

# SECTION1 SUMMARY

## KEY TO ABBREVIATIONS

A	AC	:Alternating Current
	ACC	:Automatic Color Control
	ACSS	:Automatic Channel Setting System
	ADJ	:Adjust
	A/E	:Audio Erase
	AFC	:Automatic Frequency Control
	AFT	:Automatic Fine Tuning
	AGC	:Automatic Gain Control
	A.H.SW	:Audio Head Switch
	ALC	:Automatic Level Control
	AM	:Amplitude Modulation
	AMP	:Amplifier
	ANT	:Antenna
	APC	:Automatic Phase Control
	ASS'Y	:Assembly
	AUX	:Auxiliary
B	B	:Base
	BGP	:Burst Gate Pulse
	BPF	:Bandpass Filter
	BS	:Broadcasting Satellite
	BW or B/W	:Black and White
C	C	:Capacitor, Chroma, Collector
	CAN	:Cancel
	CAP	:Capstan
	CAP.BRK	:Capstan Brake
	CAP.RVS	:Capstan Reverse
	CATV	:Cable Television
	CBA	:Circuit Board Assembly
	CCD	:Charge Coupled Device
	C.CTL	:Chro Control, Capstan Control
	CFG	:Capstan Frequency Generator
	CHROMA	:Chrominance
	CNR	:Chroma Noise Redution
	COMB	:Combination
		Comb Filter
	COMP	:Comparator
		Composite
		Compensation
	CONV	:Converter
	C.ROT SW	:Color Rotary Switch
	CS	:Chip Selcet
	C.SYNC	:Composite Synchronization
	CTL DIV	:Control Divide
	CUR	:Current
	CYL	:Cylinder
D	D	:Drum, Digital, Diode, Drain
	D.ADJ	:Drum Adjust
	DC	:Direct Current
	D.CTL	:Drum Control
	DEMODO	:Demodulator
	DET	:Detector
	DEV	:Deviation
	DHP	:Double High Pass
	DIGITRON	:Digital Display Tube
	DL	:Delay line
	DOC	:Drop Out Compensator
	DUB	:Dubbing
	D.V SYNC	:Dummy Vertical Synchronization
E	E	:Emitter
	EE	:Electric to Eletric
	EMPH	:Emphasis
	ENA	:Enable
	ENV	:Envelope
	EP	:Extended Play
	EQ	:Equalizer
F	EXP	:Expander
	F	:Fuse
	FB	:Feed Back
	FBC	:Feed Back Clamp
	FE	:Full Erase
	FG	:Frequency Generator
	FL	:Filter
	FM	:Frequency Modulation
	F/R	:Front/Rear
	FS	:Frequency Synthesizer
	FSC	:Subcarrier Frequency
	F/V	:Frequency Voltage
G	GEN	:Generator
H	H	:High, Horizontal
I	IC	:Integrated Circuit
	IF	:Intermediate Frequency
	INS	:Insert
L	L	:Low, Left, Coil
	LD	:LED
	LD VTG CTL	:Loading Voltage Control
	LECHA	:Letter Character
	L.M	:Level Meter
	LP	:Long Play

M	LPF	:Low Pass Filter
	MAX	:Maximum
	MD	:Modulator
	MECHA.CTL	:Mechanism Control
	MIC	:Microphone
	MIN	:Minimum
	MIX	:Mixer, Mixing
	M.M.	:Monostable, Multivibrator
	MMV	:Mono Multi Vibrator
	MOD	:Modulation, Modulator
	MODEM	:Modulator-Demodulator
	MPX	:Multiplex
N	NR	:Noise Reduction
O	OSC	:Oscillator
	OSD	:On Screen Display
P	PB	:Playback
	PCB	:Printed Circuit Board
	P.CTL	:Power Control
	PRE-AMP	:Preamplifier
	P.F	:Power Failure
	PG	:Pulse Generator
	PLL	:Phase Locked Loop
	PREM.DET	:Premire Detect
	P.P	:Peak-to-Peak
	PS	:Phase Shift
	PWM	:Pulse Width Modulation
	PWR CTL	:Power Control
Q	Q	:Transistor
	QH	:Quasi Horizontal
	QSR	:Quick Setting Record
	QTR	:Quick Timer Record
	QV	:Quasi Vertical
R	R	:Resistor, Right
	RE(or RC)	:Remocon, Receiver
	REC	:Recording
	REC S 'H'	:Record Start 'High'
	REF	:Reference
	REG	:Regulated, Regulator
	REMOCON	:Remote Control(unit)
	RF	:Radio Frequency
	R/P	:Record/Playback
	RTC	:Reel Time Counter
S	S	:Serial
	S.ACCEL	:Slow Accel
	SAOP	:Second Audio Program
	SC	:Scart, Simulcast
	S.DET	:Secam Detect
	SH	:Shift
	SHARP	:Sharpness
	SIF	:Sound Intermediate Frequency
	SLD	:Side Locking
	S/N	:Signal to Noise Ratio
	SP	:Standard Play
	ST	:Stereo
	SUB	:Subtract, Subcarrier
	SW or S/W	:Switch
	SYNC	:Synchronization
	SYSCON	:System Control
T	T	:Coil
	TP	:Test Point
	TR	:Transistor
	TRK	:Tracking
	TRANS	:Transformer
U	TU	:Tuner, Take-up
	UHF	:Ultra High Frequency
V	UNREG	:Unregulated
	V	:Volt, Vertical
V	VA	:Always Voltage
	VCO	:Voltage Controlled Oscillator
	VGC	:Voltage Gain Control
	VHF	:Very High Frequency
	V.H.SW	:Video Head Switch
	VISS	:VHS Index Search
	VPS	:Video Program System
	VR	:Variable Resistor or Volume
	V-SYNC	:Vertical Synchronization
	VTG	:Voltage
	VV	:Voltage to Voltage
	VXO	:Voltage X-tal Oscillator
W	W	:Watt
	WHT	:White
	W/O	:With out
X	X-TAL	:Crystal
Y	Y/C	:Luminance/Chrominance
	YNR	:Luminance Noise Reduction
Z	ZD	:Zener Diode

# PRODUCT SAFETY SERVICING GUIDELINES FOR VIDEO PRODUCTS

## IMPORTANT SAFETY NOTICE

This manual was prepared for use only by properly trained audio-video service technicians.

When servicing this product, under no circumstances should the original design be modified or altered without permission from LG Electronics Corporation. All components should be replaced only with types identical to those in the original circuit and their physical location, wiring and lead dress must conform to original layout upon completion of repairs.

Special components are also used to prevent x-radiation, shock and fire hazard. These components are indicated by the letter "X" included in their component designators and are required to maintain safe performance. No deviations are allowed without prior approval by LG Electronics Corporation.

Circuit diagrams may occasionally differ from the actual circuit used. This way, implementation of the latest safety and performance improvement changes into the set is not delayed until the new service literature is printed.

**CAUTION:** Do not attempt to modify this product in any way. Never perform customized installations without manufacturer's approval. Unauthorized modifications will not only void the warranty, but may lead to property damage or user injury.

Service work should be performed only after you are thoroughly familiar with these safety checks and servicing guidelines.

## GRAPHIC SYMBOLS



The exclamation point within an equilateral triangle is intended to alert the service personnel to important safety information in the service literature.



The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the service personnel to the presence of noninsulated "dangerous voltage" that may be of sufficient magnitude to constitute a risk of electric shock.



The pictorial representation of a fuse and its rating within an equilateral triangle is intended to convey to the service personnel the following fuse replacement caution notice:

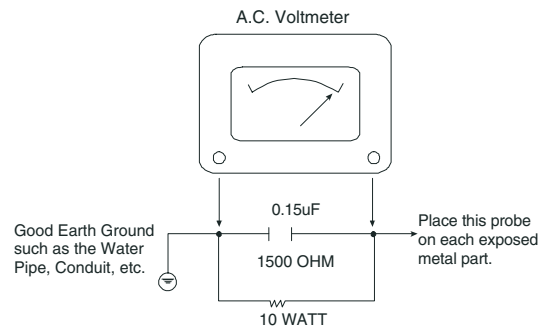
**CAUTION:** FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ALL FUSES WITH THE SAME TYPE AND RATING AS MARKED NEAR EACH FUSE.

## SERVICE INFORMATION

While servicing, use an isolation transformer for protection from AC line shock. After the original service problem has been corrected, make a check of the following:

### FIRE AND SHOCK HAZARD

1. Be sure that all components are positioned to avoid a possibility of adjacent component shorts. This is especially important on items transported to and from the repair shop.
2. Verify that all protective devices such as insulators, barriers, covers, shields, strain reliefs, power supply cords, and other hardware have been reinstalled per the original design. Be sure that the safety purpose of the polarized line plug has not been defeated.
3. Soldering must be inspected to discover possible cold solder joints, solder splashes, or sharp solder points. Be certain to remove all loose foreign particles.
4. Check for physical evidence of damage or deterioration to parts and components, for frayed leads or damaged insulation (including the AC cord), and replace if necessary.
5. No lead or component should touch a high current device or a resistor rated at 1 watt or more. Lead tension around protruding metal surfaces must be avoided.
6. After reassembly of the set, always perform an AC leakage test on all exposed metallic parts of the cabinet (the channel selector knobs, antenna terminals, handle and screws) to be sure that set is safe to operate without danger of electrical shock. **DO NOT USE A LINE ISOLATION TRANSFORMER DURING THIS TEST.** Use an AC voltmeter having 5000 ohms per volt or more sensitivity in the following manner: Connect a 1500 ohm, 10 watt resistor, paralleled by a .15 mfd 150V AC type capacitor between a known good earth ground water pipe, conduit, etc.) and the exposed metallic parts, one at a time. Measure the AC voltage across the combination of 1500 ohm resistor and .15 mfd capacitor. Reverse the AC plug by using a non-polarized adaptor and repeat AC voltage measurements for each exposed metallic part. Voltage measured must not exceed 0.75 volts RMS. This corresponds to 0.5 milliamp AC. Any value exceeding this limit constitutes a potential shock hazard and must be corrected immediately.



## X-RADIATION

1. Be sure procedures and instructions to all service personnel cover the subject of x-radiation. The only potential source of x-rays in current TV receivers is the picture tube. However, this tube does not emit x-rays when the HV is at the factory-specified level. The proper value is given in the applicable schematic. Operation at higher voltages may cause a failure of the picture tube or high-voltage supply and, under certain circumstances may produce radiation in excess of desirable levels.
2. Only factory-specified CRT anode connectors must be used.
3. It is essential that the service personnel have available an accurate and reliable high-voltage meter.
4. When the high-voltage circuitry is operating properly, there is no possibility of an x-radiation problem. Every time a chassis is serviced, the brightness should be run up and down while monitoring the high voltage with a meter, to be certain that the high voltage does not exceed the specified value and that it is regulating correctly.
5. When troubleshooting and making test measurements in a product with a problem of excessively high voltage, avoid being unnecessarily close to the picture tube and the high voltage power supply. Do not operate the product longer than necessary to locate the cause of excessive voltage.
6. Refer to the CRT Anode High Voltage Measurement and Shutdown Adjustment procedures described in the appropriate text (where used).

## IMPLOSION

1. All direct view picture tubes are equipped with an integral implosion protection system; take care to avoid damage during installation.
2. Use only the recommended factory replacement tubes.

## TIPS ON PROPER INSTALLATION

1. Never install any receiver in a closed-in recess, cubbyhole, or closely fitting shelf space over, or close to, a heat duct, or in the path of heated air flow.
2. Avoid conditions of high humidity such as: outdoor patio installations where dew is a factor, near steam radiators where steam leakage is a factor, etc.
3. Avoid placement where draperies may obstruct venting. The customer should also avoid the use of decorative scarves or other coverings that might obstruct ventilation.
4. Wall- and shelf-mounted installations using a commercial mounting kit must follow the factory-approved mounting instructions. A product mounted to a shelf or platform must retain its original feet (or the equivalent thickness in spacers) to provide adequate air flow across the bottom. Bolts or screws used for fasteners must not touch any parts or wiring. Perform leakage tests on customized installations.
5. Caution customers against mounting a product on a sloping shelf or in a tilted position, unless the receiver is properly secured.
6. A product on a roll-about cart should be stable in its mounting to the cart. Caution the customer on the hazards of trying to roll a cart with small casters across thresholds or deep pile carpets.
7. Caution customers against using a cart or stand that has not been listed by Underwriters Laboratories, Inc. for use with its specific model of television receiver or generically approved for use with TVs of the same or larger screen size.
8. Caution customers against using extension cords. Explain that a forest of extensions, sprouting from a single outlet, can lead to disastrous consequences to home and family.

# SERVICING PRECAUTIONS

**CAUTION :** Before servicing the VCR covered by this service data and its supplements and addends, read and follow the **SAFETY PRECAUTIONS**. **NOTE :** if unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions in this publication, always follow the safety precautions.

*Remembers Safety First:*

## General Servicing Precautions

1. Always unplug the VCR AC power cord from the AC power source before:
  - (1) Removing or reinstalling any component, circuit board, module, or any other assembly.
  - (2) Disconnection or reconnecting any internal electrical plug or other electrical connection.
  - (3) Connecting a test substitute in parallel with an electrolytic capacitor.  
**Caution :** A wrong part substitution or incorrect polarity installation of electrolytic capacitors may result in an explosion hazard.
2. Do not spray chemicals on or near this VCR or any of its assemblies.
3. Unless specified otherwise in this service data, clean electrical contacts by applying an appropriate contact cleaning solution to the contacts with a pipe cleaner, cotton-tipped swab, or comparable soft applicator.  
Unless specified otherwise in this service data, lubrication of contacts is not required.
4. Do not defeat any plug/socket B+ voltage interlocks with which instruments covered by this service manual might be equipped.
5. Do not apply AC power to this VCR and/or any of its electrical assemblies unless all solid-state device heat sinks are correctly installed.
6. Always connect test instrument ground lead to the appropriate ground before connection the test instrument positive lead. Always remove the test instrument ground lead last.

## Insulation Checking Procedure

Disconnect the attachment plug from the AC outlet and turn the power on. Connect an insulation resistance meter(500V) to the blades of the attachment plug. The insulation resistance between each blade of the attachment plug and accessible conductive parts (Note 1) should be more than 1M-ohm.

**Note 1 :** Accessible Conductive Parts including Metal panels, Input terminals, Earphone jacks, etc.

## Electrostatically Sensitive (ES) Devices

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field effect transistors and semiconductor chip components.

The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static solder removal device. Some solder removal devices not classified a "anti-static" can generate electrical charges sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charge sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil, or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

**Caution :** Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

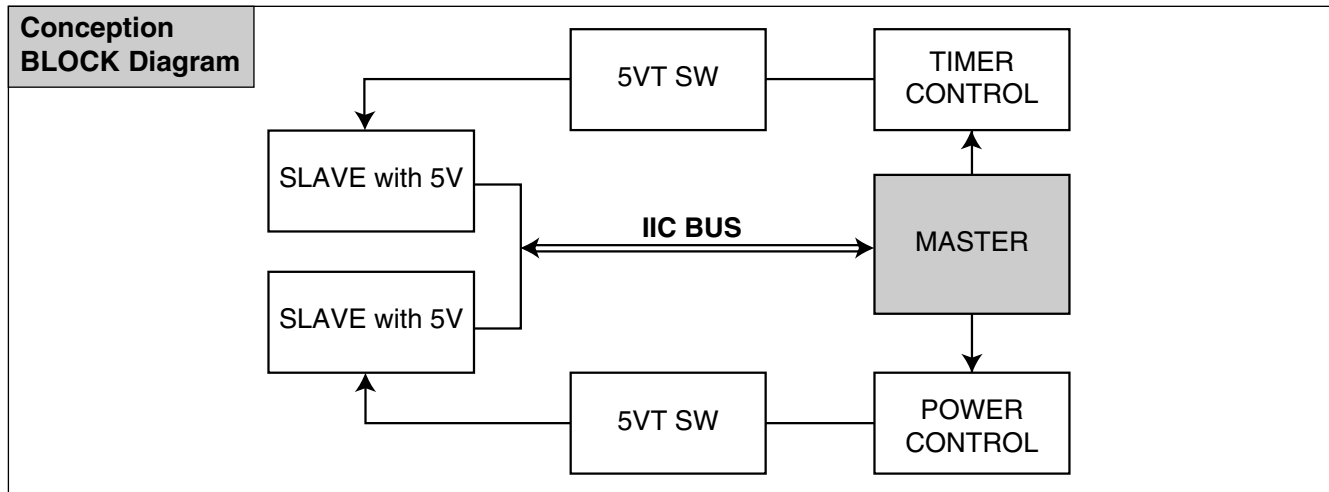
8. Minimize bodily motions when handling unpackaged replacement ES devices. (Normally harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device.)

# PROPOSAL FOR APPLYING SHORT PROTECTION

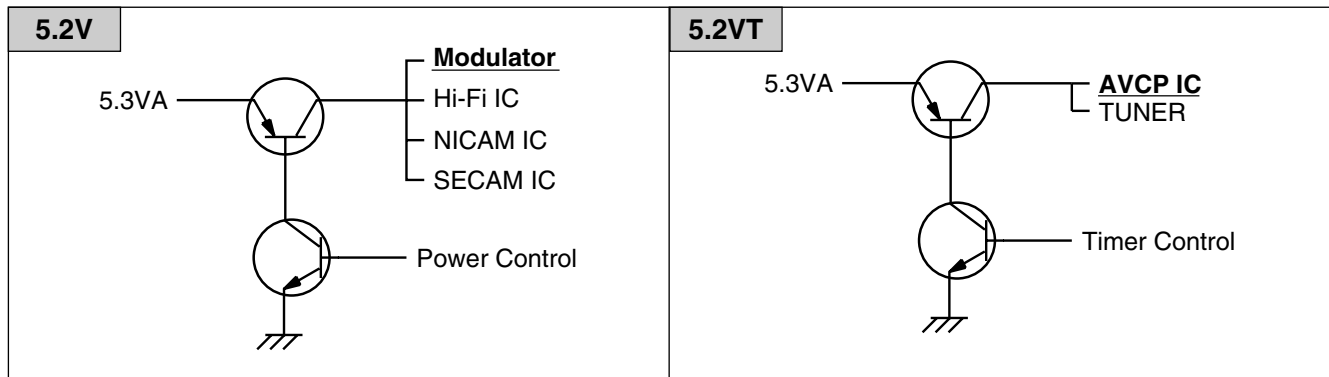
## • The Contents of Examination

As all the IC that is applied to VCR is controlled by IIC, mutual communication, if Vcc of IC is short or open with detecting 'Acknowledge' data of the specific IC according to each power(5V, 5VT)  $\mu$ -COM gets unable to detect 'ACK' data.

$\mu$ -COM regards this case as abnormal one and if it can't detect 'ACK' data for a certain time(3.5 sec) the signal of 'Power Control' and 'Timer Control' are switched to 'Low'. As a result POWER Switching TR is kept from generating heat and fire.



## • POWER for each IC



• IC to detect 'ACK' data is selected as below because IC is different in accordance to region and option

S/	5V POWER	SECAM IC
Series	5VT POWER	AVCP IC
P/Y/I	5V POWER	Modulator
Series	5VT POWER	AVCP IC

\*Short protection off mode : DJ01 Diode in

# SERVICE NOTICE ON REPLACING EEPROM

In case that defective EEPROM of PAL models is replaced, to operate these sets from the initial state MP KEY must be repaired as well before delivering to the customer.

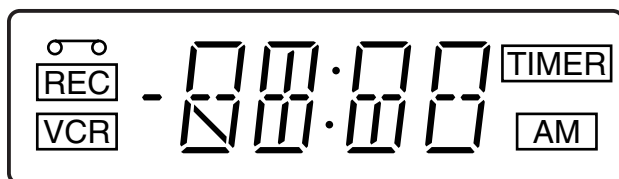
If MP KEY isn't repaired the setting of RF OUT channel or LANGUAGE might be different from that for customer's country.

- **MP KEY** : In case of PAL VCR if holding the REC button on the front panel and the CLEAR button on the remote control handset for 5 ~ 7 seconds with power being switch all and no tapes, OK is displayed at FLD for FLD models and LED becomes on for LED CLOCK models. This is the state that initializing EEPROM is finished.  
(In case of PAL VCP if holding the REC button on the front panel and the MENU button on the remote control handset for 5 ~ 7 seconds with power being off and no tapes, All the LED DOTs become on. This is the state that initializing EEPROM is finished.)

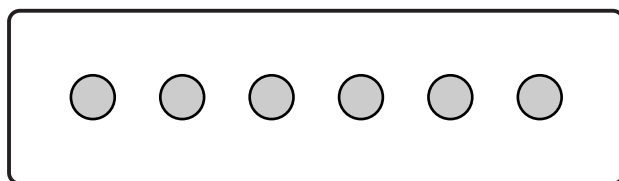
- **MP KEY's function** : MP KEY sets EEPROM's data up to the initial state.



- **FLD MODEL:**  
MP KEY "OK"



- **LED CLOCK MODEL:**  
MP KEY Switch all on a Light



- **LED DOT MODEL:**  
MP KEY Switch all on a Light

# SPECIFICATIONS

## General

Power	: 110~240V, 50/60Hz
Power consumption	: Approx. 12 watts(Energy Saving mode : 3 watts)
Video Head system	: Double azimuth 4 heads, helical scanning system (4HD MONO, 4HD Hi-Fi Model Only)
Tape speed	: 23.39 mm/sec (SP mode)11.69 mm/sec(LP mode)
Tape format	: Tape width 1/2" (12.7 mm high density VHS tape)
Maximum recording time	: 4 hours in SP mode/8 hours in LP mode (with E-240 tape)
Rewind time	: Approx. 150 sec. (with E-180 tape)
Dimensions (W X H X D)	: 360 x 94.5 x 230 mm
Weight	: 9.0 lbs. (4.0 kg)
Operating temperature	: 41°F-95°F (5°C-35°C)
Operating humidity	: Less than 80%
Timer	: 24 hours display type

## Video

Input level	: VIDEO IN (RCA type) 1.0 Vp-p, 75 ohm, unbalanced
Output level	: VIDEO OUT (RCA type) 1.0 Vp-p, 75 ohm, unbalanced
Signal to noise ratio	: More than 43 dBm
RF Modulator	: UHF 28~68(Adjustable)

## Audio

Input level	: AUDIO IN (RCA type) -6.0dBm, more than 47kΩ
Output level	: AUDIO OUT (RCA type) -6.0 dBm, less than 1kΩ
Track	Mono track & Hi-Fi track
Frequency response	: Normal : 100 Hz - 10 kHz(-6/+3 dB) Hi-Fi : 20 Hz - 20 kHz(3-/+3 dB)
Signal to noise ratio	: Normal : More than 43 dBm(at SP mode)
Dynamic range	: Hi-Fi : More than 70 dBm(at SP mode) Hi-Fi : More than 85 dBm(at SP mode)

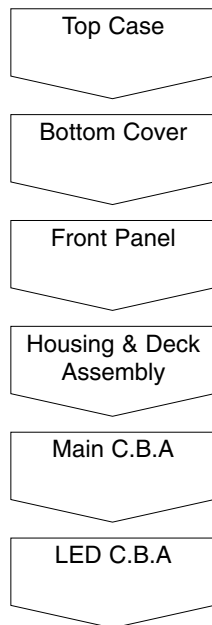
- Design and specifications are subject to change without notice.

 :Hi-Fi Model only

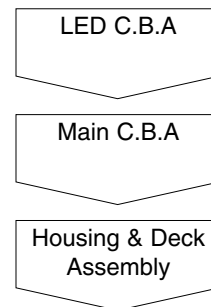
# SECTION2 CABINET & MAIN FRAME

## SERVICE METHOD

(1) Disassembly Flow



(2) Re-assembly Flow for service like Fig. 2-1



(3) To check and replace Electrical parts

- ① Disassemble the unit according to No.1) Disassembly Flow.
- ② Re-assemble the unit according to No.2) Re-assembly Flow.
- ③ Place the unit like Fig. 2-1
- ④ Check and replace Electrical parts.

### NOTE :

- ① Insert Video Cassette Tape inversely like Fig. 2-1 to check and replace defective parts.
- ② In disassembling and reassembling, be careful not to damaged CST switch.

(Positioned Upside Down)

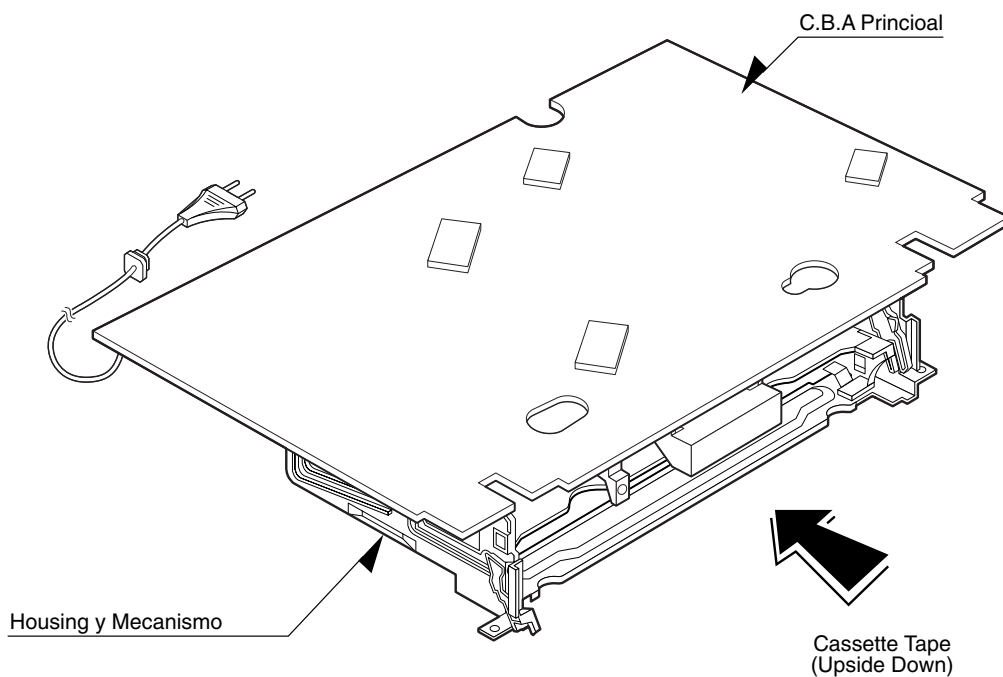
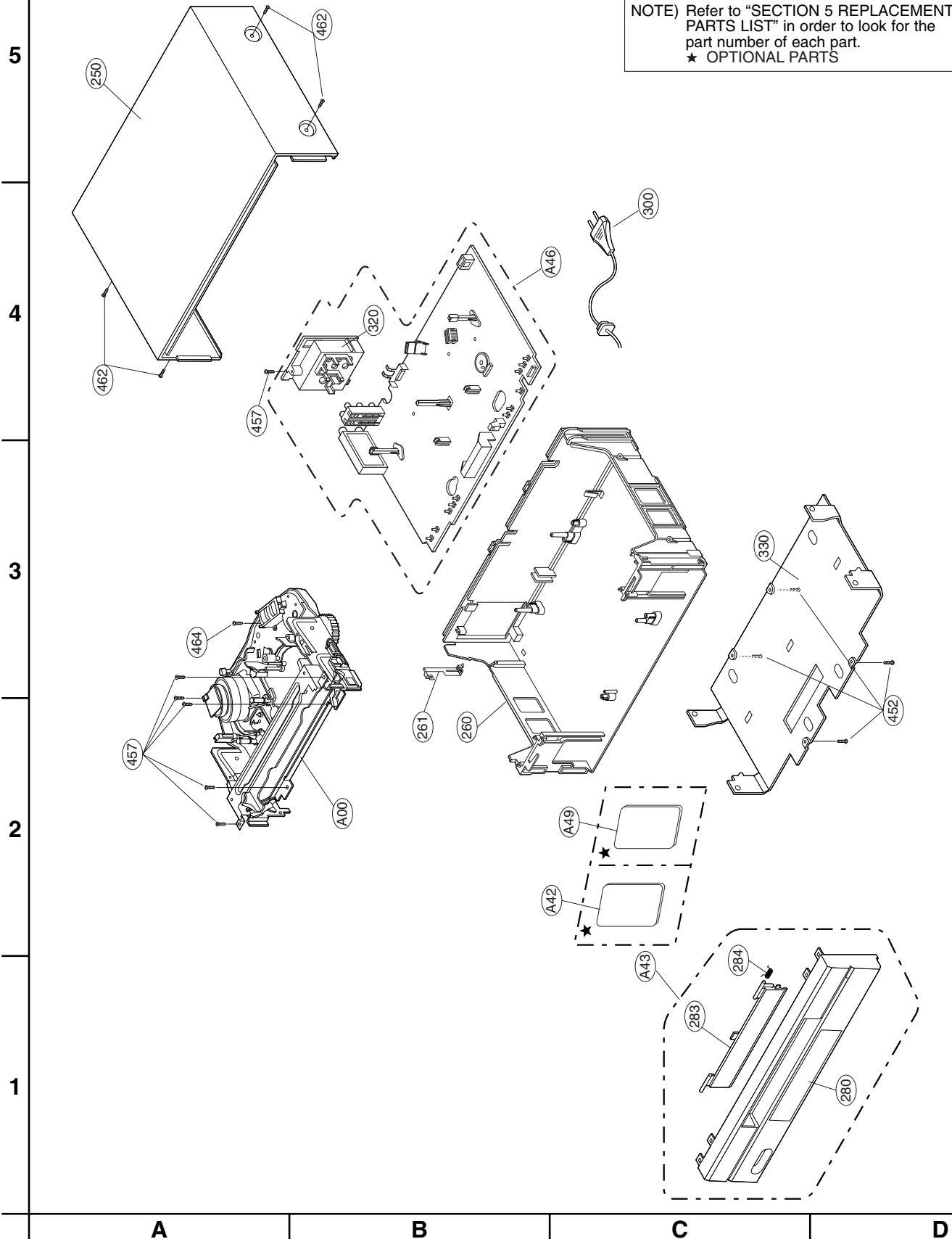


Fig.2-1

# EXPLODED VIEWS

## 1. Cabinet and Main Frame Section

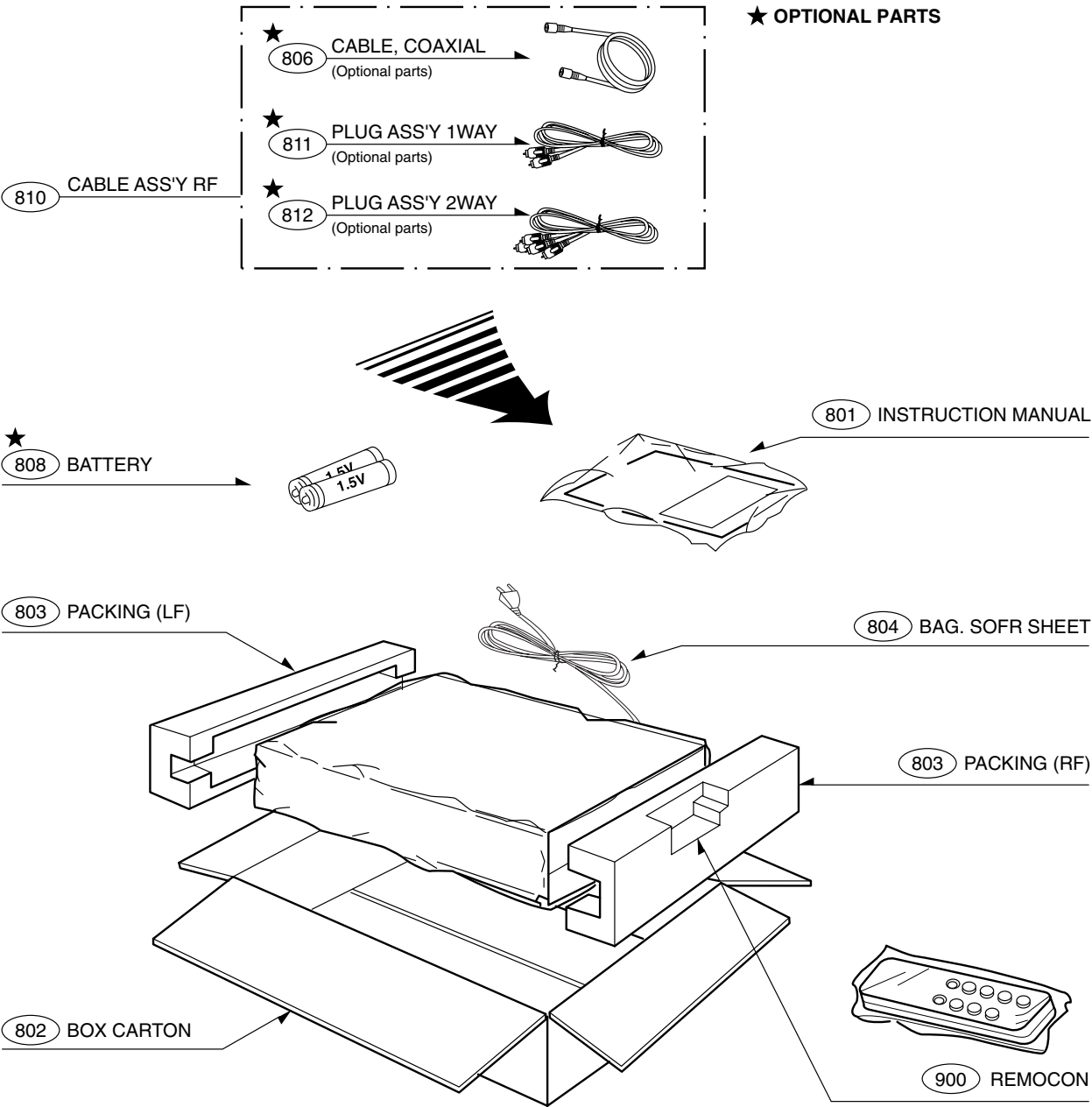
NOTE) Refer to "SECTION 5 REPLACEMENT PARTS LIST" in order to look for the part number of each part.  
★ OPTIONAL PARTS





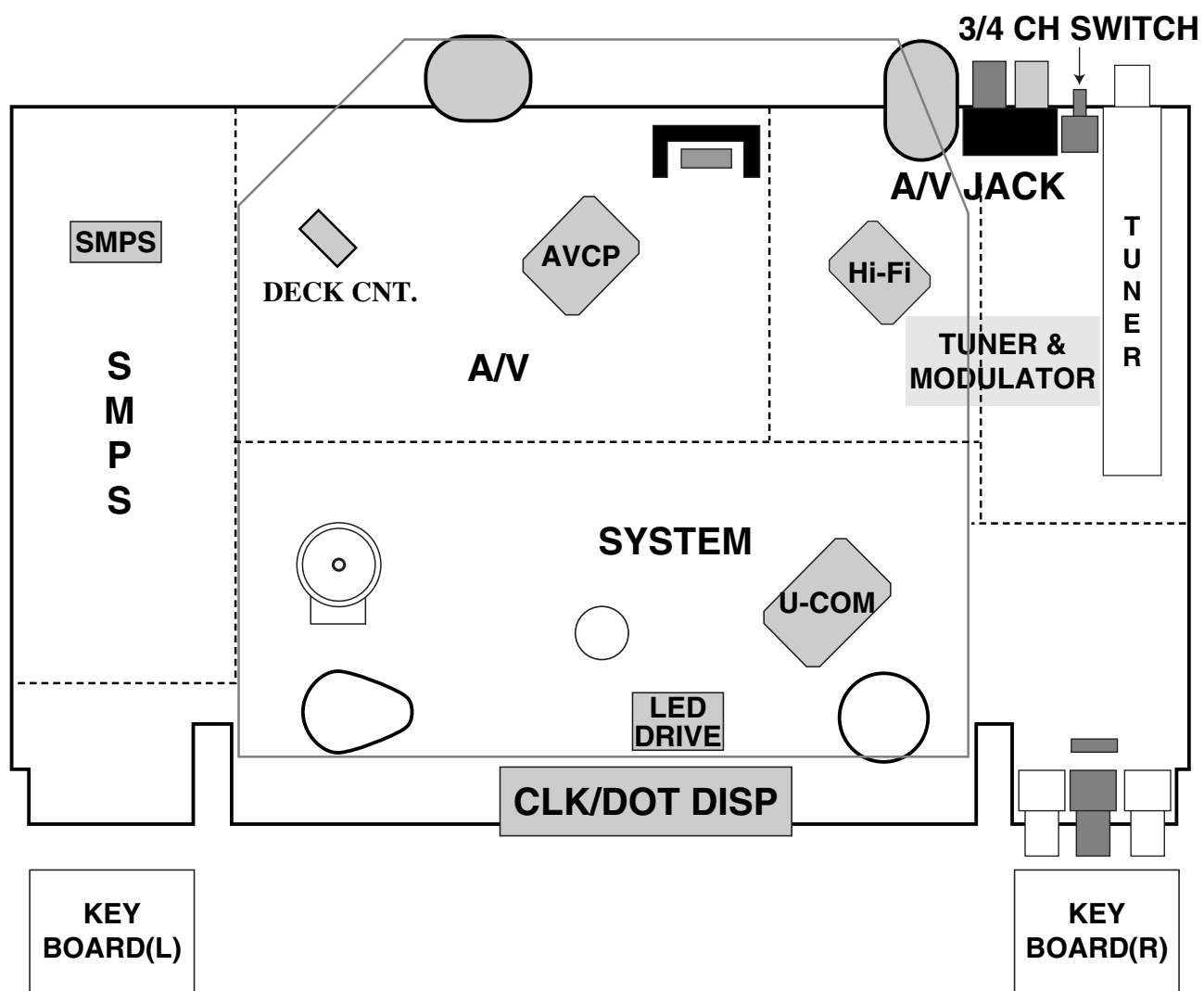
# 2.Packing Accessory Section

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



# SECTION 3 ELECTRICAL ELECTRICAL ADJUSTMENT POINTS ARRANGEMENT

○ : Measurement point  
□ : Adjustment point



# ELECTRICAL ADJUSTMENT PROCEDURES

## 1. Servo Adjustment

- 1) PG Adjustment
  - Test Equipment

- a) OSCILLOSCOPE
- b) PAL TEST TAPE (VHS SP)
- c) JIG REMOCON (AUTO PG SETTING)

- Adjustment And Specification

MODE	MEASUREMENT POINT	ADJUSTMENT POINT	SPECIFICATION
PLAY	V.Out H/SW(W714, W715)		$6.5 \pm 0.5H$

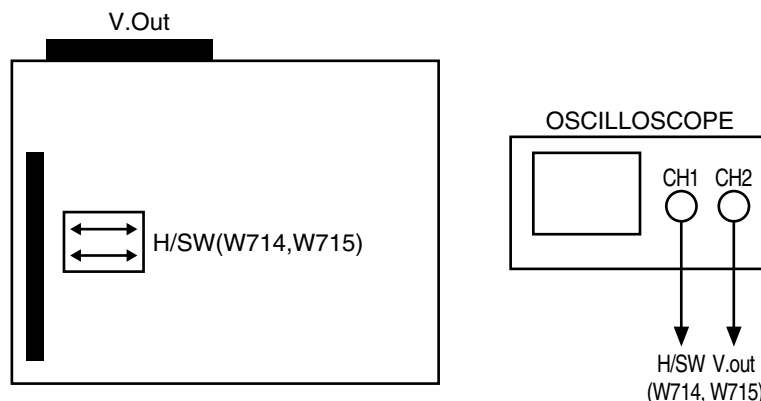
### • Adjustment Procedure

- a) Insert the PAL SP Test Tape and play.  
Note - Adjust the distance of X, pressing the Tracking(+) or Tracking(-) when the “ATR” is blink after the PAL SP Test Tape is inserted.
- b) Press the Auto PG KEY on JIG Remocon(1’st) or Press “Play” key on set and “0” key on Remocon.(Then check the blink “TRK OK” (Hi-Fi Model), “ALL LIGHT”(MONO Model) on CLK/LED -TRK is a Initial)
- c) Press the Auto PG Key on JIG Remocon again (2’nd) or press “Play” key on set and “0” key on Remocon again.(Then check the blink “PG NG > PG OK” on CLK/LED(Hi-Fi Model), Then check the blink “PG waveform” on oscilloscope(MONO Model)).

### • Check the PG

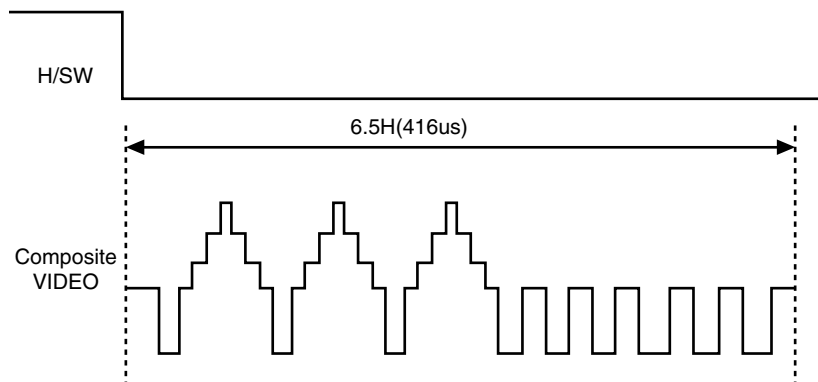
- a) Connect the CH1 of the oscilloscope to the H/SW and CD2 to the Video out for the VCR.
- b) Trigger the mixed Video Signal of CH2 to the CH1 H/SW(W714, W715), and then check the distance (time difference), which is from the selected A(B) Head point of the H/SW(W714, W715) signal to the starting point of the vertical synchronized signal, to  $6.5H \pm 0.5H$  ( $416\mu s$ ,  $1H=64.0\mu s$ ).

### • CONNECTION



# ELECTRICAL ADJUSTMENT PROCEDURES

- **WAVEFORM**



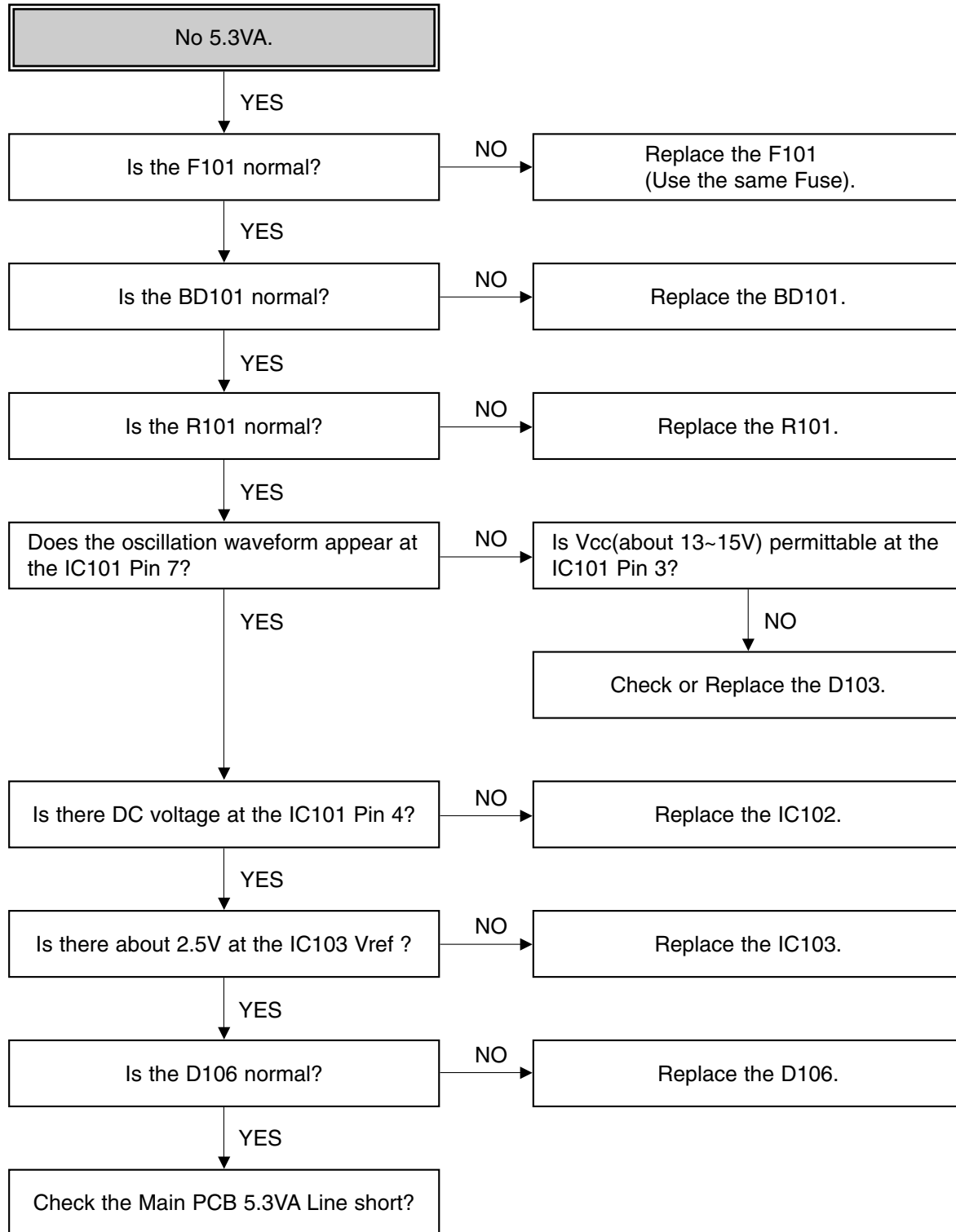
- **Attension and Reference**

- a) The PG checking must do when RF Level is Maximum and SERVO system is Locking (MTR MODE)
- b) V.H/SW Level is 2Vpp.

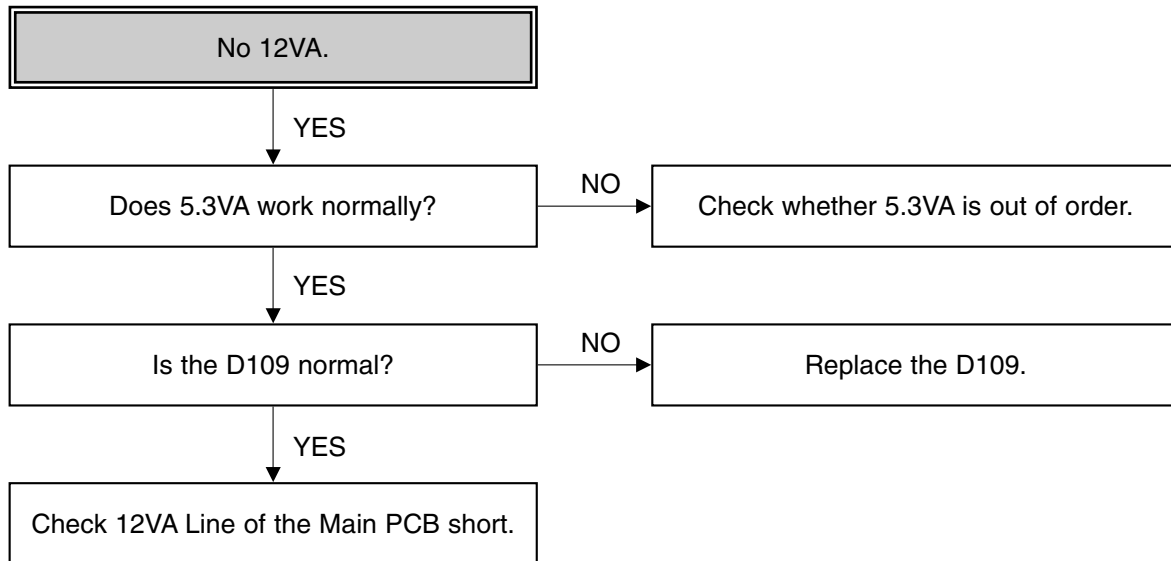
# ELECTRICAL TROUBLESHOOTING GUIDE

## 1. Power Circuit(SMPS)

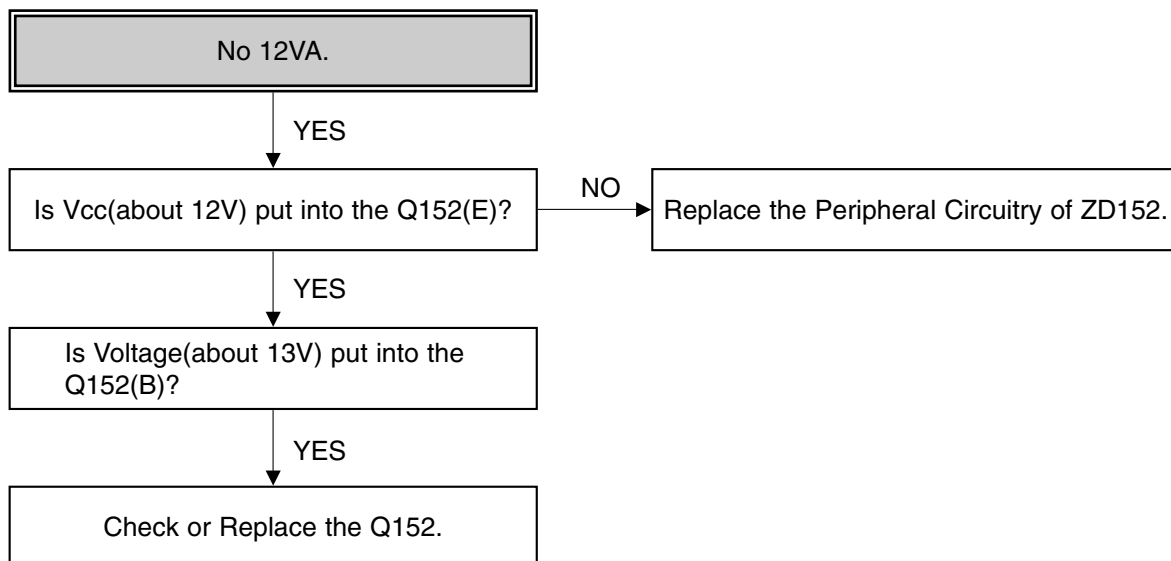
(1) No 5.3VA.



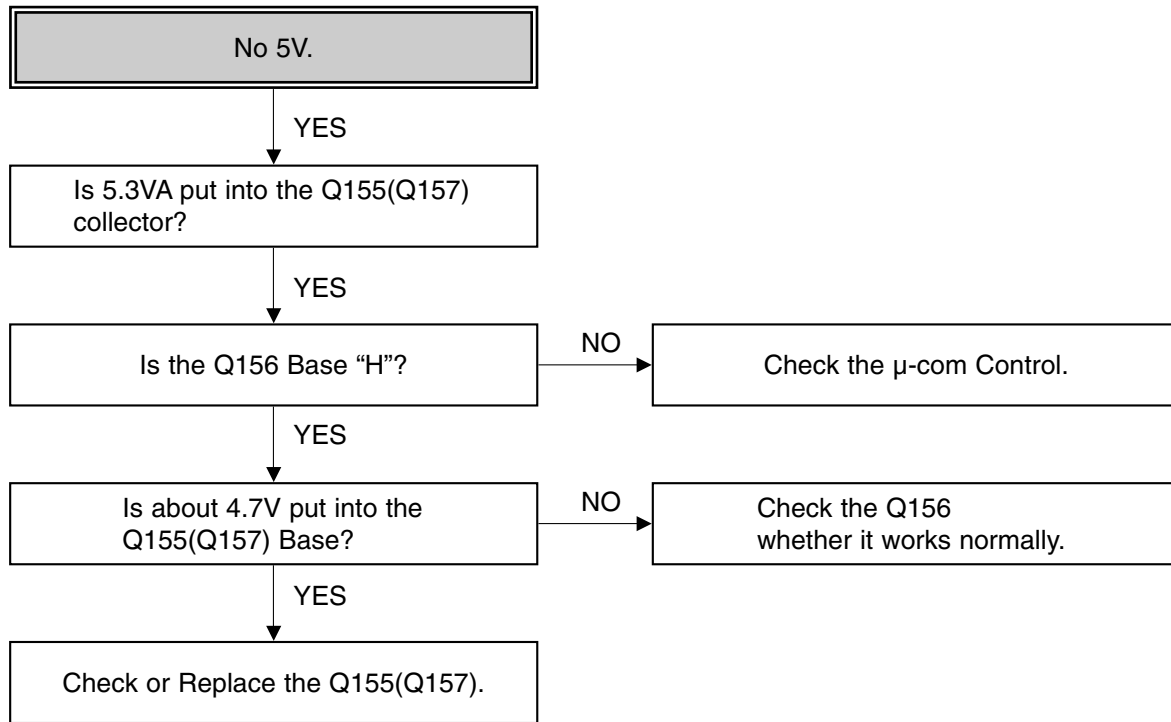
(2) No 12VA.(Capstan)



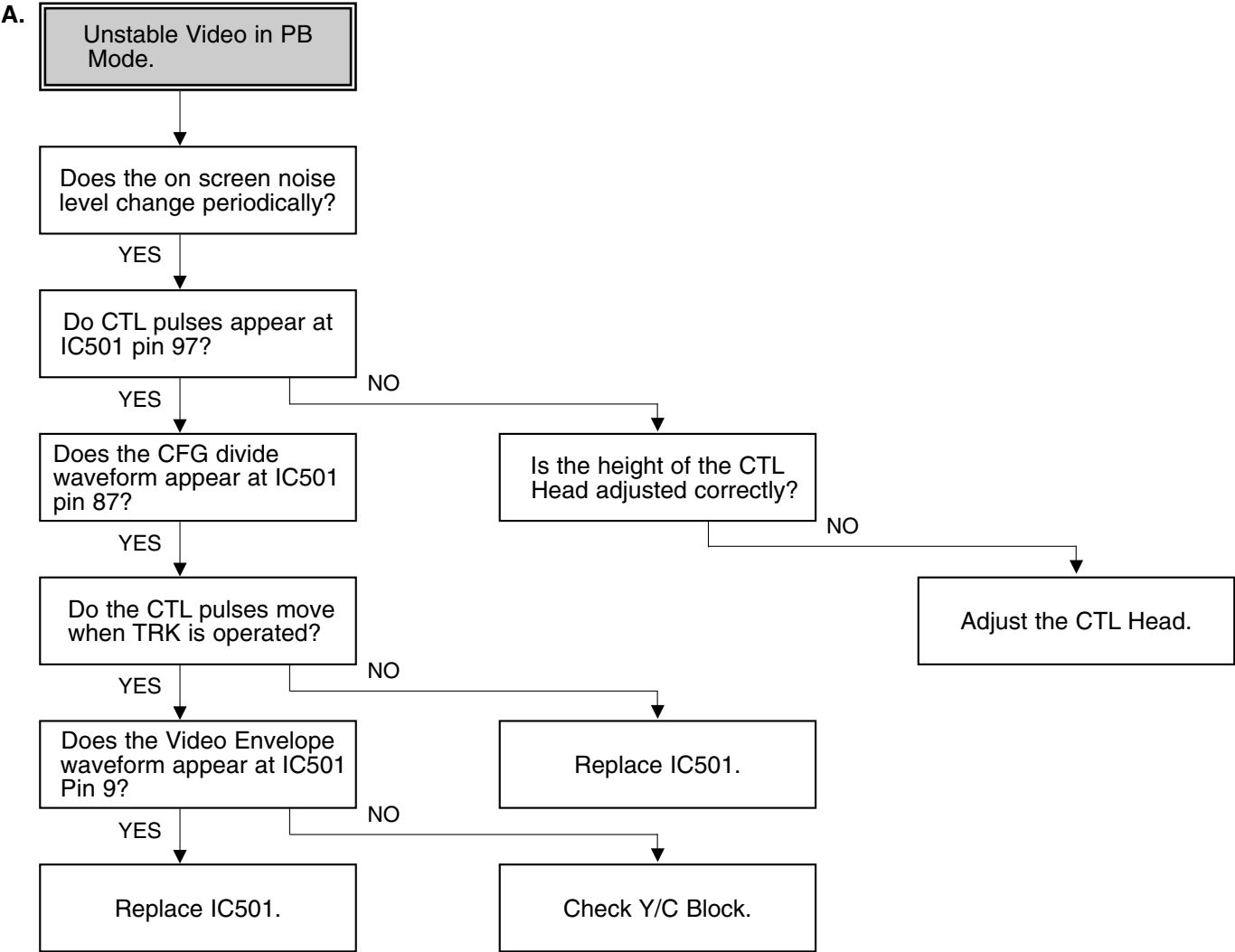
(3) No 12V (Hi-Fi, Buffer)



(4) No 5V

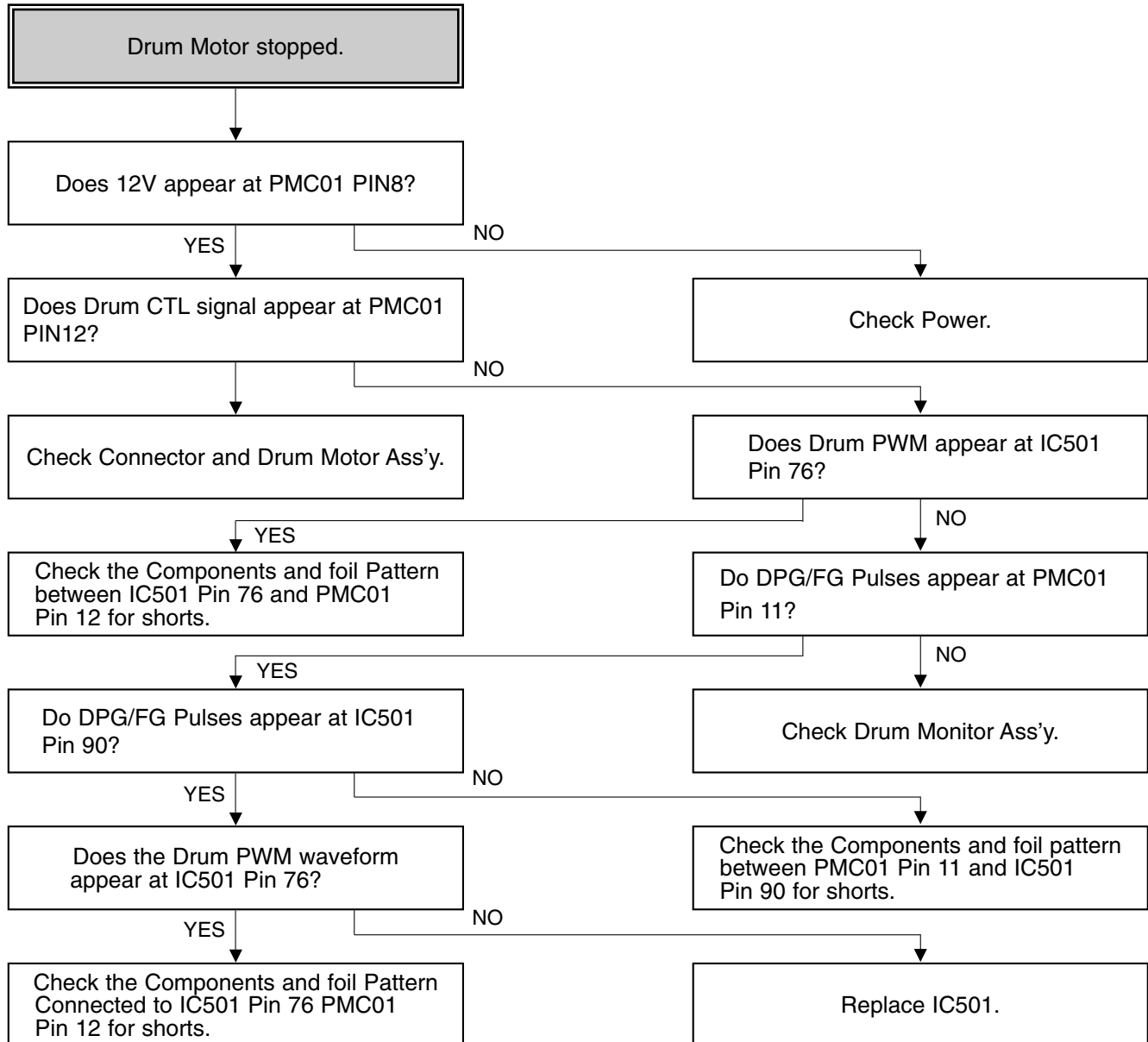


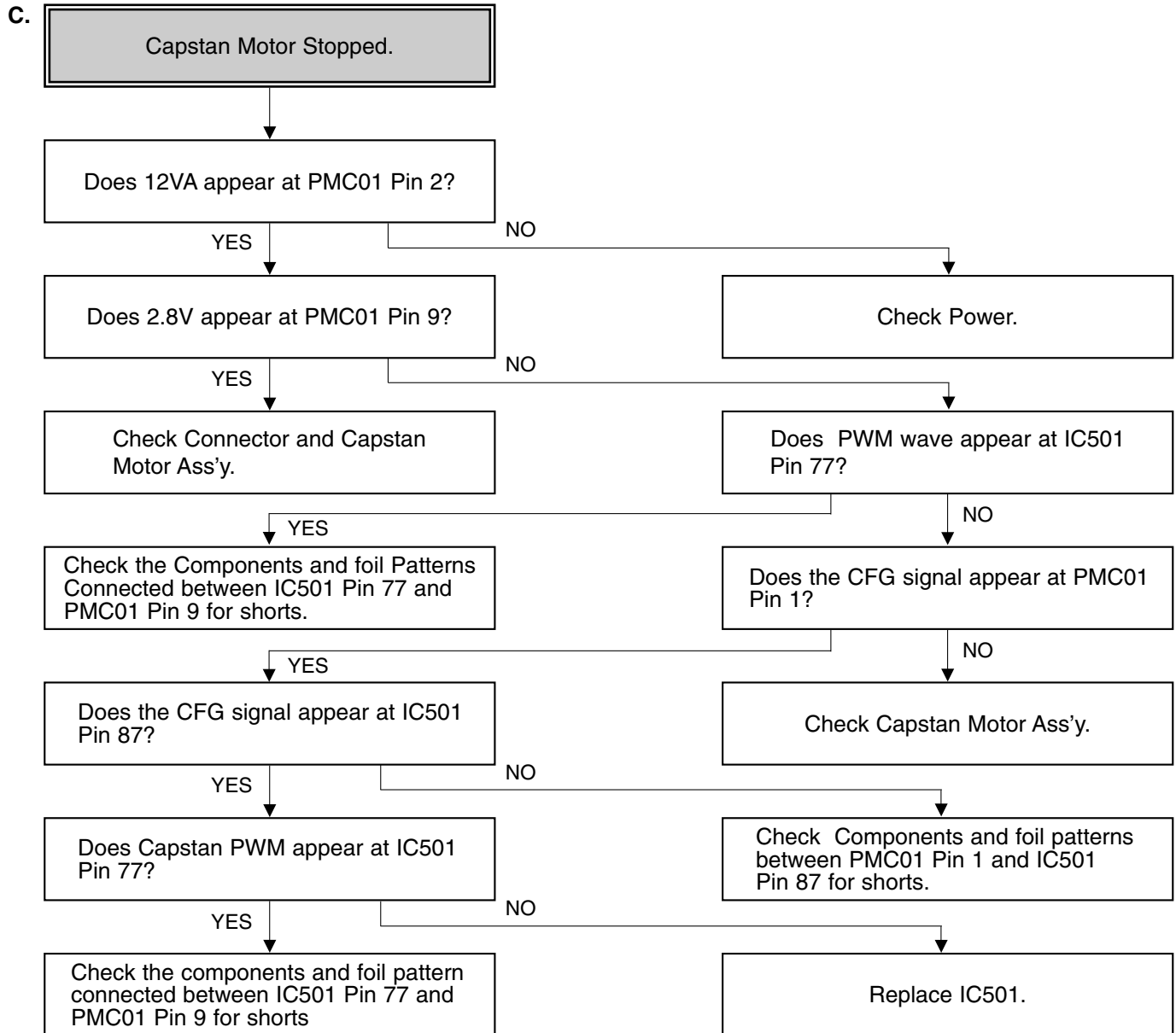
2. Servo Circuit





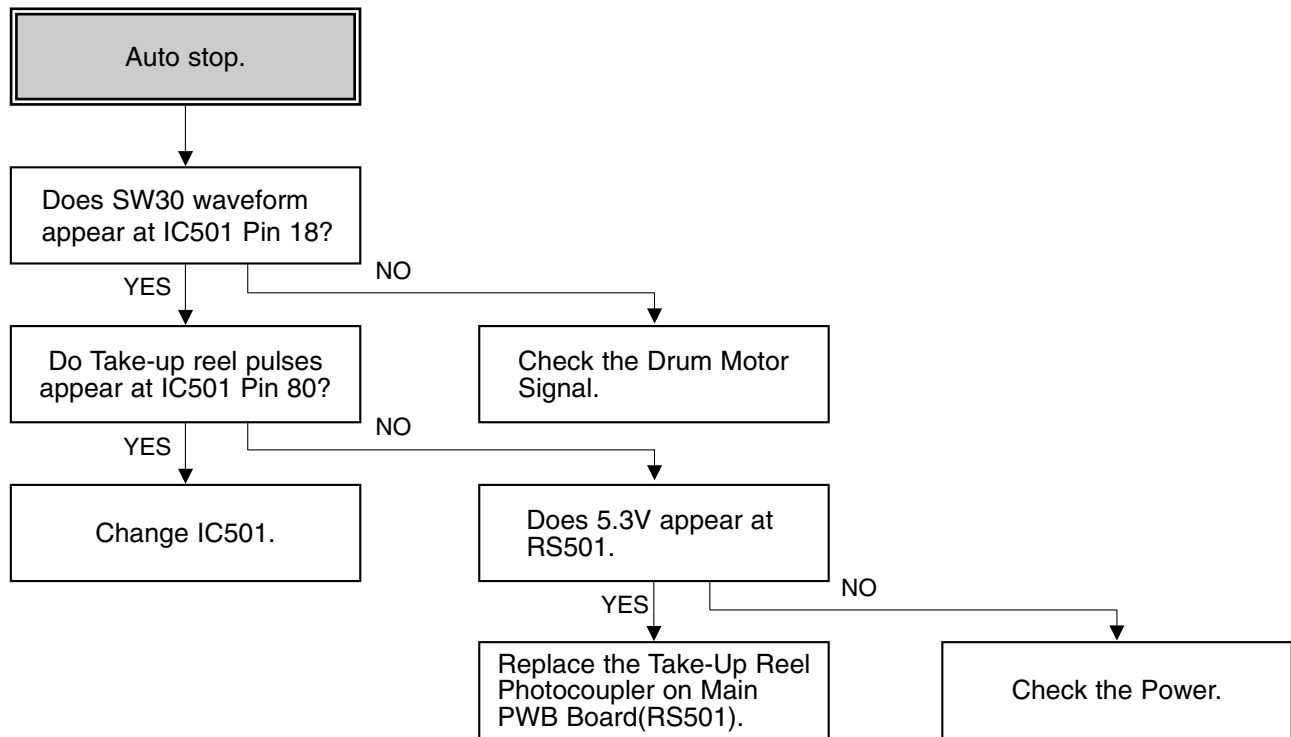
B.

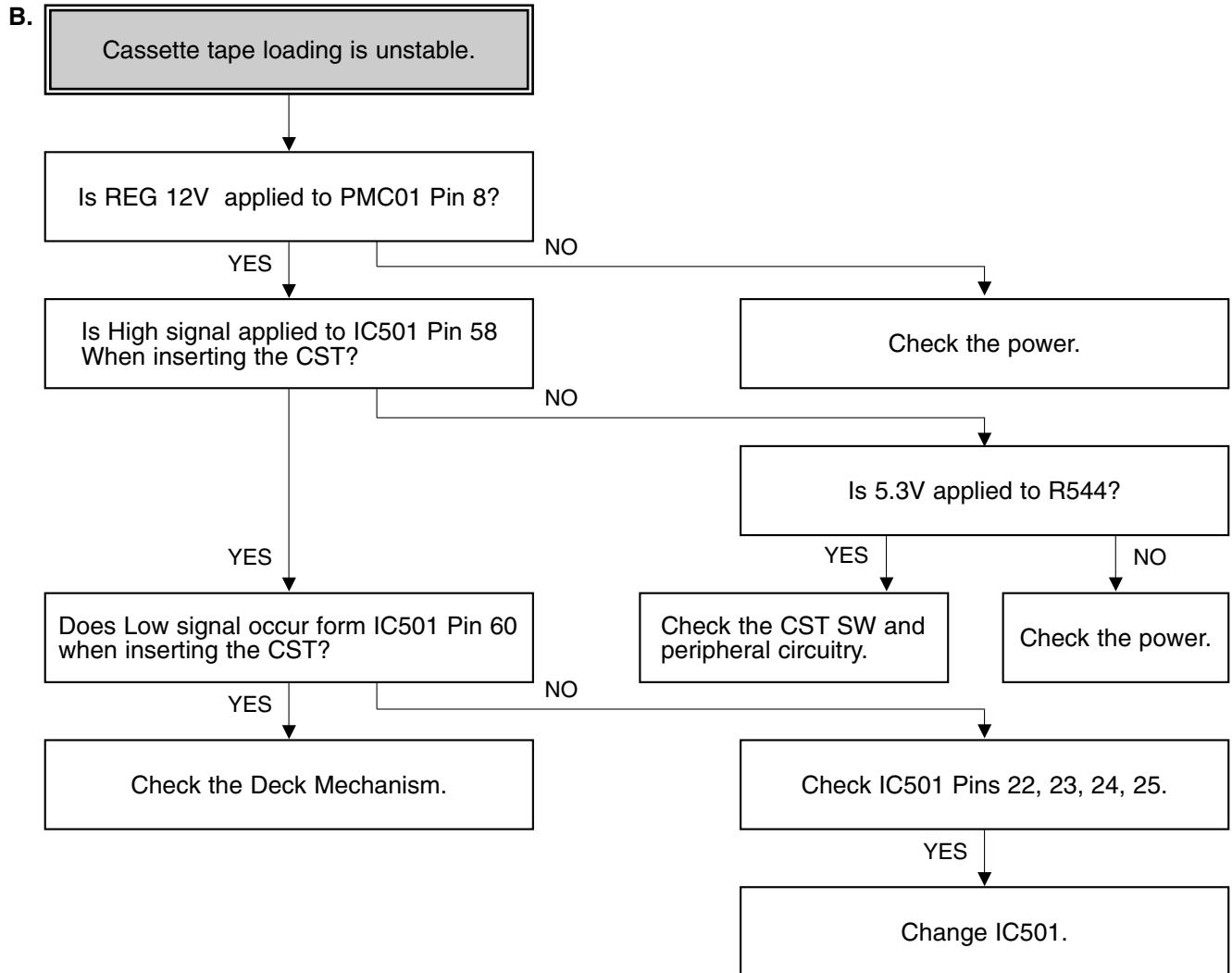




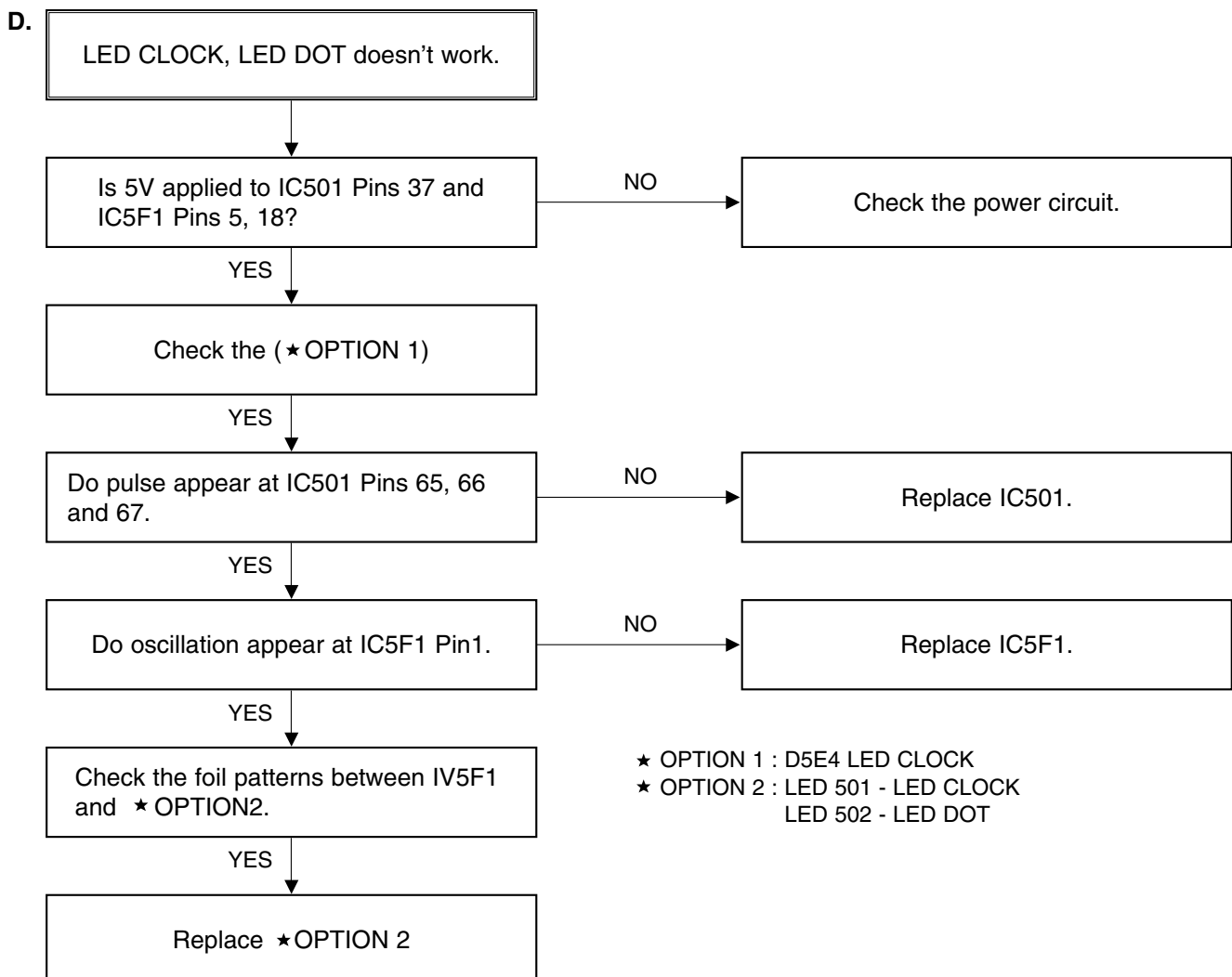
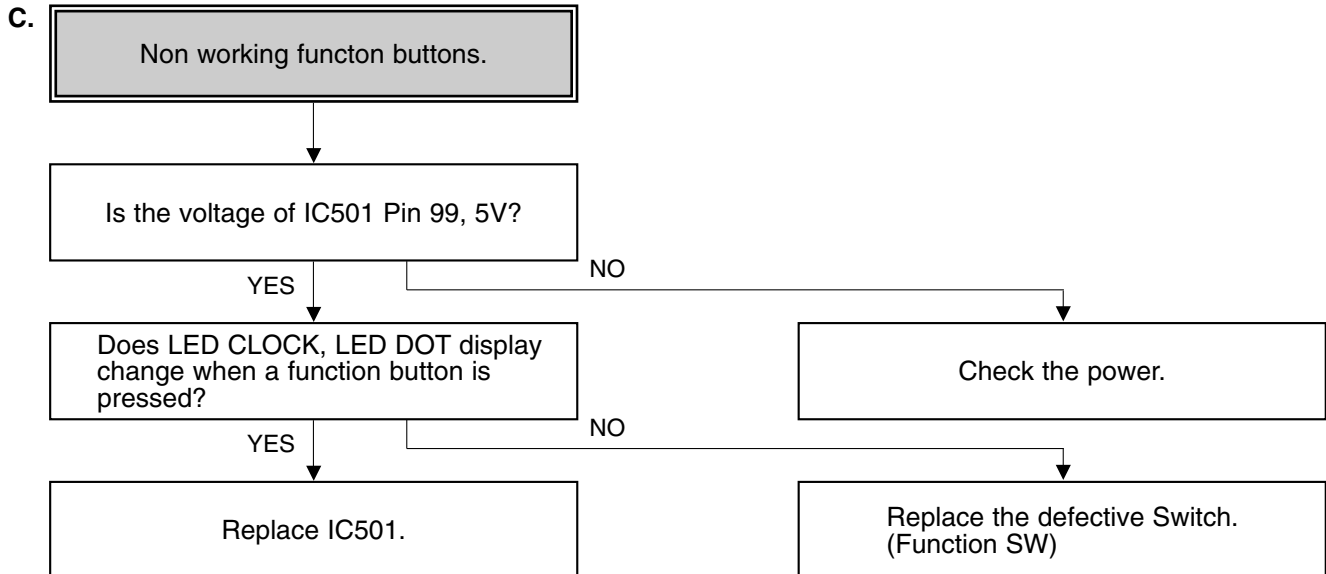
### 3. System & Front Panel Circuit

A.



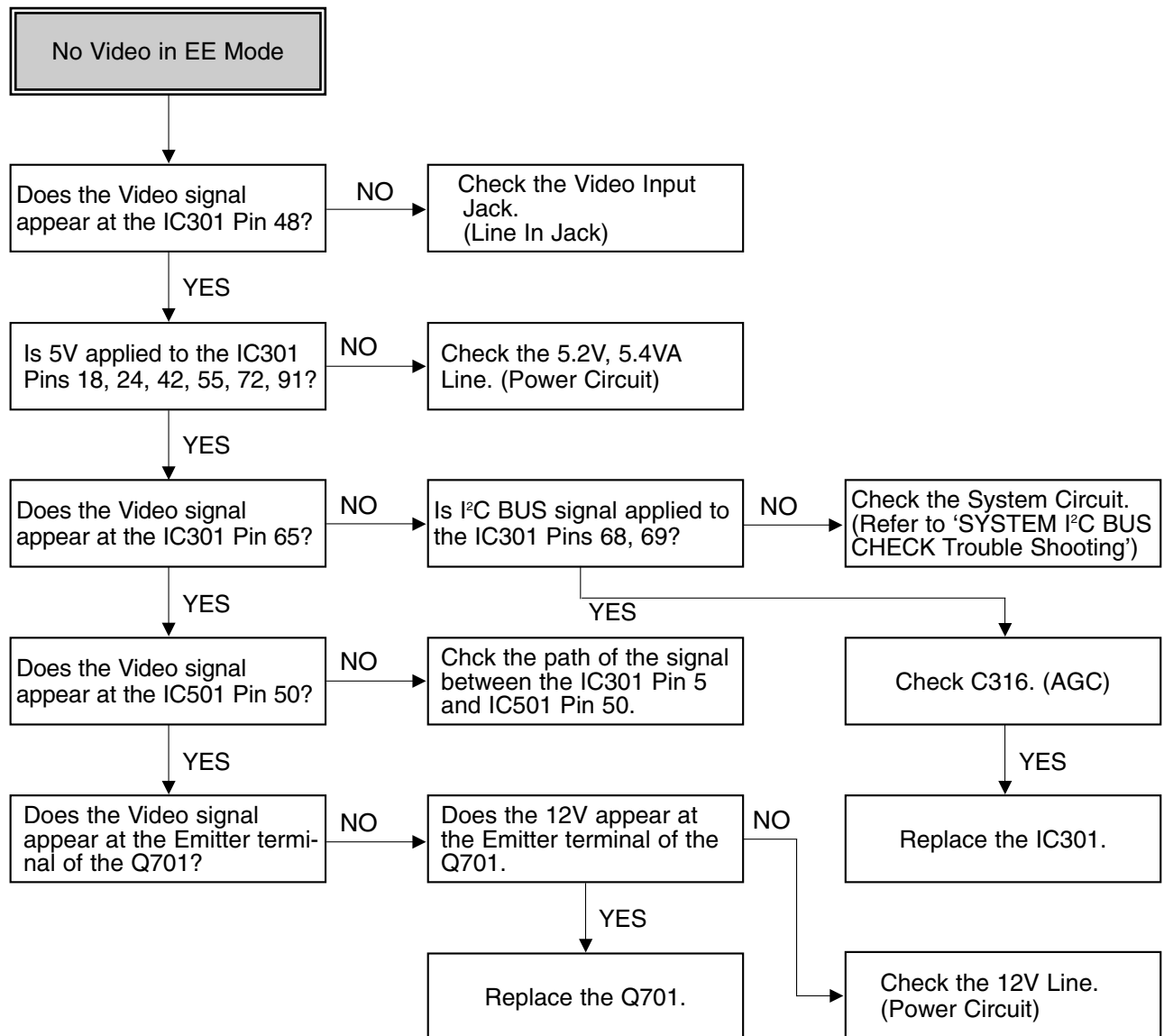


**NOTE :** Auto stop may also be caused by lack of lubrication,due to dried grease or oil.

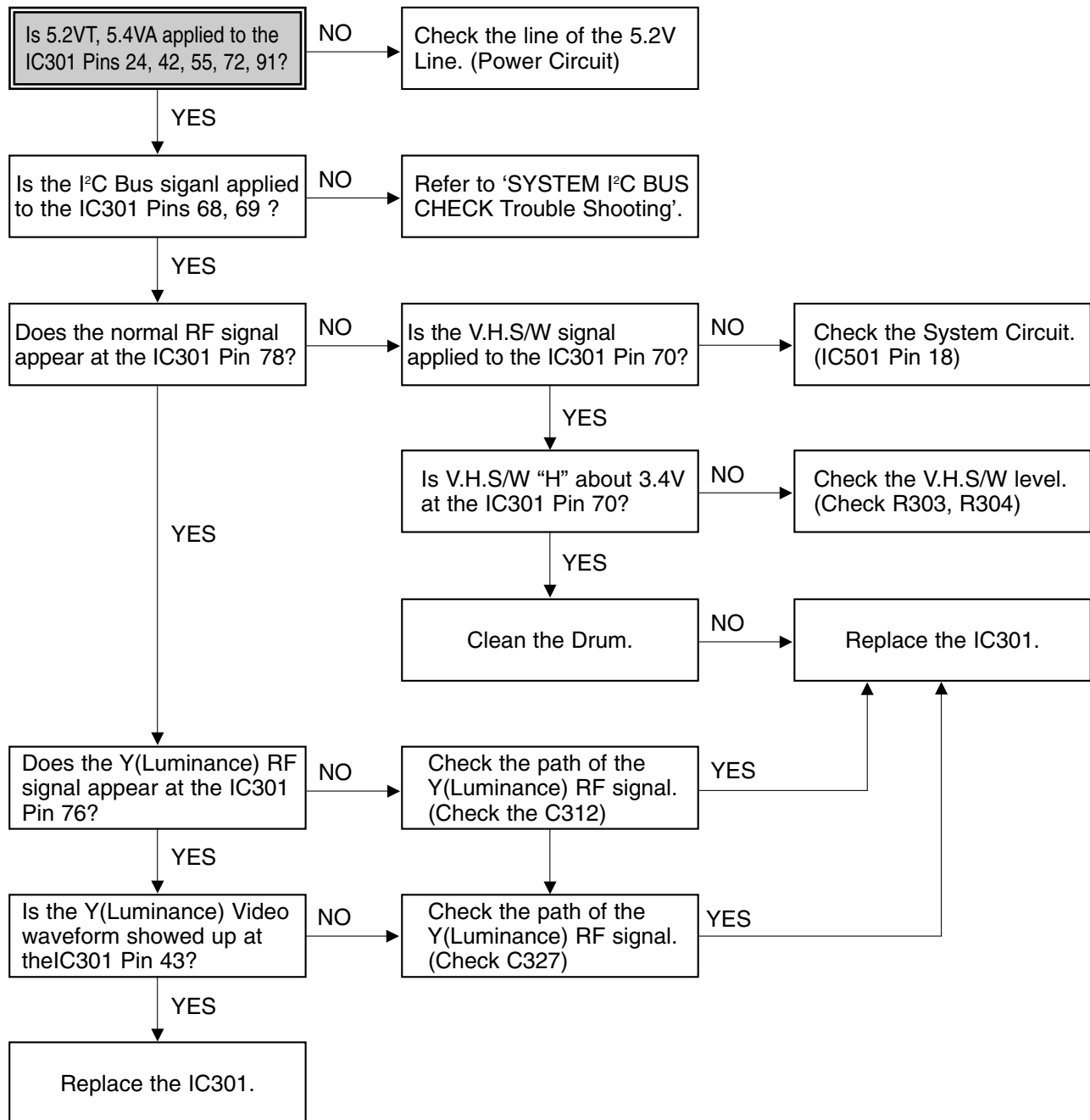


## 4. Y/C CIRCUIT

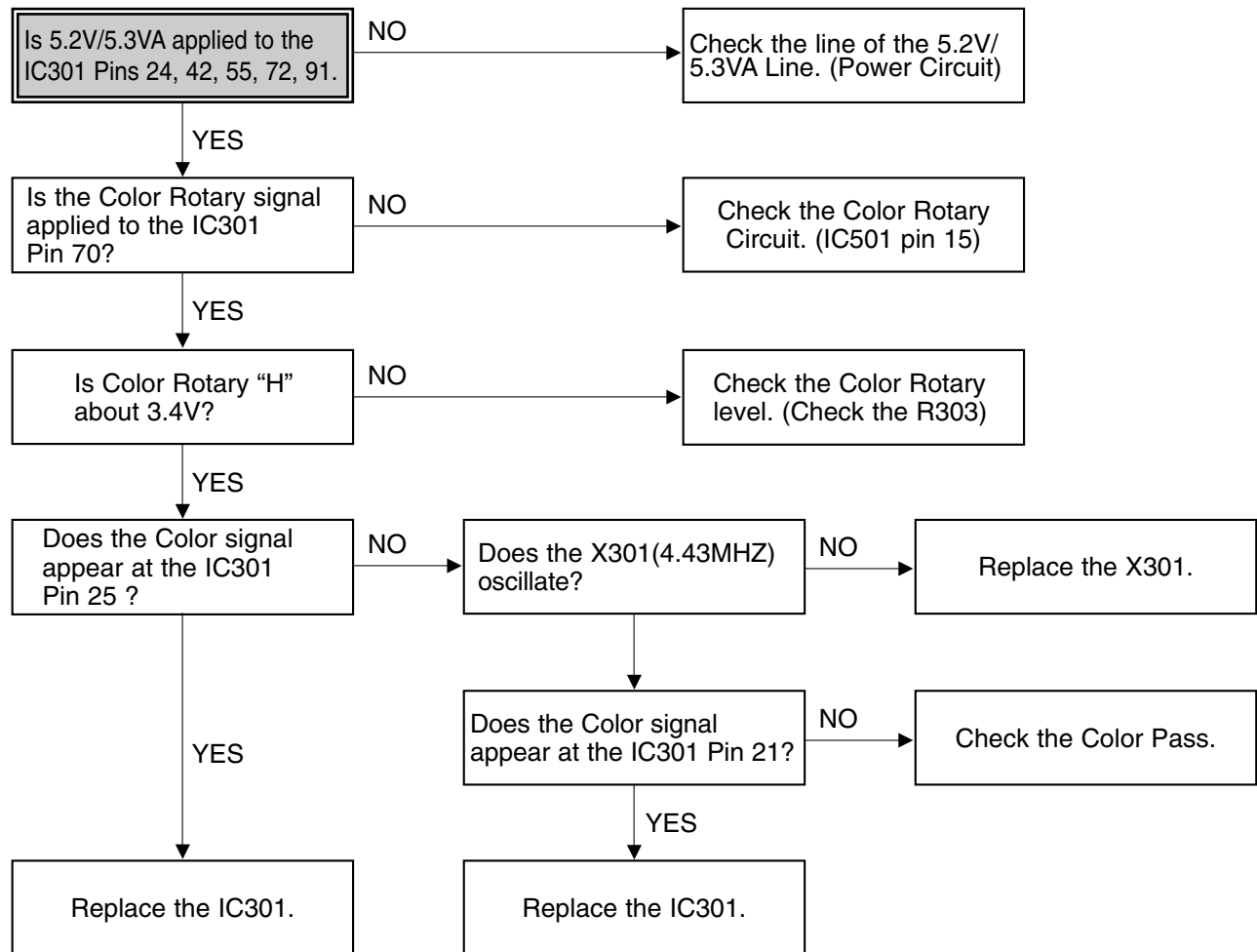
(1) No Video in EE Mode,



(2) When the Y(Luminance) signal doesn't appear on the screen in PB Mode,

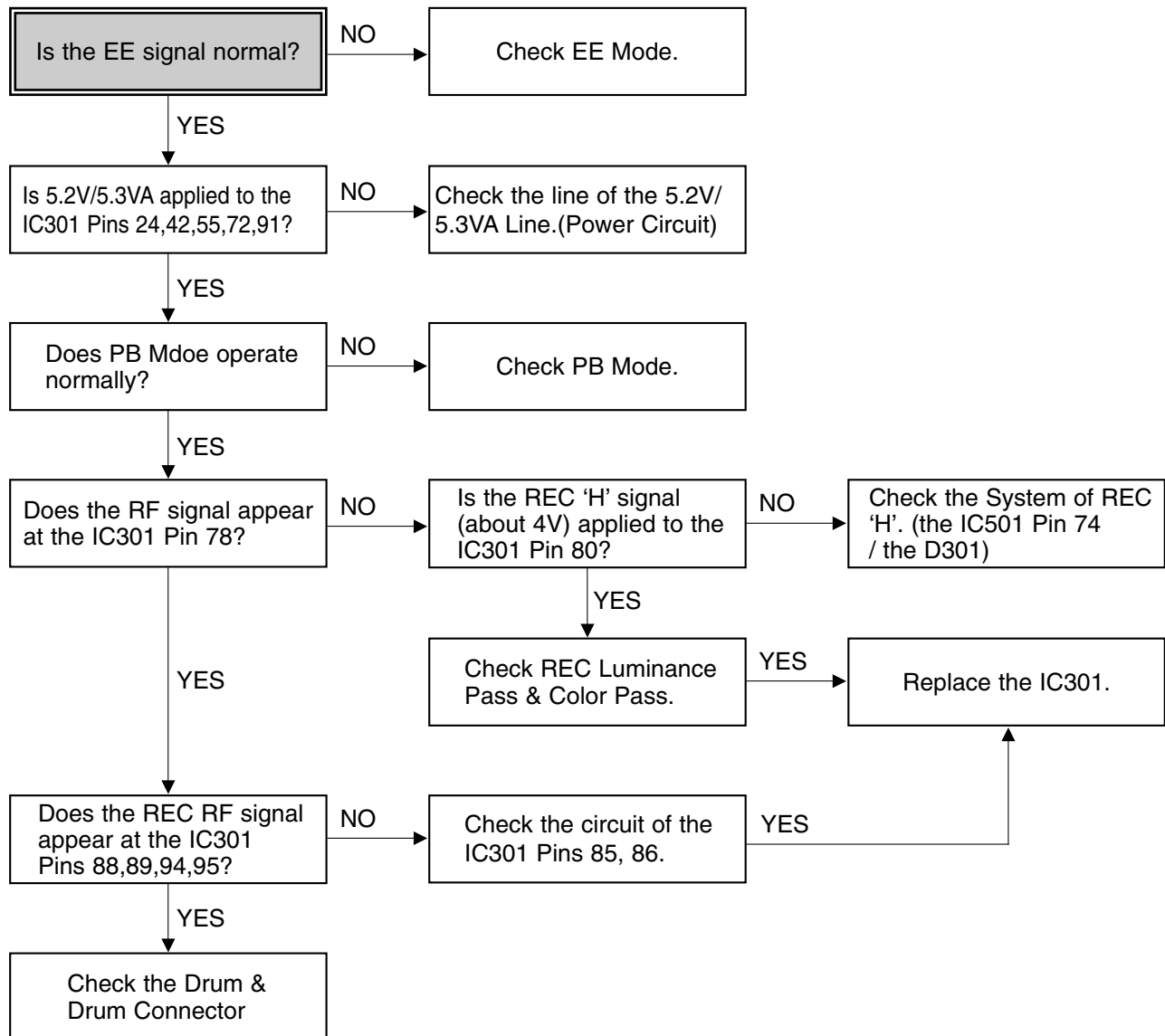


(3) When the C(Color) signal doesn't appear on the screen in PB Mode,



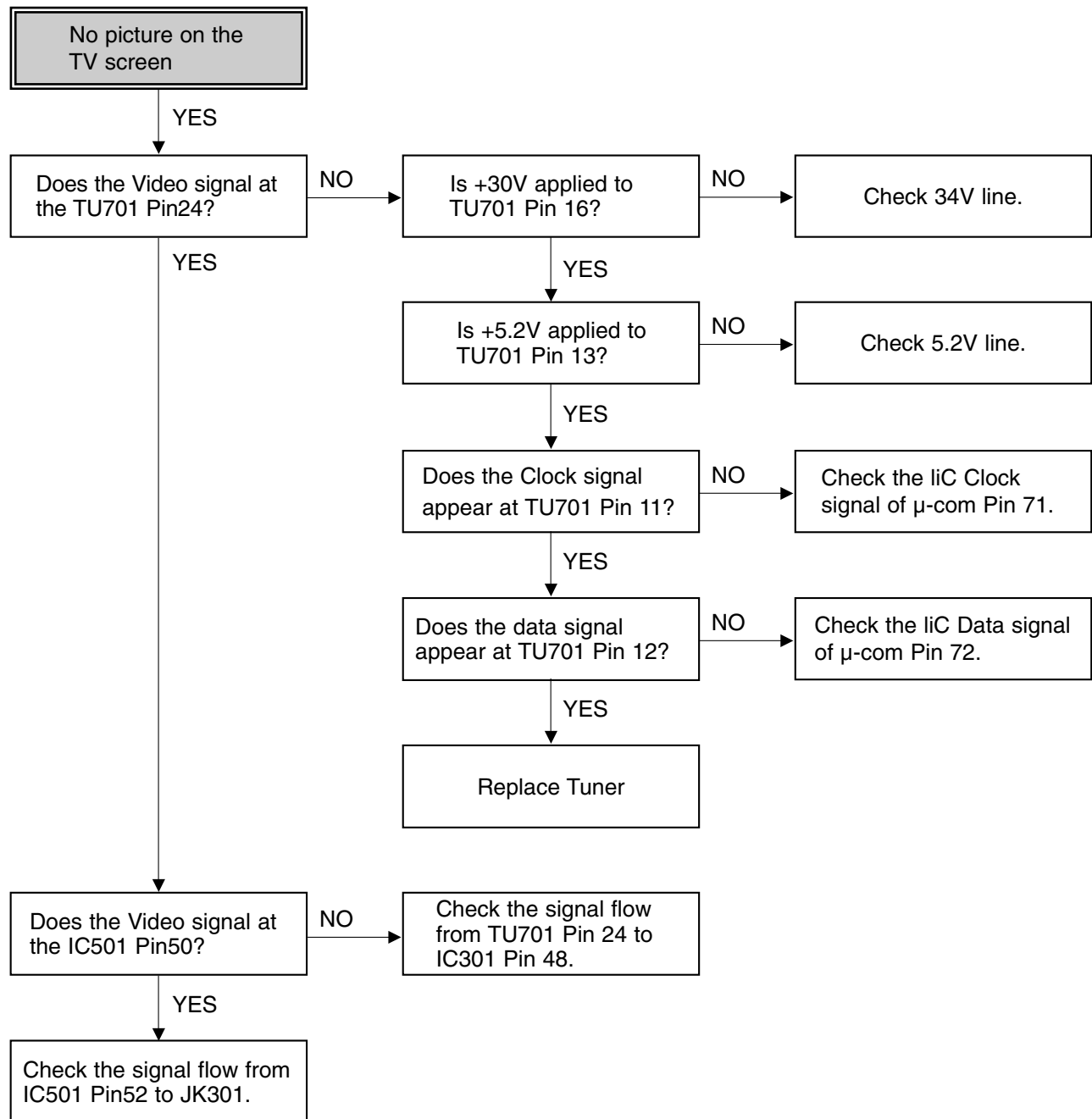


(4) When the Video signal doesn't appear on the screen in REC Mode,

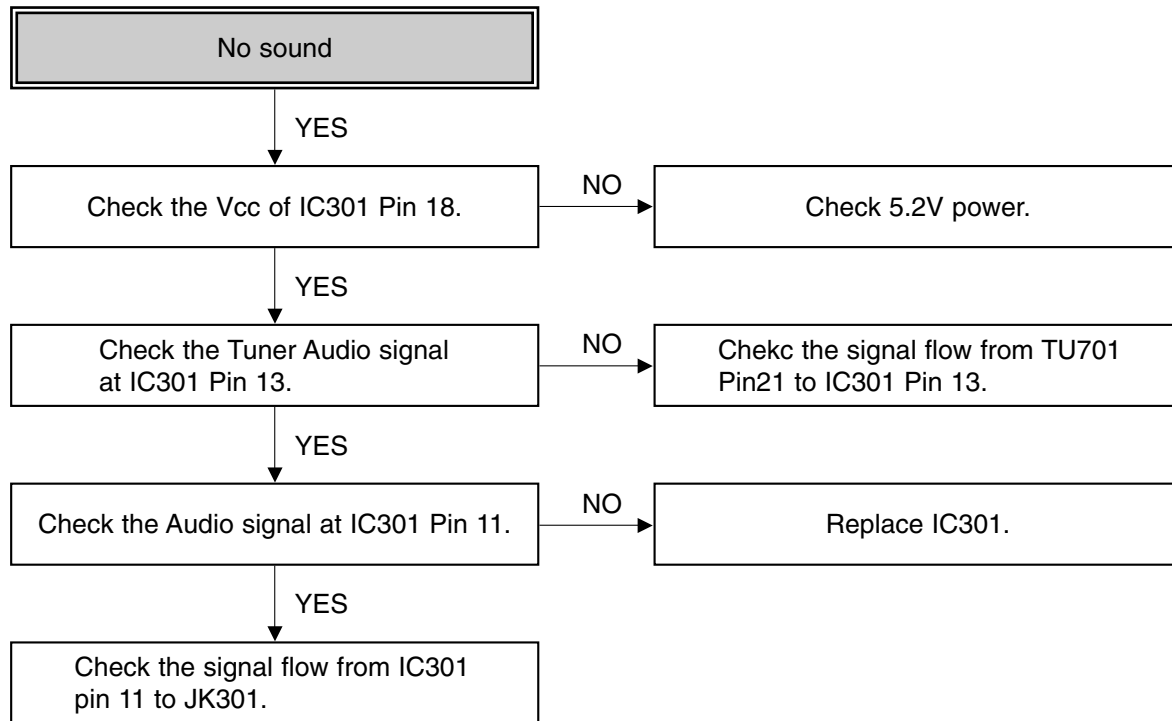


## 5. Tuner/IF circuit

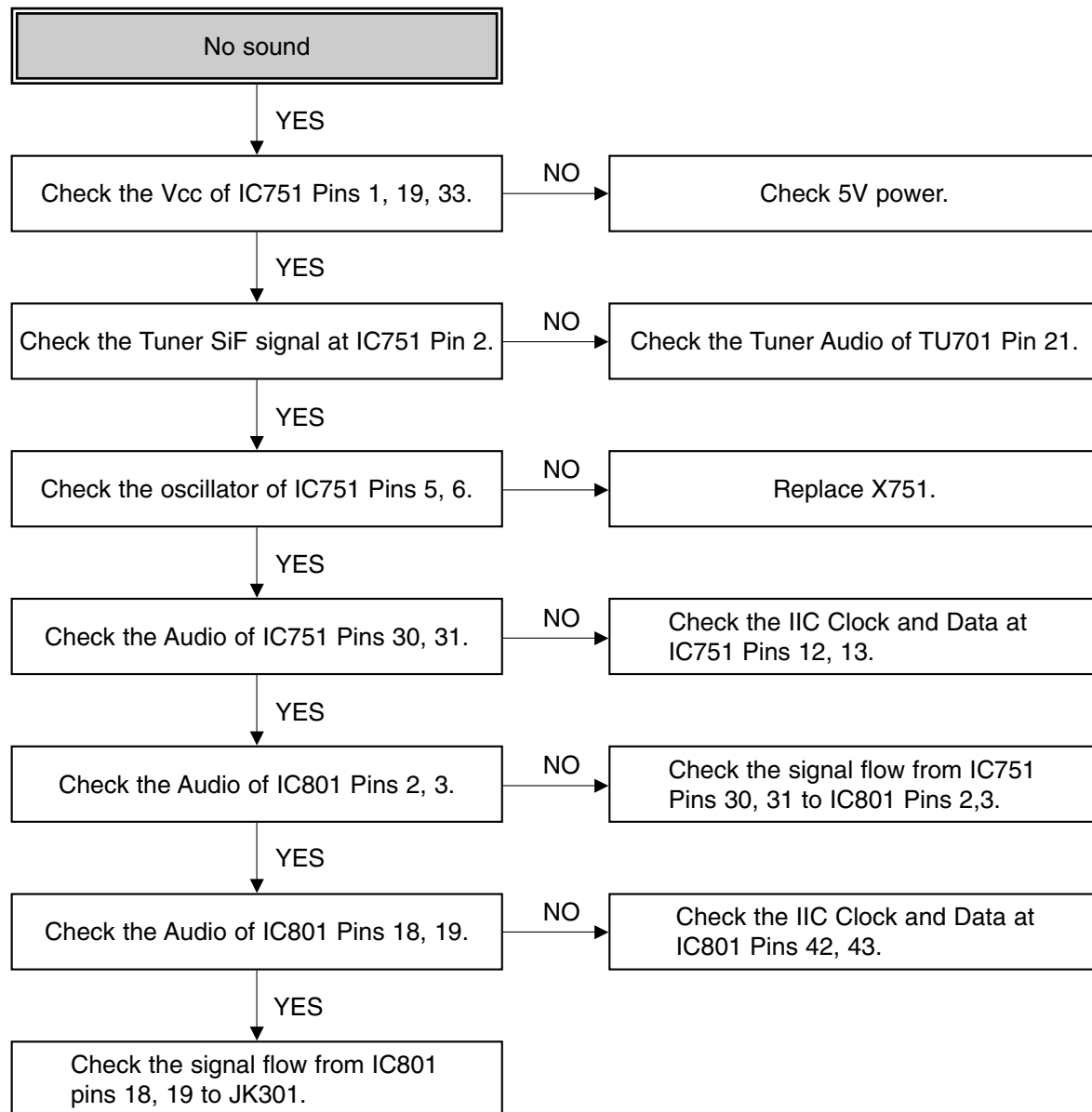
### (1) No picture on the TV screen



(2) No sound (Mono Model)

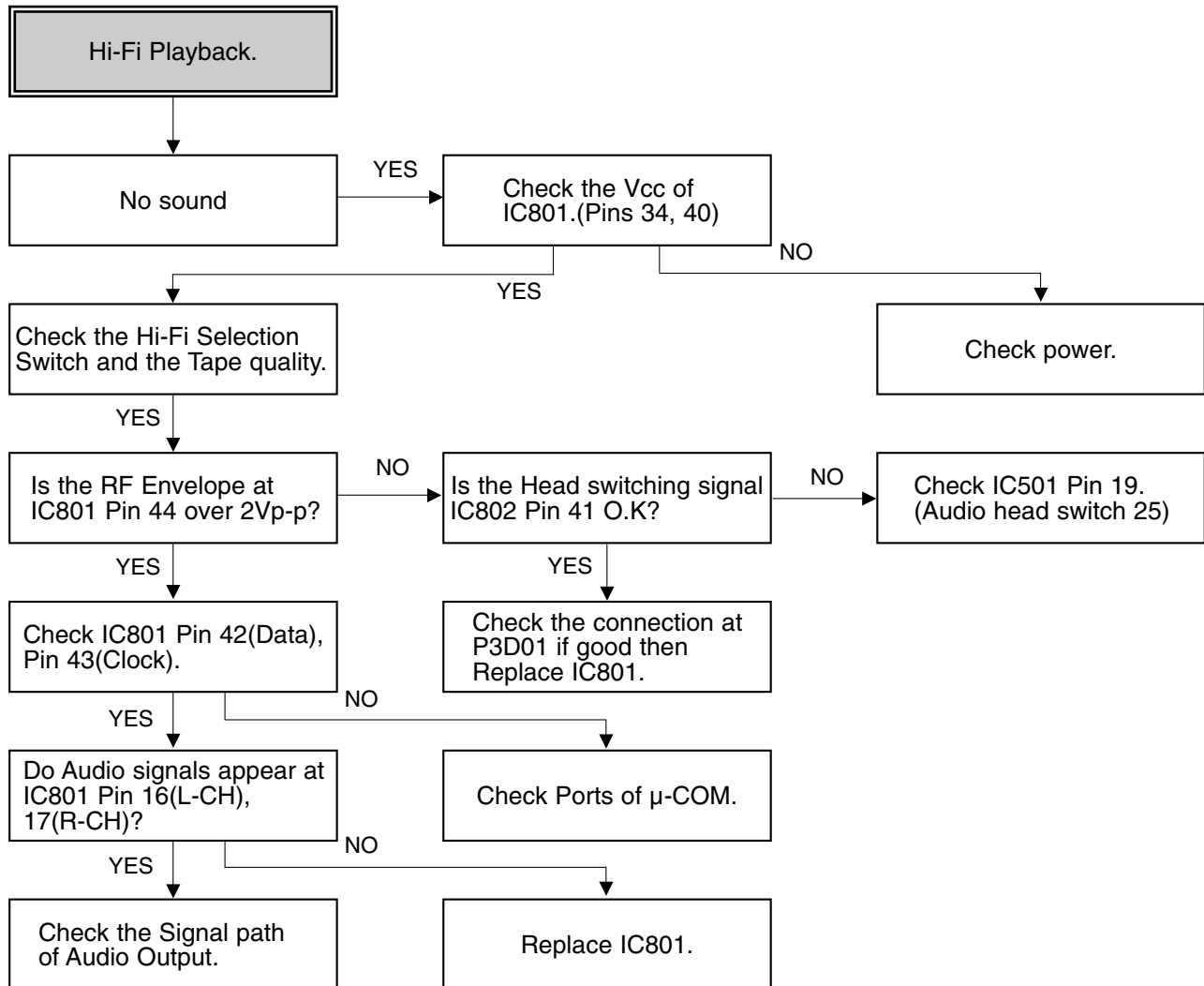


### (3) No sound (Hi-Fi Model)

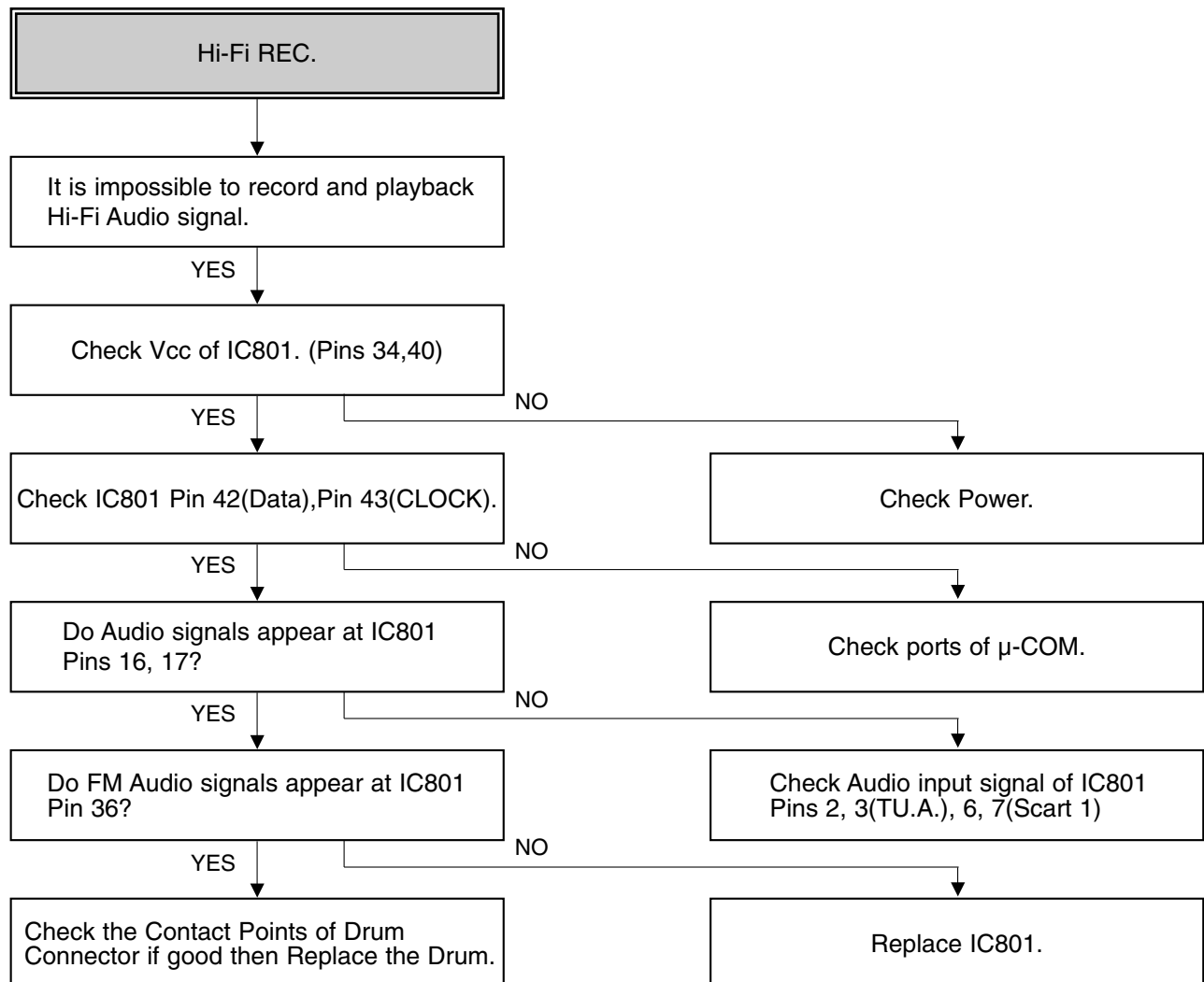


## 6. Hi-Fi Circuit (Hi-Fi Model)

A.

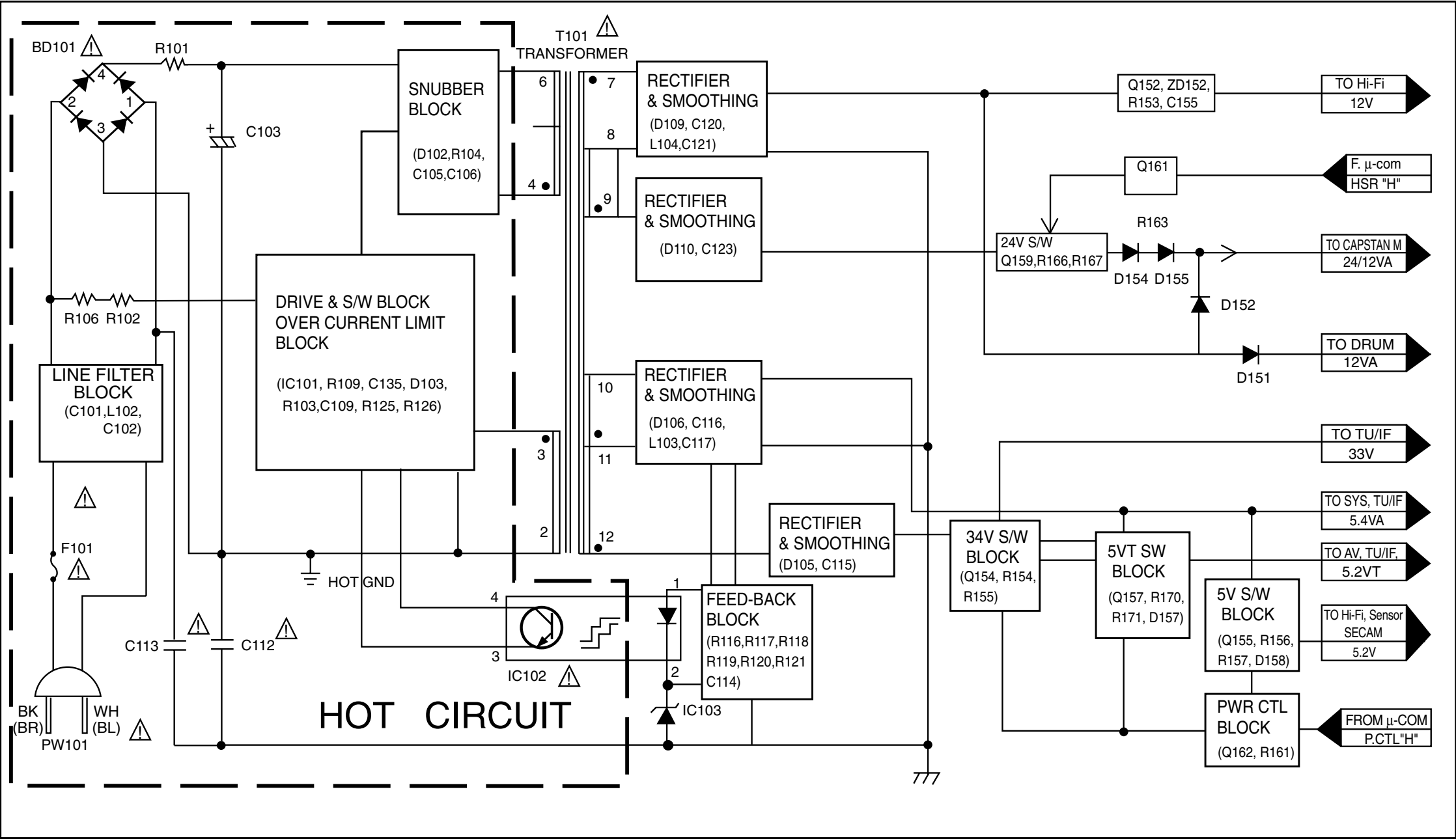


B.





BLOCK DIAGRAMS

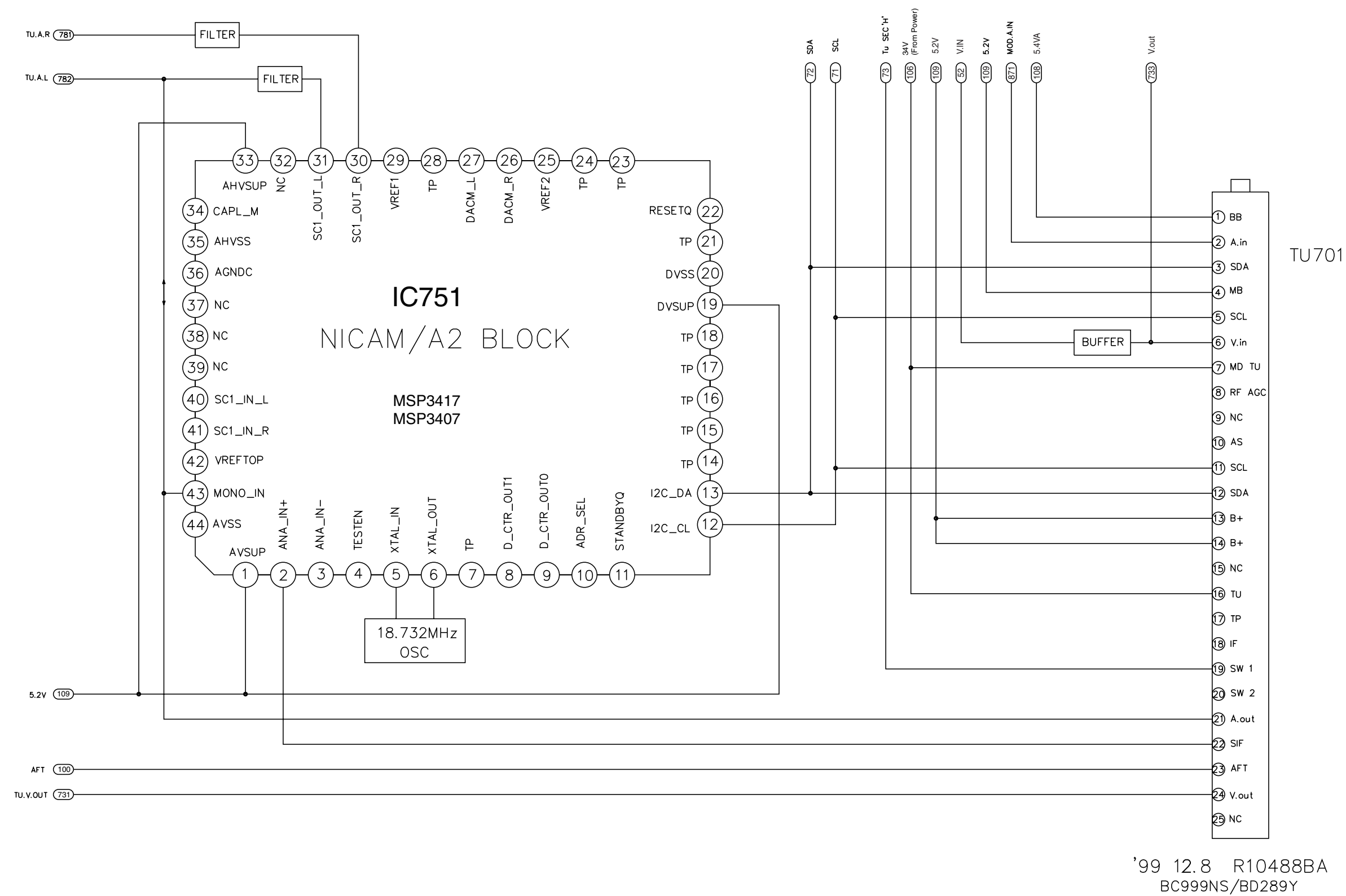
1. Power Block Diagram



'00 11. 30

NOTES :  Symbol denotes AC ground.  
 Symbol denotes DC chassis ground.

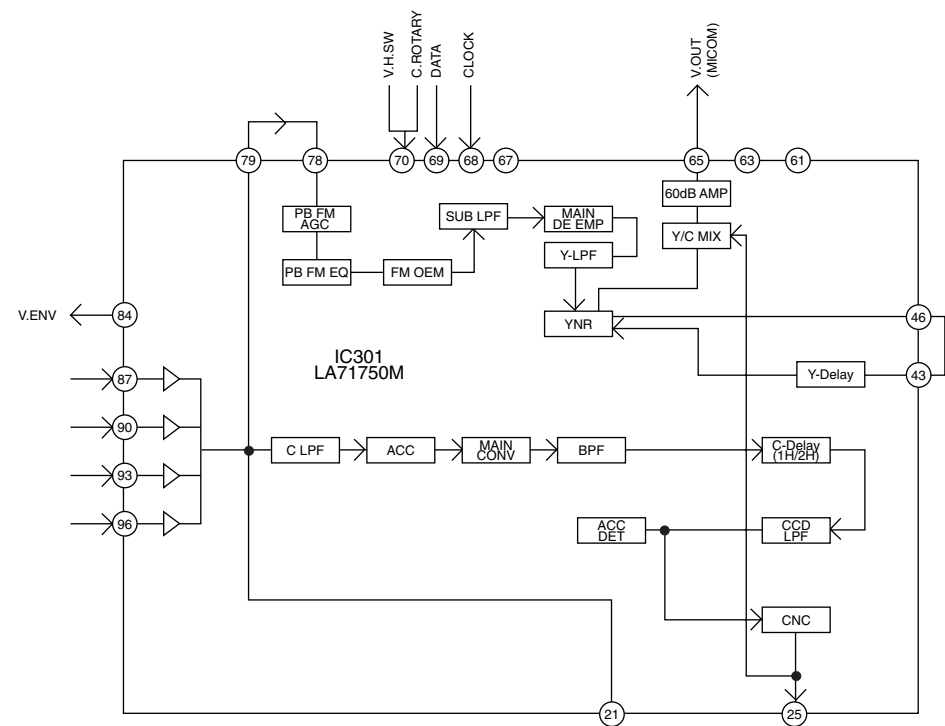
2. Tu/IF, NICAM & A2 Block Diagram



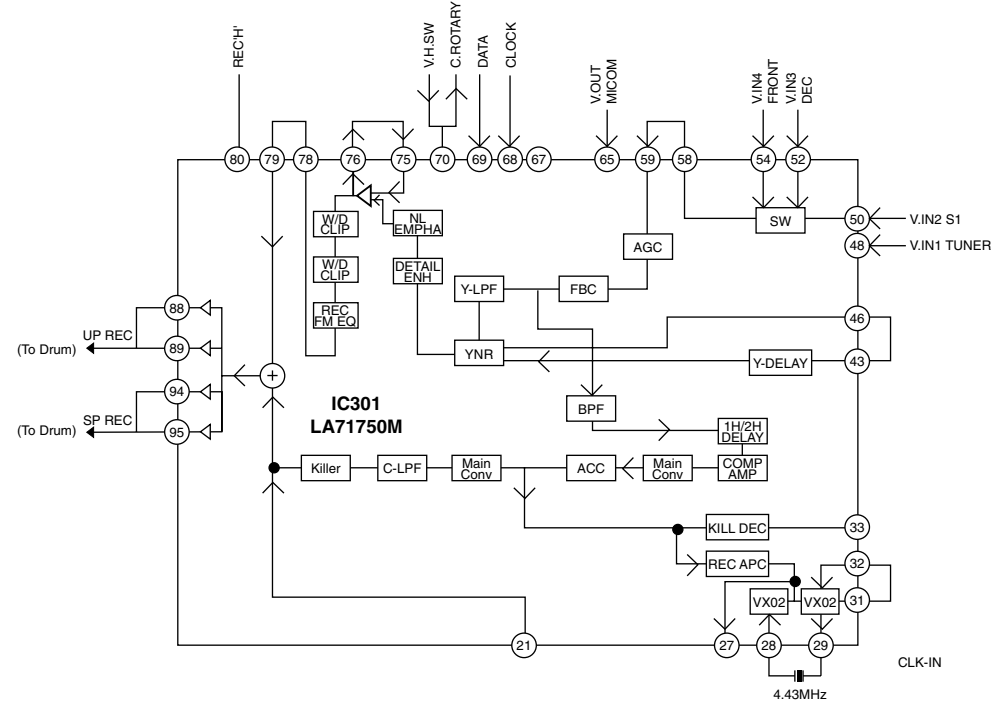


3. Y/C Block Diagram

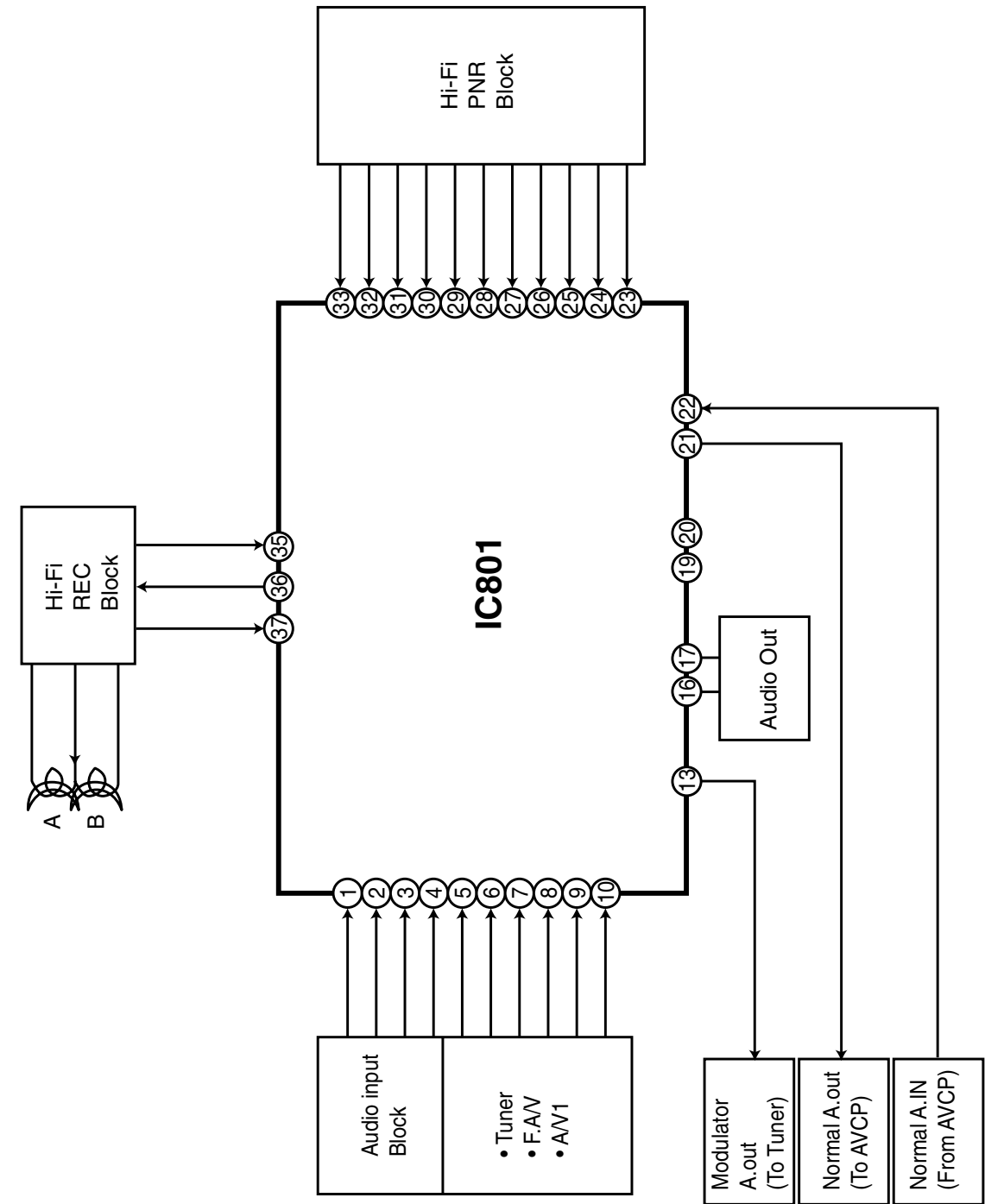
(PB MODE)



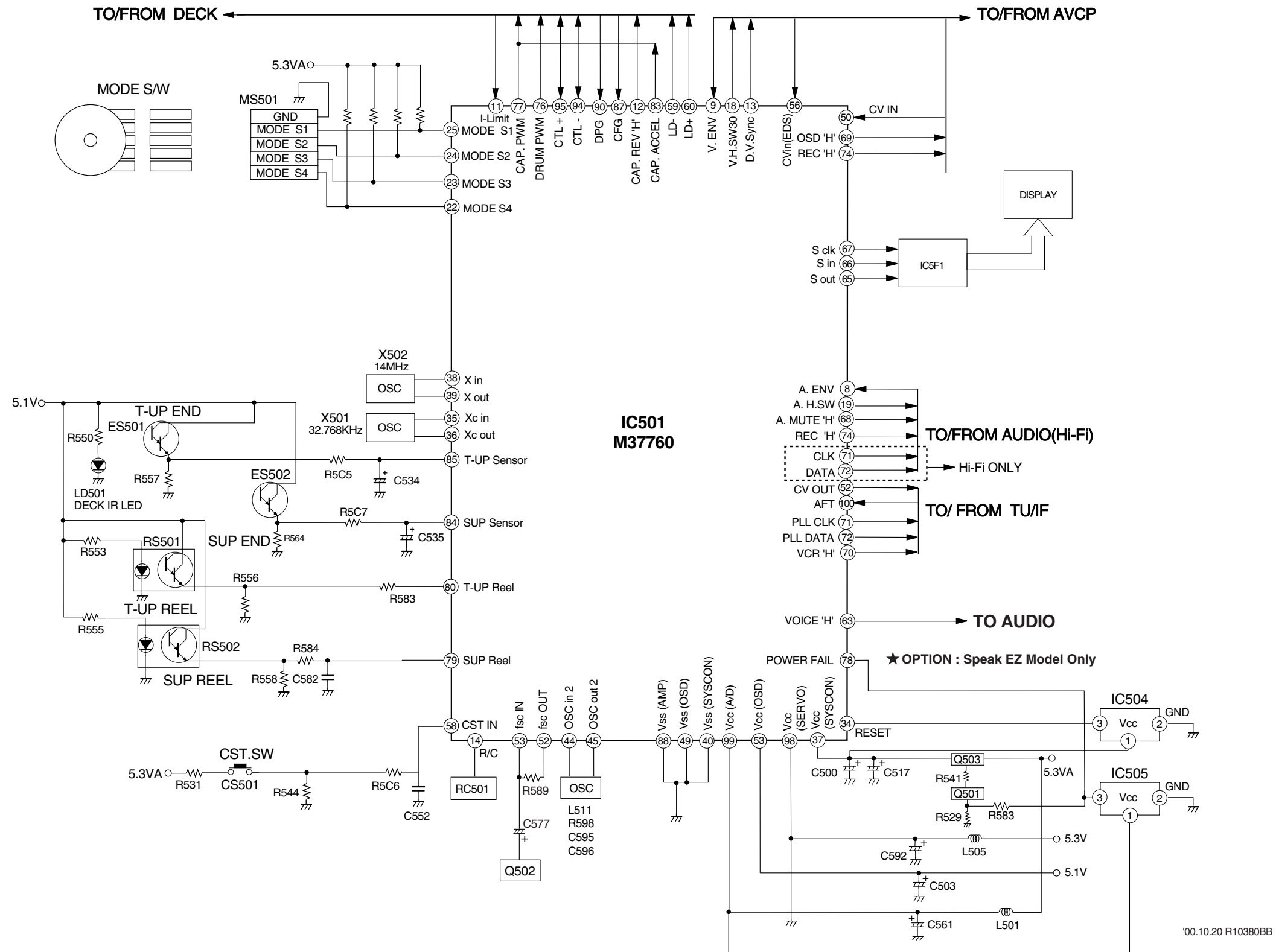
(REC MODE)



4. Hi-Fi Block Diagram (Hi-Fi Model)

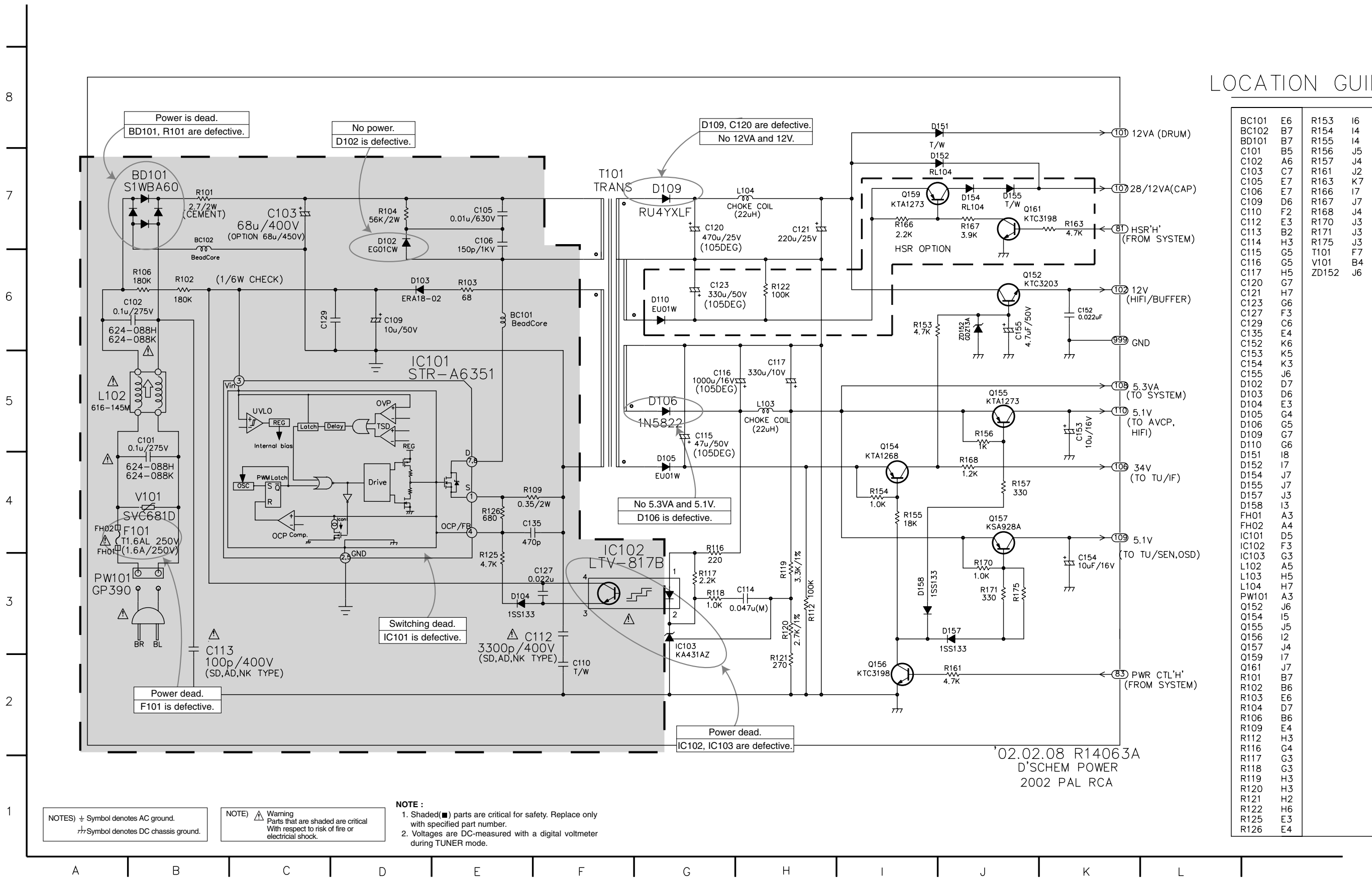


## 5. System Block Diagram

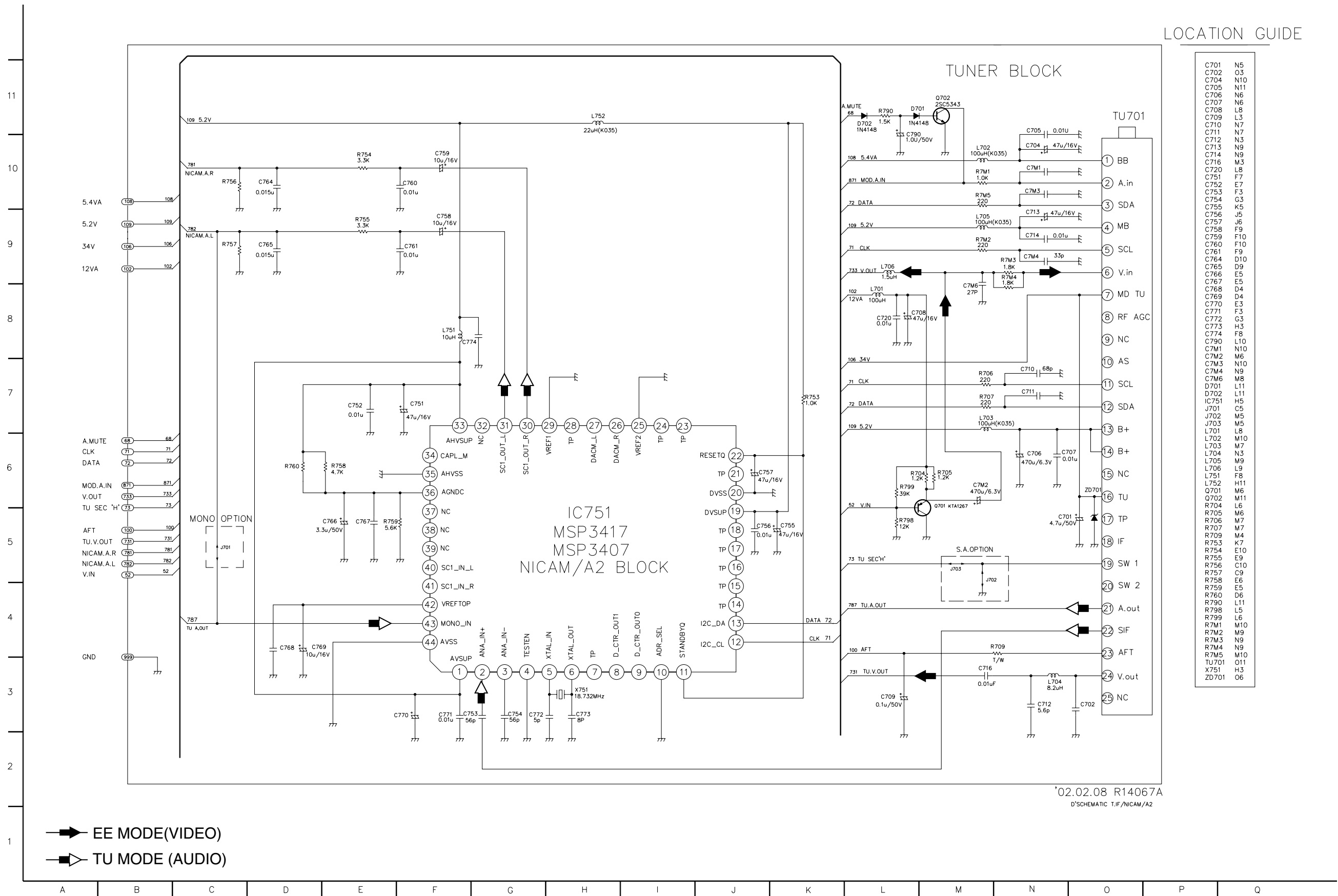


CIRCUIT DIAGRAMS

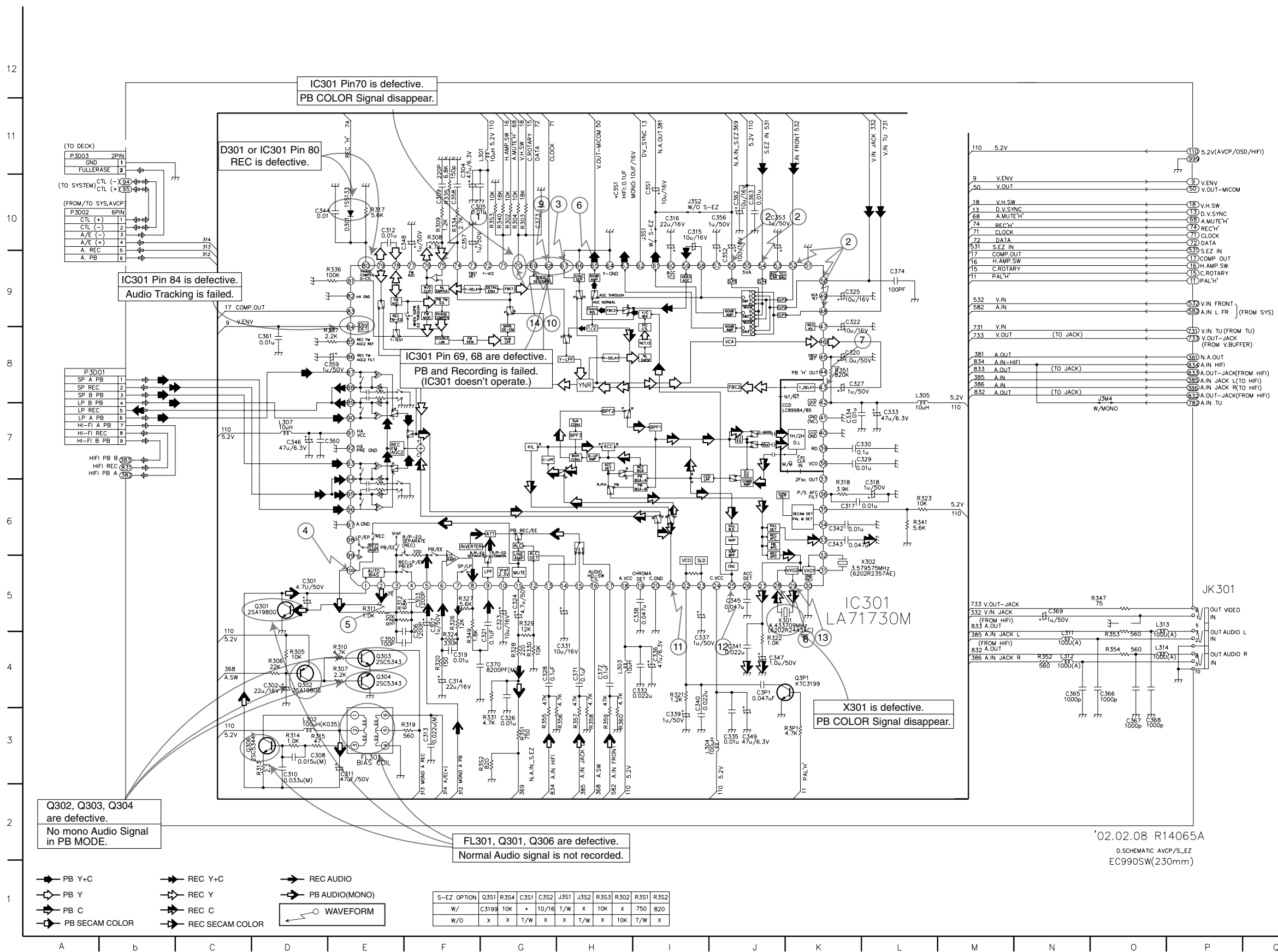
1. Power Circuit Diagram



2. Tuner, NICAM, A2 Circuit Diagram



3. A/V Circuit Diagram

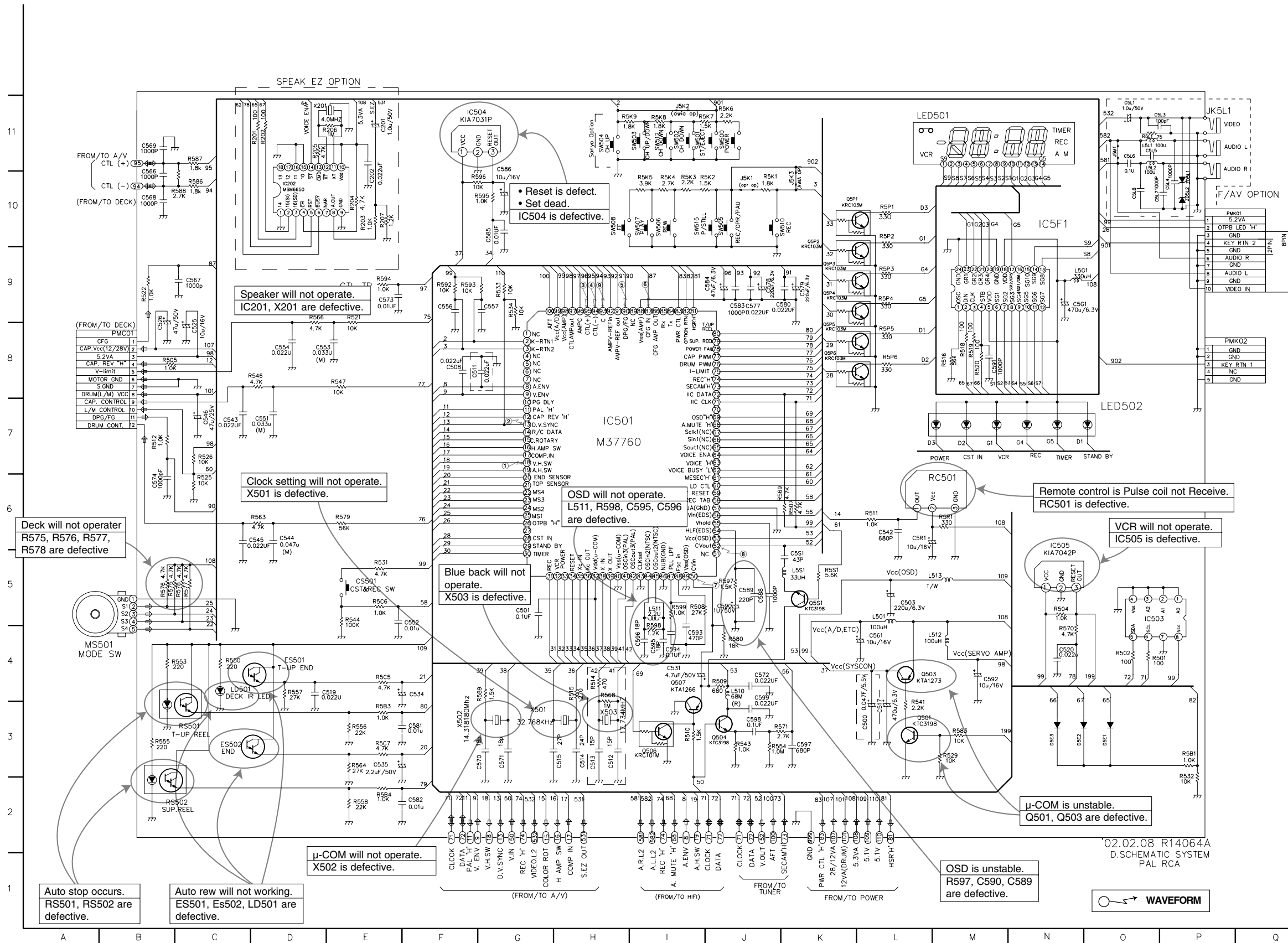


LOCATION GUIDE

999	P11	P3D03	A11
C301	D5	Q301	D5
C302	D4	Q302	D4
C303	F5	Q303	E4
C304	F10	Q304	E4
C305	F10	Q306	C3
C306	F4	Q3P1	K4
C307	F4	R301	E5
C308	D3	R302	G10
C309	F10	R303	G10
C310	D3	R304	G10
C311	E3	R305	D4
C312	E10	R306	D4
C313	F3	R307	E4
C314	F4	R308	F10
C315	I10	R309	F10
C316	I10	R310	E4
C317	K6	R311	E5
C318	L6	R312	E5
C319	F4	R313	D3
C320	K8	R314	D3
C321	G4	R315	D3
C322	K9	R317	E10
C323	G5	R318	K6
C324	G5	R319	E3
C325	K9	R320	F4
C326	G3	R321	I4
C327	K8	R322	J4
C328	G4	R323	L6
C329	K7	R324	F4
C330	K7	R326	F5
C331	H4	R327	F5
C332	I4	R328	G4
C333	L7	R329	G5
C334	K7	R330	G4
C335	J3	R331	G3
C336	I4	R334	F10
C337	I4	R335	F10
C338	I5	R336	D9
C339	I3	R337	D8
C340	I3	R340	G10
C341	J4	R341	L6
C342	K6	R345	O5
C343	K6	R347	O5
C344	D10	R349	F4
C345	J5	R351	K8
C346	D7	R352	N4
C347	J4	R353	O4
C348	F10	R354	O4
C349	J5	R355	G3
C350	E4	R356	H3
C351	J10	R357	H3
C352	J10	R358	H3
C353	F10	R359	H3
C354	F10	R360	H3
C355	D8	R3P1	J3
C356	D7	R3S1	G3
C357	D8	R3S2	O3
C358	J10	R3S3	G10
C359	J10	X301	J5
C360	N4	X302	L5
C361	O4		
C362	O3		
C363	O3		
C364	N5		
C365	G4		
C366	H4		
C367	H4		
C368	L9		
C369	J4		
C370	J9		
C371	E10		
C372	E3		
C373	K5		
C374	O8		
C375	I10		
C376	I10		
C377	P5		
C378	G11		
C379	D3		
C380	H4		
C381	J3		
C382	L8		
C383	D7		
C384	N4		
C385	N4		
C386	O5		
C387	O4		
C388			
C389	A8		
C390	A10		

'02.02.08 R14065A  
D.SCHEMATIC AVCP/S-EZ  
EC990SW(230mm)

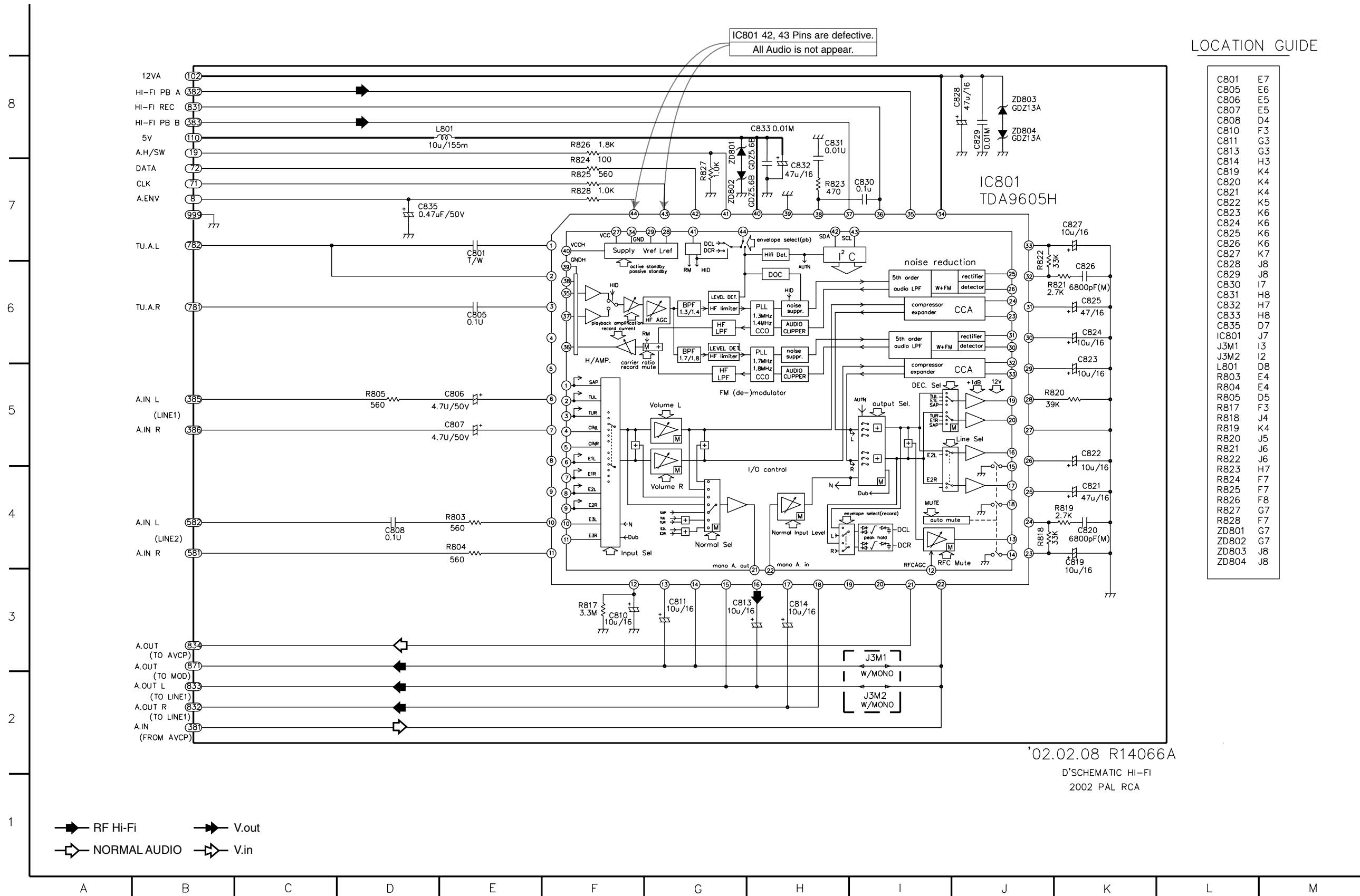
4. System Circuit Diagram



LOCATION GUIDE

C201	E11	PMK01	B8	R5P2	L10
C202	E10	PMK01	P10	R5P3	L9
C500	L3	PMK02	P8	R5P4	L9
C501	G5	Q501	L3	R5P5	L8
C503	L5	Q503	L4	R5P6	L8
C508	F8	Q504	J3	R5R1	M6
C511	F8	Q506	J3	R5S1	K5
C512	H3	Q507	I4	RC501	L6
C513	H3	Q5P1	K10	RS501	C3
C514	H3	Q5P2	K10	RS502	B2
C515	H3	Q5P3	K9	SW500	J11
C517	L3	Q5P4	K9	SW501	I11
C519	D4	Q5P5	K8	SW502	I11
C520	N4	Q5P6	K8	SW503	I11
C525	C8	Q5S1	K5	SW504	H11
C526	B8	R201	D11	SW505	H10
C531	I4	R202	D11	SW506	I10
C534	F4	R203	E10	SW507	I10
C535	E3	R204	E10	SW508	H10
C542	L6	R205	D11	SW510	K10
C543	C7	R206	D11	SW515	I10
C544	D6	R207	E10	X201	D11
C545	C6	R501	O4	X501	C3
C546	C7	R502	O4	X502	F3
C551	D7	R504	N8	X503	H3
C552	F5	R505	B5	ZD5L1	P10
C553	D8	R507	K6	ZD5L2	P10
C554	D8	R508	I5		
C556	F9	R509	J4		
C557	G9	R510	J3		
C561	L4	R511	L6		
C566	B10	R512	B7		
C567	C9	R514	H4		
C568	B10	R515	H4		
C569	B11	R516	M8		
C570	G3	R518	M8		
C571	C3	R519	M8		
C572	J4	R520	M8		
C573	E9	R521	E9		
C574	B6	R522	B9		
C577	J9	R523	C6		
C578	J9	R526	C7		
C579	K9	R529	M3		
C580	J9	R531	E5		
C581	F3	R532	P2		
C582	F2	R533	O3		
C583	J9	R534	O9		
C584	J9	R541	L3		
C585	G10	R543	J3		
C586	G11	R544	E5		
C588	J5	R546	C8		
C589	J5	R547	E8		
C590	J5	R550	C4		
C591	M8	R553	B4		
C592	M4	R554	J3		
C593	I4	R555	B3		
C594	I4	R556	E3		
C595	I4	R557	D4		
C596	I4	R558	E2		
C597	K3	R563	D6		
C598	J3	R564	E3		
C599	J4	R566	D9		
C501	N9	R568	H4		
C503	O11	R569	K6		
C504	O11	R570	N4		
C505	P10	R571	J3		
C506	O11	R575	B5		
C507	O11	R576	B5		
C508	O10	R577	C5		
C509	O10	R578	C5		
C510	L6	R579	E6		
C511	K5	R580	J4		
C512	E5	R583	M3		
C513	O3	R586	C10		
C514	N3	R587	C11		
C515	N3	R588	B10		
C516	D4	R589	C4		
C517	C3	R592	F9		
C518	D10	R593	F9		
C519	H7	R594	E9		
C520	O5	R595	F10		
C521	F11	R596	F10		
C522	N6	R597	J5		
C523	N10	R598	I4		
C524	J10	R599	I5		
C525	I11	R581	P3		
C526	K10	R583	E3		
C527	O11	R584	E2		
C528	P11	R585	E4		
C529	L5	R586	E5		
C530	J4	R587	E3		
C531	I5	R588	J10		
C532	L4	R589	K10		
C533	L5	R590	I10		
C534	N9	R591	I10		
C535	O11	R592	J11		
C536	O11	R593	K11		
C537	K5	R594	K11		
C538	C4	R595	I11		
C539	L11	R596	O11		
C540	O7	R597	H11		
C541	A4	R598	P10		

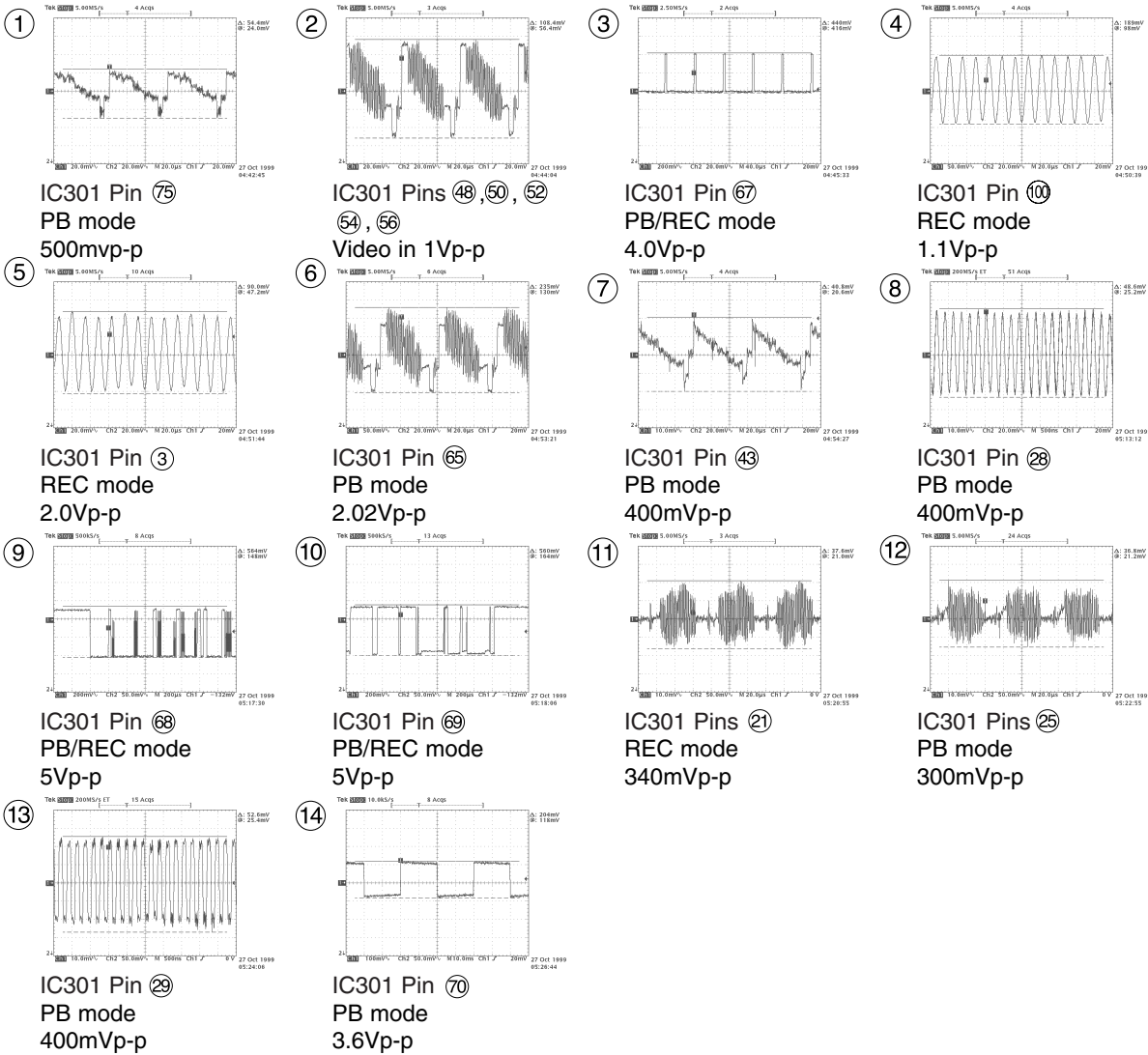
5. Hi-Fi Circuit Diagram (Hi-Fi Model)



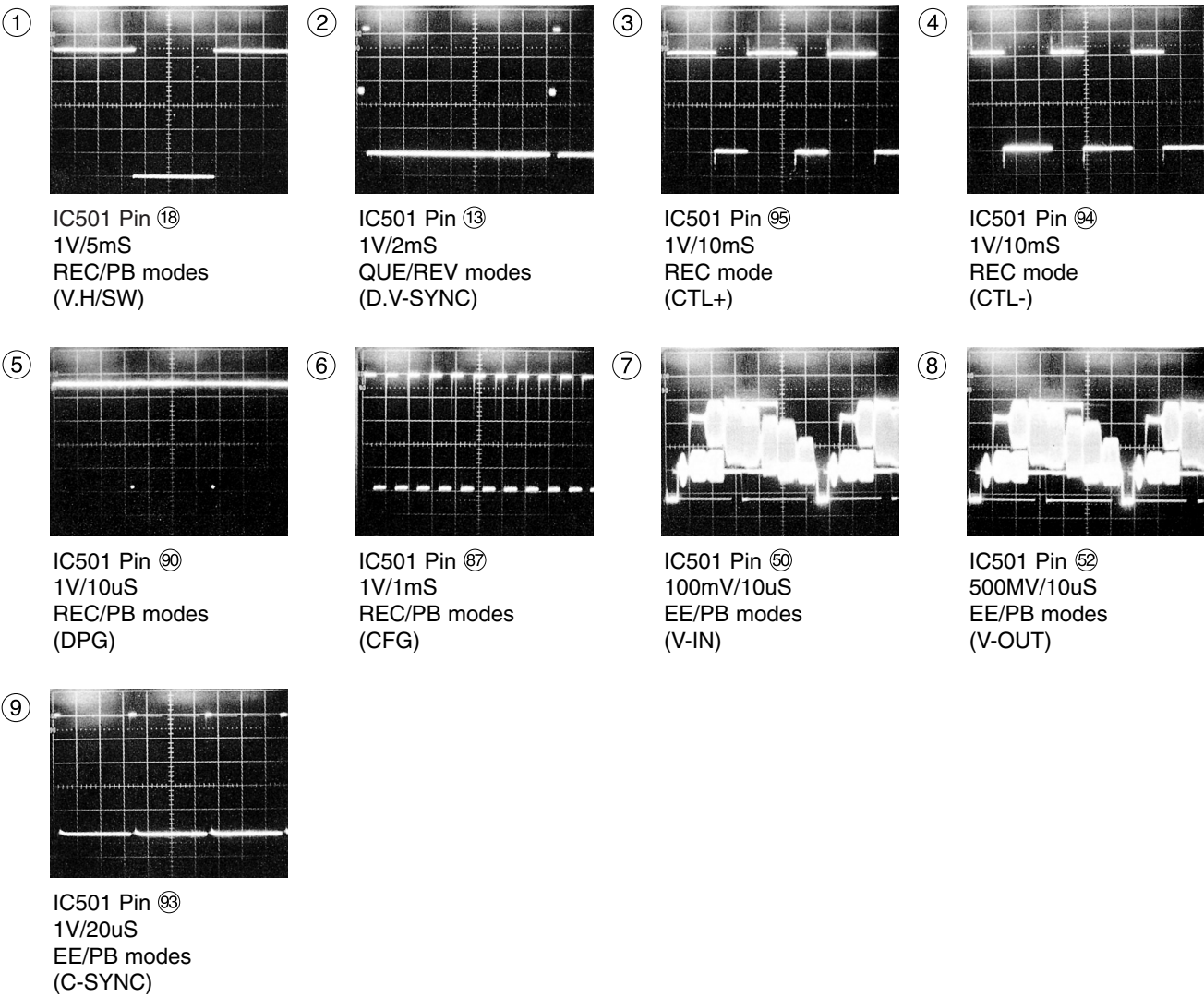


# WAVEFORM

## ★ IC301 Oscilloscope Waveform



## \* IC501 Waveform photographs





• CIRCUIT VOLTAGE CHART

MODE PIN NO.	EE	PB	REC
IC 202			
1	0	0	0
2	2.86	2.86	2.85
3	5.15	5.16	0
4	5.29	5.29	5.29
5	4.94	4.94	4.94
6	5.29	5.29	5.29
7	5.29	5.2	5.29
8	2.57	2.57	2.57
9	0	0	0
10	5.29	5.29	5.29
11	2.41	2.41	2.42
12	2.1	2.1	2.08
13	0	5.29	5.29
14	5.26	5.26	5.25
15	0	0	0
16	0	0	0
17	0	0	0
18	0	0	0
IC 301			
1	5.15	5.14	1.7
2	0.02	0.03	0.75
3	2.29	2.29	0
4		1.46	0.5
5	2.28	2.26	2.47
6	2.29	2.28	2.29
7	2.28	2.28	2.27
8	2.27	2.27	2.27
9	2.26	2.26	3.05
10	2.29	2.29	2.28
11	2.37	2.39	2.28
12	0	0.02	0.11
13	2.26	2.3	2.28
14		0.02	
15	2.26	2.26	2.29
16	5.17	0.16	5.05
17	2.26	2.26	2.27
18	5.17	5.17	5.14
19	4.24	4.25	3.07
20	0	0	0
21	3.36	1.96	3.25
22	3.07	3.06	3.06
23	3.06	3.03	3.05
24	5.16	5.16	5.13
25	0.13	3.44	5.13
26	1.44	1.82	0
27	2.07	2.1	1.42
28	4.23	4.21	4.18
29	2.83	2.83	2.9
30	0	0	0
31	4.7	4.7	4.69
32	4.7	4.7	4.69
33	2.85	2.06	2.07
34	0.33	0.31	0.31
35	2.17	2.16	2.16

MODE PIN NO.	EE	PB	REC
36	3.35	3.35	3.35
37	2.09	2.11	2.09
38	1.99	2.03	2.02
39	9.45	9.43	9.39
40	0	0	0
41	0	0	0
42	5.17	5.16	5.14
43	2.4	2.42	2.39
44	2.34	4.42	0.08
45	2.33	2.46	2.46
46	2.69	2.67	2.68
47	4.17	4.17	4.17
48	2.35	2.37	2.33
49	3.18	3.18	3.18
50	1.97	1.97	1.97
51	0	0	0
52	1.97	1.97	1.97
53	2.34	2.35	2.35
54	1.97	1.99	1.99
55	5.24	5.24	5.24
56	2.25	2.31	2.29
57	2.02	2.14	1.99
58	2.37		2.4
59	2.94	2.95	2.93
60	1.42	1.55	1.38
61	1.72	1.85	2.05
62	0.09	0.11	0.11
63	1.75	1.84	
64	0	0	0.
65	1.85	1.85	1.81
66	0	0	0
67	0.	0.44	0.4
68	4.79	4.91	4.81
69	4.75	4.81	4.79
70	5.27	2.69	2.69
71	0.01	0	0.01
72	5.13	5.11	5.09
73		1.98	2.21
74	2.55	2.63	2.53
75	2.46	2.63	2.45
76	2.47	0.77	2.45
77	1.59	1.59	1.49
78	2.7	3.39	2.69
79	2.02	1.91	2.52
80	1.06	1.06	4.72
81	1.11	1.12	1.11
82	0	0	0
83	5.13	1.47	1.51
84	0.46	2.43	1.75
85	0	0	1.36
86		0	2.03
87	0	0.72	0.7
88	0.71	0.72	0.7
89	0.71	0.72	0.7
90	0.71	0.72	0.7

MODE PIN NO.	EE	PB	REC
91	5.17	5.16	5.11
92	0	0	0
93	1.95	1.93	0.73
94	1.95	1.93	0.72
95	1.95	1.93	0.72
96	1.95	1.93	4.33
97	0	0	0
98	2.29	2.29	2.4
99	0	2.29	2.4
100	2.29	2.29	2.53
IC 501			
1	-	0	0
2	5.2	5.2	5.2
3	5.2	5.2	5.2
4	-	-	-
5	-	-	-
6	-	-	-
7	-	-	-
8	0	0	0
9	0	0	0
10	2.4	2.4	2.4
11		3.8	4.0
12	5	0	0
13	5	4.9	4.9
14	5	4.9	5.0
15	-	-	-
16	-	-	-
17	-	-	-
18	PULSE	PULSE	0
19	PULSE	PULSE	PULSE
20	0	0	0
21	0	0	0
22	5	4.9	5
23	5	4.9	4.9
24	5	4.9	4.9
25	0	0	0
26	-	0	0
27	-	-	-
28	0	0	0
29	0	0	0
30	0	0	0
31	0	0	0
32	0	0	0
33	0	0	0
34	5	5.2	5.2
35	PULSE	PULSE	PULSE
36	PULSE	PULSE	PULSE
37	5.2	5.2	5.2
38	PULSE	PULSE	PULSE
39	PULSE	PULSE	PULSE
40	0	0	0
41	PULSE	PULSE	PULSE
42	PULSE	PULSE	PULSE
43	0	0	0
44	PULSE	PULSE	PULSE

MODE PIN NO.	EE	PB	REC
45	PULSE	PULSE	PULSE
46	0	0	0
47	1.4	1.4	1.4
48	0	0	0
49	0	0	0
50	VIDEO	VIDEO	VIDEO
51	-	-	-
52	VIDEO	VIDEO	VIDEO
53	5V	4.9	4.9
54	PULSE	PULSE	PULSE
55	1	1.6	1.0
56	VIDEO	VIDEO	VIDEO
57	0	0	0
58	0	0	0
59	-	-	-
60	2.6	2.6	2.6
61	0	0	0
62	-	-	-
63	-	-	-
64	0	0	0
65	PULSE	PULSE	PULSE
66	PULSE	PULSE	PULSE
67	PULSE	PULSE	PULSE
68	0	0	0
69	0	0	0
70	-	-	-
71	PULSE	PULSE	PULSE
72	PULSE	PULSE	PULSE
73	0	0	0
74	0	0	5.2
75	3.5	3.5	3.5
76	PULSE	PULSE	PULSE
77	PULSE	PULSE	PULSE
78	5	5.0	5.0
79	PULSE	PULSE	PULSE
80	PULSE	PULSE	PULSE
81	0	0	0
82	0	0	0
83	5	5	5
84	-	-	-
85	-	-	-
86	-	-	-
87	PULSE	PULSE	PULSE
88	0	0	0
89	-	-	-
90	PULSE	PULSE	PULSE
91	2.8	2.8	2.8
92	2.6	2.6	2.6
93	0	0	PULSE
94	0	PULSE	PULSE
95	0	PULSE	PULSE
96	2.8	2.8	2.6
97	PULSE	PULSE	2.6
98	5.2	5.2	5.2
99	5.2	5.2	5.2

MODE PIN NO.	EE	PB	REC
100	0	0	0
IC 503			
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	5.01	4.95	4.79
6	5.01	4.95	4.8
7	0	0	0
8	5.29	5.29	5.28
IC 504			
1	5.28	5.28	5.28
2	0	0	0
3	5.28	5.28	5.28
IC 505			
1	5.28	5.28	5.28
2	0	0	0
3	4.87	4.87	4.87
IC 506			
1	2.22	2.12	2.14
2	5.16	5.15	2.15
3	2.85	2.86	2.85
4	5.11	5.11	5.11
5	4.58	4.38	4.44
6	1.78	2.15	1.41
7	2.11	2.14	2.58
8	2.64	2.62	2.6
9	1.95	2.04	1.51
10	1.52	1.62	1.52
11	1.96	2.27	1.41
12	1.96	1.79	1.95
13	0.61	0.59	0.64
14	1.41	1.38	1.43
15	0.53	0.48	0.53
16	0.53	0.48	0.54
17	1.14	1.13	1.13
18	4.49	4.41	4.47
19	0	0	0
20	1.13	1.15	1.2
21	1.14	1.13	1.21
22	1.12	1.13	1.2
23	1.24	1.25	1.35
24	0	0	0
IC 801			
1	2.84	2.91	2.7
2	2.92	2.91	2.81
3	2.91	2.9	2.81
4	2.82	2.81	2.68
5	2.8	2.86	2.67
6	2.8	2.86	2.66
7	2.79	2.85	2.65
8	2.78	2.85	2.65
9	2.79	2.84	2.66
10	2.79	2.84	2.66
11	2.77	2.83	2.65

MODE PIN NO.	EE	PB	REC
12	2.76	2.82	2.64
13	2.71	2.75	2.59
14	2.49	2.51	2.33
15	2.48	2.51	2.32
16	2.64	2.67	2.49
17	2.64	2.68	2.5
18	1.48	2.57	2.32
19	2.63	2.67	2.5
20	2.6	2.63	2.5
21	2.57	2.59	2.47
22	2.66	2.86	2.55
23	2.63	2.64	2.51
24	2.5	2.5	2.39
25	2.52	2.53	2.4
26	2.36	2.37	2.27
27	0.01	0	0
28	2.51	2.47	2.41
29	2.6	2.57	2.46
30			
31	2.34	2.41	1.38
32	0.03	0.02	-0.07
33	0.03	0.04	-0.06
34	12.6	12.5	12.57
35	3.35	3.31	2.89
36	3.29	3.3	2.9
37	3.29	3.3	2.9
38	3.55	3.56	3.42
39	0	0	0.01
40	5.2	5.2	5.21
41	2.27	2.29	2.5
42	4.96	4.98	4.91
43	5.05	5.06	4.97
44	2.8	2.79	2.69
IC 751			
1	5.14	5.15	5.15
2	1.51	1.51	1.51
3	1.51	1.51	1.51
4	0	0	0
5	2.47	2.48	2.48
6	2.47	2.48	2.48
7	0.54	0.5	0.46
8	0	0	0.45
9	0	0	0.45
10	0	0	0
11	5.16	5.16	5.16
12	4.91	4.86	4.79
13	4.9	4.8	4.79
14	2.58	0.51	0.57
15	2.58	0.5	0
16	2.41	0.51	0.57
17	0.53	0.53	0
18	0.54	0.51	0.58
19	5.13	5.14	5.14
20	0	0	0
21	0.53	0.51	0

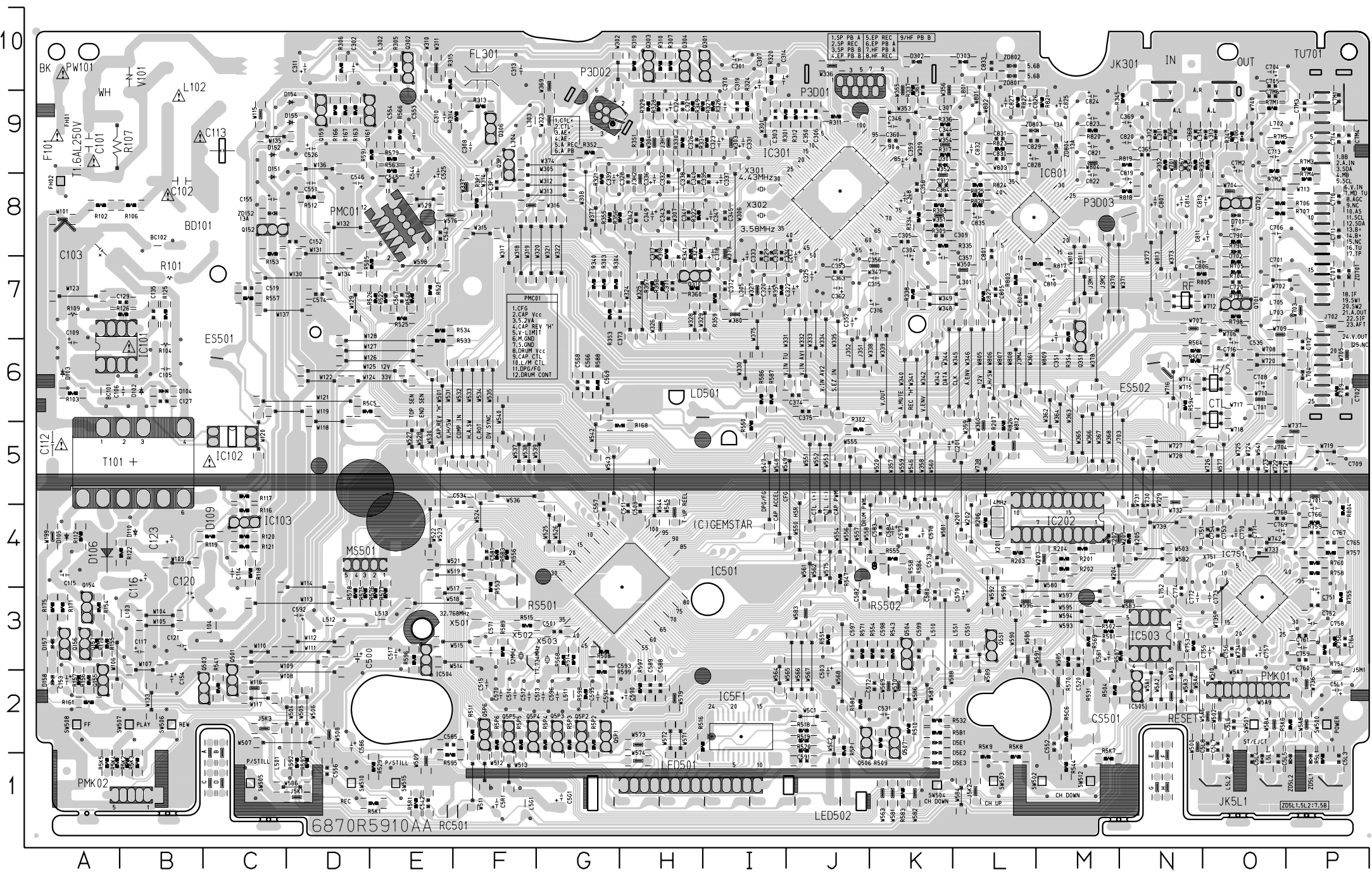
MODE PIN NO.	EE	PB	REC
22	5.16	5.16	5.16
23	0	0.02	0
24	0	0.02	0
25	0	0	0
26	0	0.05	0
27	0.05	0.05	0
28	0	0	0
29	0	0	2.8
30	2.8	2.8	2.8
31	2.79	2.79	2.79
32	0	0.02	0
33	5.16	5.14	5.15
34	4.2	4.2	4.21
35	0	0	0
36	2.8	2.8	2.8
37			0
38			0
39			0
40	2.84	2.84	2.79
41	2.85	2.83	2.79
42	2.59	2.59	2.59
43	2.31	2.31	2.3
44	3.3		0

Transistor	EE Mode			PB Mode			REC Mode		
	EE	PB	REC	EE	PB	REC	EE	PB	REC
Q151	4.55	5.3	5.24	5.34	4.54	5.24	5.3	4.55	5.24
Q152	5.31	4.52	5.22	5.31	4.52	5.22	5.3	4.51	5.22
Q154	32.99	32.34	32.97	33.53	32.89	33.5	33.76	33.12	33.72
Q155	12.73	13.4	14.05	12.68	13.35	13.77	12.76	13.42	13.98
Q157	0.03	0.84	4.38	0.03	0.84	4.38	-0.03	0.84	4.38
Q159	29.84	29.78	13.21	29.79	29.8	12.48	30.14	30.13	12.73
Q161	0.03	0	29.82	0.03	0	29.8	-0.03	0	30.11
Q162	0.02	0.69	0	-0.02	0.69	0	-0.02	0.69	0
Q163	0.03	5.18	0.03	0.03	5.18	0.03	-0.03	5.18	0.03
Q164	-0.03	4.38	-0.01	-0.03	4.38	-0.01	-0.03	4.38	0
Q165	14.06	-0.01	14.04	13.74	-0.01	13.71	13.95	-0.01	13.95
Q166	4.4	5.3	5.11	5.3	4.41	5.13	5.3	4.4	5.1
Q301	0	0.01	5.15	0	0	5.15	0	0.75	1.69
Q302	5.18	5.18	-0.42	5.18	4.52	5.12	5.14	5.13	-24.71
Q303	0.01	-0.42	0	0	0.69	0.01	-18.22	-24.85	0.01
Q304	0.01	-0.4	0	0	0.71	0	-18.22	-24.7	0
Q305	2.01	1.29	0	2.53	1.83	0	2.5	1.81	0
Q306	5.14	5.19	5.19	5.19	5.16	5.19	1.9	2.14	4.89
Q307	2.69	1.98	0	2.69	1.98	0	2.64	1.93	0
Q308	2.66	1.98	0	2.63	1.96	0	2.6	1.93	0
Q309	3.09	2.41	0	3.05	2.37	0	3.01	2.33	0

	Emitter		Collector		Base	
	REC	PB	REC	PB	REC	PB
Q501	0	0	0	0	0.6	0.6
Q503	5.2	5.2	5.1	5.1	4.43	4.43
Q506	0	0	VIDEO	VIDEO	0	0
Q504	VIDEO	VIDEO	5.0	5.0	VIDEO	VIDEO

# PRINTED CIRCUIT BOARD DIAGRAMS

## 1. MAIN P.C.Board



NOTES) ⚠ Warning  
Parts that are shaded are critical  
With respect to risk of fire or  
electrical shock.

### LOCATION GUIDE

BC101	A6	C342	H8	C573	K4	C771	Q4	IC505	N2	Q302	E10	R311	J9	R534	E6	R709	P6	
BC102	B8	C343	H8	C574	K4	C772	N3	J341	H9	G303	H10	R312	J9	R535	E7	R710	P7	
BC101	A9	C345	I8	C574	D7	C773	Q3	J342	H8	G304	H10	R313	J9	R536	E8	R711	P8	
C102	B8	C346	K9	C578	K4	C770	O3	J343	M7	G305	F9	R314	J9	R537	E9	R712	P9	
C103	A8	C347	I8	C579	L3	C771	P9	J344	L6	Q301	F9	R317	H9	R547	F4	R757	P4	
C104	B8	C348	H8	C580	L3	C772	P9	J345	J6	Q302	F9	R318	H9	R548	F5	R758	P5	
C106	B6	C349	H8	C581	F4	C773	P9	J352	J6	Q501	C2	R319	H9	R553	F4	R759	P4	
C109	A6	C350	J9	C582	J3	C780	L8	JK51	O1	Q502	C2	R320	H10	R554	F4	R760	P4	
C112	A5	C353	J7	C585	K4	C781	O9	JK53	O1	Q503	C2	R321	H10	R555	F4	R761	P4	
C113	C9	C356	K8	C584	K4	C784	L8	JK54	O2	Q506	I2	R322	H8	R556	F4	R762	P8	
C114	C4	C357	K7	C585	E2	C805	L7	JK51	P2	Q507	K2	R323	H8	R557	C7	R763	P8	
C115	A4	C358	K8	C586	D2	C806	L7	J701	P5	Q501	I2	R324	H9	R558	C3	R764	P9	
C116	B4	C359	K9	C587	H2	C807	L7	J702	P5	Q502	I2	R325	H9	R559	C3	R765	P9	
C117	B3	C360	K9	C589	H2	C808	L7	J703	N5	Q5P3	I2	R327	H9	R566	E9	R766	P9	
C118	B3	C361	K10	C589	H2	C809	L7	J704	O5	Q5P2	F2	R328	H9	R567	E9	R767	P9	
C119	B7	C362	J7	C590	H2	C810	L7	J705	O5	Q5P3	F2	R329	H9	R568	E9	R768	P9	
C120	B4	C363	J7	C592	D3	C813	O8	JK51	P1	Q5P2	F2	R330	H9	R569	M3	R803	L7	
C121	B4	C364	K8	C593	G3	C814	N8	L102	B10	Q551	I3	R331	H9	R570	M3	R804	L7	
C122	B4	C365	N9	C594	G2	C815	N8	L103	B3	Q701	I7	R334	K8	R573	M3	R807	L7	
C123	B4	C366	N9	C594	G2	C816	N8	L104	B3	Q702	O8	R335	K8	R574	M3	R808	L7	
C124	C152	DB	C367	N9	C596	G2	C821	M9	K301	K7	I701	I7	R336	K8	R575	M3	R809	L7
C125	C155	C2	C368	N9	C597	K3	C822	M8	L302	E10	R102	AB	R337	K7	R577	E3	R819	M9
C126	C155	C2	C369	N9	C597	K3	C823	M8	L303	E10	R103	AB	R338	K7	R578	E3	R820	M9
C127	C155	C2	C370	N9	C599	K3	C824	M8	L304	F9	R104	AB	R339	K7	R579	E3	R821	M9
C128	C201	K5	C371	H7	C591	J1	C825	M9	L305	I7	R106	BB	R341	H9	R580	I2	R822	L9
C129	C201	K5	C372	H7	C592	J1	C826	M9	L306	I7	R107	BB	R342	H9	R581	I2	R823	L9
C130	C301	H10	C373	H7	C593	P1	C827	L9	L311	N9	I705	AB	R343	H9	R582	I2	R824	L9
C302	D10	C374	J6	C54	O1	C828	L9	L312	N9	R112	AB	R349	H9	R588	I6	R825	L8	
C303	D10	C375	J6	C54	O1	C829	L9	L313	N9	R116	AB	R351	H9	R589	I6	R826	L8	
C304	C306	K8	C351	M7	C517	O2	C831	L9	L501	C1	R118	AB	R353	N9	R591	I9	R828	L1
C305	K8	C352	M7	C518	O2	C832	L9	L501	C1	R119	AB	R354	N9	R592	I9	R829	L1	
C306	K8	C353	M7	C519	O2	C833	L9	L501	C1	R120	AB	R355	N9	R593	I9	R830	L1	
C308	F9	C501	G3	C551	L3	C835	L8	L512	O3	R122	AB	R356	H8	R594	I9	R850	L2	
C309	K8	C503	J2	C701	O7	C5501	M2	L513	E3	R123	AB	R357	H8	R595	I9	R851	L2	
C310	K8	C505	H8	C703	O7	C5502	M2	L514	E3	R124	AB	R358	H8	R596	I9	R852	L2	
D10	C51	A4	C704	O10	D103	B6	L1	O1	R125	C7	R359	I7	R597	I2	R853	O2	R852	M1
C312	K8	C512	F2	C706	O10	D104	B6	L512	O1	R126	C8	R360	H7	R598	H2	R503	L1	
C313	F10	C513	F2	C708	O6	D105	AB	L513	L3	R156	A3	R361	F8	R599	I2	R504	K1	
C314	F10	C514	F2	C709	O6	D106	AB	L514	L3	R157	A3	R362	F8	R600	I2	R505	K1	
C315	F10	C515	F2	C708	O6	D109	AB	L702	I9	R156	A2	R363	F8	R593	I2	R506	K1	
C316	K7	C517	E3	C709	P5	D104	BA	L703	O7	R157	A2	R364	F8	R594	I2	R507	K1	
C317	K7	C518	E3	C709	P5	D105	BA	L704	O7	R158	A2	R365	F8	R595	I2	R508	K1	
C318	H8	C520	M3	C711	P8	D152	C9	L705	O7	R163	I9	R353	M3	R606	K2	R510	O1	
C319	J9	C526	E9	C712	P6	D154	D9	L706	I9	R166	I9	R502	M3	R5C7	E1	R512	M1	
C320	J9	C527	E9	C713	P6	D155	D9	L707	I9	R167	I9	R503	M3	R5C8	E1	R513	M1	
C321	J9	C528	E9	C714	P6	D156	D9	L708	I9	R168	I9	R504	M3	R5C9	E1	R514	M1	
C322	J7	C534	F5	C716	O6	D158	A2	L801	L10	R170	A3	R507	G3	R5K4	K1	V1001	P9	
C323	J7	C535	F5	C717	O6	D159	A2	L802	L10	R171	A3	R508	G3	R5K5	K1	V101	P10	
C324	J7	C536	F5	C718	O6	D160	A2	L803	L10	R172	A3	R509	G3	R5K6	K1	V102	P11	
C325	J7	C537	F5	C719	O6	D161	A2	L804	L10	R173	A3	R510	G3	R5K7	K1	V103	P12	
C326	J7	C538	F5	C720	O6	D162	A2	L805	L10	R174	A3	R511	G3	R5K8	K1	V104	P13	
C327	J7	C539	F5	C721	O6	D163	A2	L806	L10	R175	A3	R512	G3	R5K9	K1	V105	P14	
C328	J7	C540	F5	C722	O6	D164	A2	L807	L10	R176	A3	R513	G3	R5K10	K1	V106	P15	
C329	J7	C541	F5	C723	O6	D165	A2	L808	L10	R177	A3	R514	G3	R5K11	K1	V107	P16	
C330	J7	C542	F5	C724	O6	D166	A2	L809	L10	R178	A3	R515	G3	R5K12	K1	V108	P17	
C331	J7	C543	F5	C725	O6	D167	A2	L810	L10	R179	A3	R516	G3	R5K13	K1	V109	P18	
C332	J7	C544	F5	C726	O6	D168	A2	L811	L10	R180	A3	R517	G3	R5K14	K1	V110	P19	
C333	J7	C545	F5	C727	O6	D169	A2	L812	L10	R181	A3	R518	G3	R5K15	K1	V111	P20	
C334	J7	C546	F5	C728	O6	D170	A2	L813	L10	R182	A3	R519	G3	R5K16	K1	V112	P21	
C335	J7	C547	F5	C729	O6	D171	A2	L814	L10	R183	A3	R520	G3	R5K17	K1	V113	P22	
C336	J7	C548	F5	C730	O6	D172	A2	L815	L10	R184	A3	R521	G3	R5K18	K1	V114	P23	
C337	J7	C549	F5	C731	O6	D173	A2	L816	L10	R185	A3	R522	G3	R5K19	K1	V115	P24	
C338	J7	C550	F5	C732	O6	D174	A2	L817	L10	R186	A3	R523	G3	R5K20	K1	V116	P25	
C339	J7	C551	F5	C733	O6	D175	A2	L818	L10	R187	A3	R524	G3	R5K21	K1	V117	P26	
C340	J7	C552	F5	C734	O6	D176	A2	L819	L10	R188	A3	R525	G3	R5K22	K1	V118	P27	
C341	J7	C553	F5	C735	O6	D177	A2	L820	L10	R189	A3	R526	G3	R5K23	K1	V119	P28	
C342	J7	C554	F5	C736	O6	D178	A2	L821	L10	R190	A3	R527	G3	R5K24	K1	V120	P29	
C343	J7	C555	F5	C737	O6	D179	A2	L822	L10	R191	A3	R528	G3	R5K25	K1	V121	P30	
C344	J7	C556	F5	C738	O6	D180	A2	L823	L10	R192	A3	R529	G3	R5K26	K1	V122	P31	
C345	J7	C557	F5	C739	O6	D181	A2	L824	L10	R193	A3	R530	G3	R5K27	K1	V123	P32	
C346	J7	C558	F5	C740	O6	D182	A2	L825	L10	R194	A3	R531	G3	R5K28	K1	V124	P33	
C347	J7	C559	F5	C741	O6	D183	A2	L826	L10	R195	A3	R532	G3	R5K29	K1	V125	P34	
C348	J7	C560	F5	C742	O6	D184	A2	L827	L10	R196	A3	R533	G3	R5K30	K1	V126	P35	
C349	J7	C561	F5	C743	O6	D185	A2	L828	L10	R197	A3	R534	G3	R5K31	K1	V127	P36	
C350	J7	C562	F5	C744	O6	D186	A2	L829	L10	R198	A3	R535	G3	R5K32	K1	V128	P37	
C351	J7	C563	F5	C745	O6	D187	A2	L830	L10	R199	A3	R536	G3	R5K33	K1	V129	P38	
C352	J7	C564	F5	C746	O6	D188	A2	L831	L10	R200	A3	R537	G3	R5K34	K1	V130	P39	
C353	J7	C565	F5	C747	O6	D189	A2	L832	L10	R201	A3	R538	G3	R5K35	K1	V131	P40	
C354	J7	C566	F5	C748	O6	D190	A2	L833	L10	R202	A3	R539	G3	R5K36	K1	V132	P41	
C355	J7	C567	F5	C749	O6	D191	A2	L834	L10	R203	A3	R540	G3	R5K37	K1	V133	P42	
C356	J7	C568	F5	C750	O6	D192	A2	L835	L10	R204	A3	R541	G3	R5K38	K1	V134	P43	
C357	J7	C569	F5	C751	O6	D193	A2	L836	L10	R205	A3	R542	G3	R5K39	K1	V135	P44	
C358	J7	C570	F5	C752	O6	D194	A2	L837	L10	R206	A3	R543	G3	R5K40	K1	V136	P45	
C359	J7	C571	F5	C753	O6	D195	A2	L838	L10	R207	A3	R544	G3	R5K41	K1	V137	P46	
C360	J7	C572	F5	C754	O6	D196	A2	L839	L10	R208	A3	R545	G3	R5K42	K1	V138	P47	
C361	J7	C573	F5	C755	O6	D197	A2	L840	L10	R209	A3	R546	G3	R5K43	K1	V139	P48	
C362	J7	C574	F5	C756	O6	D198	A2	L841	L10	R210	A3	R547	G3	R5K44	K1	V140	P49	
C363	J7	C575	F5	C757	O6	D199	A2	L842	L10	R211	A3	R548	G3	R5K45	K1	V141	P50	
C364	J7	C576	F5	C758	O6	D200	A2	L843	L10	R212	A3	R549	G3	R5K46	K1	V142	P51	
C365	J7	C577	F5	C759	O6	D201	A2	L844	L10	R213	A3	R550	G3	R5K47	K1	V143	P52	
C366	J7	C578	F5															

# SECTION 4 MECHANISM

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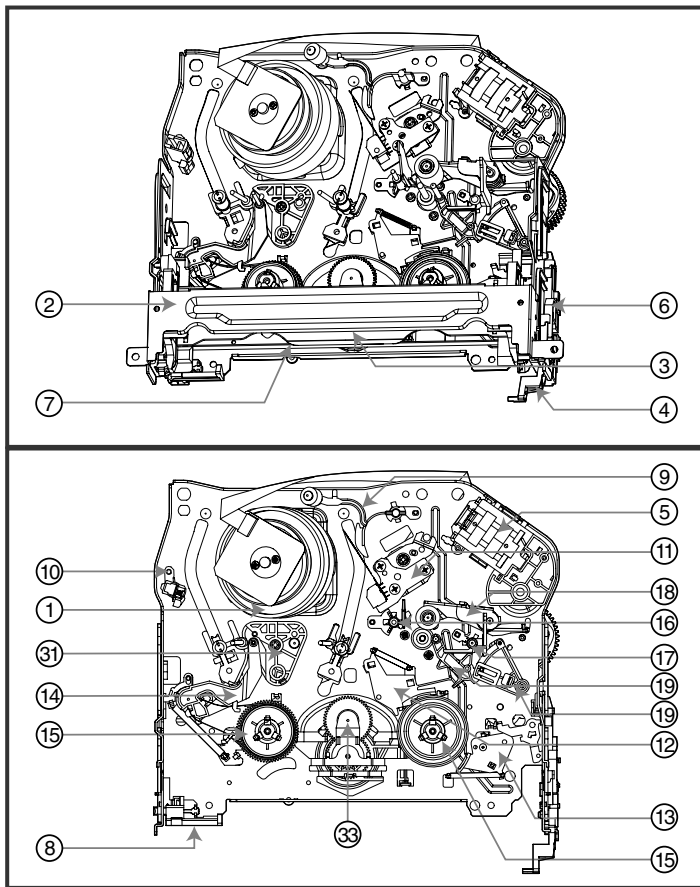
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### EXPLODED VIEWS

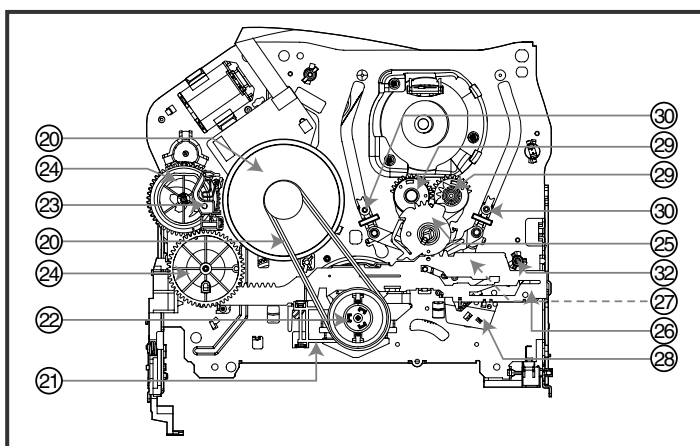
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-

# DECK MECHANISM PARTS LOCATIONS

## • Top View



## • Bottom View



**NOTE : When reassembly perform the procedure in the reverse order.**

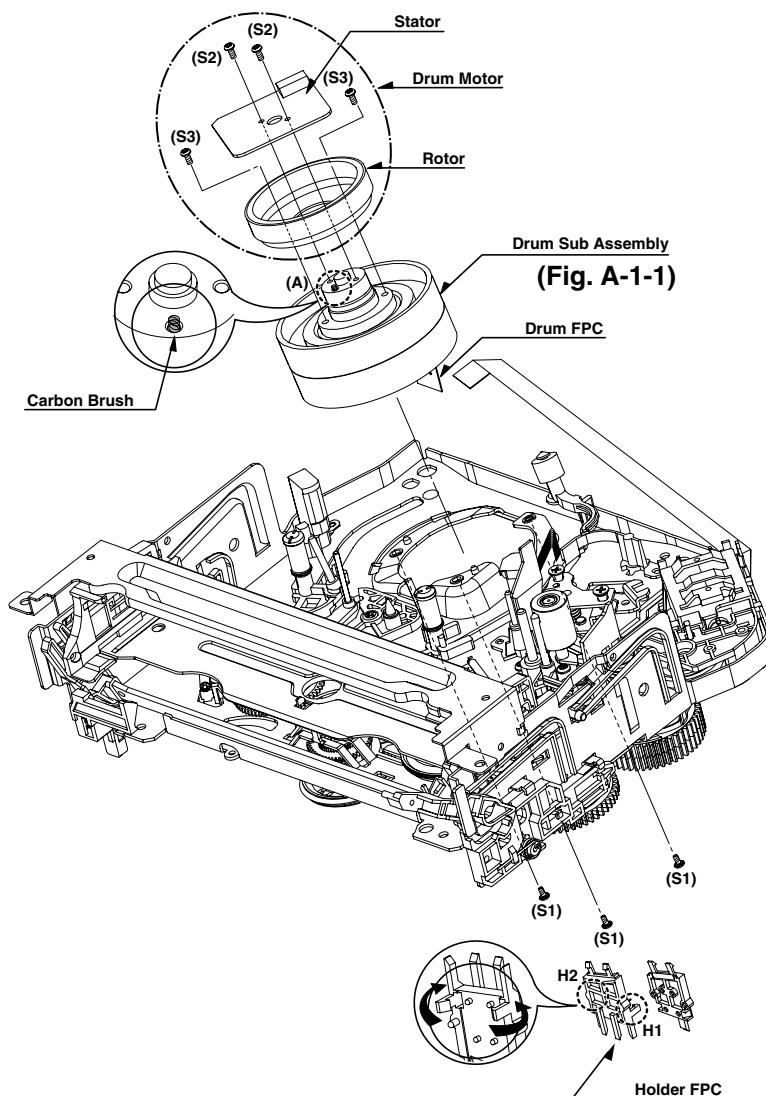
- 1) When reassembling, confirm Mechanism and Mode Switch Alignment Position (Refer to Page 4-13)
- 2) When disassembling, the Parts for Starting No. Should be removed first.

Procedure Starting No.	Part	Fixing Type	Figure	View
1	Drum Assembly	3 Screw	A-1	T
2	Plate Top	2 Hook	A-2	T
2	Holder Assembly CST	Chassis Hole	A-2	T
2	Opener Door	Chassis Hole	A-2	T
5	Bracket Assembly L/D Motor	3 Hook	A-2	T
2,3,4	Gear Assembly Rack F/L	1 Hook, Chassis Hole	A-2	T
2,3,4,6	Arm Assembly F/L	Chassis Hole	A-2	T
8	Lever Assembly S/W	1 Hook	A-2	T
9	Arm Assembly Cleaner	Chassis Embossing	A-3	T
10	Head F/E	Chassis Embossing	A-3	T
11	Base Assembly A/C Head	1 Screw	A-3	T
2,3	Brake Assembly T	1 Hook	A-4	T
2,3	Brake Assembly RS	1 Hook	A-4	T
2,3	Arm Assembly Tension	2 Hook	A-4	T
2,3,12,13, 14	Reel S/Reel T		A-4	T
16	Base Assembly P4	Chassis Embossing	A-5	T
17	Opener Lid	Chassis Embossing	A-5	T
17	Arm Assembly Pinch	Shaft	A-5	T
17	Lever T/Up / Arm T/Up	1 Hook	A-5	T
17,18	Belt Capstan/Motor Capstan	3 Screw	A-6	B
21	Lever F/R	Locking Tab	A-6	B
20, 21	Clutch Assembly D35	Washer	A-6	B
23	Brake Assembly Capstan	Locking Tab	A-6	B
24	Gear Drive/Gear Cam	Washer/Hook	A-7	B
25	Gear Sector	1 Hook	A-7	B
20,21,23, 24,25	Plate Slider	Shaft Guide	A-7	B
20,21,23, 24,25,26	Lever Tension	1 Hook	A-7	B
2,3,14,20, 21,25,23, 24,26	Lever Spring	Locking Tab	A-7	B
25	Gear Assembly P2/Gear Assembly P3	Boss	A-8	B
2,3,14,25, 29	Base Assembly P2/Base Assembly P3	Chassis Slot	A-8	B
2,3,14,25, 29	Base Loading	1 Screw	A-9	T
2,3,14	Base Tension	Chassis Embossing	A-9	B
2,3,20,21, 22	Arm Assembly Idler	Locking Tab	A-9	T

T:Top, B:Bottom



# DECK MECHANISM DISASSEMBLY



**Fig. A-1**

## 1. Drum Assembly (Fig. A-1-1)

- 1) Unplug the Drum FPC Connector.
- 2) Remove three Screws(S1) on bottom side and separate the Drum assembly.
- 3) Unhook (H1), (H2) and separate the Holder FPC and Cap FPC.

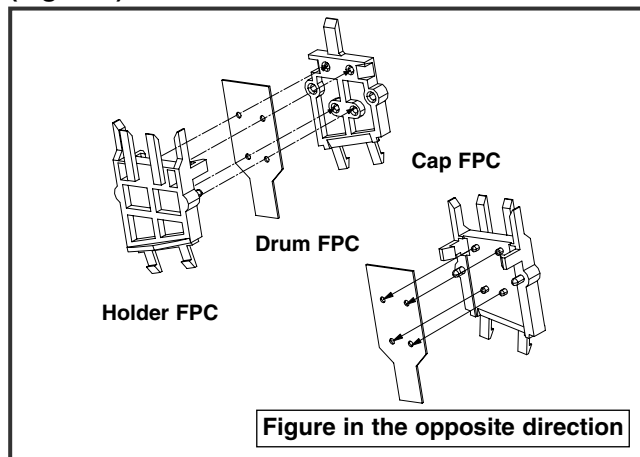
### 1-1. Drum Motor

- 1) Remove two Screws(S2) and disassemble the Stator of the Drum Motor.
- 2) Remove two Screws(S3) and separate the Rotor of the Drum Motor from the Drum Sub assembly.

## NOTE

When reassembling, confirm (A) portion of the Drum Sub assembly whether the Carbon Brush is in there or not.

**(Fig. B-1)**



# DECK MECHANISM DISASSEMBLY

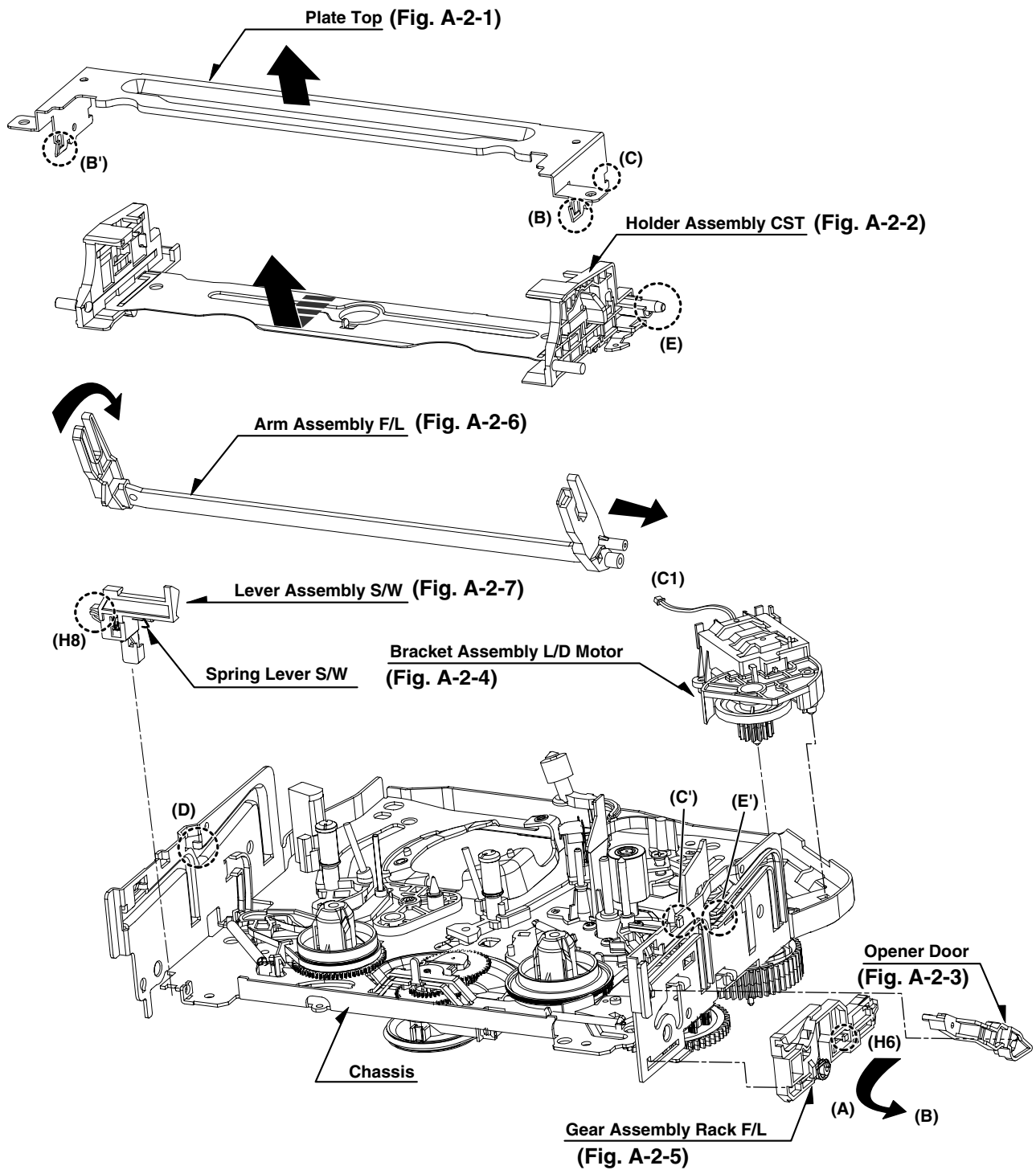


Fig. A-2

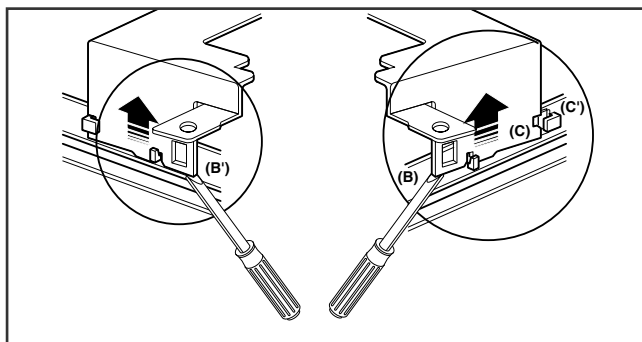
# DECK MECHANISM DISASSEMBLY

## 2. Plate Top (Fig. A-2-1)

- 1) Pull the (B) portion of the Plate Top back in direction of arrow and separate the right side of it.
- 2) pull the (B') portion of the Plate Top back in direction of arrow and separate the left side of it.  
(Used tools : (-) type driver, anything tool with sharp point or flat point.)

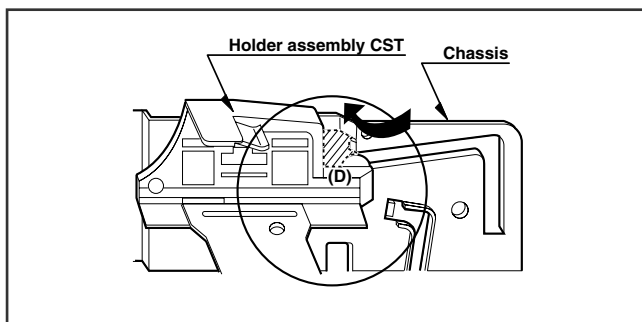
### NOTE

- (1) When reassembling, push the Plate Top after alignment the two position(C), (C') as below Fig.



## 3. Holder Assembly CST (Fig.A-2-2)

- 1) Move the Holder Assembly CST in direction of arrow and separate the left side of it first through the (D) position of the Chassis.



- 2) Disassemble the right side of the Holder Assembly CST from each guided hole of the Chassis.

### NOTE

When reassembling, insert the (E) part of the Holder Assembly CST in the (E') hole of the Chassis first and assemble the left side of it.

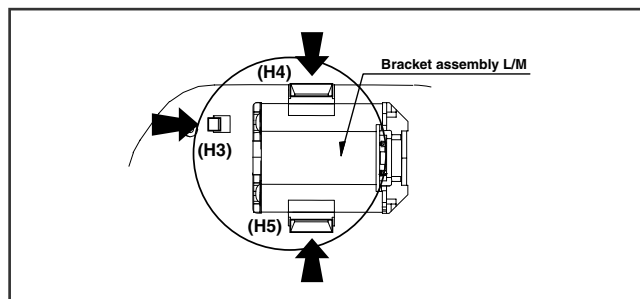
## 4. Opener Door (Figure. A-2-3)

- 1) Turn the Opener Door clockwise and remove it through the guide hole of the Chassis.

## 5. Bracket Assembly L/D Motor (Fig. A-2-4)

- 1) Unplug the Connector(C1).

- 2) Unhook three Hooks(H3, H4, H5) on bottom side of the Chassis, lift up the Bracket Assembly L/M and disassemble the Bracket Assembly L/D Motor.

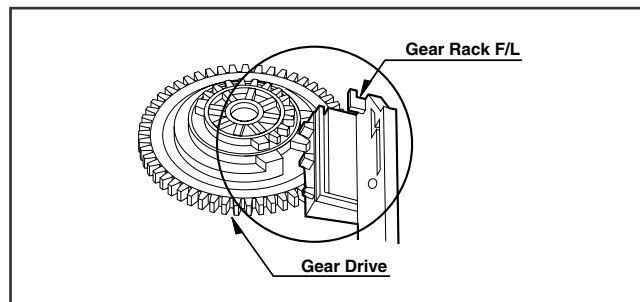


## 6. Gear Assembly Rack F/L (Fig. A-2-5)

- 1) Move the Gear Assembly Rack F/L in direction of arrow(A) and unhook the Hook(H6) pulling back in front.
- 2) Separate the Gear Rack F/L in direction of arrow(B).

### NOTE

When reassembling, align the gear part of the Gear Assembly Rack F/L with the Gear Drive as below Fig.

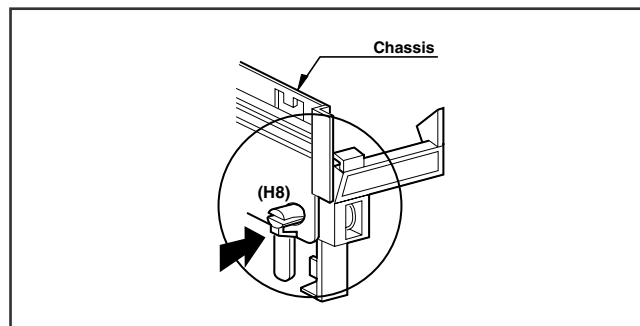


## 7. Arm Assembly F/L (Fig. A-2-6)

- 1) Move the Arm Assembly F/L in direction of arrow and separate the left side of it first.
- 2) Disassemble the Arm Assembly F/L from each guided hole of the Chassis.

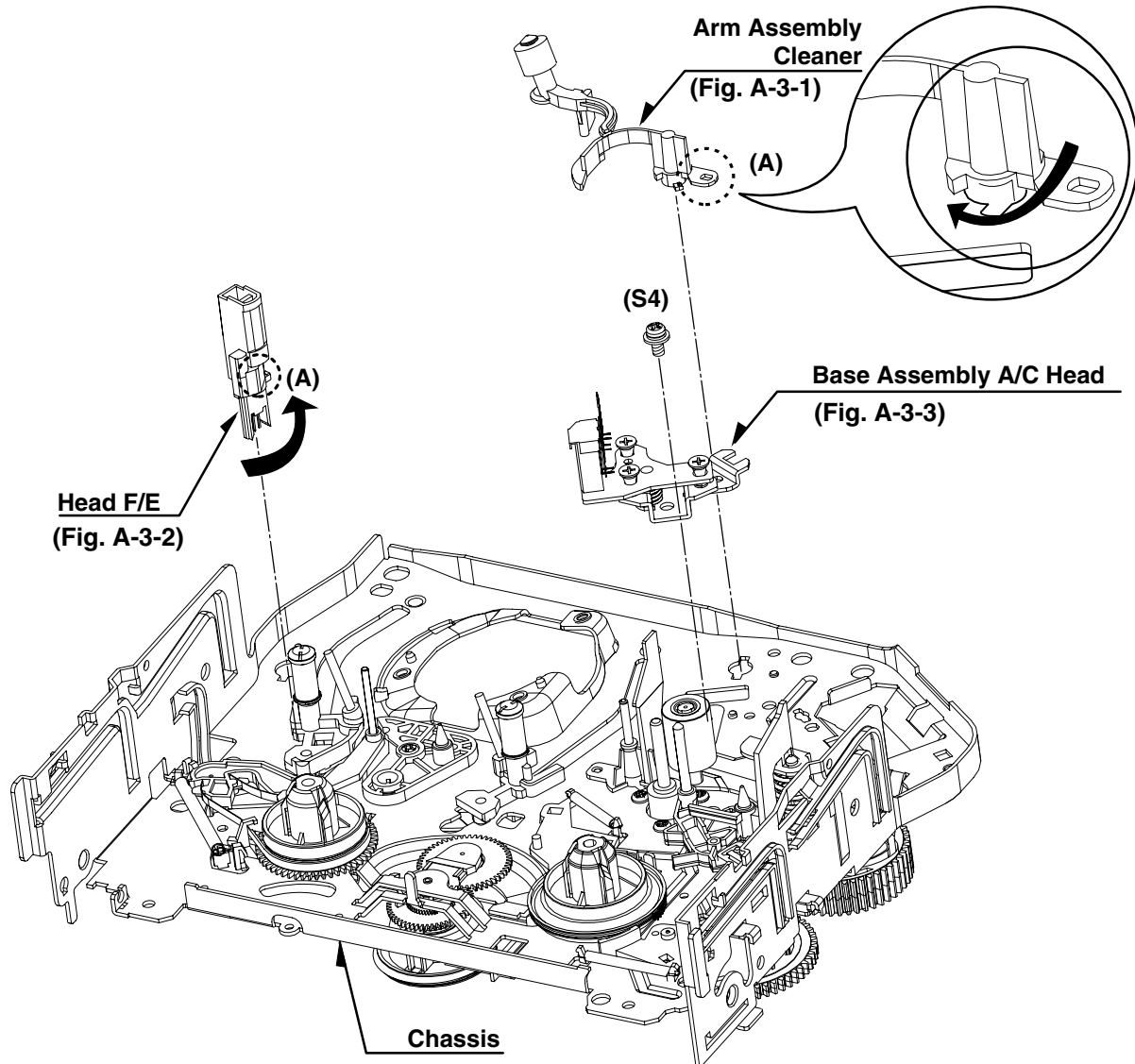
## 8. Lever Assembly S/W(Fig. A-2-7)

- 1) Unhook the Hook(H8) in the left side of the Chassis and remove the Lever Assembly S/W.





# DECK MECHANISM DISASSEMBLY



**Fig. A-3**

## **9. Arm Assembly Cleaner (Fig. A-3-1)**

- 1) Breakaway the (A) portion as Fig. A-3-1 from the embossing of the Chassis, turn the Arm assembly Cleaner to clockwise direction and lift it up.

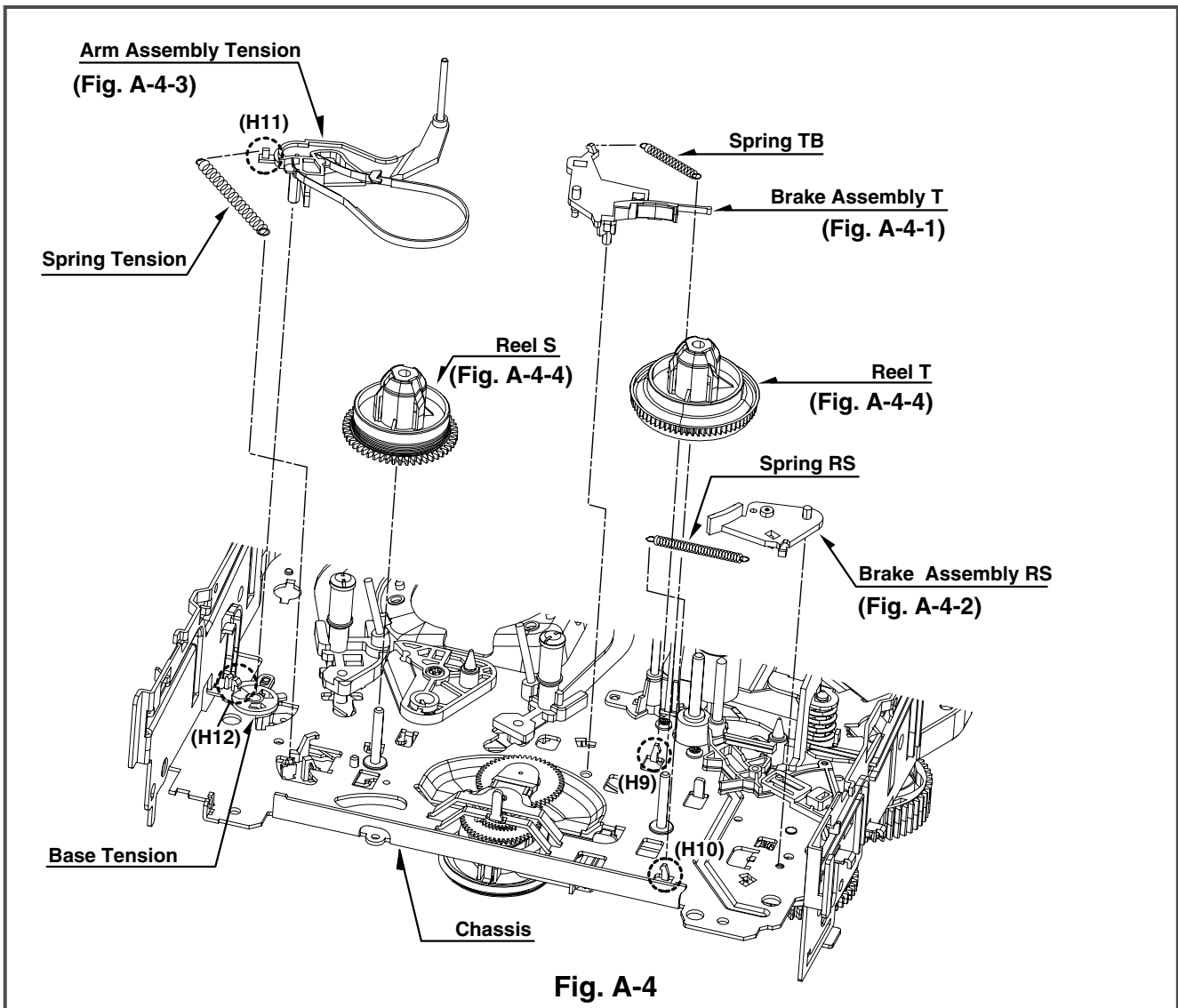
## **10. Head F/E (Fig. A-3-2)**

- 1) Breakaway the (A) portion of the Head F/E from the embossing of the Chassis, turn it to counterclockwise direction and lift it up.

## **11. Base Assembly A/C Head (Fig. A-3-3)**

- 1) Remove the Screw(S4) and lift the Base Assembly A/C Head up.

# DECK MECHANISM DISASSEMBLY



**Fig. A-4**

## 12. Brake Assembly T (Fig. A-4-1)

- 1) Unhook the Spring TB from the Hook(H9) of the Chassis.
- 2) Lift the Brake Assembly T up.

## 13. Brake Assembly RS (Fig. A-4-2)

- 1) Unhook the Spring RS from the Hook(H10) of the Chassis.
- 2) Lift the Brake Assembly T up.

## 14. Arm Assembly Tension (Fig. A-4-3)

- 1) Unhook the Spring Tension from the Hook(H11) of the Arm Assembly Tension.
- 2) Unhook the Hook(H12) of the Base Tension and lift the Arm Assembly Tension up.

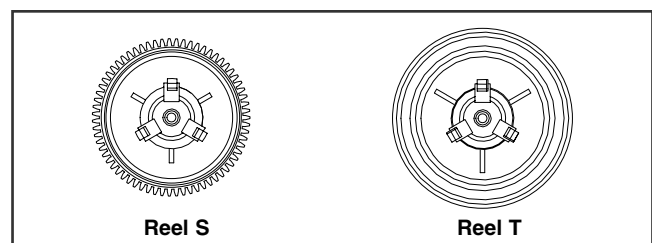
## NOTE

### Difference for Springs

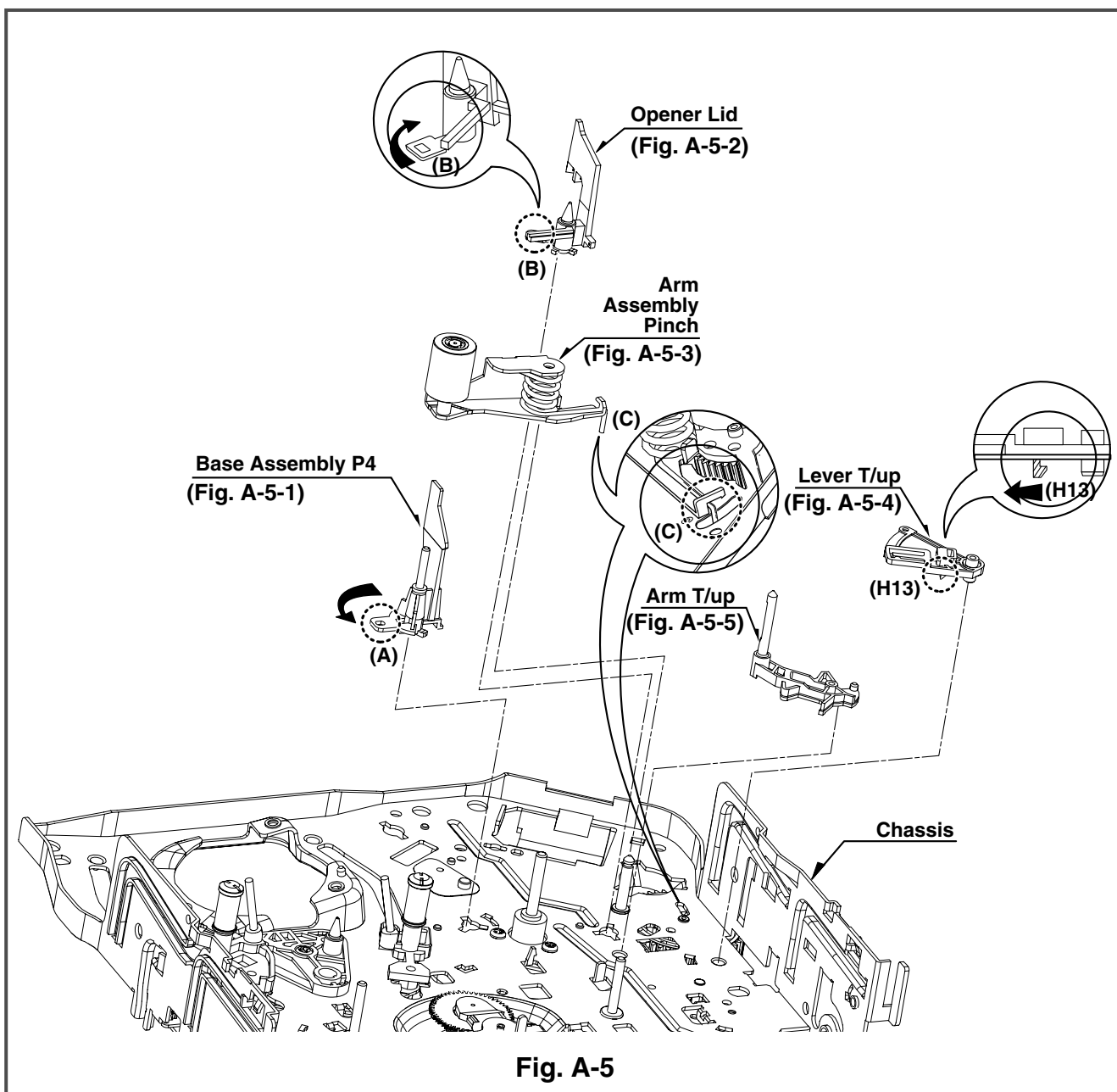
	Spring TB	
	Spring RS	Color (Black)
	Spring Tension	

## 15. Reel S / Reel T (Fig. A-4-4)

- 1) Difference for Reel S / Reel T



# DECK MECHANISM DISASSEMBLY



## 16. Base Assembly P4 (Fig. A-5-1)

- 1) Breakaway the (A) portion of the Base Assembly P4 from the embossing of the Chassis.
- 2) Turn the Base Assembly P4 to counterclockwise direction and lift it up.

## 17. Opener Lid (Fig. A-5-2)

- 1) Breakaway the (B) portion of the Opener Lid from the embossing of the Chassis.
- 2) Turn the Opener Lid to clockwise direction and lift it up.

## 18. Arm Assembly Pinch (Fig. A-5-3)

- 1) Lift the Arm Assembly Pinch up.

## NOTE

When reassembling, confirm the (C) portion of the Arm Assembly Pinch is inserted to the Chassis hole correctly as Fig.

## 19. Lever T/up (Fig. A-5-4)/ Arm T/up (Fig. A-5-5)

- 1) Unhook the Hook(H13) of the bottom Chassis and lift the Lever T/up up.
- 2) Lift the Arm T/up up.

# DECK MECHANISM DISASSEMBLY

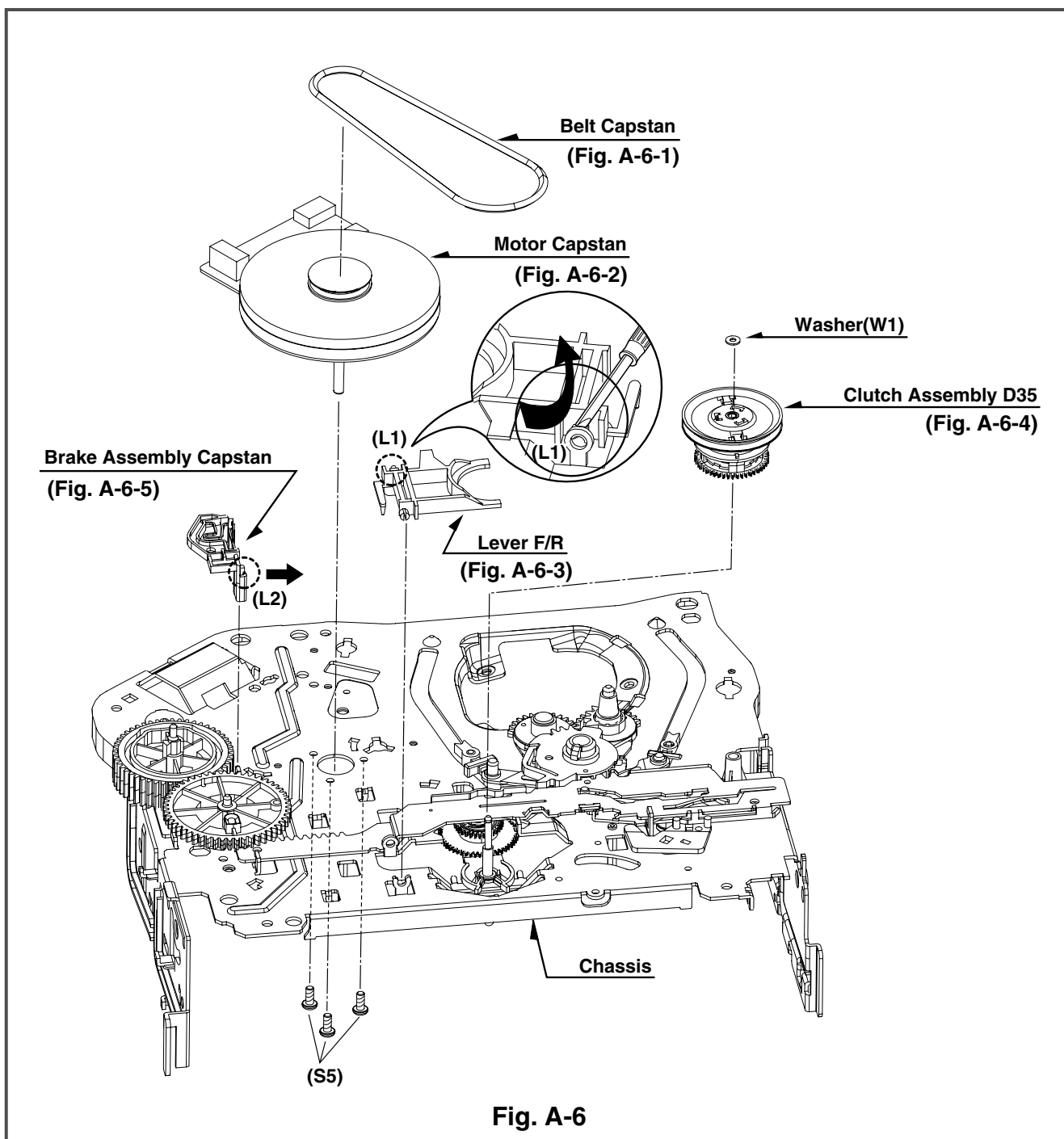


Fig. A-6

## 20. Belt Capstan (Fig. A-6-1)/ Motor Capstan (Fig. A-6-2)

- 1) Remove the Belt Capstan.
- 2) Remove the three Screws(S5) on bottom Chassis and lift the Motor Capstan up.

## 21. Lever F/R (Fig. A-6-3)

- 1) Unlock the Locking Tab(L1) as Fig. A-6-3 and lift the Lever F/R up.

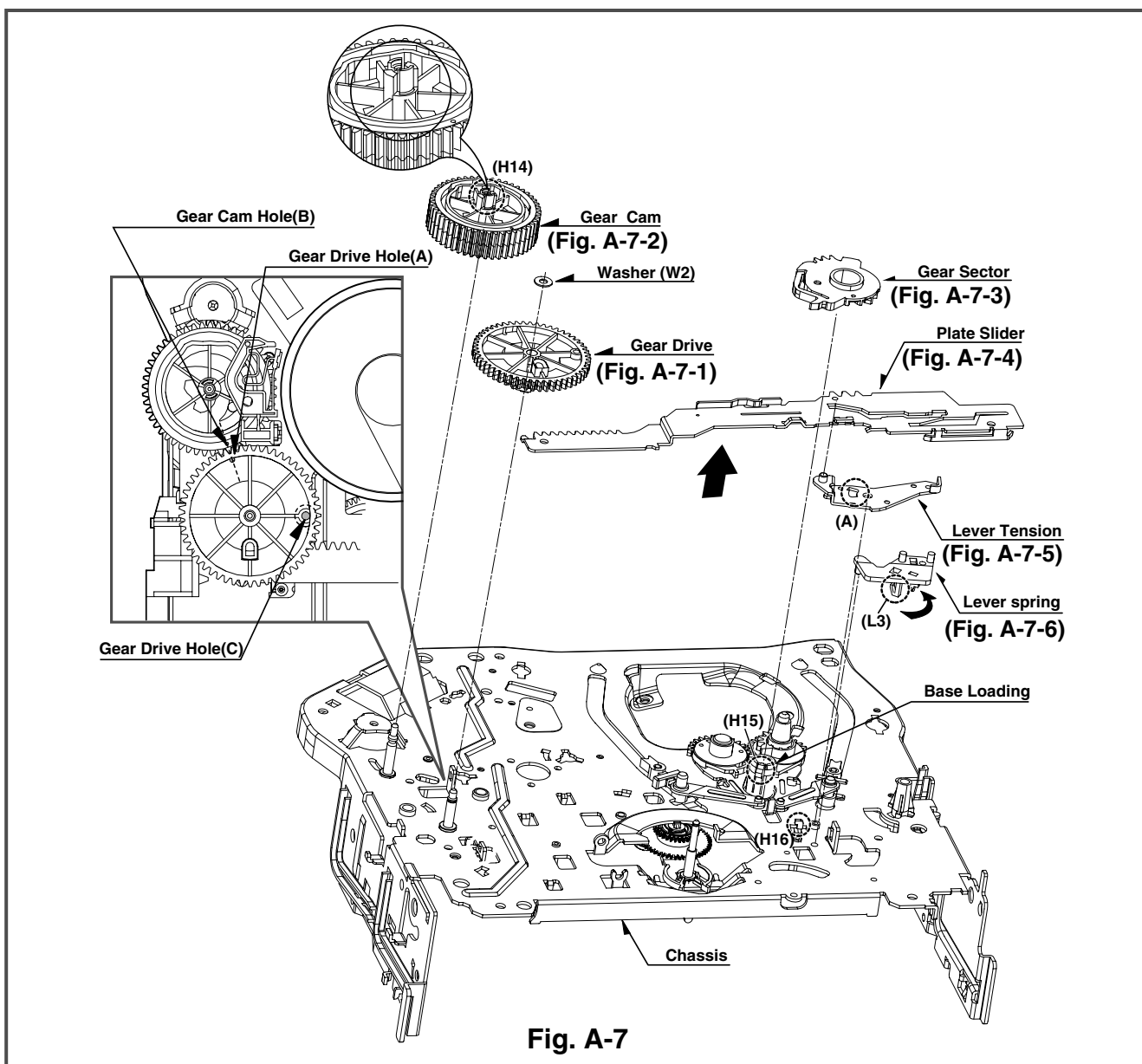
## 22. Clutch Assembly D35 (Fig. A-6-4)

- 1) Remove the Washer(W1) and lift the Clutch Assembly D35 up.

## 23. Brake Assembly Capstan (Fig. A-6-5)

- 1) Pull the Locking Tab(L2) back in direction of arrow and lift it up.

# DECK MECHANISM DISASSEMBLY



**Fig. A-7**

## 24. Gear Drive (Fig. A-7-1)/ Gear Cam (Fig. A-7-2)

- 1) Remove the Washer(W2) and lift the Gear Drive up.
- 2) Unhook the Hook(H14) of the Gear Cam and lift the Gear Cam up.

### NOTE

When reassembling, align the Gear Drive Hole(A) and the Gear Cam Hole(B) in a straight line after the Gear Drive Hole(C) is aligned with the Chassis Hole as Fig.

## 25. Gear Sector (Fig. A-7-3)

- 1) Unhook the Hook(H15) of the Base Loading on bottom Chassis and lift the Gear Sector up.

## 26. Plate Slider (Fig. A-7-4)

- 1) Just lift the Plate Slider up.

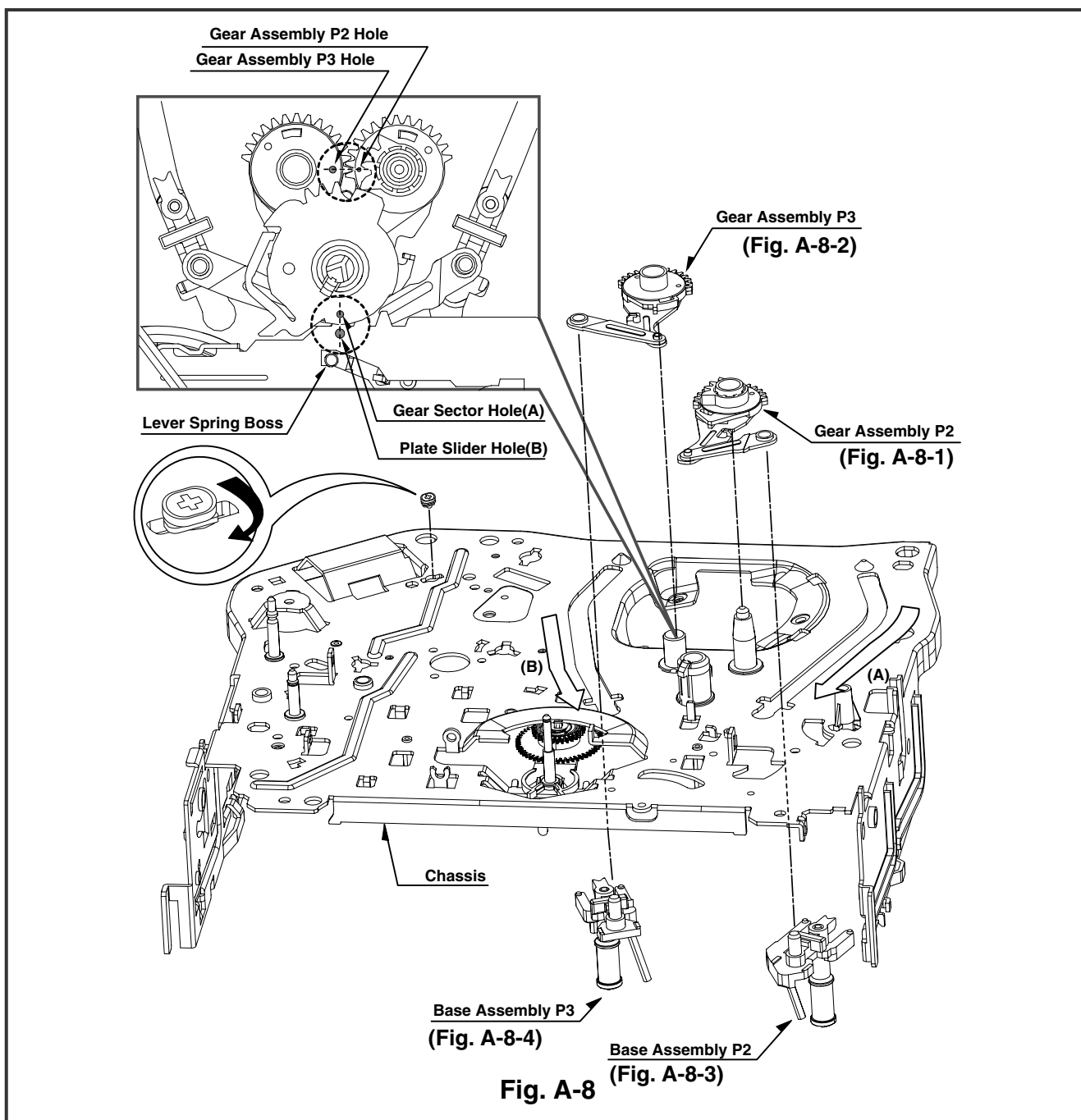
## 27. Lever Tension (Fig. A-7-5)

- 1) Unhook the (A) portion of the Lever Tension from the Hook(H16) of the Chassis.
- 2) Turn the Lever Tension to counterclockwise direction and lift it up.

## 28. Lever Spring (Fig. A-7-6)

- 1) Unlock the Locking Tab(L3) of the bottom Chassis and lift the Lever Spring up.

# DECK MECHANISM DISASSEMBLY



## 29. Gear Assembly P2 (Fig. A-8-1)/ Gear Assembly P3 (Fig. A-8-2)

- 1) Just lift the Gear Assembly P2 up.
- 2) Just lift the Gear Assembly P3 up.

### NOTE

When reassembling, align the two holes of the Gear Assembly P2 and P3 in a straight line after confirmation whether the Gear Sector Hole(A) and the Plate Slider Hole(B) are aligned or not as Fig.

## 30. Base Assembly P2 (Fig. A-8-3)/ Base Assembly P3 (Fig. A-8-4)

- 1) Move the Base Assembly P2 in direction of arrow(A) along the guide hole of the Chassis and disassemble it on bottom side.
- 2) Move the Base Assembly P3 in direction of arrow(B) along the guide hole of the Chassis and disassemble it on bottom side.

# DECK MECHANISM DISASSEMBLY

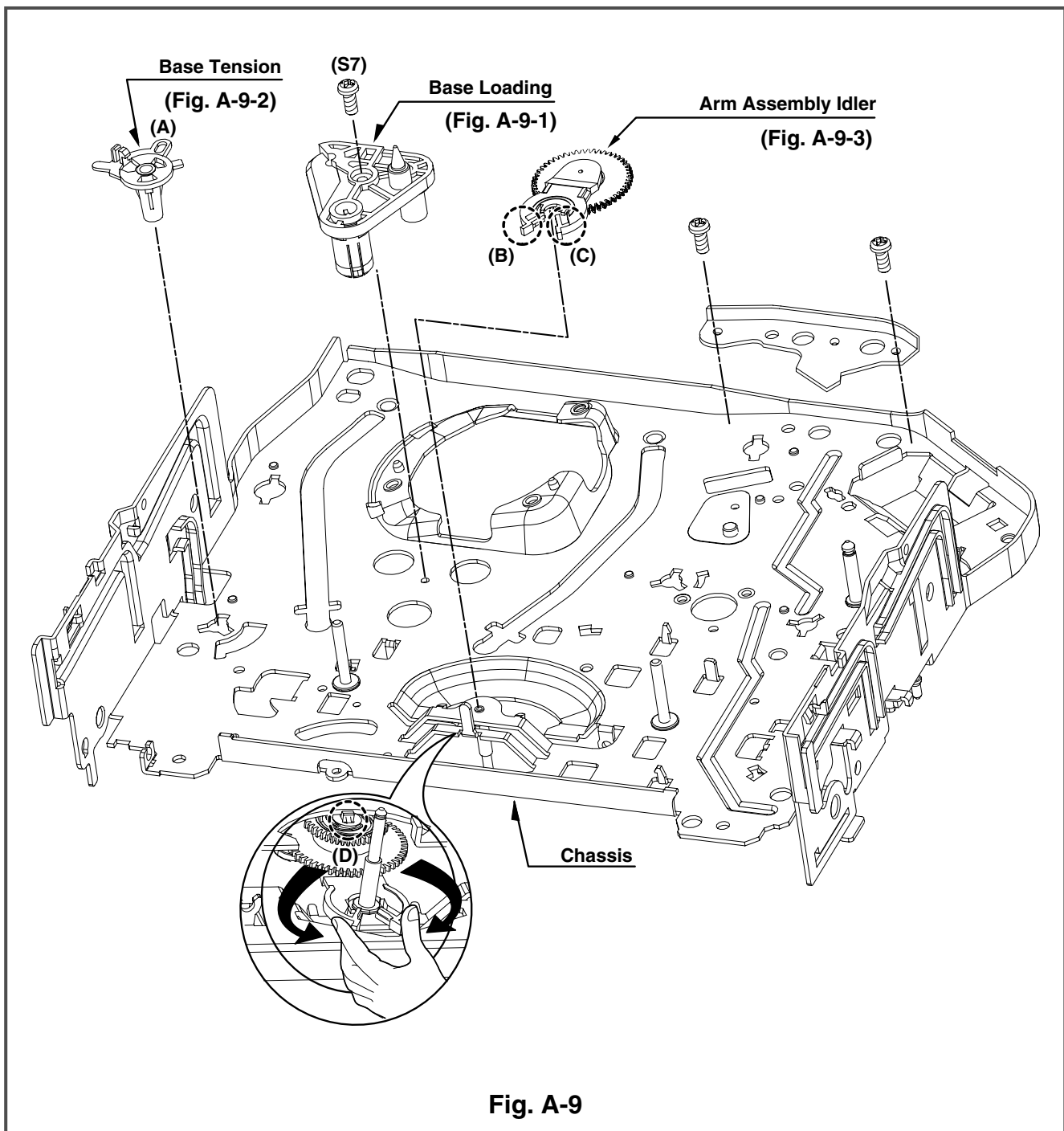


Fig. A-9

## 31. Base Loading (Fig. A-9-1)

- 1) Remove the Screw(S7).
- 2) Lift the Base Loading up.

## 32. Base Tension (Fig. A-9-2)

- 1) Breakaway the (A) portion of the Base Tension from the embossing of the Chassis.
- 2) Turn the Base Tension to counterclockwise direction and lift it up.

## 33. Arm Assembly Idler (Fig. A-9-3)

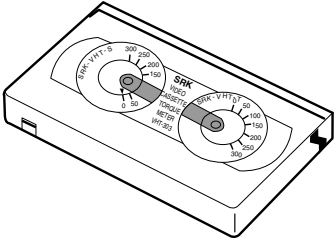
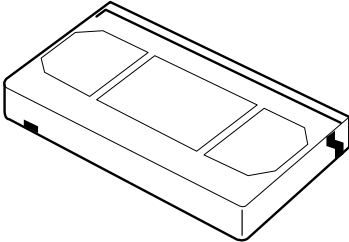
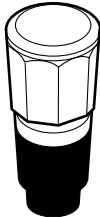
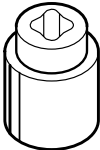
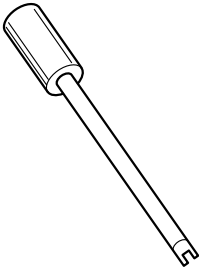
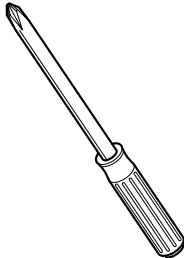
- 1) Make narrower the two parts, (B) and (C), as Fig. A-9-3.
- 2) Lift the Arm assembly Idler up.

## NOTE

When disassembling, be careful not to be caught the (D) part by the Chassis as Fig.

# DECK MECHANISM ADJUSTMENT

• Tools and Fixfures for Service

<div>1. Cassette Torque Meter SRK-VHT-303(Not SVC part) Parts No: D00-D006</div> <div></div>	<div>2. Alignment Tape Parts No NTSC: DTN-001 PAL:DTN-0002</div> <div></div>	<div>3. Torque Gauge 600g.Cm ATG Parts No:D00-D002</div> <div></div>
<div>4. Torque Gauge Adaptor Parts No:D09-R001</div> <div></div>	<div>5. Post Height Adjusting Driver Parts No:DTL-0005</div> <div></div>	<div>6. + Type Driver (ø 5)</div> <div></div>



# DECK MECHANISM ADJUSTMENT

## 1. Mechanism Alignment Position Check

**Purpose:** To determine if the Mechanism is in the correct position, when a Tape is ejected.

Test Equipment/ Fixture	Test Conditions (Mechanism Condition)	Check Point
• Blank tape	• Eject Mode (with Cassette ejected)	• Mechanism and Mode Switch Position

- 1) Turn the Power S/W on and eject the Cassette by pressing the Eject Button.
- 2) Remove the Top Cover and Plate Assembly Top, visually check if the Gear Cam Hole is aligned with the Chassis Hole as below Fig. C-2.
- 3) IF not, rotate the Shaft of the Loading Motor to either clockwise or counterclockwise until the alignment is as below Fig. C-2.
- 4) Remove the Screw which fixes the Deck Mechanism and Main Frame and confirm if the Gear Cam is aligned with the Gear Drive as below Fig. C-1(A).
- 5) Confirm if the Mode S/W on the Main P.C.Board is aligned as below Fig. C-1(B).
- 6) Remount the Deck Mechanism on the Main P.C.Board and check each operation.

### CHECK DIAGRAM

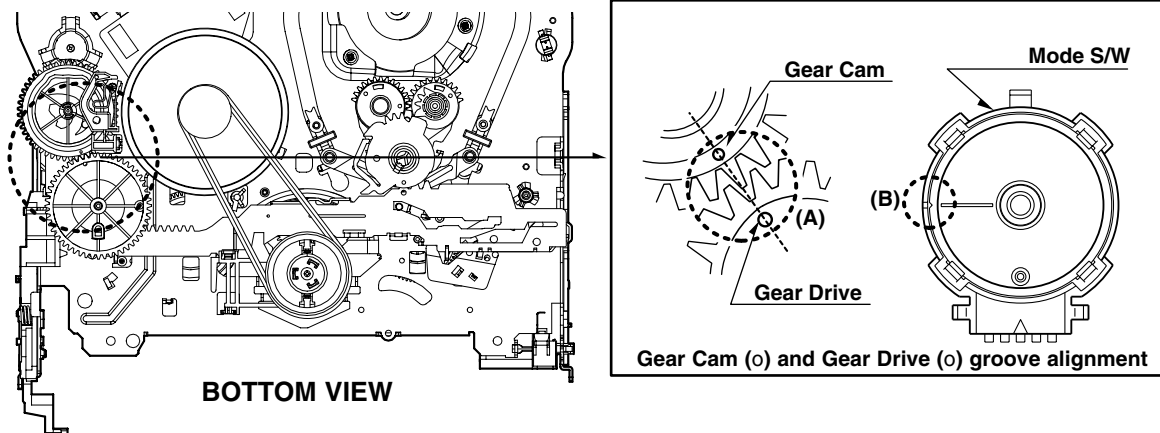


Fig. C-1

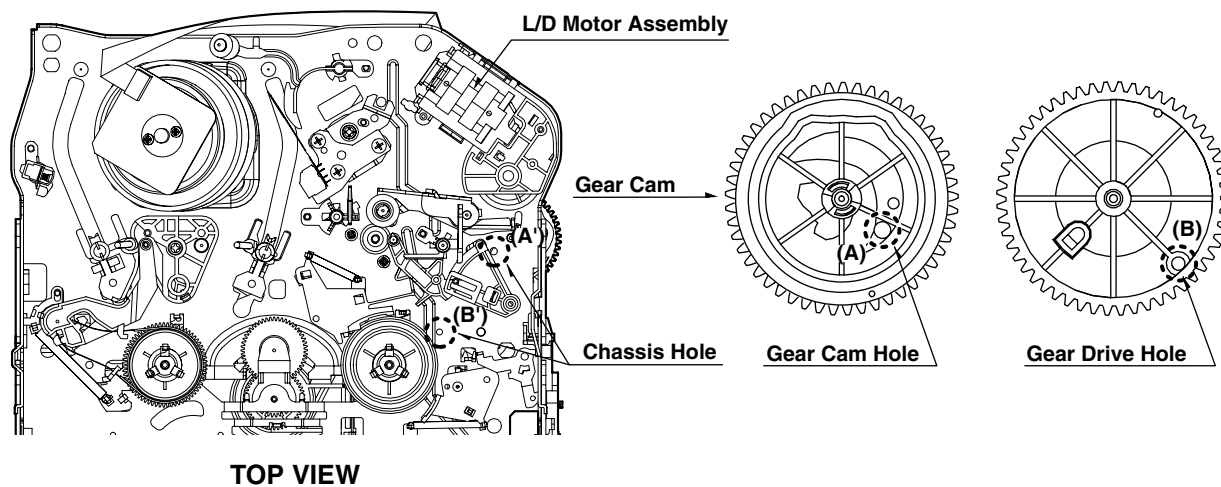


Fig. C-2

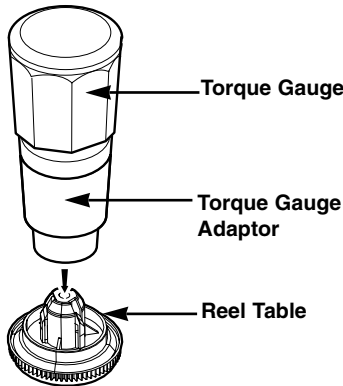
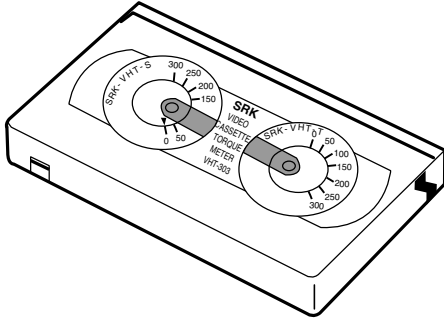
# DECK MECHANISM ADJUSTMENT

## 2. Preparation for Adjustment (To set the Deck Mechanism of the loading state without inserting a cassette tape).

- 1) Unplug the power cord from the AC outlet.
- 2) Disassemble the Top Cover and Plate Assembly Top.
- 3) Plug the power cord into the AC outlet.
- 4) Turn the power S/W on and push the Lever Stopper of the Holder Assembly CST to the back for loading the

cassette without tape.  
Cover the holes of the End Sensors at the both sides of the Chassis to prevent a light leak.  
Then the Deck Mechanism drives to the Stop Mode.  
In this case, the Deck Mechanism can accept inputs of each mode, however the Rewind and Review operation can not be performed for more than a few seconds because the Take-up Reel Table is in the Stop State and can not be detected the Reel Pulses.

## 3. Checking Torque

<b>Purpose: To insure smooth transport of the tape during each mode of operation.</b> <b>If the tape transport is abnormal, then check the torque as indicated by the chart below.</b>				
Test Equipment/ Fixture		Test Conditions (Mechanism Condition)	Checking Method	
<ul style="list-style-type: none"><li>• Torque Gauge(600g/cm ATG)</li><li>• Torque Gauge Adaptor</li><li>• Cassette Torque Meter SRK-VHT-303</li></ul>		• Play (FF) or Review (REW) Mode	<ul style="list-style-type: none"><li>• Perform each Deck Mechanism mode without inserting a cassette tape(Refer to above No.2 Preparation for Adjustment).</li><li>• Read the measurement of the Take-up or Supply Reels on the Cassette Torque Meter(Fig. C-3-2).</li><li>• Attach the Torque Gauge Adaptor to the Torque Gauge and then read the value of it(Fig. C-3-1).</li></ul>	
Item	Mode	Test Equipment	Measurement Reel	Measurement Values
Fast Forward Torque	Fast Forward	Cassette Torque Gauge	Take-Up Reel	More than 400g/cm
Rewind Torque	Rewind	Cassette Torque Gauge	Supply Reel	More than 400g/cm
Play Take-Up Torque	Play	Cassette Torque Meter	Take-Up Reel	40~100g/cm
Review Torque	Review	Cassette Torque Meter	Supply Reel	120~210g/cm
<div><div><div><b>NOTE:</b> The values are measured by using a Torque Gauge and Torque Gauge Adaptor with the Torque Gauge affixed.</div><div><ul style="list-style-type: none"><li>• Torque Gauge (600g.cm ATG)</li></ul><p>Fig. C-3-1</p></div><div><div><b>NOTE:</b> The torque reading to measure occurs when the tape abruptly changes direction from Fast Forward to Rewind Mode, when quick braking is applied to both Reels.</div><div><ul style="list-style-type: none"><li>• Cassette Torque Meter (SRK-VHT-303)</li></ul><p>Fig. C-3-2</p></div></div></div></div>				

# DECK MECHANISM ADJUSTMENT

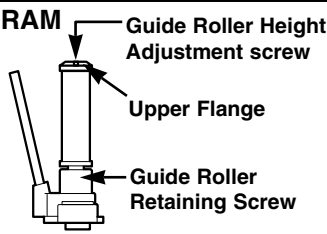
## 4. Guide Roller Height Adjustment

**Purpose:** To regulate the height of the tape so that the bottom of the tape runs along the tape guide line on the Lower Drum.

### 4-1. Preliminary Adjustment

Test Equipment/ Fixture	Test Conditions (Mechanism Condition)	Adjustment Point
• Post Height Adjusting Driver	• Play or Review Mode	• Guide Roller Height Adjustment screws on the Supply and Take-Up Guide Rollers.

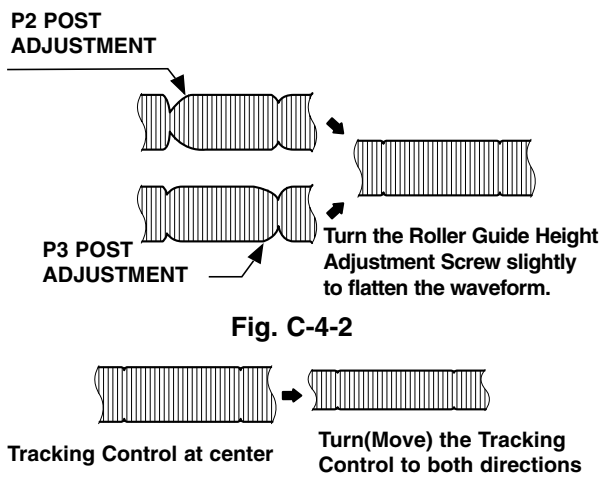
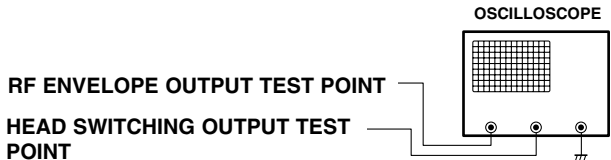
  

<b>Adjustment Procedure</b> <ol style="list-style-type: none"> <li>1) Confirm if the tape runs along the tape guide line of the Lower Drum.</li> <li>2) If the tape runs the bottom of the guide line, turn the Guide Roller Height Adjustment Screw to clockwise direction.</li> <li>3) If it runs the top, turn to counterclockwise direction.</li> <li>4) Adjust the height of the Guide Roller to be guided to the guide line of the Lower Drum from the starting and ending point of the Drum.</li> </ol>	<b>ADJUSTMENT DIAGRAM</b>  <p><b>Fig. C-4-1</b></p>
--	--

### 4-2. Precise Adjustment

Test Equipment/Fixture	Test Equipment Connection Points	Test Conditions VCR(VCP) State	Adjustment Point
• Oscilloscope • Alignment Tape • Post Height Adjusting Driver	• CH-1:PB RF Envelope • CH-2:NTSC: SW 30Hz PAL: SW 25Hz • Head Switching Output Point • RF Envelope Output Point	• Play an Alignment Tape	• Guide Roller Height Adjustment Screws

<b>Adjustment Procedure</b> <ol style="list-style-type: none"> <li>1) Play an Alignment Tape after connecting the probe of the Oscilloscope to the RF Envelope Output Test Point and Head Switching Output Test Point.</li> <li>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).</li> <li>3) Height Adjustment Screw : Flatten the RF waveform. (Fig. C-4-2)</li> <li>4) Turn(Move) the Tracking Control(in PB Mode) clockwise and counterclockwise.(Fig. C-4-3)</li> <li>5) Check that any drop of RF Output is uniform at the start and end of the waveform.</li> </ol> <p><b>NOTE</b> If the adjustment is excessive or insufficient the tape will jam or fold.</p>	<b>Waveform Diagrams</b>  <p><b>Fig. C-4-2</b></p> <p><b>Fig. C-4-3</b></p> <p><b>Connection Diagram</b></p> 
--	---

# DECK MECHANISM ADJUSTMENT

## 5. Audio/Control (A/C) Head Adjustment

**Purpose:** To insure that the tape passes accurately over the Audio and Control Tracks in exact alignment of the both Record and Playback Modes.

### 5-1. Preliminary Adjustment (Height and Tilt Adjustment)

Perform the Preliminary Adjustment, when there is no Audio Output Signal with the Alignment Tape.

Test Equipment/ Fixture	Test Conditions (Mechanism Condition)	Adjustment Point
<ul style="list-style-type: none"><li>• Blank Tape</li><li>• Screw Driver(+) Type 5mm</li></ul>	<ul style="list-style-type: none"><li>• Play the blank tape</li></ul>	<ul style="list-style-type: none"><li>• Tilt Adjustment Screw(C)</li><li>• Height Adjustment Screw(B)</li><li>• Azimuth Adjustment Screw(A)</li></ul>

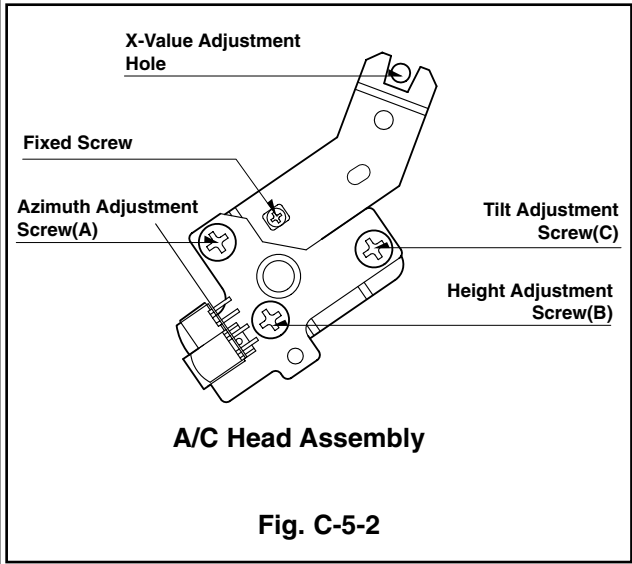
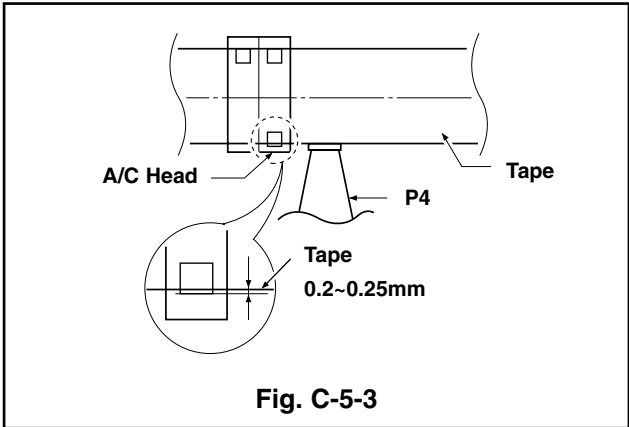
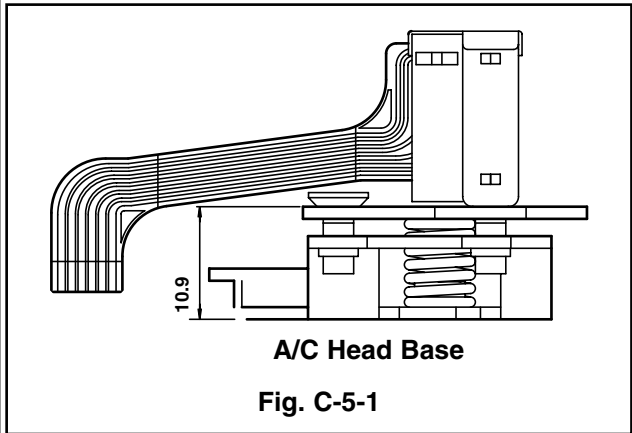
#### Adjustment Procedure/Diagrams

- 1) Initially adjust the Base Assembly A/C Head as shown Fig. C-5-1 by using the Height Adjustment Screw(B).

2) Play a blank tape and observe if the tape passes accurately over the A/C Head without tape curling or folding.

3) If folding or curling is occurred then adjust the Tilt Adjustment Screw(C) while the tape is running to resemble Fig. C-5-3.
- 4) Reconfirm the tape path after Playback about 4~5 seconds.

**NOTE**  
Ideal A/C head height occurs when the tape runs between 0.2~0.25mm above the bottom edge of the A/C Head core.



# DECK MECHANISM ADJUSTMENT

## 5-2. Confirm that the tape passes smoothly between the Take-up Guide and Pinch Roller(using a mirror or the naked eye).

- 1) After completing Step 5-1.(Preliminary Adjustment), check that the tape passes around the Take-up Guide and Pinch Roller without folding or curling at the top or bottom.
  - (1) If folding or curling is observed at the bottom of the Take-up Guide then slowly turn the Tilt Adjustment Screw(C) in the clockwise direction.

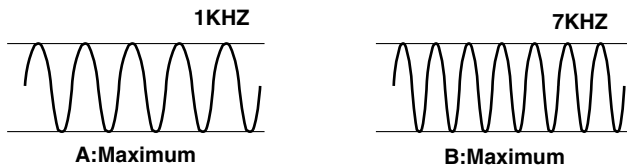
- (2) If folding or curling is observed at the top of it then slowly turn the Tilt Adjustment Screw(C) in the counterclockwise direction.

### NOTE:

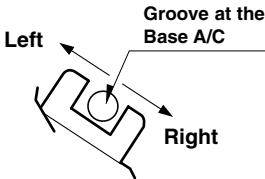
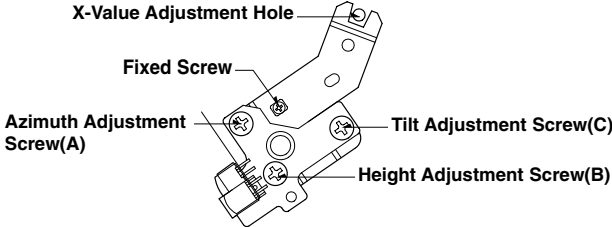
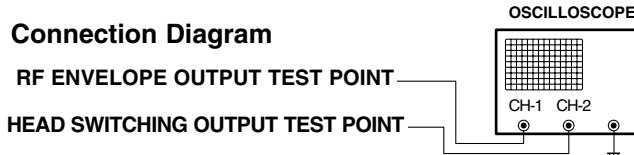
Check the RF envelope after adjusting the A/C Head, if the RF waveform differs from Fig. C-5-4, performs Precise Adjustment to flat the RF waveform.

## 5-3. Precise Adjustment (Azimuth adjustment)

Test Equipment/ Fixture	Connection Point	Test Conditions (Mechanism Condition)	Adjustment Point
<ul style="list-style-type: none"> <li>Oscilloscope</li> <li>Alignment Tape(SP)</li> <li>Screw Driver(+) Type 5mm</li> </ul>	<ul style="list-style-type: none"> <li>Audio output jack</li> </ul>	<ul style="list-style-type: none"> <li>Play an Alignment Tape 1KHz, 7KHz Sections</li> </ul>	<ul style="list-style-type: none"> <li>Azimuth Adjustment Screw(A)</li> <li>Height Adjustment Screw(B)</li> </ul>
<b>Adjustment Procedure</b> <ol style="list-style-type: none"> <li>1) Connect the probe of the oscilloscope to Audio Output Jack.</li> <li>2) Alternately adjust the Azimuth Adjustment Screw(A) and the Tilt Adjustment Screw(C) for maximum output of the 1KHz and 7KHz segments, while maintaining the flattest envelope differential between the two frequencies.</li> </ol>			

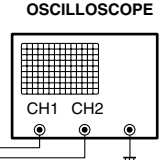
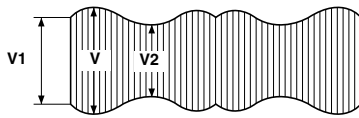


## 6. X-Value Adjustment

Purpose: To obtain compatibility with the other VCR(VCP) Models.			
Test Equipment/ Fixture	Connection Point	Test Conditions (Mechanism Condition)	Adjustment Point
<ul style="list-style-type: none"><li>• Oscilloscope</li><li>• Alignment Tape(SP only)</li><li>• Screw Driver(+) Type 5mm</li></ul>	<ul style="list-style-type: none"><li>• CH-1: PB RF Envelope</li><li>• CH-2: NTSC: SW 30Hz PAL: SW 25Hz</li><li>• Head Switching Output Test Point</li><li>• RF Envelope Output Test Point</li></ul>	<ul style="list-style-type: none"><li>• Play an Alignment Tape</li></ul>	
<b>Adjustment Procedure</b>  1) Release the Automatic Tracking to run long enough for tracking to complete it's cycle. 2) Loosen the Fixed Mounting Screw and move the Base Assembly A/C Head in the direction as shown in the diagram to find the center of the peak that allows for the maximum waveform envelope. This method should allow the 31μm Head to be centrally located over the 58μm tape track. 3) Tighten the Base Assembly A/C Head mounting Screw.		<b>Adjustment Diagram</b>  	
		<b>Connection Diagram</b>  	

# DECK MECHANISM ADJUSTMENT

## 7. Adjustment after Replacing Drum Assembly (Video Heads)

Purpose: To correct for shift in the Roller Guide and X value after replacing the Drum.			
Test Equipment/ Fixture	Connection Point	Test Conditions (Mechanism Condition)	Adjustment Points
<ul style="list-style-type: none"> <li>Oscilloscope</li> <li>Alignment Tapes</li> <li>Blank Tape</li> <li>Post Height Adjusting Driver</li> <li>Screw Driver(+) Type 5mm</li> </ul>	<ul style="list-style-type: none"> <li>CH-1: PB RF Envelope</li> <li>CH-2: NTSC: SW 30Hz PAL: SW 25Hz</li> <li>Head Switching Output Test Point</li> <li>RF Envelope Output Test Point</li> </ul>	<ul style="list-style-type: none"> <li>Play the Blank Tape</li> <li>Play an Alignment Tape</li> </ul>	<ul style="list-style-type: none"> <li>Guide Roller Precise Adjustment</li> <li>Switching Point</li> <li>Tracking Preset</li> <li>X-Value</li> </ul>
<b>Checking/Adjustment Procedure</b> Play a blank tape and check for tape curling or creasing around the Roller Guide. If there is a problem then follow the procedure 4. "Guide Roller Height" and 5. "Audio Control(A/C) Head Adjustment".		<b>Connection Diagram</b>  <b>Waveform</b> $V1/V \text{ MAX} \leq 0.7$ $V2/V \text{ MAX} \leq 0.8$ RF ENVELOPE OUTPUT  <b>Fig. C-7</b>	

## 8. Check the Tape Travel after Reassembling Deck Assembly.

### 8-1. Checking Audio and RF Locking Time during playback and after CUE or REV (FF/REW)

Test Equipment/ Fixture	Specification	Connection Points	Test Conditions (Mechanism Condition)
<ul style="list-style-type: none"> <li>Oscilloscope</li> <li>Alignment Tapes(with 6H 3KHz Color Bar Signal)</li> <li>Stop Watch</li> </ul>	<ul style="list-style-type: none"> <li>RF Locking Time: Less than 5 sec.</li> <li>Audio Locking Time: Less than 10sec</li> </ul>	<ul style="list-style-type: none"> <li>CH-1: PB RF Envelope</li> <li>CH-2: Audio Output</li> <li>RF Envelope Output Point</li> <li>Audio Output Jack</li> </ul>	<ul style="list-style-type: none"> <li>Play an Alignment Tape (with 6H 3kHz Color Bar Signal)</li> </ul>
<b>Checking Procedure</b> Play an Alignment Tape then change the operating mode to CUE or REV and confirm if the unit meets the above listed specifications.		<b>NOTES:</b> 1) CUE is the forward search mode 2) REV is the backward search mode 3) Refer to the Play mode	

### 8-2. Checking for tape curling or jamming

Test Equipment/ Fixture	Specification	Test Conditions (Mechanism Condition)
<ul style="list-style-type: none"> <li>T-160 Tape</li> <li>T-120 Tape</li> </ul>	<ul style="list-style-type: none"> <li>Be sure there is no tape jamming or curling at the beginning, middle or end of the tape.</li> </ul>	<ul style="list-style-type: none"> <li>Run the CUE, REV, Play mode at the beginning and the end of the tape.</li> </ul>
<b>Checking Procedure</b> 1) Confirm that the tape runs smoothly around the roller guides, Drum and A/C Head Assemblies while abruptly changing operating modes from Play to CUE or REV. This is to be checked at the beginning, middle and end sections of the tape. 2) Confirm that the tape passes over the A/C Head Assembly as indicated by proper audio reproduction and proper tape counter performance.		

# MAINTENANCE/INSPECTION PROCEDURE

## 1. 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.

Phenomenon	Inspection	Replacement	
Color beats	Dirt on Full-Erase Head	o	F/E Head
Poor S/N, no color	Dirt on Video Head	o	Video Head
Vertical or Horizontal jitter	Dirt on Video Head Dirt on tape transport system	o	
Low volume, Sound distorted	Dirt on Audio/Control Head	o	A/C Head
Tape does not run. Tape is slack	Dirt on Pinch Roller	o	Pinch Roller
	Dirt on Belt Capstan	o	Belt Capstan
In Review and Unloading (off mode), the tape is rolled up loosely.	Clutch Assembly D35 torque reduced	o	Clutch Assembly D35
	Cleaning Drum and transport system	Fig. C-9-3	

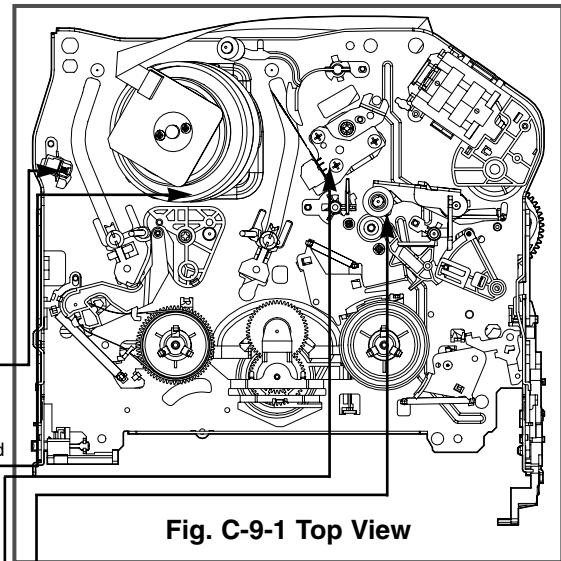


Fig. C-9-1 Top View

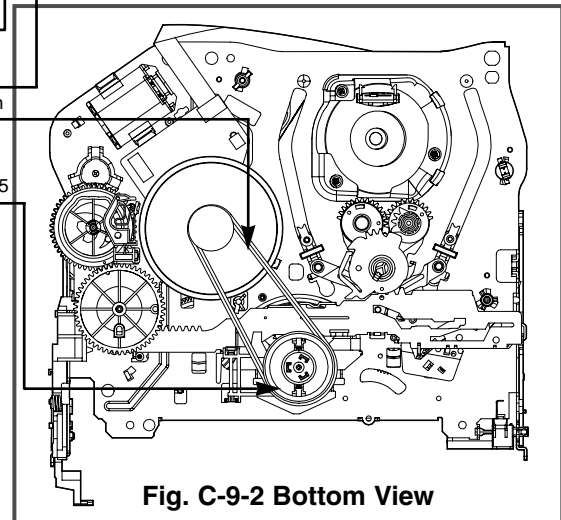


Fig. C-9-2 Bottom View

### NOTE

If locations marked with **o** 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 and see the Greasing (Page 4-21, 22) for the sections to be lubricated and greased.

\* No. (1)~(12) Indicates the Tape Path to be traveled from Supply Reel to Take-up Reel.

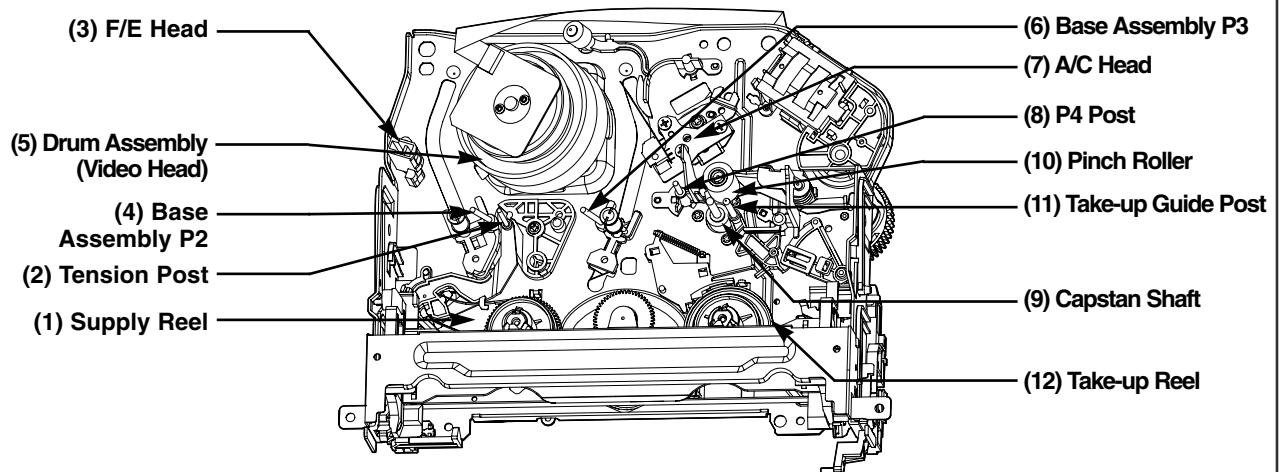


Fig. C-9-3 Tape Transport System

# MAINTENANCE/INSPECTION PROCEDURE

## 2. Required Maintenance

The recording density of a VCR(VCP) is much higher than that of an audio tape recorder. VCR(VCP) components must be very precise, at tolerances of 1/1000mm, to ensure compatibility with the 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 a good picture, periodic inspection and maintenance, including replacement of worn out parts and lubrication, is necessary.

## 3. 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(VCP), and the environment in which the VCR(VCP) is used.

But, in general home use, a good picture will be maintained if inspection and maintenance is made every 1,000 hours. 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			

## 4. Supplies Required for Inspection and Maintenance

- (1) Grease : Kanto G-311G (Blue) or equivalent
- (2) Isopropyl Alcohol or equivalent
- (3) Cleaning Patches
- (4) Grease : Kanto G-381(Yellow)

## 5. Maintenance Procedure

### 5-1) Cleaning

- (1) Cleaning video head

First use a cleaning tape. If the dirt on the head is too stubborn to remove by tape, use the cleaning patch. Coat the cleaning patch with Isopropyl Alcohol. 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. 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 the test tape. If Isopropyl Alcohol remains on the video head, the tape may be damaged when it comes into contact with the head surface.

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

### NOTES:

- ① It is the tape transport system which comes into contact with the running tape. The drive system consists of those parts which moves the tape.
- ② Make sure that during cleaning you do not touch the tape transport system with excessive force that would cause deformation or damage to the system.

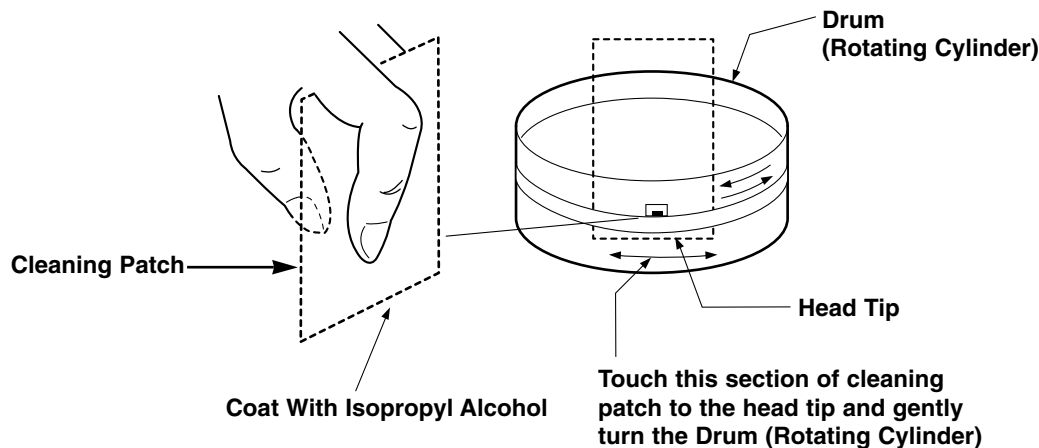


Fig. C-9-4



# MAINTENANCE/INSPECTION PROCEDURE

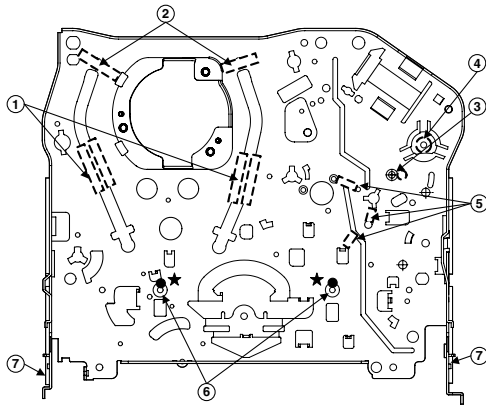
## 5-2) Greasing

### (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 excessive grease and clean with cleaning patch wetted in Isopropyl Alcohol.

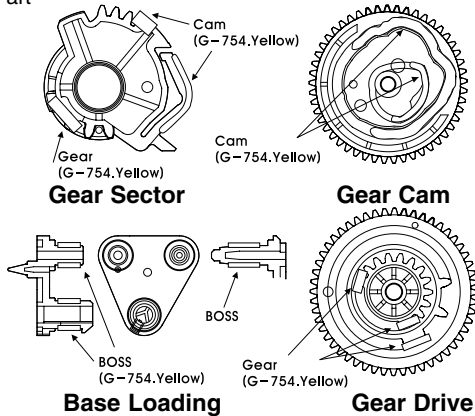
### NOTE:Greasing Points

- |                                   |                                       |
|-----------------------------------|---------------------------------------|
| 1) Loading Path Inside & Top side | 5) Arm Take-up Rubbing Sections       |
| 2) Base Assembly P2, P3 stopper   | 6) Reel S,T shaft(G381:Yellow)        |
| 3) Shaft                          | 7) Arm Assembly F/L Rotating Sections |
| 4) L/D Motor Gear Wheel Part      |                                       |



**Chassis (Top)**

### Gear Part



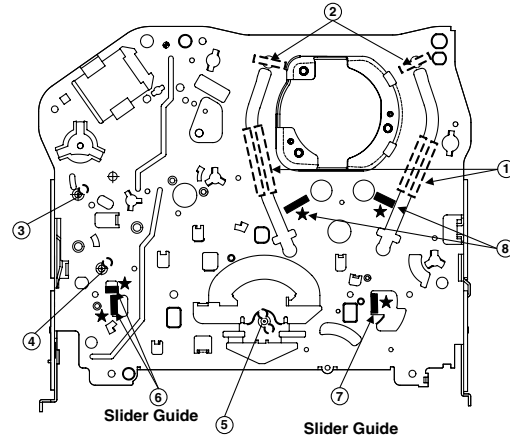
**Chassis (Left Side)**

**Chassis (Right Side)**

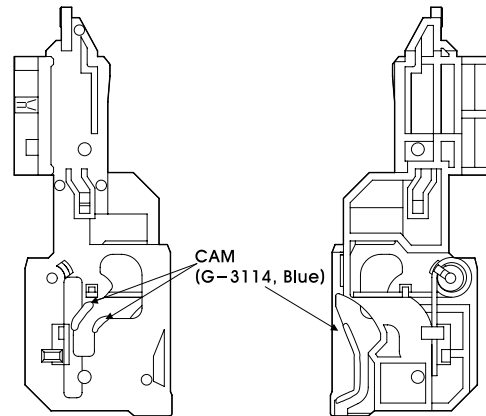
### (2) Periodic greasing

Grease specified locations every 5,000 hours.

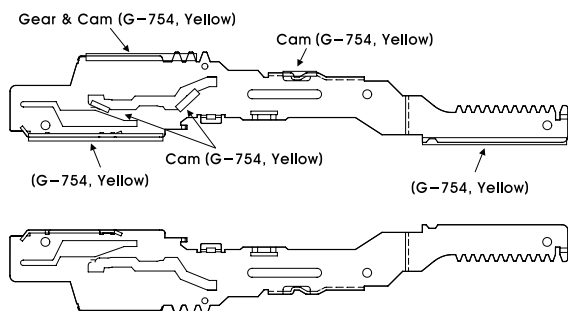
- |                                   |  |
|-----------------------------------|--|
| 1) Loading Path Inside & Top side | 6) Plate Slider Guide Sections           |
| 2) Base Assembly P2,P3 stopper    | 7) Plate Slider Guide Sections           |
| 3) Shaft                          | 8) Gear Assembly P2, P2 Rubbing Sections |
| 4) Shaft                          |  |
| 5) Clutch Assembly D35 Shaft      |  |



**Chassis (Bottom)**



**Gear Rack F/L**

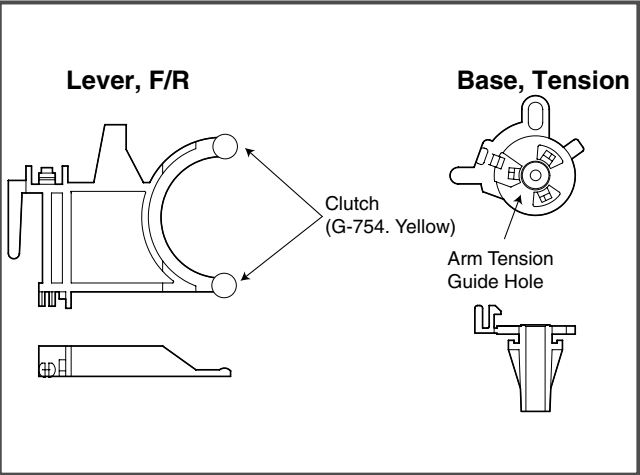


**Plate Slider**

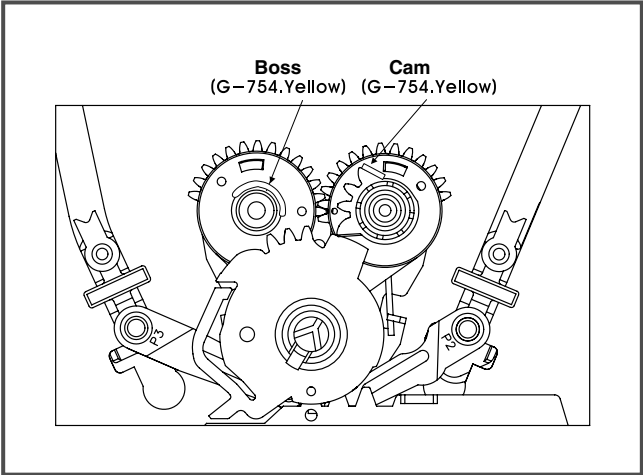
# MAINTENANCE/INSPECTION PROCEDURE

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## Lever, F/R, Base, Tension



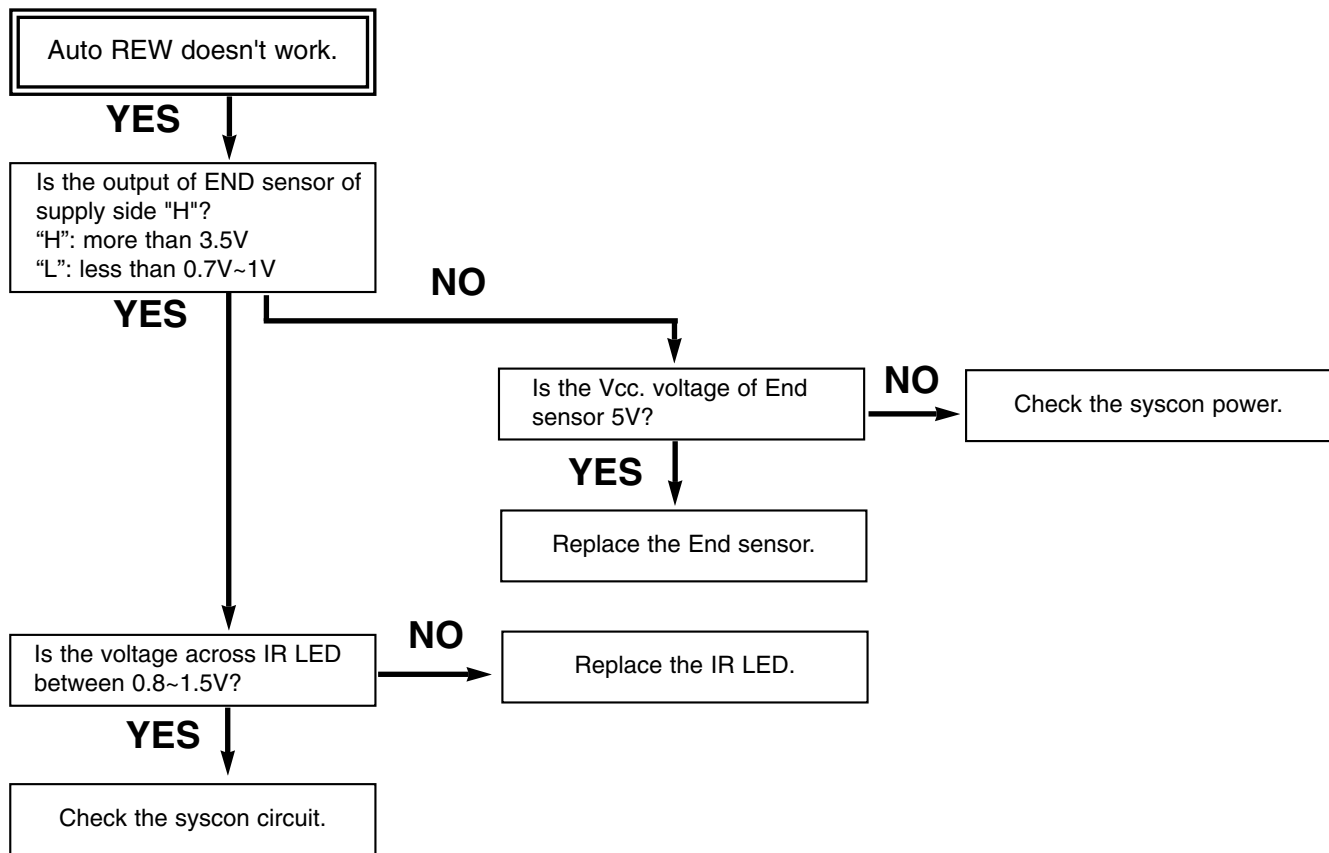
## GEAR AY, P2 & P3



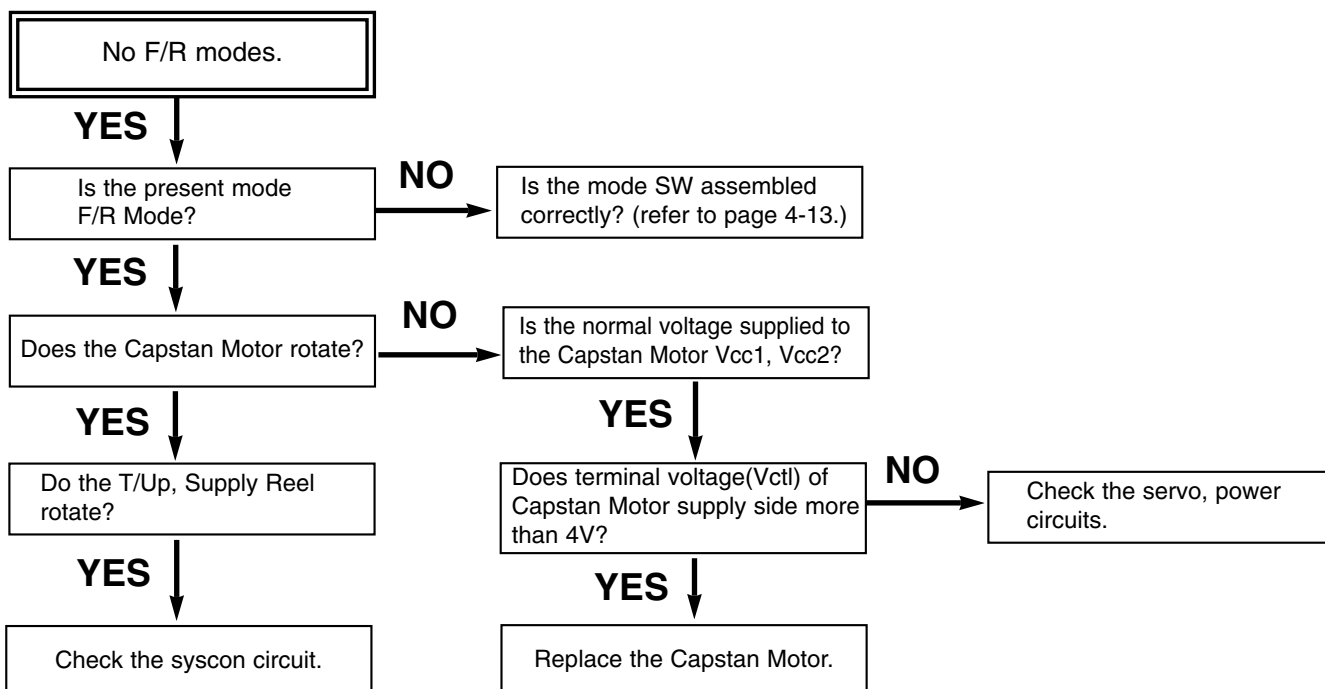
# MECHANISM TROUBLESHOOTING GUIDE

## 1. Deck Mechanism

### A.

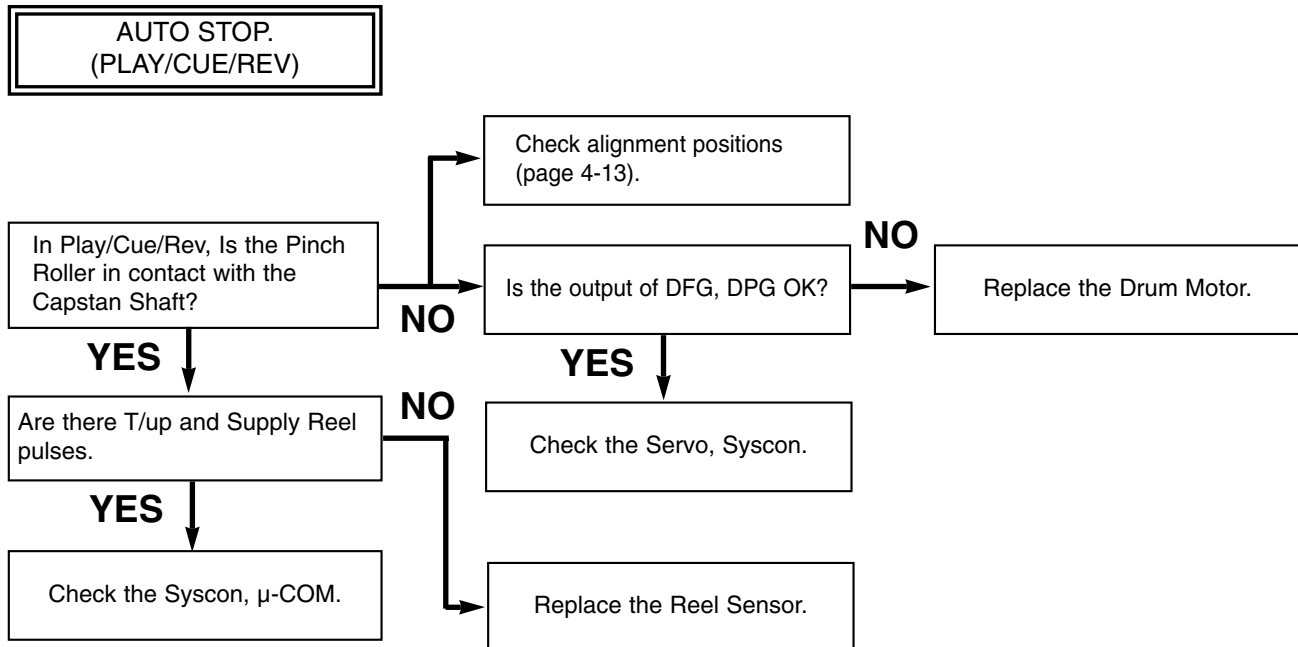


### B.

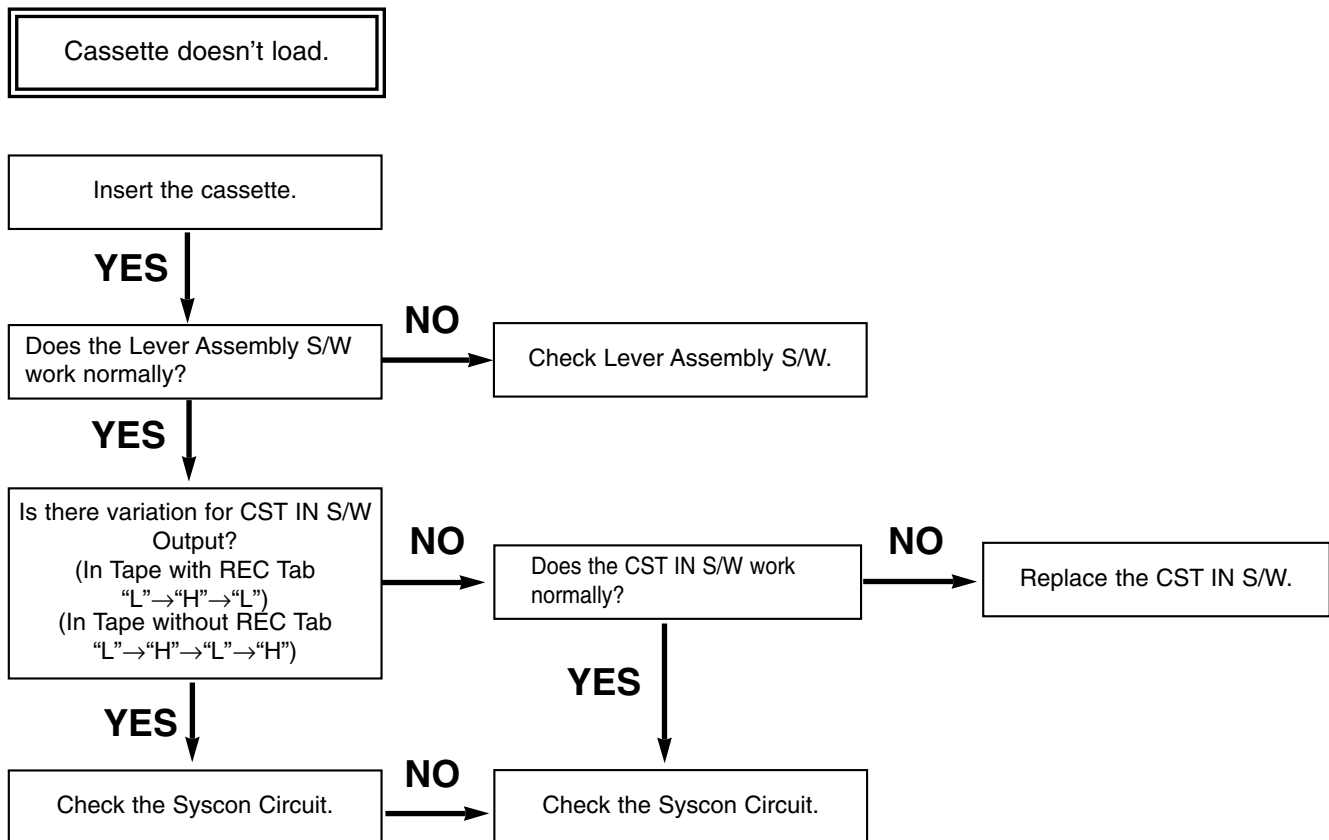


# MECHANISM TROUBLESHOOTING GUIDE

## C.

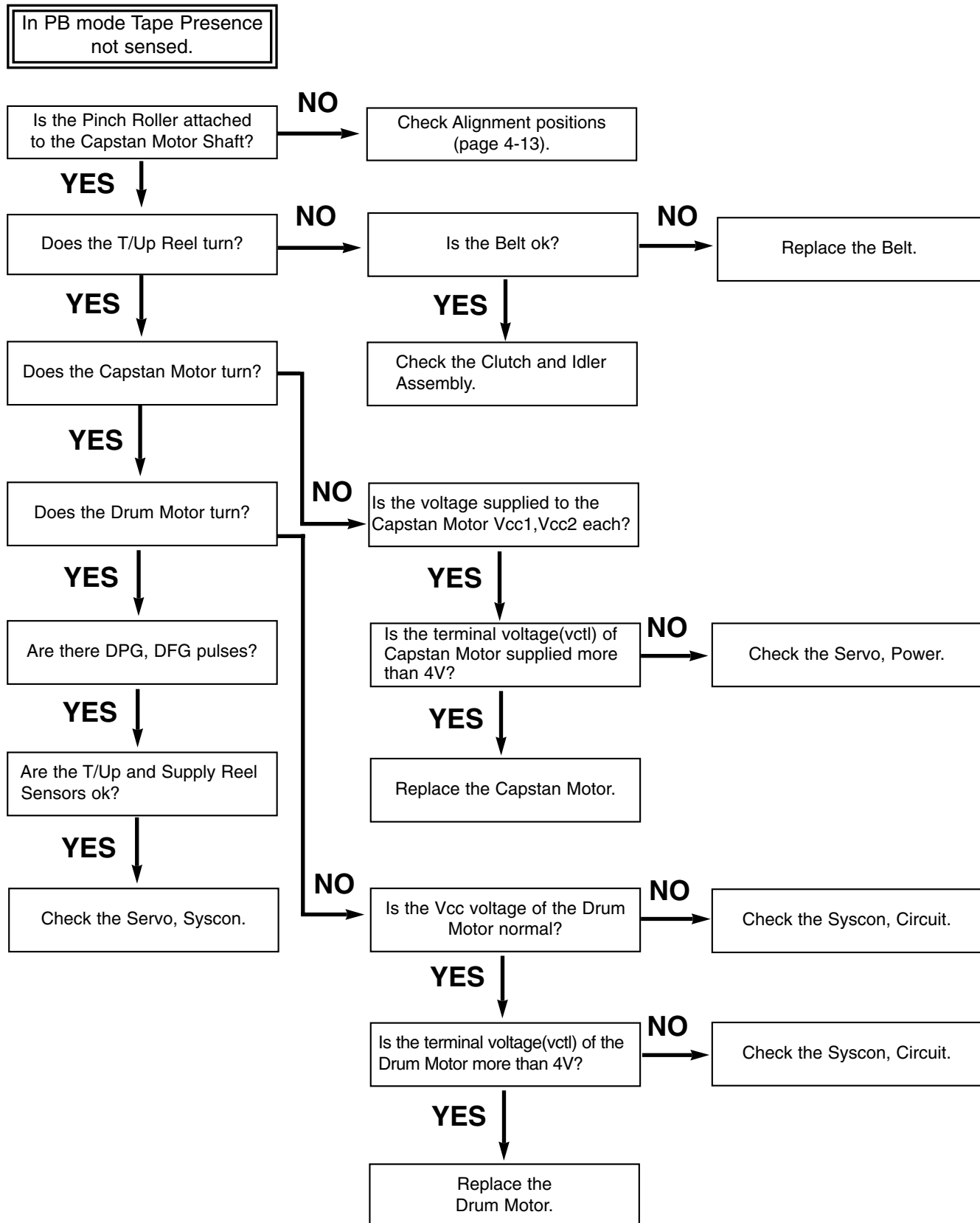


## D.



# MECHANISM TROUBLESHOOTING GUIDE

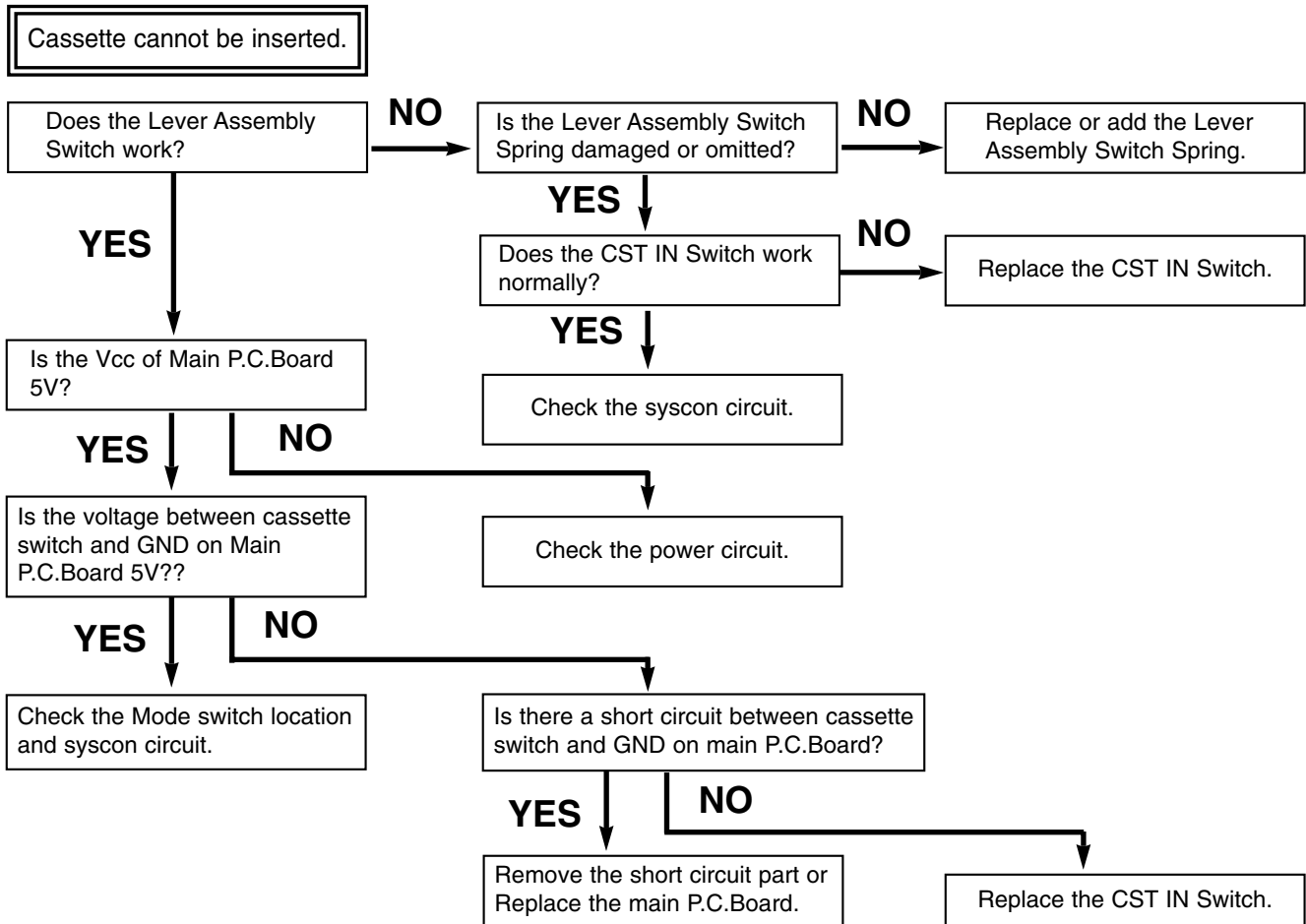
E.



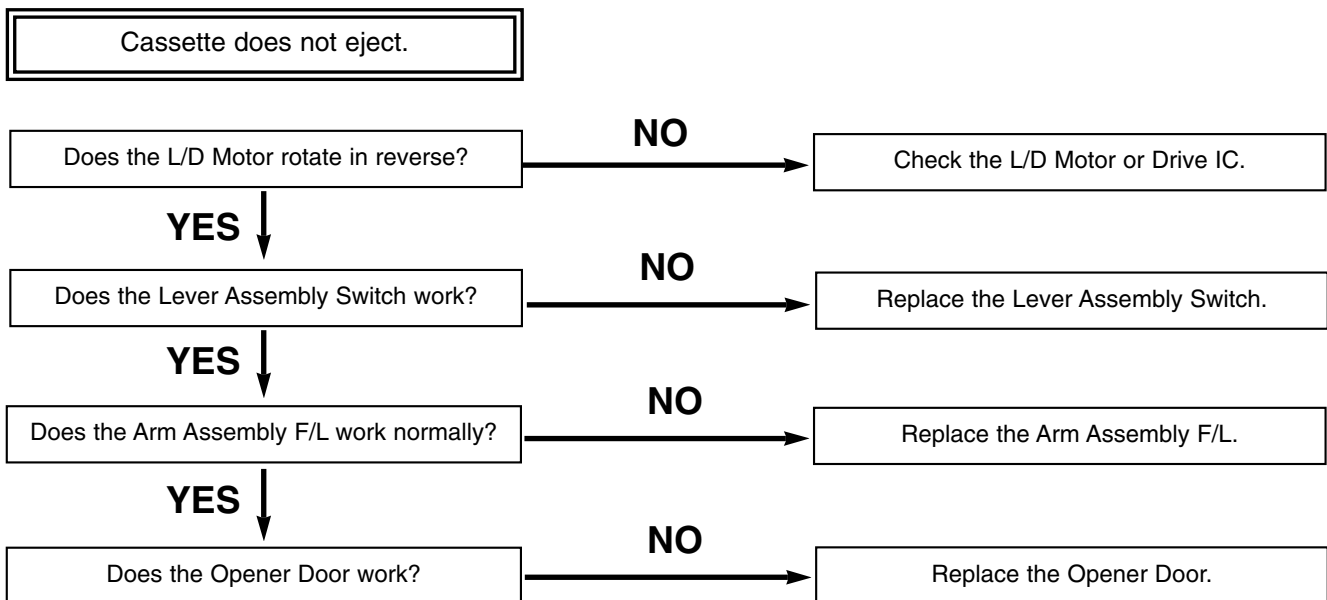
# MECHANISM TROUBLESHOOTING GUIDE

## 2. Front Loading Mechanism

A.



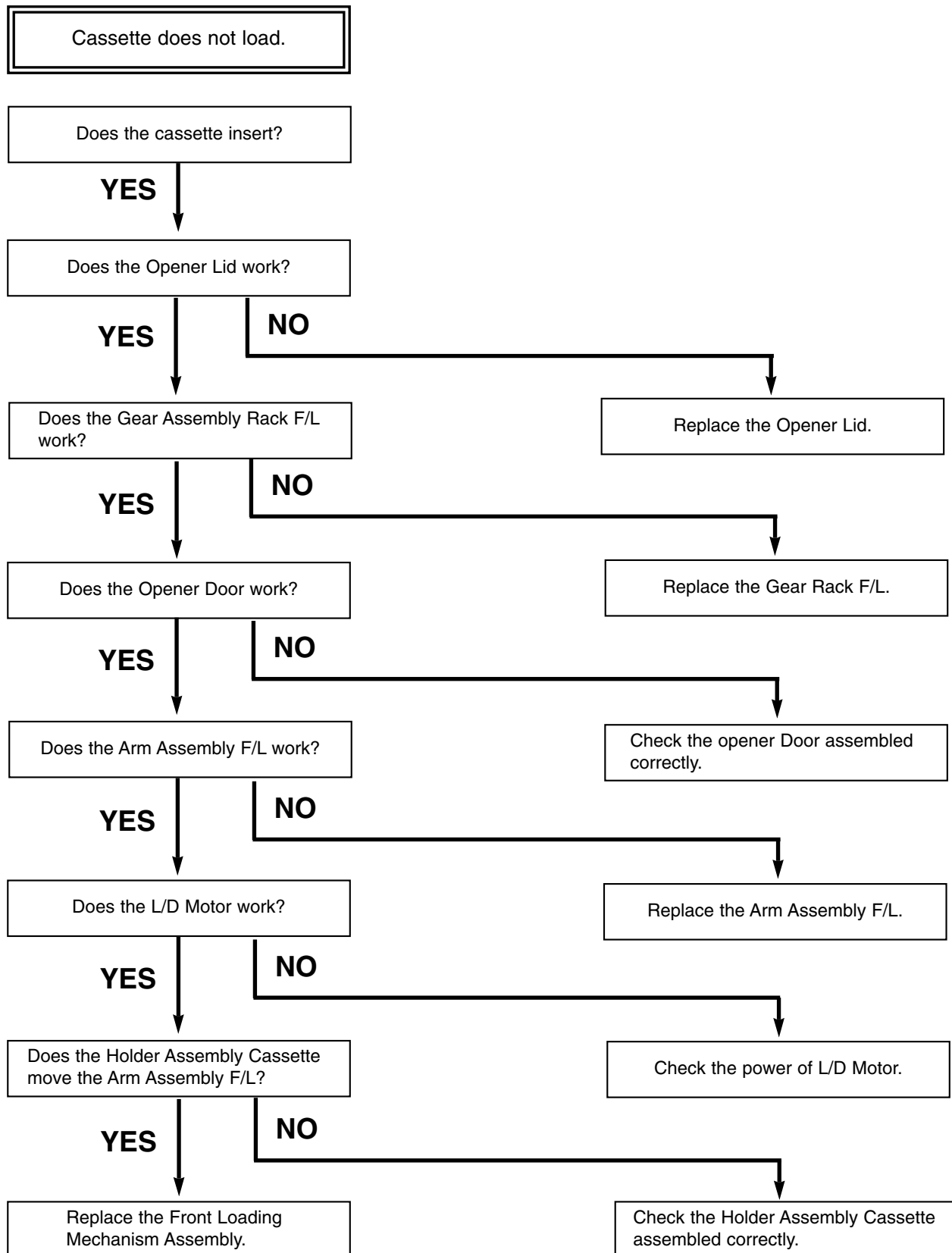
B.



# MECHANISM TROUBLESHOOTING GUIDE

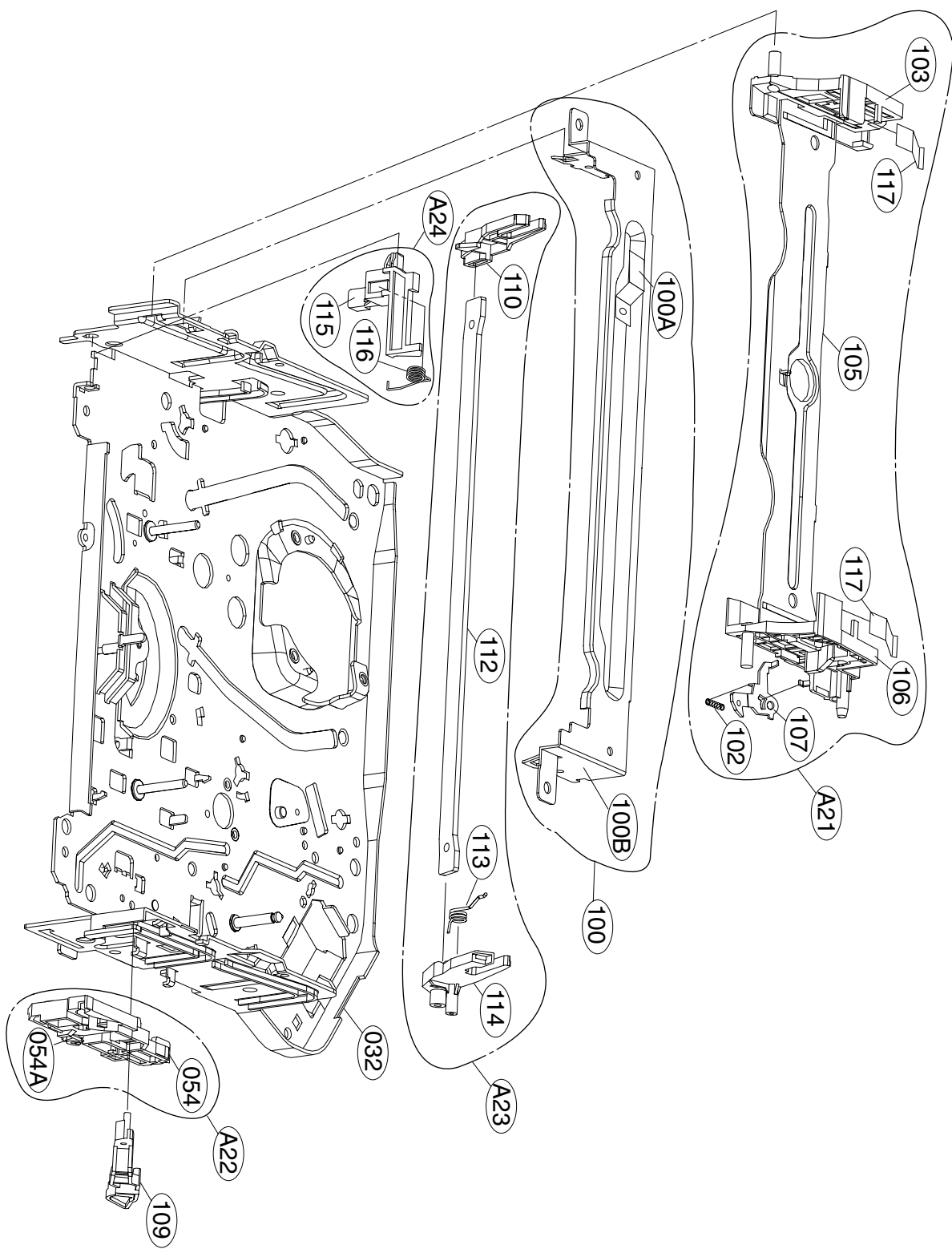
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C.



# EXPLODED VIEWS

## 1. Front Loading Mechanism Section



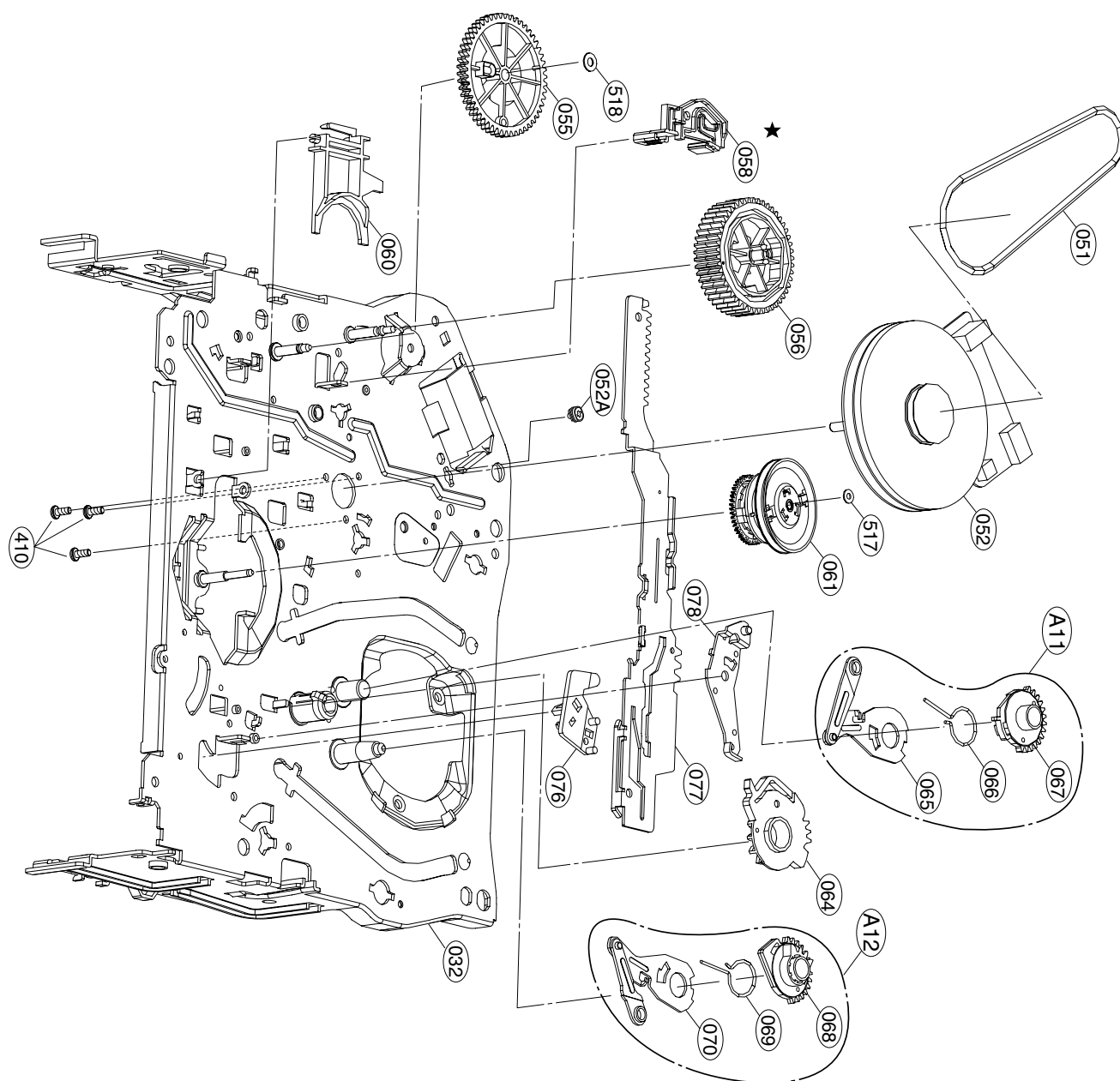




# EXPLODED VIEWS

## 3. Moving Mechanism Section(2)

★ OPTIONAL PART



# MEMO

Handwriting practice lines consisting of 25 horizontal dotted lines.