

MODEL
HS-M58(EE)

Only cassettes marked VHS can be used with this video cassette recorder.

SPECIFICATION

Tape Format	: VHS 1/2" high-density video cassette tape	Video Input	: 0.75 to 1.5Vp-p, 75Ω unbalanced EURO AV socket
Power Source	: AC 230V ; 50Hz	Audio Input:Line	: -8dBs, 50kΩ unbalanced EURO AV socket and RCA pin plug
Power Consumption	: Approx. 33W	Video Output	: 1.0Vp-p, 75Ω unbalanced EURO AV socket
Television System	: 625lines, 50fields System CCIR B&G PAL	Audio Output	: -6dBs, 1kΩ unbalanced EURO AV socket and RCA pin plug
Video Recording System	: Azimuth helical scanning system	TV Tuner	
Luminance	: Frequency modulation recording	VHF	: 47~118MHz, 118~300MHz
Colour Signal	: Low frequency conversion subcarrier phase shift recording	UHF	: 470~870MHz
Hi-Fi Audio Recording System	: Azimuth helical scanning system, Frequency modulation recording, deep layer recording	Operating Temperature	: 5° C to 40° C
Linear Audio Track	: 1 track	RF Channel Output	: Set to Channel Channel 36 (Channel 32~40 selectable)
Tape Speed	: 23.39mm/sec(PAL SP mode) 11.70mm/sec(PAL LP mode)	Weight	: Approx. 6.0kg
Record/Playback Time	: 240min. with E-240 cassette (PAL SP mode) 480min. with E-240 cassette (PAL LP mode)	Dimensions	: 425(W) × 96(H) × 324(D)mm
Heads: Video	: 4 rotary heads	Timer	: 8 programmes for any channels in one month/every day/every week day 24 hour digital synchronized with oscillator frequency.
Hi-Fi Audio	: 2 rotary heads	Channel Selection Deck	: 100 position Up/Down + EXT : F Deck
Audio/Control Erase	: 1 stationary head : 1 full track head		

●Weight and dimensions shown are approximate.

●Design and specifications are subject to change without notice.

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DISASSEMBLY

1. Removal of Top Cover

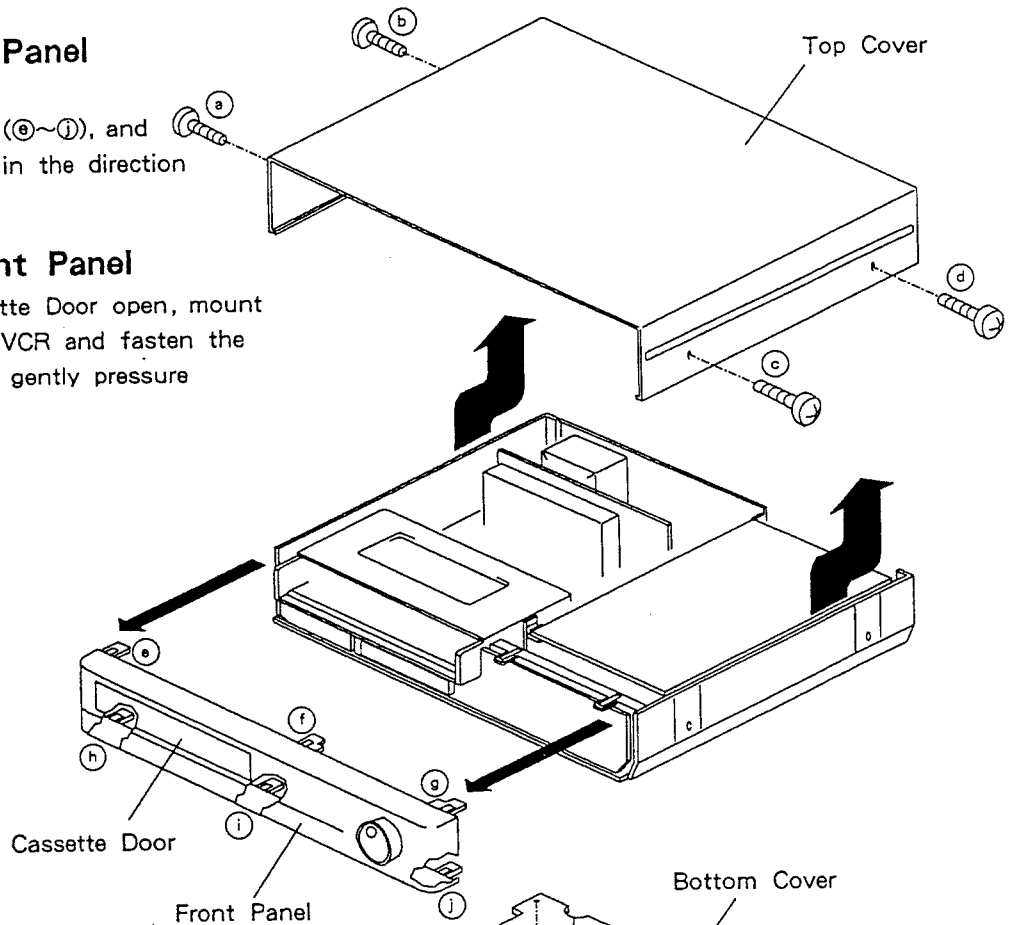
- A. Remove the four screws (a~d), as shown in Fig. 1.
- B. Gently expand the bottom edges of the top cover, then slide toward rear in the direction of the allows.

2. Removal of Front Panel

- A. Remove the top cover.
- B. Unfasten the six snaps (e~j), and remove the front panel in the direction of the arrows.

3. Installation of Front Panel

- A. While holding the Cassette Door open, mount the Front Panel to the VCR and fasten the six snaps (e~j) using gently pressure to the Front Panel.



4. Removal of Bottom Cover

- A. Remove the twelve screws (k~v).
- B. Remove the bottom cover by sliding toward the rear side and pulling outward.

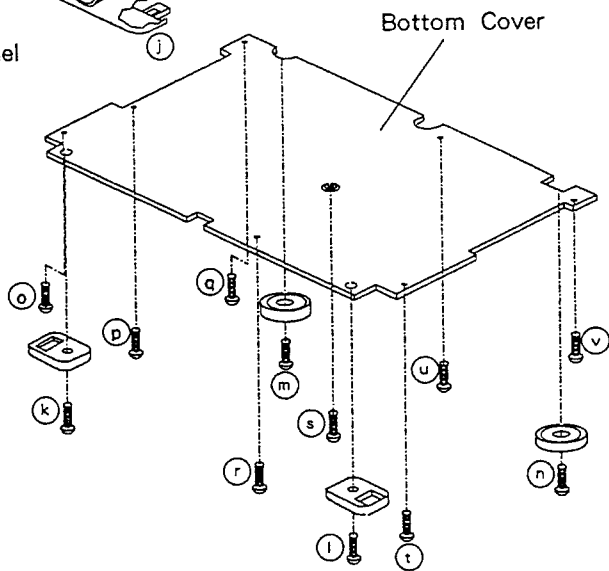


Fig. 1

HOW TO EXECUTE CIRCUIT BOARD SERVICE

CAUTION : BEFORE ATTEMPTING TO REMOVE OR REPAIR ANY PCB UNPLUG THE A.C. SOURCE

Location of Printed Circuit Boards (Refer to Fig. 2)

NOTE :

Use caution when disconnecting the flat cable connectors to avoid possible contact problems when reconnected.

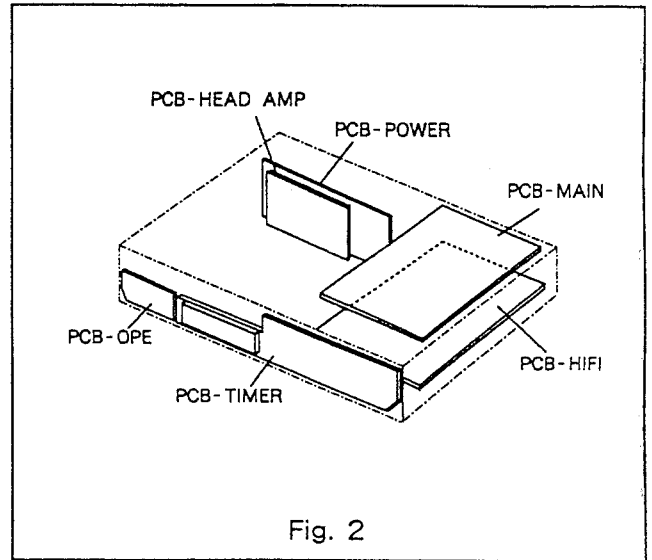


Fig. 2

1. Removal of PCB-MAIN

- A. Remove the top cover.(Page 1, Item 1)
- B. Remove the five screws (Ⓐ~Ⓔ), as shown in Fig. 3.
- C. Rotate the PCB-MAIN in the direction of the arrow.
- D. Hang the edge of PCB-MAIN to the holder on the frame.

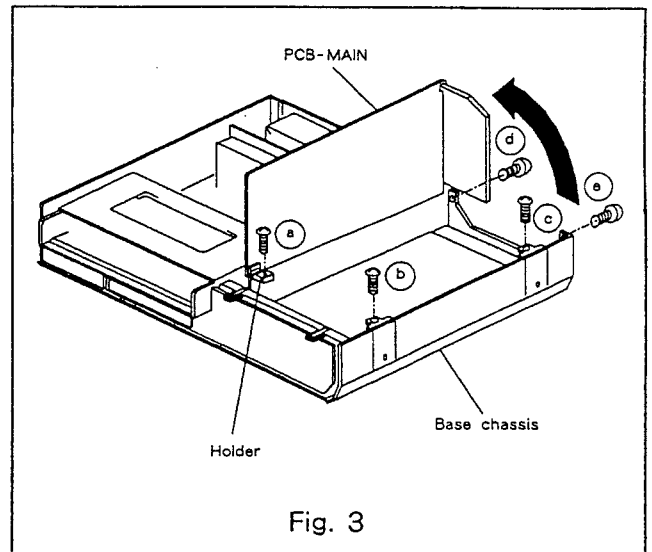


Fig. 3

2. Removal of PCB-HIFI

- A. Remove the bottom cover (Page 1 Item 4) and the service of the PCB-HIFI will be available.
- B. If it is necessary to remove the PCB-HIFI comply with the following steps.
 - a. Remove the PCB-MAIN. (Item 1)
 - b. Remove the two screws (Ⓐ and Ⓑ) retaining the PCB-HIFI, as shown in Fig. 4.

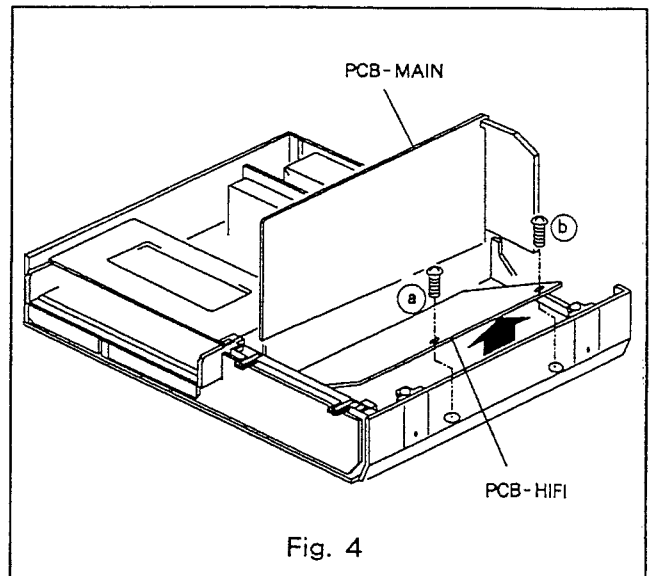


Fig. 4

3. Removal of PCB-HEAD AMP

- A. Remove the top cover. (Page 1, Item 1)
- B. Lift the shield cover upward to remove it.
- C. Disconnect the FPC cable by gently pulling cover of the connector **GB**, as in Fig. 5.
- D. Remove three screws (a~c) retaining the lead wire and the PCB-HEAD AMP.

Service of PWB

- Pull off six catches on the lead cover to remove it fixed on the shield case (a), as shown in Fig. 6.
- Pull off the top and bottom stoppers to remove the shield case (b).
- Unsolder four soldering points to remove the shield case (b) from the PWB. Service on the component side is possible in this state.

NOTE :

To service, with power on, use the Extension Cord (859C344040) and ground the lead wire with a short lead.

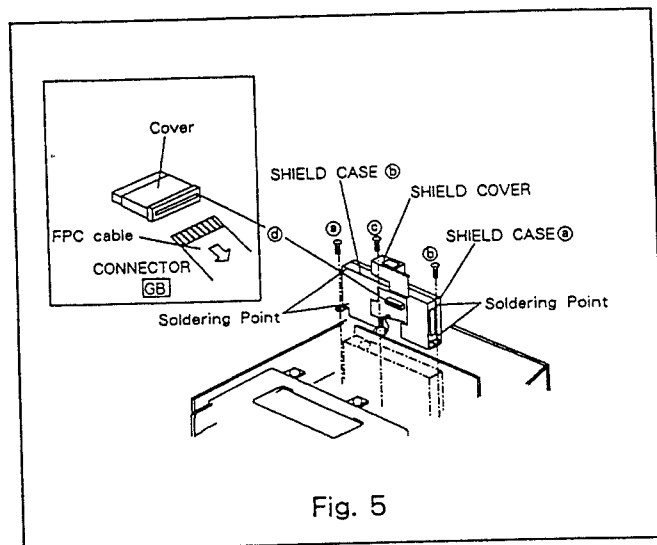


Fig. 5

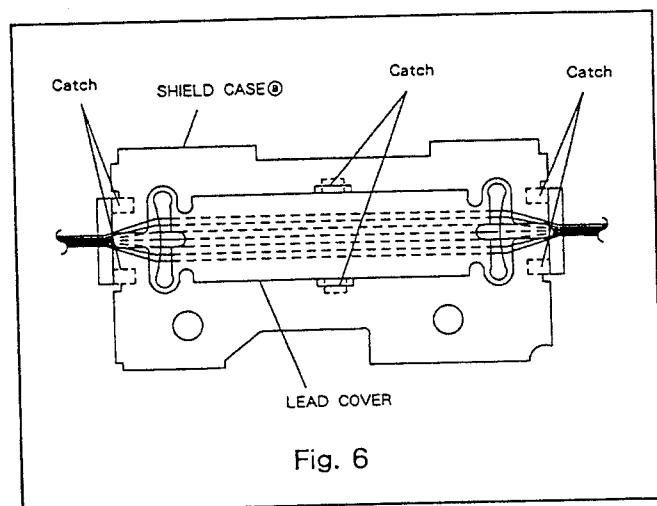


Fig. 6

4. Removal of PCB-OPE and PCB-TIMER

- A. Remove the Front Panel. (Page 1, Item 2)
- B. Remove two screws (a, b) and unfasten four snaps (c~f), as shown in Fig. 7.

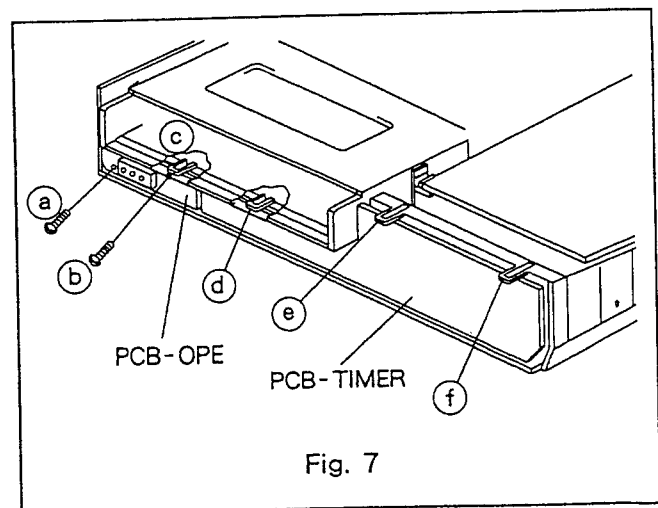


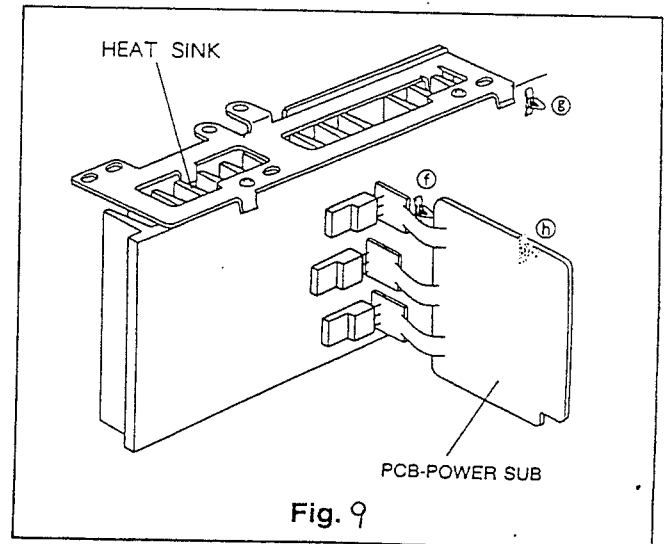
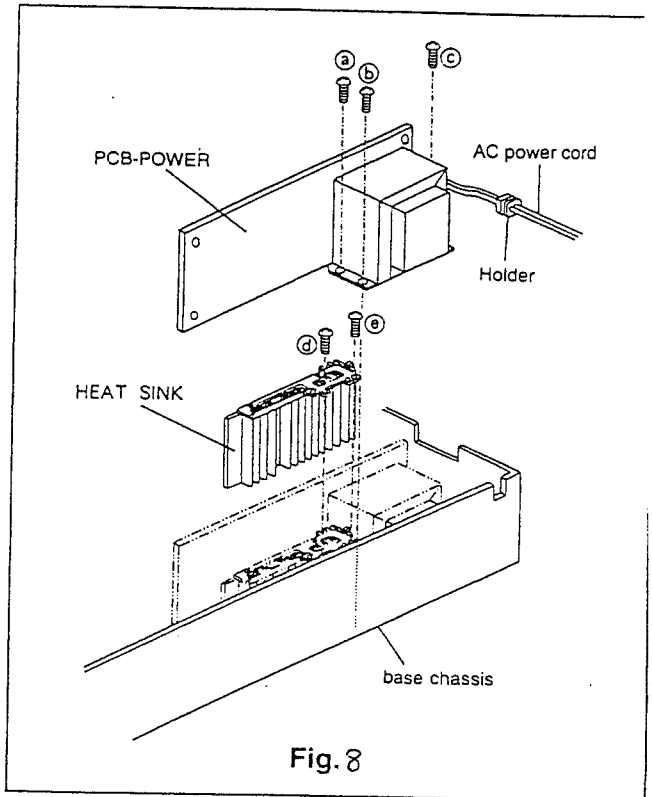
Fig. 7

5. Removal of PCB-POWER and PCB-POWER SUB

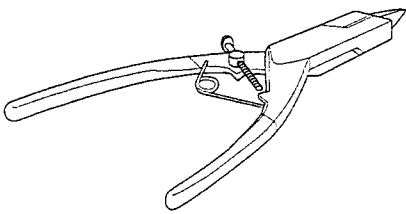
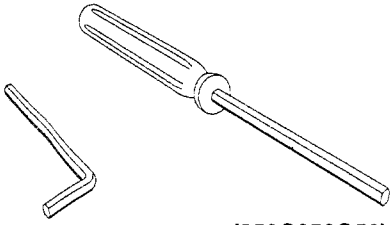
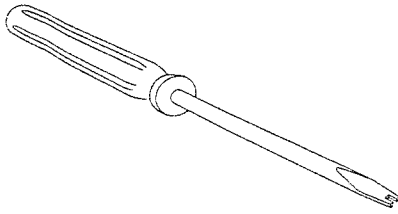
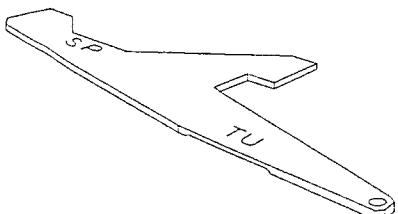
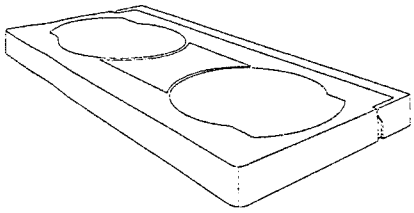
- A. Removal the top cover. (Page 1, Item 1)
- B. Remove three screws (a~c) retaining the PCB-POWER and two screws (d, e) retaining the heat sink as shown in Fig. 8.
- C. Remove the holder of AC power cord from the base chassis.
- D. Unfasten three hooks (f~h) retaining the PCB-POWER SUB as shown in Fig. 9.

CAUTION :

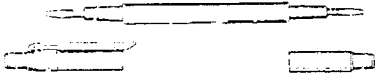
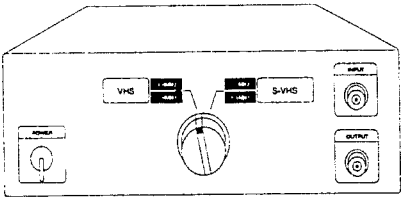
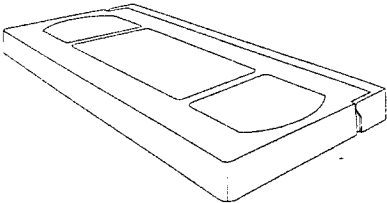
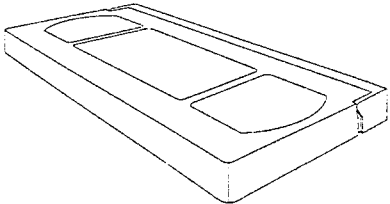
Power regulators are damaged if power supply is turned on without installing the heat sink.



MECHANICAL ADJUSTMENT TOOLS

	PURPOSE	METHOD
Grip ring fixer (859C347O50) 	A tool for preventing the grip ring from opening excessively.	Opening the grip ring with the tips of this tool, install the grip ring on to the shaft.
Hex Keys(1.5mm)  (859C259O20) (859C259O50)	The hex keys are used for tightening or removing hexagonal socket head screws which fasten the guide rollers.	Insert the given size(1.5mm) hexagonal socket and turn.
Adjustment Driver (859C259O80) 	For adjustment of guide rollers.	Carefully insert and adjust guide rollers.
Reel disk Adj.Jig (859C342O20) 	The height gauge is used for measuring height and perpendicularity of the reel disk and Takeup guide arm.	The gauge is applied to the part being measured.
Back Tension Gauge (859C345O80) 	The back tension gauge is used for measuring the tension of the tape on the supply side.	Load this gauge in the cassette housing and run in the play mode. Read the gauge indicator.
Extension Cord (859C344O40)	For PCB-HEAD AMP service	Use when repair of the PCB-HEAD AMP is necessary.
Cotton gloves	For changing, cleaning and handling of drum, heads and guides.	Use when handling all parts in the tape path.

ELECTRICAL ADJUSTMENT TOOLS

	PURPOSE	METHOD
Adjustment Driver (859C338000) 767-M 	The adjustment driver is intended to adjust variable resistors, trimmers, transformers etc.in the circuitry.	Select a tip suitable for the particular head of the component concerned and adjust.
Carrier Checker (859C346050) 	Used for the adjustment or inspection of the carrier set deviation.	Use in conjunction with the oscilloscope. For detail refer to the service manual or the attached data.
Alignment Tape (PS-2 :859C339010) (PC1KS :859C339070) (NS-1 :859C339000) 	Standard signals(VHS Standard) are recorded on the alignment tape and reproduced when required in the adjustment of Y/C circuit,audio circuit and interchangeability alignment.	Install and run in the play mode, the same as for an ordinary tape.
Alignment Tape (PM1KH3 :859C339030) 	For adjusting the switching point of FM audio.The Video signal can also be used for interchangeability adjustment of SP/LP mode.	Install the tape and run the recorder in the play mode. The same as for an ordinary tape.
Record Current Adjustment Jig (859C347080)	For Y/C Recording Level and Hi-Fi FM Recording Level.	For Y/C Recording Level and Hi-Fi FM Recording Level adjustment.

Electrical Adjustment

Perform only the alignments required. If proper equipment is not available, do not attempt an alignment.

■ Measuring equipment and Jigs

- Oscilloscope (Unless otherwise specified in particular, use it at 10:1 probes.)
- Signal generator
- Frequency counter
- Audio tester
- Direct current voltmeter
- Electrical tools

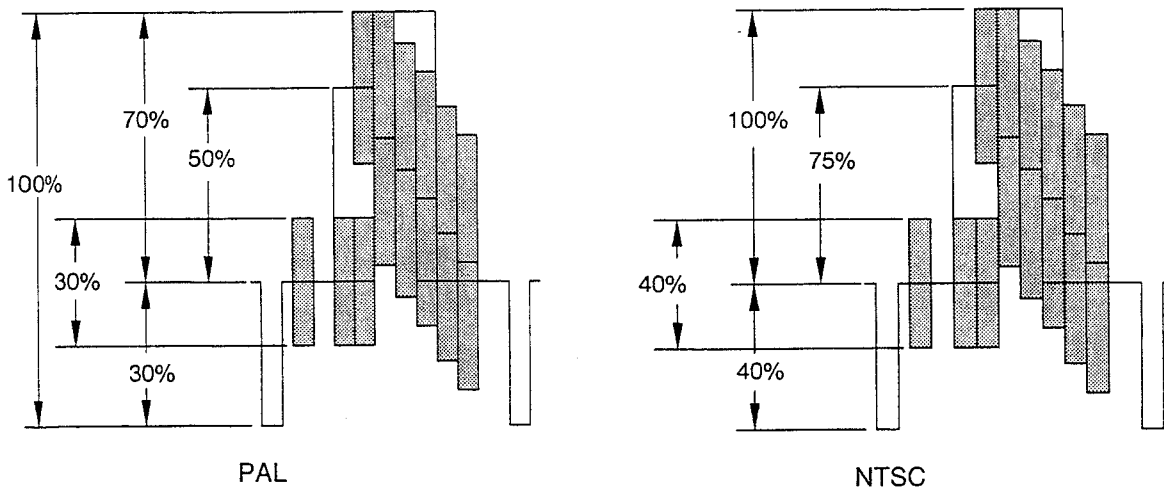
■ Test Signal

1). Monoscope signal

When you have no monoscope signal source for adjustment, connect the unit to a VCR and play an alignment tape (Monoscope).

2). Colour bar signal

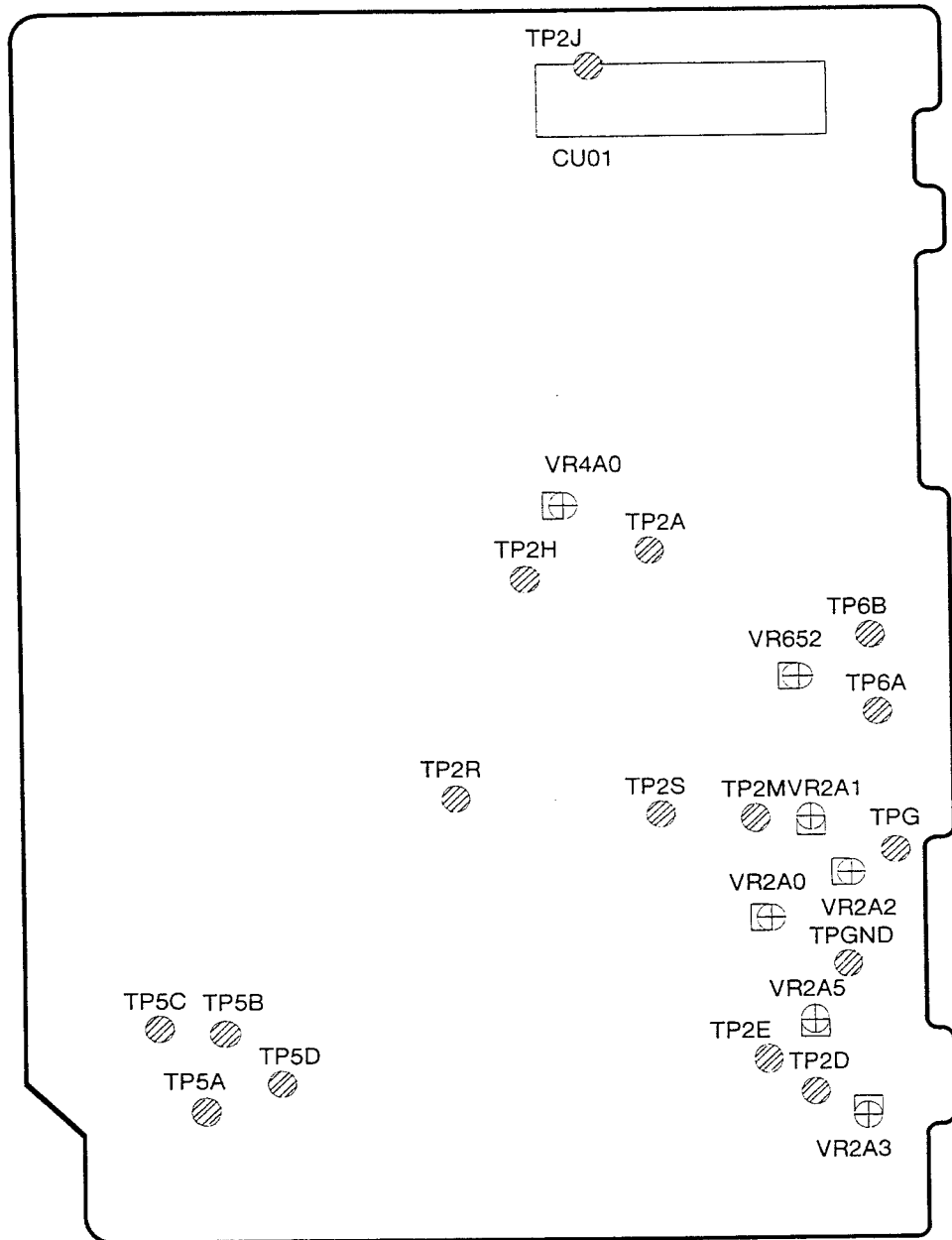
In this manual, unless otherwise specified in particular, use colour bar signal in specifications below.



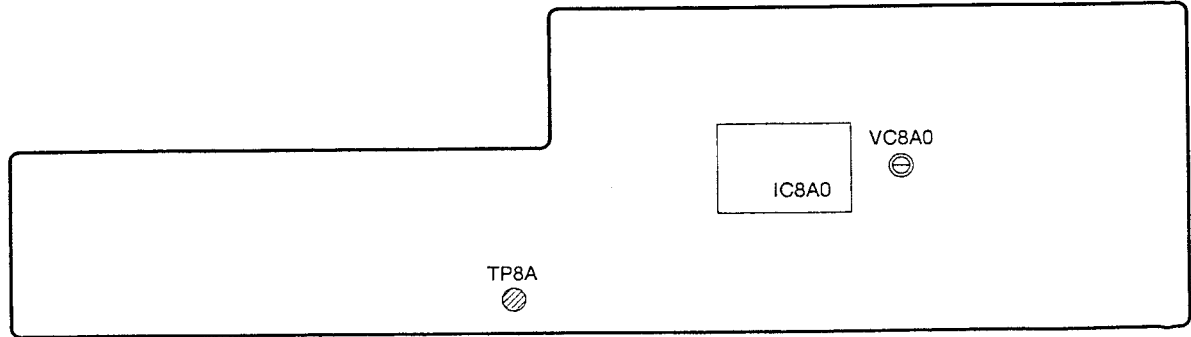
Split-Field colour bar (with 100% window)

LOCATIONS

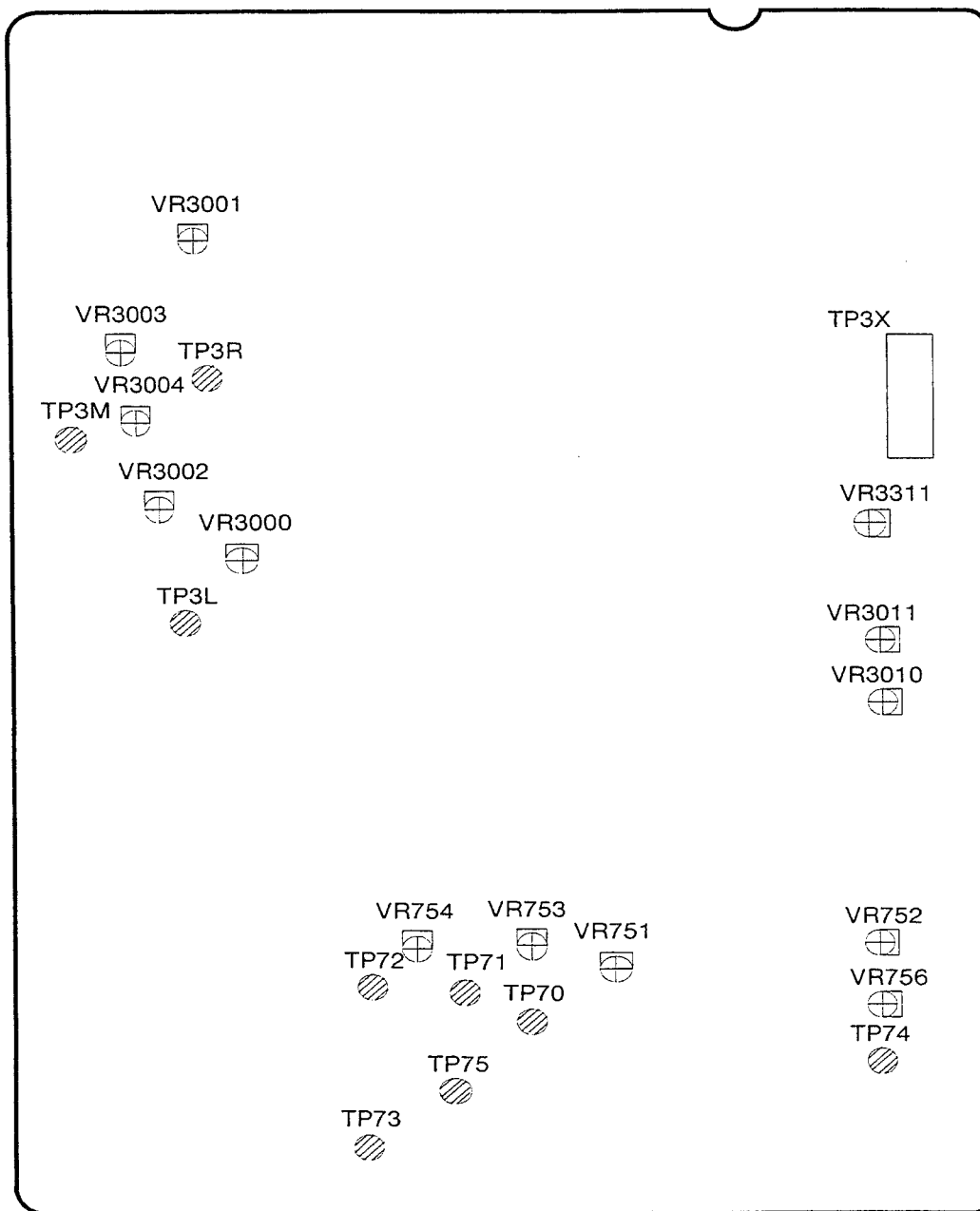
PCB-MAIN(Solder side)



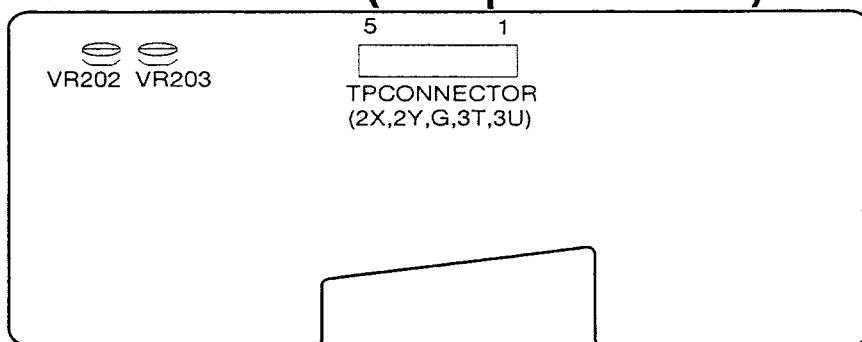
PCB-TIMER(Component side)



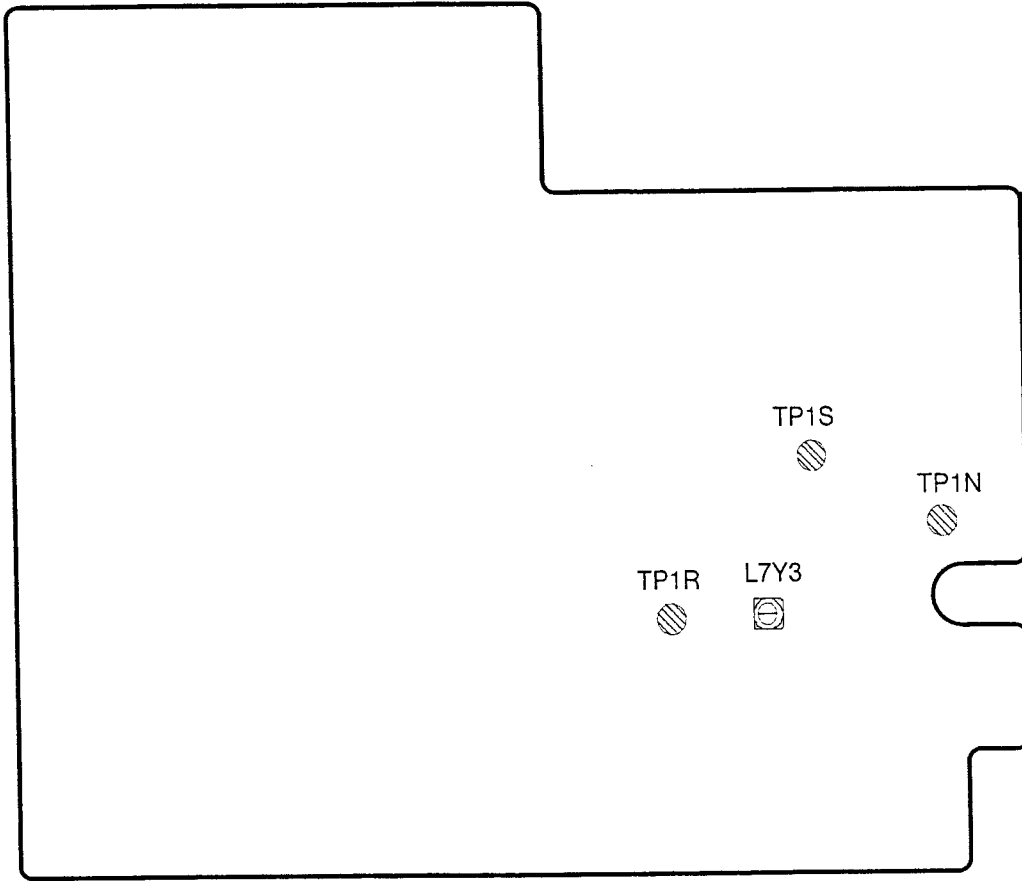
PCB-HIFI(Component side)



PCB-HEAD AMP(Component side)



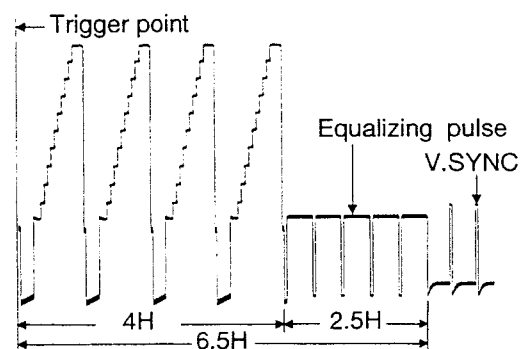
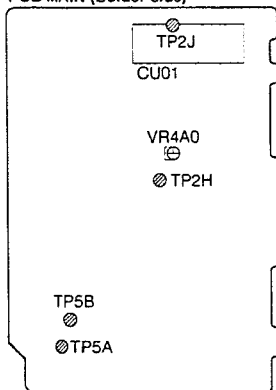
PCB-NICAM(Component side)



[Servo circuit] 1.Playback Switching Point		Adjustment purpose Video switch over timing during playback.	
		Symptom when incorrectly adjusted Switching noise or jitter on the playback picture.	
Measuring instrument and condition		VCR set up condition	
Oscilloscope		Input signal	—
Test point	TP2J	Using tape	Alignment tape (PS2, grey scale)
EXT trigger	TP2H	VCR condition	Playback
Measurement range	DIV 20mV TIM 50 μ s	Using Jig	—

- 1.Play back an alignment tape(PS2, grey scale).
- 2.Short-circuit TP5A and TP5B. Confirm that the "DTR" displayed in Fluorescent Display flashes fast.
- 3.Set the oscilloscope's slope to (-).
- 4.Observe a waveform at TP2J.
- 5.Adjust VR4A0 so that the trigger point is located at $6.5 \pm 1.0H$ before the vertical synchronizing signal.

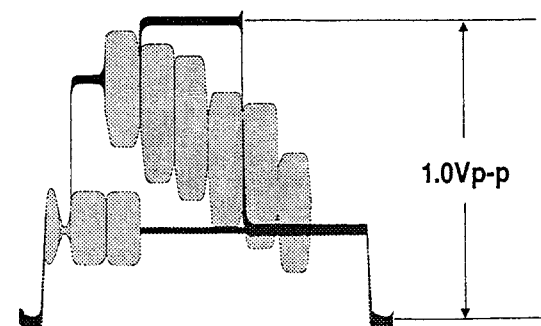
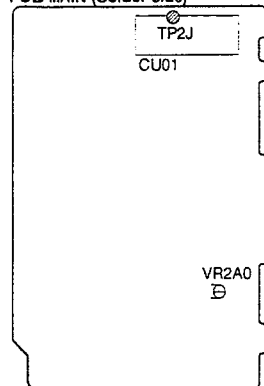
PCB-MAIN (Solder side)



[Y/C signal circuit] 2.EE Output Level		Adjustment purpose Output level of signal at STOP mode.	
		Symptom when incorrectly adjusted Too bright or too dark image:colour signal is produced incorrectly.	
Measuring instrument and condition		VCR set up condition	
Oscilloscope		Input signal	RF signal (PAL colour bar)
Test point	TP2J	Using tape	—
EXT trigger	—	VCR condition	STOP
Measurement range	DIV 20mV TIM 10 μ s	Using Jig	—

- 1.Supply an RF signal(PAL colour bar).
- 2.Be certain that nothing is connected to the VIDEO OUT terminal.
- 3.Observe a waveform at TP2J.
- 4.Adjust VR2A0 so that the amplitude of the waveform is 1.0Vp-p.

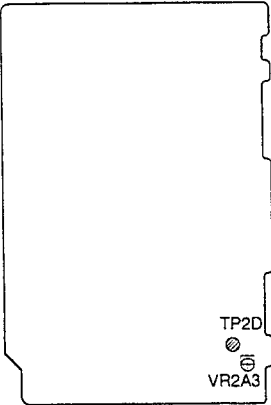
PCB-MAIN (Solder side)



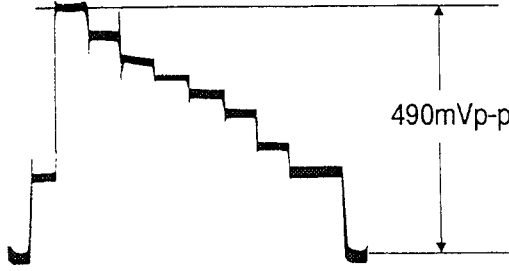
[Y/C signal circuit] 3.Clamp		Adjustment purpose Set the level of video signal.	
		Symptom when incorrectly adjusted Blurred image, white streaking black streaking.	
Measuring instrument and condition		VCR set up condition	
Oscilloscope		Input signal	RF signal (PAL colour bar)
Test point	TP2D	Using tape	—
EXT trigger	—	VCR condition	STOP
Measurement range	DIV 10mV TIM 10 μ s	Using Jig	—

1. Supply an RF signal(PAL colour bar).
2. Observe a waveform at TP2D.
3. Adjust VR2A3 so that the amplitude of the waveform is 490mVp-p.

PCB-MAIN (Solder side)



TP2D
⊗
⊕
VR2A3

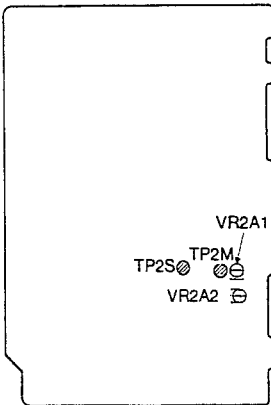


490mVp-p

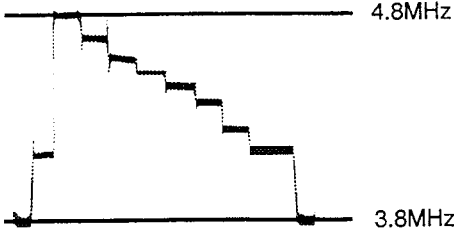
[Y/C signal circuit] 4.Carrier set, Deviation		Adjustment purpose FM carrier frequency and frequency deviation.	
		Symptom when incorrectly adjusted Too bright or too dark image:colour signal is to reproduced incorrectly. Horizontal noise or out of sync.	
Measuring instrument and condition		VCR set up condition	
Oscilloscope(Probe 1:1)		Input signal	RF signal (PAL colour bar)
Test point	TP2M	Using tape	—
EXT trigger	TP2S	VCR condition	STOP
Measurement range	DIV 0.2V TIM 10 μ s	Using Jig	Carrier checker

1. Supply an RF signal(PAL colour bar).
2. Observe a waveform at TP2M using the carrier checker.
3. Adjust VR2A2 and VR2A1 so that the response waveform 3.8MHz line and 4.8MHz just touch each of the white lines on the oscilloscope.

PCB-MAIN (Solder side)

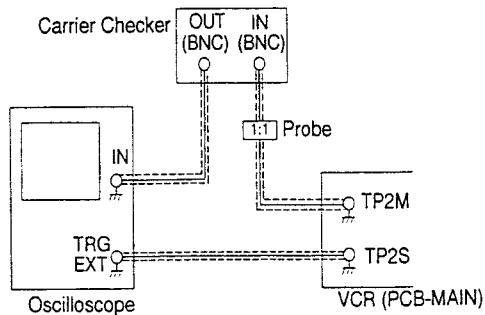


VR2A1
TP2M
⊗
⊕
TP2S
⊗
VR2A2



4.8MHz

3.8MHz



Carrier Checker OUT (BNC) IN (BNC)

1:1 Probe

Oscilloscope VCR (PCB-MAIN)

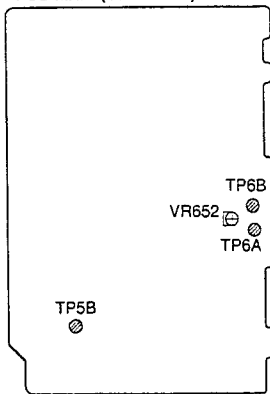
[Y/C signal circuit] 5.Y/C Recording Level		Adjustment purpose Level of video signal just before recording on tape.	
		Symptom when incorrectly adjusted Low luminance signal S/N ratio,beats,colour bounding of chrominance signal or flicker.	
Measuring instrument and condition Oscilloscope(Probe 1:1)		VCR set up condition	
Test point	TP2X,TP2Y	Input signal	RF signal (PAL colour bar)
EXT trigger	TP2S	Using tape	A tape
Measurement range	DIV 10mV TIM 10 μ s	VCR condition	LP REC
		Using Jig	REC CURRENT ADJ.JIG
		<ol style="list-style-type: none"> 1. Supply an RF signal(PAL colour bar). 2. Set a VCR to LP REC mode. 3. Observe a waveform at TP2X,TP2Y using a REC CURRENT ADJ.JIG. 4. Turn VR203 fully counter clockwise as seen from top side. 5. Adjust VR202 so that the amplitude of cyan is 50mVp-p. 	
		<ol style="list-style-type: none"> 6. Set the oscilloscope's probe to 10:1. 7. Set oscilloscope's volt range to 5mV/div. 8. Adjust VR203 so that the amplitude of horizontal sync is 150mVp-p. 	

[Y/C signal circuit] 6.Playback Video Output Level		Adjustment purpose Video output level during playback.	
		Symptom when incorrectly adjusted Colour signal is not correctly reproduced.	
Measuring instrument and condition Oscilloscope		VCR set up condition	
Test point	TP2J	Input signal	—
EXT trigger	—	Using tape	Alignment tape (PS2, colour bar)
Measurement range	DIV 20mV TIM 10 μ s	VCR condition	Playback
		Using Jig	—
		<p>* Perform the EE output level adjustment (Item 8) before this adjustment.</p> <ol style="list-style-type: none"> 1. Set the INTELLIGENT PICTURE switch to "I.P OFF" position on the MENU screen. 2. Be certain that nothing is connected to be the VIDEO OUT terminal. 3. Play back an alignment tape(PS2, colour bar). 4. Observe a waveform at TP2J. 5. Adjust VR2A5 so that the amplitude of the waveform is 1.0Vp-p. 	

[Y/C signal circuit] 7.N-PAL VCO (HS-M58V(IR)only)	Adjustment purpose Frequency setting of gate pulse for sampling the burst signal in order to convert NTSC signal to a quasi-PAL signal. Symptom when incorrectly adjusted No colour signal during NTSC tape playback.
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Measuring instrument and condition		VCR set up condition		1.Play back an alignment tape(NS-1, colour bar). 2.Short-circuit TP6A and TP5B(SW5V). 3.Observe the frequency at TP6B. 4.Adjust VR652 so that the frequency is 15.73kHz \pm 50Hz. 5.Open TP6A and TP5B.
Frequency counter		Input signal	—	
Test point	TP6B	Using tape	Alignment tape (NS-1, colour bar)	
EXT trigger	—	VCR condition	Playback	
Measurement range	PERIOD mode	Using Jig	—	

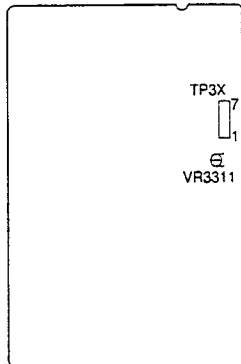
PCB-MAIN (Solder side)



[Audio circuit] 8.Audio Bias Level	Adjustment purpose Audio bias level during recording. Symptom when incorrectly adjusted Poor audio response in high frequency area or distortion.
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Measuring instrument and condition		VCR set up condition		1.Supply no signal. 2.Set a channel position to "EXT(L3)". 3.Insert shorted RCA type phono-plug into the L-CH of AUDIO IN terminal(L3). 4.Set a MIX switch to "OFF" position. 5.Set a VCR to SP REC mode. 6.Observe the audio level at TP3X pin ① and pin ② with audio tester using high pass filter. 7.Confirm that a monitor TV etc. does not affect the indication of an audio tester and then adjust VR3311 so that the level of 2.6mVr.m.s.
Audio tester		Input signal	—	
Test point	TP3X pin ① ,pin ②	Using tape	A tape	
EXT trigger	—	VCR condition	SP REC	
Measurement range	—	Using Jig	High pass filter	

PCB-HIFI (Component side)



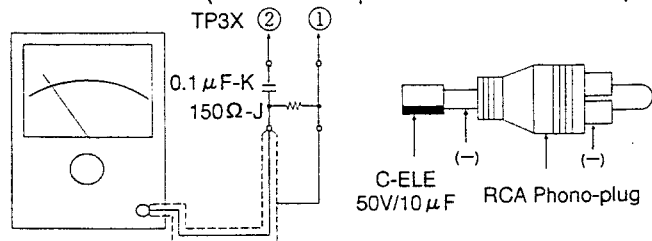
Note 1:

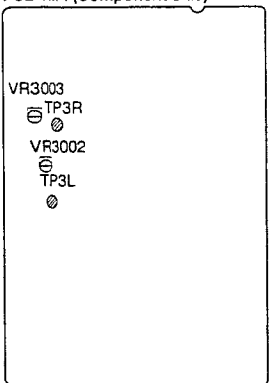
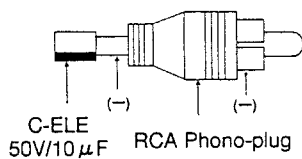
Be careful that the audio tester housing does not touch the VCR chassis.

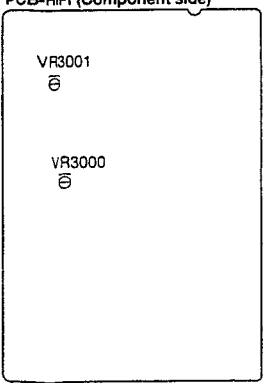
Note 2:

Do not set the VCR to Play mode with the audio tester connected.

(The audio amplifier will be over loaded.)



[Hi-Fi Audio circuit] 9.VCO		Adjustment purpose Set up of FM carrier frequency for Hi-Fi audio.	
		Symptom when incorrectly adjusted Buzz only.	
Measuring instrument and condition		VCR set up condition	
Frequency counter		Input signal	—
Test point	TP3L TP3R	Using tape	A tape
EXT trigger	—	VCR condition	SP REC
Measurement range	—	Using Jig	—
			
<ol style="list-style-type: none"> 1. Set a CHANNEL position to "EXT(L3)". 2. Set a MONITOR button on the remote hand unit to "STEREO" mode. 3. Set the MIX switch to "OFF" position. 4. Insert shorted RCA type phono-plug into the L-CH of AUDIO IN terminal(L3). 5. Set a VCR to SP REC mode. 7. Observe the frequency at TP3L. 8. Adjust VR3002 so that the frequency is $1.400\text{MHz} \pm 3\text{kHz}$. 9. Observe the frequency at TP3R. 10. Adjust VR3003 so that the frequency is $1.800\text{MHz} \pm 3\text{kHz}$. 			

[Hi-Fi Audio circuit] 10.FM Frequency Deviation		Adjustment purpose FM frequency deviation of Hi-Fi sound.	
		Symptom when incorrectly adjusted Too high or too low recording and playback levels of Hi-Fi sound.	
Measuring instrument and condition		VCR set up condition	
Audio tester		Input signal	1kHz, -8dBm
Test point	AUDIO OUT terminal (L-CH,R-CH)	Using tape	—
EXT trigger	—	VCR condition	STOP
Measurement range	—	Using Jig	—
		<ol style="list-style-type: none"> 1. Set a MIX switch to "OFF" position. 2. Set a MONITOR button on the remote hand unit to "STEREO" mode. 3. Set a CHANNEL position to "EXT(L3)". 4. Supply a sinewave (1kHz, -8dBm) to the L-CH of AUDIO IN terminal(L3). 5. Take the audio levels at AUDIO OUT terminal (L-CH,R-CH). 6. Play back an alignment tape(PM1KH3). 7. Adjust VR3000 for the L-CH and VR3001 for the R-CH so that the output levels of AUDIO OUT terminals are the same level taken in Step 5. 	

[Timer circuit] 11.Clock OSC Frequency		Adjustment purpose Accuracy of clock.		1.Set a VCR to Stand by mode. 2.Observe the period at TP8A. 3.Adjust VC8A0 so that the period is 3.173828 ±0.000013ms.
		Symptom when incorrectly adjusted Poor clock accuracy.		
Measuring instrument and condition		VCR set up condition		
Frequency counter		Input signal	—	
Test point	TP8A	Using tape	—	
EXT trigger	—	VCR condition	Stand by	
Measurement range	PERIOD mode	Using Jig	—	

PCB-TIMER (Component side)

The diagram shows a rectangular component with a notch on the top-left corner. On the top-right edge, there is a small square labeled 'IC8A0' and a circular pad labeled 'VC8A0'. On the bottom-left edge, there is a circular pad labeled 'TP8A'.

MECHANICAL ADJUSTMENT AND REPLACEMENT

1. Cleaning of Deck

The following parts require cleaning whenever serviced to maintain satisfactory performance.

1-1 Video Head

A. Clean the video heads in the following method if dust and other foreign objects on the video heads disturb the normal playback of images:

Dampen video head cleaning cloth with alcohol. Hold the cloth against the drum and turn the drum slowly counterclockwise to clean.

Note:

Do not directly touch the head attached to the upper drum. The head is very hard but brittle to impact, especially in the vertical direction.

Do not apply force in the vertical direction.

B. Allow residual alcohol to dry thoroughly before running tape. Otherwise, the liquid may stick to and damage the tape.

9. Takeup slant pole
10. Takeup guide roller
11. A/C head
12. Takeup guide pole
13. Pinch roller
14. Capstan shaft
15. Takeup guide arm
16. Tension regulation arm T

A. Clean the tape transport with gauze dampened with alcohol, except the supply guide roller, takeup guide roller and pinch roller. If Guide rollers and pinch roller are stained with dust, clean them with dry gauze or exchange them for new parts.

B. Allow residual alcohol to dry thoroughly before running a tape. Otherwise the liquid may stick to and damage the tape.

1-2 Tape Transport(Refer to Fig. 1-1.)

Clean the following parts of the tape transport.

1. Tension regulation arm S
2. Tension arm
3. Supply guide pole
4. FE head
5. Impedance roller
6. Supply guide roller
7. Supply slant pole
8. Upper and lower drum

1-3 Reel Disk Drive System

Clean the reel disk braking surfaces and the reel belt.

A. Clean the reel disk braking surfaces with gauze dampened alcohol.

- After the alcohol dries up completely, perform "Adjustment to Back Tension and Tension Position" (Item 3-1).

B. Reel belt is stained with dust, clean it with dry gauze or exchange it for new part.

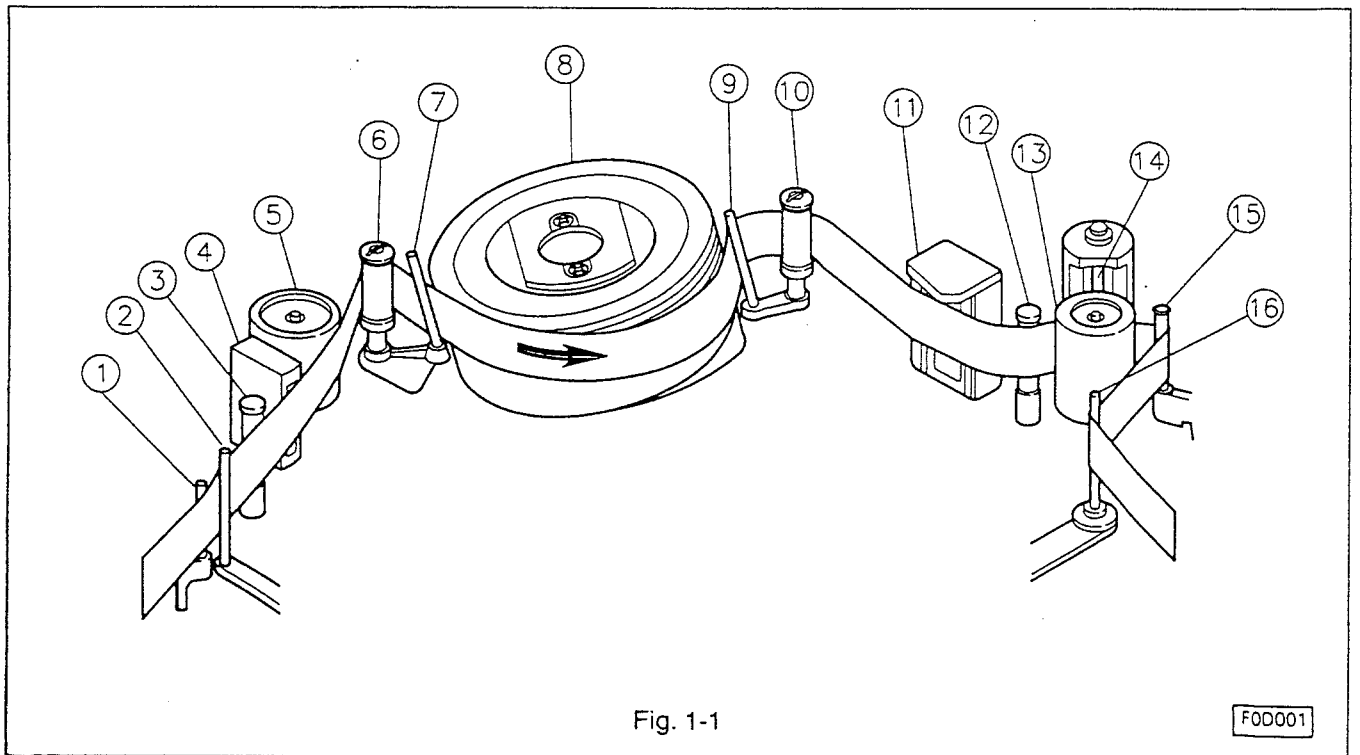


Fig. 1-1

F00001

2. Replacement of Major Parts

2-1 Cassette Housing

2-1-1 Removal(Refer to Fig. 2-1-1~2-1-2.)

- Set the VCR to the eject mode.
- Remove the top panel, bottom panel, and front panel.
- Unfasten the snap of the cable holder and remove the cable holder from the cassette housing as shown in Fig.2-1-1.
- Unscrew four cassette housing fastening screws (a ~ d). Raise the cassette housing slowly in the direction shown by the arrow.(Refer to Fig. 2-1-2.)

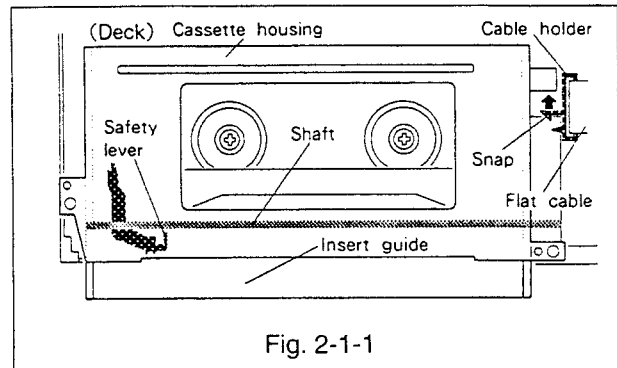


Fig. 2-1-1

2-1-2 Installation(Refer to Fig.2-1-1~2-1-3.)

- Slowly lower the cassette housing onto the main plate of the deck so that the safety lever enters between the insert guide and the shaft as shown in Fig. 2-1-1. Align the two positioning holes (e, f) and the two U holes (g, h) located on the cassette housing with the matching holes in the deck.
- In step A above, if the front loading gear of the cassette housing does NOT engage the boss on the main plate, carefully push the gear toward the front of the VCR using a small-diameter screwdriver, as illustrated in Fig. 2-1-3. If the gear still will not engage, rotate the Front Loading Gear a few degrees from below the deck until the gear engages the boss correctly.
- Fasten the housing to the deck with the four screws (a ~ d).(Refer to Fig. 2-1-2.)

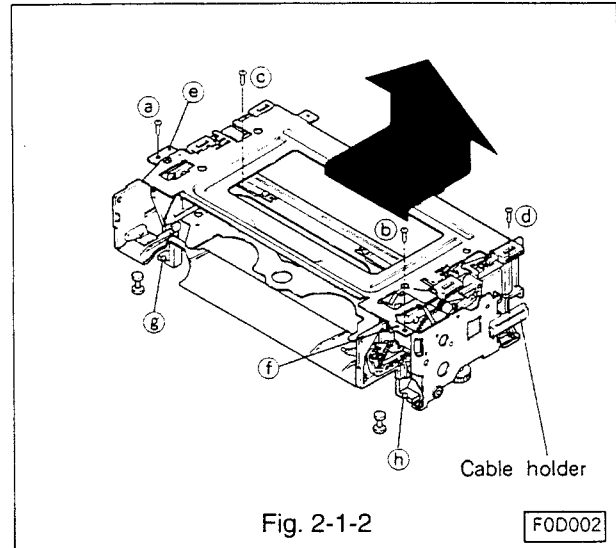


Fig. 2-1-2

FOD002

2-2 Lock arm and Drive gear

2-2-1 Removal(Refer to Fig. 2-1-3~2-2.)

- Unfasten four snaps (a ~ d) as shown in Fig. 2-1-3, and remove the side plate TU.
- Turn the FL SW lever clockwise to separate the FL SW lever from the drive gear, and pull the lock arm and drive gear to remove them from the shaft as shown in Fig. 2-2.

2-2-2 Installation(Refer to Fig. 2-1-3~2-2.)

- Install the drive gear on the shaft as shown in Fig. 2-2.
- Line the matching mark on the drive gear and beginning of gear section on the lock arm as shown in Fig. 2-2, and install the lock arm.
- Install the side plate TU to the cassette housing, and secure it with four snaps (a ~ d) as shown in Fig. 2-1-3.

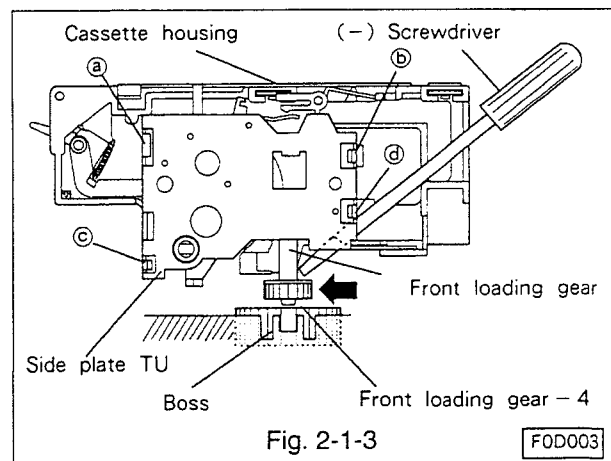


Fig. 2-1-3

FOD003

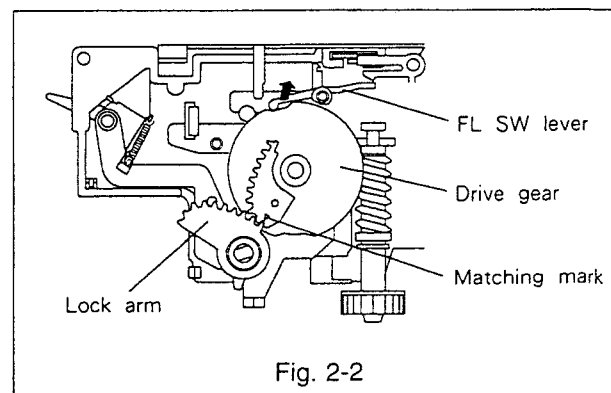


Fig. 2-2

2-3 Drum Assembly

2-3-1 Removal(Refer to Fig. 2-3-1~2-3-3.)

- A. Unscrew the brush fastening screw and remove the brush.(Refer to Fig. 2-3-1.)
- B. Unscrew two fastening screws (a , b) and remove the PCB-HEAD AMP which is connected to the drum assembly.

Note:

The cable and connector between the drum and head amplifier may be damaged if the cable is pulled strongly, as the cable is short.

Remove the shield cap of the PCB, raise the PCB slightly and disconnect the FPC cable.

(Removal method for the FPC cable connector and stopper is shown in Fig. 2-3-3.)

Disconnect the ground wire and remove the PCB-HEAD AMP.

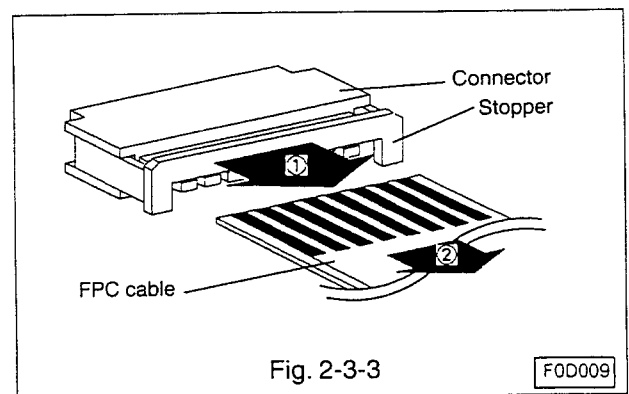
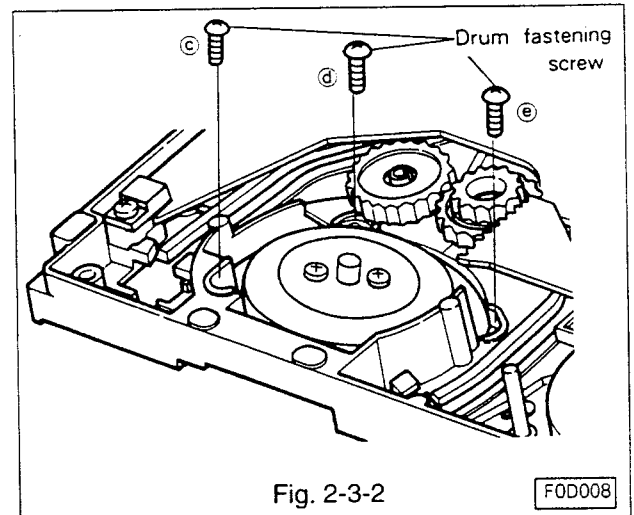
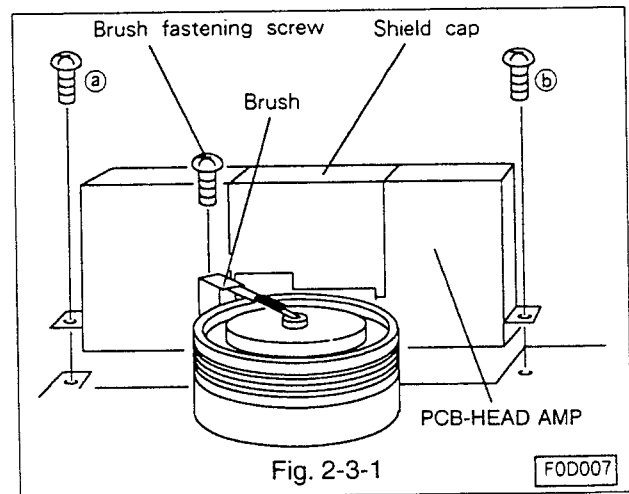
- C. Unscrew three drum fastening screws(c ~ e)from the reverse side of the deck.(Refer to Fig. 2-3-2.)
- D. Remove the drum assembly by raising it with care not to touch other parts around the drum assembly.
- E. Disconnect the connectors from the drum assembly. (Refer to Fig. 2-3-3.)

2-3-2 Installation (Refer to Fig. 2-3-1,2-3-2.)

- A. Connect the connectors to a new drum assembly.
- B. Place the new drum assembly on the main plate of the deck slowly with care not to touch other parts.
- C. Fasten the drum assembly with three fastening screws(c ~ e)on the reverse side of the deck. (Refer to Fig. 2-3-2.)
- D. Connect the PCB-HEAD AMP to the drum assembly and fasten the PCB with two screws(a , b).(Refer to Fig. 2-3-1.)

Note:

Conduct the mechanism interchangeability adjustment outlined in Para.3 to give optimum performance when the drum assembly is replaced.



2-4 Upper Drum

2-4-1 Removal(Refer to Fig. 2-4-1.)

- Unscrew the brush fastening screw and remove the brush.
- Unsolder two inside soldered terminals of each head on the upper drum.
- Unscrew the upper drum fastening screws.
- Remove the upper drum slowly and carefully.

Note:

If the upper drum is difficult to remove, heat the upper drum fastening screw holes with a soldering iron, and the drum can be easily removed.

2-4-2 Installation(Refer to Fig. 2-4-1.)

Note:

Handle the upper drum carefully as the video heads are fragile.

- Position the lower drum so that the hole in the shaft faces the operator. Align the upper drum with the lower drum so that the CH1 mark on the upper drum is on the right side, and couple the drums.
- Fasten the upper drum with two screws.(Tighten the screws alternately.)
- Solder the terminals not soldered on the upper drum.
- Clean the video heads as outlined in Para. 1-1.

2-5 Reel Belt(Refer to Fig. 2-5)

- Remove the reel belt from the capstan motor and the belt pulley.
- Install a new reel belt.

Note:

Make certain that the new belt is free from grease, before installing.

2-6 Capstan Motor

2-6-1 Removal(Refer to Fig. 2-5, 2-6)

- Disconnect the flat cable.
- Remove the reel belt.(Refer to Fig. 2-5.)
- Remove three fastening screws shown in Fig. 2-6 and remove the capstan motor.

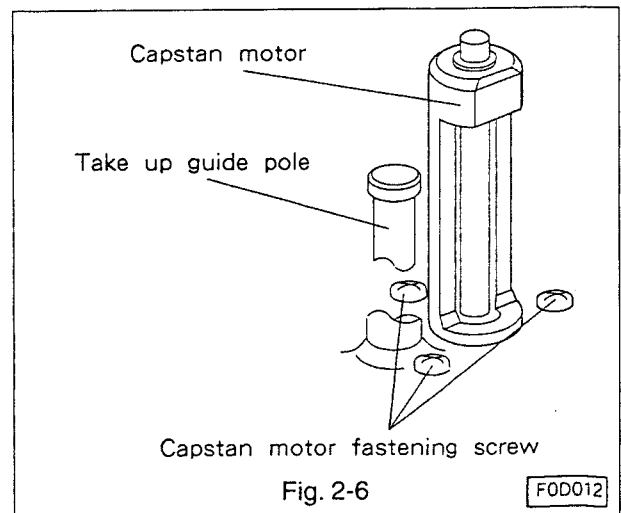
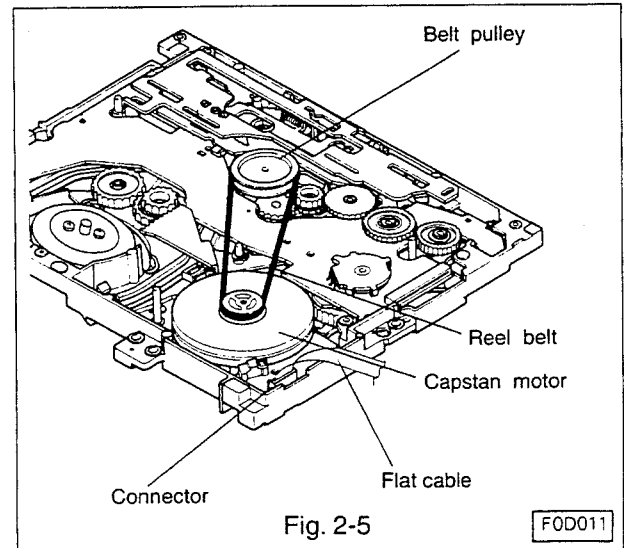
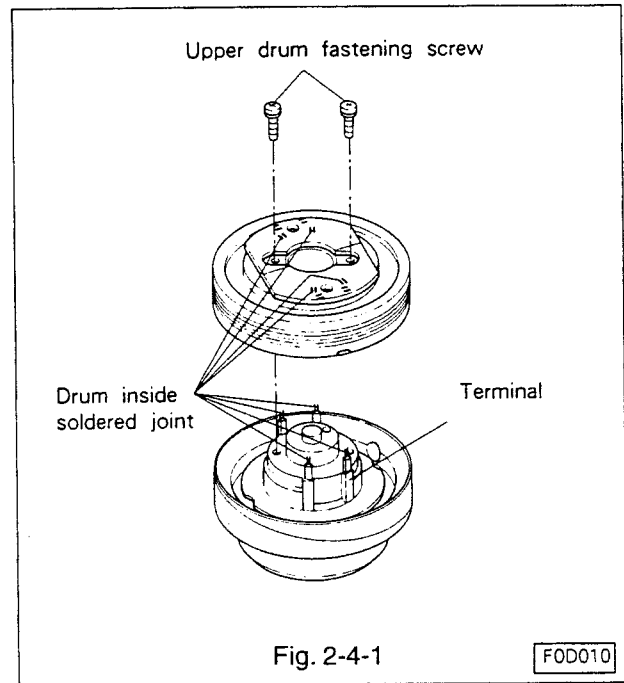
CAUTION:

Restrain the capstan motor as the three screws are removed, since an un-restrained motor may damage other parts of the deck.

When performing removal or installation of the capstan motor, take care that the outside of the rotor's rim is not greased.(Refer to Fig.2-5.) If greasy components are attached on the outside of the rotor's rim, wipe them off with a dry cloth because they may cause defects during special effects playback.

2-6-2 Installation(Refer to Fig. 2-5, 2-6.)

- Fasten the motor with three fastening screws.(Refer to Fig. 2-6.)
- Install the reel belt.
- Connect the flat cable.



2-7 Loading Motor

2-7-1 Removal(Refer to Fig. 2-7-1, 2-7-2.)

- A. Set the VCR to the eject mode.
- B. Disconnect the wires from the loading motor.
- C. Remove two stoppers securing the motor and the motor holder plate.(Refer to Fig. 2-7-2.)
- D. Slide the motor and motor holder plate away, and then raise them to remove.
- E. Remove the belt-LM from the loading motor and the pulley-L.(TYPE-B only)(Refer to Fig. 2-7-1.)
- F. Unscrew two screws and detach the motor holder plate from the motor.
- G. Disconnect the coupling from the motor.

2-7-2 Installation(Refer to Fig. 2-7-1-2-7-3.)

- A. Fasten the coupling to a new loading motor.(Refer to Fig. 2-7-3.)
- B. Fasten the motor holder plate to the motor with two screws.(Refer to Fig. 2-7-1.)
- C. Install the belt-LM.(TYPE-B only)
- D. Place the motor and motor holder plate in the motor holder to the rest of the deck.
- E. Turn the motor shaft so that the coupling on the loading motors matches the worm gear of the motor holder. Slide the loading motor forward and secure it with the stoppers.
- F. Solder the leads to the loading motor. (Brown lead wire to the positive terminal and red lead wire to the negative terminal.)

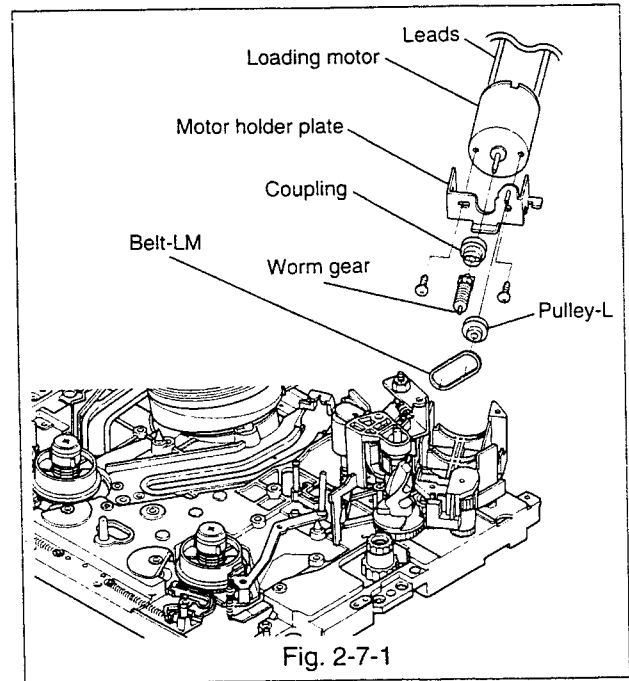


Fig. 2-7-1

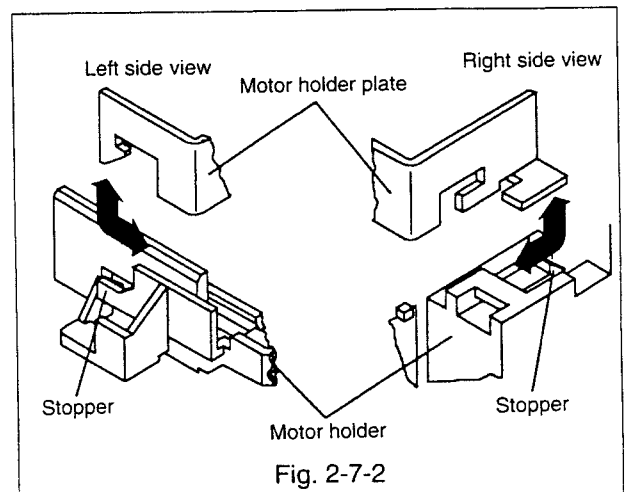


Fig. 2-7-2

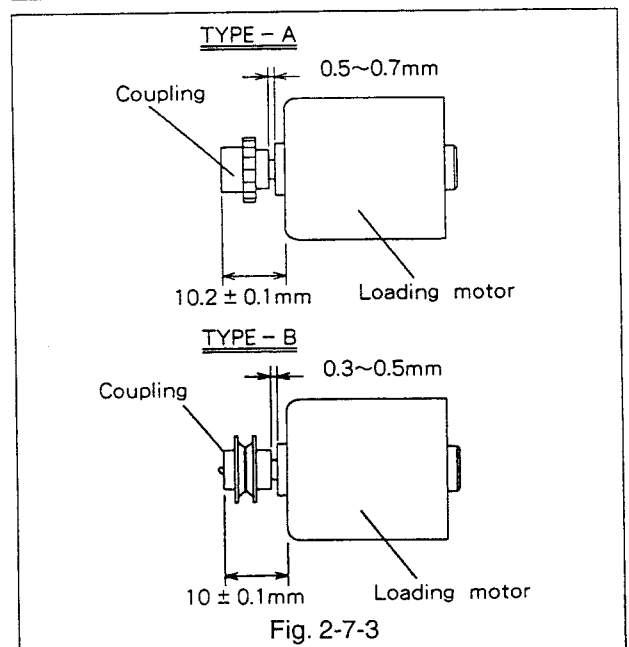


Fig. 2-7-3

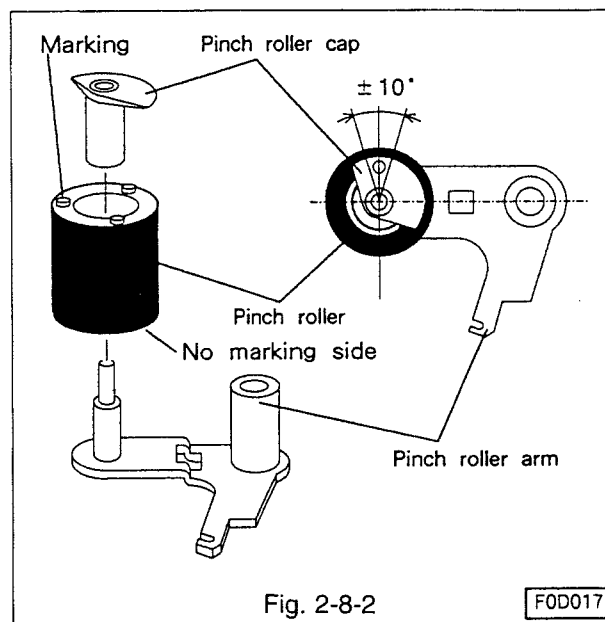
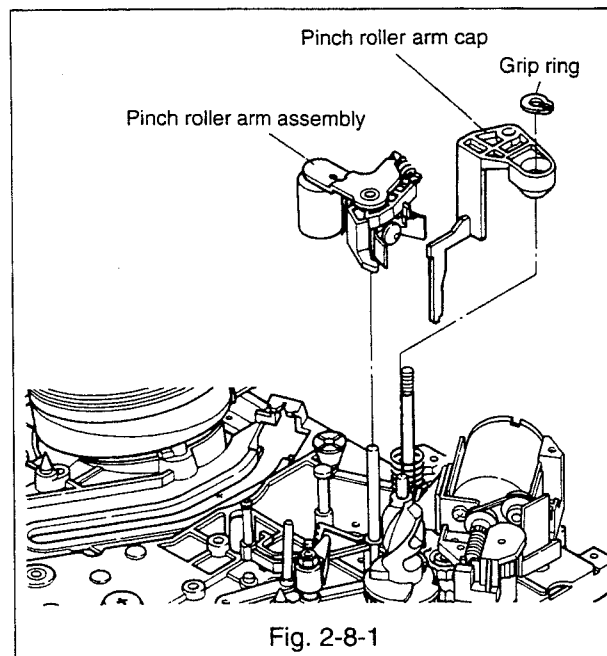
2-8 Pinch Roller

2-8-1 Removal(Refer to Fig. 2-8-1, 2-8-2.)

- A. Set the VCR to the eject mode.
- B. Remove the pinch roller arm cap and the grip ring which secures the pinch roller arm assembly.(Refer to Fig. 2-8-1.)
- C. Pull the pinch roller arm assembly upwards to remove.
- D. Remove the pinch roller cap from the pinch roller arm, and remove the pinch roller. (Refer to Fig. 2-8-2.)

2-8-2 Installation(Refer to Fig. 2-8-1,2-8-2.)

- A. Assemble the pinch roller cap and the pinch roller to the pinch roller arm by exercising care with the installation angle of the pinch roller cap and the marking of the Pinch Roller. (Refer to Fig. 2-8-2.)
- B. Assemble the pinch roller assembly to the shaft on the main plate.(Refer to Fig. 2-8-1.)
- C. Secure the pinch roller arm assembly with the pinch roller arm cap and the grip ring.



2-9 Mode Switch

Note:

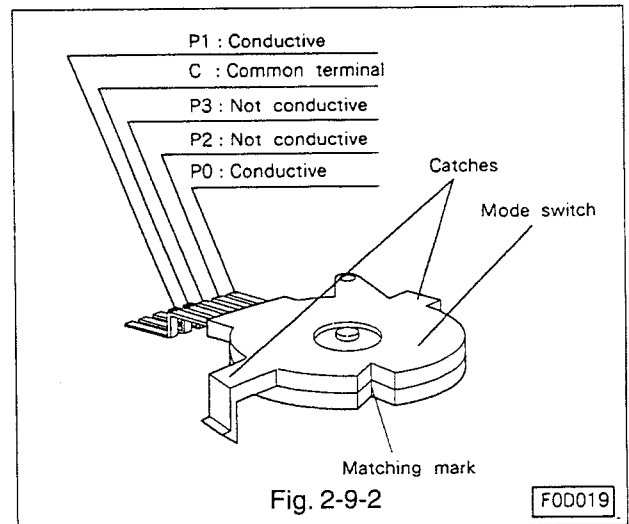
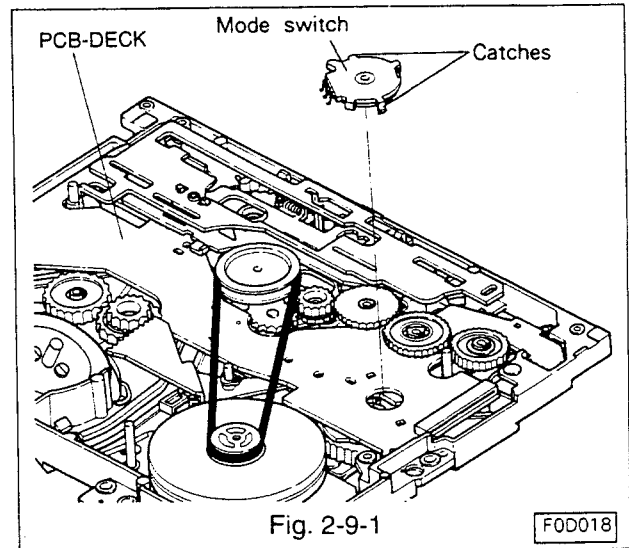
Replace the mode switch with the VCR in the eject mode.

2-9-1 Removal(Refer to Fig. 2-9-1)

- Unsolder the five soldered joints of the mode switch from the PCB-DECK.
- Unfasten two catches fastening the switch to the PCB-DECK assembly.
(Exercise care as the catches may be broken off.)
- Remove the mode switch slowly while insuring that the soldered joints are all unsoldered.

2-9-2 Installation(Refer to Fig. 2-9-1,2-9-2.)

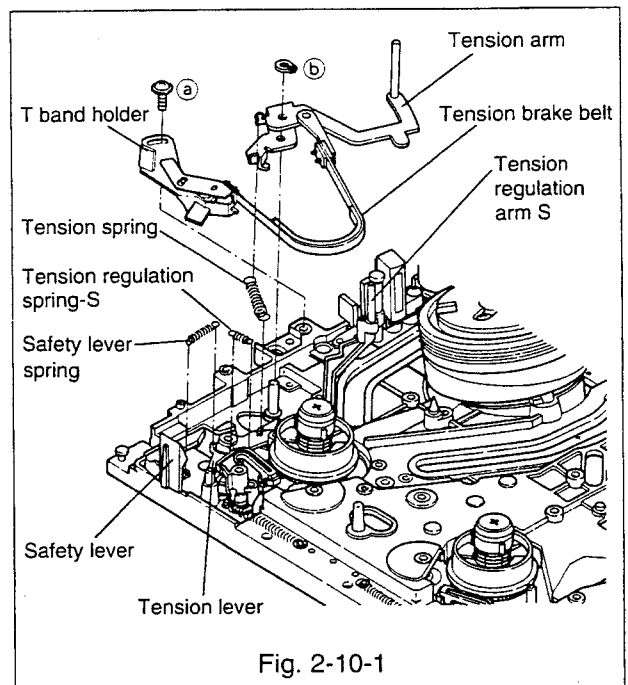
- Line the matching marks of the mode switch. (Refer to Fig. 2-9-2.)
- Finely adjust the mode switch so that continuity at each terminal shall be as given in the illustration.
- Fasten the switch to the PCB-DECK with care so that the switch does not turn, and secure with two catches.(Refer to Fig. 2-9-1.)
- Solder the five terminals which connect the mode switch to the PCB-DECK assembly.



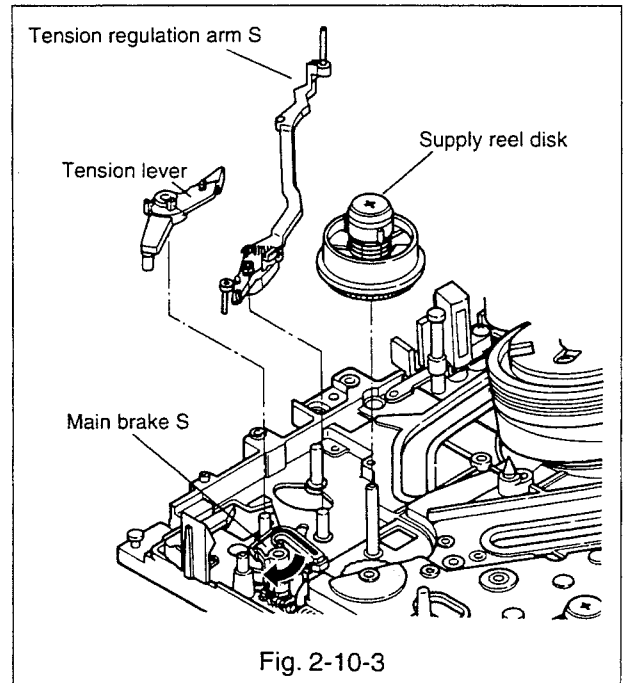
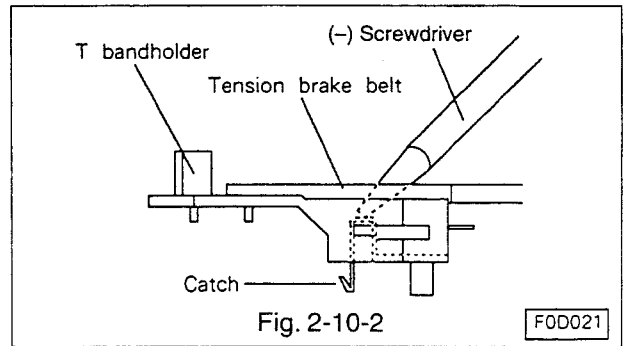
2-10 Supply Reel Disk

2-10-1 Removal (Refer to Fig. 2-10-1~2-10-3.)

- Remove the cassette housing as in Para. 2-1-1.
- Unscrew the screw (a) which fastens the T band holder. (Refer to Fig. 2-10-1.)
- Unfasten the catch of the T band holder from the main plate with a small screw driver etc. as shown in Fig. 2-10-2. Raise and remove the T band holder with care not to score or dirty the tension brake belt.
- Detach the tension spring from the tension arm and the tension lever.(Refer to Fig. 2-10-1.)
- Remove the grip ring (b) which secures the tension arm. Raise the tension arm upward to remove it from the shaft.
- Detach the tension regulation spring S from the tension regulating arm S and the tension lever.
- Detach the safety lever spring from the safety lever and the tension lever.



- H. Raise the tension lever avoiding the main brake S and remove the lever from the shaft.(Refer to Fig. 2-10-3.)
- I. Raise the tension regulation arm S and remove it from the shaft.
- J. While turning the main brake S slightly clockwise to separate the brake from the supply reel disk, and raise the supply reel disk to remove it from the shaft.(Refer to Fig. 2-10-3.)



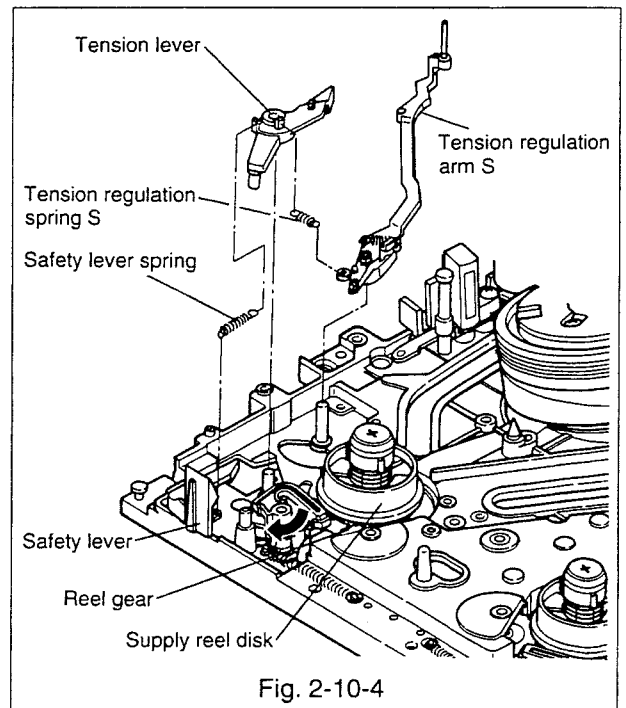
2-10-2 Installation(Refer to Fig. 2-10-4~2-10-7.)

- A. Turn the main brake S slightly clockwise to separate it from the supply reel disk shaft, and mount the supply reel disk on the shaft so that the reel gear meshes with the gear of the supply reel disk.
- B. Assemble the tension regulation arm S to the shaft.
- C. Assemble the tension lever to the shaft avoiding the main brake S.

Note:

Install the tension lever so that the pin at the lower part of the lever shall be in front of the slot in the main plate(viewing the front).

- D. Fasten the safety lever spring to the safety lever and the tension lever.
- E. Fasten the tension regulation spring S to the tension regulation arm S and the tension lever.



- F. Assemble the tension arm to the shaft and secure the arm with the grip ring (b). (Refer to Fig. 2-10-5.)
- G. Fasten the tension spring to the tension arm and the tension lever. (Refer to Fig. 2-10-5.)
- H. Assemble the T band holder to the main plate with care not to score or dirty the tension brake belt, and secure the holder with the screw (a) lightly. (Refer to Fig. 2-10-5.)

Note:

In the assembly of the T band holder, make certain that the hook of the holder positively engages with the reverse side of the main plate.
If the hook is difficult to engage with the main plate, push the hook lightly with a small screw driver etc. (Refer to Fig. 2-10-2.)

- I. Separate the main brake S and the tension regulation arm S from the supply reel disk and make certain that the disk turns freely. (Refer to Fig. 2-10-3.)
- J. Place the reel disk height adjusting jig (Part Number 859C342O20) in the reference position on the main plate. (Refer to Fig. 2-10-6.)
- K. Slowly turn the jig about point A and make sure that the height of the supply reel disk flange agrees with the point B on the supply disk adjusting side of the jig (marked SP). (Refer to Fig. 2-10-7.)
- L. If the height of the disk is not satisfactory, hold the disk so that it does not turn, and turn the height adjusting screw at the top of the disk to adjust the height. (Refer to Fig. 2-11-3.)
 - A) Turn the screw clockwise if the measured height is low.
 - B) Turn the screw counterclockwise if the measured height is high.
- M. On completion of adjustment, lock the height adjusting screw by burning it with the tip of a hot iron.
- N. Install the cassette housing as in Para. 2-1-2.
- O. Adjust back tension and tension pole position as outlined in Para. 3-1.

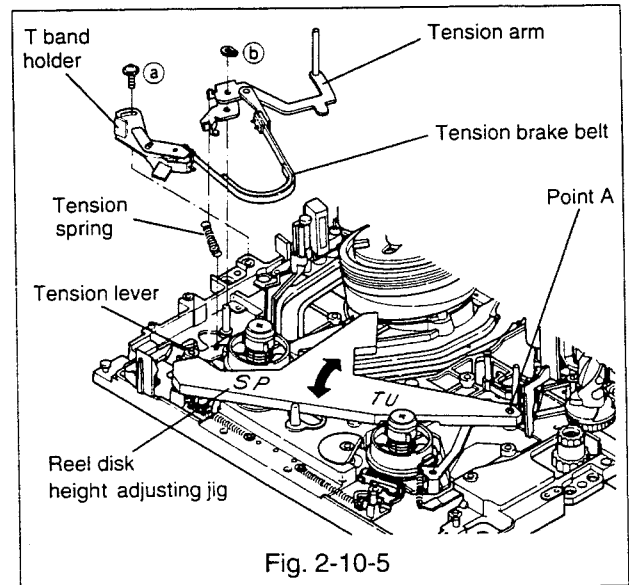


Fig. 2-10-5

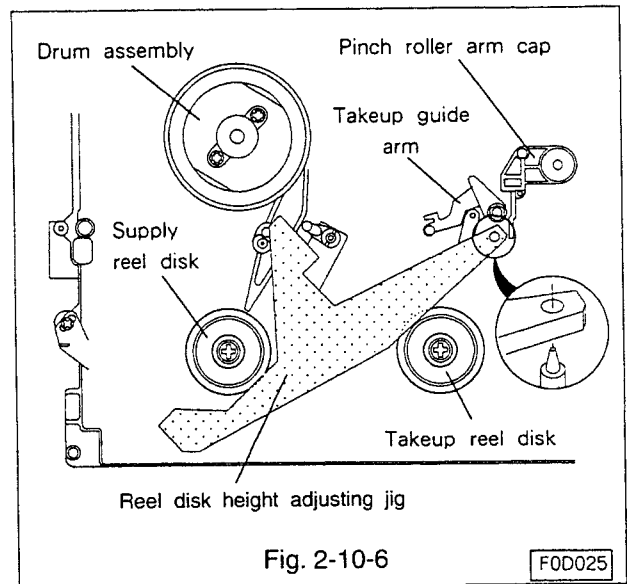


Fig. 2-10-6

F0D025

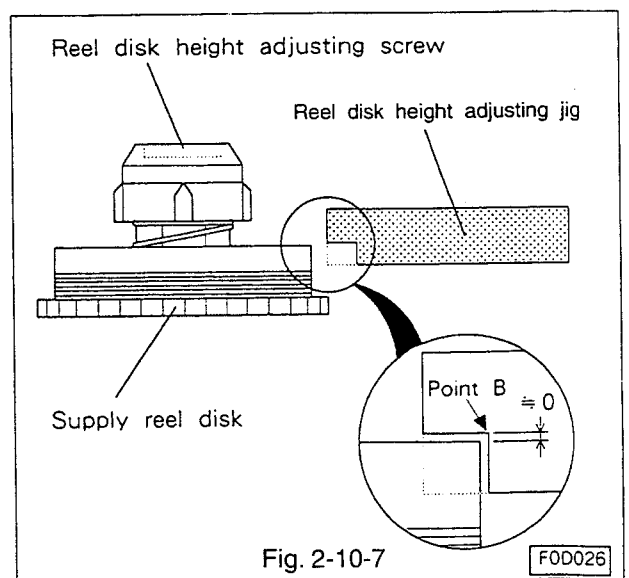


Fig. 2-10-7

F0D026

2-11 Takeup Reel Disk

2-11-1 Removal(Refer to Fig. 2-11-1.)

- A. Remove the cassette housing as in Para. 2-1-1.
- B. Detach the spring RS and the tension regulation spring T from the tension regulation arm T and the lever RS.
- C. Remove the cut washer which fastens the tension regulation arm T.
- D. Turn the takeup guide arm slightly clockwise and raise the tension regulation arm T to remove it from the shaft.
- E. Turn the main brake slightly counter-clockwise to separate the brake from the takeup reel disk and raise the disk upwards to remove it from the shaft.

2-11-2 Installation(Refer to Fig. 2-11-2, 2-11-3.)

- A. Turn the main brake T slightly counter-clockwise to release the takeup reel disk shaft. Slip the takeup reel disk onto the shaft so that the gear of the takeup reel shall mesh with the reel gear.(Refer to Fig. 2-11-2.)
- B. Turn the takeup guide arm slightly clockwise and install the tension regulation arm T to the shaft. Secure the arm with a cut washer.
- C. Fasten the tension regulation spring T and the spring RS to the tension regulation arm T and the lever RS.
- D. Separate the main brake T and the tension regulation arm T from the takeup reel disk and make certain that the takeup reel disk turns freely.
- E. Place the reel disk height adjusting jig(Part Number 859C342O20) in the reference position on the main plate. (Refer to Fig. 2-10-6.)
- F. Turn the jig slowly about the point A towards the takeup reel disk to make certain that the height of the disk flange agrees with the point B on the takeup side of the jig(marked TU). (Refer to Fig. 2-11-3.)
- G. If the height of the disk is not satisfactory, hold the disk so that it shall not turn, and turn the height adjusting screw at the top of the disk to adjust the height. (Refer to Fig. 2-11-3.)
 - A) Turn the screw clockwise if the measured height is low.
 - B) Turn the screw counterclockwise if the measured height is high.
- H. On completion of height adjustment, lock the adjusting screw by burning it with the tip of a hot iron.
- I. Install the cassette housing as in Para. 2-1-2.

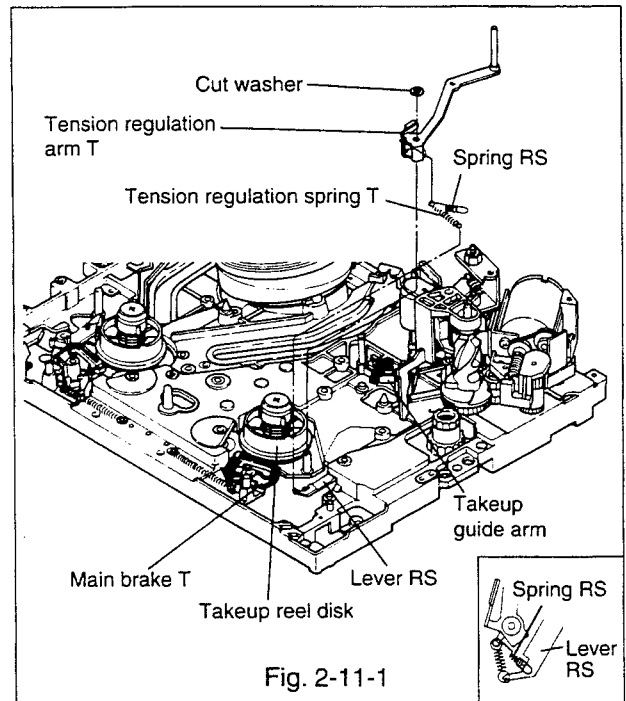


Fig. 2-11-1

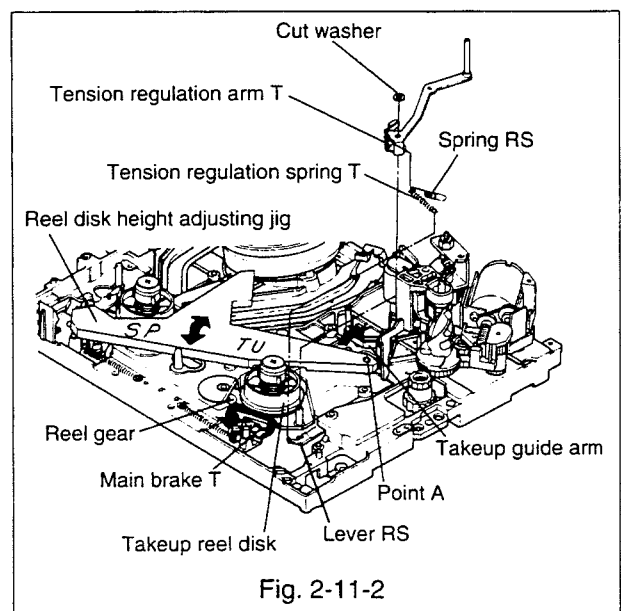


Fig. 2-11-2

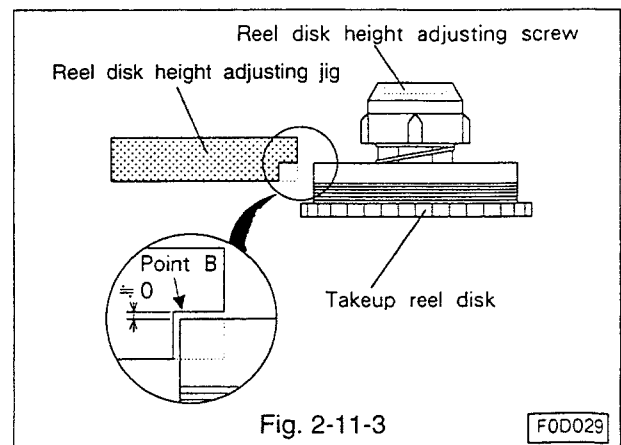


Fig. 2-11-3

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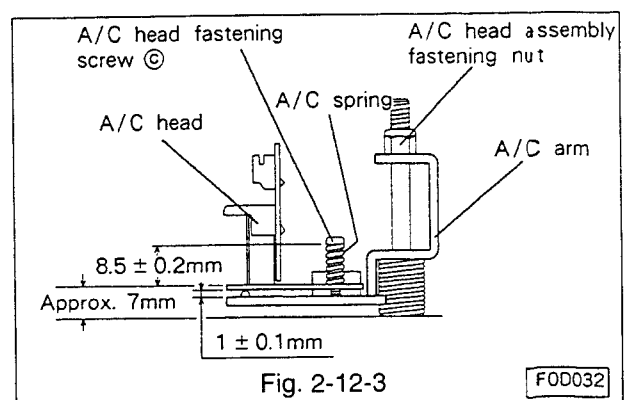
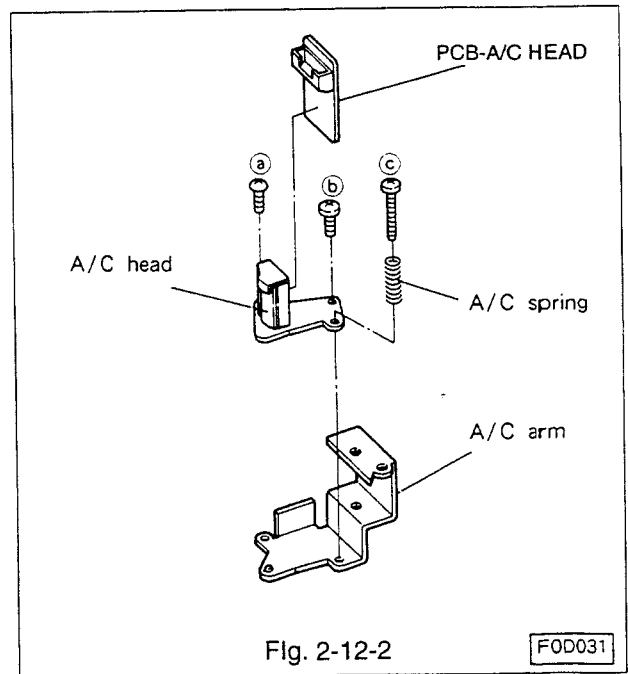
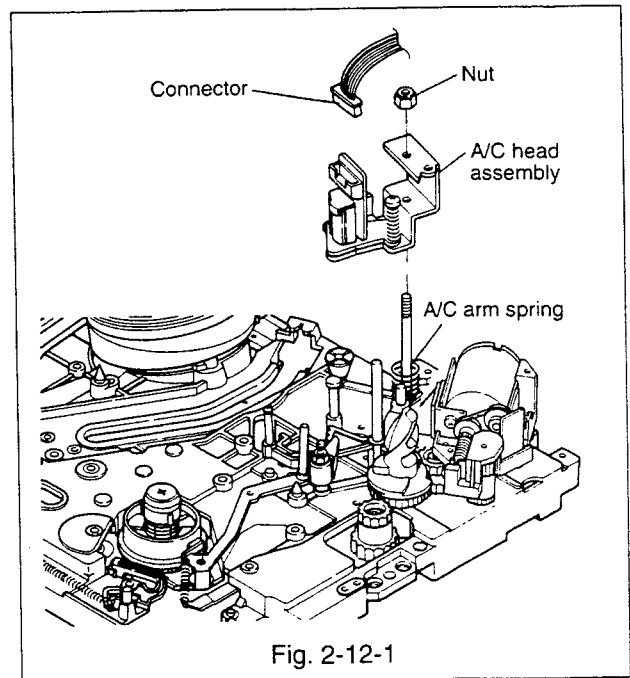
2-12 A/C Head

2-12-1 Removal (Refer to Fig. 2-12-1, 2-12-2.)

- Disconnect the connector from the PCB-A/C HEAD.(Refer to Fig. 2-12-1.)
- Remove the nut which fastens the A/C head assembly.
- Raise upwards and remove the A/C head assembly from the shaft by paying attention to the A/C arm spring which turns the A/C head assembly clockwise.
- Remove three A/C head fastening screws (Ⓐ - Ⓒ) and the A/C spring shown in Fig. 2-12-2, and remove the A/C head from the A/C arm.
- Unsolder the PCB-A/C HEAD from the A/C head.(Refer to Fig. 2-12-2.)

2-12-2 Installation(Refer to Fig. 2-12-1~2-12-3.)

- Solder the PCB-A/C HEAD to the A/C head.
(Refer to Fig. 2-12-2.)
- Fasten the A/C head to the A/C arm with three screws (Ⓐ - Ⓒ) and the A/C spring.
Note:
Install the A/C head to the A/C arm so that the base surface of the A/C head shall be parallel to the A/C arm, and their spacing and the A/C head installation screw Ⓒ height shall be as specified in Fig. 2-12-3.
- Assemble the A/C head assembly to the shaft while turning the A/C arm spring counter-clockwise about 60° (Refer to Fig. 2-12-1.)
- Tighten the A/C head assembly fastening nut so that the base surface of the A/C head shall be about 7mm above the main plate surface.(Refer to Fig. 2-12-3.)
- Plug in the connector to the PCB-A/C HEAD.
(Refer to Fig. 2-12-1.)
- Conduct the A/C head adjustment and the phase adjustment as outlined in Para. 3-3 and 3-4.



2-13 Take Up Guide Arm

2-13-1 Removal(Refer to Fig. 2-13-1.)

- A. Set the VCR in the eject mode.
- B. Remove the pinch roller arm assembly.
(Refer to Para. 2-8 "Pinch Roller")
- C. Raise and separate the pinch roller cam and the TU-G gear arm from the shaft at the same time.
- D. Remove the takeup guide arm fastening nut. Raise and separate the takeup guide arm from the shaft with care not to lose the TU-G spring.

2-13-2 Installation(Refer to Fig. 2-13-1-2-13-3.)

- A. Install the TU-G spring and the takeup guide arm so that one end of the TU-G spring is fastened to the takeup guide arm and the other end is fastened to the hook of the main plate. Secure them with the fastening nut temporarily.
- B. Place the reel disk height adjusting jig(for the F deck) in the reference position on the main plate(Refer to Fig. 2-10-6). Insure the takeup guide arm is level with point B of the height adjusting jig(for the E deck). (Refer to Fig. 2-13-2.)
- C. Turn the takeup tension lever fully clockwise as shown in Fig. 2-13-1.
- D. Line the matching mark on the TU-G gear arm and beginning of gear section on the takeup guide arm, and line the matching mark on the pinch roller cam and center of gear on the joint gear as shown in Fig. 2-13-3, and install the pinch roller cam and the TU-G gear to the shaft at the same time.
- E. Assemble the pinch roller arm assembly to the shaft on the main plate.(Refer to Fig. 2-13-1.)
- F. Secure the pinch roller arm assembly with the pinch roller arm cap and the grip ring.

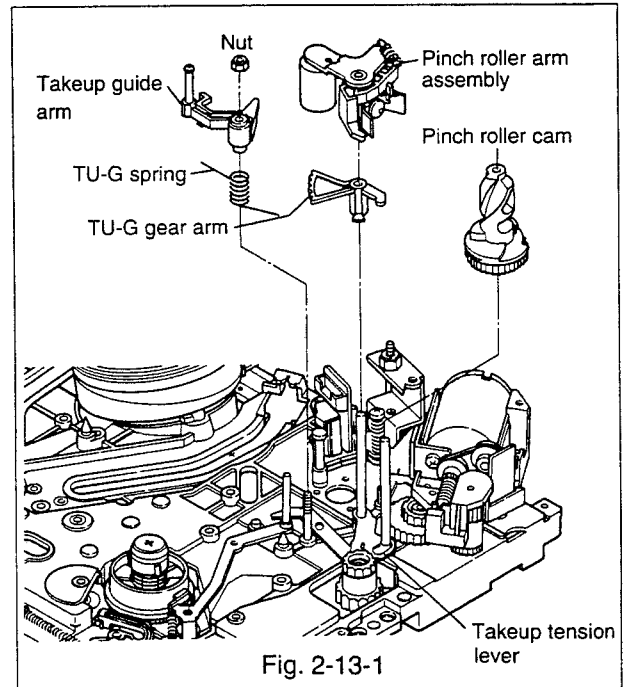


Fig. 2-13-1

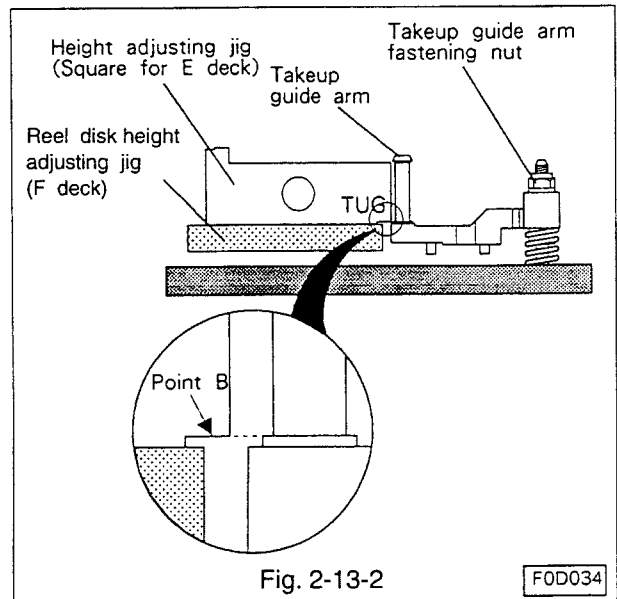


Fig. 2-13-2

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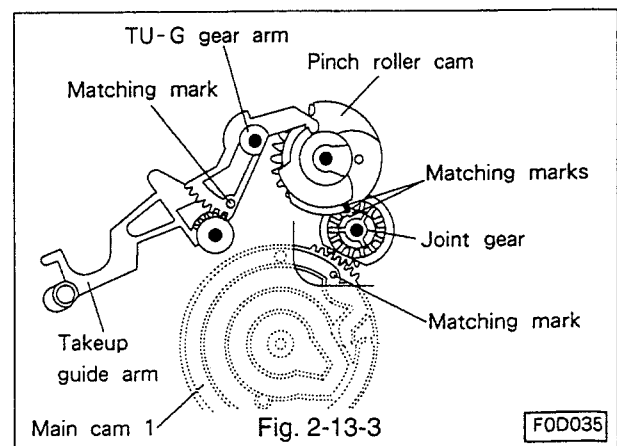


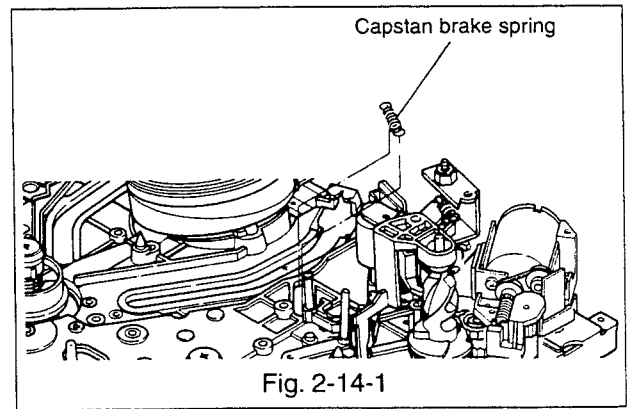
Fig. 2-13-3

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2-14 PCB-Deck(Printed Circuit Board)

2-14-1 Removal(Refer to Fig. 2-14-1, 2-14-2.)

- Detach the capstan brake spring from the capstan brake and the loading gear arm.(Refer to Fig. 2-14-1.)
- Remove the reel belt from the bottom of the deck.(Refer to Fig. 2-5.)
- Detach two grip rings (f) shown in Fig. 2-14-2 and remove the loading gear arm.
- Unsolder the terminals of the FE head.(Refer to Fig. 2-14-1.)
- Unfasten the catches and remove the F/L gear 2, 3 and 4.(Refer to Fig. 2-14-2.)
- Remove grip ring (g) and cut washer (h), and unfasten three catches shown in Fig. 2-14-3 to remove the cam plate B.(Refer to Fig. 2-14-2.)
- Unscrew five fastening screws (a ~ e) and remove the PCB-DECK.(Refer to Fig. 2-14-2.)



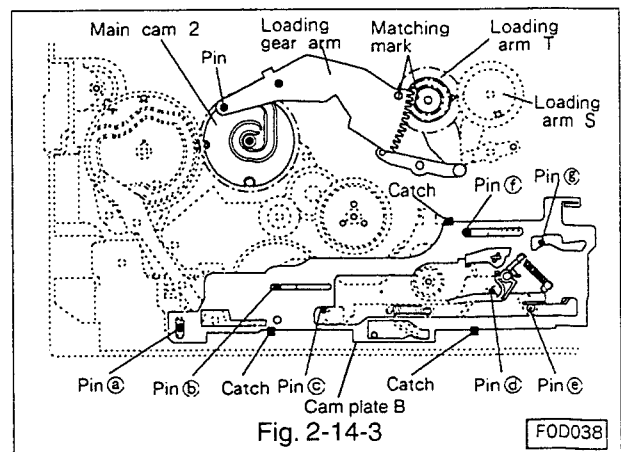
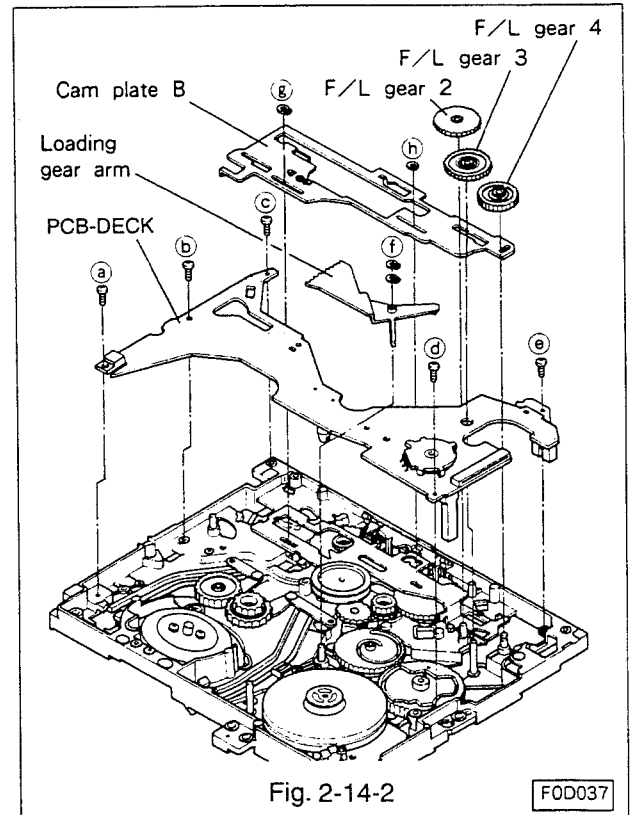
2-14-2 Installation(Refer to Fig. 2-14-1~2-14-3.)

- Make certain that the mode switch is set to the eject position.(Refer to section 2-9.) Fasten the PCB-DECK with five screws and solder the FE head terminals.(Refer to Fig. 2-14-1.)

Note:

The safety lever is normally held leftward with a spring. Pull the safety lever forwards and install the PCB-DECK.

- Install the cam plate B by paying attention to the pin (a ~ g) positions shown in Fig. 2-14-3, and secure the plate with three catches, grip ring (g) and cut washer (h).
- Line the matching mark on the loading arm T and that on the loading gear arm as shown in Fig. 2-14-3, and assemble the loading gear arm so that the pin of the loading gear arm shall enter the groove of the main cam 2. Secure the loading gear arm with two grip rings (f).
- Assemble the F/L gear 2, 3, and 4 to the shafts.(Refer to Fig. 2-14-2.)
- Install the reel belt.(Refer to Fig. 2-5.)
- Fasten the capstan brake spring to the capstan brake and the loading gear arm from the top side of the deck.(Refer to Fig. 2-14-1.)



2-15 Positioning and Installation Sequence of Parts Around Main Cam 1 (Bottom Side of Deck) (Refer to Fig. 2-15-1~2-15-6.)

Note:

Set the VCR to the eject mode to install the main cam 1 and its peripheral parts.

- A. Line the positioning hole in lever RS to that of the main plate, and assemble lever RS to the shaft. (Refer to Fig. 2-15-1.)
- B. Line the positioning hole in lever C with that of the main plate, and assemble lever C to the shaft.
- C. Take care not to move the lever RS and lever C, assemble the main cam 1 to the shaft by lining the matching mark of the joint gear with the positioning hole of main plate. Secure the main cam 1 with the grip ring. (Refer to Fig. 2-15-2.)

Note:

The pins of the lever RS and the lever C enter the groove of the main cam 1 when the levers are lined with the positioning holes.

Make certain that the pins of the levers enter the groove of the main cam 1.

- D. Assemble the thrust washer to the pin (c) shown in Fig. 2-15-2, and install the cam plate C so that the corresponding positions of the plate match the pins (a ~ g).
- E. Fasten cam spring C to cam plate C and the cam plate holder. (Refer to Fig. 2-15-2.)
- F. Assemble lever B to the shaft so that the pin of the lever shown in Fig. 2-15-3 enters the groove of the main cam 1. Secure the lever with a grip ring.
- G. Line the positioning hole of the F/L idler lever with that of the main plate. (Refer to Fig. 2-15-3.)

Note:

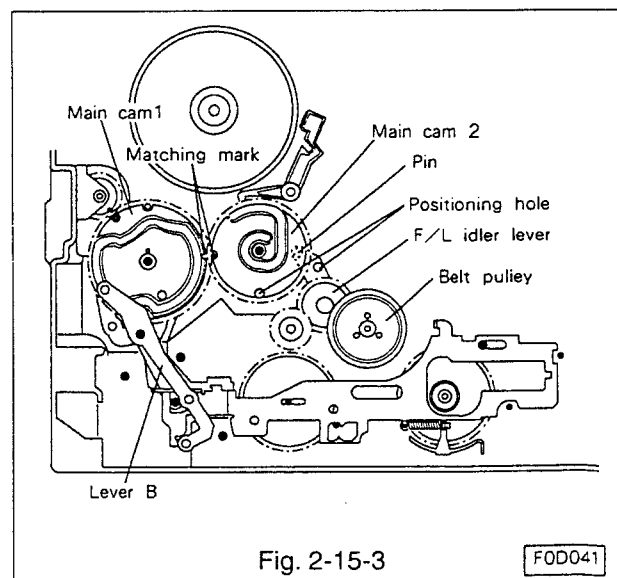
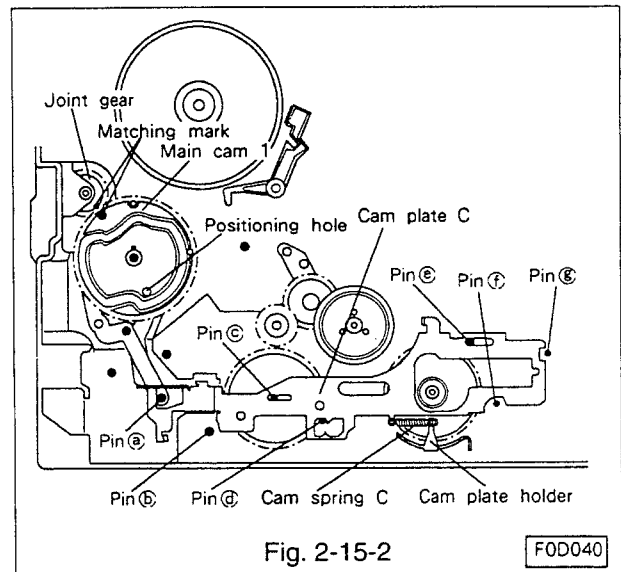
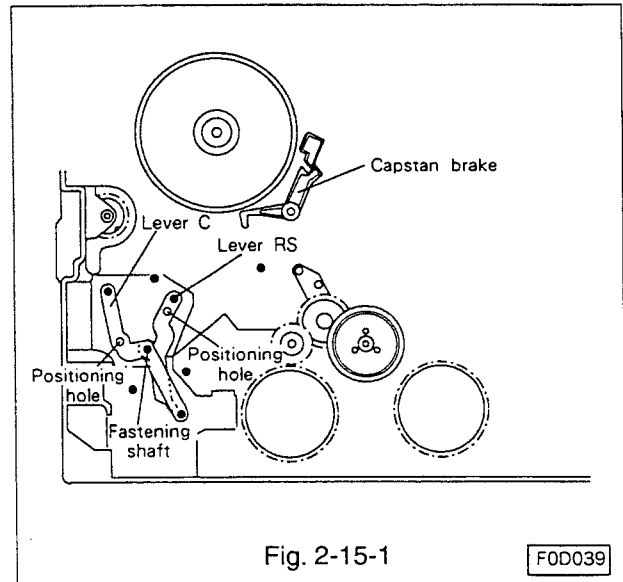
The pin of the F/L idler lever enters the groove of the main cam 2 when the positioning hole of the F/L idler lever is aligned.

Make certain that the pin of the lever enters the groove of the main cam 2.

- H. Line the matching mark of main cam 2 with that of main cam 1, and also the positioning hole of main cam 2, and assemble the main cam 2 to the shaft. (Refer to Fig. 2-15-3.)

Note:

Make certain that the pin of the F/L idler lever correctly enters in the groove of the main cam 2.

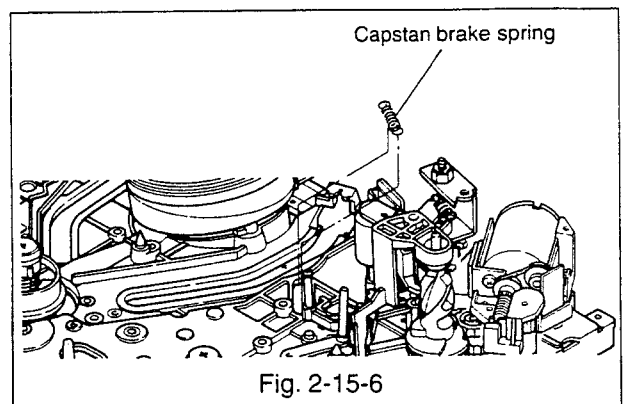
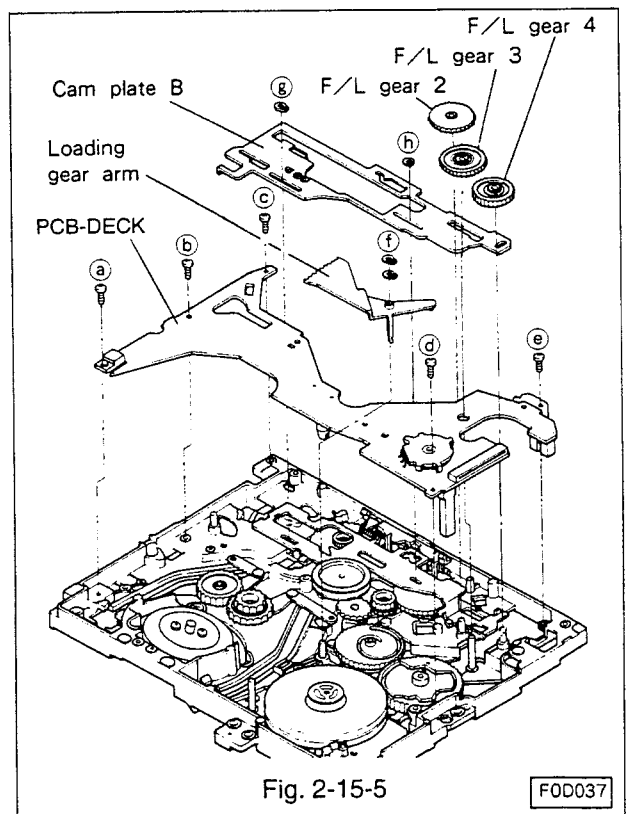
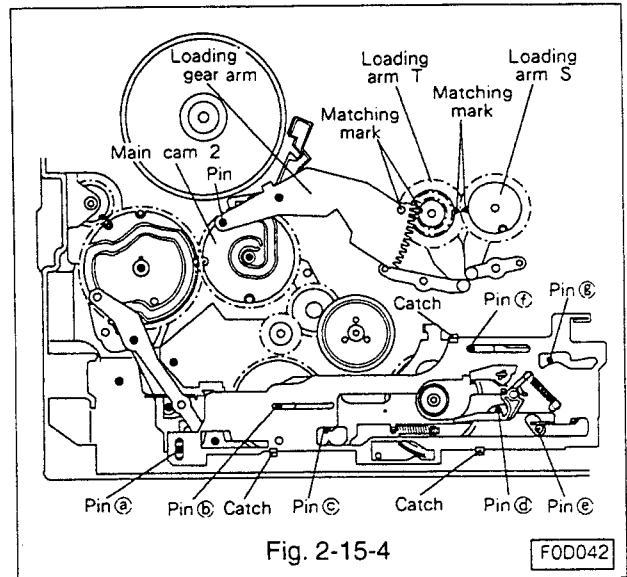


- I. Make certain that the mode switch is in the eject position. Fasten the PCB-DECK assembly with five screws and solder the FE head terminals. (Refer to Fig. 2-14-2 and 2-14-1.)

Note:

The safety lever is normally held in the leftward position by the spring. Pull the lever forwards and install the PCB-DECK assembly.

- J. Install the cam plate B so that the plate matches pins (a ~ g) as shown in Fig. 2-15-4, especially pin e, and secure the plate with three clamps, cut washer (pin b) and grip ring (pin f).
- K. Line the matching mark of the loading arm T with that of the loading gear arm as shown in Fig. 2-15-4, and assemble the loading gear arm to the shaft so that the pin of the loading gear arm enters the groove of the main cam 2. Secure arm with two grip rings (f). (Refer to Fig. 2-15-5.)
- L. Assemble the F/L gear 2, 3, and 4 to the shafts as shown in Fig. 2-15-5.
- M. Install the reel belt. (Refer to Fig. 2-5.)
- N. Fasten the tension regulation spring T and the spring RS to the tension regulation arm T and the lever RS from the top side of the deck. (Refer to Fig. 2-11-1.)
- O. Fasten the capstan brake spring to the capstan brake and the loading gear arm from the top side of the deck. (Refer to Fig. 2-15-6.)



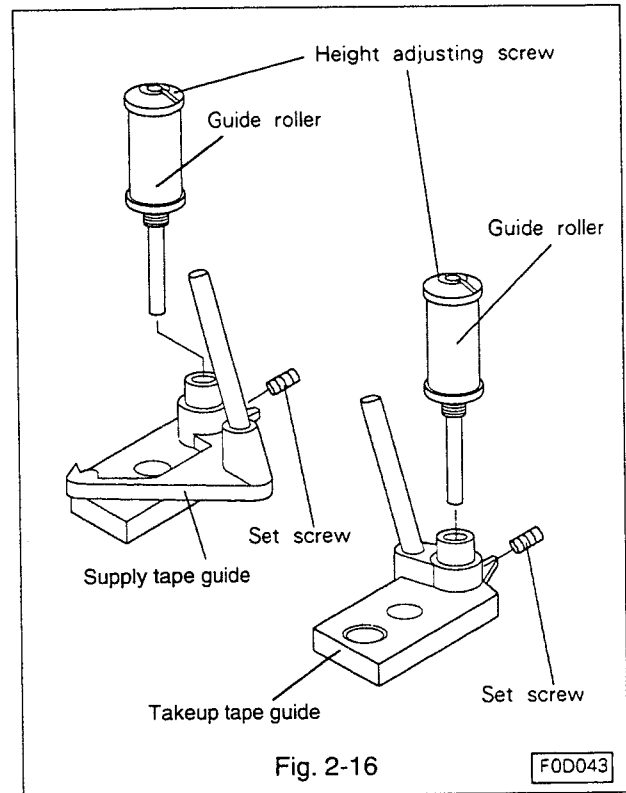
2-16 Supply and Takeup Guide Rollers

2-16-1 Removal(Refer to Fig. 2-16.)

- A. Remove the cassette housing as in Para. 2-1-1.
- B. Loosen the set screw so the guide roller turns freely.
- C. Loosen the guide roller height adjusting screw located at the top of the guide roller by turning counterclockwise with the height adjusting screwdriver. Raise and remove the roller from the tape guide.

2-16-2 Installation(Refer to Fig. 2-16.)

- A. Make certain that the fastening thread section of a new guide roller is provided with a rubber ring.
- B. Set the new guide roller in the tape guide fastening hole.
- C. Turn the guide roller slowly clockwise till it becomes heavy.
- D. Turn further about 1/6 turn from the point where the guide roller becomes heavy, and return the roller about one turn counter-clockwise.
- E. Again turn the guide roller slowly clockwise till it becomes heavy. Turn the roller further about 1/6 turn from the point where the roller becomes heavy.
- F. Secure the guide roller lightly with the set screw. Check and adjust the envelope as in Para. 3-2.



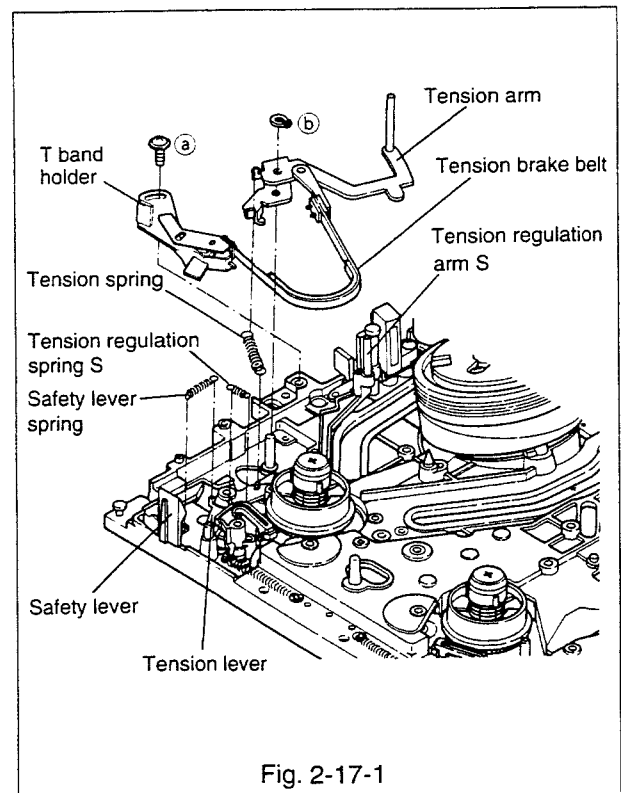
2-17 Supply and Takeup Tape Guide Assemblies

Note:

Refer to section 3-2-7 and 3-3-3 before replacing the supply or takeup tape guide assemblies.

2-17-1 Removal(Refer to Fig. 2-17-1~2-17-4.)

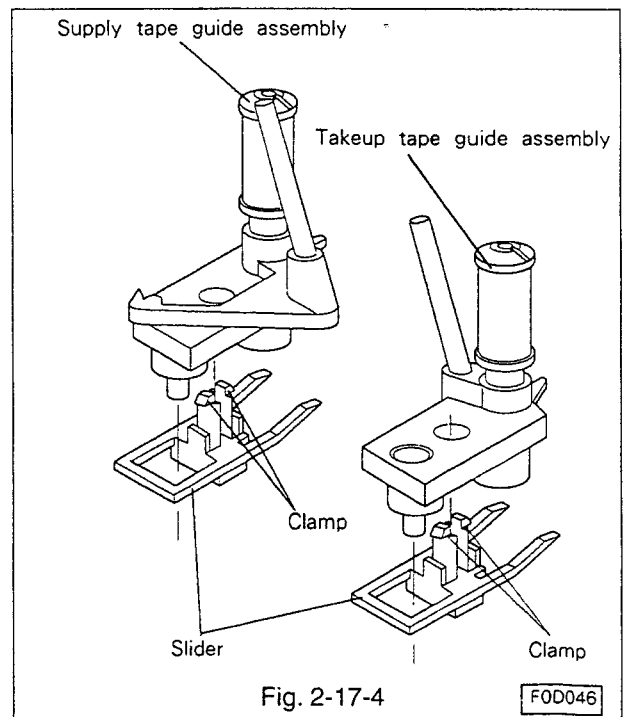
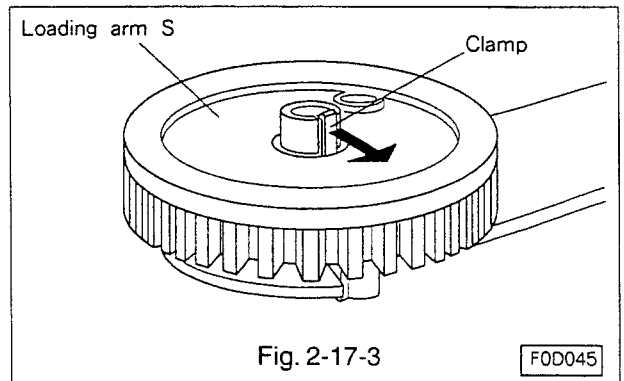
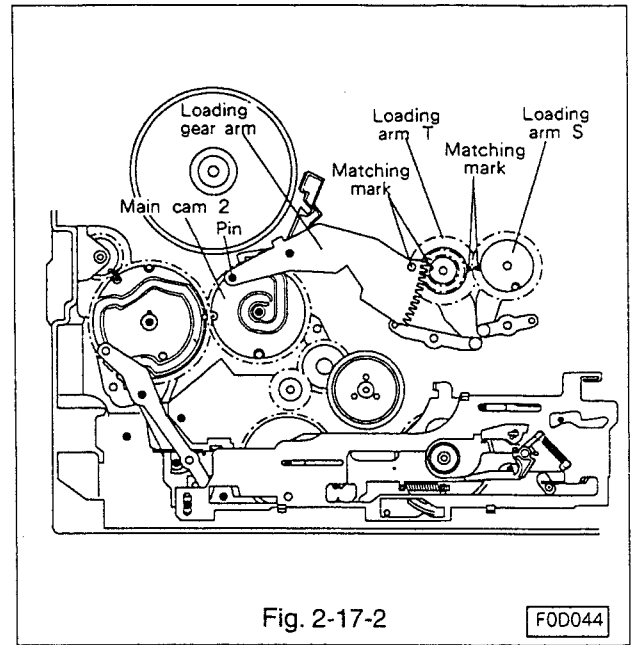
- A. Remove the cassette housing as in Para. 2-1-1.
- B. Detach the capstan brake spring from the capstan brake and the loading gear arm.(Refer to Fig. 2-15-6.)
- C. Remove the reel belt. (Refer to Fig. 2-5.)
- D. Secure the tension arm and the tension regulation arm S with a rubber band etc. so as to separate them from the supply guide roller.(Refer to Fig. 2-17-1.)



- E. Remove the grip ring and remove the loading gear arm.(Refer to Fig. 2-17-2.)
- F. Turn the loading arm S and T to the loading position.(Refer to Fig. 2-17-2.)
- G. Unfasten the clamp shown in Fig. 2-17-3, and remove loading arm S.
- H. Remove the loading arm T is being replaced the takeup guide assembly.
- I. Unfasten the clamp of the slider which secures the supply or takeup tape guide assembly, and remove the tape guide assembly and the slider from the main plate.(Refer to Fig. 2-17-4.)

2-17-2 Installation(Refer to Fig. 2-17-1~2-17-4.)

- A. Place a new tape guide assembly on the installation rail of the main plate and install the slider on the reverse side of the main plate so that the catch of the slider enters the fastening hole of the tape guide assembly.
- B. If the takeup tape guide is replaced, install the loading arm T first.(Refer to Fig. 2-17-2.)
- C. Install the loading arm T so that the matching mark of the loading arm S is lined with the matching mark of the loading arm T as illustrated in Fig. 2-17-2.
- D. Line the matching mark of the loading gear arm with that of the loading arm T, and assemble the loading gear arm to the shaft so that the pin of the loading gear arm enters the groove of the main cam 2. Secure the loading gear arm with two grip rings.
- E. Install the reel belt.(Refer to Fig. 2-5.)
- F. Fasten the capstan brake spring to the capstan brake and the loading gear arm from the top side of the deck.(Refer to Fig. 2-17-1.)
- G. Install the cassette housing as in Para. 2-1-2.



3. Interchangeability Adjustment of Mechanism

Note:

Tracking may need to be preset in the inter-changeability adjustment of the mechanism.

Digital tracking should be preset. To preset, short circuit TP5A and TP5B on the PCB-MAIN.

Note:

The adjustment is conducted in the playback mode, using the stair step signal of the alignment tape, connect an oscilloscope to TP2A and external Trig. to TP2H, unless other-wise specified.

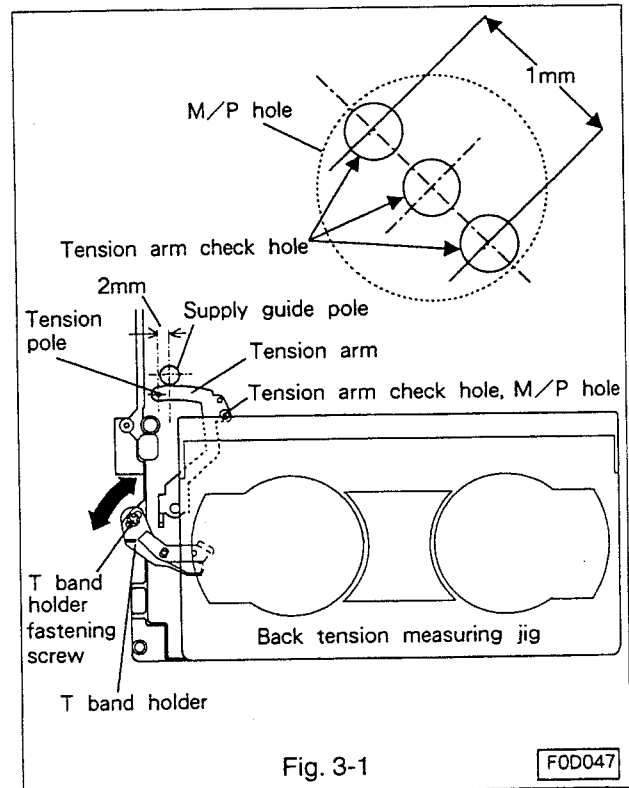
3-1 Adjustment of Back Tension and Tension Pole Position(Refer to Fig. 3-1.)

Run a blank tape for several minutes to break in the reel disks and the transport before beginning the adjustment.

- A. Set the back tension measuring jig and set the VCR to the playback mode.
- B. When the running of the tape becomes steady, make certain that the tension arm check hole is within the M/P hole of the main plate($0\pm 0.5\text{mm}$) or the interval between the centre of tension pole and the centre of Supply guide pole is $2.0\pm 0.5\text{mm}$.
- C. If neither the centre of Tension pole nor the tension arm check hole is in position, loosen the T band holder fastening screw lightly and move the T band holder so that the condition specified by the para.B is satisfied.
- D. On completion of adjustment, tighten the T band fastening screw.
- E. Make certain that the reading of the back tension measuring jig is $50\pm 6\text{g-cm}$.
- F. When the running of the tape is steady, check visually to make certain that the deflection of the Tension pole is 1mm or less.

Note:

Slight fluctuation of back tension may be tolerated, however if fluctuation exceeds 5g-cm, the reel disk etc. may be defective. Examine and correct the defect.



3-2 Check and Adjustment of FM Envelope

3-2-1 Guide Roller Adjustment(Refer to Fig. 3-2-1.)

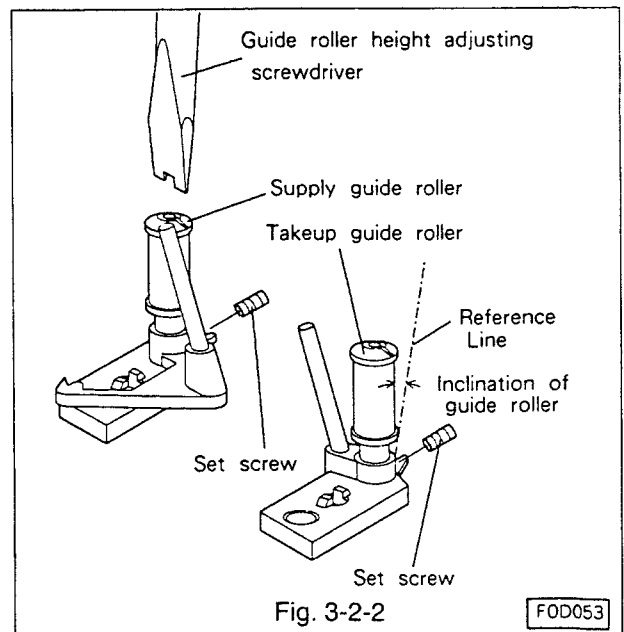
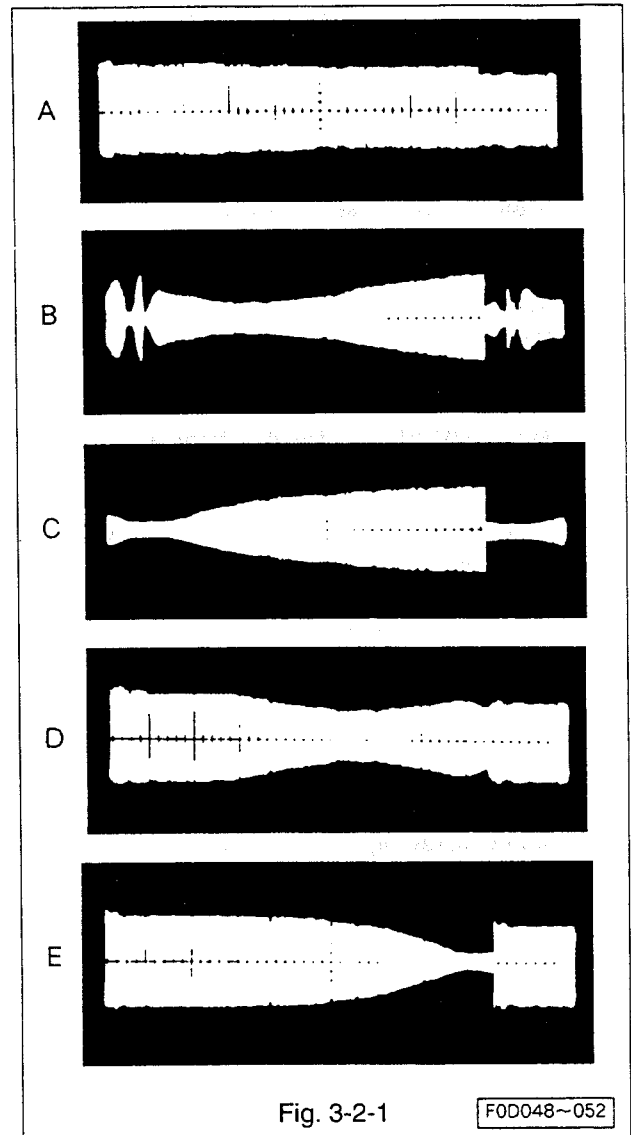
- A. Set the VCR to the playback mode.
 - B. Preset tracking.
 - C. Check if the FM waveform is flat like A shown in Fig. 3-2-1.
 - D. Adjust the height of the supply guide roller as in 3-2-2 if the leading portion (the entry side of the drum) of the FM waveform is not flat like B or C.
- Adjust the height of the takeup guide roller as in 3-2-3 if the trailing portion (the exit side of the drum) is not flat like D or E.

3-2-2 Adjustment of Supply Guide Roller Height (Refer to Fig. 3-2-1, 3-2-2.)

- A. Loosen the set screw to such a degree so the supply guide roller turns lightly.(Refer to Fig. 3-2-2.)
- B. The supply guide roller is low if the leading portion(the entry side of the drum) of the FM waveform is like B, and high if like C. Adjust the height of the roller by turning the adjusting screw at the top of the roller so that the FM waveform shall be flat like A.
 - Turn the adjusting screw counterclockwise if the roller is low.
 - Turn the adjusting screw clockwise if the roller is high.
- C. Carry out the coarse adjustment of phase as in 3-2-4.

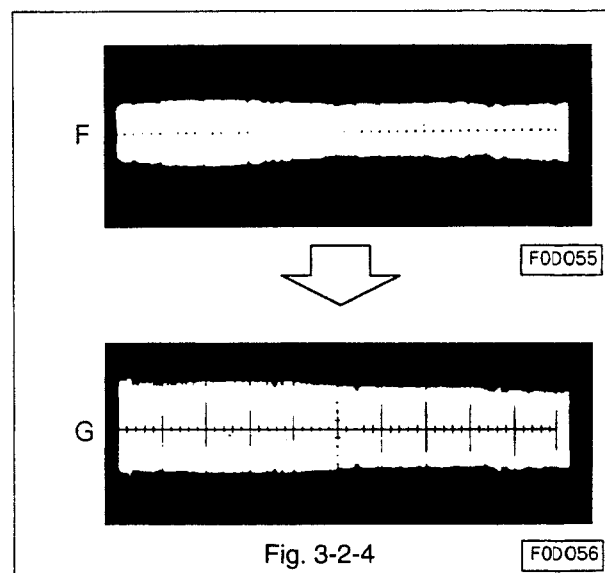
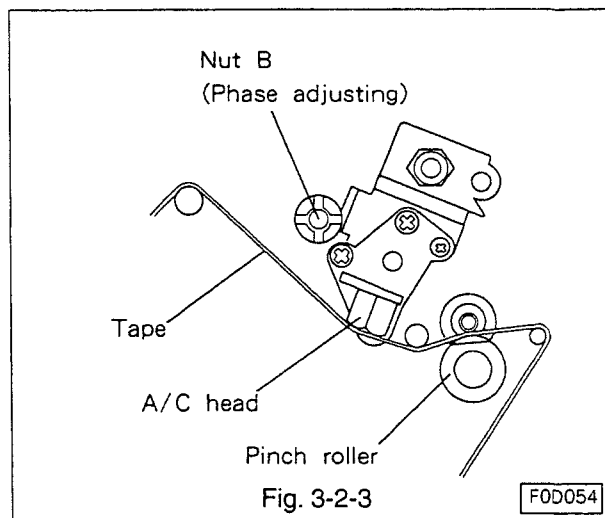
3-2-3 Adjustment of Takeup Guide Roller Height (Refer to Fig. 3-2-1, 3-2-2.)

- A. Loosen the set screw to such a degree as the takeup guide roller turns lightly.(Refer to Fig. 3-2-2.)
- B. The takeup guide roller is low if the trailing portion(the exit side of the drum) of the FM waveform is like D, and high if like E. Adjust the height of the roller by turning the adjusting screw at the top of the roller so that the FM waveform shall be flat like A.
 - Turn the adjusting screw counterclockwise if the roller is low.
 - Turn the adjusting screw clockwise if the roller is high.
- C. On completion of height adjustment, adjust the azimuth and height of the A/C head as in 3-3-2.
- D. Coarsely adjust the phase as in 3-2-4.



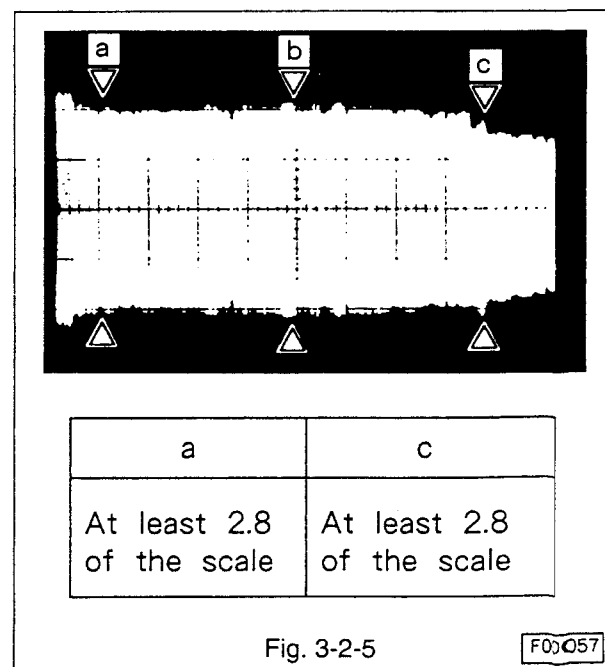
3-2-4 Coarse Phase Adjustment
(Refer to Fig. 3-2-3, 3-2-4.)

- A. Set the VCR to the playback mode.
- B. Preset tracking.
- C. Check the FM waveform after checking and adjusting the guide rollers.
- D. If the amplitude of the FM waveform is narrow like F because of out of phase, adjust the phase adjusting nut so that the amplitude of the FM waveform is maximum.



3-2-5 Check of FM Waveform Flatness
(Refer to Fig. 3-2-5.)

- A. Set the VCR to the playback mode.
- B. Set the tracking switch to the manual mode. Vary tracking and check if the amplitude changes and the waveform remains flat.
- C. Adjust tracking in the manual mode so that the amplitude is maximum, and adjust the oscilloscope so that the amplitude is '5' on the scale of the oscilloscope.
- D. Adjust tracking so that the amplitude at the middle (around the point 'b') of the FM waveform is about 80% ('4' on the scale of the scope) of the maximum amplitude. Make certain that the amplitudes at points 'a' and 'c' satisfy the requirements given in Fig. 3-2-5.
- E. If deviating from the requirements, conduct the check and adjustment of the FM envelope beginning with 3-2.



3-2-6 Check 1: Tape Running Condition on Guide Rollers(Refer to Fig. 3-2-6.)

- Set the VCR to the playback mode.
- Visually check if there is a space between the tape and the lower flange of the supply and the take up guide rollers.
- If not, replace the tape guide as in 3-2-7.

Note:

In this case the tape guide should be replaced with the tape guide which has a larger inclination.

- If the supply tape guide is replaced, check the guide roller as in 3-2-1.
If the take up tape guide is replaced, check the guide roller as in 3-2-3, and the waveform flatness as in 3-2-5
- Load and unload the tape several times to make certain that the flatness of the FM waveform does not change.
- If changes occur, check the A/C arm shaft for looseness.
If not free, replace the A/C arm and adjust the audio/control head as in 3-3.

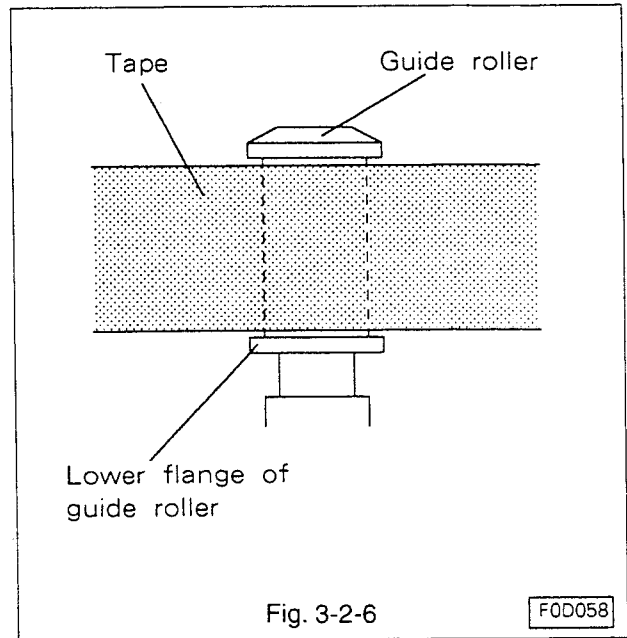


Fig. 3-2-6

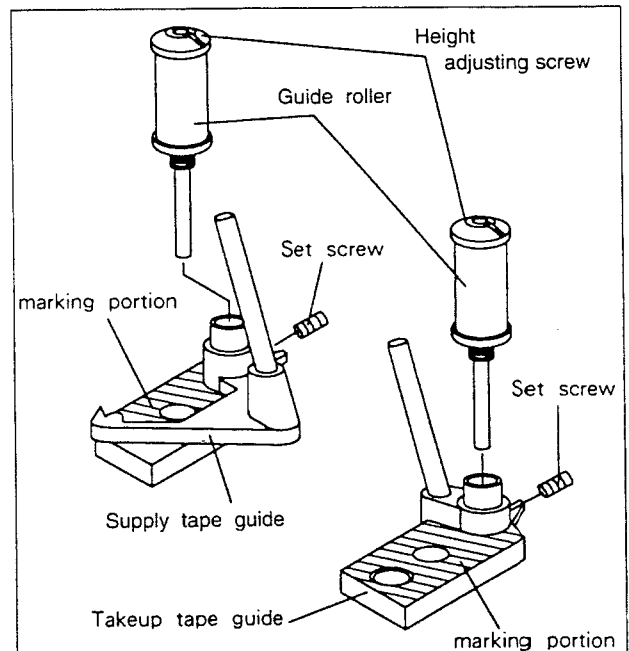
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3-2-7 Replacement of Tape Guides

- Identify the Item Number of the tape guide to be replaced.
This is done by observing the marking present on the die-cast portion of the tape guide base, and comparing that marking to Fig. 3-2-7.
- If the Item Number of the tape guide presently installed is a '2', replace the guide with an Item Number '1' guide.(Part No.635B059O10)
- If the Item Number of the present tape guide is a '1', replace the guide with an Item Number '3' guide.
- If the Item Number of the present tape guide is a '3', replace the guide with other Item Number '3' guide.
- Once the tape guide is replaced, resume alignment starting with 3-2-1.

3-2-8 Check 2: Tape Running Condition on Guide Rollers

- Set the VCR to the playback mode.
- Press the head of the supply guide roller and the take up guide roller lightly, and release the roller. Check if the FM waveform is quickly restored to the previous level.
- If the FM waveform is not restored quickly, replace the tape guide as in 3-2-7.
- If the supply tape guide is replaced, check the guide roller as in 3-2-1.
If the takeup tape guide is replaced, check the guide roller as in 3-2-1, and check the FM waveform as flatness as in 3-2-5
- If satisfactory, tighten the set screw of the guide roller on the supply side and the take up side.



Identification of Tape Guide Item Number
(Example ; Parts No. 635B059O10)
Item No.

Item No.1	No marking
Item No.2	Marked with black magic marker
Item No.3	Marked with red magic marker

※ The marking point is marked in the oblique line portion shown in figure above.

Fig. 3-2-7

3-3 Adjustment of Audio/Control Head

3-3-1 Adjustment of A/C Head Slant

(Refer to Fig. 3-3-1.)

- Play back a blank tape.
- Turn the screw C slowly clockwise to crease the bottom edge of the tape slightly by the lower flange of the takeup guide pole.
- Turn the screw C slowly counterclockwise to eliminate the crease of the bottom edge of the tape.
- Turn the screw C slowly clockwise again and stop turning just before the tape is creased.

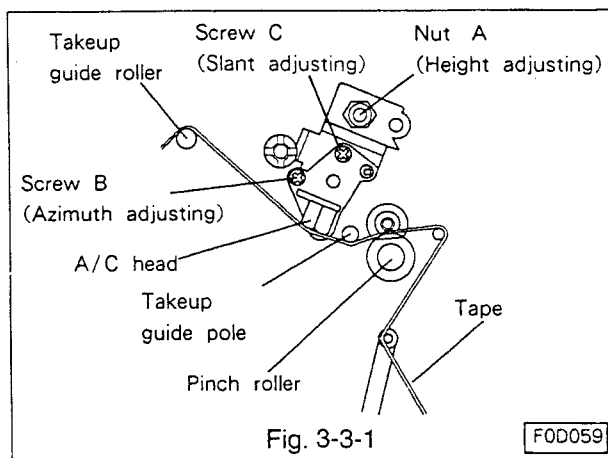


Fig. 3-3-1

3-3-2 Adjustment of A/C Head Azimuth and Height(Refer to Fig. 3-3-1~3-3-3.)

- Using stair step signal of alignment tape, connect an oscilloscope to the audio output terminal and set the VCR to the playback mode.
- Turn the nut A(height adjusting)and the screw B(azimuth adjusting)so that the audio output level is maximum.
- Turn the A/C head counterclockwise and release it to make certain that the audio output level does not change.
- If the level changes, check if the A/C arm shaft is loose. If not free, replace the A/C arm and adjust the slant of the A/C head as in 3-3-1 and the azimuth and height of the A/C head from beginning.
- Apply a force lightly to the A/C head shaft in the direction of A and A' of the arrow shown in Fig. 3-3-3, to make certain that the audio output level remains at maximum level and does not change.
- If the level changes, turn the nut A(height adjusting)so that the audio output level is maximum. Apply a force lightly to the A/C head shaft in the direction of B and B' of the arrow shown in Fig. 3-3-3 and adjust so that the sound output level is maximum.
- Check the sound output level in the playback mode to make sure that the fluctuation of the level is less than 2dBp-p.
- If the fluctuation exceeds 2dBp-p, adjust the slant of the A/C head and the azimuth and height of the head.
- If this is still not satisfactory, replace the takeup tape guide as outlined in 3-3-3.

Note:

In this case the tape guide should be replaced with a guide which has less inclination.

- On completion of the above adjustment,adjust phase as in 3-4.

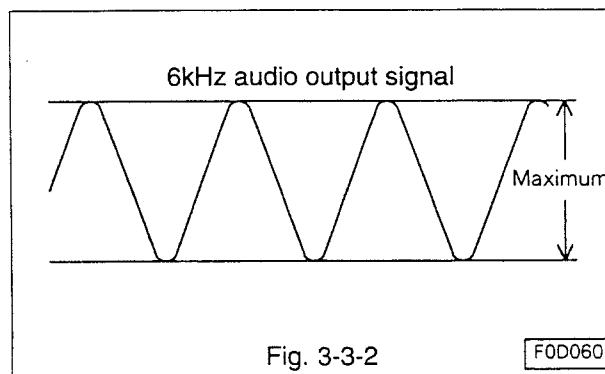


Fig. 3-3-2

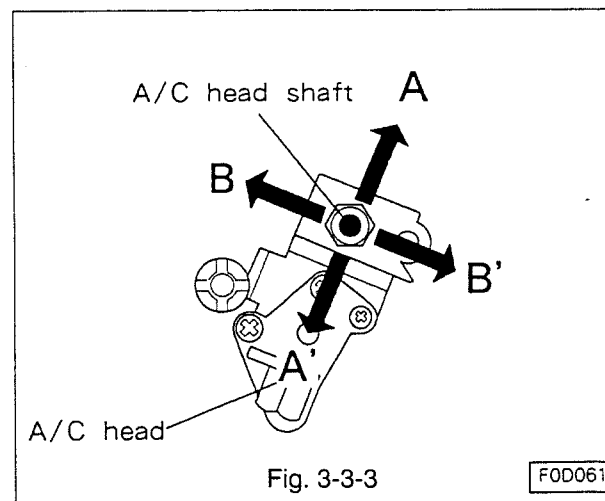


Fig. 3-3-3

Identification of Tape Guide Item Number
(Example ; Parts No. 635B060010)
Item No. 1

Item No.1	No marking
Item No.2	Marked with black magic marker
Item No.3	Marked with red magic marker

※The marking points are marked in the tops of the Takeup and Supply tape guides.(Refer to Fig. 3-2-7)

Fig.3-3-4

3-3-3 Replacement of Tape Guides

- A. Identify the Item Number of the Tape Guide to be replaced. This is done by observing the marking present on the die-cast portion of the Tape Guide base, and comparing that marking to Fig. 3-3-4.
- B. If the Item Number of the tape guide presently installed is a '3', replace the guide with an Item Number '1' guide.
- C. If the Item Number of the present tape guide is a '1', replace the guide with an Item Number '2' guide.
- D. If the Item Number of the present tape guide is a '2', replace the guide with other Item Number '2' guide.
- E. Once the tape guide is replaced, resume alignment starting with 3-2-1.

3-4 Phase Adjustment(Refer to Fig. 3-4.)

- A. Set the VCR to the playback mode.
- B. Preset tracking.
- C. Turn the phase adjusting nuts to make the amplitude of the FM waveform maximum.

Note:

Do not turn the phase adjusting nut more than one turn in either direction.

- D. Turn the A/C head counterclockwise and return to make sure that the amplitude of the FM waveform is the same as that before turning the head.
- E. If the amplitude changes, check the A/C arm shaft if loose. If not free, replace the A/C arm and adjust the A/C head as in 3-3 and the phase as in this section from beginning.
- F. Load and unload the tape several times to make certain that the amplitude of the FM waveform does not change.

3-5 Adjustment of Takeup Guide Arm Height (Refer to Fig. 3-5.)

- A. Run a final portion of E-240 blank tape in the reverse search mode.
- B. Adjust the height of the takeup guide pole by turning the height adjusting nut so that the tape shall not be creased at the upper and the lower flange portion of the take up guide pole.

Note:

Set the adjusting nut in the screwing-in direction.

Do not turn the nut more than one turn in either direction.

- C. Eject the cassette tape and set to the reverse search mode again to make certain that the tape is not creased at the upper and the lower flange portion of the takeup guide pole.
- D. Set to the playback mode and be sure that the tape is not creased at the upper and the lower flange portion of the takeup guide pole.

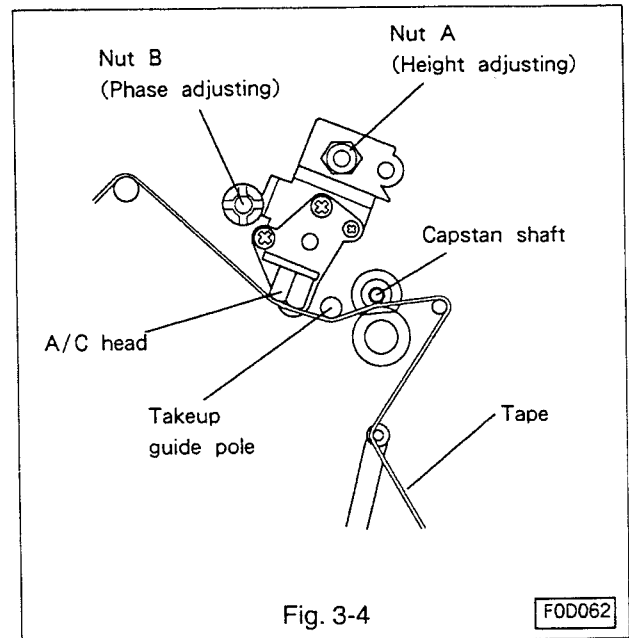


Fig. 3-4

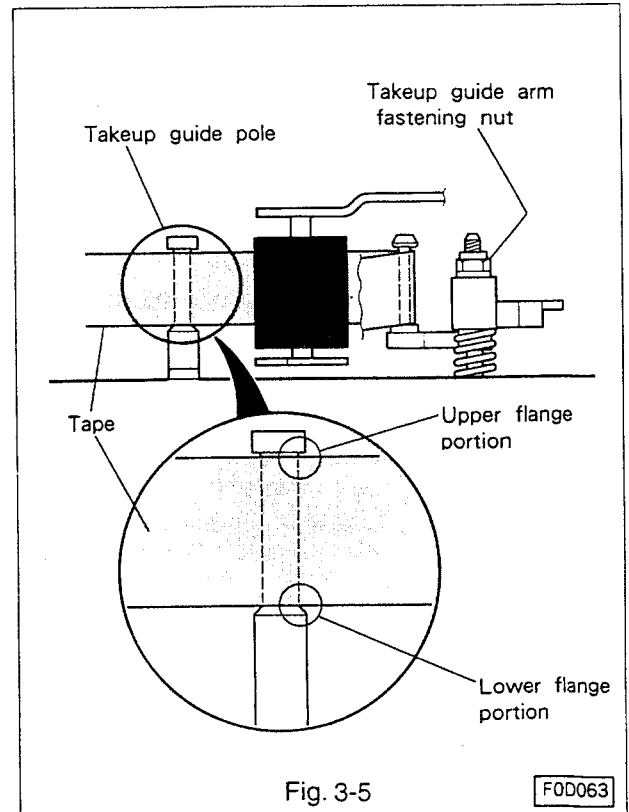


Fig. 3-5

CHIP PARTS REPLACEMENT

CHIP PARTS REPLACEMENT

Some resistors, shorting jumpers (0Ω resistor), ceramic capacitors, transistors and diodes are chip parts which are used for certain circuit elements. When replacing these parts, note the cautions as follows.

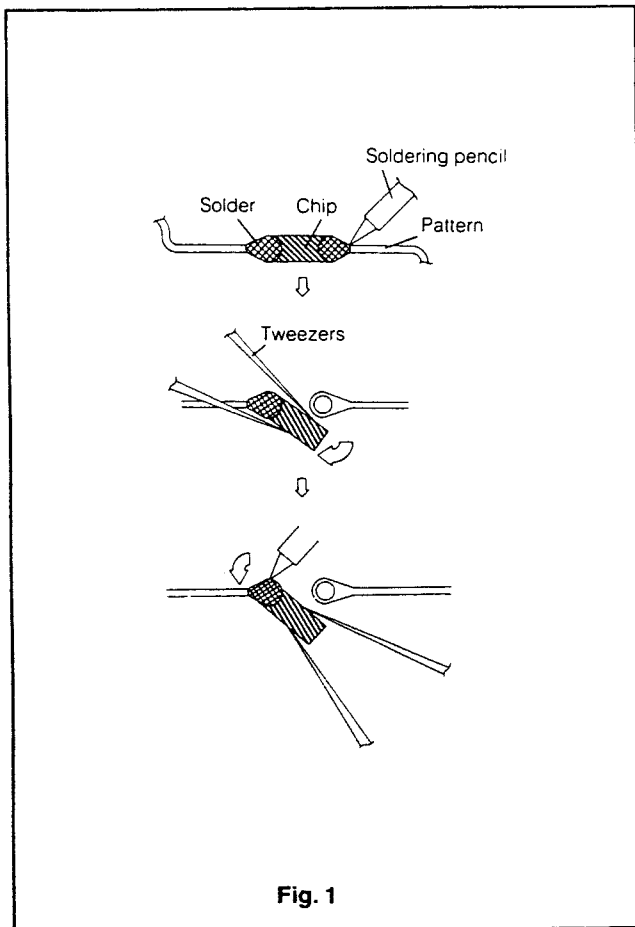
Cautions:

- Use fine tipped, well insulated soldering pencil (iron) about 30 watts and the tweezers.
- Melting the solder, remove the Chip Parts carefully not to tear off the copper foil of the printed circuit board.
- Discard removed chips; do not reuse them.
- Do not apply heat for more than 3 seconds to the new chip Parts.
- Avoid using a rubbing stroke when soldering.
- Take care not to scratch when soldering, or damage the Chip Parts.
- Supplementary cementing is not required.

1 Removal of chip Parts

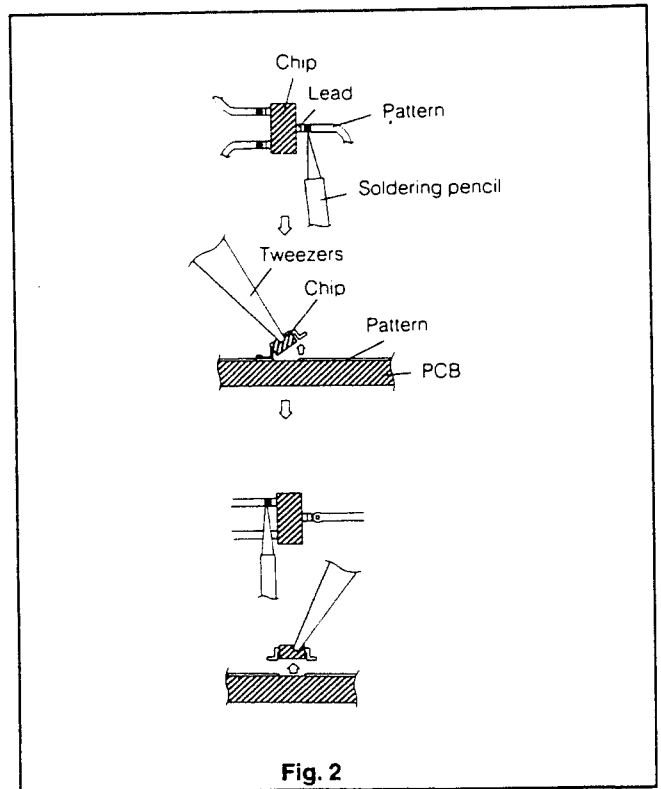
(Resistors, capacitors, etc.)

- Grasp the part with tweezers. Melting the solder at both side alternately, remove the one side of the part with a twisting motion.
- Melt the solder at the other side and remove the part.



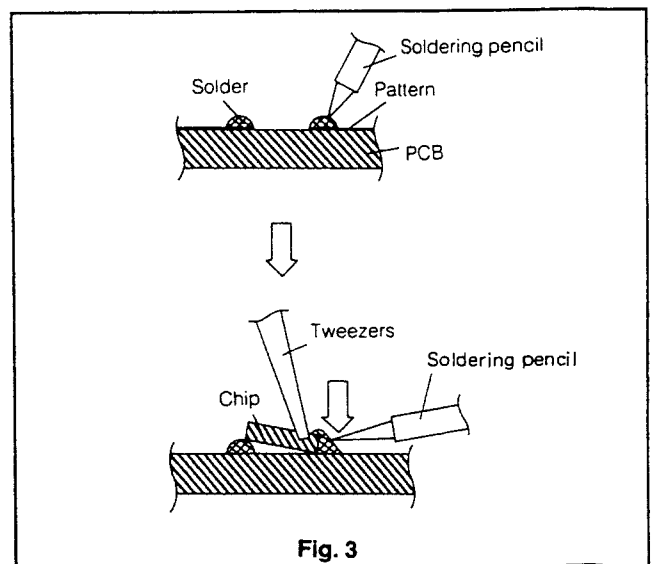
2 Removal of Chip Parts (Transistors)

- Melting the solder of one lead, Lift the side of that lead upward.
- Simultaneously melt the solder of the two remaining leads and lift the part to remove.



3 Replacement

- Presolder the contact points of the circuit pattern.
- Press the part downward with tweezers and apply the soldering pencil as shown in the figure.



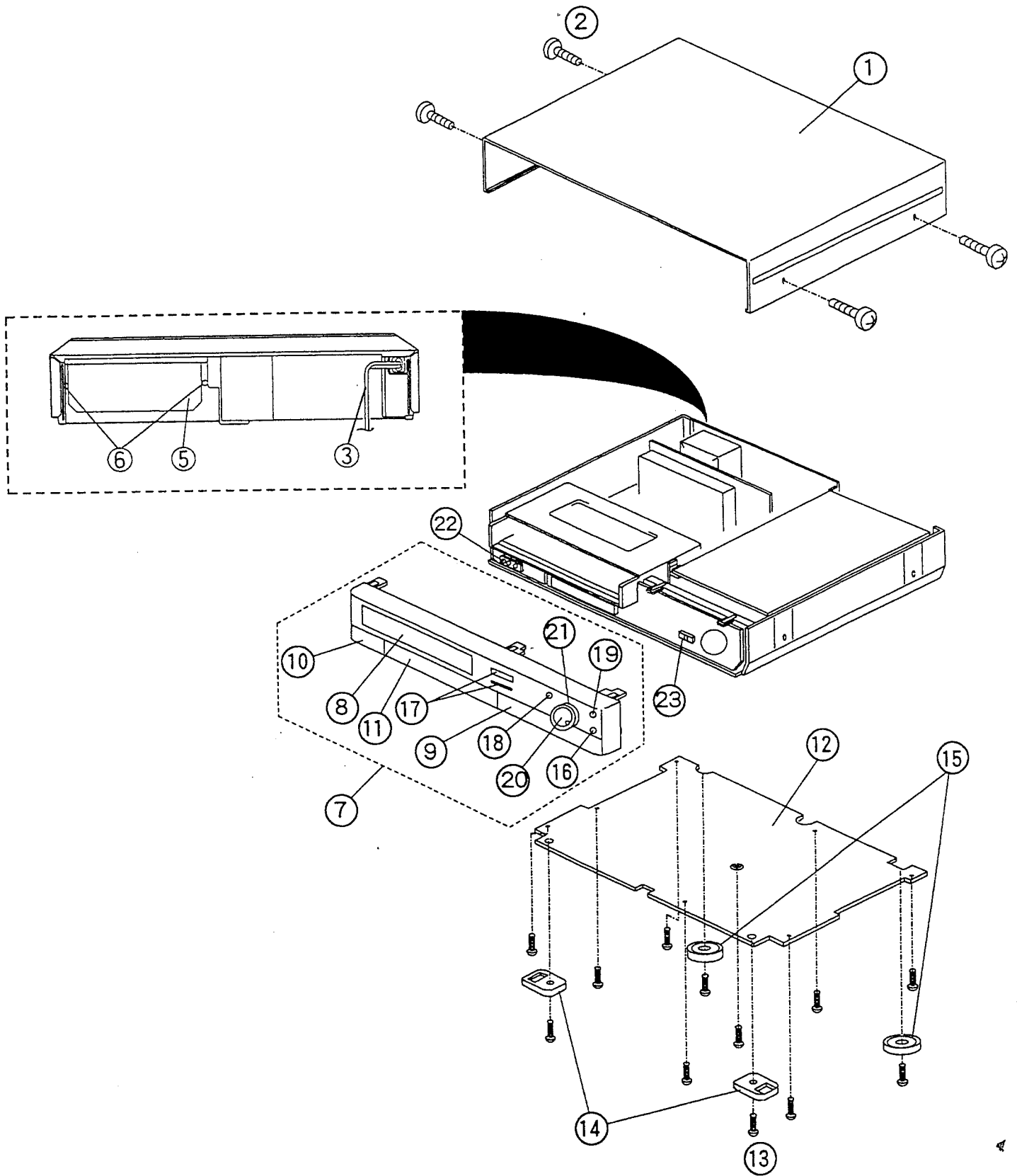
KEY TO ABBREVIATIONS

A/C	:Audio/Control	LIM	:Limiter
ACC	:Automatic Colour Control	LPF	:Low-Pass Filter
A.E	:Audio Erase	LM	:Loading Motor
AFC	:Automatic Frequency Control	MDA	:Motor Drive Amplifire
AFT-D	:Automatic Fine Tuning Door Switch	MC	:Mechanical Control
AGC	:Automatic Gain Control	MIC	:Microphone
AL	:After Loading	MOD	:Modulator
AMP	:Amplifire	OPE	:Operation
ANT	:Antenna	OSC	:Oscillator
A-PB	:Audio-Playback	PB	:Play Back
A-REC	:Audio Recording	PG	:Pulse Generator
ALC	:Automatic Level Control	P/R-SW	:P.B/REC-Switch
BPF	:Band-Pass Filter	PCB	:PrintedCircuit Board
B/W	:Black and White	PIC	:Picture Control
BS	:Band Switch	REC	:Recording
CASS	:Cassette	REF	:Reference
CP	:Capstan	RIS	:Record Inhibit Switch
CP-FG	:Capstan-Frequency Generato	REW	:Rewind
CP-F/R	:Capstan-Forward/Reverse	REG	:Regulator
CP-M	:Capstan-Motor	RS	:Reverse Search
CONV	:Converter	SENS	:Sensor
CTL	:Control	SM	:Supply Motor
C-LAMP	:Cassette Lamp	S/P	:Still/Pause
C-I LAMP	:Cassette Indicator Lamp	SS	:Speed Search
DAL	:Delay-After Loading	STBY	:Stand by
DEMOD	:Demodulator	S&H	:Sample & Hold
DET	:Detector	SYNC SEP	:Sync Separator
DL	:Delay Line	TM	:Takeup Motor
DL-REV	:Delay Reverse	T-REC	:Timer-Recording
DL-FWD	:Delay Forward	T.P.	:Test point
DOC	:Dorop Out Compensator	TR	:Transistor
EF	:Emitter Follower	TU-P	:Tuner-Power
EMPHA	:Emphasis	UL	:Unloading
EQ	:Equalizer	VS	:Voltage Synthesizer
EE	:Electronic-Electronic	V.SYNC	:Vertical Sync
ES	:End Sensor	VCO	:Voltage Control Oscillator
FE-H	:Full Erase Head	VXO	:Vertical Crystal Oscillator
FF	:Flip Flop or Fast Forward	W/D	:White/Dark
FG	:Frequency Generater	X'OSC	:Crystal Oscillator
FL-SW	:Front Loading Switch	Y/C	:Luminance/Chrominance
FLM	:Front Loading Moter		
F/R-SW	:FF/Rewind Switch		
G	:Ground		
HE-1	:Hall Element-1		
HE-2	:Hall Element-2		
H-LED	:Humidity-LED		
H-SENS	:Humodity-Sensor		
HPF	:High-Pass Filter		

[MEMO]

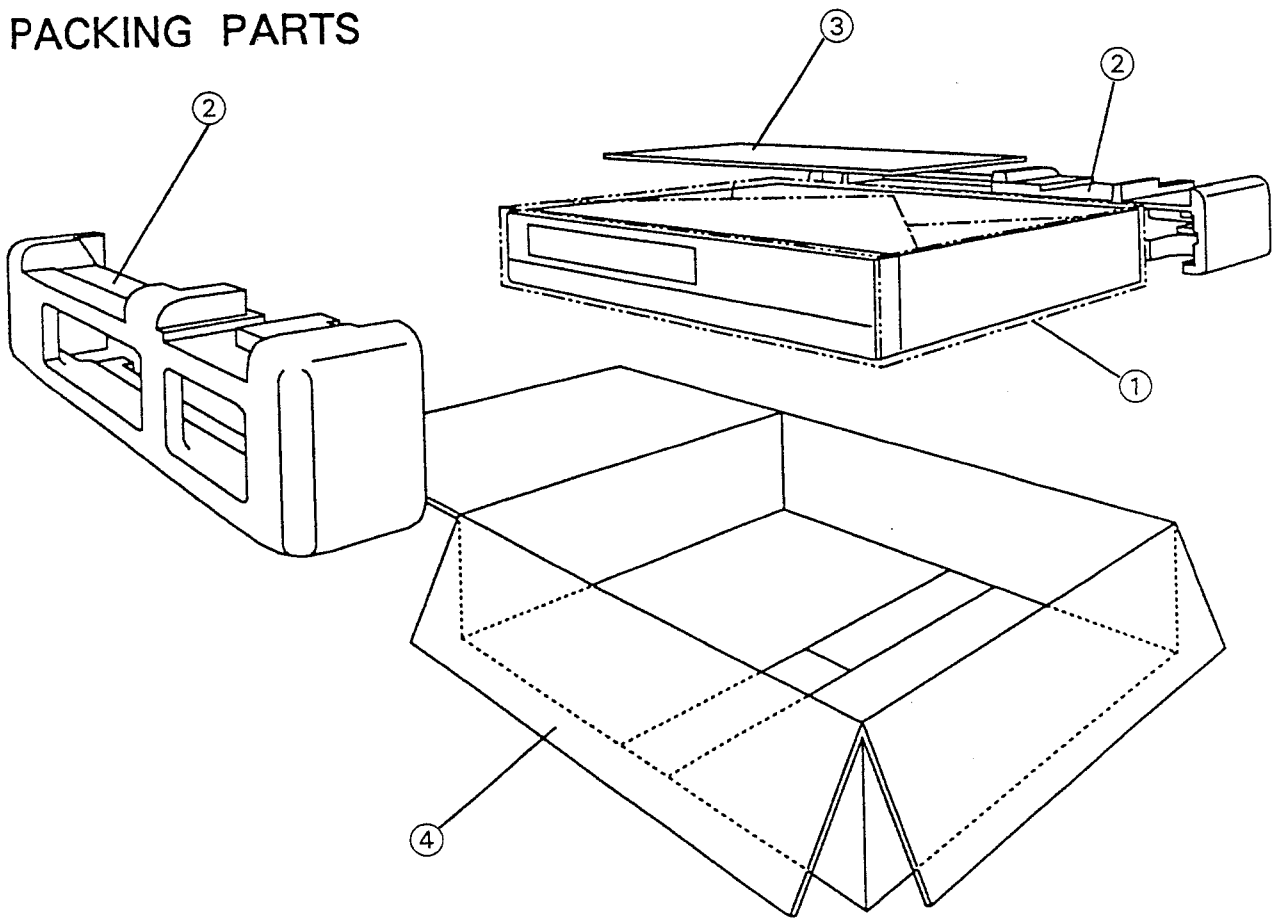
PARTS LIST

1. CABINET ASSEMBLY

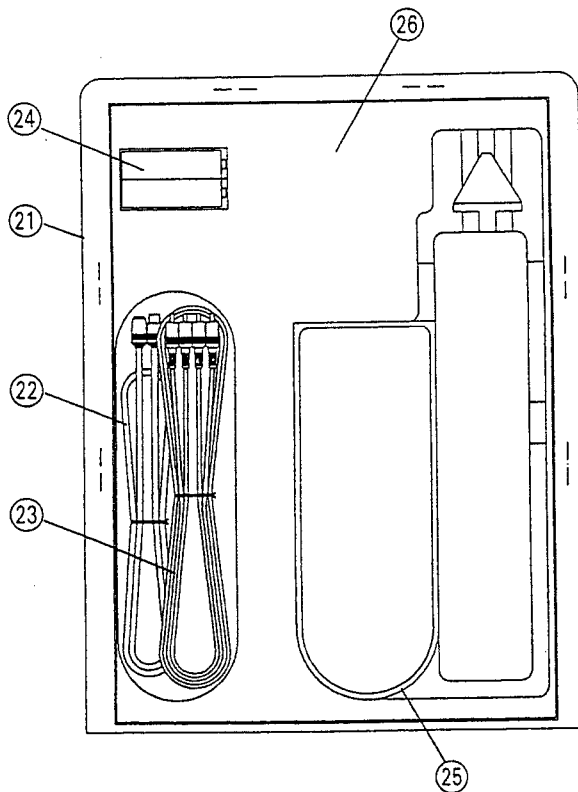


ITEM NO.	PARTS NO.	PARTS NAME	DESCRIPTION
CABINET ASSEMBLY			
1	968C020090	TOP COVER ASSY	
2	669D223080	SCREW	3X10
3	246C101010	AC POWER CORD	
5	761B253070	ANTENNA COVER	
6	669D359040	SCREW	3X12
7	701B300050	FRONT UNIT	
8	702B892030	CASSETTE DOOR	
9	752C054060	PANEL DOOR R	
10	752C055050	PANEL DOOR L	
11	702B893020	TIMER PANEL	
12	590A267010	BOTTOM PANEL	
13	669D220030	SCREW	3X10 46LA005
14	771B083010	INSULATOR-F	
15	771C138010	INSULATOR-R	
16	704C883030	PAUSE BUTTON	
17	704C886010	POWER/EJECT BUTTON	
18	704C876030	PLAY BUTTON	
19	704C770030	STOP BUTTON	
20	704C870010	JOG DIAL	
21	704C871010	SHUTTLE RING	
22	440C267010	PIN JACK BOARD	
23	703D122010	SWITCH COVER	

2. PACKING PARTS



ACCESSORY



ITEM NO.	PARTS NO.	PARTS NAME	DESCRIPTION
PACKING PARTS			
1	831D190030	PACKING SHEET	800X800
2	803A358010	PACKING CUSHION	
3	-----	ACCESSORY	
4	802B446070	PACKING CASE	FOR AC POWER CORD
	831D198030	PACKING BAG	
ACCESSORY			
21	829B013040	ACCESSORY PACK	
22	242D231030	CABLE	1.5m
23	242C938010	PHONO CABLE	2P R&W 1.5m
24	-----	BATTERY	
25	939P530010	REMOTE HAND UNIT	
26	872C109030	INSTRUCTION BOOK	

3. ELECTRICAL PARTS

SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION	SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION
INTEGRATED CIRCUITS				Q 2D6	260P255040	TRANSISTOR	2SA950-Y
IC101	272P863020	IC	TDA9800	Q 2E1	260P562040	TRANSISTOR	2SA952-K
IC102	266P192010	IC	LA7910	Q 2E3	260P802020	CHIP TRANSISTOR	2SA1235-F
IC107	272P654010	IC	M51497L	Q 2E6	260P807010	CHIP TRANSISTOR	DTC124EK
IC108	272P862010	IC	LA7975	Q 2E7	260P562040	TRANSISTOR	2SA952-K
IC201	272P221020	IC	XRA7254S	Q 2P0	260P802020	CHIP TRANSISTOR	2SA1235-F
IC2A0	272P701020	IC	LA7393AST-S	Q 2P1	260P805030	CHIP TRANSISTOR	2SC3053-D
IC2A1	272P702010	IC	LC8992	Q 2P2	260P805030	CHIP TRANSISTOR	2SC3053-D
IC2A3	270P067010	IC	BA7645N	Q 2P4	260P805030	CHIP TRANSISTOR	2SC3053-D
IC3A0	272P845010	IC	AN3316K	Q 2P5	260P807010	CHIP TRANSISTOR	DTC124EK
IC3A1	270P046010	IC	BA7644AN	Q 2P6	260P806010	CHIP TRANSISTOR	DTA124EK
IC3A2	270P046010	IC	BA7644AN	Q 2P7	260P807010	CHIP TRANSISTOR	DTC124EK
IC3000	272P844020	IC	AN3976NFBP	Q 2R2	260P805030	CHIP TRANSISTOR	2SC3053-D
IC3001	266P419010	IC	M5223P	Q 2S1	260P806010	CHIP TRANSISTOR	DTA124EK
IC3310	272P200020	IC	M5201L	Q 2S3	260P807010	CHIP TRANSISTOR	DTC124EK
IC4A0	274P159020	IC	BU2835AS	Q 3A1	260P603010	TRANSISTOR	UN4112
IC4A1	272P079010	IC	NJM2902M	Q 3A2	260P559060	TRANSISTOR	2SC1740S-S, E
IC4A2	272P235010	IC	TA7291S	Q 3A3	260P559030	TRANSISTOR	2SC1740S-S
IC501	274P163010	IC	M35010-051SP	Q 3A4	260P559030	TRANSISTOR	2SC1740S-S
IC5A0	274P357010	IC	M37424M8-334SP	Q 3B4	260P632010	TRANSISTOR	DTC124ES
IC5A2	272P079010	IC	NJM2902M	Q 3B6	260P632010	TRANSISTOR	DTC124ES
IC5A3	263P611010	IC	MC14011BF	Q 3B7	260P632010	TRANSISTOR	DTC124ES
IC8A0	274P395010	IC	μ PD75218GF-522-3BE	Q 3006	260P603010	TRANSISTOR	UN4112
IC8A1	263P593010	IC	CAT35C104P	Q 3007	260P632010	TRANSISTOR	DTC124ES
IC8A2	266P010020	IC	μ PC574J-K	Q 3020	260P559030	TRANSISTOR	2SC1740S-S
IC9A0	272P237010	IC	LA6324N	Q 3200	260P632010	TRANSISTOR	DTC124ES
TRANSISTORS				Q 3201	260P632010	TRANSISTOR	DTC124ES
Q 101	260P805030	CHIP TRANSISTOR	2SC3053-D	Q 3202	260P603010	TRANSISTOR	UN4112
Q 102	260P802020	CHIP TRANSISTOR	2SA1235-F	Q 3208	260P560040	TRANSISTOR	2SA933S-S
Q 103	260P805030	CHIP TRANSISTOR	2SC3053-D	Q 3209	260P562040	TRANSISTOR	2SA952-K
Q 116	260P807010	CHIP TRANSISTOR	DTC124EK	Q 3210	260P559030	TRANSISTOR	2SC1740S-S
Q 171	260P802020	CHIP TRANSISTOR	2SA1235-F	Q 3307	260P522020	TRANSISTOR	2SC3068-AA
Q 172	260P805030	CHIP TRANSISTOR	2SC3053-D	Q 3308	260P522020	TRANSISTOR	2SC3068-AA
Q 208	260P817030	CHIP TRANSISTOR	2SA1037K-S	Q 3309	260P603010	TRANSISTOR	UN4112
Q 210	260P807010	CHIP TRANSISTOR	DTC124EK	Q 3311	260P559030	TRANSISTOR	2SC1740S-S
Q 290	260P807010	CHIP TRANSISTOR	DTC124EK	Q 3315	260P560040	TRANSISTOR	2SA933S-S
Q 291	260P807010	CHIP TRANSISTOR	DTC124EK	Q 3316	260C676040	TRANSISTOR	2SC3311A-R, S
Q 292	260P807010	CHIP TRANSISTOR	DTC124EK	Q 3317	260C676040	TRANSISTOR	2SC3311A-R, S
Q 2A1	260P805030	CHIP TRANSISTOR	2SC3053-D	Q 3318	260P629060	TRANSISTOR	2SC3331-S, T, U
Q 2A2	260P805030	CHIP TRANSISTOR	2SC3053-D	Q 3325	260P632010	TRANSISTOR	DTC124ES
Q 2B1	260P805030	CHIP TRANSISTOR	2SC3053-D	Q 3408	260P559060	TRANSISTOR	2SC1740S-S, E
Q 2B2	260P804020	CHIP TRANSISTOR	2SC3052-F	Q 3409	260P632010	TRANSISTOR	DTC124ES
Q 2B5	260P804020	CHIP TRANSISTOR	2SC3052-F	Q 4A1	260P459010	TRANSISTOR	2SK381-A
Q 2B6	260P805030	CHIP TRANSISTOR	2SC3053-D	Q 4A3	260P804030	CHIP TRANSISTOR	2SC3052-G
Q 2B8	260P805030	CHIP TRANSISTOR	2SC3053-D	Q 4A4	260P560040	TRANSISTOR	2SA933S-S
Q 2B9	260P805030	CHIP TRANSISTOR	2SC3053-D	Q 4A5	260P806010	CHIP TRANSISTOR	DTA124EK
Q 2C3	260P806010	CHIP TRANSISTOR	DTA124EK	Q 4A7	260P802020	CHIP TRANSISTOR	2SA1235-F
Q 2C4	260P806010	CHIP TRANSISTOR	DTA124EK	Q 4A8	260P802020	CHIP TRANSISTOR	2SA1235-F
Q 2C5	260P807010	CHIP TRANSISTOR	DTC124EK	Q 4A9	260P806010	CHIP TRANSISTOR	DTA124EK
Q 2C8	260P805030	CHIP TRANSISTOR	2SC3053-D	Q 4E1	260P804030	CHIP TRANSISTOR	2SC3052-G
Q 2D0	260P805030	CHIP TRANSISTOR	2SC3053-D	Q 4S0	260P802020	CHIP TRANSISTOR	2SA1235-F
Q 2D4	260P802020	CHIP TRANSISTOR	2SA1235-F	Q 501	260P802020	CHIP TRANSISTOR	2SA1235-F
Q 2D5	260P805030	CHIP TRANSISTOR	2SC3053-D	Q 502	260P807010	CHIP TRANSISTOR	DTC124EK
				Q 503	260P802020	CHIP TRANSISTOR	2SA1235-F
				Q 504	260P804030	CHIP TRANSISTOR	2SC3052-G

SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION	SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION
Q 506	260P802020	CHIP TRANSISTOR	2SA1235-F	Q 902	260C628010	TRANSISTOR	2SA1619A-Q
Q 508	260P804020	CHIP TRANSISTOR	2SC3052-F	Q 903	260P560030	TRANSISTOR	2SA933S-R, F
Q 509	260P804030	CHIP TRANSISTOR	2SC3052-G	Q 971	260P630010	TRANSISTOR	2SD2012
Q 571	268P014020	PHOTO TRANSISTOR	PN205L-(NC)	Q 9A1	260P630010	TRANSISTOR	2SD2012
Q 572	268P014020	PHOTO TRANSISTOR	PN205L-(NC)	Q 9A2	260P630010	TRANSISTOR	2SD2012
Q 573	268P044010	PHOTO INTERRUPTER	ON2270-(L.J). M1	Q 9A3	260P630010	TRANSISTOR	2SD2012
Q 574	268P044010	PHOTO INTERRUPTER	ON2270-(L.J). M1	Q 9A4	260P613010	TRANSISTOR	2SC4208A
Q 575	268P045010	PHOTO INTERRUPTER	GP1L52V	DIODES			
Q 581	260P455010	TRANSISTOR	DTC124EF	D 171	264P568010	DIODE	1SS252
Q 582	260P455010	TRANSISTOR	DTC124EF	D 173	264P568010	DIODE	1SS252
Q 583	260P455010	TRANSISTOR	DTC124EF	D 202	264P568010	DIODE	1SS252
Q 5A0	260P804020	CHIP TRANSISTOR	2SC3052-F	D 2A3	264P568010	DIODE	1SS252
Q 5A1	260P802020	CHIP TRANSISTOR	2SA1235-F	D 2A6	264P568010	DIODE	1SS252
Q 5A2	260P802020	CHIP TRANSISTOR	2SA1235-F	D 2A8	264P568010	DIODE	1SS252
Q 5A3	260P804020	CHIP TRANSISTOR	2SC3052-F	D 2D0	264P568010	DIODE	1SS252
Q 5A4	260P804020	CHIP TRANSISTOR	2SC3052-F	D 2S0	264P568010	DIODE	1SS252
Q 5A5	260P804020	CHIP TRANSISTOR	2SC3052-F	D 2S1	264P568010	DIODE	1SS252
Q 5A6	260P802020	CHIP TRANSISTOR	2SA1235-F	D 2X0	264P568010	DIODE	1SS252
Q 5A8	260P802020	CHIP TRANSISTOR	2SA1235-F	D 2X1	264P568010	DIODE	1SS252
Q 5A9	260P804020	CHIP TRANSISTOR	2SC3052-F	D 2X2	264P568010	DIODE	1SS252
Q 5B0	260P586050	TRANSISTOR	2S8892-T, U	D 3A1	264P568010	DIODE	1SS252
Q 5B1	260P585030	TRANSISTOR	2SD1682-T, U	D 3A2	264P568010	DIODE	1SS252
Q 5B2	260P807010	CHIP TRANSISTOR	DTC124EK	D 3A3	264P568010	DIODE	1SS252
Q 5B3	260P807010	CHIP TRANSISTOR	DTC124EK	D 3A4	264P568010	DIODE	1SS252
Q 5B4	260P807010	CHIP TRANSISTOR	DTC124EK	D 3A5	264P568010	DIODE	1SS252
Q 5B5	260P806010	CHIP TRANSISTOR	DTA124EK	D 3B2	264P568010	DIODE	1SS252
Q 5B6	260P804020	CHIP TRANSISTOR	2SC3052-F	D 3B4	264P568010	DIODE	1SS252
Q 5B7	260P804020	CHIP TRANSISTOR	2SC3052-F	D 3000	264P568010	DIODE	1SS252
Q 5C0	260P804020	CHIP TRANSISTOR	2SC3052-F	D 3001	264P568010	DIODE	1SS252
Q 5C1	260P804020	CHIP TRANSISTOR	2SC3052-F	D 3002	264P568010	DIODE	1SS252
Q 5C2	260P804030	CHIP TRANSISTOR	2SC3052-G	D 3003	264P568010	DIODE	1SS252
Q 5C3	260P807010	CHIP TRANSISTOR	DTC124EK	D 3005	264P568010	DIODE	1SS252
Q 5D1	260P807010	CHIP TRANSISTOR	DTC124EK	D 3006	264P568010	DIODE	1SS252
Q 5G0	260P802020	CHIP TRANSISTOR	2SA1235-F	D 3007	264P568010	DIODE	1SS252
Q 5G1	260P802020	CHIP TRANSISTOR	2SA1235-F	D 3008	264P568010	DIODE	1SS252
Q 5G2	260P805030	CHIP TRANSISTOR	2SC3053-D	D 3020	264P568010	DIODE	1SS252
Q 5G3	260P807010	CHIP TRANSISTOR	DTC124EK	D 3208	264P568010	DIODE	1SS252
Q 5G4	260P807010	CHIP TRANSISTOR	DTC124EK	D 3302	264P568010	DIODE	1SS252
Q 5G5	260P807010	CHIP TRANSISTOR	DTC124EK	D 3404	264P568010	DIODE	1SS252
Q 5G6	260P807010	CHIP TRANSISTOR	DTC124EK	D 3405	264P568010	DIODE	1SS252
Q 5G7	260P802020	CHIP TRANSISTOR	2SA1235-F	D 3406	264P568010	DIODE	1SS252
Q 5G8	260P802020	CHIP TRANSISTOR	2SA1235-F	D 4A0	264P568010	DIODE	1SS252
Q 5G9	260P802020	CHIP TRANSISTOR	2SA1235-F	D 4A6	264P568010	DIODE	1SS252
Q 5H0	260P804020	CHIP TRANSISTOR	2SC3052-F	D 501	264P568010	DIODE	1SS252
Q 5H2	260P804020	CHIP TRANSISTOR	2SC3052-F	D 570	264P307020	LIGHT EMITTING DIODE	GL-451
Q 5H4	260P807010	CHIP TRANSISTOR	DTC124EK	D 571	264P515010	DIODE	MA165
Q 5J0	260P804020	CHIP TRANSISTOR	2SC3052-F	D 5A0	264P568010	DIODE	1SS252
Q 5J1	260P804020	CHIP TRANSISTOR	2SC3052-F	D 5A1	264P568010	DIODE	1SS252
Q 5S0	260P807010	CHIP TRANSISTOR	DTC124EK	D 5A3	264P808010	CHIP DIODE	DAN202K
Q 8A5	260C675010	TRANSISTOR	2SA1309A-R, S	D 5A5	264P342070	DIODE	HZ4C2
Q 8A8	260P559060	TRANSISTOR	2SC1740S-S, E	D 5A7	264P500020	DIODE	EM01Z
Q 8P3	260P560010	TRANSISTOR	2SA933S-R, S	D 5A8	264P592010	DIODE	HZ18-2L
Q 8P5	260P560010	TRANSISTOR	2SA933S-R, S	D 5B0	264P568010	DIODE	1SS252
Q 8P7	260C675010	TRANSISTOR	2SA1309A-R, S	D 5B1	264P808010	CHIP DIODE	DAN202K
Q 901	260P560040	TRANSISTOR	2SA933S-S				

SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION	SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION
D 5B2	264P568010	DIODE	1SS252	CF171	299P051050	CERAMIC RESONATOR	CSB500F9
D 5B4	264P808010	CHIP DIODE	DAN202K	CF181	299P034030	CERAMIC RESONATOR	CSB500E5
D 5B5	264P568010	DIODE	1SS252	CF5A0	299P116010	CERAMIC RESONATOR	KBR-4. OKES
D 5B6	264P568010	DIODE	1SS252	SF101	296P119010	SAW FILTER	
D 5B7	264P568010	DIODE	1SS252	DELAY LINES			
D 5B9	264P452030	DIODE	HZ5C3	DL2A0	337P081010	DELAY LINE	CF873
D 5C1	264P568010	DIODE	1SS252	COILS			
D 5C3	264P808010	CHIP DIODE	DAN202K	L 11	325C111030	PEAKING COIL	10 μ H-K
D 5C5	264P568010	DIODE	1SS252	L 103	323P187010	VIF COIL	292G1AS-6716BS
D 5C6	264P568010	DIODE	1SS252	L 105	411P011010	BEADS FERRITE	ZBF503S-P
D 5C8	264P808010	CHIP DIODE	DAN202K	L 107	325C170050	PEAKING COIL	2.2 μ H-K SHIELD
D 5D0	264P568010	DIODE	1SS252	L 108	325C166000	PEAKING COIL	5.6 μ H-J
D 5H0	264P808010	CHIP DIODE	DAN202K	L 109	325C166060	PEAKING COIL	18 μ H-J
D 5J0	264P808010	CHIP DIODE	DAN202K	L 113	325C165030	PEAKING COIL	1.5 μ H-J
D 701	264P621010	LIGHT EMITTING DIODE	SEL2210R TP2	L 181	325C166030	PEAKING COIL	10 μ H-J
D 8A3	264P568010	DIODE	1SS252	L 201	325C122050	PEAKING COIL	100 μ H-K
D 8A4	264P568010	DIODE	1SS252	L 206	325C166070	PEAKING COIL	22 μ H-J
D 8A5	264P568010	DIODE	1SS252	L 210	325C166070	PEAKING COIL	22 μ H-J
D 8A6	264P568010	DIODE	1SS252	L 211	325C166000	PEAKING COIL	5.6 μ H-J
D 8B0	264P568010	DIODE	1SS252	L 213	325C167050	PEAKING COIL	100 μ H-J
D 8B1	264P568010	DIODE	1SS252	L 219	325C167040	PEAKING COIL	82 μ H-J
D 8B2	264P568010	DIODE	1SS252	L 220	325C167070	PEAKING COIL	150 μ H-J
D 8B3	264P568010	DIODE	1SS252	L 2A8	325C166060	PEAKING COIL	18 μ H-J
D 8C0	264P568010	DIODE	1SS252	L 2A9	325C167080	PEAKING COIL	180 μ H-J
D 8E1	264P568010	DIODE	1SS252	L 2B0	325C166090	PEAKING COIL	33 μ H-J
D 8E2	264P568010	DIODE	1SS252	L 2B1	325C166060	PEAKING COIL	18 μ H-J
D 8E3	264P568010	DIODE	1SS252	L 2B2	325C168010	PEAKING COIL	330 μ H-J
D 8E4	264P568010	DIODE	1SS252	L 2B4	325C165070	PEAKING COIL	3.3 μ H-J
D 8J0	264P568010	DIODE	1SS252	L 2B5	325C166020	PEAKING COIL	8.2 μ H-J
D 8J2	264P568010	DIODE	1SS252	L 2B8	321C112050	RF COIL	100 μ H-K
D 8J6	264P568010	DIODE	1SS252	L 2B9	321C112050	RF COIL	100 μ H-K
D 8J7	264P568010	DIODE	1SS252	L 2C0	325C122050	PEAKING COIL	100 μ H-K
D 8J8	264P568010	DIODE	1SS252	L 2C1	325C167010	PEAKING COIL	47 μ H-J
D 8X1	264P568010	DIODE	1SS252	L 2C2	325C166090	PEAKING COIL	33 μ H-J
D 8Z0	264P501040	DIODE	HZ3ALL	L 2C3	325C122050	PEAKING COIL	100 μ H-K
D 8Z1	264P485050	DIODE	RD7. 5FB1	L 2P1	325C166090	PEAKING COIL	33 μ H-J
D 8Z2	264P193080	DIODE	MZ309B2/HZ9B24	L 2P5	325C166090	PEAKING COIL	33 μ H-J
D 901	264P430030	DIODE	DSA3A1 FORMING 15MM	L 2P6	325C167010	PEAKING COIL	47 μ H-J
D 902	264P430030	DIODE	DSA3A1 FORMING 15MM	L 2Z0	325C167000	PEAKING COIL	39 μ H-J
D 903	264P430030	DIODE	DSA3A1 FORMING 15MM	L 3A0	325C262050	PEAKING COIL	100 μ H-K
D 904	264P430030	DIODE	DSA3A1 FORMING 15MM	L 3A1	325C122050	PEAKING COIL	100 μ H-K
D 905	264P430030	DIODE	DSA3A1 FORMING 15MM	L 3001	325C262050	PEAKING COIL	100 μ H-K
D 906	264P430030	DIODE	DSA3A1 FORMING 15MM	L 3002	325C262050	PEAKING COIL	100 μ H-K
D 907	264P430030	DIODE	DSA3A1 FORMING 15MM	L 3301	321C114080	RF COIL	8200 μ H-J
D 908	264P430030	DIODE	DSA3A1 FORMING 15MM	L 3305	321C113070	RF COIL	1000 μ H-K
D 913	264P500020	DIODE	EM01Z	L 3315	325C262050	PEAKING COIL	100 μ H-K
D 914	264P500020	DIODE	EM01Z	L 3318	325C262080	PEAKING COIL	180 μ H-K SO
D 915	264P568010	DIODE	1SS252	L 3319	325C262050	PEAKING COIL	100 μ H-K
D 916	264P568010	DIODE	1SS252	L 4A0	325C262000	PEAKING COIL	39 μ H-K
D 917	264P104040	DIODE	HZ30-2	L 501	325C122050	PEAKING COIL	100 μ H-K
D 9A0	264P568010	DIODE	1SS252	L 502	325C166050	PEAKING COIL	15 μ H-J
FILTERS				L 503	325C262050	PEAKING COIL	100 μ H-K
CF101	296P104010	CERAMIC TRAP	EFC-S3F01W3A				
CF151	296P014030	CERAMIC FILTER	SFE-6.0MHZ				

SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION	SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION
L 507	325C266080	PEAKING COIL	27 μ H-J	R 126	103P403070	CHIP RESISTOR	1/10W 10k Ω -J
L 570	299P124010	LATCH MAGNET		R 127	103P403070	CHIP RESISTOR	1/10W 10k Ω -J
L 5A0	325C262050	PEAKING COIL	100 μ H-K	R 128	103P401090	CHIP RESISTOR	1/10W 330 Ω -J
L 5A1	325C124080	PEAKING COIL	0.56 μ H-M, K	R 129	103P401030	CHIP RESISTOR	1/10W 100 Ω -J
L 5A2	325C124050	PEAKING COIL	0.33 μ H-M, K	R 153	103P401030	CHIP RESISTOR	1/10W 100 Ω -J
L 5A3	325C124050	PEAKING COIL	0.33 μ H-M, K	R 160	103P402050	CHIP RESISTOR	1/10W 1k Ω -J
L 5A5	325C167040	PEAKING COIL	82 μ H-J	R 171	103P402050	CHIP RESISTOR	1/10W 1k Ω -J
TRANSFORMERS				R 172	103P403030	CHIP RESISTOR	1/10W 4.7k Ω -J
T 3301	409P423030	AUDIO BIAS OSC	705720044D	R 173	103P405090	CHIP RESISTOR	1/10W 680k Ω -J
T 901	350P577010	POWER	PRI 220V	R 174	103P403040	CHIP RESISTOR	1/10W 5.6k Ω -J
VARIABLE RESISTORS				R 175	103P401080	CHIP RESISTOR	1/10W 270 Ω -J
VR101	127C080090	VR-SEMIFIXED	1/5W B20k Ω -M	R 176	103P402010	CHIP RESISTOR	1/10W 470 Ω -J
VR103	127C090070	VR-SEMIFIXED	1/5W B5k Ω -M	R 177	103P405020	CHIP RESISTOR	1/10W 180k Ω -J
VR202	127C290040	VR-SEMIFIXED	1/10W B1k Ω -N	R 178	103P403050	CHIP RESISTOR	1/10W 6.8k Ω -J
VR203	127C290080	VR-SEMIFIXED	1/10W B10k Ω -N	R 179	103P403050	CHIP RESISTOR	1/10W 6.8k Ω -J
VR280	120C380080	VR-PCB	1/20W B3k Ω -20TM CS	R 181	103P471050	CHIP RESISTOR	1/10W 390 Ω -F
VR2A0	127C380090	VR-SEMIFIXED	1/5W B20k Ω -M	R 1A1	103P409050	CHIP RESISTOR	1/10W 0 Ω
VR2A1	127C390090	VR-SEMIFIXED	1/5W B20k Ω -M	R 1A2	103P409050	CHIP RESISTOR	1/10W 0 Ω
VR2A2	127C380080	VR-SEMIFIXED	1/5W B10k Ω -M	R 1A3	103P409050	CHIP RESISTOR	1/10W 0 Ω
VR2A3	127C380050	VR-SEMIFIXED	1/5W B2k Ω -M	R 1A4	103P409050	CHIP RESISTOR	1/10W 0 Ω
VR2A5	127C380090	VR-SEMIFIXED	1/5W B20k Ω -M	R 1A5	103P409050	CHIP RESISTOR	1/10W 0 Ω
VR3000	127C381000	VR-SEMIFIXED	1/5W B30k Ω -M	R 1A7	103P409050	CHIP RESISTOR	1/10W 0 Ω
VR3001	127C381000	VR-SEMIFIXED	1/5W B30k Ω -M	R 1A8	103P409050	CHIP RESISTOR	1/10W 0 Ω
VR3002	127C390080	VR-SEMIFIXED	1/5W B10k Ω -M	R 1J1	103P409050	CHIP RESISTOR	1/10W 0 Ω
VR3003	127C390070	VR-SEMIFIXED	1/5W B5k Ω -M	R 1J2	103P409050	CHIP RESISTOR	1/10W 0 Ω
VR3004	127C390040	VR-SEMIFIXED	1/5W B1k Ω -M	R 1J3	103P409050	CHIP RESISTOR	1/10W 0 Ω
VR3311	127C181020	VR-SEMIFIXED	1/5W B100k Ω -M	R 1J5	103P409050	CHIP RESISTOR	1/10W 0 Ω
VR4A0	127C381020	VR-SEMIFIXED	1/5W B100k Ω -M	R 1M0	103P409050	CHIP RESISTOR	1/10W 0 Ω
RESISTORS				R 1N5	103P409050	CHIP RESISTOR	1/10W 0 Ω
R 01	103P403070	CHIP RESISTOR	1/10W 10k Ω -J	R 1N7	103P409050	CHIP RESISTOR	1/10W 0 Ω
R 03	103P404000	CHIP RESISTOR	1/10W 18k Ω -J	R 1N8	103P409050	CHIP RESISTOR	1/10W 0 Ω
R 09	103P403070	CHIP RESISTOR	1/10W 10k Ω -J	R 201	103P409050	CHIP RESISTOR	1/10W 0 Ω
R 11	103P403070	CHIP RESISTOR	1/10W 10k Ω -J	R 203	103P409050	CHIP RESISTOR	1/10W 0 Ω
R 12	103P403070	CHIP RESISTOR	1/10W 10k Ω -J	R 206	103P402060	CHIP RESISTOR (HEAD-AMP PCB)	1/10W 1.2k Ω -J
R 13	103P403070	CHIP RESISTOR	1/10W 10k Ω -J	R 206	103P409050	CHIP RESISTOR (SIGNAL PCB)	1/10W 0 Ω
R 14	103P403020	CHIP RESISTOR	1/10W 3.9k Ω -J	R 207	103P402070	CHIP RESISTOR	1/10W 1.5k Ω -J
R 18	103P403070	CHIP RESISTOR	1/10W 10k Ω -J	R 208	103P402000	CHIP RESISTOR (HEAD-AMP PCB)	1/10W 390 Ω -J
R 19	103P475060	CHIP RESISTOR	1/10W 20k Ω -F	R 208	103P409050	CHIP RESISTOR (SIGNAL PCB)	1/10W 0 Ω
R 101	103P473040	CHIP RESISTOR	1/10W 2.4k Ω -F	R 209	103P401030	CHIP RESISTOR (HEAD-AMP PCB)	1/10W 100 Ω -J
R 103	103P402000	CHIP RESISTOR	1/10W 390 Ω -J	R 209	103P409050	CHIP RESISTOR (SIGNAL PCB)	1/10W 0 Ω
R 104	103P403050	CHIP RESISTOR	1/10W 6.8k Ω -J	R 210	103P401020	CHIP RESISTOR	1/10W 82 Ω -J
R 108	103P404020	CHIP RESISTOR	1/10W 27k Ω -J	R 212	103P402010	CHIP RESISTOR (HEAD-AMP PCB)	1/10W 470 Ω -J
R 109	103P404020	CHIP RESISTOR	1/10W 27k Ω -J	R 212	103P409050	CHIP RESISTOR (SIGNAL PCB)	1/10W 0 Ω
R 113	103P471030	CHIP RESISTOR	1/10W 330 Ω -F	R 213	103P409050	CHIP RESISTOR	1/10W 0 Ω
R 115	103P402050	CHIP RESISTOR	1/10W 1k Ω -J	R 214	103P401030	CHIP RESISTOR (HEAD-AMP PCB)	1/10W 100 Ω -J
R 116	103P402050	CHIP RESISTOR	1/10W 1k Ω -J	R 214	103P409050	CHIP RESISTOR (SIGNAL PCB)	1/10W 0 Ω
R 117	103P402050	CHIP RESISTOR	1/10W 1k Ω -J	R 216	103P401080	CHIP RESISTOR	1/10W 270 Ω -J
R 118	103P409050	CHIP RESISTOR	1/10W 0 Ω				
R 120	103P402090	CHIP RESISTOR	1/10W 2.2k Ω -J				
R 121	103P472090	CHIP RESISTOR	1/10W 1.5K				
R 122	103P472010	CHIP RESISTOR	1/10W 680 Ω -F				
R 123	103P471050	CHIP RESISTOR	1/10W 390 Ω -F				

SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION	SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION
R 217	103P401080	CHIP RESISTOR (HEAD-AMP PCB)	1/10W 270Ω-J	R 2F0	103P403040	CHIP RESISTOR	1/10W 5.6kΩ-J
R 217	103P409050	CHIP RESISTOR (SIGNAL PCB)	1/10W 0Ω	R 2F1	103P402050	CHIP RESISTOR	1/10W 1kΩ-J
R 218	103P402010	CHIP RESISTOR	1/10W 470Ω-J	R 2F2	103P402050	CHIP RESISTOR	1/10W 1kΩ-J
R 219	103P402020	CHIP RESISTOR	1/10W 560Ω-J	R 2F3	103P404030	CHIP RESISTOR	1/10W 33kΩ-J
R 220	103P409050	CHIP RESISTOR	1/10W 0Ω	R 2F4	103P403090	CHIP RESISTOR	1/10W 15kΩ-J
R 224	103P409050	CHIP RESISTOR	1/10W 0Ω	R 2F5	103P401070	CHIP RESISTOR	1/10W 220Ω-J
R 230	103P409050	CHIP RESISTOR	1/10W 0Ω	R 2F6	103P404030	CHIP RESISTOR	1/10W 33kΩ-J
R 234	103P409050	CHIP RESISTOR	1/10W 0Ω	R 2F7	103P402020	CHIP RESISTOR	1/10W 560Ω-J
R 238	103P409050	CHIP RESISTOR	1/10W 0Ω	R 2F8	103P473080	CHIP RESISTOR	1/10W 3.6kΩ-F
R 240	103P409050	CHIP RESISTOR	1/10W 0Ω	R 2G0	103P402060	CHIP RESISTOR	1/10W 1.2kΩ-J
R 242	103P403070	CHIP RESISTOR (HEAD-AMP PCB)	1/10W 10kΩ-J	R 2G1	103P403020	CHIP RESISTOR	1/10W 3.9kΩ-J
R 242	103P409050	CHIP RESISTOR (SIGNAL PCB)	1/10W 0Ω	R 2G2	103P403000	CHIP RESISTOR	1/10W 2.7kΩ-J
R 243	103P402060	CHIP RESISTOR (HEAD-AMP PCB)	1/10W 1.2kΩ-J	R 2G3	103P402020	CHIP RESISTOR	1/10W 560Ω-J
R 243	103P409050	CHIP RESISTOR (SIGNAL PCB)	1/10W 0Ω	R 2G4	103P402050	CHIP RESISTOR	1/10W 1kΩ-J
R 244	103P409050	CHIP RESISTOR	1/10W 0Ω	R 2G7	103P402050	CHIP RESISTOR	1/10W 1kΩ-J
R 245	103P409050	CHIP RESISTOR	1/10W 0Ω	R 2G8	103P406010	CHIP RESISTOR	1/10W 1MΩ-J
R 246	103P409050	CHIP RESISTOR	1/10W 0Ω	R 2G9	103P403060	CHIP RESISTOR	1/10W 8.2kΩ-J
R 247	103P409050	CHIP RESISTOR	1/10W 0Ω	R 2H1	103P402050	CHIP RESISTOR	1/10W 1kΩ-J
R 248	103P409050	CHIP RESISTOR	1/10W 0Ω	R 2H2	103P402050	CHIP RESISTOR	1/10W 1kΩ-J
R 249	103P409050	CHIP RESISTOR	1/10W 0Ω	R 2H4	103P402060	CHIP RESISTOR	1/10W 1.2kΩ-J
R 250	103P409050	CHIP RESISTOR	1/10W 0Ω	R 2J2	103P404030	CHIP RESISTOR	1/10W 33kΩ-J
R 251	103P409050	CHIP RESISTOR	1/10W 0Ω	R 2J3	103P404010	CHIP RESISTOR	1/10W 22kΩ-J
R 252	103P409050	CHIP RESISTOR	1/10W 0Ω	R 2J4	103P402090	CHIP RESISTOR	1/10W 2.2kΩ-J
R 285	103P405050	CHIP RESISTOR	1/10W 330kΩ-J	R 2J5	103P402050	CHIP RESISTOR	1/10W 1kΩ-J
R 286	103P405000	CHIP RESISTOR	1/10W 120kΩ-J	R 2J6	103P402050	CHIP RESISTOR	1/10W 1kΩ-J
R 287	103P471030	CHIP RESISTOR	1/10W 330Ω-F	R 2J7	103P402090	CHIP RESISTOR	1/10W 2.2kΩ-J
R 288	103P402050	CHIP RESISTOR	1/10W 1kΩ-J	R 2J8	103P402080	CHIP RESISTOR	1/10W 1.8kΩ-J
R 291	103P403060	CHIP RESISTOR	1/10W 8.2kΩ-J	R 2J9	103P403080	CHIP RESISTOR	1/10W 12kΩ-J
R 299	103P402050	CHIP RESISTOR	1/10W 1kΩ-J	R 2K1	103P404010	CHIP RESISTOR	1/10W 22kΩ-J
R 2A1	103P405030	CHIP RESISTOR	1/10W 220kΩ-J	R 2P1	103P402000	CHIP RESISTOR	1/10W 390Ω-J
R 2A2	103P404070	CHIP RESISTOR	1/10W 68kΩ-J	R 2P2	103P402050	CHIP RESISTOR	1/10W 1kΩ-J
R 2A3	103P475020	CHIP RESISTOR	1/10W 13kΩ-F	R 2P3	103P402030	CHIP RESISTOR	1/10W 680Ω-J
R 2A4	103P403070	CHIP RESISTOR	1/10W 10kΩ-J	R 2P4	103P403070	CHIP RESISTOR	1/10W 10kΩ-J
R 2A5	103P401030	CHIP RESISTOR	1/10W 100Ω-J	R 2P5	103P403070	CHIP RESISTOR	1/10W 10kΩ-J
R 2A6	103P403070	CHIP RESISTOR	1/10W 10kΩ-J	R 2P6	103P402090	CHIP RESISTOR	1/10W 2.2kΩ-J
R 2D2	103P402050	CHIP RESISTOR	1/10W 1kΩ-J	R 2P7	103P403010	CHIP RESISTOR	1/10W 3.3kΩ-J
R 2D3	103P402030	CHIP RESISTOR	1/10W 680Ω-J	R 2R1	103P401080	CHIP RESISTOR	1/10W 270Ω-J
R 2D4	103P401070	CHIP RESISTOR	1/10W 220Ω-J	R 2R2	103P404040	CHIP RESISTOR	1/10W 39kΩ-J
R 2D5	103P402060	CHIP RESISTOR	1/10W 1.2kΩ-J	R 2R4	103P403010	CHIP RESISTOR	1/10W 3.3kΩ-J
R 2D6	103P403000	CHIP RESISTOR	1/10W 2.7kΩ-J	R 2R5	103P404010	CHIP RESISTOR	1/10W 22kΩ-J
R 2D7	103P404030	CHIP RESISTOR	1/10W 33kΩ-J	R 2R6	103P404010	CHIP RESISTOR	1/10W 22kΩ-J
R 2D8	103P404030	CHIP RESISTOR	1/10W 33kΩ-J	R 2S1	103P401030	CHIP RESISTOR	1/10W 100Ω-J
R 2E1	103P403000	CHIP RESISTOR	1/10W 2.7kΩ-J	R 2S5	103P402020	CHIP RESISTOR	1/10W 560Ω-J
R 2E2	103P401060	CHIP RESISTOR	1/10W 180Ω-J	R 2S6	103P403010	CHIP RESISTOR	1/10W 3.3kΩ-J
R 2E3	103P404030	CHIP RESISTOR	1/10W 33kΩ-J	R 2T1	103P402070	CHIP RESISTOR	1/10W 1.5kΩ-J
R 2E5	103P402020	CHIP RESISTOR	1/10W 560Ω-J	R 2T4	103P402090	CHIP RESISTOR	1/10W 2.2kΩ-J
R 2E6	103P403020	CHIP RESISTOR	1/10W 3.9kΩ-J	R 2T6	103P402060	CHIP RESISTOR	1/10W 1.2kΩ-J
R 2E7	103P403070	CHIP RESISTOR	1/10W 10kΩ-J	R 2T7	103P403030	CHIP RESISTOR	1/10W 4.7kΩ-J
R 2E8	103P404040	CHIP RESISTOR	1/10W 39kΩ-J	R 3A0	103P402050	CHIP RESISTOR	1/10W 1kΩ-J
R 2E9	103P403080	CHIP RESISTOR	1/10W 12kΩ-J	R 3A3	103P401060	CHIP RESISTOR	1/10W 180Ω-J
				R 3A4	103P401060	CHIP RESISTOR	1/10W 180Ω-J
				R 3A5	103P403070	CHIP RESISTOR	1/10W 10kΩ-J
				R 3A6	103P403050	CHIP RESISTOR	1/10W 6.8kΩ-J
				R 3A7	103P404050	CHIP RESISTOR	1/10W 47kΩ-J
				R 3A8	103P404030	CHIP RESISTOR	1/10W 33kΩ-J

SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION	SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION
R 3A9	103P402050	CHIP RESISTOR	1/10W 1kΩ-J	R 402	103P409050	CHIP RESISTOR	1/10W 0Ω
R 3B0	103P402070	CHIP RESISTOR	1/10W 1.5kΩ-J	R 4R8	103P409050	CHIP RESISTOR	1/10W 0Ω
R 3B1	103P402070	CHIP RESISTOR	1/10W 1.5kΩ-J	R 4R9	103P409050	CHIP RESISTOR	1/10W 0Ω
R 3B2	103P474060	CHIP RESISTOR	1/10W 7.5kΩ-F	R 4S0	103P472050	CHIP RESISTOR	1/10W 1kΩ-F
R 3B3	103P402070	CHIP RESISTOR	1/10W 1.5kΩ-J	R 503	103P403080	CHIP RESISTOR	1/10W 12kΩ-J
R 3B4	103P401080	CHIP RESISTOR	1/10W 270Ω-J	R 505	103P402030	CHIP RESISTOR	1/10W 680Ω-J
R 3B6	103P402020	CHIP RESISTOR	1/10W 560Ω-J	R 506	103P472060	CHIP RESISTOR	1/10W 1.1kΩ-F
R 3B7	103P402020	CHIP RESISTOR	1/10W 560Ω-J	R 508	103P409050	CHIP RESISTOR	1/10W 0Ω
R 4A1	103P473030	CHIP RESISTOR	1/10W 2.2kΩ-F	R 509	103P403070	CHIP RESISTOR	1/10W 10kΩ-J
R 4A2	103P473030	CHIP RESISTOR	1/10W 2.2kΩ-F	R 510	103P402030	CHIP RESISTOR	1/10W 680Ω-J
R 4A3	103P406010	CHIP RESISTOR	1/10W 1MΩ-J	R 511	103P403060	CHIP RESISTOR	1/10W 8.2kΩ-J
R 4A4	103P474030	CHIP RESISTOR	1/10W 5.6kΩ-F	R 512	103P401090	CHIP RESISTOR	1/10W 330Ω-J
R 4A5	103P403070	CHIP RESISTOR	1/10W 10kΩ-J	R 513	103P401070	CHIP RESISTOR	1/10W 220Ω-J
R 4A9	103P473030	CHIP RESISTOR	1/10W 2.2kΩ-F	R 523	103P404010	CHIP RESISTOR	1/10W 22kΩ-J
R 4B0	103P473020	CHIP RESISTOR	1/10W 2kΩ-F	R 527	103P404000	CHIP RESISTOR	1/10W 18kΩ-J
R 4B1	103P401010	CHIP RESISTOR	1/10W 68Ω-J	R 528	103P403070	CHIP RESISTOR	1/10W 10kΩ-J
R 4B3	103P474010	CHIP RESISTOR	1/10W 4.7kΩ-F	R 530	103P402000	CHIP RESISTOR	1/10W 390Ω-J
R 4B4	103P474090	CHIP RESISTOR	1/10W 10kΩ-F	R 532	103P403080	CHIP RESISTOR	1/10W 12kΩ-J
R 4B5	103P479030	CHIP METAL	1/10W 680kΩ-F	R 534	103P402090	CHIP RESISTOR	1/10W 2.2kΩ-J
R 4B6	103P476070	CHIP RESISTOR	1/10W 56kΩ-F	R 535	103P404030	CHIP RESISTOR	1/10W 33kΩ-J
R 4B7	103P476070	CHIP RESISTOR	1/10W 56kΩ-F	R 536	103P404090	CHIP RESISTOR	1/10W 100kΩ-J
R 4B8	103P476010	CHIP RESISTOR	1/10W 33kΩ-F	R 538	103P404010	CHIP RESISTOR	1/10W 22kΩ-J
R 4B9	103P477070	CHIP RESISTOR	1/10W 150K	R 539	103P473090	CHIP RESISTOR	1/10W 3.9kΩ-F
R 4C0	103P478010	CHIP RESISTOR	1/10W 220kΩ-F	R 540	103P474030	CHIP RESISTOR	1/10W 5.6kΩ-F
R 4C2	103P478050	CHIP RESISTOR	1/10W 330kΩ-F	R 545	103P409050	CHIP RESISTOR	1/10W 0Ω
R 4C3	103P475050	CHIP RESISTOR	1/10W 18kΩ-F	R 547	103P409050	CHIP RESISTOR	1/10W 0Ω
R 4C5	103P474010	CHIP RESISTOR	1/10W 4.7kΩ-F	R 548	103P409050	CHIP RESISTOR	1/10W 0Ω
R 4C9	103P406010	CHIP RESISTOR	1/10W 1MΩ-J	R 549	103P409050	CHIP RESISTOR	1/10W 0Ω
R 4D0	103P478020	CHIP RESISTOR	1/10W 240kΩ-F	R 550	103P409050	CHIP RESISTOR	1/10W 0Ω
R 4D1	103P402050	CHIP RESISTOR	1/10W 1kΩ-J	R 551	103P409050	CHIP RESISTOR	1/10W 0Ω
R 4D2	103P404000	CHIP RESISTOR	1/10W 18kΩ-J	R 552	103P409050	CHIP RESISTOR	1/10W 0Ω
R 4D3	103P473010	CHIP RESISTOR	1/10W 1.8kΩ-F	R 553	103P409050	CHIP RESISTOR	1/10W 0Ω
R 4D4	103P405070	CHIP RESISTOR	1/10W 470kΩ-J	R 554	103P409050	CHIP RESISTOR	1/10W 0Ω
R 4D5	103P477010	CHIP RESISTOR	1/10W 82kΩ-F	R 555	103P409050	CHIP RESISTOR	1/10W 0Ω
R 4D6	103P474090	CHIP RESISTOR	1/10W 10kΩ-F	R 556	103P409050	CHIP RESISTOR	1/10W 0Ω
R 4D9	103P474070	CHIP RESISTOR	1/10W 8.2kΩ-F	R 558	103P409050	CHIP RESISTOR	1/10W 0Ω
R 4E0	103P403070	CHIP RESISTOR	1/10W 10kΩ-J	R 559	103P409050	CHIP RESISTOR	1/10W 0Ω
R 4E2	103P472070	CHIP RESISTOR	1/10W 1.2kΩ-F	R 560	103P409050	CHIP RESISTOR	1/10W 0Ω
R 4E3	103P472070	CHIP RESISTOR	1/10W 1.2kΩ-F	R 561	103P409050	CHIP RESISTOR	1/10W 0Ω
R 4E5	103P473050	CHIP RESISTOR	1/10W 2.7kΩ-F	R 562	103P409050	CHIP RESISTOR	1/10W 0Ω
R 4E6	103P404020	CHIP RESISTOR	1/10W 27kΩ-J	R 565	103P409050	CHIP RESISTOR	1/10W 0Ω
R 4E7	103P403030	CHIP RESISTOR	1/10W 4.7kΩ-J	R 566	103P409050	CHIP RESISTOR	1/10W 0Ω
R 4E8	103P473060	CHIP RESISTOR	1/10W 3kΩ-F	R 567	103P409050	CHIP RESISTOR	1/10W 0Ω
R 4E9	103P404020	CHIP RESISTOR	1/10W 27kΩ-J	R 570	103P409050	CHIP RESISTOR	1/10W 0Ω
R 4F0	103P403090	CHIP RESISTOR	1/10W 15kΩ-J	R 571	103P409050	CHIP RESISTOR	1/10W 0Ω
R 4F2	103P402060	CHIP RESISTOR	1/10W 1.2kΩ-J	R 572	103P409050	CHIP RESISTOR	1/10W 0Ω
R 4F3	103P403070	CHIP RESISTOR	1/10W 10kΩ-J	R 573	103P409050	CHIP RESISTOR	1/10W 0Ω
R 4F4	103P404000	CHIP RESISTOR	1/10W 18kΩ-J	R 574	103P409050	CHIP RESISTOR	1/10W 0Ω
R 4G0	103P473030	CHIP RESISTOR	1/10W 2.2kΩ-F	R 575	103P409050	CHIP RESISTOR	1/10W 0Ω
R 4G1	103P473070	CHIP RESISTOR	1/10W 3.3kΩ-F	R 577	103P409050	CHIP RESISTOR	1/10W 0Ω
R 4G2	103P473030	CHIP RESISTOR	1/10W 2.2kΩ-F	R 578	103P409050	CHIP RESISTOR	1/10W 0Ω
R 4G3	103P473030	CHIP RESISTOR	1/10W 2.2kΩ-F	R 579	103P409050	CHIP RESISTOR	1/10W 0Ω
R 4H0	103P475070	CHIP RESISTOR	1/10W 22kΩ-F	R 580	103P409050	CHIP RESISTOR	1/10W 0Ω
R 4H1	103P475050	CHIP RESISTOR	1/10W 18kΩ-F	R 581	103P409050	CHIP RESISTOR	1/10W 0Ω
R 4Q1	103P409050	CHIP RESISTOR	1/10W 0Ω	R 582	103P409050	CHIP RESISTOR	1/10W 0Ω

SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION	SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION
R 583	103P409050	CHIP RESISTOR	1/10W 0Ω	R 5H1	103P403030	CHIP RESISTOR	1/10W 4.7kΩ-J
R 588	103P409050	CHIP RESISTOR	1/10W 0Ω	R 5H2	103P403090	CHIP RESISTOR	1/10W 15kΩ-J
R 597	103P409050	CHIP RESISTOR	1/10W 0Ω	R 5H3	103P404090	CHIP RESISTOR	1/10W 100kΩ-J
R 599	103P409050	CHIP RESISTOR	1/10W 0Ω	R 5H4	103P404040	CHIP RESISTOR	1/10W 39kΩ-J
R 5A2	103P403000	CHIP RESISTOR	1/10W 2.7kΩ-J	R 5H5	103P472080	CHIP RESISTOR	1/10W 1.3kΩ-F
R 5A4	103P404070	CHIP RESISTOR	1/10W 68kΩ-J	R 5H6	103P403030	CHIP RESISTOR	1/10W 4.7kΩ-J
R 5A5	103P402020	CHIP RESISTOR	1/10W 560Ω-J	R 5H7	103P403030	CHIP RESISTOR	1/10W 4.7kΩ-J
R 5A6	103P404060	CHIP RESISTOR	1/10W 56kΩ-J	R 5H8	103P403030	CHIP RESISTOR	1/10W 4.7kΩ-J
R 5A7	103P403030	CHIP RESISTOR	1/10W 4.7kΩ-J	R 5H9	103P405010	CHIP RESISTOR	1/10W 150kΩ-J
R 5A8	103P402030	CHIP RESISTOR	1/10W 680Ω-J	R 5J0	103P474010	CHIP RESISTOR	1/10W 4.7kΩ-F
R 5A9	103P402090	CHIP RESISTOR	1/10W 2.2kΩ-J	R 5J2	103P402050	CHIP RESISTOR	1/10W 1kΩ-J
R 5B0	103P401070	CHIP RESISTOR	1/10W 220Ω-J	R 5J4	103P403050	CHIP RESISTOR	1/10W 6.8kΩ-J
R 5B1	103P403070	CHIP RESISTOR	1/10W 10kΩ-J	R 5J7	103P403020	CHIP RESISTOR	1/10W 3.9kΩ-J
R 5B4	103P474090	CHIP RESISTOR	1/10W 10kΩ-F	R 5J9	103P404010	CHIP RESISTOR	1/10W 22kΩ-J
R 5B6	103P403070	CHIP RESISTOR	1/10W 10kΩ-J	R 5K1	103P403080	CHIP RESISTOR	1/10W 12kΩ-J
R 5B8	103P406050	CHIP RESISTOR	1/10W 2.2MΩ-J	R 5L4	103P403070	CHIP RESISTOR	1/10W 10kΩ-J
R 5B9	103P406050	CHIP RESISTOR	1/10W 2.2MΩ-J	R 5L5	103P403010	CHIP RESISTOR	1/10W 3.3kΩ-J
R 5C4	103P404030	CHIP RESISTOR	1/10W 33kΩ-J	R 5L6	103P403070	CHIP RESISTOR	1/10W 10kΩ-J
R 5C5	103P403000	CHIP RESISTOR	1/10W 2.7kΩ-J	R 5L7	103P405050	CHIP RESISTOR	1/10W 330kΩ-J
R 5C6	103P403030	CHIP RESISTOR	1/10W 4.7kΩ-J	R 5L8	103P403070	CHIP RESISTOR	1/10W 10kΩ-J
R 5C7	103P403090	CHIP RESISTOR	1/10W 15kΩ-J	R 5M2	103P404090	CHIP RESISTOR	1/10W 100kΩ-J
R 5C8	103P403030	CHIP RESISTOR	1/10W 4.7kΩ-J	R 5M3	103P403080	CHIP RESISTOR	1/10W 12kΩ-J
R 5D0	103P404090	CHIP RESISTOR	1/10W 100kΩ-J	R 5M4	103P403080	CHIP RESISTOR	1/10W 12kΩ-J
R 5D1	103P403030	CHIP RESISTOR	1/10W 4.7kΩ-J	R 5M5	103P402090	CHIP RESISTOR	1/10W 2.2kΩ-J
R 5D2	103P405000	CHIP RESISTOR	1/10W 120kΩ-J	R 5M7	103P403070	CHIP RESISTOR	1/10W 10kΩ-J
R 5D3	103P403030	CHIP RESISTOR	1/10W 4.7kΩ-J	R 5N0	103P403070	CHIP RESISTOR	1/10W 10kΩ-J
R 5D4	103P403030	CHIP RESISTOR	1/10W 4.7kΩ-J	R 5N2	103P403030	CHIP RESISTOR	1/10W 4.7kΩ-J
R 5D6	103P403070	CHIP RESISTOR	1/10W 10kΩ-J	R 5N3	103P404010	CHIP RESISTOR	1/10W 22kΩ-J
R 5D8	103P404030	CHIP RESISTOR	1/10W 33kΩ-J	R 5P0	103P403070	CHIP RESISTOR	1/10W 10kΩ-J
R 5D9	103P406010	CHIP RESISTOR	1/10W 1MΩ-J	R 5P2	103P472080	CHIP RESISTOR	1/10W 1.3kΩ-F
R 5E1	103P402090	CHIP RESISTOR	1/10W 2.2kΩ-J	R 5P3	103P403010	CHIP RESISTOR	1/10W 3.3kΩ-J
R 5E2	103P473030	CHIP RESISTOR	1/10W 2.2kΩ-F	R 5P4	103P401080	CHIP RESISTOR	1/10W 270Ω-J
R 5E3	103P474070	CHIP RESISTOR	1/10W 8.2kΩ-F	R 5S0	103P403070	CHIP RESISTOR	1/10W 10kΩ-J
R 5E4	103P401020	CHIP RESISTOR	1/10W 82Ω-J	R 5S1	103P403030	CHIP RESISTOR	1/10W 4.7kΩ-J
R 5E5	103P401070	CHIP RESISTOR	1/10W 220Ω-J	R 5U0	103P403070	CHIP RESISTOR	1/10W 10kΩ-J
R 5E6	103P471010	CHIP RESISTOR	1/10W 270Ω-F	R 5U2	103P402090	CHIP RESISTOR	1/10W 2.2kΩ-J
R 5E7	103P471080	CHIP RESISTOR	1/10W 510Ω-F	R 5U4	103P403030	CHIP RESISTOR	1/10W 4.7kΩ-J
R 5E8	103P472090	CHIP RESISTOR	1/10W 1.5kΩ	R 901	109D036040	COMPOSITION	1/2W 8.2MΩ-K
R 5E9	103P471050	CHIP RESISTOR	1/10W 390Ω-F	R 902	109P052050	FUSE	1/4W 6.8Ω-J
R 5F0	103P403030	CHIP RESISTOR	1/10W 4.7kΩ-J	R 905	109P052010	FUSE	1/4W 100Ω-J
R 5F1	103P405070	CHIP RESISTOR	1/10W 470kΩ-J	RJ 1	103P409050	CHIP RESISTOR	1/10W 0Ω
R 5F2	103P402070	CHIP RESISTOR	1/10W 1.5kΩ-J	RJ 2	103P409050	CHIP RESISTOR	1/10W 0Ω
R 5F4	103P405070	CHIP RESISTOR	1/10W 470kΩ-J	RJ 3	103P409050	CHIP RESISTOR	1/10W 0Ω
R 5F5	103P404050	CHIP RESISTOR	1/10W 47kΩ-J	RJ 5	103P409050	CHIP RESISTOR	1/10W 0Ω
R 5F6	103P403070	CHIP RESISTOR	1/10W 10kΩ-J	CAPACITORS AND TRIMMERS			
R 5F7	103P474090	CHIP RESISTOR	1/10W 10kΩ-F	C 01	141P139030	CHIP CAPACITOR	B25V 0.1μF-K
R 5F8	103P475070	CHIP RESISTOR	1/10W 22kΩ-F	C 101	154P322080	CHIP CAPACITOR	SL50V 47pF-J
R 5F9	103P403070	CHIP RESISTOR	1/10W 10kΩ-J	C 102	154P322080	CHIP CAPACITOR	SL50V 47pF-J
R 5G1	103P404070	CHIP RESISTOR	1/10W 68kΩ-J	C 103	141P139030	CHIP CAPACITOR	B25V 0.1μF-K
R 5G2	103P402020	CHIP RESISTOR	1/10W 560Ω-J	C 108	141P132010	CHIP CAPACITOR	B50V 0.01μF-F
R 5G3	103P402090	CHIP RESISTOR	1/10W 2.2kΩ-J	C 109	141P139030	CHIP CAPACITOR	B25V 0.1μF-K
R 5G4	103P403010	CHIP RESISTOR	1/10W 3.3kΩ-J	C 115	154P322060	CHIP CAPACITOR	SL50V 39pF-J
R 5G5	103P403070	CHIP RESISTOR	1/10W 10kΩ-J	C 119	154P324000	CHIP CAPACITOR	SL50V 150pF-J
R 5G6	103P403070	CHIP RESISTOR	1/10W 10kΩ-J	C 121	154P330080	CHIP CAPACITOR	CH50V 7pF-C
R 5H0	103P473060	CHIP RESISTOR	1/10W 3kΩ-F				

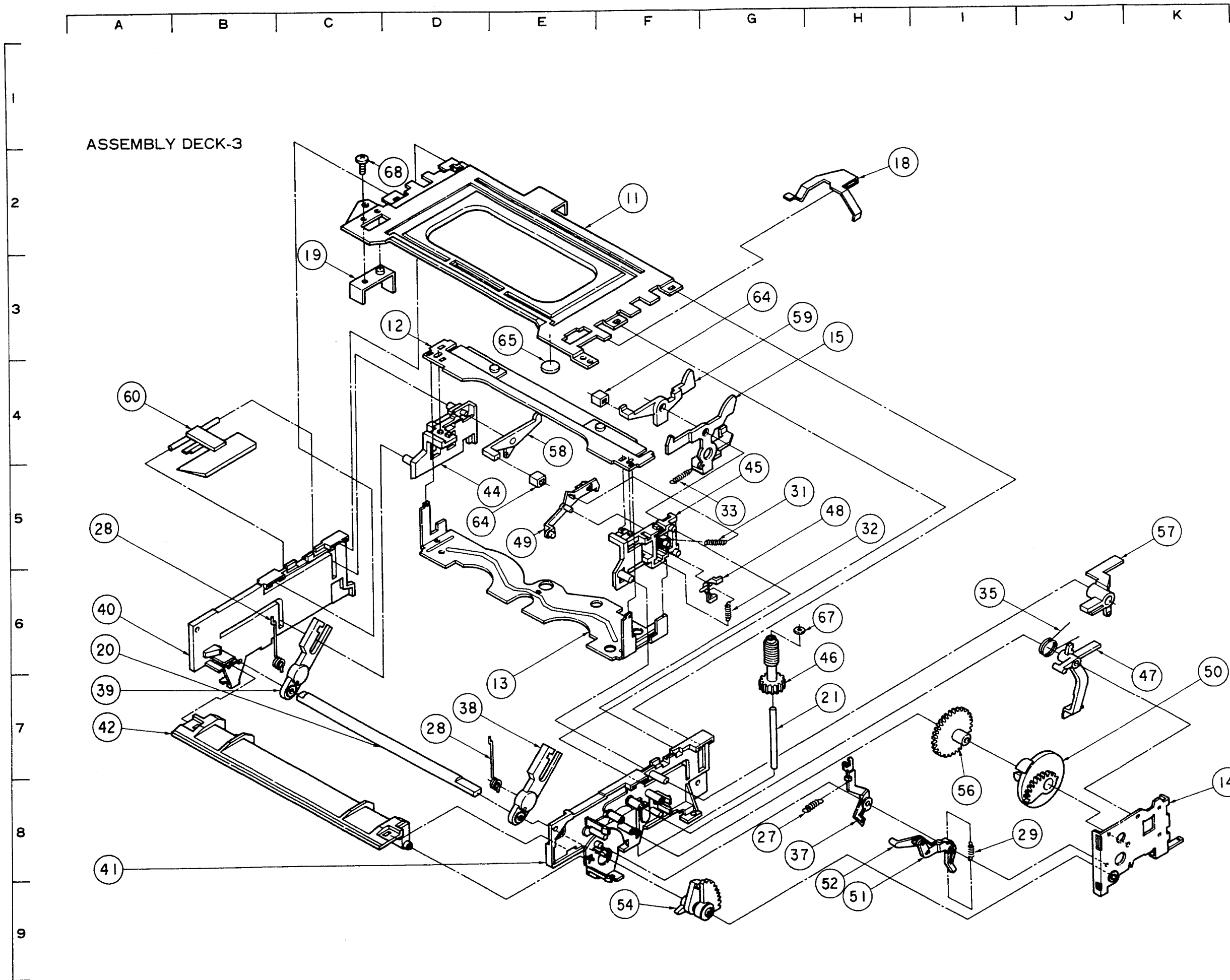
SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION	SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION
C 171	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z	C 2R5	141P139030	CHIP CAPACITOR	B25V 0.1 μ F-K
C 173	141P137080	CHIP CAPACITOR	B25V 0.047M	C 2R7	154P323020	CHIP CAPACITOR	SL50V 68pF-J
C 175	141P131020	CHIP CAPACITOR	B50V 1800pF-K	C 2X0	141P132000	CHIP CAPACITOR	B50V 8200pF-K
C 176	154P325080	CHIP CAPACITOR	SL50V 820pF	C 2Z0	154P321080	CHIP CAPACITOR	SL50V 18pF-J
C 181	154P322000	CHIP CAPACITOR	SL50V 22pF-J	C 3A1	141P132010	CHIP CAPACITOR	B50V 0.01 μ F-K
C 182	154P321060	CHIP CAPACITOR	SL50V 15pF-J	C 3A2	141P132010	CHIP CAPACITOR	B50V 0.01 μ F-K
C 183	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z	C 3A5	141P132010	CHIP CAPACITOR	B50V 0.01 μ F-K
C 201	154P322080	CHIP CAPACITOR	SL50V 47pF-J	C 3A6	141P132010	CHIP CAPACITOR	B50V 0.01 μ F-K
C 202	154P322060	CHIP CAPACITOR	SL50V 39pF-J	C 3A7	141P132010	CHIP CAPACITOR	B50V 0.01 μ F-K
C 207	154P323020	CHIP CAPACITOR	SL50V 68pF-J	C 3A9	141P132010	CHIP CAPACITOR	B50V 0.01 μ F-K
C 209	141P139030	CHIP CAPACITOR	B25V 0.1 μ F-K	C 3B2	141P132010	CHIP CAPACITOR	B50V 0.01 μ F-K
C 210	141P137080	CHIP CAPACITOR	B25V 0.047M	C 3B3	154P325020	CHIP CAPACITOR	SL50V 470pF
C 211	141P137080	CHIP CAPACITOR	B25V 0.047M	C 3B4	154P325020	CHIP CAPACITOR	SL50V 470pF
C 216	141P132010	CHIP CAPACITOR	B50V 0.01 μ F-K	C 4A0	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z
C 220	154P322080	CHIP CAPACITOR	SL50V 47pF-J	C 4B3	141P132000	CHIP CAPACITOR	B50V 8200pF-K
C 221	141P132010	CHIP CAPACITOR	B50V 0.01 μ F-K	C 4B4	141P132000	CHIP CAPACITOR	B50V 8200pF-K
C 234	154P322020	CHIP CAPACITOR	SL50V 27pF-J	C 4B6	141P131010	CHIP CAPACITOR	B50V 1500pF
C 236	154P322060	CHIP CAPACITOR	SL50V 39pF-J	C 4C4	141P130060	CHIP CAPACITOR	B50V 560pF-K
C 249	154P323040	CHIP CAPACITOR	SL50V 82pF-J	C 4D5	141P130090	CHIP CAPACITOR	B50V 1000pF-K
C 255	154P322040	CHIP CAPACITOR	SL50V 33pF-J	C 4D8	141P131050	CHIP CAPACITOR	B50V 3300pF-K
C 256	154P324020	CHIP CAPACITOR	SL50V 180pF-J	C 4D9	141P131010	CHIP CAPACITOR	B50V 1500pF
C 290	154P322080	CHIP CAPACITOR	SL50V 47pF-J	C 4E0	154P324020	CHIP CAPACITOR	SL50V 180pF-J
C 299	141P130090	CHIP CAPACITOR	B50V 1000pF-K	C 501	154P330060	CHIP CAPACITOR	CH50V 5pF-C
C 2C1	141P132000	CHIP CAPACITOR	B50V 8200pF-K	C 502	154P330060	CHIP CAPACITOR	CH50V 5pF-C
C 2C2	154P322060	CHIP CAPACITOR	SL50V 39pF-J	C 505	154P332010	CHIP CAPACITOR	CH50V 27pF-J
C 2C3	154P325000	CHIP CAPACITOR	SL50V 390pF-J	C 507	154P332010	CHIP CAPACITOR	CH50V 27pF-J
C 2C4	154P325020	CHIP CAPACITOR	SL50V 470pF	C 510	141P137080	CHIP CAPACITOR	B25V 0.047M
C 2C5	154P323020	CHIP CAPACITOR	SL50V 68pF-J	C 512	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z
C 2C8	154P324000	CHIP CAPACITOR	SL50V 150pF-J	C 514	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z
C 2C9	154P324000	CHIP CAPACITOR	SL50V 150pF-J	C 524	141P131010	CHIP CAPACITOR	B50V 1500pF
C 2D1	141P132000	CHIP CAPACITOR	B50V 8200pF-K	C 525	154P322080	CHIP CAPACITOR	SL50V 47pF-J
C 2D2	141P132000	CHIP CAPACITOR	B50V 8200pF-K	C 528	141P132000	CHIP CAPACITOR	B50V 8200pF-K
C 2D4	154P324040	CHIP CAPACITOR	SL50V 220pF-J	C 529	141P132000	CHIP CAPACITOR	B50V 8200pF-K
C 2D7	154P325000	CHIP CAPACITOR	SL50V 390pF-J	C 5A0	141P131020	CHIP CAPACITOR	B50V 1800pF-K
C 2E0	154P322080	CHIP CAPACITOR	SL50V 47pF-J	C 5A1	141P131030	CHIP CAPACITOR	B50V 2200pF-K
C 2E1	154P322000	CHIP CAPACITOR	SL50V 22pF-J	C 5A3	141P133090	CHIP CAPACITOR	F50V 0.022M
C 2E3	141P132000	CHIP CAPACITOR	B50V 8200pF-K	C 5A4	154P324060	CHIP CAPACITOR	SL50V 270pF-J
C 2E4	141P137040	CHIP CAPACITOR	B25V 0.022M	C 5A5	154P331050	CHIP CAPACITOR	CH50V 15pF-J
C 2F4	141P137080	CHIP CAPACITOR	B25V 0.047M	C 5A7	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z
C 2F7	141P139030	CHIP CAPACITOR	B25V 0.1 μ F-K	C 5B0	154P332030	CHIP CAPACITOR	CH50V 33pF-J
C 2G5	141P132000	CHIP CAPACITOR	B50V 8200pF-K	C 5B7	189P197020	C-ELE-DBL-LAYER	AC310G473Z5R5
C 2G7	141P132000	CHIP CAPACITOR	B50V 8200pF-K	C 5E0	141P133090	CHIP CAPACITOR	F50V 0.022M
C 2H0	154P322020	CHIP CAPACITOR	SL50V 27pF-J	C 5E1	141P133090	CHIP CAPACITOR	F50V 0.022M
C 2H1	154P322040	CHIP CAPACITOR	SL50V 33pF-J	C 5F0	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z
C 2H2	154P320080	CHIP CAPACITOR	SL50V 6pF-C	C 5F1	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z
C 2H3	154P322080	CHIP CAPACITOR	SL50V 47pF-J	C 5F8	141P133090	CHIP CAPACITOR	F50V 0.022M
C 2H7	141P132000	CHIP CAPACITOR	B50V 8200pF-K	C 5F9	141P133090	CHIP CAPACITOR	F50V 0.022M
C 2P2	154P322060	CHIP CAPACITOR	SL50V 39pF-J	C 5H1	141P133080	CHIP CAPACITOR	F50V 0.01 μ F-Z
C 2P3	154P323020	CHIP CAPACITOR	SL50V 68pF-J	C 905	185D065050	ELECTROLYTIC-C	H25V 3300 μ F-M 105C
C 2P8	141P132000	CHIP CAPACITOR	B50V 8200pF-K	C 906	185D063040	ELECTROLYTIC-C	H25V 4700 μ F-M 105C
C 2R0	154P322020	CHIP CAPACITOR	SL50V 27pF-J	VC8A0	202P109020	TRIMMER CAPACITOR	4.2pF-20pF
C 2R1	154P322000	CHIP CAPACITOR	SL50V 22pF-J	SWITCHES			
C 2R2	141P137040	CHIP CAPACITOR	B25V 0.022M	S 704	431C099050	SLIDE SWITCH	IP
C 2R3	141P137080	CHIP CAPACITOR	B25V 0.047M	S 707	431C099020	SLIDE SWITCH	MIX
C 2R4	154P323060	CHIP CAPACITOR	SL50V 100pF-J				

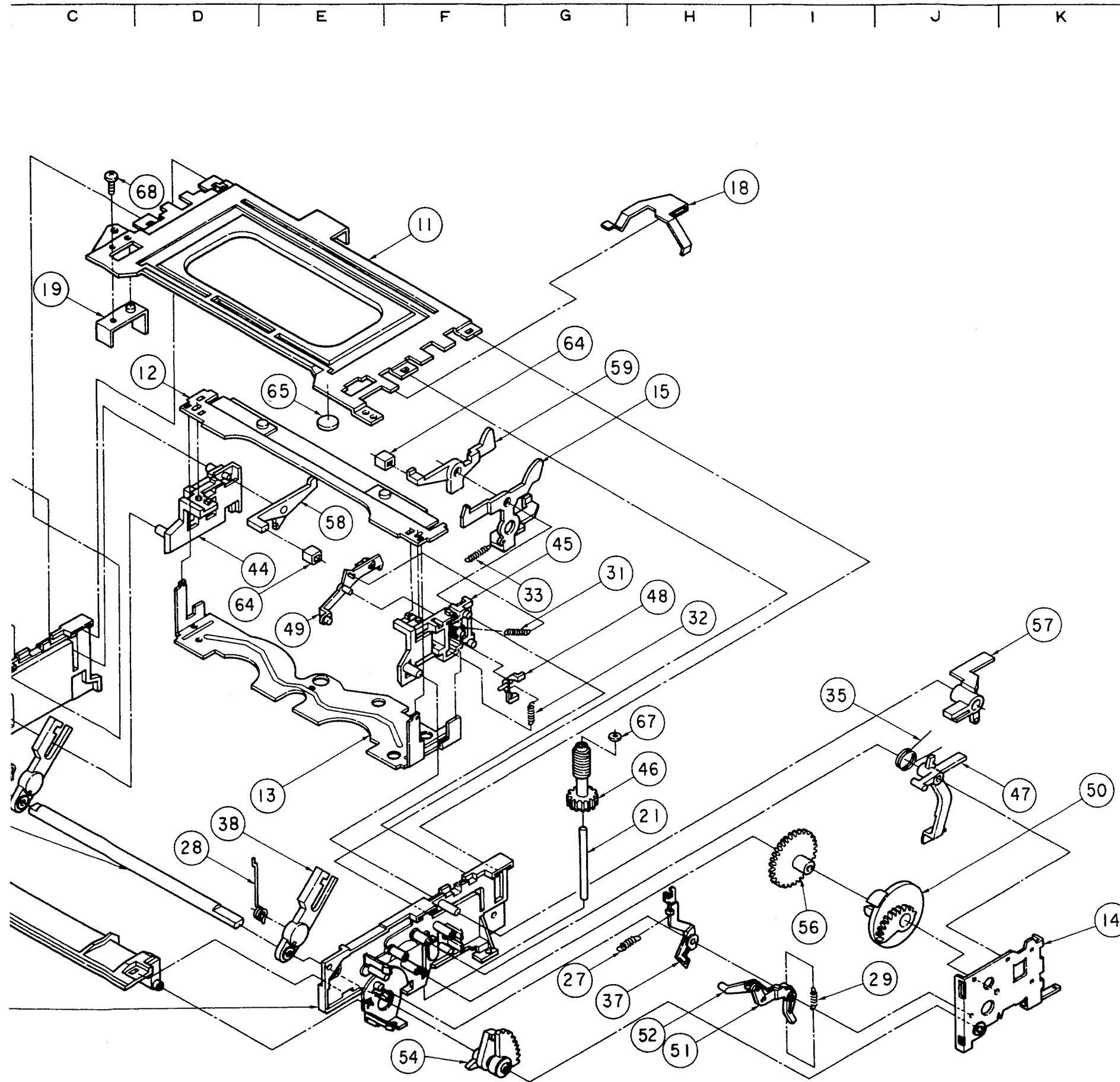
SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION	SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION
S 8A3	432P089040	KEY BOARD SWITCH	S-OTR	927B704008		HIFI/DEC PCB ASSY	
S 8A4	432P089040	KEY BOARD SWITCH	PB	928D130008		MAIN PCB ASSY	
S 8A5	432P089040	KEY BOARD SWITCH	RENT IP	928D107008		OPE PCB ASSY	
S 8A6	432P089040	KEY BOARD SWITCH	POWER	928D131001		POWER PCB ASSY	
S 8B4	432P089040	KEY BOARD SWITCH	REC	928D132001		POWER SUB PCB ASSY	
S 8B5	432P089040	KEY BOARD SWITCH	STOP	928D106008		TIMER PCB ASSY	
S 8B6	432P089040	KEY BOARD SWITCH	EJECT	927B686012		TUNER PCB ASSY	
S 8C5	432P089020	KEY BOARD SWITCH	STILL/PAUSE				
S 8D3	432P089040	KEY BOARD SWITCH	ONE KEY. PROGRAM				
S 8D5	432P089040	KEY BOARD SWITCH	OTR				
S 8D6	432P089040	KEY BOARD SWITCH	AFR				
S 8J0	439P023030	SWITCH	SRGPHJ065A				
S 8R0	432P089040	KEY BOARD SWITCH	RESET				
SW570	439P019020	MODE SELECT SWITCH	(F)				
SW571	439P020010	LIMIT SWITCH	SPP8-62				
MISCELLANEOUS							
CU 01	295P407020	RF CONVERTER					
DC CC	243C061020	CARD LEAD	9P L=150(DC-CC)				
DM CM	243C061090	CARD LEAD	17P L150(DM-CM)				
F 901	283D046080	FUSE	T630MA				
F 902	283D047050	FUSE	T2. 5A				
F 903	283D047050	FUSE	T2. 5A				
HR MR	243C061020	CARD LEAD	9P L=150(DC-CC)				
HV MV	243C061020	CARD LEAD	9P L=150(DC-CC)				
J 2001	451C058020	CONNECTOR	21P				
J 2002	451C058020	CONNECTOR	21P				
J 2003	451C086090	PIN JACK	WHITE				
J 2004	451C086010	PIN JACK	RED				
J 701	451C104010	HEADPHONE JACK	BLACK				
J 703	440C267010	PIN JACK BOARD					
K 3301	287P020050	RELAY	MZ9HS-B				
M 470	288P118010	CAPSTAN MOTOR	DC12V 4. 2W				
M 570	288P088040	DRUM MOTOR	DC12V 3. 3W				
M 571	288D025010	LOADING MOTOR					
MK TK	243C066010	CARD LEAD	25P L250(CQ-MQ)				
P 5S0	286P010010	BUZZER	PKM22EPT-2001				
PX MX	243C073010	CARD LEAD	9P L=130(MX-PX)				
T 370	460P060050	A/C HEAD					
T 371	460P061020	FULL ERASE HEAD	460P06102				
TF MF	243C022020	CARD LEAD	9P L=248(MF-TF)				
TT HT	243C072030	CARD LEAD	11P L120(S8-C8)				
TU 01	295P297010	TUNER	TERE1-0J9A				
V 8A0	253P101010	TUBE FLUOR	FIP11AMW10				
X 2A0	285P083010	CRYSTAL RESONATOR	4. 43362MHz				
X 501	285P084010	CRYSTAL RESONATOR	17. 7345MHz				
X 8A0	285P063040	CRYSTAL RESONATOR	4. 19430MHz				
X 8A1	285P054010	CRYSTAL RESONATOR	32. 768kHz				
Z 8A0	939P529010	PREAMP UNIT	GP1U783R				
PRINTED CIRCUIT BOARD ASSY'S							
	928D136001	CG PCB ASSY					
	928D133001	CONNECTOR PCB ASSY					
	928C595001	DECK PCB ASSY					
	927B441001	HEAD-AMP PCB ASSY					

* Settled Service

ITEM	PARTS No.
11	591B545010
12	592C758010
13	591B546010
14	591B542010
15	592C851010
18	596D150010
19	596D217010
20	631D134010
21	631D135010
27	(not used)
28	572D301010
29	572D389010
31	572D304010
32	572D305010
33	572D380010
35	572D367010
37	(not used)
38	641B315010
39	641B315020
40	641A110010
41	641A109010
42	641B306010
44	641B309010
45	641B307010
46	621D513010
47	621D514010
48	621D515010
49	641C794010
50	641C793010
51	641C897010
52	641C898010
54	641C858010
56	641C814010
57	641C857010
58	621D585010
59	621D586010
60	641C878010
64	642D494010
65	(not used)
67	552C001040
68	-----

ASSEMBLY DECK-3



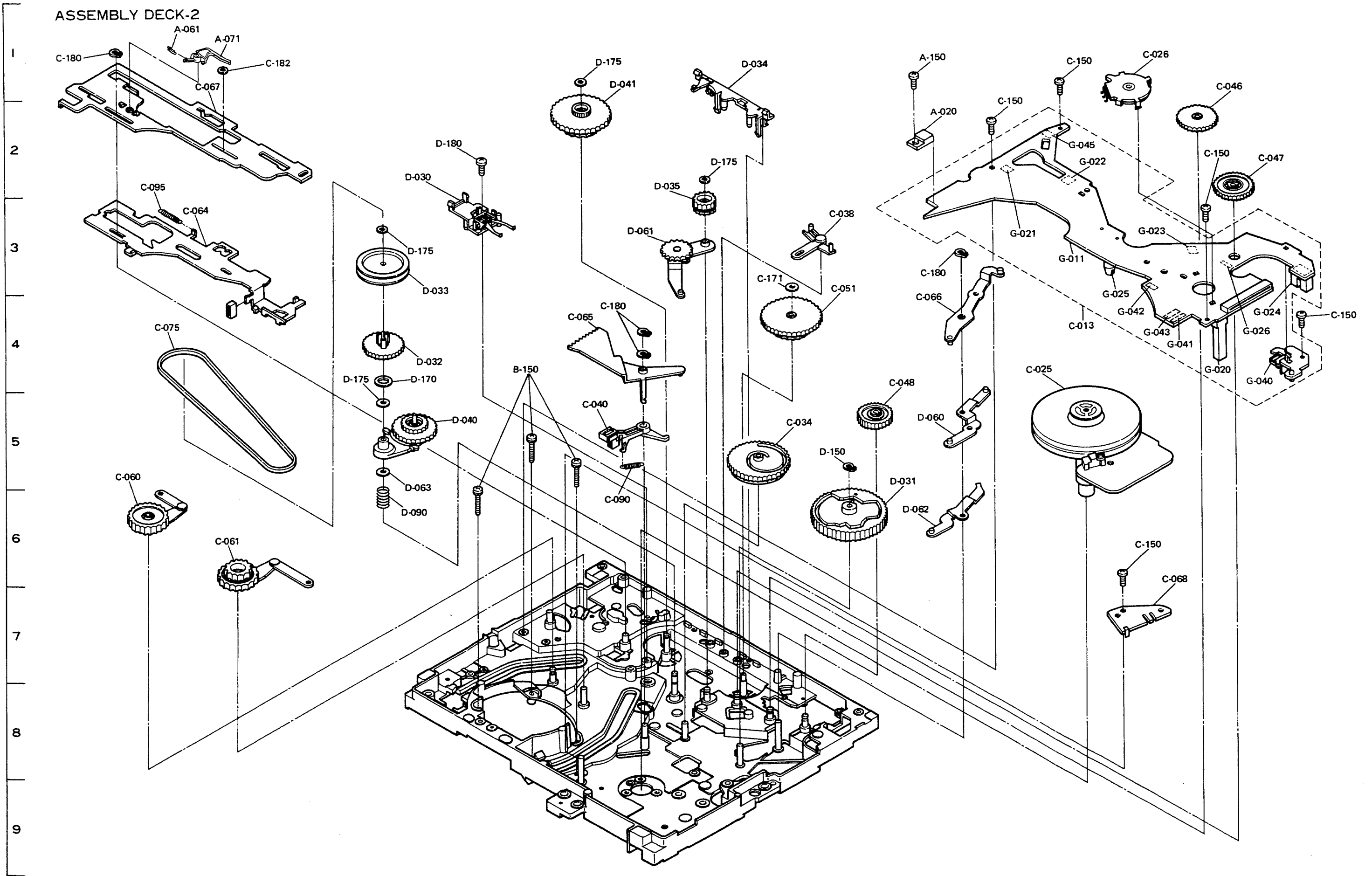


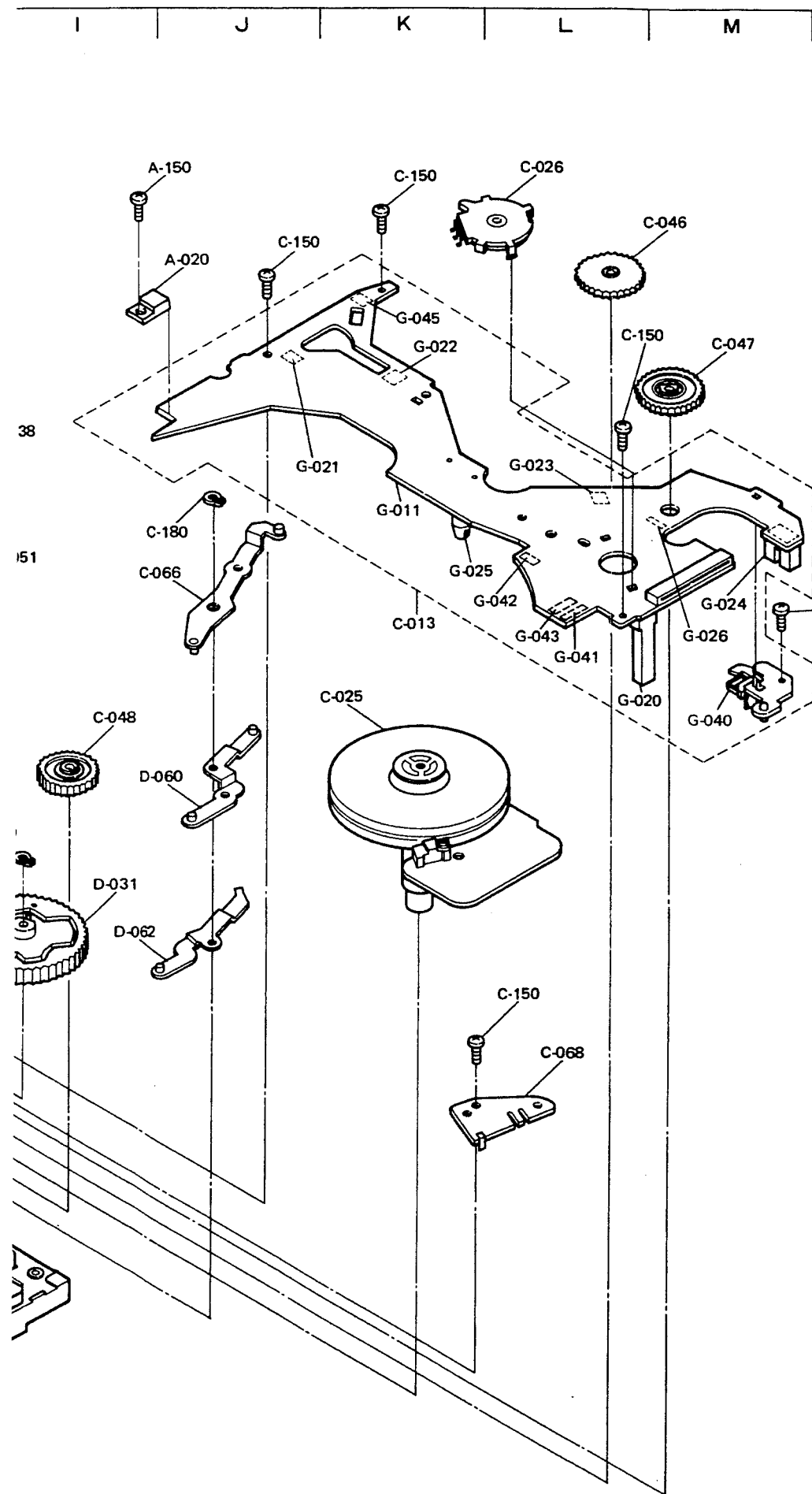
* Settled Service Parts

ITEM	PARTS No.	* ADDRESS	PARTS NAME	DESCRIPTION	Qt.
11	591B545010	F-2	PLATE-ROOF		01
12	592C758010	D-3	PLATE-UPPER		01
13	591B546010	E-7	PLATE-BOTTOM		01
14	591B542010	K-8	PLATE-SIDE-TU		01
15	592C851010	H-3	LEVER-LOCK-FL		01
18	596D150010	H-2	PLATE-EARTH		01
19	596D217010	C-3	PLATE-GUARD		01
20	631D134010	A-6	SHAFT-FL		01
21	631D135010	H-7	SHAFT-WORM		01
27	(not used)	G-8			
28	572D301010	○ A-5	D-7 SPRING-FL		02
29	572D389010	J-8	SPRING-DOOR-SUB		01
31	572D304010	G-5	SPRING-OPENER-LID		01
32	572D305010	H-5	SPRING-JUT-FL		01
33	572D380010	G-5	SPRING-LEVER-LOCK		01
35	572D367010	I-6	SPRING-LEVER-SW		01
37	(not used)	G-8			
38	641B315010	○ D-7	ARM-FL		01
39	641B315020	○ A-7	ARM-FL		01
40	641A110010	A-6	HOLDER-SIDE-SP		01
41	641A109010	A-8	HOLDER-SIDE-TU		01
42	641B306010	A-7	GUIDE-INSERT		01
44	641B309010	D-5	HOUSING-CASSETTE-SP		01
45	641B307010	G-5	HOUSING-CASSETTE-TU		01
46	621D513010	○ H-6	GEAR-WORM-FL		01
47	621D514010	K-7	LEVER-SW-FL		01
48	621D515010	○ H-5	JUT		01
49	641C794010	E-5	OPENER-LID-CAS		01
50	641C793010	○ K-7	GEAR-DRIVE		01
51	641C897010	○ H-9	ARM-FL-DOOR-A		01
52	641C898010	○ H-9	ARM-FL-DOOR-B		01
54	641C858010	○ F-9	ARM-LOCK		01
56	641C814010	○ I-8	GEAR-W-H-F/L		01
57	641C857010	K-5	LEVER-PICK-CAS		01
58	621D585010	E-4	LEVER-CAS-SP		01
59	621D586010	G-3	LEVER-CAS-TU		01
60	641C878010	A-4	STOPPER-SP-FL		01
64	642D494010	D-5	G-3 RUBBER-FL		02
65	(not used)	E-3			
67	552C001040	○ H-6	WASHER-THRUST	3 TO. 25	01
68	-----	D-2	SCREW	2. 6-5	01

A B C D E F G H I J K L M

ASSEMBLY DECK-2





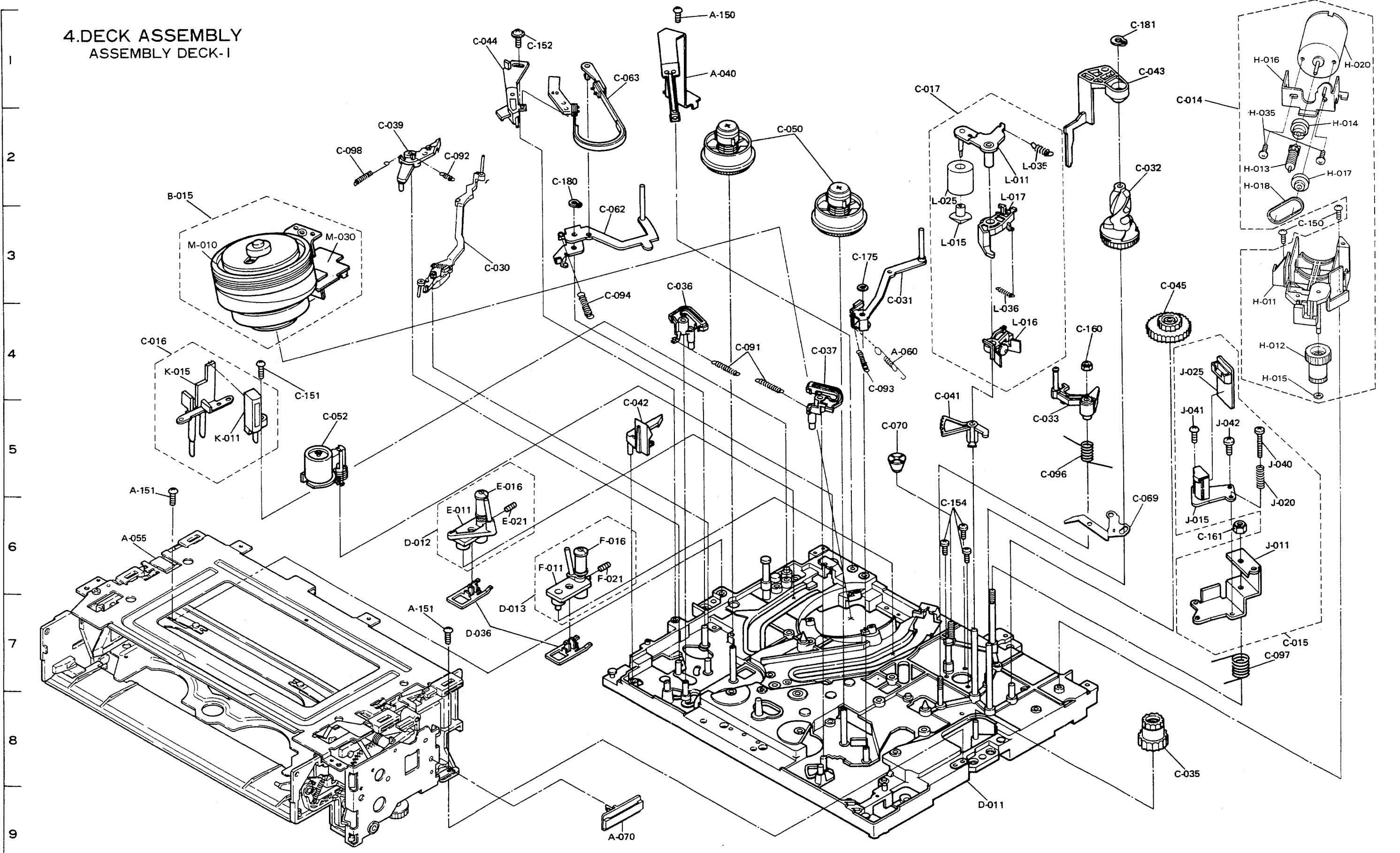
* Settled Service Parts

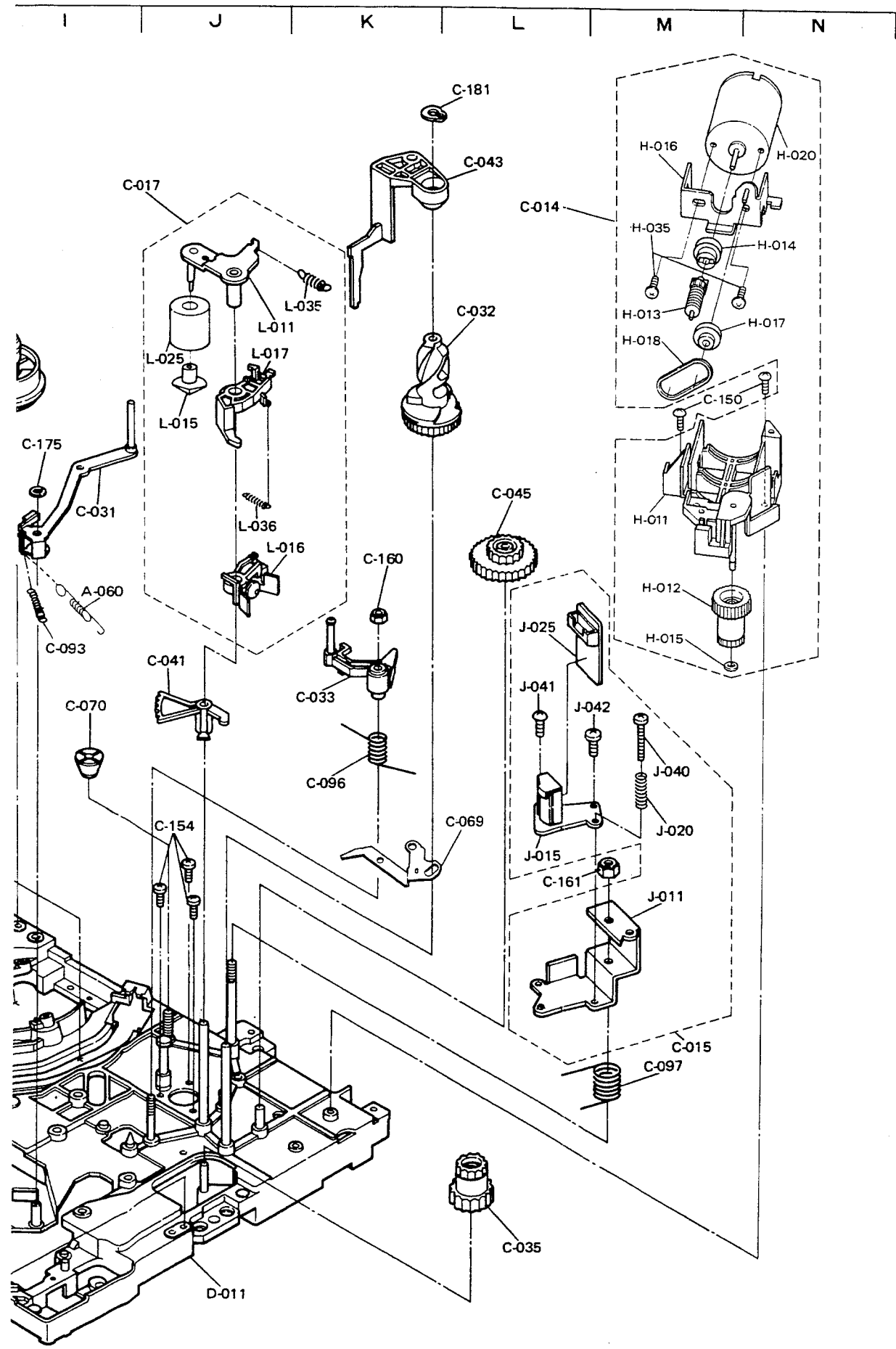
ITEM	PARTS No.	* ADDRESS	PARTS NAME	DESCRIPTION	Qt.
B-150	669D200040	E-4	SCREW-SEMS	M2.6×0.45-10	03
D-030	641B310010	○ E-2	UNIT-LEVER-SHIFT		01
D-031	641B323010	○ I-5	CAM-MAIN-1		01
D-032	641C789020	○ D-4	PULLEY-GEAR		01
D-033	641C790010	○ D-3	PULLEY-BELT		01
D-034	641C815010	○ H-1	HOLDER-P-CAM		01
D-035	621D516010	○ G-2	GEAR-F/L-1		01
D-040	522C077020	○ E-5	UNIT-GEAR-IDLER		01
D-041	522C083010	○ F-1	UNIT-GEAR-REEL-S		01
D-060	591B559010	○ I-5	LEVER-C		01
D-061	591B567010	○ G-3	LEVER-F/L-ID		01
D-062	592C830010	○ I-6	LEVER-RS		01
D-063	596D057010	○ D-5	WASHER-R	T=0.3	01
D-090	572D306010	○ D-6	SPRING-SHIFT		01
D-150	685C009010	○ H-5	GRIP-RING		01
D-170	552C010040	○ D-4	WASHER-THRUST	6.7×12×0.13	01
D-175	552C007030	○ D-3	CUT-WASHER	2.5	04
D-180	669D227010	○ G-2	F-1		
		○ E-2	SCREW-TS	M2.6×6	01
C-013	928C595001	○ K-4	ASSY-PWB-DECK		01
G-011	240A750010	○ K-3	PWB-DECK		01
G-020	268P014020	○ L-4	TRANSISTOR	Q571 PN205L-(NC)	01
G-021	268P014020	○ J-3	TRANSISTOR	Q572 PN205L-(NC)	01
G-022	268P044010	○ K-2	PHOTO-INTERRUPTER	Q573 ON2270-R	01
G-023	268P044010	○ L-3	PHOTO-INTERRUPTER	Q574 ON2270-R	01
G-024	268P045010	○ M-4	PHOTO-INTERRUPTER	Q575 GP1L52	01
G-025	264P307020	○ K-4	DIODE-LE	D570 GL-451	01
G-026	264P515010	○ M-4	DIODE	D571 MA165	01
G-040	299P124010	○ M-4	LATCH-MAGNET	L570	01
G-041	260P455010	○ L-4	TRANSISTOR	Q581 DTC124EF	01
G-042	260P455010	○ L-4	TRANSISTOR	Q582 DTC124EF	01
G-043	260P455010	○ L-4	TRANSISTOR	Q583 DTC124EF	01
G-045	439P020010	○ K-2	SW-LIMIT	SW571	01
C-025	288P118010	○ K-4	MOTOR-CP	M470	01
C-026	439P019020	○ L-1	SW-MODE-SELECT-F	SW570	01
C-034	641B324010	○ H-5	CAM-MAIN-2		01
C-038	641C795010	○ I-3	LEVER-IDLER-S		01
C-040	641C800010	○ F-5	BRAKE-CP		01
C-046	621D517010	○ M-1	GEAR-F/L-2		01
C-047	621D518010	○ M-2	GEAR-F/L-3		01
C-048	621D519010	○ I-4	GEAR-F/L-4		01
C-051	522C078040	○ I-3	UNIT-GEAR-REEL		01
C-060	591B543010	○ A-5	ARM-LOAD-S		01
C-061	591B544010	○ B-6	ARM-LOAD-T		01
C-064	591B554010	○ B-3	PLATE-CAM-C		01
C-065	591B557010	○ F-4	ARM-GEAR-LOAD		01
C-066	591B558010	○ J-4	LEVER-B		01
C-067	592C949010	○ B-1	UNIT-PLATE-CAM-B3		01
C-068	596D186010	○ L-6	PLATE-SHIELD-F		01
C-075	521D062010	※ B-4	BELT-REEL		01
C-090	572D308020	○ F-6	SPRING-B-CP		01
C-095	572D313010	○ B-2	SPRING-CAM-C		01
C-150	669D227010	○ J-2	K-1		
		○ L-2	L-6		
		○ M-4			
C-171	552C006020	○ H-3	WASHER-THRUST	2.0×0.13	01
C-180	685C009010	○ A-1	F-4		
		○ J-3	GRIP-RING		04
C-182	552C009050	○ C-1	CUT-WASHER		01
A-020	260P630010	○ J-2	TRANSISTOR	Q971 2SD2012	01
A-061	572D404010	○ B-1	SPRING-B-RS		01
A-071	641C928010	○ B-1	LEVER-B-RS		01
A-150	669D227010	○ I-1	SCREW-TS	M2.6×6	01

※C-017 ASSY-ARM-PINCH and C-181 GRIP RING in ASSEMBLY DECK-1 and C-075 BELT-REEL in ASSEMBLY DECK-2 are referred to a Kit of consumed parts (789C007020).

A B C D E F G H I J K L M N

4.DECK ASSEMBLY ASSEMBLY DECK-I





* Settled Service Parts

ITEM	PARTS No.	* ADDRESS	PARTS NAME	DESCRIPTION	Qt.
B-015	948B274018	○ B-2	ASSY-DRUM		01
M-010	928B984015	○ B-3	ASSY-UPPER-DRUM		01
M-030	288P088040	○ C-3	MOTOR-DRUM	M570	01
D-011	948A071020	J-9	ASSY-MAIN-PLATE		01
D-012	948D018040	○ D-6	ASSY-TAPE-GUIDE-S		01
D-012	948D018050	○ D-6	ASSY-TAPE-GUIDE-S		01
D-012	948D018060	○ D-6	ASSY-TAPE-GUIDE-S		01
E-011	635B059010	○ E-6	TAPE-GUIDE-S		01
E-011	635B059020	○ E-6	TAPE-GUIDE-S		01
E-011	635B059030	○ E-6	TAPE-GUIDE-S		01
E-016	522D177010	○ E-5	GUIDE-ROLLER		01
E-021	669D197020	E-6	SET-SCREW-F	M3 × 0.5-4	01
D-013	948D019040	○ E-7	ASSY-TAPE-GUIDE-T		01
D-013	948D019050	○ E-7	ASSY-TAPE-GUIDE-T		01
D-013	948D019060	○ E-7	ASSY-TAPE-GUIDE-T		01
F-011	635B060010	○ F-6	TAPE-GUIDE-T		01
F-011	635B060020	○ F-6	TAPE-GUIDE-T		01
F-011	635B060030	○ F-6	TAPE-GUIDE-T		01
F-016	522D177010	○ F-6	GUIDE-ROLLER		01
F-021	669D197020	F-6	SET-SCREW-F	M3 × 0.5-4	01
D-036	621D522010	○ E-7	SLIDER		02
C-014	928D031010	○ N-5	ASSY-LOAD-MOTOR		01
H-011	641B313010	○ 0-4	HOLDER-MOTOR		01
H-012	641C783010	N-4	GEAR-WHEEL		01
H-013	641C801010	N-2	GEAR-WORM		01
H-014	621D784010	○ 0-2	CUPLING-2		01
H-015	552C007030	○ N-4	CUT-WASHER	2.5	01
H-016	593C059010	N-1	PLATE-HOLDER-M2		01
H-017	621D793010	○ 0-2	PULLEY-L		01
H-018	521D074010	○ N-2	BELT-LM		01
H-020	288D025010	○ 0-1	MOTOR-LOADING	M571	01
H-035	650P300030	N-2	SCREW-F-FE-PAN	M3 × 0.5-3	02
C-015	928D032030	○ M-7	ASSY-AC-HEAD		01
J-011	592C760010	M-6	ARM-AC		01
J-015	460P060050	○ L-6	HEAD-AC	T370	01
J-020	570D593010	M-6	SPRING-AC		01
J-025	215C393010	L-4	PWB-AC-AF		01
J-040	650P261040	M-5	SCREW-F-FE-PAN	M2.6 × 0.45-14	01
J-041	669D227010	○ L-5	SCREW-TS	M2.6 × 6	01
J-042	669D206030	L-5	SCREW		01
C-016	928D033010	○ B-4	ASSY-FE-HEAD		01
K-011	460P061020	○ B-5	HEAD-FE	T371	01
K-015	641C870010	B-4	HOLDER-FE		01
C-017	948D020010	※ I-1	ASSY-ARM-PINCH		01
L-011	591B536010	○ J-2	ARM-PINCH		01
L-015	621D523010	○ J-3	CAP-ROLLER		01
L-016	641C797010	○ J-4	LEVER-CAM-PINCH		01
L-017	641C798010	○ J-2	LEVER-ARM-PINCH		01
L-025	522D174010	○ J-2	ROLLER-PINCH		01
L-035	572D314010	○ K-2	SPRING-PINCH		01
L-036	572D315010	○ J-4	SPRING-CAM-PINCH		01
C-030	641B368010	○ E-3	ARM-TENS-REG-S2		01
C-031	591B551020	○ I-3	ARM-TENS-REG-T		01
C-032	641B314020	○ L-2	CAM-PINCH		01
C-033	635B068010	○ K-5	ARM-TU-G		01
C-035	641C782010	○ L-8	GEAR-JOINT		01
C-036	641B527020	○ G-3	BRAKE-MAIN-S2		01
C-037	641B526020	○ H-4	BRAKE-MAIN-T2		01

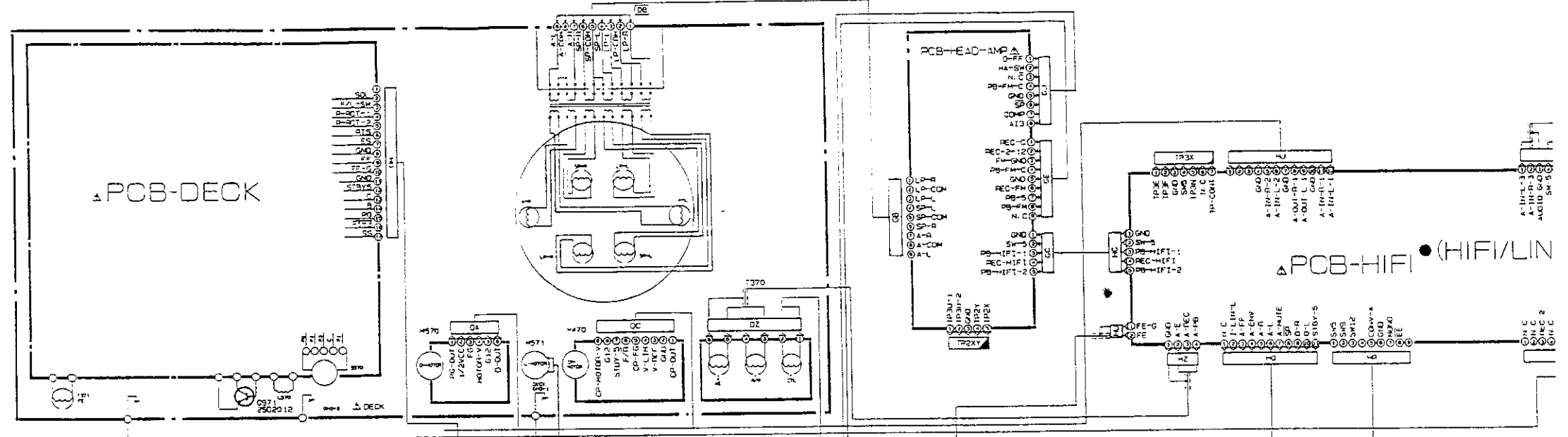
* Settled Service Parts

ITEM	PARTS No.	* ADDRESS	PARTS NAME	DESCRIPTION	Qt.
C-039	641C796010	○ D-2	LEVER-TENS		01
C-041	641C991010	○ J-4	ARM-GEAR-TU-G2		01
C-042	641C804010	○ F-5	LEVER-REC-SAFETY		01
C-043	641C806010	○ L-1	CAP-ARM-PINCH		01
C-044	641C861010	○ E-1	HOLDER-T-BAND		01
C-045	621D509010	○ L-3	GEAR-1		01
C-050	522C076020	○ H-2	UNIT-REEL-DISK		02
C-052	641B319010	○ C-5	UNIT-IMP-ROLLER		01
C-062	591B547010	○ F-3	ARM-TENSION		01
C-063	591B552010	○ F-1	BELT-TENS-BRAKE		01
C-069	592C930010	L-6	LEVER-TENS-TU		01
C-070	635D063010	I-5	NUT-TAPER		01
C-091	572D309010	○ H-4	SPRING-M-B		02
C-092	572D391010	○ E-2	SPRING-TENS-REG-S2		01
C-093	572D390010	○ I-4	SPRING-TENS-REG-T2		01
C-094	572D312010	○ F-3	SPRING-TENS		01
C-096	572D317010	○ K-5	SPRING-TU-G		01
C-097	572D318010	○ M-7	SPRING-ARM-A/C		01
C-098	572D328010	○ D-2	SPRING-REC-SAFETY		01
C-150	669D227010	○ M-3	SCREW-TS	M2.6 × 6	02
C-151	669D227030	○ C-4	SCREW-TS	M2.6 × 10	01
C-152	669D228010	E-1	SCREW-TS-SEMS	M2.6 × 6	01
C-154	669D285040	J-6	SCREW-TB-PAN	M2.6 × 8	03
C-160	674D081020	○ K-4	NUT-NYLON	M3 × 0.5	01
C-161	674D100010	○ L-6	NUT-NYLON-S	M4 × 0.7	01
C-175	552C007030	○ I-3	CUT-WASHER	2.5	01
C-180	685C009010	○ F-2	GRIP-RING		01
C-181	685C009020	※ L-1	GRIP-RING		01
A-040	299C025010	○ G-1	BRUSH		01
A-055	590A256020	○ A-6	UNIT-F/L-F		01
A-060	572D401010	○ I-4	SPRING-RS		01
A-070	641C906010	○ F-9	HOLDER-CARD		01
A-150	669D227010	○ G-1	SCREW-TS	M2.6 × 6	01
A-151	669D227020	○ A-5 D-7	SCREW-TS	M2.6 × 8	02

※ C-017 ASSY-ARM-PINCH and C-181 GRIP RING in ASSEMBLY DECK-1 and C-075 BELT-REEL in ASSEMBLY DECK-2 are referred to a Kit of consumed parts (789C007020).

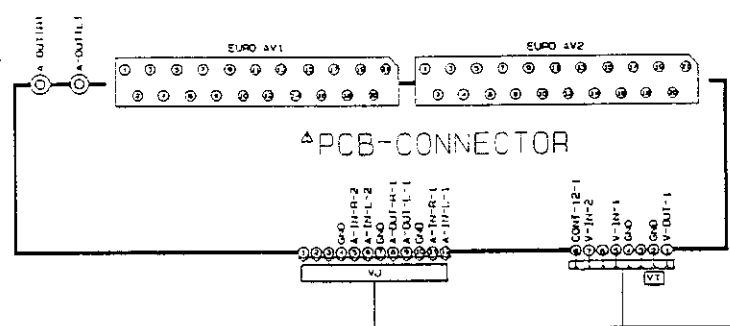
CONTENTS	
①	PCB-BLOCK DIAGRAM PCB-HEAD-AMP
②	PCB-POWER PCB-TIMER
③	PCB-HIFI (HIFI/LIN)
④	PCB-MAIN (TUNER/VIF)
⑤	PCB-MAIN (Y/C)
⑥	PCB-DECK PCB-MAIN (MC)
⑦	PCB-CG PCB-MAIN (SERVO)
⑧	TRANSMITTER REMOTE CONTROL PATTERN
⑨	PATTERN

A

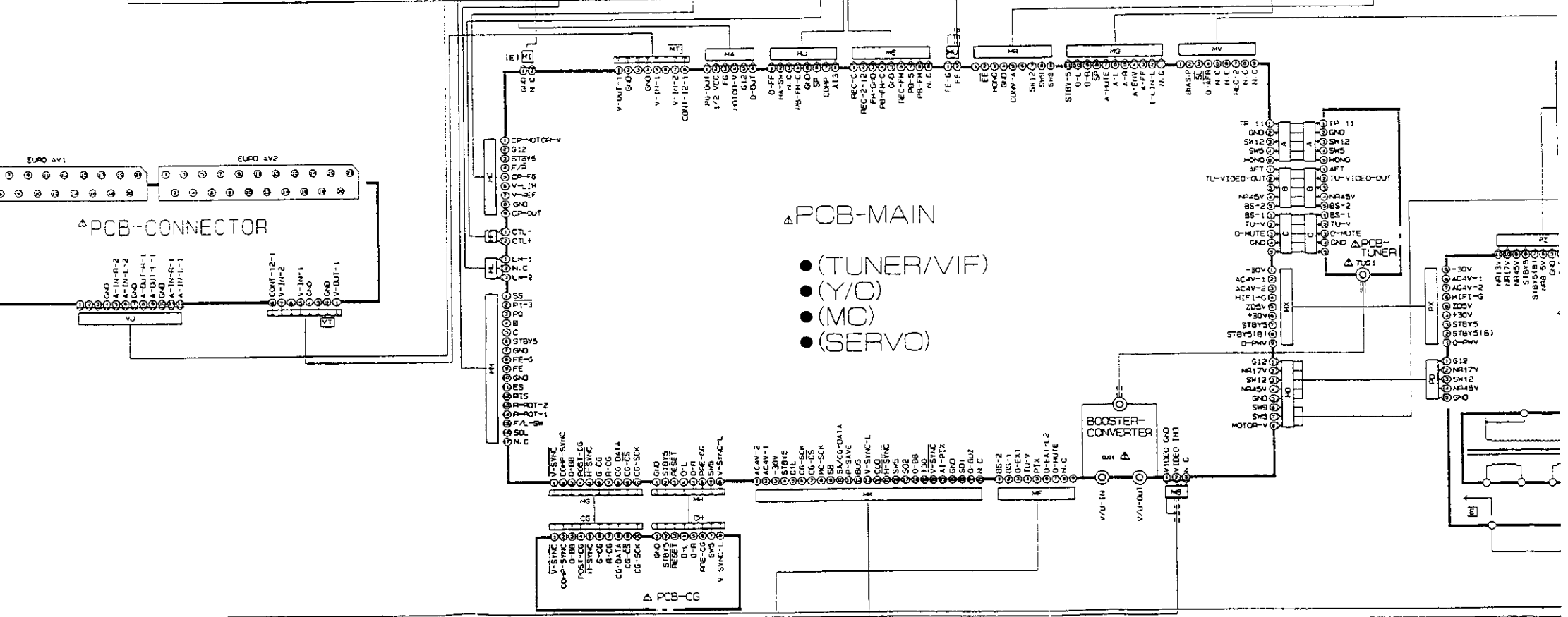


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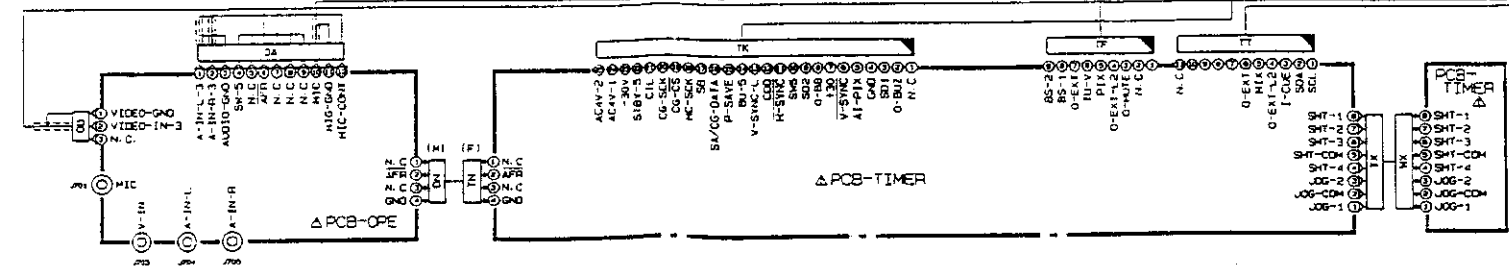
C



D



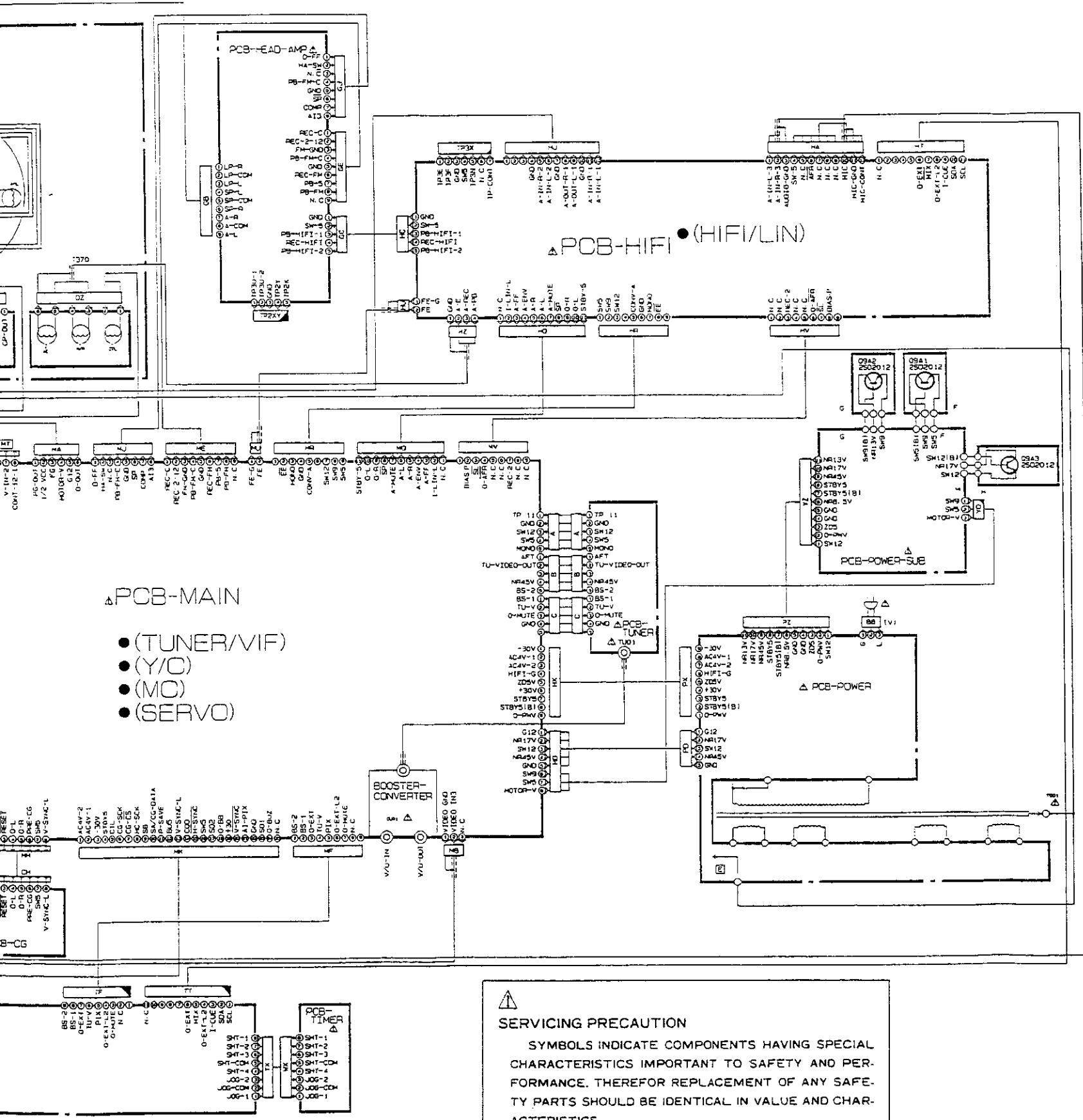
E



⚠️ SERVICING PRECAUTION

SYMBOLS INDICATE COMPONENTS HAVING CHARACTERISTICS IMPORTANT TO SAFETY PERFORMANCE. THEREFORE REPLACEMENT OF TY PARTS SHOULD BE IDENTICAL IN VALUE AND CHARACTERISTICS.

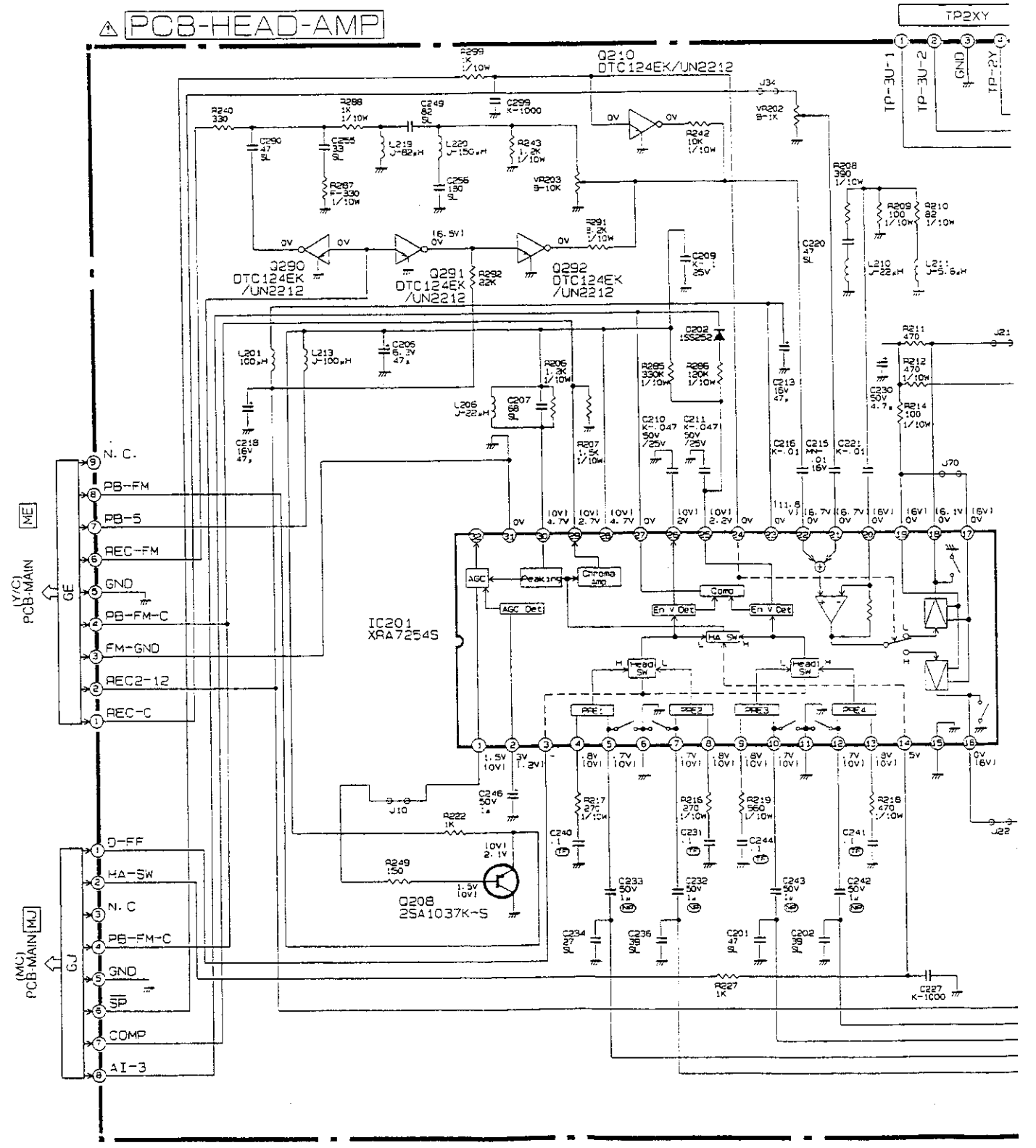
DON'T DEGRADE THE SAFETY OF THE VCR BY IMPROPER SERVICING.



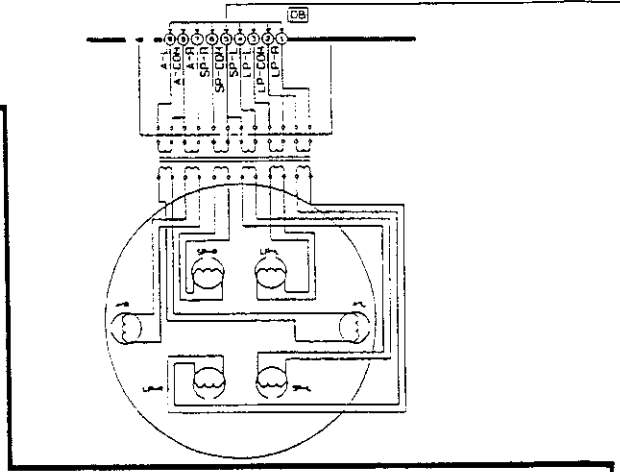
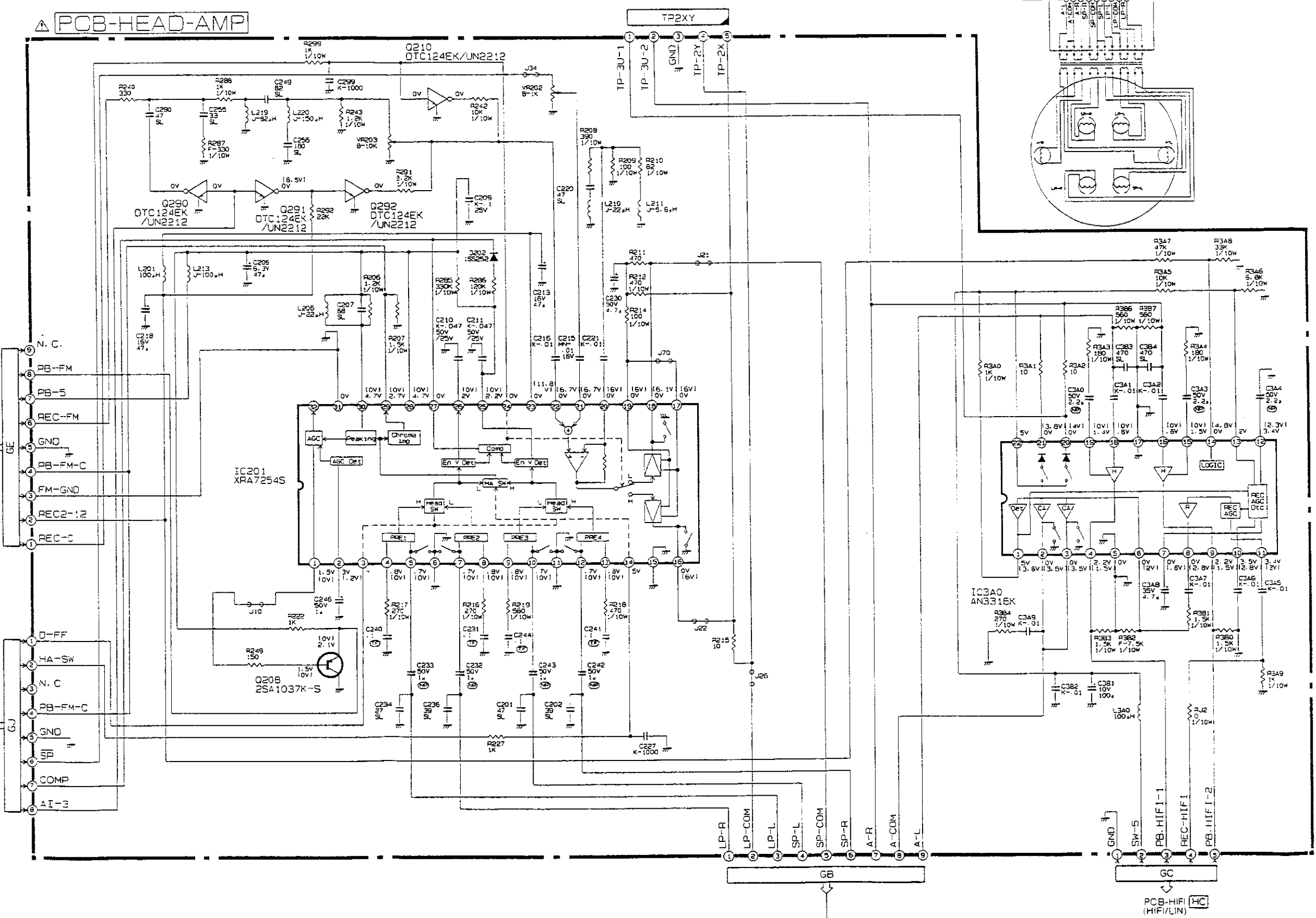
⚠️ SERVICING PRECAUTION

SYMBOLS INDICATE COMPONENTS HAVING SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY AND PERFORMANCE. THEREFOR REPLACEMENT OF ANY SAFETY PARTS SHOULD BE IDENTICAL IN VALUE AND CHARACTERISTICS.

DON'T DEGRADE THE SAFETY OF THE VCR THROUGH IMPROPER SERVICING.



PCB-HEAD-AMP



SCHEMATIC DIAGRAM

NOTE

- DC voltages were measured from points indicated to the circuit ground with a digital voltmeter.
- The voltages parenthesised are on SP recording mode. While those without parenthesised are on SP play back mode.
- Waveforms were taken with standard colour bar signal.
- TP6A, etc. show Test Points.

5. CAPACITORS

Value	Not indicated	PF for numbers more than 1 uF for numbers less than 1
Dielectric Strength	Not indicated	:50V
Tolerance	Not indicated	=±10% No Tolerance is indicated for electrolytic capacitors and ±20%
Sort	Parts except for chips	<ul style="list-style-type: none"> Not indicated: Ceramic capacitor (MP): Polyester capacitor (PB): Polypropylene film capacitor (ALM): Aluminum electrolytic capacitor (TF): Twin film capacitor (SC): Semiconductor ceramic capacitor (MP): Metalized paper (MPP): Metalized plastic film capacitor (MMP): Metalized polyester capacitor (MF/PB): Polyester polypropylene film capacitor (PS): Styrol capacitor (TAN or TANT): Tantalum capacitor (E): Electrolytic capacitor (BP or NP): Non polarized electrolytic capacitor
Characteristics (only ceramic capacitor)	Not indicated	F or B (high dielectric percentage) CH, SL, etc. Temperature compensating types
II Chips	Not indicated	Ceramic capacitor chip Electrolytic capacitor Non polarized electrolytic capacitor chip

6. Resistors

Value	Not indicated	= Ω K = kΩ(1000Ω) M = MΩ(1000kΩ)
Wattage	Parts except for chips	Not indicated = 1/4W or 1/5W
	Chips	Not indicated = 1/10W
Tolerance	Not indicated	=±5% D = ±0.5% J = ±5% F = ±1% K = ±10%
Sort	Parts except for chips	<ul style="list-style-type: none"> Not indicated: Carbon resistor (S): Fixed composition resistor (MB): Metal oxide film resistor (type B) (CE): Cemented resistor (W): Wire wound resistor (M): Metal film resistor (MPC): Metal plate cement resistor (ML): Metal liner resistor
II Chip	Not indicated	: Chip resistor

7. This is a basic schematic diagram. Some sets may be subject to modification according to engineering improvement.

SPECIFIC SYMBOL	
	Zener Diode
	Varicap
	Posistor
	Thermistor
	Fusible Resistor
	Crystal unit
	LE Diode
	Photo Diode
	Ceramic filter
	PNP DIGITAL TRANSISTOR
	NPN DIGITAL TRANSISTOR

HS-M58(E)

1

1 2 3 4 5 6 7

A

B

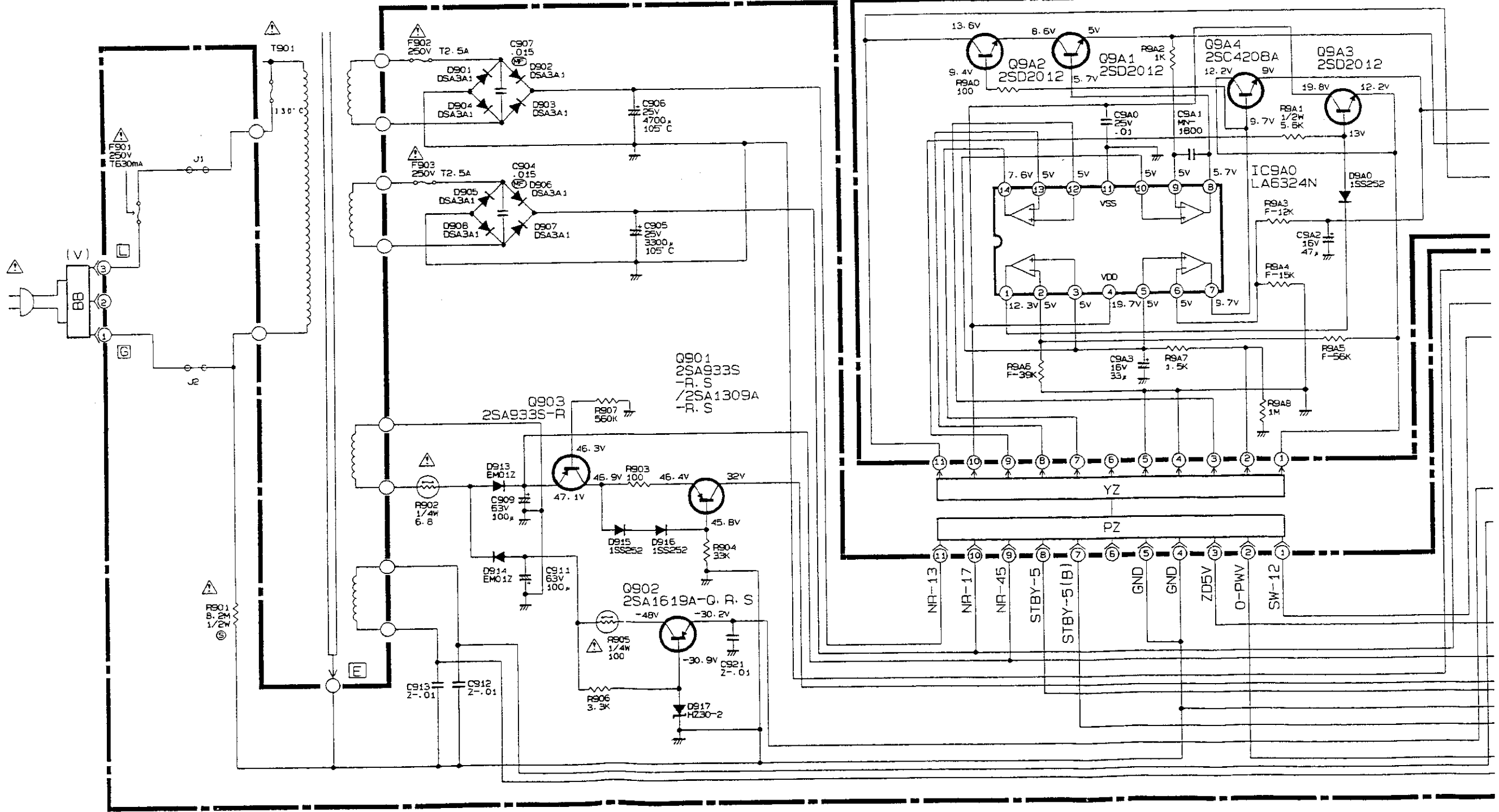
C

D

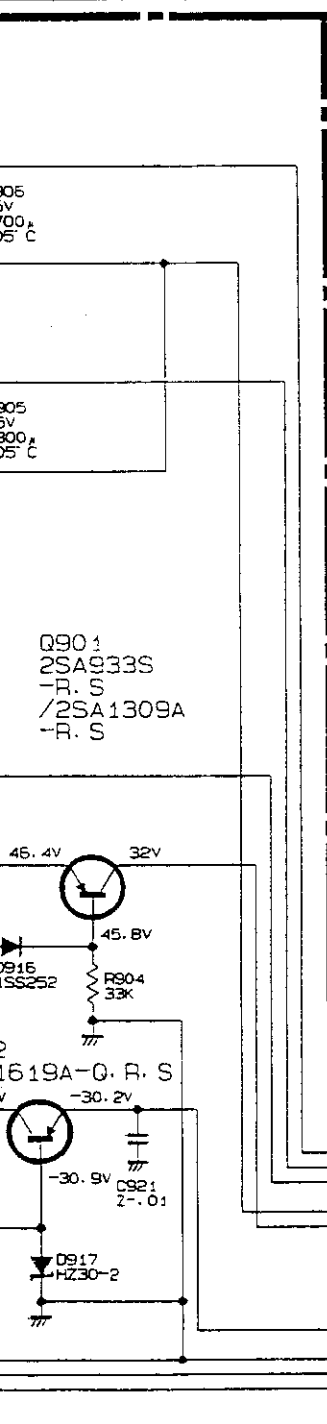
E

PCB-POWER

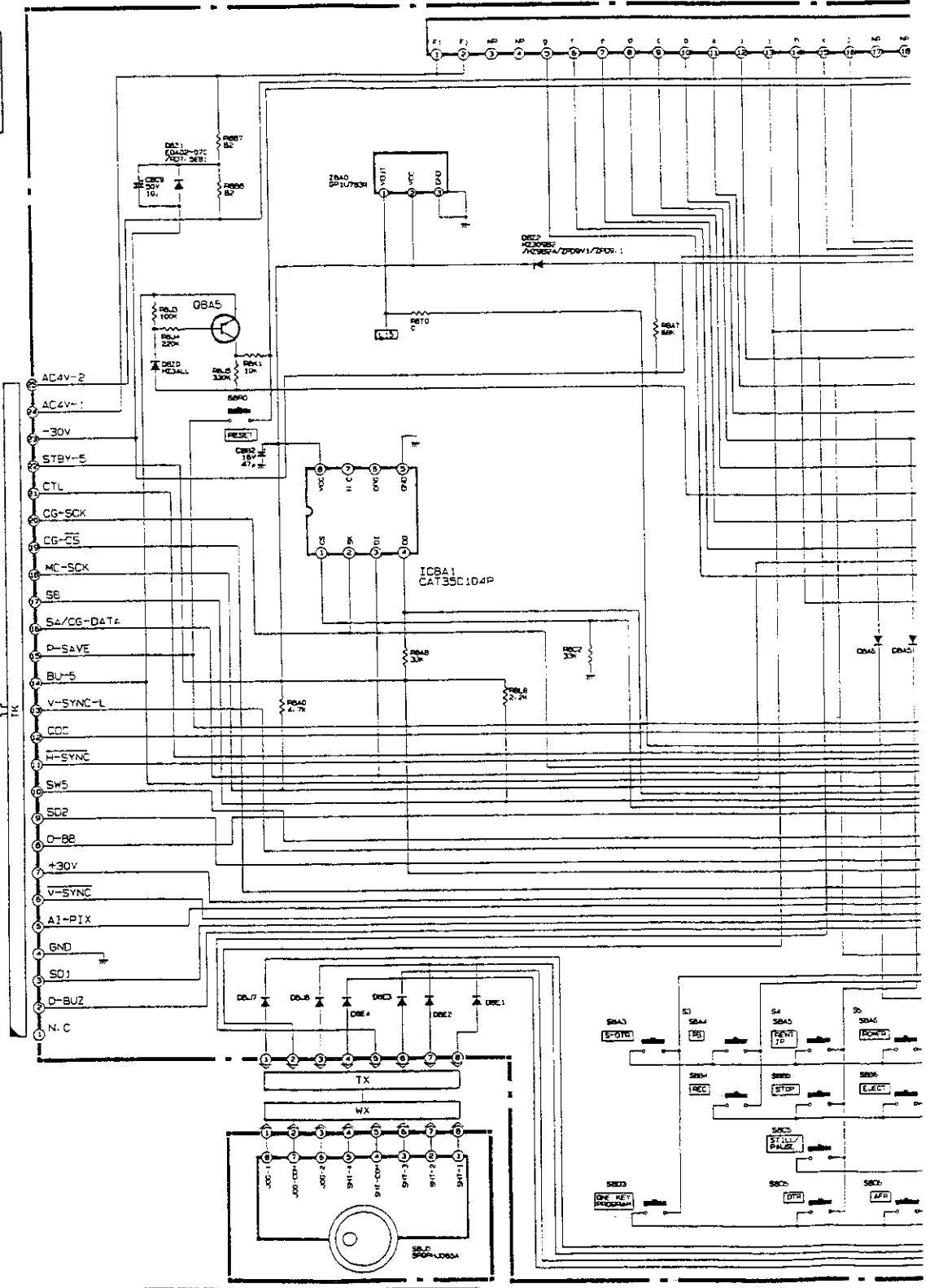
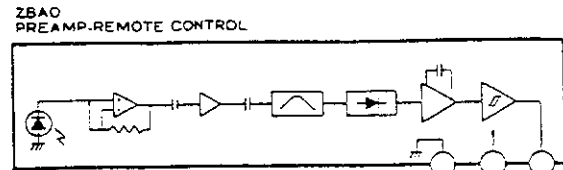
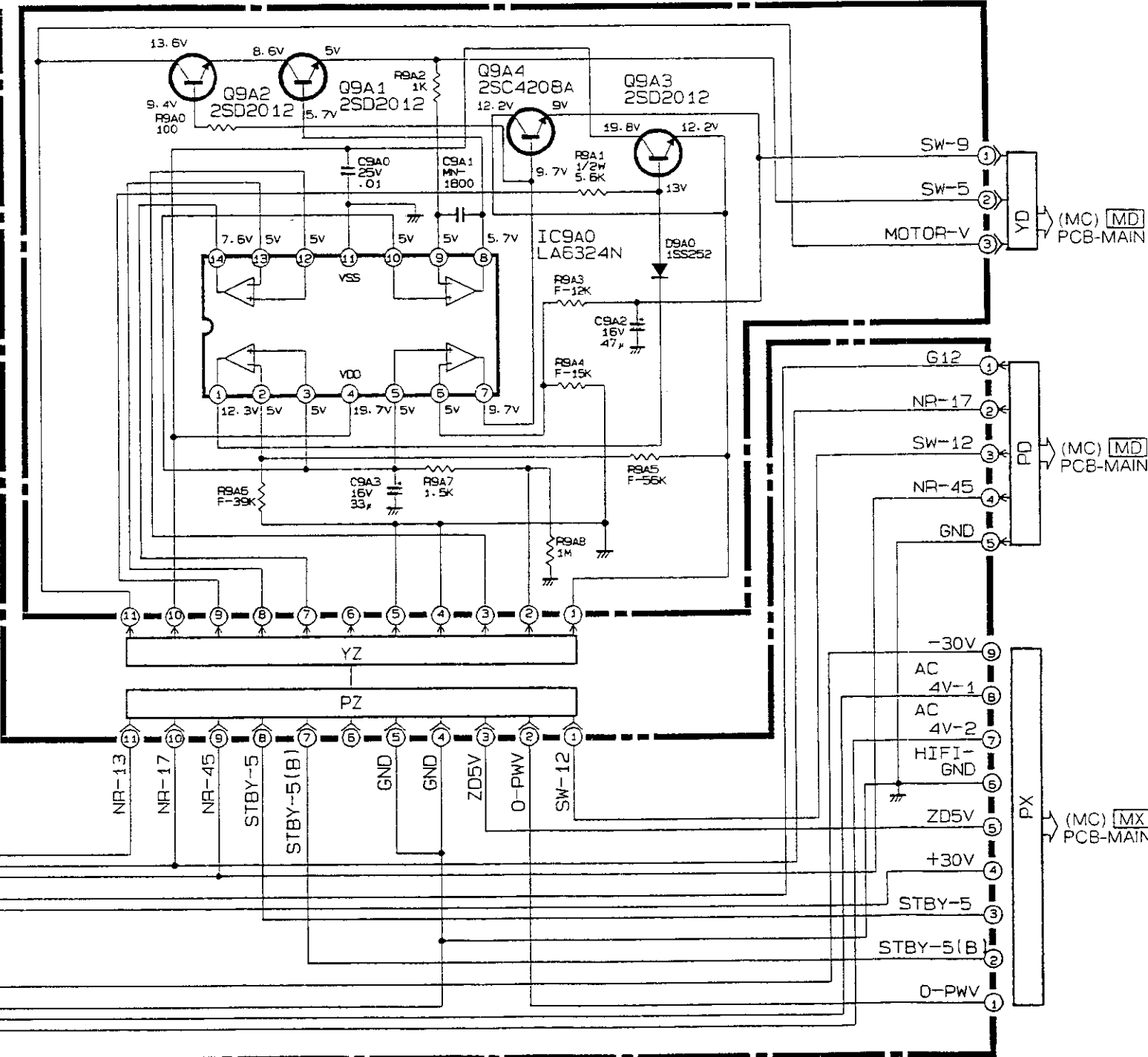
PCB-POWER



CB-POWER



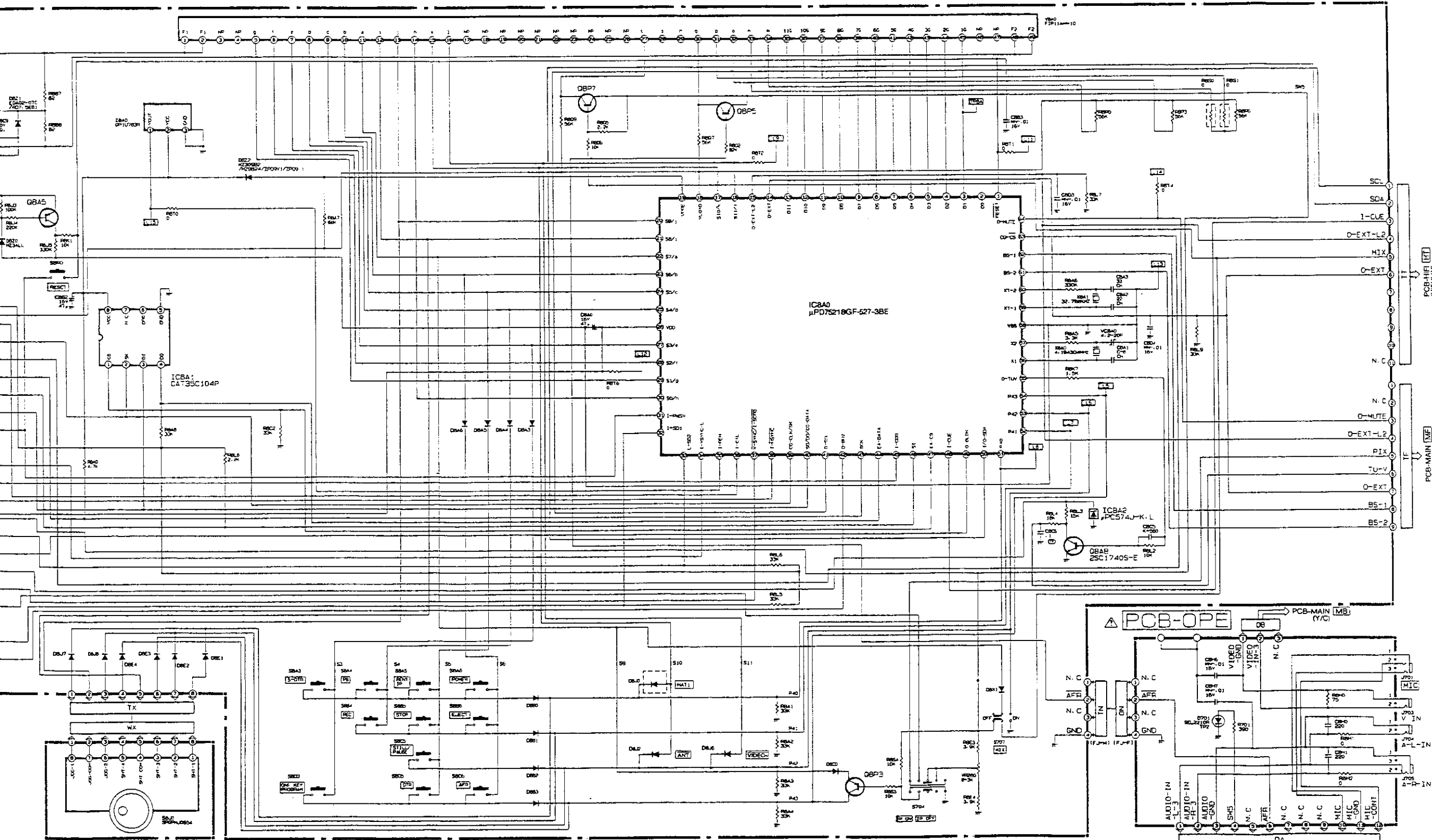
PCB-POWER-SUB



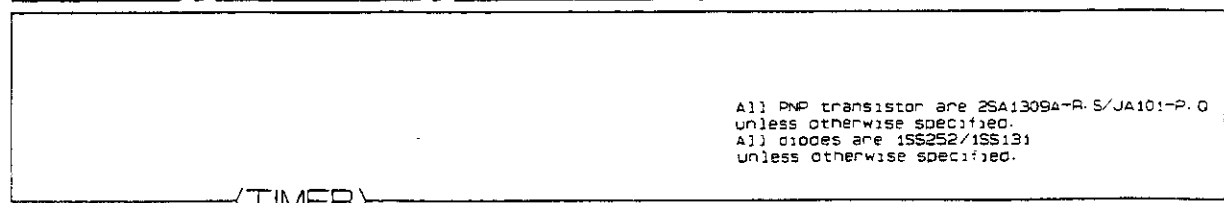
PCB-JOG SHUTTLE

(TIMER)

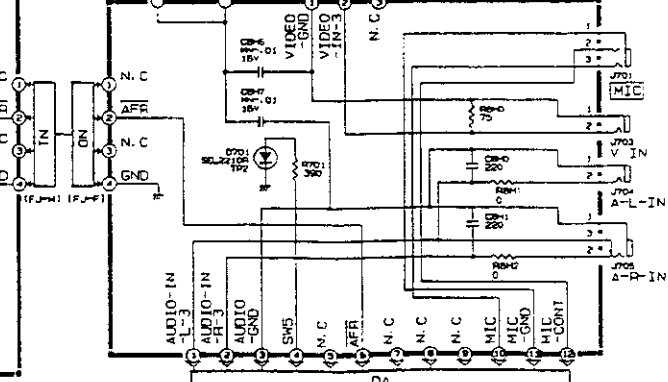
PCB-TIMER



PCB-JOG SHUTTLE

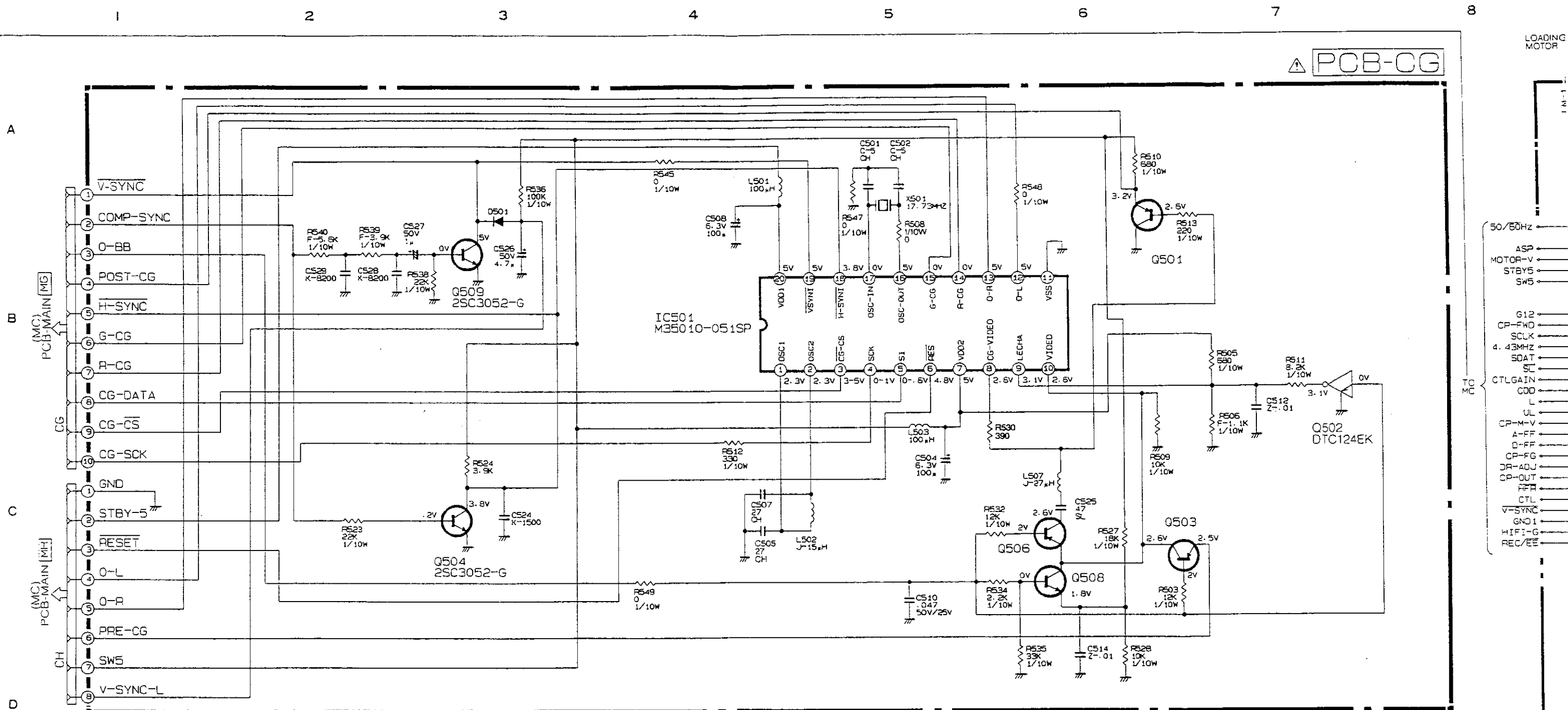


PCB-OPE



All PNP transistor are 2SA13094-R/S/JA101-P.0 unless otherwise specified.
 All diodes are 1SS252/1SS131 unless otherwise specified.

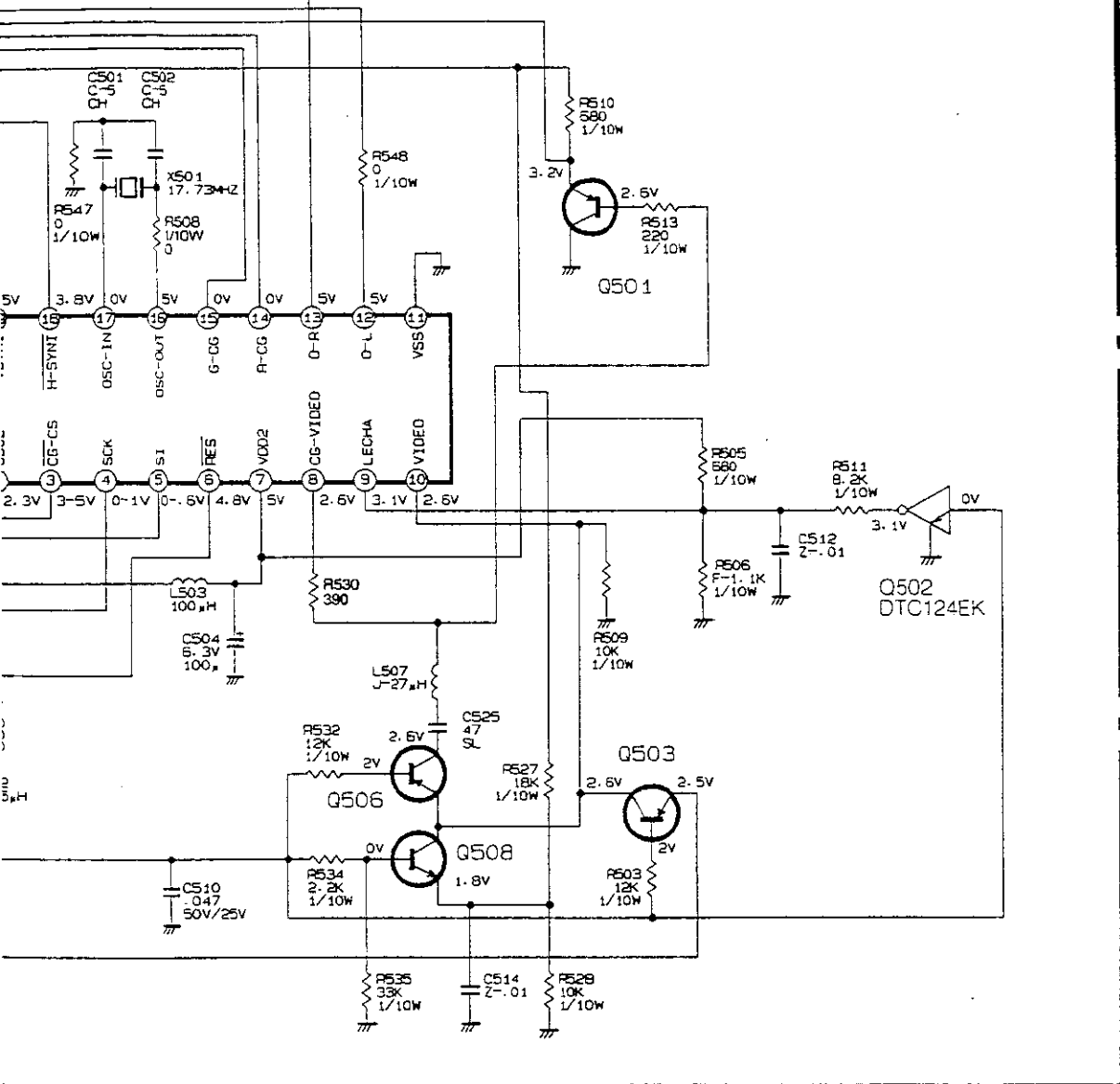
(TIMER)



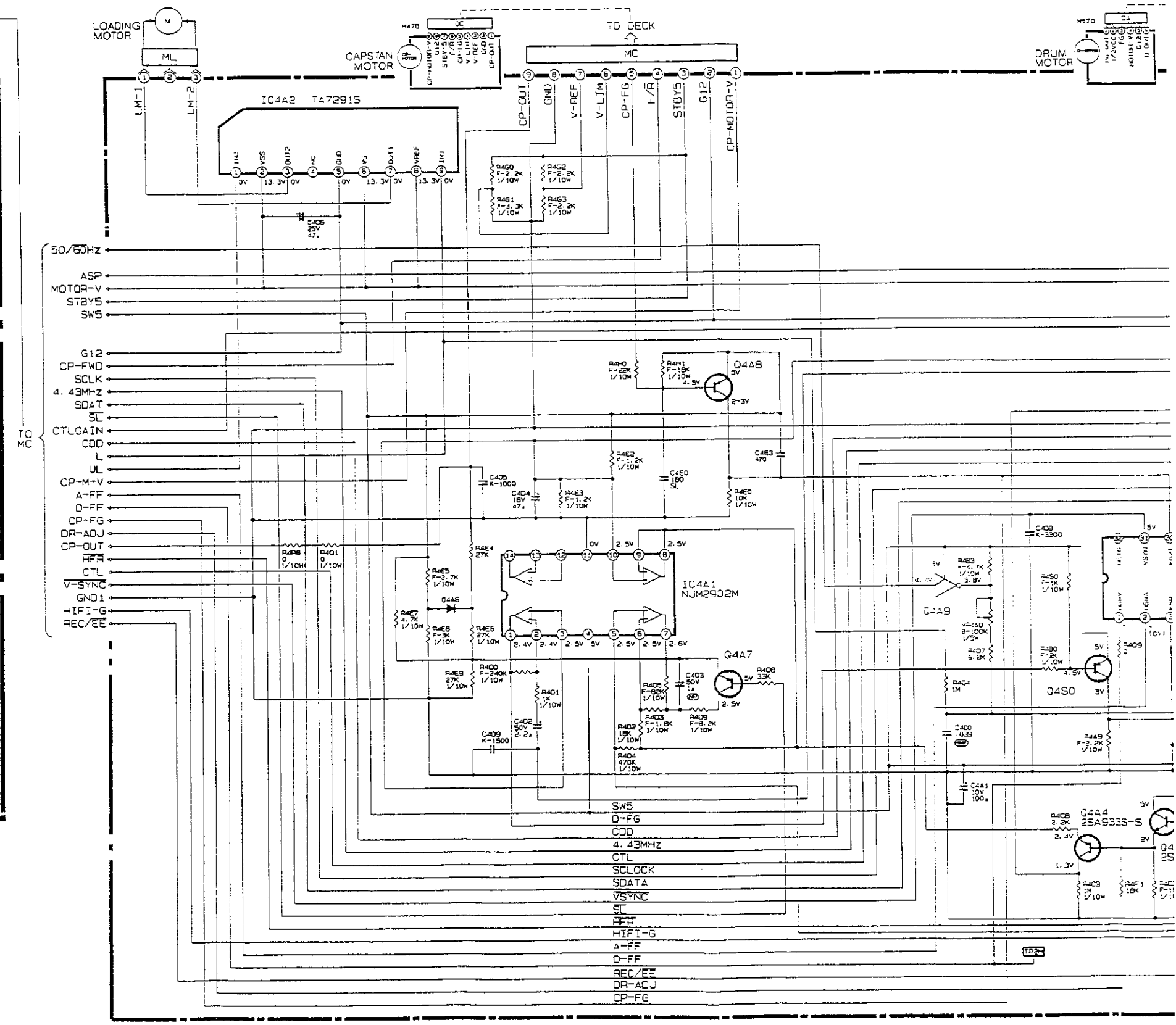
(CG)

All diodes are 1SS252/1SS131 unless otherwise specified.
 All NPN transistors are 2SC3052-E.F unless otherwise specified.
 All PNP transistors are 2SA1235-E.F unless otherwise specified.

PCB-CG

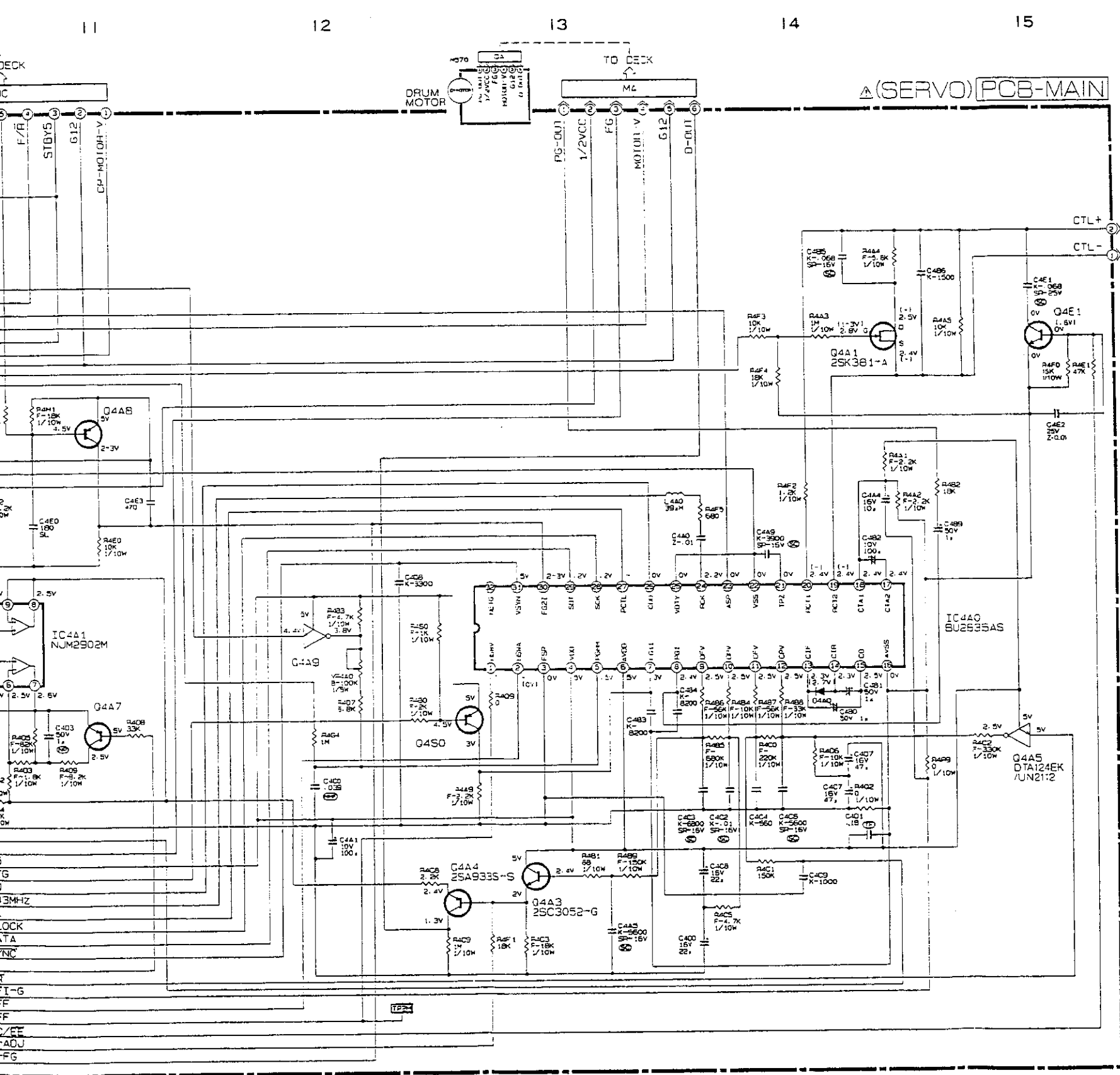


are 1SS252/1SS131 unless otherwise specified.
 anistors are 2SC3052-E.F
 erwise specified.
 anistors are 2SA1235-E.F
 erwise specified.

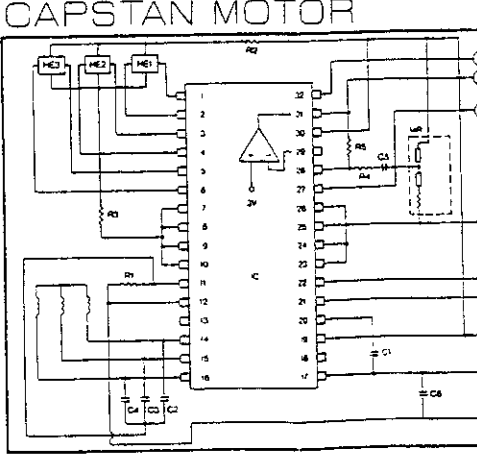
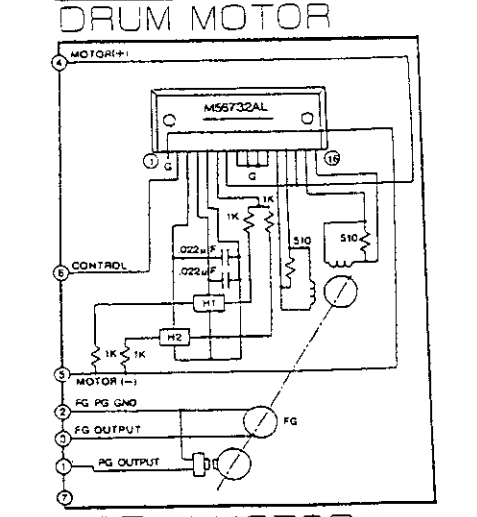
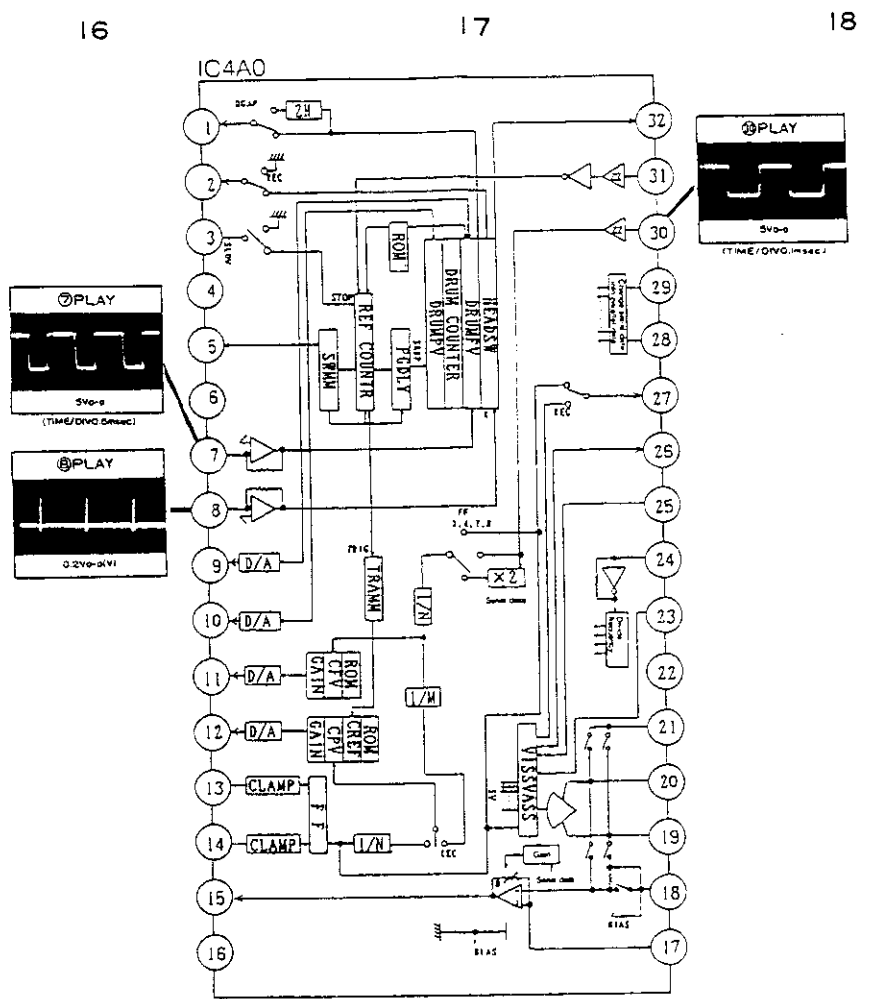


50/60HZ
 ASP
 MOTOR-V
 STBYS
 SWS
 G12
 CP-FWD
 SCLK
 4.43MHZ
 SDAT
 SL
 CTLGAIN
 CDD
 L
 UL
 CP-M-V
 A-FF
 O-FF
 CP-FG
 DR-ADJ
 CP-OUT
 HFI
 CTL
 V-SYNC
 GND1
 HIFI-G
 REC/EE

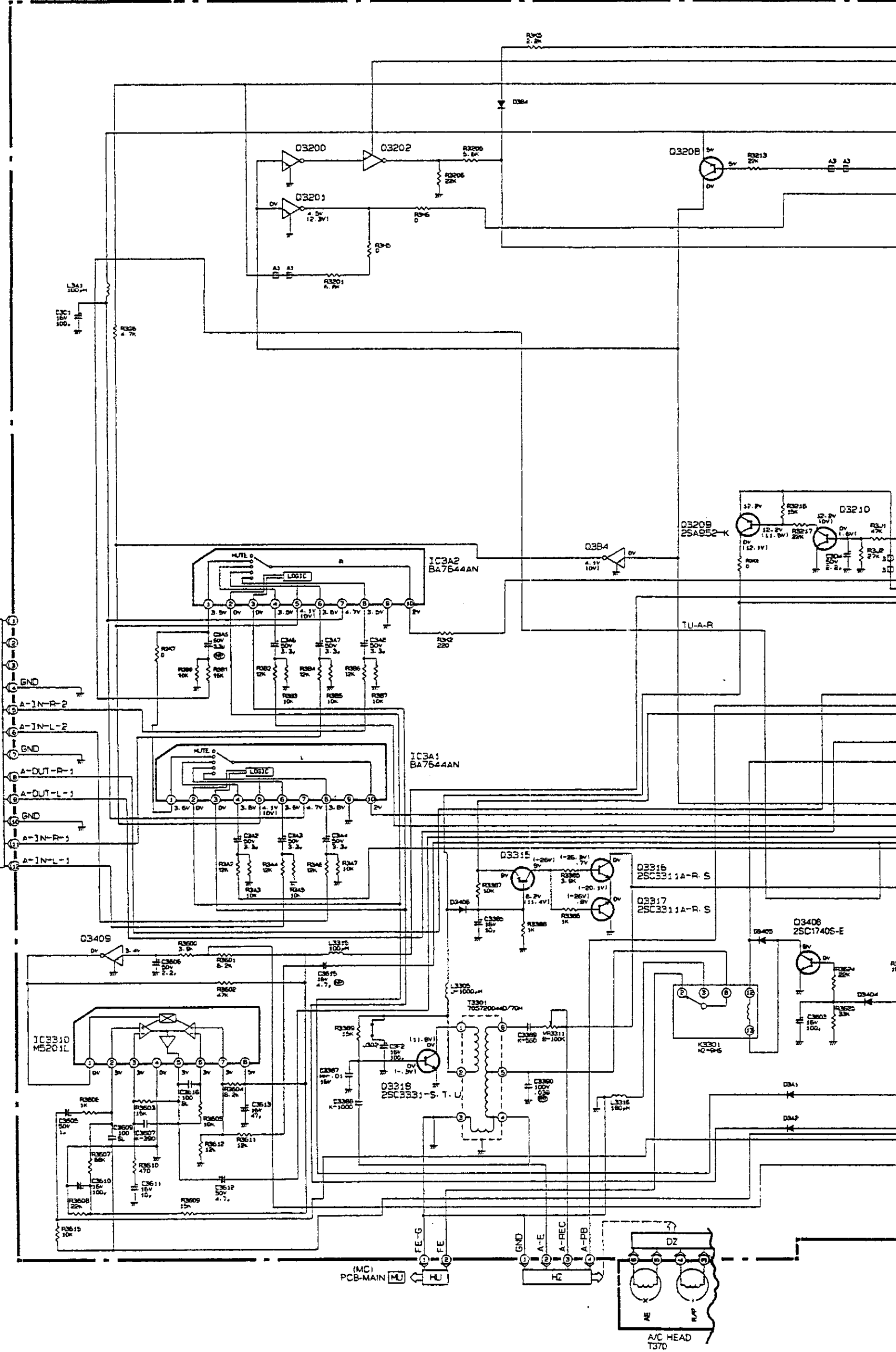
(SERVO)
 All diodes are 1SS252/1SS131 unless otherwise specified.
 All NPN transistors are 2SC3052-E.F unless otherwise specified.
 All PNP transistors are 2SA1235-E.F unless otherwise specified.



(SERVO)
 All diodes are 1SS252/1SS131 unless otherwise specified.
 All NPN transistors are 2SC3052-E,F unless otherwise specified.
 All PNP transistors are 2SA1235-E,F unless otherwise specified.



A
B
C
D
E
F
G



4

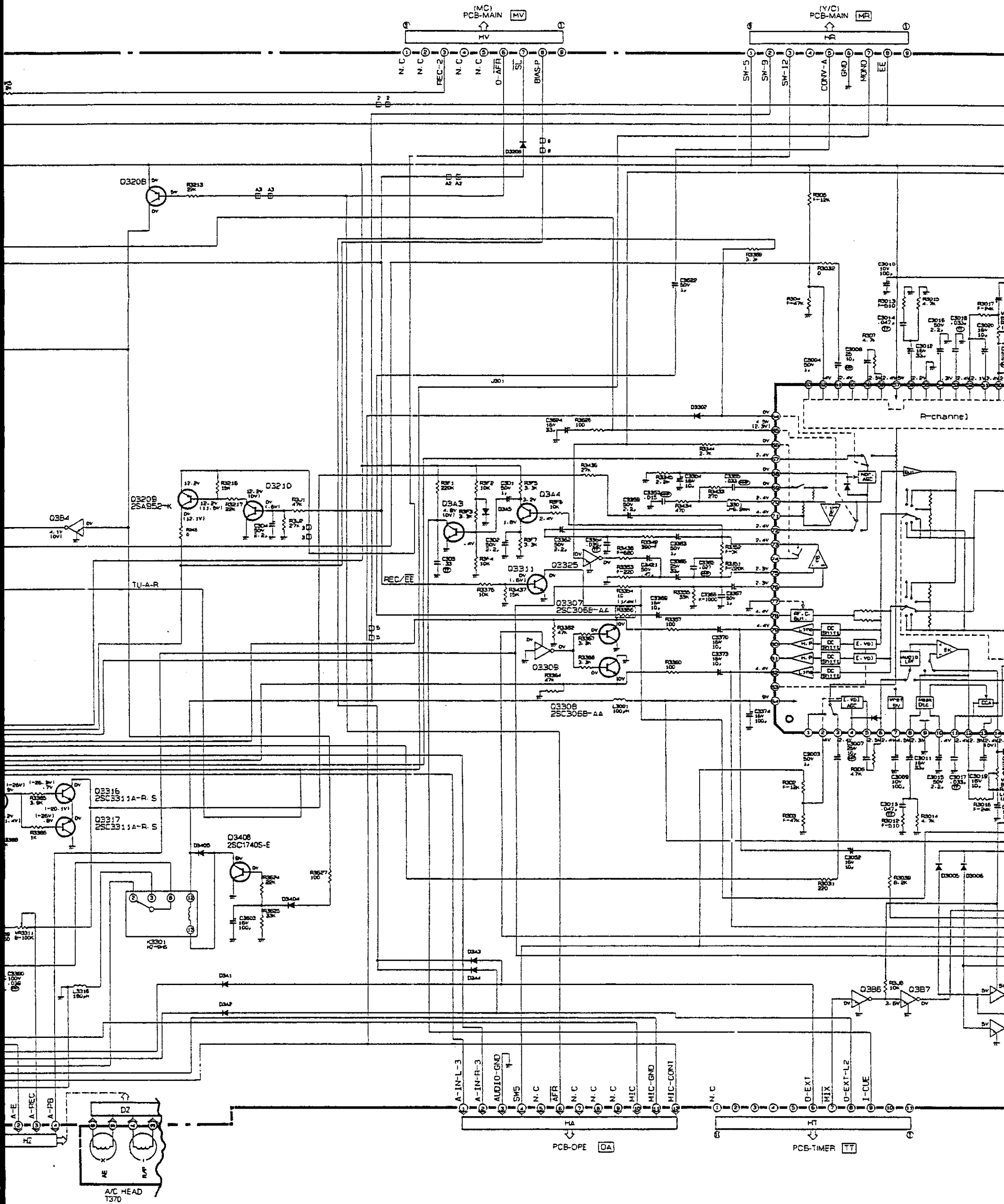
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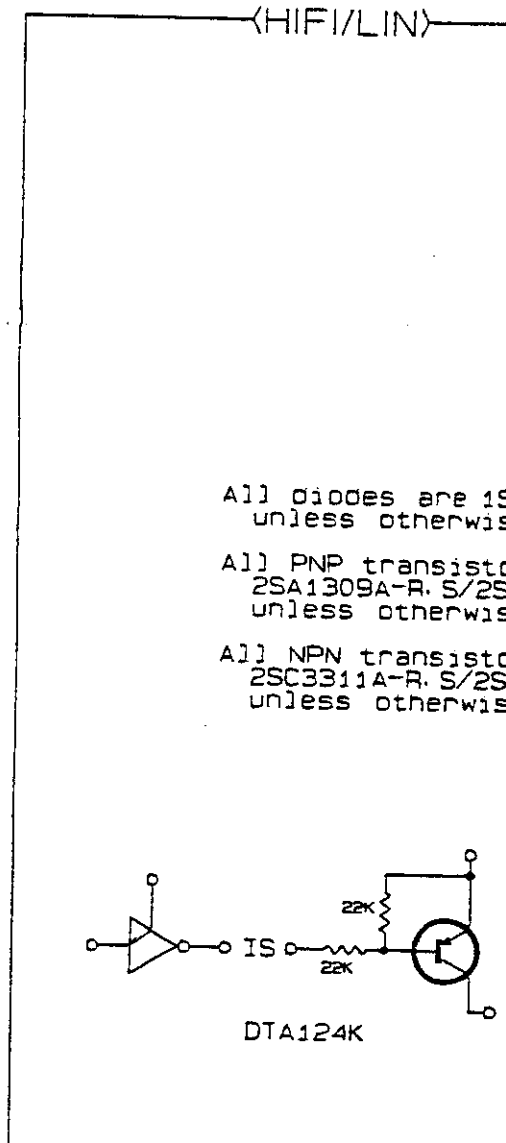
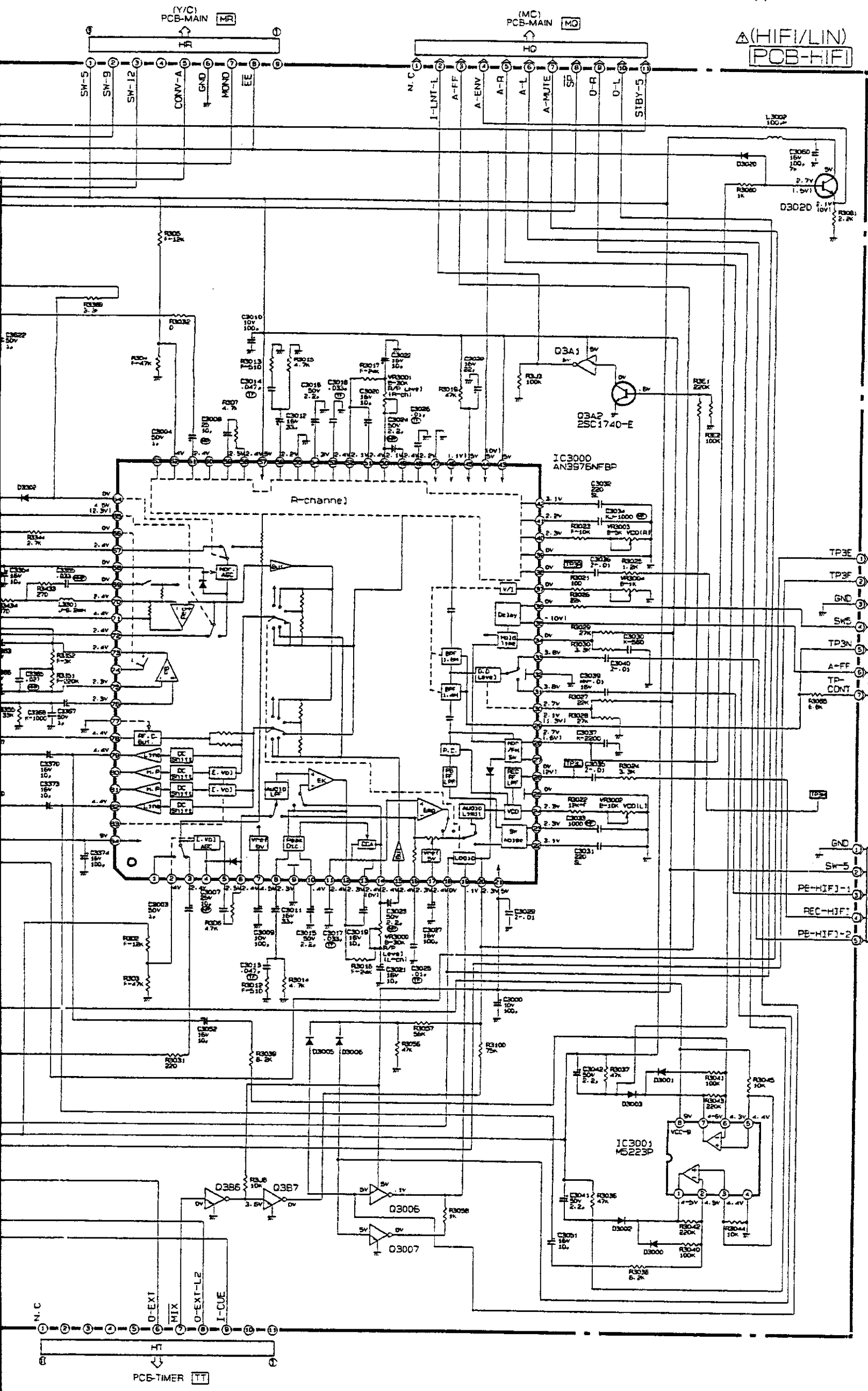
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7

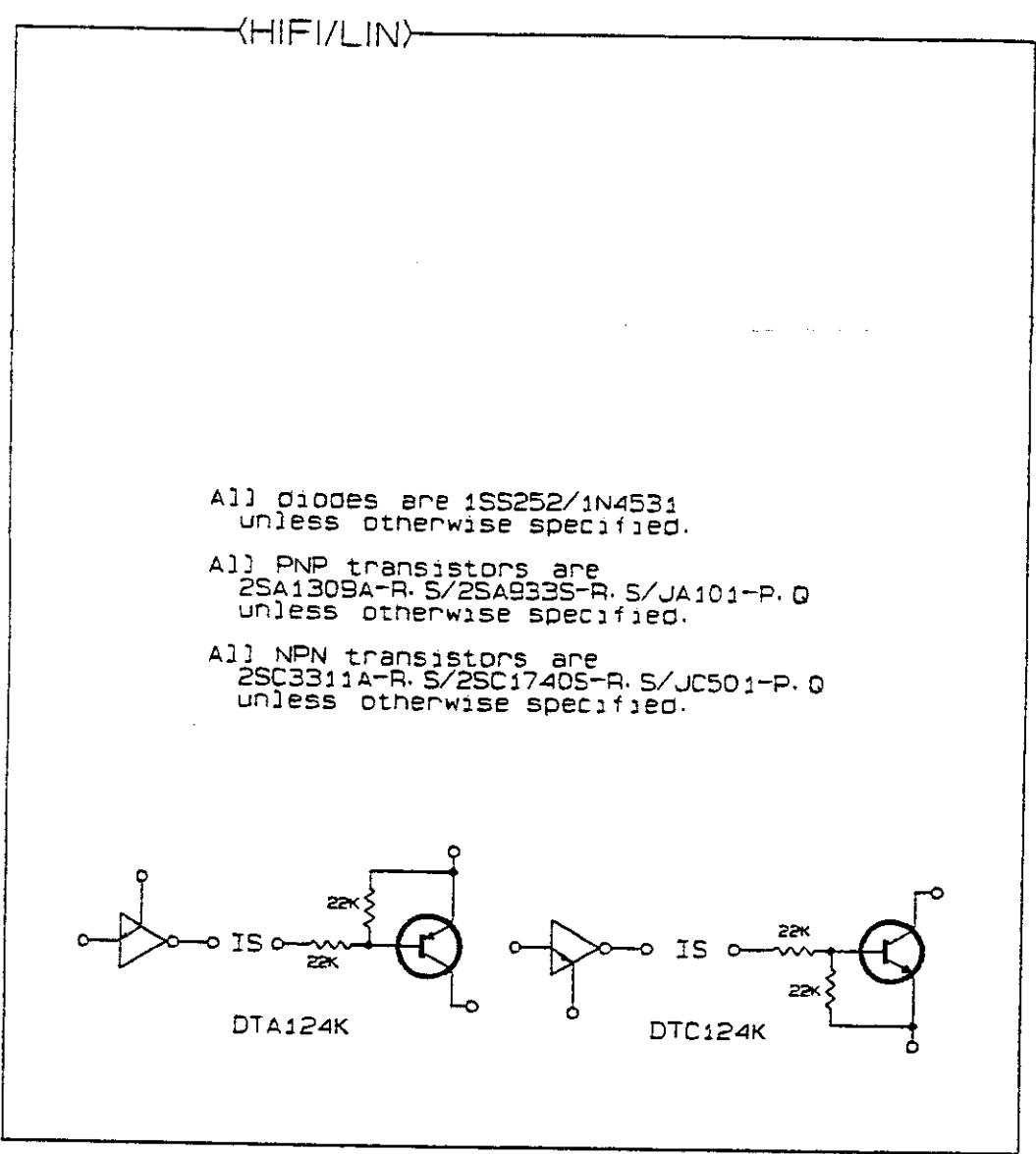
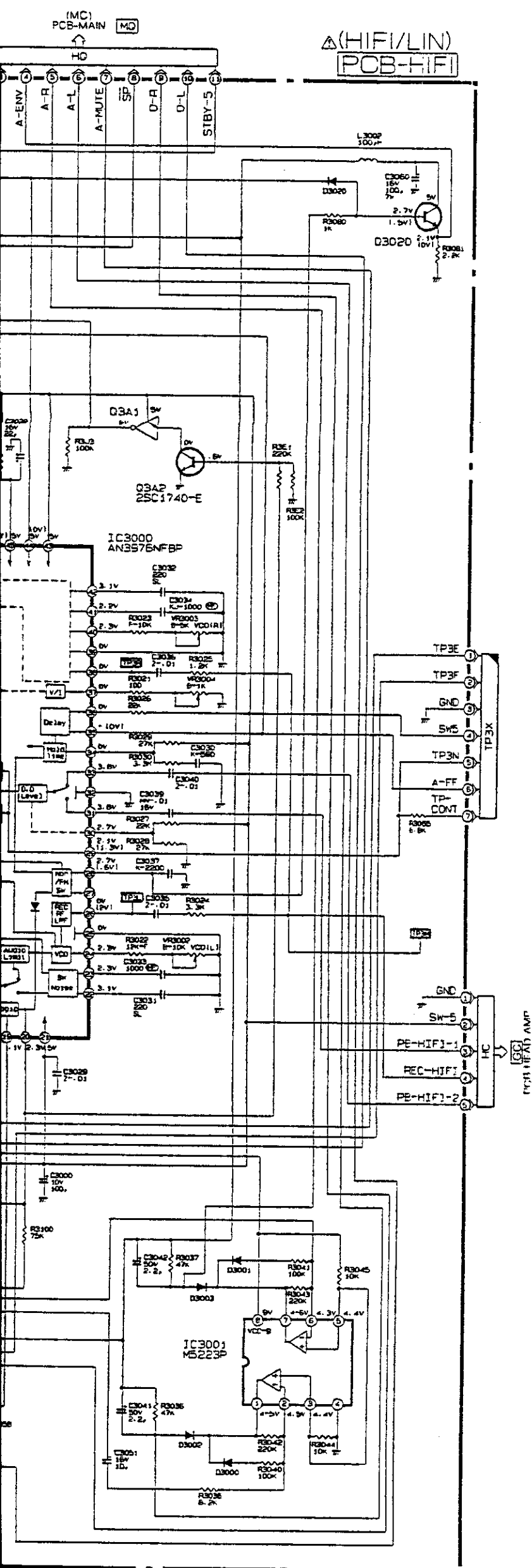
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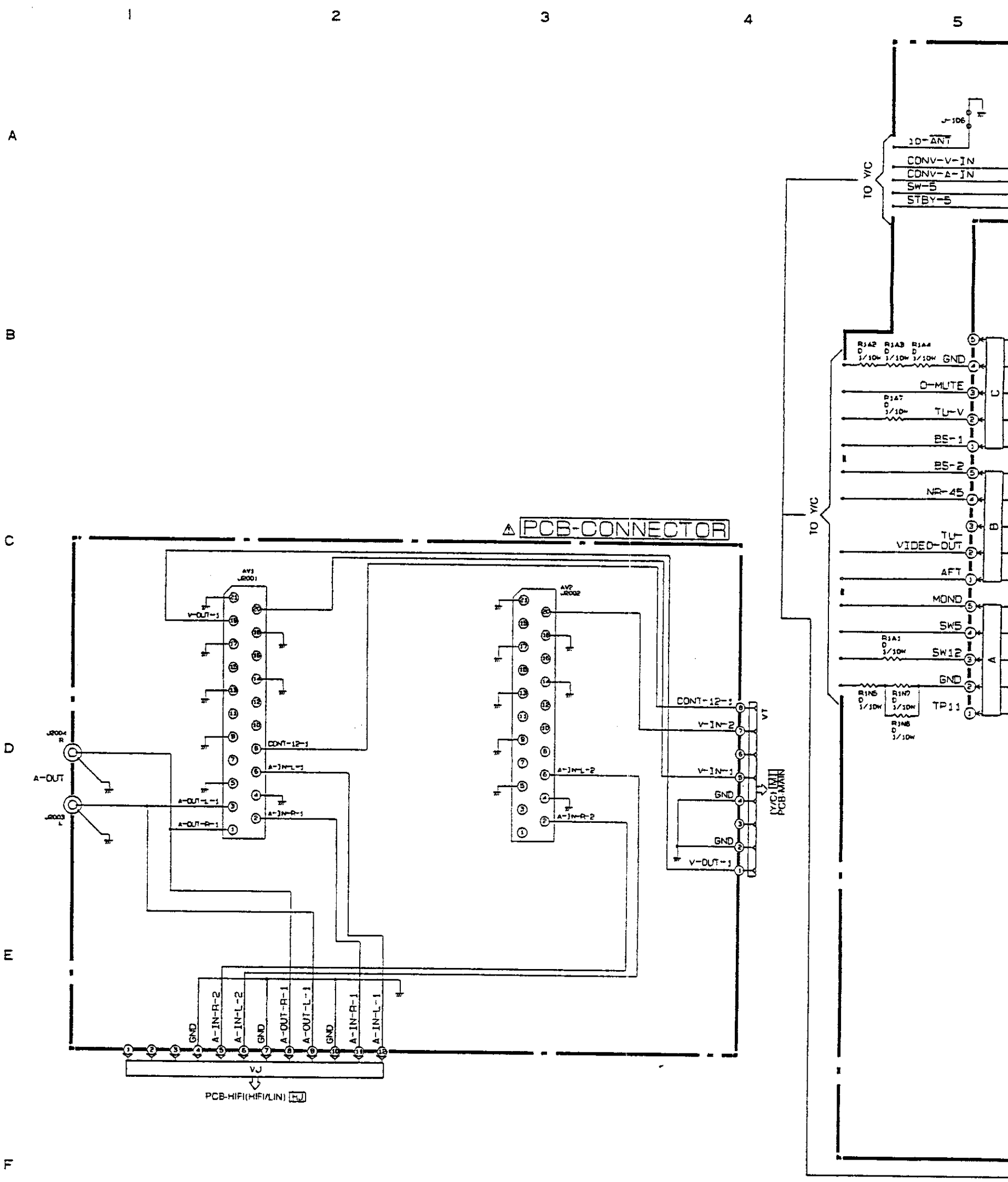
9





PE-HIF1-1
 REC-HIF1
 PE-HIF1-2
 HIFI AMP





HS-M58(EE)

④

G

4

5

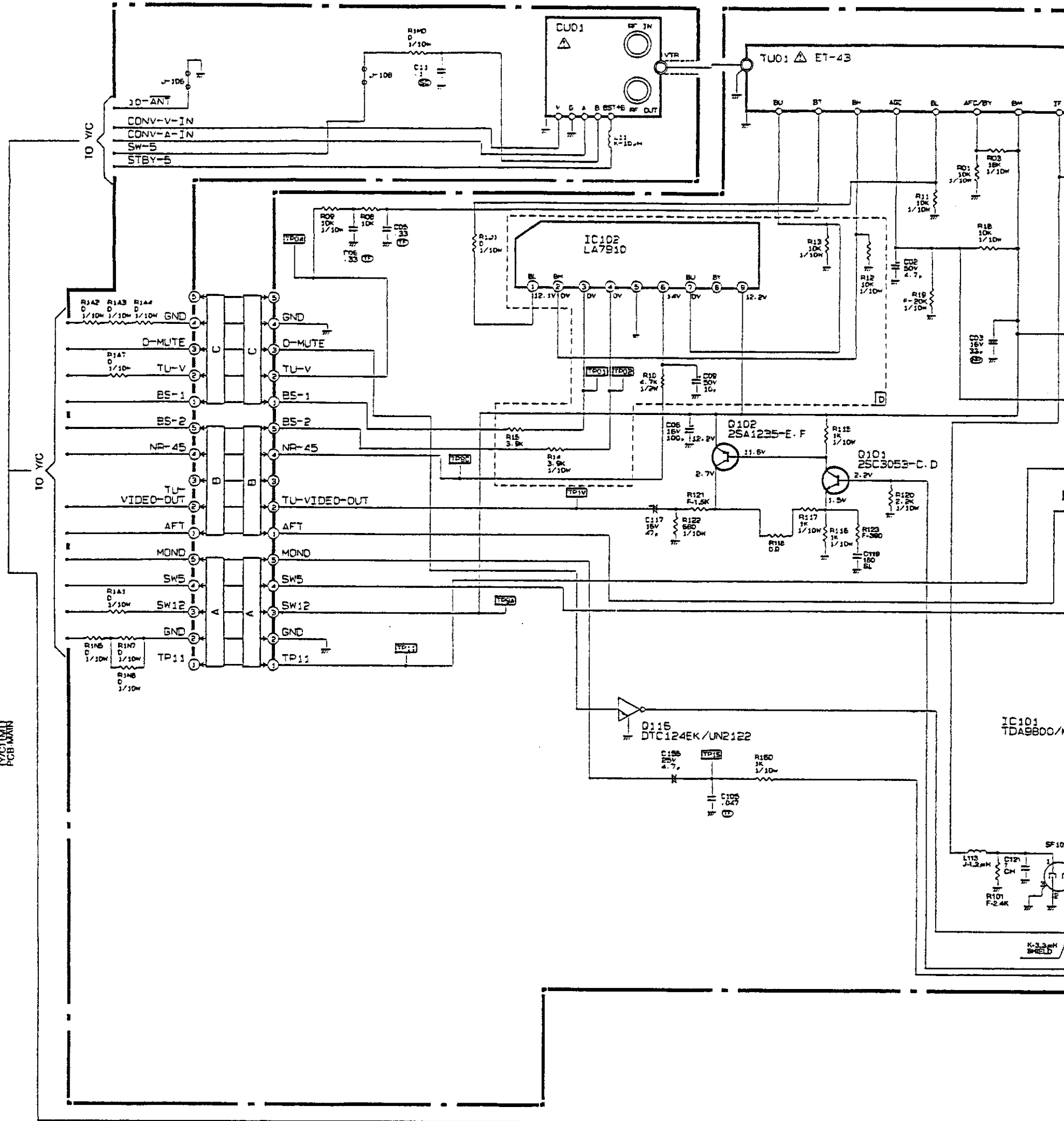
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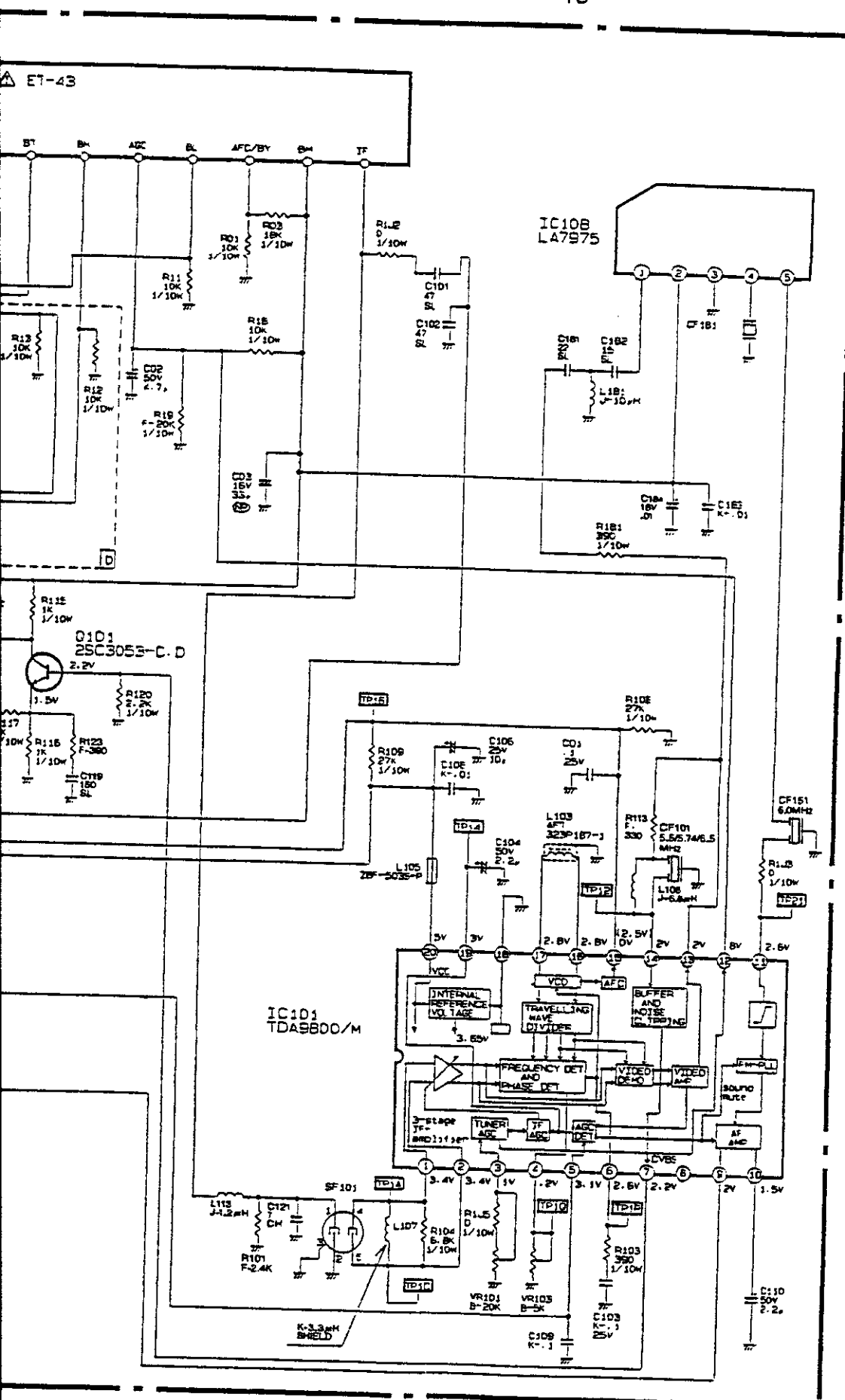
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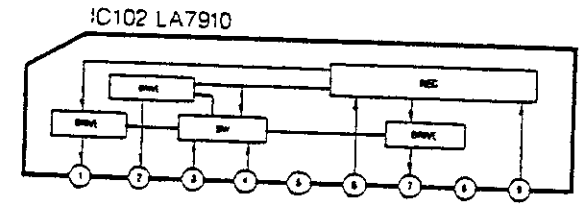
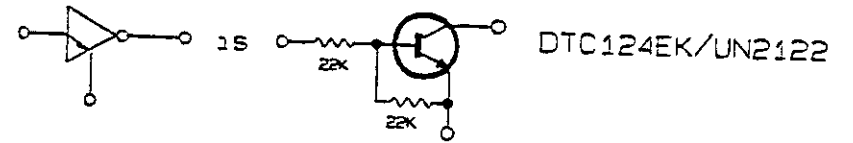
CONNECTOR



PCB-TUNER/VIF



All PNP transistors are 2SA1235-E.F unless otherwise specified.



△ PCB-TUNER/VIF

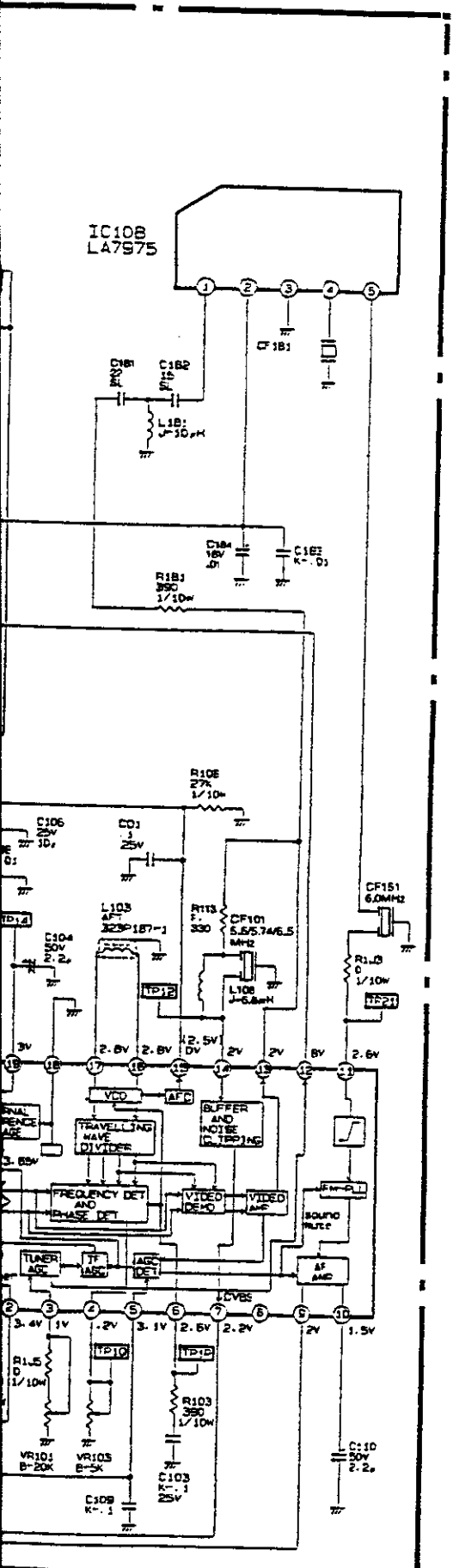
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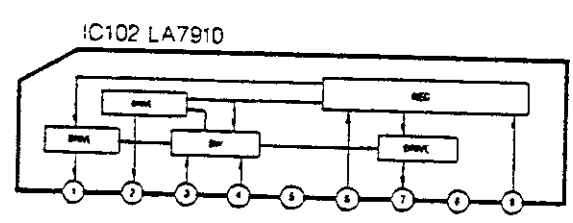
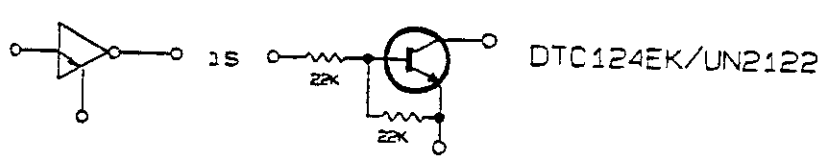
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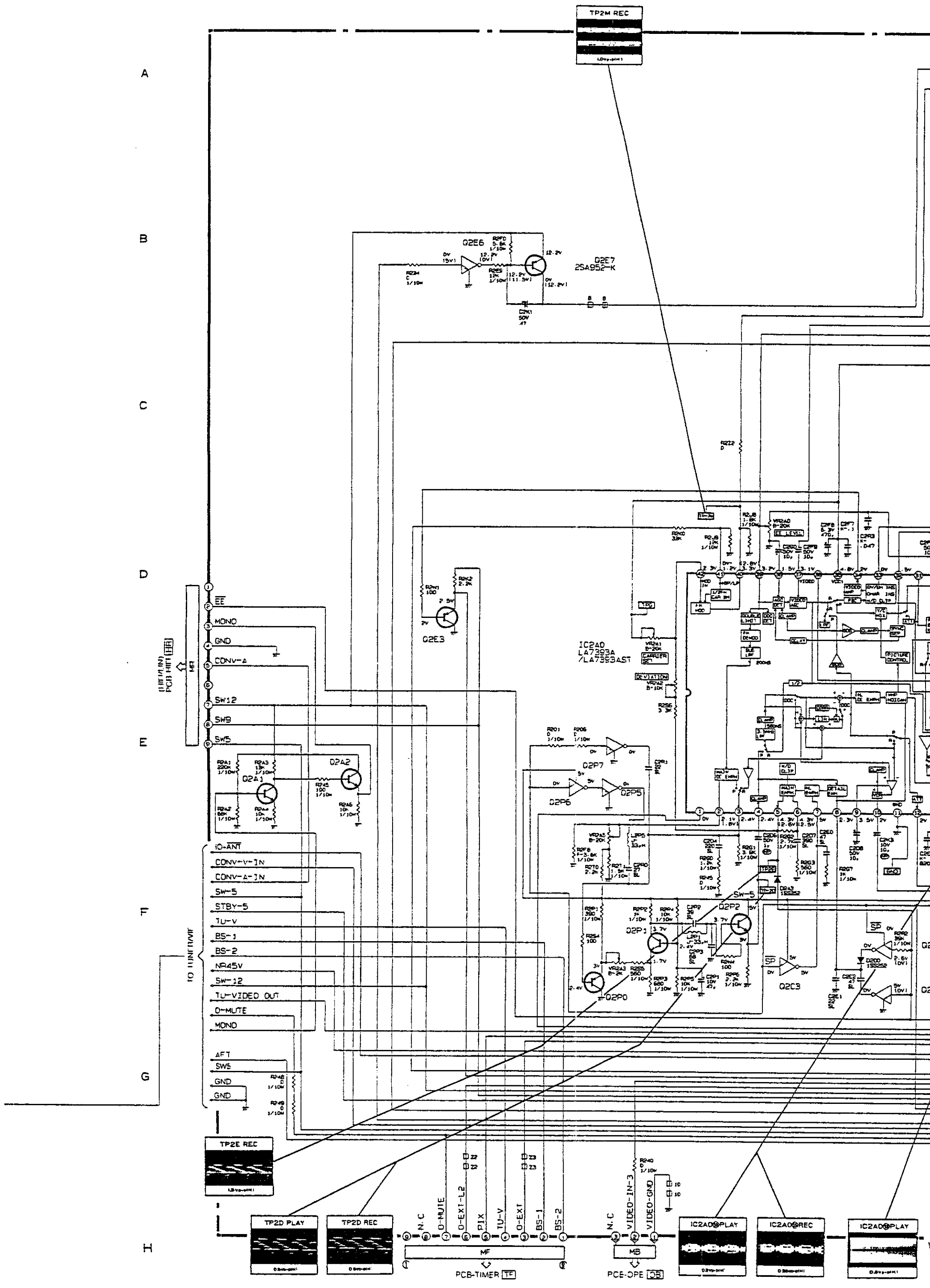
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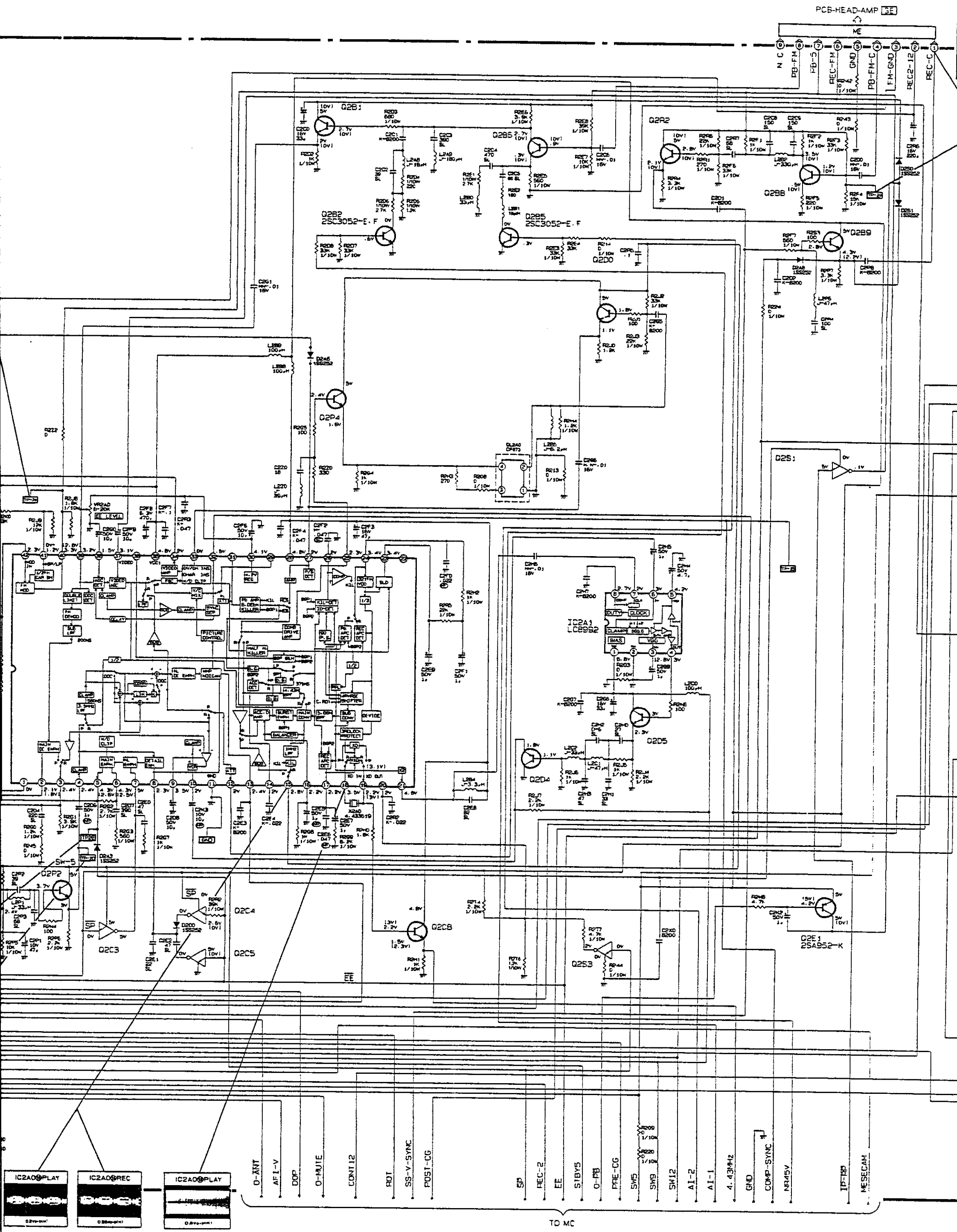


All PNP transistors are 2SA1235-E.F unless otherwise specified.



A
B
C
D
E
F
G
H
I

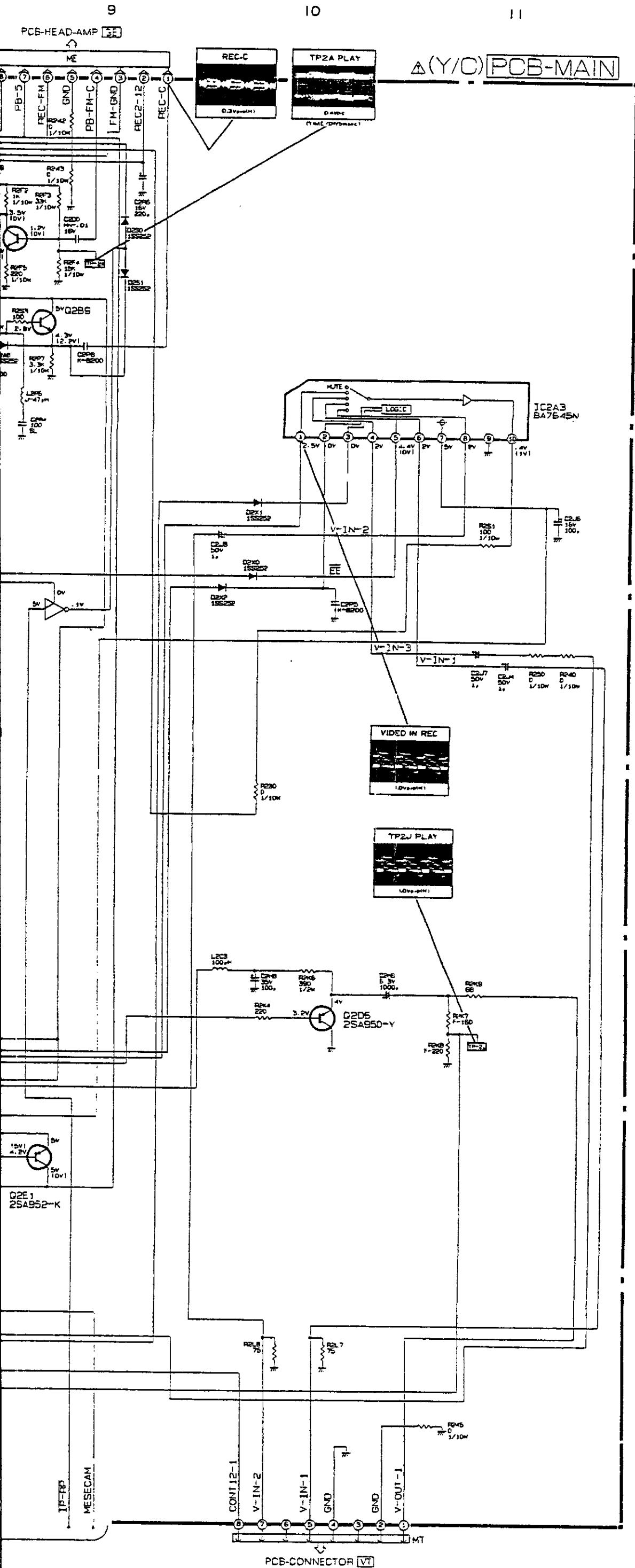




PCB-HEAD-AMP

N C
 PB-FM
 REC-FM
 GND
 PB-FM-C
 FM-GND
 REC2-12
 REC-C

TO MC



(Y/C)

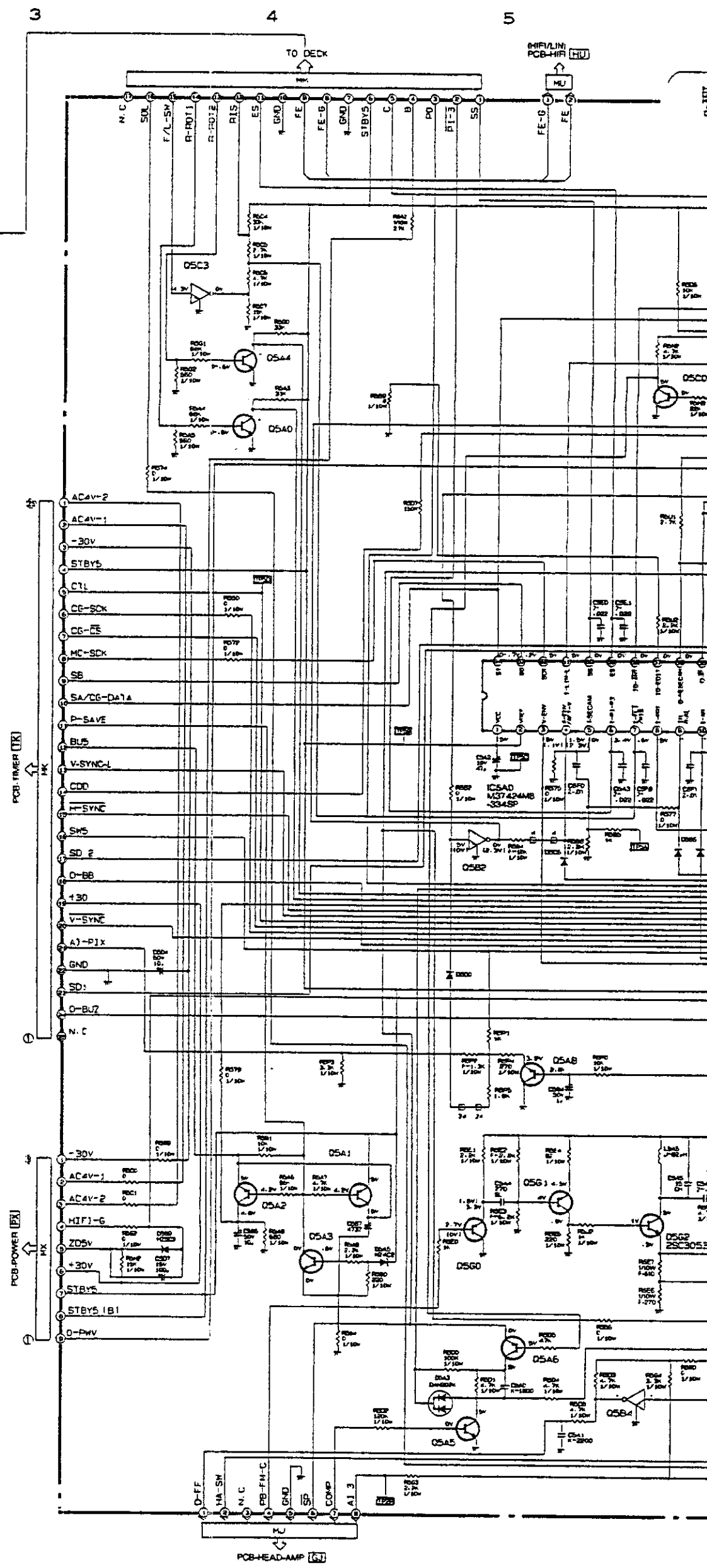
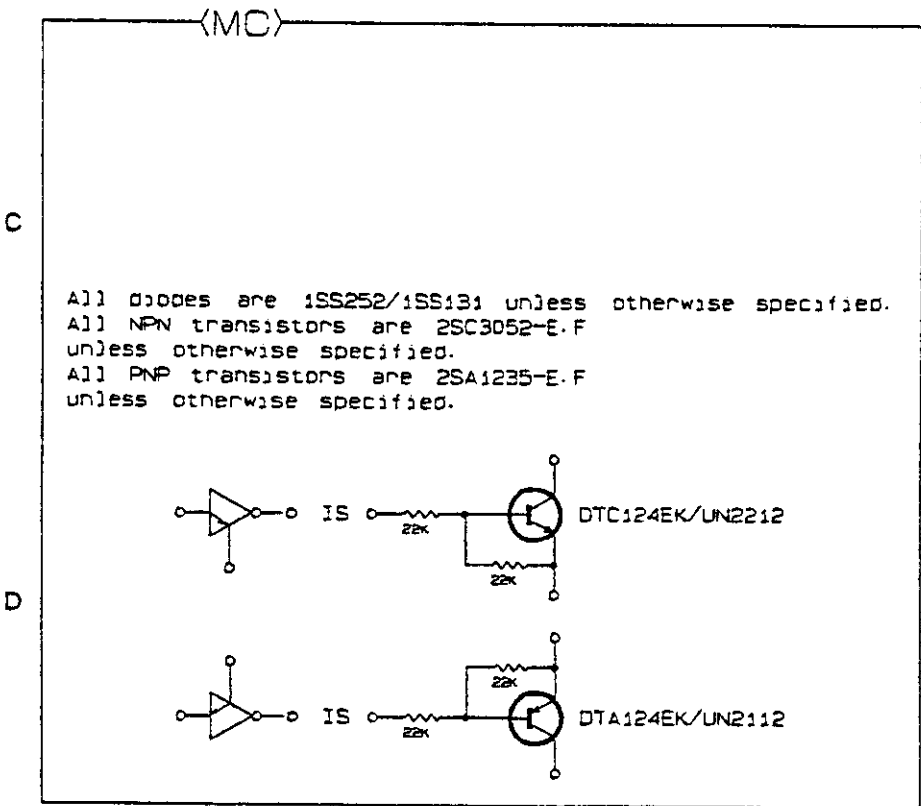
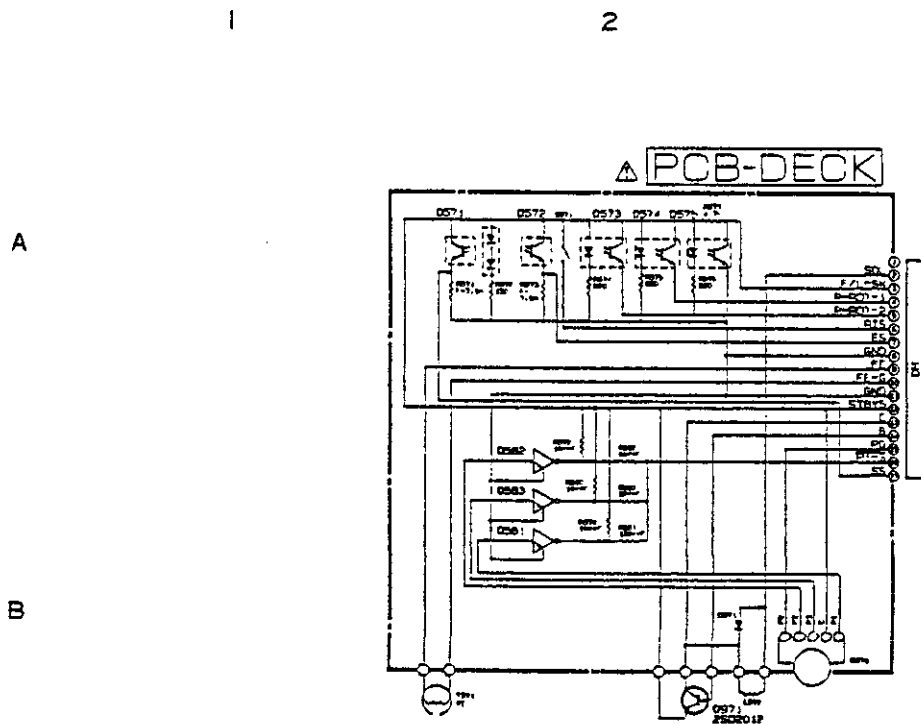
A1) NPN transistors are 2SC3053-C.D unless otherwise specified.

A2) PNP transistors are 2SA1235-E.F unless otherwise specified.

A3) Diodes are 1SS252/1SS131 unless otherwise specified.

DTA124EK / UN2112

DTC124EK / UN2212



5

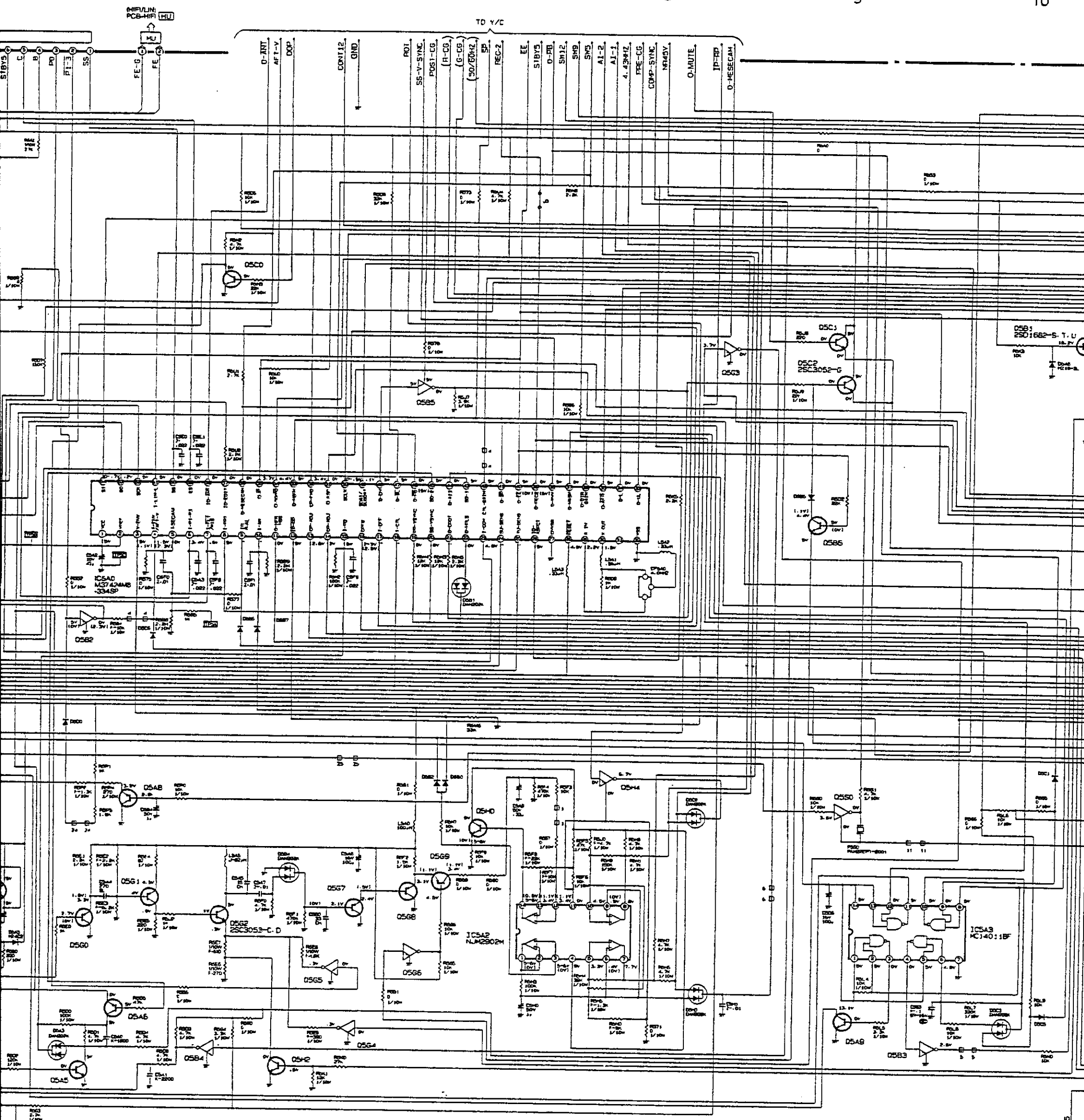
6

7

8

9

10



TO Y/C

1001682-S.T.U
 18.7.7
 1001682-S.T.U
 18.7.7

STBY-3

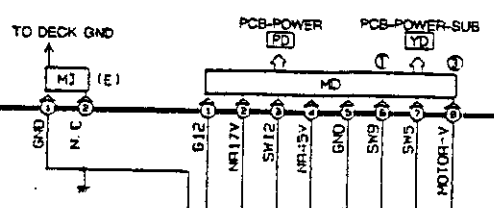
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11

12

13

14



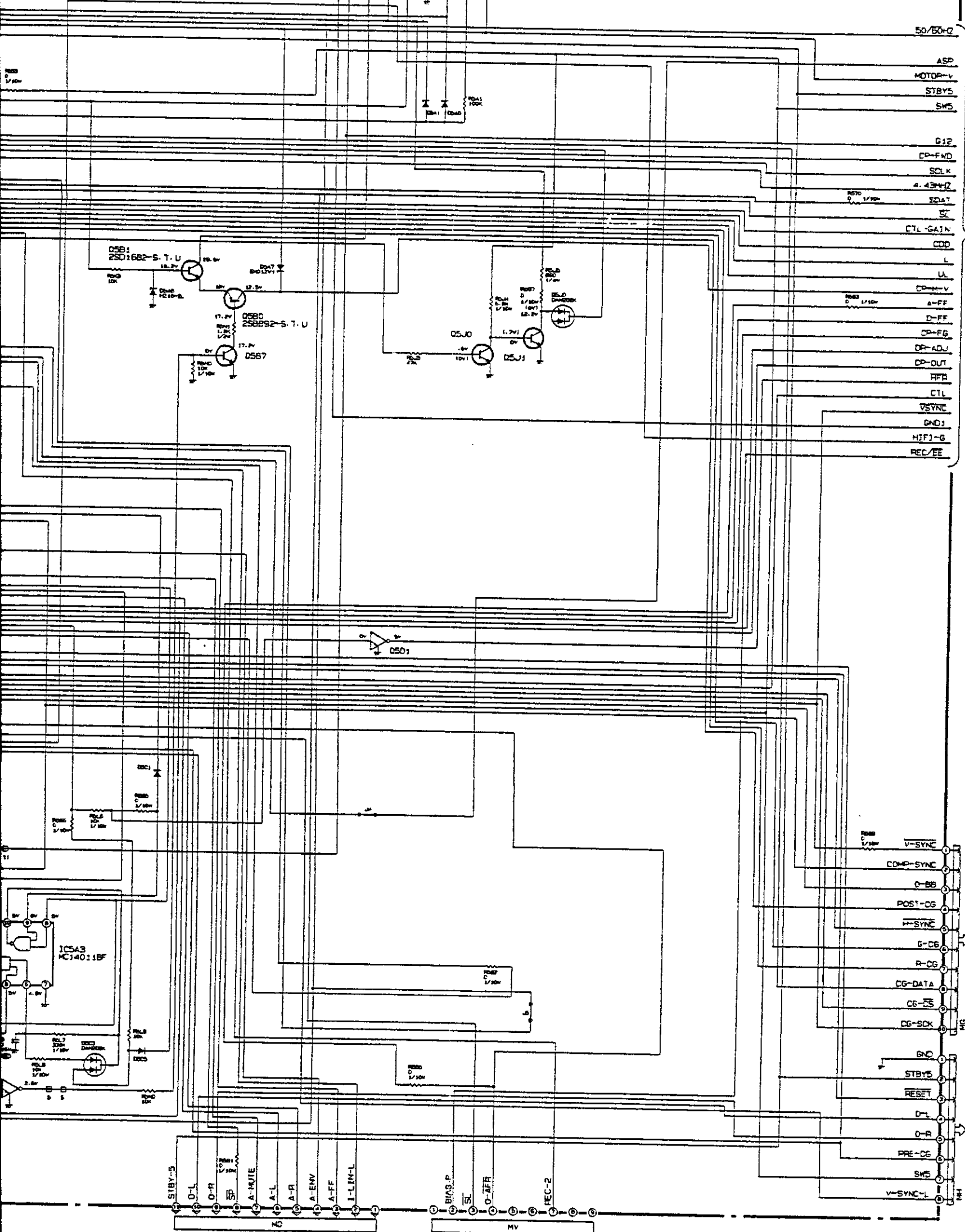
Δ(MC) PCB-MAIN

- 50/50-2
- ASP
- MOTOR-V
- STBY5
- SW5
- G:2
- CP-FWD
- SCL K
- 4.43M-2
- SCA1
- ST
- CTL-GAIN
- CDD
- L
- LA
- CP-V
- A-V
- D-V
- CP-FG
- DP-ADJ
- CP-DUT
- HFR
- CTL
- VSYNE
- GND3
- HIFJ-G
- REC/EE

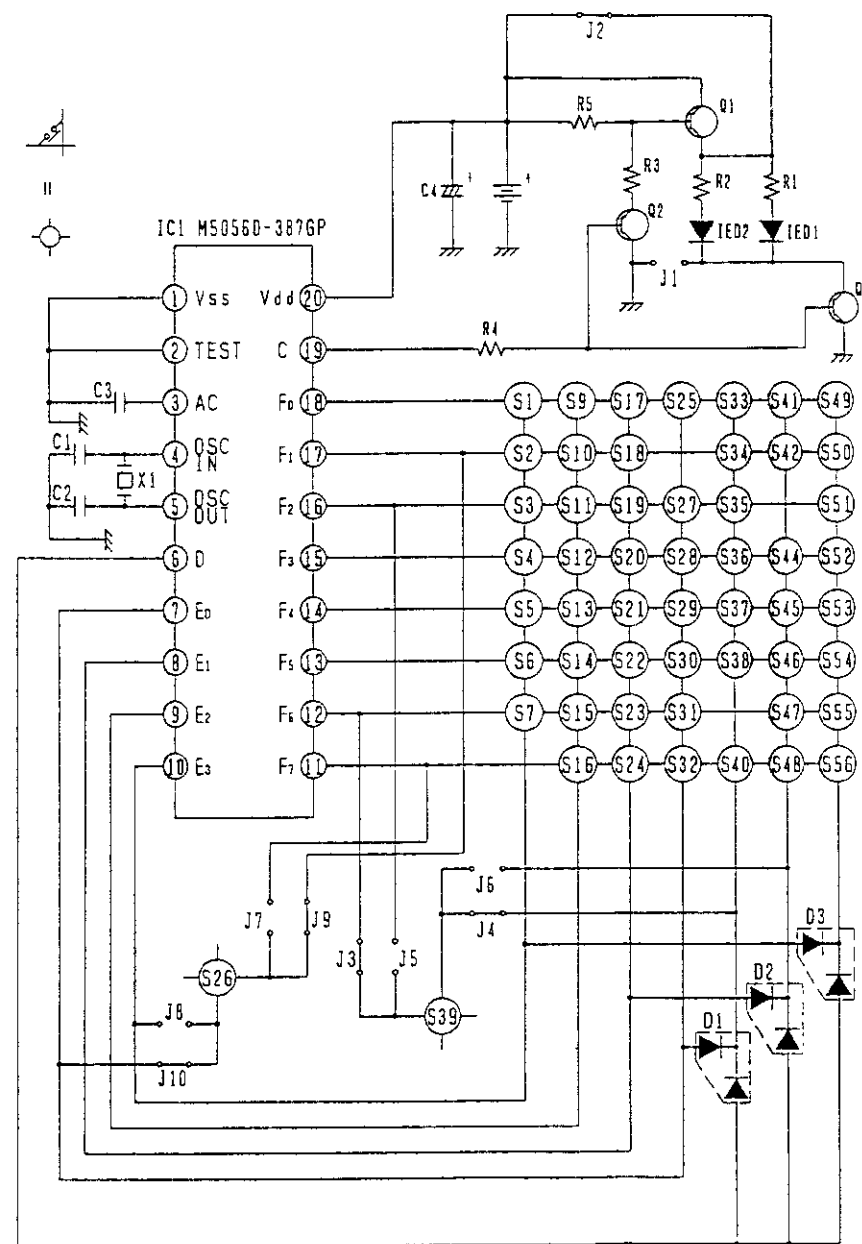
TO SERVO

PCB-C0 (C0)

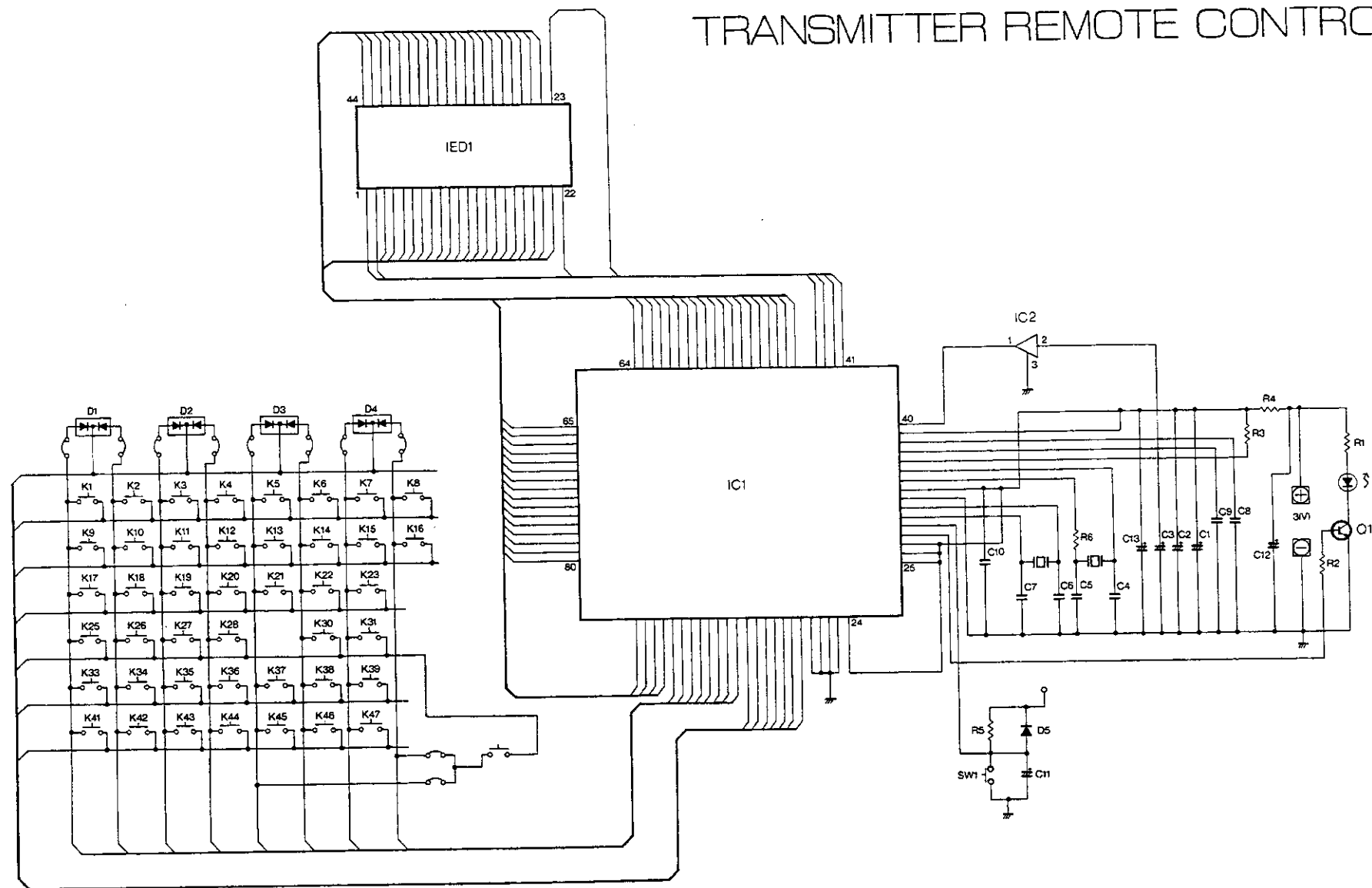
PCB-C0 (C1)



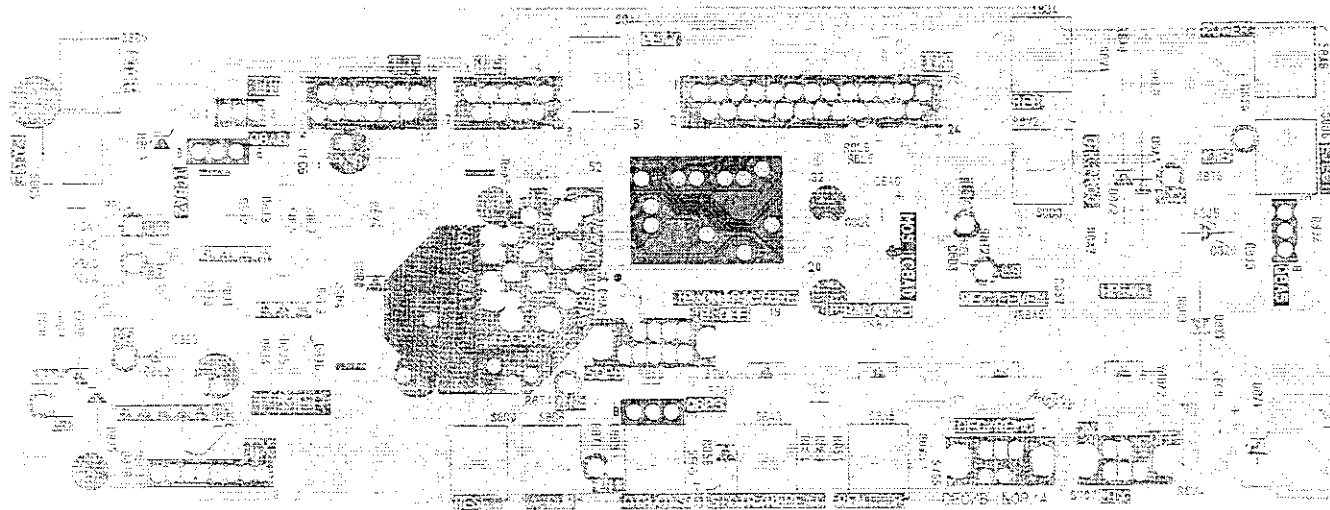
TRANSMITTER REMOTE CONTROL



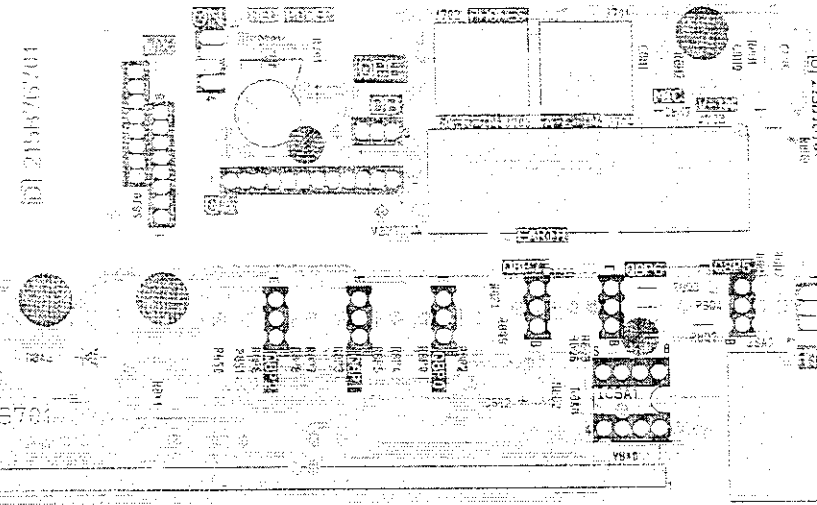
TRANSMITTER REMOTE CONTROL



PCB-TIMER/OPE(SOLDER SIDE)

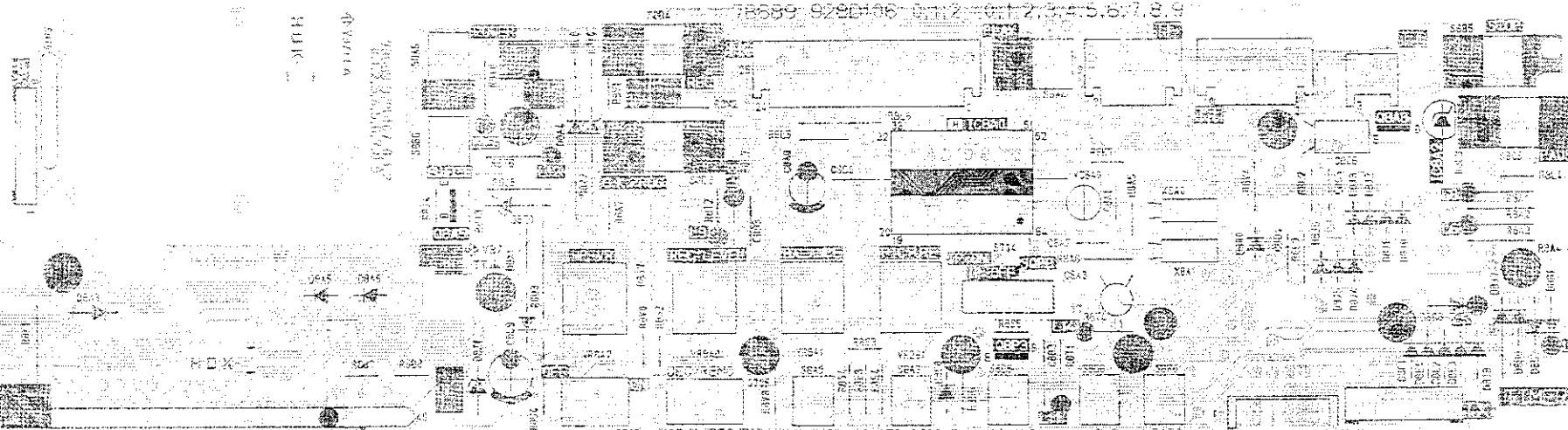
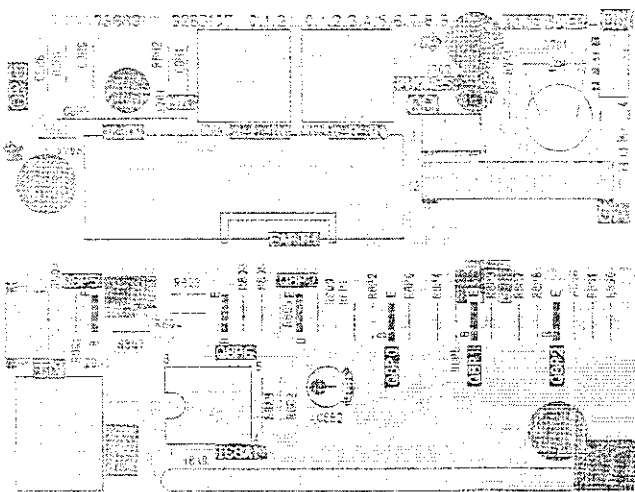


PCB-OPE



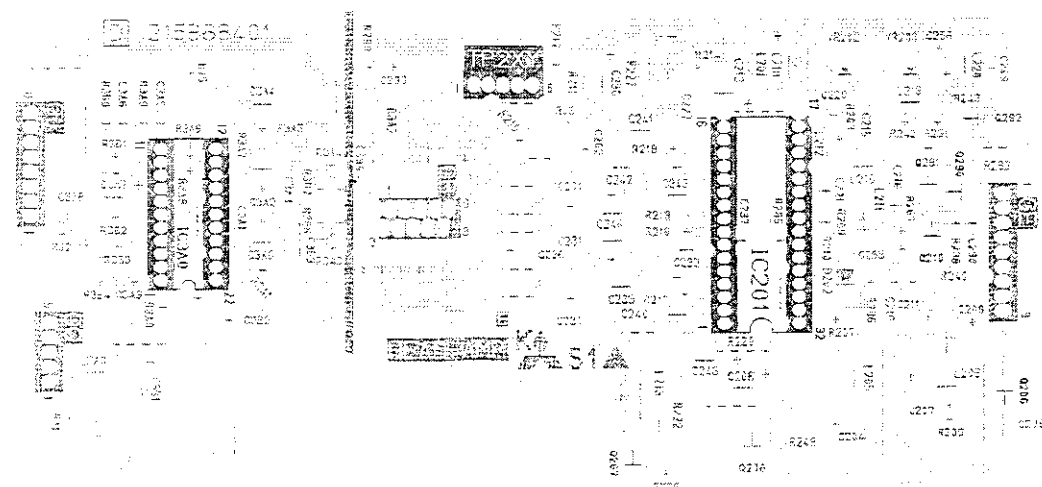
PCB-TIMER

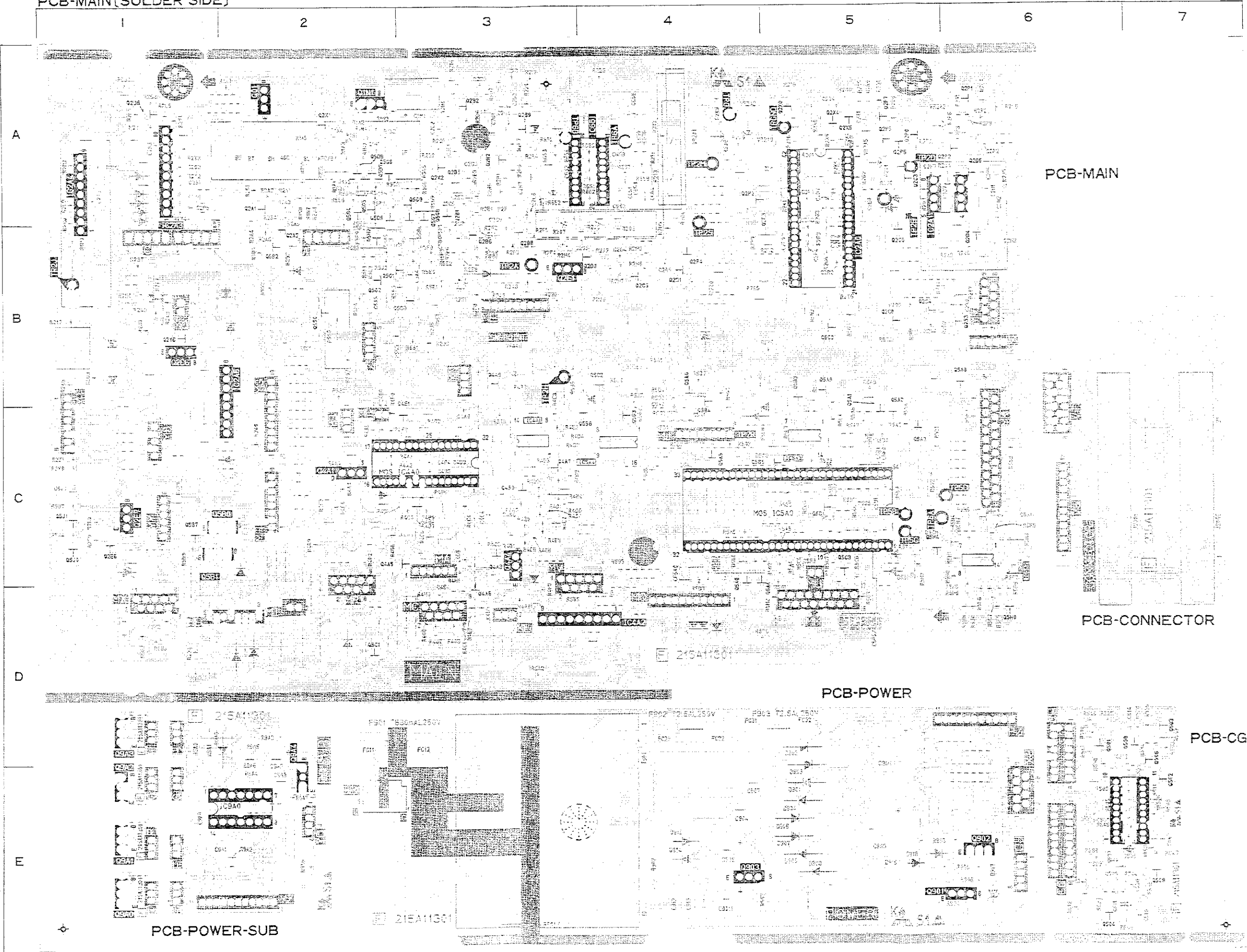
PCB-TIMER/OPE(COMPONENT SIDE)



PCB-TIMER

PCB-HEAD-AMP





PCB-MAIN

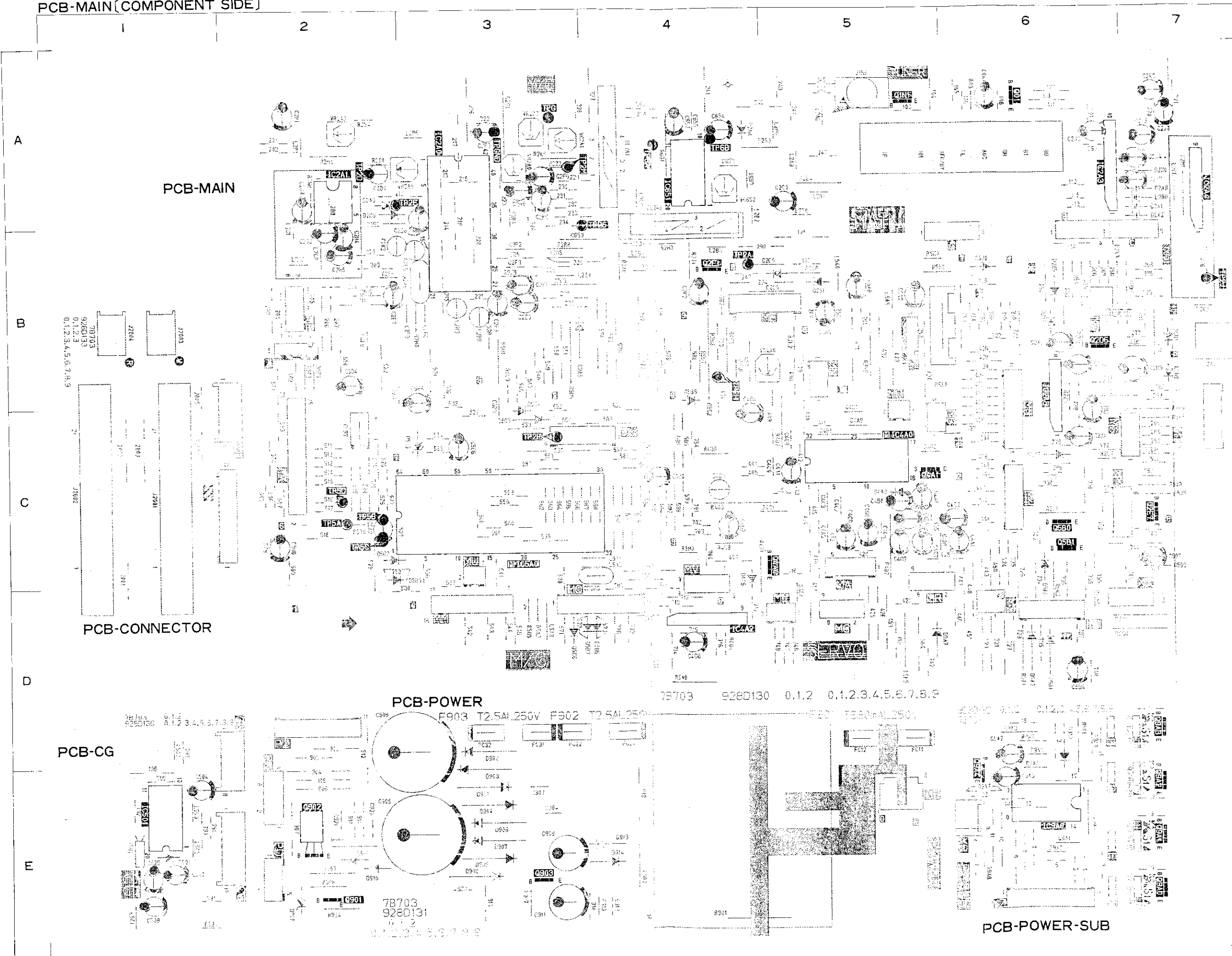
PCB-CONNECTOR

PCB-POWER

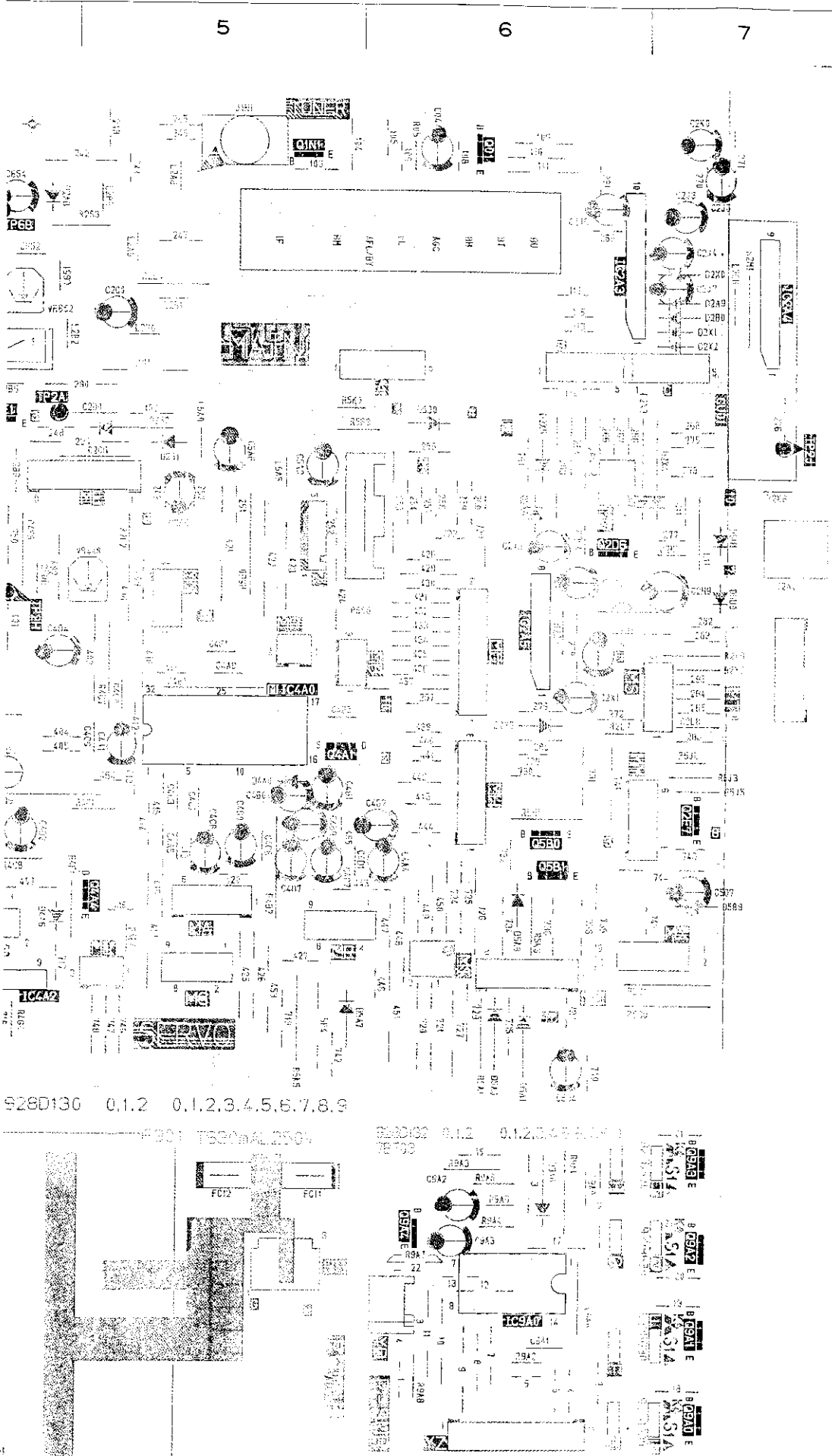
PCB-CG

PCB-POWER-SUB

PCB-MAIN (COMPONENT SIDE)



SYMBOL NO.	ADDRESS
CF5A0	C -
CU01	A -
D501	E -
D901	E -
D902	D -
D903	E -
D904	E -
D905	E -
D906	E -
D907	E -
D908	E -
D913	E -
D914	E -
D915	E -
D916	E -
D917	E -
D2A3	A -
D2A6	B -
D2A8	A -
D2A9	A -
D2B0	A -
D2D0	A -
D2S0	B -
D2S1	B -
D2X0	A -
D2X1	A -
D2X2	A -
D2X3	B -
D2X4	B -
D2X5	B -
D2X6	B -
D2X7	C -
D4A0	C -
D4A6	C -
D5A0	D -
D5A1	D -
D5A5	C -
D5A7	D -
D5A8	C -
D5B0	C -
D5B2	C -
D5B5	B -
D5B6	D -
D5B7	D -
D5B9	C -
D5C1	C -
D5C5	C -
D5C6	D -
D5D0	B -
D5U0	B -
D5U1	B -
D9A0	D -
DL2A0	B -
DL2A1	A -
F901	D -
F902	D -

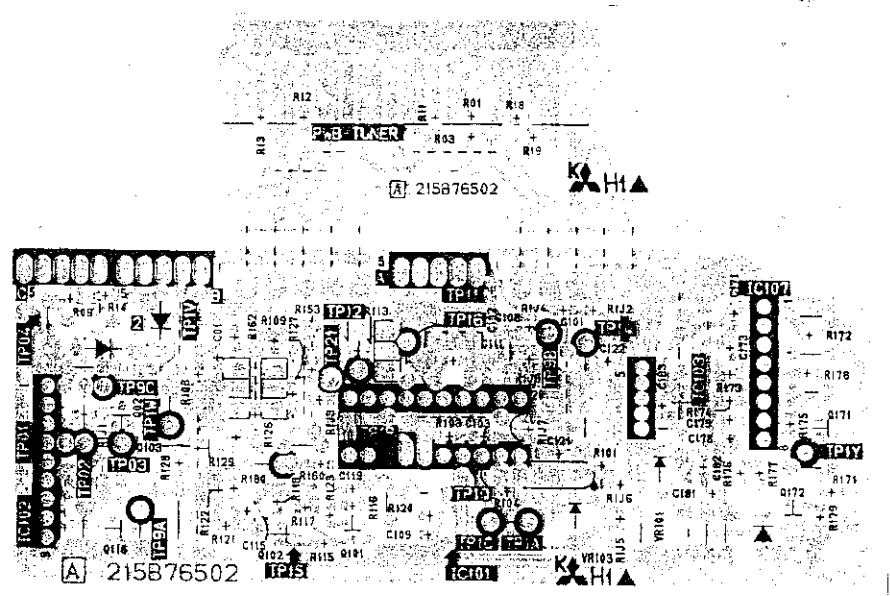


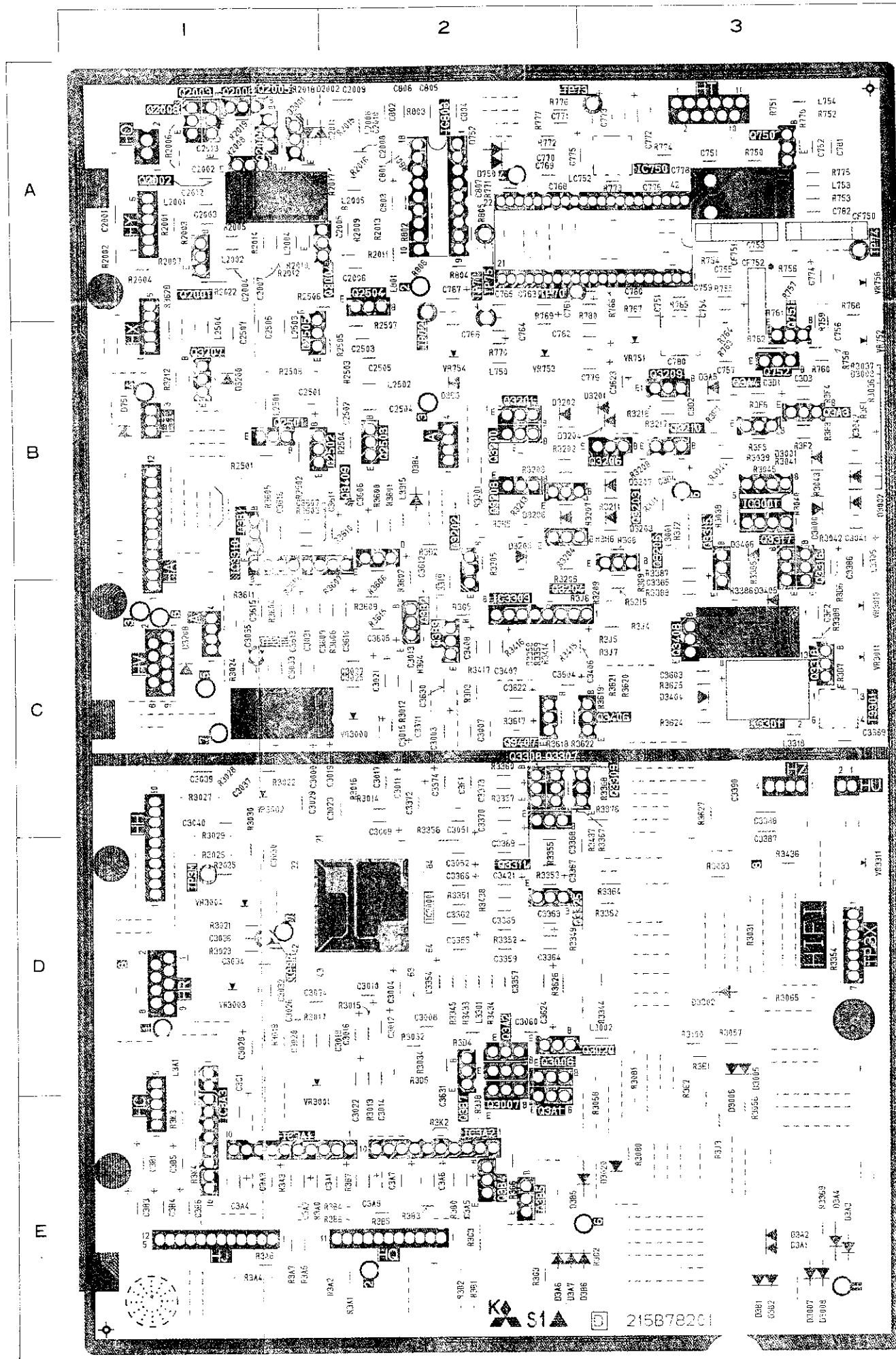
PCB-POWER-SUB

PCB-MAIN (COMPONENT SIDE)

SYMBOL NO.	ADDRESS	SYMBOL NO.	ADDRESS	SYMBOL NO.	ADDRESS
CF5A0	C-4	F903	D-3	Q01	A-6
				Q901	E-2
CU01	A-7	FC11	D-5	Q902	E-2
D501	E-1	FC12	D-5	Q903	E-3
D901	E-3	FC21	D-4	Q1N1	A-5
D902	D-3	FC22	D-3	Q2D6	B-6
D903	E-3	FC31	D-3	Q2E1	B-4
D904	E-3	FC32	D-3	Q2E7	C-7
D905	E-3			Q4A1	C-5
D906	E-3	IC501	E-1	Q4A4	C-4
D907	E-3	IC651	A-4	Q5B0	C-6
D908	E-3	IC2A0	A-3	Q5B1	C-6
D913	E-4	IC2A1	A-2	Q9A0	E-7
D914	E-4	IC2A3	A-6	Q9A1	E-7
D915	E-2	IC2A4	A-7	Q9A2	E-7
D916	E-2	IC2A5	B-6	Q9A3	D-7
D917	E-2	IC4A0	C-5	Q9A4	E-6
D2A3	A-2	IC4A2	D-4		
D2A6	B-3	IC5A0	C-3	S2A1	D-1
D2A8	A-4	IC9A0	E-6		
D2A9	A-7			T901	E-4
D2B0	A-7	J2001	C-1		
D2D0	A-2	J2002	C-1	TP2A	B-4
D2S0	B-5	J2003	B-1	TP2D	A-2
D2S1	B-5	J2004	B-1	TP2E	A-2
D2X0	A-7	J1N1	A-5	TP2H	B-4
D2X1	A-7	J2A1	B-7	TP2J	B-7
D2X2	A-7			TP2M	A-3
D2X3	B-6	L11	B-7	TP2R	C-3
D2X4	B-6	L501	E-1	TP2S	B-3
D2X5	B-6	L502	E-1	TP5A	C-2
D2X6	B-6	L503	E-1	TP5B	C-2
D2X7	C-6	L507	D-1	TP5C	C-2
D4A0	C-5	L651	A-4	TP5D	C-2
D4A6	C-4	L2A8	A-5	TP6A	A-4
D5A0	D-6	L2A9	A-5	TP6B	A-4
D5A1	D-6	L2B0	A-5	TPG	A-3
D5A5	C-3	L2B1	A-5	TPGND	A-3
D5A7	D-5	L2B2	A-4		
D5A8	C-6	L2B4	B-3	VR652	A-4
D580	C-2	L2B5	B-4	VR2A0	A-3
D5B2	C-2	L2B6	A-4	VR2A1	A-3
D5B5	B-4	L2B7	B-4	VR2A2	A-3
D5B6	D-4	L2B8	B-3	VR2A3	A-2
D5B7	D-3	L2B9	B-3	VR2A5	A-3
D5B9	C-7	L2C0	B-2	VR4A0	B-5
D5C1	C-3	L2C1	B-2		
D5C5	C-3	L2C2	B-2	X501	E-1
D5C6	D-3	L2C3	B-6	X2A0	B-3
D5D0	B-6	L2C6	A-7		
D5U0	B-7	L2P1	A-2		
D5U1	B-7	L2P5	A-3		
D9A0	D-6	L2P6	A-5		
		L2Z0	B-3		
DL2A0	B-4	L4A0	B-2		
DL2A1	A-4	L5A0	B-5		
		L5A1	C-3		
F901	D-5	L5A2	C-3		
F902	D-3	L5A3	D-3		
		L5A5	B-5		

PCB-TUNER





SYMBOL NO.	ADDRESS
CF750	A-3
CF751	A-3
CF752	A-3
D750	A-2
D751	B-1
D752	A-2
D2001	A-1
D2002	A-1
D3000	B-3
D3001	B-3
D3002	B-3
D3003	B-3
D3005	D-3
D3006	D-3
D3007	E-3
D3008	E-3
D3020	E-3
D3200	B-1
D3201	B-2
D3202	B-2
D3203	B-3
D3204	B-3
D3205	B-2
D3206	B-2
D3207	B-3
D3208	C-1
D3302	D-3
D3404	C-3
D3405	C-3
D3406	B-3
D3A1	E-3
D3A2	E-3
D3A3	E-3
D3A4	E-3
D3A5	B-3
D3A6	E-2
D3A7	E-2
D3B1	E-3
D3B2	E-3
D3B3	B-2
D3B4	B-2
D3B5	E-2
D3B6	E-2
IC750	A-3
IC803	A-2
IC3000	D-2
IC3001	B-3
IC3303	C-2
IC3310	B-1
IC3A1	E-1
IC3A2	E-2
IC3A3	E-1
K3301	C-3
L750	B-2
L753	A-3
L754	A-3

SYMBOL NO.	ADDRESS
L801	A-2
L2001	A-1
L2002	A-1
L2004	A-1
L2005	A-2
L2008	A-2
L2501	B-1
L2502	B-2
L2503	B-1
L2504	B-1
L3001	B-3
L3002	D-2
L3301	D-2
L3305	B-3
L3315	B-2
L3318	C-3
L3319	C-2
L3A1	D-1
LC752	A-2
Q750	A-3
Q751	B-3
Q752	B-3
Q2001	A-1
Q2002	A-1
Q2003	A-1
Q2004	A-1
Q2005	A-1
Q2006	A-1
Q2007	A-1
Q2008	A-1
Q2501	B-1
Q2502	B-1
Q2503	B-2
Q2504	A-2
Q2505	B-1
Q3006	D-2
Q3007	D-2
Q3020	D-2
Q3200	B-2
Q3201	B-2
Q3202	B-2
Q3203	B-3
Q3204	C-2
Q3205	B-3
Q3206	B-3
Q3207	B-1
Q3208	B-2
Q3209	B-3
Q3210	B-3
Q3307	C-2
Q3308	C-2
Q3309	C-2
Q3311	C-2
Q3315	B-3
Q3316	B-3
Q3317	B-3
Q3318	C-3
Q3325	D-2

SYMBOL NO.	ADDRESS
Q3406	C-2
Q3407	C-2
Q3408	C-3
Q3409	B-2
Q3A1	D-2
Q3A2	D-2
Q3A3	B-3
Q3A4	B-3
Q3B1	B-1
Q3B2	C-2
Q3B3	C-2
Q3B4	E-2
Q3B5	E-2
Q3B7	D-2
T3301	C-3
TP70	A-2
TP71	A-2
TP72	B-2
TP73	A-2
TP74	A-3
TP75	A-2
TP3L	C-1
TP3M	D-1
TP3R	D-1
TP3X	D-3
VR751	B-3
VR752	B-3
VR753	B-2
VR754	B-2
VR756	A-3
VR3000	C-2
VR3001	D-1
VR3002	C-1
VR3003	D-1
VR3004	D-1
VR3010	C-3
VR3011	C-3
VR3311	D-3