

# HITACHI

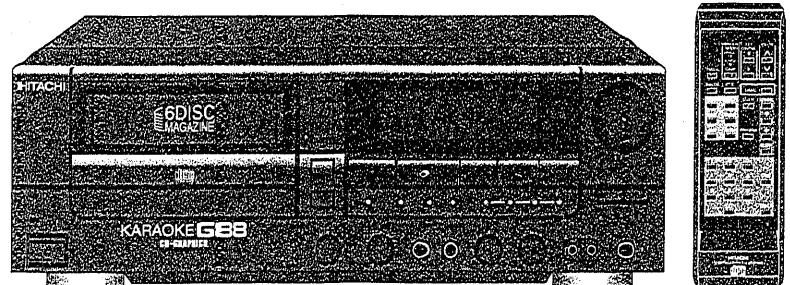
## SERVICE MANUAL

TT

No.0001EC

AK-G88

[W,T]



**CAUTION**  
**DANGER**

Invisible laser radiation when open and interlocks failed or defeated. AVOID DIRECT EXPOSURE TO BEAM.

**小心**  
**危險**

打開時和連鎖故障或失控時，會有肉眼看不見的鐳射輻射。避免直接曝露。

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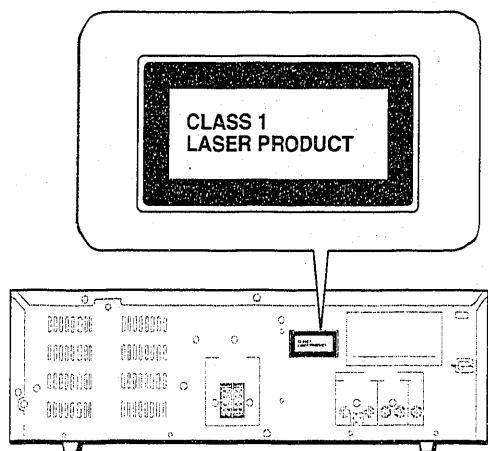
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SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT.

### AMUSEMENT KARAOKE PLALYER

- The caution labels on laser usage
- 鐳射使用警告標籤



Inside of the set is a laser component emitting a laser radiation over the limit for laser class 1.

機件內部有一個鐳射零件，其釋出的鐳射輻射超過一級鐳射限度。

## SAFETY PRECAUTIONS

The following precautions should be observed when servicing.

1. Since many parts in the unit have special safety-related characteristics, always use genuine Hitachi's replacement parts. Especially critical parts in the power circuit block should not be replaced with other makers. Critical parts are marked with  $\triangle$  in the circuit diagram and printed wiring board.
2. Before returning a repaired unit to the customer, the service technician must thoroughly test the unit to ascertain that it is completely safe to operate without danger of electrical shock.

## SPECIFICATIONS

### • CD PLAYER SECTION

DISCS USED:	CD/CD-Graphics
Playing time:	Approx. 60 minutes/one side
Diameter:	12 cm/8 cm
SIGNAL FORMAT	
Sampling frequency:	44.1 kHz
Quantization number:	16 bit linear/channel
Transmission bit rate:	4.3218 Mb/second
PICK-UP	
System:	Object lens drive system optical pick-up
Optical source:	Semiconductor laser

### • AMPLIFIER SECTION

Input sensitivity/Impedance:	MIC 1, MIC 2: 1.5 mV (10 kohms) LINE IN: 150 mV (47 kohms)
Output level:	AUDIO OUTPUT: 150 mV
Output Impedance:	External speaker terminals Suitable Impedance: 6 to 16 ohms
	Headphones Suitable Impedance: 8 to 100 ohms
Audio output:	20 W + 20 W (6 ohms, T.H.D. 1%)

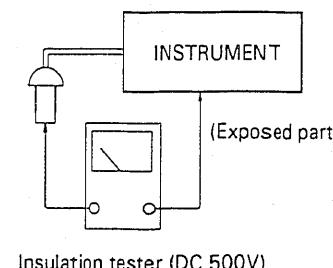
### • GENERAL

Image output level:	1 Vp-p/75 ohms
RD output:	UHF Channel 38 (Channel E30-E39 adjustable) [UHF Channel C25 (Channel C22-C26 adjustable)]
Aerial input:	75 ohms unbalanced type
Power supply:	AC 110-120V, 200-220V, 230-240V, 50/60Hz (for W) AC 110V, 60Hz (for T)
Power consumption:	130 W (for W) 120 W (for T)
Dimensions:	435 W x 137 H x 420 D (mm)
Weight:	8.6 kg

Check that exposed parts are acceptably insulated from the supply circuit before returning the instrument repaired to the customer.

### • Checking method

Power (Operate) switch is set to ON.  
Next, measure the resistance value between the both poles of attachment cup (Power supply plug) and the CD OUT terminal of rear plate and check that the resistance value is 500 kohms or more.



**安全注意事項**

操作時請留心下列事項：

1. 本機件中因有許多零件具有與安全性有關之特殊性能，故更換時敬請務必選用日立公司出品的原廠零件，尤其是電源線路區臨界零件更不宜使用其他廠牌產品來替代。線路圖和基板上有註明△記號者為臨界零件。
2. 修理過後的機件在歸還給顧客之前，技術服務人員務必要徹底檢查，以確保機件操作起來完全安全，沒有觸電之危險。

**規格說明****• 鏡射碟播放機部份**

使用的碟片：	鏡射唱碟／鏡射影碟
播放時間：	將近 60 分鐘／一面
直徑：	12 厘米 / 8 厘米
信號格式：	
取樣頻率：	44.1 千赫茲
量化數：	16 位線性／通道
傳輸位速率：	4.3218 兆位／秒
拾音：	
系統：	目標透鏡驅動系統的光拾音
光源：	半導體鐳射

**• 擷音機部份**

輸入靈敏度／阻抗：	麥克風 (MIC 1, MIC 2) : 1.5 毫伏 (10 千歐姆) 線路輸入 (LINE IN) : 150 毫伏 (47 千歐姆)
輸出水平：	音頻輸出 (AUDIO OUT) : 150 毫伏
輸出阻抗：	外音揚聲器接點 適合阻抗：6 到 16 歐姆
	耳機 適合阻抗：8 到 100 歐姆
音頻輸出：	20 瓦特 + 20 瓦特 (6 歐姆, 總諧波失真 T.H.D. 1%)

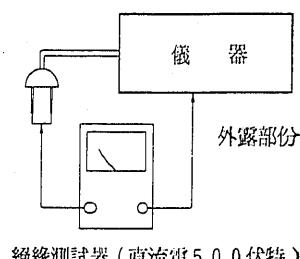
**• 總體**

畫面輸出水平：	1 V p-p / 7.5 歐姆
射頻 (RF) 輸出：	超高頻 (UHF) 頻道 3~8 (頻道 E 30~E 39 可調節) (超高頻 (UHF) 頻道 C 25 (頻道 C 22~C 26 可調節))
天線輸入：	7.5 歐姆不平衡型
電源：	交流電 110~120 伏特, 200~220 伏特, 230~240 伏特, 50/60 赫茲 (新加坡, 香港, 東南亞)
功耗：	交流電 110 伏特 (臺灣) 130 瓦特 (新加坡, 香港, 東南亞) 120 瓦特 (臺灣)
尺寸：	435 寬 × 137 高 × 420 深 (厘米)
重量：	8.6 公斤

修理過後的儀器在歸還給顧客之前，須確認其外露部份確實與電流絕緣。

**• 確認方法**

把電源開關設在開的狀態。  
然後測量電源插頭和背板鐳射輸出端兩極間的電阻值，並確認其電阻值是否為 500 千歐姆或超過 500 千歐姆。

**SERVICE POINT****1. Top Cover (Fig. 1)**

Remove 9 screws ① and remove the top cover backwards.

**2. CD P.W.B. (Fig. 2 and 3)**

- (1) After removing the top cover, release 4 screws ② and disconnect connectors ④ (8 locations). The earth terminal and pin lead wire will be disconnected at the same time.
- (2) Disconnect connectors ⑥ and ⑦ (3 locations) If it needs to remove the CD P.W.B..

**3. Front Panel Block (Fig. 3)**

After removing the CD P.W.B., release 3 screws ③ and 3 screws ⑤. The LED P.W.B./MIC P.W.B./VR P.W.B./FL P.W.B. will be separated from bottom chassis at the same time.

**4. P.T. P.W.B. (Fig. 2)**

After removing the CD P.W.B., release 4 screws ④ and also remove the solders of the lead wire from the transformer.

**5. MAIN P.W.B. (Fig. 1 and 4)**

After removing the transformer, release 2 screws ⑤ on heat sink, 6 screws ⑥⑦ on MAIN P.W.B., 2 screws ⑧ on speaker jack, and disconnect connectors ⑨ (6 locations).

**6. LED P.W.B. (Fig. 5)**

After removing the front panel block, release the screw ⑩.

**7. VR P.W.B. (Fig. 5)**

After removing the front panel block, remove the VR knob and hexagonal nut. Then, release the VR P.W.B. backwards.

**8. FL P.W.B. (Fig. 6)**

After removing the front panel block, release 10 screws ⑪.

**9. MIC P.W.B. (Fig. 5)**

After removing the front panel block, release 2 screws ⑫ and also remove 4 knobs.

**10. MD P.W.B. (Fig. 1 and 4)**

- (1) After removing the top cover, release 2 screws ⑬, a screw ⑭ and 3 screws ⑮.

- (2) Release the solders of power cord, transformer lead wire, and 2 connecting wire ⑯ if it needs to remove MD P.W.B..

**11. CD Changer Mechanism (Fig. 4)**

After removing the top cover, release 2 screws ⑯.

**12. Disengage CD Changer Mechanism (Fig. 7)**

- (1) Release 2 screws ⑯, and remove ⑯.  
Push lift cam to the position as shown in Fig. 7, then raise the rail base up.

- (2) Pull P rail base out, and remove P1 tray from the set. Use a "-" screwdriver to lift the hook (Part A), then pull out the P rail base from the set.

**(3) Remove rail base as followed: (Fig. 8, 9, 10 and 11)**

1. Press Arm ① with left little finger and Arm ② with left thumb, then hold the rail base with back of left hand. Release Arm ③ -1 located on rail base from the P base with right hand, then remove Arm ③ -2 beside the P base from the rail base.

2. Use left little finger to press Arm ①, and back of left hand to hold rail base. Release Arm ② -1 located on rail base from the P base with right hand, then remove Arm ② -2 beside the P base from the rail base.

3. Use back of right hand to hold the rail base. Release Arm ① -1 located on rail base from the P base with left hand, then remove Arm ① -2 beside the P base from the rail base.

Place rail base on P base on the order of 3 → 2 → 1.

**(4) T/T Base (Fig. 12)**

Remove 3 screws ⑯, then disengage T/T base from the P base.

**(5) Installation of Gear (Fig. 13, 14 and 15)**

1. Pull P slide rail to the front, then fit P rail base on the top of P base and P slide rail.

2. When P rail base is inserted into P base, and the hook of P rail base in Part A matches with P slide rail, P gear B shall be at the position as shown in the figure of Part B.

3. Fit up P gear B with point B aiming at the direction of P gear A1 and assemble the wheel shafts of P gear A1 and P gear B. Then conjugate P gear B and P gear A1.

(6) CD Changer Mechanism packing status when transporting (Fig. 16)  
For assembly or transportation of the set, the rail base and lift cam should be positioned as Fig. 16.

13. Checking the objective lens (Fig. 17)  
Handle so that dirt or dust does not adhere to the objective lens in the lens actuator. When the unit has been used for a long time, dust or dirt may adhere to the objective lens. Clean the lens surface using a cotton swab.

14. Cautions when servicing (Fig. 18 and 19)

(1) Semiconductor laser  
The semiconductor laser is very sensitive to electrostatic breakdown and surge current. Do not touch the terminals of the semiconductor laser and flexible P.W.B. with your fingers or tools.  
Relationship between current and light intensity is shown in Fig. 18. When the threshold current is exceeded, intensity changes steeply.  
The threshold current value is a little different depending on individual laser.

(2) Handling of the unit mechanism section (Fig. 19)  
When handling the pickup mechanism section or the unit mechanism section, use the grounding ring as shown in Fig. 19. (The grounding ring can be made from a normal lead wire.)

## 維修重點

1. 上蓋 (TOP COVER) (圖1)  
拆下鎖於上蓋的9支螺絲 (記號：①)，並向後方取出上蓋。
2. 鏡射碟基板 (CD PWB) (圖2和圖3)  
移去上蓋之後，拆下鎖於基板上的4支螺絲 (記號：②)、8處 (記號：Ⓐ) 連接線 (CONNECTORS)、接地線及整線夾。如需整個基板取下時，則將再鬆開3處 (記號：Ⓑ) (Ⓑ) 連接線。
3. 前面板 (FRONT PANEL) (圖3)  
取下鏡射碟基板之後，拆下鎖於前面板上的6支螺絲 (記號：③ (3-1))，取下面板，同時將LED、麥克風、音量控制、顯示器等基板和底座分離。
4. 變壓器基板 (PT PWB) (圖2)  
取下鏡射碟基板之後，拆下鎖於變壓器上的4支螺絲 (記號：④) 及再將基板上的導線剝開，取下基板。
5. 主基板 (MAIN PWB) (圖1和圖4)  
拆下鎖於變壓器上的螺絲之後，再將鎖於散熱片上的2支螺絲 (記號：⑤)、主基板上的6支螺絲 (記號：⑥⑦)、揚聲器插座上的2支螺絲 (記號：⑧) 拆下及鬆開6處 (記號：⑯) 連接線，然後取下基板。
6. LED基板 (LED PWB) (圖5)  
移開前面板之後，拆下鎖於基板上的1支螺絲 (記號：⑨)，取下基板。
7. 音量控制基板 (VR PWB) (圖5)  
移開前面板之後，拔掉音量控制旋鈕和拆下六角螺帽之後，向後取下音量控制基板。
8. 液晶顯示器基板 (FL PWB) (圖6)  
移開前面板之後，拆下鎖於基板上的10支螺絲 (記號：⑩)，取下基板。
9. 麥克風基板 (MIC PWB) (圖5)  
移開前面板之後，拆下鎖於基板上的2支螺絲 (記號：⑪) 和拔掉4個旋鈕，取下基板。
10. MD基板 (MD PWB) (圖1和圖4)  
移開上蓋之後，拆下鎖於基板上的2支螺絲 (記號：⑫)、1支 (記號：⑬) 鎖於開關上及3支 (記號：⑭) 鎖於後背板上的螺絲。如需整個基板取下時，則將再鬆開電源線、變壓器導線及鬆開2處 (記號：⑮) 連接線。
11. 鏡射碟機架 (CD CHANGER MEC HAN ISM) (圖4)  
移開前面板之後，拆下鎖於鏡射碟機架上的2支螺絲 (記號：⑯)，取下鏡射碟機架。
12. 鏡射碟機架拆解方法 (圖7)  
  - (1) 拆下2支螺絲 (記號：⑰)，將 Ⓛ 取下後，同時將昇降盤 (LIFT CAM) 推至圖中 (圖7) 所指示位置，使磁軌機座 (RAIL BASE) 抬高。
  - (2) 將P磁軌機座 (P RAIL BASE) 拉出來，然後將P1托盤 (T RAY) 由機件取下。再以“-”字型螺絲起子將A部的鉤子挑高。將P磁軌機座往前 (箭頭方向) 抽出。
  - (3) 拆下磁軌機座可依下述順序進行：  
(圖8，圖9，圖10和圖11)
    1. 以左手小指壓住支撑桿①，以姆指壓住支撑桿②，再以左手背支撑磁軌機座。用右手將固定在磁軌機座側的支撑桿 (ARM) ③-1取下，再將固定在基座 (P BASE) 側的支撑桿③-2取下。
    2. 用左手小指壓住支撑桿①，用左手背將磁軌機座支撑住。用右手將固定在磁軌機座上的支撑桿②-1取下，再將固定於基座側的支撑桿②-2取下。
    3. 用右手背支撑磁軌機座，以左手將固定在磁軌機座的支撑桿①-1取下，再將固定在基座側的支撑桿①-2取下。
- 將磁軌機座裝置在基座上時，可依上述3→2→1的次序進行。
- (4) 鏡射機構 (T/T BASE) (圖12)  
拆下3支螺絲 (記號：⑰)，可取下鏡射機構 (T/T BASE)。

## (5) 齒輪的嵌合(圖13, 圖14和圖15)

1. 將P滑動軌道(P SLIDE RAIL)拉至最前端，再將P磁軌機座裝在P基座及P滑動軌道之上。
2. 當P磁軌機座插入P基座時，A部的P磁軌機座的鉤子和P滑動軌道相嵌合，P齒輪B的位置必須和圖中的B部相同。
3. 將P齒輪B的B朝向P齒輪A 1的方向，同時分別組合P齒輪A 1和P齒輪B之輪軸。將P齒輪B和P齒輪A 1組合。

## (6) 產品運送時，鐳射碟機架放置狀態

(圖16)

組合機架或搬運整個產品時，機架上的磁軌機盤和昇降盤位置應如圖16所示。

## 13. 檢查透物鏡(圖17)

勿使透鏡傳動器的透物鏡沾惹灰塵和污垢。機件使用一段長時間後，灰塵和污垢會附著於物透鏡，此時則用棉布塊來清潔透鏡表面。

## 14. 維修注意事項(圖18和19)

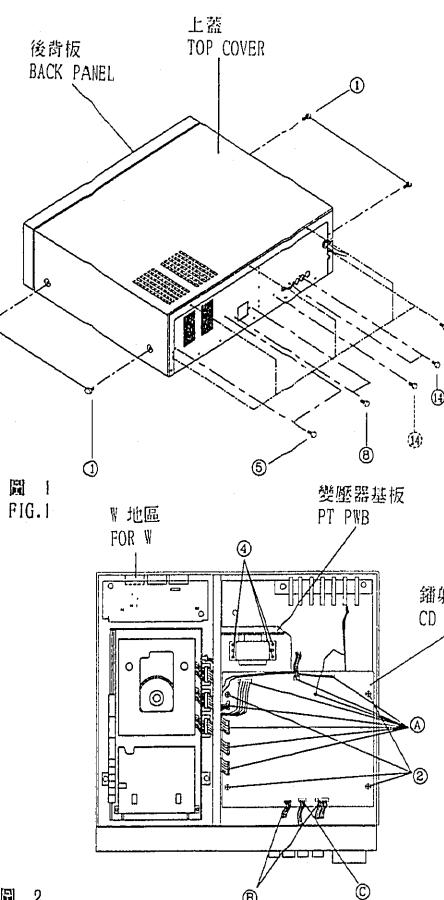
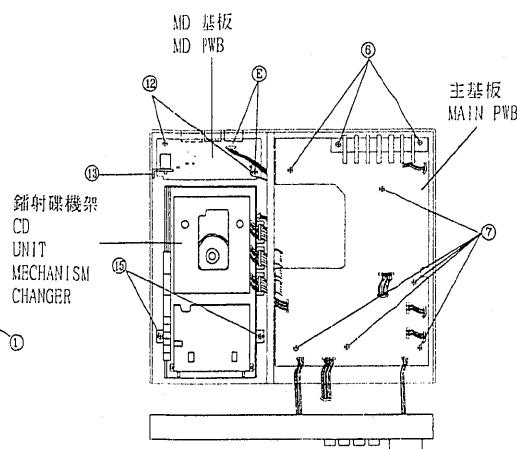
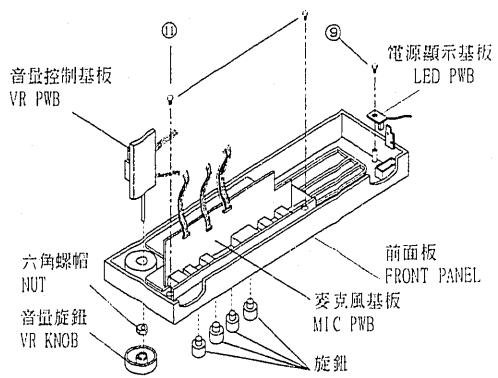
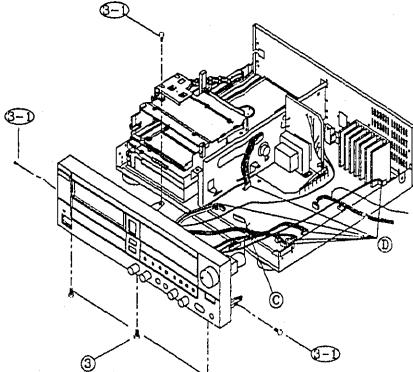
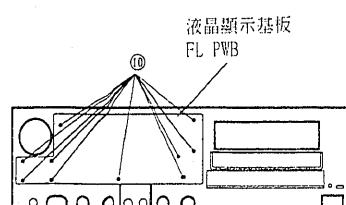
## (1) 鐳射半導體

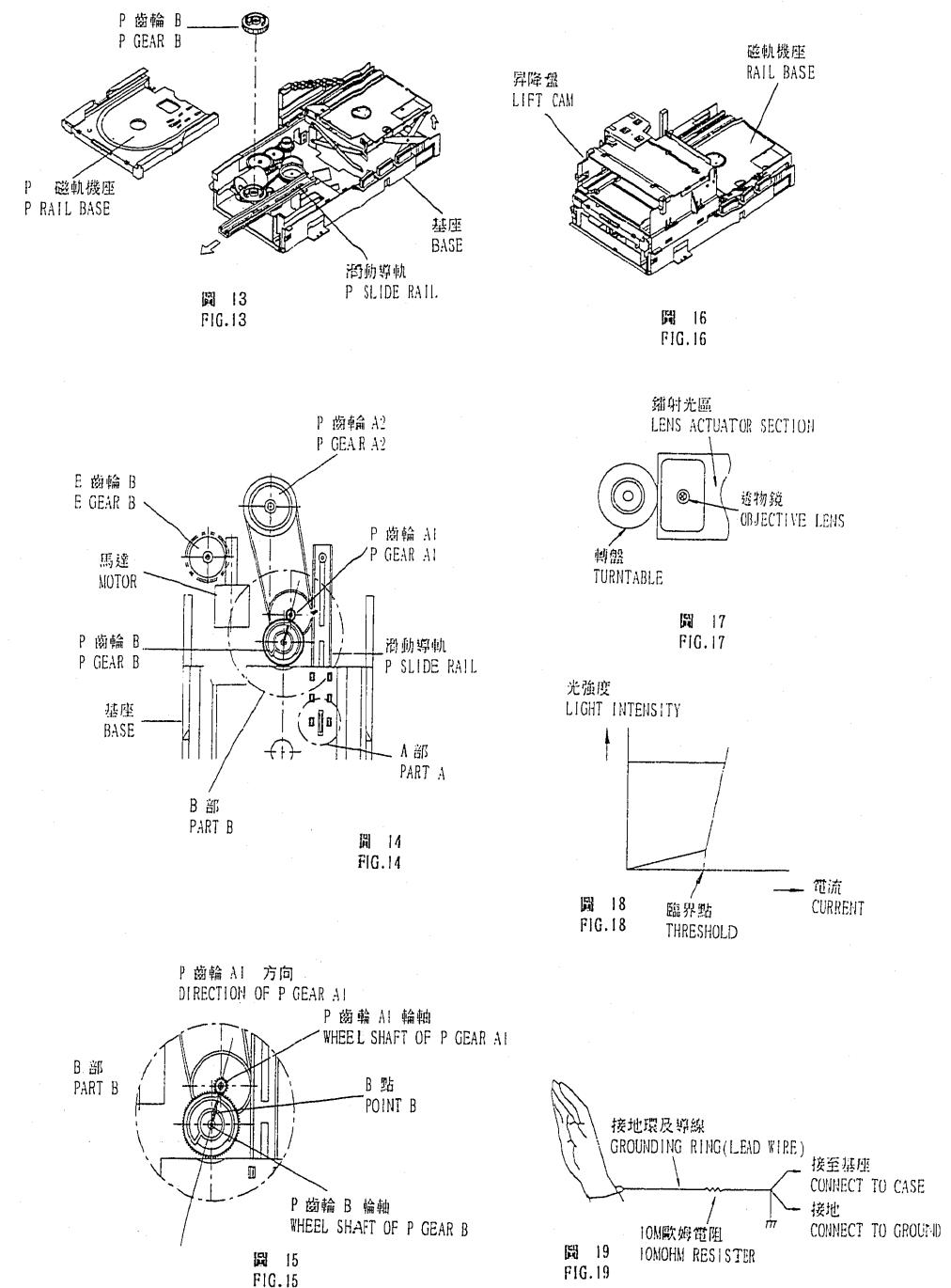
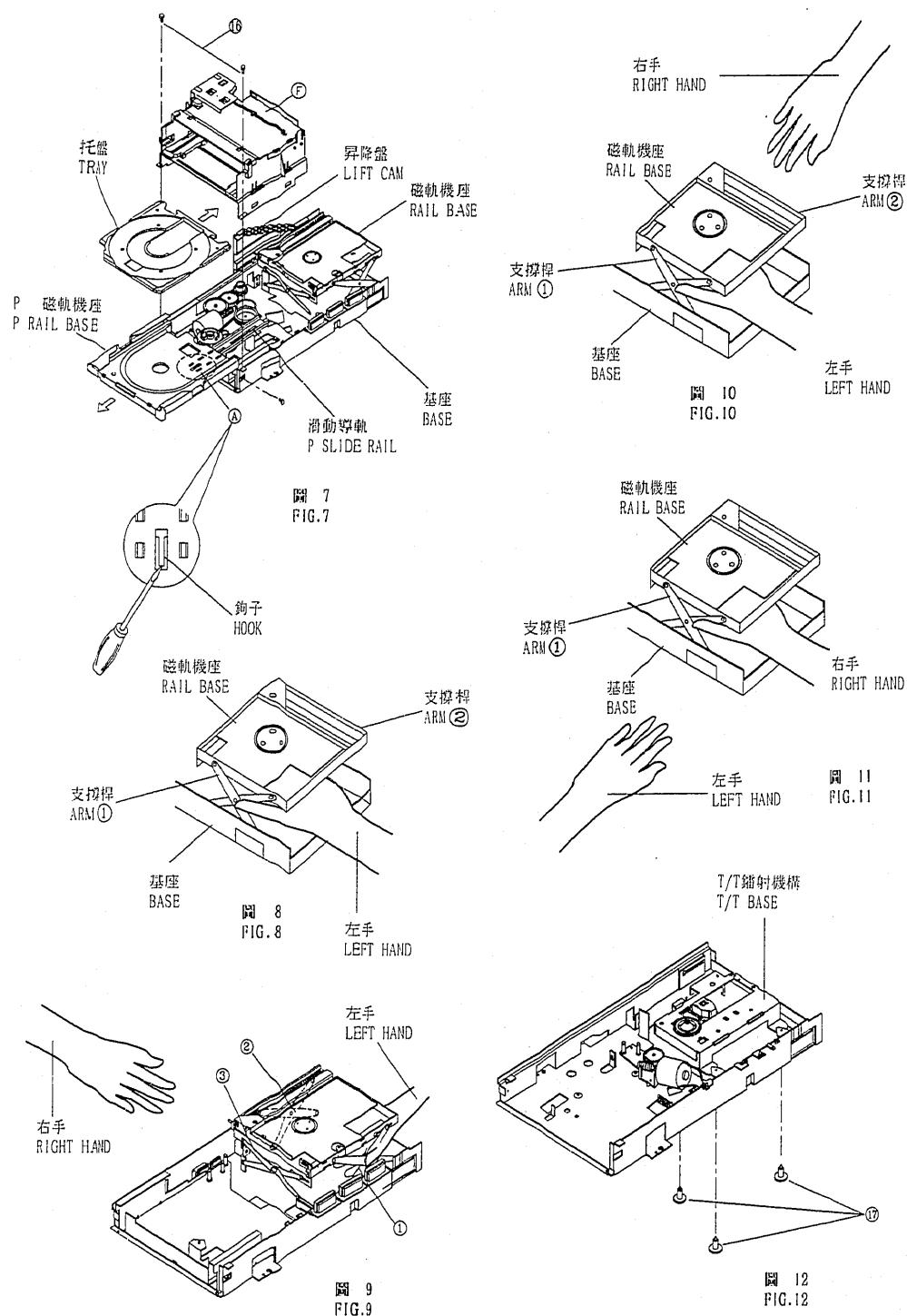
鐳射半導體對於靜電擊穿電流和突波電流相當敏感。因此勿用手指或用工具觸摸鐳射半導體終端或軟性印刷線路板。

電流和光強度的關係請見圖18。當超過臨界電流時，則強度變化相當大。

## (2) 處理鐳射碟機部份

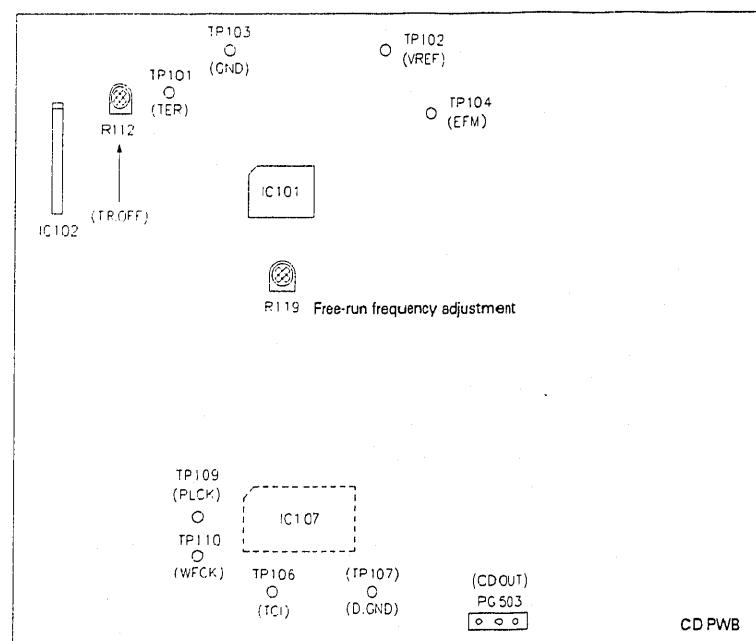
使用如圖19的接地環來處理拾音機構部份或鐳射碟機部份。(可用一般導線做成接地環使用)

圖 1  
FIG.1圖 4  
FIG.4圖 5  
FIG.5圖 3  
FIG.3圖 6  
FIG.6



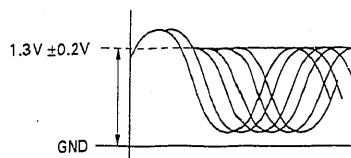
## 1. CD PLAYER SECTION

- Adjustment points



### EFM level measurement

Connect the  $\oplus$  side of the oscilloscope to TP104 (EFM),  $\ominus$  side to TP102 (VR) and check that the level is within  $1.3V \pm 0.2V$  as shown on the right.



Perform the following steps before starting adjustment.

- (1) Set the function to CD.

No.	Adjustment Item	Disc	Mode	Connection Terminal	Measuring Instrument	Adjustment Point	Remarks
1	Tracking offset adjustment	Not loaded	STOP	TP101 (T.E.R.) $\oplus$ TP102 (VR center) $\ominus$	Oscilloscope	R112	[Note 1]
2	Free-run frequency adjustment	Not loaded	STOP	TP109 (PLCK) $\oplus$ TP107 (D.GND) $\ominus$	Frequency counter	R119	[Note 2]

#### [Note 1]

- (1) Perform adjustment in the Stop mode.
- (2) Connect the  $\ominus$  side of oscilloscope to TP102 (VR center),  $\oplus$  side to TP101 (T.E.R.) and adjust R112 so that the reading is  $0 \pm 5$  mV.

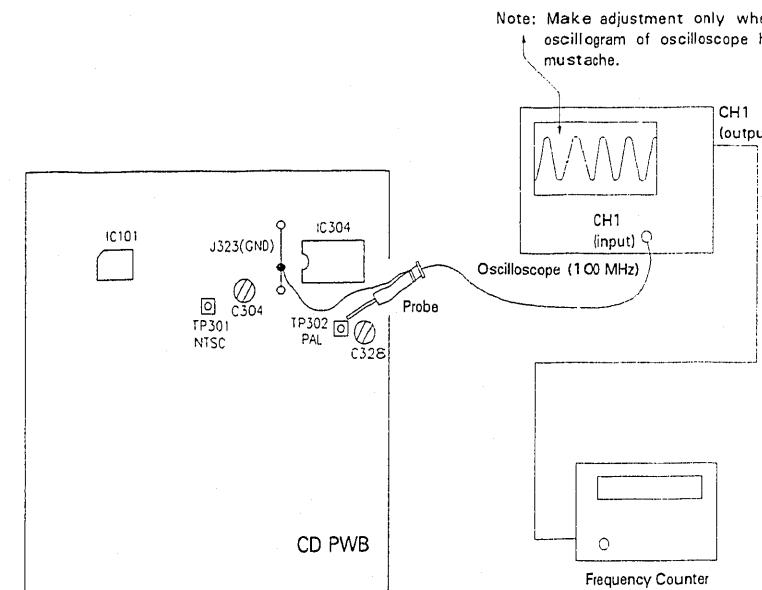
#### [Note 2]

Refer to the Test mode (set to the normal speed mode).

- (1) Perform adjustment in the Stop mode.
- (2) Connect the  $\ominus$  side of the frequency counter to TP107 (D.GND),  $\oplus$  side to TP109 (PLCK) and adjust R119 so that the reading is  $4.52$  MHz  $\pm 20$  KHz.

## 2. CDG VIDEO SECTION

- Sub carrier frequency adjustment



Perform the following steps before starting adjustment.

- (1) Set the function to CD KARAOKE.

### Mode PAL [for W]

No.	Adjustment Item	Disc	Mode	Connection Terminal	Measuring Instrument	Adjustment Point	Remarks
1	Sub carrier frequency adjustment	Not loaded	STOP	TP302 (PAL) $\oplus$ J323 (GND) $\ominus$	Oscilloscope and frequency counter	C328	[Note 1]

#### [Note 1]

- (1) Perform adjustment in the Stop mode.
- (2) Connect the  $\ominus$  side of oscilloscope to J323 (GND),  $\oplus$  side to TP302 (PAL) and adjust C328 so that the reading is  $4.433619$  MHz  $\pm 50$  Hz.

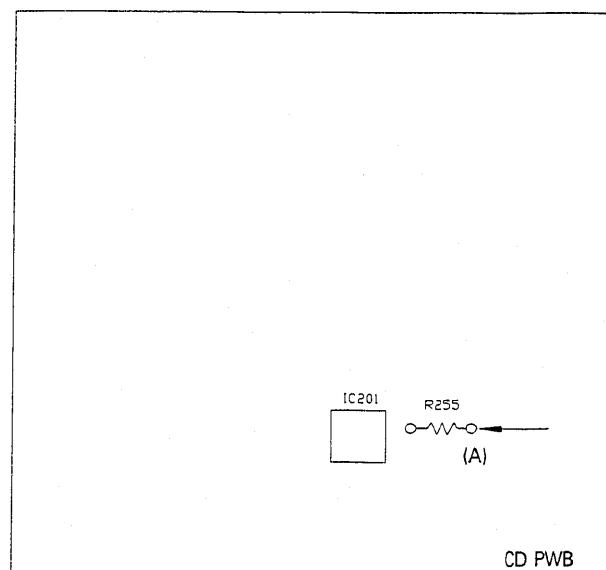
### Mode NTSC [for T]

No.	Adjustment Item	Disc	Mode	Connection Terminal	Measuring Instrument	Adjustment Point	Remarks
1	Sub carrier frequency adjustment	Not loaded	STOP	TP301 (NTSC) $\oplus$ J323 (GND) $\ominus$	Oscilloscope and frequency counter	C304	[Note 2]

#### [Note 2]

- (1) Perform adjustment in the Stop mode.
- (2) Connect the  $\ominus$  side of oscilloscope to J323 (GND),  $\oplus$  side to TP301 (NTSC) and adjust C304 so that the reading is  $3.579545$  MHz  $\pm 50$  Hz.

## 3. CD-G TEST MODE



(1) Three types of test signal: Grey scale  
Colour bar  
Tone vast

(2) Methods of confirming test signal:

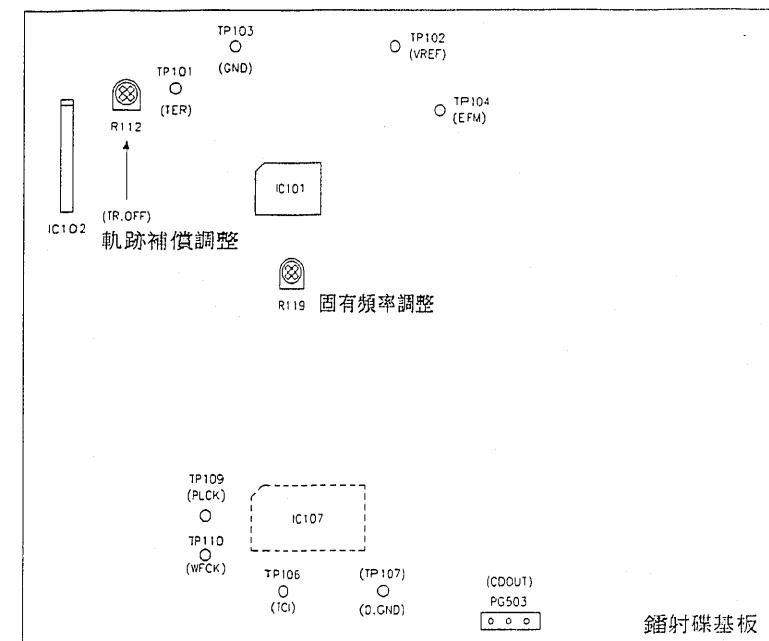
Power OFF: Connect short circuit between test R255 (A) and GND.

Power ON : Test signal is out from video terminal (Video out).  
Switch of test signal is controlled by  $\triangleleft\triangleright$ ,  $\blacktriangleright\blacktriangleright$  switch.

(3) Turn the power OFF to release test signal.

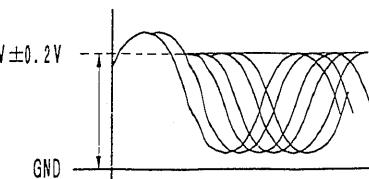
## 1. 鏈射碟部份

- 調整點



## EFM水平測量

把示波器的正端連接至 TP104 端子 (EFM)  
，負端連接至 TP102 端子 (VREF)，然後確認  
水平是否如右圖所示，介於 1.3 伏特  $\pm 0.2$  伏特。



開始調整之前請先執行下列步驟。

(1) 把功能設定在鐳射碟

項次	調整項目	鐳射碟	方式	連接終端	測量儀器	調整點	備註
1	軌跡補償調整	未裝	停止	TP101正端(T.E.R) TP102負端(VREF中點)	示波器	R112	[附註1]
2	固有頻率調整	未裝	停止	TP109正端(PLCK) TP107負端(D.GND)	頻率計數器	R119	[附註2]

## [附註1]

(1) 在停止狀態時執行調整。  
(2) 把示波器的負端連接至 TP102 (VREF 中點)，正端連接至 TP101 (T·E·R)，而後  
調整 R112 使讀數成爲  $4 \pm 5$  mV。

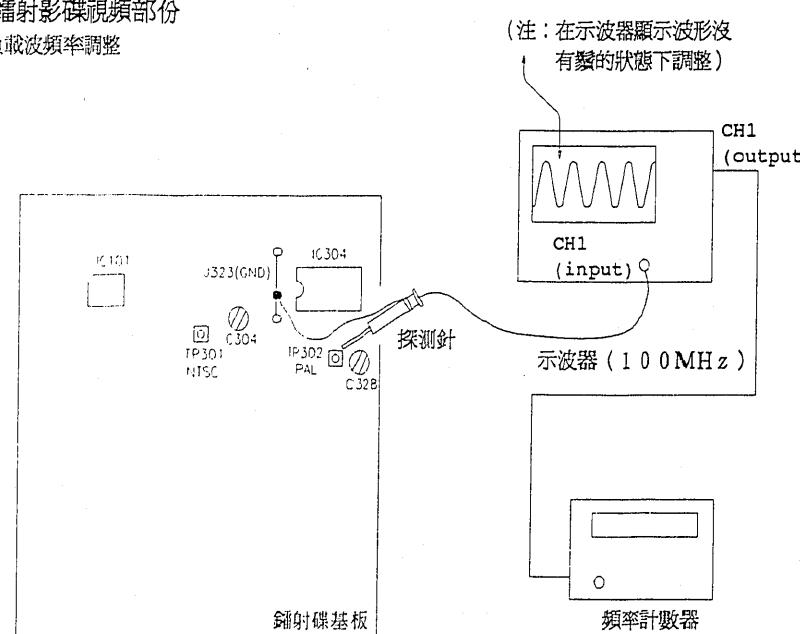
## [附註2]

參考測試方式 (設定爲正常速度方式)

(1) 在停止方式時執行調整。  
(2) 把頻率計數器的負端連接至 TP107 (D.GND)，正端連接至 TP109 (PLCK)，調整  
R119 使讀數成爲  $4.52\text{MHz} \pm 20\text{KHz}$ 。

## 2. 鐳射影碟視頻部份

- 負載波頻率調整



開始啓動前請先執行下列步驟。

- (1) 把功能設定為鐳射碟卡拉OK (KARAOKE)。  
PAL方式 [新加坡, 香港, 東南亞]

項次	調整項目	鐳射碟	方式	連接終端	測量儀器	調整點	備註
1	負載波頻率調整	未裝	停止	TP302正端(PAL) J323接地(GND)	示波器和頻率計數器	C328	[附註1]

### [附註1]

- (1) 在停止方式下執行調整。
- (2) 把示波器的負端連接至J323接地(GND)，正端連接至TP302(PAL)，然後調整C328，使讀數成為4.433619MHz±50Hz。

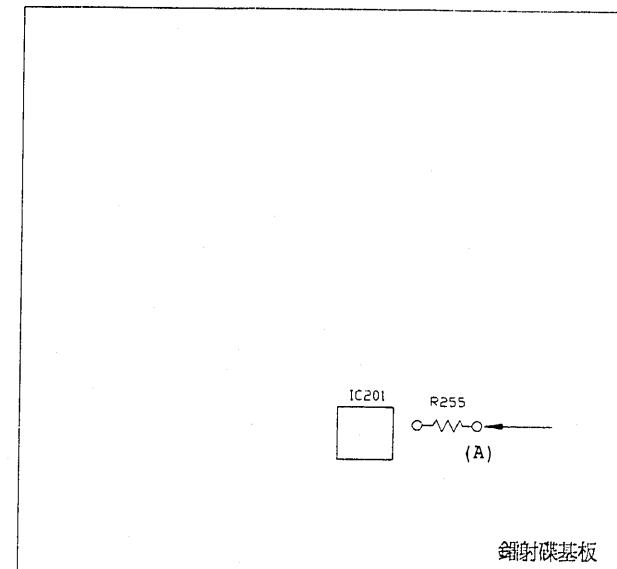
### NTSC方式 (臺灣)

項次	調整項目	鐳射碟	方式	連接終端	測量儀器	調整點	備註
1	負載波頻率調整	未裝	停止	TP301正端(NTSC) J323接地(GND)	示波器和頻率計數器	C304	[附註2]

### [附註2]

- (1) 在停止方式下執行調整。
- (2) 把示波器的負端連接至J323接地(GND)，正端連接至TP301(NTSC)，然後調整C304，使讀數成為3.579545MHz±50Hz。

## 3. 鐳射影碟測試方式



- (1) 測試信號有三種：灰色階梯 (GREY SCALE)

色帶 (COLOUR BAR)

色調 (TONE VAST)

- (2) 測試信號確認方法：

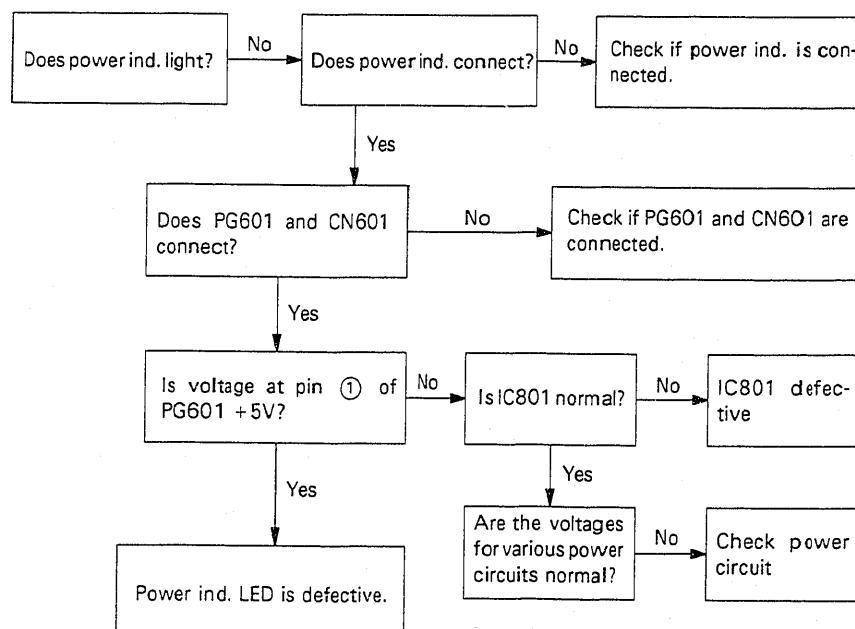
電源關閉：在於R255(A)和接地(GND)間以線短路連接  
電源開啟：測試信號由影像端子出力(VIDEO OUT)

測試信號的切換由  $\triangleleft\triangleright$  開關控制

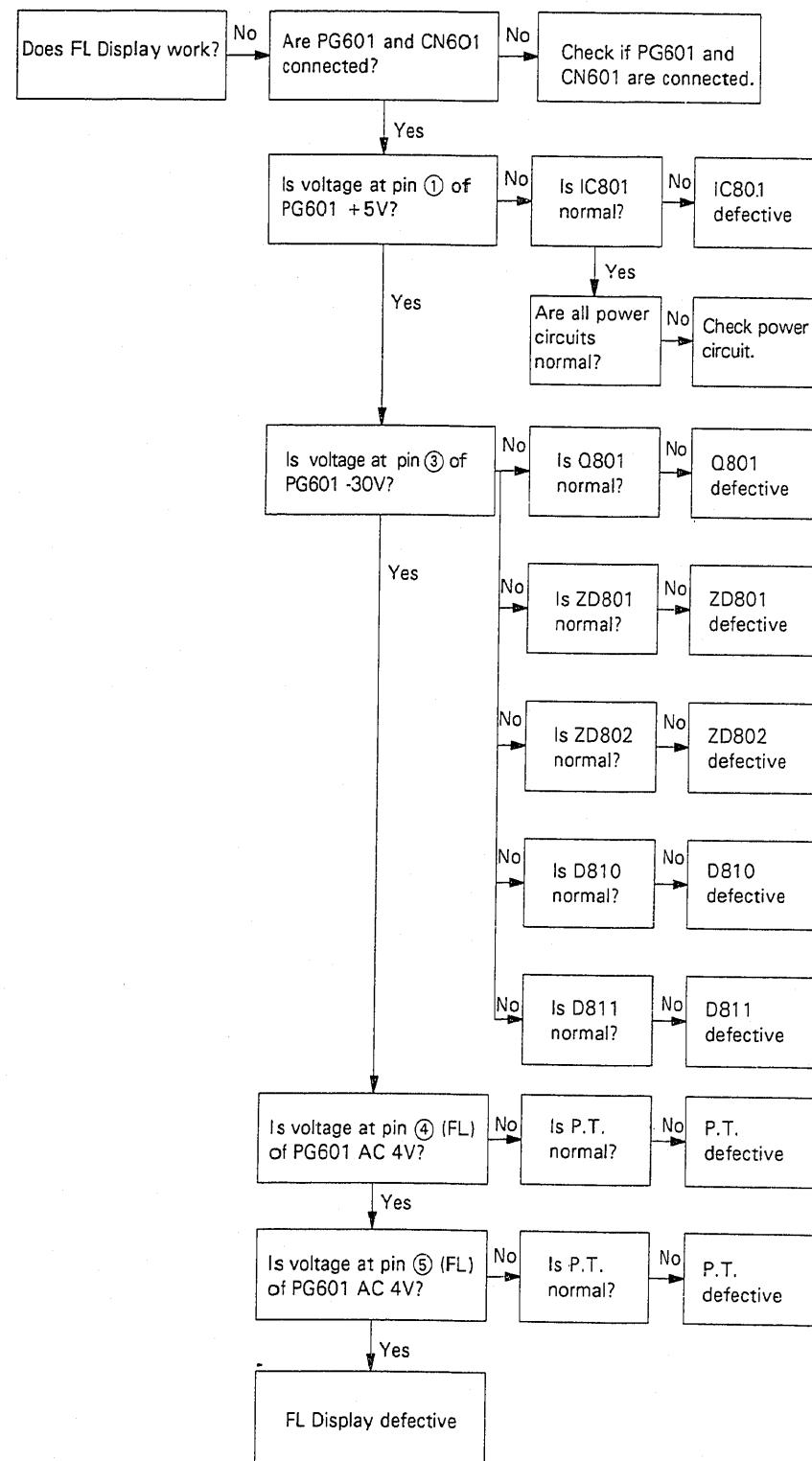
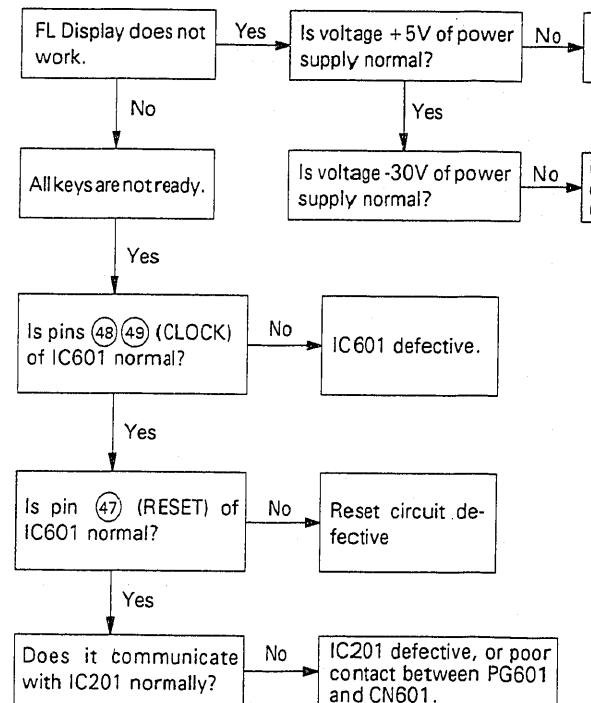
- (3) 解除測試信號只要關閉電源即可。

## TROUBLESHOOTING

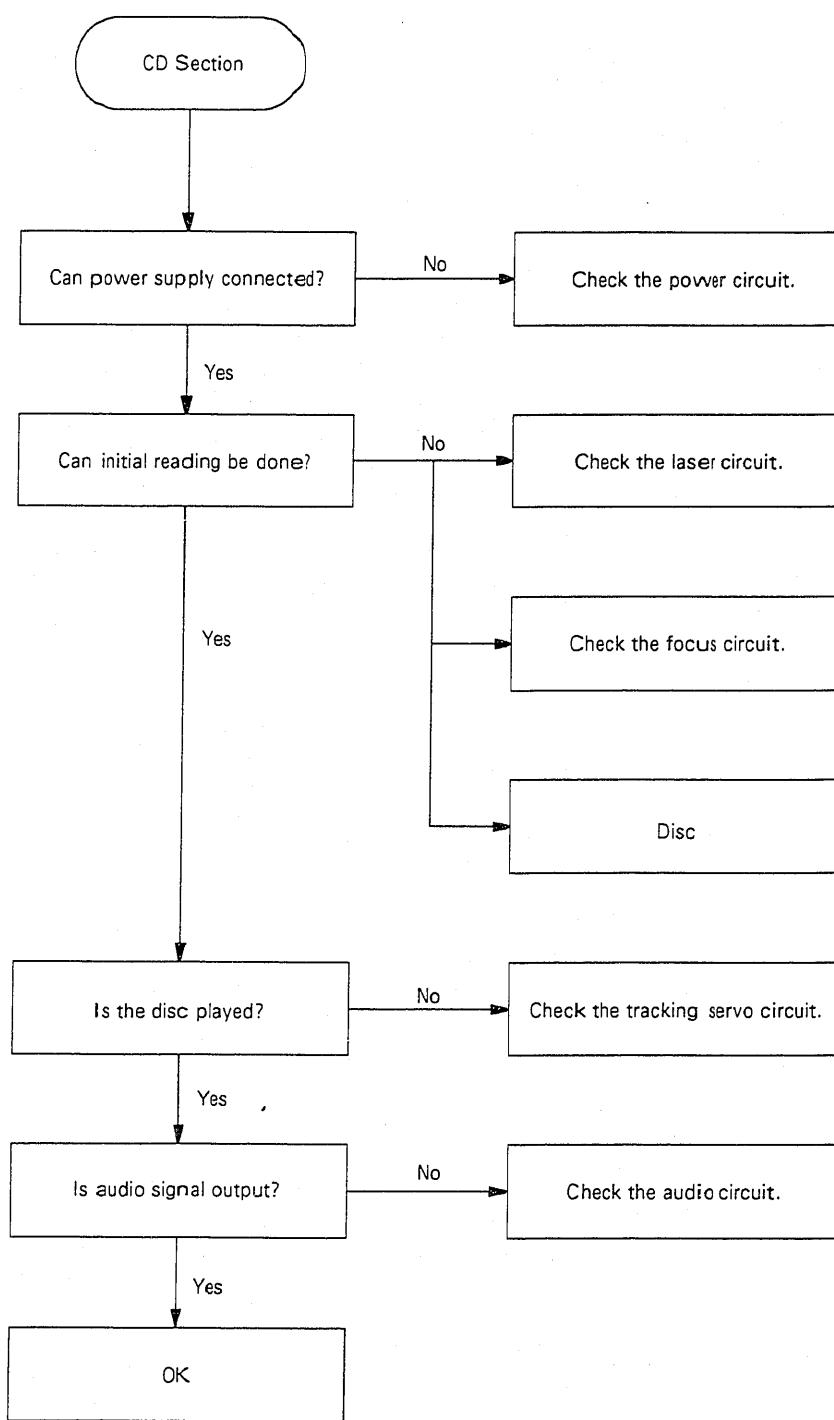
- Check Power Circuit



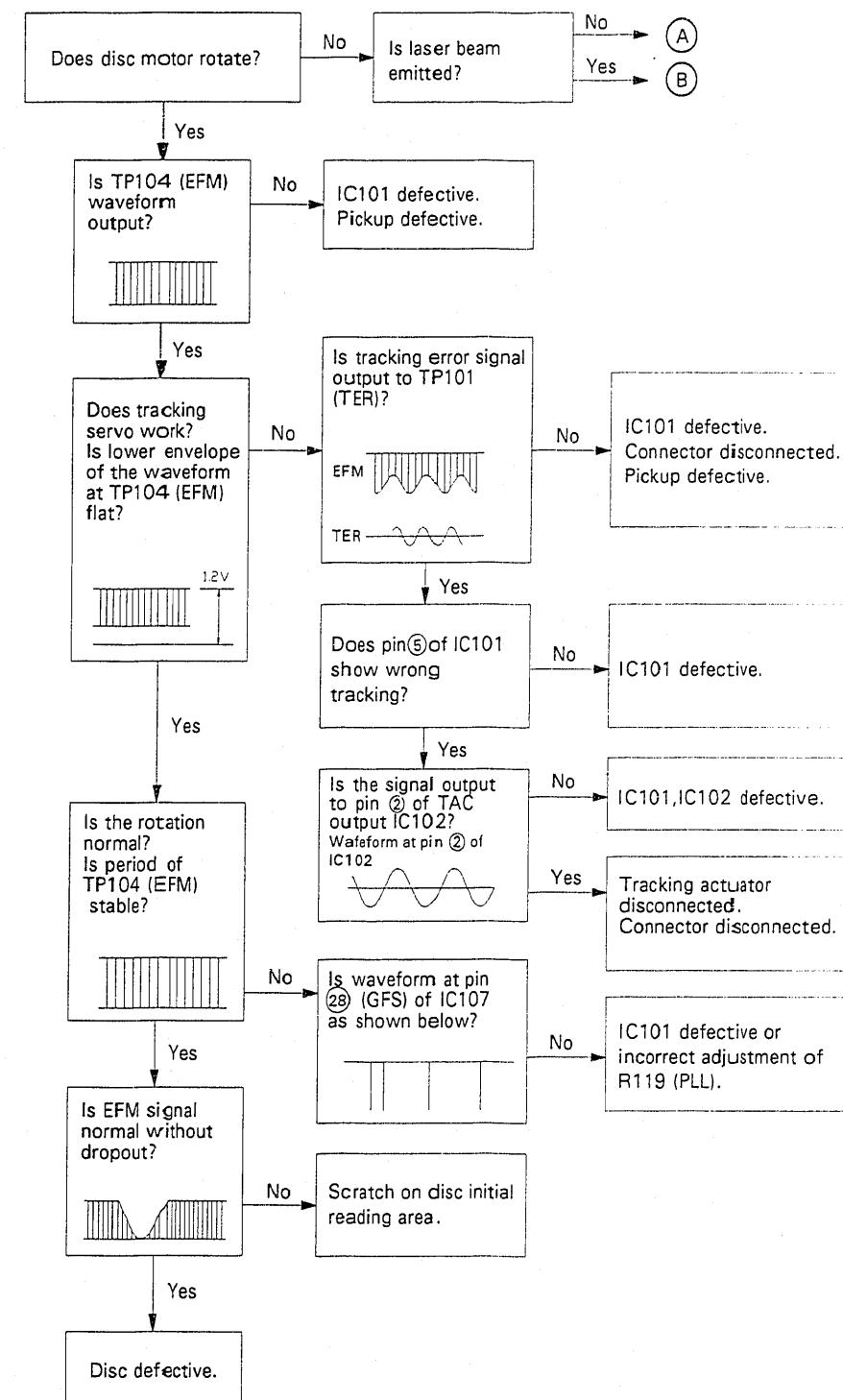
- Troubleshooting for Microprocessor

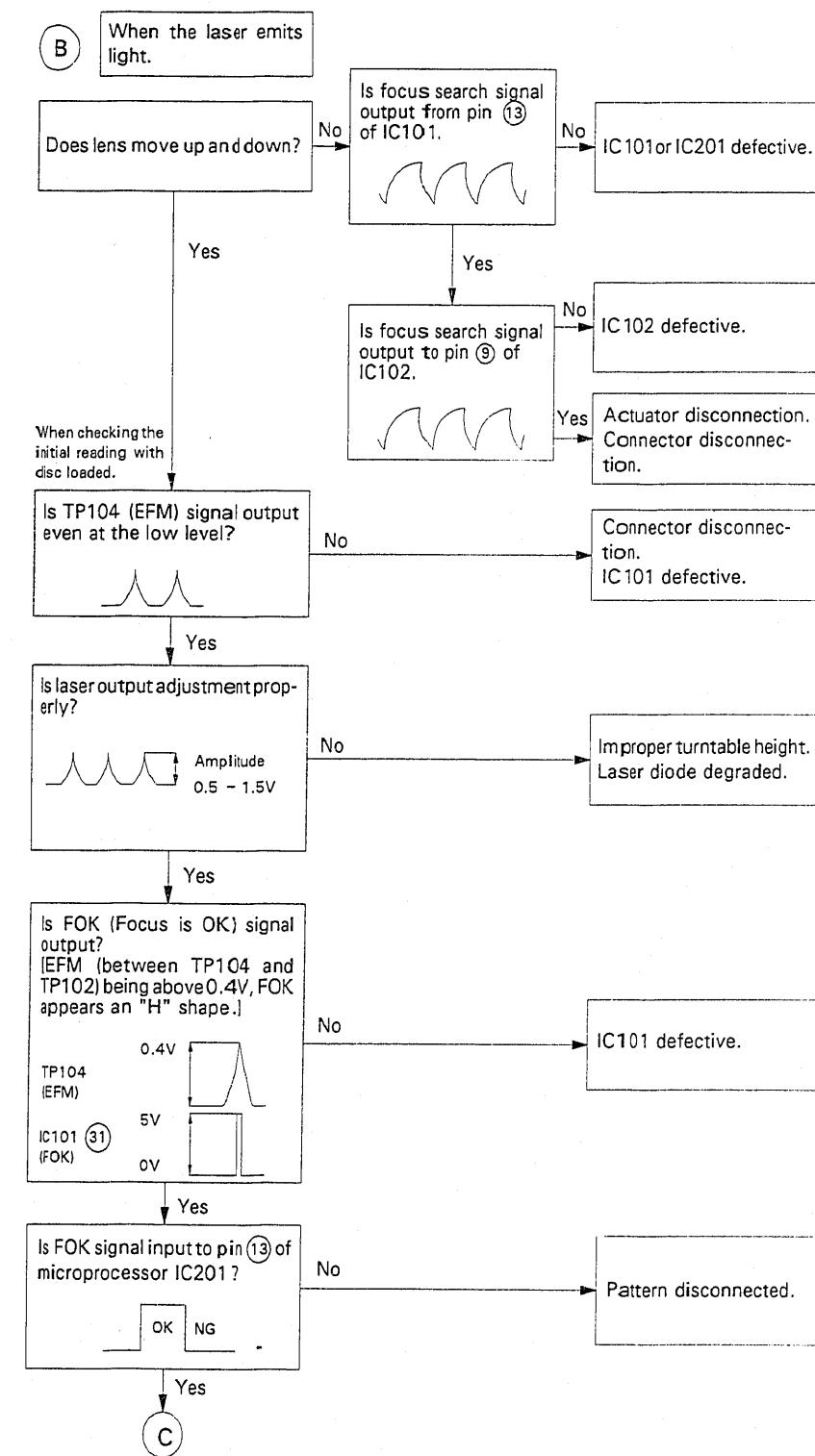
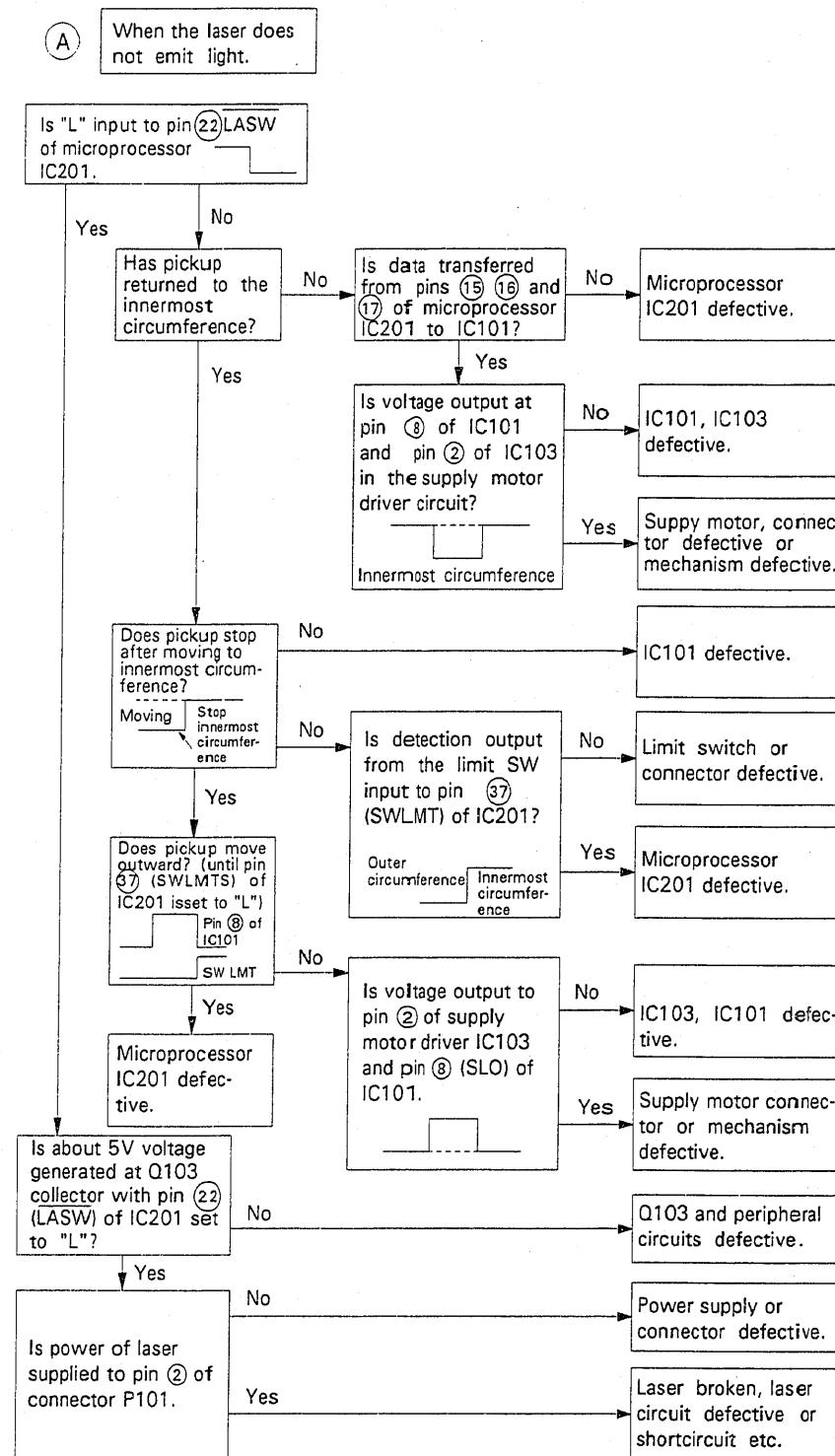


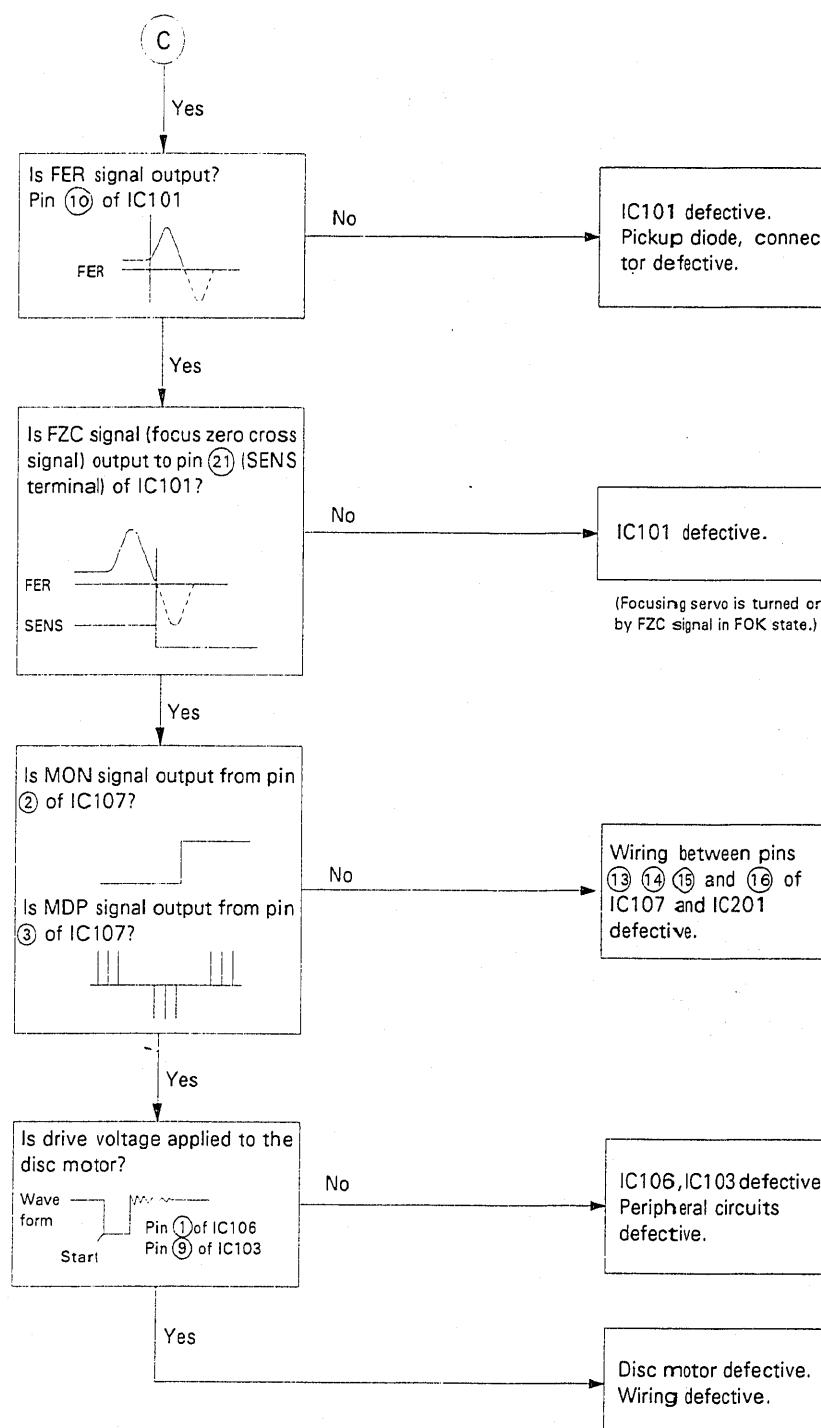
## • CD



## • When the initial reading cannot be done.

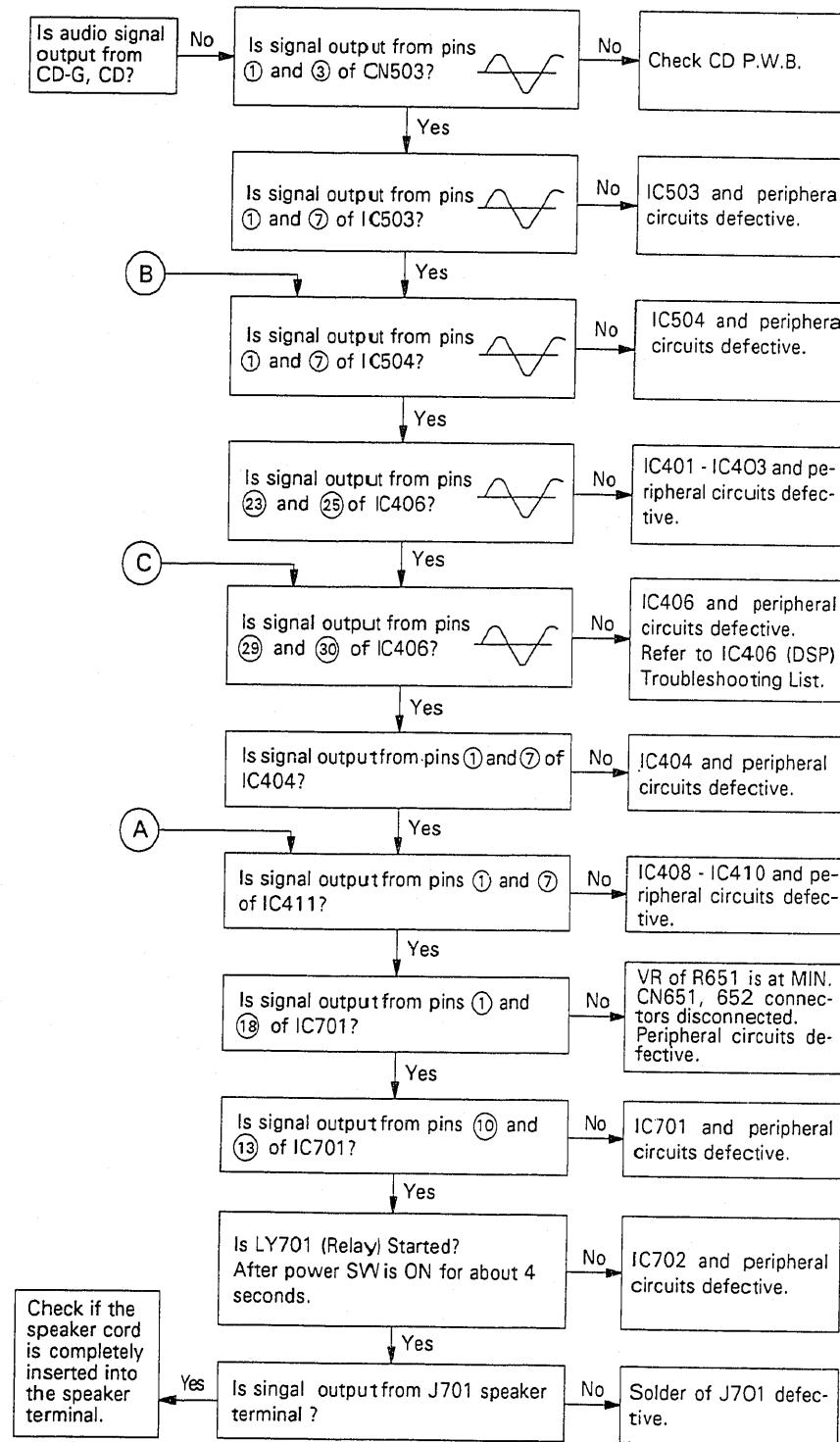




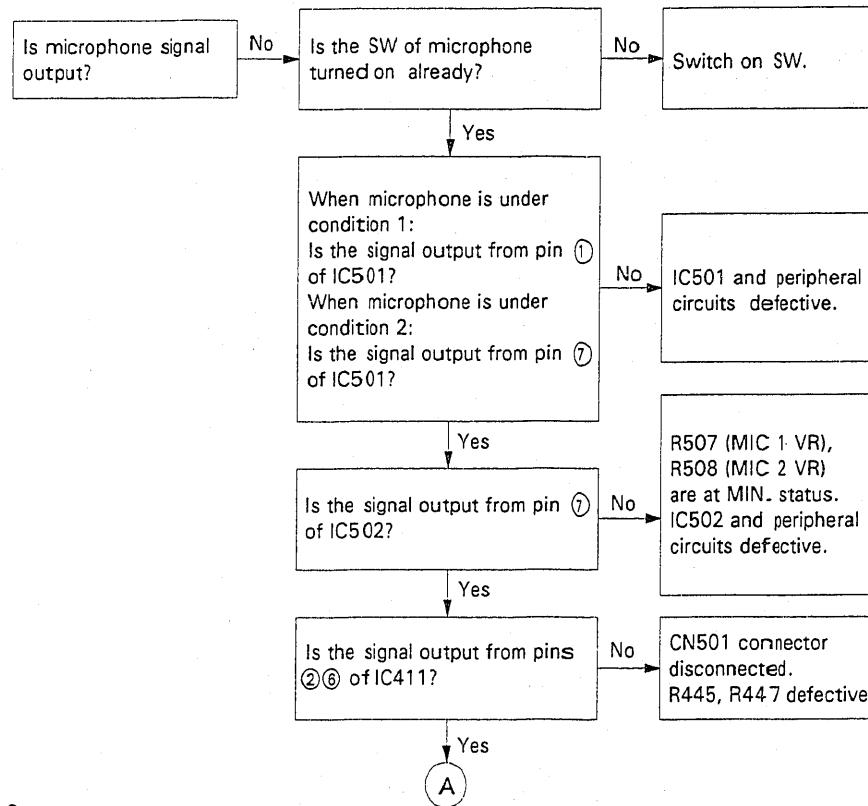


#### • Check Audio Circuit

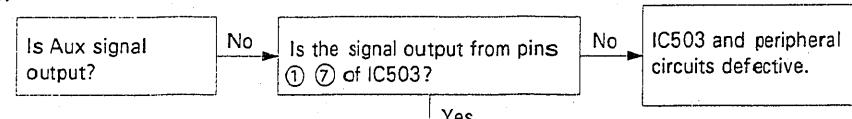
1.



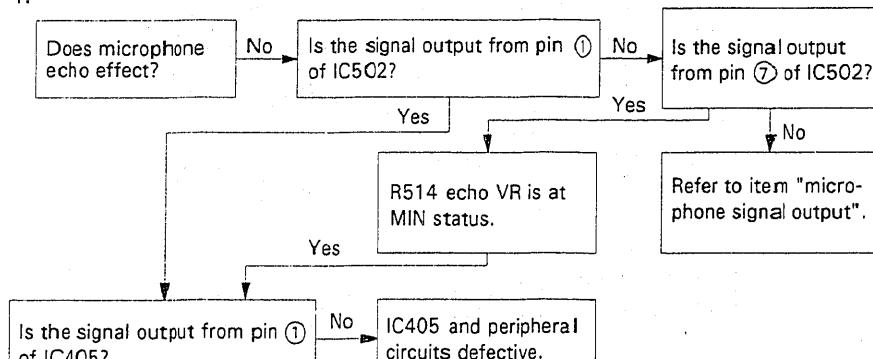
2.



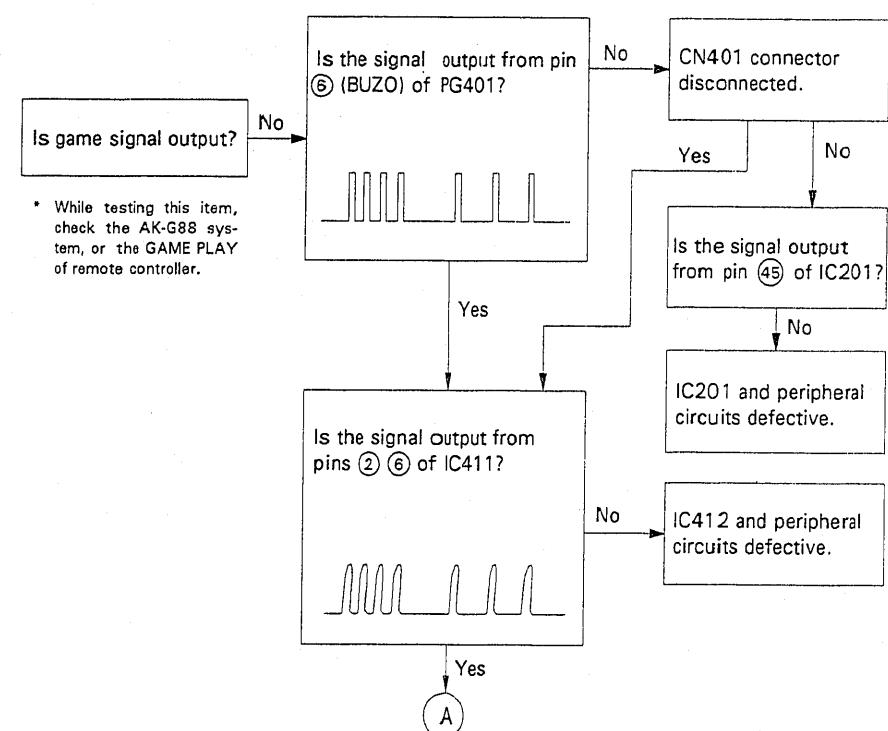
3.



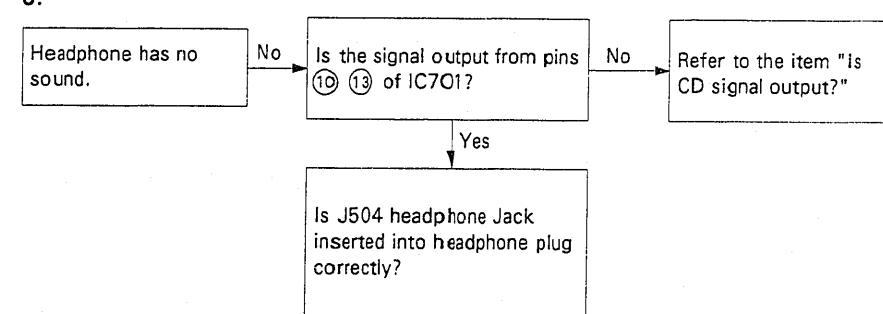
4.



5.

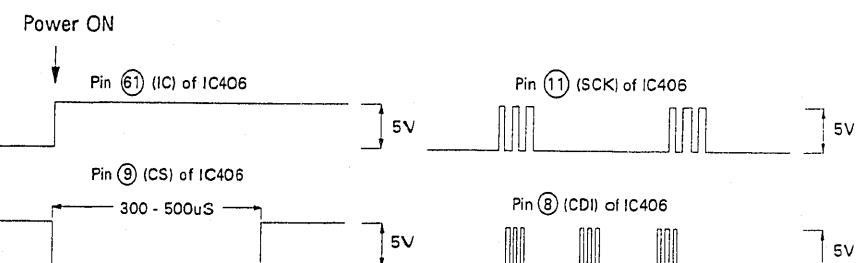


6.



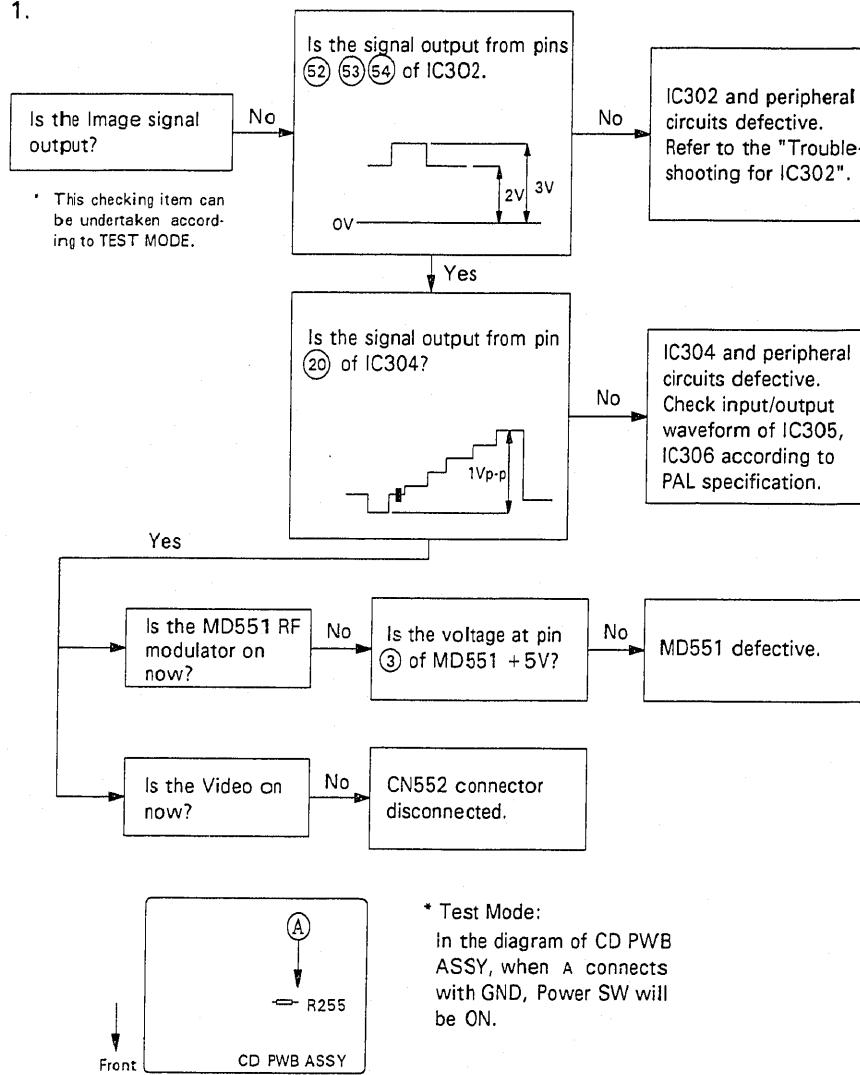
#### 7. Troubleshooting for IC406 (DSP) (Way of checking)

This IC, based on microprocessor (IC201), will react by referring to the data of time constant. If this IC is defective, please check signal according to the following diagram.



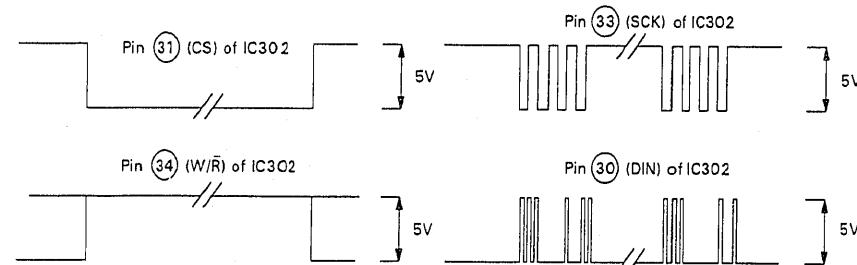
• Check Image Circuit

1.

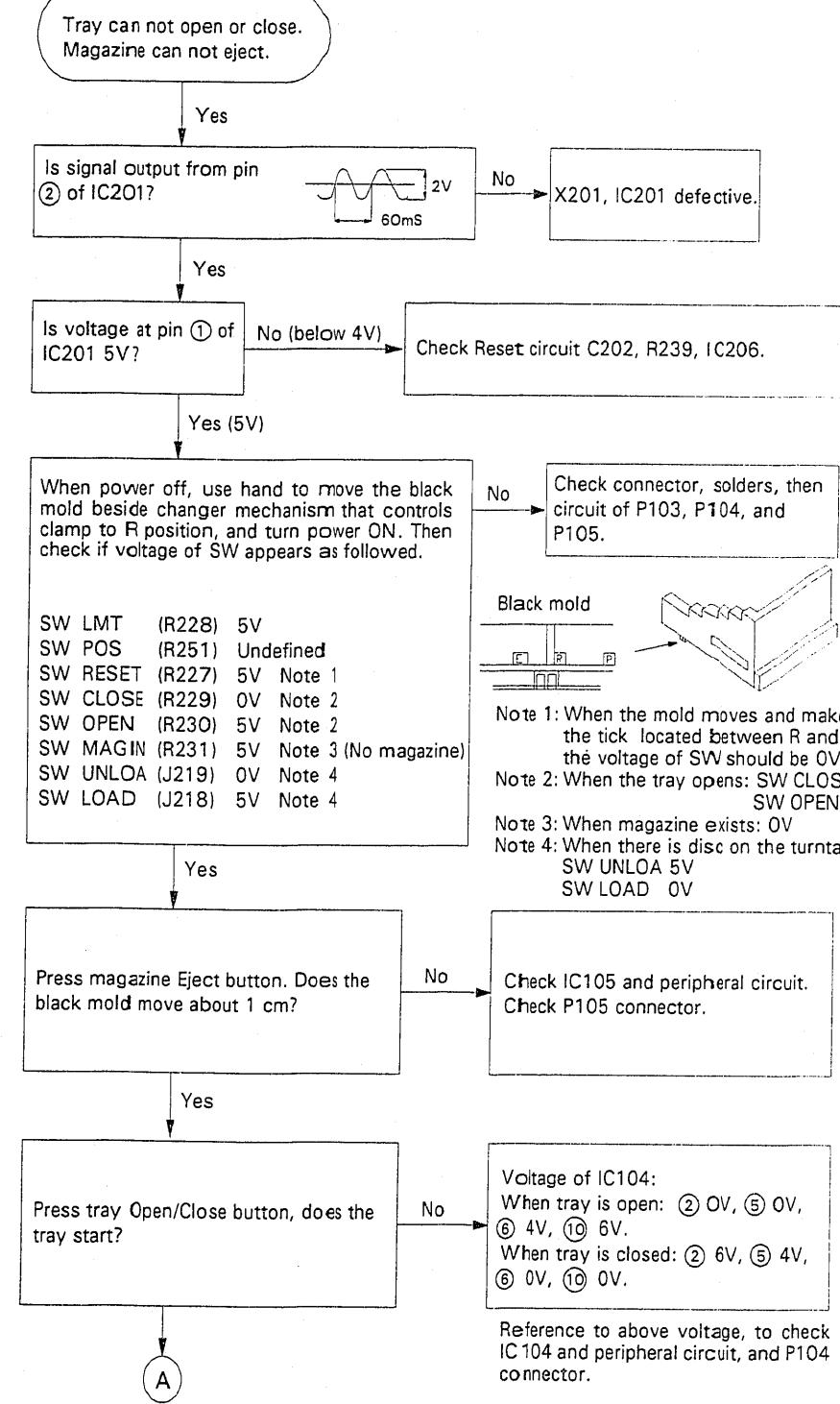


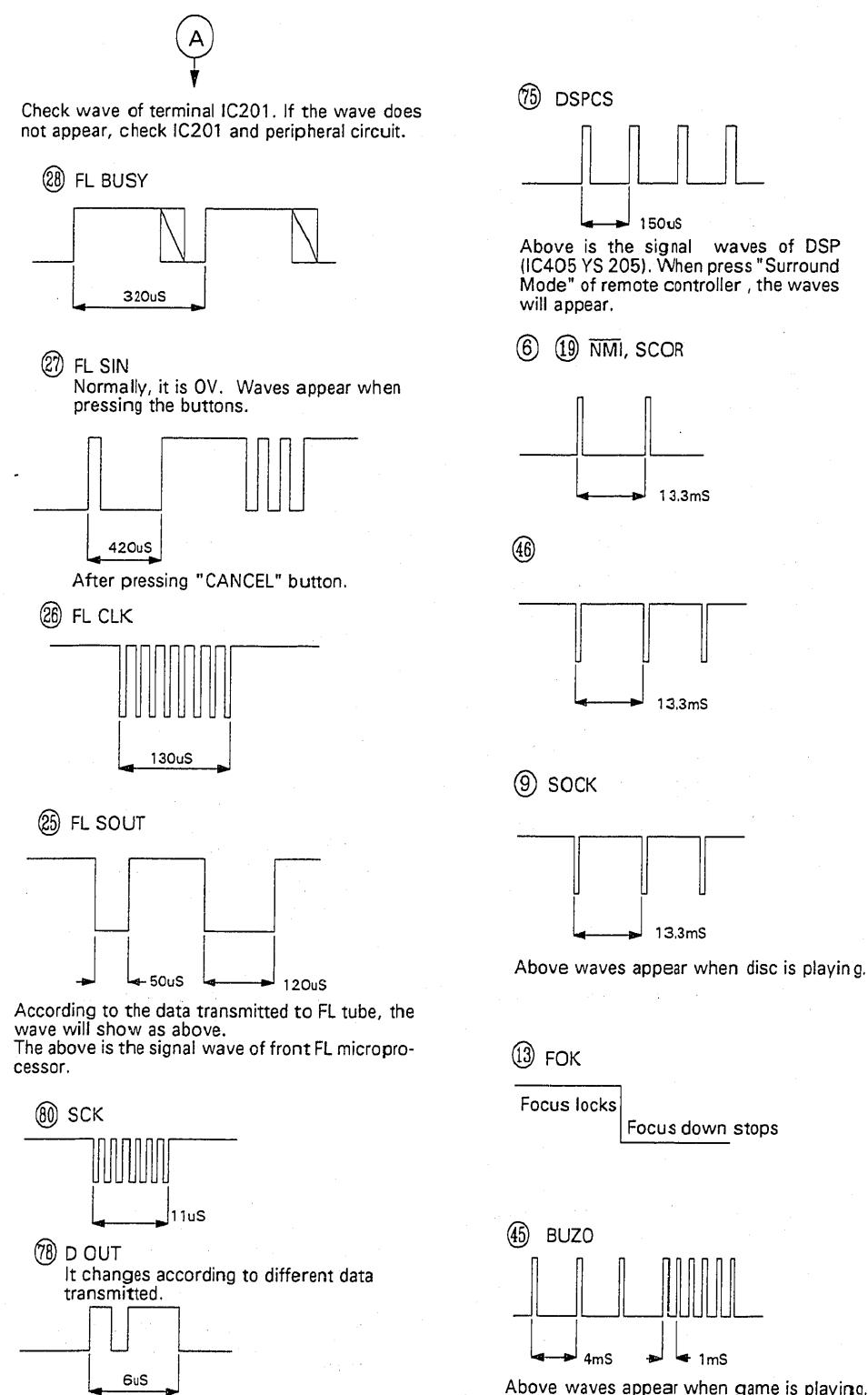
2. Troubleshooting for IC302 (CD-G) (Ways of Checking)

This IC, based on microprocessor (IC201), will react by referring to the data of time constant. If this IC is defective, please check the signal according to the following diagram.



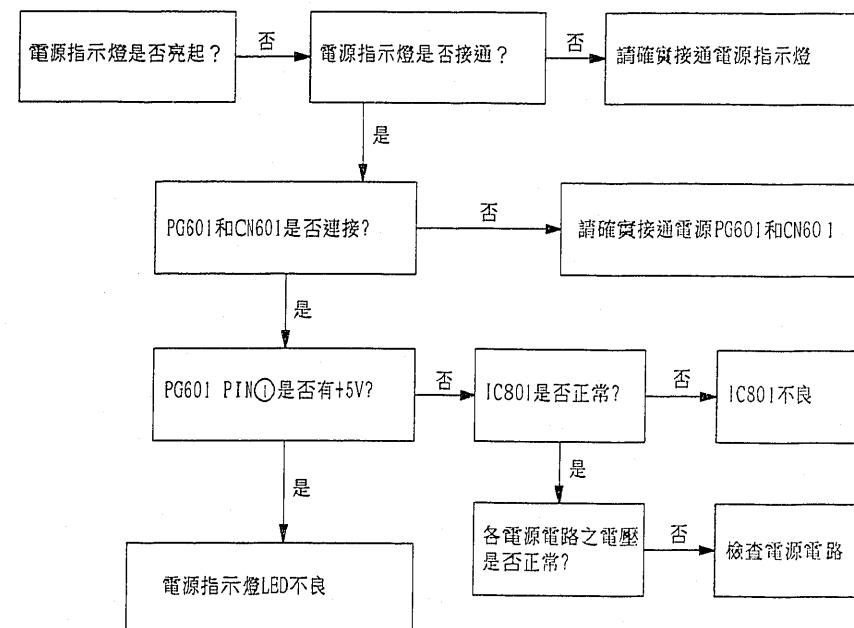
• Check Main Microprocessor



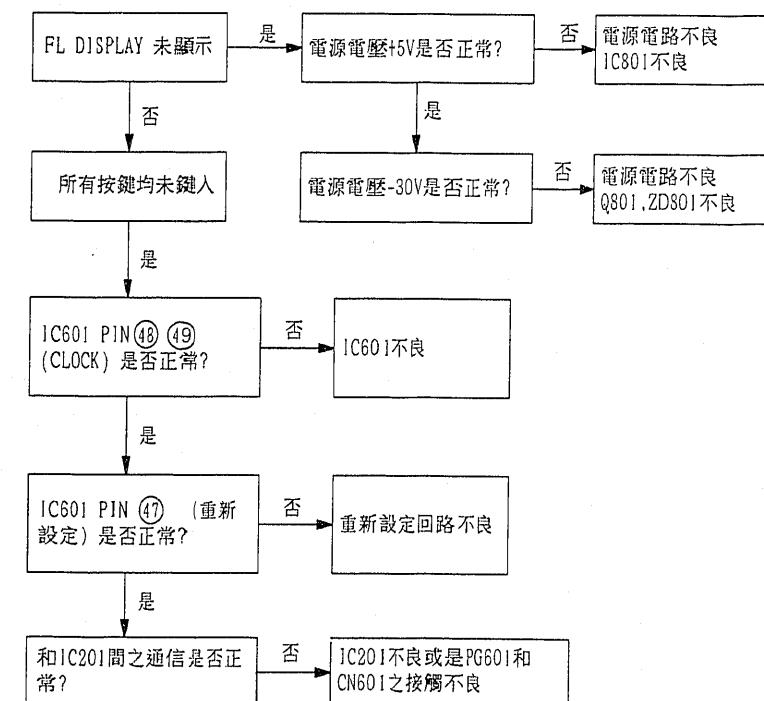


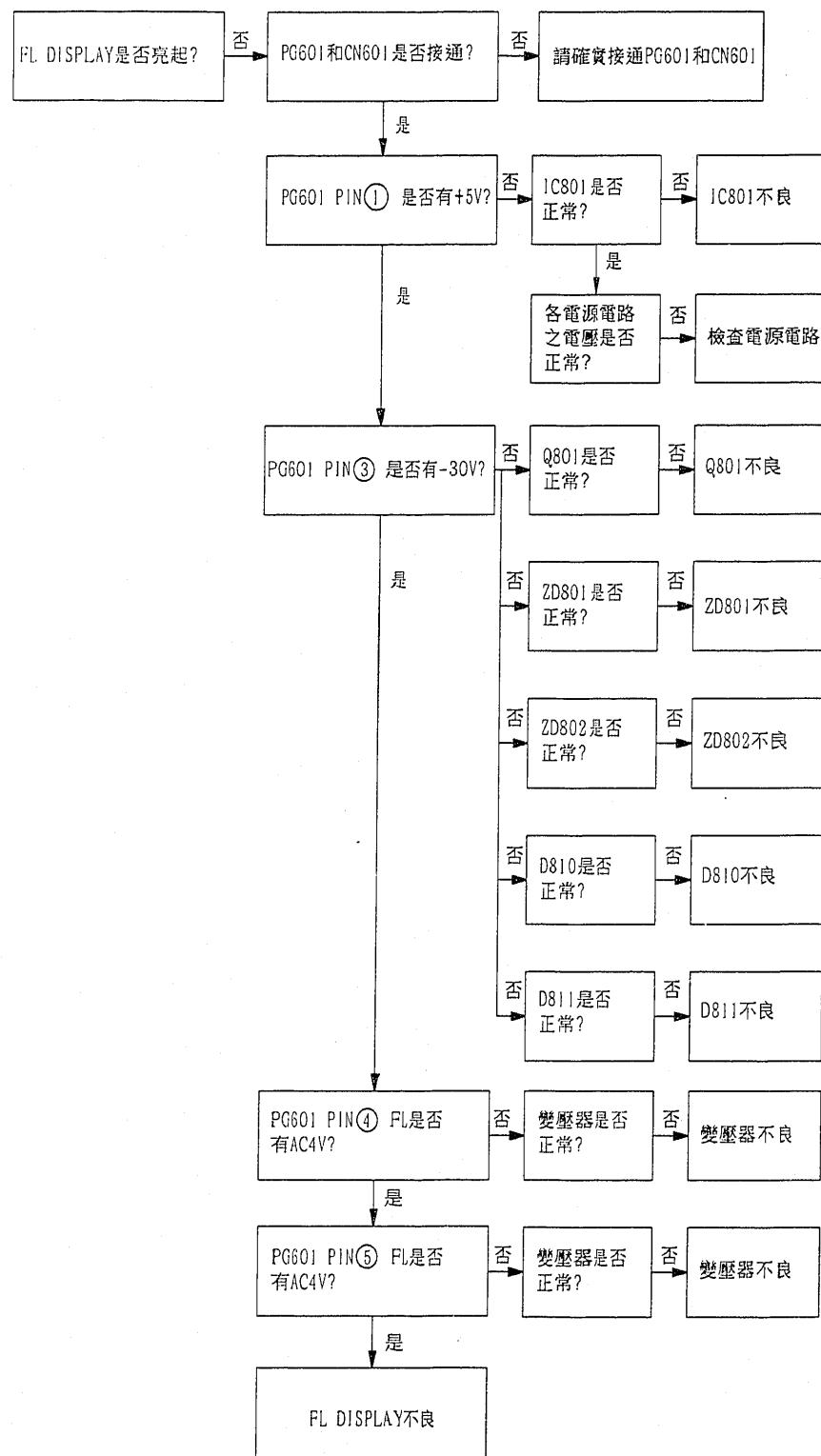
## 故障尋找

### • 檢查電源電路

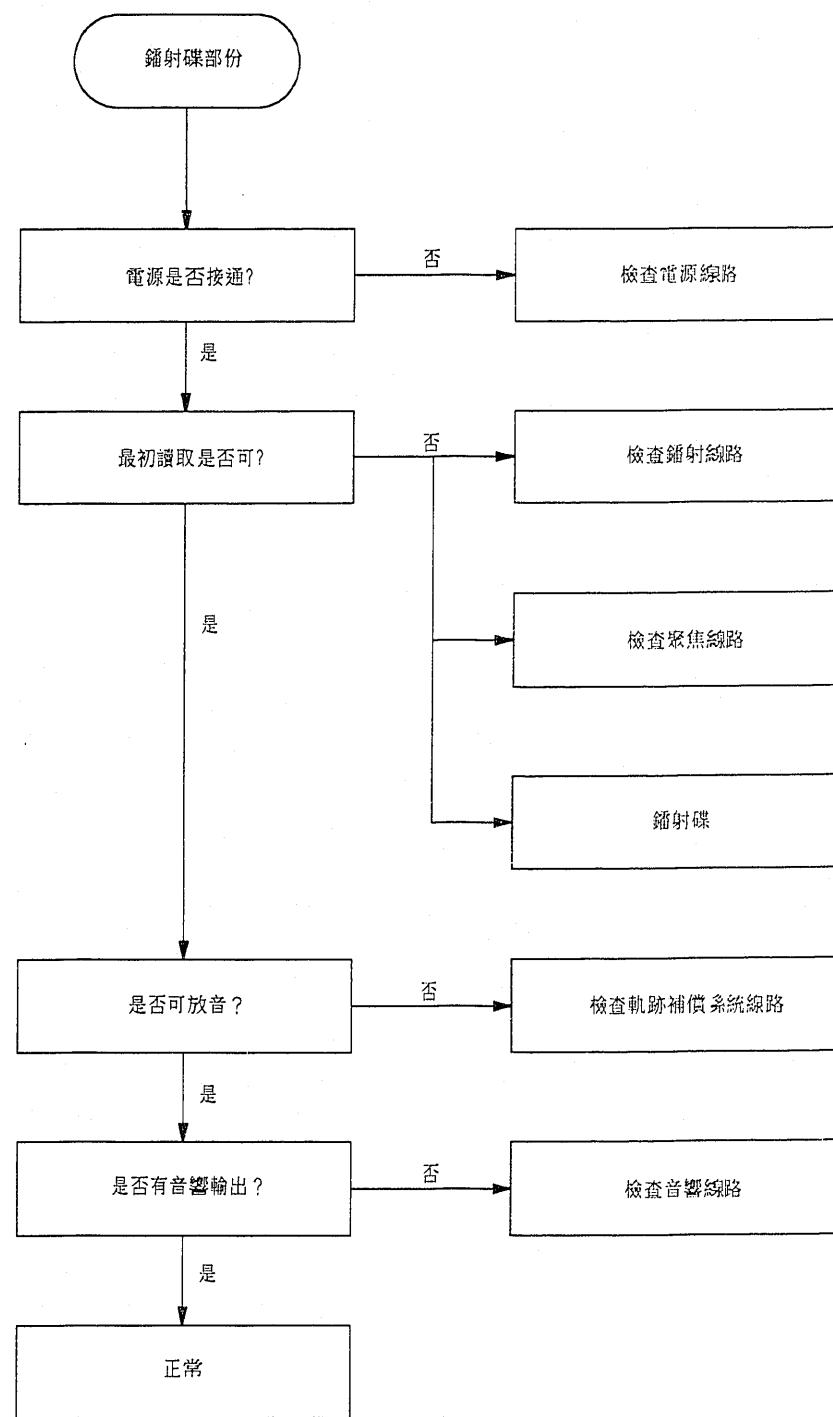


### • 微處理器檢查故障表

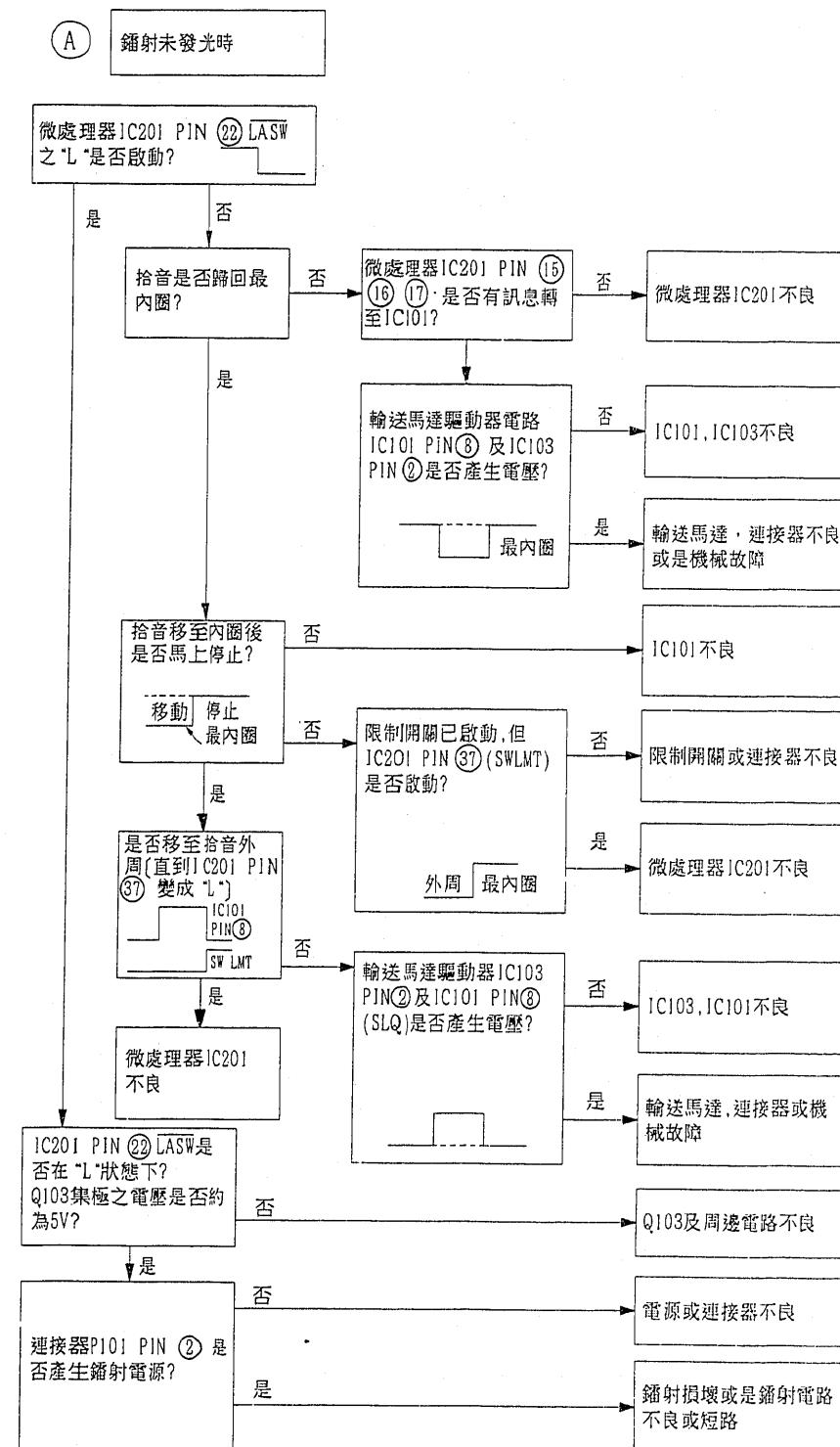
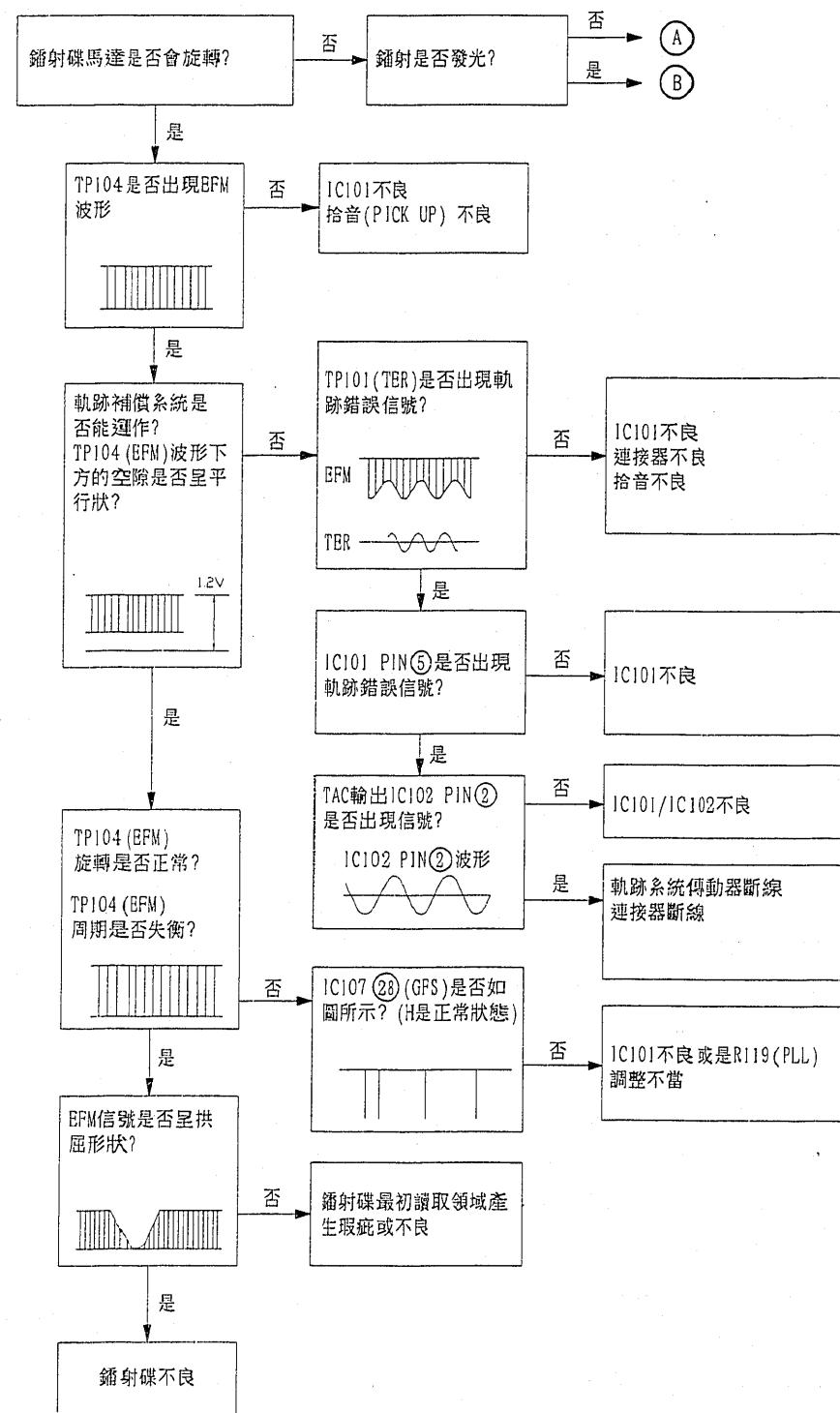


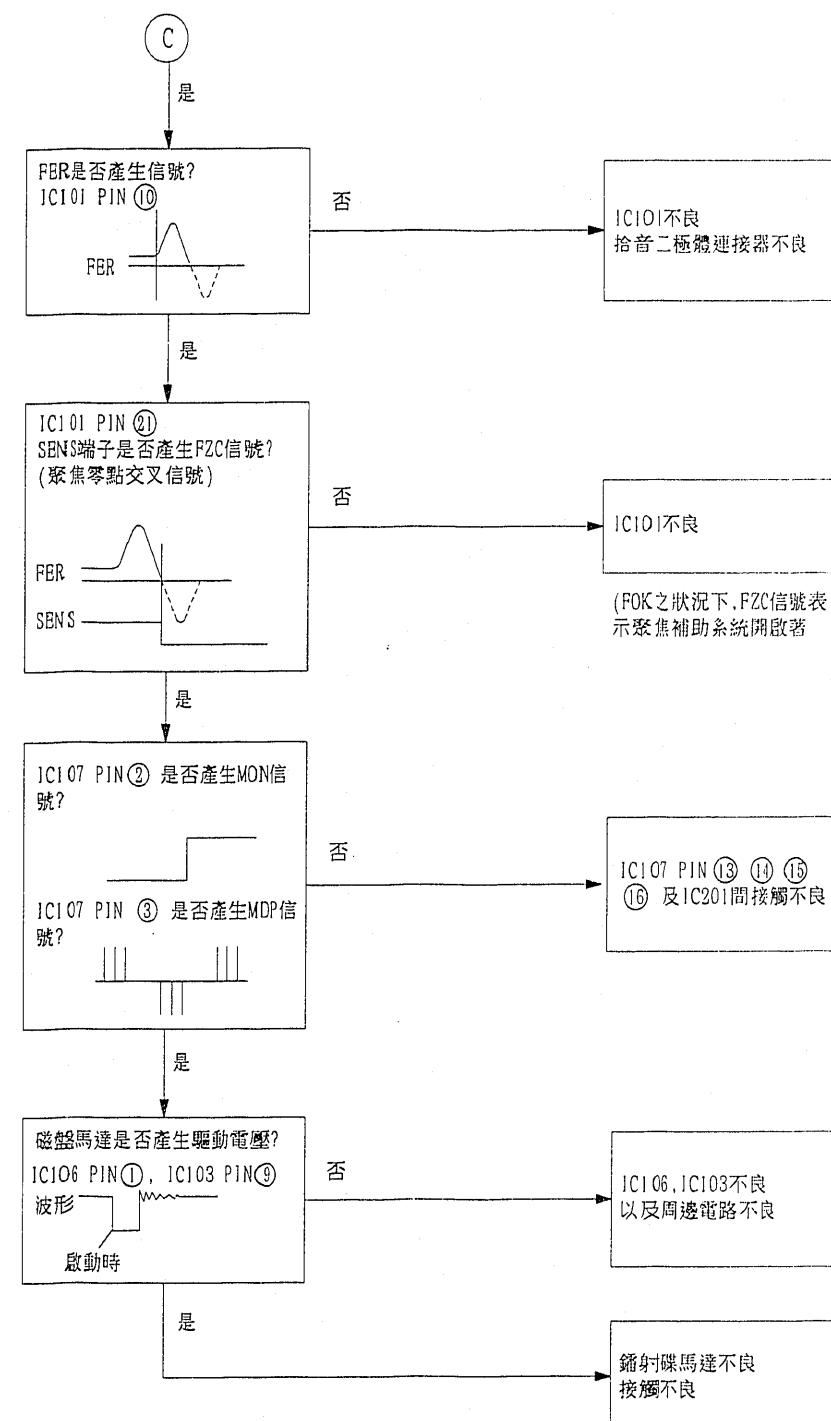
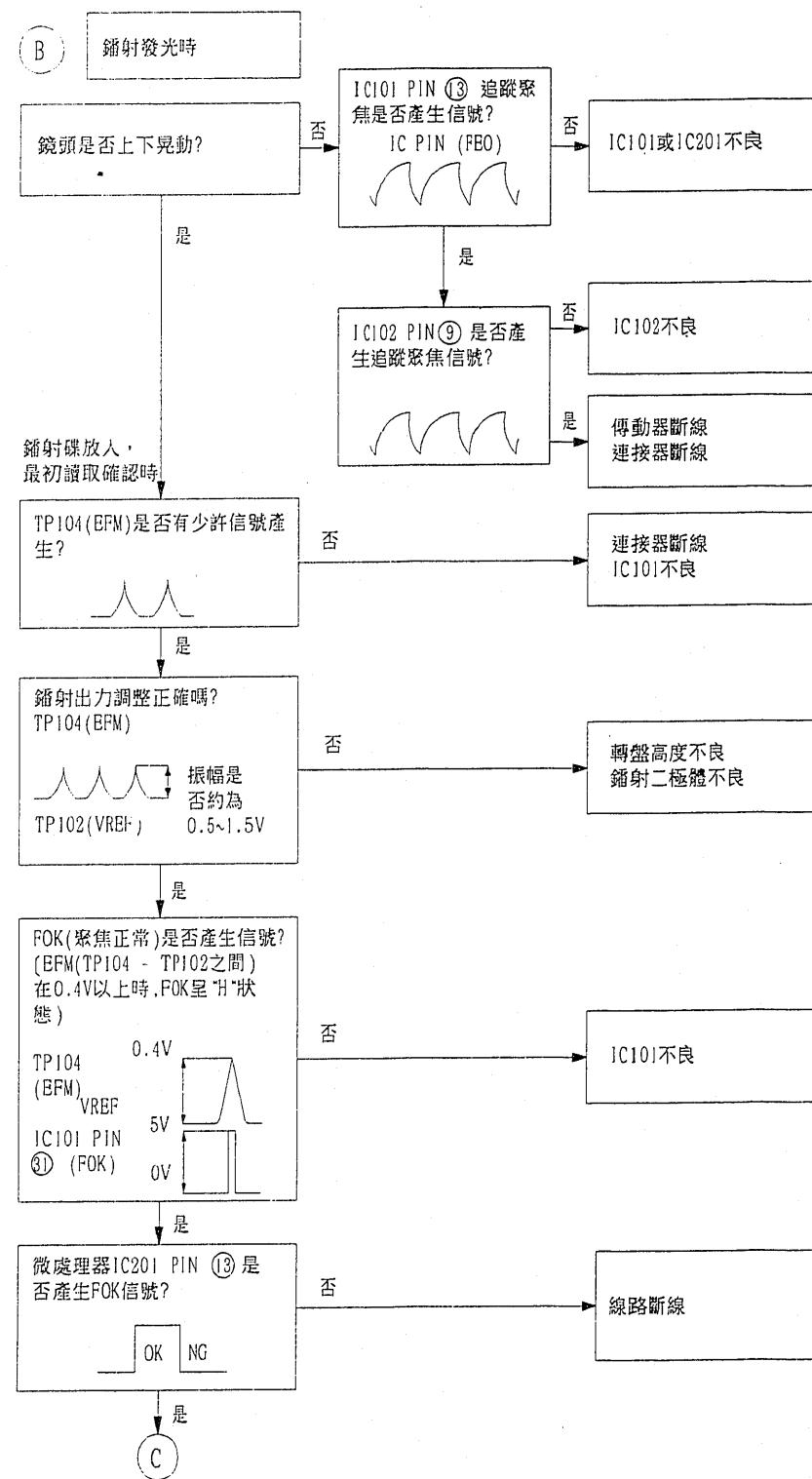


## • 鏡射碟

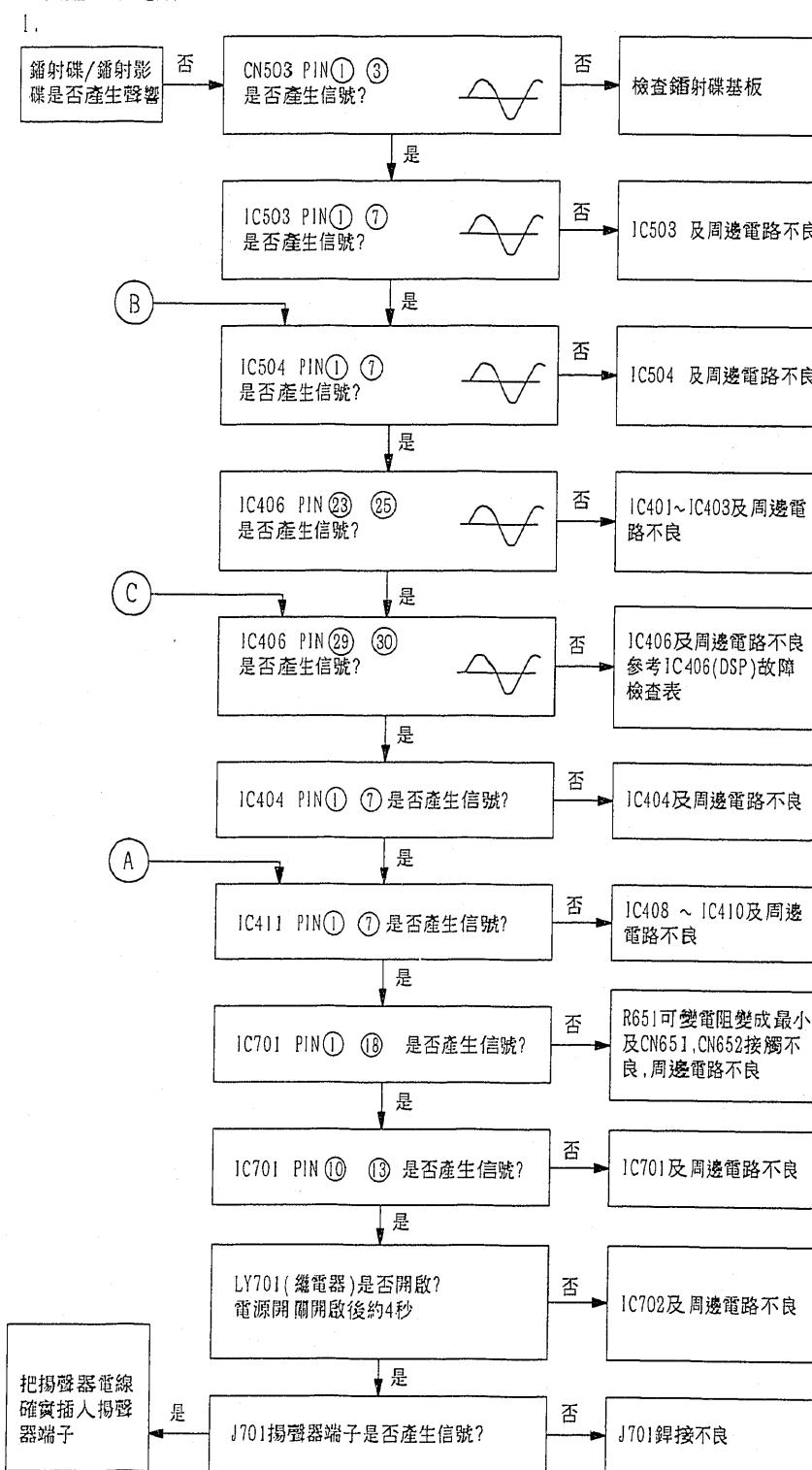


• 最初讀取不可時

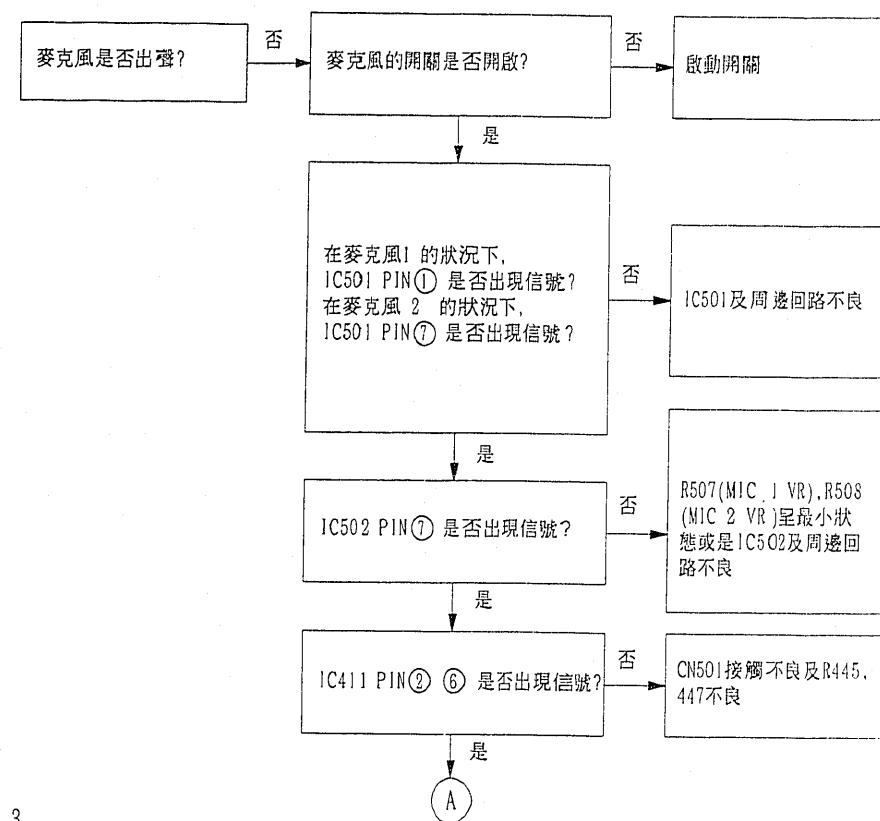




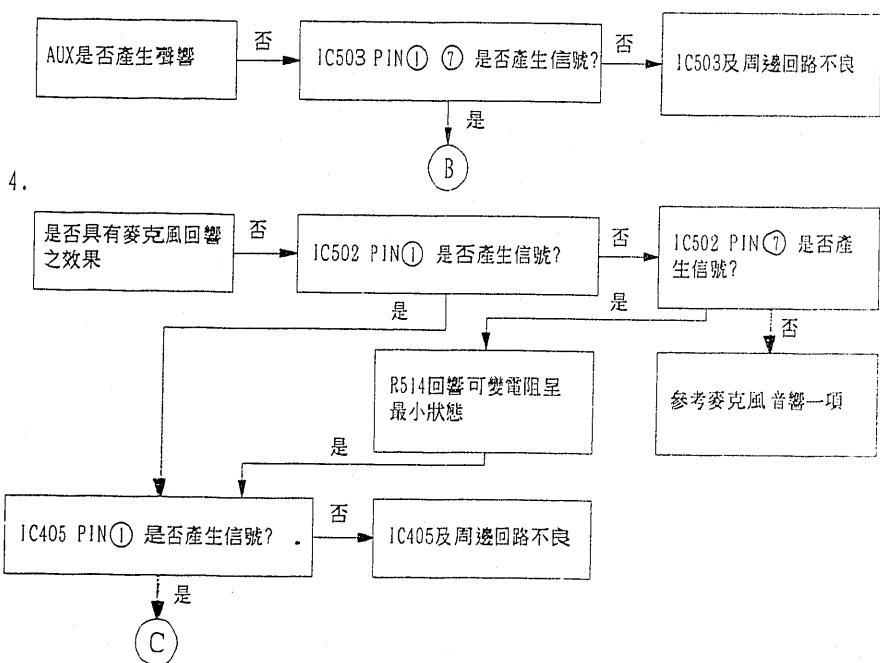
## • 檢查音頻電路

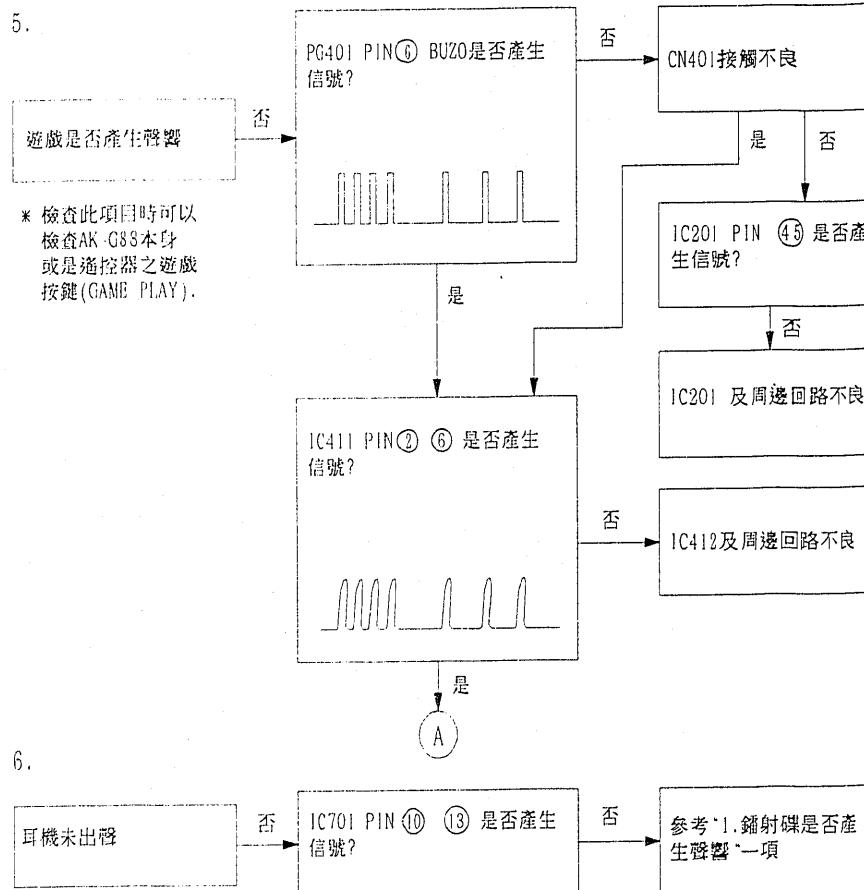


2.



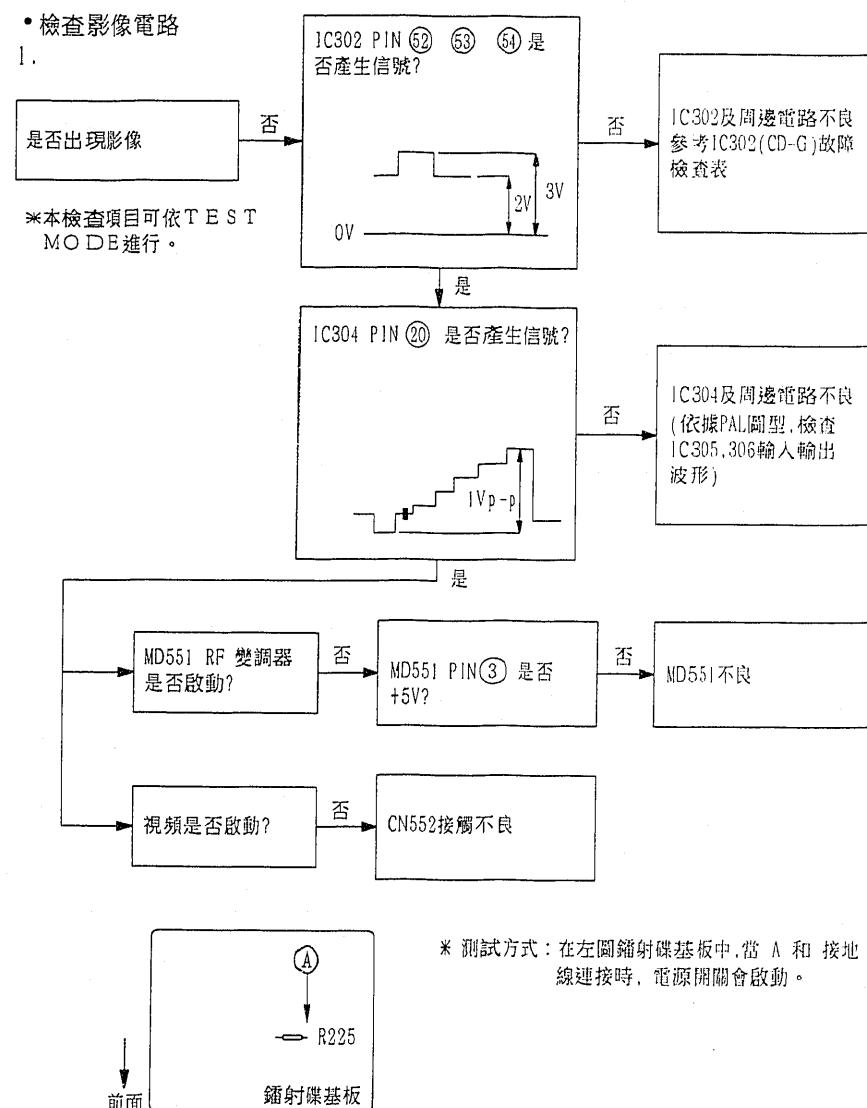
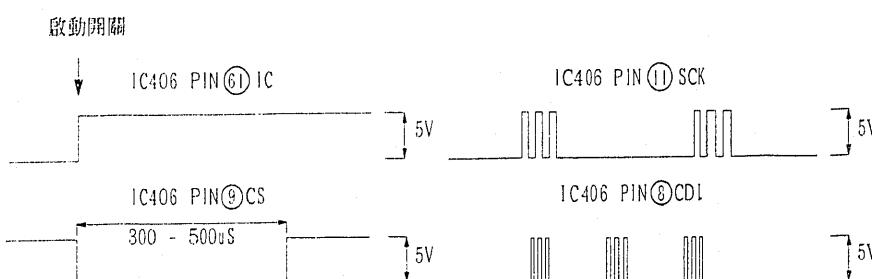
3.





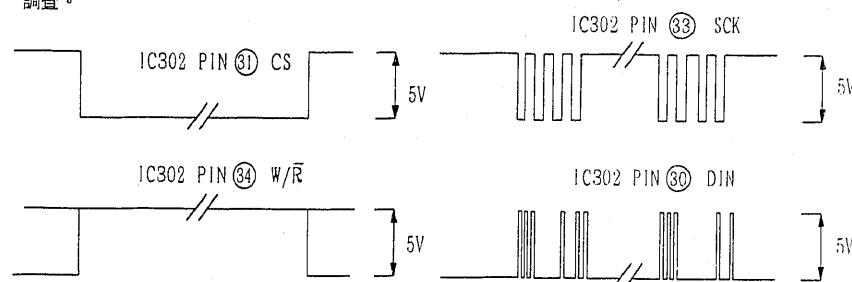
## 7. 檢查IC406(DSP)故障(檢查方式)

本IC依據微處理器(IC201)而將參考時間常數資料寫入而動作。確定本IC故障時，請依下列圖形信號調查。

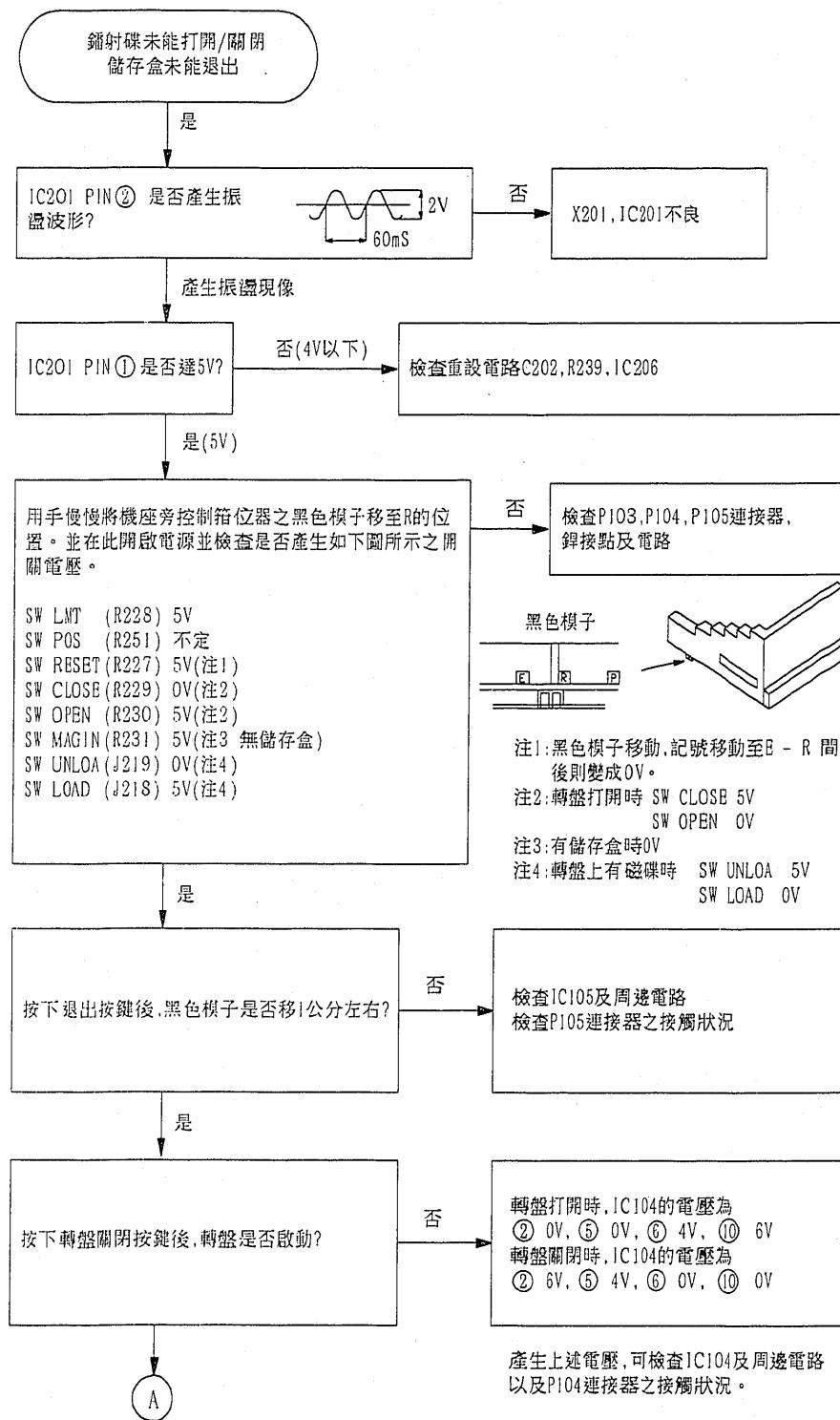


## 2. 檢查IC302(CD-G)故障(檢查方式)

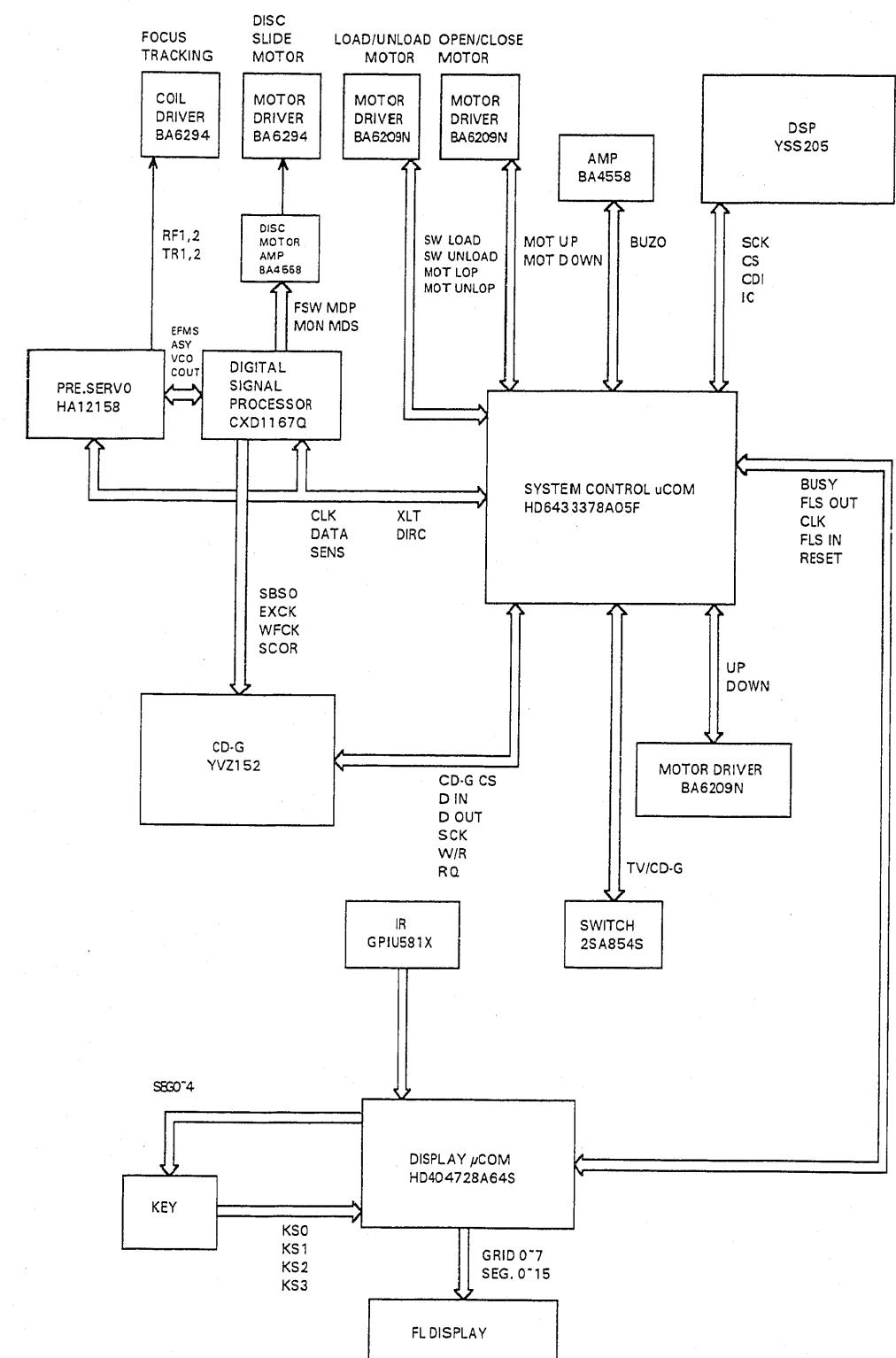
本IC根據微處理器(IC201)而將參考時間常數資料寫入而動作。確定本IC故障時，請依下列圖形信號調查。



## • 主微處理器檢查法



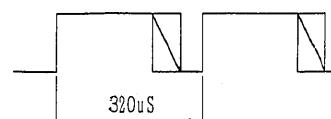
## INTERFACE BLOCK DIAGRAM



A

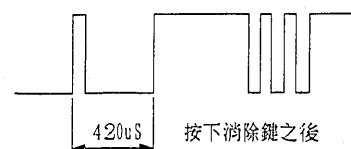
檢查 IC201 端子波形，未出現波形時，再檢查 IC201 及周邊回路

(28) FL BUSY

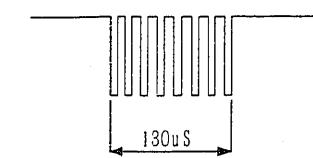


(27) FL SIN

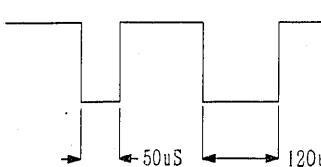
平常為 0V 時，按下按鍵後才會產生波形



(26) FL CLK

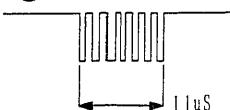


(25) FL SOUT

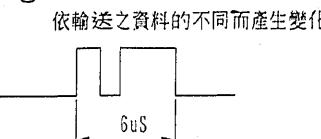


根據輸送至 PL 管之資料的不同，波形大抵呈上記之幅度。  
以上是正面 PL 微處理器 IC 之通信波形

(20) SCK

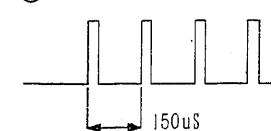


(29) D OUT



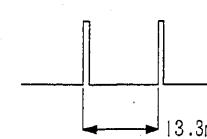
依輸送之資料的不同而產生變化

(75) DSPCS

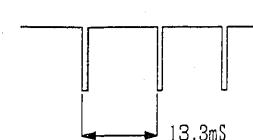


以上為 DSP (IC405 YSS205) 之通信波形。  
按下搖控器之環繞方式選擇按鈕 (SURROUND MODE) 後會產生波形。

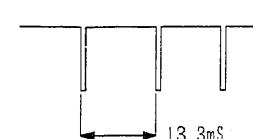
(6) (19) NMI SCOR



(46)

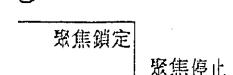


(9) SCK

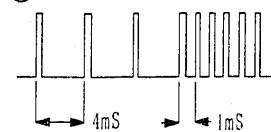


以上為鐳射碟轉動時之波形

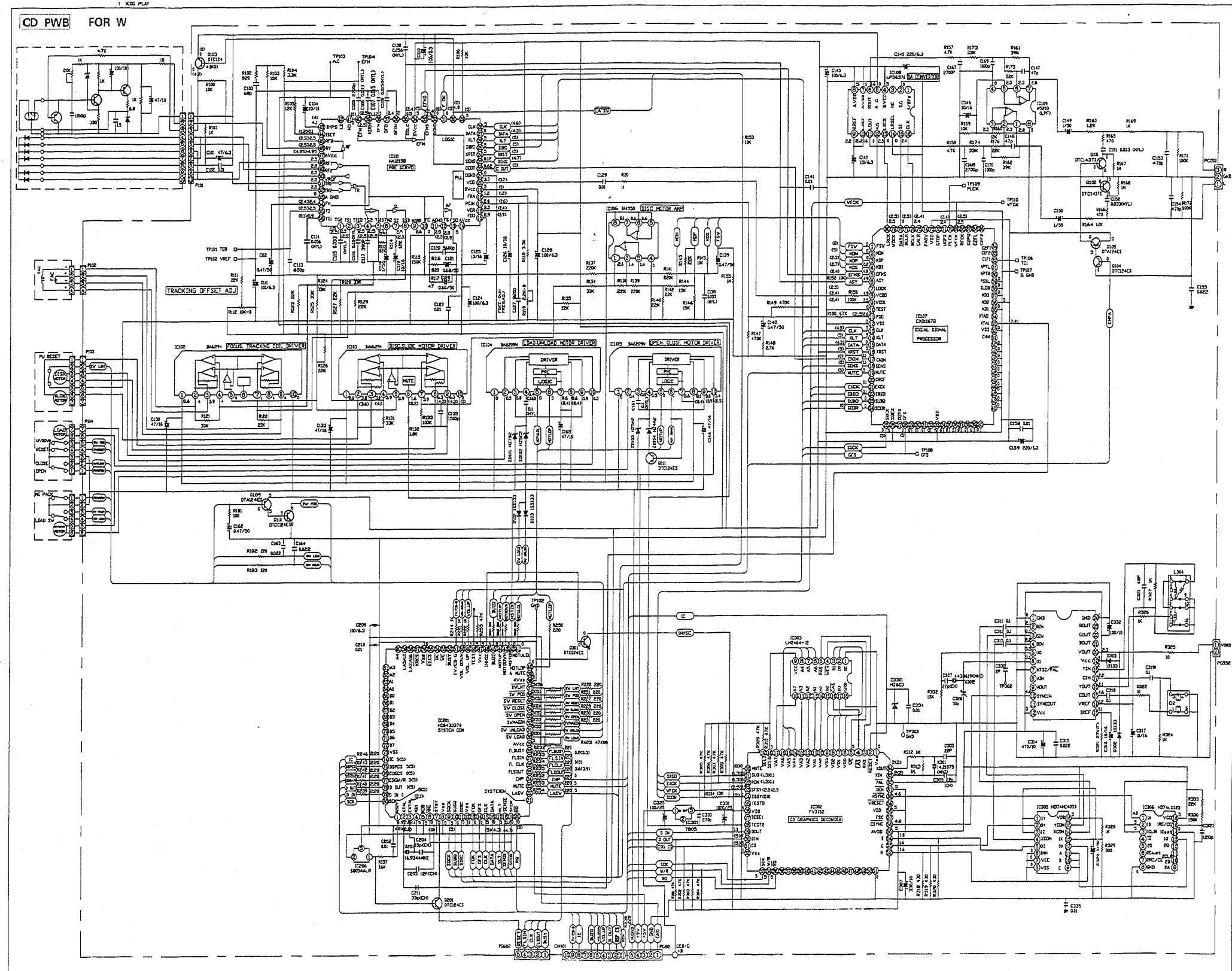
(13) FOK

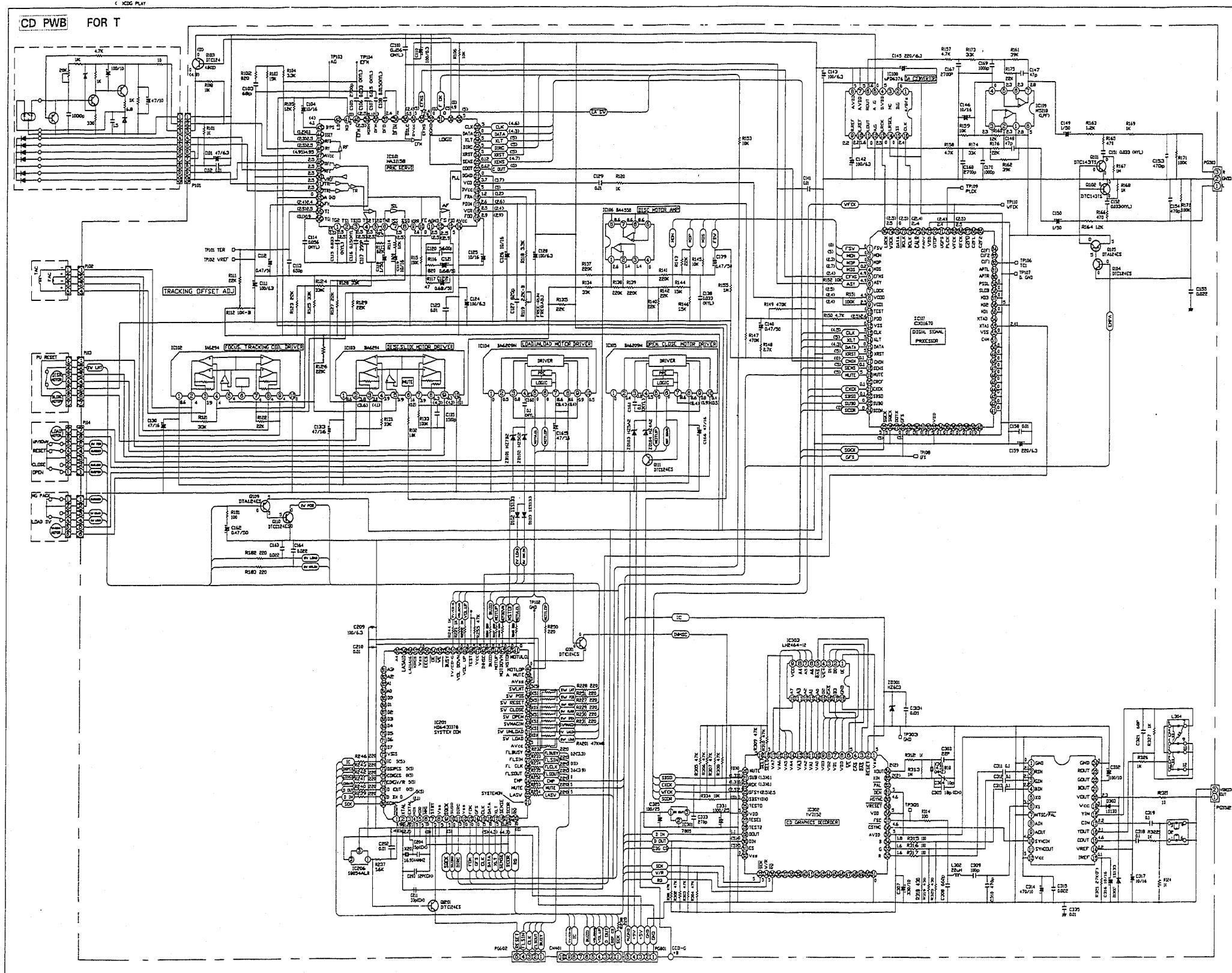


(45) BUZO

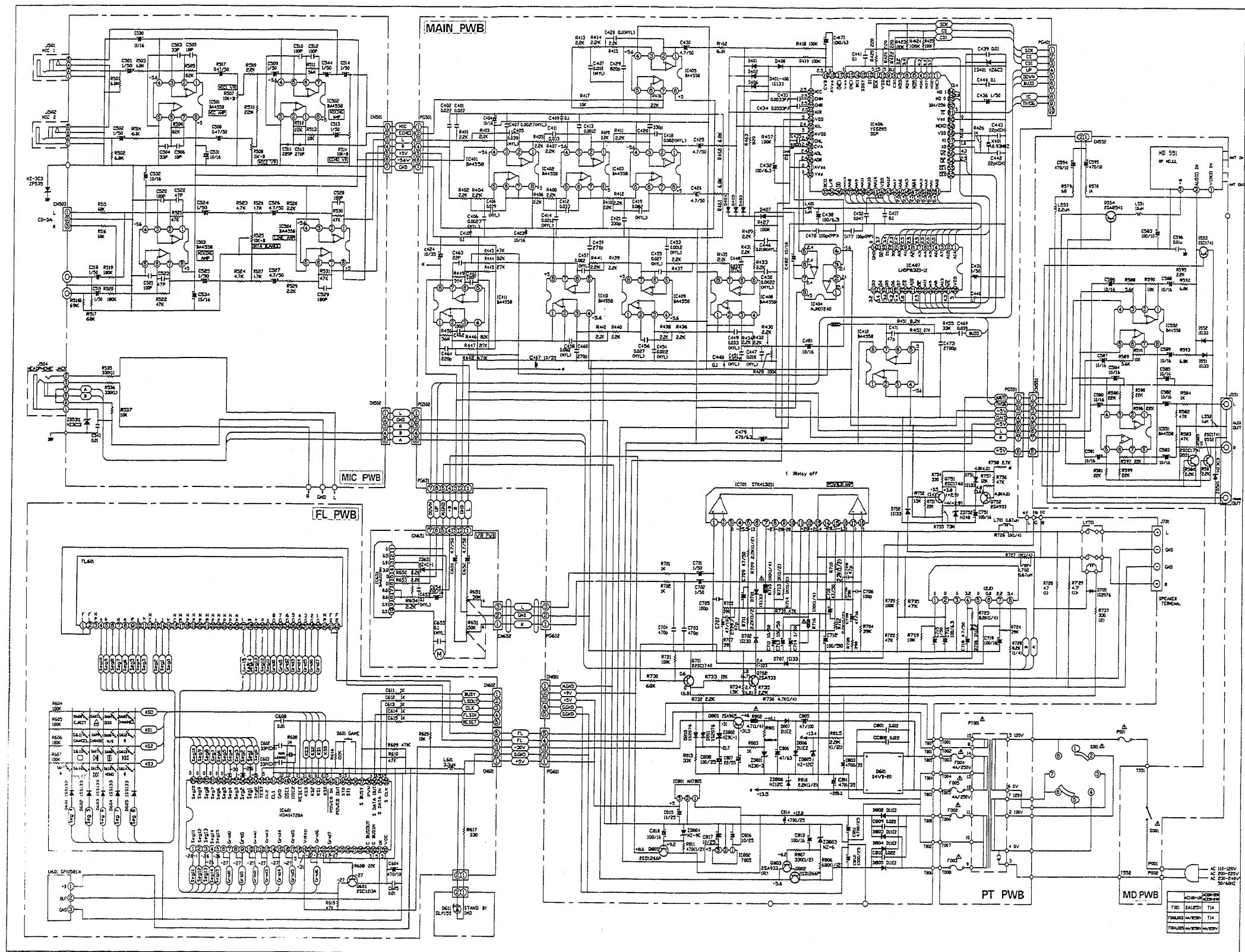


遊戲 (GAME) 情況下產生之波形

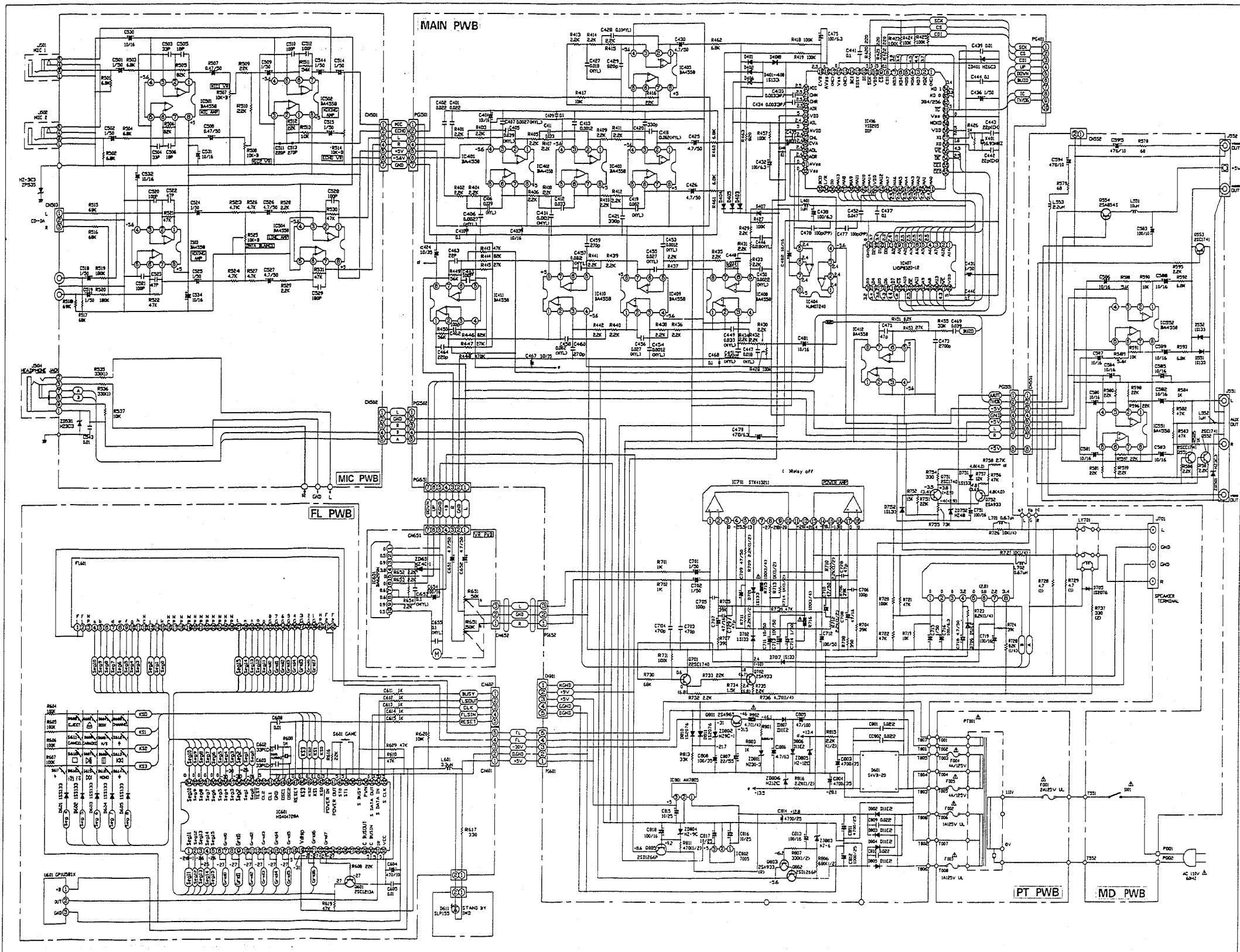




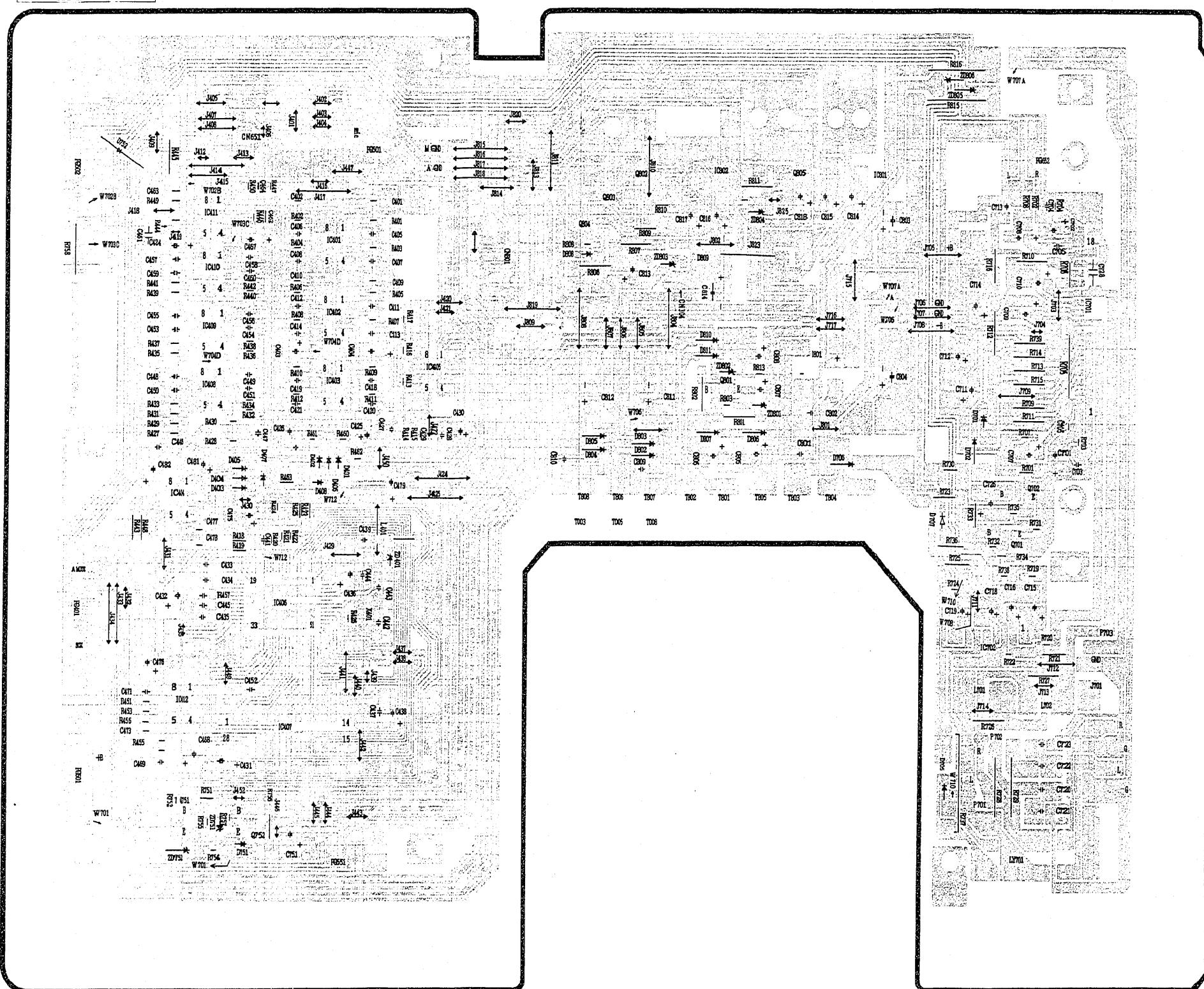
FOR W



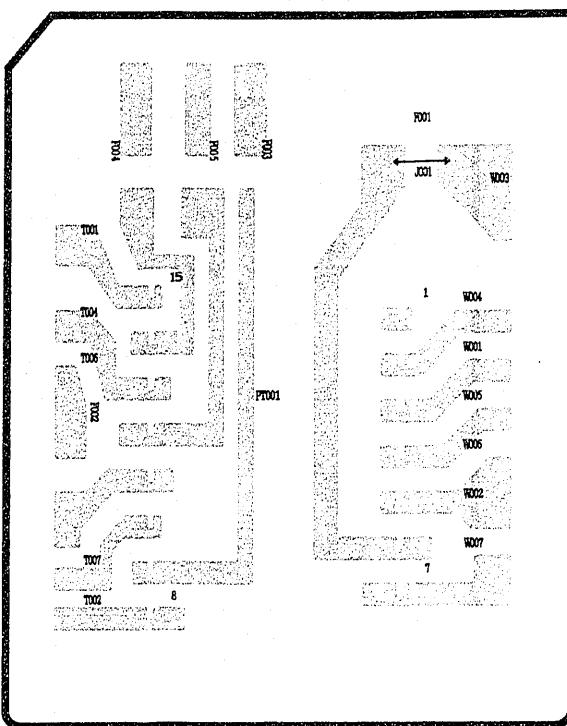
FOR T



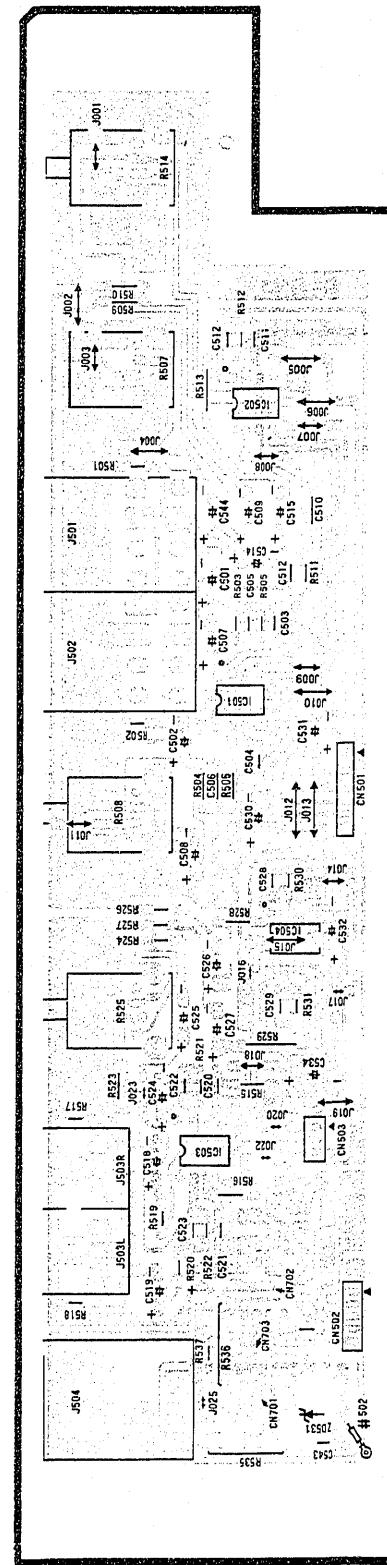
MAIN PWB



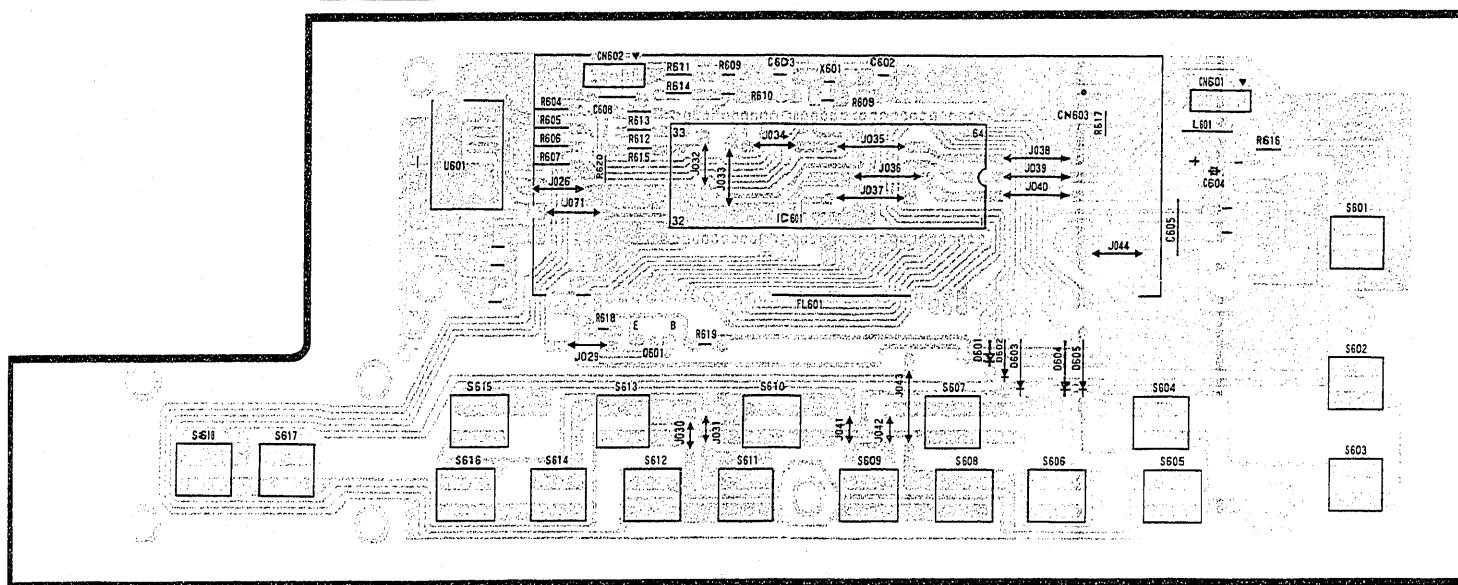
PT PWB

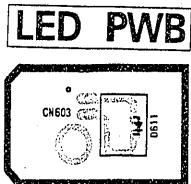


MIC PWB

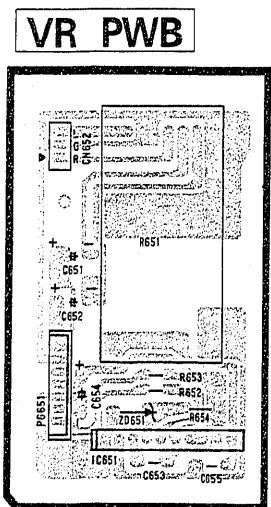


FL PWB

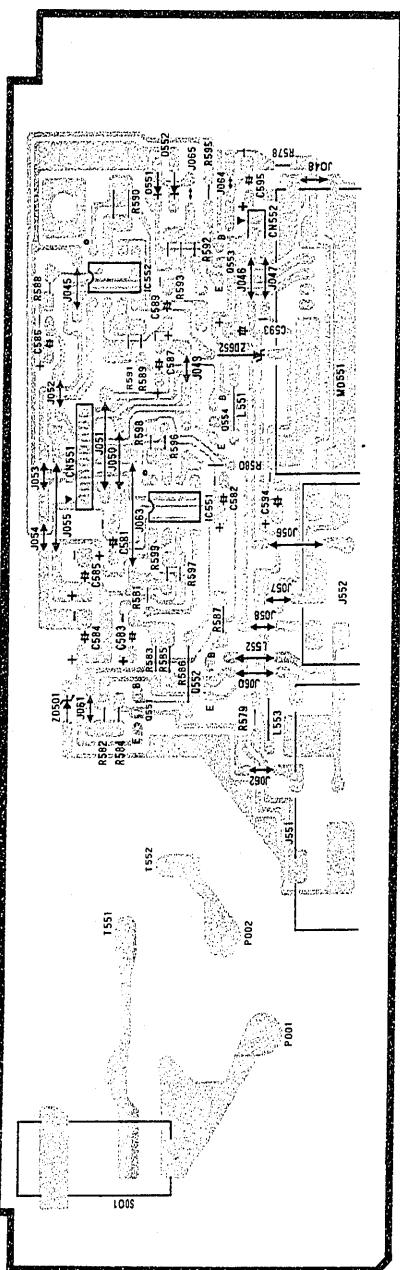




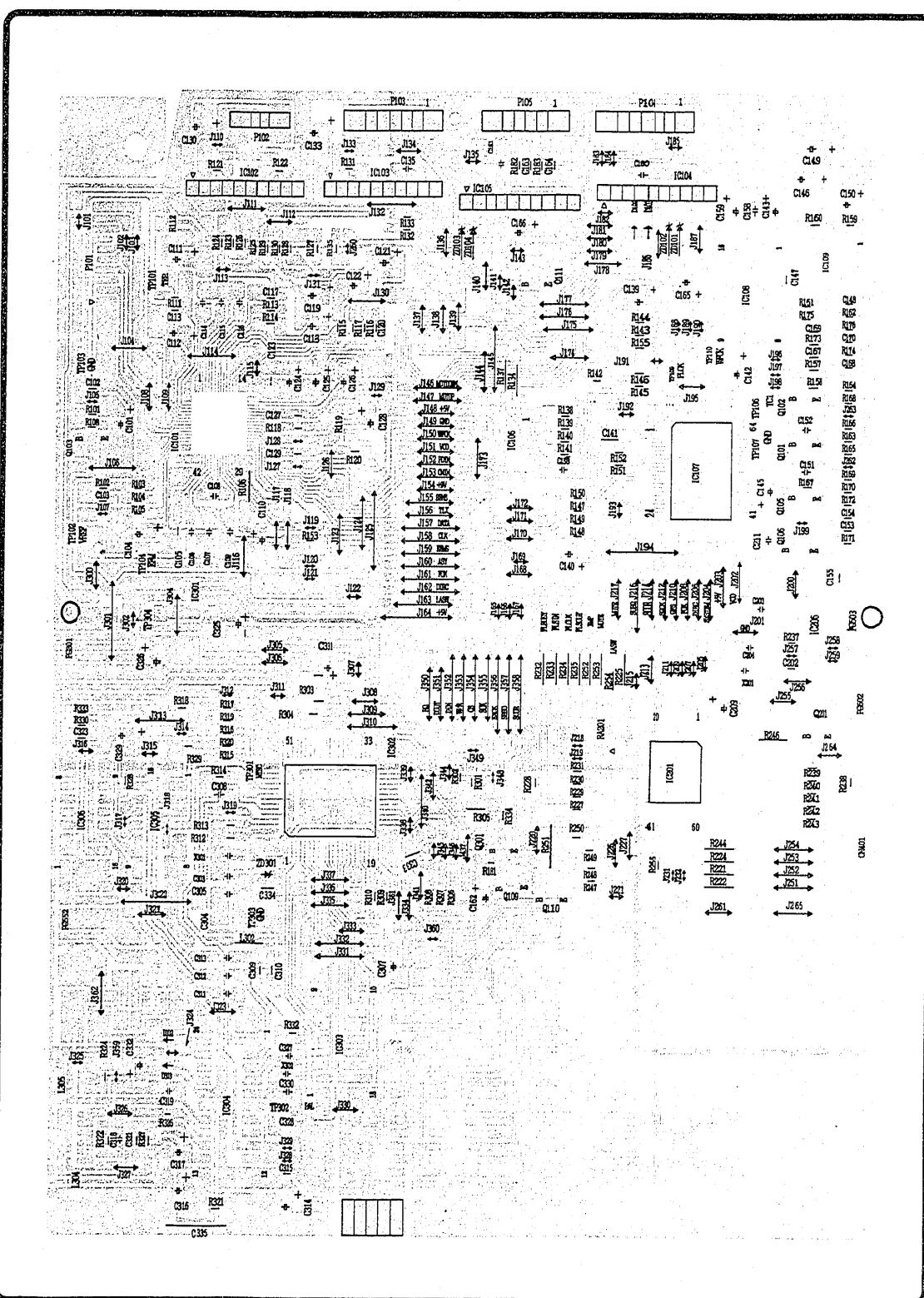
LED PWB



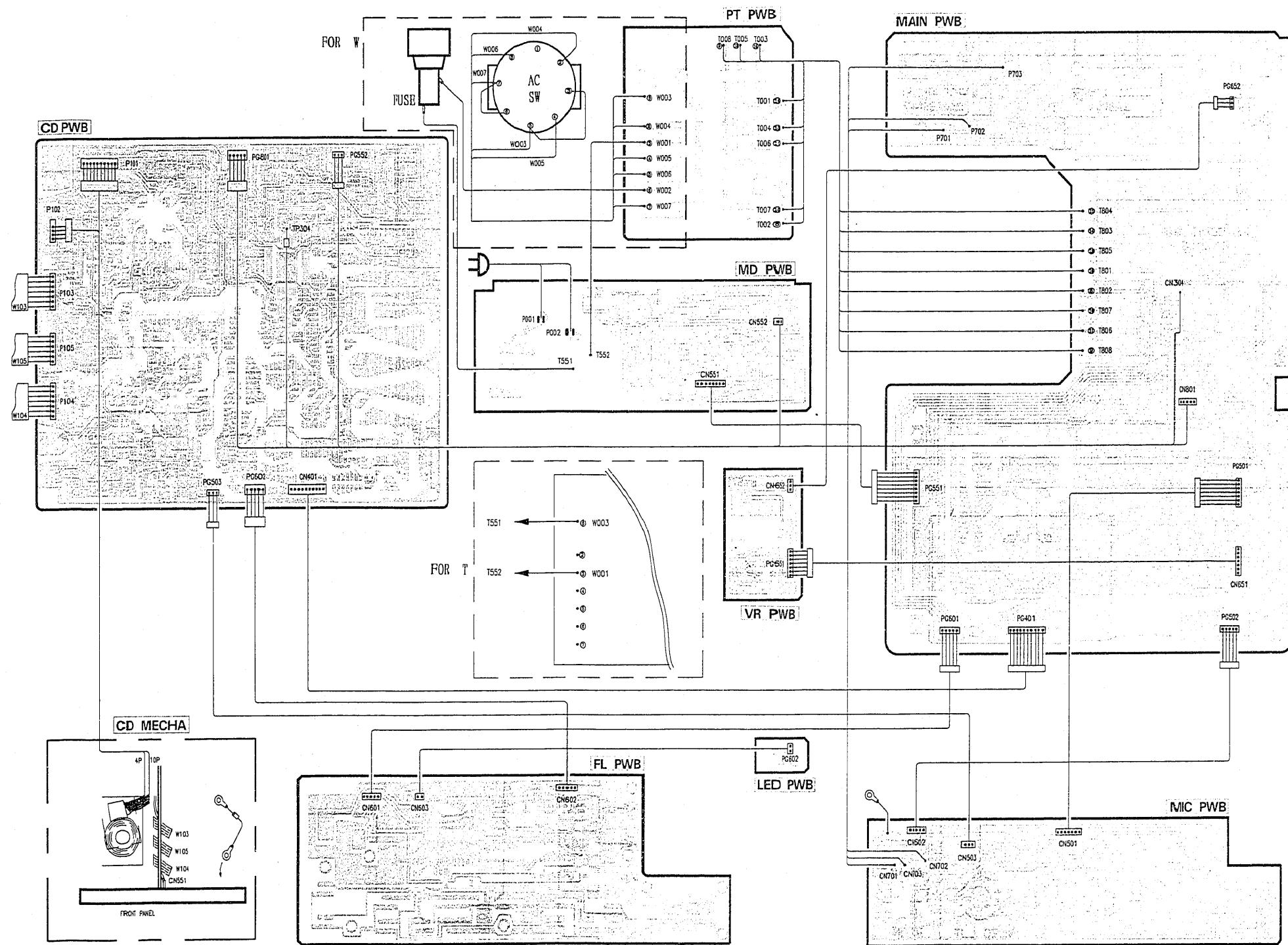
VR PWB



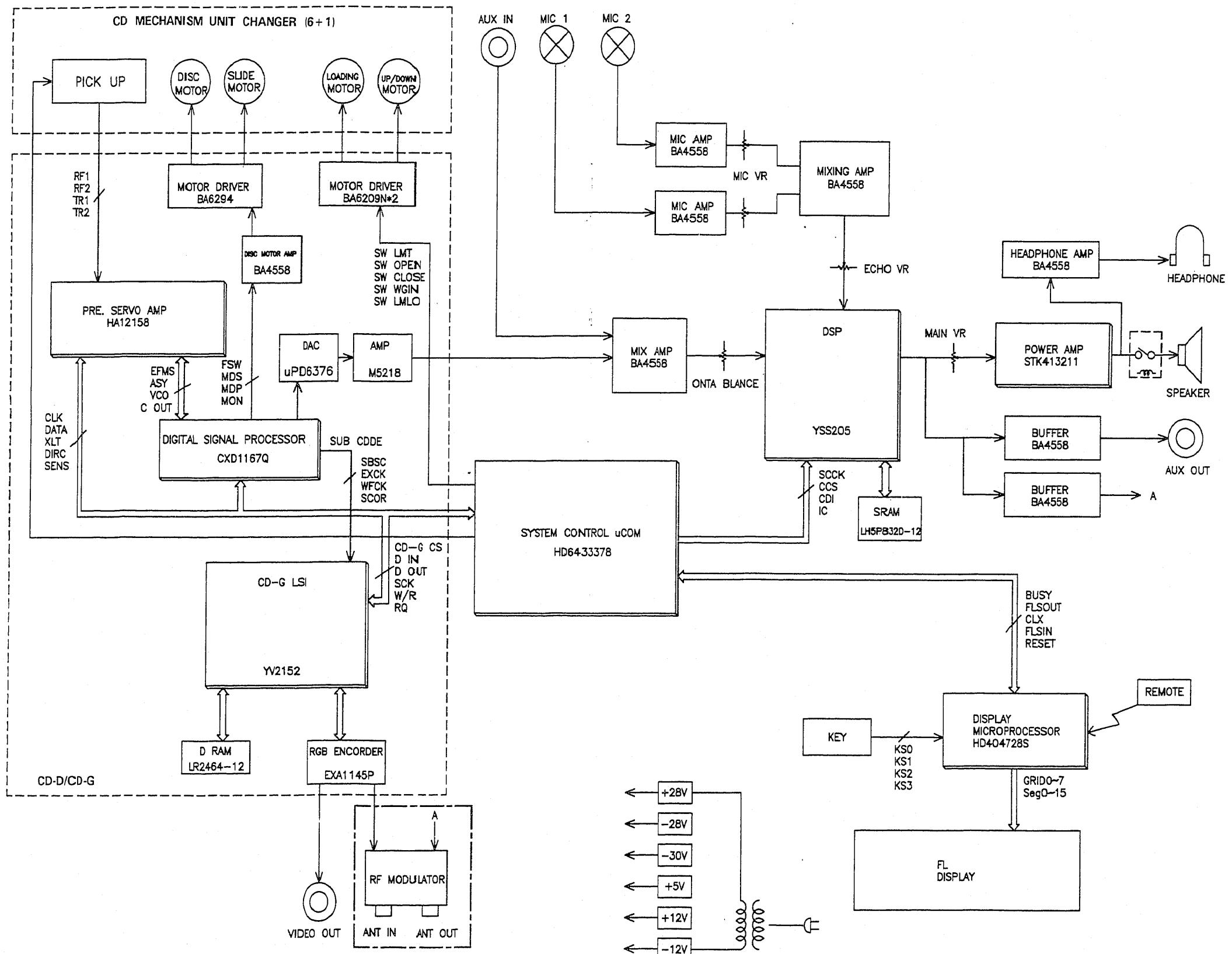
**CD PWB**



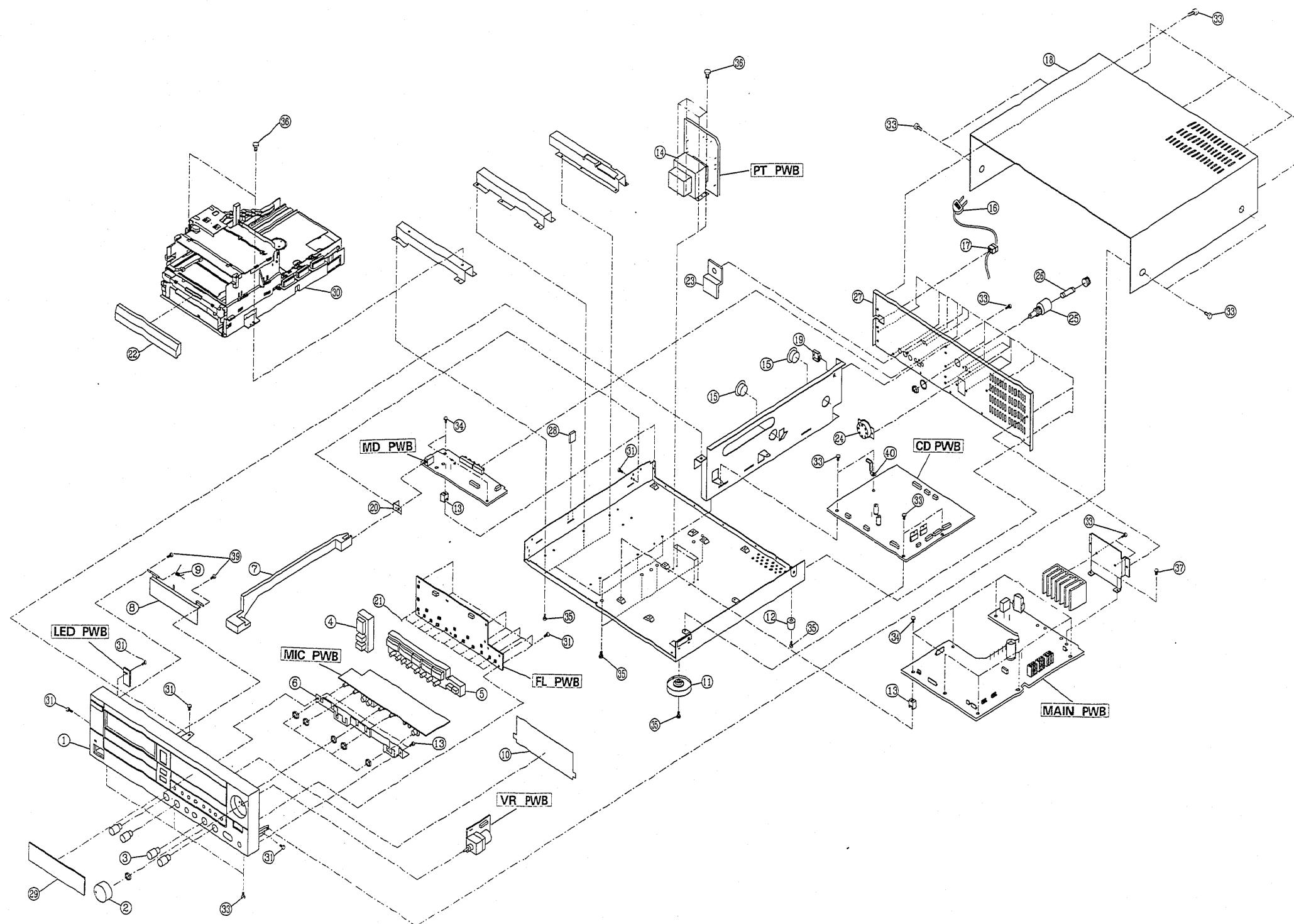
## WIRING DIAGRAM 連線圖



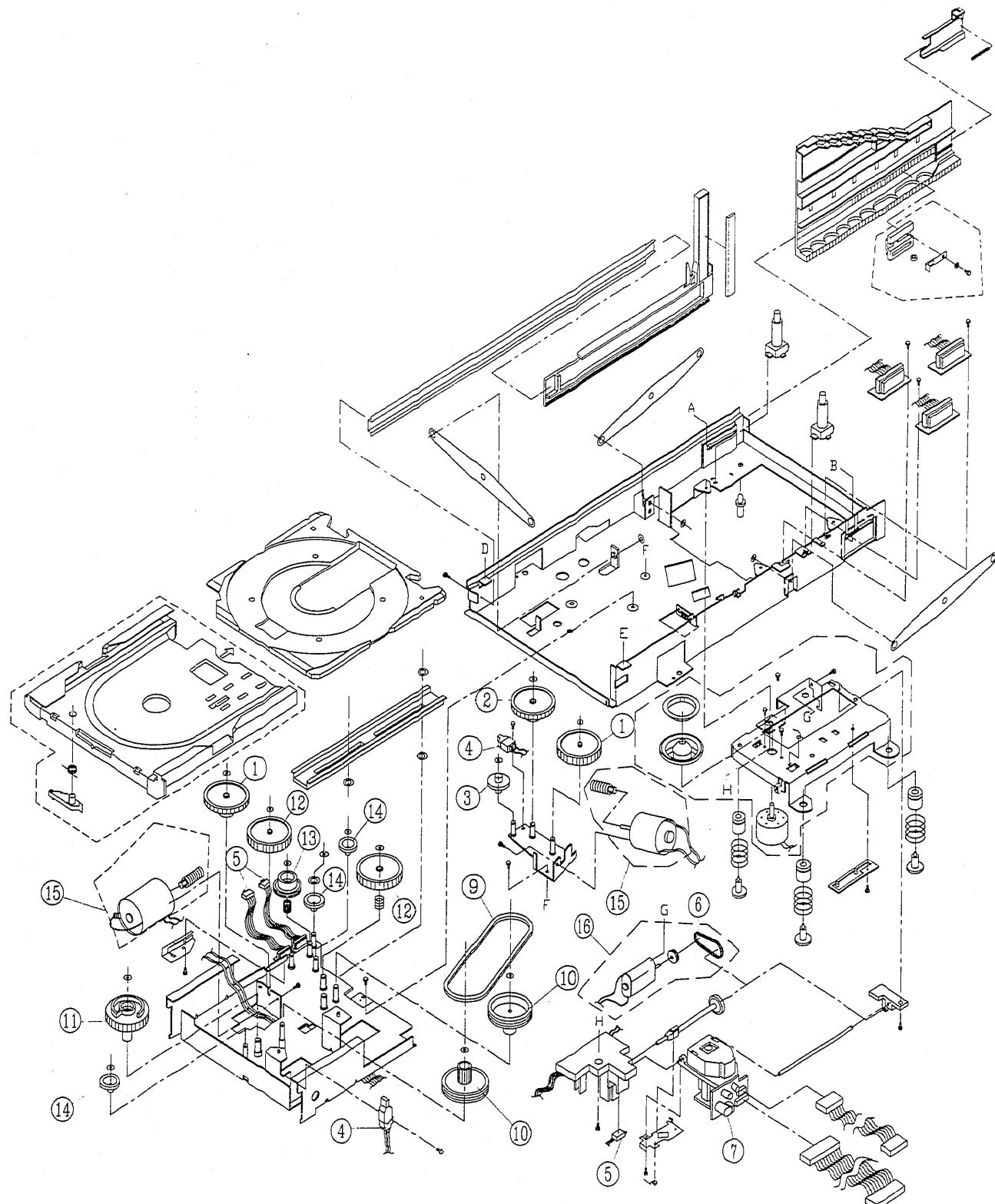
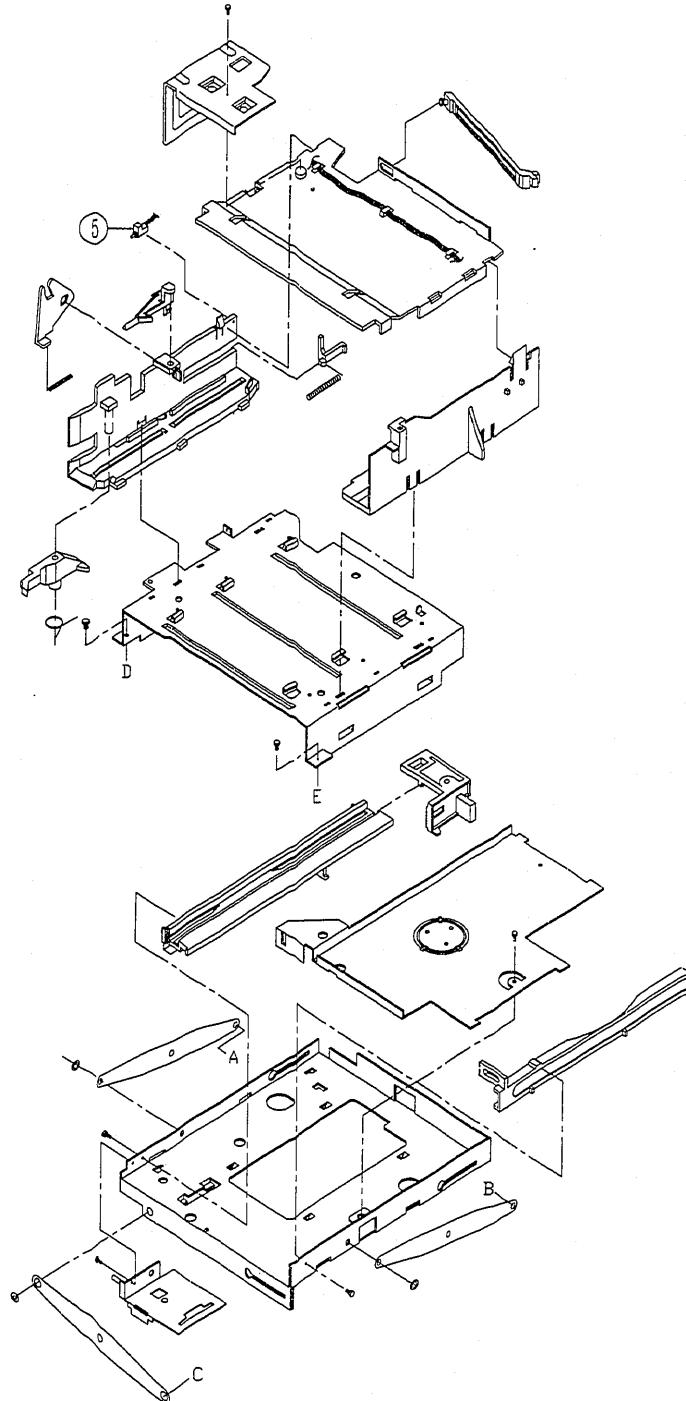
## BLOCK DIAGRAM



*EXPLODED VIEW 爆炸圖*  
CABINET 主機



EXPLODED VIEW 爆炸圖  
CD UNIT MECHANISM CHANGER 錄射碟機架



## REPLACEMENT PARTS LIST

PRODUCT SAFETY NOTE: Components marked with a  $\Delta$  have special characteristics important to safety. Before replacing any of these components, read carefully, the PRODUCT SAFETY NOTICE of this Service Manual. Don't degrade the safety of the receiver through improper servicing.

## ABBREVIATIONS

**Capacitors.....** CD:Ceramic disk; PF:Polyester film; EL:Electrolytic; PP:Polypropylene;  
PR:Paper; TA:Tantalum; TM:Trimmer.  
**Resistors.....** CF:Carbon film; CC:Carbon composition; MF:Metal oxide film.  
VR:Variable resistor; WW:Wire would; FR:Fuse resistor; MG:Metal glazed.  
**Semiconductors....** TR:Transistor; DI:Diode; ZD:Zener diode; VA:Varistor; TH:Thermistor.  
IC:Integrated circuit.

SYMBOL NO.	PART NO.	DESCRIPTION	SYMBOL NO.	PART NO.	DESCRIPTION
<b>CAPACITORS</b>					
C101	0800038	EL 47MF 6.3V	C169	0890035	CD 1000PF +-10% 50V
C102	0880043	CD 0.01MF 16V +-20%	C170	0890035	CD 1000PF +-10% 50V
C103	0880019	CD 68 PF +-5% 50V	C202	0890043	CD 0.01MF +-20% 16V
C104	0880015	EL 10MF 16V	C203	0890115	CD 12PF +-5% 50V
C105	0240054	CD 2700PF +-20% 16V	C204	0890116	CD 15PF +-5% 50V
C106	0880013	PF 0.033MF +-10% 50V	C209	0800047	EL 100MF 6.3V
C107	0880011	PF 0.015MF +-10% 50V	C211	0890121	CD 33PF +-5% 50V
C108	0880011	PF 0.015MF +-10% 50V	C303	0890118	CD 22PF +-5% 50V
C109	0880054	PF 0.056MF +-10% 50V	C304	0283201	TM 10PF (FOR T)
C110	0880047	EL 100MF 6.3V	C305	0890117	CD 18PF +-5% 50V (FOR T)
C111	0880047	EL 100MF 6.3V	C307	08900343	CD 22PF +-5% 50V (FOR W)
C112	0880001	EL 0.47MF 50V	C308	0890033	EL 330MF 10V
C113	0880033	CD 680PF +-10% 50V	C309	0890022	CD 680PF +-10% 50V (FOR T)
C114	0880054	PF 0.056MF +-10% 50V	C310	0890031	CD 100PF +-10% 50V (FOR T)
C115	0880013	PF 0.033MF +-10% 50V	C311	0240224	CD 470PF +-10% 50V (FOR T)
C116	0880017	PF 0.15MF +-10% 50V	C312	0240224	CD 0.1MF +-10% 25V
C117	0890029	CD 390PF +-10% 50V	C313	0240224	CD 0.1MF +-10% 25V
C118	0800003	EL 1MF 50V	C314	0800352	EL 470MF 10V
C119	0880015	EL 10MF 16V	C315	0890044	CD 0.022MF +-80-20% 25V
C120	0240058	CD 5600PF +-20% 16V	C316	0800015	EL 10MF 16V
C121	02528072	EL 0.68MF +-20% 50V	C317	0800015	EL 10MF 16V
C122	02528072	EL 0.68MF +-20% 50V	C318	0240224	CD 0.1MF +-10% 25V
C123	0880043	CD 0.01MF 16V +-20%	C319	0240224	CD 0.1MF +-10% 25V
C124	0880047	EL 100MF 6.3V	C321	0890025	CD 68PF +-5% 50V (FOR W)
C125	0880015	EL 10MF 16V	C323	0890023	CD 180PF +-10% 50V (FOR T)
C126	0880015	EL 10MF 16V	C325	0800051	CD 120PF +-10% 50V (FOR W)
C127	0890034	CD 820PF +-10% 50V	C327	0890119	EL 100MF 25V
C128	0880047	EL 100MF 6.3V	C328	0283203	CD 27PF +-5% 50V (FOR W)
C129	0890043	CD 0.01MF 16V +-20%	C329	0800003	TM 50PF (FOR W)
C130	0880041	EL 47MF 16V	C330	0890052	EL 1MF 50V (FOR W)
C133	0880041	EL 47MF 16V	C331	0800362	CD 2PF +-0.25% 50V (FOR W)
C135	0880036	CD 1500PF +-20% 16V	C332	0800048	EL 1000MF 25V
C138	0880013	PF 0.033MF +-10% 50V	C333	0890027	EL 100MF 10V
C139	0880001	EL 0.47MF 50V	C334	0890043	CD 270PF +-10% 50V
C140	0880001	EL 0.47MF 50V	C335	0890043	CD 0.01MF 16V +-20%
C141	0890043	CD 0.01MF 16V +-20%	C401	0890044	CD 0.022MF +-80-20% 25V
C142	0880047	EL 100MF 6.3V	C402	0890044	CD 0.022MF +-80-20% 25V
C143	0880047	EL 100MF 6.3V	C403	0800015	EL 10MF 16V
C145	0880056	EL 220MF 6.3V	C404	0800015	EL 10MF 16V
C146	0880015	EL 10MF 16V	C405	02750342	MYLAR, FILM 0.039MF +-10% 50V
C147	0890017	CD 47PF +-5% 50V	C407	02740332	MYLAR, FILM 2700PF +-10% 50V
C148	0890017	CD 47PF +-5% 50V	C408	02740332	MYLAR, FILM 2700PF +-10% 50V
C149	0880003	EL 1MF 50V	C409	0245553M	CK CON 0.1MF +-80-20% 50V
C150	0880003	EL 1MF 50V	C410	0245553M	CK CON 0.1MF +-80-20% 50V
C151	0880013	PF 0.033MF +-10% 50V	C411	0880013	PF 0.033MF +-10% 50V
C152	0880013	PF 0.033MF +-10% 50V	C412	0880013	PF 0.033MF +-10% 50V
C153	0880031	CD 470PF +-10% 50V	C413	02740312	MYLAR, FILM 1200PF +-10% 50V
C154	0880031	CD 470PF +-10% 50V	C414	02740312	MYLAR, FILM 1200PF +-10% 50V
C155	0880044	CD 0.022MF +-80-20% 25V	C418	02750362	PF 82000PF 50V
C158	0880043	CD 0.01MF +-20% 16V	C419	02750362	PF 82000PF 50V
C159	0880056	EL 220MF 6.3V	C420	0890028	CD 330PF +-10% 50V
C160	0880016	PF 0.1MF +-10% 50V	C421	0890028	CD 330PF +-10% 50V
C161	0880016	PF 0.1MF +-10% 50V	C424	0800018	EL 10MF 50V
C162	0880001	EL 0.47MF 50V	C425	0800012	EL 4.7MF 50V
C163	0890044	CD 0.022MF +-80-20% 25V	C426	0800012	EL 4.7MF 50V
C164	0880044	CD 0.022MF +-80-20% 25V	C427	02750322	MYLAR, FILM 0.018MF +-10% 50V
C165	0880041	EL 47MF 16V	C428	0880016	PF 0.1MF +-10% 50V
C166	0880041	EL 47MF 16V	C429	0890034	CD 820PF +-10% 50V
C167	0240054	CD 2700PF +-20% 16V	C430	0800012	EL 4.7MF 50V
C168	0240054	CD 2700PF +-20% 16V	C431	0800003	EL 1MF 50V

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SYMBOL NO.	PART NO.	DESCRIPTION	SYMBOL NO.	PART NO.	DESCRIPTION
C432	0800047	EL 100MF 6.3V	C534	0800015	EL 10MF 16V
C433	0279324	MYLAR, FILM 3300PF +5% 100V	C543	0800043	CD 0.01MF +20% 16V
C434	0279324	MYLAR, FILM 3300PF +5% 100V	C544	0800003	EL 1MF 50V
C435	0279324	MYLAR, FILM 3300PF +5% 100V	C580	0800015	EL 10MF 16V
C436	0800003	EL 1MF 50V	C581	0800015	EL 10MF 16V
C437	0245553M	CK CON 0.1MF +80-20% 50V	C582	0800015	EL 10MF 16V
C438	0800047	EL 100MF 6.3V	C583	0800015	EL 10MF 16V
C439	0890043	CD 0.01MF 16V +20%	C584	0800015	EL 10MF 16V
C440	0245553M	CK CON 0.1MF +80-20% 50V	C585	0800015	EL 10MF 16V
C441	0245553M	CK CON 0.1MF +80-20% 50V	C586	0800015	EL 10MF 16V
C442	0890118	CD 22PF +5% 50V	C587	0800015	EL 10MF 16V
C443	0890118	CD 22PF +5% 50V	C588	0800015	EL 10MF 16V
C444	0245553M	CK CON 0.1MF +80-20% 50V	C589	0800015	EL 10MF 16V
C445	0245553M	CK CON 0.1MF +80-20% 50V	C593	0800048	EL 100MF 10V
C446	02750322	MYLAR, FILM 0.018MF +10% 50V	C594	0800352	EL 470MF 10V
C447	02750322	MYLAR, FILM 0.018MF +10% 50V	C595	0800352	EL 470MF 10V
C448	0880013	PF 0.033MF +10% 50V	C596	0890043	CD 0.01MF 16V +20%
C449	0880013	PF 0.033MF +10% 50V	C602	0245482	CD 33PF +10% 50V
C450	0880005	PF 2200PF +10% 50V	C603	0245482	CD 33PF +10% 50V
C451	0880005	PF 2200PF +10% 50V	C604	0800352	EL 470MF 10V
C452	0245552M	CD 8PF +5% 50V	C605	0890043	CD 0.01MF 16V +20%
C453	02740312	MYLAR, FILM 1200PF +10% 50V	C608	0890043	CD 0.01MF 16V +20%
C454	02740312	MYLAR, FILM 1200PF +10% 50V	C651	0800012	EL 4.7MF 50V
C455	02750332	MYLAR, FILM 0.027MF +10% 50V	C652	0800012	EL 4.7MF 50V
C456	02750332	MYLAR, FILM 0.027MF +10% 50V	C653	0800016	PF 0.1MF +10% 50V
C457	02750362	MYLAR, FILM 0.082MF +10% 50V	C654	0800049	EL 100MF 16V
C458	02750362	MYLAR, FILM 0.082MF +10% 50V	C655	0880016	PF 0.1MF +10% 50V
C459	0890027	CD 270PF +10% 50V	C701	0800003	EL 1MF 50V
C460	0890027	CD 270PF +10% 50V	C702	0800003	EL 1MF 50V
C461	0890022	CD 100PF +10% 50V	C703	0890031	CD 470PF +10% 50V
C462	0890022	CD 100PF +10% 50V	C704	0890031	CD 470PF +10% 50V
C463	0890026	CD 220PF +10% 50V	C705	0890022	CD 100PF +10% 50V
C464	0890026	CD 220PF +10% 50V	C706	0890022	CD 100PF +10% 50V
C467	0800018	EL 10MF 50V	C707	0800041	EL 47MF 16V
C468	0245553M	CK CON 0.1MF +80-20% 50V	C708	0800041	EL 47MF 16V
C469	02750342	MYLAR, FILM 0.039MF +10% 50V	C709	0800044	EL 47MF 50V
C471	0890017	CD 47PF +10% 50V	C710	0800044	EL 47MF 50V
C473	0240054	CD 2700PF +20% 50V	C711	0800018	EL 10MF 50V
C475	0800047	EL 100MF 6.3V	C712	0800053	EL 100MF 50V
C476	0800015	EL 10MF 16V	C713	0252425	EL 100MF 50V
C477	H279348	PF 100PF +5% 100V	C714	0800003	EL 1MF 50V
C478	H279348	PF 100PF +5% 100V	C715	0800003	EL 1MF 50V
C479	0800351	EL 470MF 6.3V	C716	0800047	EL 100MF 6.3V
C481	0800015	EL 10MF 16V	C718	0800012	EL 4.7MF 50V
C482	0800015	EL 10MF 16V	C719	0800326	EL 100MF 16V
C501	0800003	EL 1MF 50V	C720	0880016	PF 0.1MF +10% 50V
C502	0800003	EL 1MF 50V	C721	0880016	PF 0.1MF +10% 50V
C503	0890015	CD 33PF +20% 50V	C722	0880016	PF 0.1MF +10% 50V
C504	0890015	CD 33PF +20% 50V	C723	0880016	PF 0.1MF +10% 50V
C505	0890012	CD 18PF +20% 50V	C727	0890017	CD 47PF +20% 50V
C506	0890012	CD 18PF +20% 50V	C728	0890017	CD 47PF +20% 50V
C507	0800001	EL 0.47MF 50V	C751	0800049	EL 100MF 16V
C508	0800001	EL 0.47MF 50V	C801	0244173	CD 0.022MF +80%-20 50V
C509	0800003	EL 1MF 50V	C802	0244173	CD 0.022MF +80%-20 50V
C510	0890022	CD 100PF +10% 50V	C803	0284595	EL 4700MF 35V
C511	0890026	CD 220PF +10% 50V	C804	0284595	EL 4700MF 35V
C512	0890022	CD 100PF +10% 50V	C805	0258127	EL 47MF 100V
C513	0890027	CD 270PF +10% 50V	C806	0800045	EL 47MF 63V
C514	0800003	EL 1MF 50V	C807	0800026	EL 22MF 50V
C515	0800003	EL 1MF 50V	C808	0800328	EL 100MF 35V
C518	0800003	EL 1MF 50V	C809	0244173	CD 0.022MF +80%-20 50V
C519	0800003	EL 1MF 50V	C810	0244173	CD 0.022MF +80%-20 50V
C520	0890022	CD 100PF +10% 50V	C811	0284596	EL 4700MF 25V
C521	0890022	CD 100PF +10% 50V	C812	0800362	EL 1000MF 25V
C522	0890017	CD 47PF +20% 50V	C813	0800326	EL 100MF 16V
C523	0890017	CD 47PF +20% 50V	C814	0284596	EL 4700MF 25V
C524	0800003	EL 1MF 50V	C815	0800016	EL 10MF 25V
C525	0800003	EL 1MF 50V	C816	0800016	EL 10MF 25V
C526	0800012	EL 4.7MF 50V	C817	0800016	EL 10MF 25V
C527	0800012	EL 4.7MF 50V	C818	0800049	EL 100MF 16V
C528	0890025	CD 180PF +10% 50V			
C529	0890025	CD 180PF +10% 50V			
C530	0800015	EL 10MF 16V			
C531	0800015	EL 10MF 16V			
C532	0800015	EL 10MF 16V			

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SYMBOL NO.	PART NO.	DESCRIPTION	SYMBOL NO.	PART NO.	DESCRIPTION
<b>RESISTORS</b>					
R101	0700041	CF 1K OHM +5% 1/16W	R221	0700041	CF 1K OHM +5% 1/16W
R102	0700039	CF 820 OHM +5% 1/16W	R222	0700041	CF 1K OHM +5% 1/16W
R103	0700056	CF 15K OHM +5% 1/16W	R224	0700032	CF 220 OHM +5% 1/16W
R104	0700047	CF 3.3K OHM +5% 1/16W	R226	0700032	CF 220 OHM +5% 1/16W
R105	0700055	CF 12K OHM +5% 1/16W	R227	0700032	CF 220 OHM +5% 1/16W
R106	0700054	CF 10K OHM +5% 1/16W	R228	0700032	CF 220 OHM +5% 1/16W
R108	0700054	CF 10K OHM +5% 1/16W	R229	0700032	CF 220 OHM +5% 1/16W
R111	0700058	CF 22K OHM +5% 1/16W	R230	0700032	CF 220 OHM +5% 1/16W
R112	0189102	VR 10K OHM	R231	0700032	CF 220 OHM +5% 1/16W
R113	0700066	CF 82K OHM +5% 1/16W	R232	0700032	CF 220 OHM +5% 1/16W
R114	0700055	CF 12K OHM +5% 1/16W	R233	0700032	CF 220 OHM +5% 1/16W
R115	0700069	CF 150K OHM +5% 1/16W	R234	0700032	CF 220 OHM +5% 1/16W
R116	0700039	CD 820 OHM +5% 1/16W	R235	0700032	CF 220 OHM +5% 1/16W
R117	0700023	CD 47 OHM +5% 1/16W	R236	0700032	CF 220 OHM +5% 1/16W
R118	0700047	CF 3.3K OHM +5% 1/16W	R240	0700032	CF 220 OHM +5% 1/16W
R119	0189082	VR 2.2 KOMH	R241	0700032	CF 220 OHM +5% 1/16W
R120	0700041	CF 1K OHM +5% 1/16W	R242	0700032	CF 220 OHM +5% 1/16W
R121	0700061	CF 33K OHM +5% 1/16W	R243	0700032	CF 220 OHM +5% 1/16W
R122	0700058	CF 22K OHM +5% 1/16W	R244	0700041	CF 1K OHM +5% 1/16W
R123	0700058	CF 22K OHM +5% 1/16W	R246	0700032	CF 220 OHM +5% 1/16W
R124	0700061	CF 33K OHM +5% 1/16W	R247	0700032	CF 220 OHM +5% 1/16W
R125	0700061	CF 33K OHM +5% 1/16W	R248	0700032	CF 220 OHM +5% 1/16W
R126	0700058	CF 22K OHM +5% 1/16W	R249	0700032	CF 220 OHM +5% 1/16W
R127	0700058	CF 22K OHM +5% 1/16W	R250	0700032	CF 220 OHM +5% 1/16W
R128	0700061	CF 33K OHM +5% 1/16W	R251	0700032	CF 220 OHM +5% 1/16W
R129	0700058	CF 22K OHM +5% 1/16W	R252	0700032	CF 220 OHM +5% 1/16W
R130	0700061	CF 33K OHM +5% 1/16W	R253	0700032	CF 220 OHM +5% 1/16W
R131	0700061	CF 33K OHM +5% 1/16W	R254	0700032	CF 220 OHM +5% 1/16W
R132	0700044	CF 1.8K OHM +5% 1/16W	R255	0700063	CF 47K OHM +5% 1/16W
R133	0700067	CF 100K OHM +5% 1/16W	R301	0700063	CF 47K OHM +5% 1/16W
R141	0700072	CF 220K OHM +5% 1/16W	R302	0700063	CF 47K OHM +5% 1/16W
R142	0700058	CF 22K OHM +5% 1/16W	R309	0700063	CF 47K OHM +5% 1/16W
R143	0700058	CF 22K OHM +5% 1/16W	R310	0700063	CF 47K OHM +5% 1/16W
R144	0				

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SYMBOL NO.	PART NO.	DESCRIPTION	SYMBOL NO.	PART NO.	DESCRIPTION
R414	0700045	CF 2.2K OHM +5% 1/16W	R531	0700063	CF 47K OHM +5% 1/16W
R415	0700045	CF 2.2K OHM +5% 1/16W	R535	0110133	MF 330 OHM +5% 1W
R416	0700058	CF 22K OHM +5% 1/16W	R536	0110133	MF 330 OHM +5% 1W
R417	0700054	CF 10K OHM +5% 1/16W	R537	0700054	CF 10K OHM +5% 1/16W
R418	0700067	CF 100K OHM +5% 1/16W	R578	0700025	CF 68 OHM +5% 1/16W (FOR T)
R419	0700067	CF 100K OHM +5% 1/16W	R578	0700041	CF 1K OHM +5% 1/16W (FOR W)
R420	0700032	CF 220 OHM +5% 1/16W	R579	0700025	CF 68 OHM +5% 1/16W
R421	0700032	CF 220 OHM +5% 1/16W	R580	0700058	CF 22K OHM +5% 1/16W
R422	0700032	CF 220 OHM +5% 1/16W	R581	0700058	CF 22K OHM +5% 1/16W
R423	0700067	CF 100K OHM +5% 1/16W	R582	0700063	CF 47K OHM +5% 1/16W
R424	0700067	CF 100K OHM +5% 1/16W	R583	0700063	CF 47K OHM +5% 1/16W
R425	0700067	CF 100K OHM +5% 1/16W	R584	0700041	CF 1K OHM +5% 1/16W
R426	0700081	CF 1.0M OHM +5% 1/16W	R585	0700041	CF 1K OHM +5% 1/16W
R427	0700067	CF 100K OHM +5% 1/16W	R586	0700045	CF 2.2K OHM +5% 1/16W
R428	0700067	CF 100K OHM +5% 1/16W	R587	0700045	CF 2.2K OHM +5% 1/16W
R429	0700045	CF 2.2K OHM +5% 1/16W	R588	0700051	CF 5.6K OHM +5% 1/16W
R430	0700045	CF 2.2K OHM +5% 1/16W	R589	0700051	CF 5.6K OHM +5% 1/16W
R431	0700045	CF 2.2K OHM +5% 1/16W	R590	0700054	CF 10K OHM +5% 1/16W
R432	0700045	CF 2.2K OHM +5% 1/16W	R591	0700054	CF 10K OHM +5% 1/16W
R433	0700045	CF 2.2K OHM +5% 1/16W	R592	0700052	CF 6.8K OHM +5% 1/16W
R434	0700045	CF 2.2K OHM +5% 1/16W	R593	0700052	CF 6.8K OHM +5% 1/16W
R435	0700045	CF 2.2K OHM +5% 1/16W	R595	0700045	CF 2.2K OHM +5% 1/16W
R436	0700045	CF 2.2K OHM +5% 1/16W	R596	0700058	CF 22K OHM +5% 1/16W
R437	0700045	CF 2.2K OHM +5% 1/16W	R597	0700058	CF 22K OHM +5% 1/16W
R438	0700045	CF 2.2K OHM +5% 1/16W	R598	0700058	CF 22K OHM +5% 1/16W
R439	0700045	CF 2.2K OHM +5% 1/16W	R599	0700058	CF 22K OHM +5% 1/16W
R440	0700045	CF 2.2K OHM +5% 1/16W	R604	0700067	CF 100K OHM +5% 1/16W
R441	0700045	CF 2.2K OHM +5% 1/16W	R605	0700067	CF 100K OHM +5% 1/16W
R442	0700045	CF 2.2K OHM +5% 1/16W	R606	0700067	CF 100K OHM +5% 1/16W
R443	0700076	CF 470K OHM +5% 1/16W	R607	0700067	CF 100K OHM +5% 1/16W
R444	0700066	CF 82K OHM +5% 1/16W	R608	0700081	CF 1.0M OHM +5% 1/16W
R445	0700059	CF 27K OHM +5% 1/16W	R609	0700063	CF 47K OHM +5% 1/16W
R446	0700066	CF 82K OHM +5% 1/16W	R610	0700063	CF 47K OHM +5% 1/16W
R447	0700059	CF 27K OHM +5% 1/16W	R611	0700041	CF 1K OHM +5% 1/16W
R448	0700076	CF 470K OHM +5% 1/16W	R612	0700041	CF 1K OHM +5% 1/16W
R449	0700064	CF 56K OHM +5% 1/16W	R613	0700041	CF 1K OHM +5% 1/16W
R450	0700064	CF 56K OHM +5% 1/16W	R614	0700041	CF 1K OHM +5% 1/16W
R451	0700053	CF 8.2K OHM +5% 1/16W	R615	0700041	CF 1K OHM +5% 1/16W
R453	0700058	CF 22K OHM +5% 1/16W	R616	0700058	CF 22K OHM +5% 1/16W
R455	0700061	CF 33K OHM +5% 1/16W	R617	0700034	CF 330 OHM +5% 1/16W
R457	0700067	CF 100K OHM +5% 1/16W	R618	0700058	CF 22K OHM +5% 1/16W
R460	0700052	CF 6.8K OHM +5% 1/16W	R619	0700063	CF 47K OHM +5% 1/16W
R461	0700052	CF 6.8K OHM +5% 1/16W	R620	0700054	CF 10K OHM +5% 1/16W
R462	0700052	CF 6.8K OHM +5% 1/16W	R651	0157901	VR 50K OHM
R463	0700039	CF 820 OHM +5% 1/16W	R652	0700045	CF 2.2K OHM +5% 1/16W
R501	0700052	CF 6.8K OHM +5% 1/16W	R653	0700045	CF 2.2K OHM +5% 1/16W
R502	0700052	CF 6.8K OHM +5% 1/16W	R654	0700045	CF 2.2K OHM +5% 1/16W
R503	0700052	CF 6.8K OHM +5% 1/16W	R701	0700041	CF 1K OHM +5% 1/16W
R504	0700052	CF 6.8K OHM +5% 1/16W	R702	0700041	CF 1K OHM +5% 1/16W
R505	0700066	CF 82K OHM +5% 1/16W	R703	0700062	CF 39K OHM +5% 1/16W
R506	0700066	CF 82K OHM +5% 1/16W	R704	0700062	CF 39K OHM +5% 1/16W
R507	0154423	VR 10K OHM	R705	0700062	CF 39K OHM +5% 1/16W
R508	0154423	VR 10K OHM	R706	0700062	CF 39K OHM +5% 1/16W
R509	0700058	CF 22K OHM +5% 1/16W	R707	0700035	CF 390 OHM +5% 1/16W
R510	0700058	CF 22K OHM +5% 1/16W	R708	0700035	CF 390 OHM +5% 1/16W
R511	0700064	CF 56K OHM +5% 1/16W	R709	01133622	CF 2.2K OHM +5% 1/2W
R512	0700058	CF 22K OHM +5% 1/16W	R710	01133622	CF 2.2K OHM +5% 1/2W
R513	0700054	CF 10K OHM +5% 1/16W	R711	01133622	CF 2.2K OHM +5% 1/2W
R514	0154423	VR 10K OHM	R712	01133622	CF 2.2K OHM +5% 1/2W
R515	0700065	CF 68K OHM +5% 1/16W	R713	01133652	CF 1K OHM +5% 1/2W
R516	0700065	CF 68K OHM +5% 1/16W	R714	01133652	CF 1K OHM +5% 1/2W
R517	0700065	CF 68K OHM +5% 1/16W	R715	1110621	FR 100 OHM +5% 1/4W
R518	0700065	CF 68K OHM +5% 1/16W	R716	1110621	FR 100 OHM +5% 1/4W
R519	0700071	CF 180K OHM +5% 1/6W	R719	0700054	CF 10K OHM +5% 1/16W
R520	0700071	CF 180K OHM +5% 1/6W	R720	0700067	CF 100K OHM +5% 1/16W
R521	0700063	CF 47K OHM +5% 1/16W	R721	0700063	CF 47K OHM +5% 1/16W
R522	0700063	CF 47K OHM +5% 1/16W	R722	0700063	CF 47K OHM +5% 1/16W
R523	0700049	CF 4.7K OHM +5% 1/16W	R723	0129623	CF 8.2K OHM +5% 1/4W
R524	0700049	CF 4.7K OHM +5% 1/16W	R724	0700062	CF 39K OHM +5% 1/16W
R525	0154422	VR 10K OHM	R725	0129623	CF 8.2K OHM +5% 1/4W
R526	0700049	CF 4.7K OHM +5% 1/16W	R726	0129531	CF 10 OHM +5% 1/4W
R527	0700049	CF 4.7K OHM +5% 1/16W	R727	0129531	CF 10 OHM +5% 1/4W
R528	0700045	CF 2.2K OHM +5% 1/16W	R728	1119029	MF 4.7 OHM +10% 1W
R529	0700045	CF 2.2K OHM +5% 1/16W	R729	1119029	MF 4.7 OHM +10% 1W
R530	0700063	CF 47K OHM +5% 1/16W	R730	0700065	CF 68K OHM +5% 1/16W

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SYMBOL NO.	PART NO.	DESCRIPTION	SYMBOL NO.	PART NO.	DESCRIPTION
R731	0700067	CF 100K OHM +5% 1/16W	Q103	2326871	TR DTC 124ES
R732	0700045	CF 2.2K OHM +5% 1/16W	Q105	2326861	TR DTA 124ES
R733	0700058	CF 22K OHM +5% 1/16W	Q106	2326871	TR DTC 124ES
R734	0700043	CF 1.5K OHM +5% 1/16W	Q109	2326861	TR DTA 124ES
R735	0700045	CF 2.2K OHM +5% 1/16W	Q110	2326871	TR DTC 124ES
R736	0129617	CF 4.7K OHM +5% 1/4W	Q111	2326871	TR DTC 124ES
R737	1119527	MF 330 OHM +10% 2W	Q201	2326871	TR DTC 124ES
R739	0700063	CF 2K OHM +5% 1/16W	Q301	2326871	TR DTC 124ES
R751	0700058	CF 22K OHM +5% 1/16W	Q551	2329316	TR 2SC1741QR
R752	0700062	CF 39K OHM +5% 1/16W	Q552	2329316	TR 2SC1741QR
R754	0700034	CF 330 OHM +5% 1/16W	Q553	2329316	TR 2SC1741QR
R755	0700061	CF 33K OHM +5% 1/16W	Q554	2325701	TR 2SA854S
R756	0700063	CF 47K OHM +5% 1/16W	Q601	2320663	TR 2SC1213AC
R757	0700055	CF 12K OHM +5% 1/16W	Q701	2318303	TR 2SC1740(S)
R801	0114173	CF 3.3K OHM +5% 1/4W	Q702	2325713	TR 2SA933S(R)
R802	1118445	FR 4.7 OHM +5% 1/4W	Q751	2318303	TR 2SC1740(S)
R803	0700041	CF 1K OHM +5% 1/16W	Q752	2325713	TR 2SA933S(R)
R806	01132972	CF 680 OHM +5% 1/2W	Q801	2317792	TR 2SA965(Y)
R807	01132932	CF 330 OHM +5% 1/2W	Q802	2317803	TR 2SD1266(P)
R811	01132952	CF 470 OHM +5% 1/2W	Q803	2325713	TR 2SA933S(R)
R813	0700061	CF 33K OHM +5% 1/16W	Q805	2317803	TR 2SD1266(P)
R816	01133622	CF 2.2K OHM +5% 1/2W			DIODES
ICS					
IC101	2010681U	IC HA12158 (LINEAR)	D102	2397421	DI 1SS133T
IC102	2003701	IC BA6294 (LINEAR)	D103	2397421	DI 1SS133T
IC103	2003701	IC BA6294 (LINEAR)	D302	2397421	DI 1SS133T
IC104	23017012	IC BA6209N	D401	2397421	DI 1SS133T
IC105	23017012	IC BA6209N	D402	2397421	DI 1SS133T
IC106	2388302	IC BA4558HT	D403	2397421	DI 1SS133T
IC107	2018321	IC CXD1			

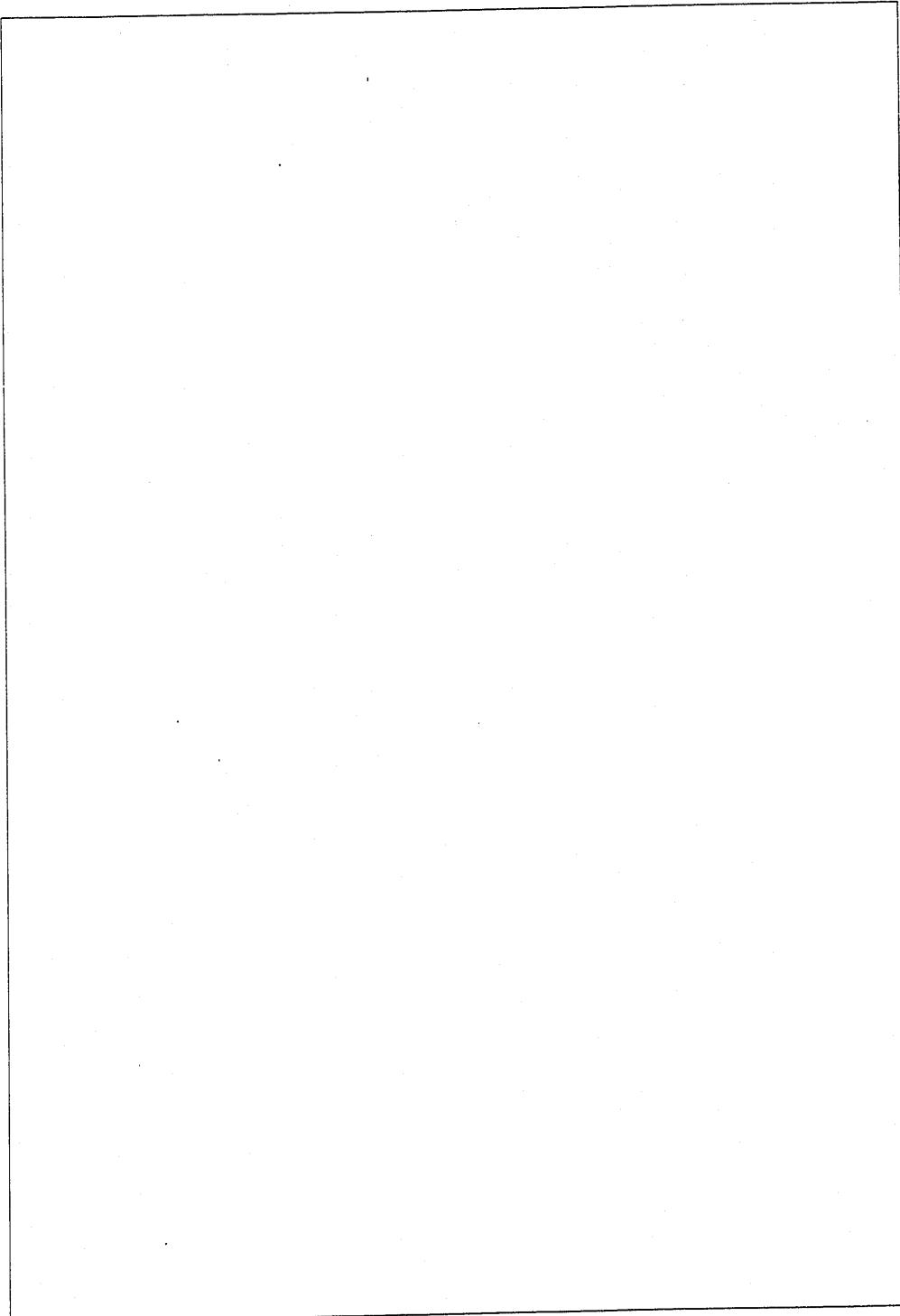
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SYMBOL NO.	PART NO.	DESCRIPTION	SYMBOL NO.	PART NO.	DESCRIPTION
ZD804	2331827	ZD HZ-9C1	RA201	0189061	RESISTOR ARRAY 47K OHM X8
ZD805	2331847	ZD HZ-12C1	U601	2574841	IRU-GP1U581X
ZD806	2331847	ZD HZ-12C1	W103	2975202	7P FLAT CABLE
			W104	2975202	7P FLAT CABLE
			W105	2975201	6P FLAT CABLE
		FUSES	X201	2949151	CRYSTAL 16.93MHZ
△FO01	2727893	FUSE 2A (FOR T)	X301	2168812	CRYSTAL 14.218MHZ (FOR W)
△FO02	2727742	FUSE T1A 250V (FOR W)	X302	2784802	CRYSTAL 4MHZ (FOR W)
△FO02	2727895	FUSE 1A 125V (FOR T)	X401	2949151	CRYSTAL 16.93MHZ
△FO03	2727742	FUSE T1A 250V (FOR W)	X601	2155323	CERAMIC OSCI (4.19MHZ)
△FO03	2727895	FUSE 1A 125V (FOR T)	#601	3804117	FL SPACER
△FO04	2727748	FUSE 4A 250V (FOR W)	#611	3960403	LED HOLDER
△FO04	2727894	FUSE 4A 125V (FOR T)	#703	8671408	SCREW 3X8 DT BIND (FOR HEAT SINK)
△FO05	2727748	FUSE 4A 250V (FOR W)	#705	8691408	TAPPING SCREW 3X8 BIND (FOR HEAT SINK)
△FO05	2727894	FUSE 4A 125V (FOR T)			
		COMPOUND COMPONENTS			CABINET CHASSIS
MD551	2406231	RF MODULATOR (FOR W)	1	4898962	FRONT PANEL ASS'Y
		COILS	2	3270862	VOLUME KNOB
L302	2227922	CHOKE COIL 22MH (FOR T)	3	3309163	BALANCE VOLUME KNOB
L304	2150951	LC FILTER	4	3273281	GAME SWITCH
L305	2150851	LC FILTER (FOR T)	5	3273292	MAIN SWITCH
L305	2150971	LC FILTER (FOR W)	6	4490791	SWITCH BRACKET
L401	2228196	CHOKE COIL 1UH	7	3273271	POWER BUTTON
L551	2227905	CHOKE COIL 10MH	8	3821641	MAGAZINE DOOR
L552	2228196	CHOKE COIL 1UH	9	3392461	DOOR SPRING
L553	2227912	CHOKE COIL 2.2MH	10	3827681	FL FILTER
L601	2227914	CHOKE COIL 3.3MH	11	3830343	LEG 51
L701	2227361	AUDIO TRAP COIL 0.67UH	12	3830301	LEG 21
L702	2227361	AUDIO TRAP COIL 0.67UH	13	3802972	PWB HOLDER
LY701	2641341	RELAY QSA-SS-212DM3	14	2216072	POWER TRANSFORMER (FOR W)
		SWITCHS	15	2216073	POWER TRANSFORMER (FOR T)
△S001	2600551	POWER SWITCH	16	3875991	PROTECTOR
S601	2639682	TACT SWITCH	17	2706584	POWER CORD
S602	2639682	TACT SWITCH	18	3872271	AC CORD BUSHING
S603	2639682	TACT SWITCH	19	3471471	TOP COVER
S604	2639682	TACT SWITCH	20	3716742	PLASTIC HOLDER
S605	2639682	TACT SWITCH	21	4491361	PSW BRACKET
S606	2639682	TACT SWITCH	22	4407129	FIBER WASHER
S607	2639682	TACT SWITCH	23	3821651	SINGLE DOOR
S608	2639682	TACT SWITCH	24	4490871	RFM SUPPORT
S609	2639682	TACT SWITCH	25	2618053	VOLTAGE SWITCH (FOR W)
S610	2639682	TACT SWITCH	26	2727671	FUSE HOLDER
S611	2639682	TACT SWITCH	27	2727742	FUSE 1A 250V
S612	2639682	TACT SWITCH	28	3490502	REAR PANEL (FOR W)
S613	2639682	TACT SWITCH	29	3490503	REAR PANEL (FOR T)
S614	2639682	TACT SWITCH	30	3804118	SPACER
S615	2639682	TACT SWITCH	31	3827671	BLIND
S616	2639682	TACT SWITCH	32	3372471	TN-2500-106 CD MECHA ASS'Y
S617	2639682	TACT SWITCH	33	8671408	SCREW 3X8 DT BIND
S618	2639682	TACT SWITCH	34	8671608	SCREW 4X8 DT BIND
		MISCELLANEOUS	35	8679408	SCREW 3X8 DT BIND
LY701	2641341	RELAY	36	8671414	SCREW 3X14 DT BIND
FL601	2358542	FLURESCENCE DISPLAY TUBE	37	8794440	TAPPING SCREW 3X10 BIND
J501	2679015	MIC JACK	38	4522881	SCREW 3X8 CE KNURL ED
J502	2679015	MIC JACK	39	8671416	SCREW 3X16 DT BIND
J503L	2673901	JACK	40	8671412	SCREW 3X12 DT BIND
J503R	2673902	JACK		4159427	SCREW 3X10 WITH WASHER
J504	2679016	HEADPHONE JACK		3909995	WIRE CLAMP
J551	2672802	JACK 3P			TN-2500-106 CD MECHA. ASS'Y
J552	2673911	JACK 3P VIDEO JACK (FOR T)			
J701	2693681	TERMINAL 4P			
			1	3010-02-10	E GEAR B
			2	3010-02-11	E GEAR C
			3	3010-02-12	E GEAR D
			4	6401-01-204	REAF SW
			5	6402-04-03	PUSH SW
			6	3005-07-14	FEED M BELT
			7	6901-16-01	PICK UP
			8	3005-07-305	T/T BASE ASSY

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SYMBOL NO.	PART NO.	DESCRIPTION	SYMBOL NO.	PART NO.	DESCRIPTION
9	3010-04-11	P BELT			
10	3010-04-03	P GEAR A			
11	3010-04-04	P GEAR B			
12	3010-05-15	FE GEAR C			
13	3010-05-06	FE GEAR D			
14	3010-05-16	FE GEAR E			
15	3010-02-301	E MOTOR ASS'Y			
16	3005-07-306	FEED MOTOR ASS'Y			
<b>ACCESSORIES</b>					
1	2573843	REMOTE CONTROL TRANSMITTER			
2	6901-02-01	MAGAZINE ASSY			
3	2733231	MIC			
4	2727893	FUSE 2A			
5	2713223	VIDEO CORD			
6	2977871	RF CABLE			
7	2667922	SEAMENS PLUG			

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