

# Service Manual

Portable CD Player

## SL-SX469V

Traverse Deck: RAE0220Z Mechanism Series

Colour

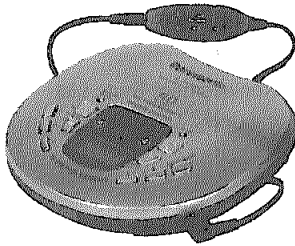
(S).....Silver Type

Areas

EB.....Great Britain.

EG.....Europe and Russia.

GN.....Oceania.



Please file and use this manual together with the service manual for Model No.SL-SX469V-P,PC, Order No. AD9909213C1.

## Specification

### CD SECTION

Audio (Anti-shock off)

No. of channels:	2 channels (left and right, stereo)
Frequency response:	20 to 20,000 Hz (+0.5dB, -1.5dB)
Output voltage:	0.6 V (50k $\Omega$ )
S/N:	more than 96 dB*
Wow and flutter:	Below measurable limit
DA converter:	1 bit, MASH
Headphones output level:	Max. 9mW+9mW/16 $\Omega$ (adjustable)

Pickup

Light source:	Semiconductor laser
Wavelength:	780 nm

### RADIO SECTION

Frequency

FM :	87.5-108.0 MHz (0.05MHz steps)
AM :	522-1629 kHz ( 9kHz steps)
(For GN Area)	
FM :	87.5-108.0 MHz (0.05MHz steps)
AM :	522-1629 kHz ( 9kHz steps)
	520-1630 kHz (10kHz steps)

Sensitivity

FM :	3.9 $\mu$ V/0.5mW output (S/N 30dB)
AM :	177.8 $\mu$ V/m/0.5mW output (MAX)

I F

FM :	10.7 MHz
AM :	450 kHz

### GENERAL

Power supply: DC 4.5 V

### ● Power consumption

Power source	ANTI-SHOCK OFF/ON /RADIO
AC adaptor	2.8W/3.0W /2.4W
When recharging:	About 5.4W

Dimensions (WxHxD): 128x25.1x131mm

Weight: 218g (with batteries)  
196g (without batteries)

Operational temperature range: 0°C - 40°C

Rechargeable temperature range: 5°C - 40°C

### ● Play time

[Approximate operating time in hours (in hold mode, at 25°C on a flat, stable surface).]

Batteries used	ANTI-SHOCK OFF/ON /RADIO
2 alkaline batteries (LR6)	About 22h/28h /About 66h
2 alkaline batteries (LR03)	About 9h/12h /About 27h
Ni-MH Rechargeable batteries	About 6h/8h /About 18h
4 alkaline batteries	About 33h/43h /About 100h
2 rechargeable and 2 alkaline batteries	About 28h/36h /About 84h

The play time may be less depending on the operating conditions.

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Recharging time:

About 3h

Specifications are subject to change without notice.

Note:

Mass and dimensions are approximate.

**⚠ WARNING**

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

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**1 Simplified Guide**

This manual mention the revision of SL-SX469V-P,PC.

- Accessories
- Precaution of Laser Diode
- Tuner Block Adjustments
- Schematic Diagram (Change)
- Printed Circuit Board Diagram (Change)
- Replacement Parts List (Change)
- Packaging

The other items are refered service manual for SL-SX469V-P,PC.

**2 Accessories**

- Stereo earphones . . . . . 1 pc.
- AC adaptor. . . . . 1 pc.
- Wired remote control. . . . . 1 pc.
- External battery case. . . . . 1 pc.
- Nickel-metal hydride rechargeable batteries  
 (Battery carrying case) . . . . . 1 pc.  
 Remove the rechargeable batteries from their case  
 before use.  
 If the inner tray is removed, the case can be used to  
 carry 2 LR6(UM-3) batteries, used in the external  
 battery case.
- Soft case . . . . . 1 pc.

### 3 Precaution of Laser Diode

#### CAUTION:

This product utilizes a laser diode with the unit turned "on", invisible laser radiation is emitted from the pickup lens.

Wave length: 780 nm

Maximum output radiation power from pickup: 100  $\mu$ W/VDE

Laser radiation from the pickup lens is safety level, but be sure the followings:

1. Do not disassemble the optical pickup unit, since radiation from exposed laser diode is dangerous.
2. Do not adjust the variable resistor on the pickup unit. It was already adjusted.
3. Do not look at the focus lens using optical instruments.
4. Recommend not to look at pickup lens for a long time.

#### ACHTUNG:

Dieses Produkt enthält eine Laserdiode. Im eingeschalteten Zustand wird unsichtbare Laserstrahlung von der Lasereinheit abgestrahlt.

Wellenlänge: 780 nm

Maximale Strahlungsleistung der Lasereinheit: 100  $\mu$ W/VDE

Die Strahlung an der Lasereinheit ist ungefährlich, wenn folgende Punkte beachtet werden:

1. Die Lasereinheit nicht zerlegen, da die Strahlung an der freigelegten Laserdiode gefährlich ist.
2. Den werkseitig justierten Einstellregler der Lasereinheit nicht verstellen.
3. Nicht mit optischen Instrumenten in die Fokussierlines blicken.
4. Nicht über längere Zeit in die Fokussierlines blicken.

**ADVARSEL:** I dette a apparat anvendes laser.

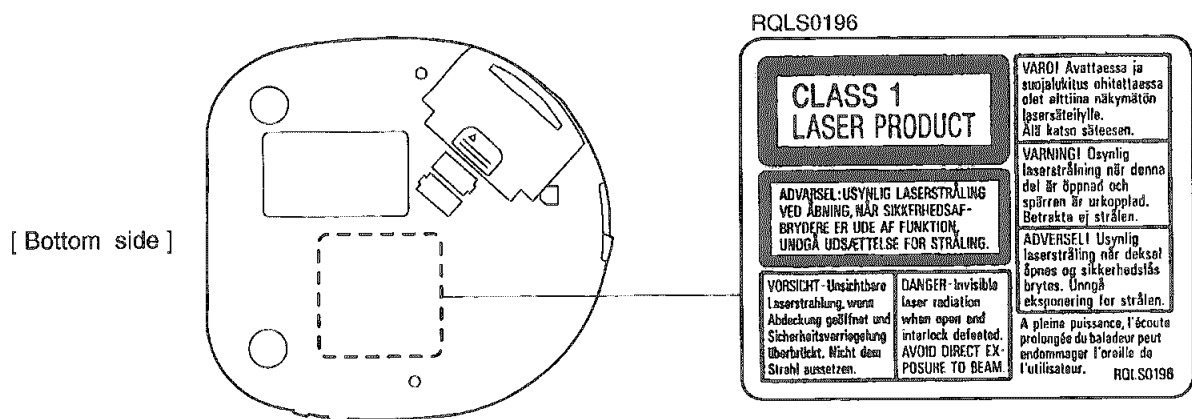


Fig. 1

# 4 Tuner Block Adjustments

## ●Preparation for Adjustment

Connect lead wire for test points [ TP19 ] and [ TP30 ]. (Refer to Fig. 4)

## ●Measurement Condition

1. Set volume control to maximum.
2. Release the hold state.
3. Set powersource Voltage to 4.5V DC.(AC adaptor IN)

## ●Control Positions and Equipment Used

1. Signal generator (AM/FM)
2. Oscilloscope
3. Frequency counter
4. V.V. Meter

## ●Tuner section

BAND	SIGNAL GENERATOR		DISPLAY SETTING	OUTPUT	ADJUSTMENT POINT	PROCEDURE
	CONNECTION	FREQUENCY				
FM	[ TP19 ] → ( + ) [ TP30 ] → ( - )	90 MHz	90 MHz	Headphones jack (16Ω) (Refer to Fig. 3)	CT101 (Refer to Fig. 2)	Adjust CT101 for maximum output.
AM	Fashion a loop of several turns of wire and radiate a signal into the loop antenna of receiver.	594 kHz	594 kHz	Headphones jack (16Ω) (Refer to Fig. 3)	L202 L203 (Refer to Fig. 2)	Adjust L202 for maximum output. Adjust L203 for maximum output.

## ●Adjustment Point

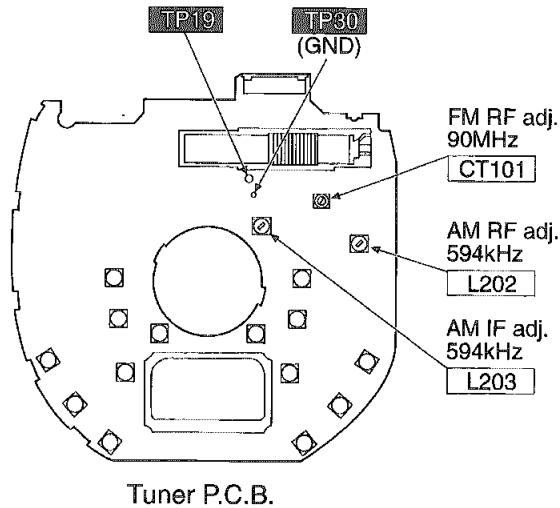


Fig. 2

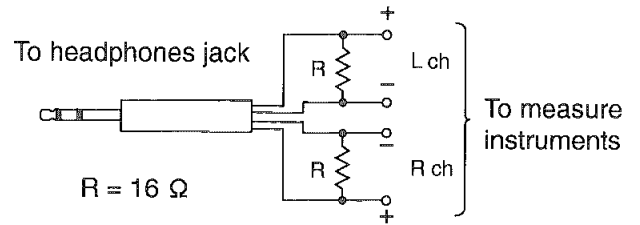


Fig. 3

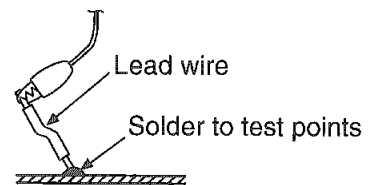
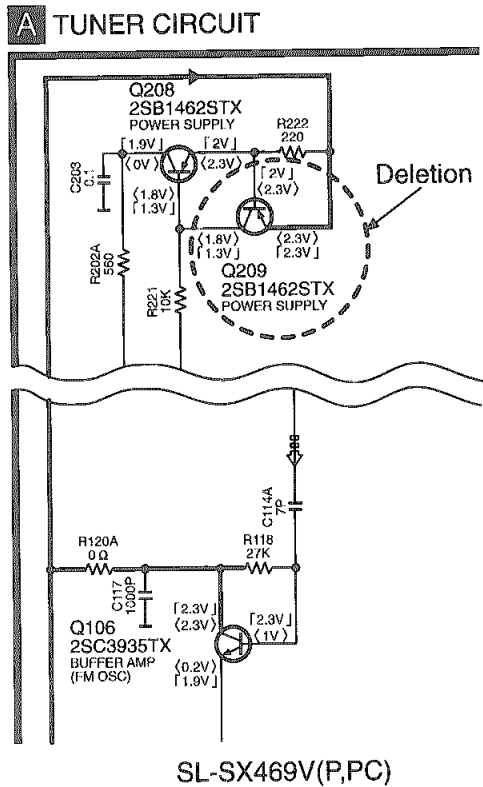


Fig. 4

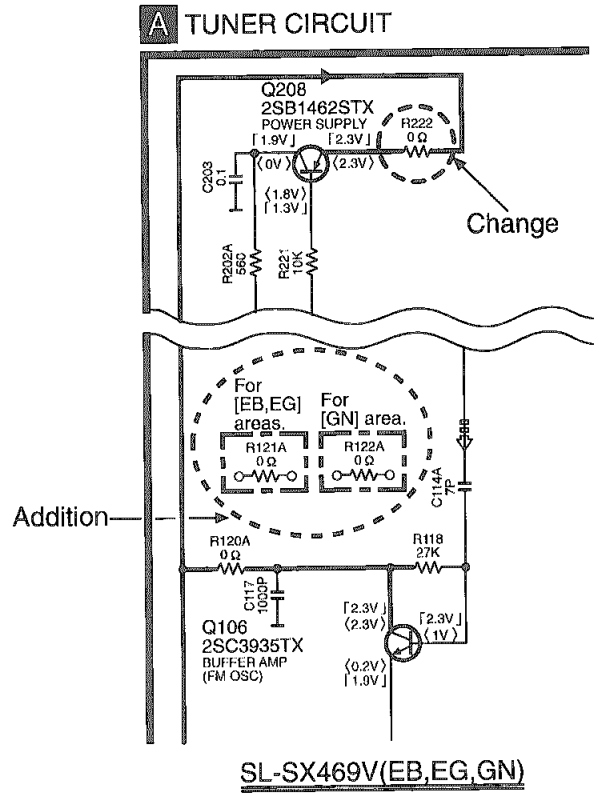
# 5 Schematic Diagram (Change)

(Refer to page 17 of SL-SX469V-P,PC Service Manual.)

SCHEMATIC DIAGRAM-1



SCHEMATIC DIAGRAM-1

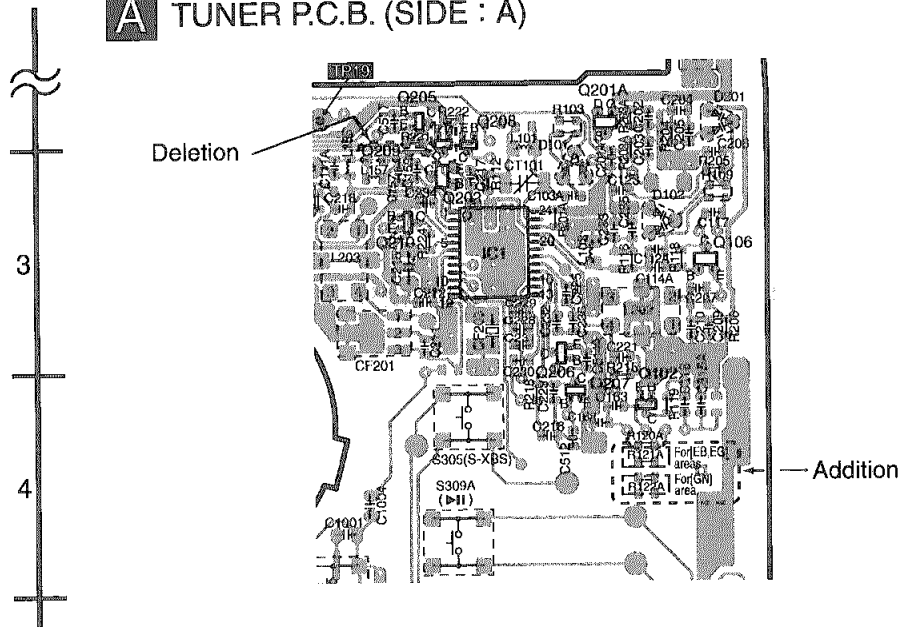


# 6 Printed Circuit Board (Change)

(Refer to page 26 of SL-SX469V-P,PC Service Manual.)



**A TUNER P.C.B. (SIDE : A)**



# 7 Replacement Parts List

## Notes:

\*Important safety notice:

Components identified by  $\Delta$  mark have special characteristics important for safety.

Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.

\*When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.

\*The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)

Parts without these indications can be used for all areas.

\*Warning: This product uses a laser diode. Refer to caution statements.

\*Capacity values are in microfarads ( $\mu\text{F}$ ) unless specified otherwise, P=Pico-farads (pF), F=Farads (F)

\*Resistance values are in ohms, unless specified otherwise, 1K=1,000 (OHM), 1M=1,000k (OHM)

\*"<IA> <IB> <IC>" marks in Remarks indicate languages of instruction manuals.

[ <IA>: English <IB>: English, German, French, Spanish, Swedish, Italian <IC>: Netherlands, Russian, Polish, Danish, Czech ]

\*The marking (RTL) indicates that the Retention Time is limited for this item. After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of availability is dependant on the type of assembly, and in accordance with the laws governing part and product retention. After the end of this period, the assembly will no longer be available.

\***ACHTUNG:** Die lasereinheit nicht zerlegen.

Die lasereinheit darf nur gegen eine vom hersteller spezifizierte einheit ausgetauscht werden.

## 7.1. Change in Replacement Parts List

●Mentioned in the parts list is only those different from Model No. SL-SX469V-P,PC.

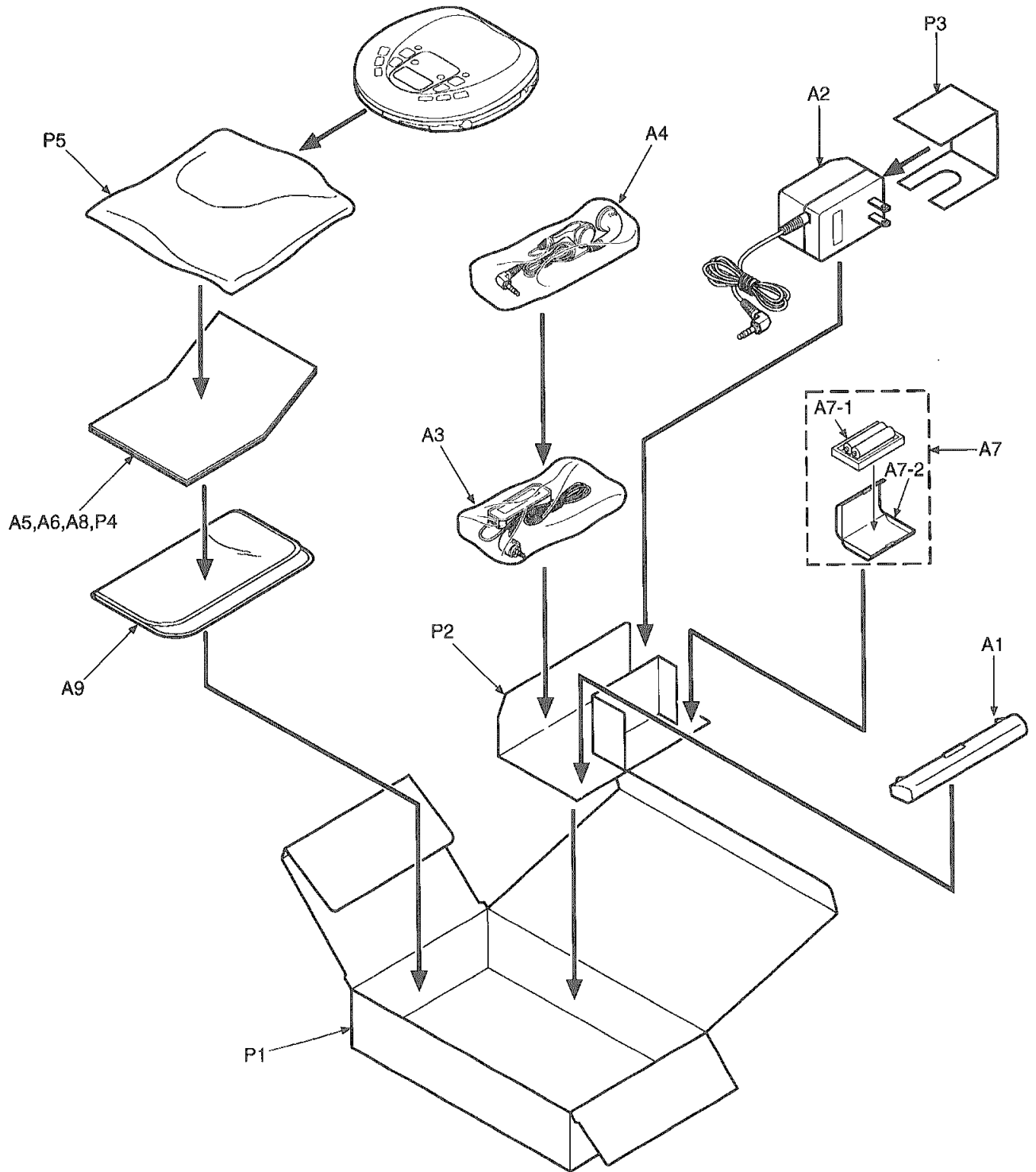
Ref.No	Change of Part No.		Part Name & Description	Pcs	Remarks
	SL-SX469V(P)	SL-SX469V(EB,EG,GN)			
<b>CABINET AND CHASSES</b>					
4	RFKJSX469VPS	RFKJLSX469GC	BOTTOM CABINET ASS'Y	1	
16	RGN1746-K1	RGN1761-K	NAME PLATE	1	(EB)
16	RGN1746-K1	RGN1760-K1	NAME PLATE	1	(EG)
16	RGN1746-K1	RGN1763-K	NAME PLATE	1	(GN)
<b>P.C.B. ASS'Y</b>					
PCB1	REP2897A-M	REP2897B-M	MAIN PCB ASS'Y	1	(RTL) (EB,EG)
PCB2	REP2898A-S	REP2898B-S	TUNER PCB ASS'Y	1	(RTL) (EB,EG)
PCB2	REP2898A-S	REP2898C-S	TUNER PCB ASS'Y	1	(RTL) (GN)
<b>TRANSISTORS</b>					
Q209	2SB1462STX	-----	-----	1	DELETION
<b>COIL</b>					
L203	RLI2U019T-T	RLI2U020T-T	COIL	1	(EB,EG)
<b>CERAMIC FILTER</b>					
CF201	RLFFM2X450BL	RLFFM2X459BL	CERAMIC FILTER	1	(EB,EG)
<b>RESISTORS</b>					
R122A	-----	ERJ3GEY0R00V	RESISTOR 1/16W 0	1	ADDITION
R222	ERJ3GEYJ331V	ERJ3GEY0R00V	RESISTOR 1/16W 0	1	

## 7.2. Accessories and Packaging (Original)

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
A1	RFA1139-H	BATTERY CASE	1	
A2	RFEA403B-S	AC ADAPTOR	1	(EB) $\Delta$
A2	RFEA401E-3S	AC ADAPTOR	1	(EG) $\Delta$
A2	RFEA403A-S	AC ADAPTOR	1	(GN) $\Delta$
A3	RFEV012PCKS	REMOTE UNIT	1	
A4	RFEV335P-KS	STEREO HEADPHONES	1	(EB) (EG)
A4	RFEV326P-KS	STEREO EARPHONE	1	(GN)
A5	RQT5160-B	INSTRUCTION MANUAL	1	(EB) (GN) <IA>
A5	RQT5161-E	INSTRUCTION MANUAL	1	(EG) <IB>
A5	RQT5162-H	INSTRUCTION MANUAL	1	(EG) <IC>
A6	RQA0117	WARRANTY CARD	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
A7	RFKFKHR4AHBA	RECH.BATT ASS'Y	1	
A7-1	RFE0059	TRAY	1	
A7-2	RXQ0449	BATTERY CASE	1	
A8	RQCB0169	SERVICE CENTER LIST	1	
A9	RFC0041-K	SOFT CASE	1	
P1	RPK1418	PACKING CASE	1	
P2	RPQ0924	PAD	1	
P3	RPQ0966	PAD	1	
P4	RPF0046	PROTECTION BAG (F.B.)	1	(EG)
P5	RPF0111	PROTECTION BAG (UNIT)	1	

# 8 Packaging





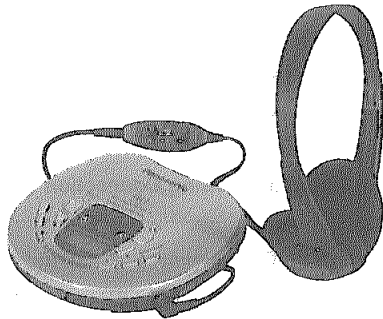


# Service Manual

## Portable CD Player

COMPACT  
**disc**  
DIGITAL AUDIO

**MASH**  
multi-stage noise shaping



### SL-SX469V

Traverse Deck: RAE0220Z Mechanism Series

Colour

(S).....Silver Type

Areas

P.....U.S.A.

PC.....Canada

## Specification

### CD SECTION

Audio (Anti-shock off)

No. of channels:	2 channels (left and right, stereo)
Frequency response:	20 to 20,000 Hz (+0.5dB, -1.5dB)
Output voltage:	0.6 V (50k $\Omega$ )
S/N:	more than 96 dB*
Wow and flutter:	Below measurable limit
DA converter:	1 bit, MASH
Headphones output level:	Max. 9mW+9mW/16 $\Omega$ (adjustable)

### Pickup

Light source:	Semiconductor laser
Wavelength:	780 nm

### RADIO SECTION

#### Frequency

AM :	520-1710 kHz (10kHz steps) 522-1629 kHz ( 9kHz steps)
FM :	87.9-107.9 MHz (0.2MHz steps) 87.5-108.0 MHz (0.1MHz/0.05MHz steps)

#### Sensitivity

AM :	177.8 $\mu$ V/m/0.5mW output (MAX)
FM :	3.9 $\mu$ V/0.5mW output (S/N 30dB )

#### I F

AM :	450 kHz
FM :	10.7 MHz

### GENERAL

Operational temperature range: 0°C - 40°C

Rechargeable temperature range: 5°C - 40°C

Power supply: DC 4.5 V

#### ● Power consumption

##### Power source

AC adaptor	2.2W/2.4W /1.7W
Battery (DC 3V)	0.3W/0.35W/0.15W

When recharging: Approx. 4.6W

#### ● Play time

[When used in hold mode, at 25°C (77°F) temperature and on flat and stable surface]

##### Batteries used

2 "AA"(LR6) alkaline batteries	About 22h/28h /About 66h
2 "AAA"(LR03) alkaline batteries	About 9h/12h /About 27h
Ni-MH Rechargeable batteries	About 6h/8h /About 18h
4 alkaline batteries	About 33h/43h /About 100h
2 rechargeable and 2 alkaline batteries	About 28h/36h /About 84h

The play time may be less depending on the operating conditions.

Recharging time: About 3h

Dimensions (WxHxD): 128x25.1x131mm  
(5 1/16"x1"x5 3/16")

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**Weight:**

218g (7.7 oz.) with batteries  
196g (6.9 oz.) without batteries

**Note:**

Specifications are subject to change without notice.  
Weight and dimensions are approximate.

**⚠ WARNING**

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**1 Precaution of Laser Diode****CAUTION:**

This unit utilizes a class 1 laser. Invisible laser radiation is emitted from the optical pickup lens when the unit is turned on:

1. Do not look directly into the pickup lens.
2. Do not use optical instruments to look at the pickup lens.
3. Do not adjust the preset variable resistor on the optical pickup.
4. Do not disassemble the optical pickup unit.
5. If the optical pickup is replaced, use the manufactures specified replacement pickup only.
6. Use of control or adjustments or performance of procedures other than those specified herin may result in hazardous radiation exposure.

**2 Accessories**

- AC adaptor .....
- (RFEA415C-S) .....
- (RFEV012PCKS)
- Wird remote control .....
- (RFA1139-H) .....
- 1 pc.
- External battery case .....
- 1 pc.

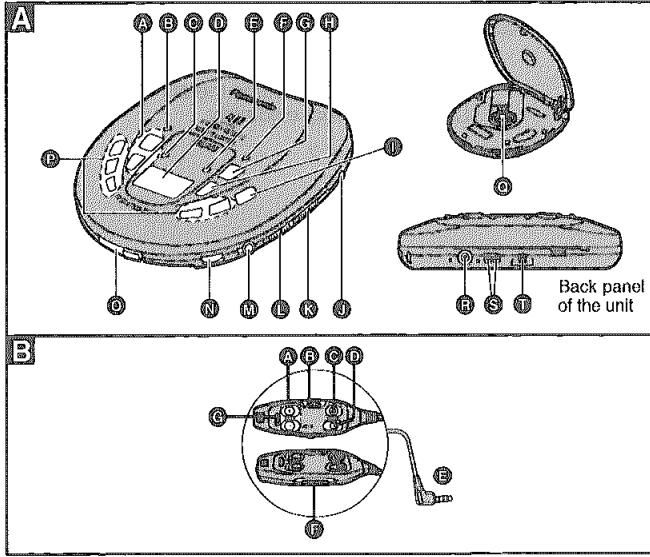
**For U. S. A.**

- Stereo headphones ..... 1 pc.  
(RFEV711P-K1S)

**For Canada**

- Stereo earphones ..... 1 pc.  
(RFEV326P-KS)

### 3 Location of Controls



**Main unit [A]**

- Ⓐ Tuning/skip/search buttons (TUNING, +, -, >>>, <<<)
- Ⓑ Memory/recall button (MEMORY/RECALL)
- Ⓒ Repeat, monaural/stereo button (REPEAT, FM MODE, MONO/ST)
- Ⓓ Display
- Ⓔ Anti-shock, sensitivity control button (A. SHOCK, FM RECEPT, = CITY/NOR)
- Ⓕ S-XBS button (S-XBS)
- Ⓖ Play/pause button (▶||)
- Ⓗ Stop/power off button (■, POWER OFF)
- Ⓘ Tuner on/band select button (RADIO/BAND)
- Ⓚ Out jack (OUT)
- Ⓛ Hold switch (HOLD)
- Ⓜ Play mode selector (RESUME, RANDOM, NORMAL)

- Ⓝ Headphones jack (Ⓝ)
- Ⓞ Headphones volume control (VOLUME)
- Ⓟ Open switch (OPEN)
- Ⓠ Preset channel buttons (1, 2, 3, 4, 5)
- Ⓡ CD release button (PUSH)
- Ⓢ DC in jack (Ⓢ DC IN 4.5 V)
- Ⓣ Connection terminal for external battery case
- Ⓤ Hole for car insulator mounting screw/external battery case

**Wired remote control [B]**

- Ⓐ Tuning/skip/search buttons (+, -)
- Ⓑ Hold switch (HOLD)
- Ⓒ Tuner on/off/band select button (RADIO)
- Ⓓ Play/stop/off button
- Ⓔ Plug
- Ⓕ Volume control (VOL)
- Ⓖ Hold indicator

### 4 Handling Precautions for Traverse Deck

The laser diode in the traverse deck (optical pickup) may break down due to potential difference caused by static electricity of clothes or human body.

So, be careful of electrostatic breakdown during repair of the traverse deck (optical pickup).

#### 4.1. Handling the traverse deck (optical pickup)

1. The traverse deck (optical pickup) is an extremely high-precision construction and must not be subjected to impact, excessive vibration, or other types of rough handling.
2. In order to prevent static electricity damage to the laser diode, use a short pin or similar tool to short the optical pickup's flexible circuit boards after they have been disconnected from the main circuit board.
3. Handle the flexible circuit boards with care; excessive force could cause them to be broken.
4. Do not turn the pre-set variable resistor (for adjustment of the laser power); it has been adjusted at the factory. (as shown in Fig. 1)

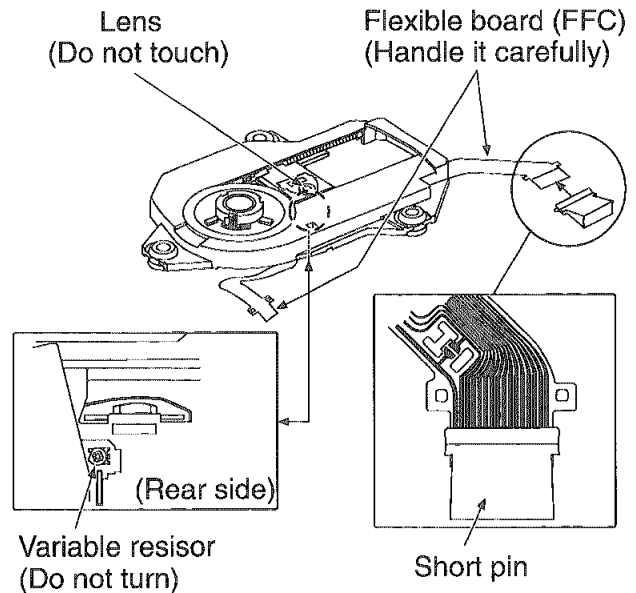


Fig. 1

## 4.2. Grounding for electrostatic breakdown prevention

### 1. Human body grounding

Use the anti-static wrist strap to discharge the static electricity from your body.

### 2. Work table grounding

Put a conductive material (sheet) or steel sheet on the area where the optical pickup is placed, and ground the sheet. (as shown in **Fig. 2** )

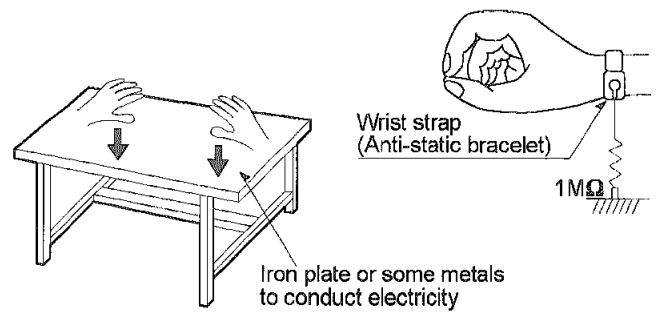


Fig. 2

### Caution:

The static electricity of your clothes will not be grounded through the wrist strap.

So, take care not to let your clothes touch the traverse deck (optical pickup).

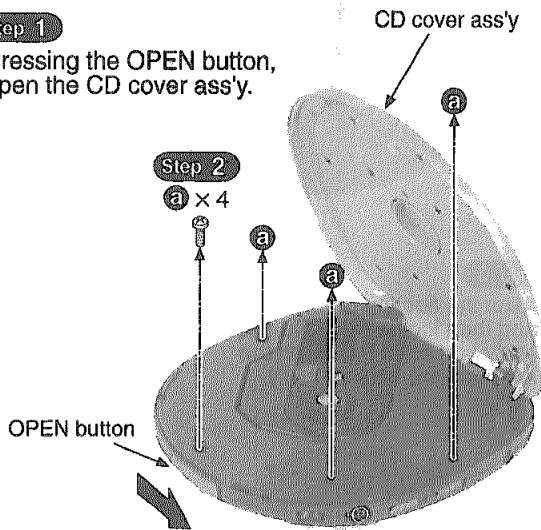
# 5 Operation Checks and Component Replacement Procedures

1. This section describes procedures for checking the operation of the major printed circuit boards and replacing the main components.
2. For reassembly after operation checks or replacement, reverse the respective procedures.  
Special reassembly procedures are described only when required.
3. [ ] indicates parts No.

## 5.1 Checking for the main P.C.B. (A side)

**Step 1**

Pressing the OPEN button, open the CD cover ass'y.

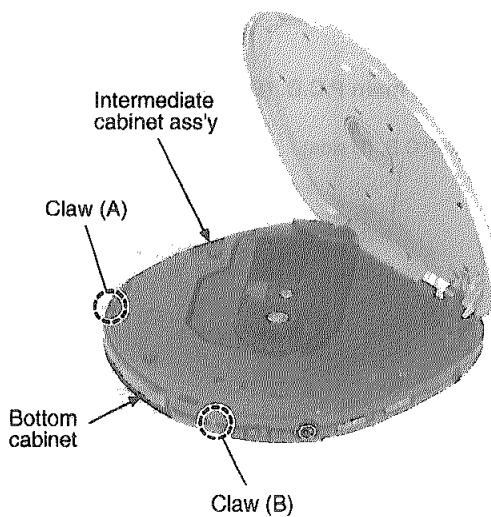


**Step 2**

a x 4

**Step 3**

Spread the clearance between the bottom cabinet and intermediate cabinet ass'y manually.



**Step 4**

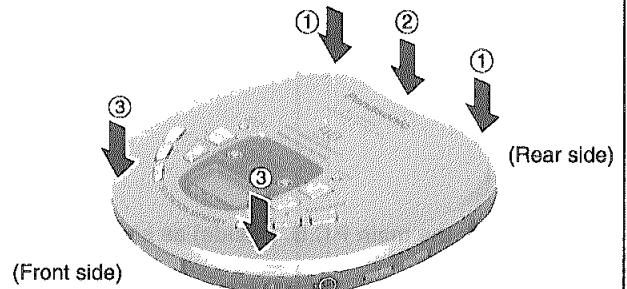
Open the clearance between the bottom cabinet and intermediate cabinet ass'y, and then release the claw (C) to claw (G) in turn.

**NOTE**

Take care not to break the DC IN Jack provided with intermediate cabinet.

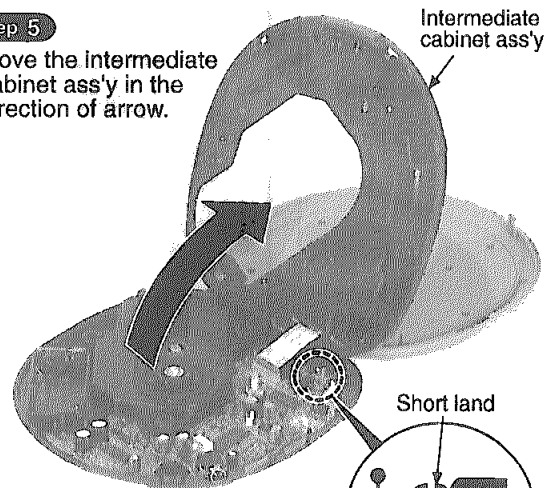
**CD cover ass'y and intermediate reassembly procedure**

- ① Fit together right side and left side of rear part. (Either right or left side)
- ② Fit together the center of rear part.
- ③ Fit together the right and left of front part. (Either right or left side)



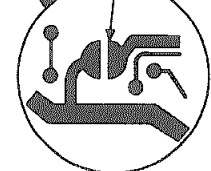
**Step 5**

Move the intermediate cabinet ass'y in the direction of arrow.



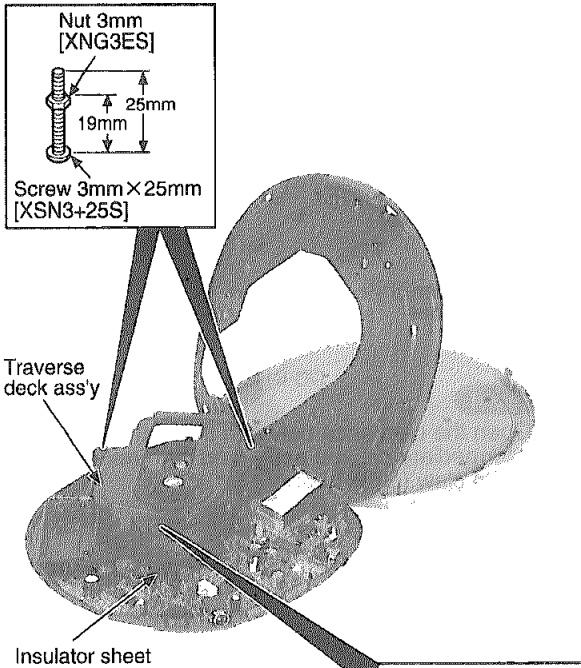
**Step 6**

Short-circuit the land by soldering.



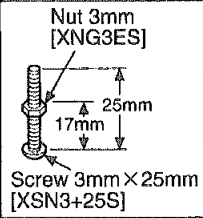
**Step 7**

Sustain the traverse deck ass'y with the floating rubber inserted screws and nuts as shown below.

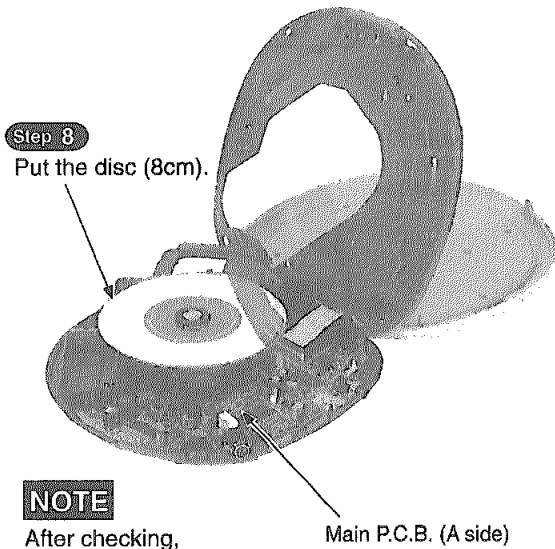


**NOTE**

- The tip of screw must not protrude more than 2 mm above the floating rubber.
- To keep insulation, place the insulator sheet (paper etc.) between the P.C.B. and the head of screws.



• Check the main P.C.B. (A side) as shown below.



**NOTE**

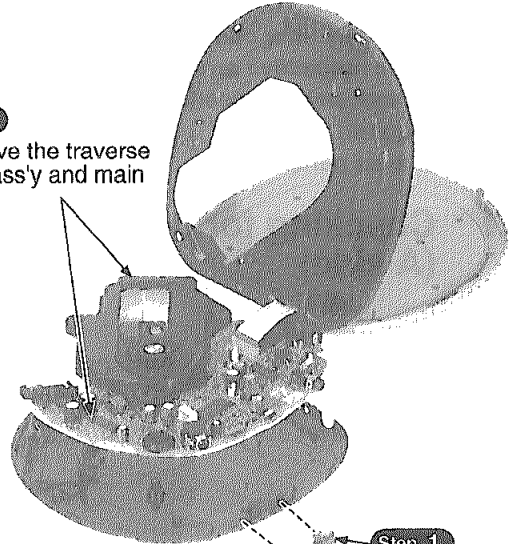
After checking, unsolder the short land to open circuit.

## 5.2 Checking for the main P.C.B. (B side)

• Follow the **Step 1** ~ **Step 6** of the item 5.1 in checking for the main P.C.B. (A side).

**Step 2**

Remove the traverse deck ass'y and main P.C.B.

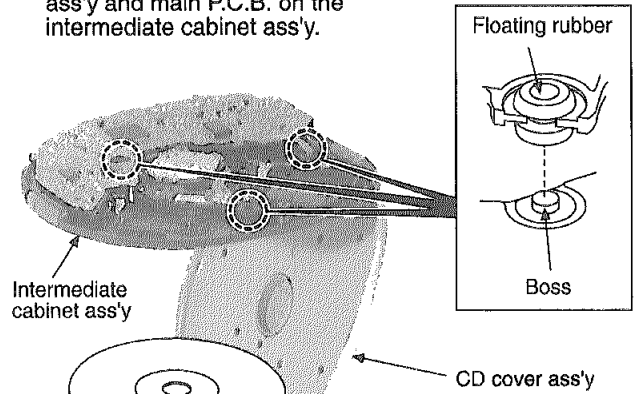


**Step 1**

Remove the 2 switch knobs.

**Step 3**

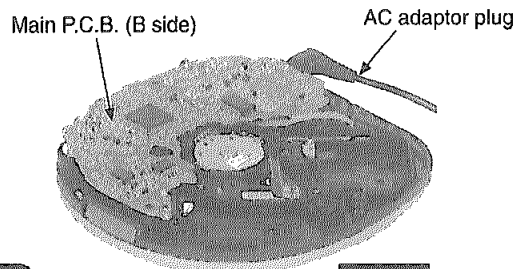
Align the floating rubbers with bosses, and then locate the traverse deck ass'y and main P.C.B. on the intermediate cabinet ass'y.



**Step 4**

Put the test disc, and then close the CD cover ass'y.

• Check the main P.C.B. (B side) as shown below.



**Step 5**

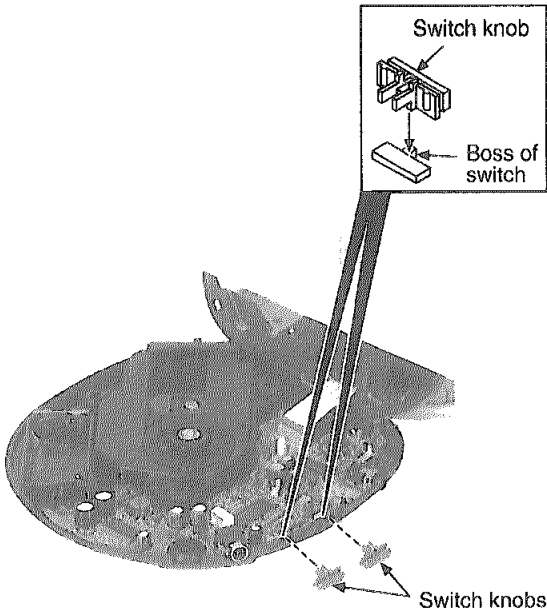
Insert the AC adaptor plug into the DC IN jack, and then apply the power.

**NOTE**

After checking, unsolder the short land to open circuit.

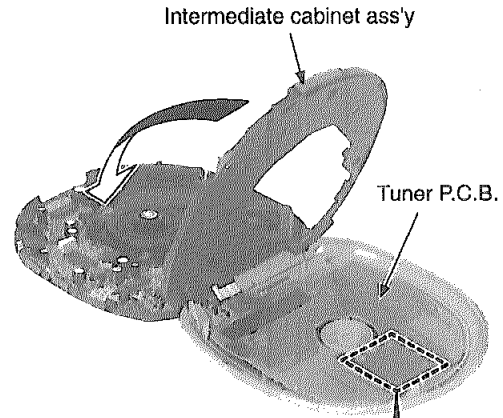
**Notice for installation of switch knobs**

- Make sure the bosses of switch are fit in the switch knobs.



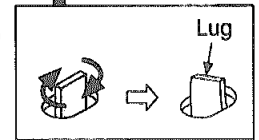
**Step 3**

- Move the intermediate cabinet ass'y and tuner P.C.B. in the direction of arrow.



**NOTE**

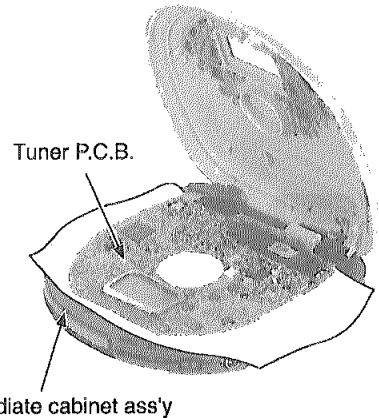
When checking the tuner P.C.B., twist the lug of LCD holder as shown illustrated with pressing the LCD holder to hold with tuner P.C.B.. (4 points)



- Check the tuner P.C.B. as shown below.

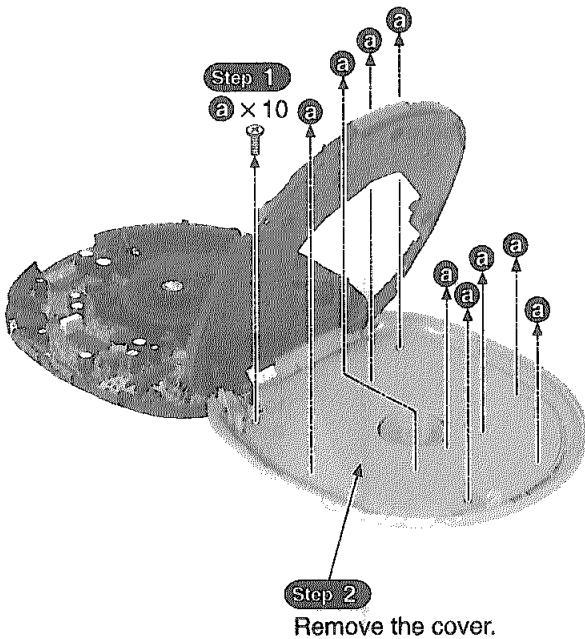
**NOTE**

Spread the insulation sheet under the tuner P.C.B. to avoid the damage or foreign matter from the intermediate cabinet ass'y or traverse deck ass'y.



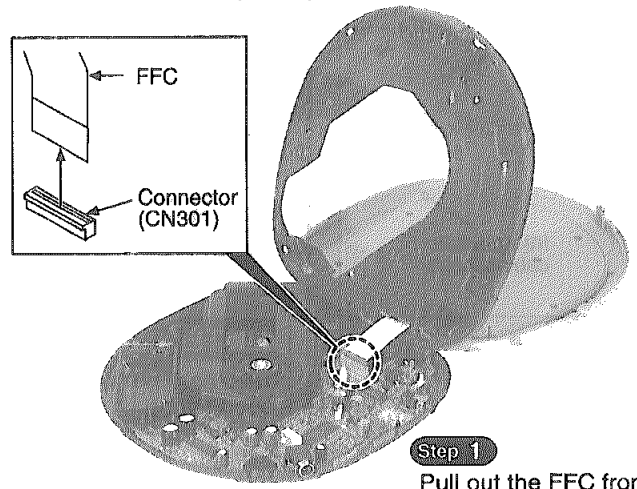
**5.3 Checking for the tuner P.C.B.**

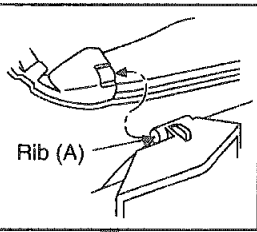
- Follow the **Step 1** ~ **Step 5** of the item 5.1 in checking for the main P.C.B. (A side).



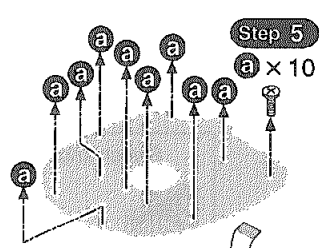
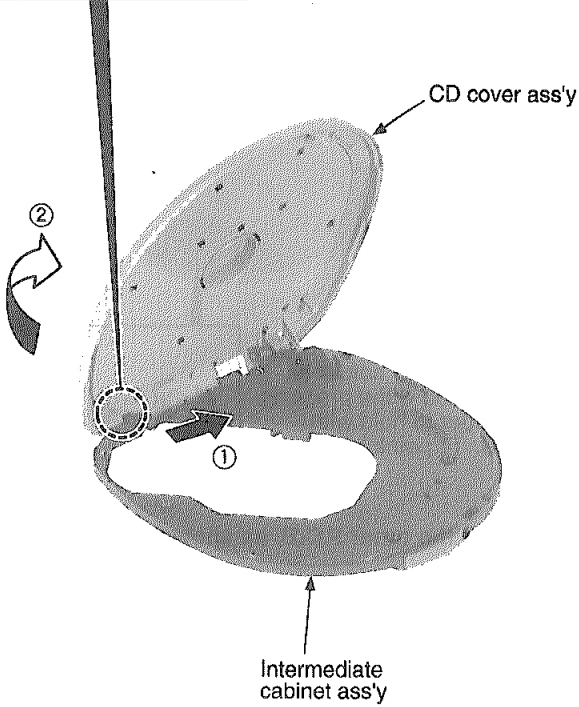
**5.4 Replacement for the CD cover ass'y and LCD**

- Follow the **Step 1** ~ **Step 5** of the item 5.1 in checking for the main P.C.B. (A side).

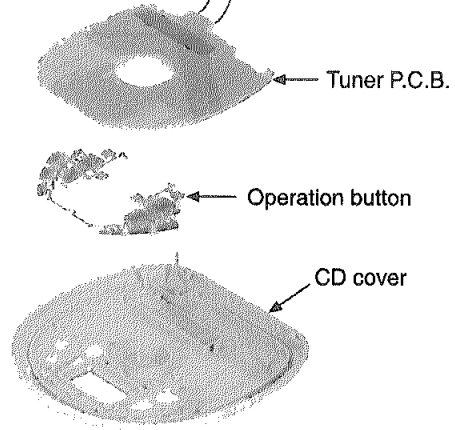




**Step 2**  
Bend the intermediate cabinet ass'y in the direction of arrow ①, and then release the CD cover ass'y from the rib (A)

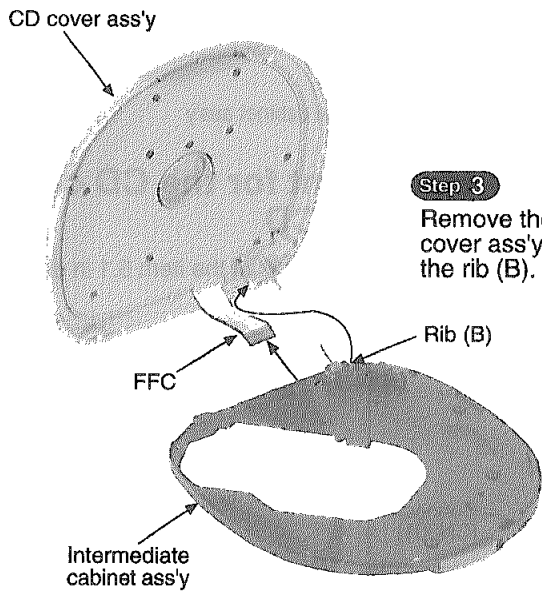


**Step 6**  
Remove the 10 screws, so the parts illustrated below will be free.

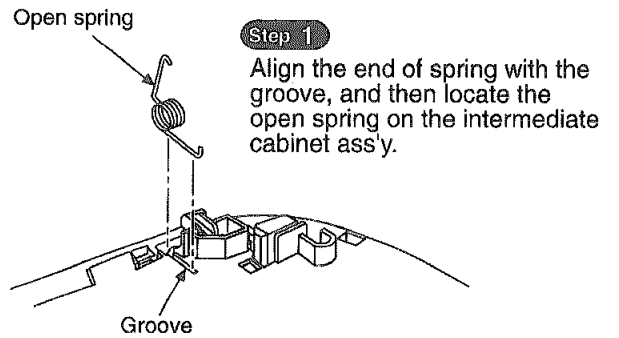


**Installation of CD cover ass'y**

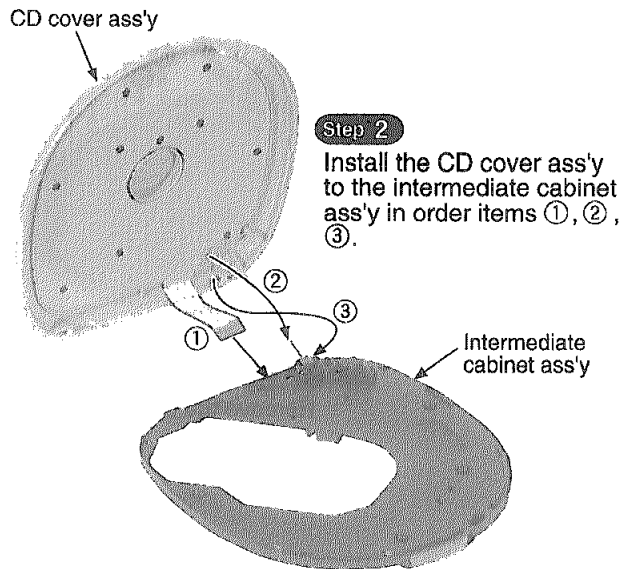
**Step 4**  
Draw the FFC from the intermediate cabinet ass'y. (Take care not to damage the FFC.)



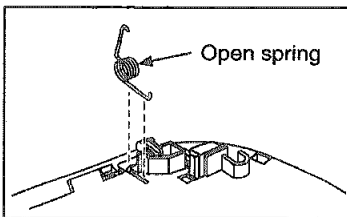
**Step 3**  
Remove the CD cover ass'y from the rib (B).



**Step 1**  
Align the end of spring with the groove, and then locate the open spring on the intermediate cabinet ass'y.

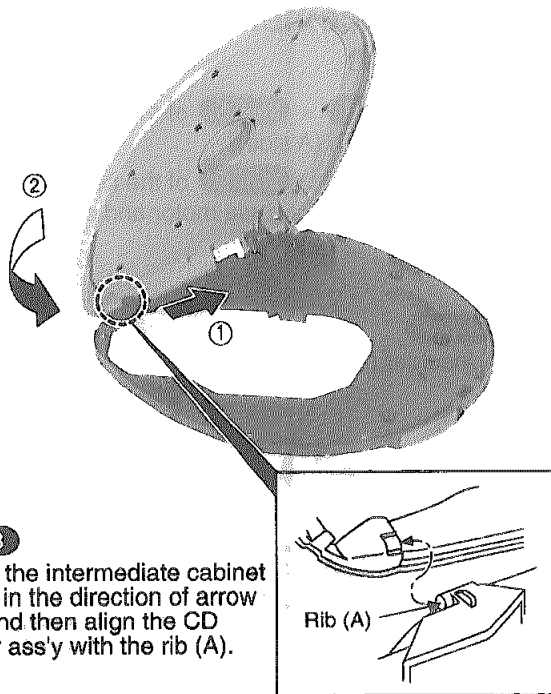


**Step 2**  
Install the CD cover ass'y to the intermediate cabinet ass'y in order items ①, ②, ③.



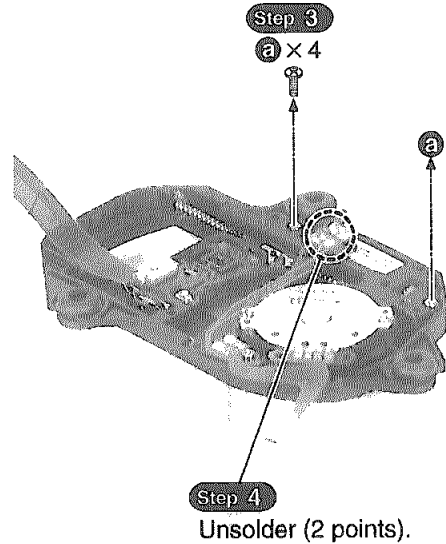
**NOTE**  
Take care not lose the open spring.





**Step 3**

Bend the intermediate cabinet ass'y in the direction of arrow ①, and then align the CD cover ass'y with the rib (A).

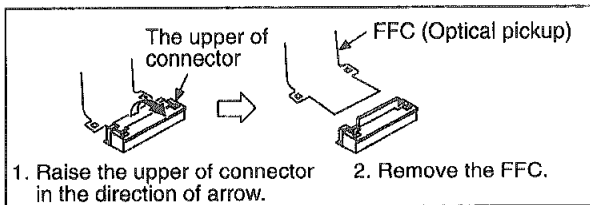


**Step 4**

Unsolder (2 points).

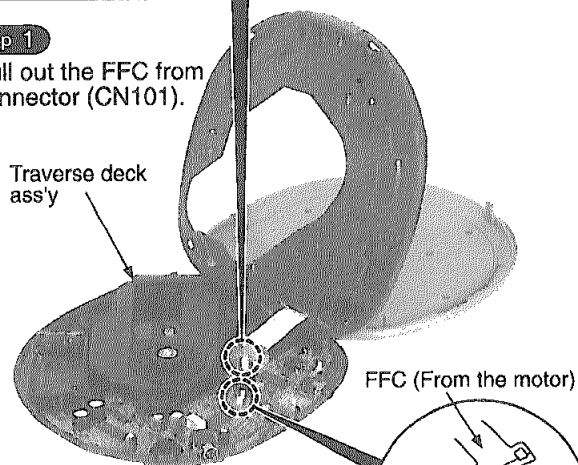
## 5.5 Replacement for the traverse motor and optical pickup

Follow the **Step 1** ~ **Step 5** of the item 5.1 in checking for the main P.C.B. (A side).



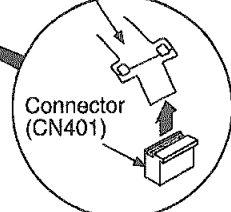
**Step 1**

Pull out the FFC from connector (CN101).



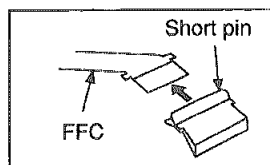
**Step 2**

Pull out the FFC from connector (CN401), and then remove the traverse deck ass'y.



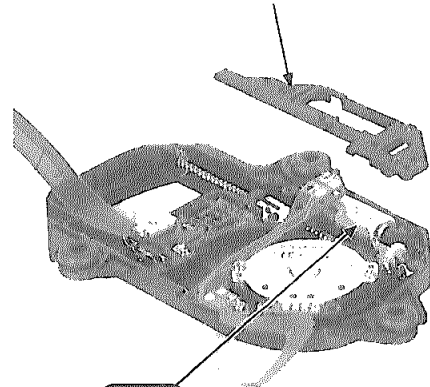
**NOTE**

Insert a short pin into the traverse deck's FFC. (Refer to "Handling Precautions for Traverse Deck".)



**Step 5**

Remove the holder.

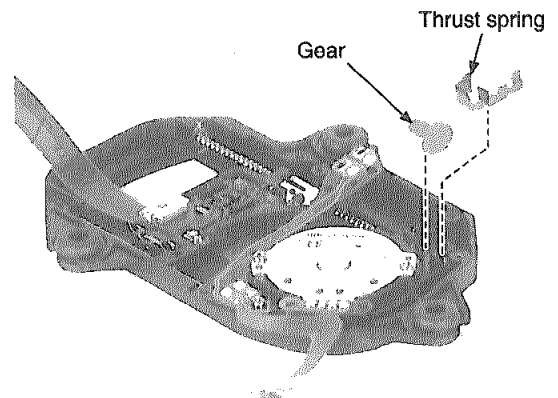


**Step 6**

Remove the traverse motor.

**Step 7**

Remove the gear and thrust spring.

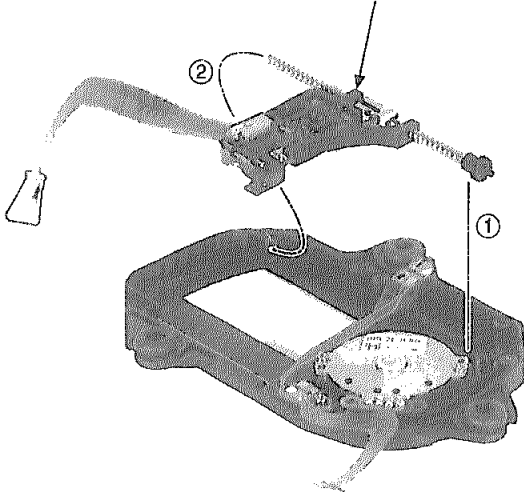


## 5.6 Replacement for the rest switch

- Follow the **Step 1** ~ **Step 5** of the item 5.1 in checking for the main P.C.B. (A side).
- Follow the **Step 1** , **Step 2** of the item 5.5 in replacement for the traverse motor and optical pickup.

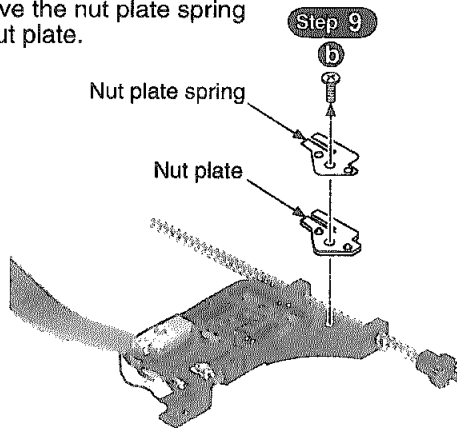
### Step 8

Remove the optical pickup ass'y.



### Step 10

Remove the nut plate spring and nut plate.



### Step 9

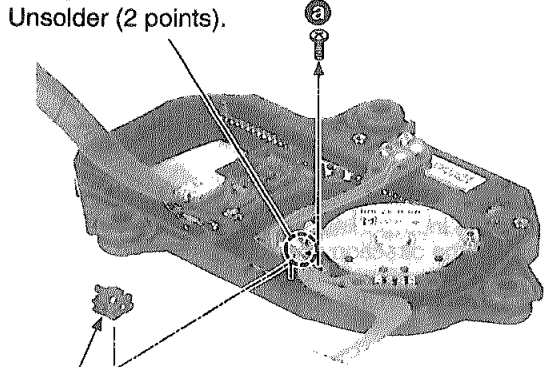
Nut plate spring

Nut plate

### Step 2

Unsolder (2 points).

### Step 1



### Step 3

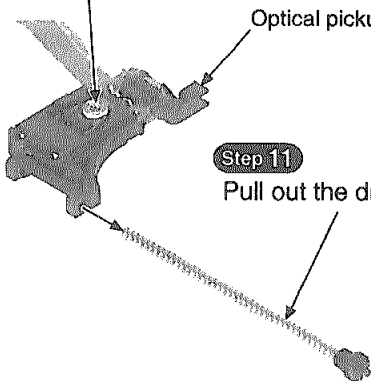
Remove the rest switch.

Lens

Optical pickup

### Step 11

Pull out the drive shaft.



## NOTE

- Use care to prevent damage the optical pickup, due to the precision construction.
- Do not apply the grease on the lens of optical pickup.
- Do not touch the lens of the optical pickup.

## 6 Checking the Operation Problems on the Traverse Deck (Optical Pickup)

Make sure to follow the procedures below to check the operation problems of the traverse deck (optical pickup) before

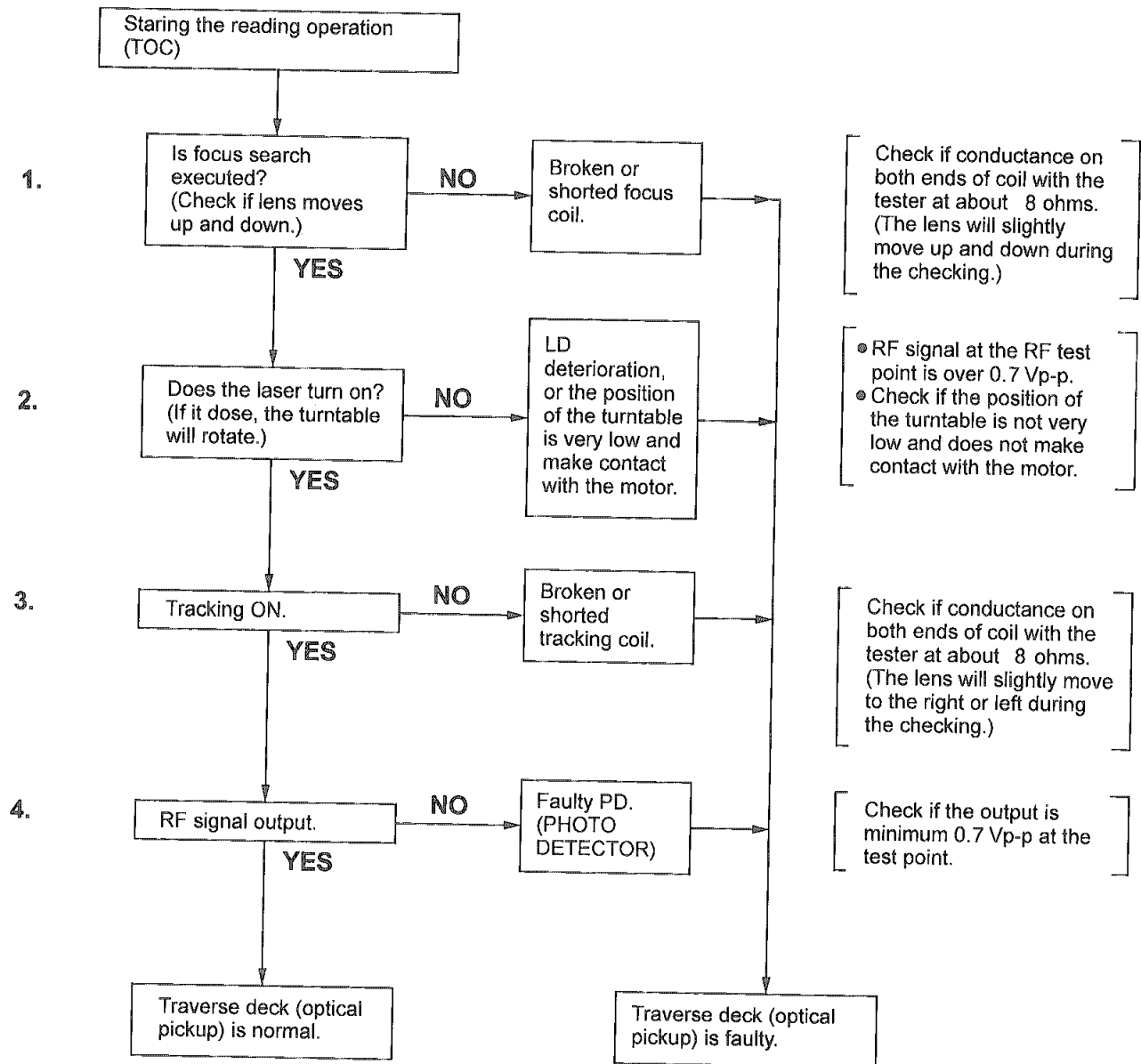
replacing it.

Replace the traverse deck only after the problem is identified.

(Procedure No.) (Checking Points)

(Cause)

(Testing Procedure)



- Check electrical circuit.
- Check for flaws on disc or if it is warped or not centered.

※ Replace the traverse deck.

● Check the operations described below on the traverse deck after replacing it.

\* Checking Skip Search

1. Play an ordinary musical program disc.
2. Press the skip button to check for normal skip search operation (in both the forward and reverse directions).

\* Checking Manual Search

1. Play an ordinary musical program disc.
2. Press the manual search button to check for smooth manual search operations at either low or high speed (in both the forward and reverse directions).

\* Checking Playability

1. Play the 0.7 mm black dot and the 0.7 mm wedge on the playability test disc (SZZP1054C) and verify that no sound skip or noise occurs.
2. play the middle tracks of the uneven test disc (SZZP1056C) and verify that no sound skip or noise occurs.

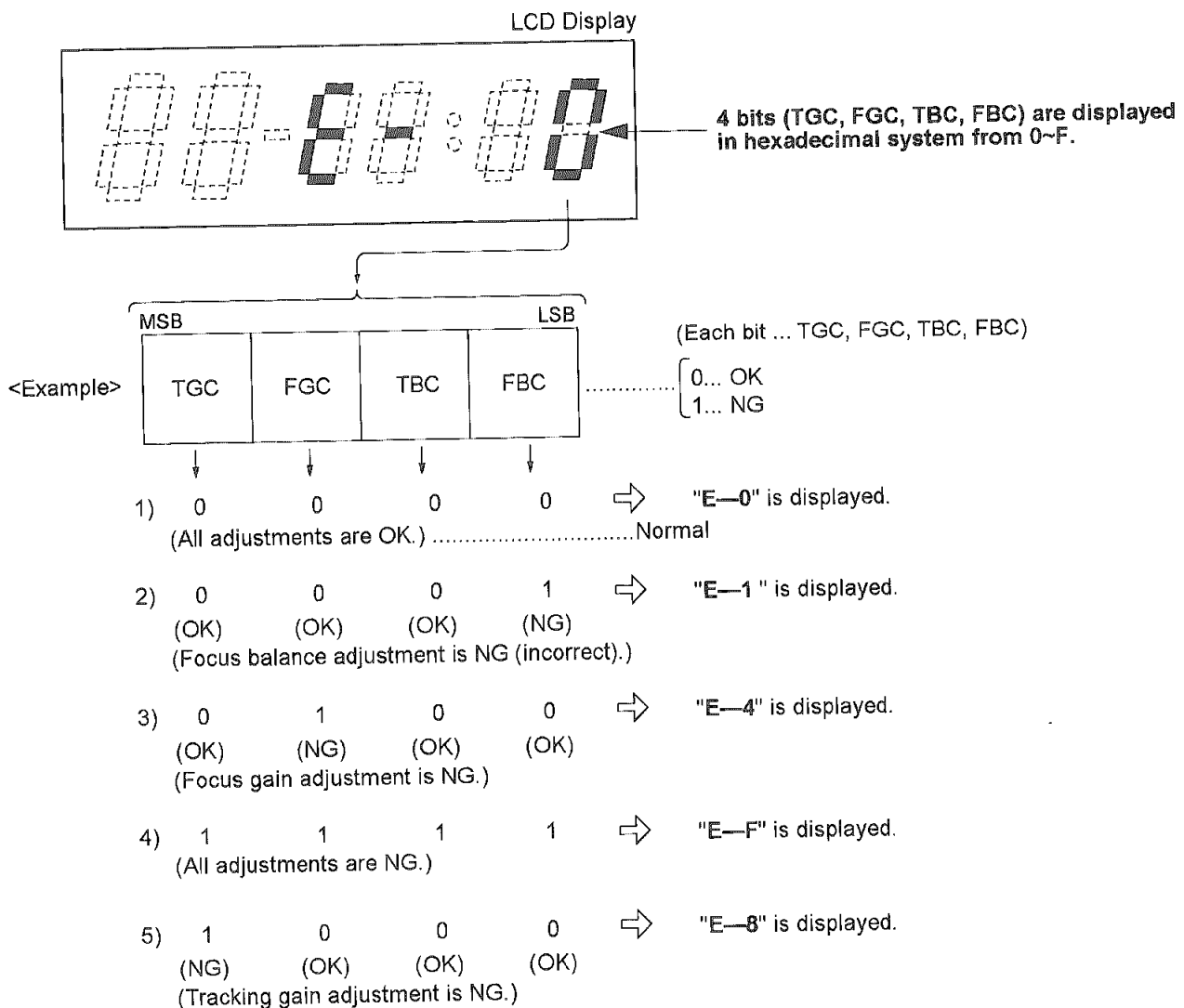
# 7 Automatic Adjustment Results Display Function (Self-check Function)

On this unit (SL-SX469V), each automatic adjustment results are displayed on the LCD. This function is convenient to check or identify which automatic adjustment circuit is incorrect. The followings are the contents of the automatic adjustment result displays (self-check function).

## 7.1. How to display automatic adjustment results

1. Load the test disc (SZZP1054C).
2. Press the (SKIP/SEARCH) and (SKIP/SEARCH) Buttons simultaneously and hold them, and additionally press the (PLAY/PAUSE) Button.
3. Press the (STOP/POWER OFF) Button once.
4. An automatic adjustment result is displayed on the LCD.

## 7.2. Display of automatic adjustment results(self-check function)



**Note:** If any other disc than the test disc (SZZP1054C) is used, an "E-8" may be displayed.

## &lt;Example&gt;

**Follow the below steps when "E-1" is displayed.**

(Cause: Focus balance (FBC) is set beyond the limit.)

## ● Check if

(1) the waveform or voltage of the focus servo circuit is correct.

(2) the optical pickup returns to the normal state by exchanging the traverse deck.

**Follow the below steps when "E-4" is displayed.**

(Cause: Focus gain (FGC) is set beyond the limit.)

## ● Check if

(1) the waveform or voltage of the focus servo circuit is correct.

(2) the focus coil of the optical pickup is correct (around 15

ohms).

(3) the optical pickup returns to the normal state by exchanging the traverse deck.

**Follow the below steps when "E-F" is displayed.**

(Cause: All adjustments (TGC, FGC, TBC, FBC) are set beyond the limit.)

## ● Check if

(1) the optical pickup returns to the normal state by exchanging the traverse deck.

(2) the waveform or voltage of the servo IC's are correct.

**Note:**

It is not always necessary to exchange the traverse deck when an error message is displayed.

Be sure to check if the circuit is defective or not before exchanging the traverse deck.

**Note:**

If any other disc than the test disc (SZZP1054C) is used, an error message may be displayed. This is not a malfunction.

## 8 Measurements and Adjustments

**Warning:**

This product uses a laser diode. Refer to caution statements.

**ACHTUNG:**

- Die lasereinheit nicht zerlegen.
- Die lasereinheit darf nur gegen ein vom hersteller spezifizierte einheit ausgetauscht werden.

● **Measuring instruments and special tools**• **Test discs**

1. Playability test disc (SZZP1054C)

● **Adjustment point****Notes:**

1. Please refer to the printed circuit board and wiring connection diagram for test point locations.
2. Take care to connect CN101 and CN401. (as shown in Fig. 3 )

2. Uneven test disc (SZZP1056C)

- Musical program disc (ordinary)
- DC voltmeter
- Lead wire (for test points)

● **Test short land**

Short-circuit the lands of the laser ON/OFF switch (SW201) by soldering them. It turns "ON" position. (Refer to below Fig. 3 or printed circuit board and wiring connection diagram for short land location on page 18.)

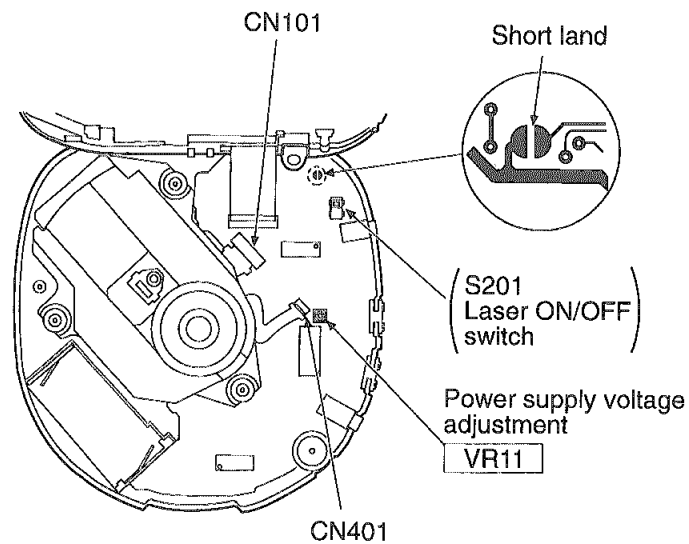
**Note:** Remove the solders from the lands after adjustment.

Fig. 3

## 8.1. POWER SUPPLY VOLTAGE ADJUSTMENT

1. Connect the DC voltmeter to VDD(+) and GND on the P.C.B.
2. Connect the AC adaptor cord to the DC (IN) port and move the PLAY switch to the ON position. Anti-shock is set in OFF position. (Use a new dry cell battery or a rechargeable

battery that is full charged.)

3. Insert the test disc, and switch the player power ON.
4. Adjust VR11 on the P.C.B. at  $2.45 \pm 0.02V$  (EQ switch in "Normal" position), as shown in Fig. 3.

## 8.2. CHECK OF PLAY OPERATION

### \* Checking Skip Search

1. Play an ordinary musical program disc.
2. Press the skip button to check for normal skip search operation (in both the forward and reverse directions).

### \* Checking Manual Search

1. Play an ordinary musical program disc.
2. Press the manual search button to check for smooth manual search operations at either low or high speed (in

both the forward and reverse directions).

### \* Checking Playability

1. Play the 0.7 mm black dot and the 0.7 mm wedge on the playability test disc (SZZP1054C) and verify that no sound skip or noise occurs.
2. Play the middle tracks of the uneven test disc (SZZP1056C) and verify that no sound skip or noise occurs.

## 8.3. Tuner Block Adjustments

### ●Preparation for Adjustment

Connect lead wire for test points [ TP19 ] and [ TP30 ].  
(Refer to Fig. 6)

### ●Measurement Condition

1. Set volume control to maximum.
2. Release the hold state.

3. Set powersource Voltage to 4.5V DC.(AC adaptor IN)

### ●Control Positions and Equipment Used

1. Signal generator (AM/FM)
2. Oscilloscope
3. Frequency counter
4. V.V. Meter

### ●Tuner section

BAND	SIGNAL GENERATOR		DISPLAY SETTING	OUTPUT	ADJUSTMENT POINT	PROCEDURE
	CONNECTION	FREQUENCY				
FM	[ TP19 ] → ( + ) [ TP30 ] → ( - )	90 MHz	90 MHz	Headphones jack (16Ω) (Refer to Fig. 5)	CT101 (Refer to Fig. 4)	Adjust CT101 for maximum output.
AM	Fashion a loop of several turns of wire and radiate a signal into the loop antenna of receiver.	600 kHz	600 kHz	Headphones jack (16Ω) (Refer to Fig. 5)	L202 L203 (Refer to Fig. 4)	Adjust L202 for maximum output. Adjust L203 for maximum output.

### ●Adjustment Point

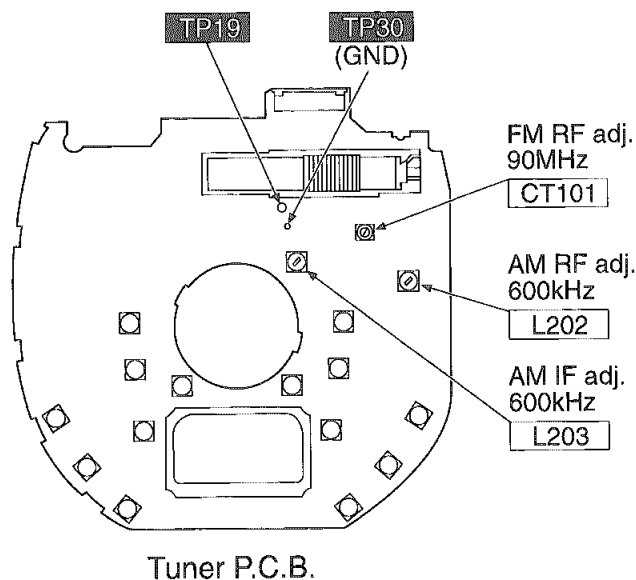


Fig. 4

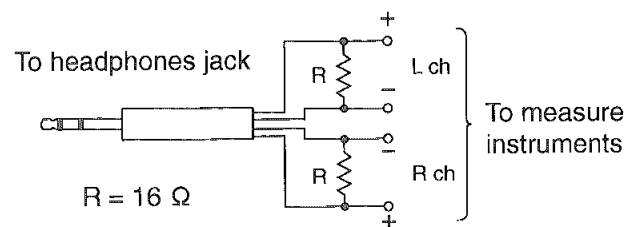


Fig. 5

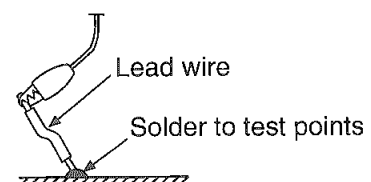


Fig. 6

# 9 Outline of 40-Second Sound Keeper Technique Used for Prevention of Sound from Skipping

## 9.1. Conventional Shockproofing Technique

Input information read out of the CD at double speed is demodulated, stored in the memory, and while sound-marking signal is supplied at normal speed from the memory to the D/A converter, the residual data is accumulated in the memory.

If reaccess to the break point is accomplished before the memory becomes empty, apparent playback sound is entirely kept free from breaking even when information pauses due to vibration, etc. It was necessary to use the 16M bit memory for securing the accumulation time of about 40 seconds.

## 9.2. Compression-shockproofing [Outline]

Fig. 7 is a block diagram showing the compression-shockproofing mechanism, the difference of which from the conventional mechanism is as follows: Input information read out at double speed undergoes data compression (16 bits -- 4 bits) by the encoder in the ADPCM (Adaptive Difference PCM)

and stored in the external memory; the stored memory information undergoes data elongation (4 bits -- 16 bits) by the decoder in the ADPCM and supplied at normal speed to the D/A converter.

The data compression technique has conducted to reduction of required memory capacity from 4M bits to 1M bit for securing the accumulation time equivalent to the conventional.

**All-inclusive Block Diagram**

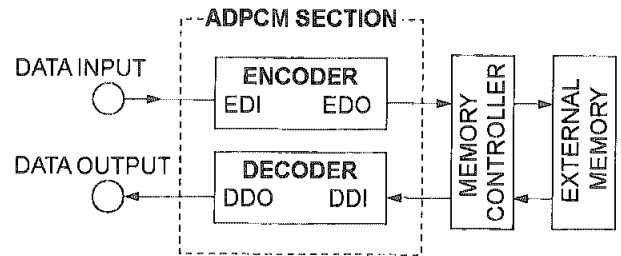
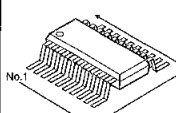
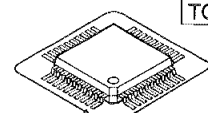
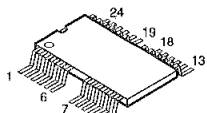
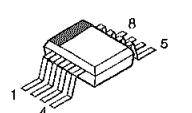
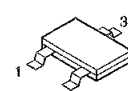
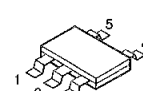
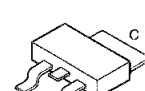
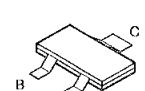
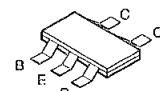

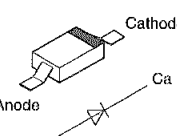
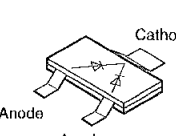
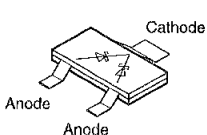
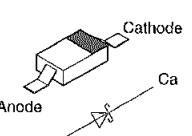
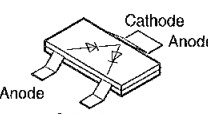
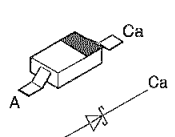
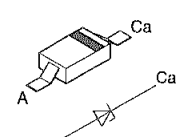
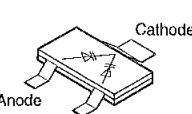


Fig. 7

# 10 Schematic Diagram Note

## 10.1. Type Illustration of IC's, Transistors and Diodes

 <table border="1" data-bbox="319 1064 558 1209"> <tr><td>AN8839NSBE1</td><td>28PIN</td></tr> <tr><td>BH6522FVE2</td><td>40PIN</td></tr> <tr><td>LB1971VTLM</td><td>24PIN</td></tr> <tr><td>RS10003E2</td><td>40PIN</td></tr> <tr><td>TA2111FNEL</td><td>24PIN</td></tr> <tr><td>TA2120FNEL</td><td>24PIN</td></tr> </table>	AN8839NSBE1	28PIN	BH6522FVE2	40PIN	LB1971VTLM	24PIN	RS10003E2	40PIN	TA2111FNEL	24PIN	TA2120FNEL	24PIN	 <table border="1" data-bbox="766 1064 1005 1142"> <tr><td>MN662782RPT1</td><td>80PIN</td></tr> <tr><td>SC440325CFU</td><td>64PIN</td></tr> <tr><td>TC9327F-701</td><td>80PIN</td></tr> </table>	MN662782RPT1	80PIN	SC440325CFU	64PIN	TC9327F-701	80PIN	 <p>M51V7400D1FS</p>	 <p>AK93C45BH-L</p>			
AN8839NSBE1	28PIN																							
BH6522FVE2	40PIN																							
LB1971VTLM	24PIN																							
RS10003E2	40PIN																							
TA2111FNEL	24PIN																							
TA2120FNEL	24PIN																							
MN662782RPT1	80PIN																							
SC440325CFU	64PIN																							
TC9327F-701	80PIN																							
<p>XC61AN1502MR XC61CN1902MR XC61CN2002MR</p> 	<p>XC62HS05XXMR</p> 	<p>2SB1182TLPQR</p> 	 <table border="1" data-bbox="973 1310 1460 1478"> <tr><td>MSB709RST1</td><td>2SC4617STL</td><td>DTC144WETL</td></tr> <tr><td>2SB1218ATX</td><td>2SD1328TX</td><td>UN9110TX</td></tr> <tr><td>2SB1295-6-TB</td><td>2SD1819ATX</td><td>UN9114TX</td></tr> <tr><td>2SB1462STX</td><td>2SD2216STX</td><td>UN9115TX</td></tr> <tr><td>2SC3931CTX</td><td>DTA114YUA106</td><td>UN9210TX</td></tr> <tr><td>2SC3935TX</td><td>DTC114EUT106</td><td>UN9213TX</td></tr> <tr><td>2SC4555-7-TL</td><td>DTC144TUA106</td><td>UN9216TX</td></tr> </table>	MSB709RST1	2SC4617STL	DTC144WETL	2SB1218ATX	2SD1328TX	UN9110TX	2SB1295-6-TB	2SD1819ATX	UN9114TX	2SB1462STX	2SD2216STX	UN9115TX	2SC3931CTX	DTA114YUA106	UN9210TX	2SC3935TX	DTC114EUT106	UN9213TX	2SC4555-7-TL	DTC144TUA106	UN9216TX
MSB709RST1	2SC4617STL	DTC144WETL																						
2SB1218ATX	2SD1328TX	UN9110TX																						
2SB1295-6-TB	2SD1819ATX	UN9114TX																						
2SB1462STX	2SD2216STX	UN9115TX																						
2SC3931CTX	DTA114YUA106	UN9210TX																						
2SC3935TX	DTC114EUT106	UN9213TX																						
2SC4555-7-TL	DTC144TUA106	UN9216TX																						
<p>XN1210TX XN1216TX</p> 	<p>2SK1958T1 2SK1067-4-TL</p> 	<p>MA111TX</p> 	<p>MA142WKTX</p> 	<p>MA741WKTX SB007W03QTL</p> 	<p>MA1070400L</p> 																			
<p>MA143TX MA147TX</p> 	<p>MA729TX</p> 	<p>MA8120MTX</p> 	<p>KV1450TL3-0 KV1610STL2-0</p> 																					

## 10.2. Schematic Diagram Notes

### Notes:

- S201 : Laser ON/OFF switch in "OFF" position.  
(It turns "ON" with disc holder closed.)
- S202: Rest detector in "OFF" position.  
(It turns "ON" when optical pickup comes to innermost periphery.)
- S301 : Preset channel (3) switch.
- S302 : Stop/power off (■, POWER OFF) switch.
- S303 : Tunig/skip/search (▶▶▶, TUNIG,+) switch.
- S304 : Preset channel (4) switch.
- S305 : S-XBS switch.
- S306 : Tunig/skip/search (◀◀◀, TUNIG,-) switch.
- S307 : Preset channel (5) switch.
- S308 : Preset channel (1) switch.
- S309 : Play mode selector (MODE) in "NORMAL" position.  
(RESUME ↔ RANDOM ↔ NORMAL)
- S309A : Play/pause (▶||) switch.
- S310 : Hold (HOLD) switch in "OFF" position.
- S311 : Preset channel (2) switch.
- S312 : Tuner on/band select (RADIO/BAND) switch.
- S313 : Anti-shock sensitivity control (A.SHOCK, FM RECEPT, ◀ CITY/NOR) switch.
- S314 : Repeat, monaural/stereo (REPEAT, FM MODE, MONO/ST) switch.
- S315 : Memory/recall (MEMORY/RECALL) switch.
- VR11 : Power supply voltage adjustment.
- VR701-1, 2 : Headphones volume (VOLUME) control.
- Important safety notice:  
Components identified by Δ mark have special characteristics important for safety.  
Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used. When replacing any of components, be sure to use only manufacture's specified parts shown in the parts list.
- The supply part number is described alone in the replacement parts.
- Signal line
  - : POSITIVE VOLTAGE line. ⇨ : Main signal line.
  - ⇨ : FM/AM Vcap signal line. ⇨ : FM signal line.
  - ⇨ : AM OSC signal line. ⇨ : FM OSC signal line.
  - ⇨ : CD playback signal line.
- The voltage value and waveforms are the reference voltage of this measured by DC electronic voltmeter (high impedance) and oscilloscope on the basis of GND terminal (DC IN Jack). Accordingly, there may arise some errors in the voltage values and waveforms depending upon the internal impedance of the tester or measuring unit.  
Measurement conditions:  
\*AC adaptor is used for power supply.  
\*Set the headphones VR(VR701) to center position(No.5).  
\*Set the hold lock and ANTI-SHOCK switches to ON.  
\*No mark .... CD stop mode  
( ) .... CD playback mode (Test disc 1kHz, L+R, 0dB)  
< > .... FM mode, ⌈ ⌋ .... AM mode

### Caution!!

- IC and LSI are sensitive to static electricity.
- Secondary trouble can be prevented by taking care during repair.
- Cover the parts boxes made of plastics with aluminum foil.
- Ground the soldering iron.
- Put a conductive mat on the work table.
- Do not touch the pins of IC or LSI with fingers directly.

## 10.3. Cautions in Repair exchange of the Diode(D101, D102)

- When it be repaired, to exchange the parts of D101, D102 together.
- The service parts of Number (KV1450TL3-0) are supplied only.

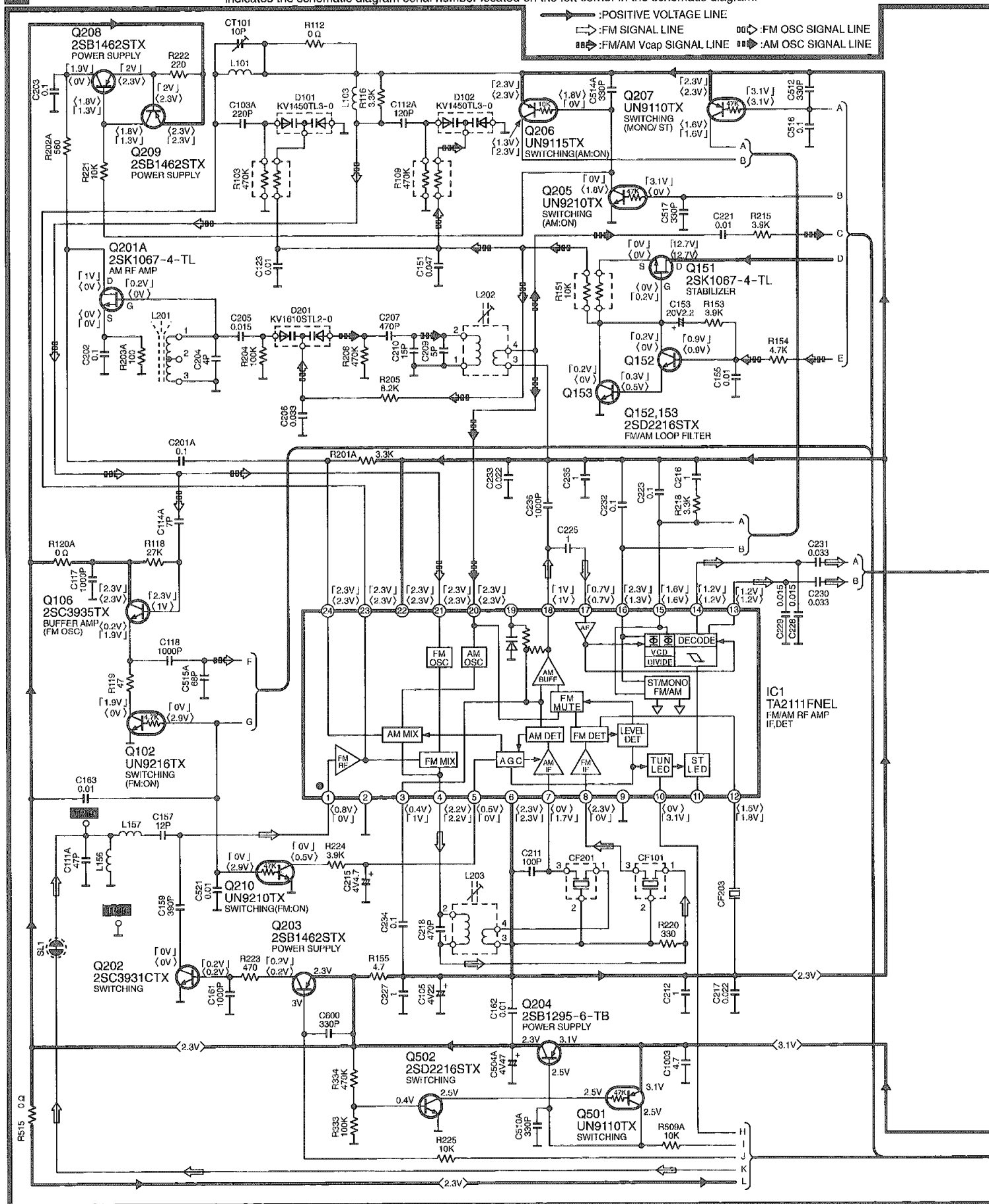


# 11 Schematic Diagram





## SCHEMATIC DIAGRAM-1

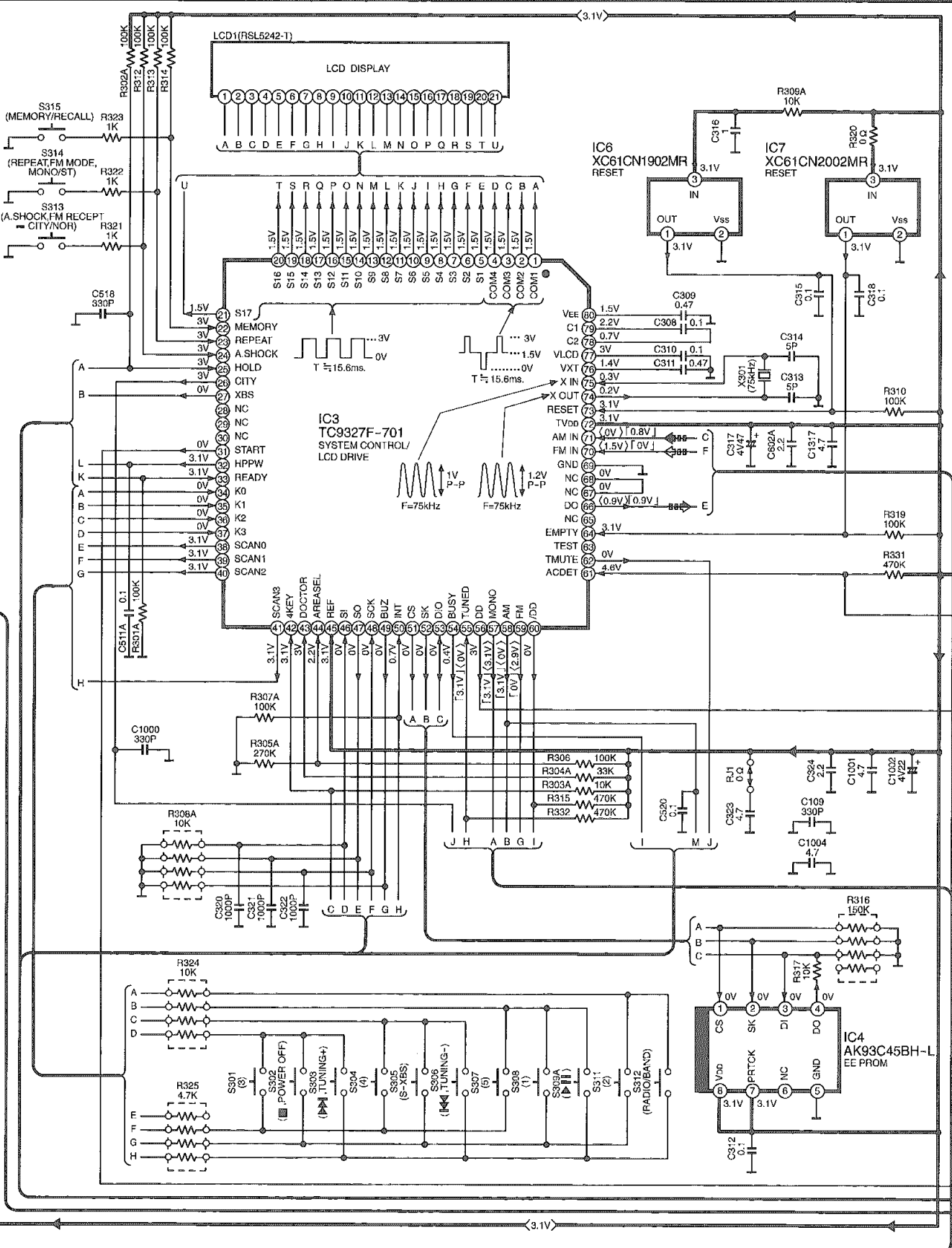
NOTE:  
 The number which noted at the connectors on the schematic diagram as "SCHEMATIC DIAGRAM-1" or "SCHEMATIC DIAGRAM-2" indicates the schematic diagram serial number located on the left corner in the schematic diagram.

### A TUNER CIRCUIT



SCHEMATIC DIAGRAM-2

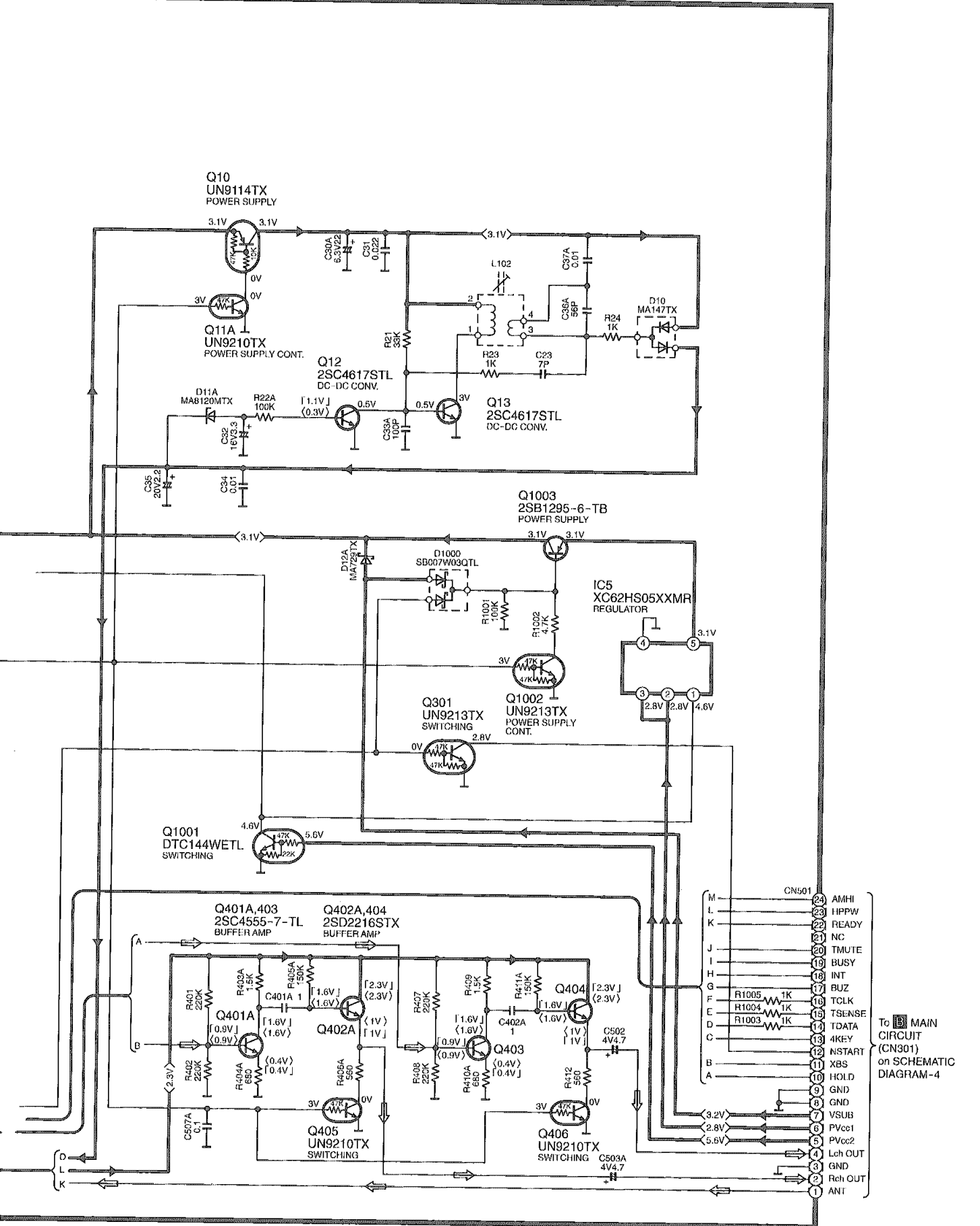
 :FM OSC SIGNAL LINE  
 :AM OSC SIGNAL LINE  
 :POSITIVE VOLTAGE LINE  
 :FM/AM Vcap SIGNAL LINE



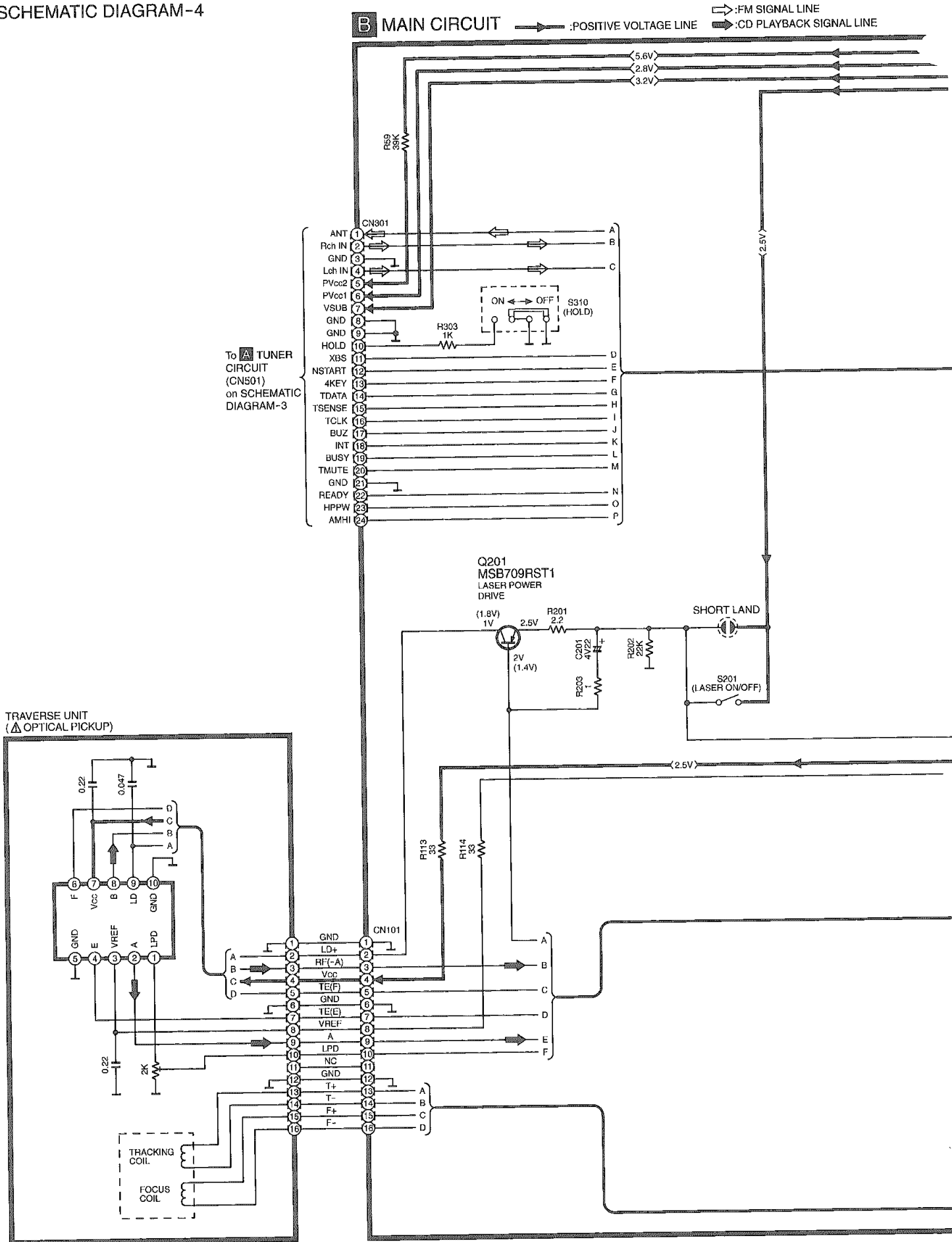
SCHMATIC DIAGRAM-3

A TUNER CIRCUIT

→ : POSITIVE VOLTAGE LINE    ⇨ : FM SIGNAL LINE

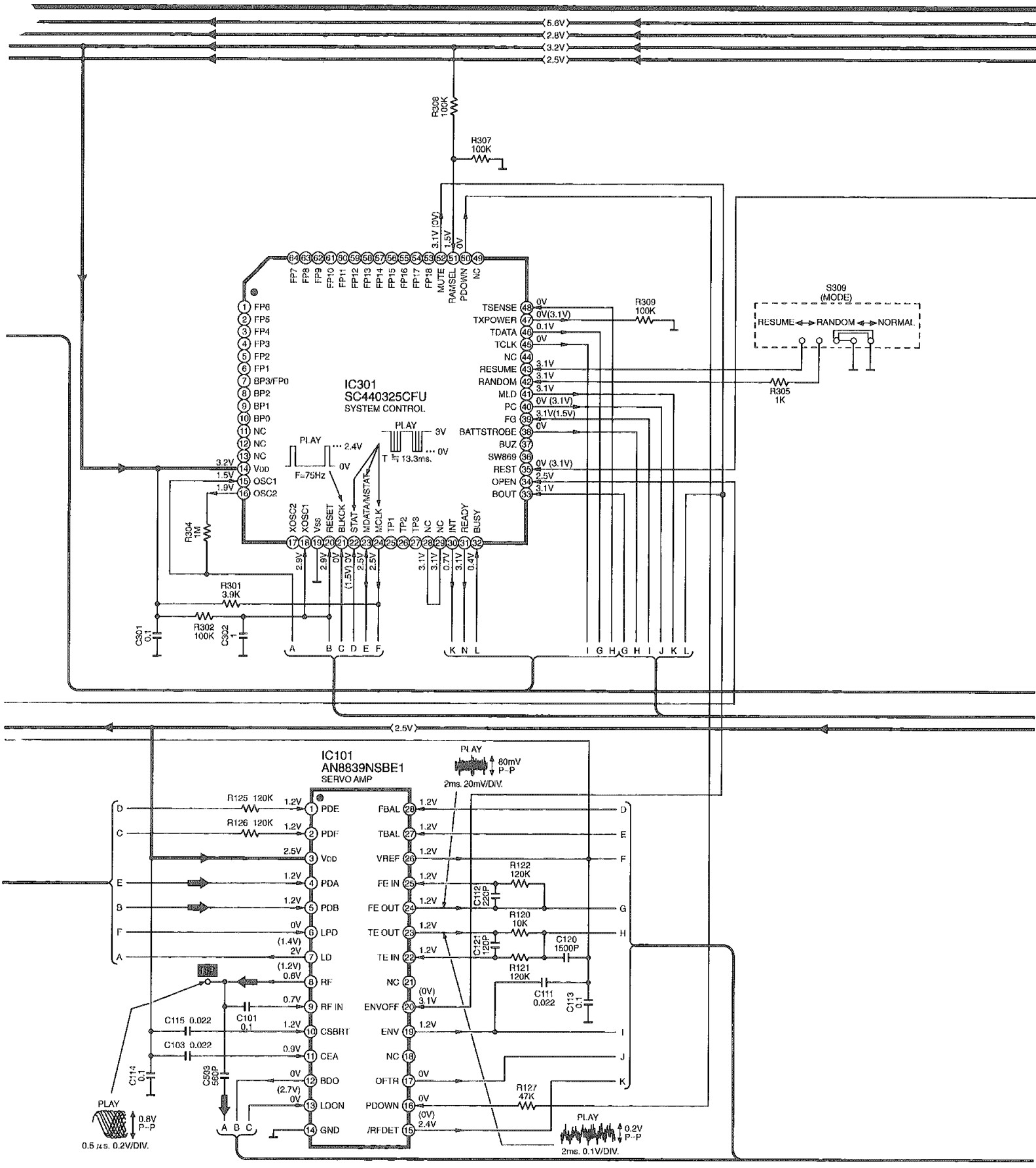


SCHEMATIC DIAGRAM-4



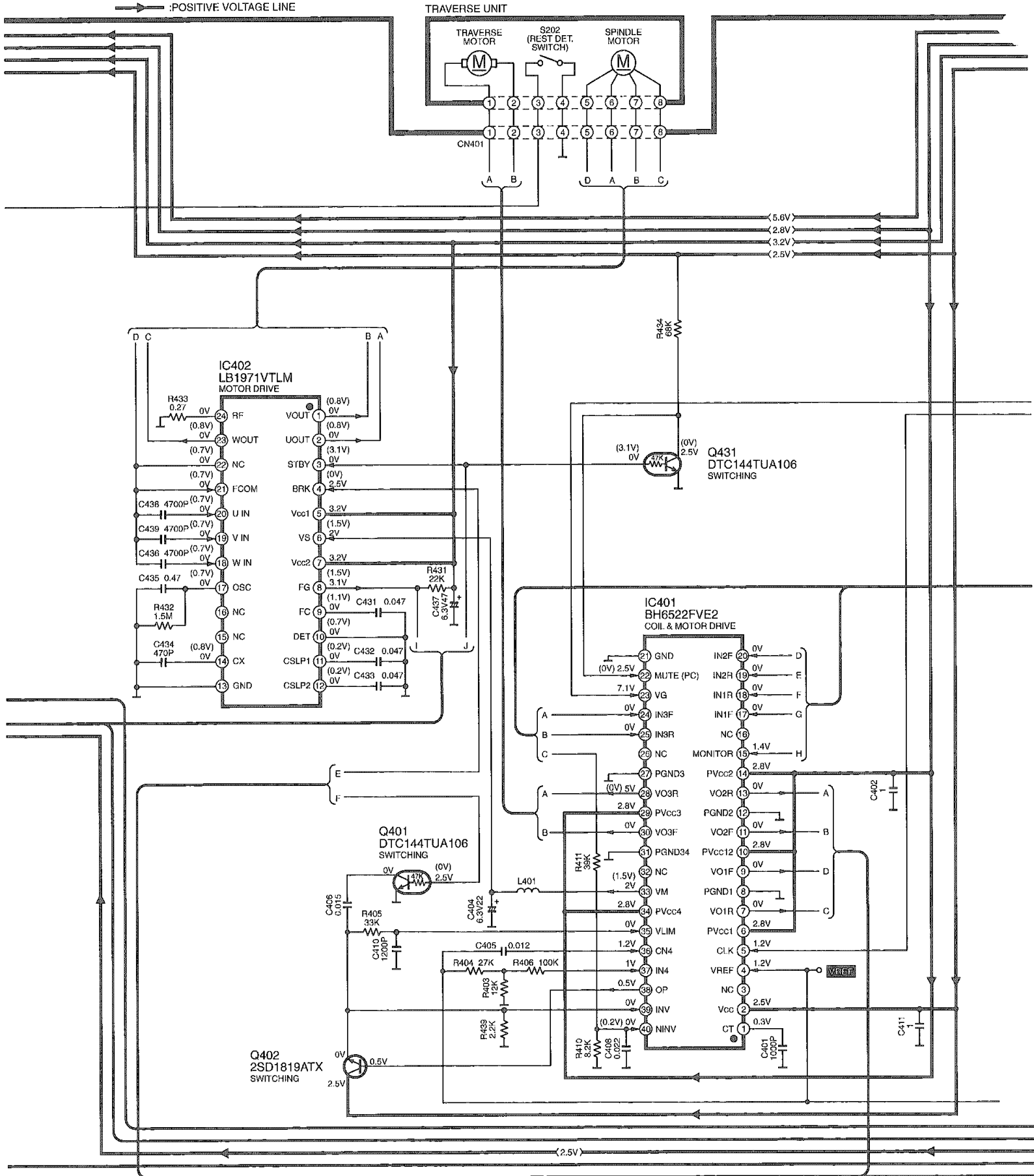
### SCHEMATIC DIAGRAM-5

➔ : POSITIVE VOLTAGE LINE ➔ : CD PLAYBACK SIGNAL LINE



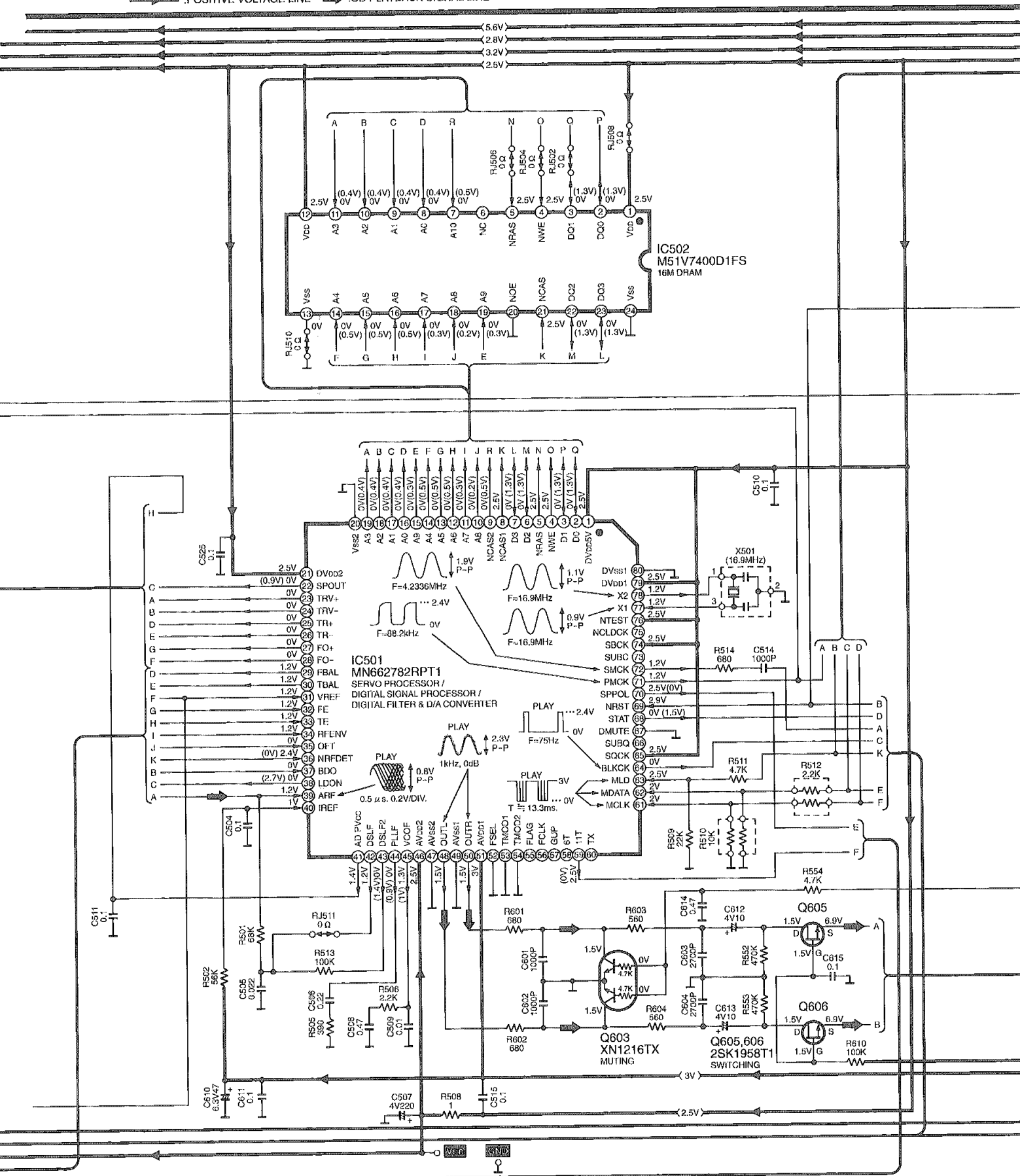
# SCHEMATIC DIAGRAM-6

→ POSITIVE VOLTAGE LINE



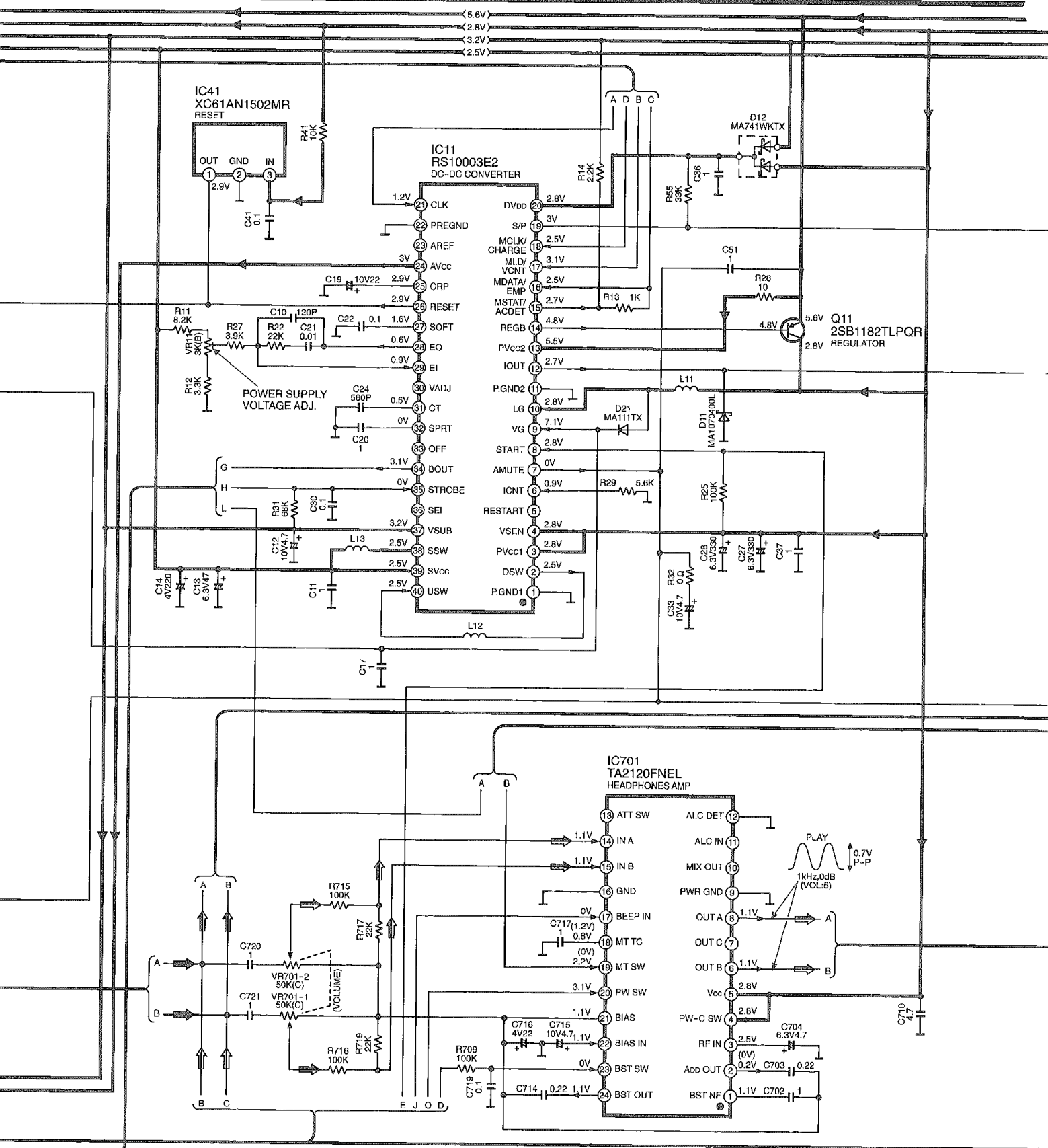
SCHEMATIC DIAGRAM-7

→ : POSITIVE VOLTAGE LINE    → : CD PLAYBACK SIGNAL LINE



SCHEMATIC DIAGRAM-8

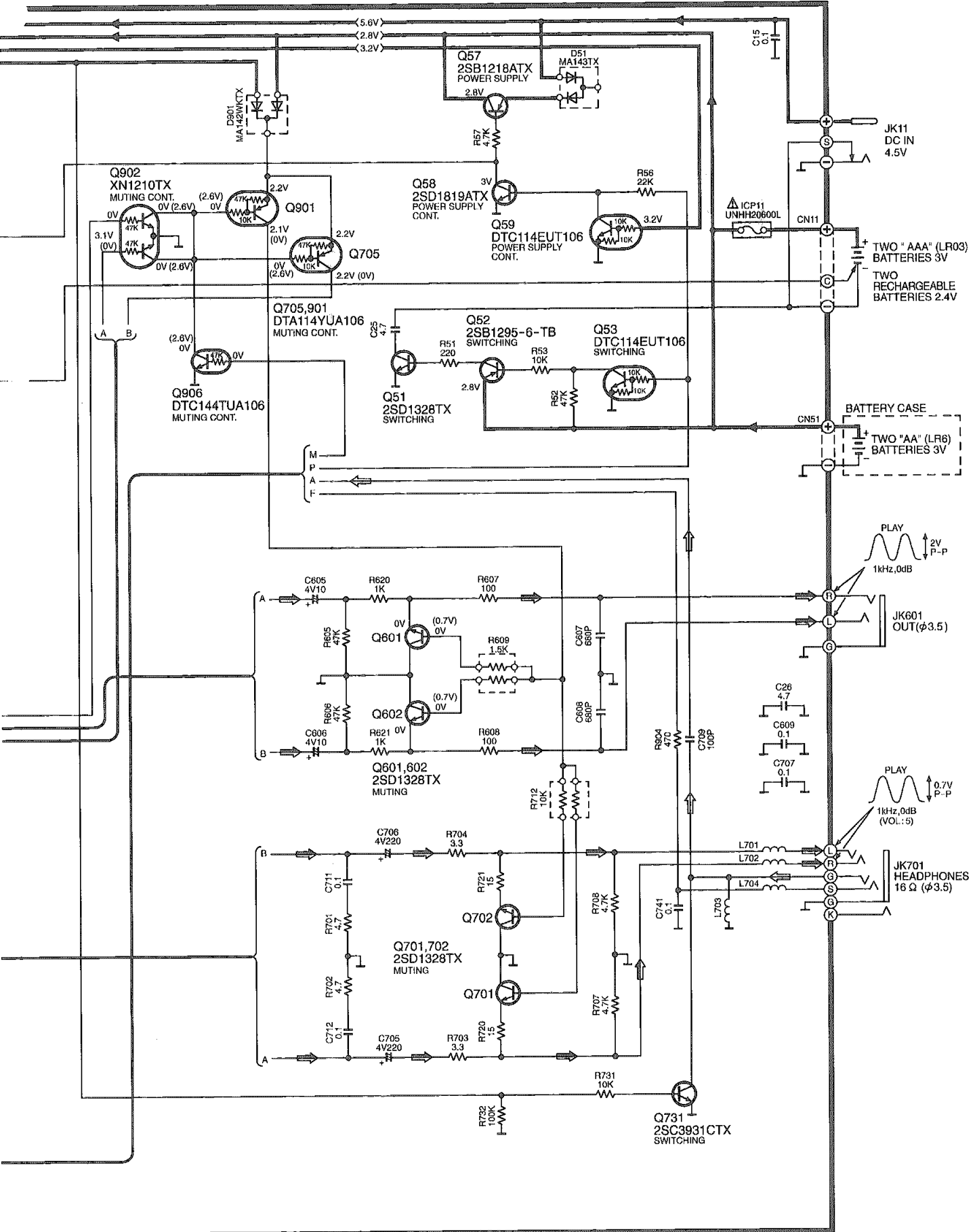
➔ : POSITIVE VOLTAGE LINE   ➔ : CD PLAYBACK SIGNAL LINE   ➔ : FM SIGNAL LINE   ➔ : MAIN SIGNAL LINE





# SCHEMATIC DIAGRAM-9

→ : POSITIVE VOLTAGE LINE    ⇨ : FM SIGNAL LINE    ⇨ : MAIN SIGNAL LINE



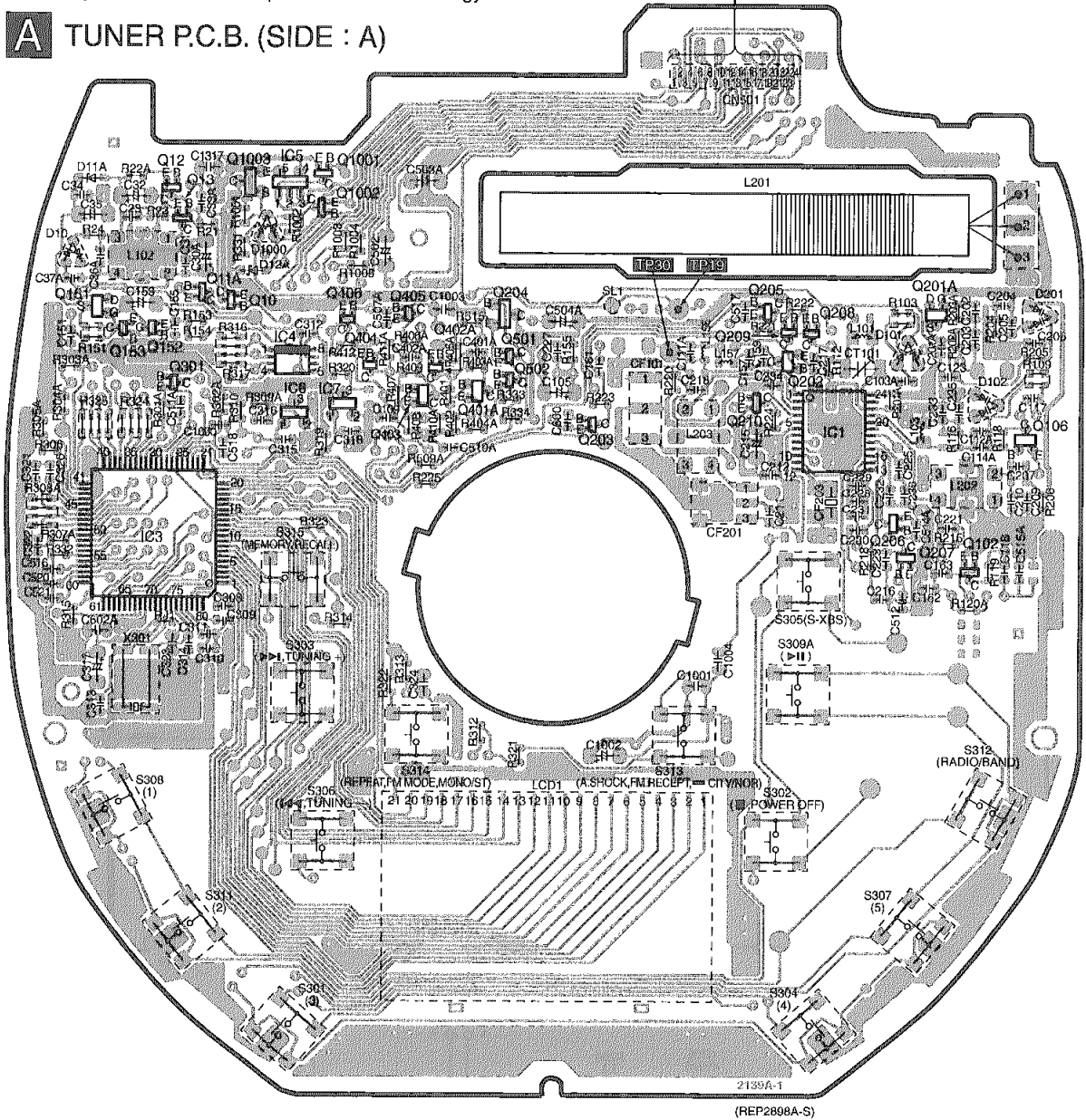
# 12 Printed Circuit Board and Wiring Connection Diagram



Note: This printed circuit board diagram may be modified at any time with the development of new technology.

To CN301 of MAIN P.C.B.(SIDE:A)

**A** TUNER P.C.B. (SIDE : A)

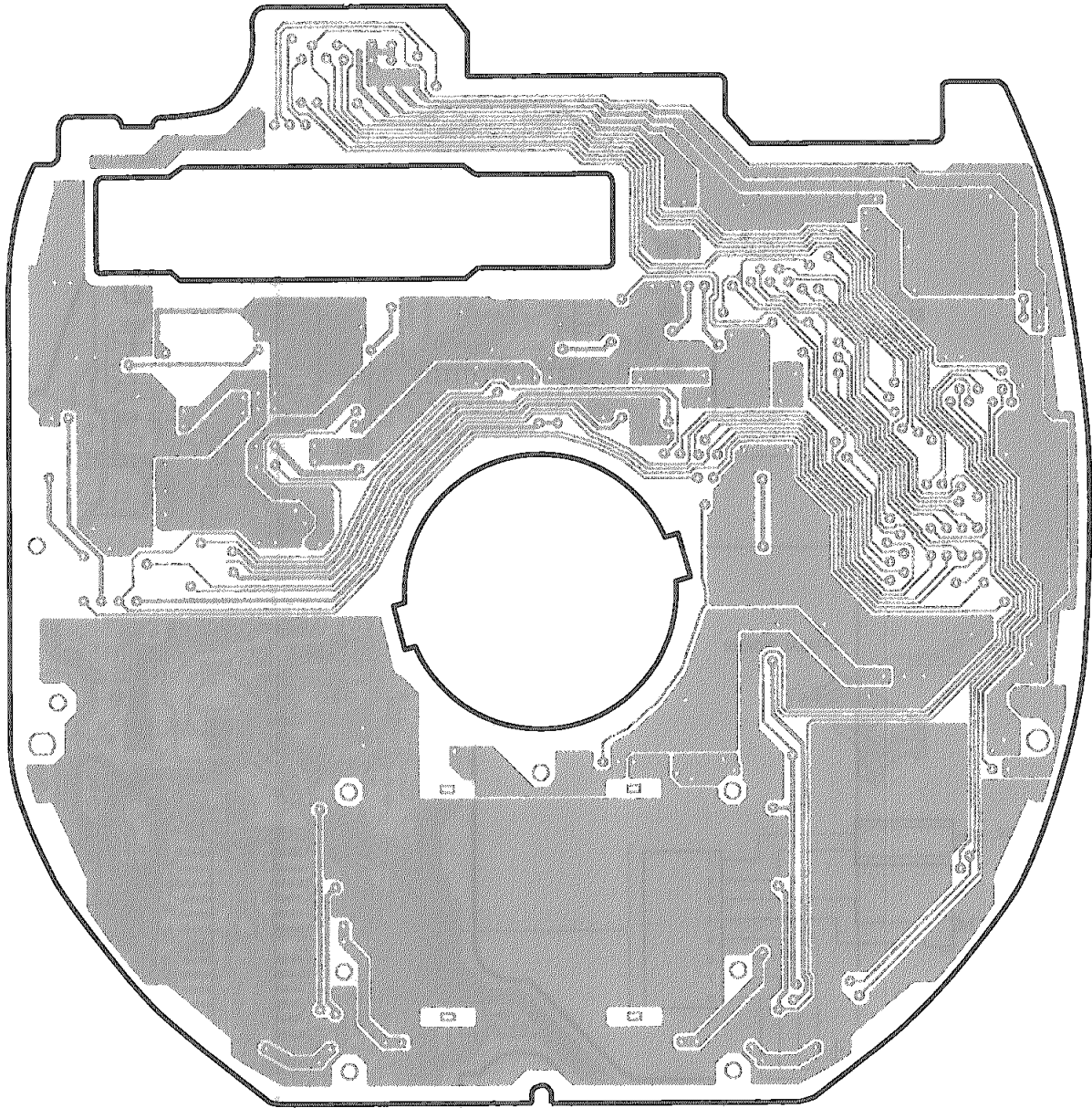


**ELECTRICAL PARTS LOCATION**

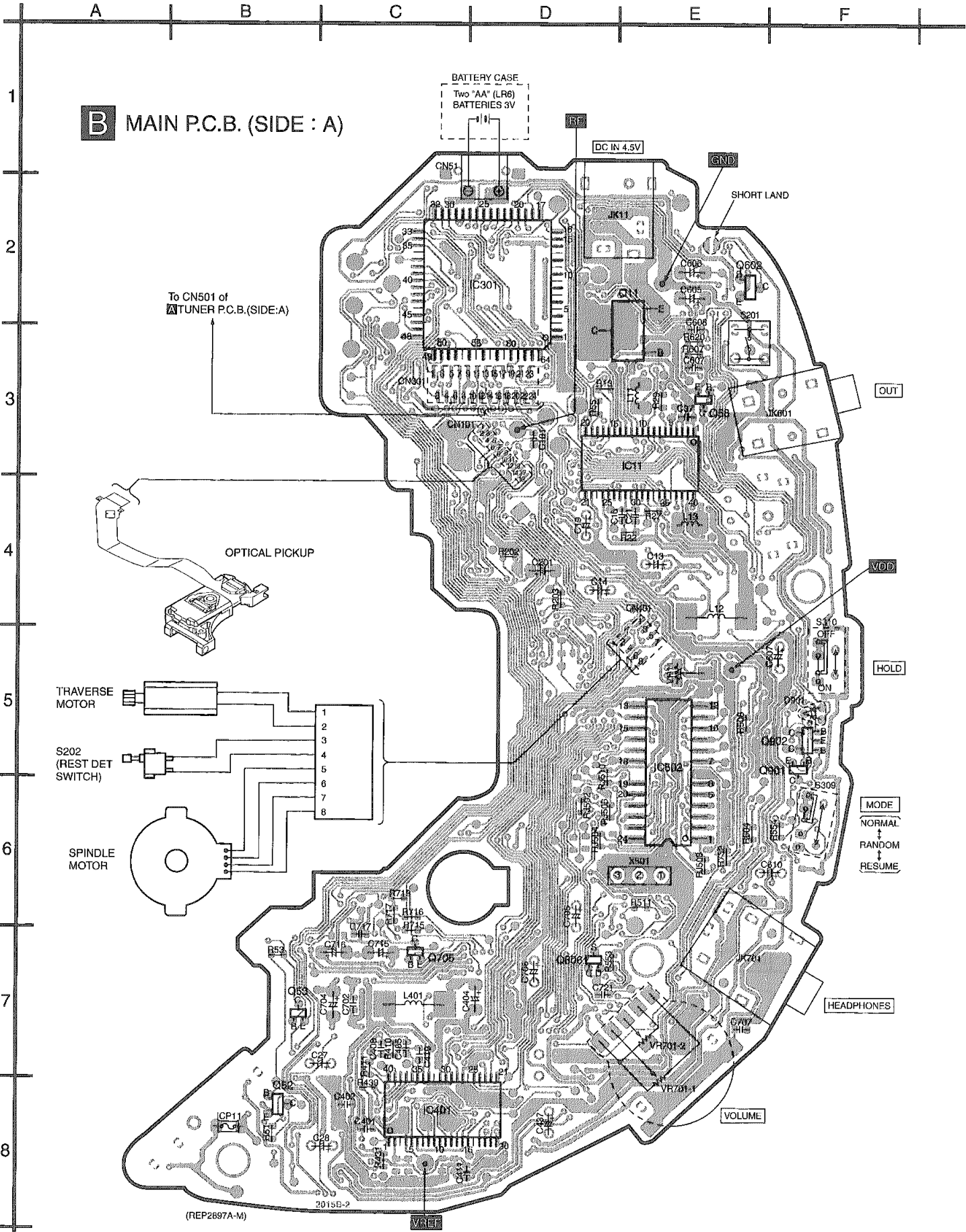
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<b>TUNER P.C.B.</b>															
IC1	3E	Q202	3F	Q501	3C	L156	3D	S307	5E	R109	3F	R215	4F	R309A	3B
IC3	3B	Q203	3D	Q502	3C	L157	3D	S308	5A	R112	3E	R218	4E	R310	3B
IC4	3B	Q204	2C	Q1001	2B	L201	2E	S309A	4E	R116	3F	R220	3D	R312	4C
IC5	2B	Q205	2E	Q1002	2B	L202	3F	S311	5B	R118	3F	R221	2E	R313	4C
IC6	3B	Q206	3E	Q1003	2B	L203	3D	S312	5F	R119	4F	R222	2E	R314	4B
IC7	3C	Q207	4E	D10	2A	CF101	3D	S313	4D	R120A	4F	R223	3D	R315	4A
Q10	2B	Q208	2E	D11A	2A	CF201	3E	S314	4C	R151	3A	R224	3E	R316	3B
Q11A	2B	Q209	2E	D12A	2B	CF203	3E	S315	4B	R153	2B	R225	3C	R317	3B
Q12	2B	Q210	3E	D101	3E	X301	4A	CN501	1D	R154	3B	R301A	3B	R319	3B
Q13	2B	Q301	3B	D102	3F	LCD1	5D	TP19	2D	R155	3D	R302A	3B	R320	3C
Q102	4F	Q401A	3C	D201	2F	S301	6B	TP30	3D	R201A	3E	R303A	3A	R321	5C
Q106	3F	Q402A	3C	D1000	2B	S302	5E	R21	2B	R202A	3F	R304A	3A	R322	4C
Q151	2A	Q403	3C	CT101	3E	S303	4B	R22A	2A	R203A	2F	R305A	3A	R323	3B
Q152	2B	Q404	3C	L101	3E	S304	6E	R23	2B	R204	2F	R306	3A	R324	3A
Q153	2A	Q405	2C	L102	2B	S305	4E	R24	2A	R205	3F	R307A	4A	R325	3A
Q201A	2E	Q406	2C	L103	3E	S306	5B	R103	2E	R206	3F	R308A	3A	R331	2B

G H I J K L

## A TUNER P.C.B. (SIDE : B)

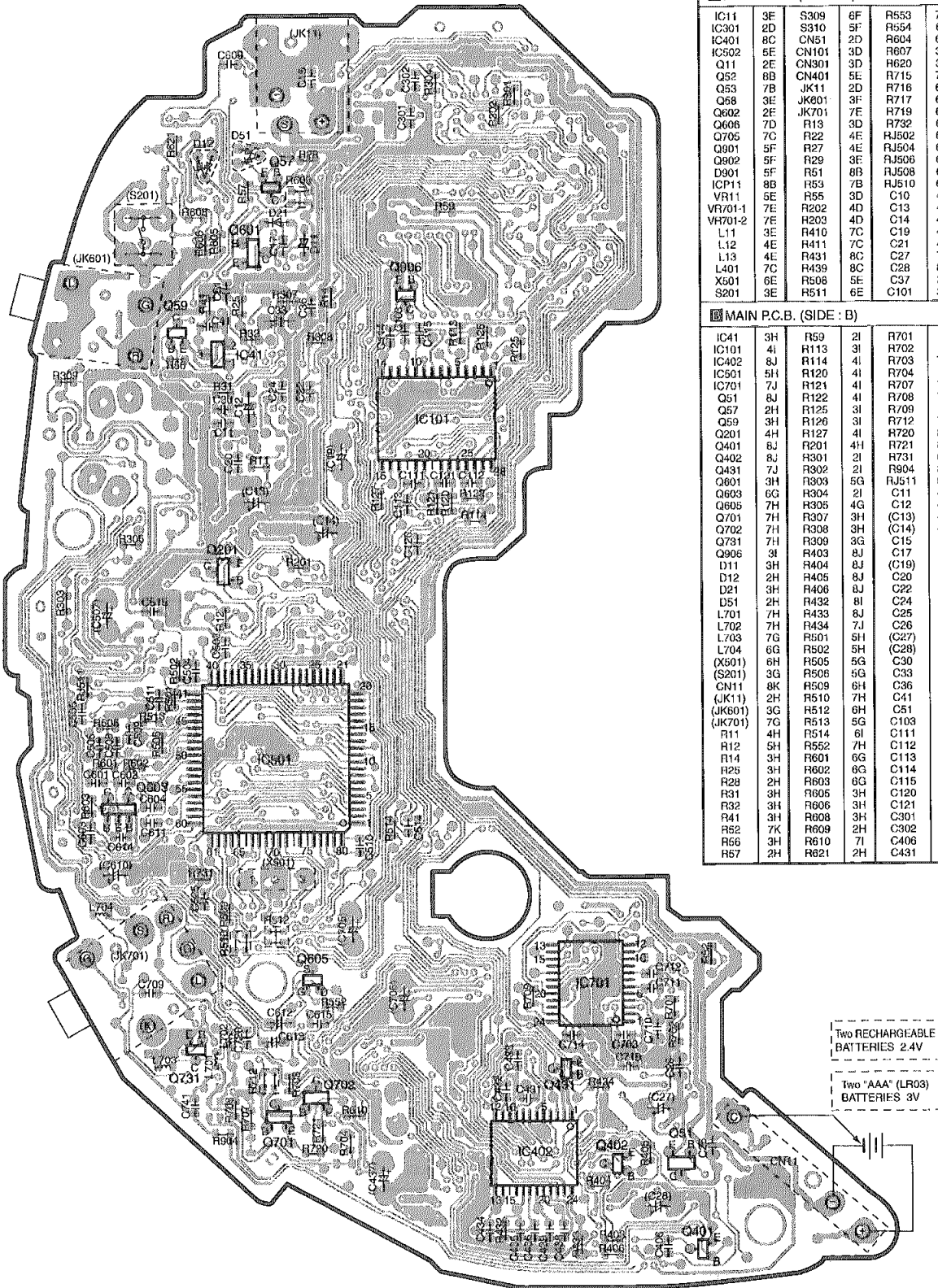


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R332	4A	R515	2C	C103A	3E	C163	4E	C221	3F	C311	4B	C503A	2C	C1001	4D
R333	3C	R1001	2B	C105	3D	C201A	3E	C223	4E	C312	3B	C504A	2D	C1002	5D
R334	3C	R1002	2B	C109	3C	C202	2F	C225	3E	C313	4A	C507A	2C	C1003	2C
R401	3C	R1003	2C	C111A	3D	C203	3F	C227	3D	C314	4B	C510A	3C	C1004	4D
R402	3C	R1004	2C	C112A	3F	C204	2F	C228	3E	C315	3B	C511A	3B	C1317	2B
R403A	3C	R1005	2C	C114A	3F	C205	2F	C229	3E	C316	3B	C512	4E		
R404A	3C	RJ1	4B	C117	3F	C206	3F	C230	3E	C317	4A	C514A	3E		
R405A	3C	C23	2A	C118	4F	C207	3F	C231	3E	C318	3C	C515A	4F		
R406A	3C	C30A	2B	C123	3F	C209	3F	C232	3E	C320	3A	C516	4A		
R407	3C	C31	2B	C151	3A	C210	3F	C233	3E	C321	3A	C517	2E		
R408	3C	C32	2A	C153	2B	C211	3E	C234	3E	C322	4A	C518	3B		
R409	3C	C33A	2B	C155	2B	C212	3E	C235	3F	C323	4B	C520	4A		
R410A	3C	C34	2A	C157	3E	C215	3E	C236	3E	C324	4C	C521	4A		
R411A	3C	C35	2A	C159	3E	C216	4E	C308	4B	C401A	3C	C600	3D		
R412	3C	C36A	2A	C161	3D	C217	3E	C309	4B	C402A	3C	C602A	4A		
R509A	3C	C37A	2A	C162	4E	C218	3D	C310	4B	C502	2C	C1000	3B		



G H I J K L

**B** MAIN P.C.B. (SIDE : B)



**ELECTRICAL PARTS LOCATION**

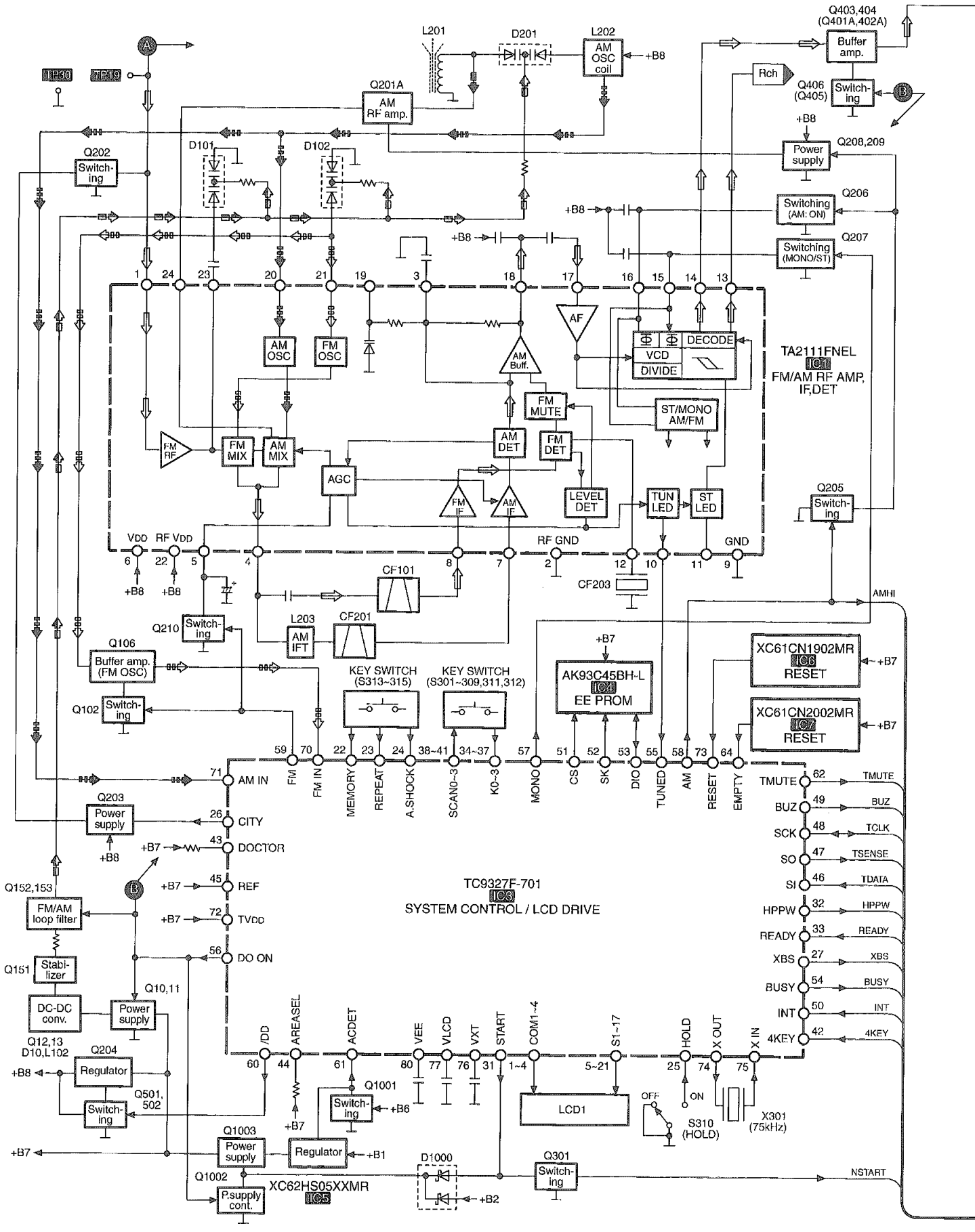
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<b>MAIN P.C.B. (SIDE : A)</b>							
IC11	3F	S309	6F	R553	7D	C201	4D
IC301	2D	S310	5F	R554	6F	C401	8C
IC401	8C	CN51	2D	R604	6E	C402	8C
IC502	5E	CN101	3D	R607	3E	C404	7D
Q11	2E	CN301	3D	R620	3E	C405	7C
Q52	9B	CN401	5E	R715	7C	C408	7C
Q53	7B	JK11	2D	R716	6C	C410	7C
Q58	3E	JK801	3F	R717	6C	C411	8D
Q602	2E	JK701	7E	R719	6C	C437	8D
Q606	7D	R13	3D	R732	6E	C507	5F
Q705	7C	R22	4E	RJ502	6D	C605	2E
Q801	5F	R27	4E	RJ504	6D	C606	2E
Q802	5F	R29	3E	RJ506	6D	C607	3E
D901	5F	R51	8B	RJ508	6E	C608	3E
ICP11	8B	R53	7B	RJ510	6D	C810	6F
VR11	5E	R55	3D	C10	4E	C702	7C
VR701-1	7E	R202	4D	C13	4E	C704	7C
VR701-2	7E	R203	4D	C14	4D	C705	6D
L11	3E	R410	7C	C19	4D	C706	7D
L12	4E	R411	7C	C21	4E	C707	7E
L13	4E	R431	8C	C27	7C	C715	7C
L401	7C	R439	8C	C28	8C	C716	7C
X501	6E	R508	5E	C37	3E	C717	7C
S201	3E	R511	6E	C101	3D	C721	7D
<b>MAIN P.C.B. (SIDE : B)</b>							
IC41	3H	R59	2I	R701	7J	C432	7I
IC101	4I	R113	3I	R702	7J	C433	7I
IC402	8J	R114	4I	R703	7H	C434	8I
IC501	5H	R120	4I	R704	8I	C435	8I
IC701	7J	R121	4I	R707	7H	C436	8J
C51	8J	R122	4I	R708	7H	C437	8I
Q57	2H	R125	3I	R709	7J	C438	8J
Q59	3H	R126	3I	R712	7H	C439	8J
Q201	4H	R127	4I	R720	8H	C503	5H
Q401	8J	R201	4H	R721	8H	C504	5H
Q402	8J	R301	2I	R731	6H	C505	5G
Q431	7J	R302	2I	R804	8H	C506	5G
Q801	3H	R303	5G	RJ511	6G	C507	5G
Q803	6G	R304	2I	C11	4H	C508	5G
Q805	7H	R305	4G	C12	4H	C509	5G
Q701	7H	R307	3H	(C13)	4H	C510	6I
Q702	7H	R308	3H	(C14)	4H	C511	5G
Q731	7H	R309	3G	C15	2H	C514	6I
Q906	3I	R403	8J	C17	3H	C515	5G
D11	3H	R404	8J	(C19)	4H	C525	6H
D12	2H	R405	8J	C20	4H	C601	6G
D21	3H	R406	8J	C22	3H	C602	6G
D51	2H	R432	8I	C24	3H	C603	6G
L701	7H	R433	8J	C25	8K	C604	6G
L702	7H	R434	7J	C26	7J	C609	2H
L703	7G	R501	5H	(C27)	7J	(C810)	6G
L704	6G	R502	5H	(C28)	8J	C811	6G
(X501)	6H	R505	5G	C30	4H	C612	7H
(S201)	3G	R506	5G	C33	3H	C613	7H
CN11	8K	R509	6H	C36	3H	C614	6G
(JK11)	2H	R510	7H	C41	3H	C615	7H
(JK601)	3G	R512	6H	C51	3H	C703	7J
(JK701)	7G	R513	5G	C103	3I	(C705)	6I
R11	4H	R514	6I	C111	4I	(C706)	7I
R12	5H	R552	7H	C112	4I	C709	7G
R14	3H	R601	6G	C113	4I	C710	7J
R25	3H	R602	6G	C114	3I	C711	7J
R29	2H	R603	6G	C115	3I	C712	7J
R31	3H	R605	3H	C120	4I	C714	7J
R32	3H	R606	3H	C121	4I	C719	7J
R41	3H	R608	3H	C301	2I	C720	7H
R52	7K	R609	2H	C302	2I	C741	7H
R56	3H	R610	7I	C406	8J		
R57	2H	R621	2H	C431	7I		

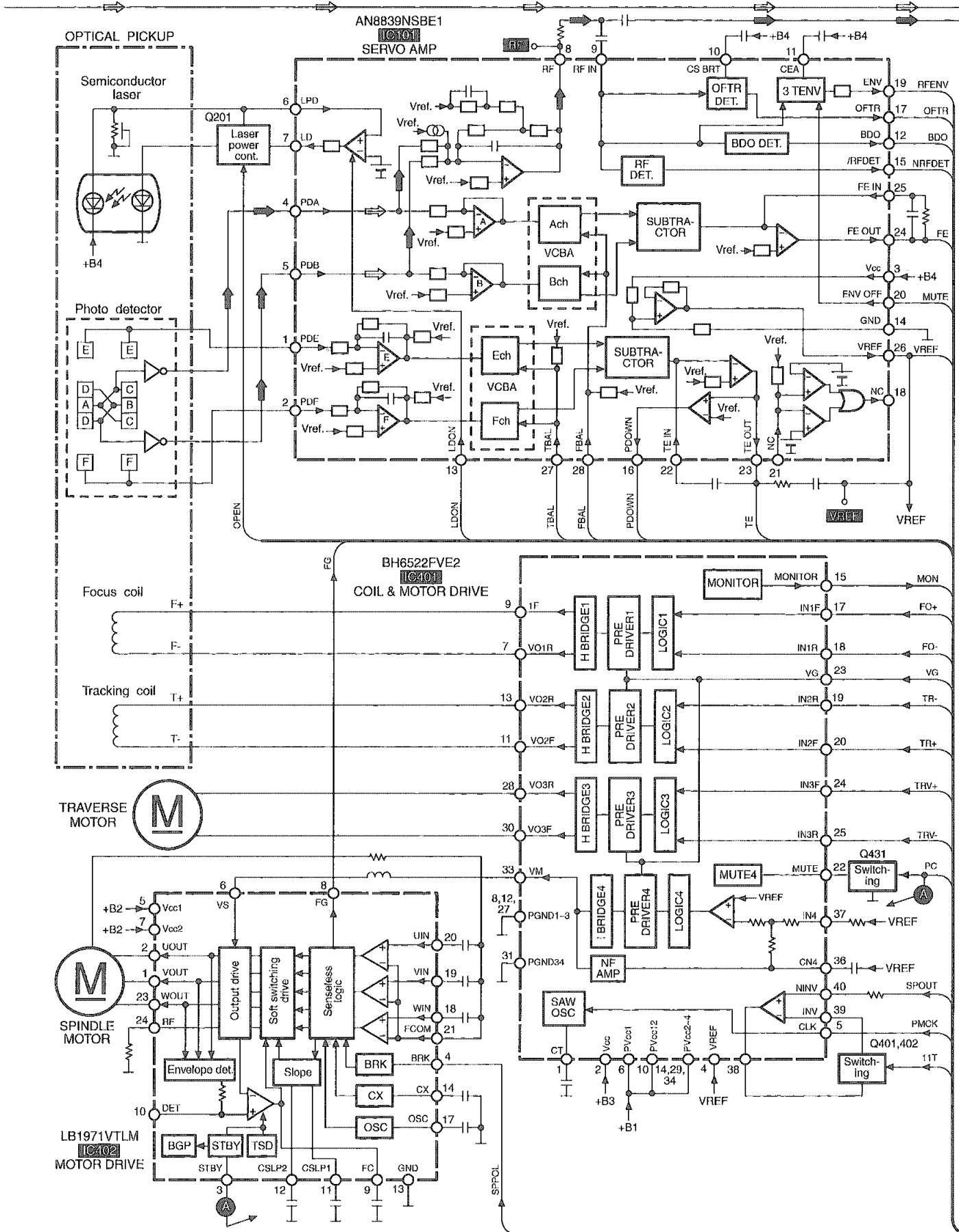
Two RECHARGEABLE BATTERIES 2.4V

Two "AAA" (LR03) BATTERIES 3V

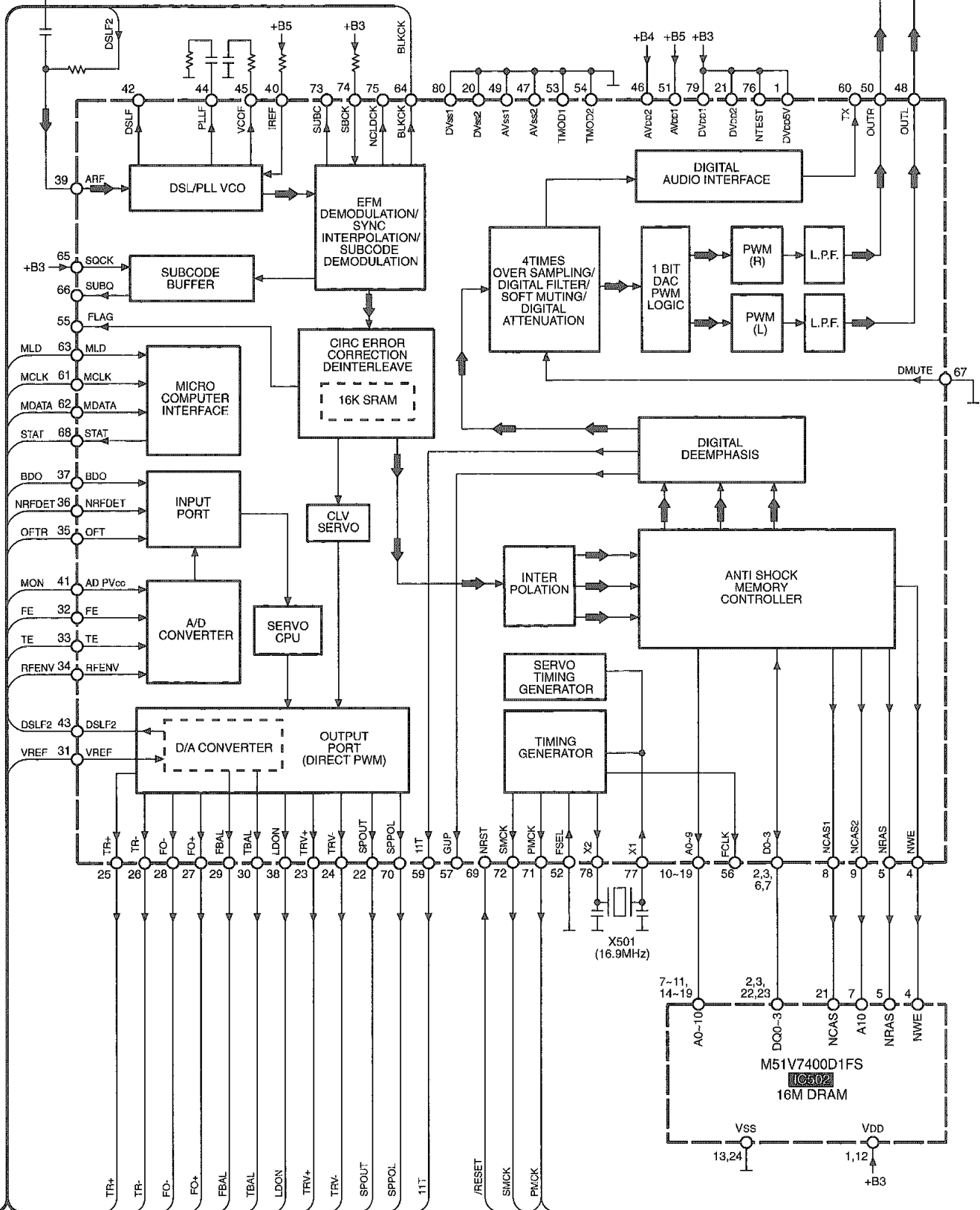


# 13 Block Diagram

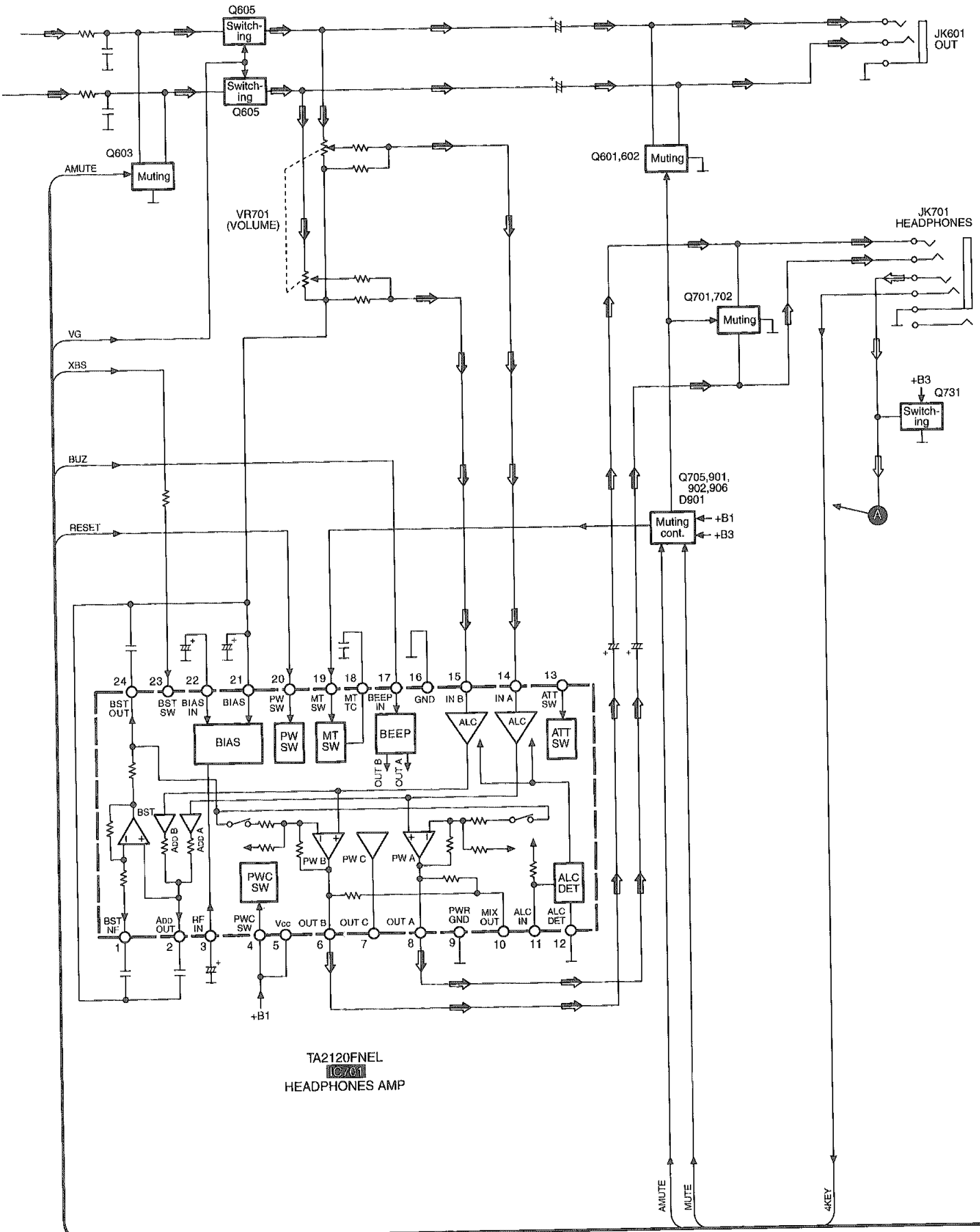


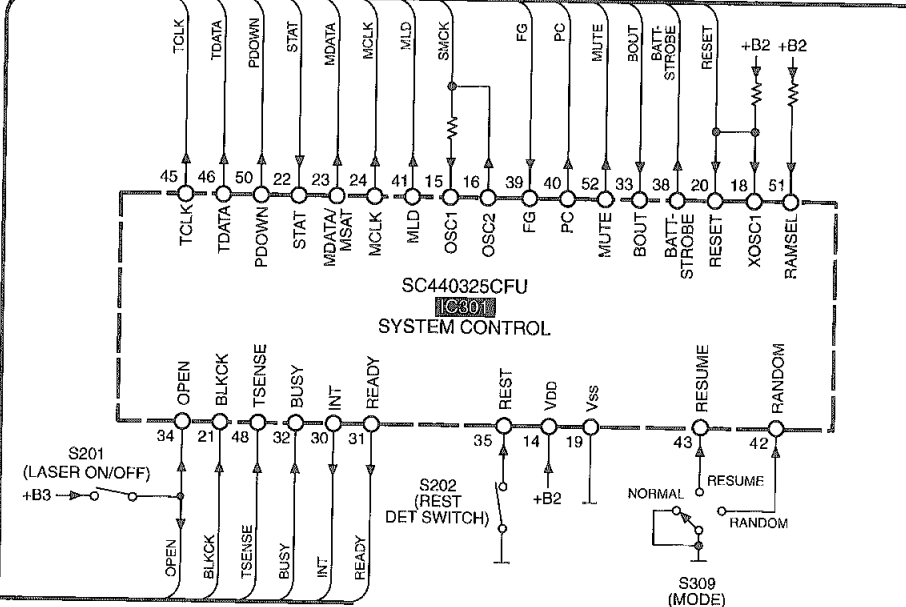
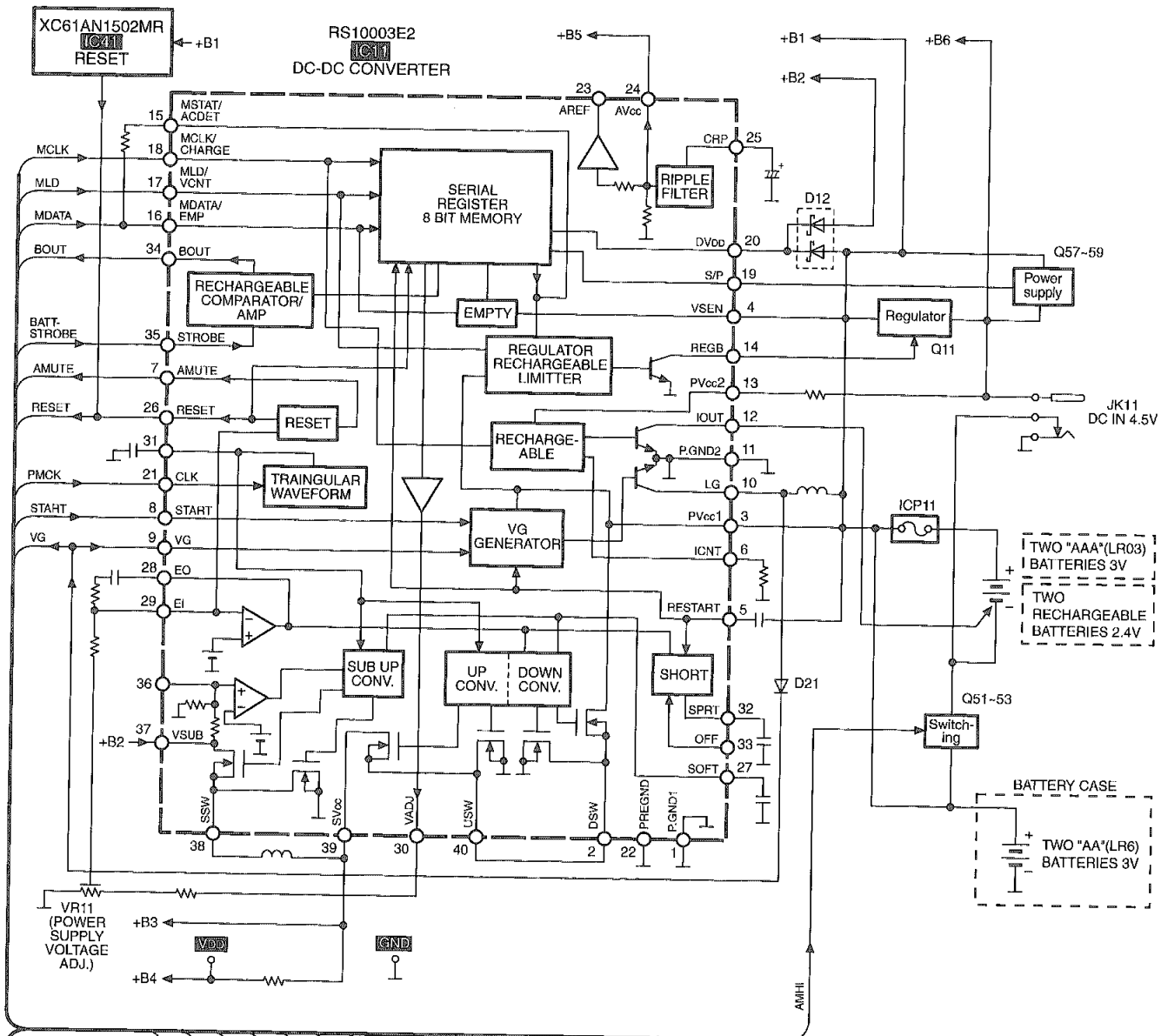


MN662782RPT1  
 IC501  
 SERVO PROCESSOR / DIGITAL SIGNAL PROCESSOR  
 DIGITAL FILTER & D/A CONVERTER









Note

- ➡ : CD playback signal line
- ➡ : Main signal line
- ↔ : FM signal line
- ⏸ : FM OSC signal line
- ⏸ : AM OSC signal line
- ⏸ : FM/AM VCAP signal line

# 14 Terminal Function of IC's

## 14.1. IC3(TC9327F-701):SYSTEM CONTROL / LCD DRIVE

Pin No.	Mark	I/O Division	Function
1   4	COM1   COM4	O	LCD common signal output
5   21	S1   S17	O	LCD segment signal output
22	MEMORY	I	MEMORY key input
23	REPEAT	I	REPEAT key input
24	A.SHOCK	I	A.SHOCK key input
25	HOLD	I	HOLD switch input
26	CITY	O	CITY control signal output
27	XBS	O	XSB control signal output
28   29   30	NC	---	Unused and open
31	START	O	Start signal output
32	HPPW	O	Headphones AMP ON signal output
33	READY	I	READY signal input
34   37	K0   K3	I	Key scan signal input
38	SCAN0	O	Key scan signal output (Unused)
39   41	SCAN1   SCAN3	O	Key scan signal output
42	4KEY	I	4Key signal input
43	DOCTOR	I	DOCTOR mode signal input
44	AREASEL	I	Area selection input
45	REF	---	Connected to VDD
46	SI	I	Data input from IC301
47	SO	O	Data output to IC301
48	SCK	I	Data clock input from IC301
49	BUZ	O	Buzzer signal output
50	INT	I	Data signal input from IC301
51	CS	O	EEPROM chip selection output
52	SK	O	EEPROM serial clock output
53	DIO	I/O	EEPROM data input/output
54	BUSY	O	BUSY signal output
55	TUNED	I	TUN signal input
56	DD	O	Power control signal output
57	MONO	O	MONO selection output
58	AM	O	AM selection output
59	FM	O	FM selection output
60	/DD	O	Tuner power control signal output
61	ACDET	I	AC detection signal input
62	TMUTE	O	Muting control signal output
63	TEST	---	Unused and open
64	EMPTY	I	Battery check signal input
65	NC	---	Unused and open
66	D0	O	Tune frequency control signal output
67	NC	---	Unused and open
68	NC	---	Unused and open
69	GND	---	Ground connection
70	FM IN	I	FM OSC signal input
71	AM IN	I	AM OSC signal input
72	TVDD	I	Power supply
73	RESET	I	Reset signal input
74	X OUT	O	Crystal OSC (75kHz)
75	X IN	I	
76	VXT	---	Connected to GND via a capacitor
77	VLCD	---	Connected to GND via a capacitor

Pin No.	Mark	I/O Division	Function
78	C2	---	Connected to C1 via a capacitor
79	C1	---	Connected to C2 via a capacitor
80	VEE	---	Connected to GND via a capacitor

## 14.2. IC11(RS10003E2):DC/DC CONVERTER

Pin No.	Mark	I/O Division	Function
1	P.GND1	---	Ground connection
2	DSW	O	DC/DC converter coil drive
3	PVCC1	I	Power supply
4	VSEN	I	Empty detection input (connected to power supply)
5	RESTART	---	Unused and open
6	ICNT	I	Setting of charging current
7	AMUTE	O	Muting signal output
8	START	I	Starting of DC/DC converter
9	VG	I	Power supply
10	LG	I	Coil drive for VG voltage increase (connected to power supply)
11	P.GND2	---	Ground connection
12	IOUT	O	Charging signal output
13	PVCC2	I	Power supply
14	REGB	O	Regulator drive signal output
15	MSTAT/ACDET	O	DC jack detection output
16	MDATA/EMP	I	Power drop detection input
17	MLD/VCNT	I	Regulator voltage switching input
18	MCLK/CHARGE	I	Charging ON/OFF
19	S/P	I	Serial/parallel switching (connected to power supply)
20	DVDD	I	Power supply
21	CLK	I	DC/DC converter external clock input
22	PREGND	---	Ground connection
23	AREF	---	Unused and open
24	AVCC	O	Ripple filter output
25	CRP	I	Ripple filter smoothing capacitor connection
26	RESET	O	Reset detection output
27	SOFT	O	Soft start setting (connected to ground via a capacitor)
28	EO	O	DC/DC converter error amplifier output
29	EI	I	DC/DC converter error amplifier input
30	VADJ	---	Unused and open
31	CT	O	Triangular wave output (connected to ground via a capacitor)
32	SPRT	O	For setting of constants at power OFF (connected to ground via a capacitor)
33	OFF	---	Unused and open
34	BOUT	O	Amplifier output
35	STROBE	I	Strobe input
36	SEI	---	Unused and open
37	VSUB	I	
38	SSW	I	Power supply
39	SVCC	I	
40	USW	I	DC/DC converter coil drive

### 14.3. IC101(AN8839NSBE1):SERVO AMP

Pin No.	Mark	I/O Division	Function
1	PDE	I	Tracking signal input (1)
2	PDF	I	Tracking signal input (2)
3	VDD	I	Power supply
4	PDA	I	Focus signal input (1)
5	PDB	I	Focus signal input (2)
6	LPD	I	APC amplifier input
7	LD	O	APC amplifier output
8	RF	O	RF signal output
9	RF IN	I	RF signal input
10	CSBRT	I	Capacitor connection for OFTR
11	CEA	I	HPF amplifier capacitor connection
12	BDO	O	Dropout signal output (H: dropout)
13	LDON	I	APC control input
14	GND	---	Ground connection
15	/RFDET	O	RF detection signal output (L: detection)
16	PDOWN	I	Power down signal input
17	OFTR	O	Off-track signal output (H: off-track)
18	NC	---	Unused and open
19	ENV	O	RF envelop signal output
20	ENVOFF	I	Envelop control input
21	NC	---	Unused and open
22	TE IN	I	Tracking error amplifier input
23	TE OUT	O	Tracking error amplifier output
24	FE OUT	O	Focus error amplifier output
25	FE IN	I	Focus error amplifier input
26	VREF	O	Reference voltage output
27	TBAL	I	Tracking balance signal input
28	FBAL	I	Focus balance signal input

### 14.4. IC301(SC440325CFU):SYSTEM CONTROL

Pin No.	Mark	I/O Division	Function
1	FP6	---	Unused and open
6	FP1		
7	BP3	---	Unused and open
10	BP0		
11	NC	---	Unused and open
12			
13			
14	VDD	I	Power supply
15	OSC1	I	System clock signal input (f = 4.2336 MHz)
16	OSC2	O	System clock signal output
17	XOSC2	---	Unused and open
18	XOSC1	I	Connected to RESET
19	VSS	---	Ground connection
20	RESET	I	Reset signal input
21	BLKCK	I	Block clock input
22	STAT	I	Status signal input
23	MDATA	I/O	Command data input/output
24	MCLK	O	Command clock output
25	TP1	---	Unused and open
26	TP2		
27	TP3		
28	NC	---	Connected to 29 pin
29	NC	---	Connected to 28 pin
30	INT	O	Data signal output to IC3
31	READY	O	READY signal output to IC3

Pin No.	Mark	I/O Division	Function
32	BUSY	I	BUSY signal input from IC3
33	BOUT	I	Input of battery charging voltage measurement from IC11 (L: end)
34	OPEN	I	Cover open detection input
35	REST	I	REST switch input
36	SW869	---	Unused and open
37	BUZ	---	Unused and open
38	BATT STROBE	O	Output for measurement of battery charging voltage (measured by Hi-Z)
39	FG	I	Spindle motor revolution cycle signal input
40	PC	O	Hard mute output
41	MLD	O	Serial command latch signal output
42	RANDOM	I	RANDOM switch input
43	RESUME	I	RESUME switch input
44	NC	---	
45	TCLK	O	Data clock output to IC3
46	TDATA	O	Data output to IC3
47	TX POWER	O	Digital output terminal (Unused)
48	TSENSE	I	Data input from IC3
49	NC	---	Unused and open
50	PDOWN	O	Power down signal output
51	RAMSEL	I	DRAM selection input
52	MUTE	O	Hard mute output
53	FP18	---	Unused and open
64	FP7		

### 14.5. IC401(BH6522FVE2):COIL & MOTOR DRIVE

Pin No.	Mark	I/O Division	Function
1	CT	O	Triangular wave output (connected to ground via a capacitor)
2	VCC	I	Power supply
3	NC	---	Unused and open
4	VREF	I	Reference voltage input
5	CLK	I	External clock input
6	PVCC1	I	Power supply
7	V01R	O	Focus coil drive signal output
8	PGND1	---	Ground connection
9	V01F	O	Focus coil drive signal output
10	PVCC12	I	Power supply
11	V02F	O	Tracking coil drive signal output
12	PGND2	---	Ground connection
13	V02R	O	Tracking coil drive signal output
14	PVCC2	I	Power supply
15	MONITOR	I	A/D reference voltage monitor
16	NC	---	Unused and open
17	IN1F	I	Focus coil drive signal input
18	IN1R	I	Focus coil drive signal input
19	IN2R	I	Tracking coil drive signal input
20	IN2F	I	Tracking coil drive signal input
21	GND	---	Ground connection
22	MUTE(PC)	I	Hard mute input
23	VG	I	Power supply
24	IN3F	I	Traverse motor drive signal input
25	IN3R	I	Traverse motor drive signal input
26	NC	---	Unused and open
27	PGND3	---	Ground connection
28	V03R	O	Traverse motor drive signal output
29	PVCC3	I	Power supply
30	V03F	O	Traverse motor drive signal output
31	PGND34	---	Ground connection
32	NC	---	Unused and open

Pin No.	Mark	I/O Division	Function
33	VM	O	For output of spindle motor output power supply
34	PVCC4	I	Power supply
35	VLIM	I	Spindle motor gain control signal input
36	CN4	I	Channel 4 filter (connected to VREF via a capacitor)
37	IN4	I	Reference voltage input
38	OP	O	Spindle motor control signal amplifier output
39	INV	I	Spindle motor control signal reverse input
40	NINV	I	Spindle motor drive input

#### 14.6. IC402(LB1971VTLM):MOTOR DRIVE

Pin No.	Mark	I/O Division	Function
1	VOUT	O	Spindle motor drive signal output
2	UOUT		
3	STBY	I	Standby input
4	BRK	I	Brake signal input

Pin No.	Mark	I/O Division	Function
5	VCC1	I	Power supply
6	VS	I	Input of spindle motor output power supply
7	VCC2	I	Power supply
8	FG	O	Spindle motor revolution cycle signal output
9	FC	---	Connected to ground via a capacitor
10	DET	---	Connected to ground
11	CSLP1	---	Slope capacitor connections
12	CSLP2		
13	GND	---	Ground connection
14	CX	---	Connected to ground via a capacitor
15	NC	---	Unused and open
16			
17	OSC	---	OSC terminal
18	W IN		
19	V IN	I	Rotor position detection input
20	U IN		
21	FCOM	I	Motor coil midpoint input
22	NC	---	Unused (connected to FCOM)
23	WOUT	O	Spindle motor drive signal output
24	RF	---	Output current detection (connected to ground via a resistance)

#### 14.7. IC501(MN662782RPT1):SERVO PROCESSOR / DIGITAL SIGNAL PROCESSOR / DIGITAL FILTER & D/A CONVERTER

Pin No.	Mark	I/O Division	Function
1	DVDD	I	Power supply
2	D0	I/O	Data input/output for DRAM
3	D1		
4	NWE	O	Write enable output for DRAM
5	NRAS	O	RAS control signal output for DRAM
6	D2	I/O	Data 2/3 input/output for DRAM
7	D3		
8	NCAS1	O	CAS control 1 signal output for DRAM
9	NCAS2	---	CAS control 2 signal output for DRAM
10	A8		
11	A7	O	Addresses 8-4 output for DRAM
12	A6		
13	A5		
14	A4		
15	A9	O	Address 9 output for DRAM
16	A0		
17	A1	O	Addresses 0-3 output for DRAM
18	A2		
19	A3		
20	VSS2	---	Ground connection
21	DVDD2	I	Power supply
22	SPOUT	O	Spindle motor drive output
23	TRV+	O	Traverse motor drive output, positive polarity
24	TRV-	O	Traverse motor drive output, negative polarity
25	TR+	O	Tracking coil drive output, positive polarity
26	TR-	O	Tracking coil drive output, negative polarity
27	FO+	O	Focus coil drive output, positive polarity
28	FO-	O	Focus coil drive output, negative polarity
29	FBAL	O	Focus balance adjustment output
30	TBAL	O	Tracking balance adjustment output
31	VREF	I	D/A output reference voltage input
32	FE	I	Focus error signal input (analog input)
33	TE	I	Tracking error signal input (analog input)

Pin No.	Mark	I/O Division	Function
34	RFENV	I	RF envelope signal input (analog input)
35	OFT	I	Off-track signal input (H: off-track)
36	NRFDET	I	RF detection signal input (L: detection)
37	BDO	I	Dropout signal input (H: dropout)
38	LDON	O	Laser ON signal output (H: ON)
39	ARF	I	RF signal input
40	IREF	I	Reference current input
41	AD PVCC	O	A/D reference voltage output
42	DSLFL	O	Loop filter output for DSL
43	DSLFL2	O	Unbalance current correction output for DSL
44	PLLF	O	Loop filter output for PLL
45	VCOF	O	Loop filter output for jitter-free VCO
46	AVDD2	I	Power supply
47	AVSS2	---	Ground connection
48	OUTL	O	Left channel audio signal output
49	AVSS1	---	Ground connection
50	OUTR	O	Right channel audio signal output
51	AVDD1	I	Power supply
52	FSEL	I	Noise filter ON/OFF switching input (L: ON)
53	TMOD1	I	Terminal mode switching input 1 (L: normal)
54	TMOD2	I	Terminal mode switching input 2 (L: normal)
55	FLAG		
56	FCLK	---	Unused and open
57	GUP		
58	6T		
59	11T	O	Spindle motor gain control signal output
60	TX	---	Unused and open
61	MCLK	I	Micon command clock signal input
62	MDATA	I	Micon command data signal input
63	MLD	I	Micon command load signal input (L: load)

Pin No.	Mark	I/O Division	Function
64	BLKCK	O	Sub-code block clock signal output (I = 75 Hz)
65	SQCK	I	External clock input for sub-code Q resistor
66	SUBQ	---	Unused and open
67	DMUTE	---	Unused and connected to ground
68	STAT	O	Status signal output
69	NRST	I	Reset signal input (H: reset)
70	SPPOL	O	Spindle motor drive signal output
71	PMCK	O	Clock signal output (I = 88.2 kHz)
72	SMCK	O	System clock signal output (I = 4.2336 MHz)
73	SUBC	---	Unused and open
74	SBCK	I	Clock input for sub-code output
75	NCLDCK	---	Unused and open
76	NTEST	I	Test terminal (normal: H)
77	X1	I	Crystal oscillator circuit input (I = 16.9344 MHz)
78	X2	O	Crystal oscillator circuit output (I = 16.9344 MHz)
79	DVDD1	I	Power supply
80	DVSS1	---	Ground connection

## 15 Replacement Parts List

### Notes:

\*Important safety notice:

Components identified by  $\Delta$  mark have special characteristics important for safety.

Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.

\*When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.

\*The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)

Parts without these indications can be used for all areas.

\*Warning: This product uses a laser diode. Refer to caution statements.

\*Capacity values are in microfarads ( $\mu$ F) unless specified otherwise, P=Pico-farads (pF), F=Farads (F)

\*Resistance values are in ohms, unless specified otherwise, 1K=1,000 (OHM), 1M=1,000k (OHM)

\*"<IA>-<IB>" marks in Remarks indicate languages of instruction manuals.

[ <IA>: English, <IB>: Canadian French ]

\*The marking (RTL) indicates that the Retention Time is limited for this item. After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of availability is dependant on the type of assembly, and in accordance with the laws governing part and product retention. After the end of this period, the assembly will no longer be available.

### ACHTUNG:

Die Lasereinheit nicht zerlegen.

Die Lasereinheit darf nur gegen eine vom Hersteller spezifizierte Einheit ausgetauscht werden.

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
1	RKK0120-H	BATT. COVER	1	
2	RGV0200-H	KNOB, SLIDE	2	
3	RJC93030	BATT. TERMINAL	1	
4	RFKJSX469VPS	BOTTOM CABINET ASS'Y	1	
4-1	RKA0063-K	FOOT	2	
5	RMA0677	PLATE, REAR ORNAMENT	1	
6	RMB0616	SPRING, OPEN	1	
7	REZ1268	FFC	1	
8	RGU1781-S	KNOB, OPERATION	1	
9	RHE5079YA	SCREW	10	
10	RMR1251-H	LID COVER	1	
11	RSQ0067	ZEBRA	1	
12	RYF0529-S	CD LID ASS'Y	1	
13	RYK0884D-H	MID CABI UNIT	1	
14	XTN17+6GFZ	SCREW	4	
15	RAE0220Z	TRAVERSE DECK	1	$\Delta$
15-1	RDG0443	GEAR	1	
15-2	RDG0444	GEAR	1	
15-3	RJB2025A	TRV FPC	1	
15-4	RMG0503-K	FLOATING GUM	3	
15-5	RMS0644	SHAFT	1	
15-6	RMC0366-1	SPRING	1	
15-7	RXQ0613	NET PLATE ASS'Y	1	
15-8	VED0431	OPTICAL PICKUP	1	$\Delta$
15-9	RXQ0611	TRV MOTOR	1	
15-10	XQN14+BG4FZ	SCREW	1	
15-11	XQN17+CG45	SCREW	3	
16	RGN1746-K1	NAME PLATE	1	
A1	RFA1139-H	BATTERY CASE	1	(P)
A2	RFEA415C-S	AC ADAPTOR	1	(P) $\Delta$
A3	RFEV012PCKS	REMOTE UNIT	1	(P)
A4	RFEV711P-K1S	HEADPHONE	1	(P)
A5	RQCB0391	SERVICENTER LIST	1	(P)
A6	RQT5159-P	INSTRUCTION MANUAL	1	(P) <IA>
A11	RFA1139-H	BATTERY CASE	1	(P)
A12	RFEA415C-S	AC ADAPTOR	1	(P) $\Delta$
A13	RFEV012PCKS	REMOTE UNIT	1	(P)
A14	RFEV326P-KS	STEREO EARPHONE	1	(P)
A15	RQT5159-P	INSTRUCTION MANUAL	1	(P) <IA>
A16	RQT5165-C	INSTRUCTION MANUAL	1	(P) <IB>
A17	RQCB0792	SERVICE CENTER LIST	1	(P)
A18	RQA0132-2A	WARRANTY CARD	1	(P)
C10	ECUV1H121KCV	50V 120P	1	
C11	ECUVNA105ZFV	10V 1U	1	
C12	ECST1AY475RR	10V 4.7U	1	
C13	RCE0JSL470IX	6.3V 47U	1	
C14	RCE0GKS221IG	4V 220U	1	
C15	ECUZNC104ZFV	16V 0.1U	1	
C17	ECUVNJ105KBV	63V 1U	1	
C19	ECEA1AKS220	10V 22U	1	
C20	ECUVNA105ZFV	10V 1U	1	
C21	ECUVNH103KBV	50V 0.01U	1	
C22	ECUZNC104ZFV	16V 0.1U	1	
C23	ECUV1H070DCV	50V 7P	1	
C24	ECUV1H561KBV	50V 560P	1	
C25,26	ECUVNA475ZFN	10V 4.7U	2	
C27,28	ECEA0JKS331	6.3V 330U	2	
C30	ECUVNC104KBV	16V 0.1U	1	
C30A	RCST0JY226RG	6.3V 22U	1	
C31	ECUVNE223KBV	25V 0.022U	1	
C32	RCST1CY335RG	16V 3.3U	1	
C33	ECST1AY475RR	10V 4.7U	1	
C33A	ECUV1H101JCV	50V 100P	1	
C34	ECUVNH103KBV	50V 0.01U	1	
C35	RCST1DY225RG	16V 3.3U	1	
C36	ECUVNA105ZFV	10V 1U	1	
C36A	ECUV1H560JCV	50V 56P	1	
C37	ECUVNA105ZFV	10V 1U	1	
C37A	ECUVNH103KBV	50V 0.01U	1	
C41	ECUZNC104ZFV	16V 0.1U	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C51	ECUVNA105MBV	10V 1U	1	
C101	ECUVNC104KBV	16V 0.1U	1	
C103	ECUVNE223KBV	25V 0.022U	1	
C103A	ECUV1H221GCV	50V 220P	1	
C105	RCST0GY226RG	4V 22U	1	
C109	ECUV1H331KBV	50V 330P	1	
C111	ECUVNE223KBV	25V 0.022U	1	
C111A	ECUV1H470JCV	50V 47P	1	
C112	ECUV1H221KBV	50V 220P	1	
C112A	ECUV1H121GCV	50V 120P	1	
C113,14	ECUZNC104ZFV	16V 0.1U	2	
C114A	ECUV1H070DCV	50V 7P	1	
C115	ECUVNE223KBV	25V 0.022U	1	
C117,18	ECUV1H102KBV	50V 1000P	2	
C120	ECUV1H152KBV	50V 1500P	1	
C121	ECUV1H121KCV	50V 120P	1	
C123	ECUVNH103KBV	50V 0.01U	1	
C151	ECUVNC473KBV	16V 0.047U	1	
C153	RCST1DY225RG	16V 3.3U	1	
C155	ECUVNH103KBV	50V 0.01U	1	
C157	ECUV1H120JCV	50V 12P	1	
C159	ECUV1H391GCV	50V 390P	1	
C161	ECUV1H102KBV	50V 1000P	1	
C162,63	ECUVNH103KBV	50V 0.01U	2	
C201	ECST0GY226RR	4V 22U	1	
C201A	ECUVNC104KBV	16V 0.1U	1	
C202,03	ECUZNC104ZFV	16V 0.1U	2	
C204	ECUV1H040CCV	50V 40P	1	
C205	ECUVNE153KBV	25V 0.015U	1	
C206	ECUVNC333KBV	16V 0.033U	1	
C207	ECUV1H471GCV	50V 470P	1	
C209	ECUV1H050DCV	50V 5P	1	
C210	ECUV1H150JCV	50V 15P	1	
C211	ECUV1H101JCV	50V 100P	1	
C212	ECUVNA105ZFV	10V 1U	1	
C215	RCST0GY475RG	4V 4.7U	1	
C216	ECUVNJ105KBV	63V 1U	1	
C217	ECUVNE223KBV	25V 0.022U	1	
C218	ECUV1H471GCV	50V 470P	1	
C221	ECUVNH103KBV	50V 0.01U	1	
C223	ECUVNC104KBV	16V 0.1U	1	
C225	ECUVNA105ZFV	10V 1U	1	
C227	ECUVNA105ZFV	10V 1U	1	
C228,29	ECUVNE153KBV	25V 0.015U	2	
C230,31	ECUVNC333KBV	16V 0.033U	2	
C232	ECUVNC104KBV	16V 0.1U	1	
C233	ECUVNE223KBV	25V 0.022U	1	
C234	ECUVNC104KBV	16V 0.1U	1	
C235	ECUVNA105ZFV	10V 1U	1	
C236	ECUV1H102KBV	50V 1000P	1	
C301	ECUZNC104ZFV	16V 0.1U	1	
C302	ECUVNA105ZFV	10V 1U	1	
C308	ECUVNC104KBV	16V 0.1U	1	
C309	ECUV0J474KBV	6.3V 0.47U	1	
C310	ECUVNC104KBV	16V 0.1U	1	
C311	ECUV0J474KBV	6.3V 0.47U	1	
C312	ECUZNC104ZFV	16V 0.1U	1	
C313,14	ECUV1H050DCV	50V 5P	2	
C315	ECUZNC104ZFV	16V 0.1U	1	
C316	ECUVNJ105KBV	63V 1U	1	
C317	RCST0GY476RG	4V 47U	1	
C318	ECUZNC104ZFV	16V 0.1U	1	
C320-22	ECUV1H102KBV	50V 1000P	3	
C323	ECUVNJ475MBN	63V 4.7U	1	
C324	ECUVNA225KBN	10V 2.2U	1	
C401	ECUV1H102KBV	50V 1000P	1	
C401A	ECUVNA105ZFV	10V 1U	1	
C402	ECUVNA105ZFV	10V 1U	1	
C402A	ECUVNA105ZFV	10V 1U	1	
C404	RCST0JY226RG	6.3 22U	1	
C405	ECUV1E123KBV	25V 0.012U	1	
C406	ECUVNE153KBV	25V 0.015U	1	
C408	ECUVNE223KBV	25V 0.022U	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C410	ECUV1H122KBV	50V 1200P	1	
C411	ECUVNJ105KBV	63V 1U	1	
C431-33	ECUVNC473KBV	16V 0.047U	3	
C434	ECUV1H471KBV	50V 470P	1	
C435	ECUV0J474KBV	6.3V 0.47U	1	
C436	ECUV1H472KBV	16V 4700P	1	
C437	ECEA0JKS470	6.3V 47U	1	
C438,39	ECUV1H472KBV	16V 4700P	2	
C502	RCST0GY475RG	4V 4.7U	1	
C503	ECUV1H561KBV	50V 560P	1	
C503A	RCST0GY475RG	4V 4.7U	1	
C504	ECUZNC104ZFV	16V 0.1U	1	
C504A	RCST0GY476RG	4V 47U	1	
C505	ECUVNE223KBV	25V 0.022U	1	
C506	ECUVNA224KBV	10V 0.22U	1	
C507	RCE0GKS221IG	4V 220U	1	
C507A	ECUZNC104ZFV	16V 0.1U	1	
C508	ECUV0J474KBV	6.3V 0.47U	1	
C509	ECUVNH103KBV	50V 0.01U	1	
C510	ECUZNC104ZFV	16V 0.1U	1	
C510A	ECUV1H331KBV	50V 330P	1	
C511	ECUZNC104ZFV	16V 0.1U	1	
C511A	ECUZNC104ZFV	16V 0.1U	1	
C512	ECUV1H331KBV	50V 330P	1	
C514	ECUV1H102KBV	50V 1000P	1	
C514A	ECUV1H331KBV	50V 330P	1	
C515	ECUZNC104ZFV	16V 0.1U	1	
C515A	ECUV1H680GCV	50V 68P	1	
C516	ECUZNC104ZFV	16V 0.1U	1	
C517,18	ECUV1H331KBV	50V 330P	2	
C520	ECUZNC104ZFV	16V 0.1U	1	
C521	ECUVNH103KBV	50V 0.01U	1	
C525	ECUZNC104ZFV	16V 0.1U	1	
C600	ECUV1H331KBV	50V 330P	1	
C601,02	ECUV1H102KBV	50V 1000P	2	
C602A	ECUVNA225KBN	10V 2.2U	1	
C603,04	ECUV1H272KBV	50V 2700P	2	
C605,06	ECST0GY106RR	4V 10U	2	
C607,08	ECUV1H681KBV	50V 680U	2	
C609	ECUZNC104ZFV	16V 0.1U	1	
C610	ECEA0JKS470	6.3V 47U	1	
C611	ECUZNC104ZFV	16V 0.1U	1	
C612,13	RCST0GZ106RG	4V 10U	2	
C614	ECUV0J474KBV	6.3V 0.47U	1	
C615	ECUVNC104KBV	16V 0.1U	1	
C702	ECUVNJ105KBV	63V 1U	1	
C703	ECUVNA224KBV	10V 0.22U	1	
C704	ECST0JY475RR	6.3V 1U	1	
C705,06	ECEA0GKS221	4V 220U	2	
C707	ECUZNC104ZFV	16V 0.1U	1	
C709	ECUV1H101KCV	50V 100P	1	
C710	ECUVNJ475MBN	63V 4.7U	1	
C711,12	ECUZNC104ZFV	16V 0.1U	2	
C714	ECUVNA224KBV	10V 0.22U	1	
C715	RCST1AY475RG	10V 4.7U	1	
C716	ECST0GY226RR	4V 22U	1	
C717	ECUVNA105ZFV	10V 1U	1	
C719	ECUZNC104ZFV	16V 0.1U	1	
C720,21	ECUVNA105ZFV	10V 1U	2	
C741	ECUZNC104ZFV	16V 0.1U	1	
C1000	ECUV1H331KBV	50V 330P	1	
C1001	ECUVNJ475MBN	63V 4.7U	1	
C1002	RCST0GY226RG	4V 22U	1	
C1003	ECUVNA475ZFN	10V 4.7U	1	
C1004	ECUVNJ475MBN	63V 4.7U	1	
C1317	ECUVNA475ZFN	10V 4.7U	1	
CF101	RLFFECNN01AL	CERAMIC FILTER	1	
CF201	RLFFM2X450BL	CERAMIC FILTER	1	
CF203	RLFFDFC03AL	CERAMIC FILTER	1	
CN11	RJH8302	CONNECTOR	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
CN51	RJH9209-1	BATT. CASE CONNECT. TERMINA	1	
CN101	RJS2A4616T	CONNECTOR (16P)	1	
CN301	RJS2A6124T	FPC CONNECTOR (24P)	1	
CN401	RJS2A6108T	CONNECTOR (8P)	1	
CN501	RJS2A4524T1	CONNECTOR (24P)	1	
CT101	RCVCF10C02X	TRIMER	1	
D10	MA147TX	DIODE	1	
D11	MA1070400L	DIODE	1	
D11A	MA8120M	DIODE	1	
D12	MA741WKTX	DIODE	1	
D12A	MA729TX	DIODE	1	
D21	MA111TX	DIODE	1	
D51	MA143TX	DIODE	1	
D101,02	KV1450TL3-0	DIODE	2	
D201	KV1610STL2-0	DIODE	1	
D901	MA142WKTX	DIODE	1	
D1000	SB007W03QTL	DIODE	1	
IC1	TA2111FNEL	IC	1	
IC3	TC9327F-701	IC	1	
IC4	AK93C45BH-L	IC	1	
IC5	KC62HS05XXMR	IC	1	
IC6	KC61CN1902MR	IC	1	
IC7	KC61CN2002MR	IC	1	
IC11	RS10003E2	IC	1	
IC41	KC61AN1502MR	IC	1	
IC101	AN8839NSBE1	IC	1	
IC301	SC440325CFU	IC	1	
IC401	BH6522FV	IC	1	
IC402	LB1971VTLM	IC	1	
IC501	MN662782RPT1	IC	1	
IC502	M51V7400D1FS	IC	1	
IC701	TA2120FNEL	IC	1	
ICP11	UNHH20600L	ICP	1	△
JK11	RJJ43K09-C	JACK, DC IN	1	
JK601	RJJD3S52B-C	JACK, AUDIO OUT	1	
JK701	RJJ36T02-C	JACK, HEADPHONE	1	
L11	RLQU331KT-W	COIL	1	
L12	RLQS101KT1-T	COIL	1	
L13	RLQU331KT-W	COIL	1	
L101	RLQM121NJT-W	COIL	1	
L102	RL09U017T-T	COIL	1	
L103	RLQM121NJT-W	COIL	1	
L156	RLQP68NMT2-Y	COIL	1	
L157	RLQPR22KT2-Y	COIL	1	
L201	RLV2N062-0	BAR ANNTENA	1	
L202	RL02U035T-T	COIL	1	
L203	RLI2U019T-T	COIL	1	
L401	RLQS330KT1-T	COIL	1	
L701-04	RLBV252AV-Y	COIL	4	
LCD	RSL5242-T	LCD	1	
P1	RPNI248	TRAY	1	(P)
P2	RPNI249	LID	1	(P)
P3	RPQ0999	PAD	1	(P)
P11	RPK1295	PACKING CASE	1	(PC)
P12	RPQ0926	PAD	1	(PC)
P13	RPF0046	PROTECTION BAG (F. B.)	1	(PC)
P14	RPF0111	PROTECTION BAG (UNIT)	1	(PC)
PCB1	REP2897A-M	MAIN PCB ASS'Y	1	(RTL)
PCB2	REP2898A-S	PCB ASS'Y	1	(RTL)
Q10	UN9114TX	TRANSISTOR	1	
Q11	2SB1182TLPQR	TRANSISTOR	1	
Q11A	UN9210TX	TRANSISTOR	1	

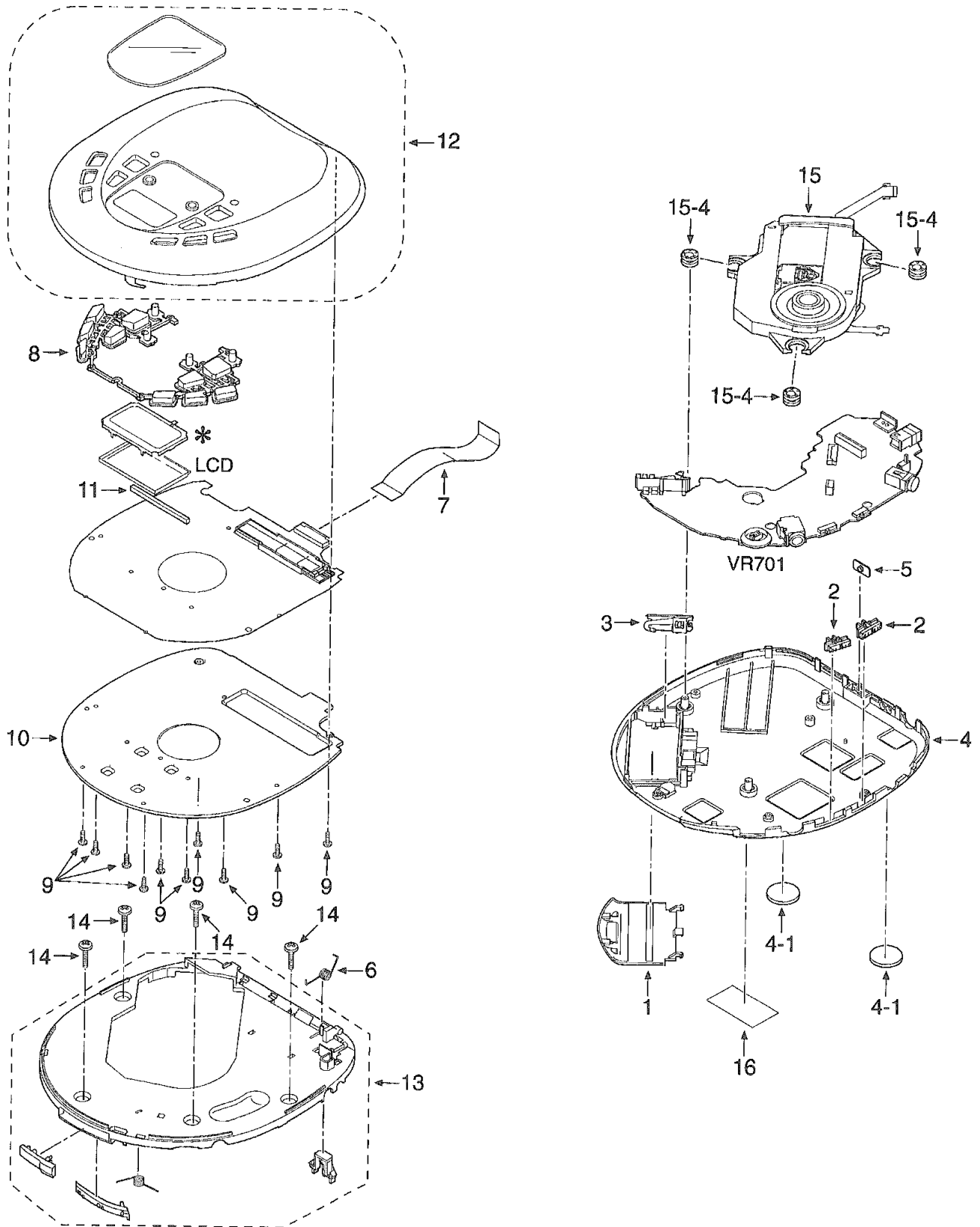
Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
Q12,13	2SC4617STL	TRANSISTOR	2	
Q51	2SD1328QRSTX	TRANSISTOR	1	
Q52	2SB1295-6-TB	TRANSISTOR	1	
Q53	DTC114EUT106	TRANSISTOR	1	
Q57	2SB1218ATX	TRANSISTOR	1	
Q58	2SD1819ATX	TRANSISTOR	1	
Q59	DTC114EUT106	TRANSISTOR	1	
Q102	UN9216TX	TRANSISTOR	1	
Q106	2SC3935TX	TRANSISTOR	1	
Q151	2SK1067-4-TL	TRANSISTOR	1	
Q152,53	2SD2216STX	TRANSISTOR	2	
Q201	MSB709RST1	TRANSISTOR	1	
Q201A	2SK1067-4-TL	TRANSISTOR	1	
Q202	2SC3931CTX	TRANSISTOR	1	
Q203	2SB1462STX	TRANSISTOR	1	
Q204	2SB1295-6-TB	TRANSISTOR	1	
Q205	UN9210TX	TRANSISTOR	1	
Q206	UN9115TX	TRANSISTOR	1	
Q207	UN9110TX	TRANSISTOR	1	
Q208,09	2SB1462STX	TRANSISTOR	2	
Q210	UN9210TX	TRANSISTOR	1	
Q301	UN9213TX	TRANSISTOR	1	
Q401	DTC144TUA106	TRANSISTOR	1	
Q401A	2SC4555-7-TL	TRANSISTOR	1	
Q402	2SD1819ATX	TRANSISTOR	1	
Q402A	2SD2216STX	TRANSISTOR	1	
Q403	2SC4555-7-TL	TRANSISTOR	1	
Q404	2SD2216STX	TRANSISTOR	1	
Q405,06	UN9210TX	TRANSISTOR	2	
Q431	DTC144TUA106	TRANSISTOR	1	
Q501	UN9110TX	TRANSISTOR	1	
Q502	2SD2216STX	TRANSISTOR	1	
Q601,02	2SD1328QRSTX	TRANSISTOR	2	
Q603	XN1216TX	TRANSISTOR	1	
Q605,06	2SK1958T1	TRANSISTOR	2	
Q701,02	2SD1328QRSTX	TRANSISTOR	2	
Q705	DTA114YUA106	TRANSISTOR	1	
Q731	2SC3931CTX	TRANSISTOR	1	
Q901	DTA114YUA106	TRANSISTOR	1	
Q902	XN1210TX	TRANSISTOR	1	
Q906	DTC144TUA106	TRANSISTOR	1	
Q1001	DTC144WETL	CHIP TR	1	
Q1002	UN9213TX	TRANSISTOR	1	
Q1003	2SB1295-6-TB	TRANSISTOR	1	
R11	ERJ3GEYJ822V	1/16W 8.2K	1	
R12	ERJ3GEYJ332V	1/16W 3.3K	1	
R13	ERJ3GEYJ102Z	1/16W 1K	1	
R14	ERJ3GEYJ222V	1/16W 2.2K	1	
R21	ERJ3GEYJ333V	1/16W 33K	1	
R22	ERJ3GEYJ223V	1/16W 22K	1	
R22A	ERJ3GEYJ104Z	1/16W 100K	1	
R23,24	ERJ3GEYJ102Z	1/16W 1K	2	
R25	ERJ3GEYJ104Z	1/16W 100K	1	
R27	ERJ3GEYJ392V	1/16W 3.9K	1	
R28	ERJ3GEYJ100V	1/16W 10	1	
R29	ERJ3GEYJ562V	1/16W 5.6K	1	
R31	ERJ3GEYJ683V	1/16W 68K	1	
R32	ERJ3GEYR000V	1/16W 0	1	
R41	ERJ3GEYJ103Z	1/16W 10K	1	
R51	ERJ3GEYJ221V	1/16W 220	1	
R52	ERJ3GEYJ473V	1/16W 47K	1	
R53	ERJ3GEYJ103Z	1/16W 10K	1	
R55	ERJ3GEYJ333V	1/16W 33K	1	
R56	ERJ3GEYJ223V	1/16W 22K	1	
R57	ERJ3GEYJ472V	1/16W 4.7K	1	
R59	ERJ3GEYJ393V	1/16W 39K	1	
R103	EXBV4V474JV	1/32W 470K	1	
R109	EXBV4V474JV	1/32W 470K	1	
R112	ERJ3GEYR000V	1/16W 0	1	
R113,14	ERJ3GEYJ330V	1/16W 33	2	
R116	ERJ3GEYJ332V	1/16W 3.3K	1	
R118	ERJ3GEYJ273V	1/16W 27K	1	



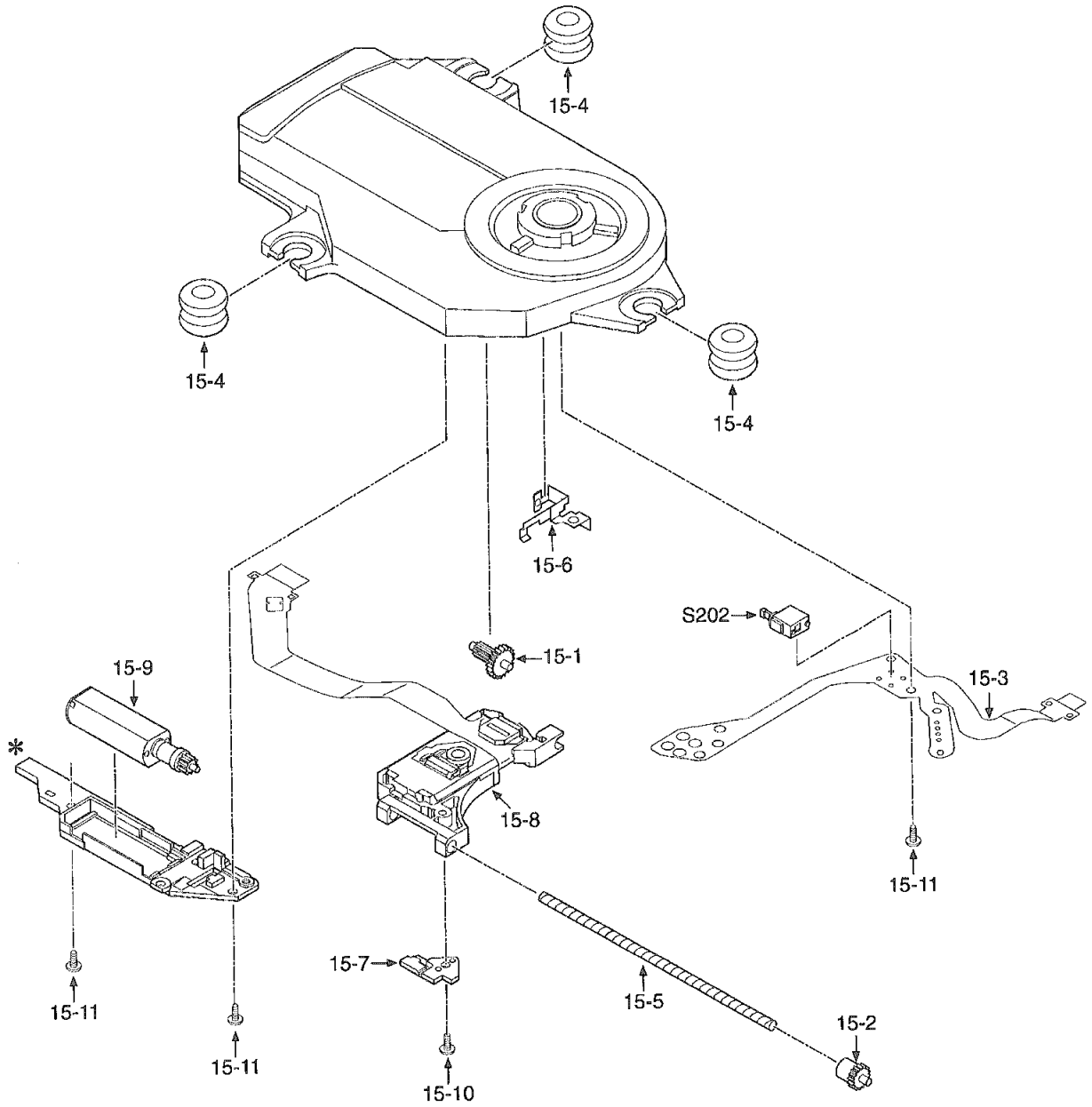
Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R119	ERJ3GEYJ470V	1/16W 47	1	
R120	ERJ3GEYJ103Z	1/16W 10K	1	
R120A	ERJ3GEYOR00V	1/16W 0	1	
R121,22	ERJ3GEYJ124V	1/16W 120K	2	
R125,26	ERJ3GEYJ124V	1/16W 120K	2	
R127	ERJ3GEYJ473V	1/16W 47K	1	
R151	EXBV4V103JV	1/32W 10K	1	
R153	ERJ3GEYJ392V	1/16W 3.9K	1	
R154	ERJ3GEYJ472V	1/16W 4.7K	1	
R155	ERJ3GEYJ4R7V	1/16W 4.7	1	
R201	ERJ3GEYJ2R2V	1/16W 2.2	1	
R201A	ERJ3GEYJ332V	1/16W 3.3K	1	
R202	ERJ3GEYJ223V	1/16W 22K	1	
R202A	MCR03PZHJ561	1/16W 560	1	
R203	ERJ3GEYJ1ROV	1/16W 1	1	
R203A	ERJ3GEYJ101V	1/16W 100	1	
R204	ERJ3GEYJ104Z	1/16W 100K	1	
R205	ERJ3GEYJ822V	1/16W 8.2K	1	
R206	ERJ3GEYJ474V	1/16W 470K	1	
R215	ERJ3GEYJ392V	1/16W 3.9K	1	
R218	ERJ3GEYJ332V	1/16W 3.3K	1	
R220	ERJ3GEYJ331V	1/16W 330	1	
R221	ERJ3GEYJ103Z	1/16W 10K	1	
R222	ERJ3GEYJ221Z	1/16W 220	1	
R223	ERJ3GEYJ471V	1/16W 470	1	
R224	ERJ3GEYJ392V	1/16W 3.9K	1	
R225	ERJ3GEYJ103Z	1/16W 10K	1	
R301	ERJ3GEYJ392V	1/16W 3.9K	1	
R301A	ERJ3GEYJ104Z	1/16W 100K	1	
R302	ERJ3GEYJ104Z	1/16W 100K	1	
R302A	ERJ3GEYJ104Z	1/16W 100K	1	
R303	ERJ3GEYJ102Z	1/16W 1K	1	
R304	ERJ3GEYJ105V	1/16W 1M	1	
R304A	ERJ3GEYJ333V	1/16W 33K	1	
R305	ERJ3GEYJ102Z	1/16W 1K	1	
R305A	ERJ3GEYJ274V	1/16W 270K	1	
R306,07	ERJ3GEYJ104Z	1/16W 100K	2	
R307A	ERJ3GEYJ104Z	1/16W 100K	1	
R308	ERJ3GEYJ104Z	1/16W 100K	1	
R308A	EXBV8V103JV	1/8W 1K	1	
R309	ERJ3GEYJ104Z	1/16W 100K	1	
R309A	ERJ3GEYJ103Z	1/16W 10K	1	
R310	ERJ3GEYJ104Z	1/16W 100K	1	
R312-14	ERJ3GEYJ104Z	1/16W 100K	3	
R315	ERJ3GEYJ474V	1/16W 470K	1	
R316	EXBV8V154JV	1/8W 150K	1	
R317	ERJ3GEYJ103Z	1/16W 10K	1	
R319	ERJ3GEYJ104Z	1/16W 100K	1	
R320	ERJ3GEYOR00V	1/16W 0	1	
R321-23	ERJ3GEYJ102Z	1/16W 1K	3	
R324	EXBV8V103JV	1/8W 10K	1	
R325	EXBV8V472JV	1/8W 4.7K	1	
R331,32	ERJ3GEYJ474V	1/16W 470K	2	
R333	ERJ3GEYJ104Z	1/16W 100K	1	
R334	ERJ3GEYJ474V	1/16W 470K	1	
R401,02	ERJ3GEYJ224V	1/16W 220K	2	
R403	ERJ3GEYJ123V	1/16W 12K	1	
R403A	ERJ3GEYJ152V	1/16W 1.5K	1	
R404	ERJ3GEYJ273V	1/16W 27K	1	
R404A	ERJ3GEYJ681V	1/16W 680	1	
R405	ERJ3GEYJ333V	1/16W 33K	1	
R405A	ERJ3GEYJ154V	1/16W 150K	1	
R406	ERJ3GEYJ104Z	1/16W 100K	1	
R406A	MCR03PZHJ561	1/16W 560	1	
R407,08	ERJ3GEYJ224V	1/16W 220K	2	
R409	ERJ3GEYJ152V	1/16W 1.5K	1	
R410	ERJ3GEYJ822V	1/16W 8.2K	1	
R410A	ERJ3GEYJ681V	1/16W 680	1	
R411	ERJ3GEYJ393V	1/16W 39K	1	
R411A	ERJ3GEYJ154V	1/16W 150K	1	
R412	MCR03PZHJ561	1/16W 560	1	
R431	ERJ3GEYJ223V	1/16W 22K	1	
R432	ERJ3GEYJ155V	1/16W 1.5M	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R433	ERJ6RQFR27V	1/8W 0.22	1	
R434	ERJ3GEYJ683V	1/16W 68K	1	
R439	ERJ3GEYJ222V	1/16W 2.2K	1	
R501	ERJ3GEYJ683V	1/16W 68K	1	
R502	ERJ3GEYJ563V	1/16W 56K	1	
R505	ERJ3GEYJ391V	1/16W 390	1	
R506	ERJ3GEYJ222V	1/16W 2.2K	1	
R508	ERJ3GEYJ1ROV	1/16W 1	1	
R509	ERJ3GEYJ223V	1/16W 22K	1	
R510	EXBV4V103JV	1/32W 10K	1	
R511	ERJ3GEYJ472V	1/16W 4.7K	1	
R512	EXBV4V222JV	1/32W 2.2K	1	
R513	ERJ3GEYJ104Z	1/16W 100K	1	
R514	ERJ3GEYJ681V	1/16W 680	1	
R515	ERJ3GEYOR00V	1/16W 0	1	
R552,53	ERJ3GEYJ474V	1/16W 470K	2	
R554	ERJ3GEYJ472V	1/16W 4.7K	1	
R601,02	ERJ3GEYJ681V	1/16W 680	2	
R603,04	MCR03PZHJ561	1/16W 560	2	
R605,06	ERJ3GEYJ473V	1/16W 47K	2	
R607,08	ERJ3GEYJ101V	1/16W 100	2	
R609	EXBV4V152JV	1/32W 1.5K	1	
R610	ERJ3GEYJ104Z	1/16W 100K	1	
R620,21	ERJ3GEYJ102Z	1/16W 1K	2	
R701,02	ERJ3GEYJ4R7V	1/16W 4.7	2	
R703,04	ERJ3GEYJ3R3V	1/16W 3.3	2	
R707,08	ERJ3GEYJ472V	1/16W 4.7K	2	
R709	ERJ3GEYJ104Z	1/16W 100K	1	
R712	EXBV4V103JV	1/32W 10K	1	
R715,16	ERJ3GEYJ104Z	1/16W 100K	2	
R717	ERJ3GEYJ223V	1/16W 22K	1	
R719	ERJ3GEYJ223V	1/16W 22K	1	
R720,21	ERJ3GEYJ150V	1/16W 15	2	
R731	ERJ3GEYJ103Z	1/16W 10K	1	
R732	ERJ3GEYJ104Z	1/16W 100K	1	
R904	ERJ3GEYJ471V	1/16W 470	1	
R1001	ERJ3GEYJ104Z	1/16W 100K	1	
R1002	ERJ3GEYJ472V	1/16W 4.7K	1	
R1003-05	ERJ3GEYJ102Z	1/16W 1K	3	
RJ1	ERJ3GEYOR00V	CHIP JUMPER	1	
RJ502	ERJ3GEYOR00V	CHIP JUMPER	1	
RJ504	ERJ3GEYOR00V	CHIP JUMPER	1	
RJ506	ERJ3GEYOR00V	CHIP JUMPER	1	
RJ508	ERJ3GEYOR00V	CHIP JUMPER	1	
RJ510	ERJ3GEYOR00V	CHIP JUMPER	2	
11				
RJ901	ERJ3GEYOR00V	CHIP JUMPER	1	
S201	ESE11SV6	SW	1	
S202	RSPIA024-A	SW,REST DET.	1	
S301-08	RSG0038-P	SW	8	
S309	RSS3A007-1A	SW,MODE	1	
S309A	RSG0038-P	SW	1	
S310	RSS2A010-1A	SW,HOLD	1	
S311-15	RSG0038-P	SW	5	
VR11	RRN3A05B33WL	V.R.,P.S.VOLT.ADV	1	
VR701	EVUTUFB11C54	V.R.,VOLUME	1	
X301	RSXC75K0L02T	OSCILLATOR	1	
X501	EF0EX1695X4	OSC	1	

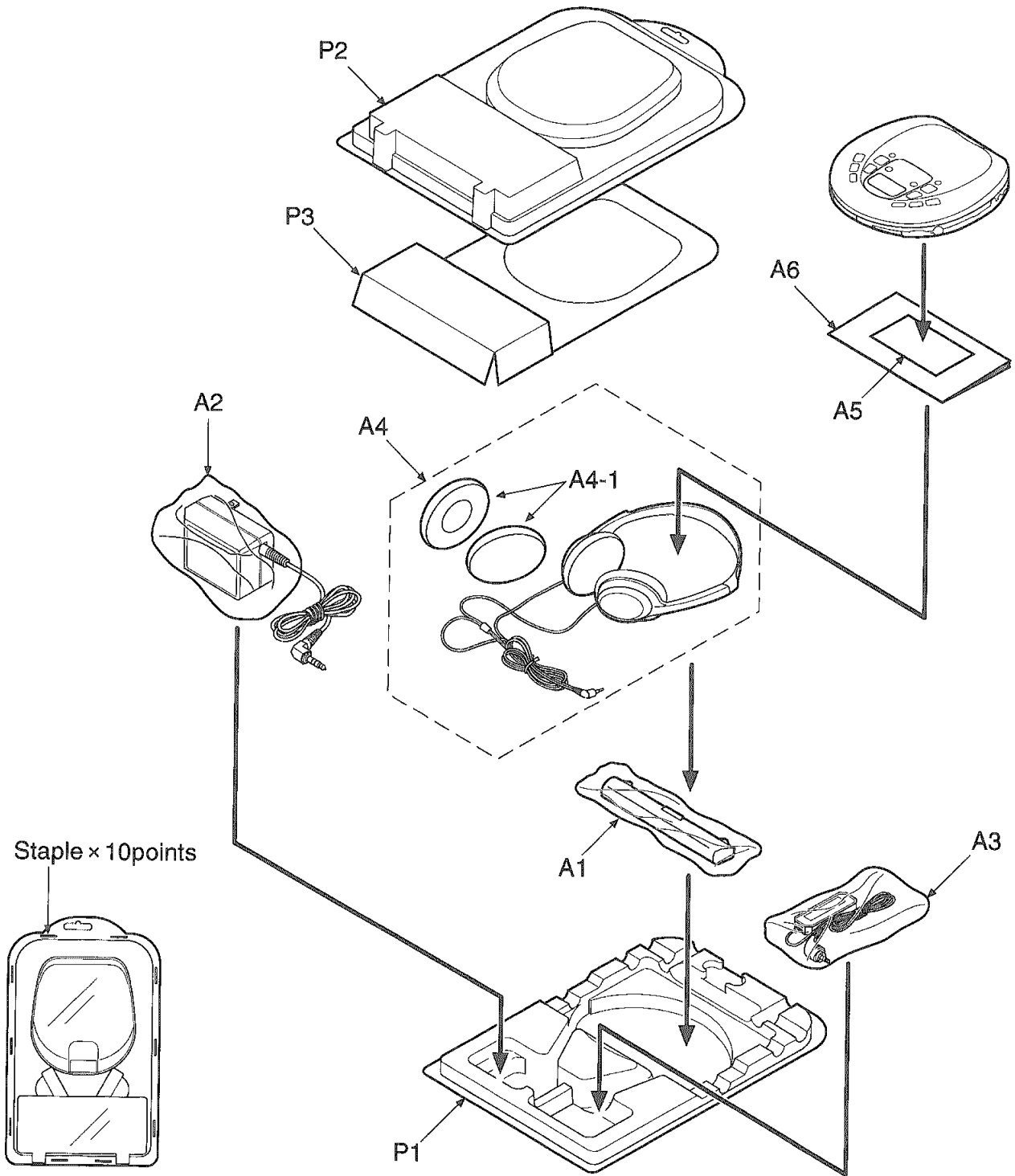
# 16 Cabinet Parts Location



# 17 Traverse Parts Location



# 18 Packaging.....(P)



# 19 Packaging.....(PC)

