HCD-EC68/EC78

SERVICE MANUAL

Ver. 1.0 2008.02

Photo : HCD-EC78

AEP Model
E Model
HCD-EC68/EC78
UK Model
Australian Model
HCD-EC68

- HCD-EC68 is the amplifier, CD player, tape deck (except UK model) and tuner section in MHC-EC68.
- HCD-EC78 is the amplifier, CD player, tape deck and tuner section in MHC-EC78.

CD Section	Model Name Using Similar Mechanism	NEW
	Mechanism Type	CDM88A-K6BD90-WOD
	Optical Pick-up Block Name	KSM-213DCP
Tape deck Section (EXCEPT EC68: UK)	Model Name Using Similar Mechanism	HCD-EC77
	Tape Transport Mechanism Type	TCM-J1 or CS-21SC-900TP

SPECIFICATIONS

Amplifier section

HCD-EC78

European and Russian models:
Power output (rated):
Low channel
55 W + 55 W (at 8 Ω, 1 kHz, 1% THD)
High channel
55 W + 55 W (at 8 Ω, 8 kHz, 1% THD)
RMS output power (reference):
Low channel
75 W + 75 W (per channel at 8 Ω, 1 kHz, 10% THD)
High channel
75 W + 75 W (per channel at 8 Ω, 8 kHz, 10% THD)

Other models:
The following are measured at AC 120, 127, 220, 240 V, 50/60 Hz
Power output (rated):
Low channel
50 W + 50 W (at 8 Ω, 1 kHz, 1% THD)
High channel
50 W + 50 W (at 8 Ω, 8 kHz, 1% THD)
RMS output power (reference):
Low channel
70 W + 70 W (per channel at 8 Ω, 1 kHz, 10% THD)
High channel
70 W + 70 W (per channel at 8 Ω, 8 kHz, 10% THD)

HCD-EC68

European and Russian models (except for the UK model):
Power output (rated):
50 W + 50 W (at 6 Ω, 1 kHz, 1% THD)
RMS output power (reference):
70 W + 70 W (per channel at 6 Ω, 1 kHz, 10% THD)

The UK model:
Power output (rated):
55 W + 55 W (at 6 Ω, 1 kHz, 1% THD)
RMS output power (reference):
75 W + 75 W (per channel at 6 Ω, 1 kHz, 10% THD)

Other models:
The following are measured at AC 120, 127, 220, 240 V, 50/60 Hz
Power output (rated):
50 W + 50 W (at 6 Ω, 1 kHz, 1% THD)
RMS output power (reference):
70 W + 70 W (per channel at 6 Ω, 1 kHz, 10% THD)

Inputs

AUDIO IN (stereo mini jack): Sensitivity 800 mV, impedance 22 kilohms

Outputs

PHONES (stereo mini jack): Accepts headphones with an impedance of 8 Ω or more
SPEAKER: impedance
HCD-EC78: 8 Ω
HCD-EC68: 6 Ω

CD player section

System: Compact disc and digital audio system
Laser: Semiconductor laser (λ=770 – 810 nm)
Emission duration: continuous
Frequency response: 20 Hz – 20 kHz
Signal-to-noise ratio: More than 90 dB
Dynamic range: More than 88 dB

Tape deck section (except for the UK model)

Recording system: 4-track 2-channel, stereo

Tuner section

FM stereo, FM/AM superheterodyne tuner
Antenna:
FM lead antenna
AM loop antenna

FM tuner section:
Tuning range:
87.5 – 108.0 MHz (50 kHz step)
Intermediate frequency: 10.7 MHz

AM tuner section:
Tuning range
Australian, Pan-American models:
530 – 1,710 kHz (with 10 kHz tuning interval)
531 – 1,710 kHz (with 9 kHz tuning interval)
European and Russian models:
531 – 1,602 kHz (with 9 kHz tuning interval)
Other models:
530 – 1,610 kHz (with 10 kHz tuning interval)
531 – 1,602 kHz (with 9 kHz tuning interval)
Intermediate frequency: 450 kHz

– Continued on next page –

EXCEPT HCD-EC68: UK MODEL

COMPACT DISC DECK RECEIVER

HCD-EC68: UK MODEL

COMPACT DISC RECEIVER

9-889-007-01
2008B05-1

Sony Corporation
Audio Business Group
Published by Sony Techno Create Corporation

SONY®

General

Power requirements:
European and Russian models: AC 230 V, 50/60 Hz
Mexican model: AC 127 V, 60 Hz
Argentine model: AC 220 V, 50/60 Hz
Australian model: AC 230 – 240 V, 50/60 Hz
Other models: AC 120, 220 or 230 – 240 V, 50/60 Hz, adjustable with voltage selector

Power consumption:

HCD-EC78
European and Russian models: 160 W
0.5 W (in Power Saving Mode)
Mexican model: 160 W
Other models: 150 W

HCD-EC68
European and Russian models (except for the UK model): 100 W
The UK model: 110 W
0.5 W (in Power Saving Mode)
Other models: 100 W

Dimensions (w/h/d) (excl. speakers):
Approx. 200 × 306 × 415 mm

Mass (excl. speakers):

HCD-EC78
European and Russian models: Approx. 6.0 kg
Other models: Approx. 6.3 kg

HCD-EC68
European and Russian models (except for the UK model): Approx. 5.3 kg
The UK model: Approx. 5.0 kg
Other models: Approx. 5.3 kg

Design and specifications are subject to change without notice.

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 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.

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

SAFETY-RELATED COMPONET WARNING!

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

TABLE OF CONTENTS

SECTION 1
SERVICING NOTES

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

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 pickup block. Therefore, when checking the laser diode emission, observe from more than 30 cm away from the objective lens.

UNLEADED SOLDER

Boards requiring use of unleaded solder are printed with the lead-free mark (LF) indicating the solder contains no lead.
(Caution: Some printed circuit boards may not come printed with the lead free mark due to their particular size)

: LEAD FREE MARK

Unleaded solder has the following characteristics.

- Unleaded solder melts at a temperature about 40 °C higher than ordinary solder.
  Ordinary soldering irons can be used but the iron tip has to be applied to the solder joint for a slightly longer time.
  Soldering irons using a temperature regulator should be set to about 350 °C.
  Caution: The printed pattern (copper foil) may peel away if the heated tip is applied for too long, so be careful!
- Strong viscosity
  Unleaded solder is more viscou-s (sticky, less prone to flow) than ordinary solder so use caution not to let solder bridges occur such as on IC pins, etc.
- Usable with ordinary solder
  It is best to use only unleaded solder but unleaded solder may also be added to ordinary solder.

RELEASING THE DISC TRAY LOCK

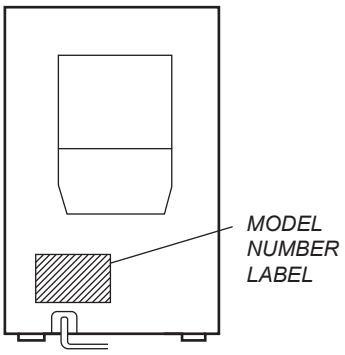
The disc tray lock function for the antitheft of an demonstration disc in the store is equipped.

Releasing Procedure:

1. Press [I/⏻] button to turn the power on.
2. Press the [FUNCTION] button to select CD function.
3. While pressing the [■] button, press the [⏏] button for more 5 seconds).
4. The message "UNLOCKED" is displayed and the disc tray is unlocked.

Note: When "LOCKED" is displayed, the slot lock is not released by turning power on/off with the [I/⏻] button.

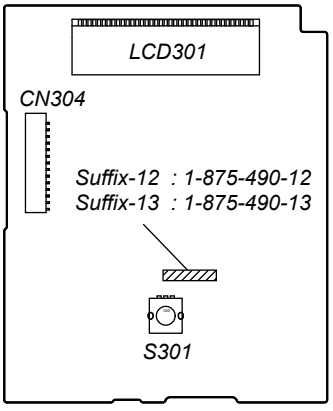
MODEL IDENTIFICATION
– Back Panel –



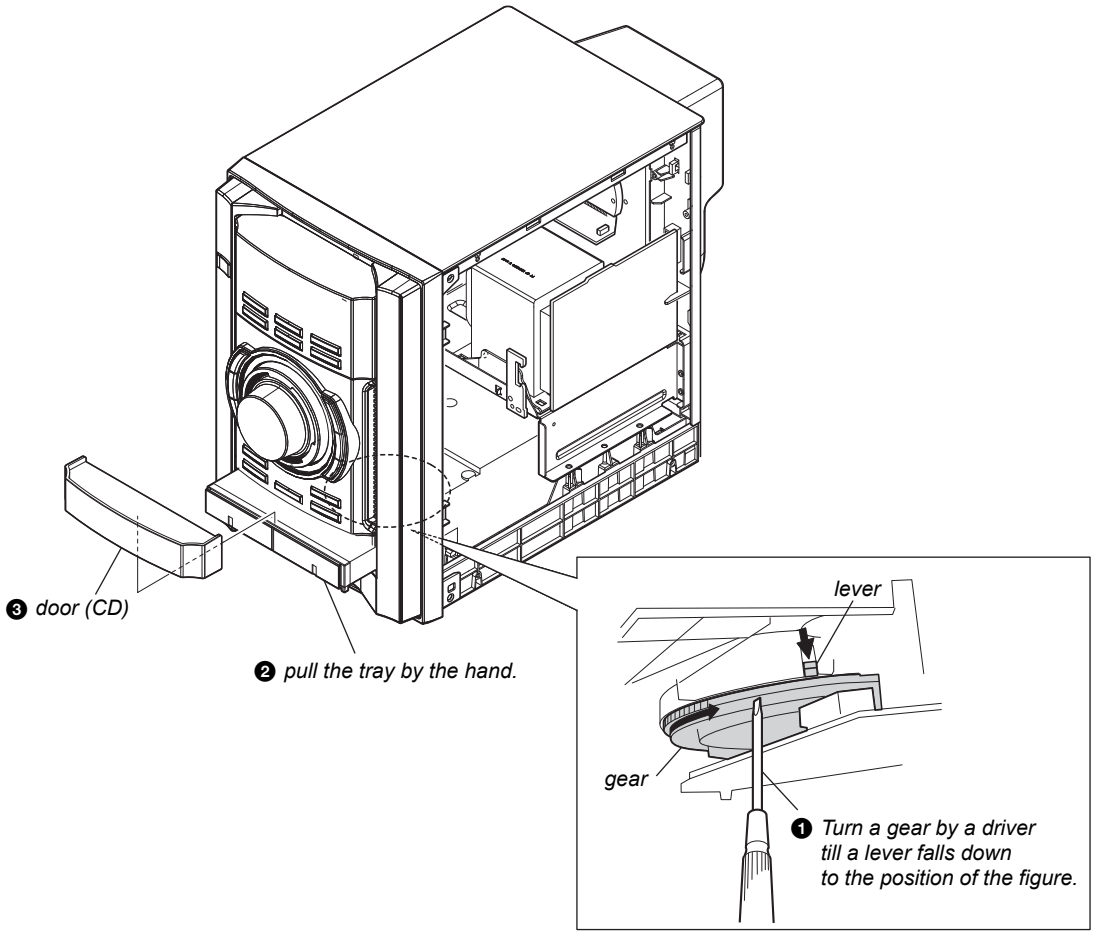
Model	Part No.
EC68: AEP model	3-296-777-0□
EC68: 120V AC area in E, Chilean and Peruvian models	3-296-779-0□
EC78: AEP model	3-296-780-0□
EC78: 120V AC area in E, Chilean and Peruvian models	3-296-782-0□
EC68: Russian model	3-398-081-0□
EC68: UK model	3-398-082-0□
EC68: 240V AC area in E model	3-398-083-0□
EC68: Australian model	3-398-084-0□
EC68: Mexican model	3-398-085-0□
EC68: Argentina model	3-398-086-0□
EC78: Russian model	3-398-088-0□
EC78: 240V AC area in E model	3-398-090-0□
EC78: Mexican model	3-398-091-0□
EC78: Argentina model	3-398-092-0□

SUFFIX-12/SUFFIX-13 DISCRIMINATION OF PANEL BOARD

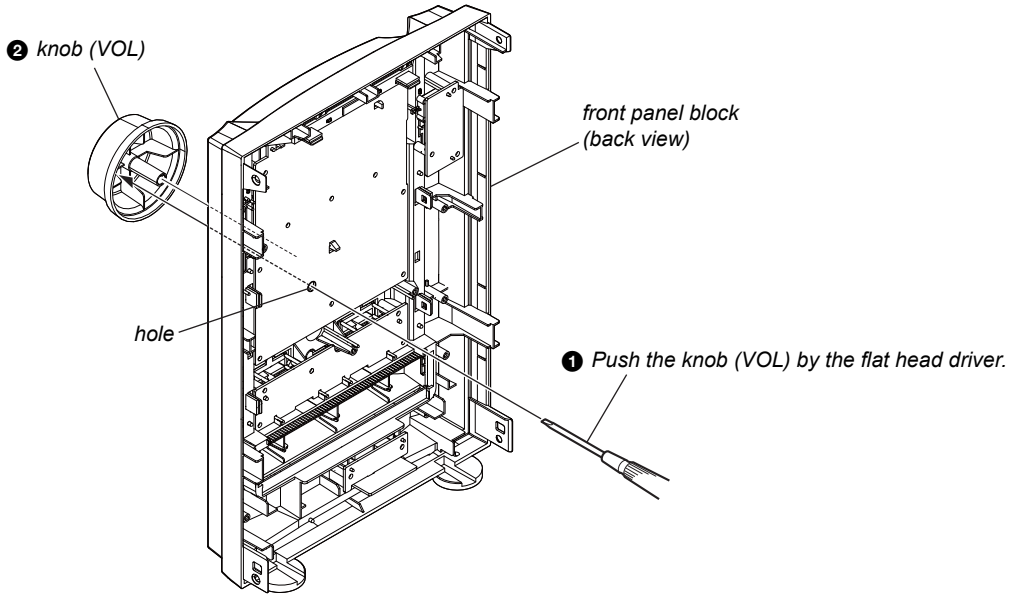
– PANEL Board (Component Side) –



HOW TO OPEN THE TRAY WHEN POWER SWITCH TURN OFF

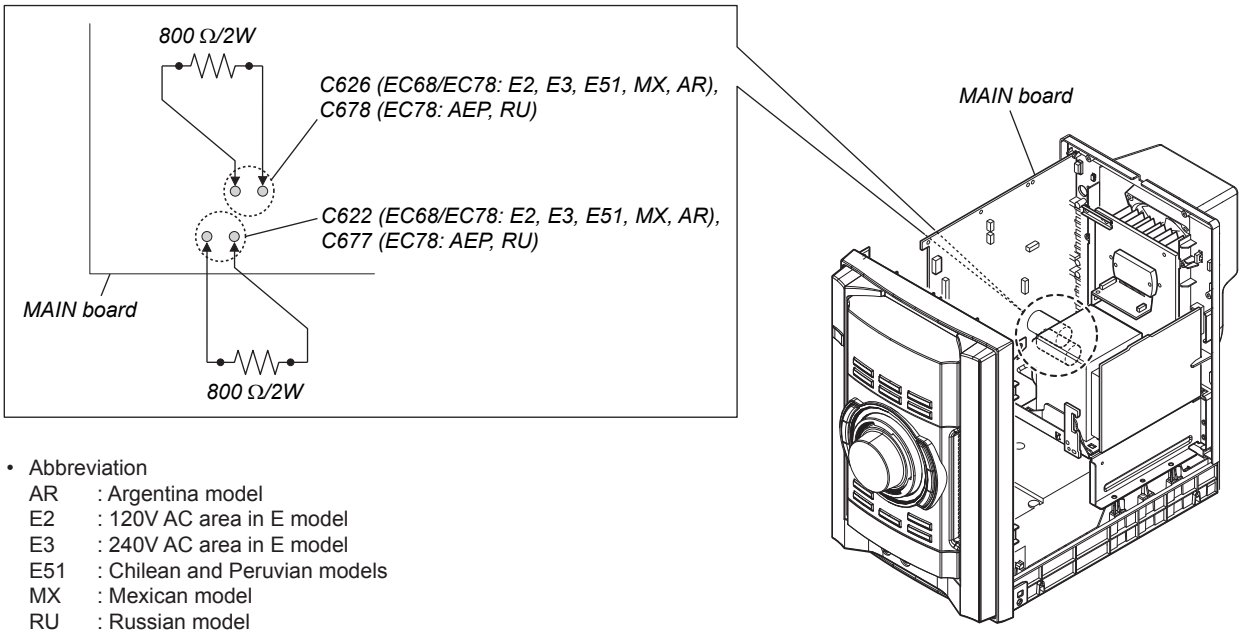


HOW TO REMOVE THE KNOB (VOL)



CAPACITOR DISCHARGE FOR ELECTRIC SHOCK PREVENTION

In checking the MAIN board, make a capacitor discharge of C622, C676, C677 and C678 for electric shock prevention.

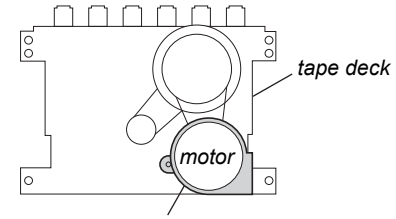


- Abbreviation
  AR : Argentina model
  E2 : 120V AC area in E model
  E3 : 240V AC area in E model
  E51 : Chilean and Peruvian models
  MX : Mexican model
  RU : Russian model

HOW TO DISTINGUISH TAPE MECHANISM DECK (EXCEPT EC68: UK MODEL)

Two kinds of tape mechanism decks installed by this set exist.

Please do the repair exchange after confirming which tape mechanism deck set of the repair according to how to distinguish the figure below.



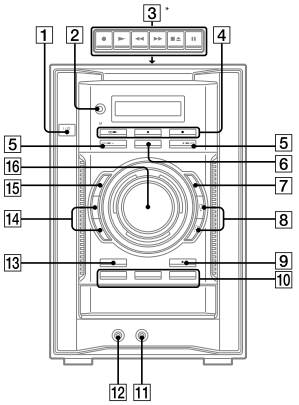
Metal part: TCM-J1
Mold part: CS-21SC-900TP

Tape Deck Name	Tape Deck Part No.	Belt Part No.
TCM-J1	A-1527-851-A	2-670-389-01 BELT (1) 3-214-817-01 BELT (FR)
CS-21SC-900TP	1-797-575-11	2-688-621-01 BELT (R/F) 2-688-622-01 BELT (MAIN)

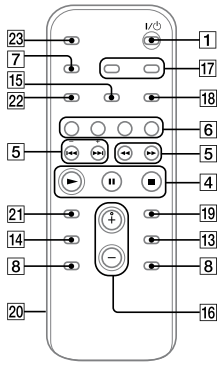
SECTION 2
GENERAL

This section is extracted from instruction manual.

Basic Operations



* Except for the UK model

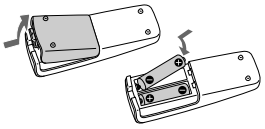


This manual mainly explains operations using the remote, but the same operations can also be performed using the buttons on the unit having the same or similar names.

Before using the system

To use the remote

Slide and remove the battery compartment lid 20, and insert the two R6 (size AA) batteries (supplied), ⊖ side first, matching the polarities shown below.



Notes on using the remote

- With normal use, the batteries should last for about six months.
- Do not mix an old battery with a new one or mix different types of batteries.
- If you do not use the remote for a long period of time, remove the batteries to avoid damage from battery leakage and corrosion.
- Batteries installed devices shall not be exposed to excessive heat such as sunshine, fire or the like.

To set the clock

1 Turn on the system.
Press I/⏻ (on/standby) 1 to turn on the system.

2 Select the clock set mode.
Press CLOCK/TIMER SET 17. The hour indication flashes. If "PLAY SET" flashes, press ⏮/⏭ 5 repeatedly to select "CLOCK," and then press ENTER 19.

3 Set the time.
Press ⏮/⏭ 5 repeatedly to set the hour, then press ENTER 19. The minute indication flashes.
Use the same procedure to set the minutes.

Note
The clock settings are lost when you disconnect the power cord or if a power failure occurs.

Selecting a music source

Press the following buttons (or press FUNCTION 6 repeatedly).

To select	Press
CD	CD 6.
Tuner	TUNER/BAND 6.
Tape[1]	TAPE 6.
Component[2] (connected using an audio cord)	FUNCTION 6 repeatedly until "AUDIO IN" appears.

[1] Except for the UK model.
[2] If the component has the AVLS (Automatic Volume Limiter System) or BASS BOOST function, turn off the function to avoid distorted sound from the speakers.

Adjusting the sound

To adjust the volume

Press VOLUME +/– (or turn the VOLUME control on the unit) 16.

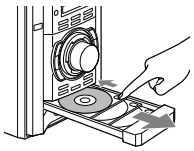
To add a sound effect

To	Press
Generate a more dynamic sound (Dynamic Sound Generator X-tra)	DSGX 14 on the unit.
Set the sound effect	EQ 14.

Playing a CD/MP3 disc

1 Select the CD function.
Press CD (or FUNCTION repeatedly) 6.

2 Place a disc.
Press ⏏ (open/close) 9 on the unit, and place a disc with the label side up on the disc tray. To place additional discs, slide the disc tray with your finger as shown below.
To close the disc tray, press ⏏ (open/close) 9 on the unit.
Do not force the disc tray closed with your finger, as this may damage the unit.



3 Select a disc.
If the discs are currently stopped, press DISC SKIP 13. To change discs while in other functions, press DISC 1 – 3 10 on the unit.

4 Start playback.
Press ▶ (play) (or CD ▶ (play) on the unit) 4.
To exchange other discs during playback, press EX-CHANGE 13 on the unit.

To	Press
Pause playback	❚❚ (pause) 4. To resume play, press the button again.
Stop playback	■ (stop) 4.
Select a folder on an MP3 disc	🗀 (select folder) +/– 8.
Select a track or file	⏮/⏭ (go back/go forward) (or ⏮/⏭ on the unit) 5.
Find a point in a track or file	Hold down ◀◀/▶▶ (rewind/fast forward) 5 during playback, and release the button at the desired point.
Select Repeat Play	REPEAT 18 repeatedly until "REP" or "REP1" appears.

To change the play mode

Press PLAY MODE 15 repeatedly while the player is stopped. You can select normal play (no display for all discs or "1 DISC" for a disc or "🗀" for all MP3 files in the folder on the disc), shuffle play ("SHUF" for all discs shuffle, "1 DISC SHUF" for one disc shuffle or "🗀 SHUF*" for folder shuffle), or program play ("PGM").
* When playing a CD-DA disc, 🗀 (SHUF) Play performs the same operation as 1 DISC (SHUF) Play.

Notes on Repeat Play

- All tracks or files on a disc are played repeatedly up to five times.
- You cannot select "REP" and "SHUF" (all discs shuffle) at the same time.
- "REP1" indicates that a single track or file is repeated until you stop it.

Notes on playing MP3 discs

- Do not save other types of tracks or files or unnecessary folders on a disc that has MP3 files.
- Folders that have no MP3 files are skipped.
- MP3 files are played back in the order that they are recorded onto the disc.
- The system can only play MP3 files that have a file extension of ".MP3".
- If there are files on the disc that have the ".MP3" file extension, but that are not MP3 files, the unit may produce noise or may malfunction.
- The maximum number of:
  - —folders is 150 (including the root folder).
  - —MP3 files is 255.
  - —MP3 files and folders that can be contained on a single disc is 300.
  - —folder levels (the tree structure of files) is eight.
- Compatibility with all MP3 encoding/writing software, recording device, and recording media cannot be guaranteed. Incompatible MP3 discs may produce noise or interrupted audio or may not play at all.

Notes on playing multisession discs

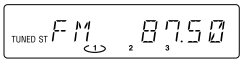
- If the disc begins with a CD-DA (or MP3) session, it is recognized as a CD-DA (or MP3) disc, and playback continues until another session is encountered.
- A disc with a mixed CD format is recognized as a CD-DA (audio) disc.

Listening to the radio

1 Select "TUNER FM" or "TUNER AM."
Press TUNER/BAND 6 repeatedly.

2 Select the tuning mode.
Press TUNING MODE 15 repeatedly until "AUTO" appears.

3 Tune in the desired station.
Press +/– (or TUNING +/– on the unit) 5.
Scanning stops automatically when a station is tuned in, and then "TUNED" and "ST" (for stereo programs) appear.



To stop automatic scanning

Press ■ (stop) 4.

To tune in a station with a weak signal

If "TUNED" does not appear and the scanning does not stop, press TUNING MODE 6 repeatedly until "MANUAL" appears, and then press +/– (or TUNING +/– on the unit) 5 repeatedly to tune in the desired station.

To reduce static noise on a weak FM stereo station

Press FM MODE 18 repeatedly until "MONO" appears to turn off stereo reception.

Playing a tape (Except for the UK model)

1 Select a tape function.
Press TAPE (or FUNCTION repeatedly) 6.

2 Insert a tape.
Press ■⏏ (stop/eject) 3 on the unit, and insert the tape into the cassette holder. Make sure there is no slack in the tape to avoid damaging the tape or the tape deck.

3 Start playback.
Press ▶ (play) 3 on the unit.

To	Press
Pause playback	❚❚ (pause) 3 on the unit. To resume play, press the button again.
Stop playback	■⏏ (stop/eject) 3 on the unit.
Rewind or fast forward*	◀◀/▶▶ (rewind/fast forward) 3 on the unit.

* Be sure to press ■⏏ (stop/eject) 3 on the unit after the tape has been wound or rewound to the end.

Note
Do not turn off the system during playback or recording.

Changing the display

To	Press
Change information on the display*	DISPLAY 7 repeatedly when the system is turned on.
Change Display mode (See below.)	DISPLAY 7 repeatedly when the system is turned off.

* For example, you can view CD/MP3 disc information, such as;
- —track or file number during normal play.
- —track or file name ("♫") during normal play.
- —artist name ("👤") during normal play.
- —album or folder name ("🗀") during normal play.
- —total playing time while the player is stopped.

The system offers the following display modes.

Display mode	When the system is off,
Power Saving Mode[1]	The display is turned off to conserve power. The timer and clock continue to operate.
Clock[2]	The clock is displayed.

[1] You cannot set the clock in Power Saving Mode.
[2] The clock display automatically turns to Power Saving Mode after eight seconds.

Notes on the display information

- Characters that cannot be displayed appear as "_".
- The following are not displayed;
  - —total playing time for an MP3 disc.
  - —remaining playing time for an MP3 file.
- The following are not displayed correctly;
  - —elapsed playing time of an MP3 file encoded using VBR (variable bit rate).
  - —folder and file names that do not follow either the ISO9660 Level 1, Level 2 or Joliet in the expansion format.
- The following are displayed;
  - —total playing time for a CD-DA disc when the play mode is "1 DISC".
  - —remaining playing time for a track.
  - —ID3 tag information for MP3 files when ID3 version 1 and version 2 tags are used (ID3 version 2 tag information display has priority when both ID3 version 1 and version 2 tags are used for a single MP3 file).
  - —up to 15 characters of ID3 tag information using uppercase letters (A to Z), numbers (0 to 9), and symbols (< > * + , – / @ [\ ] _).

Using optional audio components

To connect an optional headphones

Connect headphones to the PHONES jack 12 on the unit.

To connect an optional component

Connect additional audio source components to the AUDIO IN jack 11 on the unit using an analog audio cord (not supplied). Turn down the volume on the system, and then select the AUDIO IN function.

Other Operations

Creating your own CD program (Program Play)

Use buttons on the remote to create your own program.

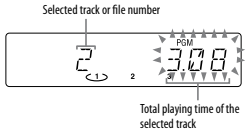
1 Press CD [6] to select the CD function.

2 Press PLAY MODE [15] repeatedly until "PGM" appears while the player is stopped.

3 Press DISC SKIP [13] to select a disc.

4 Press I◄◄ /►►I (or I◄◄/►►I on the unit) [5] repeatedly until the desired track number appears.

When programming MP3 files, press 🗀 +/– [8] repeatedly to select the desired folder, and then select the desired file.



5 Press ENTER [19] to add the track or file to the program.

6 Repeat steps 3 through 5 to program additional tracks or files, up to a total of 25 tracks or files.

7 To play your program of tracks or files, press ► (or CD ► on the unit) [4].

The program remains available until you open the disc tray. To play the same program again, select the CD function, and then press ► (or CD ► on the unit) [4].

To cancel Program Play
Press PLAY MODE [15] repeatedly until "PGM" disappears while the player is stopped.

To delete the last track or file of the program
Press CLEAR [21] while the player is stopped.

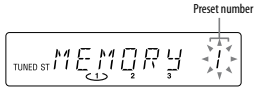
To view program information, such as total track number of the program
Press DISPLAY [7] repeatedly.

Presetting radio stations

You can preset your favourite radio stations and tune them in instantly by selecting the corresponding preset number.

1 Tune in the desired station (See "Listening to the radio").

2 Press TUNER MEMORY [22].



3 Press +/– (or TUNING +/– on the unit) [5] repeatedly to select your desired preset number.

If another station is already assigned to the selected preset number, the station is replaced by the new stations.

4 Press ENTER [19].

5 Repeat steps 1 through 4 to store other stations.

You can preset up to 20 FM and 10 AM stations. The preset stations are retained for about half a day even if you disconnect the power cord or if a power failure occurs.

6 To call up a preset radio station, press TUNING MODE [15] repeatedly until "PRESET" appears, and then press +/– (or TUNING +/– on the unit) [5] repeatedly to select the desired preset number.

Recording onto a tape (Except for the UK model)

Use a TYPE I (normal) tape only.

You can record just the portions you like from a sound source, including connected audio components.

Use buttons on the unit to control tape recording.

1 Insert a recordable tape into the cassette holder with the side you want to record facing up.

2 Prepare the recording source.

Select the desired source to record.

Place the disc you want to record and press DISC SKIP [13] to select a disc.

When recording a folder from an MP3 disc, press PLAY MODE [15] repeatedly to select "🗀," and then press 🗀 +/– [8] repeatedly to select the desired folder.

To record only your favourite CD tracks or MP3 files in your desired order, perform steps 2 to 5 of "Creating your own CD program."

3 Start recording.

Press ● (record) [3], and then start playing the desired recording source.

The CD starts playing automatically after 10 seconds have passed.

If there is noise while recording from the tuner, reposition the appropriate antenna to reduce the noise.

While recording, you cannot listen to other sources.

To stop recording
Press ■⏏ [3].

Tip
We recommend that you press ❚❚ [3] first, and then press ■⏏ [3] to avoid noise being recorded when you stop recording.

Using the timers

The system offers two timer functions. If you use both timers, the Sleep Timer has priority.
Use buttons on the remote to use the timer functions.

Sleep Timer:
You can fall asleep to music. This function works even if the clock is not set.
Press SLEEP [23] repeatedly. If you select "AUTO," the system automatically turns off after the current disc or tape stops or in 100 minutes.
If the tape deck is still playing or recording at the set time, the system turns off after the tape deck stops.

Play Timer:
You can wake up to CD or tuner at a preset time.
Make sure you have set the clock.

1 Prepare the sound source.

Press VOLUME +/– (or turn VOLUME on the unit) [16] to adjust the volume.

To start from a specific CD track or MP3 file, create your own CD program.

2 Press CLOCK/TIMER SET [17].

3 Press I◄◄ /►►I [5] repeatedly to select "PLAY SET," then press ENTER [19].

"ON TIME" appears, and the hour indication flashes.

4 Set the time to start playback.

Press I◄◄ /►►I [5] repeatedly to set the hour, then press ENTER [19].

The minute indication flashes. Use the procedure above to set the minutes.

5 Use the same procedure as in step 4 to set the time to stop playback.

6 Select the sound source.

Press I◄◄ /►►I [5] repeatedly until the sound source you want appears, then press ENTER [19]. The display shows the timer settings.

7 Press I/⏻ [1] to turn off the system.

If the system is on at the preset time, the Play Timer will not play.

To activate or check the timer again
Press CLOCK/TIMER SELECT [17], press I◄◄ /►►I [5] repeatedly until "PLAY SEL" appears, then press ENTER [19].

To cancel the timer
Repeat the same procedure as above until "OFF" appears, and then press ENTER [19].

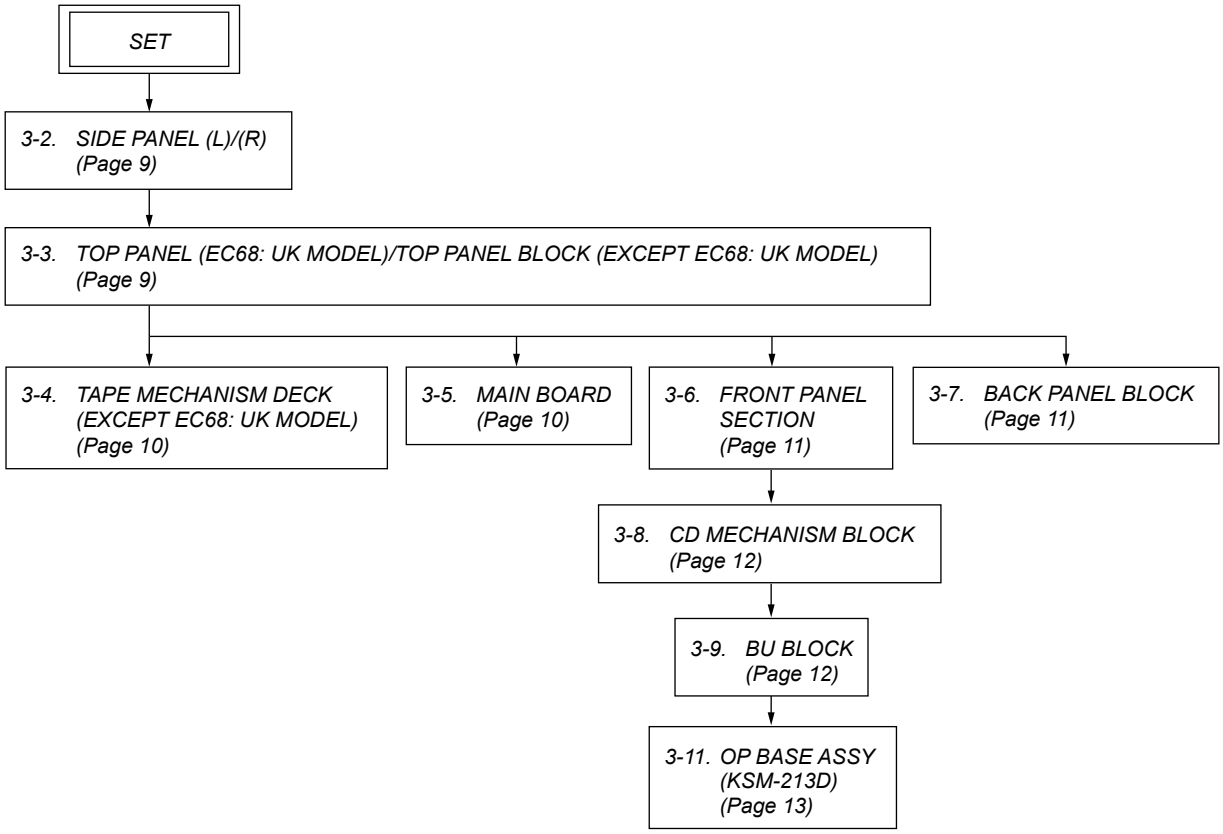
To change the setting
Start over from step 1.

Tip
The Play Timer setting remains as long as the setting is not cancelled manually.

SECTION 3
DISASSEMBLY

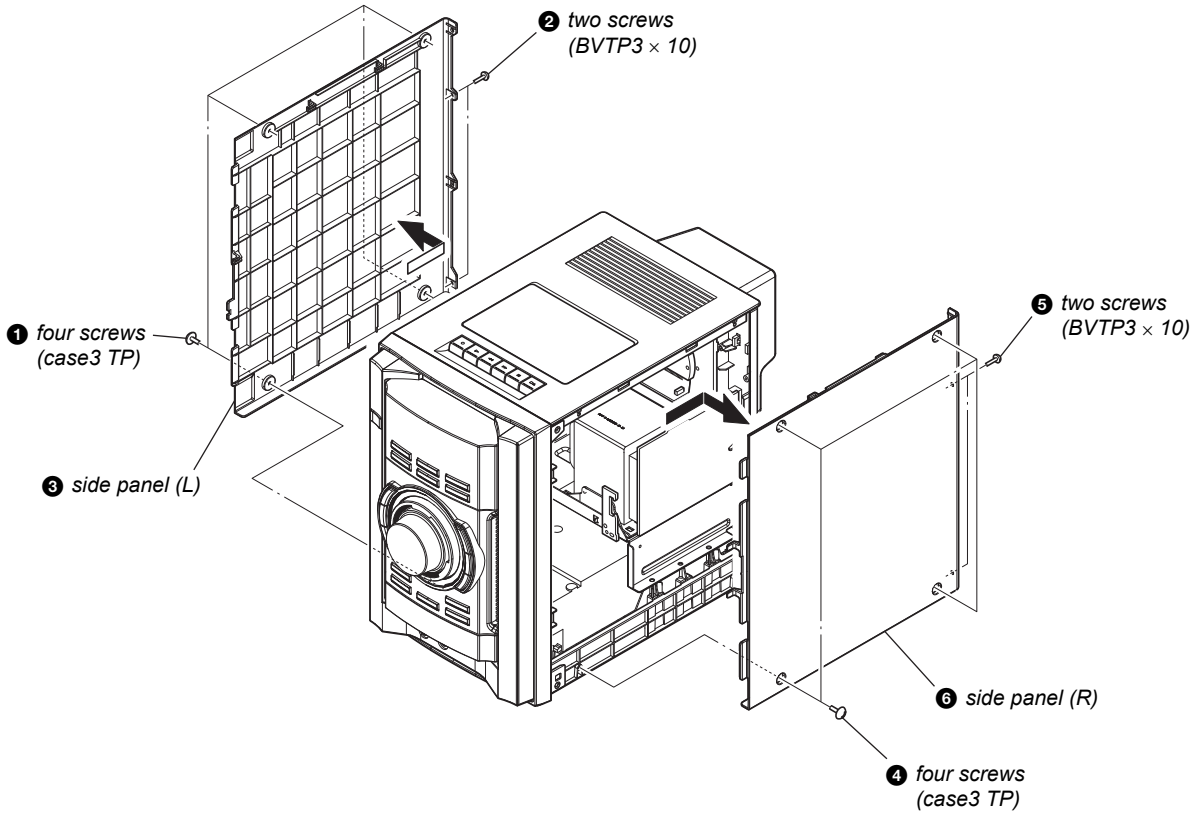
• This set can be disassembled in the order shown below.

3-1. DISASSEMBLY FLOW

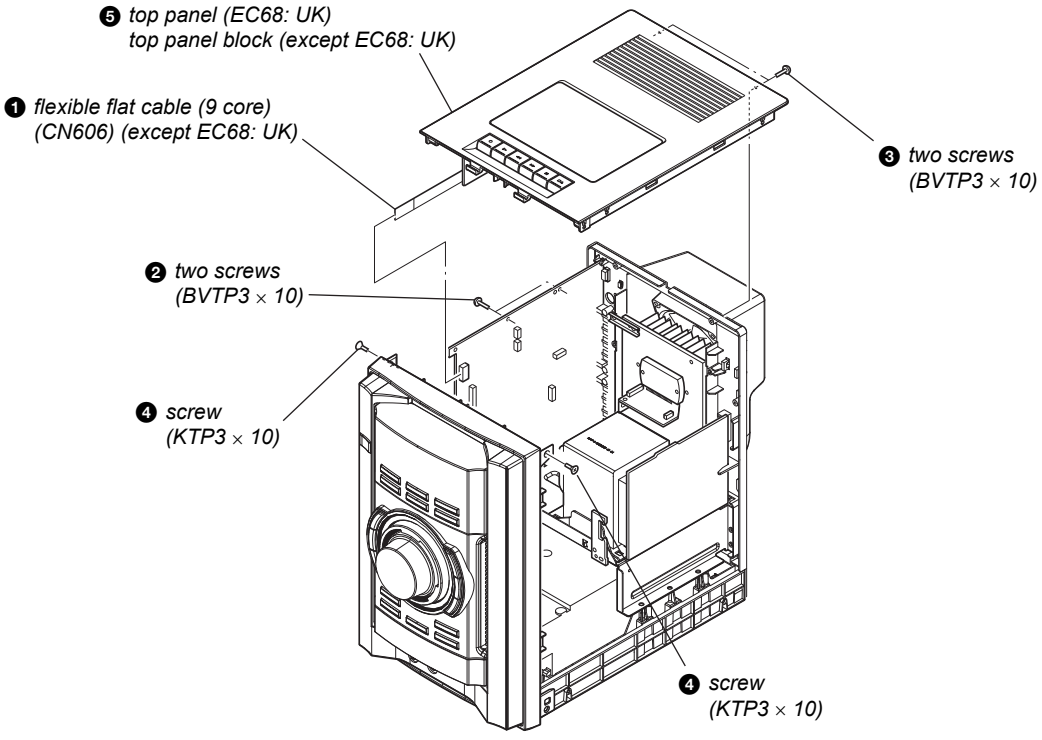


Note: Follow the disassembly procedure in the numerical order shown below.

3-2. SIDE PANEL (L)/(R)

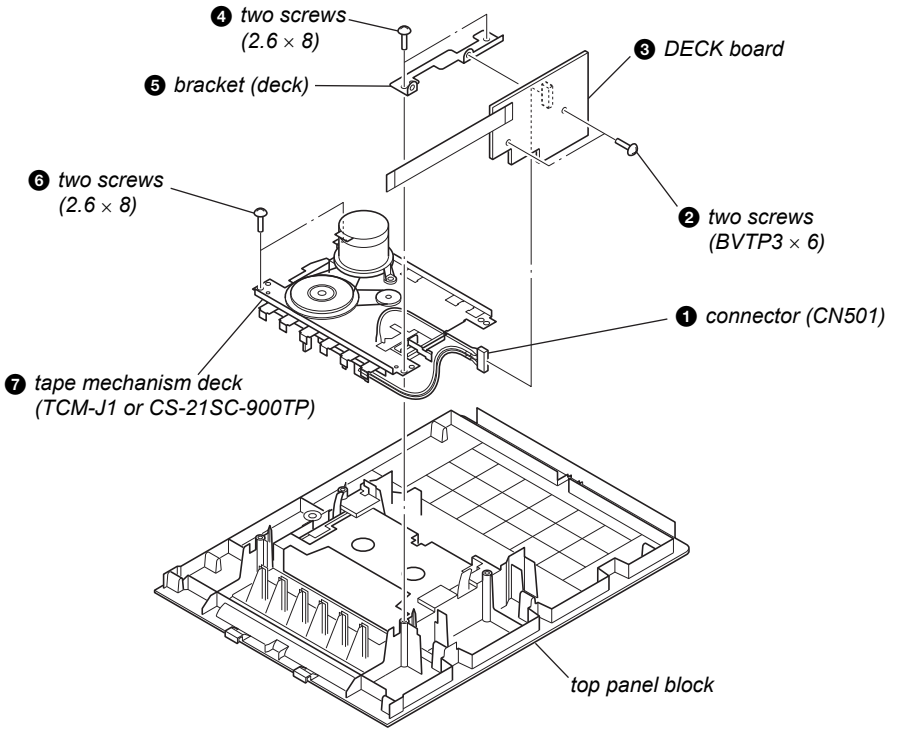


3-3. TOP PANEL (EC68: UK MODEL)/TOP PANEL BLOCK (EXCEPT EC68: UK MODEL)

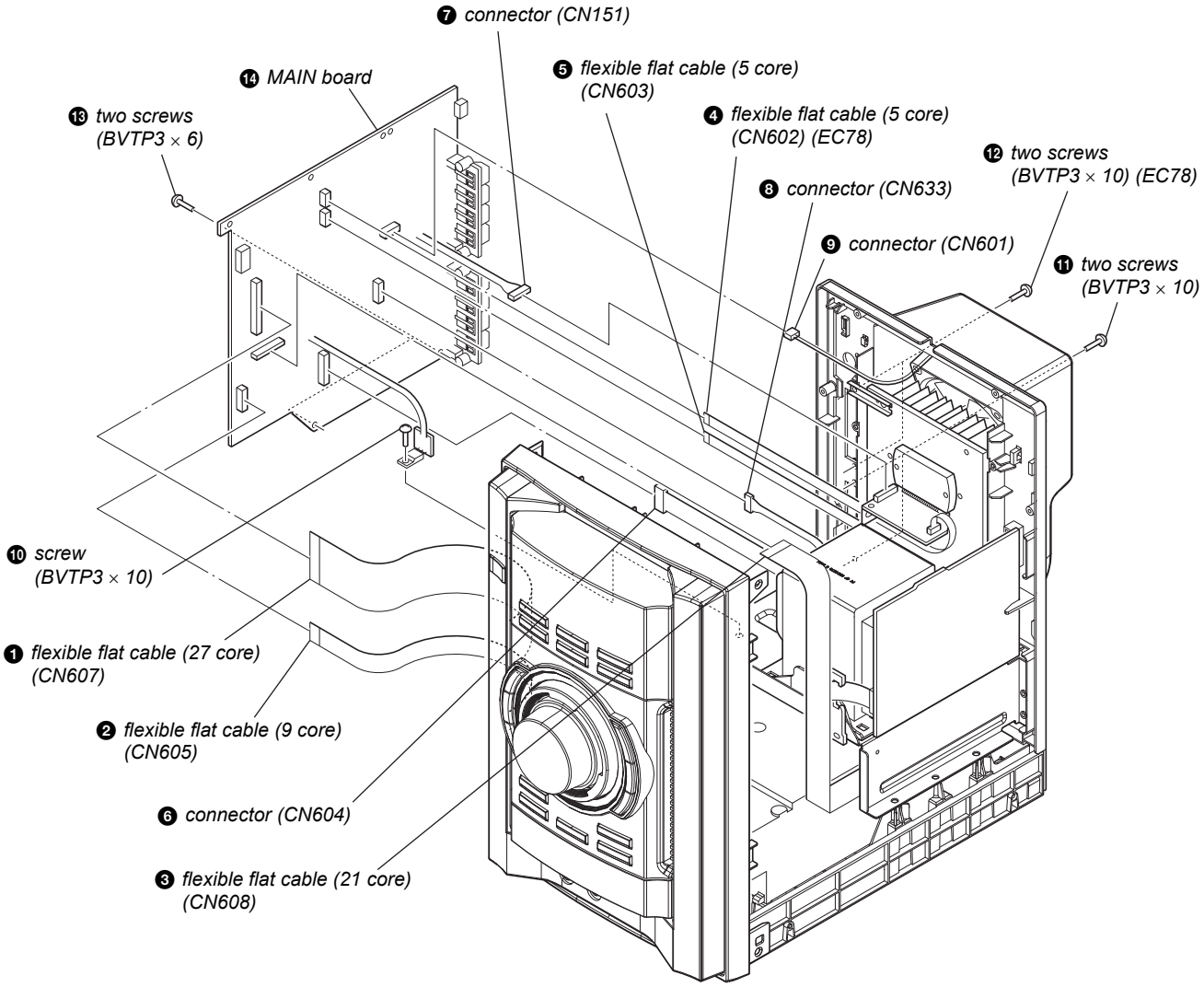


3-4. TAPE MECHANISM DECK (EXCEPT EC68: UK MODEL)

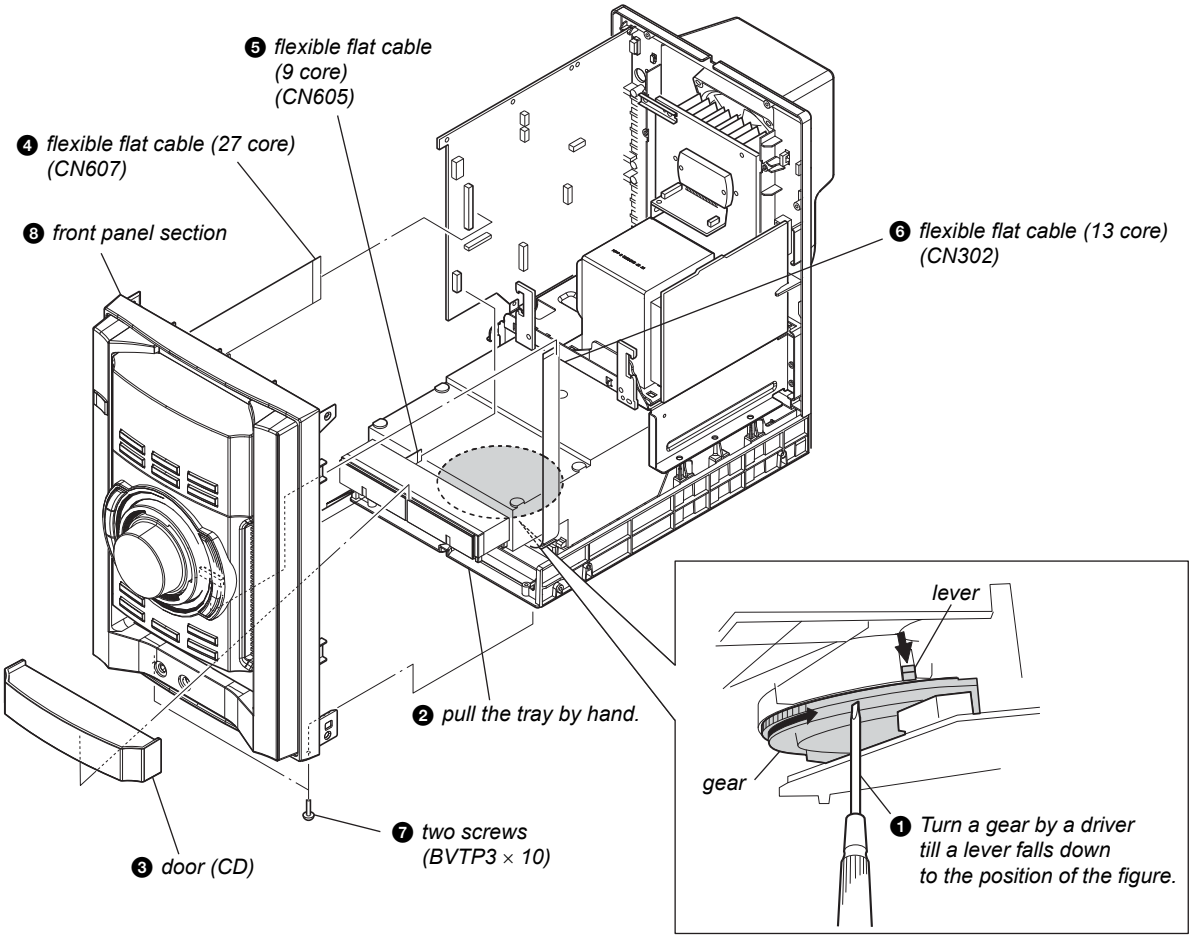
Note: This illustration is seeing top panel block from inside.



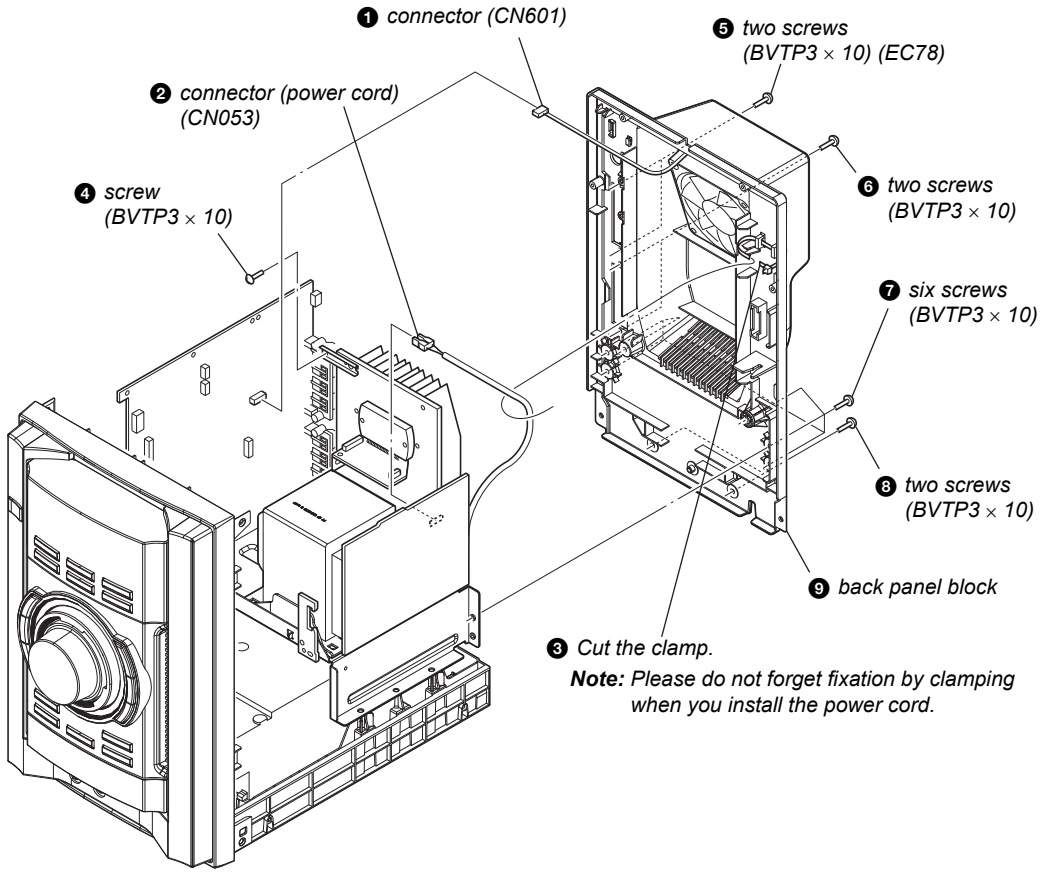
3-5. MAIN BOARD



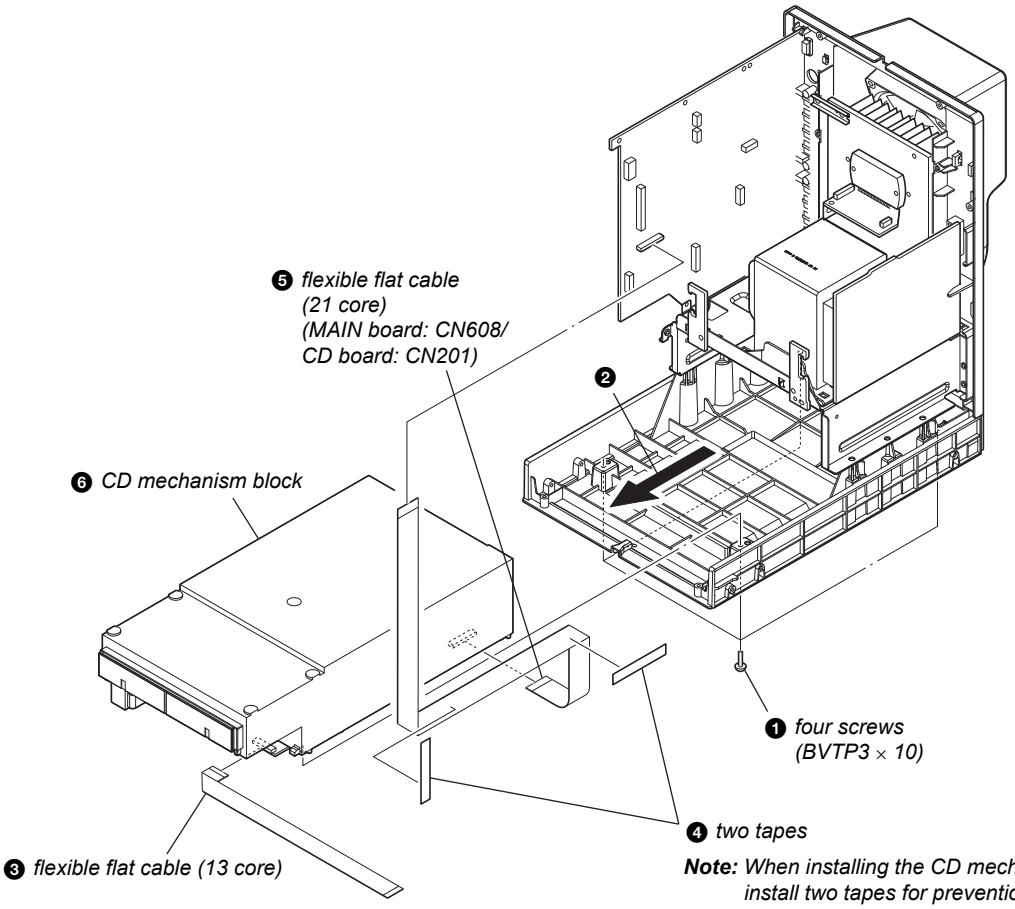
3-6. FRONT PANEL SECTION



3-7. BACK PANEL BLOCK

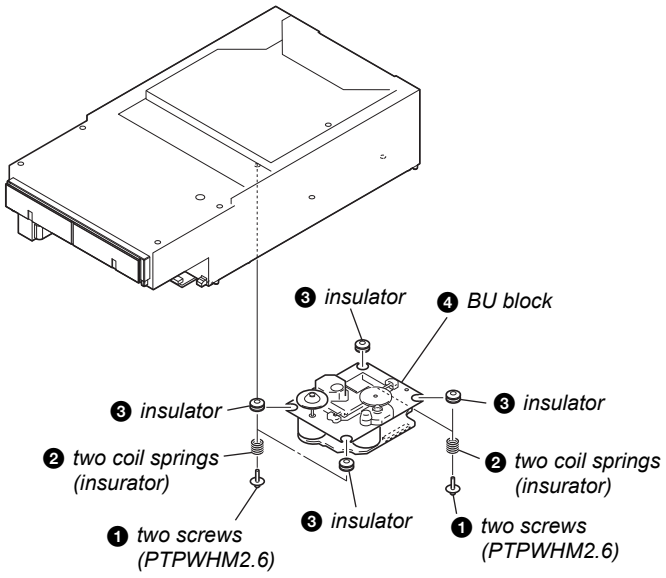


3-8. CD MECHANISM BLOCK

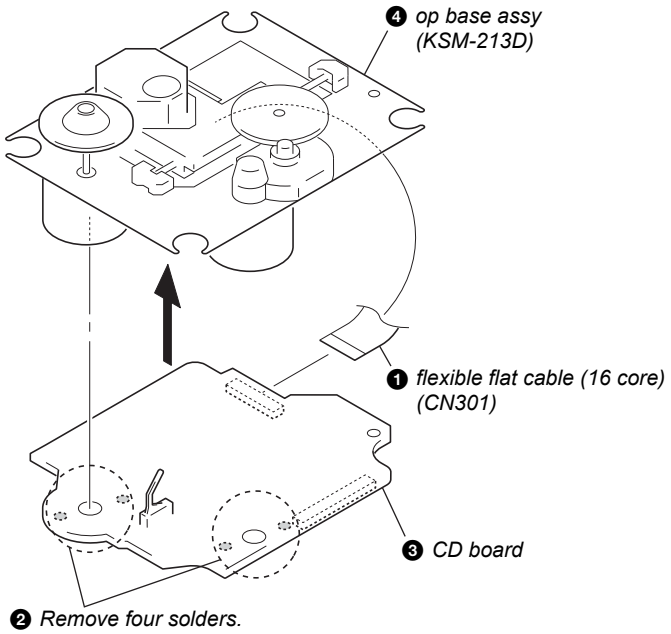


Note: *When installing the CD mechanism section, install two tapes for prevention of noise.*

3-9. BU BLOCK



3-10. OP BASE ASSY (KSM-213D)



SECTION 4
TEST MODE

COLD RESET

The cold reset clears all data including preset data stored in the memory to initial conditions. Execute this mode when returning the set to the customer.

Procedure:

1. In the standby status, press the [I/⏻] button to turn the power on.
2. Press three buttons of [■], [FUNCTION] and at last [I/⏻] simultaneously.
3. When "RESET" appears, the set enters standby status.

PANEL TEST MODE

Enter The Panel Test Mode

Procedure:

1. In the standby status, press the [I/⏻] button to turn the power on.
2. Press three buttons of [DISPLAY], [■], and [FUNCTION] simultaneously.
3. When the panel test mode is activated, LEDs and segments of the liquid crystal display are all turned on.

Version Check

Procedure:

1. In the panel test mode (all LEDs and segments of the liquid crystal display are turned on), press the [FUNCTION] button.
2. On the liquid crystal display, date and version are displayed "xxxxxxxx". For example, "1114V102".
3. From this status, press the [▮▮] button, and the destination and model name are displayed. For example, "CE2" and "ESLO–"
4. To release from this mode, press three buttons of [DISPLAY], [■], and [FUNCTION] simultaneously.

Key Test Mode

Procedure:

1. In the panel test mode (all LEDs and segments of the liquid crystal display are turned on), press the [DISPLAY] button.
2. The message "KEY0 0 0"displayed. Whenever any buttons are pressed and the [VOLUME] dial is turned, the value is changed.
3. To release from this mode, press three buttons of [DISPLAY], [■], and [FUNCTION] simultaneously.

CD REPEAT 5 LIMIT CANCEL MODE

Number of repeats for CD playback is 5 times when the repeat mode is "REPEAT". This mode enables CD to repeat playback for limitless times.

Procedure:

1. Press the [I/⏻] button to turn the power on.
2. Press the [FUNCTION] button to select CD function.
3. Press three buttons of [DISPLAY], [■], and [⏮ ◀◀ – TUNING] simultaneously.
4. It enters the CD repeat 5 limit cancel mode and displays "NO LIMIT"
5. To release this mode, press the [I/⏻] button to turn the power off.

CD SHIP MODE

This mode can run the CD sled motor optionally. Use this mode, for instance, when cleaning the optical pick-up.

Procedure:

1. Press the [I/⏻] button to turn the power on.
2. Confirm there is no disc in all trays.
3. Press the [FUNCTION] button to select CD function.
4. Press two buttons of [CD ►] and [I/⏻] simultaneously.
5. Set to the CD ship mode. (chucking on)
6. After blink "STANDBY", "LOCK" is displayed, disconnect the AC plug.

CD TRAY LOCK

This mode is for the antitheft of CD disc in shop. (not for transport)

Procedure:

1. Press the [I/⏻] button to turn the power on.
2. Press the [FUNCTION] button to select CD function.
3. Insert a disc.
4. While pressing the [■] button, press the [⏏] button for more 5 seconds.
5. The message "LOCKED" is displayed and the disc tray is locked. (Even if exiting from this mode, the disc tray is still locked)
6. If press the [⏏] button to eject the disc, the message "LOCKED" is displayed and can not eject the disc.
7. To release this lock, while pressing the [■] button, press the [⏏] button for 5 seconds again.
8. The message "UNLOCKED" is displayed and the disc tray is unlocked.

CD POWER MANAGE

This mode is for switch the CD power supply on/off. Even if this state pulls out AC plug, it is held.

Procedure:

1. Press the [I/⏻] button to turn the power on.
2. Press the [FUNCTION] button to select CD function.
3. Press the [I/⏻] button again to turn the power off (standby).
4. After pressing the [DISPLAY] button, while pressing the [■] button, press the [I/⏻] button.
5. It turns power on and display "CD POWER", then display "ON" or "OFF".

CHANGE-OVER THE AM TUNING INTERVAL

(Except EC68: AEP, UK and Russian/EC78: AEP and Russian models)

The AM tuning interval can be changed over 9 kHz or 10 kHz.

Procedure:

1. Press the [I/⏻] button to turn the power on.
2. Press the [TUNER/BAND] button to select TUNER (AM) function.
3. Press the [I/⏻] button again to turn the power off (standby).
4. After pressing the [DISPLAY] button, while pressing the [TUNING + ▶▶ ▷▷⏭] button, press the [I/⏻] button.
5. It turns power on and display "9k STEP" or "10k STEP", and thus the tuning interval is changed over.

CD SHIP AND COLD RESET

Procedure:

1. Press the [I/⏻] button to turn the power on.
2. Confirm there is no disc in all trays.
3. Press the [FUNCTION] button to select CD function.
4. Press three buttons of [PLAY MODE/TUNING MODE], [⏮ ◀◀ – TUNING] and [I/⏻] simultaneously.
5. After blink "STANDBY", "RESET" is displayed, disconnect the AC plug.

COMMON TEST MODE

Procedure:

1. Press the [I/⏻] button to turn the power on.
2. Press three buttons of [PLAY MODE/TUNING MODE], [TUNING + ▶▶ ▷▷⏭], and [DISPLAY] simultaneously.
3. It enters the common test mode and displays "COMMON".
4. Each time the [VOLUME] dial is turned, "VOL MIN", "VOL 16", and "VOL MAX" are displayed
5. To release from this mode, press three buttons of [PLAY MODE/TUNING MODE], [TUNING + ▶▶ ▷▷⏭], and [DISPLAY] simultaneously.

[CD SERVO TEST MODE]

This mode can check the servo system operations of the optical pick-up system (= optical unit + CD board).

Note1: Do not enter the [CD SERVO TEST MODE] while any other test mode is in progress.

Note2: Do not enter any other test mode while the [CD SERVO TEST MODE] is in progress.

How to Enter the CD Servo Test Mode

Procedure:

1. Press the [I/⏻] button to turn the power on.
2. Press the [FUNCTION] button to select CD function.
3. Press three buttons of [CD ►], [⏮ ◄◄ – TUNING] and [DISPLAY] simultaneously.
4. It enters the CD servo test mode and displays “BDT S CU”.

How to Exit from the CD Servo Test Mode

Procedure:

1. Press three buttons of [CD ►], [⏮ ◄◄ – TUNING] and [DISPLAY] simultaneously.
2. It releases from the CD Servo Test Mode and returns to the ordinary CD function.

Key Operation:

[🗀 +], [🗀 –]:

Use these keys to move between the five modes contained in the CD Servo Test Mode, that are the S-Curve Mode, the RAM Read Mode, the RAM Write Mode, the Command Out Mode and the Error Rate Mode as described below. Also, use these keys to move between the menus within the respective five modes. When [🗀 +] is pressed, the screen advances to the next menu or to the next mode. When [🗀 –] is pressed, the screen returns back to the previous menu or to the previous mode. Use these keys also to increase or decrease the numeric value when changing the numeric value. Pressing [🗀 +] increases the value and pressing [🗀 –] decreases the value.

[DSGX] , [EQ]:

Use these keys to move between the different layers of the hierarchy of the CD Servo Test Mode shown below. Press [DSGX] to move down to the lower layer, and press [EQ] to move up to the higher layer.

[TUNING + ►► ⏭], [⏮ ◄◄ – TUNING]:

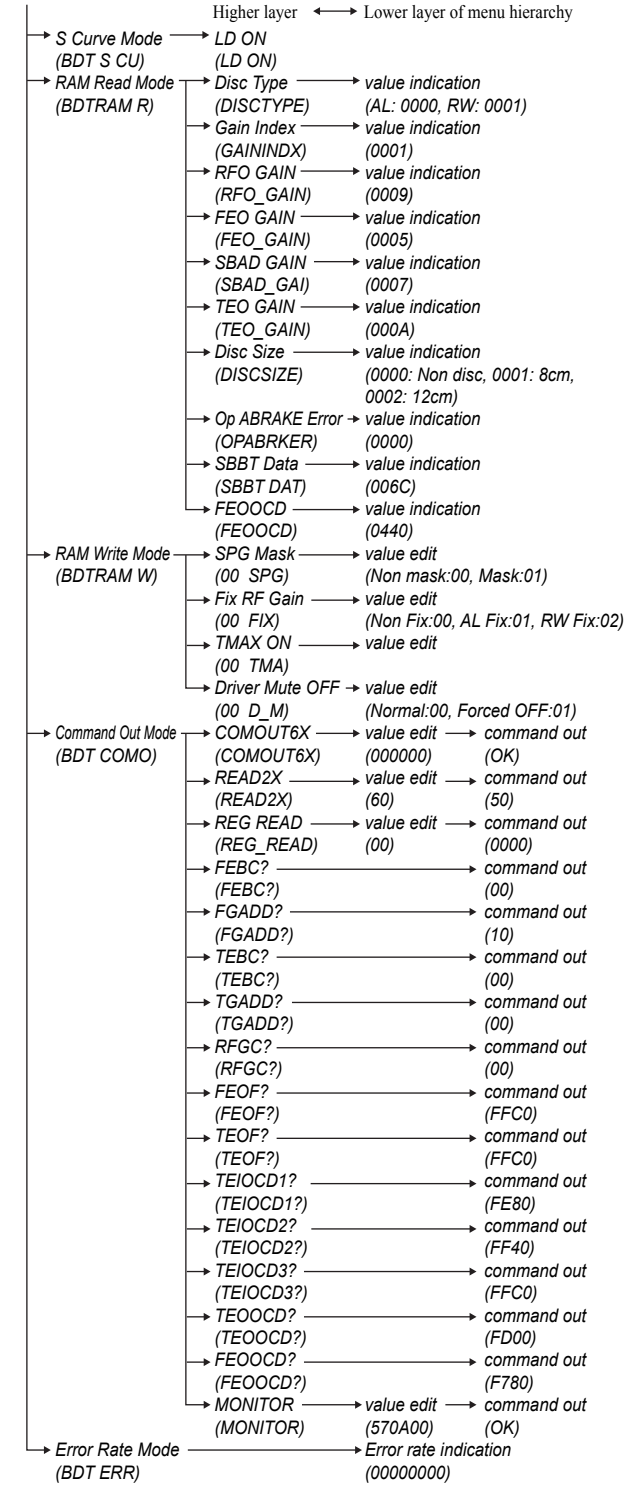
Use these keys to move the cursor to the right digit or to the left digit in the six-digit number, when changing the numeric value.

Press [TUNING + ►► ⏭] to move the cursor to the right, and press [⏮ ◄◄ – TUNING] to return the cursor to the left.

[FUNCTION]:

Use this key to execute Command Out in the Command Out Mode.

CD Servo Test Mode Tree:



CD SERVICE MODE

This mode can move the SLED of the optical pick-up, and also can turn the optical pick-up laser power on and off.

Procedure:

1. Press the [I/⏻] button to turn the power on.
2. Press three buttons of [CD ►], [TUNING + ►► ▷▷I], and DISPLAY simultaneously.
3. Press the [FUNCTION] button to select CD function.
4. It enters the CD service mode and displays "SERVICE".
5. To exit from this mode, press three buttons of [CD ►], [TUNING + ►► ▷▷I] and DISPLAY simultaneously.

Key Operation:

[TUNING + ►► ▷▷I], [I◁◁ ◄◄ – TUNING]:

Use these keys to move the SLED. When [TUNING + ►► ▷▷I] is pressed in this mode, the SLED moves to outer circumference and the message "SLED OUT" is displayed.

When [I◁◁ ◄◄ – TUNING] is pressed in this mode, the SLED moves to inner circumference and the message "SLED IN" is displayed.

[DISPLAY]:

Use this key to turn the optical pick-up laser power on and off. When the laser power is turned on, the message "LD ON" is displayed. When the laser power is turned off, the message "LD OFF" is displayed.

CD ERROR CODE

The past errors of the CD mechanism (CDM) are displayed as the CDM Errors, and those of the optical pick-up system (= optical unit + CD board) are displayed as the BD Errors as shown below.

Procedure:

1. Press the [I/⏻] button to turn the power on.
2. Press the [FUNCTION] button to select CD function.
3. Press three buttons of [TUNING + ►► ▷▷I], [■] and [DISPLAY] simultaneously.
4. Then, the CDM error code is displayed as "M0xxxxxx" (x means hexadecimal number) on the liquid crystal display as shown below.
5. Every pressing of the [TUNING + ►► ▷▷I] button in this mode increments the number after "M" starting from "M0" up to "M9", and then returns to "M0". Every pressing of the [I◁◁ ◄◄ – TUNING] button in this mode decrements the number after "M". The smaller the error code number is, the newer the error content is.
6. When the [PLAY MODE/TUNING MODE] button is pressed then, the BD error code is displayed as "D0xxxxxx" (x means hexadecimal number) on the liquid crystal display as shown below. In the same way as the CDM error code, use of the [TUNING + ►► ▷▷I] and the [I◁◁ ◄◄ – TUNING] buttons in this mode enables tracing of the error history.
7. To release from this mode, press the [I/⏻] button to turn the power off.

Contents of "CDM Errors"

Error display example

M 0 FF 11 42
① ② ③ ④

① It indicates the error history number
0 to 9: The error code number 0 indicates the newest error.

② It indicates whether the CDM error occurs in the normal operations or during the initialization operation.
FF : The error has occurred in the normal operations.
Other than FF : The error has occurred during the initialization operation.

③ It indicates the processing during which the trouble has occurred.
01: The disc EJECT processing is in progress.
02: The disc INSERTION-WAITING processing is in progress.
03: Processing of the disc INSERTION-REQUEST for the upper CD tray is in progress.
04: Processing of the disc EJECTION-REQUEST for the upper CD tray is in progress.
05: The disc pulling-in operation is in progress.
06: The disc chucking processing is in progress.
07: The disc re-chucking processing is in progress.
08: The disc chucking-release completion operation is in progress.

④ It indicates the operation during which the trouble has occurred.
00 : Waiting for the operation.
10 to 13 : The disc EJECT operation is in progress.
20 : The disc pulling-in operation is in progress.
30 : The disc chucking-release operation is in progress.
40 to 43 : The disc EJECT operation due to error is in progress.

Contents of "BD Errors"

Error display example

D 0 02 09 01
① ② ③ ④

① It indicates the error history number
0 to 9: The error code number 0 indicates the newest error.

② It indicates the error content
01: The focus servo cannot lock-in.
02: GFS is no good (NG).
03: The startup time exceeds the specified period of time (time over)
04: The focus servo is unlocked continuously.
05: Q code cannot be obtained within the specified period of time.
06: The tracking servo cannot lock-in.
07: Blank disc

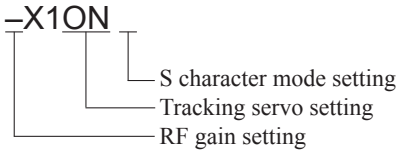
③ It indicates the on-going processing of optical pick-up system (= optical unit + BD board) when the trouble has occurred.
- 01: The CD SHIP mode processing is in progress.
- 02: The POWER OFF processing is in progress.
- 03: The INITIALIZE processing is in progress.
- 04: The optical pick-up system (= optical unit + BD board) is in the stop state.
- 05: The STOP operation is in progress.
- 06: The startup processing is in progress.
- 07: The TOC read-in processing is in progress.
- 08: The SEARCH operation is in progress.
- 09: The PLAY operation is in progress.
- 0A: The PAUSE operation is in progress.
- 0B: The PLAY – MANUAL SEARCH operation is in progress.
- 0C: The PAUSE – MANUAL SEARCH operation is in progress.

④ It indicates the operation that is being processed when the trouble has occurred.
It indicates the step number of each processing specified by ③. Because the numbers of steps are different in each processing, this number is different in each processing.

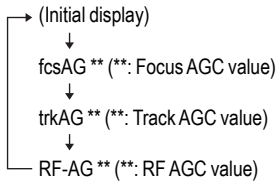
CD FACTORY MODE

Note1: Do not enter the [CD FACTORY MODE] while any other test-mode is in progress.
Note2: Do not enter any other test mode while the [CD FACTORY MODE] is in progress.

Procedure:
1. Press the [I/⏻] button to turn the power on.
2. Press the [FUNCTION] button to select CD function
3. Press three buttons of [CD ►], [FUNCTION], and [DISPLAY] simultaneously.
4. It enters the CD factory mode and displays the following message.



Key Operation:
[DISPLAY]:
The display changes in the following order whenever the button is pressed.



[DSGX]:
RF gain setting changes whenever the button is pressed.
"–": No gain fixation.
"AL": Fix to the gain for AL disc.
"RW": Fix to the gain for RW disc.

[EQ]:
Tracking servo setting changes whenever the button is pressed.
"ON": Tracking servo ON.
"OFF": Tracking servo OFF.

[FUNCTION]:
S character mode setting changes whenever the button is pressed.
" ": S character mode OFF.
"S": S character mode ON.

5. To release from this mode, press the [I/⏻] button to turn the power off.

SECTION 5
MECHANICAL ADJUSTMENTS

PRECAUTION

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

- **Torque Measurement**

Mode	Torque Meter	Meter Reading
FWD	CQ-102AS	2.0 – 8.0 mN • m (20 to 80 g • cm) (0.28 – 1.12 oz • inch)
FWD Back Tension	CQ-102C	0.15 – 0.6 mN • m (1.5 to 6 g • cm) (0.021 – 0.083 oz • inch)
FF	CQ-201AS	5 – 17.7 mN • m (50 to 177 g • cm) (0.7 – 2.48 oz • inch)
REV	CQ-201B	5 – 17.7 mN • m (50 to 177 g • cm) (0.7 – 2.48 oz • inch)

- **Tape Tension Measurement**

Mode	Tension Meter	Meter Reading
FWD	CQ-403A	more than 80 g (more than 2.82 oz)

SECTION 6
ELECTRICAL ADJUSTMENTS

DECK SECTION (EXCEPT EC68: UK model) | 0 dB = 0.775V

1. Demagnetize the record/playback head with a head demagnetizer.
2. Do not use a magnetized screwdriver for the adjustments.

TEST TAPE

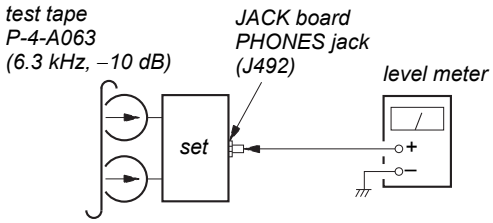
Tape	Signal	Used for
P-4-A063	6.3 kHz, -10 dB	Azimuth Adjustment

RECORD/PLAYBACK HEAD AZIMUTH ADJUSTMENT

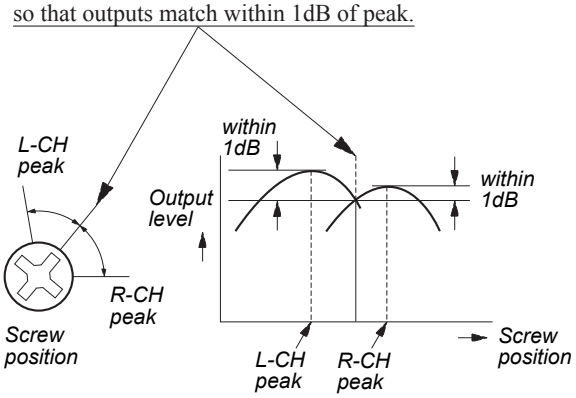
Note: Perform this adjustments for both decks.

Procedure:

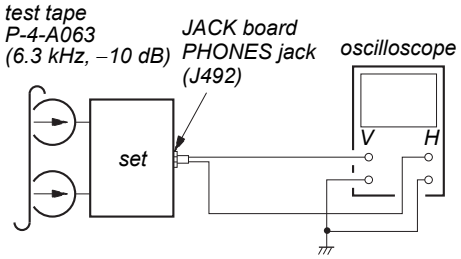
1. Mode: Playback

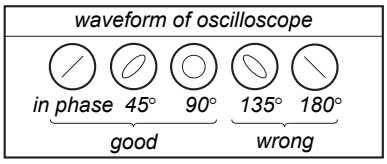


2. Turn the adjustment screw and check output peaks. If the peaks do not match for L-CH and R-CH, turn the adjustment screw so that outputs match within 1dB of peak.



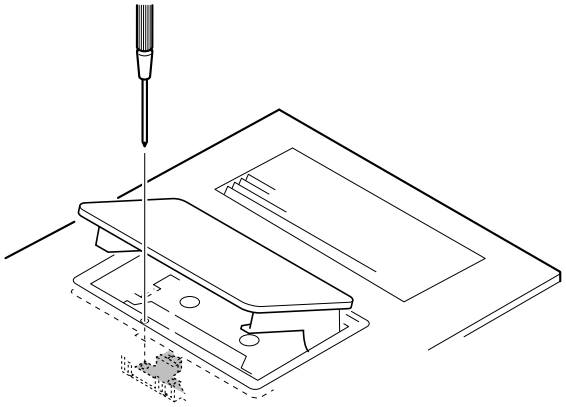
3. Mode: Playback





4. After the adjustments, apply suitable locking compound to the pats adjusted.

Adjustment Location: Record/Playback/Erase Head

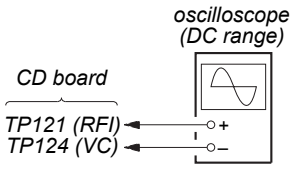


CD SECTION

Note:

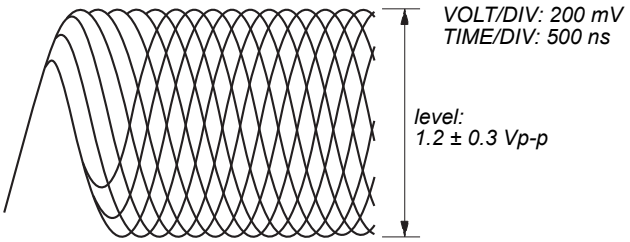
1. CD Block is basically constructed to operate without adjustment.
2. Use YEDS-18 disc (3-702-101-01) unless otherwise indicated.
3. Use an oscilloscope with more than 10 MΩ impedance.
4. Clean the object lens by an applicator with neutral detergent when the signal level is low than specified value with the following checks.
5. Check the focus bias check when optical pick-up block is replaced.

FOCUS BIAS CHECK



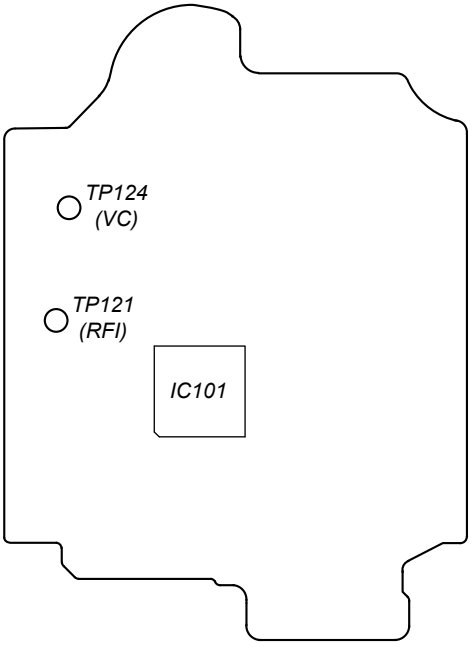
Procedure :

1. Connect the oscilloscope to TP121 (RFI) and TP124 (VC) on the CD board.
2. Press the [I/⏻] button to turn the power ON, and press the [⏏] button to open the CD disc tray.
3. Set disc (YEDS-18) on the trey and press the [CD ►] button to playback.
4. Confirm that oscilloscope waveform is as shown in the figure below. (eye pattern)
   A good eye pattern means that the diamond shape (◊) in the center of the waveform can be clearly distinguished.



Checking Location:

– CD Board (Conductor Side) –

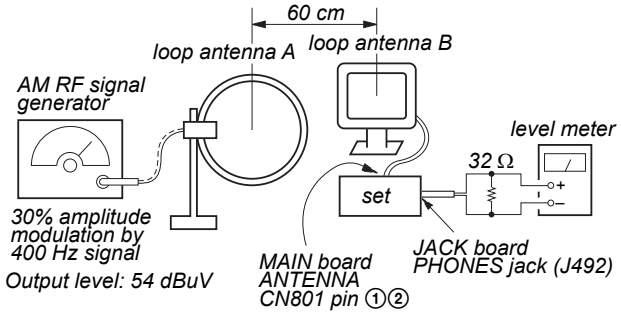


TUNER SECTION | 0 dB = 1 μV

[AM]

Setting:

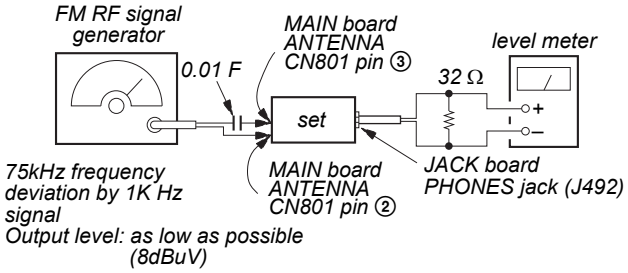
FUNCTION: AM

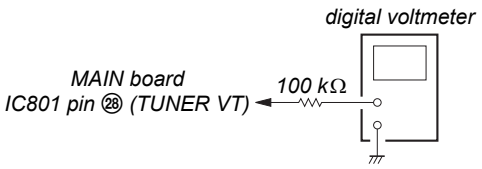


[FM]

Setting:

FUNCTION: FM





• Repeat the procedures in each adjustment several times.

AM FREQUENCY COVERAGE ADJUSTMENT (EC68: Mexican, Argentina, Australian/ EC78: Mexican, Argentina models)		
Adjustment Part	Frequency Display	Reading on Digital Voltmeter
L801	530 kHz	1.5 ± 0.1 V
Confirmation	1,710 kHz	8 ± 0.5 V

AM FREQUENCY COVERAGE ADJUSTMENT (Except EC68: Mexican, Argentina, Australian/ EC78: Mexican, Argentina models)		
Adjustment Part	Frequency Display	Reading on Digital Voltmeter
L801	531 kHz	1.5 ± 0.1 V
Confirmation	1,602 kHz	7.2 ± 0.5 V

AM TRACKING ADJUSTMENT (Except EC68: Mexican, Argentina, Australian/ EC78: Mexican, Argentina models)	
Adjust for a maximum reading on level meter	
L805	530 kHz

AM TRACKING ADJUSTMENT (EC68: Mexican, Argentina, Australian/ EC78: Mexican, Argentina models)	
Adjust for a maximum reading on level meter	
L805	531 kHz

FM FREQUENCY COVERAGE ADJUSTMENT		
Adjustment Part	Frequency Display	Reading on Digital Voltmeter
L803	87.5 kHz	1.75 ± 0.1 V
Confirmation	108 kHz	6.2 ± 0.5 V

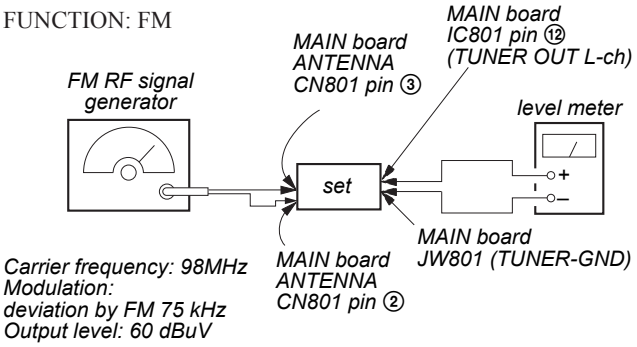
FM TRACKING ADJUSTMENT	
Adjust for a minimum reading on level meter	
L804	98 MHz

Adjustment Location: MAIN board (See page 21)

[FM DETECTOR ADJUSTMENT]

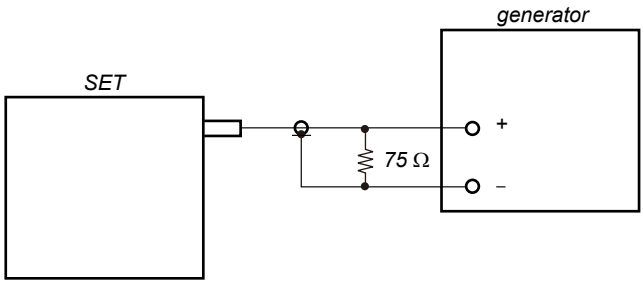
Setting:

FUNCTION: FM



1. Turn the set to 98 MHz.
2. Adjust L802 so that modulation distortion may become the best in the vicinity of the maximum value where the tuner out level becomes –15dBuV or more.

[FM Auto Stop Check]



Procedure :

1. Turn the power on.
2. Input the following signal from Signal Generator to FM antenna input directly.

* Carrier Freq : A = 87.5 MHz, B = 98 MHz, C = 108 MHz
Deviation : 75 kHz
Modulation : 1 kHz
ANT input : 35 dBu (EMF)

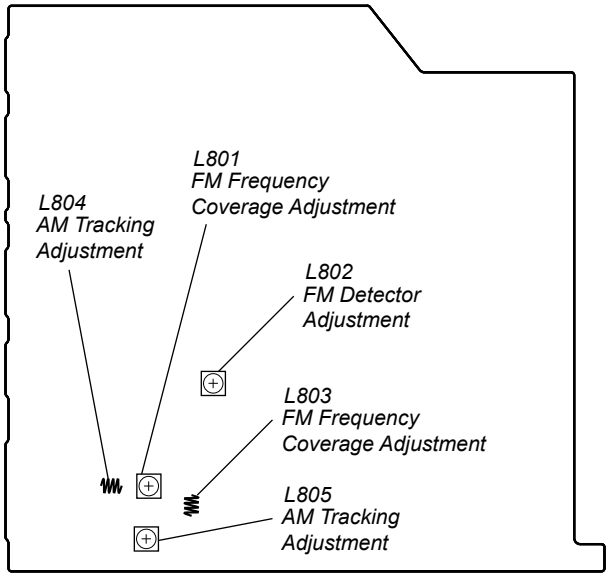
Note: Please use 75 ohm "coaxial cable" to connect SG and the set. You cannot use video cable for checking.
Please use SG whose output impedance is 75 ohm.

3. Set to FM tuner function and scan the input FM signal with automatic scanning.
4. Confirm that input Frequency of A, B and C detected and automatic scanning stops.

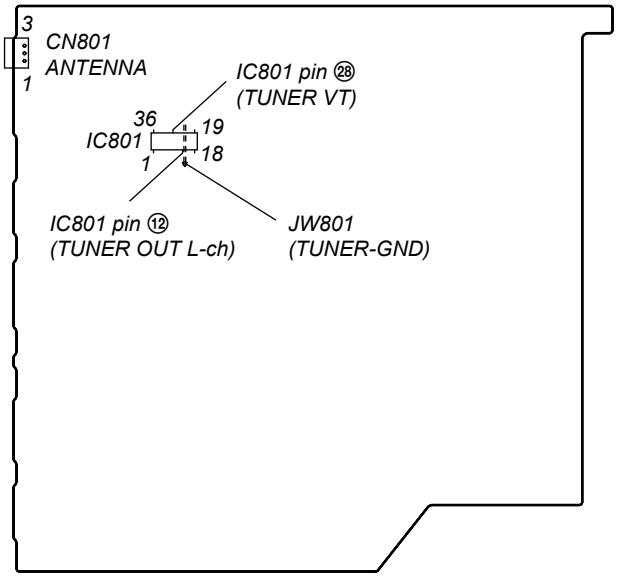
The stop of automatic scanning means "The station signal is received in good condition".

Adjustment Location and Connecting Points:

– MAIN Board (Component Side) –



– MAIN Board (Conductor Side) –



MEMO

SECTION 7
DIAGRAMS

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this, the necessary note is printed in each block.)

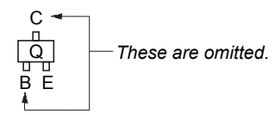
For Printed Wiring Boards.

Note:

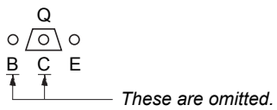
- ○——— : Parts extracted from the component side.
- ——— : Parts extracted from the conductor side.
- ⬚← : indicated side identified with part number.
- △ : Internal component.
- ▬ : Pattern from the side which enables seeing.
  (The other layers' patterns are not indicated.)

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

- Indication of transistor.



These are omitted.



These are omitted.

For Schematic Diagrams.

Note:

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

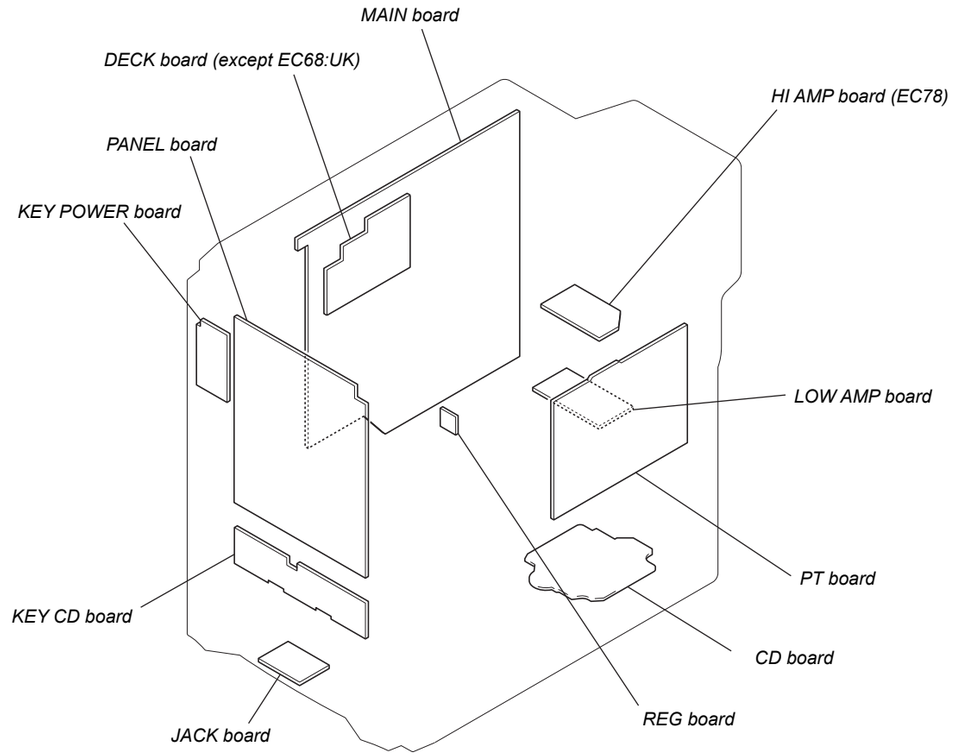
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

- ▬▬ : B+ Line.
- ▬ ▬ ▬ : B– Line.
- ▭ : adjustment for repair.
- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.

– CD Board –
no mark : CD PLAY
– DECK Board –
no mark : TAPE PLAY
( ) : TAPE REC
– Other Boards –
no mark : TUNER (FM/AM)
( ) : TAPE PLAY
< > : TAPE REC
{ } : CD PLAY

- Voltages are taken with a VOM (Input impedance 10 MΩ).
  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.
  ⇨ : FM
  ➡ : AM
  ⇨ : CD PLAY
  ⇨ : TAPE PLAY
  ➡ : REC
  ➡ : AUDIO IN
- Abbreviation
  AR : Argentina model
  AUS : Australian model
  E2 : 120V AC area in E model
  E3 : 240V AC area in E model
  E51 : Chilean and Peruvian models
  MX : Mexican model
  RU : Russian model

- **Circuit Boards Location**

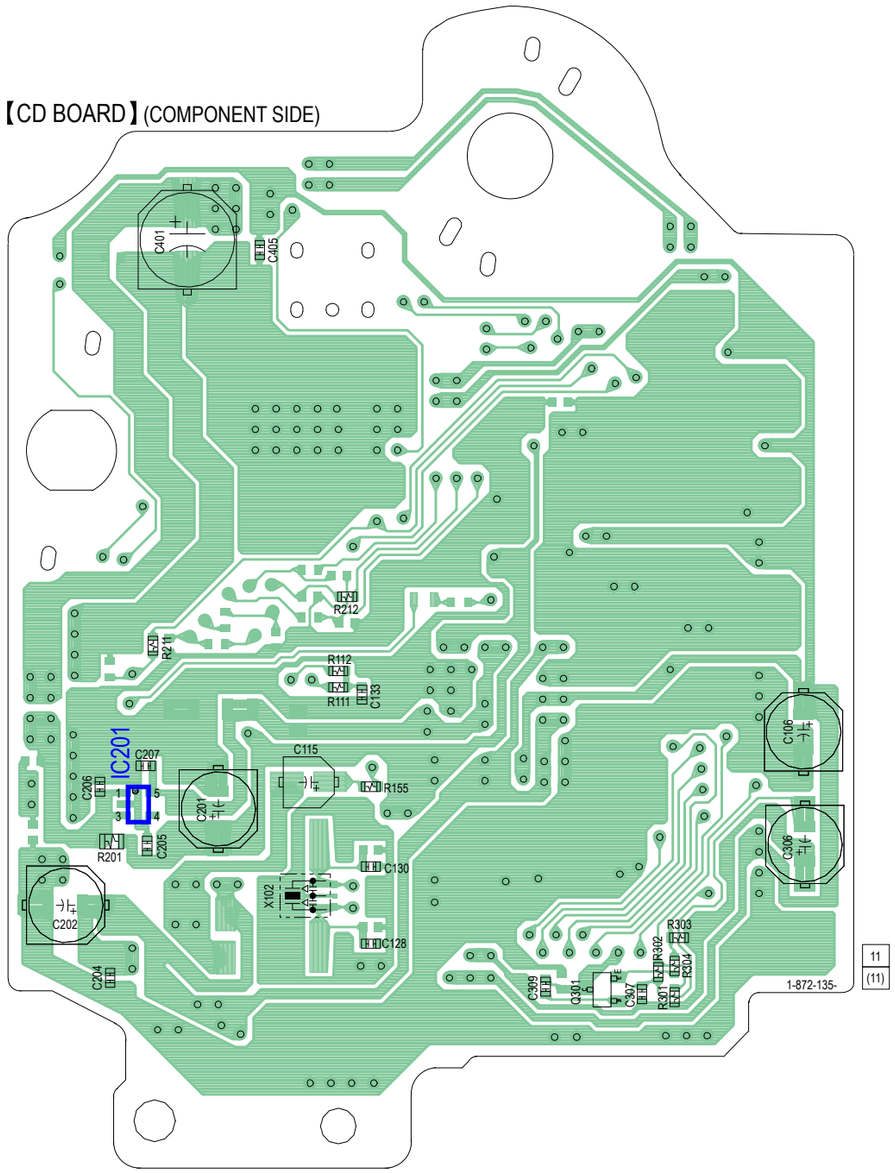


7-1. PRINTED WIRING BOARD - CD Board -

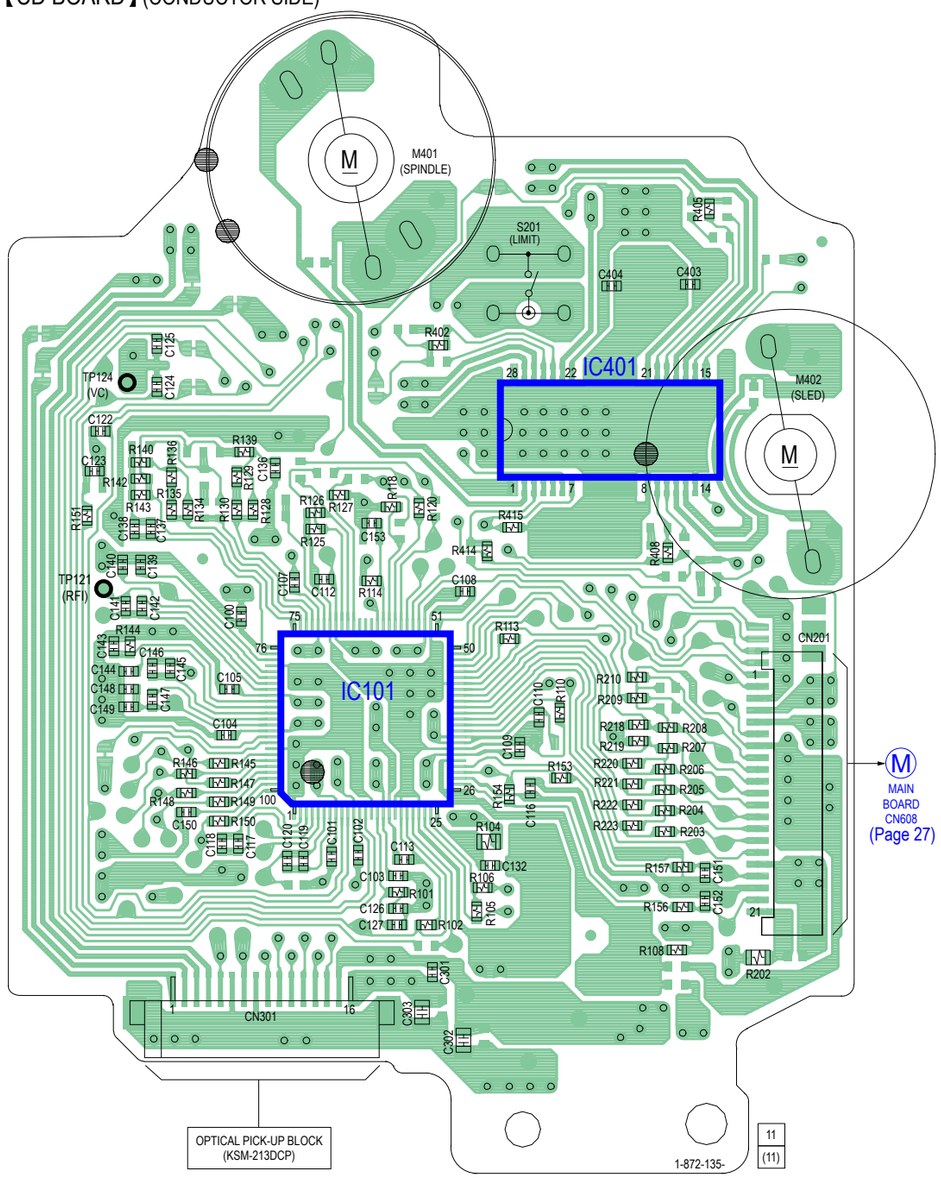
• See page 23 for Circuit Boards Location.

• : Uses unleaded solder.

【CD BOARD】(COMPONENT SIDE)

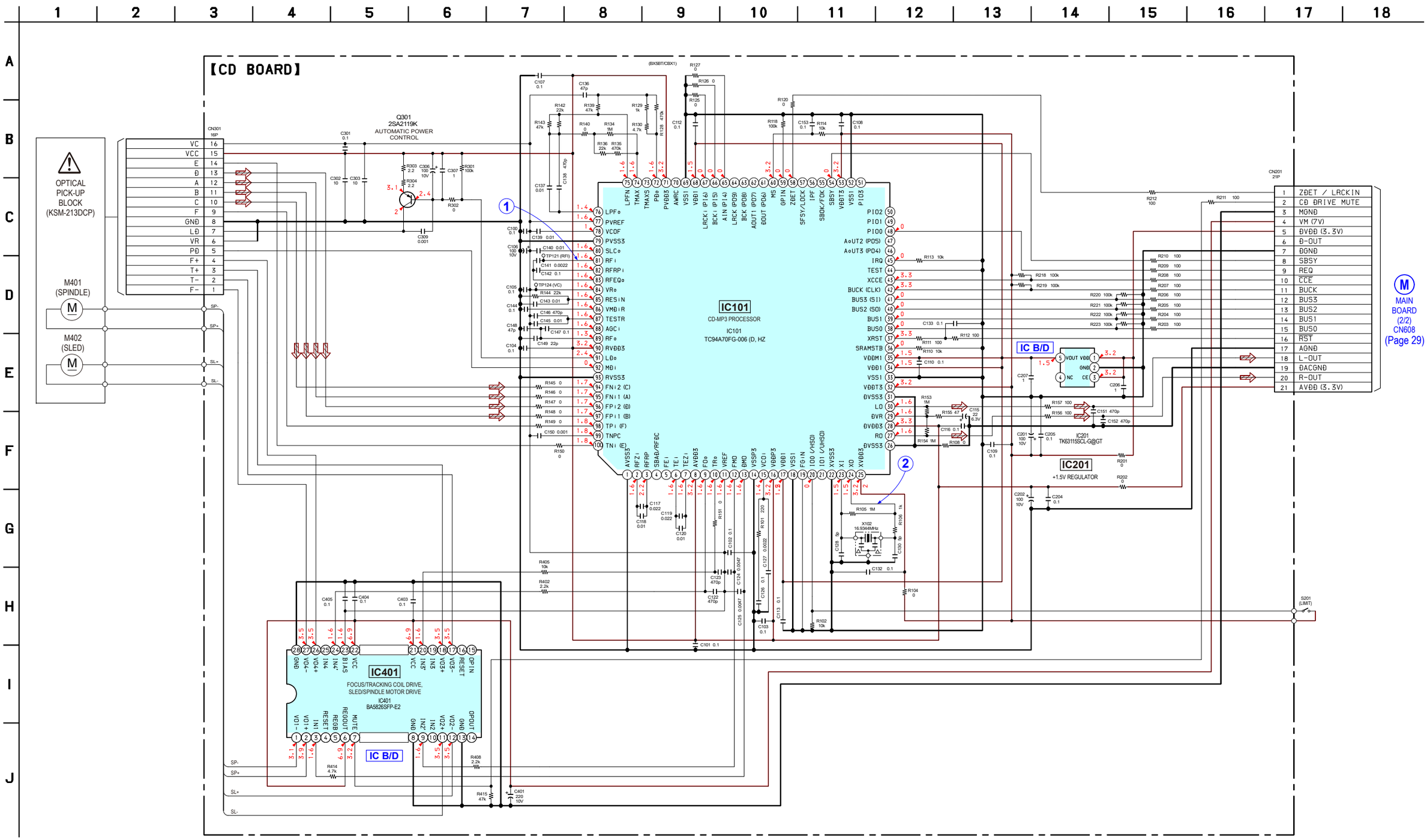


【CD BOARD】(CONDUCTOR SIDE)



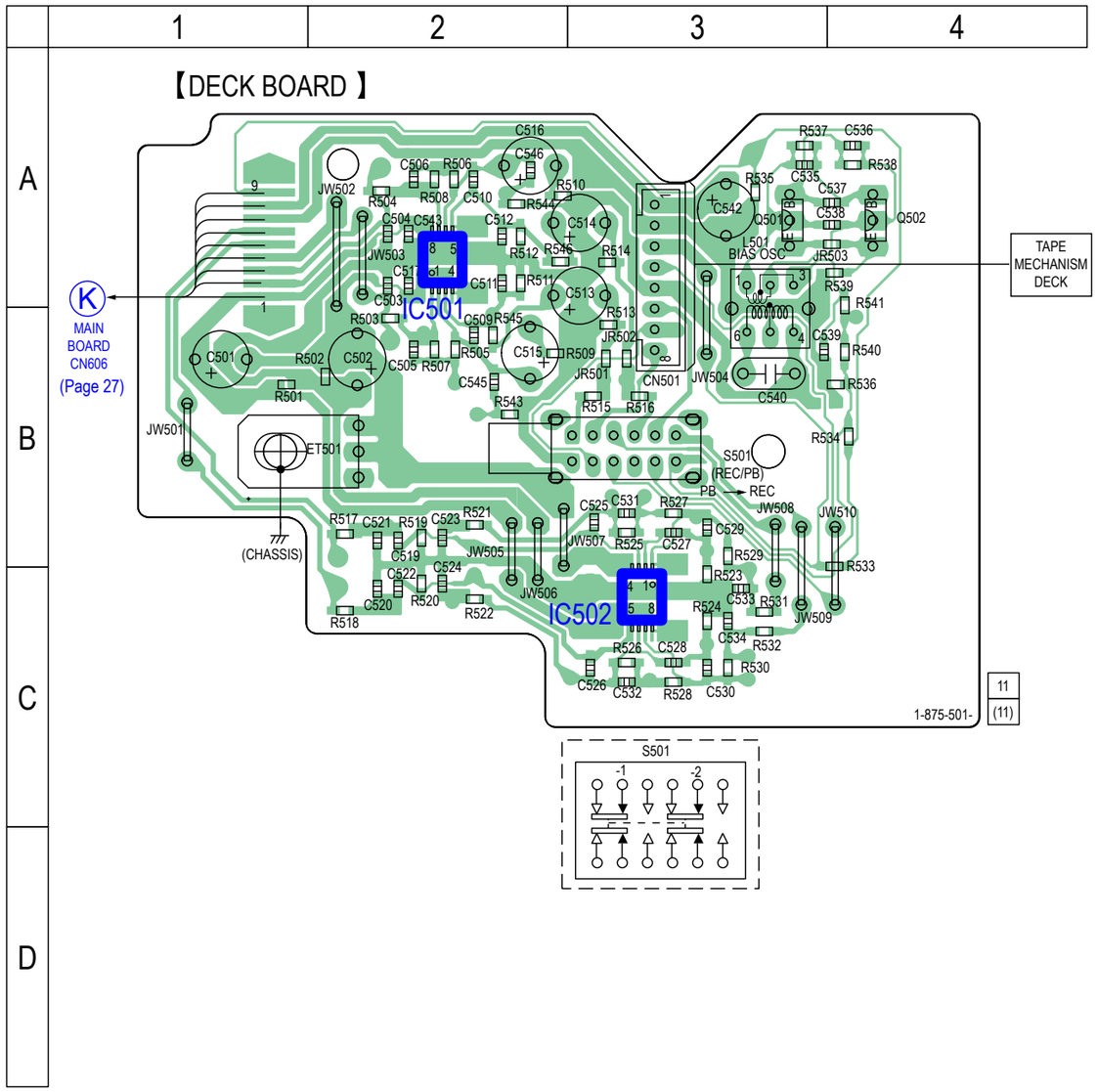
7-2. SCHEMATIC DIAGRAM - CD Board -

• See page 37 for waveforms. • See page 38 for IC Block Diagrams. • See page 40 for IC Pin Function Description.

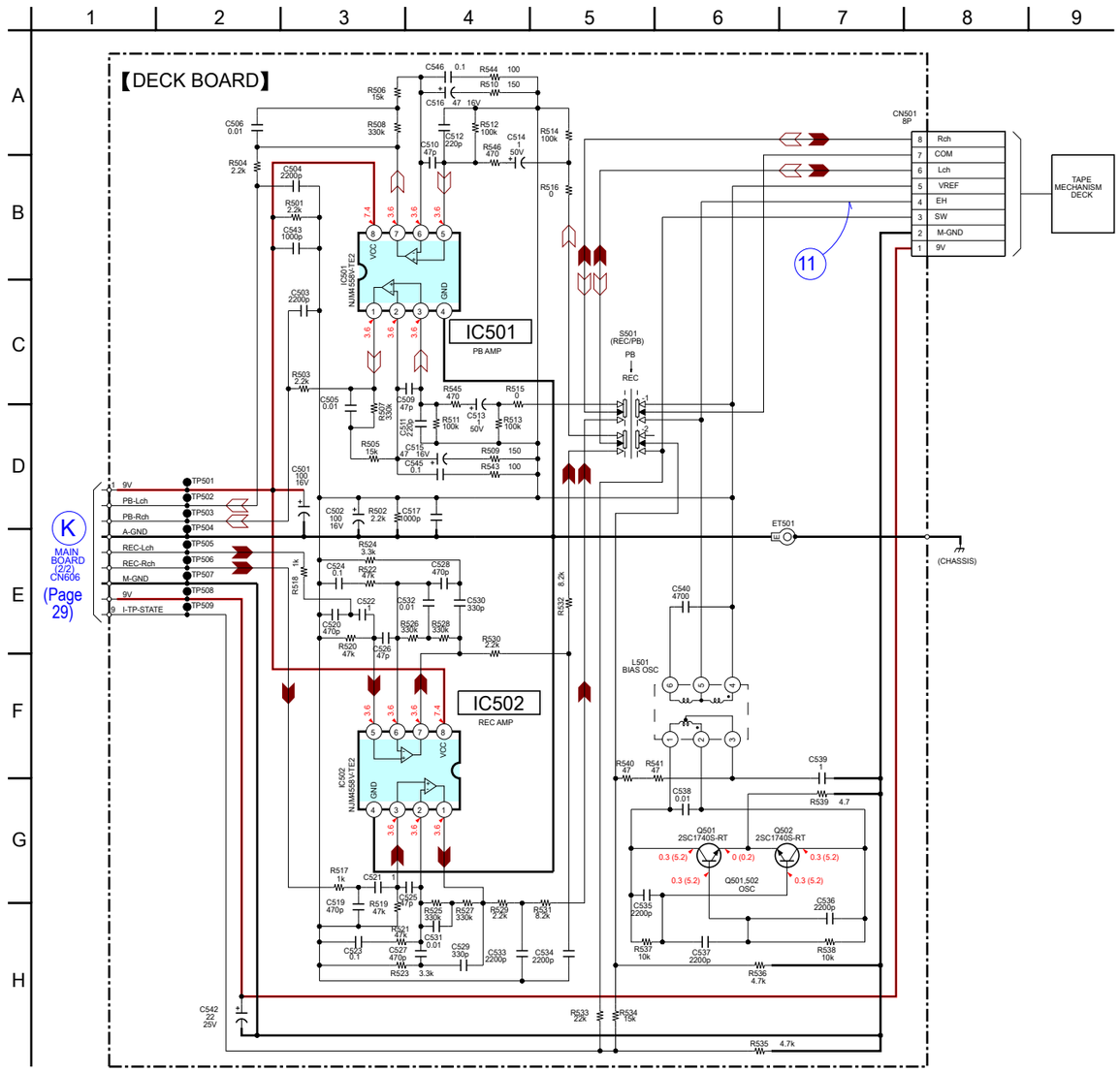


7-3. PRINTED WIRING BOARD - DECK Board (Except EC68: UK model) -

• See page 23 for Circuit Boards Location. • : Uses unleaded solder.



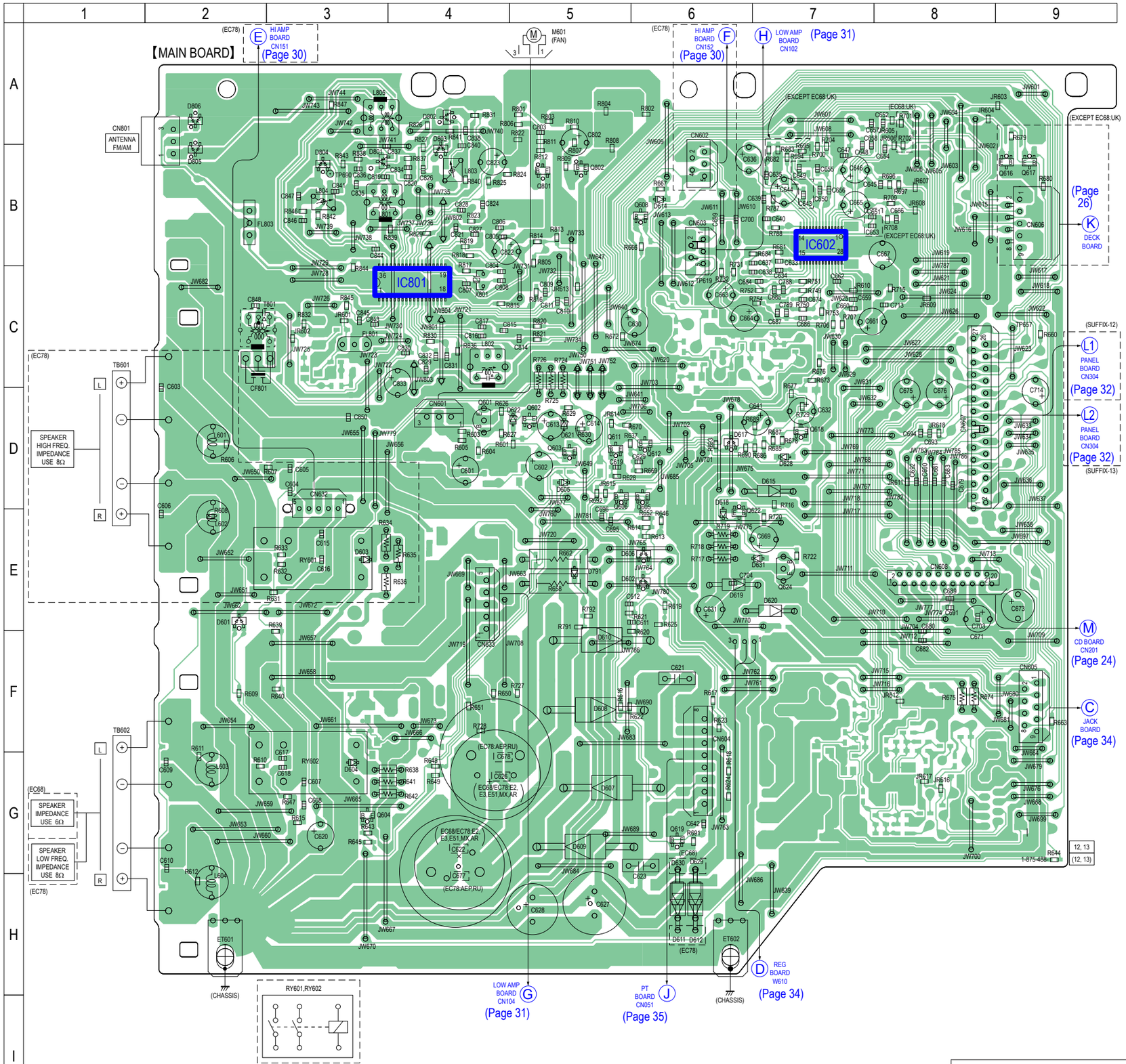
7-4. SCHEMATIC DIAGRAM - DECK Board (Except EC68: UK model) - • See page 37 for waveforms.



7-5. PRINTED WIRING BOARD - MAIN Board -

• See page 23 for Circuit Boards Location.

• : Uses unleaded solder.

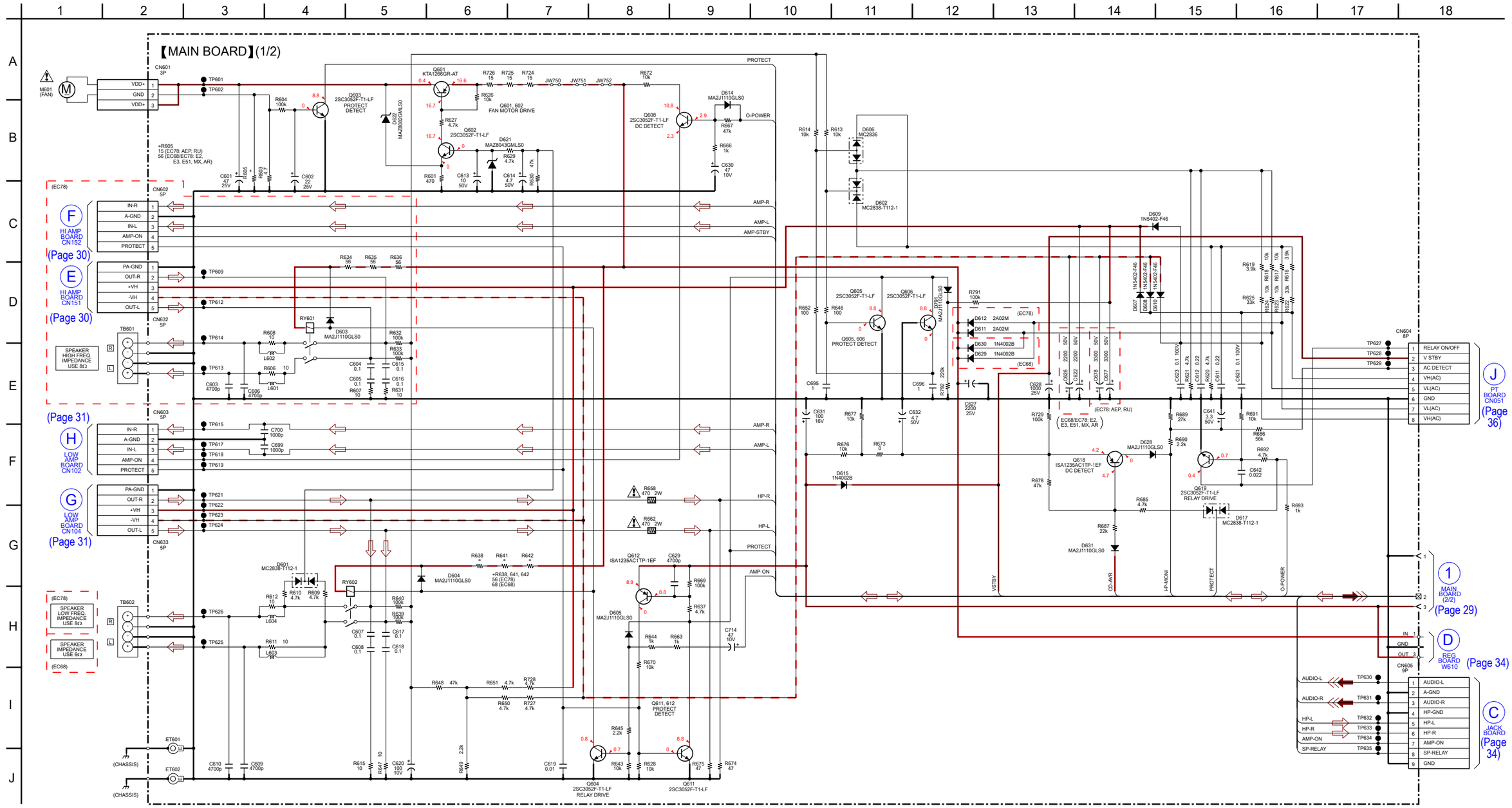


• **Semiconductor Location**

Ref. No.	Location
D601	E-2
D602	E-6
D603	E-3
D604	G-3
D605	D-5
D606	E-6
D607	G-5
D608	F-5
D609	G-5
D610	F-5
D611	H-6
D612	H-6
D614	B-6
D615	D-7
D617	D-6
D618	E-6
D619	E-6
D620	E-7
D621	D-5
D622	D-5
D628	D-7
D629	H-6
D630	H-6
D631	E-7
D791	E-5
D801	B-3
D802	A-4
D803	B-4
D804	B-3
D805	B-2
D806	A-2
IC602	B-7
IC801	C-4
Q601	D-4
Q602	D-5
Q603	D-5
Q604	G-3
Q605	D-6
Q606	D-5
Q608	B-6
Q611	D-5
Q612	D-6
Q616	B-9
Q617	B-9
Q618	D-7
Q619	G-6
Q622	E-6
Q624	E-7
Q801	B-5
Q802	B-5

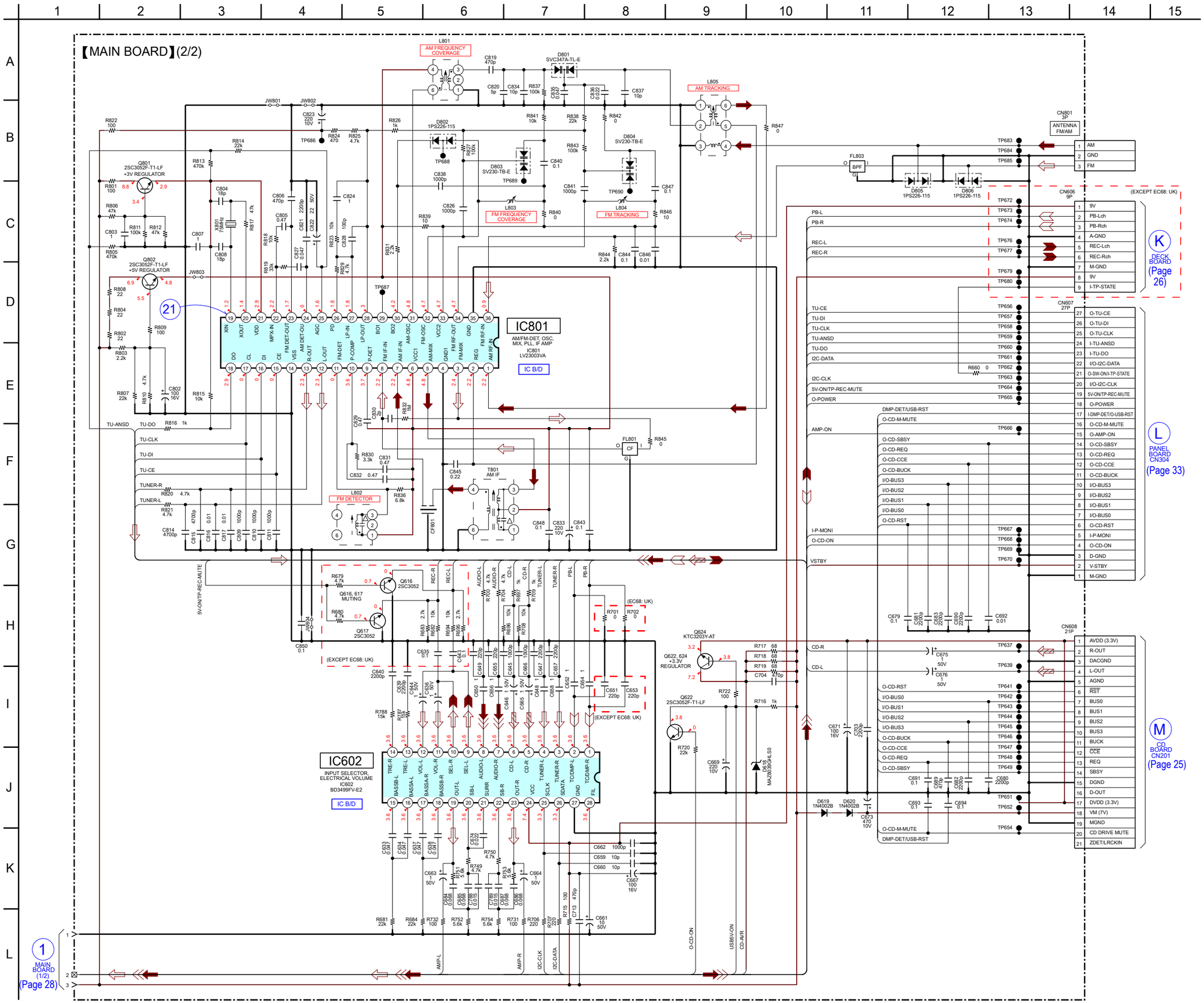
Note: Refer to “SUFFIX-12/SUFFIX-13 DISCRIMINATION OF PANEL BOARD” (page 3) of the servicing notes for suffix-12 and suffix-13.

7-6. SCHEMATIC DIAGRAM - MAIN Board (1/2) -



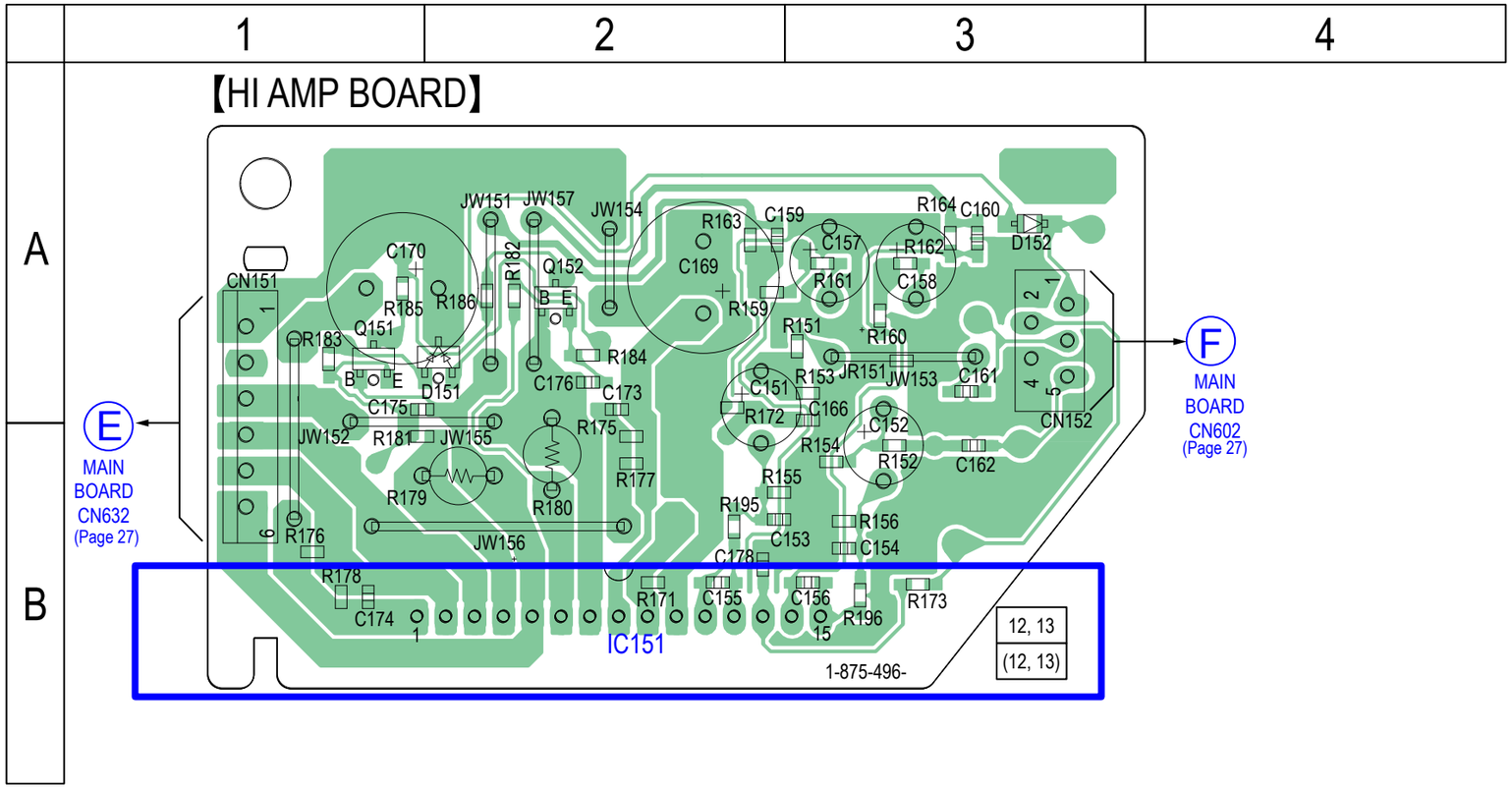
7-7. SCHEMATIC DIAGRAM - MAIN Board (2/2) -

• See page 37 for waveforms. • See page 38 for IC Block Diagrams.

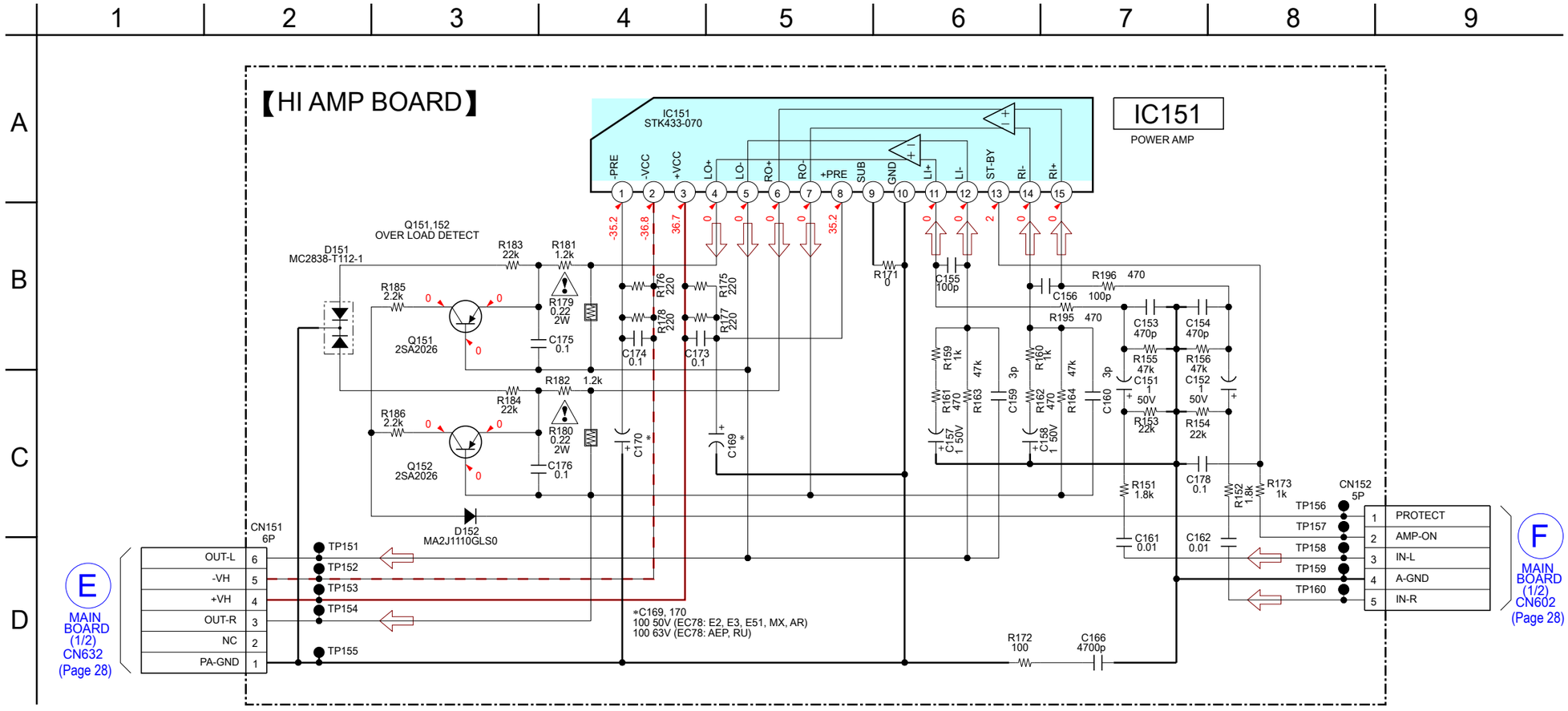


7-8. PRINTED WIRING BOARD - HI AMP Board (EC78) -

• See page 23 for Circuit Boards Location. • : Uses unleaded solder.

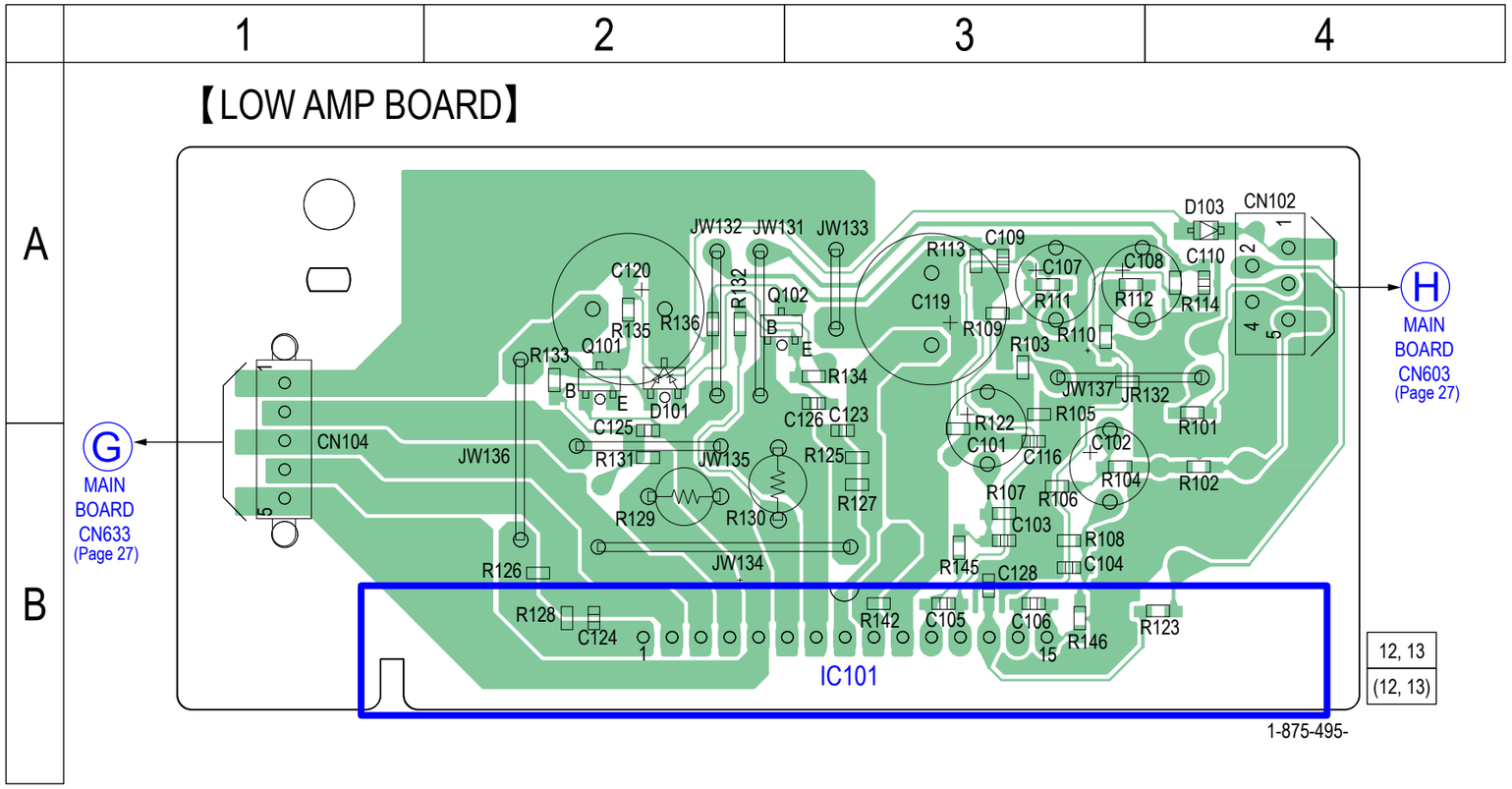


7-9. SCHEMATIC DIAGRAM - HI AMP Board (EC78) -

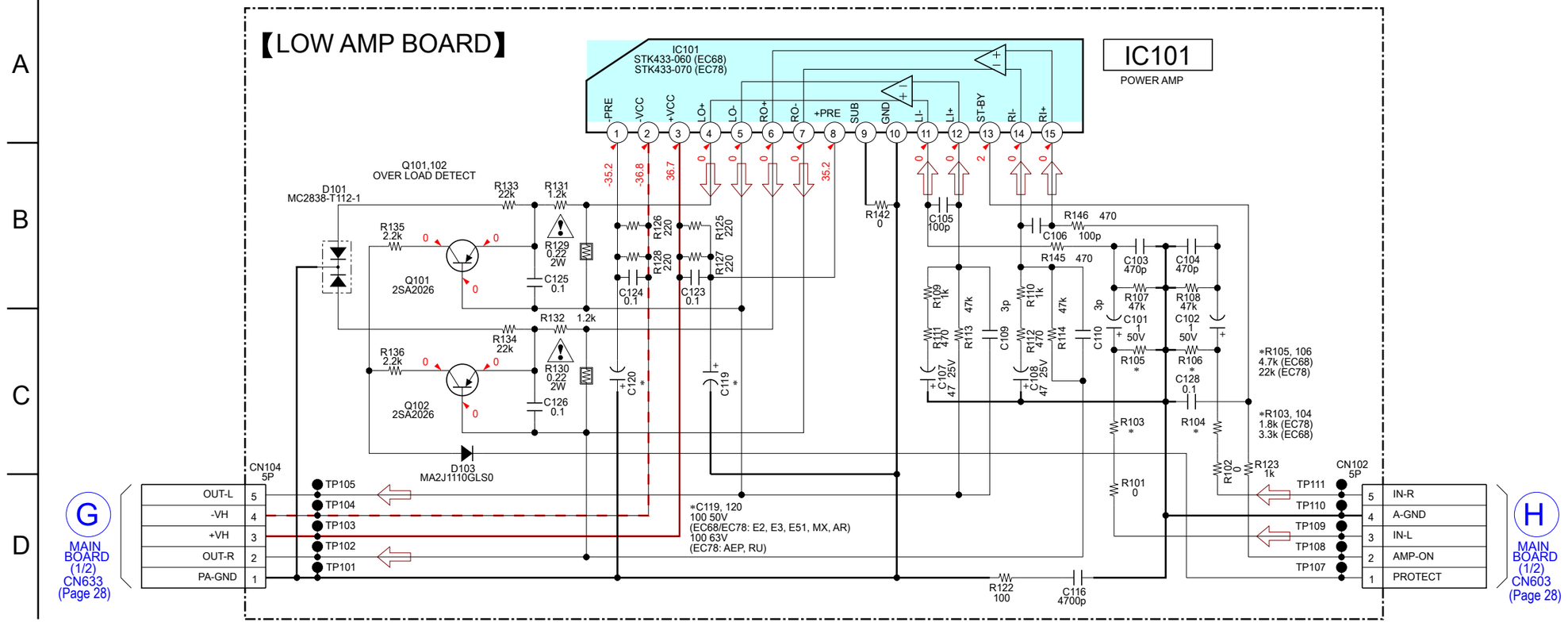


7-10. PRINTED WIRING BOARD - LOW AMP Board -

• See page 23 for Circuit Boards Location. • : Uses unleaded solder.

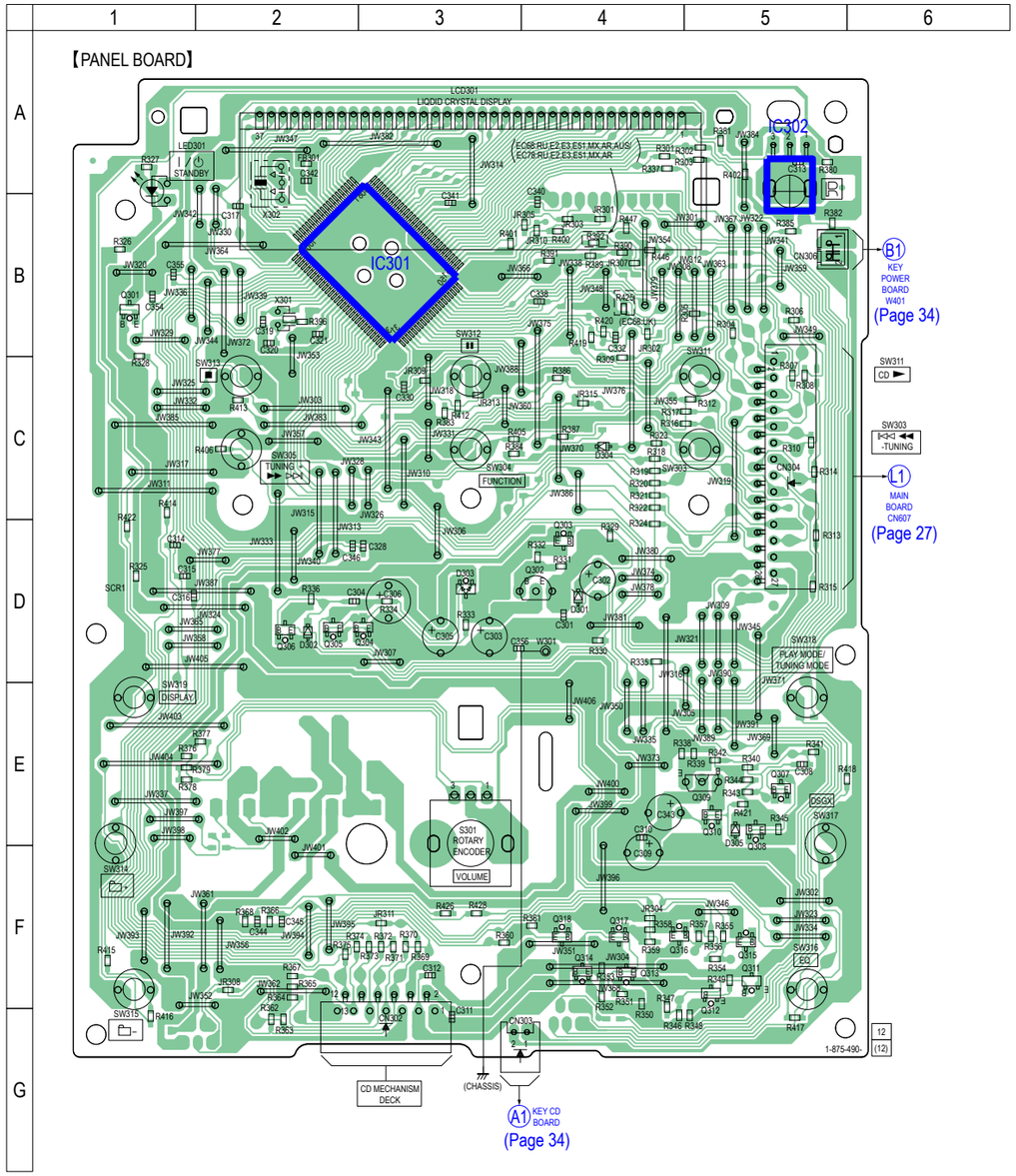


7-11. SCHEMATIC DIAGRAM - LOW AMP Board -



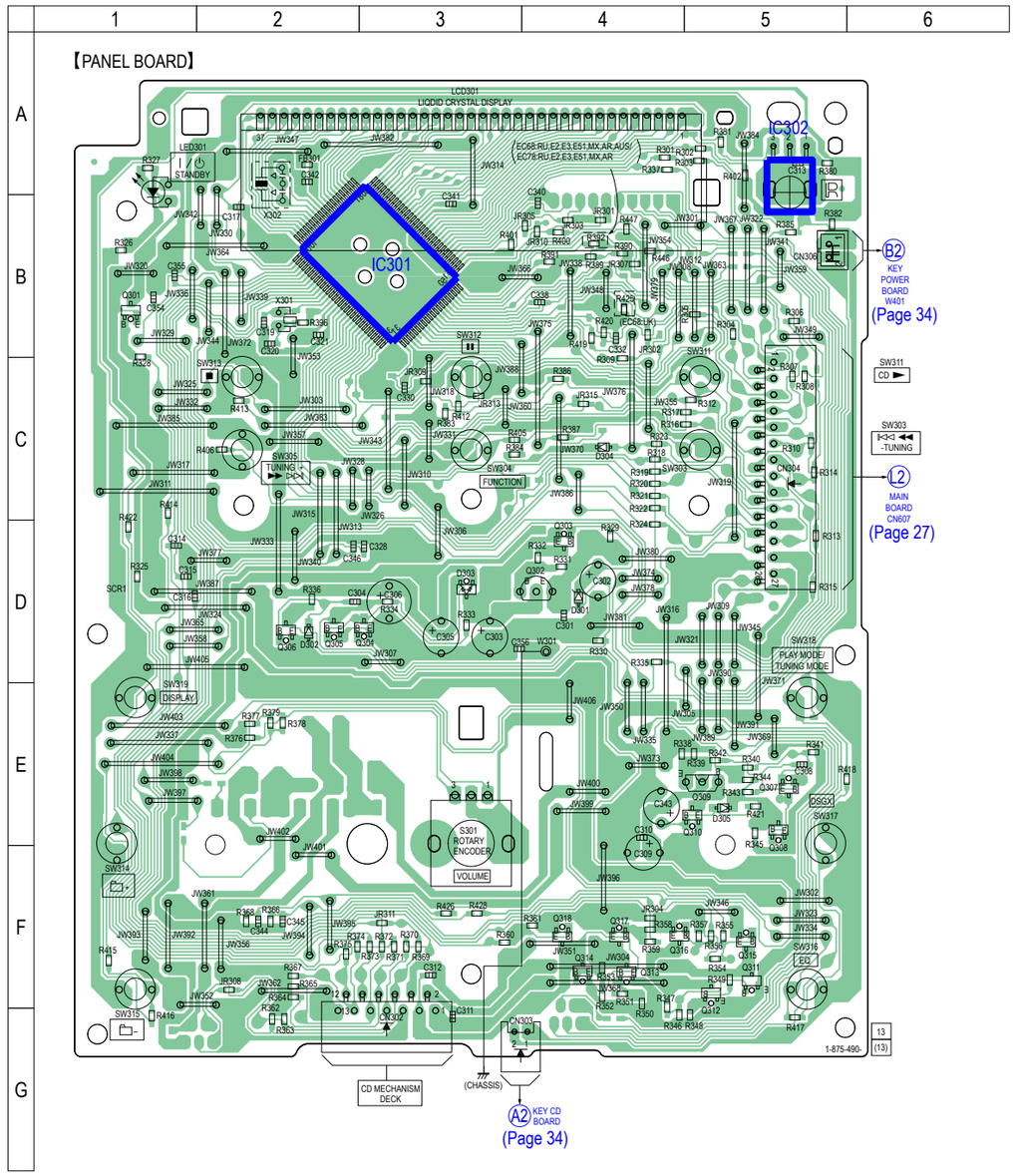
7-12. PRINTED WIRING BOARD - PANEL Board (Suffix-12) -

• See page 23 for Circuit Boards Location. • : Uses unleaded solder.



7-13. PRINTED WIRING BOARD - PANEL Board (Suffix-13) -

• See page 23 for Circuit Boards Location. • : Uses unleaded solder.



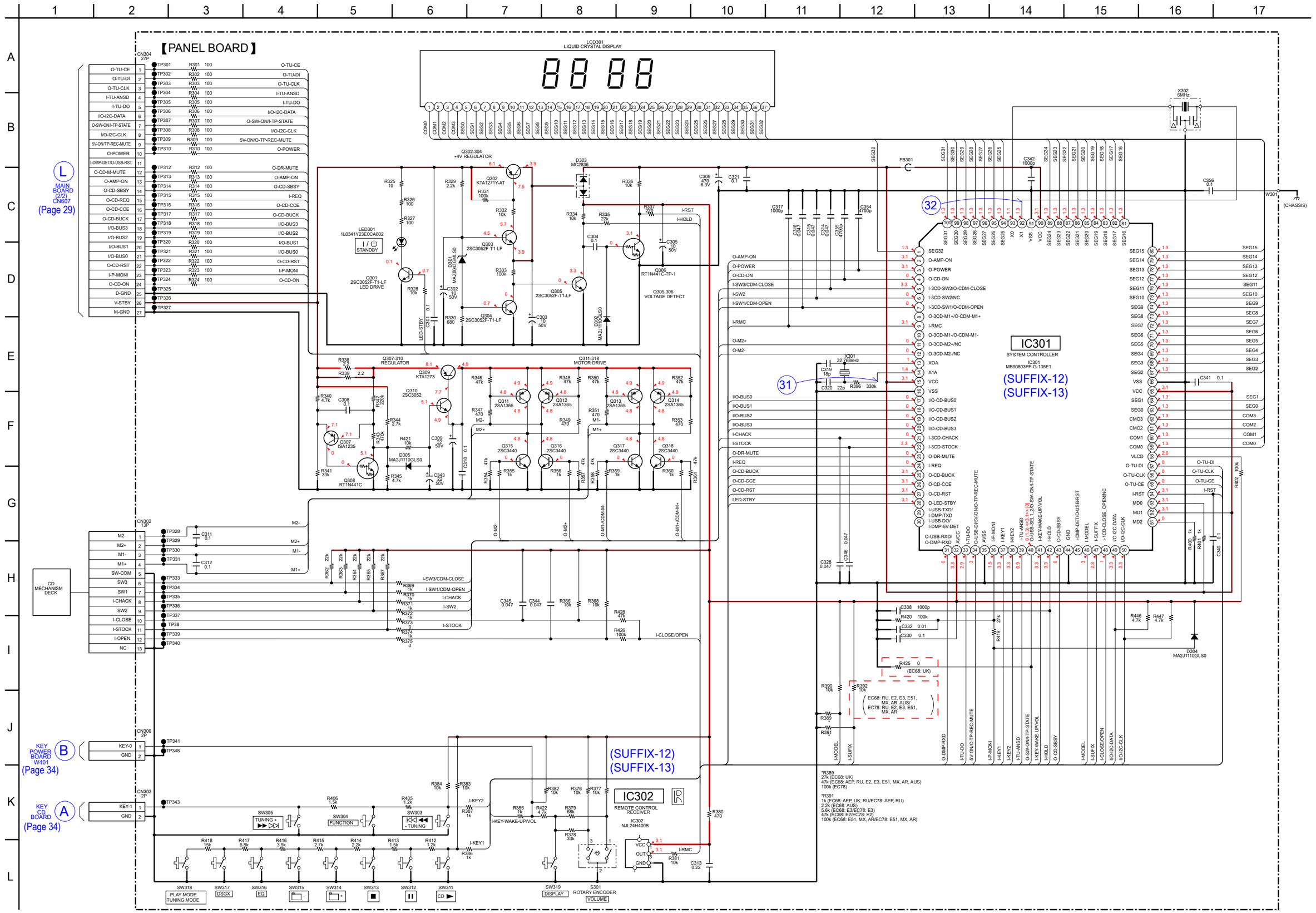
• **Semiconductor Location**

Ref. No.	Location	Ref. No.	Location
D301	D-4	Q305	D-2
D302	D-2	Q306	D-2
D303	D-3	Q307	E-5
D304	C-4	Q308	E-5
D305	E-5	Q309	E-5
		Q310	E-5
IC301	B-3	Q311	F-5
IC302	A-5	Q312	F-5
		Q313	F-4
LED301	A-1	Q314	F-4
		Q315	F-5
Q301	B-1	Q316	F-4
Q302	D-4	Q317	F-4
Q303	D-4	Q318	F-4
Q304	D-3		

Note: Refer to “SUFFIX-12/SUFFIX-13 DISCRIMINATION OF PANEL BOARD” (page 3) of the servicing notes for suffix-12 and suffix-13.

7-14. SCHEMATIC DIAGRAM - PANEL Board -

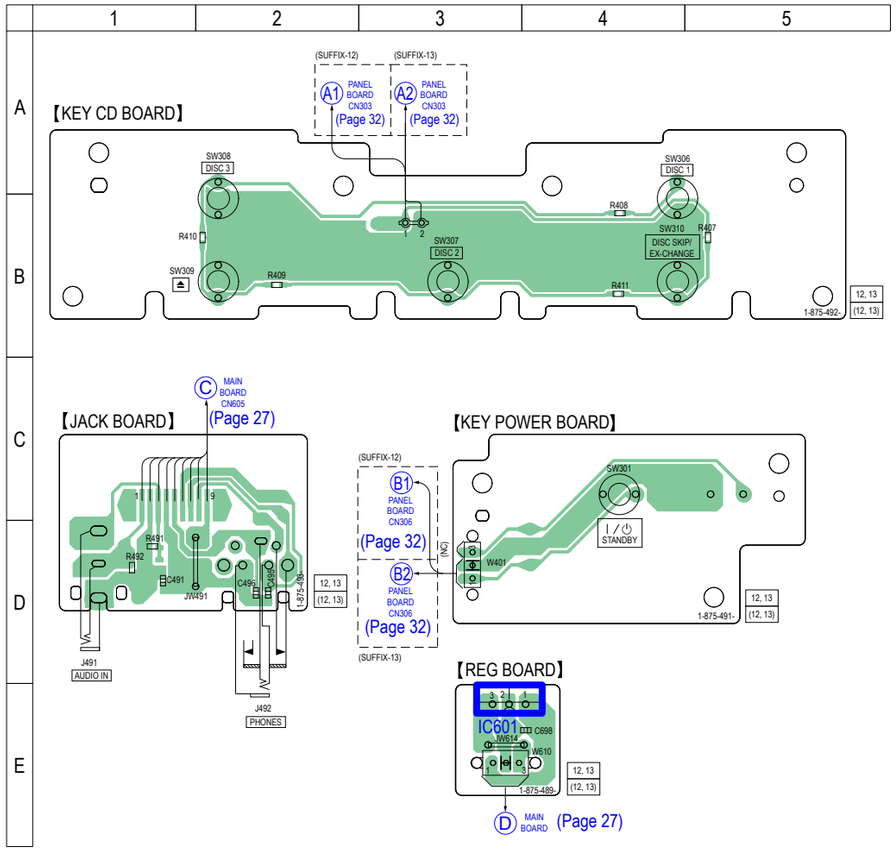
• See page 37 for waveforms. • See page 40 for IC Pin Function Description.



Note: Refer to "SUFFIX-12/SUFFIX-13 DISCRIMINATION OF PANEL BOARD" (page 3) of the servicing notes for suffix-12 and suffix-13.

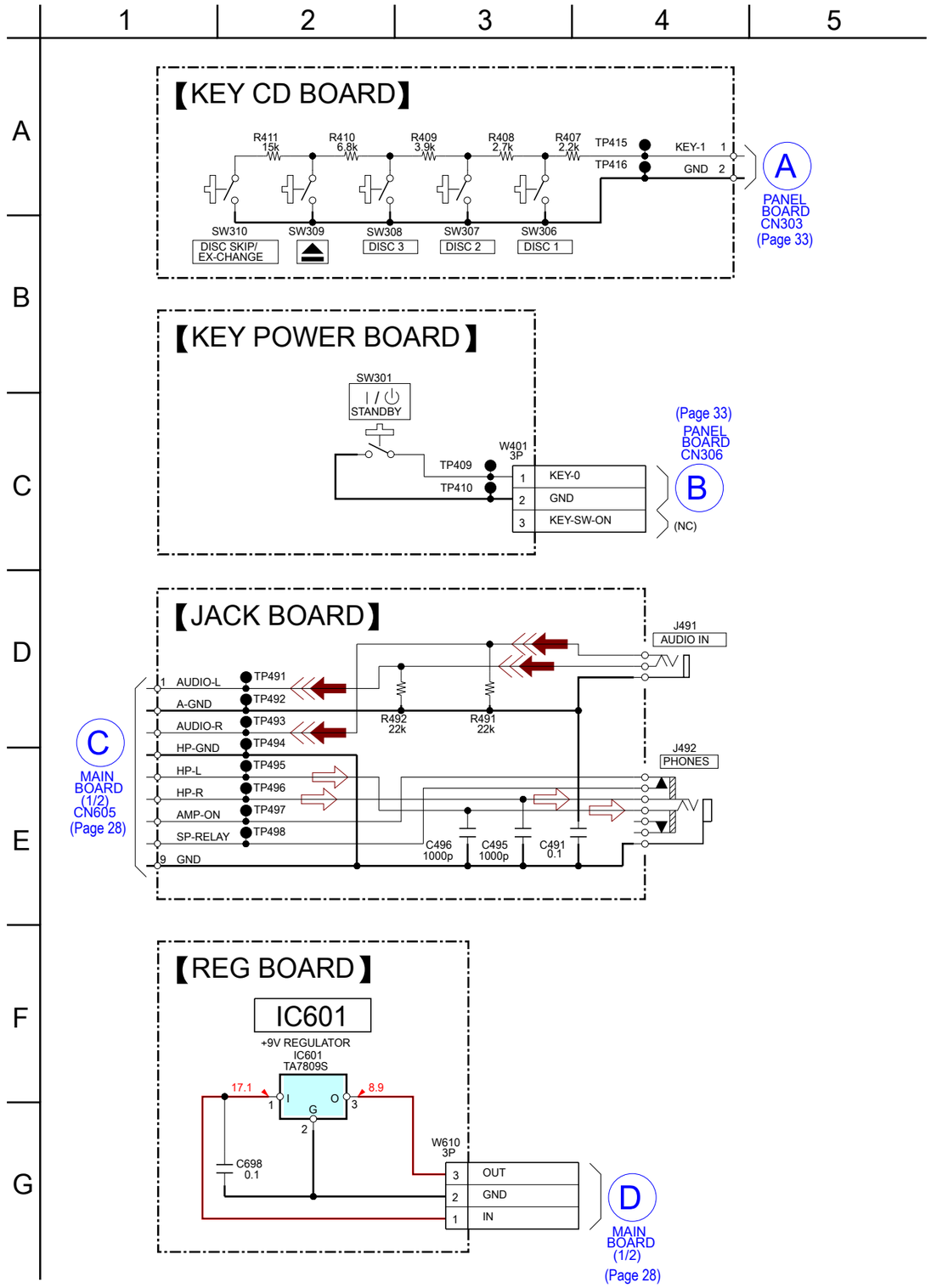
7-15. PRINTED WIRING BOARDS - KEY Section -

• See page 23 for Circuit Boards Location. • : Uses unleaded solder.



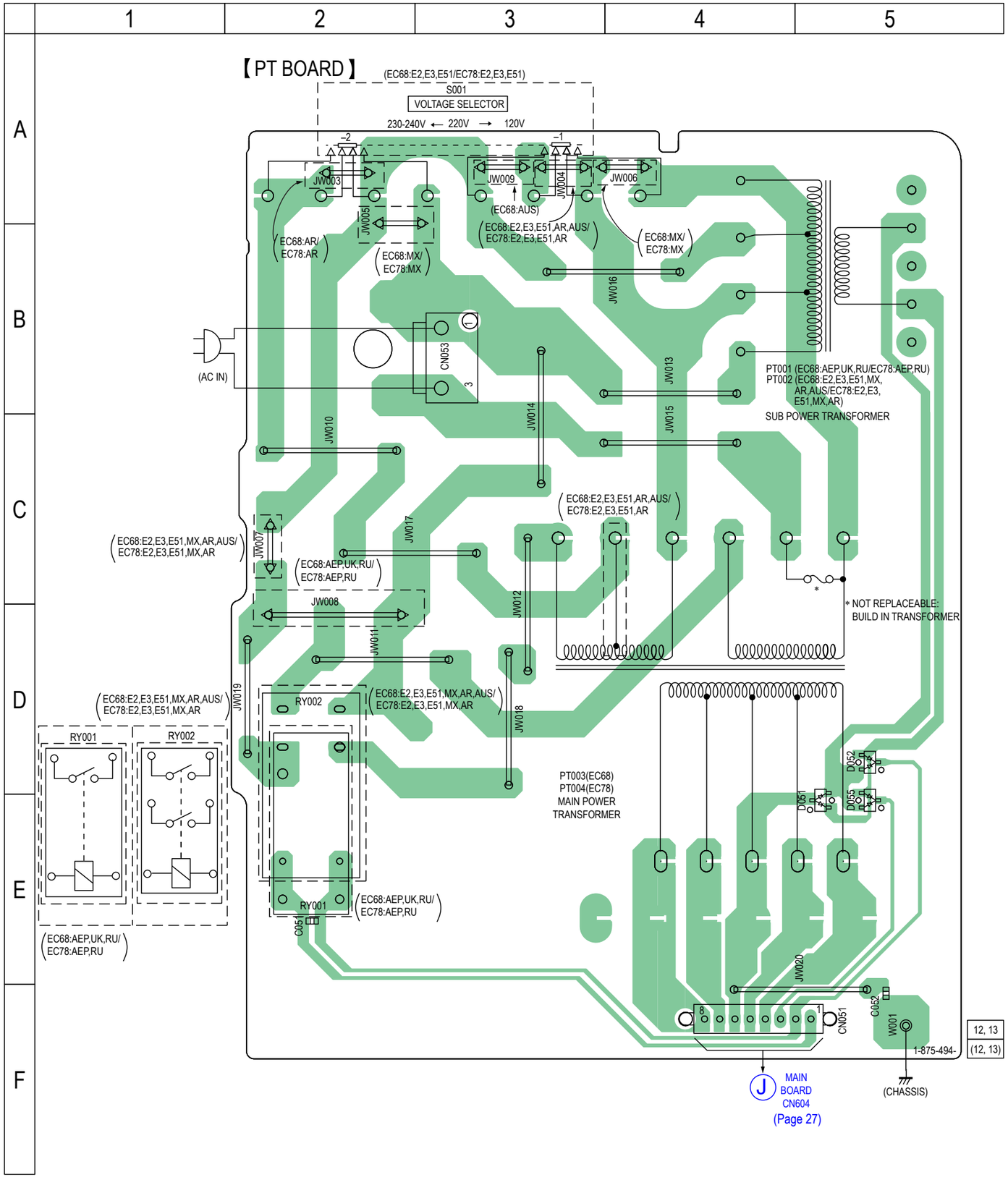
Note: Refer to "SUFFIX-12/SUFFIX-13 DISCRIMINATION OF PANEL BOARD" (page 3) of the servicing notes for suffix-12 and suffix-13.

7-16. SCHEMATIC DIAGRAM - KEY Section -

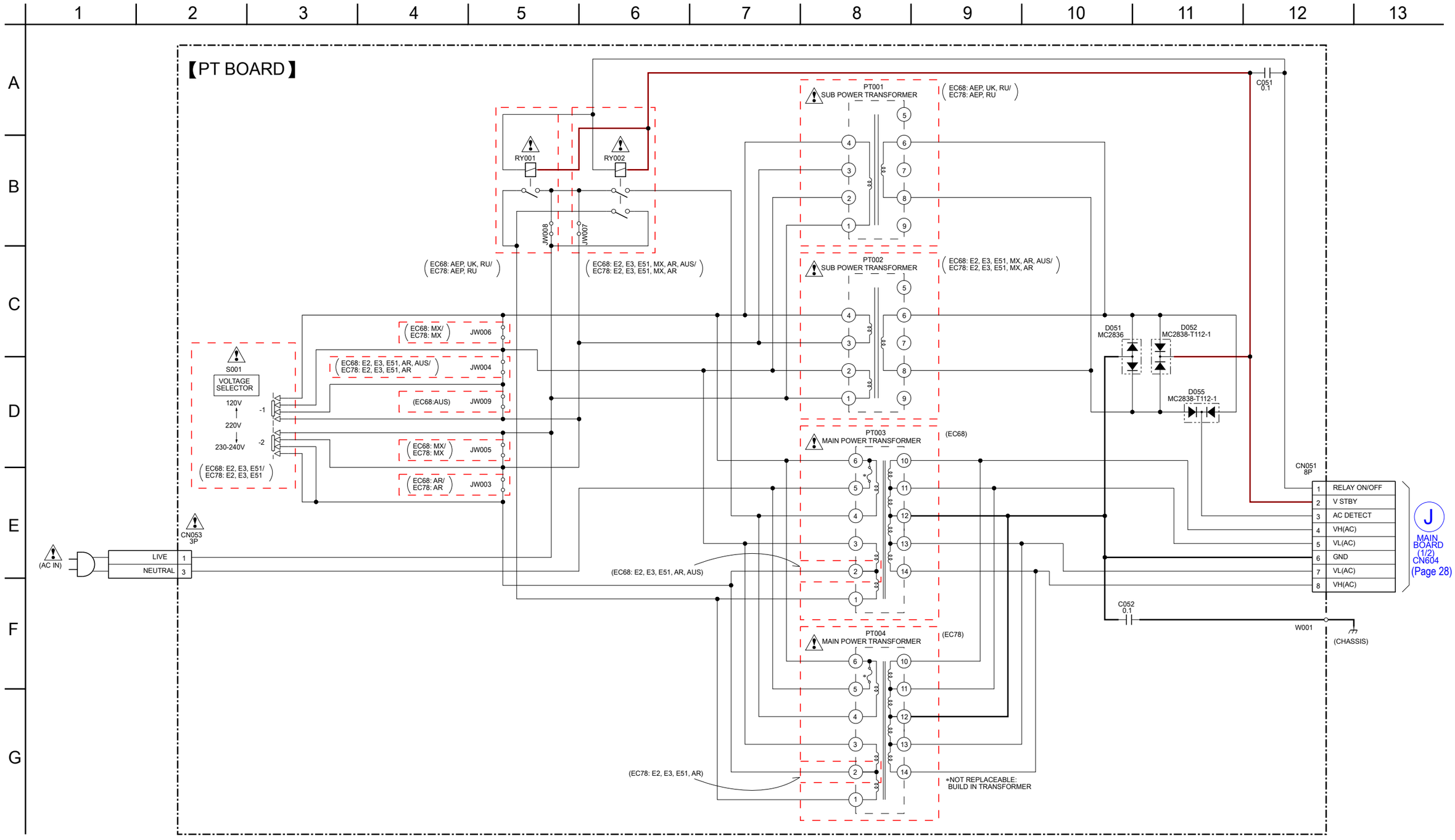


7-17. PRINTED WIRING BOARD - PT Board -

• See page 23 for Circuit Boards Location. • : Uses unleaded solder.



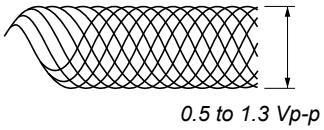
7-18. SCHEMATIC DIAGRAM - PT Board -



• **Waveforms**

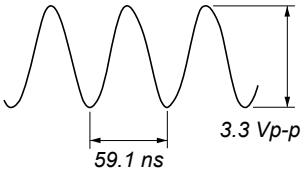
– CD Board –

① **IC101 ㊽ (RFi)**
(CD play mode)



200 mV/DIV, 500 ns/DIV

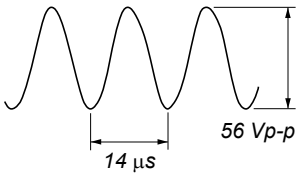
② **IC101 ㉔ (XO)**
(CD play mode)



1 V/DIV, 20 ns/DIV

– DECK Board –

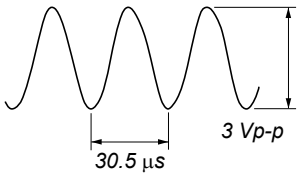
⑪ **CN501 ④ (EH)**



20 V/DIV, 5 µs/DIV

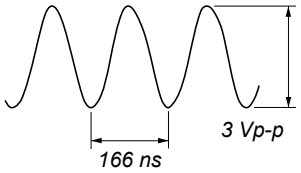
– PANEL Board –

㉛ **IC301 ⑭ (X1A)**



1 V/DIV, 10 µs/DIV

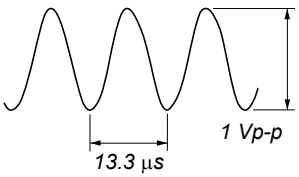
㉜ **IC301 ㉒ (X1)**



1 V/DIV, 50 ns/DIV

– MAIN Board –

㉑ **IC801 ⑲ (XIN)**

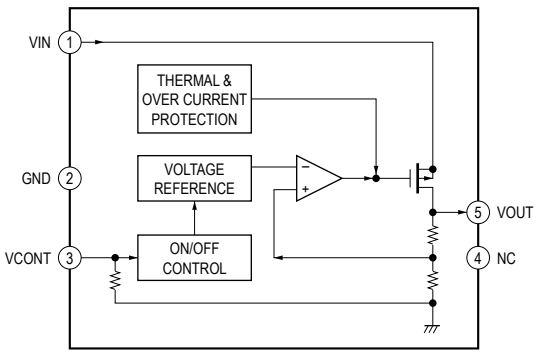


500 mV/DIV, 5 µs/DIV

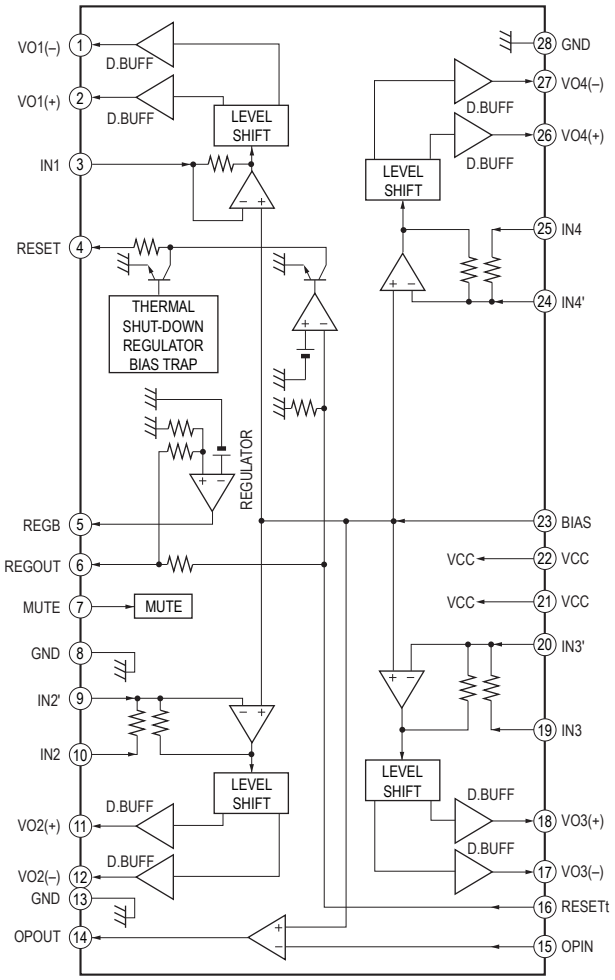
- **IC Block Diagrams**

– CD Board –

IC201 TK63115SCL-G@GT

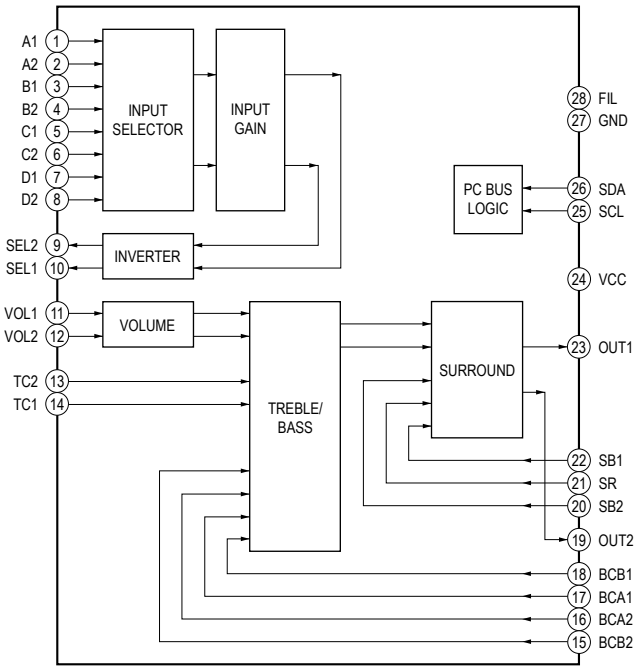


IC401 BA5826SFP-E2

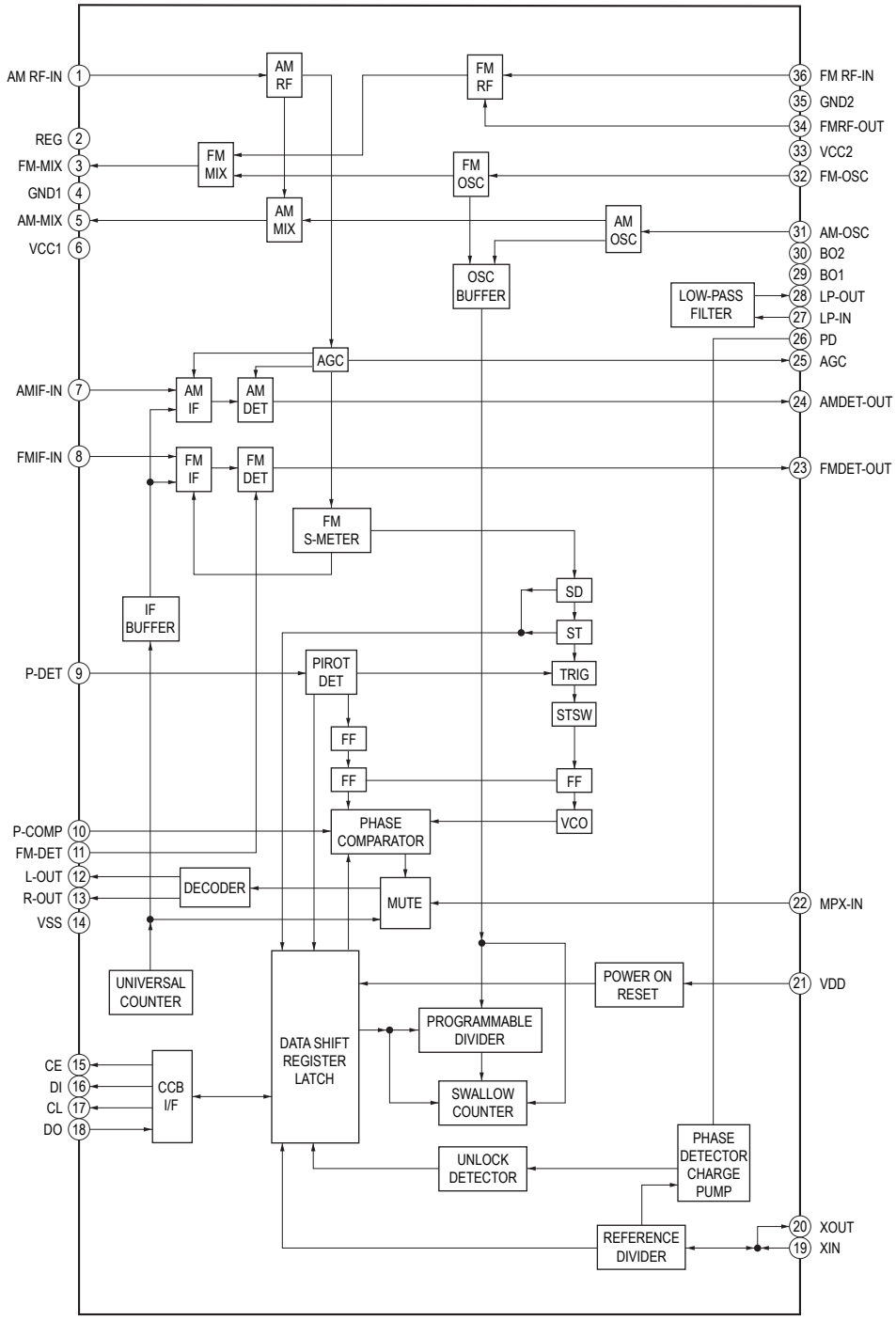


– MAIN Board –

IC602 BD3499FV-E2



IC801 LV23003VA



• **IC Pin Function Description**

CD BOARD IC101 TC94A70FG-006 (D, HZ (CD-MP3 PROCESSOR)

Pin No.	Pin Name	I/O	Description
1	AVSS3	-	Ground terminal
2	RFZi	I	RF ripple zero crossing signal input terminal
3	RFRP	O	RF ripple signal output terminal
4	SBAD/RFDC	O	Sub beam addition signal or RF peak detection signal output terminal Not used
5	FEi	O	Focus error signal output terminal Not used
6	TEi	O	Tracking error signal output terminal
7	TEZi	I	Tracking error zero crossing signal input terminal
8	AVDD3	-	Power supply terminal (+3.3 V)
9	FOo	O	Focus coil drive signal output terminal
10	TRo	O	Tracking coil drive signal output terminal
11	VREF	I	Reference voltage (+1.65V) input terminal
12	FMo	O	Sled motor drive signal output terminal
13	DMo	O	Spindle motor drive signal output terminal
14	VSSP3	-	Ground terminal
15	VCOi	I	VCO control voltage input terminal
16	VDDP3	-	Power supply terminal (+3.3 V)
17	VDD1	-	Power supply terminal (+1.5 V)
18	VSS	-	Ground terminal
19	FGiN	I	FG signal input terminal Not used
20	IO0 (/HSO)	I	Disc inner position detection signal input terminal
21	IO1 (/UHSO)	O	Not used
22	XVSS3	-	Ground terminal
23	XI	I	System clock input terminal (16.9344 MHz)
24	XO	O	System clock output terminal (16.9344 MHz)
25	XVDD3	-	Power supply terminal (+3.3 V)
26	DVSS3	-	Ground terminal
27	RO	O	Audio data (R-ch) output to the input selector
28	DVDD3	-	Power supply terminal (+3.3 V)
29	DVR	O	Reference voltage (+1.65V) output terminal
30	LO	O	Audio data (L-ch) output to the input selector
31	DVSS3	-	Ground terminal
32	VDDT3	-	Power supply terminal (+3.3 V)
33	VSS1	-	Ground terminal
34	VDD1	-	Power supply terminal (+1.5 V)
35	VDDM1	-	Power supply terminal (+1.5 V)
36	SRAMSTB	I	S-RAM standby mode control signal input terminal Fixed at "L" in this set
37	XRST	I	Reset signal input from the system controller "L": reset
38, 39	BUS0, BUS1	I	Serial data input from the system controller
40	BUS2 (SO)	I	Serial data input from the system controller
41	BUS3 (SI)	I	Serial data input from the system controller
42	BUCK (CLK)	I	Serial data transfer clock signal input from the system controller
43	XCCE	I	Chip enable signal input from the system controller
44	TEST	I	Setting terminal for test mode Normally fixed at "L"
45	IRQ	I	Interrupt request signal input terminal Not used
46	AoUT3 (PO4)	O	Request signal output terminal Not used
47	AoUT2 (PO5)	O	Audio data output terminal Not used
48	PIO0	O	Request signal output to the system controller
49, 50	PIO1, PIO2	O	Not used
51	PIO3	I	Gate signal input terminal Not used
52	VSS1	-	Ground terminal
53	VDDT3	-	Power supply terminal (+3.3 V)
54	SBSY	O	Subcode block sync signal output to the system controller
55	SBOK/FOK	O	Not used
56	IPF	O	Not used
57	SFSY/LOCK	O	Not used
58	ZDET	O	Zero detection signal output terminal Not used
59	GPIN	I	Not used
60	MS	I	Microcomputer interface mode selection signal input terminal Fixed at "H" in this set

Pin No.	Pin Name	I/O	Description
61	DOUT (PO6)	O	Digital audio data output terminal Not used
62	AOUT (PO7)	O	Audio data output terminal Not used
63	BCK (PO8)	O	Bit clock signal output terminal Not used
64	LRCK (PO9)	O	L/R sampling clock signal output terminal Not used
65	AIN (PI4)	I	Digital audio data input terminal Not used
66	BCKi (PI5)	I	Bit clock signal input terminal Not used
67	LRCKi (PI6)	I	L/R sampling clock signal input terminal Not used
68	VDD1	-	Power supply terminal (+1.5 V)
69	VSS	-	Ground terminal
70	AWRC	-	Not used
71	PVDD3	-	Power supply terminal (+3.3 V)
72	PDO	O	Phase error margin signal between EFM signal and PLCK signal output terminal
73	TMAXS	O	TMAX detection signal output terminal Not used
74	TMAX	O	TMAX detection signal output terminal
75	LPFN	I	Inverted signal input from the operation amplifier for PLL loop filter
76	LPFo	O	Signal output from the operation amplifier for PLL loop filter
77	PVREF	I	Reference voltage (+1.65V) input terminal
78	VCOF	O	VCO filter output terminal
79	PVSS3	-	Ground terminal
80	SLCo	O	EFM slice level output terminal
81	RFi	I	RF signal input terminal
82	RFRPi	I	RF ripple signal input terminal
83	RFEQo	O	EFM slice level output terminal
84	VRo	O	Reference voltage (+1.65V) output terminal
85	RESiN	O	External resistor connection terminal
86	VMDiR	O	Reference voltage (+1.65V) output terminal for automatic power control circuit
87	TESTR	O	Low-pass filter terminal for RFEQO offset correction
88	AGCi	I	RF signal amplitude adjustment amplification input terminal
89	RFo	O	RF signal generation amplification output terminal
90	RVDD3	-	Power supply terminal (+3.3 V)
91	LDo	O	Laser diode on/off control signal output to the automatic power control circuit "H": laser diode on
92	MDi	I	Light amount monitor input from the laser diode of optical pick-up block
93	RVSS3	-	Ground terminal
94	FNi2 (C)	I	Main beam (C) input from the optical pick-up block
95	FNi1 (A)	I	Main beam (A) input from the optical pick-up block
96	FPi2 (D)	I	Main beam (D) input from the optical pick-up block
97	FPi1 (B)	I	Main beam (B) input from the optical pick-up block
98	TPi (F)	I	Sub beam (F) input from the optical pick-up block
99	TNPC	O	External capacitor connection terminal
100	TNi (E)	I	Sub beam (E) input from the optical pick-up block

PANEL BOARD IC301 MB90803PF-G-135E1 (SYSTEM CONTROLLER)

Pin No.	Pin Name	I/O	Description
1	SEG32	O	Segment drive signal output to the liquid crystal display
2	O-AMP-ON	O	Relay drive signal output terminal (for speaker)
3	O-POWER	O	Main power on/off control signal output terminal "H": on
4	O-CD-ON	O	CD power on/off control signal output terminal "H": on
5 to 7	I-3CD-SW3/O-CDM-CLOSE, I-3CD-SW2/NC, I-3CD-SW1/O-CDM-OPEN	I	Detection switch input from the CD mechanism deck
8	O-3CD-M1+/O-CDM-M1+	O	Motr drive signal output terminal Not used
9	I-RMC	I	Remote control signal input from the remote control receiver
10	O-3CD-M1-/O-CDM-M1-	O	Motr drive signal output terminal Not used
11, 12	O-3CD-M2+/NC, O-3CD-M2-/NC	O	Motr drive signal output to the CD mechanism deck
13	X0A	I	Sub system clock input terminal (32.768 kHz)
14	X1A	O	Sub system clock output terminal (32.768 kHz)
15	VCC	-	Power supply terminal (+3.1V)
16	VSS	-	Ground terminal
17 to 20	I/O-CD-BUS0 to I/O-CD-BUS3	O	Serial data output to the CD-MP3 processor
21	I-3CD-CHACK	I	Disc chucking detection switch input from the CD mechanism deck
22	I-3CD-STOCK	I	Disc stocking detection switch input from the CD mechanism deck
23	O-DR-MUTE	O	Muting signal output to the motor/coil driver
24	I-REQ	I	Request signal input from the CD-MP3 processor
25	O-CD-BUCK	O	Serial data transfer clock signal output to the CD-MP3 processor
26	O-CD-CCE	O	Chip enable signal output to the CD-MP3 processor
27	O-CD-RST	O	System reset signal output to the CD-MP3 processor "L": reset
28	O-LED-STBY	O	LED drive signal output terminal for STANDBY indicater
29	I-USB-TXD/I-DMP-TXD	I	Serial data input terminal Not used
30	I-USB-DO/I-DMP-5V-DET	I	Power voltage detection signal input terminal Not used
31	O-USB-RXD/O-DMP-RXD	O	Serial data output terminal Not used
32	AVCC	-	Power supply terminal (+3.1V)
33	I-TU-DO	I	Serial data input from the AM/FM DET
34	O-USB-DI/5V-ON/O-TP-REC-MUTE	O	Muting signal output to the REC muting circuit
35	AVSS	-	Ground terminal
36	I-P-MONI	I	Power monitor signal input terminal
37, 38	I-KEY1, I-KEY2	I	Front panel key input terminal (A/D input)
39	I-TU-ANSD	I	Power monitor signal input terminal
40	O-USB-SEL1_2/O-SW-ON/I-TP-STATE	I	Tape syate detection signal input terminal
41	I-KEY-WAKE-UP/VOL	I	System wake up signal input terminal
42	I-HOLD	I	Hold signal input terminal
43	O-CD-SBSY	I	Subcode block sync signal input from the CD-MP3 processor
44	GND	-	Ground terminal
45	I-DMP-DET/O-USB-RST	I/O	DMPORT detection signal input terminal/reset signal output terminal Not used
46	I-MODEL	I	Model setting terminal
47	I-SUFFIX	I	Suffix setting terminal
48	I-CD-CLOSE_OPEN/NC	I	CD table open/close detection signal input terminal
49	I/O-I2C-DATA	I/O	Two-way serial data bus with the electrical volume
50	I/O-I2C-CLK	O	Serial data transfer clock signal output to the electrical volume
51 to 53	MD2 to MD0	-	Not used
54	I-RST	I	Reset signal input from the voltage detect "L": reset For several hundreds msec. after the power supply rises, "L" is input, then it changes to "H"
55	O-TU-CE	O	Chip enable signal output to the FM/AM DET
56	O-TU-CLK	O	Serial data transfer clock signal output to the FM/AM DET

Pin No.	Pin Name	I/O	Description
57	O-TU-DI	O	Serial data output to the FM/AM DET
58	VLCD	-	Terminal for doubler circuit capacitor connection to develop liquid crystal display drive voltage
59 to 62	COM0, COM1, CMO2, CMO3	O	Common drive signal output to the liquid crystal display
63, 64	SEG0, SEG1	O	Segment drive signal output to the liquid crystal display
65	VCC	-	Power supply terminal (+3.1V)
66	VSS	-	Ground terminal
67 to 89	SEG2 to SEG24	O	Segment drive signal output to the liquid crystal display
90	VCC	-	Power supply terminal (+3.1V)
91	VSS	-	Ground terminal
92	X1	I	Main system clock output terminal (6 MHz)
93	X0	O	Main system clock input terminal (6 MHz)
94 to 100	SEG25 to SEG31	O	Segment drive signal output to the liquid crystal display

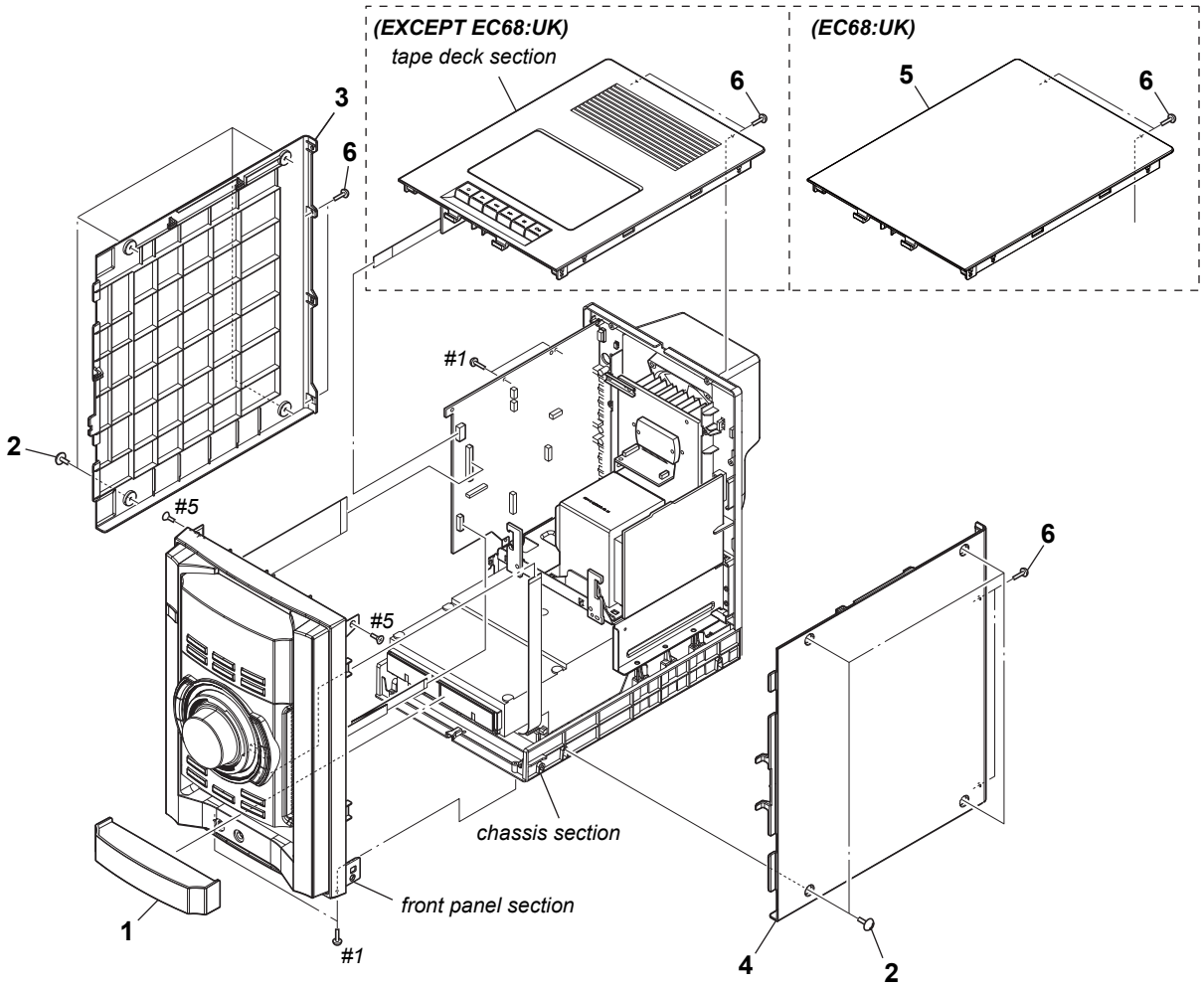
SECTION 8
EXPLODED VIEWS

Note:

- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service.
  Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Color Indication of Appearance Parts Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ Parts of Color ↑ Cabinet's Color
- Accessories are given in the last of the electrical parts list.
- Abbreviation
  AR : Argentina model
  AUS : Australian model
  E2 : 120V AC area in E model
  E3 : 240V AC area in E model
  E51 : Chilean and Peruvian models
  MX : Mexican model
  RU : Russian model

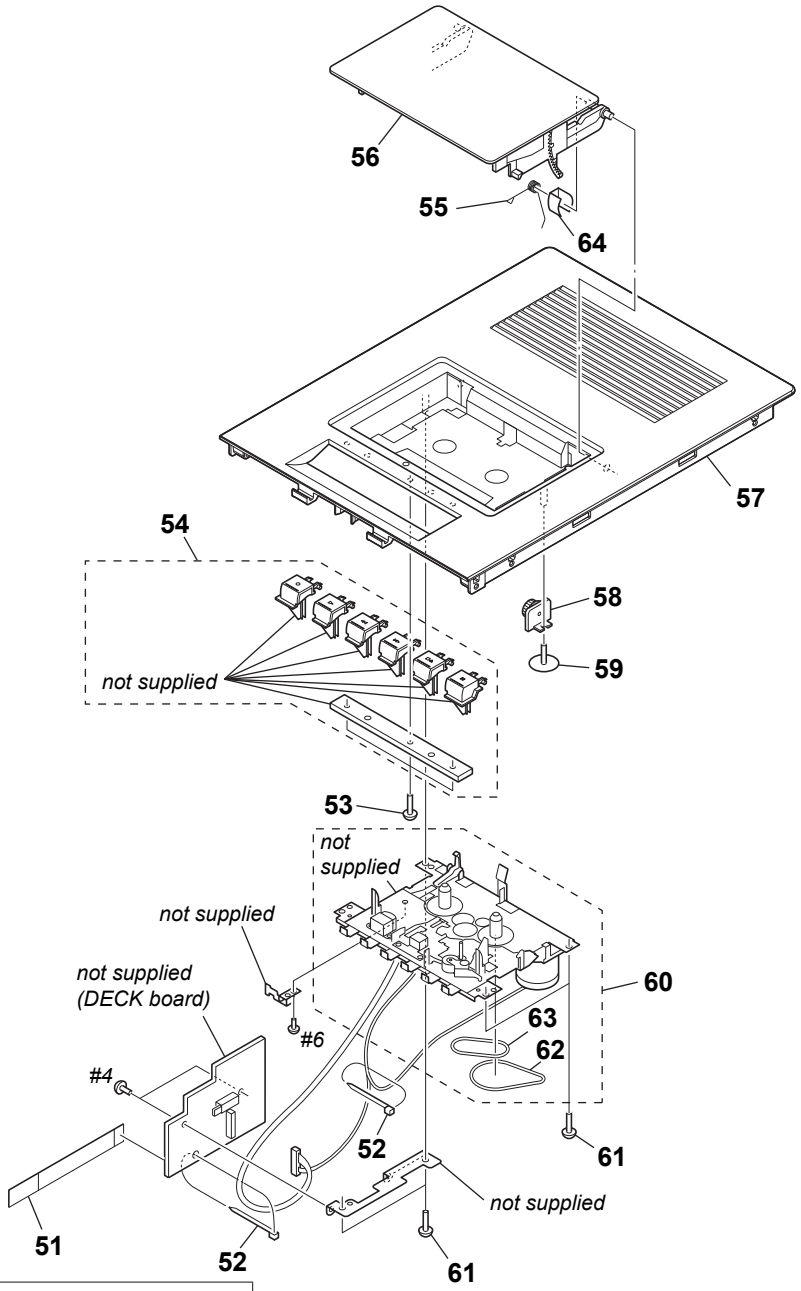
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

8-1. PANEL SECTION



Ref. No.	Part No.	Description	Remark
1	3-276-203-01	DOOR (CD)	
2	3-363-099-32	SCREW (CASE 3 TP2)	
3	2-890-831-11	PANEL (L), SIDE	
4	2-890-830-11	PANEL (R), SIDE (EC68/EC78: E2, E3, E51, MX, AR)	
4	2-890-830-31	PANEL (R), SIDE (EC78: AEP, RU)	
5	2-890-829-11	PANEL (TOP) (EC68: UK)	
6	3-254-143-11	SCREW (B3), (+) BV TAPPING	
#1	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S	
#5	7-685-247-14	SCREW +KTP 3X10 TYPE2 NON-SLIT	

8-2. TAPE DECK SECTION (EXCEPT EC68: UK)

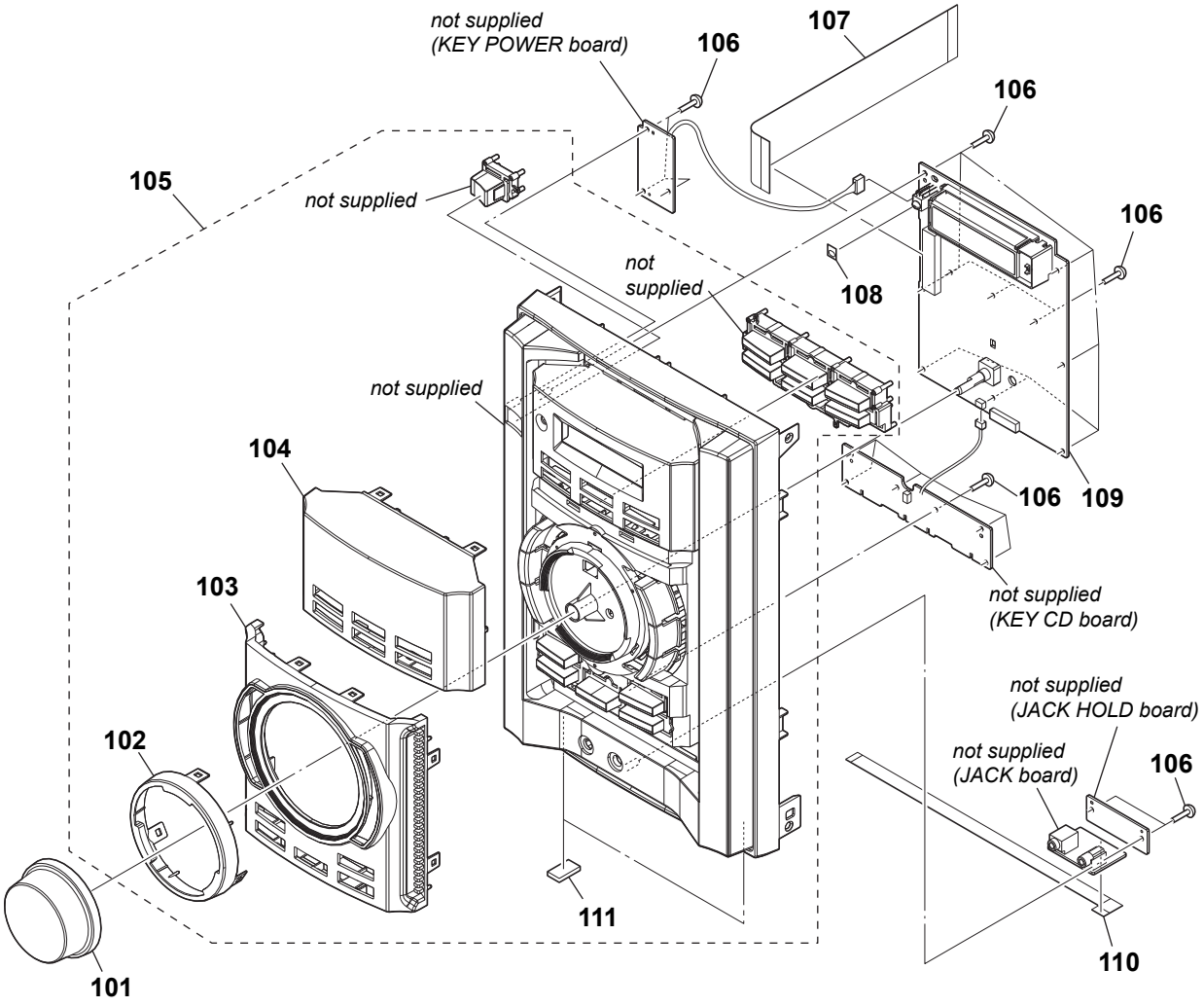


Note: When you exchange Ref.No.60, 62 or 63, Please refer to "HOW TO DISTINGUISH TAPE MECHANISM DECK (EXCEPT EC68: UK MODEL)" of the service note (5 page).

Ref. No.	Part No.	Description	Remark
51	1-833-801-21	CABLE, FLEXIBLE FLAT (9 CORE) (EXCEPT EC68: UK)	
52	3-701-748-00	CLAMP (EXCEPT EC68: UK)	
53	3-252-827-01	SCREW (B2.6), (+) BV TAPPING (EXCEPT EC68: UK)	
54	2-649-132-21	BUTTON (CASS) (●, ►, ◄◄, ►►, ■⏏, ❚❚) (EXCEPT EC68: UK)	
55	2-649-152-02	SPRING (CASS) (EXCEPT EC68: UK)	
56	2-649-131-21	BOX, CASSETTE (EXCEPT EC68: UK)	
57	2-649-128-71	PANEL, TOP (EXCEPT EC68: UK)	
58	3-047-468-01	DAMPER (EXCEPT EC68: UK)	
59	3-921-725-01	SCREW (2.6X10), +PWH (EXCEPT EC68: UK)	
60	1-797-575-11	DECK, MECHANICAL (CS-21SC-900TP) (EXCEPT EC68: UK)	

Ref. No.	Part No.	Description	Remark
60	A-1527-851-A	TCM-J1 (EXCEPT EC68: UK)	
61	4-951-620-01	SCREW (2.6X8), +BVTP (EXCEPT EC68: UK)	
62	2-670-389-01	BELT (1) (for TCM-J1) (EXCEPT EC68: UK)	
62	2-688-622-01	BELT (MAIN) (for CS-21SC-900TP) (EXCEPT EC68: UK)	
63	3-214-817-01	BELT (FR) (for TCM-J1) (EXCEPT EC68: UK)	
63	2-688-621-01	BELT (R/F) (for CS-21SC-900TP) (EXCEPT EC68: UK)	
64	3-917-753-41	CUSHION (SP) (EXCEPT EC68: UK)	
#4	7-685-645-79	SCREW +BVTP 3X6 TYPE2 IT-3 (EXCEPT EC68: UK)	
#6	7-685-850-04	SCREW +BVTT 2X3 (S) (EXCEPT EC68: UK)	

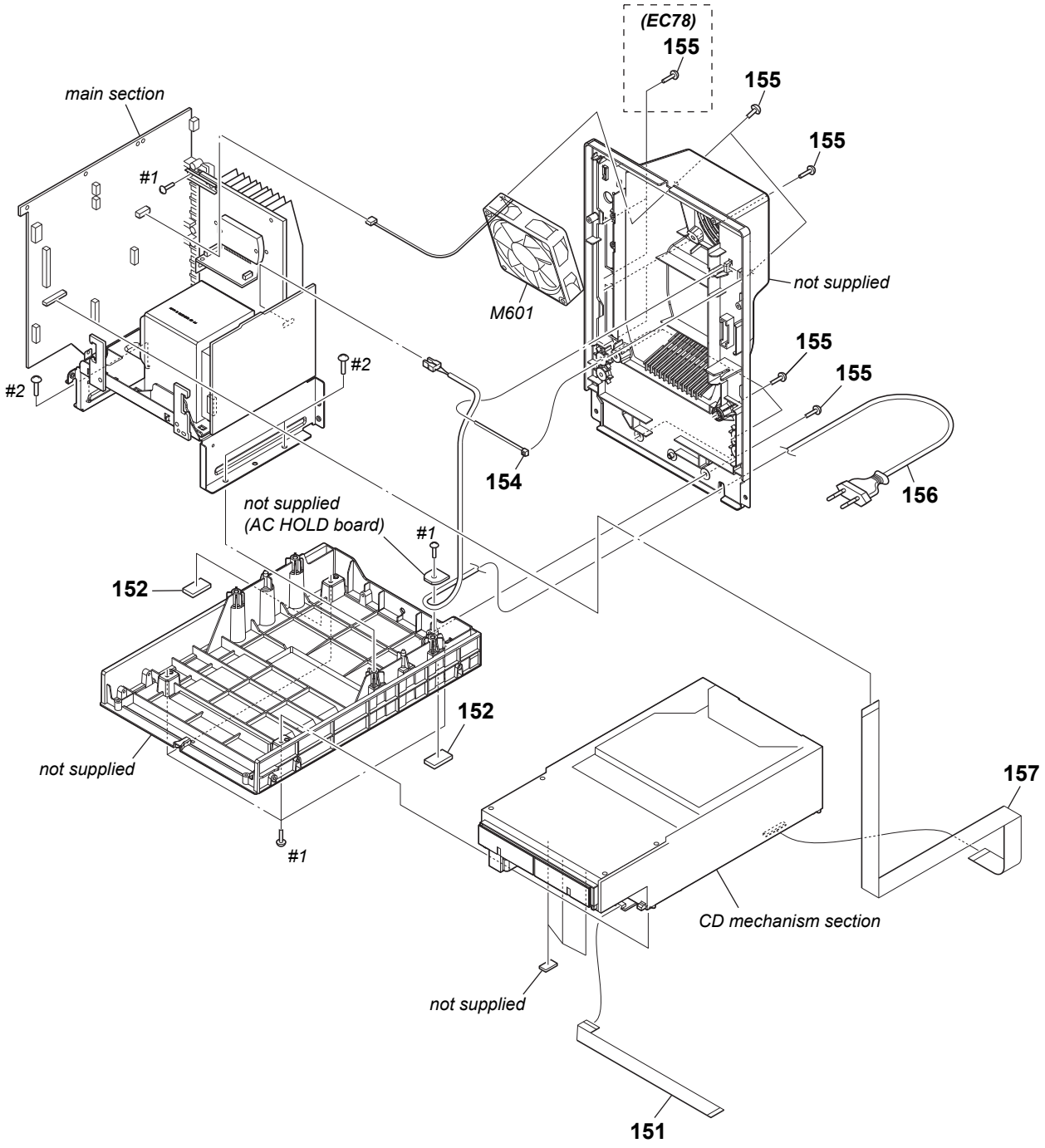
8-3. FRONT PANEL SECTION



Ref. No.	Part No.	Description	Remark
101	3-276-202-01	KNOB (VOL)	
102	3-276-204-01	RING (VOL) (EC78: AEP, RU, E2, E51, MX, AR)	
102	3-276-204-11	RING (VOL) (EC68)	
102	3-276-204-21	RING (VOL) (EC78: E3)	
103	3-276-201-01	PLATE, ORNAMENTAL	
104	3-276-198-21	WINDOW (EC78: E3)	
104	3-276-198-41	WINDOW (EC68: E3, AUS)	
104	3-276-198-81	WINDOW (EC78: AEP, RU, E2, E51, MX, AR)	
104	3-276-198-91	WINDOW (EC68: AEP, UK, RU, E2, E51, MX, AR)	
105	A-1418-860-A	PANEL ASSY, FRONT (EC68: E3, AUS)	
105	A-1418-861-A	PANEL ASSY, FRONT (EC68: E2, E51, MX, AR)	
105	A-1418-864-A	PANEL ASSY, FRONT (EC78: E3)	
105	A-1418-865-A	PANEL ASSY, FRONT (EC78: E2, E51, MX, AR)	
105	A-1509-965-A	PANEL ASSY, FRONT (EC68: AEP, UK, RU)	
105	A-1509-966-A	PANEL ASSY, FRONT (EC78: AEP, RU)	
106	4-951-620-01	SCREW (2.6X8), +BVTP	

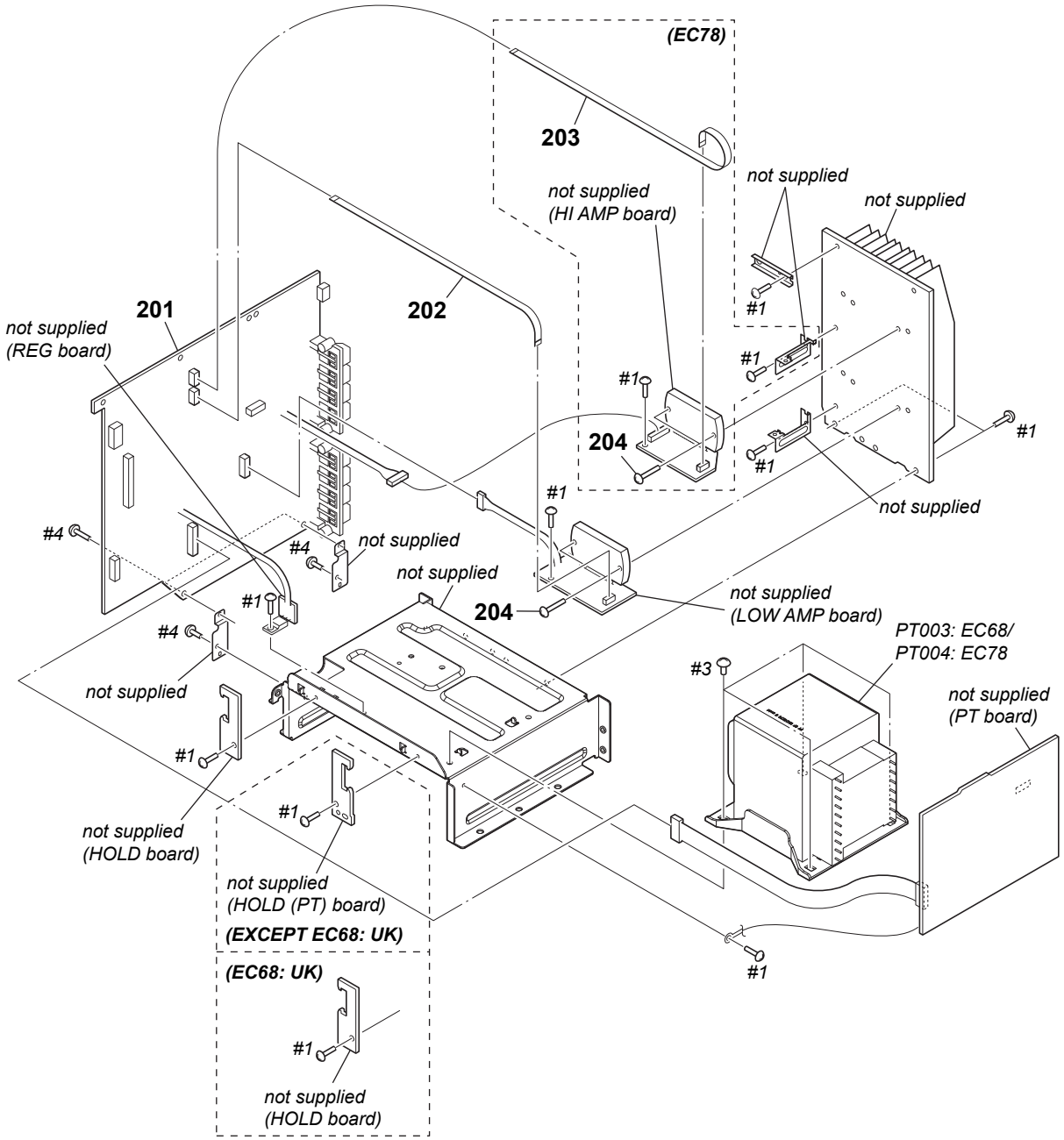
Ref. No.	Part No.	Description	Remark
107	1-832-906-21	CABLE, FLEXIBLE FLAT (27 CORE)	
108	3-297-298-01	SHEET (RM)	
109	A-1379-679-A	PANEL BOARD, COMPLETE (EC78: AEP)	
109	A-1379-692-A	PANEL BOARD, COMPLETE (EC78: RU)	
109	A-1379-698-A	PANEL BOARD, COMPLETE (EC78: E2)	
109	A-1379-707-A	PANEL BOARD, COMPLETE (EC78: E51, MX, AR)	
109	A-1379-748-A	PANEL BOARD, COMPLETE (EC68: AEP)	
109	A-1379-753-A	PANEL BOARD, COMPLETE (EC68: RU)	
109	A-1379-787-A	PANEL BOARD, COMPLETE (EC68: E2)	
109	A-1379-794-A	PANEL BOARD, COMPLETE (EC68: E51, MX, AR)	
109	A-1426-147-A	PANEL BOARD, COMPLETE (EC78: E3)	
109	A-1426-169-A	PANEL BOARD, COMPLETE (EC68: UK)	
109	A-1426-174-A	PANEL BOARD, COMPLETE (EC68: E3)	
109	A-1426-177-A	PANEL BOARD, COMPLETE (EC68: AUS)	
110	1-831-774-21	CABLE, FLEXIBLE FLAT (9 CORE)	
111	4-225-252-01	CUSHION (FOOT)	

8-4. CHASSIS SECTION



Ref. No.	Part No.	Description	Remark
151	1-832-838-21	CABLE, FLEXIBLE FLAT (13 CORE)	
152	4-225-252-01	CUSHION (FOOT)	
154	3-701-748-00	CLAMP	
155	3-254-143-11	SCREW (B3), (+) BV TAPPING	
⚠ 156	1-769-744-81	CORD, POWER (EC68: UK)	
⚠ 156	1-829-387-11	CORD, POWER (EC68: AR/EC78: AR)	
⚠ 156	1-834-966-21	CORD, POWER (EC68: AEP, RU, E2, E3, E51/ EC78: AEP, RU, E2, E3, E51)	
⚠ 156	1-834-967-21	CORD, POWER (EC68: AUS)	
⚠ 156	1-834-978-11	CORD, POWER (EC68: MX/EC78: MX)	
157	1-834-181-21	CABLE, FLEXIBLE FLAT (21 CORE)	
⚠ M601	1-787-400-11	D.C. FAN (EC68/EC78: E2, E3, E51, MX, AR)	
⚠ M601	1-787-631-11	FAN, DC (EC78: AEP, RU)	
#1	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S	
#2	7-685-661-14	SCREW +BVTP 4X12 TYPE2 N-S	

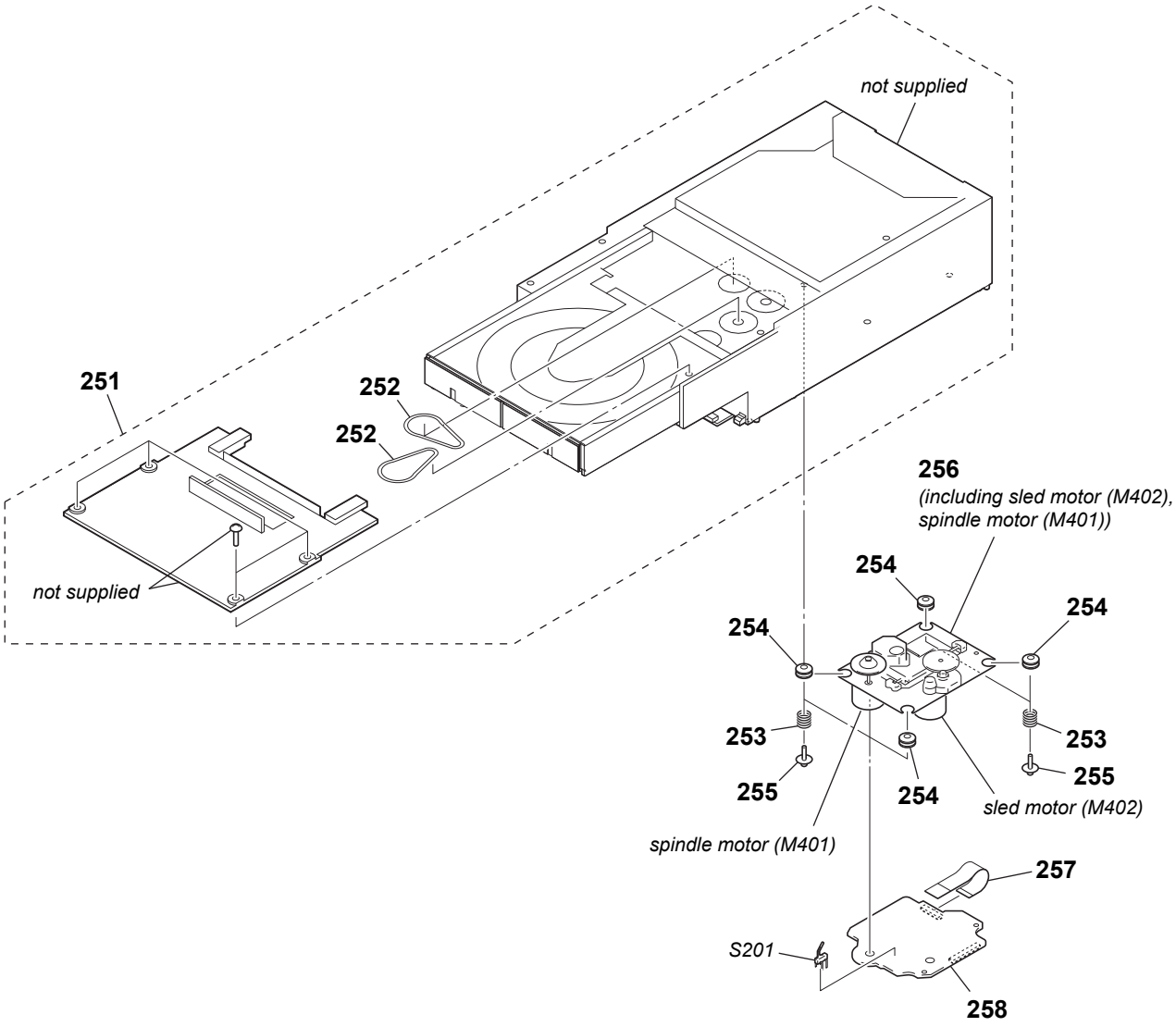
8-5. MAIN SECTION



Ref. No.	Part No.	Description	Remark
201	A-1379-677-A	MAIN BOARD, COMPLETE (EC78: AEP, RU)	
201	A-1379-696-A	MAIN BOARD, COMPLETE (EC78: E2, E51, MX, AR)	
201	A-1379-746-A	MAIN BOARD, COMPLETE (EC68: AEP, RU)	
201	A-1379-785-A	MAIN BOARD, COMPLETE (EC68: E2, E51, MX, AR)	
201	A-1426-145-A	MAIN BOARD, COMPLETE (EC78: E3)	
201	A-1426-167-A	MAIN BOARD, COMPLETE (EC68: UK)	
201	A-1426-172-A	MAIN BOARD, COMPLETE (EC68: E3, AUS)	
202	1-831-744-21	CABLE, FLEXIBLE FLAT (5 CORE)	
203	1-835-276-21	CABLE, FLEXIBLE FLAT (5 CORE) (EC78)	
204	3-905-609-31	SCREW (TRANSISTOR)	

Ref. No.	Part No.	Description	Remark
⚠ PT003	1-445-117-11	TRANSFORMER, POWER (EC68: AEP, RU)	
⚠ PT003	1-445-338-11	TRANSFORMER, POWER (EC68: MX)	
⚠ PT003	1-445-346-11	TRANSFORMER, POWER (EC68: E2, E3, E51, AR, AUS)	
⚠ PT003	1-445-432-11	TRANSFORMER, POWER (EC68: UK)	
⚠ PT004	1-445-119-11	TRANSFORMER, POWER (EC78: E2, E3, E51, AR)	
⚠ PT004	1-445-341-11	TRANSFORMER, POWER (EC78: AEP, RU)	
⚠ PT004	1-445-344-11	TRANSFORMER, POWER (EC78: MX)	
#1	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S	
#3	7-685-880-09	SCREW +BVTT 4X6 (S)	
#4	7-685-645-79	SCREW +BVTP 3X6 TYPE2 IT-3	

8-6. CD MECHANISM SECTION (CDM88A-K6BD90-WOD)



Ref. No.	Part No.	Description	Remark
251	1-797-193-12	MECHANICAL, CD (DLM3A)	
252	2-632-062-11	BELT (DLM3A)	
253	4-227-045-31	SPRING (INSULATOR), COIL	
254	4-227-549-31	INSULATOR	
255	4-985-672-01	SCREW (+PTPWHM2.6), FLOATING	

Ref. No.	Part No.	Description	Remark
⚠ 256	A-4735-357-A	BASE ASSY, OP (KSM-213D)	
257	1-832-404-21	CABLE, FLEXIBLE FLAT (16 CORE)	
258	A-1217-914-A	CD BOARD, COMPLETE	
S201	1-771-853-11	SWITCH, DETECTION (LIMIT)	

CD

SECTION 9
ELECTRICAL PARTS LIST

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.
- Items marked "*" are not stocked since they are seldom required for routine service.
  Some delay should be anticipated when ordering these items.
- CAPACITORS
  uF: µF
- COILS
  uH: µH
- RESISTORS
  All resistors are in ohms.
  METAL: Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F: nonflammable
- SEMICONDUCTORS
  In each case, u: µ, for example:
  uA. . : µA. . , uPA. . , µPA. . ,
  uPB. . : µPB. . , uPC. . , µPC. . ,
  uPD. . : µPD. .
- Abbreviation
  AR : Argentina model
  AUS : Australian model
  E2 : 120V AC area in E model
  E3 : 240V AC area in E model
  E51 : Chilean and Peruvian models
  MX : Mexican model
  RU : Russian model

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

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

Ref. No.	Part No.	Description			Remark
	A-1217-914-A	CD BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C100	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C101	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C102	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C103	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C104	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C105	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C106	1-128-995-21	ELECT CHIP	100uF	20%	10V
C107	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C108	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C109	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C110	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C112	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C113	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C115	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C116	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C117	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C118	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C119	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C120	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C122	1-164-315-11	CERAMIC CHIP	470PF	5%	50V
C123	1-164-315-11	CERAMIC CHIP	470PF	5%	50V
C124	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C125	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C126	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C127	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C128	1-162-910-11	CERAMIC CHIP	5PF	0.25PF	50V
C130	1-162-910-11	CERAMIC CHIP	5PF	0.25PF	50V
C132	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C133	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C136	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C137	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C138	1-164-315-11	CERAMIC CHIP	470PF	5%	50V
C139	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C140	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C141	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C142	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C143	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C144	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C145	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C146	1-164-315-11	CERAMIC CHIP	470PF	5%	50V
C147	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C148	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C149	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C150	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C151	1-164-315-11	CERAMIC CHIP	470PF	5%	50V
C152	1-164-315-11	CERAMIC CHIP	470PF	5%	50V
C153	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C201	1-128-995-21	ELECT CHIP	100uF	20%	10V
C202	1-128-995-21	ELECT CHIP	100uF	20%	10V
C204	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C205	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C206	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C207	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C301	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C302	1-137-710-91	CERAMIC CHIP	10uF	20%	6.3V
C303	1-137-710-91	CERAMIC CHIP	10uF	20%	6.3V
C306	1-128-995-21	ELECT CHIP	100uF	20%	10V
C307	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C309	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C401	1-128-394-11	ELECT CHIP	220uF	20%	10V
C403	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C404	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C405	1-164-360-11	CERAMIC CHIP	0.1uF		16V
		< CONNECTOR >			
CN201	1-784-833-51	CONNECTOR, FFC (LIF (NON-ZIF)) 21P			
CN301	1-770-425-51	CONNECTOR, FFC/FPC 16P			
		< IC >			
IC101	6-712-622-01	IC TC94A70FG-006 (D, HZ			
IC201	6-710-808-01	IC TK63115SCL-G@GT			
IC401	6-710-637-01	IC BA5826SFP-E2			
		< TRANSISTOR >			
Q301	6-551-120-01	TRANSISTOR	2SA2119K		
		< RESISTOR >			
R101	1-216-813-11	METAL CHIP	220	5%	1/10W
R102	1-216-833-11	METAL CHIP	10K	5%	1/10W
R104	1-216-295-91	SHORT CHIP	0		
R105	1-216-857-11	METAL CHIP	1M	5%	1/10W
R106	1-216-821-11	METAL CHIP	1K	5%	1/10W
R108	1-216-864-11	SHORT CHIP	0		
R110	1-216-833-11	METAL CHIP	10K	5%	1/10W
R111	1-216-809-11	METAL CHIP	100	5%	1/10W
R112	1-216-809-11	METAL CHIP	100	5%	1/10W

Ref. No.	Part No.	Description			Remark
R113	1-216-833-11	METAL CHIP	10K	5%	1/10W
R114	1-216-833-11	METAL CHIP	10K	5%	1/10W
R118	1-216-845-11	METAL CHIP	100K	5%	1/10W
R120	1-216-864-11	SHORT CHIP	0		
R125	1-216-864-11	SHORT CHIP	0		
R126	1-216-864-11	SHORT CHIP	0		
R127	1-216-864-11	SHORT CHIP	0		
R128	1-216-853-11	METAL CHIP	470K	5%	1/10W
R129	1-216-821-11	METAL CHIP	1K	5%	1/10W
R130	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R134	1-216-857-11	METAL CHIP	1M	5%	1/10W
R135	1-216-853-11	METAL CHIP	470K	5%	1/10W
R136	1-216-837-11	METAL CHIP	22K	5%	1/10W
R139	1-216-841-11	METAL CHIP	47K	5%	1/10W
R140	1-216-864-11	SHORT CHIP	0		
R142	1-216-837-11	METAL CHIP	22K	5%	1/10W
R143	1-216-841-11	METAL CHIP	47K	5%	1/10W
R144	1-216-837-11	METAL CHIP	22K	5%	1/10W
R145	1-216-864-11	SHORT CHIP	0		
R146	1-216-864-11	SHORT CHIP	0		
R147	1-216-864-11	SHORT CHIP	0		
R148	1-216-864-11	SHORT CHIP	0		
R149	1-216-864-11	SHORT CHIP	0		
R150	1-216-864-11	SHORT CHIP	0		
R151	1-216-864-11	SHORT CHIP	0		
R153	1-216-857-11	METAL CHIP	1M	5%	1/10W
R154	1-216-857-11	METAL CHIP	1M	5%	1/10W
R155	1-216-805-11	METAL CHIP	47	5%	1/10W
R156	1-216-809-11	METAL CHIP	100	5%	1/10W
R157	1-216-809-11	METAL CHIP	100	5%	1/10W
R201	1-216-295-91	SHORT CHIP	0		
R202	1-216-295-91	SHORT CHIP	0		
R203	1-216-809-11	METAL CHIP	100	5%	1/10W
R204	1-216-809-11	METAL CHIP	100	5%	1/10W
R205	1-216-809-11	METAL CHIP	100	5%	1/10W
R206	1-216-809-11	METAL CHIP	100	5%	1/10W
R207	1-216-809-11	METAL CHIP	100	5%	1/10W
R208	1-216-809-11	METAL CHIP	100	5%	1/10W
R209	1-216-809-11	METAL CHIP	100	5%	1/10W
R210	1-216-809-11	METAL CHIP	100	5%	1/10W
R211	1-216-809-11	METAL CHIP	100	5%	1/10W
R212	1-216-809-11	METAL CHIP	100	5%	1/10W
R218	1-216-845-11	METAL CHIP	100K	5%	1/10W
R219	1-216-845-11	METAL CHIP	100K	5%	1/10W
R220	1-216-845-11	METAL CHIP	100K	5%	1/10W
R221	1-216-845-11	METAL CHIP	100K	5%	1/10W
R222	1-216-845-11	METAL CHIP	100K	5%	1/10W
R223	1-216-845-11	METAL CHIP	100K	5%	1/10W
R301	1-216-845-11	METAL CHIP	100K	5%	1/10W
R302	1-216-864-11	SHORT CHIP	0		
R303	1-216-789-11	METAL CHIP	2.2	5%	1/10W
R304	1-216-789-11	METAL CHIP	2.2	5%	1/10W
R402	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R405	1-216-833-11	METAL CHIP	10K	5%	1/10W
R408	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R414	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R415	1-216-841-11	METAL CHIP	47K	5%	1/10W

Ref. No.	Part No.	Description			Remark
		< VIBRATOR >			
X102	1-795-101-21	VIBRATOR, CERAMIC (16.9344MHz)			
**********					
		DECK BOARD (EXCEPT EC68: UK)			
		**********			
		< CAPACITOR >			
C501	1-126-933-11	ELECT	100uF	20%	16V
C502	1-126-933-11	ELECT	100uF	20%	16V
C503	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C504	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C505	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C506	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C509	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C510	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C511	1-162-960-11	CERAMIC CHIP	220PF	10%	50V
C512	1-162-960-11	CERAMIC CHIP	220PF	10%	50V
C513	1-126-960-11	ELECT	1uF	20%	50V
C514	1-126-960-11	ELECT	1uF	20%	50V
C515	1-126-947-11	ELECT	47uF	20%	35V
C516	1-126-947-11	ELECT	47uF	20%	35V
C517	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C519	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C520	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C521	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C522	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C523	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C524	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C525	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C526	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C527	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C528	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C529	1-162-961-11	CERAMIC CHIP	330PF	10%	50V
C530	1-162-961-11	CERAMIC CHIP	330PF	10%	50V
C531	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C532	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C533	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C534	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C535	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C536	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C537	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C538	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C539	1-115-156-11	CERAMIC CHIP	1uF		10V
C540	1-137-391-11	MYLAR	0.0047uF	5%	100V
C542	1-104-662-91	ELECT	22uF	20%	25V
C543	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C545	1-100-566-91	CERAMIC CHIP	0.1uF	10%	25V
C546	1-100-566-91	CERAMIC CHIP	0.1uF	10%	25V
		< CONNECTOR >			
CN501	1-815-449-11	PIN, CONNECTOR (PWB) 8P			
		< GROUND TERMINAL >			
ET501	1-537-771-21	TERMINAL BOARD, GROUND			
		< IC >			
IC501	8-759-278-58	IC NJM4558V-TE2			
IC502	8-759-278-58	IC NJM4558V-TE2			

DECK **HI AMP**

Ref. No.	Part No.	Description			Remark
		< JUMPER RESISTOR >			
JR501	1-216-864-11	SHORT CHIP	0		
JR502	1-216-864-11	SHORT CHIP	0		
JR503	1-216-864-11	SHORT CHIP	0		
		< TRANSFORMER >			
L501	1-456-094-11	TRANSFORMER, BIAS OSCILLATION			
		< TRANSISTOR >			
Q501	8-729-119-78	TRANSISTOR	2SC2785-HFE		
Q502	8-729-119-78	TRANSISTOR	2SC2785-HFE		
		< RESISTOR >			
R501	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R502	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R503	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R504	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R505	1-216-835-11	METAL CHIP	15K	5%	1/10W
R506	1-216-835-11	METAL CHIP	15K	5%	1/10W
R507	1-216-851-11	METAL CHIP	330K	5%	1/10W
R508	1-216-851-11	METAL CHIP	330K	5%	1/10W
R509	1-216-811-11	METAL CHIP	150	5%	1/10W
R510	1-216-811-11	METAL CHIP	150	5%	1/10W
R511	1-216-845-11	METAL CHIP	100K	5%	1/10W
R512	1-216-845-11	METAL CHIP	100K	5%	1/10W
R513	1-216-845-11	METAL CHIP	100K	5%	1/10W
R514	1-216-845-11	METAL CHIP	100K	5%	1/10W
R515	1-216-864-11	SHORT CHIP	0		
R516	1-216-864-11	SHORT CHIP	0		
R517	1-216-821-11	METAL CHIP	1K	5%	1/10W
R518	1-216-821-11	METAL CHIP	1K	5%	1/10W
R519	1-216-841-11	METAL CHIP	47K	5%	1/10W
R520	1-216-841-11	METAL CHIP	47K	5%	1/10W
R521	1-216-841-11	METAL CHIP	47K	5%	1/10W
R522	1-216-841-11	METAL CHIP	47K	5%	1/10W
R523	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R524	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R525	1-216-851-11	METAL CHIP	330K	5%	1/10W
R526	1-216-851-11	METAL CHIP	330K	5%	1/10W
R527	1-216-851-11	METAL CHIP	330K	5%	1/10W
R528	1-216-851-11	METAL CHIP	330K	5%	1/10W
R529	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R530	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R531	1-216-832-11	METAL CHIP	8.2K	5%	1/10W
R532	1-216-832-11	METAL CHIP	8.2K	5%	1/10W
R533	1-216-837-11	METAL CHIP	22K	5%	1/10W
R534	1-216-835-11	METAL CHIP	15K	5%	1/10W
R535	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R536	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R537	1-216-833-11	METAL CHIP	10K	5%	1/10W
R538	1-216-833-11	METAL CHIP	10K	5%	1/10W
R539	1-216-793-11	METAL CHIP	4.7	5%	1/10W
R540	1-216-805-11	METAL CHIP	47	5%	1/10W
R541	1-216-805-11	METAL CHIP	47	5%	1/10W
R543	1-216-809-11	METAL CHIP	100	5%	1/10W
R544	1-216-809-11	METAL CHIP	100	5%	1/10W
R545	1-216-817-11	METAL CHIP	470	5%	1/10W
R546	1-216-817-11	METAL CHIP	470	5%	1/10W

Ref. No.	Part No.	Description			Remark
		< SWITCH >			
S501	1-762-369-11	SWITCH, SLIDE (REC/PB)			
**********					
		HI AMP BOARD (EC78)			
		**********			
		< CAPACITOR >			
C151	1-126-960-11	ELECT	1uF	20%	50V
C152	1-126-960-11	ELECT	1uF	20%	50V
C153	1-164-315-11	CERAMIC CHIP	470PF	5%	50V
C154	1-164-315-11	CERAMIC CHIP	470PF	5%	50V
C155	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C156	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C157	1-126-960-11	ELECT	1uF	20%	50V
C158	1-126-960-11	ELECT	1uF	20%	50V
C159	1-162-908-11	CERAMIC CHIP	3PF	0.25PF	50V
C160	1-162-908-11	CERAMIC CHIP	3PF	0.25PF	50V
C161	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C162	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C166	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C169	1-126-968-11	ELECT	100uF	20%	50V
					(EC78: E2, E3, E51, MX, AR)
C169	1-128-576-11	ELECT	100uF	20%	63V
					(EC78: AEP, RU)
C170	1-126-968-11	ELECT	100uF	20%	50V
					(EC78: E2, E3, E51, MX, AR)
C170	1-128-576-11	ELECT	100uF	20%	63V
					(EC78: AEP, RU)
C173	1-165-621-91	CERAMIC CHIP	0.1uF		50V
C174	1-165-621-91	CERAMIC CHIP	0.1uF		50V
C175	1-100-566-91	CERAMIC CHIP	0.1uF	10%	25V
C176	1-100-566-91	CERAMIC CHIP	0.1uF	10%	25V
C178	1-100-566-91	CERAMIC CHIP	0.1uF	10%	25V
		< CONNECTOR >			
CN151	1-819-134-11	PIN, CONNECTOR 6P			
CN152	1-784-766-11	CONNECTOR, FFC 5P			
		< DIODE >			
D151	6-500-335-01	DIODE MC2838-T112-1			
D152	6-501-817-01	DIODE MA2J1110GLS0			
		< IC >			
IC151	6-705-621-01	IC STK433-070			
		< JUMPER RESISTOR >			
JR151	1-216-864-11	SHORT CHIP	0		
		< TRANSISTOR >			
Q151	6-551-270-01	TRANSISTOR	2SA2026		
Q152	6-551-270-01	TRANSISTOR	2SA2026		
		< RESISTOR >			
R151	1-216-824-11	METAL CHIP	1.8K	5%	1/10W
R152	1-216-824-11	METAL CHIP	1.8K	5%	1/10W
R153	1-216-837-11	METAL CHIP	22K	5%	1/10W
R154	1-216-837-11	METAL CHIP	22K	5%	1/10W
R155	1-216-841-11	METAL CHIP	47K	5%	1/10W

Ref. No.	Part No.	Description			Remark
R156	1-216-841-11	METAL CHIP	47K	5%	1/10W
R159	1-216-821-11	METAL CHIP	1K	5%	1/10W
R160	1-216-821-11	METAL CHIP	1K	5%	1/10W
R161	1-216-817-11	METAL CHIP	470	5%	1/10W
R162	1-216-817-11	METAL CHIP	470	5%	1/10W
R163	1-216-841-11	METAL CHIP	47K	5%	1/10W
R164	1-216-841-11	METAL CHIP	47K	5%	1/10W
R171	1-216-864-11	SHORT CHIP	0		
R172	1-216-809-11	METAL CHIP	100	5%	1/10W
R173	1-216-821-11	METAL CHIP	1K	5%	1/10W
R175	1-216-813-11	METAL CHIP	220	5%	1/10W
R176	1-216-813-11	METAL CHIP	220	5%	1/10W
R177	1-216-813-11	METAL CHIP	220	5%	1/10W
R178	1-216-813-11	METAL CHIP	220	5%	1/10W
⚠ R179	1-216-361-31	METAL OXIDE	0.22	5%	2W F
⚠ R180	1-216-361-31	METAL OXIDE	0.22	5%	2W F
R181	1-216-822-11	METAL CHIP	1.2K	5%	1/10W
R182	1-216-822-11	METAL CHIP	1.2K	5%	1/10W
R183	1-216-837-11	METAL CHIP	22K	5%	1/10W
R184	1-216-837-11	METAL CHIP	22K	5%	1/10W
R185	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R186	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R195	1-216-817-11	METAL CHIP	470	5%	1/10W
R196	1-216-817-11	METAL CHIP	470	5%	1/10W
**********					
		JACK BOARD			
		**********			
		< CAPACITOR >			
C491	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C495	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C496	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
		< JACK >			
J491	1-566-822-51	JACK (AUDIO IN)			
J492	1-815-629-21	JACK (PHONES)			
		< RESISTOR >			
R491	1-216-837-11	METAL CHIP	22K	5%	1/10W
R492	1-216-837-11	METAL CHIP	22K	5%	1/10W
**********					
		KEY CD BOARD			
		**********			
		< RESISTOR >			
R407	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R408	1-216-826-11	METAL CHIP	2.7K	5%	1/10W
R409	1-216-828-11	METAL CHIP	3.9K	5%	1/10W
R410	1-218-867-11	METAL CHIP	6.8K	0.5%	1/10W
R411	1-216-835-11	METAL CHIP	15K	5%	1/10W
		< SWITCH >			
SW306	1-771-410-21	SWITCH, TACTILE (DISC 1)			
SW307	1-771-410-21	SWITCH, TACTILE (DISC 2)			
SW308	1-771-410-21	SWITCH, TACTILE (DISC 3)			
SW309	1-771-410-21	SWITCH, TACTILE (⏏)			
SW310	1-771-410-21	SWITCH, TACTILE (DISC SKIP/EX-CHANGE)			
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Ref. No.	Part No.	Description			Remark
		KEY POWER BOARD			
		**********			
		< SWITCH >			
SW301	1-771-410-21	SWITCH, TACTILE (I/⏻, STANDBY)			
		< CABLE HOLDER >			
W401	1-824-027-21	HOLDER, CABLE 3P			
**********					
		LOW AMP BOARD			
		**********			
		< CAPACITOR >			
C101	1-126-960-11	ELECT	1uF	20%	50V
C102	1-126-960-11	ELECT	1uF	20%	50V
C103	1-164-315-11	CERAMIC CHIP	470PF	5%	50V
C104	1-164-315-11	CERAMIC CHIP	470PF	5%	50V
C105	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C106	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C107	1-126-947-11	ELECT	47uF	20%	35V
C108	1-126-947-11	ELECT	47uF	20%	35V
C109	1-162-908-11	CERAMIC CHIP	3PF	0.25PF	50V
C110	1-162-908-11	CERAMIC CHIP	3PF	0.25PF	50V
C116	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C119	1-126-968-11	ELECT	100uF	20%	50V (EC68/EC78: E2, E3, E51, MX, AR)
C119	1-128-576-11	ELECT	100uF	20%	63V (EC78: AEP, RU)
C120	1-126-968-11	ELECT	100uF	20%	50V (EC68/EC78: E2, E3, E51, MX, AR)
C120	1-128-576-11	ELECT	100uF	20%	63V (EC78: AEP, RU)
C123	1-165-621-91	CERAMIC CHIP	0.1uF		50V
C124	1-165-621-91	CERAMIC CHIP	0.1uF		50V
C125	1-100-566-91	CERAMIC CHIP	0.1uF	10%	25V
C126	1-100-566-91	CERAMIC CHIP	0.1uF	10%	25V
C128	1-100-566-91	CERAMIC CHIP	0.1uF	10%	25V
		< CONNECTOR >			
CN102	1-784-766-11	CONNECTOR, FFC 5P			
CN104	1-824-030-21	HOLDER, CABLE 5P			
		< DIODE >			
D101	6-500-335-01	DIODE MC2838-T112-1			
D103	6-501-817-01	DIODE MA2J1110GLS0			
		< IC >			
IC101	6-705-620-01	IC STK433-060 (EC68)			
IC101	6-705-621-01	IC STK433-070 (EC78)			
		< JUMPER RESISTOR >			
JR132	1-216-864-11	SHORT CHIP	0		
		< TRANSISTOR >			
Q101	6-551-270-01	TRANSISTOR	2SA2026		
Q102	6-551-270-01	TRANSISTOR	2SA2026		
		< RESISTOR >			
R101	1-216-864-11	SHORT CHIP	0		

LOW AMP **MAIN**

Ref. No.	Part No.	Description			Remark
R102	1-216-864-11	SHORT CHIP	0		
R103	1-216-824-11	METAL CHIP	1.8K	5%	1/10W (EC78)
R103	1-216-827-11	METAL CHIP	3.3K	5%	1/10W (EC68)
R104	1-216-824-11	METAL CHIP	1.8K	5%	1/10W (EC78)
R104	1-216-827-11	METAL CHIP	3.3K	5%	1/10W (EC68)
R105	1-216-829-11	METAL CHIP	4.7K	5%	1/10W (EC68)
R105	1-216-837-11	METAL CHIP	22K	5%	1/10W (EC78)
R106	1-216-829-11	METAL CHIP	4.7K	5%	1/10W (EC68)
R106	1-216-837-11	METAL CHIP	22K	5%	1/10W (EC78)
R107	1-216-841-11	METAL CHIP	47K	5%	1/10W
R108	1-216-841-11	METAL CHIP	47K	5%	1/10W
R109	1-216-821-11	METAL CHIP	1K	5%	1/10W
R110	1-216-821-11	METAL CHIP	1K	5%	1/10W
R111	1-216-817-11	METAL CHIP	470	5%	1/10W
R112	1-216-817-11	METAL CHIP	470	5%	1/10W
R113	1-216-841-11	METAL CHIP	47K	5%	1/10W
R114	1-216-841-11	METAL CHIP	47K	5%	1/10W
R122	1-216-809-11	METAL CHIP	100	5%	1/10W
R123	1-216-821-11	METAL CHIP	1K	5%	1/10W
R125	1-216-813-11	METAL CHIP	220	5%	1/10W
R126	1-216-813-11	METAL CHIP	220	5%	1/10W
R127	1-216-813-11	METAL CHIP	220	5%	1/10W
R128	1-216-813-11	METAL CHIP	220	5%	1/10W
R129	1-216-361-31	METAL OXIDE	0.22	5%	2W
R130	1-216-361-31	METAL OXIDE	0.22	5%	2W
R131	1-216-822-11	METAL CHIP	1.2K	5%	1/10W
R132	1-216-822-11	METAL CHIP	1.2K	5%	1/10W
R133	1-216-837-11	METAL CHIP	22K	5%	1/10W
R134	1-216-837-11	METAL CHIP	22K	5%	1/10W
R135	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R136	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R142	1-216-864-11	SHORT CHIP	0		
R145	1-216-817-11	METAL CHIP	470	5%	1/10W
R146	1-216-817-11	METAL CHIP	470	5%	1/10W

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A-1379-677-A	MAIN BOARD, COMPLETE (EC78: AEP, RU)	
A-1379-696-A	MAIN BOARD, COMPLETE (EC78: E2, E51, MX, AR)	
A-1379-746-A	MAIN BOARD, COMPLETE (EC68: AEP, RU)	
A-1379-785-A	MAIN BOARD, COMPLETE (EC68: E2, E51, MX, AR)	
A-1426-145-A	MAIN BOARD, COMPLETE (EC78: E3)	
A-1426-167-A	MAIN BOARD, COMPLETE (EC68: UK)	
A-1426-172-A	MAIN BOARD, COMPLETE (EC68: E3, AUS)	

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< CAPACITOR >

C601	1-126-947-11	ELECT	47uF	20%	35V
C602	1-104-662-91	ELECT	22uF	20%	25V
C603	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V (EC78)
C604	1-100-566-91	CERAMIC CHIP	0.1uF	10%	25V (EC78)
C605	1-100-566-91	CERAMIC CHIP	0.1uF	10%	25V (EC78)
C606	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V (EC78)
C607	1-100-566-91	CERAMIC CHIP	0.1uF	10%	25V
C608	1-100-566-91	CERAMIC CHIP	0.1uF	10%	25V
C609	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C610	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C611	1-127-715-11	CERAMIC CHIP	0.22uF	10%	16V
C612	1-127-715-11	CERAMIC CHIP	0.22uF	10%	16V
C613	1-126-964-11	ELECT	10uF	20%	50V
C614	1-126-963-11	ELECT	4.7uF	20%	50V
C615	1-100-566-91	CERAMIC CHIP	0.1uF	10%	25V (EC78)
C616	1-100-566-91	CERAMIC CHIP	0.1uF	10%	25V (EC78)
C617	1-100-566-91	CERAMIC CHIP	0.1uF	10%	25V
C618	1-100-566-91	CERAMIC CHIP	0.1uF	10%	25V
C619	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C620	1-104-658-91	ELECT	100uF	20%	10V
C621	1-137-749-11	MYLAR	0.1uF		100V
C622	1-128-550-11	ELECT	2200uF	20%	50V (EC68/EC78: E2, E3, E51, MX, AR)
C623	1-137-749-11	MYLAR	0.1uF		100V
C626	1-128-550-11	ELECT	2200uF	20%	50V (EC68/EC78: E2, E3, E51, MX, AR)
C627	1-126-943-11	ELECT	2200uF	20%	25V
C628	1-126-942-61	ELECT	1000uF	20%	25V
C629	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C630	1-126-947-11	ELECT	47uF	20%	35V
C631	1-126-933-11	ELECT	100uF	20%	16V
C632	1-126-963-11	ELECT	4.7uF	20%	50V
C633	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C634	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C635	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V (EXCEPT EC68: UK)
C636	1-126-960-11	ELECT	1uF	20%	50V
C637	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C638	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C639	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C640	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C641	1-126-962-11	ELECT	3.3uF	20%	50V
C642	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C643	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V (EXCEPT EC68: UK)
C644	1-126-960-11	ELECT	1uF	20%	50V
C645	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C646	1-126-960-11	ELECT	1uF	20%	50V
C647	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C648	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C649	1-162-960-11	CERAMIC CHIP	220PF	10%	50V
C650	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C651	1-162-960-11	CERAMIC CHIP	220PF	10%	50V (EXCEPT EC68: UK)
C652	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C653	1-162-960-11	CERAMIC CHIP	220PF	10%	50V (EXCEPT EC68: UK)
C654	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C655	1-162-960-11	CERAMIC CHIP	220PF	10%	50V
C656	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C657	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C658	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C659	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V

Ref. No.	Part No.	Description			Remark
C660	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C661	1-126-964-11	ELECT	10uF	20%	50V
C662	1-115-416-11	CERAMIC CHIP	0.001uF	5%	25V
C663	1-126-960-11	ELECT	1uF	20%	50V
C664	1-126-960-11	ELECT	1uF	20%	50V
C665	1-126-960-11	ELECT	1uF	20%	50V
C666	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C667	1-126-933-11	ELECT	100uF	20%	16V
C669	1-126-923-91	ELECT	220uF	20%	10V
C671	1-126-933-11	ELECT	100uF	20%	16V
C673	1-126-925-91	ELECT	470uF	20%	10V
C674	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C675	1-126-960-11	ELECT	1uF	20%	50V
C676	1-126-960-11	ELECT	1uF	20%	50V
C677	1-126-974-11	ELECT	3300uF	20%	50V (EC78: AEP, RU)
C678	1-126-974-11	ELECT	3300uF	20%	50V (EC78: AEP, RU)
C679	1-100-566-91	CERAMIC CHIP	0.1uF	10%	25V
C680	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C681	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C682	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C683	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C684	1-110-563-11	CERAMIC CHIP	0.068uF	10%	16V
C685	1-110-563-11	CERAMIC CHIP	0.068uF	10%	16V
C686	1-110-563-11	CERAMIC CHIP	0.068uF	10%	16V
C687	1-110-563-11	CERAMIC CHIP	0.068uF	10%	16V
C689	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C690	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C691	1-100-566-91	CERAMIC CHIP	0.1uF	10%	25V
C692	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C693	1-100-566-91	CERAMIC CHIP	0.1uF	10%	25V
C694	1-100-566-91	CERAMIC CHIP	0.1uF	10%	25V
C695	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C696	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C699	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C700	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C703	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C704	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C713	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C714	1-126-947-11	ELECT	47uF	20%	35V
C788	1-164-245-11	CERAMIC CHIP	0.015uF	10%	25V
C789	1-164-245-11	CERAMIC CHIP	0.015uF	10%	25V
C802	1-126-933-11	ELECT	100uF	20%	16V
C803	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C804	1-162-918-11	CERAMIC CHIP	18PF	5%	50V
C805	1-117-863-11	CERAMIC CHIP	0.47uF	10%	6.3V
C806	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C807	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C808	1-162-918-11	CERAMIC CHIP	18PF	5%	50V
C809	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C810	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C811	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C814	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C815	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C816	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C817	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C819	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C820	1-162-910-11	CERAMIC CHIP	5PF	0.25PF	50V
C821	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V

Ref. No.	Part No.	Description			Remark
C822	1-126-965-91	ELECT	22uF	20%	50V
C823	1-126-923-91	ELECT	220uF	20%	10V
C824	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C826	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C827	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C828	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C829	1-117-863-11	CERAMIC CHIP	0.47uF	10%	6.3V
C830	1-162-907-11	CERAMIC CHIP	2PF	0.25PF	50V
C831	1-117-863-11	CERAMIC CHIP	0.47uF	10%	6.3V
C832	1-117-863-11	CERAMIC CHIP	0.47uF	10%	6.3V
C833	1-126-923-91	ELECT	220uF	20%	10V
C834	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C835	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C836	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C837	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C838	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C840	1-100-566-91	CERAMIC CHIP	0.1uF	10%	25V
C841	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C843	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C844	1-100-566-91	CERAMIC CHIP	0.1uF	10%	25V
C845	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C846	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C847	1-100-566-91	CERAMIC CHIP	0.1uF	10%	25V
C848	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C850	1-164-156-11	CERAMIC CHIP	0.1uF		25V
		< FILTER >			
CF801	1-781-962-21	FILTER, CERAMIC			
		< CONNECTOR >			
CN601	1-819-131-11	PIN, CONNECTOR 3P			
CN602	1-784-766-11	CONNECTOR, FFC 5P (EC78)			
CN603	1-784-766-11	CONNECTOR, FFC 5P			
CN604	1-819-136-11	PIN, CONNECTOR 8P			
CN605	1-784-770-11	CONNECTOR, FFC 9P			
CN606	1-784-731-11	CONNECTOR, FFC 9P (EXCEPT EC68: UK)			
CN607	1-784-788-11	CONNECTOR, FFC 27P			
CN608	1-779-289-11	CONNECTOR, FFC (LIF (NON-ZIF)) 21P			
CN632	1-824-030-21	HOLDER, CABLE 5P (EC78)			
CN633	1-819-133-11	PIN, CONNECTOR			
* CN801	1-506-680-11	PLUG, CONNECTOR (2.5mm) 3P			(ANTENNA FM/AM)
		< DIODE >			
D601	6-500-335-01	DIODE MC2838-T112-1			
D602	6-500-335-01	DIODE MC2838-T112-1			
D603	6-501-817-01	DIODE MA2J1110GLS0 (EC78)			
D604	6-501-817-01	DIODE MA2J1110GLS0			
D605	6-501-817-01	DIODE MA2J1110GLS0			
D606	6-500-334-01	DIODE MC2836-T112-1			
D607	6-501-046-01	DIODE 1N5402-F46			
D608	6-501-046-01	DIODE 1N5402-F46			
D609	6-501-046-01	DIODE 1N5402-F46			
D610	6-501-046-01	DIODE 1N5402-F46			
D611	8-719-046-07	DIODE 2A02M (EC78)			
D612	8-719-046-07	DIODE 2A02M (EC78)			
D614	6-501-817-01	DIODE MA2J1110GLS0			
D615	8-719-063-79	DIODE 1N4002B			
D617	6-500-335-01	DIODE MC2838-T112-1			
D618	6-501-719-01	DIODE MAZ8039GHLS0			

MAIN

Ref. No.	Part No.	Description	Remark
D619	8-719-063-79	DIODE 1N4002B	
D620	8-719-063-79	DIODE 1N4002B	
D621	6-501-722-01	DIODE MAZ8043GMLS0	
D622	6-501-752-01	DIODE MAZ8082GMLS0	
D628	6-501-817-01	DIODE MA2J1110GLS0	
D629	8-719-063-79	DIODE 1N4002B (EC68)	
D630	8-719-063-79	DIODE 1N4002B (EC68)	
D631	6-501-817-01	DIODE MA2J1110GLS0	
D791	6-501-817-01	DIODE MA2J1110GLS0	
D801	6-501-142-01	DIODE SVC347A-TL-E	
D802	8-719-062-51	DIODE 1PS226-115	
D803	6-501-369-01	DIODE SVC230-TB-E	
D804	6-501-369-01	DIODE SVC230-TB-E	
D805	8-719-062-51	DIODE 1PS226-115	
D806	8-719-062-51	DIODE 1PS226-115	
		< GROUND TERMINAL >	
ET601	1-537-771-21	TERMINAL BOARD, GROUND	
ET602	1-537-771-21	TERMINAL BOARD, GROUND	
		< FILTER >	
FL801	1-760-393-11	FILTER, CERAMIC	
FL803	1-236-711-21	FILTER, BAND PASS	
		< IC >	
IC602	6-712-055-01	IC BD3499FV-E2	
IC801	6-708-840-01	IC LV23003VA	
		< JUMPER RESISTOR >	
JR601	1-216-864-11	SHORT CHIP 0	
JR602	1-216-864-11	SHORT CHIP 0	
JR603	1-216-864-11	SHORT CHIP 0	
JR604	1-216-864-11	SHORT CHIP 0	
JR605	1-216-864-11	SHORT CHIP 0	
JR606	1-216-864-11	SHORT CHIP 0	
JR607	1-216-864-11	SHORT CHIP 0	
JR608	1-216-864-11	SHORT CHIP 0	
JR609	1-216-864-11	SHORT CHIP 0	
JR610	1-216-864-11	SHORT CHIP 0	
JR611	1-216-864-11	SHORT CHIP 0	
JR612	1-216-864-11	SHORT CHIP 0	
JR613	1-216-864-11	SHORT CHIP 0	
JR614	1-216-864-11	SHORT CHIP 0	
JR615	1-216-864-11	SHORT CHIP 0	
JR616	1-216-864-11	SHORT CHIP 0	
JR617	1-216-864-11	SHORT CHIP 0	
JR618	1-216-864-11	SHORT CHIP 0	
		< COIL >	
L601	1-456-107-11	COIL, AIR-CORE (EC78)	
L602	1-456-107-11	COIL, AIR-CORE (EC78)	
L603	1-456-107-11	COIL, AIR-CORE	
L604	1-456-107-11	COIL, AIR-CORE	
L801	1-456-596-11	COIL, MW OSC	
L802	1-457-168-11	COIL, DET	
L803	1-457-162-11	COIL, AIR-CORE	
L804	1-457-163-11	COIL, AIR-CORE	
L805	1-457-161-11	COIL, AM ANTENNA	

Ref. No.	Part No.	Description	Remark
		< TRANSISTOR >	
Q601	8-729-037-03	TRANSISTOR KTA1266GR-AT	
Q602	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q603	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q604	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q605	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q606	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q608	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q611	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q612	6-551-696-01	TRANSISTOR ISA1235AC1TP-1EF	
Q616	8-729-120-28	TRANSISTOR 2SC1623-L5L6	(EXCEPT EC68: UK)
Q617	8-729-120-28	TRANSISTOR 2SC1623-L5L6	(EXCEPT EC68: UK)
Q618	6-551-696-01	TRANSISTOR ISA1235AC1TP-1EF	
Q619	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q622	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q624	8-729-036-86	TRANSISTOR KTC3203Y-AT	
Q801	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q802	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
		< RESISTOR >	
R601	1-216-817-11	METAL CHIP 470 5% 1/10W	
R603	1-216-793-11	METAL CHIP 4.7 5% 1/10W	
R604	1-216-845-11	METAL CHIP 100K 5% 1/10W	
R605	1-216-799-11	METAL CHIP 15 5% 1/10W	(EC78: AEP, RU)
R605	1-216-806-11	METAL CHIP 56 5% 1/10W	(EC68/EC78: E2, E3, E51, MX, AR)
R606	1-216-797-11	METAL CHIP 10 5% 1/10W	(EC78)
R607	1-216-797-11	METAL CHIP 10 5% 1/10W	(EC78)
R608	1-216-797-11	METAL CHIP 10 5% 1/10W	(EC78)
R609	1-216-829-11	METAL CHIP 4.7K 5% 1/10W	
R610	1-216-829-11	METAL CHIP 4.7K 5% 1/10W	
R611	1-216-797-11	METAL CHIP 10 5% 1/10W	
R612	1-216-797-11	METAL CHIP 10 5% 1/10W	
R613	1-216-833-11	METAL CHIP 10K 5% 1/10W	
R614	1-216-833-11	METAL CHIP 10K 5% 1/10W	
R615	1-216-797-11	METAL CHIP 10 5% 1/10W	
R616	1-216-828-11	METAL CHIP 3.9K 5% 1/10W	(EC68)
R616	1-216-833-11	METAL CHIP 10K 5% 1/10W	(EC78)
R617	1-216-833-11	METAL CHIP 10K 5% 1/10W	
R618	1-216-833-11	METAL CHIP 10K 5% 1/10W	
R619	1-216-828-11	METAL CHIP 3.9K 5% 1/10W	(EC68)
R619	1-216-833-11	METAL CHIP 10K 5% 1/10W	(EC78)
R620	1-216-829-11	METAL CHIP 4.7K 5% 1/10W	
R621	1-216-829-11	METAL CHIP 4.7K 5% 1/10W	
R622	1-216-839-11	METAL CHIP 33K 5% 1/10W	
R623	1-216-833-11	METAL CHIP 10K 5% 1/10W	
R624	1-216-833-11	METAL CHIP 10K 5% 1/10W	
R625	1-216-839-11	METAL CHIP 33K 5% 1/10W	
R626	1-216-833-11	METAL CHIP 10K 5% 1/10W	
R627	1-216-829-11	METAL CHIP 4.7K 5% 1/10W	
R628	1-216-833-11	METAL CHIP 10K 5% 1/10W	

Ref. No.	Part No.	Description			Remark
R629	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R630	1-216-841-11	METAL CHIP	47K	5%	1/10W
R631	1-216-797-11	METAL CHIP	10	5%	1/10W (EC78)
R632	1-216-845-11	METAL CHIP	100K	5%	1/10W (EC78)
R633	1-216-845-11	METAL CHIP	100K	5%	1/10W (EC78)
R634	1-249-402-11	CARBON	56	5%	1/4W (EC78)
R635	1-249-402-11	CARBON	56	5%	1/4W (EC78)
R636	1-249-402-11	CARBON	56	5%	1/4W (EC78)
R637	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R638	1-249-402-11	CARBON	56	5%	1/4W (EC78)
R638	1-249-403-11	CARBON	68	5%	1/4W (EC68)
R639	1-216-845-11	METAL CHIP	100K	5%	1/10W
R640	1-216-845-11	METAL CHIP	100K	5%	1/10W
R641	1-249-402-11	CARBON	56	5%	1/4W (EC78)
R641	1-249-403-11	CARBON	68	5%	1/4W (EC68)
R642	1-249-402-11	CARBON	56	5%	1/4W (EC78)
R642	1-249-403-11	CARBON	68	5%	1/4W (EC68)
R643	1-216-833-11	METAL CHIP	10K	5%	1/10W
R644	1-216-821-11	METAL CHIP	1K	5%	1/10W
R645	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R646	1-216-809-11	METAL CHIP	100	5%	1/10W
R647	1-216-797-11	METAL CHIP	10	5%	1/10W
R648	1-216-841-11	METAL CHIP	47K	5%	1/10W
R649	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R650	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R651	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R652	1-216-809-11	METAL CHIP	100	5%	1/10W
⚠ R658	1-215-890-51	METAL OXIDE	470	5%	2W F
R660	1-216-864-11	SHORT CHIP	0		
⚠ R662	1-215-890-51	METAL OXIDE	470	5%	2W F
R663	1-216-821-11	METAL CHIP	1K	5%	1/10W
R666	1-216-821-11	METAL CHIP	1K	5%	1/10W
R667	1-216-841-11	METAL CHIP	47K	5%	1/10W
R669	1-216-845-11	METAL CHIP	100K	5%	1/10W
R670	1-216-833-11	METAL CHIP	10K	5%	1/10W
R672	1-216-833-11	METAL CHIP	10K	5%	1/10W
R673	1-216-864-11	SHORT CHIP	0		
R674	1-249-401-11	CARBON	47	5%	1/4W
R675	1-249-401-11	CARBON	47	5%	1/4W
R676	1-216-833-11	METAL CHIP	10K	5%	1/10W
R677	1-216-833-11	METAL CHIP	10K	5%	1/10W
R678	1-216-841-11	METAL CHIP	47K	5%	1/10W
R679	1-216-829-11	METAL CHIP	4.7K	5%	1/10W (EXCEPT EC68: UK)
R680	1-216-829-11	METAL CHIP	4.7K	5%	1/10W (EXCEPT EC68: UK)
R681	1-216-837-11	METAL CHIP	22K	5%	1/10W
R682	1-216-833-11	METAL CHIP	10K	5%	1/10W (EXCEPT EC68: UK)
R683	1-216-826-11	METAL CHIP	2.7K	5%	1/10W (EXCEPT EC68: UK)
R684	1-216-837-11	METAL CHIP	22K	5%	1/10W
R685	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R686	1-216-842-11	METAL CHIP	56K	5%	1/10W
R687	1-216-837-11	METAL CHIP	22K	5%	1/10W
R689	1-216-838-11	METAL CHIP	27K	5%	1/10W
R690	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R691	1-216-833-11	METAL CHIP	10K	5%	1/10W
R692	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R693	1-216-821-11	METAL CHIP	1K	5%	1/10W
R694	1-216-833-11	METAL CHIP	10K	5%	1/10W (EXCEPT EC68: UK)
R695	1-216-826-11	METAL CHIP	2.7K	5%	1/10W (EXCEPT EC68: UK)
R696	1-216-833-11	METAL CHIP	10K	5%	1/10W
R697	1-216-821-11	METAL CHIP	1K	5%	1/10W
R700	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R701	1-216-864-11	SHORT CHIP	0 (EC68: UK)		
R702	1-216-864-11	SHORT CHIP	0 (EC68: UK)		
R704	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R706	1-216-813-11	METAL CHIP	220	5%	1/10W
R707	1-216-813-11	METAL CHIP	220	5%	1/10W
R708	1-216-833-11	METAL CHIP	10K	5%	1/10W
R709	1-216-821-11	METAL CHIP	1K	5%	1/10W
R715	1-216-809-11	METAL CHIP	100	5%	1/10W
R716	1-216-821-11	METAL CHIP	1K	5%	1/10W
R717	1-249-403-11	CARBON	68	5%	1/4W
R718	1-249-403-11	CARBON	68	5%	1/4W
R719	1-249-403-11	CARBON	68	5%	1/4W
R720	1-216-837-11	METAL CHIP	22K	5%	1/10W
R722	1-216-809-11	METAL CHIP	100	5%	1/10W
R724	1-249-395-11	CARBON	15	5%	1/4W
R725	1-249-395-11	CARBON	15	5%	1/4W
R726	1-249-395-11	CARBON	15	5%	1/4W
R727	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R728	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R729	1-216-845-11	METAL CHIP	100K	5%	1/10W
R731	1-216-809-11	METAL CHIP	100	5%	1/10W
R732	1-216-809-11	METAL CHIP	100	5%	1/10W
R749	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R750	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R751	1-216-830-11	METAL CHIP	5.6K	5%	1/10W
R752	1-216-830-11	METAL CHIP	5.6K	5%	1/10W
R753	1-216-830-11	METAL CHIP	5.6K	5%	1/10W
R754	1-216-830-11	METAL CHIP	5.6K	5%	1/10W
R787	1-216-835-11	METAL CHIP	15K	5%	1/10W
R788	1-216-835-11	METAL CHIP	15K	5%	1/10W
R791	1-216-845-11	METAL CHIP	100K	5%	1/10W
R792	1-216-849-11	METAL CHIP	220K	5%	1/10W
R801	1-216-809-11	METAL CHIP	100	5%	1/10W
R802	1-216-801-11	METAL CHIP	22	5%	1/10W
R803	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R804	1-216-801-11	METAL CHIP	22	5%	1/10W
R805	1-216-853-11	METAL CHIP	470K	5%	1/10W
R806	1-216-841-11	METAL CHIP	47K	5%	1/10W
R807	1-216-837-11	METAL CHIP	22K	5%	1/10W
R808	1-216-801-11	METAL CHIP	22	5%	1/10W
R809	1-216-809-11	METAL CHIP	100	5%	1/10W
R810	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R811	1-216-845-11	METAL CHIP	100K	5%	1/10W
R812	1-216-841-11	METAL CHIP	47K	5%	1/10W

MAIN **PANEL**

Ref. No.	Part No.	Description			Remark
R813	1-216-853-11	METAL CHIP	470K	5%	1/10W
R814	1-216-837-11	METAL CHIP	22K	5%	1/10W
R815	1-216-833-11	METAL CHIP	10K	5%	1/10W
R816	1-216-821-11	METAL CHIP	1K	5%	1/10W
R817	1-216-841-11	METAL CHIP	47K	5%	1/10W
R818	1-216-833-11	METAL CHIP	10K	5%	1/10W
R819	1-216-839-11	METAL CHIP	33K	5%	1/10W
R820	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R821	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R822	1-216-809-11	METAL CHIP	100	5%	1/10W
R823	1-216-833-11	METAL CHIP	10K	5%	1/10W
R824	1-216-817-11	METAL CHIP	470	5%	1/10W
R825	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R826	1-216-821-11	METAL CHIP	1K	5%	1/10W
R827	1-216-845-11	METAL CHIP	100K	5%	1/10W
R829	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R830	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R831	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R832	1-216-857-11	METAL CHIP	1M	5%	1/10W
R836	1-218-867-11	METAL CHIP	6.8K	0.5%	1/10W
R837	1-216-845-11	METAL CHIP	100K	5%	1/10W
R838	1-216-837-11	METAL CHIP	22K	5%	1/10W
R839	1-216-797-11	METAL CHIP	10	5%	1/10W
R840	1-216-864-11	SHORT CHIP	0		
R841	1-216-833-11	METAL CHIP	10K	5%	1/10W
R842	1-216-864-11	SHORT CHIP	0		
R843	1-216-845-11	METAL CHIP	100K	5%	1/10W
R844	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R845	1-216-864-11	SHORT CHIP	0		
R846	1-216-797-11	METAL CHIP	10	5%	1/10W
R847	1-216-864-11	SHORT CHIP	0		
		< RELAY >			
RY601	1-755-307-21	RELAY (EC78)			
RY602	1-755-307-21	RELAY			
		< TRANSFORMER >			
T801	1-433-741-11	TRANSFORMER, IF			
		< TERMINAL >			
TB601	1-780-381-11	TERMINAL BOARD, PUSH (ANTENNA) 4P (SPEAKER HIGH FREQ. IMPEDANCE USE 8Ω) (EC78)			
TB602	1-536-708-81	TERMINAL BOARD, PUSH (4P) (SPEAKER IMPEDANCE USE 6Ω) (EC68)			
TB602	1-536-708-81	TERMINAL BOARD, PUSH (4P) (SPEAKER LOW FREQ. IMPEDANCE USE 8Ω) (EC78)			
		< VIBRATOR >			
X801	1-813-917-11	VIBRATOR, CRYSTAL (75MHz)			

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Ref. No.	Part No.	Description	Remark
	A-1379-679-A	PANEL BOARD, COMPLETE (EC78: AEP)	
	A-1379-692-A	PANEL BOARD, COMPLETE (EC78: RU)	
	A-1379-698-A	PANEL BOARD, COMPLETE (EC78: E2)	
	A-1379-707-A	PANEL BOARD, COMPLETE (EC78: E51, MX, AR)	
	A-1379-748-A	PANEL BOARD, COMPLETE (EC68: AEP)	
	A-1379-753-A	PANEL BOARD, COMPLETE (EC68: RU)	
	A-1379-787-A	PANEL BOARD, COMPLETE (EC68: E2)	
	A-1379-794-A	PANEL BOARD, COMPLETE (EC68: E51, MX, AR)	
	A-1426-147-A	PANEL BOARD, COMPLETE (EC78: E3)	
	A-1426-169-A	PANEL BOARD, COMPLETE (EC68: UK)	
	A-1426-174-A	PANEL BOARD, COMPLETE (EC68: E3)	
	A-1426-177-A	PANEL BOARD, COMPLETE (EC68: AUS)	
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	2-649-178-01	PLATE, LIGHT GUIDE	
	2-649-179-01	SHEET (LCD)	
	2-665-175-01	SHEET (REFLECTOR)	
		< CAPACITOR >	

C301	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C302	1-126-964-11	ELECT	10uF	20%	50V
C303	1-126-964-11	ELECT	10uF	20%	50V
C304	1-100-597-91	CERAMIC CHIP	0.1uF	10%	25V
C305	1-126-964-11	ELECT	10uF	20%	50V
C306	1-104-655-91	ELECT	470uF	20%	6.3V
C308	1-100-566-91	CERAMIC CHIP	0.1uF	10%	25V
C309	1-126-965-91	ELECT	22uF	20%	50V
C310	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C311	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C312	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C313	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C314	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C315	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C316	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C317	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C319	1-162-918-11	CERAMIC CHIP	18PF	5%	50V
C320	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C321	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C328	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C330	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C332	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C338	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C340	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C341	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C342	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C343	1-126-965-91	ELECT	22uF	20%	50V
C344	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C345	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C346	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C354	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C355	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C356	1-164-156-11	CERAMIC CHIP	0.1uF		25V

< CONNECTOR >

CN302	1-784-735-11	CONNECTOR, FFC 13P
CN303	1-815-550-11	PIN, CONNECTOR (PWB) 2P
CN304	1-784-749-11	CONNECTOR, FFC 27P
CN306	1-815-443-11	PIN, CONNECTOR (PWB) 2P

< DIODE >

D301	6-501-722-01	DIODE MAZ8043GMLS0

Ref. No.	Part No.	Description			Remark
D302	6-501-817-01	DIODE MA2J1110GLS0			
D303	6-500-334-01	DIODE MC2836-T112-1			
D304	6-501-817-01	DIODE MA2J1110GLS0			
D305	6-501-817-01	DIODE MA2J1110GLS0			
		< FERRITE BEAD >			
FB301	1-500-329-21	INDUCTOR, FERRITE BEAD			
		< IC >			
IC301	6-808-053-01	IC MB90803PF-G-135E1			
IC302	6-711-556-01	IC NJL24H400B-SA			
		< JUMPER RESISTOR >			
JR301	1-216-864-11	SHORT CHIP	0		
JR302	1-216-864-11	SHORT CHIP	0		
JR303	1-216-864-11	SHORT CHIP	0		
JR304	1-216-864-11	SHORT CHIP	0		
JR305	1-216-864-11	SHORT CHIP	0		
JR307	1-216-864-11	SHORT CHIP	0		
JR308	1-216-864-11	SHORT CHIP	0		
JR309	1-216-864-11	SHORT CHIP	0		
JR310	1-216-864-11	SHORT CHIP	0		
JR311	1-216-864-11	SHORT CHIP	0		
JR313	1-216-864-11	SHORT CHIP	0		
JR315	1-216-864-11	SHORT CHIP	0		
		< LIQUID CRYSTAL DISPLAY >			
LCD301	1-802-584-11	DISPLAY PANEL, LIQUID			
		< LED >			
LED301	6-501-479-01	LED 1L0341Y23E0CA602 (I/⏻, STANDBY)			
		< TRANSISTOR >			
Q301	8-729-120-28	TRANSISTOR	2SC1623-L5L6		
Q302	8-729-037-13	TRANSISTOR	KTA1271Y		
Q303	8-729-120-28	TRANSISTOR	2SC1623-L5L6		
Q304	8-729-120-28	TRANSISTOR	2SC1623-L5L6		
Q305	8-729-120-28	TRANSISTOR	2SC1623-L5L6		
Q306	8-729-038-28	TRANSISTOR	RT1N441C-TP-1		
Q307	6-551-696-01	TRANSISTOR	ISA1235AC1TP-1EF		
Q308	8-729-038-28	TRANSISTOR	RT1N441C-TP-1		
Q309	8-729-040-76	TRANSISTOR	KTA1273-Y-AT		
Q310	8-729-120-28	TRANSISTOR	2SC1623-L5L6		
Q311	8-729-024-43	TRANSISTOR	2SA1365-T112-1EF		
Q312	8-729-024-43	TRANSISTOR	2SA1365-T112-1EF		
Q313	8-729-024-43	TRANSISTOR	2SA1365-T112-1EF		
Q314	8-729-024-43	TRANSISTOR	2SA1365-T112-1EF		
Q315	8-729-047-62	TRANSISTOR	2SC3440-T12-1F		
Q316	8-729-047-62	TRANSISTOR	2SC3440-T12-1F		
Q317	8-729-047-62	TRANSISTOR	2SC3440-T12-1F		
Q318	8-729-047-62	TRANSISTOR	2SC3440-T12-1F		
		< RESISTOR >			
R301	1-216-809-11	METAL CHIP	100	5%	1/10W
R302	1-216-809-11	METAL CHIP	100	5%	1/10W
R303	1-216-809-11	METAL CHIP	100	5%	1/10W
R304	1-216-809-11	METAL CHIP	100	5%	1/10W
R305	1-216-809-11	METAL CHIP	100	5%	1/10W
R306	1-216-809-11	METAL CHIP	100	5%	1/10W

Ref. No.	Part No.	Description			Remark
R307	1-216-809-11	METAL CHIP	100	5%	1/10W
R308	1-216-809-11	METAL CHIP	100	5%	1/10W
R309	1-216-809-11	METAL CHIP	100	5%	1/10W
R310	1-216-809-11	METAL CHIP	100	5%	1/10W
R312	1-216-809-11	METAL CHIP	100	5%	1/10W
R313	1-216-809-11	METAL CHIP	100	5%	1/10W
R314	1-216-809-11	METAL CHIP	100	5%	1/10W
R315	1-216-809-11	METAL CHIP	100	5%	1/10W
R316	1-216-809-11	METAL CHIP	100	5%	1/10W
R317	1-216-809-11	METAL CHIP	100	5%	1/10W
R318	1-216-809-11	METAL CHIP	100	5%	1/10W
R319	1-216-809-11	METAL CHIP	100	5%	1/10W
R320	1-216-809-11	METAL CHIP	100	5%	1/10W
R321	1-216-809-11	METAL CHIP	100	5%	1/10W
R322	1-216-809-11	METAL CHIP	100	5%	1/10W
R323	1-216-809-11	METAL CHIP	100	5%	1/10W
R324	1-216-809-11	METAL CHIP	100	5%	1/10W
R325	1-216-797-11	METAL CHIP	10	5%	1/10W
R326	1-216-809-11	METAL CHIP	100	5%	1/10W
R327	1-216-809-11	METAL CHIP	100	5%	1/10W
R328	1-216-833-11	METAL CHIP	10K	5%	1/10W
R329	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R330	1-216-819-11	METAL CHIP	680	5%	1/10W
R331	1-216-845-11	METAL CHIP	100K	5%	1/10W
R332	1-216-833-11	METAL CHIP	10K	5%	1/10W
R333	1-216-845-11	METAL CHIP	100K	5%	1/10W
R334	1-216-833-11	METAL CHIP	10K	5%	1/10W
R335	1-216-837-11	METAL CHIP	22K	5%	1/10W
R336	1-216-833-11	METAL CHIP	10K	5%	1/10W
R337	1-216-813-11	METAL CHIP	220	5%	1/10W
R338	1-216-789-11	METAL CHIP	2.2	5%	1/10W
R339	1-216-789-11	METAL CHIP	2.2	5%	1/10W
R340	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R341	1-216-839-11	METAL CHIP	33K	5%	1/10W
R342	1-216-849-11	METAL CHIP	220K	5%	1/10W
R343	1-216-853-11	METAL CHIP	470K	5%	1/10W
R344	1-216-826-11	METAL CHIP	2.7K	5%	1/10W
R345	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R346	1-216-841-11	METAL CHIP	47K	5%	1/10W
R347	1-216-817-11	METAL CHIP	470	5%	1/10W
R348	1-216-841-11	METAL CHIP	47K	5%	1/10W
R349	1-216-817-11	METAL CHIP	470	5%	1/10W
R350	1-216-841-11	METAL CHIP	47K	5%	1/10W
R351	1-216-817-11	METAL CHIP	470	5%	1/10W
R352	1-216-841-11	METAL CHIP	47K	5%	1/10W
R353	1-216-817-11	METAL CHIP	470	5%	1/10W
R354	1-216-841-11	METAL CHIP	47K	5%	1/10W
R355	1-216-821-11	METAL CHIP	1K	5%	1/10W
R356	1-216-821-11	METAL CHIP	1K	5%	1/10W
R357	1-216-841-11	METAL CHIP	47K	5%	1/10W
R358	1-216-841-11	METAL CHIP	47K	5%	1/10W
R359	1-216-821-11	METAL CHIP	1K	5%	1/10W
R360	1-216-821-11	METAL CHIP	1K	5%	1/10W
R361	1-216-841-11	METAL CHIP	47K	5%	1/10W
R362	1-216-837-11	METAL CHIP	22K	5%	1/10W
R363	1-216-837-11	METAL CHIP	22K	5%	1/10W
R364	1-216-837-11	METAL CHIP	22K	5%	1/10W
R365	1-216-837-11	METAL CHIP	22K	5%	1/10W
R366	1-216-833-11	METAL CHIP	10K	5%	1/10W
R367	1-216-837-11	METAL CHIP	22K	5%	1/10W

PANEL **PT**

Ref. No.	Part No.	Description			Remark
R368	1-216-833-11	METAL CHIP	10K	5%	1/10W
R369	1-216-821-11	METAL CHIP	1K	5%	1/10W
R370	1-216-821-11	METAL CHIP	1K	5%	1/10W
R371	1-216-821-11	METAL CHIP	1K	5%	1/10W
R372	1-216-821-11	METAL CHIP	1K	5%	1/10W
R373	1-216-864-11	SHORT CHIP	0		
R374	1-216-821-11	METAL CHIP	1K	5%	1/10W
R375	1-216-864-11	SHORT CHIP	0		
R376	1-216-833-11	METAL CHIP	10K	5%	1/10W
R377	1-216-833-11	METAL CHIP	10K	5%	1/10W
R378	1-216-839-11	METAL CHIP	33K	5%	1/10W
R379	1-216-843-11	METAL CHIP	68K	5%	1/10W
R380	1-216-817-11	METAL CHIP	470	5%	1/10W
R381	1-216-833-11	METAL CHIP	10K	5%	1/10W
R382	1-216-833-11	METAL CHIP	10K	5%	1/10W
R383	1-216-833-11	METAL CHIP	10K	5%	1/10W
R384	1-216-833-11	METAL CHIP	10K	5%	1/10W
R385	1-216-821-11	METAL CHIP	1K	5%	1/10W
R386	1-216-821-11	METAL CHIP	1K	5%	1/10W
R387	1-216-821-11	METAL CHIP	1K	5%	1/10W
R389	1-216-838-11	METAL CHIP	27K	5%	1/10W (EC68: UK)
R389	1-216-841-11	METAL CHIP	47K	5%	1/10W (EC68: AEP, RU, E2, E3, E51, MX, AR, AUS)
R389	1-216-845-11	METAL CHIP	100K	5%	1/10W (EC78)
R390	1-216-833-11	METAL CHIP	10K	5%	1/10W
R391	1-216-821-11	METAL CHIP	1K	5%	1/10W (EC68: AEP, UK, RU/EC78: AEP, RU)
R391	1-216-825-11	METAL CHIP	2.2K	5%	1/10W (EC68: AUS)
R391	1-216-830-11	METAL CHIP	5.6K	5%	1/10W (EC68: E3/EC78: E3)
R391	1-216-841-11	METAL CHIP	47K	5%	1/10W (EC68: E2/EC78: E2)
R391	1-216-845-11	METAL CHIP	100K	5%	1/10W (EC68: E51, MX, AR/EC78: E51, MX, AR)
R392	1-216-833-11	METAL CHIP	10K	5%	1/10W (EC68: RU, E2, E3, E51, MX, AR, AUS/ EC78: RU, E2, E3, E51, MX, AR)
R396	1-216-851-11	METAL CHIP	330K	5%	1/10W
R400	1-216-821-11	METAL CHIP	1K	5%	1/10W
R401	1-216-821-11	METAL CHIP	1K	5%	1/10W
R402	1-216-845-11	METAL CHIP	100K	5%	1/10W
R405	1-216-822-11	METAL CHIP	1.2K	5%	1/10W
R406	1-216-823-11	METAL CHIP	1.5K	5%	1/10W
R412	1-216-822-11	METAL CHIP	1.2K	5%	1/10W
R413	1-216-823-11	METAL CHIP	1.5K	5%	1/10W
R414	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R415	1-216-826-11	METAL CHIP	2.7K	5%	1/10W
R416	1-216-828-11	METAL CHIP	3.9K	5%	1/10W
R417	1-218-867-11	METAL CHIP	6.8K	0.5%	1/10W
R418	1-216-835-11	METAL CHIP	15K	5%	1/10W
R419	1-216-838-11	METAL CHIP	27K	5%	1/10W
R420	1-216-845-11	METAL CHIP	100K	5%	1/10W
R421	1-216-833-11	METAL CHIP	10K	5%	1/10W
R422	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R425	1-216-864-11	SHORT CHIP	0 (EC68: UK)		
R426	1-216-845-11	METAL CHIP	100K	5%	1/10W
R428	1-216-841-11	METAL CHIP	47K	5%	1/10W
R446	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R447	1-216-829-11	METAL CHIP	4.7K	5%	1/10W

Ref. No.	Part No.	Description	Remark
		< ROTARY ENCODER >	
S301	1-786-417-11	ENCODER, ROTARY (VOLUME)	
		< SWITCH >	
SW303	1-771-410-21	SWITCH, TACTILE (⏮ ◀◀ – TUNING)	
SW304	1-771-410-21	SWITCH, TACTILE (FUNCTION)	
SW305	1-771-410-21	SWITCH, TACTILE (TUNING + ▶▶ ▷▷⏭)	
SW311	1-771-410-21	SWITCH, TACTILE (CD ▶)	
SW312	1-771-410-21	SWITCH, TACTILE (❚❚)	
SW313	1-771-410-21	SWITCH, TACTILE (■)	
SW314	1-771-410-21	SWITCH, TACTILE (FOLDER +)	
SW315	1-771-410-21	SWITCH, TACTILE (FOLDER –)	
SW316	1-771-410-21	SWITCH, TACTILE (EQ)	
SW317	1-771-410-21	SWITCH, TACTILE (DSGX)	
SW318	1-771-410-21	SWITCH, TACTILE (PLAY MODE/TUNING MODE)	
SW319	1-771-410-21	SWITCH, TACTILE (DISPLAY)	
		< VIBRATOR >	
X301	1-814-067-11	OSCILLATOR, CRYSTAL (32.768kHz)	
X302	1-813-548-21	VIBRATOR, CERAMIC (6MHz)	
**********			
		PT BOARD	
		*********	
		< CAPACITOR >	
C051	1-165-621-91	CERAMIC CHIP 0.1uF	50V
C052	1-164-156-11	CERAMIC CHIP 0.1uF	25V
		< CONNECTOR >	
CN051	1-819-972-11	HOLDER, CABLE 8P	
⚠ CN053	1-793-660-11	PIN, CONNECTOR (PC BOARD) 3P	
		< DIODE >	
D051	6-500-334-01	DIODE MC2836-T112-1	
D052	6-500-335-01	DIODE MC2838-T112-1	
D055	6-500-335-01	DIODE MC2838-T112-1	
		< TRANSFORMER >	
⚠ PT001	1-443-912-11	TRANSFORMER, POWER (EC68: AEP, UK, RU/EC78: AEP, RU)	
⚠ PT002	1-445-105-11	TRANSFORMER, POWER (EC68: E2, E3, E51, MX, AR, AUS/EC78: E2, E3, E51, MX, AR)	
		< RELAY >	
⚠ RY001	1-755-334-11	RELAY, AC POWER (EC68: AEP, UK, RU/EC78: AEP, RU)	
⚠ RY002	1-755-496-11	RELAY (EC68: E2, E3, E51, MX, AR, AUS/ EC78: E2, E3, E51, MX, AR)	
		< SWITCH >	
⚠ S001	1-786-408-11	SELECTOR, VOLTAGE (SWS-2301) (VOLTAGE SELECTOR) (EC68: E2, E3, E51/EC78: E2, E3, E51)	
**********			

Ref. No.	Part No.	Description	Remark
		REG BOARD	
		*********	
		< CAPACITOR >	
C698	1-100-566-91	CERAMIC CHIP 0.1uF 10% 25V	
		< IC >	
IC601	8-759-231-56	IC TA7809S	
		< CABLE HOLDER >	
W610	1-824-027-21	HOLDER, CABLE 3P	
**********			
		MISCELLANEOUS	
		**********	
51	1-833-801-21	CABLE, FLEXIBLE FLAT (9 CORE)	(EXCEPT EC68: UK)
60	1-797-575-11	DECK, MECHANICAL (CS-21SC-900TP)	(EXCEPT EC68: UK)
60	A-1527-851-A	TCM-J1//C (EXCEPT EC68: UK)	
107	1-832-906-21	CABLE, FLEXIBLE FLAT (27 CORE)	
110	1-831-774-21	CABLE, FLEXIBLE FLAT (9 CORE)	
151	1-832-838-21	CABLE, FLEXIBLE FLAT (13 CORE)	
⚠ 156	1-769-744-81	CORD, POWER (EC68: UK)	
⚠ 156	1-829-387-11	CORD, POWER (EC68: AR/EC78: AR)	
⚠ 156	1-834-966-21	CORD, POWER (EC68: AEP, RU, E2, E3, E51/ EC78: AEP, RU, E2, E3, E51)	
⚠ 156	1-834-967-21	CORD, POWER (EC68: AUS)	
⚠ 156	1-834-978-11	CORD, POWER (EC68: MX/EC78: MX)	
157	1-834-181-21	CABLE, FLEXIBLE FLAT (21 CORE)	
202	1-831-744-21	CABLE, FLEXIBLE FLAT (5 CORE)	
203	1-835-276-21	CABLE, FLEXIBLE FLAT (5 CORE) (EC78)	
251	1-797-193-12	MECHANICAL, CD (DLM3A)	
⚠ 256	A-4735-357-A	BASE ASSY, OP (KSM-213D)	
257	1-832-404-21	CABLE, FLEXIBLE FLAT (16 CORE)	
⚠ M601	1-787-400-11	D.C. FAN (EC68/EC78: E2, E3, E51, MX, AR)	
⚠ M601	1-787-631-11	FAN, DC (EC78: AEP, RU)	
⚠ PT003	1-445-117-11	TRANSFORMER, POWER (EC68: AEP, RU)	
⚠ PT003	1-445-338-11	TRANSFORMER, POWER (EC68: MX)	
⚠ PT003	1-445-346-11	TRANSFORMER, POWER (EC68: E2, E3, E51, AR, AUS)	
⚠ PT003	1-445-432-11	TRANSFORMER, POWER (EC68: UK)	
⚠ PT004	1-445-119-11	TRANSFORMER, POWER (EC78: E2, E3, E51, AR)	
⚠ PT004	1-445-341-11	TRANSFORMER, POWER (EC78: AEP, RU)	
⚠ PT004	1-445-344-11	TRANSFORMER, POWER (EC78: MX)	
S201	1-771-853-11	SWITCH, DETECTION (LIMIT)	
**********			
		ACCESSORIES	
		**********	
⚠	1-569-008-22	ADAPTOR, CONVERSION 2P	(EC68: E2, E3, E51/EC78: E2, E3, E51)
⚠	1-770-019-61	ADAPTOR, CONVERSION PLUG (EC68: UK)	

Note: When you exchange Ref.No.60, Please refer to “HOW TO DISTINGUISH TAPE MECHANISM DECK (EXCEPT EC68: UK MODEL)” of the service note (5 page).

REVISION HISTORY

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Also, clicking the version at the top of the revised page allows you to jump to the next revised page.

Ver.	Date	Description of Revision
1.0	2008.02	New