

CDX-4280

SERVICE MANUAL

E Model



Model Name Using Similar Mechanism	CDX-4180
CD Drive Mechanism Type	MG-363X-121
Optical Pick-up Name	KSS-521A

SPECIFICATIONS

CD player section

System	Compact disc digital audio system
Signal-to-noise ratio	90 dB
Frequency response	10 - 20,000 Hz
Wow and flutter	Below measurable limit

Tuner section

FM

Tuning range	FM tuning interval: 50 kHz/200 kHz switchable 87.5 - 108.0 MHz (at 50 kHz step) 87.5 - 107.9 MHz (at 200 kHz step)
Antenna terminal	External antenna connector
Intermediate frequency	10.7 MHz
Usable sensitivity	8 dBf
Selectivity	75 dB at 400 kHz
Signal-to-noise ratio	65 dB (stereo), 68 dB (mono)
Harmonic distortion at 1 kHz	0.5% (stereo), 0.3% (mono)
Separation	35 dB at 1 kHz
Frequency response	30 - 15,000 Hz
Capture ratio	2 dB

AM

Tuning range	AM tuning interval: 9 kHz/10 kHz switchable 531 - 1,602 kHz (at 9 kHz step) 530 - 1,710 kHz (at 10 kHz step)
Antenna terminal	External antenna connector
Intermediate frequency	10.71 MHz/450 kHz
Sensitivity	30 μ V

Power amplifier section

Outputs	Speaker outputs (sure seal connectors)
Speaker impedance	4 - 8 ohms
Maximum power output	40 W $\times$ 4 (at 4 ohms)

General

Outputs	Line outputs (2) Power antenna relay control/Power amplifier control lead Telephone ATT control lead
Tone controls	Bass $\pm$ 10 dB at 100 Hz Treble $\pm$ 10 dB at 10 kHz
Power requirements	12 V DC car battery (negative ground)
Dimensions	Approx. 178 $\times$ 50 $\times$ 185 mm (w/h/d)
Mounting dimensions	Approx. 182 $\times$ 53 $\times$ 162 mm (w/h/d)
Mass	Approx. 1.2 kg
Supplied accessories	Parts for installation and connections (1 set) Front panel case (1)

Design and specifications are subject to change without notice.

FM/AM COMPACT DISC PLAYER



SONY®

SERVICE NOTE

CAUTION

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

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.

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

The laser diode in the optical pick-up block may suffer electrostatic breakdown because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.

During repair, pay attention to electrostatic breakdown 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

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

NOTES ON PICK-UP FLEXIBLE BOARD

The pick-up flexible board in this set is secured to the optical pick-up with an adhesive tape. Once the tape is removed, an adhering force becomes weak, and it cannot be reused.

Therefore, if the optical pick-up is replaced, replace also the pick-up flexible board with a new one.

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.

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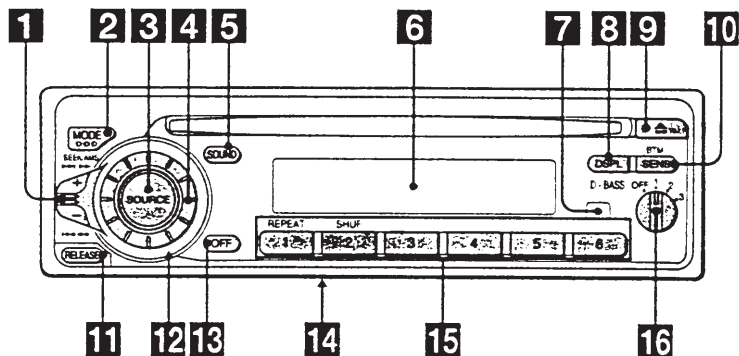
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6. ELECTRICAL PARTS LIST

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Location of controls



EN

Refer to the pages for details.

- 1 SEEK/AMS (seek/Automatic Music Sensor/manual search) control 7, 8, 9
- 2 MODE (band select) button 8, 9
- 3 SOURCE (source select) button 7, 8, 9
- 4 Dial (volume/bass/treble/left-right/front-rear control) 7, 11
- 5 SOUND button 7, 11, 12
- 6 Display window
- 7 Receptor for the optional remote (CDX-4280 only)
- 8 DSPL (display mode change/time set) button 7, 9
- 9 ▲ (eject) button 7
- 10 BTM/SENS (Best Tuning Memory/sensitivity adjust) button 8, 9
- 11 RELEASE (front panel release) button 6, 13
- 12 Reset button (located on the front side of the unit hidden by the front panel) 6

- 13 OFF button 6, 7, 12
- 14 Frequency Select switch (located on the bottom of the unit)
See "Frequency Select Switch" in the Installation/Connections manual.
- 15 During radio reception:
Number buttons 9
During CD playback:
① REPEAT button 8
② SHUF button 8
- 16 D-BASS dial 11

When the positions of switch 14 have been changed, be sure to press the reset button after connecting power.

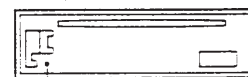
The illustration of the front panel in this manual is of the CDX-4280.

Getting Started

Resetting the unit

Before operating the unit for the first time or after replacing the car battery, you must reset the unit.

Press the reset button with a pointed object, such as a ball-point pen.



Reset button

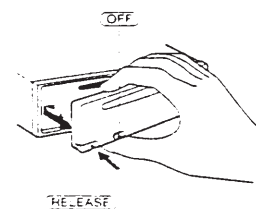
Notes

- Pressing the reset button will erase all the memorized program and memory functions.
- When you connect the power supply cord to the unit or reset the unit, wait for about 10 seconds before you insert a disc. Do not insert a disc within these 10 seconds, otherwise, the unit will not be reset, and you will have to press the reset button again.

Detaching the front panel

You can detach the front panel of this unit to prevent the unit from being stolen.

- 1 Press **OFF**.
- 2 Press **RELEASE** to open up the front panel. Then slide the front panel a little to the left, and pull it off towards you.

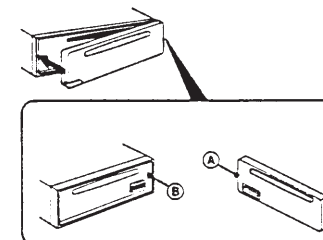


Notes

- Be sure not to drop the panel when detaching it from the unit.
- If you press **RELEASE** to detach the panel while the unit is still on, the unit will turn off automatically to prevent the speakers from being damaged.
- When you carry the front panel with you, put it in the supplied front panel case.

Attaching the front panel

Align part A of the front panel to part B of the unit as illustrated, and push until it clicks.



Notes

- Be sure not to attach the front panel upside down.
- Do not press the front panel hard against the unit when attaching it. Press it lightly against the unit.
- Do not press hard or put excessive pressure on the display window of the front panel.
- Do not expose the front panel to direct sunlight, heat sources such as hot air ducts, and do not leave it in a humid place. Never leave it on the dashboard of a car parked in direct sunlight where there may be a considerable rise in temperature.

Caution alarm

If you turn the ignition key switch to the OFF position without removing the front panel, the caution alarm will beep for a few seconds. If you connect an optional power amplifier and do not use the built-in amplifier, the beep tone will be disabled.

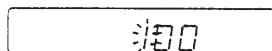
Setting the clock

The clock has a 12-hour digital indication.

Example: Set the clock to 10:08

- 1 Press **OFF** or **DSPL** during operation.
If the POWER SELECT function is set to "ON", press **OFF**. If it is set to "OFF", press **DSPL**.

- 2 Press **DSPL** for two seconds.



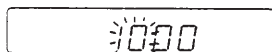
The hour digit flashes.

- 1 Set the hour digits.

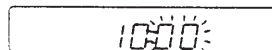


To go back

To go forward



- 2 Press **SOUND** momentarily.



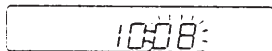
The minute digits flash.

- 3 Set the minute digits.

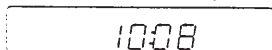


To go back

To go forward



- 3 Press **DSPL** momentarily.



The clock is activated.

Note

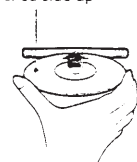
If the car has no accessory position on the ignition key switch, the clock cannot be set unless the power is turned on. Set the clock after you have turned on the radio, or started CD playback.

CD Player

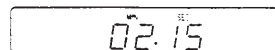
Listening to a CD

Simply insert the CD.
Playback starts automatically.

Labelled side up



If a CD is already inserted, press **SOURCE** repeatedly until "CD" appears.



Elapsed playing time

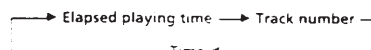
Note

To play back an 8 cm CD, use the optional Sony compact disc single adapter (CSA-8).

To	Press
Stop playback	▲ or OFF
Eject the CD	▲

Changing the displayed items

Each time you press **DSPL**, the item changes as follows:



Locating a specific track

— Automatic Music Sensor (AMS)

During playback, push the SEEK/AMS control up or down momentarily.

To locate succeeding tracks

To locate preceding tracks



Locating a specific point in a track

— Manual Search

During playback, push the SEEK/AMS control up or down for about two seconds. Release when you have found the desired point.

To search forward



To search backward

Note

If "LLLL" or "RRRR" appears in the display, you have reached the beginning or the end of the disc and you cannot go any further.

Playing a CD in various modes

Playing tracks repeatedly

— Repeat Play

Press **1** during playback.
"REP" appears in the display.

When the currently played track is over, it will be played again from the beginning.

To cancel this mode, press again.

Playing tracks in random order

— Shuffle Play

Press **2** during playback.
"SHUF" appears in the display.

All tracks on the CD are played in random order.

To cancel this mode, press again.

Radio

Memorizing stations automatically

— Best Tuning Memory (BTM)

This function selects from the currently received band the stations with the strongest signals and memorizes them in order of their frequency.

PREVENTING ACCIDENTS!

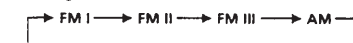
When tuning in while driving, use the automatic tuning instead of manual tuning.

- 1 Press **SOURCE** repeatedly to select the tuner.

Each time you press **SOURCE**, the mode changes as follows:
CD → TUNER

- 2 Press **MODE** repeatedly to select the band.

Each time you press **MODE**, the mode changes as follows:



- 3 Press **BTM/SENS** for two seconds.

The unit stores stations in the order of their frequencies on the number buttons.

Notes

- The unit does not store stations with weak signals. If only a few stations are received, some number buttons remain empty.
- When a number is indicated in the display, the unit starts storing stations from the one currently displayed.
- If a CD is not in the unit, only the tuner band appears even if you press **SOURCE**.

Memorizing only the desired stations

You can store up to 6 stations on each band (18 for FM I, FM II and FM III, 6 for AM) in the order of your choice.

- 1 Press **[SOURCE]** repeatedly to select the tuner.
- 2 Press **[MODE]** repeatedly to select the band.
- 3 Push the SEEK/AMS control up or down to tune in the station that you want to store on the number button.
- 4 Press the desired number button (**[1]** to **[6]**) for two seconds until "MEM" appears.
The number button indication appears in the display.

Note
If you try to store another station on the same number button, the previously stored station will be erased.

Receiving the memorized stations

- 1 Press **[SOURCE]** repeatedly to select the tuner.
- 2 Press **[MODE]** repeatedly to select the band (FM I, FM II, FM III or AM).
- 3 Press the number button (**[1]** to **[6]**) momentarily where the desired station is stored.

If you cannot tune in a preset station

Push the SEEK/AMS control up or down momentarily to search for the station (automatic tuning).
Scanning stops when the unit receives a station. Push the SEEK/AMS control up or down repeatedly until the desired station is received.

Note
If the automatic tuning stops too frequently, press **[BTW/SENS]** momentarily until "LCL" appears in the display (local seek mode). Only the stations with relatively strong signals will be tuned in.

Tip
If you know the frequency of the station you want to listen to, push the SEEK/AMS control up or down for two seconds until the desired frequency appears (manual tuning).

If FM stereo reception is poor — Monaural Mode

Press **[BTW/SENS]** momentarily until "MONO" appears.
The sound improves, but becomes monaural ("ST" disappears).

To go back to the normal mode, press again until "MONO" disappears.

Changing the displayed items

Each time you press **[DSP/L]**, the items alternate between the frequency and time.

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CD Player/Radio

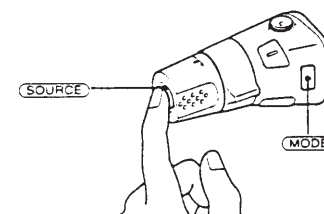
Other Functions

You can connect an optional rotary commander (RM-X4S) with this unit.

Using the rotary commander

The rotary commander works by pressing buttons and/or rotating controls.

By pressing buttons (the SOURCE and MODE buttons)



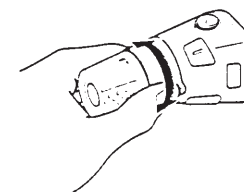
Each time you press **[SOURCE]**, the source changes as follows:

TUNER → CD

Pressing **[MODE]** changes the operation in the following ways:

Tuner : FM I → FM II → FM III → AM

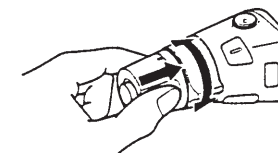
By rotating the control (the SEEK/AMS control)



Rotate the control momentarily and release it to:

- Locate a specific track on a disc. Rotate and hold the control until you locate the specific point in a track, then release it to start playback.
- Tune in stations automatically. Rotate and hold the control to tune in a specific station.

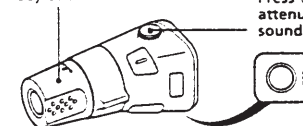
By pushing in and rotating the control (the PRESET/DISC control)



- Push in and rotate the control to:
- Receive the stations memorised on the number buttons.
 - Change the disc.

Other operations

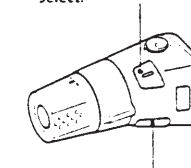
Rotate the VOL control to adjust the volume.



Press **[ATT]** to attenuate the sound.

Press **[OFF]** to turn off the unit.

Press **[SOUND]** to adjust and select.

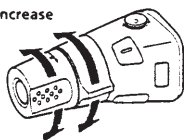


Press **[DSP/L]** to change the displayed items.

Changing the operative direction

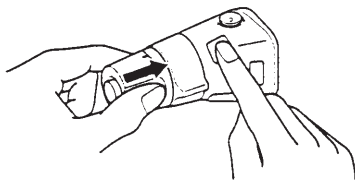
The operative direction of controls is factory-set as in the illustration below.

To increase



To decrease

If you need to mount the rotary commander on the right side of the steering column, you can reverse the operative direction.



Press **[SOUND]** for two seconds while pushing the VOL control.

Adjusting the sound characteristics

You can adjust bass, treble, balance and fader. Each source can store the bass and treble level independently.

- 1 Select the item you want to adjust by pressing **[SOUND]** repeatedly.

VOL (volume) → BAS (bass) → TRE (treble)
→ BAL (left-right) → FAD (front-rear)

- 2 Adjust the selected item by rotating the dial.

Adjust within three seconds after selecting the item. (After three seconds, the dial functions as volume control.)

Changing the sound and beep tone

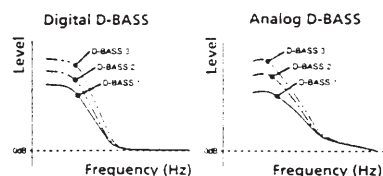
Boosting the bass sound — D.bass

You can enjoy clear and powerful bass sound. The D-bass function boosts the low frequency signal with a sharper curve than conventional bass boost.

You can hear the bass line more clearly even if the vocal sound is the same volume. You can emphasize and adjust the bass sound easily with the D-bass control. This effect is similar to the one you get when you use an optional subwoofer system.

Moreover, the Digital D-bass* function creates even sharper and more powerful bass sound than Analog D-bass.

* Digital D-bass is available during CD playback.



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Other functions

Adjusting the bass curve

Turn the D-BASS dial to adjust the bass level (1, 2 or 3).

"D-BASS" appears in the display.

During CD playback, "DIGITAL D-BASS" appears in the display.

To cancel, turn the dial to the OFF position.

Note

If the bass sound becomes distorted, adjust the D-bass dial or volume control.

Attenuating the beep tone

Press **[MUTE]** while pressing **[SOUND]**.

To obtain the beep tone again, press these buttons again.

Note

If you connect an optional power amplifier and do not use the built-in amplifier, the beep tone will be disabled.

Turning on the clock display — POWER SELECT function

Only for cars with an accessory position on the ignition key switch

To turn the Power Select function ON

Press **[OFF]** while pressing **[SOUND]**.

The Power Select function ties the clock display power to the accessory position on the ignition key switch.

To avoid battery wear, the clock is not displayed while the unit is initializing.

Note

You cannot operate this function with the optional rotary commander (RM-X4S).

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Additional Information

Precautions

- If your car was parked in direct sunlight resulting in a considerable rise in temperature inside the car, allow the unit to cool off before operating it.
- If no power is being supplied to the unit, check the connections first. If everything is in order, check the fuse.
- If no sound comes from the speakers of a two-speaker system, set the fader control to the center position.
- If your car is equipped with a power antenna, note that it will extend automatically while the unit is operating.

If you have any questions or problems concerning your unit that are not covered in this manual, please consult your nearest Sony dealer.

Notes on handling CDs

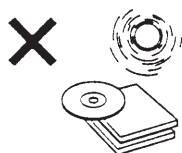
A dirty or defective disc may cause sound dropouts while playing. To enjoy optimum sound, handle the disc as follows. Handle the disc by its edge. To keep the disc clean, do not touch the surface.



Do not stick paper or tape on the labeled surface.



Do not expose the discs to direct sunlight or heat sources such as hot air-ducts, or leave them in a car parked in direct sunlight where there can be a considerable rise in the temperature inside the car.



Before playing, clean the discs with an optional cleaning cloth. Wipe each disc from the center out.

Do not use solvents such as benzine, thinner, commercially available cleaners or antistatic spray intended for analog discs.



Note on moisture condensation

On a rainy day or in a very damp area, moisture may condense on the lenses inside the CD player. Should this occur, the unit will not operate properly. In this case, remove the disc and wait for about an hour until the moisture evaporates.

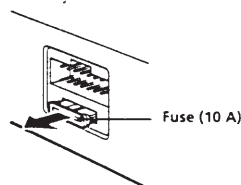
When you play 8 cm CDs

Use the optional Sony compact disc single adapter (CSA-8) to protect the CD player from being damaged.

Maintenance

Fuse replacement

When replacing the fuse, be sure to use one that matches the amperage described on the fuse. If the fuse blows, check the power connection and replace the fuse. If the fuse blows again after replacement, there may be an internal malfunction. In such a case, consult your nearest Sony dealer.

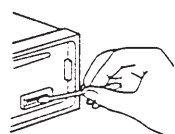


Warning

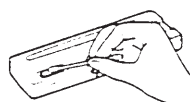
Never use a fuse with an amperage rating exceeding the one supplied with the unit as this could damage the unit.

Cleaning the connectors

The unit may not function properly if the connectors between the unit and the front panel are not clean. To prevent this, open the front panel by pressing **RELEASE**, then detach it and clean the connectors with a cotton swab dipped in alcohol. Do not apply too much force. Otherwise, the connectors may be damaged.



Main unit

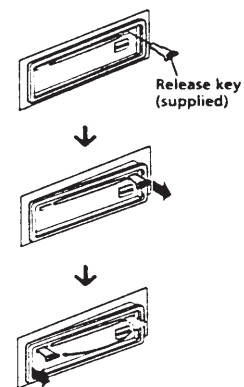


Back of the front panel

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Other function/Additional information

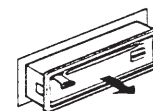
Dismounting the unit



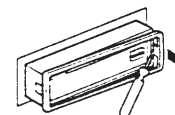
Release key (supplied)

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Pull the unit out while the release key is inserted.

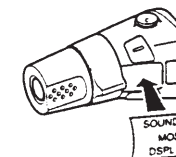
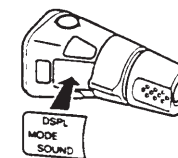


Press the clip inside the front cover with a thin screwdriver, and lever the front cover free.



Attaching the label to the rotary commander

You can control this unit with the optional rotary commander (RM-X4S). Several labels are supplied with the rotary commander. Attach the label that matches the functions of this unit and the mounting position of the rotary commander. After you mount the rotary commander, attach the label in the illustration below.



Connections

Caution

- This unit is designed for negative earth 12 V DC operation only.
- Before making connections, disconnect the earth terminal of the car battery to avoid short circuits.
- Connect the yellow and red power input leads only after all other leads have been connected.
- Be sure to connect the red power input lead to the positive 12 V power terminal which is energized when the ignition key is in the accessory position.
- Run all earth wires to a common earth point.
- Connect the yellow cord to a free car circuit rated higher than the unit's fuse rating. If you connect this unit in series with other stereo components, the car circuit they are connected to must be rated higher than the sum of the individual component's fuse rating. If there are no car circuits rated as high as the unit's fuse rating, connect the unit directly to the battery. If no car circuits are available for connecting this unit, connect the unit to a car circuit rated higher than the unit's fuse rating in such a way that if the unit blows its fuse, no other circuits will be cut off.

If your car has an accessory position on the ignition key switch — POWER SELECT function

To turn the Power Select function on, Press **(OFF)** while pressing **(SOUND)**. The Power Select function ties the clock display power to the accessory position on the ignition key switch. To avoid battery wear, the clock is not displayed while the unit is initializing.

Frequency select switch

The AM (FM) tuning interval is factory-set to the 9K (50K) position. If the frequency allocation system of your country is based on 10 kHz (200 kHz) interval, set the switch on the bottom of the unit to the 10K (200K) position before making connections.

Reset button

- When the installation and connections are complete, be sure to press the reset button with a ballpoint pen etc.

Conexiones

Precauciones

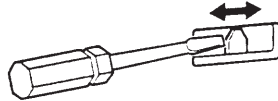
- Esta unidad ha sido diseñada para alimentarse solamente con 12 V CC, negativo a masa.
- Antes de realizar las conexiones, desconecte el terminal de puesta a masa de la batería del automóvil a fin de evitar cortocircuitos.
- Conecte los cables conectores de alimentación amarillo y rojo solamente después de haber conectado los demás.
- Cerciórese de conectar el cable conector de alimentación rojo a un terminal de 12 V positivo que se energice al poner la llave de encendido en la posición para accesorios.
- Conecte todos los conductores de puesta a masa a un punto común.
- Conecte el cable amarillo a un circuito libre del automóvil que tenga una capacidad superior a la del fusible de la unidad. Si conecta esta unidad en serie con otros componentes estereotónicos, el circuito del automóvil al que se encuentran conectados debe tener una capacidad superior a la de la suma de las capacidades de los fusibles de cada componente. Si ningún circuito del automóvil tiene una capacidad tan alta como la del fusible de la unidad, conecte ésta directamente a la batería. Si el automóvil no dispone de ningún circuito para conectar esta unidad, conéctela a un circuito del automóvil con capacidad superior a la del fusible de la unidad, de forma que si se funde el fusible de esta, no se interrumpa ningún otro circuito.

Si el automóvil dispone de posición para accesorios en el interruptor de la llave de encendido — Función POWER SELECT

Para activar la función de selección de alimentación, Presione **(OFF)** mientras presiona **(SOUND)**. La función de selección de alimentación conecta la alimentación de la indicación del reloj con la posición para accesorios en el interruptor de la llave de encendido. Para evitar el desgaste de la batería, el reloj no aparece durante la inicialización de la unidad.

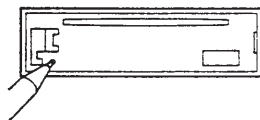
Selector de frecuencia

El intervalo de sintonía de AM (FM) ha sido ajustado en fábrica a la posición 9K (50K). Si el sistema de asignación de frecuencias de su país se basa en el intervalo de 10 kHz (200 kHz), ponga este selector, situado en la base de la unidad, en la posición 10K (200K) antes de realizar las conexiones.



Botón de reposición

Cuando finalice la instalación y las conexiones, cerciórese de presionar el botón de reposición con un bolígrafo, etc.



連接

注意

- 本機專為負地 12V DC 電壓操作而設計。
- 連接以前，先拉開汽車電池的接地線以防發生短路。
- 紅色和黃色電線輸入端線，須在所有電線都連接完畢後才連接。
- 紅色電線輸入端須連接於汽車點火開關能轉至輔助位置時才 energized 的 12V 正電壓端上。
- 將所有接地線都接到同一個接地點上。
- 將黃色電線接到汽車點火開關在輔助位置時 energized 的未使用的汽車電路線上，如果沒有此電路線可連接，則將黃色電線接到汽車電路線上，其電路容量須超過本機所需電路線的總電容量，且須比所有其他電路線的電路容量和是其他分路所連接的汽車電路的容量。如果沒有此電路線可連接，則將黃色電線接到汽車電路線上，如果沒有適當的汽車電路線可用於連接本機，可將黃色電線接到汽車點火開關能轉至輔助位置的汽車電路線上，此時，若黃色電線一經熔斷，沒有切斷任何使用電路的線路才好。

您的汽車的點火鑰匙開關如果備有輔助位置電源 — 選擇開關

要打開電源選擇功能時，請按著 **(SOUND)** (選擇) 同時按下 **(OFF)** (關機)。電源選擇功能將時鐘開關與電源開關連接，使時鐘在點火鑰匙開關轉至輔助位置時，才能正常運作。在點火鑰匙開關轉至輔助位置時，時鐘將不再顯示。

頻率選擇開關

AM (FM) 調頻間隔的工廠設定在 9K (50K) 位置，如果您的國家使用 10 kHz (200 kHz) 間隔，請在連接機器之前將機器調整至 10K (200K) 的位置。

重調按鈕

安裝和連接完畢時，一定要用一支圓珠筆等尖物去按下重調按鈕。

Connection diagram

Equipment used in illustrations (not supplied)
Equipo utilizado en las ilustraciones (no suministrado)
插圖中的器材 (無附帶)



Power amplifier
Amplificador de potencia
功率放大器



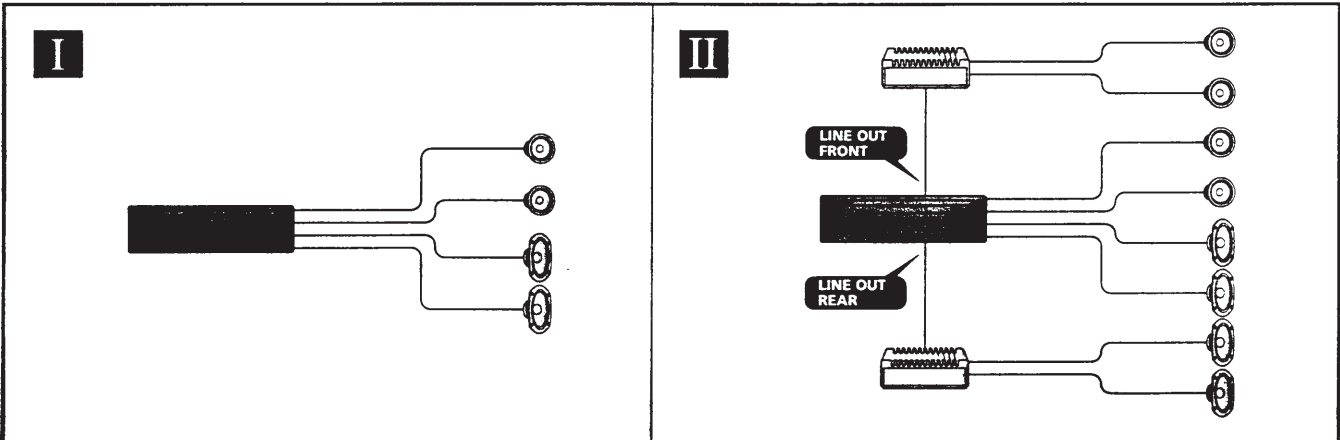
Front speakers
Altavoces delanteros
前揚聲器



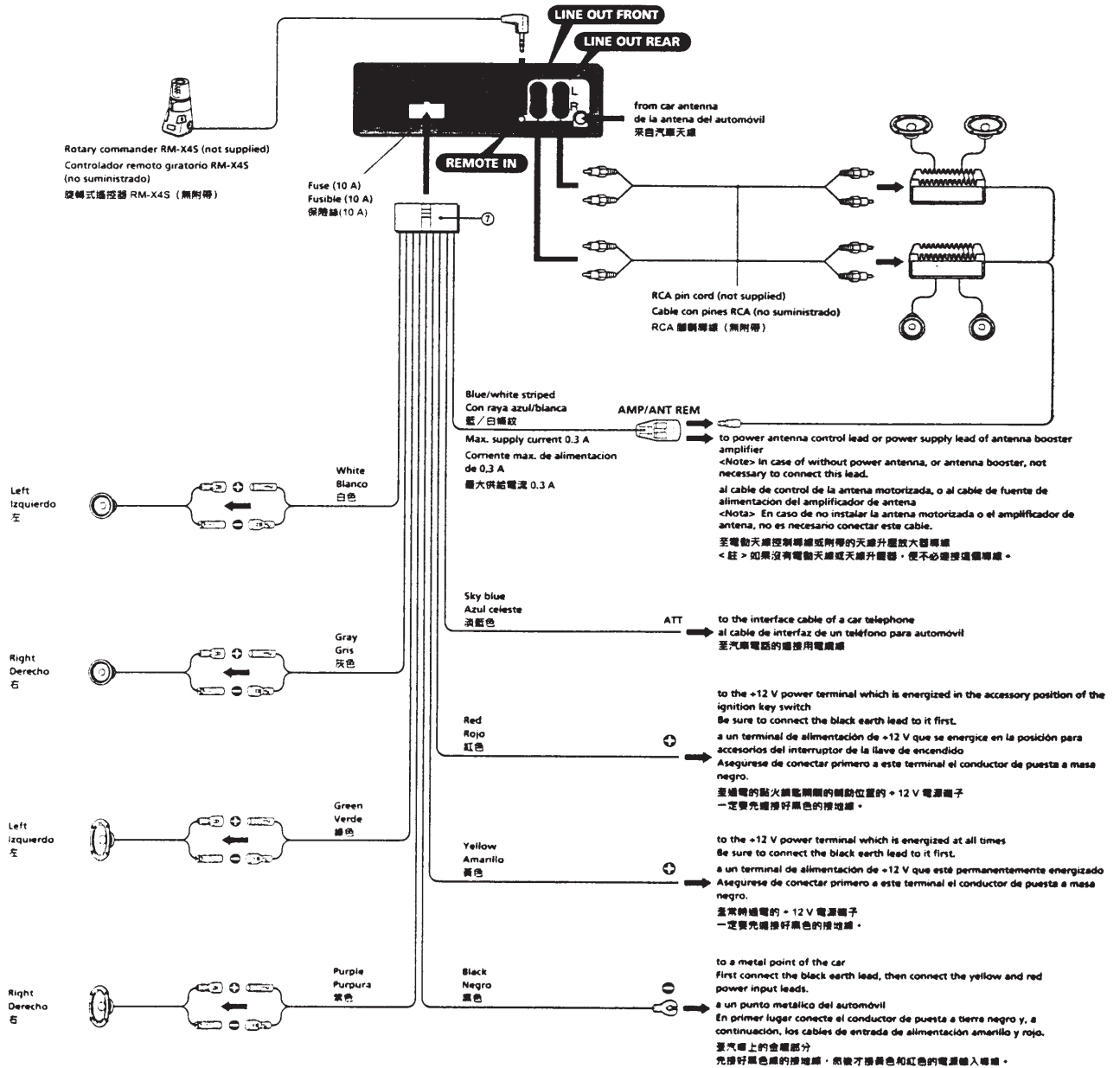
Rear speakers
Altavoces traseros
後揚聲器

Diagrama de conexiones

連接圖



Connection example
Ejemplo de conexiones
連接舉例



Notes on the control leads

- The AMP/ANT REM lead (blue/white) supplies +12 V DC when you turn on the unit. When the AMP/ANT REM lead is connected to the power antenna, the antenna will be extended as long as the unit is turned on.
- A power antenna without 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 key is turned off.

Notes on speaker connection

- Before connecting the speakers, turn the unit off.
- Use speakers with an impedance of 4 to 8 ohms, and with adequate power handling capacities. Otherwise, the speakers may be damaged.
- Do not connect the terminals of the speaker system to the car chassis, and do not connect the terminals of the right speaker with those of the left speaker.
- Do not attempt to connect the speakers in parallel.
- Do not connect any active speakers (with built-in amplifiers) to the speaker terminals of the unit. Doing so may damage the active speakers. Therefore, be sure to connect passive speakers to these terminals.

Notas sobre conductores de control

- El conductor AMP/ANT REM (azul/blanco) suministra +12 V CC cuando se conecta la alimentación de la unidad. Al conectar el conductor de control AMP/ANT REM a la antena motorizada, esta se extenderá siempre que se active la unidad.
- Con esta unidad no podrá emplearse una antena motorizada desprovista de caja de relé.

Conexión para protección de la memoria

Si conecta el conductor de entrada de alimentación amarillo, el circuito de la memoria recibirá siempre alimentación, incluso aunque se retire la llave de encendido en la posición OFF.

Notas sobre la conexión de los altavoces

- Antes de conectar los altavoces, desconecte la alimentación de la unidad.
- Utilice altavoces con una impedancia de 4 a 8 ohmios, y con la potencia máxima admisible adecuada, ya que de lo contrario podrá dañarlos.
- No conecte los terminales del sistema de altavoces al chasis del automóvil, ni los del altavoz izquierdo a los del derecho.
- No intente conectar los altavoces en paralelo.
- No conecte altavoces activos (con amplificadores incorporados) a los terminales de altavoces de la unidad. Si lo hiciera, podrá dañar tales altavoces. Por lo tanto, cerciórese de conectar altavoces pasivos a estos terminales.

提醒電線資訊

- 當打開電源時，AMP/ANT REM 電線（藍/白色條紋）將供應 +12 V DC 電流。如果將 AMP/ANT REM 電線連接到電動天線，則當打開電源時，天線將伸出來。
- 不帶繼電器的電動天線無法與本機配合使用。

保持存儲的導線

當連接黃色電源輸入導線時，則記憶電路（點火鎖匙開關）仍可保持經常供電，即使電路處於關閉狀態。

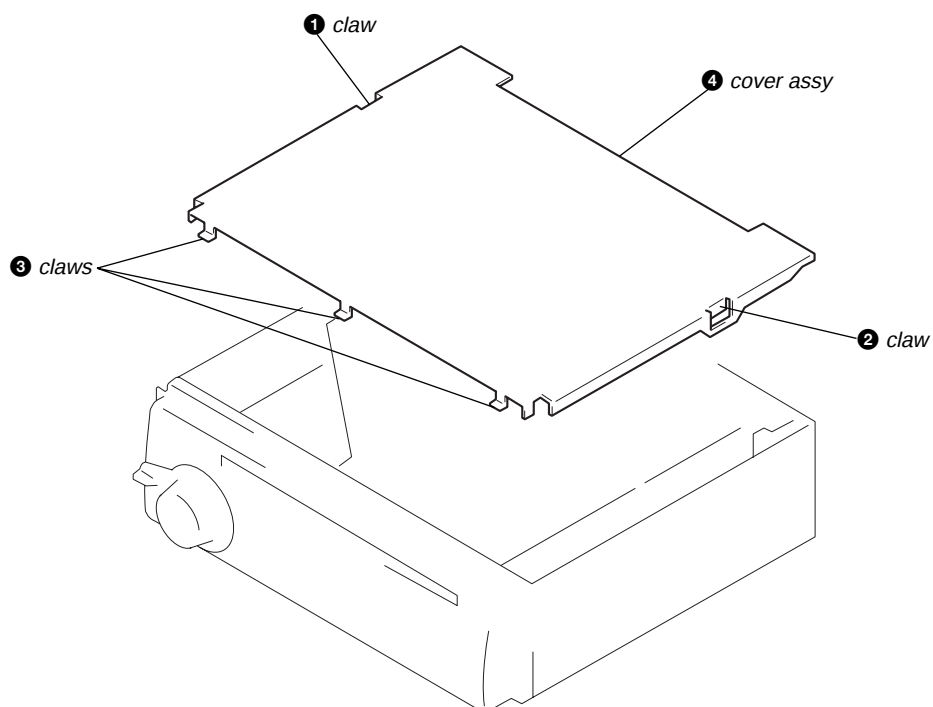
連接揚聲器資訊

- 連接揚聲器時，必須先關閉電源。
- 請使用阻抗 4 歐、歐和適當的功率處理容量的揚聲器。否則，揚聲器可能會受損。
- 切勿將揚聲器系統的端子連接到汽車底盤，也不要將右揚聲器的端子連接到左揚聲器的端子。
- 不可以嘗試串聯揚聲器。
- 切勿連接到任何主動揚聲器（內置放大器）。連接到主動揚聲器的端子，可能會損壞主動揚聲器。請注意在這些端子上一一定要連接被動揚聲器。

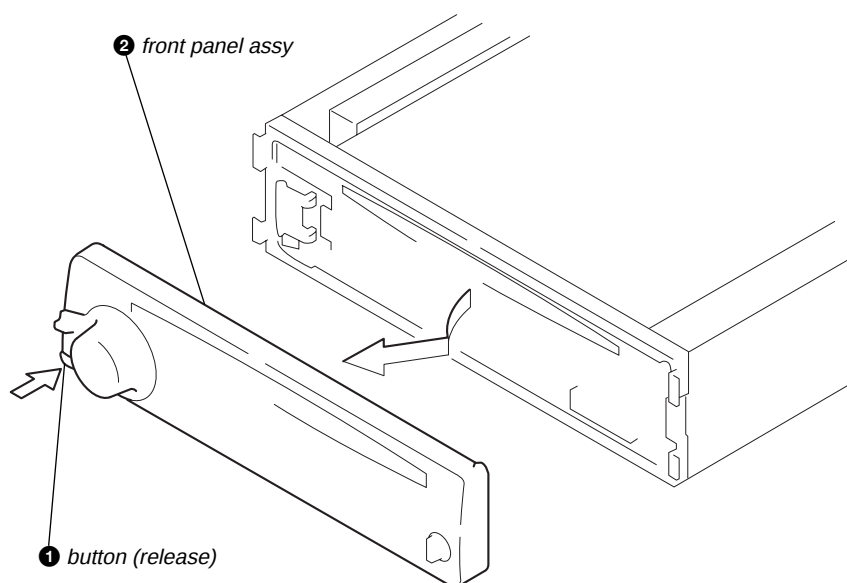
SECTION 2 DISASSEMBLY

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

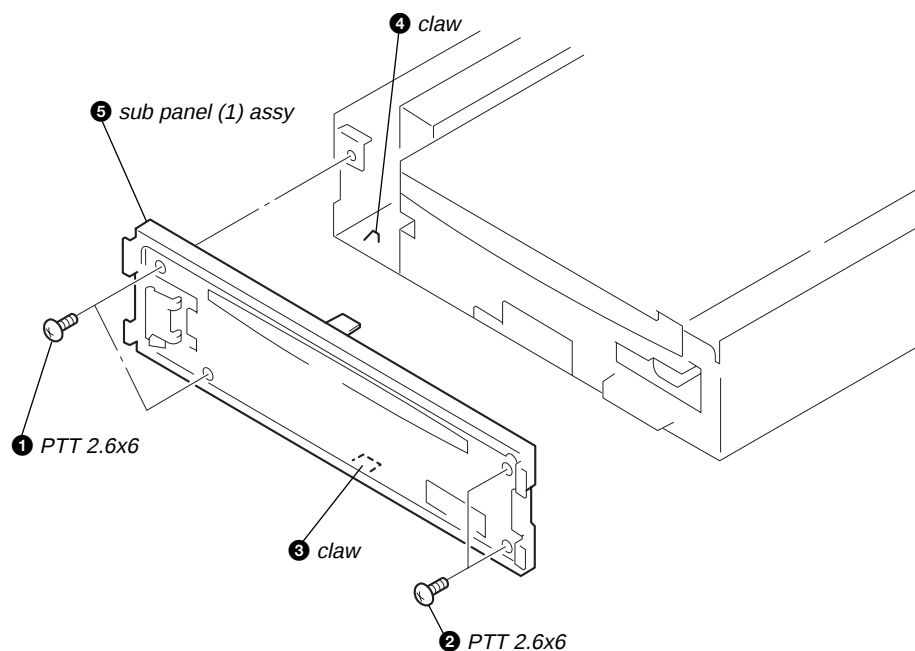
2-1. COVER ASSY



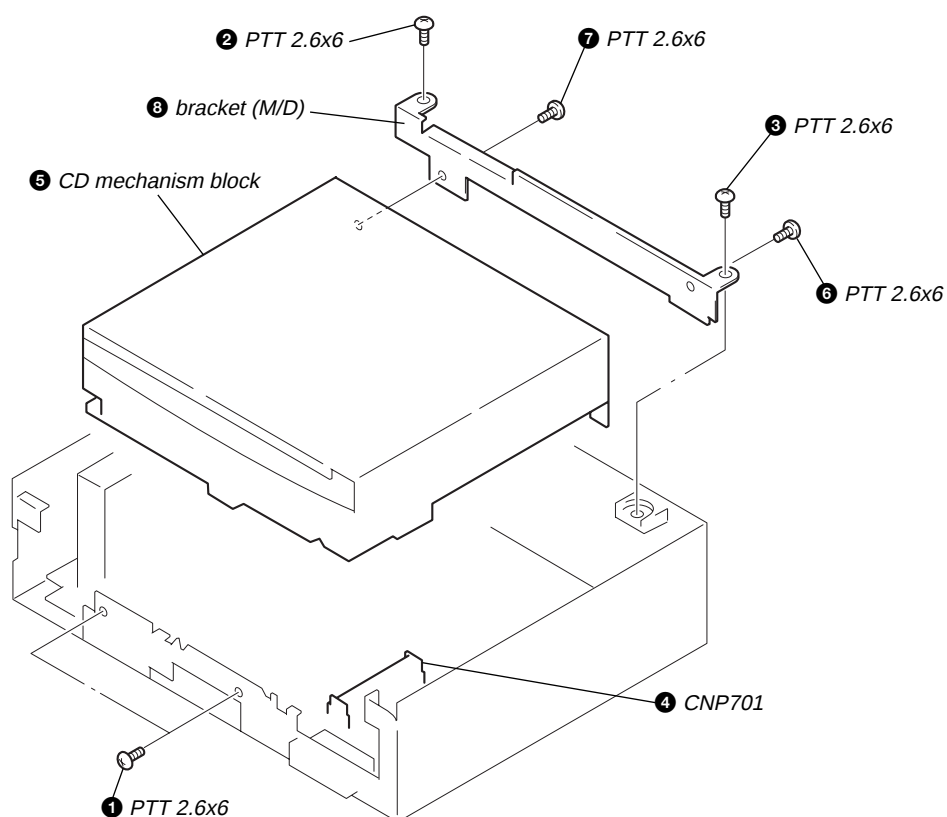
2-2. FRONT PANEL ASSY



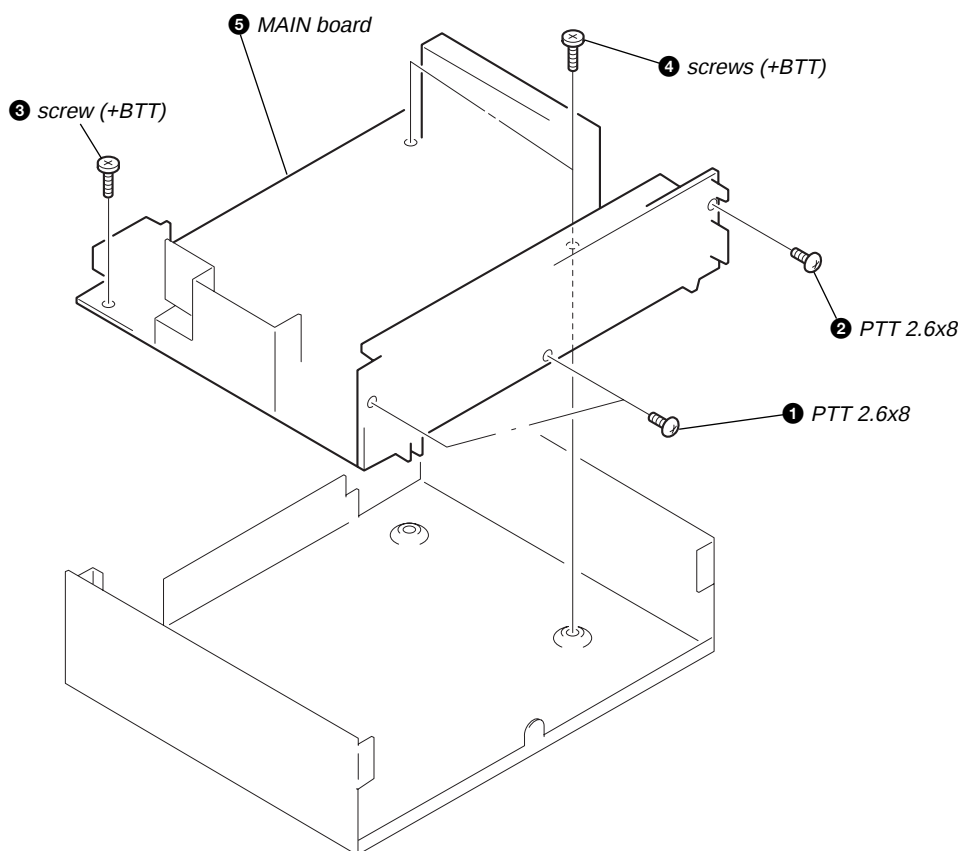
2-3. SUB PANEL (1) ASSY



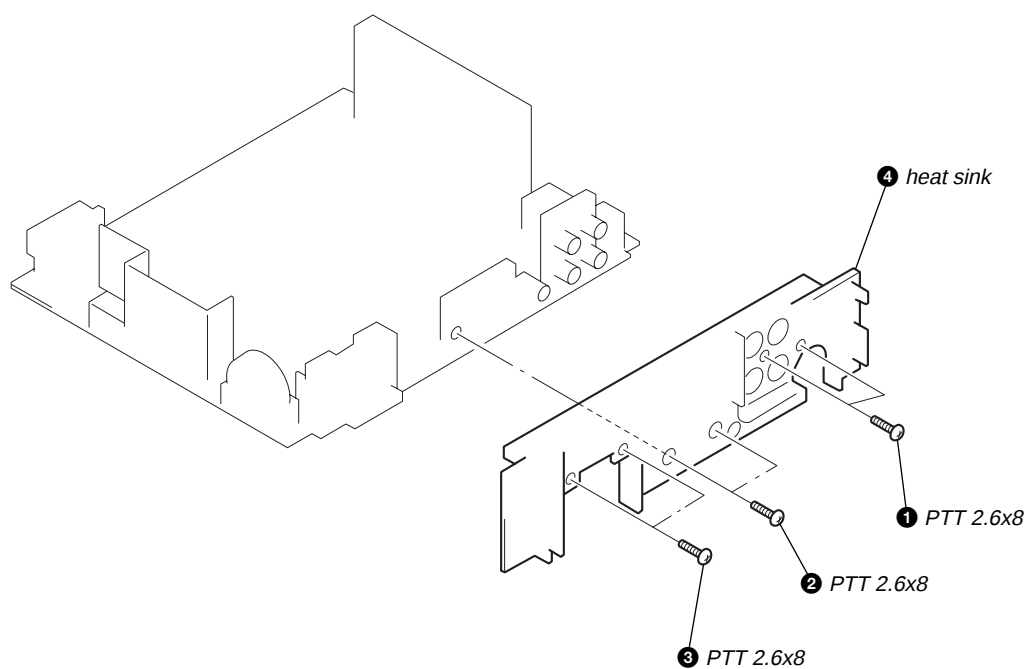
2-4. CD MECHANISM BLOCK



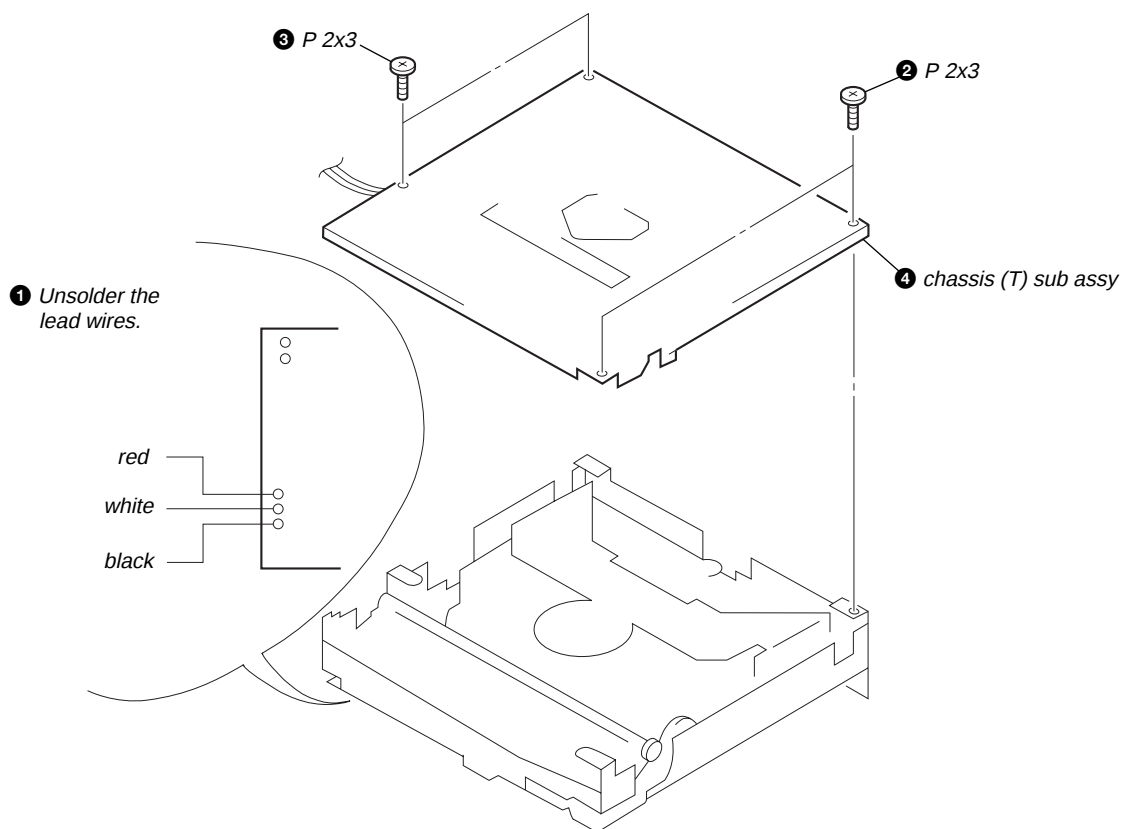
2-5. MAIN BOARD



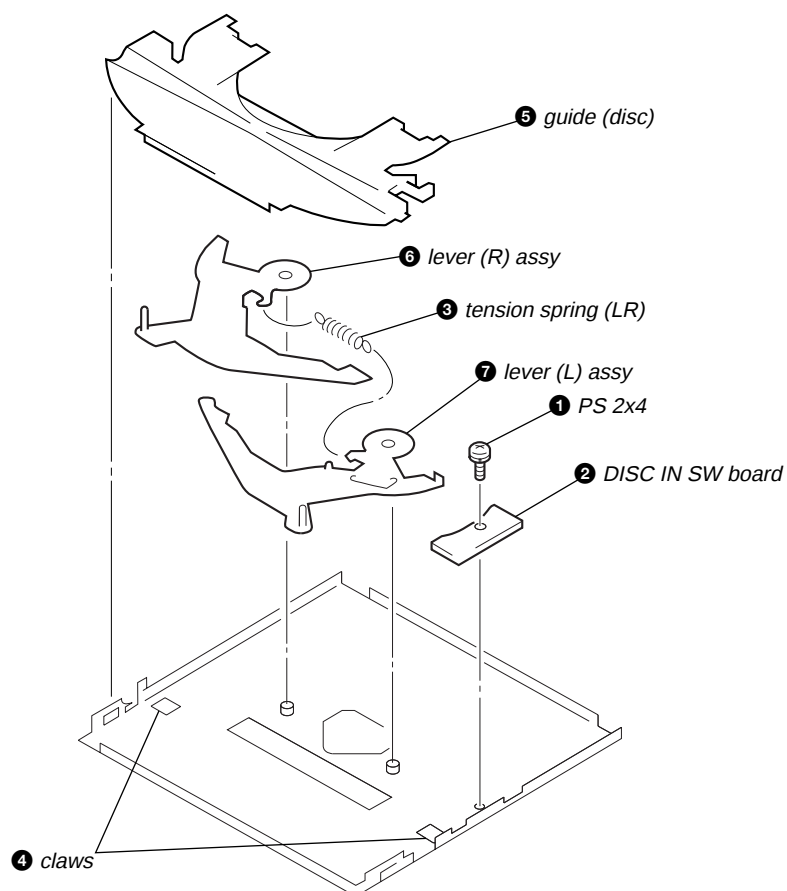
2-6. HEAT SINK



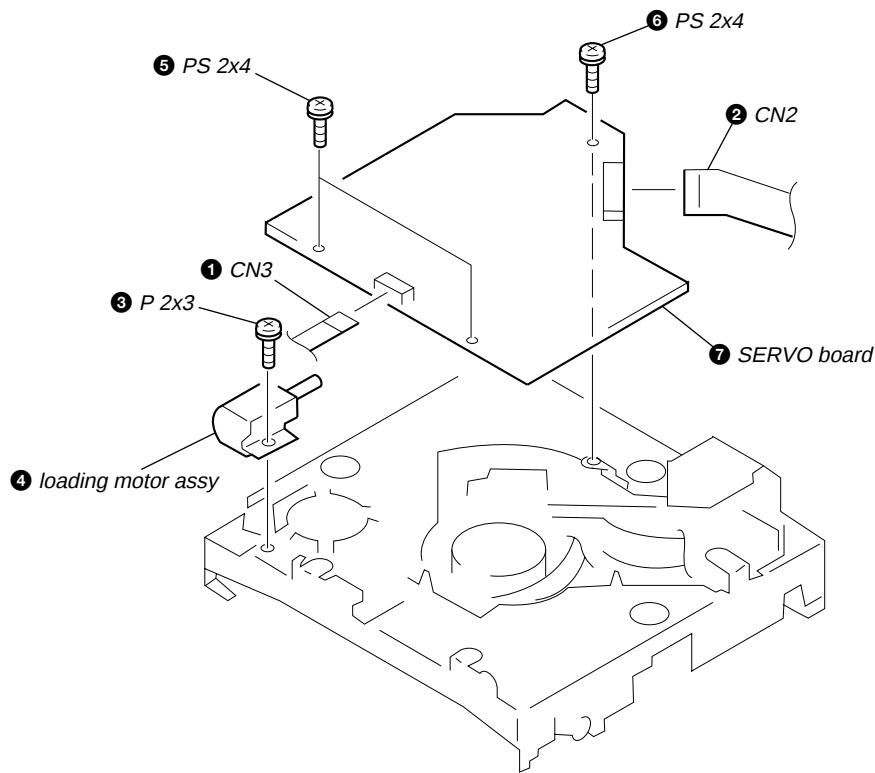
2-7. CHASSIS (T) SUB ASSY



2-8. LEVER ASSY

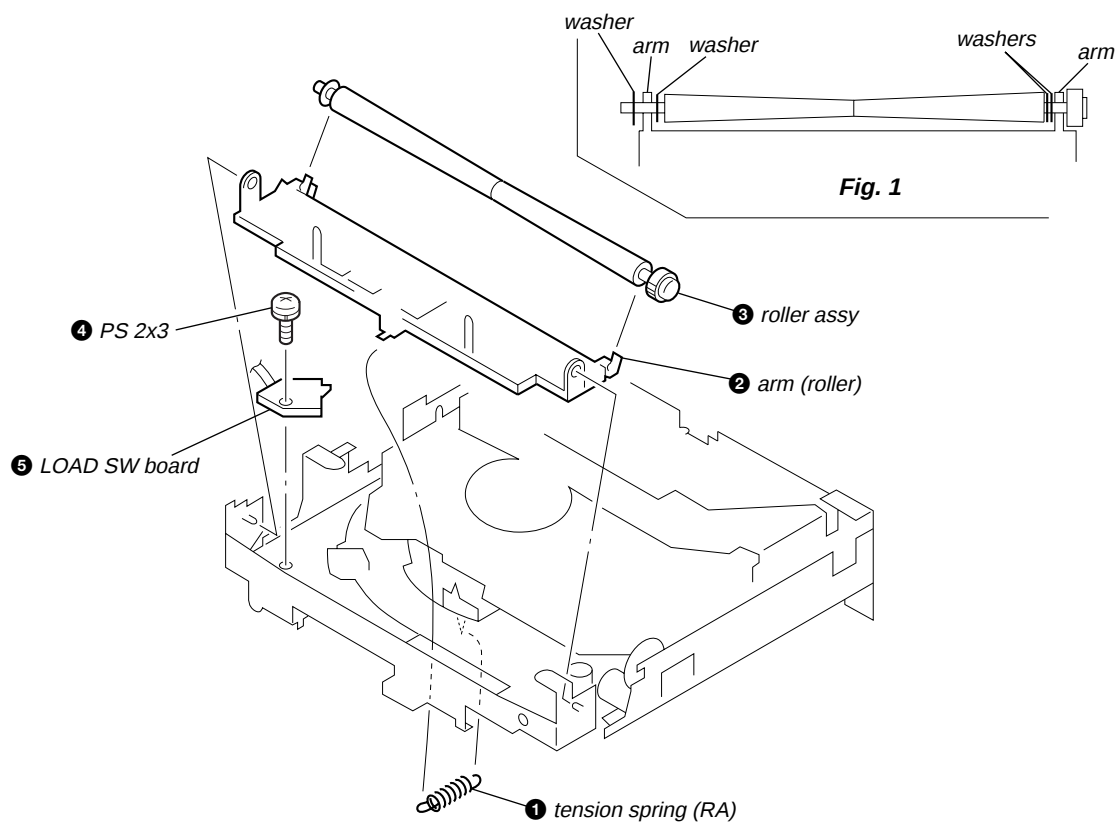


2-9. SERVO BOARD

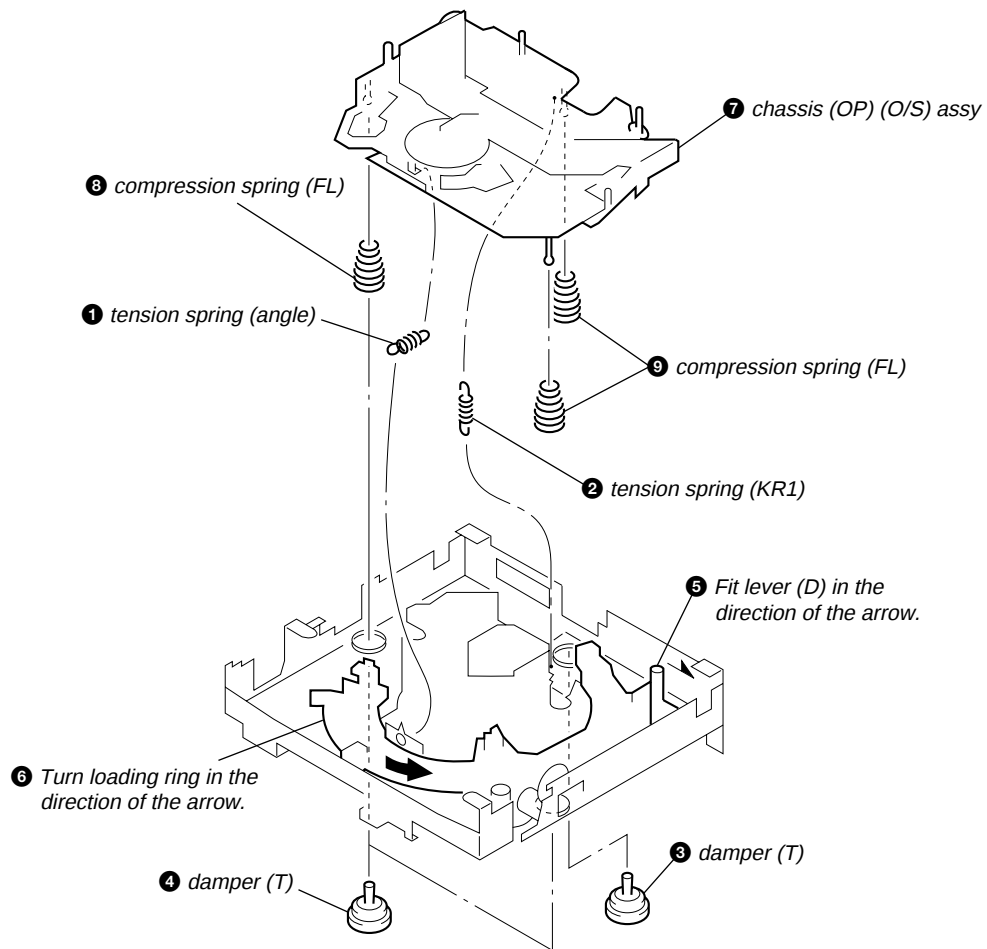


2-10. ROLLER ASSY

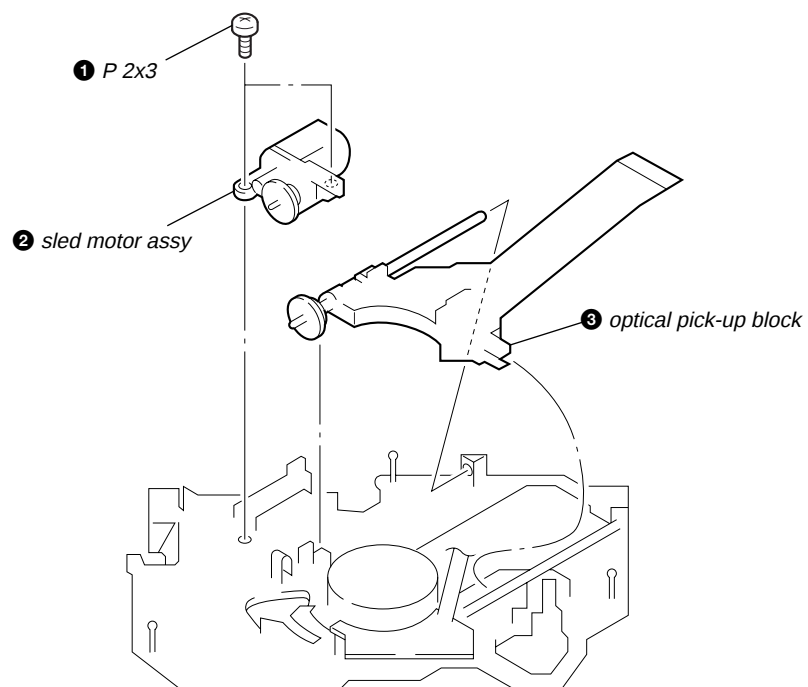
- When installing, take note of the positions arm (roller) and washers. (Fig. 1)



2-11. CHASSIS (OP) (O/S) ASSY



2-12. OPTICAL PICK-UP BLOCK



SECTION 3 ELECTRICAL ADJUSTMENTS

TUNER SECTION

0 dB = 1 μ V

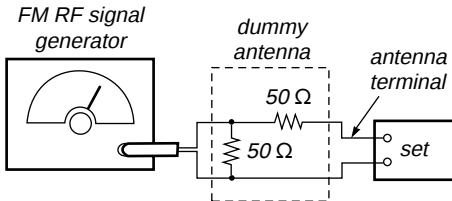
Cautions during repair

When the tuner assy is defective, replace it by a new one because its internal block is difficult to repair.

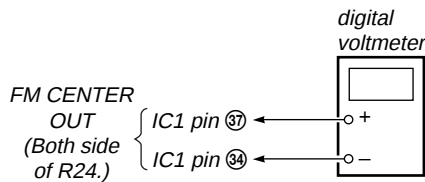
FM Center Adjustment

Setting:

SOURCE button : FMI
D-BASS switch : OFF
FREQUENCY SELECT switch : FM 200K

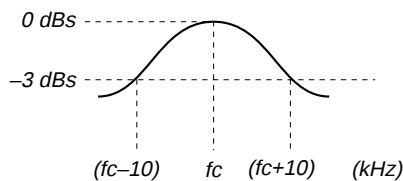


Carrier frequency: 97.9 MHz
Output level : 60 dB (1 mV)
Mode : mono
Modulation : 1 kHz, 75 kHz deviation (100%)



Procedure:

1. Adjust IFT4 on TU01 so that the reading on the digital voltmeter becomes in 0 ± 30 mV.
2. Output an Fcenter 10 dB signal output from FM RF signal generator so that the speaker out terminal is -20 dBs.
3. Change the FM RF signal generator frequency and check the deviation of the frequency on + side and - side when the speaker out terminal drops 3 dB. (Both + side and - side is approx. 50 kHz.)
4. Re-adjust IFT4 on TU01 when the difference deviation of the frequency does more than 10 kHz.

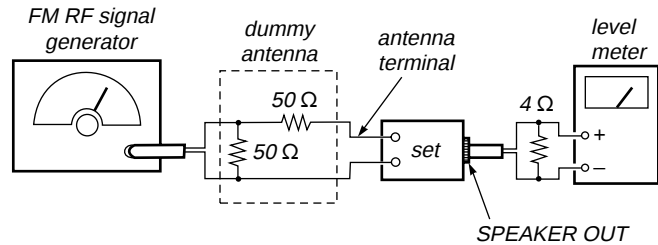


Adjustment Location: See page 17.

FM SENS/IF Adjustment

Setting:

SOURCE button : FMI
D-BASS switch : OFF
FREQUENCY SELECT switch : FM 200K



Procedure:

Adjust for a maximum reading on level meter.

FEB1

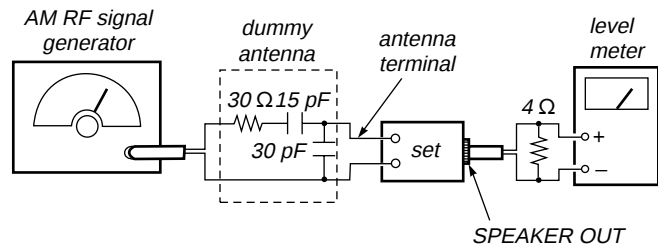
87.5 MHz

Adjustment Location: See page 17.

AM SENS Adjustment

Setting:

SOURCE → MODE button : AM
D-BASS switch : OFF
FREQUENCY SELECT switch : AM 10K



Procedure:

Adjust for a maximum reading on level meter.

IFT1, 3

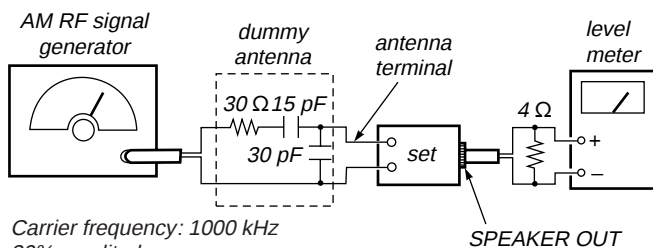
1,400 kHz

Adjustment Location: See page 17.

AM Auto Scan/Stop Level Adjustment

Setting:

SOURCE → MODE button : AM
D-BASS switch : OFF
FREQUENCY SELECT switch : AM 10K



Carrier frequency: 1000 kHz
30% amplitude modulation by
1 kHz signal
output level : 33 dB (44.7 μV)

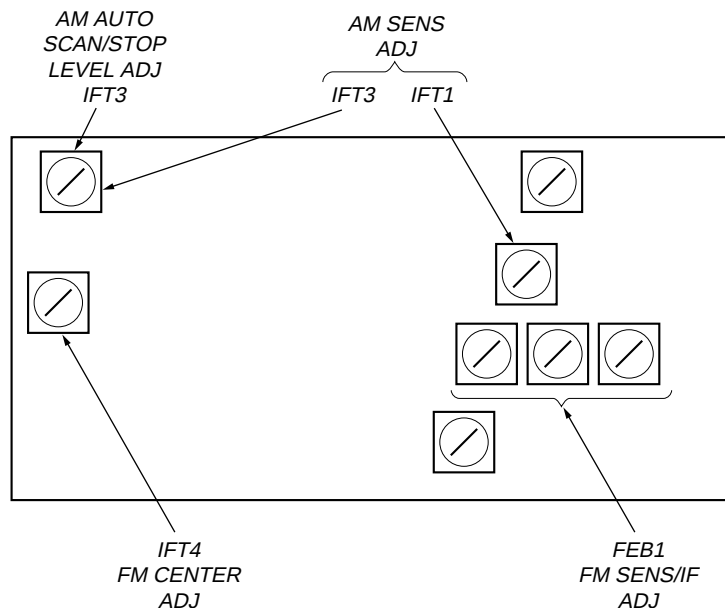
Procedure:

- Adjust IFT3 on TU01 so that the reading on the digital voltmeter is 1.5 ± 0.2 V.

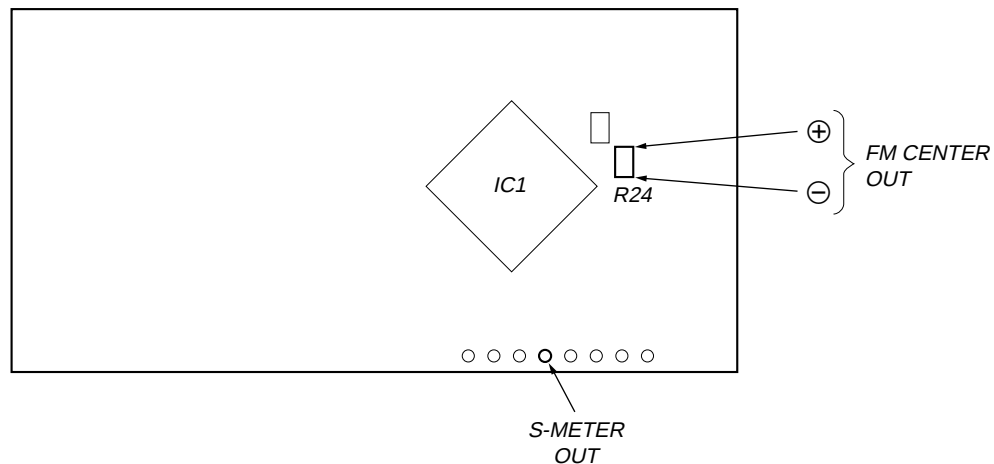
Adjustment Location: tuner assy (TU01)

Adjustment Location: tuner assy (TU01)

– tuner assy (TU01) (component side) –



– tuner assy (TU01) (conductor side) –



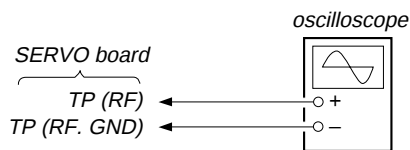
CD SECTION

Note:

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

Focus Bias Adjustment

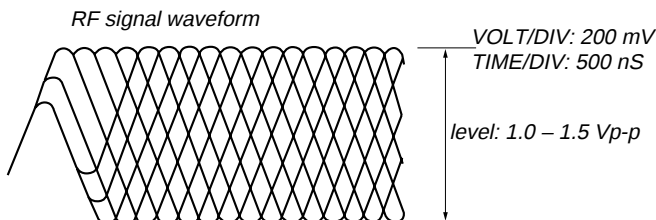
Setting: This adjustment is performed with the set placed horizontally.



Procedure:

1. Connect an oscilloscope between TP (RF) and TP (RF. GND) on the SERVO board.
2. Connect the power supply.
3. Push the **[RESET]** button (S801) on the MAIN board.
4. Insert the disc (YEDS-18) and playback.
5. Adjust RV1 so that the oscilloscope waveform is clear and check RF signal level is correct or not.

Note: Clear RF signal waveform means that the sharp “ $\approx$ ” can be clearly distinguished at the center of the waveform.



- When observing the eye pattern, set the oscilloscope to AC range and raise the vertical sensitivity so that it may be easily seen.

Adjustment Location: servo board

Focus Gain Adjustment (Coarse adjustment)

This adjustment is not required unless the following parts are replaced:

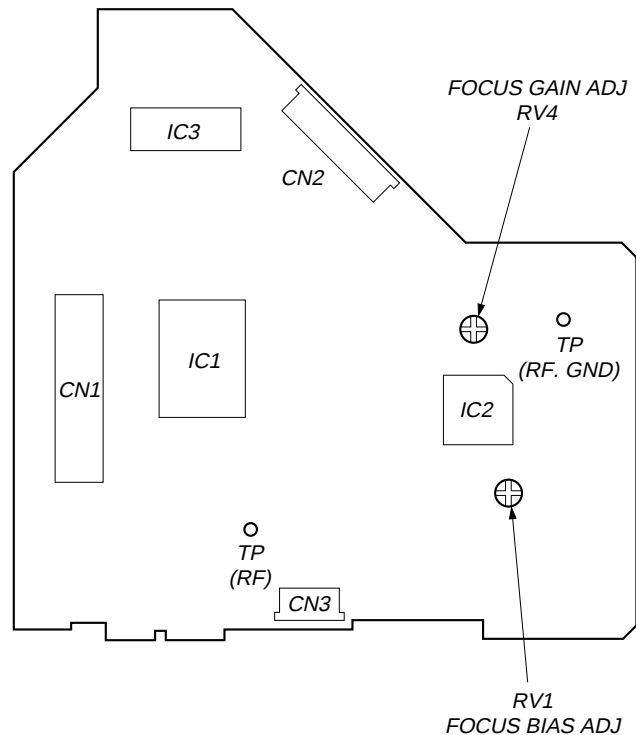
- Optical pick-up
- RV4

Procedure:

1. Set RV4 to the standard position. (mechanical center)
 2. Check whether operation noise (while noise type) caused by the 2-axis device (lens section of the optical pick-up) is abnormally loud.
If the operation noise is too loud, turn RV4 slightly counter-clockwise.
- If the gain is too low:
Focus does not function and no music is selected.
 - If the gain is too high:
Noise caused by scratches and dust is heard and the operation becomes unstable.

Adjustment Location: servo board

Adjustment Location: servo board (component side)



SECTION 4 DIAGRAMS

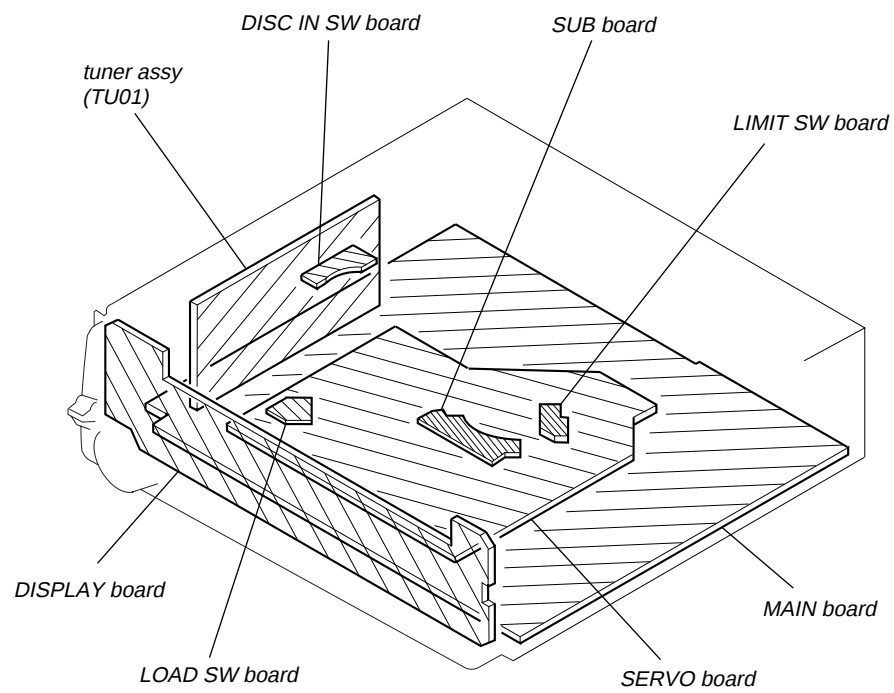
4-1. IC PIN DESCRIPTION

• IC801 μ PD17705GC-526-3B9 (SYSTEM CONTROL)

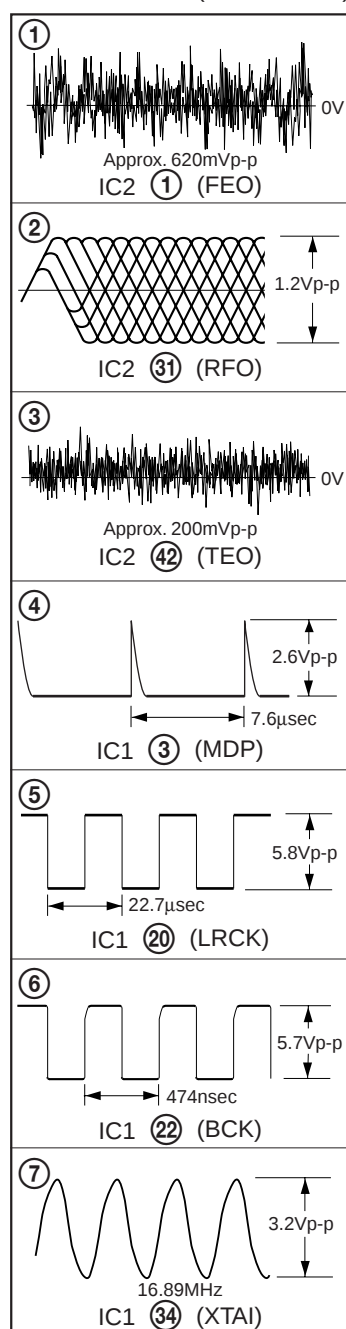
Pin No.	Pin Name	I/O	Pin Description
1	SIRCS	I	SIRCS input (A/D)
2	$\overline{\text{IN-SW}}$	I	CD mechanism position detection
3	$\overline{\text{D-SW}}$	I	CD mechanism position detection
4	$\overline{\text{SELF-SW}}$	I	CD mechanism position detection
5	$\overline{\text{L-SW}}$	I	LIMIT switch
6	LM-EJ	O	Loading motor control (Eject direction)
7	LM-LOD	O	Loading motor control (Loading direction)
8	ANT-ON	O	Power control for amplifier.
9	MONO	O	Force MONO output
10	SD	I	SD signal input
11	BAND-SW	I	Band plan setting of general area.
12	AREA1-SW	I	Destination select 1 (Fixed at “L”.)
13	AREA2-SW	I	Destination select 2 (Fixed at “H”.)
14, 15	RE1, 2	I	Rotary encoder input 1, 2
16	$\overline{\text{SEEK}}$	O	SEEK output
17 – 20	NC	—	Not used.
21	GND3	—	GND
22 – 24	KEYIN3 – 1	I	A/D key input 3 – 1
25	ROT-IN	I	Rotary commander input
26	S-METER	I	FM and AM common signal meter A/D conversion input
27	$\overline{\text{TEST-SW}}$	I	TEST mode select input
28	AM-IFC	I	AM center frequency input
29	FM-IFC	I	FM center frequency input
30	VDD2	—	Power supply (+5 V)
31	VCOH-FM	I	Local oscillation frequency input (FM)
32	VCOL-AM	I	Local oscillation frequency input (AM)
33	GND2	—	GND
34	NC	—	Not used.
35	EO1-PDOUT	O	Error out output
36	TESTO	—	Fixed at “L”.
37	AM-ON(TU-ON)	O	AM power output (AM select)
38	FM-ON(FM/ $\overline{\text{AM}}$)	O	FM power output (FM select)
39	LCL/DX	O	LOCAL/DX select (“H” : LOCAL, “L” : DX)
40	BEEP	O	BEEP output
41	$\overline{\text{ACC-IN}}$	I	Accessory input
42	SCOR	I	SUBQ data read request
43	MUTE	O	System mute output
44	$\overline{\text{AMP-MUTE}}$	O	Power amplifier mute output
45	TEL-MUTE	O	Telephone mute output
46	NC	—	Not used.
47	VOL-CE	O	Electric volume chip select
48	VOL-CLK	O	Electric volume serial clock
49	VOL-DATA	O	Electric volume serial data
50	EMPHO	O	De-emphasis control output
51	PW-ON	O	System power control
52	MD-ON	O	Loading motor power
53	CD-ON	O	Servo drive power
54	ILL-ON	O	Illumination output
55, 56	MOD1, 2	O	Bus boost control 1, 2
57	NC	—	Not used.
58	LCD-CE	O	LCD drive chip select output

Pin No.	Pin Name	I/O	Pin Description
59	EZ-SEL	I	SHIFT + input
60	SENS	I	Information input from servo IC.
61	FOK	I	Focus OK input
62	$\overline{\text{LD-ON}}$	O	Laser diode control
63	NC	—	Not used.
64	$\overline{\text{ST/MONO}}$	I/O	Used for both STEREO indicator display input and force MONO output. (FM)
65	LCD-CKO	O	LCD driver serial clock output
66	LCD-SO	O	LCD driver serial data output
67	C.ALARM	O	Caution alarm output
68	SQ-CKO	O	Q data read serial clock output
69	CD-RST	O	Servo IC/DAC reset output
70	SQ-SI	I	Q data input
71	CD-SO	O	Serial data output to servo IC.
72	CD-LAT	O	Data latch output to servo IC.
73	CD-CKO	O	Serial clock output to servo IC.
74	VREF	—	Not used.
75	GND1	—	GND
76	X-OUT	O	Crystal oscillator connection (4.5 MHz)
77	X-IN	I	Crystal oscillator connection (4.5 MHz)
78	BU-IN	I	Back-up detection
79	VDD1	—	Power supply (+5 V)
80	$\overline{\text{RESET}}$	I	RESET input

4-2. CIRCUIT BOARDS LOCATION



• **Waveforms** (MODE:PLAY)



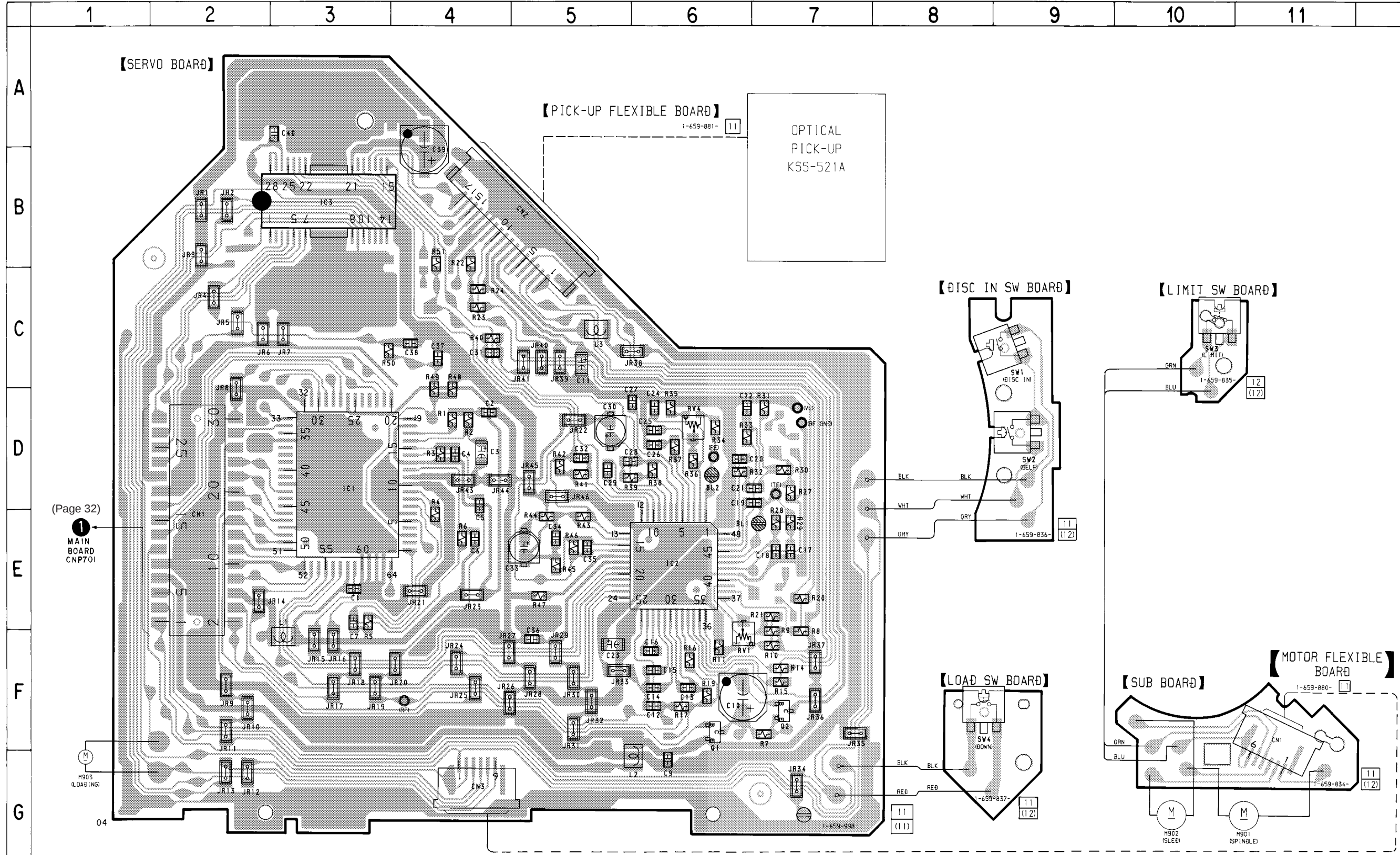
Note on Schematic Diagram:

- All capacitors are in μF unless otherwise noted. pF: μF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $\frac{1}{4} \text{ W}$ or less unless otherwise specified.

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

- **B +** : B+ Line.
- **□** : adjustment for repair.
- Power voltage is dc 14.4V and fed with regulated dc power supply from ACC and BATT cords.
- Voltage and waveforms are dc with respect to ground under no-signal conditions.
no mark : CD PLAY
* : Impossible to measure
- Voltages are taken with a VOM (Input impedance 10 M Ω). 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.
 $\Rightarrow$: CD

4-3. PRINTED WIRING BOARDS — CD MECHANISM SECTION —



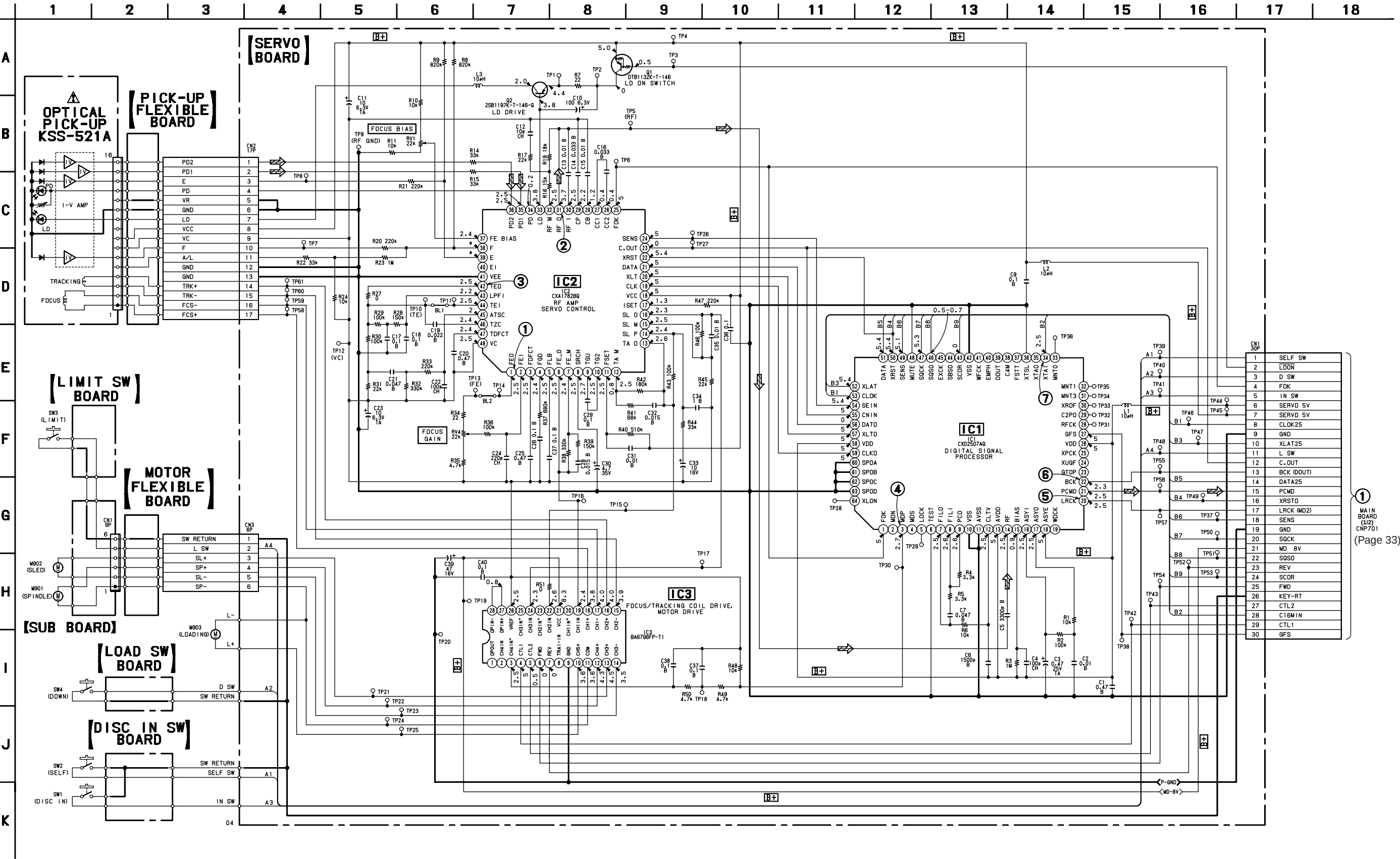
• Semiconductor Location

Ref. No.	Location
IC1	D-3
IC2	E-6
IC3	B-3
Q1	F-6
Q2	F-7

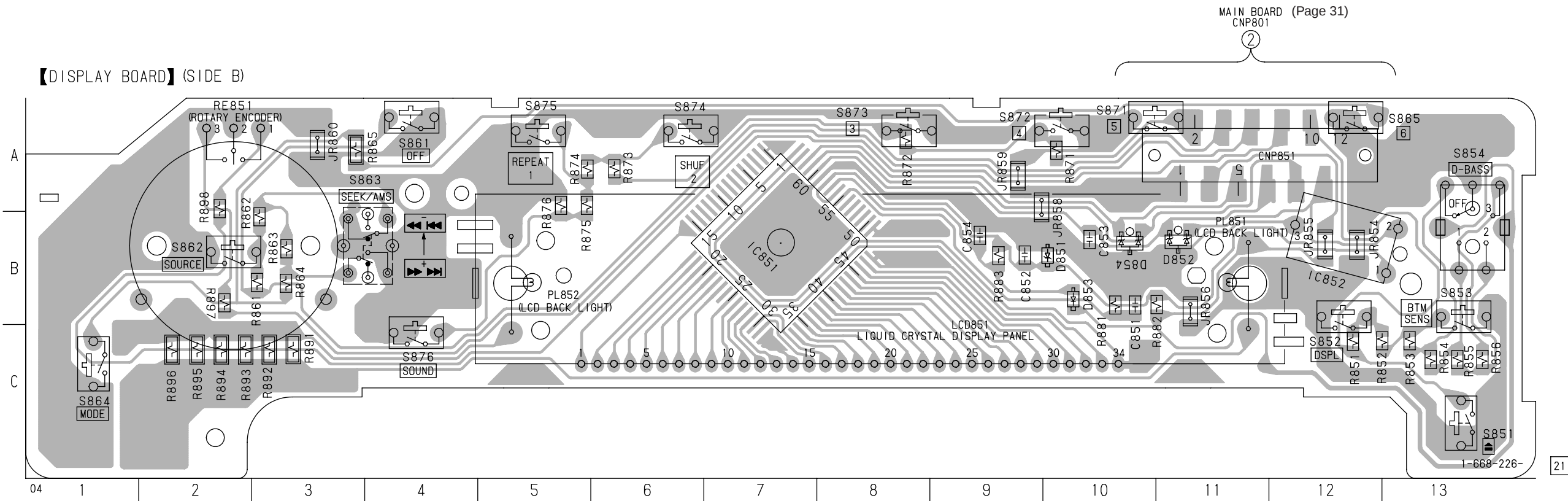
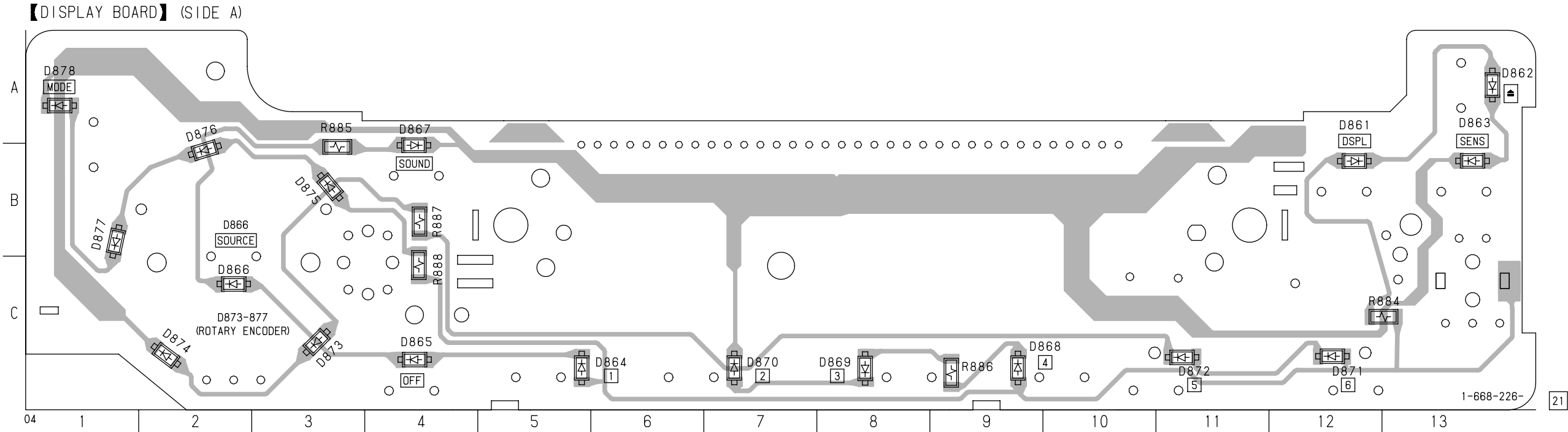
Note:

- : parts extracted from the component side.
- : parts extracted from the conductor side.
- Pattern from the side which enables seeing.

4-4. SCHEMATIC DIAGRAM — CD MECHANISM SECTION — • Refer to page 22 for Waveforms and Note and page 37 for IC Block Diagrams.



4-5. PRINTED WIRING BOARD — DISPLAY SECTION —



• Semiconductor Location

Ref. No.	Location	Ref. No.	Location
(D851)	B-10	D869	C-8
(D852)	B-11	D870	C-7
(D853)	B-10	D871	C-12
(D854)	B-10	D872	C-11
D861	B-12	D873	C-3
D862	A-13	D874	C-2
D863	B-13	D875	B-3
D864	C-5	D876	B-2
D865	C-4	D877	B-1
D866	C-2	D878	A-1
D867	B-4		
D868	C-9	(IC851)	B-7

Note:

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

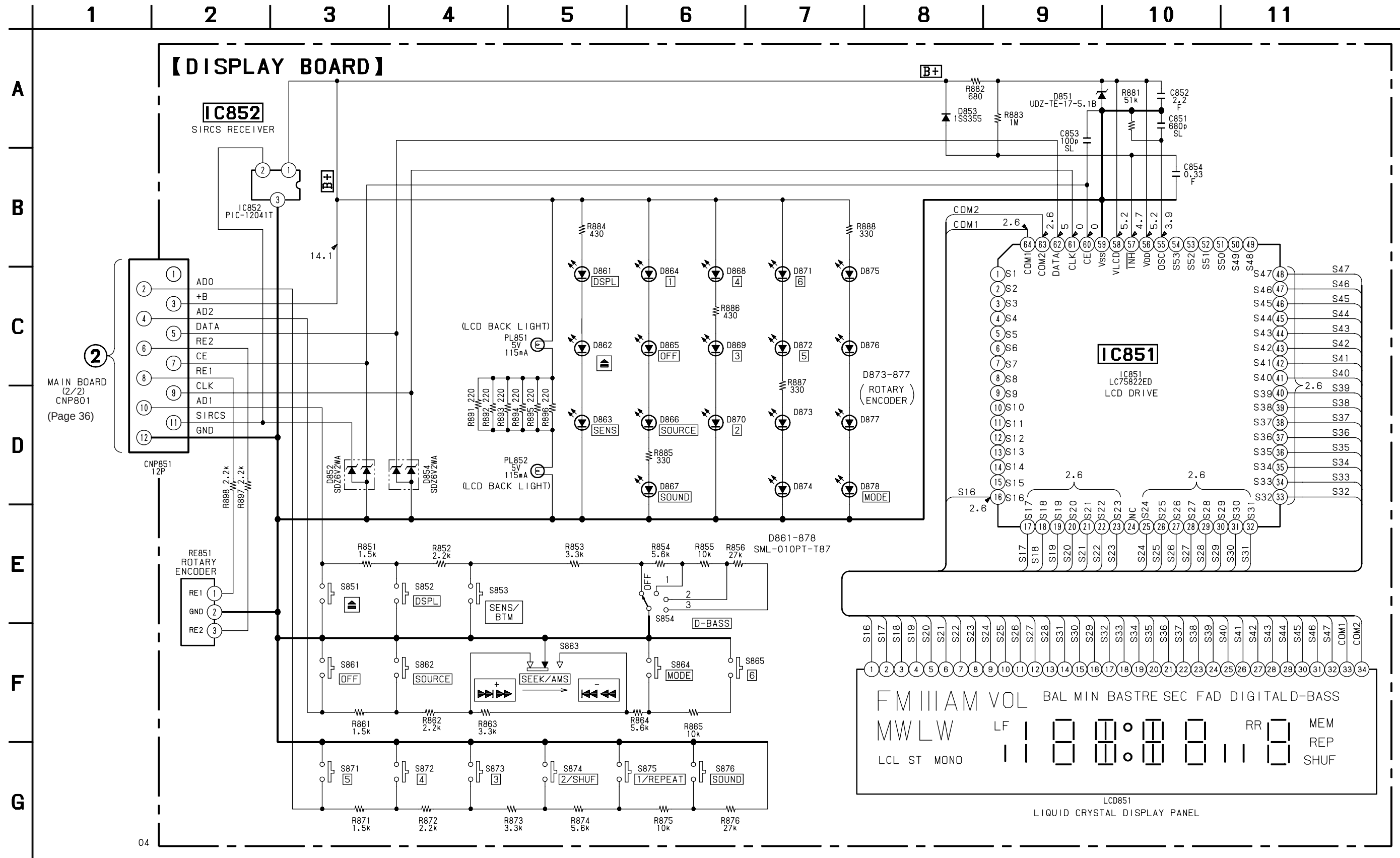
Caution:

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

Parts face side: Parts on the parts face side seen from the (Side A) parts face are indicated.

() : SIDE B

4-6. SCHEMATIC DIAGRAM — DISPLAY SECTION —

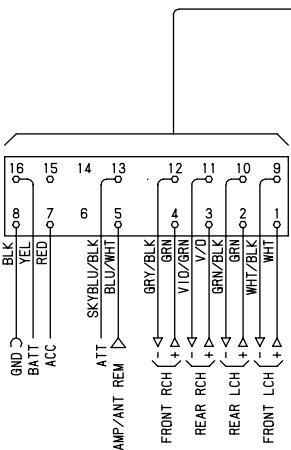


Note:

- All capacitors are in μF unless otherwise noted. pF: μF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $\frac{1}{4}\text{W}$ or less unless otherwise specified.
- **[B+]** : B+ Line.
- Power voltage is dc 14.4V and fed with regulated dc power supply from ACC and BATT cords.

- : panel designation.
- Voltage is dc with respect to ground under no-signal (detuned) condition.
no mark : FM
- Voltages are taken with a VOM (Input impedance 10 MΩ).
Voltage variations may be noted due to normal production tolerances.

4-7. PRINTED WIRING BOARD — MAIN SECTION —

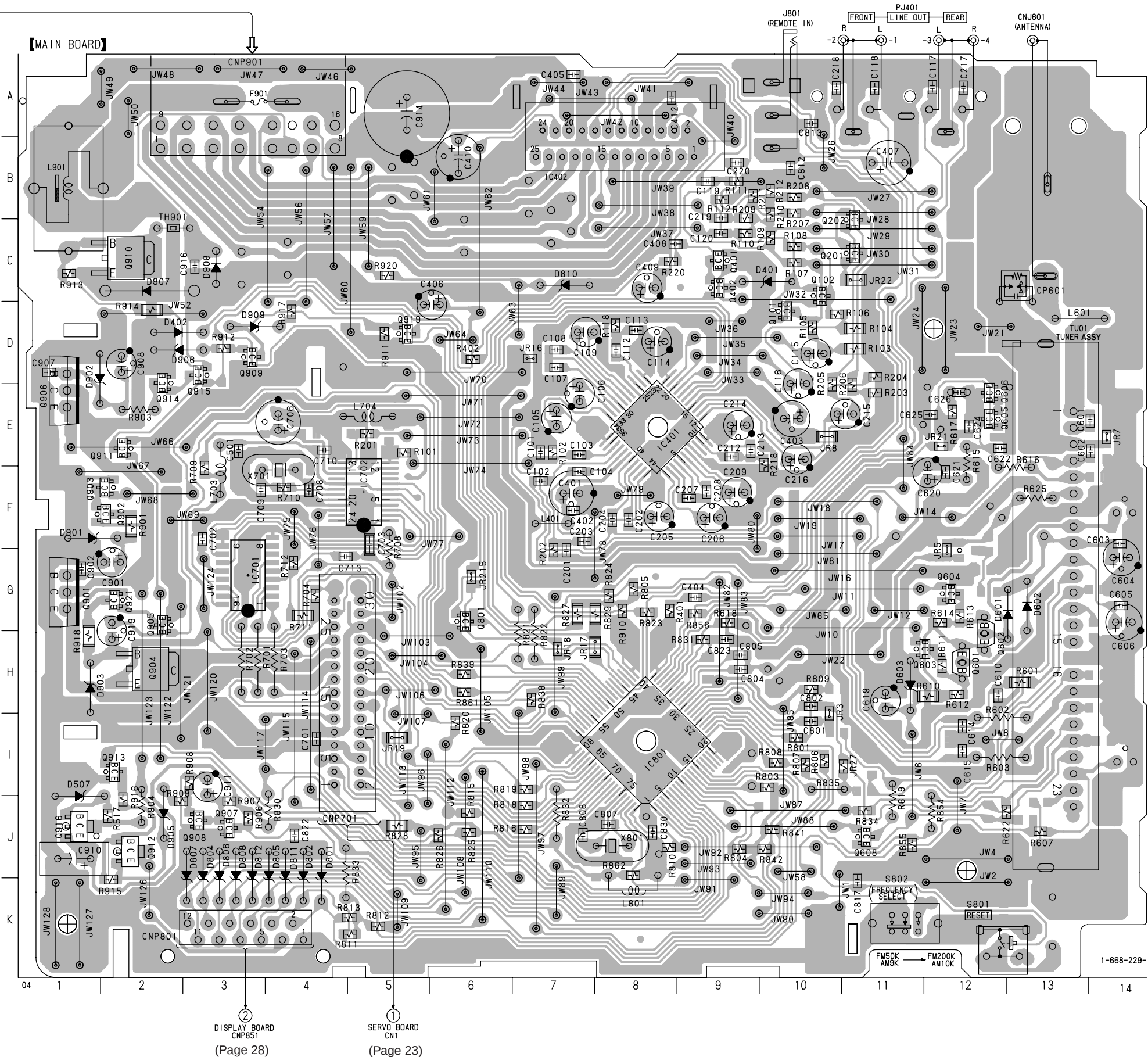


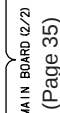
- **Semiconductor Location**

Ref. No.	Location	Ref. No.	Location
D401	C-9	Q102	C-10
D402	D-3	Q201	C-11
D507	I-1	Q202	B-11
D601	G-12	Q401	C-9
D602	G-13	Q402	C-9
D603	H-11	Q601	H-12
D801	J-4	Q602	H-12
D802	J-4	Q603	H-11
D804	J-3	Q604	G-12
D805	J-4	Q605	E-12
D806	J-3	Q606	E-12
D807	J-3	Q608	J-11
D808	J-3	Q801	G-6
D810	C-7	Q901	G-1
D811	J-4	Q902	F-2
D812	J-3	Q903	F-2
D901	F-1	Q904	H-2
D902	D-1	Q905	G-2
D903	H-1	Q906	E-1
D905	J-2	Q907	J-3
D906	D-3	Q908	J-3
D907	C-2	Q909	D-3
D908	C-3	Q910	C-2
D909	D-3	Q911	E-2
		Q912	J-2
IC401	E-8	Q913	I-2
IC402	B-8	Q914	E-2
IC701	G-3	Q915	E-3
IC702	F-5	Q916	J-1
IC801	I-8	Q919	D-5
		Q921	G-2
Q101	D-10		

Note:

- : parts extracted from the component side.
- : internal component.
- : Pattern from the side which enables seeing.



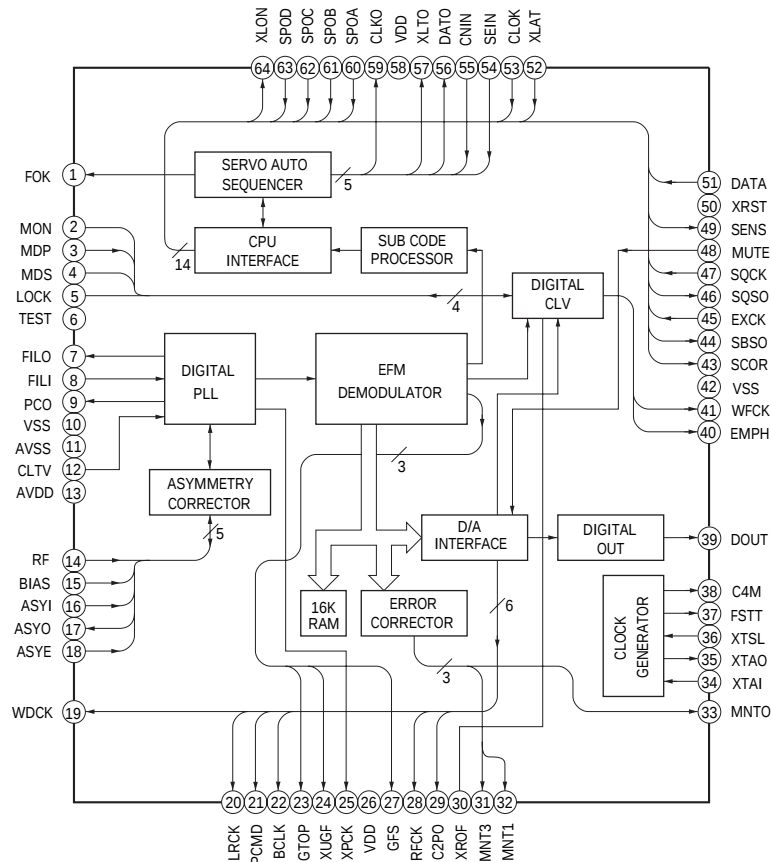


 . AM
 . CD

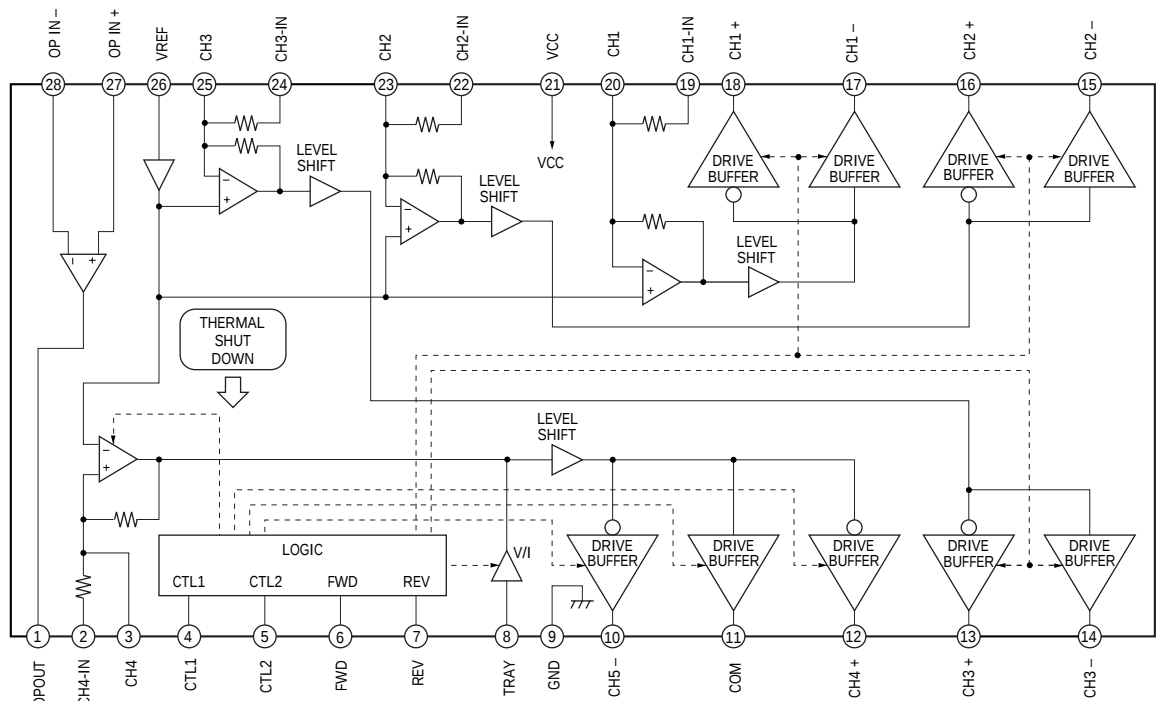


• IC Block Diagrams

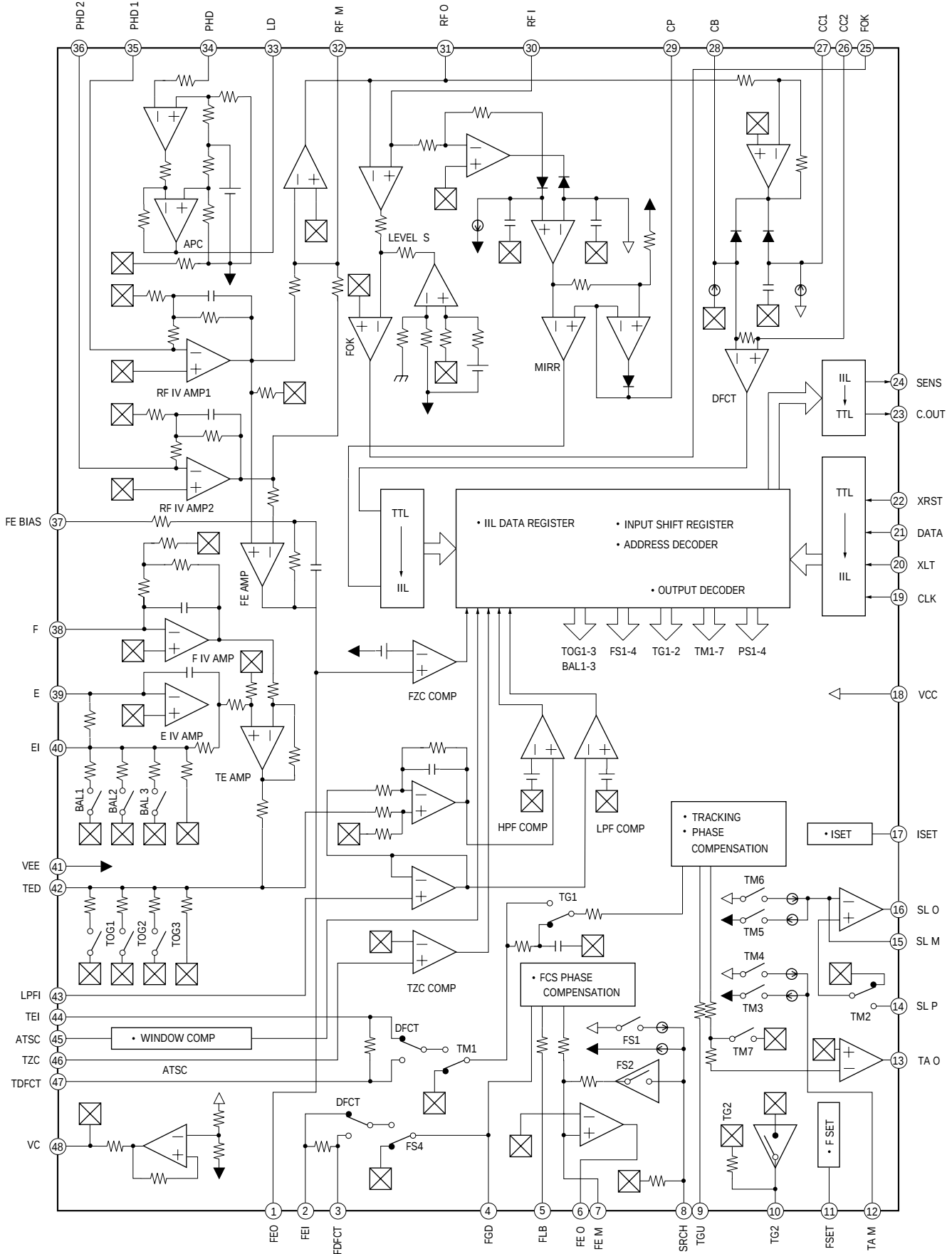
IC1 CXD2507AQ



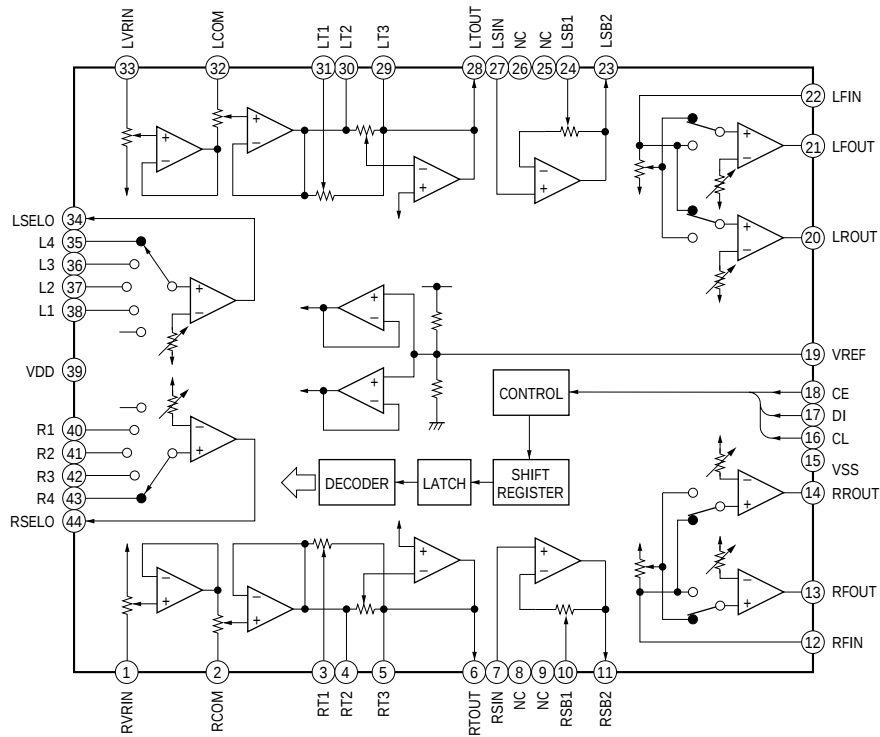
IC3 BA6796FP-T1



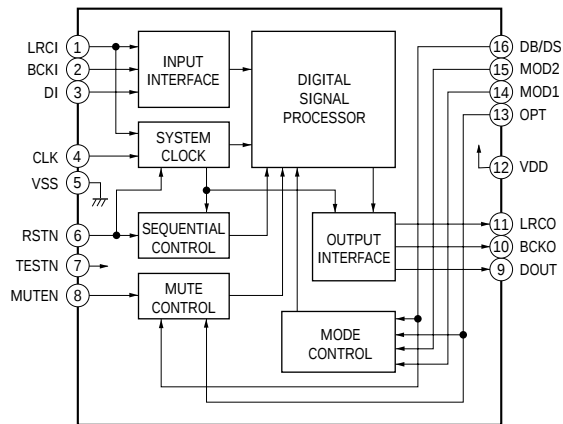
IC2 CXA1782BQ



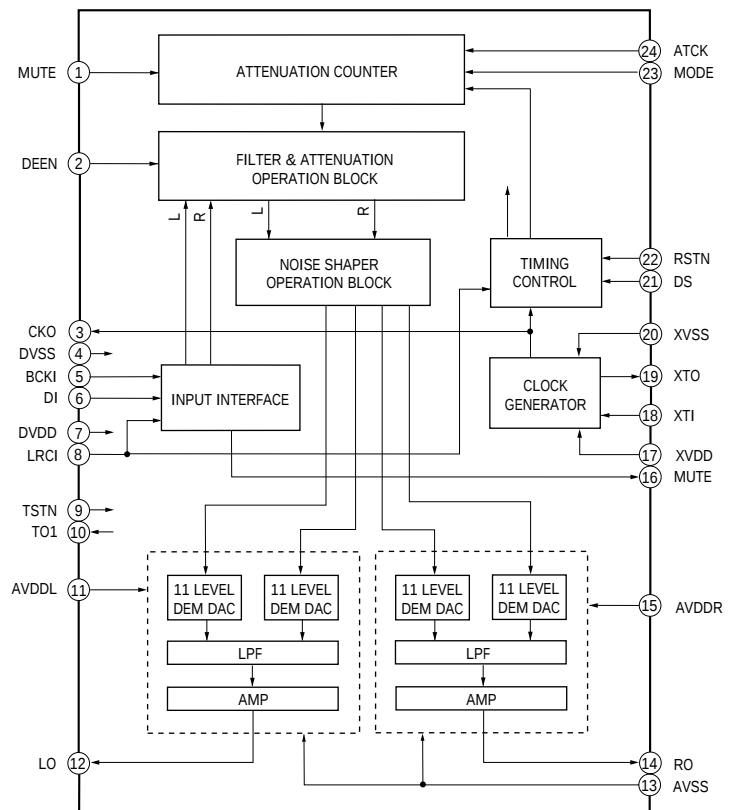
IC401 LC75374E



IC701 SM5852FS-E2



IC702 SM5878AM-E2



SECTION 5 EXPLODED VIEWS

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked “*” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- -XX and -X mean standardized parts, so they may have some difference from the original one.

Color Indication of Appearance Parts

Example :

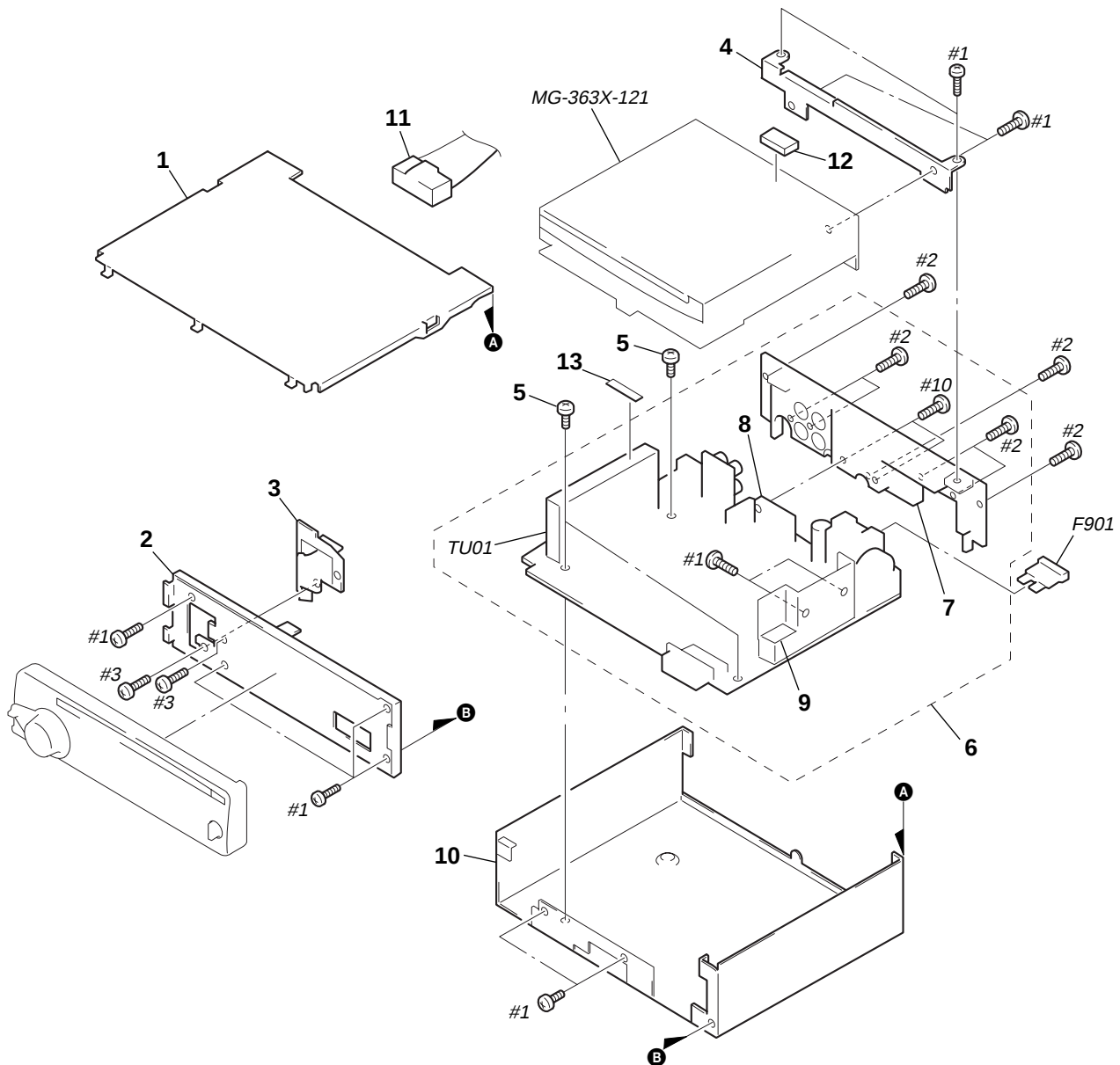
KNOB, BALANCE (WHITE) ... (RED)

Parts Color Cabinet's Color

- Accessories and packing materials and hardware (# mark) list are given in the last of this parts list.

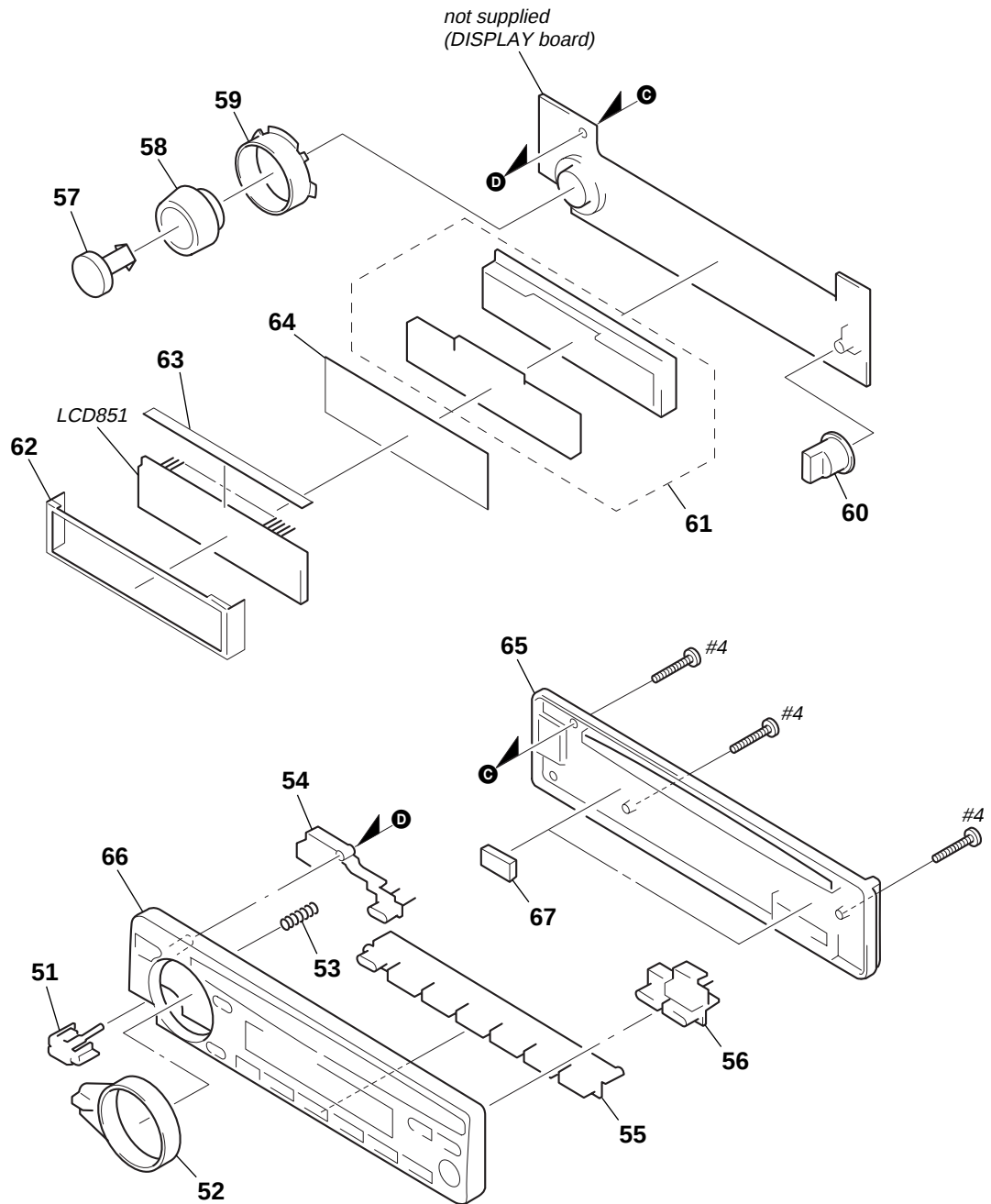
The components identified by mark Δ or dotted line with mark. Δ are critical for safety. Replace only with part number specified.

5-1. CHASSIS SECTION



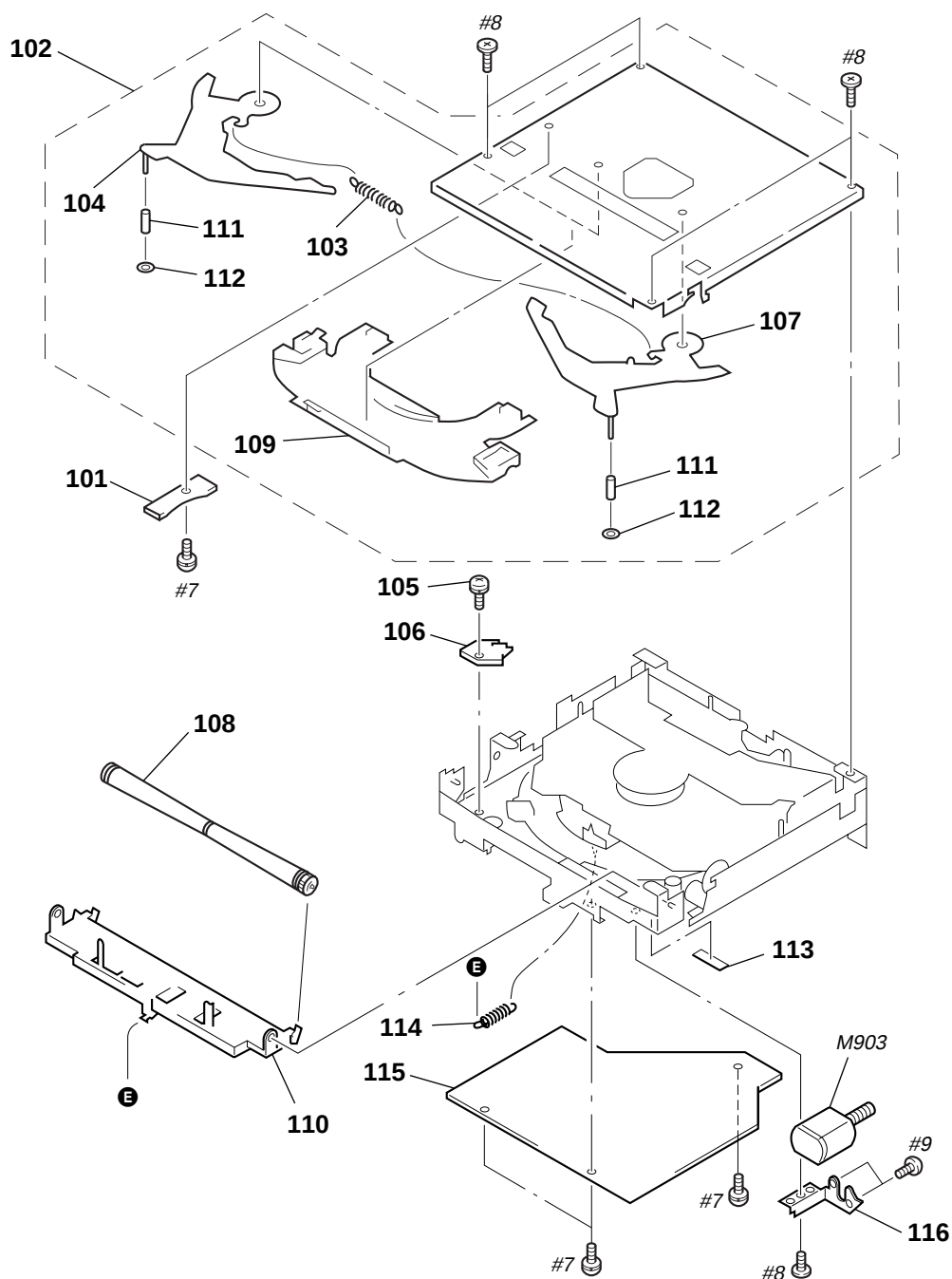
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
* 1	X-3374-809-1	COVER ASSY		* 9	3-009-350-01	BRACKET (REG)	
2	X-3374-808-1	PANEL (1) ASSY, SUB		* 10	3-019-562-01	CHASSIS (MAIN)	
3	X-3367-636-1	LOCK ASSY		11	1-769-786-81	CORD (WITH CONNECTOR) (POWER)	
* 4	3-019-564-01	BRACKET (M/D)		* 12	3-024-285-01	CUSHION (RUBBER)	
5	3-922-535-11	SCREW (+BTT)		* 13	3-024-016-01	PAPER (N), SHIELD	
* 6	A-3294-436-A	MAIN BOARD, COMPLETE		F901	1-532-877-11	FUSE (BLADE TYPE) (AUTO FUSE) 10A	
* 7	3-019-556-01	HEAT SINK		TU01	A-3301-323-A	TUNER ASSY	
* 8	3-019-565-01	BRACKET (IC)					

5-2. FRONT PANEL SECTION



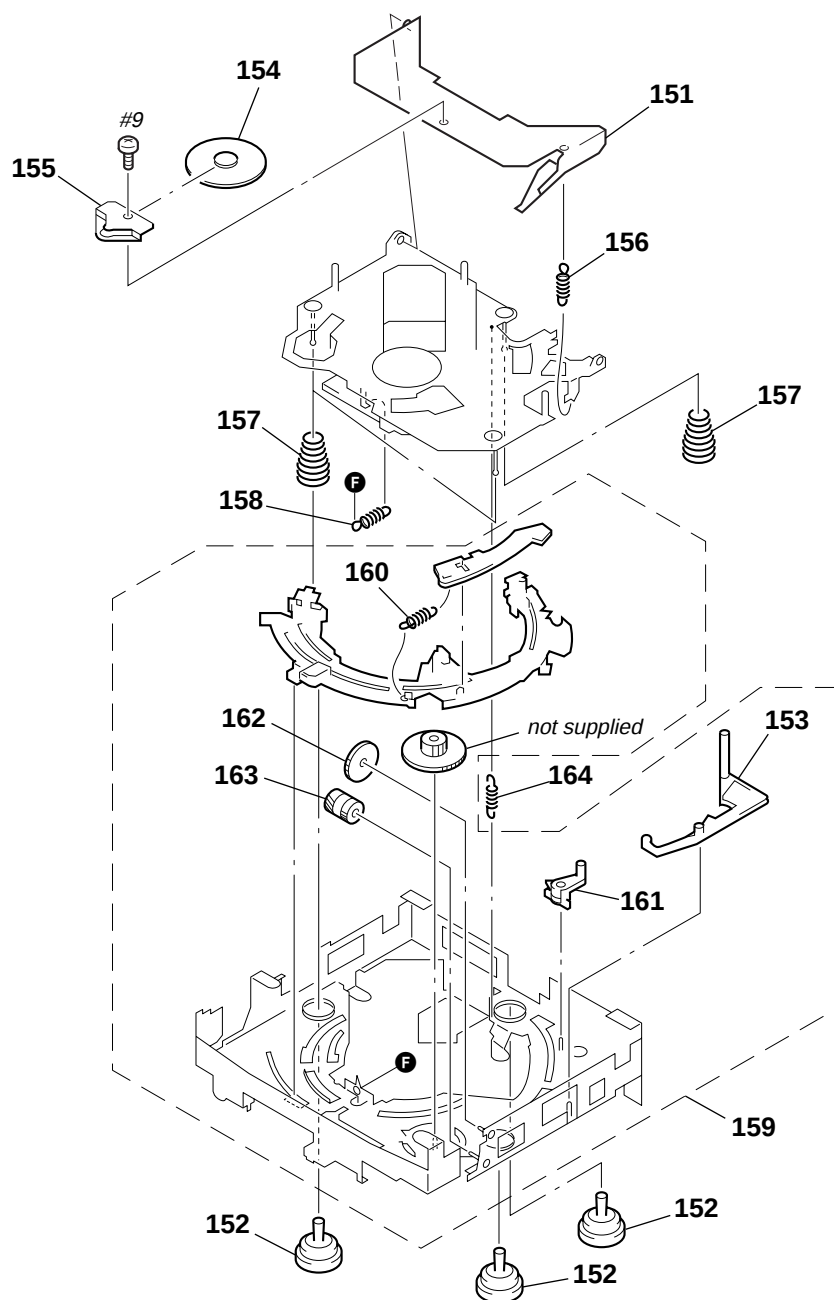
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
51	3-019-549-01	BUTTON (RELEASE)		60	3-019-543-01	KNOB (D-BASS)	
52	3-019-544-01	KNOB (SEEK/AMS)		* 61	X-3374-803-1	HOLDER (LCD) ASSY	
53	3-375-373-01	SPRING (RELEASE)		* 62	3-019-557-01	PLATE (LCD), GROUND	
54	3-019-550-01	BUTTON (MODE/SOUND)		63	3-021-407-01	SHEET (D), LCD	
55	3-019-552-01	BUTTON (1-6)		* 64	3-019-531-01	SHEET (LCD), COLOR	
56	3-019-551-01	BUTTON (EJECT)		65	3-019-538-01	PANEL (FRONT BACK)	
57	3-019-545-01	BUTTON (SOURCE)		66	X-3375-473-1	FRONT PANEL ASSY	
58	3-019-547-01	KNOB (VOL)		* 67	3-023-946-01	SHEET (H), BACK	
59	3-019-548-01	RING		LCD851	1-803-007-31	DISPLAY PANEL, LIQUID CRYSTAL	

5-3. CD MECHANISM SECTION (1) (MG-363X-121)



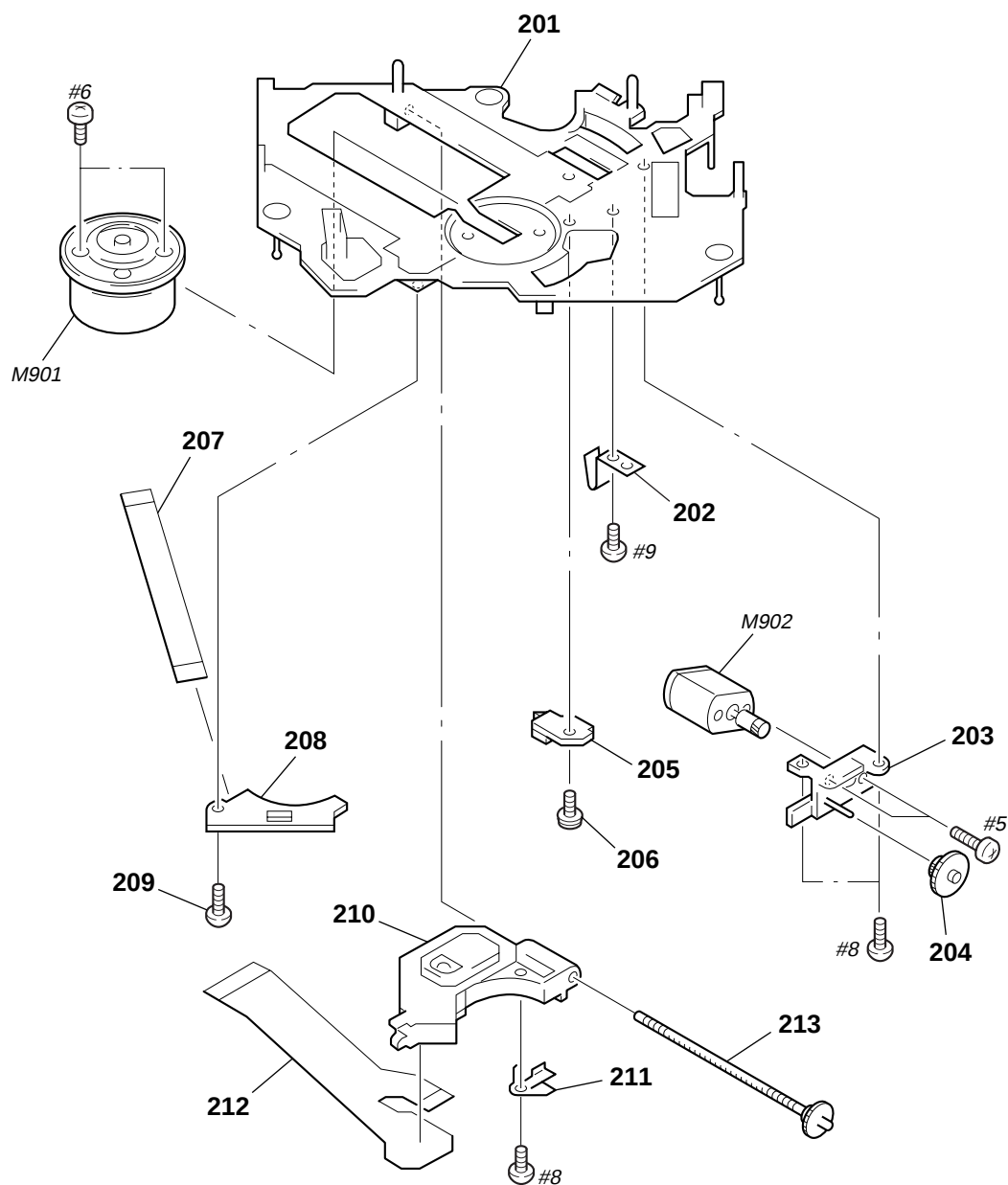
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
* 101	1-659-836-11	DISC IN SW BOARD		110	3-931-902-03	ARM (ROLLER)	
* 102	A-3291-816-B	CHASSIS (T) SUB ASSY		111	3-936-756-01	ROLLER (D)	
103	3-931-909-01	SPRING (LR), TENSION		112	3-321-393-01	WASHER, STOPPER	
104	X-3371-501-1	LEVER (L) ASSY		* 113	3-939-139-01	SPACER	
105	3-338-737-01	SCREW (2X3), + PS		114	3-931-916-01	SPRING (RA), TENSION	
* 106	1-659-837-11	LOAD SW BOARD		* 115	A-3309-227-A	SERVO BOARD, COMPLETE	
107	X-3371-502-1	LEVER (R) ASSY		* 116	3-007-530-01	BRACKET (MOTOR)	
108	A-3301-203-A	ROLLER ASSY		M903	A-3291-676-A	MOTOR SUB ASSY, LOADING	
109	3-931-908-01	GUIDE (DISC)					

5-4. CD MECHANISM SECTION (2)
(MG-363X-121)



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
151	3-931-893-01	ARM, CHUCKING		158	3-019-805-01	SPRING (KF1), TENSION	
152	3-931-897-01	DAMPER (T)		* 159	A-3291-677-G	CHASSIS (M) ASSY	
153	3-931-879-02	LEVER (D)		160	3-931-883-01	SPRING (TR), TENSION	
* 154	3-913-404-11	RETAINER (DISC)		161	3-931-881-01	LEVER (LOCK)	
155	3-931-894-01	BRACKET (CP)		162	3-931-882-02	GEAR (MDL)	
156	3-931-895-01	SPRING (CH), TENSION		163	3-007-537-01	WHEEL (U), WORM	
157	3-931-898-01	SPRING (FL), COMPRESSION		164	3-019-806-01	SPRING (KR1), TENSION	

5-5. CD MECHANISM SECTION (3) (MG-363X-121)



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
* 201	X-3374-022-1	CHASSIS (OP) (O/S) ASSY		209	3-909-607-01	SCREW	
202	3-931-829-01	SPRING (SL), PLATE		$\triangle$ 210	8-820-010-06	PICK-UP, OPTICAL KSS-521A/K1RP	
203	X-3371-504-1	BASE (DRIVING) ASSY		211	3-931-834-01	SPRING (FEED), PLATE	
204	3-931-832-01	GEAR (SL MIDWAY)		212	1-659-881-11	PICK-UP FLEXIBLE BOARD	
* 205	1-659-835-12	LIMIT SW BOARD		213	A-3291-669-A	SHAFT (FEED) ASSY	
206	3-338-737-01	SCREW (2X3), + PS		M901	X-3371-664-2	MOTOR ASSY (SPINDLE)	
207	1-659-880-11	MOTOR FLEXIBLE BOARD		M902	A-3291-674-A	MOTOR ASSY, SLED	
* 208	1-659-834-11	SUB BOARD					

SECTION 6 ELECTRICAL PARTS LIST

DISC IN SW

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
- Abbreviation
G : German model

- 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 : μ , for example:
uA.. : μ A.. uPA.. : μ PA..
uPB.. : μ PB.. uPC.. : μ PC.. uPD.. : μ PD..
- CAPACITORS
uF : μ F
- COILS
uH : μ H

The components identified by mark Δ or dotted line with mark. Δ 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
*	1-659-836-11	DISC IN SW BOARD *****		D877	8-719-067-77	LED SML-010PT-T87	
		< SWITCH >		D878	8-719-067-77	LED SML-010PT-T87 (MODE)	
SW1	1-572-288-11	SWITCH, PUSH (DISC IN)				< IC >	
SW2	1-572-288-11	SWITCH, PUSH (SELF)		IC851	8-759-369-90	IC LC75822ED	
*****				IC852	8-749-012-76	IC PIC-12041T	
		DISPLAY BOARD *****				< JUMPER RESISTOR >	
*	X-3374-803-1	HOLDER (LCD) ASSY		JR854	1-216-296-00	SHORT 0	
*	3-019-530-01	PLATE (LCD), GROUND		JR855	1-216-296-00	SHORT 0	
*	3-019-531-01	SHEET (LCD), COLOR		JR856	1-216-296-00	SHORT 0	
	3-021-407-01	SHEET (D), LCD		JR858	1-216-296-00	SHORT 0	
		< CAPACITOR >		JR859	1-216-296-00	SHORT 0	
C851	1-163-137-00	CERAMIC CHIP 680PF 5% 50V		JR860	1-216-296-00	SHORT 0	
C852	1-164-505-11	CERAMIC CHIP 2.2uF 16V				< LIQUID CRYSTAL DISPLAY >	
C853	1-163-117-00	CERAMIC CHIP 100PF 5% 50V		LCD851	1-803-007-31	DISPLAY PANEL, LIQUID CRYSTAL	
C854	1-110-501-00	CERAMIC CHIP 0.33uF 10% 16V				< PILOT LAMP >	
		< CONNECTOR >		PL851	1-517-665-11	LAMP, PILOT	
CNP851	1-764-423-11	PIN, CONNECTOR 12P		PL852	1-517-665-11	LAMP, PILOT	
		< DIODE >				< RESISTOR >	
D851	8-719-976-99	DIODE DTZ5.1B		R851	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
D852	8-719-068-68	DIODE SDZ6V2WA		R852	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
D853	8-719-988-62	DIODE 1SS355		R853	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
D854	8-719-068-68	DIODE SDZ6V2WA		R854	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
D861	8-719-067-77	LED SML-010PT-T87 (DSPL)		R855	1-216-073-00	METAL CHIP 10K 5% 1/10W	
D862	8-719-067-77	LED SML-010PT-T87 (Δ)		R856	1-216-083-00	METAL CHIP 27K 5% 1/10W	
D863	8-719-067-77	LED SML-010PT-T87 (SENS)		R861	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
D864	8-719-067-77	LED SML-010PT-T87 (1)		R862	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
D865	8-719-067-77	LED SML-010PT-T87 (OFF)		R863	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
D866	8-719-067-77	LED SML-010PT-T87 (SOURCE)		R864	1-216-216-00	RES,CHIP 5.6K 5% 1/8W	
D867	8-719-067-77	LED SML-010PT-T87 (SOUND)		R865	1-216-073-00	METAL CHIP 10K 5% 1/10W	
D868	8-719-067-77	LED SML-010PT-T87 (4)		R871	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
D869	8-719-067-77	LED SML-010PT-T87 (3)		R872	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
D870	8-719-067-77	LED SML-010PT-T87 (2)		R873	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
D871	8-719-067-77	LED SML-010PT-T87 (6)		R874	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
D872	8-719-067-77	LED SML-010PT-T87 (5)		R875	1-216-222-00	RES,CHIP 10K 5% 1/8W	
D873	8-719-067-77	LED SML-010PT-T87		R876	1-216-083-00	METAL CHIP 27K 5% 1/10W	
D874	8-719-067-77	LED SML-010PT-T87		R881	1-216-090-00	METAL CHIP 51K 5% 1/10W	
D875	8-719-067-77	LED SML-010PT-T87		R882	1-216-045-00	RES,CHIP 680 5% 1/10W	
D876	8-719-067-77	LED SML-010PT-T87		R883	1-216-121-00	RES,CHIP 1M 5% 1/10W	

DISPLAY	LIMIT SW	LOAD SW	MAIN
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Ref. No.	Part No.	Description	Remark		
R884	1-216-189-00	RES,CHIP	430	5%	1/8W
R885	1-216-186-00	RES,CHIP	330	5%	1/8W
R886	1-216-189-00	RES,CHIP	430	5%	1/8W
R887	1-216-186-00	RES,CHIP	330	5%	1/8W
R888	1-216-186-00	RES,CHIP	330	5%	1/8W
R891	1-216-182-00	RES,CHIP	220	5%	1/8W
R892	1-216-182-00	RES,CHIP	220	5%	1/8W
R893	1-216-182-00	RES,CHIP	220	5%	1/8W
R894	1-216-182-00	RES,CHIP	220	5%	1/8W
R895	1-216-182-00	RES,CHIP	220	5%	1/8W
R896	1-216-182-00	RES,CHIP	220	5%	1/8W
R897	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R898	1-216-057-00	METAL CHIP	2.2K	5%	1/10W

< ROTARY ENCODER >

RE851 1-475-014-11 ENCODER, ROTARY

< SWITCH >

S851 1-572-704-31 SWITCH, KEY BOARD (▲)
S852 1-572-704-31 SWITCH, KEY BOARD (DSPL)
S853 1-572-704-31 SWITCH, KEY BOARD (SENS/BTM)
S854 1-762-937-11 SWITCH, ROTARY (D-BASS)
S861 1-572-704-31 SWITCH, KEY BOARD (OFF)

S862 1-572-704-31 SWITCH, KEY BOARD (SOURCE)
S863 1-771-290-11 SWITCH, SLIDE (SEEK/AMS)
S864 1-762-719-21 SWITCH, TACTILE (MODE)
S865 1-572-704-31 SWITCH, KEY BOARD (6)
S871 1-572-704-31 SWITCH, KEY BOARD (5)

S872 1-762-719-21 SWITCH, TACTILE (4)
S873 1-762-719-21 SWITCH, TACTILE (3)
S874 1-762-719-21 SWITCH, TACTILE (2/SHUF)
S875 1-762-719-21 SWITCH, TACTILE (1/REPEAT)
S876 1-572-704-31 SWITCH, KEY BOARD (SOUND)

* 1-659-835-12 LIMIT SW BOARD

< SWITCH >

SW3 1-572-688-11 SWITCH, PUSH (1 KEY) (LIMIT)

* 1-659-837-11 LOAD SW BOARD

< SWITCH >

SW4 1-572-288-11 SWITCH, PUSH (DOWN)

Ref. No.	Part No.	Description	Remark		
*	A-3294-436-A	MAIN BOARD, COMPLETE *****			
*	3-009-350-01	BRACKET (REG)			
*	3-019-556-01	HEAT SINK			
*	3-019-565-01	BRACKET (IC)			
	7-685-792-09	SCREW +PTT 2.6X6 (S)			
	7-685-793-09	SCREW +PTT 2.6X8 (S)			
	7-685-794-09	SCREW +PTT 2.6X10 (S)			
		< CAPACITOR >			
C101	1-163-010-11	CERAMIC CHIP	0.0012uF	10%	50V
C102	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V
C103	1-164-346-11	CERAMIC CHIP	1uF		16V
C104	1-164-344-11	CERAMIC CHIP	0.068uF	10%	25V
C105	1-126-160-11	ELECT	1uF	20%	50V
C106	1-126-160-11	ELECT	1uF	20%	50V
C107	1-164-182-11	CERAMIC CHIP	0.0033uF	10%	50V
C108	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C109	1-126-157-11	ELECT	10uF	20%	16V
C112	1-164-492-11	CERAMIC CHIP	0.15uF	10%	16V
C113	1-164-492-11	CERAMIC CHIP	0.15uF	10%	16V
C114	1-126-157-11	ELECT	10uF	20%	16V
C115	1-126-157-11	ELECT	10uF	20%	16V
C116	1-126-157-11	ELECT	10uF	20%	16V
C117	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C118	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C119	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C120	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C201	1-163-010-11	CERAMIC CHIP	0.0012uF	10%	50V
C202	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V
C203	1-164-346-11	CERAMIC CHIP	1uF		16V
C204	1-164-344-11	CERAMIC CHIP	0.068uF	10%	25V
C205	1-126-160-11	ELECT	1uF	20%	50V
C206	1-126-160-11	ELECT	1uF	20%	50V
C207	1-164-182-11	CERAMIC CHIP	0.0033uF	10%	50V
C208	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C209	1-126-157-11	ELECT	10uF	20%	16V
C212	1-164-492-11	CERAMIC CHIP	0.15uF	10%	16V
C213	1-164-492-11	CERAMIC CHIP	0.15uF	10%	16V
C214	1-126-157-11	ELECT	10uF	20%	16V
C215	1-126-157-11	ELECT	10uF	20%	16V
C216	1-126-157-11	ELECT	10uF	20%	16V
C217	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C218	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C219	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C220	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C401	1-124-584-00	ELECT	100uF	20%	10V
C402	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C403	1-124-234-00	ELECT	22uF	20%	16V
C404	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C405	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C406	1-124-242-00	ELECT	33uF	20%	25V

Ref. No.	Part No.	Description	Remark			Ref. No.	Part No.	Description	Remark
C407	1-124-465-00	ELECT	0.47uF	20%	50V			< JACK >	
C408	1-164-346-11	CERAMIC CHIP	1uF		16V				
C409	1-126-163-11	ELECT	4.7uF	20%	50V				
C410	1-124-589-11	ELECT	47uF	20%	16V	CNJ601	1-785-006-11	JACK (ANTENNA)	
C412	1-163-038-00	CERAMIC CHIP	0.1uF		25V			< CONNECTOR >	
C501	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	CNP701	1-764-617-12	PIN, CONNECTOR (PC BOARD) 30P	
C601	1-163-235-11	CERAMIC CHIP	22PF	5%	50V	CNP801	1-764-422-11	PLUG, CONNECTOR 12P	
C602	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V	CNP901	1-774-701-11	PIN, CONNECTOR 16P	
C603	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V			< DISCHARGE GAP >	
C604	1-124-234-00	ELECT	22uF	20%	16V				
C605	1-164-232-11	CERAMIC CHIP	0.01uF		50V	CP601	1-519-504-11	GAP, DISCHARGE	
C606	1-126-785-11	ELECT	47uF	20%	10V			< DIODE >	
C610	1-163-022-00	CERAMIC CHIP	0.012uF	10%	50V				
C614	1-163-022-00	CERAMIC CHIP	0.012uF	10%	50V	D401	8-719-109-71	DIODE RD3.9ES-B1	
C615	1-163-022-00	CERAMIC CHIP	0.012uF	10%	50V	D402	8-719-991-33	DIODE 1SS133T-77	
C619	1-126-157-11	ELECT	10uF	20%	16V	D507	8-719-109-89	DIODE RD5.6ESB2	
C620	1-126-157-11	ELECT	10uF	20%	16V	D601	8-719-986-73	DIODE RB441Q	
C621	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	D602	8-719-986-73	DIODE RB441Q	
C622	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V				
C624	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V	D603	8-719-109-85	DIODE RD5.1ES-B2	
C625	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	D801	8-719-109-93	DIODE RD6.2ESB2	
C626	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V	D802	8-719-109-93	DIODE RD6.2ESB2	
C701	1-164-232-11	CERAMIC CHIP	0.01uF		50V	D804	8-719-109-93	DIODE RD6.2ESB2	
C702	1-164-232-11	CERAMIC CHIP	0.01uF		50V	D805	8-719-109-93	DIODE RD6.2ESB2	
C703	1-163-169-00	CERAMIC CHIP	33PF	5%	50V				
C706	1-124-584-00	ELECT	100uF	20%	10V	D806	8-719-109-93	DIODE RD6.2ESB2	
C708	1-163-235-11	CERAMIC CHIP	22PF	5%	50V	D807	8-719-109-93	DIODE RD6.2ESB2	
C709	1-163-235-11	CERAMIC CHIP	22PF	5%	50V	D808	8-719-109-93	DIODE RD6.2ESB2	
C710	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	D810	8-719-109-93	DIODE RD6.2ESB2	
C713	1-163-222-11	CERAMIC CHIP	5PF	0.25PF	50V	D811	8-719-109-93	DIODE RD6.2ESB2	
C801	1-164-232-11	CERAMIC CHIP	0.01uF		50V	D812	8-719-109-93	DIODE RD6.2ESB2	
C802	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	D901	8-719-929-15	DIODE MTZJ-T-77-9.1B	
C804	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	D902	8-719-923-60	DIODE MTZJ-T-77-9.1A	
C805	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	D903	8-719-109-89	DIODE RD5.6ESB2	
C807	1-163-099-00	CERAMIC CHIP	18PF	5%	50V	D905	8-719-109-93	DIODE RD6.2ESB2	
C808	1-163-234-11	CERAMIC CHIP	20PF	5%	50V	D906	8-719-923-92	DIODE MTZJ-T-77-16B	
C812	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	D907	8-719-049-38	DIODE 1N5404TU	
C813	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	D908	8-719-200-82	DIODE 11ES2	
C817	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	D909	8-719-109-97	DIODE RD6.8ES-B2	
C822	1-164-232-11	CERAMIC CHIP	0.01uF		50V			< FUSE >	
C823	1-164-232-11	CERAMIC CHIP	0.01uF		50V	F901	1-532-877-11	FUSE (BLADE TYPE) (AUTO FUSE) 10A	
C830	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V			< IC >	
C831	1-104-329-11	CERAMIC CHIP	0.1uF	10%	50V	IC401	8-759-487-82	IC LC75374E	
C901	1-124-257-00	ELECT	2.2uF	20%	50V	IC402	8-759-490-74	IC TDA7384	
C902	1-163-038-00	CERAMIC CHIP	0.1uF		25V	IC701	8-759-473-70	IC SM5852FS-E2	
C907	1-163-038-00	CERAMIC CHIP	0.1uF		25V	IC702	8-759-498-36	IC SM5878AM-E2	
C908	1-124-465-00	ELECT	0.47uF	20%	50V	IC801	8-759-529-19	IC uPD17705GC-526-3B9	
C910	1-110-654-11	ELECT(BLOCK)	0.047F		5.5V			< JACK >	
C911	1-124-257-00	ELECT	2.2uF	20%	50V				
C914	1-126-768-11	ELECT	2200uF	20%	16V	J801	1-764-270-21	JACK, STEREO MINIATURE (DIA. 3.5) (REMOTE IN)	
C916	1-164-232-11	CERAMIC CHIP	0.01uF		50V				
C919	1-126-160-11	ELECT	1uF	20%	50V				

MAIN

Ref. No.	Part No.	Description	Remark			Ref. No.	Part No.	Description	Remark		
< JUMPER RESISTOR >						Q914	8-729-901-05	TRANSISTOR	DTA124EK		
JR2	1-216-295-00	SHORT	0			Q915	8-729-027-43	TRANSISTOR	DTC114EKA-T146		
JR5	1-216-295-00	SHORT	0			Q916	8-729-920-85	TRANSISTOR	2SD1664-QR		
JR7	1-216-864-11	METAL CHIP	0	5%	1/16W	Q919	8-729-027-43	TRANSISTOR	DTC114EKA-T146		
JR8	1-216-296-00	SHORT	0			Q921	8-729-901-05	TRANSISTOR	DTA124EK		
JR16	1-216-295-00	SHORT	0			< RESISTOR >					
JR17	1-216-296-00	SHORT	0			R101	1-216-075-00	METAL CHIP	12K	5%	1/10W
JR18	1-216-073-00	METAL CHIP	10K	5%	1/10W	R102	1-216-073-00	METAL CHIP	10K	5%	1/10W
JR19	1-216-296-00	SHORT	0			R103	1-216-214-00	RES,CHIP	4.7K	5%	1/8W
JR21	1-216-295-00	SHORT	0			R104	1-216-214-00	RES,CHIP	4.7K	5%	1/8W
JR22	1-216-296-00	SHORT	0			R105	1-216-049-11	RES,CHIP	1K	5%	1/10W
JR27	1-216-097-00	RES,CHIP	100K	5%	1/10W	R106	1-216-049-11	RES,CHIP	1K	5%	1/10W
JR28	1-216-295-00	SHORT	0			R107	1-216-077-00	METAL CHIP	15K	5%	1/10W
JR215	1-216-295-00	SHORT	0			R108	1-216-077-00	METAL CHIP	15K	5%	1/10W
< COIL >						R109	1-216-129-00	METAL CHIP	2.2M	5%	1/10W
L703	1-410-513-11	INDUCTOR	22uH			R110	1-216-129-00	METAL CHIP	2.2M	5%	1/10W
L704	1-414-142-11	INDUCTOR	1uH			R111	1-216-079-00	METAL CHIP	18K	5%	1/10W
L801	1-410-513-11	INDUCTOR	22uH			R112	1-216-079-00	METAL CHIP	18K	5%	1/10W
L901	1-416-539-11	COIL, CHOKE (TROIDAL)				R118	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
< JACK >						R201	1-216-075-00	METAL CHIP	12K	5%	1/10W
PJ401	1-764-697-11	JACK, PIN 4P (LINE OUT FRONT/REAR)				R202	1-216-073-00	METAL CHIP	10K	5%	1/10W
< TRANSISTOR >						R203	1-216-065-00	RES,CHIP	4.7K	5%	1/10W
Q101	8-729-920-21	TRANSISTOR	DTC314TKH04			R204	1-216-065-00	RES,CHIP	4.7K	5%	1/10W
Q102	8-729-920-21	TRANSISTOR	DTC314TKH04			R205	1-216-049-11	RES,CHIP	1K	5%	1/10W
Q201	8-729-920-21	TRANSISTOR	DTC314TKH04			R206	1-216-049-11	RES,CHIP	1K	5%	1/10W
Q202	8-729-920-21	TRANSISTOR	DTC314TKH04			R207	1-216-077-00	METAL CHIP	15K	5%	1/10W
Q401	8-729-027-52	TRANSISTOR	DTC124EKA-T146			R208	1-216-077-00	METAL CHIP	15K	5%	1/10W
Q402	8-729-901-05	TRANSISTOR	DTA124EK			R209	1-216-129-00	METAL CHIP	2.2M	5%	1/10W
Q601	8-729-111-52	TRANSISTOR	2SB984-K			R210	1-216-129-00	METAL CHIP	2.2M	5%	1/10W
Q602	8-729-111-52	TRANSISTOR	2SB984-K			R211	1-216-079-00	METAL CHIP	18K	5%	1/10W
Q603	8-729-027-43	TRANSISTOR	DTC114EKA-T146			R212	1-216-079-00	METAL CHIP	18K	5%	1/10W
Q604	8-729-027-43	TRANSISTOR	DTC114EKA-T146			R218	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
Q605	8-729-620-06	TRANSISTOR	2SC3052-EF			R220	1-216-073-00	METAL CHIP	10K	5%	1/10W
Q606	8-729-620-06	TRANSISTOR	2SC3052-EF			R401	1-216-113-00	METAL CHIP	470K	5%	1/10W
Q608	8-729-901-05	TRANSISTOR	DTA124EK			R402	1-216-049-11	RES,CHIP	1K	5%	1/10W
Q801	8-729-027-43	TRANSISTOR	DTC114EKA-T146			R517	1-216-077-00	METAL CHIP	15K	5%	1/10W
Q901	8-729-019-00	TRANSISTOR	2SD2394-G			R601	1-216-206-00	RES,CHIP	2.2K	5%	1/8W
Q902	8-729-901-05	TRANSISTOR	DTA124EK			R602	1-249-417-11	CARBON	1K	5%	1/4W
Q903	8-729-027-43	TRANSISTOR	DTC114EKA-T146			R603	1-249-421-11	CARBON	2.2K	5%	1/4W
Q904	8-729-015-11	TRANSISTOR	2SD1802FAST-TL			R607	1-216-025-00	RES,CHIP	100	5%	1/10W
Q905	8-729-027-43	TRANSISTOR	DTC114EKA-T146			R610	1-216-206-00	RES,CHIP	2.2K	5%	1/8W
Q906	8-729-209-15	TRANSISTOR	2SD2012			R611	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
Q907	8-729-620-06	TRANSISTOR	2SC3052-EF			R612	1-216-049-11	RES,CHIP	1K	5%	1/10W
Q908	8-729-620-06	TRANSISTOR	2SC3052-EF			R613	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
Q909	8-729-027-43	TRANSISTOR	DTC114EKA-T146			R614	1-216-049-11	RES,CHIP	1K	5%	1/10W
Q910	8-729-822-84	TRANSISTOR	2SB1202FAST			R615	1-249-415-11	CARBON	680	5%	1/4W
Q911	8-729-027-43	TRANSISTOR	DTC114EKA-T146			R616	1-249-417-11	CARBON	1K	5%	1/4W
Q912	8-729-101-07	TRANSISTOR	2SB798-DL			R617	1-216-049-11	RES,CHIP	1K	5%	1/10W
Q913	8-729-027-43	TRANSISTOR	DTC114EKA-T146			R618	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
						R619	1-249-417-11	CARBON	1K	5%	1/4W
						R622	1-216-097-00	RES,CHIP	100K	5%	1/10W
						R625	1-247-800-11	CARBON	51	5%	1/4W

Ref. No.	Part No.	Description			Remark	Ref. No.	Part No.	Description			Remark
R701	1-247-807-11	CARBON	100	5%	1/4W	R907	1-216-105-00	RES,CHIP	220K	5%	1/10W
R702	1-247-807-11	CARBON	100	5%	1/4W	R908	1-216-065-00	RES,CHIP	4.7K	5%	1/10W
R703	1-247-807-11	CARBON	100	5%	1/4W	R909	1-216-079-00	METAL CHIP	18K	5%	1/10W
R704	1-216-033-00	METAL CHIP	220	5%	1/10W	R910	1-216-105-00	RES,CHIP	220K	5%	1/10W
R708	1-249-411-11	CARBON	330	5%	1/4W	R911	1-216-079-00	METAL CHIP	18K	5%	1/10W
R709	1-216-295-00	SHORT	0			R912	1-216-049-11	RES,CHIP	1K	5%	1/10W
R710	1-216-027-00	METAL CHIP	120	5%	1/10W	R913	1-216-049-11	RES,CHIP	1K	5%	1/10W
R711	1-216-270-00	RES,CHIP	1M	5%	1/8W	R914	1-216-206-00	RES,CHIP	2.2K	5%	1/8W
R712	1-216-113-00	METAL CHIP	470K	5%	1/10W	R915	1-216-049-11	RES,CHIP	1K	5%	1/10W
R801	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	R916	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R803	1-216-254-00	RES,CHIP	220K	5%	1/8W	R917	1-216-077-00	METAL CHIP	15K	5%	1/10W
R804	1-216-105-00	RES,CHIP	220K	5%	1/10W	R918	1-216-182-00	RES,CHIP	220	5%	1/8W
R805	1-216-105-00	RES,CHIP	220K	5%	1/10W	R920	1-216-049-11	RES,CHIP	1K	5%	1/10W
R806	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	< SWITCH >					
R807	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	S801	1-762-638-11	SWITCH, TACTILE (RESET)			
R808	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	S802	1-571-478-11	SWITCH, SLIDE (FREQUENCY SELECT)			
R809	1-216-073-00	METAL CHIP	10K	5%	1/10W	< THERMISTOR >					
R810	1-216-105-00	RES,CHIP	220K	5%	1/10W	TH901	1-809-148-11	THERMISTOR PTH8L07AR2R0M1B510			
R811	1-216-073-00	METAL CHIP	10K	5%	1/10W	< TUNER >					
R812	1-216-073-00	METAL CHIP	10K	5%	1/10W	TU01	A-3301-323-A	TUNER ASSY			
R813	1-216-073-00	METAL CHIP	10K	5%	1/10W	< VIBRATOR >					
R815	1-216-049-11	RES,CHIP	1K	5%	1/10W	X701	1-579-345-11	VIBRATOR, CERAMIC (16.9344MHz)			
R816	1-216-049-11	RES,CHIP	1K	5%	1/10W	X801	1-760-223-11	VIBRATOR, CRYSTAL (4.5MHz)			
R818	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	*****					
R819	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	*	A-3309-227-A	SERVO BOARD, COMPLETE			
R820	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	*****					
R821	1-249-417-11	CARBON	1K	5%	1/4W	< CAPACITOR >					
R822	1-249-417-11	CARBON	1K	5%	1/4W	C1	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
R823	1-216-049-11	RES,CHIP	1K	5%	1/10W	C2	1-164-232-11	CERAMIC CHIP	0.01uF		50V
R824	1-216-105-00	RES,CHIP	220K	5%	1/10W	C3	1-135-145-11	TANTALUM CHIP	0.47uF	10%	35V
R825	1-216-105-00	RES,CHIP	220K	5%	1/10W	C4	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
R826	1-216-105-00	RES,CHIP	220K	5%	1/10W	C5	1-164-182-11	CERAMIC CHIP	0.0033uF	10%	50V
R827	1-216-234-00	RES,CHIP	33K	5%	1/8W	C6	1-163-011-11	CERAMIC CHIP	0.0015uF	10%	50V
R828	1-216-254-00	RES,CHIP	220K	5%	1/8W	C7	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
R829	1-216-254-00	RES,CHIP	220K	5%	1/8W	C9	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
R830	1-247-887-00	CARBON	220K	5%	1/4W	C10	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
R831	1-216-089-00	RES,CHIP	47K	5%	1/10W	C11	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
R832	1-247-887-00	CARBON	220K	5%	1/4W	C12	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V
R833	1-249-395-11	CARBON	15	5%	1/4W	C13	1-164-232-11	CERAMIC CHIP	0.01uF		50V
R834	1-216-049-11	RES,CHIP	1K	5%	1/10W	C14	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V
R838	1-216-049-11	RES,CHIP	1K	5%	1/10W	C15	1-164-232-11	CERAMIC CHIP	0.01uF		50V
R839	1-216-049-11	RES,CHIP	1K	5%	1/10W	C16	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V
R841	1-216-105-00	RES,CHIP	220K	5%	1/10W	C17	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
R842	1-216-105-00	RES,CHIP	220K	5%	1/10W	C18	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
R854	1-247-891-00	CARBON	330K	5%	1/4W	C19	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
R855	1-216-117-00	METAL CHIP	680K	5%	1/10W	C20	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
R856	1-216-049-11	RES,CHIP	1K	5%	1/10W	C21	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
R861	1-216-049-11	RES,CHIP	1K	5%	1/10W						
R862	1-216-005-00	METAL CHIP	15	5%	1/10W						
R901	1-216-182-00	RES,CHIP	220	5%	1/8W						
R903	1-249-411-11	CARBON	330	5%	1/4W						
R904	1-249-395-11	CARBON	15	5%	1/4W						
R906	1-216-089-00	RES,CHIP	47K	5%	1/10W						

SERVO

Ref. No.	Part No.	Description	Remark			
C22	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	
C23	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C24	1-163-259-11	CERAMIC CHIP	220PF	5%	50V	
C25	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V	
C26	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C27	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C28	1-163-023-00	CERAMIC CHIP	0.015uF	5%	50V	
C29	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C30	1-126-603-11	ELECT CHIP	4.7uF	20%	35V	
C31	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C32	1-163-023-00	CERAMIC CHIP	0.015uF	5%	50V	
C33	1-124-779-00	ELECT CHIP	10uF	20%	16V	
C34	1-109-982-11	CERAMIC CHIP	1uF	10%	10V	
C35	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C36	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C37	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C38	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C39	1-126-204-11	ELECT CHIP	47uF	20%	16V	
C40	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	

< CONNECTOR >

CN1	1-764-616-12	HOUSING, CONNECTOR (PC BOARD) 30P
CN2	1-565-728-11	CONNECTOR, FPC 17P
CN3	1-770-347-21	CONNECTOR, FPC 6P

< IC >

IC1	8-752-372-94	IC CXD2507AQ
IC2	8-752-074-34	IC CXA1782BQ
IC3	8-759-354-16	IC BA6796FP-T1

< JUMPER RESISTOR >

JR1	1-216-296-00	SHORT	0
JR2	1-216-296-00	SHORT	0
JR3	1-216-296-00	SHORT	0
JR4	1-216-296-00	SHORT	0
JR5	1-216-296-00	SHORT	0
JR6	1-216-296-00	SHORT	0
JR7	1-216-296-00	SHORT	0
JR8	1-216-296-00	SHORT	0
JR9	1-216-296-00	SHORT	0
JR10	1-216-296-00	SHORT	0
JR11	1-216-296-00	SHORT	0
JR12	1-216-296-00	SHORT	0
JR13	1-216-296-00	SHORT	0
JR14	1-216-296-00	SHORT	0
JR15	1-216-296-00	SHORT	0
JR16	1-216-296-00	SHORT	0
JR17	1-216-296-00	SHORT	0
JR18	1-216-296-00	SHORT	0
JR19	1-216-296-00	SHORT	0
JR20	1-216-296-00	SHORT	0
JR21	1-216-296-00	SHORT	0
JR22	1-216-296-00	SHORT	0

Ref. No.	Part No.	Description	Remark			
JR23	1-216-296-00	SHORT	0			
JR24	1-216-296-00	SHORT	0			
JR25	1-216-296-00	SHORT	0			
JR26	1-216-296-00	SHORT	0			
JR27	1-216-296-00	SHORT	0			
JR28	1-216-296-00	SHORT	0			
JR29	1-216-296-00	SHORT	0			
JR30	1-216-296-00	SHORT	0			
JR31	1-216-296-00	SHORT	0			
JR32	1-216-296-00	SHORT	0			
JR33	1-216-296-00	SHORT	0			
JR34	1-216-296-00	SHORT	0			
JR35	1-216-296-00	SHORT	0			
JR36	1-216-296-00	SHORT	0			
JR37	1-216-296-00	SHORT	0			
JR38	1-216-296-00	SHORT	0			
JR39	1-216-296-00	SHORT	0			
JR40	1-216-296-00	SHORT	0			
JR41	1-216-296-00	SHORT	0			
JR43	1-216-296-00	SHORT	0			

JR44	1-216-296-00	SHORT	0
JR45	1-216-296-00	SHORT	0
JR46	1-216-296-00	SHORT	0

< COIL >

L1	1-412-058-11	INDUCTOR CHIP	10uH
L2	1-412-058-11	INDUCTOR CHIP	10uH
L3	1-412-058-11	INDUCTOR CHIP	10uH

< TRANSISTOR >

Q1	8-729-904-60	TRANSISTOR	DTB113ZK
Q2	8-729-904-86	TRANSISTOR	2SB1197K-Q

< RESISTOR >

R1	1-216-073-00	METAL CHIP	10K	5%	1/10W
R2	1-216-097-00	RES,CHIP	100K	5%	1/10W
R3	1-216-121-00	RES,CHIP	1M	5%	1/10W
R4	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R5	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R6	1-216-073-00	METAL CHIP	10K	5%	1/10W
R7	1-216-009-00	METAL CHIP	22	5%	1/10W
R8	1-216-119-00	METAL CHIP	820K	5%	1/10W
R9	1-216-119-00	METAL CHIP	820K	5%	1/10W
R10	1-216-073-00	METAL CHIP	10K	5%	1/10W
R11	1-216-073-00	METAL CHIP	10K	5%	1/10W
R14	1-216-085-00	METAL CHIP	33K	5%	1/10W
R15	1-216-085-00	METAL CHIP	33K	5%	1/10W
R16	1-216-077-00	METAL CHIP	15K	5%	1/10W
R17	1-216-081-00	METAL CHIP	22K	5%	1/10W
R19	1-216-079-00	METAL CHIP	18K	5%	1/10W
R20	1-216-105-00	RES,CHIP	220K	5%	1/10W
R21	1-216-105-00	RES,CHIP	220K	5%	1/10W
R22	1-216-085-00	METAL CHIP	33K	5%	1/10W

Ref. No.	Part No.	Description	Remark
R23	1-216-121-00	RES,CHIP 1M 5%	1/10W
R24	1-216-073-00	METAL CHIP 10K 5%	1/10W
R27	1-216-295-00	SHORT 0	
R28	1-216-101-00	METAL CHIP 150K 5%	1/10W
R29	1-216-097-00	RES,CHIP 100K 5%	1/10W
R30	1-216-097-00	RES,CHIP 100K 5%	1/10W
R31	1-216-081-00	METAL CHIP 22K 5%	1/10W
R32	1-216-109-00	METAL CHIP 330K 5%	1/10W
R33	1-216-105-00	RES,CHIP 220K 5%	1/10W
R34	1-216-009-00	METAL CHIP 22 5%	1/10W
R35	1-216-065-00	RES,CHIP 4.7K 5%	1/10W
R36	1-216-097-00	RES,CHIP 100K 5%	1/10W
R37	1-216-117-00	METAL CHIP 680K 5%	1/10W
R38	1-216-109-00	METAL CHIP 330K 5%	1/10W
R39	1-216-101-00	METAL CHIP 150K 5%	1/10W
R40	1-216-114-00	RES,CHIP 510K 5%	1/10W
R41	1-216-093-00	METAL CHIP 68K 5%	1/10W
R42	1-216-103-00	METAL CHIP 180K 5%	1/10W
R43	1-216-097-00	RES,CHIP 100K 5%	1/10W
R44	1-216-085-00	METAL CHIP 33K 5%	1/10W
R45	1-216-081-00	METAL CHIP 22K 5%	1/10W
R46	1-216-097-00	RES,CHIP 100K 5%	1/10W
R47	1-216-105-00	RES,CHIP 220K 5%	1/10W
R48	1-216-073-00	METAL CHIP 10K 5%	1/10W
R49	1-216-065-00	RES,CHIP 4.7K 5%	1/10W
R50	1-216-065-00	RES,CHIP 4.7K 5%	1/10W
R51	1-216-295-00	SHORT 0	
< VARIABLE RESISTOR >			
RV1	1-238-091-11	RES, ADJ, CERMET 22K	
RV4	1-238-091-11	RES, ADJ, CERMET 22K	

*	1-659-834-11	SUB BOARD	

< CONNECTOR >			
CN1	1-770-347-21	CONNECTOR, FPC 6P	

MISCELLANEOUS			

11	1-769-786-81	CORD (WITH CONNECTOR) (POWER)	
207	1-659-880-11	MOTOR FLEXIBLE BOARD	
△ 210	8-820-010-06	PICK-UP, OPTICAL KSS-521A/K1RP	
212	1-659-881-11	PICK-UP FLEXIBLE BOARD	
F901	1-532-877-11	FUSE (BLADE TYPE) (AUTO FUSE) 10A	
M901	X-3371-664-2	MOTOR ASSY (SPINDLE)	
M902	A-3291-674-A	MOTOR ASSY, SLED	
M903	A-3291-676-A	MOTOR SUB ASSY, LOADING	

Ref. No.	Part No.	Description	Remark
ACCESSORIES & PACKING MATERIALS			

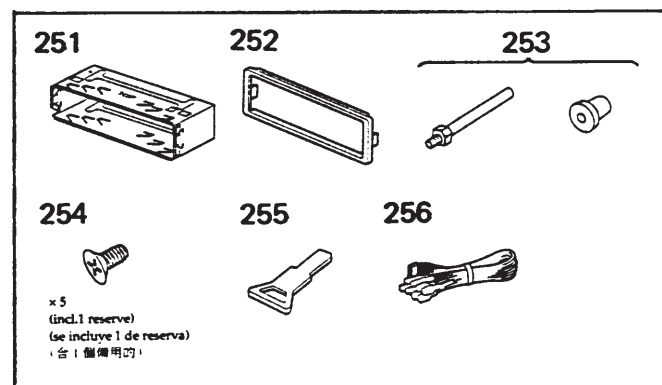
	3-861-516-11	MANUAL, INSTRUCTION (ENGLISH,SPANISH, CHINESE)	
	3-861-517-11	MANUAL, INSTRUCTION, INSTALL (ENGLISH, SPANISH,CHINESE)	
	X-3374-810-1	CASE ASSY	

HARDWARE LIST			

#1	7-685-792-09	SCREW +PTT 2.6X6 (S)	
#2	7-685-793-09	SCREW +PTT 2.6X8 (S)	
#3	7-621-772-10	SCREW +B 2X4	
#4	7-685-106-19	SCREW +P 2X10 TYPE2 NON-SLIT	
#5	7-627-850-28	SCREW, PRECISION +P 1.4X3	
#6	7-627-000-00	SCREW, PRECISION +P 1.7X2.2 TYPE 3	
#7	7-628-253-00	SCREW +PS 2X4	
#8	7-627-553-37	SCREW, PRECISION +P 2X3 TYPE 3	
#9	7-627-553-17	SCREW, PRECISION +P 2X2 TYPE 3	
#10	7-685-794-09	SCREW +PTT 2.6X10 (S)	

PARTS FOR INSTALLATION AND CONNECTIONS			

251	3-014-370-21	FRAME, FITTING	
252	X-3374-806-1	COLLAR ASSY	
253	X-3366-405-1	SCREW ASSY (EXP), FITTING	
254	3-934-325-01	SCREW (+K 5X8 TP)	
255	3-388-078-01	KEY	
256	1-769-786-81	CORD (WITH CONNECTOR) (POWER)	



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

