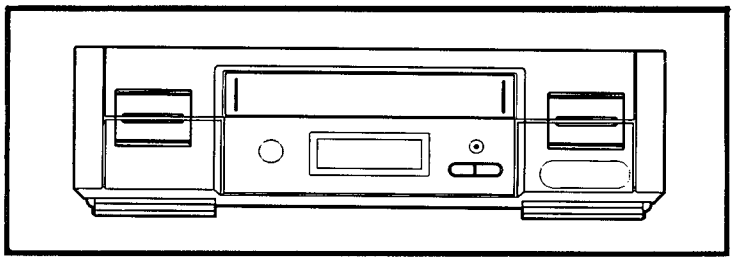
TEAC®



VHS
PAL

MV-3060

HQ

VIDEO CASSETTE RECORDER

HQ

Video cassette recorders bearing the " HQ" mark incorporate. VHS high quality technology. Note that there is interchangeability with former VHS video cassette recorder.

CONTENT

SERVICE MANUAL

TABLE OF CONTENTS

SECTION 1 SUMMARY

KEY TO ABBREVIATIONS

A	AC	: Alternating Current
	ACC	: Automatic Color Control
	ADJ	: Adjust
	A/E	: Audio Erase
	AFC	: Automatic Frequency Control
	AFT	: Automatic Fine Tuning
	AGC	: Automatic Gain Control
	ALC	: Automatic Level Control
	AM	: Amplitude Modulation
	AMP	: Amplifier
	ANT	: Antenna
	APC	: Automatic Phase Control
	ASS'Y	: Assembly
	AUD	: Audio
	AUTO	: Automatic
	AUX	: Auxiliary
B	B	: Base
	BPF	: Bandpass Filter
	BW or B/W	: Black and White
C	C	: Capacitor, Chroma, Collector
	CAN	: Cancel
	CAP	: Capstan
	CATV	: Cable Television
	CBA	: Circuit Board Assembly
	CCD	: Charge Coupled Device
	CFG	: Capstan Frequency Generator
	CH	: Channel
	CHROMA	: Chrominance
	CLK	: Clock
	CNR	: Chroma Noise Reduction
	COMB	: Combination Comb Filter
	COMP	: Comparator Composite Compensation
	CONV	: Converter
	CS	: Chip Select
	CST	: Cassette
	CTL	: Control
	CUR	: Current
	CYL	: Cylinder
D	D	: Drum, Digital, Diode, Drain
	dB	: Decibel
	DC	: Direct Current
	DEMOD	: Demodulator
	DET	: Detector
	DEV	: Deviation
	DHP	: Double High Pass
	DIGITRON	: Digital Display Tube
	DL	: Delay Line
	DOC	: Drop Out Compensator
	D/V	: Dummy Vertical
E	E	: Emitter
	EE	: Electric to Electric
	EMP	: Emphasis
	EP	: Extended Play
	EQ	: Equalizer
	ES	: Electrostatically Sensitive
F	F	: Fuse
	FB	: Feed Back
	FBC	: Feed Back Clamp
	FE	: Full Erase
	FF	: Fast Forward
	FG	: Frequency Generator
	FL	: Filter
	FM	: Frequency Modulation
	F/R	: Front/Rear
	FS	: Frequency Synthesizer
	FSC	: Subcarrier Frequency
	F/V	: Frequency Voltage
	FWD	: Forward
G	GEN	: Generator
	GND	: Ground
H	H	: High, Horizontal
	Hz	: Hertz
I	IC	: Intergrated Circuit
	IF	: Intermediate Frequency
	INS	: Insert
	I/O	: Input/Output
L	L	: Low, Left, Coil
	LD	: LED
	LECHA	: Letter Character
	LP	: Long Play
	LPF	: Low Pass Filter
M	MAX	: Maximum
	MD	: Modulator
	MIC	: Microphone
	MIN	: Minimum
	MIX	: Mixer, Mixing
	M.M.	: Mono Multi Vibrator
	MMV	: Monostable Multivibrator
	MOD	: Modulation, Modulator
	MODEM	: Modulator-Demodulator
N	NR	: Noise Reduction
O	OSC	: Oscillator
	OSD	: On Screen Display
P	PB	: Playback
	PCB	: Printed Circuit Board
	PG	: Pulse Generator
	PLL	: Phase Locked Loop
	P-P	: Peak-to-Peak
	PRE-AMP	: Preamplifier
	PS	: Phase Shift
	PWM	: Pulse Width Modulation
Q	Q	: Transistor
	QH	: Quasi Horizontal
	QSR	: Quick Setting Record
	QTR	: Quick Timer Record
	QV	: Quasi Vertical
R	R	: Resistor, Right
	RE(or RC)	: Remocon, Receiver
	REC	: Recording
	REF	: Reference
	REG	: Regulated, Regulator
	REMOCON	: Remote Control(unit)
	REV	: Reverse
	REW	: Rewind
	RF	: Radio Frequency
	R/P	: Record/Playback
	RTC	: Real Time Counter
S	S	: Serial
	SH	: Shift
	SHARP	: Sharpness
	SIF	: Sound Intermediate Frequency
	SLD	: Side Locking
	S/N	: Signal to Noise Ratio
	SP	: Standard Play
	SUB	: Subtract, Subcarrier
	SW or S/W	: Switch
	SYNC	: Synchrorization
	SYSCON	: System Control
T	T	: Coil
	TP	: Test Point
	TR	: Transistor
	TRK	: Tracking
	TRANS	: Transformer
	TU	: Tuner, Take-Up
U	UHF	: Ultra High Frequency
	UNREG	: Unregulated
V	V	: Volt, Vertical
	VA	: Always Voltage
	VCO	: Voltage Controlled Oscillator
	VGC	: Voltage Gain Control
	VHF	: Very High Frequency
	VISS	: VHS Index Search
	VR	: Variable Resistor or Volume
	V-Sync	: Vertical Synchronization
	VTG	: Voltage
	VV	: Voltage to Voltage
	VXO	: Voltage X-tal Oscillator
W	W	: Watt
	WHT	: White
	W/O	: With Out
X	X-TAL	: Crystal
Y	Y/C	: Luminance/Chrominance
	YNR	: Luminance Noise Reduction
Z	ZD	: Zener Diode

IMPORTANT SAFETY PRECAUTIONS

Prior to shipment from the factory, the products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

• Precautions during Servicing

1. Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.

2. Parts identified by the ⚠ symbol and shaded (▇) parts are critical for safety.
   Replace only with specified part numbers.
   Note: Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.

3. Use Specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads

4. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers
   4) Insulation sheets for transistor

5. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.(Fig. 1)

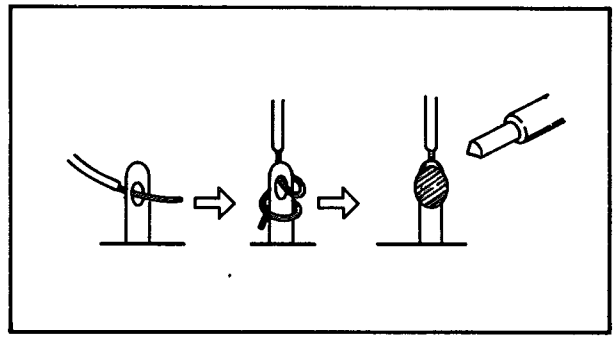


Fig. 1

6. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)

7. Check that replaced wires do not contact sharp edged or pointed parts.

8. When a power cord has been replaced, check that 10-15Kg of force in any direction will not loosen it.(Fig. 2)

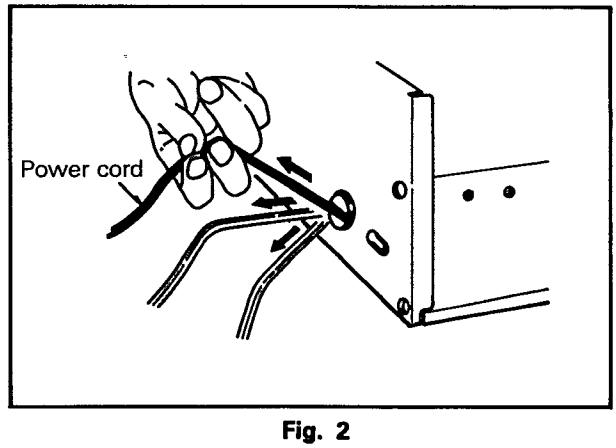


Fig. 2

9. Also check areas surrounding repaired locations.

10. Products using cathode ray tubes (CRTs)
    In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission. Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the parts specified. Under no circumstances attempt to modify these circuits. Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

SAFETY CHECK AFTER SERVICING

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions. Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

• Insulation resistance test

Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table below.

• Dielectric strength test

Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table below.

• Clearance distance

When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table below.

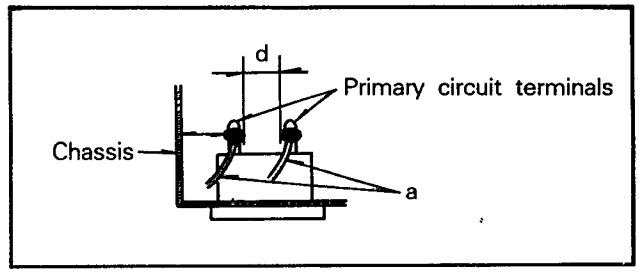


Fig. 3

Table 1:Ratings for selected areas

AC Line Voltage	Region	Insulation Resistance	Dielectric Strength	Clearance Distance(d),(d)
*110 to 130 V 200 to 240 V	Europe Australia	≧10 MΩ/500 V DC	4kV 1 minute	≧6mm(d) ≧8mm(d) (a Power cord)

*Class II model only.

Note. This table is unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

• Leakage Current test

Confirm specified or lower leakage current between B(earth ground, power cord plug prongs) and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.)

Measuring Method: (Power ON)
Insert load Z between B(earth ground, power cord plug prongs) and exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure and following table.

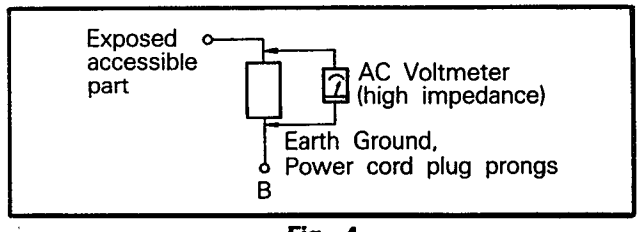


Fig. 4

Table 2:Leakage current ratings for selected areas

AC Line Voltage	Region	Load Z	Leakage Current(i)	Earth Ground (B) to:
100 to 130 V	Europe	2kΩ	i≦0.7m A peak i≦2m A dc	Antenna earth terminals
200 to 240 V	Australia	50kΩ	i≦0.7m A peak i≦2m A dc	Other terminals

Note. This table is unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

INTRODUCTION

This service manual provides a variety of service information. It contains the mechanical structure of the Video Cassette Recorder(VCR) together with mechanical adjustments and the electronic circuits in schematic form.

This VCR was manufactured and assembled under our strict quality control standards and meets or exceeds industry specifications and standards.

FEATURES

- VPS (Video Programme System) ★ Option
- HQ, High Quality picture enhancement system improves image sharpness and detail
- Full-Function infrared remote control(OSD programming)
- Auto Video Head Cleaner
- 8 event/1 year programmable timer with everyday recording
- QSR, Quick Set Recording with stand-by(up to 9 hours)
- Programmable channel memory with voltage synthesized Tuner(up to 40 positions)
- Auto Power and Play Function
- Automatic rewind
- Digital Auto Tracking System
- Quick Start Function
- Real Time Counter
- Center mechanism
- Child Lock Function
- Logic Search Function
- Monitor Function

SPECIFICATIONS

General :

Power Source :	AC 240V, 50Hz
Power Consumption :	Approx. 27 Watts
Video Recording System :	2 rotary heads, helical scanning system
Tape Speed :	23.39mm/sec (SP mode)
Tape Format :	Tape Width 1/2" (12.7mm high density tape VHS)
Maximum Recording Time :	4 hours at SP mode (with E-240 tape)
FF/Rewind Time :	Less than 240sec (with E-180 cassette)
Dimensions (W×H×D) :	14.2"×3.5"×13.5" (360×88×342mm)
Weight :	About 11.68lbs (5.3kg)
Operating Temperature :	41° F - 95° F (5° C - 35° C)
Operating Humidity :	35% - 80%
Timer :	24 hours display type

Video :

Television System :	CCIR standard (625lines, 50 fields) PAL (B/H)
Recording Format :	PAL
RF Reception :	PAL B/H
RF OUT	PAL B
Input Level :	VIDEO IN (RCA JACK type) 1.0Vp-p 75 ohm unbalanced
Output Level :	VIDEO OUT (RCA JACK type) 1.0Vp-p 75 ohm unbalanced
Signal to Noise Ratio :	More than 43dB
RF Modulator :	VHF Channels 0~1 (switchable)

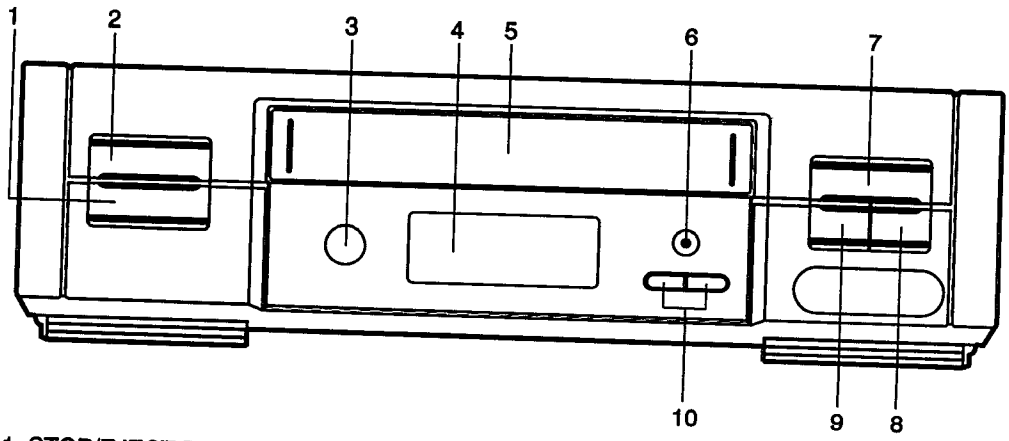
Audio :

Input Level :	AUDIO IN (RCA JACK type) -8 dBm more than 50 Kohm
Output Level :	AUDIO OUT (RCA JACK type) -5 dBm Less than 1 Kohm
Audio Track :	Monotrack type
Audio Frequency Response :	100Hz-10KHz ($^{+3}_{-5}$) at SP mode 100Hz-5KHz ($^{+3}_{-5}$) at LP mode
Signal to Noise Ratio :	More than 43dB

*Designs and specifications are subject to change without notice.

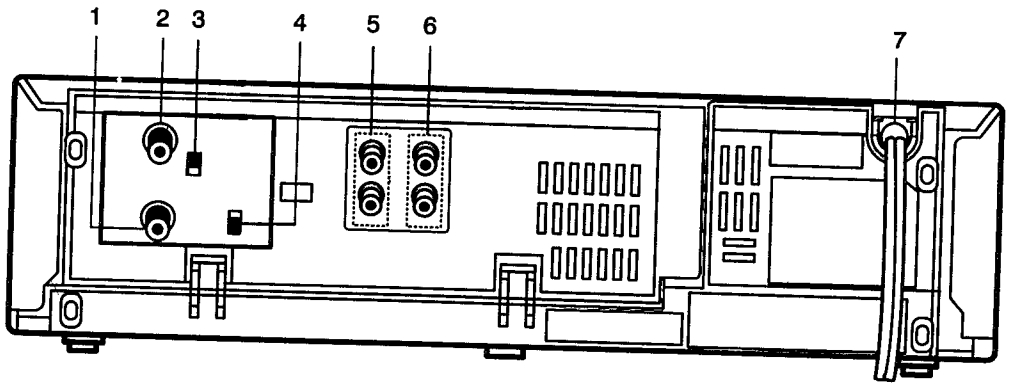
LOCATION OF CUSTOMER CONTROLS

FRONT



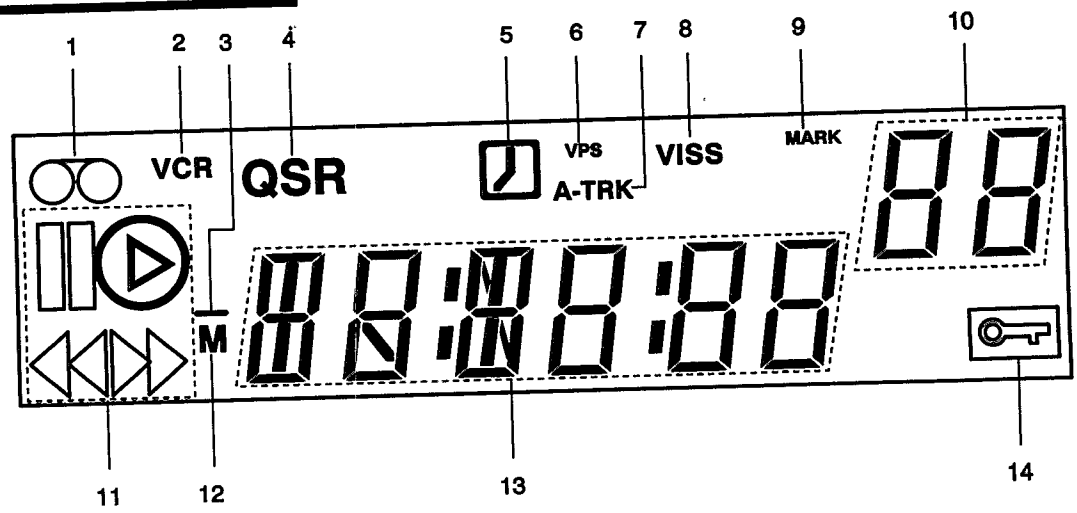
1. STOP/EJECT BUTTON
2. POWER BUTTON
3. REMOTE SENSOR WINDOW
4. MULTI-FUNCTION DISPLAY
5. CASSETTE COMPARTMENT
6. RECORD BUTTON
7. PLAY BUTTON
8. FAST FORWARD/CUE BUTTON
9. REWIND/REVIEW BUTTON
10. CHANNEL PROGRAMME SELECTORS(+/-)

REAR



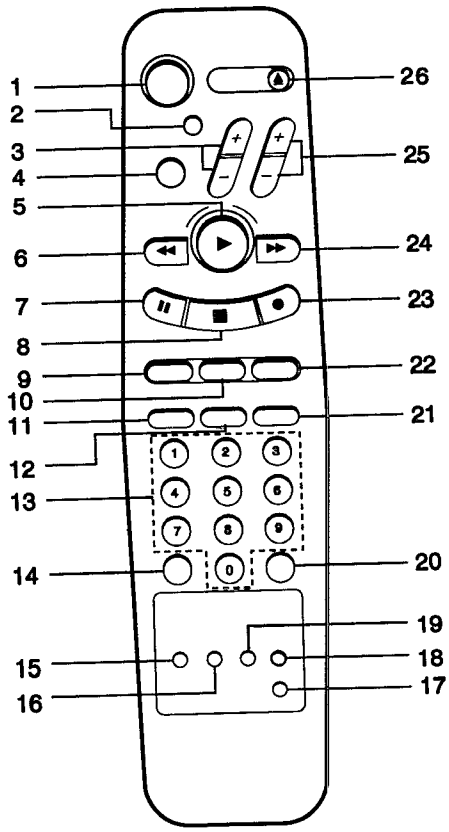
1. RF OUTPUT
2. AERIAL INPUT
3. ATT (attenuation) SWITCH
4. CHANNEL 0~1 SELECT SWITCH
5. AUDIO IN/OUT JACKS
6. VIDEO IN/OUT JACKS
7. MAINS LEAD

MULTI FUNCTION DISPLAY



1. CASSETTE-IN INDICATOR (CO)
2. VCR INDICATOR
3. MINUS INDICATOR (-)
4. QSR INDICATOR (QSR)
5. TIMER INDICATOR ( )
6. VPS INDICATOR (VPS)
7. AUTO TRACKING INDICATOR
8. VISS INDICATOR
9. MARK INDICATOR
10. SWITCHABLE DISPLAY
11. FUNCTION INDICATORS
12. MEMORY INDICATOR (M)
13. SWITCHABLE DISPLAY
14. CHILD LOCK INDICATOR

REMOTE CONTROL



1. OPERATE ON/OFF BUTTON
2. AUTO TRACKING BUTTON
3. TRACKING/MFT(+/-) BUTTONS
4. CHILD LOCK BUTTON
5. PLAY BUTTON
6. REWIND/REVIEW BUTTON
7. PAUSE/STILL BUTON
8. STOP BUTTON
9. TAPE COUNTER RESET BUTTON
10. CLOCK/TAPE COUNTER MEMORY SELECT BUTTON
11. MENU BUTTON
12. CLEAR/MONITOR BUTTON : *
13. NUMBER BUTTONS "0" THROUGH "9"
14. PRESET BUTTON
15. VISS BUTTON
16. VPS BUTTON : *
17. SKIP/MEMO BUTTON : *
18. TV/VCR BUTTON
19. TAPE SPEED MODE SELECT BUTTON(SP/LP) : *
20. TU/AV SELECT BUTTON
21. DISPLAY BUTTON
22. SHOW VIEW BUTTON : *
23. REC/QSR BUTTON
24. FAST FORWARD/CUE BUTTON
25. CHANNEL PROGRAMME SELECTORS (+/-)
26. EJECT BUTTON

※* : Optional Function

SECTION 2 CABINET & MAIN FRAME

SERVICE FIXTURE CONNECTING METHOD

1. SVC FIXTURE Connecting Method

A. FIXTURE Cable ① Connecting Method.

a) Connect the FIXTURE Cable ① between Main C.B.A and Junction C.B.A. (P5J01, P5J02, P2J03)

b) At this time, should be in the left side " ◄ LEFT" mark on the P.C.B of the FIXTURE Cable ①. (See Fig. 2-a, 2-c)

c) Connect the connector of "MAIN" mark of FIXTURE Cable ① with the Main C.B.A and the connector of "JUNCTION" mark with the Junction C.B.A. (See Fig. 2-a, 2-c)

B. FIXTURE Cable ② Connecting Method.

a) Connect the FIXTURE Cable ② between Main C.B.A and Pre-Amp Ass'y. (P0301=P3001)

b) At this time, should be in the left side " ◄ LEFT" mark on the P.C.B of the FIXTURE Cable ②. (See Fig 2-a, 2-b)

c) Connect the connector of "MAIN" mark of FIXTURE Cable ② with the Main C.B.A and the connector of "JUNCTION" mark with the Pre-Amp Ass'y. (See Fig. 2-a, 2-b)

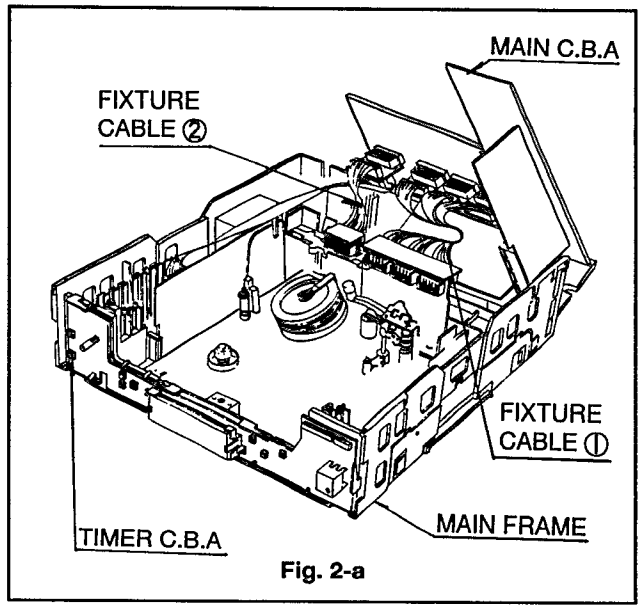


Fig. 2-a

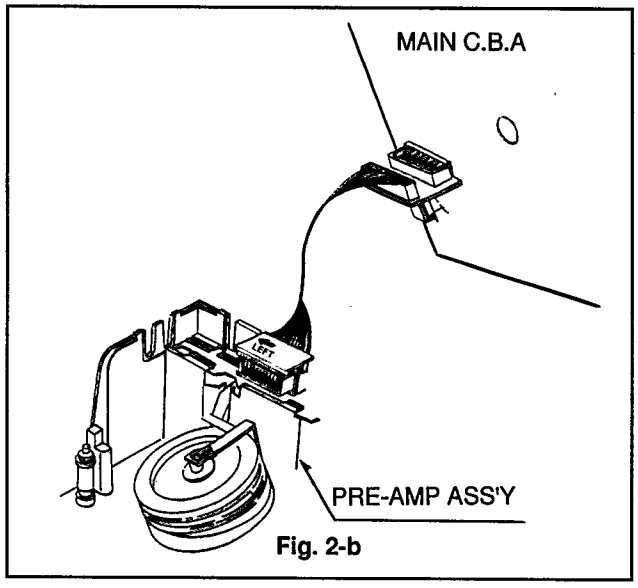


Fig. 2-b

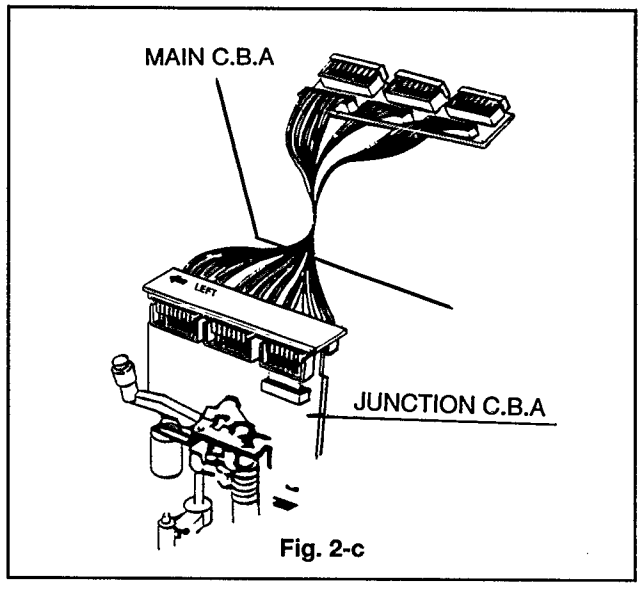
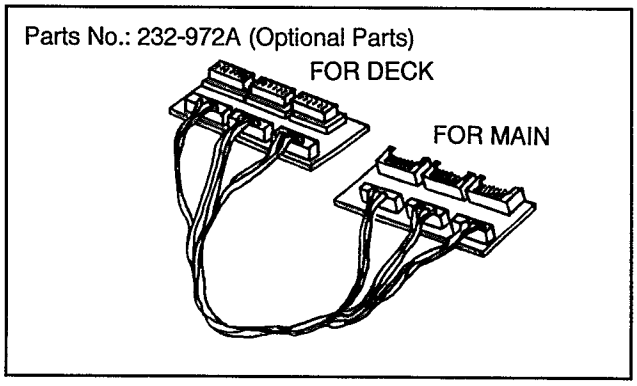


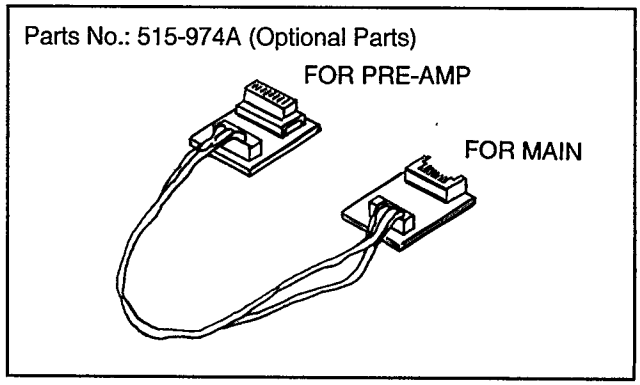
Fig. 2-c

2. Electrical Service Fixture List

A. Fixture Cable ①.



B. Fixture Cable ②.



CABINET DISASSEMBLY

1. Top Case, Bottom Cover

A. Release 4 screws (A). (See Fig. 2-1)
B. Hold the back of Top Case and lift it up slightly backward to remove it.
C. Release 2 screws (B). (See Fig. 2-1)
D. Hold the Bottom Cover and pull it slightly forward to remove it.

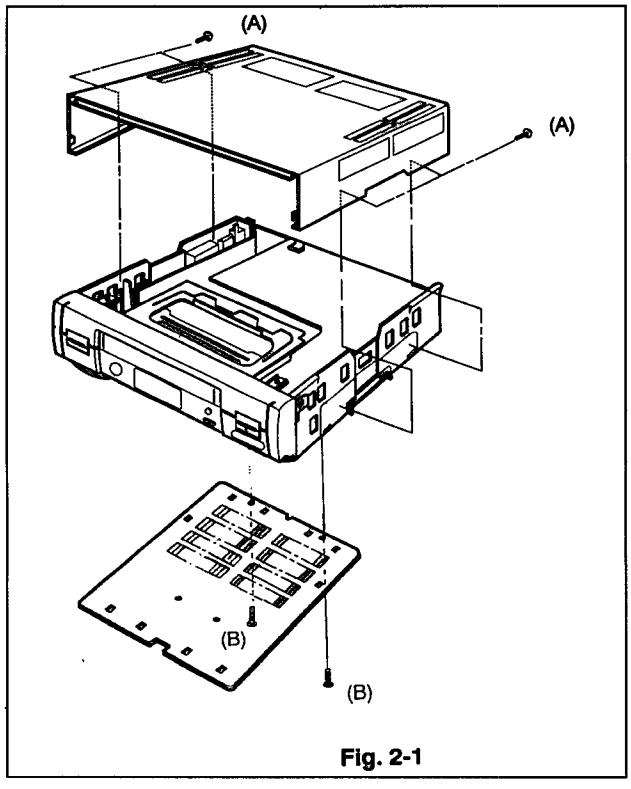


Fig. 2-1

***Caution**

When reassemble the Front Panel, assemble it in condition of inserting the Door Cassette inside, as shown in Fig. 2-3.

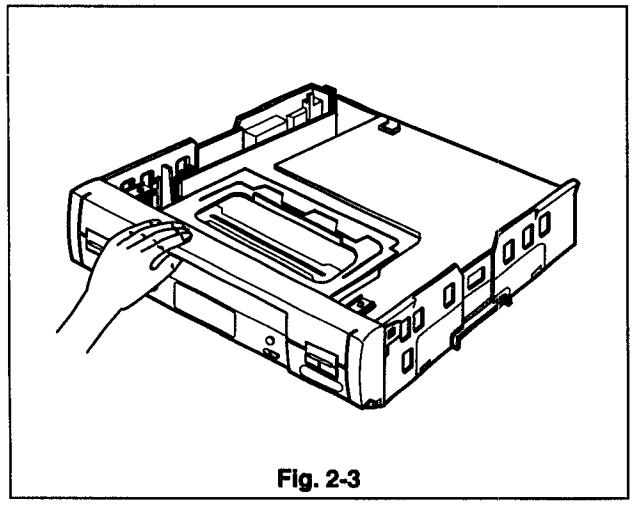


Fig. 2-3

2. Front Panel

A. Remove the top Case (See Fig. 2-1).
B. Remove the bottom Cover (See Fig 2-1).
C. Remove the stoppers on the top of Front Panel.
D. Remove the stoppers on the bottom of Front Panel.

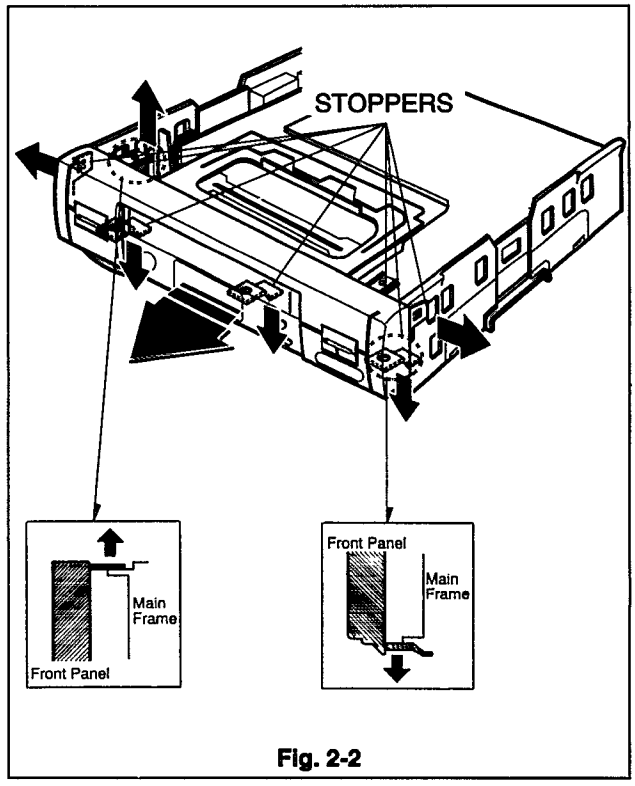


Fig. 2-2

CIRCUIT BOARD DISASSEMBLY

1. Circuit Board Arrangement

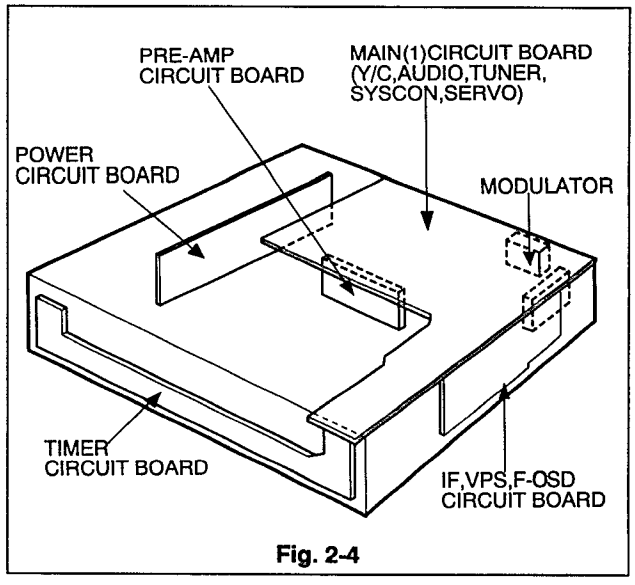


Fig. 2-4

2. Main Circuit Board(I)(Y/C, Audio, Tuner, Syscon, Servo)

A. Release 3 screws (C).(See Fig. 2-5).
B. Disconnect the connector between Main Circuit Board and Timer Circuit Board.
C. Disconnect the connector between Main Circuit Board and Power Circuit Board.
D. Lift the rear part up and pull the P.C.Board backward.
E. Remove the connector for complete removal.

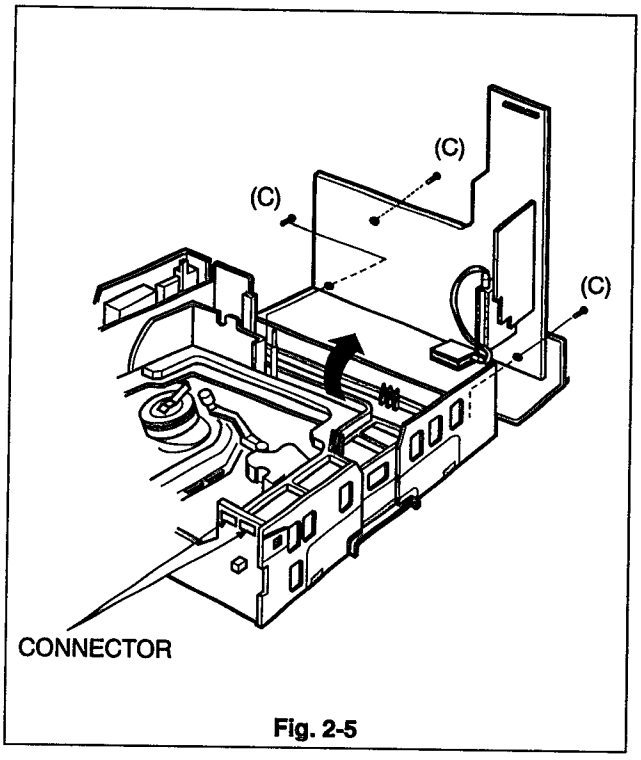


Fig. 2-5

3. Timer Circuit Board

A. Pull the P.C. Board toward you while pressing 8 stoppers in the direction of the arrows to disengage, and remove the P.C.Board (See Fig. 2-6).
B. Remove the connector for complete removal.

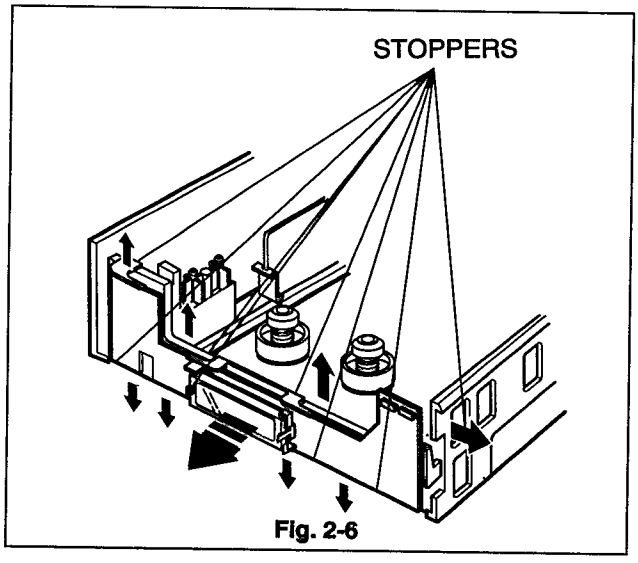


Fig. 2-6

4. Pre-Amp Circuit Board

A. Release 1 screw (D)(See Fig. 2-7).
B. Remove Pre-Amp Package from Main Frame.
C. Remove bracket Pre-Amp from Pre-Amp Package.
D. Remove Pre-Amp Circuit Board from Pre-Amp Package.

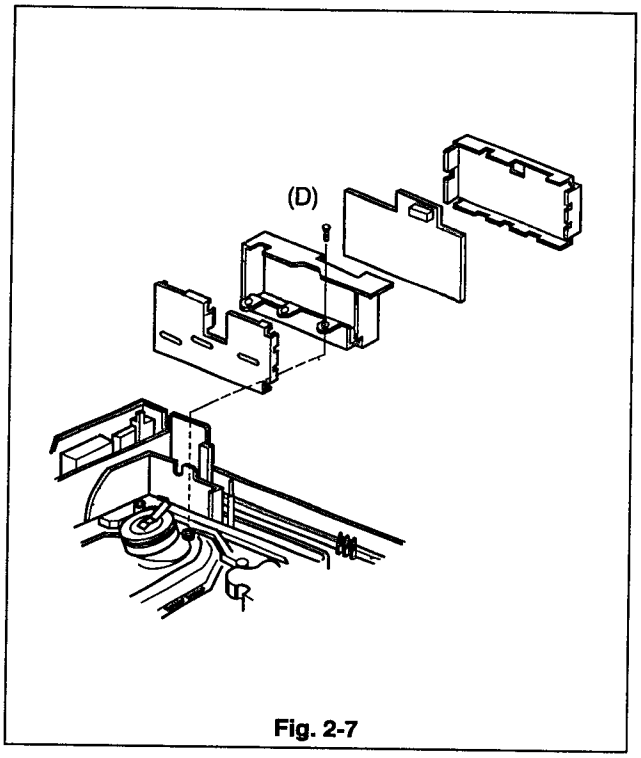


Fig. 2-7

5. Power Circuit Board

A. Remove Main(I) P.C.Board (See Fig. 2-5).
B. Release 3 screws(E). (See Fig. 2-8)

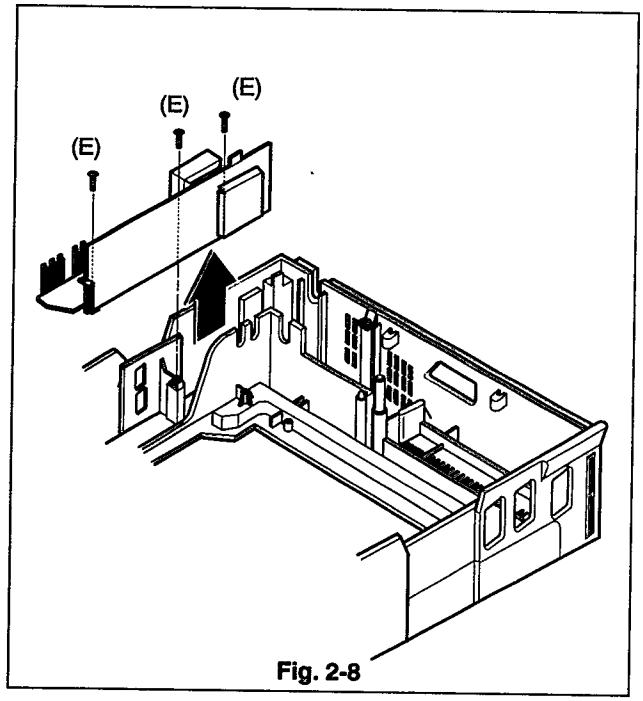
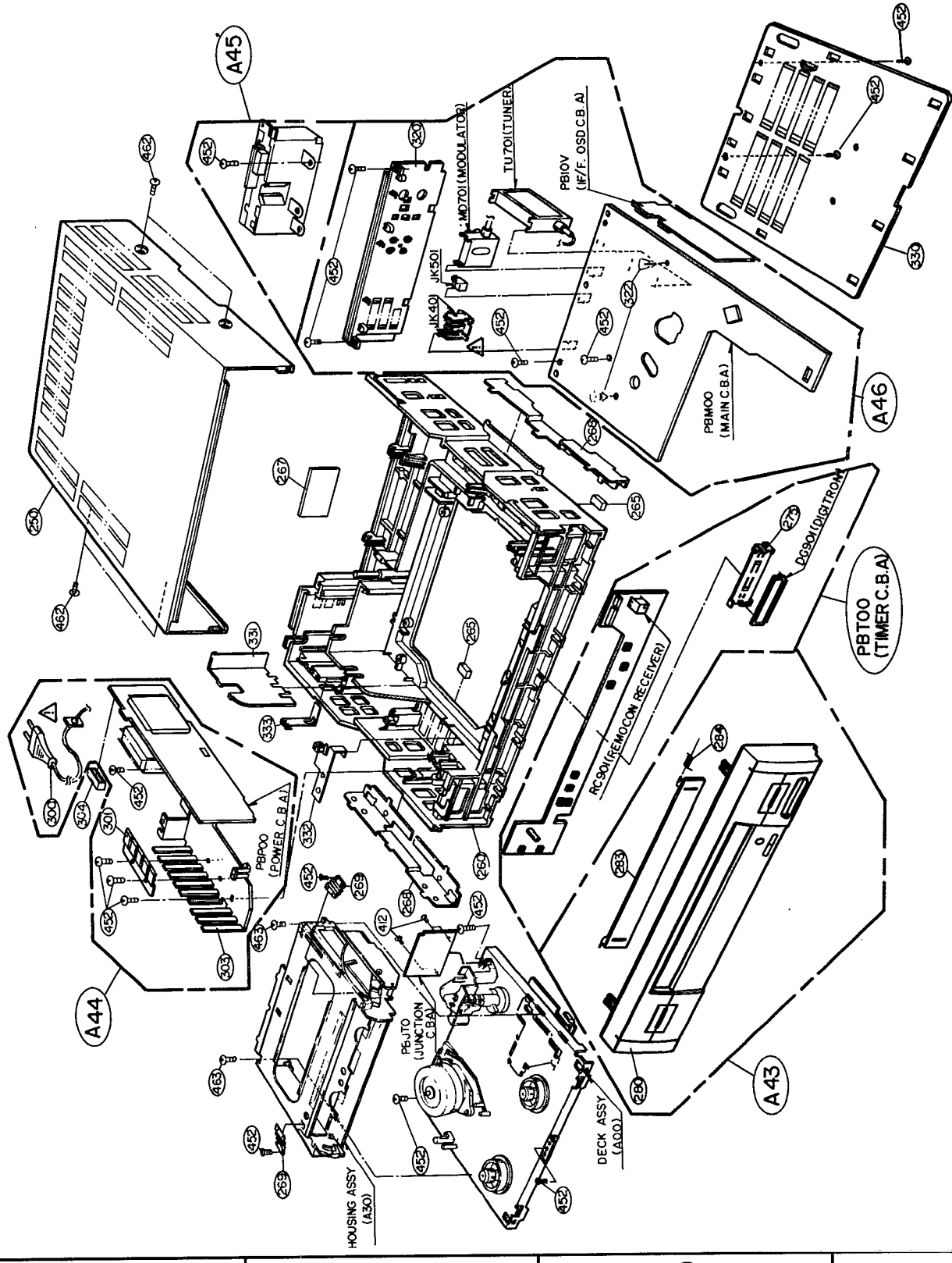


Fig. 2-8

EXPLODED VIEWS

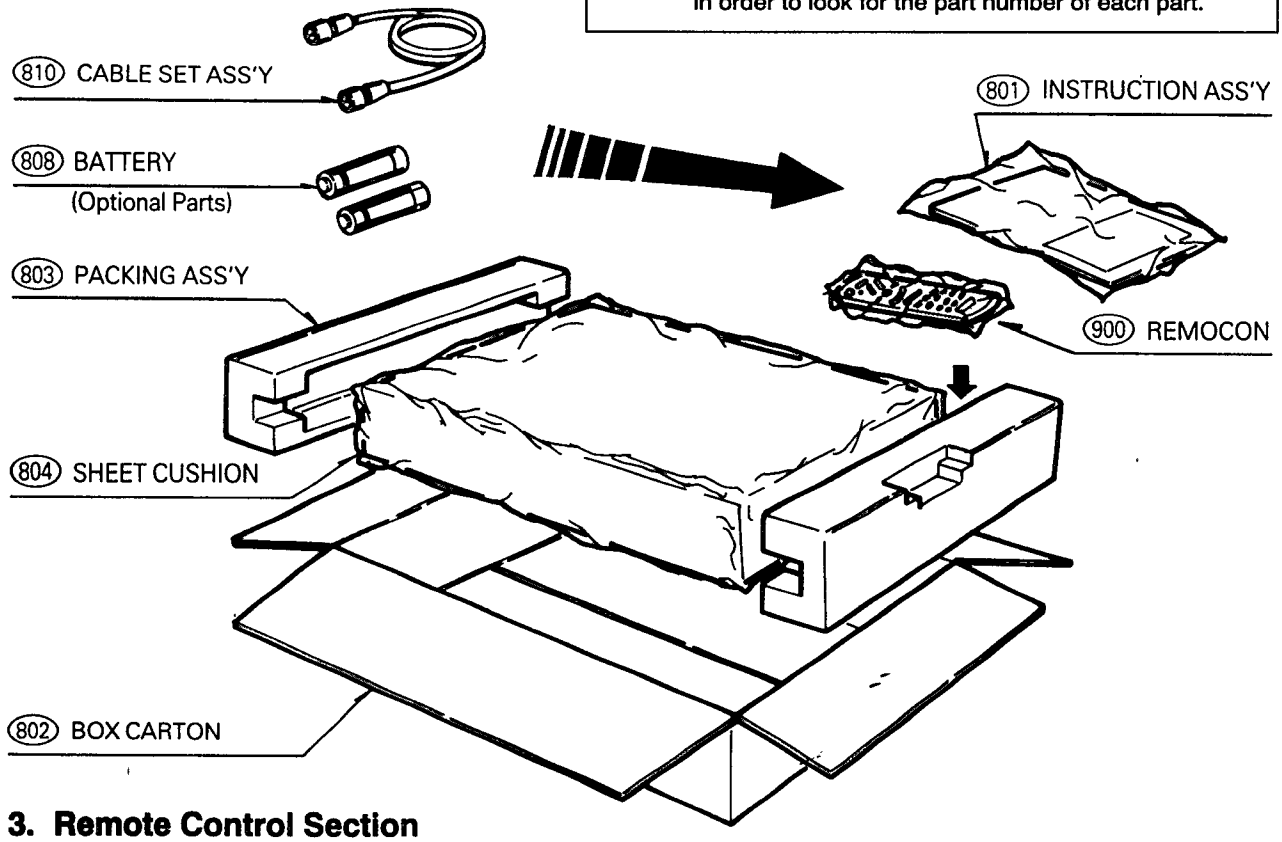
1. Cabinet & Main Frame Section

NOTE) 1. Refer to "SECTION 5 REPLACEMENT PARTS LIST" in order to look for the part number of each part.
2. The components identified by mark ⚠ are critical for safety.
Replace only with part number specified.

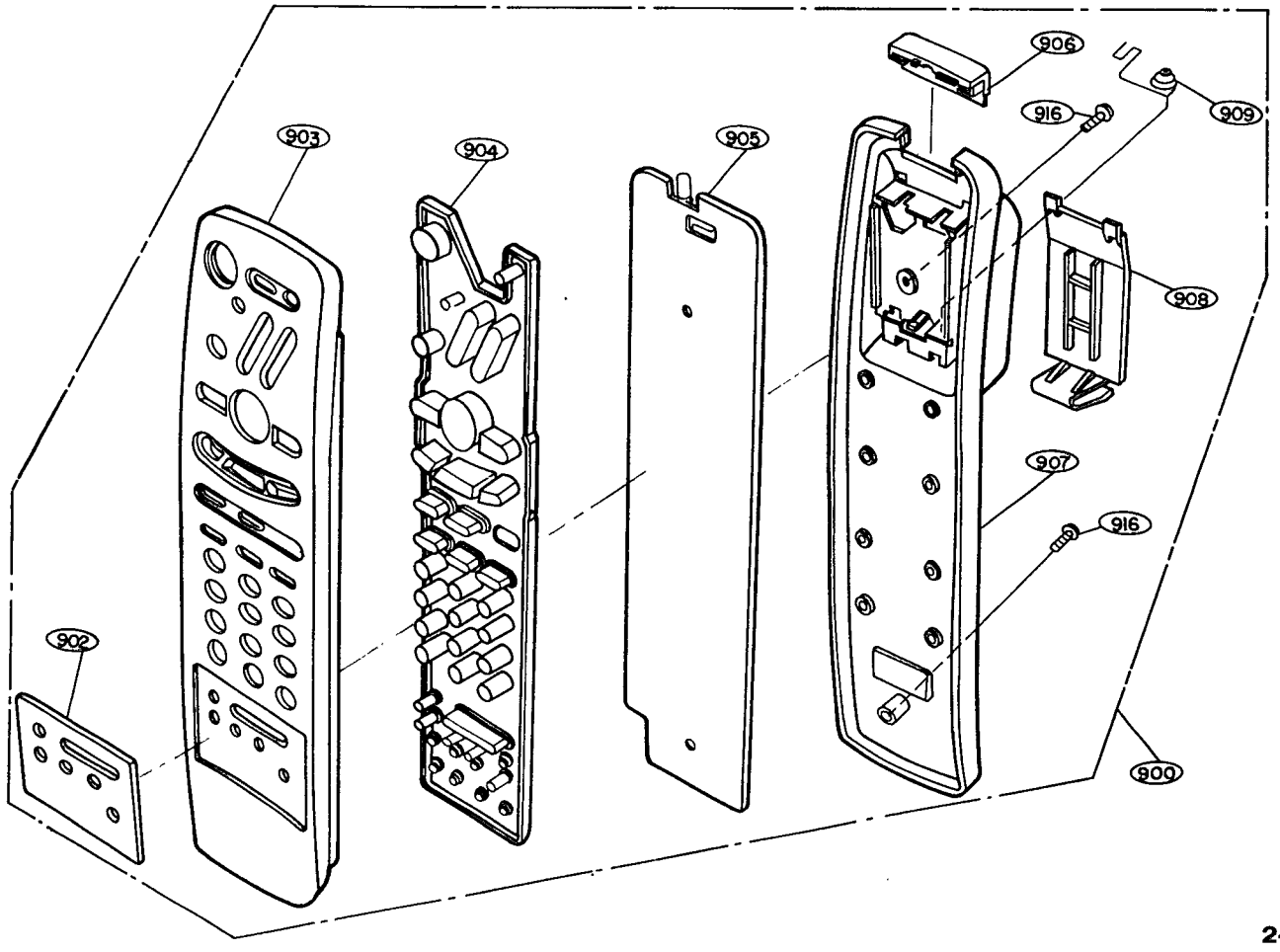


2. Packing Accessory Section

NOTE) Refer to "SECTION 5 REPLACEMENT PARTS LIST" in order to look for the part number of each part.



3. Remote Control Section



MEMO

SECTION 3 ELECTRICAL

ELECTRICAL ADJUSTMENT PROCEDURES

Electronic Test Equipment Requirement :

• Oscilloscope	• Frequency Counter	• Recording Tape
• Video Signal Generator	• Digital Multimeter	• Sweep & Marker OSC
• Modem Tester	• + Driver	• Monitor Scope
• Level Meter	• Test Tape (SP)	• Distortion Meter

1. Servo Circuit

1) ±PG Adjustment

MODE	SPECIFICATIONS	MEASUREMENT POINT	ADJUSTMENT POINT
Playback	6.5H±0.5H (416μsec, 1H=64μsec)	W309 (H.SW) Video Out Terminal	VR201

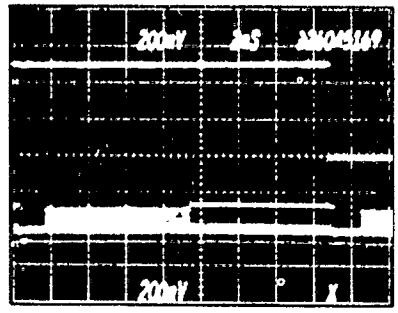
Purpose :
It is for the phase dividing of the Video A,B heads with 180° and the exact tracing of each track to meet head switching point with VHS spec.

Procedure :
a. Playback a PAL / SP test tape.
b. Connect CH-1 terminal of oscilloscope to W309 H.SW, and CH-2 terminal to Video out terminal of VCR.
c. Trigger the complex Video signal of CH-2 to CH-1 H.SW, and adjust VR201 so that the distance from A(B) head selection point of H.SW signal to the starting point of horizontal synchronized signal is 6.5H (416μsec, 1H=64μsec).

Reference)
1. ±PG adjustment is practiced in the state of maximum RF level and locked servo system.
2. The deviation between A/B Head adjustment location should be within ±0.5H(32μsec).
3. The deviation between the specification of adjustment and the practical measurement value should be within ±0.5H(32μsec).
4. Oscilloscope and VCR set should be connected with GND.

Waveform

Composite Video Signal



6.5H(416μsec)

H.SW(W309)

Fig. 3-1

2. Y/C Circuit

1) EE Level Adjustment

MODE	SPECIFICATIONS	MEASUREMENT POINT	ADJUSTMENT POINT
Stop	2±0.1Vp-p	Video Out Jack	VR304 EE Level

Procedure :
a. Connect the Video Signal Generator to Video in terminal.
b. Connect CH-1 terminal of the oscilloscope to Video Out Jack.
c. Adjust VR304 so that the value from the lower part of synchronis to 100% white signal is 2±0.1Vp-p.

Waveform

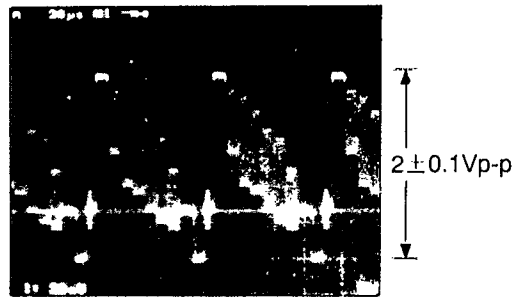


Fig. 3-2

2) FM Carrier Frequency Adjustment

MODE	SPECIFICATIONS	MEASUREMENT POINT	ADJUSTMENT POINT
Stop	White Peak:4.8±0.05MHz Sync.Tip:3.8±0.05MHz	IC301 Pin ⑰ (DEV/CAR TP)	VR302

Procedure :

a. Connect the Video Signal Generator to Video in terminal.
b. Connect CH-1 terminal of the oscilloscope to modem tester output terminal. (But the set and the modem tester should be connected with 1:1 probe).
c. Connect input terminal of modem tester to IC301 pin ⑰.
d. Input the video signal of 100% white to Video Input Jack.
e. The terminal position of modem tester is operated to be ATT. 0dB, PAL/SECAM mode, Demod, Marker on.
f. Adjust VR302 to right side in left maximum state so that 3.8MHz marker on scope is agreed with the lower part of sync.

Waveform

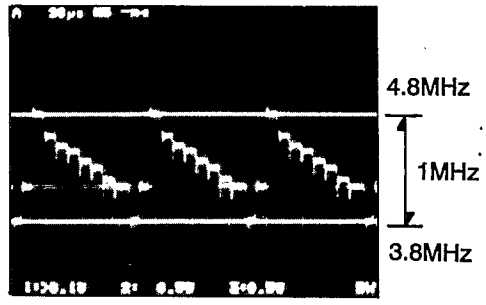


Fig. 3-3

3) FM Deviation Frequency Adjustment

MODE	SPECIFICATIONS	MEASUREMENT POINT	ADJUSTMENT POINT
Stop	1±0.05MHz	IC301 Pin ⑰ (DEV/CAR TP)	VR301

Procedure :

a. Connect the Video Signal Generator to Video in terminal.
b. Connect CH-1 terminal of the oscilloscope to modem tester output terminal. (But the set and the modem tester should be connected with 1:1 probe).
c. Connect input terminal of modem tester to IC301 pin ⑰.
d. Input the video signal of 100% white to Video Input Jack.
e. The terminal position of modem tester is operated to be ATT. 0dB, PAL/SECAM mode, Demod, Marker on.
f. Adjust VR301 to right side in left maximum state so that 4.8MHz marker on scope is agreed with the level of 100% white signal.

Waveform

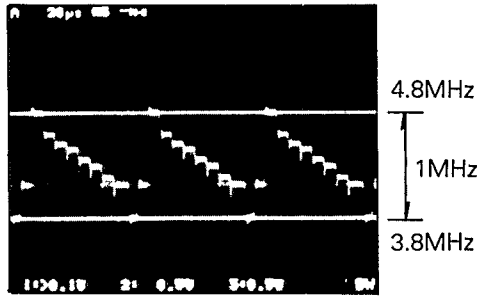


Fig. 3-4

4) Playback Luminance Level Adjustment

MODE	SPECIFICATIONS	MEASUREMENT POINT	ADJUSTMENT POINT
Playback(SP mode)	2±0.1Vp-p	Video Out Jack	VR303 PB-Y

Procedure :

a. Connect the Video Signal Generator to Video in terminal.
b. Connect CH-1 terminal of the oscilloscope to Video Out Jack.
c. Playback a PAL SP test tape (with 100% white signal).
d. Adjust VR303 so that the Video waveform is 2±0.1Vp-p.

Waveform

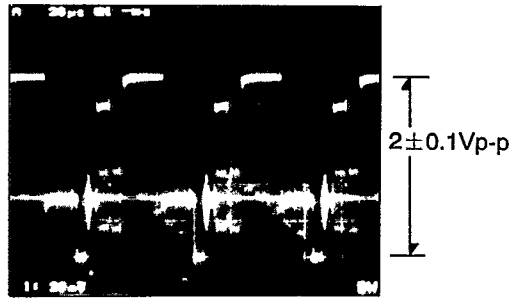


Fig. 3-5

5) CCD Level Adjustment

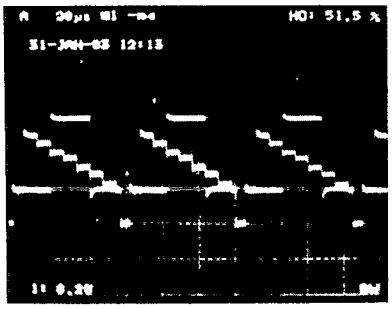
MODE	SPECIFICATIONS	MEASUREMENT POINT	ADJUSTMENT POINT
Playback	Minimum	IC301 Pin ㊽ IC301 Pin ㊶	VR307

Procedure :

a. Connect the Video Signal Generator to Video in terminal.
b. Connect CH-1 terminal of the oscilloscope to IC301 pin ㊽.
c. Connect CH-2 terminal of the oscilloscope to IC301 pin ㊶.
d. Playback a PAL SP test tape (with 100% white signal).
e. Adjust VR307 so that the waveform level variation of IC301 pin ㊽ and IC301 pin ㊶ to be minimized.

Waveform

IC 301 pin ㊶



IC 301 pin ㊽.

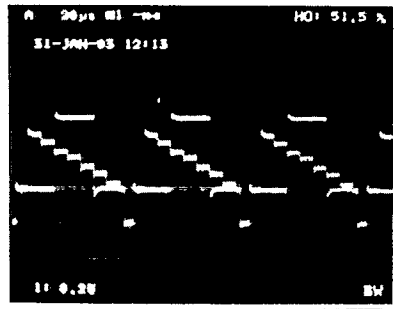


Fig. 3-6

3. Audio Circuit

1) Audio R/P Head Azimuth Adjustment

MODE	SPECIFICATIONS	MEASUREMENT POINT	ADJUSTMENT POINT
Playback	Maximum	Audio Out Terminal	R/P Head Azimuth

Purpose :

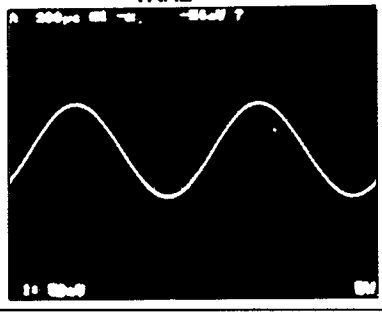
This is for adjusting Audio playback level to specification.

Procedure :

a. Connect the Level Meter to Audio out terminal.
b. Adjust Angle of R/P Head Azimuth so that 1KHZ output level of Level Meter is maximum after playing the standard tape.
c. At this time, make 6KHz level be maximum to adjust Angle of R/P Head azimuth.

Waveform

1KHz



6KHz

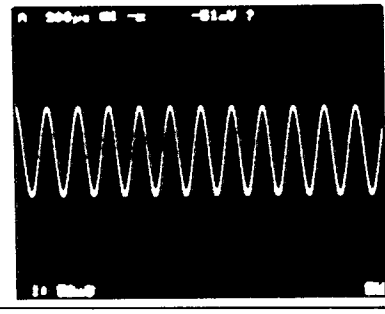


Fig. 3-7

2) Record Oscillation Frequency Adjustment

MODE	SPECIFICATIONS	MEASUREMENT POINT	ADJUSTMENT POINT
Record	70KHz±5KHz	C403	T401(Oscillation Coil)

Purpose :

This is for adjusting the oscillation frequency to specification in recording.

Procedure :

a. Connect CH-1 terminal of the oscilloscope to C403.
b. Connect the frequency counter to C403.
c. Confirm that the oscillation frequency in recording is 70KHz±5KHz to connect the frequency counter terminal to C403.
d. At this time, adjust OSC coil(T401) and make the oscillation frequency fit to 70KHz±5KHz.

3) Record Bias Adjustment

MODE	SPECIFICATIONS	MEASUREMENT POINT	ADJUSTMENT POINT
Record	2.6mV RMS	R401 Both Terminal	VR401

Purpose :

This is adjusting the bias current to specification in recording.

Procedure :

a. Connect the Level Meter terminal to both terminal R401.
b. Confirm that the Oscillation Voltage is 2.6mV RMS to connect Level Meter to Lug pin both terminal R401.
c. At this time, adjust VR401 and make the oscillation voltage fit to specification.

4. Tuner/IF Circuit

1) VIF/AFC Response Adjustment

MODE	SPECIFICATIONS	MEASUREMENT POINT	ADJUSTMENT POINT
EE mode(Without signal)	Refer to Waveform	IC701 Pin ⑱(VIF) IC701 Pin ⑬(AFC)	T702(VIF) T701(AFC)

Connection :

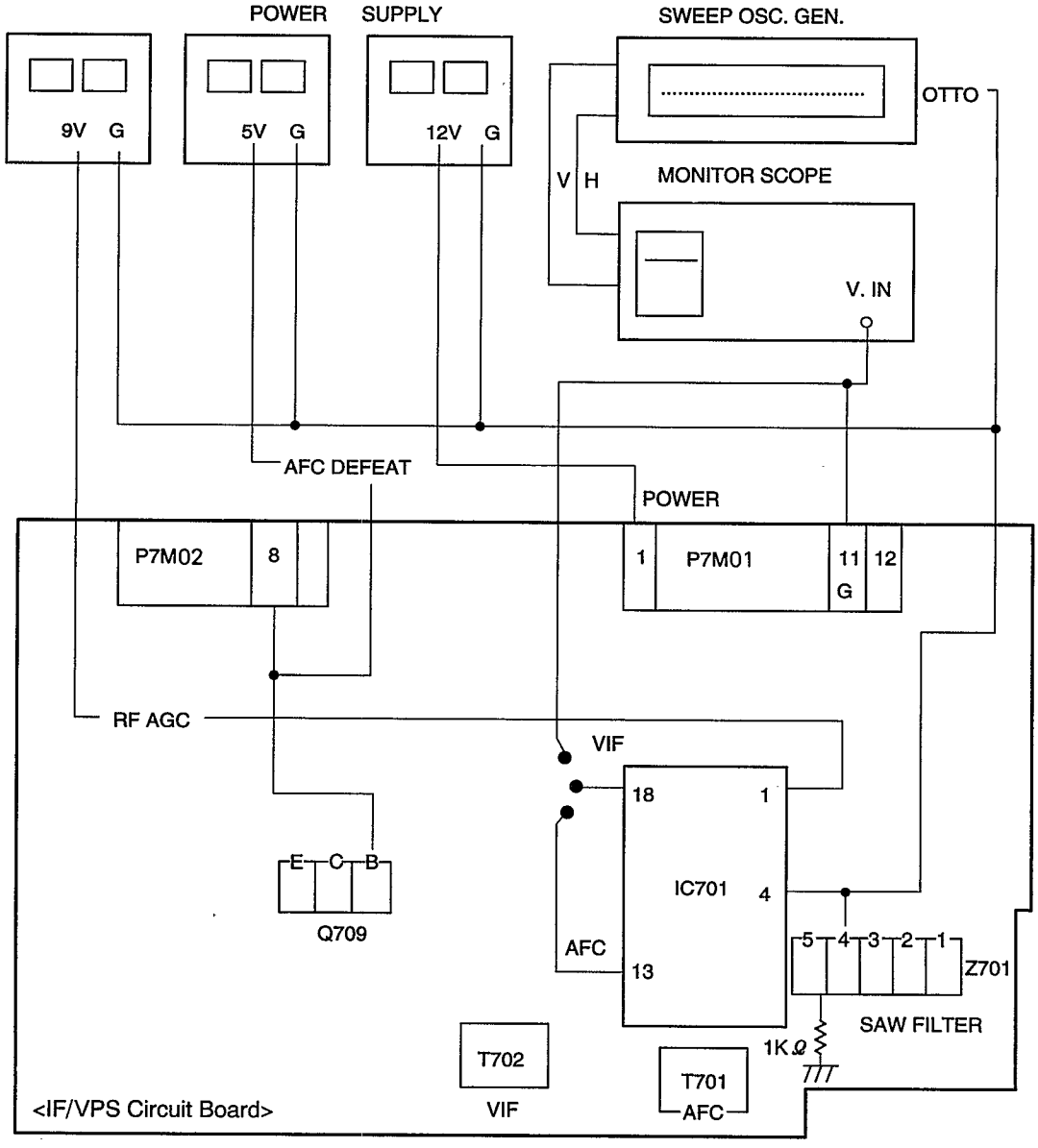
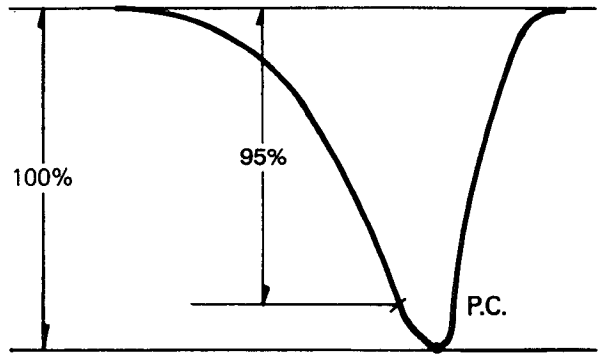


Fig. 3-8

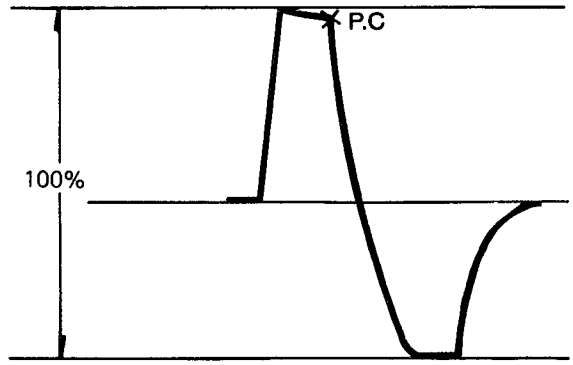
Procedure :

a. Connect as shown in Fig. 3-8.
b. AFC adjustment makes it a rule to adjust after the VIF adjustment.
c. Attenuate the sweep OSC gain by 30dB.
d. Adjust T701 and T702 so that the monitor waveform is as shown in Fig. 3-9.
e. At this time, maximum output is 120dB of the sweep OSC generator.

Waveform



VIF Response Adjustment
(Normal mode)



AFC Response Adjustment
(Pre-set mode)

Fig. 3-9

2) AGC Adjustment

MODE	SPECIFICATIONS	MEASUREMENT POINT	ADJUSTMENT POINT
EE CH-9 Reception	4.2V± 0.1V	TUNER AGC Terminal	VR701(RF AGC)

Procedure :
a. Be tuning CH-9 (strength of input electric field : 70dB ±1dB) fine.
b. Connect the Digital Voltmeter to TUNER AGC Terminal.
c. Adjust VR701 so that the Digital Voltmeter is 4.2V± 0.1V.

Reference)
Maintain the input gain in adjusting AGC faithfully.

3) SIF Adjustment

MODE	SPECIFICATIONS	MEASUREMENT POINT	ADJUSTMENT POINT
EE CH Reception (PAL B/G)	Minimum (Less than 2%)	AUDIO OUT JACK	T703 (SIF Coil)

Procedure:
a. Be tuning CH-9 (strength of input electric field: 70dB± 1dB) fine.
b. At this time, receive PAL B/G signal.
c. Connect the Distortion Meter to Audio Output (SCART or RCA)
d. Adjust T703 (SIF Coil) so that the Audio Distortion should be minimum point.

***Caution in testing**
1. When practing this adjustment, adjust after more than 10minutes with TV set turning on.
2. Adjust after completing itself test of measuring apparatus.
3. Sweep OSC marker frequency is followed by Table 1.
4. IF are adjusted and Tuner is not.

*** Abbreviation**
- APC : Adjacent Picture Carrier
- SIF : Sound Intermediate Frequency
- CIF : Color Intermediate Frequency
- CEN : Center Frequency
- PIF : Picture Intermediate Frequency
- ASC : Adjacent Sound Carrier

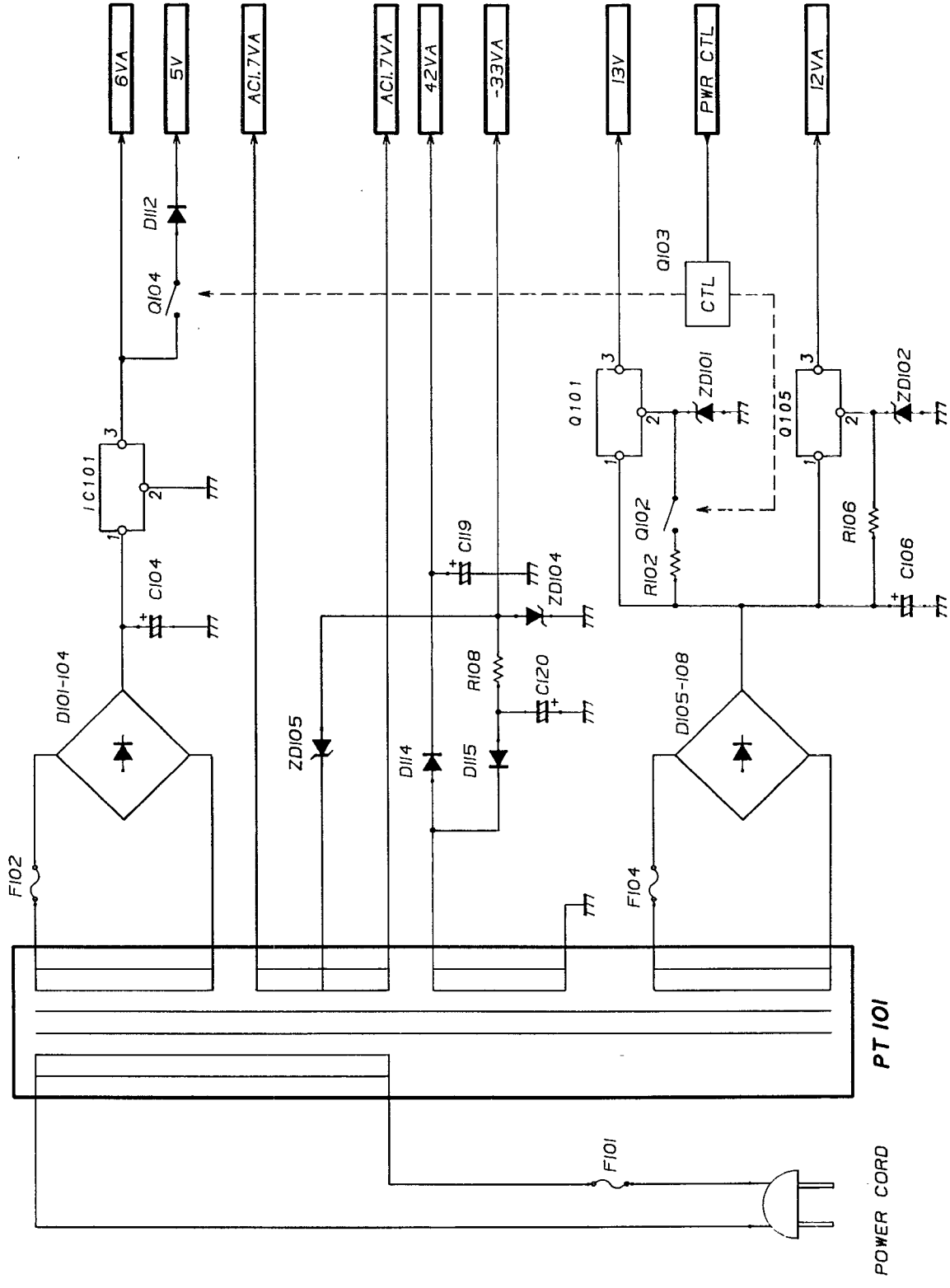
Table 1. Frequency Table

(MHz)

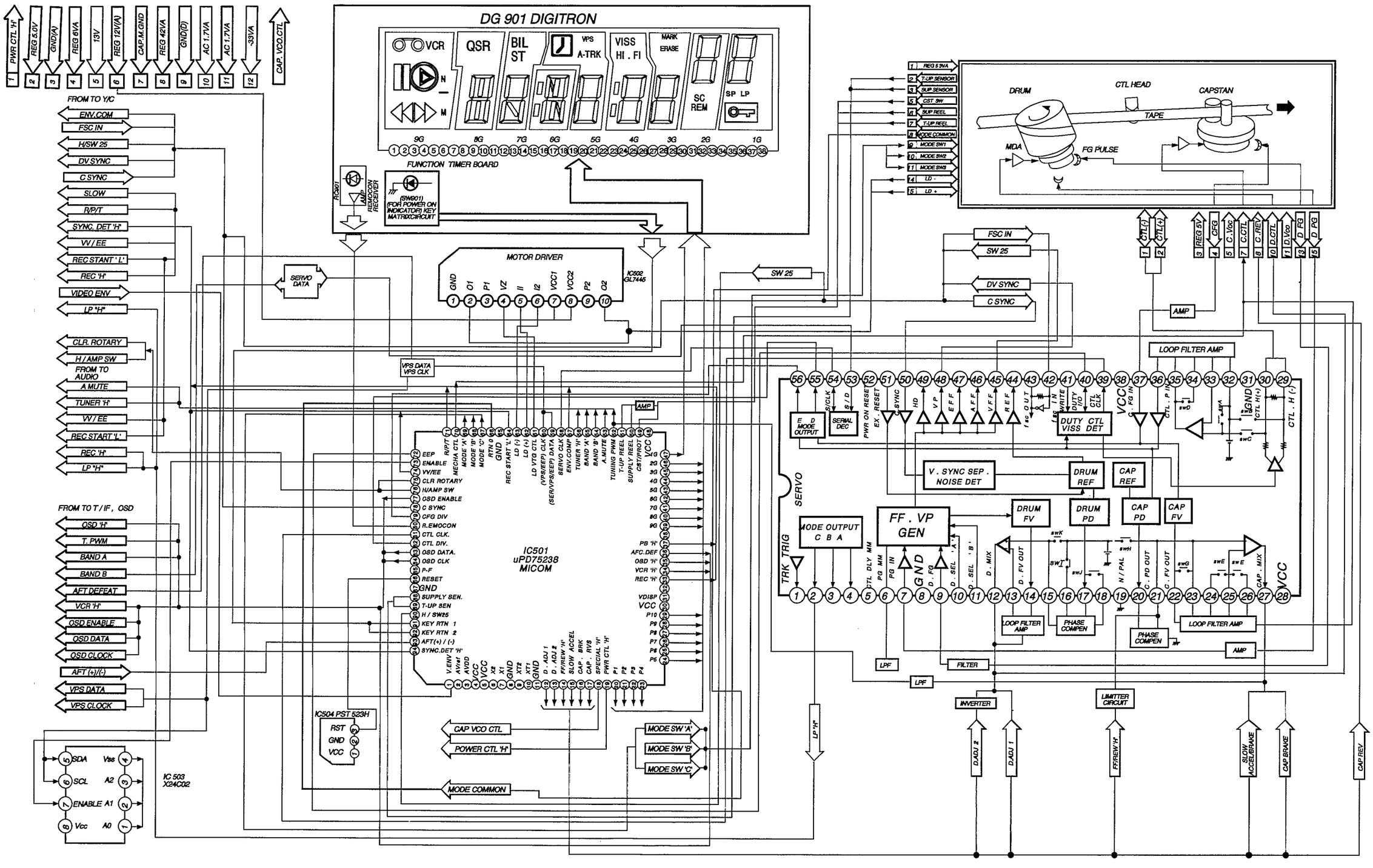
NO.	BROADCASTING SYSTEM	ADJUSTMENT MARKER FREQUENCY				
		APC	SIF	CIF	PIF	ASC
1	PAL, SECAM (B/G)	31.90	33.40	34.47	38.90	40.40
2	PAL, SECAM (D/K)	29.50	31.50	33.57	38.00	40.40
3	PAL (I)	31.50	33.50	35.07	39.50	41.50
4	PAL (I+D/K)	29.50	31.50	33.57	38.00	40.40
5	PAL (BG+DK)	29.50	31.50	33.57	38.00	40.40

BLOCK DIAGRAMS

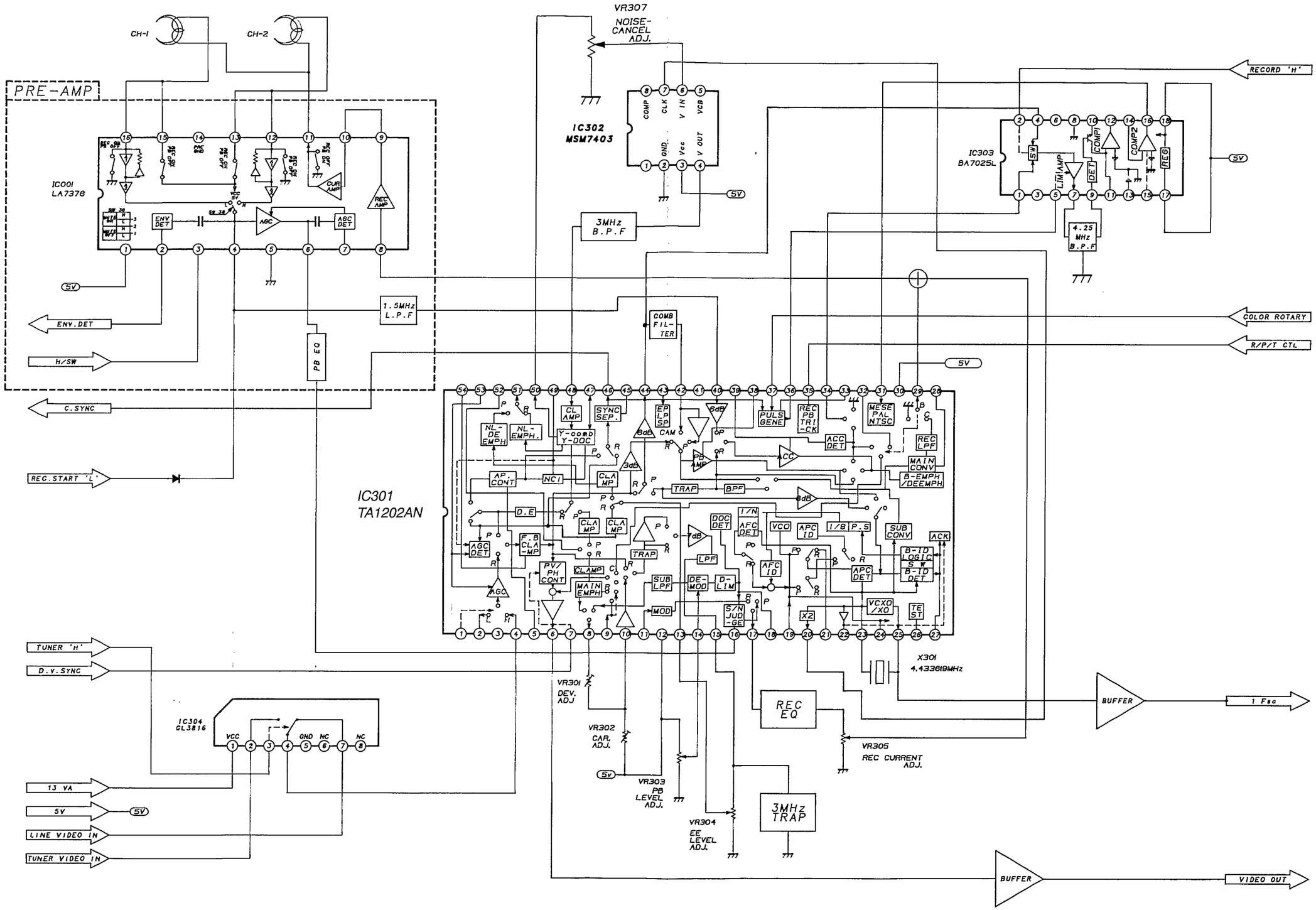
1. Power Block Diagram



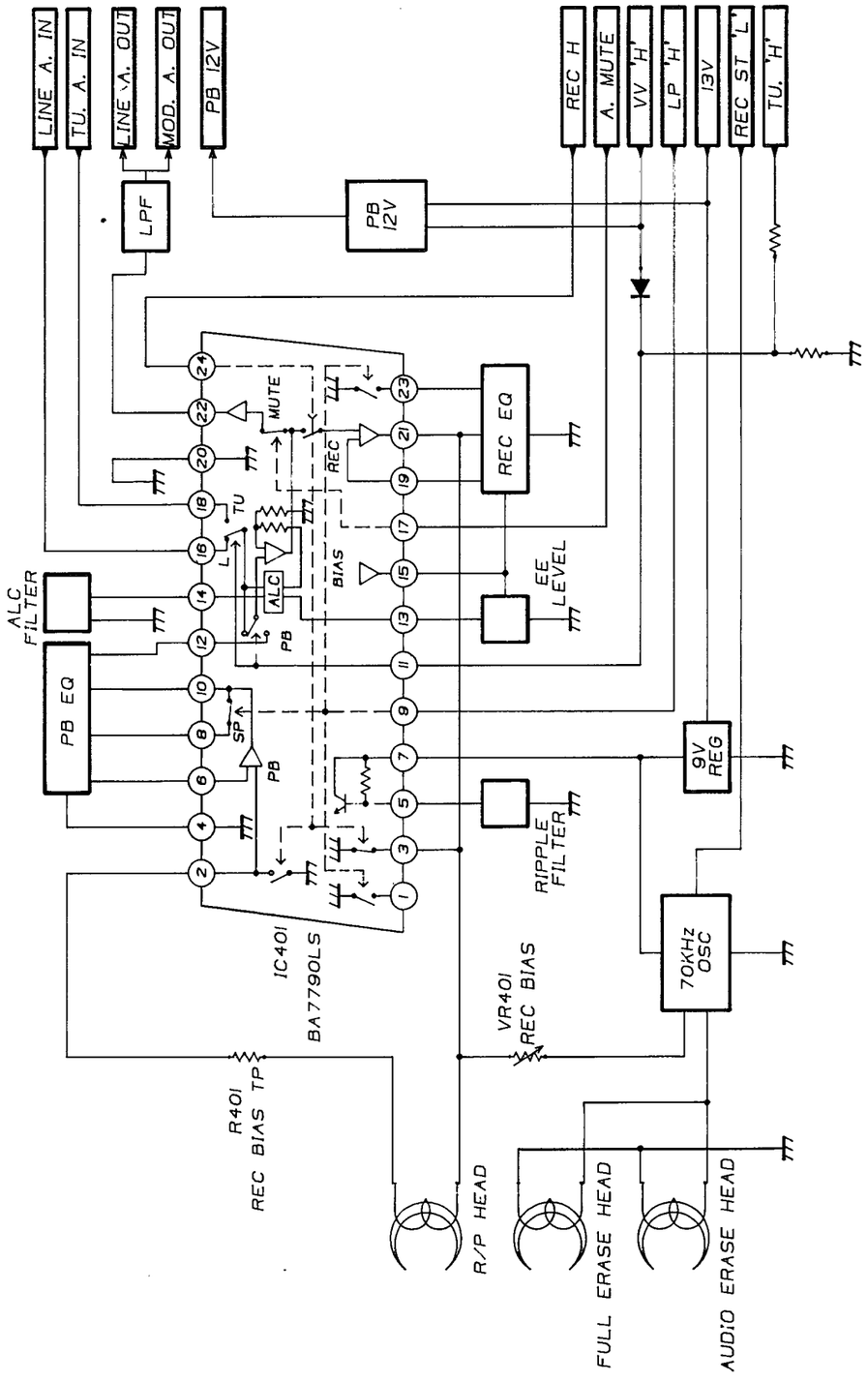
2. Main System(Servo,Syscon,Timer) Block Diagram



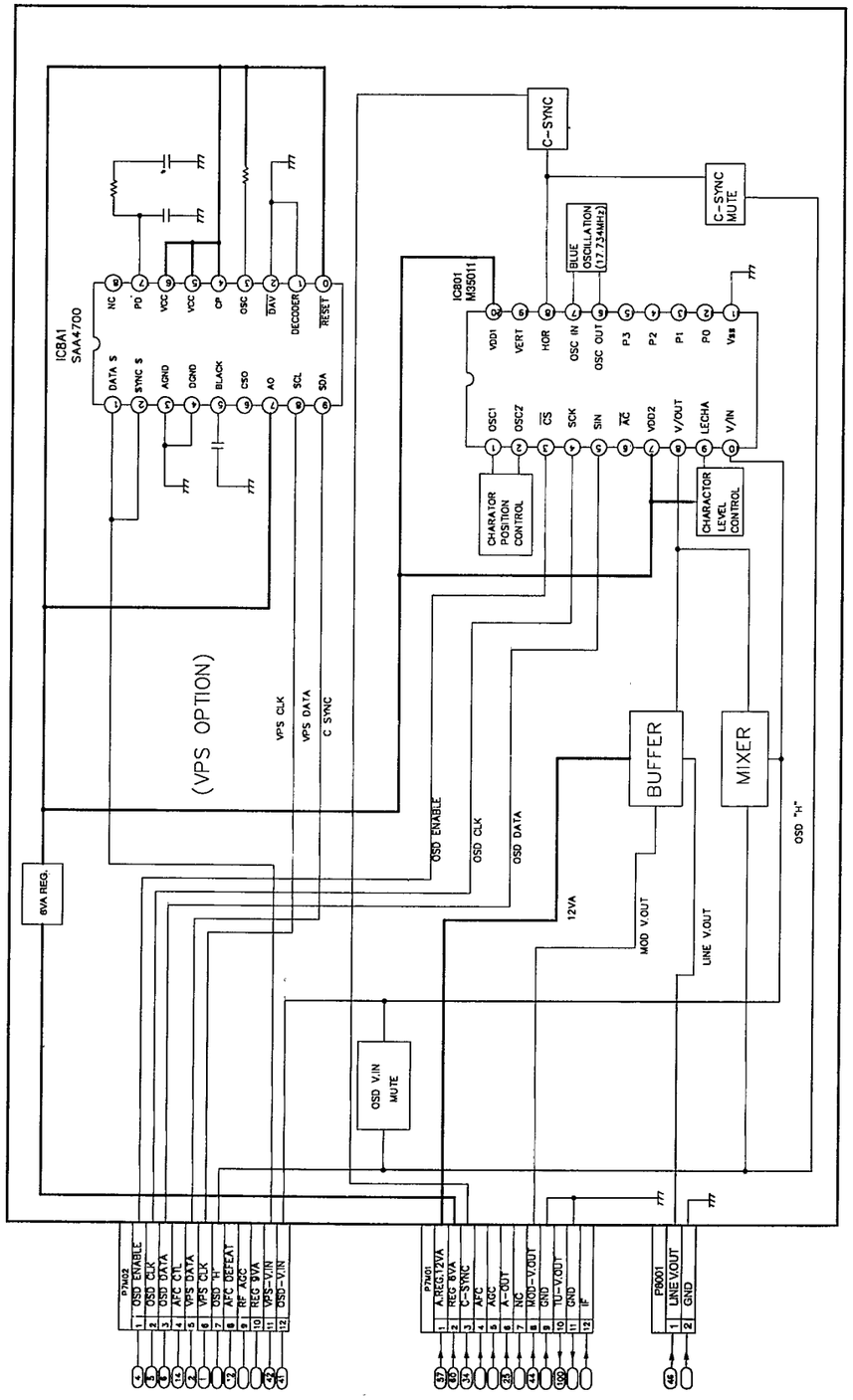
3. Y/C & Pre-Amp Block Diagram



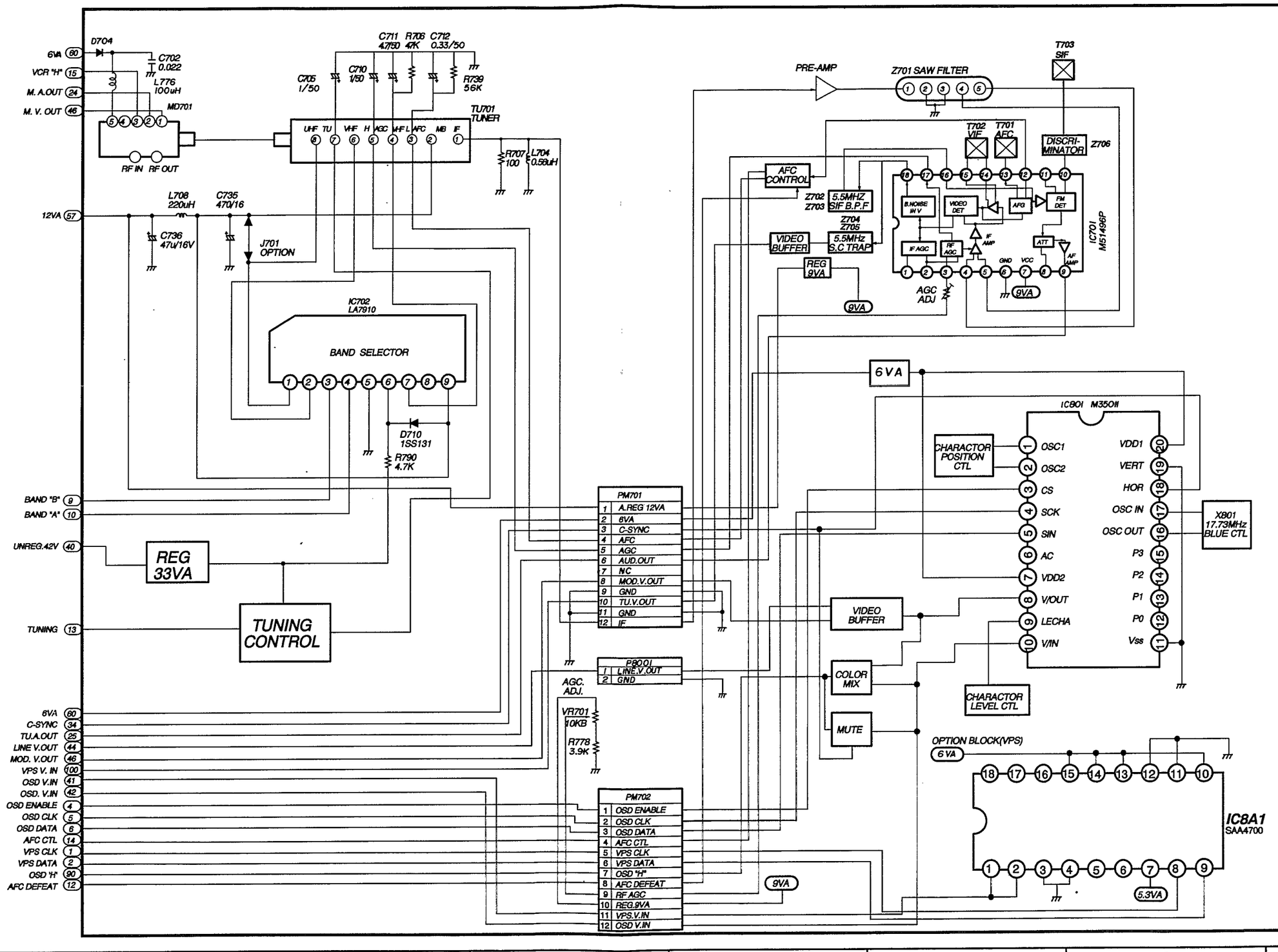
4. Audio Block Diagram



5. Function OSD/VPS Block Diagram



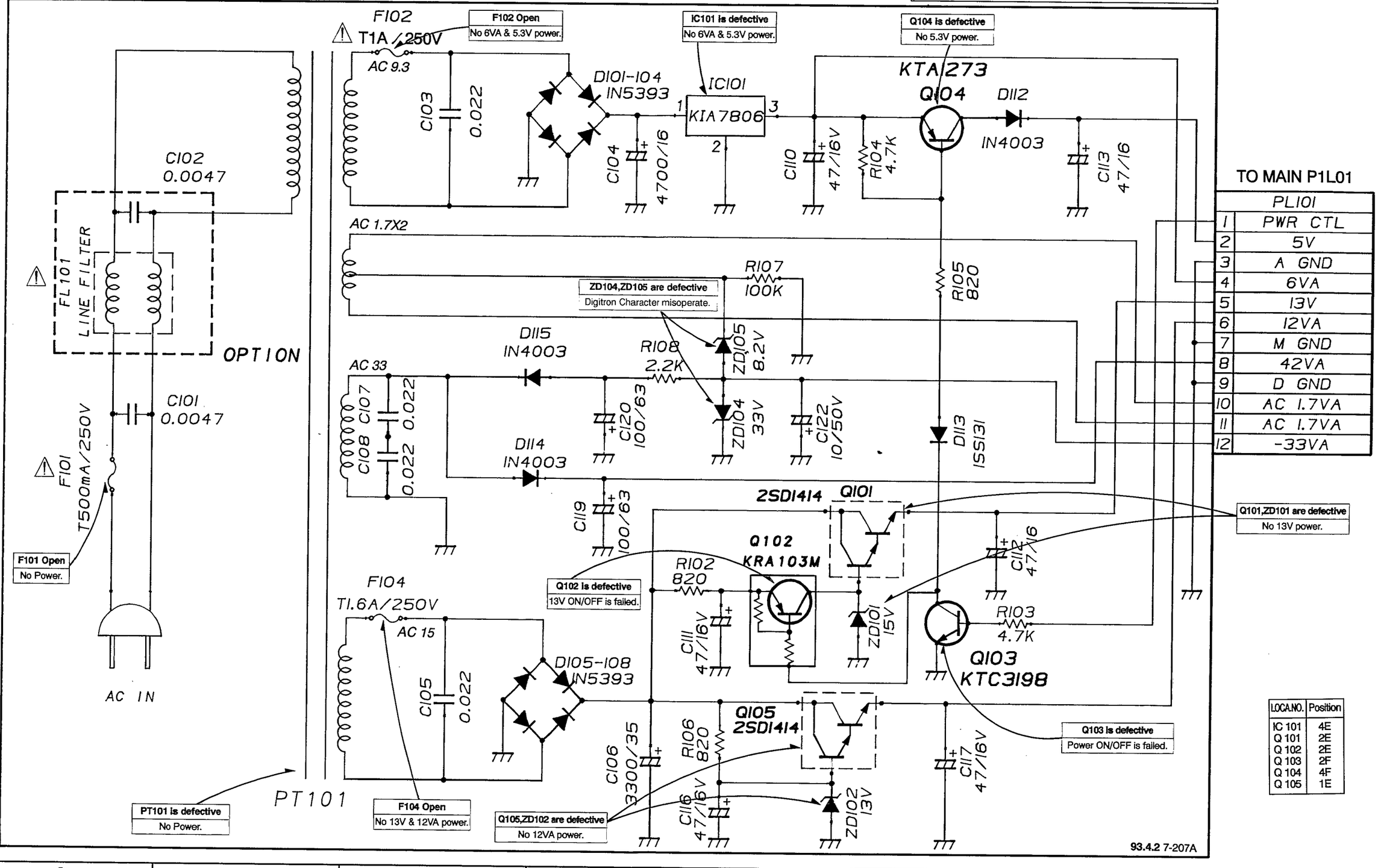
6. Tuner/IF Block Diagram



CIRCUIT DIAGRAMS

1. Power Circuit Diagram

NOTE) The components identified by mark ⚠ are critical for safety.
Replace only with part number specified.

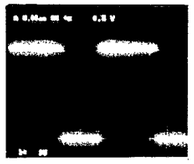


TO MAIN P1L01

PLI01	
1	PWR CTL
2	5V
3	A GND
4	6VA
5	13V
6	12VA
7	M GND
8	42VA
9	D GND
10	AC 1.7VA
11	AC 1.7VA
12	-33VA

LOCA.NO.	Position
IC 101	4E
Q 101	2E
Q 102	2E
Q 103	2F
Q 104	4F
Q 105	1E

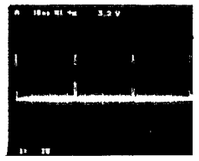
* Servo Oscilloscope Waveform

① 

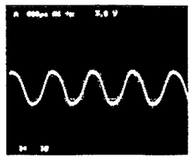
IC201 Pin①
TRK TRIGGER

② 

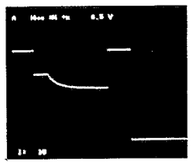
IC201 Pin⑥
PG M.M

③ 

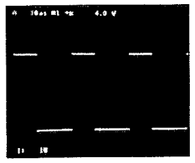
IC201 Pin⑦
DRUM P.G

④ 

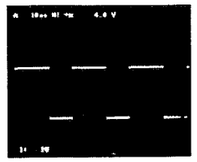
IC201 Pin⑨
DRUM F.G

⑤ 

IC201 Pin㉗
SLOW CONTROL

⑥ 

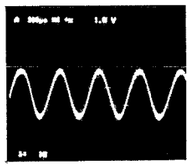
IC201 Pin㉙
REC CTL

⑦ 

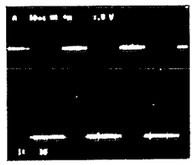
IC201 Pin㉚
REC CTL

⑧ 

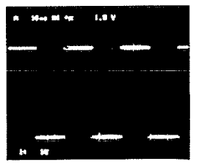
IC201 Pin㉟
REC CTL

⑨ 

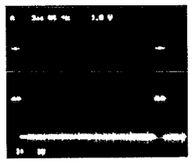
IC201 Pin㊲
CAPSTAN F.G

⑩ 

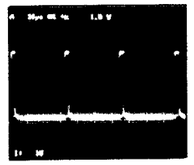
IC201 Pin㊴
CLOCK CTL

⑪ 

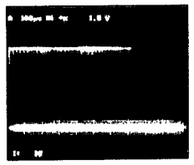
IC201 Pin㊺
SW25

⑫ 

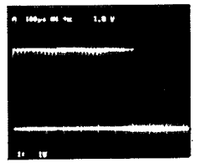
IC201 Pin㊽
DV. SYNC

⑬ 

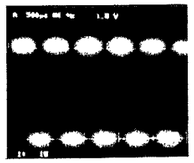
IC201 Pin㊿
COMPOSITE SYNC

⑭ 

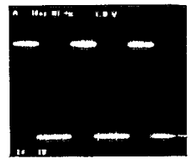
IC201 Pin㊸
SERIAL DATA

⑮ 

IC201 Pin㊹
SERIAL CLOCK

⑯ 

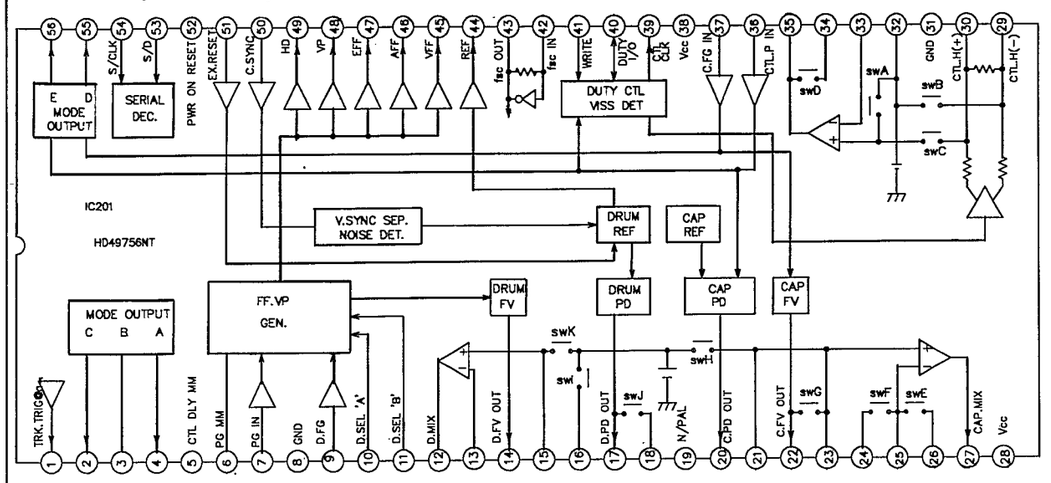
IC201 Pin㊺
CFG C.D

⑰ 

IC201 Pin㊻
CTL C.D

* Servo IC and TR Voltage Sheet

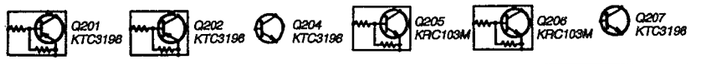
IC 201(HD49756NT)



RECORD MODE	5	2.5	0.7	1.1	3.8	5	0.9	0	0	2.5	0	2.5	2.6	2.6	2.6	0	5	3.6	5	2.4	2.5	2.5	2.5	2.5	2.5	0	2.7	2.1
PLAYBACK MODE	2	2.5	0.7	1.1	3.8	5	0.2	0	0	2.5	2.5	2.5	2.6	2.6	2.6	0	5	2	5	2.	2.5	2.5	2.5	2.5	2.5	0	2.5	2.5

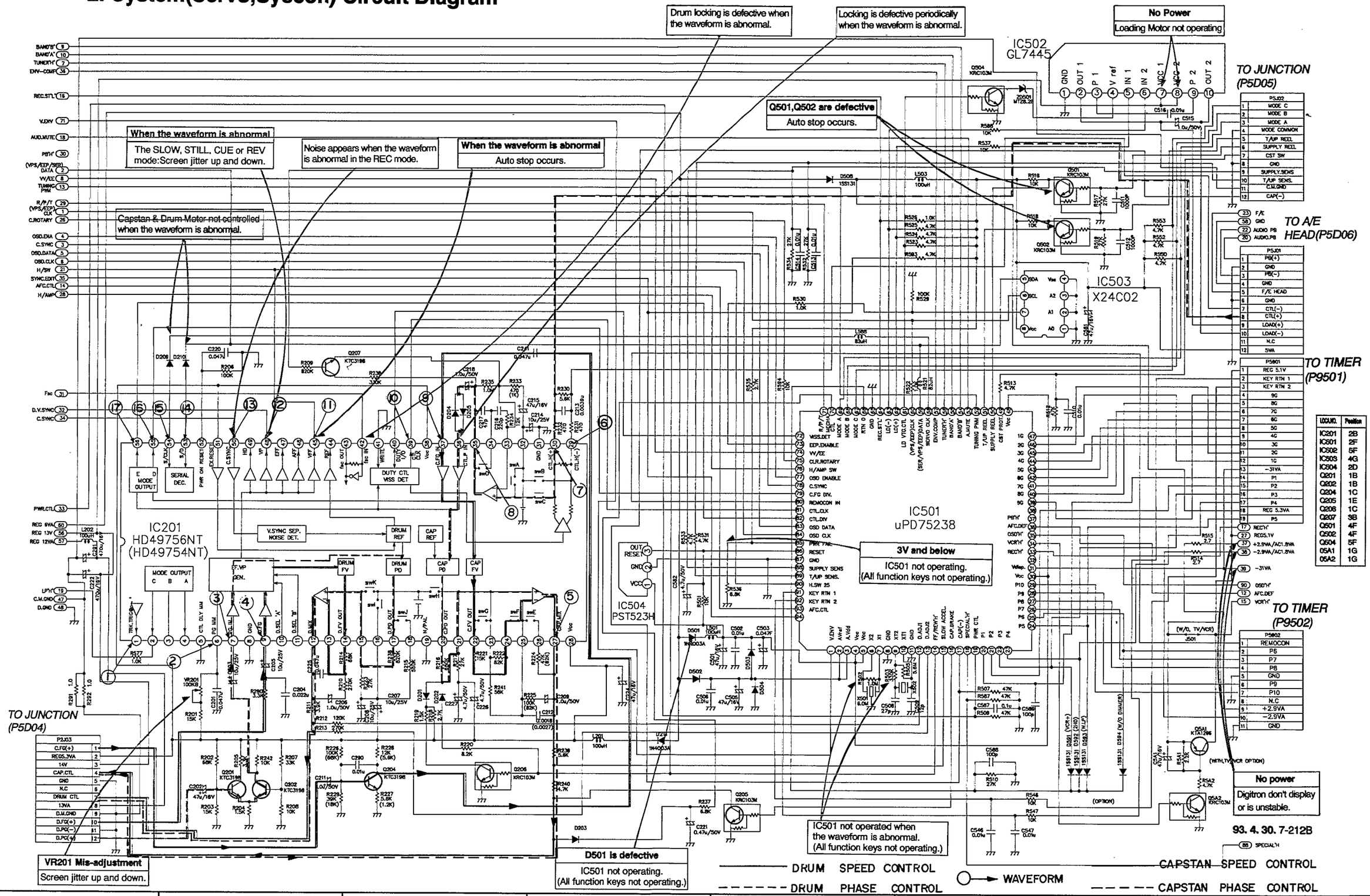
PLAYBACK MODE	3.6	0	0	5	0	0.2	2.1	0	2.7	2.7	2.7	1.4	2.5	2.5	2.5	2.5	2.5	2.4	0	2.5	2.5	2.5	2.5	2.5	2.5	2.7	2.7	5
RECORD MODE	3.6	0	0	5	0	0.2	2.1	0	2.7	2.7	2.7	1.4	2.5	2.5	2.5	2.5	2.5	2.4	0	2.5	2.5	2.5	2.5	2.5	2.5	2.6	2.7	5

Servo TR Voltage Sheet



PORT	MODE	Q201	Q202	Q204	Q205	Q206	Q207
EMITTER	PLAYBACK	0.5	0.5	0.4	0	0	2.5
	RECORD	0.5	0.5	0.4	0	0	2.5
BASE	PLAYBACK	0.9	1.1	1	0	0	0
	RECORD	0.9	1.1	1	0	0	0
COLLECTOR	PLAYBACK	5	1.4	3	2.7	5	2.4
	RECORD	5	1.4	3	2.7	5	2.4

2. System(Servo,Syscon) Circuit Diagram



LOCAT.	Position
IC201	2B
IC501	2F
IC502	5F
IC503	4G
IC504	2D
Q201	1B
Q202	1B
Q204	1C
Q205	1E
Q206	1C
Q207	3B
Q501	4F
Q502	4F
Q504	5F
D5A1	1G
D5A2	1G

3. Tuner/IF Circuit Diagram

LOCA.NO.	Position
IC701	3F
IC702	4C
Q702	2E
Q707	4F
Q709	3D
Q710	4D
Q711	4D
Q712	2F
Q713	2E
Q720	3B
Q721	2B

If 5.3VA doesn't input
RF.Line(Modulator) Video signal doesn't appear.

If 12VA doesn't input
Tuning is failed.

IC702 is defective or Band A,B terminal of μ-com is defective.
Tuning(Band Selection) is failed.

No 42V or tuning PWM
Tuning is failed.

AGC Mis-adjustment (VR701 Mis-adjustment)
Picture is defective and F.OSD Blue appears on the TV.

D701,D702,D703,ZD702 are defective
Tuning is failed.

Connector contact is defective
Tuning is failed or No Video signal.

Q709 is defective or nothing 5V at the Q709 Base terminal.
NOR/PRE switching is failed.

IC701 is defective
No Video signal.

Z706 is defective
Audio distortion is increased.

T701,T702 Mis-adjustment
Tuning is failed, "shoot" appears on the video signal or noise occurs on the audio signal.

Q713 is defective
Tuning is failed.

Q702 is defective
No Video signal.

ZD701,Q712 are defective (If 9V doesn't Input)
Tuning is failed(IC701 not operating).

TO P7M01

PM701	
1	A.REG 12VA
2	6VA
3	C-SYNC
4	AFC
5	AGC
6	AUD.OUT
7	LINE.V.OUT
8	MOD.V.OUT
9	GND
10	TU.V.OUT
11	GND
12	IF

TO P7M02

PM702	
1	OSD ENABLE
2	OSD CLK
3	OSD DATA
4	AFC CTL
5	VPS CLK
6	VPS DATA
7	OSD "H"
8	AFC DEFEAT
9	RF AGC
10	REG.9VA
11	VPS.V.IN
12	OSD.V.IN

93.7.26.7-213D

AUDIO SIGNAL — VIDEO SIGNAL — WAVEFORM — SIF SIGNAL — IF SIGNAL

* Tuner/IF IC Voltage Sheet

IC701(M51496P) : 09CH 70dB color bar normal mode.

Pin	Pin Function	DC Volt	Waveform
1	IF AGC 1 (Control the VIF Amp of the IC)	4.43±0.01V	—
2	IF AGC 2 (Control the VIF Amp of the IC)	4.43±0.01V	—
3	RF AGC Control (Control the RF Amp of the Tuner)	2.45V	—
4	VIF Input	2.39±0.01V	41.2mVp-p
5	VIF Input	2.39±0.01V	41.2mVp-p
6	Ground	0V	—
7	Vcc (IC Main Voltage)	8.99±0.01V	—
8	Electronic ATT Control (Audio out level control)	6.9V	—
9	Audio Output	1.81±0.01V	1.44Vp-p
10	FM Detector (Audio Detection)	3.61V	149mVp-p
11	Deemphasis	6V	1.075Vp-p
12	AFT	5.42V	206mVp-p
13	AFT Output	3.76V	
14	Video Detector Coil	4.87V	—
15	Video Detector Coil	4.87V	—
16	SIF Input (Sound Frequency Input)	2.75V	206mVp-p
17	RF AGC Output (Control the RF Amp of the Tuner)	4.45V	—
18	Video Output (Include the sound signal)	3.53V	2.21Vp-p

* Tuner/IF TR Voltage Sheet

09CH, 70dB(203.25MHz) color bar normal mode.

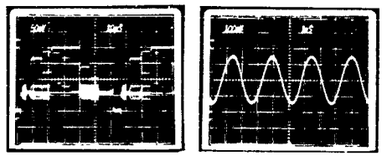
TR No. \ Port	Emitter	Collector	Base
Q702	2.89	12.1	3.55
Q707	1.19	10.18	1.9
Q709	0	12.03	0
Q710	3,48	4.06	3.5
Q711	12.07	3.48	12.03
Q712	9.1	12.13	9.81
Q713	2.94	12.13	3.53
Q720	42.3	32.9	41.6
Q721	0	9.33	0.38

TUNER

IF	MB	AFC	V_L	AGC	V_H	TU	UHF
0	11.78	3.52	0	3.86	11.63	9.55	0

* Tuner/IF Waveform

① ②

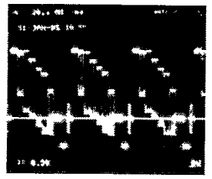


* Y/C TR Voltage Sheet

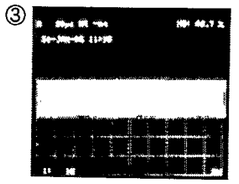
(PB/REC mode)

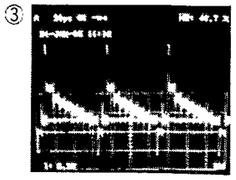
TR No. \ Port	Emitter	Collector	Base	Remark
Q301	0/0	0/0	0/0	
Q302	2.68/2.8	0/0	1.99/2.19	
Q304	4.3/4.3	4.9/4.95	4.9/4.95	
Q305	0/1.78	0/0	1.08/1.15	
Q307	0.73/0.73	3.6/3.59	1.35/1.34	
Q308	4.95/4.94	0.09/0.09	4.9/4.92	PAL mode
	4.95/4.95	4.8/4.8	0.1/0.1	SECAM mode
Q309	2.38/2.38	4.96/4.95	3.01/2.99	
Q313	0/0	4.5/4.5	0.17/0.17	
Q314	1.14/1.13	0/0	0/0.49	
Q315	0/0	4.9/4.92	0/0	PAL mode
	0/0	0.1/0.1	4.2/4.2	SECAM mode
Q317	2.7/2.8	0/0	2.09/2.19	
Q318	2.6/2.75	4.9/4.95	3.29/3.4	
Q320	0/0	0.6/0.8	0/0	
Q321	2.4/2.2	0.12/4.7	3.02/2.8	
Q325	0/0	0/0	0/0	SP mode
	0/0	0/0	5/5	LP mode

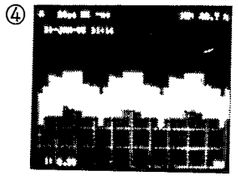
* Y/C Waveform

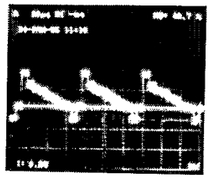
① 
IC 301 Pin ④
Line Input
(200mV/20μsec)

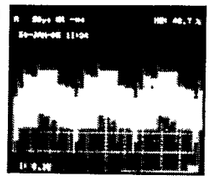
② 
Q 302 Base
PB Output
(500mV/20μsec)

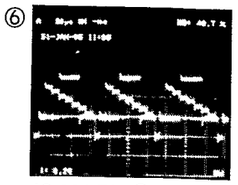
③ 
IC 301 Pin ⑧
PB mode
(1V/20μsec)

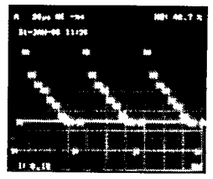
③ 
IC 301 Pin ⑧
REC mode
(200mV/20μsec)

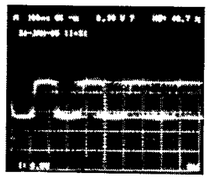
④ 
IC 301 Pin ⑨
PB mode
(200mV/20μsec)

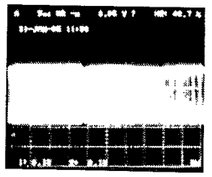
④ 
IC 301 Pin ⑨
REC mode
(200mV/20μsec)

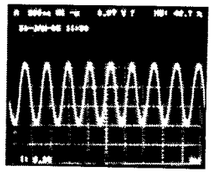
⑤ 
IC 301 Pin ⑪
PB mode
(100mV/20μsec)

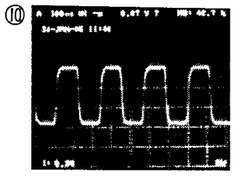
⑥ 
IC 301 Pin ⑬
PB mode
(200mV/20μsec)

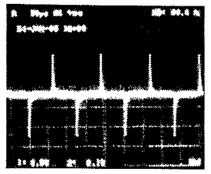
⑥ 
IC 301 Pin ⑬
REC mode
(100mV/20μsec)

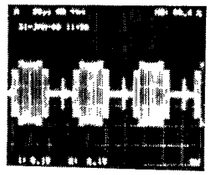
⑦ 
IC 301 Pin ⑰
REC FM output
(500mV/100nsec)

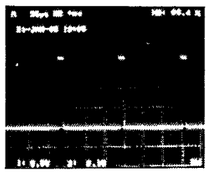
⑧ 
IC 301 Pin ⑱
PB mode
(100mV/5msec)

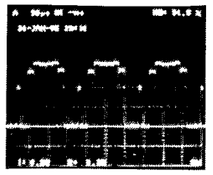
⑨ 
IC 301 Pin ㉓
REC/PB mode
(200mV/200nsec)

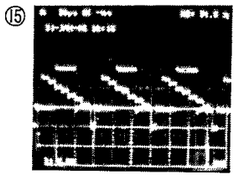
⑩ 
IC 301 Pin ㉕
REC/PB mode
(200mV/100nsec)

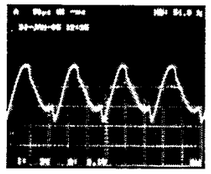
⑪ 
IC 301 Pin ㉗
REC/PB mode
(100mV/50μsec)

⑫ 
IC 301 Pin ㉘
REC mode
(100mV/20μsec)

⑬ 
IC 301 Pin ㊱
(100mV/20μsec)

⑭ 
IC 301 Pin ㊳
(200mV/20μsec)

⑮ 
IC 301 Pin ㊶
REC/PB mode
(200mV/20μsec)

⑯ 
IC 303 Pin ⑪
1/2 fH Resonance
(2V/50μsec)

* Switching IC
IC 304(GL3816)

PB(REC)

1	2	3	4	5	6	7	8
12V (11.9V)	8.2 / 7 — 8V (7.8V)	5V (5.1V)	7.5 / 6.5 — 7.25V (7.1V)	0 (0)	0 (0)	6.8V (7.8V)	0 (0)

* Y/C IC Voltage Sheet.

IC 301 (TA1202AN)

Pin	Mode	Pin Function	DC Volt.	AC Waveform
1	PB	—	0	—
	REC	TU/Line Control	0	—
2	PB	—	2.1	—
	REC	Line AGC Input	2.1	—
3	PB	Y. GND	0	—
	REC		0	—
4	PB	—	2.1	2.8 / 1.6
	REC	TUNER AGC Input	2.1	
5	PB	Picture Control	2.4	—
	REC	—	2.4	—
6	PB	V. Out	1.9	PB 3.4 / 0.6; REC 3.8 / 0.7
	REC		2.2	
7	PB	D.V	0	—
	REC	Sync Input	0	
8	PB	Main Deemphasis	2.7	3.5 / 1.1
	REC	Main Emphasis Output	2.4	2.7 / 2.1
9	PB	Y/C Mix off Control	2.3	PB 2.8 / 2; REC 2.7 / 2.1
	REC	Main Emphasis Feedback	2.4	
10	PB	Y-EPF Input	2.65	2.9 / 2.5
	REC	—	2.66	
11	PB	—	3.28	3.6 / 3
	REC	FM-Modulator Input	2.2	—
12	PB	Y - Vcc	4.9	—
	REC		4.9	
13	PB	N.L Deemphasis Input	2.8	PB 3.2 / 2.4; REC 3 / 2.3
	REC	Detail Enhancer Input	2.7	
14	PB	PB Level Adjustment	3.2	—
	REC		3.2	
15	PB	Y-LPF Output	2	2.8 / 1.3
	REC		2.2	2.8 / 1.5
16	PB	S-VHS Discrimination Filter	0.7	0.8 / 0.6
	REC	—	0.77	0.9 / 0.7

Pin	Mode	Pin Function	DC Volt.	AC Waveform
17	PB	S-VHS Discrimination Output	3.4	—
	REC	FM Output	2.14	3 / 1.3
18	PB	PB FM Input	3.18	3.4 / 3.0
	REC	—	4.3	—
19	PB	VCC Filter	2.2	—
	REC		2.2	
20	PB	X2FSC Output	5	5 / 4.8
	REC		4.95	
21	PB	APC-IC Filter	2.5	—
	REC	V CXO Filter	2.5	
22	PB	Color Killer	2	—
	REC		1.9	
23	PB	VCXO,XO Feedback Input	3	3.4 / 2.6
	REC		3	
24	PB	—	2.2	—
	REC		2.2	
25	PB	X-TAL Drive Output	3	PB 3.4 / 2.4; REC 3.2 / 2.3
	REC		2.84	
26	PB	—	1.8	1.9 / 1.7
	REC		1.85	
27	PB	Burst-ID	2.8	1field; PB 4 / 1.6; REC 3.8 / 1.7
	REC		2.82	
28	PB	Carrier Balance Adjustment Filter	1.4	—
	REC		1.3	
29	PB	External Croma Input Bias	1.7	—
	REC	Low Band Color Output	2.75	1.9 / 1.4
30	PB	Croma-Vcc	4.6	—
	REC		4.6	
31	PB	PAL/MESECAM Control Terminal	2.35	—
	REC		2.3	
32	PB	External Croma Input	2.6	—
	REC		2.6	
33	PB	B.G.P Filter	2.7	—
	REC		2.7	
34	PB	ACC DET	2.15	PB 2.6 / 1.6; REC 2.5 / 1.6
	REC		2.14	
35	PB	Trick mode Control	2.3	—
	REC		4.8	

Pin	Mode	Pin Function	DC Volt.	AC Waveform
36	PB	Burst Gate Output	0.17	2 / 0
	REC		0.17	
37	PB	Color Rotary Input	1.5	3 / 0
	REC		1.56	
38	PB	Croma AP Edge Detect Filter	2.97	—
	REC	—	3	—
39	PB	ACC DET. Filter	3.4	—
	REC		2.8	
40	PB	Low Band Croma Input	2.56	2.6 / 2.4
	REC	—	1.4	—
41	PB	Croma G.N.D.	0	—
	REC		0	
42	PB	COMB Filter Input	2.49	PB 2.6 / 2.4; REC 2.4 / 0.2
	REC	—	2.4	
43	PB	SP. LP Control Terminal	0	—
	REC		0	
44	PB	COMB Drive Output	2.2	2.7 / 1.8
	REC		2.47	3 / 2
45	PB	SYNC Separation Filter	3.4	—
	REC		3.1	
46	PB	C.SYNC Output	0.39	4.6 / 0
	REC		0.4	
47	PB	Y-COMB Filter	2.4	—
	REC		2.5	
48	PB	Y-COMB 1H Band Input	2.76	PB 3.2 / 2.4; REC 3 / 2.3
	REC		2.7	
49	PB	N.C.C Gain Adjustment	3	—
	REC	—	2.9	
50	PB	Y-COMB CCD Drive	2.3	PB 2.6 / 1.8; REC 2.5 / 1.9
	REC		2.26	
51	PB	NL-Deemphasis Output	2.18	PB 2.6 / 1.8; REC 2.9 / 2.3
	REC	NL-Emphasis Output	2.7	
52	PB	Y-COMB Input	2.76	PB 3.2 / 2.4; REC 3.4 / 2.7
	REC	1/2f_H Shift	3	

Pin	Mode	Pin Function	DC Volt.	AC Waveform
53	PB	—	2.1	—
	REC	AGC DET Filter	2.2	
54	PB	F.B Clamp Filter	2.9	—
	REC		3	

* CCD
IC 302(MSM7403)

PB(REC)

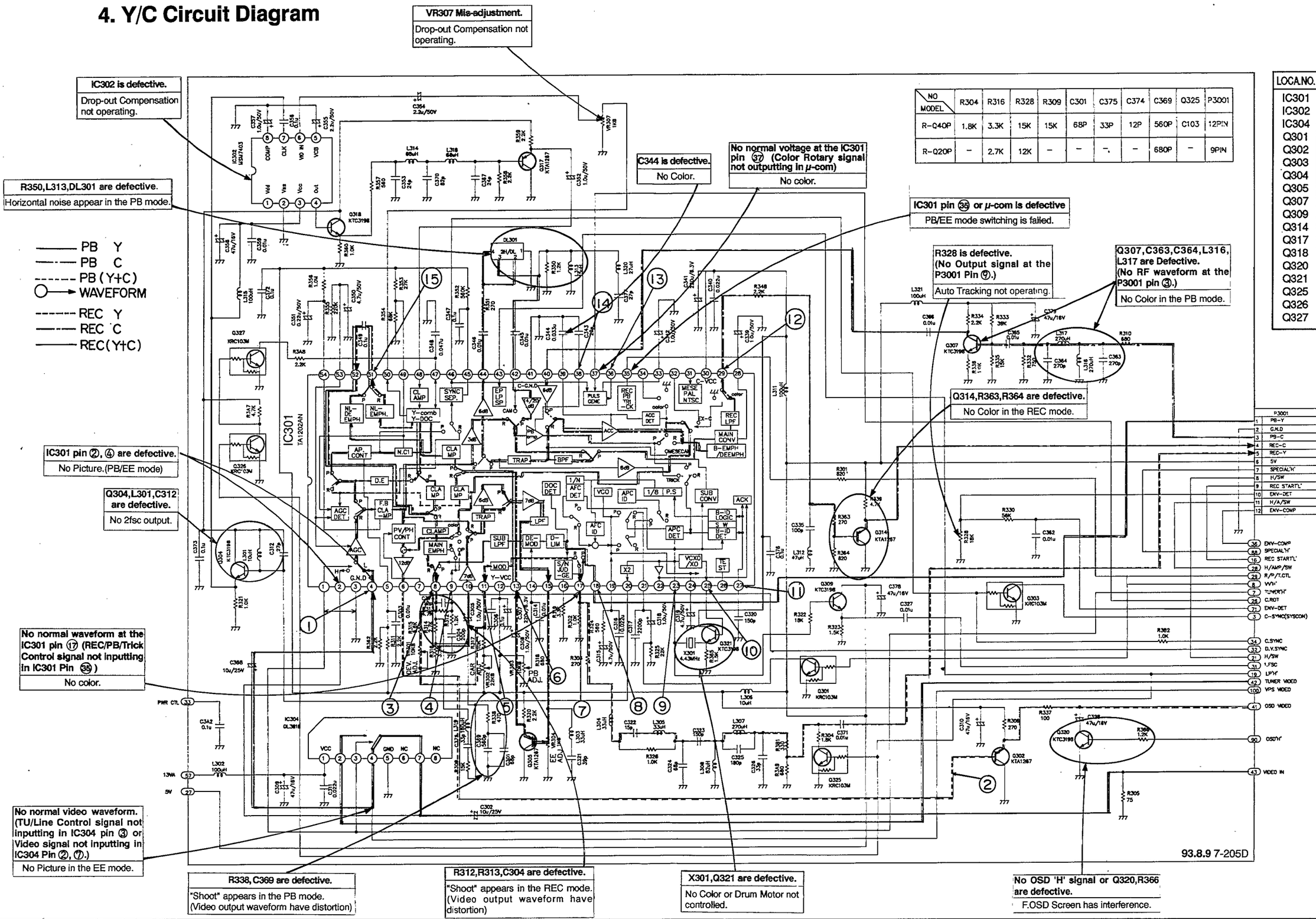
Pin No.	Voltage
1	0(0)
2	0(0)
3	4.8V(4.98V)
4	3.7 / 2.7 — 3.28V(3.38V)
5	2V(2.1V)
6	2.4 / 1.8 — 2.09V(2.16V)
7	2.7 / 2.3 — 2.53V(2.56V)
8	8.2V(8.47V)

* MESECAM
IC 303(BA7025L)

PB(REC)

Pin No.	Voltage
1	3.5V(3.6V)
2	0.2Vp-p — 0(0)
3	0(0)
4	3.5V(0)
5	5V / -0.7V — 4.57V(4.56V)
6	0(0)
7	4.4 / 3.2 — 4.4V(4.4V)
8	0(0)
9	3V(3V)
10	0(0)
11	3.7V(3.46V)
12	0(4.2V)
13	3.7V(3.49V)
14	0(4.15V)
15	0(0)
16	0(4.3V)
17	4.9(4.99V)
18	4.9(4.99V)

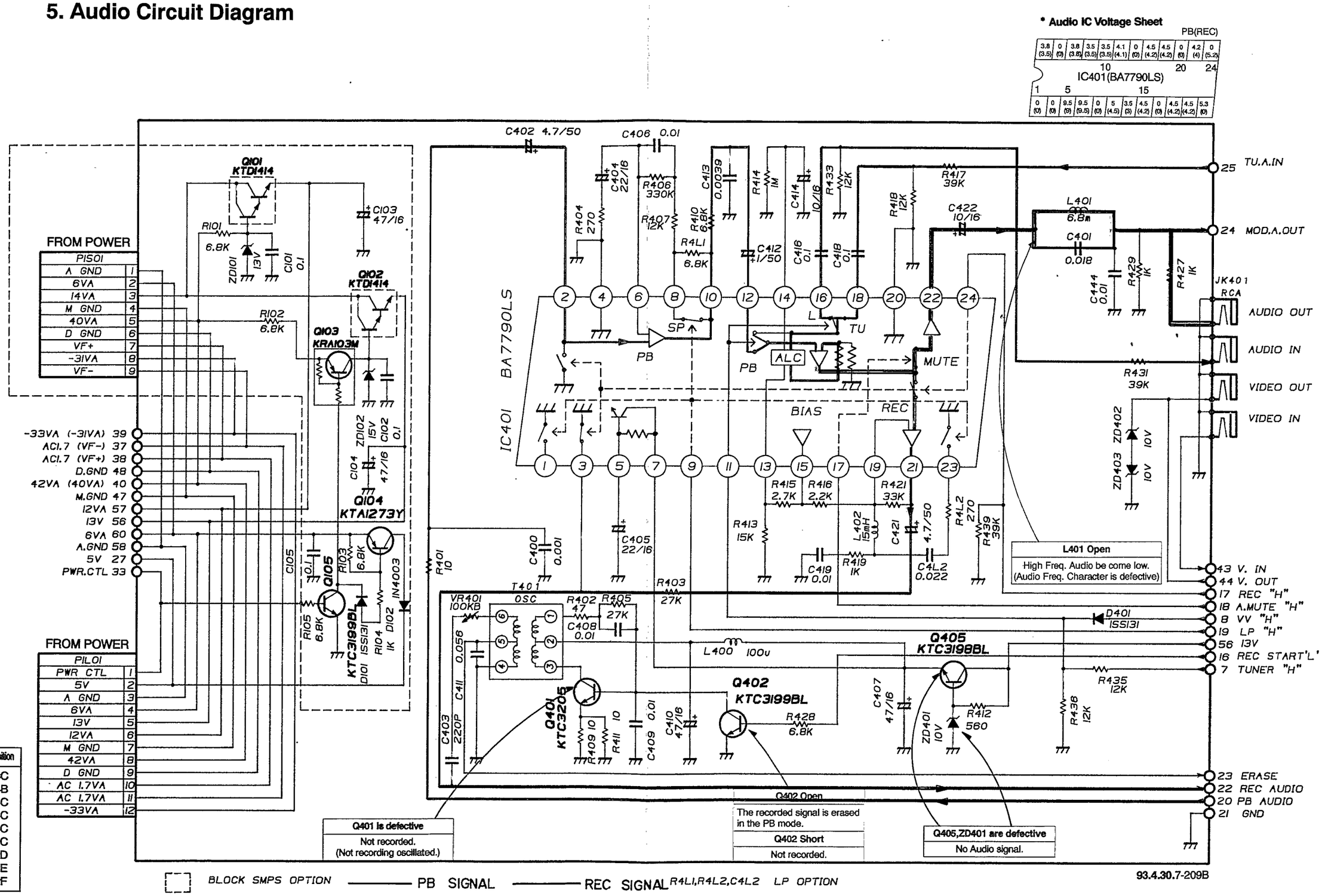
4. Y/C Circuit Diagram



NO / MODEL	R304	R316	R328	R309	C301	C375	C374	C369	Q325	P3001
R-Q40P	1.8K	3.3K	15K	15K	68P	33P	12P	560P	C103	12PIN
R-Q20P	–	2.7K	12K	–	–	–	–	680P	–	9PIN

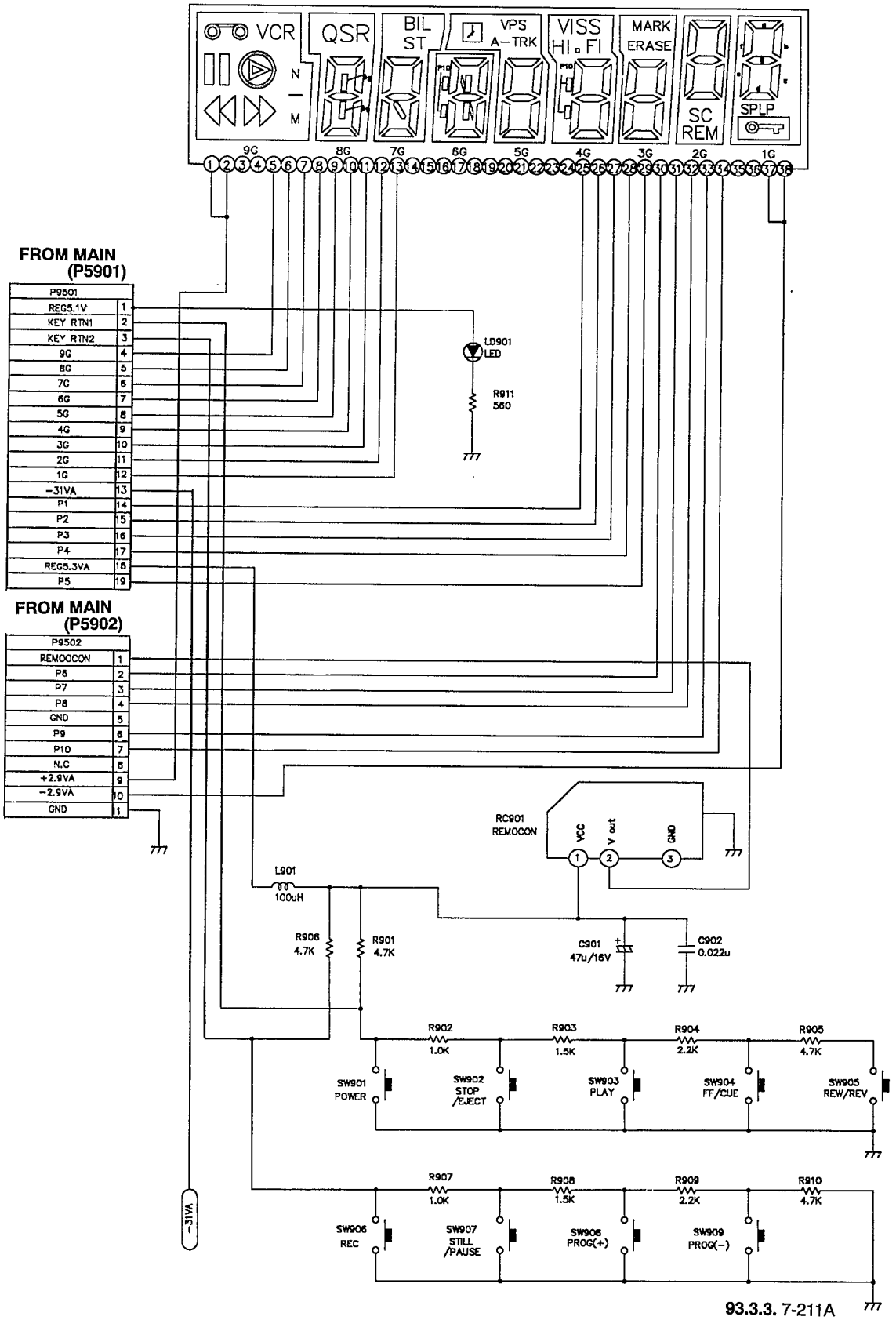
LOCA.NO.	Position
IC301	3B
IC302	5B
IC304	1B
Q301	2E
Q302	1F
Q303	2F
Q304	2A
Q305	1C
Q307	3F
Q309	2E
Q314	3E
Q317	4C
Q318	4B
Q320	1F
Q321	2D
Q325	1E
Q326	3B
Q327	3B

5. Audio Circuit Diagram



LOCA.NO.	Position
IC401	3C
Q101	4B
Q102	4C
Q103	4C
Q104	3C
Q105	2C
Q401	2D
Q402	2E
Q405	2F

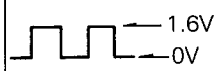
6. Timer Circuit Diagram



93.3.3. 7-211A

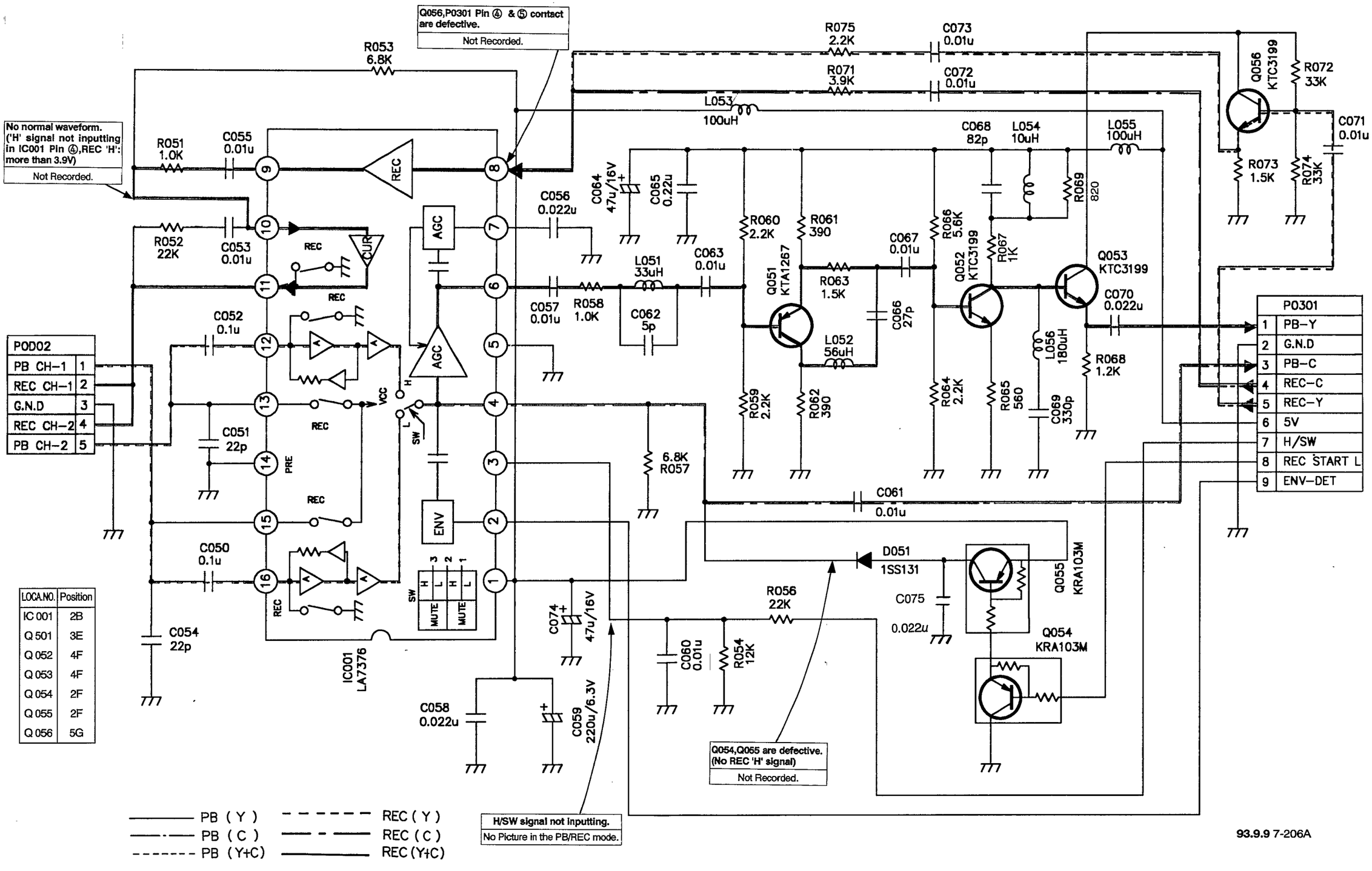
* Pre-Amp IC Voltage Sheet

IC001(LA7376)

Pin	Pin Function	DC Volt	Waveform
1	Vcc	5V	—
2	Detect the envelope signal and output	PB 2.8V	
		REC 0V	—
3	PB H/SW(25Hz) Input	PB	 1.6V 0V
	REC MUTE Control *Mute Control S/W ON H — 3V ON L — 2V OFF H — 1V OFF L	REC	
4	PB Chroma Output	PB 2V	 230mVp-p
	REC Control (REC mode : More than 3.8V)	REC 4V	—
5	Ground	0V	—
6	PB FM AGC Output	PB 2.4V	 300mVp-p
		REC 4V	—
7	PB FM AGC Detect	PB 0.8V	
		REC 0V	—
8	REC MIX AMP Input	PB 2V	—
		REC 1.6V	—
9	REC MIX AMP Output	PB 0V	—
		REC 1.8V	 800mVp-p
10	REC Current AMP Input	PB 1.5V	—
		REC 1.75V	—
11	REC Current AMP Output	PB 0V	—
		REC 4V	 4.4V
12	PB Pre-Amp Input	PB 0.7V	—
		REC 0V	—

Pin	Pin Function	DC Volt	Waveform
13	REC mode select S/W	PB 0V	—
		REC 4V	—
14	Ground	0V	—
15	REC mode select S/W	PB 0V	—
		REC 4V	—
16	PB Pre-Amp Input	PB 0.7V	—
		REC 0V	—

7. Pre-Amp Circuit Diagram

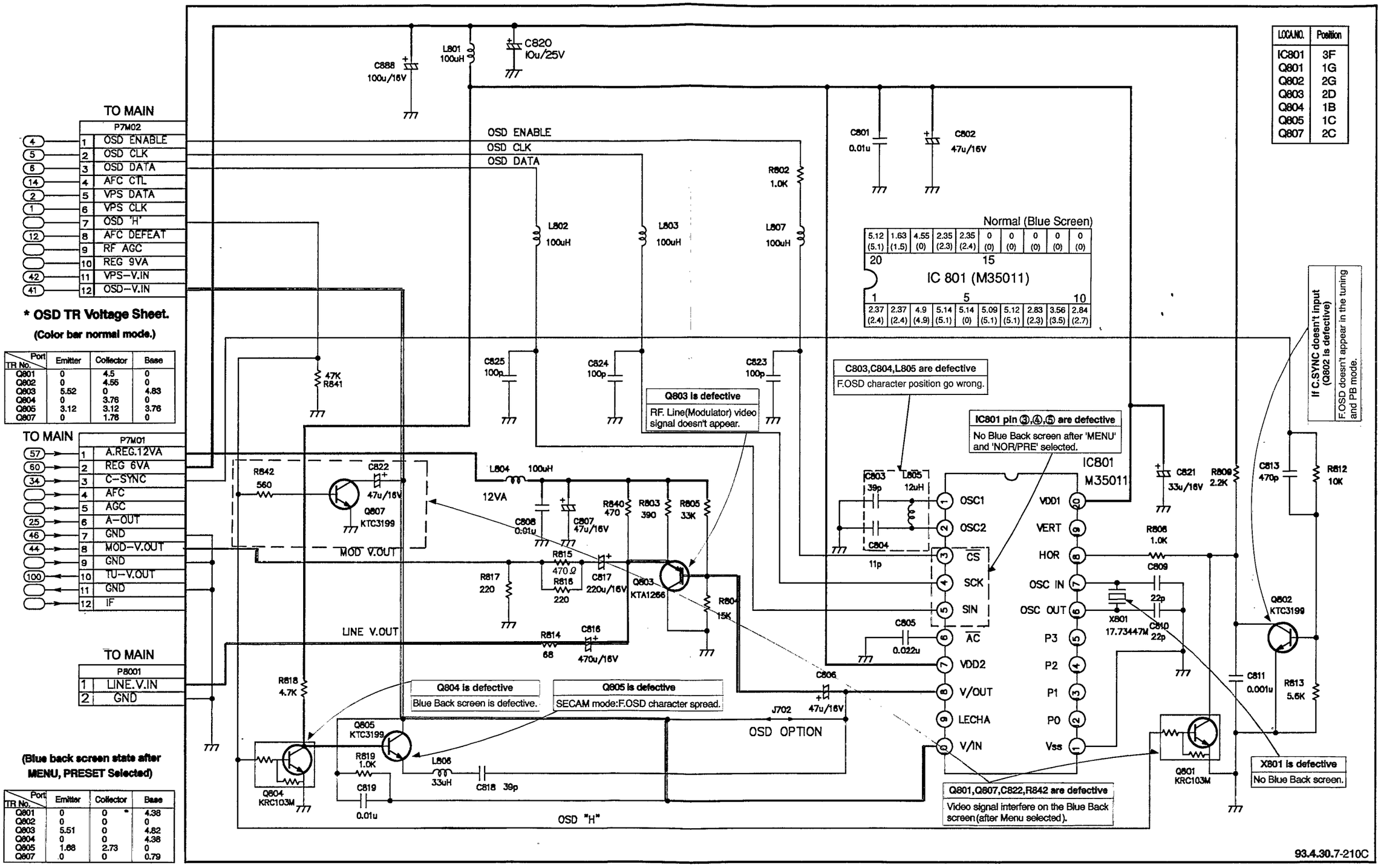


POD02	
PB CH-1	1
REC CH-1	2
G.N.D	3
REC CH-2	4
PB CH-2	5

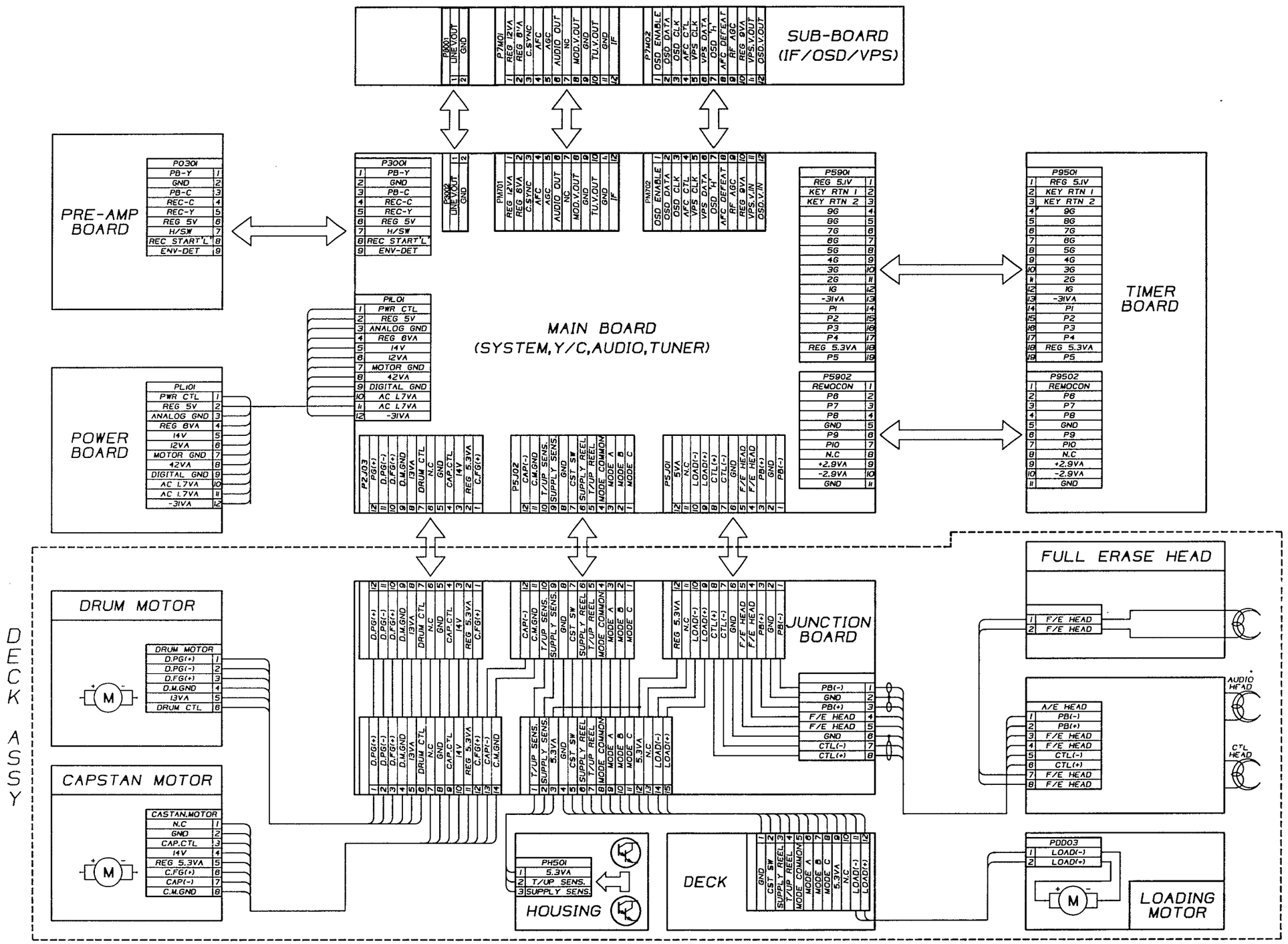
P0301	
1	PB-Y
2	G.N.D
3	PB-C
4	REC-C
5	REC-Y
6	5V
7	H/SW
8	REC START L
9	ENV-DET

LOCA.NO.	Position
IC 001	2B
Q 501	3E
Q 052	4F
Q 053	4F
Q 054	2F
Q 055	2F
Q 056	5G

8. Function OSD/VPS Circuit Diagram



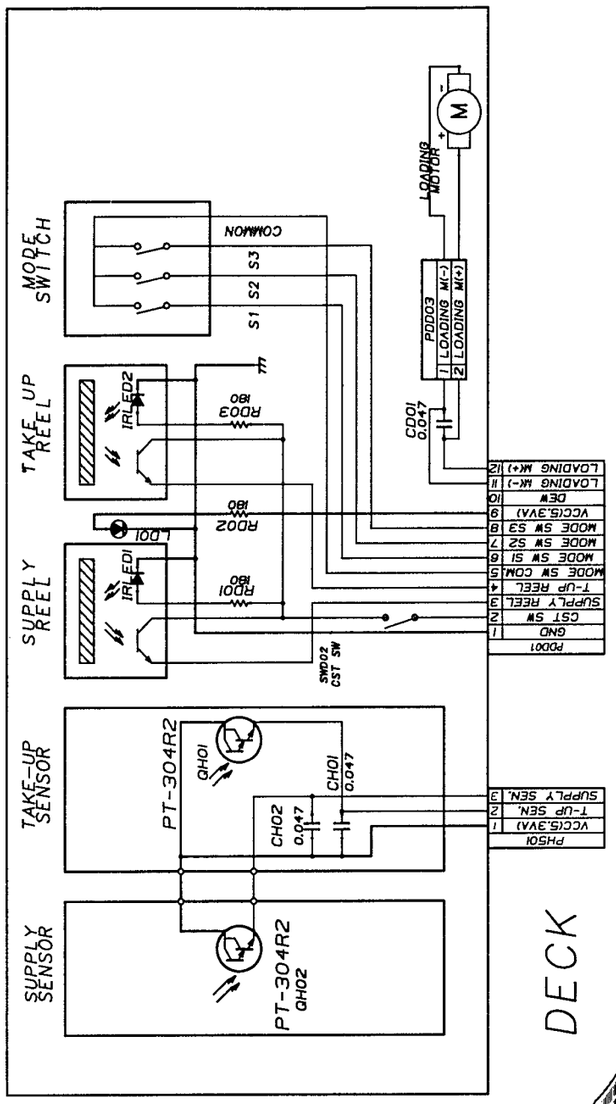
9. Connection Diagram



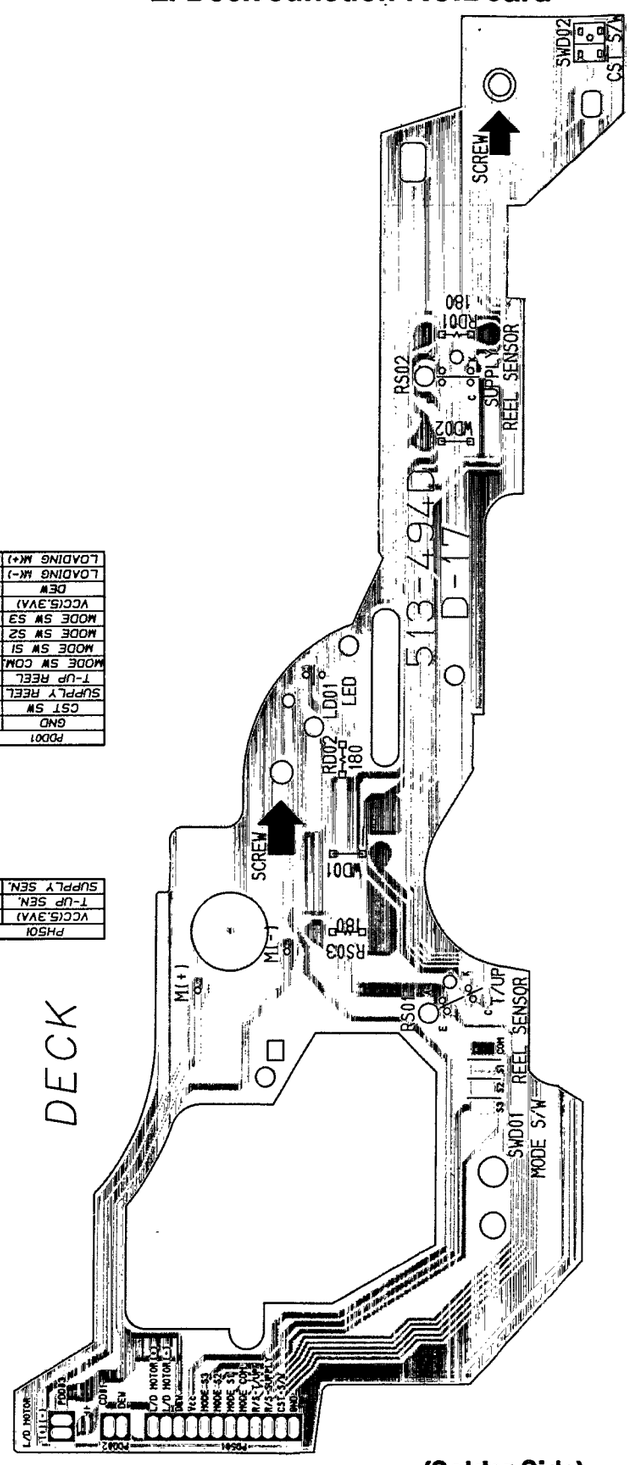
93.4.2 068B

DECK JUNCTION

1. Deck Junction Circuit Diagram



2. Deck Junction P.C.Board



(Solder Side)

* TR Voltage Sheet

TR No. \ Port	Emitter	Collector	Base	Remark
Q 201	0.5/0.5	5/5	0.9/0.9	PB/REC mode
Q 202	0.5/0.5	1.4/1.4	1.1/1.1	
Q 204	0.4/0.4	3/3	1/1	
Q 205	0/0	2.7/2.7	0/0	
Q 206	0.0	5/5	0/0	
Q 207	2.5/2.5	2.4/2.4	0/0	
Q 301	0/0	0/0	0/0	
Q 302	2.68/2.8	0/0	1.99/2.19	
Q 304	4.3/4.3	4.9/4.95	4.9/4.95	
Q 305	0/1.78	0/0	1.08/1.15	
Q 307	0.73/0.73	3.6/3.59	1.35/1.34	
Q 308	4.95/4.94	0.09/0.09	4.9/4.92	PAL mode.
	4.95/4.95	4.8/4.8	0.1/0.1	SECAM mode.
Q 309	2.38/2.38	4.96/4.95	3.01/2.99	
Q 313	0/0	4.5/4.5	0.17/0.17	
Q 314	1.14/1.13	0/0	0/0.49	
Q 315	0/0	4.9/4.92	0/0	PAL mode.
	0/0	0.1/0.1	4.2/4.2	SECAM mode.
Q 317	2.7/2.8	0/0	2.09/2.19	
Q 318	2.6/2.75	4.9/4.95	3.29/3.4	
Q 320	0/0	0.6/0.8	0/0	
Q 321	2.4/2.2	0.12/4.7	3.02/2.8	
Q325	0/0	0/0	0/0	SP mode.
	0/0	0/0	5/5	LP mode.
Q 702	2.89	12.1	3.55	09CH,70dB
Q 707	1.19	10.18	1.9	(203.25MHz)
Q 709	0	12.03	0	Color bar
Q 710	3.48	4.06	3.5	normal mode.
Q 711	12.07	3.48	12.03	
Q 712	9.1	12.13	9.81	
Q 713	2.94	12.13	3.53	
Q 720	42.3	32.9	41.6	
Q 721	0	9.33	0.38	
Q 801	0	4.5	0	Color bar
Q 802	0	4.55	0	normal mode.
Q 803	5.52	0	4.83	
Q 804	0	3.76	0	
Q 805	3.12	3.12	3.76	
Q 807	0	1.76	0	
Q 801	0	0	4.38	Blue back
Q 802	0	0	0	screen.
Q 803	5.51	0	4.82	
Q 804	0	0	4.38	
Q 805	1.68	2.73	0	
Q 807	0	0	0.79	

* IC Voltage Sheet

PB(REC)

IC 001 (LA7376)

0.7 (0)	0 (4)	0 (0)	0 (4)	0.7 (0)	0 (4)	1.5 (1.8)	0 (1.8)		
15						10			
1				5					
5 (5)	2.8 (0)	0.8 (0.8)	2 (4)	0 (0)	2.4 (4)	0.8 (0)	2 (1.6)		

PB(REC)

IC 302 (MSM7403)

8.2 (8.5)	2.5 (2.6)	2.1 (2.2)	2 (2.1)	
			5	
1				
0 (0)	0 (0)	4.8 (5.0)	3.3 (3.4)	

PB(REC)

IC 303 (BA7025L)

0 (0)	3.5 (0)	0 (0)	0 (0)	0 (0)	0 (4.2)	0 (4.2)	0 (4.3)	4.9 (5.0)	
			10						
1		5					15		
3.5 (3.6)	0 (0)	4.6 (4.6)	4.4 (4.4)	3 (3)	3.7 (3.5)	3.7 (3.5)	0 (0)	4.9 (5.0)	

IC 701 (M51496P)

3.55	4.62	2.78	4.87	4.87	4.39	5.49	6.1	3.64
			15					10
1				5				
4.48	4.48	2.52	2.42	2.42	0	9.09	7.03	1.66

PB(REC)

IC401(BA7790LS)

3.8 (3.5)	0 (0)	3.8 (3.8)	3.5 (3.5)	3.5 (3.5)	4.1 (4.1)	0 (0)	4.5 (4.2)	4.5 (4.2)	0 (0)	4.2 (4)	0 (5.2)
				10				20		24	
1		5				15					
0 (0)	0 (0)	9.5 (9)	9.5 (9.5)	0 (0)	5 (4.5)	3.5 (3)	4.5 (4.2)	0 (0)	4.5 (4.2)	4.5 (4.2)	5.3 (0)

PB(REC)

IC 304 (GL3816)

1			5				
12 (11.9)	8 (7.8)	5 (5.1)	7.25 (7.1)	0 (0)	0 (0)	6.8 (7.8)	0 (0)

Normal (Blue Screen)

IC 801 (M35011)

5.12 (5.1)	1.63 (1.5)	4.55 (0)	2.35 (2.3)	2.35 (2.4)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
20			15						
1				5					10
2.37 (2.4)	2.37 (2.4)	4.9 (4.9)	5.14 (5.1)	5.14 (0)	5.09 (5.1)	5.12 (5.1)	2.83 (2.3)	3.56 (3.5)	2.84 (2.7)

IC 8A1 (SAA4700)

1.98	0.77	5.12	5.12	5.12	0.9	0	0	5.13
			15					10
1				5				
2.65	2.55	0	0	4.91	0.43	5.12	0	0.52

PB(REC)

IC 301 (TA1202AN)

2.9 (3)	2.1 (2.2)	2.8 (3)	2.2 (2.7)	2.3 (2.3)	3 (2.9)	2.8 (2.7)	2.4 (2.5)	0.4 (0.4)	3.4 (3.1)	2.2 (2.5)	0 (0)	2.5 (2.4)	0 (0)	2.6 (1.4)	3.4 (2.8)	3.0 (3)	1.5 (1.6)	0.2 (0.2)	2.3 (4.8)	2.2 (2.1)	2.7 (2.7)	2.6 (2.6)	2.4 (2.3)	4.6 (4.6)	1.7 (2.8)	1.4 (1.3)
			50				45					40					35						30						
1				5				10					15					20					25						
0 (0)	2.1 (2.1)	0 (0)	2.1 (2.1)	2.4 (2.4)	1.9 (2.2)	0 (0)	2.7 (2.4)	2.3 (2.4)	2.7 (2.7)	3.3 (2.2)	4.9 (4.9)	2.8 (2.7)	3.2 (3.2)	2 (2.2)	0.7 (0.8)	3.4 (2.1)	3.2 (4.3)	2.2 (2.2)	5 (5.0)	2.5 (2.5)	2 (1.9)	3 (3)	2.2 (2.2)	3 (2.8)	1.8 (1.9)	2.8 (2.8)

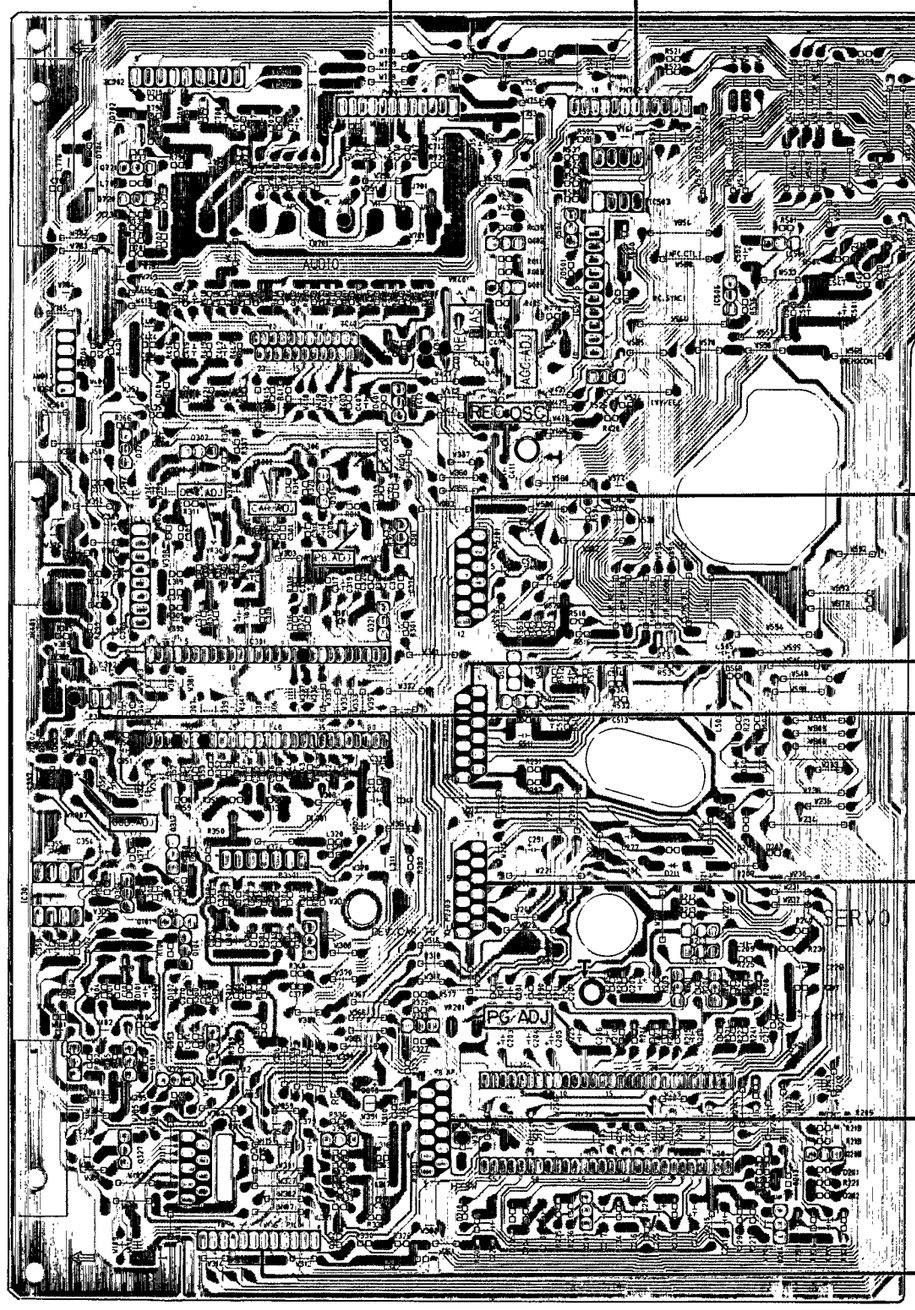
PB(REC)

IC 201 (HD49756NT)

2 (5)	2.5 (2.5)	0.7 (0.7)	1.1 (1.1)	3.8 (3.8)	5 (5)	0.2 (0.9)	0 (0)	0 (0)	2.5 (2.5)	2.5 (0)	2.5 (2.5)	2.6 (2.6)	2.6 (2.6)	2.6 (2.6)	0 (0)	5 (5)	2 (3.6)	5 (5)	2.4 (2.4)	2.5 (2.5)	2.5 (2.5)	2.5 (2.5)	2.5 (2.5)	2.5 (2.5)	0 (0)	2.5 (2.7)	2.5 (2.1)
	55				50				45					40					35						30				
1				5				10					15					20					25						
3.6 (3.6)	0 (0)	0 (0)	5 (5)	0 (0)	0.2 (0.2)	2.1 (2.1)	0 (0)	2.7 (2.7)	2.7 (2.7)	2.7 (2.7)	1.4 (1.4)	2.5 (2.5)	2.5 (2.5)	2.5 (2.5)	2.5 (2.5)	2.5 (2.5)	2.4 (2.4)	0 (0)	2.5 (2.5)	2.5 (2.5)	2.5 (2.5)	2.5 (2.5)	2.5 (2.5)	2.5 (2.5)	2.7 (2.6)	2.7 (2.7)	5 (5)

PRINTED CIRCUIT BOARD DIAGRAMS

1. Main P.C. Board



(Solder Side)

TO IF,OSD

PM701-P7M01	
1	REG 12VA
2	REG 6VA
3	C.SYNC
4	AFC
5	AGC
6	AUDIO OUT
7	N/C
8	MOD. V.OUT
9	GND
10	TU V.OUT
11	GND
12	IF

PM702-P7M02	
1	OSD ENABLE
2	OSD DATA
3	OSD CLK
4	AFC CTL
5	VPS CLK
6	VPS DATA
7	OSD 'H'
8	AFC DEFEAT
9	RF AGC
10	REG 9VA
11	VPS V.IN
12	OSD V.IN

TO TIMER

P5902	
1	REMOCON
2	P6
3	P7
4	P8
5	GND
6	P9
7	P10
8	N.C
9	+2.9VA
10	-2.9VA
11	GND

TO DECK

P5J01	
1	PB(-)
2	GND
3	PB(+)
4	F/E HEAD
5	F/E HEAD
6	GND
7	CTL(-)
8	CTL(+)
9	LOAD(+)
10	LOAD(-)
11	N.C
12	5VA

TO TIMER

P5901	
1	REG 5.1V
2	KEY RTN 1
3	KEY RTN 2
4	9G
5	8G
6	7G
7	6G
8	5G
9	4G
10	3G
11	2G
12	1G
13	-31VA
14	P1
15	P2
16	P3
17	P4
18	REG 5.3VA
19	P5

P5J02	
1	MODE C
2	MODE B
3	MODE A
4	MODE COMMON
5	T/UP REEL
6	SUPPLY REEL
7	CST SW
8	GND
9	SUPPLY SENS.
10	T/UP SENS
11	C.M.GND
12	CAP(-)

P2J03	
1	CFG(+)
2	REG 5.3VA
3	14V
4	CAP.CTL
5	GND
6	N.C
7	DRUM CTL
8	13VA
9	D.M.GND
10	D.FG(+)
11	D.PG(-)
12	PG(+)

TO IF/OSD

P3002	
1	LINE V. OUT
2	GND

TO PRE-AMP

P3001	
1	PB-Y
2	GND
3	PB-C
4	REC-C
5	REC-Y
6	REG 5V
7	H/SW
8	REC START 'L'
9	ENV-DET
10	SPECIAL 'H'
11	H.AMP SW
12	ENV-COMP

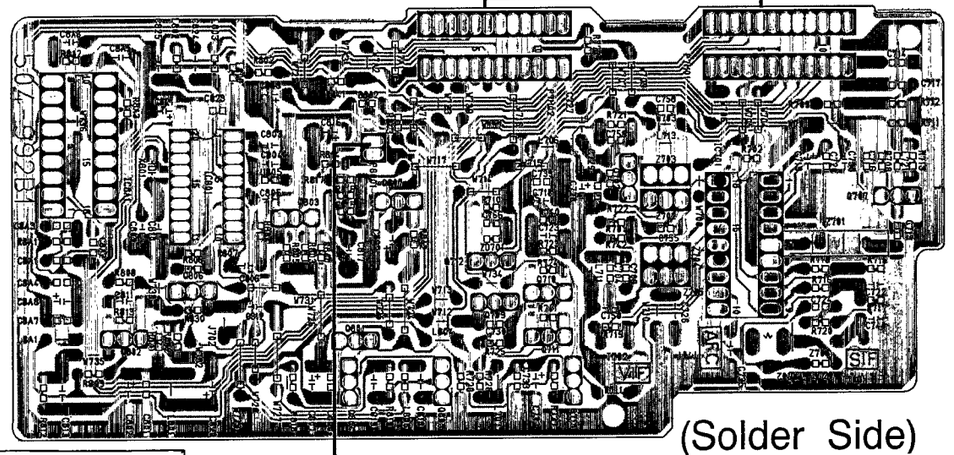
TO POWER

P1L01	
1	PWR CTL
2	REG 5V
3	ANALOG GND
4	REG 6VA
5	14V
6	12VA
7	MOTOR GND
8	42VA
9	DIGITAL GND
10	AC 1.7VA
11	AC 1.7VA
12	-31VA

LOCA.NO.	Position
IC 201	2C
IC 301	3B
IC 302	2A
IC 303	2A
IC 304	2A
IC 401	4B
IC 501	5D
IC 502	4C
IC 503	4C
IC 504	4C
IC 702	5A
Q 201	2C
Q 202	2C
Q 203	2C
Q 204	1C
Q 205	2C
Q 206	1D
Q 207	1C
Q 301	3B
Q 302	4A
Q 303	4C
Q 304	2A
Q 305	3B
Q 307	1B
Q 308	2B

LOCA.NO.	Position
Q 309	2B
Q 313	2B
Q 314	1B
Q 315	2B
Q 317	1A
Q 318	2A
Q 320	4A
Q 321	3B
Q 325	1B
Q 326	1B
Q 401	4C
Q 402	4C
Q 403	4B
Q 404	4B
Q 405	4B
Q 5A1	4F
Q 5A2	4F
Q 501	3C
Q 502	3C
Q 504	4C
Q 720	4A
Q 721	4A

2. IF/Function OSD/VPS P.C. Board



(Solder Side)

TO MAIN

P8001-P3002	
1	LINE V.OUT
2	GND

LOCA.NO.	Position
IC 701	2G
IC 8A1	3E
IC 801	2F
Q 707	2H
Q 709	2F
Q 711	2G
Q 712	2F
Q 713	2G
Q 801	2F
Q 802	2E
Q 803	2F
Q 804	2F
Q 805	2F
Q 806	2E
Q 807	2F

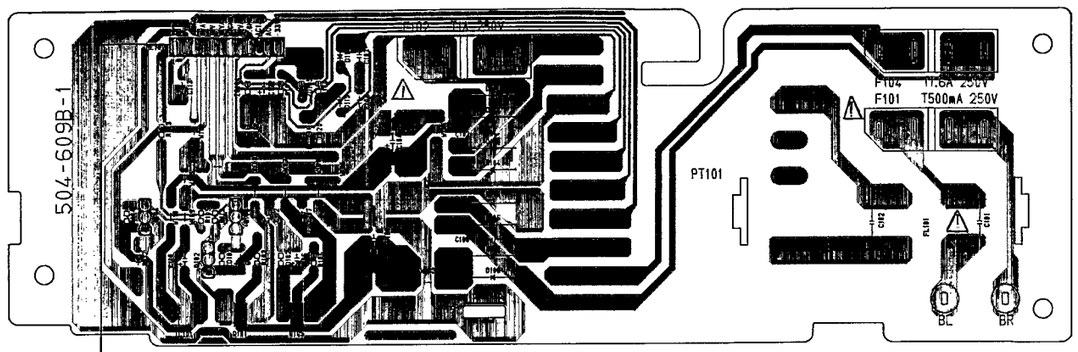
ABBREVIATIONS

ADJ : ADJUSTMENT
AGC : AUTOMATIC GAIN CONTROL
AUD : AUDIO
CAR : CARRIER
COL : COLOR
DEV : DEVIATION
EE : Electric to Electric
ENV : ENVELOP
FRE : FREQUENCY
LEV : LEVEL
LUM : LUMINANCE
OSC : OSCILLATION
PB : PLAYBACK
PG : PULSE GENERATOR
REC : RECORDING
VOL : VOLTAGE

NOTE)

⚠ : SAFETY PARTS
● : MEASUREMENT POINT
□ : ADJUSTMENT POINT
Emitter : TRANSISTOR
Collector
Base

3. Power P.C. Board



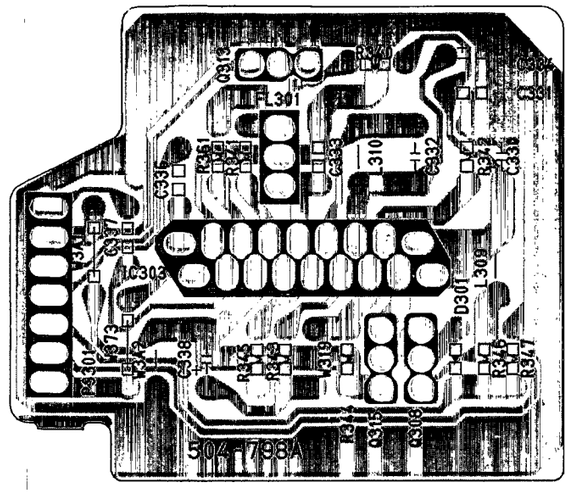
(Solder Side)

TO MAIN

	PL101
1	PWR CTL
2	REG 5V
3	ANALOG GND
4	REG 8VA
5	14V
6	12VA
7	MOTOR GND
8	45VA
9	DIGITAL GND
10	AC 1.7VA
11	AC 1.7VA
12	-30VA

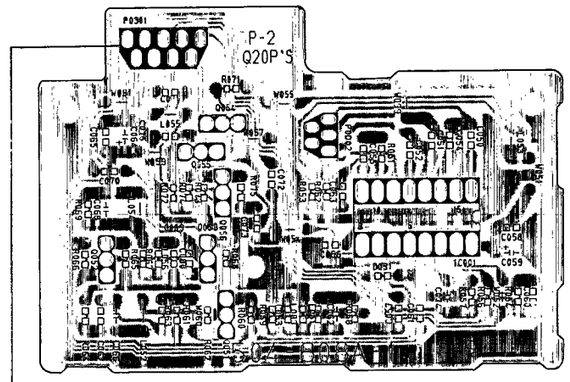
LOCA.NO.	Position
IC 101	4A
Q 101	4B
Q 102	4B
Q 103	4B
Q 104	4A
Q 105	4B

4. MESECAM P.C. Board



(Solder Side)

5. Pre-Amp P.C. Board



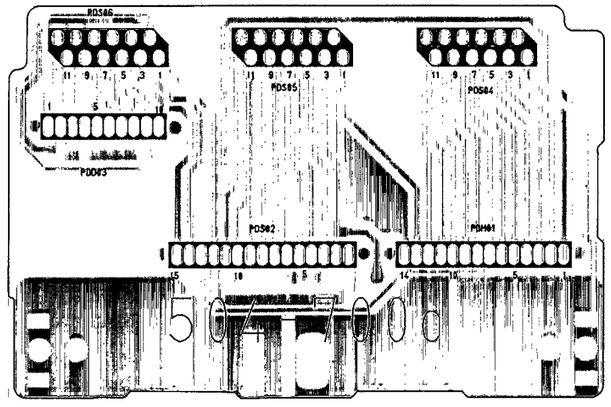
(Solder Side)

TO MAIN

	P0301
1	PB-Y
2	G.N.D
3	PB-C
4	REC-C
5	REC-Y
6	5V
7	H/SW
8	REC START L
9	ENV-DET

LOCA.NO.	Position
IC 001	4G
Q 051	4F
Q 052	4F
Q 053	4F
Q 054	5F
Q 055	5F
Q 056	4F

6. Junction P.C. Board



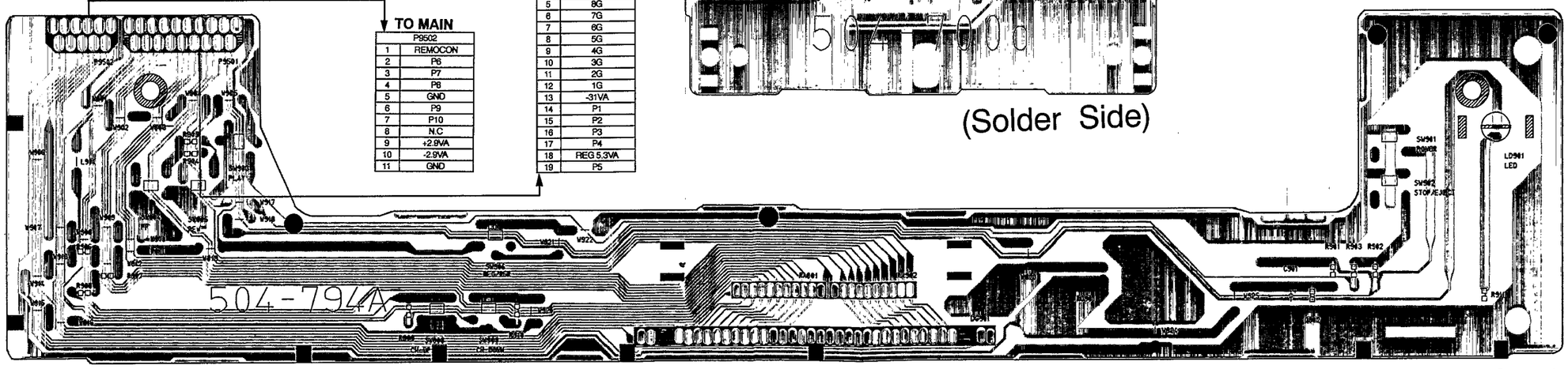
(Solder Side)

NOTE) ⚠ : SAFETY PARTS

Emitter : TRANSISTOR
Collector
Base

■ : ALIVE VOLTAGE

7. Timer P.C. Board



(Solder Side)

TO MAIN

	P9502
1	REMOCON
2	P6
3	P7
4	P8
5	GND
6	P9
7	P10
8	N.C
9	+2.9VA
10	-2.9VA
11	GND

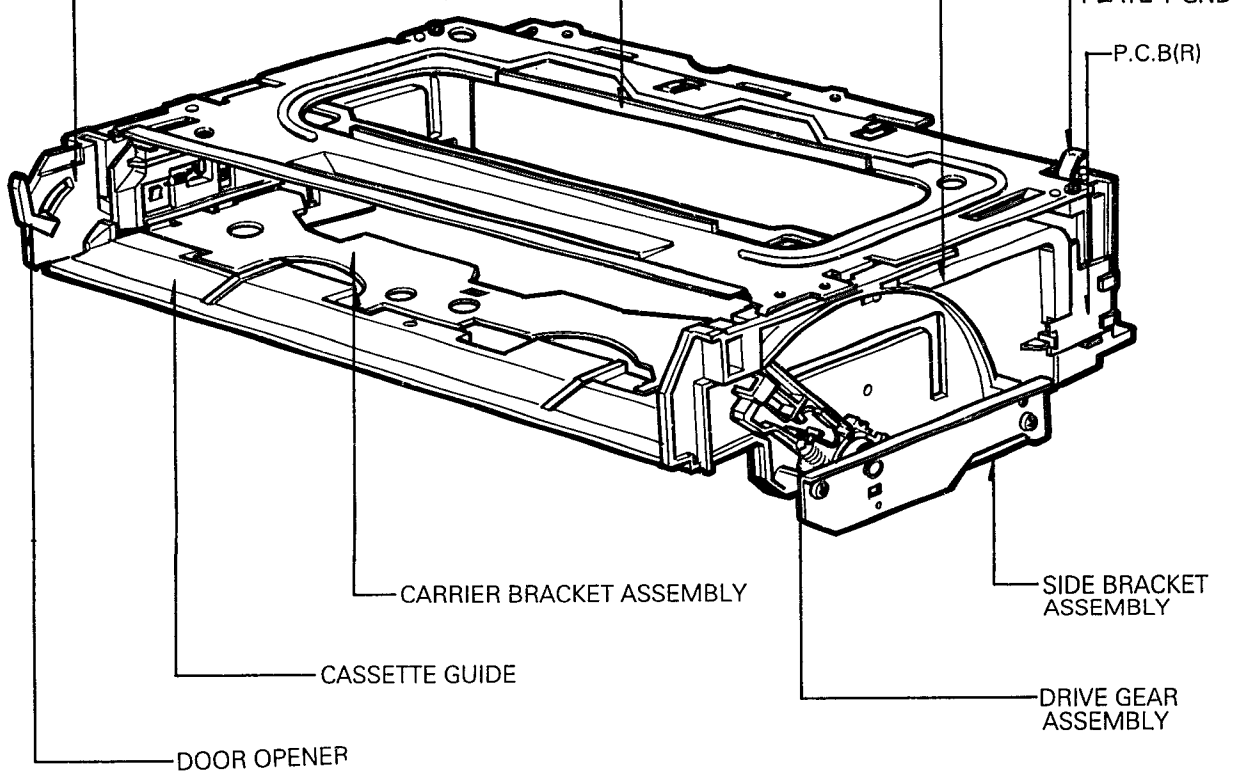
TO MAIN

	P9501
1	REG 5.1V
2	KEY RTN 1
3	KEY RTN 2
4	9G
5	8G
6	7G
7	6G
8	5G
9	4G
10	3G
11	2G
12	1G
13	-31VA
14	P1
15	P2
16	P3
17	P4
18	REG 5.3VA
19	P5

SECTION 4
MECHANISM

FRONT LOADING MECHANISM DISASSEMBLY

• Front Loading Mechanism Parts Location



Front Loading Mechanism Parts Location

1. Component list below will be discribed as if the top and bottom covers and the front panel have already been removed.
2. P.C.B Assembly
3. Top Plate
4. Carrier Bracket Assembly
5. Cassette Guide
6. Side Bracket Assembly
7. Bracket(L), (R)
8. Door Opener
9. Drive Gear Assembly

1. Front Loading Mechanism Assembly (Fig. A-1-1)

1) Remove the Top and Bottom Covers and the Front panel.
2) Unplug the connector.
3) Remove two screws(A).
4) Lift up the Front Loading Mechanism in the direction of arrow(C).

*** NOTE**

1) When disassembling and reassembling

① Give special attention to removal and to reassemble, because two tabs(D) are engaged.

② Make sure that Bosses of Bracket(L),(R) are properly engaged in the holes of the chassis.

③ To reassemble Front Loading Mechanism, the Drive Gear Assembly should be turned in a counterclockwise as shown in Fig. A-1-2 so that the Rack Gear N.D of Front Loading Mechanism Assembly is meshed into Rack Gear F.L of Deck Mechanism Assembly correctly as shown in Fig. A-1-1.(B).

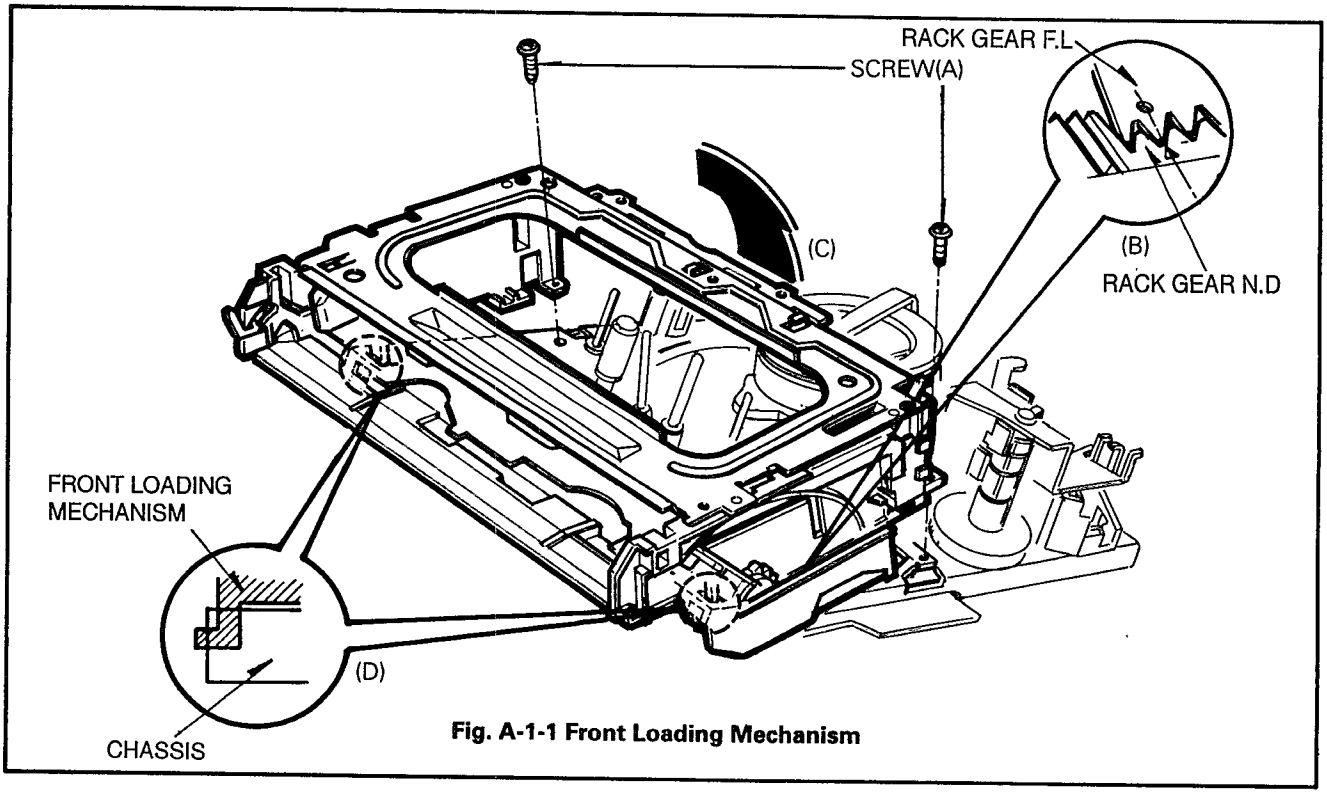


Fig. A-1-1 Front Loading Mechanism

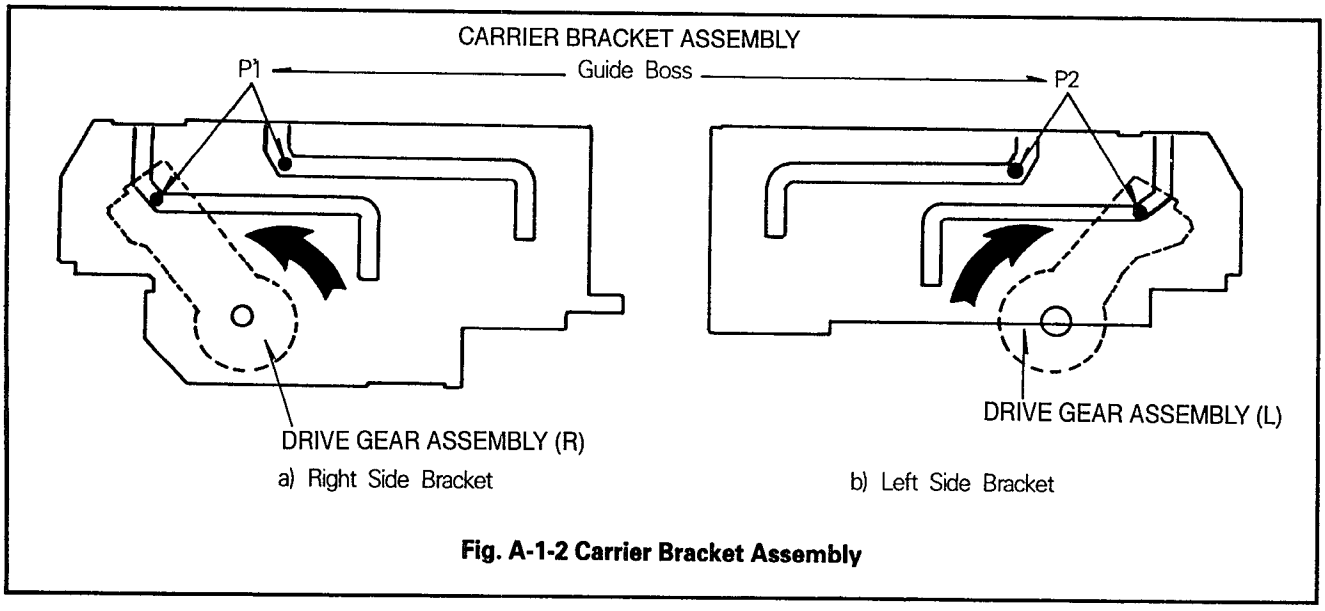


Fig. A-1-2 Carrier Bracket Assembly

2. PCB(Printed Circuit Board) Assembly

2-1. P.C.B Assembly(R)(Fig. A-2)

1) Remove the PCB Assembly(R) by pushing three Hooks (A) outward.
2) Release the Lead wire from stoppers.

2-2. PCB Assembly(L).(Fig. A-2)

1) Remove the PCB Assembly(L) by pushing the Hook(B) outward.
2) Release the Lead Wire from stoppers.

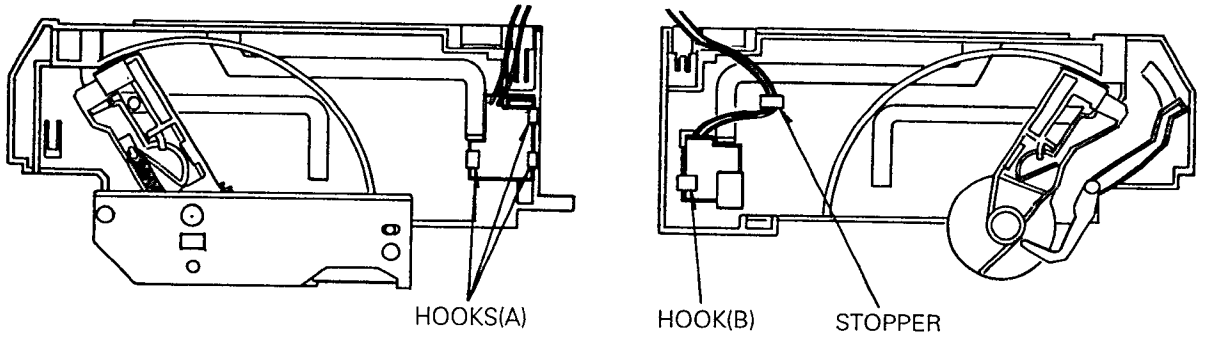


Fig. A-2 PCB Assembly

3. Top Plate(Fig. A-3)

1) Remove two screws(A).
2) Push the upper part of Top plate Ground and then lift up the Top Plate in the direction of arrow(B).

*** NOTE**

1) When reassembling, be certain that the tabs(C) of Top Plate is in both Bracket(L),(R).

① Then align the guide holes(D) of Top Plate with Bosses of side Bracket(L),(R).

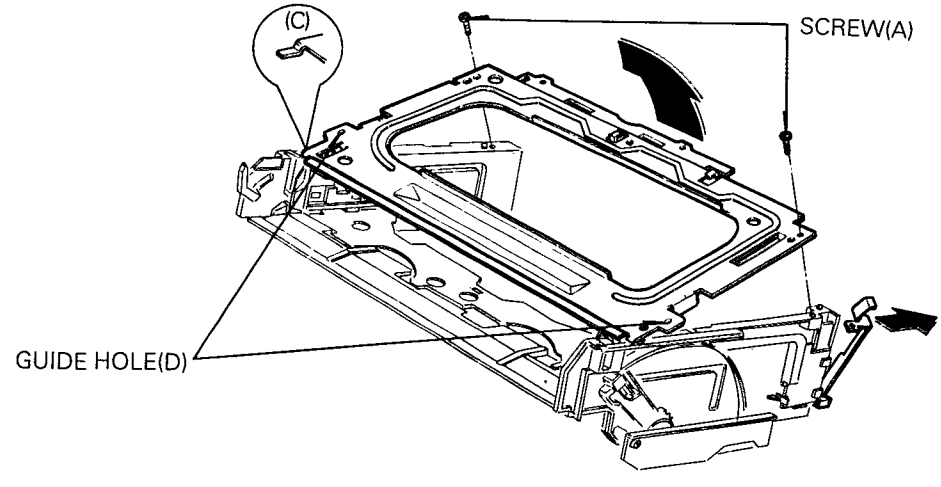


Fig. A-3 Top Plate

4. Carrier Bracket Assembly

4-1. Carrier Bracket Assembly(Fig. A-4-1)

1) Remove the Carrier Bracket Assembly by moving it in the direction of arrow(C).

*** NOTE**

1) When reassembling, be sure that parts(A) of Carrier Bracket Assembly are seated in parts(B) of Bracket(L),(R).

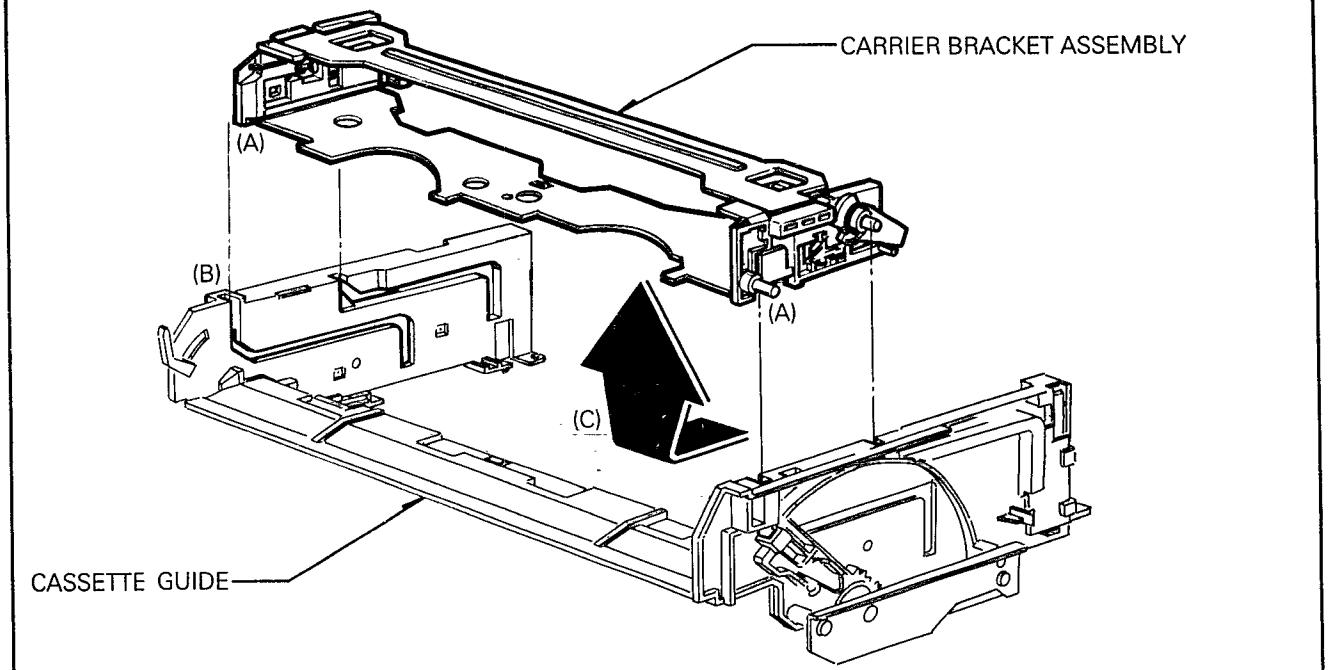


Fig. A-4-1 Carrier Bracket Assembly

4-2. Cassette Opener(Fig. A-4-2)

1) Release the spring O.C from the Hook(A) and then release it from Hook(C) of cassette opener.
2) Remove the cassette opener by releasing the Hook(B) from the Holder(R).

4-3. Rid Opener(Fig. A-4-2)

1) Remove the rid opener by pushing it outward.

*** NOTE**

1) When reassembling, seat the upper part of the rid opener in the grooved of Holder(R) and push it inward.

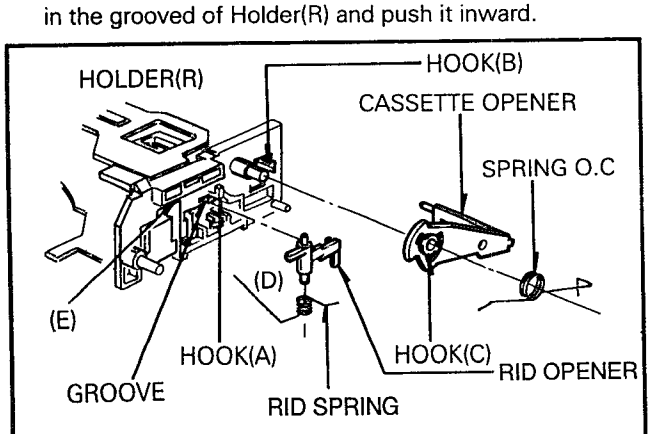


Fig. A-4-2 Cassette Door Opener/Rid Opener

4-4. Detect Lever and Detect Spring

1) Remove the spring detect.
2) Lower the side(A) of Detect Lever and then remove the Detect Lever by pushing it outward.

*** NOTE**

1) When reassembling, make sure that the part(C) of Detect Lever set in the part(B) of Holder(R).

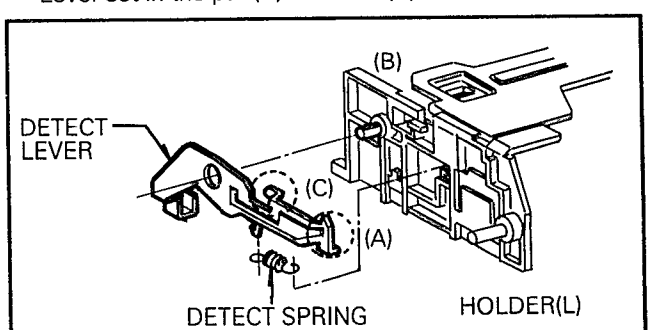


Fig. A-4-3 Detect Lever, Detect Spring

4-5. Support Bracket Assembly(Fig. A-4-4)

1) Take the Support Bracket out by releasing hooks(A),(B).

*** NOTE**

1) When disassembling and reassembling, be careful because heavy force can damage the hooks.

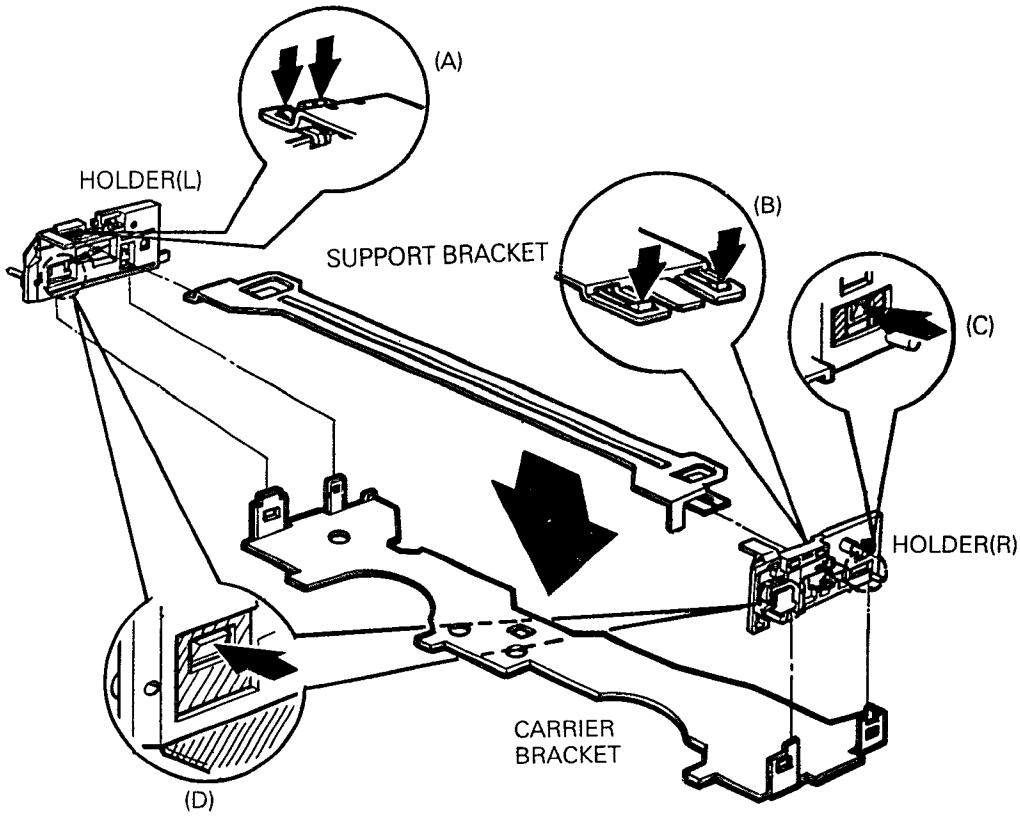


Fig. A-4-4 Support Bracket/Carrier Bracket

4-6. Carrier Bracket Assembly(Fig. A-4-4)

1) Remove the Carrier Bracket by releasing hooks(C),(D).

5. Cassette Guide(Fig. A-5)

1) Remove the Switch Spring with the Front Loading Mechanism Assembly turned over.
2) Push two hooks(B) outward.
3) Remove the Cassette Guide by pushing two hooks(A). outward(if one is removed, the other will be easy to remove)

*** NOTE**

1) When reassembling

① Seat projections(E) of Cassette Guide in holes of Bracket Assembly(L),(R) and then engage the Hook(A).

② After finishing previous step, fix the Cassette Guide to the Bracket Assembly(L),(R) by pushing two hooks(B) inward.

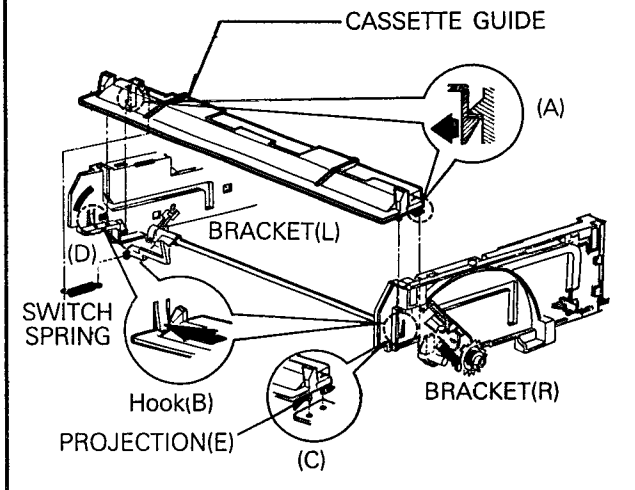


Fig. A-5 Cassette Guide

6. Bracket Assembly Side (Fig. A-6-1)

1) Remove two screws(A) and then remove the Side Bracket Assembly and the Rack Gear N.D.

*** NOTE**

1) When reassembling

① Turn the Drive Gear Assembly in the direction of arrow (C).

② Reassemble the Rack Gear N.D. to the Side Bracket Assembly, as shown in Fig. A-6-2, and then reassemble it to the Bracket Assembly(L), This time the Assembling Figure should be the same as(B) at the rectangular hole of Bracket Side.

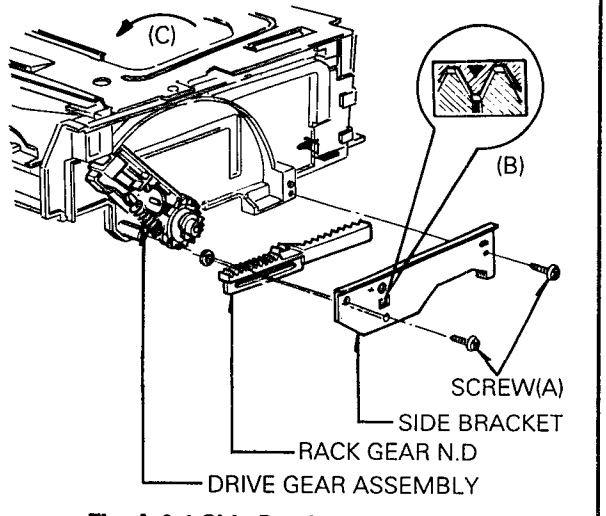


Fig. A-6-1 Side Bracket Assembly

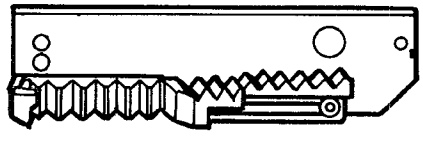


Fig. A-6-2

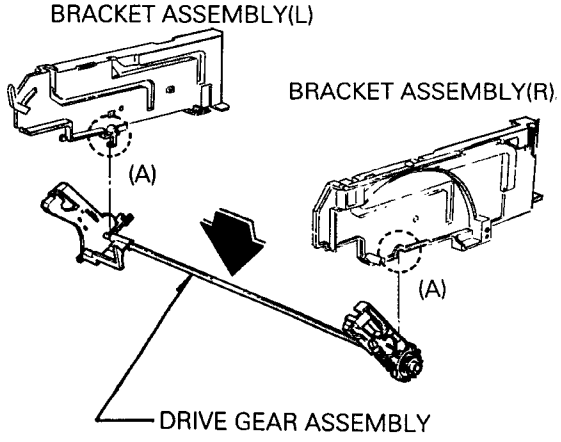


Fig. A-7 Bracket Assembly(L),(R)

7. Bracket Assembly(L),(R)(Fig. A-7)

1) Seperate the Bracket Assembly(L),(R) from the Gear Assembly Drive.

*** NOTE**

1) When reassembling, seat the shaft in the part(A) of Bracket Assembly(L),(R).

8. Door Opener(Fig. A-8)

1) Remove the Door Opener by pushing Hook(A) outward.

*** NOTE**

1) When reassembling, seat the part(B) of Door Opener in the hole( ) of Bracket(L).

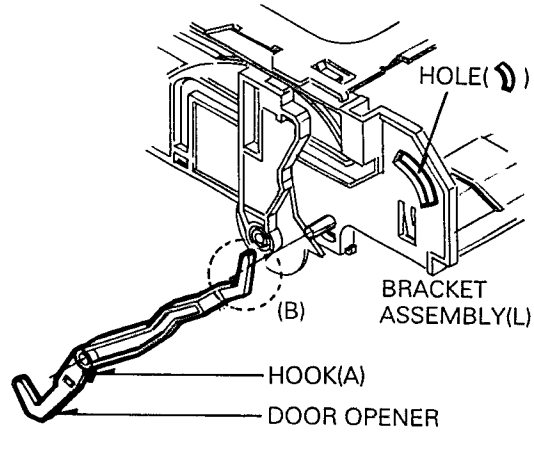


Fig. A-8 Door Opener

9. Drive Gear Assembly

9-1. Drive Gear Assembly(Fig. A-9-1)

1) Remove the Drive Gear Assembly from the Bracket Assembly(L),(R).

9-2. Cushion Spring(Fig. A-9-1)

1) Remove the cushion spring from the Gear R .

9-3. Cap-D(Fig. A-9-1)

1) Remove the Cap-D by lifting it up.

9-4. Spring C.C(Fig. A-9-1)

1) Remove the Spring C.C from the Gear R.

9-5. Gear C(Fig. A-9-1)

1) Remove the Gear C by lifting up when the projection of Gear C is aligned with the hole of Gear R while rotating the Gear C in the counterclockwise direction.

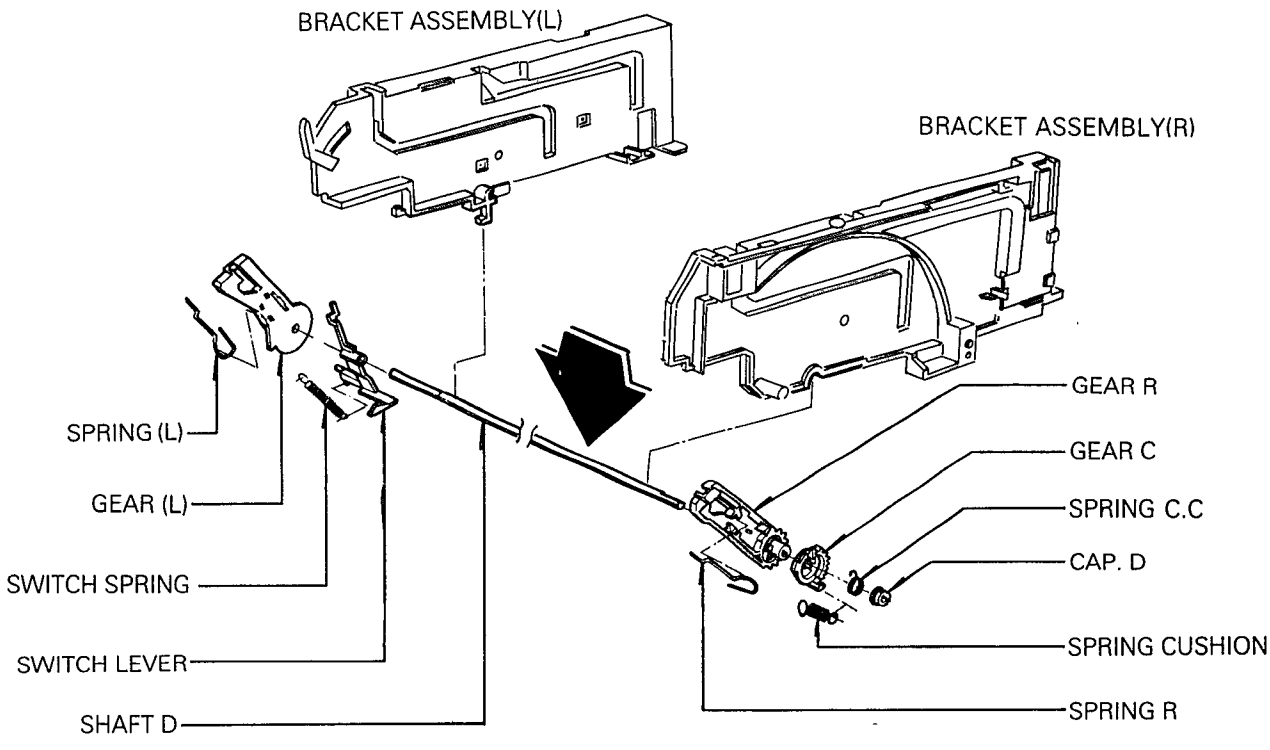


Fig. A-9-1 Drive Gear Assembly

*** NOTE**

1) When reassembling, seat the projections of Gear R in the holes of Gear C when the projection of Gear R is aligned with the hole of Gear C. and then keep the Gear C turned in the clockwise direction.

9-6. Gear R(Fig. A-9-1)

1) Lift up the Gear R from the Shaft.

9-7. Spring R(Fig. A-9-2)

1) Remove the Spring R by releasing Hooks.

*** NOTE**

1) When reassembling, be certain Spring R in the part(A) of Gear R.

9-8. Gear L.(Fig. A-9-1)

1) Remove the Gear L from the shaft.

9-9. Spring L (Fig. A-9-2)

1) Remove the Spring L by releasing Hooks from the Gear L.

*** NOTE:** (Refer to the Spring R Section)

9-10. Switch Lever(Fig. A-9-1)

1) Remove the Switch Lever from the shaft.

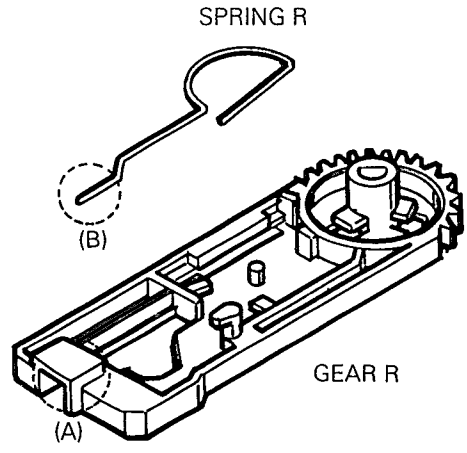
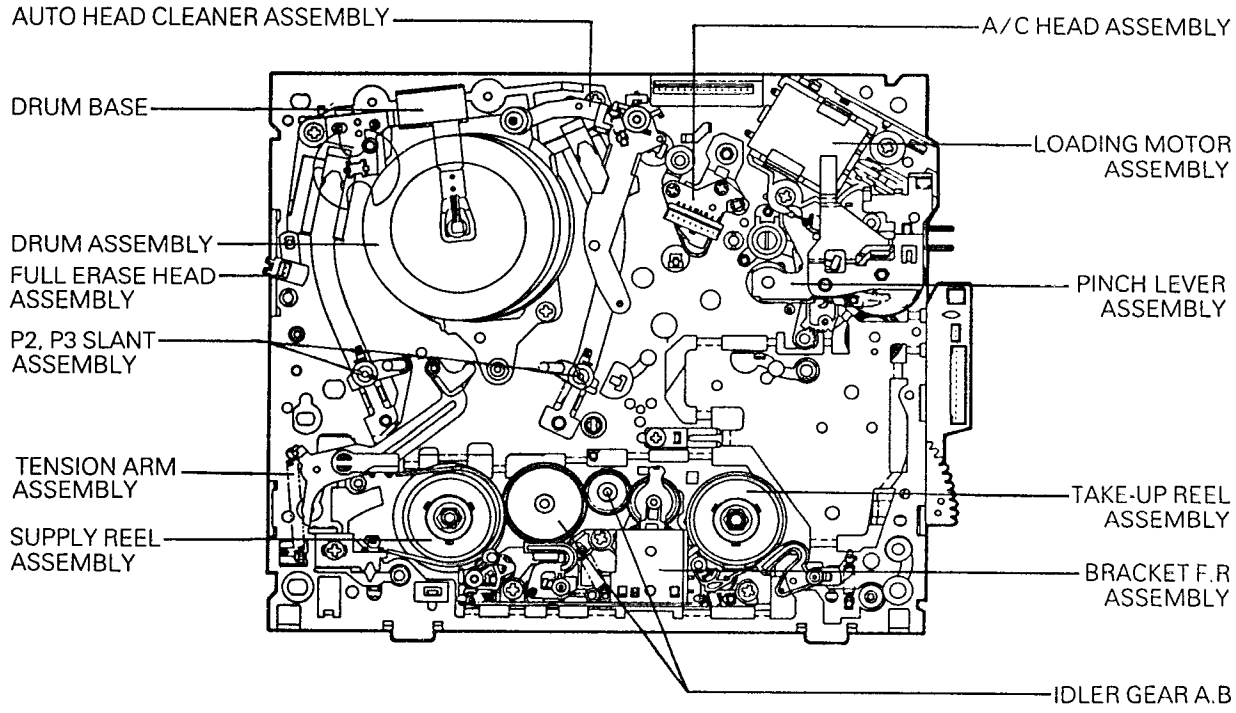


Fig. A-9-2 Spring R

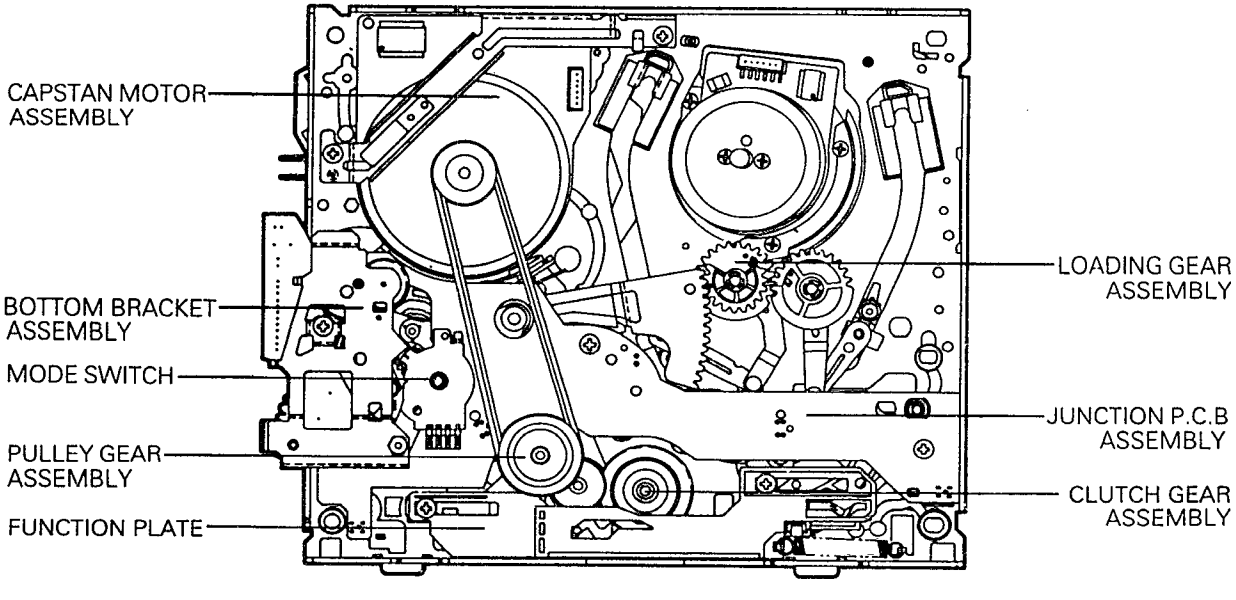
DECK MECHANISM DISASSEMBLY

• Deck Mechanism Parts Location

Top Side



Bottom Side



1. Auto Head Cleaner Assembly (Fig. B-1) (Optional Item)

1) Remove the Cleaner Arm Assembly (Auto Head Cleaner Assembly) by pushing the Locking Tab.(B) outward.
2) Remove the Cleaner Upper Spring and then remove the Cleaner Upper Arm Sub Assembly.
3) Remove the Cleaner Spring.

*** NOTE**

1) When reassembling, do not touch the Video Head Tip with fingers or tools.

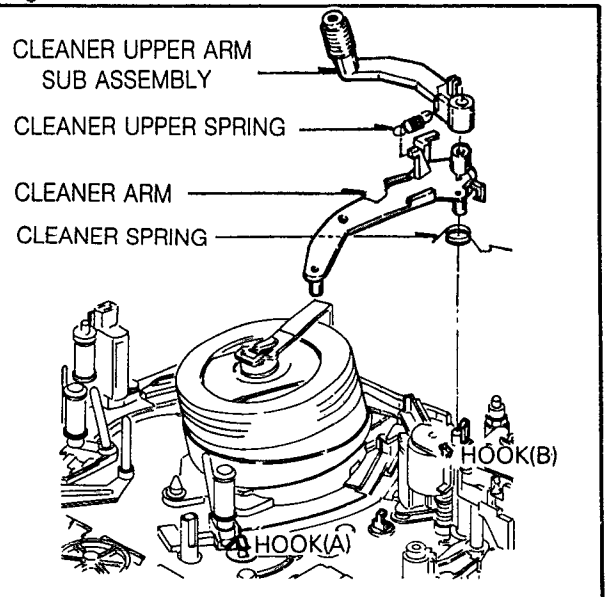


Fig. B-1 Auto Head Cleaner Assembly

2. Drum Assembly and Drum Base(Fig. B-2)

1) Remove the Auto Head Cleaner Assembly. (Option)
2) Unplug the connector with the Deck Mechanism Assembly turned over.
3) Loosen the screw(A) and then lift up the Drum Brush.
4) Remove two screws(B) and then lift up the Drum Assembly and Drum Base from the Deck Mechanism Assembly.
5) Separate the Drum Assembly from the Drum Base by Loosening three screws(C) on the back of Drum Base.

*** NOTE**

1) When disassembling and reassembling
① Do not touch the Video Head tip with fingers or tools. (Give special attention to disassembling and reassembling of Auto Head Cleaner Assembly)
② After reinstalling the Drum Brush, the Drum Brush should be aligned with the center of vertical axis of Drum Assembly.
③ After completing the reassembly, adjust the transportation system and the Servo P.G.

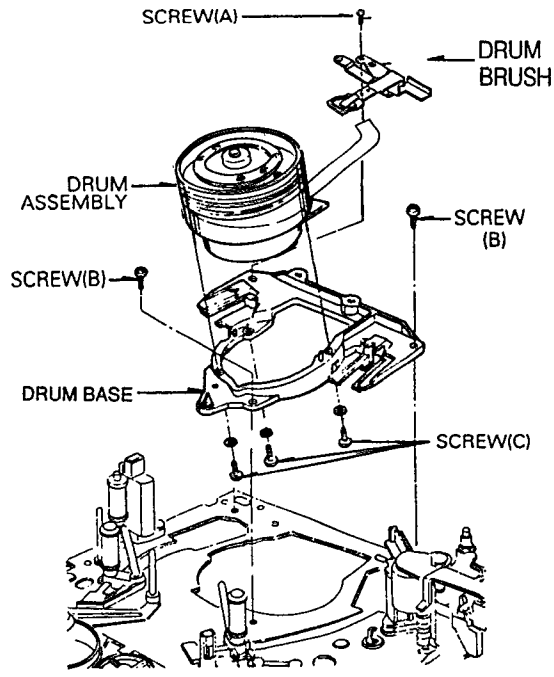


Fig. B-2 Drum Assembly/Drum Base

3. Drum Assembly

3-1. Drum Sub and Motor Assembly (Fig. B-3-1)
: New Type (No two screws and P.C.B on the Drum)

1) Remove the Drum Base from the Deck Mechanism Assembly.
2) Separate the Drum Assembly from the Drum Base.
3) Remove two screws(A) and then remove the rotor.
4) Remove three screws(B) and then remove the stator.

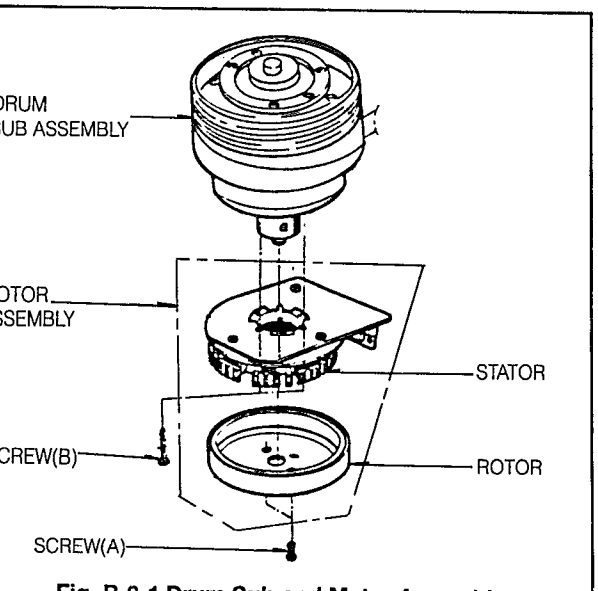


Fig. B-3-1 Drum Sub and Motor Assembly

*** NOTE**

1) When disassembling and reassembling
① Do not touch the Video Head Tip with fingers or tools.

3-2. Upper and Lower Drum Assembly (Fig. B-3-2) : Old Type (There are two screws and P.C.B on the Drum)

1) Remove the Drum Assembly and Drum Base from the Deck Mechanism Assembly.
2) Separate the Drum Assembly from the Drum Base.
3) Remove two screws(A).
4) Remove the P.C.B.
5) Separate the upper Drum Assembly from the Lower Drum Assembly.

*** NOTE**

1) When disassembling and reassembling
① Do not touch the Video Head Tip with fingers or tools.
② Make sure that the color(white) marked on the P.C.B of the upper Drum should coincide with the color(Green) marked on the Flange Assembly.

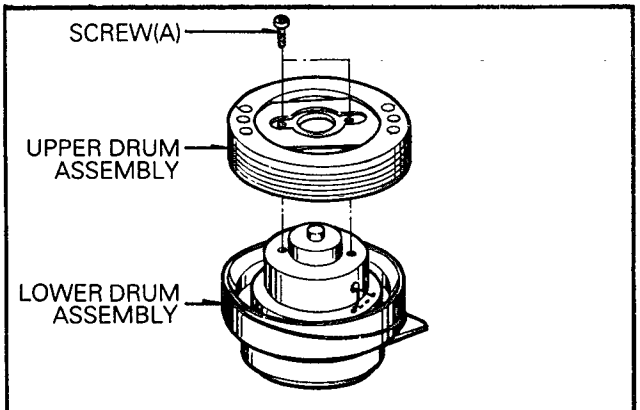


Fig. B-3-2 Upper/Lower Drum Assembly

4. A/C(Audio/Control) Head Assembly (Fig.B-4)

1) Unplug the connector
2) Remove the Nut(A), and then lift up the A/C Head Assembly.
3) Remove the Azimuth Adjusting Screw.
4) Remove two screws(B),(D) and then separate the A/C Head Assembly from the Base A/C Head Assembly.

*** NOTE**

1) When disassembling
① First of all, release the spring A/C.
② Do not touch the A/C Head Tip with fingers or tools.
③ After reinstalling the Audio Control Head Assembly, adjust the Tilt, Azimuth and Height of A/C Head.

5. Pinch Lever Assembly(Fig. B-5)

1) Remove one Nut, and then remove the Dew Bracket.
2) Lift up Pinch Lever Assembly.
3) Remove the Pinch Spring, and remove the Pinch Lever.
4) Remove the Stopper Spring and remove the Pinch Stopper by lifting it up when the Hook of Pinch Stopper is aligned with the hole of Pinch Arm while rotating the Pinch Stopper in the counterclockwise direction.
5) Remove the Pinch Cap, and then remove the Pinch Roller Assembly.

*** NOTE**

1) When disassembling and reassembling
① Be careful not to get any foreign substance on the Roller.
② When disassembling the Pinch Cap, be careful not to damage the Pinch Arm.

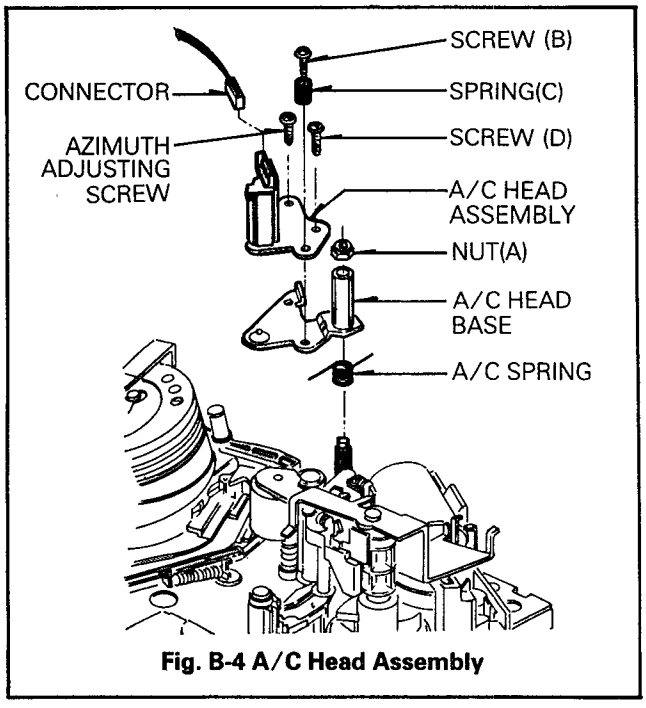


Fig. B-4 A/C Head Assembly

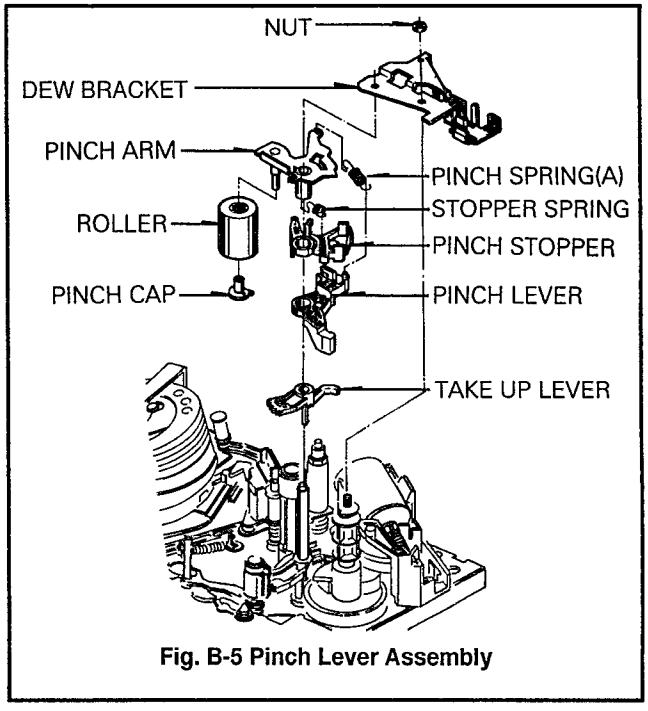


Fig. B-5 Pinch Lever Assembly

6. Loading Motor Assembly(Fig. B-6-1, B-6-2)

1) Remove the Dew Bracket.
2) Unplug the connector from the Junction P.C.B Assembly
3) Remove two screws(A).
4) Remove the worm wheel by pushing it down.
5) Remove the Loading Motor Assembly by pushing(C) and (D) outward.
6) Remove the worm Gear Assembly from the Loading Motor Assembly by pushing it.

*** NOTE**

1) When reassembling

① Make sure that the worm assembly is seated in the axis of Loading Motor.

② Two grooves(G) of Loading Motor should be turned up and two projections(F) of Bracket Assembly should be seated in each at the two holes(E)(Fig. B-6-1).

③ Take notice of the polarity of the Loading Motor.

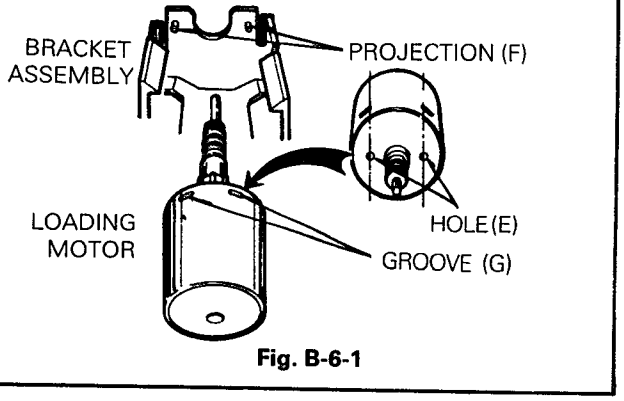


Fig. B-6-1

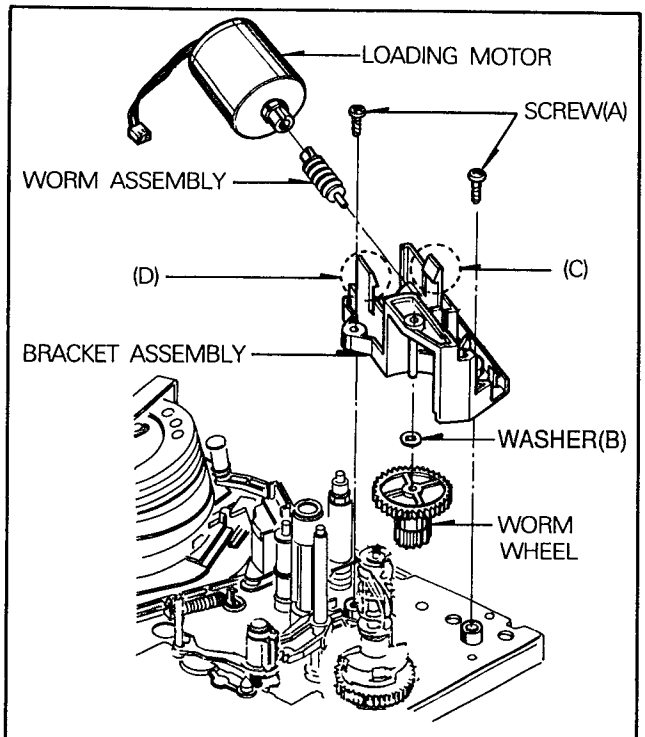


Fig. B-6-2 Loading Motor Assembly

7. Take Up Lever(Fig. B-7)

1) Remove the Loading Motor Assembly.
2) Remove the Dew Bracket(Fig. B-5).
3) Remove the Pinch Lever Assembly(Fig. B-5).
4) Keep the Pinch Gear turned in the clockwise direction (180°).
5) Remove the Take-Up Lever by pushing the hook(A) outward.

*** NOTE**

1) When disassembling and reassembling

① When disassembling the Take-Up Lever, be careful not to break the Hook(A).

② When reassemble the Take-Up Lever,align the appendant Gear of Lever Take-Up with the appendant Gear of Take-up Arm

③ Reassemble the Take-Up Lever completely by hooking (A).

④ Be sure to replace together Take-Up Lever and Pinch Gear.

⑤ Be sure to assemble Pinch Lever Assembly before operating.

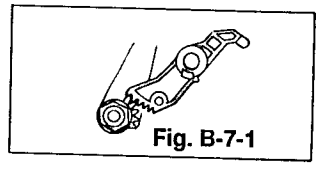


Fig. B-7-1

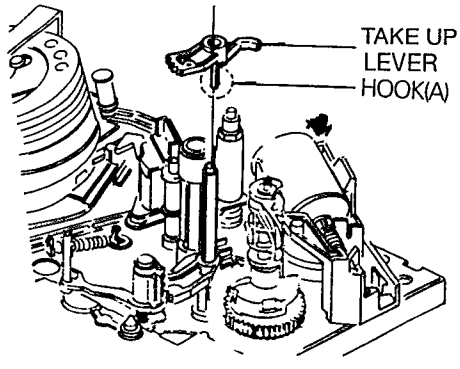


Fig. B-7. Take-Up Lever

8. Take Up Arm Assembly(Fig. B-8)

1) Remove the Loading Motor Assembly.
2) Remove the Dew Bracket, Pinch Gear, and the Take-Up Lever.
3) Remove one Washer(A).
4) Remove the Take-Up Arm Assembly by lifting it up.
5) Remove the spring(B).

*** NOTE**

1) When reassembling

① Align the Gear of Take-Up Arm with the Gear of Take-Up Lever(Fig. B-7-1).

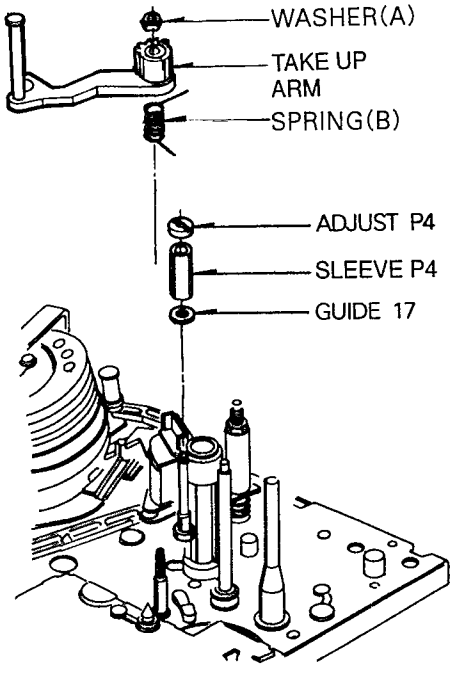


Fig. B-8 Take-Up Arm Assembly/P4

9. P4 Assembly(Fig. B-8)

1) Remove the Adjust P4.
2) Remove the Sleeve P4.
3) Remove the Guide 17.

10. Pinch Gear(Fig. B-10-1, B-10-2)

1) Remove the Loading Motor Assembly.
2) Remove one Nut(A) and then remove the Dew Bracket (Fig. B-5).
3) Remove the Pinch Lever Assembly by lifting it up(Fig. B-5)
4) Keep the Pinch Gear turned in the clockwise direction (180°).
5) Remove the Take-Up Lever by pushing the hook(A) outward(Fig. B-7).
6) Keep the Pinch Gear turned in the counterclockwise direction (180°).
7) Remove the Pinch Gear Assembly.

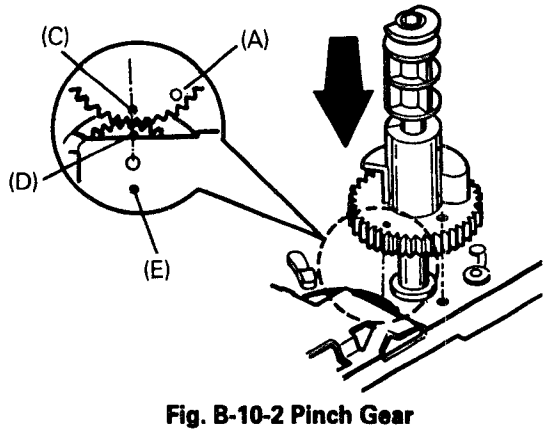


Fig. B-10-2 Pinch Gear

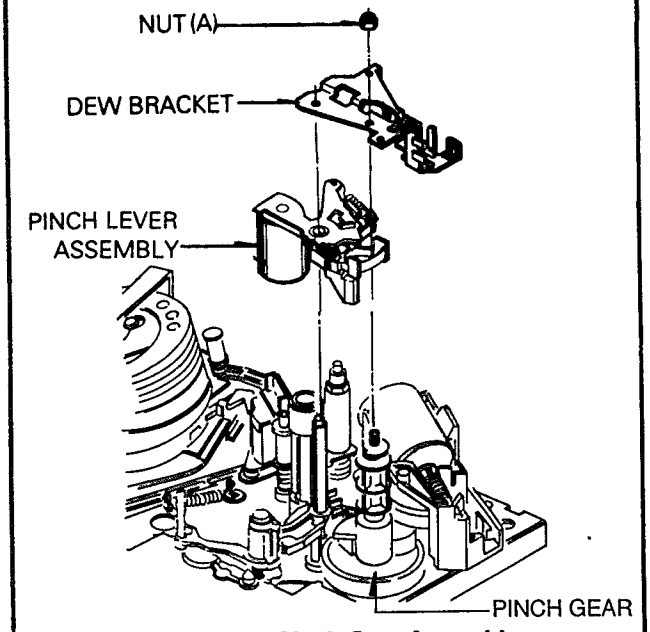


Fig. B-10-1 Pinch Gear Assembly

*** NOTE**

1) When reassembling, align the hole(A) of Pinch Gear with the hole of chassis, and the hole(C) of Pinch Gear with the groove(D) of the P.C.Gear. Hole(E) of chassis should be aligned with the hole of P.C.Gear.
2) Be sure to replace together Take-Up Lever and Pinch Gear.
3) Be sure to assemble Pinch Lever Assembly before operating.

11. FE(Full Erase) Head Assembly(Fig. B-11) (Optional Item)

1) Unplug the connector.
2) Remove one screw(A), and then remove the FE Head.

*** NOTE**

1) When disassembling and reassembling

① Do not touch the Video Head Tip with fingers or tools.

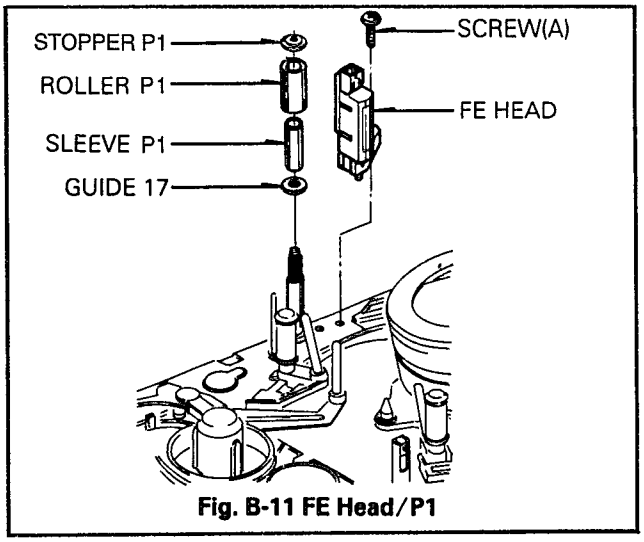


Fig. B-11 FE Head/P1

12. P1 Assembly(Fig. B-11)

1) Remove the Stopper P1.
2) Remove the Roller P1 .
3) Remove the Sleeve P1.
4) Remove the Guide 17.

13. Tension Arm Assembly(Fig. B-13)

1) Remove one screw(C).
2) Remove the Tension Spring.
3) Remove the Tension Arm Assembly by pushing hooks outward with the Deck Mechanism Assembly turned over.
4) Remove the Tension Band Assembly from the Tension Arm by pushing Hooks of Holder(A).

*** NOTE**

1) When disasembling and reassembling, give special attention to the disassembling and reassembling of Tension Arm Assembly, because the Tension Band is interposed between the Supply Reel and the Soft Brake.

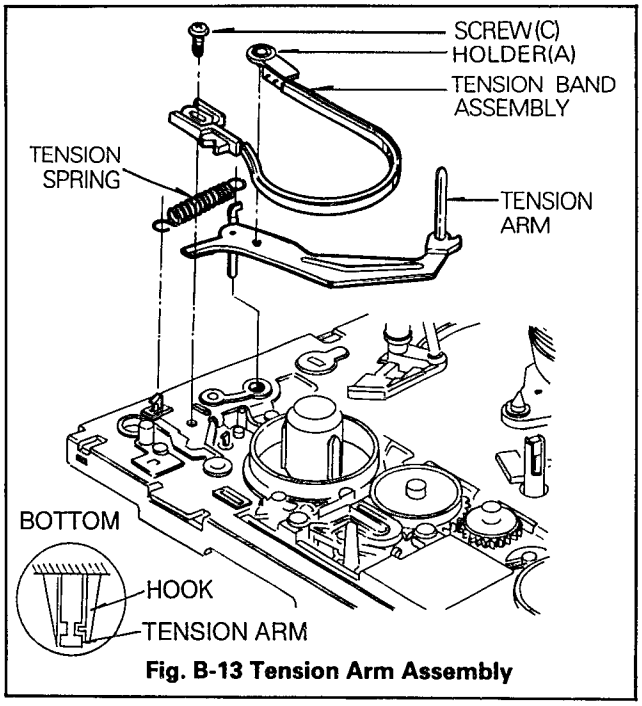


Fig. B-13 Tension Arm Assembly

14. Supply Soft/Supply Main/Take-Up Soft /Take-Up Main Brake Assembly

1) Supply Soft Brake(SSB)
   ① Remove the SSB Spring.
   ② Remove the SSB.
2) Supply Main Brake(SMB)
   ① Remove the SMB Spring.
   ② Remove the SMB.
3) Take Up Soft Brake(TSB)
   ① Remove the TSB Spring.
   ② Remove the TSB.
4) Take-Up Main Brake(TMB)
   ① Remove the TMB Spring.
   ② Remove the TMB.

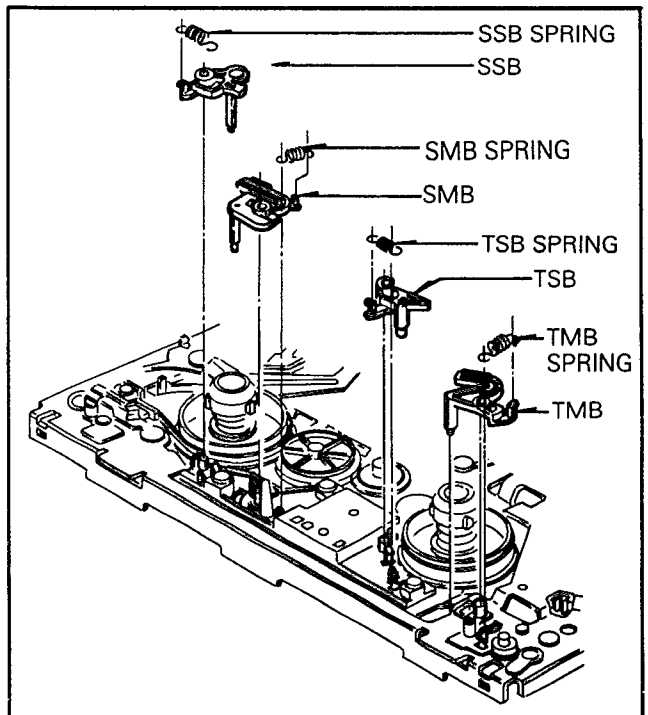


Fig. B-14 SMB/SSB/TMB/TSB

15. Bracket F/R(FF/Rewind) Assembly (Fig. B-15)

1) Remove the TMB.
2) Remove the Washer(A), and then remove the Gear F.R.
3) Remove three screws, and then remove Bracket F/R Assembly from the Deck Mechanism Assembly.
4) Remove the Washer(B), and spring Up/D, and then remove the Gear Up/D.
5) Remove the shaft(C), and then remove the Arm F.R, Lever F.R and Spring F.R.

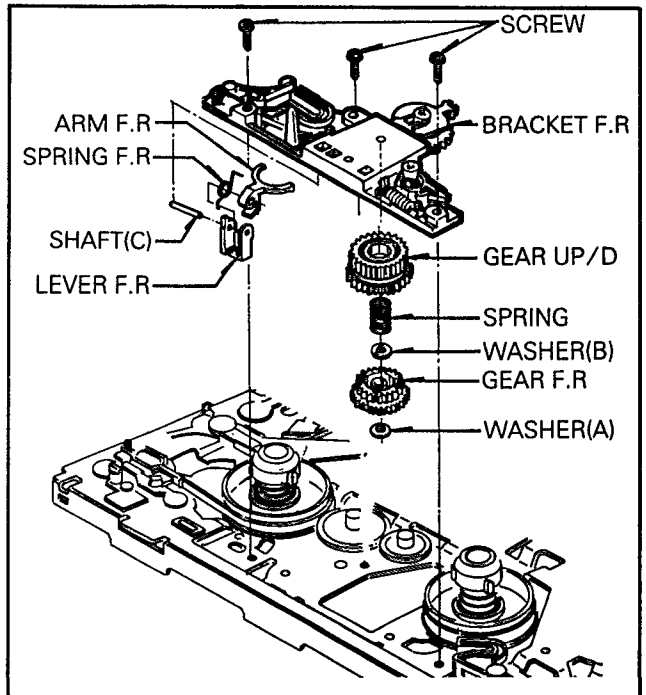


Fig. B-15 Bracket F.R Assembly

16. Supply Reel Assembly(Fig. B-16)

1) Remove the Tension Band Assembly.
2) Remove the Bracket F/R.
3) Lift up the Supply Reel Assembly from the Deck Mechanism Assembly.

17. Take Up Reel Assembly(Fig. B-16)

1) Remove the TMB(Fig. B-14)
2) Lift up the Take-up Reel Assembly from the Deck Mechanism Assembly.

*** NOTE**

1) When reassembling

① Make sure that the Supply and Take Up Reel are not exchanged.

② After reinstalling the Supply Reel Assembly, Adjust the Tension.

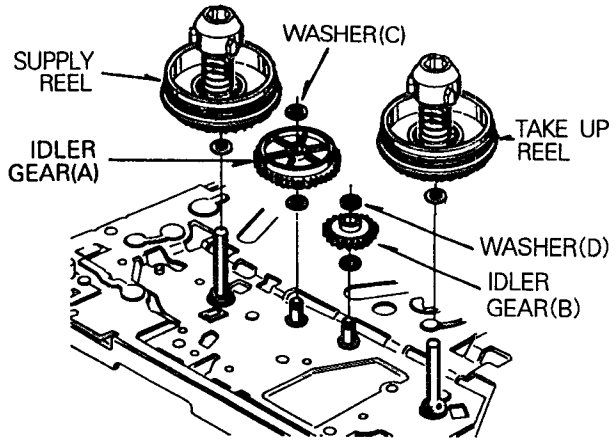


Fig. B-16 Supply Reel Assembly/Take-Up Reel Assembly

18. Idler Gear(A), (B)(Fig. B-16)

1) After removing the Supply Reel and supply Main Brake Assembly, remove the washer(C) and then remove the Idler Gear(A).
2) Remove the Washer(D) and remove the Idler Gear(B).

19. Pulley Gear Assembly(Fig. B-19)

1) Turn over the Deck Mechanism Assembly.
2) Remove the Capstan Belt.
3) Remove the Washer(A) and lift up the Pulley Gear.

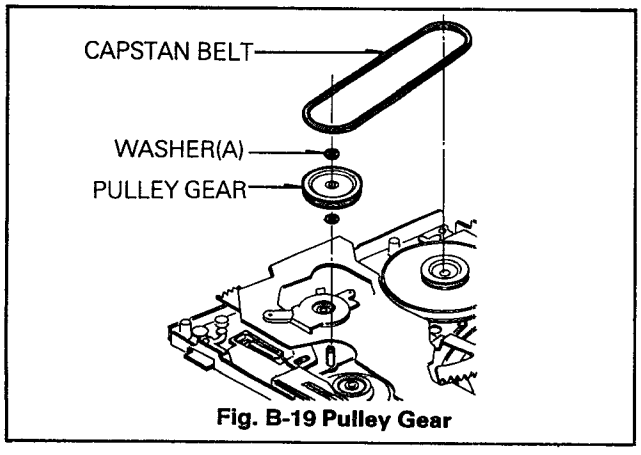


Fig. B-19 Pulley Gear

20. Bracket Bottom Assembly(Fig. B-20)

1) Remove one screw(A).
2) Remove one Hexagonal Nut, and then lift up the Bracket Bottom Assembly.
3) Remove one Washer(C), and lift up the Ratchet Gear 1.
4) Remove the washer(D), and then remove Ratchet Gear 3 from the Bracket Bottom.

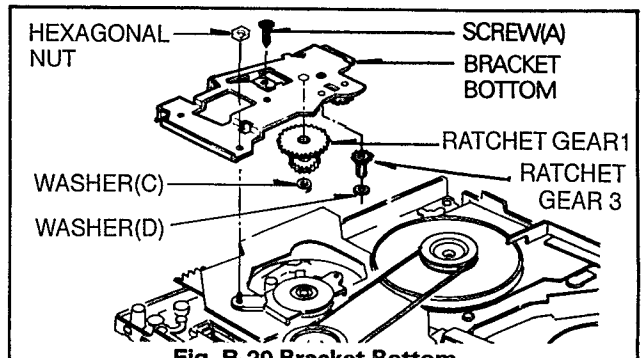


Fig. B-20 Bracket Bottom

21. Junction PCB(Printed Circuit Board) Assembly(Fig. B-21-1)

1) Remove the Bracket Bottom Assembly.
2) Remove two screws(A), (B) and then remove the Junction P.C.B Assembly.
3) Remove the Mode Switch from the Junction P.C.B Assembly.
4) Remove the Reel Sensor, Sensor LEDS and each holder from the Junction P.C.B(Fig. B-21-2).

*** NOTE**

1) When reassembling the Mode Switch, the groove(V) and (U) of Mode Switch should be at their original place in the Eject Mode.

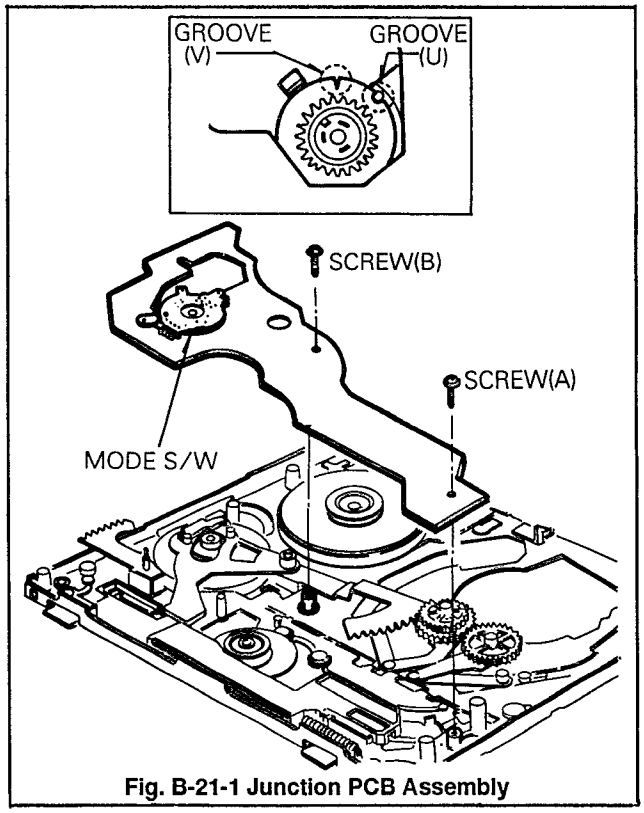


Fig. B-21-1 Junction PCB Assembly

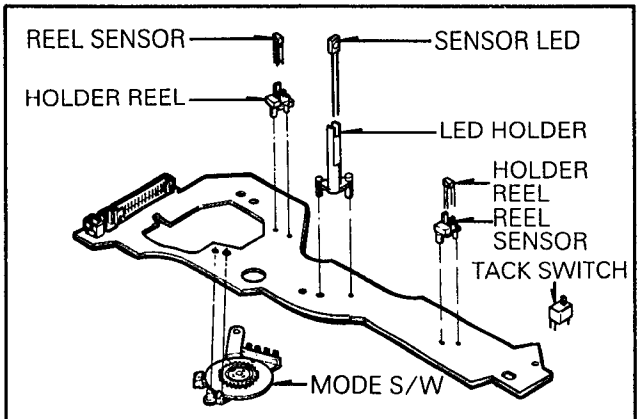


Fig. B-21-2 Mode S/W/Reel Sensor/Sensor Led

22. Capstan Motor and Brake Assembly (Fig. B-22-1)

1) Remove the Junction P.C.B Assembly
2) Hook the end of Capstan Brake Spring to the projection of Capstan Brake and then remove the Capstan Brake Assembly by lifting it up(Fig. B-22-2).
3) Remove two Screws(A), and then remove the Bracket C-Guide.
4) Remove the Connector.
5) Remove three screws(B), and then remove the Capstan Motor Assembly from the Deck Mechanism Assembly.

*** NOTE**

1) When disassembling and reassembling, hook end of the spring on the projection of Cap-Brake and remove it by lifting it up. Reassemble it in the opposite manner.

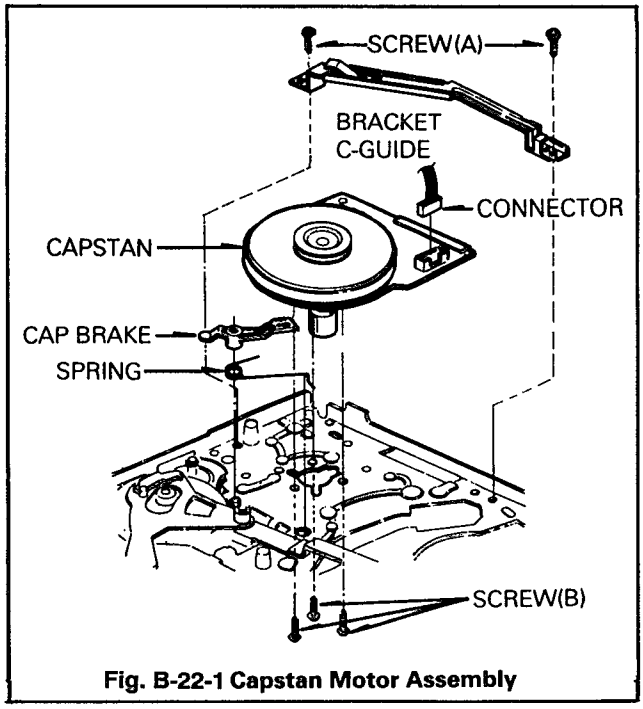


Fig. B-22-1 Capstan Motor Assembly

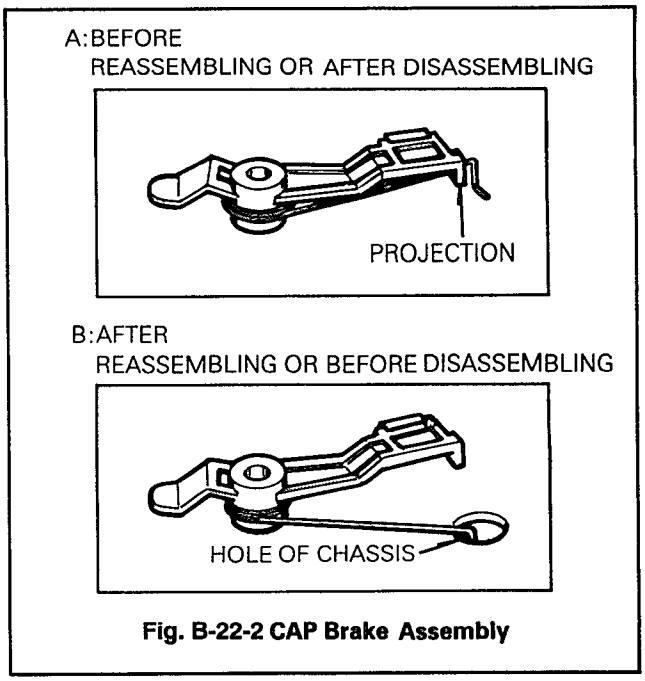


Fig. B-22-2 CAP Brake Assembly

23. Function Plate(Fig. B-23)

1) Remove two screws(B) in Eject Mode.
2) Remove the Function Plate Spring.
3) Push the Function Plate in the direction of arrow(A) and then lift it up.

*** NOTE**

1) When reassembling,the groove of Lower part of Function Plate should be aligned with the shaft of Tension Lever Assembly(Fig. B-29).

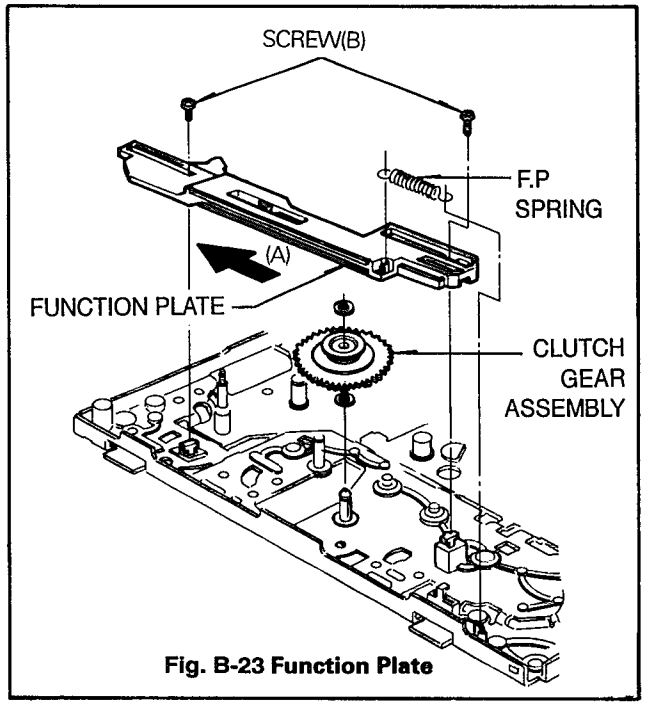


Fig. B-23 Function Plate

24. Ratchet Lever Assembly(Fig. B-24)

1) Remove the Function Plate.
2) Remove the Junction P.C.B Assembly.
3) Remove the Washer(A) and then remove the Ratchet Lever Assembly.
4) Remove the Ratchet Spring.
5) Remove the Ratchet Lever from the Ratchet 17 by lifting it up when the hook of it is aligned with the hole of Ratchet 17 while rotating it counterclockwise direction.
6) Remove the Washer(B), and turn over the Ratchet 17 and then remove the F-Lever Pin, Spring F-Lever.

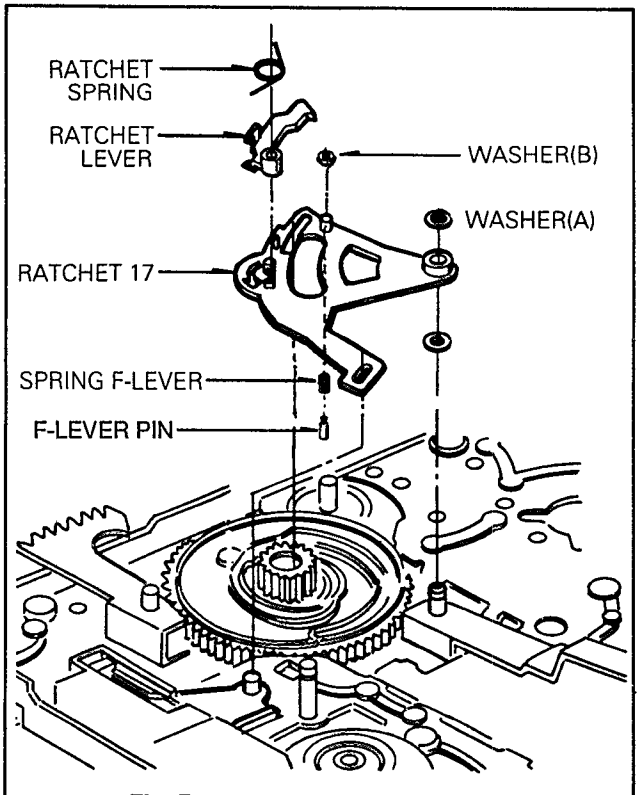


Fig. B-24 Ratchet Lever Assembly

25. Cam Gear/Rack Gear T/Rack Gear FL(Fig. B-25-2)

1) Remove the washer(A) and remove the Ratchet Lever Assembly.(Fig. B-25-1).
2) Remove the washer(B), and then remove the Cam Gear (Fig. B-25-2).
3) Remove the Rack Gear F.L.(Fig B-25-3).
4) Remove the Washer(D).(Fig. B-25-3).
5) Remove the Rack Gear T.(Fig. B-25-3).

*** NOTE**

1) When reassembling

① Align the Projection of Rack Gear T with the hole of Loading Gear.

② Drive the Rack Gear F.L in the direction of arrow(D).

③ Hole of Cam should be aligned with the hole of chassis, and the groove(▶◀) of Cam Gear should be aligned with the hole of PC Gear (Fig. B-26).

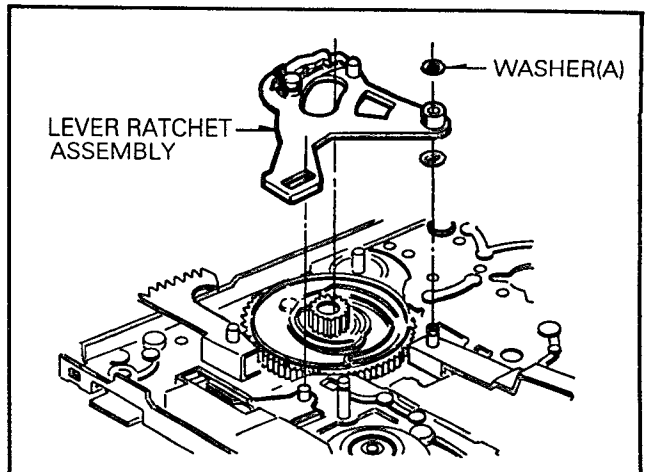


Fig. B-25-1 Lever Ratchet Assembly

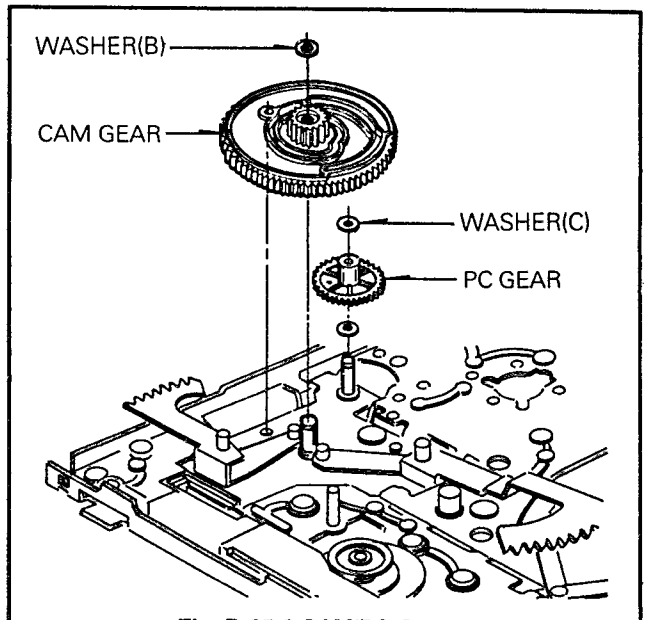


Fig. B-25-2 CAM/PC Gear

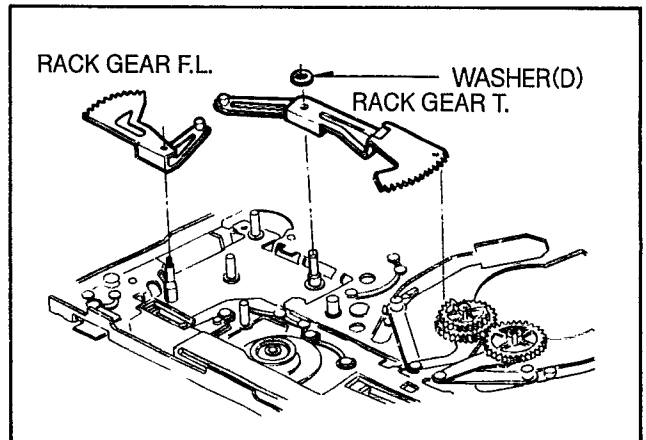


Fig. B-25-3 Rack Gear F.L/Rack Gear T

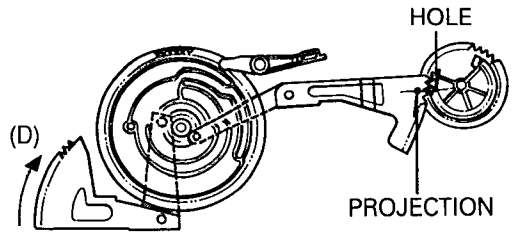


Fig. B-25-4 Rack Gear F.L/Rack Gear T/CAM Gear

26. PC Gear(Fig. B-26)

1) Remove the washer(C).
2) Remove the P.C Gear by lifting it up.

*** NOTE**

1) When reassembling

① The Groove of PC Gear should be aligned with the groove(V) of Cam Gear, and another hole of it should be aligned with the hole of chassis (Fig. B-26).

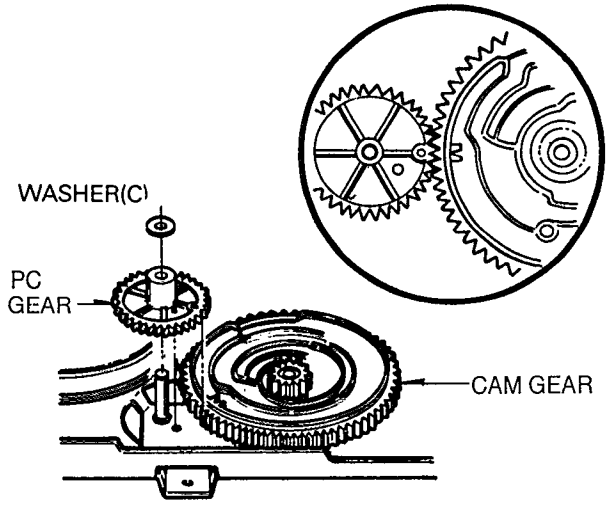


Fig. B-26 PC Gear

27. P2 and P3 Slant Assembly (Fig. B-27)

1) After finishing the disassembly of Drum Assembly, remove the P2 and P3 Slant Assembly by turning the Loading Gear(R) in the clockwise direction.(Loading direction)
2) Loosen the set screws.
3) Remove the Roller Guide from the Slant Base.

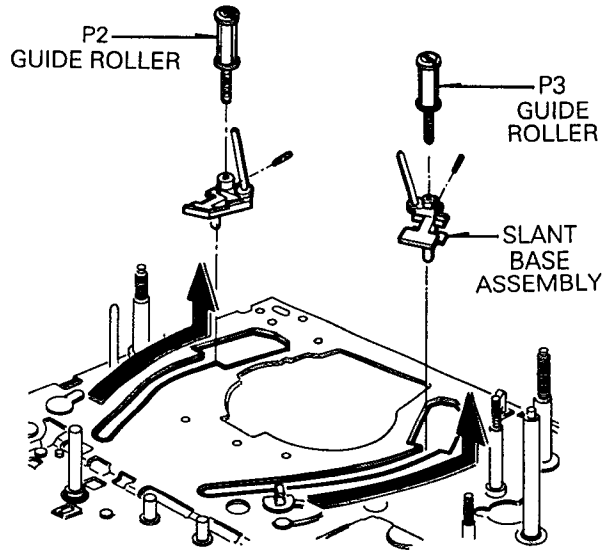


Fig. B-27 Slant Assembly

*** NOTE**

1) When disassembling and reassembling

① Use a Hexagonal wrench to remove set screw.
② Take notice that the P2 and P3 Slant Assembly should not be changed from their original place.

28. Loading Gear Assembly(L),(R) (Fig. B-28)

1) Remove the Cam Gear, Rack-T.
2) Remove the P2 and P3 Slant Assembly by turning the Loading Gear(L),(R) in the Loading direction
3) Lift up the Loading Gear Assembly(L),(R) from the Deck Mechanism Assembly.
4) Remove the Spring Load(L),(R).
5) Separate the Loading Gear(L), (R) from Arm Load(L), (R).

*** NOTE**

1) When reassembling

① Make sure that the Loading Gear(L) and (R) should not be changed from their original place.
② Align the groove of Loading Gear(L),(O) with the groove of Gear(R),(O).

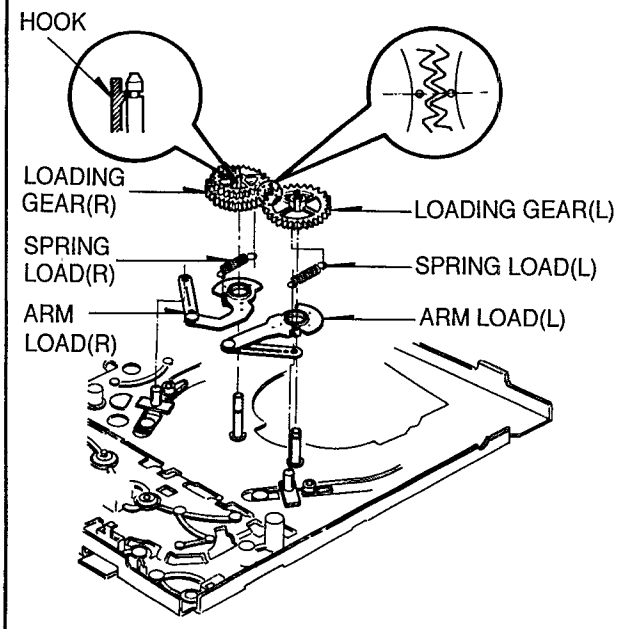


Fig. B-28 Loading Gear Assembly

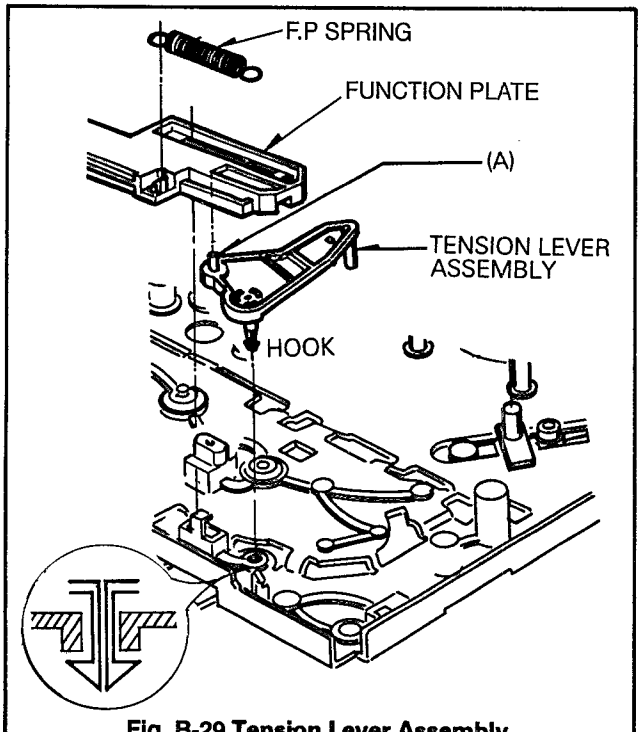


Fig. B-29 Tension Lever Assembly

29. Tension Lever Assembly(Fig. B-29)

1) Remove the Function Plate.
2) Remove the Tension Lever Assembly by pushing hooks inward.

*** NOTE**

1) When reassembling

① Set the part(A) of Tension Lever Assembly in the groove of Lower part of Function Plate.

30. Clutch Gear Assembly(Fig. B-30)

1) Remove the Pulley Gear.
2) Remove the Plate Function.
3) Remove the washer(A), and then remove the Clutch Gear Assembly.

*** NOTE**

1) When reassembling

① Do not disassemble the Clutch Gear Assembly any futher, because Torque adjustment is not adjustible.

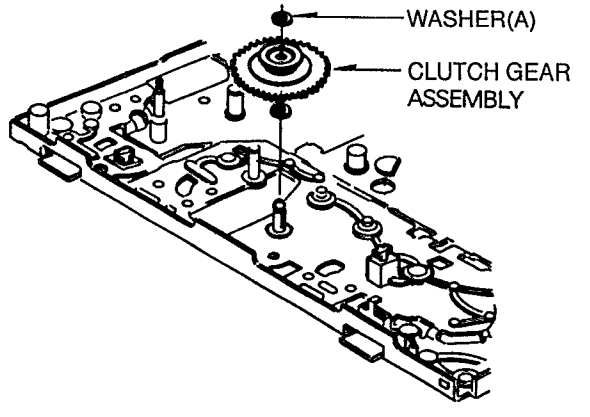
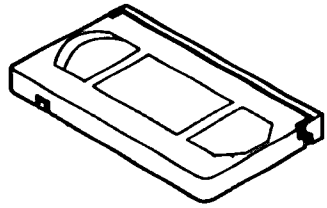
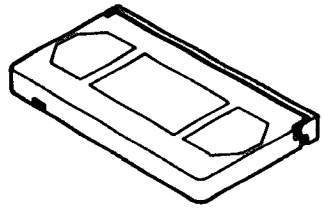
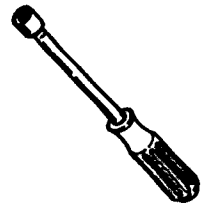


Fig. B-30 Clutch Gear Assembly

MECHANISM ADJUSTMENTS

• Tools and Fixtures for Deck

1. Back tension meter Parts No : D00-D006 	2. Alignment tape Parts No NTSC: DTN-0001 PAL : DTN-0002 	3. Torque gauge Parts No : D00-D002 
4. Torque gauge adaptor Parts No : D09-R001 	5. Post height adjusting driver Parts No : DTL-0005 	6. M3 Nut driver Parts No : DTL-0006 

1. Mechanism State Switch (Mode Switch) Check

Purpose: To detect accurately the mechanism state and prevent the mechanism from malfunction.

Test Equipment/Fixture	VCR State	Check Point
● Blank tape	● Eject Mode (with cassette ejected)	● Mechanism state switch (Mode Switch and Cam)

Check Procedure

1) Turn the VCR on and eject the tape by pressing eject button.
2) Remove the Cabinet Top, the Main P.C.Board and the CST Housing. Then push the CST IN/OUT switch (Loca. #137) and eject button at the same time.
3) Turn the worm (Loca. #082) of Loading Motor Assembly (Loca. #A10) to the left side (counter-clockwise) to align the three holes (A) of the Pinch Gear, the P.C.Gear and the Chassis.
4) Remove the Bottom Cover and then check that the groove (V) and the hole (O) of Mode S/W are aligned each other. If the above alignment is not obtained, adjust as follows.
   (1) Remove the Bracket Assembly Bottom and the Capstan Belt in the state of power off.
   (2) Remove the P.C.B Assembly, align the groove (V) and the hole (O) of Mode S/W each other and then reassemble the P.C.B Assembly.
   (3) Turn the power on and perform the various operations to check that the loading and the unloading are correct.

Check Diagram

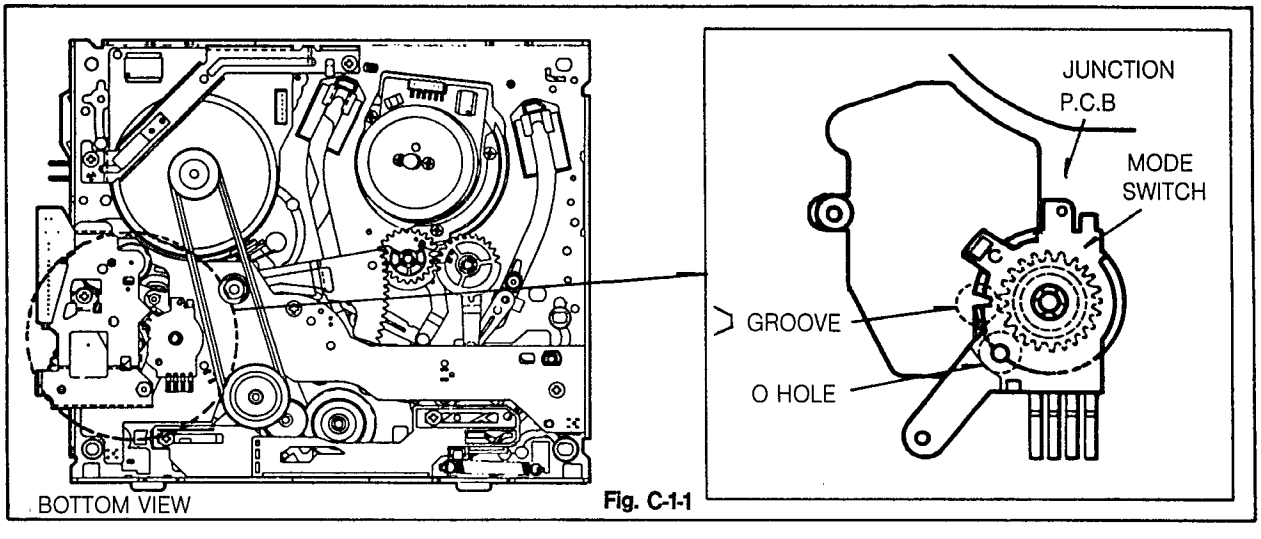


Fig. C-1-1

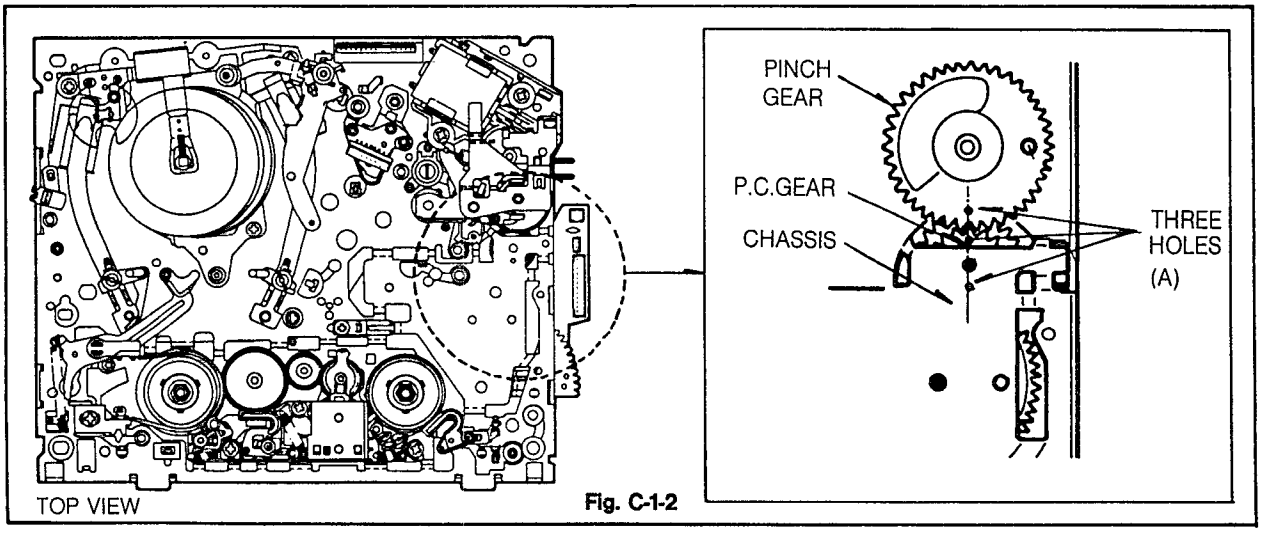


Fig. C-1-2

2. Preparation for Adjustment(To set VCR to the loading state without inserting a cassette)

1) Unplug the power cord from the AC outlet.
2) Remove the Cabinet Top and Front Loading mechanism.
3) Plug the power cord into the AC outlet.
4) Turn the VCR on and push the tact switch in the PCB Assembly.
   The VCR can accept input of each mode in this case. However the rewind and review operation cannot be performed for more than a few seconds because the take-up reel table is in the stop state and reel pulses cannot be detected.

(NOTE)

Always return the VCR to the Front Loading Mechanism Assembling State in the following order after the above operations have been performed.

1) Press the Eject button after turning the power on.
2) Wait for about 10 seconds until searching out the assembly position.
3) Assemble the Front Loading Mechanism and connect the Front Loading Mechanism Connector.
4) Refer to the "Front Loading Mechanism Disassembly" which is described previously.

3. Tension Post Position and Tension Adjustment

Purpose: To make the tension of tape constant so that the contact between the video heads and tape is stabilized.

Test Equipment/Fixture	VCR State	Adjustment Point
● Tension Meter (Tension adjustment)	● Play without cassette and with a Tension Meter	● Holder Band(B)

Adjustment Procedures

〈Position Adjustment〉

1) Perform loading without inserting a tape and loosen the screw that attaches the Holder Band(B) to the Deck Mechanism Assembly.
2) Insert the (-)type driver between the Holder Band(B) and the "V" groove of the chassis.
3) Move the Holder Band(B) right and left and align the center of tension post(Guide T-Post) with the center of P1(Shaft P1).(tolerance:Less than ±0.3mm)
4) Tighten the screw that attaches the Holder Band(B) to Deck Mechanism Assembly.

〈Tension Adjustment〉

1) Play the Tension Meter and read the Tension Meter: 38g•cm±4g•cm(reference value).
2) If the result is abnormal.
   (1) over the standard:loosen the screw, move the Holder Band(B) to the right a little and then tighten the screw and make sure that this adjustment is correct.
   (2) below the standard:loosen the screw, move the Holder Band(B) to the left a little and then tighten the screw and make sure that this adjustment is correct.

****CAUTION****

The range of movement of Holder Band(B) should be within ±1.5mm while being adjusted.
If the range is over, you should recheck the Reel Brake, Tension Arm and Spring.

Adjustment Diagram

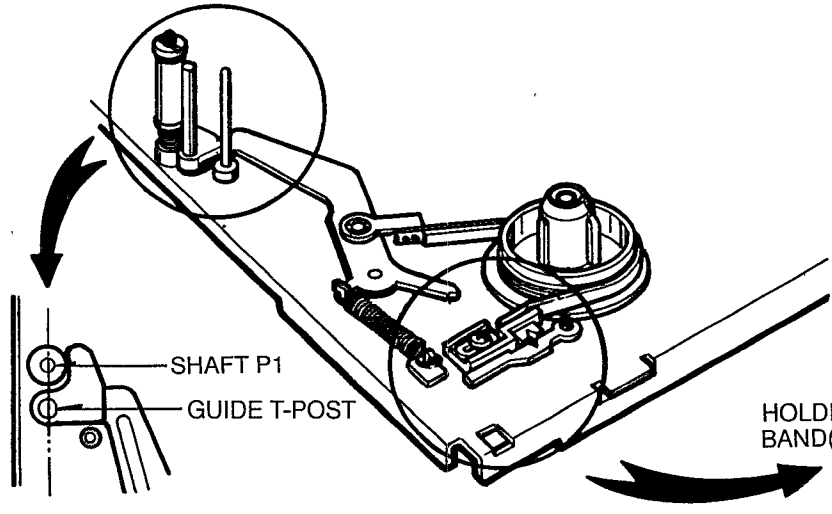


Fig. C-3-1

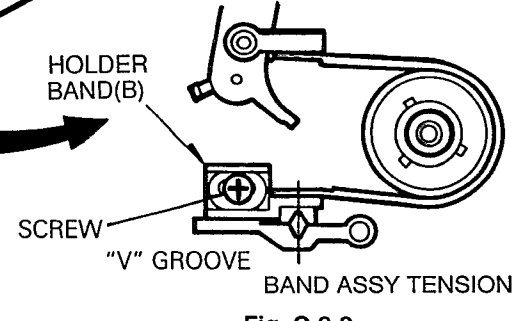


Fig. C-3-2

4. Checking Torque

Purpose: It is necessary to check the tension, torque and compression force at the tape take-up section and moving section to make the tape run smoothly and satisfy the basic performance of the VCR. Check these if the tape does not run smoothly or the tape speed is abnormal.

Test Equipment/Fixture	VCR state
● Torque Gauge ● Torque Gauge Adaptor ● Cassette Torque Meter SRK-VHT-063 : Play, Cue SRK-VHT-303 : Review	● Set the VCR to each operation mode without inserting a cassette. (See '2 Preparation for Adjustment')

Item	VCR Operation mode	Measurement Reel	Measurement Values
Main brake torque.	Eject	Supply and take-up reels	600g.cm or more
Slack removal torque	Unloading(power off)	Supply reel	120~220g·cm
Fast forward torque	Fast forward	Take-up reel	600g·cm or more
Rewind torque	Rewind	Supply reel	600g·cm or more
Play take-up torque	Play	Take-Up reel	90~150g·cm
Review Torque	Review	Supply Reel	120~180 g.cm
CUE Torque	Cue	Take-Up Reel	110~170 g.cm

Checking Method

The values are measured by using a torque gauge and torque gauge adaptor with the torque gauge fixed.

Note: This value is measured when the VCR is shifted in the unloading direction from the fast forward or rewind mode and quick braking is applied to both Reel Tables.

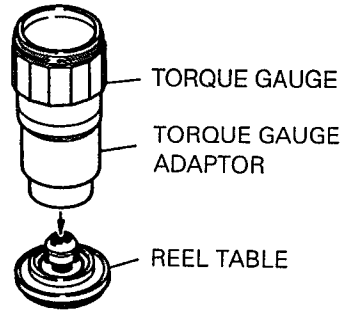


Fig. C-4

5. Guide Roller Height Adjustment

Purpose: To regulate the height of tape so that the bottom of tape runs along the tape guide line on the lower drum.

A. Preliminary Adjustment

Test Equipment/Fixture	VCR State	Adjustment Point
● Hexagonal Wrench or Bended Drive (+) Type ● Post Height Adjusting Driver	● Play an alignment tape	● Guide Roller Height Adjustment Screws on the Supply and Take-Up. Guide Rollers.

Adjustment Procedure

1) Perform the precise adjustment.
2) When the Guide Roller is damaged, release the Guide Roller retaining screw and then replace the Guide Roller.

Adjustment Diagram

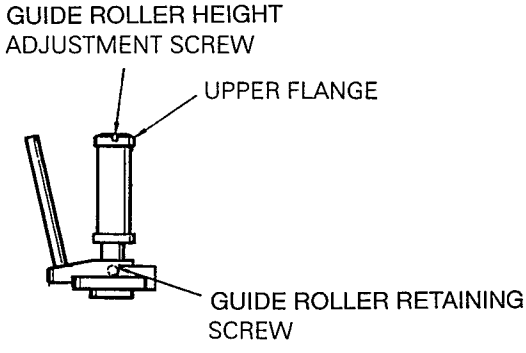


Fig. C-5-1

B. Precise Adjustment

Test Equipment/Fixture	Test Equipment Connection Points	VCR State	Adjustment Point
● Oscilloscope ● Post Height Adjusting Driver ● Alignment Tape(30HMP-2) ● Hexagonal wrench	● CH-1:PB RF Envelope ● CH-2 (NTSC : SW30Hz / PAL : SW25Hz) ● Head Switching Output Point ● RF Envelope Output Point	● Play an alignment tape	● Guide Roller Height Adjustment Screws.

Adjustment Procedure

1) Play an alignment tape after connecting the probe of the oscilloscope to RF Envelope Output Test Point and Head Switching Output Test Point.
2) Tracking control(in PB mode):Center position(When this adjustment is performed after the drum assembly has been replaced, set the tracking control so that the RF output is maximum.)
3) Height adjustment screw:Flatten the RF waveform.
4) Turn(Move) the tracking control(playback) clockwise and counterclockwise.(to the right and left)
5) Check that any drop of RF output is uniform at the start and end of the waveform.

****CAUTION****
If the adjustment is excessive or insufficient the tape is jammed or folded.

Waveform Diagrams

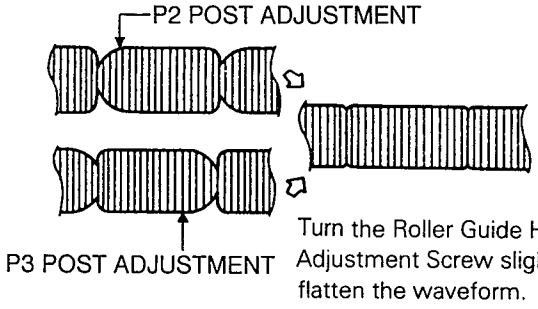
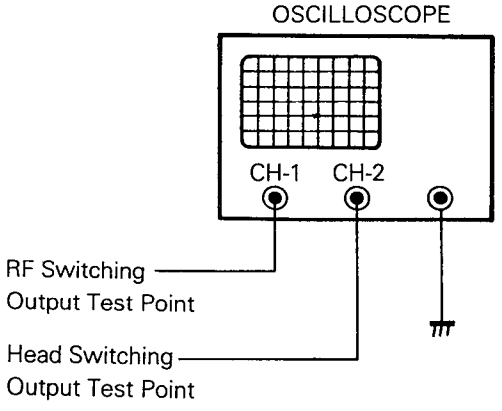


Fig. C-5-2

Tracking control at center — Turn(Move) the tracking control to both directions.

Fig. C-5-3

Connection Diagram



6. Audio/Control(A/C) Head Adjustment

Purpose: To keep the contact between the tape and head so that the specificed track is recorded and played back.

A. Preliminary Adjustment (Perform the preliminary adjustment, when there is no Audio Output signal with alignment tape.)

Test Equipment/Fixture	VCR State	Adjustment Points
● M3 Nut Driver		● Special screw ● Cone Point Screw for tilt ● Azimuth Adjustment Screw
● Blank tape	● Run the blank tape	● A/C Head Adjuster

Adjustment procedure/Adjustment Diagram

1) Tighten the special screw so that the spring section protrudes 6.4mm(approx.) over the top of Head Base (1).

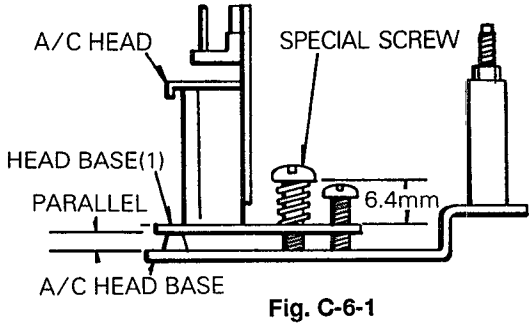


Fig. C-6-1

2) Turn the Azimuth Adjustment Screw and Cone Point Screw so that the Head Base(1) and A/C Head Base are parallel.

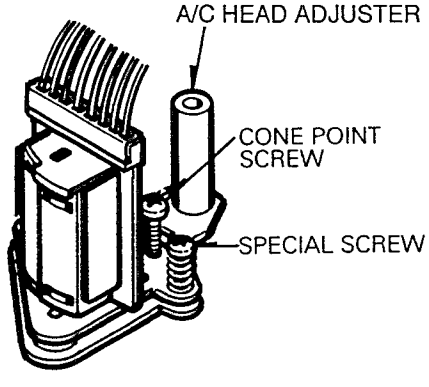


Fig. C-6-2

3) Load a blank tape and set the VCR to the play mode.

4) Confirm that the tape runs fittingly to the lower limit of the P4 post. Also confirm that the tape runs smoothly.

5) If adjustment is required, turn Cone Point Screw clockwise until curling is apparent at the lower edge of P4. Then turn Cone Point Screw counterclockwise until the curling smooths out.

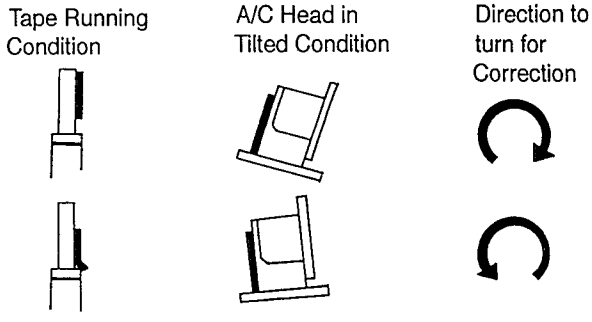


Fig. C-6-3

6) Check that there is no conspicuous curling and folding around the A/C head. If there is conspicuous curling or folding, readjust the Cone Point Screw, Azimuth Adjustment Screw and A/C Head Adjuster. When the bottom edge of tape is 0.20~0.25mm from the bottom edge of the control head's core, the height of A/C head is ideal.

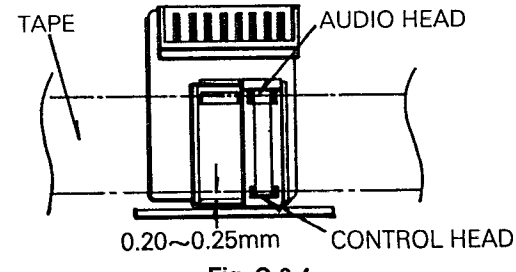


Fig. C-6-4

7) If necessary repeat steps 1 through 4 until a precise adjustment is achieved.

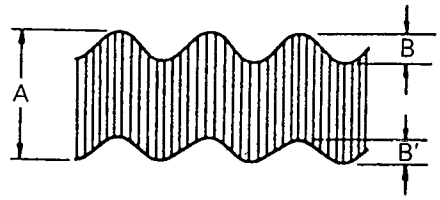
B. Precise Adjustment

Test Equipment/Fixture	Test Equipment Connection Point	VCR State	Adjustment Points
● Oscilloscope ● Alignment tapes ● M3 Nut Driver	● Audio output jack	● Play an alignment tape 1KHz, 7KHz sections	● Azimuth Adjustment Screw ● A/C Head adjuster ● Cone point screw

Adjustment Procedure

1) Connect the probe of oscilloscope to audio output jack.
2) Adjust the Azimuth Adjustment Screw, A/C Head adjuster and cone point screw slightly and alternately so that an Audio 1KHz output is maximum and flat. (minimum fluctuation).
3) Adjust the Azimuth Adjustment Screw slightly and alternately so that the Audio 7KHz output is maximum.

Waveform Diagram



A:Maximum BB':Minimum

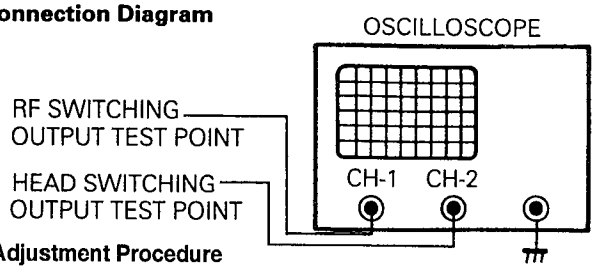
Fig. C-6-5

7. X-Value Adjustment

Purpose: To obtain compatibility with other VCRs.

Test Equipment/Jigs	Test Equipment Connection Points	VCR State	Adjustment Points
● Oscilloscope ● Alignment tapes ● Post Height Adjusting Driver	● CH-1:PB RF Envelope ● CH-2:SW 30Hz ● Head Switching Output Test Point ● RF Envelope Output Test Point	● Play an alignment tape	● Adjust X

Connection Diagram



Adjustment Procedure

1) Insert a cassette tape, and then "AUTO TRACKING" will be displayed on the Digitron, then push the Tracking ⊕ or ⊖ Keys one time as soon as possible to make the VCR release the Auto Tracking.
2) Turn the Adjust X to the maximum RF Envelope level when the VCR is free from the Auto tracking.
3) If RF envelope output is maximized from the center click position in the right direction (clockwise), set the tracking control to the center and turn the X Adjust counterclockwise.
4) If in the left direction (counterclockwise), turn it clockwise by the same method.
5) In case of the 30 μm, head will trace over a 60 μm width track, readjust it so that RF Envelope output begins falling at the same angle when tracking control is turned either left or right.

Adjustment Diagram

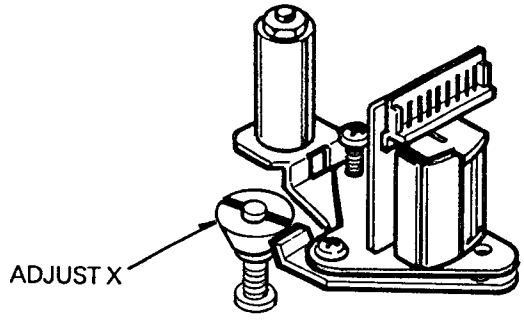


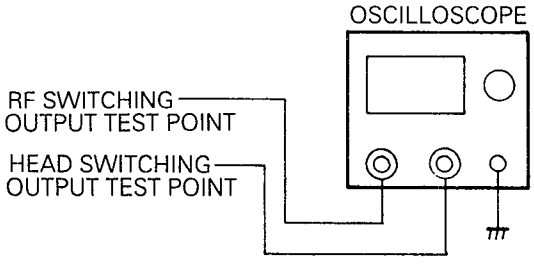
Fig. C-7

8. Adjustment after Replacing Drum Assembly(Video Heads)

Purpose: To suppress drift in the height relative to the Guide Roller and drift of the X Value after replacing the drum.

Test Equipment/Fixture	Test Equipment Connection Points	VCR State	Adjustment Points
● Oscilloscope ● Post Height Adjusting Driver ● Alignment tape ● Blank tape ● M3 Nut Driver	Checking the flatness ● CH-1:PB RF Envelope ● CH-2 (NTSC : SW30Hz / PAL : SW25Hz) ● Head Switching Output Point ● RF Envelope Output Point	● Run the blank tape ● Play an alignment tape	● Guide Rollers Precise Adjustment ● Switching point ● Tracking point ● X-Value

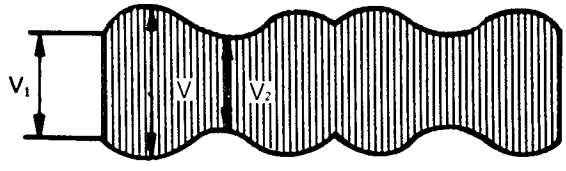
Connection Diagram



Checking/Adjustment Procedure

1) Run the blank tape, check and adjust whether the Roller Guide is curling or creasing tape around the Roller Guide.
2) Check the RF envelope output flatness and adjust the Roller Guide Height while playing an alignment tape.
3) Adjust the head switching point.
4) Check that RF envelope output is maximum when the tracking is at the initial position.
5) Adjust the Tracking Preset and X-Value Adjust with X Adjust.

Waveform Diagram



V_1/V MAX $\geq$ 0.7
V_2/V MAX $\geq$ 0.8
RF ENVELOPE OUTPUT

Fig. C-8

9. Check of Tape Travel after reassembling Deck Assembly

9-1. Check Audio and RF Locking Time during playback after CUE or REV.

Test Equipment/Fixture	Specification	Test Equipment Connection Point	VCR State
● Oscilloscope ● Alignment tape (with 6H 3kHz Color Bar Signal) ● Stop Watch	● RF Locking Time : Less than 5 sec. ● Audio Locking Time : Less than 10 sec.	● CH-1 : PB RF Envelope ● CH-2 : Audio Output ● RF Envelope Output Point ● Audio Output Jack	● Play an alignment tape (with 6H 3kHz Color Bar Signal)

Checking Procedure

1) Change the mode of CUE or REV to play.
2) At this time, confirm that the Locking Time of Audio and RF Output Waveform fits to specification.
3) If the results checked above are abnormal, reapeat adjustments 4 through 8.

※ 6H : LP

9-2. Check the coincidence of both Audio and Video Sync.(Lip Sync.)

Test Equipment/Fixture	Specification	Test Equipment Connection Point	VCR State
● Oscilloscope ● 2H 9V Tape(for X-Value Adjustment Coincidence) or alignment tape	● Less than ±0.5V	● CH-1 : PB RF Envelope ● CH-2 : Audio Output ● RF Envelope Output Point ● Audio Output Jack	● Play a 2H 9V tape or an alignment tape.

Checking Procedure

1) Confirm that the period Ⓐ of Fig. C-9-1 is within ± 0.5V.
2) If the result is abnormal, repeat adjustment #7. (X-Value adjustment).

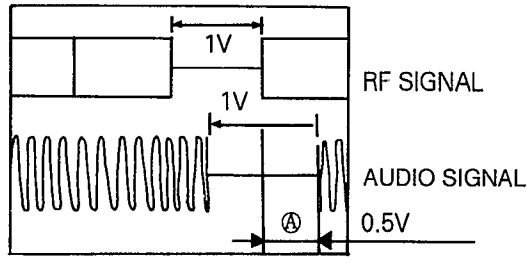


Fig. C-9-1

※ 2H : SP, V: Vertical

9-3. Check the occurance of tape curl and jam

Test Equipment/Fixture	Specification	VCR State
● T-160 Tape ● T-120 Tape	● Be sure there is no jam or curl at the beginning, the middle period or the end of the T-160 tape.	● Run the CUE, REV play mode at the beginning and the end of the tape.

Checking Procedure

1) Confirm whether the state of each transportation post is normal.
2) Make sure nothing is wrong with the operation of the Counter, when the lower part of tape is folded.
3) Be sure there is nothing wrong in the Audio signal, when the upper part of tape is folded.
4) If the result is abnormal, repeat adjustment #5 and #6.

9-4. Check the adjustment state of Take-Up Guide

Test Equipment/Fixture	Specification
● T-120 Tape ● Take-Up Guide Adjusting Driver	● Review : Travel the tape that align the top of the P4 Guide and the bottom of the Tape or be folded. ● Play : Travel the tape that align the top of the P4 Guide and the bottom of the Tape.

Checking Procedure

1) Run the CUE or PLAY mode at the middle period or the end of the T-120 tape.
2) Run the REV mode at the play or cue part of tape.
3) At this time, confirm that the change of tape height at the P4 Guide fits to specification.
4) If the result is abnormal, refer to Table 9-1.
5) Play the beginning of T-120 tape(within 5 min.)
6) Confirm that the state of tape transportation fit to specification in P4 Guide.
7) Remove the Tension Arm Assembly by rotating in the clockwise direction and then confirm that the state of tape transportation fit to specification.
8) If the result is abnormal, refer to Table 9-1.

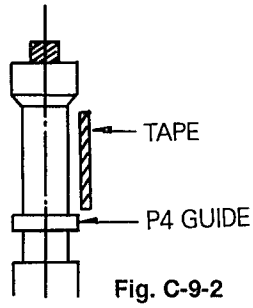


Fig. C-9-2

PLAY Mode	REV Mode	Adjustment Method
Tape Falling	Tape Lift	Bend the shaft of the direction +Y.
Tape Lift	Tape Falling	Bend the shaft of the direction -Y.

Table 9-1

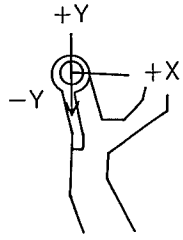


Fig. C-9-3

10. Maintenance/Inspection Procedure

(1) Required Maintenance

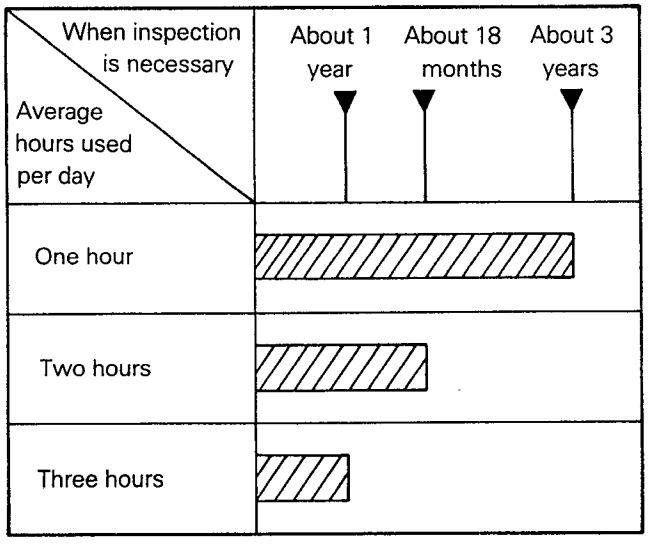
The recording density of a VCR is much higher than that of an audio tape recorder. VCR components must be very precise, at tolerances of 1/1000mm, to ensure compatiblity with other VCRs. If any of these components are worn or dirty, the symptoms will be the same as if the part is defective. To ensure good picture, periodic inspection and maintenance, including replacement of worn out parts and lubrication, are necessary.

(2) Scheduled Maintenance

Schedules for maintenance and inspection are not fixed because they vary greatly according to the way in which the customer uses the VCR, and the environment in which the VCR is used.

But, in general home use, a good picture will be maintained if the inspection and maintenance is made every 1,000hours. The table below shows the relation between time used and inspection period.

Table 1



(3) Check before starting repairs

The following faults can be remedied by cleaning and oiling. Check the needed lubrication and the conditions of cleanliness in the unit.

Check with the customer to find out how often the unit is used, and then determine that the unit is ready for in spection and maintenance. Check the following parts.

Table 2

Phenomenon	Inspection
Poor S/N, no color	Dirt on video head or worn video head
Tape does not run or tape is slack	Dirt on pressure roller, belt or flywheel belt
Vertical jitter, horizontal jitter	Dirt on video head or in tape transport system
Color beats	Dirt on full-erase head
Low volume or sound distorted	Dirt on audio/control head
Fast forward or rewind is not done or rotation is slow	Dirt on belt

(4) Supplies Required for Inspection and Maintenance

(1) Greases Kanto G-31(or equivalent)
(2) Alcohol(Isopropyl Alcohol)
(3) Cleaning Patches

5) Maintenance Procedure

5-1) Cleaning

(1) Cleaning video head

First use a cleaning tape. If dirt on head is too stubborn to remove by tape, use the cleaning patch. Coat the cleaning patch with alcohol(Isopropyl Alcohol) to the point indicated. Touch the cleaning patch to the head tip and gently turn the head(rotating cylinder) right and left.

(Do not move the cleaning patch vertically and make sure that only the buckskin on the cleaning patch comes into contact with the head. Otherwise, the head may be damaged.)

Thoroughly dry the head. Then run test tape. If alcohol (Isopropyl Alcohol) remains on the video head, the tape may be damaged when it comes into contact with the head surface.

(2) Clean the tape transport system and drive system, etc, by wiping with a cleaning patch wetted with alcohol (Isopropyl Alcohol).

Note:

① It is the tape transport system which comes into contact with the running tape. The drive system consists of those parts which move the tape.

② Make sure that during cleaning you do not touch the tape transport system with the tip of a screw driver and no force is applied to the system that would cause deforming.

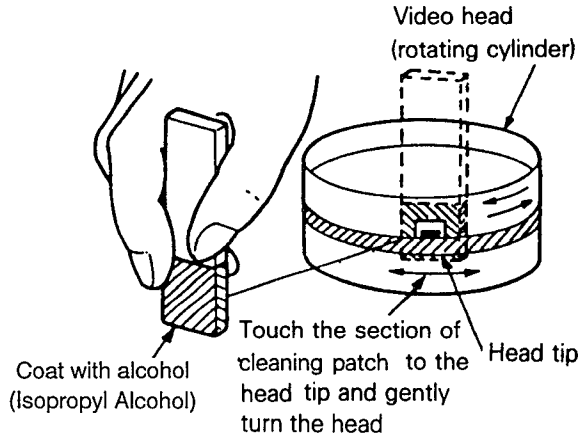


Fig. C-10-1

5-2) Greasing

(1) Greasing guidelines

Apply grease, with a cleaning patch. Do not use excess grease. It may come into contact with the tape transport of drive system. Wipe any excess and clean with cleaning patch wetted in alcohol(Isopropyl Alcohol).

(2) Periodic greasing

Grease specified locations every 5,000hours.

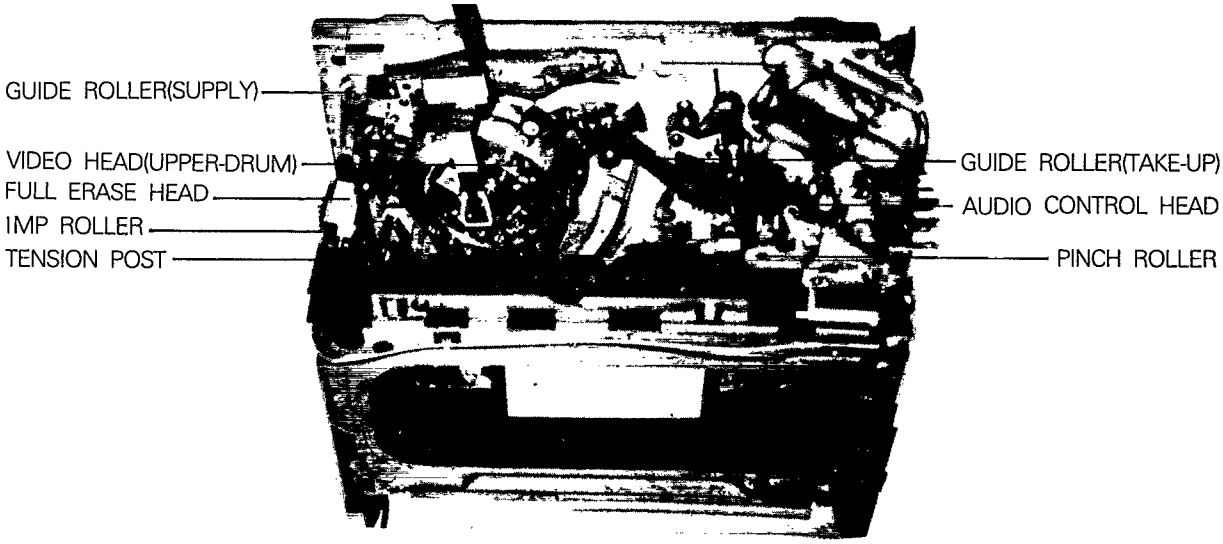


Fig. C-10-2 Tape Transport System

Phenomenon	Inspection	Replacement	
Color beats	Dirt on full-erase head	○	→ ①
Poor S/N no color	Dirt on video head	○	→ ②
Vertical jitter	Dirt on video head Dirt in tape transport system	○	→ ③
Low volume, Sound distorted	Dirt on audio/control head	○	→ ④
Tape does not run. Tape is slack	Dirt on pinch roller	○	→ ⑤

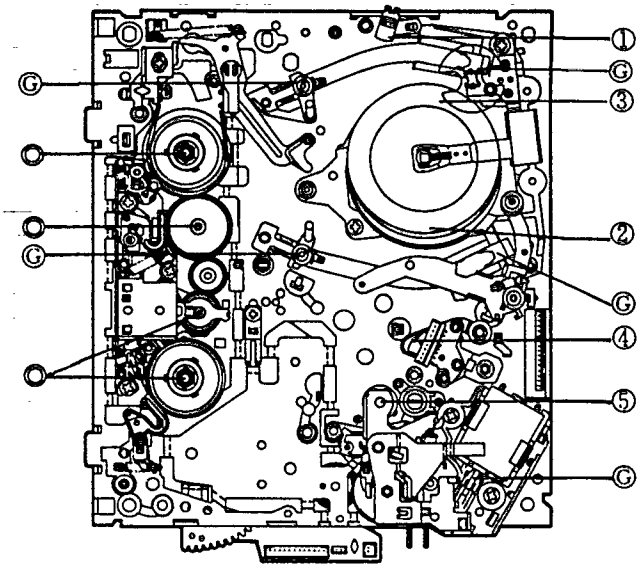


Fig. A-11 Top View of Mechanism

Phenomenon	Inspection Location	Replacement	
Do not fast forward or rewind, or rotation is slow Tape does not run Slack tape	Dirt on reel belt	○	→ ⑥

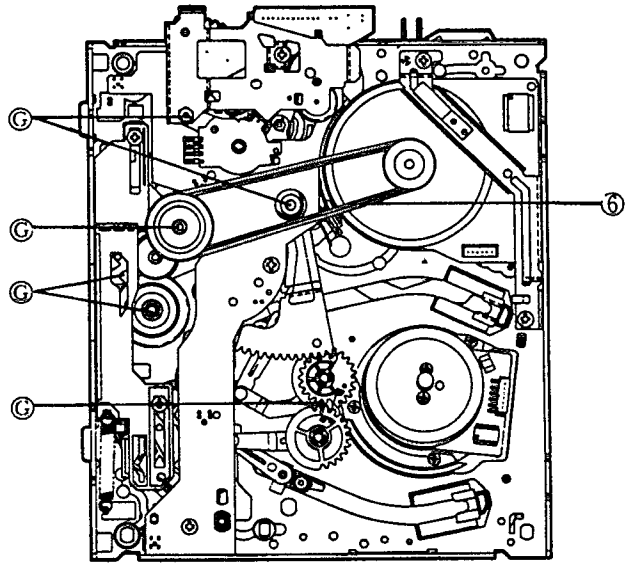


Fig. A-12 Bottom View of Mechanism

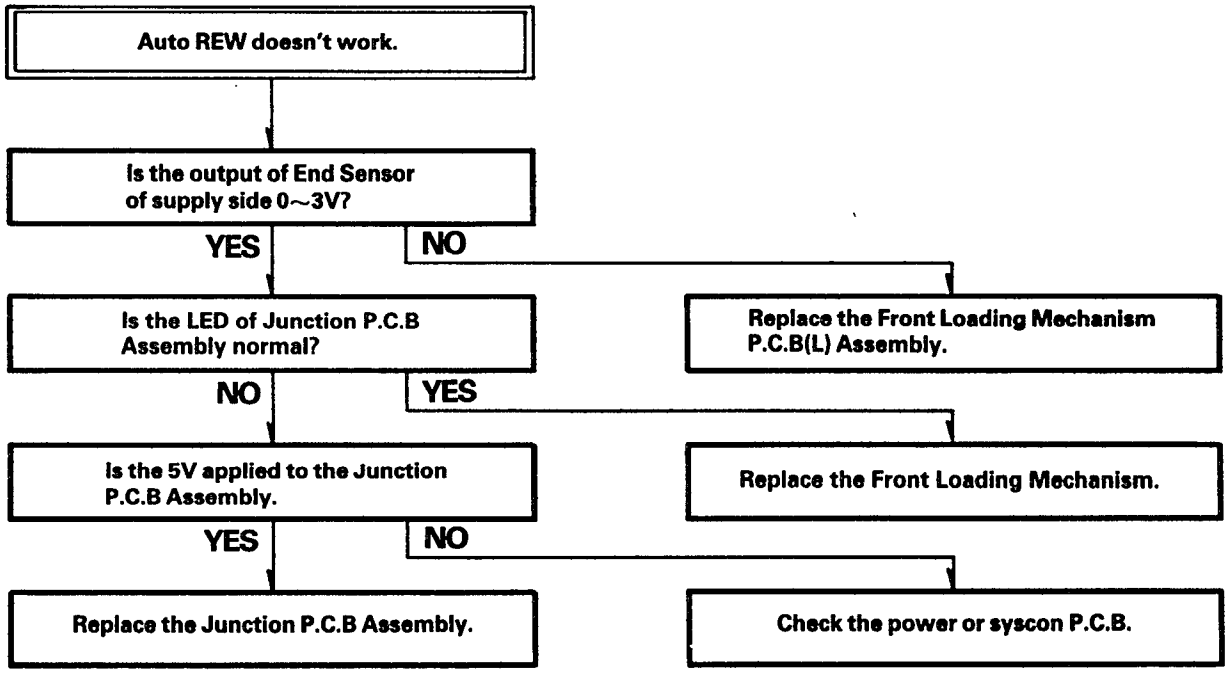
Note: If locations marked with ○ do not operate normally after cleaning, check for wear and replace.
See the EXPLODED VIEWS at the end of this manual as well as the above illustrations for the sections to be lubricated and greased.

Ⓖ:Grease
Ⓞ:Oil

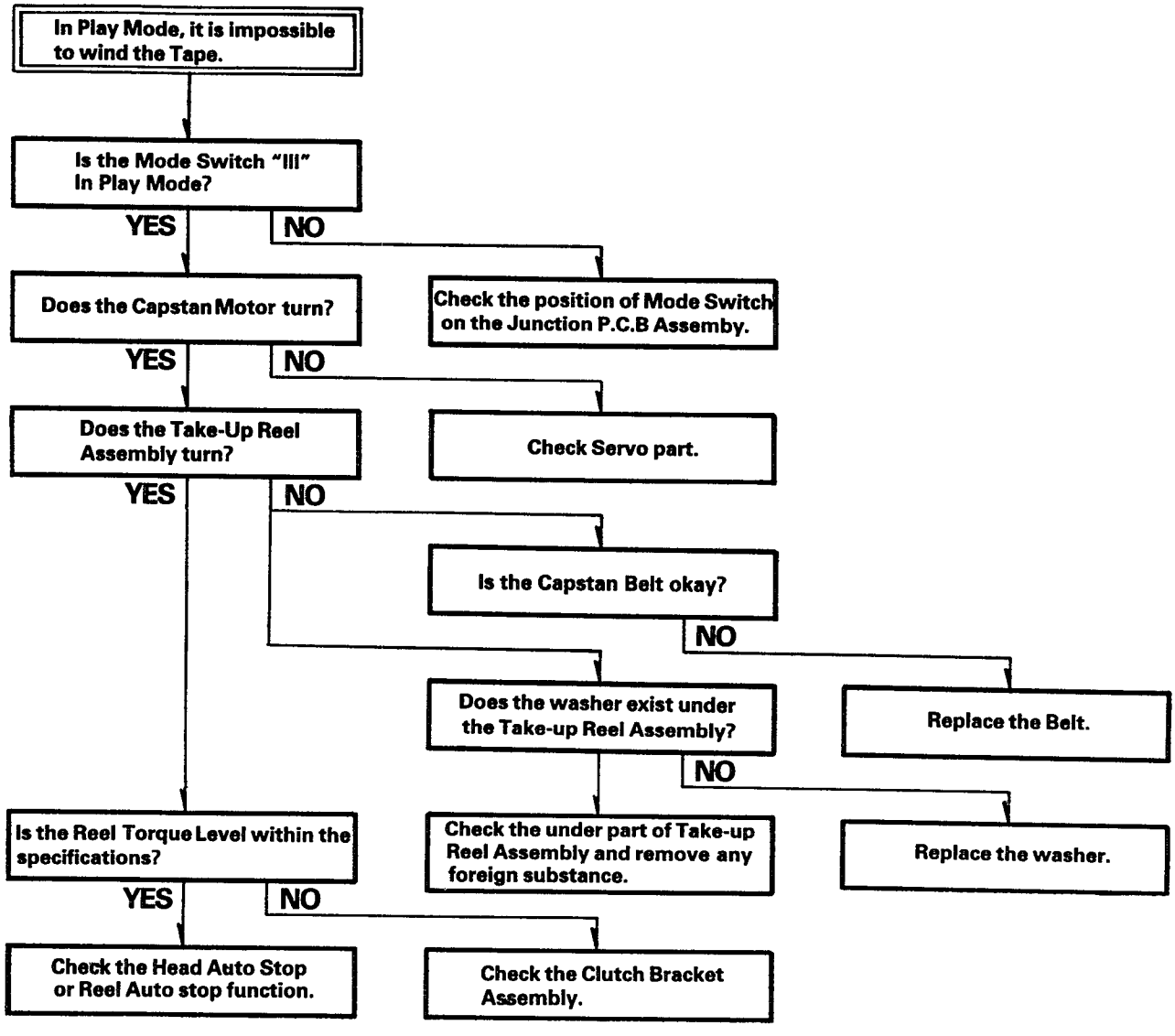
MECHANISM TROUBLESHOOTING GUIDE

1. Deck Mechanism

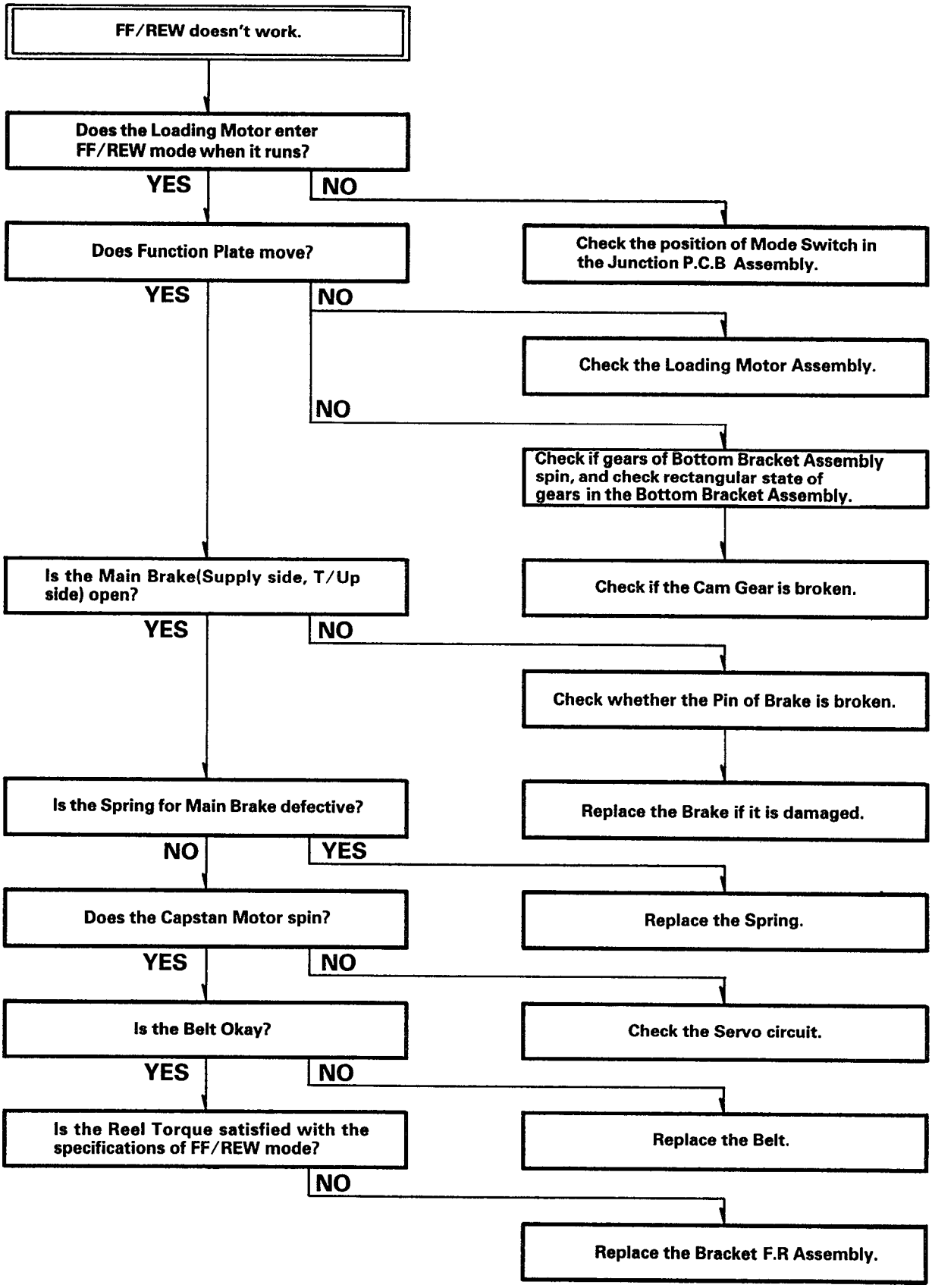
A.



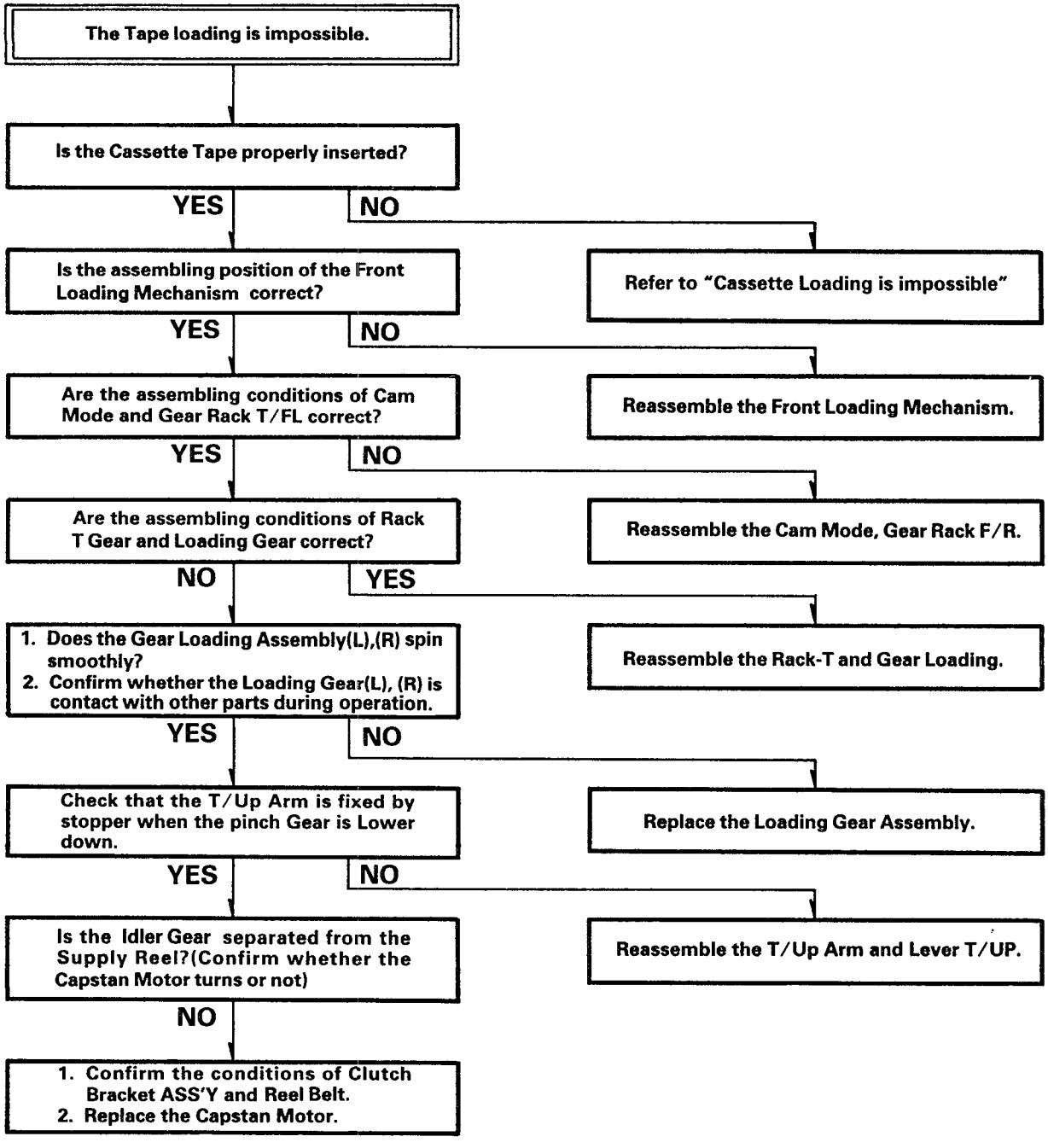
B.


In Play Mode, it is impossible to wind the Tape.
Is the Mode Switch "III" In Play Mode?
YES
NO
Check the position of Mode Switch on the Junction P.C.B Assemby.
Does the Capstan Motor turn?
YES
NO
Check Servo part.
Does the Take-Up Reel Assembly turn?
YES
NO
Is the Capstan Belt okay?
NO
Replace the Belt.
Does the washer exist under the Take-up Reel Assembly?
NO
Replace the washer.
Check the under part of Take-up Reel Assembly and remove any foreign substance.
Is the Reel Torque Level within the specifications?
YES
NO
Check the Head Auto Stop or Reel Auto stop function.
Check the Clutch Bracket Assembly.

C.

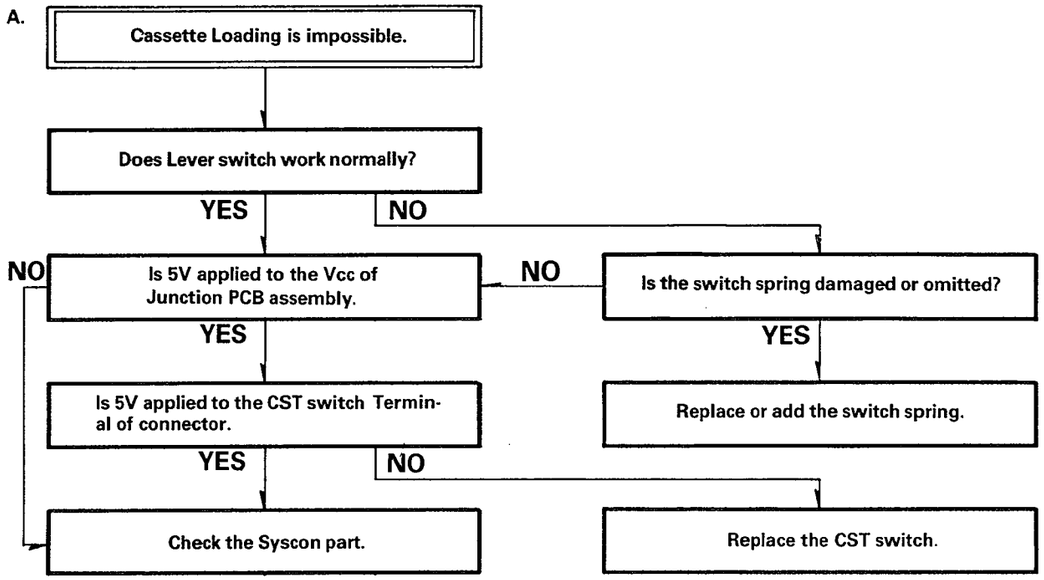

FF/REW doesn't work.
Does the Loading Motor enter FF/REW mode when it runs?
YES
NO
Does Function Plate move?
Check the position of Mode Switch in the Junction P.C.B Assembly.
YES
NO
Check the Loading Motor Assembly.
NO
Check if gears of Bottom Bracket Assembly spin, and check rectangular state of gears in the Bottom Bracket Assembly.
Is the Main Brake(Supply side, T/Up side) open?
Check if the Cam Gear is broken.
YES
NO
Check whether the Pin of Brake is broken.
Is the Spring for Main Brake defective?
Replace the Brake if it is damaged.
NO
YES
Does the Capstan Motor spin?
Replace the Spring.
YES
NO
Is the Belt Okay?
Check the Servo circuit.
YES
NO
Is the Reel Torque satisfied with the specifications of FF/REW mode?
Replace the Belt.
NO
Replace the Bracket F.R Assembly.

D.

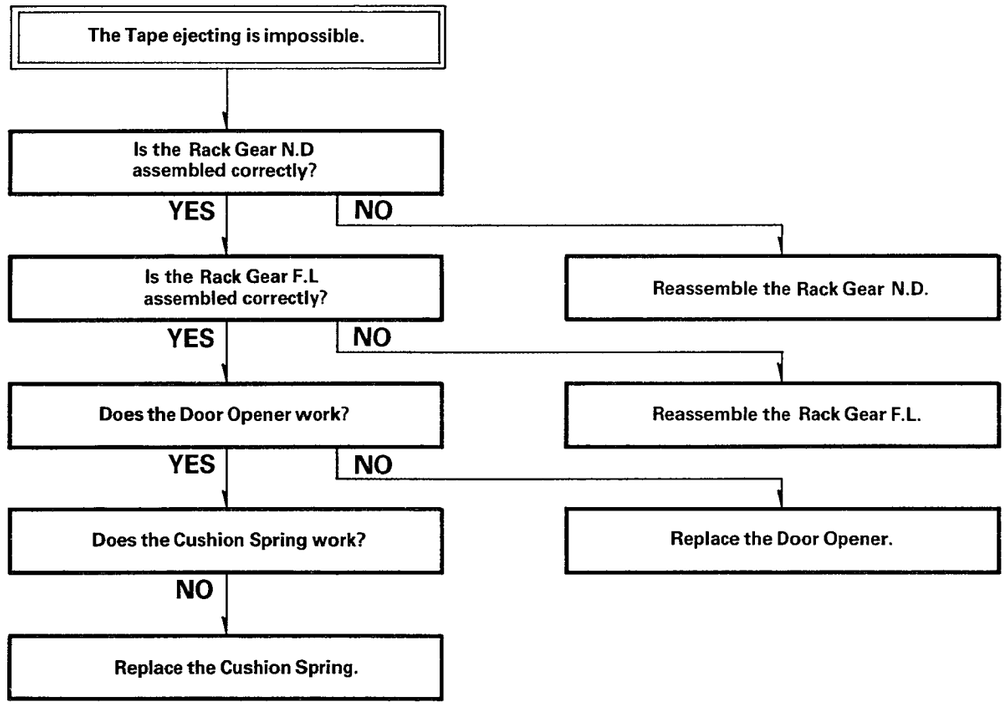

The Tape loading is impossible.
Is the Cassette Tape properly inserted?
YES
NO
Refer to "Cassette Loading is impossible"
Is the assembling position of the Front Loading Mechanism correct?
YES
NO
Reassemble the Front Loading Mechanism.
Are the assembling conditions of Cam Mode and Gear Rack T/FL correct?
YES
NO
Reassemble the Cam Mode, Gear Rack F/R.
Are the assembling conditions of Rack T Gear and Loading Gear correct?
NO
YES
Reassemble the Rack-T and Gear Loading.
1. Does the Gear Loading Assembly(L),(R) spin smoothly?
2. Confirm whether the Loading Gear(L), (R) is contact with other parts during operation.
YES
NO
Replace the Loading Gear Assembly.
Check that the T/Up Arm is fixed by stopper when the pinch Gear is Lower down.
YES
NO
Reassemble the T/Up Arm and Lever T/UP.
Is the Idler Gear separated from the Supply Reel?(Confirm whether the Capstan Motor turns or not)
NO
1. Confirm the conditions of Clutch Bracket ASS'Y and Reel Belt.
2. Replace the Capstan Motor.

2. Front Loading Mechanism

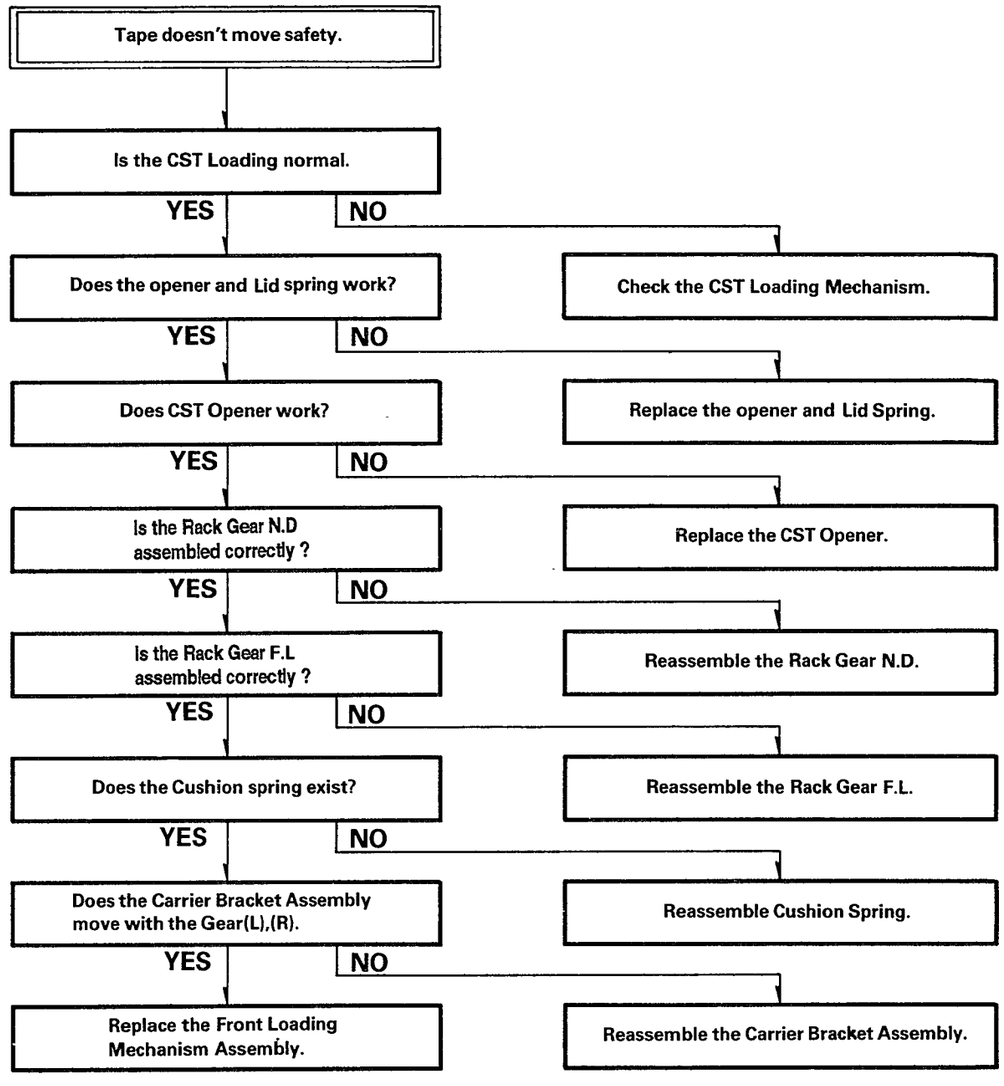
A.



B.



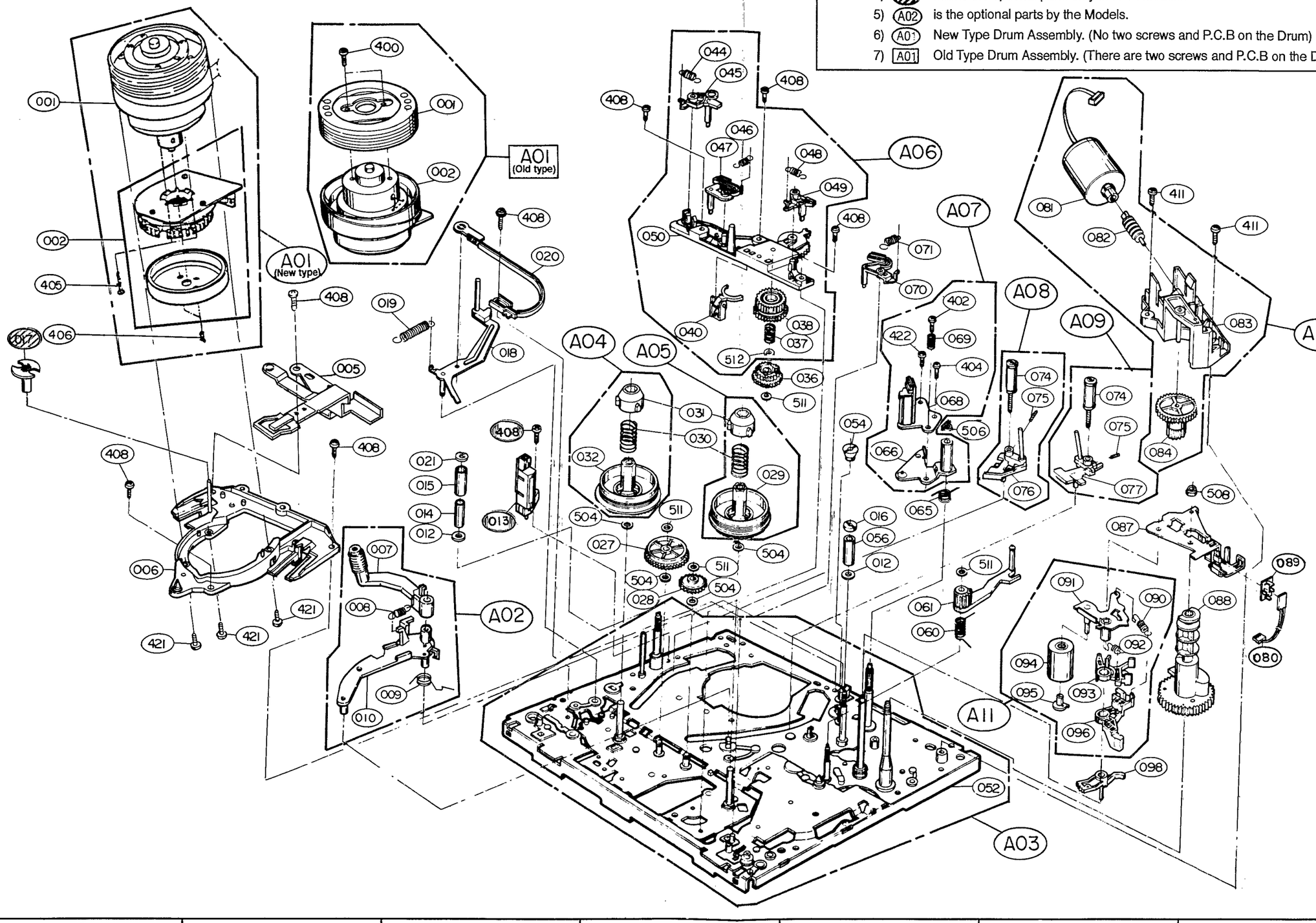
C.



EXPLODED VIEW

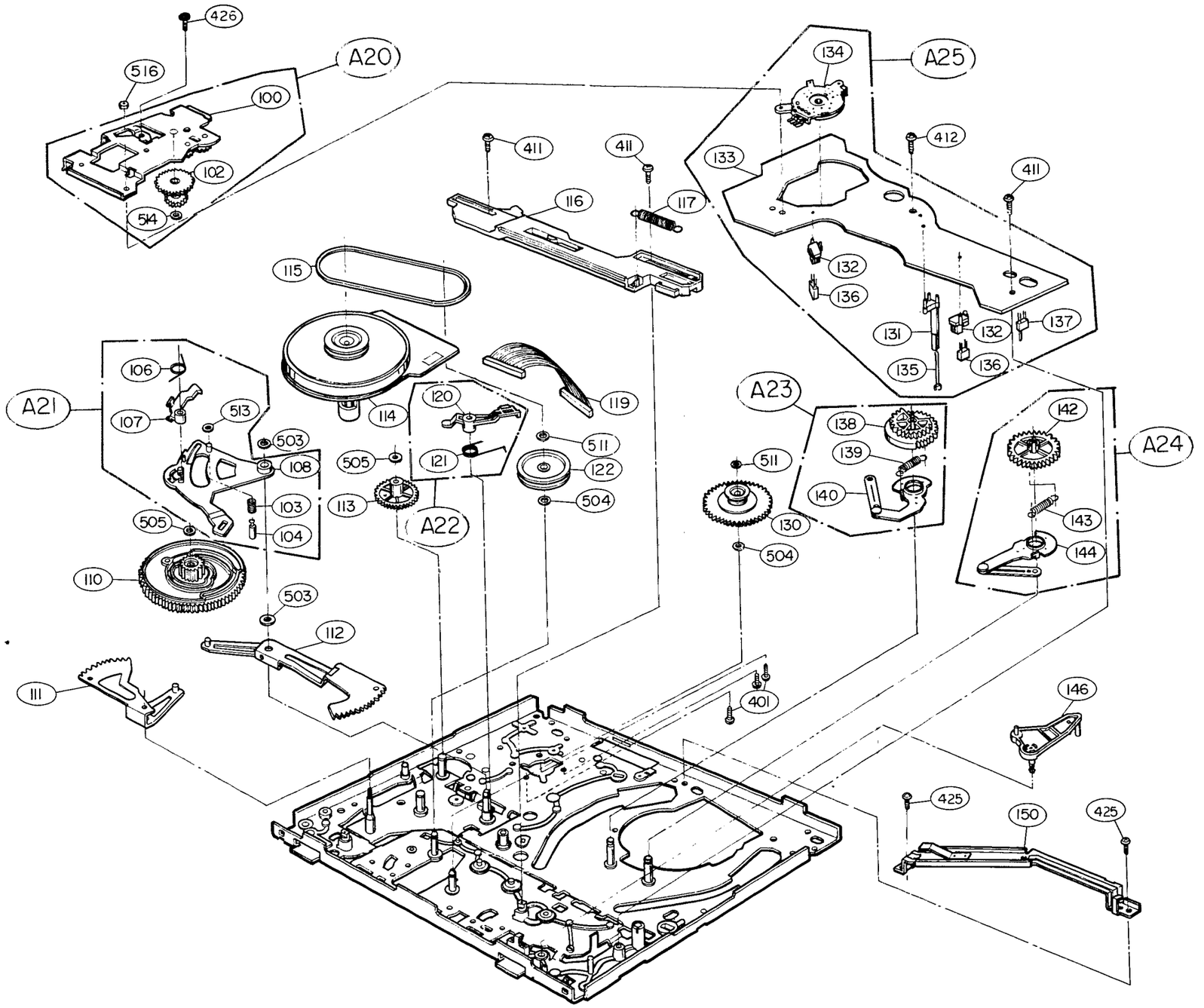
1. Moving Mechanism Section(I)

NOTE) 1) Refer to "SECTION 5 REPLACEMENT PARTS LIST" in order to look for the part number of each part.
2) marks the optional parts only in VCR (Video Cassette Recorder)| Models.
3) marks the optional parts only in VCP (Video Cassette Player) Models.
4) marks the optional parts only in Hi-Fi Models.
5) A02 is the optional parts by the Models.
6) A01 New Type Drum Assembly. (No two screws and P.C.B on the Drum)
7) A01 Old Type Drum Assembly. (There are two screws and P.C.B on the Drum).

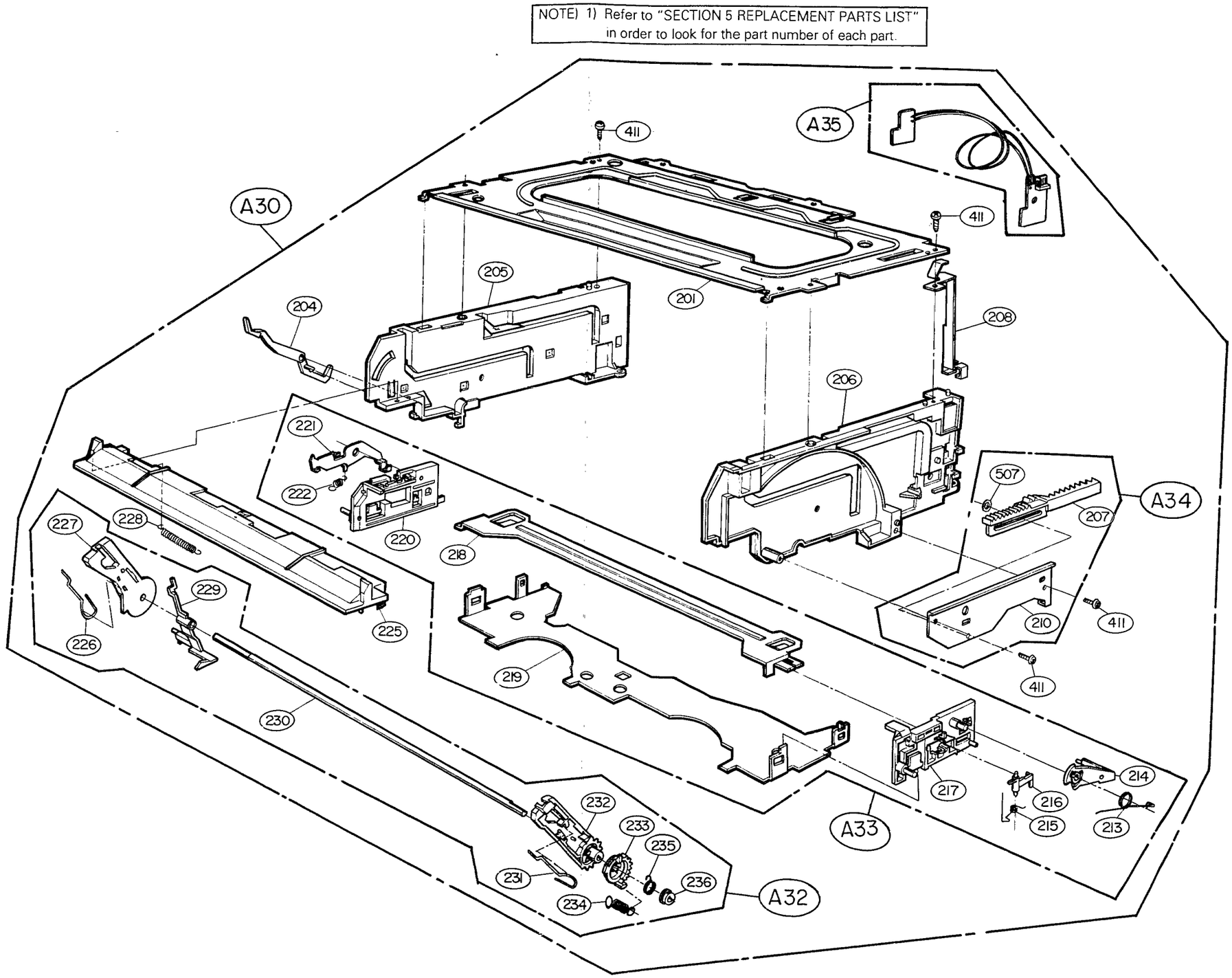


2. Moving Mechanism Section(Ⅱ)

NOTE) 1) Refer to "SECTION 5 REPLACEMENT PARTS LIST" in order to look for the part number of each part.
2) (119) is the optional parts by the Models.



3. Front Loading Mechanism Section



SECTION 5 REPLACEMENT PARTS LIST

• Mechanical Section

RUN DATE : 95.02.28
NSP: Not Service Part

S	AL	LOCA.NO	PART NO(GS)	DESCRIPTION	SPECIFICATION	REMARKS
ASSEMBLY PARTS SECTION						
		A00	412-124F	DECK	ASSY D-17 P (2HD VCR PAL NEW)	
	OR	A00	412C124F	DECK	AY D17P (2HD VCR PAL NEW S/J)	
	OR	A00	412G124F	DECK	AY D17P (2H VCR PAL NEW)	
	OR	A00	412H124F	DECK	AY D17P (2H VCR PAL NEW)	
	OR	A00	412W124F	DECK	AY D17P (2H VCR PAL NEW D/Y)	
		A01	413-312A	DRUM	ASSY V-2CH(P1)	
	OR	A01	413B312A	DRUM	ASSY V-2CH(P1)(BOKWANG)	
	OR	A01	413F219A	DRUM	ASSY GSA D17-2CH PAL P1	
		A02	386-296B	ARM	ASSY CL	
	OR	A03	311-005G	CHASSIS ASSY'	D17	NSP
		A03	311-005M	CHASSIS ASSY'	D17	NSP
		A04	456-048A	REEL	ASSY SUPPLY POM 7G	
		A05	456-045A	REEL	ASSY T/UP POM 7G	
		A06	321-397D	BRACKET	ASSY F/R	
		A07	225-228A	BASE	ASSY A/C	
	OR	A08	225-248A	BASE	ASSY,P2	
		A08	225-248B	BASE	ASSY P2 (W-W)	
	OR	A09	225-249A	BASE	ASSY,P3	
		A09	225-249B	BASE	ASSY P3 (W-W)	
		A10	414-104A	MOTOR	ASSY LOAD	
		A11	333-209E	LEVER	ASSY PINCH	
		A20	321-401A	BRACKET	ASSY BOTTOM	
		A21	333-208A	LEVER	ASSY RAT	
		A22	338-078A	BRAKE	ASSY CAP	
		A23	386-218A	ARM	ASSY LOAD(R)	
		A24	386-219A	ARM	ASSY LOAD(L)	
		A25	511-997D	PWB ASSY!	D-17,VCR	
	OR	A30	219-017E	HOUSING	ASSY (D17)	
		A30	219-017K	HOUSING	ASSY (D17)	
		A32	435-257B	GEAR	ASSY DRIVE (HOOK ADDED)	
		A33	321-406A	BRACKET	ASSY CARRIER	
		A34	321-441A	BRACKET	ASSY SIDE	
		A35	515-106B	PWB ASSY!	SENSOR	
PARTS SECTION						
		001	413-315A	DRUM	SUB ASSY(P1)	
	OR	002	414-179A	MOTOR	ASSY DRUM SDV-202A(D-17) SONY	
	OR	002	414-180A	MOTOR	ASSY DRUM GVD-017(D-17) ALPS	
		002	414-211A	MOTOR	ASSY DRUM E20XL13 SANKYO METAL	
		005	225-231B	BASE	ASSY D-BRUSH	
	OR	006	225-220A	BASE	DRUM	NSP
		006	225-220B	BASE	DRUM (W-W)	NSP
	OR	006	225-220C	BASE	DRUM (Y-H)	NSP
		007	386-297A	ARM	SUB ASSY CU	
		008	442-460B	SPRING	CU	
		009	442-459A	SPRING	CL	
		010	386-295B	ARM	CL	
		012	384-071A	GUIDE	17	

S	AL	LOCA.NO	PART NO(GS)	DESCRIPTION	SPECIFICATION	REMARKS
	OR	013	523-082B	HEAD	FE,HVFHF0010AK	
		013	523-824A	HEAD	F.E MH-131G (D-17)	
		014	378-017A	SLEEVE	P1	
		015	434-178A	ROLLER	P1	
	OR	015	434-178B	ROLLER	P1	
		016	389-003B	ADJUST	P(4)	
		018	386-205A	ARM	ASSY TENSION	
		019	442-331C	SPRING	TENSION	
		020	328-052B	BAND	ASSY TENSION	
		021	334-066A	STOPPER	P1	
		027	435-243A	GEAR	IDLE A POM 3G	
		028	435-244A	GEAR	IDLE B POM 3G	
		029	456-040A	REEL	T17	NSP
		030	442-341A	SPRING	REEL	NSP
		031	276-068A	CAP	REEL	NSP
		032	456-039A	REEL	S17	NSP
		036	435-240A	GEAR	F/R POM 3G	
		037	442-336A	SPRING	UP/D	NSP
		038	435-239A	GEAR	UP/D POM 3G	NSP
		040	333-201B	LEVER	ASSY F/R	NSP
		044	442-338B	SPRING	SSB	NSP
		045	338-081A	BRAKE	S-SOFT	NSP
		046	442-337A	SPRING	SMB	NSP
		047	338-080A	BRAKE	ASSY S-MAIN	NSP
		048	442-339D	SPRING	TSB	NSP
		049	338-083A	BRAKE	ASSY T-SOFT	NSP
		050	321-396A	BRACKET	SUB ASSY F/R	NSP
		054	389-013A	ADJUST	X-ASSY	
		056	378-018A	SLEEVE	P4	
		060	442-343A	SPRING	T/UP	
		061	386-387B	ARM	ASSY T/UP	
		065	442-332A	SPRING	A/C	
		066	225-219A	BASE	SUB ASSY A/C	NSP
		068	523-089A	HEAD	SUB ASSY A/C	
		069	442-362A	SPRING	AZIMUTH	
		070	338-085A	BRAKE	ASSY T-MAIN	
		071	442-344A	SPRING	TMB	
		074	434-173A	ROLLER	ASSY GUIDE	
		075	353-054B	SCREW	MINIATURE	
		076	225-226B	BASE	SUB ASSY SLALT (L,W-W)	
		077	225-225B	BASE	SUB ASSY SLALT (R,W-W)	
		081	414-105A	MOTOR	SUB ASSY,L	
		082	437-009A	WORM	ASSY	
		083	321-410A	BRACKET	SUB ASSY L/M	
		084	433-023A	WHEEL	WORM	
		087	321-470A	BRACKET	ASSY DEW	
		088	435-448A	GEAR	PINCH (N)	
		090	442-347A	SPRING	PINCH	NSP
		091	386-210A	ARM	ASSY PINCH	NSP
		092	442-346A	SPRING	STOPPER	NSP
		093	334-050C	STOPPER	PINCH	NSP
	OR	094	434-181A	ROLLER	ASSY PINCH	
		094	434-181B	ROLLER	PINCH D14 X L18	
		095	276-089B	CAP	PINCH	NSP
		096	333-203A	LEVER	PINCH	NSP

S	AL	LOCA.NO	PART NO(GS)	DESCRIPTION	SPECIFICATION	REMARKS
		098	333-344A	LEVER	T-UP (N)	
		100	321-463A	BRACKET	SUB ASSY B	NSP
		102	435-249A	GEAR	RAT1	NSP
		103	442-356A	SPRING	F-LEVER	NSP
		104	356-208A	PIN	F-LEVER	NSP
		106	442-345A	SPRING	RAT	NSP
		107	333-202A	LEVER	RAT	NSP
		108	333-207A	LEVER	F17	NSP
		110	374-005A	CAM	D17 POM 10G	
		111	435-318A	GEAR	ASSY RACK F/L	
		112	435-291A	GEAR	ASSY RACK T	
		113	435-246A	GEAR	PC POM 3G	
		114	414-120B	MOTOR	CAPSTAN GVC-017P	
		115	452-047A	BELT	CENTER D71.9 X SQRT2.0	
		116	256-734A	PLATE	F17	
		117	442-342B	SPRING	FP	
		120	338-089A	BRAKE	SUB ASSY CAP	
		121	442-333A	SPRING	CAPSTAN	
		122	432-038A	PULLEY	GEAR POM 3G	
		130	337-005A	CLUTCH	ASSY POM 7G FELT 20X1X1T 2EA	
		131	340-001A	HOLDER	LED (Q)	
		132	324-642A	HOLDER	R/S	
		133	513-494D	PWB	JUNCTION D-17 VCR	NSP
		134	556-133A	SWITCH	MODE	
	OR	134	556-133B	SWITCH	MODE, ALPS	
	OR	135	0DL451000AA	DIODE LED	IR SENSOR GL451(LONG) SHARP	
		135	0DL550000AB	DIODE LED	IR SENSOR EL-55L(LONG) KOC	
		136	657-102K	SENSOR	SG-105(REEL) D-16 KOC	
		137	556-131A	SWITCH	ESE-105SV1	
		138	435-234A	GEAR	LOAD(R)	
		139	442-330A	SPRING	LOADING	
		140	386-274A	ARM	SUB ASSY (R)	
		142	435-235A	GEAR	LOAD(L)	
		143	442-330B	SPRING	LOADING	
		144	386-273A	ARM	SUB ASSY (L)	
		146	333-218A	LEVER	ASSY A-TEN	
		150	321-527A	BRACKET	ASSY C-GUIDE	
		201	256-934B	PLATE	TOP	
		204	465-032A	OPENER	DOOR (ZENITH)	
		205	321-517B	BRACKET	LEFT (D17)	
		206	321-518A	BRACKET	RIGHT (D17)	
		207	435-278A	GEAR	RACK N/D	
		208	256-910A	PLATE	GND TOP	
		210	321-440A	BRACKET	SIDE	
		213	442-351A	SPRING	OC	NSP
		214	465-028A	OPENER	CST	NSP
		215	442-357A	SPRING	RID	NSP
		216	465-027A	OPENER	RID	NSP
		217	324-647A	HOLDER	R	NSP
		218	321-407A	BRACKET	SUPPORT	NSP
		219	321-405A	BRACKET	CARRIER	NSP
		220	324-646A	HOLDER	L	NSP
		221	333-210A	LEVER	DT	NSP
		222	442-358B	SPRING	DT	NSP
		225	384-074A	GUIDE	CST	

S	AL	LOCA.NO	PART NO(GS)	DESCRIPTION	SPECIFICATION	REMARKS
		226	442-352A	SPRING	L	NSP
		227	435-254A	GEAR	L	NSP
		228	442-350A	SPRING	S/W	
		229	333-204A	LEVER	S/W	NSP
		230	423-368A	SHAFT	D	NSP
		231	442-353A	SPRING	R	NSP
		232	435-255A	GEAR	R	NSP
		233	435-256B	GEAR	C (HOOK ADDED)	NSP
		234	442-359C	SPRING	CUSHION (D17F/L)	NSP
		235	442-354A	SPRING	CC	NSP
		236	276-086A	CAP	DRIVE	NSP
SCREW						
		401	1MPC0262018	PAN HEAD MACHINE SCREW +!	D 2.6 L 6.0 MSWR3/FZY	
		402	353-021D	SCREW	SPECIAL	
		404	353-048C	SCREW	CONE POINT 3X10	
		405	1MDC0262818	PAN HEAD MACHINE SCREW P/WASH+	D2.6 L12 MSWR3/FZY	
		406	1MEC0302018	PAN HEAD MACHINE SCREW S/W +	D 3.0 L 6.0 MSWR3/FZY	
		408	1MBC0302418	BINDING HEAD MACHINE SCREW +	D 3.0 L 8.0 MSWR3/FZY	
		411	353-046B	SCREW	SPECIAL (3X8 FZMY)	
		412	1MBC0302818	BINDING HEAD MACHINE SCREW +	D 3.0 L 12 MSWR3/FZY	
		421	1MPC0302618	PAN HEAD MACHINE SCREW +!	D3.0 L10.0,MSWR3/FZY	
		422	1MPC0302418	PAN HEAD MACHINE SCREW +!	D 3.0 L 8.0 MSWR3/FZY	
		425	1SRF0302418	BRAIZER HD TAP TITE SCREW +	D 3.0 L 8.0 MSWR3/FZY	
		426	1MPC0302018	PAN HEAD MACHINE SCREW +!	D 3.0 L 6.0 MSWR3/FZY	
NUT, WASHER						
		503	354-020E	WASHER	STOPPER	
		504	354-001B	WASHER	P.S D3.1XD6X0.5T	
		505	354-080E	WASHER	STOPPER	
		506	352-025A	NUT	NYLON M3	
		507	354-020J	WASHER	STOPPER(2.6X4.8X0.5)	
		508	352-033A	NUT	NUT NYLON(M3)	
		511	354-080C	WASHER	STOPPER	
		512	354-080E	WASHER	STOPPER	NSP
		513	354-080A	WASHER	STOPPER	NSP
		514	354-080B	WASHER	STOPPER	NSP
		516	354-033B	WASHER	STOPPER	

• Cabinet & Main Frame Section

RUN DATE : 95.02.28
NSP: Not Service Part

S	AL	LOCA.NO	PART NO(GS)	DESCRIPTION	SPECIFICATION	REMARKS
				ASSEMBLY PARTS SECTION		
		A43	258-627H	PANEL	FRONT ASSY	
		A44	232-609D	BOARD ASSY	POWER	
		A45	232-608B	BOARD ASSY	PRE-AMP	
		A46	232-666H	BOARD ASSY	MAIN	
				PARTS SECTION		
		250	217-448H	CASE	TOP	
		260	315-302C	FRAME	MAIN	NSP
	OR	260	315-302D	FRAME	MAIN(PAL)	NSP
		265	477-034B	RUBBER	BUMPON	NSP
		267	246-086F	LABEL	MAIN(R-Q263H 2AT1)	NSP
		269	321-532A	BRACKET	HOUSING	
		275	324-802A	HOLDER	DIGITRON	
		280	258-591P	PANEL	ASSY	NSP
		283	226-087C	DOOR	CST	
		284	442-469A	SPRING	DOOR	
		287	236-466A	WINDOW	POWER	
		300	681-036A	CORD	POWER SAA W/STOPPER	
		301	321-421A	BRACKET	TR	
		303	255-150A	PLATE	HEAT SINK	
		304	221-407A	COVER	FUSE	
		320	258-603M	PANEL	ASSY DISTRIBUTOR	
		330	221-687B	COVER	BOTTOM	
		332	255-153A	PLATE	DECK GND (FTZ)	NSP
				SCREW		
		452	353-051A	SCREW	SPECIAL	
		462	353-136A	SCREW	SPECIAL(FBK) (353S353A)	
		463	1MBC0302418	BINDING HEAD MACHINE SCREW +	D 3.0 L 8.0 MSWR3/FZY	

• Packing Accessory Section

RUN DATE : 95.02.28
NSP: Not Service Part

S	AL	LOCA.NO	PART NO(GS)	DESCRIPTION	SPECIFICATION	REMARKS
		801	480-488C	INSTRUCTION ASSY		
		802	290-270A	BOX CARTON		
		803	283-272A	PACKING	E,PS	
		804	291-002B	SHEET CUSHION		NSP
		808	534-008C	BATTERY	AAAM(R03) 1.5V 1PAIR(LOCAL)	
		810	861-505B	CABLE SET ASSY	RF-CABLE,ASSY,PAL	

• Remote Control Section

RUN DATE : 95.02.28
NSP: Not Service Part

S	AL	LOCA.NO	PART NO(GS)	DESCRIPTION	SPECIFICATION	REMARKS
		900	597-126A	REMOTE CONTROL	R/C ASSY Q3	
		902	255-300H	PLATE	TOP (Q3 PAL NORMAL)	
		903	217-573N	CASE	TOP R/C Q3 Q263H 2AT1	
		904	556-256R	SWITCH	CONDUCTIVE RUBBER Q3 263H	
		905	515-704A	PWB ASSY!	REMOCON (NORMAL) Q3 PAL	
		906	236-452A	WINDOW	FILTER	
		907	221-815A	COVER	BOTTOM R/C	
		908	221-816A	COVER	BATTERY	
		909	442-582B	SPRING	BATTERY 'A'	
		916	1TPH0202016	PAN HEAD TAPPING SCREW + 2	D 2.0 L 6.0 MSWR3/(BK)	

• Fixture Section

RUN DATE : 95.02.28
NSP: Not Service Part

S	AL	LOCA.NO	PART NO(GS)	DESCRIPTION	SPECIFICATION	REMARKS
		FIX	960-015D	FIXTURE	SVC FIXTURE	
		FIX1	232-972A	BOARD ASSY	SVC FIXTURE	
		FIX2	515-974A	PWB ASSY–	SVC FIXTURE-3	

CAUTION: The * marks in the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list. Before replacing any of these components, read carefully the SAFETY PRECAUTIONS and SERVICING PRECAUTIONS in the manual. Do not degrade the safety of the unit through improper servicing.

Tolerance

Symbol	C	J	K	M	N	Z	P	A
%	±2	±5	±10	±20	±30	+80 −20	+100 −10	+100 −10

CC,·CJ, CK: Capacitor, Ceramic
CE: Capacitor, Electrolytic
CQ: Capacitor, Polyester

S	AL	LOCA.NO	PART NO(GS)	SPECIFICATION
			CAPACITOR	
		C050	0CN1040K948	0.1M 50V Z F TA26
		C051	0CX2200K408	22P 50V J SL TP26
		C052	0CN1040K948	0.1M 50V Z F TA26
		C053	0CN1030F678	0.01M 16V M Y TA26
		C054	0CX2200K408	22P 50V J SL TP26
		C055	0CN1030F678	0.01M 16V M Y TA26
		C056	0CN2230H948	0.022M 25V Z F TA26
		C057	0CN1030F678	0.01M 16V M Y TA26
		C058	0CN2230H948	0.022M 25V Z F TA26
		C059	0CE2274C638	220M SRA 6.3V M FM5 TP(5)
		C060	0CN1030F678	0.01M 16V M Y TA26
		C061	0CN1030F678	0.01M 16V M Y TA26
		C062	0CC0500K015	5P 50V C NP0 TR
		C063	0CN1030F678	0.01M 16V M Y TA26
		C064	0CE4764C638	47M SRA 6.3V M FM5 TP(5)
		C065	0CN2230H948	0.022M 25V Z F TA26
		C066	0CC2700K415	27P 50V J NP0 TP
		C067	0CN1030F678	0.01M 16V M Y TA26
		C068	0CC8200K415	82P 50V J NP0 TP
		C069	0CN3310K518	330P 50V K B TA26
		C070	0CN1030F678	0.01M 16V M Y TA26
		C071	0CN1030F678	0.01M 16V M Y TA26
		C072	0CN1030F678	0.01M 16V M Y TA26
		C073	0CN1030F678	0.01M 16V M Y TA26
		C074	0CE4764C638	47M SRA 6.3V M FM5 TP(5)
		C075	0CN2230H948	0.022M 25V Z F TA26
		C101	624-018A	LINE DE7100 FZ 472P VA1-KC
	OR	C101	624-018D	LINE ECKDNS472ZV PAL MATSUSITA
		C102	624-018A	LINE DE7100 FZ 472P VA1-KC
	OR	C102	624-018D	LINE ECKDNS472ZV PAL MATSUSITA
		C103	0CK2230K945	0.022M 50V Z F TS
		C104	0CE4786F610	4700M SMS 16V M FL
		C105	0CK2230K945	0.022M 50V Z F TS
		C106	0CE3386J610	3300UF SMS 35V M FL BULK
		C107	0CK2230K945	0.022M 50V Z F TS
		C108	0CK2230K945	0.022M 50V Z F TS
		C110	0CE4766F638	47M SMS 16V M FM5 TP5
		C111	0CE4766F638	47M SMS 16V M FM5 TP5
		C112	0CE4766F638	47M SMS 16V M FM5 TP5
		C113	0CE4766F638	47M SMS 16V M FM5 TP5
		C116	0CE4766F638	47M SMS 16V M FM5 TP5
		C117	0CE4766F638	47M SMS 16V M FM5 TP5
		C119	0CE1076L610	100M SMS 63V M FM5

S	AL	LOCA.NO	PART NO(GS)	SPECIFICATION
		C120	0CE1076L610	100M SMS 63V M FM5
		C122	0CE1066K638	10M SMS 50V M FM5 TP(5)
		C201	0CQ4731N409	0.047U 100V J POLY TP
		C202	0CE4766F638	47M SMS 16V M FM5 TP5
		C203	0CE1066H638	10M SMS 25V M FM5 TP
		C204	0CN2230H948	0.022M 25V Z F TA26
		C205	0CE1066H638	10M SMS 25V M FM5 TP
		C206	0CE1051K636	1.0U SM 50V M FM5 BP TP(D)
		C207	0CE1066H638	10M SMS 25V M FM5 TP
		C208	0CE1066H638	10M SMS 25V M FM5 TP
		C209	0CE1051K636	1.0U SM 50V M FM5 BP TP(D)
		C211	0CE1054K638	1.0M SRA/SS50V M FM5 TP(5)
		C212	0CQ2721N409	0.0027M 100V J POLY TP
		C213	0CN3920F668	3900P 16V M X TA26
		C214	0CE1066H638	10M SMS 25V M FM5 TP
		C215	0CE4766F638	47M SMS 16V M FM5 TP5
		C216	0CC2210K405	220P 50V J SL TP
		C217	0CC4700K405	47P 50V J SL TP
		C218	0CE1056K638	1.0M SMS 50V M FM5 TP(5)
		C220	0CK4730K945	0.047U 50V Z F TS
		C221	0CE4746K638	0.47M SMS 50V M TP(5)
		C222	0CE4775F638	470M SR 16V M FM5 TP(5)
		C224	0CE4766F638	47M SMS 16V M FM5 TP5
		C225	0CQ4731N409	0.047U 100V J POLY TP
		C226	0CE4756K638	4.7M SMS 50V M FM5 TP(5)
		C227	0CE4756K638	4.7M SMS 50V M FM5 TP(5)
		C241	0CK4730K945	0.047U 50V Z F TS
		C290	0CK1030K945	0.01M 50V Z F TS
		C291	0CE4775F638	470M SR 16V M FM5 TP(5)
		C299	0CN1030F678	0.01M 16V M Y TA26
		C302	0CE1066H638	10M SMS 25V M FM5 TP
		C303	0CN1030F678	0.01M 16V M Y TA26
		C304	0CC2010K405	200P 50V J SL TS
		C305	0CE1056K638	1.0M SMS 50V M FM5 TP(5)
		C306	0CN1040K948	0.1M 50V Z F TA26
		C307	0CE2276F638	220U SMS 16V M FM5 TP(5)
		C308	0CE1054K638	1.0M SRA/SS50V M FM5 TP(5)
		C309	0CE4766F638	47M SMS 16V M FM5 TP5
		C310	0CE4766F638	47M SMS 16V M FM5 TP5
		C311	0CN2230H948	0.022M 25V Z F TA26
		C312	0CX2700K408	27P 50V J SL TA26
		C314	0CN1030F678	0.01M 16V M Y TA26
		C315	0CE4756K638	4.7M SMS 50V M FM5 TP(5)
		C316	0CN2230H948	0.022M 25V Z F TA26
		C317	0CN2220F668	2200P 16V M X TA26

RUN DATE : 95.02.28

S	AL	LOCA.NO	PART NO(GS)	SPECIFICATION
		C318	0CE1056K638	1.0M SMS 50V M FM5 TP(5)
		C319	0CE4756K638	4.7M SMS 50V M FM5 TP(5)
		C320	0CN1510K518	150P 50V K B TA26
		C321	0CX3900K408	39P 50V J SL TA26
		C322	0CX1500K408	15P 50V J SL TA26
		C323	0CN1510K518	150P 50V K B TA26
		C324	0CX6800K408	68P 50V J SL TA26
		C325	0CN1810K518	180P 50V K B TA26
		C326	0CX3300K408	33P 50V J SL TA26
		C327	0CN1030F678	0.01M 16V M Y TA26
		C328	0CE4766F638	47M SMS 16V M FM5 TP5
		C335	0CN1010K518	100P 50V K B TA26
		C339	0CE1056K638	1.0M SMS 50V M FM5 TP(5)
		C340	0CN2230H948	0.022M 25V Z F TA26
		C341	0CE2274C638	220M SRA 6.3V M FM5 TP(5)
		C342	0CE1056K638	1.0M SMS 50V M FM5 TP(5)
		C343	0CX2200K408	22P 50V J SL TP26
		C344	0CK3330K945	0.033M 50V Z F TS
		C345	0CN1030F678	0.01M 16V M Y TA26
		C346	0CN1030F678	0.01M 16V M Y TA26
		C347	0CN1040K948	0.1M 50V Z F TA26
		C348	0CN4730K948	0.047M 50V Z F TA26
		C349	0CN1040K948	0.1M 50V Z F TA26
		C350	0CE4756K638	4.7M SMS 50V M FM5 TP(5)
		C351	0CE2246K638	0.22M SMS 50V M FM5 TP(5)
		C352	0CE1056K638	1.0M SMS 50V M FM5 TP(5)
		C353	0CX2400K408	24P 50V J SL TA26
		C354	0CE2254K638	2.2M SRA 50V M FM5 TP(5)
		C355	0CE2254K638	2.2M SRA 50V M FM5 TP(5)
		C356	0CN1040K948	0.1M 50V Z F TA26
		C357	0CE1056K638	1.0M SMS 50V M FM5 TP(5)
		C358	0CE4766F638	47M SMS 16V M FM5 TP5
		C359	0CN1030F678	0.01M 16V M Y TA26
		C362	0CN1030F678	0.01M 16V M Y TA26
		C363	0CN2710K518	270P 50V K B TA26
		C364	0CN2710K518	270P 50V K B TA26
		C365	0CN1030F678	0.01M 16V M Y TA26
		C366	0CN1030F678	0.01M 16V M Y TA26
		C367	0CX2400K408	24P 50V J SL TA26
		C368	0CE1066H638	10M SMS 25V M FM5 TP
		C369	0CN6810K518	680P 50V K B TA26
		C370	0CN8200K518	82PF 50V K B TA26
		C371	0CN1030F678	0.01M 16V M Y TA26
		C372	0CN4730K948	0.047M 50V Z F TA26
		C373	0CN1040K948	0.1M 50V Z F TA26
		C376	0CN1040K948	0.1M 50V Z F TA26
		C377	0CX2700K408	27P 50V J SL TA26
		C378	0CE4764C638	47M SRA 6.3V M FM5 TP(5)
		C379	0CE4764C638	47M SRA 6.3V M FM5 TP(5)
		C3A2	0CN1040K948	0.1M 50V Z F TA26
		C400	0CN1020K518	1000P 50V K B TA26
		C401	0CQ1831N409	0.018U 100V J POLY TP
		C402	0CE4756K638	4.7M SMS 50V M FM5 TP(5)
		C403	0CN2210K518	220P 50V K B TA26
		C404	0CE2266F638	22M SMS 16V M FM5 TP5
		C405	0CE2266F638	22M SMS 16V M FM5 TP5
		C406	0CQ1031N409	0.01UF 100V J PE TP
		C407	0CE4766F638	47M SMS 16V M FM5 TP5
		C408	0CQ1031N409	0.01UF 100V J PE TP
		C409	0CN1030F678	0.01M 16V M Y TA26
		C410	0CE4766F638	47M SMS 16V M FM5 TP5
		C411	0CQ5631N409	0.056U 100V J POLY TP

S	AL	LOCA.NO	PART NO(GS)	SPECIFICATION
		C412	0CE1056K638	1.0M SMS 50V M FM5 TP(5)
		C413	0CN3920F668	3900P 16V M X TA26
		C414	0CE1066H638	10M SMS 25V M FM5 TP
		C416	0CN1040K948	0.1M 50V Z F TA26
		C418	0CN1040K948	0.1M 50V Z F TA26
		C419	0CQ1031N409	0.01UF 100V J PE TP
		C421	0CE4756K638	4.7M SMS 50V M FM5 TP(5)
		C422	0CE1066H638	10M SMS 25V M FM5 TP
		C444	0CN1030F678	0.01M 16V M Y TA26
		C501	0CE4766F638	47M SMS 16V M FM5 TP5
		C502	0CK1030K945	0.01M 50V Z F TS
		C503	624-027A	GOLD 0.047F-5.5V D13.0X8.5 NE
		C505	0CE2254K638	2.2M SRA 50V M FM5 TP(5)
		C506	0CK1030K945	0.01M 50V Z F TS
		C508	0CC2700K415	27P 50V J NP0 TP
		C509	0CC1200K415	12P 50V J NP0 TS
		C510	0CK1030K945	0.01M 50V Z F TS
		C511	0CK1020K945	1000P 50V Z F TS
		C512	0CK1020K945	1000P 50V Z F TS
		C513	0CK1030K945	0.01M 50V Z F TS
		C514	0CK1030K945	0.01M 50V Z F TS
		C515	0CE1051K636	1.0U SM 50V M FM5 BP TP(D)
		C516	0CN1030F678	0.01M 16V M Y TA26
		C546	0CN1030F678	0.01M 16V M Y TA26
		C547	0CK1030K945	0.01M 50V Z F TS
		C581	0CE4766F638	47M SMS 16V M FM5 TP5
		C582	0CE4756K638	4.7M SMS 50V M FM5 TP(5)
		C587	0CK1040K945	0.1M 50V Z F TS
		C588	0CN1010K518	100P 50V K B TA26
		C589	0CN1010K518	100P 50V K B TA26
		C5A1	0CE4766F638	47M SMS 16V M FM5 TP5
		C702	0CN2230H948	0.022M 25V Z F TA26
		C703	0CX4700K408	47P 50V J SL TA26
		C704	0CX4700K408	47P 50V J SL TA26
		C705	0CE1056K638	1.0M SMS 50V M FM5 TP(5)
		C707	0CQ1041N409	0.1U 100V J POLY TP
		C708	0CQ1041N409	0.1U 100V J POLY TP
		C709	0CQ1041N409	0.1U 100V J POLY TP
		C710	0CE1056K638	1.0M SMS 50V M FM5 TP(5)
		C711	0CE4756K638	4.7M SMS 50V M FM5 TP(5)
		C712	0CE4756K638	4.7M SMS 50V M FM5 TP(5)
		C713	0CN1030F678	0.01M 16V M Y TA26
		C714	0CN1030F678	0.01M 16V M Y TA26
		C716	0CC5600K415	56P 50V J NP0 TP
		C717	0CN1030F678	0.01M 16V M Y TA26
		C718	0CE4766F638	47M SMS 16V M FM5 TP5
		C719	0CE4746K638	0.47M SMS 50V M TP(5)
		C720	0CN1030F678	0.01M 16V M Y TA26
		C722	0CK1030K945	0.01M 50V Z F TS
		C723	0CN2230H948	0.022M 25V Z F TA26
		C724	0CN1030F678	0.01M 16V M Y TA26
		C725	0CQ1821N409	0.0018U 100V J POLY TP
		C726	0CN1030F678	0.01M 16V M Y TA26
		C727	0CE4766F638	47M SMS 16V M FM5 TP5
		C728	0CE4766F638	47M SMS 16V M FM5 TP5
		C729	0CN1030F678	0.01M 16V M Y TA26
		C730	0CN1030F678	0.01M 16V M Y TA26
		C732	0CE4766F638	47M SMS 16V M FM5 TP5
		C733	0CN1030F678	0.01M 16V M Y TA26
		C735	0CE4775F638	470M SR 16V M FM5 TP(5)
		C736	0CE4766F638	47M SMS 16V M FM5 TP5
		C737	0CE1066K638	10M SMS 50V M FM5 TP(5)

S	AL	LOCA.NO	PART NO(GS)	SPECIFICATION
		C738	0CN1030F678	0.01M 16V M Y TA26
		C739	0CN1030F678	0.01M 16V M Y TA26
		C750	0CC5600K415	56P 50V J NP0 TP
		C755	0CX3900K408	39P 50V J SL TA26
		C756	0CX2200K408	22P 50V J SL TP26
		C758	0CX6800K408	68P 50V J SL TA26
		C760	0CN2230H948	0.022M 25V Z F TA26
		C761	0CN2230H948	0.022M 25V Z F TA26
		C766	0CN2230H948	0.022M 25V Z F TA26
		C801	0CN1030F678	0.01M 16V M Y TA26
		C802	0CE4766F638	47M SMS 16V M FM5 TP5
		C803	0CC3900K415	39P 50V J NPO TP
		C804	0CC1100K415	11P 50V J NP0 TS
		C805	0CN2230H948	0.022M 25V Z F TA26
		C806	0CE4766F638	47M SMS 16V M FM5 TP5
		C807	0CE4766F638	47M SMS 16V M FM5 TP5
		C808	0CN1030F678	0.01M 16V M Y TA26
		C809	0CX1200K408	12P 50V J SL TA26
		C810	0CC1000K015	10P 50V C NP0 TS
		C811	0CQ1021N409	0.001U 100V J POLY TP
		C813	0CC4710K405	470P 50V J SL TP
		C816	0CE4775F638	470M SR 16V M FM5 TP(5)
		C817	0CE2276F638	220U SMS 16V M FM5 TP(5)
		C818	0CX3900K408	39P 50V J SL TA26
		C819	0CK1030K945	0.01M 50V Z F TS
		C820	0CE1066H638	10M SMS 25V M FM5 TP
		C821	0CE3366F638	33M SMS 16V M FM5 TP(5)
		C822	0CE4766F638	47M SMS 16V M FM5 TP5
		C823	0CC1010K405	100P 50V J SL TS
		C824	0CN1010K518	100P 50V K B TA26
		C825	0CC1010K405	100P 50V J SL TS
		C888	0CE1076F638	100M SMS 16V M FM5 TP(5)
		C901	0CE4766F630	47M SMS 16V M FM5
		C902	0CN2230H948	0.022M 25V Z F TA26
		C903	0CN1020K518	1000P 50V K B TA26
		C904	0CN1040K948	0.1M 50V Z F TA26
		C905	0CN1040K948	0.1M 50V Z F TA26
DIODE				
		D051	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D101	0DD539300AA	RECT IN5393
		D102	0DD539300AA	RECT IN5393
		D103	0DD539300AA	RECT IN5393
		D104	0DD539300AA	RECT IN5393
		D105	0DD539300AA	RECT IN5393
		D106	0DD539300AA	RECT IN5393
		D107	0DD539300AA	RECT IN5393
		D108	0DD539300AA	RECT IN5393
		D112	0DD400309AB	IN4003A(1SR35-200A)5M/M TP ROH
		D113	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D114	0DD400309AB	IN4003A(1SR35-200A)5M/M TP ROH
		D115	0DD400309AB	IN4003A(1SR35-200A)5M/M TP ROH
		D201	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D202	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D203	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D204	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D205	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D209	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D210	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D211	0DD400309AB	IN4003A(1SR35-200A)5M/M TP ROH
		D277	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D401	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D501	0DD400309AB	IN4003A(1SR35-200A)5M/M TP ROH
		D502	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D503	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D504	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D508	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D591	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D592	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D595	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D701	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D702	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D703	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D704	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D710	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
DISPLAY TUBE				
		DG901	514-032A	9BT-123GK 85X25 PAL SEJIN
DELAY LINE				
		DL301	617-011A	MS-31PC (KSS)
FUSE				
		F101	585-011A	T 500MA 250V S504
	OR	F101	585-012A	T500MA,250V PAL (SOC)
		F102	585-011F	T 1A 250V S506
	OR	F102	585-012F	T1A 250N PAL (SOC)
		F104	585-011C	T 1.6A 250V S506
	OR	F104	585-012C	T1.6A,250V PAL (SOC)
FILTER				
		FL101	616-004B	LINE 801-302-FD(BUJEON)
		Z701	616-614A	SAW TSF5323 PAL D/K SANYO
		Z702	616-036B	TRAP TPS5.5MB MURA
		Z705	616-712A	SFSL5.5MCB MURATA
		Z706	616-715A	CDSH5.5ME23K MURATA
IC				
		IC001	0ISA737600A	LA7376 2HD PRE-AMP
		IC101	0IKE780060A	KIA78006AP=KIA7806P(REG 6V 1A)
	OR	IC101	0IMA780600A	AN7806 6V1AREG MATSUSHITA #
		IC201	0IHI497540A	HD49754NT
		IC301	0ITO120200A	TA1202N Y/C 1CHIP(MULTI) DIP
		IC302	0IKK740300B	MSM7403RS(2H CCD) DIP-PACK
	OR	IC304	0IGS381600A	GL3816
		IC304	0ISA701600A	LA7016 ANALOG SW
		IC401	0IRH779000A	BA7790LS(AUDIO NORMAL)
		IC501	668-811A	UPD75238GJ-109(SY+TI)R-Q40CP
		IC502	0IRH620930A	BA6209V3 MOTOR DRIVE
	OR	IC502	0ISA164100A	LB1641(1-CH)MOTOR DRIV SANYO
	OR	IC503	0ISG240200A	ST24C02AB1(EEP-ROM 2K)
		IC503	0IXI240200B	X24C02.8D EEP-ROM(2K CMOS)
		IC504	0IKE703100A	KIA7031P 3P 3.1V RESET(TAPING)
	OR	IC504	0IMT523000A	PST-523H/T(3.1V) LOW
		IC505	0IKE703500A	KIA7035P 3.5V RESET TAPPING
		IC701	0IMI514960A	M51496P SIF+VIF
		IC702	0ISA791000A	LA7910 TV BAND SELEC
		IC801	0IMI350110B	M35011-058SP(OSD 64CHAR')C2/SI
JACK				

S	AL	LOCA.NO	PART NO(GS)	SPECIFICATION
		JK401	572-080A	BJP-404A
COIL				
		L051	0LA0332K018	33M K 2.3X3.4 L5 TP
		L052	0LR0562J025	56UH 5% 4X5 TR5
		L053	0LR1000K035	100M K 6X6 L5 TP
		L054	0LR0102J025	10UH 5% 4X5 TR5
		L055	0LR1000K035	100M K 6X6 L5 TP
		L056	0LA1800K018	180M K 2.3X3.4 L5 TP
		L201	0LR1000K035	100M K 6X6 L5 TP
		L202	0LR1000K035	100M K 6X6 L5 TP
		L301	0LA0102K018	10M K 2.3X3.4 L5 TP
		L302	0LR1000K035	100M K 6X6 L5 TP
		L303	0LA0332K018	33M K 2.3X3.4 L5 TP
		L304	0LA0332K018	33M K 2.3X3.4 L5 TP
		L305	0LA0332K018	33M K 2.3X3.4 L5 TP
		L306	0LR0102J025	10UH 5% 4X5 TR5
		L307	0LR2700J025	270UH 5% 4X5 TR5
		L308	0LA0822K018	82M K 2.3X3.4 L5 TP
		L311	0LR1000K035	100M K 6X6 L5 TP
		L312	0LA0472K018	47M K 2.3X3.4 L5 TP
		L313	0LA0152K018	15M K 2.3X3.4 L5 TP
		L314	0LA0682K018	68M K 2.3X3.4 L5 TP
		L315	0LR1000K035	100M K 6X6 L5 TP
		L316	0LR2700J025	270UH 5% 4X5 TR5
		L317	0LR2700J025	270UH 5% 4X5 TR5
		L318	0LA0682K018	68M K 2.3X3.4 L5 TP
		L320	0LA0272K018	27M K 2.3X3.4 L5 TP
		L321	0LA1000K018	100M K 2.3X3.4 L5 TP
		L400	0LR1000K035	100M K 6X6 L5 TP
		L401	0LR6801J045	6800U J 6X7 L5 TP
		L402	0LR1502J045	0.015H J 6X7 L5 TP
		L501	0LR1000K035	100M K 6X6 L5 TP
		L503	0LR0472K035	47M K 6X6 L5 TP
		L510	0LR0472K035	47M K 6X6 L5 TP
		L588	0LA0822K018	82M K 2.3X3.4 L5 TP
		L703	0LA0222K018	22M K 2.3X3.4 L5 TP
		L704	0LA0560K018	0.56M K 2.3X3.4 L5 TP
		L706	0LR1000J025	100UH 5% 4X5 TR5
		L707	0LR1000J025	100UH 5% 4X5 TR5
		L708	0LR2200J025	220UH 5% 4X5 TR5
		L709	0LA0222K018	22M K 2.3X3.4 L5 TP
		L711	0LR0122J025	12UH 5% 4X5 TR5
		L713	0LR0102J025	10UH 5% 4X5 TR5
		L720	0LA0182K018	18M K 2.3X3.4 L5 TP
		L721	0LA0121K018	1.2M K 2.3X3.4 L5 TP
		L776	0LR1000K035	100M K 6X6 L5 TP
		L801	0LR1000K035	100M K 6X6 L5 TP
		L802	0LA1000K018	100M K 2.3X3.4 L5 TP
		L803	0LA1000K018	100M K 2.3X3.4 L5 TP
		L804	0LR1000K035	100M K 6X6 L5 TP
		L805	0LA0122K018	12M K 2.3X3.4 L5 TP
		L806	0LA0332K018	33M K 2.3X3.4 L5 TP
		L807	0LA1000K018	100M K 2.3X3.4 L5 TP
		L901	0LR1000K530	100M K 6X6 F BULK
		R521	0LA0822K018	82M K 2.3X3.4 L5 TP
		T401	633-032C	BIAS-OSC(MISUMI) 70KHZ
		T701	633-022C	AFC 82P(D/S)
		T702	633-021C	PIF(D/S)
LED				

S	AL	LOCA.NO	PART NO(GS)	SPECIFICATION
		LD901	0DL112000AJ	DL-11S2RNS(SUPER,RED,03)KOC
MODULATOR				
		MD701	592-023B	MUK2H701 AUST.W/B00STER GAE
CIRCUIT BOARD ASSEMBLY				
		PBIOV	515-992D	SUB-PWB
		PBJT0	515-700B	JUNCTION 2 D-17S
		PBM00	515-666G	MAIN(Q203H,G/C,B/UP10,ADD TIM)
		PBP00	515-609D	POWER
		PBT00	515-794A	TIMER
TRANSFORMER				
	OR	PT101	641-042B	120V/230V/240V/50HZ
		PT101	641-342B	120V/230V/240V/50HZ
TRANSISTOR				
		Q051	0TR126709AC	KTA1267-GR MINI TP KEC
		Q052	0TR319809AC	KTC3198-TP-BL (KTC1815)KEC
		Q053	0TR319809AC	KTC3198-TP-BL (KTC1815)KEC
		Q054	0TR103009AF	KRA103M-TP (KRA2203) KEC
		Q055	0TR103009AF	KRA103M-TP (KRA2203) KEC
		Q056	0TR319809AC	KTC3198-TP-BL (KTC1815)KEC
	OR	Q101	0TR141400AA	KTD1414 POWER (220 PACK) KEC
		Q101	0TR239900AA	2SD2399(R) POWER ROHM
		Q102	0TR103009AF	KRA103M-TP (KRA2203) KEC
		Q103	0TR319809AC	KTC3198-TP-BL (KTC1815)KEC
		Q104	0TR127309AA	KTA1273-TP-Y (KTA966A)KEC
	OR	Q105	0TR141400AA	KTD1414 POWER (220 PACK) KEC
		Q105	0TR239900AA	2SD2399(R) POWER ROHM
		Q201	0TR319809AC	KTC3198-TP-BL (KTC1815)KEC
		Q202	0TR319809AC	KTC3198-TP-BL (KTC1815)KEC
		Q204	0TR319809AC	KTC3198-TP-BL (KTC1815)KEC
		Q205	0TR124009AD	DTC124ES DEGI ROHM-K
		Q206	0TR124009AD	DTC124ES DEGI ROHM-K
		Q207	0TR319809AC	KTC3198-TP-BL (KTC1815)KEC
		Q301	0TR124009AD	DTC124ES DEGI ROHM-K
		Q302	0TR126709AC	KTA1267-GR MINI TP KEC
		Q303	0TR124009AD	DTC124ES DEGI ROHM-K
		Q304	0TR319809AC	KTC3198-TP-BL (KTC1815)KEC
		Q305	0TR126709AC	KTA1267-GR MINI TP KEC
		Q307	0TR319809AC	KTC3198-TP-BL (KTC1815)KEC
		Q309	0TR319809AC	KTC3198-TP-BL (KTC1815)KEC
		Q314	0TR126709AC	KTA1267-GR MINI TP KEC
		Q317	0TR126709AC	KTA1267-GR MINI TP KEC
		Q318	0TR319809AC	KTC3198-TP-BL (KTC1815)KEC
		Q320	0TR319809AC	KTC3198-TP-BL (KTC1815)KEC
		Q321	0TR319809AC	KTC3198-TP-BL (KTC1815)KEC
		Q326	0TR124009AD	DTC124ES DEGI ROHM-K
		Q327	0TR124009AD	DTC124ES DEGI ROHM-K
		Q401	0TR320509AB	KTC3205-TP-Y (KTC2236A)KEC
		Q402	0TR319809AC	KTC3198-TP-BL (KTC1815)KEC
		Q405	0TR319809AC	KTC3198-TP-BL (KTC1815)KEC
		Q501	0TR124009AD	DTC124ES DEGI ROHM-K
		Q502	0TR124009AD	DTC124ES DEGI ROHM-K
		Q504	0TR124009AD	DTC124ES DEGI ROHM-K
		Q5A1	0TR126709AC	KTA1267-GR MINI TP KEC
		Q5A2	0TR124009AD	DTC124ES DEGI ROHM-K
		Q702	0TR319809AC	KTC3198-TP-BL (KTC1815)KEC
		Q707	0TR319709AC	KTC3197 (KTC388A) TP KEC

S	AL	LOCA.NO	PART NO(GS)	SPECIFICATION
		Q709	0TR124009AD	DTC124ES DEGI ROHM-K
		Q710	0TR117009AA	FET KTK117A(Y,GR) TP KEC
		Q711	0TR103009AF	KRA103M-TP (KRA2203) KEC
	OR	Q711	0TR124009AA	DTA124ES(DEGI-TR),TP,ROHM
		Q712	0TR319809AC	KTC3198-TP-BL (KTC1815)KEC
		Q713	0TR319809AC	KTC3198-TP-BL (KTC1815)KEC
		Q720	0TR126709AC	KTA1267-GR MINI TP KEC
		Q721	0TR319809AC	KTC3198-TP-BL (KTC1815)KEC
		Q801	0TR103009AE	KRC103M-TP (KRC1203) KEC
	OR	Q801	0TR124009AD	DTC124ES DEGI ROHM-K
		Q802	0TR319809AC	KTC3198-TP-BL (KTC1815)KEC
		Q803	0TR126709AC	KTA1267-GR MINI TP KEC
		Q804	0TR103009AE	KRC103M-TP (KRC1203) KEC
	OR	Q804	0TR124009AD	DTC124ES DEGI ROHM-K
		Q805	0TR319809AC	KTC3198-TP-BL (KTC1815)KEC
		Q807	0TR319809AC	KTC3198-TP-BL (KTC1815)KEC

RESISTOR

		R051	0RD1001F608	1.0K 1/6W 5 TA26
		R052	0RD2202F608	22K 1/6W 5 TA26
		R053	0RD6801F608	6.8K 1/6W 5 TA26
		R054	0RD1202F608	12K 1/6W 5 TA26
		R056	0RD2202F608	22K 1/6W 5 TA26
		R057	0RD6801F608	6.8K 1/6W 5 TA26
		R058	0RD1001F608	1.0K 1/6W 5 TA26
		R059	0RD2201F608	2.2K 1/6W 5 TA26
		R060	0RD2201F608	2.2K 1/6W 5 TA26
		R061	0RD3900F608	390 1/6W 5 TA26
		R062	0RD3900F608	390 1/6W 5 TA26
		R063	0RD1501F608	1.5K 1/6W 5 TA26
		R064	0RD2201F608	2.2K 1/6W 5 TA26
		R065	0RD5600F608	560 1/6W 5 TA26
		R066	0RD5601F608	5.6K 1/6W 5 TA26
		R067	0RD1001F608	1.0K 1/6W 5 TA26
		R068	0RD1201F608	1.2K 1/6W 5 TA26
		R069	0RD1201F608	1.2K 1/6W 5 TA26
		R071	0RD3901F608	3.9K 1/6W 5 TA26
		R072	0RD3302F608	33K 1/6W 5 TA26
		R073	0RD1501F608	1.5K 1/6W 5 TA26
		R074	0RD3302F608	33K 1/6W 5 TA26
		R075	0RD2201F608	2.2K 1/6W 5 TA26
		R102	0RD8200F608	820 1/6W 5 TA26
		R103	0RD4701F608	4.7K 1/6W 5 TA26
		R104	0RD4701F608	4.7K 1/6W 5 TA26
		R105	0RD8200F608	820 1/6W 5 TA26
		R106	0RD8200F608	820 1/6W 5 TA26
		R107	0RD1003F608	100K 1/6W 5 TA26
		R108	0RD2201F608	2.2K 1/6W 5 TA26
		R201	0RD1501F608	1.5K 1/6W 5 TA26
		R202	0RD6802F608	68K 1/6W 5 TA26
		R203	0RD1502F608	15K 1/6W 5 TA26
		R204	0RD1501F608	1.5K 1/6W 5 TA26
		R205	0RD3301F608	3.3K 1/6W 5 TA26
		R206	0RD1003F608	100K 1/6W 5 TA26
		R207	0RD3302F608	33K 1/6W 5 TA26
		R208	0RD1002F608	10K 1/6W 5 TA26
		R209	0RD8203F608	820K 1/6W 5 TA26
		R210	0RD2703F608	270K 1/6W 5 TA26
		R211	0RD3901F608	3.9K 1/6W 5 TA26
		R214	0RD6802F608	68K 1/6W 5 TA26
		R215	0RD5603F608	560K 1/6W 5 TA26
		R216	0RD6803F608	680K 1/6W 5 TA26

S	AL	LOCA.NO	PART NO(GS)	SPECIFICATION
		R217	0RD2702F608	27K 1/6W 5 TA26
		R218	0RD2701F608	2.7K 1/6W 5 TA26
		R219	0RD1501F608	1.5K 1/6W 5 TA26
		R220	0RD8201F608	8.2K 1/6W 5 TA26
		R221	0RD8202F608	82K 1/6W 5 TA26
		R222	0RD8202F608	82K 1/6W 5 TA26
		R223	0RD2702F608	27K 1/6W 5 TA26
		R224	0RD8202F608	82K 1/6W 5 TA26
		R225	0RD2203F608	220K 1/6W 5 TA26
		R226	0RD6802F608	68K 1/6W 5 TA26
		R227	0RD2201F608	2.2K 1/6W 5 TA26
		R228	0RD5601F608	5.6K 1/6W 5 TA26
		R229	0RD1802F608	18K 1/6W 5 TA26
		R230	0RD5601F608	5.6K 1/6W 5 TA26
		R231	0RD4700F608	470 1/6W 5 TA26
		R232	0RD4700F608	470 1/6W 5 TA26
		R233	0RD4700F608	470 1/6W 5 TA26
		R234	0RD1202F608	12K 1/6W 5 TA26
		R235	0RD1004F608	1.0M 1/6W 5 TA26
		R236	0RD3303F608	330K 1/6W 5 TA26
		R237	0RD6801F608	6.8K 1/6W 5 TA26
		R238	0RD8203F608	820K 1/6W 5 TA26
		R239	0RD5601F608	5.6K 1/6W 5 TA26
		R240	0RD4701F608	4.7K 1/6W 5 TA26
		R241	0RD5602F608	56K 1/6W 5 TA26
		R242	0RD1002F608	10K 1/6W 5 TA26
		R291	0RD0101F608	1.0 1/6W 5 TA26
		R292	0RD0101F608	1.0 1/6W 5 TA26
		R301	0RD8200F608	820 1/6W 5 TA26
		R302	0RD1001F608	1.0K 1/6W 5 TA26
		R303	0RD2700F608	270 1/6W 5 TA26
		R305	0RD0752F608	75 1/6W 5 TA26
		R306	0RD2700F608	270 1/6W 5 TA26
		R310	0RD6800F608	680 1/6W 5 TA26
		R311	0RD2201F608	2.2K 1/6W 5 TA26
		R312	0RD1201F608	1.2K 1/6W 5 TA26
		R313	0RD4701F608	4.7K 1/6W 5 TA26
		R314	0RD2701F608	2.7K 1/6W 5 TA26
		R315	0RD5601F608	5.6K 1/6W 5 TA26
		R316	0RD2701F608	2.7K 1/6W 5 TA26
		R317	0RD1002F608	10K 1/6W 5 TA26
		R318	0RD6800F608	680 1/6W 5 TA26
		R319	0RD3301F608	3.3K 1/6W 5 TA26
		R320	0RD2201F608	2.2K 1/6W 5 TA26
		R321	0RD1001F608	1.0K 1/6W 5 TA26
		R322	0RD1802F608	18K 1/6W 5 TA26
		R323	0RD1501F608	1.5K 1/6W 5 TA26
		R324	0RD5600F608	560 1/6W 5 TA26
		R325	0RD2202F608	22K 1/6W 5 TA26
		R326	0RD1001F608	1.0K 1/6W 5 TA26
		R328	0RD1202F608	12K 1/6W 5 TA26
		R330	0RD5602F608	56K 1/6W 5 TA26
		R332	0RD7500F608	750 1/6W 5 TA26
		R333	0RD3902F608	39K 1/6W 5 TA26
		R334	0RD2201F608	2.2K 1/6W 5 TA26
		R335	0RD1502F608	15K 1/6W 5 TA26
		R336	0RD1001F608	1.0K 1/6W 5 TA26
		R337	0RD1000F608	100 1/6W 5 TA26
		R338	0RD4700F608	470 1/6W 5 TA26
		R339	0RD4701F608	4.7K 1/6W 5 TA26
		R348	0RD2201F608	2.2K 1/6W 5 TA26
		R350	0RD1501F608	1.5K 1/6W 5 TA26

S	AL	LOCA.NO	PART NO(GS)	SPECIFICATION
		R351	0RD2700F608	270 1/6W 5 TA26
		R352	0RD5603F608	560K 1/6W 5 TA26
		R353	0RD2702F608	27K 1/6W 5 TA26
		R354	0RD6802F608	68K 1/6W 5 TA26
		R355	0RD2203F608	220K 1/6W 5 TA26
		R356	0RD1004F608	1.0M 1/6W 5 TA26
		R357	0RD5600F608	560 1/6W 5 TA26
		R358	0RD2201F608	2.2K 1/6W 5 TA26
		R359	0RD2201F608	2.2K 1/6W 5 TA26
		R360	0RD1001F608	1.0K 1/6W 5 TA26
		R362	0RD2201F608	2.2K 1/6W 5 TA26
		R363	0RD2700F608	270 1/6W 5 TA26
		R364	0RD8200F608	820 1/6W 5 TA26
		R365	0RD1501F608	1.5K 1/6W 5 TA26
		R366	0RD1201F608	1.2K 1/6W 5 TA26
		R3A7	0RD4701F608	4.7K 1/6W 5 TA26
		R3A8	0RD1201F608	1.2K 1/6W 5 TA26
		R3A9	0RD6800F608	680 1/6W 5 TA26
		R3B1	0RD3300F608	330 1/6W 5 TA26
		R3B2	0RD1001F608	1.0K 1/6W 5 TA26
		R401	0RD0102F608	10 1/6W 5 TA26
		R402	0RD0472F608	47 1/6W 5 TA26
		R403	0RD2702F608	27K 1/6W 5 TA26
		R404	0RD2700F608	270 1/6W 5 TA26
		R405	0RD2702F608	27K 1/6W 5 TA26
		R406	0RD3303F608	330K 1/6W 5 TA26
		R407	0RD1202F608	12K 1/6W 5 TA26
		R409	0RD0102F608	10 1/6W 5 TA26
		R410	0RD6801F608	6.8K 1/6W 5 TA26
		R411	0RD0102F608	10 1/6W 5 TA26
		R412	0RD5600F608	560 1/6W 5 TA26
		R413	0RD1502F608	15K 1/6W 5 TA26
		R414	0RD1004F608	1.0M 1/6W 5 TA26
		R415	0RD2701F608	2.7K 1/6W 5 TA26
		R416	0RD2201F608	2.2K 1/6W 5 TA26
		R417	0RD3902F608	39K 1/6W 5 TA26
		R418	0RD1202F608	12K 1/6W 5 TA26
		R419	0RD1001F608	1.0K 1/6W 5 TA26
		R421	0RD3302F608	33K 1/6W 5 TA26
		R427	0RD1001F608	1.0K 1/6W 5 TA26
		R428	0RD6801F608	6.8K 1/6W 5 TA26
		R429	0RD1001F608	1.0K 1/6W 5 TA26
		R431	0RD3902F608	39K 1/6W 5 TA26
		R433	0RD1202F608	12K 1/6W 5 TA26
		R435	0RD1202F608	12K 1/6W 5 TA26
		R436	0RD1202F608	12K 1/6W 5 TA26
		R439	0RD3902F608	39K 1/6W 5 TA26
		R500	614-011B	PRW 3.3/2W 10MM FORM/BULK SUNG
		R501	0RD1002F608	10K 1/6W 5 TA26
		R502	0RD1004F608	1.0M 1/6W 5 TA26
		R503	0RD3303F608	330K 1/6W 5 TA26
		R505	0RD5604F608	5.6M 1/6W 5 TA26
		R507	0RD4702F608	47K 1/6W 5 TA26
		R509	0RD4702F608	47K 1/6W 5 TA26
		R510	0RD2702F608	27K 1/6W 5 TA26
		R512	0RD4702F608	47K 1/6W 5 TA26
		R513	0RD4701F608	4.7K 1/6W 5 TA26
		R514	0RD0271F608	2.7 1/6W 5 TA26
		R515	0RD0271F608	2.7 1/6W 5 TA26
		R516	0RD1002F608	10K 1/6W 5 TA26
		R517	0RD2702F608	27K 1/6W 5 TA26
		R518	0RD1002F608	10K 1/6W 5 TA26

S	AL	LOCA.NO	PART NO(GS)	SPECIFICATION
		R519	0RD2702F608	27K 1/6W 5 TA26
		R522	0RD1001F608	1.0K 1/6W 5 TA26
		R523	0RD4701F608	4.7K 1/6W 5 TA26
		R524	0RD4701F608	4.7K 1/6W 5 TA26
		R525	0RD4701F608	4.7K 1/6W 5 TA26
		R526	0RD1001F608	1.0K 1/6W 5 TA26
		R531	0RD4701F608	4.7K 1/6W 5 TA26
		R532	0RD6801F608	6.8K 1/6W 5 TA26
		R533	0RD4701F608	4.7K 1/6W 5 TA26
		R534	0RD2702F608	27K 1/6W 5 TA26
		R535	0RD2701F608	2.7K 1/6W 5 TA26
		R537	0RD1002F608	10K 1/6W 5 TA26
		R546	0RD1002F608	10K 1/6W 5 TA26
		R547	0RD1002F608	10K 1/6W 5 TA26
		R550	0RD4701F608	4.7K 1/6W 5 TA26
		R552	0RD4701F608	4.7K 1/6W 5 TA26
		R553	0RD4701F608	4.7K 1/6W 5 TA26
		R577	0RD1001F608	1.0K 1/6W 5 TA26
		R587	0RD4702F608	47K 1/6W 5 TA26
		R588	0RD1002F608	10K 1/6W 5 TA26
		R594	0RD1002F608	10K 1/6W 5 TA26
		R5A1	0RD2201F608	2.2K 1/6W 5 TA26
		R5A2	0RD4701F608	4.7K 1/6W 5 TA26
		R701	0RD3300F608	330 1/6W 5 TA26
		R702	0RD4700F608	470 1/6W 5 TA26
		R704	0RD1202F608	12K 1/6W 5 TA26
		R705	0RD1202F608	12K 1/6W 5 TA26
		R706	0RD4702F608	47K 1/6W 5 TA26
		R707	0RD1000F608	100 1/6W 5 TA26
		R708	0RD0682F608	68 1/6W 5 TA26
		R709	0RD1000F608	100 1/6W 5 TA26
		R710	0RD5600F608	560 1/6W 5 TA26
		R711	0RD1201F608	1.2K 1/6W 5 TA26
		R712	0RD4701F608	4.7K 1/6W 5 TA26
		R713	0RD4700F608	470 1/6W 5 TA26
		R715	0RD1002F608	10K 1/6W 5 TA26
		R716	0RD3900F608	390 1/6W 5 TA26
		R717	0RD3900F608	390 1/6W 5 TA26
		R718	0RD2701F608	2.7K 1/6W 5 TA26
		R719	0RD4701F608	4.7K 1/6W 5 TA26
		R720	0RD1201F608	1.2K 1/6W 5 TA26
		R721	0RD2200F608	220 1/6W 5 TA26
		R722	0RD2200F608	220 1/6W 5 TA26
		R723	0RD3903F608	390K 1/6W 5 TA26
		R724	0RD1001F608	1.0K 1/6W 5 TA26
		R725	0RD8203F608	820K 1/6W 5 TA26
		R726	0RD5601F608	5.6K 1/6W 5 TA26
		R727	0RD5601F608	5.6K 1/6W 5 TA26
		R728	0RD1002F608	10K 1/6W 5 TA26
		R731	0RD1202F608	12K 1/6W 5 TA26
		R732	0RD1202F608	12K 1/6W 5 TA26
		R737	0RD2200F608	220 1/6W 5 TA26
		R738	0RD4702F608	47K 1/6W 5 TA26
		R739	0RD5602F608	56K 1/6W 5 TA26
		R740	0RD3903F608	390K 1/6W 5 TA26
		R741	0RD3301F608	3.3K 1/6W 5 TA26
		R742	0RD1000F608	100 1/6W 5 TA26
		R776	0RD2200F608	220 1/6W 5 TA26
		R777	0RD1802F608	18K 1/6W 5 TA26
		R778	0RD3301F608	3.3K 1/6W 5 TA26
		R790	0RD1000F608	100 1/6W 5 TA26
		R798	0RD4701F608	4.7K 1/6W 5 TA26

S	AL	LOCA.NO	PART NO(GS)	SPECIFICATION
		R799	0RD5600F608	560 1/6W 5 TA26
		R802	0RD1001F608	1.0K 1/6W 5 TA26
		R803	0RD3900F608	390 1/6W 5 TA26
		R804	0RD1502F608	15K 1/6W 5 TA26
		R805	0RD3302F608	33K 1/6W 5 TA26
		R808	0RD1001F608	1.0K 1/6W 5 TA26
		R809	0RD2201F608	2.2K 1/6W 5 TA26
		R812	0RD1002F608	10K 1/6W 5 TA26
		R813	0RD5601F608	5.6K 1/6W 5 TA26
		R814	0RD0682F608	68 1/6W 5 TA26
		R815	0RD8200F608	820 1/6W 5 TA26
		R816	0RD2200F608	220 1/6W 5 TA26
		R817	0RD2200F608	220 1/6W 5 TA26
		R818	0RD4701F608	4.7K 1/6W 5 TA26
		R819	0RD1001F608	1.0K 1/6W 5 TA26
		R840	0RD4700F608	470 1/6W 5 TA26
		R841	0RD4702F608	47K 1/6W 5 TA26
		R842	0RD5600F608	560 1/6W 5 TA26
		R901	0RD4701F608	4.7K 1/6W 5 TA26
		R902	0RD1001F608	1.0K 1/6W 5 TA26
		R903	0RD1501F608	1.5K 1/6W 5 TA26
		R904	0RD2201F608	2.2K 1/6W 5 TA26
		R905	0RD4701F608	4.7K 1/6W 5 TA26
		R906	0RD4701F608	4.7K 1/6W 5 TA26
		R907	0RD1001F608	1.0K 1/6W 5 TA26
		R908	0RD1501F608	1.5K 1/6W 5 TA26
		R909	0RD2201F608	2.2K 1/6W 5 TA26
		R910	0RD4701F608	4.7K 1/6W 5 TA26
		R911	0RD5600F608	560 1/6W 5 TA26
REMOCON RECEIVER				
	OR	RC901	668-226P	R/C RECEIVER(H=20M/M)BLACK KTC
		RC901	668-227R	RECE 20.0 3276A 2800 KOTECO
SWITCH				
		SW901	556-032S	KPT-1105A
		SW902	556-032S	KPT-1105A
		SW903	556-032S	KPT-1105A
		SW904	556-032S	KPT-1105A
		SW905	556-032S	KPT-1105A
		SW906	556-032S	KPT-1105A
	OR	SW908	556-032A	SKHH 10902A
		SW908	556-032S	KPT-1105A
	OR	SW909	556-032A	SKHH 10902A
		SW909	556-032S	KPT-1105A
TUNER				
		TU701	521-066A	CER1A701 (PAL BG + SECAM DK)
VARIABLE RESISTOR				
	OR	VR201	613-029W	VARIABLE EVN-DXA A03BE5-220K
		VR201	613-032W	RH0638CJ5R (220K)
	OR	VR301	613-029N	VARIABLE EVN-DXA A03B14-10K
		VR301	613-032N	RH0638C14R14A (10K)
	OR	VR302	613-029Q	VARIABLE EVN-DXA A03BE4-22K
		VR302	613-032Q	RH0638CJ4R0WA (22K)
	OR	VR303	613-029N	VARIABLE EVN-DXA A03B14-10K
		VR303	613-032N	RH0638C14R14A (10K)
	OR	VR304	613-029G	VARIABLE EVN-DXA A03B13-1K
		VR304	613-032G	RH0638C13R0VA (1K)

S	AL	LOCA.NO	PART NO(GS)	SPECIFICATION
	OR	VR307	613-029G	VARIABLE EVN-DXA A03B13-1K
		VR307	613-032G	RH0638C13R0VA (1K)
	OR	VR401	613-029U	VARIABLE EVN-DXA A03B15-100K
		VR401	613-032U	RH0638C15R0WA (100K)
	OR	VR701	613-029N	VARIABLE EVN-DXA A03B14-10K
		VR701	613-032N	RH0638C14R14A (10K)
CRYSTAL				
	OR	X301	529-029H	4.433619MHZ KSS
		X301	529-029P	4.433619MHZ 20PPM SUNNY
		X502	529-001B	32.768KHZ NDK
	OR	X502	529-001D	32.768KHZ(2X6) SEIKO
		X801	529-022V	17.734476MHZ CL-12P 25PPM LEAD
RESONATOR				
		X501	618-017A	FCR6.0MCT2 TDK-J(TAPING)
ZENER DIODE				
		ZD101	0DZ150009BA	MTZ15A TP ROHM-K
		ZD102	0DZ130009AC	MTZ13B TP ROHM-K
		ZD104	0DZ330009AF	MTZ33B,TP,ROHM-K
		ZD105	0DZ820009AA	MTZ8.2B TP ROHM-K
		ZD401	0DZ100009AA	MTZ10B MINI TP ROHM-K
		ZD402	0DZ150009BA	MTZ15A TP ROHM-K
		ZD403	0DZ150009BA	MTZ15A TP ROHM-K
	OR	ZD501	0DZ820009BB	UZ8.2BSC 5M/M TP UNIZON
		ZD501	0DZ820009CB	MTZ8.2C MINI TP ROHM-K
		ZD701	0DZ100009AA	MTZ10B MINI TP ROHM-K
		ZD702	0INE574000A	UPC574J 30V ZENER

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