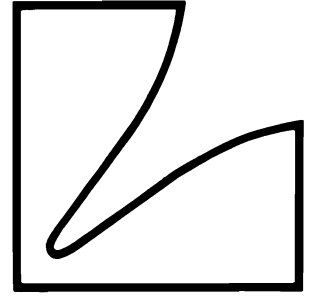
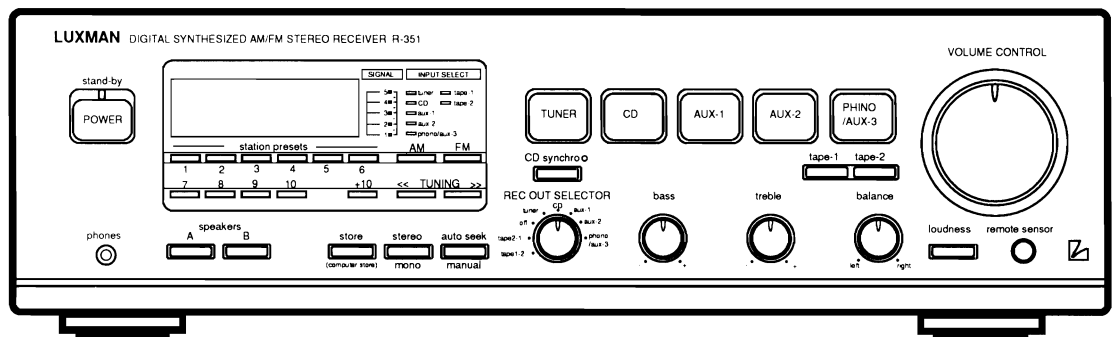


# SERVICE MANUAL



## Digital Synthesized AM/FM Stereo Receiver **R-351**

- This model comes in 2 colors (black and champagne gold). Refer to this service manual for details.



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Spare Schematic Diagram Inserted.

# Specifications

## <AMPLIFIER SECTION>

Power Output (8ohm Load, 20Hz~20KHz)	55W (○, △) 50W (●, ▲)
Distortion (8ohm Load, 20Hz~20KHz)	0.08%
Input Sensitivity (Ref. 1KHz)	150 ± 30mV
Input Impedance (Ref. 1KHz)	35Kohm
Frequency Response (-3dB, Ref. 1kHz)	10Hz~50KHz (○, △) 10Hz~70KHz (●, ▲)
S/N Ratio (500mV Input)	82dB (○, △) 86dB (●, ▲)
Tone Controls	Bass (100Hz): ± 10 ± 2dB Treble (10KHz): ± 10 ± 2dB
Residual Noise	2mV (○, △) 1mV (●, ▲)
Cross talk (Ref. 1KHz)	60dB
Separation (Ref. 1KHz)	56dB (○, △) 60dB (●, ▲)

## <PHONO SECTION>

Input Sensitivity (Ref. 1KHz)	2.5 ± 0.5mV
Input Impedance (Ref. 1KHz)	47Kohm
Frequency Response (± 1.5dB, Ref. 1KHz)	100Hz~10KHz (○, △) 20Hz~20KHz (●, ▲)
S/N Ratio (5mV Input)	74dB (○, △) 76dB (●, ▲)
Cross Talk (Ref. 1KHz)	60dB
Separation (Ref. 1KHz)	55dB

## <FM SECTION>

Intermediate Frequency	10.7MHz
Frequency Range	87.5~108MHz
Usable Sensitivity	25.2dBf (○, △) 16.3dBf (●, ▲)
50dB Quieting Sensitivity (Stereo)	52.2dBf (○, △) 43.3dBf (●, ▲)
S/N Ratio (Stereo)	66dB (○, △) 67dB (●, ▲)
Distortion (Stereo)	0.5%
Frequency Response	30Hz~15KHz: ± 2.5dB
Image Rejection	60dB (○, △) 32dB (●, ▲)
IF Rejection	65dB
Stereo Separation (Stereo, Ref. 1kHz)	37dB

## &lt;MW (○, △) AM (●, ▲) SECTION&gt;

Intermediate Frequency .....	450KHz
Frequency Range .....	522~1,611KHz (○, △) 520~1,710KHz (●, ▲)
Usable Sensitivity (20dB S/N) .....	73.2dBf (○, △) 70.2dBf (●, ▲)
S/N Ratio .....	45dB
Distortion .....	1.5% (○, △) 1% (●, ▲)
Image Rejection .....	28dB (○, △) 30dB (●, ▲)
Frequency Response .....	100Hz~2KHz:-3 ± 3dB

## &lt;LW SECTION&gt; (○, △)

Intermediate Frequency .....	450KHz
Frequency Range .....	153~281KHz
Usable Sensitivity (20dB S/N) .....	89.2dBf
Distortion .....	1.5%
Image Rejection .....	28dB
IF Rejection .....	25dB

**GENERAL**

Power Supply .....	AC 120/220/240V, 50Hz (○, △) AC 120V, 60Hz (●, ▲)
Semiconductors .....	20 IC's, 58 Transistors, 46 Diodes, 3 Zener Diodes, 1 FET (○, △) 25 IC's, 67 Transistors, 46 Diodes, 3 Zener Diodes, 1 FET (●, ▲)
Dimensions (W×H×D) .....	438×115×330mm
Weight .....	9Kg (○, △) 9.2Kg (●, ▲)

**Notes :** ○: For With Safety Regulations Version (Black Type) (AD),  
 △: For With Safety Regulations Version (Champagne Gold Type) (AD),  
 ●: For U.S.A. Version (UZ), ▲: For Canada Version (UQ), Others : Common.

# Connection Guidelines

## Before Making Connections

It is always wise to ensure that all AC power cords of the various components that you are interconnecting are unplugged from the wall outlets during the hook-up process. This will prevent any inadvertent damage to your speakers or receiver from incorrect control settings or connections.

## Interconnecting Leads

Be sure that left and right channel identification is correct when making interconnections. Most patch cords are colour coded with RED ends for the right channel and BLACK or WHITE ends for the left channel, to make this job easier.

In addition, all jacks on the rear of the R-351 have red centres for right channel and white for left channel. When making connections, follow the Reference Illustrations referring also to the descriptions for items #44 through #60 on pages 11, 12 and 13.

## Speaker Connections

The following items should be observed carefully when connecting your speakers.

1. Be sure PHASING is correct by connecting the RED (+) and the BLACK (-) terminals of the R-351 to the RED (+) and BLACK (-) terminals of your speakers on each channel. Failure to do so will result in drastically reduced bass response and unstable, irregular stereo imaging.
2. To prevent the possibility of shorts, strip back the ends of the speaker leads about 1/2 inch and carefully twist the strands together. Loosen the speaker terminal knob by rotating it counterclockwise. Insert the twisted end and turn the knob clockwise to tighten.

Inspect carefully to ensure that no frayed strands exist that may cause shorts.

3. It is recommended that 16 AWG gauge wire, or larger, be used to prevent losses. You may wish to consider some of the commercially available speaker cables that are specifically designed to improve the receiver to speaker interface.

## Note on the Signal Processor Jacks

- Keep the jumper bars inserted when the "SIGNAL PROCESSOR" jacks are not in use. If the jumper bars are removed, there will be no sound output.
- Remove the jumper bars only when connecting a graphic equalizer or surround amplifier to the "SIGNAL PROCESSOR" jacks.

## AC Power Cord

Insert the AC plug of the R-351 into appropriate wall outlet.

## AC Outlet Connection


The outlet (item #48) may be used for power connection of most of the equipment used with your R-351.

In general connect your CD player or Graphic Equalizer to the SWITCHED outlet.

**CAUTION:** When connecting equipment to the outlet, be sure not to exceed the maximum power rating of 200 Watts for the SWITCHED outlet.

## Bus Line Jack Connections

- To control "SYSTEM BUS" equipped models (such as a Luxman D-351 CD player and a K-351 tape deck) connect them to this jack. Connect the audio leads of the tape deck to the Tape-1 inputs and place the "TAPE-1/TAPE-2" switch on the back panel of the tape deck to the Tape-1 position.
- For remote operation of two BUS equipped tape decks, you may connect the audio leads of one to the Tape-1 inputs and the other to the Tape-2 inputs. Place the "TAPE-1/TAPE-2" switch on the back panel of the first deck to Tape-1 position and the second to Tape-2. The two decks can then be selected by the Tape-1/Tape-2 switch (item #34) on the RR-351 remote control.
- When interconnecting source units, the mini phone cables may be inserted into either jack (the control signals are bidirectional, therefore no "IN OUT" protocol is required).
- Plug the AC power cords of each unit included in the "BUS" system into wall AC outlets.

- "SYSTEM BUS," identified by the symbol  printed on the carton and owner's manual of the unit, indicates the Luxman models that work with the "BUS LINE" jacks on the rear panel.

### AM Antenna

An AM loop antenna comes packed with your R-351. Carefully unwrap and mount it to the rear panel and connect leads.

### FM "T" Type Antenna

Included also with your R-351, is an FM "T" type antenna. This type of antenna is simple and practical and will give adequate results in primary signal areas. To use it, unfold it and connect its centre leads to the DIN type connector on the rear of the receiver, using the 300 ohm to 75 ohm adapter. The antenna is designed to operate in a horizontal position, and may be attached to a nearby wall.

The R-351 is also capable of accommodating other types of cable, including 75-ohm coaxial cable (with DIN type connector). These types of cable are for use with outdoor antennas, which will be discussed next.

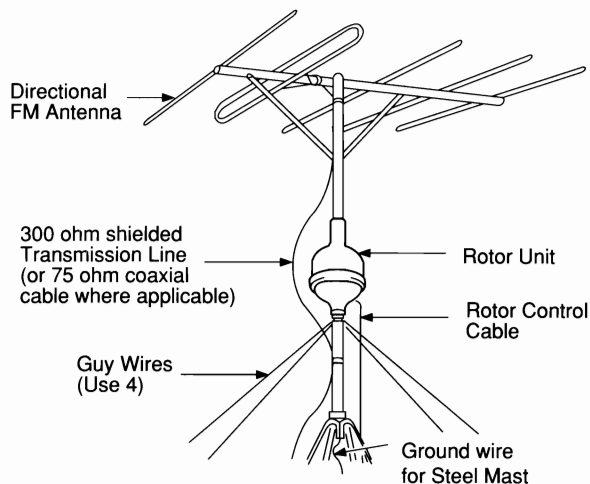
### Outdoor FM Antenna

As stated before, the supplied folded FM "T" type antenna will give satisfactory results in primary signal areas. However, if you are located in a fringe area where signals are weak, then an outdoor antenna will be necessary. Even if you live in a strong signal location, an outdoor directional antenna may be needed to eliminate "multipath" reflections.

Multipath reflections are responsible for much of the distortion and noise associated with poor FM reception. They occur when radio waves from the transmitter bounce off of nearby mountains and tall buildings. The reflected waves follow different, more round-about paths to your tuner and arrive slightly delayed and out of phase with the direct signal (hence, the term "multipath"). This causes distortion in the same manner that "ghost" images are generated on television.

The way to minimize multipath is to use a "beam type" antenna that can be aimed toward the FM transmitter and away from the multipath reflections. The best types of antennas to use are either a "Yagi" or "Log-Periodic" configuration with six or more elements designed expressly for FM reception.

If you want to receive stations from more than one general direction, then you will need a good quality antenna rotor system. This will enable you to point the antenna in the direction giving the least multipath interference, by means of a control box located near the receiver.



Another important factor is the type of lead-in wire to use. Unshielded lead-in wires, such as 300-ohm twin lead, can act as an omnidirectional antenna, and can cancel the directional benefit of your antenna. Therefore, we recommend using a coaxial 75-ohm cable at the antenna. This shielded cable effectively prevents the lead-in from contributing to multipath distortion.

If you decide to use 75-ohm coaxial cable, we recommend buying cable with DIN type connectors attached. These will fit the FM (75 ohm) terminal on the R-351.

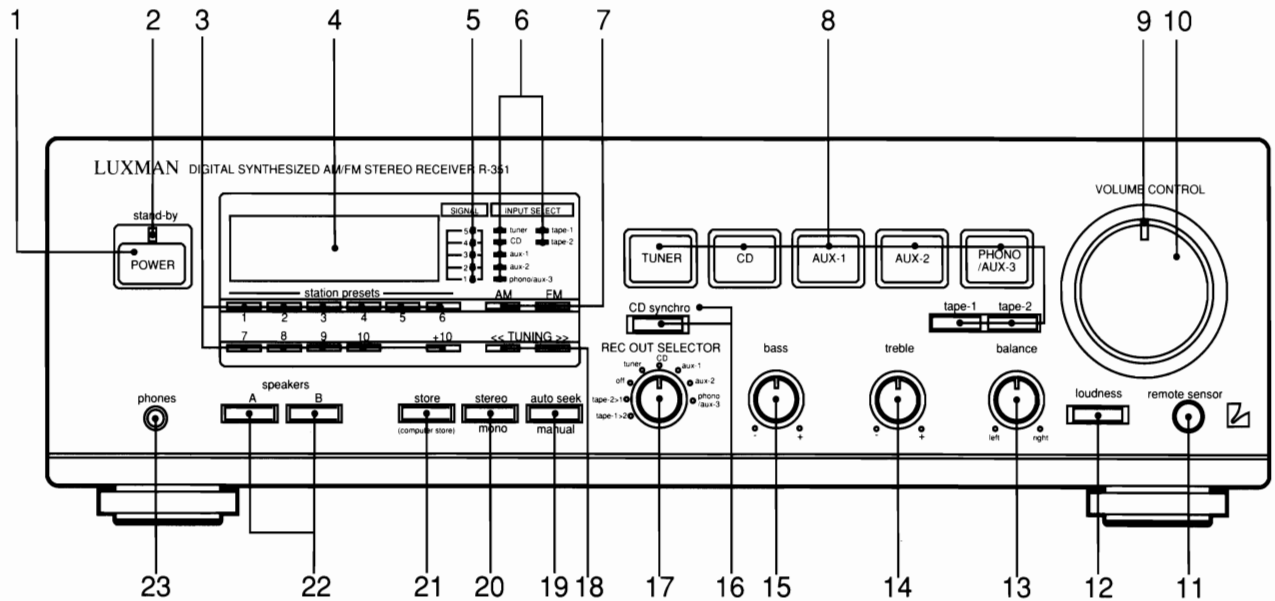
It is considered good practice to connect the antenna mast to an earth ground, both for reasons of safety and noise reduction.

For rural areas, it is recommended to consult a local dealer about installation and lightning arrester protection.

We don't recommend using master antenna systems, such as those found in flat buildings. Such systems are usually designed expressly for television reception and frequently suppress or reduce the quality of the FM signals before distribution.

# Controls and Switches

## Front Panel



### 1. "POWER" button

Pressing this button turns the unit on and off, along with other equipment that may be plugged into the rear panel switched AC outlet.

### 2. "stand-by" indicator

Lights up when the power button is turned off to show that the remote system is ready to receive a power ON command.

### 3. "station presets" buttons

A total of 20 AM (LW/MW) and/or FM stations may be placed into memory in any random order and recalled for instant play, with these buttons. Select previously stored preset stations by pressing the desired number 1 through 10. For presets 11 through 20, press the +10 button first, then 1 through 10. Each number thus selected will appear in the display just under the words "STATION PRESET."

### 4. Display

This display window shows the frequency of tuned AM (LM/MW) and FM stations. In addition, the station preset number, currently selected from memory, is displayed to the right of the station frequency.

### 5. "SIGNAL" Strength indicator

Five LED indicators will light in an upward direction with increasing strength of AM (LW/MW) or FM stations tuned.

### 6. "INPUT SELECT" indicators

The LED indicator for the selected input source will light up to tell which source is selected with the Input Select buttons (item #8).

### 7. "AM/FM" Select buttons

Pressing these buttons selects either the AM (LW/MW) or FM band. When pressed, the unit will automatically choose the TUNER mode.

### 8. Input Select buttons

Press one of these buttons to select any one of seven sources; TUNER, CD, AUX-1, AUX-2, PHONO/AUX-3, tape-1 and tape-2.

### 9. Volume Indicator

The red LED on the knob will blink when the "VOLUME" buttons (item #41) and "MUTE" button (item #40) on the remote control are operated.

**10. "VOLUME CONTROL"**

Allows precision, low noise adjustment of volume level, both manually and by remote control. It is recommended that the volume control be set to a low position prior to power turn on and when switching between sources.

**11. "remote sensor"**

When using the hand held remote control, it must be pointed toward this sensor to activate operational functions.

**12. "loudness" button**

Depressing this button introduces a moderate boost of the very low and high frequencies when the volume control is set below the half-way position. This compensates for the human ear's characteristic at low listening levels.

**13. "balance" control**

Adjusts for unequal volume level between channels. Normally, with today's high quality sources, it is seldom necessary to move this control from its precision centre detent position.

**14. "treble" control**

This control will increase or decrease high frequency content in the program material. At the centre detent position, a flat frequency response results.

**15. "bass" control**

This control will increase or decrease low frequency content in the program material. At the centre detent position, a flat frequency response results.

**16. "CD synchro" button and indicator**

CD play and tape recording can be started simultaneously by simply pressing the "CD synchro" button. In addition the LED indicator will light.

---

**Notes:**

- CD Synchro only works with a BUS connected system.
  - The "REC OUT SELECTOR" switch (item #17) must be in the "CD" position.
-



**17. "REC OUT SELECTOR"**

This 8 position rotary switch selects any one of 5 sources, tuner, CD, aux-1, aux-2 and phono/aux-3, to be fed to the "REC OUT" jacks of both tape 1 and tape 2 for recording purpose. And two tape dubbing positions, 1▶2 and 2▶1, are also selectable. All of these recording operations can be performed independently of any selected source that you may wish to listen to at the same time.

Set it to the off position, when recordings or dubs are not being made.

**18. "TUNING" buttons (<<, >>)**

Allow manual up/down tuning and initiate auto tuning in the "auto seek" mode (see item #19).

**19. "auto seek and manual" button**

When depressed, this button activates the auto seek automatic tuning mode, in conjunction with the "TUNING" buttons (item #18), for AM (LW/MW) and FM operation. In addition the "AUTO SEEK" indicator (item #24) will light.

**20. "stereo and mono" button**

This button selects either STEREO or MONO mode for FM listening. It works with the "STEREO/MONO" indicators (item #25).

**21. "store (computer store)" button**

Depressing this button will allow any tuned AM (LW/MW) or FM station to be stored in any one of the 20 AM/FM RANDOM STATION PRESET locations (see also item #3). If you wish to store a station that you have tuned, momentarily press this button. When the "STORE" indicator (item #28) comes on, press the preset button into which you wish to store it.

For automatic "computer store" of a series of FM or AM (LW/MW) stations, press this button for more than 1 second. When the "COMPUTER STORE" indicators (items #27 and 28) come on, press the preset number at which you want the storing operation to start. Stations will be sequentially stored in an upward direction into the presets beginning with the first AM or FM station tuned. For more details, refer to page 16.

**22. "speakers A and B" buttons**

Two sets of stereo speaker systems may be used with the R-351; A and B buttons corresponding with "SPEAKERS A and B" terminals (item #46) on the rear panel. You may choose independent or simultaneous operation of the two systems by using these buttons.

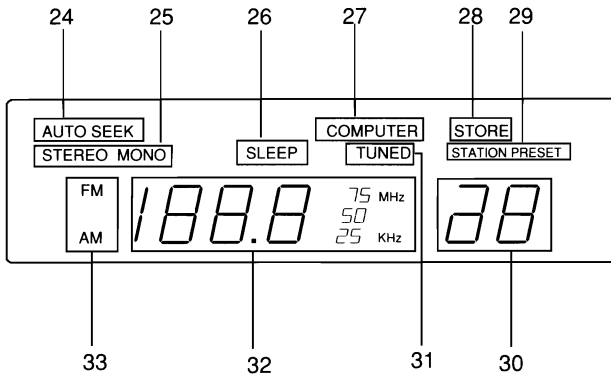
**Note:**

The impedance of each speaker system should equal or exceed 8 ohms when driving two sets at the same time.

**23. "phones" jack**

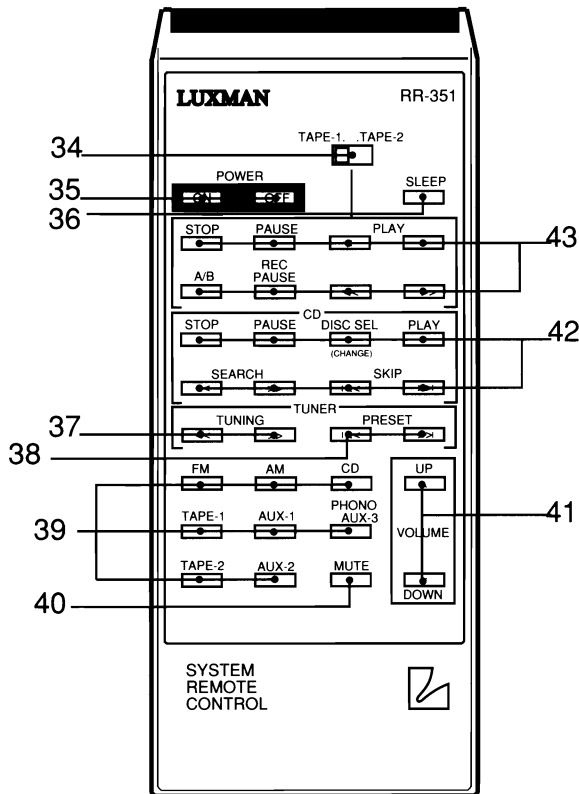
Connection of stereophonic headphones to this jack allows private listening. There is signal at the jack at all times. Placing the "speakers A and B" buttons (item #22) in the OUT position, will allow private listening.

**Display**



- 24. "AUTO SEEK" indicator
- 25. "STEREO MONO" indicator
- 26. "SLEEP" indicator
- 27. "COMPUTER" indicator
- 28. "STORE" indicator
- 29. "STATION PRESET" indicator
- 30. Preset No. indicator
- 31. "TUNED" indicator
- 32. FM, AM (LW/MW) Frequency display
- 33. FM, AM Band indicator

**Remote Control unit**

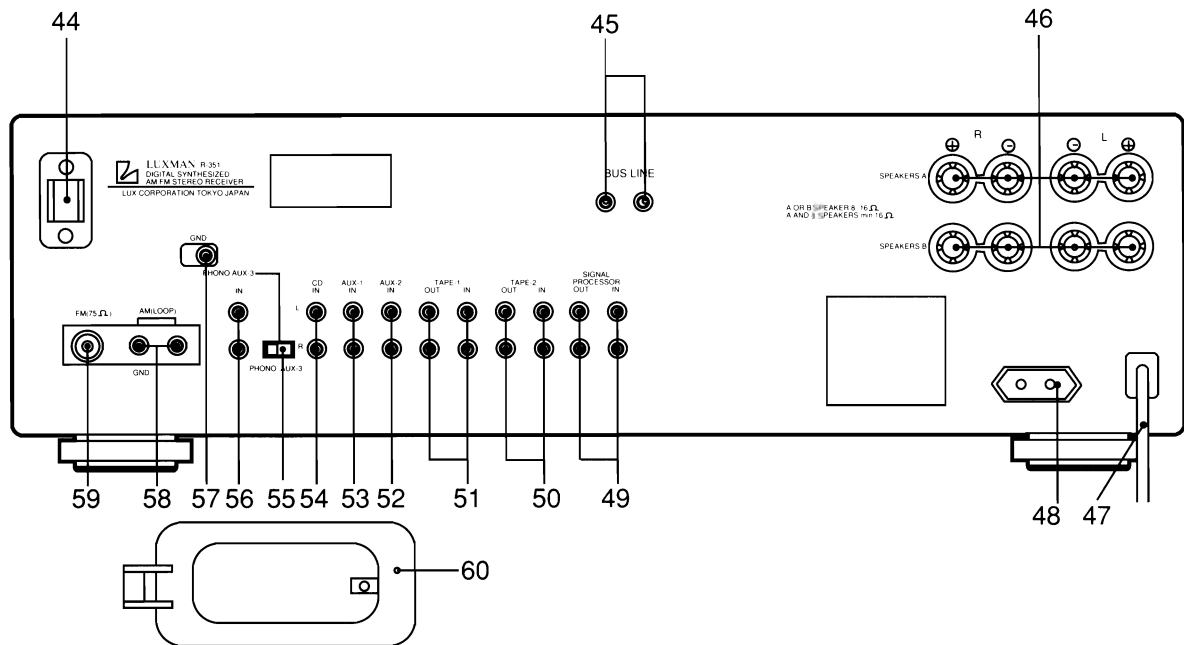


- 34. "TAPE-1, TAPE-2" selector
- 35. "POWER ON/OFF" buttons
- 36. "SLEEP" button
- 37. "TUNING" buttons (<<, >>)
- 38. "PRESET" buttons (|<<, >>|)
- 39. Input Selector buttons
- 40. "MUTE" button
- 41. "VOLUME UP/DOWN" buttons
- 42. CD Player Control buttons
- 43. Cassette Deck Control buttons

**Notes:**

- Tape-1 selection (item #34) only operates "BUS Line" equipped tape decks (such as the Luxman K-351 and future models) connected at the Tape-1 inputs.
- Tape-2 selection (item #34) operates "BUS" equipped tape decks connected at the Tape-2 inputs. The "BUS" tape deck, however, must have its rear panel "TAPE-1/TAPE-2" switch placed in the Tape-2 position.

## Rear Panel



### 44. Holder AM Antenna

This holder is designed for easy mounting or removal of the AM LOOP ANTENNA. Align mating surfaces carefully and install with a firm push.

### 45. "REMOTE CONTROL BUS LINE" jacks

Use these jacks only with Luxman CD players and Tape Decks that are also equipped with BUS line jacks, such as the D-351 and the K-351.

When interconnecting these units with the R-351, the mini phone cables may be inserted into either of their two BUS jacks (the control signals are bidirectional, therefore no "IN OUT" protocol is required).

### 46. "SPEAKERS A and B" terminals

You may connect 2 pairs of stereo speaker systems to these terminals, one pair to the upper "A" terminals and a 2nd pair to the lower "B" terminals.

The speaker systems may be switched on and off by the front panel "speakers A and B" buttons (item #22).

### 47. AC Power Cord

Insert the AC plug of the R-351 into appropriate wall outlet.

### 48. AC Outlet

For convenient AC power connection of other audio component to your system, a SWITCHED outlet (200 watts max.) is available.

### 49. "SIGNAL PROCESSOR IN and OUT" jacks

For connection of a surround sound processor, an equalizer or other signal processor as desired.

### Note:

Jumper bars are factory installed in these jacks. They need to be removed when connecting a processor. Retain for possible future reuse.

**50. "TAPE-2 IN and OUT" jacks**

Connect a 2nd tape deck to these jacks in the same manner as item #51 below.

**51. "TAPE-1 IN and OUT" jacks**

Connect the LINE IN and LINE OUT jacks of your audio tape deck to these OUT and IN jacks respectively.

**52. "AUX-2 IN" jacks**

Connect a 2nd audio source to these jacks in the same manner as item #53 below.

**53. "AUX-1 IN" jacks**

Connect the audio output of a VCR, Video Disc Player, CD Player, Cassette Deck, etc. to the "AUX-1 IN" jacks of the R-351.

**54. "CD IN" jacks**

This set of jacks is for connection of a CD (compact disc) player. They may also be used for any other high level signal source as well.

**55. "PHONO/AUX-3" switch**

If a phono turntable is not required in the system, this switch allows the phono jacks to be used as an additional set of high level inputs. Move it to the "AUX-3" position for connection of an additional CD player, Tape deck, etc.

**CAUTION:** Be sure the volume control is set to minimum when setting this switch.

**56. "PHONO/AUX-3 IN" jacks**

A moving magnet (MM) type phono cartridge may be connected to these inputs. Also, they may be used as an additional set of high level inputs (see item #55).

**CAUTION:** When these jacks are used for high level inputs, ensure that the "PHONO/AUX-3" switch (item #55) is set to "AUX-3" to prevent possible damage to the receiver and speakers.

**57. "GND" terminal**

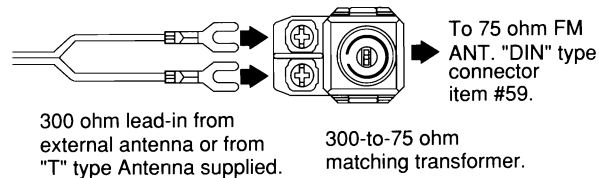
Connect the common (ground) lead of your phono turntable to this terminal.

**58. "AM (LOOP)" antenna terminals**

For connection of the leads of the AM Loop Antenna (item #60) supplied with the R-351.

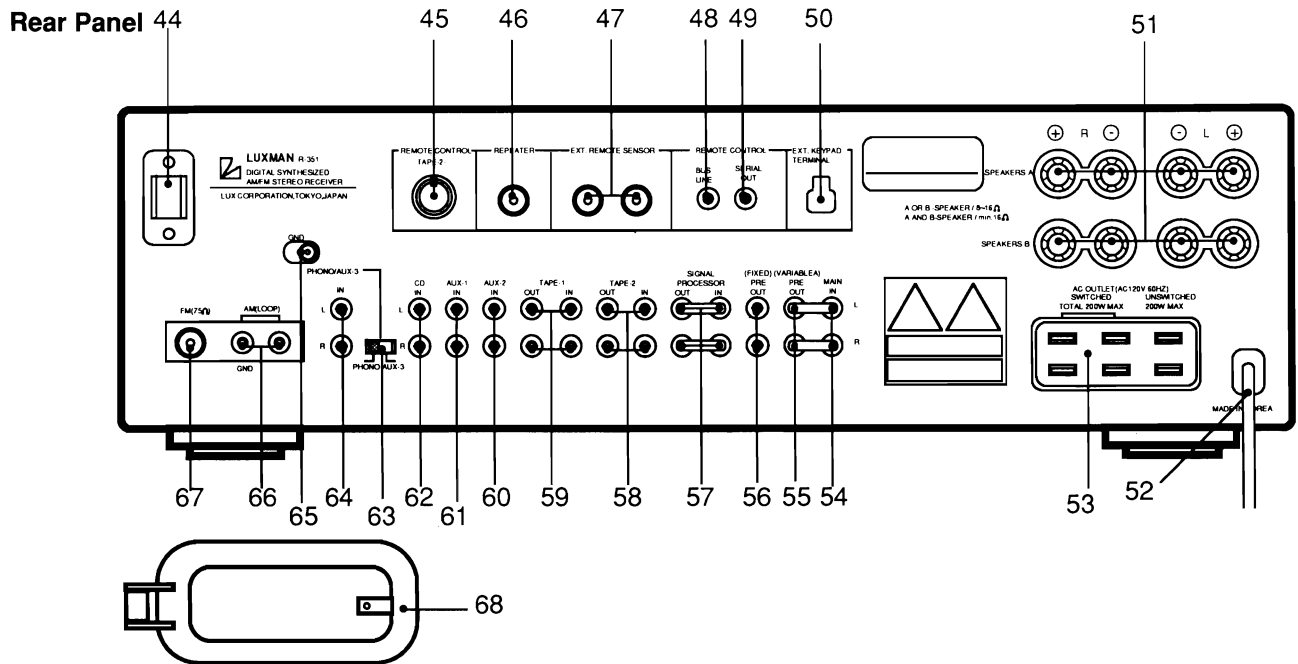
**59. "FM (75 Ω)" terminal**

For connection of 75 ohm coaxial cable lead-in with "DIN" type connector, or a 300 ohm lead-in used with the 300-to-75 ohm adapter supplied. See diagram below.

**60. AM Loop Antenna**

This antenna can be rotated on its holder (item #44) for maximum pick-up, or removed and placed elsewhere for best reception (within the limitation of its 23" lead length).

# Jacks and Terminals



## 44. Holder-AM Antenna

This holder is designed for easy mounting or removal of the AM LOOP ANTENNA. Align mating surfaces carefully and install with a firm push.

## 45. "REMOTE CONTROL TAPE-2" DIN jack

For unified system remote control using Luxman cassette decks, all controlled from the one hand held remote supplied with the R-351.

To remote control a "DIN" equipped tape deck (such as a Luxman K-110, K-110W, etc.) connect it to this jack, and the audio leads to the Tape-2 inputs.

## 46. "REPEATER" jack

For connection of Luxman's remote control command repeater, RC-503.

## 47. "EXT. REMOTE SENSOR" jacks

These "F" type coaxial connectors are for connection of Luxman's RC-501 remote room sensor "eyes." This permits remote control of a complete R-351 system from other rooms.

## 48. "REMOTE CONTROL BUS LINE" jack

Use this jack only with Luxman CD players and Tape Decks that are also equipped with BUS line jacks, such as the D-351 and the K-351. When interconnecting these units with the R-351, the mini phone cables may be inserted into either of their two BUS jacks (the control signals are bidirectional, therefore no "IN OUT" protocol is required).

## 49. "REMOTE CONTROL SERIAL OUT" jack

For connection of Luxman's serial "Daisy Chain" unified remote control system, using Luxman models DZ-111, DZ-112, DZ-121, DZ-122, DC-113, DC-114 and future new models using the serial jacks system.

### Note:

Do not connect to both the "SERIAL REMOTE" and "BUS LINE" jacks simultaneously; connect to either the "SERIAL REMOTE" or "BUS LINE" jacks according to the CD player model in use.

## 50. "EXT. KEYPAD TERMINAL"

For keypad operation in a remote room, connect this jack via a standard RJ-11 modular phone jack and 4 lead wire to the Luxman model RC-505 Keypad in-wall controller.

**CAUTION:** Do not connect any telephone line to this terminal.

**51. "SPEAKERS A and B" terminals**

You may connect 2 pairs of stereo speaker systems to these terminals, one pair to the upper "A" terminals and a 2nd pair to the lower "B" terminals.

The speaker systems may be switched on and off by the front panel "speakers A and B" buttons (item #22).

**52. AC Power Cord**

Insert the polarized plug of the R-351 into any 120 Volt AC, 60 Hz wall outlet. The wider contact side of the plug is the ground side.

**Note:**

See Reference Illustrations, page 5, for typical connections to all jacks and terminals (item #44 through 68).

**53. AC Outlets**

For convenient AC power connection of other audio and video components in your system, 2 SWITCHED outlets (total 200 watts max.) and 1 UNSWITCHED outlet (200 watts max.) are available. The wider opening of each outlet indicates the ground side of the polarized AC line.

**54. "MAIN IN" jacks**

Using both the "PRE OUT" (item #55) and "MAIN-IN" jacks, connect them to the correct inputs and outputs of satellite sub-woofer systems or other audio gear as desired.

**Note:**

Remove the jumper bars when using these and the "PRE OUT" jacks. Retain for future use.

**55. "PRE OUT (VARIABLE)" jacks**

Connect to the input jacks of external power amplifiers for multi-speaker or multi-room applications. The output level is controlled by the "VOLUME CONTROL" (item #10) and by the remote control up/down buttons. The output level is 1 volt, referenced to 150 mV at the high level inputs, with the volume control at maximum.

**56. "PRE OUT (FIXED)" jacks**

Connect these to the input jacks of external power amplifiers for multi-room applications. The output level is 300 mV fixed, referenced to 150 mV at the high level inputs.

**57. "SIGNAL PROCESSOR IN and OUT" jacks**

For connection of a surround sound processor, an equalizer or other signal processor as desired.

**Note:**

Jumper bars are factory installed in these jacks. They need to be removed when connecting a processor. Retain for possible future reuse.

**58. "TAPE-2 IN and OUT" jacks**

Connect a 2nd tape deck to these jacks in the same manner as item #59 below.

**59. "TAPE-1 IN and OUT" jacks**

Connect the LINE IN and LINE OUT jacks of your audio tape deck to these OUT and IN jacks respectively.

**60. "AUX-2 IN" jacks**

Connect a 2nd audio source to these jacks in the same manner as item #61 below.

**61. "AUX-1 IN" jacks**

Connect the audio output of a VCR, Video Disc Player, CD Player, Cassette Deck, etc. to the "AUX-1 IN" jacks of the R351.

**62. "CD IN" jacks**

This set of jacks is for connection of a CD (compact disc) player. They may also be used for any other high level signal source as well.

**63. "PHONO/AUX-3" switch**

If a phono turntable is not required in the system, this switch allows the phono jacks to be used as an additional set of high level inputs. Move it to the "AUX-3" position for connection of an additional CD player, Tape deck, etc.

**CAUTION:** Be sure the volume control is set to minimum when setting this switch.

**64. "PHONO/AUX-3 IN" jacks**

A moving magnet (MM) type phono cartridge may be connected to these inputs. Also, they may be used as an additional set of high level inputs (see item #63).

**CAUTION:** When these jacks are used for high level inputs, ensure that the "PHONO/AUX-3" switch (item #63) is set to "AUX-3" to prevent possible damage to the receiver and speakers.

**65. "GND" terminal**

Connect the common (ground) lead of your phono turntable to this terminal.

**66. "AM (LOOP)" antenna terminals**

For connection of the leads of the AM Loop Antenna (item #68) supplied with the R-351.

**67. "FM (75  $\Omega$ )" terminal**

For connection of 75 ohm coaxial cable lead-in with "F" connector, or a 300 ohm lead-in used with the 300-to-75 ohm adapter supplied. See diagram below.



300 ohm lead-in from external antenna or from "T" type Antenna supplied.

300-to-75 ohm matching transformer.

**68. AM Loop Antenna**

This antenna can be rotated on its holder (item #44) for maximum pick-up, or removed and placed elsewhere for best reception (within the limitation of its 23" lead length).

## Operation Guidelines

The following guidelines assume that all connections have been made according to the "Reference Illustrations,".

### Power and Source Switching

To prevent the possibility of excessive, sudden sound levels, it is recommended that the volume control be placed at a low level position each time the power button is turned on or when switching between sources by the INPUT SELECTOR.

### Tape Recording Operations

To make a tape recording of any source, proceed as follows:

1. Rotate the "REC OUT SELECTOR" (item #17) to the source you wish to record.
2. The source signal will now be fed to the tape deck. Follow the recording instructions for the tape deck in use.
3. If you have a 3 head deck, you can monitor the actual recording by depressing the corresponding "tape-1" or "tape-2" buttons (item #8) on the R-351.

### Tape Playback

Playback from either tape deck can be heard by depressing the corresponding "tape-1" or "tape-2" button (item #8) on the R-351.

### Tape Dubbing

Tape copies can be made from TAPE-1 to TAPE-2 or from TAPE-2 to TAPE-1 as follows:

1. To dub from TAPE-1 to TAPE-2, rotate the "REC OUT SELECTOR" (item #17) to the 1►2 dubbing position.
2. Place tape deck 1 in the PLAY mode and deck 2 in the RECORD mode.
3. If deck 2 is a 3 head machine, actual monitoring of the recording can take place by selecting "tape-2" on the Input Select button (item #8).
4. Similarly, to dub from TAPE-2 to TAPE-1, rotate the "REC OUT SELECTOR" to the 2►1 dubbing position.
5. Follow steps (2) and (3) above except remember decks 1 and 2 are reversed.

### FM/AM Tuner Operations

The R-351 incorporates several tuning methods to provide ease, yet great flexibility in station selection and use. Proceed as follows:

### Auto Tuning

1. Press the "AM/FM" select button (item #7) to indicate the desired band, "FM or AM (LW/MW)" in the display.
  2. Press the "auto seek" button (item #19) to indicate "AUTO SEEK" in the display.
  3. Press the "TUNING" buttons (item #18) to select the desired broadcast station.
- When a station is tuned in, "TUNED" is indicated.
  - When a stereo program is tuned in, "TUNED" and "STEREO" are indicated.
  - To tune in a station with weak signals, press the "auto" button to turn off the "AUTO SEEK" indicator. Then press "TUNING" buttons (item #18).

### Notes:

- Be sure to press the "stereo and mono" button (item # 20) to receive a stereo program.
- If noise is heard while listening to FM or AM (LW/MW) broadcasts, it may be necessary to turn off the CD player, video disc player or TV.

### Station Preset Operation

A total of 20 AM/FM stations can be stored in any order in preset numbers 1 to 20.

### Auto "computer store"

If you wish to have the internal computer of the R-351 store a series of stations for you, proceed as follows:

1. Select AM (LW/MW) or FM as desired.
2. Press the "TUNING" buttons (item #18) to the frequency of the station from which you wish to have the computer store operation begin.
3. Press the "store (computer store)" button (item #21) for more than 1 second. "COMPUTER STORE" will appear in the display.
4. Press "station presets" button (item #3) within 7 seconds.



The tuner will now scan upward and store stations until the 20th preset location is filled. At this point the operation stops, or it will stop previous to this if there are insufficient stations in your reception area to fill all locations.

You may also start the computer store operation at any station preset location, such as #6 or #14. Just press such locations immediately after pressing the computer store button. Remember, auto store will not go beyond the 20th location; it will not wrap around to the #1 position.

### Manual "Store"

1. Tune in a desired station as described in "Auto Tuning."
2. Press the "store" button (item #21) for less than 1 second. The "STORE" indicator will show for 7 seconds in the display.
3. Select and press a desired preset number between 1 and 20 (item #3).

### Station Recall

Press the preset number of the desired station with the "station preset" buttons (item #3).

#### Note:

When a previously stored "station presets" button (item #3) is pressed, the input selector switch will automatically go to the "TUNER" position.

If the displayed station preset number is chosen by a "station presets" button, the input selector switch will remain on the current source.

### To Turn Power ON or OFF

Press "POWER" buttons (Item #35).

### Operating the R-351 Receiver

- To select a desired source, press a source button (item #39), FM, AM, CD, TAPE-1, AUX-1, PHONO/AUX-3, TAPE-2 or AUX-2.
- To turn up the volume, press "VOLUME UP" button (item #41).
- To turn down the volume, press "VOLUME DOWN" button (item #41).
- To mute the sound temporarily, press "MUTE" button (item #40).
- To restore the sound, press it again. (During muting, the volume indicator blinks.)

**Tuning in a station**

- 1.) Press Input Selector buttons (item #39) to select FM or AM (LW/MW).
- 2.) Press "TUNING" buttons (item #37) to tune in a station.

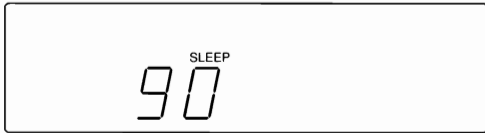
**Recalling a preset station**

Press "PRESET" buttons (item #38) to call up the preset stations in any order.

**Setting the Sleep Timer**

The sleep timer will turn the system off after a preset time has passed. The timer can be set for up to 90 minutes in 10 minute decrements.

- 1.) Press the "SLEEP" button (item #36) while receiving a station or while playing any source.



The system will turn off after about 90 minutes.

- 2.) Press the "SLEEP" button repeatedly until the desired time is displayed. Each time the "SLEEP" button is pressed, the time indication changes as follows:

→ 90 → 80 → 70 → 60 → 50 → 40 → 30 → 20 → 10 → no indication →

During sleep timer operation, the display shows the remaining time in 1 minute decrements. The power will be turned off when 0 is reached.

- To cancel the sleep timer, press the "SLEEP" button repeatedly until the "SLEEP" indicator goes off.
- To change the sleep time, press the "SLEEP" button repeatedly until the desired time is displayed.

**Bus System Operations**

Products connected to the "BUS LINE" jack allow following operations from the RR-351 remote control unit.

**Automatic Source Switching and Play of Music Sources**

When a source button on the RR-351 is pressed, the corresponding source unit will automatically be placed in PLAY mode and be heard. Similarly, when a play button is pressed on a source unit or the tuning or station preset buttons pressed on the receiver, the input source selector on the R-351 will automatically be switched to the corresponding source. This feature works only with Luxman CD players and Tape Decks that are equipped with BUS line jacks.

**Operating the Cassette Deck**

The operations in the following table are possible for either one or two "SYSTEM BUS" decks connected to the "TAPE-1" and "TAPE-2" jacks. Choose the desired deck with the "TAPE-1/TAPE-2" selector (item #34).

To start playback	>
To start reverse playback	<
To fast forward to the right/rewind to the right	>>
To fast-forward to the left/rewind to the left	<<
To music search to the right	>>
To search to the left • Each time a >> or << button is pressed, a track is added. (Up to 8 tracks in both directions.)	> or < ↓ <<
To select deck A or B	A/B
To stop playback or recording	STOP
To set the cassette deck to recording pause mode	REC PAUSE
To record • Press the < or > button, use direction that is the same as that indicated by the tape direction indicator on the tape deck.	REC PAUSE ↓ < or >

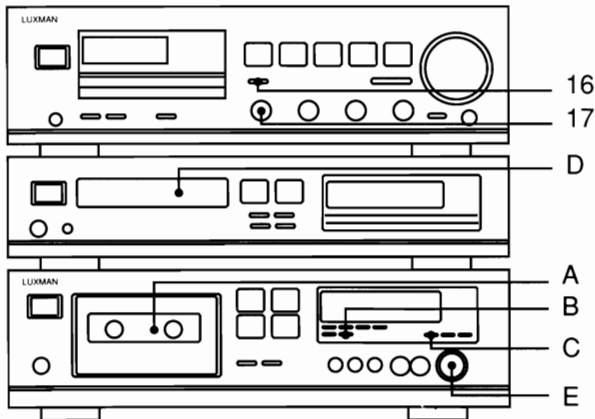
**Operating a CD Player**

The following operations are possible.

To start play	PLAY
To stop play	STOP
To stop play temporarily	PAUSE
To skip tracks in forward direction	>>
To skip tracks in backward direction	<<<
To search a track in forward direction	>>>
To search a track in backward direction	<<<<
To select a disc in a CD changer	DISC SEL ↓  <<< >>>

**"CD Synchro" Recording**

When the R-351 is used with BUS line equipped source units, such as the Luxman D-351 CD player and K-351 cassette tape deck, synchronized start/record, pause and stop functions are possible when making recordings of CDs with the press of a single button. For instance, when the "CD synchro" button (item #16) on the R-351 is pressed, the K-351 cassette deck will go into record mode and the D-351 begins playing at the same time.



Use the following procedure:

1. Set the "REC OUT SELECTOR" (item #17) to "CD."
2. Insert a tape for recording into the deck (item #A in a previous diagram).
3. Set the REVERSE MODE selector switch (item #B), in the single reverse position, if the tape deck is so equipped.

4. Select the Dolby NR mode with the "DOLBY NR" switch (item #C).

	DOLBY NR ON/OFF button	B/C button
To record in Dolby B NR mode	■ ON (depressed)	■ B (released)
To record in Dolby C NR mode	■ ON (depressed)	■ C (depressed)
To record without Dolby NR mode	■ OFF (released)	Any position

5. Place the disc in the CD player (item #D). Recordings can be made to fit the length of the tape used, if your CD player has an editing function. For further details, refer to the manual of the CD player.
6. Turn "REC LEVEL" control (item #E) to rec and adjust the recording level.
7. Press "CD synchro" button (item #16) of the R-351. CD play and tape recording will start simultaneously. The recording level is indicated by the level indicator. When +3 lights up on music peaks, the level is set appropriately.
8. To stop synchronized recording, press the STOP button on the cassette deck or CD player.

**Notes:**

- To record on both sides start with the front side. Recording cannot be continued from the reverse side to the front side. Therefore, when the recording on the reverse side is completed, it stops.
- Recording will not start if the playback button for the opposite direction is pressed.
- Be sure to advance past the leader tape before recording. Otherwise, the beginning of the CD may not be recorded.
- Location of the switches will be different depending upon the models connected, so perform operations by referring to the Owner's Manual for each model.

**Remote Operations**

For reliable operation, use the hand-held remote control within the basic dimensional area.

**Battery Replacement**

1. Open the battery compartment cover on the rear of the remote control unit. The cover should open easily if you press on it with your thumb and slide it in the direction of the arrow.
2. Place two "AAA" size dry batteries in the battery compartment in accordance with the diagram in the compartment, then replace the cover.

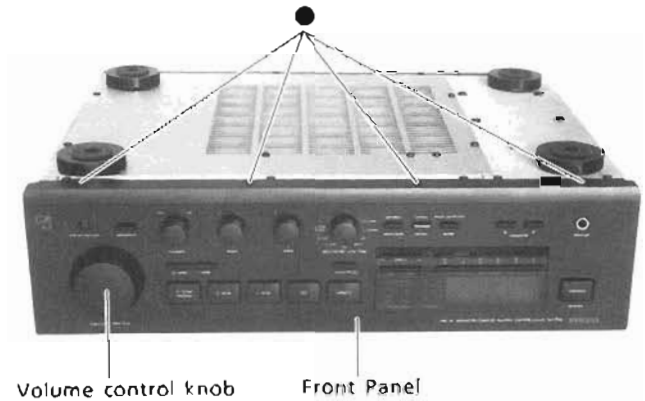
Incorrect use of batteries may lead to leakage or rupture. Be sure to follow these guidelines:

- A. Always insert batteries into the battery compartment correctly matching the positive (+) and negative (-) polarities as shown in the diagram inside the compartment.
- B. Never mix new and used batteries together.
- C. Both rechargeable and non-rechargeable batteries are available. Be sure to use your batteries in accordance with the instructions provided on the cells.

# Disassembly Instruction

## 1. Removal of Front Panel

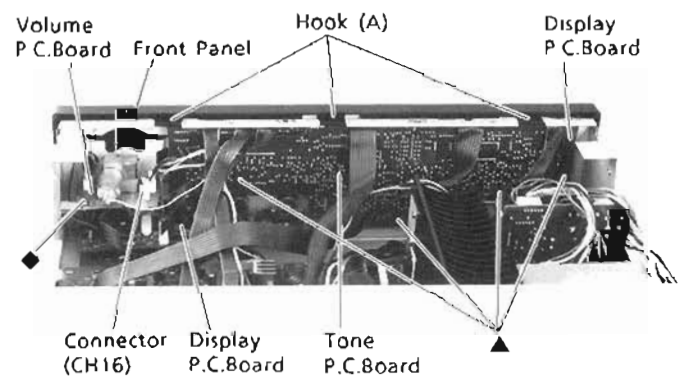
- 1) After removal of Top Cover, remove one connector (CH16) as shown in Figure 2.
- 2) Remove the Volume control knob as shown in Figure 1
- 3) Remove four screws marked "●" and three Hooks (A) as shown in Figures 1 and 2.



<Figure 1>

## 2. Removal of Volume P.C.Board

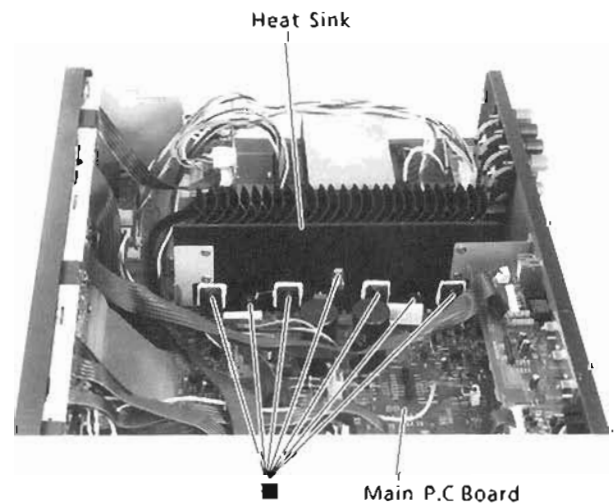
- 1) After removal of Front Panel, remove one screw marked "◆" and Nut & Washer (C) as shown in Figures 2 and 4.



<Figure 2>

## 3. Removal of Display P.C.Board

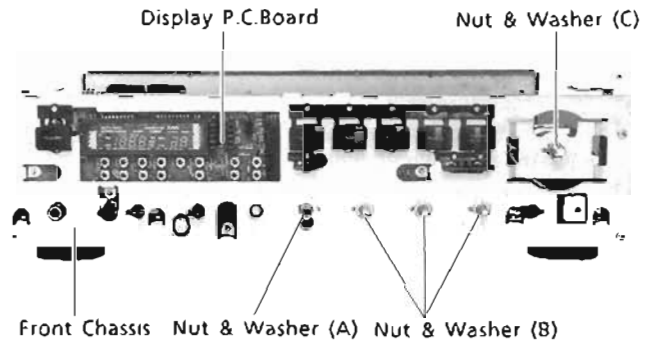
- 1) After removal of Volume P.C.Board, remove four screws marked "▲" and Nut & Washer (A) as shown in Figures 2 and 4
- 2) Disconnect all wires from the Display P.C.Board



<Figure 3>

#### 4. Removal of Tone P.C.Board

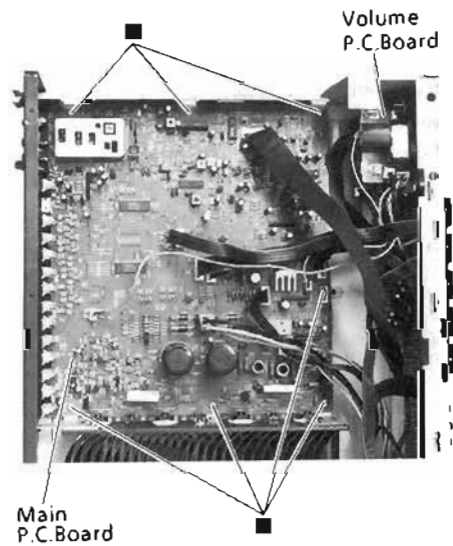
- 1) After removal of Display P.C.Board, remove Nut & Washer (B) as shown in Figure 4



<Figure 4>

#### 5. Removal of Main P.C.Board

- 1) After removal of Tone P.C Board, remove fourteen screws marked "■" as shown in Figures 3 and 5.



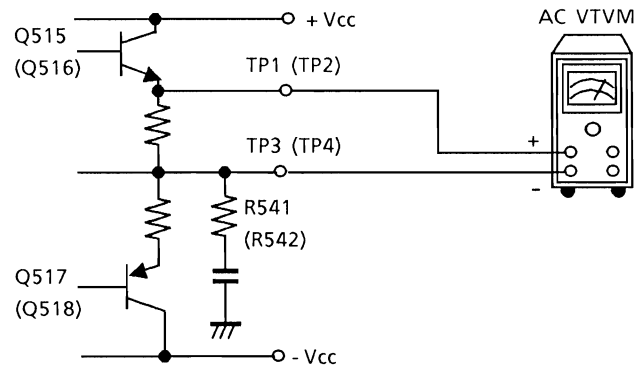
<Figure 5>

# Adjustment Procedures

## 1. Audio Section Adjustment

### (1) Idling Current Adjustment

#### ① Connection Diagram



<Figure 6>

#### ② Adjustment Method

- Conduct ageing by setting the main volume control (VR301) at the minimum position.
- Adjust VR501 (VR502) to obtain 9mV output voltage.

## 2. FM Tuner Section Adjustment

### (1) Adjustment Conditions

- Standard Adjustment Antenna Input ..... 65dBf (75ohm)
- Standard Modulation, Mono ..... Mod.-Frequency: 1KHz  
Deviation: 75KHz  
STEREO ..... Mod.-Frequency: 1KHz  
Main (L + R): 68.25KHz  
Pilot: 6.75KHz
- Test Frequency ..... : 98.1MHz
- Output Terminal ..... Tape Rec-Out (10Kohm)

### (2) DET - Coil Adjustment

- Apply the standard modulation, mono signal from SSG(65dBf) to the ANT terminal.
- Turn on the AUTO SEEK mode.
- Adjust T102 so that the total harmonic distortion level becomes minimum.

### (3) Stop Level Adjustment

- Apply the standard modulation, mono signal from SSG to the ANT terminal.
- Set the antenna input level at 33.0dBf.
- Activate the AUTO SEEK function and adjust VR102 so that the AUTO SEEK function stops with the SSG input frequency.
- The AUTO SEEK function should be checked both in the up and down directions.
- The antenna input level to stop the AUTO SEEK function should be within the following range.  
40.2dBf  $\pm$  6dBf

## (4) Signal Indicator Adjustment

- ① Apply the standard modulation, mono signal from SSG to the ANT terminal.
- ② The antenna input level should be 67.2dBf.
- ③ Adjust VR103 so that 5th LED of the signal indicators lights up
- ④ Gradually change the antenna input level at SSG from lower side to the higher side and find the point where 5th LED lights up. Measure the antenna input level and confirm that it is within the following range.
  - 65.2dBf  $\pm$  6dBf (●, ▲)
  - 60.2dBf  $\pm$  6dBf (○, △)

## (5) Stereo Separation Adjustment

- ① Apply the standard modulation, stereo signal to the ANT terminal.
- ② Set the modulation mode of MPX signal Generator to the (L) or (R) channel, then adjust VR104 so that the signal leakage from the signal output channel to the other channel becomes minimum.
- ③ Switch the modulation mode to the other channel and check in the same manner as above step to confirm the values for both the L and R channels are almost same.

## (6) MPX Coil Adjustment

- ① This adjustment is required only when the 19KHz signal leakage level is high.
- ② Make B.P.F (200Hz - 15KHz) flat.
- ③ Apply the standard modulation, stereo signal (65dBf) to the ANT terminal.
- ④ Apply only, the pilot signal (19KHz) from MPX signal generator, then measure the leakage level of the pilot signal to the TAPE REC OUT terminal.
- ⑤ If the leakage level is much different from  $\leq$  -60dB, adjustment is required.
- ⑥ Adjust L105 (L) and L106 (R) to minimize the leakage.

## 3. AM Tuner Adjustment (AM : ●, ▲ MW / LW : ○, △)

## (1) Adjustment Conditions

- |   |  |
|---|--|
| ① Standard ANT Input for Adjustment ..... | Refer to the followings.                     |
| ② Standard Modulation .....               | Mod. -Frequency : 400Hz<br>Mod. -Ratio : 30% |
| ③ Adjustment Frequency .....              | : Refer to the followings.                   |
| ④ B.P.F .....                             | : 200Hz -15KHz                               |

## (2) IF Adjustment

- ① Apply the field strength of standard adjustment conditions to the LOOP-ANT terminal.
- ② Set the frequency of SSG to 1000KHz.
- ③ Tune to 1000KHz and adjust T101 for the maximum output.
- ④ Measure the selectivity and confirm that it is within  $\pm$  10KHz.
- ⑤ If a sweep IF scope is available, look at the IF waveform and adjust to obtain symmetric waveform with the central IF frequency.
- ⑥ Repeat the above adjustment steps until satisfactory results are obtained.

## (3) Frequency Range Adjustment (AM : ●, ▲ MW : ○, △)

- ① Apply the field strength of standard adjustment conditions to the LOOP-ANT terminal.
- ② Set the frequency of SSG to 520KHz. (●, ▲).
- ② Set the frequency of SSG to 603KHz. (○, △).
- ③ Connect the hot terminal of DC Voltage Meter to TP 5 and the cold terminal to GND.
- ④ Tune to 520 KHz and adjust L104 to obtain 1V (●, ▲).
- ④ Tune to 603 KHz and adjust L104 for  $2 \pm 0.1V$  (○, △).
- ⑤ Set the frequency of SSG to 1710KHz (●, ▲).
- ⑤ Set the frequency of SSG to 1404KHz (○, △).

**Notes :** ○ : For With Safety Regulations Version (Black Type) (AD),  
 △ : For With Safety Regulations Version (Champagne Gold Type) (AD),  
 ● : For U.S.A. Version (UZ), ▲ : For Canada Version (UQ), Others : Common.



- ⑥ Tune to 1710KHz and adjust VC102 to obtain 9V (●, ▲).
- ⑥ Tune to 1404KHz and adjust VC102 for  $6.5 \pm 0.1V$  (○, △).
- ⑦ Repeat the above adjustment procedure until satisfactory results are obtained.

(4) Tracking Adjustment

- ① Apply the field strength of standard adjustment conditions to the Loop-ANT terminal.
- ② Set the frequency of SSG to 600KHz (●, ▲).
- ② Set the frequency of SSG to 999KHz (○, △).
- ③ Tune to 600KHz and adjust L102 for the maximum output (●, ▲).
- ③ Tune to 999KHz and adjust L102 for the maximum output (○, △).
- ④ Set the frequency of SSG to 1400KHz (●, ▲).
- ⑤ Tune to 1400KHz and adjust VC103 for the maximum output (●, ▲).

(5) Stop Level Adjustment

- ① Apply the field strength of standard adjustment / modulation conditions to the Loop-ANT terminal.
- ② Set the frequency of SSG to 1000KHz (●, ▲).
- ② Set the frequency of SSG to 999KHz (○, △).
- ③ While the Auto Seek function is being operated, adjust VR101 so that the Auto Seek function will stop with the input frequency of SSG.
- ④ Check the Auto Seek function both in the up and down directions.
- ⑤ The Auto Stop level should be within the following range :  
60dB / m  $\pm$  6dB / m

(6) Frequency Range Adjustment (LW : ○, △)

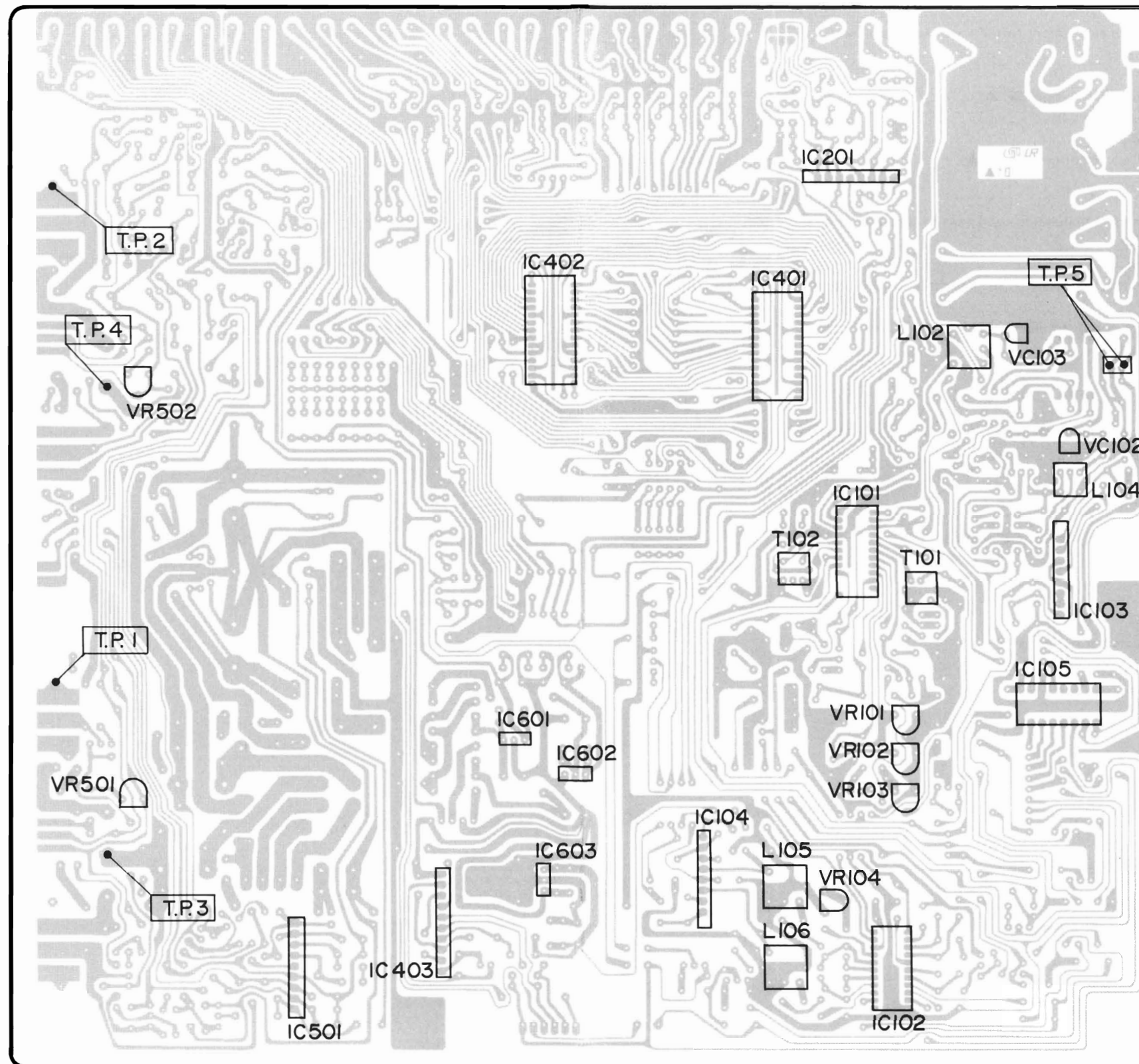
- ① Apply the field strength of standard adjustment / modulation conditions to the Loop-ANT terminal.
- ② Set the frequency of SSG to 170KHz .
- ③ Tune to 170KHz and adjust L103 for 2.5V.
- ④ Set the frequency of SSG to 260KHz.
- ⑤ Tune to 260KHz and adjust VC101 for 5.2V.
- ⑥ Repeat the above adjustment steps until satisfactory results are obtained.

(7) Tracking Adjustment (LW : ○, △)

- ① Adjust the ANT-Coil (L101).
- ② Set the frequency of SSG to 210KHz .
- ③ Tune to 210KHz and adjust L101 for the maximum output level.

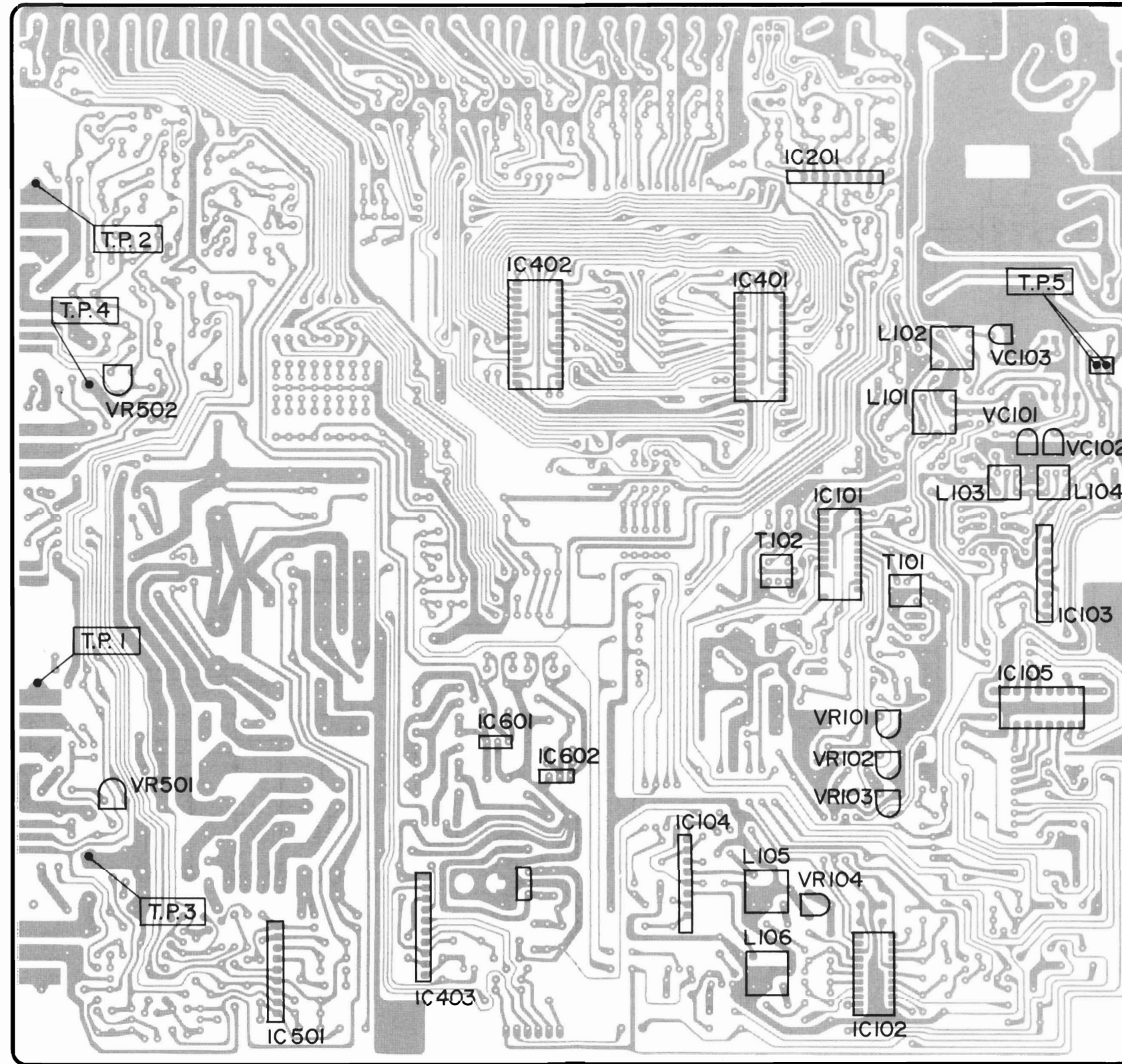
Notes : ○ : For With Safety Regulations Version (Black Type) (AD),  
 △ : For With Safety Regulations Version (Champagne Gold Type) (AD),  
 ● : For U.S.A. Version (UZ), ▲ : For Canada Version (UQ), Others : Common.

### Adjustment Locations <UZ/UQ Model only>



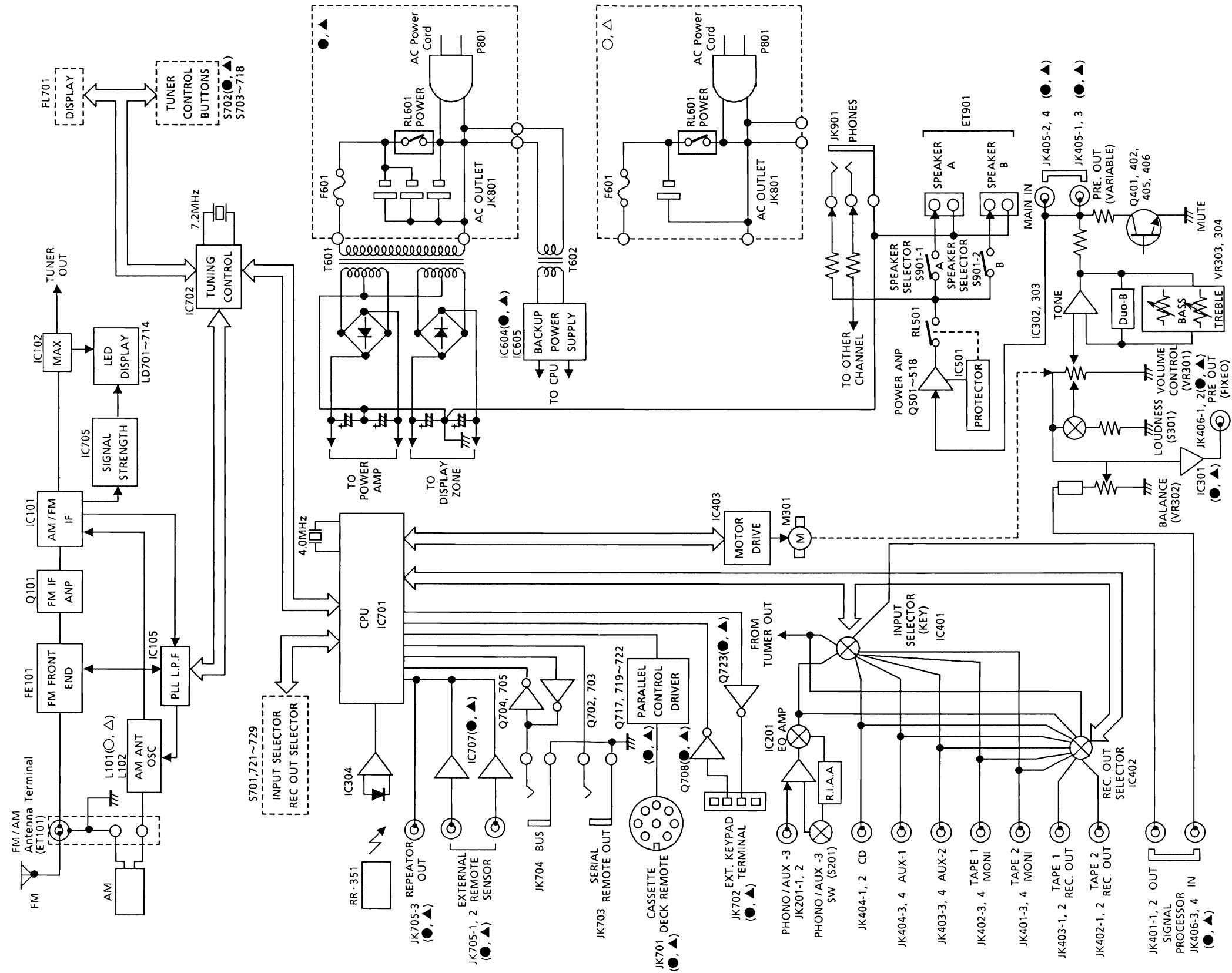
Main P. C. Board (Component Side)

### Adjustment Locations <AD Model only>



Main P. C. Board (Component Side)

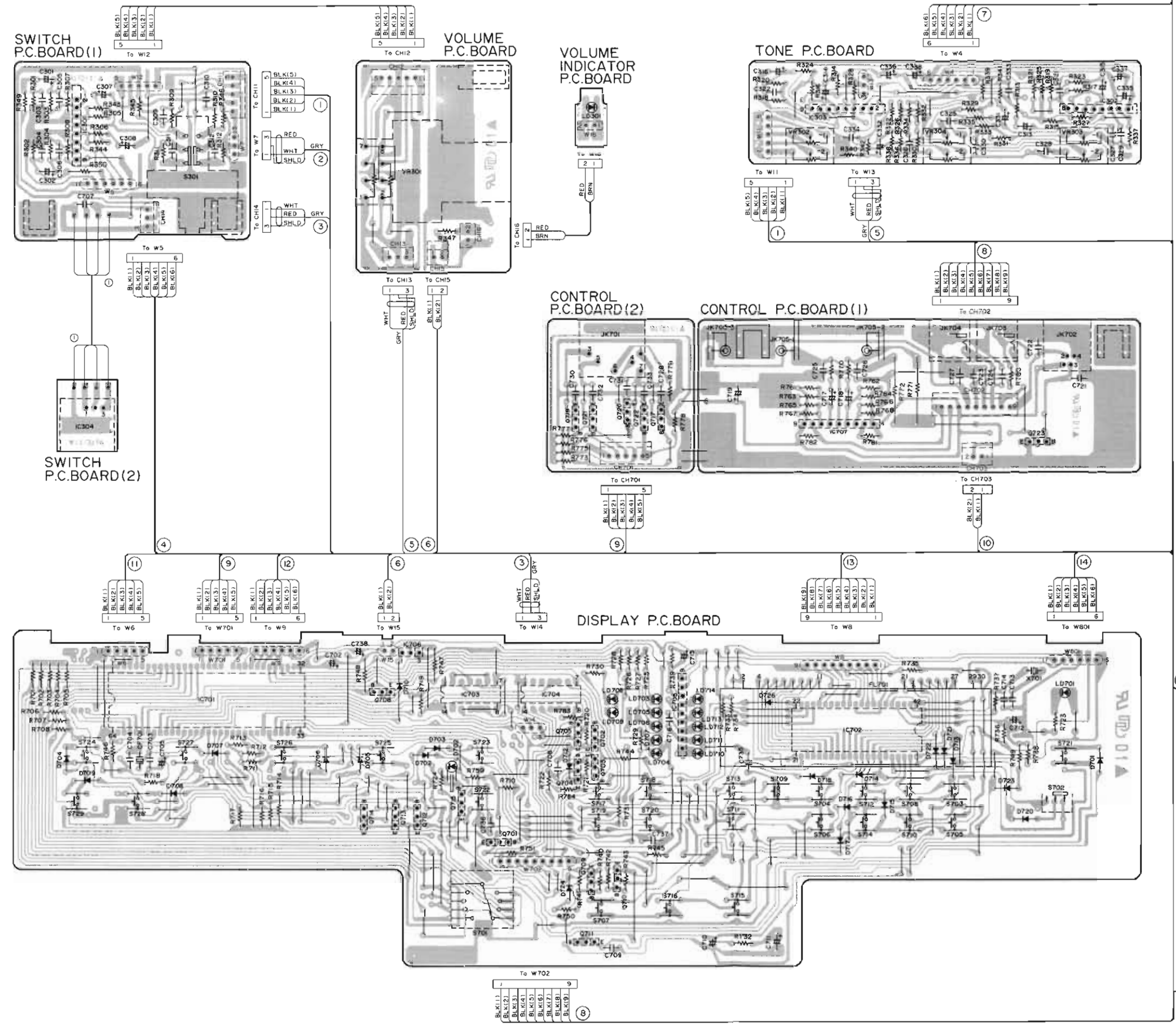
# Block Diagram



Notes : ○ : For With Safety Regulations Version (Black Type) (AD),  
 △ : For With Safety Regulations Version (Champagne Gold Type) (AD),  
 ● : For U.S.A. Version (UZ), ▲ : For Canada Version (UQ), Others : Common.

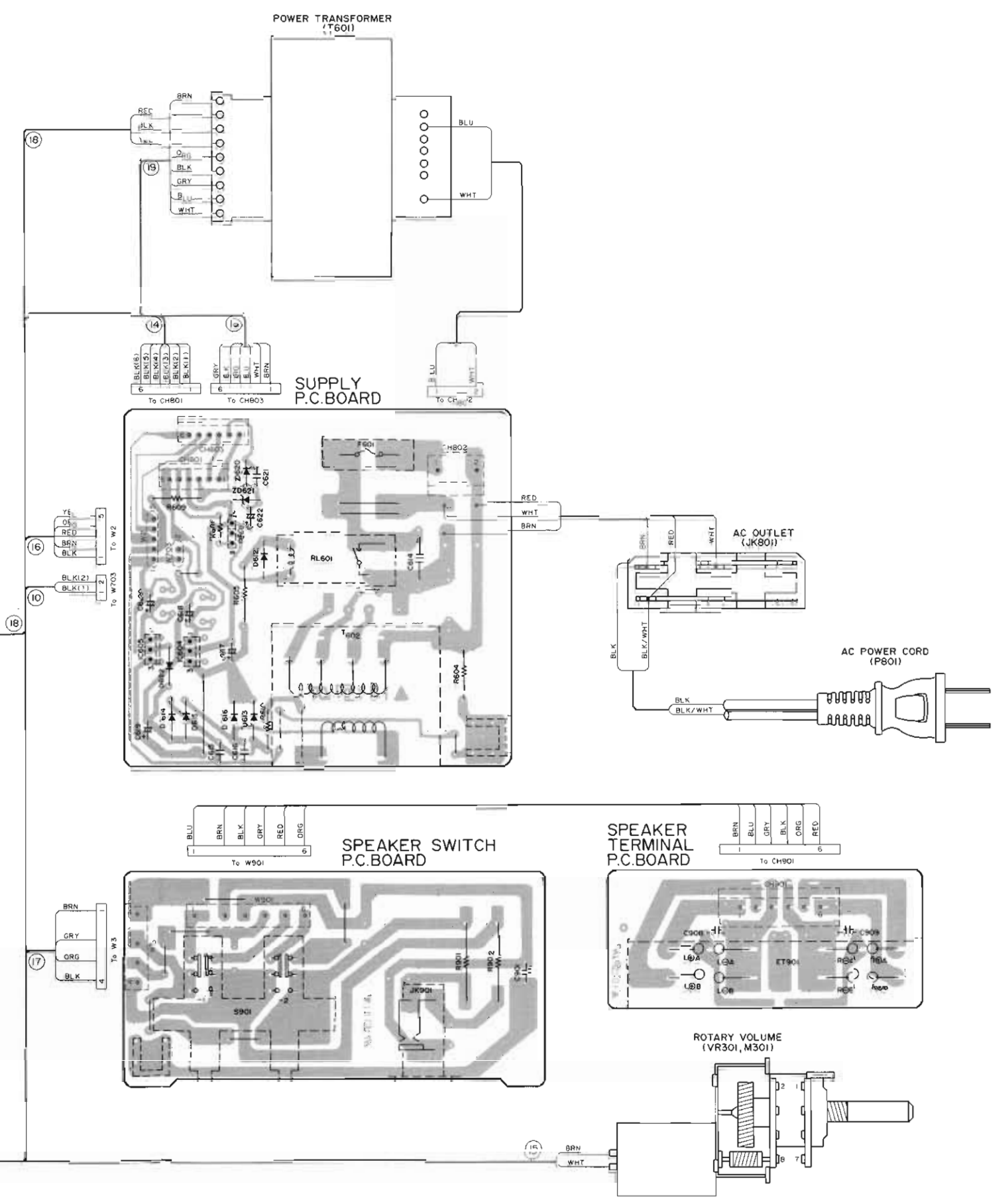
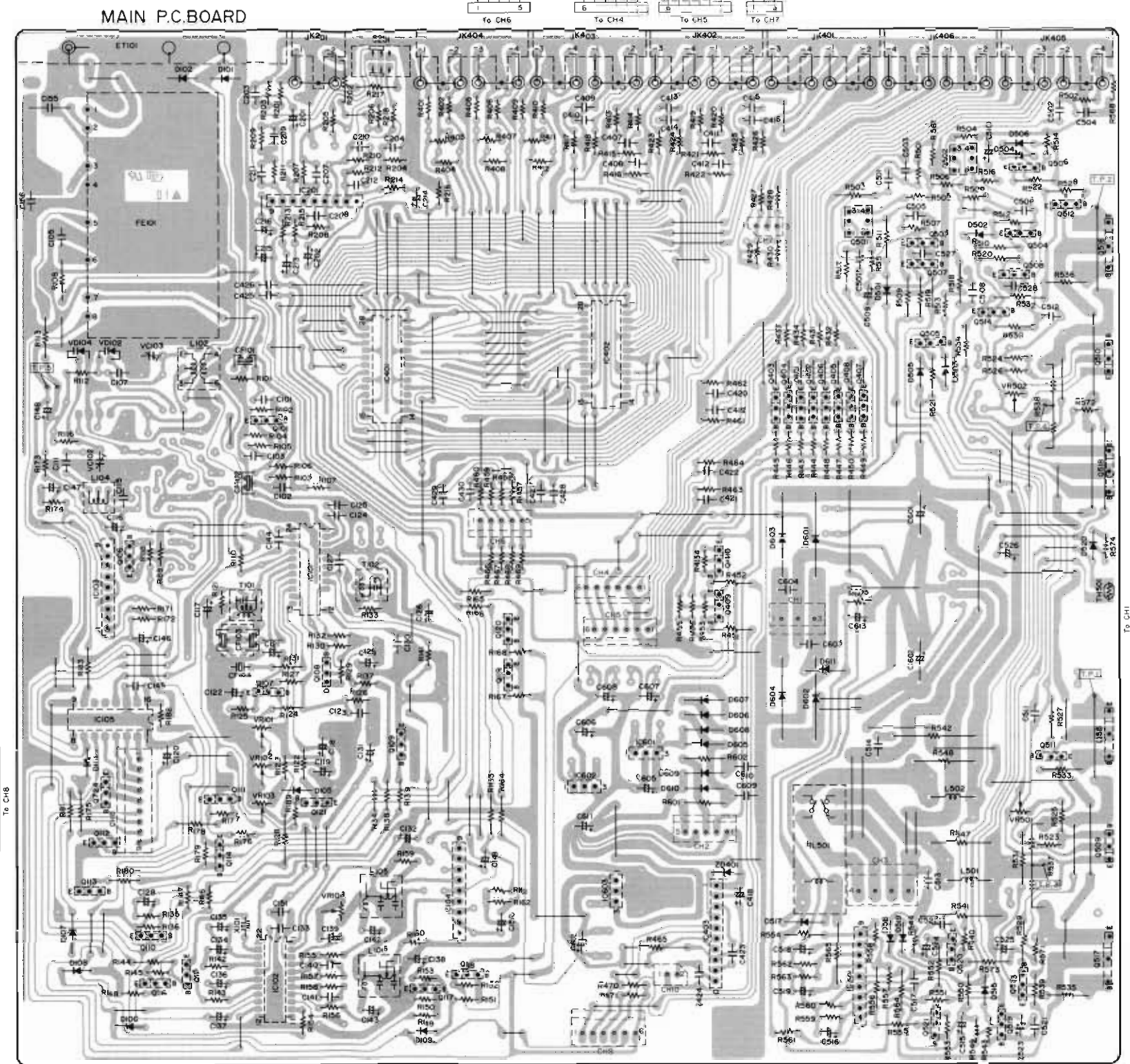


### Parts-Layout on P. C. Boards and Wiring Diagram <UZ/UQ Model only>



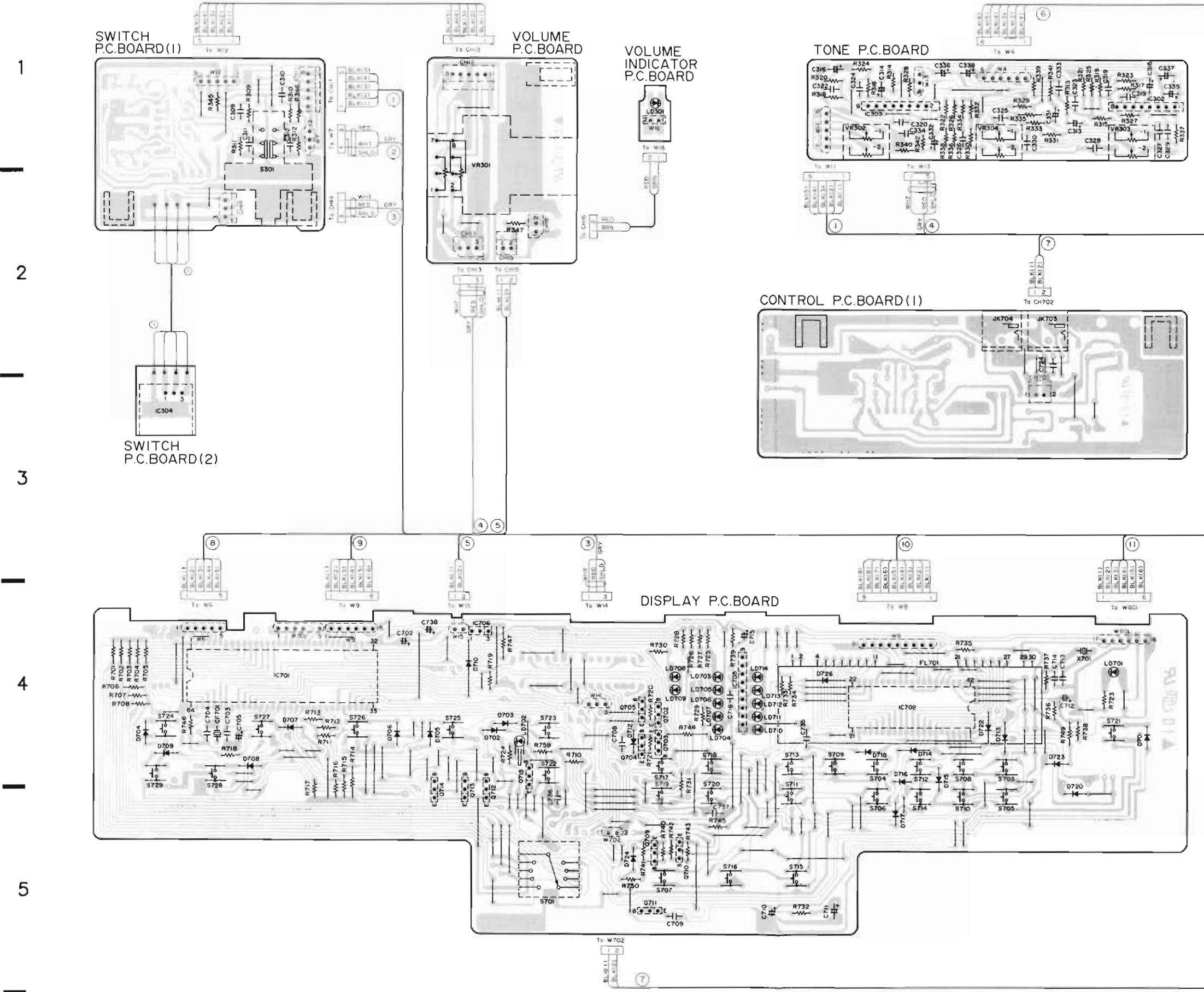
All P.C. Boards viewed from foil side.

Blue Pattern: Foil Side Pattern.



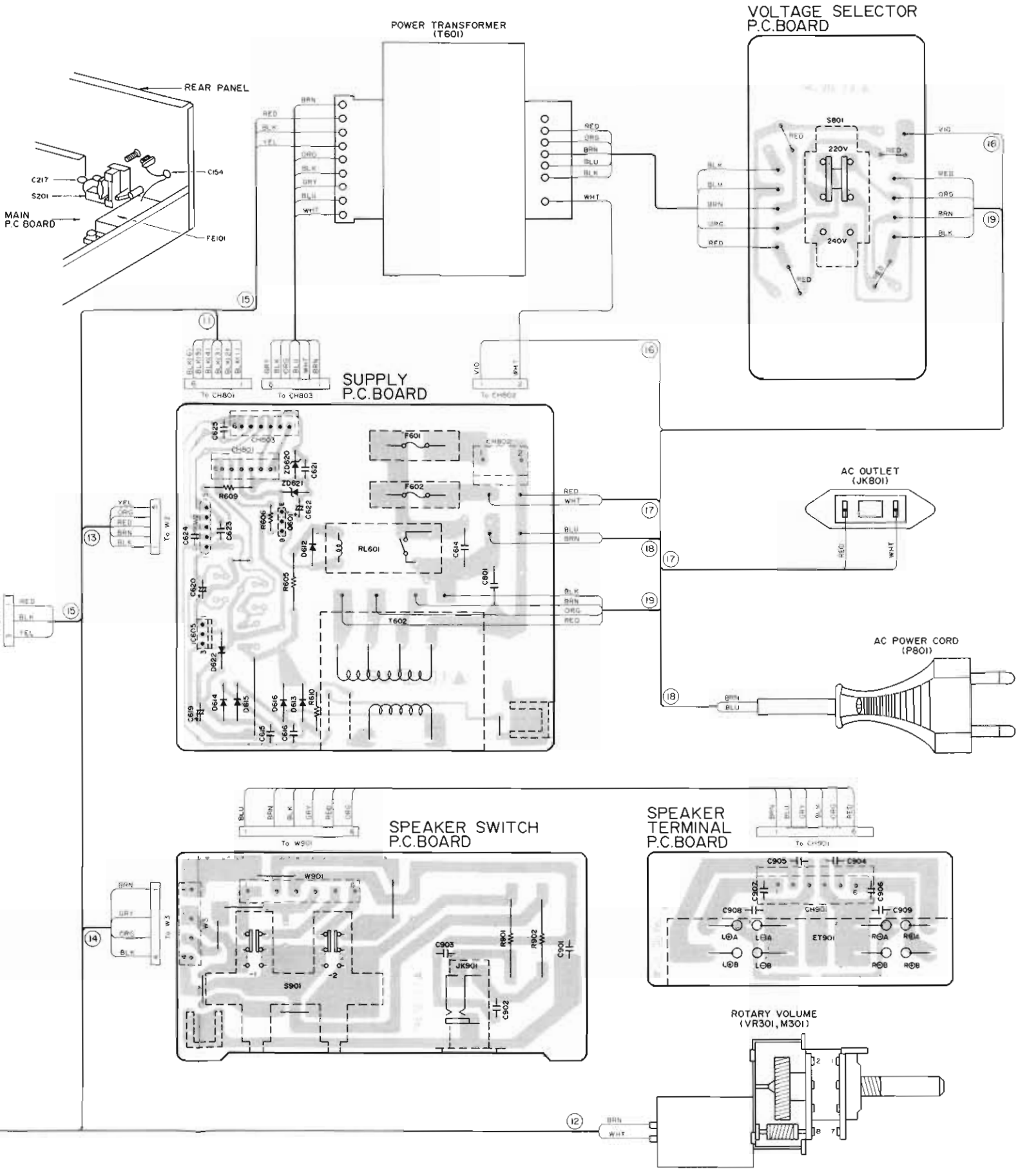
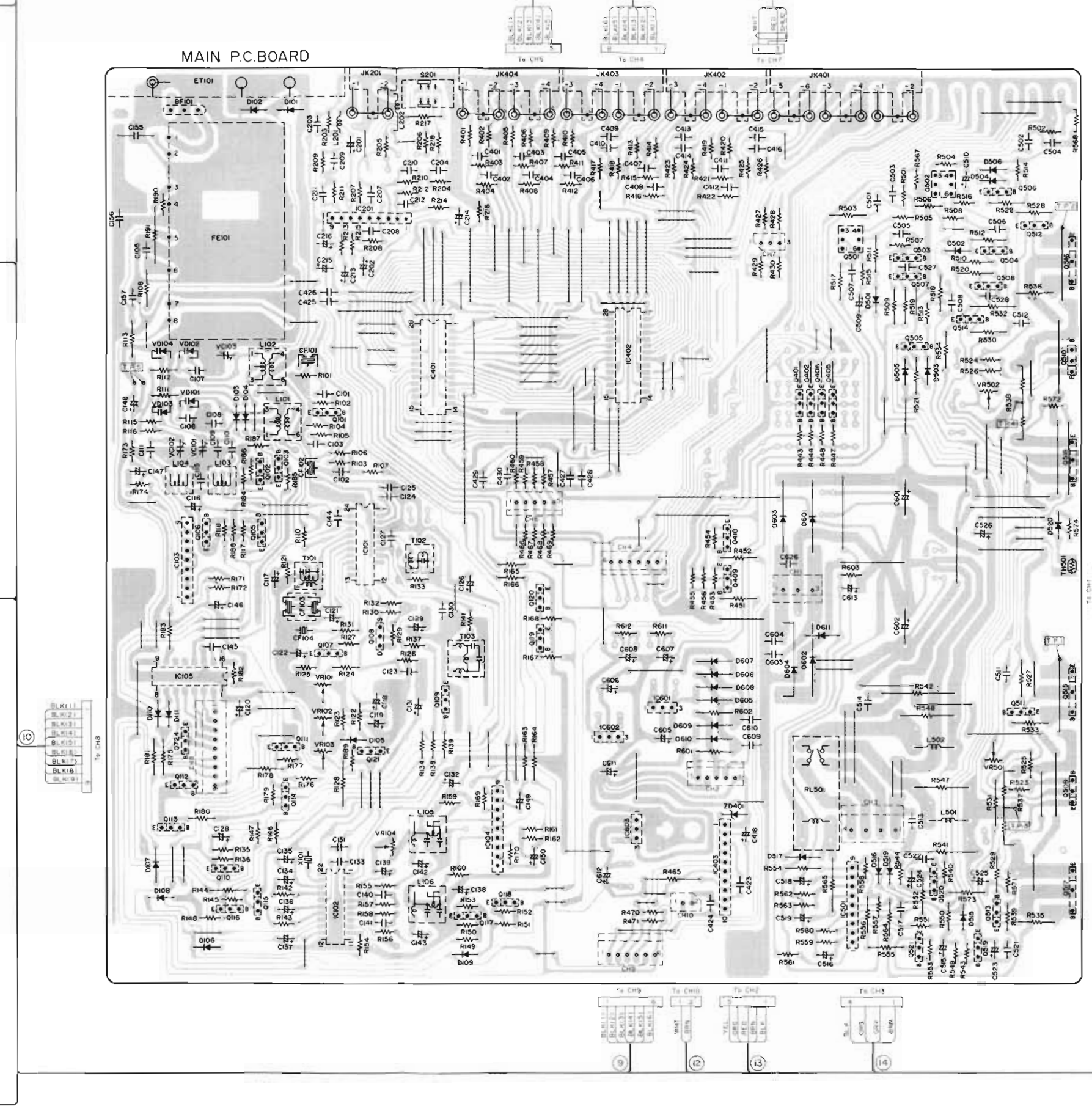


Parts-Layout on P. C. Boards and Wiring Diagram <AD Model only>



All P.C. Boards viewed from foil side.

Blue Pattern: Foil Side Pattern.

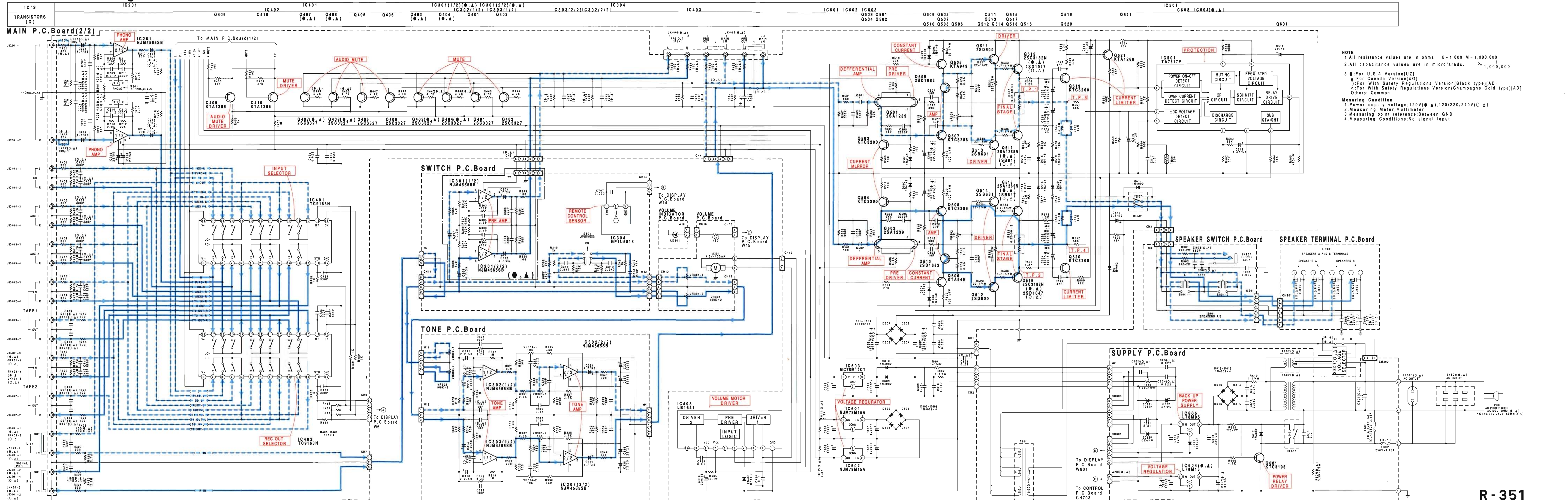








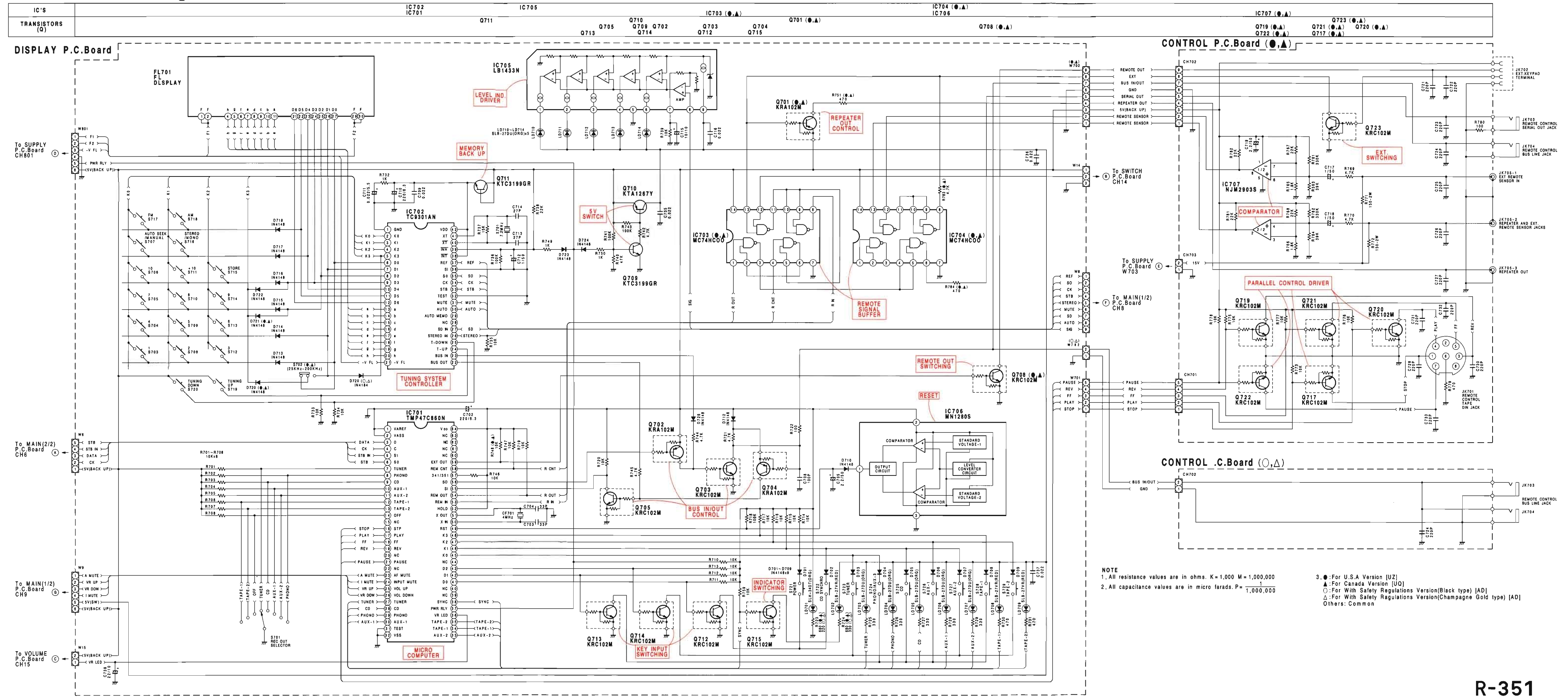
# Schematic Diagram (2/3)



**NOTE**  
 1. All resistance values are in ohms. K=1,000 M=1,000,000  
 2. All capacitance values are in microfarads.  $\mu = 1,000,000$   
 3.  $\bullet$ : For U.S.A. Version [UZ]  
 $\blacktriangle$ : For Canada Version [UO]  
 $\square$ : For With Safety Regulations Version (Black type) [AD]  
 $\circ$ : For With Safety Regulations Version (Champagne Gold type) [AD]  
 Others: Common  
**Measuring Condition**  
 1. Power supply voltage: 120V( $\bullet$ ), 120/220/240V( $\square$ )  
 2. Measuring Meter: Multimeter  
 3. Measuring point reference: Between GND  
 4. Measuring Conditions: No signal input



# Schematic Diagram (3/3)



**NOTE**  
 1. All resistance values are in ohms. K=1,000 M=1,000,000  
 2. All capacitance values are in micro farads. P = 1/1,000,000  
 3. ●: For U.S.A. Version [U]    ▲: For Canada Version [UO]  
 ○: For With Safety Regulations Version (Black type) [AD]  
 △: For With Safety Regulations Version (Champagne Gold type) [AD]  
 Others: Common

# Electrical Parts List

Resistor : Carbon resistors under 1/4 watts are not mentioned in the parts list, please confirm them by schematic diagram.

Capacitor :  $\mu$ F = microfarads, pF = picofarads

Abbreviations			
RES. = Resistor	CAP. = Capacitor		
C.F. = Carbon Film	ELY. = Electrolytic		
M.F. = Metal Film	CER. = Ceramic		
M.O. = Metal Oxide Film	MYL. = Mylar		
M.P. = Metal Plate	TAN. = Tantalum		
TR. = Transistor	POLY. = Polystyrol		
TRANS. = Transformer	PP. = Polypropylene		
CP. = Chip	PLT. = Polyethylene		
	PF. = Polyester Film		
Symbol No.	Part No.	Description	
Main P. C. Board			
IC's			
	IC101	51E09192S01	LA1266
	IC102	51T72226F01	LA3401
	IC103	51E09317S01	NJM2904S
	IC104	51E09193S01	NJM4565SB
	IC105	51E09194S01	TC9172AP
	IC201	51E09193S01	NJM4565SB
	IC401	51E09195S01	TC9163N
	IC402	51E09195S01	TC9163N
	IC403	51T15267W01	LB1641
	IC501	51T67437F01	TA7317P
	IC601	51E09197S01	NJM78M15A
	IC602	51E09198S01	NJM79M15A
	IC603	51E09196S01	MC78M12CT
	or	51T53320F01	L78M12
Transistors			
	Q101	48E09207S01	KTC3193
	or	48S44580J03	2SC1675
	or	48E09208S01	2SC2839
○	Q102	48E09209S01	KTC3198
△	Q102	48E09209S01	KTC3198
○	Q103	48E09209S01	KTC3198
△	Q103	48E09209S01	KTC3198
○	Q105	48E09210S01	KTD1302
△	Q105	48E09210S01	KTD1302
	Q106	48E09210S01	KTD1302
	Q107	48E09209S01	KTC3198
	Q108	48T66948F01	FET, 2SK246
	Q109	48E09209S01	KTC3198
	Q110	48E09211S01	KTA1266
	Q111	48E09211S01	KTA1266
Symbol No.	Part No.	Description	
	Q112	48E09209S01	KTC3198
	Q113	48E09209S01	KTC3198
	Q114	48E09211S02	KTA1266
	Q115	48E09209S01	KTC3198
	Q116	48E09209S01	KTC3198
	Q117	48E09209S01	KTC3198
	Q118	48E09211S01	KTA1266
	Q119	48E09210S01	KTD1302
	Q120	48E09210S01	KTD1302
	Q121	48E09209S01	KTC3198
	Q401	48E09224S01	2SC3327
	or	48E09225S01	2SD2144
	Q402	48E09224S01	2SC3327
	or	48E09225S01	2SD2144
●	Q403	48E09224S01	2SC3327
●	or	48E09225S01	2SD2144
▲	Q403	48E09224S01	2SC3327
▲	or	48E09225S01	2SD2144
●	Q404	48E09224S01	2SC3327
●	or	48E09225S01	2SD2144
▲	Q404	48E09224S01	2SC3327
▲	or	48E09225S01	2SD2144
	Q405	48E09224S01	2SC3327
	or	48E09225S01	2SD2144
	Q406	48E09224S01	2SC3327
	or	48E09225S01	2SD2144
●	Q407	48E09224S01	2SC3327
●	or	48E09225S01	2SD2144
▲	Q407	48E09224S01	2SC3327
▲	or	48E09225S01	2SD2144
●	Q408	48E09224S01	2SC3327
●	or	48E09225S01	2SD2144
▲	Q408	48E09224S01	2SC3327
▲	or	48E09225S01	2SD2144
	Q409	48E09211S01	KTA1266
	Q410	48E09211S01	KTA1266
	Q501	48E09215S01	2SA1239
	Q502	48E09215S01	2SA1239
	Q503	48E09223S01	KTC3200
	Q504	48E09223S01	KTC3200
	Q505	48E09219S01	KTA949
	or	48T72888F01	2SA1208
	Q506	48E09219S01	KTA949
	or	48T72888F01	2SA1208
	Q507	48E09220S01	KTC3206
	or	48E09221S01	KTC2229
	or	48E09222S01	2SC2910

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 ● : For U.S.A. Version (UZ), ▲ : For Canada Version (UQ), Others : Common.

Symbol No.	Part No.	Description	Symbol No.	Part No.	Description
Q508	48E09220S01	KTC3206	D109	48E04616S01	1N4148
or	48E09221S01	KTC2229	○ D110	48E04616S01	1N4148
or	48E09222S01	2SC2910	△ D110	48E04616S01	1N4148
Q509	48T72889F01	2SD1682	D111	48E04616S01	1N4148
Q510	48T72889F01	2SD1682	D501	48E04616S01	1N4148
Q511	48E08018S01	2SD600	D502	48E04616S01	1N4148
Q512	48E08018S01	2SD600	D503	48E04616S01	1N4148
Q513	48E08019S01	2SB631	D504	48E04616S01	1N4148
Q514	48E08019S01	2SB631	D505	48E04616S01	1N4148
● Q515	48E09213S01	2SC3182N	D506	48E04616S01	1N4148
▲ Q515	48E09213S01	2SC3182N	D515	48E04616S01	1N4148
○ Q515	48E09752S01	2SD1047	D516	48E04616S01	1N4148
△ Q515	48E09752S01	2SD1047	D517	48S40477U02	1N4002
● Q516	48E09213S01	2SC3182N	D519	48E04616S01	1N4148
▲ Q516	48E09213S01	2SC3182N	D520	48E04616S01	1N4148
○ Q516	48E09752S01	2SD1047	D601	48E08024S01	1N5402
△ Q516	48E09752S01	2SD1047	D602	48E08024S01	1N5402
● Q517	48E09214S01	2SA1265N	D603	48E08024S01	1N5402
▲ Q517	48E09214S01	2SA1265N	D604	48E08024S01	1N5402
○ Q517	48E09753S01	2SB817	D605	48S40477U02	1N4002
△ Q517	48E09753S01	2SB817	D606	48S40477U02	1N4002
● Q518	48E09214S01	2SA1265N	D607	48S40477U02	1N4002
▲ Q518	48E09214S01	2SA1265N	D608	48S40477U02	1N4002
○ Q518	48E09753S01	2SB817	D609	48S40477U02	1N4002
△ Q518	48E09753S01	2SB817	D610	48S40477U02	1N4002
Q519	48E09223S01	KTC3200	D611	48S40477U02	1N4002
Q520	48E09223S01	KTC3200	○ VD101	48E09212S01	Varactor, SVC-321SP
Q521	48E09216S01	KTA1268	△ VD101	48E09212S01	Varactor, SVC-321SP
or	48E09217S01	KTA970	VD102	48E09212S01	Varactor, SVC-321SP
or	48E09218S01	2SA1016	○ VD103	48E09212S01	Varactor, SVC-321SP
Q724	48E09231S01	KRA102M	△ VD103	48E09212S01	Varactor, SVC-321SP
or	48E09229S02	DTA114ES	VD104	48E09212S01	Varactor, SVC-321SP
<b>Diodes</b>			<b>Ceramic Filters / Filter</b>		
○ D101	48E04616S01	1N4148	CF101	91E09240S01	SFE10.7MS2G
D102	48E04616S01	1N4148	CF102	91E09240S01	SFE10.7MS2G
△ D103	48E04616S01	1N4148	CF103	91E09241S01	SFZ450JL3
○ D104	48E04616S01	1N4148	CF104	91E04730S01	BFU450CN4
△ D104	48E04616S01	1N4148	○ T103	24E04747S01	Filter, 253BEES-1254
D105	48E04616S01	1N4148	△ T103	24E04747S01	Filter, 253BEES-1254
D106	48E04616S01	1N4148	○ BF101	91E04728S01	Filter, Band Pass
D107	48E04616S01	1N4148	△ BF101	91E04728S01	Filter, Band Pass
D108	48E04616S01	1N4148			

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Symbol No.	Part No.	Description	Symbol No.	Part No.	Description
<b>Crystal / Coils</b>			<b>Switch / Thermistor</b>		
○ X101	48E04723S01	Crystal, 19KHz	S201	40E09313S01	Slide, SSSF1 (PHONO / AUX-3)
△ L101	24E04713S01	LW ANT	TH501	48E09280S01	Thermistor, 500 ohm
△ L101	24E04713S01	LW ANT			
L102	24E08073S01	MW ANT			
○ L103	24E04715S01	LW OSC			
△ L103	24E04715S01	LW OSC			
L104	24E09247S01	MW OSC			
L105	24E09248S01	MPX FILTER			
L106	24E09248S01	MPX FILTER			
○ L201	24E09620S01	Inductor, 100 $\mu$ H			
△ L201	24E09620S01	Inductor, 100 $\mu$ H			
○ L202	24E09620S01	Inductor, 100 $\mu$ H			
△ L202	24E09620S01	Inductor, 100 $\mu$ H			
L501	24E09245S01	1 $\mu$ H			
L502	24E09245S01	1 $\mu$ H			
T101	24E09243S01	IFT 450			
T102	24E09244S01	IFT 10.7			
<b>Jacks</b>			<b>Capacitors</b>		
● JK201	09E09252S01	RCA (PHONO / AUX3 L, R)	○ C101	21E04631S01	CER., 0.01 $\mu$ F
● JK401	09E09251S01	RCA (R ch OUT, L ch OUT, TAPE2 IN L/R)	C102	21E04631S02	CER., 0.022 $\mu$ F
▲ JK401	09E09251S01	RCA (R ch OUT, L ch OUT, TAPE2 IN L/R)	C103	21E04631S01	CER., 0.01 $\mu$ F
○ JK401	09E09063S01	RCA (R ch OUT, L ch OUT, TAPE2 IN L/R)	C105	21E04631S02	CER., 0.022 $\mu$ F
△ JK401	09E09063S01	RCA (R ch OUT, L ch OUT, TAPE2 IN L/R)	○ C106	21E04631S02	CER., 0.022 $\mu$ F
JK402	09E09251S01	RCA (TAPE2 OUT L/R, TAPE1 IN L/R)	△ C106	21E04631S02	CER., 0.022 $\mu$ F
JK403	09E09251S01	RCA (TAPE1 OUT L/R, AUX2 L/R)	C107	21E04631S02	CER., 0.022 $\mu$ F
JK404	09E09251S01	RCA (CD L/R, AUX1 L/R)	○ C108	21E04736S02	CER., 27pF
● JK405	09E09251S01	RCA (L, R (PRE OUT / MAIN IN))	△ C108	21E04736S02	CER., 27pF
▲ JK405	09E09251S01	RCA (L, R (PRE OUT / MAIN IN))	○ C109	21E04736S09	CER., 39pF
● JK406	09E09251S01	RCA (PRE OUT L/R, R ch IN, L ch IN)	△ C109	21E04736S09	CER., 39pF
▲ JK406	09E09251S01	RCA (PRE OUT L/R, R ch IN, L ch IN)	○ C110	08E04656S03	Styrene, 120pF
			△ C110	08E04656S03	Styrene, 120pF
			C111	08E04656S02	Styrene, 390pF
			C115	21E04631S02	CER., 0.022 $\mu$ F
			C116	23E04636S06	ELY., 10 $\mu$ F / 25V
			C117	23E04636S06	ELY., 10 $\mu$ F / 25V
			● C118	23E04635S03	ELY., 1 $\mu$ F / 50V
			▲ C118	23E04635S03	ELY., 1 $\mu$ F / 50V
			○ C118	23E04635S04	ELY., 0.47 $\mu$ F / 50V
			△ C118	23E04635S04	ELY., 0.47 $\mu$ F / 50V
			C119	23E04635S04	ELY., 0.47 $\mu$ F / 50V
			C120	23E04754S05	ELY., 47 $\mu$ F / 16V
			● C121	23E04636S06	ELY., 10 $\mu$ F / 25V
			▲ C121	23E04636S06	ELY., 10 $\mu$ F / 25V
			○ C121	23E04731S03	ELY., 4.7 $\mu$ F / 35V
			△ C121	23E04731S03	ELY., 4.7 $\mu$ F / 35V
			● C122	23E04731S03	ELY., 4.7 $\mu$ F / 35V
			▲ C122	23E04731S03	ELY., 4.7 $\mu$ F / 35V
			○ C122	23E04635S11	ELY., 3.3 $\mu$ F / 50V
			△ C122	23E04635S11	ELY., 3.3 $\mu$ F / 50V
			C123	08E04735S09	MYL., 0.022 $\mu$ F
			C124	21E04631S02	CER., 0.022 $\mu$ F
			C125	21E04631S02	CER., 0.022 $\mu$ F
			C126	23E04754S03	ELY., 100 $\mu$ F / 16V
			C127	21E04631S02	CER., 0.022 $\mu$ F
			● C128	23E04635S06	ELY., 0.1 $\mu$ F / 50V
			▲ C128	23E04635S06	ELY., 0.1 $\mu$ F / 50V
<b>Relay</b>					
RL501	80E09314S01	OSA - SS - 224DM			
or	80E09315S01	HR - CR323 DC24V			
or	80E09318S01	OMI-SS-224LM			

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Symbol No.	Part No.	Description	Symbol No.	Part No.	Description
○	C128	23E04635S03 ELY., 1 $\mu$ F / 50V	○	C204	21E04622S25 CER., 1200pF
△	C128	23E04635S03 ELY., 1 $\mu$ F / 50V	△	C204	21E04622S25 CER., 1200pF
	C129	23E04635S03 ELY., 1 $\mu$ F / 50V	C207	21E04622S08 CER., 330pF	
	C130	21E04622S07 CER., 33pF	C208	21E04622S08 CER., 330pF	
	C131	23E04635S06 ELY., 0.1 $\mu$ F / 50V	C209	08E04735S01 MYL., 0.012 $\mu$ F	
	C132	23E04754S05 ELY., 47 $\mu$ F / 16V	C210	08E04735S01 MYL., 0.012 $\mu$ F	
	C133	08E04735S02 MYL., 0.047 $\mu$ F	C211	08E04735S13 MYL., 3300pF	
	C134	23E04635S03 ELY., 1 $\mu$ F / 50V	C212	08E04735S13 MYL., 3300pF	
	C135	23E04635S05 ELY., 0.22 $\mu$ F / 50V	●	C213	23E04635S03 ELY., 1 $\mu$ F / 50V
	C136	23E04731S03 ELY., 4.7 $\mu$ F / 35V	▲	C213	23E04635S03 ELY., 1 $\mu$ F / 50V
	C137	23E04635S03 ELY., 1 $\mu$ F / 50V	○	C213	08E04654S01 Plastic, 1 $\mu$ F
	C138	23E04635S03 ELY., 1 $\mu$ F / 50V	△	C213	08E04654S01 Plastic, 1 $\mu$ F
	C139	23E04636S06 ELY., 10 $\mu$ F / 25V	●	C214	23E04635S03 ELY., 1 $\mu$ F / 50V
●	C140	21E04734S13 CER., 750pF	▲	C214	23E04635S03 ELY., 1 $\mu$ F / 50V
▲	C140	21E04734S13 CER., 750pF	○	C214	08E04654S01 Plastic, 1 $\mu$ F
	C140	21E04734S14 CER., 510pF	△	C214	08E04654S01 Plastic, 1 $\mu$ F
△	C140	21E04734S14 CER., 510pF	C215	23E04635S12 ELY., 22 $\mu$ F / 50V	
●	C141	21E04734S13 CER., 750pF	C216	23E04635S12 ELY., 22 $\mu$ F / 50V	
▲	C141	21E04734S13 CER., 750pF	○	C217	21E04361S02 CER., 0.022 $\mu$ F
○	C141	21E04734S14 CER., 510pF	△	C217	21E04361S02 CER., 0.022 $\mu$ F
△	C141	21E04734S14 CER., 510pF	○	C401	21E04622S16 CER., 680pF
	C142	23E04636S06 ELY., 10 $\mu$ F / 25V	△	C401	21E04622S16 CER., 680pF
	C143	23E04636S06 ELY., 10 $\mu$ F / 25V	○	C402	21E04622S16 CER., 680pF
	C144	21E04631S01 CER., 0.01 $\mu$ F	△	C402	21E04622S16 CER., 680pF
	C145	21E04361S02 CER., 0.022 $\mu$ F	○	C403	21E04622S16 CER., 680pF
	C146	23E04636S06 ELY., 10 $\mu$ F / 25V	△	C403	21E04622S16 CER., 680pF
	C147	23E04635S04 ELY., 0.47 $\mu$ F / 50V	○	C404	21E04622S16 CER., 680pF
●	C148	23E04635S03 ELY., 1 $\mu$ F / 50V	△	C404	21E04622S16 CER., 680pF
▲	C148	23E04635S03 ELY., 1 $\mu$ F / 50V	○	C405	21E04622S16 CER., 680pF
○	C148	21E04631S04 CER., 0.047 $\mu$ F	△	C405	21E04622S16 CER., 680pF
△	C148	21E04631S04 CER., 0.047 $\mu$ F	○	C406	21E04622S16 CER., 680pF
	C149	23E04636S06 ELY., 10 $\mu$ F / 25V	△	C406	21E04622S16 CER., 680pF
	C150	23E04636S06 ELY., 10 $\mu$ F / 25V	C407	21E04622S16 CER., 680pF	
	C151	08E04735S04 MYL., 1000pF	C408	21E04622S16 CER., 680pF	
	C154	21E04631S06 CER., 1000pF	●	C409	21E04622S13 CER., 56pF
	C155	21E04631S06 CER., 1000pF	▲	C409	21E04622S13 CER., 56pF
●	C156	21E04631S06 CER., 1000pF	○	C409	21E04622S08 CER., 330pF
▲	C156	21E04631S06 CER., 1000pF	△	C409	21E04622S08 CER., 330pF
○	C156	21E04631S08 CER., 4700pF	●	C410	21E04622S13 CER., 56pF
△	C156	21E04631S08 CER., 4700pF	▲	C410	21E04622S13 CER., 56pF
○	C157	21E04631S04 CER., 0.047 $\mu$ F	○	C410	21E04622S08 CER., 330pF
△	C157	21E04631S04 CER., 0.047 $\mu$ F	△	C410	21E04622S08 CER., 330pF
	C201	23E04731S03 ELY., 4.7 $\mu$ F / 35V	C411	21E04622S16 CER., 680pF	
	C202	23E04731S03 ELY., 4.7 $\mu$ F / 35V	C412	21E04622S16 CER., 680pF	
●	C203	21E04622S09 CER., 680pF	●	C413	21E04622S13 CER., 56pF
▲	C203	21E04622S09 CER., 680pF	▲	C413	21E04622S13 CER., 56pF
○	C203	21E04622S25 CER., 1200pF	○	C413	21E04622S08 CER., 330pF
△	C203	21E04622S25 CER., 1200pF	△	C413	21E04622S08 CER., 330pF
●	C204	21E04622S09 CER., 680pF	●	C414	21E04622S13 CER., 56pF
▲	C204	21E04622S09 CER., 680pF	▲	C414	21E04622S13 CER., 56pF

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Symbol No.	Part No.	Description	Symbol No.	Part No.	Description
○	C414	21E04622S08 CER., 330pF	○	C523	23E04636S06 ELY., 10 $\mu$ F / 25V
△	C414	21E04622S08 CER., 330pF	△	C523	23E04636S06 ELY., 10 $\mu$ F / 25V
	C415	21E04622S13 CER., 56pF	●	C524	23E04635S10 ELY., 10 $\mu$ F / 50V
	C416	21E04622S13 CER., 56pF	▲	C524	23E04635S10 ELY., 10 $\mu$ F / 50V
	C418	23E04754S09 ELY., 330 $\mu$ F / 16V	○	C524	23E04636S06 ELY., 10 $\mu$ F / 25V
●	C419	21E04622S14 CER., 100pF	△	C524	23E04636S06 ELY., 10 $\mu$ F / 25V
▲	C419	21E04622S14 CER., 100pF	●	C525	23E04635S10 ELY., 10 $\mu$ F / 50V
●	C420	21E04622S14 CER., 100pF	▲	C525	23E04635S10 ELY., 10 $\mu$ F / 50V
▲	C420	21E04622S14 CER., 100pF	○	C525	23E04636S06 ELY., 10 $\mu$ F / 25V
●	C421	21E04622S14 CER., 100pF	△	C525	23E04636S06 ELY., 10 $\mu$ F / 25V
▲	C421	21E04622S14 CER., 100pF	●	C526	23E04635S10 ELY., 10 $\mu$ F / 50V
●	C422	21E04622S14 CER., 100pF	▲	C526	23E04635S10 ELY., 10 $\mu$ F / 50V
▲	C422	21E04622S14 CER., 100pF	○	C526	23E04636S06 ELY., 10 $\mu$ F / 25V
	C423	08E04735S05 MYL., 0.01 $\mu$ F	△	C526	23E04636S06 ELY., 10 $\mu$ F / 25V
	C424	08E04654S09 Plastic, 0.1 $\mu$ F		C527	21E04622S11 CER., 47pF
	C425	21E04631S02 CER., 0.022 $\mu$ F		C528	21E04622S11 CER., 47pF
	C426	21E04631S02 CER., 0.022 $\mu$ F	●	C601	23E04635S13 ELY., 10000 $\mu$ F / 63V
	C427	21E04622S15 CER., 330pF	▲	C601	23E04635S13 ELY., 10000 $\mu$ F / 63V
	C428	21E04622S15 CER., 330pF	○	C601	23E04635S15 ELY., 8200 $\mu$ F / 55V
	C429	21E04622S15 CER., 330pF	△	C601	23E04635S15 ELY., 8200 $\mu$ F / 55V
	C430	21E04622S15 CER., 330pF	●	C602	23E04635S13 ELY., 10000 $\mu$ F / 63V
	C501	08E04654S11 Plastic, 1 $\mu$ F	▲	C602	23E04635S13 ELY., 10000 $\mu$ F / 63V
	C502	08E04654S11 Plastic, 1 $\mu$ F	○	C602	23E04635S15 ELY., 8200 $\mu$ F / 55V
	C503	21E04622S12 CER., 100pF	△	C602	23E04635S15 ELY., 8200 $\mu$ F / 55V
	C504	21E04622S12 CER., 100pF		C603	21E05506S02 CER., 0.022 $\mu$ F
	C505	08E04735S11 MYL., 2200pF		C604	21E05506S02 CER., 0.022 $\mu$ F
	C506	08E04735S11 MYL., 2200pF		C605	23E04636S08 ELY., 470 $\mu$ F / 25V
	C507	21E04622S10 CER., 10pF		C606	23E04636S08 ELY., 470 $\mu$ F / 25V
	C508	21E04622S10 CER., 10pF		C607	23E04636S06 ELY., 10 $\mu$ F / 25V
●	C509	23E06052S03 ELY., 100 $\mu$ F / 10V		C608	23E04636S06 ELY., 10 $\mu$ F / 25V
▲	C509	23E06052S03 ELY., 100 $\mu$ F / 10V		C609	21E04631S04 CER., 0.047 $\mu$ F
○	C509	23E04636S02 ELY., 22 $\mu$ F / 25V		C610	21E04631S04 CER., 0.047 $\mu$ F
△	C509	23E04636S02 ELY., 22 $\mu$ F / 25V		C611	23E04636S05 ELY., 1000 $\mu$ F / 25V
●	C510	23E06052S03 ELY., 100 $\mu$ F / 10V		C612	23E04636S06 ELY., 10 $\mu$ F / 25V
▲	C510	23E06052S03 ELY., 100 $\mu$ F / 10V		C613	23E04635S08 ELY., 2.2 $\mu$ F / 50V
○	C510	23E04636S02 ELY., 22 $\mu$ F / 25V	○	C626	08E04654S12 Plastic, 0.22 $\mu$ F
△	C510	23E04636S02 ELY., 22 $\mu$ F / 25V	△	C626	08E04654S12 Plastic, 0.22 $\mu$ F
	C511	21E04734S08 CER., 220pF	○	VC101	20E09268S01 Trimmer, VCT51E 20pF
	C512	21E04734S08 CER., 220pF	○	or	20E09269S01 Trimmer, CVN5A200 20pF
	C513	08E04735S02 MYL., 0.047 $\mu$ F	△	VC101	20E09268S01 Trimmer, VCT51E 20pF
	C514	08E04735S02 MYL., 0.047 $\mu$ F	△	or	20E09269S01 Trimmer, CVN5A200 20pF
	C515	23E04731S03 ELY., 4.7 $\mu$ F / 35V		VC102	20E09268S01 Trimmer, VCT51E 20pF
	C516	23E04636S07 ELY., 47 $\mu$ F / 25V		or	20E09269S01 Trimmer, CVN5A200 20pF
	C517	21E04631S07 CER., 0.01 $\mu$ F		VC103	20E09268S01 Trimmer, VCT51E 20pF
	C518	23E04635S12 ELY., 22 $\mu$ F / 50V		or	20E09269S01 Trimmer, CVN5A200 20pF
	C519	23E04635S04 ELY., 0.47 $\mu$ F / 50V			
	C521	21E04622S11 CER., 47pF			
	C522	21E04622S11 CER., 47pF			
●	C523	23E04635S10 ELY., 10 $\mu$ F / 50V			
▲	C523	23E04635S10 ELY., 10 $\mu$ F / 50V			

Notes : ○ : For With Safety Regulations Version (Black Type) (AD),  
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 ● : For U.S.A. Version (UZ), ▲ : For Canada Version (UQ), Others : Common.

Symbol No.	Part No.	Description	Symbol No.	Part No.	Description
<b>Resistors</b>			<b>Transistors</b>		
R465	06E04639S08	M.O., 47 ohm 1W	▲ IC704	51E09204S01	MC74HC00
R519	06E09483S05	Fuse, 100 ohm 1/4W	IC705	51E09205S01	LB1433N
R520	06E09483S05	Fuse, 100 ohm 1/4W	IC706	51T72309F01	MN1280S
R521	06E09483S05	Fuse, 100 ohm 1/4W	● Q701 48E09231S01 KRA102M ● or 48E09229S02 DTA114ES ▲ Q701 48E09231S01 KRA102M ▲ or 48E09229S02 DTA114ES Q702 48E09231S01 KRA102M or 48E09229S02 DTA114ES Q703 48E09228S01 KRC102M or 48E09229S01 DTC114ES or 48E09230S01 2SC3402 Q704 48E09231S01 KRA102M or 48E09229S02 DTA114ES Q705 48E09228S01 KRC102M or 48E09229S01 DTC114ES or 48E09230S01 2SC3402 ● Q708 48E09228S01 KRC102M ● or 48E09229S01 DTC114ES ● or 48E09230S01 2SC3402 ▲ Q708 48E09228S01 KRC102M ▲ or 48E09229S01 DTC114ES ▲ or 48E09230S01 2SC3402 ▲ Q709 48E09232S01 KTC3199GR or 48E09233S01 2SC3330T Q710 48E09234S01 KTA1267Y Q711 48E09232S01 KTC3199GR or 48E09233S01 2SC3330T Q712 48E09228S01 KRC102M or 48E09229S01 DTC114ES or 48E09230S01 2SC3402 Q713 48E09228S01 KRC102M or 48E09229S01 DTC114ES or 48E09230S01 2SC3402 Q714 48E09228S01 KRC102M or 48E09229S01 DTC114ES or 48E09230S01 2SC3402 Q715 48E09228S01 KRC102M or 48E09229S01 DTC114ES or 48E09230S01 2SC3402		
R522	06E09483S05	Fuse, 100 ohm 1/4W			
R527	06E09483S02	Fuse, 22 ohm 1/4W			
R528	06E09483S02	Fuse, 22 ohm 1/4W			
R529	06E09483S02	Fuse, 22 ohm 1/4W			
R530	06E09483S02	Fuse, 22 ohm 1/4W			
R531	06E09316S01	C.F., 220 ohm 1/2W			
R532	06E09316S01	C.F., 220 ohm 1/2W			
R533	06E09483S01	Fuse, 4.7 ohm 1/4W			
R534	06E09483S01	Fuse, 4.7 ohm 1/4W			
R535	06E09483S01	Fuse, 4.7 ohm 1/4W			
R536	06E09483S01	Fuse, 4.7 ohm 1/4W			
R537	17E04642S01	Cement, 0.22 ohm 5W x 2			
R538	17E04642S01	Cement, 0.22 ohm 5W x 2			
R541	06E04640S01	M.O., 10 ohm 2W			
R542	06E04640S01	M.O., 10 ohm 2W			
R547	06E04639S05	M.O., 4.7 ohm 1W			
R548	06E04639S05	M.O., 4.7 ohm 1W			
R565	06E04639S07	M.O., 470 ohm 1W			
R601	06E09483S04	Fuse, 1 ohm 1/4W			
R602	06E09483S04	Fuse, 1 ohm 1/4W			
VR101	18E09261S01	Variable, 33K ohm			
● VR102	18E09262S01	Variable, 47K ohm			
▲ VR102	18E09262S01	Variable, 47K ohm			
○ VR102	18E09263S01	Variable, 100K ohm			
△ VR102	18E09263S01	Variable, 100K ohm			
VR103	18E09262S01	Variable, 47K ohm			
VR104	18E09263S01	Variable, 100K ohm			
VR501	18E09264S01	Variable, 1K ohm			
VR502	18E09264S01	Variable, 1K ohm			
<b>Display P. C. Board</b>					
<b>IC's</b>					
● IC701	51E09988S01	TMP47C860N			
● IC702	51E09203S01	TC9301AN			
▲ IC703	51E09204S01	MC74HC00			
● IC703	51E09204S01	MC74HC00			
● IC704	51E09204S01	MC74HC00			

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Symbol No.	Part No.	Description	Symbol No.	Part No.	Description
<b>Diodes</b>					
D701	48E04616S01	1N4148	LD706	48E09236S01	SLB-27DU (ORG)
D702	48E04616S01	1N4148	LD707	48E09236S01	SLB-27DU (ORG)
D703	48E04616S01	1N4148	LD708	48E09237S01	SLB-27VR (RED)
D704	48E04616S01	1N4148	LD709	48E09237S01	SLB-27VR (RED)
D705	48E04616S01	1N4148	LD710	48E09236S01	SLB-27DU (ORG)
D706	48E04616S01	1N4148	LD711	48E09236S01	SLB-27DU (ORG)
D707	48E04616S01	1N4148	LD712	48E09236S01	SLB-27DU (ORG)
D708	48E04616S01	1N4148	LD713	48E09236S01	SLB-27DU (ORG)
D709	48E04616S01	1N4148	LD714	48E09236S01	SLB-27DU (ORG)
D710	48E04616S01	1N4148			
D712	48E04616S01	1N4148			
D713	48E04616S01	1N4148			
D714	48E04616S01	1N4148			
D715	48E04616S01	1N4148			
D716	48E04616S01	1N4148			
D717	48E04616S01	1N4148			
D718	48E04616S01	1N4148			
D720	48E04616S01	1N4148			
● D721	48E04616S01	1N4148			
▲ D721	48E04616S01	1N4148			
D722	48E04616S01	1N4148			
D723	48E04616S01	1N4148			
D724	48E04616S01	1N4148			
D726	48E04616S01	1N4148			
<b>Ceramic Filter / Crystal</b>			<b>Switches</b>		
CF701	48E09235S01	CSA4.00MG	S701	40E09278S01	Rotary, SRBV (REC OUT SELECTOR)
X701	91E09242S01	Crystal, 7.2MHz	● S702	40E09279S01	Slide, SSSS2 (25KHz - 200KHz)
			▲ S702	40E09279S01	Slide, SSSS2 (25KHz - 200KHz)
			S703	40E09276S01	Key, R663830 (1)
			S704	40E09276S01	Key, R663830 (4)
			S705	40E09276S01	Key, R663830 (7)
			S706	40E09276S01	Key, R663830 (10)
			S707	40E09277S01	Key, R664402 (aute seek / manual)
			S708	40E09276S01	Key, R663830 (2)
			S709	40E09276S01	Key, R663830 (5)
			S710	40E09276S01	Key, R663830 (8)
			S711	40E09276S01	Key, R663830 (+ 10)
			S712	40E09276S01	Key, R663830 (3)
			S713	40E09276S01	Key, R663830 (6)
			S714	40E09276S01	Key, R663830 (9)
			S715	40E09277S01	Key, R664402 (store (computer store))
			S716	40E09277S01	Key, R664402 (stereo / mono)
			S717	40E09276S01	Key, R663830 (FM)
			S718	40E09276S01	Key, R663830 (AM)
			S719	40E09276S01	Key, R663830 (TUNING »)
			S720	40E09276S01	Key, R663830 (TUNING «)
			S721	40E09276S01	Key, R663830 (POWER)
			S722	40E09276S01	Key, R663830 (CD synchro)
			S723	40E09276S01	Key, R663830 (TUNER)
			S724	40E09276S01	Key, R663830 (PHONO / AUX - 3)
			S725	40E09276S01	Key, R663830 (CD)
			S726	40E09276S01	Key, R663830 (AUX - 1)
			S727	40E09276S01	Key, R663830 (AUX - 2)
			S728	40E09276S01	Key, R663830 (tape - 1)
			S729	40E09276S01	Key, R663830 (tape - 2)
<b>LED's</b>					
LD701	48E09226S01	SLH-34DT (ORG)			
LD702	48E09237S01	SLB-27VR (RED)			
LD703	48E09236S01	SLB-27DU (ORG)			
LD704	48E09236S01	SLB-27DU (ORG)			
LD705	48E09236S01	SLB-27DU (ORG)			

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Symbol No.	Part No.	Description	Symbol No.	Part No.	Description		
<b>Capacitors</b>			<b>Diodes</b>				
C702	23E09272S01	ELY., 220 $\mu$ F / 6.3V	D612	48S40477U02	1N4002		
C703	21E04736S08	CER., 33pF	D613	48S40477U02	1N4002		
C704	21E04736S08	CER., 33pF	D614	48S40477U02	1N4002		
C705	23E09271S02	ELY., 2.2 $\mu$ F / 50V	D615	48S40477U02	1N4002		
C708	21E04734S10	CER., 100pF	D616	48S40477U02	1N4002		
C709	21E04631S02	CER., 0.022 $\mu$ F	D622	48S40477U02	1N4002		
C710	23E09272S01	ELY., 220 $\mu$ F / 6.3V	ZD620	48E01750S04	Zener, GZA5.6		
C711	23E09273S01	ELY., 0.022 $\mu$ F / 5.5V	or	48T68699F13	Zener, MTZ5.6		
C712	23E09271S01	ELY., 1 $\mu$ F / 50V	ZD621	48E01750S05	Zener, GZA22		
C713	21E04736S02	CER., 27pF	or	48E09227S01	Zener, MTZ22		
C714	21E04736S02	CER., 27pF	<b>Relay</b>				
C715	23E09270S02	ELY., 10 $\mu$ F / 10V	RL601	80E09286S01	OMIT - SS-112LM		
C716	21E04631S02	CER., 0.022 $\mu$ F	or	80E09287S01	HR-CR313 DC12V		
C735	21E04622S20	CER., 0.022 $\mu$ F	<b>Capacitors</b>				
C736	21E04622S20	CER., 0.022 $\mu$ F	C614	08E04663S01	Line, 0.01 $\mu$ F		
C737	21E04622S20	CER., 0.022 $\mu$ F	or	08E04663S04	Line, 0.01 $\mu$ F		
C738	23E09270S01	ELY., 22 $\mu$ F / 10V	$\Delta$	or	08E04663S04	Line, 0.01 $\mu$ F	
<b>Supply P. C. Board</b>			C615	21E04631S04	CER., 0.047 $\mu$ F		
<b>IC's</b>			C616	21E04631S04	CER., 0.047 $\mu$ F		
●	IC604	51E09201S01	MC78M15CT	●	C617	23E04731S04	ELY., 100 $\mu$ F / 35V
●	or	51T68838F01	L78M15	▲	C617	23E04731S04	ELY., 100 $\mu$ F / 35V
▲	IC604	51E09201S01	MC78M15CT	●	C618	23E04635S10	ELY., 10 $\mu$ F / 50V
▲	or	51T68838F01	L78M15	▲	C618	23E04635S10	ELY., 10 $\mu$ F / 50V
	IC605	51E09199S01	MC78M05CT	C619	23E04636S04	ELY., 220 $\mu$ F / 25V	
	or	51E09200S01	L78M05	C620	23E04635S10	ELY., 10 $\mu$ F / 50V	
<b>Transistor</b>			C621	21E04631S01	CER., 0.01 $\mu$ F		
Q601	48E09209S01	KTC3198	C622	23E04636S07	ELY., 47 $\mu$ F / 25V		
			$\Delta$	C623	21E04631S02	CER., 0.022 $\mu$ F	
			$\Delta$	C623	21E04631S02	CER., 0.022 $\mu$ F	
			$\Delta$	C624	21E04631S02	CER., 0.022 $\mu$ F	
			$\Delta$	C624	21E04631S02	CER., 0.022 $\mu$ F	
			$\Delta$	C625	21E04631S02	CER., 0.022 $\mu$ F	
			$\Delta$	C625	21E04631S02	CER., 0.022 $\mu$ F	
			$\Delta$	C625	21E04631S02	CER., 0.022 $\mu$ F	
			$\Delta$	C801	08E04663S01	Line, 0.01 $\mu$ F	
			$\Delta$	or	08E04663S04	Line, 0.01 $\mu$ F	
			$\Delta$	C801	08E04663S01	Line, 0.01 $\mu$ F	
			$\Delta$	or	08E04663S04	Line, 0.01 $\mu$ F	

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Symbol No.	Part No.	Description	Symbol No.	Part No.	Description
●	C726	21E04622S18 CER., 220pF	<b>Capacitors</b>		
▲	C726	21E04622S18 CER., 220pF	●	C301	23E04731S03 ELY., 4.7 $\mu$ F / 35V
●	C727	21E04622S18 CER., 220pF	▲	C301	23E04731S03 ELY., 4.7 $\mu$ F / 35V
▲	C727	21E04622S18 CER., 220pF	●	C302	23E04731S03 ELY., 4.7 $\mu$ F / 35V
●	C728	21E04622S18 CER., 220pF	▲	C302	23E04731S03 ELY., 4.7 $\mu$ F / 35V
▲	C728	21E04622S18 CER., 220pF	●	C303	21E04622S18 CER., 220pF
●	C730	21E04622S18 CER., 220pF	▲	C303	21E04622S18 CER., 220pF
▲	C730	21E04622S18 CER., 220pF	●	C304	21E04622S18 CER., 220pF
●	C731	21E04622S18 CER., 220pF	▲	C304	21E04622S18 CER., 220pF
▲	C731	21E04622S18 CER., 220pF	●	C305	21E04622S17 CER., 3.3pF
●	C732	21E04622S18 CER., 220pF	▲	C305	21E04622S17 CER., 3.3pF
▲	C732	21E04622S18 CER., 220pF	●	C306	21E04622S17 CER., 3.3pF
●	C733	21E04622S18 CER., 220pF	▲	C306	21E04622S17 CER., 3.3pF
▲	C733	21E04622S18 CER., 220pF	●	C307	23E04731S03 ELY., 4.7 $\mu$ F / 35V
<b>Resistors</b>			▲	C307	23E04731S03 ELY., 4.7 $\mu$ F / 35V
●	R771	06E04640S05 M.O., 150 ohm 2W	●	C308	23E04731S03 ELY., 4.7 $\mu$ F / 35V
▲	R771	06E04640S05 M.O., 150 ohm 2W	▲	C308	23E04731S03 ELY., 4.7 $\mu$ F / 35V
●	R772	06E04640S05 M.O., 150 ohm 2W	▲	C309	21E04622S19 CER., 270pF
▲	R772	06E04640S05 M.O., 150 ohm 2W	●	C310	21E04622S19 CER., 270pF
<b>Switch P. C. Board</b>			▲	C311	08E04735S02 MYL., 0.047 $\mu$ F
<b>IC</b>			●	C312	08E04735S02 MYL., 0.047 $\mu$ F
●	IC301	51E09193S01 NJM4565SB	<b>Tone P. C. Board</b>		
▲	IC301	51E09193S01 NJM4565SB	<b>IC's</b>		
IC304	51E09206S01	GP1U501X	IC302	51E09193S01	NJM4565SB
<b>Switch</b>			IC303	51E09193S01	NJM4565SB
○	S301	40E09274S01 Push (loudness)	<b>Capacitors</b>		
			○	C313	23E04635S08 ELY., 2.2 $\mu$ F / 50V
			△	C314	23E04635S08 ELY., 2.2 $\mu$ F / 50V
			○	C315	23E04635S08 ELY., 2.2 $\mu$ F / 50V
			△	C316	23E04635S08 ELY., 2.2 $\mu$ F / 50V
			○	C319	21E04622S12 CER., 100pF
			△	C319	21E04622S12 CER., 100pF
			○	C320	21E04622S12 CER., 100pF
			△	C320	21E04622S12 CER., 100pF

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Symbol No.	Part No.	Description	Symbol No.	Part No.	Description
<b>Miscellaneous</b>					
●	ET101	09E09249S01			FM / AM Antenna Terminal
▲	ET101	09E09249S01			FM / AM Antenna Terminal
○	ET101	09E09754S01			FM / AM Antenna Terminal
△	ET101	09E09754S01			FM / AM Antenna Terminal
●	ET901	09E09255S01			Speakers A and B Terminals
▲	ET901	09E09255S01			Speakers A and B Terminals
○	ET901	09E09755S01			Speakers A and B Terminals
△	ET901	09E09755S01			Speakers A and B Terminals
●	F601	65E09284S01			Fuse, 125V-5A
▲	F601	65E09284S01			Fuse, 125V-5A
○	F601	65E09757S01			Fuse, 250V-3.15A
△	F601	65E09757S01			Fuse, 250V-3.15A
○	F602	65E09757S01			Fuse, 250V-3.15A
△	F602	65E09757S01			Fuse, 250V-3.15A
	FL701	65E09285S01			FL Display
●	JK801	09E09260S01			AC Outlet
▲	JK801	09E09260S01			AC Outlet
○	JK801	09E09756S01			AC Outlet
△	JK801	09E09756S01			AC Outlet
	LD301	48E09226S01			LED, SLH-34DT (ORG)
●	P801	28E04686S01			AC Power Cord
●	or	28E09288S01			AC Power Cord
▲	P801	28E04686S01			AC Power Cord
▲	or	28E09288S01			AC Power Cord
○	P801	28E04687S01			AC Power Cord
○	or	28E09758S01			AC Power Cord
△	P801	28E04687S01			AC Power Cord
△	or	28E09758S01			AC Power Cord
○	S801	40E09759S01			Voltage Selector
△	S801	40E09759S01			Voltage Selector
●	T601	25E09283S01			Power Transformer
▲	T601	25E09283S01			Power Transformer
○	T601	25E09760S01			Power Transformer
△	T601	25E09760S01			Power Transformer
●	T602	25E09281S01			Power Transformer
▲	T602	25E09282S01			Power Transformer
○	T602	25E09761S01			Power Transformer
△	T602	25E09761S01			Power Transformer
	VR301	18E09265S01			Volume, Rotary 150K ohm
	M301				(VOLUME, MOTOR: 4.5V-100mA)

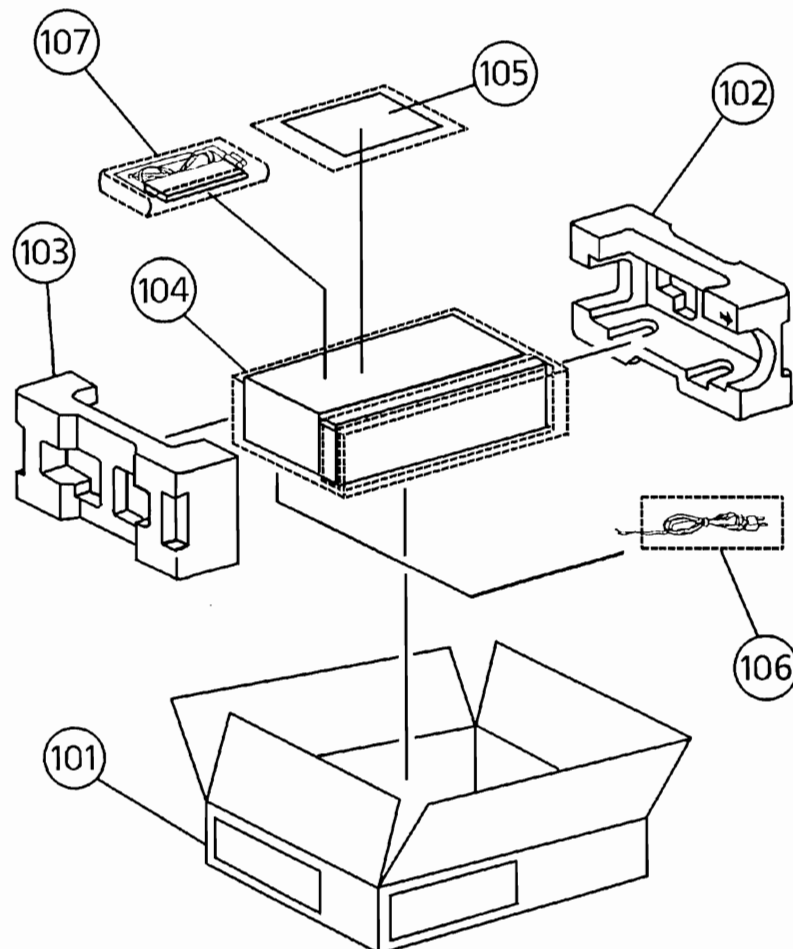
Notes : ○ : For With Safety Regulations Version (Black Type) (AD),  
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 ● : For U.S.A. Version (UZ), ▲ : For Canada Version (UQ), Others : Common.

## Packing Assembly Parts List

Symbol No.	Part No.	Description	Symbol No.	Part No.	Description	
○	101	56E09762S01	Carton Packing	107-1	60E09294S01	Battery
△	101	56E09762S01	Carton Packing	107-2	01E09293S01	DIN Cable (8P)
●	101	56E09289S01	Carton Packing	107-3	85E09295S01	AM Loop Antenna
▲	101	56E09289S01	Carton Packing	107-4	85E08274S01	Dipole Antenna
	102	56E09290S01	Tray Packing (R)	107-5	01E09484S01	Converter
	103	56E09290S02	Tray Packing (L)	107-6	01E09292S01	Remote Control Unit
	104	56E09291S01	Poly, Bag (Set)			
○	105	68P21552W35	Owner's Manual			
△	105	68P21552W35	Owner's Manual			
●	105	68P21552W33	Owner's Manual			
▲	105	68P21552W34	Owner's Manual			
	106	56E04783S01	Poly, Bag (AC Cord)			

Notes : ○ : For With Safety Regulations Version (Black Type) (AD),  
 △ : For With Safety Regulations Version (Champagne Gold Type) (AD),  
 ● : For U.S.A. Version (UZ), ▲ : For Canada Version (UQ), Others : Common.

## Packing Method View



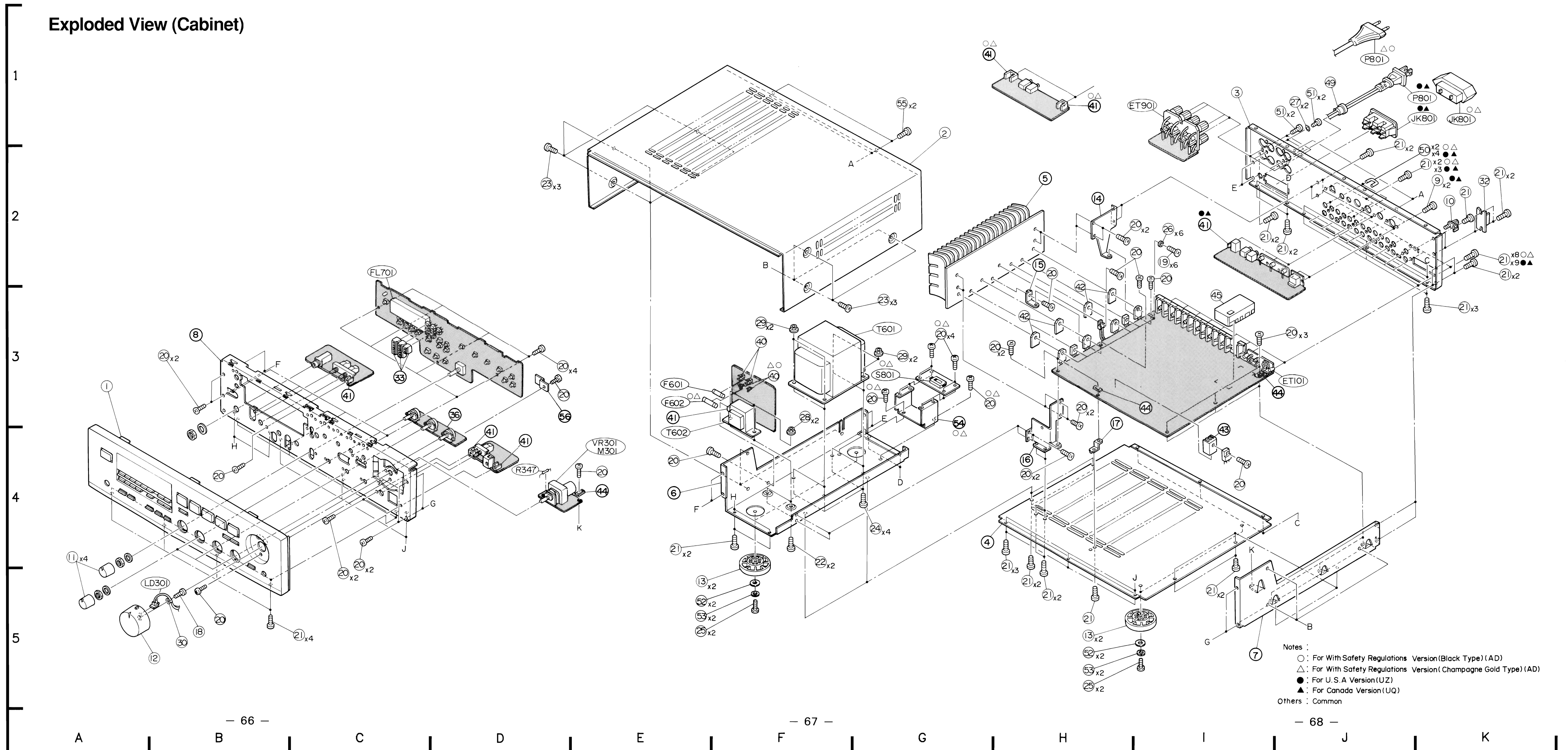
# Cabinet Assembly Parts List

Note : The parts without parts list are not supplied.

Symbol No.	Index	Part No.	Description	Symbol No.	Index	Part No.	Description
○	1	3-A 64E09307S01	Assy., Front Panel	●	45	3-I 77E09239S01	Assy., Front End (FE001)
△	1	3-A 64E09986S01	Assy., Front Panel	▲	45	3-I 77E09239S01	Assy., Front End (FE001)
●	1	3-A 64E09307S01	Assy., Front Panel	49	1-J 43E04688S01	Bushing, Cord	
▲	1	3-A 64E09307S01	Assy., Front Panel	50	2-K 22E09489S01	Jumper Pin	
○	2	1-G 15E09622S01	Top Cover	51	1-J 03E04701S04	Screw, Tap Tite (M3×10)	
△	2	1-G 15E09769S01	Top Cover	52	04E09765S01	Washer, Plain (M4)	
●	2	1-G 15E09622S01	Top Cover	53	04E09766S01	Washer, Spring (M4)	
▲	2	1-G 15E09622S01	Top Cover	55	1-G 03E07999S01	Screw, Tap Tite (M3×8)	
○	3	1-I 15E09987S01	Rear Panel				
△	3	1-I 15E09987S01	Rear Panel				
●	3	1-I 15E09296S01	Rear Panel				
▲	3	1-I 15E09297S01	Rear Panel				
●	9	2-K 05E04709S01	Nylon Rivet (M3×4.5)				
▲	9	2-K 05E04709S01	Nylon Rivet (M3×4.5)				
	10	2-K 29E09299S01	Terminal GND				
○	11	4-A 36E09302S01	Knob				
△	11	4-A 36E09763S01	Knob				
●	11	4-A 36E09302S01	Knob				
▲	11	4-A 36E09302S01	Knob				
○	12	5-B 36E09303S01	Knob, Volume				
△	12	5-B 36E09764S01	Knob, Volume				
●	12	5-B 36E09303S01	Knob, Volume				
▲	12	5-B 36E09303S01	Knob, Volume				
○	13	75E08701S01	Foot				
△	13	75E08701S01	Foot				
●	13	75E09312S01	Foot				
▲	13	75E09312S01	Foot				
	18	5-B 03E04704S06	Screw, Tap Tite (M2.5×6)				
	19	2-I 03E04704S05	Screw, Tap Tite (M3×12)				
	20	03E04704S01	Screw, Tap Tite (M3×8)				
	21	03E04701S01	Screw, Tap Tite (M3×8)				
	22	4-F 03E04702S10	Screw, Tap Tite (M3×12)				
	23	03E04702S01	Screw, Tap Tite (M4×8)				
	24	4-G 03E04702S05	Screw, Tap Tite (M4×12)				
	25	03E04701S07	Screw, Tap Tite (M4×14)				
	26	2-I 04E09306S01	Spring Washer				
	27	1-J 04E06190S01	Toothed Washer				
	28	3-F 02E05471S01	Nut, Flange				
	29	02E06181S01	Nut, Flange				
	30	5-B 29E09300S01	Lug				
	32	2-K 07E09487S01	Antenna Holder				
	40	3-F 09E09253S01	Fuse Clip				
	42	14E09488S01	Insulator Sheet				
○	45	3-I 77E09772S01	Assy., Front End (FE001)				
△	45	3-I 77E09772S01	Assy., Front End (FE001)				

Notes : ○ : For With Safety Regulations Version (Black Type) (AD),  
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 ● : For U.S.A. Version (UZ), ▲ : For Canada Version (UQ), Others : Common.

# Exploded View (Cabinet)



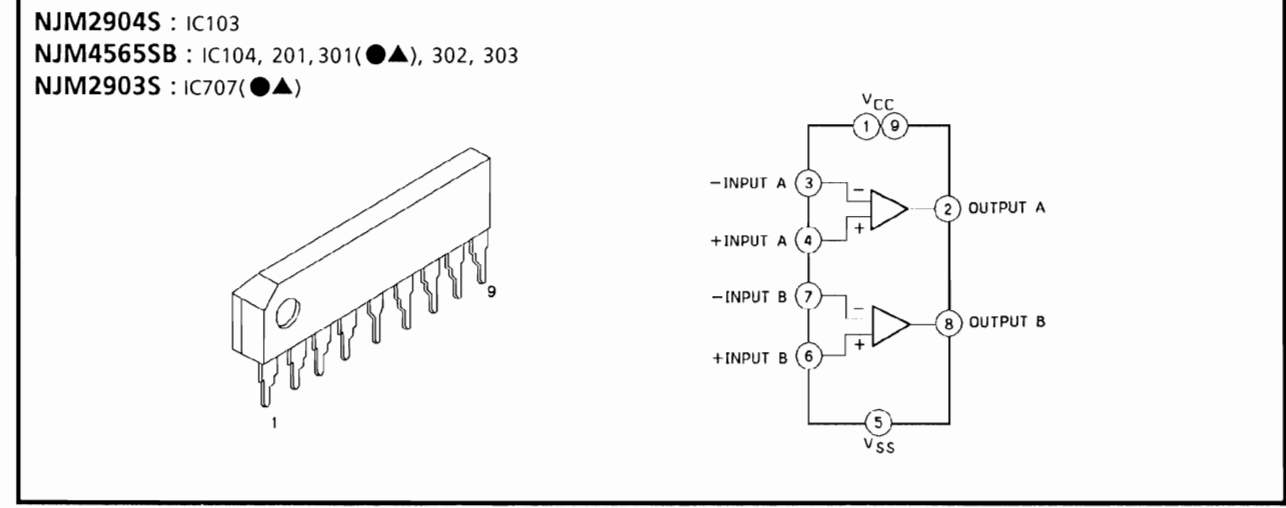
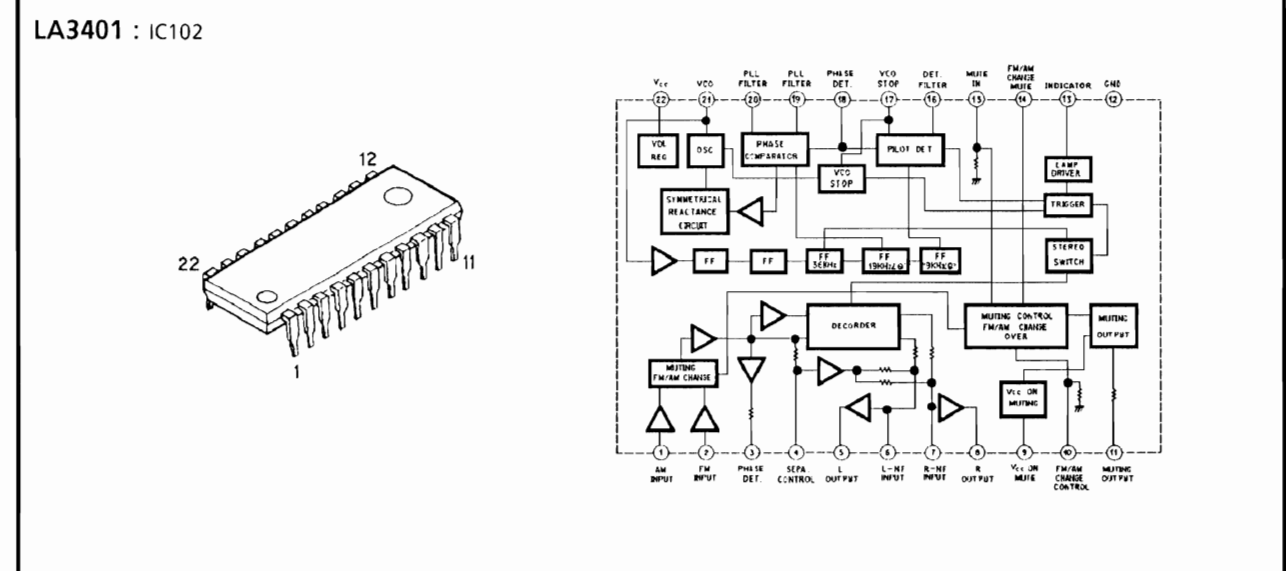
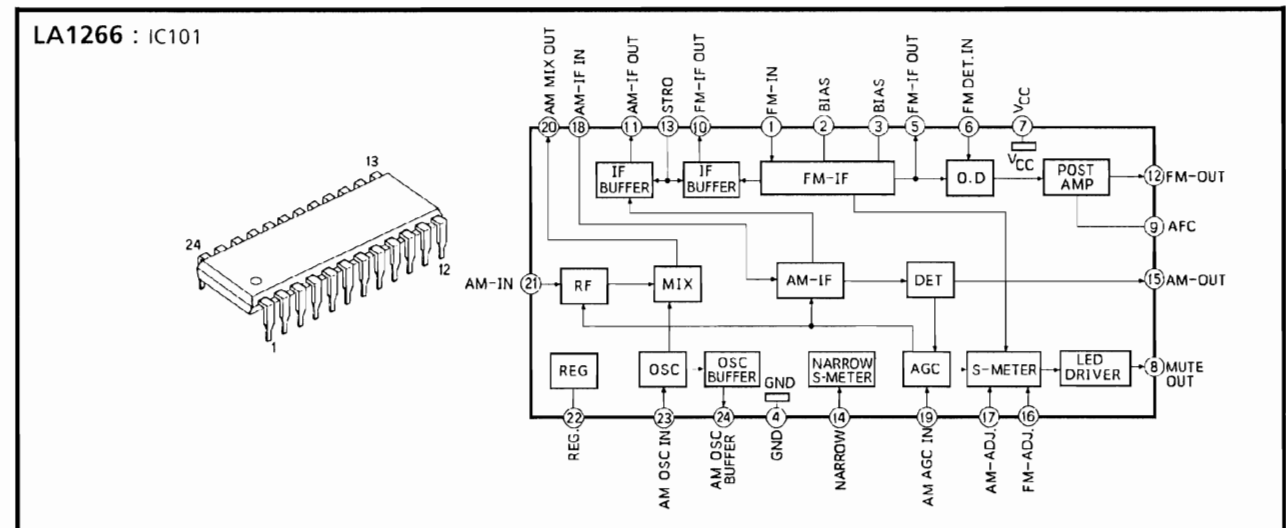
Notes :

- : For With Safety Regulations Version (Black Type) (AD)
- △ : For With Safety Regulations Version (Champagne Gold Type) (AD)
- : For U.S.A Version (UZ)
- ▲ : For Canada Version (UQ)
- Others : Common

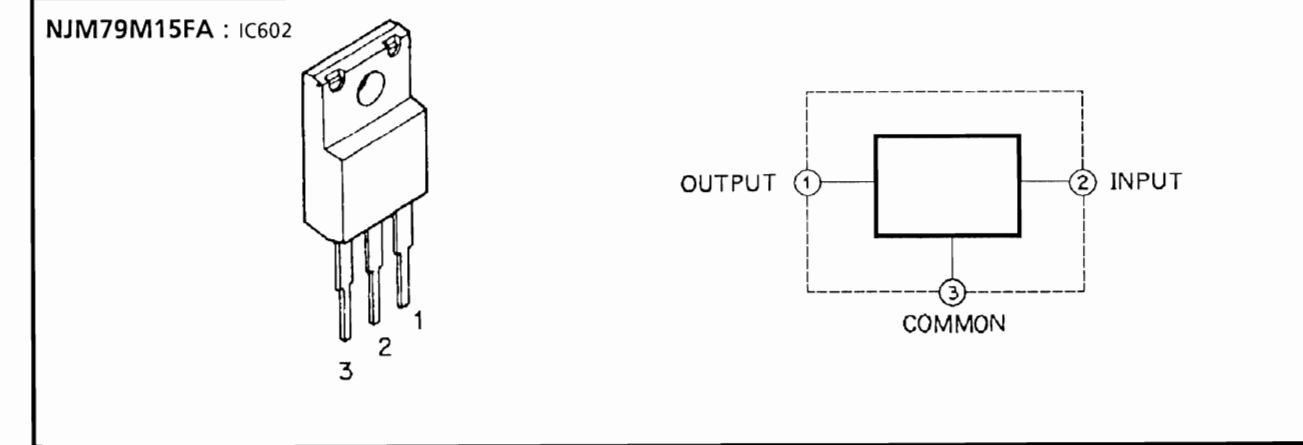
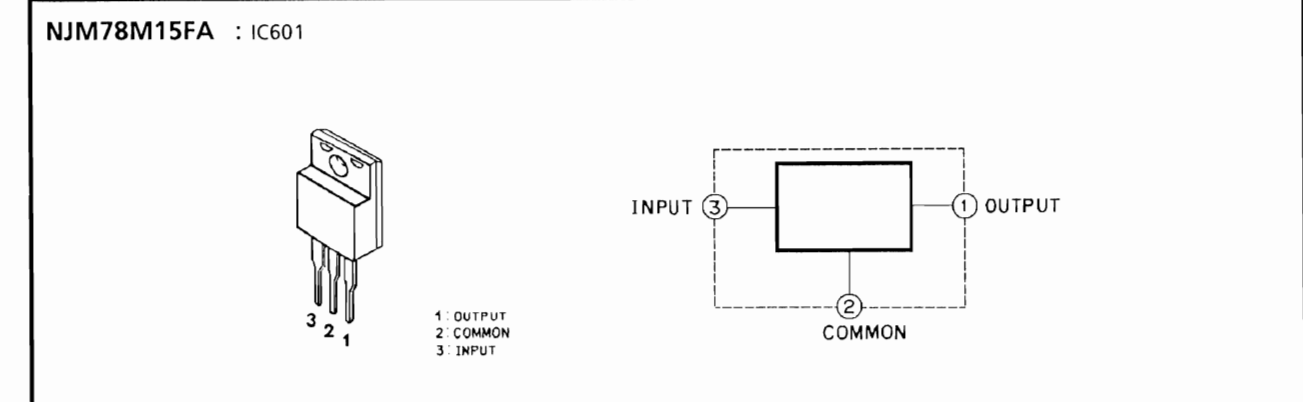
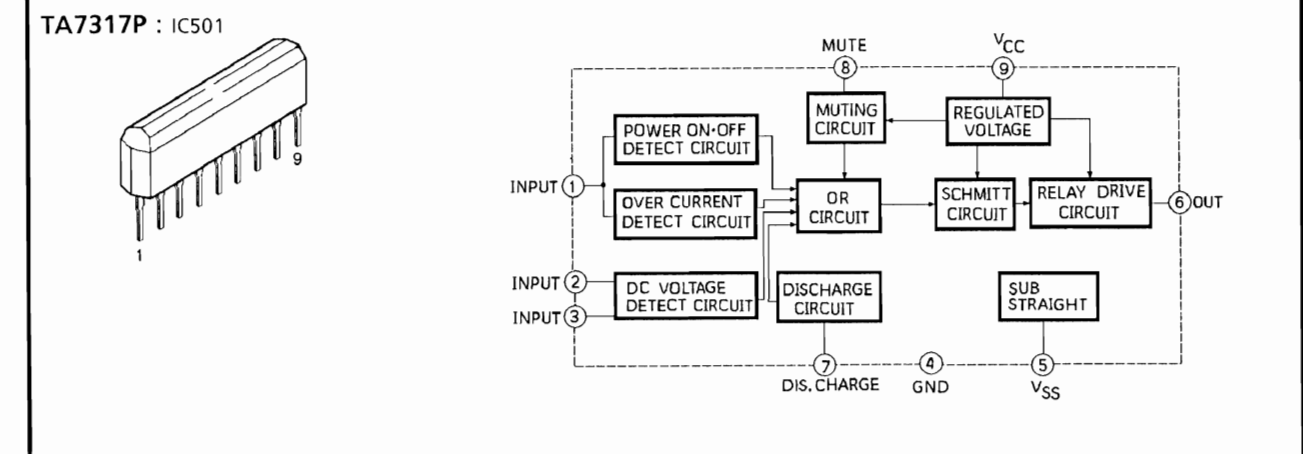
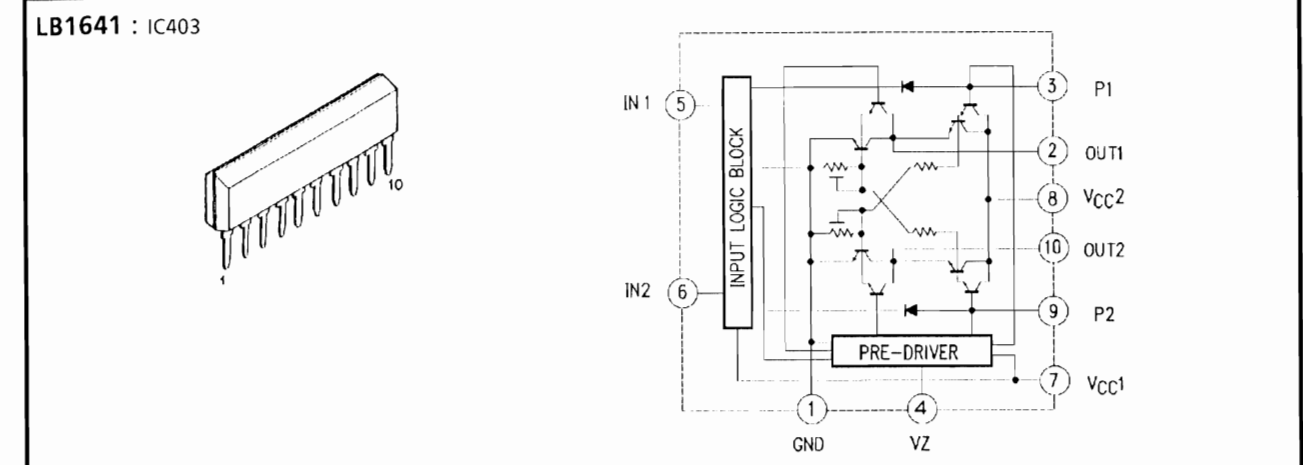
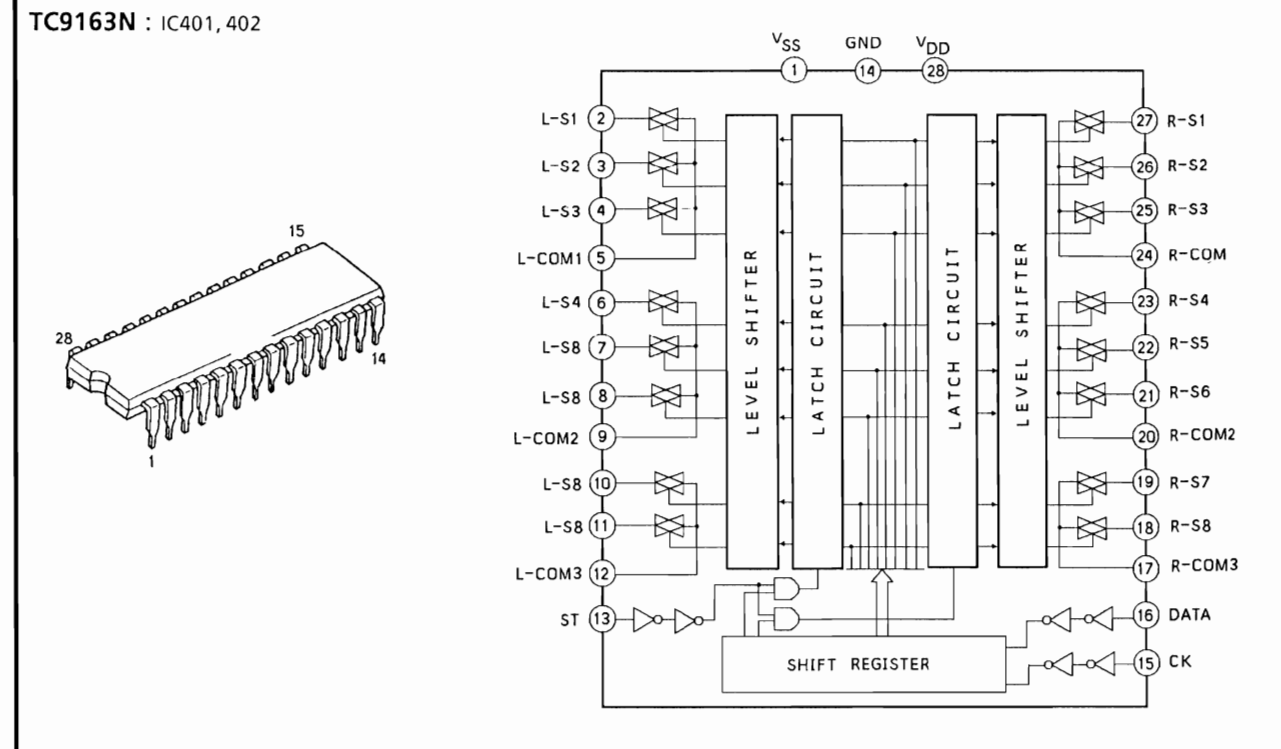
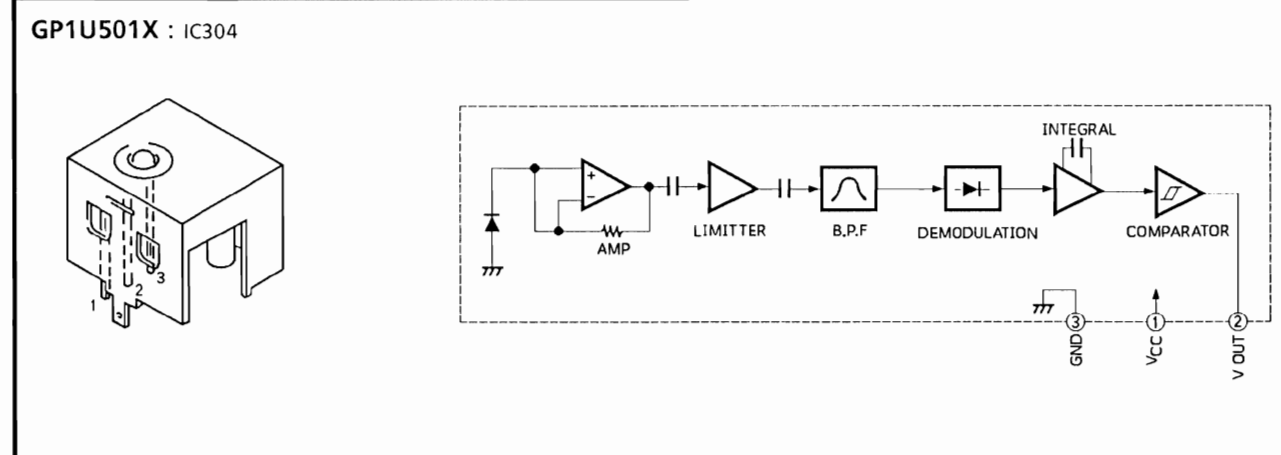
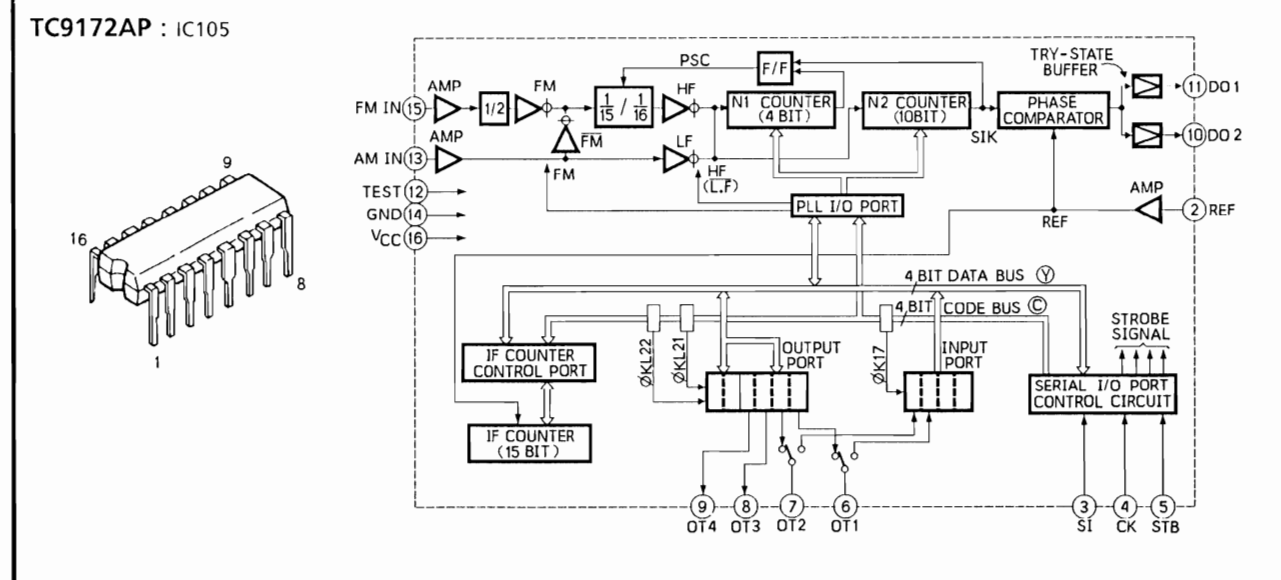
A | B | C | D | E | F | G | H | I | J | K



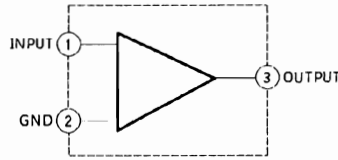
# Semi - Conductor Lead Identifications



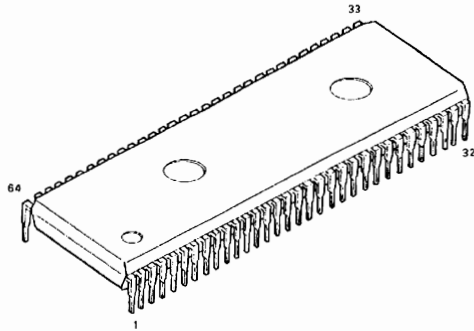
Notes': ○ : For With Safty Regulations Version (Black Type) (AD),  
 △ : For With Safty Regulations Version (Champagne Gold Type) (AD),  
 ● : For U.S.A. Version (UZ), ▲ : For Canada Version (UQ), Others : Common.



MC78M12CT } IC603  
 L78M12 }  
 MC78M15CT } IC604(●▲)  
 L78M15 }  
 MC78M05CT } IC605  
 L78M05 }

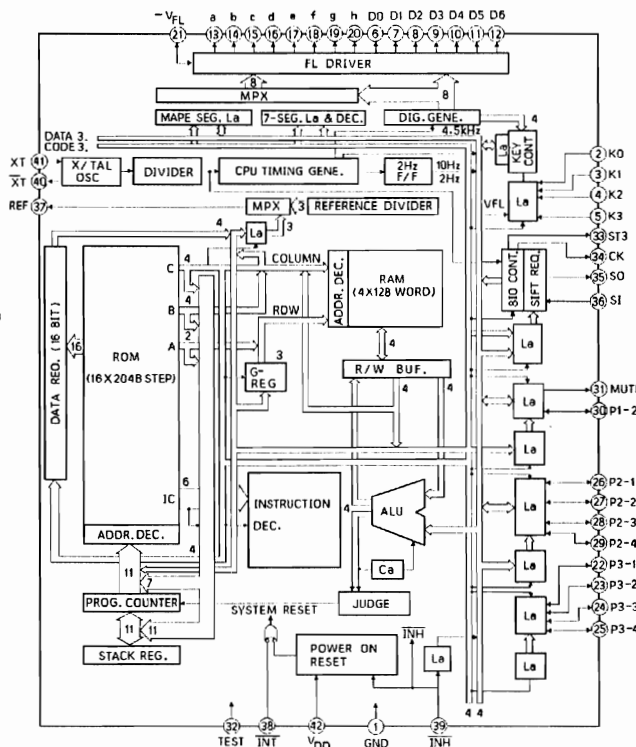
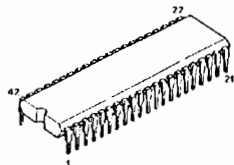


TMP47C860N : IC701



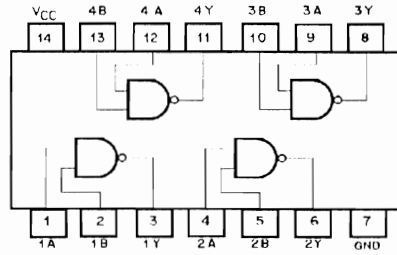
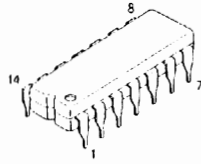
PIN NO.	CORD ADDRESS	I/O	PIN NO.	CORD ADDRESS	I/O	PIN NO.	CORD ADDRESS	I/O
1	VAREF	-	23	AF MUTE	D	45	K0	I
2	VASS	-	24	INPUT MUTE	D	46	K1	I
3	D	I	25	VOL UP	O	47	K2	I
4	C	I	26	VOL DDWH	O	48	K3	I
5	SJ	I	27	TUNER	O	49	RST	I
6	SO	I	28	CD	O	50	X IN	I
7	TUNER	I	29	PHONO	O	51	X OUT	O
8	PHONO	I	30	AUX-1	D	52	HOLD	I
9	CD	I	31	TEST	-	53	REM IN	I
10	AUX-1	I	32	VSS	-	54	REM OUT	O
11	AUX-2	I	33	AUX-2	O	55	S1	I
12	TAPE-1	I	34	TAPE-1	O	56	SD	O
13	TAPE-2	I	35	TAPE-2	O	57	NC	-
14	DFF	I	36	VOL LED	O	58	REM CNT	O
15	NC	-	37	PWR PLY	D	59	EXT OUT	O
16	STP	I/O	38	SYNC	O	60	NC	-
17	PLAY	I/O	39	NC	-	61	NC	-
18	FF	I/O	40	NC	-	62	NC	-
19	REV	I/O	41	D0	I/O	63	NC	-
20	NC	-	42	D1	I/O	64	VDD	-
21	PAUSE	I/O	43	D2	I/O			
22	NC	-	44	NC	-			

TC9301AN : IC702

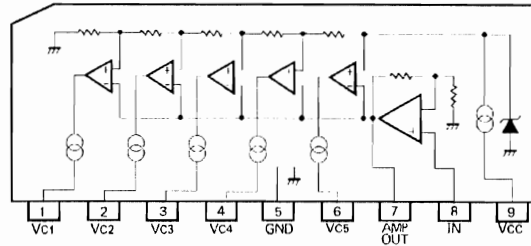
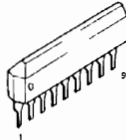


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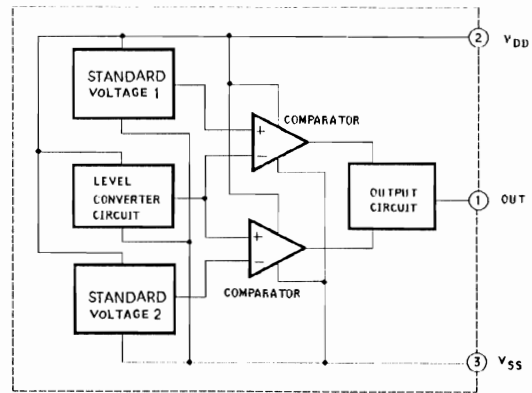
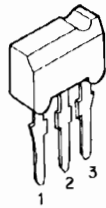
●▲)MC74HC00 : IC703, 704



LB1433N : IC705



MN1280 - S : IC706



Notes : ○ : For With Safty Regulations Version (Black Type) (AD),  
 △ : For With Safty Regulations Version (Champagne Gold Type) (AD),  
 ● : For U.S.A. Version (UZ), ▲ : For Canada Version (UQ), Others : Common.

**Inside Back Cover**



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Printed in Japan

# LUXMAN

## SERVICE BULLETIN

(X) FYI    ( ) SUGGESTED    ( ) MANDATORY    LSB: 92-02

TO: ALL LUXMAN AUTHORIZED SERVICE CENTERS

FROM: LUXMAN SERVICE DEPARTMENT

DATE: November 5, 1992

SUBJECT: R341, R351 MICROPROCESSOR REPLACEMENT

The microprocessor IC TC9301AN (IC702, Part #51E09203S01) used in the above models has been replaced by a new version. The new IC is available from the Parts Department under part #51T35231W02. It should be noted that whenever the new IC is used, diode D721 (1N4148) should be removed from the circuit (refer to illustration below). Failure to remove the diode will result in no display.

