

SECTION 1 SUMMARY

KEY TO ABBREVIATIONS

A	AC :Alternating Current	LPF :Low Pass Filter
	ACC :Automatic Color Control	M MAX :Maximum
	ACSS :Automatic Channel Setting System	MD :Modulator
	ADJ :Adjust	MECHA.CTL :Mechanism Control
	A/E :Audio Erase	MIC :Microphone
	AFC :Automatic Frequency Control	MIN :Minimum
	AFT :Automatic Fine Tuning	MIX :Mixer, Mixing
	AGC :Automatic Gain Control	M.M. :Monostable, Multivibrator
	A.H.SW :Audio Head Switch	MMV :Mono Multi Vibrator
	ALC :Automatic Level Control	MOD :Modulation, Modulator
	AM :Amplitude Modulation	MODEM :Modulator-Demodulator
	AMP :Amplifier	MPX :Multiplex
	ANT :Antenna	N NR :Noise Reduction
	APC :Automatic Phase Control	O OSC :Oscillator
	ASS'Y :Assembly	OSD :On Screen Display
	AUX :Auxiliary	P PB :Playback
B	B :Base	PCB :Printed Circuit Board
	BGP :Burst Gate Pulse	P.CTL :Power Control
	BPF :Bandpass Filter	PRE-AMP :Preamplifier
	BS :Broadcasting Satellite	P.F :Power Failure
	BW or B/W :Black and White	PG :Pulse Generator
C	C :Capacitor, Chroma, Collector	PLL :Phase Locked Loop
	CAN :Cancel	PREM.DET :Premire Detect
	CAP :Capstan	P.P :Peak-to-Peak
	CAP.BRK :Capstan Brake	PS :Phase Shift
	CAP.RVS :Capstan Reverse	PWM :Pulse Width Modulation
	CATV :Cable Television	PWR CTL :Power Control
	CBA :Circuit Board Assembly	Q Q :Transistor
	CCD :Charge Coupled Device	QH :Quasi Horizontal
	C.C.TL :Chro Control, Capstan Control	QSR :Quick Setting Record
	CFG :Capstan Frequency Generator	QTR :Quick Timer Record
	CHROMA :Chrominance	QV :Quasi Vertical
	CNR :Chroma Noise Redution	R R :Resistor, Right
	COMB :Combination	RE(or RC) :Remocon, Receiver
	Comb Filter	REC :Recording
	COMP :Comparator	REC S 'H' :Record Start 'High'
	Composite	REF :Reference
	Compensation	REG :Regulated, Regulator
	CONV :Converter	REMOCON :Remote Control(unit)
	C.ROT SW :Color Rotary Switch	RF :Radio Frequency
	CS :Chip Selcet	R/P :Record/Playback
	C.SYNC :Composite Synchronization	RTC :Reel Time Counter
	CTL DIV :Control Divide	S S :Serial
	CUR :Current	S.ACCEL :Slow Accel
	CYL :Cylinder	SAOP :Second Audio Program
D	D :Drum, Digital, Diode, Drain	SC :Scart, Simulcast
	D.ADJ :Drum Adjust	S.DET :Secam Detect
	DC :Direct Current	SH :Shift
	D.CTL :Drum Control	SHARP :Sharpness
	DEMOD :Demodulator	SIF :Sound Intermediate Frequency
	DET :Detector	SLD :Side Locking
	DEV :Deviation	S/N :Signal to Noise Ratio
	DHP :Double High Pass	SP :Standard Play
	DIGITRON :Digital Display Tube	ST :Stereo
	DL :Delay line	SUB :Subtract, Subcarrier
	DOC :Drop Out Compensator	SW or S/W :Switch
	DUB :Dubbing	SYNC :Synchronization
	D.V SYNC :Dummy Vertical Synchronization	SYSCON :System Control
E	E :Emitter	T T :Coil
	EE :Electric to Electric	TP :Test Point
	EMPH :Emphasis	TR :Transistor
	ENA :Enable	TRK :Tracking
	ENV :Envelope	TRANS :Transformer
	EP :Extended Play	TU :Tuner, Take-up
	EQ :Equalizer	U UHF :Ultra High Frequency
	EXP :Expander	UNREG :Unregulated
F	F :Fuse	V V :Volt, Vertical
	FB :Feed Back	VA :Always Voltage
	FBC :Feed Back Clamp	VCO :Voltage Controlled Oscillator
	FE :Full Erase	VGC :Voltage Gain Control
	FG :Frequency Generator	VHF :Very High Frequency
	FL :Filter	V.H.SW :Video Head Switch
	FM :Frequency Modulation	VISS :VHS Index Search
	F/R :Front/Rear	VPS :Video Program System
	FS :Frequency Synthesizer	VR :Variable Resistor or Volume
	FSC :Subcarrier Frequency	V-SYNC :Vertical Synchronization
	F/V :Frequency Voltage	VTG :Voltage
G	GEN :Generator	VV :Voltage to Voltage
H	H :High, Horizontal	VXO :Voltage X-tal Oscillator
I	IC :Integrated Circuit	W W :Watt
	IF :Intermediate Frequency	WHT :White
	INS :Insert	W/O :With out
L	L :Low, Left, Coil	X X-TAL :Crystal
	LD :LED	Y Y/C :Luminance/Chrominance
	LD VTG CTL :Loading Voltage Control	YNR :Luminance Noise Reduction
	LECHA :Letter Character	Z ZD :Zener Diode
	L.M :Level Meter	
	LP :Long Play	

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 \triangle symbol and shaded (\sphericalangle) 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) Double insulated wires
 - 2) 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. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)
6. Check that replaced wires do not contact sharp edged or pointed parts.
7.
 - 1) When a power cord has been replaced, check that A mark is made on the cord, under strain, near the aperture, and the flexible cord is subjected 100 times to a pull of 40N for a duration of 1 second each.
 - 2) During the test, the cord shall not be displaced by more than 2mm
8. Also check areas surrounding repaired locations.

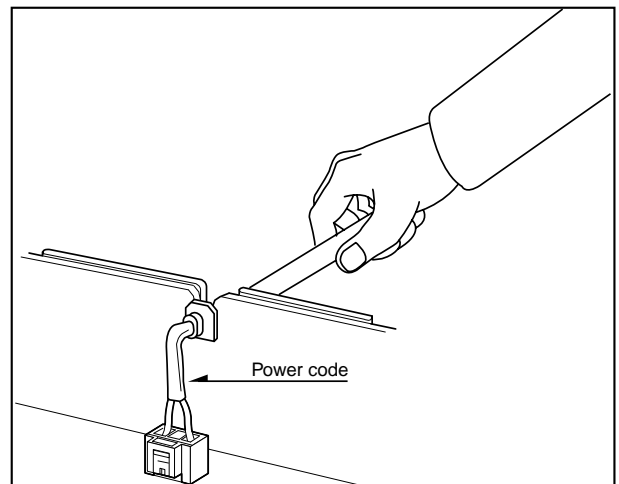


Fig. 1

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, incrophone jacks, earphone jacks, etc.) See table below.

- **Dielectric strength test**

Confirm specified dielectric strength or greater between power cord prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, incrophone 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.

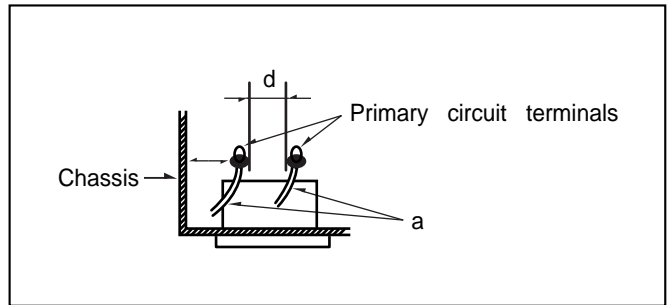


Fig. 2

Table 1 : Ratings for selected areas

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

* Class II model only.

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

- **Leakage Current test**

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

Measuring Method: (Power ON)

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

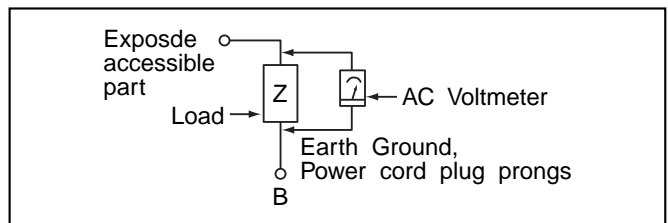


Fig. 3

Table 2:Leakage current ratings for selected areas.

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

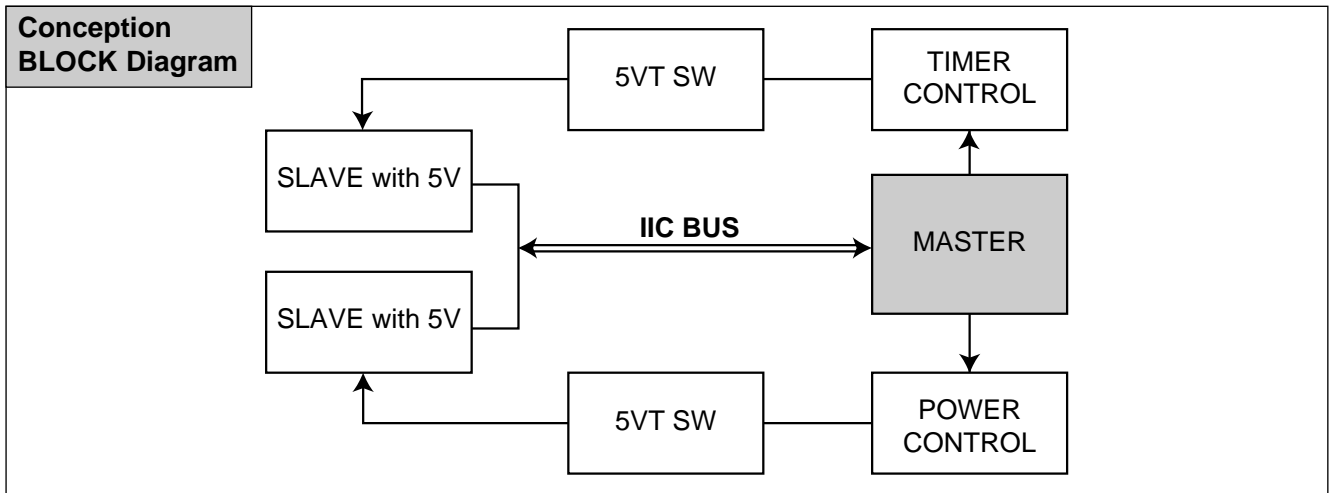
Note. This table is for IEC member only. Be sure to confirm the precise values for your particular country and locality.

PROPOSAL FOR APPLYING SHORT PROTECTION

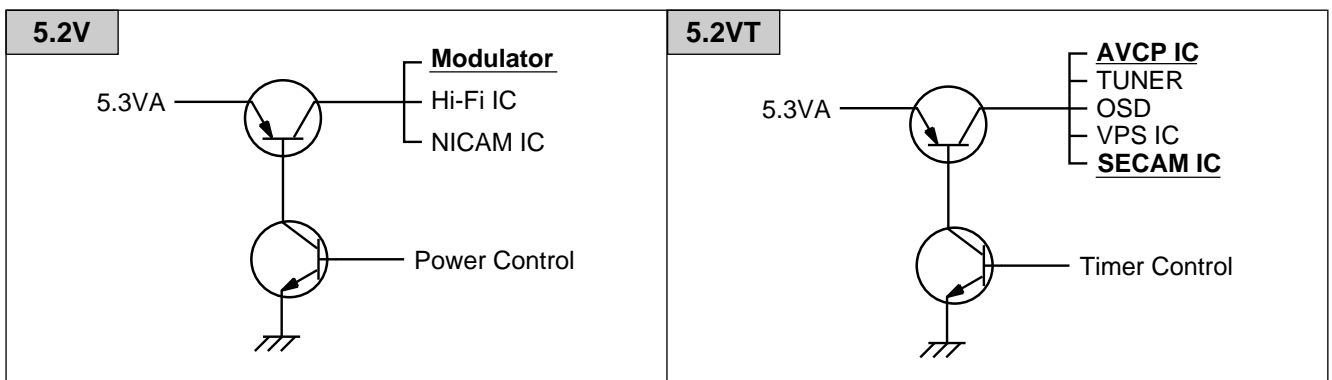
• The Contents of Examination

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) μ -COM gets unable to detect 'ACK' data.

μ -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.

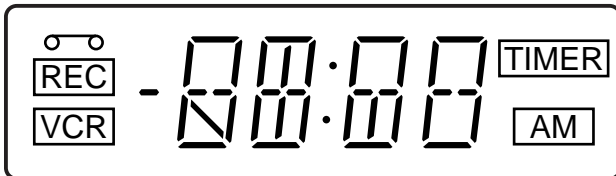
If MP KEY isn't repaired the setting of RF OUT channel or LANGUAGE might be different from that for customer's country.

- **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.)

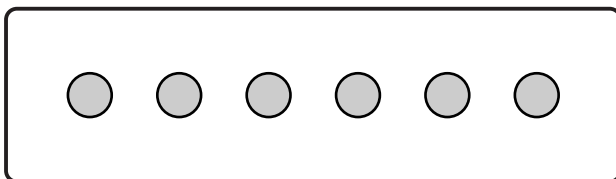
- **MP KEY's function** : MP KEY sets EEPROM's data up to the initial state.



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



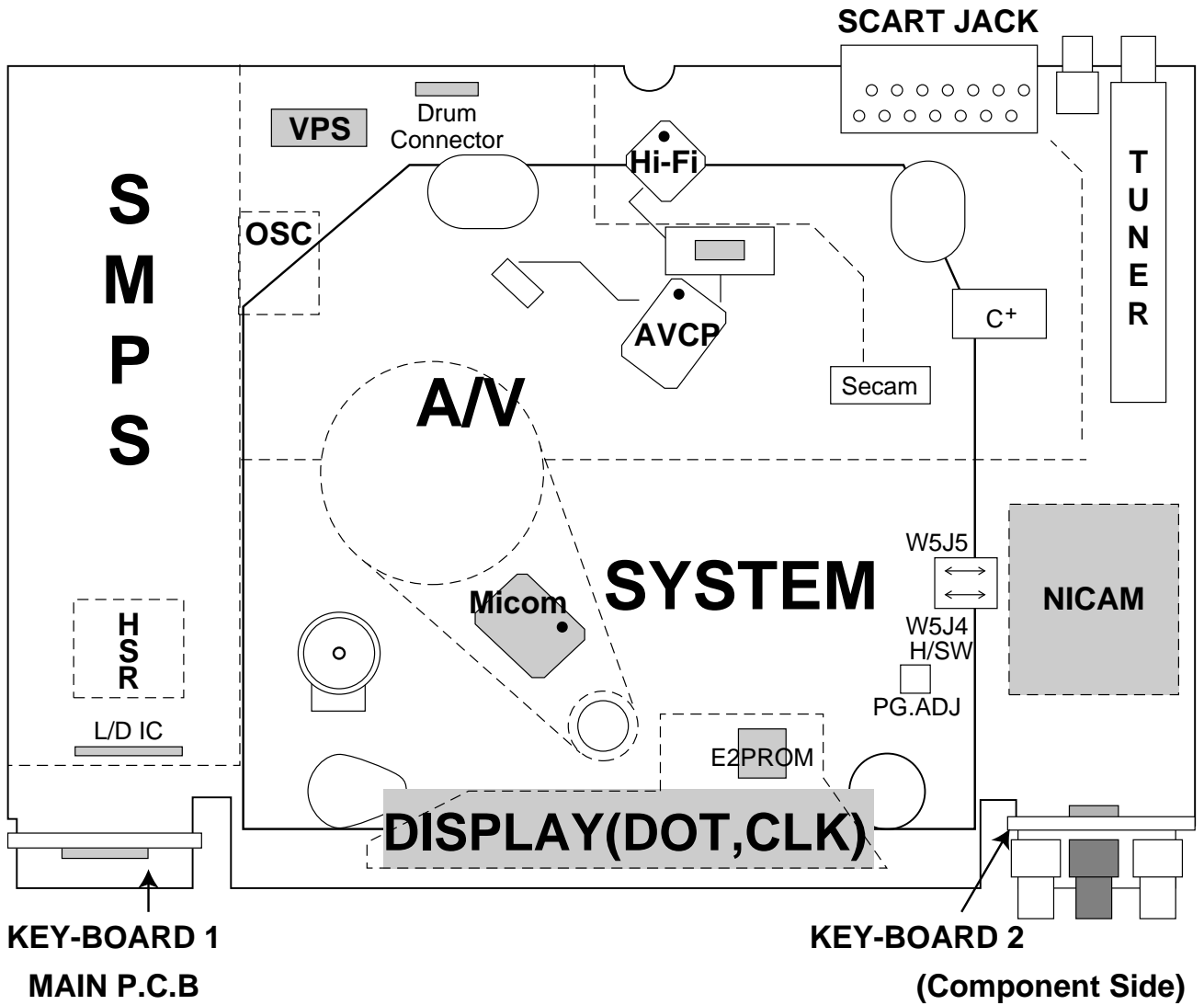
- **LED CLOCK MODEL:**
MP KEY Switch all on a Light



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

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)

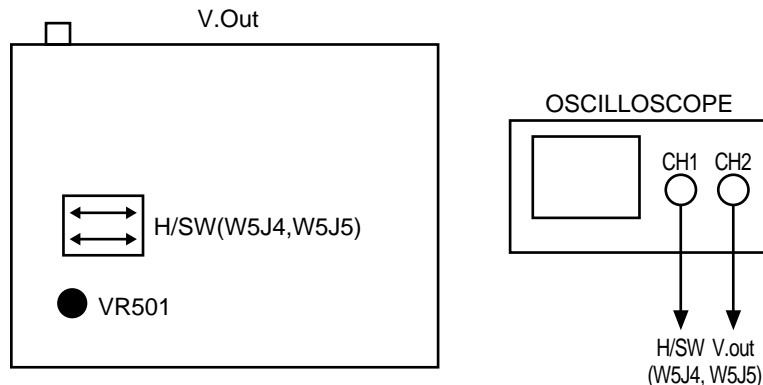
- Adjustment And Specification

MODE	MEASUREMENT POINT	ADJUSTMENT POINT	SPECIFICATION
PLAY	V.Out H/SW(W5J4, W5J5)	VR501	$6.5 \pm 0.5H$

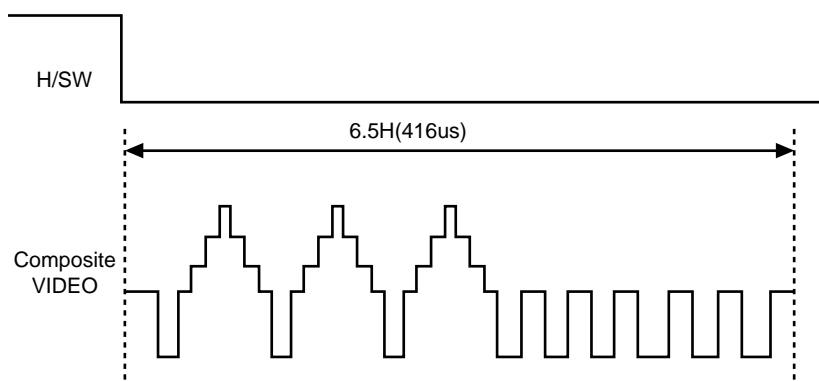
• Adjustment Procedure

- 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) Connect the CH1 of the oscilloscope to the H/SW(W5J4, W5J5) and CH2 to the Video Out for the VCR.
- c) Trigger the mixed Video Signal of CH2 to the CH1 H/SW(W5J4, W5J5), and then check the distance (time difference), which is from the selected A(B) Head point of the H/SW(W5J4, W5J5) 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

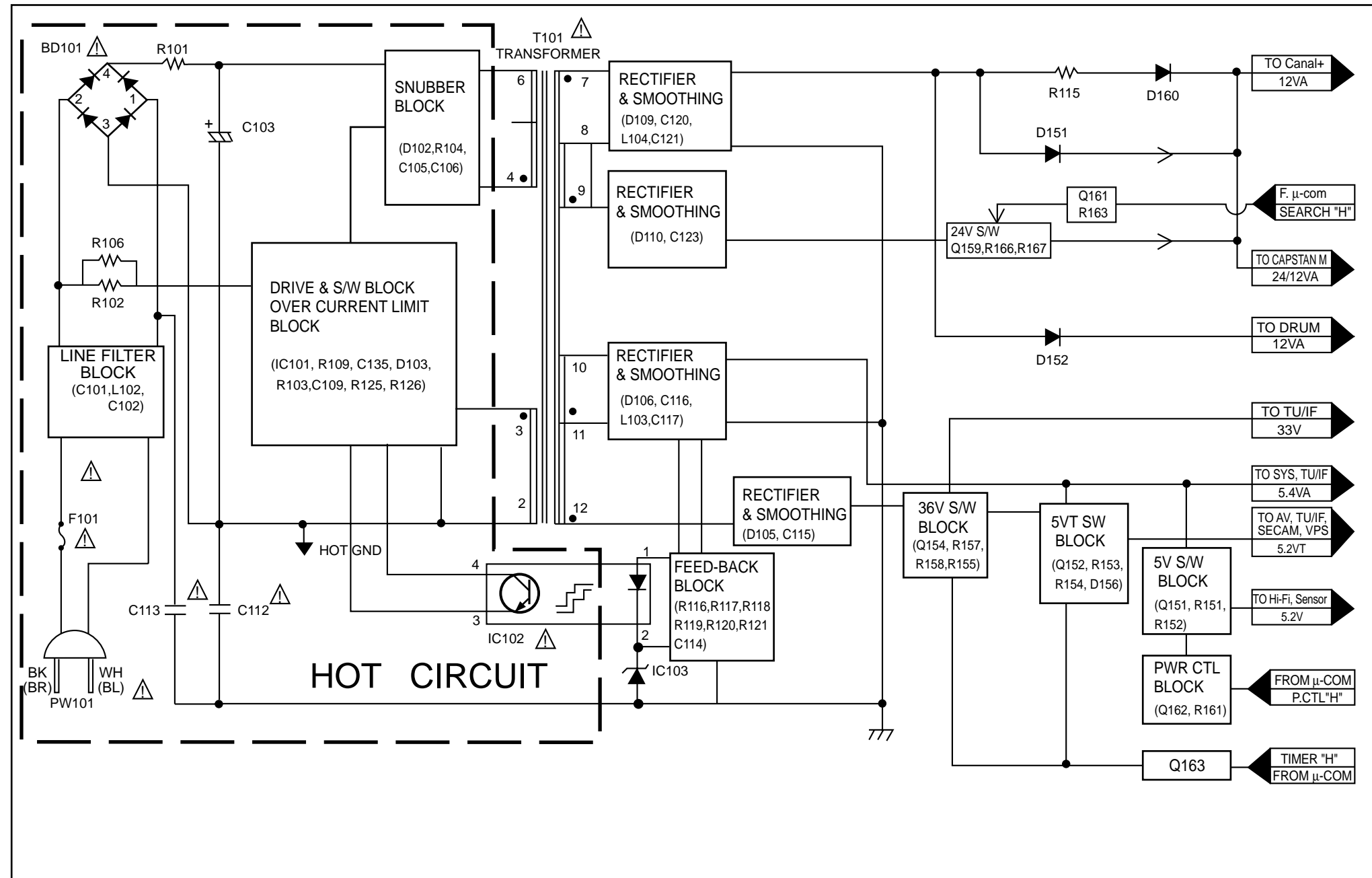


• WAVEFORM





BLOCK DIAGRAMS

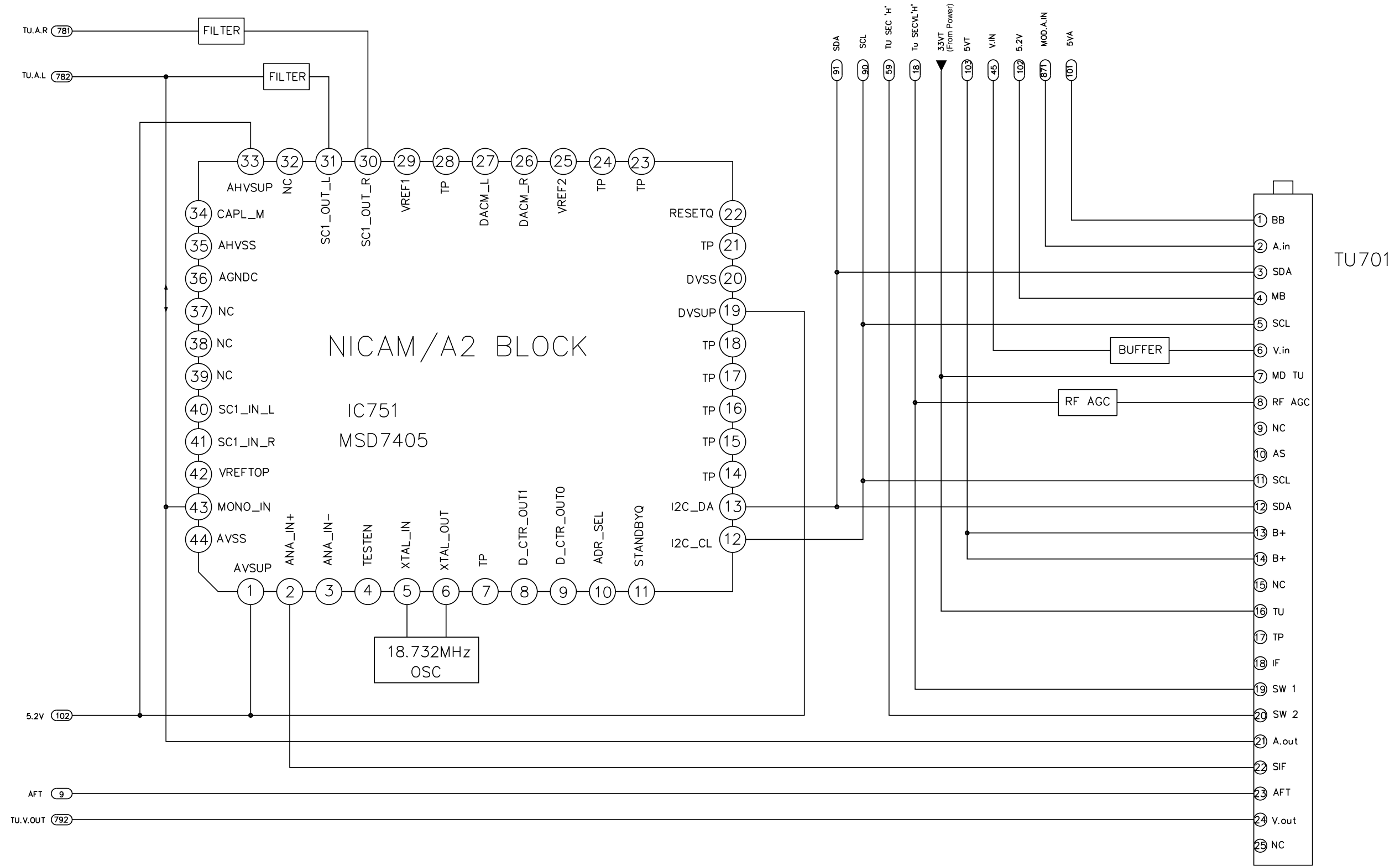
1. Power Block Diagram



'00 11. 30

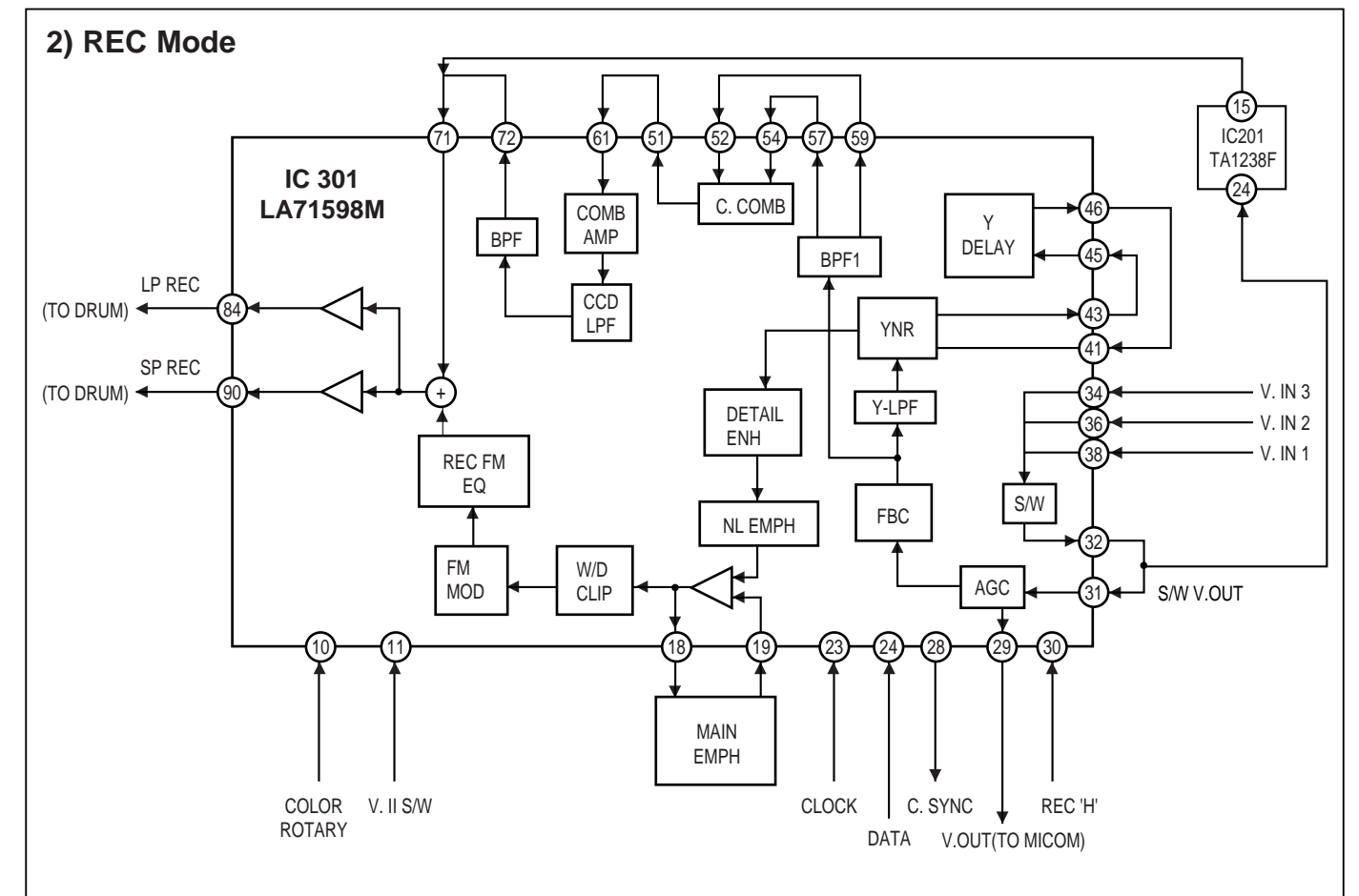
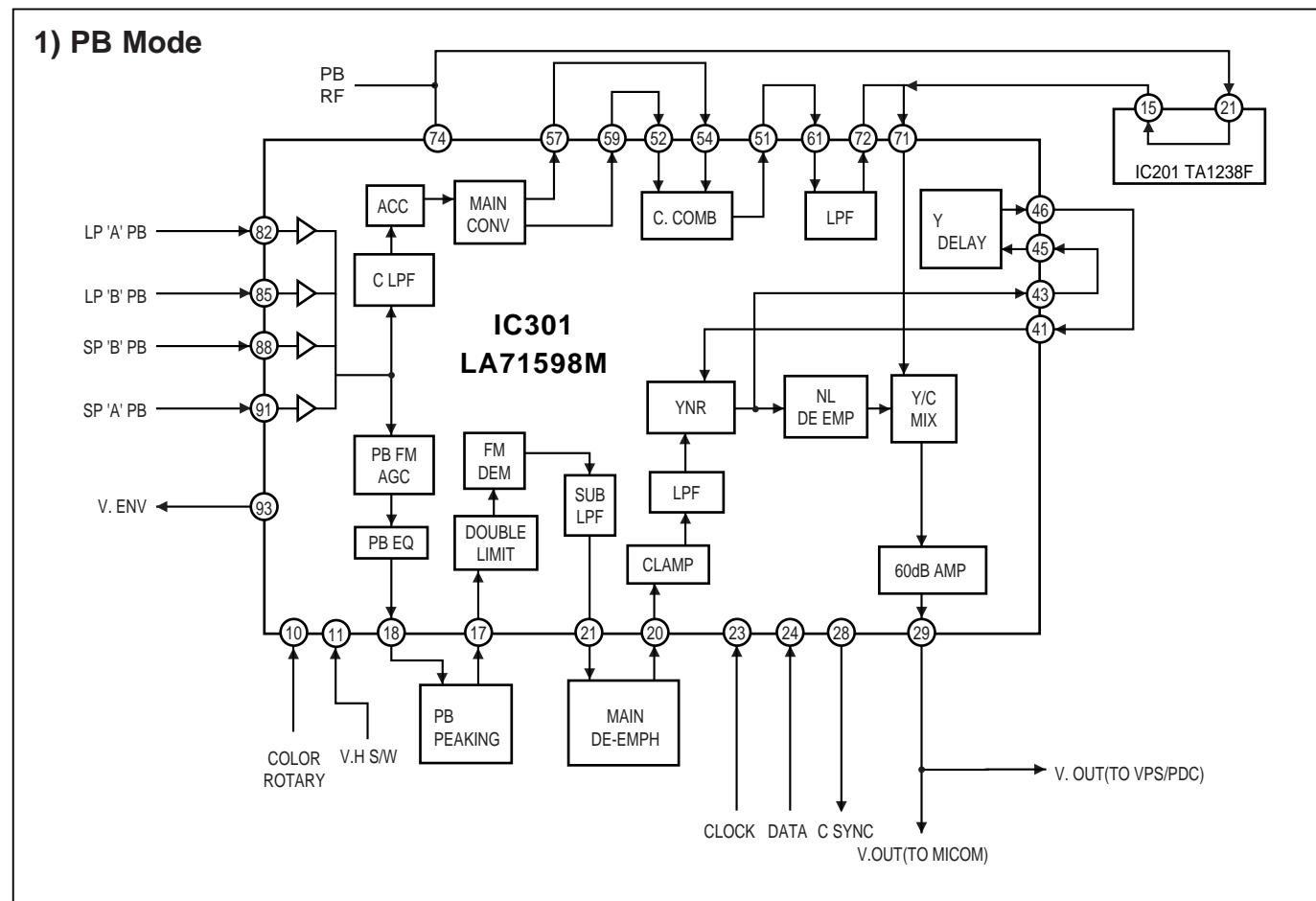
NOTES :  Symbol denotes AC ground.
 Symbol denotes DC chassis ground.

2. Tu/IF, NICAM & A2 Block Diagram



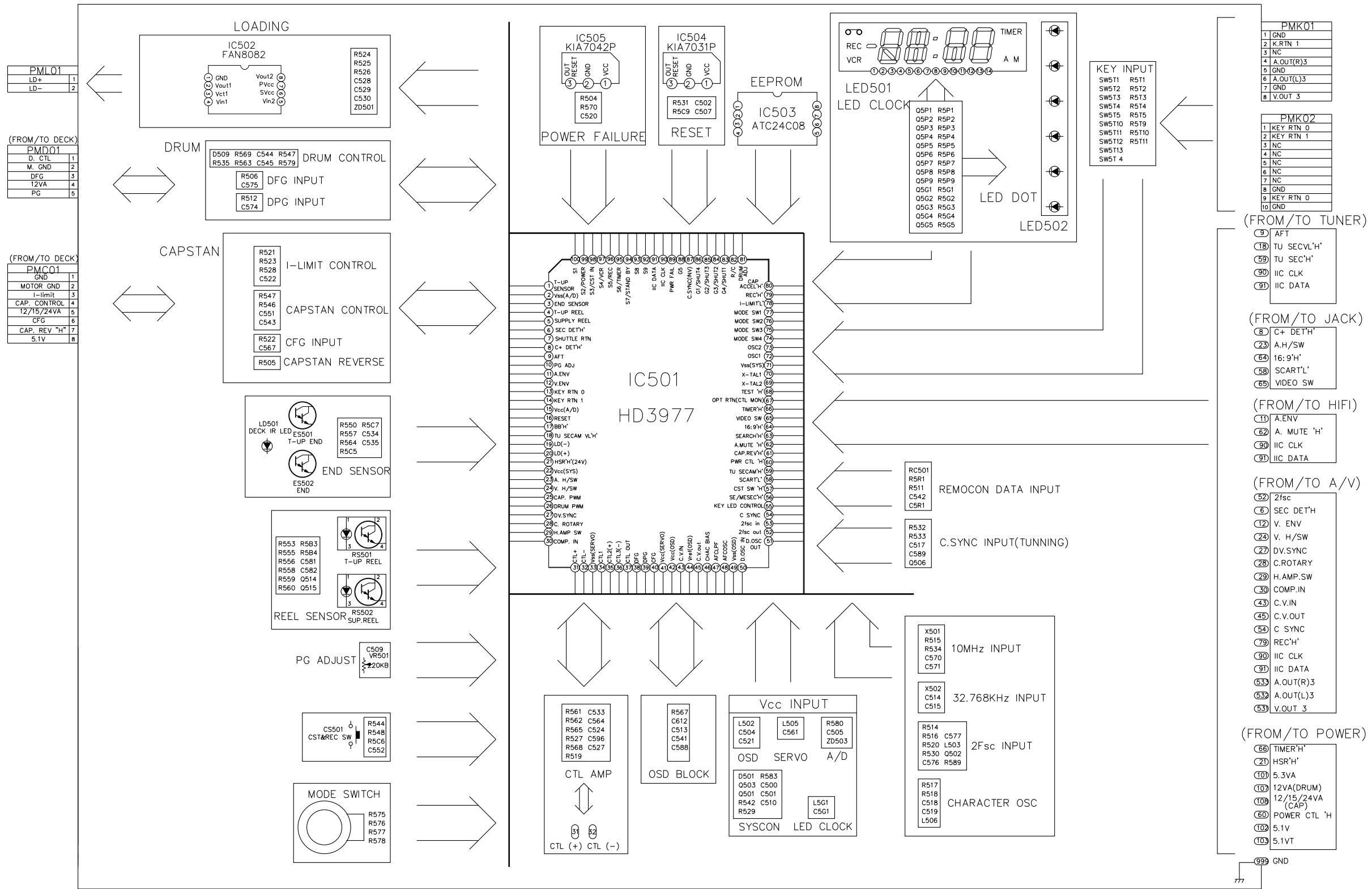
'99 12.8 R10488BA
BC999NS/BD289Y

3. Y/C Block Diagram



'00 11. 30 R10613A

4. System Block Diagram



PML01	
LD+	1
LD-	2

(FROM/TO DECK)	
PMD01	
D. CTL	1
M. GND	2
DFG	3
12VA	4
PG	5

(FROM/TO DECK)	
PMD01	
GND	1
MOTOR GND	2
I-limit	3
CAP. CONTROL	4
12/15/24VA	5
CFG	6
CAP. REV "H"	7
5.1V	8

PMK01	
GND	1
K.RTN 1	2
NC	3
A.OUT(R)3	4
GND	5
A.OUT(L)3	6
GND	7
V.OUT 3	8

PMK02	
KEY RTN 0	1
KEY RTN 1	2
NC	3
NC	4
NC	5
NC	6
NC	7
GND	8
KEY RTN 0	9
GND	10

(FROM/TO TUNER)	
AFT	31
TU SECVL'H'	18
TU SEC'H'	59
IIC CLK	30
IIC DATA	31

(FROM/TO JACK)	
C+ DETH'	8
A.H/SW	23
16:9'H'	64
SCART'L'	58
VIDEO SW	65

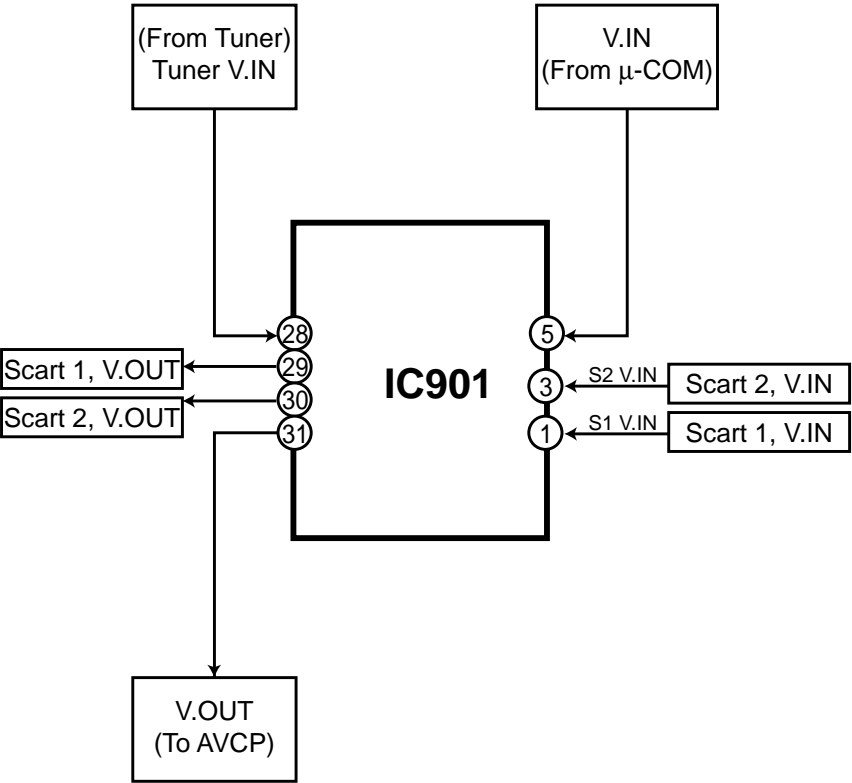
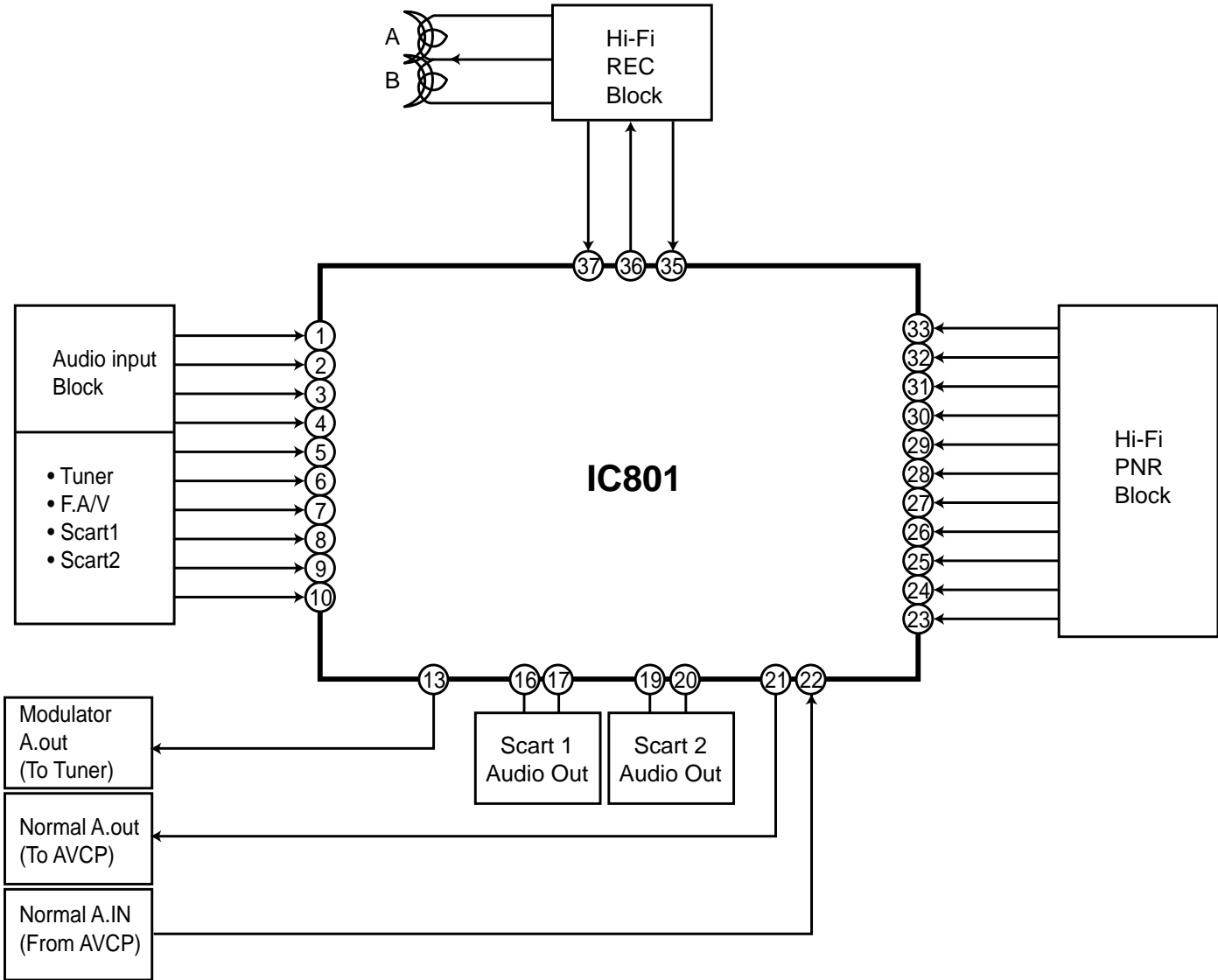
(FROM/TO HIFI)	
A.ENV	11
A. MUTE 'H'	62
IIC CLK	30
IIC DATA	31

(FROM/TO A/V)	
2fsc	52
SEC DETH'	8
V. ENV	12
V. H/SW	24
DV.SYNC	27
C.ROTARY	28
H.AMP.SW	29
COMP.IN	30
C.V.IN	43
C.V.OUT	45
C SYNC	54
REC'H'	79
IIC CLK	30
IIC DATA	31
A.OUT(R)3	53
A.OUT(L)3	53
V.OUT 3	53

(FROM/TO POWER)	
TIMER'H'	66
HSR'H'	21
5.3VA	101
12VA(DRUM)	107
12/15/24VA (CAP)	108
POWER CTL 'H'	60
5.1V	102
5.1VT	103

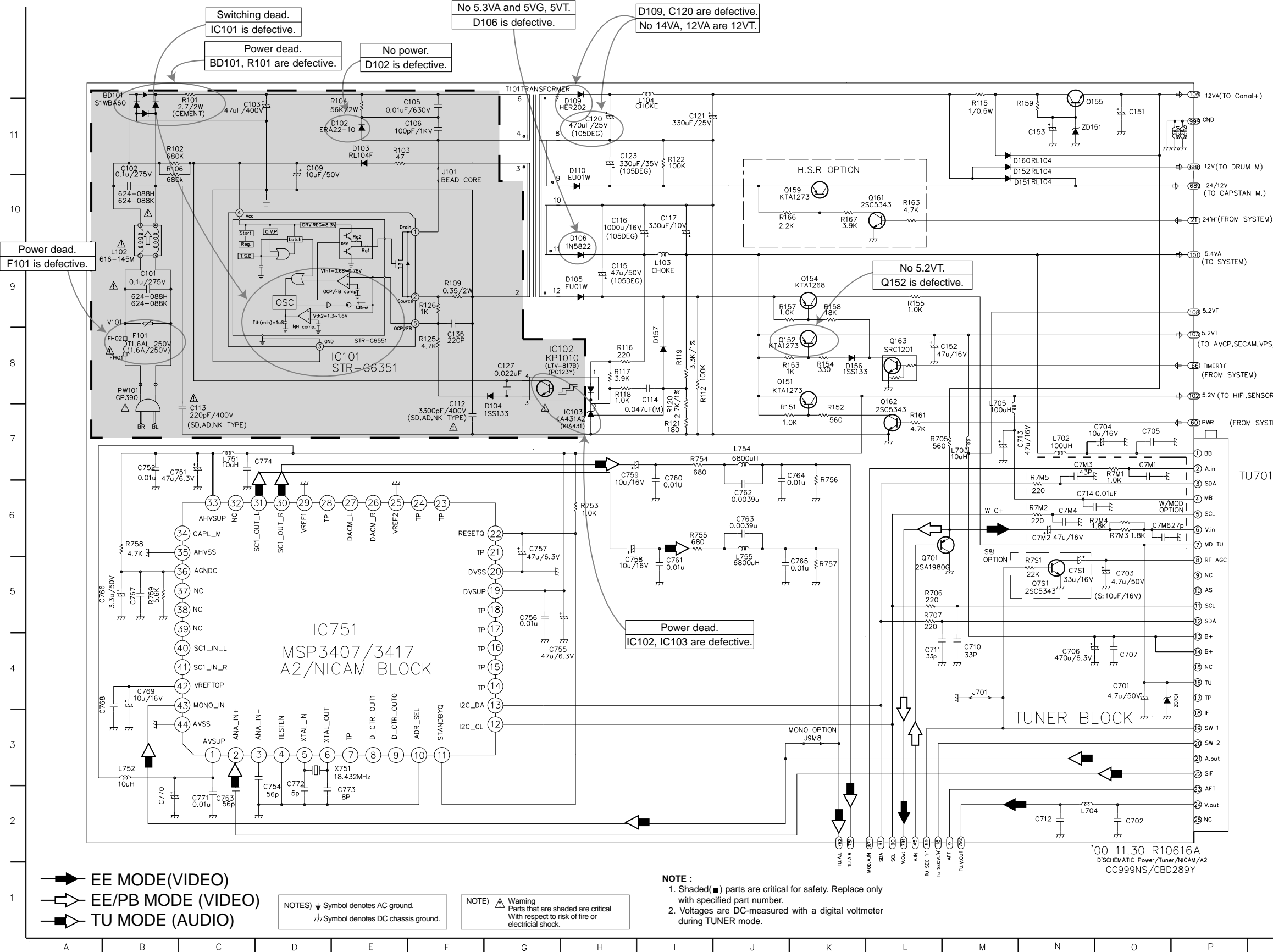
'00 11.30 R10465BA
BC999NS'S

5. Hi-Fi, SCART Block Diagram



CIRCUIT DIAGRAMS

1. Power, Tuner, NICAM/A2 Circuit Diagram



* IC101 Voltage Sheet

PB	16.1	4.0	
REC	16.3	4.6	
5			
IC101			
1			
PB	309	0.0	0.0
REC	309	0.0	0.0

* IC102 Voltage Sheet

PB	4.0	0.0
REC	4.0	0.0
4		
IC102		
1		
PB	4.9	3.9
REC	4.9	4.0

LOCATION GUIDE

BC151	P11	C770	B2	R101	C11	
BC152	P11	C771	C2	R102	B11	
BD101	A12	C772	D3	R103	E11	
C101	B9	C773	E2	R104	D11	
C102	B11	C774	C7	R106	B11	
C103	C11	C775	O7	R109	F9	
C105	E11	C776	N6	R112	I8	
C106	E11	C777	N7	R115	M11	
C109	D11	C778	N6	R116	H8	
C112	F8	C779	O6	R117	H8	
C113	C7	C780	N5	R118	H8	
C114	I8	C781	N5	R119	I8	
C115	H9	C782	D11	R120	I7	
C116	H10	C783	E11	R121	I7	
C117	I10	C784	F7	R122	I11	
C120	H11	C785	H10	R125	F8	
C121	H11	C786	H11	R126	F9	
C123	H11	C787	H11	R151	J7	
C127	G8	C788	D151	M10	R152	K7
C135	F8	C789	D152	M11	R153	J8
C151	O11	C790	K8	R154	K8	
C152	L8	C791	I8	R155	L9	
C153	N11	C792	M11	R157	J9	
C701	O4	C793	O2	R158	K9	
C702	O2	C794	O2	R159	M11	
C703	O5	C795	O1	R161	L7	
C704	N7	C796	O7	R163	L10	
C705	O7	C797	H7	R166	J10	
C706	N4	C798	D5	R167	K10	
C707	O4	C799	F11	R175	L7	
C710	M4	C800	J01	R705	L5	
C711	L4	C801	K3	R707	L5	
C712	N2	C802	B10	R753	H6	
C713	N7	C803	I9	R754	I7	
C714	N6	C804	H11	R755	I6	
C715	B7	C805	L702	N7	R756	K7
C716	B7	C806	L703	M7	R757	K5
C717	B7	C807	L704	N2	R758	B6
C718	C2	C808	L705	M8	R759	B5
C719	D3	C809	L751	C7	R751	O7
C720	D3	C810	L752	B3	R7M2	N6
C721	D3	C811	L753	J7	R7M3	O6
C722	D3	C812	L754	J6	R7M4	N6
C723	D3	C813	L755	J6	R7M5	N7
C724	D3	C814	L756	J7	R751	N5
C725	D3	C815	L757	J7	R751	N5
C726	D3	C816	L758	J7	R751	N5
C727	D3	C817	L759	J7	R751	N5
C728	D3	C818	L760	J7	R751	N5
C729	D3	C819	L761	J7	R751	N5
C730	D3	C820	L762	J7	R751	N5
C731	D3	C821	L763	J7	R751	N5
C732	D3	C822	L764	J7	R751	N5
C733	D3	C823	L765	J7	R751	N5
C734	D3	C824	L766	J7	R751	N5
C735	D3	C825	L767	J7	R751	N5
C736	D3	C826	L768	J7	R751	N5
C737	D3	C827	L769	J7	R751	N5
C738	D3	C828	L770	J7	R751	N5
C739	D3	C829	L771	J7	R751	N5
C740	D3	C830	L772	J7	R751	N5
C741	D3	C831	L773	J7	R751	N5
C742	D3	C832	L774	J7	R751	N5
C743	D3	C833	L775	J7	R751	N5
C744	D3	C834	L776	J7	R751	N5
C745	D3	C835	L777	J7	R751	N5
C746	D3	C836	L778	J7	R751	N5
C747	D3	C837	L779	J7	R751	N5
C748	D3	C838	L780	J7	R751	N5
C749	D3	C839	L781	J7	R751	N5
C750	D3	C840	L782	J7	R751	N5
C751	D3	C841	L783	J7	R751	N5
C752	D3	C842	L784	J7	R751	N5
C753	D3	C843	L785	J7	R751	N5
C754	D3	C844	L786	J7	R751	N5
C755	D3	C845	L787	J7	R751	N5
C756	D3	C846	L788	J7	R751	N5
C757	D3	C847	L789	J7	R751	N5
C758	D3	C848	L790	J7	R751	N5
C759	D3	C849	L791	J7	R751	N5
C760	D3	C850	L792	J7	R751	N5
C761	D3	C851	L793	J7	R751	N5
C762	D3	C852	L794	J7	R751	N5
C763	D3	C853	L795	J7	R751	N5
C764	D3	C854	L796	J7	R751	N5
C765	D3	C855	L797	J7	R751	N5
C766	D3	C856	L798	J7	R751	N5
C767	D3	C857	L799	J7	R751	N5
C768	D3	C858	L800	J7	R751	N5
C769	D3	C859	L801	J7	R751	N5

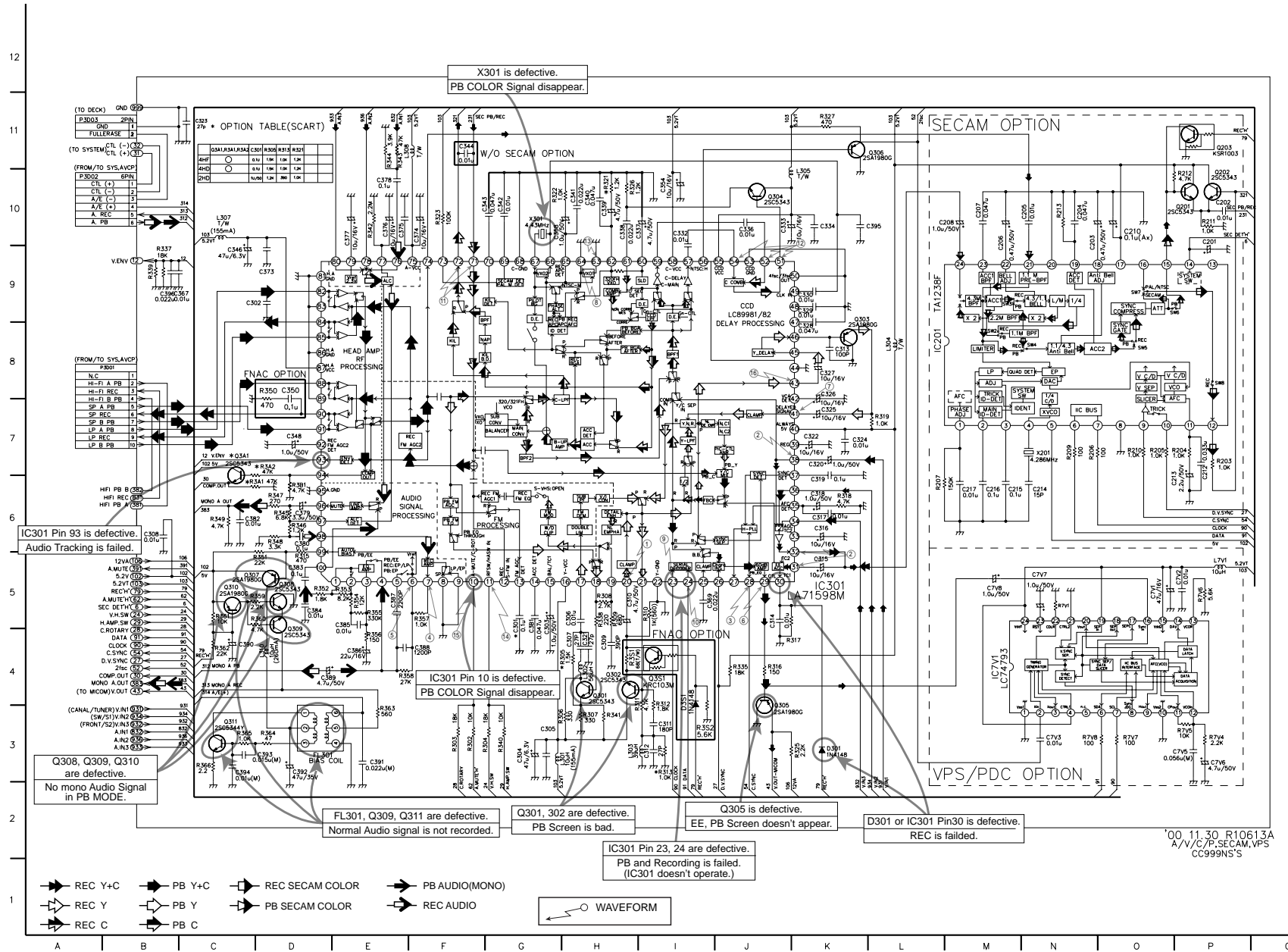
- TR Voltage Sheet

	Emitter		Collector		Base	
	PB	REC	PB	REC	PB	REC
Q151	11.9	11.8	14.8	15.0	12.5	12.4
Q152	9.4	9.3	11.8	11.6	10.0	9.9
Q153	11.8	11.7	14.8	15.0	12.4	12.3
Q154	-27.3	-27.9	-27.3	-27.8	-26.6	-27.0
Q155	5.3	5.3	5.2	5.3	0.0	0.0
Q156	-16.1	-16.5	-16.0	-16.4	-15.4	-15.7
Q157	5.3	5.3	5.2	5.2	0.0	0.0
Q158	35.6	36.0	35.3	35.7	35.0	35.4
Q159	5.3	5.3	5.2	5.2	4.5	4.5
Q160	0.0	0.0	0.0	0.0	5.0	5.0
Q161	0.0	0.0	0.1	0.0	5.0	5.0
Q162	5.3	5.3	5.2	5.2	4.5	4.5
Q164	5.3	5.3	5.3	5.3	4.6	4.6
Q165	0.0	0.0	10.0	10.0	0.0	0.0

* IC103 Voltage Sheet

	Emitter		Collector		Base	
	PB	REC	PB	REC	PB	REC
IC103	2.5	2.5	0.0	0.0	3.9	3.9

2. A/V, SECAM, VPS Circuit Diagram

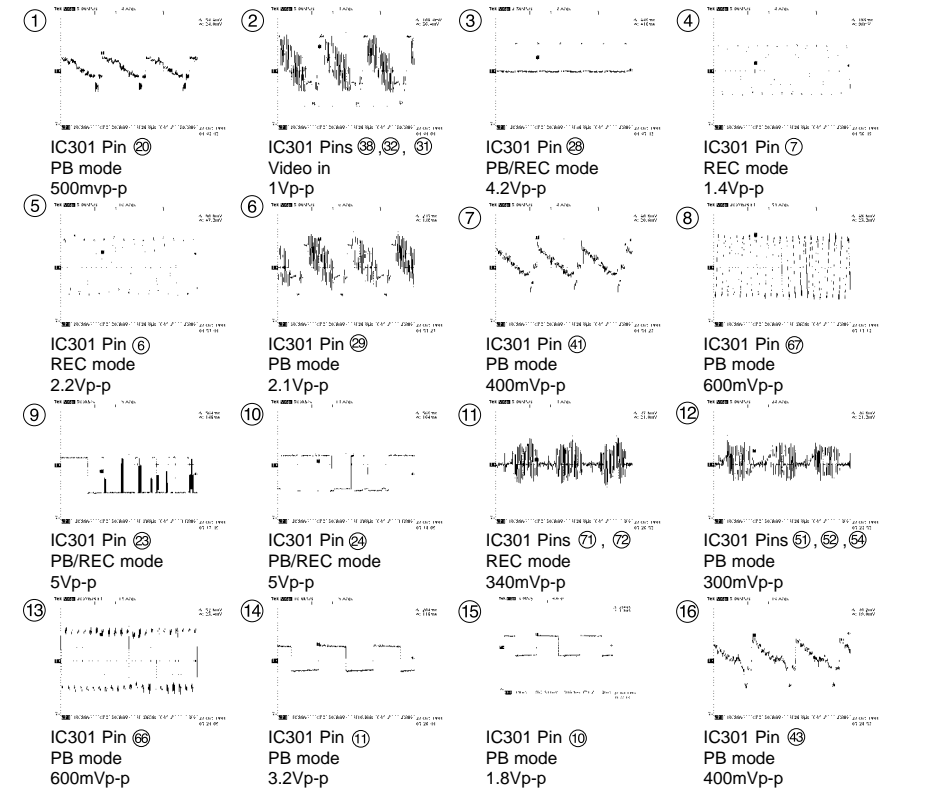


LOCATION GUIDE

C201	P10	L303	H3
C202	P10	L304	L8
C203	N9	L305	K10
C204	N10	L307	C10
C205	N10	L308	E11
C206	N10	L311	P5
C207	M10	L741	P5
C208	L10	P3001	A8
C209	O10	R3002	A10
C210	O10	R3003	A11
C211	P6	G208	P10
C212	P6	G209	P10
C213	M6	G202	P10
C214	N6	G203	P11
C215	M6	G302	H4
C216	M6	G301	H4
C217	M6	G303	K9
C218	G4	G304	J0
C219	G1	G305	J5
C220	G1	G306	L11
C221	G3	G307	C5
C222	G3	G308	D5
C223	H4	G309	D4
C224	H4	G310	C2
C225	H4	G311	C3
C226	H4	G312	C7
C227	H4	G313	I3
C228	H4	G314	P7
C229	H4	G315	O7
C230	H4	G316	N7
C231	H4	G317	N7
C232	H4	G318	O7
C233	H4	G319	P10
C234	H4	G320	K7
C235	H4	G321	P10
C236	H4	G322	F3
C237	H4	G323	F3
C238	H4	G324	G3
C239	H4	G325	H4
C240	H4	G326	H4
C241	H4	G327	H3
C242	H4	G328	L6
C243	H4	G329	H5
C244	H4	G330	H5
C245	H4	G331	I5
C246	H4	G332	I5
C247	H4	G333	J0
C248	H4	G334	J0
C249	H4	G335	J0
C250	H4	G336	J0
C251	H4	G337	J0
C252	H4	G338	J0
C253	H4	G339	H10
C254	H4	G340	H10
C255	H4	G341	H10
C256	H4	G342	H10
C257	H4	G343	H10
C258	H4	G344	F11
C259	H4	G345	F10
C260	H4	G346	F10
C261	H4	G347	K11
C262	H4	G348	K11
C263	H4	G349	J4
C264	H4	G350	J4
C265	H4	G351	J4
C266	H4	G352	H5
C267	H4	G353	H5
C268	H4	G354	H5
C269	H4	G355	H5
C270	H4	G356	E5
C271	H4	G357	F5
C272	H4	G358	F5
C273	H4	G359	F5
C274	H4	G360	C5
C275	H4	G361	C5
C276	H4	G362	C4
C277	H4	G363	E3
C278	H4	G364	D3
C279	H4	G365	C3
C280	H4	G366	C3
C281	H4	G367	C3
C282	H4	G368	C3
C283	H4	G369	C6
C284	H4	G370	D7
C285	H4	G371	D6
C286	H4	G372	D6
C287	H4	G373	D6
C288	H4	G374	D6
C289	H4	G375	D6
C290	H4	G376	D6
C291	H4	G377	D6
C292	H4	G378	D6
C293	H4	G379	D6
C294	H4	G380	D6
C295	H4	G381	D6
C296	H4	G382	D6
C297	H4	G383	D5
C298	H4	G384	D5
C299	H4	G385	D5
C300	H4	G386	E4
C301	H4	G387	E4
C302	H4	G388	E4
C303	H4	G389	E4
C304	H4	G390	C4
C305	H4	G391	E3
C306	H4	G392	D3
C307	H4	G393	D3
C308	H4	G394	C3
C309	H4	G395	C4
C310	H4	G396	E3
C311	H4	G397	C3
C312	H4	G398	C3
C313	H4	G399	C3
C314	H4	G400	C3
C315	H4	G401	C3
C316	H4	G402	C3
C317	H4	G403	C3
C318	H4	G404	C3
C319	H4	G405	C3
C320	H4	G406	C3
C321	H4	G407	C3
C322	H4	G408	C3
C323	H4	G409	C3
C324	H4	G410	C3
C325	H4	G411	C3
C326	H4	G412	C3
C327	H4	G413	C3
C328	H4	G414	C3
C329	H4	G415	C3
C330	H4	G416	C3
C331	H4	G417	C3
C332	H4	G418	C3
C333	H4	G419	C3
C334	H4	G420	C3
C335	H4	G421	C3
C336	H4	G422	C3
C337	H4	G423	C3
C338	H4	G424	C3
C339	H4	G425	C3
C340	H4	G426	C3
C341	H4	G427	C3
C342	H4	G428	C3
C343	H4	G429	C3
C344	H4	G430	C3
C345	H4	G431	C3
C346	H4	G432	C3
C347	H4	G433	C3
C348	H4	G434	C3
C349	H4	G435	C3
C350	H4	G436	C3
C351	H4	G437	C3
C352	H4	G438	C3
C353	H4	G439	C3
C354	H4	G440	C3
C355	H4	G441	C3
C356	H4	G442	C3
C357	H4	G443	C3
C358	H4	G444	C3
C359	H4	G445	C3
C360	H4	G446	C3
C361	H4	G447	C3
C362	H4	G448	C3
C363	H4	G449	C3
C364	H4	G450	C3
C365	H4	G451	C3
C366	H4	G452	C3
C367	H4	G453	C3
C368	H4	G454	C3
C369	H4	G455	C3
C370	H4	G456	C3
C371	H4	G457	C3
C372	H4	G458	C3
C373	H4	G459	C3
C374	H4	G460	C3
C375	H4	G461	C3
C376	H4	G462	C3
C377	H4	G463	C3
C378	H4	G464	C3
C379	H4	G465	C3
C380	H4	G466	C3
C381	H4	G467	C3
C382	H4	G468	C3
C383	H4	G469	C3
C384	H4	G470	C3
C385	H4	G471	C3
C386	H4	G472	C3
C387	H4	G473	C3
C388	H4	G474	C3
C389	H4	G475	C3
C390	H4	G476	C3
C391	H4	G477	C3
C392	H4	G478	C3
C393	H4	G479	C3
C394	H4	G480	C3
C395	H4	G481	C3
C396	H4	G482	C3
C397	H4	G483	C3
C398	H4	G484	C3
C399	H4	G485	C3
C400	H4	G486	C3
C401	H4	G487	C3
C402	H4	G488	C3
C403	H4	G489	C3
C404	H4	G490	C3
C405	H4	G491	C3
C406	H4	G492	C3
C407	H4	G493	C3
C408	H4	G494	C3
C409	H4	G495	C3
C410	H4	G496	C3
C411	H4	G497	C3
C412	H4	G498	C3
C413	H4	G499	C3
C414	H4	G500	C3

WAVEFORM & VOLTAGE SHEET

IC301 Oscilloscope Waveform



IC301 Voltage Sheet

PIN	PB	REC	PIN	PB	REC	PIN	PB	REC	PIN	PB	REC	PIN	PB	REC
1	2.44	2.42	21	2.41	2.52	41	2.93	2.92	61	3.43	3.43	81	0	0
2	2.44	2.42	22	0	0	42	3.16	3.14	62	3.31	3.32	82	0.03	0.04
3	2.46	2.44	23	4.48	4.52	43	3.02	2.05	63	5	5	83	0	0
4	2.45	2.35	24	4.19	4.23	44	0	0	64	5	5	84	0.03	0.03
5	0.09	0.88	25	1.69	1.69	45	2.34	2.33	65	2.03	2.03	85	0.03	0.03
6	2.46	2.34	26	0.05	0.06	46	1.46	1.44	66	2.66	2.67	86	0	0
7	2.46	2.34	27	0.34	0.34	47	9.13	9.12	67	3.87	3.86	87	4.87	4.80
8	0	0	28	0.34	0.34	48	1.94	1.96	68	0	0	88	1.83	3.97
9	0	0	29	1.78	1.84	49	0.85	0.85	69	0.80	1.27	89	0	0
10	0.93	0.93	30	1.10	4.57	50	0	0	70	1.98	2.92	90	1.83	3.95
11	1.68	1.68	31	2.97	2.94	51	1.83	1.82	71	2.52	2.51	91	1.83	3.98
12	4.98	2.60	32	-	2.3	52	2.71	2.62	72	3.37	1.73	92	0.02	1.95
13	1.49	1.52	33	1.45	1.37	53	0	0	73	3.8	3.17	93	2.17	0.01
14	1.68	1.38	34	1.81	1.79	54	2.62	2.62	74	1.55	0.01	94	0	2.01
15	2.34	2.32	35	3.25	3.22	55	4.91	4.91	75	4.96	4.94	95	0	0
16	5.01	5.02	36	1.82	1.95	56	0.56	0.57	76	2.43	2.41	96	2.29	2.38
17	3.08	0.15	37	4.79	4.79	57	3.44	3.44	77	0.01	0.14	97	0	0
18	1.98	2.45	38	1.81	2.25	58	5.00	5.00	78	2.42	2.42	98	2.43	2.41
19	1.18	2.45	39	4.10	4.10	59	3.36	3.37	79	2.46	2.45	99	5.08	4.28
20	3.01	3.05	40	5.00	5.00	60	3.31	3.31	80	2.43	2.23	100	2.43	2.60

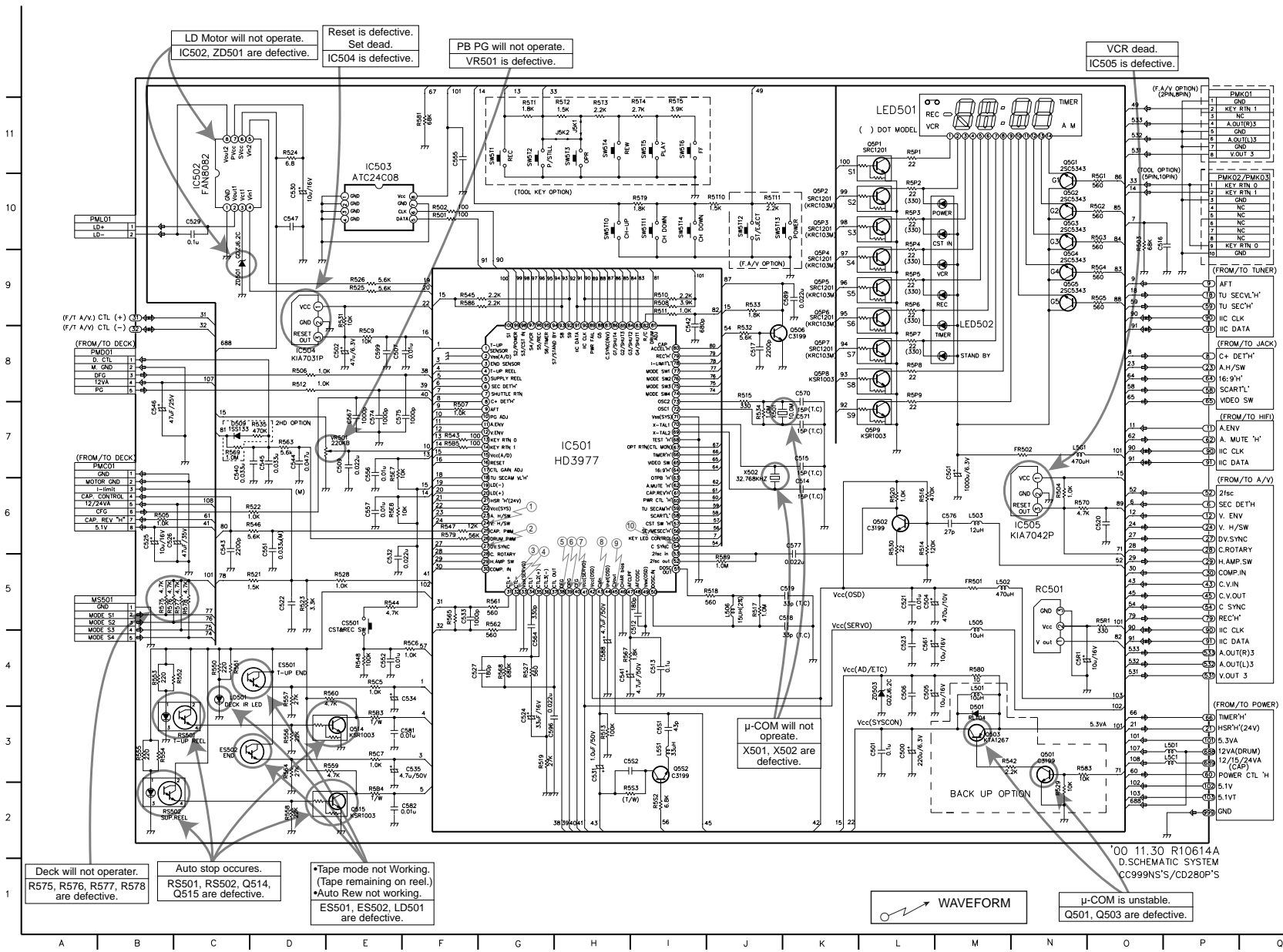
IC201 Voltage Sheet

	E	C	B	E	C	B	
1	2.239	2.238	2.216	13	3.574	3.565	3.567
2	4.794	4.823	4.731	14	4.442	4.438	4.396
3	3.099	3.098	3.066	15	1.946	1.923	0.093
4	4.264	4.260	4.216	16	3.199	3.2	3.176
5	5.196	5.192	5.137	17	5.150	5.138	5.120
6	4.315	4.163	4.231	18	2.798	2.857	2.703
7	4.652	4.554	4.467	19	2.215	2.936	2.203
8	0.001	0.001	0.001	20	0.002	0.002	0.002
9	0.360	0.358	0.359	21	2.615	2.613	2.603
10	0.048	0.050	0.059	22	2.780	2.802	2.701
11	3.262	3.261	3.236	23	3.387	3.324	3.356
12	1.794	1.813	1.803	24	2.549	2.554	2.538

TR Voltage Sheet

	PB mode		REC mode			
	E	C	B	E	C	B
Q301	1.213	3.930	1.864	1.783	3.348	2.435
Q302	1.548	5.158	2.191	1.813	5.147	2.452
Q303	2.161	0	1.499	2.147	0	1.494
Q304	1.217	5.061	1.835	1.216	5.039	1.824
Q305	2.383	0	1.705	2.420	0	1.749
Q306	1.222	0	0.545	1.221	0	0.557
Q307	5.258	0.280	5.176	5.186	3.301	4.352
Q308	0	0	0.744	15.624	0	-21.49
Q309	0	0	0.720	-5.69	0	-21.77
Q310	5.256	5.180	4.583	5.189	-21.64	

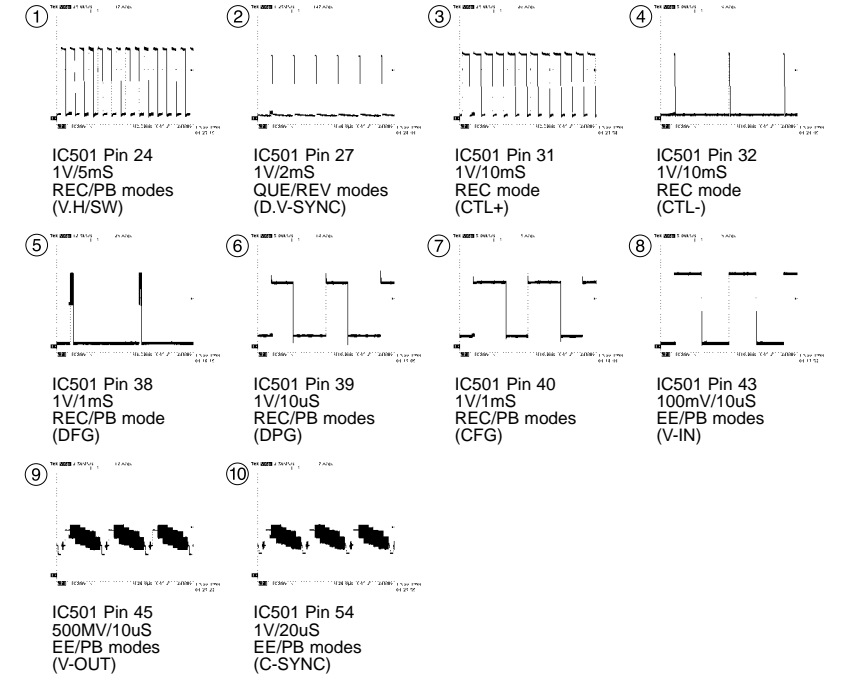
3. System Circuit Diagram



LOCATION GUIDE

C500	L3	O501	N3	R5C5	E4
C501	L5	O502	L6	R5C6	F4
C502	E8	O503	M3	R5C7	E3
C504	L5	O506	K8	R5C9	E8
C505	L4	O514	E3	R5E7	E6
C506	L4	O515	E2	R5E8	E6
C507	E8	O501	N11	R5G1	O10
C509	E7	O502	N10	R5G2	O10
C512	I4	O504	N9	R5G4	O9
C513	I4	O505	N9	R5G5	O9
C514	K6	O505	N9	R5G5	O9
C515	K7	O5P1	L11	R5P1	L11
C516	O9	O5P2	K10	R5P2	L10
C517	J8	O5P3	K10	R5P3	L10
C518	J6	O5P4	K9	R5P4	L10
C519	J5	O5P5	K9	R5P5	L9
C520	J6	O5P6	K9	R5P6	L9
C521	L5	O5P7	K8	R5P7	L8
C522	G5	O5P8	K8	R5P8	L8
C523	L4	O5P9	L7	R5P9	L8
C524	D3	O5S2	I3	R5R1	O5
C525	B6	R501	F10	R5S2	O
C526	B6	R502	F10	R5S3	H2
C527	F4	R503	O9	R5S4	O9
C528	F10	R504	N6	R5S5	J10
C530	D10	R505	B6	R5S6	J10
C531	H3	R506	D8	R5S7	H11
C532	E5	R507	F7	R5S8	H11
C533	F5	R508	I9	R5S9	H11
C534	F4	R510	I9	R5S10	H11
C535	F3	R511	I9	R5S11	H10
C536	E4	R512	D6	R5S12	H10
C541	H4	R513	H3	R5S01	C3
C542	G	R514	L5	R5S02	H2
C543	C5	R515	J8	R5S11	G11
C545	D7	R517	J5	R5S11	I10
C546	B7	R518	I5	R5S12	J10
C547	D10	R519	I3	R5S13	J10
C501	D5	R520	L6	R5S14	H10
C552	E4	R521	O5	R5S12	G11
C555	F11	R522	C6	R5S13	H11
C556	E6	R523	D5	R5S14	H11
C557	E3	R524	D11	R5S15	H11
C561	L4	R525	E9	R5S16	H11
C564	G4	R526	F9	R5S01	E7
C567	E7	R527	G4	X501	J7
C570	K8	R528	E5	X502	F9
C571	K7	R529	N2	Z501	C9
C574	E7	R530	L5	Z503	L4
C575	M6	R532	J8		
C577	K6	R533	J9		
C581	E3	R534	J7		
C582	F2	R535	D7		
C588	H4	R542	M3		
C589	K9	R543	F7		
C596	C3	R544	E5		
C599	E8	R545	F9		
C501	M6	R546	C6		
C581	N4	R547	F6		
C551	I3	R548	E4		
C552	H3	R550	C4		
C5501	E5	R551	C4		
C5501	M3	R552	B4		
E501	D4	R554	B3		
E502	L3	R555	B3		
F501	M5	R556	D3		
FR502	N7	R557	D4		
IC501	H7	R558	D2		
IC502	C10	R559	D3		
IC503	E11	R560	D4		
IC504	D8	R561	O5		
IC505	M6	R562	O5		
J5K1	H11	R563	D7		
L501	M4	R565	F5		
L502	M5	R567	H4		
L503	M6	R568	G4		
L505	M5	R569	C7		
L506	N6	R570	N6		
L5C1	P3	R575	B5		
L501	P3	R576	B5		
L501	N7	R577	C5		
L501	I5	R578	C5		
L501	C4	R579	F6		
L501	L11	R580	M4		
LED501	M8	R581	F11		
M5501	A5	R583	N3		
PM001	A7	R586	F9		
PM001	A8	R589	J5		
PM001	P12	R583	E3		
PM002	PM003	R584	E2		
PM01	A10	R585	F7		

* IC501 Waveform Photographs



System IC Voltage Sheet

IC	Emitter		Collector		Base	
	PB	REC	PB	REC	PB	REC
Q514	0	0	HL	HL	HL	HL
Q515	0	0	HL	HL	HL	HL
Q506	0	0	0.7	0.7	0.4	0.4
Q503	5.32	5.32	5.25	5.24	4.43	4.43
Q501	0	0	0	0	0.75	0.75

SYSTEM IC Voltage Sheet

IC	PB		REC		PB		REC		PB		REC			
	PB	REC	PB	REC	PB	REC	PB	REC	PB	REC	PB	REC		
1	0	0	21	5.24	41	5.24	61	0	0	81	2.55	2.55		
2	0	0	22	5.24	42	4.99	4.99	62	0	0	82	5.07	5.07	
3	0.78	0.79	23	HL	HL	43	2.41	2.37	63	0	0	83	0	0
4	HL	HL	24	HL	HL	44	1.36	1.36	64	5.21	5.21	84	0	0
5	HL	HL	25	2.81	2.81	45	2.43	2.43	65	5.21	5.21	85	0	0
6	3.34	3.3	26	2.73	2.73	46	0	0	66	0	0	86	0	0
7	1	2	27	0	0	47	2.01	2.01	67	4.58	4.58	87	4.7	4.7
8	1	2	28	HL	HL	48	1.41	1.41	68	0	0	88	0	0
9	3.2	1.62	29	5.15	5.15	49	0	0	69	1.45	1.45	89	4.87	4.87
10	2.2	2.2	30	4.97	4.88	50	1.32	1.32	70	0.83	0.83	90	5.08	5.08
11	0.74	0	31	2.25	2.99	51	1.35	1.35	71	0	0	91	5.03	5.03
12	4.0	2.3	32	2.25	2.2	52	2.5	2.5	72	2.49	2.47	92	5.28	5.28
13	5.28	5.28	33	0	0	53	2.43	2.43	73	2.47	2.47	93	5.28	5.28
14	5.28	5.28	34	0	0	54	0.38	0.38	74	5.29	5.29	94	4.6	4.6
15	5.28	5.28	35	2.25	2.25	55	5.21	5.21	75	0	0	95	5.2	5.2
16	5.24	5.28	36	2.25	2.25	56	0	0	76	5.29	5.29	96	0	0
17	0	0	37	2.25	2.25	57	5.05	5.05	77	2.29	5.29	97	0	0
18	0	0	38	Pulse	5.8	5.16	5.20	78	3.14	3.15	98	0	0	
19	5.18	5.18	39	Pulse	5.9	0	0	79	0	4.84	99	0	0	
20	5.18	5.18	40	Pulse	6.0	5.21	5.14	80	2.8	2.8	100	0	0	

IC503 Voltage Sheet

IC	PB	REC	PB	REC
5	0.00	0.00	4.60	4.60
5	0.00	0.00	5.21	5.21

4. Hi-Fi, SCART Circuit Diagram

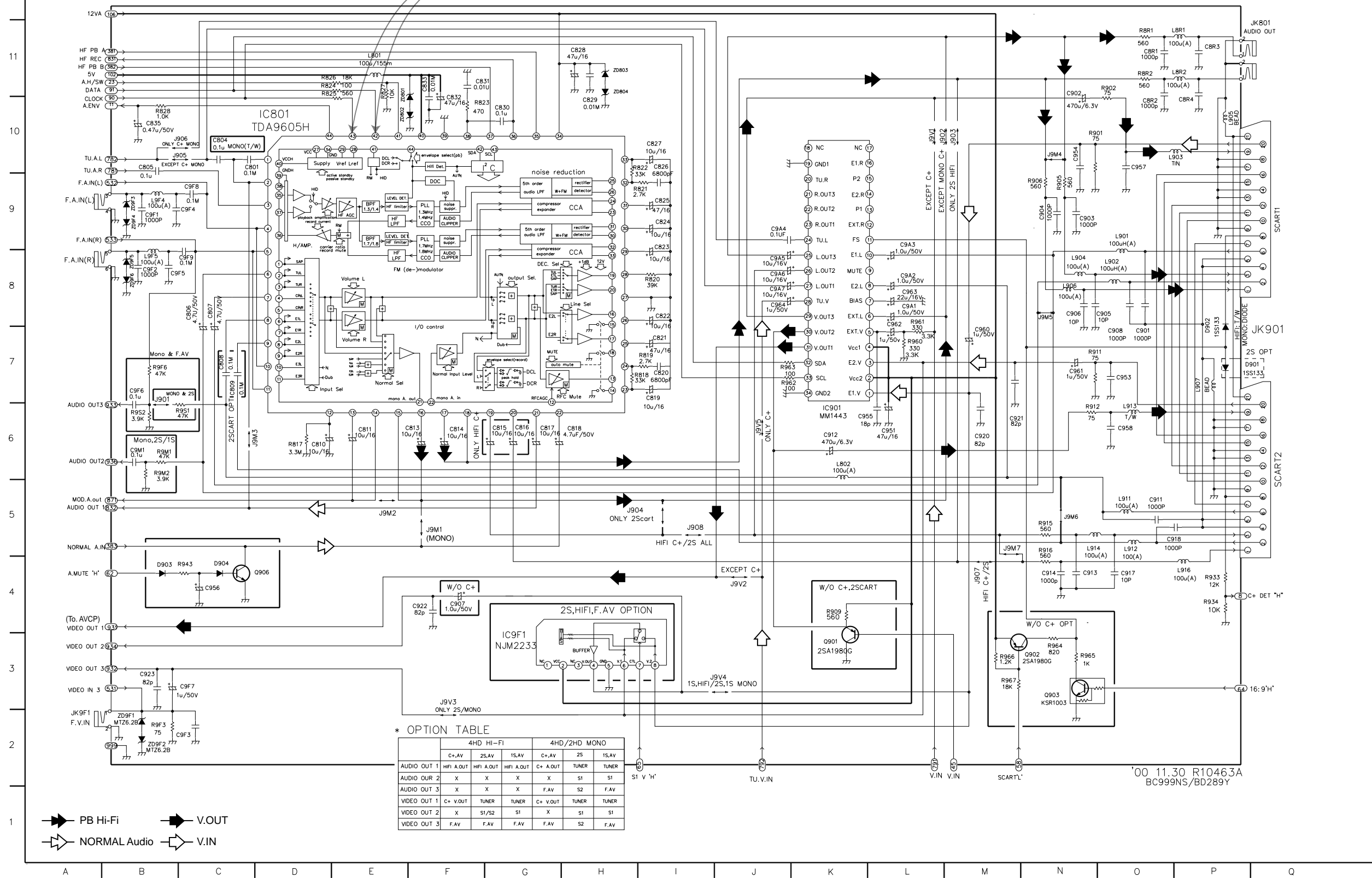
* IC901 Voltage Sheet

PB	0	4.8	4.7	3.8	1.5	1.5	3.3	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	0
REC	0	4.8	4.7	3.8	1.5	1.5	3.3	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	0
IC901(MM1443)																
PB	2.7	11.6	2.7	11.6	3.5	5.5	5.5	0	5.5	11.7	5.5	0	5.5	0	5.5	0
REC	2.7	11.6	2.7	11.6	3.5	5.5	5.5	0	5.5	11.7	5.5	0	5.5	0	5.5	0

* IC801 Voltage Sheet

PB	3.6	4.4	4.2	0.9	5.1	0.0	0.0	0.7	0.6	0.7	11.9	3.9	3.9	3.9	0.8	3.9	3.9	0.0	0.8	3.9	3.9	
REC	1.9	4.4	4.1	0.9	5.0	0.0	0.0	4.2	4.3	4.2	12.0	3.9	3.9	3.9	0.8	3.9	3.9	0.0	0.8	3.9	3.9	
IC801(TDA9605H)																						
PB	3.8	3.9	3.9	3.9	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
REC	3.8	3.9	3.9	3.9	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8

IC801 42, 43 Pins are defective.
All Audio is not appear.



* OPTION TABLE

	4HD HI-FI			4HD/2HD MONO		
	C+AV	2S,AV	1S,AV	C+AV	2S	1S,AV
AUDIO OUT 1	HFI A.OUT	HFI A.OUT	HFI A.OUT	C+ A.OUT	TUNER	TUNER
AUDIO OUT 2	X	X	X	X	S1	S1
AUDIO OUT 3	X	X	X	F.AV	S2	F.AV
VIDEO OUT 1	C+ V.OUT	TUNER	TUNER	C+ V.OUT	TUNER	TUNER
VIDEO OUT 2	X	S1/S2	S1	X	S1	S1
VIDEO OUT 3	F.AV	F.AV	F.AV	F.AV	S2	F.AV

- ➔ PB Hi-Fi
- ➔ V.OUT
- ➔ NORMAL Audio
- ➔ V.IN

SECTION 4 MECHANISM

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MECHANISM TROUBLESHOOTING GUIDE

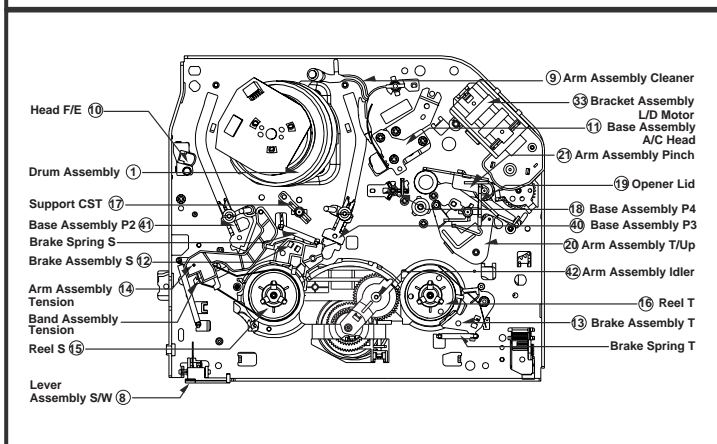
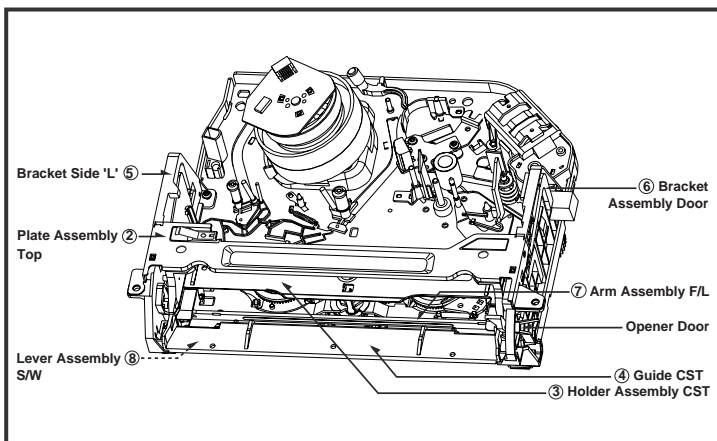
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EXPLODED VIEWS

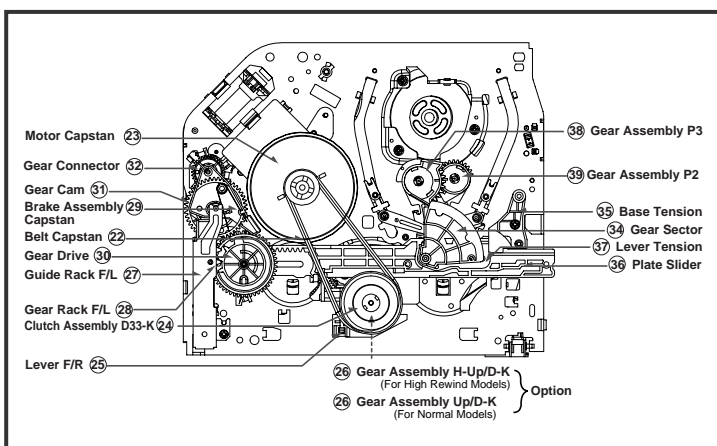
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DECK MECHANISM PARTS LOCATIONS (FOR NORMAL MODELS)

• Top View



• Bottom View



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

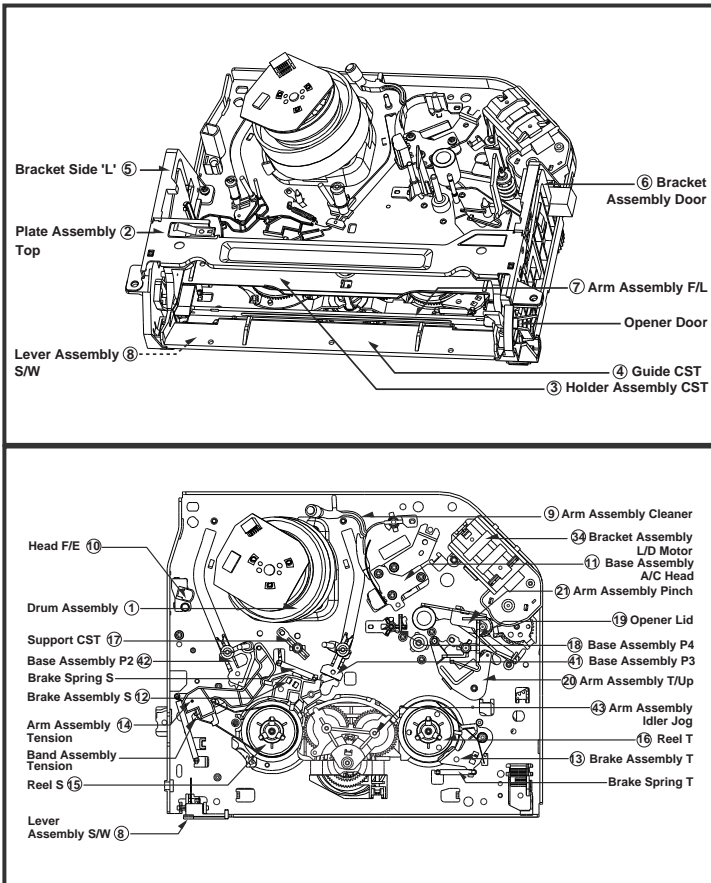
- 1) When reassembling, confirm Mechanism and Mode Switch Alignment Position (Pefer to Page 4-14)
- 2) When disassembling, the Parts for Starting No. Should be removed first.

Starting No.	Pracudure	Part	Fixing Type	Figure
	1	Drum Assembly	3 Screws , Cap FPC	A-1
	2	Plate Assembly Top	Two Hooks	A-2
2	3	Holder Assembly CST	Chassis Hole	A-2
	4	Guide CST	2 Hooks	A-2
2,3,4	5	Bracket Side (L)	1 Screw	A-2
2,3,4	6	Bracket Assembly Door	1 Screw	A-2
2,3,4,5,6	7	Arm Assembly F/L	Chassis Hole	A-2
2,3,4,5	8	Lever Assembly S/W	Chassis Hole	A-2
	9	Arm Assembly Cleaner	Chassis Embossing	A-3
	10	Head F/E	2 Hooks	A-3
	11	Base Assembly A/C Head	1 Screw	A-3
	12	Brake Assembly S	Chassis Hole	A-4
2,3	13	Brake Assembly T	Chassis Hole	A-4
2,3,12,	14	Arm Assembly Tension	Chassis Hole	A-4
2,3,12,14	15	Reel S	Chassis Shaft	A-4
2,3,13	16	Reel T	Chassis Shaft	A-4
	17	Support CST	Chassis Embossing	A-5
	18	Base Assembly P4	Chassis Embossing	A-5
	19	Opener Lid	Chassis Embossing	A-5
19	20	Arm Assembly T/Up	Chassis Embossing	A-5
19	21	Arm Assembly Pinch	Chassis Shaft	A-5

Starting No.	Pracudure	Part	Fixing Type	Figure
22	22	Belt Capstan	3 Screws	A-6
	23	Motor Capstan	1 Washer	A-6
	24	Clutch Assembly D33-K	1 Hook	A-6
22,24	25	Lever F/R	2 Washers	A-6
22,24	26	Gear H-Up/D-K	1Screw	A-7
	27	Guide Rack F/L	Chassis Shaft	A-7
27	28	Gear Rack F/L	1 Washer	A-7
27, 28	29	Brake Assembly Capstan	Chassis Shaft	A-7
27, 28	30	Gear Drive	1 Washer	A-8
27, 28, 29	31	Gear Cam	Chassis Shaft	A-8
27, 28, 29, 30	32	Gear Connector	Chassis Shaft	A-8
	33	Bracket Assembly L/D Motor	3 Hooks	A-8
	34	Gear Sector	3 Washers	A-9
	35	BaseTension	1 Screw	A-9
22, 24, 25,	36	Plate Slider	Chassis Shaft	A-9
27, 28, 30,				
34, 35				
22, 24, 25,	37	Lever Tension	Chassis Hole	A-9
27, 28, 30,				
34, 35				
34	38	Gear Assembly P3	2 Hooks	A-10
34, 38	39	Gear Assembly P2	2 Hooks	A-10
34, 38, 39	40	Base Assembly P3	Chassis Hole	A-10
34, 38, 39, 40	41	Base Assembly P2	Chassis Hole	A-10
1, 2	42	Arm Assembly Idler	1 Hook	A-10

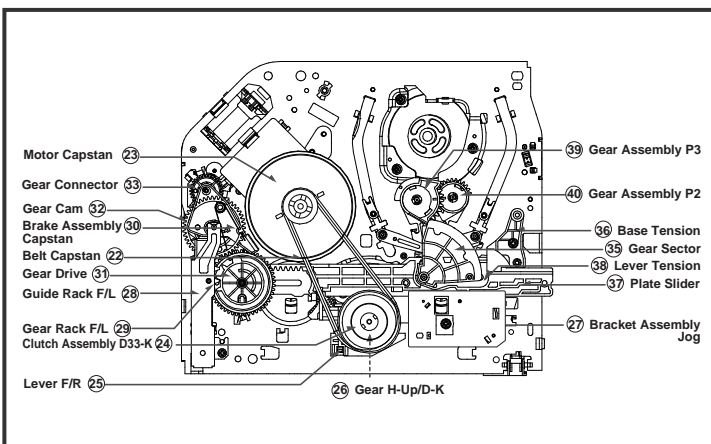
DECK MECHANISM PARTS LOCATIONS (FOR JOG SHUTTLE MODELS)

• Top View



Starting No.	Pracudure		Figure
	Part	Fixing Type	
2	1 Drum Assembly	3 Screws , Cap FPC	A-1
	2 Plate Assembly Top	Two Hooks	A-2
2,3,4	3 Holder Assembly CST	Chassis Hole	A-2
	4 Guide CST	2 Hooks	A-2
2,3,4	5 Bracket Side (L)	1 Screw	A-2
2,3,4,5,6	6 Bracket Assembly Door	1 Screw	A-2
2,3,4,5	7 Arm Assembly F/L	Chassis Hole	A-2
2,3,4,5	8 Lever Assembly S/W	Chassis Hole	A-2
	9 Arm Assembly Cleaner	Chassis Embossing	A-3
2,3	10 Head F/E	2 Hooks	A-3
	11 Base Assembly A/C Head	1 Screw	A-3
2,3,12,14	12 Brake Assembly S	Chassis Hole	A-4
	13 Brake Assembly T	Chassis Hole	A-4
2,3,12,14	14 Arm Assembly Tension	Chassis Hole	A-4
	15 Reel S	Chassis Shaft	A-4
2,3,13	16 Reel T	Chassis Shaft	A-4
	17 Support CST	Chassis Embossing	A-5
19	18 Base Assembly P4	Chassis Embossing	A-5
	19 Opener Lid	Chassis Embossing	A-5
19	20 Arm Assembly T/Up	Chassis Embossing	A-5
19	21 Arm Assembly Pinch	Chassis Shaft	A-5

• Bottom View

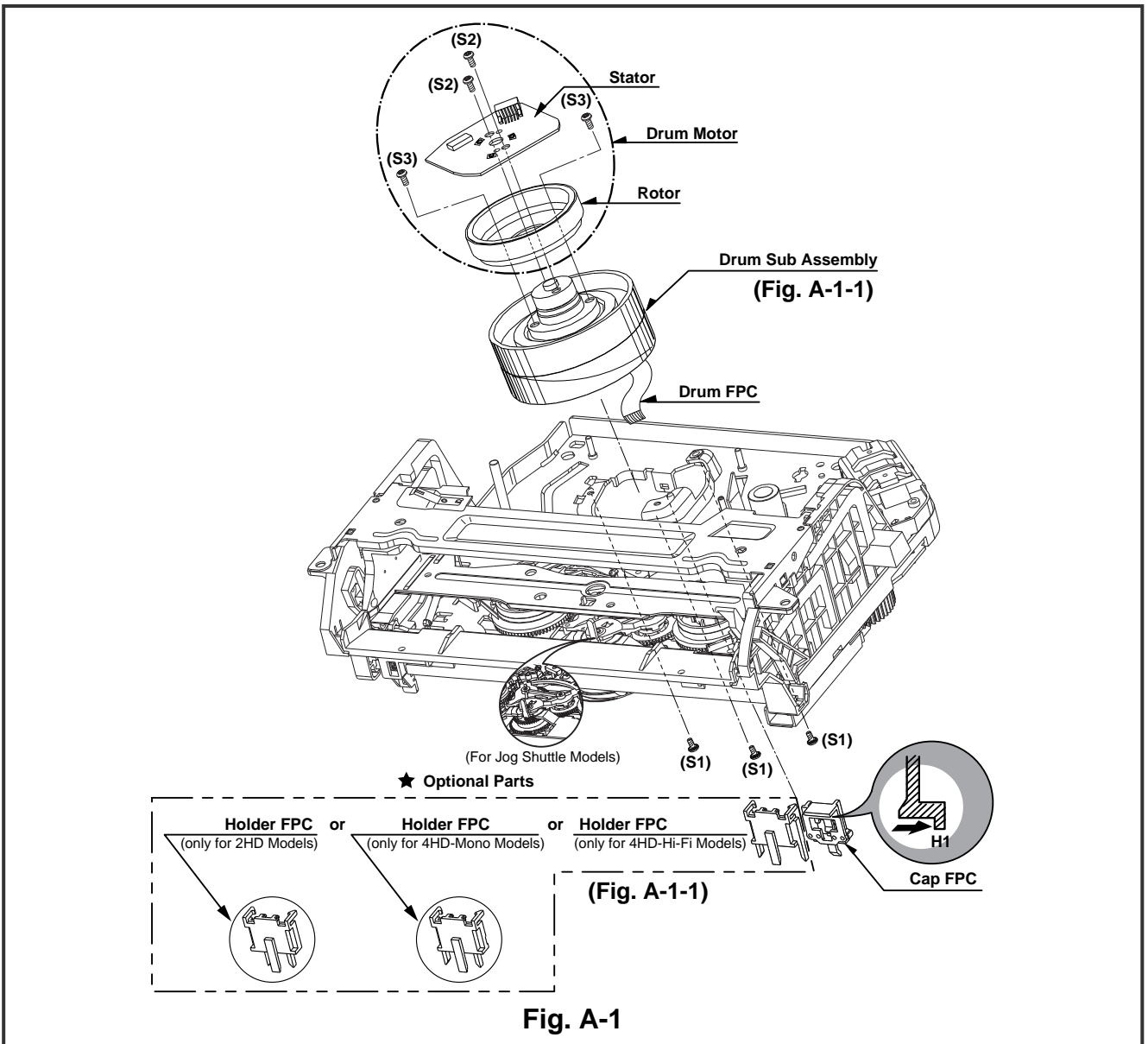


Starting No.	Pracudure		Figure
	Part	Fixing Type	
22	22 Belt Capstan		A-6
22,24	23 Motor Capstan	3 Screws	A-6
	24 Clutch Assembly D33-K	1 Washer	A-6
22,24	25 Lever F/R	1 Hook	A-6
	26 Gear H-Up/D-K	2 Washers	A-6
28	27 Bracket Assembly Jog	1 Screw	A-7
	28 Guide Rack F/L	1 Screw	A-7
28,29	29 Gear Rack F/L		A-7
	30 Brake Assembly Capstan	Chassis Shaft	A-7
28,29,30	31 Gear Drive	1 Washer	A-8
	32 Gear Cam	Chassis Shaft	A-8
28,29,30,31	33 Gear Connector	Chassis Shaft	A-8
	34 Bracket Assembly L/D Motor	3 Hooks	A-8
22,24,25,27,28,29,31,35,36	35 Gear Sector	3 Washers	A-9
	36 Base Tension	1 Screw	A-9
22,24,25,27,28,29,31,35,36	37 Plate Slider	Chassis Shaft	A-9
	38 Lever Tension	Chassis Hole	A-9
35	39 Gear Assembly P3	2 Hooks	A-10
	40 Gear Assembly P2	2 Hooks	A-10
35,39,40	41 Base Assembly P3	Chassis Hole	A-10
	42 Base Assembly P2	Chassis Hole	A-10
1,2	43 Arm Assembly Idler Jog	1 Hook	A-10

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

- 1) When reassembling, confirm Mechanism and Mode Switch Alignment Position (Pefer to Page 4-14)
- 2) When disassembling, the Parts for Starting No. Should be removed first.

DECK MECHANISM DISASSEMBLY



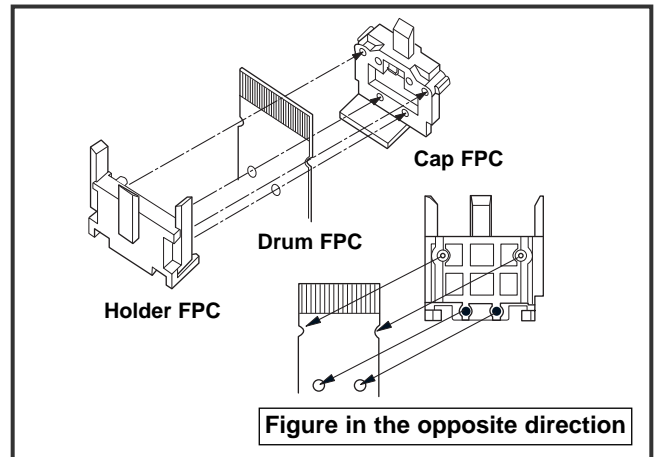
1. Drum Assembly (Fig. A-1-1)

- 1) Unhook the (H1) on the back side of the Chassis and separate the Cap FPC.
- 2) Remove three Screws (S1) and lift up the Drum Assembly.
- 3) Remove two Screws (S2) and Separate the Stator of Drum Motor.
- 4) Remove two Screws (S3) and Separate the Rotor of Drum Motor from the Drum Sub Assembly.

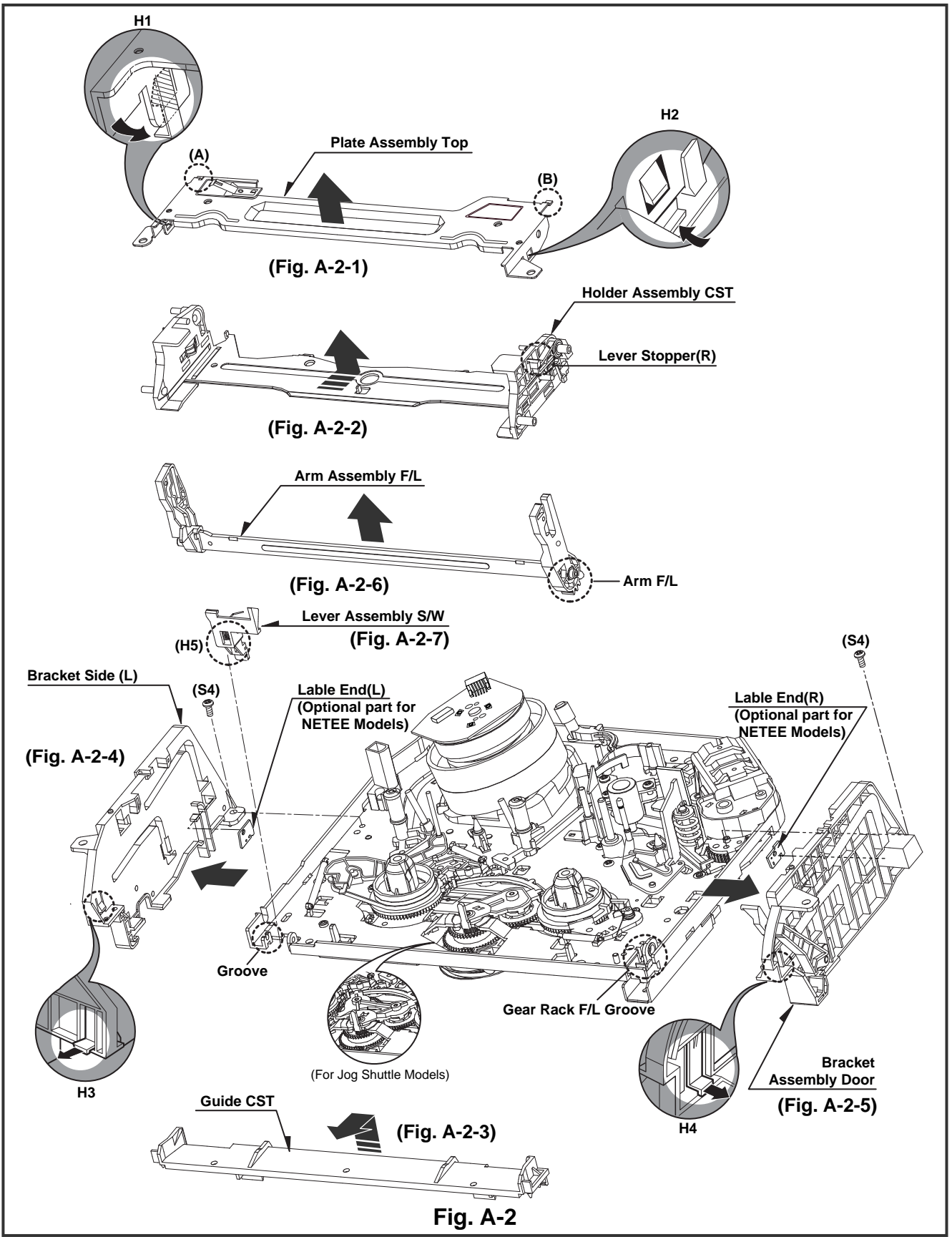
NOTE

- (1) When reassembling Cap FPC, two Holes of Drum FPC are inserted to the two Bosses of Holder FPC correctly. (Refer to Fig. B-1)

(Fig. B-1)



DECK MECHANISM DISASSEMBLY



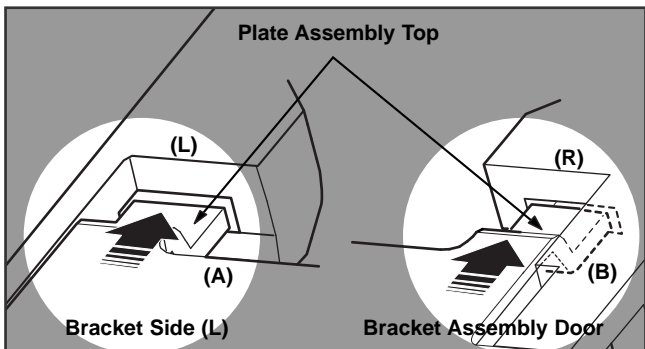
DECK MECHANISM DISASSEMBLY

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

- 1) Unhook the (H1) and separate the Left Side.
- 2) Unhook the (H2) and lift up the Plate Assembly Top.

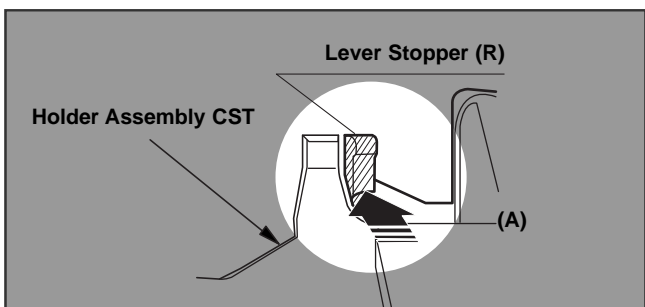
NOTE

- (1) When reassembling, confirm (A),(B) Part of the Plate Assembly Top is inserted to the (L),(R) Grooves of the Bracket Side(L) and Bracket Assembly Door.

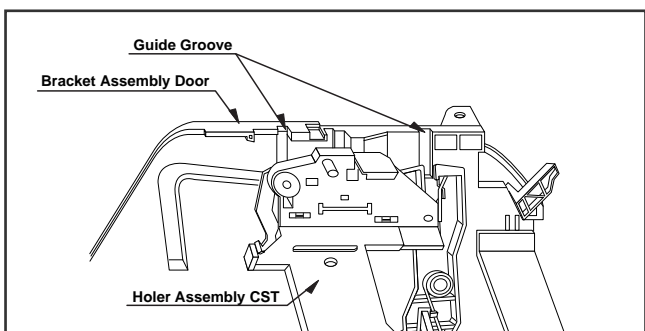


3. Holder Assembly CST (Fig.A-2-2)

- 1) Push the Lever Stopper (R) in the direction of the arrows (A) and move the Holder Assembly CST.

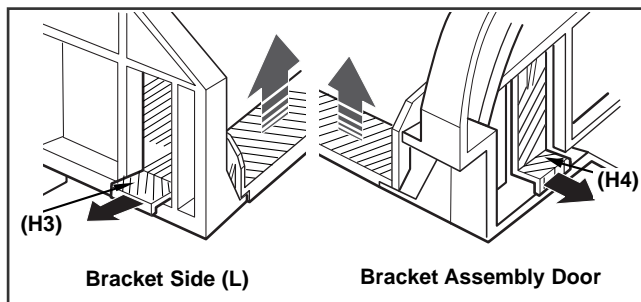


- 2) Push the Bracket Assembly Door to the right and lift up the Holder Assembly CST along the Guide Groove of the Bracket Assembly Door.



4. Guide CST (Fig.A-2-3)

- 1) Unhook(H3) in the direction of the arrow and separate the left side.
- 2) Unhook (H4) as above No.1) and disassemble the Guide CST in the direction of the arrow.



5. Bracket Side(L) (Fig. A-2-4)/ Bracket Assembly Door (Fig.A-2-5)

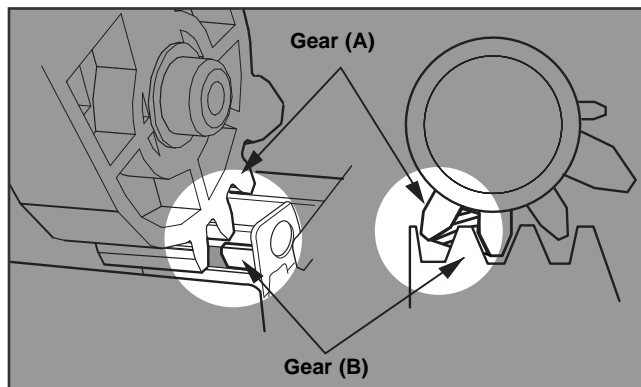
- 1) Remove the Screw (S4) and disassemble the Bracket Side(L) in the front.
- 2) Remove the Screw (S4) and disassemble the Bracket Assembly Door in the front.

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

- 1) Push the Arm Assembly F/L to the left and lift up it.

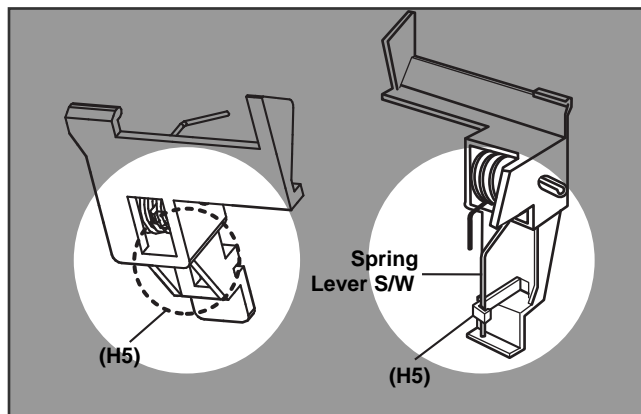
NOTE

- (1) When reassembling, confirm that the Gear(A) of the Arm F/L and the Gear(B) of the Gear Rack F/L are assembled as below.

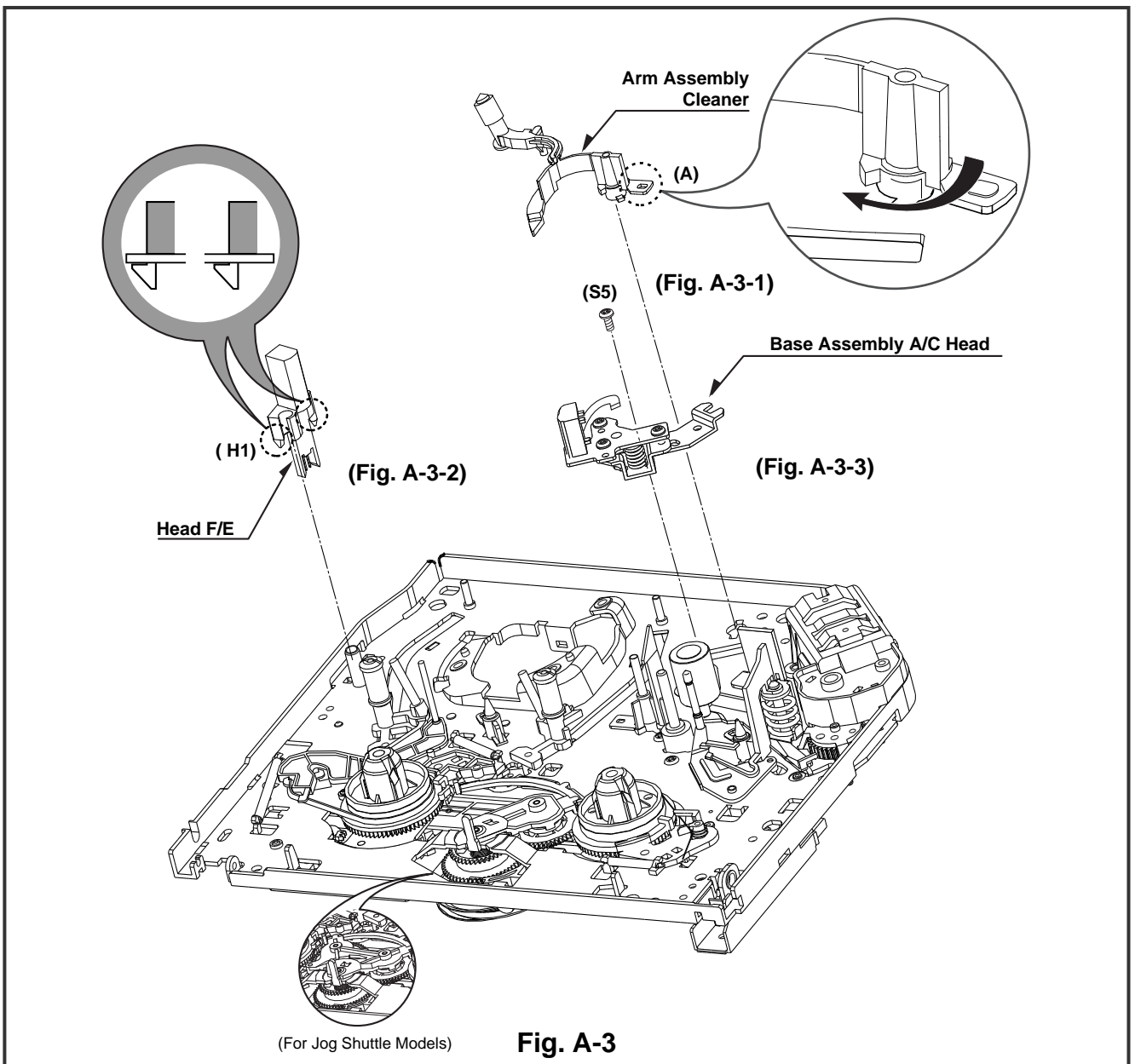


7. Lever Assembly S/W (Fig. A-2-7)

- 1) Hook the Spring Lever S/W on (H5).
- 2) Lift up the left side of the Lever S/W from the Groove(A) of the Chassis.

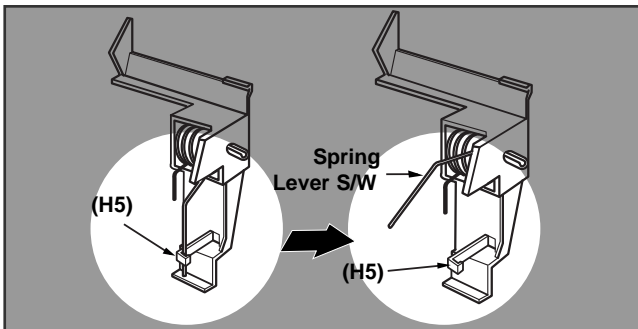


DECK MECHANISM DISASSEMBLY



NOTE

- (1) Place the Spring Lever S/W of the above (No.1) as original position.



8. Arm Assembly Cleaner (Fig. A-3-1)

- 1) Break away the (A) part shown above Fig. A-3-1 from the Embossing of the Chassis in the clockwise direction and lift up the Arm Assembly Cleaner.

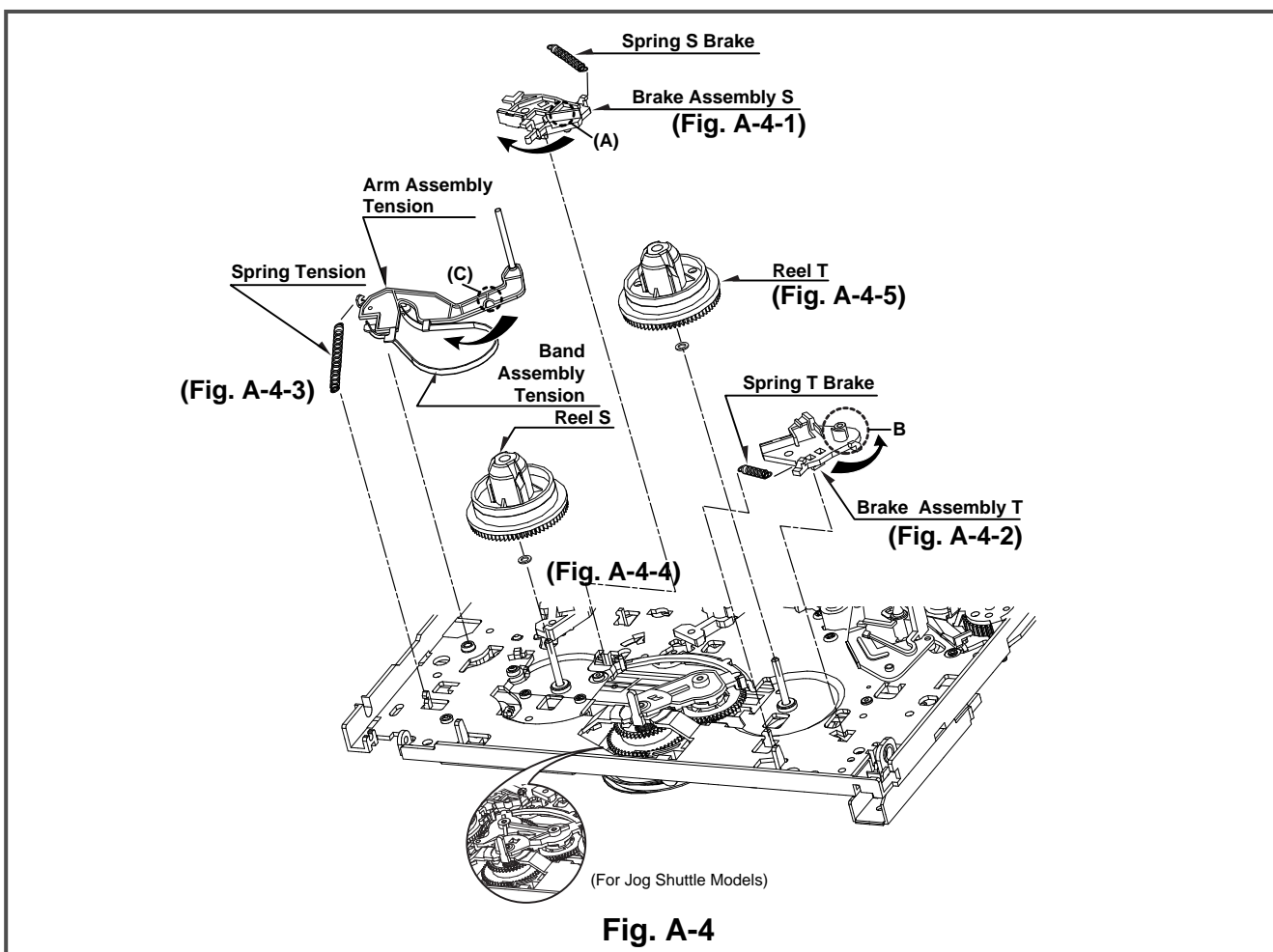
9. Head F/E (Fig. A-3-2)

- 1) Unhook the two Hooks (H1) on the back side of the Chassis and lift up the Head F/E.

10. Base Assembly A/C Head (Fig. A-3-3)

- 1) Remove the Screw (S5) and lift up the Base Assembly A/C Head.

DECK MECHANISM DISASSEMBLY



11. Brake Assembly S (Fig. A-4-1)

- 1) Remove the Spring S Brake.
- 2) Hold the (A) part shown above Fig. A-4-1 and turn to the clockwise direction, and then lift up the Brake Assembly S.

NOTE

- (1) When reassembling, be careful not to change the Spring with below No.12.(Refer to Fig. B-2).




12. Brake Assembly T (Fig. A-4-2)

- 1) Remove the Spring T Brake.
- 2) Hold the (B) part shown above Fig. A-4-2 and turn to the counterclockwise direction, and then lift up the Brake Assembly T.

NOTE

- (1) When reassembling, be careful not to change the Spring with above No.11.(Refer to Fig. B-2).

(Difference for Springs) (Fig. B-2)

	Spring T Brake Color (Black)
	Spring S Brake
	Spring Tension

13. Arm Assembly Tension (Fig. A-4-3)

- 1) Remove the Spring Tension.
- 2) Hold the (C) part shown above Fig. A-4-3 and turn to the clockwise direction, and then lift up the Arm Assembly Tension.

NOTE

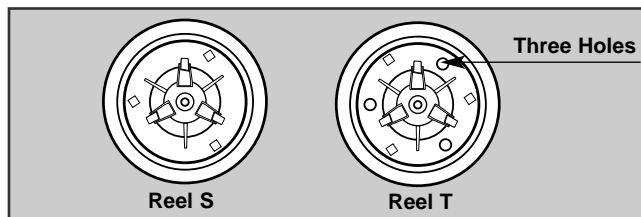
- (1) When reassembling, be careful not to change the Spring with above No.11,12.(Refer to Fig. B-2).

14. Reel S (Fig. A-4-4) & Reel T (Fig. A-4-5)

- 1) Lift up the Reel S and Reel T.

NOTE

- (1) When reassembling, be careful not to change the Reel S and Reel T each other.



- (2) Confirm two Slide Washers under the Reel S and Reel T.

DECK MECHANISM DISASSEMBLY

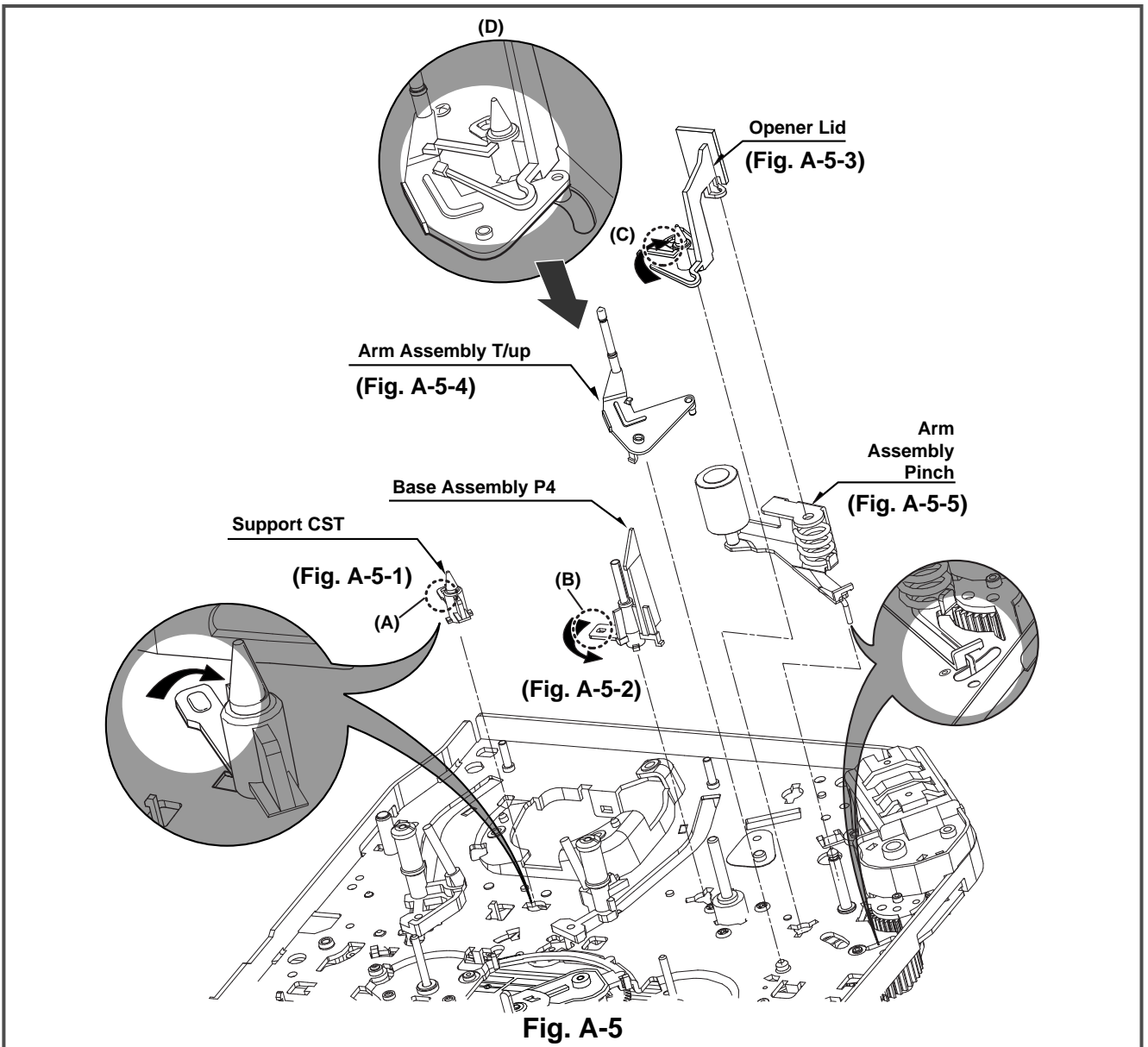


Fig. A-5

15. Support CST (Fig. A-5-1)

- 1) Break away the (A) part shown above Fig. A-5-1 from the Embossing of the Chassis in the clockwise direction, and lift up the Support CST.

16. Base Assembly P4 (Fig. A-5-2)

- 1) Break away the (B) part shown above Fig. A-5-2 from the Embossing of the Chassis in the counterclockwise direction and lift up the Base Assembly P4.

17. Opener Lid (Fig. A-5-3)

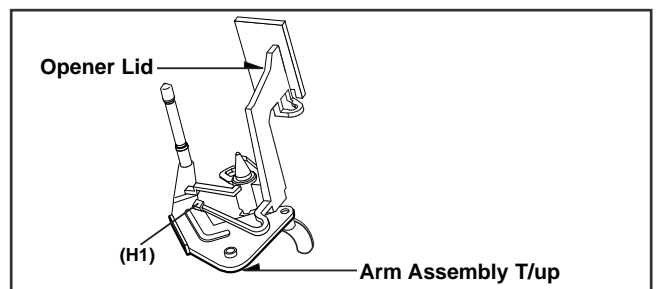
- 1) Break away the (C) Part of the Opener Lid from the Embossing of the Chassis in the Clockwise direction and lift up the Opener Lid.

18. Arm Assembly T/up (Fig. A-5-4)

- 1) Just lift up the Arm Assembly T/UP.

NOTE

- (1) When reassembling, confirm the opener lid is placed on the Hook(H1) of the Arm Assembly T/UP as below figure.



19. Arm Assembly Pinch (Fig. A-5-5)

- 1) Lift up the Arm Assembly Pinch.

DECK MECHANISM DISASSEMBLY

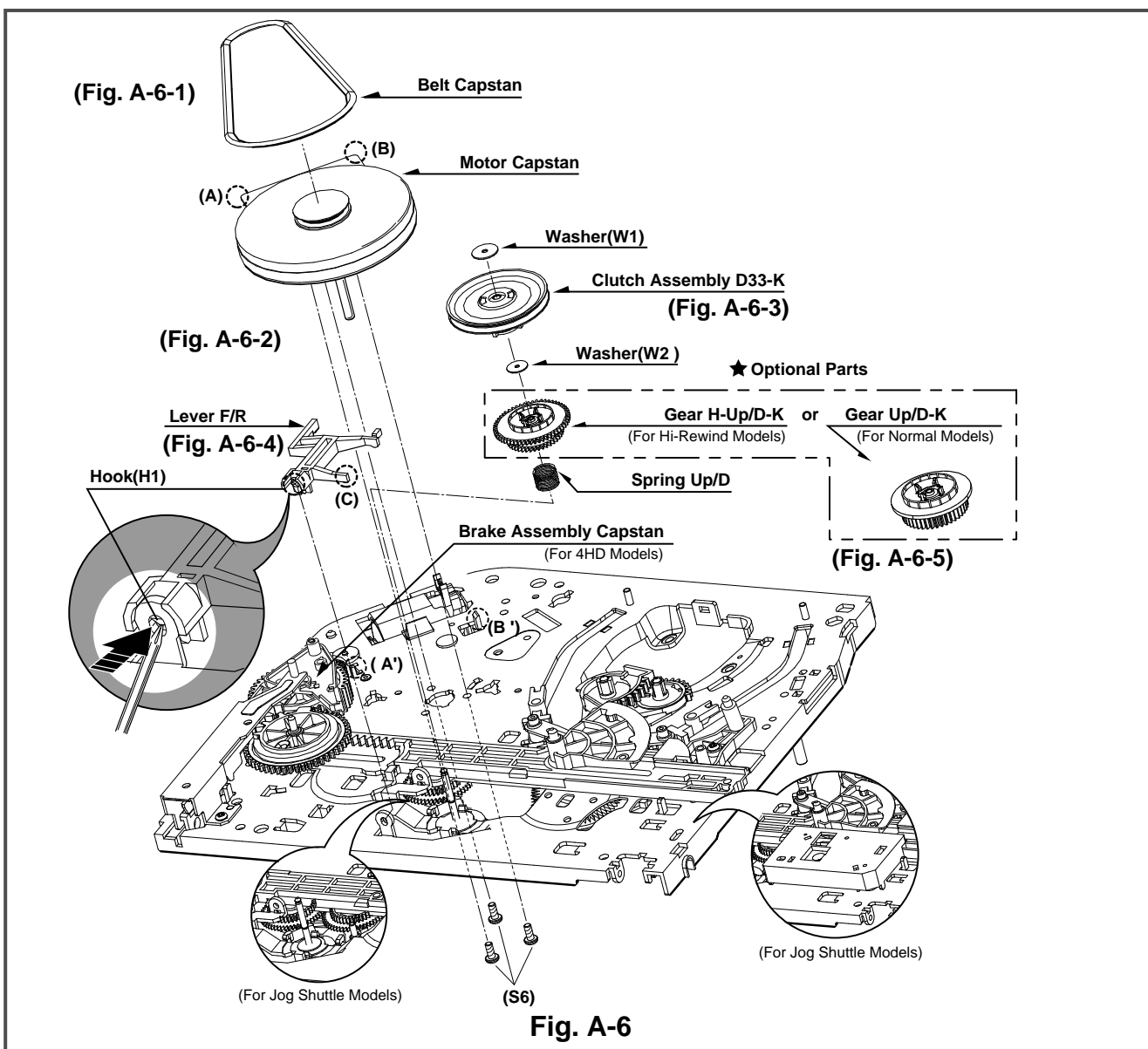


Fig. A-6

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

- 1) Remove the Belt Capstan.
- 2) Remove three Screws(S6) on the back side of the Chassis and lift up the Motor Capstan.

NOTE

- (1) When reassembling, Confirm the (A), (B) parts of Motor Capstan is located to the (A'), (B') of the Chassis.

21. Clutch Assembly D33-K (Fig. A-6-3)

- 1) Remove the Washer(W1) and lift up the Clutch Assembly D33-K.

22. Lever F/R (Fig. A-6-4)

- 1) Unhook the (H1) shown above Fig. A-6-4 and lift up the Lever F/R.

NOTE

- (1) When reassembling, move the (C) part of the Lever F/R up and down, then confirm if it is returned to original position.

23. Gear H-Up/D-K or Gear Up/D-K (Fig. A-6-5)

- 1) Remove the Washer(W2) and lift up the Gear H-up/D-K.
- 2) Remove the Spring Up/D.

NOTE

- (1) Gear H-Up/D-K is for Hi-Rewind Models.
- (2) Gear Up/D-K is for Normal Models except Hi-Rewind Models.

DECK MECHANISM DISASSEMBLY

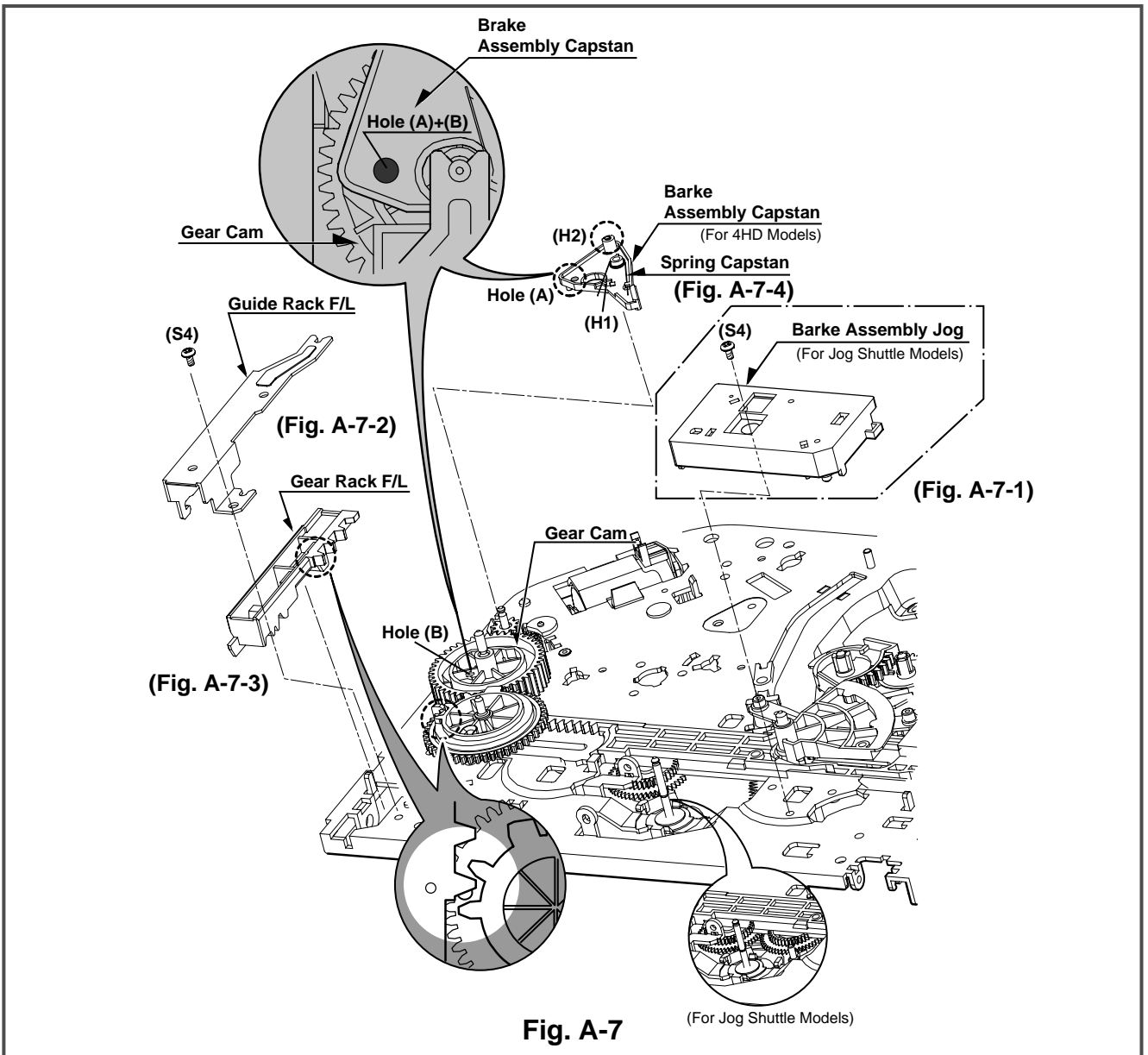


Fig. A-7

24. Bracket Assembly Jog (Fig. A-7-1) (Jog shuttle model option)

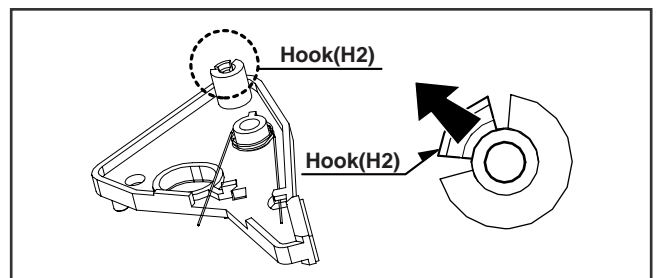
- 1) Remove the Screw(S4) and lift up the Bracket Assembly Jog.

25. Guide Rack F/L (Fig. A-7-2)/ Gear Rack F/L (Fig. A-7-3)

- 1) Remove the Screw(S4) and lift up the Guide Rack F/L.
- 2) Lift up the Gear Rack F/L.

26. Brake Assembly Capstan (Fig. A-7-4) (4HD model option)

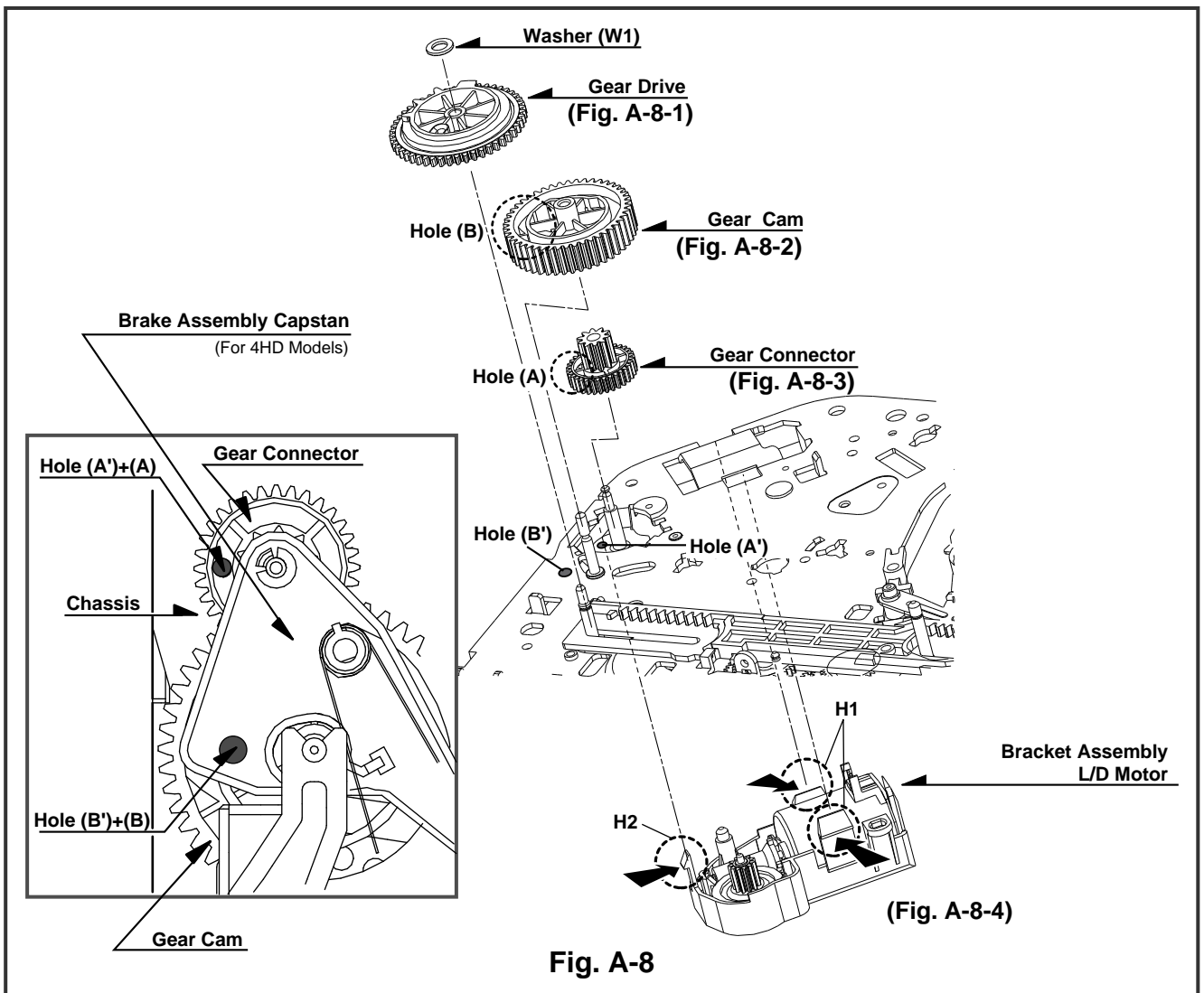
- 1) Hook the Spring Capstan on the Hook(H1).
- 2) Unhook the Hook(H2) and lift up the Brake Assembly Capstan.(Refer to Fig. to the right)



NOTE

- (1) When reassembling, confirm that the Hole(A) of the Brake Assembly Capstan is aligned to the Hole(B) of the Gear Cam.
(Refer to above Fig. A-7-4).

DECK MECHANISM DISASSEMBLY



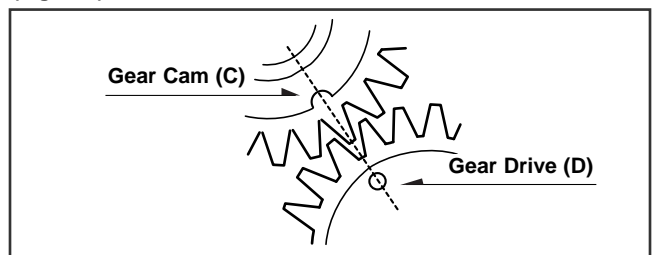
27. Gear Drive (Fig. A-8-1)/ Gear Cam (Fig. A-8-2)/ Gear Connector (Fig. A-8-3)

- 1) Remove the Washer(W1) and lift up the Gear Drive.
- 2) Lift up the Gear Cam.
- 3) Lift up the Gear Connector.

NOTE

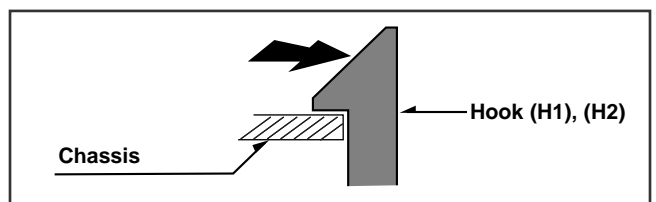
- (1) When reassembling, confirm that the Hole (A) of the Gear Connector is aligned to the Hole (A') of the Chassis (Fig. A-8-3).
- (2) When reassembling, confirm that the Hole (B) of the Gear Cam is aligned to the Hole (B') of the Chassis (Fig. A-8-2).
- (3) When reassembling, confirm that the (C) part of the Gear Cam is aligned to the (D) part of the Gear Drive as shown Fig. B-3

(Fig. B-3)



28. Bracket Assembly L/D Motor (Fig. A-8-4)

- 1) Unhook the three Hooks(H1),(H2) and push down the Bracket Assembly L/D Motor.



DECK MECHANISM DISASSEMBLY

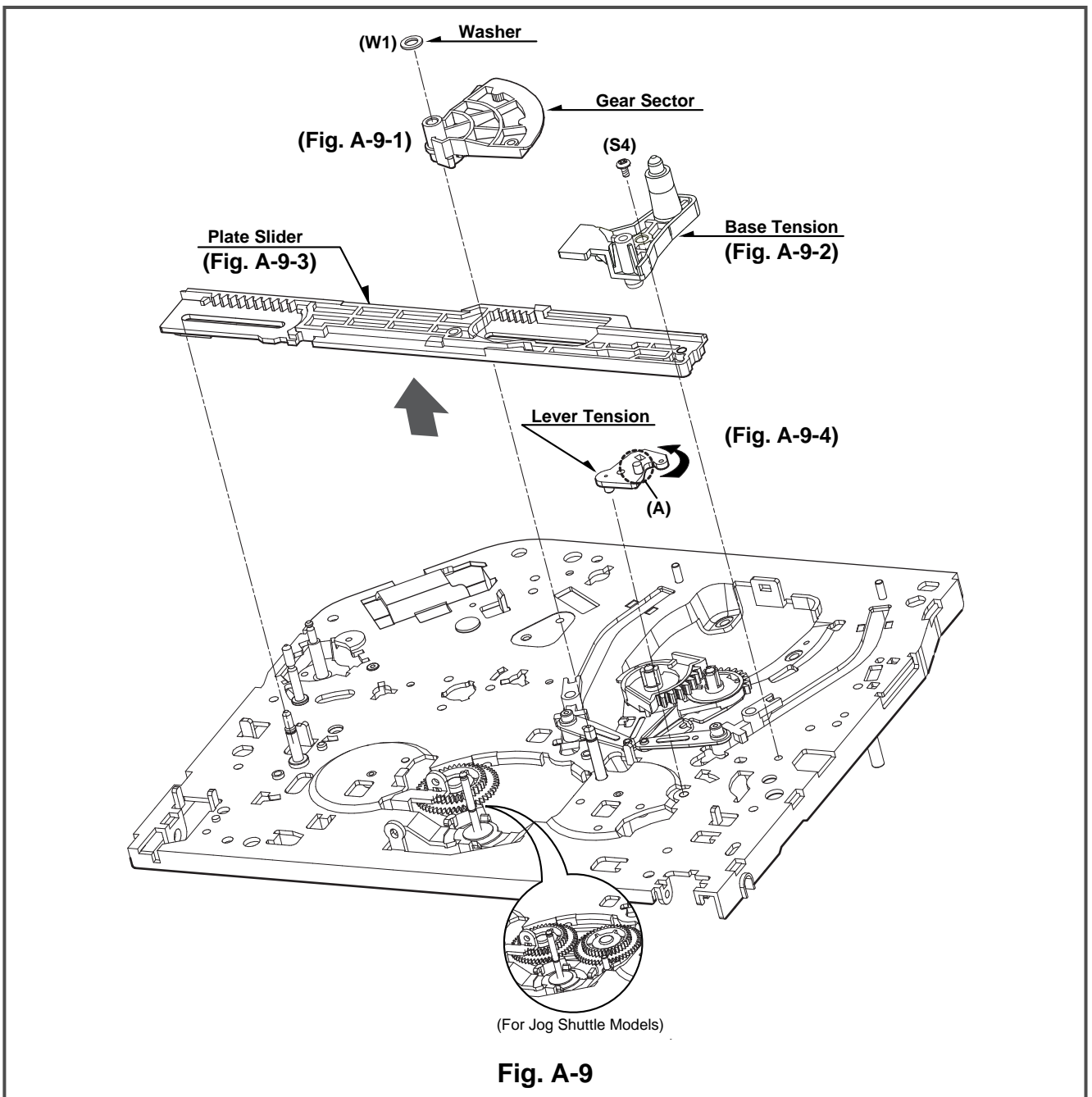


Fig. A-9

29. Gear Sector (Fig. A-9-1)

1) Remove the Washer(W1) and lift up the Gear Sector.

30. Base Tension (Fig. A-9-2)/

Plate Slider (Fig. A-9-3)/

Lever Tension (Fig. A-9-4)

- 1) Remove the Screw(S4) and lift up the Base Tension.
- 2) Lift up the Plate Slider.
- 3) Hold the (A) Part of the Lever Tension and turn to the counterclockwise direction, and then lift up the Lever Tension.

NOTE

- (1) When reassembling, turn the Lever Tension to the clockwise direction in maximum.
- (2) Push the plate slide right side to be guided by the shaft.

DECK MECHANISM DISASSEMBLY

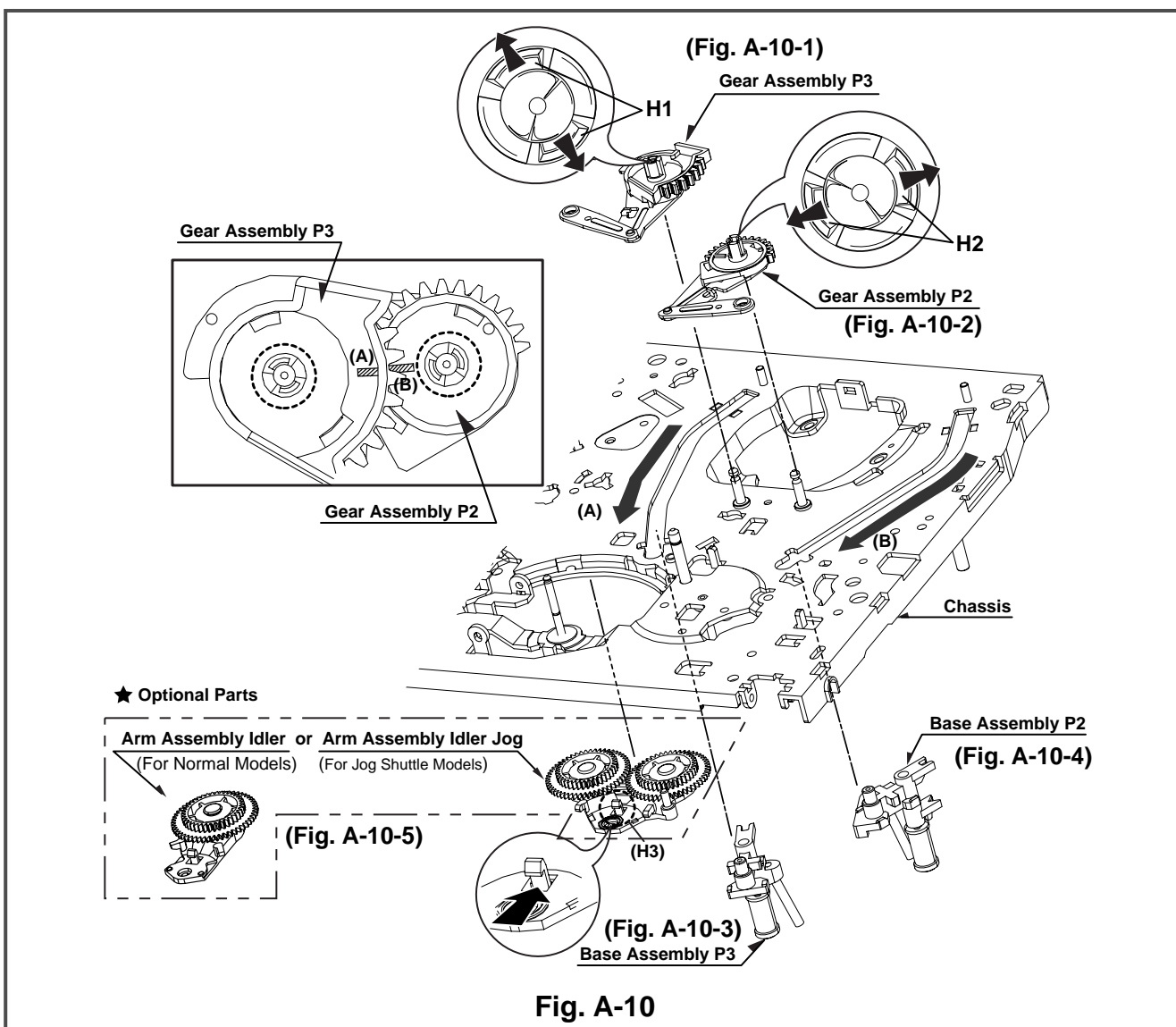


Fig. A-10

31. Gear Assembly P3 (Fig. A-10-1)/ Gear Assembly P2 (Fig. A-10-2)

- 1) Unhook the two Hooks(H1) and lift up the Gear Assembly P3.
- 2) Unhook the two Hooks(H2) and lift up the Gear Assembly P2.

32. Base Assembly P3 (Fig. A-10-3)/ Base Assembly P2 (Fig. A-10-4)

- 1) Move the Base Assembly P3 in the direction of the arrow of the Chassis Hole(A) and push down the Base Assembly P3.
- 2) Move the Base Assembly P2 in the direction of the arrow of the Chassis Hole(B) and push down the Base Assembly P2.

33. Arm Assembly Idler or Arm Assembly Idler Jog(Fig. A-10-5)

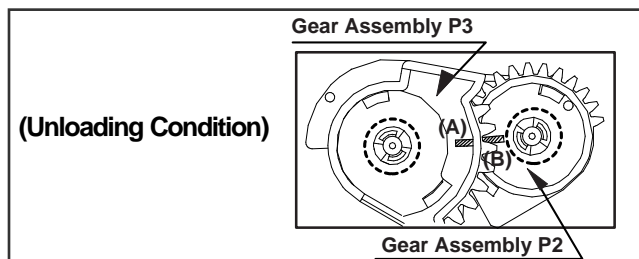
- 1) Unhook the Hook(H3) and push down the Arm Assembly Idler Jog.

NOTE

- 1) Arm Assembly Idler is for Normal Models.
- 2) Arm Assembly Idler Jog is for Jog Shuttle Models.

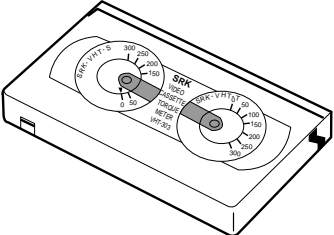
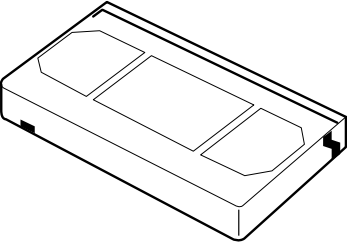
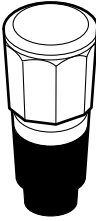
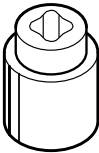
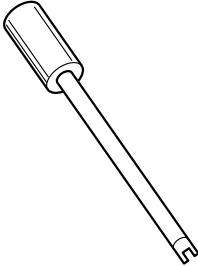
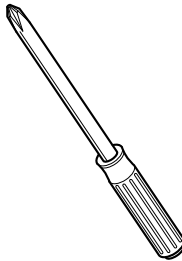
NOTE

- 1) When reassembling, confirm that the (A) Part of the Gear Assembly P3 is aligned to the (B) Part of the Gear Assembly P2 as shown below.



DECK MECHANISM DISASSEMBLY

• Tools and Fixfures for Service

<p>1. Cassette Torque meter SRK-VHT-303(Not SVC part) Parts No: D00-D006</p>  A rectangular cassette torque meter with two circular gauges on top. The gauges have scales from 0 to 300 and are labeled 'SRK VHT-303' and 'TORQUE METER VHT-303'.	<p>2. Alignment tape Parts No NTSC: DTN-001 PAL:DTN-0002</p>  A rectangular alignment tape with a central rectangular cutout and two smaller rectangular cutouts on either side.	<p>3. Torque gauge 600g.Cm ATG Parts No:D00-D002</p>  A cylindrical torque gauge with a black base and a silver top section.
<p>4. Torque gauge adaptor Parts No:D09-R001</p>  A small cylindrical torque gauge adaptor with a central hole and a small protrusion on top.	<p>5. Post height adjusting driver Parts No:DTL-0005</p>  A long, thin metal driver with a cylindrical handle and a small hook-like end.	<p>6. + Type driver (ø 5)</p>  A standard Phillips (+) type screwdriver with a long handle and a pointed tip.

DECK MECHANISM ADJUSTMENT (FOR NORMAL MODELS)

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

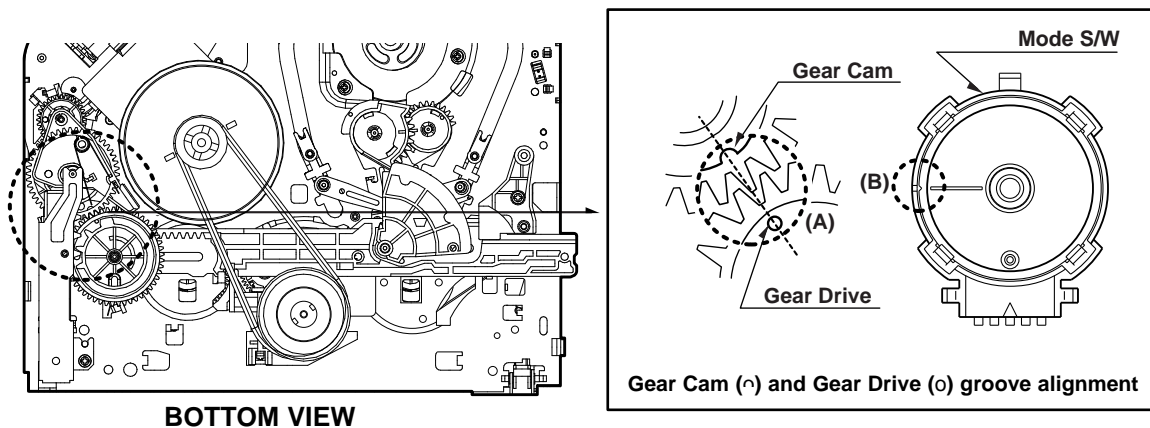


Fig. C-1

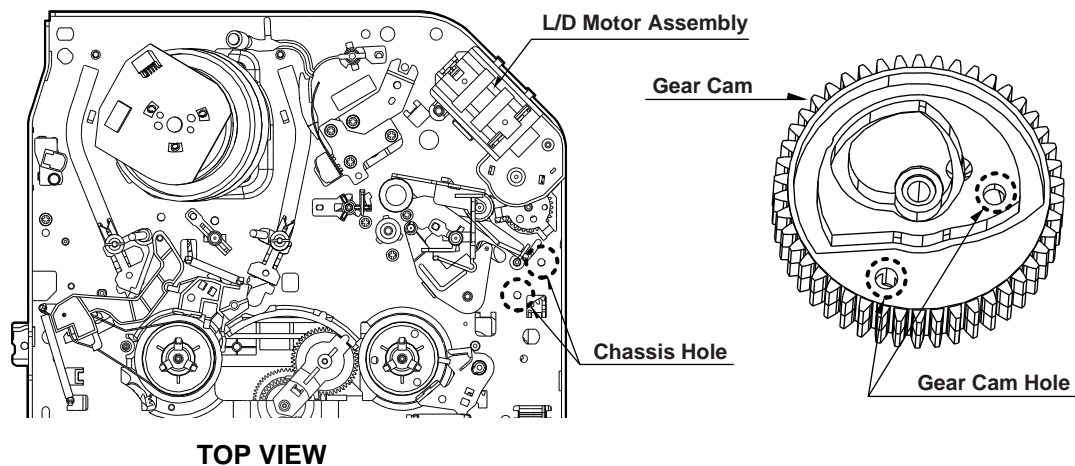


Fig. C-2

DECK MECHANISM ADJUSTMENT (FOR JOG SHUTTLE MODELS)

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

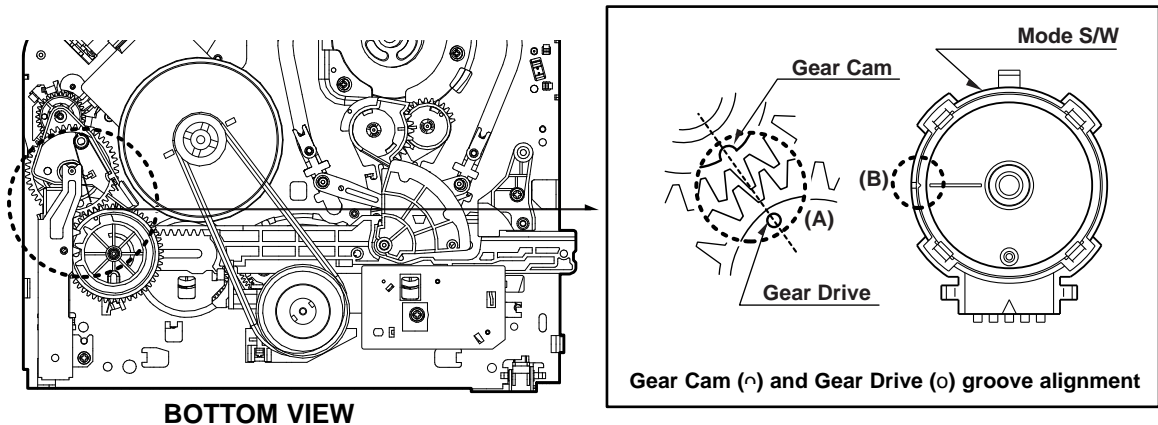


Fig. C-1

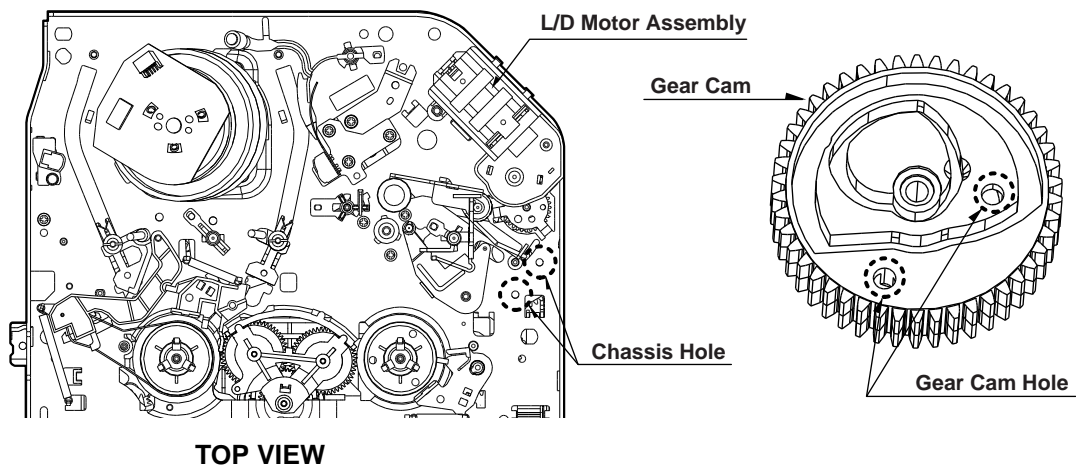


Fig. C-2

DECK MECHANISM ADJUSTMENT

2. Preparation for Adjustment (To set the Deck Mechanism to 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 (L),(R) 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 Bracket Side(L) and Bracket Assembly Door 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

Purpose: To insure smooth Transport of the Tape during each Mode of Operation.
If the Tape Transport is abnormal, then check the Torque as indicated by the chart below.

Test Equipment/ Fixture	Test Conditions (Mechanism Condition)	Checking Method
<ul style="list-style-type: none"> • Torque Gauge(600g/cm ATG) • Torque Gauge Adaptor • Cassette Torque Meter SRK-VHT-303 	<ul style="list-style-type: none"> • Play (FF) or Review (REW) Mode 	<ul style="list-style-type: none"> • Perform each Deck Mechanism Mode without inserting a Cassette Tape(Refer to above No.2 Preparation for Adjustment). • Read the Measurement of the Take-up or Supply Reels on the Cassette Torque Meter(Fig. C-3-2). • Attach the Torque Gauge Adaptor to the Torque Gauge and then read the Value of it(Fig. C-3-1).

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	70~120g/cm
Review Torque	Review	Cassette Torque Meter	Supply Reel	130~210g/m

NOTE:

The Values are measured by using a Torque Gauge and Torque Gauge Adaptor with the Torque Gauge affixed.

- Cassette Torque Meter (SRK-VHT-303)

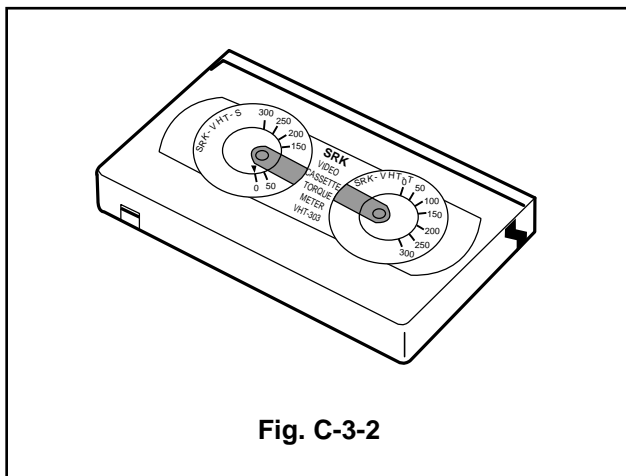


Fig. C-3-2

NOTE:

The Torque reading to measure occurs when the Tape abruptly changes direction from Fast Forward of Rewind Mode, when quick bracking is applied to both Reels.

- Torque Gauge (600g.cm ATG)

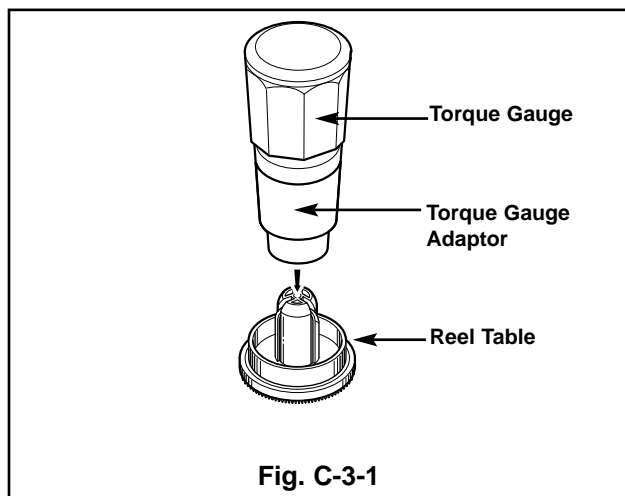


Fig. C-3-1

DECK MECHANISM ADJUSTMENT

4. Guide Roller Height Adjustment

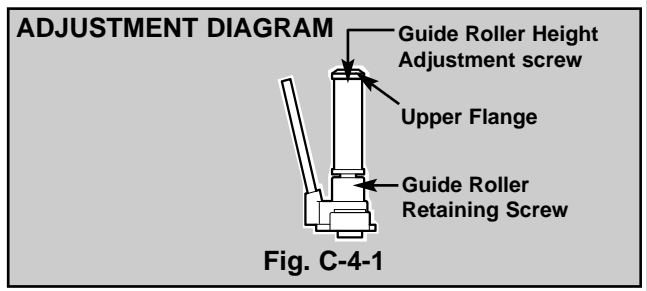
Purpose: To regulate the Height of the Tape so that the Bottom of the Tape runs along the Tape Guide Line on the Lower Drum.

4-1. Preliminary Adjustment

Test Equipment/ Fixture	Test Conditions (Mechanism Condition)	Adjustment Point
<ul style="list-style-type: none"> Post Height Adjusting Driver 	<ul style="list-style-type: none"> Play or Review Mode 	<ul style="list-style-type: none"> Guide Roller Height Adjustment screws on the Supply and Take-Up Guide Rollers.

Adjustment Procedure

- 1) Confirm if the Tape runs along the Tape Guide Line of the Lower Drum.
- 2) If the Tape runs the Bottom of the Guide Line, turn the Guide Roller Height Adjustment Screw to Clockwise direction.
- 3) If it runs the Top, turn to Counterclockwise direction.
- 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.

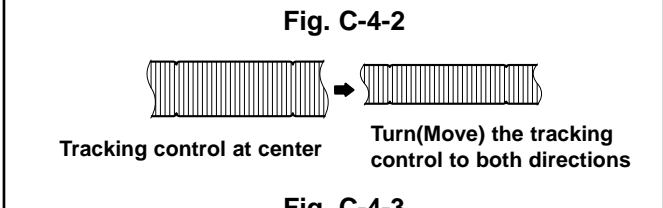
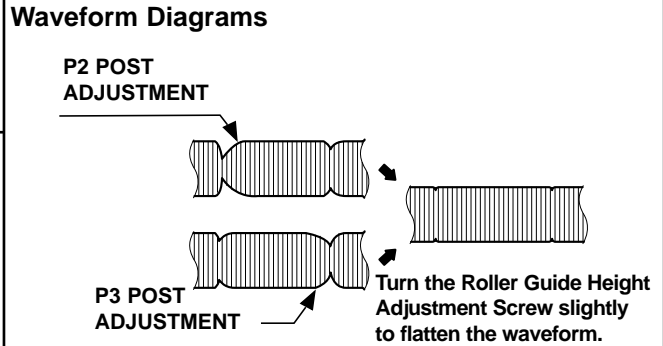


4-2. Precise Adjustment

Test Equipment/Fixture	Test Equipment Connection Points	Test Conditions VCR(VCP) State	Adjustment Point
<ul style="list-style-type: none"> Oscilloscope Alignment Tape Post Height Adjusting Driver 	<ul style="list-style-type: none"> CH-1:PB RF Envelope CH-2:NTSC: SW 30Hz PAL: SW 25Hz 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

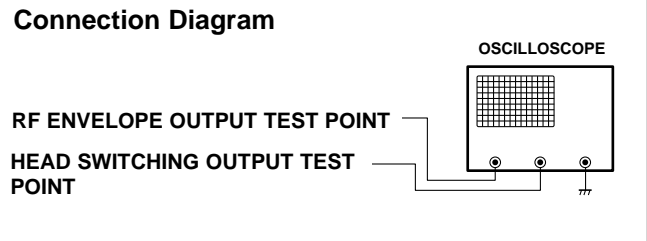
Adjustment Procedure

- 1) Play an Alignment Tape after connecting the Probe of the Oscilloscope to the 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. (Fig. C-4-2)
- 4) Turn(Move) the Tracking Control(in PB Mode) Clockwise and Counterclockwise.(Fig. C-4-3)
- 5) Check that any Drop of RF Output is uniform at the Start and End of the Waveform.



NOTE

If the adjustment is excessive or insufficient the tape will jam or fold.



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 in both the 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.

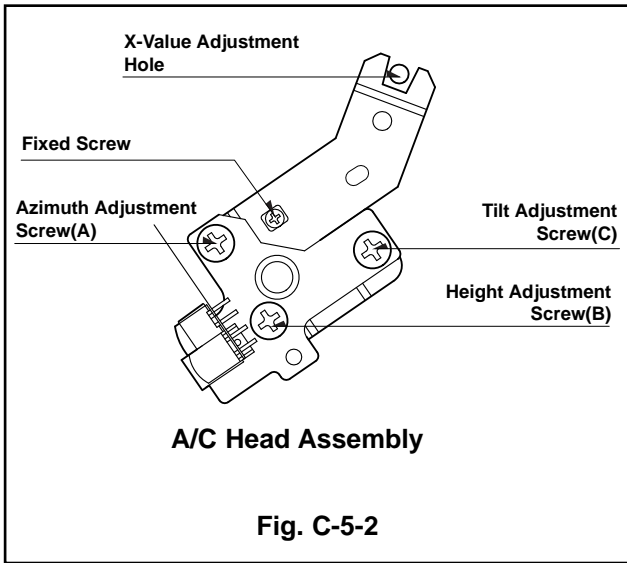
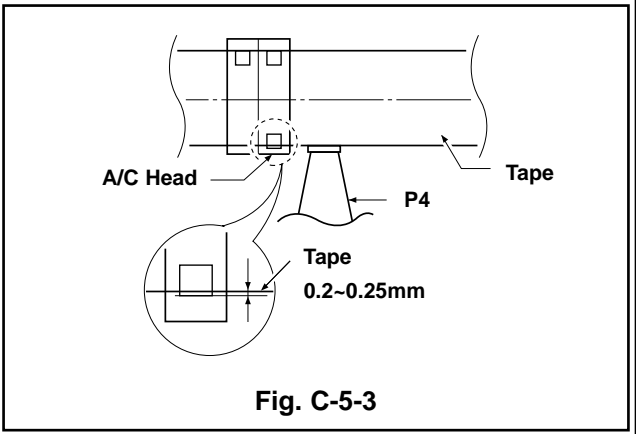
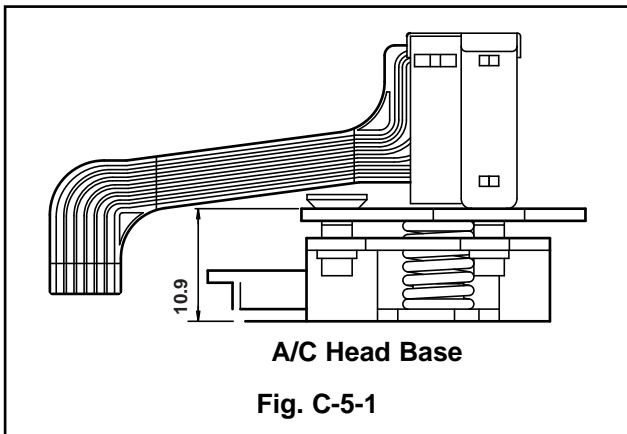
Test Equipment/ Fixture	Test Conditions (Mechanism Condition)	Adjustment Point
<ul style="list-style-type: none"> • Blank Tape • Screw Driver(+) Type 5mm 	<ul style="list-style-type: none"> • Play the blank tape 	<ul style="list-style-type: none"> • Tilt Adjustment Screw(C) • Height Adjustment Screw(B)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

Adjustment Procedure/Diagrams

- Initially adjust the Base Assembly A/C Head as shown Fig. C-5-1 by using the Height Adjustment Screw(B).
- Play a Blank Tape and observe if the Tape passes accurately over the A/C Head without Tape Curling or Folding.
- If Folding or Curling is occurred then adjust the Tilt Adjustment Screw(C) while the Tape is running to resemble Fig. C-5-3.
- 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

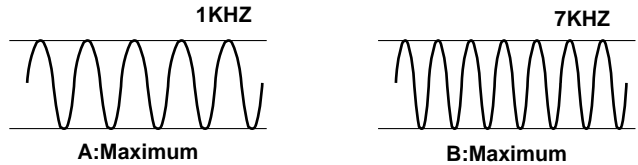
slowly turn the Tilt Adjustment Screw(C) in the Counterclockwise direction.

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"> • Oscilloscope • Alignment Tape(SP) • Screw Driver(+) Type 5mm 	<ul style="list-style-type: none"> • Audio output jack 	<ul style="list-style-type: none"> • Play an Alignment Tape 1KHz, 7KHz Sections 	<ul style="list-style-type: none"> • Azimuth Adjustment Screw(A) • Height Adjustment Screw(B)
Adjustment Procedure <ol style="list-style-type: none"> 1) Connect the Probe of the Oscilloscope to Audio Output Jack. 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. 			



6. X-Value Adjustment

Purpose: To obtain compatibility with other VCR(VCP) Models.			
Test Equipment/ Fixture	Connection Point	Test Conditions (Mechanism Condition)	Adjustment Point
<ul style="list-style-type: none"> • Oscilloscope • Alignment tape(SP only) • Screw Driver(+) Type 5mm 	<ul style="list-style-type: none"> • CH-1: PB RF Envelope • CH-2: NTSC: SW 30Hz PAL: SW 25Hz • Head Switching Output Test Point • RF Envelope Output Test Point 	<ul style="list-style-type: none"> • Play an Alignment Tape 	
Adjustment Procedure <ol style="list-style-type: none"> 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 31um Head to be centrally located over the 58um Tape Track. 3) Tighten the Base Assembly A/C Head mounting Screw. 		Adjustment Diagram	
		Connection Diagram	

DECK MECHANISM ADJUSTMENT

7. Adjustment after Replacing Drum Assembly (Video Heads)

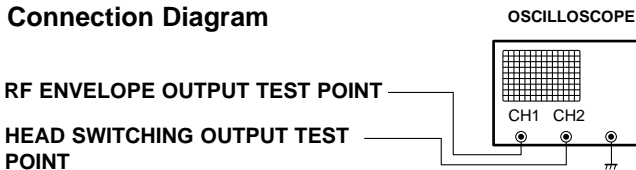
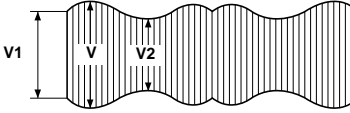
Purpose: To correct for shift in the Roller Guide and X value after replacing the Drum.			
Test Equipment/ Fixture	Connection Point	Test Conditions (Mechanism Condition)	Adjustment Points
<ul style="list-style-type: none"> Oscilloscope Alignment tapes Blank Tape Post Height Adjusting Driver Screw Driver(+) Type 5mm 	<ul style="list-style-type: none"> CH-1: PB RF Envelope CH-2: NTSC: SW 30Hz PAL: SW 25Hz Head Switching Output Test Point RF Envelope Output Test Point 	<ul style="list-style-type: none"> Play the blank tape Play an alignment tape 	<ul style="list-style-type: none"> Guide Roller Precise Adjustment Switching Point Tracking Preset X-Value
Checking/Adjustment Procedure 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".		Connection Diagram  Waveform  $V1/V \text{ MAX } \pm 0.7$ $V2/V \text{ MAX } \pm 0.8$ RF ENVELOPE OUTPUT	

Fig. C-7

8. Check the Tape Travel after Reassembling Deck Assembly.

8-1. Check 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"> Oscilloscope Alignment tapes(with 6H 3kHz Color Bar Signal) Stop Watch 	<ul style="list-style-type: none"> RF Locking Time: Less than 5 sec. Audio Locking Time: Less than 10sec 	<ul style="list-style-type: none"> CH-1: PB RF Envelope CH-2: Audio Output RF Envelope Output Point Audio Output Jack 	<ul style="list-style-type: none"> Play an alignment tape (with 6H 3kHz Color Bar Signal)
Checking Procedure Play an alignment tape then change the operating mode to CUE or REV and confirm if the unit meets the above listed specifications.		NOTES: 1) CUE is fast forward mode (FF) 2) REV is the rewind mode (REW) 3) Referenced to the Play mode	

8-2. Check for tape curling or jamming

Test Equipment/ Fixture	Specification	Test Conditions (Mechanism Condition)
<ul style="list-style-type: none"> T-160 Tape T-120 Tape 	<ul style="list-style-type: none"> Be sure there is no tape jamming or curling at the beginning, middle or end of the tape. 	<ul style="list-style-type: none"> Run the CUE, REV play mode at the beginning and the end of the tape.
Checking Procedure 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 cassette. 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 (FOR NORMAL MODELS)

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
Poor S/N, no color	Dirt on video head	o
Vertical or Horizontal jitter	Dirt on video head Dirt on tape transport system	o
Low volume, Sound distorted	Dirt on Audio/control head	o
Tape does not run. Tape is slack	Dirt on pinch roller	o
In Review and Unloading (off mode), the Tape is rolled up loosely.	Clutch Assembly D33K Torque reduced	o
	Cleaning Drum and transport system	Fig. C-9-3

F/E Head
Video Head
A/C Head
Pinch Roller
Belt Capstan
Clutch Assembly D33K

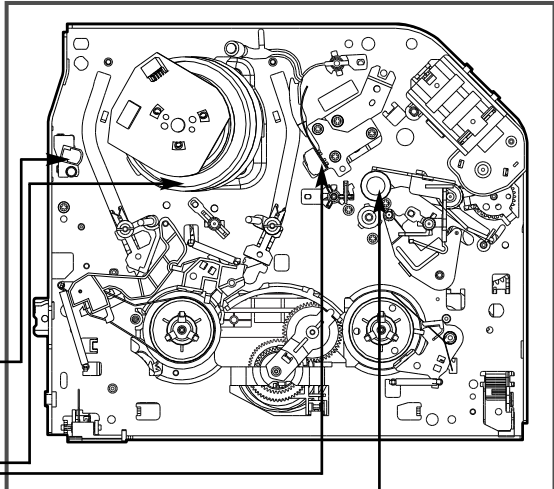


Fig. C-9-1 Top VIEW

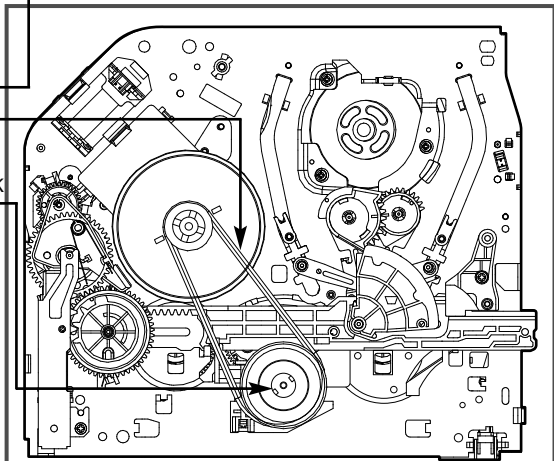


Fig. C-9-2 BOTTOM VIEW

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 See the Greasing (Page 4-22) for the sections to be lubricated and greased.

* No. (1)~(13) Indicates the Tape Path to be traveled from Supply Reel to Take-up Reel.

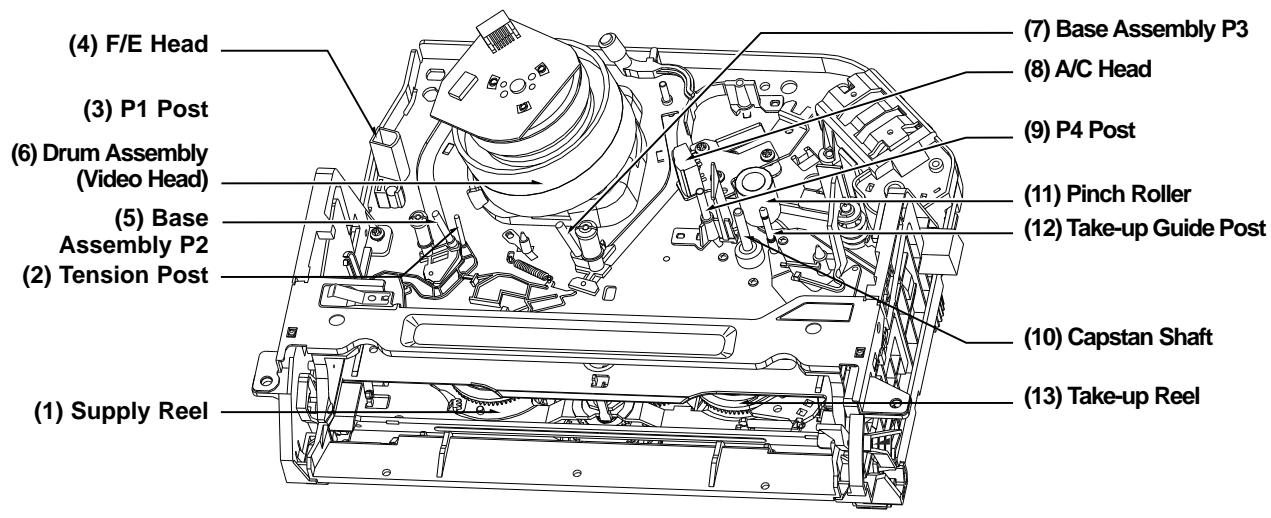


Fig. C-9-3 Tape Transport System

MAINTENANCE/INSPECTION PROCEDURE (FOR JOG SHUTTLE MODELS)

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
Poor S/N, no color	Dirt on video head	o
Vertical or Horizontal jitter	Dirt on video head Dirt on tape transport system	o
Low volume, Sound distorted	Dirt on Audio/control head	o
Tape does not run. Tape is slack	Dirt on pinch roller	o
In Review and Unloading (off mode), the Tape is rolled up loosely.	Clutch Assembly D33K Torque reduced	o
	Cleaning Drum and transport system	Fig. C-9-3

F/E Head

Video Head

A/C Head

Pinch Roller

Belt Capston

Clutch Assembly D33K

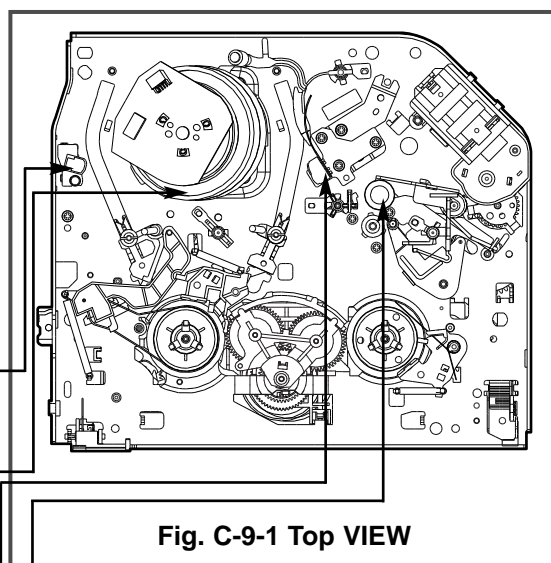


Fig. C-9-1 Top VIEW

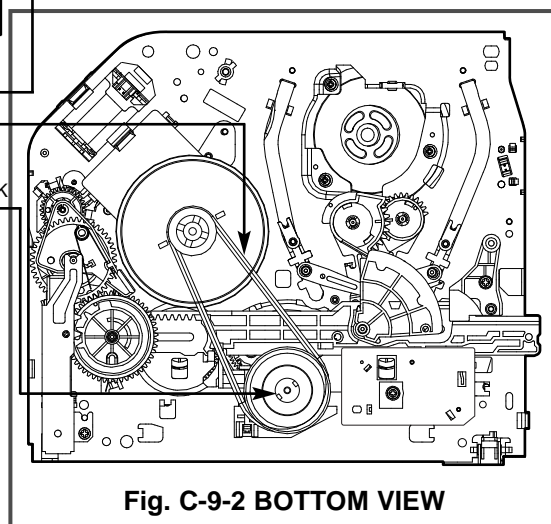


Fig. C-9-2 BOTTOM VIEW

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 See the Greasing (Page 4-22) for the sections to be lubricated and greased.

* No. (1)~(13) Indicates the Tape Path to be traveled from Supply Reel to Take-up Reel.

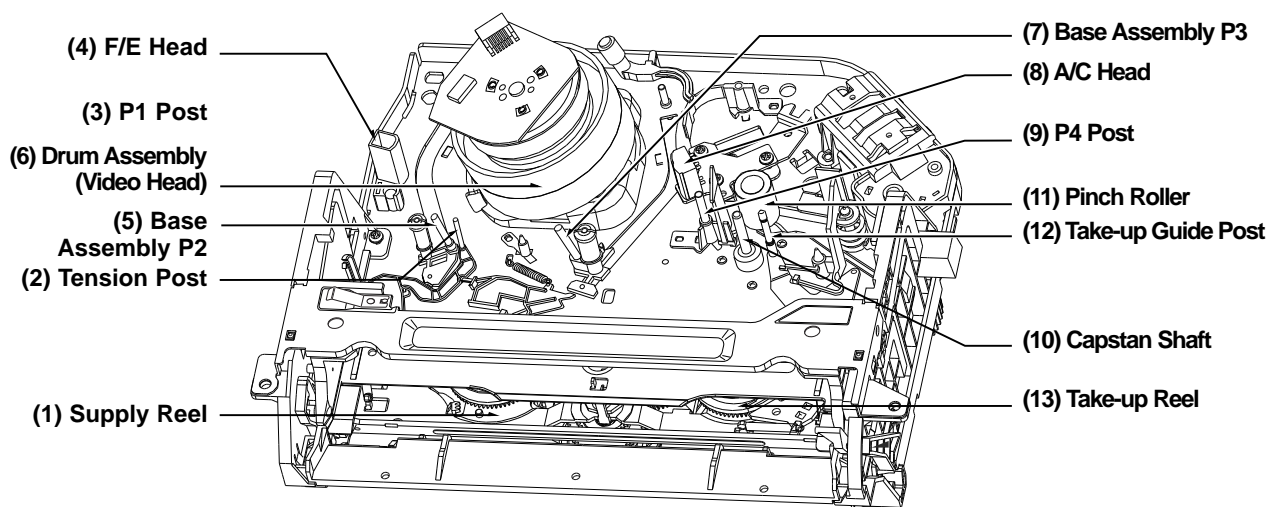


Fig. C-9-3 Tape Transport System

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 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	About 1 year	About 18 months	About 3 years
Average hours used per day	▲	▲	▲
One hour	[Bar chart showing inspection every 1 year]		
Two hours	[Bar chart showing inspection every 18 months]		
Three hours	[Bar chart showing inspection every 3 years]		

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) : Used only for Reel S and Reel T

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 the tip of a screw driver and no that force is that would cause deforming or damage applied to the system.

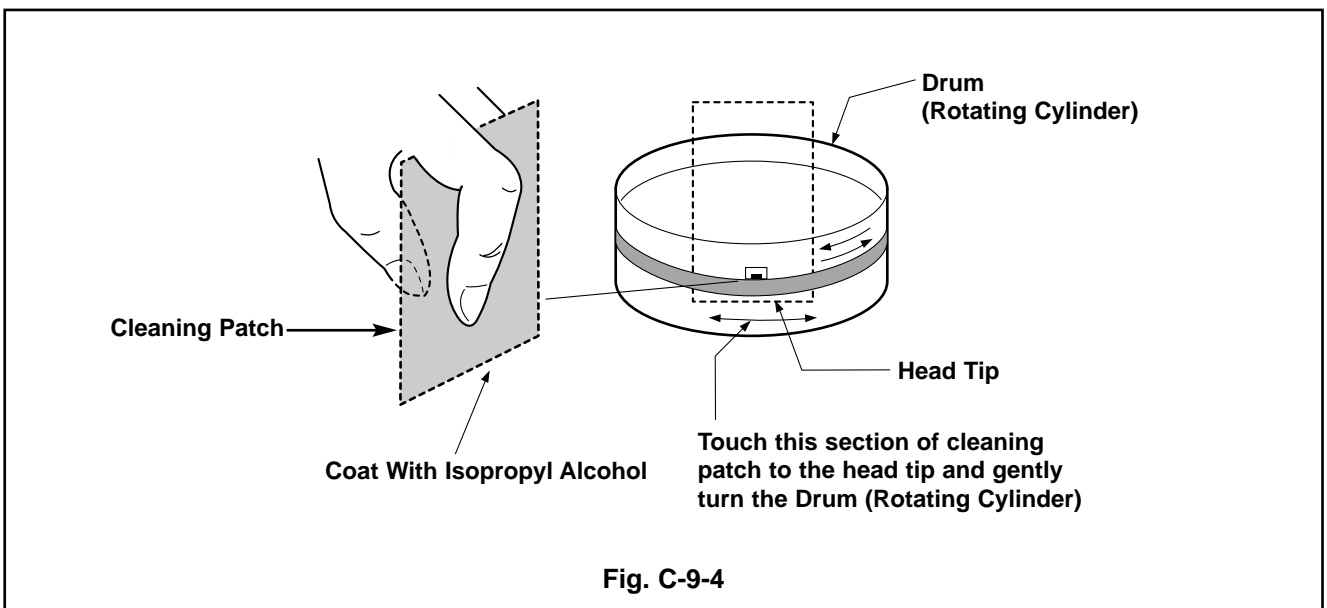


Fig. C-9-4

MAINTENANCE/INSPECTION PROCEDURE

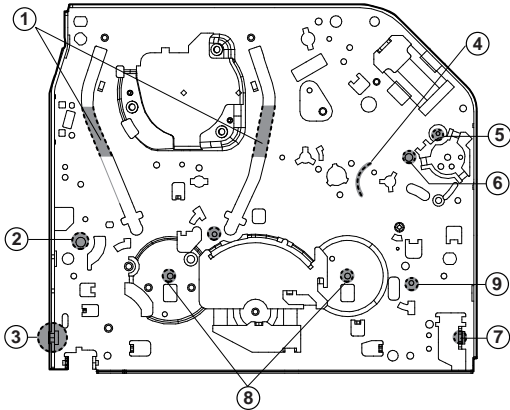
5-2) Greasing

(1) Greasing guidelines

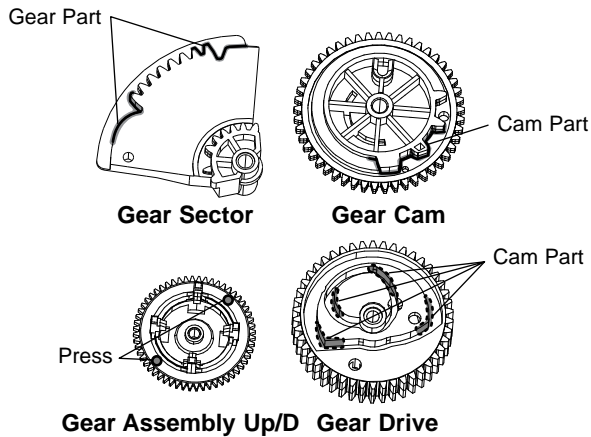
Apply grease, with a cleaning patch. Do not use excess grease. It may come into contact with the tape transport or drive system. Wipe any excess and clean with cleaning patch wetted in Isopropyl Alcohol.

NOTE: Greasing Points

- | | |
|-----------------------------------|---|
| 1) Loading Path Inside & Top side | 6) Shaft |
| 2) Base Tension Boss inside Hole | 7) Arm Assembly F/L of Buming Inside Hole |
| 3) Arm Assembly F/L "U" Groove | 8) Reel S, T Shaft (G381:Yellow) |
| 4) Arm Take-up Rubbing Section | 9) Brake T Groove |
| 5) L/D Motor Worm Wheel Part | |



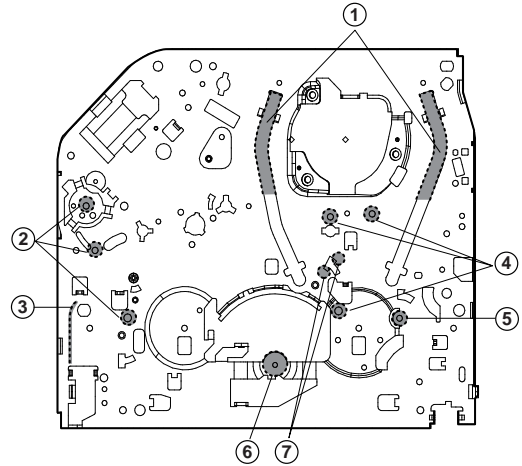
Chassis (Top)



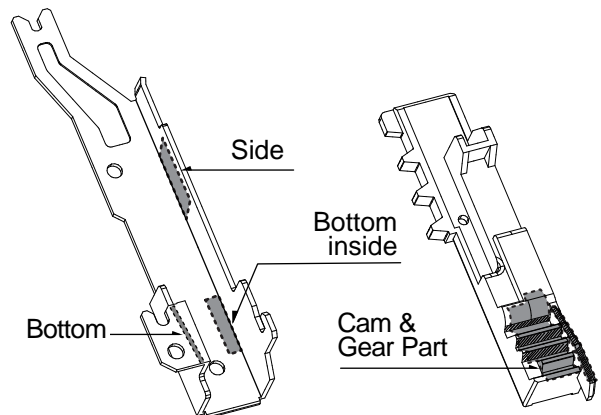
(2) Periodic greasing

Grease specified locations every 5,000 hours.

- | | |
|-----------------------------------|------------------------------|
| 1) Loading Path Inside & Top side | 5) Lever Tension Groove |
| 2) Shaft | 6) Clutch Assembly D33 Shaft |
| 3) Gear Rack F/L Moving Section | 7) Brake "S" Rubbing Section |
| 4) Shaft | |



Chassis (Bottom)



Guide Rack F/L

Gear Rack F/L

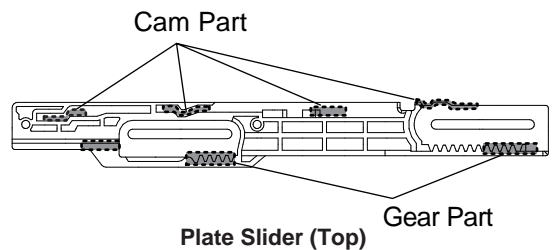


Plate Slider (Top)

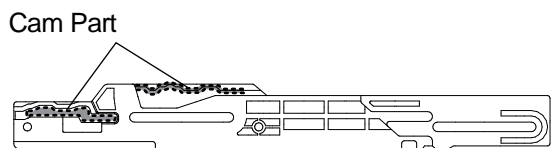
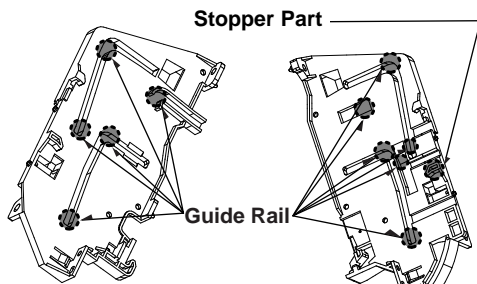


Plate Slider (Bottom)



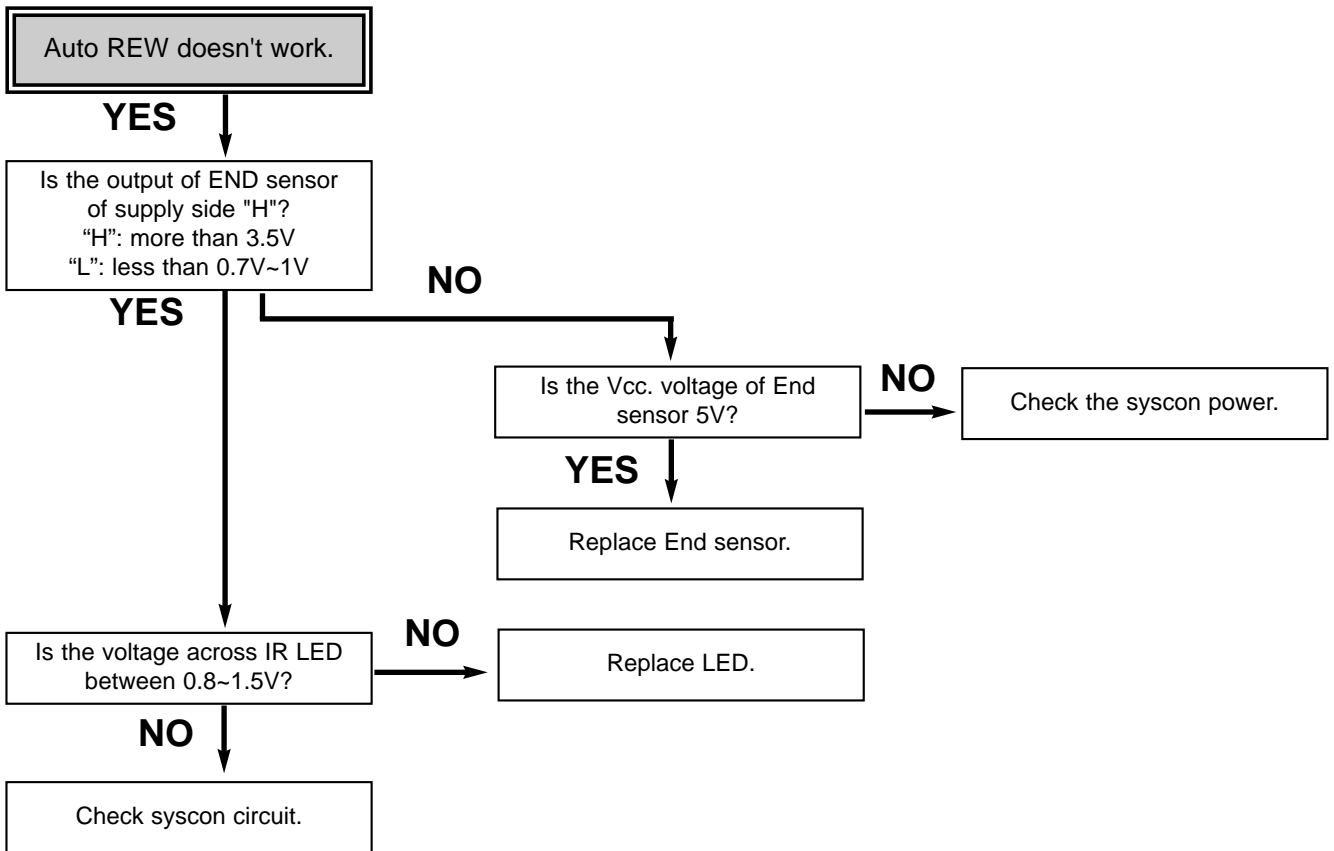
Bracket Side (L)

Bracket Assembly Door

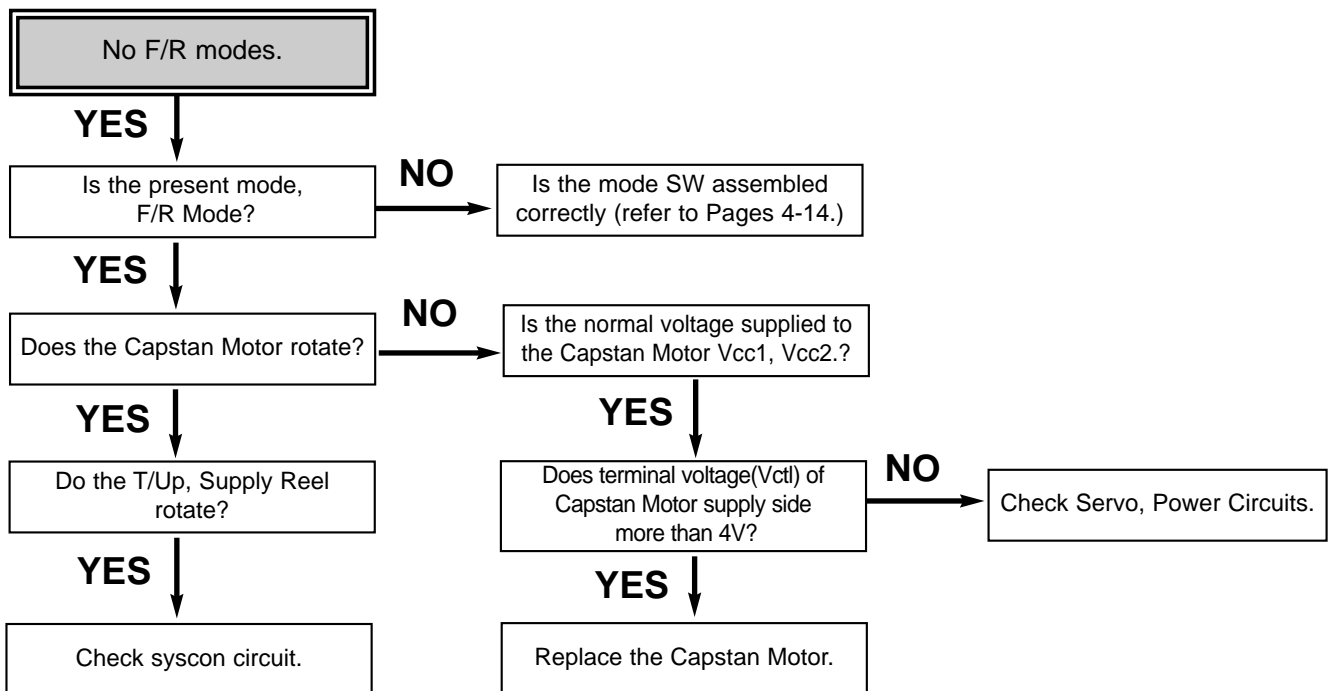
MECHANISM TROUBLESHOOTING GUIDE

1. Deck Mechanism

A.

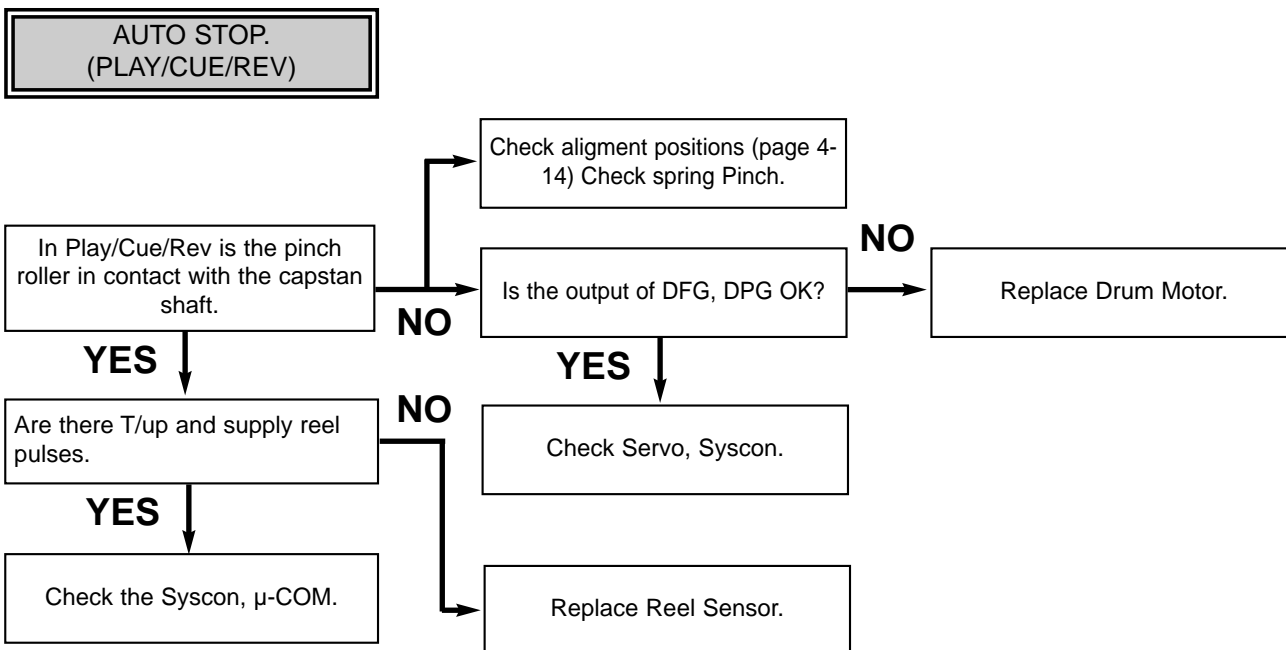


B.

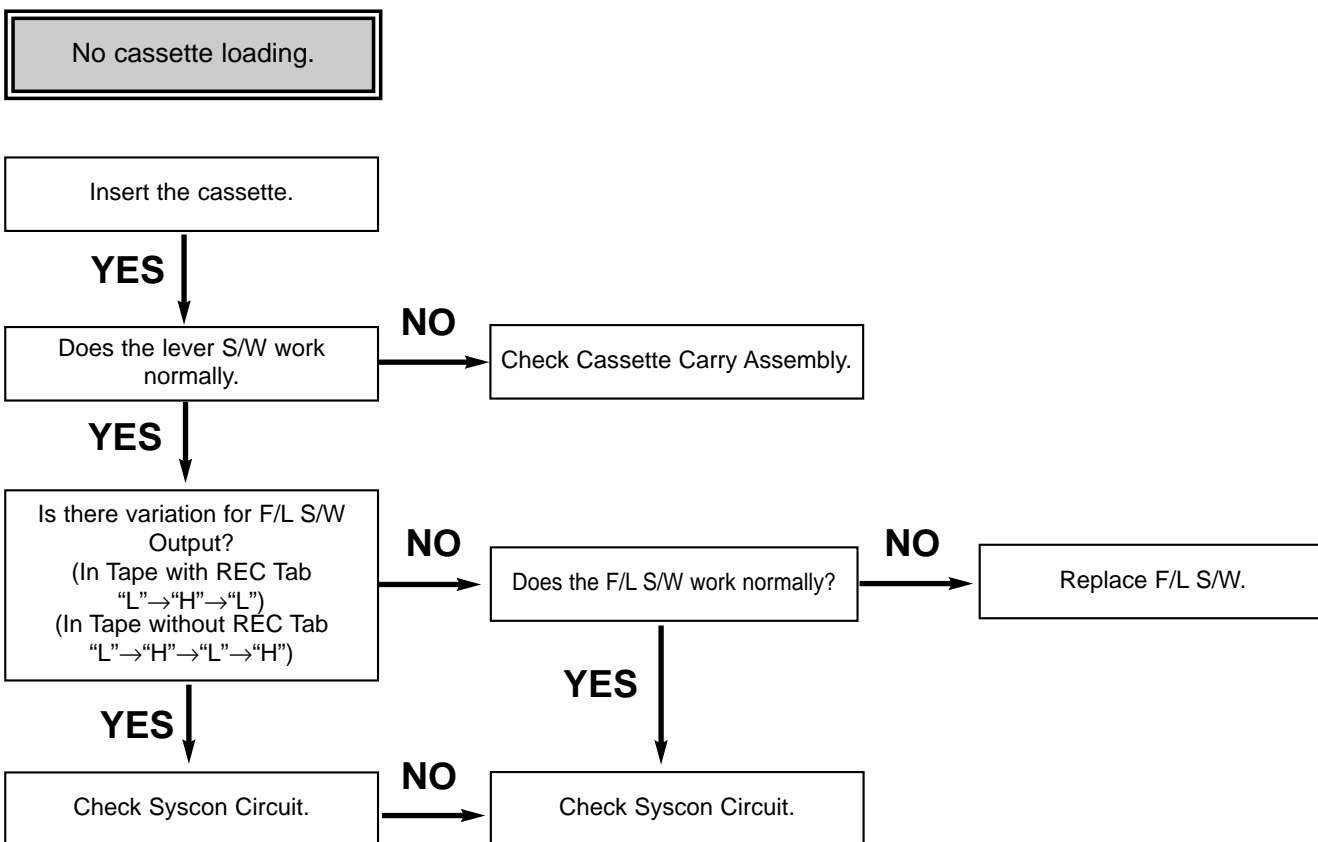


MECHANISM TROUBLESHOOTING GUIDE

C.

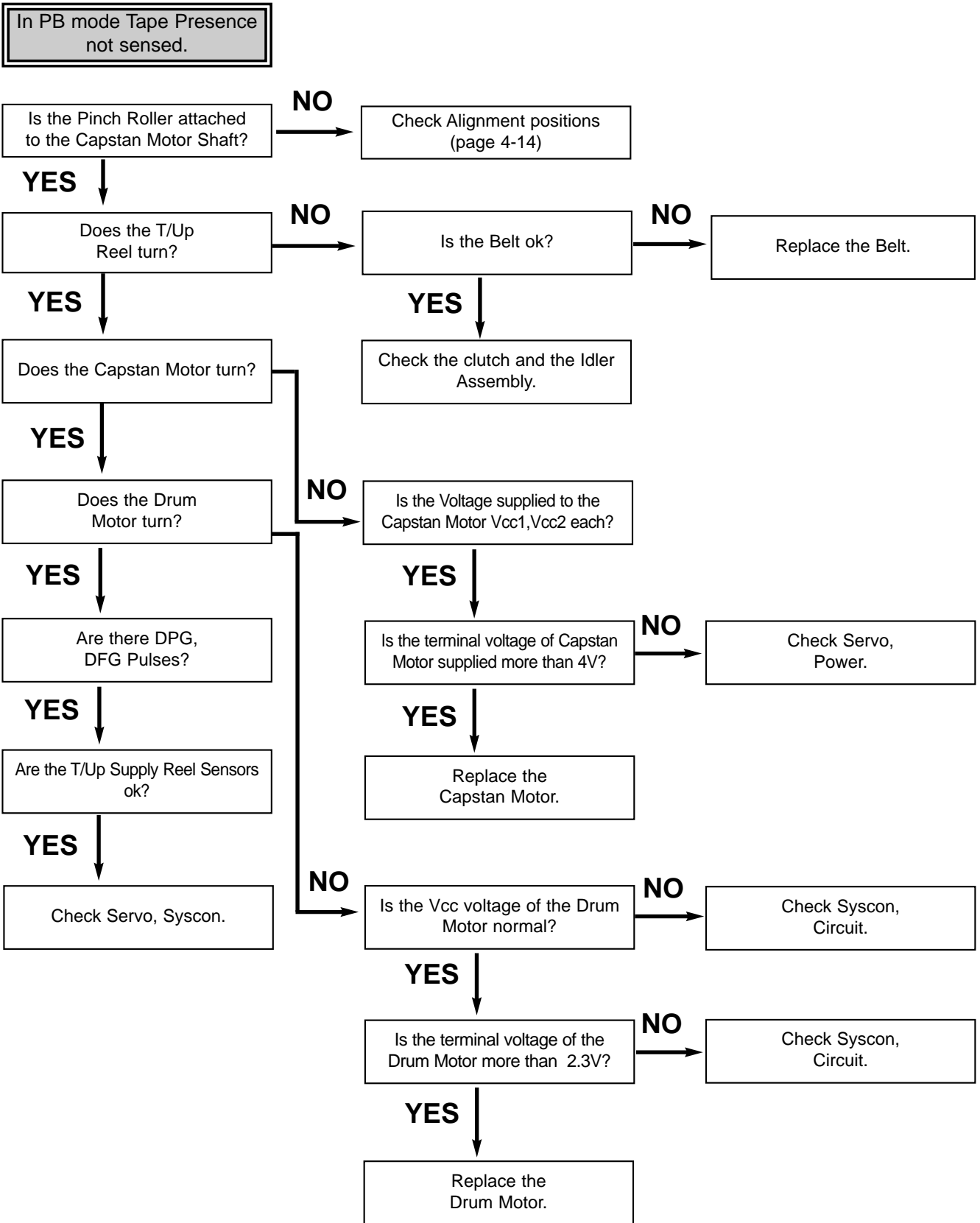


D.



MECHANISM TROUBLESHOOTING GUIDE

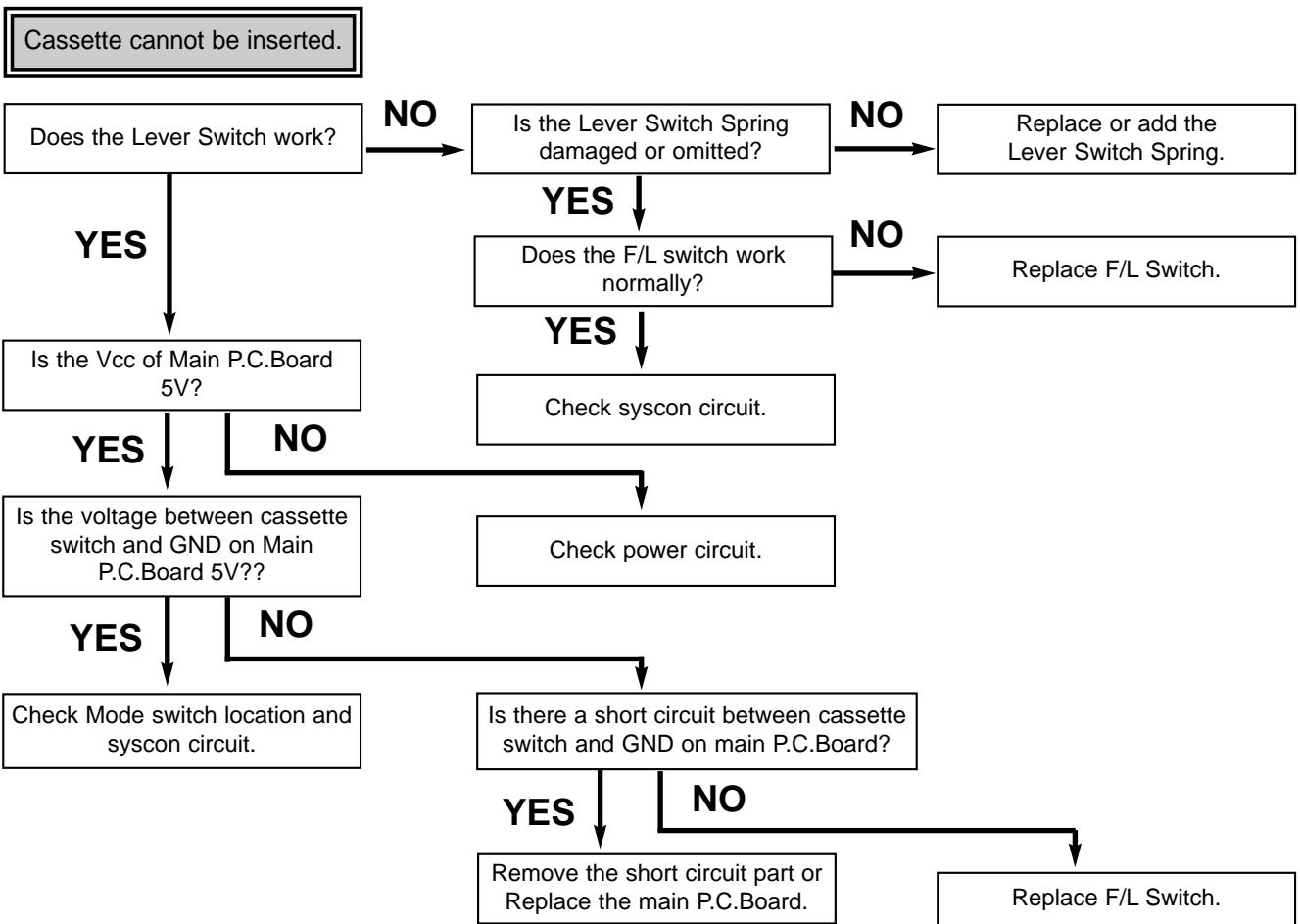
E.



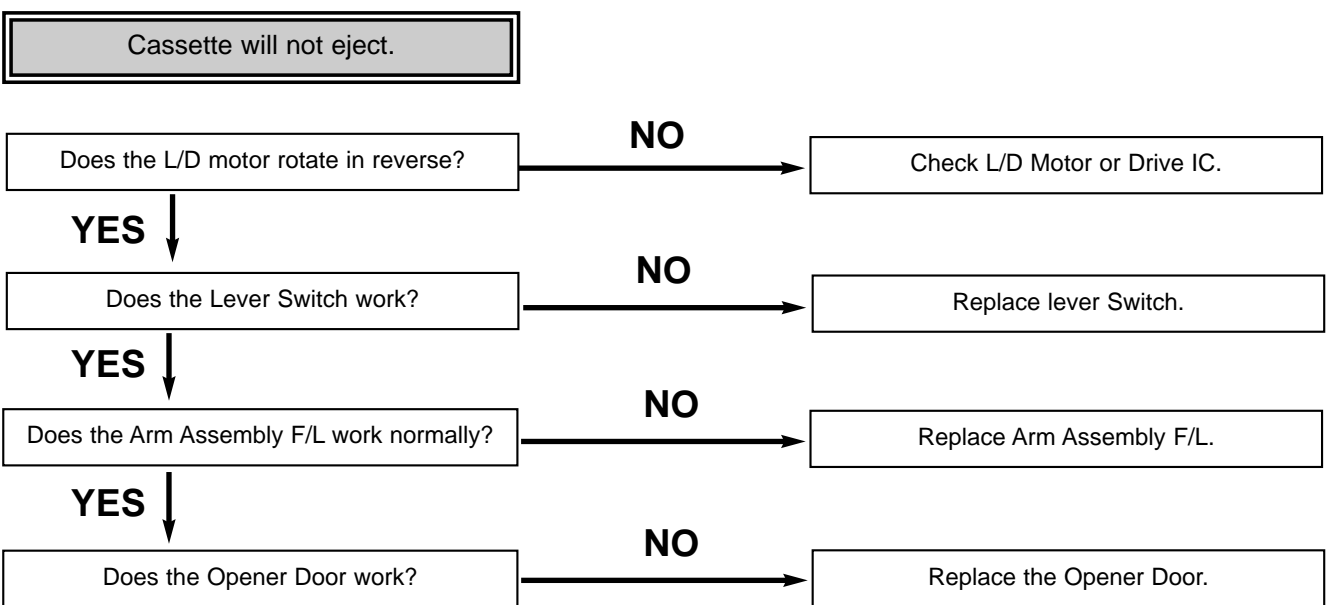
MECHANISM TROUBLESHOOTING GUIDE

2. Front Loading Mechanism

A.

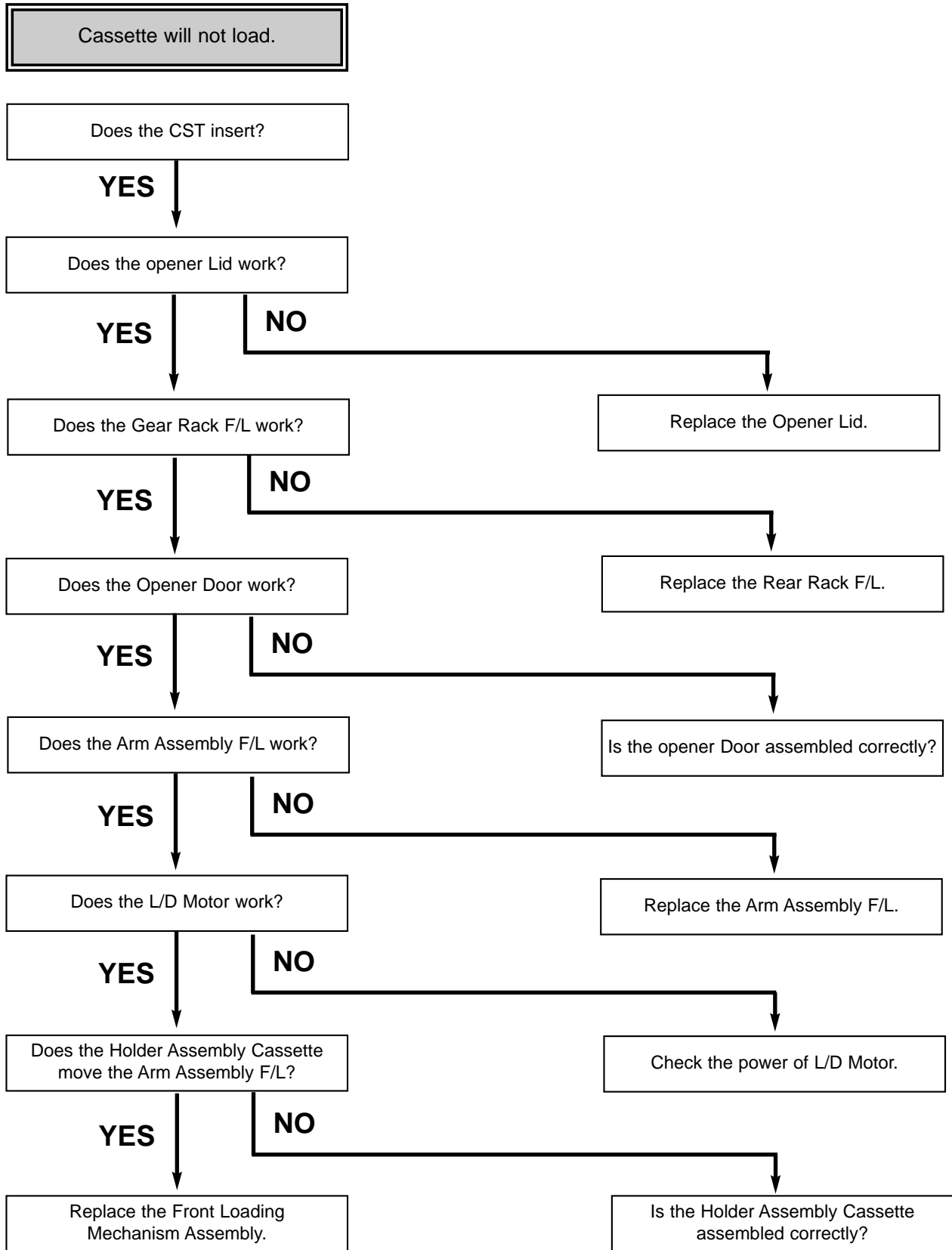


B.



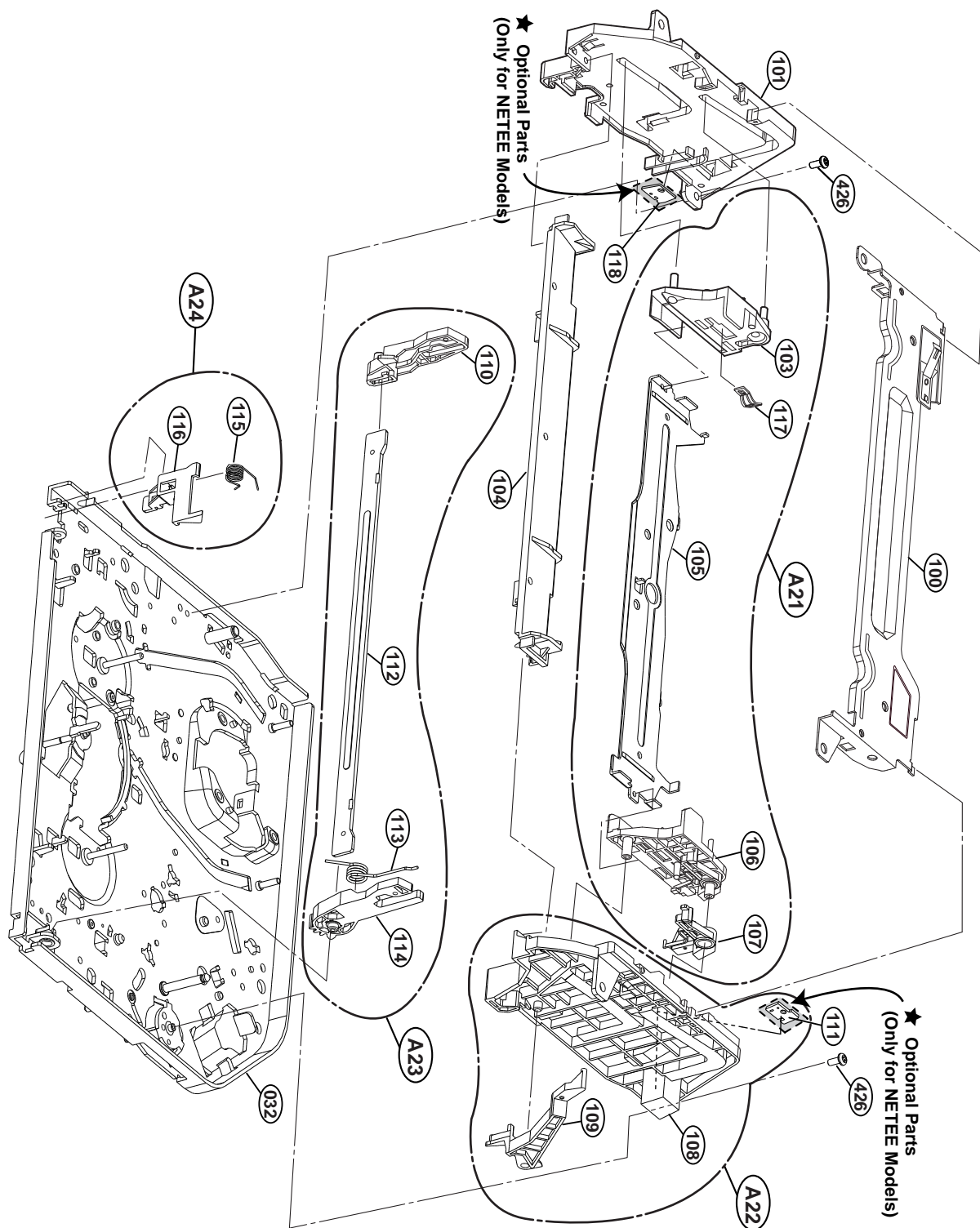
MECHANISM TROUBLESHOOTING GUIDE

C.



EXPLODED VIEWS

1. Front Loading Mechanism Section



EXPLODED VIEWS

3. Moving Mechanism Section(2)

