

# D-9/90

## SERVICE MANUAL

US Model  
 Canadian Model  
 D-9  
 AEP Model  
 UK Model  
 E Model  
 D-90



# Discman

### SPECIFICATIONS

CD section  
 System  
 Laser diode properties

Compact disc digital audio system  
 Material: GaAlAs  
 Wavelength: 780 nm  
 Emission duration: Continuous  
 Laser output: Max. 44.6  $\mu$ W\*  
 \*This output is the value measured at a distance of about 200 mm from the objective lens surface on the Optical Pick-up Block.

Spindle speed  
 Scan velocity  
 Error correction  
 D-A conversion

500 r.p.m. to 200 r.p.m. (CLV)  
 1.2-1.4 m/sec.  
 Sony Super Strategy Cross Interleave Reed Solomon Code  
 16-bit linear  
 2 ts digital filter

Frequency response  
 Wow and flutter  
 Outputs (at 9 V input level)

20-20,000 Hz  $\pm 1$  dB  
 Below measurable limit\*  
 Line output (stereo minijack)  
 Output level 0.7 V rms at 50 kilohms  
 Load impedance over 10 kilohms  
 Headphones (stereo minijack)  
 9 mW + 9 mW at 32 ohms

\*Measured by EIAJ CP-307

General  
 Power requirements

Rechargeable battery pack BP-2 (supplied)  
 Battery case EBP-2 (supplied) and two size AA alkaline batteries (optional)  
 Sony CPM-100P car mount plate, or Sony DCC-120A car battery cord for use on 12 V car battery (optional)  
 DC IN 9 V jack accepts:  
 Sony AC power adaptor (supplied), AC-D6M (optional)

Power consumption  
 Dimensions

1.8 W DC  
 Approx. 130.0 $\times$ 31.1 $\times$ 142.0 mm  
 (5 1/8 $\times$ 1 1/4 $\times$ 5 5/8 in.) (w/h/d) not incl. inclined part (depth), projecting parts and controls  
 Approx. 131.0 $\times$ 31.9 $\times$ 142.7 mm (5 1/4 $\times$ 1 5/16 $\times$ 5 5/8 in.) (w/h/d) incl. projecting parts and controls

Weight

Approx. 420 g (15 oz) not incl. rechargeable battery  
 Approx. 500 g (1 lb 1 oz) incl. rechargeable battery

Supplied accessories

AC power adaptor (1)  
 Battery case (1)  
 Rechargeable battery pack (1)  
 Carrying case (1)  
 Connecting cord (1) (stereo miniplug  $\leftrightarrow$  two phono plugs)

Design and specifications subject to change without notice.

### CAUTION

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

# COMPACT DISC COMPACT PLAYER

# SONY®

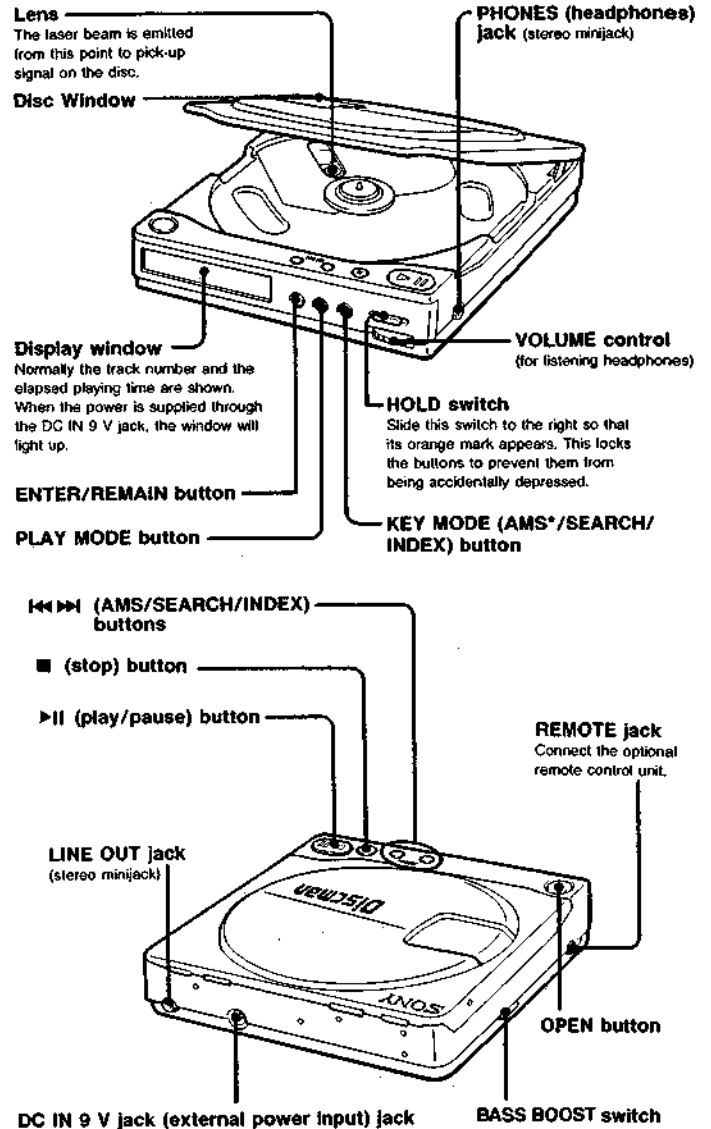


# SECTION 1 GENERAL

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## LOCATION AND FUNCTION OF CONTROLS



\*AMS is the abbreviation of Automatic Music Sensor.

### SAFETY-RELATED COMPONENT WARNING!!

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

### ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUÉ PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

## SECTION 2

### SERVICING NOTES

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

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

During repair, pay attention to electrostatic breakdown and also use the procedure in the printed matter which is included in the repair parts.

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

#### Before Replacing the Optical Block

Please be sure to check thoroughly the parameters as per the "Optical Block Checking Procedures" (Part No. : 9-960-027-11) issued separately before replacing the optical block. Note and specifications required to check are given below.

- FOK output : IC501 @ pin  
When checking FOK, remove the lead wire to spindle motor and unsolder and open IC801 @ pin (FOK).
- S curve P-to-P value : 3Vp-p  
When checking S curve P-to-P value, remove the lead wire to spindle motor.
- Adjusted part for focus gain adjustment : RV505
- RF signal P-to-P value : 0.7 - 1.25Vp-p
- Traverse signal P-to-P value : 1.5Vp-p
- The repairing grating holder is impossible.
- Adjusted part for tracking gain adjustment : RV501

#### **Flexible Circuit Board Repairing**

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

#### **Notes on chip component replacement**

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

## NOTES ON LASER DIODE EMISSION CHECK

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

### Laser Diode Check Procedure

The laser diode on this set will not emit unless the top panel is closed and S901 is turned on. The laser diode will always emit even if focus search is not performed in service mode.

#### Procedure 1 (service mode or normal operation)

Check the laser diode emission with the eye.

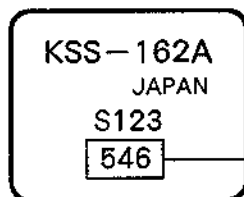
1. Open top panel.
2. Turn on S901 in Fig. 1.  
(In service mode, this operation is not necessary.)
3. Press the **▶▶** key.  
(In service mode, this operation is not necessary.)
4. Observe the objective lens and confirm that the laser diode is emitting light. At this time, the laser diode goes on about 10 seconds due to focus search.

#### Procedure 2 (service mode or normal operation)

Check by the current with flows in the laser diode.

1. Close the top panel.
2. Remove the main board and read the current value on the label affixed to the UPF.

(Label on UPF)



current value  
This means 64.6mA.

3. Connect a VOM to TP1 and TP2 (both side of R510 : 10 Ω)
4. Press the **▶▶** key.
5. Calculate the current by the VOM reading.  
VOM reading (V) ÷ resistance of R510 = current (A)  
ex. VOM reading = 0.56V  
 $0.56 \div 10 = 0.056$  (A) = 56 (mA)
6. Confirm that the ammeter reading is within the range given below.  
value on label: 54 mA (25°C)  
variation relative to temperature: 0.4mA/°C  
(Current increases when temperature rises and decreases when it drops.)

## SERVICE MODE (service program)

### • Step 1 (Service Mode setting method)

1. Turn the HOLD switch to OFF with the external power supply not plugged in (no power applied to set).
2. Press the **▶▶** key.
3. Solder jumper TEST terminal.  
(IC801 pin⑨ BAT-E is grounded.)
4. Plug in external power supply.  
This puts the set into service mode.

### • Step 2 (Service Mode operation)

1. When service mode is set, the display will change 6 times, and those 6 changes will be repeated over and over.  
Even if LCD does not display, other operations will be performed.
2. When **▶▶** or **◀◀** key is pressed, the optical pick-up block moves to the inside or outside circumference. Tracking servo and sled servo go off when this is done, so press KEY-MODE to turn on the tracking servo if necessary.
3. When REMAIN is pressed, the display stops. When REMAIN is released, the display continues to change. This allows check of each segment.
4. When **▶▶** Key is pressed, CLV-S (pull-in mode) starts while performing focus search. When there is no disc installed, focus search is repeated with rotating disc motor.
5. When KEY-MODE is pressed, tracking servo, sled servo and CLV-A (servo during PLAY) go ON.
6. When 4 and 5 are performed, the disc begins to play. At this time, the top panel should be closed and S901 are to be ON. A sound is not produced as muting is ON.
7. All servo (focus, tracking, sled and spindle) go off when **■** key is pressed. Disc motor rotate by inertia for a some time.

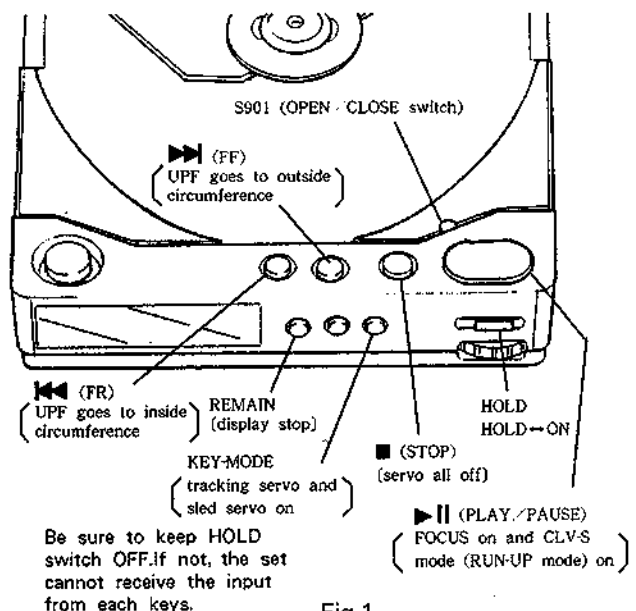


Fig.1

### • Step 3 (Service Mode release)

1. First be sure to unplug the external power supply.
2. Then remove the solder jumper TEST terminal.
3. The set will now operated normally.

## SECTION 3 ELECTRICAL ADJUSTMENTS

### Notes on Adjustment

- Perform adjustments except for BATTERY REMAINS ADJUSTMENT in service mode.  
Be sure to release service mode after completing adjustment.  
(Refer to "Service Mode (service program)" on page 4.)
- Perform adjustments in the order given.
- Use YEDS-18 disc (part No.: 3-702-101-01) only indicated.
- Power supply voltage : DC 9V  
HOLD switch : OFF  
VOLUME knob : MIN

### PREPARATION

Put the set into service mode (See page 4.) and perform the following checks.

#### • Slid Motor Check

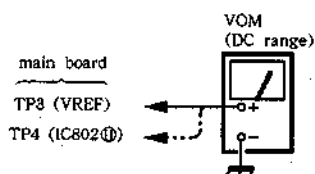
- Press the OPEN button and open the top panel.
- Press the **▶▶**, **◀◀** keys and make sure that the optical pick-up block moves smoothly, without catching, from the inmost → outmost → inmost circumference.  
**▶▶** : UPF moves outward  
**◀◀** : UPF moves inward

#### • Focus Search Check

- Press the OPEN button and open the top panel.
- Press the **▶▶** key. (Focus search is performed continuously.)
- Observe the UPF objective lens and check that it moves smoothly up and down with no catching or noises.
- Press the **■** key.  
Check that focus search operation stops. If it does not, press the **■** key again.

### Battery Remains Indication Adjustment

Adjustment procedure :



- Apply DC 3.5V both side of battery terminal.
- Insert the disc (YEDS-18) and press the **▶▶** key.
- Adjust RV801 so that the voltage of TP4 (IC802) is the same as TP3 (V REF).

### + 6V Adjustment

#### Adjustment Procedure :

- Put the set into STOP state service mode (see page4).
- Connect the VOM to main board test point TP(+6V).
- Adjust RV401 for 5.1V-5.2V reading on the VOM.
- After adjustment, release service mode (see page4).

### + 3.4V Adjustment

#### Adjustment Procedure :

- Put the set into STOP state service mode (see page 4).
- Connect the VOM to main board test point TP (+3.4V).
- Adjust the pattern connection (A or B) to obtain 3.4V to 3.6V reading on the VOM.

pattern connection		VOM reading
A	B	
○	×	down ↑ up
×	×	
×	○	
○	○	

○ : short      × : open

- After adjustment, release service mode (see page 4).

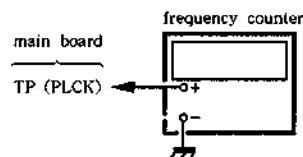
### + 3.6V Adjustment

#### Adjustment Procedure :

- Apply DC 3V both side of battery terminal.
- Connect the VOM to main board test point TP7 (collector of Q437).
- Insert the disc (YEDS-18) and close the top panel.
- Press the **▶▶** key.
- Adjust RV450 for 3.65V to 3.7V on the VOM reading.

### PLL Free Run Frequency Check and Adjustment

#### Check/Adjustment Procedure :



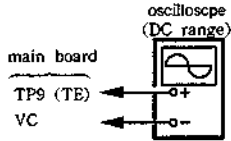
- Disconnect EFM solder jumper terminal on the main board.
- Connect a frequency counter to main board test point TP8(IC601).
- Put the set into service mode (See page 4).
- Check that the frequency counter reading is  $4.35 \pm 0.01$  MHz. If not, adjust RV504 so that it is  $4.35 \pm 0.01$  MHz.
- After adjustment, release service mode (see page 4).
- Short the jumper terminal disconnected in step 1.

**Tracking Balance Adjustment**

**Conditions :**

The set should be placed either horizontally.

**Adjustment Procedure :**

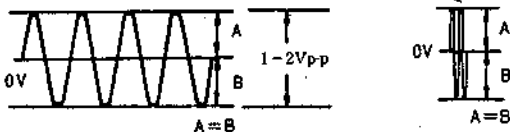


1. Connect the oscilloscope to main board TP9 (IC501①).
2. Put the set into service mode (See page 4.)
3. Press the ►► and ◀◀ keys to move the UPF to the center.
4. Insert the disc (YEDS-18) and close the top panel.
5. Press the ►► key.

It will go from focus search to focus on, and CLV pull-in mode state, Tracking and sled are OFF.

6. Adjust RV502 so that the oscilloscope waveform is symmetrical on the top and bottom in relation to 0V.

**Note :** Take sweep time as long as possible to obtain best waveform.



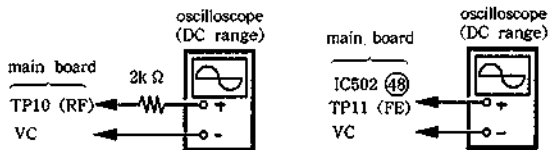
7. Unplug the external power supply to stop spindle motor from rotating.
8. After adjustment, release service mode (see page 4).

**Focus Bias Adjustment**

**Conditions :**

The set should be placed either horizontally.

**Adjustment Procedure :**



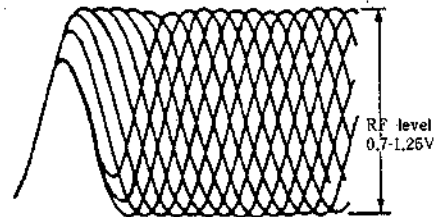
1. Put the set into STOP state in service mode (See page 4).
2. Connect the oscilloscope to main board test point TP10(IC501④).
3. Press the ►► and ◀◀ key to move the UPF to the center. (Move the UPF to the music area on the disc to enable easy visibility of the eye pattern).
4. Insert the disc (YEDS-18) and close the top panel.
5. Press the ►► key.

6. Press the KEY-MODE button.
7. Adjust RV503 so that the oscilloscope waveform eye pattern is good. A good eye pattern means that the diamond shape (◇) in the center of the waveform can be clearly distinguished.

**• RF Signal Reference Waveform (eye pattern)**

VOLT/DIV : 200mV

TIME/DIV : 500nS



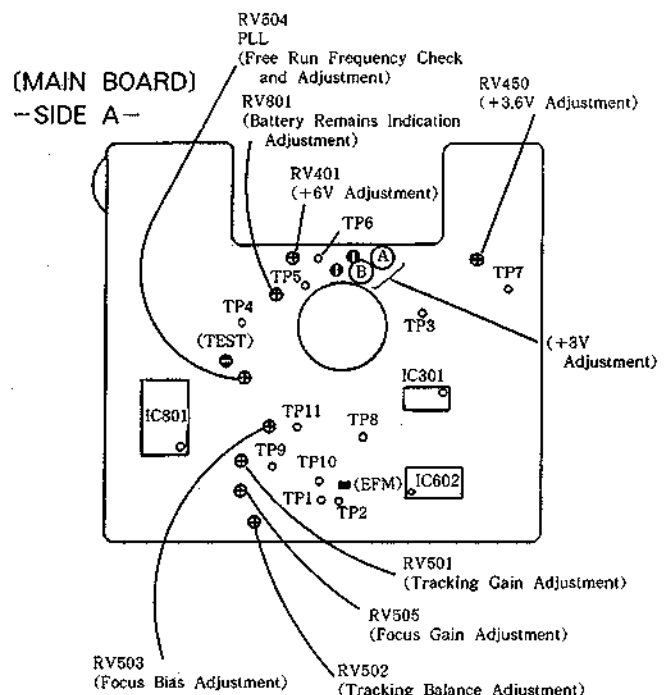
When observing the eye pattern, set the oscilloscope for AC range and raise vertical sensitivity.

8. Read the voltage on TP11 (IC502④).

voltage of TP (FE)	adjustment
+20mV to 50mV	Adjust RV503 again for +50mV reading on oscilloscope.
+20mV to -20mV	Adjust RV503 again for -20mV reading on oscilloscope.

9. Unplug the external power supply to stop spindle motor from rotating. Adjust RV503 again referring to the table followed.
10. After adjustment, release service mode (see page 4).

**Adjustment Parts Location Diagram**



# SECTION 4 DIAGRAMS

## 4-1. BLOCK DIAGRAMS

### Focus/Tracking Gain Adjustment

On this set, it is very difficult to simplify this adjustment.

A frequency response analyzer or CD jig is necessary in order to perform this adjustment exactly.

However, this gain has a margin, so even if it is slightly off, there is no problem. Therefore, do not perform this adjustment.

Focus/tracking gain determines the pick-up followup (vertical and horizontal) relative to mechanical noise and mechanical shock when the 2-axis device operate.

- When gain is high, the noise when the 2-axis device operates increases.
- When gain is low, it is more susceptible to mechanical shock and skipping occurs more easily.

However, as these reciprocate, the adjustment is at the point where both are satisfied.

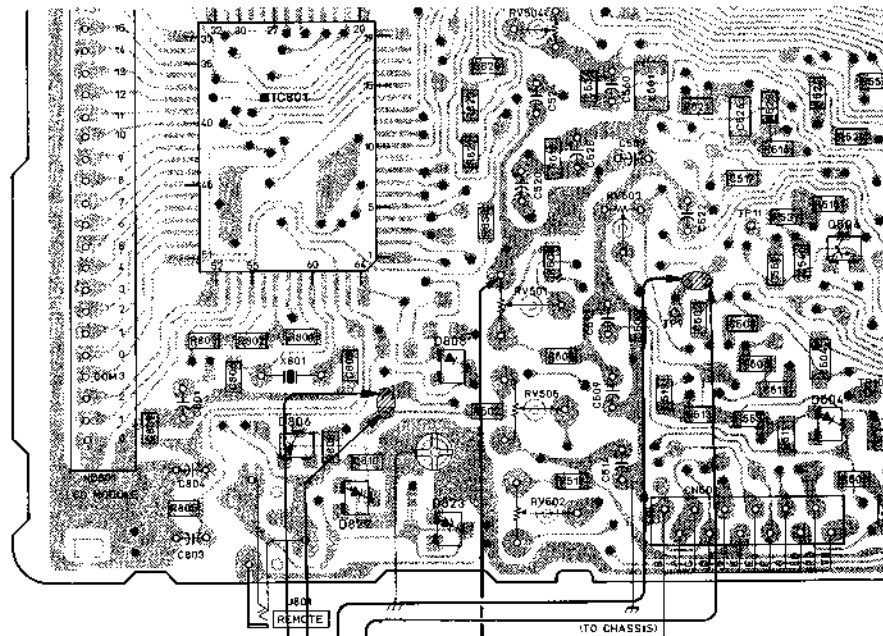
This adjustment is to be performed with using when replacing the following parts:

- UPF (optical pick-up block)
- RV501 (focus gain volume)
- RV502 (tracking gain volume)

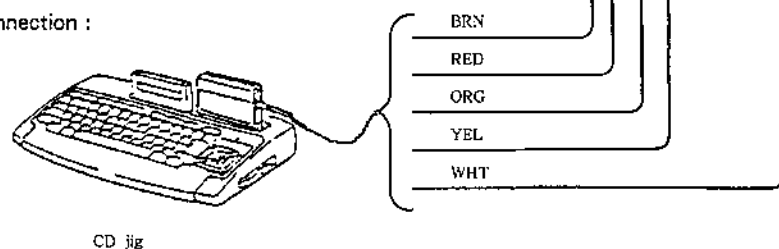
CD jig connection:

Remove the solder jumpers at the TE and FE locations and connect the CD jig.  
The adjustment procedure is described in the separate CD jig Instruction Manual.

Adjustment Parts Location Diagram  
(MAIN BOARD) -SIDE A-

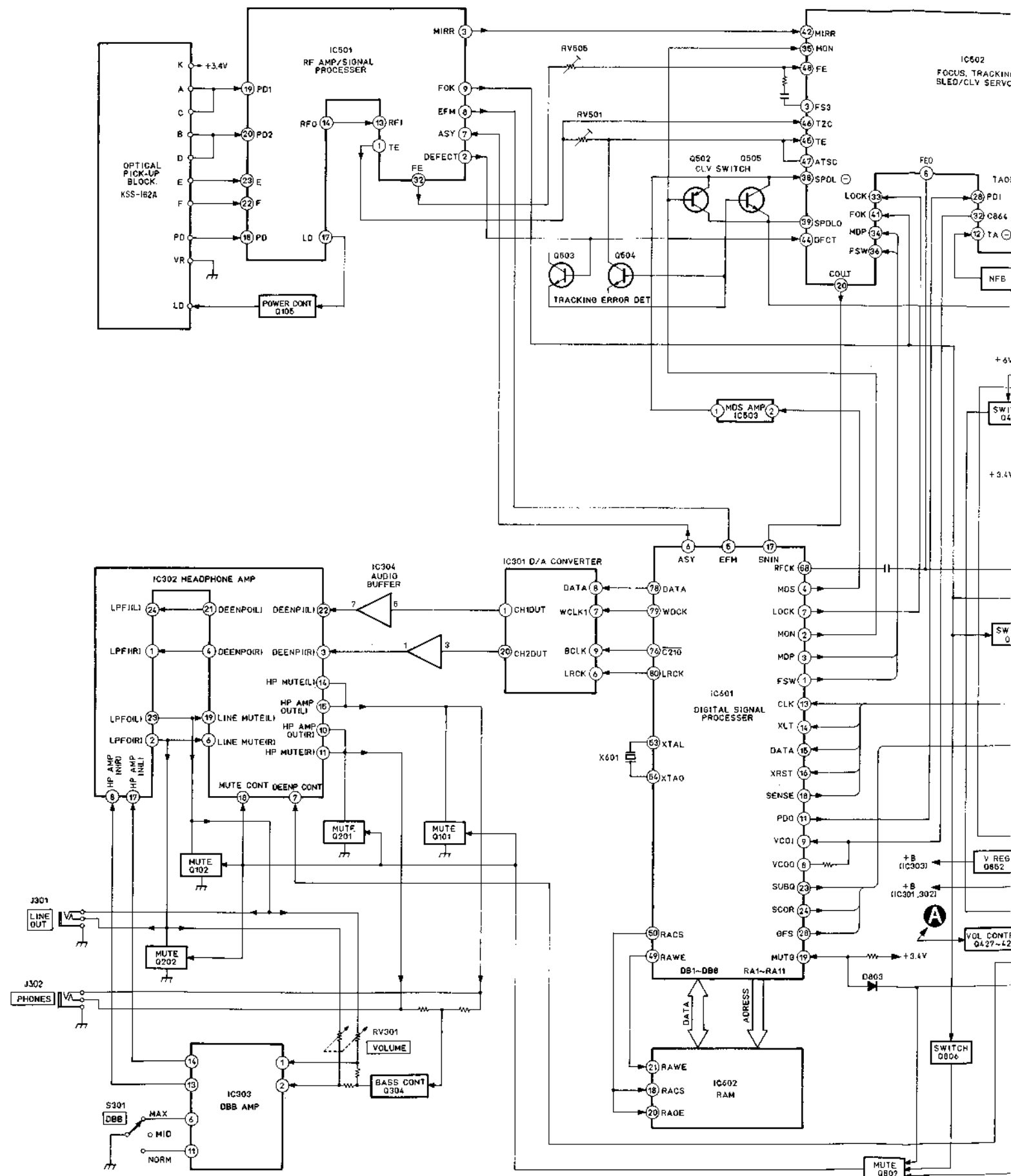


CD jig connection:

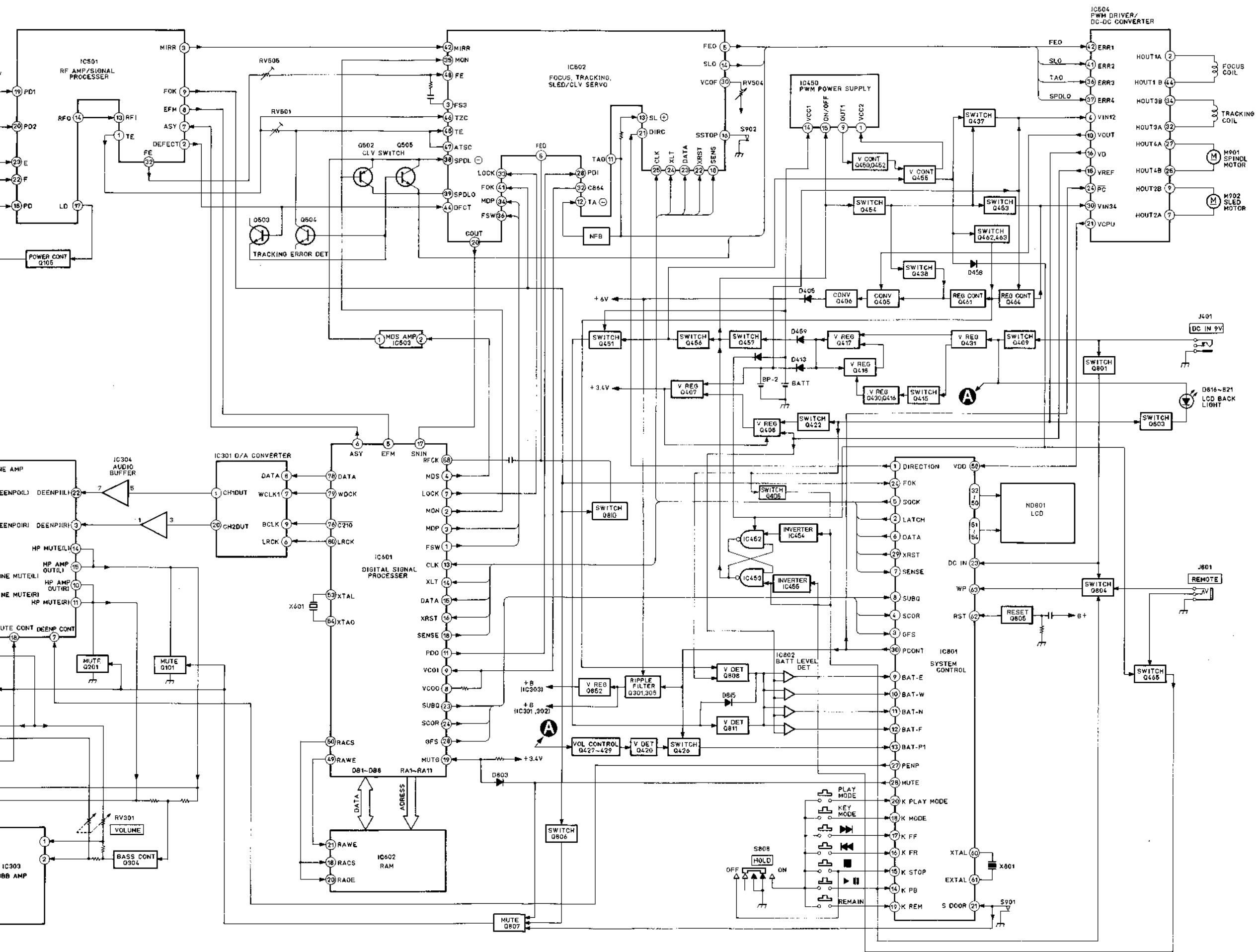


CD jig

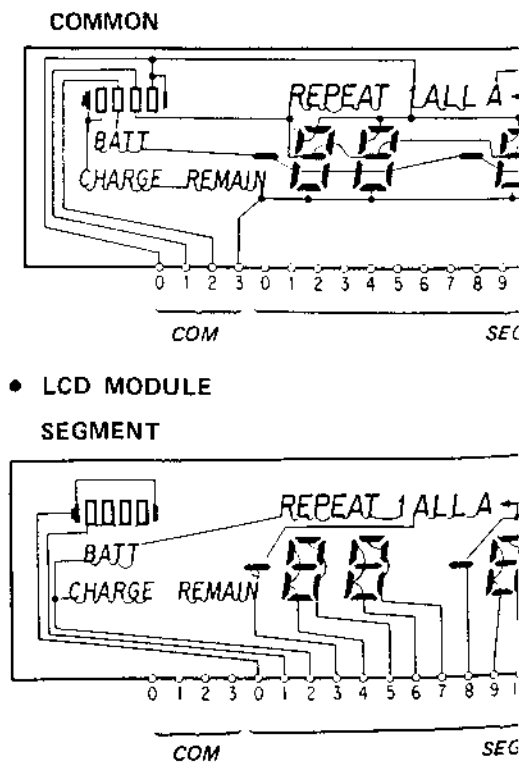
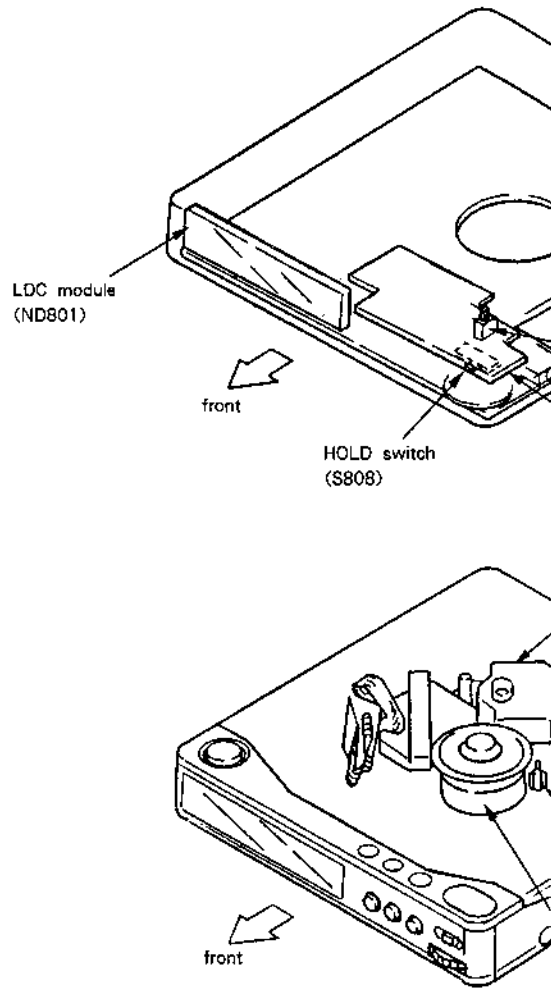
Fig.3



# SECTION 4 DIAGRAMS

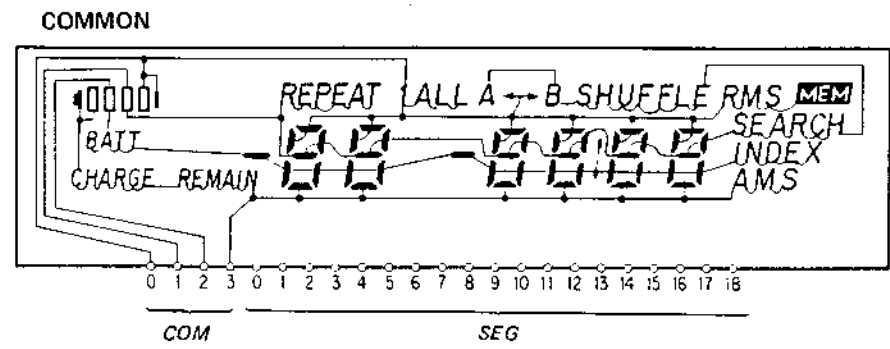
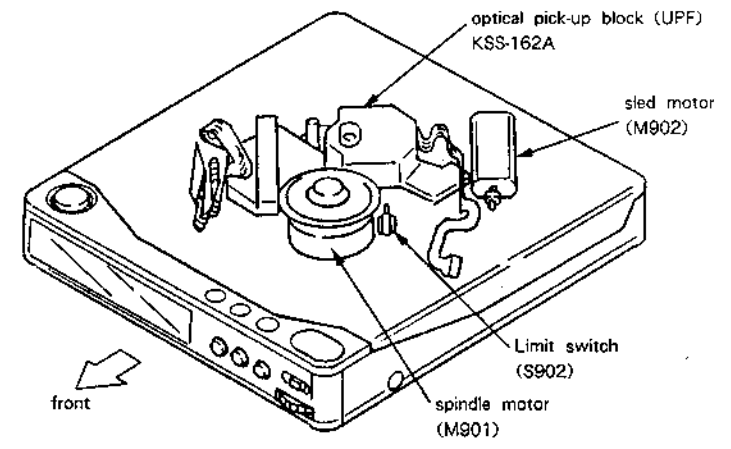
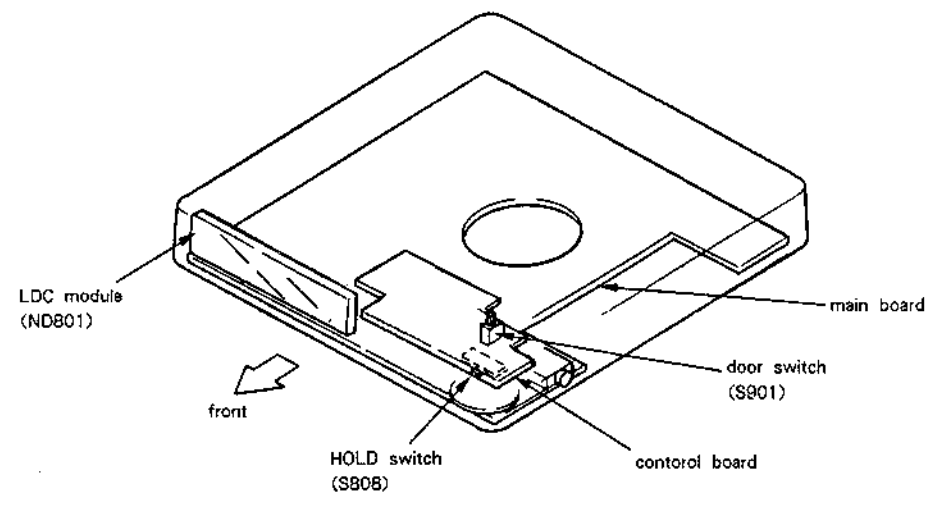
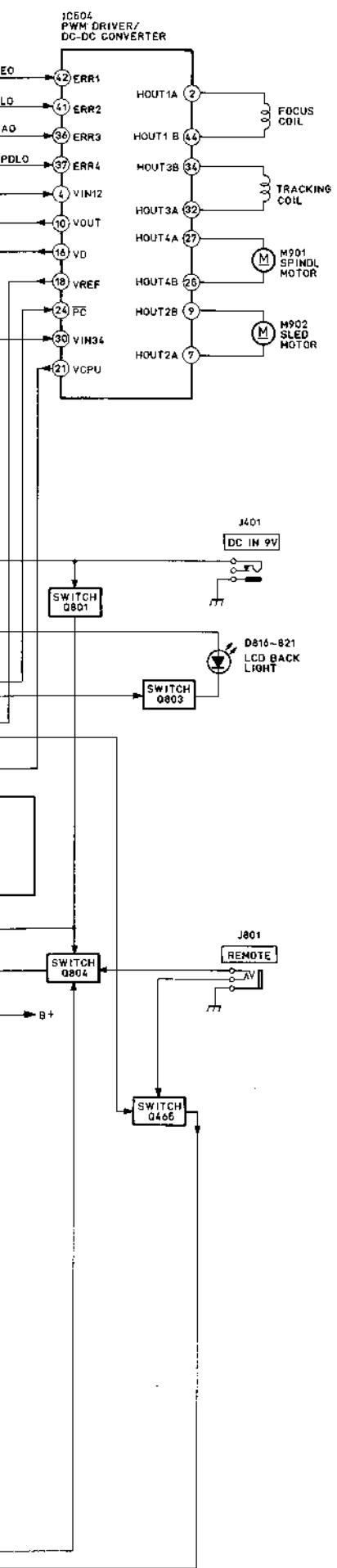


4-2. PC BOARD/SWITCH/MOTOR LAYOUT

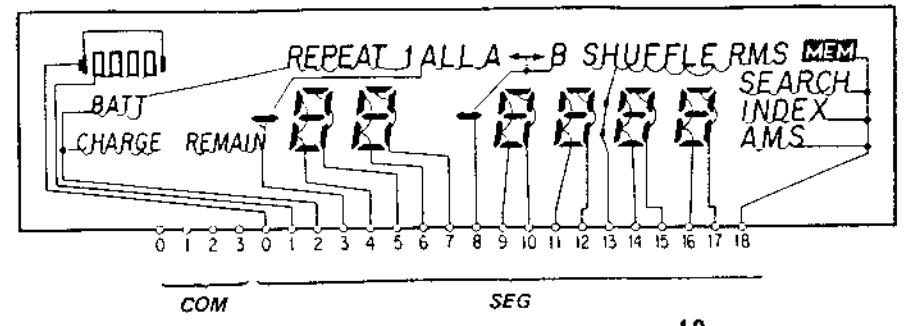




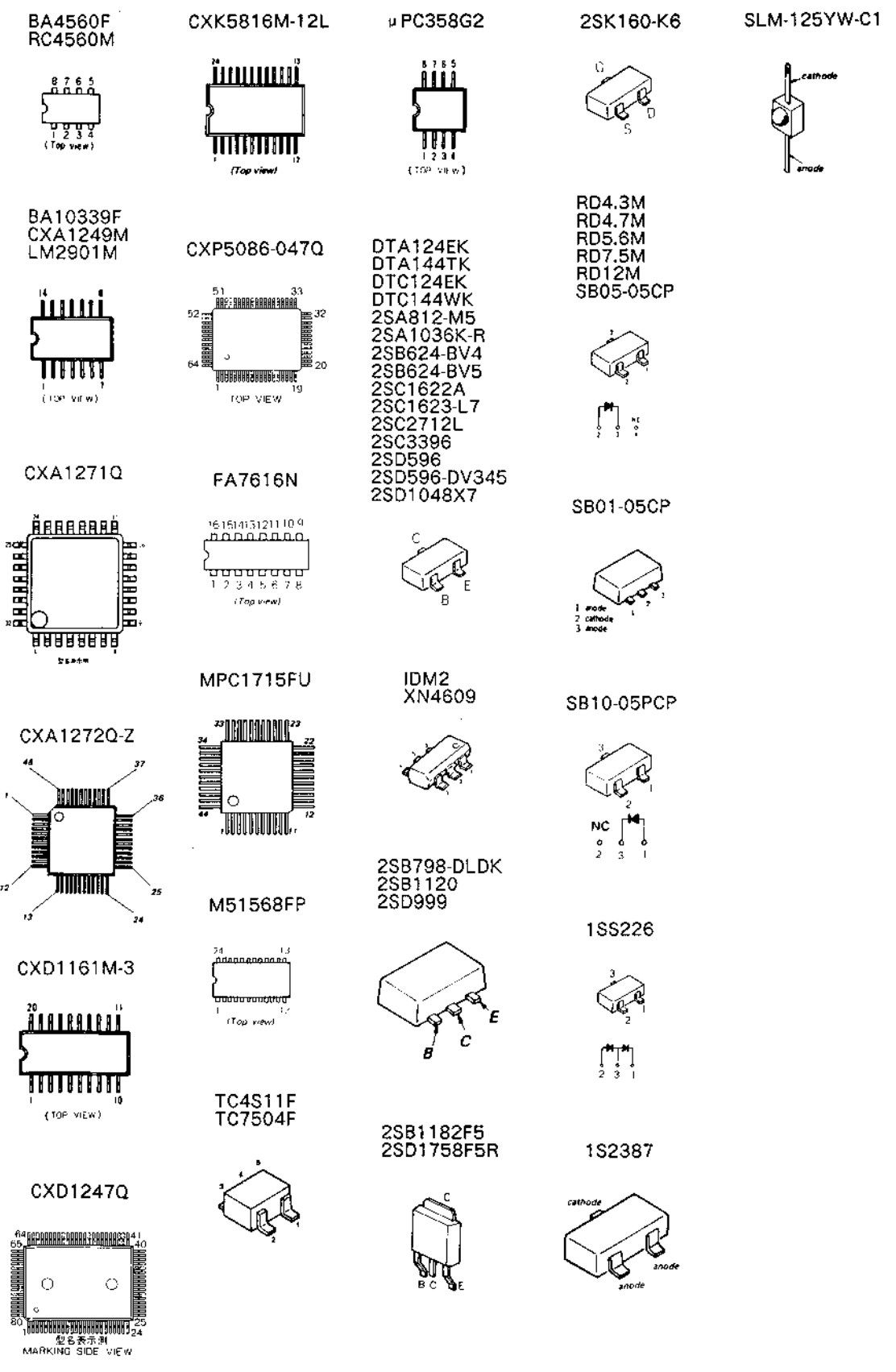
4-2. PC BOARD/SWITCH/MOTOR LAYOUTS



● LCD MODULE SEGMENT



4-3. Semiconductor Lead Layouts

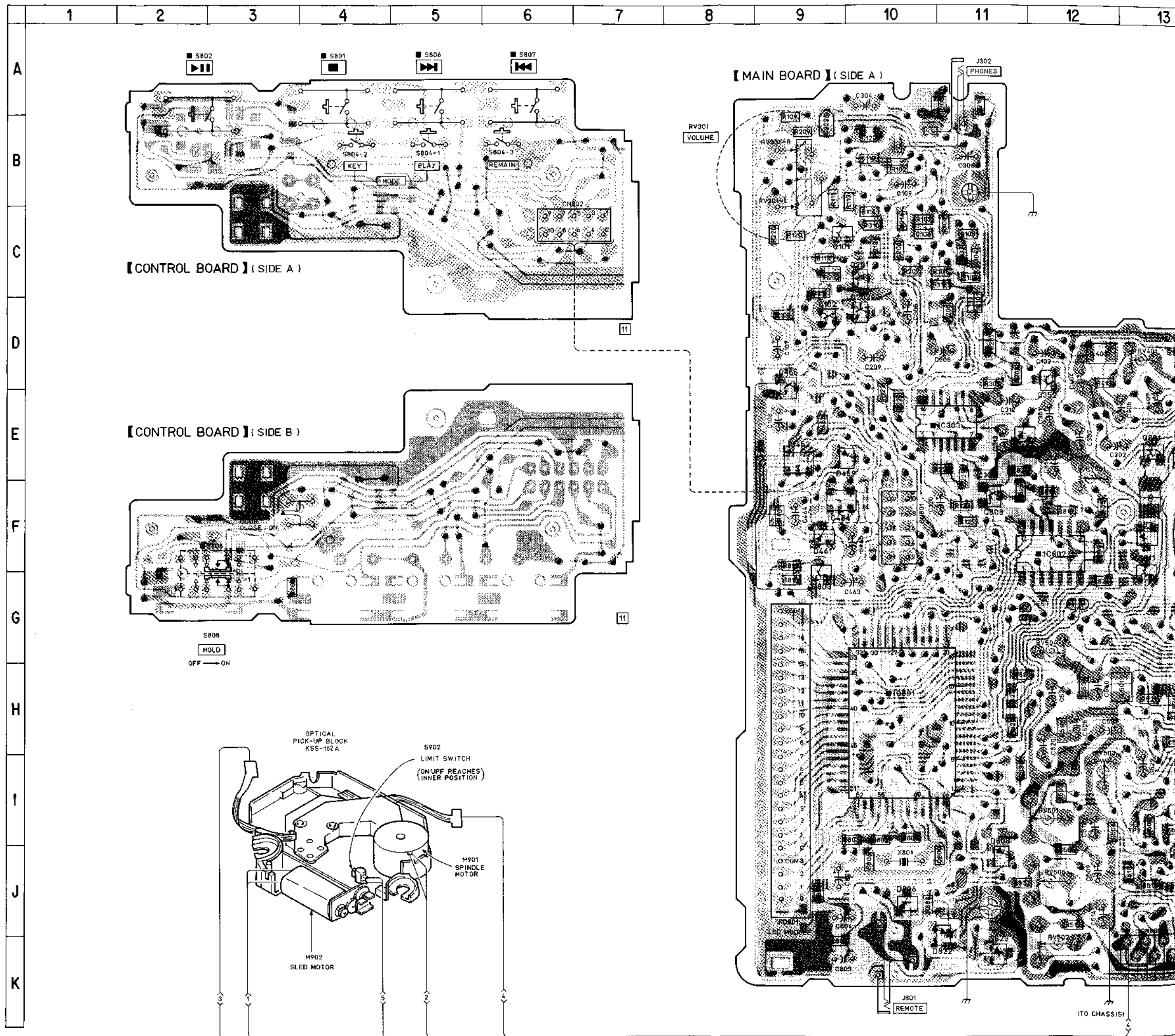


• SEMICONDUCTOR LOCATION

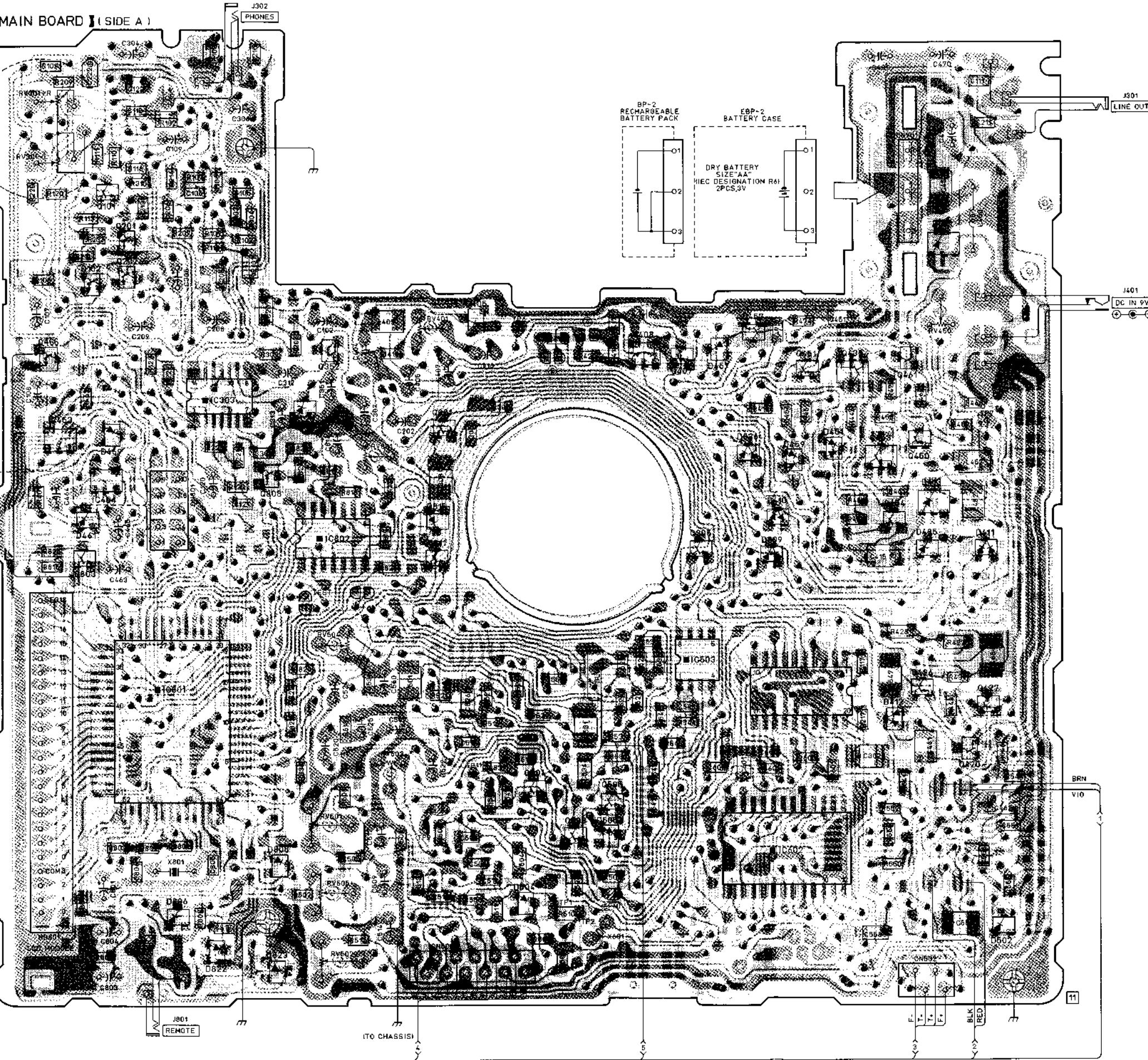
Ref. No.	Location	Ref. No.	Location	Ref. No.	Location
IC301	H-17	Q453	E-17	D464	H-30
IC302	C-29	Q454	F-17	D467	G-21
IC303	E-11	Q455	E-22	D468	F-23
IC304	G-24	Q456	E-23	D469	E-9
IC450	E-23	Q457	D-16	D470	I-30
IC452	E-30	Q461	E-18	D471	H-30
IC453	E-9	Q462	E-21	D485	F-18
IC454	F-9	Q463	F-21	D501	J-21
IC455	F-30	Q464	F-21	D502	J-19
IC501	J-27	Q465	K-29	D503	J-21
IC502	H-26	Q466	E-9	D504	J-14
IC503	H-15	Q501	K-25	D505	I-15
IC504	J-22	Q502	I-25	D801	I-28
IC505	J-21	Q503	I-14	D802	I-28
IC801	I-24	Q504	I-14	D803	H-23
IC802	J-16	Q505	I-15	D804	H-29
IC801	H-10	Q801	G-22	D805	J-29
IC802	F-12	Q803	G-9	D806	J-10
		Q804	I-29	D807	I-29
		Q805	I-30	D808	J-11
Q101	C-9	Q806	H-29	D809	F-16
Q102	D-9	Q807	H-29	D810	G-22
Q201	C-10	Q808	F-11	D811	J-29
Q202	D-10	Q809	G-27	D813	I-29
Q301	E-13	Q810	G-27	D815	F-13
Q304	D-31	Q811	F-13		
Q305	F-15			D816	H-31
Q352	E-12	D354	F-24	D817	G-31
Q405	E-24	D355	E-11	D818	G-31
Q406	D-25	D356	D-30	D819	G-31
		D357	E-29	D820	J-31
		D358	A-29		
Q407	E-15			D821	J-31
Q408	D-15			D822	K-11
Q409	H-21	D401	C-18	D823	K-11
Q415	G-21	D405	D-13	D824	G-29
Q416	G-23	D410	F-16	D825	I-30
		D411	F-18	D826	E-16
		D412	H-17		
Q417	F-22				
Q418	G-22				
Q420	I-18	D413	F-18		
Q422	E-24	D415	F-21		
Q426	H-18	D450	F-22		
		D451	E-17		
		D452	F-30		
Q427	H-18				
Q428	H-21				
Q429	H-22	D454	F-23		
Q430	F-23	D457	E-16		
Q431	G-22	D458	F-23		
		D459	F-16		
Q437	E-21	D460	K-28		
Q438	E-17				
Q450	E-18	D461	F-9		
Q451	E-17	D462	F-30		
Q452	D-23	D463	G-30		

Note on Printed Wiring Boards:

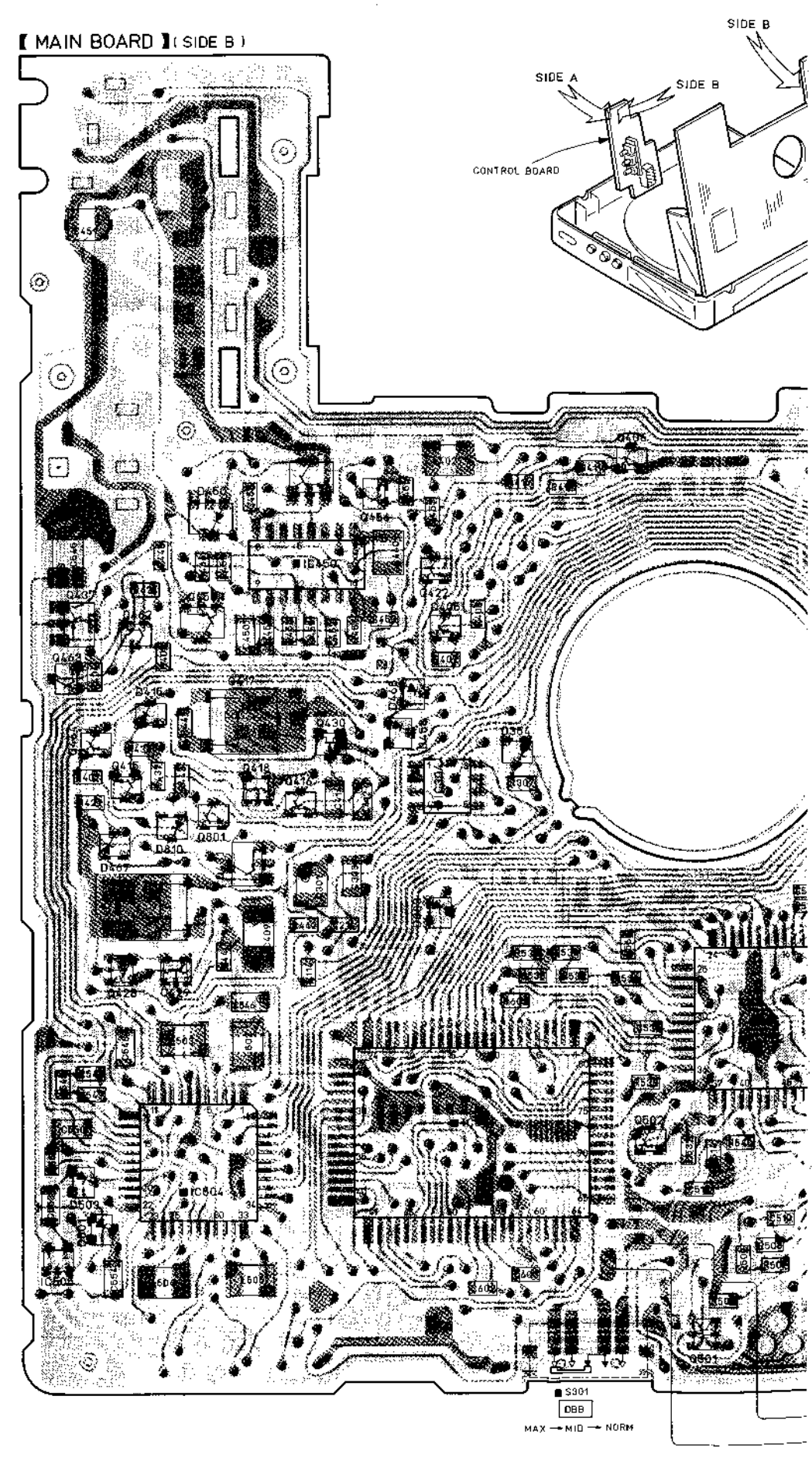
- : parts extracted from the component side.
- : parts extracted from the conductor side.
- : parts mounted on the conductor side.
- : Through hole.
- ▨ : Pattern on the side which is seen.
- ▩ : Pattern of the rear side.
- : Chip components extracted from the rear side.



MAIN BOARD (SIDE A)

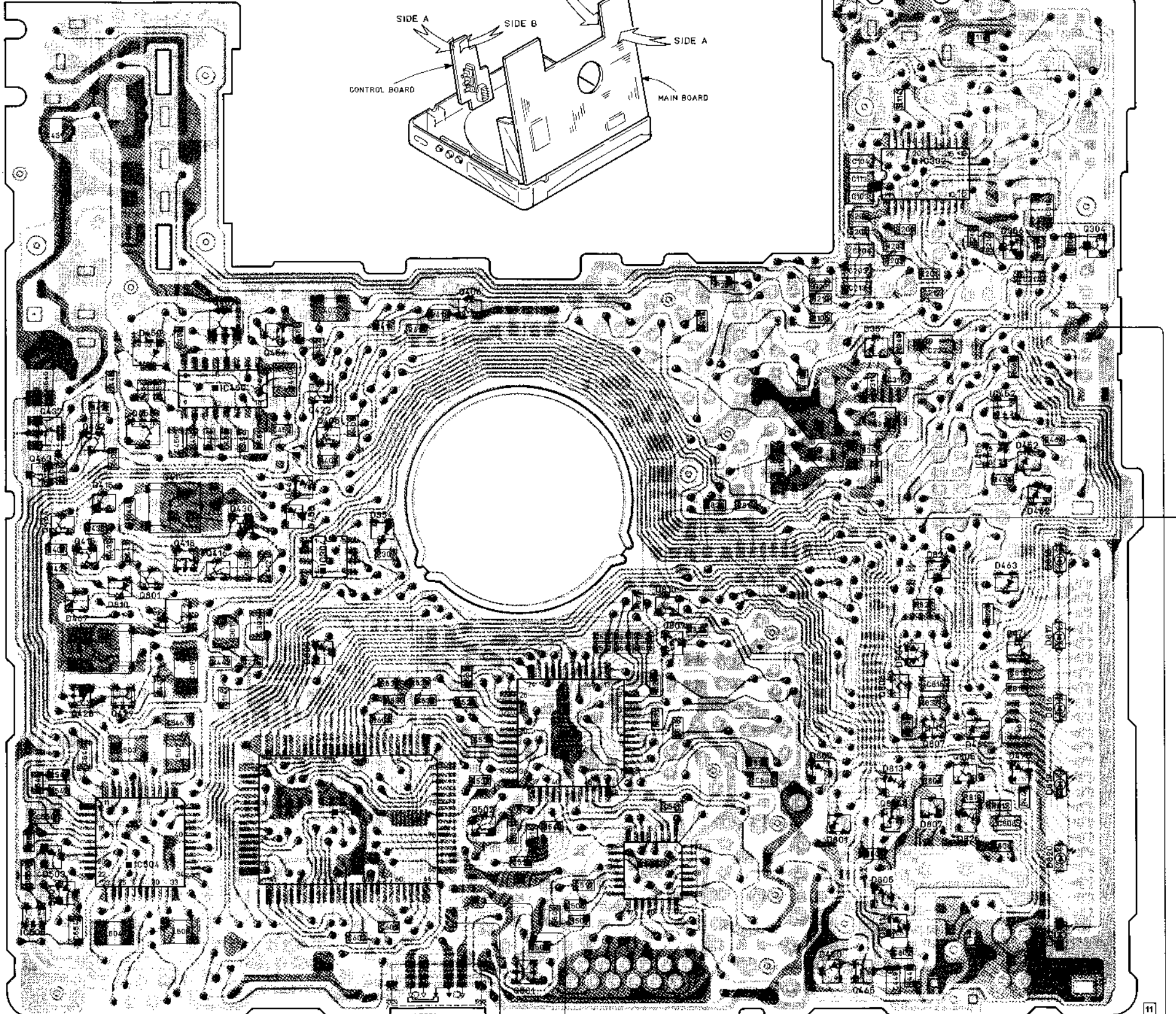
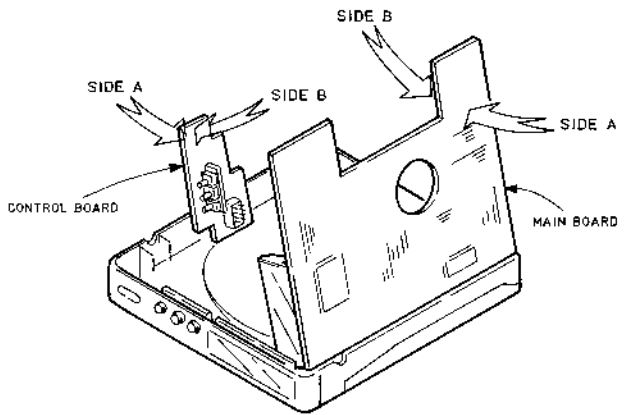


MAIN BOARD (SIDE B)





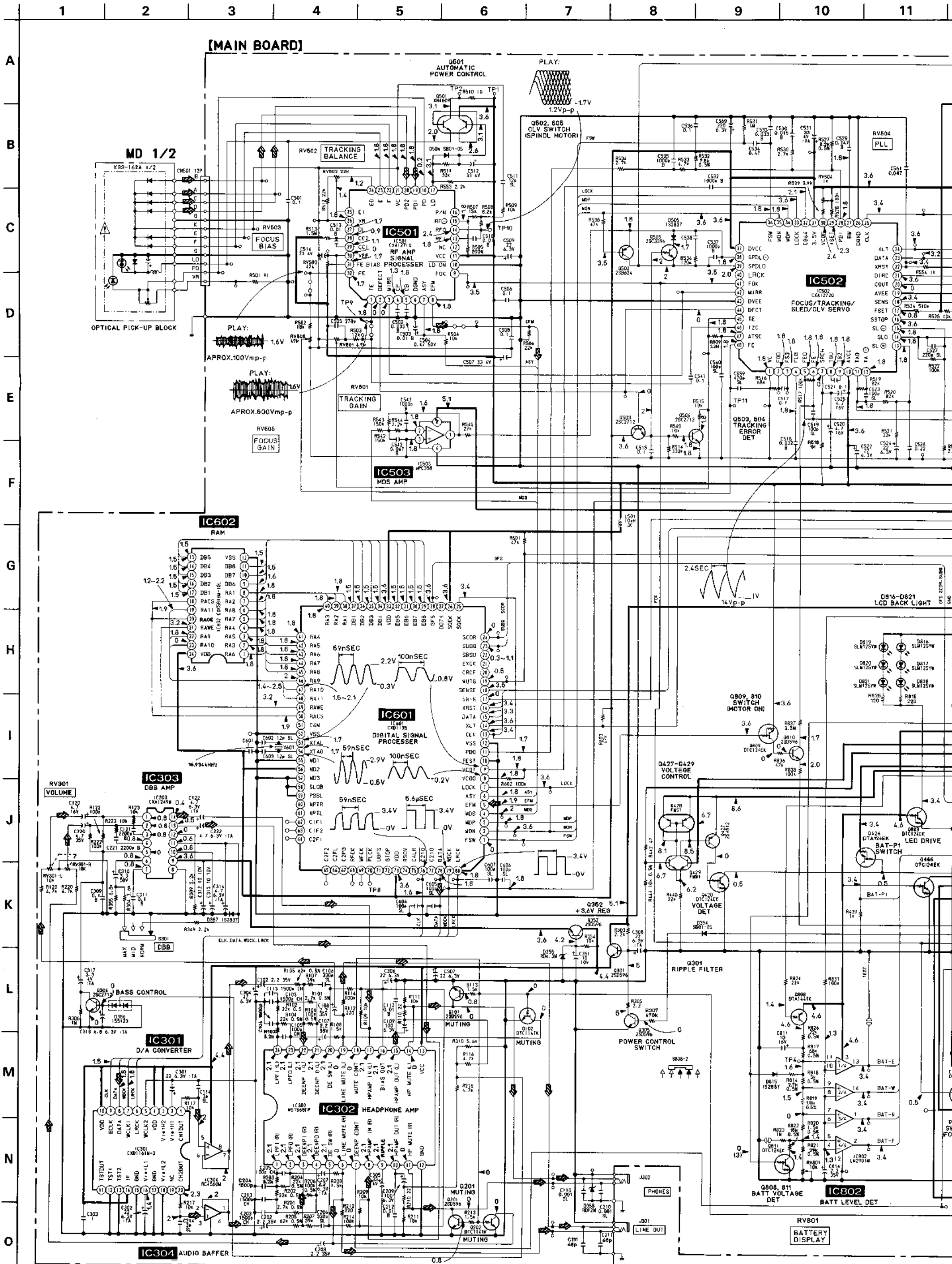
【 MAIN BOARD 】 ( SIDE B )

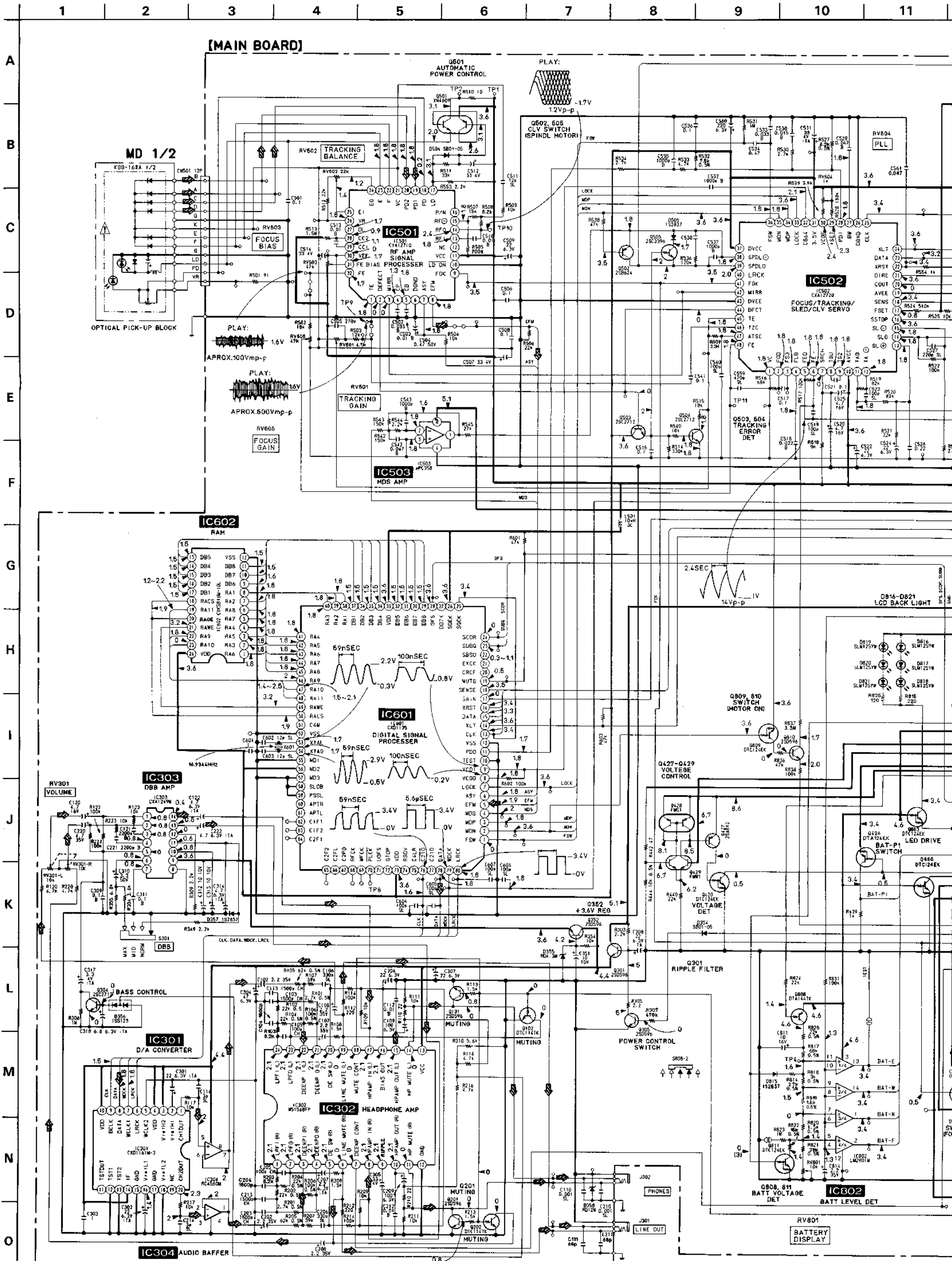


J301  
LINE OUT

J401  
DC IN 9V

■ S301  
 □ DBB  
 MAX → MID → NORM







**Note on Schematic Diagram :**

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

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

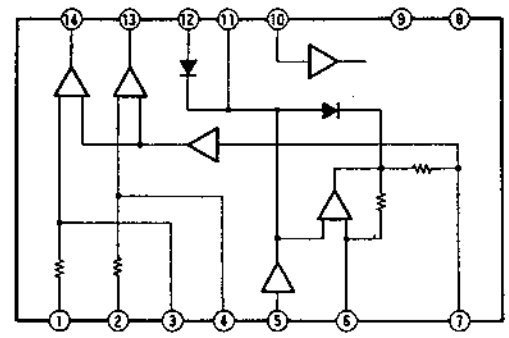
**Note:**  
Les composants identifiés par une marque  $\Delta$  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

• Switch

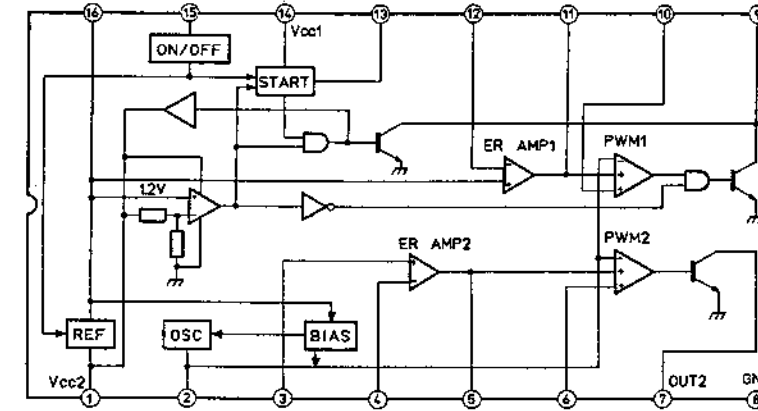
Ref. No.	Switch	Position
S301	DBB	MAX
S801	■	OFF
S802	▶▶	OFF
S804-1	PLAY MODE	OFF
S804-2	KEY MODE	OFF
S804-3	REMAIN	OFF
S806	▶▶▶	OFF
S807	▶▶▶	OFF
S808	HOLD	OFF
S901	DOOR	ON
S902	LIMIT	OFF

- $\square$  : B+ Line
- $\square$  : adjustment for repair.
- Voltages and waveforms current are measured with top panel closed
- Power voltage is dc 9V and fed with regulated dc power supply from external power voltage jack.
- Voltage and waveforms are dc with respect to ground in service mode.
- no mark : play
- ( ) : play
- See page 4 for setup of service mode.
- Voltages are taken with a VOM (50k  $\Omega/V$ ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with an oscilloscope.
- Signal path.
- $\Rightarrow$  : CD

**CXA1249M**

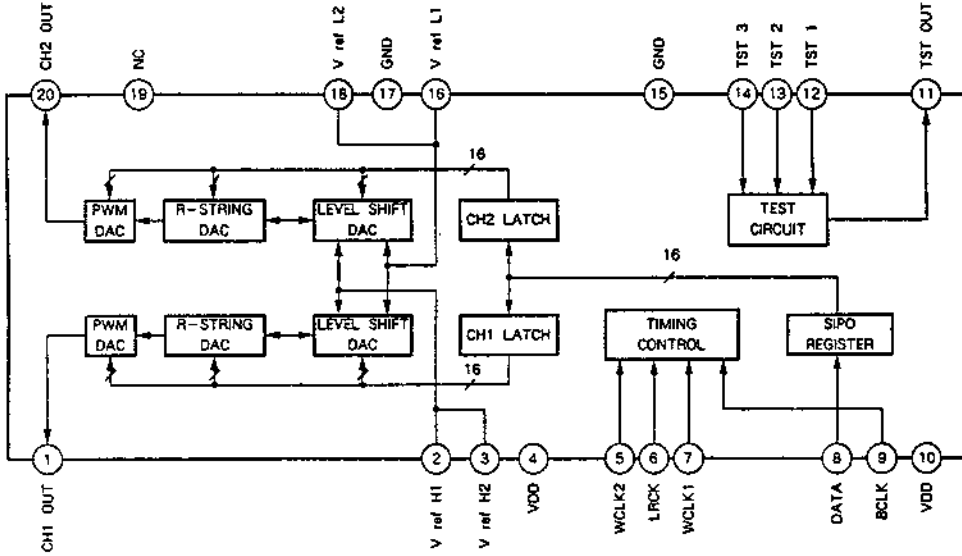


**ICFA7616N**

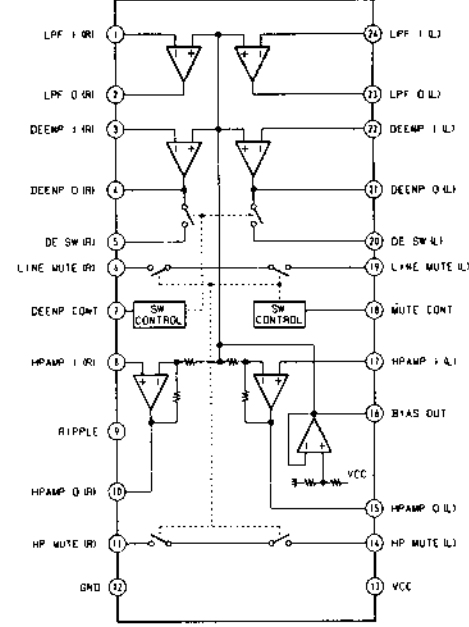


**4-6. IC BLOCK DIAGRAMS**

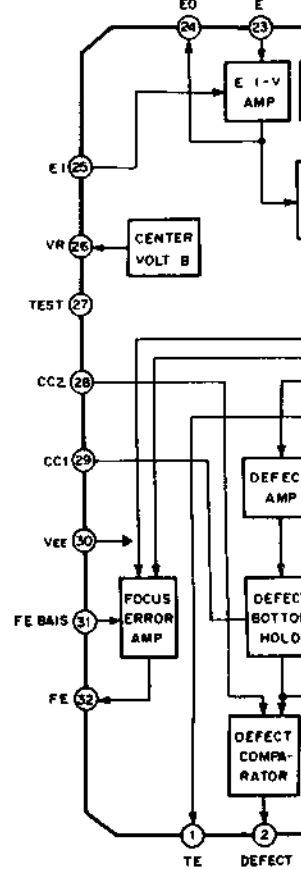
**IC301**  
**CDX1161M-3**



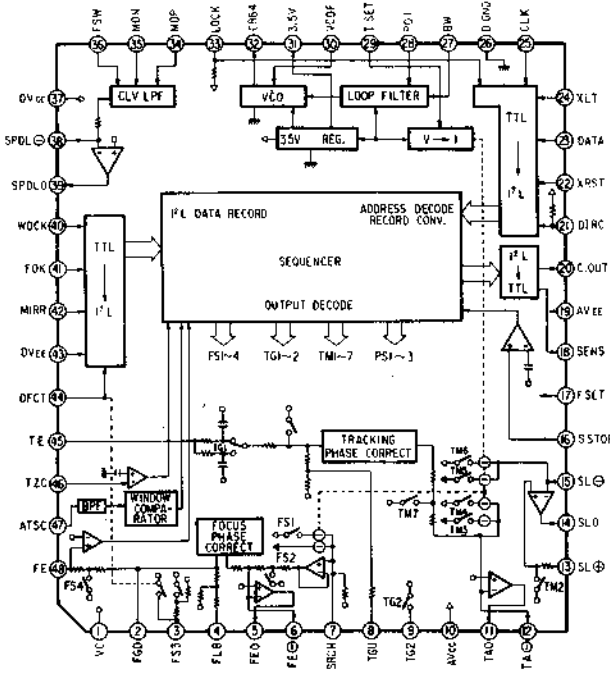
**IC302**  
**M51568FP**



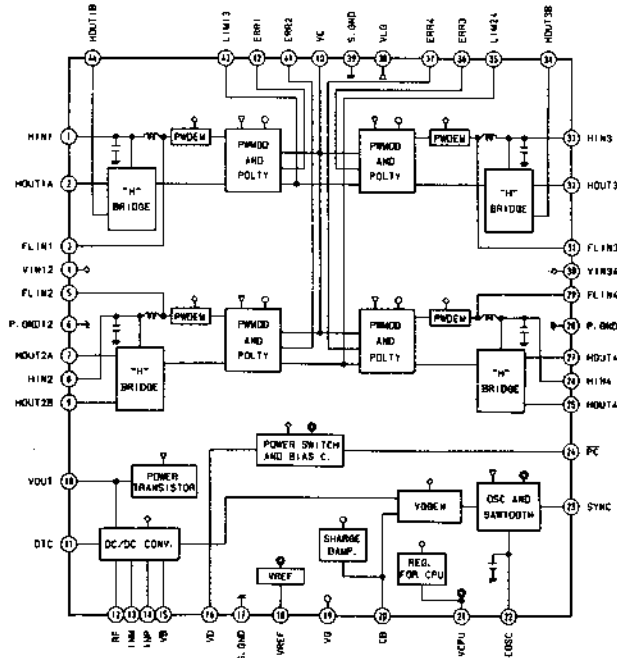
**IC501**  
**CXA1271Q**



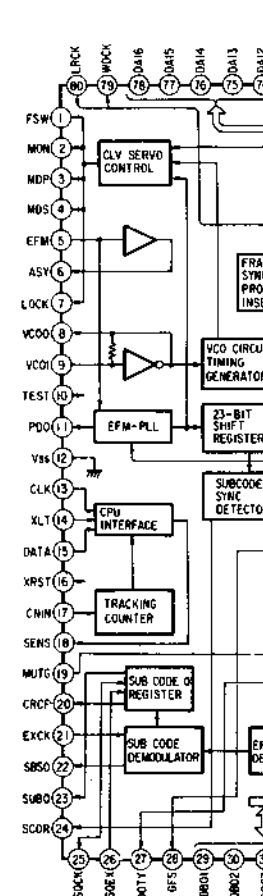
**IC502**  
**CXA1272Q**



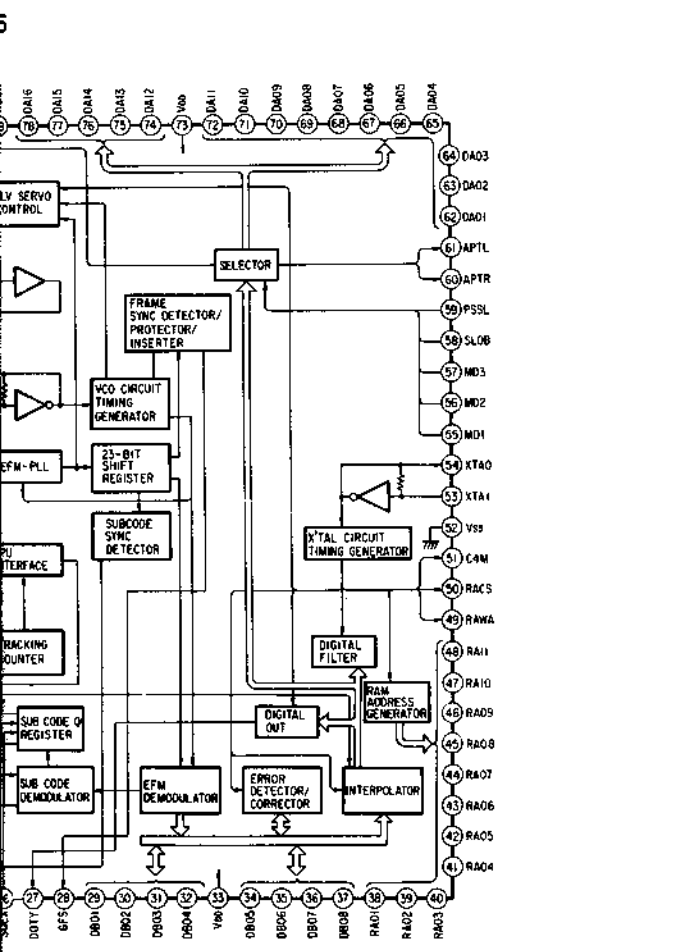
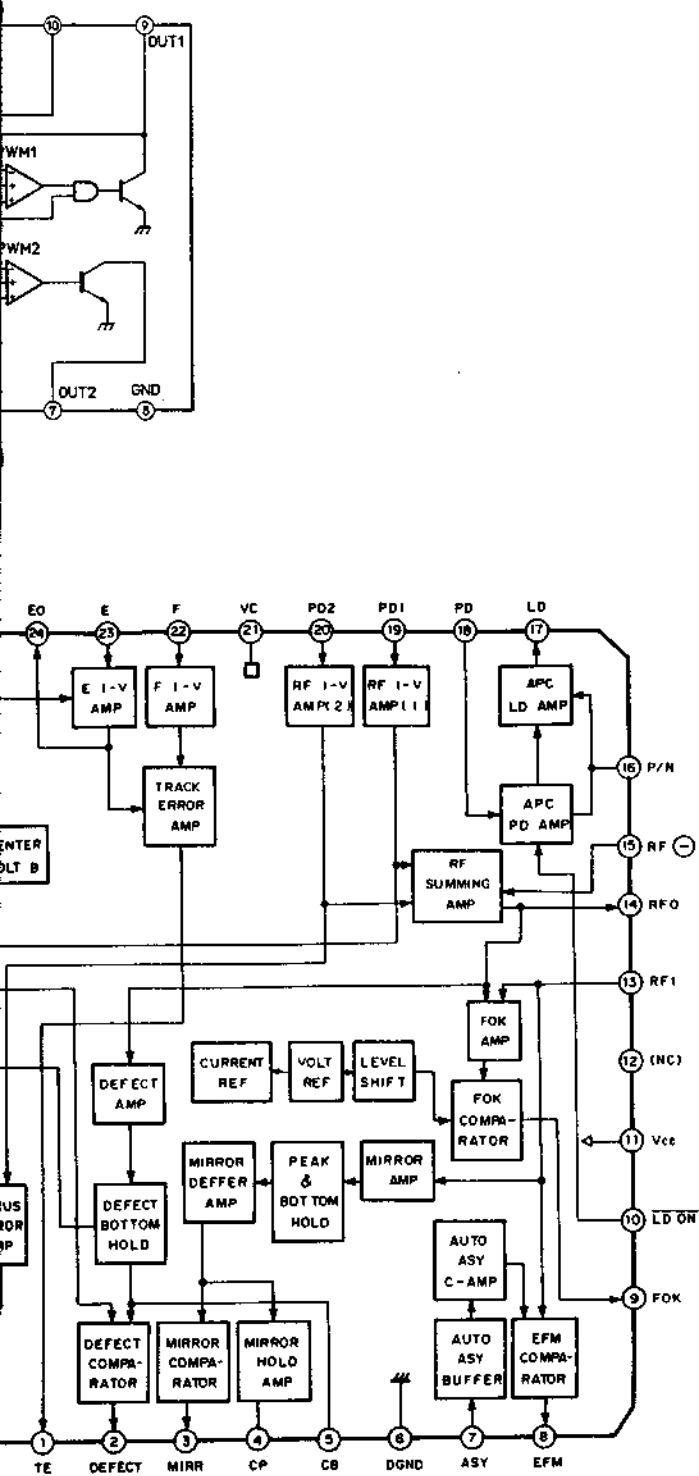
**IC504**  
**MPC1715**



**IC601**  
**CDX1135**







## SECTION 5 EXPLODED VIEWS

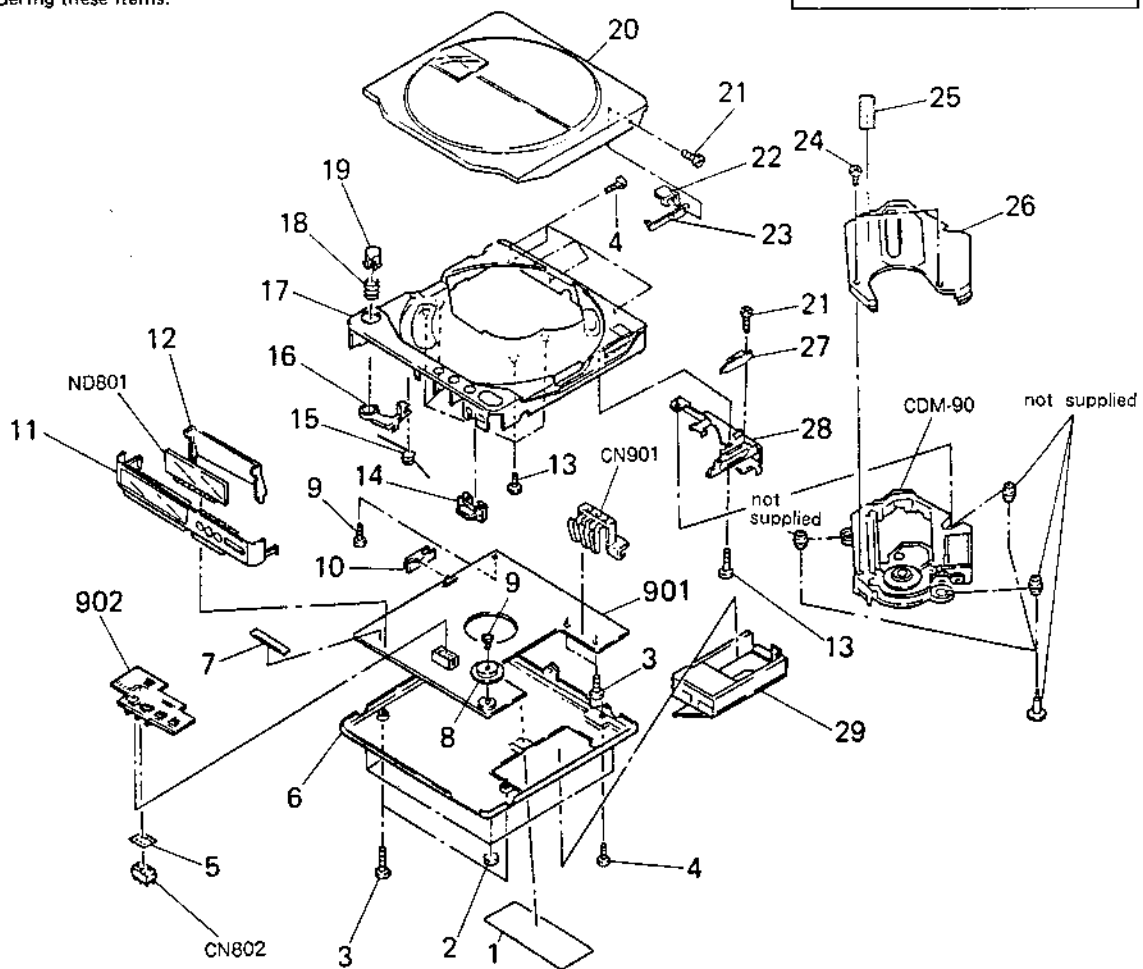
**NOTE:**

- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

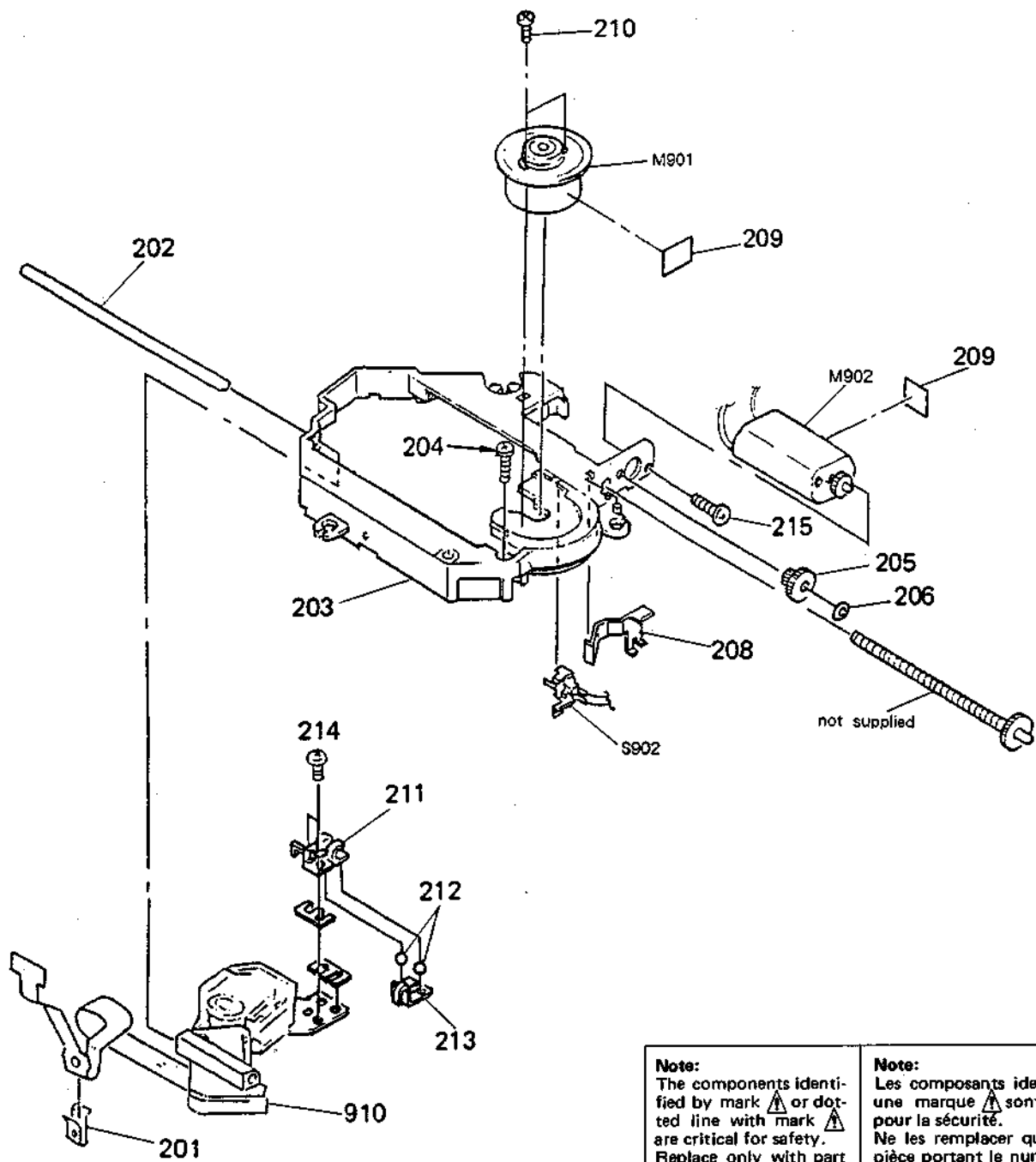
- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.
- Color Indication of Appearance Parts  
Example:  
(RED)... KNOB, BALANCE (WHITE)  
↑ Cabinet's Color      ↑ Parts' Color




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


Les composants identifiés par une marque sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.



No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
1	*4-930-148-01 *4-930-149-01	(US,Canadian)...LABEL, MODEL NUMBER (U) (AEP,UK,E).....LABEL, MODEL NUMBER (E)		17	X-4930-113-1 X-4930-114-1	(GRAY)...CABINET ASSY (U-B) (GRAY)...CABINET ASSY (U-S)	
2	4-912-641-11	FOOT, RUBBER		18	4-917-727-01	SPRING, COMPRESSION	
3	4-908-792-61 4-908-792-71	(GRAY)...SCREW (B2X6), TAPPING, P1 (BLACK)...SCREW (B2X6), TAPPING, P1		19	4-930-121-11 4-930-121-01	(GRAY)...BUTTON (OPEN) (BLACK)...BUTTON (OPEN)	
4	3-703-816-51 3-703-816-52	(GRAY)...SCREW (M1.4X3.5), SPECIAL HEAD (BLACK)...SCREW (M1.4X3.5), SPECIAL HEAD		20	X-4930-107-1 X-4930-112-1	(BLACK)...PANEL ASSY (B), UPPER (GRAY)...PANEL ASSY, (S) UPPER	
5	*4-930-111-01	SPACER (CONNECTOR)		21	3-703-816-01 3-703-816-02	(GRAY)...SCREW (M1.4X2.0), SPECIAL HEAD (BLACK)...SCREW (M1.4X2.0), SPECIAL HEAD	
6	X-4930-104-1 X-4930-109-1	(BLACK)...BOARD ASSY (B), BOTTOM (GRAY)...BOARD ASSY (S), BOTTOM		22	X-4930-102-1	BRACKET (B), SWITCHING PLATE	
7	4-930-160-01	SPACER (VOLUME)		23	X-4921-216-1	PLATE (B) ASSY, SWITCHING	
8	4-930-125-01	KNOB (HOLD)		24	3-895-823-11	SCREW (B1.4X3), TAPPING	
9	3-335-797-21	SCREW (M1.4X3), TOOTHED LOCK		25	4-908-711-01	LABEL, CAUTION, LENS COVER, MD	
10	4-930-114-01	KNOB (DBB)		26	4-924-129-01	SPRING	
11	X-4930-105-1 X-4930-110-1	(BLACK)...PANEL ASSY (B), FRONT (GRAY)...PANEL ASSY (S), FRONT		27	*4-917-753-01	PLATE (CLICK), FIXED	
12	4-930-115-01	REFLECTOR		28	*4-930-129-01		
13	4-924-703-01	SCREW (B1.7X4), TAPPING		29	X-4930-115-1 X-4930-116-1	(GRAY)...BOX ASSY (S), BATTERY (BLACK)...BOX ASSY (B), BATTERY	
14	4-930-130-01	KNOB (HOLD)		901	A-3015-736-A	PC BOARD ASSY, MAIN	
15	4-930-109-01	SPRING, TORSION		902	*1-629-877-11	PC BOARD, CONTROL	
16	4-930-132-01	CLAW, LOCK, LID		CN802	A-3013-369-A	CDM-90	
				CN901	1-564-680-11	PIN, CONNECTOR 10P	
				CN902	4-930-131-01	TERMINAL, BATTERY	
				ND801	1-808-677-11	MODULE, LCD	



<p><b>Note:</b> The components identified by mark  or dotted line with mark  are critical for safety. Replace only with part number specified.</p>	<p><b>Note:</b> Les composants identifiés par une marque  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.</p>
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No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
201	4-917-622-01	RETAINER, FLEXIBLE		211	4-921-294-01	RACK (A)	
202	4-917-611-01	SHAFT (A)		212	7-671-111-11	STEEL, BOUL 1.5MM	
203	X-4930-108-1	CHASSIS ASSY (SERVICE), MD		213	4-921-296-01	SPRING	
204	4-921-299-01	SCREW (1.7X8), SPECIAL		214	7-627-552-38	SCREW, PRECISION +P 1.7X3	
205	4-921-292-01	GEAR (B)		215	7-627-553-38	SCREW, PRECISION +P 2X3	
206	3-315-384-11	WASHER, STOPPER		910	 8-848-081-21	DEVICE, OPTICAL KSS-162ARP	
208	4-921-290-01	SPRING		M901	A-3133-372-A	MOTOR ASSY, CLV (SPINDLE MOTOR)	
209	*2-532-810-00	CUSHION, 15X5X0.3		M902	A-3133-334-A	MOTOR SUB ASSY, FEED (SLED MOTOR)	
210	7-627-552-08	SCREW, PRECISION +P 1.7X2.5		S902	1-571-099-11	SWITCH (LIMIT)	

## SECTION 6 ELECTRICAL PARTS LIST

**NOTE:**

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

**CAPACITORS:**

MF:  $\mu$ F, PF:  $\mu$  $\mu$ F.

**RESISTORS**

- All resistors are in ohms.
- F: nonflammable

**COILS**

- MMH: mH, UH:  $\mu$ H

**SEMICONDUCTORS**

In each case, U:  $\mu$ , for example:  
 UA....:  $\mu$ A...., UPA....:  $\mu$ PA....,  
 UPC....:  $\mu$ PC, UPD....:  $\mu$ PD....

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

Les composants identifiés par une marque  $\Delta$  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref.No.	Part No.	Description											
901	A-3015-736-A	PC BOARD ASSY, MAIN											
902	*1-629-877-11	PC BOARD, CONTROL											
910	$\Delta$ 8-848-081-21	DEVICE, OPTICAL KSS-162ARP											
C102	1-124-257-00	ELECT	2.2MF	20%	35V								
C103	1-163-209-00	CERAMIC CHIP	0.0015MF	5%	50V								
C104	1-163-209-00	CERAMIC CHIP	0.0015MF	5%	50V								
C105	1-163-117-00	CERAMIC CHIP	100PF	5%	50V								
C106	1-163-129-00	CERAMIC CHIP	330PF	5%	50V								
C107	1-124-257-00	ELECT	2.2MF	20%	35V								
C108	1-124-257-00	ELECT	2.2MF	20%	35V								
C109	1-124-225-00	ELECT	100MF	20%	6.3V								
C110	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V								
C111	1-163-113-00	CERAMIC CHIP	68PF	5%	50V								
C112	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V								
C113	1-163-209-00	CERAMIC CHIP	0.0015MF	5%	50V								
C114	1-163-086-00	CERAMIC CHIP	3PF	0.25PF	50V								
C120	1-126-094-11	ELECT	4.7MF	20%	16V								
C121	1-164-161-11	CERAMIC CHIP	0.0022MF	10%	50V								
C122	1-135-130-11	TANTAL. CHIP	4.7MF	20%	6.3V								
C202	1-124-257-00	ELECT	2.2MF	20%	35V								
C203	1-163-209-00	CERAMIC CHIP	0.0015MF	5%	50V								
C204	1-163-209-00	CERAMIC CHIP	0.0015MF	5%	50V								
C205	1-163-117-00	CERAMIC CHIP	100PF	5%	50V								
C206	1-163-129-00	CERAMIC CHIP	330PF	5%	50V								
C207	1-135-149-21	TANTAL. CHIP	2.2MF	20%	6.3V								
C208	1-124-257-00	ELECT	2.2MF	20%	35V								
C209	1-124-225-00	ELECT	100MF	20%	6.3V								
C210	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V								
C211	1-163-113-00	CERAMIC CHIP	68PF	5%	50V								
C212	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V								
C213	1-163-209-00	CERAMIC CHIP	0.0015MF	5%	50V								
C214	1-163-086-00	CERAMIC CHIP	3PF	0.25PF	50V								
C220	1-126-198-11	CAP,ELECT	4.7MF	20%	35V								
C221	1-164-161-11	CERAMIC CHIP	0.0022MF	10%	50V								
C222	1-135-130-11	TANTAL. CHIP	4.7MF	20%	6.3V								
C301	1-135-161-21	TANTAL. CHIP	22MF	20%	6.3V								
C302	1-135-161-21	TANTAL. CHIP	22MF	20%	6.3V								
C303	1-162-638-11	CERAMIC CHIP	1MF		16V								
C304	1-126-154-11	ELECT	47MF	20%	6.3V								
C305	1-124-431-00	ELECT	33MF	20%	4V								
C306	1-126-153-11	ELECT	22MF	20%	6.3V								
C307	1-126-153-11	ELECT	22MF	20%	6.3V								
C308	1-135-161-21	TANTAL. CHIP	22MF	20%	6.3V								
C309	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V								
C310	1-126-196-11	CAP,ELECT	3.3MF	20%	50V								
C311	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V								
C312	1-126-157-11	ELECT	10MF	20%	10V								
C313	1-126-157-11	ELECT	10MF	20%	10V								
C314	1-135-130-11	TANTAL. CHIP	4.7MF	20%	6.3V								
C317	1-135-103-00	TANTAL. CHIP	3.3MF	20%	4V								
C318	1-135-100-21	TANTAL. CHIP	6.8MF	20%	6.3V								
C351	1-126-157-11	ELECT	10MF	20%	10V								
C401	1-124-635-00	ELECT	220MF	20%	6.3V								
C404	1-124-584-00	ELECT	100MF	20%	10V								
C405	1-126-094-11	ELECT	4.7MF	20%	16V								
C406	1-126-196-11	CAP,ELECT	3.3MF	20%	50V								
C407	1-124-431-00	ELECT	33MF	20%	4V								
C408	1-124-434-00	ELECT	220MF	20%	4V								
C409	1-135-159-21	TANTAL. CHIP	10MF	20%	16V								
C411	1-126-357-11	ELECT	150MF	20%	16V								
C412	1-135-103-00	TANTAL. CHIP	3.3MF	20%	4V								
C414	1-135-149-21	TANTAL. CHIP	2.2MF	20%	6.3V								
C415	1-135-174-11	TANTAL. CHIP	10MF	20%	10V								
C416	1-124-257-00	ELECT	2.2MF	20%	35V								
C449	1-135-091-00	TANTAL. CHIP	1MF	20%	16V								
C450	1-163-081-00	CERAMIC CHIP	0.22MF		25V								
C451	1-135-103-00	TANTAL. CHIP	3.3MF	20%	4V								
C452	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V								
C453	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V								
C454	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V								
C455	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V								
C456	1-163-038-00	CERAMIC CHIP	0.1MF		25V								
C457	1-135-157-21	TANTAL. CHIP	10MF	20%	6.3V								
C459	1-135-161-21	TANTAL. CHIP	22MF	20%	6.3V								
C460	1-135-100-21	TANTAL. CHIP	6.8MF	20%	6.3V								
C461	1-135-100-21	TANTAL. CHIP	6.8MF	20%	6.3V								
C462	1-135-100-21	TANTAL. CHIP	6.8MF	20%	6.3V								
C463	1-124-257-00	ELECT	2.2MF	20%	35V								
C464	1-126-157-11	ELECT	10MF	20%	10V								
C465	1-126-157-11	ELECT	10MF	20%	10V								
C467	1-124-779-00	CAP,ELECT	10MF	20%	16V								
C468	1-135-174-11	TANTAL. CHIP	10MF	20%	10V								
C470	1-124-635-00	ELECT	220MF	20%	6.3V								
C501	1-163-038-00	CERAMIC CHIP	0.1MF		25V								
C502	1-163-989-11	CERAMIC CHIP	0.033MF	10%	25V								
C503	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V								
C504	1-135-145-11	TANTAL. CHIP	0.47MF	20%	25V								
C505	1-163-127-00	CERAMIC CHIP	270PF	5%	50V								
C506	1-163-038-00	CERAMIC CHIP	0.1MF		25V								
C507	1-124-431-00	ELECT	33MF	20%	4V								

Ref.No.	Part No.	Description				Ref.No.	Part No.	Description			
C508	1-163-038-00	CERAMIC CHIP 0.1MF		25V		C801	1-126-153-11	ELECT 22MF	20%	6.3V	
C509	1-126-153-11	ELECT 22MF	20%	6.3V		C802	1-163-038-00	CERAMIC CHIP 0.1MF		25V	
C510	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V		C803	1-124-257-00	ELECT 2.2MF	20%	35V	
C511	1-163-095-00	CERAMIC CHIP 12PF	5%	50V		C804	1-124-257-00	ELECT 2.2MF	20%	35V	
C512	1-124-431-00	ELECT 33MF	20%	4V		C805	1-163-113-00	CERAMIC CHIP 68PF	5%	50V	
C513	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V		C806	1-163-113-00	CERAMIC CHIP 68PF	5%	50V	
C514	1-124-431-00	ELECT 33MF	20%	4V		C808	1-135-149-21	TANTAL. CHIP 2.2MF		6.3V	
C515	1-163-038-00	CERAMIC CHIP 0.1MF		25V		C809	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V	
C517	1-163-038-00	CERAMIC CHIP 0.1MF		25V		C810	1-163-141-00	CERAMIC CHIP 0.001MF	5%	50V	
C518	1-163-037-11	CERAMIC CHIP 0.022MF	10%	25V		C811	1-124-779-00	CAP.ELECT 10MF	20%	16V	
C519	1-162-953-11	CERAMIC CHIP 100PF	5%	50V		C812	1-163-038-00	CERAMIC CHIP 0.1MF		25V	
C520	1-126-094-11	ELECT 4.7MF	20%	16V		C813	1-163-038-00	CERAMIC CHIP 0.1MF		25V	
C521	1-164-156-11	CERAMIC CHIP 0.1MF		25V		C814	1-124-257-00	ELECT 2.2MF	20%	35V	
C522	1-126-153-11	ELECT 22MF	20%	6.3V		C815	1-162-637-11	CERAMIC CHIP 0.47MF		16V	
C523	1-162-953-11	CERAMIC CHIP 100PF	5%	50V		CN501	1-566-976-11	SOCKET, CONNECTOR 12P			
C524	1-126-153-11	ELECT 22MF	20%	6.3V		CN502	1-565-309-11	CONNECTOR, FLEXIBLE 4P			
C525	1-126-094-11	ELECT 4.7MF	20%	16V		CN801	*1-568-434-11	SOCKET, CONNECTOR 10P			
C526	1-163-081-00	CERAMIC CHIP 0.22MF		25V		CN802	1-564-680-11	PIN, CONNECTOR 10P			
C527	1-162-957-11	CERAMIC CHIP 220PF	5%	50V		CDM-90AA-3013-369-A	CDM-90				
C529	1-163-809-11	CERAMIC CHIP 0.047MF	10%	25V		GN901	4-930-131-01	TERMINAL, BATTERY			
C530	1-163-023-00	CERAMIC CHIP 0.015MF	10%	50V		D354	8-719-938-72	DIODE SB01-05CP			
C531	1-135-162-21	TANTAL. CHIP 33MF	20%	4V		D355	8-719-105-63	DIODE RD4.3M-B1			
C532	1-163-009-11	CERAMIC CHIP 0.001MF	10%	50V		D356	8-719-800-76	DIODE 1S226			
C533	1-163-989-11	CERAMIC CHIP 0.033MF	10%	25V		D357	8-719-100-05	DIODE 1S2837			
C534	1-162-637-11	CERAMIC CHIP 0.47MF		16V		D358	8-719-106-70	DIODE RD12M-B1			
C535	1-163-009-11	CERAMIC CHIP 0.001MF	10%	50V		D401	8-719-938-78	DIODE SB10-05PCP			
C536	1-163-038-00	CERAMIC CHIP 0.1MF		25V		D405	8-719-938-75	DIODE SB05-05CP			
C537	1-163-009-11	CERAMIC CHIP 0.001MF	10%	50V		D410	8-719-800-76	DIODE 1S226			
C538	1-162-638-11	CERAMIC CHIP 1MF		16V		D411	8-719-100-05	DIODE 1S2837			
C540	1-163-117-00	CERAMIC CHIP 100PF	5%	50V		D412	8-719-100-05	DIODE 1S2837			
C541	1-163-038-00	CERAMIC CHIP 0.1MF		25V		D413	8-719-938-78	DIODE SB10-05PCP			
C542	1-163-809-11	CERAMIC CHIP 0.047MF	10%	25V		D415	8-719-100-05	DIODE 1S2837			
C543	1-163-009-11	CERAMIC CHIP 0.001MF	10%	50V		D450	8-719-938-78	DIODE SB10-05PCP			
C545	1-135-166-21	TANTAL. CHIP 47MF	20%	10V		D451	8-719-938-72	DIODE SB01-05CP			
C546	1-135-091-00	TANTAL. CHIP 1MF	20%	16V		D452	8-719-938-72	DIODE SB01-05CP			
C547	1-135-174-11	TANTAL. CHIP 10MF	20%	10V		D454	8-719-938-75	DIODE SB05-05CP			
C548	1-163-081-00	CERAMIC CHIP 0.22MF		25V		D457	8-719-938-72	DIODE SB01-05CP			
C549	1-163-986-00	CERAMIC CHIP 0.027MF	10%	25V		D458	8-719-100-05	DIODE 1S2837			
C550	1-162-638-11	CERAMIC CHIP 1MF		16V		D459	8-719-100-05	DIODE 1S2837			
C551	1-163-038-00	CERAMIC CHIP 0.1MF		25V		D460	8-719-100-05	DIODE 1S2837			
C552	1-163-038-00	CERAMIC CHIP 0.1MF		25V		D461	8-719-938-72	DIODE SB01-05CP			
C553	1-162-638-11	CERAMIC CHIP 1MF		16V		D462	8-719-938-72	DIODE SB01-05CP			
C554	1-162-638-11	CERAMIC CHIP 1MF		16V		D463	8-719-938-72	DIODE SB01-05CP			
C555	1-163-009-11	CERAMIC CHIP 0.001MF	10%	50V		D464	8-719-938-72	DIODE SB01-05CP			
C556	1-163-038-00	CERAMIC CHIP 0.1MF		25V		D467	8-719-106-22	DIODE RD7.5M-B1			
C557	1-135-174-11	TANTAL. CHIP 10MF	20%	10V		D468	8-719-938-75	DIODE SB05-05CP			
C558	1-135-091-00	TANTAL. CHIP 1MF	20%	16V		D469	8-719-938-72	DIODE SB01-05CP			
C559	1-163-133-00	CERAMIC CHIP 470PF	5%	50V		D470	8-719-100-05	DIODE 1S2837			
C560	1-124-635-00	ELECT 220MF	20%	6.3V		D485	8-719-107-73	DIODE RD4.7M-B2			
C561	1-163-809-11	CERAMIC CHIP 0.047MF		25V		D471	8-719-106-70	DIODE RD12M-B1			
C601	1-162-638-11	CERAMIC CHIP 1MF		16V		D501	8-719-938-72	DIODE SB01-05CP			
C602	1-163-095-00	CERAMIC CHIP 12PF	5%	50V		D502	8-719-938-72	DIODE SB01-05CP			
C603	1-163-095-00	CERAMIC CHIP 12PF	5%	50V		D503	8-719-938-72	DIODE SB01-05CP			
C604	1-163-117-00	CERAMIC CHIP 100PF	5%	50V		D504	8-719-938-72	DIODE SB01-05CP			
C605	1-163-117-00	CERAMIC CHIP 100PF	5%	50V		D505	8-719-100-05	DIODE 1S2837			
C606	1-163-117-00	CERAMIC CHIP 100PF	5%	50V		D801	8-719-100-05	DIODE 1S2837			
C607	1-163-117-00	CERAMIC CHIP 100PF	5%	50V							

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

**Note:**  
Les composants identifiés par une marque  $\Delta$  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref.No.	Part No.	Description
D802	8-719-100-05	DIODE 1S2837
D803	8-719-100-05	DIODE 1S2837
D804	8-719-100-05	DIODE 1S2837
D805	8-719-938-72	DIODE SB01-05CP
D806	8-719-938-72	DIODE SB01-05CP
D807	8-719-100-05	DIODE 1S2837
D808	8-719-938-72	DIODE SB01-05CP
D809	8-719-100-05	DIODE 1S2837
D810	8-719-105-90	DIODE R05.6M-B1
D811	8-719-800-76	DIODE 1SS226
D813	8-719-100-05	DIODE 1S2837
D815	8-719-100-05	DIODE 1S2837
D816	8-719-970-11	DIODE SLM-125YW-C1
D817	8-719-970-11	DIODE SLM-125YW-C1
D818	8-719-970-11	DIODE SLM-125YW-C1
D819	8-719-970-11	DIODE SLM-125YW-C1
D820	8-719-970-11	DIODE SLM-125YW-C1
D821	8-719-970-11	DIODE SLM-125YW-C1
D822	8-719-106-70	DIODE RD12M-B1
D823	8-719-106-70	DIODE RD12M-B1
D824	8-719-100-05	DIODE 1S2837
D825	8-719-100-05	DIODE 1S2837
D826	8-719-100-05	DIODE 1S2837
IC301	8-759-805-43	IC CXD1161M-3
IC302	8-759-630-75	IC M51568FP
IC303	8-759-805-09	IC CXA1249M
IC304	8-759-981-99	IC RC4560M
IC450	8-759-982-61	IC FA7616M
IC452	8-759-209-69	IC TC4S11F
IC453	8-759-209-69	IC TC4S11F
IC454	8-759-230-43	IC TC7S04F
IC455	8-759-230-43	IC TC7S04F
IC501	8-752-033-55	IC CXA1271Q
IC502	8-752-033-54	IC CXA1272Q-Z
IC503	8-759-100-94	IC UPC358G2
IC504	8-759-030-17	IC MPC1715FU
IC505	8-759-230-43	IC TC7S04F
IC601	8-752-329-73	IC CXD1247Q
IC602	8-752-323-64	IC CXK5816M-12L
IC801	8-752-808-85	IC CXP5086-047Q
IC802	8-759-982-61	IC BA10339F
J301	1-562-870-11	JACK (LINE OUT)
J302	1-562-870-21	JACK (PHONES)
J401	1-562-961-11	JACK (DC IN)
J801	1-568-257-11	JACK (REMOTE)
JR101	1-216-296-00	METAL GLAZE 0 5% 1/8W
JR102	1-216-295-00	METAL GLAZE 0 5% 1/10W
JR103	1-216-295-00	METAL GLAZE 0 5% 1/10W
JR201	1-216-295-00	METAL GLAZE 0 5% 1/10W
JR202	1-216-295-00	METAL GLAZE 0 5% 1/10W
JR203	1-216-295-00	METAL GLAZE 0 5% 1/10W
JR301	1-216-295-00	METAL GLAZE 0 5% 1/10W
JR401	1-216-295-00	METAL GLAZE 0 5% 1/10W
L402	1-412-039-51	INDUCTOR CHIP 100UH
L403	1-412-031-11	INDUCTOR CHIP 47UH
L450	1-459-961-11	COIL (WITH CORE)
L452	1-412-029-11	INDUCTOR CHIP 10UH

Ref.No.	Part No.	Description
L457	1-412-029-11	INDUCTOR CHIP 10UH
L501	1-412-029-11	INDUCTOR CHIP 10UH
L502	1-412-039-51	INDUCTOR CHIP 100UH
L503	1-412-039-51	INDUCTOR CHIP 100UH
L504	1-412-039-51	INDUCTOR CHIP 100UH
L505	1-412-039-51	INDUCTOR CHIP 100UH
M901	A-3133-372-A	MOTOR ASSY, CLV (SPINDLE MOTOR)
M902	A-3133-334-A	MOTOR SUB ASSY, FEED (SLED MOTOR)
MD801	1-808-677-11	MODULE, LCD
Q101	8-729-159-64	TRANSISTOR 2SD596-DV4
Q102	8-729-903-30	TRANSISTOR DTC114TK
Q201	8-729-159-64	TRANSISTOR 2SD596-DV4
Q202	8-729-903-30	TRANSISTOR DTC114TK
Q301	8-729-159-64	TRANSISTOR 2SD596-DV4
Q304	8-729-271-23	TRANSISTOR 2SC2712L
Q305	8-729-159-64	TRANSISTOR 2SD596-DV4
Q352	8-729-159-64	TRANSISTOR 2SD596-DV4
Q405	8-729-100-75	TRANSISTOR 2SA812-M5
Q406	8-729-159-64	TRANSISTOR 2SD596-DV4
Q407	8-729-162-44	TRANSISTOR 2SB624-BV4
Q408	8-729-903-30	TRANSISTOR FMW1
Q409	8-729-922-27	TRANSISTOR 2SD1758F5R
Q415	8-729-901-03	TRANSISTOR DTC144WK
Q416	8-729-901-00	TRANSISTOR DTC124EK
Q417	8-729-921-85	TRANSISTOR 2SB182F5-R
Q418	8-729-903-10	TRANSISTOR FMW1
Q420	8-729-901-00	TRANSISTOR DTC124EK
Q422	8-729-901-00	TRANSISTOR DTC124EK
Q426	8-729-901-05	TRANSISTOR DTA124EK
Q427	8-729-100-75	TRANSISTOR 2SA812-M5
Q428	8-729-902-96	TRANSISTOR FMS1
Q429	8-729-903-10	TRANSISTOR FMW1
Q430	8-729-116-60	TRANSISTOR 2SK160
Q431	8-729-101-07	TRANSISTOR 2SB798-DLDK
Q437	8-729-806-75	TRANSISTOR 2SB1120
Q438	8-729-806-75	TRANSISTOR 2SB1120
Q450	8-729-162-45	TRANSISTOR 2SB624-BV5
Q451	8-729-901-05	TRANSISTOR DTA124EK
Q452	8-729-100-92	TRANSISTOR 2SD999
Q453	8-729-806-75	TRANSISTOR 2SB1120
Q454	8-729-159-64	TRANSISTOR 2SD596-DV4
Q455	8-729-806-75	TRANSISTOR 2SB1120
Q456	8-729-800-37	TRANSISTOR 2SD1048X7
Q457	8-729-800-37	TRANSISTOR 2SD1048X7
Q461	8-729-162-44	TRANSISTOR 2SB624-BV4
Q462	8-729-901-00	TRANSISTOR DTC124EK
Q463	8-729-800-37	TRANSISTOR 2SD1048X8
Q464	8-729-162-44	TRANSISTOR 2SB624-BV5
Q466	8-729-901-00	TRANSISTOR DTC124EK
Q465	8-729-901-05	TRANSISTOR DTA124EK
Q501	8-729-402-90	TRANSISTOR XN4609
Q502	8-729-162-44	TRANSISTOR 2SB624-BV4
Q503	8-729-103-16	TRANSISTOR 2SC1622A
Q504	8-729-103-16	TRANSISTOR 2SC1622A
Q505	8-729-805-43	TRANSISTOR 2SC3396
Q801	8-729-901-00	TRANSISTOR DTC124EK
Q803	8-729-901-00	TRANSISTOR DTC124EK
Q804	8-729-901-05	TRANSISTOR DTA124EK

Ref.No.	Part No.	Description
Q805	8-729-159-64	TRANSISTOR 2SD596-DV4
Q806	8-729-901-05	TRANSISTOR DTA124EK
Q807	8-729-907-39	TRANSISTOR IMD2
Q808	8-729-903-29	TRANSISTOR DTA144TK
Q809	8-729-901-05	TRANSISTOR DTA124EK
Q810	8-729-901-00	TRANSISTOR DTC124EK
Q811	8-729-901-00	TRANSISTOR DTC124EK
R101	1-216-661-11	METAL CHIP 2.7K 0.50% 1/10W
R102	1-216-683-11	METAL CHIP 22K 0.50% 1/10W
R103	1-216-071-00	METAL GLAZE 8.2K 5% 1/10W
R104	1-216-683-11	METAL CHIP 22K 0.50% 1/10W
R105	1-216-694-11	METAL CHIP 62K 0.50% 1/10W
R106	1-216-699-11	METAL CHIP 100K 0.50% 1/10W
R107	1-216-748-11	METAL GLAZE 39K 5% 1/10W
R108	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W
R109	1-216-073-00	METAL GLAZE 10K 5% 1/10W
R110	1-216-009-00	METAL GLAZE 22 5% 1/10W
R111	1-216-073-00	METAL GLAZE 10K 5% 1/10W
R112	1-216-033-00	METAL GLAZE 220 5% 1/10W
R113	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W
R114	1-216-097-00	METAL GLAZE 100K 5% 1/10W
R116	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W
R117	1-216-073-00	METAL GLAZE 10K 5% 1/10W
R120	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W
R122	1-216-097-00	METAL GLAZE 100K 5% 1/10W
R123	1-216-073-00	METAL GLAZE 10K 5% 1/10W
R201	1-216-661-11	METAL CHIP 2.7K 0.50% 1/10W
R202	1-216-683-11	METAL CHIP 22K 0.50% 1/10W
R203	1-216-071-00	METAL GLAZE 8.2K 5% 1/10W
R204	1-216-683-11	METAL CHIP 22K 0.50% 1/10W
R205	1-216-694-11	METAL CHIP 62K 0.50% 1/10W
R206	1-216-699-11	METAL CHIP 100K 0.50% 1/10W
R207	1-216-748-11	METAL GLAZE 39K 5% 1/10W
R208	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W
R209	1-216-073-00	METAL GLAZE 10K 5% 1/10W
R210	1-216-009-00	METAL GLAZE 22 5% 1/10W
R211	1-216-073-00	METAL GLAZE 10K 5% 1/10W
R212	1-216-033-00	METAL GLAZE 220 5% 1/10W
R213	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W
R214	1-216-097-00	METAL GLAZE 100K 5% 1/10W
R216	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W
R217	1-216-073-00	METAL GLAZE 10K 5% 1/10W
R220	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W
R222	1-216-097-00	METAL GLAZE 100K 5% 1/10W
R223	1-216-073-00	METAL GLAZE 10K 5% 1/10W
R303	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W
R304	1-216-062-00	METAL GLAZE 3.6K 5% 1/10W
R305	1-216-298-00	METAL GLAZE 2.2 5% 1/10W
R306	1-216-121-00	METAL GLAZE 1M 5% 1/10W
R307	1-216-113-00	METAL GLAZE 470K 5% 1/10W
R309	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W
R310	1-216-067-00	METAL GLAZE 5.6K 5% 1/10W
R319	1-216-121-00	METAL GLAZE 1M 5% 1/10W
R349	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W
R354	1-216-073-00	METAL GLAZE 10K 5% 1/10W
R355	1-216-069-00	METAL GLAZE 6.8K 5% 1/10W
R404	1-216-097-00	METAL GLAZE 100K 5% 1/10W
R405	1-216-073-00	METAL GLAZE 10K 5% 1/10W

Ref.No.	Part No.	Description
R407	1-216-049-00	METAL GLAZE 1K 5% 1/10W
R408	1-216-045-00	METAL GLAZE 680 5% 1/10W
R409	1-216-041-00	METAL GLAZE 470 5% 1/10W
R410	1-216-045-00	METAL GLAZE 680 5% 1/10W
R411	1-216-049-00	METAL GLAZE 1K 5% 1/10W
R412	1-216-092-00	METAL GLAZE 62K 5% 1/10W
R413	1-216-067-00	METAL GLAZE 5.6K 5% 1/10W
R414	1-216-081-00	METAL GLAZE 22K 5% 1/10W
R415	1-216-049-00	METAL GLAZE 1K 5% 1/10W
R416	1-216-033-00	METAL GLAZE 220 5% 1/10W
R417	1-216-658-11	METAL CHIP 2K 0.50% 1/10W
R418	1-216-664-11	METAL CHIP 3.6K 0.50% 1/10W
R419	1-216-663-11	METAL CHIP 3.3K 0.50% 1/10W
R420	1-216-697-11	METAL CHIP 82K 0.50% 1/10W
R421	1-216-033-00	METAL GLAZE 220 5% 1/10W
R427	1-217-806-11	METAL GLAZE 1 5% 1/8W
R428	1-217-806-11	METAL GLAZE 1 5% 1/8W
R437	1-216-081-00	METAL GLAZE 22K 5% 1/10W
R438	1-216-041-00	METAL GLAZE 470 5% 1/10W
R439	1-216-049-00	METAL GLAZE 1K 5% 1/10W
R440	1-216-081-00	METAL GLAZE 22K 5% 1/10W
R441	1-216-049-00	METAL GLAZE 1K 5% 1/10W
R442	1-216-017-00	METAL GLAZE 47 5% 1/10W
R443	1-216-041-00	METAL GLAZE 470 5% 1/10W
R444	1-216-675-11	METAL CHIP 10K 0.50% 1/10W
R445	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W
R446	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W
R447	1-216-809-11	METAL GLAZE 100 5% 1/16W
R448	1-216-121-00	METAL GLAZE 1M 5% 1/10W
R449	1-216-081-00	METAL GLAZE 22K 5% 1/10W
R450	1-216-105-00	METAL GLAZE 220K 5% 1/10W
R451	1-216-103-00	METAL GLAZE 180K 5% 1/10W
R452	1-216-073-00	METAL GLAZE 10K 5% 1/10W
R453	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W
R454	1-216-071-00	METAL GLAZE 8.2K 5% 1/10W
R455	1-216-051-00	METAL GLAZE 1.2K 5% 1/10W
R456	1-216-097-00	METAL GLAZE 100K 5% 1/10W
R457	1-216-073-00	METAL GLAZE 10K 5% 1/10W
R458	1-216-017-00	METAL GLAZE 47 5% 1/10W
R459	1-216-085-00	METAL GLAZE 33K 5% 1/10W
R460	1-216-077-00	METAL GLAZE 15K 5% 1/10W
R461	1-216-045-00	METAL GLAZE 680 5% 1/10W
R462	1-216-049-00	METAL GLAZE 1K 5% 1/10W
R463	1-216-097-00	METAL GLAZE 100K 5% 1/10W
R464	1-216-097-00	METAL GLAZE 100K 5% 1/10W
R465	1-216-109-00	METAL GLAZE 330K 5% 1/10W
R466	1-216-097-00	METAL GLAZE 100K 5% 1/10W
R468	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W
R471	1-216-049-00	METAL GLAZE 1K 5% 1/10W
R473	1-216-097-00	METAL GLAZE 100K 5% 1/10W
R474	1-216-097-00	METAL GLAZE 100K 5% 1/10W
R475	1-216-033-00	METAL GLAZE 220 5% 1/10W
R501	1-216-024-00	METAL GLAZE 91 5% 1/10W
R502	1-216-079-00	METAL GLAZE 18K 5% 1/10W
R503	1-216-075-00	METAL GLAZE 12K 5% 1/10W
R504	1-216-073-00	METAL GLAZE 10K 5% 1/10W
R505	1-216-104-00	METAL GLAZE 200K 5% 1/10W

Ref.No.	Part No.	Description				
R506	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R507	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R508	1-216-068-00	METAL GLAZE	6.2K	5%	1/10W	
R509	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R510	1-216-150-00	METAL GLAZE	10	5%	1/8W	
R511	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R512	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R513	1-216-125-00	METAL GLAZE	1.5M	5%	1/10W	
R514	1-216-109-00	METAL GLAZE	330K	5%	1/10W	
R515	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R516	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
R517	1-216-845-11	METAL GLAZE	100K	5%	1/16W	
R518	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R519	1-216-844-11	METAL GLAZE	82K	5%	1/16W	
R520	1-216-844-11	METAL GLAZE	82K	5%	1/16W	
R521	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R522	1-216-845-11	METAL GLAZE	100K	5%	1/16W	
R523	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R524	1-216-114-00	METAL GLAZE	510K	5%	1/10W	
R525	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R526	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R527	1-216-673-11	METAL CHIP	8.2K	0.50%	1/10W	
R528	1-216-103-00	METAL GLAZE	180K	5%	1/10W	
R529	1-216-665-11	METAL CHIP	3.9K	0.50%	1/10W	
R530	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R531	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R532	1-216-672-11	METAL CHIP	7.5K	0.50%	1/10W	
R533	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R534	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R536	1-216-099-00	METAL GLAZE	120K	5%	1/10W	
R538	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R539	1-216-129-00	METAL GLAZE	2.2M	5%	1/10W	
R540	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R541	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R542	1-216-101-00	METAL GLAZE	150K	5%	1/10W	
R543	1-216-101-00	METAL GLAZE	150K	5%	1/10W	
R544	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R545	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R546	1-216-748-11	METAL GLAZE	39K	5%	1/10W	
R547	1-216-133-00	METAL GLAZE	3.3M	5%	1/10W	
R548	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R549	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R550	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R551	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R552	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	

Ref.No.	Part No.	Description				
R553	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R554	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R601	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R602	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R603	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R801	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R802	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R803	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R804	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R805	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R806	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R807	1-216-109-00	METAL GLAZE	330K	5%	1/10W	
R808	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R809	1-216-009-00	METAL GLAZE	22	5%	1/10W	
R810	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R812	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R814	1-216-661-11	METAL CHIP	2.7K	0.50%	1/10W	
R815	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R817	1-216-695-11	METAL CHIP	68K	0.50%	1/10W	
R818	1-216-662-11	METAL CHIP	3K	0.50%	1/10W	
R819	1-216-655-11	METAL CHIP	1.5K	0.50%	1/10W	
R820	1-216-655-11	METAL CHIP	1.5K	0.50%	1/10W	
R821	1-216-689-11	METAL CHIP	39K	0.50%	1/10W	
R822	1-216-679-11	METAL CHIP	15K	0.50%	1/10W	
R823	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R824	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R825	1-216-027-00	METAL GLAZE	120	5%	1/10W	
R826	1-216-683-11	METAL CHIP	22K	0.50%	1/10W	
R827	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R829	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R831	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R832	1-216-105-00	METAL GLAZE	220K	5%	1/10W	
R833	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R836	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R837	1-216-133-00	METAL GLAZE	3.3M	5%	1/16W	
R838	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
RV301	1-230-485-11	RES, VAR, CARBON	10K/10K	(VOLUME)		
RV401	1-230-522-11	RES, ADJ, METAL GLAZE	4.7K	(+6.0V ADJ)		
RV450	1-230-522-11	RES, ADJ, METAL GLAZE	4.7K	(+3.6V ADJ)		
RV501	1-228-993-00	RES, ADJ, CARBON	4.7K	(TRACKING GAIN)		
RV502	1-228-995-00	RES, ADJ, CARBON	22K	(TRACKING BALANCE)		
RV503	1-230-526-11	RES, ADJ, METAL GLAZE	47K	(FOCUS BIAS)		
RV504	1-230-520-11	RES, ADJ, METAL GLAZE	1K	(PLL)		
RV505	1-228-996-00	RES, ADJ, CARBON	47K	(FOCUS GAIN)		
RV801	1-230-523-11	RES, ADJ, METAL GLAZE	10K	(BATTERY DISPLAY)		

Ref.No.	Part No.	Description
S301	1-571-506-41	SWITCH, SLIDE (DBB)
S801	1-554-371-51	SWITCH, TACT (■)
S802	1-571-138-11	SWITCH, PUSH (I KEY)(▶▶▶)
S804	1-571-484-11	SWITCH, KEY BOARD (REMAIN,PLAY,KEY)
S806	1-554-371-51	SWITCH, TACT (▶▶▶)
S807	1-554-371-51	SWITCH, TACT (▶▶▶)
S808	1-571-860-11	SWITCH, SLIDE (HOLD)
S901	1-570-909-21	SWITCH, TACTIL (REFLOW TYPE)(DOOR)
S902	1-571-099-11	SWITCH (LIMIT)
X601	1-567-737-11	VIBRATOR, CRYSTAL (16.9344MHz)
X801	1-567-094-00	VIBRATOR, CERAMIC (3.58MHz)

#### ACCESSORY & PACKING MATERIAL

△1-463-691-11	(US).....ADAPTOR, AC (AC-930A)
△1-463-694-11	(Canadian)...ADAPTOR, AC (AC-930A)
△1-463-700-11	(UK).....ADAPTOR, AC (AC-930A)
△1-463-702-11	(E).....ADAPTOR, AC (AC-950W)
△1-463-705-11	(AEP).....ADAPTOR, AC (AC-930AEP)
△1-463-968-11	(US).....ADAPTOR, AC (AC-940)
△1-526-565-00	(E).....AC PLUG ADAPTOR
1-528-255-21	BATTERY PAC (BP-2)
1-555-658-21	CORD, CONNECTION
3-750-077-11	(Canadian,AEP,UK,E)..MANUAL, INSTRUCTION
3-750-077-21	(US).....MANUAL, INSTRUCTION
3-750-077-41	(AEP).....MANUAL, INSTRUCTION
*4-920-407-01	BAG, PROTECTION
*4-930-139-01	CUSHION (UPPER)
*4-930-140-01	(US,Canadian,E)...CUSHION (LOWER)
*4-930-162-01	(AEP,UK).....CUSHION (LOWER)
*4-930-144-01	(US).....INDIVIDUAL CARTON
*4-930-167-01	(Canadian)...INDIVIDUAL CARTON
*4-930-163-01	(AEP).....INDIVIDUAL CARTON
*4-930-165-01	(UK,FR).....INDIVIDUAL CARTON
*4-930-168-01	(E).....INDIVIDUAL CARTON
4-930-155-01	CARRYING CASE
8-952-266-89	HEADPHONE MDR-A10L/A SET
X-4930-117-1	CASE ASSY, BATTERY

**Note:**

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

**Note:**

Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.