SPE-LAT	I	Serial data latch pulse input for spectrum analyzer display from the system controller (IC500) “H” active
34	BU-IN	I	Battery detection signal input from the SONY bus interface (IC601) “L” is input at low voltage
35, 36	VSS	—	Ground terminal
37	NCO	O	Not used (open)
38	$\overline{\text{BUS-ON}}$	I	Bus on/off control signal input from the system controller (IC500) “L”: bus on
39	VCC	—	Power supply terminal (+5V)
40 to 43	NCO	O	Not used (open)
44	VSS	—	Ground terminal
45	DSP_SEL	I	Setting terminal for spectrum analyzer display data “L”: A633, “H”: DSP-IC
46, 47	LED SW1, LED SW2	I	Security/operation side select control signal input from the system controller (IC501)
48, 49	NCO	O	Not used (open)
50	LINK-OFF	O	Link on/off control signal output for the SONY bus “L”: link on, “H”: link off
51	NCO	O	Not used (open)
52	ILLON	O	Display power supply on/off control signal output “H”: display power on
53	VSS	—	Ground terminal
54 to 56	NCO	O	Not used (open)
57	$\overline{\text{BOOT}}$	I	Serial data input at the flash memory writing mode “L” is input when writing change
58	VCC	—	Power supply terminal (+5V)
59	NCO	O	Not used (open)
60	LCD_SO/TX	O	Display serial data output to the liquid crystal display driver (IC1, 60, 61) Output terminal for UART transfer data when writing into internal flash memory data
61	SP-SI	I	Spectrum analyzer display serial data input terminal Not used (fixed at “L”)
62	RX	I	Input terminal for UART transfer data when writing into internal flash memory data
63	SP-SCK	I	Spectrum analyzer display serial data transfer clock signal input terminal Not used (fixed at “L”)
64	LCD_CKO	O	Display serial data transfer clock signal output to the liquid crystal display driver (IC1, 60, 61)
65	VSS	—	Ground terminal
66	LCDCE0	O	Chip enable signal output to the liquid crystal display driver (IC60) “H”: active
67, 68	VSS	—	Ground terminal

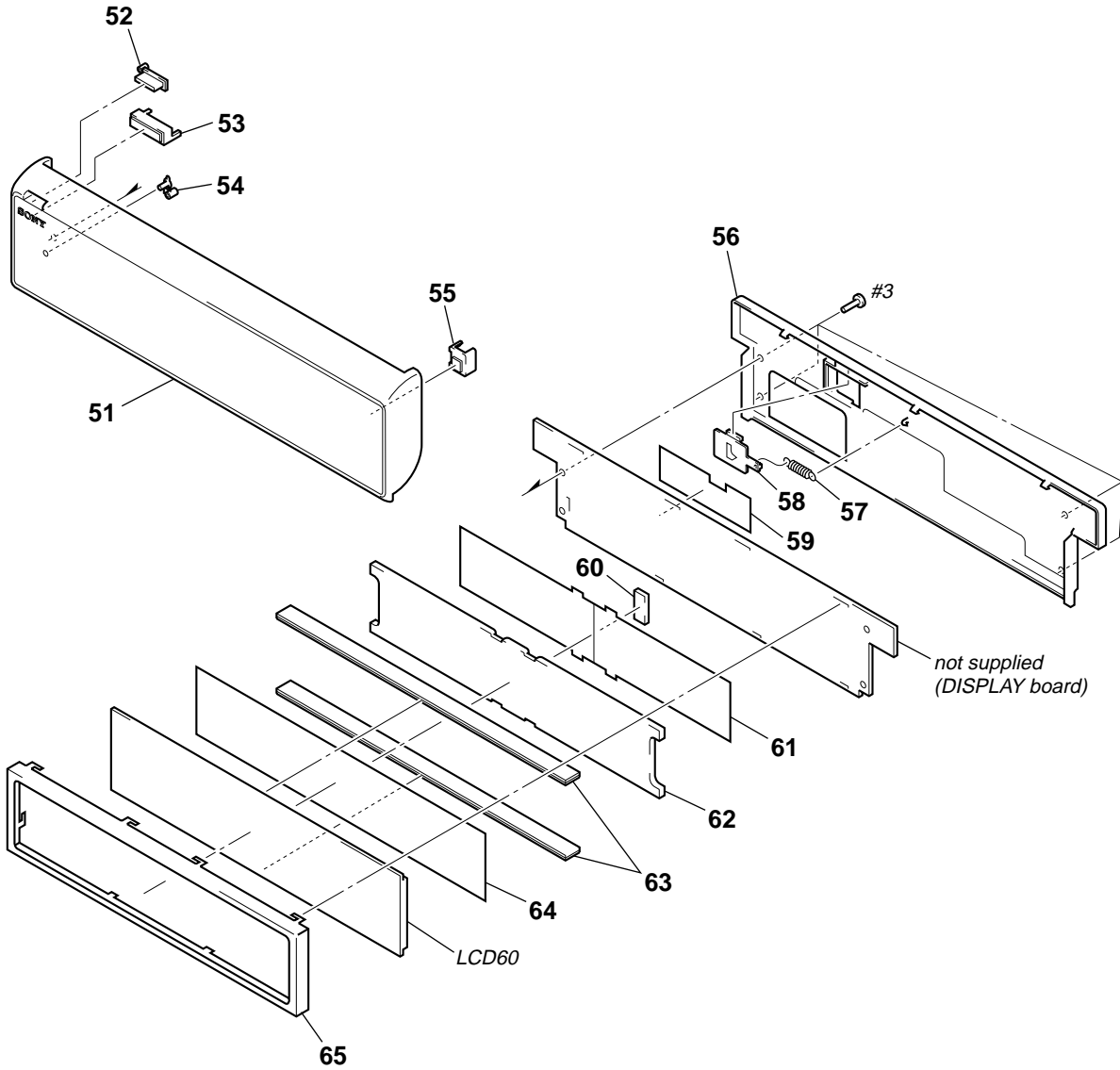
Pin No.	Pin Name	I/O	Description
69	$\overline{\text{LCDINH}}$	O	Blank indicate control signal output to the liquid crystal display driver (IC1, 60, 61) “L”: no display
70	LCDCE1	O	Chip enable signal output to the liquid crystal display driver (IC61) “H”: active
71	LCDCE2	O	Chip enable signal output to the liquid crystal display driver (IC1) “H”: active
72 to 78	NCO	O	Not used (open)
79	FL_W	O	Flash memory data write control signal output terminal “H”: active
80	FWE (L)	I	Flash memory data write enable signal input terminal
81	$\overline{\text{SYSRES}}$	I	System reset signal input from the reset signal generator (IC502) “L” is input for several 100 msec after power on, then it changes to “H”
82	NMI (H)	I	Non maskable interrupt input terminal fixed at “H”
83	$\overline{\text{STBY}}$ (H)	I	Hard ware standby input terminal fixed at “H”
84	VCC	—	Power supply terminal (+5V)
85	XTAL	O	System clock output terminal (18.432 MHz)
86	EXTAL	I	System clock input terminal (18.432 MHz)
87	VSS	—	Ground terminal
88	NCO	O	Not used (open)
89	VCC	—	Power supply terminal (+5V)
90 to 96	NCO	O	Not used (open)
97	UNI-SO	O	Serial data output to the SONY bus interface (IC601)
98	UNI-SI	I	Serial data input from the SONY bus interface (IC601)
99, 100	VSS	—	Ground terminal
101	UNI-SCK	I/O	Serial clock signal input /output with the MD mechanism controller (IC501) and system controller (IC501) or serial clock signal output to the SONY bus interface (IC601)
102	NCO	O	Not used (open)
103	AVCC	—	Power supply terminal (+5V) (for A/D converter)
104	VREF	I	Reference voltage (+5V) input terminal (for A/D converter)
105 to 111	NIL	I	Not used (fixed at “L”)
112	SA-IN	I	Spectrum analyzer display serial data input from the TDA7406T (IC305)
113	AVSS	—	Ground terminal (for A/D converter)
114	VSS	—	Ground terminal
115 to 122	NCO	O	Not used (open)
123	MD0 (H)	I	Setting terminal for the CPU operational mode (fixed at “H” in this set)
124	MD1 (H)	I	Setting terminal for the CPU operational mode (fixed at “H” in this set)
125	MD2 (H)	I	Setting terminal for the CPU operational mode (fixed at “H” in this set)
126 to 128	NCO	O	Not used (open)

• MAIN BOARD IC801 RRX9000-0401R#01 (SIRCS CONTROLLER)

Pin No.	Pin Name	I/O	Description
1	VDD	—	Power supply terminal (+5V)
2	VSS	—	Ground terminal
3	XIN	I	System clock input terminal (4 MHz)
4	XOUT	O	System clock output terminal (4 MHz)
5	CNVSS	—	Ground terminal
6	$\overline{\text{RESET}}$	I	Reset signal input terminal "L": reset
7, 8	F0, F1	—	Not used
9	SIRCS IN	I	SIRCS signal input from the remote control receiver (IC62, IC901)
10	G1/INT	—	Not used
11, 12	G2, G3	—	Not used (open)
13 to 16	S3 to S0	—	Not used (fixed at "L")
17	SIRCS OUT	O	SIRCS signal output to the system controller (IC501)
18 to 20	D2/C, D1, D0	—	Not used (fixed at "L")

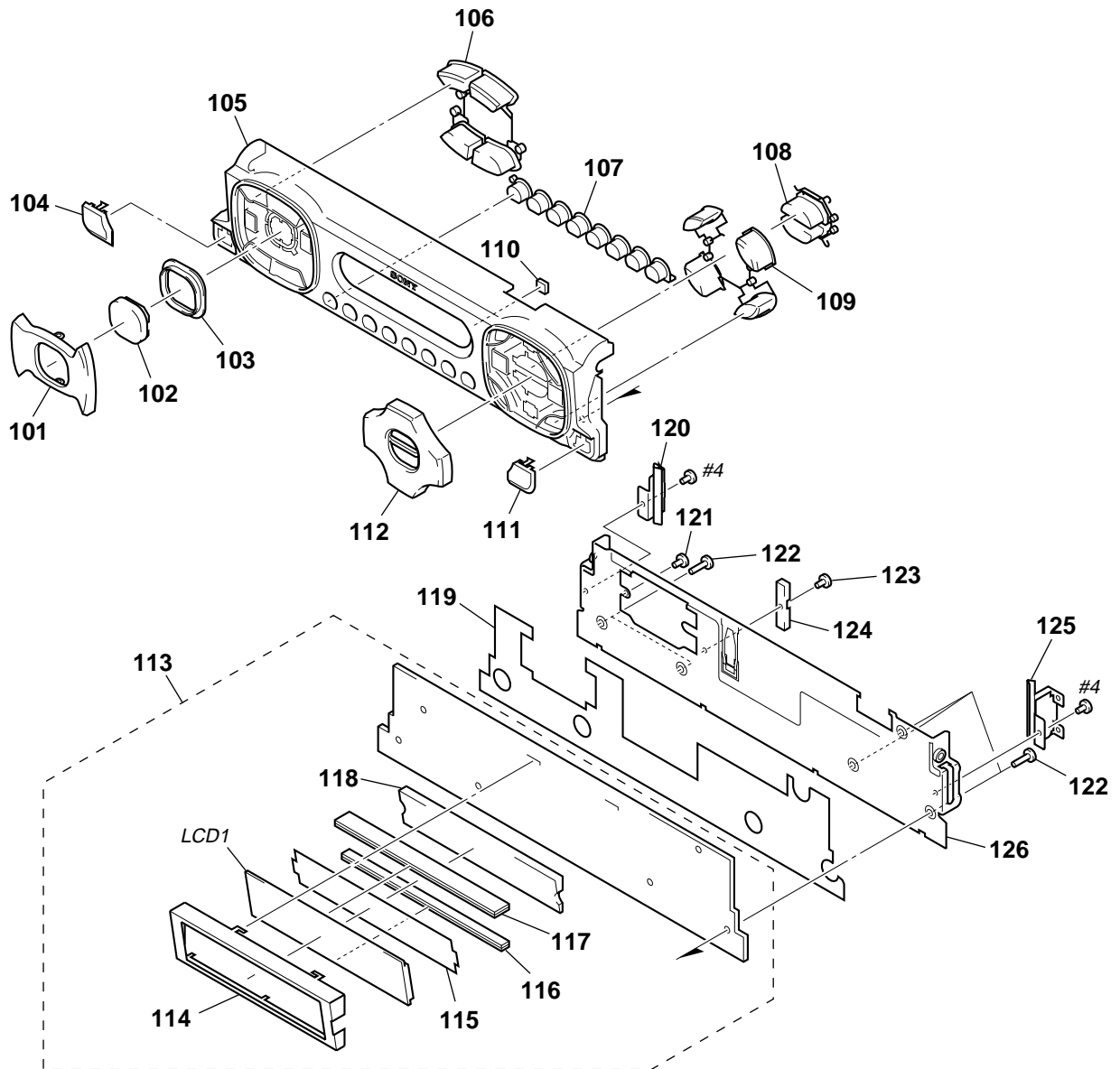


7-2. FRONT PANEL (DSPL) SECTION



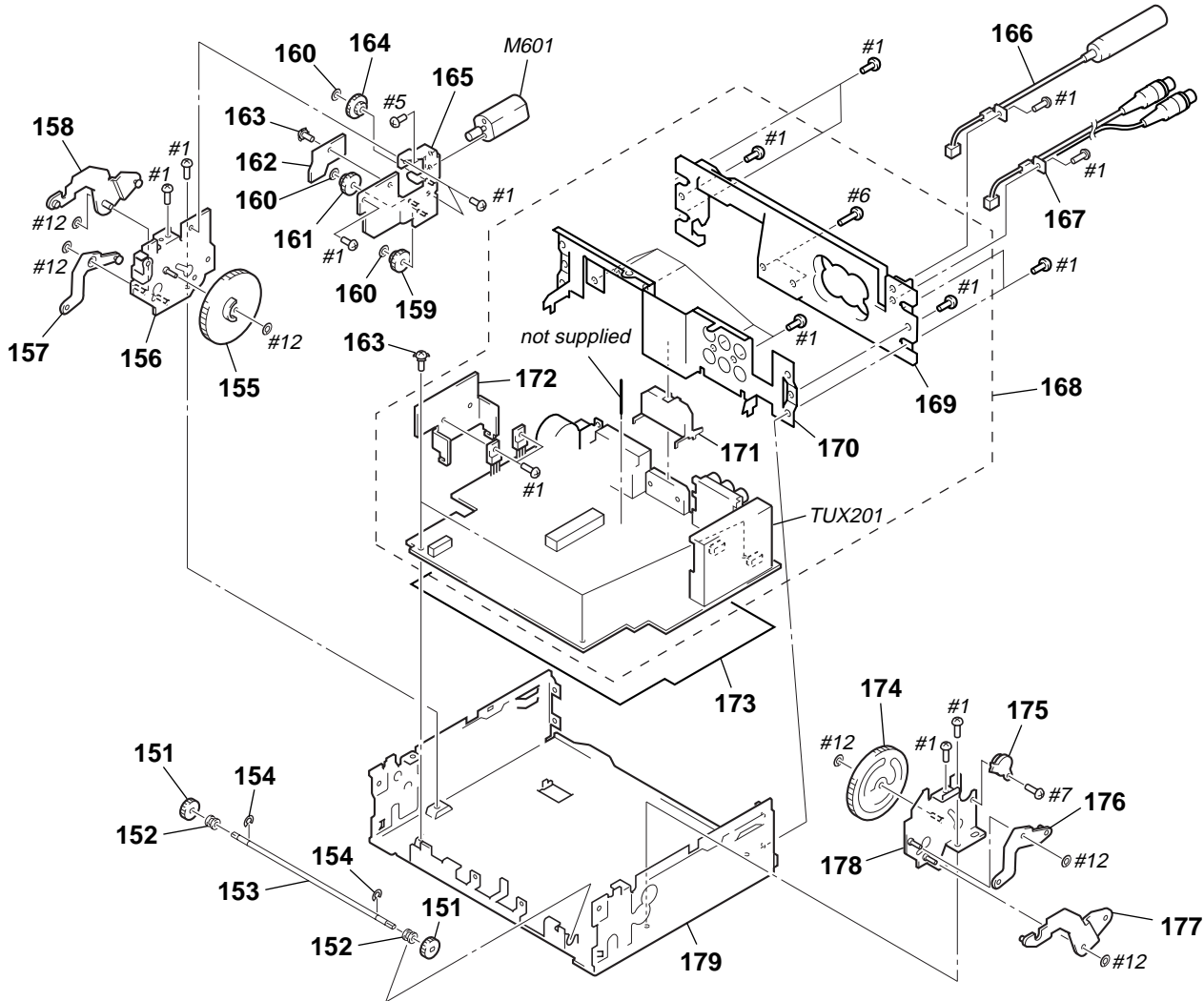
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
51	X-3380-903-1	FRONT PANEL (DSPL) SUB ASSY (SERVICE)		59	3-230-378-01	SHEET, INSULATING	
52	3-230-426-01	BUTTON (OPEN)		60	3-232-858-01	CUSHION (LIGHT GUIDE PLATE)	
53	3-230-422-01	PLATE (LOGO), LIGHT GUIDE		* 61	3-230-469-01	SHEET (DSPL), REFLECTION	
54	3-230-427-01	BUTTON (RESET-DSPL)		* 62	3-230-467-01	PLATE (LCD-DSPL), LIGHT GUIDE	
55	3-230-423-01	FILTER (IR-DSPL)		63	1-694-806-21	CONDUCTIVE BOARD, CONNECTION	
56	3-230-470-01	PANEL (FRONT BACK)		* 64	3-230-468-01	SHEET (DSPL), DIFFUSION	
57	3-230-472-01	SPRING (LOCK), TENSION		* 65	3-230-466-01	HOLDER (LCD-DSPL)	
58	3-230-471-01	LOCK (DETOUCH)		LCD60	1-804-348-11	DISPLAY PANEL, LIQUID CRYSTAL	

7-3. FRONT PANEL (KEY) SECTION



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
101	3-230-477-01	BUTTON (+/-)		* 114	3-230-486-01	HOLDER (LCD-KEY)	
102	3-230-478-01	BUTTON (SOURCE)		* 115	3-230-488-01	SHEET (LCD-KEY), DIFFUSION	
103	3-230-485-01	PLATE (RING), LIGHT GUIDE		116	1-694-808-21	CONDUCTIVE BOARD, CONNECTION	
104	3-230-484-01	BUTTON (CLOSE)		117	1-694-807-21	CONDUCTIVE BOARD, CONNECTION	
105	X-3380-541-1	PANEL (KEY) SUB ASSY, FRONT		* 118	3-230-487-01	PLATE (LCD-KEY), LIGHT GUIDE	
106	3-230-479-11	BUTTON (MODE) (SCRL. DSPL PTY. OFF. MODE)		* 119	3-230-415-01	SHEET (KEY), INSULATING	
107	3-230-398-11	BUTTON (6 KEY) (AF. 1. 2. 3. 4. 5. 6. TA)		120	X-3380-560-1	SPRING (DETOUCH L) ASSY	
108	3-230-482-01	BUTTON (EQ7) (DSO. EQ7)		121	3-063-745-11	SCREW (+P M2 B TITE)	
109	3-230-483-01	BUTTON (ENTER) (LIST. ENTER. SOUND. MENU)		122	3-230-416-01	SCREW	
110	3-231-433-01	CUSHION (ELECTROSTATIC)		123	2-134-636-31	SCREW (M1.7X2.5)	
111	3-230-480-01	BUTTON (EJECT) (▲)		124	3-230-490-01	GUIDE (DETOUCH)	
112	3-230-481-01	BUTTON (SEEK) (DISC +. ►►►►. - DISC. ◄◄◄◄)		125	X-3380-561-1	SPRING (DETOUCH R) ASSY	
* 113	A-3283-176-A	KEY BOARD, COMPLETE		126	X-3380-543-1	PANEL ASSY, BASE	
				LCD1	1-804-349-11	DISPLAY PANEL, LIQUID CRYSTAL	

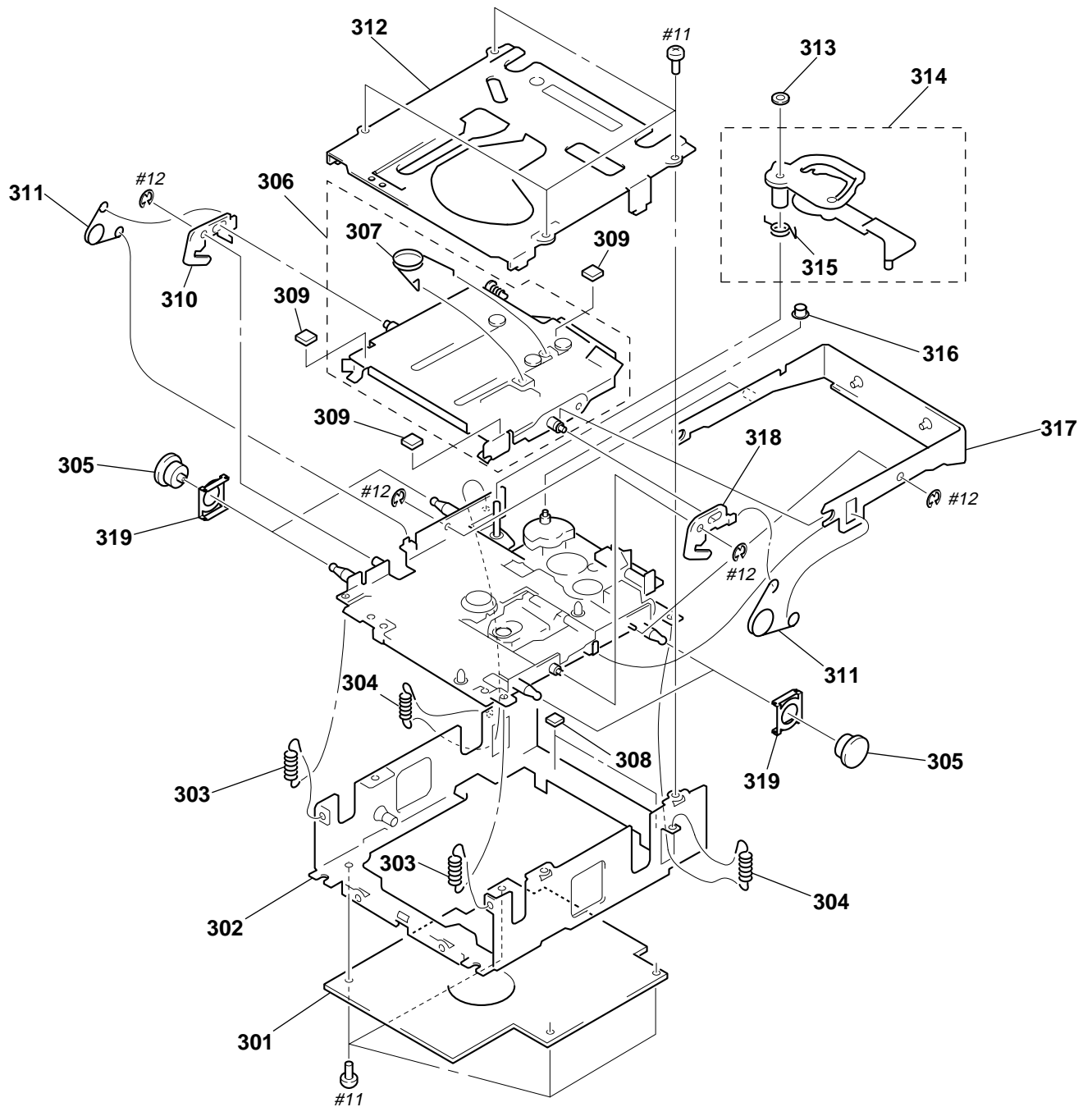
7-4. MAIN BOARD SECTION



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
151	3-230-493-01	GEAR (DRIVE SHAFT)		167	1-790-375-21	CORD (WITH CONNECTOR) (SUB OUT)	
152	3-230-444-01	GUIDE (DRIVE SHAFT)		* 168	A-3283-175-A	MAIN BOARD, COMPLETE	
153	3-045-721-01	SHAFT, DRIVE		* 169	3-230-510-31	HEAT SINK	
154	3-040-692-01	RING, CE TYPE RETAINING		* 170	3-230-509-01	CHASSIS, BACK	
155	3-230-495-01	CAM (L)		* 171	3-019-565-01	BRACKET (IC)	
156	X-3380-544-1	BRACKET (L) ASSY		* 172	3-230-513-01	HEAT SINK (REG)	
157	X-3380-548-1	ARM (B-L) ASSY		* 173	3-230-417-01	SHEET, INSULATING	
158	X-3380-546-1	ARM (A-L) ASSY		174	3-230-496-01	CAM (R)	
159	3-230-494-01	GEAR (C)		175	3-030-909-11	DAMPER, OIL	
160	3-342-940-01	WASHER (M)		176	X-3380-549-1	ARM (B-R) ASSY	
161	3-045-714-01	GEAR (B)		177	X-3380-547-1	ARM (A-R) ASSY	
* 162	1-681-375-11	SW BOARD		178	X-3380-545-1	BRACKET (R) ASSY	
163	3-376-464-11	SCREW (+PTT 2.6X6), GROUND POINT		179	X-3380-559-1	CHASSIS (MD) ASSY	
164	3-045-713-01	GEAR (A)		M601	X-3378-769-1	MOTOR ASSY (SERVICE)	
* 165	X-3378-711-1	BRACKET (MOTOR) ASSY				(FRONT PANEL OPEN/CLOSE)	
166	1-777-246-41	CORD (WITH CONNECTOR) (ANT)		TUX201	A-3282-061-A	TUNER UNIT (TUX-020)	

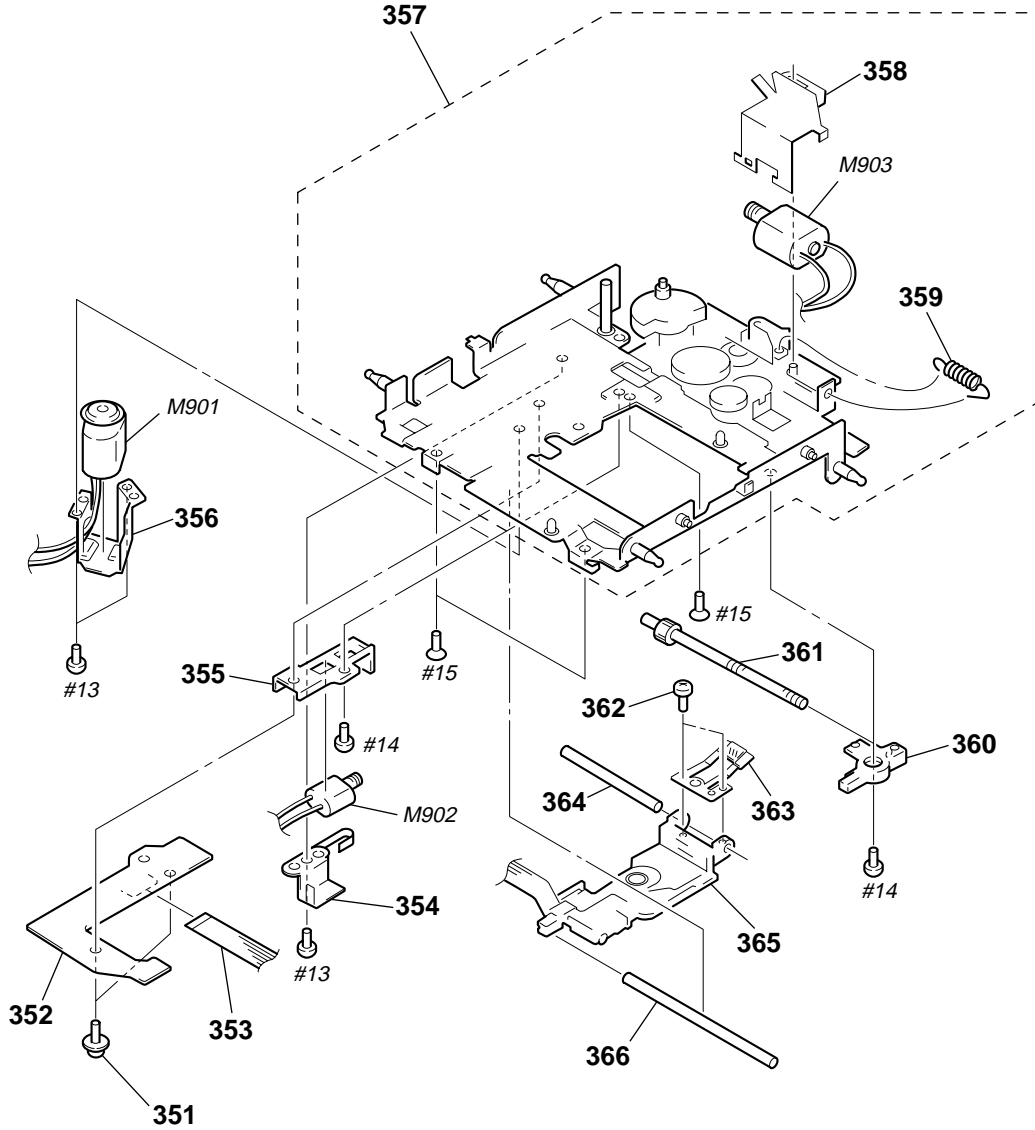


7-5. MECHANISM DECK SECTION-1  
(MG-164MA-138)



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
* 301	A-3326-729-A	SERVO BOARD, COMPLETE		311	3-919-281-01	SPRING (CHUCKING)	
* 302	X-3379-367-1	CHASSIS ASSY, MD		* 312	X-3379-368-1	COVER ASSY, MD	
303	3-032-714-01	SPRING (FLOAT F), TENSION		313	3-035-932-01	WASHER, STOPPER	
304	3-921-111-01	SPRING (FLOAT B), TENSION		* 314	X-3379-362-1	LEVER (LE23) ASSY	
305	3-931-897-61	DAMPER (T)		315	3-032-707-01	SPRING (LEVER LE)	
* 306	X-3376-796-1	HOLDER ASSY		316	3-925-034-01	ROLLER (GEAR E)	
307	3-032-682-01	SPRING (HOLDER)		* 317	X-3376-798-1	ARM ASSY, CHUCKING	
* 308	3-034-301-01	CUSHION (EJ2)		* 318	3-032-711-01	LEVER (LOCK L)	
* 309	3-034-302-01	CUSHION (EJ3)		* 319	3-220-096-01	BRACKET (DAMPER)	
* 310	3-032-712-01	LEVER (LOCK R)					

7-6. MECHANISM DECK SECTION-2  
(MG-164MA-138)



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

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
351	2-626-617-01	SCREW (2X8)		361	X-3373-213-1	SCREW ASSY, FEED	
352	A-3326-727-A	SENSOR BOARD, COMPLETE		362	3-939-590-07	SCREW (IB LOCK)	
353	1-757-311-11	CABLE, FLEXIBLE FLAT (11 CORE)		363	3-010-091-01	SPRING (SL FEED)	
354	3-919-283-01	BRACKET (SL)		364	3-919-293-01	SHAFT (OPT S), GUIDE	
* 355	3-032-704-01	BASE (SL)		$\triangle$ 365	8-583-065-03	OPTICAL PICK-UP KMS-241C/J1RP	
356	3-919-297-01	BRACKET (SP)		366	3-920-537-01	SHAFT (OPT L), GUIDE	
357	A-3315-218-A	CHASSIS (OP) ASSY		M901	A-3301-407-A	MOTOR ASSY, SP (SPINDLE)	
358	3-032-660-01	BRACKET (LO)		M902	A-3291-190-A	MOTOR ASSY, SL (SLED)	
359	3-032-669-01	SPRING (RACK), TENSION		M903	X-3379-451-1	MOTOR ASSY, LO (LOADING)	
* 360	3-032-705-01	BEARING (SL)					

## SECTION 8 ELECTRICAL PARTS LIST

DISPLAY

**NOTE:**

- 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.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS  
All resistors are in ohms.  
METAL: Metal-film resistor.  
METAL OXIDE: Metal oxide-film resistor.  
F: nonflammable

- Items marked “\*” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS  
In each case, u:  $\mu$ , for example:  
uA. . :  $\mu$ A. .      uPA. . :  $\mu$ PA. .  
uPB. . :  $\mu$ PB. .    uPC. . :  $\mu$ PC. .  
uPD. . :  $\mu$ PD. .
- CAPACITORS  
uF:  $\mu$ F
- COILS  
uH:  $\mu$ H

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

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

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
		DISPLAY BOARD *****		D67	8-719-420-14	DIODE MA8082-M (TX)	
		1-694-806-21 CONDUCTIVE BOARD, CONNECTION SHEET, INSULATING		D68	8-719-977-12	DIODE KDZ6.8V	
*		3-230-466-01 HOLDER (LCD-DSPL)		D70	8-719-083-14	DIODE RRX9000-0501 (REMOTE CONTROL RECEIVER)	
*		3-230-467-01 PLATE (LCD-DSPL), LIGHT GUIDE				< FERRITE BEAD >	
*		3-230-468-01 SHEET (DSPL), DIFFUSION		FB60	1-500-329-21	FERRITE 0uH	
*		3-230-469-01 SHEET (DSPL), REFLECTION				< IC >	
		< CAPACITOR >		IC60	8-759-653-26	IC LC75878W	
C60	1-125-837-11	CERAMIC CHIP 1uF 10% 6.3V		IC61	8-759-653-26	IC LC75878W	
C61	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V		IC62	8-759-830-18	IC RRX9000-0601#1	
C62	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V				< LIQUID CRYSTAL DISPLAY >	
C63	1-115-826-11	CERAMIC CHIP 0.1uF 10% 16V		LCD60	1-804-348-11	DISPLAY PANEL, LIQUID CRYSTAL	
C64	1-115-412-11	CERAMIC CHIP 680PF 5% 25V				< LED >	
C65	1-165-176-11	CERAMIC CHIP 0.047uF 10% 16V		LED60	8-719-079-49	LED LWT673-R1S2-34 (SONY)	
C66	1-165-176-11	CERAMIC CHIP 0.047uF 10% 16V		LED62	8-719-076-58	LED NSSW440-BRS (LCD BACK LIGHT)	
C67	1-165-176-11	CERAMIC CHIP 0.047uF 10% 16V		LED63	8-719-076-58	LED NSSW440-BRS (LCD BACK LIGHT)	
C70	1-115-412-11	CERAMIC CHIP 680PF 5% 25V		LED64	8-719-076-58	LED NSSW440-BRS (LCD BACK LIGHT)	
C71	1-165-176-11	CERAMIC CHIP 0.047uF 10% 16V		LED65	8-719-076-58	LED NSSW440-BRS (LCD BACK LIGHT)	
C72	1-165-176-11	CERAMIC CHIP 0.047uF 10% 16V		LED66	8-719-076-58	LED NSSW440-BRS (LCD BACK LIGHT)	
C73	1-165-176-11	CERAMIC CHIP 0.047uF 10% 16V		LED67	8-719-076-58	LED NSSW440-BRS (LCD BACK LIGHT)	
C74	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V		LED68	8-719-076-58	LED NSSW440-BRS (LCD BACK LIGHT)	
C75	1-125-837-11	CERAMIC CHIP 1uF 10% 6.3V		LED69	8-719-076-58	LED NSSW440-BRS (LCD BACK LIGHT)	
C76	1-127-760-11	CERAMIC CHIP 4.7uF 10% 6.3V				< SWITCH >	
C77	1-124-778-00	ELECT CHIP 22uF 20% 6.3V		LSW60	1-771-883-11	SWITCH, TACTILE (WITH LED) (OPEN)	
C78	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V				< TRANSISTOR >	
C79	1-125-837-11	CERAMIC CHIP 1uF 10% 6.3V		Q60	8-729-106-60	TRANSISTOR 2SB1132-T101-QR	
C80	1-164-388-11	CERAMIC CHIP 270PF 5% 50V		Q61	8-729-038-67	TRANSISTOR KRC102S	
C81	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V		Q62	8-729-904-66	TRANSISTOR DTD113EK-T-146	
C83	1-125-837-11	CERAMIC CHIP 1uF 10% 6.3V				< RESISTOR >	
		< CONNECTOR >		R60	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
CN60	1-815-500-21	PLUG, CONNECTOR 15P		R61	1-216-833-11	METAL CHIP 10K 5% 1/16W	
		< DIODE >		R62	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
D61	8-719-422-41	DIODE MA8051-L-TX		R63	1-216-037-00	METAL CHIP 330 5% 1/10W	
D62	8-719-977-12	DIODE KDZ6.8V		R64	1-216-037-00	METAL CHIP 330 5% 1/10W	
D63	8-719-977-12	DIODE KDZ6.8V		R65	1-216-025-11	RES-CHIP 100 5% 1/10W	
D64	8-719-977-12	DIODE KDZ6.8V		R66	1-216-025-11	RES-CHIP 100 5% 1/10W	
D65	8-719-977-12	DIODE KDZ6.8V					
D66	8-719-977-12	DIODE KDZ6.8V					

**DISPLAY**    **KEY**

Ref. No.	Part No.	Description		Remark
R67	1-216-025-11	RES-CHIP	100	5%
R68	1-216-025-11	RES-CHIP	100	5%
R69	1-216-033-00	METAL CHIP	220	5%
R70	1-216-864-11	SHORT	0	
R71	1-216-033-00	METAL CHIP	220	5%
R72	1-216-811-11	METAL CHIP	150	5%
R73	1-216-805-11	METAL CHIP	47	5%
R74	1-216-864-11	SHORT	0	
R76	1-216-841-11	METAL CHIP	47K	5%
R77	1-216-825-11	METAL CHIP	2.2K	5%
R78	1-216-825-11	METAL CHIP	2.2K	5%
R79	1-216-825-11	METAL CHIP	2.2K	5%
R80	1-216-825-11	METAL CHIP	2.2K	5%
R81	1-216-817-11	METAL CHIP	470	5%
R82	1-216-809-11	METAL CHIP	100	5%
R83	1-216-809-11	METAL CHIP	100	5%
R84	1-216-809-11	METAL CHIP	100	5%
R85	1-216-841-11	METAL CHIP	47K	5%
R86	1-216-825-11	METAL CHIP	2.2K	5%
R87	1-216-825-11	METAL CHIP	2.2K	5%
R88	1-216-825-11	METAL CHIP	2.2K	5%
R89	1-216-825-11	METAL CHIP	2.2K	5%
R90	1-216-809-11	METAL CHIP	100	5%
R91	1-216-809-11	METAL CHIP	100	5%
R92	1-216-809-11	METAL CHIP	100	5%
R93	1-216-817-11	METAL CHIP	470	5%
R94	1-216-864-11	SHORT	0	
R95	1-216-846-11	METAL CHIP	120K	5%
R96	1-216-850-11	METAL CHIP	270K	5%
R97	1-216-033-00	METAL CHIP	220	5%
< SWITCH >				
S60	1-771-884-11	SWITCH, TACTILE (RESET)		
*****				
*	A-3283-176-A	KEY BOARD, COMPLETE		
*****				
	1-694-807-21	CONDUCTIVE BOARD, CONNECTION		
	1-694-808-21	CONDUCTIVE BOARD, CONNECTION		
*	3-230-486-01	HOLDER (LCD-KEY)		
*	3-230-487-01	PLATE (LCD-KEY), LIGHT GUIDE		
*	3-230-488-01	SHEET (LCD-KEY), DIFFUSION		
< CAPACITOR >				
C1	1-107-826-11	CERAMIC CHIP	0.1uF	10%
C2	1-107-826-11	CERAMIC CHIP	0.1uF	10%
C3	1-107-826-11	CERAMIC CHIP	0.1uF	10%
C4	1-107-826-11	CERAMIC CHIP	0.1uF	10%
C5	1-115-412-11	CERAMIC CHIP	680PF	5%
C6	1-165-176-11	CERAMIC CHIP	0.047uF	10%
C7	1-165-176-11	CERAMIC CHIP	0.047uF	10%
C8	1-165-176-11	CERAMIC CHIP	0.047uF	10%
C9	1-164-156-11	CERAMIC CHIP	0.1uF	25V
C10	1-162-974-11	CERAMIC CHIP	0.01uF	50V
< CONNECTOR >				
CN1	1-815-499-21	CONNECTOR, FPC (ZIF) 18P		

Ref. No.	Part No.	Description	Remark
CN2	1-815-501-11	SOCKET, CONNECTOR 15P	
< DIODE >			
D7	8-719-422-41	DIODE MA8051-L-TX	
D8	8-719-422-80	DIODE MA8075-H-TX	
< IC >			
IC1	8-759-653-26	IC LC75878W	
< LIQUID CRYSTAL DISPLAY >			
LCD1	1-804-349-11	DISPLAY PANEL, LIQUID CRYSTAL	
< LED >			
LED1	8-719-079-26	LED NSSB440-WRST-THR	(LCD BACK LIGHT)
LED2	8-719-079-26	LED NSSB440-WRST-THR	(LCD BACK LIGHT)
LED3	8-719-078-39	LED CL-170SR-CD-T (KEY ILLUMINATION)	
LED4	8-719-078-39	LED CL-170SR-CD-T (KEY ILLUMINATION)	
LED5	8-719-078-39	LED CL-170SR-CD-T (KEY ILLUMINATION)	
LED6	8-719-078-39	LED CL-170SR-CD-T (KEY ILLUMINATION)	
LED7	8-719-078-39	LED CL-170SR-CD-T (CLOSE)	
LED8	8-719-078-39	LED CL-170SR-CD-T (MODE)	
LED9	8-719-078-39	LED CL-170SR-CD-T (▲)	
LED10	8-719-078-39	LED CL-170SR-CD-T (OFF)	
LED11	8-719-078-39	LED CL-170SR-CD-T (DSPL, PTY)	
LED12	8-719-078-39	LED CL-170SR-CD-T (SCRL)	
LED13	8-719-078-39	LED CL-170SR-CD-T (ENTER)	
LED14	8-719-078-39	LED CL-170SR-CD-T (LIST)	
LED15	8-719-078-39	LED CL-170SR-CD-T (MENU)	
LED16	8-719-078-39	LED CL-170SR-CD-T (SOUND)	
LED17	8-719-078-39	LED CL-170SR-CD-T (DSO)	
LED18	8-719-078-39	LED CL-170SR-CD-T (EQ7)	
< SWITCH >			
LSW1	1-771-883-11	SWITCH, TACTILE (WITH LED) (-)	
LSW2	1-771-476-11	SWITCH, KEY BOARD (WITH LED) (SOURCE)	
LSW5	1-771-883-11	SWITCH, TACTILE (WITH LED) (+)	
LSW6	1-771-476-11	SWITCH, KEY BOARD (WITH LED) (AF)	
LSW7	1-771-476-11	SWITCH, KEY BOARD (WITH LED) (REP 1)	
LSW8	1-771-476-11	SWITCH, KEY BOARD (WITH LED) (SHUF 2)	
LSW9	1-771-476-11	SWITCH, KEY BOARD (WITH LED) (3)	
LSW10	1-771-476-11	SWITCH, KEY BOARD (WITH LED) (6)	
LSW11	1-771-476-11	SWITCH, KEY BOARD (WITH LED) (5)	
LSW12	1-771-476-11	SWITCH, KEY BOARD (WITH LED) (4)	
LSW13	1-771-883-11	SWITCH, TACTILE (WITH LED) (◀◀ ◀◀)	
LSW15	1-771-476-11	SWITCH, KEY BOARD (WITH LED) (TA)	
LSW18	1-771-883-11	SWITCH, TACTILE (WITH LED) (DISC -)	
LSW20	1-771-883-11	SWITCH, TACTILE (WITH LED) (DISC +)	
LSW22	1-771-883-11	SWITCH, TACTILE (WITH LED) (▶▶ ▶▶)	
< TRANSISTOR >			
Q1	8-729-106-60	TRANSISTOR	2SB1132-T101-QR
Q2	8-729-038-67	TRANSISTOR	KRC102S
Q3	8-729-904-66	TRANSISTOR	DTD113EK-T-146

KEY MAIN

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
< RESISTOR >				< SWITCH >			
R1	1-216-837-11	METAL CHIP	22K 5% 1/16W	S1	1-786-101-11	SWITCH, DETECTION (DISPLAY PANEL DETACH DETECT)	
R2	1-216-835-11	METAL CHIP	15K 5% 1/16W	S2	1-771-884-11	SWITCH, TACTILE (CLOSE)	
R3	1-216-833-11	METAL CHIP	10K 5% 1/16W	S3	1-692-135-21	SWITCH, KEY BOARD (MODE)	
R4	1-216-831-11	METAL CHIP	6.8K 5% 1/16W	S4	1-771-884-11	SWITCH, TACTILE (▲)	
R5	1-216-829-11	METAL CHIP	4.7K 5% 1/16W	S7	1-692-135-21	SWITCH, KEY BOARD (OFF)	
R6	1-216-827-11	METAL CHIP	3.3K 5% 1/16W	S8	1-692-135-21	SWITCH, KEY BOARD (SCRL)	
R7	1-216-825-11	METAL CHIP	2.2K 5% 1/16W	S9	1-692-135-21	SWITCH, KEY BOARD (DSPL, PTY)	
R8	1-216-823-11	METAL CHIP	1.5K 5% 1/16W	S10	1-692-135-21	SWITCH, KEY BOARD (ENTER)	
R9	1-216-823-11	METAL CHIP	1.5K 5% 1/16W	S11	1-692-135-21	SWITCH, KEY BOARD (LIST)	
R10	1-216-821-11	METAL CHIP	1K 5% 1/16W	S12	1-692-135-21	SWITCH, KEY BOARD (MENU)	
R11	1-216-819-11	METAL CHIP	680 5% 1/16W	S13	1-692-135-21	SWITCH, KEY BOARD (SOUND)	
R12	1-216-819-11	METAL CHIP	680 5% 1/16W	S14	1-771-884-11	SWITCH, TACTILE (WITH LED) (DSO)	
R13	1-216-819-11	METAL CHIP	680 5% 1/16W	S15	1-771-884-11	SWITCH, TACTILE (WITH LED) (EQ7)	
R14	1-216-837-11	METAL CHIP	22K 5% 1/16W	*****			
R15	1-216-835-11	METAL CHIP	15K 5% 1/16W	*	A-3283-175-A	MAIN BOARD, COMPLETE	*****
R16	1-216-833-11	METAL CHIP	10K 5% 1/16W	*	3-019-565-01	BRACKET (IC)	
R17	1-216-831-11	METAL CHIP	6.8K 5% 1/16W	*	3-230-509-01	CHASSIS, BACK	
R18	1-216-829-11	METAL CHIP	4.7K 5% 1/16W	*	3-230-510-31	HEAT SINK	
R19	1-216-827-11	METAL CHIP	3.3K 5% 1/16W	*	3-230-513-01	HEAT SINK (REG)	
R20	1-216-825-11	METAL CHIP	2.2K 5% 1/16W		7-685-792-09	SCREW +PTT 2.6X6 (S)	
R21	1-216-823-11	METAL CHIP	1.5K 5% 1/16W		7-685-794-09	SCREW +PTT 2.6X10 (S)	
R22	1-216-823-11	METAL CHIP	1.5K 5% 1/16W	< BUZZER >			
R23	1-216-821-11	METAL CHIP	1K 5% 1/16W	BZ501	1-504-920-11	BUZZER	
R24	1-216-819-11	METAL CHIP	680 5% 1/16W	< CAPACITOR >			
R25	1-216-819-11	METAL CHIP	680 5% 1/16W	C57	1-162-927-11	CERAMIC CHIP	100PF 5% 50V
R26	1-216-819-11	METAL CHIP	680 5% 1/16W	C58	1-164-156-11	CERAMIC CHIP	0.1uF 25V
R27	1-216-827-11	METAL CHIP	3.3K 5% 1/16W	C101	1-124-570-11	ELECT	220uF 20% 16V
R28	1-216-833-11	METAL CHIP	10K 5% 1/16W	C103	1-164-156-11	CERAMIC CHIP	0.1uF 25V
R29	1-216-827-11	METAL CHIP	3.3K 5% 1/16W	C104	1-162-964-11	CERAMIC CHIP	0.001uF 10% 50V
R30	1-216-815-11	METAL CHIP	330 5% 1/16W	C105	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V
R31	1-216-033-00	METAL CHIP	220 5% 1/10W	C106	1-162-959-11	CERAMIC CHIP	330PF 5% 50V
R32	1-216-025-11	RES-CHIP	100 5% 1/10W	C107	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V
R33	1-216-807-11	METAL CHIP	68 5% 1/16W	C108	1-162-959-11	CERAMIC CHIP	330PF 5% 50V
R34	1-216-035-00	METAL CHIP	270 5% 1/10W	C109	1-126-176-11	ELECT	220uF 20% 10V
R35	1-216-035-00	METAL CHIP	270 5% 1/10W	C110	1-164-217-11	CERAMIC CHIP	150PF 5% 50V
R36	1-216-817-11	METAL CHIP	470 5% 1/16W	C111	1-115-156-11	CERAMIC CHIP	1uF 10V
R37	1-216-033-00	METAL CHIP	220 5% 1/10W	C112	1-164-156-11	CERAMIC CHIP	0.1uF 25V
R38	1-216-809-11	METAL CHIP	100 5% 1/16W	C113	1-126-176-11	ELECT	220uF 20% 10V
R39	1-216-809-11	METAL CHIP	100 5% 1/16W	C115	1-162-964-11	CERAMIC CHIP	0.001uF 10% 50V
R40	1-216-809-11	METAL CHIP	100 5% 1/16W	C116	1-126-176-11	ELECT	220uF 20% 10V
R41	1-216-841-11	METAL CHIP	47K 5% 1/16W	C117	1-126-176-11	ELECT	220uF 20% 10V
R42	1-216-825-11	METAL CHIP	2.2K 5% 1/16W	C118	1-164-156-11	CERAMIC CHIP	0.1uF 25V
R43	1-216-825-11	METAL CHIP	2.2K 5% 1/16W	C119	1-162-923-11	CERAMIC CHIP	47PF 5% 50V
R44	1-216-825-11	METAL CHIP	2.2K 5% 1/16W	C120	1-164-156-11	CERAMIC CHIP	0.1uF 25V
R45	1-216-825-11	METAL CHIP	2.2K 5% 1/16W	C121	1-128-057-11	ELECT	330uF 20% 6.3V
R47	1-216-033-00	METAL CHIP	220 5% 1/10W	C122	1-110-654-11	DOUBLE LAYER	0.047F 5V
R48	1-216-033-00	METAL CHIP	220 5% 1/10W	C123	1-107-826-11	CERAMIC CHIP	0.1uF 10% 16V
R49	1-216-033-00	METAL CHIP	220 5% 1/10W	C124	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V
R51	1-216-033-00	METAL CHIP	220 5% 1/10W	C125	1-164-156-11	CERAMIC CHIP	0.1uF 25V
R52	1-216-033-00	METAL CHIP	220 5% 1/10W	C126	1-124-937-11	ELECT	10uF 20% 16V
R53	1-216-033-00	METAL CHIP	220 5% 1/10W	C127	1-164-156-11	CERAMIC CHIP	0.1uF 25V
R54	1-216-033-00	METAL CHIP	220 5% 1/10W				
R55	1-216-033-00	METAL CHIP	220 5% 1/10W				

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## MAIN

Ref. No.	Part No.	Description			Remark	Ref. No.	Part No.	Description			Remark
C128	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V	C344	1-125-891-11	CERAMIC CHIP	0.47uF	10%	10V
C201	1-162-918-11	CERAMIC CHIP	18PF	5%	50V	C345	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C202	1-164-156-11	CERAMIC CHIP	0.1uF		25V	C347	1-124-465-00	ELECT	0.47uF	20%	50V
C205	1-164-156-11	CERAMIC CHIP	0.1uF		25V	C348	1-125-891-11	CERAMIC CHIP	0.47uF	10%	10V
C206	1-164-156-11	CERAMIC CHIP	0.1uF		25V	C349	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C207	1-124-589-11	ELECT	47uF	20%	16V	C350	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C208	1-164-156-11	CERAMIC CHIP	0.1uF		25V	C353	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C209	1-104-942-11	ELECT	1uF	20%	50V	C357	1-125-891-11	CERAMIC CHIP	0.47uF	10%	10V
C210	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	C358	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C211	1-164-360-11	CERAMIC CHIP	0.1uF		16V	C359	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C212	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	C360	1-126-898-11	ELECT	220uF	20%	10V
C213	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	C361	1-124-233-11	ELECT	10uF	20%	16V
C214	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V	C363	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C215	1-125-891-11	CERAMIC CHIP	0.47uF	10%	10V	C364	1-125-891-11	CERAMIC CHIP	0.47uF	10%	10V
C216	1-104-664-11	ELECT	47uF	20%	10V	C365	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C217	1-164-315-11	CERAMIC CHIP	470PF	5%	50V	C366	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C218	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C369	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C219	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	C371	1-104-942-11	ELECT	1uF	20%	50V
C220	1-162-924-11	CERAMIC CHIP	56PF	5%	50V	C373	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C221	1-162-924-11	CERAMIC CHIP	56PF	5%	50V	C374	1-126-786-11	ELECT	47uF	20%	16V
C222	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V	C375	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C223	1-164-315-11	CERAMIC CHIP	470PF	5%	50V	C376	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C224	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C377	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C225	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C378	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C226	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C379	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C227	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V	C380	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C228	1-162-959-11	CERAMIC CHIP	330PF	5%	50V	C381	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C229	1-125-838-11	CERAMIC CHIP	2.2uF	10%	6.3V	C382	1-126-176-11	ELECT	220uF	20%	10V
C230	1-164-739-11	CERAMIC CHIP	560PF	5%	50V	C383	1-127-715-11	CERAMIC CHIP	0.22uF	10%	16V
C231	1-126-786-11	ELECT	47uF	20%	16V	C384	1-127-715-11	CERAMIC CHIP	0.22uF	10%	16V
C301	1-162-927-11	CERAMIC CHIP	100PF	5%	50V	C385	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C302	1-162-927-11	CERAMIC CHIP	100PF	5%	50V	C386	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C303	1-136-154-00	FILM	0.012uF	5%	50V	C387	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C304	1-136-154-00	FILM	0.012uF	5%	50V	C388	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C305	1-124-233-11	ELECT	10uF	20%	16V	C403	1-135-473-21	ELECT	3300uF	20%	16V
C306	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V	C406	1-127-573-11	CERAMIC CHIP	1uF	10%	16V
C307	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V	C407	1-126-572-11	ELECT	4.7uF	20%	35V
C308	1-162-927-11	CERAMIC CHIP	100PF	5%	50V	C451	1-124-234-00	ELECT	22uF	20%	16V
C313	1-162-927-11	CERAMIC CHIP	100PF	5%	50V	C454	1-128-057-11	ELECT	330uF	20%	6.3V
C314	1-164-156-11	CERAMIC CHIP	0.1uF		25V	C457	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C315	1-164-156-11	CERAMIC CHIP	0.1uF		25V	C501	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C316	1-124-937-11	ELECT	10uF	20%	16V	C502	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C317	1-124-233-11	ELECT	10uF	20%	16V	C503	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C318	1-162-927-11	CERAMIC CHIP	100PF	5%	50V	C505	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C319	1-162-927-11	CERAMIC CHIP	100PF	5%	50V	C506	1-164-315-11	CERAMIC CHIP	470PF	5%	50V
C320	1-162-927-11	CERAMIC CHIP	100PF	5%	50V	C507	1-164-230-11	CERAMIC CHIP	220PF	5%	50V
C323	1-162-927-11	CERAMIC CHIP	100PF	5%	50V	C508	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C324	1-124-233-11	ELECT	10uF	20%	16V	C509	1-162-918-11	CERAMIC CHIP	18PF	5%	50V
C325	1-126-157-11	ELECT	10uF	20%	16V	C510	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C328	1-124-233-11	ELECT	10uF	20%	16V	C511	1-125-838-11	CERAMIC CHIP	2.2uF	10%	6.3V
C329	1-164-156-11	CERAMIC CHIP	0.1uF		25V	C512	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C332	1-127-573-11	CERAMIC CHIP	1uF	10%	16V	C513	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C333	1-127-573-11	CERAMIC CHIP	1uF	10%	16V	C514	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C335	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V	C515	1-124-584-00	ELECT	100uF	20%	10V
C337	1-125-891-11	CERAMIC CHIP	0.47uF	10%	10V	C516	1-162-920-11	CERAMIC CHIP	27PF	5%	50V
C338	1-127-573-11	CERAMIC CHIP	1uF	10%	16V	C517	1-162-920-11	CERAMIC CHIP	27PF	5%	50V
C341	1-127-573-11	CERAMIC CHIP	1uF	10%	16V	C602	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C343	1-164-156-11	CERAMIC CHIP	0.1uF		25V						

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
C603	1-126-934-11	ELECT	220uF 20%	16V	D309	8-719-801-78	DIODE MA152WK-TX
C650	1-164-156-11	CERAMIC CHIP	0.1uF	25V	D311	8-719-988-61	DIODE 1SS355TE-17
C651	1-164-156-11	CERAMIC CHIP	0.1uF	25V	D401	8-719-049-38	DIODE 1N5404TU
C652	1-164-156-11	CERAMIC CHIP	0.1uF	25V	D404	8-719-977-12	DIODE KDZ6.8V
C653	1-164-156-11	CERAMIC CHIP	0.1uF	25V	D405	8-719-053-18	DIODE 1SR154-400TE-25
C655	1-124-589-11	ELECT	47uF 20%	16V	D406	8-719-053-18	DIODE 1SR154-400TE-25
C656	1-164-156-11	CERAMIC CHIP	0.1uF	25V	D407	8-719-988-61	DIODE 1SS355TE-17
C657	1-164-156-11	CERAMIC CHIP	0.1uF	25V	D451	8-719-053-18	DIODE 1SR154-400TE-25
C658	1-164-156-11	CERAMIC CHIP	0.1uF	25V	D501	8-719-988-61	DIODE 1SS355TE-17
C659	1-164-156-11	CERAMIC CHIP	0.1uF	25V	D502	8-719-988-61	DIODE 1SS355TE-17
C660	1-162-970-11	CERAMIC CHIP	0.01uF 10%	25V	D503	8-719-988-61	DIODE 1SS355TE-17
C701	1-124-589-11	ELECT	47uF 20%	16V	D504	8-719-422-41	DIODE MA8051-L-TX
C703	1-162-964-11	CERAMIC CHIP	0.001uF 10%	50V	D505	8-719-988-61	DIODE 1SS355TE-17
C704	1-162-964-11	CERAMIC CHIP	0.001uF 10%	50V	D506	8-719-988-61	DIODE 1SS355TE-17
C705	1-162-964-11	CERAMIC CHIP	0.001uF 10%	50V	D507	8-719-801-78	DIODE MA152WK-TX
C706	1-164-156-11	CERAMIC CHIP	0.1uF	25V	D508	8-719-988-61	DIODE 1SS355TE-17
C707	1-162-974-11	CERAMIC CHIP	0.01uF	50V	D509	8-719-988-61	DIODE 1SS355TE-17
C708	1-162-964-11	CERAMIC CHIP	0.001uF 10%	50V	D510	8-719-988-61	DIODE 1SS355TE-17
C709	1-162-964-11	CERAMIC CHIP	0.001uF 10%	50V	D511	8-719-988-61	DIODE 1SS355TE-17
C710	1-162-964-11	CERAMIC CHIP	0.001uF 10%	50V	D602	8-719-017-95	DIODE KDZ18V
C711	1-162-970-11	CERAMIC CHIP	0.01uF 10%	25V	D603	8-719-977-12	DIODE MA8068-M-TX
C712	1-162-974-11	CERAMIC CHIP	0.01uF	50V	D604	8-719-017-95	DIODE KDZ18V
C801	1-162-964-11	CERAMIC CHIP	0.001uF 10%	50V	D605	8-719-420-51	DIODE MA729-TX
C802	1-162-964-11	CERAMIC CHIP	0.001uF 10%	50V	D606	8-719-988-61	DIODE 1SS355TE-17
C813	1-115-156-11	CERAMIC CHIP	1uF	10V	D607	8-719-017-95	DIODE KDZ18V
C814	1-164-156-11	CERAMIC CHIP	0.1uF	25V	D608	8-719-988-61	DIODE 1SS355TE-17
< CONNECTOR >							
CN101	1-774-701-11	PIN, CONNECTOR 16P			D609	8-719-801-78	DIODE MA152WK-TX
* CN201	1-506-984-11	PIN, CONNECTOR (PC BOARD) 2P			D610	8-719-977-12	DIODE KDZ6.8V
* CN301	1-506-985-11	PIN, CONNECTOR (PC BOARD) 3P			D611	8-719-977-12	DIODE KDZ6.8V
CN302	1-774-700-11	JACK, PIN 6P (BUS AUDIO IN, AUDIO OUT)			D612	8-719-988-61	DIODE 1SS355TE-17
CN401	1-764-617-12	PIN, CONNECTOR (PC BOARD) 30P			D650	8-719-081-98	DIODE MM3Z6V8T1
CN601	1-580-907-31	PLUG, CONNECTOR (BUS CONTROL IN)			D651	8-719-801-78	DIODE MA152WK-TX
CN602	1-568-955-11	PIN, CONNECTOR 6P			D652	8-719-820-05	DIODE MA152WA-TX
CN603	1-563-614-31	CONNECTOR, FLEXIBLE 11P			D801	8-719-977-12	DIODE KDZ6.8V
CN604	1-815-499-21	CONNECTOR, FPC (ZIF) 18P			D802	8-719-078-81	DIODE DF5A6.8FU (TE85R)
< DIODE >							
D101	8-719-055-30	DIODE D1FS4A-TA			D803	8-719-988-61	DIODE 1SS355TE-17
D102	8-719-055-30	DIODE D1FS4A-TA			D804	8-719-423-32	DIODE MA8120-M-TX
D104	8-719-801-78	DIODE MA152WK-TX			D805	8-719-078-81	DIODE DF5A6.8FU (TE85R)
D105	8-719-060-81	DIODE MA735-TX			D806	8-719-078-81	DIODE DF5A6.8FU (TE85R)
D106	8-719-053-18	DIODE 1SR154-400TE-25			D807	8-719-988-61	DIODE 1SS355TE-17
D107	8-719-422-62	DIODE MA8062-L-TX			< FERRITE BEAD >		
D109	8-719-977-03	DIODE MA8056-M-TX			FB706	1-414-385-11	FERRITE BEAD
D202	8-719-988-61	DIODE 1SS355TE-17			FB707	1-414-385-11	FERRITE BEAD
D203	8-719-422-41	DIODE MA8051-L-TX			< IC >		
D204	8-719-800-76	DIODE MA153-TX			IC101	8-759-990-43	IC TL1451ACDB-E20
D205	8-719-422-41	DIODE MA8051-L-TX			IC102	8-759-836-78	IC RN5VDS3AA-TL
D301	8-719-074-47	DIODE CRS02 (TE85L)			IC201	8-759-909-71	IC BA4558F-T1
D302	8-719-074-47	DIODE CRS02 (TE85L)			IC202	8-759-492-59	IC SAA6588T-118
D303	8-719-074-47	DIODE CRS02 (TE85L)			IC301	8-759-422-21	IC NJM4580V (TE2)
D304	8-719-074-47	DIODE CRS02 (TE85L)			IC302	8-759-422-21	IC NJM4580V (TE2)
D305	8-719-074-47	DIODE CRS02 (TE85L)			IC305	8-759-827-13	IC TDA7406T
D306	8-719-074-47	DIODE CRS02 (TE85L)			IC309	8-759-827-14	IC TA8268AH
D307	8-719-074-47	DIODE CRS02 (TE85L)			IC310	8-759-422-21	IC NJM4580V (TE2)
D308	8-719-074-47	DIODE CRS02 (TE85L)			IC501	6-700-183-01	IC MB90574BPMT-G-322-BND
					IC502	8-759-828-22	IC XC61CN4102MR

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Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
IC601	8-759-449-89	IC BA8270F-E2		Q451	8-729-106-60	TRANSISTOR	2SB1132-T100-R
IC650	8-759-337-40	IC NJM2904V (TE2)		Q452	8-729-038-67	TRANSISTOR	KRC102S
IC651	8-759-580-33	IC BA6288FS-E2		Q501	8-759-068-54	TRANSISTOR	KRA102S
IC652	8-759-668-14	IC PQ09D21U		Q502	8-729-038-67	TRANSISTOR	KRC102S
IC701	8-759-277-63	IC TC7W14FU (TE12R)		Q602	8-729-038-56	TRANSISTOR	KRA104S
IC702	6-700-210-01	IC HD6432355A36F		Q603	8-729-038-67	TRANSISTOR	KRC102S
IC801	8-759-830-17	IC RRX9000-0401R#01		Q650	8-729-038-68	TRANSISTOR	KRC103S
		< JACK >		Q651	8-729-120-28	TRANSISTOR	2SC2412K-T-146-R
J651	1-566-822-41	JACK (REMOTE IN)		Q652	8-729-216-22	TRANSISTOR	2SA1037K-T-146-S
		< COIL/SHORT >				< RESISTOR >	
L101	1-419-506-11	INDUCTOR	150uH	R51	1-216-821-11	METAL CHIP	1K 5% 1/16W
L102	1-414-392-41	INDUCTOR	1uH	R101	1-216-809-11	METAL CHIP	100 5% 1/16W
L103	1-419-506-11	INDUCTOR	150uH	R102	1-216-055-00	METAL CHIP	1.8K 5% 1/10W
L104	1-414-394-41	INDUCTOR	2.2uH	R103	1-216-055-00	METAL CHIP	1.8K 5% 1/10W
L105	1-414-394-41	INDUCTOR	2.2uH	R104	1-216-055-00	METAL CHIP	1.8K 5% 1/10W
L201	1-216-295-11	SHORT	0	R105	1-216-809-11	METAL CHIP	100 5% 1/16W
L401	1-419-476-31	INDUCTOR	250uH	R106	1-216-829-11	METAL CHIP	4.7K 5% 1/16W
L501	1-414-185-51	INDUCTOR	22uH	R107	1-216-829-11	METAL CHIP	4.7K 5% 1/16W
L701	1-414-856-51	INDUCTOR	10uH	R108	1-218-861-11	METAL CHIP	3.9K 0.5% 1/16W
		< TRANSISTOR >		R109	1-218-847-11	METAL CHIP	1K 0.5% 1/16W
Q101	8-729-038-68	TRANSISTOR	KRC103S	R110	1-218-873-11	METAL CHIP	12K 0.5% 1/16W
Q102	8-729-038-55	TRANSISTOR	KRA103S	R111	1-216-841-11	METAL CHIP	47K 5% 1/16W
Q103	8-729-820-46	TRANSISTOR	2SB1202FAST-TL	R112	1-216-841-11	METAL CHIP	47K 5% 1/16W
Q105	8-729-034-49	TRANSISTOR	KRC104S	R113	1-216-841-11	METAL CHIP	47K 5% 1/16W
Q106	8-729-820-46	TRANSISTOR	2SB1202FAST-TL	R114	1-216-841-11	METAL CHIP	47K 5% 1/16W
Q107	8-729-038-68	TRANSISTOR	KRC103S	R115	1-216-845-11	METAL CHIP	100K 5% 1/16W
Q108	8-729-106-60	TRANSISTOR	2SB1132-T100-R	R116	1-218-897-11	METAL CHIP	120K 0.5% 1/16W
Q109	8-729-106-60	TRANSISTOR	2SB1132-T100-R	R117	1-216-864-11	SHORT	0
Q110	8-729-106-60	TRANSISTOR	2SB1132-T100-R	R118	1-216-809-11	METAL CHIP	100 5% 1/16W
Q111	8-729-038-68	TRANSISTOR	KRC103S	R119	1-216-055-00	METAL CHIP	1.8K 5% 1/10W
Q112	8-729-038-68	TRANSISTOR	KRC103S	R120	1-216-055-00	METAL CHIP	1.8K 5% 1/10W
Q113	8-729-040-17	TRANSISTOR	2SD2164-K	R121	1-216-055-00	METAL CHIP	1.8K 5% 1/10W
Q114	8-729-106-60	TRANSISTOR	2SB1132-T100-R	R122	1-216-809-11	METAL CHIP	100 5% 1/16W
Q115	8-729-038-67	TRANSISTOR	KRC102S	R123	1-216-057-00	METAL CHIP	2.2K 5% 1/10W
Q116	8-729-034-49	TRANSISTOR	KRC104S	R124	1-216-845-11	METAL CHIP	100K 5% 1/16W
Q117	8-729-038-67	TRANSISTOR	KRC102S	R125	1-218-847-11	METAL CHIP	1K 0.5% 1/16W
Q118	8-759-068-54	TRANSISTOR	KRA102S	R126	1-218-866-11	METAL CHIP	6.2K 0.5% 1/16W
Q119	8-729-019-00	TRANSISTOR	2SD2394-G	R127	1-216-845-11	METAL CHIP	100K 5% 1/16W
Q201	8-729-920-85	TRANSISTOR	2SD1664-T101-QR	R128	1-216-057-00	METAL CHIP	2.2K 5% 1/10W
Q202	8-729-120-28	TRANSISTOR	2SC2412K-T-146-R	R129	1-216-057-00	METAL CHIP	2.2K 5% 1/10W
Q203	8-729-038-67	TRANSISTOR	KRC102S	R130	1-216-845-11	METAL CHIP	100K 5% 1/16W
Q301	8-729-920-21	TRANSISTOR	DTC314TK-T-146	R131	1-216-829-11	METAL CHIP	4.7K 5% 1/16W
Q302	8-729-920-21	TRANSISTOR	DTC314TK-T-146	R132	1-216-833-11	METAL CHIP	10K 5% 1/16W
Q303	8-729-920-21	TRANSISTOR	DTC314TK-T-146	R133	1-216-835-11	METAL CHIP	15K 5% 1/16W
Q304	8-729-920-21	TRANSISTOR	DTC314TK-T-146	R134	1-216-821-11	METAL CHIP	1K 5% 1/16W
Q305	8-729-920-21	TRANSISTOR	DTC314TK-T-146	R135	1-216-057-00	METAL CHIP	2.2K 5% 1/10W
Q309	8-729-144-85	FET	2SK1133-T1B	R136	1-216-057-00	METAL CHIP	2.2K 5% 1/10W
Q310	8-729-038-56	TRANSISTOR	KRA104S	R137	1-216-841-11	METAL CHIP	47K 5% 1/16W
Q312	8-729-034-49	TRANSISTOR	KRC104S	R138	1-216-821-11	METAL CHIP	1K 5% 1/16W
Q401	8-729-049-13	FET	UPA1853GR-9JG-E1	R139	1-216-864-11	SHORT	0
Q402	8-729-038-68	TRANSISTOR	KRC103S	R140	1-216-864-11	SHORT	0
Q404	8-729-038-68	TRANSISTOR	KRC103S	R141	1-216-845-11	METAL CHIP	100K 5% 1/16W
Q405	8-729-120-28	TRANSISTOR	2SC2412K-T-146-R	R201	1-216-001-00	METAL CHIP	10 5% 1/10W
Q406	8-729-120-28	TRANSISTOR	2SC2412K-T-146-R	R202	1-216-864-11	SHORT	0
Q407	8-729-120-28	TRANSISTOR	2SC2412K-T-146-R	R203	1-216-864-11	SHORT	0
				R204	1-216-817-11	METAL CHIP	470 5% 1/16W



Ref. No.	Part No.	Description			Remark	Ref. No.	Part No.	Description			Remark
R205	1-216-833-11	METAL CHIP	10K	5%	1/16W	R363	1-216-845-11	METAL CHIP	100K	5%	1/16W
R206	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	R364	1-216-813-11	METAL CHIP	220	5%	1/16W
R207	1-216-809-11	METAL CHIP	100	5%	1/16W	R372	1-216-864-11	SHORT	0		
R208	1-216-845-11	METAL CHIP	100K	5%	1/16W	R373	1-216-864-11	SHORT	0		
R209	1-216-295-11	SHORT	0			R374	1-216-841-11	METAL CHIP	47K	5%	1/16W
R210	1-216-833-11	METAL CHIP	10K	5%	1/16W	R376	1-216-841-11	METAL CHIP	47K	5%	1/16W
R211	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	R377	1-216-864-11	SHORT	0		
R212	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	R379	1-216-805-11	METAL CHIP	47	5%	1/16W
R213	1-216-857-11	METAL CHIP	1M	5%	1/16W	R380	1-216-841-11	METAL CHIP	47K	5%	1/16W
R214	1-216-809-11	METAL CHIP	100	5%	1/16W	R382	1-216-817-11	METAL CHIP	470	5%	1/16W
R215	1-216-853-11	METAL CHIP	470K	5%	1/16W	R389	1-216-864-11	SHORT	0		
R216	1-216-817-11	METAL CHIP	470	5%	1/16W	R390	1-216-841-11	METAL CHIP	47K	5%	1/16W
R217	1-216-797-11	METAL CHIP	10	5%	1/16W	R391	1-216-821-11	METAL CHIP	1K	5%	1/16W
R218	1-216-823-11	METAL CHIP	1.5K	5%	1/16W	R393	1-216-821-11	METAL CHIP	1K	5%	1/16W
R219	1-216-821-11	METAL CHIP	1K	5%	1/16W	R395	1-216-821-11	METAL CHIP	1K	5%	1/16W
R220	1-216-797-11	METAL CHIP	10	5%	1/16W	R397	1-216-821-11	METAL CHIP	1K	5%	1/16W
R221	1-216-864-11	SHORT	0			R401	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R222	1-216-864-11	SHORT	0			R402	1-216-821-11	METAL CHIP	1K	5%	1/16W
R301	1-216-821-11	METAL CHIP	1K	5%	1/16W	R403	1-216-073-00	METAL CHIP	10K	5%	1/10W
R302	1-216-833-11	METAL CHIP	10K	5%	1/16W	R404	1-216-073-00	METAL CHIP	10K	5%	1/10W
R303	1-216-864-11	SHORT	0			R405	1-216-833-11	METAL CHIP	10K	5%	1/16W
R304	1-216-833-11	METAL CHIP	10K	5%	1/16W	R406	1-216-833-11	METAL CHIP	10K	5%	1/16W
R305	1-216-864-11	SHORT	0			R409	1-216-073-00	METAL CHIP	10K	5%	1/10W
R306	1-216-864-11	SHORT	0			R410	1-216-073-00	METAL CHIP	10K	5%	1/10W
R307	1-216-833-11	METAL CHIP	10K	5%	1/16W	R411	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R308	1-216-833-11	METAL CHIP	10K	5%	1/16W	R413	1-216-841-11	METAL CHIP	47K	5%	1/16W
R309	1-216-833-11	METAL CHIP	10K	5%	1/16W	R414	1-216-841-11	METAL CHIP	47K	5%	1/16W
R310	1-216-833-11	METAL CHIP	10K	5%	1/16W	R415	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R311	1-216-864-11	SHORT	0			R416	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R312	1-216-821-11	METAL CHIP	1K	5%	1/16W	R417	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R313	1-216-833-11	METAL CHIP	10K	5%	1/16W	R418	1-216-833-11	METAL CHIP	10K	5%	1/16W
R314	1-216-809-11	METAL CHIP	100	5%	1/16W	R419	1-216-833-11	METAL CHIP	10K	5%	1/16W
R316	1-216-833-11	METAL CHIP	10K	5%	1/16W	R420	1-216-841-11	METAL CHIP	47K	5%	1/16W
R317	1-216-841-11	METAL CHIP	47K	5%	1/16W	R421	1-216-837-11	METAL CHIP	22K	5%	1/16W
R324	1-216-841-11	METAL CHIP	47K	5%	1/16W	R422	1-216-845-11	METAL CHIP	100K	5%	1/16W
R325	1-216-809-11	METAL CHIP	100	5%	1/16W	R423	1-216-833-11	METAL CHIP	10K	5%	1/16W
R326	1-216-809-11	METAL CHIP	100	5%	1/16W	R424	1-216-833-11	METAL CHIP	10K	5%	1/16W
R327	1-216-841-11	METAL CHIP	47K	5%	1/16W	R425	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R329	1-216-841-11	METAL CHIP	47K	5%	1/16W	R451	1-216-295-11	SHORT	0		
R330	1-216-833-11	METAL CHIP	10K	5%	1/16W	R454	1-216-295-11	SHORT	0		
R335	1-216-833-11	METAL CHIP	10K	5%	1/16W	R458	1-216-833-11	METAL CHIP	10K	5%	1/16W
R338	1-216-809-11	METAL CHIP	100	5%	1/16W	R459	1-216-049-11	RES-CHIP	1K	5%	1/10W
R339	1-216-833-11	METAL CHIP	10K	5%	1/16W	R500	1-216-864-11	SHORT	0		
R340	1-216-833-11	METAL CHIP	10K	5%	1/16W	R501	1-216-837-11	METAL CHIP	22K	5%	1/16W
R341	1-216-809-11	METAL CHIP	100	5%	1/16W	R502	1-216-821-11	METAL CHIP	1K	5%	1/16W
R342	1-216-841-11	METAL CHIP	47K	5%	1/16W	R503	1-216-864-11	SHORT	0		
R343	1-216-864-11	SHORT	0			R504	1-216-833-11	METAL CHIP	10K	5%	1/16W
R344	1-216-864-11	SHORT	0			R505	1-216-845-11	METAL CHIP	100K	5%	1/16W
R345	1-216-864-11	SHORT	0			R506	1-216-833-11	METAL CHIP	10K	5%	1/16W
R346	1-216-864-11	SHORT	0			R507	1-216-833-11	METAL CHIP	10K	5%	1/16W
R347	1-216-864-11	SHORT	0			R508	1-216-845-11	METAL CHIP	100K	5%	1/16W
R348	1-216-864-11	SHORT	0			R509	1-216-821-11	METAL CHIP	1K	5%	1/16W
R349	1-216-864-11	SHORT	0			R510	1-216-821-11	METAL CHIP	1K	5%	1/16W
R356	1-216-813-11	METAL CHIP	220	5%	1/16W	R511	1-216-853-11	METAL CHIP	470K	5%	1/16W
R357	1-216-813-11	METAL CHIP	220	5%	1/16W	R512	1-216-815-11	METAL CHIP	330	5%	1/16W
R358	1-216-813-11	METAL CHIP	220	5%	1/16W	R513	1-216-821-11	METAL CHIP	1K	5%	1/16W
R360	1-216-831-11	METAL CHIP	6.8K	5%	1/16W	R514	1-216-841-11	METAL CHIP	47K	5%	1/16W
R361	1-216-813-11	METAL CHIP	220	5%	1/16W						

MAIN

Ref. No.	Part No.	Description	Quantity	Unit	Remark	Ref. No.	Part No.	Description	Quantity	Unit	Remark
R515	1-216-821-11	METAL CHIP	1K	5%	1/16W	R705	1-216-821-11	METAL CHIP	1K	5%	1/16W
R516	1-216-864-11	SHORT	0			R708	1-216-821-11	METAL CHIP	1K	5%	1/16W
R517	1-216-821-11	METAL CHIP	1K	5%	1/16W	R709	1-216-864-11	SHORT	0		
R518	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	R711	1-216-864-11	SHORT	0		
R519	1-216-813-11	METAL CHIP	220	5%	1/16W	R712	1-216-845-11	METAL CHIP	100K	5%	1/16W
R520	1-216-821-11	METAL CHIP	1K	5%	1/16W	R713	1-216-864-11	SHORT	0		
R521	1-216-864-11	SHORT	0			R714	1-216-821-11	METAL CHIP	1K	5%	1/16W
R522	1-216-864-11	SHORT	0			R715	1-216-864-11	SHORT	0		
R523	1-216-864-11	SHORT	0			R716	1-216-821-11	METAL CHIP	1K	5%	1/16W
R526	1-216-845-11	METAL CHIP	100K	5%	1/16W	R717	1-216-845-11	METAL CHIP	100K	5%	1/16W
R527	1-216-831-11	METAL CHIP	6.8K	5%	1/16W	R718	1-216-845-11	METAL CHIP	100K	5%	1/16W
R528	1-216-845-11	METAL CHIP	100K	5%	1/16W	R719	1-216-845-11	METAL CHIP	100K	5%	1/16W
R529	1-216-845-11	METAL CHIP	100K	5%	1/16W	R722	1-216-845-11	METAL CHIP	100K	5%	1/16W
R533	1-216-845-11	METAL CHIP	100K	5%	1/16W	R723	1-216-845-11	METAL CHIP	100K	5%	1/16W
R535	1-216-845-11	METAL CHIP	100K	5%	1/16W	R724	1-216-845-11	METAL CHIP	100K	5%	1/16W
R536	1-216-845-11	METAL CHIP	100K	5%	1/16W	R725	1-216-845-11	METAL CHIP	100K	5%	1/16W
R537	1-216-845-11	METAL CHIP	100K	5%	1/16W	R726	1-216-833-11	METAL CHIP	10K	5%	1/16W
R538	1-216-845-11	METAL CHIP	100K	5%	1/16W	R727	1-216-845-11	METAL CHIP	100K	5%	1/16W
R539	1-216-845-11	METAL CHIP	100K	5%	1/16W	R801	1-216-821-11	METAL CHIP	1K	5%	1/16W
R540	1-216-845-11	METAL CHIP	100K	5%	1/16W	R802	1-216-821-11	METAL CHIP	1K	5%	1/16W
R541	1-216-845-11	METAL CHIP	100K	5%	1/16W	R803	1-218-716-11	METAL CHIP	10K	0.5%	1/16W
R542	1-216-845-11	METAL CHIP	100K	5%	1/16W	R804	1-218-716-11	METAL CHIP	10K	0.5%	1/16W
R543	1-216-845-11	METAL CHIP	100K	5%	1/16W	R805	1-216-845-11	METAL CHIP	100K	5%	1/16W
R544	1-216-853-11	METAL CHIP	470K	5%	1/16W	R806	1-216-821-11	METAL CHIP	1K	5%	1/16W
R545	1-216-845-11	METAL CHIP	100K	5%	1/16W	R807	1-216-809-11	METAL CHIP	100	5%	1/16W
R546	1-216-845-11	METAL CHIP	100K	5%	1/16W	R808	1-216-809-11	METAL CHIP	100	5%	1/16W
R547	1-216-821-11	METAL CHIP	1K	5%	1/16W	R809	1-216-821-11	METAL CHIP	1K	5%	1/16W
R548	1-216-864-11	SHORT	0			R810	1-216-821-11	METAL CHIP	1K	5%	1/16W
R549	1-216-845-11	METAL CHIP	100K	5%	1/16W	R811	1-216-821-11	METAL CHIP	1K	5%	1/16W
R550	1-216-821-11	METAL CHIP	1K	5%	1/16W	R812	1-216-821-11	METAL CHIP	1K	5%	1/16W
R551	1-216-821-11	METAL CHIP	1K	5%	1/16W	R813	1-216-821-11	METAL CHIP	1K	5%	1/16W
R552	1-216-821-11	METAL CHIP	1K	5%	1/16W	R814	1-216-817-11	METAL CHIP	470	5%	1/16W
R553	1-216-821-11	METAL CHIP	1K	5%	1/16W	R815	1-216-845-11	METAL CHIP	100K	5%	1/16W
R601	1-216-841-11	METAL CHIP	47K	5%	1/16W	R816	1-216-813-11	METAL CHIP	220	5%	1/16W
R602	1-216-809-11	METAL CHIP	100	5%	1/16W	R817	1-216-821-11	METAL CHIP	1K	5%	1/16W
R603	1-216-809-11	METAL CHIP	100	5%	1/16W	R818	1-216-841-11	METAL CHIP	47K	5%	1/16W
R604	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	R819	1-216-845-11	METAL CHIP	100K	5%	1/16W
R605	1-216-821-11	METAL CHIP	1K	5%	1/16W	R820	1-216-845-11	METAL CHIP	100K	5%	1/16W
R606	1-216-809-11	METAL CHIP	100	5%	1/16W	R821	1-216-845-11	METAL CHIP	100K	5%	1/16W
R607	1-216-809-11	METAL CHIP	100	5%	1/16W	R822	1-216-845-11	METAL CHIP	100K	5%	1/16W
R608	1-218-716-11	METAL CHIP	10K	0.5%	1/16W	R823	1-216-821-11	METAL CHIP	1K	5%	1/16W
R650	1-216-833-11	METAL CHIP	10K	5%	1/16W	R824	1-216-817-11	METAL CHIP	470	5%	1/16W
R651	1-216-836-11	METAL CHIP	18K	5%	1/16W	R825	1-216-857-11	METAL CHIP	1M	5%	1/16W
R652	1-216-821-11	METAL CHIP	1K	5%	1/16W	R827	1-216-845-11	METAL CHIP	100K	5%	1/16W
R653	1-216-845-11	METAL CHIP	100K	5%	1/16W	R828	1-216-821-11	METAL CHIP	1K	5%	1/16W
R654	1-216-830-11	METAL CHIP	5.6K	5%	1/16W	R830	1-216-845-11	METAL CHIP	100K	5%	1/16W
R655	1-216-837-11	METAL CHIP	22K	5%	1/16W	< THERMISTOR >					
R656	1-216-304-11	METAL CHIP	3.3	5%	1/10W	TH101	1-810-940-11	THERMISTOR, POSITIVE			
R657	1-216-839-11	METAL CHIP	33K	5%	1/16W	TH102	1-810-940-11	THERMISTOR, POSITIVE			
R658	1-216-304-11	METAL CHIP	3.3	5%	1/10W	TH601	1-801-792-21	THERMISTOR, POSITIVE			
R659	1-216-304-11	METAL CHIP	3.3	5%	1/10W	< TUNER UNIT >					
R660	1-216-809-11	METAL CHIP	100	5%	1/16W	TUX201	A-3282-061-A	TUNER UNIT (TUX-020)			
R661	1-216-809-11	METAL CHIP	100	5%	1/16W	< VIBRATOR >					
R662	1-216-304-11	METAL CHIP	3.3	5%	1/10W	X201	1-579-900-21	VIBRATOR, CRYSTAL (4.332MHZ)			
R701	1-216-821-11	METAL CHIP	1K	5%	1/16W						
R702	1-216-821-11	METAL CHIP	1K	5%	1/16W						
R703	1-216-821-11	METAL CHIP	1K	5%	1/16W						
R704	1-216-821-11	METAL CHIP	1K	5%	1/16W						

**MAIN**

**SENSOR**

**SERVO**

Ref. No.	Part No.	Description	Remark
X501	1-567-098-41	VIBRATOR, CRYSTAL (32.768kHz)	
X503	1-767-993-31	VIBRATOR, CRYSTAL (3.68MHz)	
X701	1-781-822-21	VIBRATOR, CERAMIC (18.432MHz)	
X801	1-781-282-11	VIBRATOR, CERAMIC (4MHz)	
*****			
	A-3326-727-A	SENSOR BOARD, COMPLETE	*****
For the parts on the SENSOR board, replace the entire mounted board.			
*****			
*	A-3326-729-A	SERVO BOARD, COMPLETE	*****
		< CAPACITOR >	
C10	1-164-362-11	CERAMIC CHIP 470PF	5% 50V
C11	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V
C101	1-164-161-11	CERAMIC CHIP 0.0022uF	10% 100V
C102	1-135-259-11	TANTALUM CHIP 10uF	20% 6.3V
C103	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C104	1-107-826-11	CERAMIC CHIP 0.1uF	10% 16V
C105	1-107-826-11	CERAMIC CHIP 0.1uF	10% 16V
C106	1-135-210-11	TANTALUM CHIP 4.7uF	20% 10V
C107	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C108	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C109	1-135-210-11	TANTALUM CHIP 4.7uF	20% 10V
C201	1-164-161-11	CERAMIC CHIP 0.0022uF	10% 100V
C202	1-135-259-11	TANTALUM CHIP 10uF	20% 6.3V
C301	1-107-826-11	CERAMIC CHIP 0.1uF	10% 16V
C305	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C306	1-117-863-11	CERAMIC CHIP 0.47uF	10% 6.3V
C307	1-107-826-11	CERAMIC CHIP 0.1uF	10% 16V
C308	1-162-927-11	CERAMIC CHIP 100PF	5% 50V
C309	1-162-968-11	CERAMIC CHIP 0.0047uF	10% 50V
C310	1-117-863-11	CERAMIC CHIP 0.47uF	10% 6.3V
C311	1-164-245-11	CERAMIC CHIP 0.015uF	10% 25V
C314	1-107-826-11	CERAMIC CHIP 0.1uF	10% 16V
C315	1-125-837-11	CERAMIC CHIP 1uF	10% 6.3V
C316	1-107-826-11	CERAMIC CHIP 0.1uF	10% 16V
C317	1-107-826-11	CERAMIC CHIP 0.1uF	10% 16V
C318	1-104-852-11	TANTALUM CHIP 22uF	20% 6.3V
C319	1-104-852-11	TANTALUM CHIP 22uF	20% 6.3V
C320	1-164-227-11	CERAMIC CHIP 0.022uF	10% 25V
C321	1-162-969-11	CERAMIC CHIP 0.0068uF	10% 25V
C322	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V
C324	1-107-826-11	CERAMIC CHIP 0.1uF	10% 16V
C325	1-110-563-11	CERAMIC CHIP 0.068uF	10% 16V
C326	1-162-968-11	CERAMIC CHIP 0.0047uF	10% 50V
C327	1-125-837-11	CERAMIC CHIP 1uF	10% 6.3V
C328	1-162-966-11	CERAMIC CHIP 0.0022uF	10% 50V
C329	1-164-227-11	CERAMIC CHIP 0.022uF	10% 25V
C330	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C331	1-107-826-11	CERAMIC CHIP 0.1uF	10% 16V
C333	1-107-826-11	CERAMIC CHIP 0.1uF	10% 16V
C336	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C339	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C342	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C343	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C344	1-104-852-11	TANTALUM CHIP 22uF	20% 6.3V

Ref. No.	Part No.	Description	Remark
C345	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C346	1-104-852-11	TANTALUM CHIP 22uF	20% 6.3V
C347	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C349	1-107-826-11	CERAMIC CHIP 0.1uF	10% 16V
C350	1-107-826-11	CERAMIC CHIP 0.1uF	10% 16V
C351	1-104-852-11	TANTALUM CHIP 22uF	20% 10V
C352	1-107-826-11	CERAMIC CHIP 0.1uF	10% 16V
C353	1-107-826-11	CERAMIC CHIP 0.1uF	10% 16V
C356	1-162-927-11	CERAMIC CHIP 100PF	5% 50V
C357	1-162-927-11	CERAMIC CHIP 100PF	5% 50V
C358	1-162-927-11	CERAMIC CHIP 100PF	5% 50V
C359	1-162-923-11	CERAMIC CHIP 47PF	5% 50V
C362	1-107-826-11	CERAMIC CHIP 0.1uF	10% 16V
C363	1-107-826-11	CERAMIC CHIP 0.1uF	10% 16V
C401	1-115-467-11	CERAMIC CHIP 0.22uF	10% 10V
C402	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C403	1-107-826-11	CERAMIC CHIP 0.1uF	10% 16V
C501	1-162-927-11	CERAMIC CHIP 100PF	5% 50V
C503	1-107-826-11	CERAMIC CHIP 0.1uF	10% 16V
C504	1-107-826-11	CERAMIC CHIP 0.1uF	10% 16V
C505	1-107-826-11	CERAMIC CHIP 0.1uF	10% 16V
C506	1-104-852-11	TANTALUM CHIP 22uF	20% 10V
C510	1-115-467-11	CERAMIC CHIP 0.22uF	10% 10V
C511	1-107-826-11	CERAMIC CHIP 0.1uF	10% 16V
C513	1-107-826-11	CERAMIC CHIP 0.1uF	10% 16V
C514	1-115-467-11	CERAMIC CHIP 0.22uF	10% 10V
C515	1-107-826-11	CERAMIC CHIP 0.1uF	10% 16V
C516	1-107-826-11	CERAMIC CHIP 0.1uF	10% 16V
		< CONNECTOR >	
CN101	1-815-352-11	CONNECTOR, BOARD TO BOARD 30P	
CN102	1-573-929-21	CONNECTOR, FFC/FPC (ZIF) 20P	
* CN103	1-573-920-11	CONNECTOR, FFC/FPC (ZIF) 11P	
		< DIODE >	
D301	8-719-977-03	DIODE DTZ5.6B	
D401	8-719-157-93	DIODE RD3.0SB2	
		< IC >	
IC101	8-759-571-84	IC PCM1718E/2K	
IC301	8-752-404-64	IC CXD2662R	
IC302	8-752-080-95	IC CXA2523AR	
IC303	8-759-685-74	IC BH6518FS-E2	
IC304	8-759-096-87	IC TC7WU04FU (TE12R)	
IC305	8-759-040-83	IC BA6287F	
IC307	8-759-671-27	IC MSM51V4400E-70TS-K	
IC401	8-759-385-17	IC NJM4580E (TE2)	
IC501	8-752-921-42	IC CXP84340-231Q	
IC502	8-759-321-61	IC HD74HC244FP-EL	
		< COIL >	
L101	1-412-058-11	INDUCTOR CHIP 10uH	
L102	1-412-058-11	INDUCTOR CHIP 10uH	
L301	1-412-058-11	INDUCTOR CHIP 10uH	
L302	1-412-058-11	INDUCTOR CHIP 10uH	
L501	1-412-058-11	INDUCTOR CHIP 10uH	

SERVO

Ref. No.	Part No.	Description	Remark
< TRANSISTOR >			
Q301	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q302	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R	
Q303	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q401	8-729-920-85	TRANSISTOR 2SD1664-QR	
Q402	8-729-106-60	TRANSISTOR 2SB1115A-YQ	
Q403	8-729-421-22	TRANSISTOR UN2211	
< RESISTOR >			
R101	1-216-073-00	METAL CHIP 10K 5%	1/10W
R102	1-216-833-11	METAL CHIP 10K 5%	1/16W
R104	1-216-049-11	RES-CHIP 1K 5%	1/10W
R201	1-216-073-00	METAL CHIP 10K 5%	1/10W
R202	1-216-049-11	RES-CHIP 1K 5%	1/10W
R301	1-216-809-11	METAL CHIP 100 5%	1/16W
R302	1-216-809-11	METAL CHIP 100 5%	1/16W
R303	1-216-809-11	METAL CHIP 100 5%	1/16W
R304	1-216-809-11	METAL CHIP 100 5%	1/16W
R305	1-216-809-11	METAL CHIP 100 5%	1/16W
R306	1-216-809-11	METAL CHIP 100 5%	1/16W
R307	1-216-809-11	METAL CHIP 100 5%	1/16W
R308	1-216-809-11	METAL CHIP 100 5%	1/16W
R310	1-216-821-11	METAL CHIP 1K 5%	1/16W
R312	1-216-825-11	METAL CHIP 2.2K 5%	1/16W
R316	1-216-821-11	METAL CHIP 1K 5%	1/16W
R317	1-216-821-11	METAL CHIP 1K 5%	1/16W
R318	1-216-833-11	METAL CHIP 10K 5%	1/16W
R319	1-216-845-11	METAL CHIP 100K 5%	1/16W
R320	1-216-855-11	METAL CHIP 680K 5%	1/16W
R324	1-216-827-11	METAL CHIP 3.3K 5%	1/16W
R325	1-216-821-11	METAL CHIP 1K 5%	1/16W
R327	1-216-821-11	METAL CHIP 1K 5%	1/16W
R328	1-216-811-11	METAL CHIP 150 5%	1/16W
R329	1-216-819-11	METAL CHIP 680 5%	1/16W
R330	1-216-853-11	METAL CHIP 470K 5%	1/16W
R331	1-216-809-11	METAL CHIP 100 5%	1/16W
R332	1-216-809-11	METAL CHIP 100 5%	1/16W
R333	1-216-819-11	METAL CHIP 680 5%	1/16W
R334	1-216-809-11	METAL CHIP 100 5%	1/16W
R335	1-216-815-11	METAL CHIP 330 5%	1/16W
R336	1-216-853-11	METAL CHIP 470K 5%	1/16W
R337	1-216-853-11	METAL CHIP 470K 5%	1/16W
R338	1-216-994-11	RES-CHIP 13K 5%	1/16W
R340	1-218-739-11	RES-CHIP 91K 5%	1/16W
R342	1-216-994-11	RES-CHIP 13K 5%	1/16W
R344	1-216-994-11	RES-CHIP 13K 5%	1/16W
R346	1-216-842-11	METAL CHIP 56K 5%	1/16W
R348	1-218-708-11	METAL CHIP 4.7K 0.5%	1/16W
R349	1-216-025-11	RES-CHIP 100 5%	1/10W
R350	1-216-797-11	METAL CHIP 10 5%	1/16W
R351	1-218-700-11	METAL CHIP 2.2K 0.5%	1/16W
R352	1-218-700-11	METAL CHIP 2.2K 0.5%	1/16W
R353	1-218-700-11	METAL CHIP 2.2K 0.5%	1/16W
R354	1-216-833-11	METAL CHIP 10K 5%	1/16W
R355	1-216-833-11	METAL CHIP 10K 5%	1/16W
R356	1-216-833-11	METAL CHIP 10K 5%	1/16W
R357	1-216-017-00	RES-CHIP 47 5%	1/10W

Ref. No.	Part No.	Description	Remark
R359	1-216-797-11	METAL CHIP 10 5%	1/16W
R360	1-216-864-11	SHORT 0	
R361	1-216-825-11	METAL CHIP 2.2K 5%	1/16W
R362	1-216-811-11	METAL CHIP 150 5%	1/16W
R365	1-216-864-11	SHORT 0	
R367	1-216-864-11	SHORT 0	
R401	1-216-073-00	METAL CHIP 10K 5%	1/10W
R402	1-216-065-00	RES-CHIP 4.7K 5%	1/10W
R403	1-216-065-00	RES-CHIP 4.7K 5%	1/10W
R404	1-216-809-11	METAL CHIP 100 5%	1/16W
R405	1-218-692-11	METAL CHIP 1K 0.5%	1/16W
R406	1-218-716-11	METAL CHIP 10K 0.5%	1/16W
R407	1-216-845-11	METAL CHIP 100K 5%	1/16W
R501	1-216-821-11	METAL CHIP 1K 5%	1/16W
R502	1-216-821-11	METAL CHIP 1K 5%	1/16W
R503	1-216-821-11	METAL CHIP 1K 5%	1/16W
R504	1-216-821-11	METAL CHIP 1K 5%	1/16W
R505	1-216-821-11	METAL CHIP 1K 5%	1/16W
R506	1-216-845-11	METAL CHIP 100K 5%	1/16W
R507	1-218-708-11	METAL CHIP 4.7K 0.5%	1/16W
R510	1-216-864-11	SHORT 0	
R511	1-216-847-11	METAL CHIP 150K 5%	1/16W
R512	1-216-845-11	METAL CHIP 100K 5%	1/16W
R516	1-216-809-11	METAL CHIP 100 5%	1/16W
R517	1-216-809-11	METAL CHIP 100 5%	1/16W
R518	1-216-809-11	METAL CHIP 100 5%	1/16W
R519	1-216-809-11	METAL CHIP 100 5%	1/16W
R520	1-216-809-11	METAL CHIP 100 5%	1/16W
R521	1-216-809-11	METAL CHIP 100 5%	1/16W
R522	1-216-821-11	METAL CHIP 1K 5%	1/16W
R523	1-216-821-11	METAL CHIP 1K 5%	1/16W
R524	1-216-821-11	METAL CHIP 1K 5%	1/16W
R525	1-216-845-11	METAL CHIP 100K 5%	1/16W
R526	1-216-825-11	METAL CHIP 2.2K 5%	1/16W
R527	1-216-825-11	METAL CHIP 2.2K 5%	1/16W
R528	1-216-825-11	METAL CHIP 2.2K 5%	1/16W
R529	1-216-825-11	METAL CHIP 2.2K 5%	1/16W
R530	1-216-825-11	METAL CHIP 2.2K 5%	1/16W
R531	1-216-845-11	METAL CHIP 100K 5%	1/16W
R532	1-216-809-11	METAL CHIP 100 5%	1/16W
R533	1-216-845-11	METAL CHIP 100K 5%	1/16W
R534	1-216-845-11	METAL CHIP 100K 5%	1/16W
R535	1-216-845-11	METAL CHIP 100K 5%	1/16W
R537	1-216-809-11	METAL CHIP 100 5%	1/16W
R538	1-216-845-11	METAL CHIP 100K 5%	1/16W
R539	1-216-845-11	METAL CHIP 100K 5%	1/16W
R540	1-216-845-11	METAL CHIP 100K 5%	1/16W
R542	1-216-845-11	METAL CHIP 100K 5%	1/16W
< COMPOSITION CIRCUIT BLOCK >			
RB503	1-233-412-11	RES, CHIP NETWORK 1K (3216)	
< THERMISTOR >			
TH501	1-810-421-11	THERMISTOR NTH5G36B103K01TE	

**SERVO**      **SUB MD**      **SW**

Ref. No.	Part No.	Description	Remark
		< VIBRATOR >	
X301	1-795-144-21	OSCILLATOR, CERAMIC (45MHZ)	
X501	1-760-365-11	VIBRATOR, CERAMIC (10MHZ)	
*****			
	1-681-374-11	SUB MD BOARD	*****
	1-783-268-11	CABLE, FLAT	
		< CAPACITOR >	
C902	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C903	1-125-837-11	CERAMIC CHIP 1uF	10% 6.3V
C905	1-124-778-00	ELECT CHIP 22uF	20% 6.3V
C906	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C907	1-125-837-11	CERAMIC CHIP 1uF	10% 6.3V
C908	1-164-388-11	CERAMIC CHIP 270PF	5% 50V
C909	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C910	1-127-760-11	CERAMIC CHIP 4.7uF	10% 6.3V
		< DIODE >	
D901	8-719-988-61	DIODE 1SS355TE-17	
D902	8-719-017-95	DIODE KDZ18V	
D903	8-719-072-57	LED CL-170UB-X-T	(DISC SLOT ILLUMINATION)
D906	8-719-422-41	DIODE MA8051-L-TX	
D907	8-719-977-12	DIODE MA8068-M-TX	
D908	8-719-083-14	DIODE RRX9000-0501	(REMOTE CONTROL RECEIVER)
		< FERRITE BEAD >	
FB903	1-500-329-21	FERRITE 0uH	
		< IC >	
IC901	8-759-830-18	IC RRX9000-0601#1	
		< TRANSISTOR >	
Q901	8-729-216-22	TRANSISTOR 2SA1037K-T-146-S	
Q902	8-729-038-67	TRANSISTOR KRC102S	
		< RESISTOR >	
R901	1-216-833-11	METAL CHIP 10K	5% 1/16W
R902	1-216-845-11	METAL CHIP 100K	5% 1/16W
R903	1-216-825-11	METAL CHIP 2.2K	5% 1/16W
R904	1-216-035-00	METAL CHIP 270	5% 1/10W
R906	1-216-811-11	METAL CHIP 150	5% 1/16W
R907	1-216-864-11	SHORT 0	
R908	1-216-850-11	METAL CHIP 270K	5% 1/16W
R909	1-216-846-11	METAL CHIP 120K	5% 1/16W
		< SWITCH >	
SW901	1-692-135-21	SWITCH, KEY BOARD (RESET)	
SW903	1-771-937-21	SWITCH, DETECTION (DISC INSERT DETECT)	
*****			

Ref. No.	Part No.	Description	Remark
*	1-681-375-11	SW BOARD	*****
SW1001	1-771-937-21	SWITCH, DETECTION	(FRONT PANEL OPEN/CLOSE DETECT)
SW1002	1-529-566-31	SWITCH, PUSH (1 KEY)	(FRONT PANEL DETACH POSITION DETECT)
*****			
		MISCELLANEOUS	*****
6	1-681-390-11	FLEXIBLE BOARD	
13	1-776-527-71	CORD (WITH CONNECTOR) (ISO) (POWER)	
63	1-694-806-11	CONDUCTIVE BOARD, CONNECTION	
166	1-777-246-41	CORD (WITH CONNECTOR) (ANT)	
167	1-790-375-21	CORD (WITH CONNECTOR) (SUB OUT)	
353	1-757-311-11	CABLE, FLEXIBLE FLAT (11 CORE)	
△365	8-583-065-03	OPTICAL PICK-UP KMS-241C/J1RP	
F101	1-532-877-11	FUSE (BLADE TYPE) (AUTO FUSE) (10A)	
LCD60	1-804-348-11	DISPLAY PANEL, LIQUID CRYSTAL	
M601	X-3378-769-1	MOTOR ASSY (SERVICE)	(FRONT PANEL OPEN/CLOSE)
M901	A-3301-407-A	MOTOR ASSY, SP (SPINDLE)	
M902	A-3291-190-A	MOTOR ASSY, SL (SLED)	
M903	X-3379-451-1	MOTOR ASSY, LO (LOADING)	
*****			
		HARDWARE LIST	*****
#1	7-685-792-09	SCREW +PTT 2.6X6 (S)	
#2	7-685-790-09	SCREW +PTT 2.6X4 (S)	
#3	7-685-105-19	SCREW +P 2X8 TYPE2 NON-SLIT	
#4	7-627-552-88	SCREW, PRECISION +P 1.7X2.2	
#5	7-627-553-28	SCREW, PRECISION +P 2X2.5	
#6	7-685-794-09	SCREW +PTT 2.6X10 (S)	
#7	7-621-255-25	SCREW +P 2X4	
#11	7-685-851-04	SCREW +BVTT 2X4 (S)	
#12	7-624-102-04	STOP RING 1.5, TYPE-E	
#13	7-627-852-37	PRECISION SCREW +P 1.7X1.8 TYPE3	
#14	7-621-772-08	SCREW +B 2X3	
#15	7-621-555-10	SCREW +K 2X3	
*****			
		ACCESSORIES & PACKING MATERIALS	*****
1-476-546-11		WIRELESS REMOTE COMMANDER (RM-X111)	
3-230-549-01		HOLDER, BATTERY (for RM-X111)	
3-230-448-11		MANUAL, INSTRUCTION (ENGLISH, GERMAN, FRENCH, ITALIAN, DUTCH)	
3-230-448-21		MANUAL, INSTRUCTION (ENGLISH, SPANISH, SWEDISH, PORTUGUESE, GREEK, RUSSIAN)	
3-230-449-11		MANUAL, INSTRUCTION, INSTALL (ENGLISH, GERMAN, FRENCH, ITALIAN, DUTCH)	
3-230-449-21		MANUAL, INSTRUCTION, INSTALL (ENGLISH, SPANISH, SWEDISH, PORTUGUESE, GREEK, RUSSIAN)	
X-3378-390-1		CASE ASSY (for FRONT PANEL)	
*****			

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

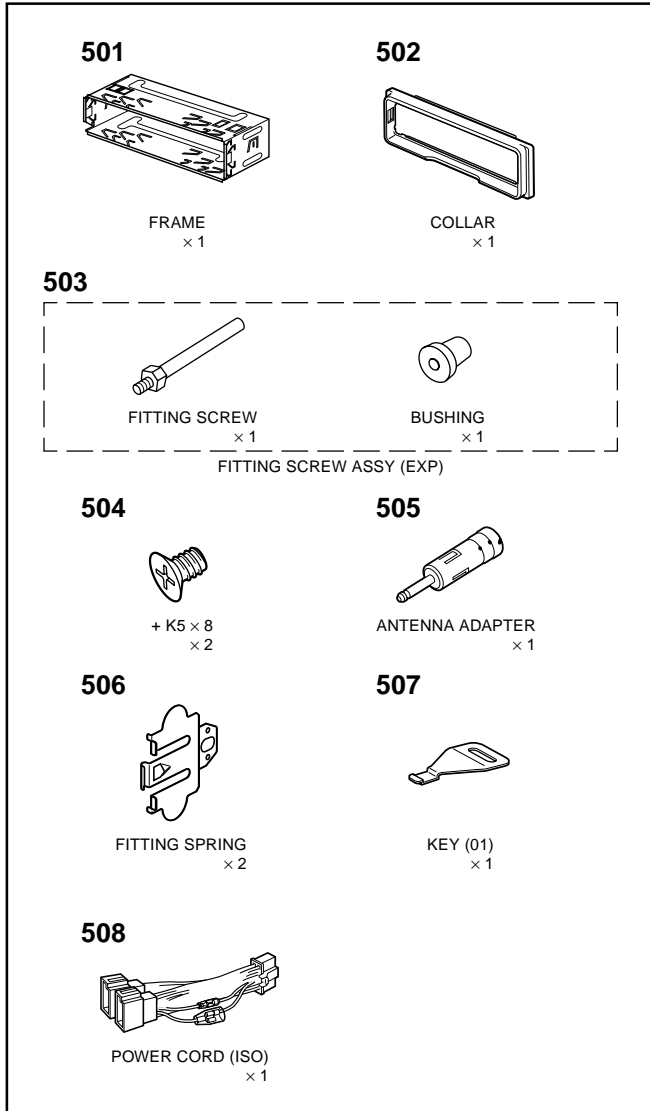
# MDX-M690

Ref. No.    Part No.    Description    Remark

**PARTS FOR INSTALLATION AND CONNECTIONS**

\*\*\*\*\*

501	3-014-370-21	FRAME, FITTING	
502	3-230-445-01	COLLAR	
503	X-3366-405-1	SCREW ASSY (EXP), FITTING	
504	3-934-325-01	SCREW (+K 5X8 TP)	
505	1-465-459-21	ADAPTER, ANTENNA	
506	3-030-929-01	SPRING, FITTING	
507	3-231-993-01	KEY (01)	
508	1-776-527-71	CORD (WITH CONNECTOR) (ISO) (POWER)	



MEMO

