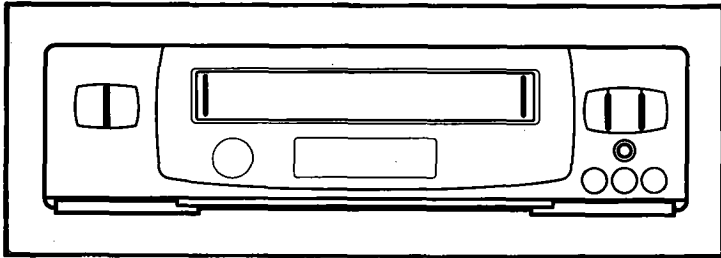


TEAC®



MV-3020



VIDEO CASSETTE RECORDER



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

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SERVICE MANUAL

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REPLACEMENT PARTS LIST

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SECTION 1 SUMMARY

KEY TO ABBREVIATIONS


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

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)

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.

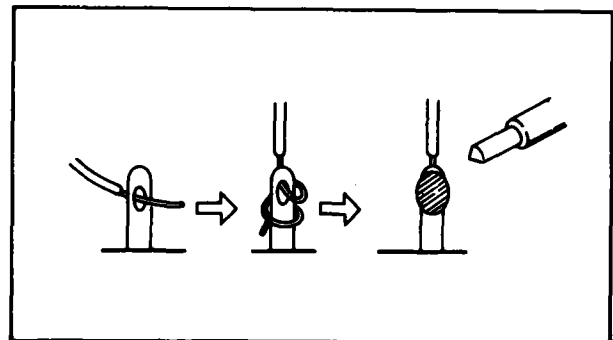


Fig. 1

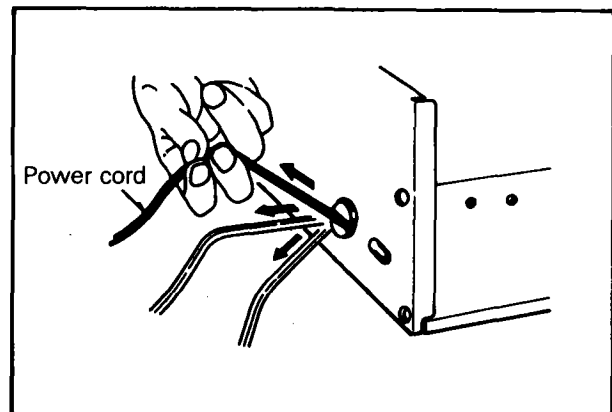


Fig. 2

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.

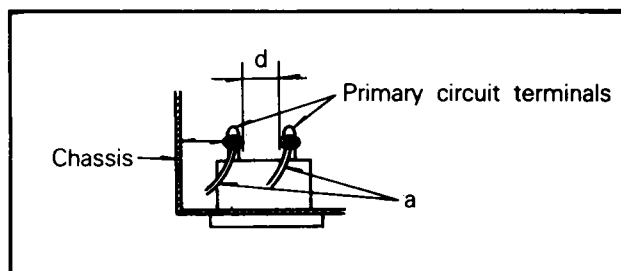


Fig. 3

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	$\geq 10 \text{ M}\Omega / 500 \text{ V DC}$	4kV 1 minute	$\geq 6\text{mm}(d)$ $\geq 8\text{mm}(d')$ (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.

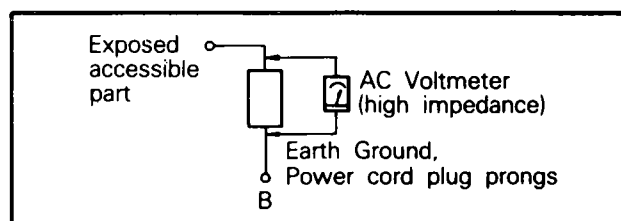
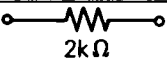
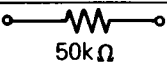


Fig. 4

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	 2k Ω	$i \leq 0.7\text{m A peak}$ $i \leq 2\text{m A dc}$	Antenna earth terminals
200 to 240 V	Australia	 50k Ω	$i \leq 0.7\text{m A peak}$ $i \leq 2\text{m A dc}$	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)
- 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 :	4hours 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"×13.6" (360×88×345mm)
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) Colour signal
Recording Format :	PAL
RF Reception :	PAL B / H
RF OUT	PAL B
Input Level :	VIDEO IN (RCA type)
	1.0Vp-p 75 ohm unbalanced
Output Level :	VIDEO OUT (RCA type)
	1.0Vp-p 75 ohm unbalanced
Signal to Noise Ratio :	More than 43dB
RF Modulator :	VHF Channels 0 or 1 (Switchable)

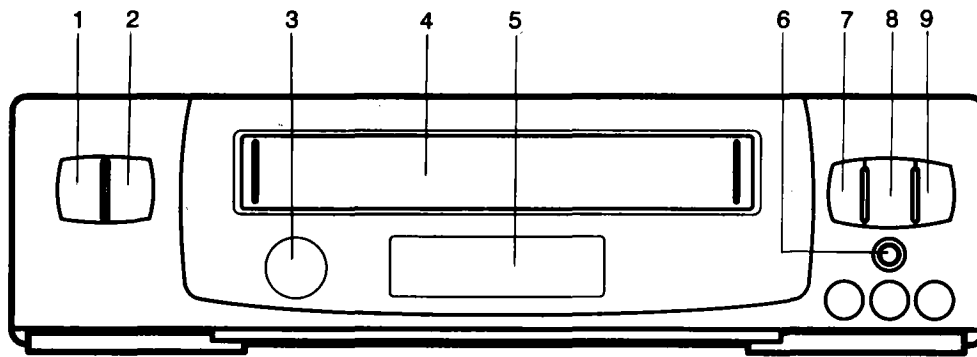
Audio :

Input Level :	AUDIO IN (RCA type)
	0 dBm more than 50 Kohm
Output Level :	AUDIO OUT (RCA type)
	-5 dBm Less than 1Kohm
Audio Track :	Monotrack type
Audio Frequency Response :	100Hz-10KHz (± 3 / ± 5) at SP mode
Signal to Noise Ratio :	More than 43dB

*Designs and specifications are subject to change without notice.

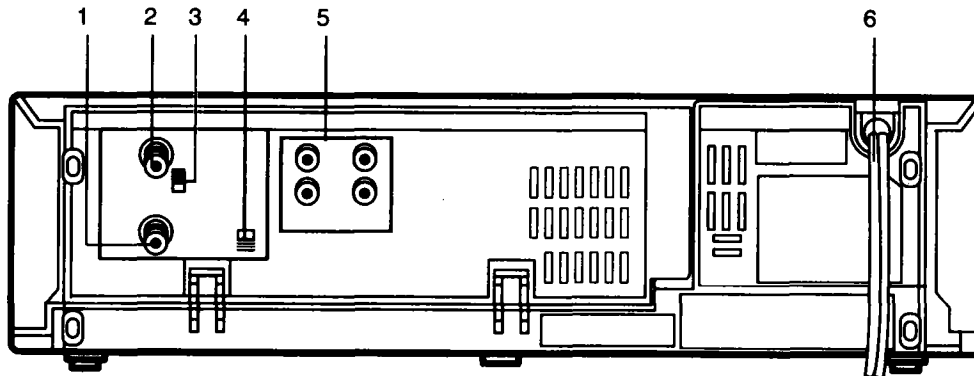
LOCATION OF CUSTOMER CONTROLS

FRONT



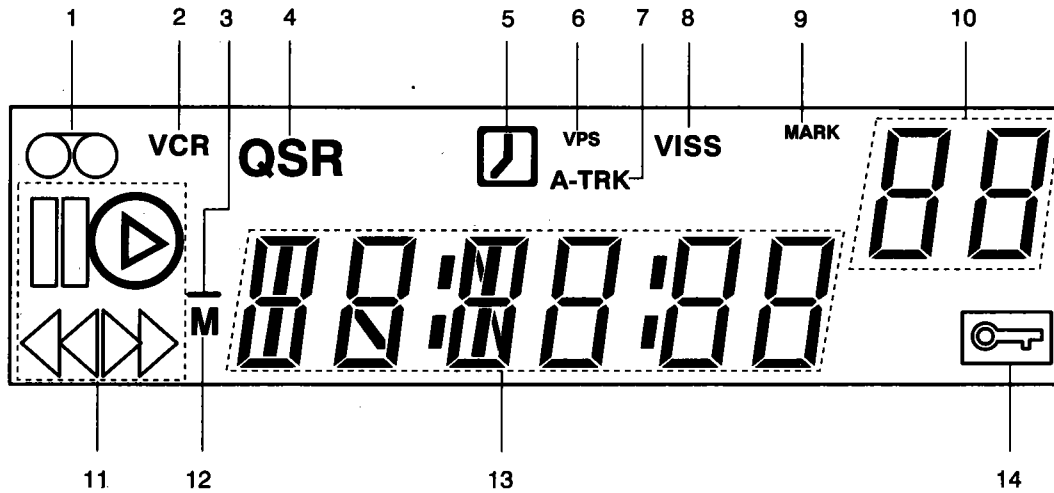
1. OPERATE ON/OFF BUTTON AND INDICATOR
2. STOP / EJECT BUTTON
3. REMOTE SENSOR WINDOW
4. CASSETTE COMPARTMENT
5. MULTI-FUNCTION DISPLAY
6. RECORD/QSR BUTTON
7. REWIND / SPEED REVIEW BUTTON
8. PLAY BUTTON
9. FAST FORWARD / SPEED REVIEW BUTTO

REAR



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

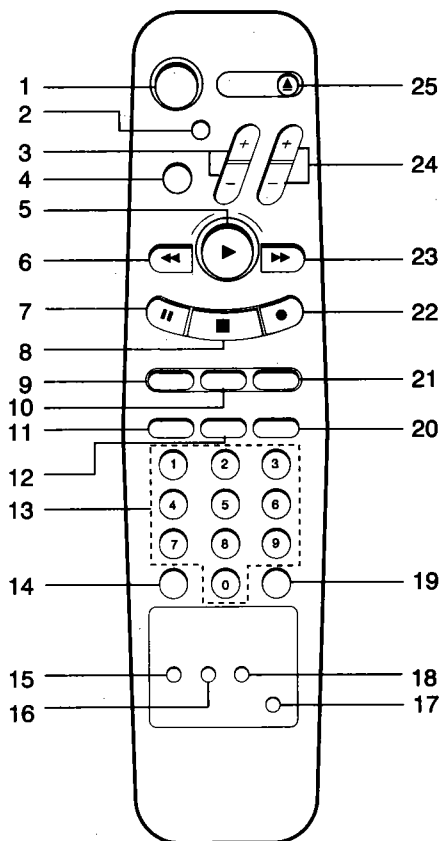
MULTI FUNCTION DISPLAY



1. CASSETTE-IN INDICATOR (∞)
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. POWER BUTTON
 2. AUTO TRACKING BUTTON
 3. TRACKING/MFT(+/-) BUTTONS
 4. CHILD LOCK BUTTON
 5. PLAY BUTTON
 6. REWIND / REVIEW BUTTON
 7. PAUSE / STILL BUTTON
 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. TAPE SPEED MODE SELECT BUTTON (SP / LP) : *
 19. TU/AV SELECT BUTTON
 20. DISPLAY BUTTON
 21. VCR PLUS BUTTON : *
 22. REC / QSR BUTTON
 23. FAST FORWARD/CUE BUTTON
 24. CHANNEL PROGRAMME SELECTORS (+/-)
 25. EJECT BUTTON
- ※ * : Optional Function

SECTION 2 CABINET & MAIN FRAME

SERVICE FIXTURE CONNECTING METHOD

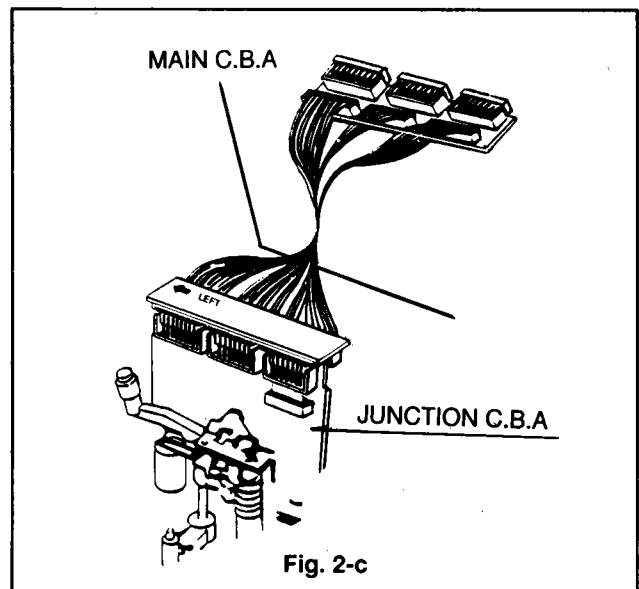
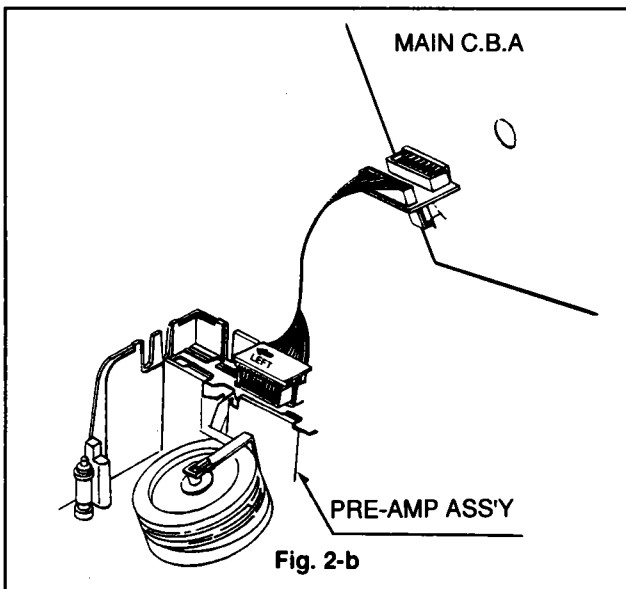
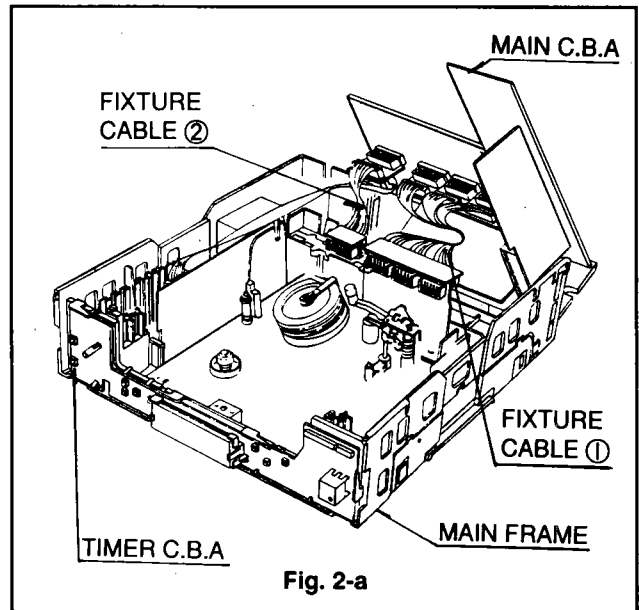
1. SVC FIXTURE Connecting Method

A. FIXTURE Cable ① Connecting Method.

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

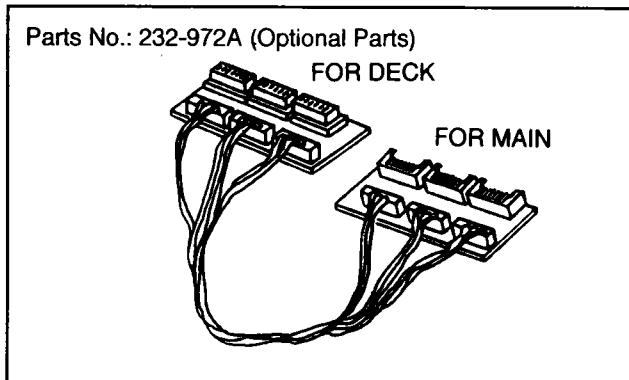
B. FIXTURE Cable ② Connecting Method.

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

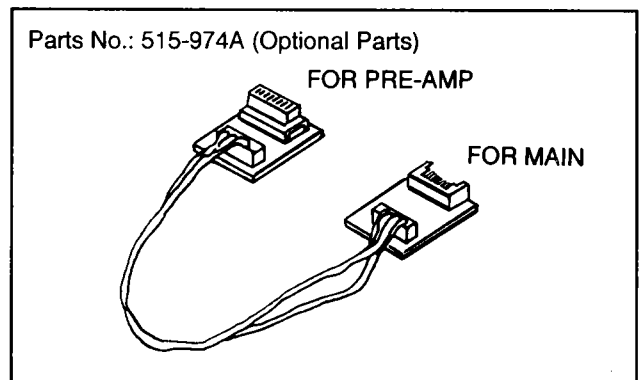


2. Electrical Service Fixture List

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.

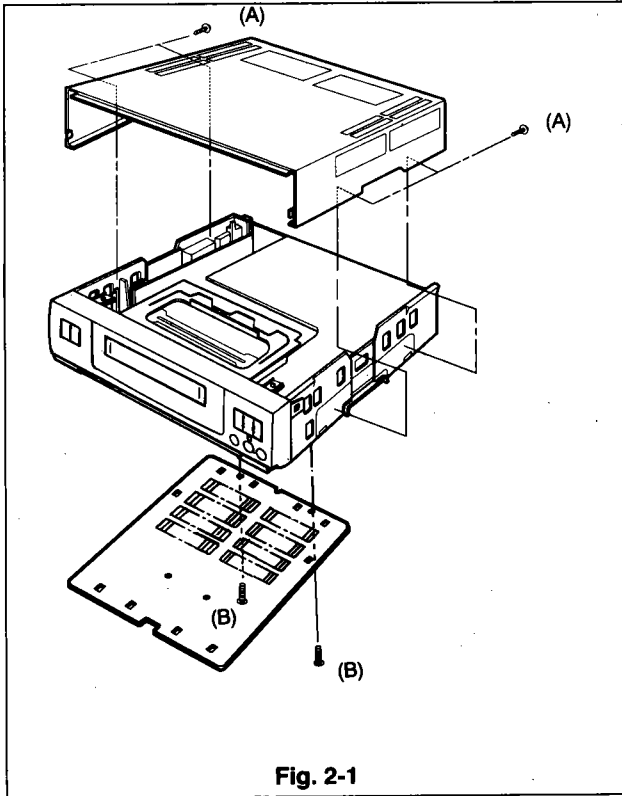


Fig. 2-1

*Caution

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

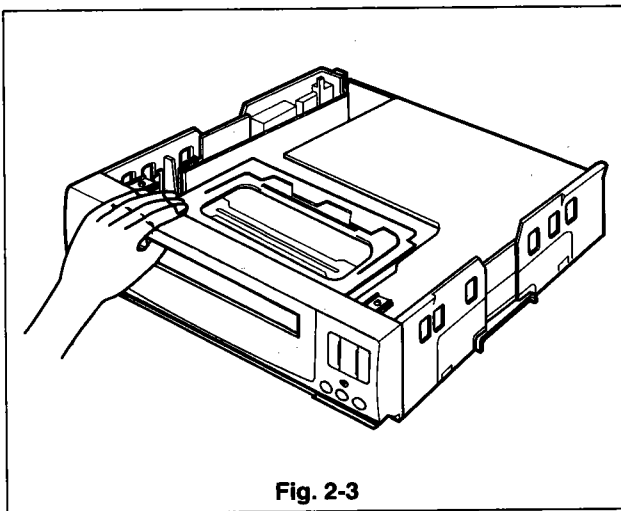


Fig. 2-3

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.

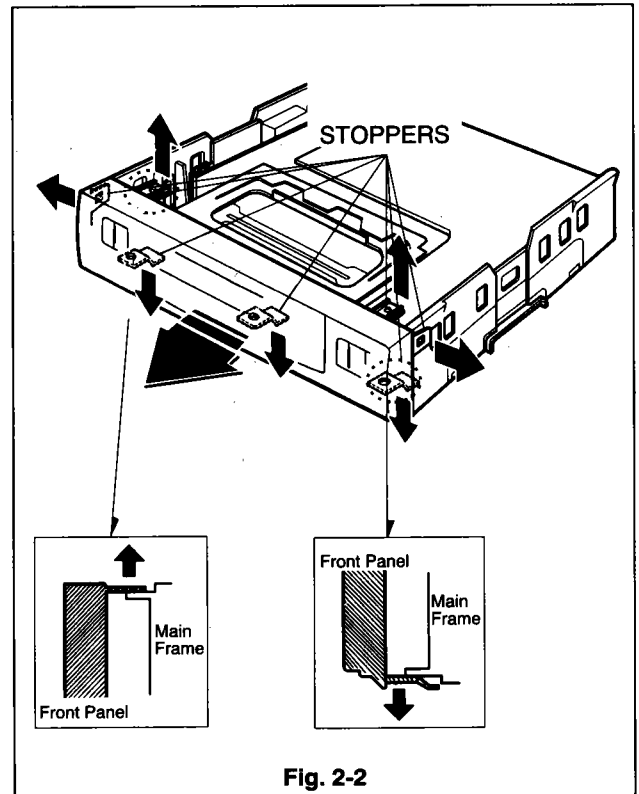


Fig. 2-2

CIRCUIT BOARD DISASSEMBLY

1. Circuit Board Arrangement

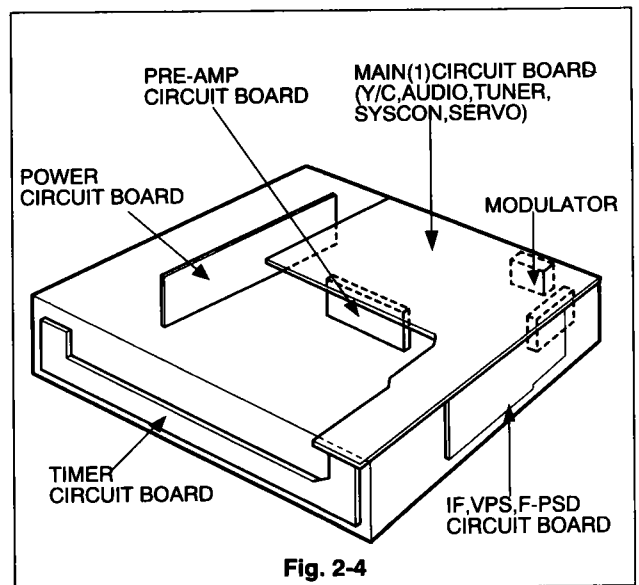
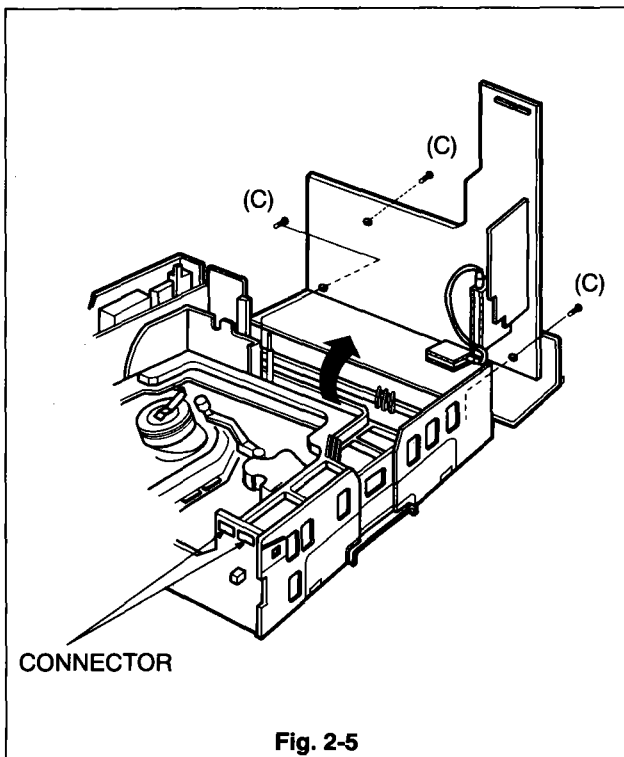


Fig. 2-4

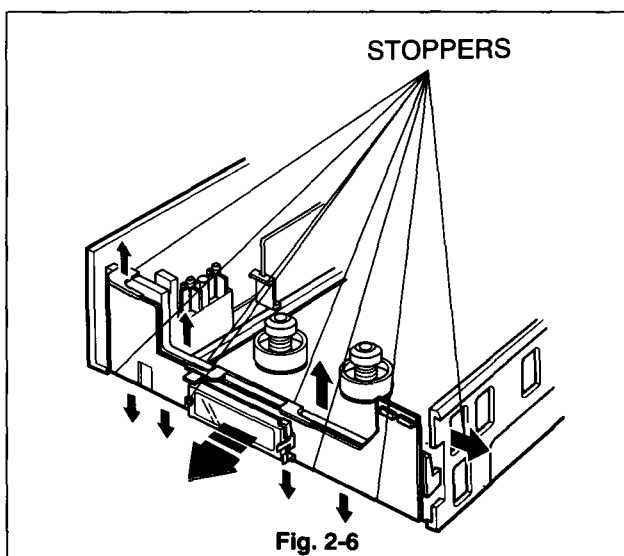
2. Main Circuit Board(I)(Y/C, Audio, Tuner, Syscon, Servo)

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



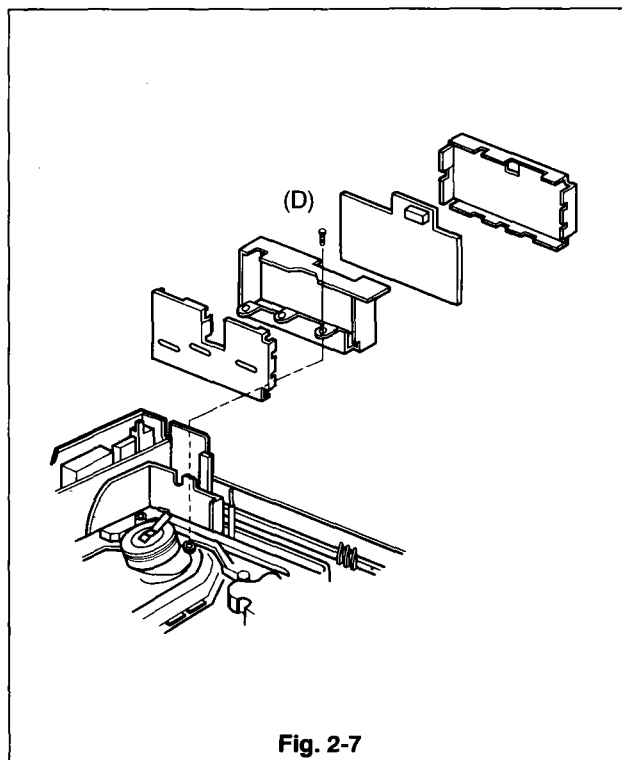
3. Timer Circuit Board

- 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).
- Remove the connector for complete removal.



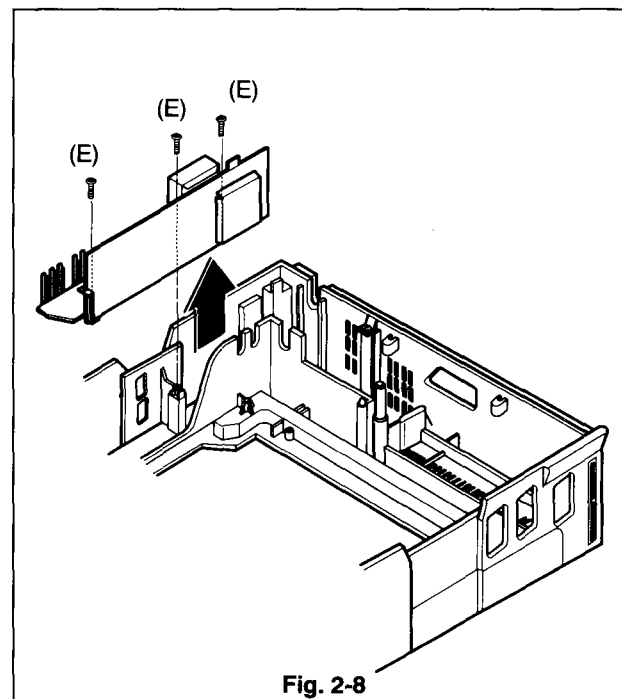
4. Pre-Amp Circuit Board

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



5. Power Circuit Board

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

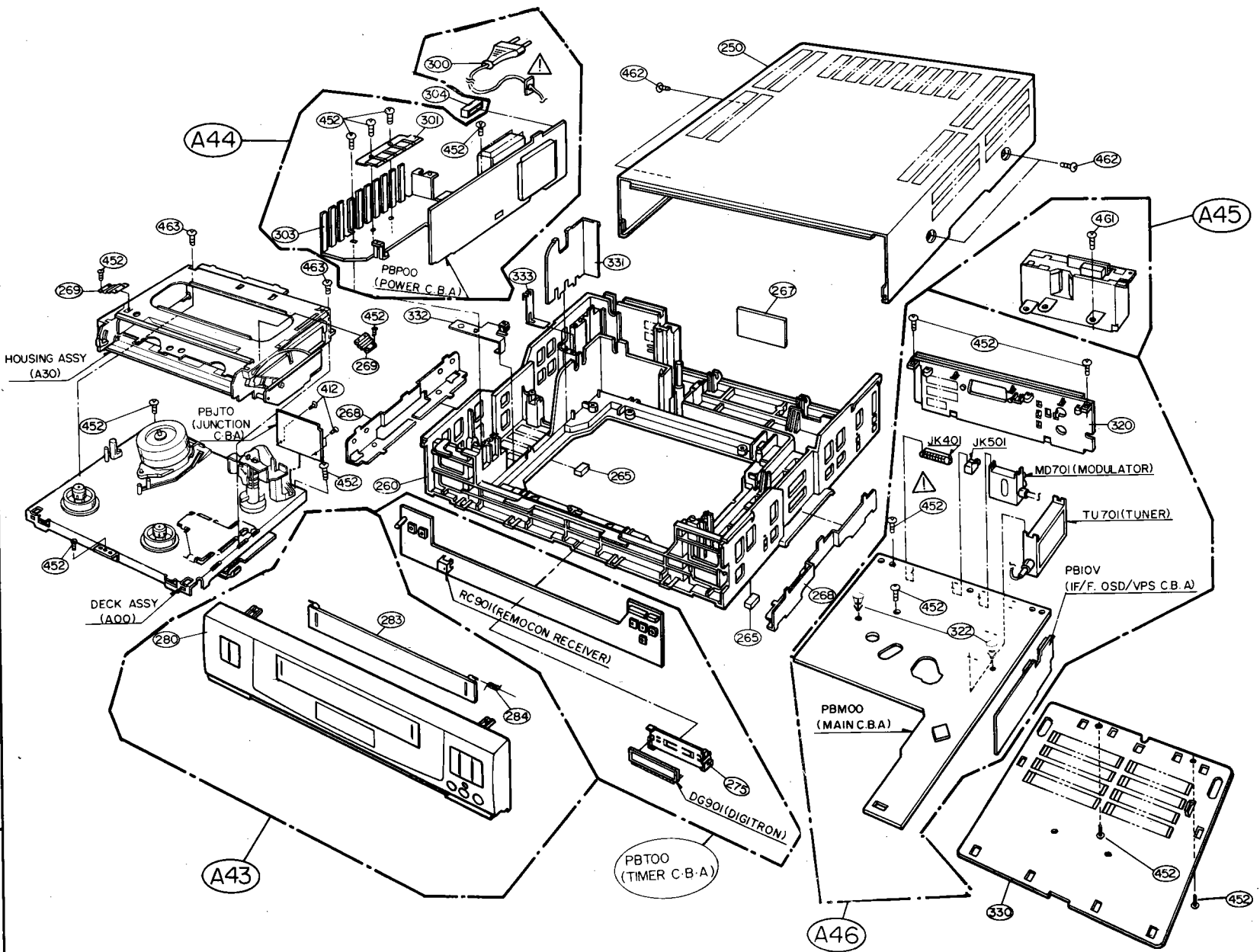



A B C D

1 2 3 4 5

EXPLODED VIEWS

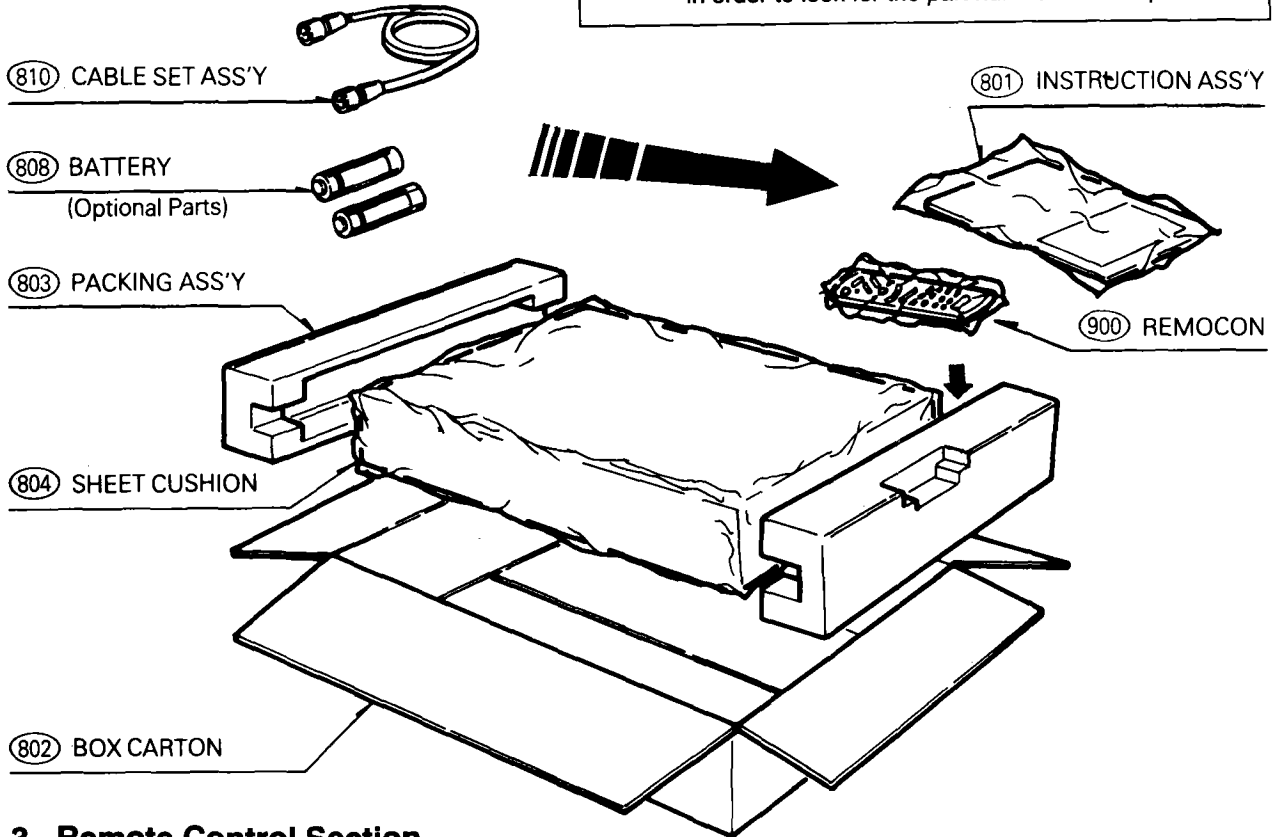
1. Cabinet & Main Frame Section



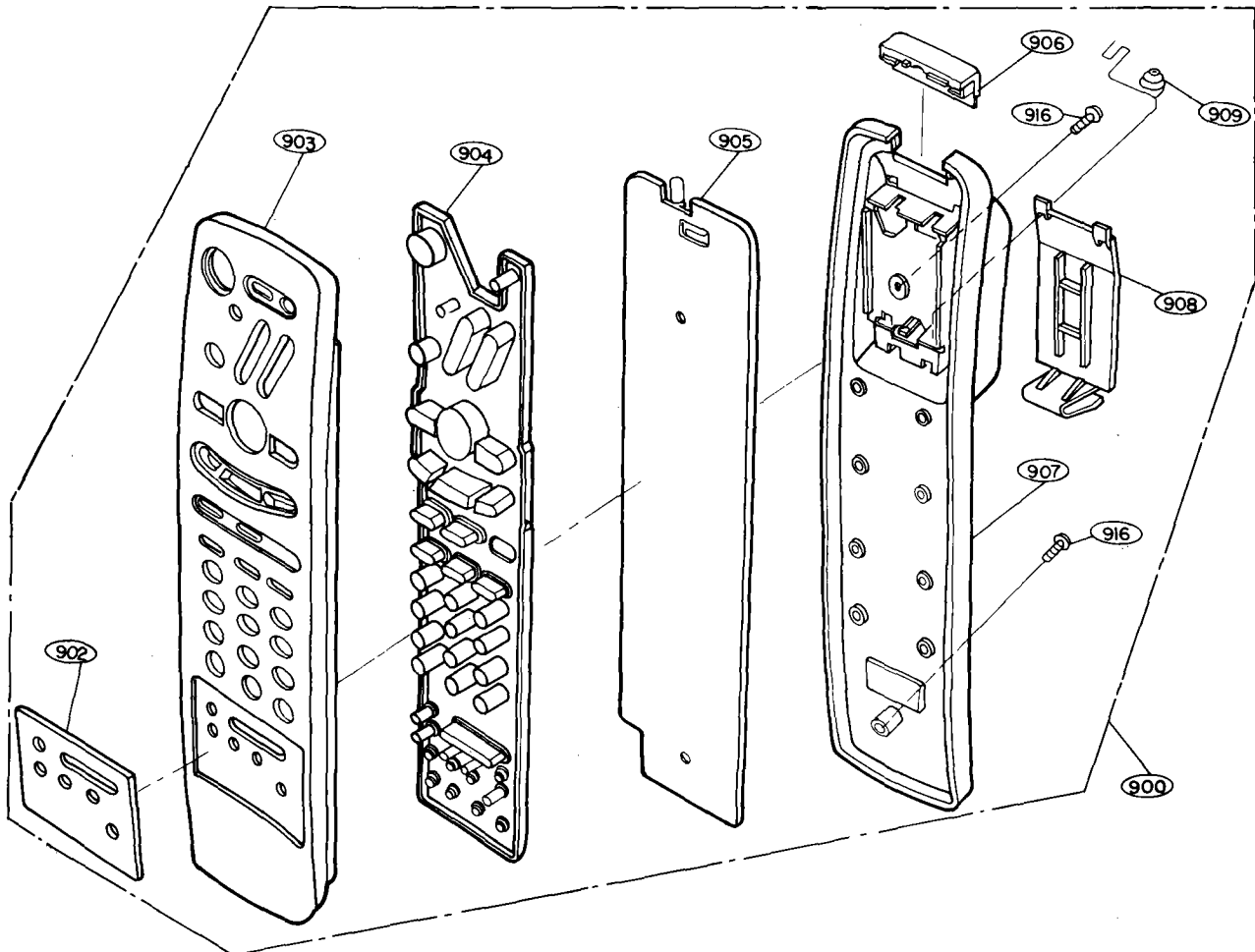
NOTE) 1. Refer to "SECTION 5 REPLACEMENT PARTS LIST" in order to look for the part number of each part.
 2. The components identified by mark  are critical for safety. Replace only with part number specified.

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

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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) \pm PG Adjustment

MODE	SPECIFICATIONS	MEASUREMENT POINT	ADJUSTMENT POINT
Playback	$6.5H \pm 0.5H$ ($416\mu\text{sec}$, $1H=64\mu\text{sec}$)	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 :

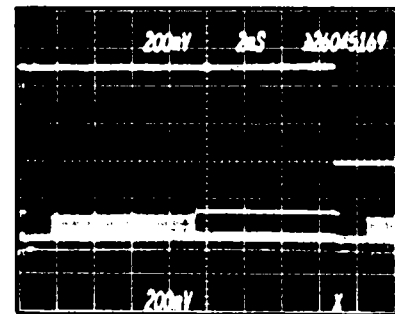
- Playback a PAL / SP test tape.
- Connect CH-1 terminal of oscilloscope to W309 H.SW, and CH-2 terminal to Video out terminal of VCR.
- Trigger the complex Video signal of CH-2 to CH-1 H.SW, and adjust VR201 so that the distance from A(B) head selection point of H.SW signal to the starting point of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

Reference)

- \pm PG adjustment is practiced in the state of maximum RF level and locked servo system.
- The deviation between A/B Head adjustment location should be within $\pm 0.5H$ ($32\mu\text{sec}$).
- The deviation between the specification of adjustment and the practical measurement value should be within $\pm 0.5H$ ($32\mu\text{sec}$).
- Oscilloscope and VCR set should be connected with GND.

Waveform

Composite Video Signal



$6.5H(416\mu\text{sec})$

H.SW(W309)

Fig. 3-1

2. Y/C Circuit

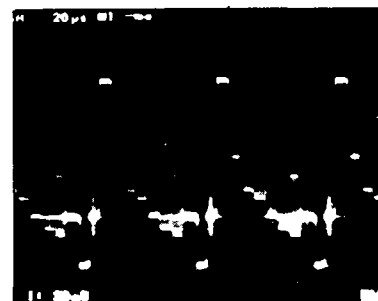
1) EE Level Adjustment

MODE	SPECIFICATIONS	MEASUREMENT POINT	ADJUSTMENT POINT
Stop	$2 \pm 0.1V_{p-p}$	Video Out Jack	VR304 EE Level

Procedure :

- Connect the Video Signal Generator to Video in terminal.
- Connect CH-1 terminal of the oscilloscope to Video Out Jack.
- Adjust VR304 so that the value from the lower part of synchronis to 100% white signal is $2 \pm 0.1V_{p-p}$.

Waveform



$2 \pm 0.1V_{p-p}$

Fig. 3-2

2) FM Carrier Frequency Adjustment

MODE	SPECIFICATIONS	MEASUREMENT POINT	ADJUSTMENT POINT
Stop	White Peak: $4.8 \pm 0.05\text{MHz}$ Sync. Tip: $3.8 \pm 0.05\text{MHz}$	IC301 Pin ⑰ (DEV/CAR TP)	VR302

Procedure :

- Connect the Video Signal Generator to Video in terminal.
- 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).
- Connect input terminal of modem tester to IC301 pin ⑰.
- Input the video signal of 100% white to Video Input Jack.
- The terminal position of modem tester is operated to be ATT. 0dB, PAL/SECAM mode, Demod, Marker on.
- 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

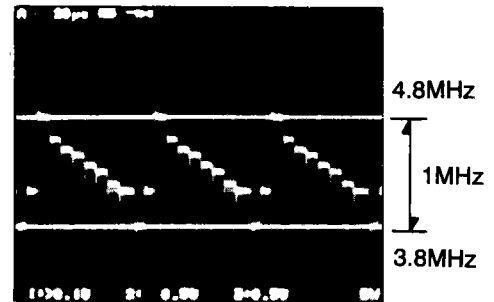


Fig. 3-3

3) FM Deviation Frequency Adjustment

MODE	SPECIFICATIONS	MEASUREMENT POINT	ADJUSTMENT POINT
Stop	$1 \pm 0.05\text{MHz}$	IC301 Pin ⑰ (DEV/CAR TP)	VR301

Procedure :

- Connect the Video Signal Generator to Video in terminal.
- 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).
- Connect input terminal of modem tester to IC301 pin ⑰.
- Input the video signal of 100% white to Video Input Jack.
- The terminal position of modem tester is operated to be ATT. 0dB, PAL/SECAM mode, Demod, Marker on.
- 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

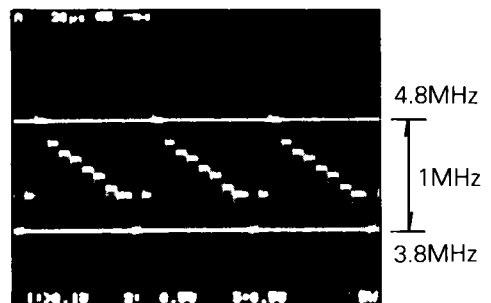


Fig. 3-4

4) Playback Luminance Level Adjustment

MODE	SPECIFICATIONS	MEASUREMENT POINT	ADJUSTMENT POINT
Playback(SP mode)	$2 \pm 0.1\text{Vp-p}$	Video Out Jack	VR303 PB-Y

Procedure :

- Connect the Video Signal Generator to Video in terminal.
- Connect CH-1 terminal of the oscilloscope to Video Out Jack.
- Playback a PAL SP test tape (with 100% white signal).
- Adjust VR303 so that the Video waveform is $2 \pm 0.1\text{Vp-p}$.

Waveform

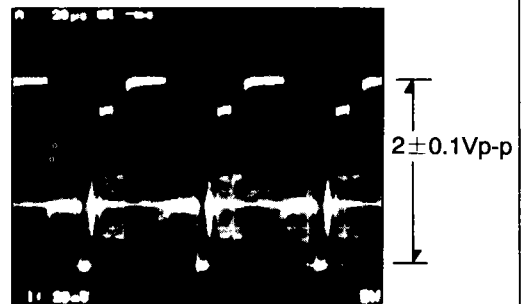


Fig. 3-5


5) CCD.Level Adjustment

MODE	SPECIFICATIONS	MEASUREMENT POINT	ADJUSTMENT POINT
Playback	Minimum	IC301 Pin (48) IC301 Pin (51)	VR307

Procedure :

- Connect the Video Signal Generator to Video in terminal.
- Connect CH-1 terminal of the oscilloscope to IC301 pin (48).
- Connect CH-2 terminal of the oscilloscope to IC301 pin (51).
- Playback a PAL SP test tape (with 100% white signal).
- Adjust VR307 so that the waveform level variation of IC301 pin (48) and IC301 pin (51) to be minimized.

Waveform IC 301 pin (51)



Waveform IC 301 pin (48)




Fig. 3-6

3. Audio Circuit

1) Audio R/P Head Azimuth Adjustment

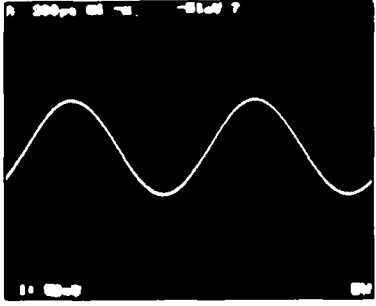
MODE	SPECIFICATIONS	MEASUREMENT POINT	ADJUSTMENT POINT
Playback	Maximum	Audio Out Terminal	R/P Head Azimuth

Purpose :
This is for adjusting Audio playback level to specification.

Procedure :

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

Waveform 1KHz



Waveform 6KHz

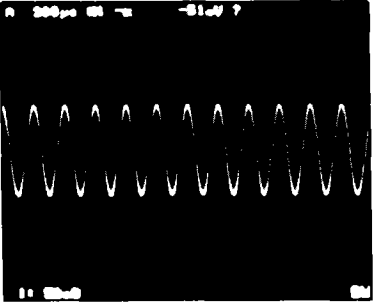


Fig. 3-7

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 :

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

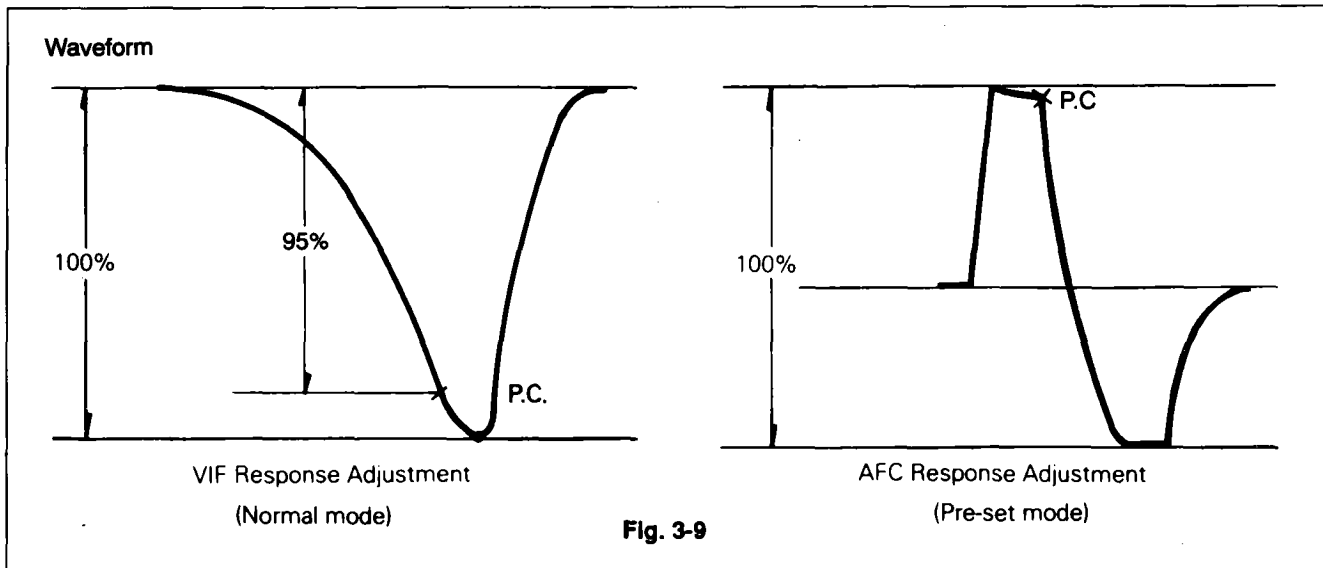
3) Record Bias Adjustment

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 :

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



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

- When practicing this adjustment, adjust after more than 10 minutes with TV set turning on.
- Adjust after completing itself test of measuring apparatus.
- Sweep OSC marker frequency is followed by Table 1.
- 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

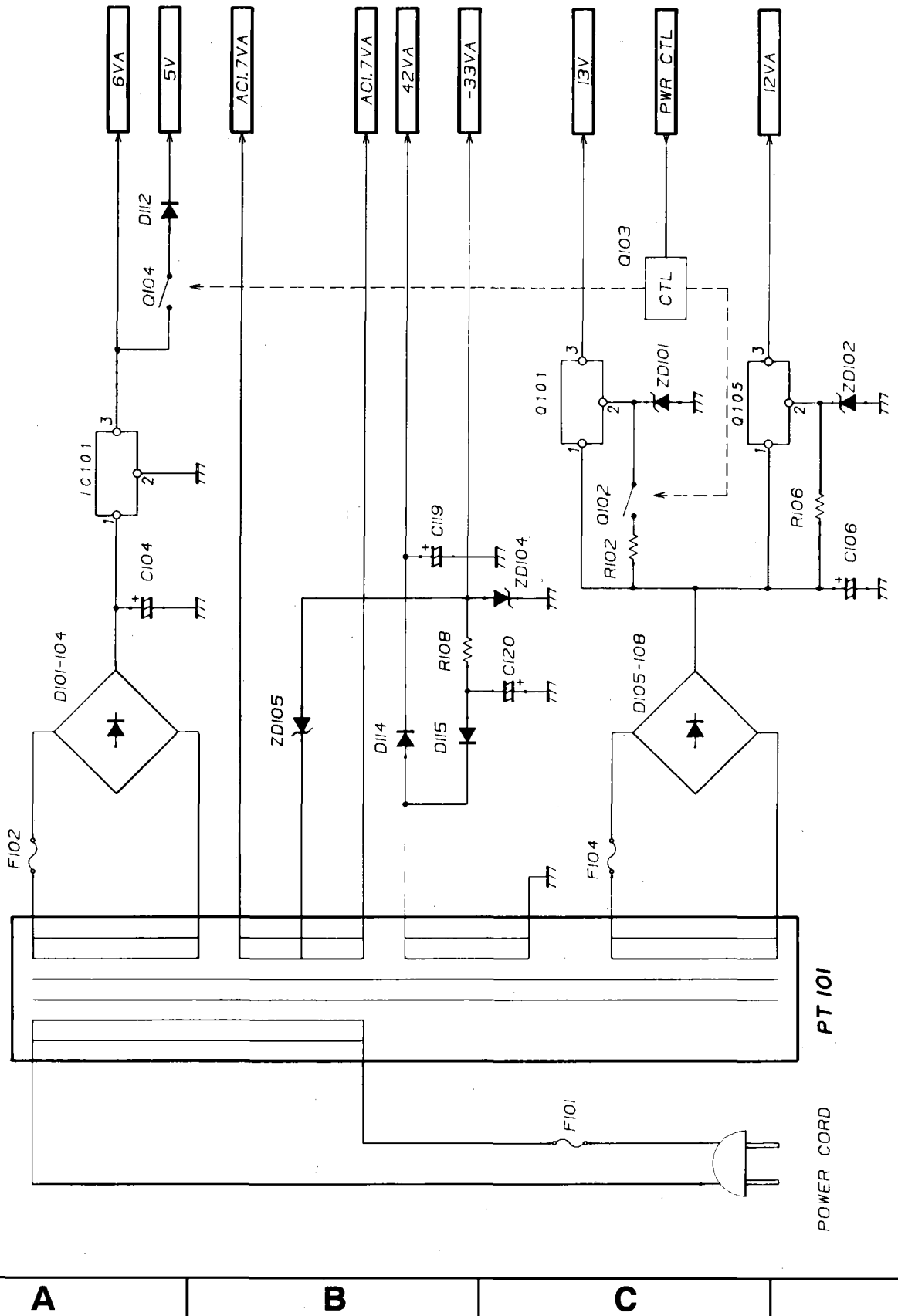
Table 1. Frequency Table

(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



5

4

3

2

1

A

B

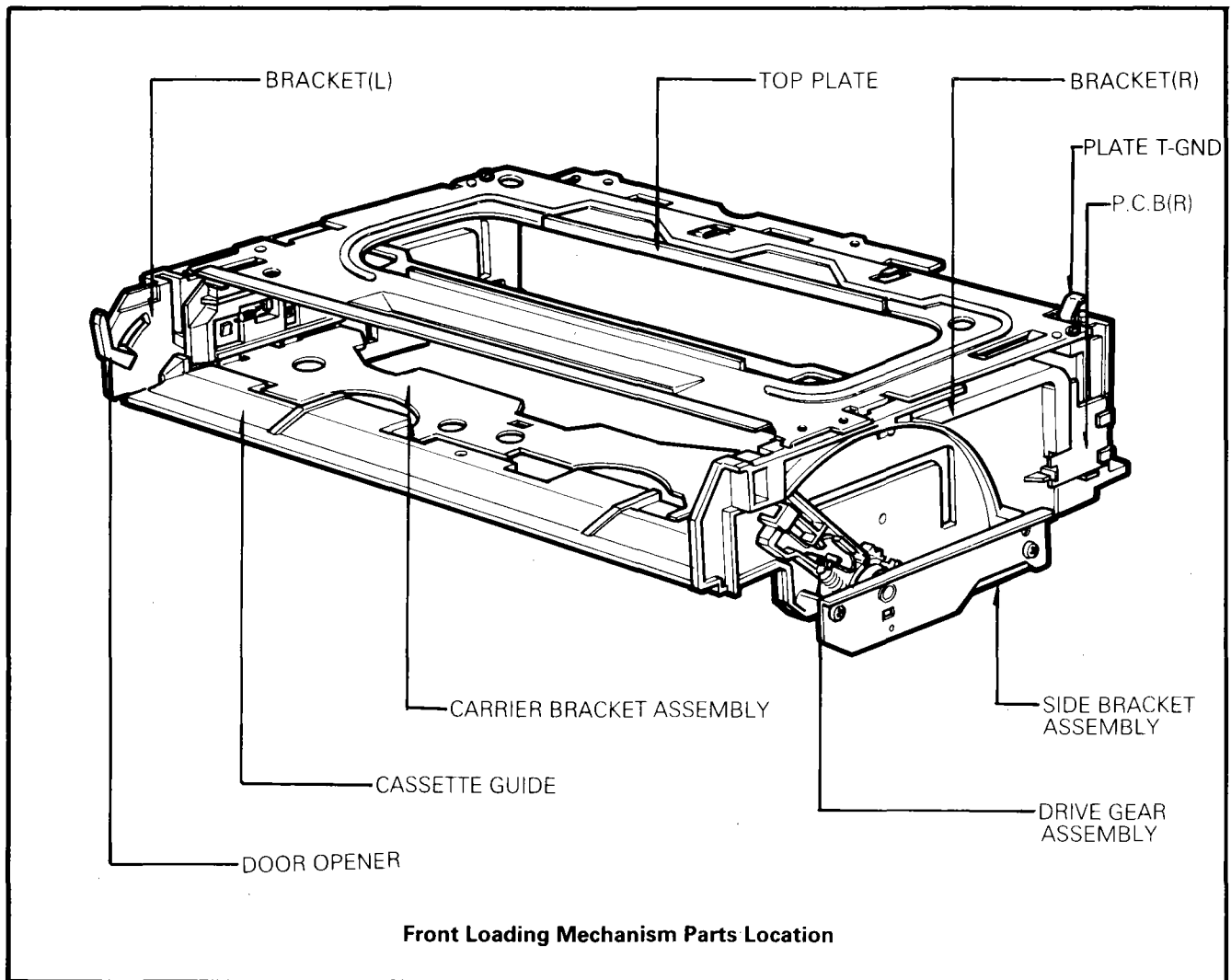
C

D

SECTION 4 MECHANISM

FRONT LOADING MECHANISM DISASSEMBLY

• Front Loading Mechanism Parts Location



1. Component list below will be described 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, 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).

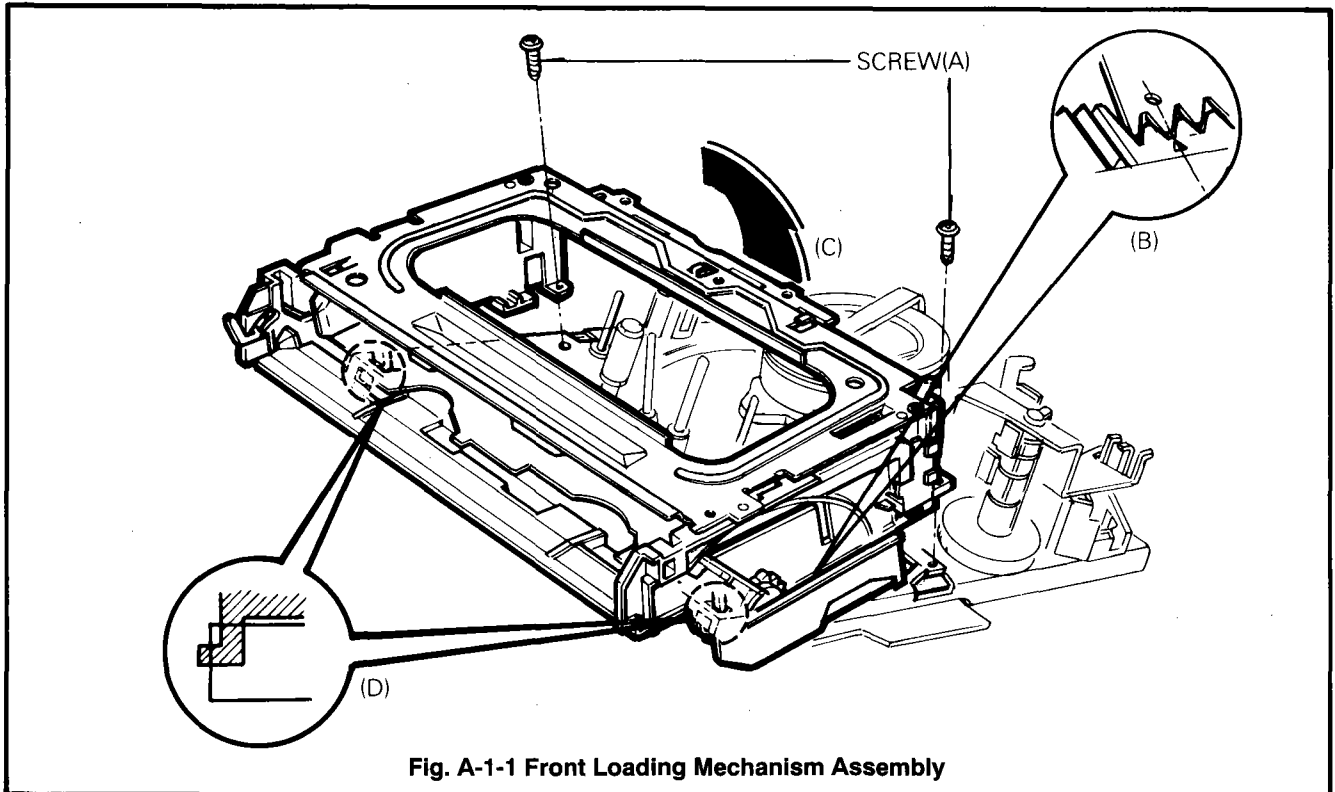


Fig. A-1-1 Front Loading Mechanism Assembly

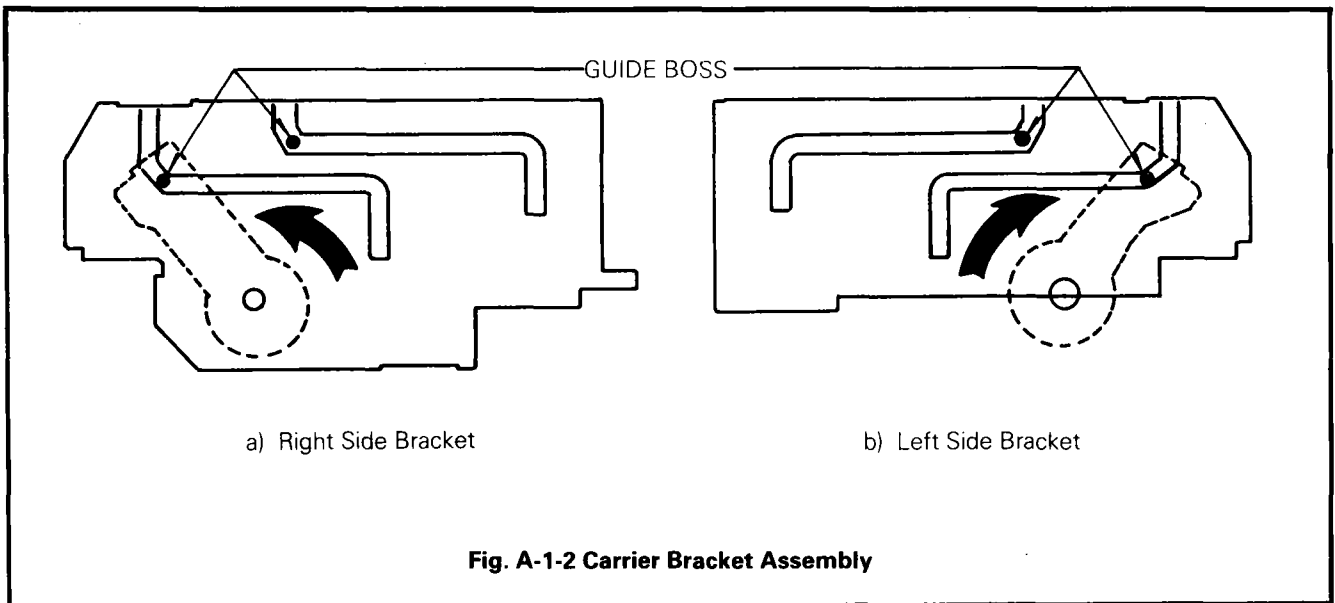


Fig. A-1-2 Carrier Bracket Assembly

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.

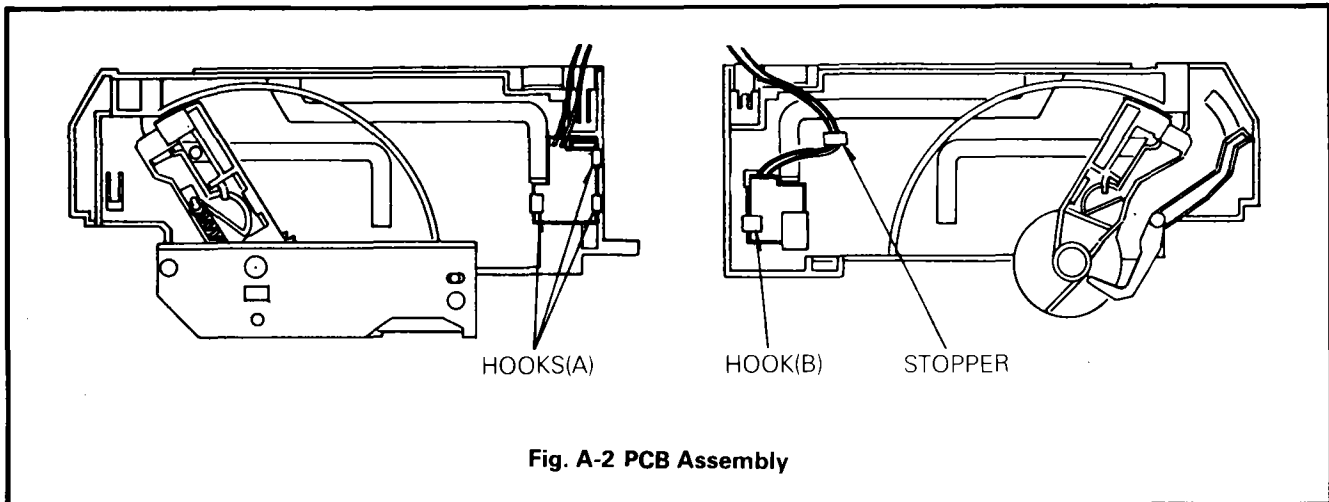


Fig. A-2 PCB Assembly

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.

* 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).

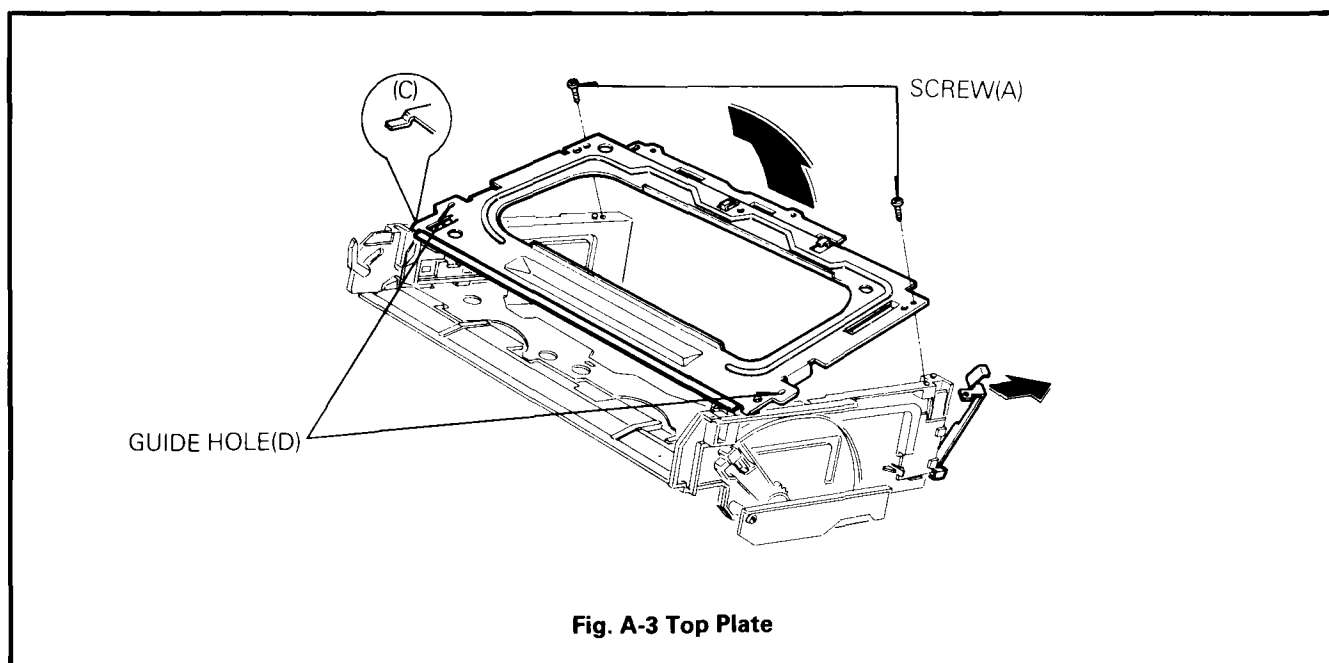


Fig. A-3 Top Plate

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).

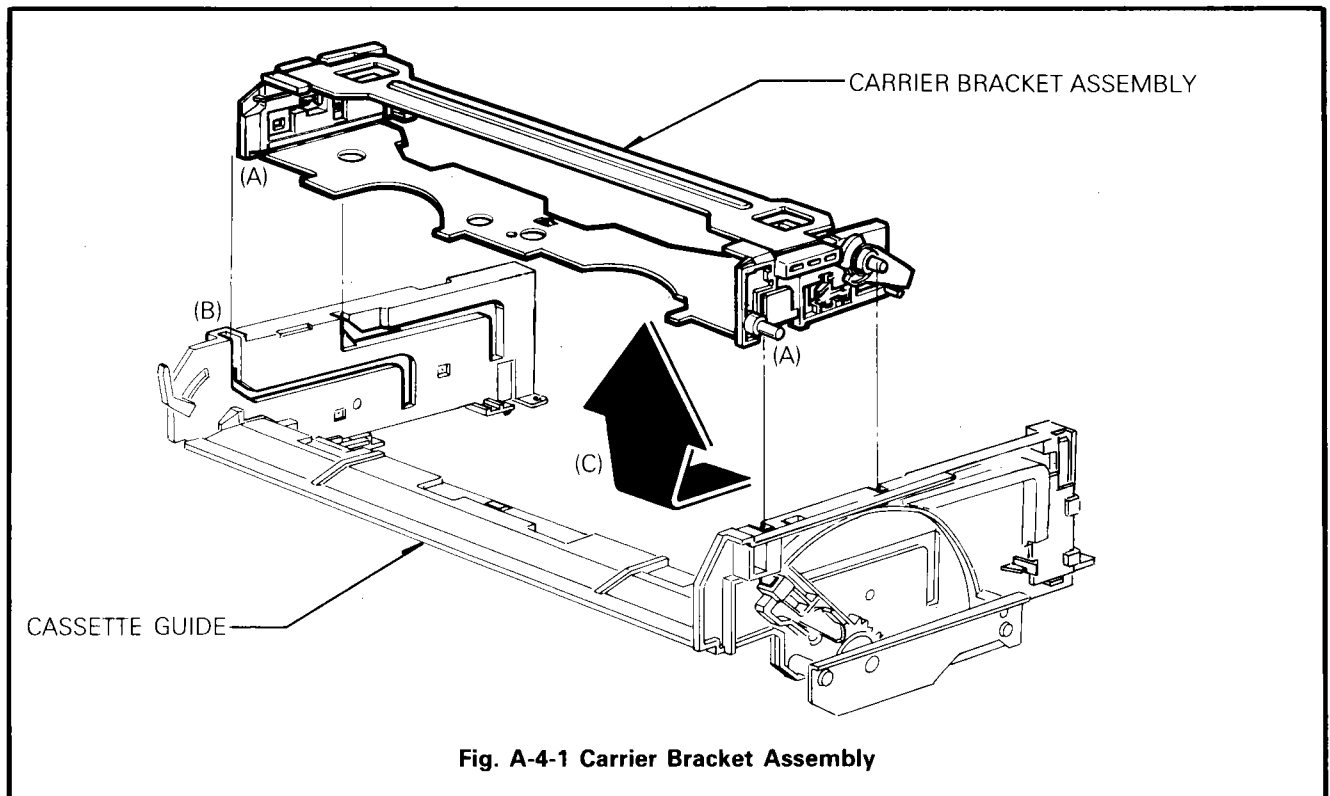


Fig. A-4-1 Carrier Bracket Assembly

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

- 1) Remove the lid opener by pushing it outward.

* NOTE

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

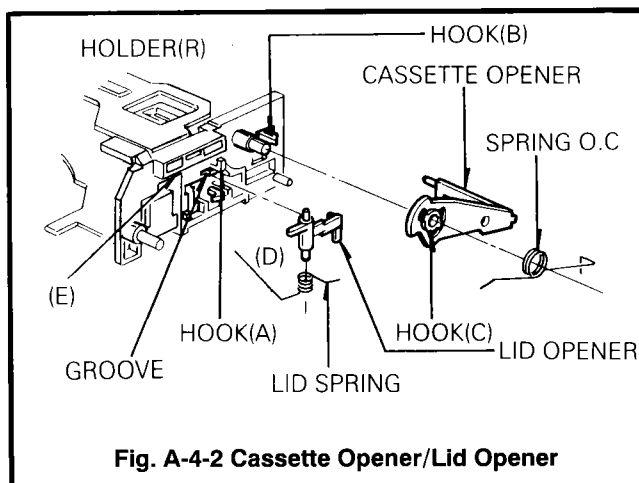


Fig. A-4-2 Cassette Opener/Lid Opener

4-4. Lever and Spring Detect(Fig. A-4-3)

- 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).

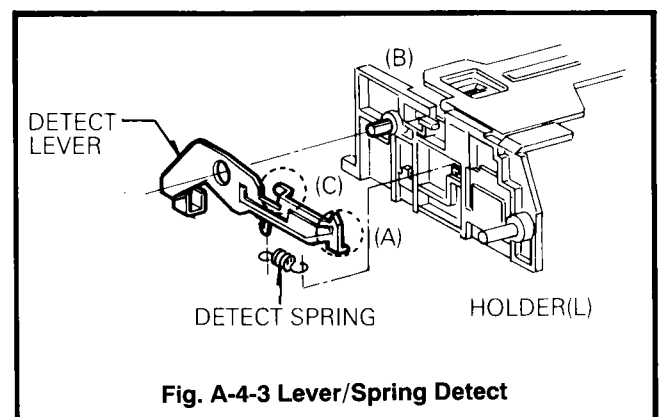


Fig. A-4-3 Lever/Spring Detect

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.

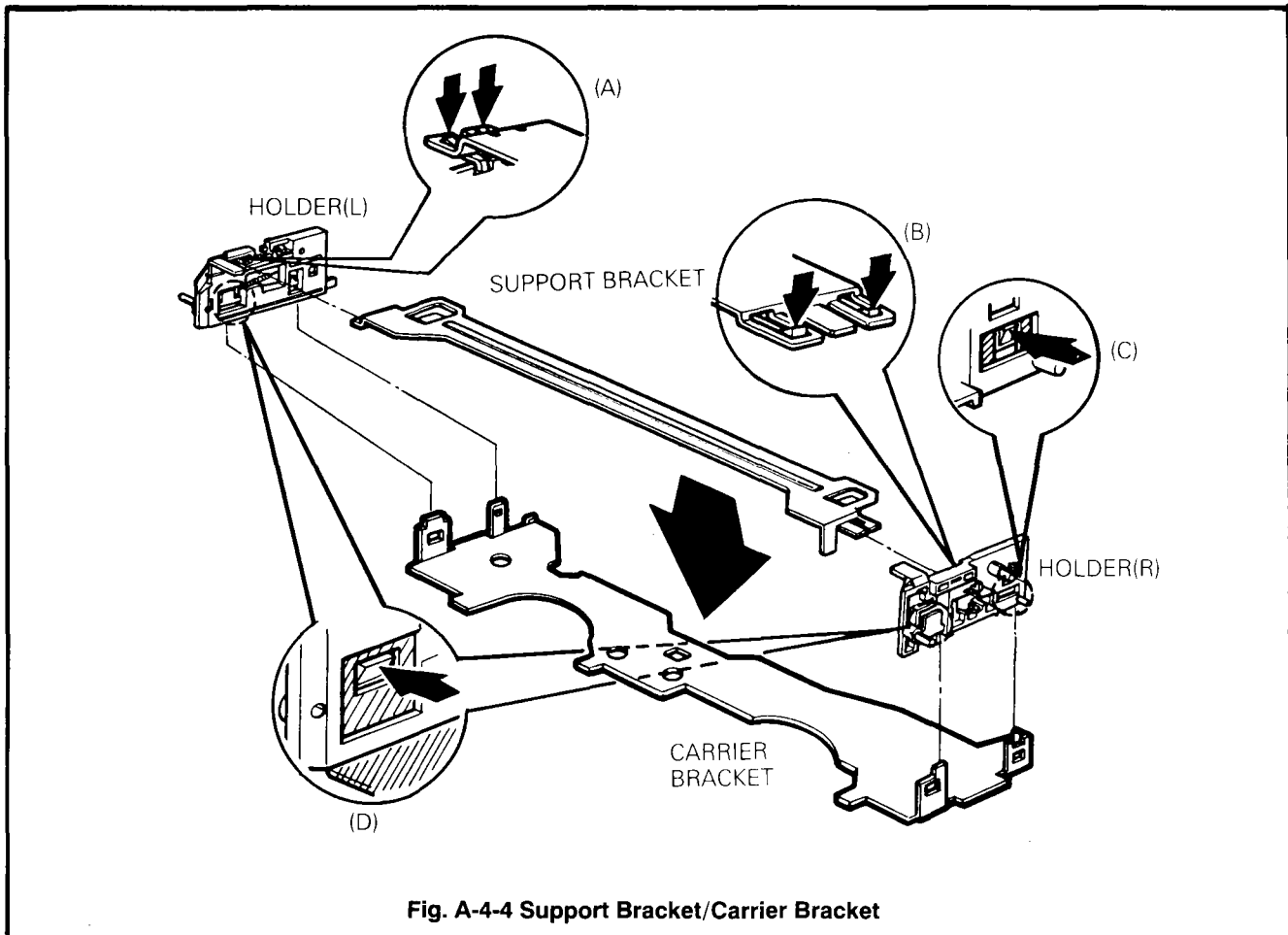


Fig. A-4-4 Support Bracket/Carrier Bracket

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.

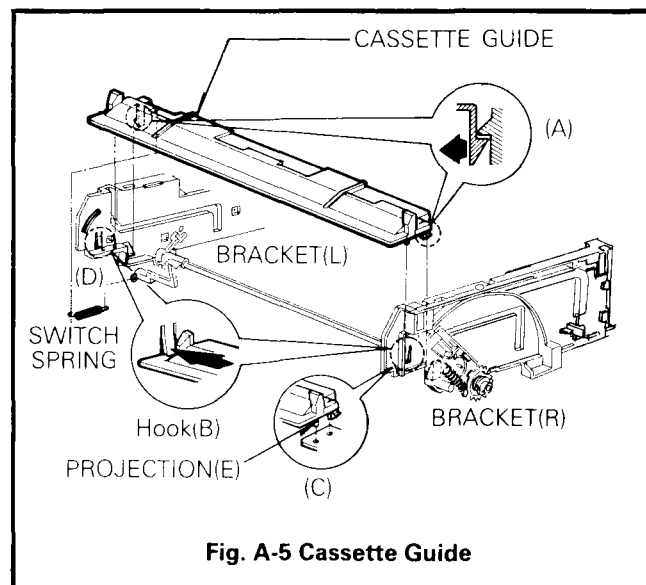


Fig. A-5 Cassette Guide

6. Bracket Side Assembly(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

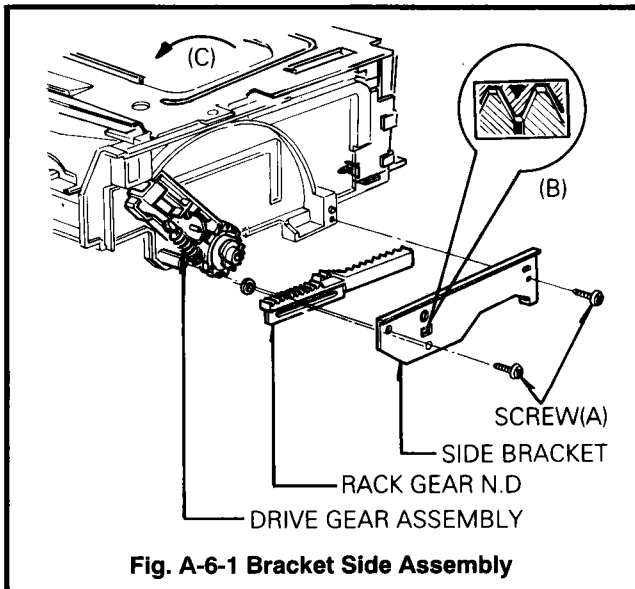


Fig. A-6-1 Bracket Side Assembly

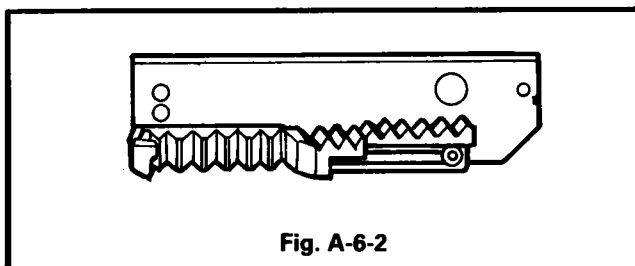


Fig. A-6-2

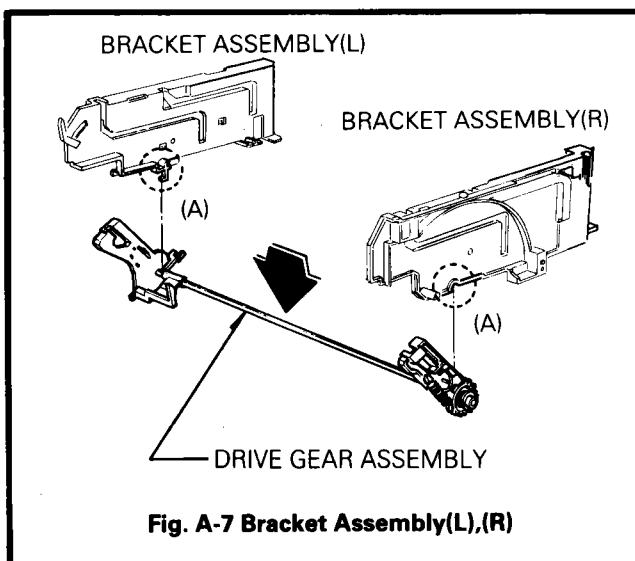


Fig. A-7 Bracket Assembly(L),(R)

it to the Bracket Assembly(L), This time the Assembling Figure should be the same as(B) at the rectangular hole of Bracket Side.

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

- 1) Separate 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).

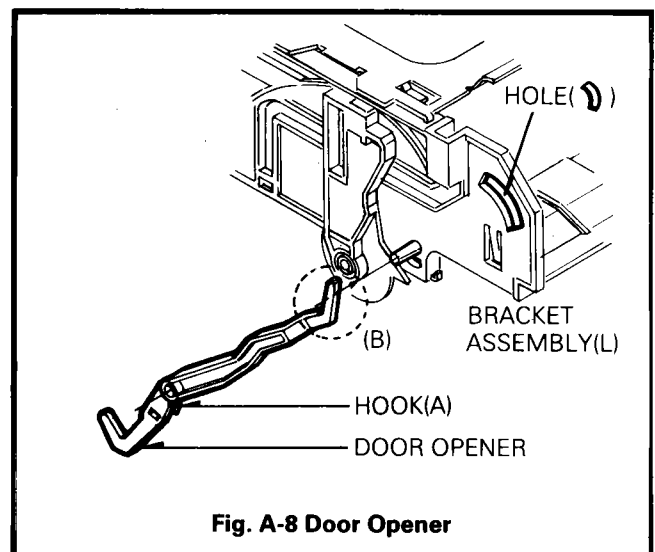


Fig. A-8 Door Opener

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.

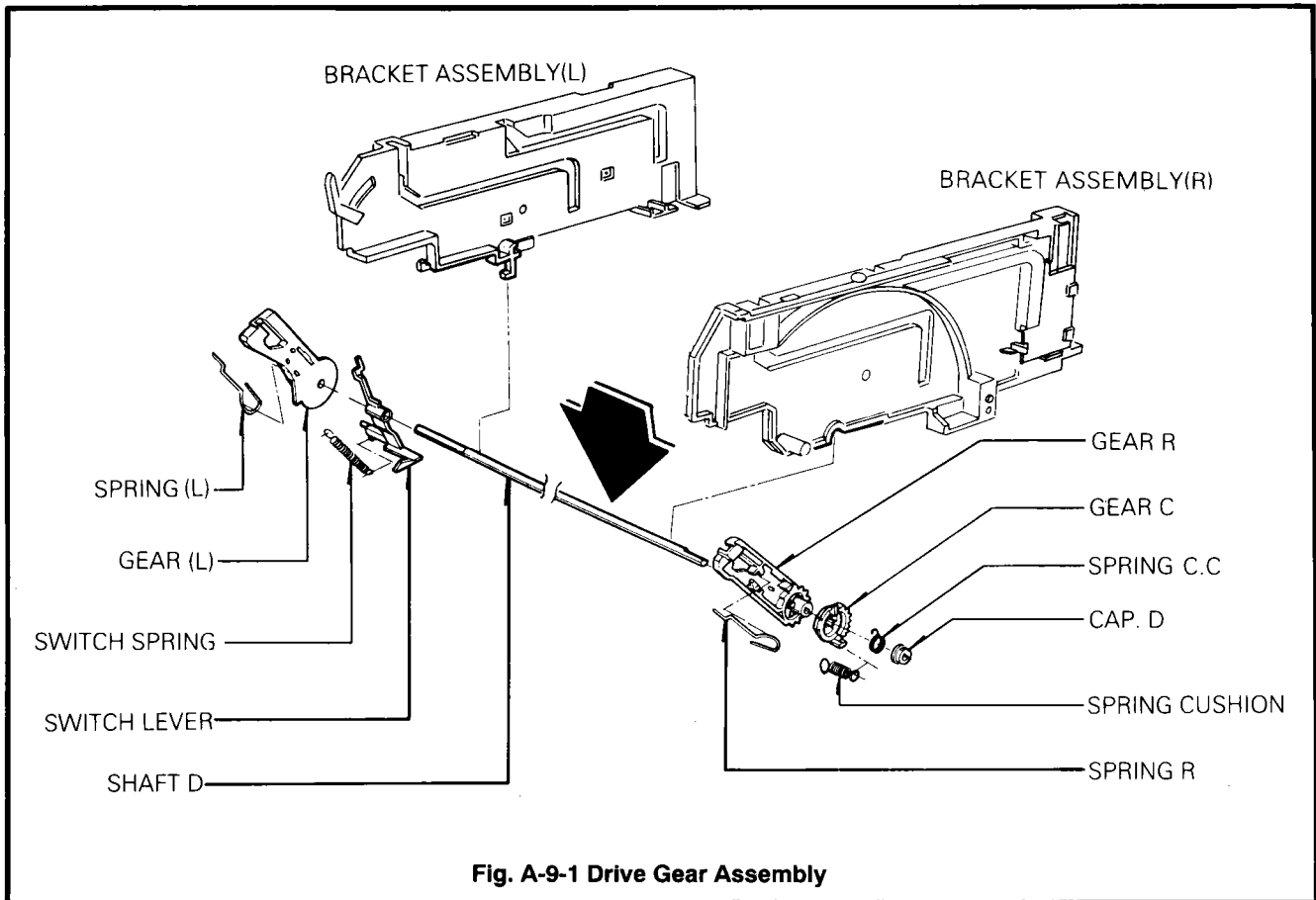


Fig. A-9-1 Drive Gear Assembly

*** 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.

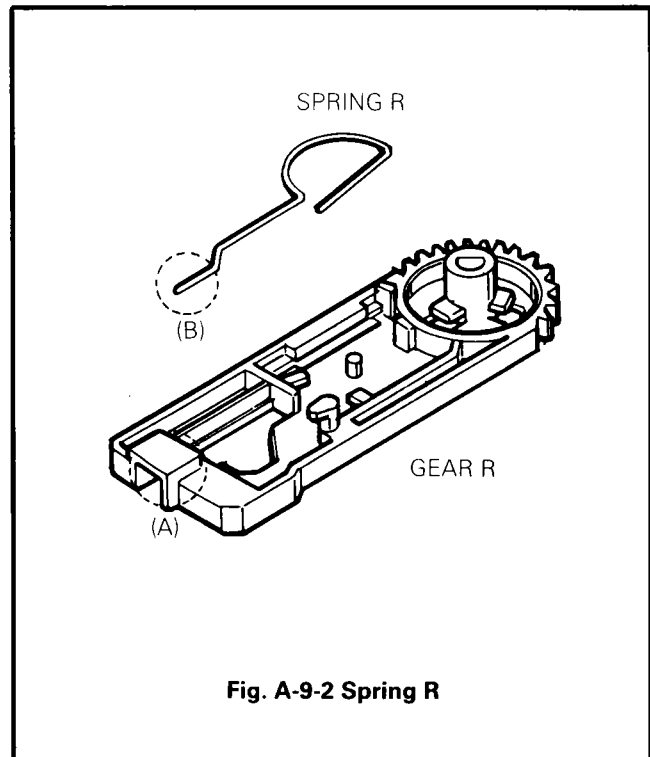
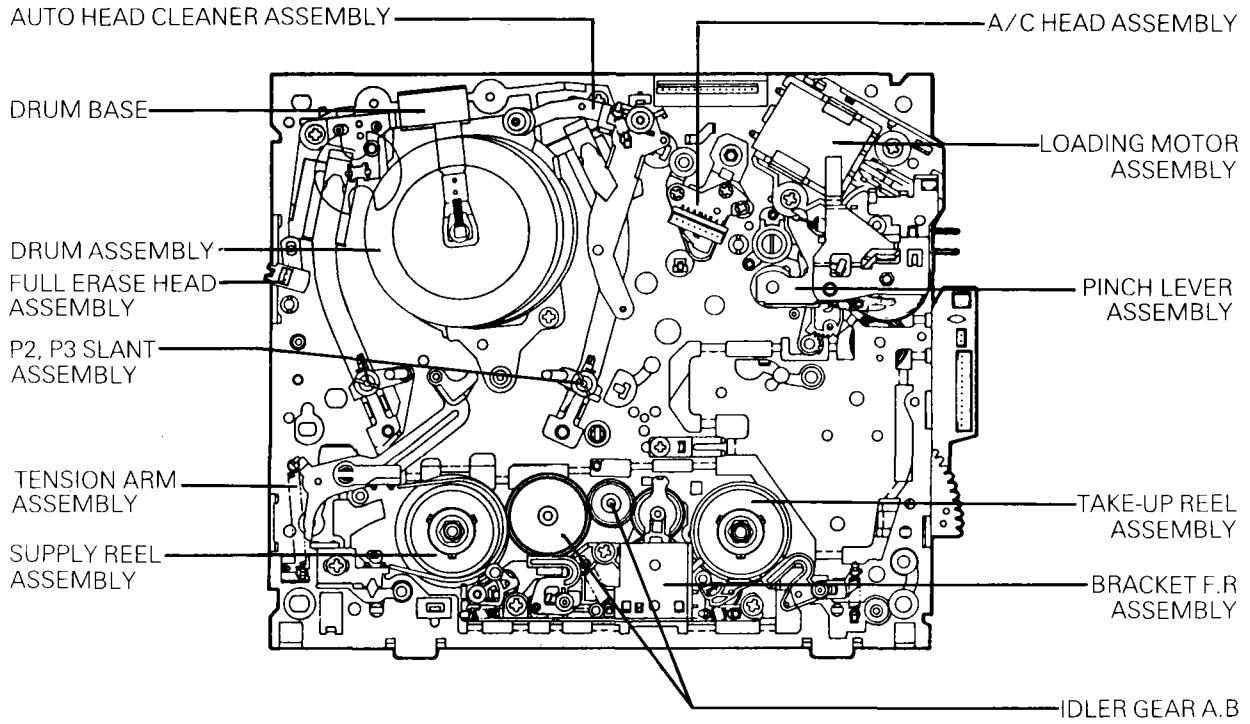


Fig. A-9-2 Spring R

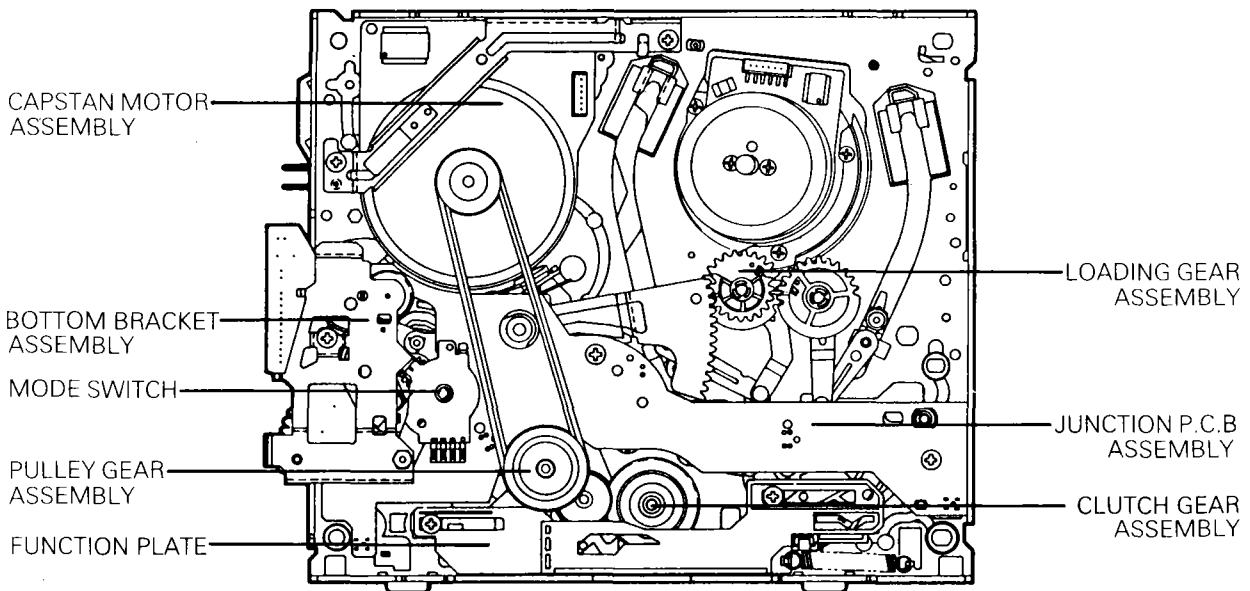
DECK MECHANISM DISASSEMBLY

• 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 Hook (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.

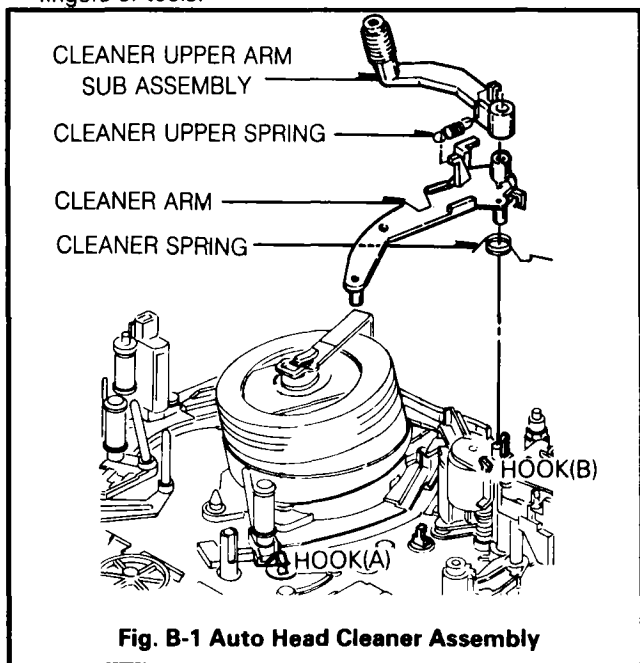


Fig. B-1 Auto Head Cleaner Assembly

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

- 1) Remove the Auto Head Cleaner Assembly.
- 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.

3. Upper and Lower Drum Assembly (Fig. B-3)

- 1) Remove the Drum Assembly and Drum Base from the

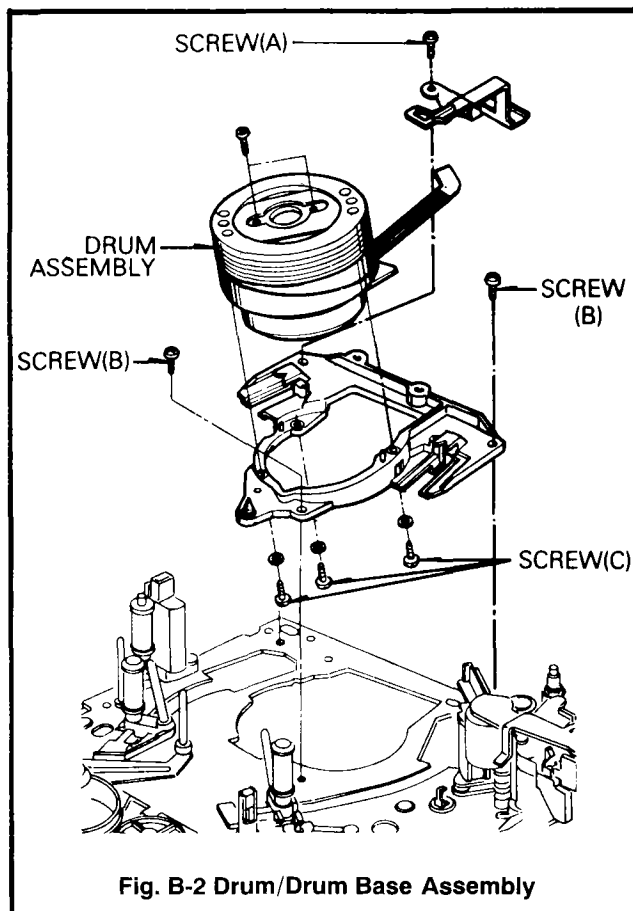


Fig. B-2 Drum/Drum Base Assembly

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.

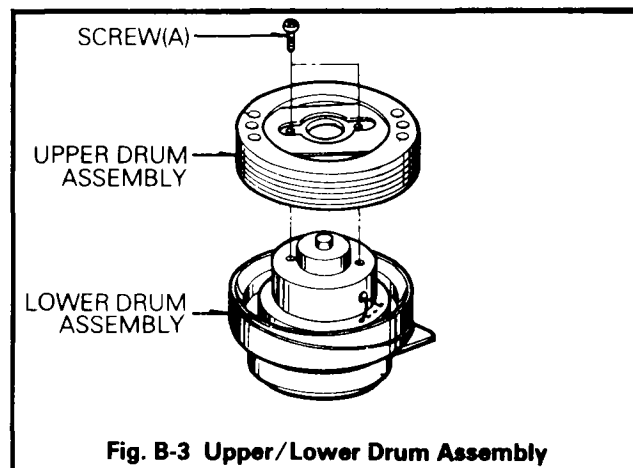


Fig. B-3 Upper/Lower Drum Assembly

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.

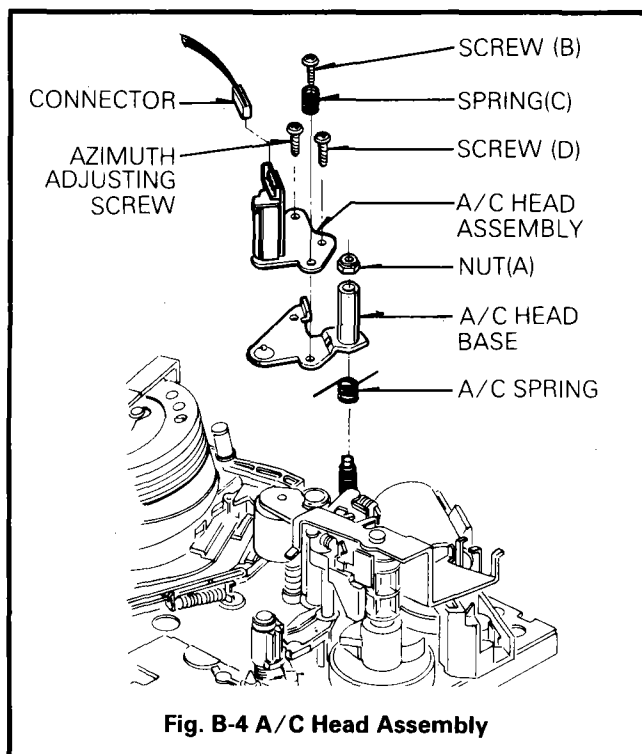


Fig. B-4 A/C Head Assembly

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.

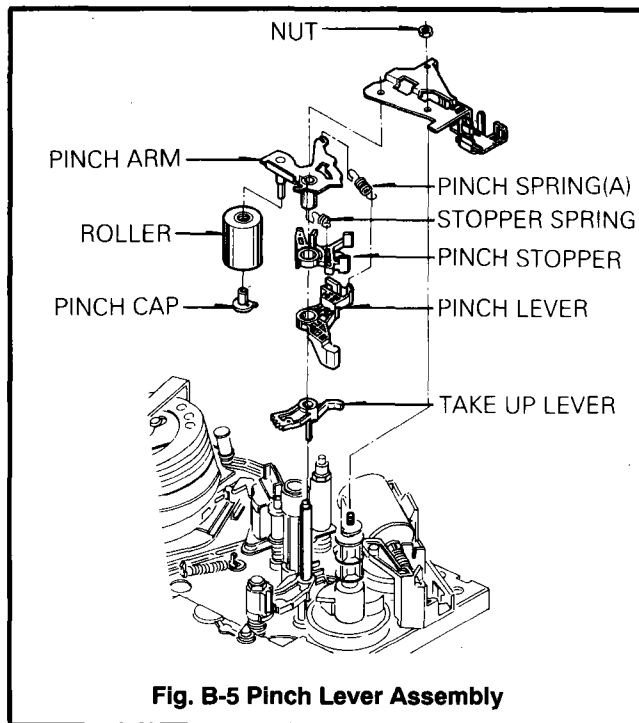


Fig. B-5 Pinch Lever Assembly

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.

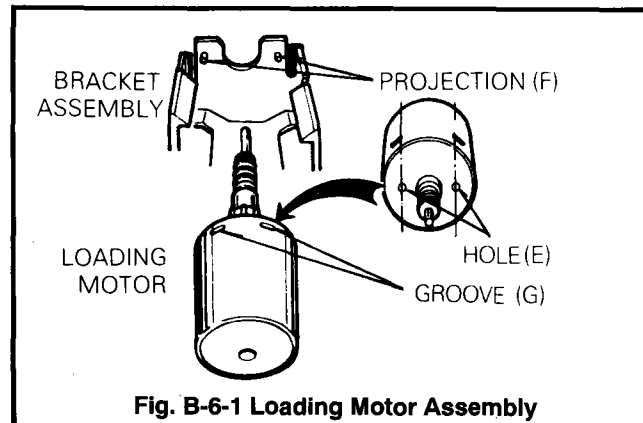


Fig. B-6-1 Loading Motor Assembly

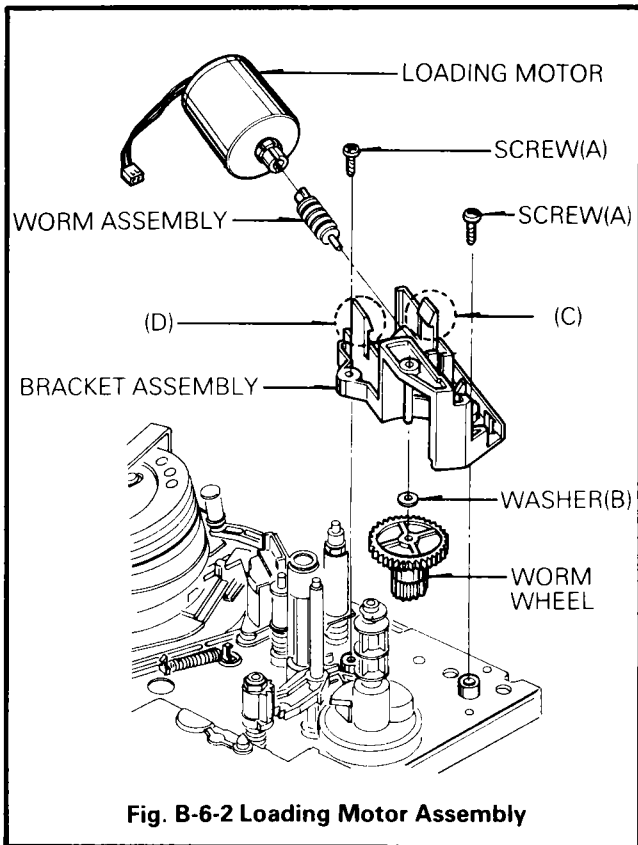


Fig. B-6-2 Loading Motor Assembly

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

- 1) Remove the Dew Bracket.
- 2) Remove the Pinch Lever Assembly.
- 3) 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).

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

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

* NOTE

- 1) When reassembling
 - ① Align the Gear of Take-Up Arm with the Gear of Take-Up Lever.

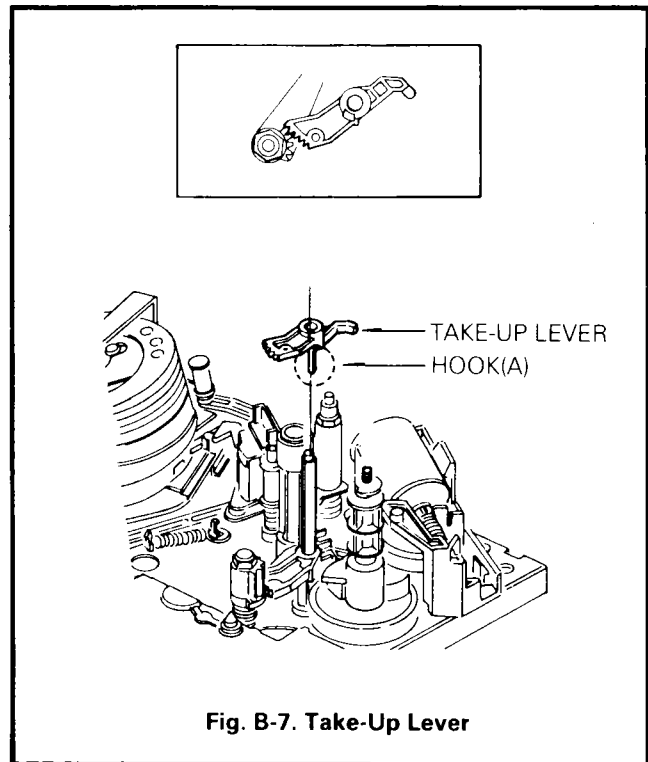


Fig. B-7. Take-Up Lever

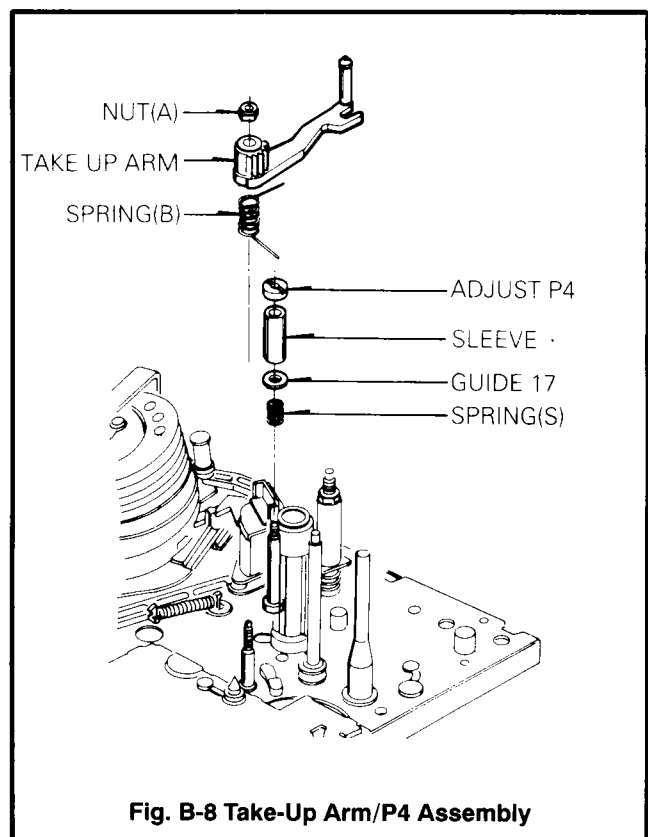


Fig. B-8 Take-Up Arm/P4 Assembly

9. P4 Assembly(Fig. B-8)

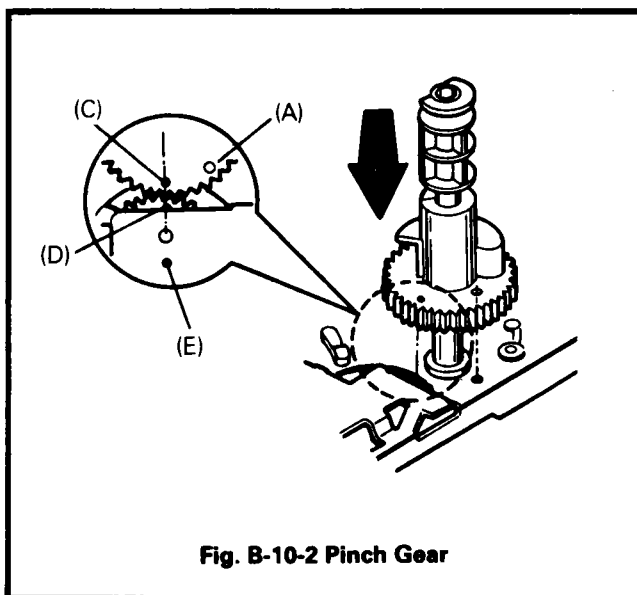
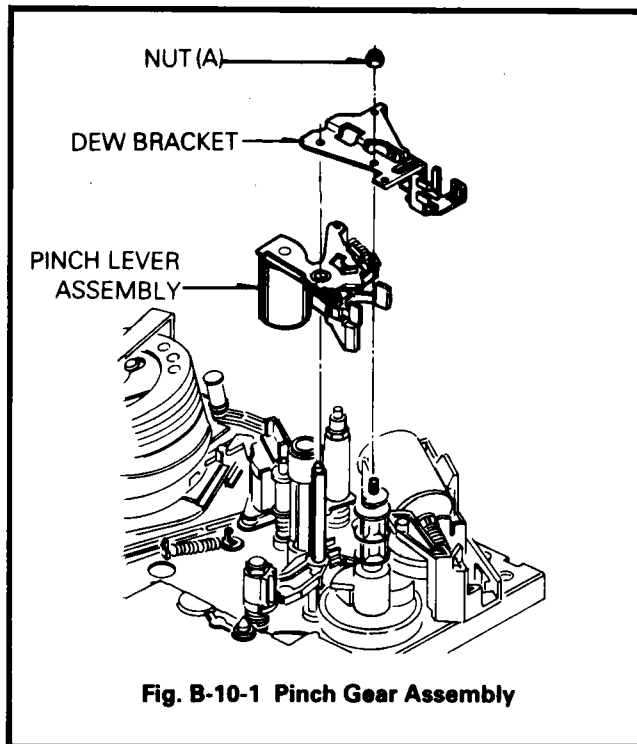
- 1) Remove the Adjust P4.
- 2) Remove the Sieve.
- 3) Remove the Guide 17.
- 4) Remove the Spring

10. Pinch Gear

- 1) Remove one Nut(A) and then remove the Dew Bracket.
- 2) Remove the Pinch Lever Assembly by lifting it up.
- 3) Remove the Loading Motor Assembly.
- 4) Remove the Take Up Lever.
- 5) Remove the 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.



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

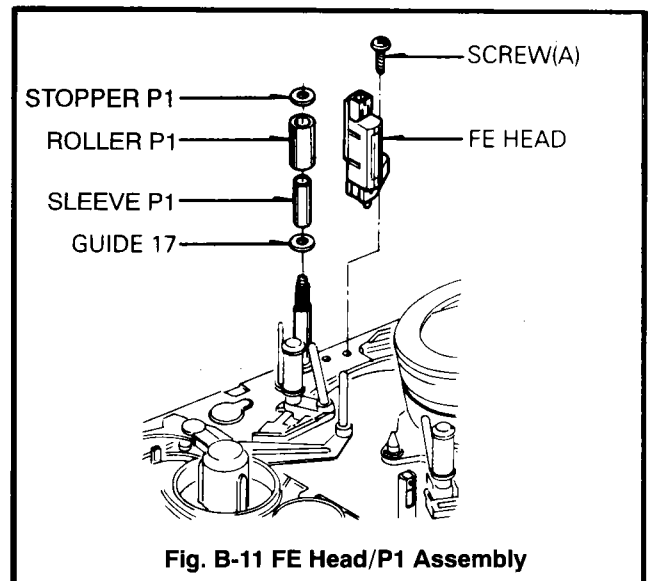
- 1) Unplug the connector.
- 2) Remove one screw(A), and then remove the FE Head.

• NOTE

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

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 disassembling 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.

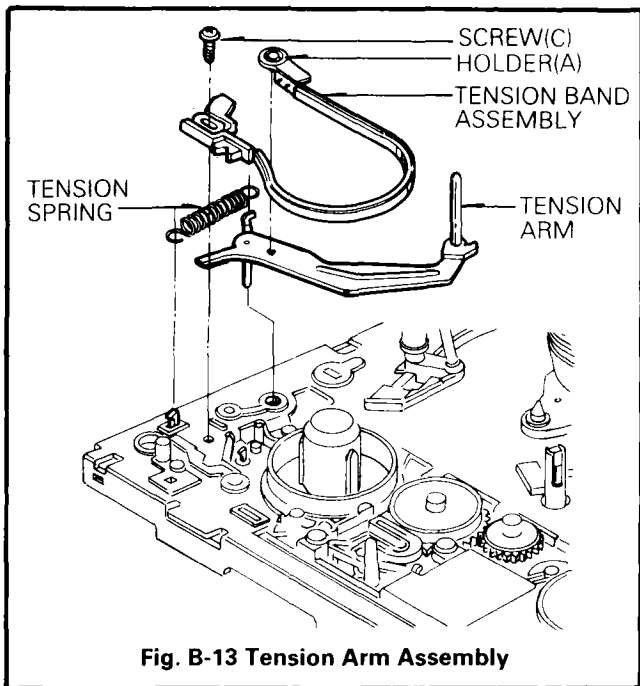


Fig. B-13 Tension Arm Assembly

14. Supply Main and Supply Soft and 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.

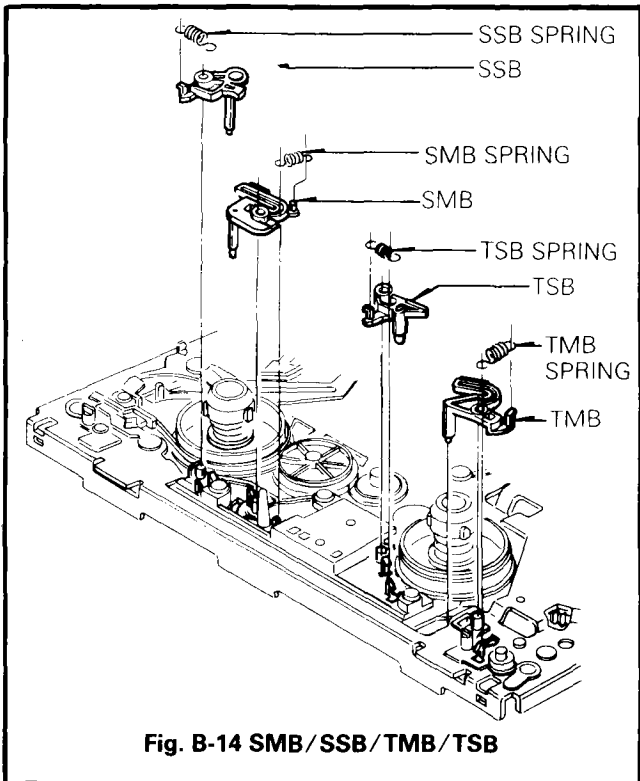


Fig. B-14 SMB/SSB/TMB/TSB

- ② Remove the TSB.
- 4) Take-Up Main Brake(TMB)
 - ① Remove the TMB Spring.
 - ② Remove the TMB.

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.

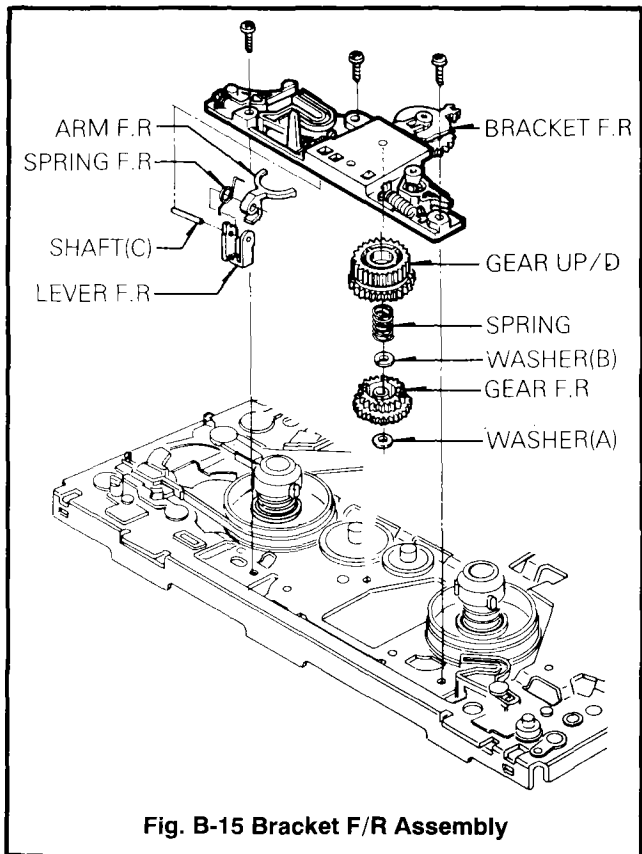


Fig. B-15 Bracket F/R Assembly

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.
- 4) Separate the Reel Cap from the Supply Reel by taking it out of Hooks(A).

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.
- 3) Separate the Reel Cap and Spring from the Take-Up Reel by releasing Hooks(S).

*** 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.

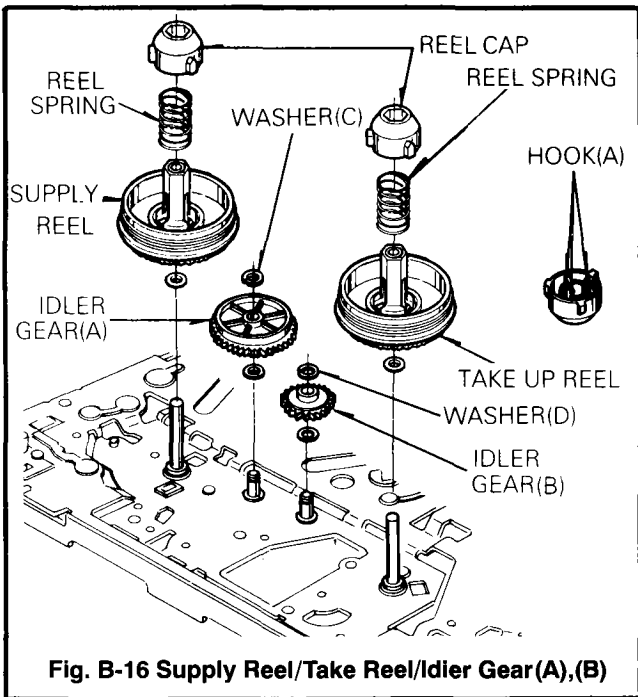


Fig. B-16 Supply Reel/Take Reel/Idler Gear(A),(B)

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

- 1) After removing the Supply Reel, and supply Main Brake Assembly, remove the washer(C) and 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.

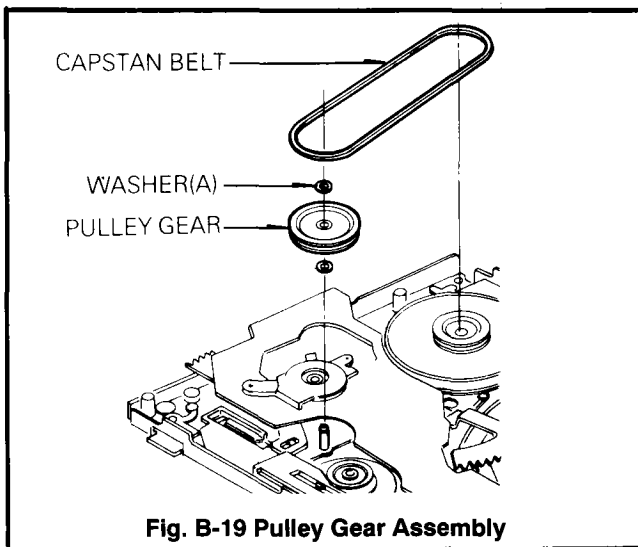


Fig. B-19 Pulley Gear Assembly

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, and lift up the Ratchet Gear 1.
- 4) Remove the washer, and then remove Ratchet Gear 3 from the Bottom Bracket.

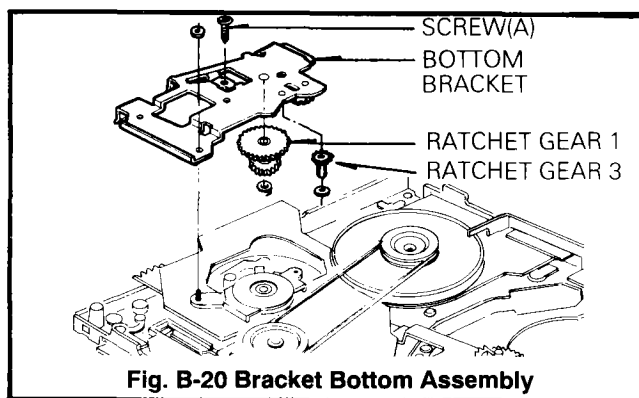


Fig. B-20 Bracket Bottom Assembly

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

- 1) Remove the Bottom Bracket 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 Sensors, 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.

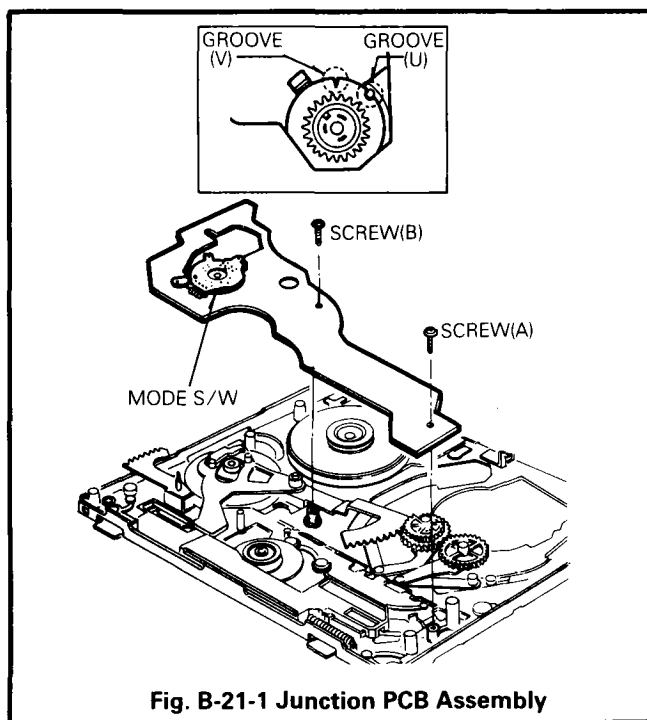


Fig. B-21-1 Junction PCB Assembly

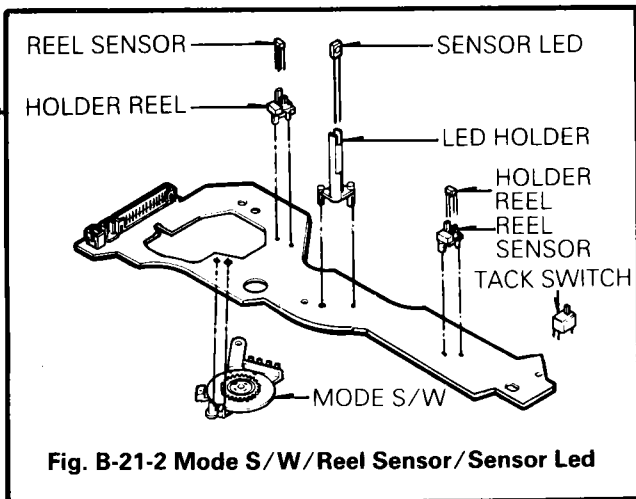


Fig. B-21-2 Mode S/W/Reel Sensor/Sensor Led

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.

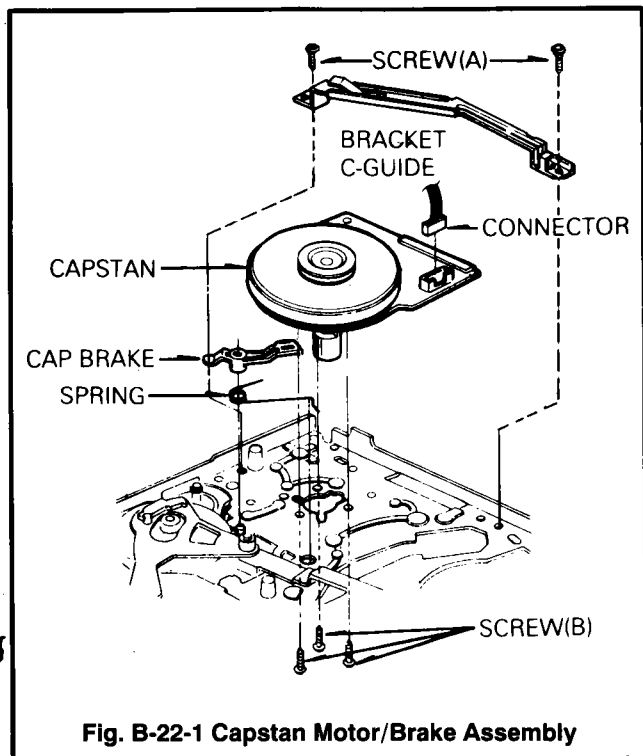


Fig. B-22-1 Capstan Motor/Brake Assembly

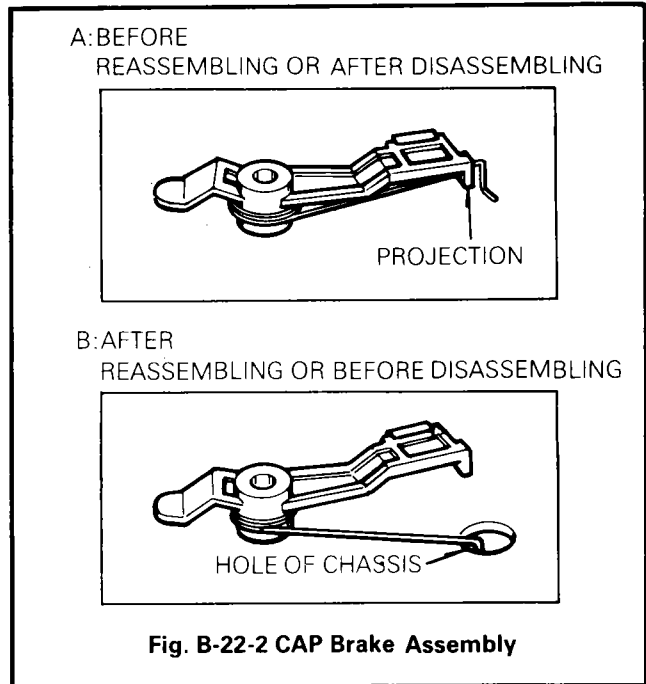


Fig. B-22-2 CAP Brake Assembly

23. Function Plate (Fig. B-23)

- 1) Remove two screws(B) in Eject Mode.
- 2) Remove the Function Plate Spring.
- 3) Remove the Function Plate.

* NOTE

- 1) When reassembling the groove of Lower part of Function Plate should be aligned with the shaft of Tension Lever Assembly(Fig. B-28).

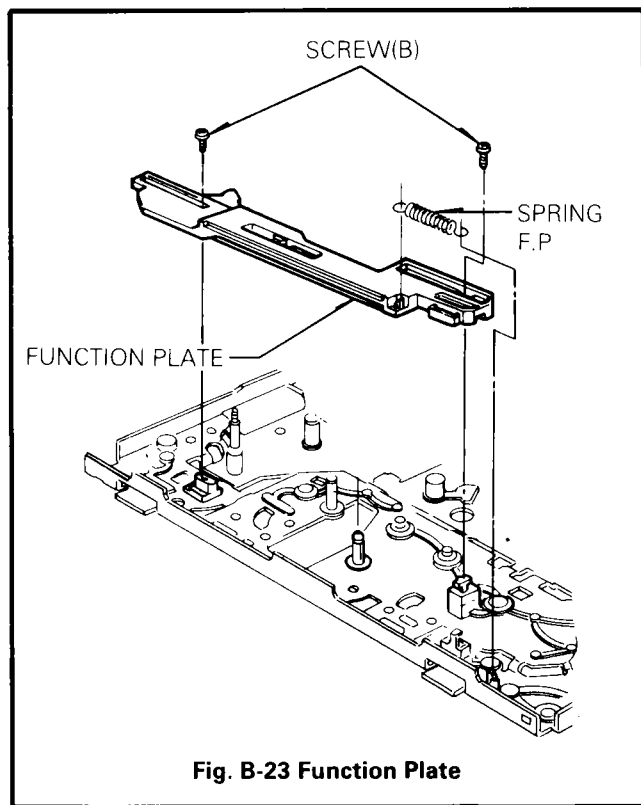


Fig. B-23 Function Plate

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 Slant Pin, Spring F, Lever.

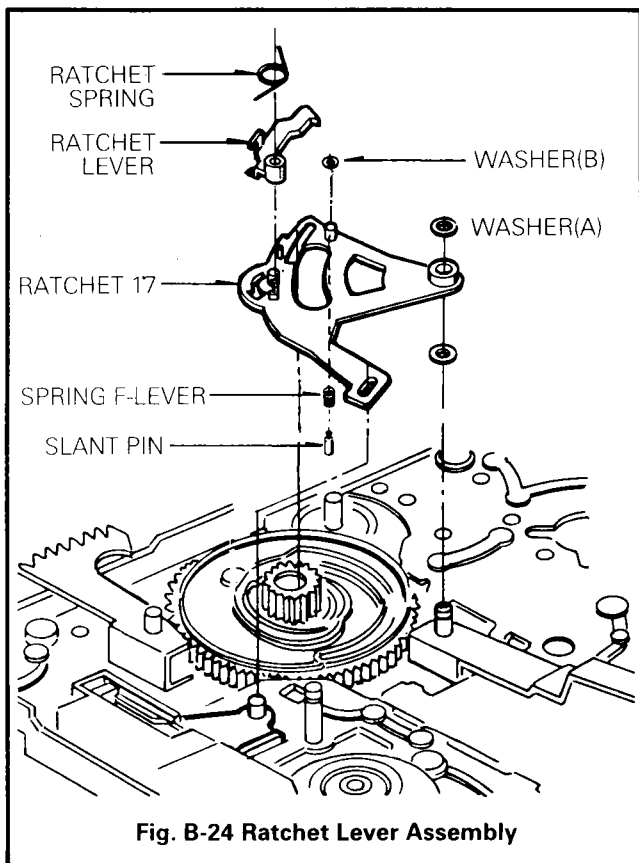


Fig. B-24 Ratchet Lever Assembly

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 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)

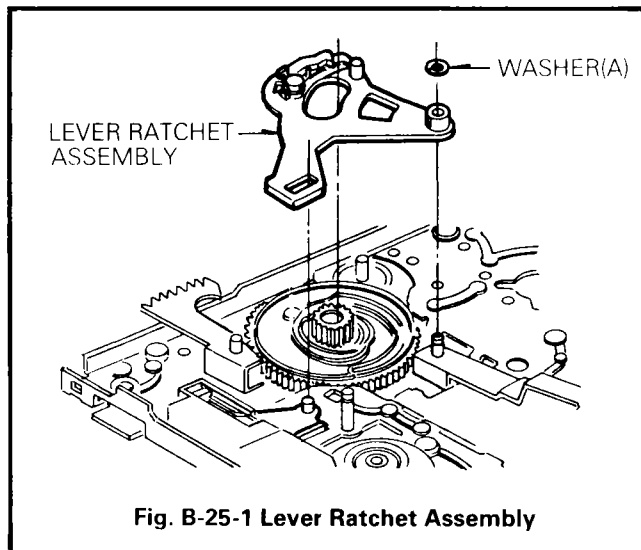


Fig. B-25-1 Lever Ratchet Assembly

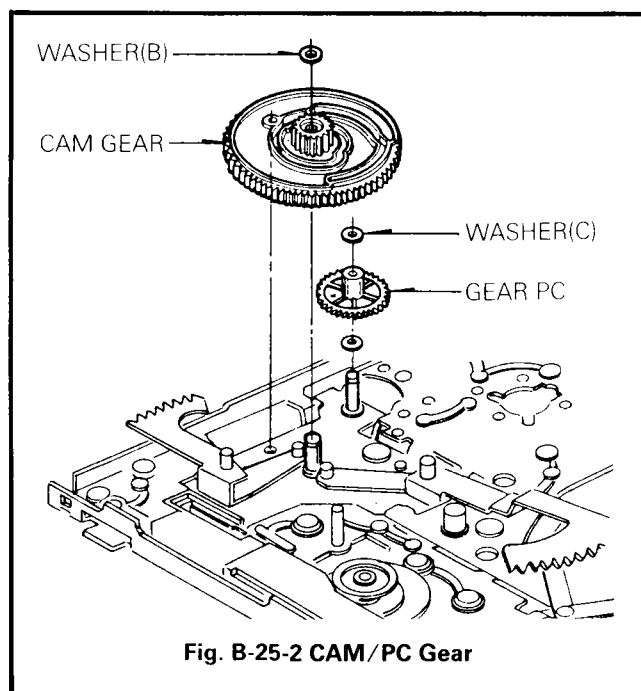


Fig. B-25-2 CAM/PC Gear

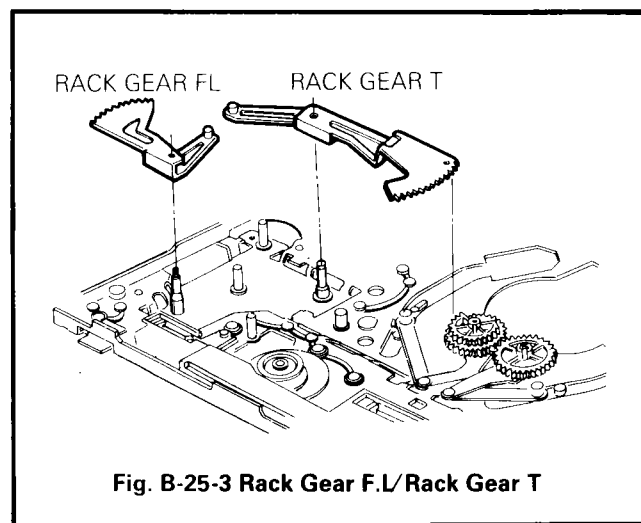


Fig. B-25-3 Rack Gear F.L/Rack Gear T

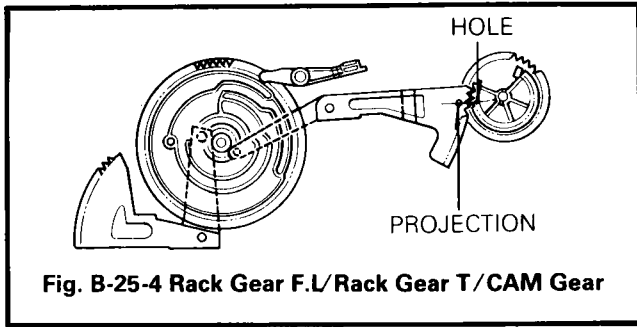


Fig. B-25-4 Rack Gear F/L/Rack Gear T/CAM Gear

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-25).

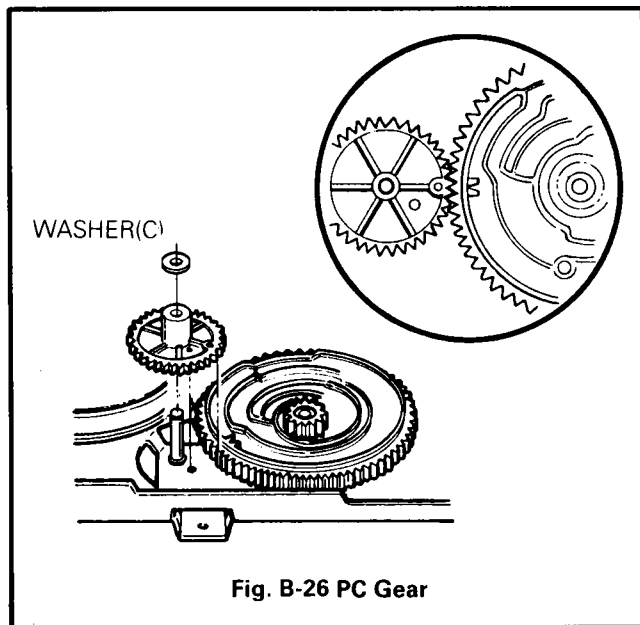


Fig. B-26 PC Gear

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.

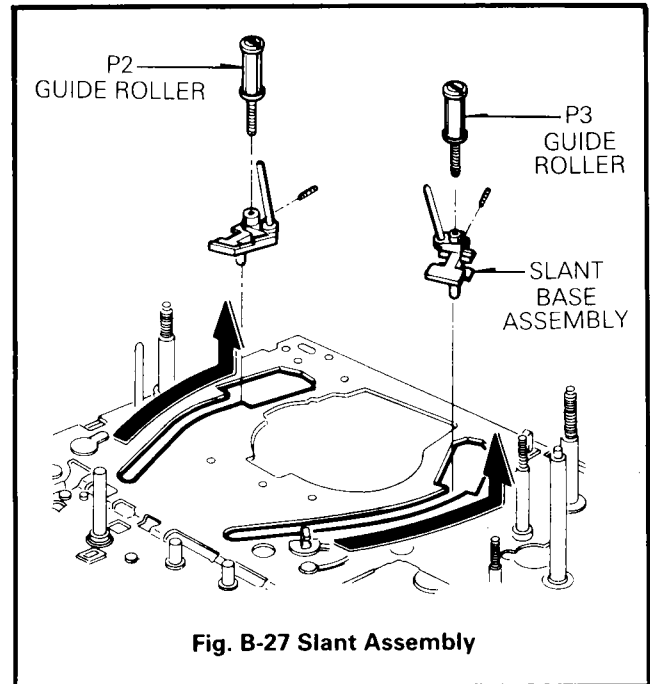


Fig. B-27 Slant Assembly

* 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 Lever 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).

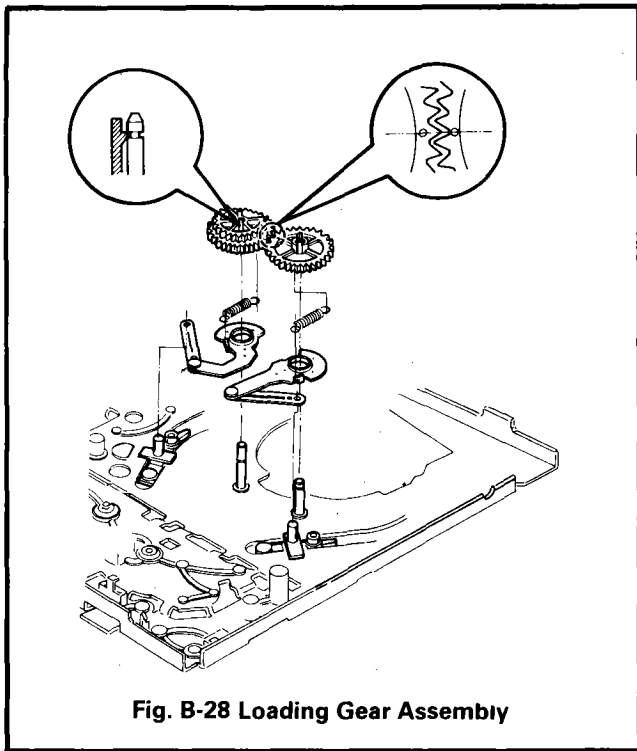


Fig. B-28 Loading Gear Assembly

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.
 - ② After reinstalling the Tension Lever Assembly, adjust the Tension Post and the Tension with a Tension Cassette.

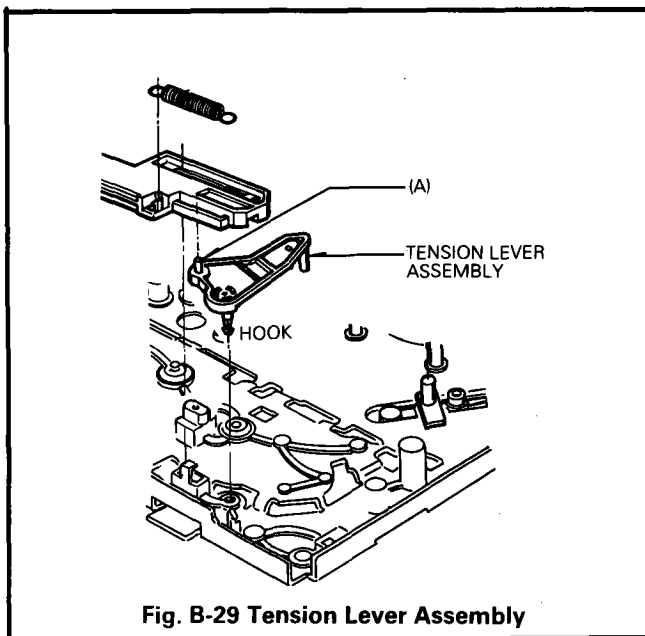


Fig. B-29 Tension Lever Assembly

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 further, because Torque adjustment is not adjustable.

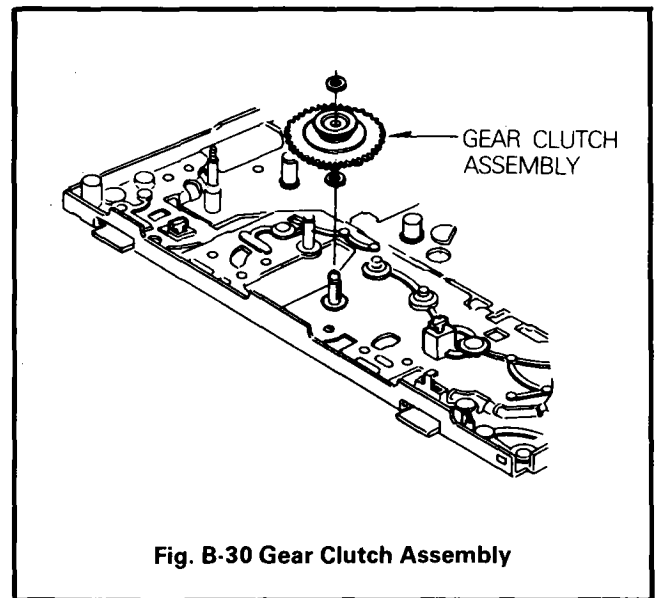
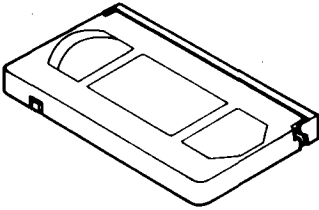
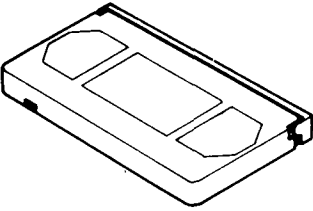
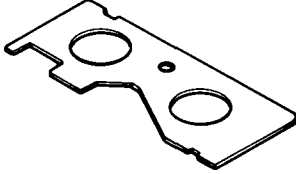
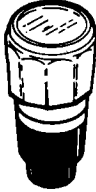

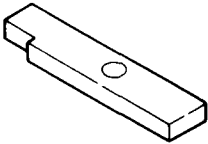

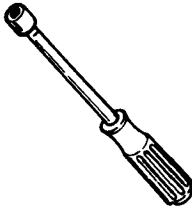


Fig. B-30 Gear Clutch Assembly

MECHANISM ADJUSTMENTS

• Tools and Fixtures for Deck

<p>1. Back tension meter Parts No ; D00-D006</p> 	<p>2. NTSC alignment tape Parts No NTSC ; DTN-0001 PAL ; DTN-0002</p> 	<p>3. Master plane Parts No ; RJ10028</p> 
<p>4. Torque gauge Parts No ; D00-D002</p> 	<p>5. Torque gauge adaptor Parts No ; D09-R001</p> 	<p>6. Reel table height fixture Parts No ; RJ10027</p> 
<p>7. Post height adjusting driver Parts No ; DTL-0005</p> 	<p>8. M3 Nut driver Parts No ; DTL-0006</p> 	

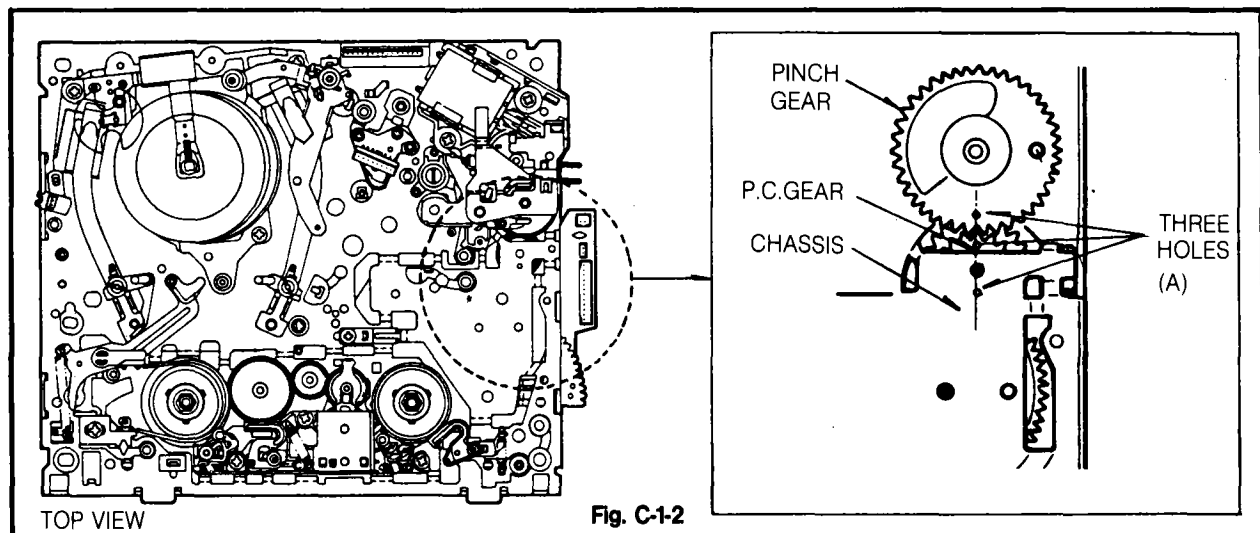
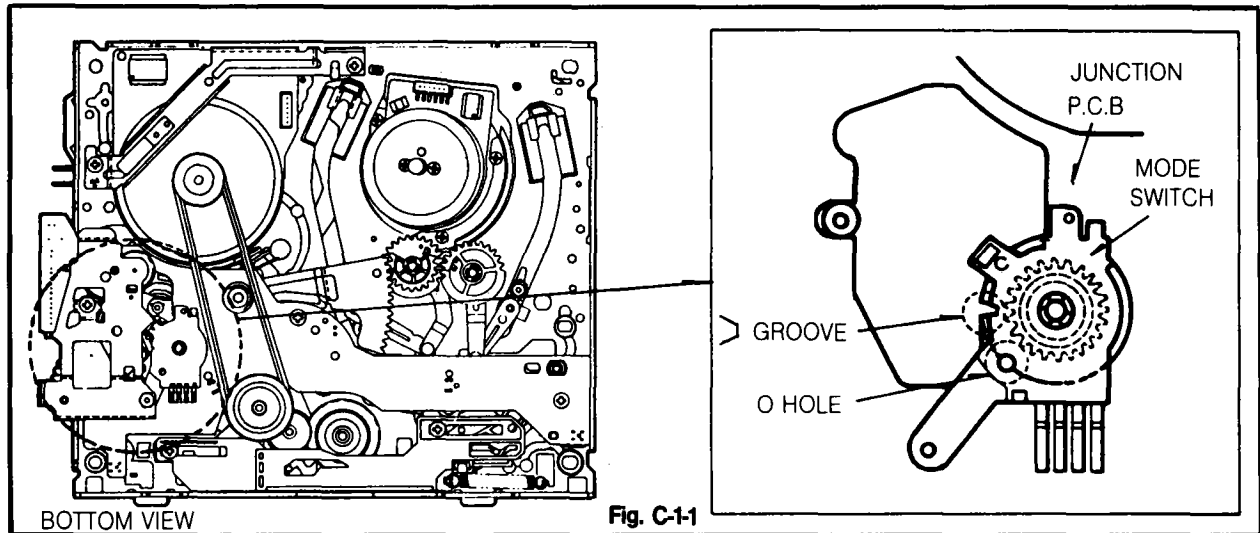
1. Mechanism State Switch (Mode Switch) Check

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



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.

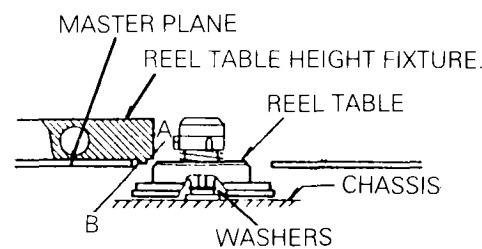
The VCR can accept input of each mode in this case. However the rewind and review operation cannot be performed for more than a few seconds because the take-up reel table is in the stop state and reel pulses cannot be detected.

(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. Reel Table Height Adjustment

Purpose: To set the reels of the cassette to the specified height, thus determine the height of tape.			
Test Equipment/ Fixture	Preparation for adjustment	VCR State	Adjustment Points
<ul style="list-style-type: none"> ● Master Plane ● Reel Table Height Fixture 	<ol style="list-style-type: none"> 1) Remove the Front Loading Mechanism 2) Mount the Master Plane and place the Reel Table Height Fixture on it. 		<ul style="list-style-type: none"> ● Washer under the Supply and Take-Up Reel Tables.
<p>Adjustment procedure</p> <ol style="list-style-type: none"> 1) Check that the Reel Table is between sections A and B of the Reel Table Height Fixture. 2) If the table is not between sections A and B of the Fixture, replace the washers (two types, 0.3mm and 0.5mm thick) in the Reel Table or adjust them. <p style="text-align: center;">**CAUTION**</p> <p>When the Tension Arm and Tension Band are removed, adjust the tension post position and tension after reinstalling them.</p>		<p>Adjustment Diagram</p>  <p style="text-align: center;">SUPPLY AND TAKE-UP REEL TABLE</p> <p style="text-align: center;">Fig. C-3</p>	

4. 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(A)

Adjustment Procedures

⟨Position Adjustment⟩

- 1) Perform loading without inserting a tape and loosen the screw that attaches the Band Holder(B) to the D-Deck Mechanism Assembly.
- 2) Insert the (-)type driver between the Band Holder(B) and the "V" groove of the chassis.
- 3) Move the Band Holder(B) right and left and align the center of tension post with the center of P1.
- 4) Tighten the screw that attaches the Band Holder(B) to Deck Mechanism Assembly.

- (2) below the standard: loosen the screw, move the Band Holder(B) left a little and then tighten the screw and make sure that this adjustment is correct.

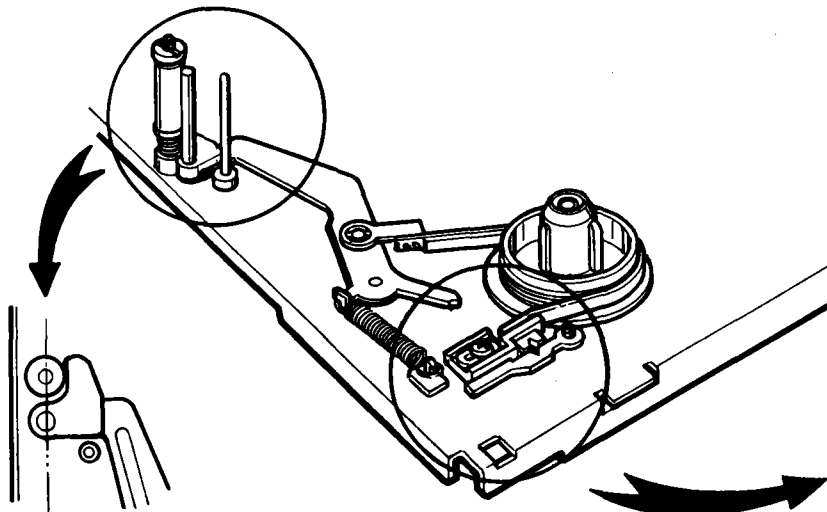
****CAUTION****

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

⟨Tension Adjustment⟩

- 1) Play the Tension Meter and read the Tension Meter: $35\text{g}\cdot\text{cm} \pm 2.5\text{g}\cdot\text{cm}$ (reference value).
- 2) If the result is abnormal.
 - (1) over the standard: loosen the screw, move the Band Holder(B) right a little and then tighten the screw and make sure that this adjustment is correct.

Adjustment Diagram



ALIGN THE CENTER OF P1 AND TENSION POST

Fig. C-4-1

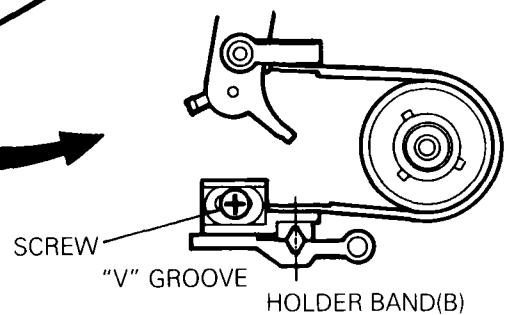


Fig. C-4-2

5. 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	
<ul style="list-style-type: none"> ● Torque Gauge ● Torque Gauge Adaptor 		<ul style="list-style-type: none"> ● 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	110~200g.cm
Fast forward torque	Fast forward	Take-up reel	400g.cm or more
Rewind torque	Rewind	Supply reel	400g.cm or more
Play take-up torque	Play	Take-Up reel	90~130g.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.

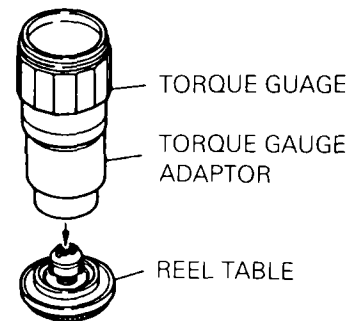
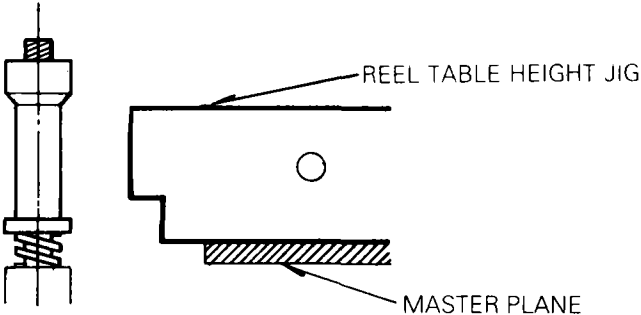
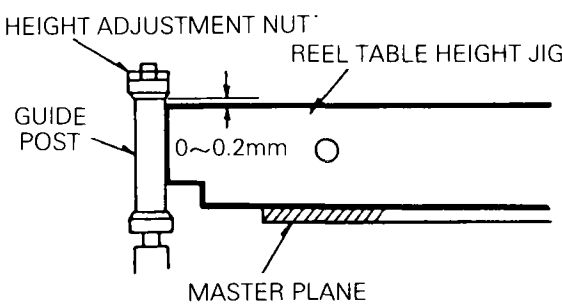
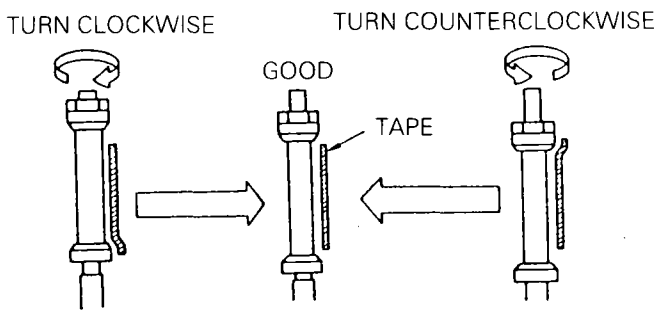


Fig. C-5

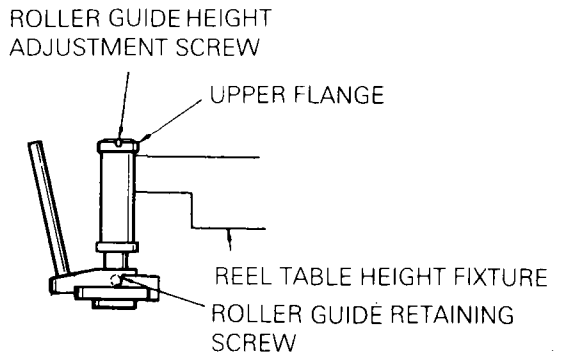
6. Guide Post Height Adjustment

Purpose: To control tape height		
Test Equipment/Fixture	VCR State	Adjustment Point
<ul style="list-style-type: none"> ● Master Plane ● Blank Tape ● Reel Table Height Jig ● Post Height Adjusting Driver ● M3 Nut Driver 	<ul style="list-style-type: none"> ● Mount the Master Plane and place the Reel Table Height Jig on it. 	<ul style="list-style-type: none"> ● Nuts on Impedance Roller ● Guide Post
<p>1) Set the clearance between the bottom of the P1 Roller Flange and under cut of Reel Table Height Fixture to 0~0.1mm(Fig. C-6-1).</p> <p>2) Set the clearance between the bottom of the Guide Post upper flange and top of the Reel Table Height Jig to 0~0.2mm(Fig. C-6-2).</p> <p>3) Load and run the Tape and check that the tape does not ride over the upper and lower flanges of the guide post.</p> <p>4) If the tape rides over either flange, adjust the height of P1 Roller and Guide Post as follows(Fig. C-6-3).</p> <ul style="list-style-type: none"> • If the tape rides over the upper flange, turn the nut counterclockwise. • If the tape rides over the lower flange, turn the nut clockwise. 		
<h3>Adjustment Diagrams</h3> <div style="text-align: center;">  <p>Fig. C-6-1</p> </div> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>Fig. C-6-2</p> </div> <div style="text-align: center;">  <p>Fig. C-6-3</p> </div> </div>		

7. 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. Coarse Adjustment

Test Equipment/Fixture	VCR State	Adjustment Point
<ul style="list-style-type: none"> ● Master Plane ● Reel Table Height Fixture ● Hexagonal Wrench ● Post Height Adjusting Driver 	<ul style="list-style-type: none"> ● Mount the Master Plane and place the Reel Table Height Fixture on it. 	<ul style="list-style-type: none"> ● Roller Guide Height Adjustment Screws on the Supply and Take-Up Guide Rollers.
<p>Adjustment Procedure</p> <ol style="list-style-type: none"> 1) Align the bottom of the Guide Roller's upper flange and the top of the Reel Table Height Fixture. 2) Perform the precise adjustment next. 3) When the Guide Roller is damaged, release the Guide Roller retaining screw and then replace the Guide Roller. 		<p>Adjustment Diagram</p>  <p style="text-align: center;">ROLLER GUIDE HEIGHT ADJUSTMENT SCREW</p> <p style="text-align: center;">UPPER FLANGE</p> <p style="text-align: center;">REEL TABLE HEIGHT FIXTURE</p> <p style="text-align: center;">ROLLER GUIDE RETAINING SCREW</p> <p style="text-align: center;">Fig. C-7-1</p>

B. Precise Adjustment

Test Equipment/Fixture	Test Equipment Connection Points	VCR State	Adjustment Point
<ul style="list-style-type: none"> ● Oscilloscope ● Post Height Adjusting Driver ● Alignment Tape ● Hexagonal wrench 	<ul style="list-style-type: none"> ● CH-1: PB RF Envelope ● CH-2: SW 3-Hz ● Head Switching Output Point ● RF Envelope Output Point 	<ul style="list-style-type: none"> ● Play an alignment tape 	<ul style="list-style-type: none"> ● 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 the drops of RF output are uniform at the start and end.

Waveform Diagrams

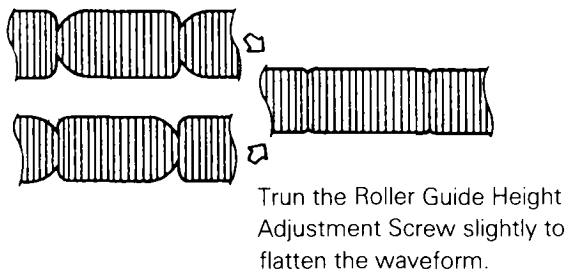


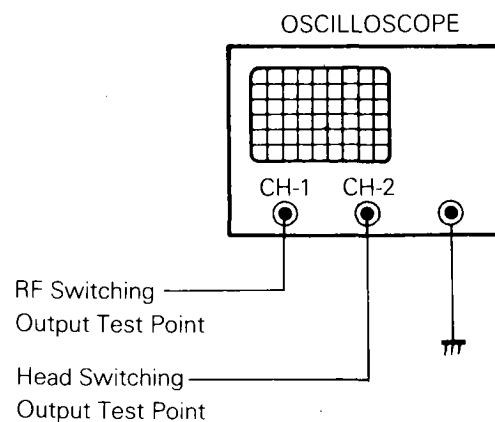
Fig. C-7-2



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

Fig. C-7-3

Connection Diagram



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

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

A. Coarse Adjustment

Test Equipment/Fixture	VCR State	Adjustment Points
<ul style="list-style-type: none"> ● Master Plane ● Reel Table Height Fixture ● M3 Nut Driver 	<ul style="list-style-type: none"> ● Mount the Mater Plane and place the Reel Table Height Fixture on it. 	<ul style="list-style-type: none"> ● Special screw ● Cone Point Screw for tilt ● Azimuth Adjustment Screw ● A/C Head Adjuster
<ul style="list-style-type: none"> ● Blank tape 	<ul style="list-style-type: none"> ● Run the blank tape 	

Adjustment procedure/Adjustment Diagram

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

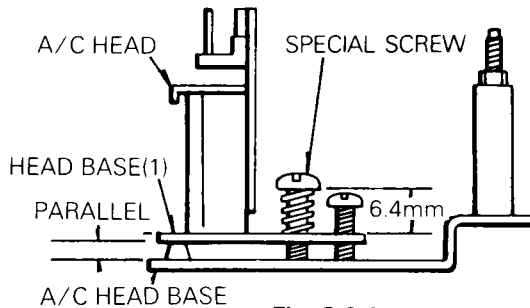


Fig. C-8-1

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

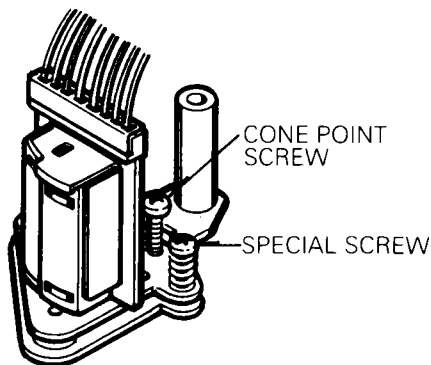


Fig. C-8-2

3) Turn the A/C Head Adjuster until the clearance between the Master Plane and Head Base(1) is approx 1.2mm.

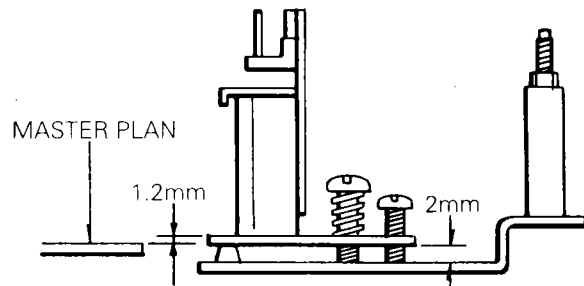


Fig. C-8-3

4) Remove the adjustment fixture, load a blank tape and set the VCR to the play mode.

5) Check that there is no conspicuous curling and riding over around the A/C head. If there is conspicuous curling or riding over, 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.

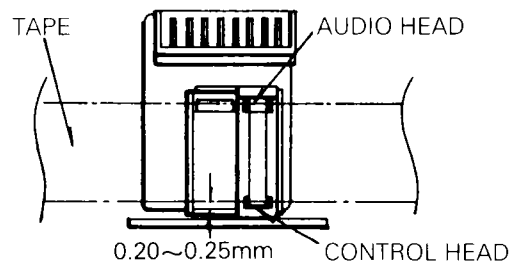
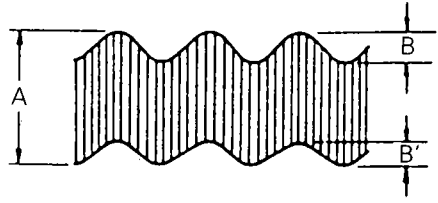


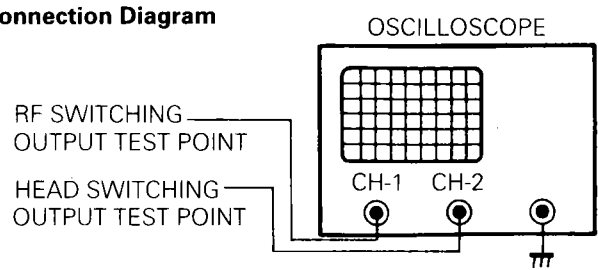
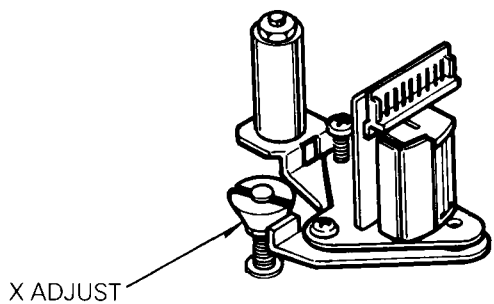
Fig. C-8-4

6) Perform the precise adjustment continuously.

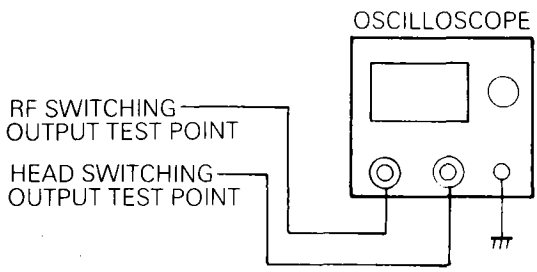
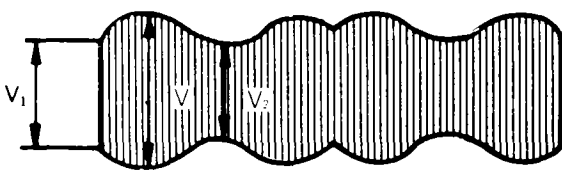
B. Precise Adjustment

Test Equipment/Fixture	Test Equipment Connection Point	VCR State	Adjustment Points
<ul style="list-style-type: none"> ● Oscilloscope ● Alignment tapes ● M3 Nut Driver 	<ul style="list-style-type: none"> ● Audio output jack 	<ul style="list-style-type: none"> ● Play an alignment tape 1KHz, 6KHz sections 	<ul style="list-style-type: none"> ● Azimuth Adjustment Screw ● A/C Head adjuster ● Cone point screw
<p>Adjustment Procedure</p> <ol style="list-style-type: none"> 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 a Audio 1KHz output is maximum and flat.(minimum fluctuation) 3) Adjust the Azimuth Adjustment Screw slightly and alternately so that the Audio 6KHz output is maximum. 		<p>Waveform Diagram</p>  <p>A: Maximum BB': Minimum</p> <p>Fig. C-8-5</p>	

9. X-Value Adjustment

Purpose: To obtain compatibility with other VCRs.			
Test Equipment/Jigs	Test Equipment Connection Points	VCR State	Adjustment Points
<ul style="list-style-type: none"> ● Oscilloscope ● Alignment tapes ● Post Height Adjusting Driver 	<ul style="list-style-type: none"> ● CH-1: PB RF Envelope ● CH-2: SW 30Hz ● Head Switching Output Test Point ● RF Envelope Output Test Point 	<ul style="list-style-type: none"> ● Play an alignment tape 	<ul style="list-style-type: none"> ● X Adjust
<p>Connection Diagram</p> 		<p>Adjustment Procedure</p> <ol style="list-style-type: none"> 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 right direction(clockwise), set the tracking control to the center and turn the X Adjust counterclockwise. 4) If in left direction(counterclockwise), turn it clockwise by same method. 5) In case of the 30 μ m, head will trace over a 60 μ m width track, readjust it so that RF Envelope output begins falling at the same angle when tracking control is turned either left or right. 	
		 <p>Fig. C-9</p>	

10. 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
<ul style="list-style-type: none"> ● Oscilloscope ● Post Height Adjusting Driver ● Alignment tape ● Blank tape ● M3 Nut Driver 	Checking the flatness <ul style="list-style-type: none"> ● CH-1: PB RF Envelope ● CH-2: SW 30Hz ● Head Switching Output Point ● RF Envelope Output Point 	<ul style="list-style-type: none"> ● Run the blank tape ● Play an alignment tape 	<ul style="list-style-type: none"> ● Guide Rollers Precise Adjustment ● Switching point ● Tracking point ● X-Value
Connection Diagram  <p>The diagram shows an oscilloscope with two input channels. The left channel is connected to the 'RF SWITCHING OUTPUT TEST POINT' and the right channel is connected to the 'HEAD SWITCHING OUTPUT TEST POINT'. The ground terminal of the oscilloscope is connected to a common ground symbol.</p>		Waveform Diagram  <p>The diagram shows a series of three overlapping waveforms. The first waveform has a peak labeled V1. The second waveform has a peak labeled V. The third waveform has a peak labeled V2. The waveforms are shown as shaded areas with vertical lines.</p>	
Checking/Adjustment Procedure <ol style="list-style-type: none"> 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 center click position. 5) Adjust the Tracking Preset and X-Value Adjust with X Adjust. 		$V_1/V \text{ MAX} \geq 0.7$ $V_2/V \text{ MAX} \geq 0.8$ <p>RF ENVELOPE OUTPUT</p> <p style="text-align: right;">Fig. C-10</p>	

11. 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 compatibility 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

When inspection is necessary Average hours used per day	About 1 year	About 18 months	About 3 years
One hour			
Two hours			
Three hours			

(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 inspection 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(or freon)
- (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 or freon 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 or freon 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 or freon.

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.

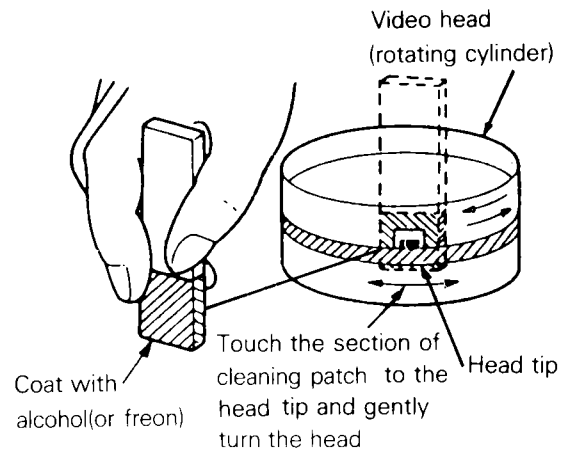


Fig. C-11-1

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 or drive system. Wipe any excess and clean with cleaning patch wetted in alcohol or freon.

(2) Periodic greasing

Grease specified locations every 5,000 hours.

GUIDE ROLLER(SUPPLY)

VIDEO HEAD(UPPER-DRUM)

FULL ERASE HEAD

IMP ROLLER

TENSION POST

GUIDE ROLLER(TAKE-UP)

AUDIO CONTROL HEAD

PINCH ROLLER

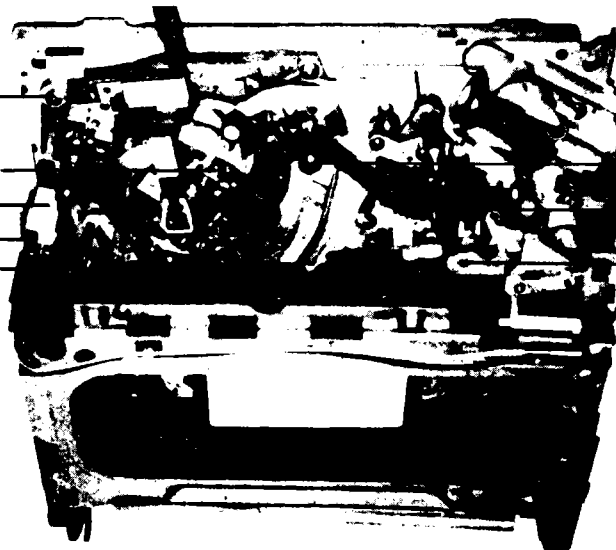


Fig. C-11-2 Tape Transport System

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	○	→ ③
	Dirt in tape transport system		
Low volume, Sound distorted	Dirt on audio/control head	○	→ ④
Tape does not run, Tape is slack	Dirt on pinch roller	○	→ ⑤

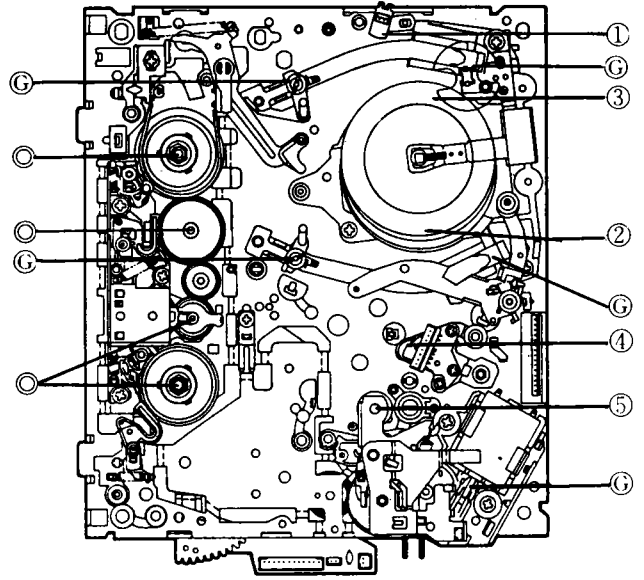


Fig. A-12 Top View of Mechanism

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

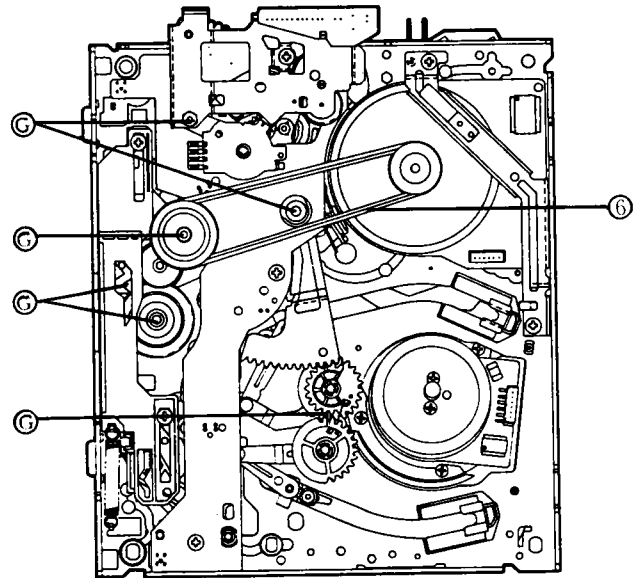


Fig. A-13 Bottom View of Mechanism

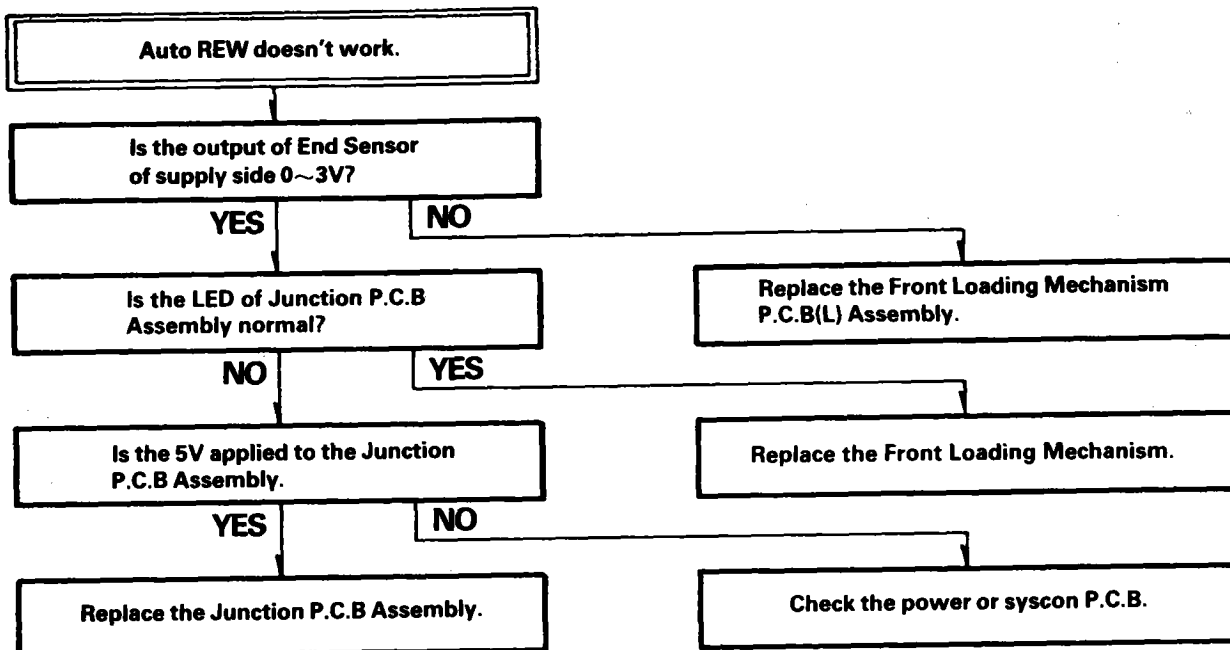
Ⓞ:Grease

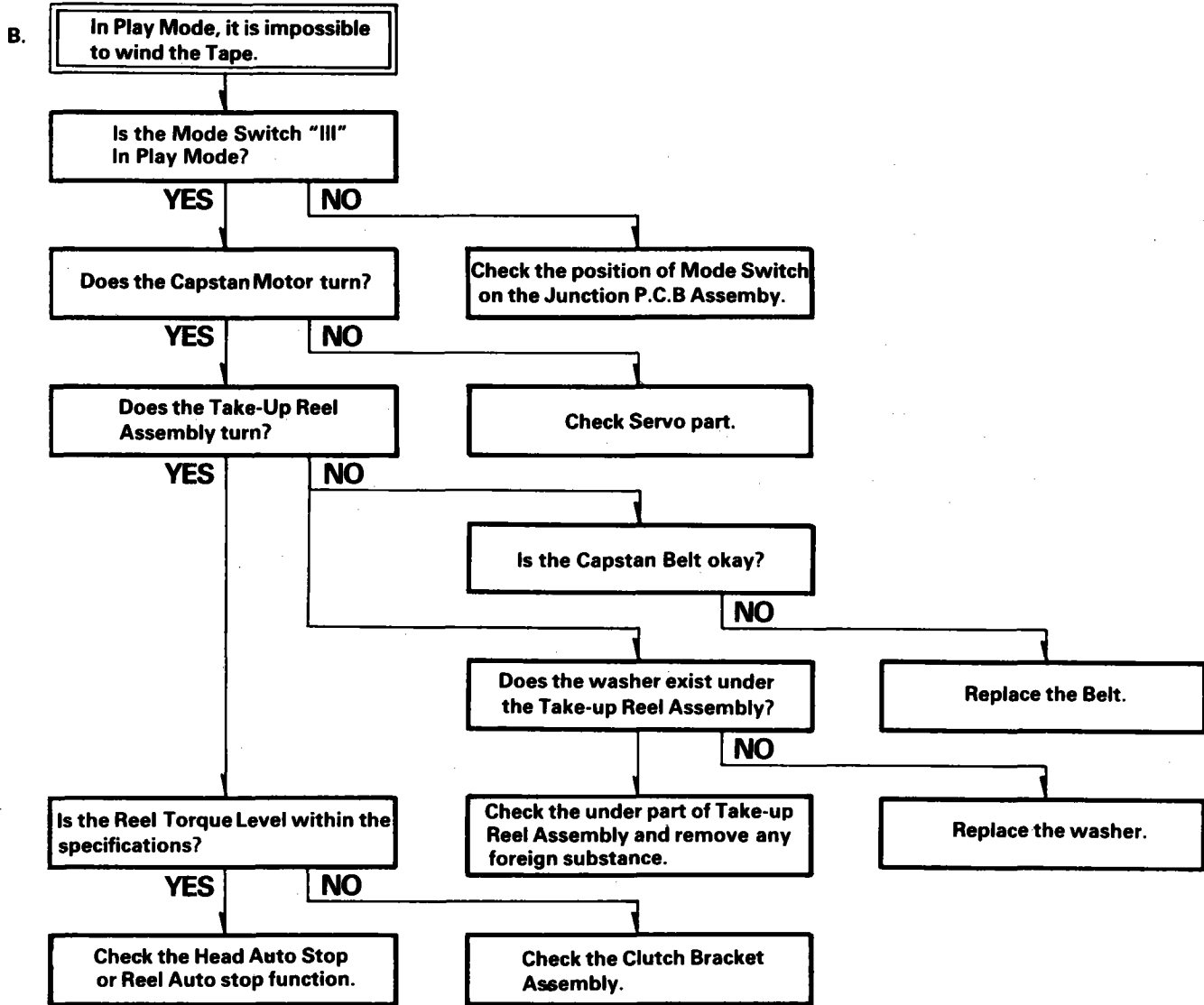
Note: If locations marked with ○ do not operate normally after cleaning, check for wear and replace. See the EXPLODED VIEWS at the end of this manual as well as the above illustrations for the sections to be lubricated and greased.

MECHANISM TROUBLESHOOTING GUIDE

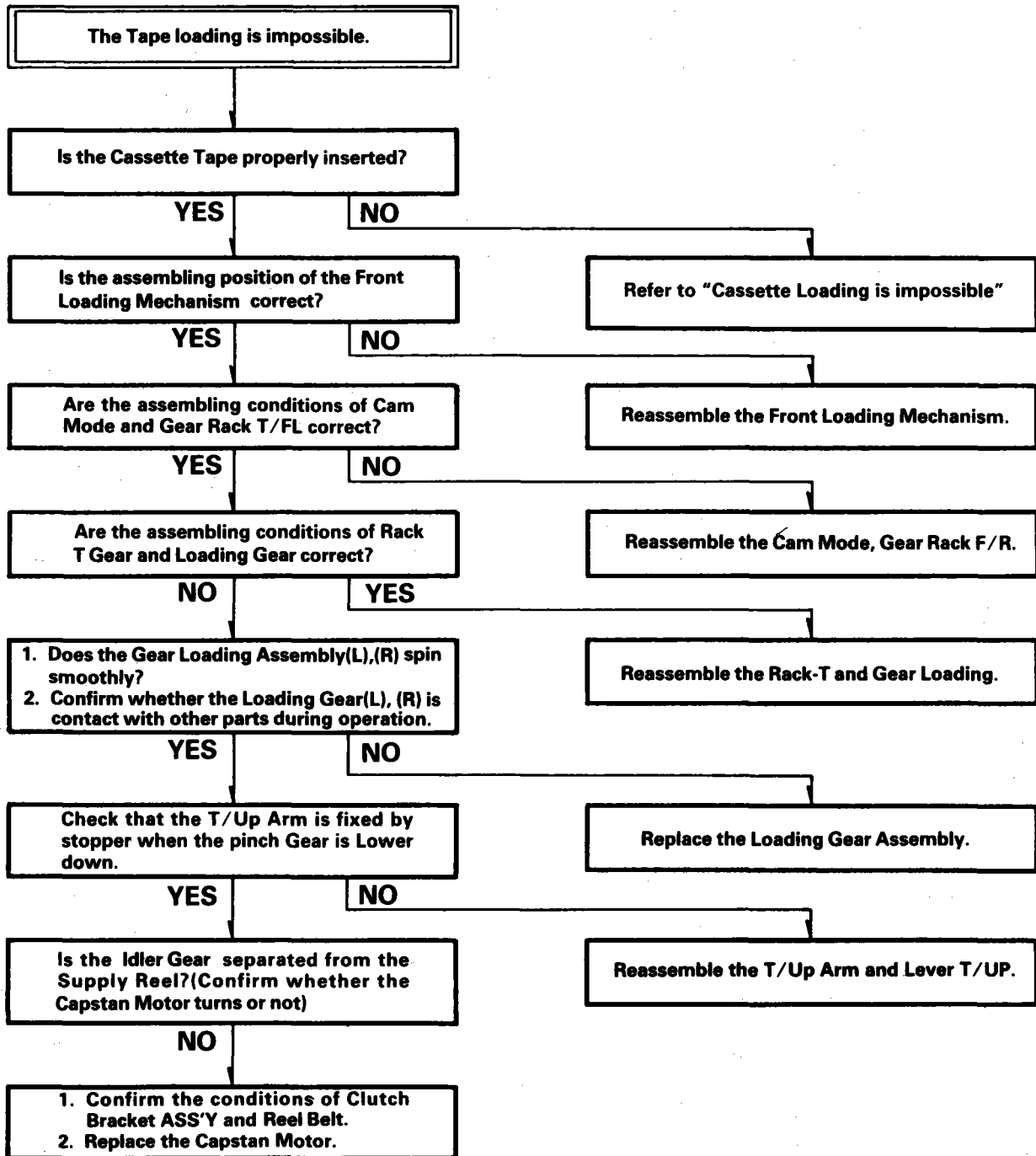
1. Deck Mechanism

A.



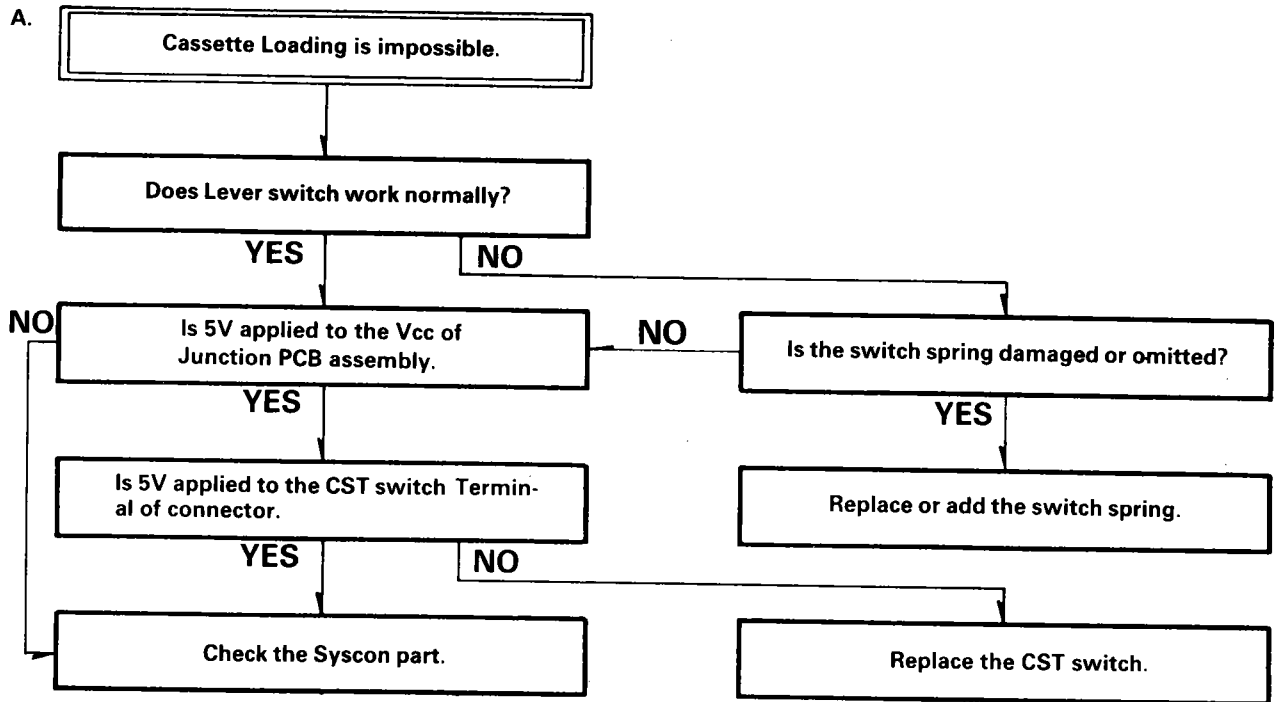


D.

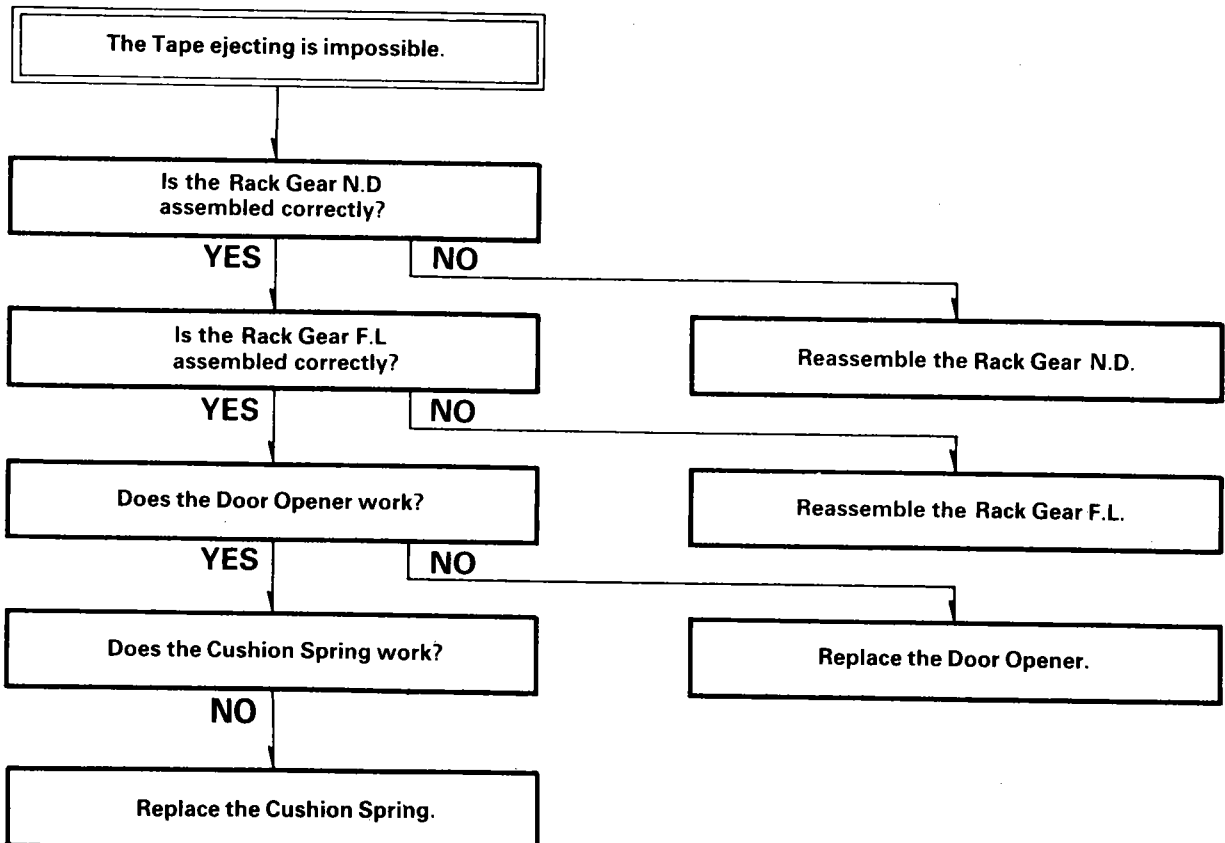


2. Front Loading Mechanism

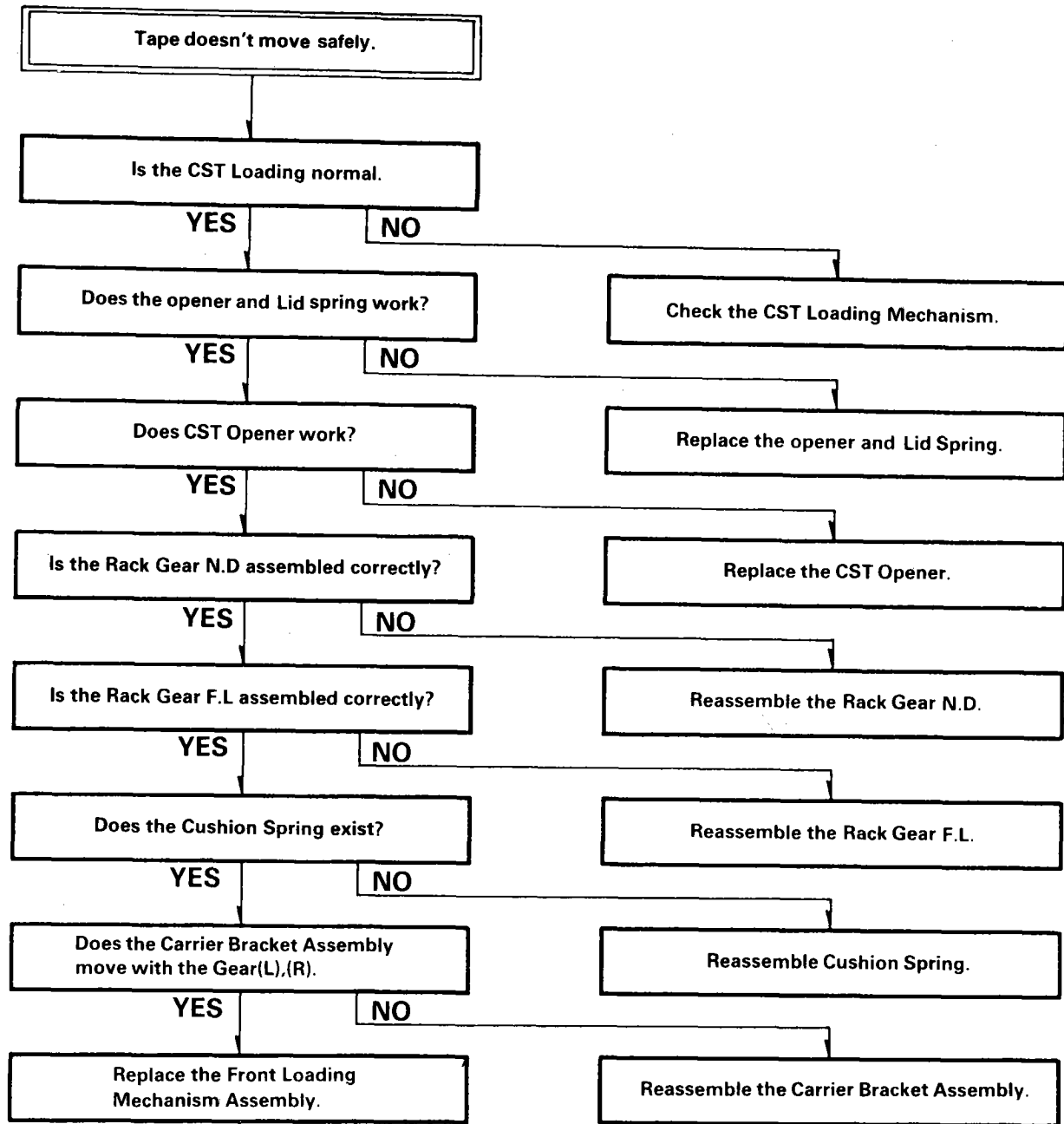
A.



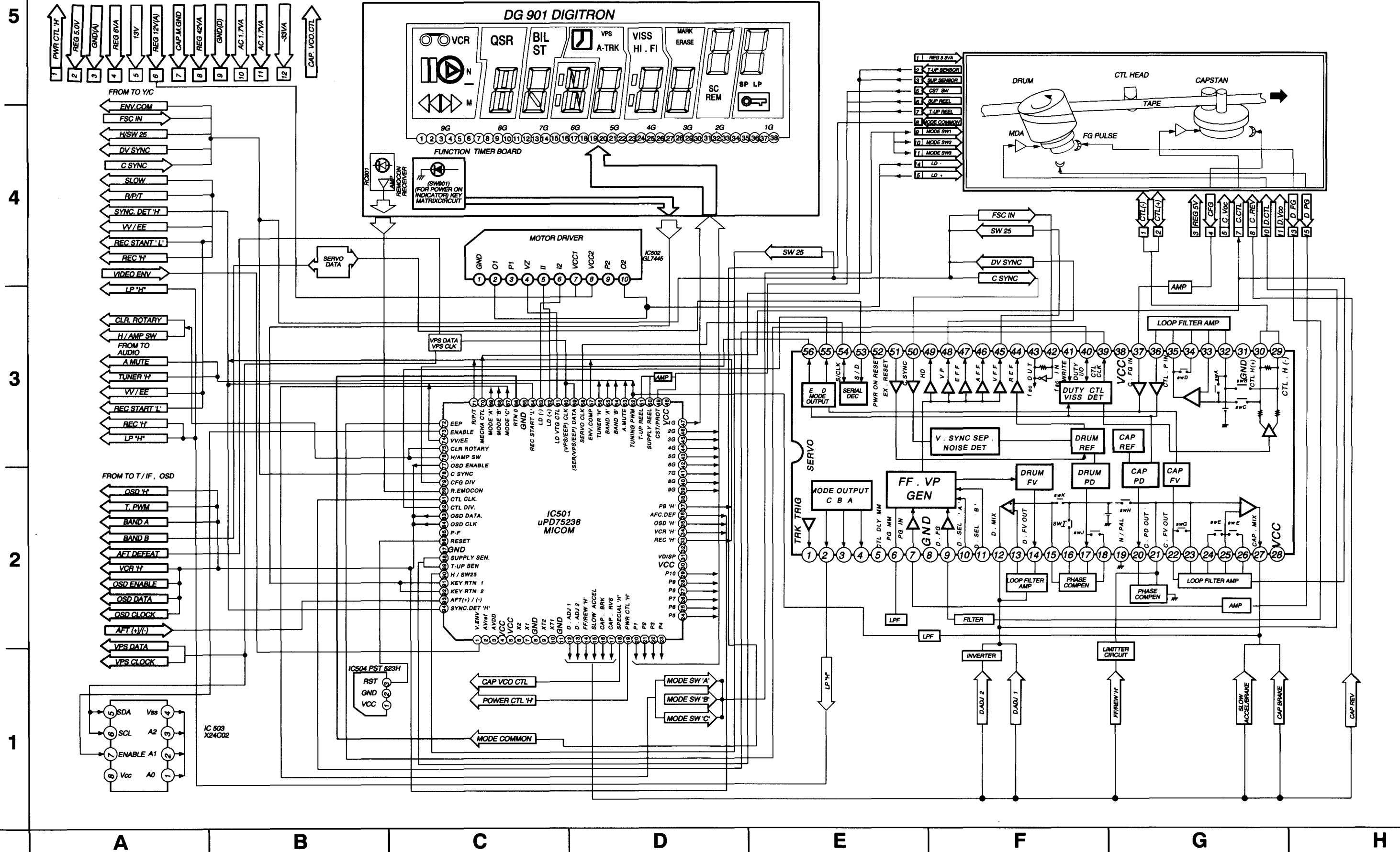
B.



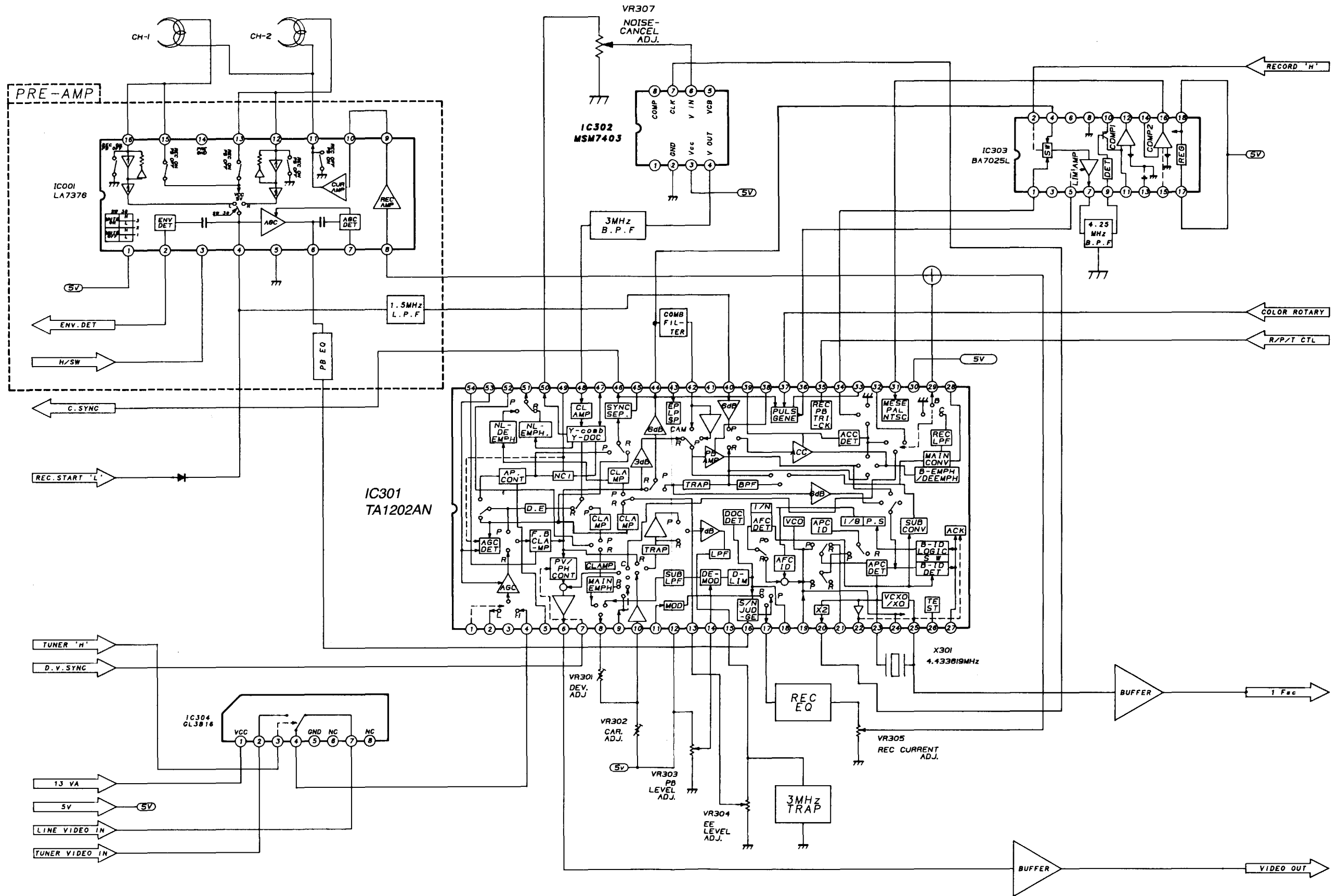
C.



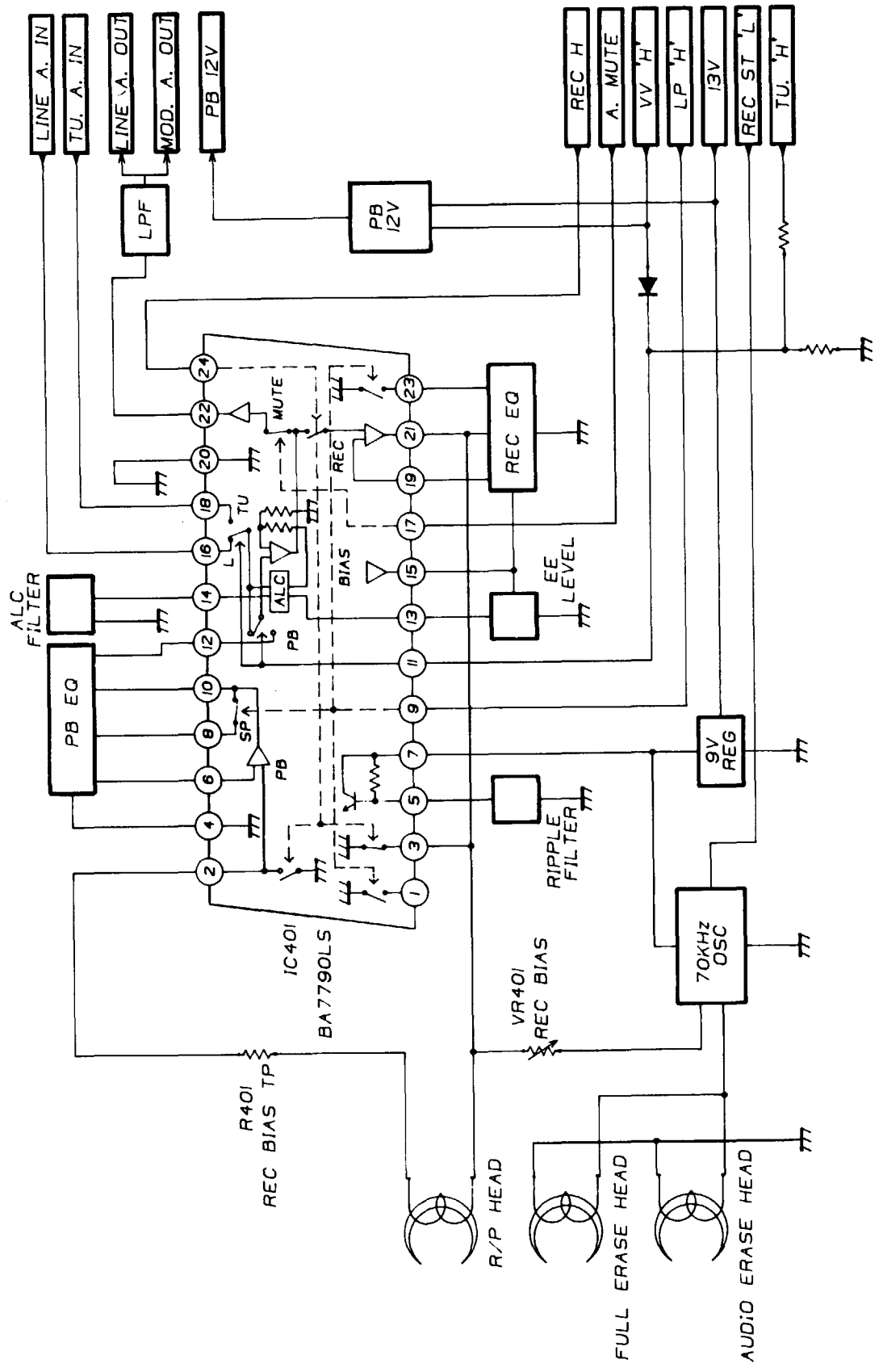
2. Main System(Servo,Syscon,Timer) Block Diagram



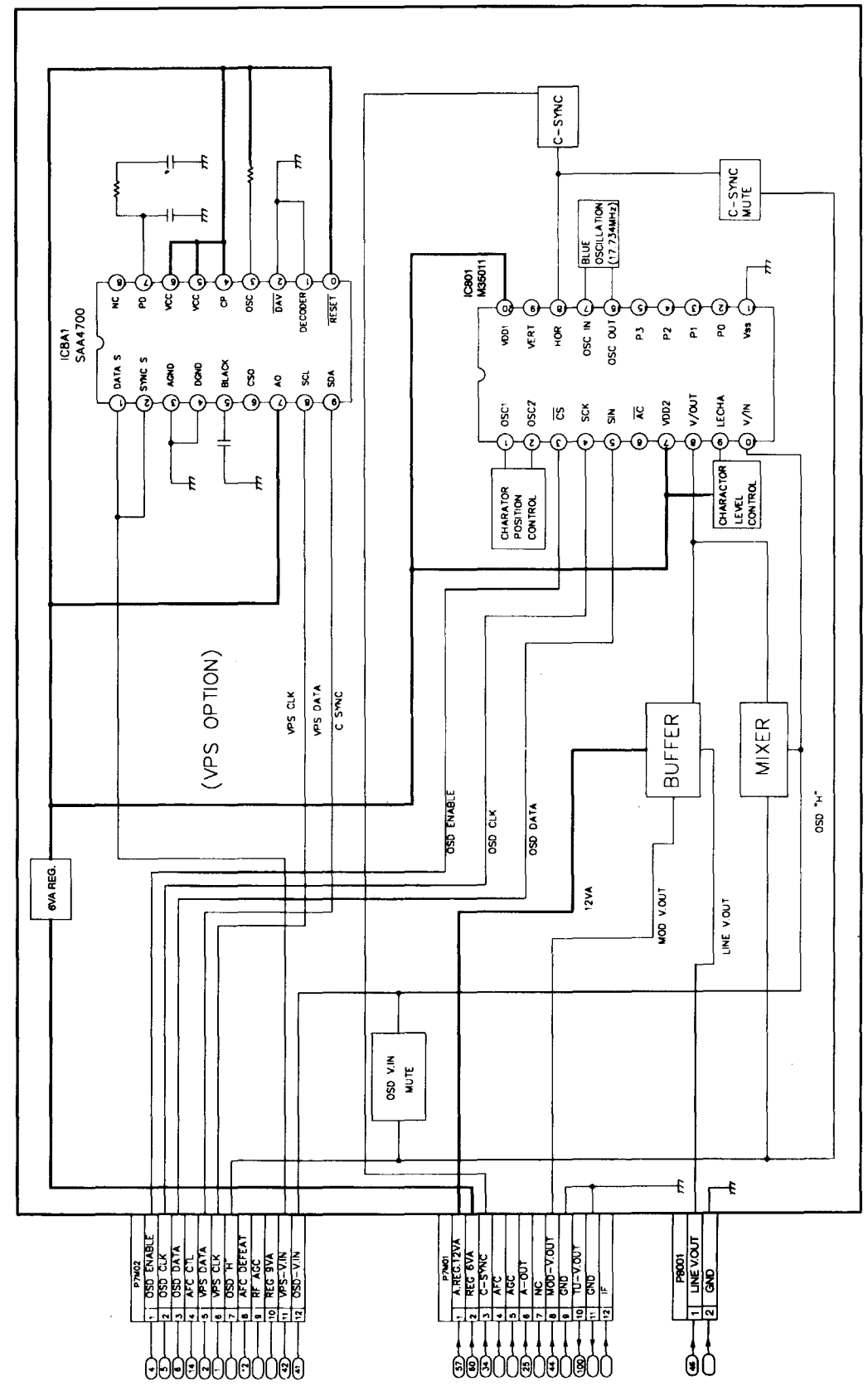
3. Y/C & Pre-Amp Block Diagram



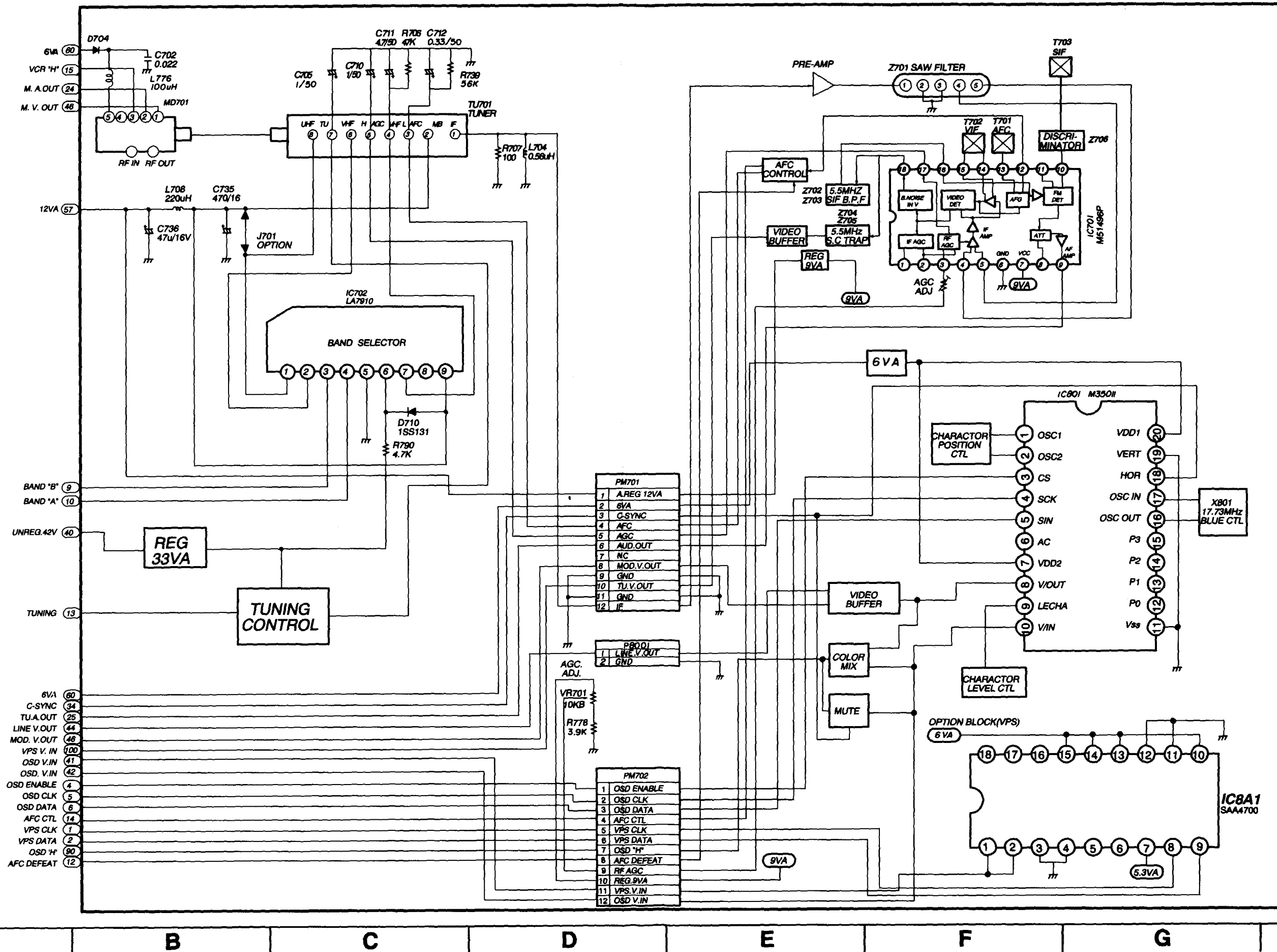
4. Audio Block Diagram



5. Function OSD/VPS Block Diagram



6. Tuner/IF Block Diagram



5

4

3

2

1

A

B

C

D

E


F

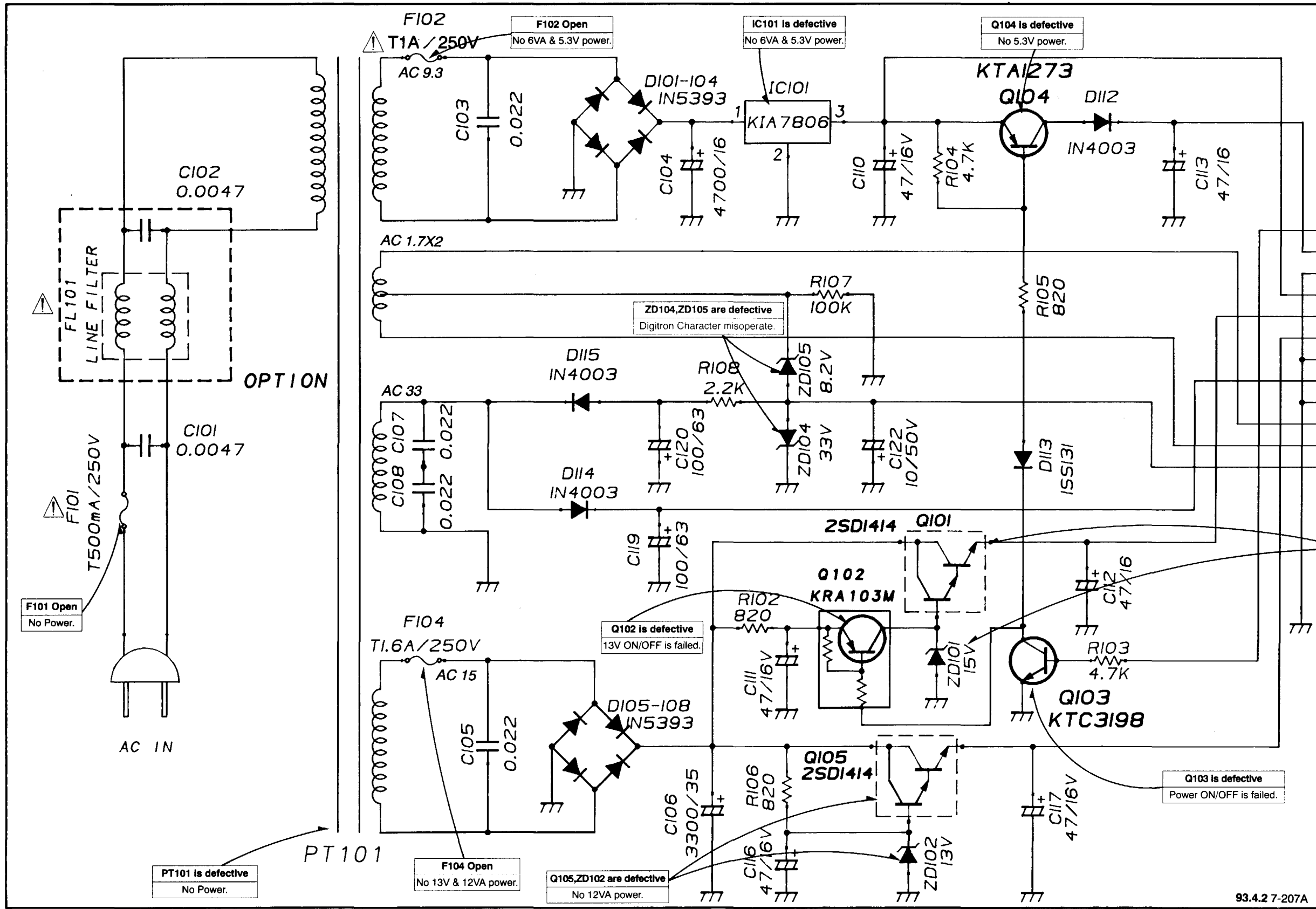
G

H

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	Position
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

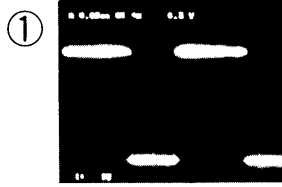
Q101, ZD101 are defective
No 13V power.

Q103 is defective
Power ON/OFF is failed.

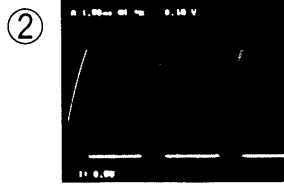
LOCANO.	Position
IC 101	4E
Q 101	2E
Q 102	2E
Q 103	2F
Q 104	4F
Q 105	1E

93.4.2 7-207A

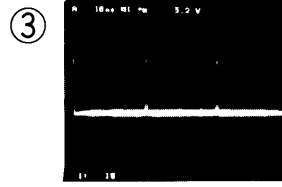
*** Servo Oscilloscope Waveform**



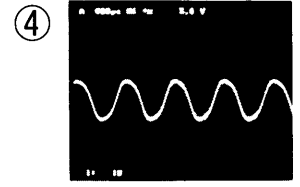
IC201 Pin①
TRK TRIGGER



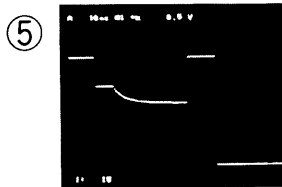
IC201 Pin⑥
PG M.M



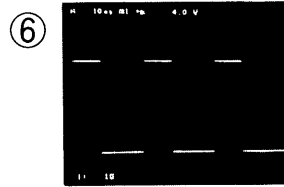
IC201 Pin⑦
DRUM P.G



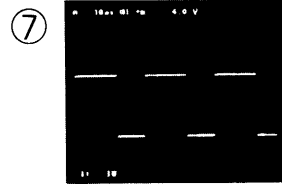
IC201 Pin⑨
DRUM F.G



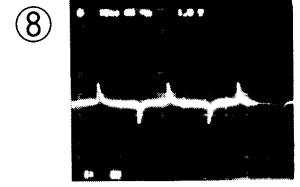
IC201 Pin⑳⑲
SLOW CONTROL



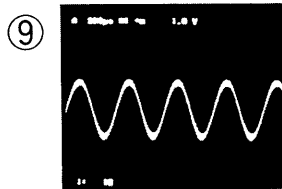
IC201 Pin⑳⑲
REC CTL



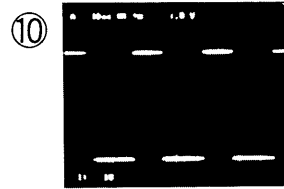
IC201 Pin⑳⑳
REC CTL



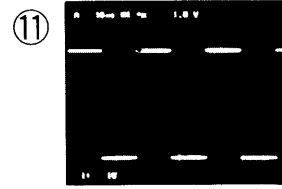
IC201 Pin⑳⑳
REC CTL



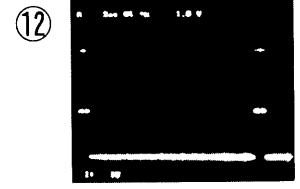
IC201 Pin⑳⑳
CAPSTAN F.G



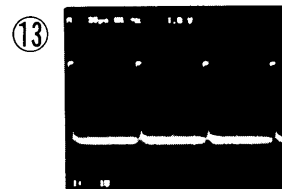
IC201 Pin⑳⑳
CLOCK CTL



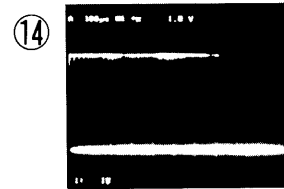
IC201 Pin⑳⑳
SW25



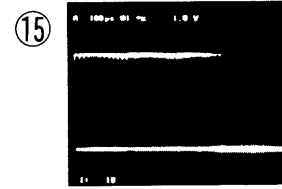
IC201 Pin⑳⑳
DV. SYNC



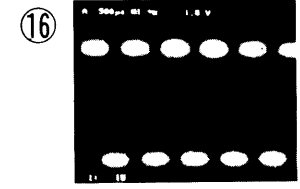
IC201 Pin⑳⑳
COMPOSITE SYNC



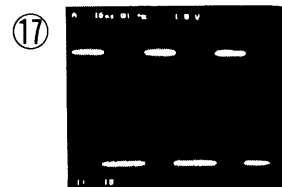
IC201 Pin⑳⑳
SERIAL DATA



IC201 Pin⑳⑳
SERIAL CLOCK

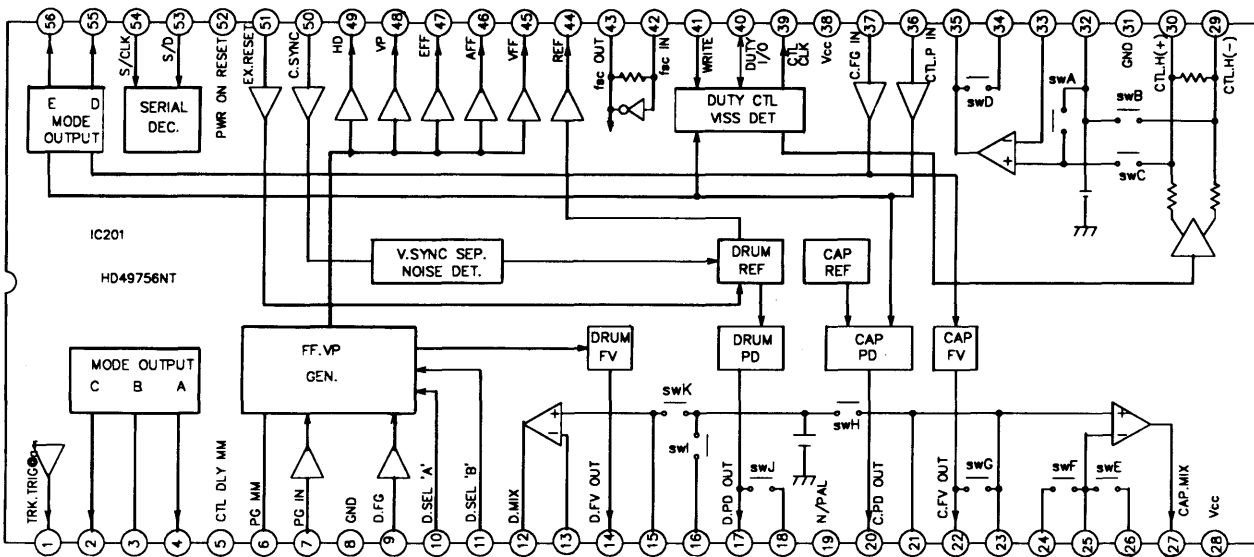


IC201 Pin⑳⑳
CFG C.D



IC201 Pin⑳⑳
CTL C.D

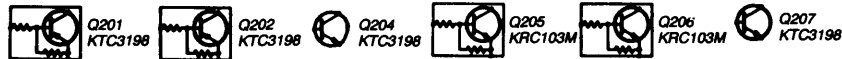
*** Servo IC and TR Voltage Sheet
IC 201(HD49756NT)**



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	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	0	2.5	2.5

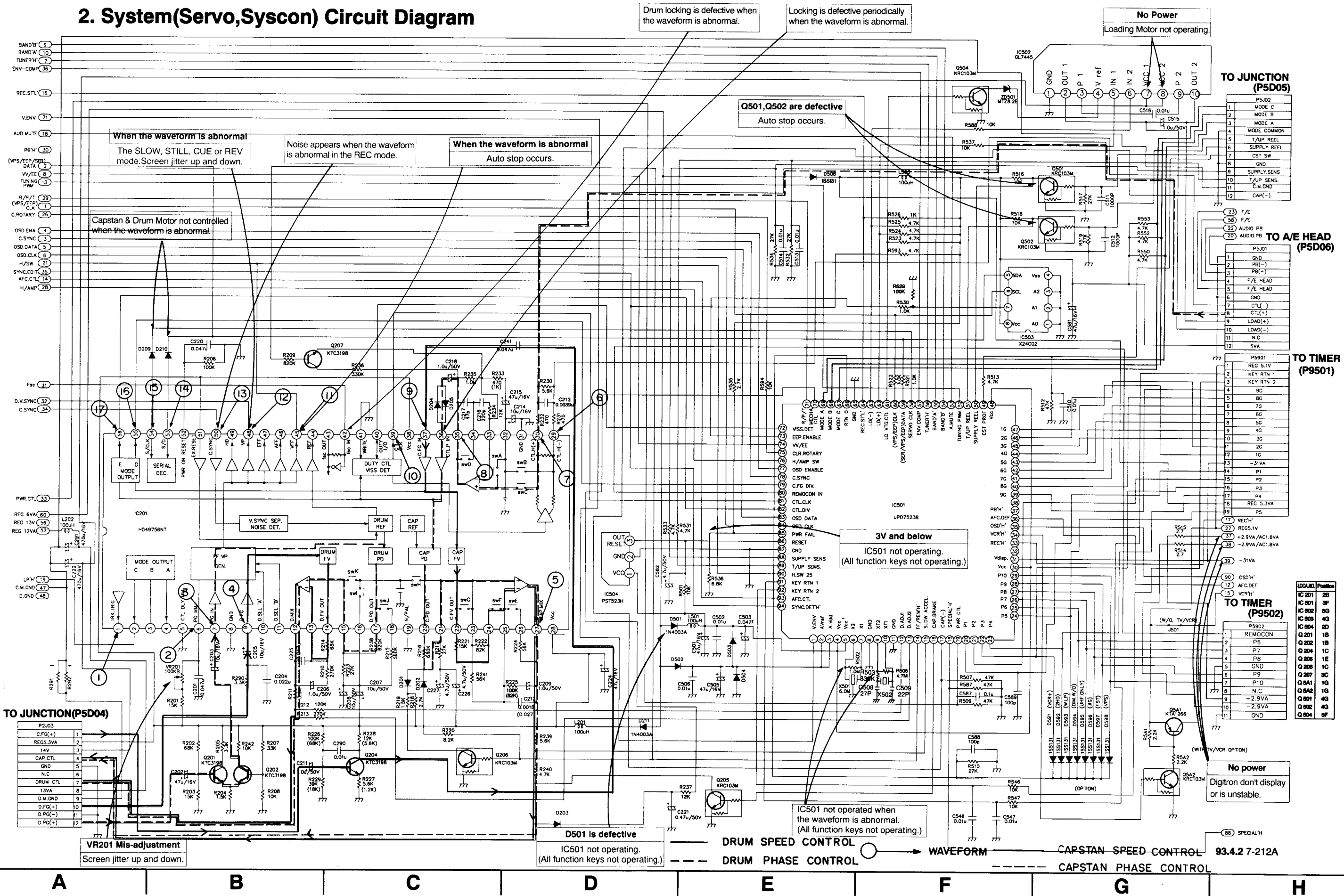
PLAYBACK MODE	3.6	0	0	5	0	0.2	2.1	0	2.7	2.7	2.7	1.4	2.5	2.5	2.5	2.5	2.4	0	2.5	2.5	2.5	2.5	2.5	2.5	2.7	2.7	5
RECORD MODE	3.6	0	0	5	0	0.2	2.1	0	2.7	2.7	2.7	1.4	2.5	2.5	2.5	2.5	2.4	0	2.5	2.5	2.5	2.5	2.5	2.5	2.6	2.7	5

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



When the waveform is abnormal
The SLOW, STILL, CUE or REV mode: Screen jitter up and down.

Noise appears when the waveform is abnormal in the REC mode.

When the waveform is abnormal
Auto stop occurs.

Capstan & Drum Motor not controlled when the waveform is abnormal.

Drum locking is defective when the waveform is abnormal.

Locking is defective periodically when the waveform is abnormal.

No Power
Loading Motor not operating.

Q501, Q502 are defective
Auto stop occurs.

3V and below
IC501 not operating.
(All function keys not operating.)

D501 is defective
IC501 not operating.
(All function keys not operating.)

No power
Digitron don't display or is unstable.

TO JUNCTION (P5D04)

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

TO JUNCTION (P5D05)

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.W.DND	12
CAP(-)	13
F/E	23
F/E	24
AUDIO PB	25
AUDIO PB	26

TO A/E HEAD (P5D06)

P5J01	1
GND	2
PB(-)	3
PB(+)	4
F/E HEAD	5
F/E HEAD	6
GND	7
CTL(-)	8
CTL(+)	9
LOAD(+)	10
LOAD(-)	11
N.C	12
SVA	121

TO TIMER (P9501)

P5J01	1
REG 5.1V	2
KEY RTN 1	3
KEY RTN 2	4
9C	5
8G	6
7G	7
6G	8
5G	9
4G	10
3G	11
2G	12
1C	13
-31VA	14
P1	15
P2	16
P3	17
P4	18
REG. 5.3VA	19
P5	20
REC'H	21
REC'S.1V	22
+2.9VA/AC1.8VA	23
-2.9VA/AC1.8VA	24
-31VA	25
OSD'H	26
AFC.DET	27
VCR'H	28
VCR'H	29

TO TIMER (P9502)

P5J02	1
REMICON	2
P6	3
P7	4
P8	5
GND	6
P9	7
P10	8
N.C	9
+2.9VA	10
-2.9VA	11
GND	12

LOCAND Position

IC 201	2B
IC 501	3F
IC 502	5G
IC 503	2D
IC 504	2D
Q 201	1B
Q 202	1B
Q 203	1C
Q 204	1C
Q 205	1E
Q 206	1C
Q 207	3C
Q 5A1	1G
Q 5A2	1G
Q 501	4G
Q 502	4G
Q 504	5F

3. Tuner/IF Circuit Diagram

5

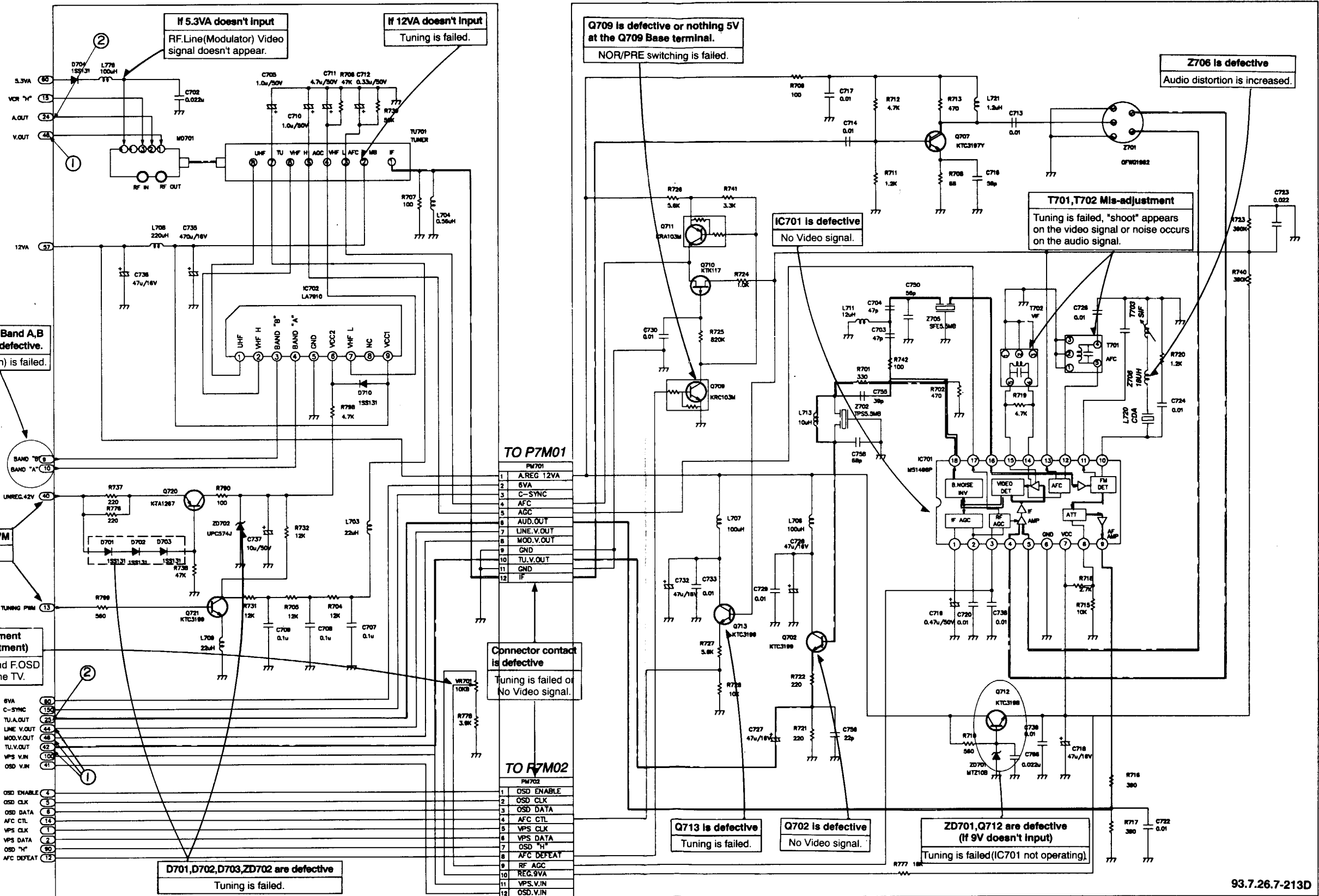
4

3

2

1

LOCANO.	Position
IC701	3F
IC702	4C
Q702	2E
Q707	4F
Q709	3D
Q710	4D
Q711	4D
Q712	2F
Q713	2E
Q720	3B
Q721	2B



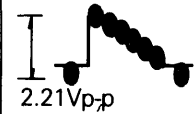
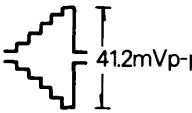


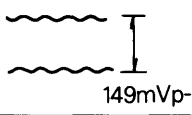

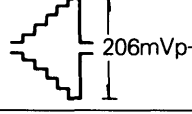


93.7.26.7-213D

AUDIO SIGNAL VIDEO SIGNAL WAVEFORM SIF SIGNAL IF SIGNAL

A B C D E F G H

*** Tuner/IF IC Voltage Sheet**

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

Pin	Pin Function	DC Volt	Waveform	Pin	Pin Function	DC Volt	Waveform
1	IF AGC 1 (Control the VIF Amp of the IC)	4.43±0.01V	—	17	RF AGC Output (Control the RF Amp of the Tuner)	4.45V	—
2	IF AGC 2 (Control the VIF Amp of the IC)	4.43±0.01V	—	18	Video Output (Include the sound signal)	3.53V	
3	RF AGC Control (Control the RF Amp of the Tuner)	2.45V	—				
4	VIF Input	2.39±0.01V					
5	VIF Input	2.39±0.01V					
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					
10	FM Detector (Audio Detection)	3.61V					
11	Deemphasis	6V					
12	AFT	5.42V					
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					

*** 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

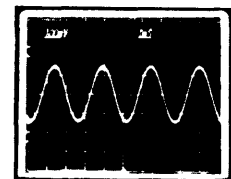
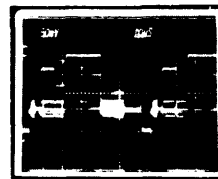
TUNER

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

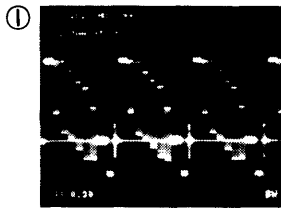


*** Y/C TR Voltage Sheet**

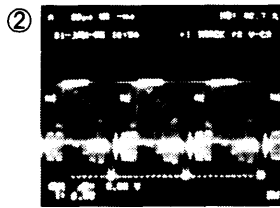
(PB/REC mode)

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

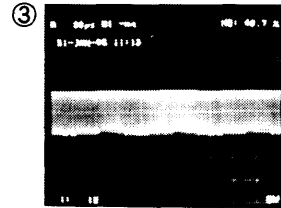
*** Y/C Waveform**



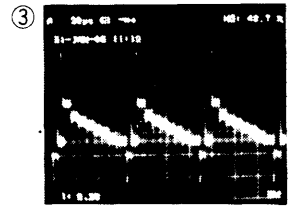
IC 301 Pin ④
Line Input
(200mV/20µsec)



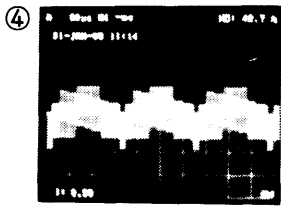
Q 302 Base
PB Output
(500mV/20µsec)



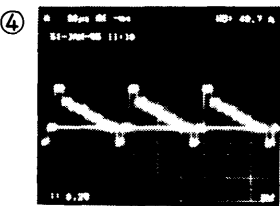
IC 301 Pin ⑧
PB mode
(1V/20µsec)



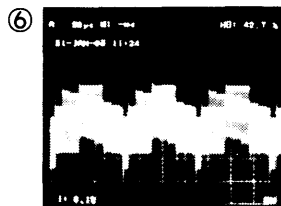
IC 301 Pin ⑧
REC mode
(200mV/20µsec)



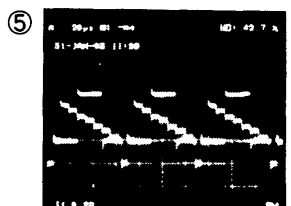
IC 301 Pin ⑨
PB mode
(200mV/20µsec)



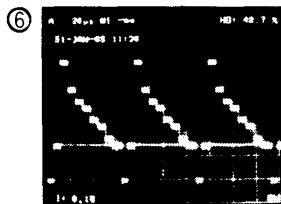
IC 301 Pin ⑨
REC mode
(200mV/20µsec)



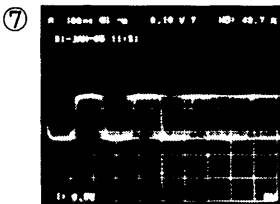
IC 301 Pin ⑪
PB mode
(100mV/20µsec)



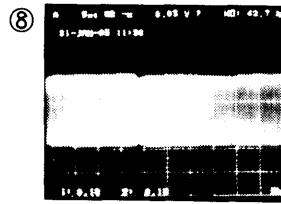
IC 301 Pin ⑬
PB mode
(200mV/20µsec)



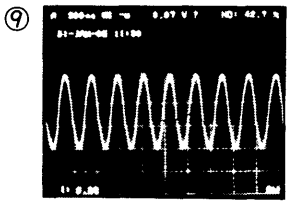
IC 301 Pin ⑬
REC mode
(100mV/20µsec)



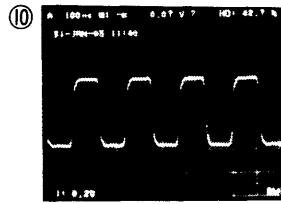
IC 301 Pin ⑰
REC FM output
(500mV/100nsec)



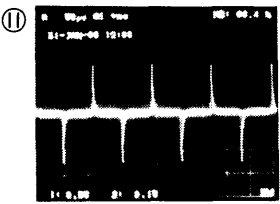
IC 301 Pin ⑱
PB mode
(100mV/5msec)



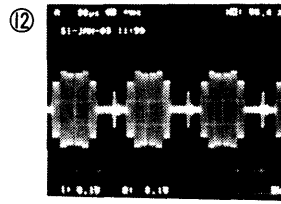
IC 301 Pin ⑳
REC/PB mode
(200mV/200nsec)



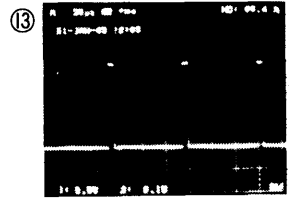
IC 301 Pin ㉑
REC/PB mode
(200mV/100nsec)



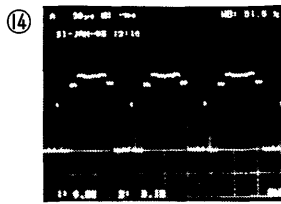
IC 301 Pin ㉓
REC/PB mode
(100mV/50µsec)



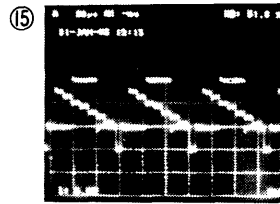
IC 301 Pin ㉕
REC mode
(100mV/20µsec)



IC 301 Pin ㉟
(100mV/20µsec)



IC 301 Pin ㉛
(200mV/20µsec)



IC 301 Pin ⑤①
REC/PB mode
(200mV/20µsec)



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

*** Switching IC
IC 304(GL3816)**






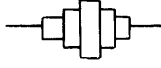
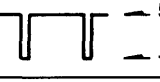




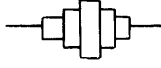
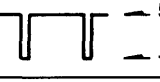




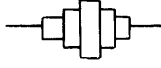
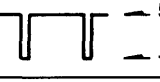










PB(REC)

1	2	3	4	5	6	7	8
12V (11.9V)	8V (7.8V)	5V (5.1V)	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	Pin	Mode	Pin Function	DC Volt.	AC Waveform
1	PB	—	0	—	17	PB	S-VHS Discrimination Output	3.4	—
	REC	TU/Line Control	0	—		REC	FM Output	2.14	
2	PB	—	2.1	—	18	PB	PB FM Input	3.18	
	REC	Line AGC Input	2.1	—		REC	—	4.3	—
3	PB	Y. GND	0	—	19	PB	VCC Filter	2.2	—
	REC		0	—		REC		2.2	
4	PB	TUNER AGC Input	2.1		20	PB	X2FSC Output	5	
	REC		2.1			4.95			
5	PB	Picture Control	2.4	—	21	PB	APC-IC Filter	2.5	—
	REC	—	2.4	REC		V CXO Filter	2.5		
6	PB	V. Out	1.9		22	PB	Color Killer	2	—
	REC		2.2			1.9			
7	PB	D.V	0	—	23	PB	V CXO, XO	3	
	REC	Sync Input	0	REC		Feedback Input	3		
8	PB	Main Deemphasis	2.7		24	PB	—	2.2	—
	REC	Main Emphasis Output	2.4			REC		2.2	
9	PB	Y/C Mix off Control	2.3		25	PB	X-TAL Drive Output	3	
	REC	Main Emphasis Feedback	2.4			REC		2.84	
10	PB	Y-EPF Input	2.65		26	PB	—	1.8	
	REC	—	2.66			REC		1.85	
11	PB	—	3.28		27	PB	Burst-ID	2.8	
	REC	FM-Modulator Input	2.2			REC		2.82	
12	PB	Y - Vcc	4.9	—	28	PB	Carrier Balance Adjustment Filter	1.4	—
	REC		4.9			REC		1.3	
13	PB	N.L Deemphasis Input	2.8		29	PB	External Chroma Input Bias	1.7	—
	REC	Detail Enhancer Input	2.7			REC		Low Band Color Output	
14	PB	PB Level	3.2	—	30	PB	Croma-Vcc	4.6	—
	REC	Adjustment	3.2			REC		4.6	
15	PB	Y-LPF Output	2		31	PB	PAL/MESECAM Control Terminal	2.35	—
	REC		2.2					REC	
16	PB	S-VHS Discrimination Filter	0.7		32	PB	External Chroma Input	2.6	—
	REC	—	0.77					REC	
17	PB	S-VHS Discrimination Output	3.4	—	33	PB	B.G.P Filter	2.7	—
	REC		2.14			REC		2.7	
18	PB	PB FM Input	3.18		34	PB	ACC DET	2.15	
	REC		4.3			REC		2.14	
19	PB	VCC Filter	2.2	—	35	PB	Trick mode Control	2.3	—
	REC		2.2			REC		4.8	

Pin	Mode	Pin Function	DC Volt.	AC Waveform	Pin	Mode	Pin Function	DC Volt.	AC Waveform																																																								
36	PB	Burst Gate	0.17	 2	53	PB	—	2.1	—																																																								
	REC	Output	0.17			0	REC	AGC DET Filter		2.2																																																							
37	PB	Color	1.5	 3	54	PB	F.B Clamp	2.9	—																																																								
	REC	Rotary Input	1.56			0	REC	Filter		3																																																							
38	PB	Croma AP Edge Detect Filter	2.97	—	<p>* CCD IC 302(MSM7403) PB(REC)</p> <table border="1"> <thead> <tr> <th>Pin No.</th> <th>Voltage</th> </tr> </thead> <tbody> <tr><td>1</td><td>0(0)</td></tr> <tr><td>2</td><td>0(0)</td></tr> <tr><td>3</td><td>4.8V(4.98V)</td></tr> <tr><td>4</td><td> 3.7 2.7 3.28V(3.38V)</td></tr> <tr><td>5</td><td>2V(2.1V)</td></tr> <tr><td>6</td><td> 2.4 1.8 2.09V(2.16V)</td></tr> <tr><td>7</td><td> 2.7 2.3 2.53V(2.56V)</td></tr> <tr><td>8</td><td>8.2V(8.47V)</td></tr> </tbody> </table> <p>* MESECAM IC 303(BA7025L) PB(REC)</p> <table border="1"> <thead> <tr> <th>Pin No.</th> <th>Voltage</th> </tr> </thead> <tbody> <tr><td>1</td><td>3.5V(3.6V)</td></tr> <tr><td>2</td><td> 0.2Vp-p 0(0)</td></tr> <tr><td>3</td><td>0(0)</td></tr> <tr><td>4</td><td>3.5V(0)</td></tr> <tr><td>5</td><td> 5V -0.7V 4.57V(4.56V)</td></tr> <tr><td>6</td><td>0(0)</td></tr> <tr><td>7</td><td> 4.4 3.2 4.4V(4.4V)</td></tr> <tr><td>8</td><td>0(0)</td></tr> <tr><td>9</td><td>3V(3V)</td></tr> <tr><td>10</td><td>0(0)</td></tr> <tr><td>11</td><td>3.7V(3.46V)</td></tr> <tr><td>12</td><td>0(4.2V)</td></tr> <tr><td>13</td><td>3.7V(3.49V)</td></tr> <tr><td>14</td><td>0(4.15V)</td></tr> <tr><td>15</td><td>0(0)</td></tr> <tr><td>16</td><td>0(4.3V)</td></tr> <tr><td>17</td><td>4.9(4.99V)</td></tr> <tr><td>18</td><td>4.9(4.99V)</td></tr> </tbody> </table>					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)	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)
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REC	—	3	—																																																														
39	PB	ACC DET.	3.4	—																																																													
	REC	Filter	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 REC 2.6 2.4 2.4 0.2																																																													
	REC	—	2.4																																																														
43	PB	SP. LP Control	0	—																																																													
	REC	Terminal	0																																																														
44	PB	COMB Drive	2.2	 2.7 1.8																																																													
	REC	Output	2.47	 3 2																																																													
45	PB	SYNC Separation	3.4	—																																																													
	REC	Filter	3.1																																																														
46	PB	C.SYNC Output	0.39	 4.6																																																													
	REC	—	0.4		0																																																												
47	PB	Y-COMB	2.4	—																																																													
	REC	Filter	2.5																																																														
48	PB	Y-COMB 1H	2.76	 PB REC 3.2 3 2.4 2.3																																																													
	REC	Band Input	2.7																																																														
49	PB	N.C.C Gain Adjustment	3	—																																																													
	REC	—	2.9																																																														
50	PB	Y-COMB	2.3	 PB REC 2.6 2.5 1.8 1.9																																																													
	REC	CCD Drive	2.26																																																														
51	PB	NL-Deemphasis	2.18	 PB REC 2.6 2.9 1.8 2.3																																																													
	REC	NL-Emphasis Output	2.7																																																														
52	PB	Y-COMB Input	2.76	 PB REC 3.2 3.4 2.4 2.7																																																													
	REC	1/2f _s Shift	3																																																														

4. Y/C Circuit Diagram

5
4
3
2
1

C344 is defective.
No Color.

IC302 is defective.
Drop-out Compensation not operating.

IC301 pin 35 or μ-com is defective
PB/EE mode switching is failed.

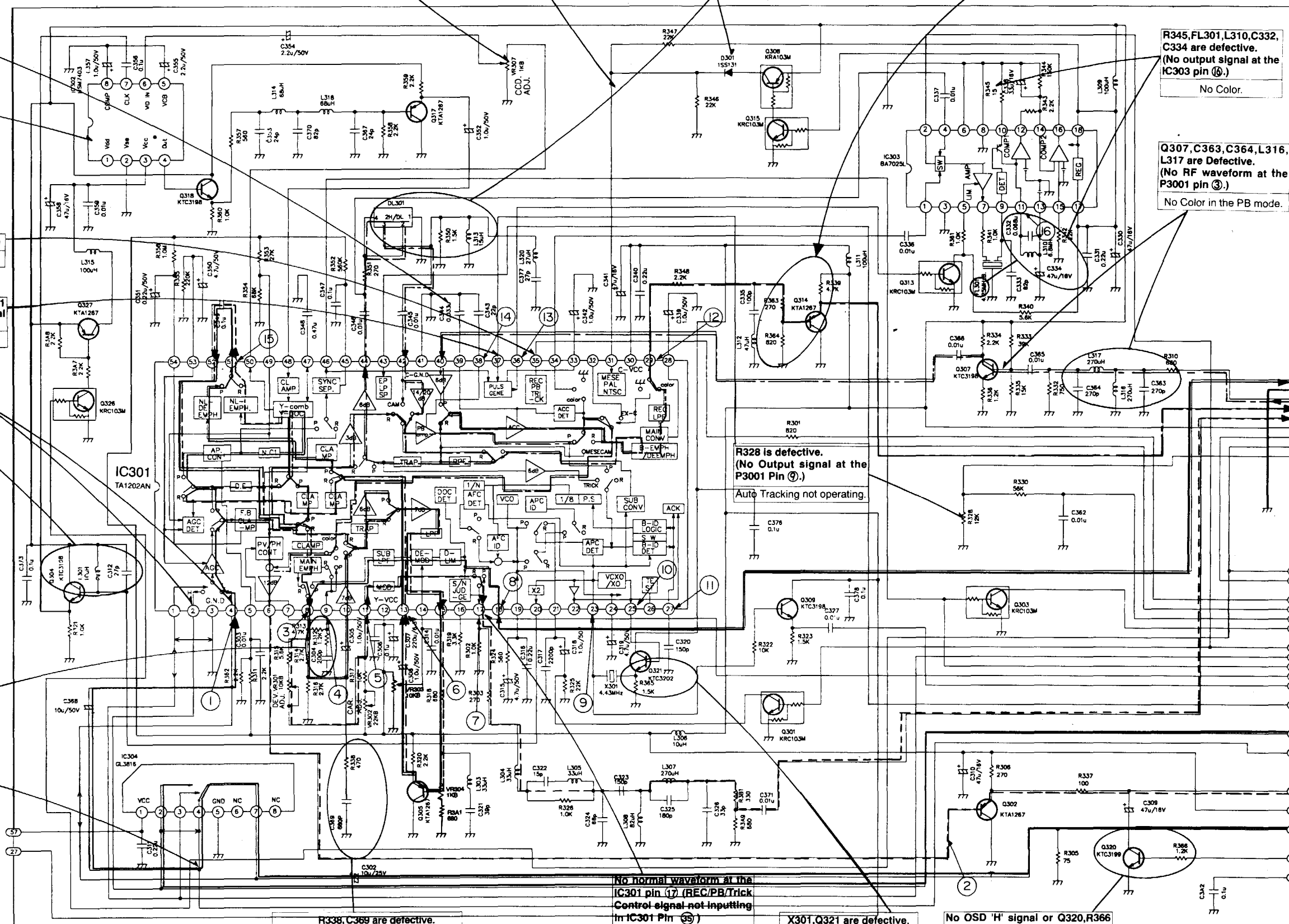
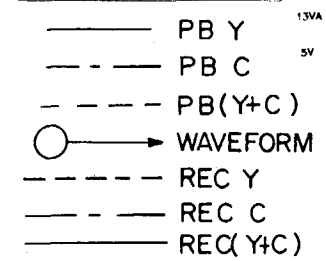
No normal voltage at the IC301 pin 37 (Color Rotary signal not outputting in μ-com)
No color.

IC301 pin 2, 4 are defective.
No Picture. (PB/EE mode)

Q304, L301, C312 are defective.
No 2fsc output.

R312, R313, C304 are defective.
"Shoot" appears in the REC mode. (Video output waveform have distortion)

No normal video waveform. (TU/Line Control signal not inputting in IC304 pin 3 or Video signal not inputting in IC304 Pin 2, 7.)
No Picture in the EE mode.



VR307 Mis-adjustment.
Drop-out Compensation not operating.

When the voltage is abnormal.
(PAL mode : Less than 2.5V
MESECAM mode : Less than 4V)
No Color.

D301, R350, L313, DL301 are defective.
Horizontal noise appear in the PB mode.

Q314, R363, R364 are defective.
No Color in the REC mode.

R345, FL301, L310, C332, C334 are defective.
(No output signal at the IC303 pin 10.)
No Color.

Q307, C363, C364, L316, L317 are Defective.
(No RF waveform at the P3001 pin 3.)
No Color in the PB mode.

R328 is defective.
(No Output signal at the P3001 Pin 9.)
Auto Tracking not operating.

R338, C369 are defective.
"Shoot" appears in the PB mode. (Video output waveform have distortion)

No normal waveform at the IC301 pin 17 (REC/PB/Trick Control signal not inputting in IC301 Pin 17)
No color.

X301, Q321 are defective.
No Color or Drum Motor not controlled.

No OSD 'H' signal or Q320, R366 are defective.
F.OSD Screen has interference.

LOC. NO.	Position
IC 301	3B
IC 302	5B
IC 303	4F
IC 304	1B
Q 301	2E
Q 302	1F
Q 303	2F
Q 304	2B
Q 305	1C
Q 307	3F
Q 308	5E
Q 309	2E
Q 313	4F
Q 314	4E
Q 315	4E
Q 317	4C
Q 318	4B
Q 320	1G
Q 321	2E

P3001	
1	PB-Y
2	G.N.D
3	PB-C
4	REC-C
5	REC-Y
6	5V
7	H/SW
8	REC START
9	ENV-DET

10	REC START
11	H/SW
12	R/P/T.C/L
13	C.ROT
14	ENV-DET
15	C-SYNC(SYSCON)
16	WH
17	TUNER
18	C.SYNC
19	D.V.SYNC
20	1.FSC
21	LPH
22	TUNER VIDEO
23	VPS VIDEO
24	OSD VIDEO
25	OSD VIDEO
26	OSD 'H'
27	PWR CTL

93.4.17. 7-205A

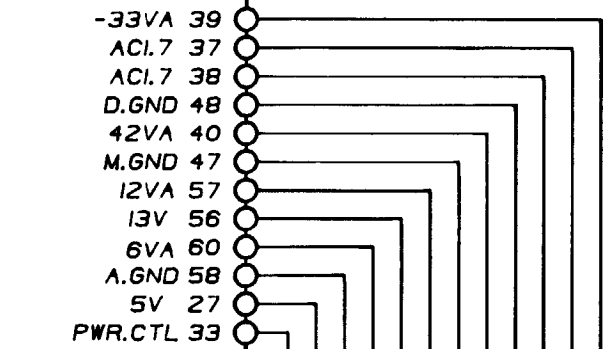
5. Audio Circuit Diagram

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

* Audio IC Voltage Sheet

PB(REC)	
3.8	0
(3.5)	(0)
3.8	3.5
(3.5)	(3.5)
4.1	0
(4.1)	(0)
4.5	4.5
(4.2)	(4.2)
0	4.2
(0)	(4)
0	5.3
(0)	(0)

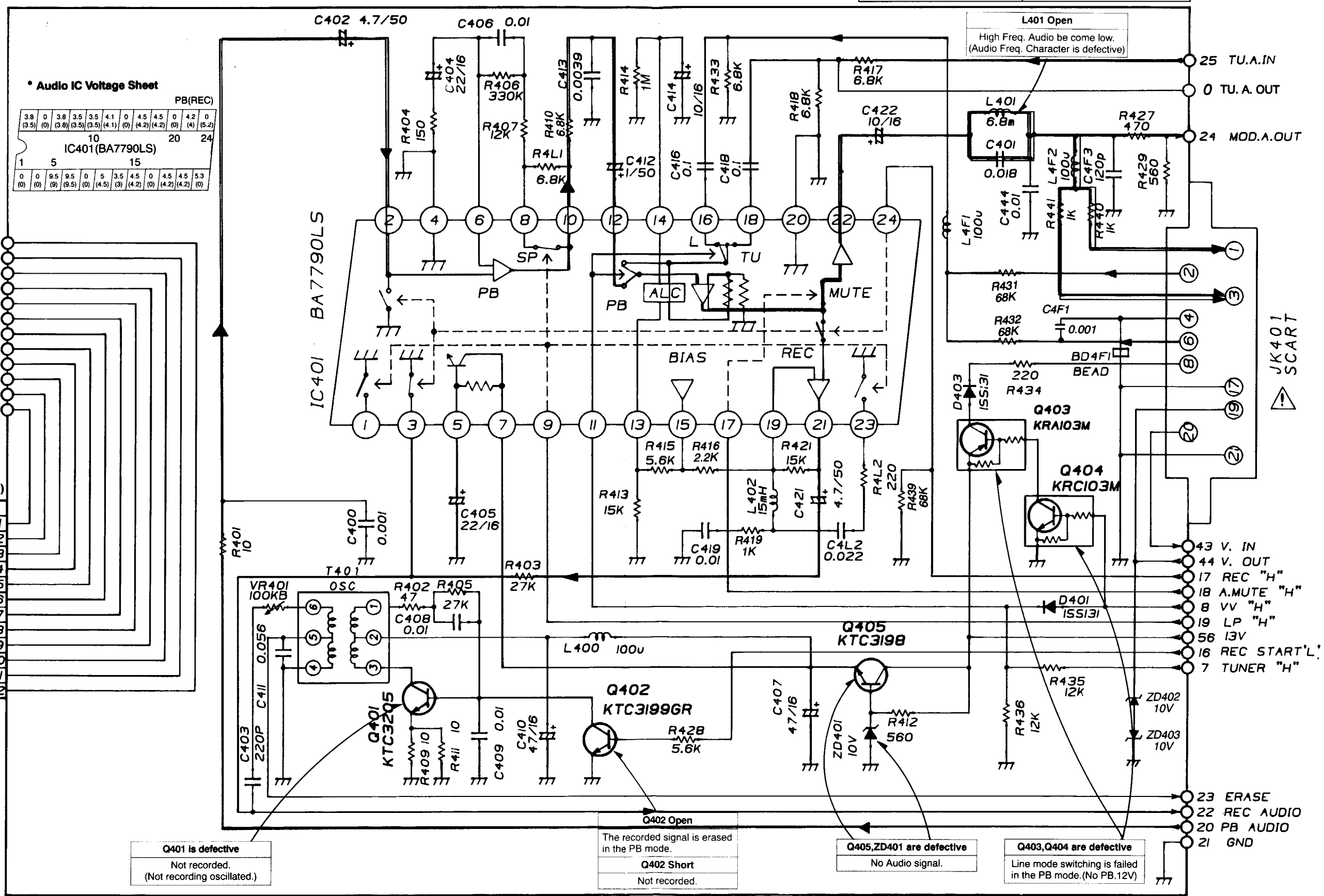
IC401 (BA7790LS)



FROM POWER(PL101)

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

LOC.NO.	Position
IC 401	3C
Q 401	1C
Q 402	2D
Q 403	3F
Q 404	3G
Q 405	2E



Q401 is defective
Not recorded.
(Not recording oscillated.)

Q402 Open
The recorded signal is erased in the PB mode.
Q402 Short
Not recorded.

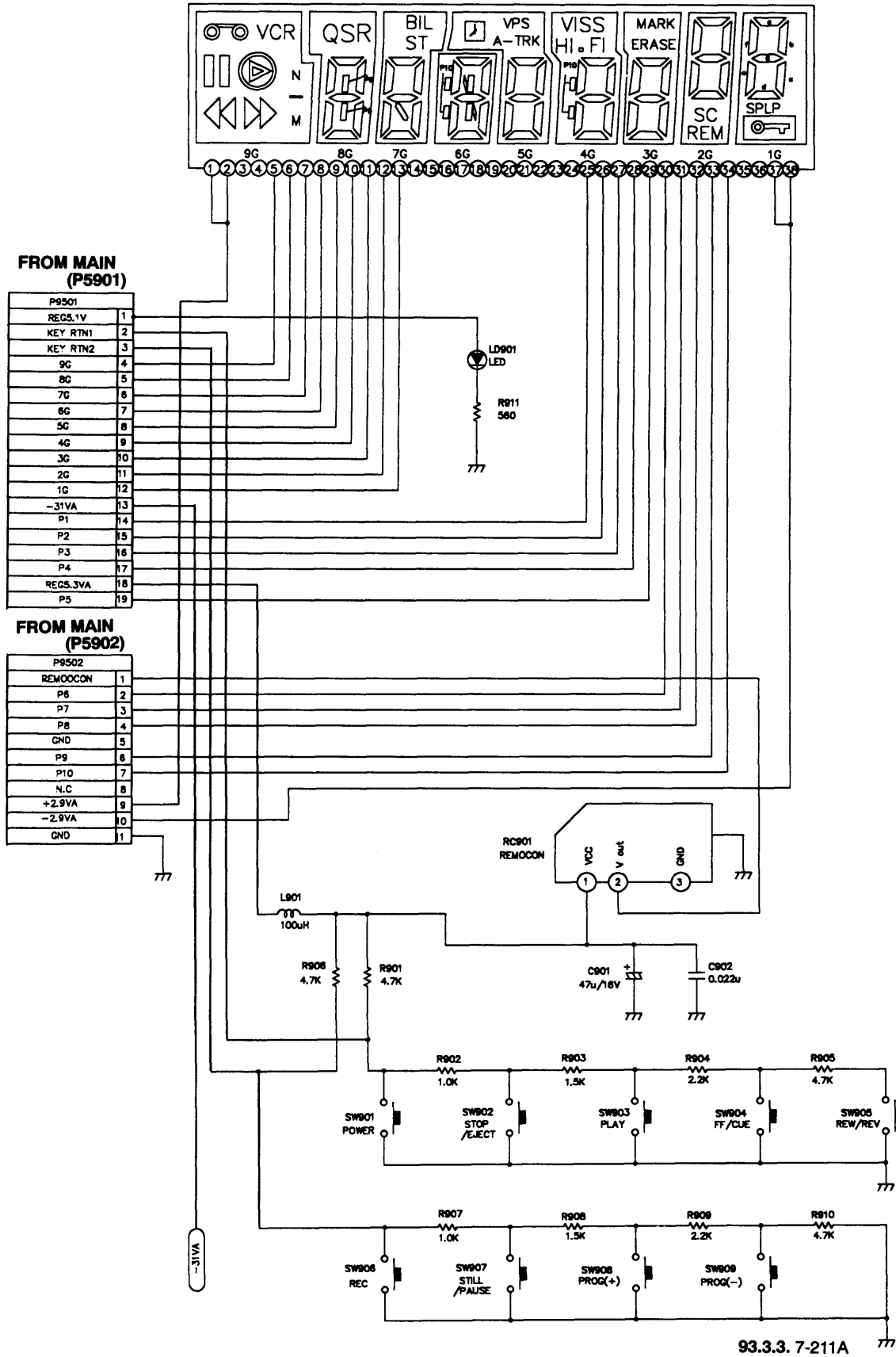
Q405,ZD401 are defective
No Audio signal.

Q403,Q404 are defective
Line mode switching is failed in the PB mode.(No PB.12V)

- R41L,R4L2,C4L2 LP OPTION
- L4F1,L4F2,C4F3,BD4F1 EMS OPTION

93. 6. 25. 7-209A

6. Timer Circuit Diagram



A


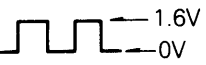

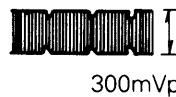



B

C

D

*** Pre-Amp IC Voltage Sheet**

IC001(LA7376)

Pin	Pin Function	DC Volt	Waveform	Pin	Pin Function	DC Volt	Waveform								
1	Vcc	5V	—	13	REC mode select S/W	PB 0V REC 4V	—								
2	Detect the envelope signal and output	PB 2.8V		14	Ground	0V	—								
		REC 0V	—	15	REC mode select S/W	PB 0V REC 4V	—								
3	PB H/SW(25Hz) Input	PB		16	PB Pre-Amp Input	PB 0.7V	—								
	REC MUTE Control * Mute Control S/W	REC				REC 0V	—								
<table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td rowspan="2">ON</td> <td>H</td> <td rowspan="2">← 3V</td> </tr> <tr> <td>L</td> </tr> <tr> <td rowspan="2">OFF</td> <td>H</td> <td rowspan="2">← 2V</td> </tr> <tr> <td>L</td> </tr> </table>		ON	H	← 3V	L	OFF	H	← 2V	L						
ON	H		← 3V												
	L														
OFF	H	← 2V													
	L														
4	PB Chroma Output	PB 2V													
	REC Control (REC mode : More than 3.8V)	REC 4V	—												
5	Ground	0V	—												
6	PB FM AGC Output	PB 2.4V													
		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													
10	REC Current AMP Input	PB 1.5V	—												
		REC 1.75V	—												
11	REC Current AMP Output	PB 0V	—												
		REC 4V													
12	PB Pre-Amp Input	PB 0.7V	—												
		REC 0V	—												

8. Function OSD/VPS Circuit Diagram

5

* OSD IC Voltage Sheet

1.98	0.77	5.12	5.12	5.12	0.9	0	0	5.13	
15									
IC 8A1 (SAA4700)									
1	5								10
2.65	2.55	0	0	4.91	0.43	5.12	0	0.52	

4

P7M02	
4	1 OSD ENABLE
5	2 OSD CLK
6	3 OSD DATA
14	4 AFC CTL
2	5 VPS DATA
1	6 VPS CLK
7	7 OSD 'H'
12	8 AFC DEFEAT
9	9 RF AGC
42	10 REG 9VA
41	11 VPS-V.IN
	12 OSD-V.IN

3

P8001	
46	1 LINE - V.OUT
	2 GND

P7M01	
57	1 A.REG.12VA
60	2 REG 6VA
34	3 C-SYNC
	4 AFC
25	5 AGC
	6 A-OUT
44	7 NC
	8 MOD-V.OUT
100	9 GND
	10 TU-V.OUT
	11 GND
	12 IF

2

* OSD TR Voltage Sheet.

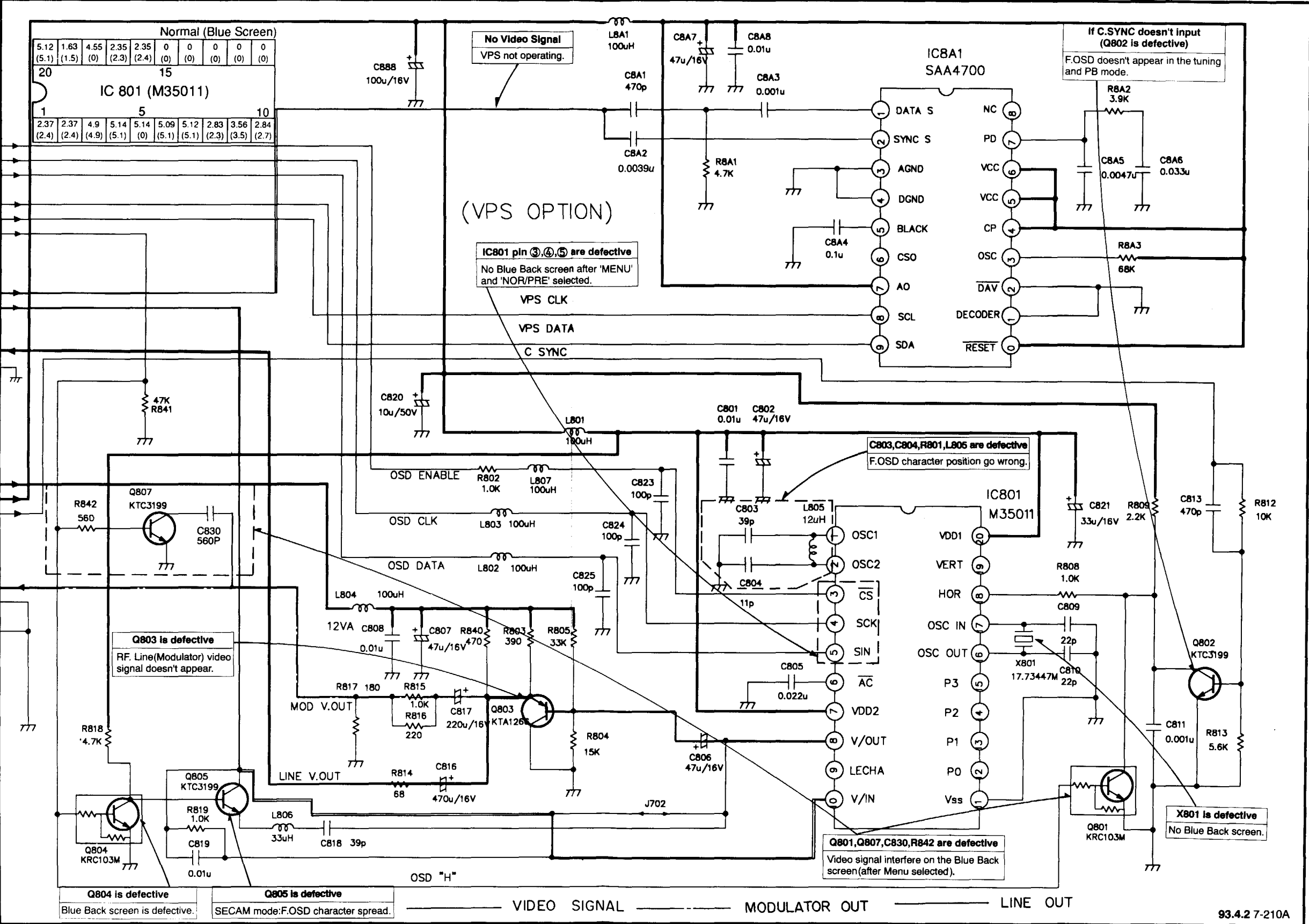
(Color bar normal mode.)

TR No.	Port	Emitter	Collector	Base
Q801	0	4.5	0	
Q802	0	4.55	0	
Q803	5.52	0	4.83	
Q804	0	3.76	0	
Q805	3.12	3.12	3.76	
Q807	0	1.76	0	

1

(Blue back screen state after MENU, PRESET Selected)

TR No.	Port	Emitter	Collector	Base
Q801	0	0	4.38	
Q802	0	0	0	
Q803	5.51	0	4.82	
Q804	0	0	4.38	
Q805	1.68	2.73	0	
Q807	0	0	0.79	

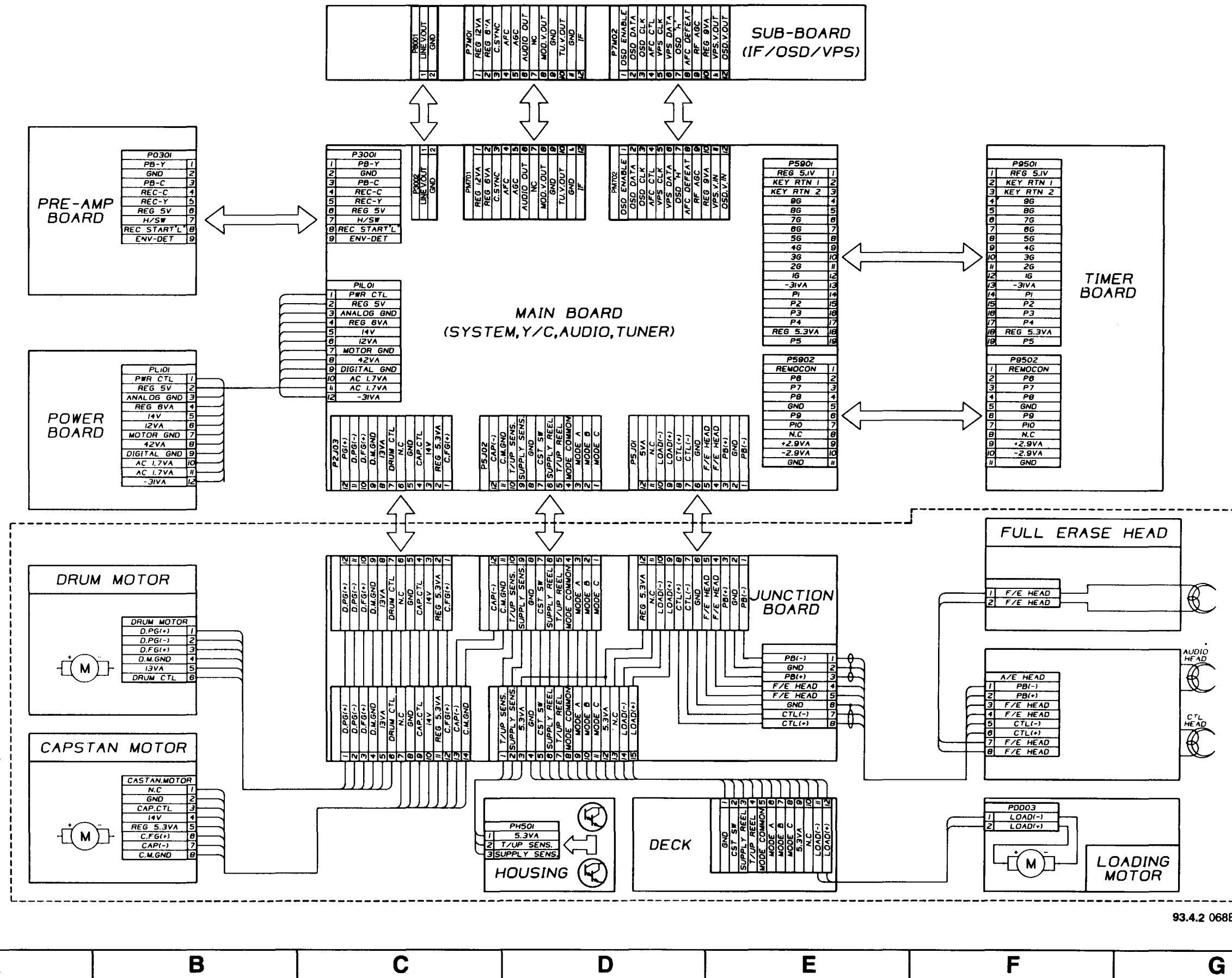


LOCANO.	Position
IC 801	3F
IC 8A1	5F
Q 801	1G
Q 802	2G
Q 803	2D
Q 804	1B
Q 805	1B
Q 807	3B

93.4.2 7-210A

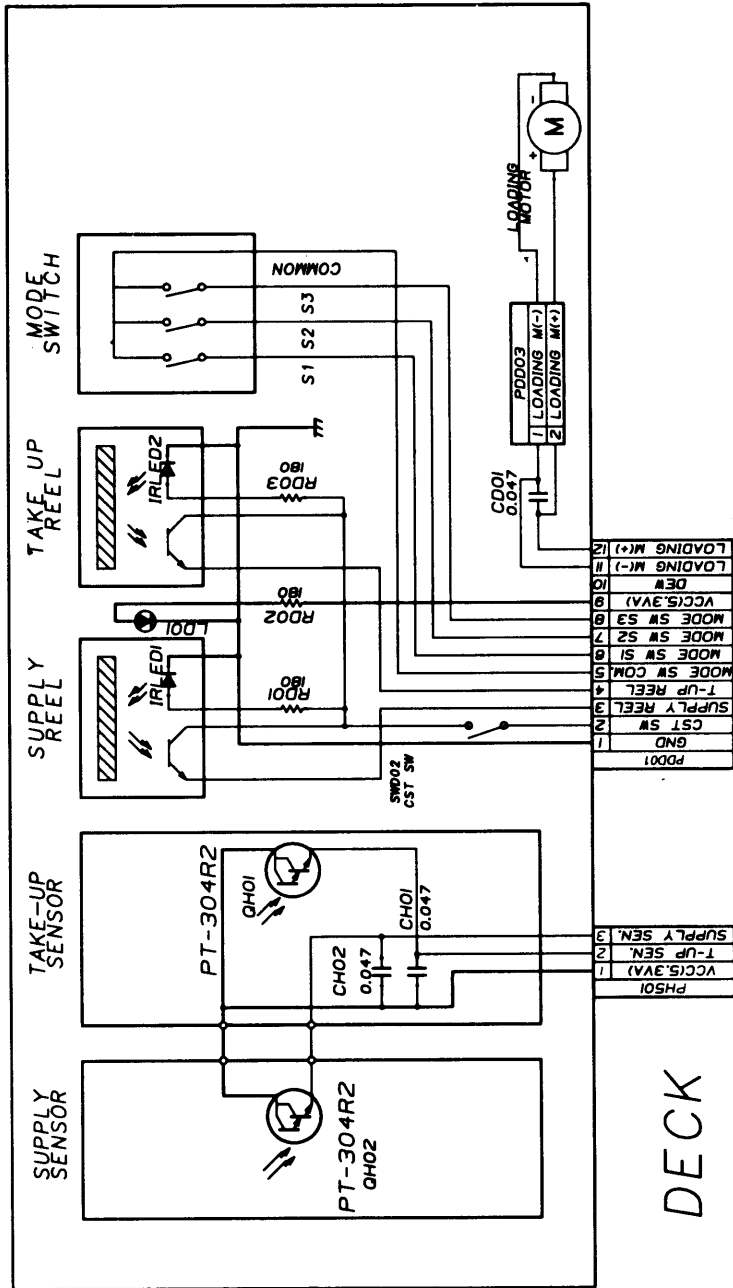
9. Connection Diagram

5
4
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1
A B C D E F G H

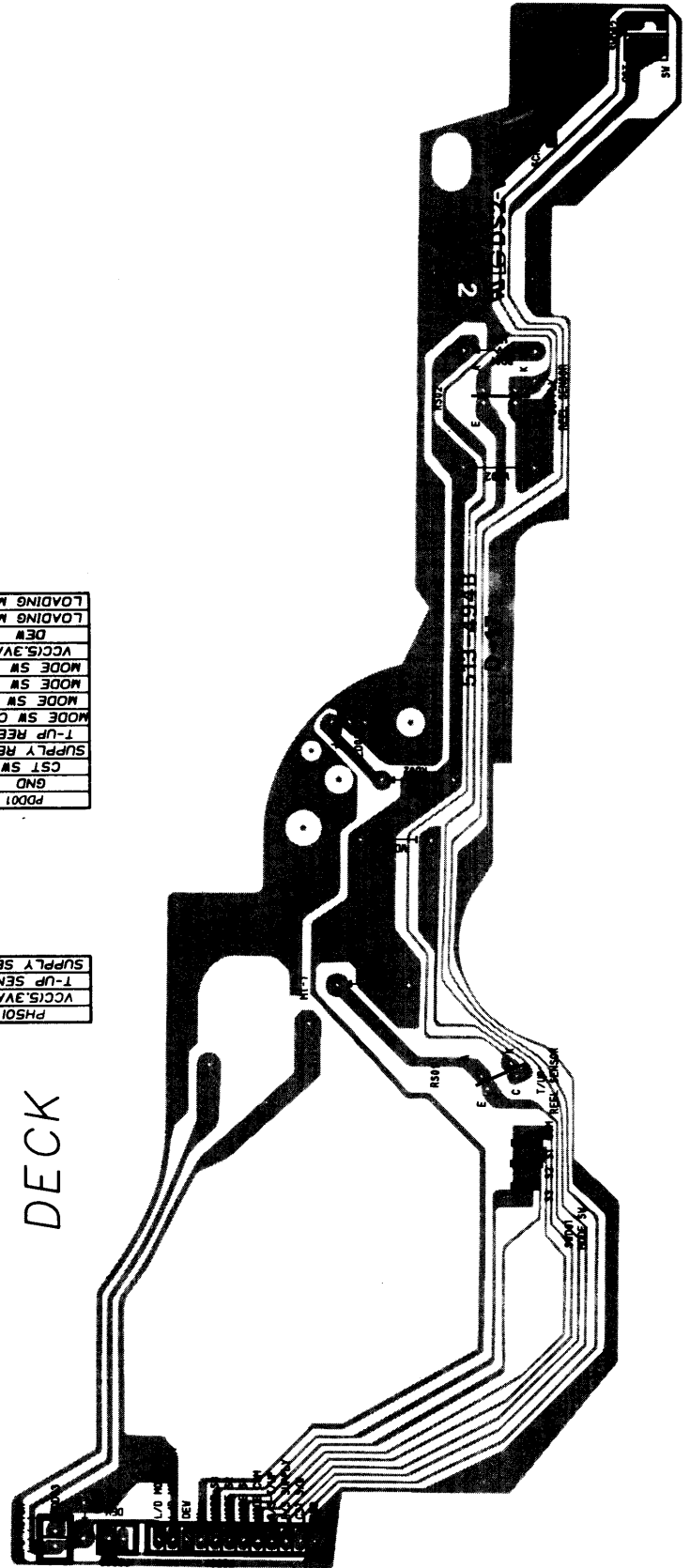


DECK JUNCTION

1. Deck Junction Circuit Diagram



2. Deck Junction P.C.Board



(Solder Side)

*** TR Voltage Sheet**

Port	Emitter	Collector	Base	Remark
TR No.				
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	08CH,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)

0.7	0	0	0	0.7	0	1.5	0	
(0)	(4)	(0)	(4)	(0)	(4)	(1.8)	(1.8)	
15				10				
IC 001 (LA7376)								
1	5							
5	2.8	0.8	2	0	2.4	0.8	2	
(5)	(0)	(0.8)	(4)	(0)	(4)	(0)	(1.6)	

PB(REC)

8.2	2.5	2.1	2
(8.5)	(2.6)	(2.2)	(2.1)
5			
IC 302 (MSM7403)			
1			
0	0	4.8	3.3
(0)	(0)	(5.0)	(3.4)

PB(REC)

0	3.5	0	0	0	0	0	4.9	
(0)	(0)	(0)	(0)	(0)	(4.2)	(4.2)	(4.3)	(5.0)
10								
IC 303 (BA7025L)								
1	5						15	
3.5	0	4.6	4.4	3	3.7	3.7	0	4.9
(3.6)	(0)	(4.6)	(4.4)	(3)	(3.5)	(3.5)	(0)	(5.0)

3.55	4.62	2.78	4.87	4.87	4.39	5.49	6.1	3.64	
15									
IC 701 (M51496P)									
1	5							10	
4.48	4.48	2.52	2.42	2.42	0	9.09	7.03	1.66	

PB(REC)

3.8	0	3.8	3.5	3.5	4.1	0	4.5	4.5	0	4.2	0	
(3.5)	(0)	(3.8)	(3.5)	(3.5)	(4.1)	(0)	(4.2)	(4.2)	(0)	(4)	(5.2)	
10												
IC 401 (BA7790LS)												
1	5					15		20				24
0	0	9.5	9.5	0	5	3.5	4.5	0	4.5	4.5	5.3	
(0)	(0)	(9)	(9.5)	(0)	(4.5)	(3)	(4.2)	(0)	(4.2)	(4.2)	(0)	

PB(REC)

IC 304 (GL3816)												
1	5											
12	8	5	7.25	0	0	6.8	0					
(11.9)	(7.8)	(5.1)	(7.1)	(0)	(0)	(7.8)	(0)					

Normal (Blue Screen)

5.12	1.63	4.55	2.35	2.35	0	0	0	0	0
(5.1)	(1.5)	(0)	(2.3)	(2.4)	(0)	(0)	(0)	(0)	(0)
20									
IC 801 (M35011)									
1	5								10
2.37	2.37	4.9	5.14	5.14	5.09	5.12	2.83	3.56	2.84
(2.4)	(2.4)	(4.9)	(5.1)	(0)	(5.1)	(5.1)	(2.3)	(3.5)	(2.7)

1.98	0.77	5.12	5.12	5.12	0.9	0	0	5.13
15								
IC 8A1 (SAA4700)								
1	5							10
2.65	2.55	0	0	4.91	0.43	5.12	0	0.52

PB(REC)

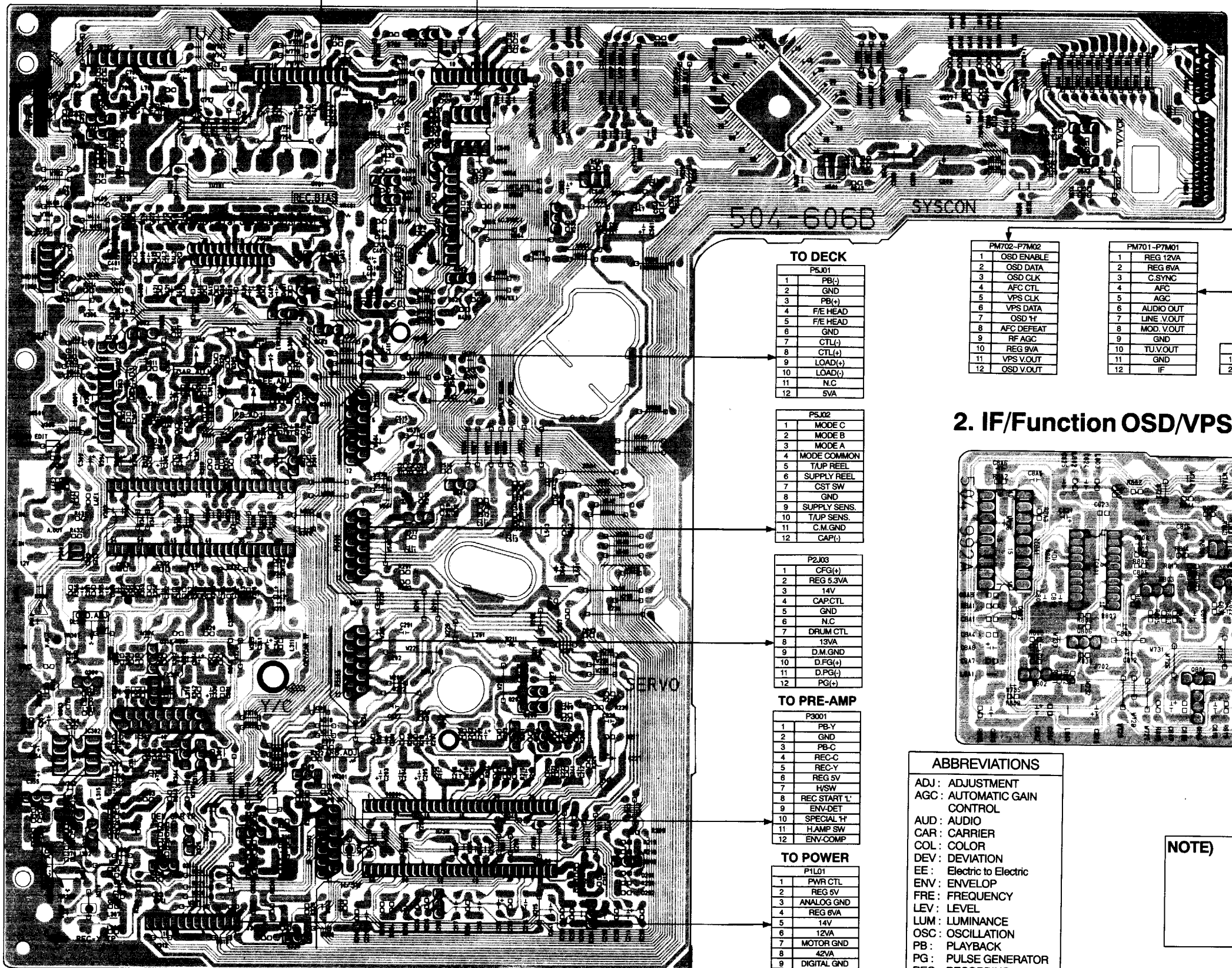
2.9	2.1	2.8	2.2	2.3	3	2.8	2.4	0.4	3.4	2.2	0	2.5	0	2.6	3.4	3.0	1.5	0.2	2.3	2.2	2.7	2.6	2.4	4.6	1.7	1.4			
(3)	(2.2)	(3)	(2.7)	(2.3)	(2.9)	(2.7)	(2.5)	(0.4)	(3.1)	(2.5)	(0)	(2.4)	(0)	(1.4)	(2.8)	(3)	(1.6)	(0.2)	(4.8)	(2.1)	(2.7)	(2.6)	(2.3)	(4.6)	(2.8)	(1.3)			
50					45					40					35					30									
IC 301 (TA1202AN)																													
1	5				10						15						20						25						
0	2.1	0	2.1	2.4	1.9	0	2.7	2.3	2.7	3.3	4.9	2.8	3.2	2	0.7	3.4	3.2	2.2	5	2.5	2	3	2.2	3	1.8	2.8			
(0)	(2.1)	(0)	(2.1)	(2.4)	(2.2)	(0)	(2.4)	(2.4)	(2.7)	(2.2)	(4.9)	(2.7)	(3.2)	(2.2)	(0.8)	(2.1)	(4.3)	(2.2)	(5.0)	(2.5)	(1.9)	(3)	(2.2)	(2.8)	(1.9)	(2.8)			

PB(REC)

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	2.4	2.5	2.5	2.5	2.5	2.5	0	2.5	2.5		
(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)		
55					50					45					40					35					30				
IC 201 (HD49756NT)																													
1	5				10						15						20						25						
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	2.5	2.7	2.7	5	
(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)	(2.5)	(2.8)	(2.7)	(5)	

PRINTED CIRCUIT BOARD DIAGRAMS

1. Main P.C. Board



(Solder Side)

LOCA.NO.	Position	LOCA.NO.	Position
IC 201	2C	Q 309	2B
IC 301	3B	Q 313	2B
IC 302	2A	Q 314	1B
IC 303	2A	Q 315	2B
IC 401	4B	Q 317	1A
IC 501	5D	Q 318	2A
IC 502	4C	Q 320	4A
IC 503	4C	Q 321	3B
IC 504	4C	Q 325	1B
IC 702	5A	Q 326	1B
Q 201	2C	Q 401	4C
Q 202	2C	Q 402	4C
Q 203	2C	Q 403	4B
Q 204	1C	Q 404	4B
Q 205	2C	Q 405	4B
Q 206	1D	Q 5A1	4F
Q 207	1C	Q 5A2	4F
Q 301	3B	Q 501	3C
Q 302	4A	Q 502	3C
Q 303	4C	Q 504	4C
Q 304	2A	Q 720	4A
Q 305	3B	Q 721	4A
Q 307	1B		
Q 308	2B		

TO DECK

PSJ01	
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

PSJ02	
1	MODE C
2	MODE B
3	MODE A
4	MODE COMMON
5	TAP REEL
6	SUPPLY REEL
7	CST SW
8	GND
9	SUPPLY SENS.
10	TAP SENS.
11	C.M.GND
12	CAP(-)

PSJ03	
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.PG(+)
11	D.PG(-)
12	PG(-)

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 'F'
11	H.AMP SW
12	ENV-COMP

TO POWER

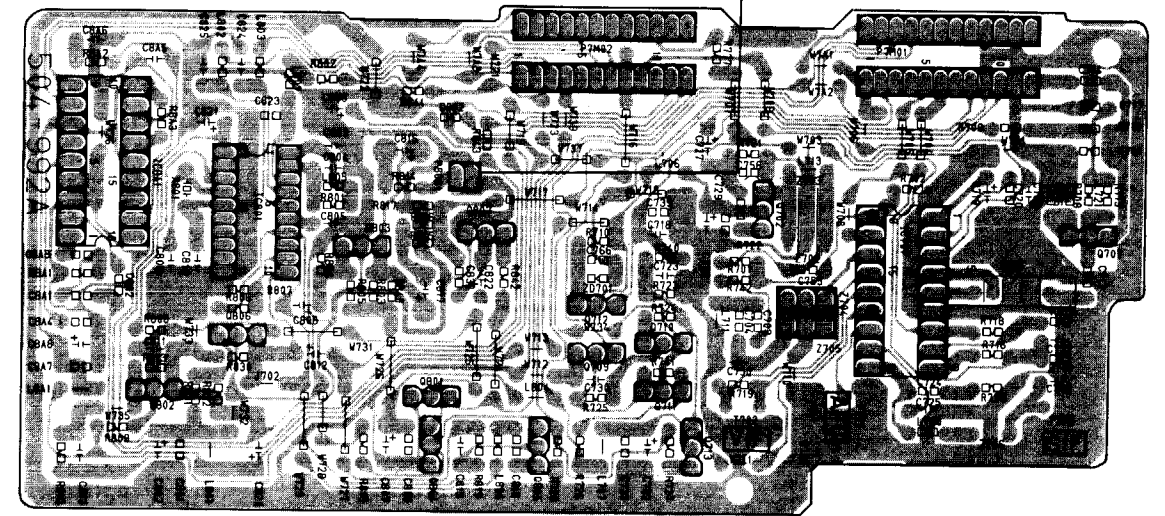
P1L01	
1	PWR CTL
2	REG 5V
3	ANALOG GND
4	REG 8VA
5	14V
6	12VA
7	MOTOR GND
8	42VA
9	DIGITAL GND
10	AC 1.7VA
11	AC 1.7VA
12	-31VA

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

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

P8001-P3002	
1	LINE V.OUT
2	GND

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



(Solder Side)

ABBREVIATIONS

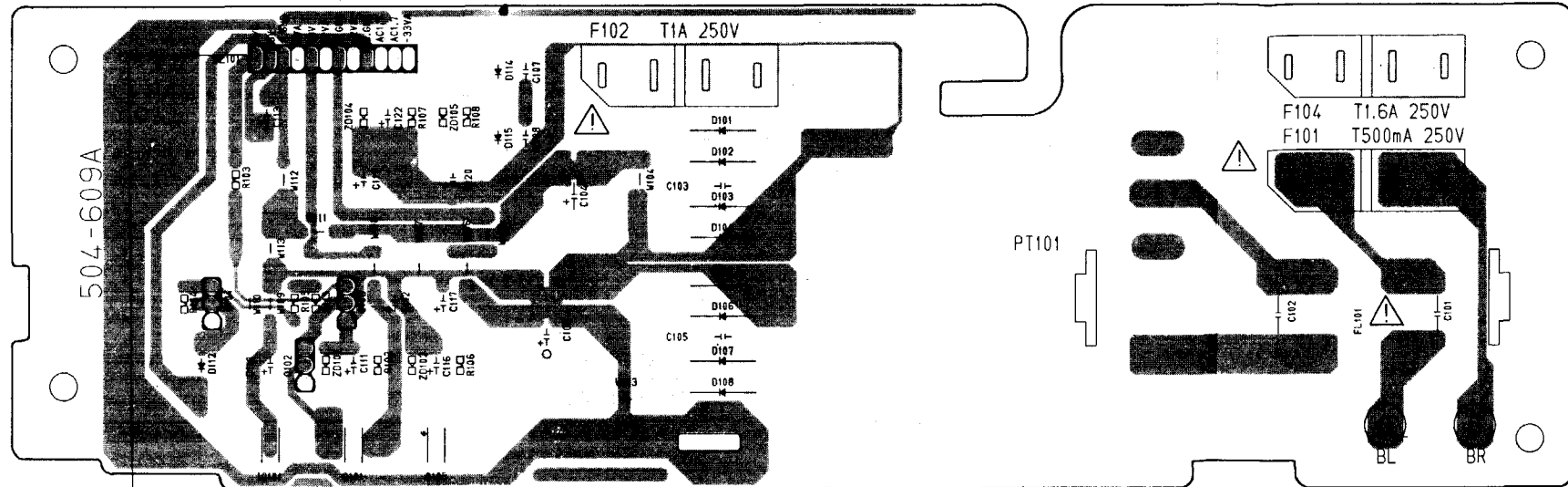
ADJ: ADJUSTMENT
 AGC: AUTOMATIC GAIN CONTROL
 AUD: AUDIO
 CAR: CARRIER
 COL: COLOR
 DEV: DEVIATION
 EE: Electric to Electric
 ENV: ENVELOP
 FRE: FREQUENCY
 LEV: LEVEL
 LUM: LUMINANCE
 OSC: OSCILLATION
 PB: PLAYBACK
 PG: PULSE GENERATOR
 REC: RECORDING
 VOL: VOLTAGE

NOTE) \triangle : SAFETY PARTS
 ● : MEASUREMENT POINT
 □ : ADJUSTMENT POINT
 ○ : Emitter : TRANSISTOR
 ○ : Collector
 ○ : Base

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	2E
Q 806	2F
Q 807	2F

A B C D E F G H

3. Power P.C. Board

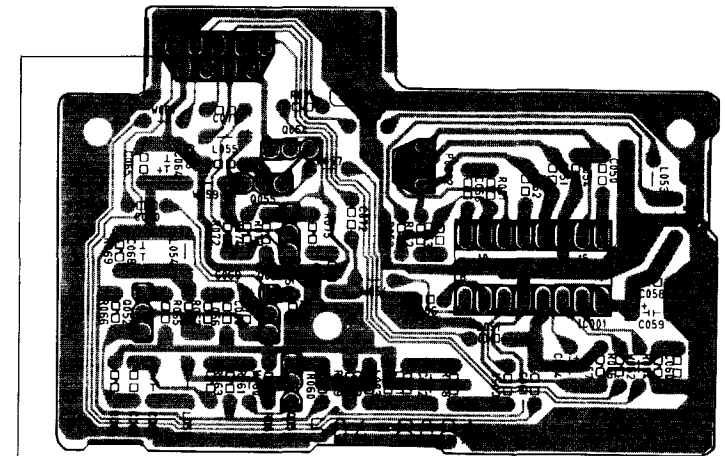


(Solder Side)

PL101	
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

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

4. Pre-Amp P.C. Board

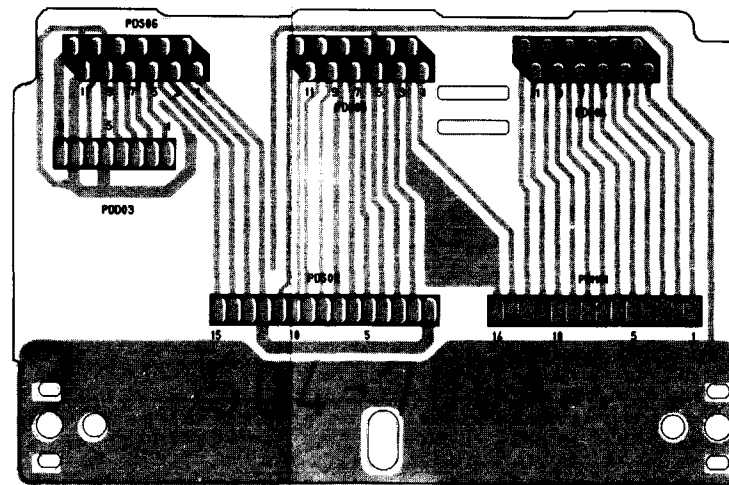


(Solder Side)

P0001	
1	PB-Y
2	G.N.D
3	PB-C
4	REC-C
5	REC-Y
6	5V
7	H5W
8	REC START L
9	ENV-DET

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

5. Junction P.C. Board

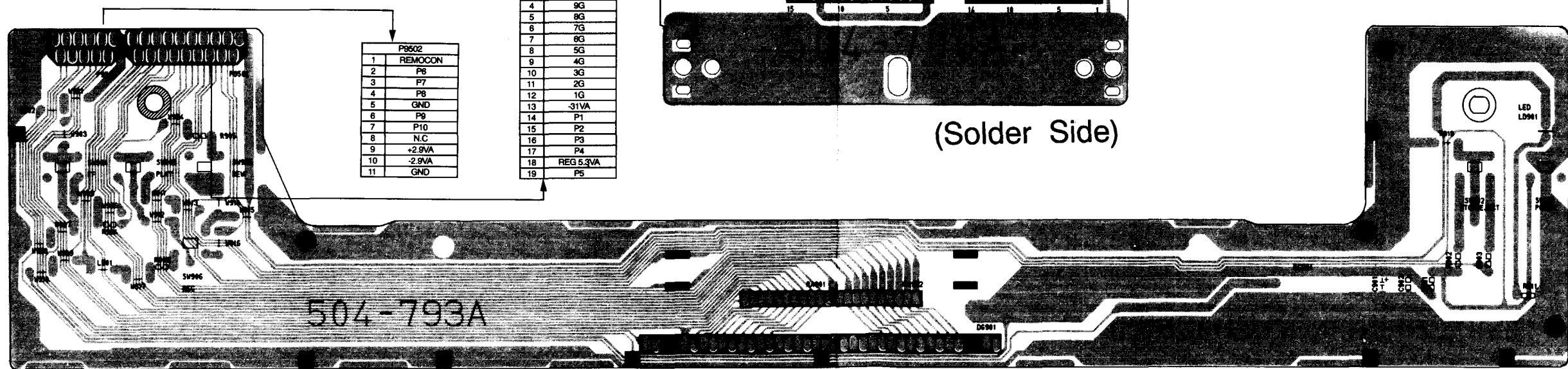


(Solder Side)

NOTE)

- △ : SAFETY PARTS
- : MEASUREMENT POINT
- : ADJUSTMENT POINT
- : Emitter : TRANSISTOR
- : Collector
- : Base
- : ALIVE VOLTAGE

6. Timer P.C. Board



(Solder Side)

P0502	
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

P0501	
1	RFG 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

A

B

C

D

E

F

G

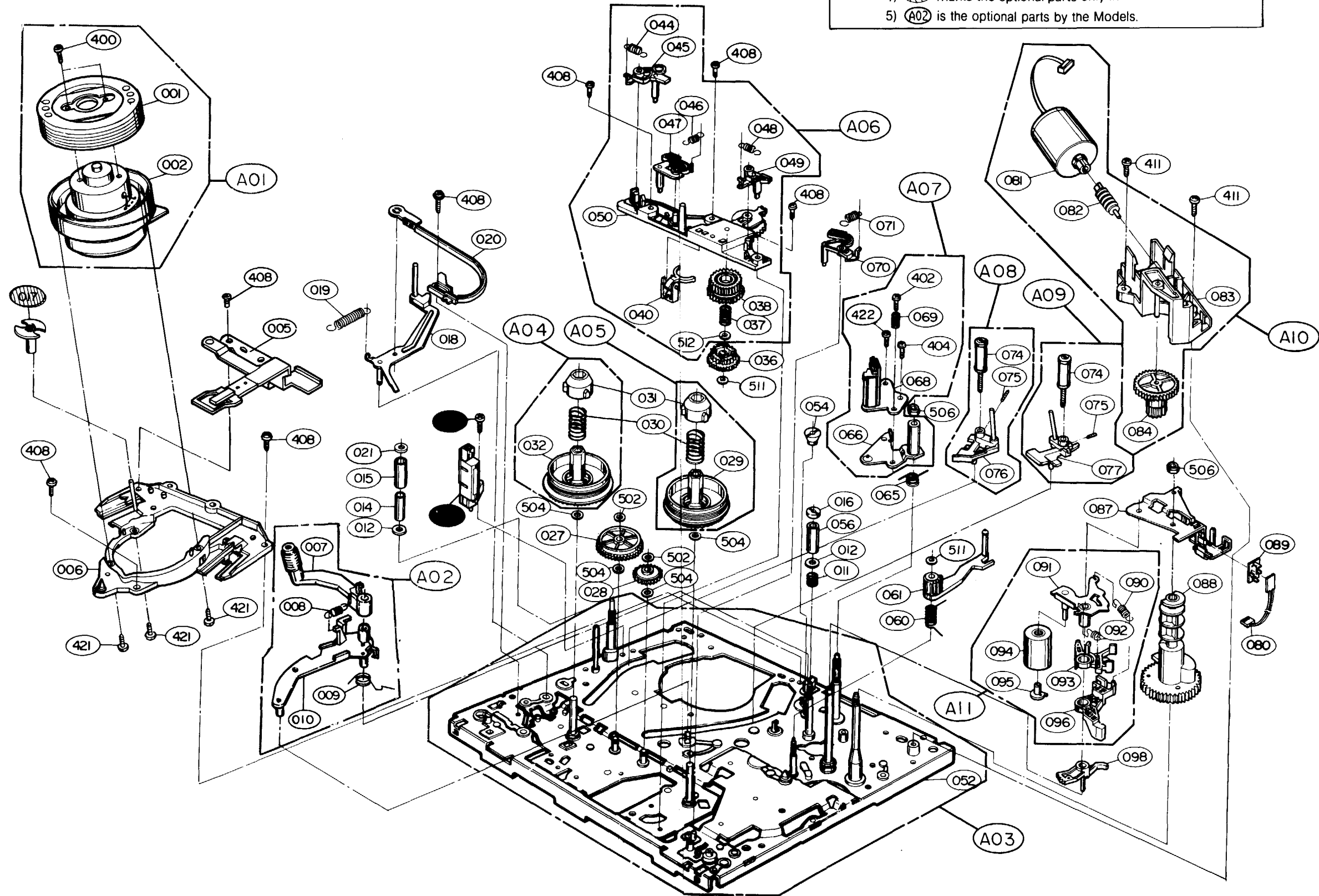
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EXPLODED VIEW

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 Recorders) 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.

5
4
3
2
1



A B C D E F G H

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.

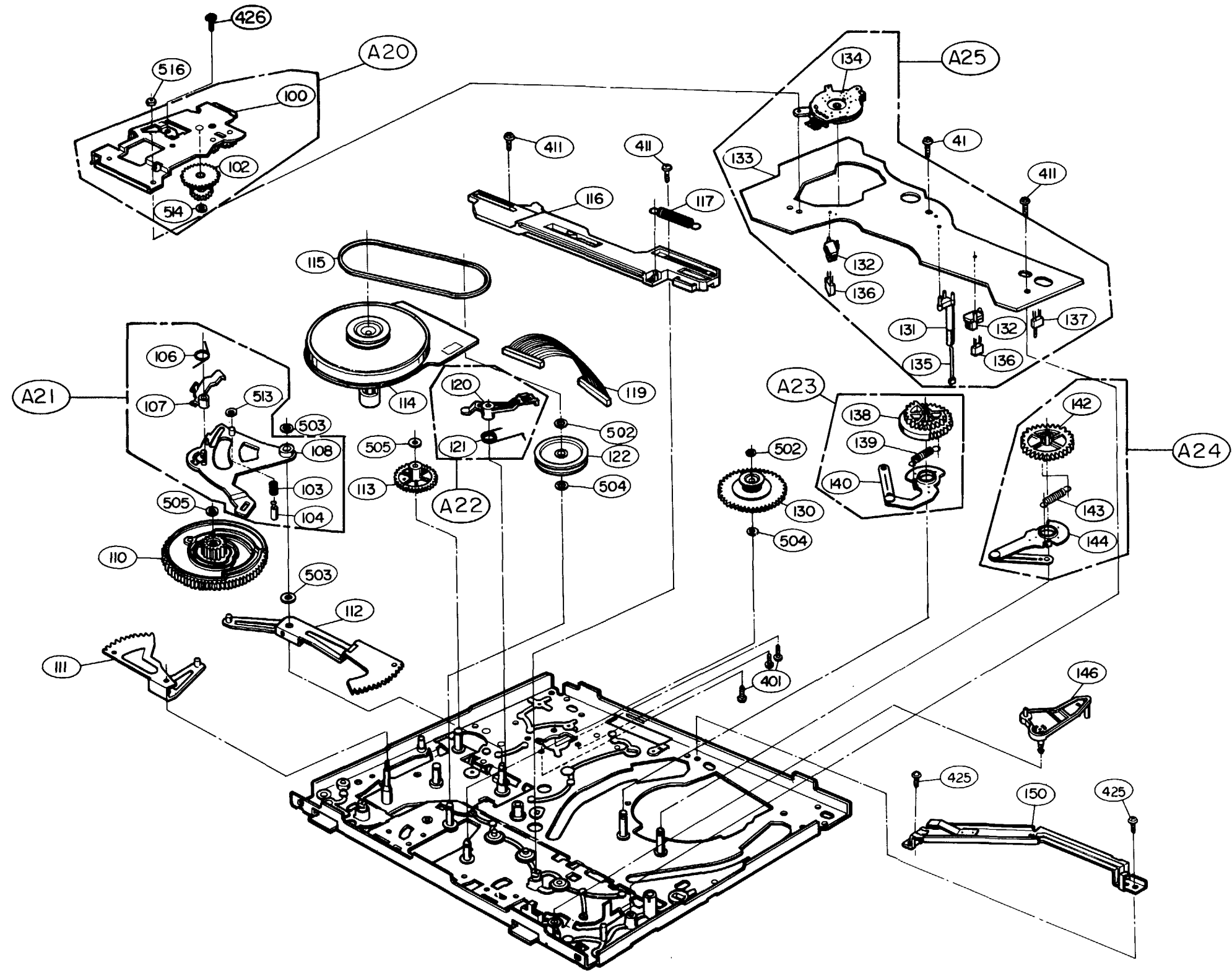
5

4

3

2

1



A

B

C

D

E

F

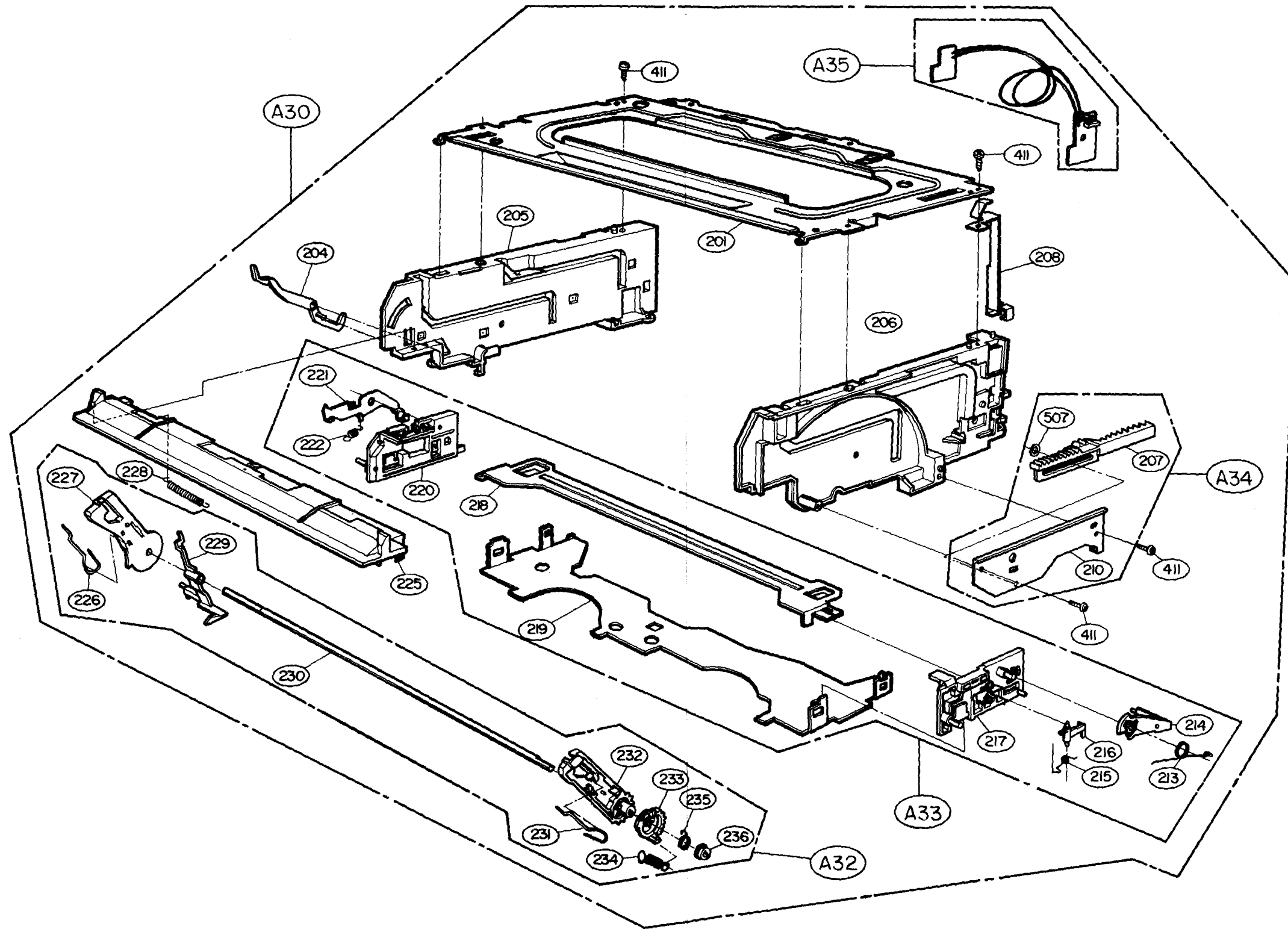
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H

3. Front Loading Mechanism Section

NOTE) 1) Refer to "SECTION 5 REPLACEMENT PARTS LIST" in order to look for the part number of each part.

5
4
3
2
1



A B C D E F G H

SECTION 5 REPLACEMENT PARTS LIST

Mechanical Section

RUN DATE : 93.10.14
NSP: Not Service Part

S	AL	LOCA.NO	PART NO(GS)	DESCRIPTION	SPECIFICATION	REMARKS
ASSEMBLY PARTS SECTION						
		A00	412-124A	DECK	ASSY D-17 P (2HD VCR PAL)	
OR		A00	412C124A	DECK	ASSY D-17 P (2HD VCR PAL)	
OR		A00	412G124A	DECK	ASSY D-17 P (2HD VCR PAL)	
OR		A00	412H124A	DECK	ASSY D-17 P (2HD VCR PAL)	
OR		A00	412W124A	DECK	ASSY D-17 P (2HD VCR PAL)	
		A01	413-219A	DRUM	ASSY (D17-2CH:PAL SP ONLY)	
OR		A01	413B219A	DRUM	ASSY (D17-2CH:PAL SP ONLY)	
OR		A01	413F219A	DRUM	ASSY (D17-2CH:PAL SP ONLY)	
		A02	386-296B	ARM	ASSY CL	
		A03	311-005G	CHASSIS ASSY'	D17	NSP
OR		A03	311-005H	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 (W-W)	
		A08	225-248B	BASE	ASSY P2 (W-W)	
OR		A09	225-249A	BASE	ASSY P3 (W-W)	
		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	511-997B	PWB ASSY!	D-17, VCR	
		A30	219-017E	HOUSING	ASSY (D17)	
		A32	435-257B	GEAR	ASSY DRIVE (HOOK ADDED)	
		A33	321-406A	BRACKET	ASSY CARRIER	
		A34	321-441A	BRACKET	ASSY SIDE	
		A35	515-106A	PWB ASSY!	SENSOR	
PARTS SECTION						
		001	413-159E	DRUM	ASSY UPPER (PAL-2CH:SP ONLY)	
		002	413-218A	DRUM	ASSY LOWER (D17-2CH)	
		005	225-231B	BASE	ASSY D-BRUSH	
OR		006	225-220A	BASE	DRUM (W-W)	NSP
		006	225-220B	BASE	DRUM (W-W)	NSP
OR		006	225-220C	BASE	DRUM (W-W)	NSP
		007	386-297A	ARM	SUB ASSY CU	
		008	442-460B	SPRING	CU	
		009	442-459A	SPRING	CL	
		010	386-295B	ARM	CL	
		011	442-161A	SPRING	P14	
		012	384-071A	GUIDE	17	
		014	378-017A	SLEEVE	P1	
		015	434-178A	ROLLER	P1	

S	AL	LOCA.NO	PART NO(GS)	DESCRIPTION	SPECIFICATION	REMARKS
	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
		052	313-022A	CHASSIS	OUTSERT	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	435-245B	GEAR	PINCH	
	OR	088	435-245D	GEAR	PINCH	
		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	PINCH D14 X L18	
		094	434-181B	ROLLER	PINCH D14 X L18	
		095	276-089B	CAP	PINCH	NSP
		096	333-203A	LEVER	PINCH	NSP
		098	333-301A	LEVER *	T/UP (N)	
		100	321-463A	BRACKET	SUB ASSY B	NSP

S	AL	LOCA.NO	PART NO(GS)	DESCRIPTION	SPECIFICATION	REMARKS
		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	324-643A	HOLDER	LED	
		132	324-642A	HOLDER	R/S	
		133	513-494B	PWB	JUNCTION D-17 242X121X1.6T	NSP
		134	556-133A	SWITCH	MODE	
OR		134	556-133B	SWITCH	MODE	
OR		135	ODL451000AA	DIODE LED	IR SENSOR EL-55L(LONG) KOC	
		135	ODL550000AB	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	
		226	442-352A	SPRING	L	NSP
		227	435-254A	GEAR	L	NSP

S	AL	LOCA.NO	PART NO(GS)	DESCRIPTION	SPECIFICATION	REMARKS
		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						
		400	1MDC0302418	PAN HEAD MACHINE SCREW P/WASH+	D 3.0 L 8.0 MSWR3/FZY	
		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	
		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)	
		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

S	AL	LOCA.NO	PART NO(GS)	DESCRIPTION	SPECIFICATION	REMARKS
ASSEMBLY PARTS SECTION						
		A43	258-623F	PANEL	ASSY FRONT	
		A44	232-609D	BOARD ASSY	POWER	
		A45	232-608A	BOARD ASSY	PRE-AMP	
		A46	232-760N	BOARD ASSY	MAIN	
PARTS SECTION						
		250	217-448H	CASE	TOP	
		260	315-302C	FRAME	MAIN	NSP
		265	477-034B	RUBBER	BUMPON	NSP

S	AL	LOCA.NO	PART NO(GS)	DESCRIPTION	SPECIFICATION	REMARKS
		267	243-973P	LABEL	MAIN (R-Q23H 2AT1)	NSP
		269	321-532A	BRACKET	HOUSING	
		275	324-802A	HOLDER	DIGITRON	
		280	258-646C	PANEL	FRONT	NSP
		283	226-087C	DOOR	CST(R-Q23H 2AT1)	
		284	442-469A	SPRING	DOOR	
*		300	681-036A	CORD	POWER SAA W/STOPPER	
		301	321-421A	BRACKET	TR	
		303	255-150A	PLATE	HEAT SINK	NSP
		304	221-407A	COVER	FUSE	
		320	258-603J	PANEL	ASSY DISTRIBUTOR(R-Q23H)	
		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

S	AL	LOCA.NO	PART NO(GS)	DESCRIPTION	SPECIFICATION	REMARKS
		801	480-462K	INSTRUCTION ASSY		
		802	288-815A	BOX CARTON		
		803	283-241A	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

S	AL	LOCA.NO	PART NO(GS)	DESCRIPTION	SPECIFICATION	REMARKS
		900	597-100Q	REMOTE CONTROL	ASSY(Q3:PAL)	
		902	255-300H	PLATE	TOP (Q3 PAL NORMAL)	
		903	217-488Y	CASE	TOP R/C	
		904	556-234F	SWITCH	CONDUCTIVE RUBBER	
		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 : 93.10.14
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	

• Electrical Section

RUN DATE : 93.10.14

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	OCN1040K948	0.1M 50V Z F TA26
		C051	OCX2200K408	22P 50V J SL TP26
		C052	OCN1040K948	0.1M 50V Z F TA26
		C053	OCN1030F678	0.01M 16V M Y TA26
		C054	OCX2200K408	22P 50V J SL TP26
		C055	OCN1030F678	0.01M 16V M Y TA26
		C056	OCN2230H948	0.022M 25V Z F TA26
		C057	OCN1030F678	0.01M 16V M Y TA26
		C058	OCN2230H948	0.022M 25V Z F TA26
		C059	OCE2274C638	220M SRA 6.3V M FM5 TP(5)
		C060	OCN1030F678	0.01M 16V M Y TA26
		C061	OCN1030F678	0.01M 16V M Y TA26
		C062	OCC0500K015	5P 50V C NP0 TR
		C063	OCN1030F678	0.01M 16V M Y TA26
		C064	OCE4764C638	47M SRA 6.3V M FM5 TP(5)
		C065	OCN2230H948	0.022M 25V Z F TA26
		C066	OCC2700K415	27P 50V J NP0 TP
		C067	OCN1030F678	0.01M 16V M Y TA26
		C068	OCC8200K415	82P 50V J NP0 TP
		C069	OCN3310K518	330P 50V K B TA26
		C070	OCN1030F678	0.01M 16V M Y TA26
		C071	OCN1030F678	0.01M 16V M Y TA26
		C072	OCN1030F678	0.01M 16V M Y TA26
		C073	OCN1030F678	0.01M 16V M Y TA26
		C074	OCE4764C638	47M SRA 6.3V M FM5 TP(5)
		C075	OCN2230H948	0.022M 25V Z F TA26
		C101	624-018A	LINE DE7100 FZ 472P VA1-KC
OR		C101	624-018D	LINE DE7100 FZ 472P VA1-KC
		C103	OCC2230K945	0.022M 50V Z F TS
		C104	OCE4786F610	4700M SMS 16V M FL
		C105	OCC2230K945	0.022M 50V Z F TS
		C106	OCE3386J610	3300UF SMS 35V M FL BULK
		C107	OCC2230K945	0.022M 50V Z F TS
		C108	OCC2230K945	0.022M 50V Z F TS
		C110	OCE4766F638	47M SMS 16V M FM5 TP5
		C111	OCE4766F638	47M SMS 16V M FM5 TP5
		C112	OCE4766F638	47M SMS 16V M FM5 TP5
		C113	OCE4766F638	47M SMS 16V M FM5 TP5
		C116	OCE4766F638	47M SMS 16V M FM5 TP5
		C117	OCE4766F638	47M SMS 16V M FM5 TP5
		C119	OCE1076L610	100M SMS 63V M FM5
		C120	OCE1076L610	100M SMS 63V M FM5
		C122	OCE1066K638	10M SMS 50V M FM5 TP(5)

S	AL	LOCA.NO	PART NO(GS)	SPECIFICATION
		C201	OCQ4731N409	0.047U 100V J POLY TP
		C202	OCE4766F638	47M SMS 16V M FM5 TP5
		C203	OCE1066H638	10M SMS 25V M FM5 TP
		C204	OCN2230H948	0.022M 25V Z F TA26
		C205	OCE1066H638	10M SMS 25V M FM5 TP
		C206	OCE1051K636	1.0U SM 50V M FM5 BP TP(D)
		C207	OCE1066H638	10M SMS 25V M FM5 TP
		C208	OCE1066H638	10M SMS 25V M FM5 TP
		C209	OCE1051K636	1.0U SM 50V M FM5 BP TP(D)
		C211	OCE1056K638	1.0M SMS 50V M FM5 TP(5)
		C212	OCQ2721N409	0.0027M 100V J POLY TP
		C213	OCN3920F668	3900P 16V M X TA26
		C214	OCE1066H638	10M SMS 25V M FM5 TP
		C215	OCE4766F638	47M SMS 16V M FM5 TP5
		C216	OCC2210K405	220P 50V J SL TP
		C217	OCC4700K405	47P 50V J SL TP
		C218	OCE1056K638	1.0M SMS 50V M FM5 TP(5)
		C220	OCC4730K945	0.047U 50V Z F TS
		C221	OCE4746K638	0.47M SMS 50V M TP(5)
		C222	OCE4775F638	470M SR 16V M FM5 TP(5)
		C224	OCE4766F638	47M SMS 16V M FM5 TP5
		C225	OCQ4731N409	0.047U 100V J POLY TP
		C226	OCE4756K638	4.7M SMS 50V M FM5 TP(5)
		C227	OCE4756K638	4.7M SMS 50V M FM5 TP(5)
		C241	OCC4730K945	0.047U 50V Z F TS
		C290	OCC1030K945	0.01M 50V Z F TS
		C291	OCE4775F638	470M SR 16V M FM5 TP(5)
		C299	OCN1030F678	0.01M 16V M Y TA26
		C302	OCE1066H638	10M SMS 25V M FM5 TP
		C303	OCN1030F678	0.01M 16V M Y TA26
		C304	OCC2010K405	200P 50V J SL TS
		C305	OCE1056K638	1.0M SMS 50V M FM5 TP(5)
		C306	OCN1040K948	0.1M 50V Z F TA26
		C307	OCE2276F638	220U SMS 16V M FM5 TP(5)
		C308	OCE1054K638	1.0M SRA/SS50V M FM5 TP(5)
		C309	OCE4766F638	47M SMS 16V M FM5 TP5
		C310	OCE4766F638	47M SMS 16V M FM5 TP5
		C311	OCN2230H948	0.022M 25V Z F TA26
		C312	OCX2700K408	27P 50V J SL TA26
		C314	OCN1030F678	0.01M 16V M Y TA26
		C315	OCE4756K638	4.7M SMS 50V M FM5 TP(5)
		C316	OCN2230H948	0.022M 25V Z F TA26
		C317	OCN2220F668	2200P 16V M X TA26
		C318	OCE1056K638	1.0M SMS 50V M FM5 TP(5)
		C319	OCE4756K638	4.7M SMS 50V M FM5 TP(5)

S	AL	LOCA.NO	PART NO(GS)	SPECIFICATION
		C320	OCN1510K518	150P 50V KB TA26
		C321	OCX3900K408	39P 50V JSL TA26
		C322	OCX1500K408	15P 50V JSL TA26
		C323	OCN1510K518	150P 50V KB TA26
		C324	OCX6800K408	68P 50V J SL TA26
		C325	OCN1810K518	180P 50V KB TA26
		C326	OCX3300K408	33P 50V JSL TA26
		C327	OCN1030F678	0.01M 16V M Y TA26
		C328	OCE4766F638	47M SMS 16V M FM5 TP5
		C335	OCN1010K518	100P 50V KB TA26
		C339	OCE1056K638	1.0M SMS 50V M FM5 TP(5)
		C340	OCN2230H948	0.022M 25V Z F TA26
		C341	OCE2274C638	220M SRA 6.3V M FM5 TP(5)
		C342	OCE1056K638	1.0M SMS 50V M FM5 TP(5)
		C343	OCX2200K408	22P 50V J SL TP26
		C344	OCK3330K945	0.033M 50V Z F TS
		C345	OCN1030F678	0.01M 16V M Y TA26
		C346	OCN1030F678	0.01M 16V M Y TA26
		C347	OCN1040K948	0.1M 50V Z F TA26
		C348	OCN4730K948	0.047M 50V Z F TA26
		C349	OCN1040K948	0.1M 50V Z F TA26
		C350	OCE4756K638	4.7M SMS 50V M FM5 TP(5)
		C351	OCE2246K638	0.22M SMS 50V M FM5 TP(5)
		C352	OCE1056K638	1.0M SMS 50V M FM5 TP(5)
		C353	OCX2400K408	24P 50V JSL TA26
		C354	OCE2254K638	2.2M SRA 50V M FM5 TP(5)
		C355	OCE2254K638	2.2M SRA 50V M FM5 TP(5)
		C356	OCN1040K948	0.1M 50V Z F TA26
		C357	OCE1056K638	1.0M SMS 50V M FM5 TP(5)
		C358	OCE4766F638	47M SMS 16V M FM5 TP5
		C359	OCN1030F678	0.01M 16V M Y TA26
		C362	OCN1030F678	0.01M 16V M Y TA26
		C363	OCN2710K518	270P 50V KB TA26
		C364	OCN2710K518	270P 50V KB TA26
		C365	OCN1030F678	0.01M 16V M Y TA26
		C366	OCN1030F678	0.01M 16V M Y TA26
		C367	OCX2400K408	24P 50V JSL TA26
		C368	OCE1066K638	10M SMS 25V M FM5 TP
		C369	OCN6810K518	680P 50V KB TA26
		C370	OCN8200K518	82PF 50V K B TA26
		C371	OCN1030F678	0.01M 16V M Y TA26
		C372	OCN4730K948	0.047M 50V Z F TA26
		C373	OCN1040K948	0.1M 50V Z F TA26
		C376	OCN1040K948	0.1M 50V Z F TA26
		C377	OCX2700K408	27P 50V JSL TA26
		C378	OCE4766F638	47M SMS 16V M FM5 TP5
		C379	OCE4764C638	47M SRA 6.3V M FM5 TP(5)
		C3A2	OCN1040K948	0.1M 50V Z F TA26
		C400	OCN1020K518	1000P 50V KB TA26
		C401	OCQ1831N409	0.018U 100V J POLY TP
		C402	OCE4756K638	4.7M SMS 50V M FM5 TP(5)
		C403	OCN2210K518	220P 50V KB TA26
		C404	OCE2266F638	22M SMS 16V M FM5 TP5
		C405	OCE2266F638	22M SMS 16V M FM5 TP5
		C406	OCQ1031N409	0.01U 100V J POLY TP
		C407	OCE4766F638	47M SMS 16V M FM5 TP5
		C408	OCQ1031N409	0.01U 100V J POLY TP
		C409	OCN1030F678	0.01M 16V M Y TA26
		C410	OCE4766F638	47M SMS 16V M FM5 TP5
		C411	OCQ5631N409	0.056U 100V J POLY TP
		C412	OCE1056K638	1.0M SMS 50V M FM5 TP(5)
		C413	OCN3920F668	3900P 16V M X TA26

S	AL	LOCA.NO	PART NO(GS)	SPECIFICATION
		C414	OCE1066H638	10M SMS 25V M FM5 TP
		C416	OCN1040K948	0.1M 50V Z F TA26
		C418	OCN1040K948	0.1M 50V Z F TA26
		C419	OCQ1031N409	0.01U 100V J POLY TP
		C421	OCE4756K638	4.7M SMS 50V M FM5 TP(5)
		C422	OCE1066H638	10M SMS 25V M FM5 TP
		C444	OCN1030F678	0.01M 16V M Y TA26
		C501	OCE4766F638	47M SMS 16V M FM5 TP5
		C502	OCK1030K945	0.01M 50V Z F TS
		C503	624-027A	GOLD 0.047F-5.5V D13.0X8.5 NEC
		C505	OCE2254K638	2.2M SRA 50V M FM5 TP(5)
		C506	OCK1030K945	0.01M 50V Z F TS
		C508	OC2700K415	27P 50V J NP0 TP
		C509	OC2700K415	27P 50V J NP0 TP
		C510	OCK1030K945	0.01M 50V Z F TS
		C511	OCK1020K945	1000P 50V Z F TS
		C512	OCK1020K945	1000P 50V Z F TS
		C513	OCK1030K945	0.01M 50V Z F TS
		C514	OCK1030K945	0.01M 50V Z F TS
		C515	OCE1051K636	1.0U SM 50V M FM5 BP TP(D)
		C516	OCN1030F678	0.01M 16V M Y TA26
		C546	OCN1030F678	0.01M 16V M Y TA26
		C547	OCK1030K945	0.01M 50V Z F TS
		C581	OCE4766F638	47M SMS 16V M FM5 TP5
		C582	OCE4756K638	4.7M SMS 50V M FM5 TP(5)
		C587	OCK1040K945	0.1M 50V Z F TS
		C588	OCN1010K518	100P 50V KB TA26
		C589	OCN1010K518	100P 50V KB TA26
		C5A1	OCE4766F638	47M SMS 16V M FM5 TP5
		C702	OCN2230H948	0.022M 25V Z F TA26
		C703	OCX4700K408	47P 50V JSL TA26
		C704	OCX4700K408	47P 50V JSL TA26
		C705	OCE1056K638	1.0M SMS 50V M FM5 TP(5)
		C707	OCQ1041N409	0.1U 100V J POLY TP
		C708	OCQ1041N409	0.1U 100V J POLY TP
		C709	OCQ1041N409	0.1U 100V J POLY TP
		C710	OCE1056K638	1.0M SMS 50V M FM5 TP(5)
		C711	OCE4756K638	4.7M SMS 50V M FM5 TP(5)
		C712	OCE4756K638	4.7M SMS 50V M FM5 TP(5)
		C713	OCN1030F678	0.01M 16V M Y TA26
		C714	OCN1030F678	0.01M 16V M Y TA26
		C716	OC25600K415	56P 50V J NP0 TP
		C717	OCN1030F678	0.01M 16V M Y TA26
		C718	OCE4766F638	47M SMS 16V M FM5 TP5
		C719	OCE4746K638	0.47M SMS 50V M TP(5)
		C720	OCN1030F678	0.01M 16V M Y TA26
		C722	OCK1030K945	0.01M 50V Z F TS
		C723	OCN2230H948	0.022M 25V Z F TA26
		C724	OCN1030F678	0.01M 16V M Y TA26
		C725	OCQ1821N409	0.0018U 100V J POLY TP
		C726	OCK1030K945	0.01M 50V Z F TS
		C727	OCE4766F638	47M SMS 16V M FM5 TP5
		C728	OCE4766F638	47M SMS 16V M FM5 TP5
		C729	OCN1030F678	0.01M 16V M Y TA26
		C730	OCN1030F678	0.01M 16V M Y TA26
		C732	OCE4766F638	47M SMS 16V M FM5 TP5
		C733	OCN1030F678	0.01M 16V M Y TA26
		C735	OCE4775F638	470M SR 16V M FM5 TP(5)
		C736	OCE4766F638	47M SMS 16V M FM5 TP5
		C737	OCE1066K638	10M SMS 50V M FM5 TP(5)
		C738	OCK1030K945	0.01M 50V Z F TS
		C739	OCN1030F678	0.01M 16V M Y TA26

S	AL	LOCA.NO	PART NO(GS)	SPECIFICATION
		C750	0CC5600K415	56P 50V J NPO 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 ZF TA26
		C761	0CN2230H948	0.022M 25V ZF TA26
		C766	0CN2230H948	0.022M 25V ZF 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 NPO TS
		C805	0CN2230H948	0.022M 25V ZF 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	0CC2200K415	22P 50V J NPO TS
		C810	0CC1200K415	12P 50V J NPO 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 ZF 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 KB 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 ZF TA26
		CD01	0CK4730K945	0.047U 50V ZF TS
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
		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

S	AL	LOCA.NO	PART NO(GS)	SPECIFICATION
		D592	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				
	OR	F101	585-011A	T 500MA 250V S504
		F101	585-012A	T 500MA 250V S504
		F102	585-011F	T 1A 250V S506
	OR	F102	585-012F	T 1A 250V S506
		F104	585-011C	T 1.6A 250V S506
	OR	F104	585-012C	T 1.6A 250V S506
FILTER				
		L720	616-039H	CERAMIC CDA5.5ME21
		Z701	616-614A	SAW TSF5323 PAL D/K SANYO
		Z702	616-036B	TRAP TPSS5.5MB MURA
		Z705	616-712A	SFSL5.5MBCB MURATA
IC				
	OR	IC001	0ISA737600A	LA7376 2HD PRE-AMP
		IC101	0IKE780060A	KIA78006AP-KIA7806P(REG 6V 1A)
		IC101	0IMA7800600A	KIA78006AP-KIA7806P(REG 6V 1A)
		IC201	0IHI497540A	HD49754NT
		IC301	0ITO120200A	TA1202N Y/C 1CHIP(MULTI) DIP
		IC302	0IKK740300B	MSM7403RS(2H CCD) DIP-PACK
		IC304	0IGS381600A	GL3816
		IC401	0IRH779000A	BA7790LS(AUDIO NORMAL)
		IC501	668-781A	UPD75238GJ-079 Q-20P/40P UCOM
		IC502	0IGS744500A	GL7445 (MOTOR DRIV-1CH) GSS
	OR	IC502	0ISA164100A	GL7445 (MOTOR DRIV-1CH) GSS
	OR	IC503	0ISG240200A	X24C02.8D EEP-ROM(2K CMOS)
		IC503	0IX1240200B	X24C02.8D EEP-ROM(2K CMOS)
		IC504	0IMT523000A	PST-523H/T(3.1V) LOW
		IC701	0IMI514960A	M51496P SIF+VIF
		IC702	0ISA791000A	LA7910 TV BAND SELEC
		IC801	0IMI350110B	M35011-058SP(OSD 64CHAR)C2/SI
JACK				
		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

S	AL	LOCA.NO	PART NO(GS)	SPECIFICATION
		L202	OLR1000K035	100M K 6X6 L5 TP
		L301	OLA0102K018	10M K 2.3X3.4 L5 TP
		L302	OLR1000K035	100M K 6X6 L5 TP
		L303	OLA0332K018	33M K 2.3X3.4 L5 TP
		L304	OLA0332K018	33M K 2.3X3.4 L5 TP
		L305	OLA0332K018	33M K 2.3X3.4 L5 TP
		L306	OLR0102J025	10UH 5% 4X5 TR5
		L307	OLR2700J025	270UH 5% 4X5 TR5
		L308	OLA0822K018	82M K 2.3X3.4 L5 TP
		L311	OLR1000K035	100M K 6X6 L5 TP
		L312	OLA0472K018	47M K 2.3X3.4 L5 TP
		L313	OLA0152K018	15M K 2.3X3.4 L5 TP
		L314	OLA0682K018	68M K 2.3X3.4 L5 TP
		L315	OLR1000K035	100M K 6X6 L5 TP
		L316	OLR2700J025	270UH 5% 4X5 TR5
		L317	OLR2700J025	270UH 5% 4X5 TR5
		L318	OLA0682K018	68M K 2.3X3.4 L5 TP
		L320	OLA0272K018	27M K 2.3X3.4 L5 TP
		L321	OLA1000K018	100M K 2.3X3.4 L5 TP
		L400	OLR1000K035	100M K 6X6 L5 TP
		L401	OLR6801J045	6800U J 6X7 L5 TP
		L402	OLR1502J045	0.015H J 6X7 L5 TP
		L501	OLR1000K035	100M K 6X6 L5 TP
		L503	OLR1000K035	100M K 6X6 L5 TP
		L588	OLA0822K018	82M K 2.3X3.4 L5 TP
		L703	OLA0222K018	22M K 2.3X3.4 L5 TP
		L704	OLA0560K018	0.56M K 2.3X3.4 L5 TP
		L706	OLR1000J025	100UH 5% 4X5 TR5
		L707	OLR1000J025	100UH 5% 4X5 TR5
		L708	OLR2200J025	220UH 5% 4X5 TR5
		L709	OLA0222K018	22M K 2.3X3.4 L5 TP
		L711	OLR0122J025	12UH 5% 4X5 TR5
		L713	OLR0102J025	10UH 5% 4X5 TR5
		L721	OLA0121K018	1.2M K 2.3X3.4 L5 TP
		L776	OLR1000K035	100M K 6X6 L5 TP
		L801	OLR1000K035	100M K 6X6 L5 TP
		L802	OLA1000K018	100M K 2.3X3.4 L5 TP
		L803	OLA1000K018	100M K 2.3X3.4 L5 TP
		L804	OLR1000K035	100M K 6X6 L5 TP
		L805	OLA0122K018	12M K 2.3X3.4 L5 TP
		L806	OLA0332K018	33M K 2.3X3.4 L5 TP
		L807	OLA1000K018	100M K 2.3X3.4 L5 TP
		L901	OLR1000K530	100M K 6X6 F BULK
		R521	OLA0822K018	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)
		T703	633-097A	V-COIL RK-R9680 15UH6% K-SAMMI
		Z706	OLA0182K018	18M K 2.3X3.4 L5 TP
LED				
		LD901	ODL112000AJ	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	515-760A	MAIN

S	AL	LOCA.NO	PART NO(GS)	SPECIFICATION
		PBP00	515-609D	POWER
		PBT00	515-793A	TIMER
TRANSFORMER				
	OR	PT101	641-042B	120V/230V/240V/50HZ
		PT101	641-342B	120V/230V/240V/50HZ
TRANSISTOR				
		Q051	OTR126709AC	KTA1267-GR MINI TP KEC
		Q052	OTR319809AC	KTC3198-TP-BL (KTC1815)KEC
		Q053	OTR319809AC	KTC3198-TP-BL (KTC1815)KEC
		Q054	OTR103009AF	KRA103M-TP (KRA2203) KEC
		Q055	OTR103009AF	KRA103M-TP (KRA2203) KEC
		Q056	OTR319809AC	KTC3198-TP-BL (KTC1815)KEC
	OR	Q101	OTR141400AA	2SD2399(R) POWER ROHM
		Q101	OTR239900AA	2SD2399(R) POWER ROHM
		Q102	OTR103009AF	KRA103M-TP (KRA2203) KEC
		Q103	OTR319809AC	KTC3198-TP-BL (KTC1815)KEC
		Q104	OTR127309AA	KTA1273-TP-Y (KTA966A)KEC
	OR	Q105	OTR141400AA	2SD2399(R) POWER ROHM
		Q105	OTR239900AA	2SD2399(R) POWER ROHM
		Q201	OTR319809AC	KTC3198-TP-BL (KTC1815)KEC
		Q202	OTR319809AC	KTC3198-TP-BL (KTC1815)KEC
		Q204	OTR319809AC	KTC3198-TP-BL (KTC1815)KEC
		Q205	OTR103009AE	KRC103M-TP (KRC1203) KEC
		Q206	OTR103009AE	KRC103M-TP (KRC1203) KEC
		Q207	OTR319809AC	KTC3198-TP-BL (KTC1815)KEC
		Q301	OTR103009AE	KRC103M-TP (KRC1203) KEC
		Q302	OTR126709AC	KTA1267-GR MINI TP KEC
		Q303	OTR103009AE	KRC103M-TP (KRC1203) KEC
		Q304	OTR319809AC	KTC3198-TP-BL (KTC1815)KEC
		Q305	OTR126709AC	KTA1267-GR MINI TP KEC
		Q307	OTR319809AC	KTC3198-TP-BL (KTC1815)KEC
		Q309	OTR319809AC	KTC3198-TP-BL (KTC1815)KEC
		Q314	OTR126709AC	KTA1267-GR MINI TP KEC
		Q317	OTR126709AC	KTA1267-GR MINI TP KEC
		Q318	OTR319809AC	KTC3198-TP-BL (KTC1815)KEC
		Q320	OTR319809AC	KTC3198-TP-BL (KTC1815)KEC
		Q321	OTR319809AC	KTC3198-TP-BL (KTC1815)KEC
		Q326	OTR103009AE	KRC103M-TP (KRC1203) KEC
		Q327	OTR103009AE	KRC103M-TP (KRC1203) KEC
		Q401	OTR320509AB	KTC3205-TP-Y (KTC2236A)KEC
		Q402	OTR319809AC	KTC3198-TP-BL (KTC1815)KEC
		Q405	OTR319809AC	KTC3198-TP-BL (KTC1815)KEC
		Q501	OTR103009AE	KRC103M-TP (KRC1203) KEC
		Q502	OTR103009AE	KRC103M-TP (KRC1203) KEC
		Q504	OTR103009AE	KRC103M-TP (KRC1203) KEC
		Q5A1	OTR126709AC	KTA1267-GR MINI TP KEC
		Q5A2	OTR103009AE	KRC103M-TP (KRC1203) KEC
		Q702	OTR319809AC	KTC3198-TP-BL (KTC1815)KEC
		Q707	OTR319709AC	KTC3197 (KTC388A) TP KEC
		Q709	OTR103009AE	KRC103M-TP (KRC1203) KEC
	OR	Q709	OTR124009AD	KRC103M-TP (KRC1203) KEC
		Q710	OTR117009AA	FET KTK117A(Y,GR) TP KEC
		Q711	OTR103009AF	KRA103M-TP (KRA2203) KEC
	OR	Q711	OTR124009AA	KRA103M-TP (KRA2203) KEC
		Q712	OTR319809AC	KTC3198-TP-BL (KTC1815)KEC
		Q713	OTR319809AC	KTC3198-TP-BL (KTC1815)KEC
		Q720	OTR126709AC	KTA1267-GR MINI TP KEC
		Q721	OTR319809AC	KTC3198-TP-BL (KTC1815)KEC
		Q801	OTR103009AE	KRC103M-TP (KRC1203) KEC

S	AL	LOCA.NO	PART NO(GS)	SPECIFICATION
	OR	Q801	OTR124009AD	KRC103M-TP (KRC1203) KEC
		Q802	OTR319809AC	KTC3198-TP-BL (KTC1815)KEC
		Q803	OTR126709AC	KTA1267-GR MINI TP KEC
		Q804	OTR103009AE	KRC103M-TP (KRC1203) KEC
	OR	Q804	OTR124009AD	KRC103M-TP (KRC1203) KEC
		Q805	OTR319809AC	KTC3198-TP-BL (KTC1815)KEC
		Q807	OTR319809AC	KTC3198-TP-BL (KTC1815)KEC

RESISTOR

R051	ORD1001F608	1.0K 1/6W 5 TA26
R052	ORD2202F608	22K 1/6W 5 TA26
R053	ORD6801F608	6.8K 1/6W 5 TA26
R054	ORD1202F608	12K 1/6W 5 TA26
R056	ORD2202F608	22K 1/6W 5 TA26
R057	ORD6801F608	6.8K 1/6W 5 TA26
R058	ORD1001F608	1.0K 1/6W 5 TA26
R059	ORD2201F608	2.2K 1/6W 5 TA26
R060	ORD2201F608	2.2K 1/6W 5 TA26
R061	ORD3900F608	390 1/6W 5 TA26
R062	ORD3900F608	390 1/6W 5 TA26
R063	ORD1501F608	1.5K 1/6W 5 TA26
R064	ORD2201F608	2.2K 1/6W 5 TA26
R065	ORD5600F608	560 1/6W 5 TA26
R066	ORD5601F608	5.6K 1/6W 5 TA26
R067	ORD1001F608	1.0K 1/6W 5 TA26
R068	ORD1201F608	1.2K 1/6W 5 TA26
R069	ORD1201F608	1.2K 1/6W 5 TA26
R071	ORD3901F608	3.9K 1/6W 5 TA26
R072	ORD3302F608	33K 1/6W 5 TA26
R073	ORD1501F608	1.5K 1/6W 5 TA26
R074	ORD3302F608	33K 1/6W 5 TA26
R075	ORD2201F608	2.2K 1/6W 5 TA26
R102	ORD8200F608	820 1/6W 5 TA26
R103	ORD4701F608	4.7K 1/6W 5 TA26
R104	ORD4701F608	4.7K 1/6W 5 TA26
R105	ORD8200F608	820 1/6W 5 TA26
R106	ORD8200F608	820 1/6W 5 TA26
R107	ORD1003F608	100K 1/6W 5 TA26
R108	ORD2201F608	2.2K 1/6W 5 TA26
R201	ORD1501F608	1.5K 1/6W 5 TA26
R202	ORD6802F608	68K 1/6W 5 TA26
R203	ORD1502F608	15K 1/6W 5 TA26
R204	ORD1501F608	1.5K 1/6W 5 TA26
R205	ORD3301F608	3.3K 1/6W 5 TA26
R206	ORD1003F608	100K 1/6W 5 TA26
R207	ORD3302F608	33K 1/6W 5 TA26
R208	ORD1002F608	10K 1/6W 5 TA26
R209	ORD8203F608	820K 1/6W 5 TA26
R210	ORD2703F608	270K 1/6W 5 TA26
R211	ORD3901F608	3.9K 1/6W 5 TA26
R214	ORD6802F608	68K 1/6W 5 TA26
R215	ORD5603F608	560K 1/6W 5 TA26
R216	ORD6803F608	680K 1/6W 5 TA26
R217	ORD2702F608	27K 1/6W 5 TA26
R218	ORD2701F608	2.7K 1/6W 5 TA26
R219	ORD1501F608	1.5K 1/6W 5 TA26
R220	ORD8201F608	8.2K 1/6W 5 TA26
R221	ORD8202F608	82K 1/6W 5 TA26
R222	ORD8202F608	82K 1/6W 5 TA26
R223	ORD2702F608	27K 1/6W 5 TA26
R224	ORD8202F608	82K 1/6W 5 TA26
R225	ORD2203F608	220K 1/6W 5 TA26

S	AL	LOCA.NO	PART NO(GS)	SPECIFICATION
		R226	ORD6802F608	68K 1/6W 5 TA26
		R227	ORD2201F608	2.2K 1/6W 5 TA26
		R228	ORD5601F608	5.6K 1/6W 5 TA26
		R229	ORD1802F608	18K 1/6W 5 TA26
		R230	ORD5601F608	5.6K 1/6W 5 TA26
		R231	ORD4700F608	470 1/6W 5 TA26
		R232	ORD4700F608	470 1/6W 5 TA26
		R233	ORD4700F608	470 1/6W 5 TA26
		R234	ORD1202F608	12K 1/6W 5 TA26
		R235	ORD1004F608	1.0M 1/6W 5 TA26
		R236	ORD3303F608	330K 1/6W 5 TA26
		R237	ORD6801F608	6.8K 1/6W 5 TA26
		R238	ORD8203F608	820K 1/6W 5 TA26
		R239	ORD5601F608	5.6K 1/6W 5 TA26
		R240	ORD4701F608	4.7K 1/6W 5 TA26
		R241	ORD5602F608	56K 1/6W 5 TA26
		R242	ORD1002F608	10K 1/6W 5 TA26
		R290	ORD3301F608	3.3K 1/6W 5 TA26
		R291	ORD0101F608	1.0 1/6W 5 TA26
		R292	ORD0101F608	1.0 1/6W 5 TA26
		R301	ORD8200F608	820 1/6W 5 TA26
		R302	ORD1001F608	1.0K 1/6W 5 TA26
		R303	ORD2700F608	270 1/6W 5 TA26
		R305	ORD0752F608	75 1/6W 5 TA26
		R306	ORD2700F608	270 1/6W 5 TA26
		R310	ORD6800F608	680 1/6W 5 TA26
		R311	ORD2201F608	2.2K 1/6W 5 TA26
		R312	ORD1201F608	1.2K 1/6W 5 TA26
		R313	ORD4701F608	4.7K 1/6W 5 TA26
		R314	ORD2701F608	2.7K 1/6W 5 TA26
		R315	ORD5601F608	5.6K 1/6W 5 TA26
		R316	ORD2701F608	2.7K 1/6W 5 TA26
		R317	ORD1002F608	10K 1/6W 5 TA26
		R318	ORD6800F608	680 1/6W 5 TA26
		R319	ORD3301F608	3.3K 1/6W 5 TA26
		R320	ORD2201F608	2.2K 1/6W 5 TA26
		R321	ORD1001F608	1.0K 1/6W 5 TA26
		R322	ORD1802F608	18K 1/6W 5 TA26
		R323	ORD1501F608	1.5K 1/6W 5 TA26
		R324	ORD5600F608	560 1/6W 5 TA26
		R325	ORD2202F608	22K 1/6W 5 TA26
		R326	ORD1001F608	1.0K 1/6W 5 TA26
		R328	ORD1202F608	12K 1/6W 5 TA26
		R330	ORD5602F608	56K 1/6W 5 TA26
		R332	ORD7500F608	750 1/6W 5 TA26
		R333	ORD3902F608	39K 1/6W 5 TA26
		R334	ORD2201F608	2.2K 1/6W 5 TA26
		R335	ORD1502F608	15K 1/6W 5 TA26
		R336	ORD1001F608	1.0K 1/6W 5 TA26
		R337	ORD1000F608	100 1/6W 5 TA26
		R338	ORD4700F608	470 1/6W 5 TA26
		R339	ORD4701F608	4.7K 1/6W 5 TA26
		R348	ORD2201F608	2.2K 1/6W 5 TA26
		R350	ORD1501F608	1.5K 1/6W 5 TA26
		R351	ORD2700F608	270 1/6W 5 TA26
		R352	ORD5603F608	560K 1/6W 5 TA26
		R353	ORD2702F608	27K 1/6W 5 TA26
		R354	ORD6802F608	68K 1/6W 5 TA26
		R355	ORD2203F608	220K 1/6W 5 TA26
		R356	ORD1004F608	1.0M 1/6W 5 TA26
		R357	ORD5600F608	560 1/6W 5 TA26
		R358	ORD2201F608	2.2K 1/6W 5 TA26

S	AL	LOCA.NO	PART NO(GS)	SPECIFICATION
		R359	ORD2201F608	2.2K 1/6W 5 TA26
		R360	ORD1001F608	1.0K 1/6W 5 TA26
		R362	ORD2201F608	2.2K 1/6W 5 TA26
		R363	ORD2700F608	270 1/6W 5 TA26
		R364	ORD8200F608	820 1/6W 5 TA26
		R365	ORD1501F608	1.5K 1/6W 5 TA26
		R366	ORD1201F608	1.2K 1/6W 5 TA26
		R3A7	ORD4701F608	4.7K 1/6W 5 TA26
		R3A8	ORD1201F608	1.2K 1/6W 5 TA26
		R3A9	ORD6800F608	680 1/6W 5 TA26
		R3B1	ORD3300F608	330 1/6W 5 TA26
		R3B2	ORD1001F608	1.0K 1/6W 5 TA26
		R401	ORD0102F608	10 1/6W 5 TA26
		R402	ORD0472F608	47 1/6W 5 TA26
		R403	ORD2702F608	27K 1/6W 5 TA26
		R404	ORD2700F608	270 1/6W 5 TA26
		R405	ORD2702F608	27K 1/6W 5 TA26
		R406	ORD3303F608	330K 1/6W 5 TA26
		R407	ORD1202F608	12K 1/6W 5 TA26
		R409	ORD0102F608	10 1/6W 5 TA26
		R410	ORD6801F608	6.8K 1/6W 5 TA26
		R411	ORD0102F608	10 1/6W 5 TA26
		R412	ORD5600F608	560 1/6W 5 TA26
		R413	ORD1502F608	15K 1/6W 5 TA26
		R414	ORD1004F608	1.0M 1/6W 5 TA26
		R415	ORD2701F608	2.7K 1/6W 5 TA26
		R416	ORD2201F608	2.2K 1/6W 5 TA26
		R417	ORD3902F608	39K 1/6W 5 TA26
		R418	ORD1202F608	12K 1/6W 5 TA26
		R419	ORD1001F608	1.0K 1/6W 5 TA26
		R421	ORD3302F608	33K 1/6W 5 TA26
		R427	ORD1001F608	1.0K 1/6W 5 TA26
		R428	ORD6801F608	6.8K 1/6W 5 TA26
		R429	ORD1001F608	1.0K 1/6W 5 TA26
		R431	ORD3902F608	39K 1/6W 5 TA26
		R433	ORD1202F608	12K 1/6W 5 TA26
		R435	ORD1202F608	12K 1/6W 5 TA26
		R436	ORD1202F608	12K 1/6W 5 TA26
		R439	ORD3902F608	39K 1/6W 5 TA26
		R501	ORD1002F608	10K 1/6W 5 TA26
		R502	ORD1004F608	1.0M 1/6W 5 TA26
		R503	ORD3303F608	330K 1/6W 5 TA26
		R505	ORD5604F608	5.6M 1/6W 5 TA26
		R507	ORD4702F608	47K 1/6W 5 TA26
		R509	ORD4702F608	47K 1/6W 5 TA26
		R510	ORD2702F608	27K 1/6W 5 TA26
		R512	ORD4702F608	47K 1/6W 5 TA26
		R513	ORD4701F608	4.7K 1/6W 5 TA26
		R514	ORD0271F608	2.7 1/6W 5 TA26
		R515	ORD0271F608	2.7 1/6W 5 TA26
		R516	ORD1002F608	10K 1/6W 5 TA26
		R517	ORD2702F608	27K 1/6W 5 TA26
		R518	ORD1002F608	10K 1/6W 5 TA26
		R519	ORD2702F608	27K 1/6W 5 TA26
		R522	ORD1001F608	1.0K 1/6W 5 TA26
		R523	ORD4701F608	4.7K 1/6W 5 TA26
		R524	ORD4701F608	4.7K 1/6W 5 TA26
		R525	ORD4701F608	4.7K 1/6W 5 TA26
		R526	ORD1001F608	1.0K 1/6W 5 TA26
		R531	ORD4701F608	4.7K 1/6W 5 TA26
		R532	ORD2702F608	27K 1/6W 5 TA26
		R533	ORD4701F608	4.7K 1/6W 5 TA26

S	AL	LOCA.NO	PART NO(GS)	SPECIFICATION
		R534	ORD2702F608	27K 1/6W 5 TA26
		R535	ORD2701F608	2.7K 1/6W 5 TA26
		R537	ORD1002F608	10K 1/6W 5 TA26
		R546	ORD1002F608	10K 1/6W 5 TA26
		R547	ORD1002F608	10K 1/6W 5 TA26
		R550	ORD4701F608	4.7K 1/6W 5 TA26
		R552	ORD4701F608	4.7K 1/6W 5 TA26
		R553	ORD4701F608	4.7K 1/6W 5 TA26
		R577	ORD1001F608	1.0K 1/6W 5 TA26
		R587	ORD4702F608	47K 1/6W 5 TA26
		R588	ORD1002F608	10K 1/6W 5 TA26
		R594	ORD1002F608	10K 1/6W 5 TA26
		R5A1	ORD2201F608	2.2K 1/6W 5 TA26
		R5A2	ORD4701F608	4.7K 1/6W 5 TA26
		R701	ORD3300F608	330 1/6W 5 TA26
		R702	ORD4700F608	470 1/6W 5 TA26
		R704	ORD1202F608	12K 1/6W 5 TA26
		R705	ORD1202F608	12K 1/6W 5 TA26
		R706	ORD4702F608	47K 1/6W 5 TA26
		R707	ORD1000F608	100 1/6W 5 TA26
		R708	ORD0682F608	68 1/6W 5 TA26
		R709	ORD1000F608	100 1/6W 5 TA26
		R710	ORD5600F608	560 1/6W 5 TA26
		R711	ORD1201F608	1.2K 1/6W 5 TA26
		R712	ORD4701F608	4.7K 1/6W 5 TA26
		R713	ORD4700F608	470 1/6W 5 TA26
		R715	ORD1002F608	10K 1/6W 5 TA26
		R716	ORD3900F608	390 1/6W 5 TA26
		R717	ORD3900F608	390 1/6W 5 TA26
		R718	ORD2701F608	2.7K 1/6W 5 TA26
		R719	ORD4701F608	4.7K 1/6W 5 TA26
		R720	ORD1201F608	1.2K 1/6W 5 TA26
		R721	ORD2200F608	220 1/6W 5 TA26
		R722	ORD2200F608	220 1/6W 5 TA26
		R723	ORD3903F608	390K 1/6W 5 TA26
		R724	ORD1001F608	1.0K 1/6W 5 TA26
		R725	ORD8203F608	820K 1/6W 5 TA26
		R726	ORD5601F608	5.6K 1/6W 5 TA26
		R727	ORD5601F608	5.6K 1/6W 5 TA26
		R728	ORD1002F608	10K 1/6W 5 TA26
		R731	ORD1202F608	12K 1/6W 5 TA26
		R732	ORD1202F608	12K 1/6W 5 TA26
		R737	ORD2200F608	220 1/6W 5 TA26
		R738	ORD4702F608	47K 1/6W 5 TA26
		R739	ORD5602F608	56K 1/6W 5 TA26
		R740	ORD3903F608	390K 1/6W 5 TA26
		R741	ORD3301F608	3.3K 1/6W 5 TA26
		R742	ORD1000F608	100 1/6W 5 TA26
		R776	ORD2200F608	220 1/6W 5 TA26
		R777	ORD1802F608	18K 1/6W 5 TA26
		R778	ORD3301F608	3.3K 1/6W 5 TA26
		R790	ORD1000F608	100 1/6W 5 TA26
		R798	ORD4701F608	4.7K 1/6W 5 TA26
		R799	ORD5600F608	560 1/6W 5 TA26
		R802	ORD1001F608	1.0K 1/6W 5 TA26
		R803	ORD3900F608	390 1/6W 5 TA26
		R804	ORD1502F608	15K 1/6W 5 TA26
		R805	ORD3302F608	33K 1/6W 5 TA26
		R808	ORD1001F608	1.0K 1/6W 5 TA26
		R809	ORD2201F608	2.2K 1/6W 5 TA26
		R812	ORD1002F608	10K 1/6W 5 TA26
		R813	ORD5601F608	5.6K 1/6W 5 TA26

S	AL	LOCA.NO	PART NO(GS)	SPECIFICATION
		R814	ORD0682F608	68 1/6W 5 TA26
		R815	ORD8200F608	820 1/6W 5 TA26
		R816	ORD2200F608	220 1/6W 5 TA26
		R817	ORD2200F608	220 1/6W 5 TA26
		R818	ORD4701F608	4.7K 1/6W 5 TA26
		R819	ORD1001F608	1.0K 1/6W 5 TA26
		R840	ORD4700F608	470 1/6W 5 TA26
		R841	ORD4702F608	47K 1/6W 5 TA26
		R842	ORD5600F608	560 1/6W 5 TA26
		R901	ORD4701F608	4.7K 1/6W 5 TA26
		R902	ORD1001F608	1.0K 1/6W 5 TA26
		R903	ORD1501F608	1.5K 1/6W 5 TA26
		R904	ORD2201F608	2.2K 1/6W 5 TA26
		R905	ORD4701F608	4.7K 1/6W 5 TA26
		R906	ORD4701F608	4.7K 1/6W 5 TA26
		R911	ORD5600F608	560 1/6W 5 TA26
REMOCON RECEIVER				
		RC901	668-226A	R/C RECEIVER(KTC.H=15) 34L
SWITCH				
OR		SW901	556-032A	KPT-1105A
		SW901	556-032S	KPT-1105A
OR		SW902	556-032A	KPT-1105A
		SW902	556-032S	KPT-1105A
OR		SW903	556-032A	KPT-1105A
		SW903	556-032S	KPT-1105A
OR		SW904	556-032A	KPT-1105A
		SW904	556-032S	KPT-1105A
OR		SW905	556-032A	KPT-1105A
		SW905	556-032S	KPT-1105A
OR		SW906	556-032A	KPT-1105A
		SW906	556-032S	KPT-1105A
TUNER				
		TU701	521-066A	CER1A701 (PAL BG + SECAM DK)
VARIABLE RESISTOR				
OR		VR201	613-029W	RH0638CJ5R (220K)
		VR201	613-032W	RH0638CJ5R (220K)
OR		VR301	613-029N	RH0638C14R14A (10K)
		VR301	613-032N	RH0638C14R14A (10K)
OR		VR302	613-029Q	RH0638CJ4R0WA (22K)
		VR302	613-032Q	RH0638CJ4R0WA (22K)
OR		VR303	613-029N	RH0638C14R14A (10K)
		VR303	613-032N	RH0638C14R14A (10K)
OR		VR304	613-029G	RH0638C13R0VA (1K)
		VR304	613-032G	RH0638C13R0VA (1K)
OR		VR307	613-029G	RH0638C13R0VA (1K)
		VR307	613-032G	RH0638C13R0VA (1K)
OR		VR401	613-029U	RH0638C15R0WA (100K)
		VR401	613-032U	RH0638C15R0WA (100K)
OR		VR701	613-029N	RH0638C14R14A (10K)
		VR701	613-032N	RH0638C14R14A (10K)
CRYSTAL				
OR		X301	529-020P	4.433619MHZ 15PPM KSS
		X301	529-027P	4.433619MHZ 15PPM KSS
		X502	529-001B	32.768KHZ NDK

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	OR	X502	529-001D	32.768KHZ NDK
		X801	529-022H	17.734476MHZ CL=16P 20PPM 4.0
	OR	X801	529-027L	17.734476MHZ CL=16P 20PPM 4.0
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	MTZ8.2C MINI TP ROHM-K
		ZD501	0DZ820009CB	MTZ8.2C MINI TP ROHM-K
		ZD701	0DZ100009AA	MTZ10B MINI TP ROHM-K
		ZD702	0INE574000A	UPC574J 30V ZENER

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