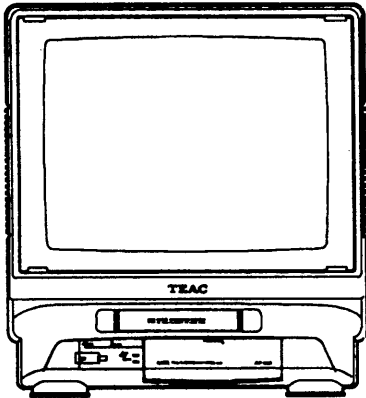


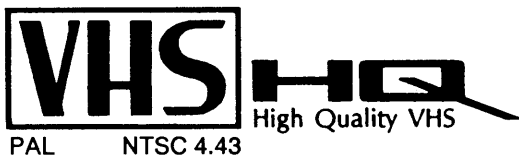
TEAC®



SERVICE MANUAL

MV-2010

20" COLOR TV / VCR COMBINATION



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NOTES

- PC boards shown are viewed from parts side.
- Parts marked with * require longer delivery time.
- The parts with no reference number or no parts number in the exploded views are not supplied.
- As regards the resistors and capacitors, refer to the circuit diagrams contained in this manual.
- ⚠ Parts marked with this sign are safety critical components. They must be replaced with identical components - refer to the appropriate parts list and ensure exact replacement.

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GENERAL SPECIFICATIONS*

- A) System
- 1) CRT: 20", Tinted Tube
(ITC was adjusted for southern hemisphere)
 - 2) Color system: PAL / SECAM
NTSC 3.58 (Video In Only)
NTSC 4.43 (Play Only)
 - 3) Receiving channel: System B/G
(Australia / New Zealand ch) [VHF L]....0~5ch/1~3ch
[VHF H]...5A~11ch/4~11ch
[UHF].....21~69ch
 - 4) Tuning system: Voltage synthesizer
(40 stations can be memorized)
Automatic channel presets
 - 5) Control knobs
 - Main Switch: Push switch (rear side)
 - Power: Push switch
 - Volume: 2-Push switches (up/down)
 - Channel: 2-Push switches (up/down)
 - Play: Push switch
 - Stop/Eject: Push switch
 - Fast Forward: Push switch
 - Rewind: Push switch
 - Record/OTR: Push switch
 - 6) External connections
 - Antenna: 75Ω IEC jack
 - Video in: BNC jack
 - Audio in: RCA jack
 - Earphone jack: ø3.5mm jack (switched)
 - Power supply: AC inlet
 - 7) Degauss: Automatic Degaussing
 - 8) Speaker: 3" X 5 oval type
 - 9) Audio output power: 0.9 W
- B) VCR
- 1) Recording system: Twin head herical scanning
HQ system
 - 2) Loading system: Front loading
 - 3) Video signal: PAL 625 lines, 50Hz
 - 4) Tape format: Width 1/2", 1 Audio track
 - 5) Rec/Play time: 4 hours
(PAL/MESECAM, E-240)
2 hours 40 minutes
(NTSC, T-160)
 - 6) Tape speed: 23.39 mm/sec
(PAL/MESECAM)
33.40 mm/sec (NTSC)
- 7) Timer recording: 1 month, 4 events
- 8) One touch timer recording: Every 30 minutes,
8 hours max
- 9) Auto functions: Power On/Off, Play, Re-
wind, Eject, Rerpert
- C) IR Remote Control: (29 keys)
Power, Call, Sleep,
10 numerical keys (0~9)
Mute, Prog, Select,
Channel/Tracking Up,
Channel/Tracking Down,
Clear/Reset, Memory,
Control Up, Control Down,
Rew, Play, F. Fwd,
Pause/Still, T-Set, Stop,
Rec
- D) Indicators (LED)
Stand by (Green),
Rec (Red),
Timer rec (Red)
- E) Mechanical
- 1) Dimensions: 482(W)X476.6(D)X502(H)
mm
 - 2) Cabinet: All plastic cabinet
 - 3) Weight: 24Kg approx
 - 4) Packing weight: 26Kg approx
- F) Power supply
- 1) Rating requirement: AC 240V/50Hz
 - 2) Consumption: 90W
- G) Miscellaneous
- 1) Head life time: 1000H (Change tape at
every 200H)
 - 2) Safety Regulations: SAA passable
- H) Accessories
- 1) Remote control unit
 - 2) Battery UM-4 x 2
 - 3) AC cord set (with IEC type S plug)
 - 4) Owner's manual

* Specifications are subject to change without notice.

PERFORMANCE SPECIFICATIONS [TV]

* Test input terminal Video input (1Vp-p)
 Audio input (-10dBs)

<DEFLECTION>

Description	Condition	Unit	Nominal	Limit
1. Deflection frequency	Horizontal	KHz	15.625	—
	(PAL/SECAM)	KHz	15.734	—
	(NTSC)			
	Vertical	Hz	50	—
2. Over Scan	(PAL/SECAM)	Hz	60	—
	(NTSC)			
3. Linearity	—	%	90	—
3. Linearity	Horizontal	%	—	10
	Vertical	%	—	10
4. High Voltage	—	KV	25	—

<VIDEO & CHROMA>

Description	Condition	Unit	Nominal	Limit
1. Misconvergence	Center	m/m	—	0.4
	Corner	m/m	—	2.0
	Side	m/m	—	1.5
2. Contrast Control Range	—	dB	6	4
3. Brightness	APL 100%	ft-L	35	25
4. Color Temperature	—	°K	8000-10MPCD	—
5. Resolution	Horizontal	Line	300	280
	Vertical	Line	300	270

<AUDIO>

All items are measured across 8 ohm resistor at speaker output terminal.

Description	Condition	Unit	Nominal	Limit
1. Audio Max. Output	—	W	0.9	0.7
2. Audio S/N (W/LPF)	500mW	dBs	45	38
3. Audio Distortion (W/LPF)	500mW	%	3	5
4. Audio Freq. Response	50mW	200Hz dB	-3	-7
	-20dBs in	6KHz dB	+2	-5

Note: Nominal specifications represent the design specifications. All units should be able to approximate these-some will exceed and some may drop slightly below these specifications. Limit specifications represent the absolute worst condition that still might be considered acceptable; in no case should a unit fail to meet limit specifications.

PERFORMANCE SPECIFICATIONS [VCR]

* Test input terminal Video input (1Vp-p)
 Audio input (-10dBs)

<TUNER>

Description	Condition	Unit	Nominal	Limit
1. Channel (Australia / Newzealand ch)	VHF Low	CH	0~5 / 1~3	—
	VHF High	CH	5A~11 / 4~11	—
	UHF	CH	21~69	—
2. Intermediate freq.	Picture	MHz	36.875	—
	Sound	MHz	31.375	—
3. Video S/N	(10 ch)	dB	44	38
4. Audio S/N (W/LPF)	(10 ch)	dB	45	38

<VCR>

Description	Condition	Unit	Nominal	Limit
1. Horizontal Resolution	F6M	Line	230	220
2. Audio S/N ratio	F6A	dB	40	35
3. Wow & Flutter WRMS/CCIR	F6L	%	0.3	0.5
4. Jitter	F6N	μS	0.07	0.25
5. Audio S/N ratio	R/P	dB	41	37
8. Audio Freq. resp.	200Hz	-20dBs in	-3.6	±8
	6KHz	R/P	+2.2	±8

Note: Nominal specifications represent the design specifications. All units should be able to approximate these-some will exceed and some may drop slightly below these specifications. Limit specifications represent the absolute worst condition that still might be considered acceptable; in no case should a unit fail to meet limit specifications.

IMPORTANT SAFETY PRECAUTIONS

Prior to shipment from the factory, our products are strictly inspected for 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.

Safety Precautions for TV Circuit

1. Before returning an instrument to the customer, always make a safety check of the entire instrument, including, but not limited to, the following items:

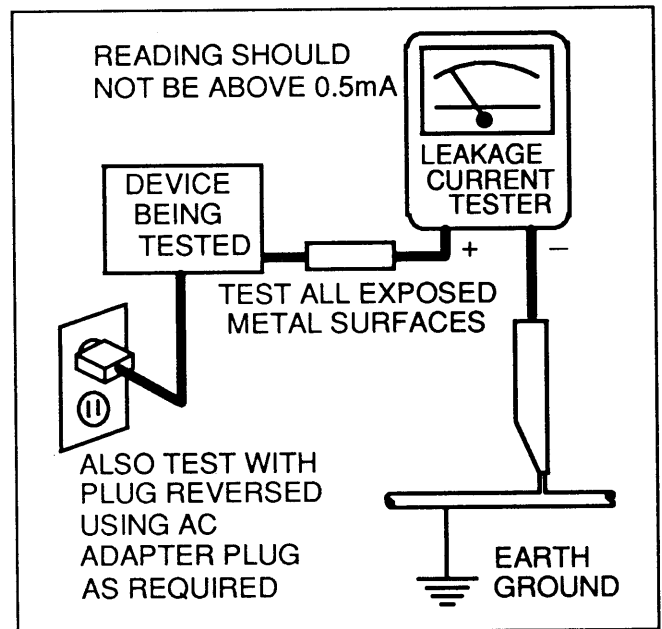
a. Be sure that no built-in protective devices are defective and have been defeated during servicing. (1) Protective shields are provided on this chassis to protect both the technician and the customer. Correctly replace all missing protective shields, including any removed for servicing convenience. (2) When reinstalling the chassis and/or other assembly in the cabinet, be sure to put back in place all protective devices, including but not limited to, nonmetallic control knobs, insulating fishpapers, adjustment and compartment covers/shields, and isolation resistor/capacitor networks. **Do not operate this instrument or permit it to be operated without all protective devices correctly installed and functioning. Servicers who defeat safety features or fail to perform safety checks may be liable for any resulting damage.**

b. Be sure that there are no cabinet openings through which an adult or child might be able to insert their fingers and contact a hazardous voltage. Such openings include, but are not limited to, (1) spacing between the picture tube and the cabinet mask, (2) excessively wide cabinet ventilation slots, and (3) an improperly fitted and/or incorrectly secured cabinet back cover.

c. Antenna Cold Check - With the instrument AC plug removed from any AC source, connect an electrical jumper across the two AC plug prongs. Place the instrument AC switch in the on position. Connect one lead of an ohmmeter to the AC plug prongs tied together and touch the other ohmmeter lead in turn to each tuner antenna input exposed terminal screw and, if applicable, to the coaxial connector. If the measured resistance is less than 1.0 megohm or greater than 5.2 megohm, an abnormality exists that must be corrected before the instrument is returned to the customer.

Repeat this test with the instrument AC switch in the off position.

d. Leakage Current Hot Check - With the instrument completely reassembled, plug the AC line cord directly into a AC outlet. (Do not use an isolation transformer during this test.) Use a leakage current tester. With the instrument AC switch first in the on position and then in the off position, measure from a known earth ground (metal water pipe, conduit, etc.) to all exposed metal parts of the instrument (antennas, handle brackets, metal cabinet, screw heads, metallic overlays, control shafts, etc.), especially any exposed metal parts that offer an electrical return path to the chassis. Any current measured must not exceed 0.5 milliampere. Reverse the instrument power cord plug in the outlet and repeat the test.



ANY MEASUREMENTS NOT WITHIN THE LIMITS SPECIFIED HEREIN INDICATE A POTENTIAL SHOCK HAZARD THAT MUST BE ELIMINATED BEFORE RETURNING THE INSTRUMENT TO THE CUSTOMER OR BEFORE CONNECTING THE ANTENNA OR ACCESSORIES.

e. X-Radiation and High Voltage Limits - Because the picture tube is the primary potential source of X-radiation in solid-state TV receivers, it is specially constructed to prohibit X-radiation emissions. For continued X-radiation protection, the replacement picture tube must be the same type as the original. Also, because the picture tube shields and mounting hardware perform an X-radiation protection function, they must be correctly in place. High voltage must be measured each time servicing is performed that involves B+, horizontal deflection or high voltage. Correct operation of the X-radiation protection circuits also must be reconfirmed each time they are serviced. (X-radiation protection circuits also may be called "horizontal disable" or "hold down.") Read and apply the high voltage limits and, if the chassis is so equipped, the X-radiation protection circuit specifications given on instrument labels and in the Product Safety & X-Radiation Warning note on the service data chassis schematic. High voltage is maintained within specified limits by close tolerance safety-related components/adjustments in the high-voltage circuit. If high voltage exceeds specified limits, check each component specified on the chassis schematic and take corrective action.

2. Read and comply with all caution and safety-related notes on or inside the receiver cabinet, on the receiver chassis, or on the picture tube.

3. Design Alteration Warning - Do not alter or add to the mechanical or electrical design of this TV receiver. Design alterations and additions, including, but not limited to circuit modifications and the addition of items such as auxiliary audio and/or video output connections, might alter the safety characteristics of this receiver and create a hazard to the user. Any design alterations or additions will void the manufacturer's warranty and may make you, the servicer, responsible for personal injury or property damage resulting therefrom.

4. Picture Tube Implosion Protection Warning - The picture tube in this receiver employs integral implosion protection. For continued implosion protection, replace the picture tube only with one of the same type number. Do not remove, install, or otherwise handle the picture tube in any manner without first putting on shatterproof goggles equipped with side shields. People not so equipped must be kept safely away while picture tubes are handled. Keep the picture tube away from your body. Do not handle

the picture tube by its neck. Some "in-line" picture tubes are equipped with a permanently attached deflection yoke; because of potential hazard, do not try to remove such "permanently attached" yokes from the picture tube.

5. Hot Chassis Warning -

a. Some TV receiver chassis are electrically connected directly to one conductor of the AC power cord and may be safety-serviced without an isolation transformer only if the AC power plug is inserted so that the chassis is connected to the ground side of the AC power source. To confirm that the AC power plug is inserted correctly, with an AC voltmeter, measure between the chassis and a known earth ground. If a voltage reading in excess of 1.0V is obtained, *remove and reinsert the AC power plug in the opposite polarity and again measure the voltage potential between the chassis and a known earth ground.

b. Some TV receiver chassis have a circuit which obtain voltage about 70% of AC voltage between chassis and earth ground regardless of the AC plug polarity. This chassis can be safety-serviced only with an isolation transformer inserted in the power line between the receiver and the AC power source, for both personnel and test equipment protection.

c. Some TV receiver chassis have a secondary ground system in addition to the main chassis ground. This secondary ground system is not isolated from the AC power line. The two ground systems are electrically separated by insulation material that must not be defeated or altered.

Note: * In case unit has no polarity AC plug only.

6. Observe original lead dress. Take extra care to assure correct lead dress in the following areas: a. near sharp edges, b. near thermally hot parts-be sure that leads and components do not touch thermally hot parts, c. the AC supply, d. high voltage, and e. antenna wiring. Always inspect in all areas for pinched, out of place, or frayed wiring. Check AC power cord for damage.

7. Components, parts, and/or wiring that appear to have overheated or are otherwise damaged should be replaced with components, parts, or wiring that meet original specifications. Additionally, determine the cause of overheating and/or damage and, if necessary, take corrective action to remove any potential safety hazard.

8. Product Safety Notice - Some electrical and mechanical parts have special safety-related characteristics which are often not evident from visual

inspection, nor can the protection they give necessarily be obtained by replacing them with components rated for higher voltage, wattage, etc.. Parts that have special safety characteristics are identified by a (Δ) on schematics and in parts lists. Use of a substitute replacement that does not have the same safety characteristics as the recommended replacement part might create shock, fire, and/or other hazards. The Product's Safety is under review continu-

ously and new instructions are issued whenever appropriate. Prior to shipment from the factory, our products are strictly inspected to confirm 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

- A.** Parts identified by the (Δ) symbol are critical for safety.
Replace only with part number specified.
- B.** In addition to safety, other parts and assemblies are specified for conformance with regulations applying to spurious radiation. These must also be replaced only with specified replacements.
Examples: RF converters, RF cables, noise blocking capacitors, and noise blocking filters, etc.
- C.** Use specified internal wiring. Note especially:
 - 1) Wires covered with PVC tubing
 - 2) Double insulated wires
 - 3) High voltage leads
- D.** Use specified insulating materials for hazardous live parts. Note especially:
 - 1) Insulation Tape
 - 2) PVC tubing
 - 3) Spacers
 - 4) Insulators for transistors.
- E.** When replacing AC primary side components (transformers, power cord, etc.), wrap ends of wires securely about the terminals before soldering.
- F.** Observe that the wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)
- G.** Check that replaced wires do not contact sharp edged or pointed parts.
- H.** When a power cord has been replaced, check that 10-15 kg of force in any direction will not loosen it.
 - I.** Also check areas surrounding repaired locations.
- J.** Use care that foreign objects (screws, solder droplets, etc.) do not remain inside the set.
- K.** Crimp type wire connector
When replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, in order to prevent shock hazards, perform carefully and precisely the following steps.
Replacement procedure
 - 1) Remove the old connector by cutting the wires at a point close to the connector.Important: Do not re-use a connector (discard it).
 - 2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.
 - 3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.
 - 4) Use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.
- L.** When connecting or disconnecting the VCR connectors, first, disconnect the AC plug from AC supply socket.

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.

1. Clearance Distance

When replacing primary circuit components, confirm specified clearance distance (d) and (d') between soldered terminals, and between terminals and surrounding metallic parts. (See Fig. 1)

Table 1 : Ratings for selected area

AC Line Voltage	Region	Clearance Distance (d) (d')
200 to 240 V	Europe	$\geq 4\text{mm}$ (d)
	Australia	$\geq 6\text{mm}$ (d')

Note: This table is unofficial and for reference only. Be sure to confirm the precise values.

2. 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 Fig. 2 and following table.

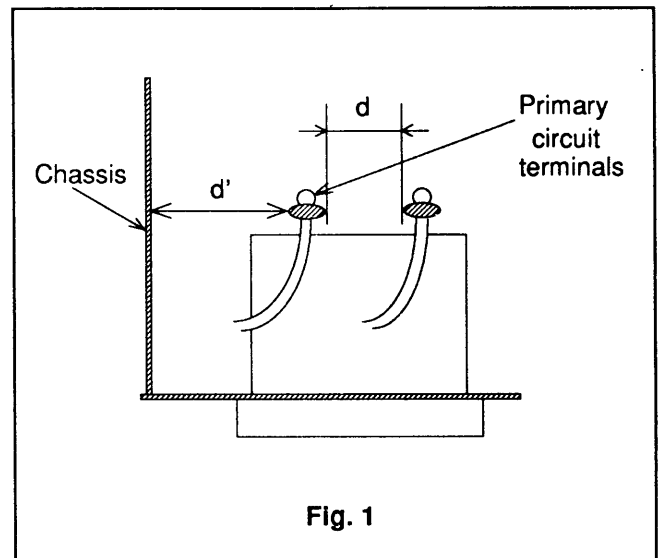


Fig. 1

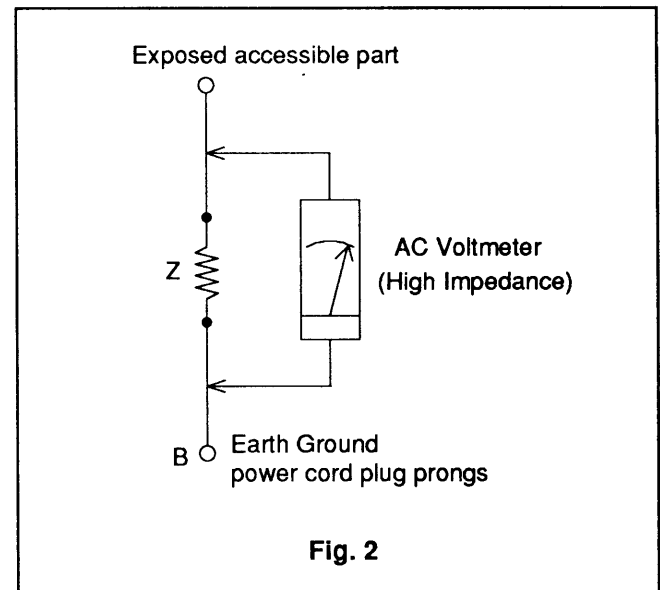


Fig. 2

Table 2 : Leakage current ratings for selected areas

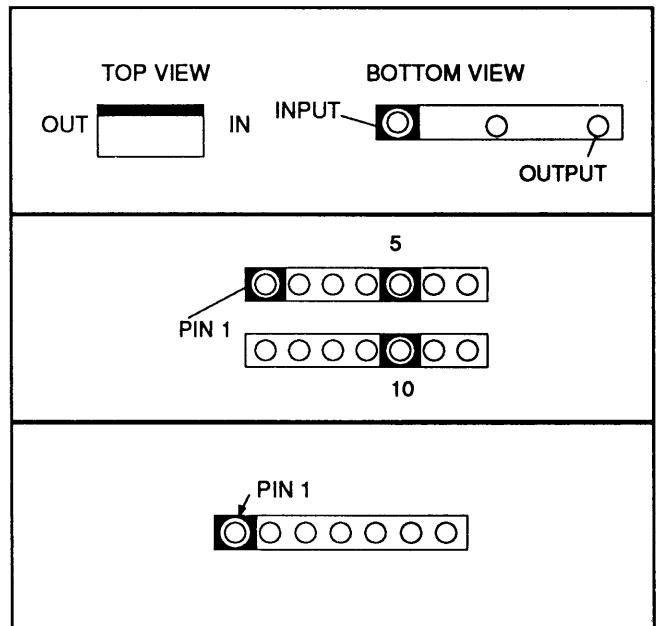
AC Line Voltage	Region	Load Z	Leakage Current (i)	Earth Ground (B) to:
200 to 240 V	Europe Australia	2k Ω RES. in connected	$i \leq 0.7\text{mA rms}$ $i \leq 2\text{mA dc}$	Antenna terminals
		50k Ω RES. in connected	$i \leq 0.7\text{mA rms}$ $i \leq 2\text{mA dc}$	Other terminals

Note: This table is unofficial and for reference only. Be sure to confirm the precise values.

STANDARD NOTES FOR SERVICING

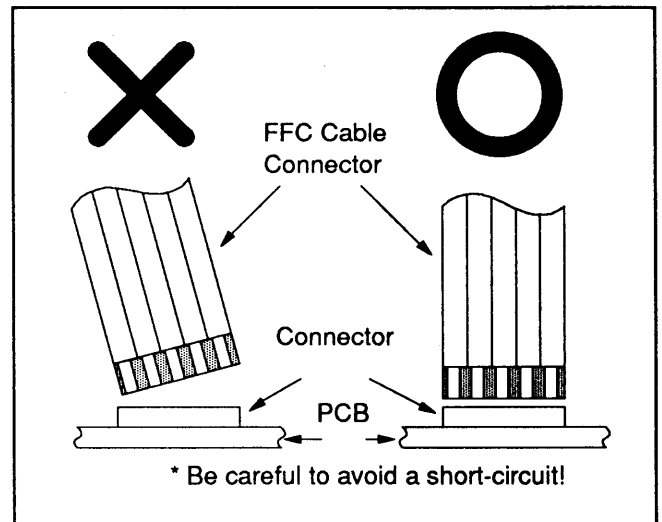
Circuit Board Indications

- The output pin of the 3 pin Regulator ICs is indicated as shown:
- For other ICs, pin 1 and every fifth pin are indicated as shown:
- The 1st pin of every pin connector are indicated as follows:



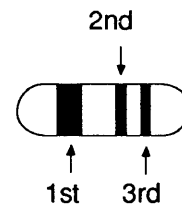
Instructions for Connectors

- When you connect or disconnect FFC (Flexible Foil Connector) cable (connector), be sure to disconnect the AC cord.
- FFC cable (connector) should be inserted parallel into the connector, not at an angle.



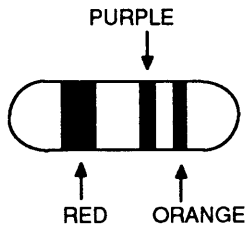
How to Read the Values of the Cylindrical Type Chip Components

The widest color band must be read first for value.



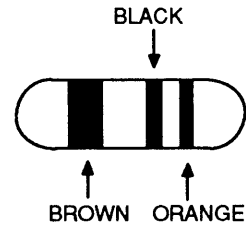
EXAMPLE :

(a) Resistor



= 273 = 27 [kΩ]

(b) Capacitor



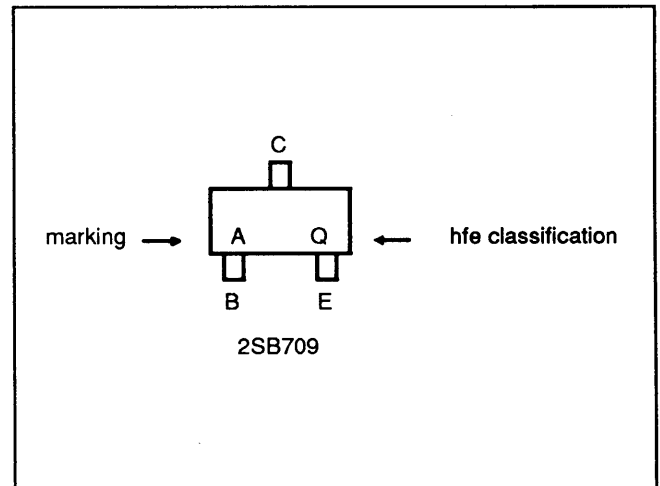
= 103 = 0.01 [μF]

CAUTION:

Once chip parts (Resistors, Capacitors, Transistors, etc.) are removed, they must not be reused. Always use a new part.

How to Read the Identification Mark of Chip Transistors in this Unit.

MARKING	PART NO.
A	2SB709
U	2SC2404
Y	2SD601
1D	2SD1328
25	DTC124EK
26	DTC144EK
2Y	2SC3757
6C	UN2113
8B	UN2212
8C	UN2213



Replacement Procedures for Leadless (Chip) Components

The Following Procedures are Recommended for the Replacement of the Leadless Components Used in this Unit.

1. Preparation for replacement

- a. Soldering Iron
Use a pencil-type soldering iron (less than 30 watts).
- b. Solder
Eutectic solder (Tin 63%, Lead 37%) is recommended.
- c. Soldering time
Do not apply heat for more than 4 seconds.

- d. Preheating
Leadless capacitor must be preheated before installation. (130°C-150°C, for about two minutes.)

Note:

- a. Leadless components must not be reused after removal.
- b. Excessive mechanical stress and rubbing for the component electrode must be avoided.

2. Removing the leadless component

Grasp the leadless component body with tweezers and alternately apply heat to both electrodes. When the solder on both electrodes has melted, remove leadless component with a twisting motion.

Note:

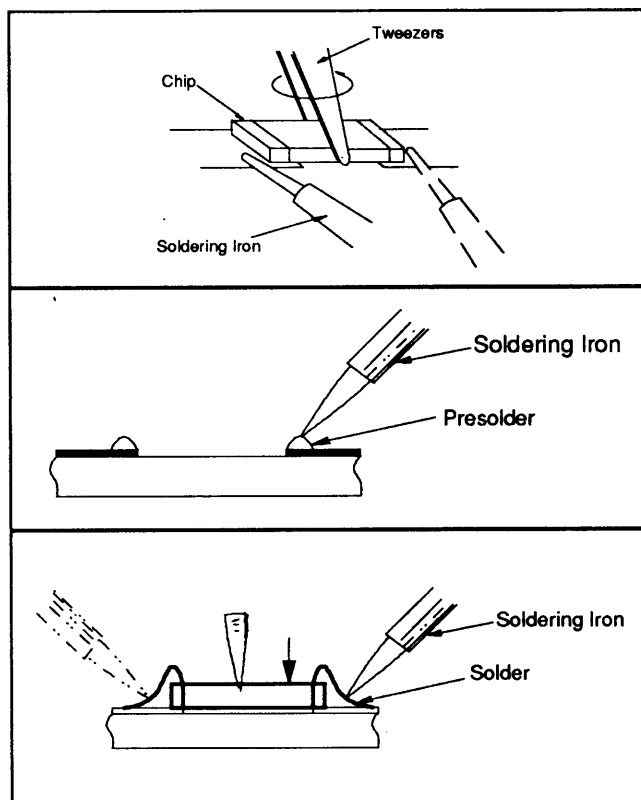
- Do not attempt to lift the component off the board until the component is completely disconnected from the board by the twisting action.
- Take care not to break the copper foil on the printed board.

3. Installing the leadless component

- Presolder the contact points of the circuit board.
- Press the part downward with tweezers and solder both electrodes as shown at right:

Note:

Do not glue the replacement leadless component to the circuit board.



How to Remove / Install Flat Pack IC

1. Removal

With Hot - Air Flat Pack - IC Desoldering Machine:

- Prepare the HOT - AIR FLAT PACK - IC DESOLDERING MACHINE, then apply hot air to Flat Pack - IC (about 5~6 seconds). (Fig. S-1-1)
- Remove the Flat Pack - IC with tweezers while applying the hot air.

Caution:

- Do not supply the hot air to the chip parts around the Flat Pack - IC for over 6 seconds as damage may occur to the chip parts. Put Masking Tape around the Flat Pack-IC to protect other parts from damage. (Fig. S-1-2)
- The Flat Pack - IC on the P.C.B. is affixed with glue, so be careful not to break or damage the foil of each pin or solder lands under the IC when removing it.

With Soldering Iron:

- Using desoldering braid, remove the solder from all pins of the Flat Pack - IC. When you use solder flux which is applied to all pins of the Flat Pack - IC, you can remove it easily. (Fig. S-1-3)
- Lift each lead of the Flat Pack - IC upward one by one, using a sharp pin or wire to which solder will not adhere (iron wire). When heating the pins, use a fine tip soldering iron or a hot air Desoldering Machine. (Fig. S-1-4)

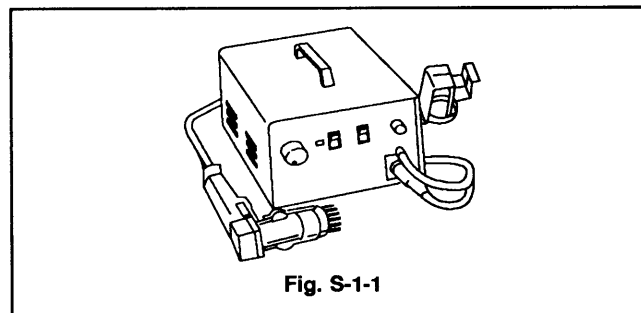


Fig. S-1-1

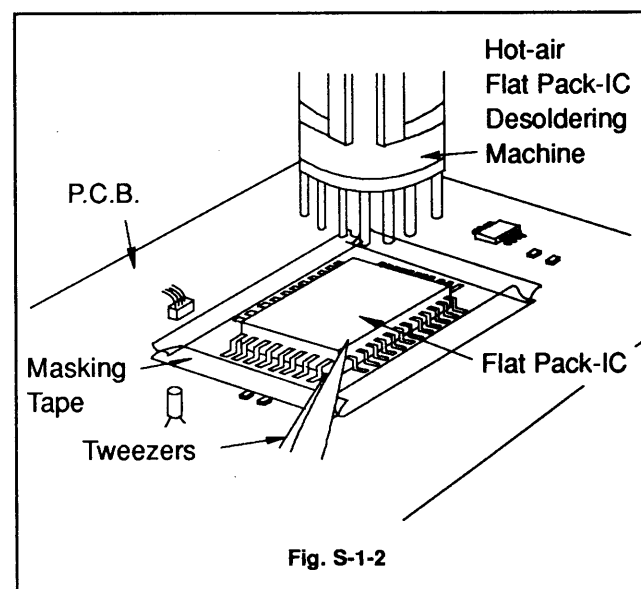


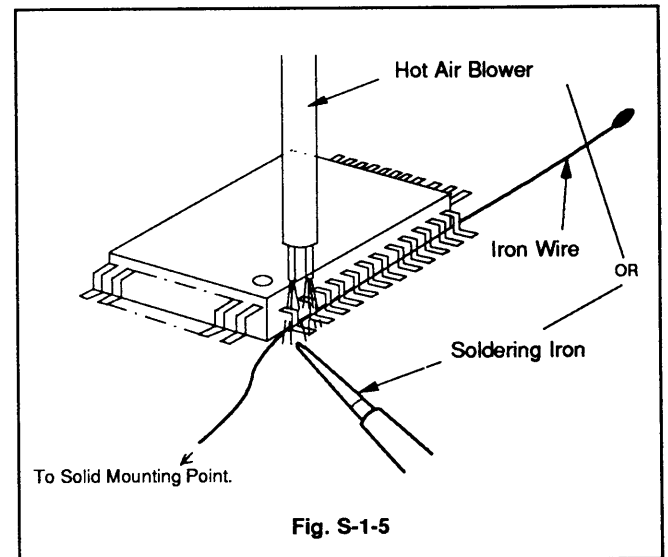
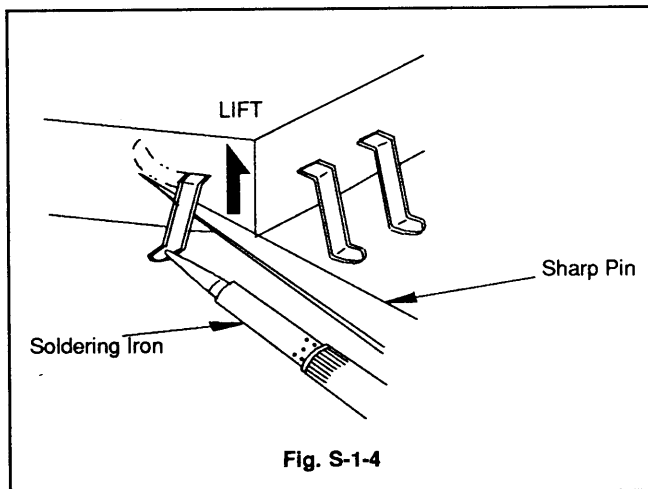
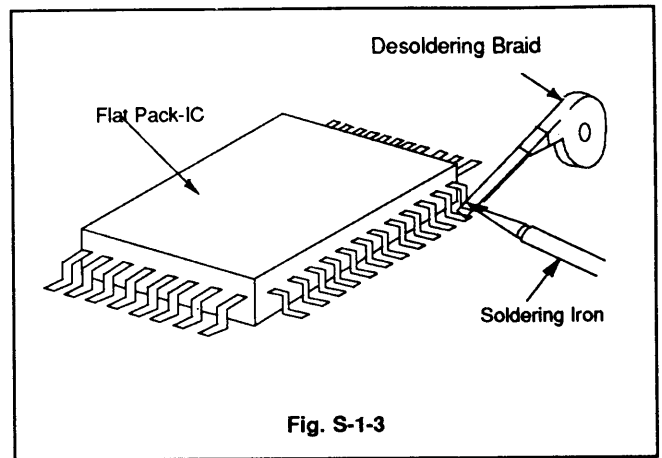
Fig. S-1-2

With Iron Wire:

- (1) Using desoldering braid, remove the solder from all pins of the Flat Pack - IC. When you use solder flux which is applied to all pins of the Flat Pack - IC, you can remove it easily. (Fig. S-1-3)
- (2) Affix the wire to a workbench or solid mounting point, as shown in Fig. S-1-5.
- (3) Pull up on the wire as the solder melts so as to lift the IC leads from the P.C.B. contact pads, while heating the pins using a fine tip soldering iron or hot air blower.

Note:

When using a soldering iron, care must be taken to ensure that the Flat Pack - IC is not being held by glue, or when it is removed from the P.C.B., it may be damaged if force is used.

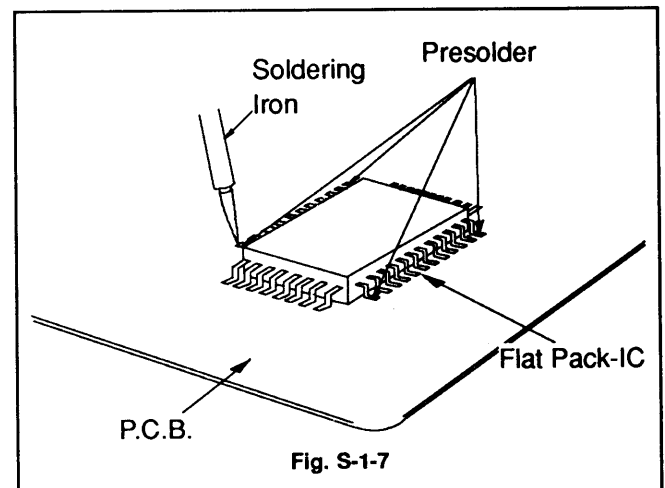
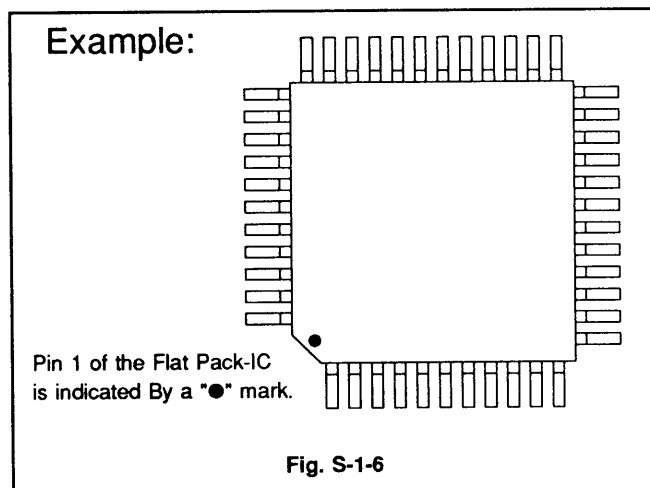


2. Installation

- (1) Using desoldering braid, remove the solder from the foil of each pin of the Flat Pack - IC on the P.C.B., so you can install a replacement Flat Pack - IC more easily.
- (2) The "●" mark on the Flat Pack - IC indicates pin 1 (See Fig. S-1-6). Make sure this mark matches the 1

on the P.C.B. when positioning for installation. Then pre - solder the four corners of the Flat Pack- IC (See Fig. S-1-7).

- (3) Solder all pins of the Flat Pack - IC. Make sure that none of the pins have solder bridges.



Instructions for Handling Semiconductors

Electrostatic breakdown of the semiconductors may occur due to a potential difference caused by electrostatic charge during unpacking or repair work.

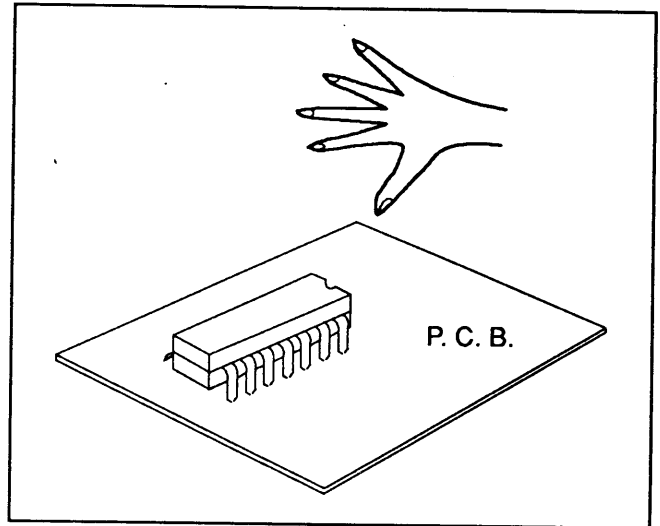
Ground for Human Body

Be sure to wear a grounding band (1M ohm) that is properly grounded to remove any static electricity that may be charged on the body.

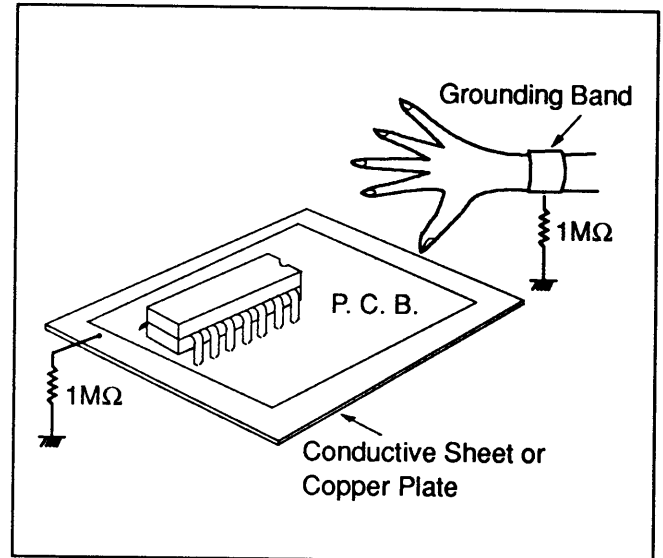
Ground for Work Bench

Be sure to place a conductive sheet or copper plate with proper grounding (1M ohm) on the work bench or other surface, where the semiconductors are to be placed. Because the static electricity charge on the clothing will not escape through the body grounding band, be careful to avoid contacting semiconductors to clothing.

INCORRECT



CORRECT



STANDARD MAINTENANCE

Service Schedule of Components

H: Hours ○: Check ●: Change

Deck		Periodic Service Schedule			
Ref. No.	Parts Name	1,000 H	2,000 H	3,000 H	4,000 H
2	Upper Drum	○	●	○	●
134	Pinch Roller (A)		●		●
171	Capstan Motor Assembly		●		●
229	Clutch Assembly		●		●
281	LM Assembly (Loading Motor)			●	
173	Main Belt		●		●
196	Back Tension Band		●		●
233	Drive Belt		●		●
251	Brake Shoe		●		●
285	Loading Belt		●		●
373	Front Loading Belt		●		●
14, 19	Drum Ground			●	
82	ACE Head (Play only model: AC Head)			●	
* 92	Full Erase Head			●	
121	Reel Assembly			●	

Note:

1. Clean all parts for the tape transport (Upper Drum with video head / Pinch Roller / Audio Control Head / Full Erase Head) using 91% Isoprophyl Alcohol.
2. After cleaning up the parts, perform all DECK ADJUSTMENTS.
3. All Reference Numbers listed above refer to parts shown on Deck Exploded View.
4. Parts marked * are used in Rec/Play model only.

Cleaning

1. Cleaning of Video Head

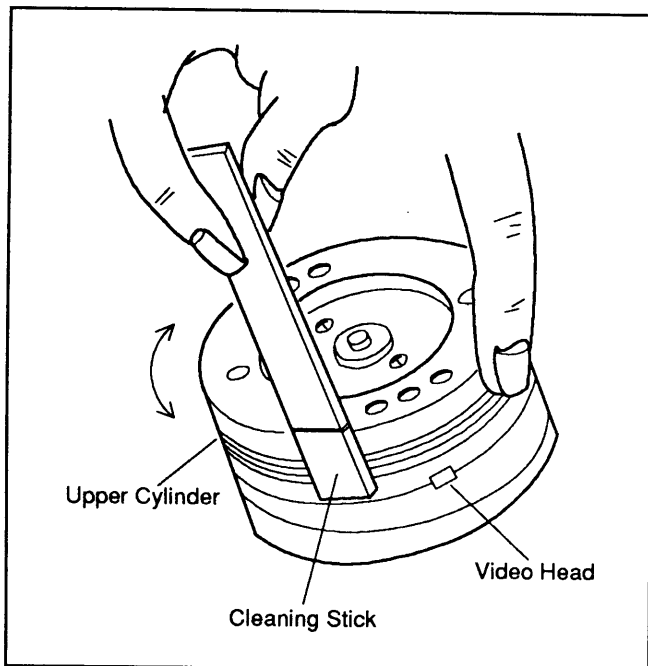
Use a Head Cleaning Stick.

Procedure

1. Remove the top cabinet.
2. Put on a glove (thin type) to avoid touching the upper drum and lower drum with bare hands.
3. Put a few drops of 91° Isoprophyl Alcohol on the Head Cleaning Stick, and by slightly placing it against the head tip, allow the upper drum to turn to the right and left.

NOTE:

1. The video head is very hard material, but since it is very thin, avoid cleaning it vertically.
2. Wait for the cleaned part to dry out before operating the unit, or damage will occur.
3. Do not reuse the stained Head Cleaning Stick.



2. Cleaning of Audio Control Head

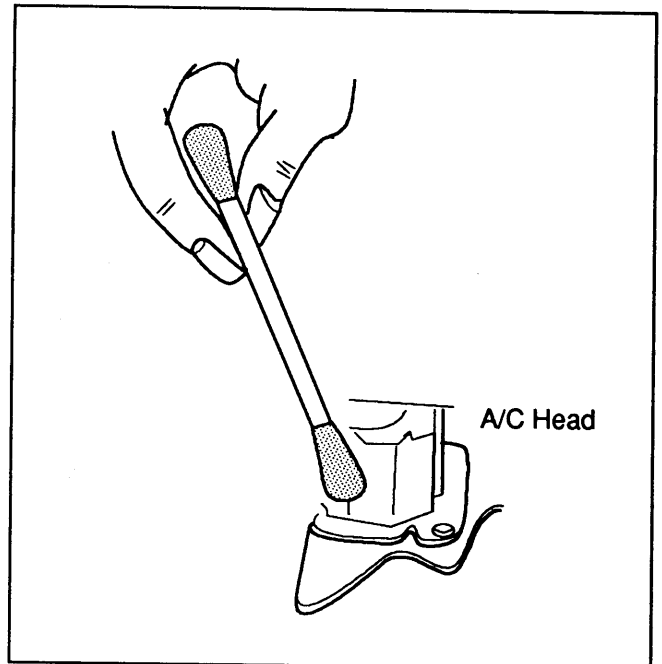
Use a cotton swab.

Procedure

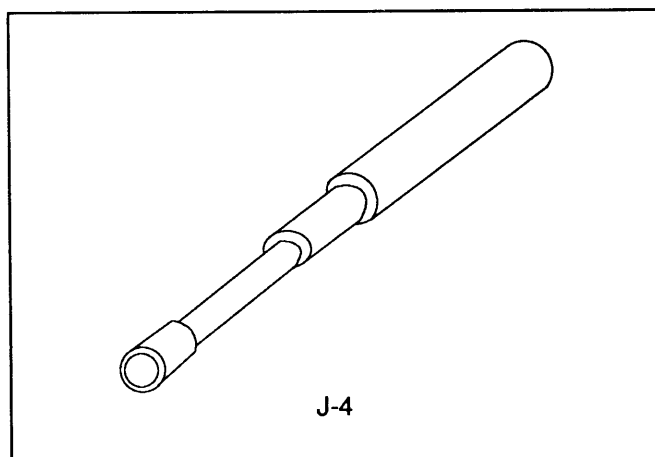
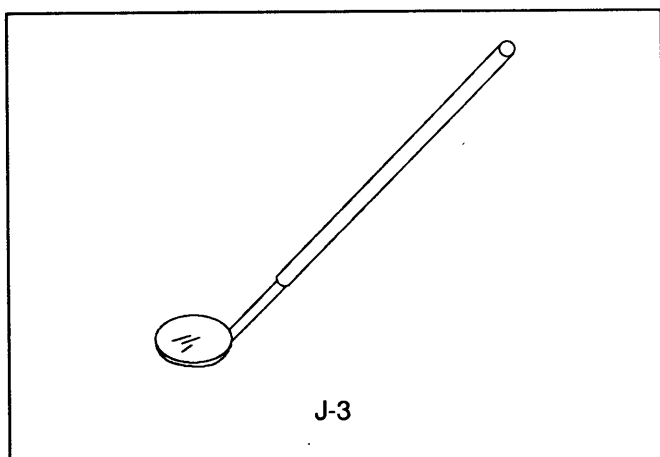
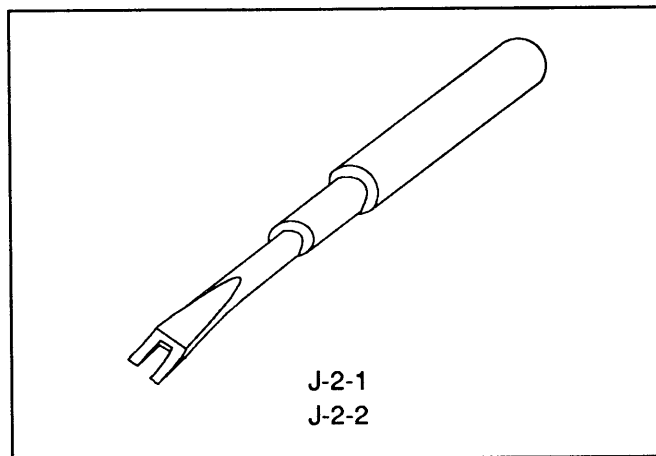
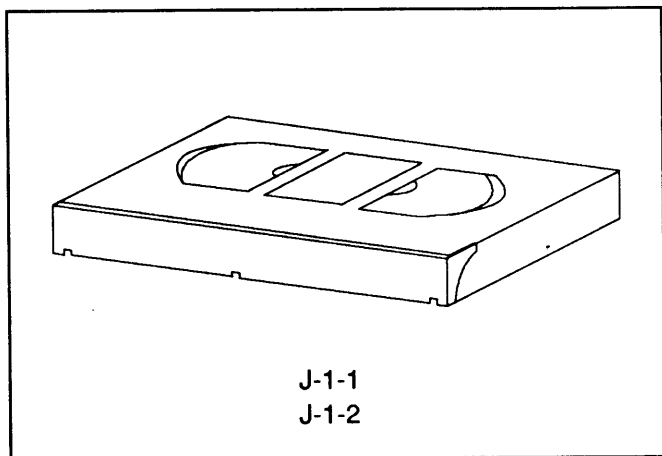
1. Remove the top cabinet.
2. Put a few drops of 91% Isoprophyl Alcohol on the cotton swab, and clean up the audio control head, being careful not to damage the upper drum and other tape running parts.

NOTE:

1. Avoid cleaning audio control head vertically.
2. Wait for the cleaned part to dry out, before operating the unit, or damage will occur.



SERVICE FIXTURES AND TOOLS



Ref. No.	Name	Adjustment
J-1-1	Alignment Tape (F6-A)	Head Adjustment of Audio Control Head
J-1-2	Alignment Tape (F6-N): 2 Head 1 Speed Model	Azimuth Adjustment of Audio Control Head / X Value / Confirmation / Adjustment of Envelope Waveform
J-2-1	Special Driver Large (FSJ-0001)	X Value
J-2-2	Special Driver Small (FSJ-0006)	Guide Roller
J-3	Mirror (FSJ-0004)	Tape Transportation Check
J-4	Box Driver, Mx3 (FSJ-0005)	Guide Pole / A/C Head Height

DISASSEMBLY INSTRUCTIONS [TV]

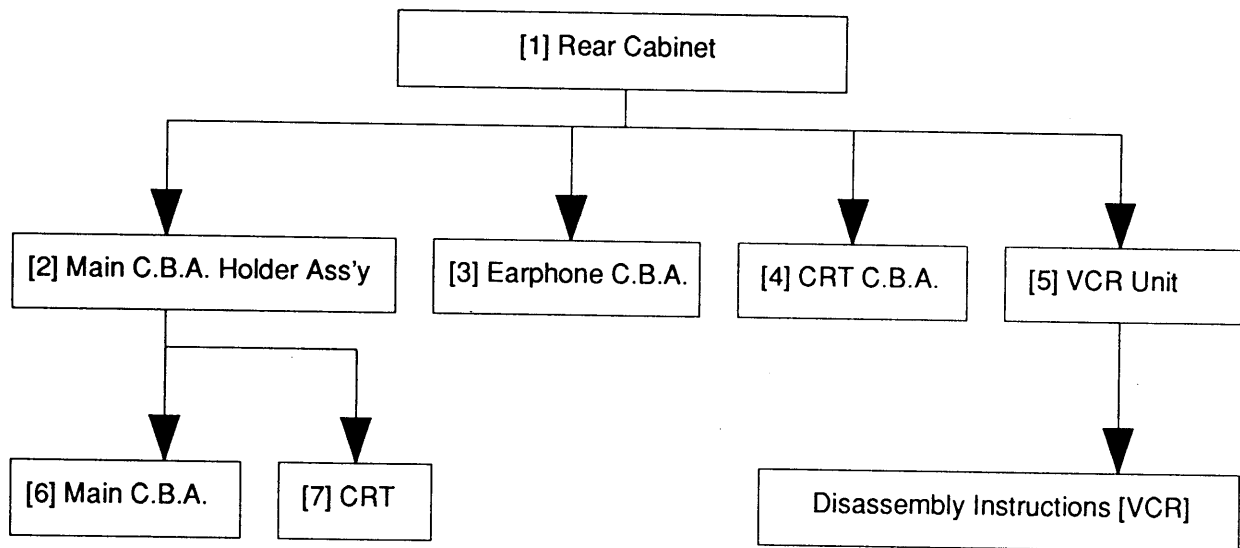
General Note : "C.B.A." is abbreviation for "Printed Circuit Board Assembly".

1. DISASSEMBLY FLOW CHART

This flow chart indicates the disassembly steps of the cabinet parts, VCR Unit and the C.B.A. in order to gain access to item(s) to be serviced. When reassembling, perform the step(s) in the reverse order. Bend, route and dress the cables as they were originally.

Caution !

When removing the CRT, make sure to discharge Anode Lead of the CRT with the CRT Ground Wire before removing the Anode Cap.



2. DISASSEMBLY METHOD

STEP / LOC. NO.	PART	REMOVAL		
		FIG. NO.	REMOVE / *UNLOCK / RELEASE / UNPLUG / UNCLAMP / DESOLDER	NOTE
[1]	Rear Cabinet	CAB1 CAB3	4 (L-7) , 2 (L-10) , 2 (L-6)	1
[2]	Main C.B.A. Holder Ass'y	CAB4 CAB6	(CN201) , (CN501) , (CN601) , (LD2) , (LD701) , (LD702) , (TP6) , (Anode Cap) , (Focus Wire) , (Screen Wire)	2
[3]	Earphone C.B.A.	CAB4 CAB6	(CN1) , (LD2)	3
[4]	CRT C.B.A.	CAB5 CAB6	(CN701) , (J702) , (LD701) , (LD702) , (Focus Wire) , (Screen Wire)	4
[5]	VCR Unit	CAB2 CAB4 CAB6	2 (L-8) , (CN601) , (TP6)	5
[6]	Main C.B.A.	CAB4	4 (L-1) , (L-5)	6
[7]	CRT	CAB5	4 (B-3)	7

Reference <Notes> in Table

1.
1) Remove 4 screws (L-7), 2 screws (L-10) and 2 screws (L-6) and then slide the Rear Cabinet backward.

2.
1) If not already removed, first remove the Rear Cabinet.
2) Remove all relative wires on the Main C.B.A. (located right side in the cabinet), and remove the Anode Cap, then slide the main C.B.A. Holder Ass'y backward.

Caution !

Discharge Anode Lead of the CRT with the CRT Ground Wire before removing the Anode Cap.

3.
1) If not already removed, first remove the Rear Cabinet.
2) Remove 2 connectors on the Earphone C.B.A., then slide the C.B.A. backward.

Note : When' re-installing, set Earphone jack (EP1) side below.

4.
1) If not already removed, first remove the Rear Cabinet.
2) Remove all relative wires, then pull the CRT C.B.A. backward.

5.
1) If not already removed, first remove the Rear Cabinet.
2) Remove 2 screws (L-8) inside the Control Door, and remove connector on the Main C.B.A., then slide the VCR Unit backward.

6.
1) If not already removed, first remove the Rear Cabinet.
2) Remove the Main C.B.A. Holder Ass'y.
3) Remove 4 screws (L-1) and screw (L-5) first, release 6 hooks next, then Main C.B.A. can be removed.

7.
1) If not already removed, first remove the Rear Cabinet and Main C.B.A. Holder Ass'y.
2) Remove 4 screws (B-3), then the CRT can be removed.

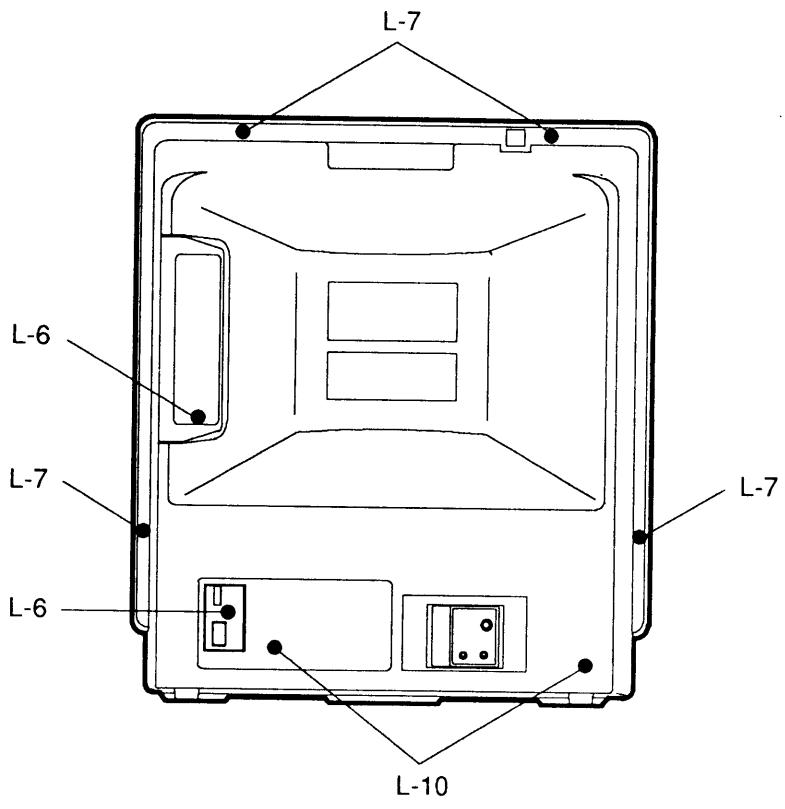


Fig. CAB 1

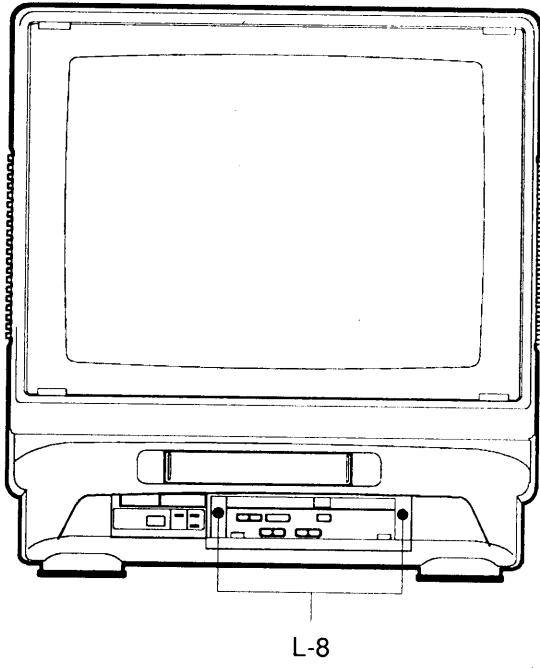


Fig. CAB 2

[1] Rear Cabinet

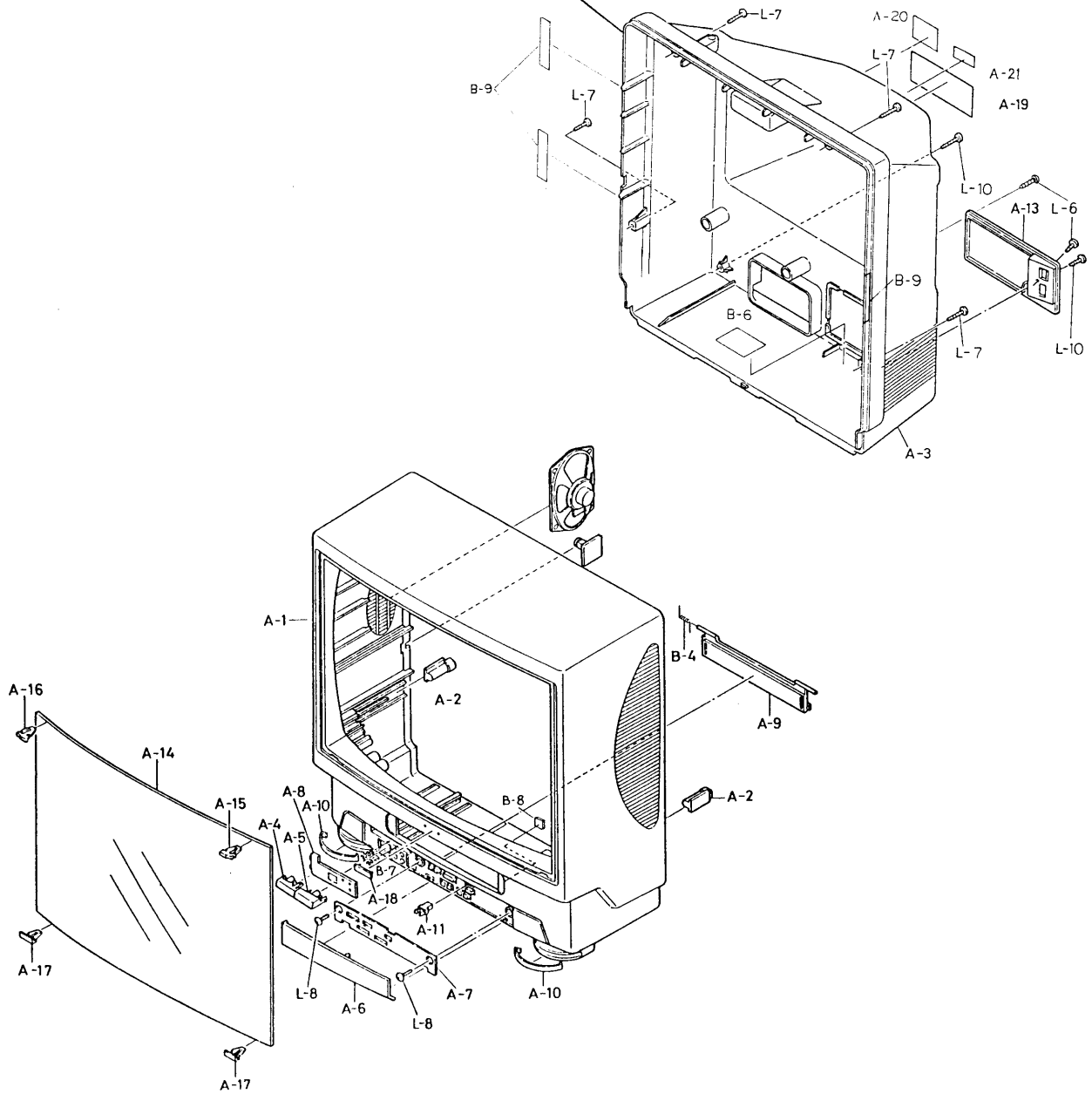
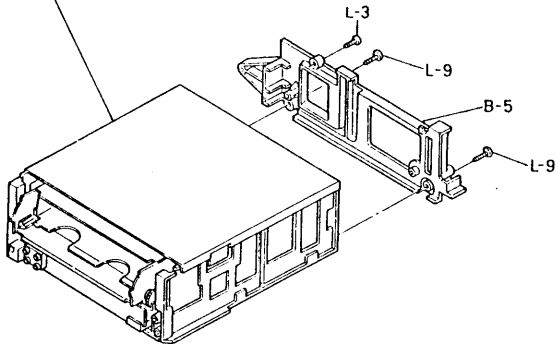
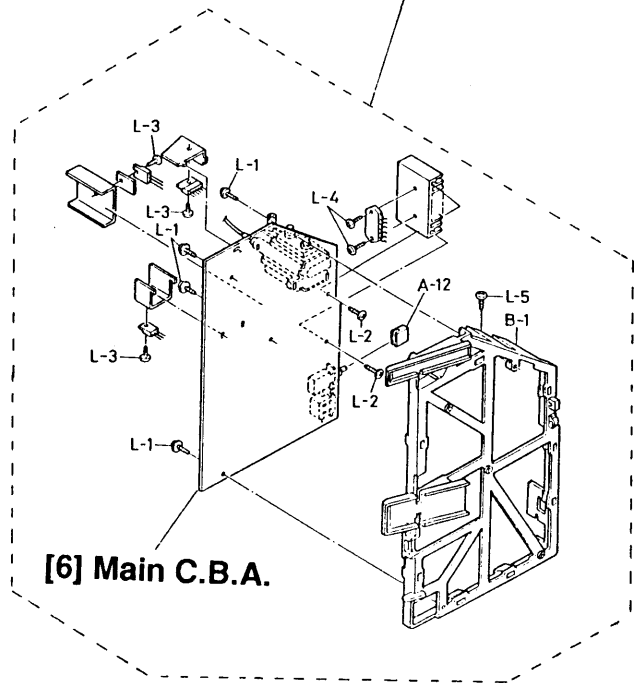


Fig. CAB 3

[5] VCR Unit



[2] Main C.B.A. Holder Ass'y



[6] Main C.B.A.

[3] Earphone C.B.A.

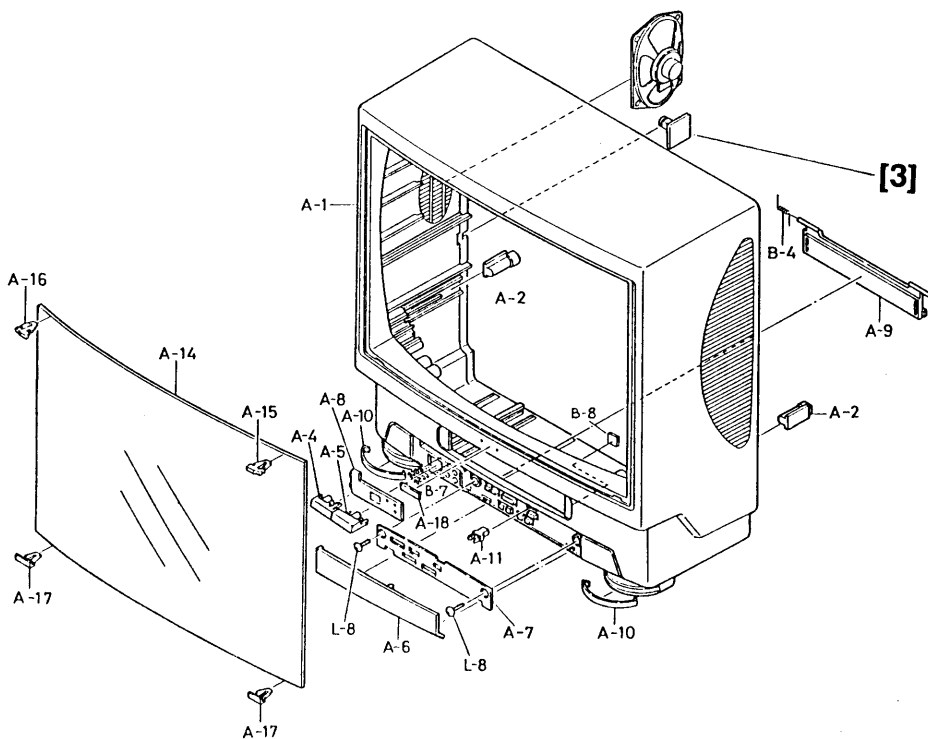
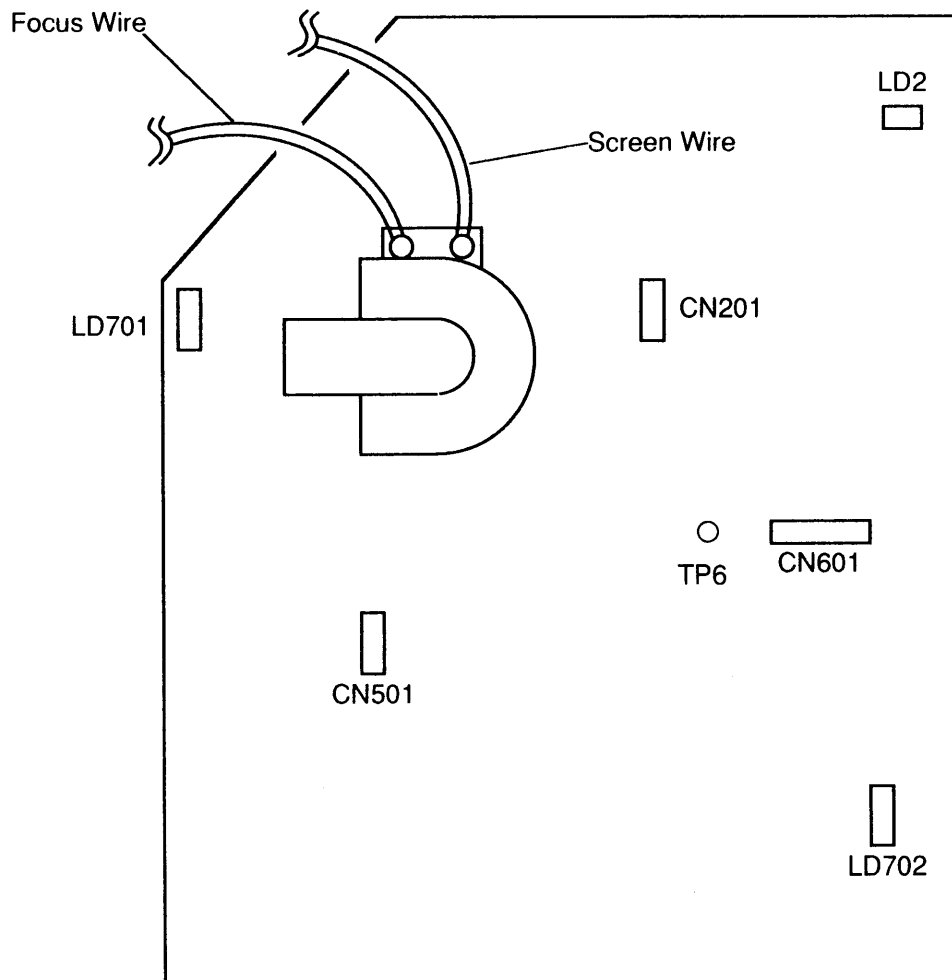


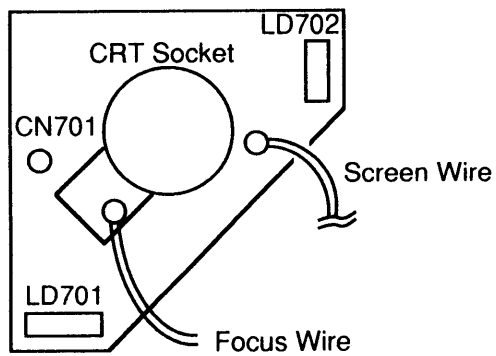
Fig. CAB 4

NOTE: All C.B.A.s are drawn as installed in the cabinet.

[6] Main C.B.A. Top View



[4] CRT C.B.A. Top View



[3] Earphone C.B.A. Top View

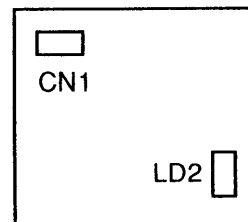


Fig. CAB 6

DISASSEMBLY INSTRUCTIONS [VCR]

DISASSEMBLY FLOW CHART

This flow chart indicates the disassembly steps of the cabinet parts, VCR Unit and the P.C. Boards in order to gain access to item(s) to be serviced. When reassembling, perform the step(s) in the reverse order. Bend, route and dress the cables as they were originally.

Note:

Remove VCR Unit from the Cabinet first.

PART	REMOVAL		
	FIG. NO.	REMOVE/UN-LOCK/RELEASE/UNPLUG/UCLAMP/DESOLDER	NOTE
Top Panel	Fig. 1	2(S-1)	1
Head Amp/Audio/ Syscon C.B.A.	Fig. 2 Fig. 3	2(L-1), (CN3501, CN3502, CN3503, CN3504, CL4001, CL4002, CN4003)	2
Deck Ass'y	Fig. 4	3(S-2), (CN2001), (CN6004)	3
Control Ass'y	Fig. 5	6(L-2), (CN5501)	4
Main C.B.A.	Fig. 6	5(L-3), (S-2)	5

Reference <Notes> in Table

1. Remove 2 Screws(S-1).
2. Disconnect the Connectors (CN3501, CN3502, CN3503, CN3504, CN4003), releasing 2 Locking Tabs (L-1). Then disconnect the remaining 2 Connectors (CL4001, CL4002).
3. Remove 3 Screws(S-2). Disconnect the 2 Connectors (CN2001), (CN6004).
4. Release 6 Locking Tabs(L-2). Disconnect the connector (CN5501).
5. Release 5 Locking Tabs(L-3). Remove Screw (S-2).

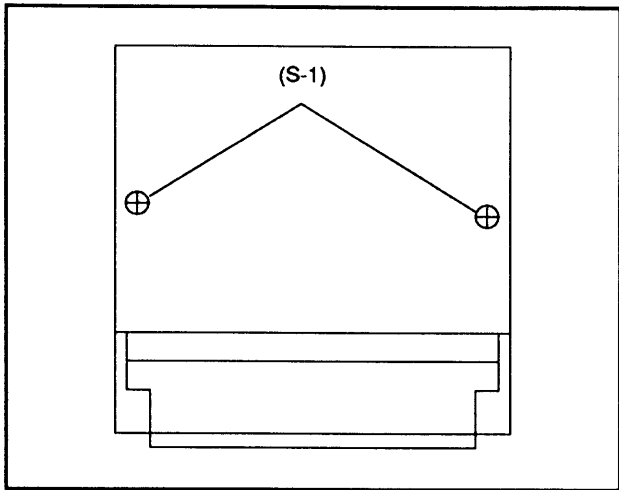


Fig. 1

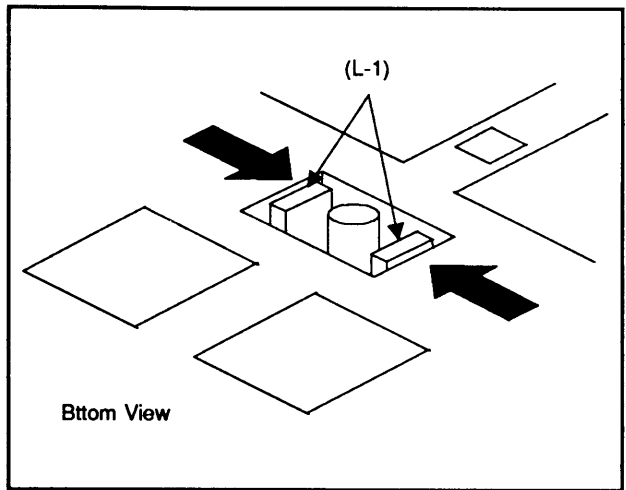


Fig. 2

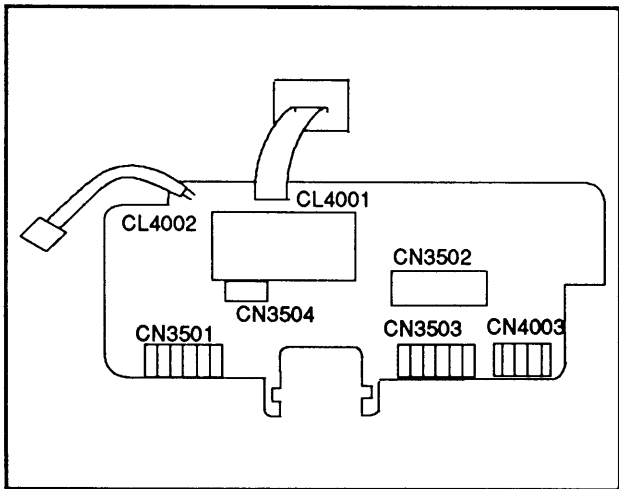


Fig. 3

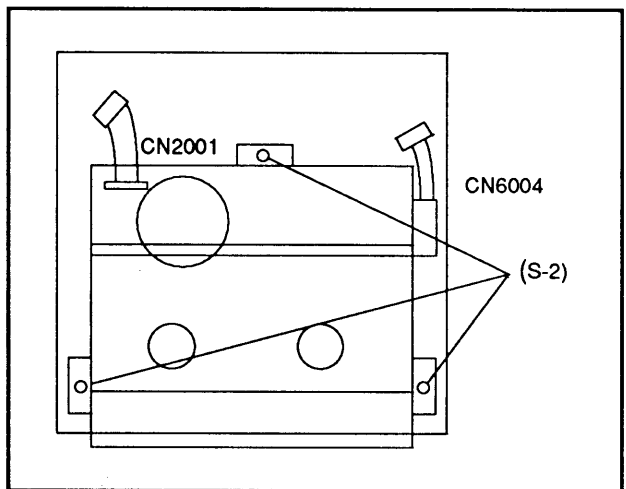


Fig. 4

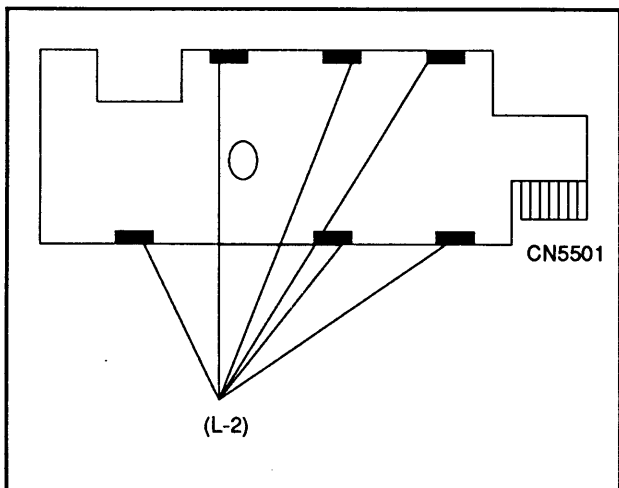


Fig. 5

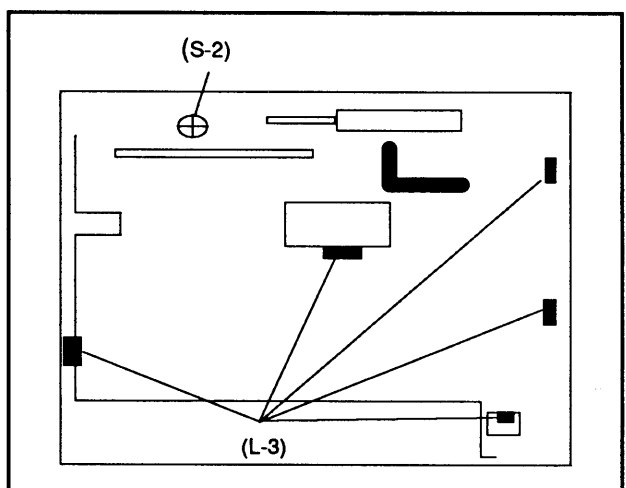


Fig. 6

MECHANICAL ADJUSTMENT PROCEDURES

A. How to set the Mechanism in Tape Loading / Unloading position without Cassette Tape.

To load, turn the Loading Pulley (Fig. MA-M2) Clockwise. To unload, turn the Loading Pulley counterclockwise.

B. How to place the Cassette Holder in the down position without a Cassette Tape.

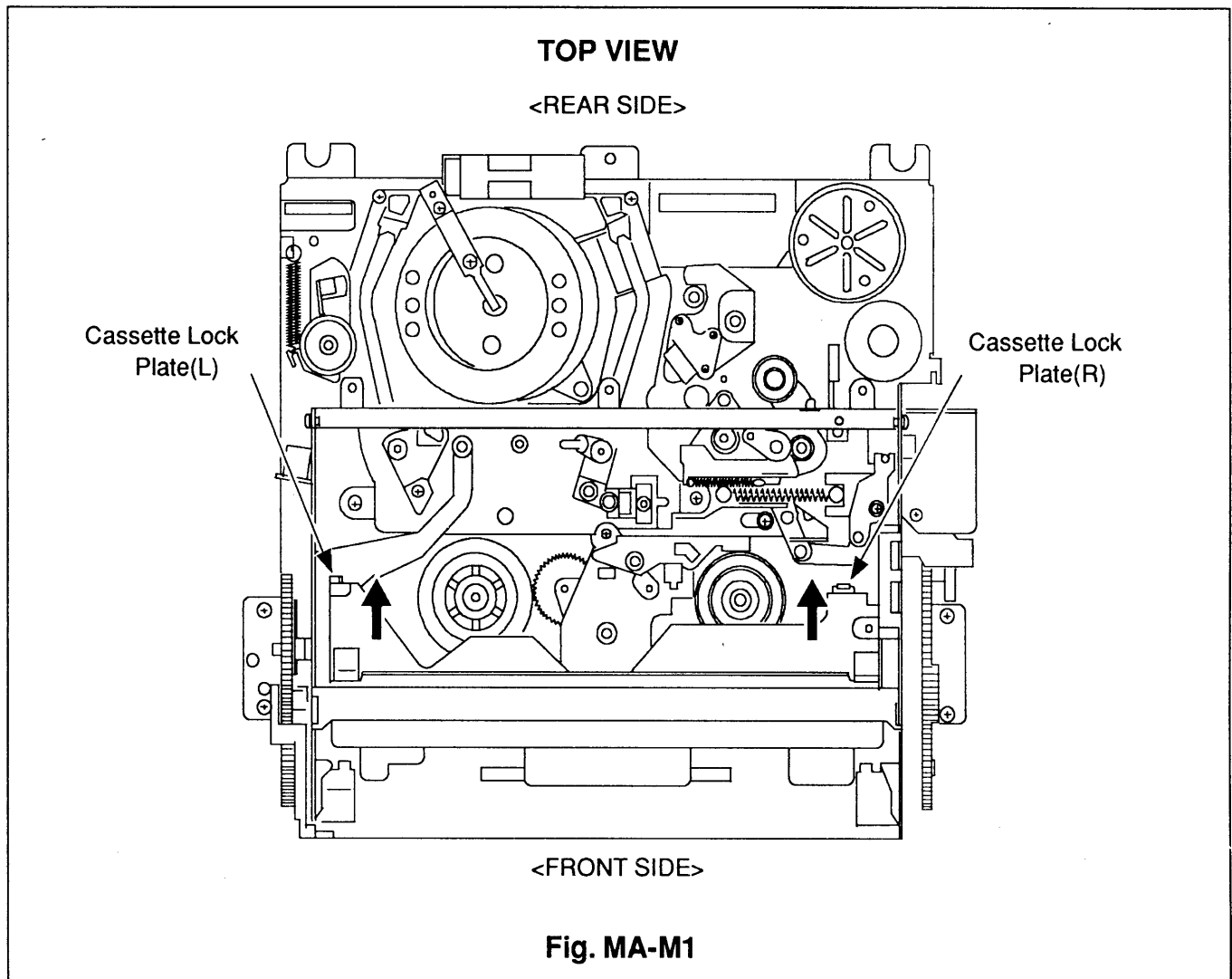
Use one of the following procedures.

METHOD 1

1. Remove the Top Case and then connect AC Plug.
2. Protect the Start Sensor and End Sensor or LED Sensor by keeping them away from Electrostatic Discharge.
3. Push the Cassette Holder to the Deck Rear Side (in Fig. MA-M1 as shown by the arrow) while pushing the Cassette Lock Plate (L) / (R) (in Fig. MA-M1 as shown by the arrow) to release the lock. The Cassette Holder will move into the down position by itself.

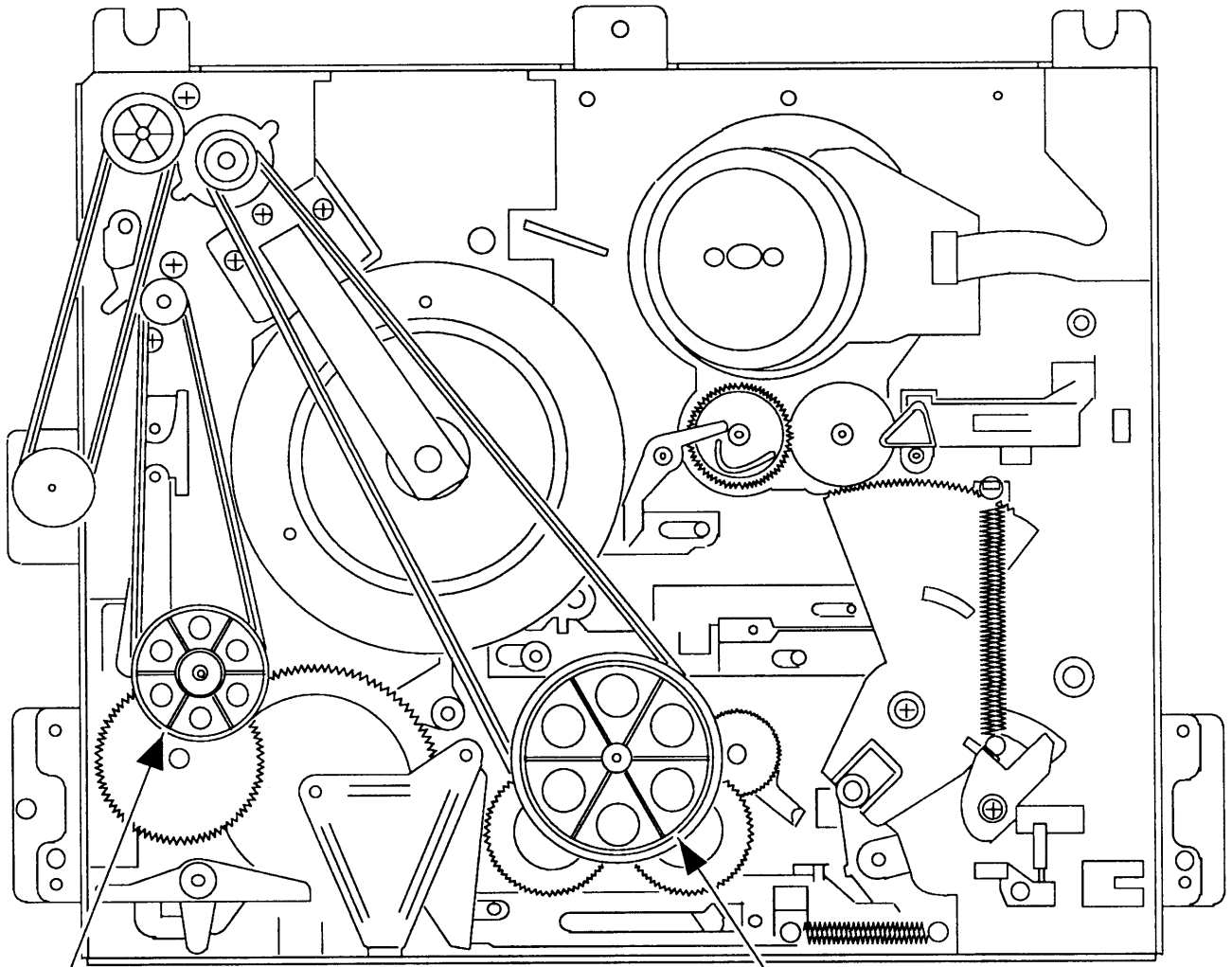
METHOD 2 (MANUAL)

1. Remove the Top Case and Bottom Panel. Then disconnect AC Plug.
2. Turn the Middle Pulley in Fig. MA-M2 clockwise (for down position) while pushing the Cassette Lock Plate (L) / (R) (in Fig. MA-M1 as shown by the arrow) to release the lock. The Cassette Holder may be moved into the down position by turning the Middle Pulley.



BOTTOM VIEW

<REAR SIDE>



<FRONT SIDE>

Loading Pulley

Middle Pulley

Fig. MA-M2

1. TAPE INTERCHANGEABILITY ADJUSTMENT (FINAL ADJUSTMENT)

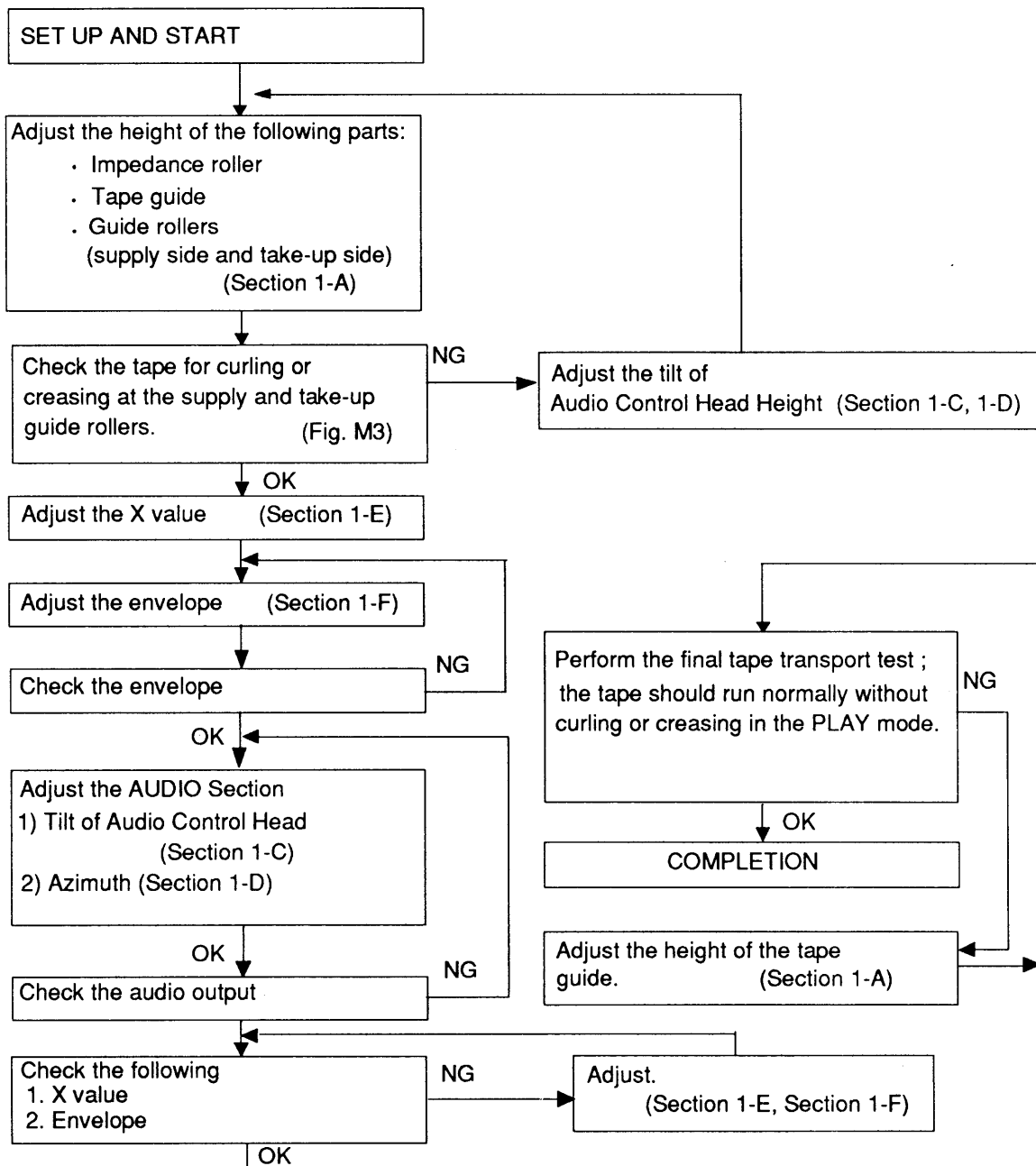
NOTE:

To perform these adjustment procedures, make sure that the Tracking Control is set in the neutral position.
(Press the channel up and down buttons of the unit together during PLAY mode.)

Equipment required:

- Dual Trace Oscilloscope
- Alignment Tape (F6-A, F6-N)
- Special Driver Large (FSJ-0001)
- Special Driver Small (FSJ-0006)
- Mirror (FSJ-0004)
- Box Driver, Mx3 (FSJ-0005)

Tape Transport Adjustment Flow Chart



Note: Before attempting these mechanical adjustments, you must complete the ELECTRICAL ALIGNMENT INSTRUCTIONS.

1-A. CONFIRMATION AND ADJUSTMENT OF TAPE RUNNING POSITION

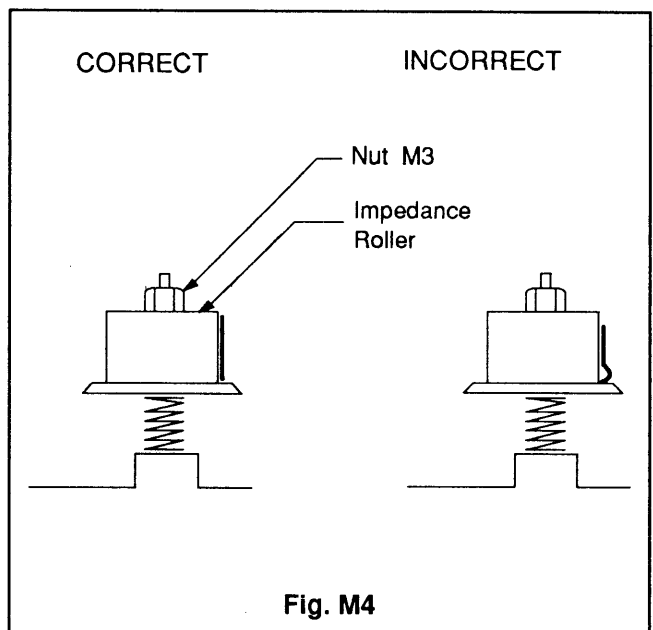
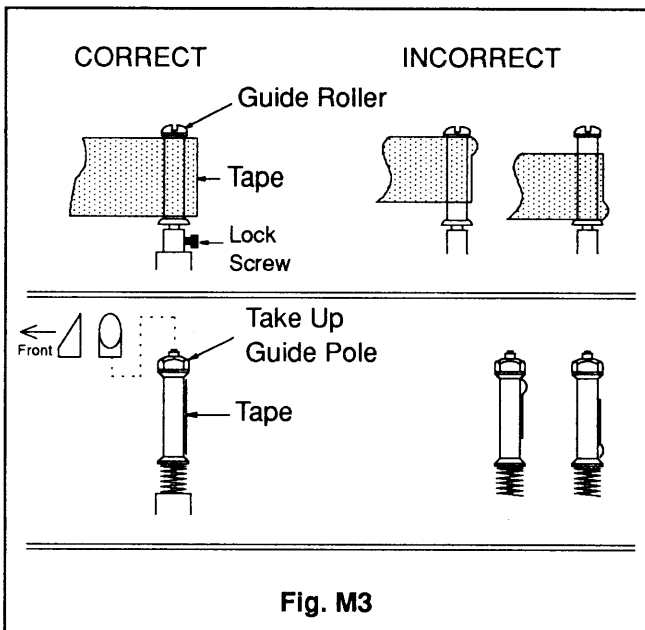
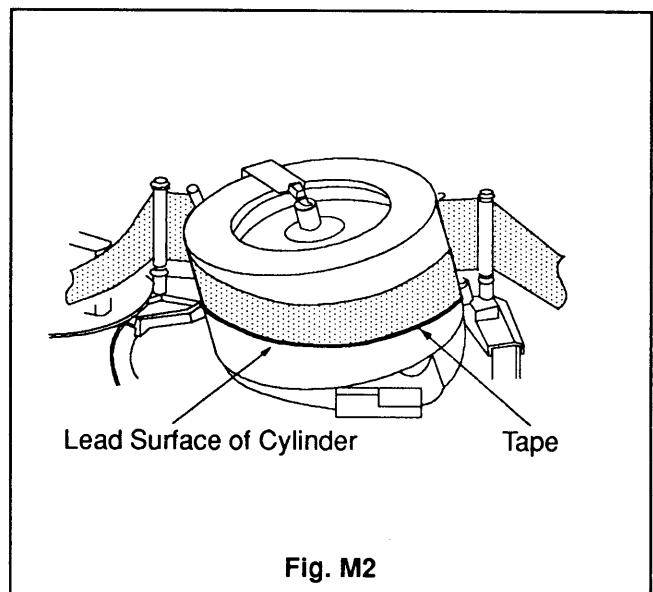
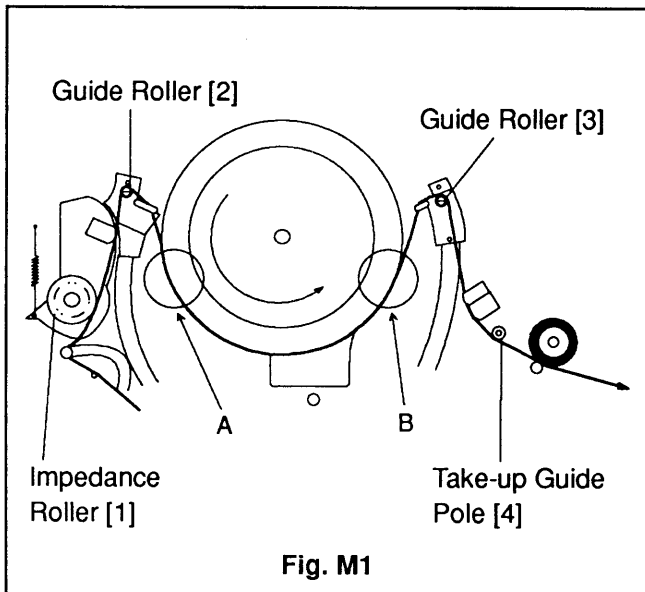
Purpose:

To make sure that the tape running is well stabilized.

Symptom of Misadjustment:

If the tape runs with instability, the tape will be damaged.

1. Play back a cassette tape and confirm that the tape runs without curling or creasing at the guide rollers [2] and [3] and at points A and B on the lead surface. (Refer to Fig. M1 and M2)
2. If curling or creasing is apparent, adjust the height of guide rollers by turning the top of guide rollers [2] and [3] with the Special Driver Small. (Refer to Fig. M1 and M3)
3. Confirm that the tape runs without curling or creasing at the lower flange of Impedance Roller. If curling or creasing is apparent, adjust the height of Impedance Roller in both PLAY and REV modes by turning the Nut M3 with BOX DRIVER M3. (Refer to Fig. M4)



1-B. CONFIRMATION OF AUDIO CONTROL HEAD HEIGHT

Purpose:

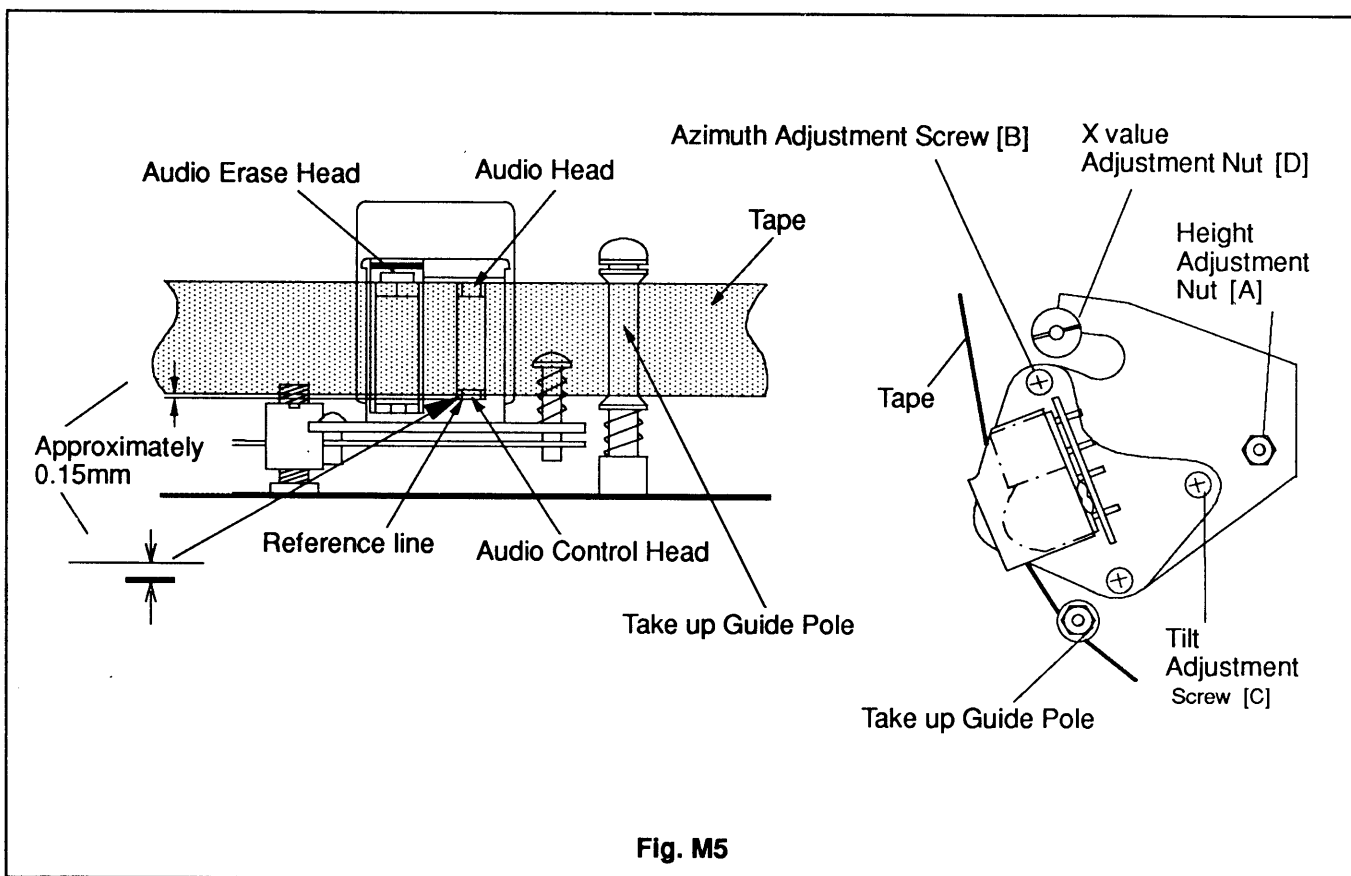
To make sure that the tape runs properly along the Control Head.

Symptom of Misadjustment:

If the control signal is not properly picked up, Servo Operation can not be achieved.

This confirmation is required for a preliminary height adjustment after replacing the Audio control Head. For final adjustments, perform items 1-C and 1-D.

1. Play back a cassette tape. Looking at the lower edge of the Control Head with the tape in motion, ensure that the lower edge of the tape runs 0.15mm above the lower edge of the Control Head. If it doesn't, turn Height Adjustment Nut [A] slightly in either direction as necessary to correct it. Turn clockwise to lower the head and counter clockwise to raise it. (Refer to Fig. M5)



1-C. CONFIRMATION OF TILT OF AUDIO CONTROL HEAD

Purpose:

To confirm that the tape running is well stabilized. In particular, confirm that tape properly picks up the Audio Signal at the upper part and Control Signal at the lower part.

Symptom of Misadjustment:

If the tilt of the Audio Control Head is poorly adjusted, the tape will be eventually damaged.

Play back a cassette tape and confirm that the tape running between Take-up Guide Pole [4] in Fig.M1 and Audio Control Head has no slack. If the tape has slack, adjust the Control Head by turning tilt adjustment screw [C] in Fig. M5 so that the tape has no slack.

1-D. HEIGHT ADJUSTMENT OF AUDIO CONTROL HEAD

Purpose:

To adjust the height of Audio Control Head so that it meets the tape tracks properly.

Symptom of Misadjustment

If the position of Audio Control Head is not properly adjusted, the Audio S/N Ratio or Frequency Response will be poor.

1. Connect the oscilloscope to the Audio output on the rear of the set.
2. Confirm that the tape running between the take up guide roller and the audio control erase head has no slack.
If the tape has slack, take it up by turning the tilt adjustment screw [C]. Then readjust GUIDE ROLLER HEIGHT in section 1-A and the X value in section 1-E.
3. After confirming on the oscilloscope that a 1 kHz audio signal is being output by playing back F6-A test tape, adjust the height adjustment nut [A] so that the AC voltmeter's reading is brought to its maximum level.
4. Adjust the azimuth adjustment screw [B] so that the AC voltmeter's reading is brought to its maximum level.

NOTE: Fix the screw [C] with lock paint after readjustment.

AZIMUTH ADJUSTMENT OF AUDIO CONTROL HEAD

Purpose:

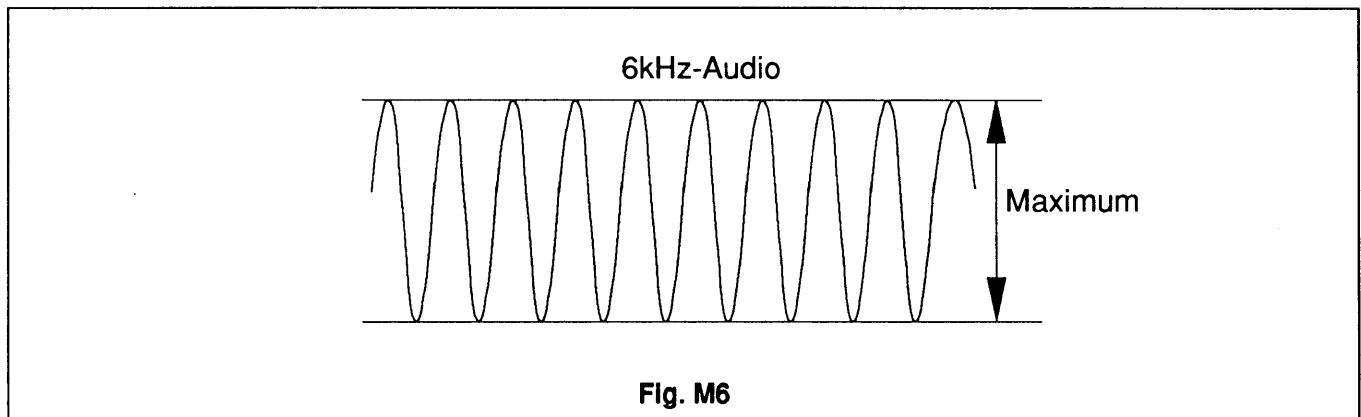
To adjust the height of Audio Control Head so that it meets the tape tracks properly.

Symptom of Misadjustment

If the position of Audio Control Head is not properly adjusted, the Audio S/N Ratio or Frequency Response will be poor.

1. Connect the oscilloscope to the Audio output on the rear of the set.
2. After confirming on the oscilloscope that a 6kHz audio signal is being output by playing back F6-N test tape, adjust the azimuth adjustment screw [B] so that the AC voltmeter's reading or oscilloscope waveform is brought to its maximum level.(Refer to Fig. M6)

NOTE: Fix the screw [C] with lock paint after readjustment.



1-E. X VALUE ADJUSTMENT

Purpose:

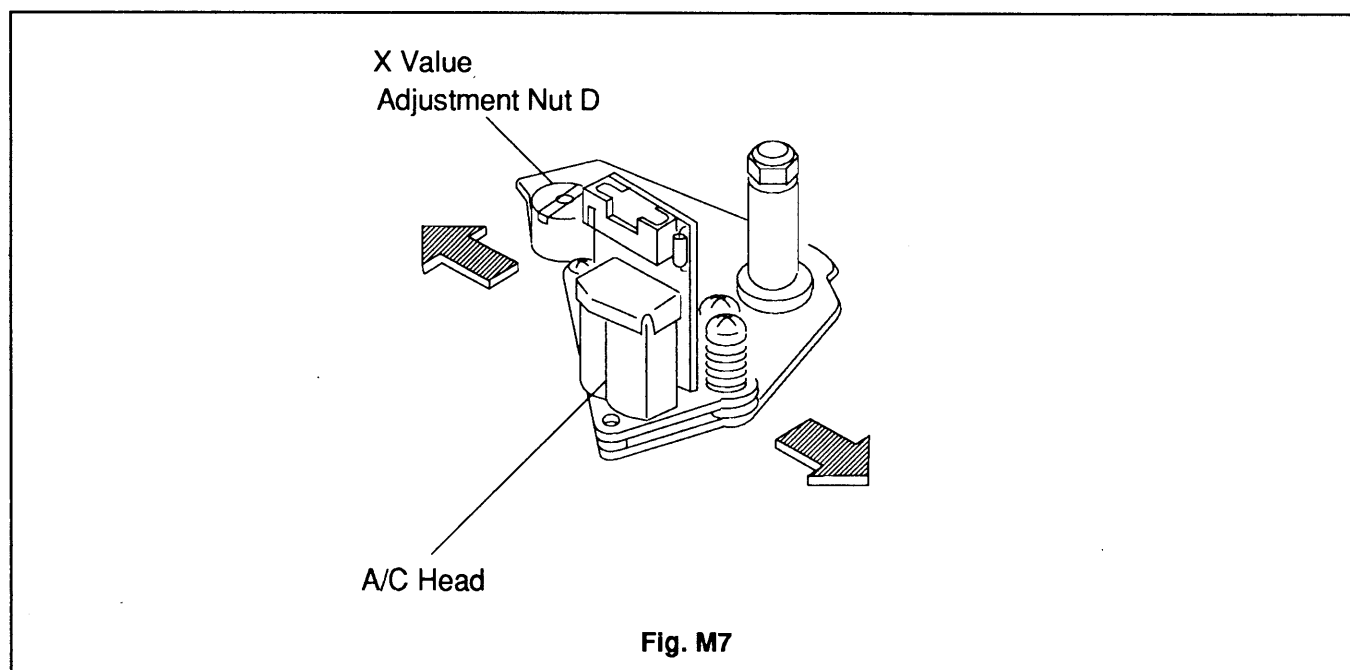
To adjust the horizontal position of the Audio Control Head.

Symptom of Misadjustment:

If the horizontal position of the Audio Control Head is not properly adjusted, maximum envelope cannot be obtained at the neutral position of the Tracking Control.

1. Set tracking control to the neutral position.
2. Connect the oscilloscope to ENV(C-PB) on the Main PCB. Use RF-SW as a trigger.
3. Play back the monoscope portion of the alignment tape (F6-N) and confirm that the PB FM signal appears.
4. Adjust the X Value Adjustment Nut D in Fig. M7 for maximum PB FM signal.

Note: Press the channel up and down buttons of the unit together during PLAY mode to set the tracking control to neutral position.



1-F. CONFIRMATION / ADJUSTMENT OF ENVELOPE WAVEFORM

Purpose:

To achieve a satisfactory picture and secure precise tracking.

Symptom of Misadjustment:

If the envelope output is poor, much noise will appear in the picture. The tracking will lose precision and the playback picture will be distorted by any slight variation of the tracking control.

1. Set tracking control to the neutral position.
(Press the channel up and down buttons of the unit together during PLAY mode.)
2. Connect the oscilloscope to ENV(C-PB) on the Main PCB. Use RF-SW as a trigger.
3. Play back the monoscope portion of the alignment tape (F6-N) and adjust the height of guide rollers [2] and [3], watching the scope display so that the envelope becomes as flat as possible.
If adjustment is required, turn top of guide roller with the Post Adjustment Screwdriver.
4. When the scope display is as shown in Fig. M8, adjust the height of [2] so that the waveform looks like Fig. M10.
5. When the scope display is as shown in Fig. M9, adjust the height of [3] so that the waveform looks like Fig. M10.
6. When [2] and [3] are adjusted properly, there is no Envelope Drop at the beginning and end of track as shown in Fig. M10.

NOTE:

After adjustment, confirm the X VALUE by pushing the Tracking Control Up or Down Buttons alternately, to check the symmetry of the envelope. If required, perform "X VALUE ADJUSTMENT".

Dropping envelope level at the beginning of track



Fig. M8

Dropping envelope level at the end of track



Fig. M9

Envelope is adjusted properly (No Envelope Drop)

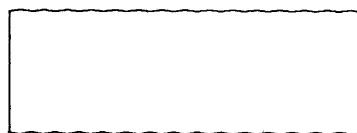


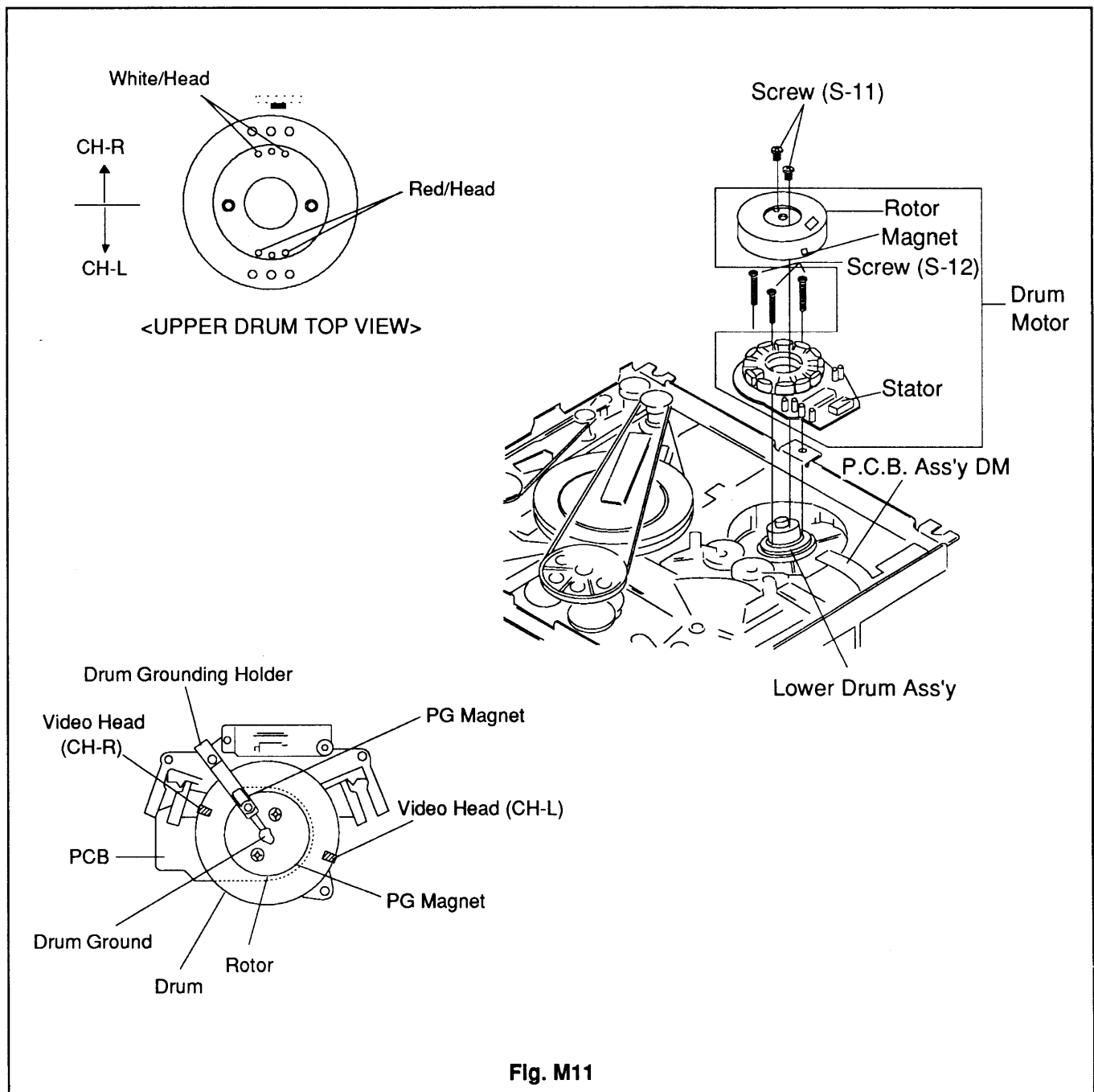
Fig. M10

2. REPLACEMENT OF DRUM MOTOR

1. Disconnect the P.C.B Assembly DM from the stator of Drum Motor.
 2. Remove 2 screws (S-11), and then take off the rotor of Drum Motor.
 3. Remove 3 screws (S-12), and then take off the stator of Drum Motor.
 4. Replace the stator of Drum Motor, and then tighten 3 screws (S-12).
 5. Replace the rotor of Drum Motor, and then tighten 2 screws (S-11).
 6. Connect the P.C.B Assembly DM to the stator of Drum Motor. (Refer to Fig. M11)
- Upon completion of above procedure, confirm and adjust the following items.
7. Play back Switching Point. (Refer to Electrical Adjustment)
 8. X value. (Refer to MECHANICAL ADJUSTMENT PROCEDURES Item 1-E)

Note:

Install the rotor of Drum Motor so that the PG Magnet on the side of Drum Motor Type No. Label (TM-84) aligns with the Video Head CH-R. (Refer to Fig. M11)



3. REPLACEMENT OF CYLINDER ASSEMBLY

1. Disconnect the P.C.B Ass'y DM from the stator of DRUM MOTOR.
2. Remove 3 screws (S-3), and then take off the CYLINDER ASSEMBLY.
3. Replace the CYLINDER ASSEMBLY, and tighten 3 screws (S-3).
4. Connect the P.C.B Ass'y DM to the CYLINDER ASSEMBLY. (Refer to Fig. M12)

Upon completion of above procedure, confirm and adjust the following items:

5. Play back Switching Point. (Refer to Electrical Adjustment.)
6. Azimuth (Refer to Mechanical Adjustment Procedures Item 1-D).
7. Audio Output Level. (Refer to Mechanical Adjustment Procedures Item 1-D).
8. X value. (Refer to Alignment Procedure for Mechanism Item 1-E).
9. Envelope Waveform. (Refer to Mechanical Adjustment Procedures Item 1-F).

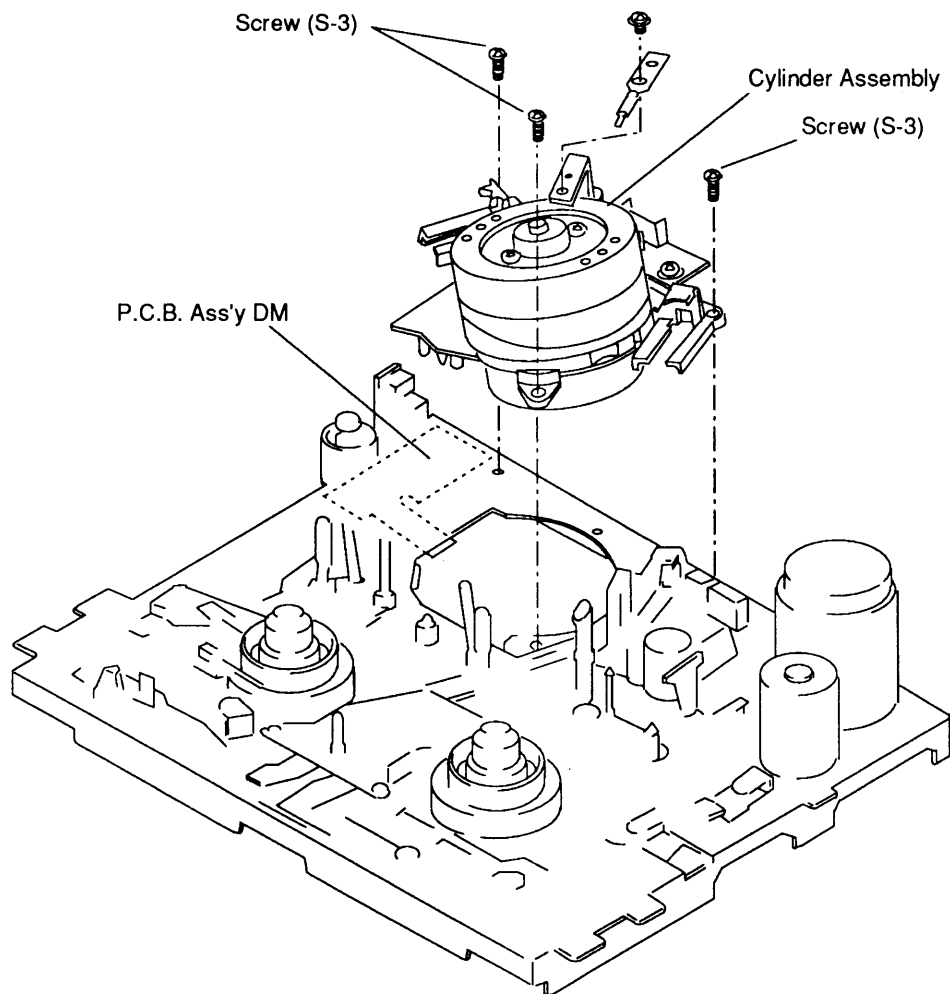


Fig. M12

4.REPLACEMENT OF UPPER DRUM/LOWER DRUM

When reinstalling the Upper, Lower Drums, confirm and adjust the following items:

- Playback switching point (Refer to Electrical Adjustment Instructions).
- Azimuth (Refer to Mechanical Adjustment Procedures Item 1-D).
- Audio output level (Refer to Mechanical Adjustment Procedures Item 1-D).
- X value (Refer to Mechanical Adjustment Procedures Item 1-E).
- Envelope waveform. (Refer to Mechanical Adjustment Procedures Item 1-F).

Note:

Install the Upper Drum so that the Video Head CH-R aligns with the PG Magnet on the side of Drum Motor.

UPPER DRUM / REINSTALLATION OF UPPER, LOWER DRUMS AND ROTOR

1. Remove the Front Loading Unit.
2. Remove screw (A) and take off the Drum Ground Bracket (B).
3. Remove 2 screws (C) and take off the Upper Drum (D).

NOTE:

1. Use gloves and do not touch the drum surface with bare fingers.
2. If the Video Head is defective, replace the upper drum with the Head.

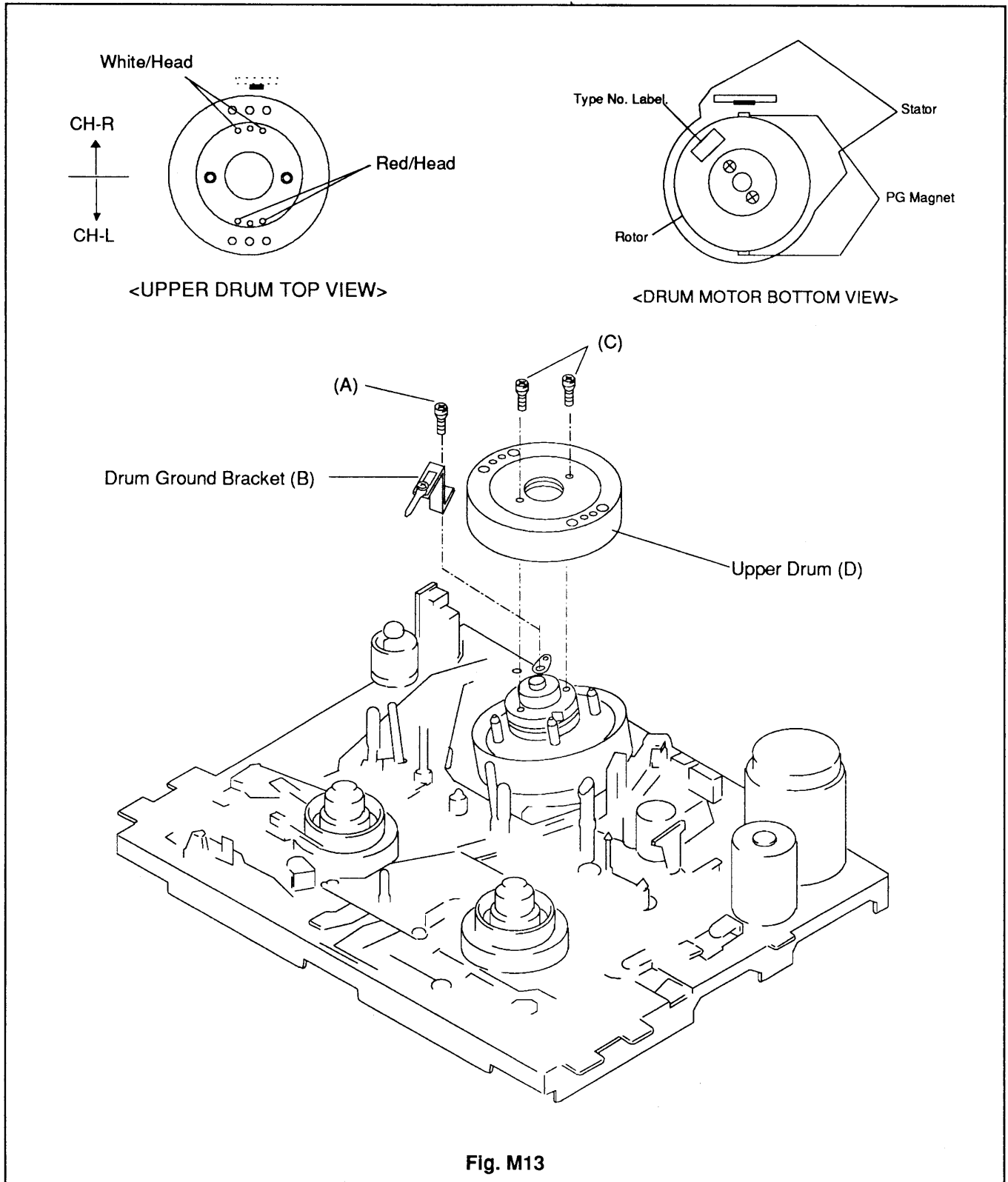


Fig. M13

Note:

Upper Drum (A), Lower Drum (B) and Drum Rotor (C) must be assembled so that the white marks are lined up as shown below. (Fig. M14)

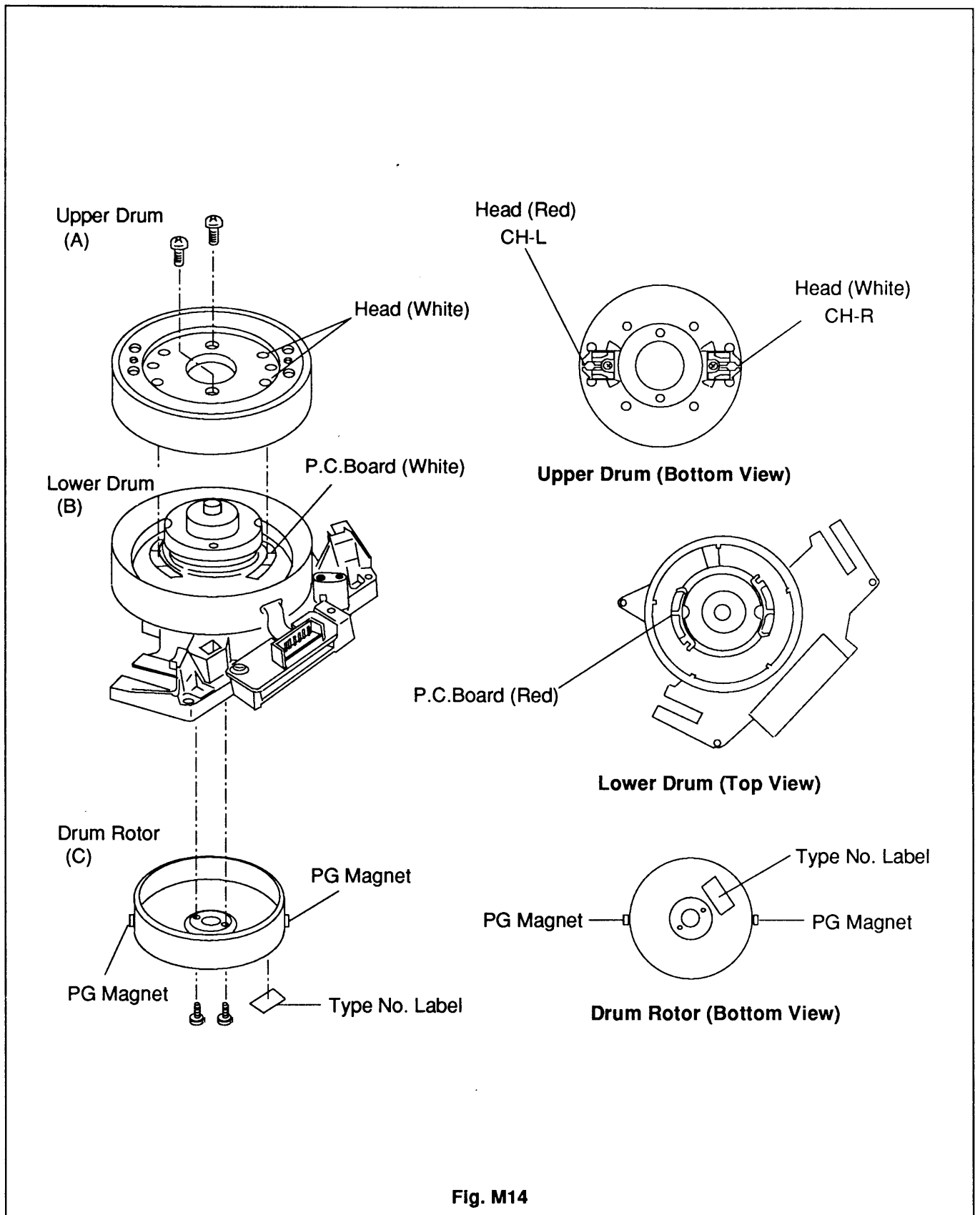


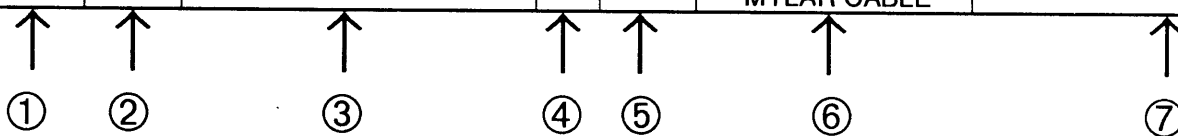
Fig. M14

DISASSEMBLY / ASSEMBLY PROCEDURES OF DECK MECHANISM

This procedure starts with the conditions that the Cabinet parts, Cassette Up Unit and Head Amp C.B.A. have been removed. Also, all the following procedures for adjustment and parts replacement should be performed in STOP mode. When reassembling, perform the step(s) in the reverse order.

STEP / LOC. NO.	START -ING NO.	PART		REMOVAL		INSTALLATION
				FIG. NO.	REMOVE / * UNHOOK / UNLOCK / RELEASE / UNPLUG / DESOLDER	ADJUSTMENT CONDITION
[1]	1	ARM, BACK TENSION	T	DM1 DM3	* (P-1), (C-1)	(+) See Setting Condition in Fig. DM3
[2]	1	BAND, BT	T	DM1 DM3	(S-1), (K-1), *(P-2)	
[3]	3	SUPPORT, BACK TENSION	T	DM1	(S-2)	-----
[4]	2, 3	SUPPLY REEL ASSEMBLY	T	DM1	-----	(+) -----
[5]	5	CYLINDER UNIT	T	DM1	3(S-3), Connections	See Replacement of CYLINDER ASSEMBLY.
[6]	5	LOADING POST (L) UNIT	T	DM1	(S-4) Slide to rear to remove	(+) See Alignment Procedure for Mechanism Item 1-A
[7]	5	LOADING POST (R) UNIT	T	DM1	(S-5) Slide to rear to remove	
[8]	8	ROLLER (A), PINCH	T	DM1	(S-6)	-----
[9]	9	HEAD BASE ASSEMBLY	T	DM1 DM4	(N-1), *(P-2)	See Confirmation of Audio / Control Head Height
[10]	10	PULLEY ASSEMBLY, MIDDLE	B	DM2	(C-2) DRIVE BELT	-----
[11]	10	REEL DRIVE GEAR ASSEMBLY	T	DM1 DM5	(S-7), 2(S-8)	See Setting Condition in Fig. DM5
[12]	10	GEAR, ASSEMBLY, P	T	DM5	-----	
[13]	10	GEAR ASSEMBLY, RF	T	DM5	-----	
[14]	10,11, 12	ARM ASSEMBLY, T BRACKET	T	DM1 DM6	*(P-3)	See Setting Condition in Fig. DM6
[15]	10,11, 12,13	ARM ASSEMBLY, S BRACKET	T	DM1 DM6	*(P-4)	
[16]	16	BRAKE, S SOFT	T	DM1 DM6	*(P-5), (C-3)	
[17]	10	BRAKE ACTUATOR UNIT	T	DM1 DM7	*(P-6), *(P-7), *(P-8)	See Setting Condition Fig. DM7
[18]	10	TAKE-UP REEL ASSEMBLY	T	DM1	-----	(+)
[19]	19	PULLEY, LOADING	B	DM2 DM8	BELT, LOADING (C-4)	-----
[20]	19	GEAR, LOADING	B	DM2 DM8	(C-5)	-----

STEP / LOC. NO.	START -ING NO.	PART	B	FIG. NO.	REMOVAL	INSTALLATION
					REMOVE / * UNHOOK / UNLOCK / RELEASE / UNPLUG / DESOLDER	ADJUSTMENT CONDITION
[21]	21	PLATE, LOADING, LEVER REINFORCE	B	DM2 DM8	2 (S-9)	-----
[22]	19,20	ARM, EJECT ACTUATE	B	DM2 DM8	(C-6)	-----
[23]	19, 21	SPOKE, REC ACTUATE	B	DM2 DM8	*	-----
[24]	19,20 22	BRAKE, ARM ACTUATE	B	DM2 DM8	-----	-----
[25]	21	LEVER SEMI ASSEMBLY LOADING	B	DM2 DM8	-----	-----
[26]	19, 21	CAM, LOADING	B	DM2 DM8	-----	(+) See Installation proce- dure for Deck Mechanism in Fig. DM2
[27]	27	PLATE, LOADING GEAR	B	DM2 DM9	(S-10), (K-2) * (P-9)	(+) See Alignment Procedure for Mechanism in Fig. DM2 See Setting Condition in Fig. DM9
[28]	28	DRUM MOTOR TM-84	B	DM2	2(S-11), 3(S-12) *DISCONNECT MYLAR CABLE	See Replacement of DRUM MOTOR TM-84.



Note:

①: Order of steps in Procedure

When reassembling, perform the step (s) in the reverse order.

These numbers are also used as the identification (location) number of parts in Figures.

②: Start No. followed by corresponding part to be removed at this stage

See example below.

Example : Cassette Load Bracket Assembly can be removed without removing any other parts, but
Worm Wheel Assembly can be removed only after removing Cassette Load Bracket Assembly

(No. ①.)

③: Part to be removed or installed

④: Location of part

T = TOP VIEW (Fig. DM1)

B = BOTTOM VIEW (Fig. DM2)

⑤: Fig. No. showing Procedure or Part Location

⑥: Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped or desoldered

P = Spring

W = Washer

C = Cut Washer

R = Retaining Ring

N = Nut

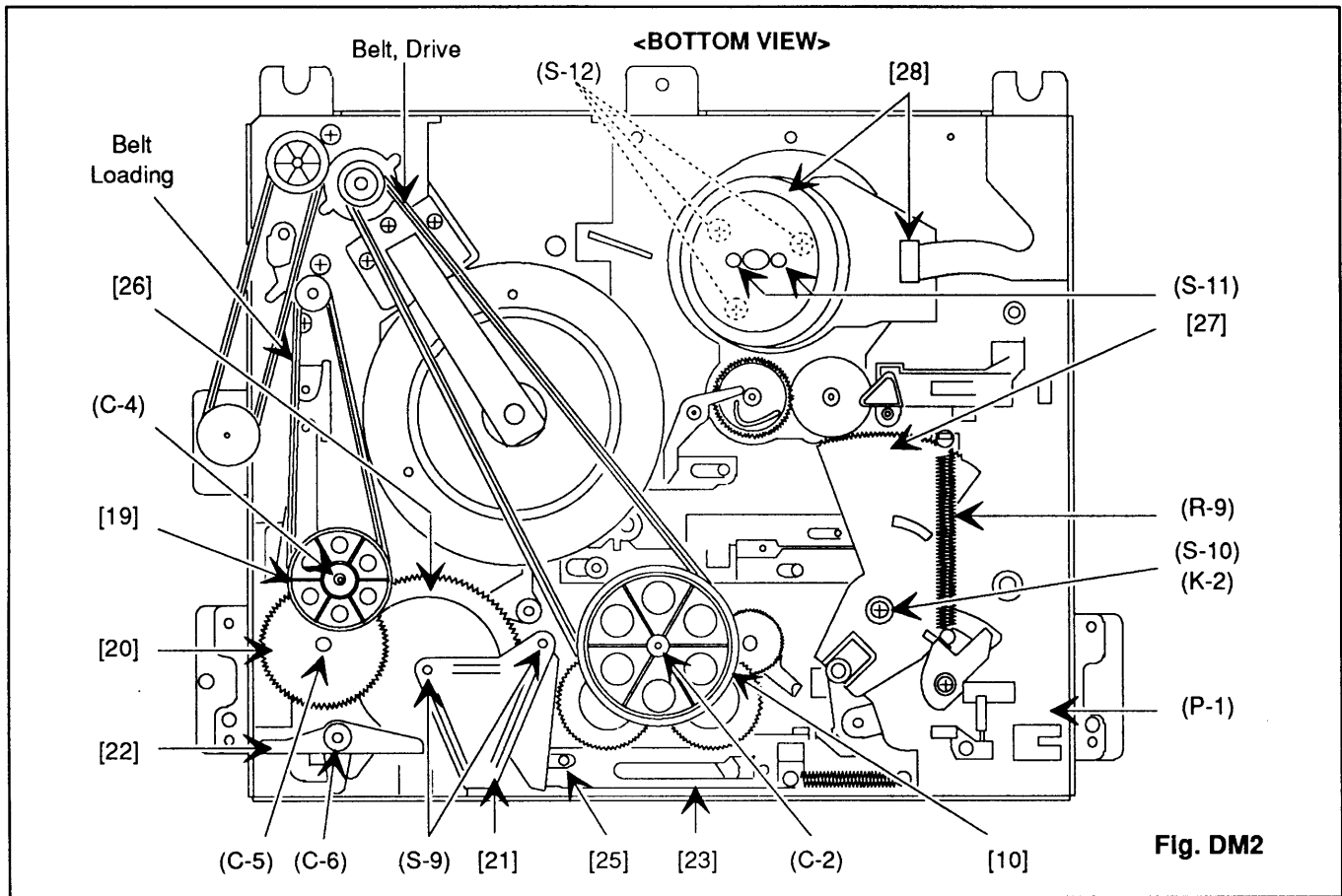
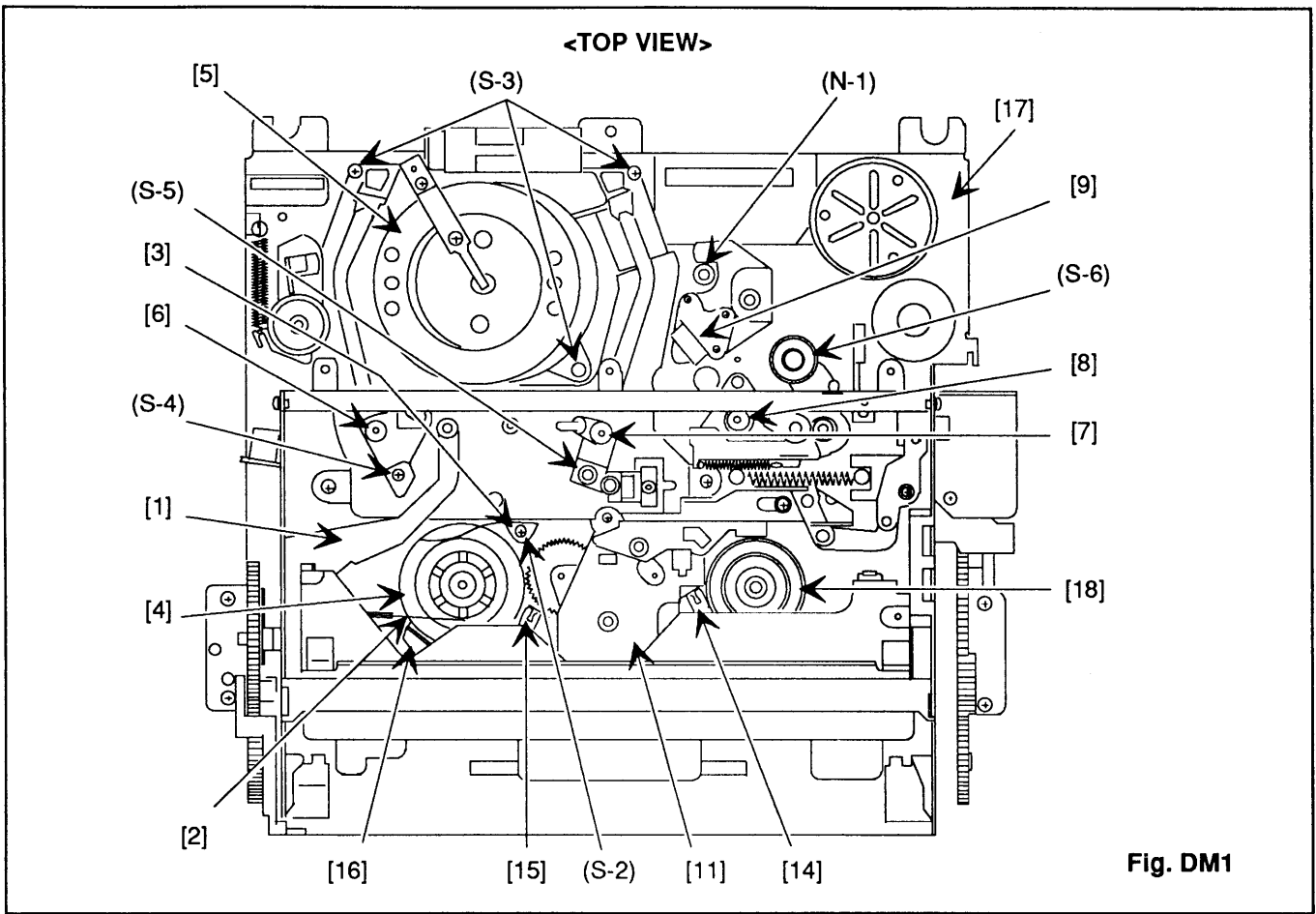
S = Screw

* = Unhook, unlock, release, unplug or desolder

2 (C-2) = 2 Cut Washers (C-2)

⑦: Adjustment information for installation

(+) : Refer to Exploded Views for Lubrication information.



Back Tension Band Spring Hooking Position

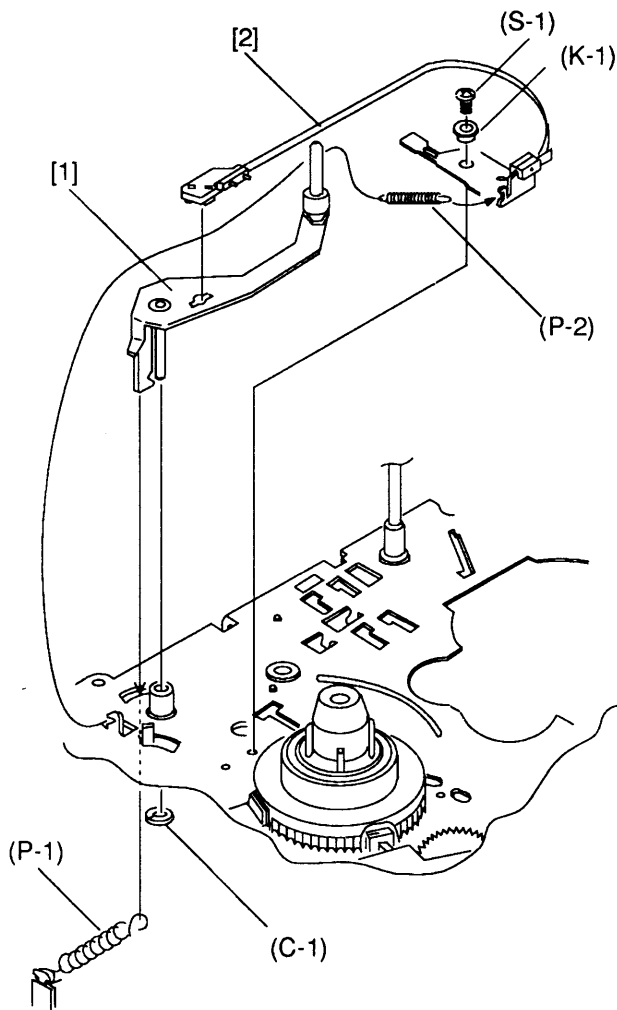
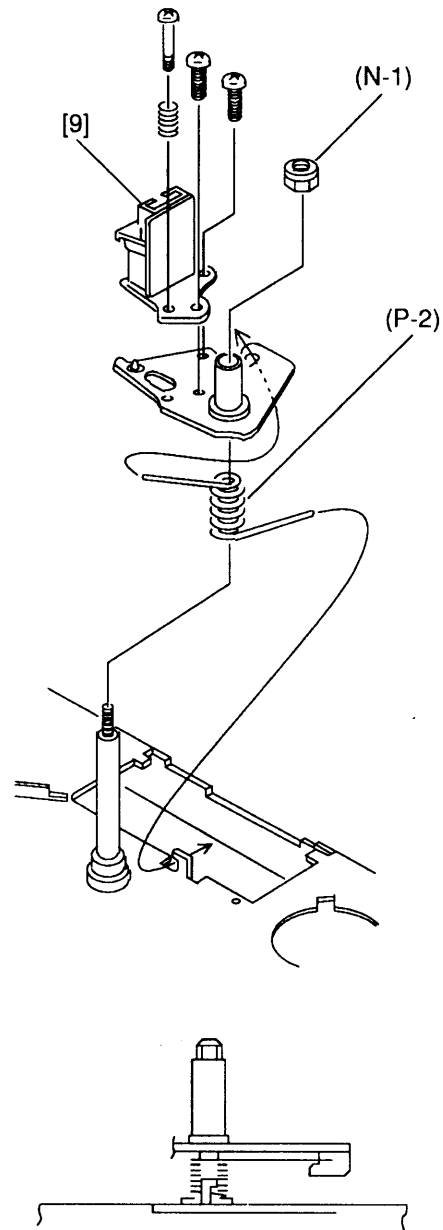


Fig. DM3

Audio / Control Head Spring Hooking Position



<DECK BACK VIEW>

Fig. DM4

CONFIRMATION AND ADJUSTMENT

- PLAYBACK SWITCHING POINT
- X VALUE
- ENVELOPE WAVEFORM
- AUDIO OUTPUT LEVEL
- AZIMUTH
- TAPE TRANSPORTATION

Install the Gear Holder Ass'y so that the pin of Gear Holder Ass'y meets with the hole on the Return Arm.

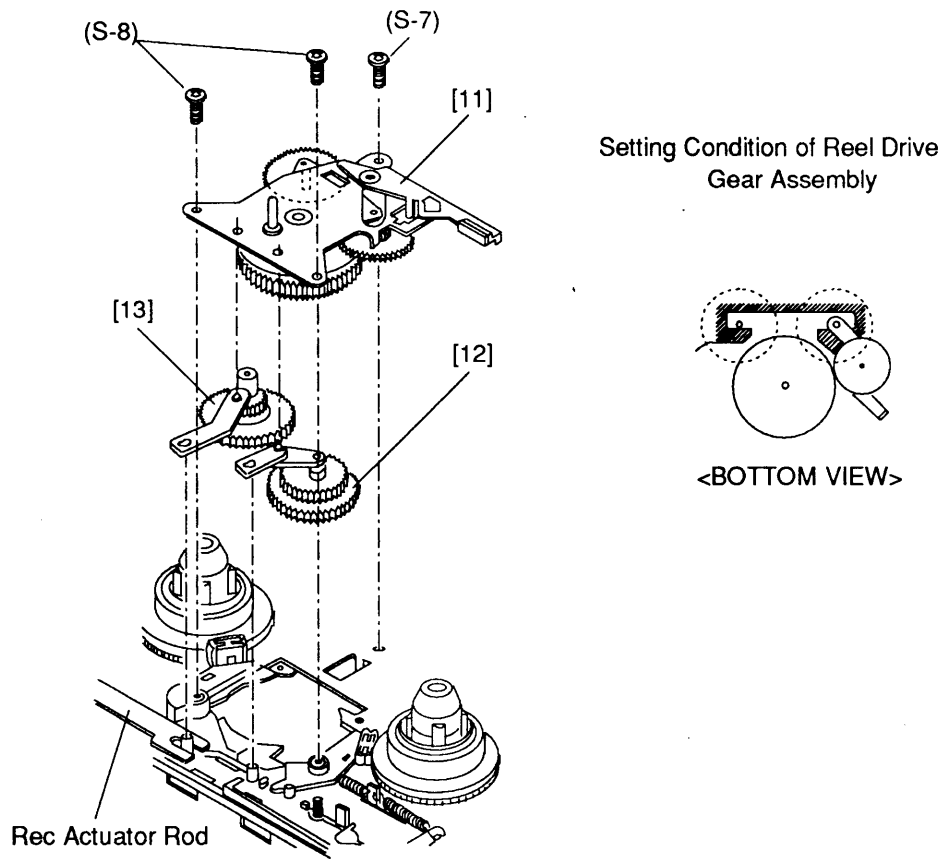


Fig. DM5

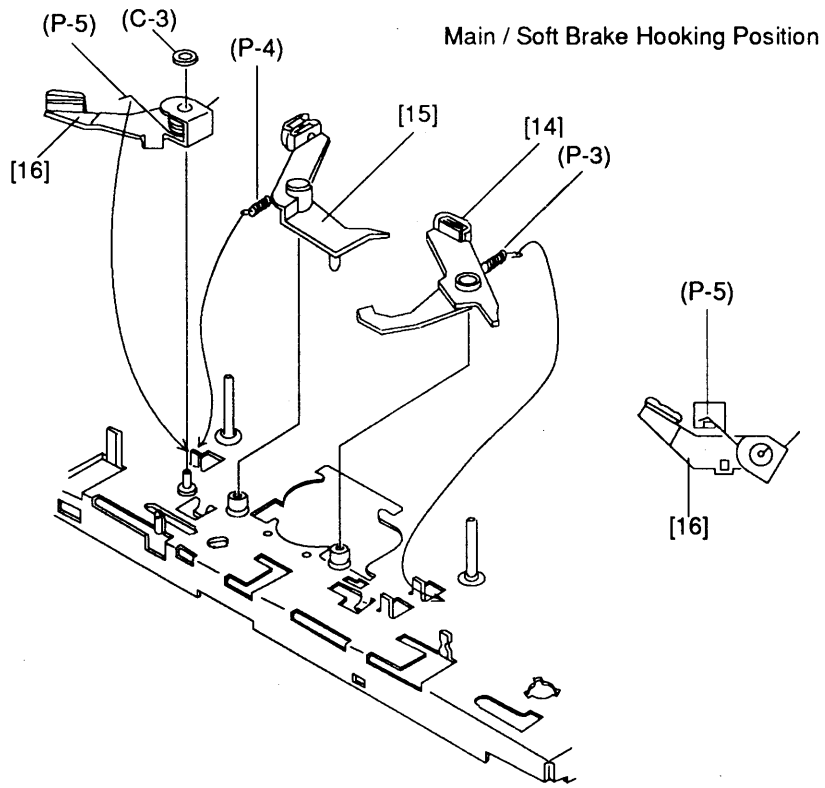


Fig. DM6

Brake Spring Hooking Position

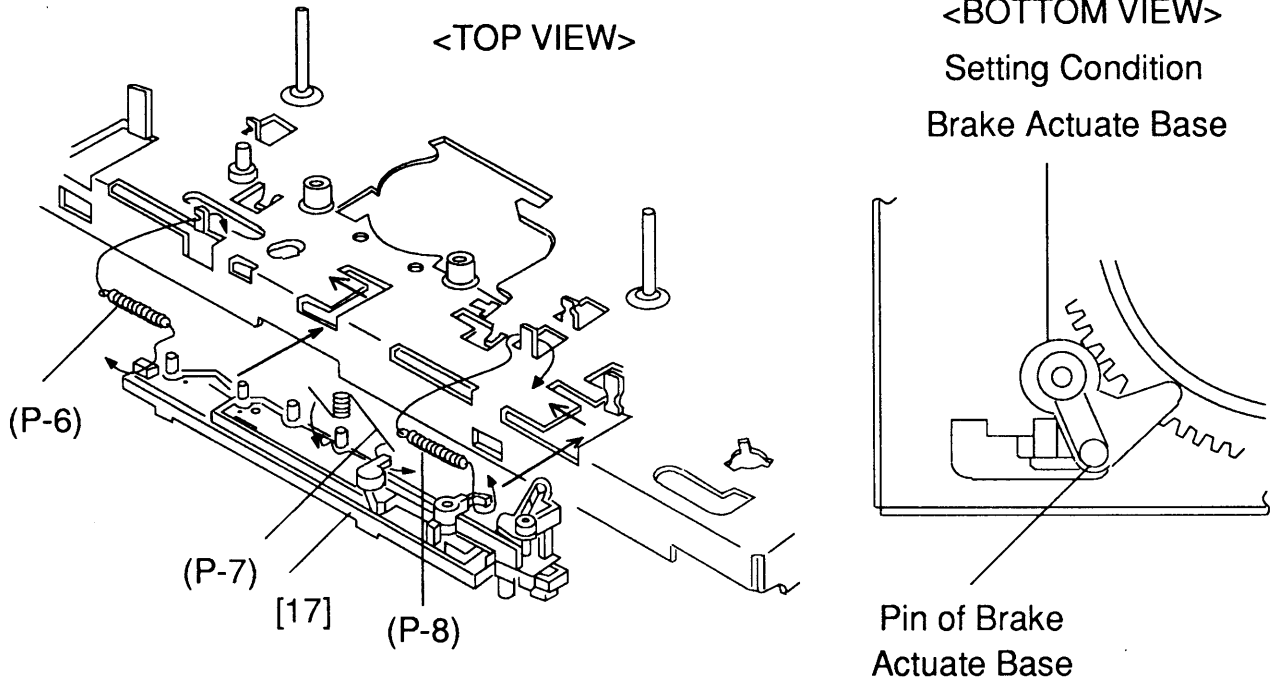


Fig. DM7

Loading Gear Cam Setting Position

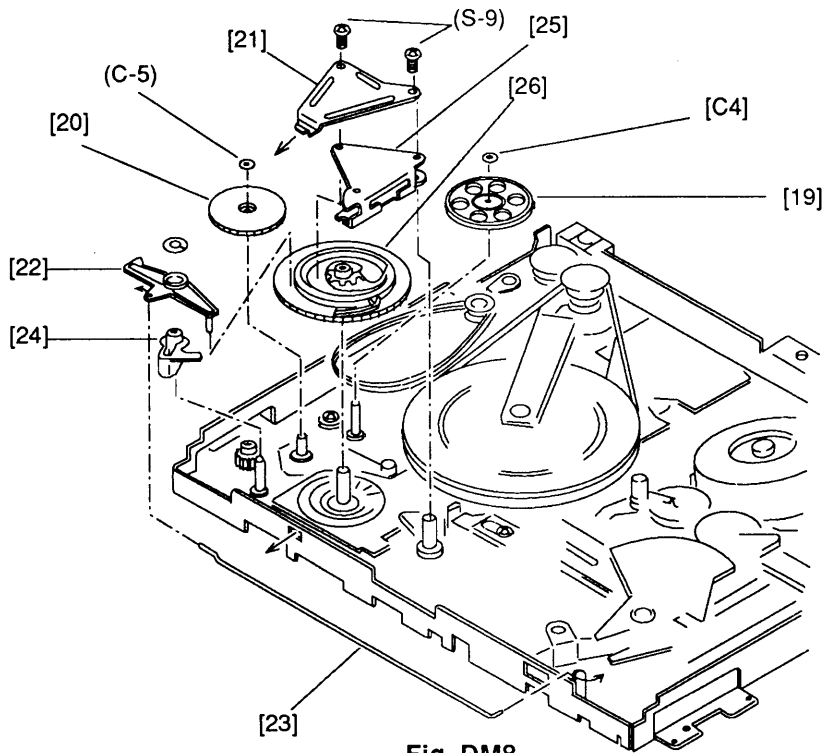


Fig. DM8

Loading Gear Plate Setting Position

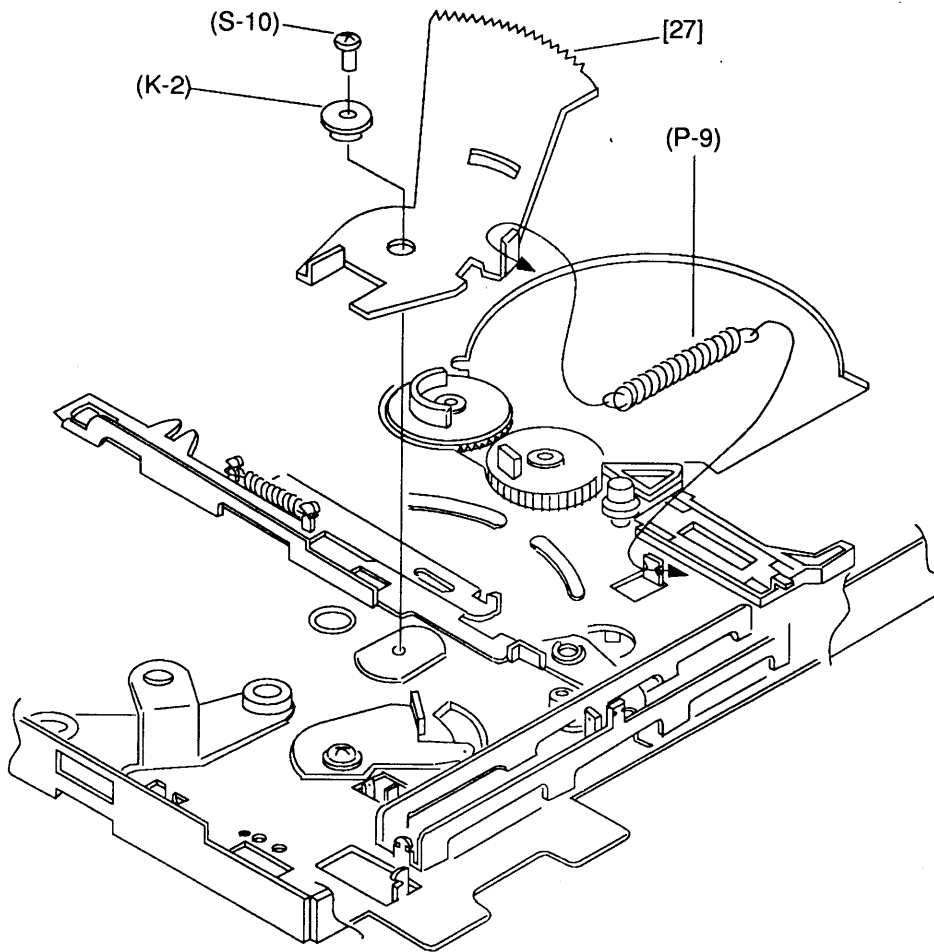
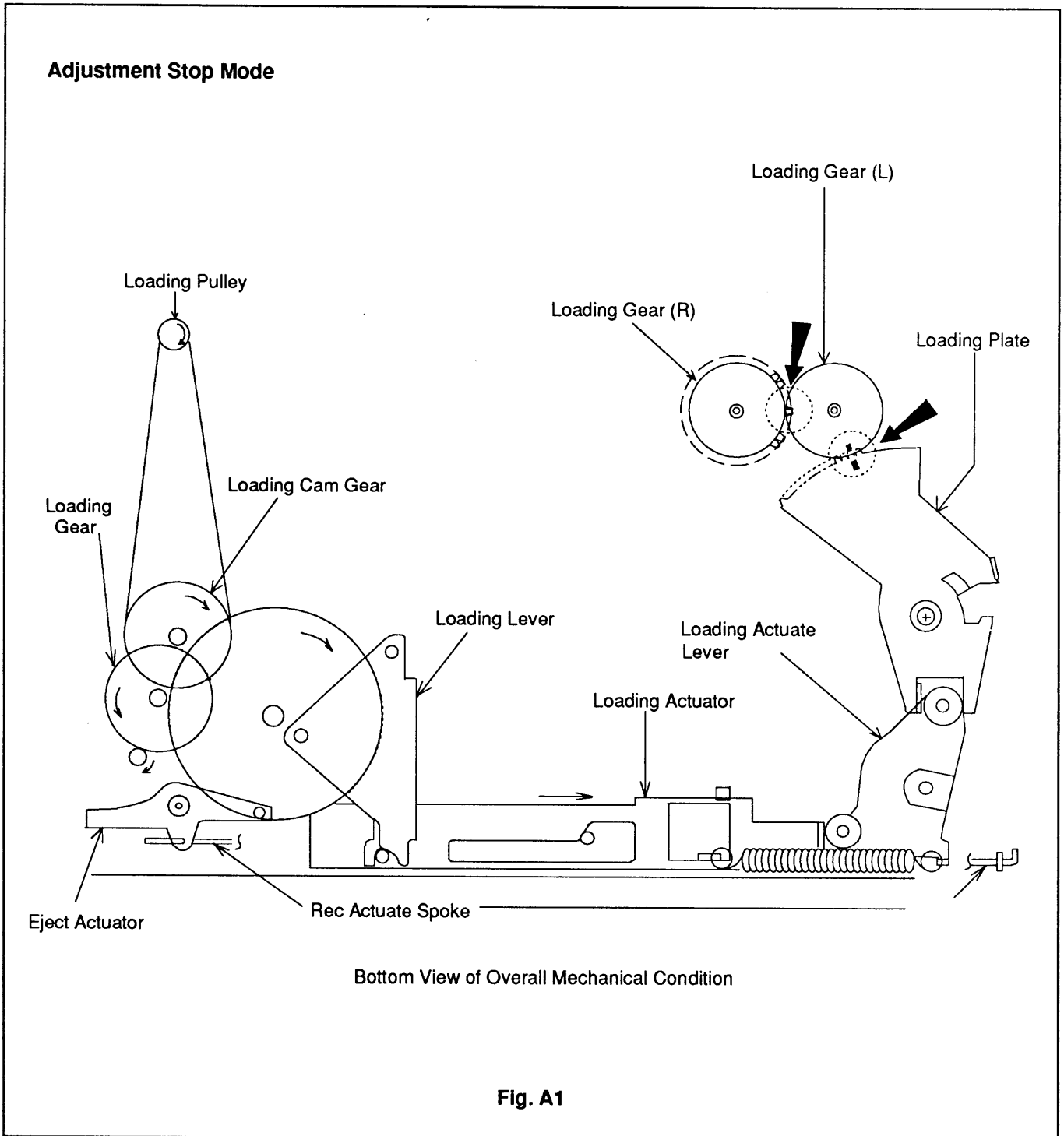


Fig. DM9

ALIGNMENT PROCEDURES OF MECHANISM

The mechanism of this model is mostly engaged to the System Control Circuit, through the mode select switch (Loading Cam). Therefore the relation between the mode select switch (Loading Cam) and the other gear determines all further mechanical movement of the mechanical parts such as levers, gears, pulley and so on. For specific removal and installation procedures, refer to the Disassembly / Assembly Procedures. If these parts are not properly aligned, the unit will be unloaded or stopped. It may result in damage to the mechanical or electrical parts. The overall mechanical condition of the bottom views is shown in Fig. A1.



ASSEMBLY PROCEDURES OF LOADING CAM AND LOADING LEVER

- 1) Push the P Cam Lever in the direction of the arrow. (In the opposite direction of Loading Cam Gear)
- 2) Turn the Cam rising portion on Loading Cam Gear in the direction of Shaft (A), then install Loading Cam Gear onto Shaft (B).
- 3) Install Loading Lever onto Shafts (C) and (D), then turn Loading Cam Gear clockwise or counterclockwise so that the Roller on the Loading Lever aligns with the groove on Loading Cam as shown in Fig. A2.

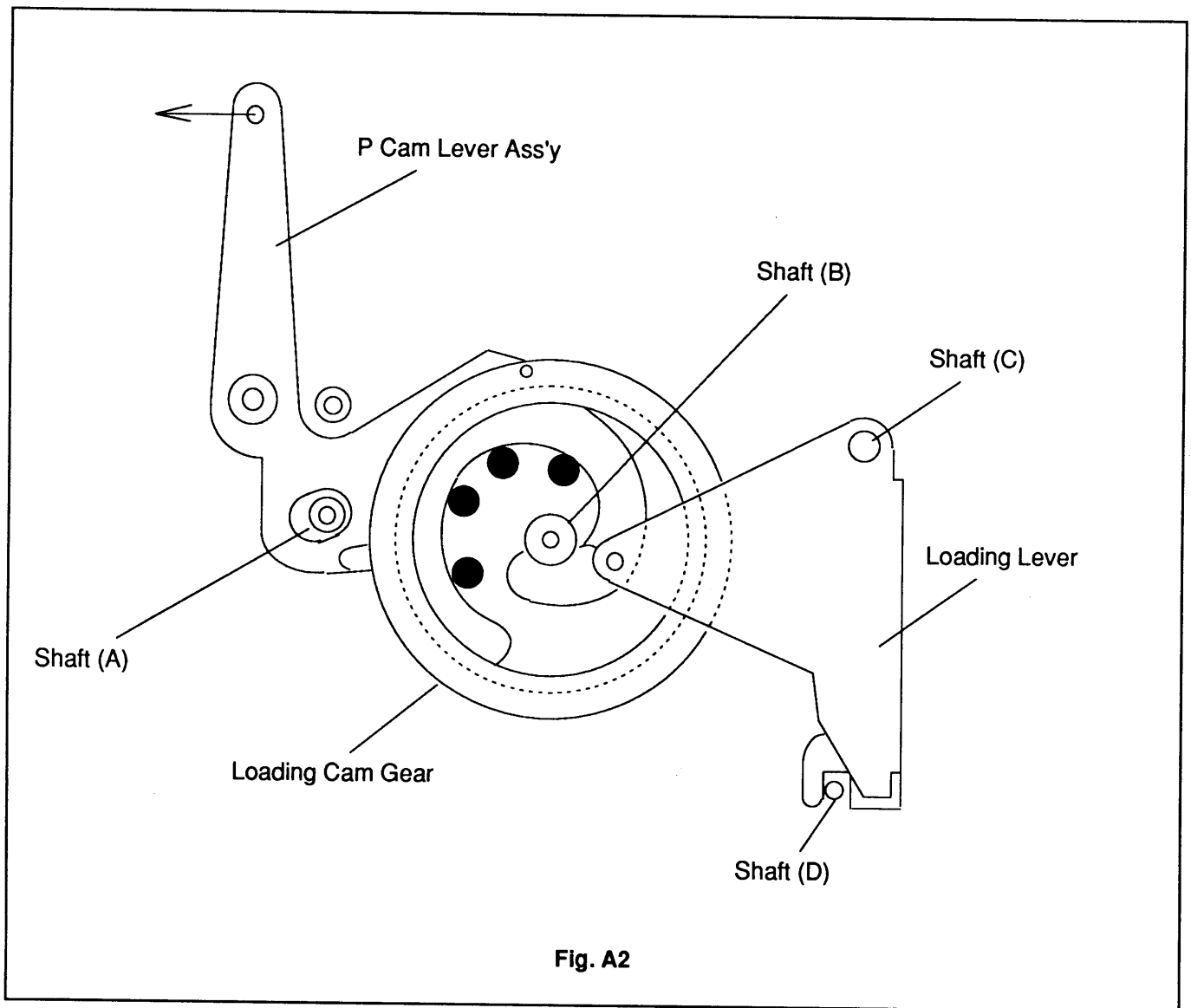


Fig. A2

ALIGNMENT PROCEDURES OF LOADING GEAR PLATE

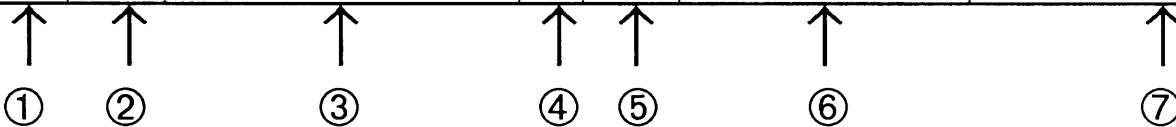
- 1) Projection on the Tape Loading Gear (R) aligns with the indentation on the Tape Loading Gear (L) as shown in Fig. A1.
- 2) Install the Loading Gear so that the indentation on the Loading Gear Plate aligns with the indentation on the Tape Loading Gear (L) the condition (per Item 1) above as shown in Fig. A1.

DISASSEMBLY / ASSEMBLY AND ADJUSTMENT OF CASSETTE UP UNIT

Notes on Installation:

This procedure assumes that you have removed the Cassette Up Unit from chassis. When reassembling, perform the step(s) in the reverse order.

STEP NO.	START NO.	PART		REMOVAL		INSTALLATION
				FIG. NO.	REMOVE / *UNHOOK / UNLOCK / DESOLDER	ADJUSTMENT CONDITION
[1]	1	BRACKET ASSEMBLY, CASSETTE LOAD	R	DA1	(S-1), DESOLDER WIRES	See Setting Condition in Fig. DA1
[2]	1	WORM WHEEL ASSEMBLY	R	DA2	(R-1)	(+) See Alignment Procedure of Cassette Up Unit in Fig. MA15-1 and Fig. DA4
[3]	2	GEAR(R) ASSEMBLY, LIFT	R	DA2	(R-2)	
[4]	3	GEAR(A), SYNCHRONIZE	R	DA2	(R-3)	
[5]	5	LEVER, LIFT	L	DA3	(P-1),(L-1)	See Setting Condition in Fig. DA3
[6]	5	GEAR(L) ASSEMBLY, LIFT	L	DA6	(R-4)	See Alignment Procedure of Cassette Up Unit in Fig. MA15-2 and Fig. DA6
[7]	6	GEAR(A), SYNCHRONIZE	L	DA6	(R-5)	



Note:

- ①: Order of steps in Procedure
When reassembling, perform the step (s) in the reverse order.
These numbers are also used as the identification (location) No. of parts in Figures.
- ②: Start No. followed by corresponding part to be removed at this stage
See example below.
Example : Cassette Load Bracket Assembly can be removed without removing any other parts, but Worm Wheel Assembly can be removed only after removing Cassette Load Bracket Assembly (No. ①.)
- ③: Part to be removed or installed
- ④: Location of part
R = Right L = Left
- ⑤: Fig. No. showing Procedure or Part Location
- ⑥: Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped or desoldered
P = Spring W = Washer
C = Cut Washer R = Retaining Ring
N = Nut S = Screw
* = Unhook, unlock, release, unplug or desolder
2 (C-2) = 2 Cut Washers (C-2)
- ⑦: Adjustment information for installation
(+) : Refer to Exploded Views for Lubrication information.

Setting Condition

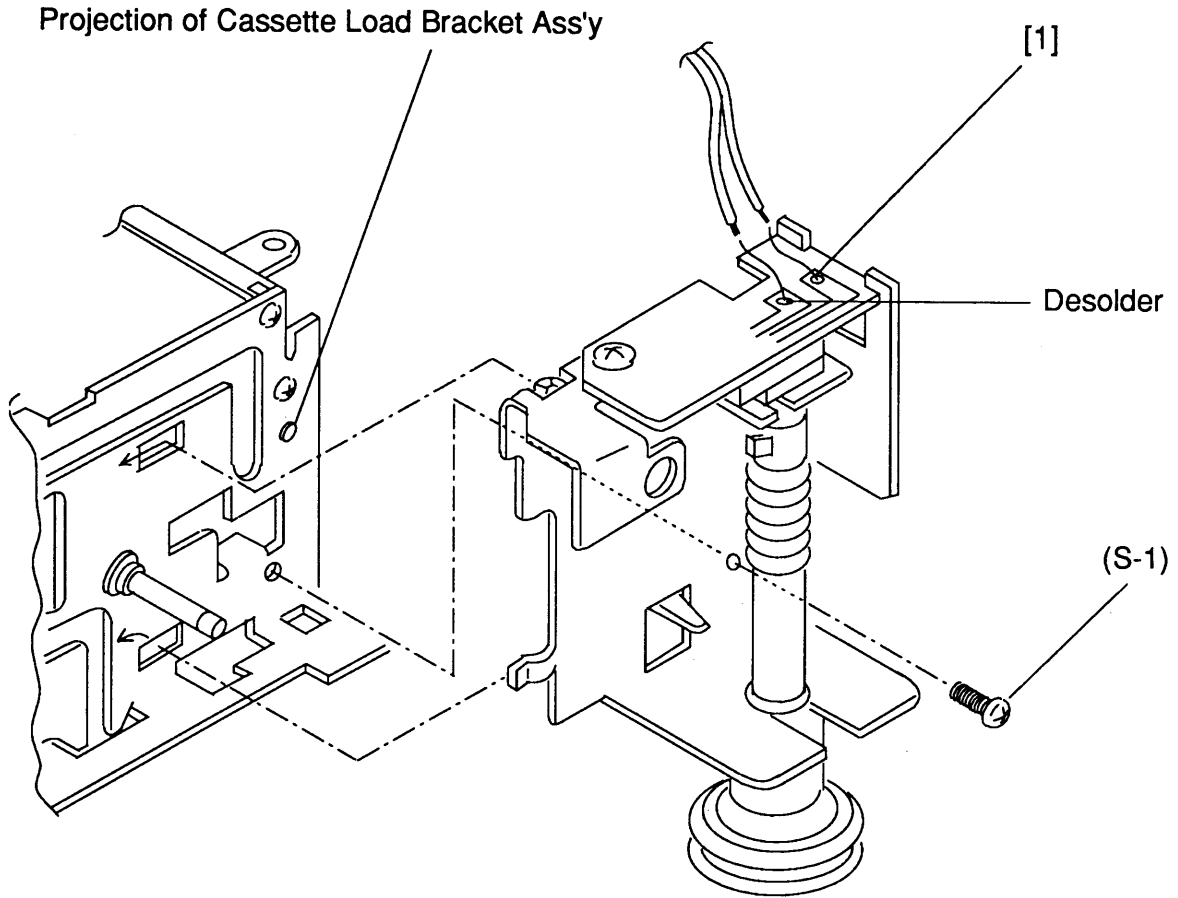


Fig. DA1

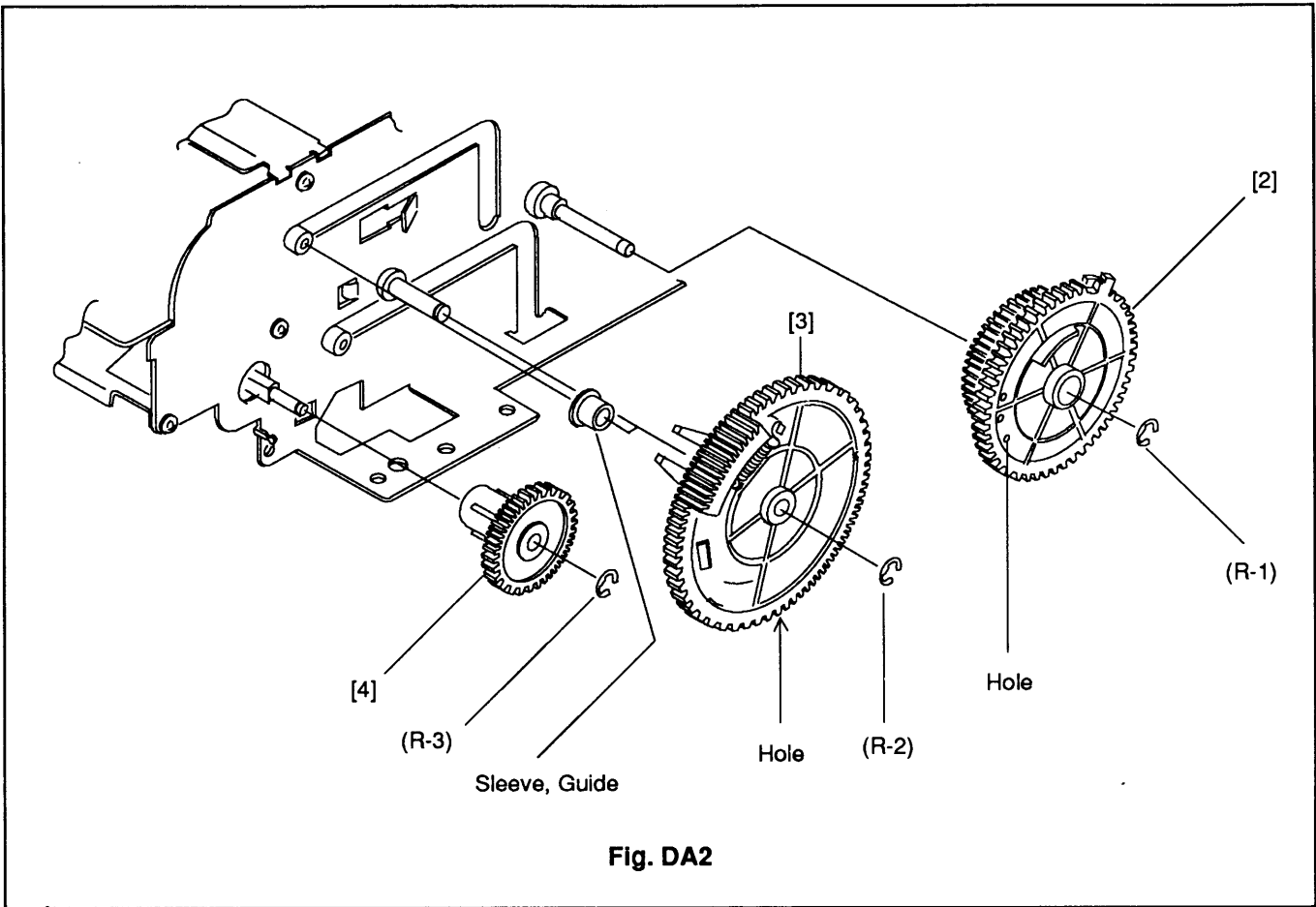


Fig. DA2

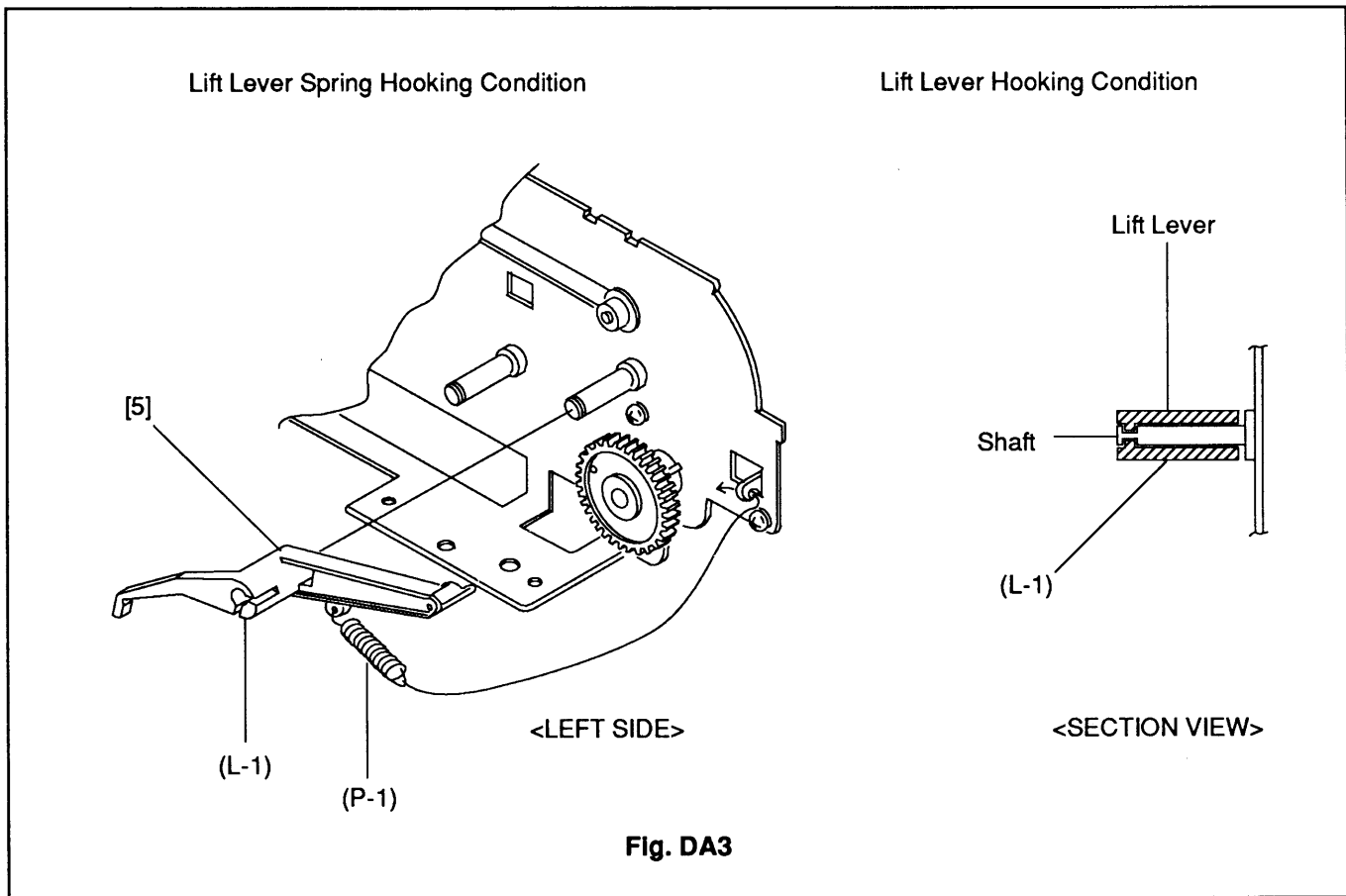
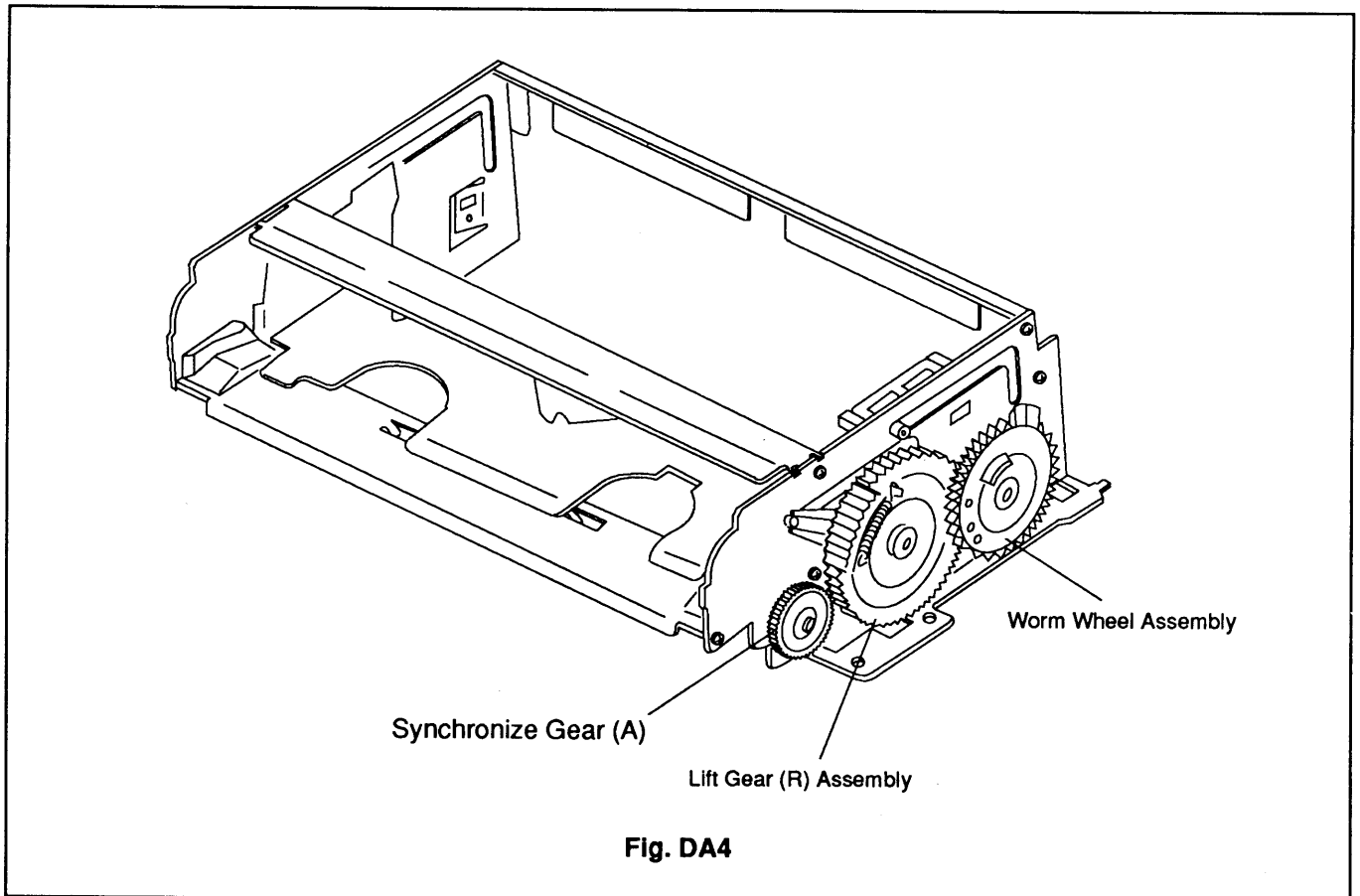
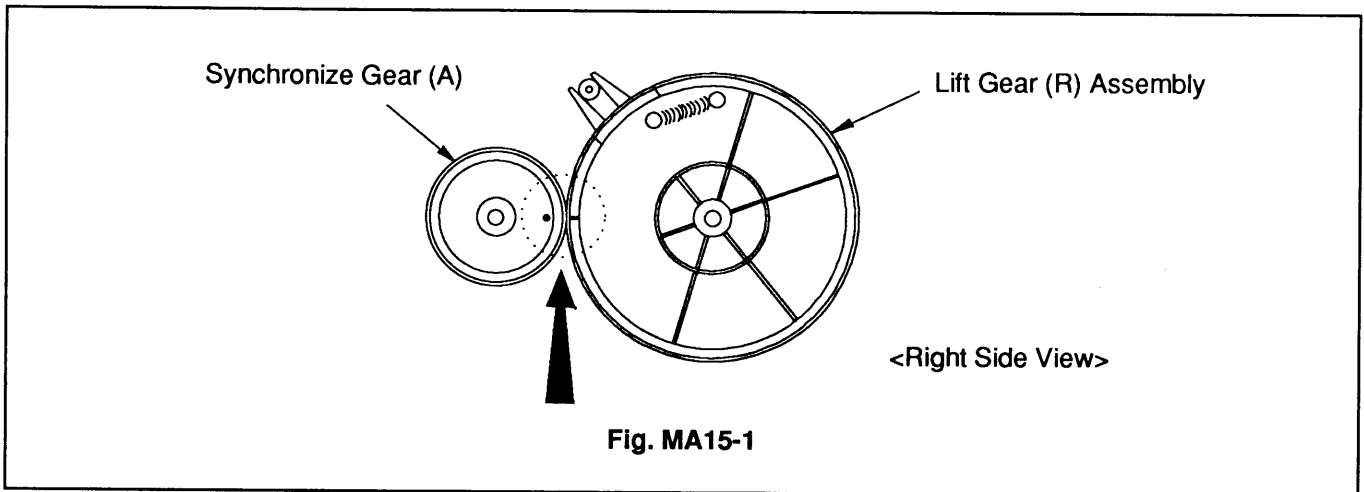


Fig. DA3

ASSEMBLY PROCEDURE OF CASSETTE UP UNIT

Assembly Procedures of Synchronize Gear, Lift Gear (R) Assembly and Friction Gear Assembly

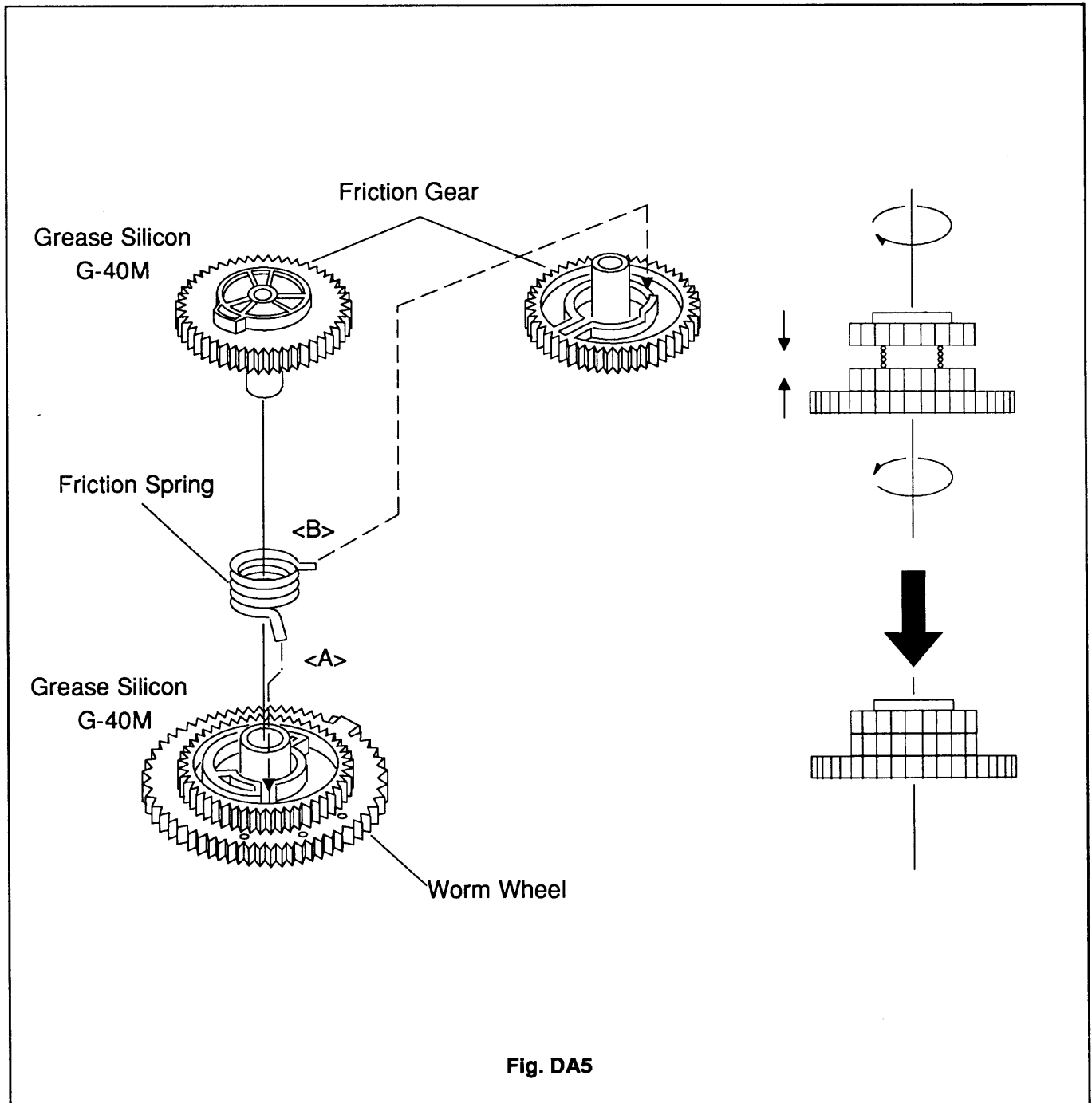
1. Pull the Cassette Holder Assembly toward the front until it stops.
2. Install the Lift Gear (R) Assembly so that the projection on the Lift Gear (R) Assembly aligns with the projection on the Synchronize Gear.
3. Install the Friction Gear Assembly so that the center hole of Friction Gear Assembly aligns with the hole of Lift Gear (R) Assembly as shown in Fig. DA5.



WORM WHEEL ASSEMBLY

When Assembling Worm Wheel Assembly, Refer to Fig. DA5 below.

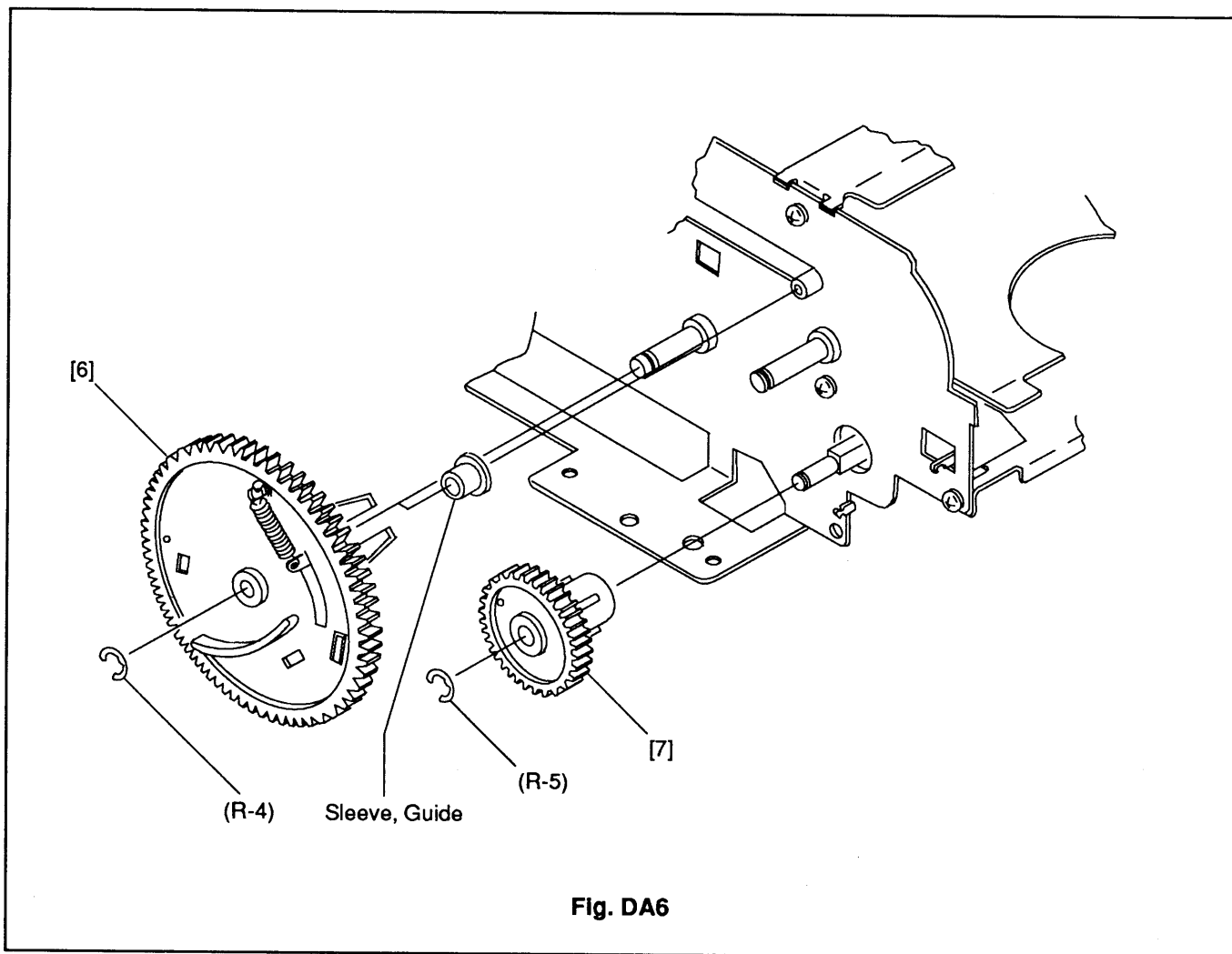
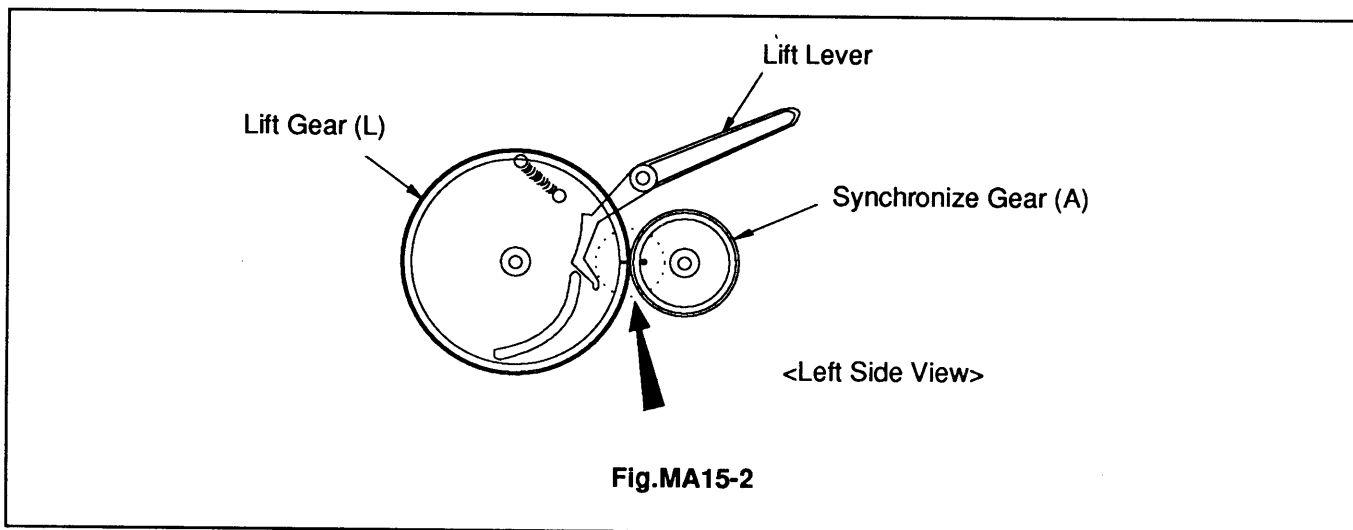
1. Put the Friction Spring <A> portion into the groove (arrowed portion) on Worm Wheel.
2. Install the Friction Gear and place the Friction Spring portion into the groove (arrowed portion) on Friction Gear.
3. Continue inserting the Friction Gear to the Worm Wheel while twisting clockwise.



LIFT GEAR (L) ASSEMBLY

Assembly Procedure of Lift Gear (L) Assembly and Synchronize Gear.

1. Pull the Cassette Holder Assembly toward the front until it stops.
2. Install the Lift Gear (L) Assembly so that the indentation of the Lift Gear (L) Assembly aligns with the projection on the Synchronize Gear.

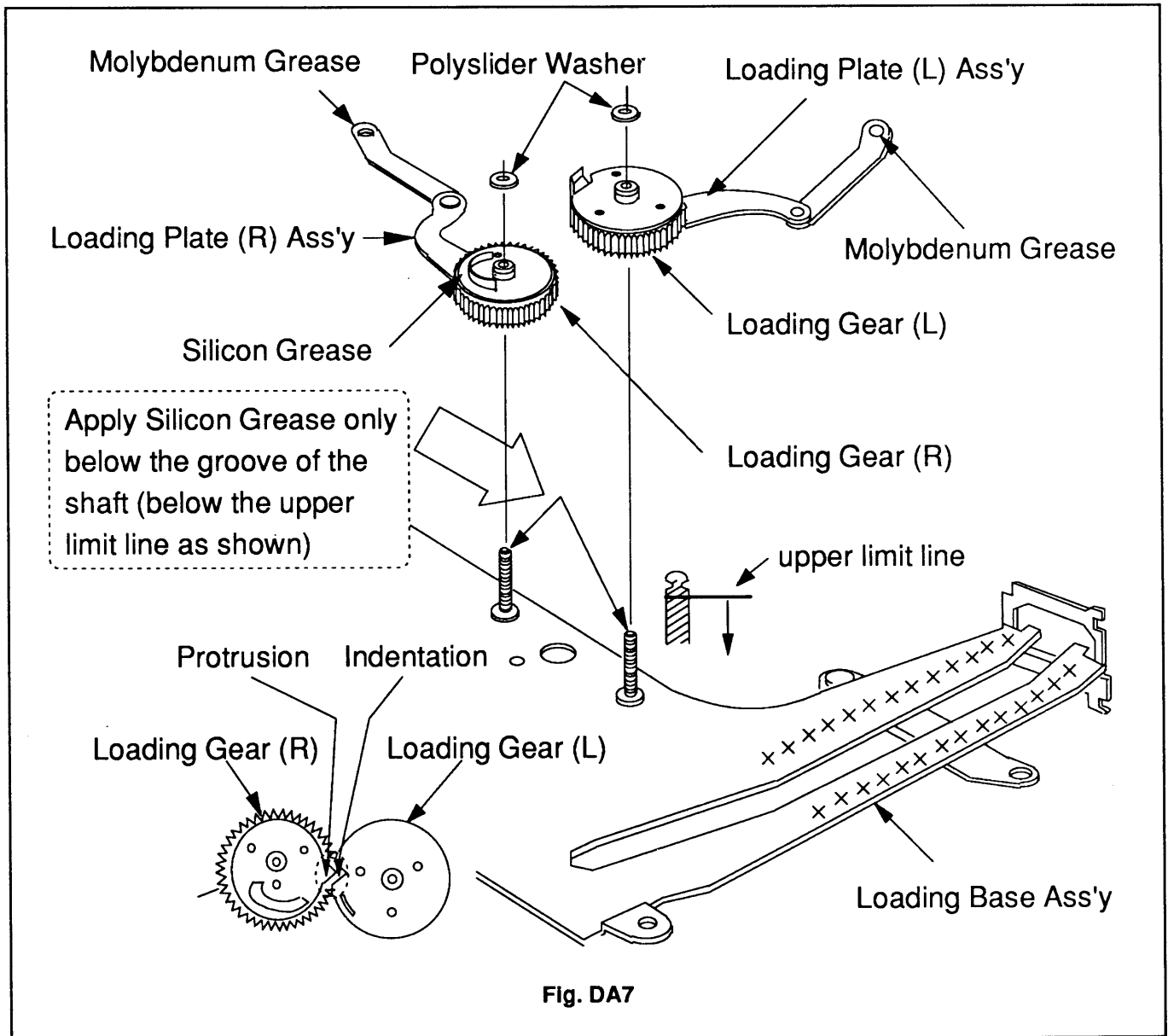


ALIGNMENT PROCEDURES OF LOADING GEAR PLATE

- 1) Align the protrusion of the Loading Gear (R) with the indentation of the Loading Gear (L) as shown in Fig. A1 in "ALIGNMENT PROCEDURE OF MECHANISM".
- 2) Install the Loading Gears (R) and (L) so that the indentation of the Loading Plate aligns with the indentation of the Loading Gear (L) with Item 1 condition, as shown in Fig. A1 in "ALIGNMENT PROCEDURE OF MECHANISM".

LOADING PLATE REMOVAL

- 1) Remove 2 Polyslider washers.
- 2) Remove Loading Gears (R) and (L), then Loading Plates (R) and (L) Assemblies can be removed.



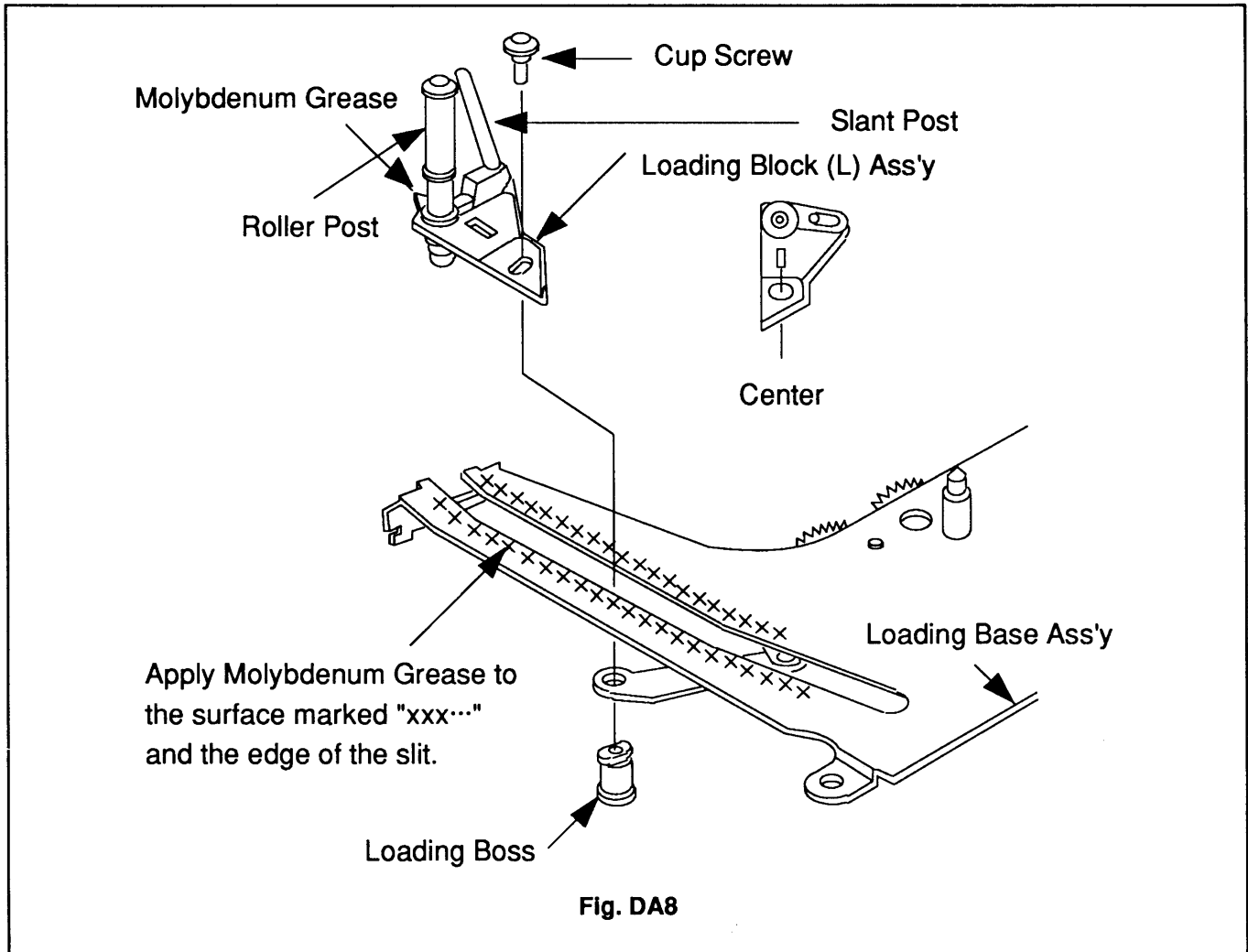
Note:

When reassembling, fit the protrusion of the Loading Gear (R) with the indentation of the Loading Gear (L) as shown.

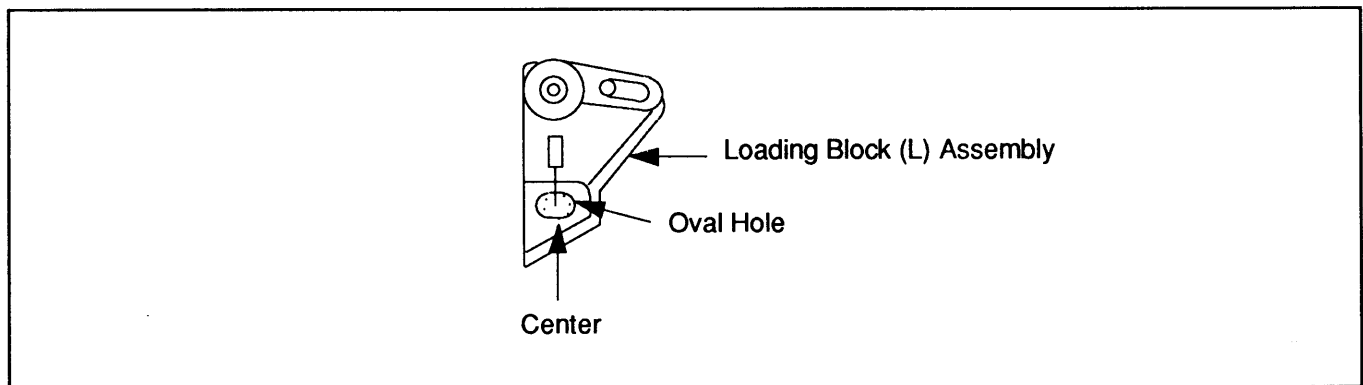
When reassembling, apply the Molybdenum Grease to the sliding surfaces marked "xxx..." shown in Fig. DA7.

LOADING BLOCK (L) ASSEMBLY REMOVAL

- 1) Remove the Cup screw.
- 2) Then remove Loading Block (L) Assembly.



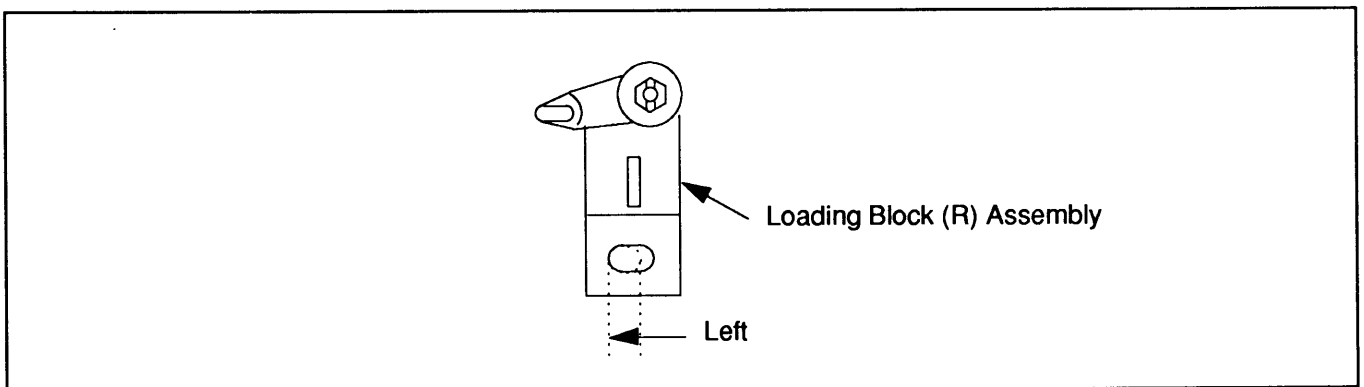
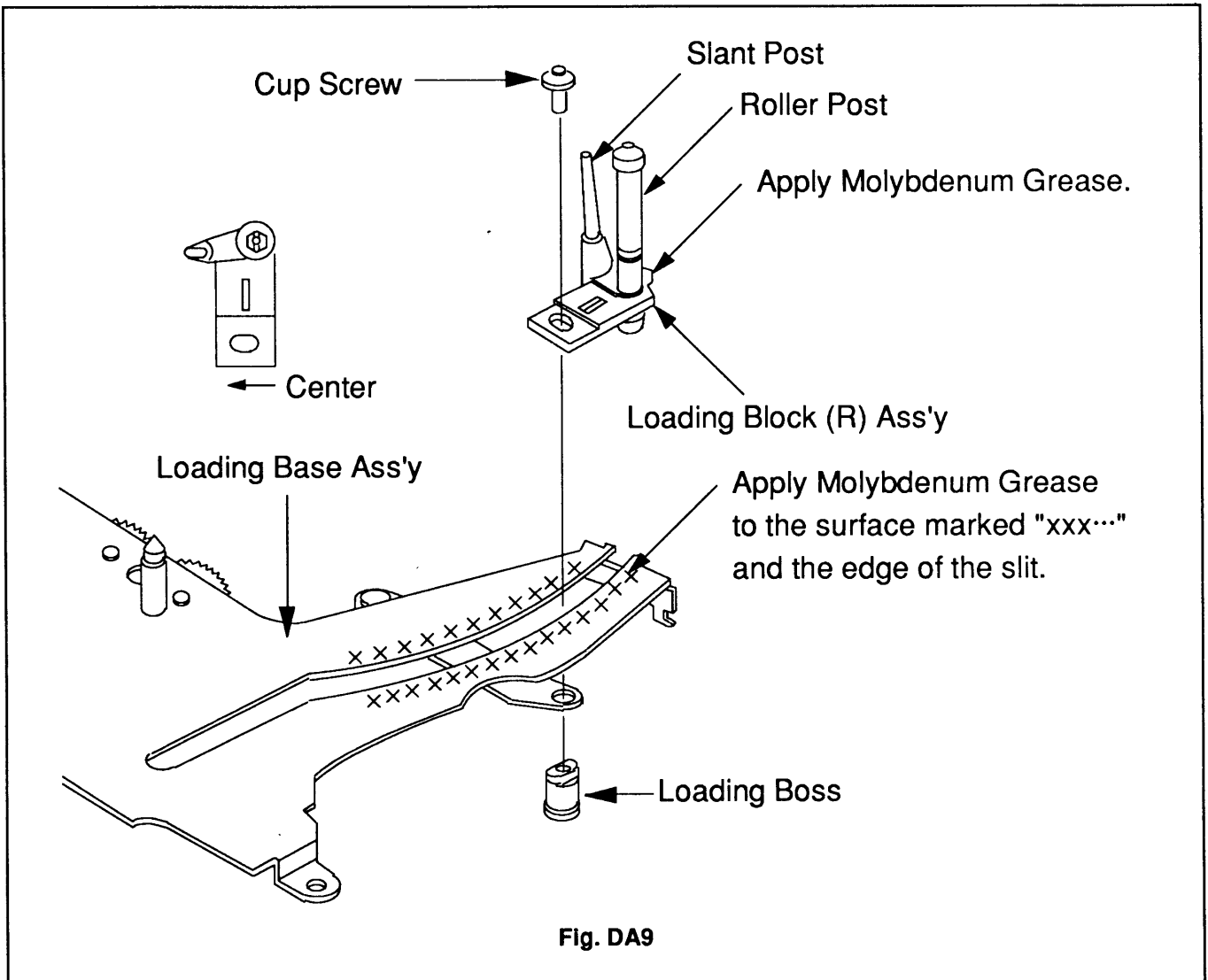
Note:
Do not stain Roller Post and Slant Post with grease.



Note:
When reassembling, position the loading boss in the center of the Oval Hole of Loading Block (L) Ass'y.

LOADING BLOCK (R) ASSEMBLY REMOVAL

- 1) Remove the cup screw.
- 2) Then remove Loading Block (R) Assembly.



Note:

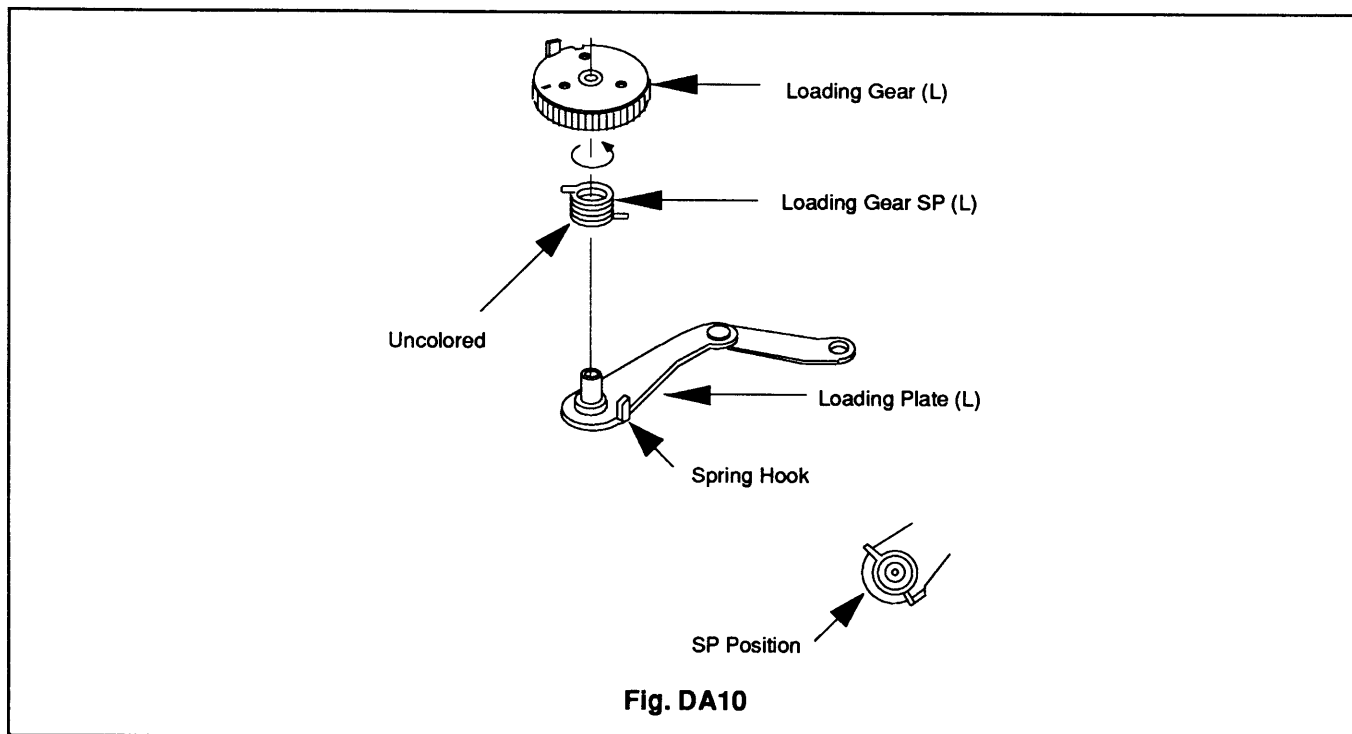
Do not stain Roller Post and Slant Post with grease.

Note:

When reassembling, position the Loading boss to the extreme left end of the Oval Hole of the Loading Block (R) Assembly.

LOADING GEAR (L) REMOVAL

1) Pull out the Loading Gear (L) by turning it clockwise slightly.

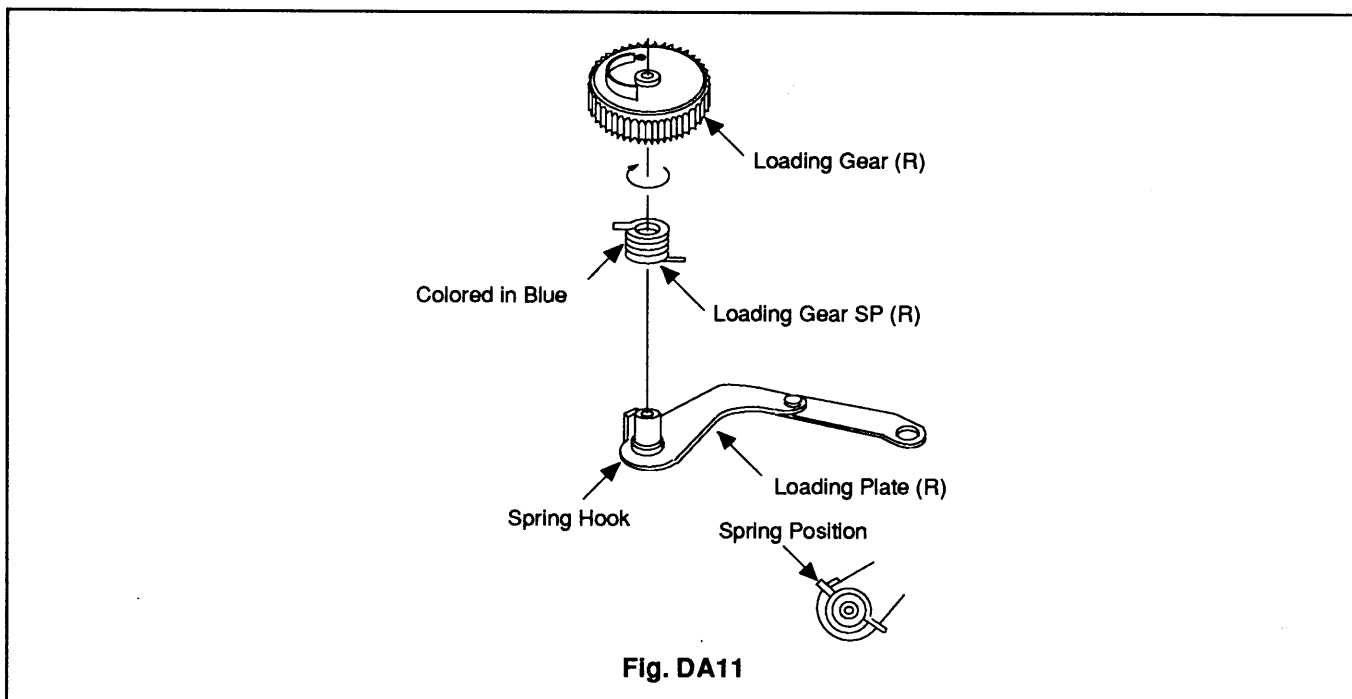


Note:

Do not mix Loading Gear SP (L) (Uncolored) with Loading Gear SP (R) (Colored in Blue).
Do not deform the Loading Plate (L).

LOADING GEAR (R) REMOVAL

1) Pull out the Loading Gear (R) by turning it counterclockwise slightly.



Note:

Do not deform the Loading Plate (R).
Do not mix Loading Gear SP (L) (Uncolored) with Loading Gear SP (R) (Colored in Blue).

ELECTRICAL ADJUSTMENT INSTRUCTIONS [TV]

General Note: "C.B.A." is abbreviation for "Printed Circuit Board Assembly".

NOTE:

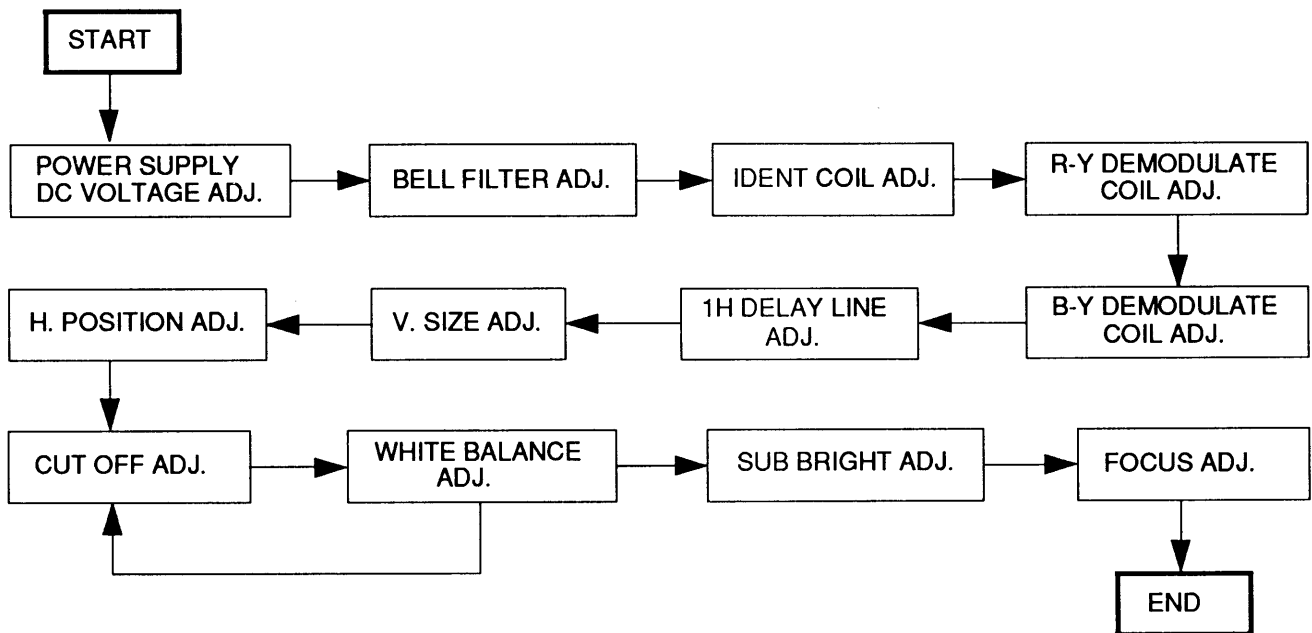
Electrical adjustments are required after replacing circuit components and certain mechanical parts. It is important to perform these adjustments only after all repairs and replacements have been completed. Also, do not attempt these adjustments unless the proper equipment is available.

TEST EQUIPMENT REQUIRED

1. Oscilloscope: Dual Trace with 10:1 probe
2. Monoscope
3. PAL and SECAM Pattern Generator
4. DC Volt Meter

HOW TO SET UP THE ADJUSTMENT MODE

Set Bright, Color, Contrast and Tint to center.



1. POWER SUPPLY DC VOLTAGE ADJUSTMENT

Purpose:

To get correct voltage.

Symptom of Misadjustment:

If voltage is incorrect, picture is dark, or VCR is not operated correctly.

Test Point	Adjustment Point	Mode	Input
D603 (Cathode)	VR602	POWER OFF	---
R602 (at C603)	VR601	POWER ON	
Tape	M. EQ.	Spec.	
---	DC Volt Meter	16.5±0.3V 112.5±0.5V	
Connections of M. EQ.			

Reference Notes:

D603, R602, VR601, VR602 : TV MAIN C.B.A.

1. Connect the equipment as shown in Fig. 1.
2. Adjust VR602 for reading 16.5±0.3V on the DC Volt Meter.
3. Connect the equipment as shown in Fig. 2.
4. Adjust VR601 for reading 112.5±0.5V on the DC Volt Meter.

Caution!

To avoid any hazards and damage of unit, be sure to do below;

- 1). Disconnect all cables from the VCR unit on the TV circuit.
- 2). Connect both terminal of C608 by 390Ω 5W resistor as VCR load resistance.
- 3). To inactivate F.B.T., ground the base of Q201.
- 4). Connect both terminal of C603 by 390Ω 140W resistor as F.B.T. load resistance.

2. BELL FILTER ADJUSTMENT (FOR SECAM)

Purpose:

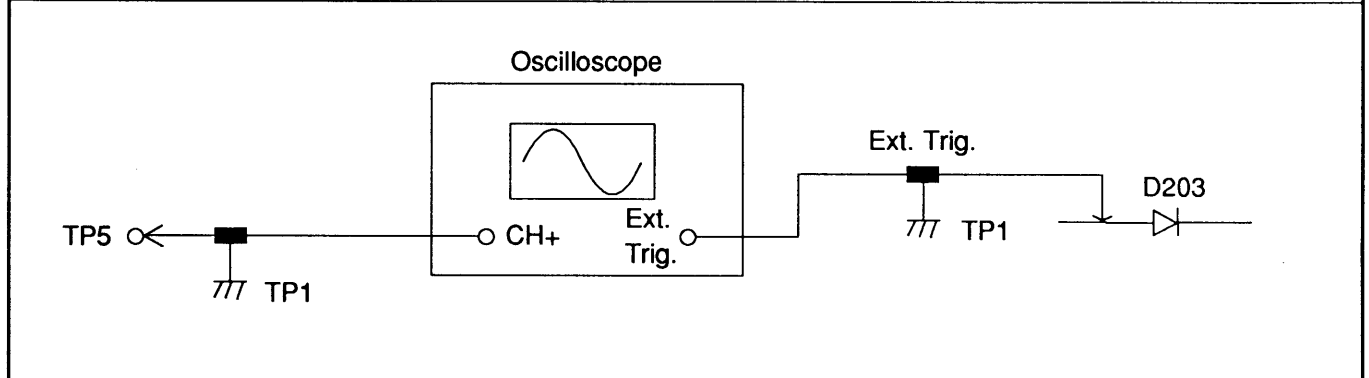
To adjust the center frequency of SECAM bell filter.

Symptom of Misadjustment:

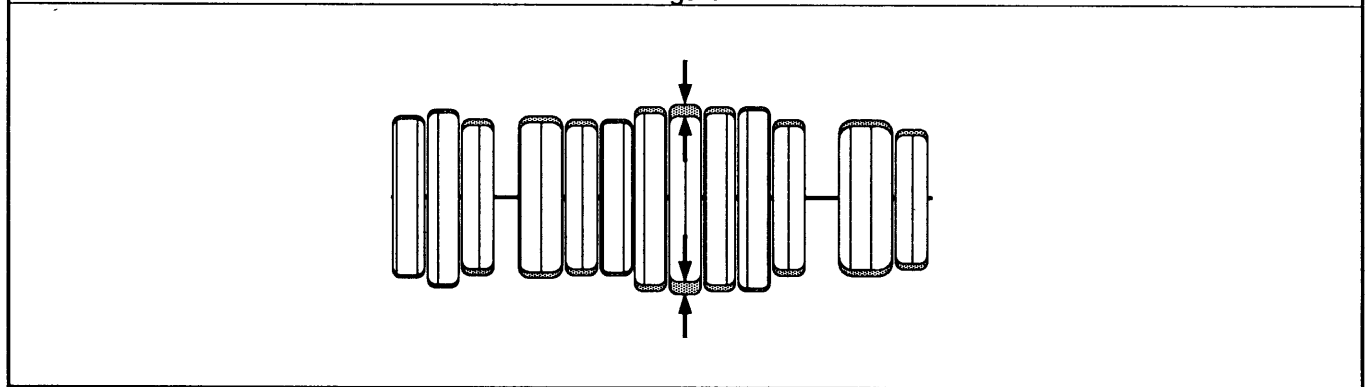
The color will be reversed when the SECAM signal is entered.

Test Point	Adjustment Point	Mode	Input
TP5 TP1 (GND)	L305	---	SECAM Color Bar
Tape	M. EQ.		Spec.
---	SECAM Pattern Generator Oscilloscope (5mV/div, 10ms/div -AC)		See Reference Notes below.

Connections of M. EQ.



Figure



Reference Notes:

TP1, TP5, L305 : TV MAIN C.B.A.

1. Connect the equipment as shown in the above table.
2. Input the SECAM Color Bar.
3. Adjust L305 with core driver to flat wave form.

3. IDENT COIL ADJUSTMENT (FOR SECAM)

Purpose:

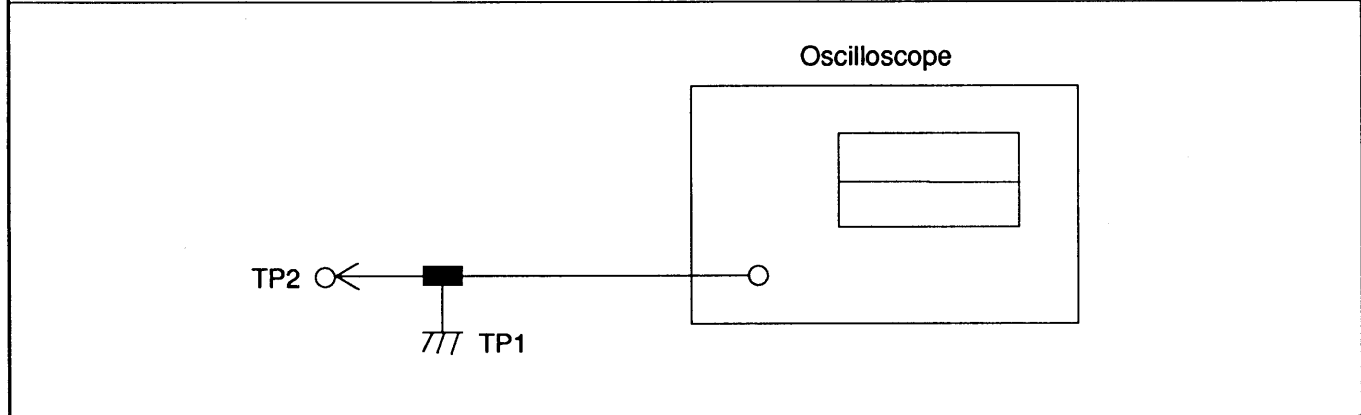
To adjust the peak value of SECAM IDENT signal.

Symptom of Misadjustment:

The display is not colored when the SECAM signal is entered.

Test Point	Adjustment Point	Mode	Input
TP2 TP1 (GND)	L308	---	SECAM Color Bar
Tape	M. EQ.	Spec.	
---	SECAM Pattern Generator Oscilloscope (0.2V/div, 5ms/div -DC)	See Reference Notes below.	

Connections of M. EQ.



Reference Notes:

TP1, TP2, L308 : TV MAIN C.B.A.

1. Connect the equipment as shown in the above table.
2. Input the SECAM Color Bar.
3. Adjust L308 with core driver to peak DC voltage.

4. R-Y DEMODULATE COIL ADJUSTMENT (FOR SECAM)

Purpose:

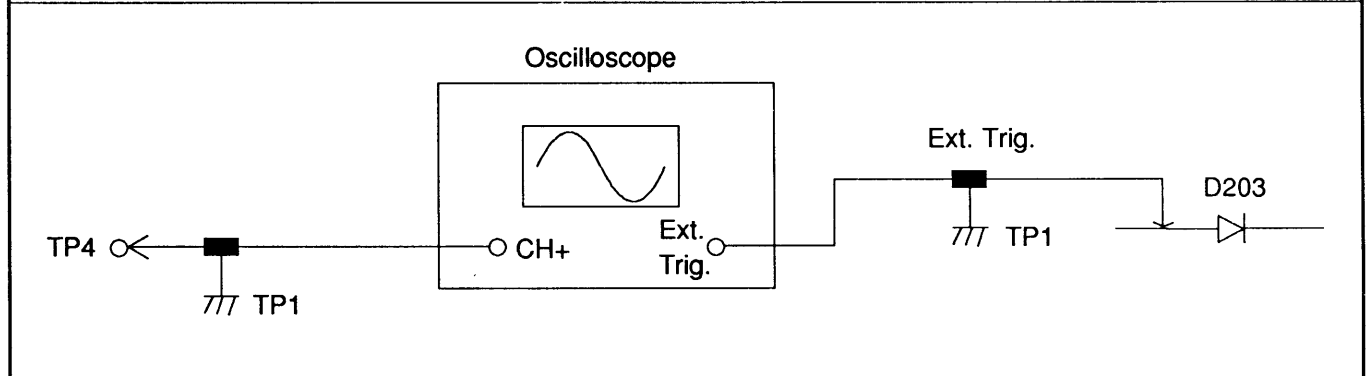
To adjust the level of R-Y color difference signal.

Symptom of Misadjustment:

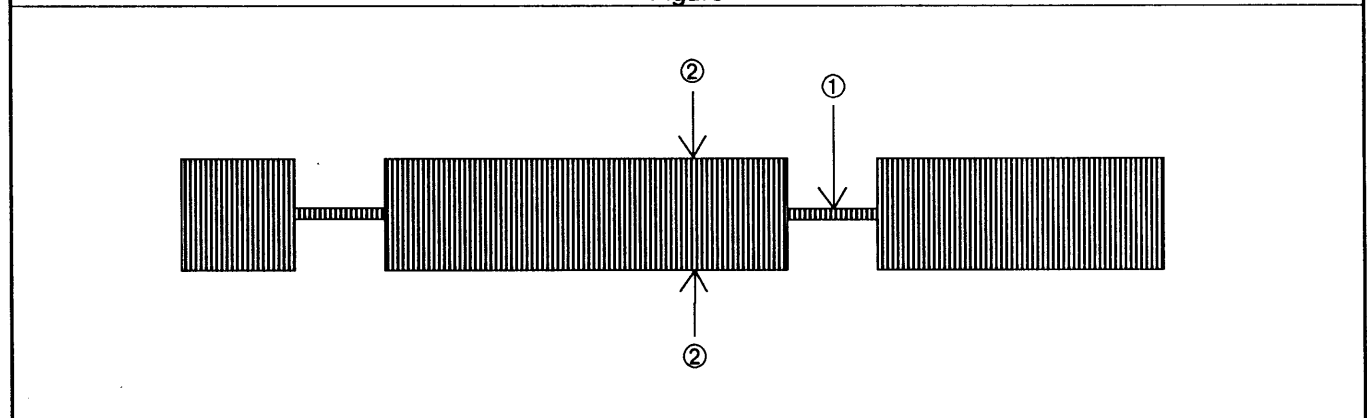
The R, G and B will be unbalanced.

Test Point	Adjustment Point	Mode	Input
TP4 TP1 (GND)	L302	---	SECAM Black Raster
Tape	M. EQ.		Spec.
---	SECAM Pattern Generator Oscilloscope (20mV/div, 5MS/div - AC)		See Reference Notes below.

Connections of M. EQ.



Figure



Reference Notes:

TP1, TP4, L302 : TV MAIN C.B.A.

1. Connect the equipment as shown in the above table.
2. Input the SECAM Black Raster.
3. Adjust L302 with core driver so that ① becomes center of ② as shown in the above table.

5. B-Y DEMODULATE COIL ADJUSTMENT (FOR SECAM)

Purpose:

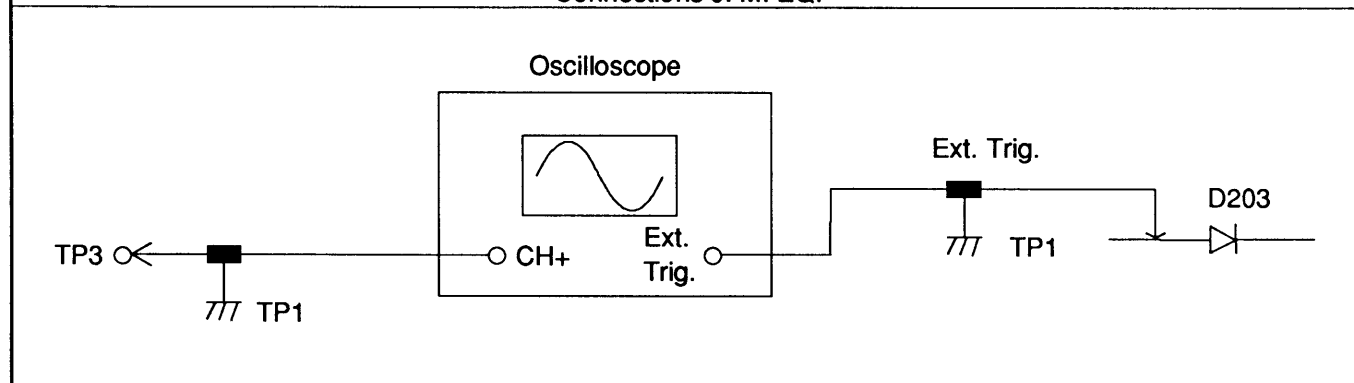
To adjust the level of B-Y color difference signal.

Symptom of Misadjustment:

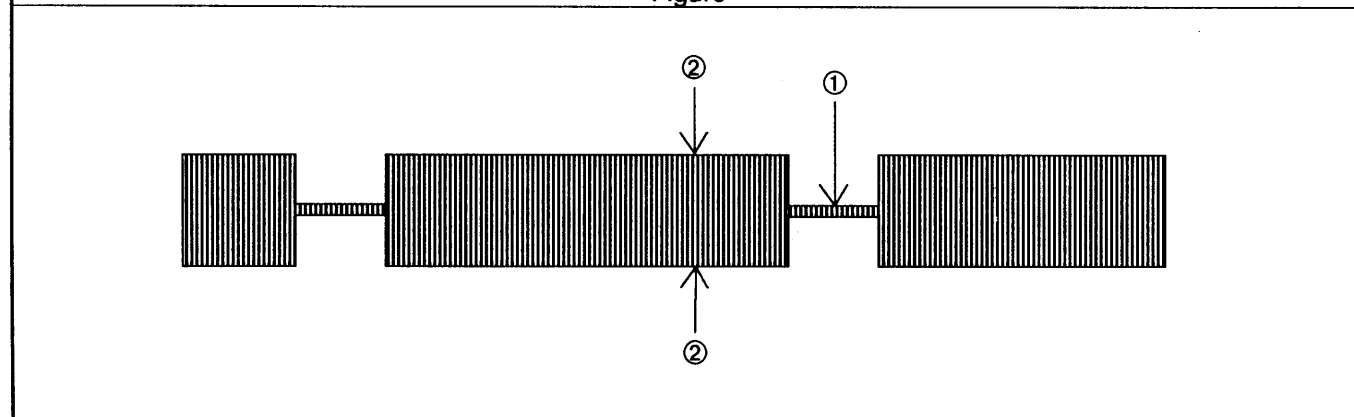
The R, G and B will be unbalanced.

Test Point	Adjustment Point	Mode	Input
TP3 TP1 (GND)	L301	---	SECAM Black Raster
Tape	M. EQ.		Spec.
---	SECAM Pattern Generator Oscilloscope (20mV/div, 5ms/div - AC)		See Reference Notes below.

Connections of M. EQ.



Figure



Reference Notes:

TP1, TP3, L301 : TV MAIN C.B.A.

1. Connect the equipment as shown in the above table.
2. Input the SECAM Black Raster.
3. Adjust L301 with core driver so that ① becomes center of ② as shown in the above table.

6. 1 H DELAY LINE ADJUSTMENT

Purpose:

To get correct 1H delay line when the PAL signal is entered.

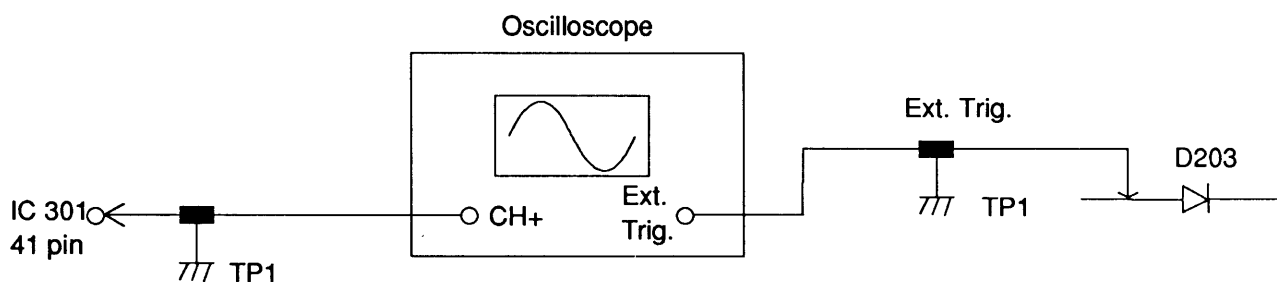
Symptom of Misadjustment:

The Anti-PAL signal part is colored when the Philips pattern is entered.

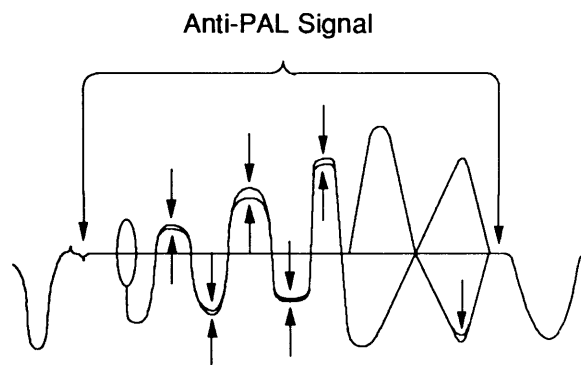
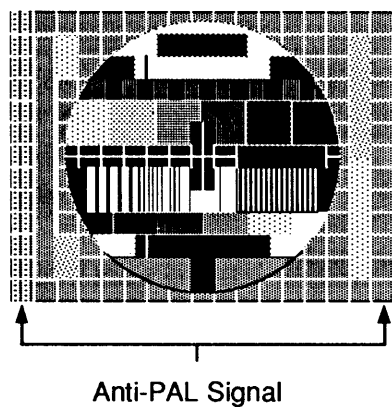
Each scanning line is colored on the color bar.

Test Point	Adjustment Point	Mode	Input
IC301 41 pin TP1 (GND)	L303, VR301	---	Philips Pattern
Tape	M. EQ.	Spec.	
---	Pattern Generator Oscilloscope	See Reference Notes below.	

Connections of M. EQ.



Figure



Reference Notes:

IC301, TP1, L303, VR301 : TV MAIN C.B.A.

1. Connect the equipment as shown in the above table.
2. Input the Philips Pattern.
3. Adjust L303 and VR301 so that the amplitude at Anti-PAL signal part becomes minimum (no color) and the waveform at the color bar part is not seen in double ("Venetian Blind" does not appear at the color bar signal part).

7. V. SIZE ADJUSTMENT

Purpose:

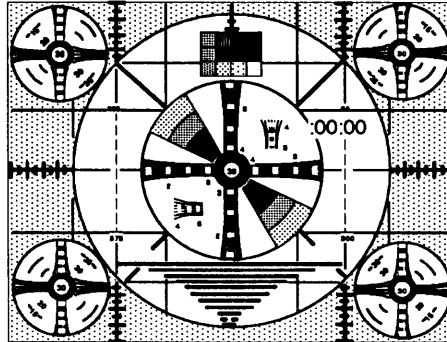
To get correct vertical height of screen image.

Symptom of Misadjustment:

Vertical height of screen image may not be properly displayed.

Test Point	Adjustment Point	Mode	Input
Screen	VR302	---	Monoscope Pattern
Tape	M. EQ.		Spec.
---	Monoscope		90±5%

Figure



Reference Note:

VR302 : TV MAIN C.B.A.

1. Operate the unit more than 20 minutes.
2. Input the Monoscopic Pattern.
3. Adjust VR302 so that the monoscopic pattern will be 90±5% of display size and the circle is round.

8. H. POSITION ADJUSTMENT

Purpose:

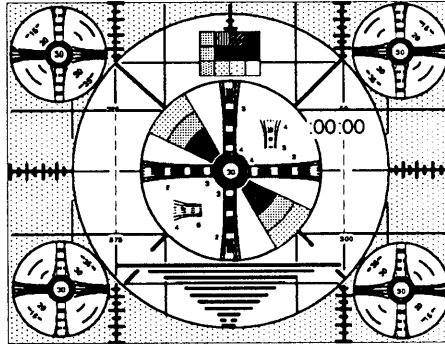
To get correct horizontal position of screen image.

Symptom of Misadjustment:

Horizontal position of screen image may not be properly displayed.

Test Point	Adjustment Point	Mode	Input
Screen	VR304 (R342)	---	Monoscope Pattern
Tape	M. EQ.		Spec.
---	Monoscope		See Reference Notes below.

Figure



Reference Note:

VR304 : TV MAIN C.B.A.

1. Operate the unit more than 20 minutes.
2. Input the Monoscopic Pattern.
3. Adjust VR304 so that the right and left of monoscopic pattern will be equal.

9. CUT OFF ADJUSTMENT

Purpose:

To adjust the beam current of R, G, B and screen voltage.

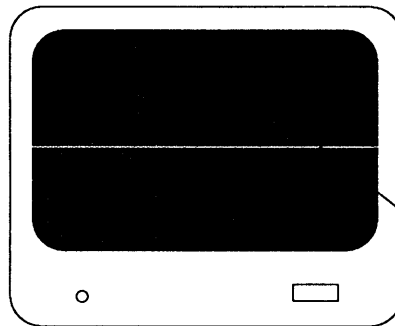
Symptom of Misadjustment:

White color may be reddish, greenish or bluish.

When the screen voltage is too high, the scanning line is appeared on the screen.

Test Point	Adjustment Point	Mode	Input
Screen	VR701, VR702, VR703, Screen-VR (F.B.T.)	---	White Raster (APL 100%)
Tape	M. EQ.		Spec.
---	Pattern Generator		See Reference Notes below.

Figure



Using this line

Reference Notes:

VR701, VR702, VR703, VR704, VR705 : TV CRT C.B.A.

VR303, SW301 : TV MAIN C.B.A.

Screen-VR : TV MAIN C.B.A. (F.B.T.)

1. Operate the unit more than 20 minutes.
2. Degauss the CRT using Degaussing Coil.
3. Input the white Raster (APL 100%).
4. Turn the Screen-VR fully counterclockwise.
5. Set VR701(Blue), VR702(Green), VR703(Red), VR704(R. Drive), VR705(B. Drive) and VR303(Sub Bright) to center.
6. Set the SW301(Service SW) to ON.
7. Slowly turn the Screen-VR to the point where horizontal line just illuminates.
8. Adjust VR701(Blue), VR702(Green) and VR703(Red) so that horizontal line becomes pure white.
9. Turn off the SW301(Service SW).

Note:

Confirm that White Balance Adj. is correct after this adjustment, and attempt White Balance Adj. if needed.

10. WHITE BALANCE ADJUSTMENT

Purpose:

To mix red, green and blue beams correctly for pure white.

Symptom of Misadjustment:

White becomes bluish or reddish.

Test Point	Adjustment Point	Mode	Input
Screen	VR704, VR705	---	Color Bar signal with 100% White Level
Tape	M. EQ.		Spec.
---	Pattern Generator		See Reference Notes below.

Reference Notes:

VR704, VR705 : TV CRT C.B.A.

1. Operate the unit more than 20 minutes.
2. Face the unit to east. Degauss the CRT using Degaussing Coil.
3. Input the Color Bar signal.
4. Adjust VR704(R. DRIVE) and VR705(B. DRIVE) so that white area is shown pure white.

Note:

Confirm that Cut Off Adj. is correct after this adjustment, and attempt Cut Off Adj. if needed.

11. SUB BRIGHT ADJUSTMENT

Purpose:

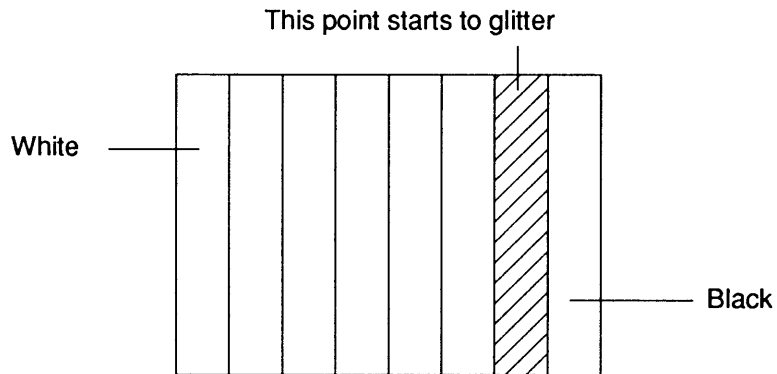
To get proper brightness.

Symptom of Misadjustment:

Proper brightness cannot be obtained by adjusting the Bright Control.

Test Point	Adjustment Point	Mode	Input
Screen	VR303	---	Gray Scale
Tape	M. EQ.		Spec.
---	Pattern Generator		See Reference Notes below.

Figure



Reference Notes:

VR303 : TV MAIN C.B.A.

1. Operate the unit more than 20 minutes.
2. Input the 8-step Gray scale.
3. Adjust VR303 to a point where the one level higher than the black-level starts flashing. (2nd level from the right)

12. FOCUS ADJUSTMENT

Purpose:

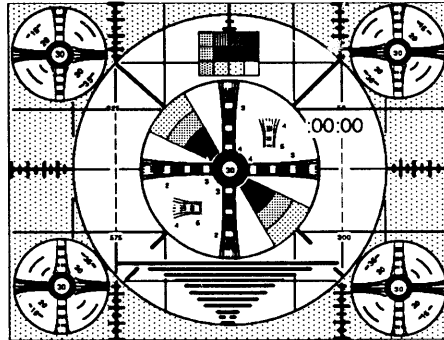
To get correct focus.

Symptom of Misadjustment:

Blurred image is shown on the display.

Test Point	Adjustment Point	Mode	Input
Screen	Focus-VR (F.B.T.)	---	Monoscope Pattern
Tape	M. EQ.		Spec.
---	Monoscope		Clear picture

Figure



Reference Note:

Focus-VR : TV MAIN C.B.A. (F.B.T.)

1. Operate the unit more than 20 minutes.
2. Input the Monoscopic Pattern.
3. Adjust Focus-VR to be obtained clear picture.

ELECTRICAL ADJUSTMENT INSTRUCTIONS [VCR]

General Note: "C.B.A." is abbreviation for "Printed Circuit Board Assembly".

NOTE:

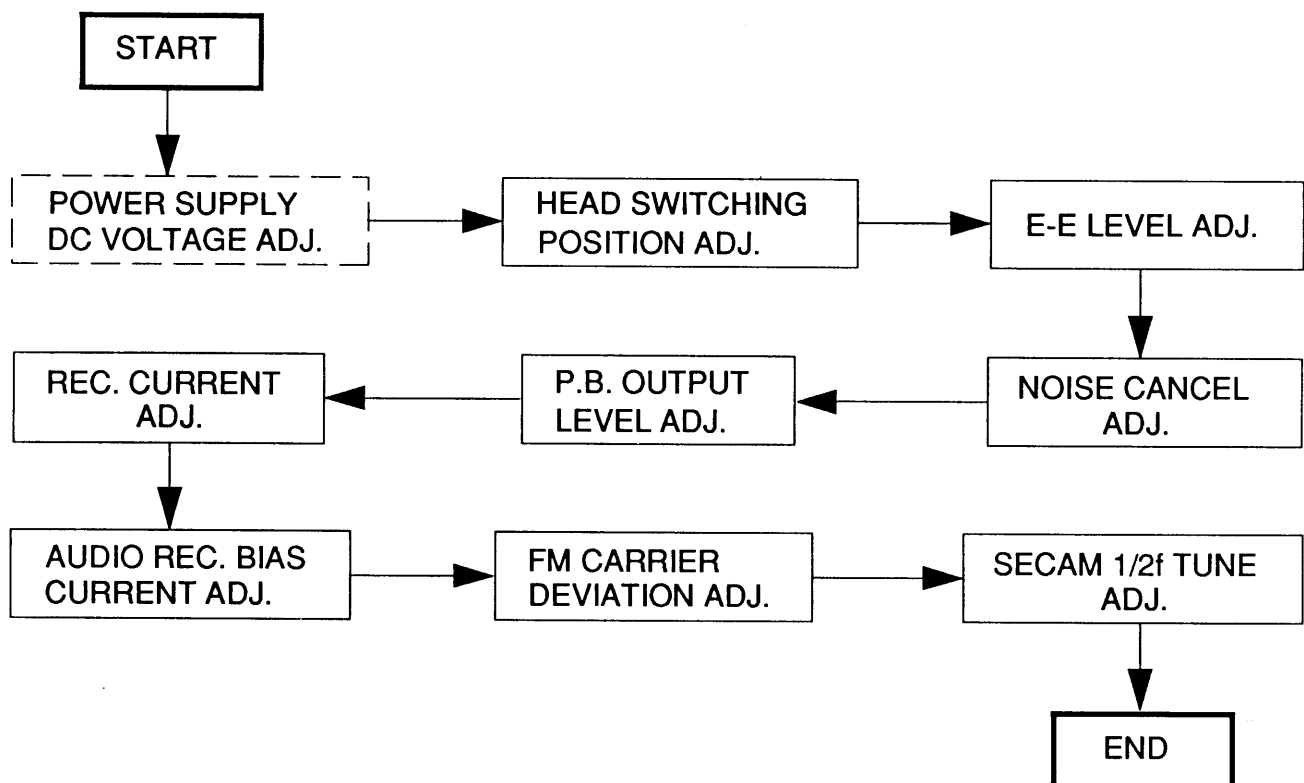
Electrical adjustments are required after replacing circuit components and certain mechanical parts. It is important to perform these adjustments only after all repairs and replacements have been completed. Also, do not attempt these adjustments unless the proper equipment is available.

TEST EQUIPMENT REQUIRED

1. Oscilloscope: Dual-trace with 10:1 probe, V-Range: 0.001~50v/Div., F-Range: AC~DC-20MHz
2. PAL/SECAM Pattern Generator (Color bar with 100% white)
3. AC Voltmeter (RMS)
4. Alignment Tape (F6-A, Blank Tape)
5. Spectrum Analyzer

HOW TO SET UP THE ADJUSTMENT MODE

If not already done, execute Power Supply DC Voltage Adj. (P. 16-2) first.



1. HEAD SWITCHING POSITION ADJUSTMENT

Note: Before attempting the mechanical adjustment, must be completed this adjustment.

Purpose:

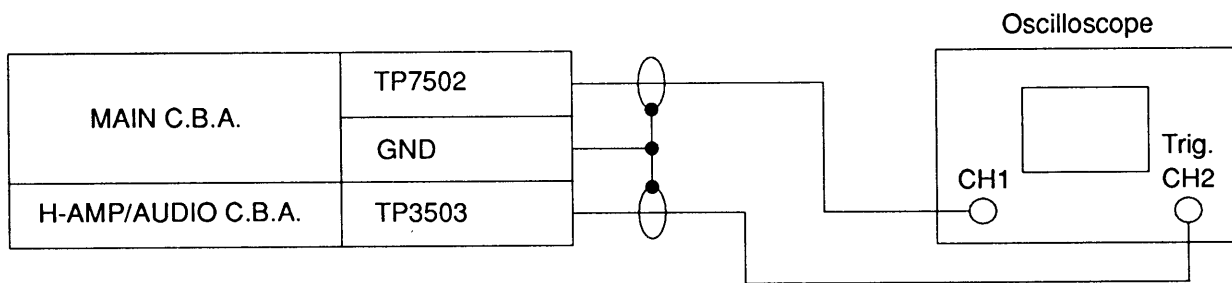
Determine the Head Switching Point during Playback.

Symptom of Misadjustment:

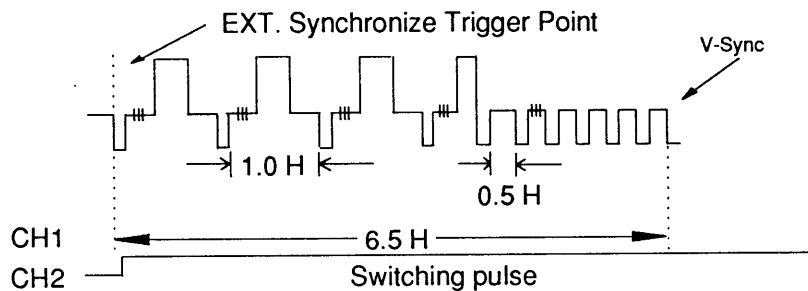
May cause Head Switching Noise or Vertical Jitter in the picture.

Test Point	Adj. Point	Mode	Input
TP7502 (V-OUT) TP3503 (RF-SW) GND	VR2001 (HEAD SWITCHING)	PLAY	—
Tape	M. EQ.	Spec.	
F6-A	Oscilloscope	6.5H±1H (412.7µs±60µs)	

Connections of M. EQ.



Figure



Reference Notes:

TP3503 : HEAD AMP/AUDIO C.B.A.

TP7502, VR2001 : VCR MAIN C.B.A.

1. Connect the equipment as shown in the above table.
2. Set tracking control to the neutral position.
(Press the channel up and down buttons of the unit together during PLAY mode.)
3. Playback test tape and adjust VR2001 so that the V-sync front edge of CH1 video output waveform is delayed 6.5H(412.7µs) from the rising of CH2 Head Switching pulse waveform.

2. E-E LEVEL ADJUSTMENT

Purpose:

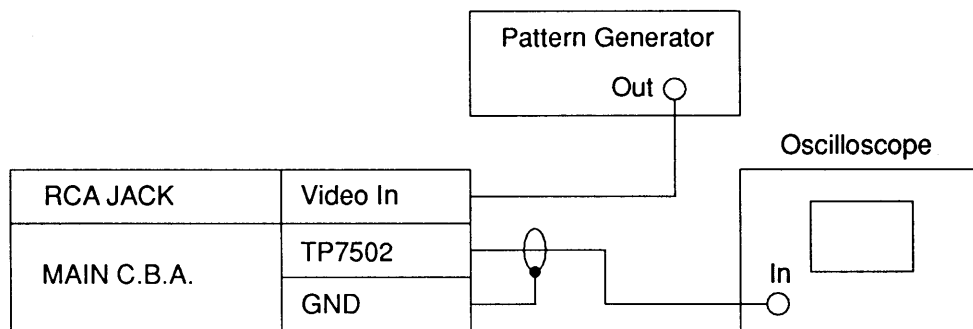
Set the optimum E-E Luminance Level.

Symptom of Misadjustment:

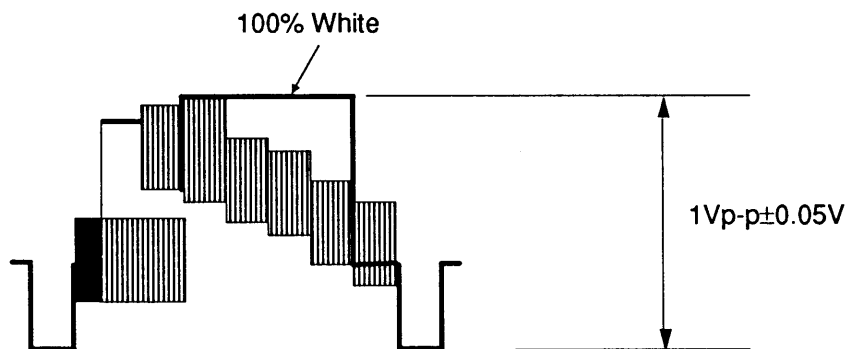
If the E-E Level is too high, TV may overload. If the Level is too low, the S/N Ratio deteriorates.

Test Point	Adj. Point	Mode	Input
TP7502 (V-OUT)	VR55 (E-E)	E-E	Color Bar with 100% White
Tape	M. EQ.	Spec.	
---	Pattern Generator Oscilloscope	1Vp-p \pm 0.05V	

Connections of M. EQ.



Figure



Reference Notes:

TP7502 : VCR MAIN C.B.A.

VR55 : Y/C PROCESS C.B.A.

1. Connect the equipment as shown in the above table.
2. Input Color Bar signal with 100% White to Video Input.
3. Adjust VR55 so that the video level becomes 1Vp-p \pm 0.05V. (Connected to TV).

3. P.B. OUTPUT LEVEL ADJUSTMENT

Purpose:

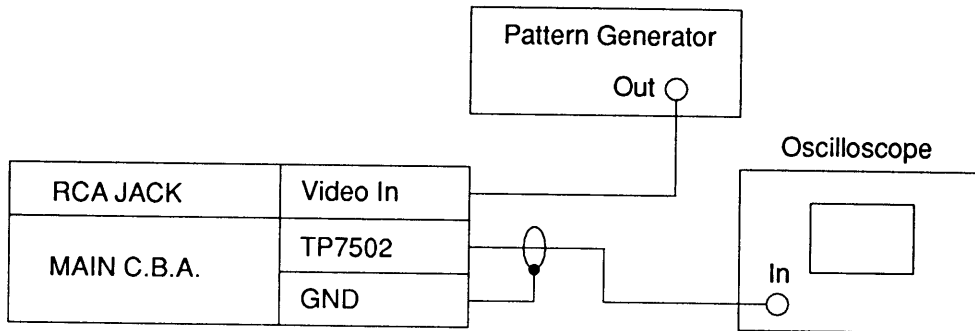
Set the Optimum Playback Luminance Level.

Symptom of Misadjustment:

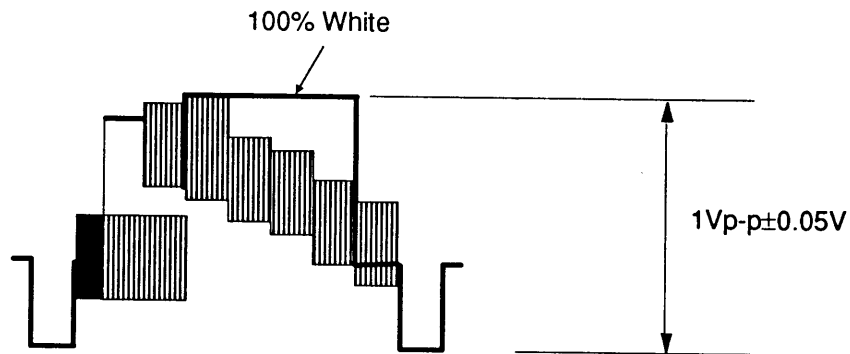
If the P.B. Output Level is too high, TV may overload. If the Level is too low, the S/N Ratio deteriorates.

Test Point	Adj. Point	Mode	Input
TP7502 (V-OUT)	VR53 (PB LEVEL)	PLAY	—
Tape	M. EQ.	Spec.	
F6-A	Pattern Generator Oscilloscope	1Vp-p±0.05V	

Connections of M. EQ.



Figure



Reference Notes:

TP7502 : VCR MAIN C.B.A.

VR53 : Y/C PROCESS C.B.A.

1. Connect the equipment as shown in the above table.
2. Playback test tape and adjust VR53 so that the video level becomes 1Vp-p±0.05V. (Connected to TV)

4. NOISE CANCEL ADJUSTMENT

Purpose:

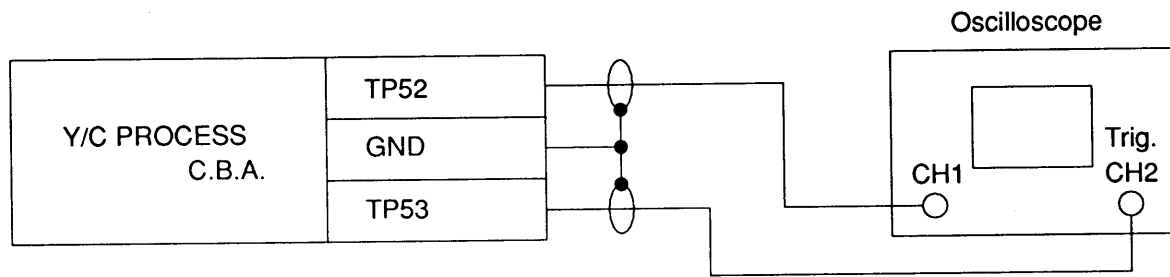
Improve the overall S/N Ratio, especially in the Low Frequency Component.

Symptom of Misadjustment:

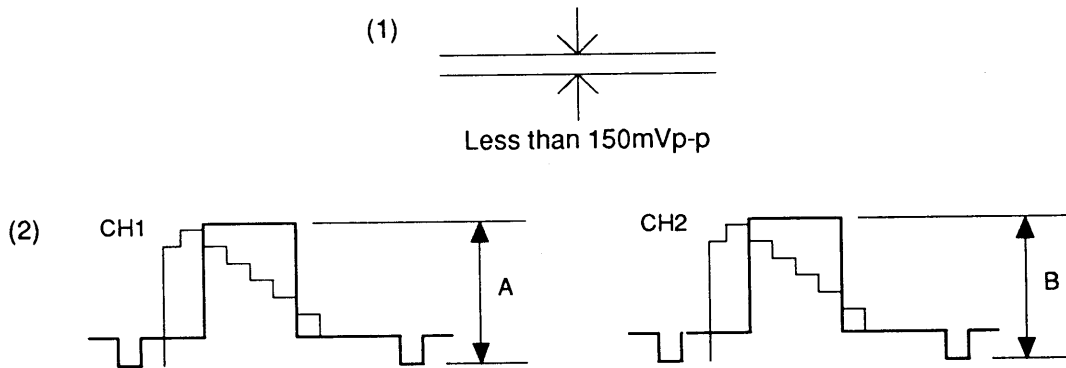
The S/N Ratio will be lower.

Test Point	Adj. Point	Mode	Input
TP52 (NOISE CANCEL) TP53 (NOISE CANCEL)	VR54 (NOISE CANCEL)	PLAY	—
Tape	M. EQ.	Spec.	
F6-A	Oscilloscope	See below.	

Connections of M. EQ.



Figure



Reference Notes:

TP52, TP53, VR54 : Y/C PROCESS C.B.A.

Adjust the Noise Cancel for choice (1) or (2).

- (1): 1. Connect the equipment as shown in the above table.
- 2. Set the input trigger mode to CH2 and set trigger slope to (+).
- 3. Invert CH2 signal (TP53) and select ADD mode.
- 4. Playback the tape and adjust VR54 so that the level becomes minimum.
- (2): 1. Connect the equipment as shown in the above table.
- 2. Set the input trigger mode to CH2 and set trigger slope to (+).
- 3. Playback the tape and adjust VR54 so that the output levels (A,B) of both channels become the same.

5. REC. CHROMA ADJUSTMENT

Purpose:

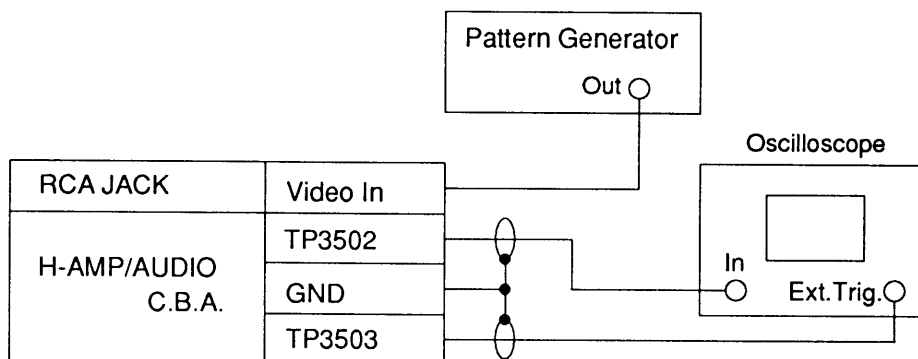
Set the optimum Record Chroma Level.

Symptom of Misadjustment:

If the Record Chroma Level is too high, beats may cause on the picture, and in case of too low, the Chroma S/N Ratio will be lower.

Test Point	Adj. Point	Mode	Input
TP3502 (C-REC) TP3503 (RF-SW) GND	VR3501 (C-REC)	REC	Red Raster
Tape	M. EQ.	Spec.	
Blank Tape	Pattern Generator Oscilloscope	55±5mVp-p	

Connections of M. EQ.



Figure



Reference Notes:

TP3502, TP3503, VR3501 : HEAD AMP/AUDIO C.B.A.

1. Connect the equipment as shown in the above table.
2. Input Red only signal to Video Input.
3. Adjust VR3501 so that the Chroma Level becomes 55±5mVp-p.

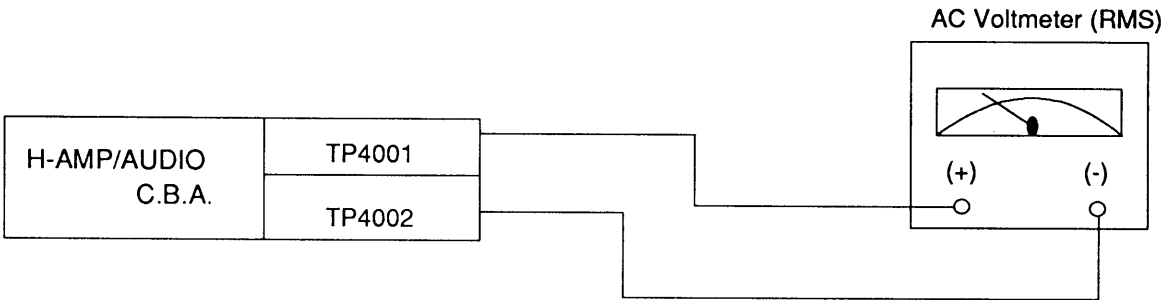
6. AUDIO REC. BIAS CURRENT ADJUSTMENT

Purpose:

Set Optimum Record Audio Bias Level.

Symptom of Misadjustment:

If Audio Bias Level is too high, the Frequency Response deteriorates. If the level is too low, sound distortion may cause.

Test Point	Adj. Point	Mode	Input
TP4001 (BIAS+) TP4002 (BIAS-) GND	VR4001 (BIAS)	REC	—
Tape	M. EQ.	Spec.	
Blank Tape	AC Voltmeter or Oscilloscope	22.0mV RMS	
Connections of M. EQ.			
			

* Do not enter Input Signal.

Reference Notes:

TP4001, TP4002, VR4001 : HEAD AMP/AUDIO C.B.A.

1. Connect the equipment as shown in the above table.
2. Insert a blank tape and set the VCR to REC (SP) mode.
(Do not set to PAUSE. In PAUSE mode, the bias oscillation is stopped.)
3. Adjust VR4001 so that the voltage becomes 22.0mV.

7. FM CARRIER DEVIATION ADJUSTMENT

Purpose:

To align FM carrier deviation.

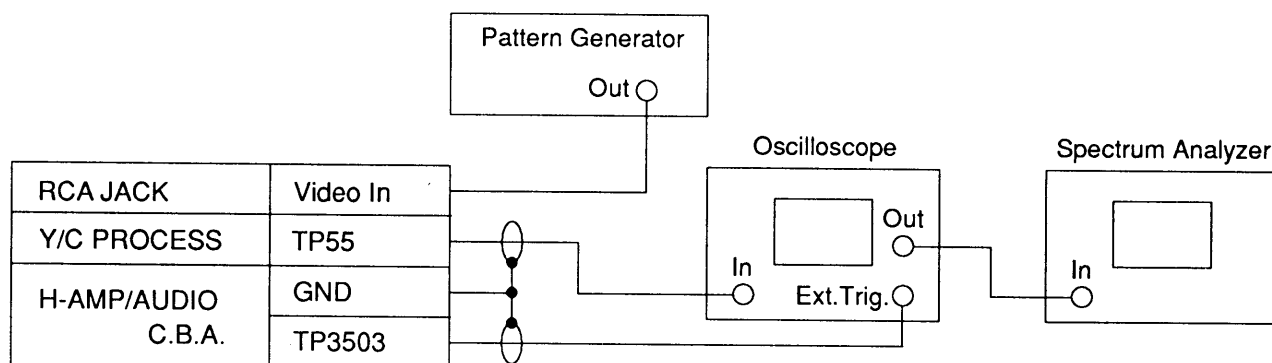
Symptom of Misadjustment:

If the deviation is not correct, abnormal contrast of light and shadow on the picture may be seen.

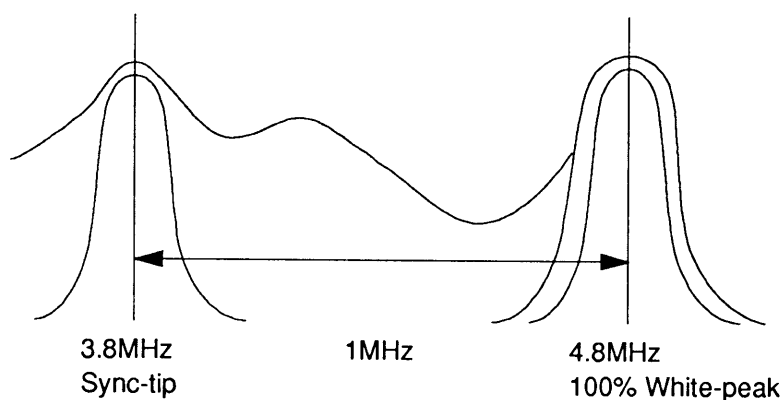
If the carrier deviation is not correct, Beats appear on the picture.

Test Point	Adj. Point	Mode	Input
TP55 (CRR/DEV) TP3503 (RF-SW)	VR51 (CARR) VR52 (DEVIATION)	REC	White Raster (APL 100%)
Tape	M. EQ.	Spec.	
Blank Tape	Pattern Generator Spectrum Analyzer Oscilloscope	Sync-tip $3.8\text{MHz} \pm 50\text{KHz}$ 100% White peak $4.8\text{MHz} \pm 50\text{KHz}$	

Connections of M. EQ.



Figure



Reference Notes:

TP55, VR51, VR52 : Y/C PROCESS C.B.A.

TP3503 : HEAD AMP/AUDIO C.B.A.

1. Connect the equipment as shown in the above table.
2. Input White 100% only signal to Video Input.
3. Adjust Sync-tip to $3.8\text{MHz} \pm 50\text{KHz}$ by VR51, White-peak for $4.8\text{MHz} \pm 50\text{KHz}$ by VR52.

8. SECAM 1/2f TUNE ADJUSTMENT

Purpose:

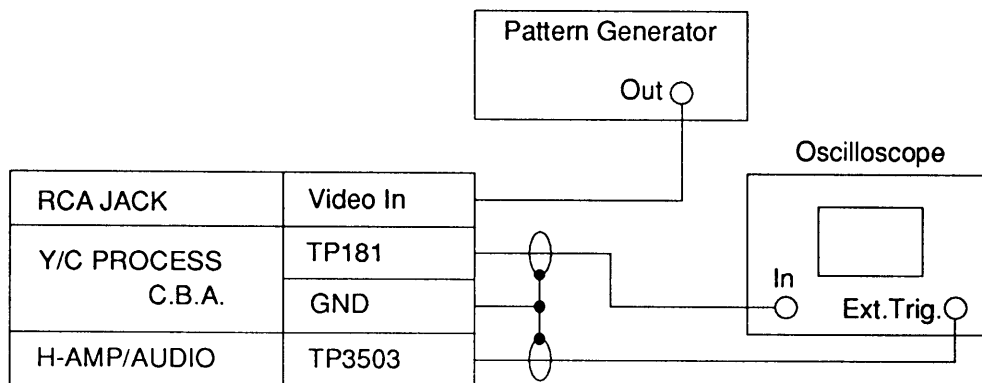
To detect SECAM Signal Correctly.

Symptom of Misadjustment:

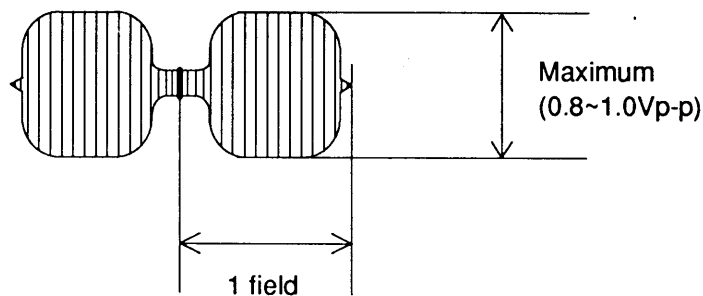
Black and White Picture only appears if SECAM Signal is Low Level.

Test Point	Adj. Point	Mode	Input
TP181 (SECAM) TP3503 (RF-SW)	L181 (SECAM)	REC	SECAM Color Bar
Tape	M. EQ.	Spec.	
Blank Tape	Pattern Generator Oscilloscope	See below.	

Connections of M. EQ.



Figure



Reference Notes:

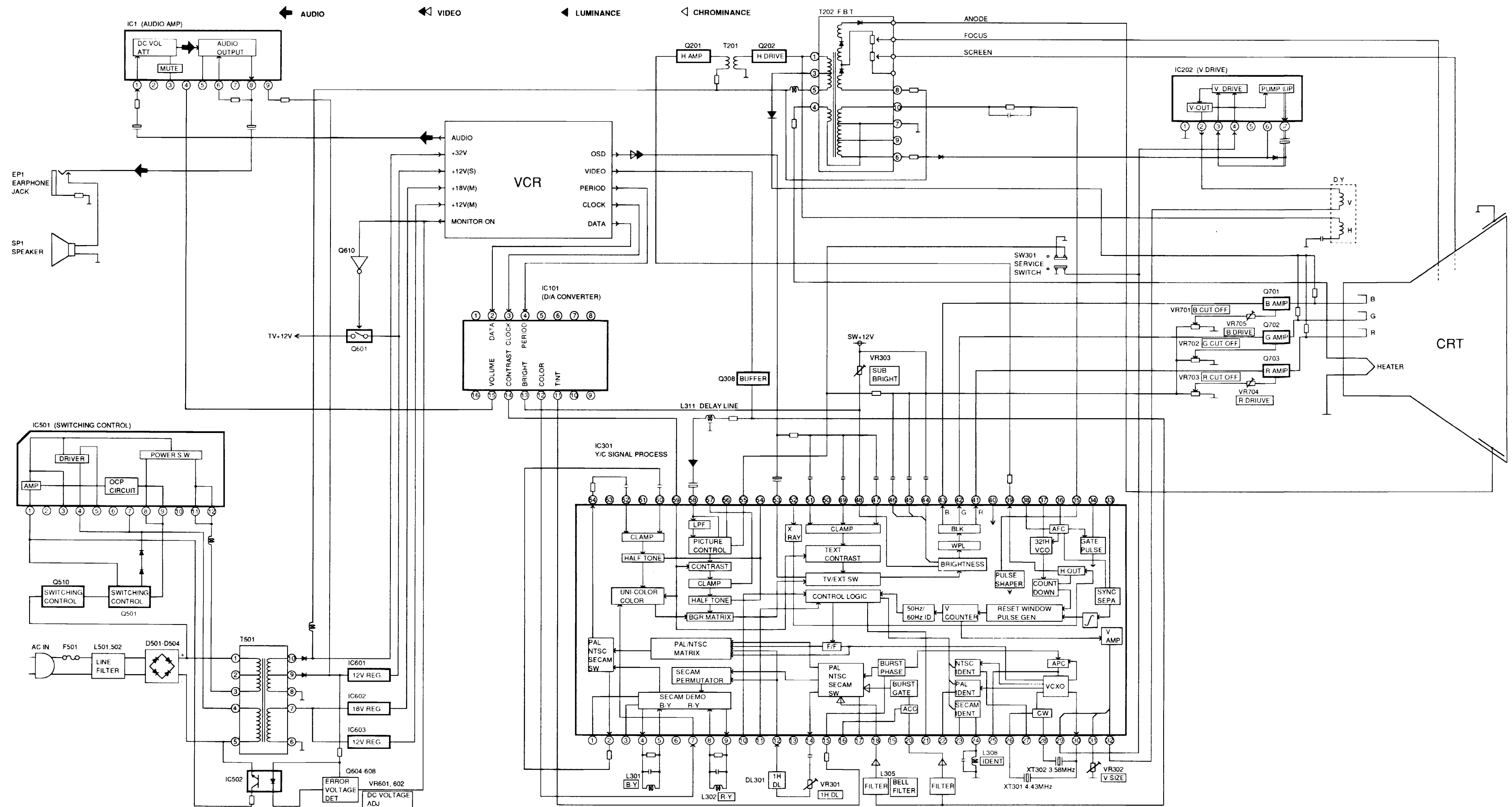
TP181, L181 : Y/C PROCESS C.B.A.

TP3503 : HEAD AMP C.B.A.

1. Connect the equipment as shown in the above table.
2. Input SECAM color bar signal to Video Input.
3. Adjust L181 so that output level becomes maximum.

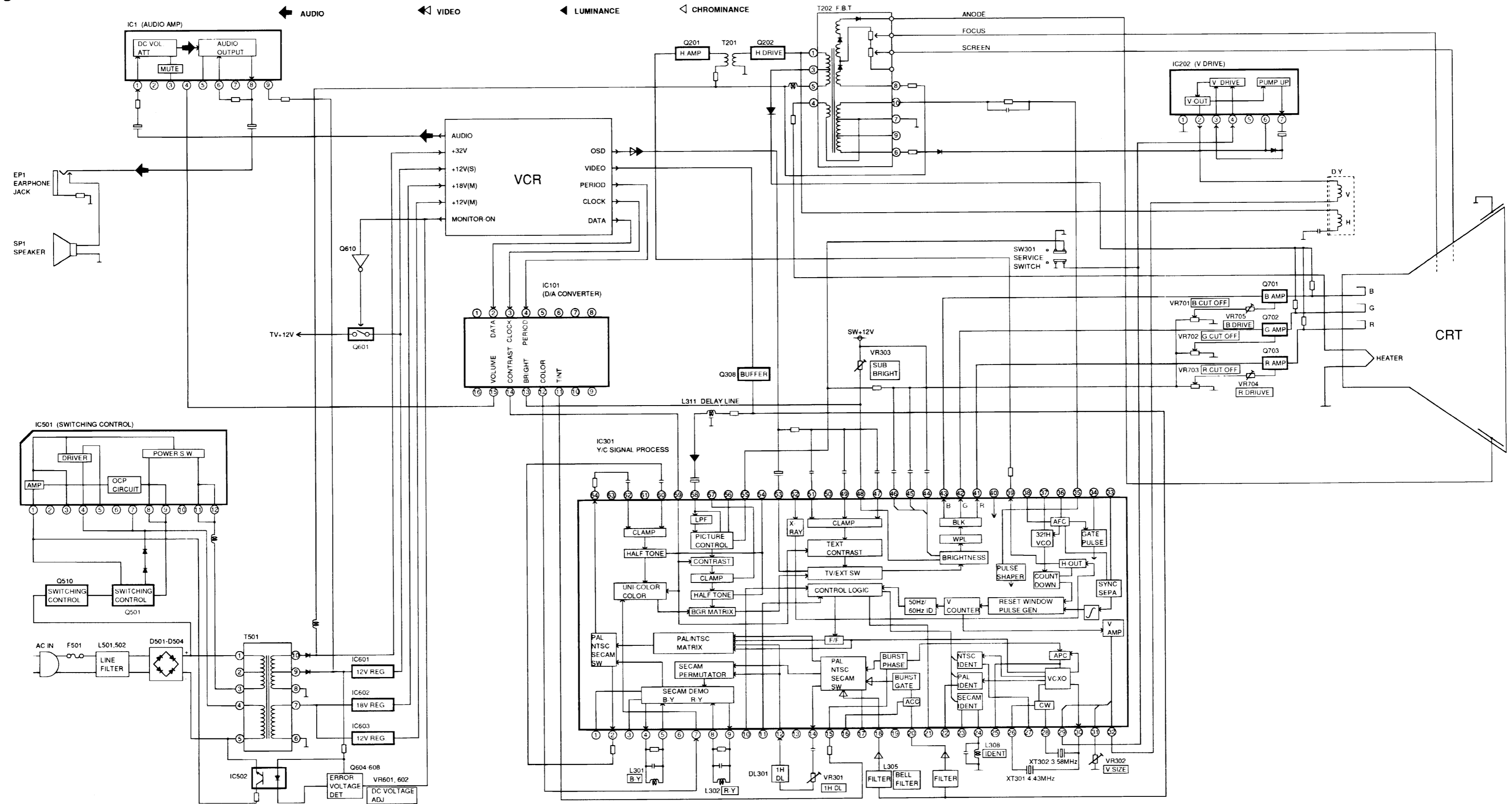
BLOCK DIAGRAMS

TV/CRT Block Diagram

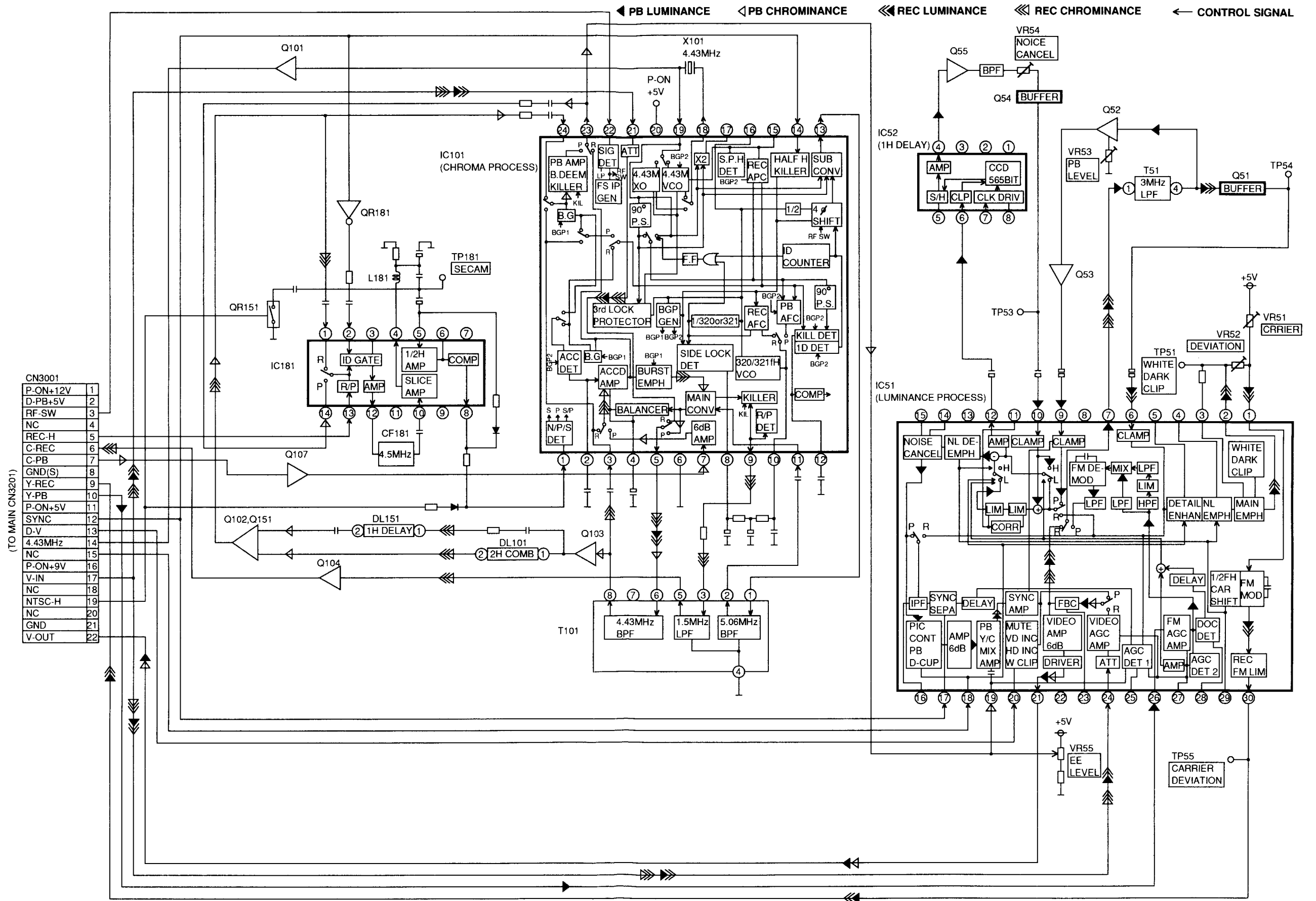


BLOCK DIAGRAMS

TV/CRT Block Diagram



Y/C Process Block Diagram



SCHEMATIC DIAGRAMS / C.B.A. AND TEST POINTS

STANDARD NOTES

Critical components having special safety characteristics are identified with a \triangle by the Ref. No. in the parts list and enclosed within a broken line * (where several critical components are grouped in one area) along with the safety symbol \triangle on the schematics or exploded views.

Use of substitute replacement parts which do not have the same specified safety characteristics may create shock, fire, or other hazards.

Notes:

- ① Do not use the part number shown on these drawings for ordering. The correct part number is shown in the parts list, and may be slightly different or amended since these drawings were prepared.
- ② All resistance values are indicated in ohms ($K=10^3$, $M=10^6$).
- ③ Resistor wattages are 1/5W or 1/6W unless otherwise specified.

Note of Capacitors:

(M) --- Mylar Cap. (NP) --- Non-Polarized Cap. (SC) --- Semiconductor Cap.

Temperature Characteristics of Capacitors are noted with the following:

(B), (YB) --- $\pm 10\%$ (SR) --- $\pm 15\%$ (F) --- +30~-80% (NP0) --- $0 \pm 60 \text{ppm}/^\circ\text{C}$ (SL) --- +350~-1000ppm/ $^\circ\text{C}$

Tolerance of Capacitors are noted with the following:

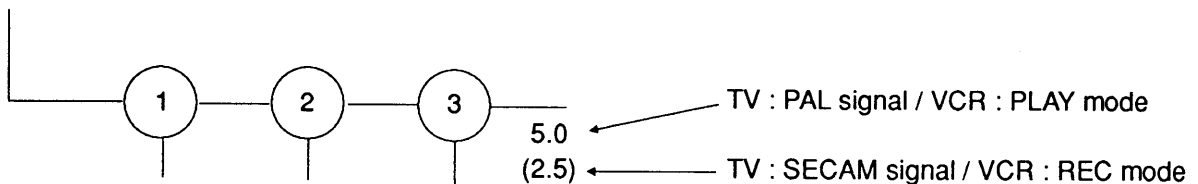
(K) --- $\pm 10\%$ (Z) --- +80~-20%

WARNING

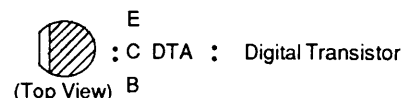
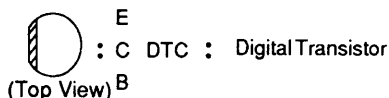
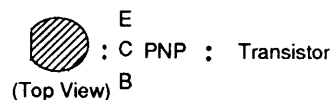
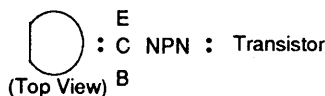
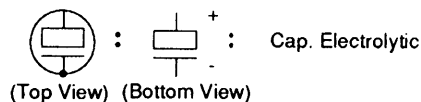
Under no circumstances should the original design be modified or altered without written permission from TEAC Corporation. TEAC assumes no liability, express or implied, arising out of any unauthorized modification of design. Servicer assumes all liability.

*Broken Line: 

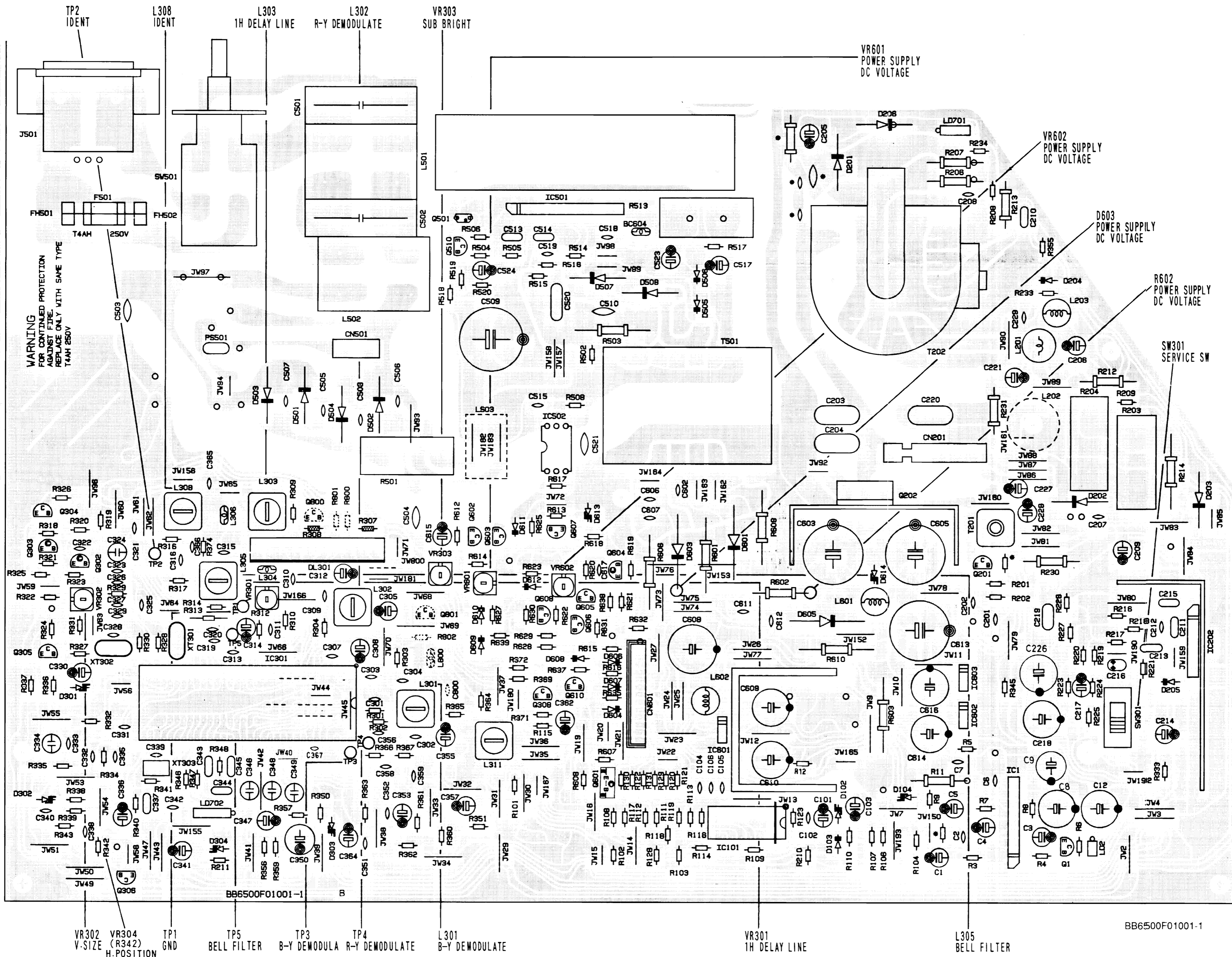
- ④ All capacitance values are indicated in μF ($P=10^{-6}\mu\text{F}$).
- ⑤ All voltages are DC voltages unless otherwise specified.
- ⑥ Voltage Indications for PLAY and REC mode on Schematics are as shown below.



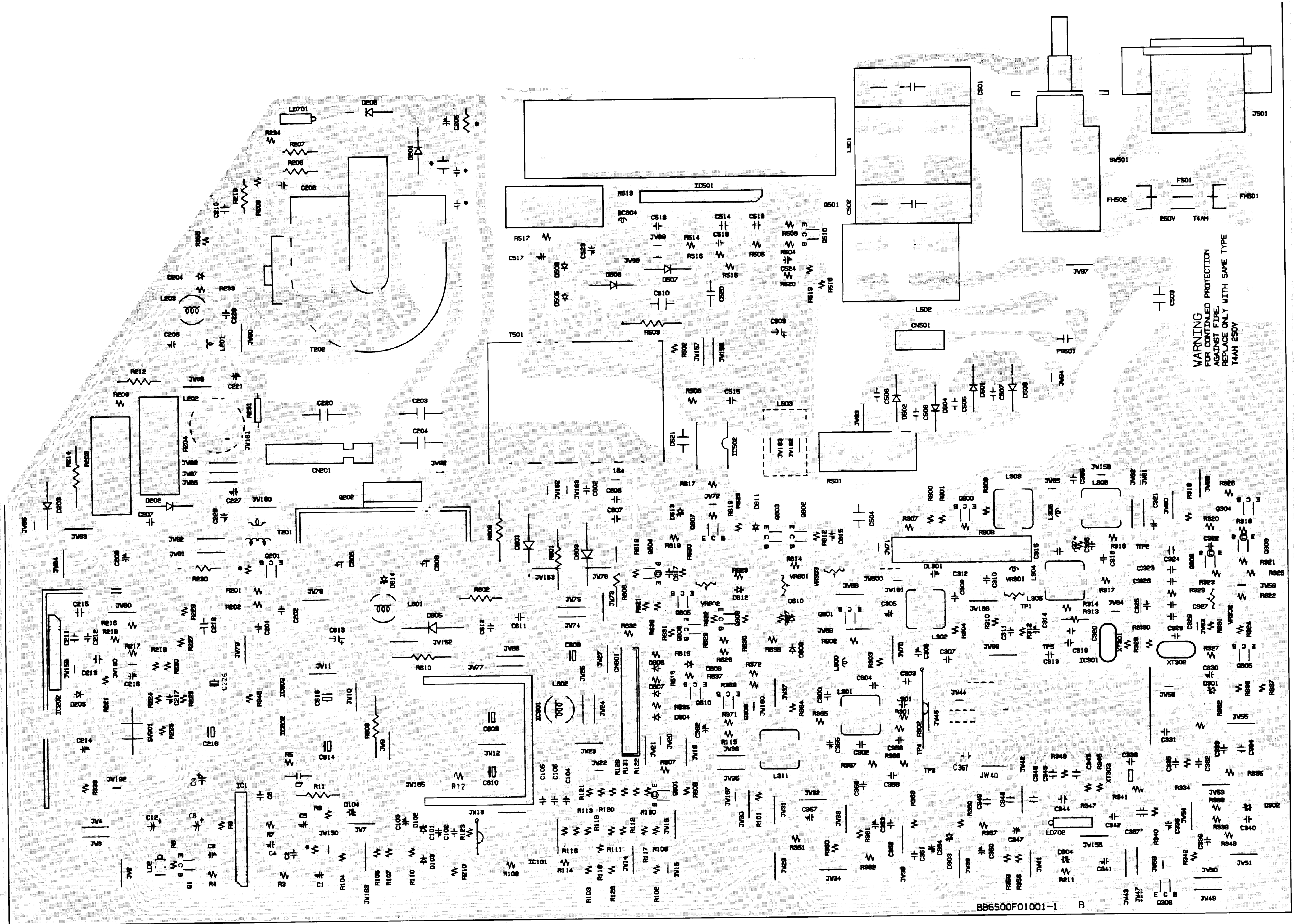
☆ Capacitors and transistors are noted with the following symbols.



TV Main C.B.A. (Top View)



TV Main C.B.A. (Bottom View)

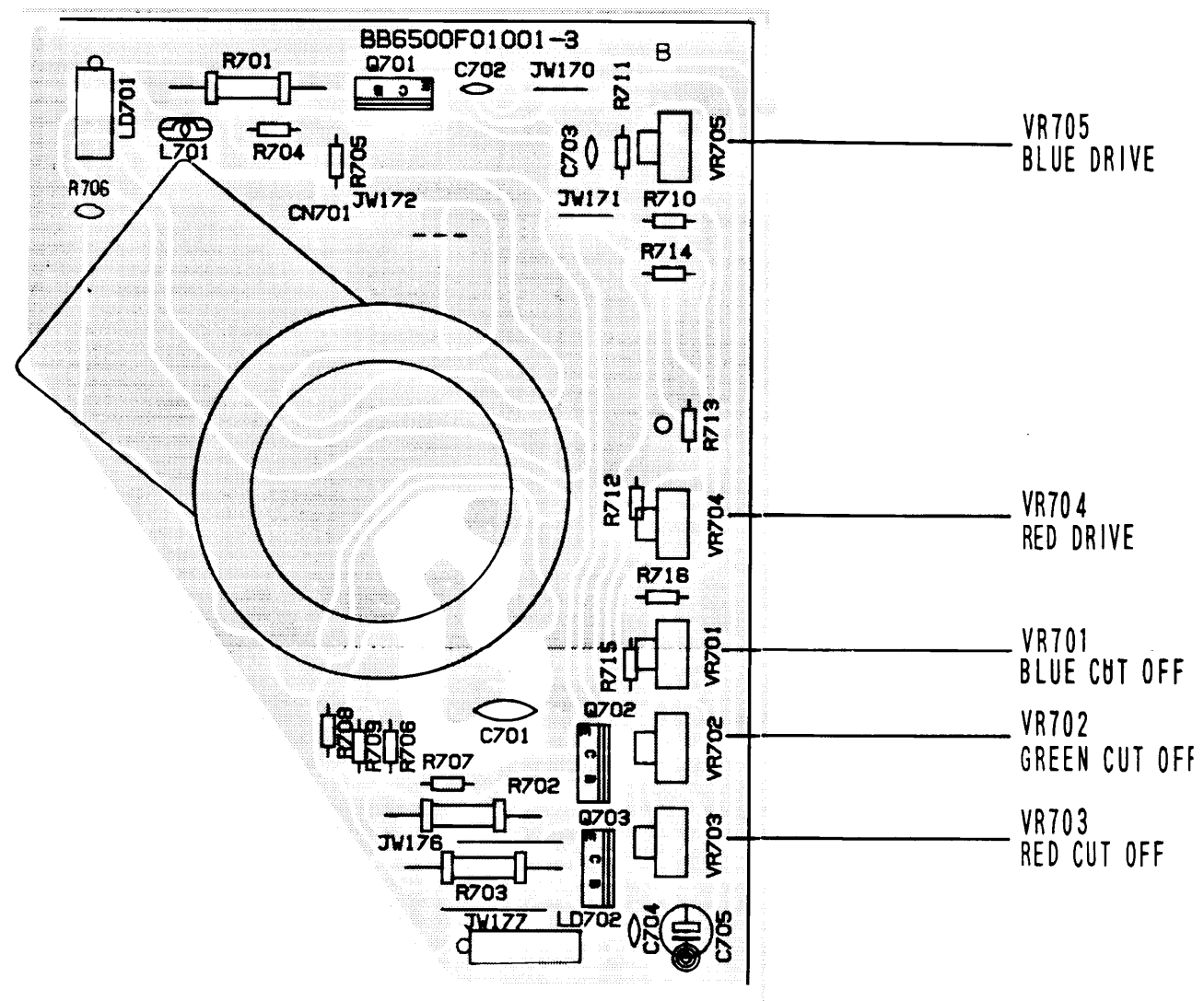


BB6500F01001-1 B

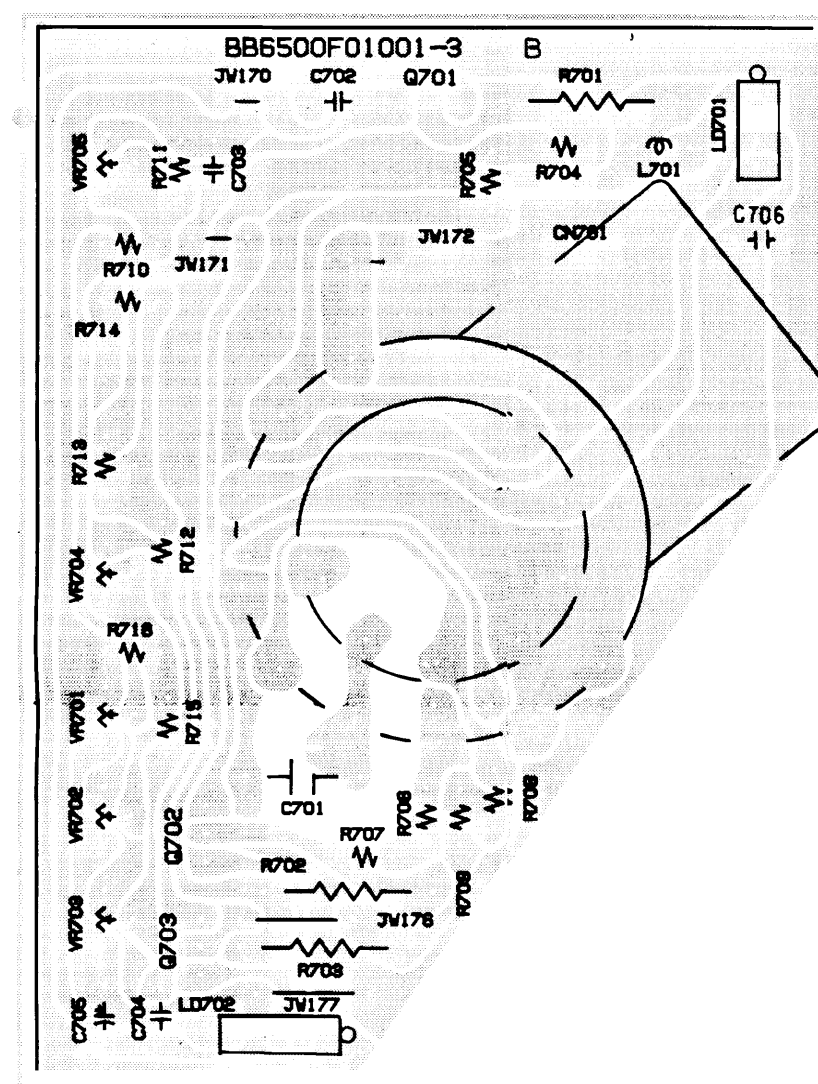
BB6500F01001-1

CRT C.B.A.

(Top View)



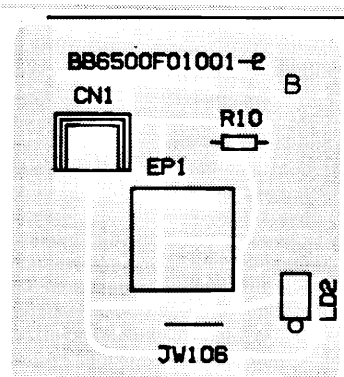
(Bottom View)



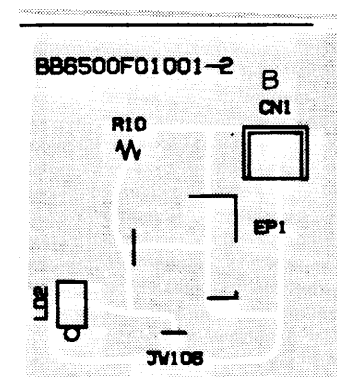
BB6500F01001-3

Earphone C.B.A.

(Top View)

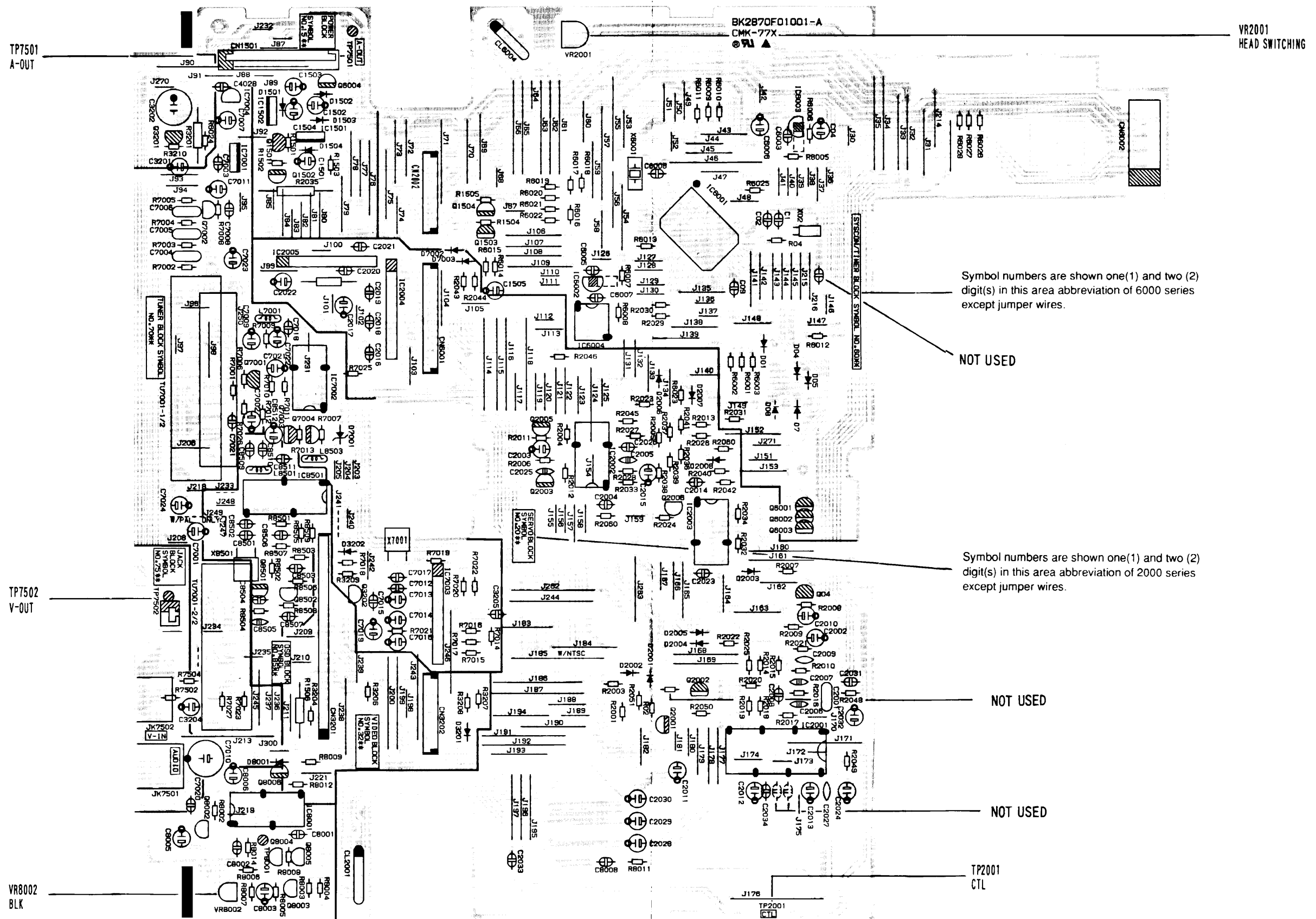


(Bottom View)



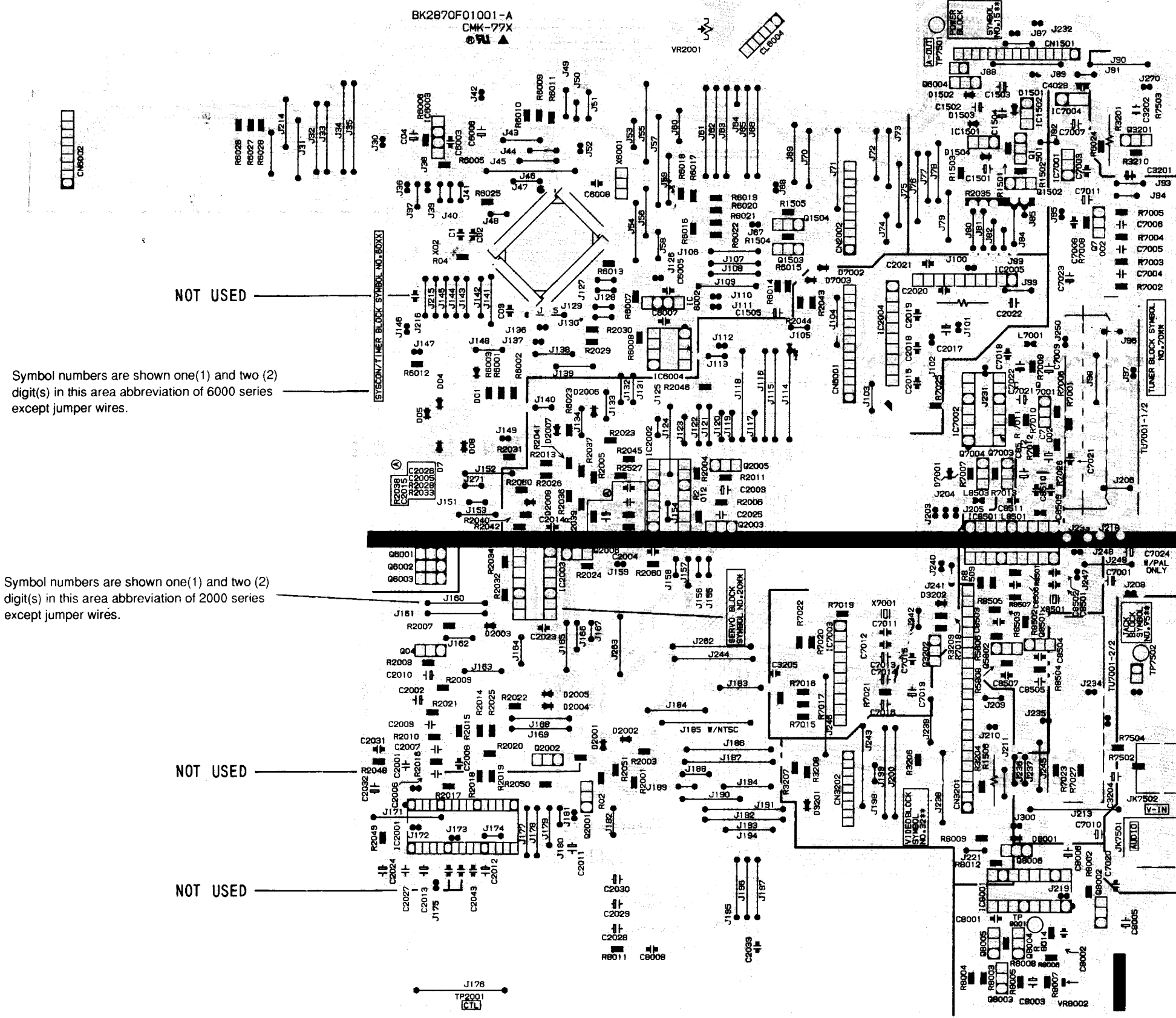
BB6500F01001-2

VCR Main C.B.A. (Top View)



BK2870F01001-A

VCR Main C.B.A. (Bottom View)



Symbol numbers are shown one(1) and two (2) digit(s) in this area abbreviation of 6000 series except jumper wires.

Symbol numbers are shown one(1) and two (2) digit(s) in this area abbreviation of 2000 series except jumper wires.

NOT USED

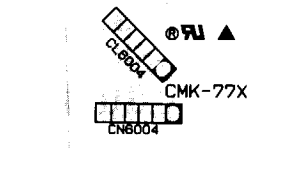
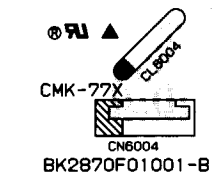
NOT USED

NOT USED

CASS.SW/Sensor Conn. C.B.A.

(Top View)

(Bottom View)

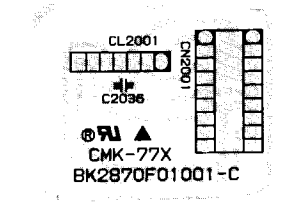
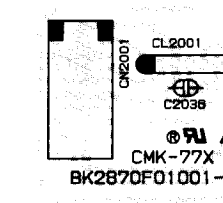


BK2870F01001-B

Drum Deck Conn. C.B.A.

(Top View)

(Bottom View)



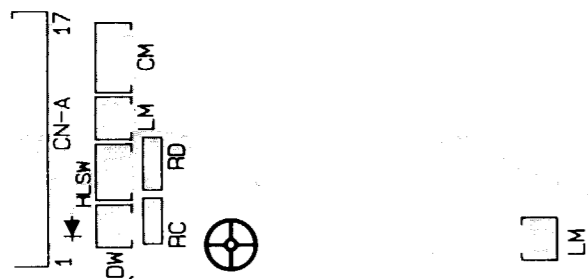
BK2870F01001-C

BK2870F01001-A

Other C.B.A.

E
D
C
B
A

Base PLate C.B.A.
Top View



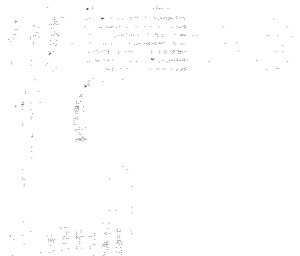
Full Erase Head C.B.A.



ACE Head C.B.A.



Start Sensor C.B.A.
Top View



Deck, Front Loading C.B.A.
Top View



Video Out C.B.A.
Top View



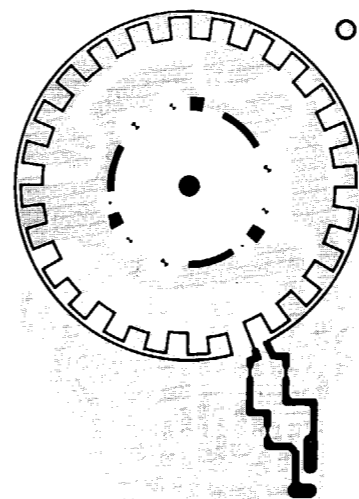
End Sensor C.B.A.
Top View



Lamp C.B.A.
Top View



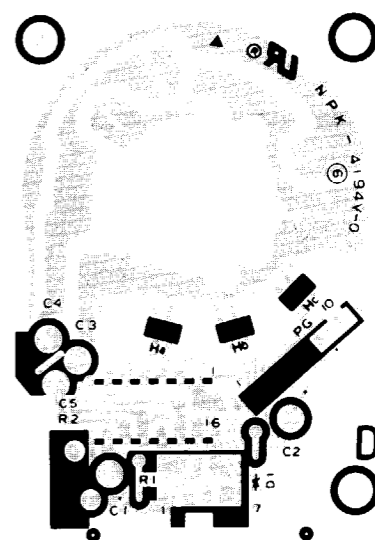
Top View



1.50.200.80
8E.0

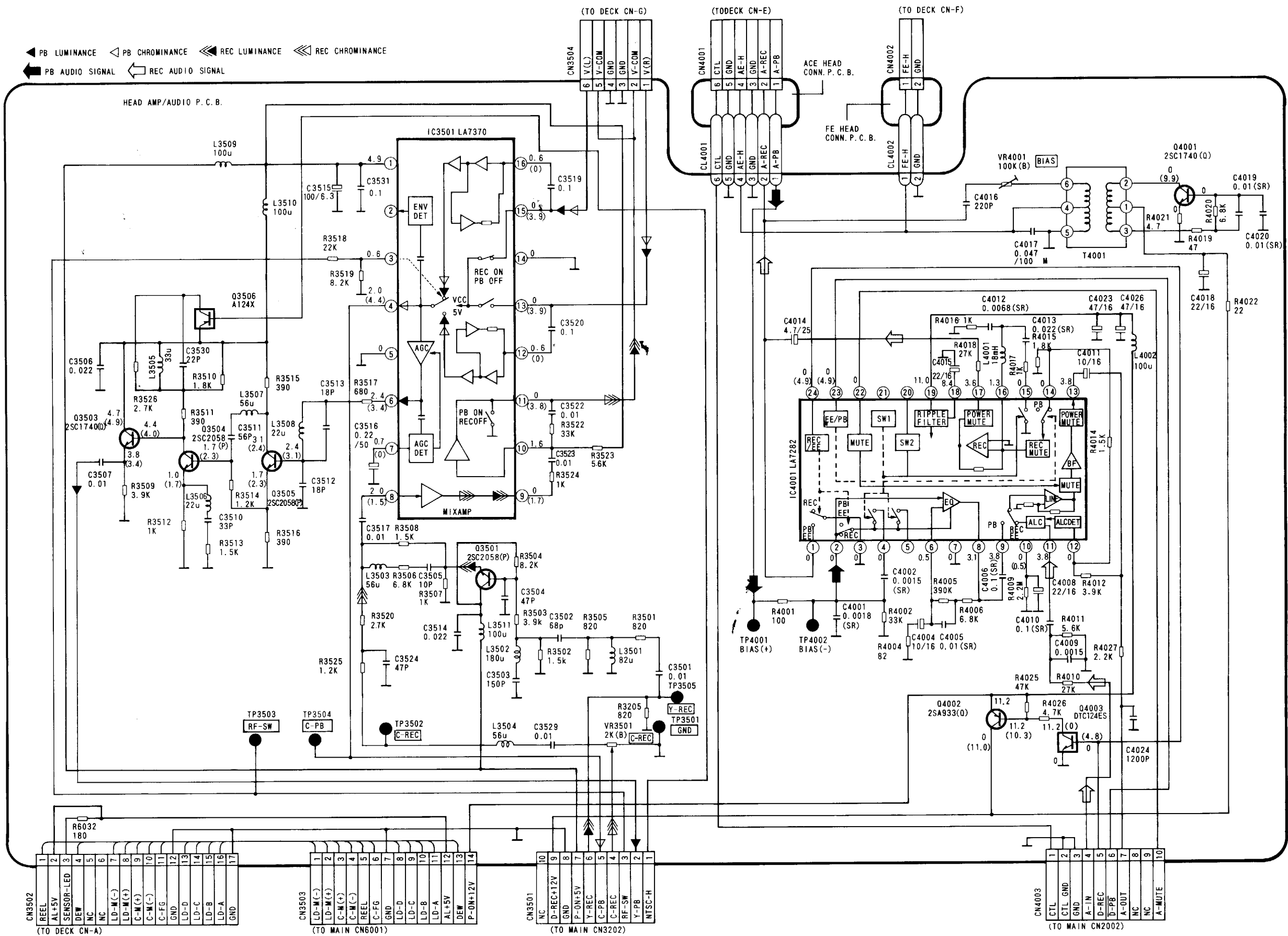
Drum Motor C.B.A.

Bottom View



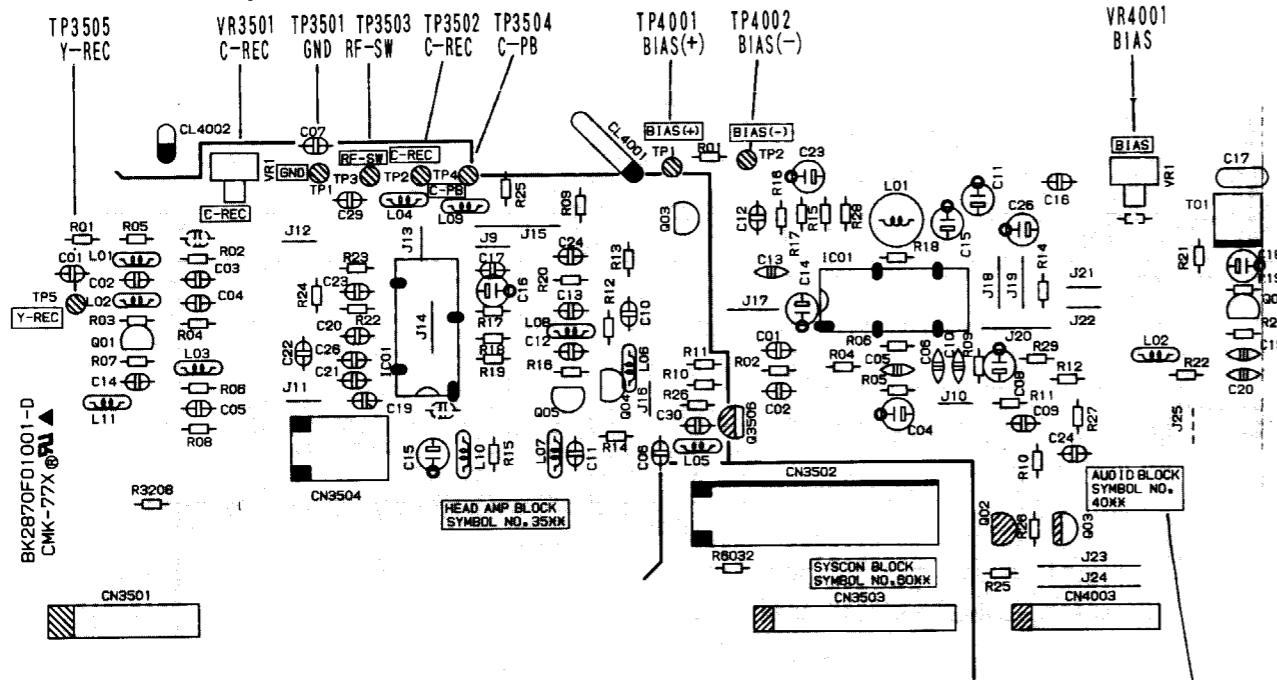
1 2 3 4 5 6 7

Head Amp / Audio Schematic Diagram



K2870SC-HEAD

Head Amp/Audio C.B.A. (Top View)

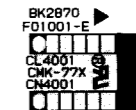
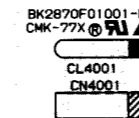


Symbol numbers are shown one(1) and two (2) digit(s) in this area abbreviation of 4000 series except jumper wires.

ACE Head Conn. C.B.A.

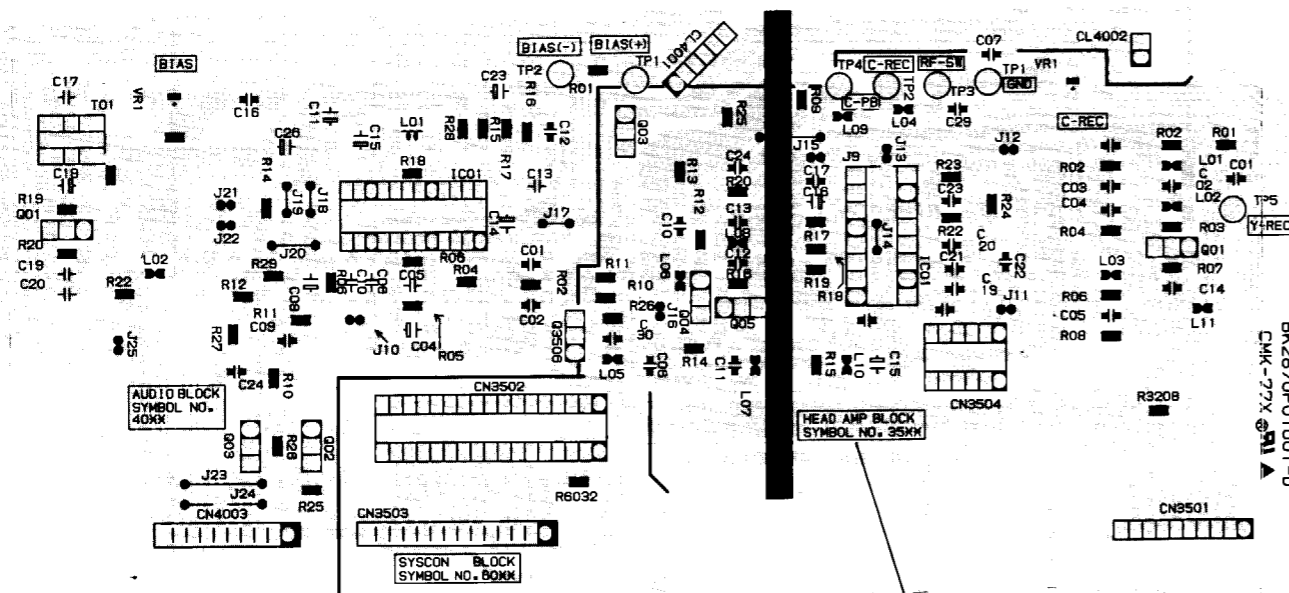
(Top View)

(Bottom View)



BK2870F01001-E

Head Amp/Audio C.B.A. (Bottom View)



Symbol numbers are shown one(1) and two (2) digit(s) in this area abbreviation of 3500 series except jumper wires.

FE Head Conn. C.B.A.

(Top View)

(Bottom View)



BK2870F01001-D

BK2870F01001-F

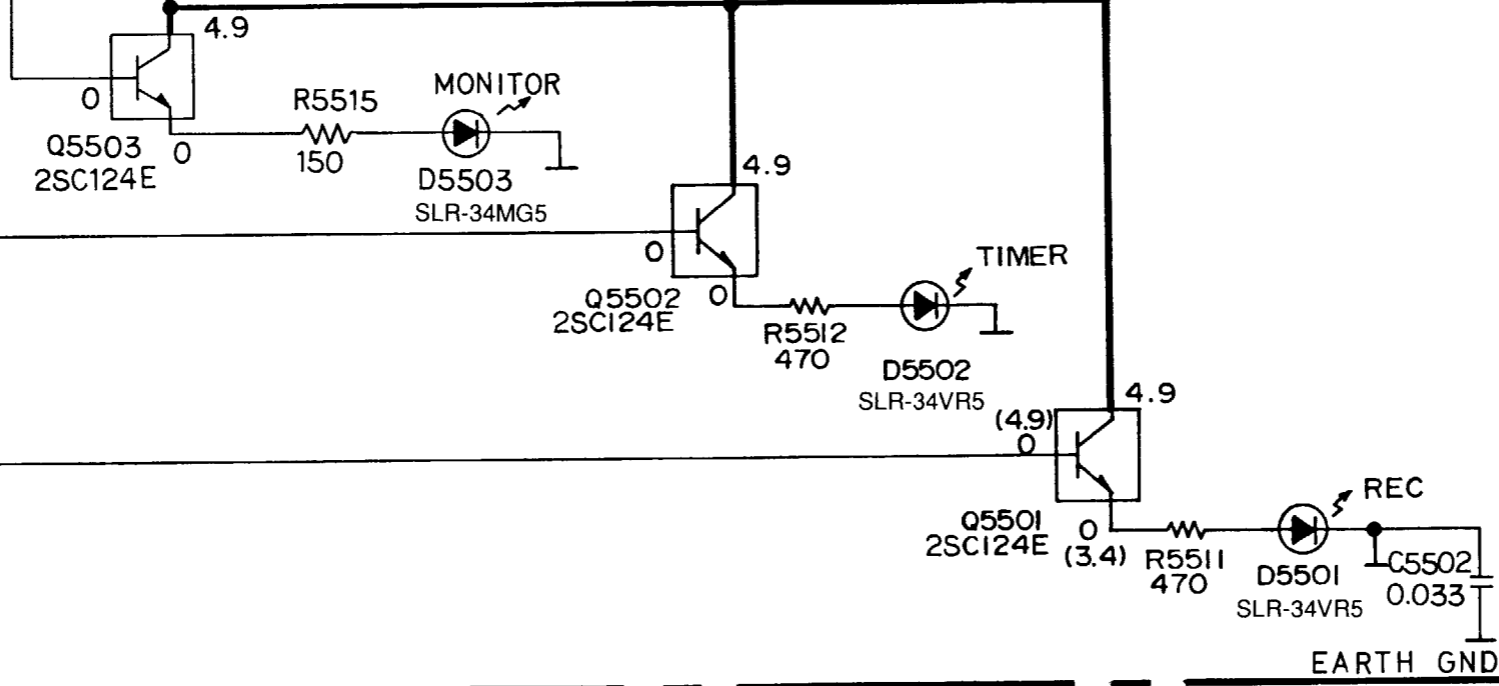
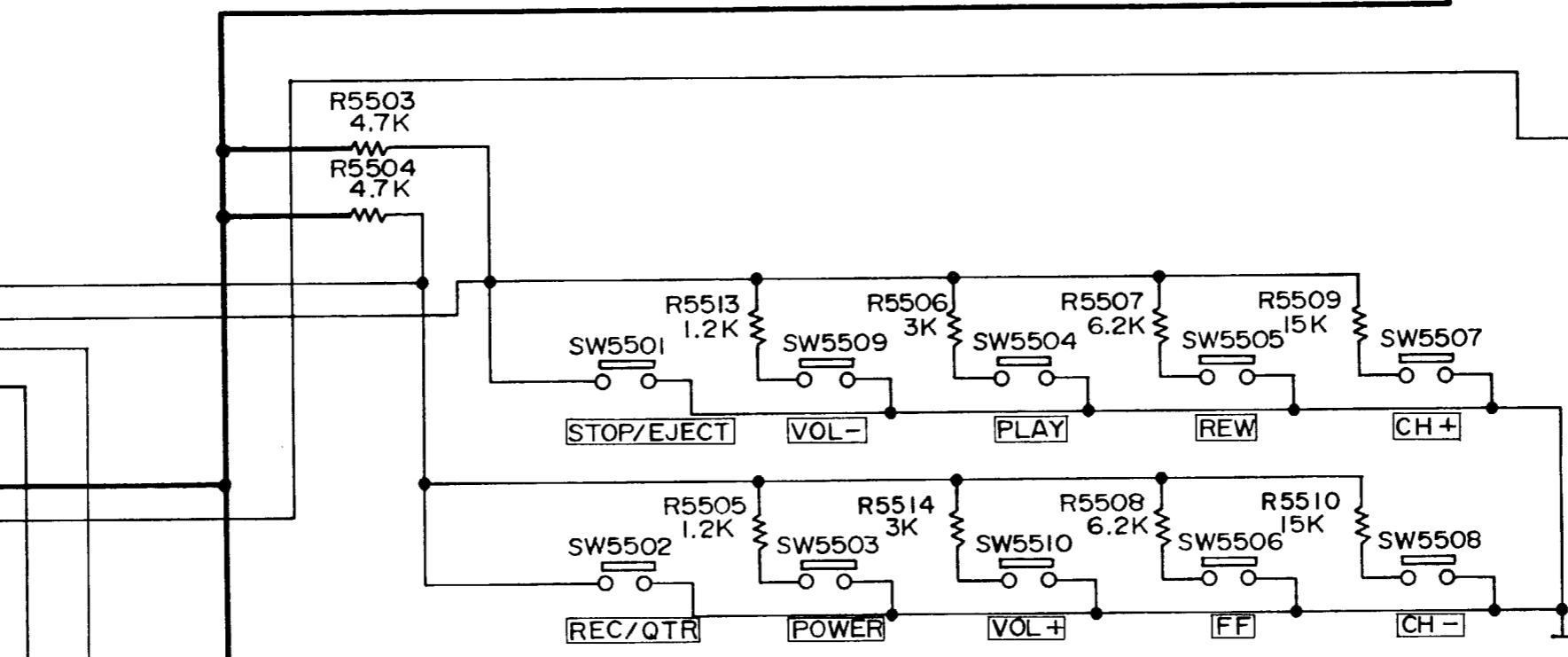
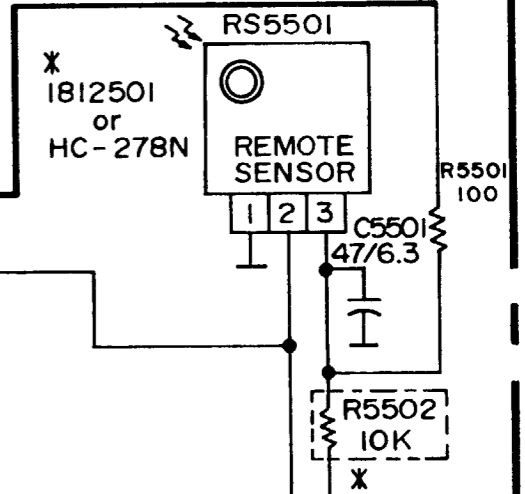
Control Schematic Diagram

CONTROL P.C.B

CN5501

KEY-DATA1	1
KEY-DATA0	2
MONITOR	3
TIMER-LED	4
REC-LED	5
GND	6
AL+5V	7
REMOCON	8

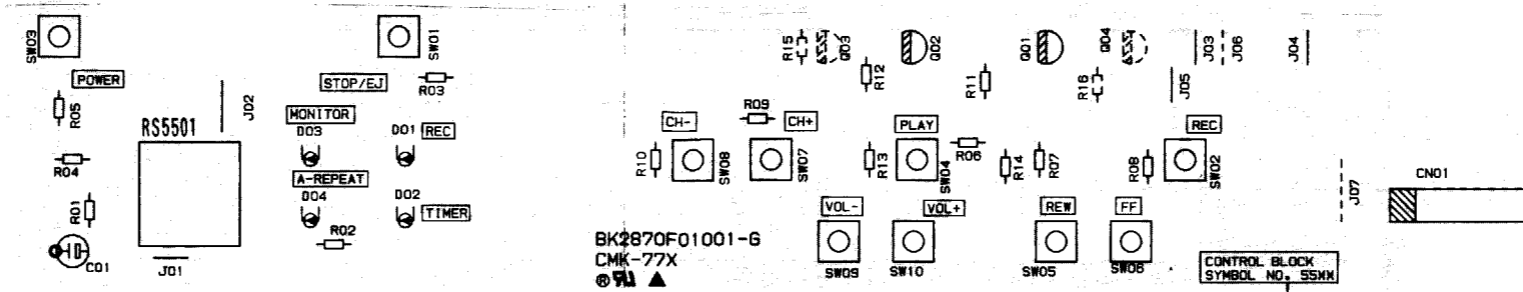
(TO MAIN CN6002)



* RS5501	1812501	HC-278N
R5502	Use	No + Use

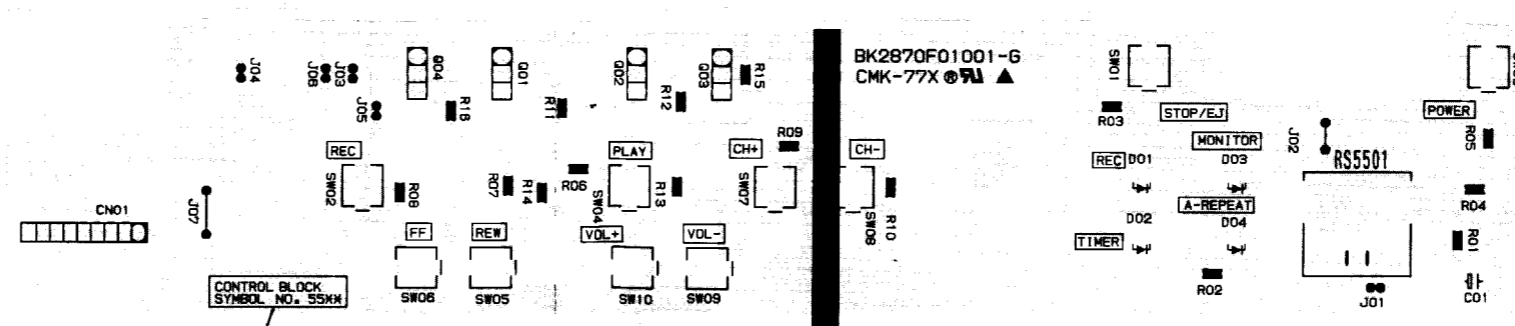
K2870SC-CON.

Control C.B.A. (Top View)



Symbol numbers are shown one(1) and two (2) digit(s) in this area abbreviation of 5500 series except jumper wires.

Control C.B.A. (Bottom View)

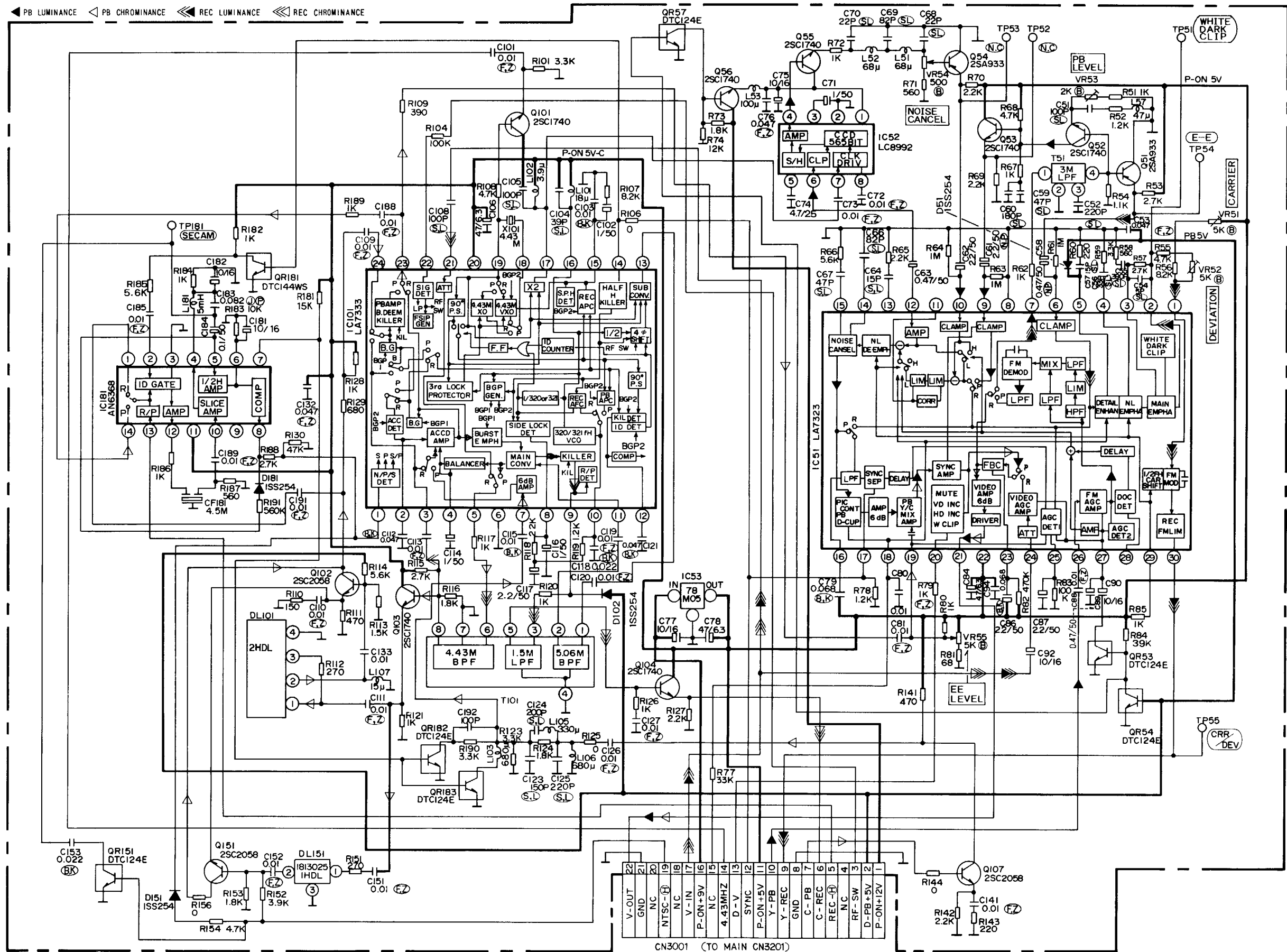


Symbol numbers are shown one(1) and two (2) digit(s) in this area abbreviation of 5500 series except jumper wires.

BK2870F01001-G

Y/C Process Schematic Diagram

◀ PB LUMINANCE ◀ PB CHROMINANCE ◀◀ REC LUMINANCE ◀◀◀ REC CHROMINANCE



ELECTRICAL PARTS LIST [TV]

NOTE:

As regards the resistors and capacitors, refer to the circuit diagrams and the PCB assy drawings contained in this manual.

MMA-80B PCB ASSY...(TV)

MMA-80B PCB ASSY...(TV)

REF. NO.	PARTS NO.	DESCRIPTION
	*9A03808200	MMA-80B PCB ASSY..(TV) (Consists of PCB-1,2,3 ASSY)
	*9A03808400	P.C.B., (Consists of 1,2,3 PCB)
PCB-1	MAIN PCB ASSY	
C201,202	9A03809600	C., CERAMIC 0.0022UF/1K V
C201,202	9A03809700	C., CERAMIC 0.0022UF/1K V
C203	9A02404700	C,META.P.P.0.0047UF/1.6KV
C203	9A01466900	C,META.P.P.0.0047UF/1.6KV
C204	9A03809800	C., P.P. 0.0027UF/1.6K V
C204	9A03809900	C., P.P. 0.0027UF/1.6K V
C205	9A01467500	C., ELEC 4.7UF/250V M W/F
C205	9A03810000	C., ELEC 4.7UF/250V
C205	9A02405000	C., ELEC 4.7UF/250V M W/F
C206	9A03810100	C., ELEC 22UF/160V
C206	9A02410800	C., ELEC 22UF/160V
C206	9A01468900	C., ELEC 22UF/160V
C208	9A03937100	C., CERAMIC 47PF/500V SL
C220	9A03813900	C., P.P. 0.56UF/200V
C220	9A03814000	C., P.P. 0.56UF/200V
C221	9A01467200	C., ELEC 1UF/250V
C221	9A02405800	C., ELEC 1UF/250V
C227,228	9A03814100	C., ELEC 2.2UF/160V
C227,228	9A03814200	C., ELEC 2.2UF/160V
C501,502 Δ	9A02411200	LINE ACROSS 0.1UF/250V
C501,502 Δ	9A03815900	LINE ACROSS
C501,502 Δ	9A01468200	C.,LINE ACROSS 0.1UF/250V
C505-508	9A03937400	C,CERAMIC 0.0047UF/AC500V
C505-508	9A01468300	C., CERAMIC 0.0047UF/400V
C509	9A02410500	C., ELEC 150UF/400V
C509	9A01468500	C., ELEC 150UF/400V
C509	9A01808800	C., ELEC 150UF/400V
C509	9A03816100	C., ELEC 150UF/400V
C510	9A03816200	C., CERAMIC 0.01UF/1KV
C510	9A03816300	C., CERAMIC 0.01UF/1KV
C511,512	9A03816400	C., CERAMIC 470PF/1KV
C511,512	9A01469000	C., CERAMIC 470PF/1KV
C518	9A03816800	C., CERAMIC 0.001UF/1KV
C518	9A01468700	C., CERAMIC 0.001UF/1KV
C520	9A03816900	C., MYLAR 0.1UF/400V
C521	Δ 9A03817000	C., CERAMIC 0.0022UF/4KV
C521	Δ 9A01809000	C., CERAMIC 0.0022UF/4KV
C525	9A03817100	C., CERAMIC 1000PF/4KV
C525	9A03817200	C., CERAMIC 1000PF/4KV
C601	9A03830500	C., CERAMIC 150PF/1KV
C601	9A03830600	C., CERAMIC 150PF/1KV
C602	9A03816400	C., CERAMIC 470PF/1KV
C602	9A01469000	C., CERAMIC 470PF/1KV
C603	9A02771500	C., ELEC 100UF/160V

REF. NO.	PARTS NO.	DESCRIPTION
PCB-1	MAIN PCB ASSY	
C605	9A03830700	C., ELEC 47UF/160V
C605	9A03830800	C., ELEC 47UF/160V
CN201	9A01815500	CONNECTOR BASE, 5P
CN201	9A03839000	CONNECTOR BASE, 5P
CN201	9A01455800	CONNECTOR BASE, 5P
CN501	9A01809200	CONNECTOR BASE, 2P
CN501	9A03839200	CONNECTOR BASE, 2P
CN601	9A03839300	CONNECTOR BASE, 13P
D102	9A00874100	ZENER DIODE, MTZ5.1B-T77
D103	9A01849400	DIODE, ISS176TPA7
D103	9A01849900	DIODE, ISS133T
D104	9A01022500	DIODE,ZENER MTZ5.6B
D201,203	9A03269300	DIODE, RGP15K
D204	9A02773700	DIODE, ISS130T
D205	9A03831300	DIODE, ERA15-02KFRB
D206	9A03269300	DIODE, RGP15K
D301	9A03831400	DIODE, MTZ7.5BT
D302	9A01849600	ZENER DIODE, MTZ9.1B
D303	9A01849500	DIODE, MTZ12BT
D304	9A01849600	ZENER DIODE, MTZ9.1B
D501-504	9A03831500	DIODE, ERC04-10L3
D505,506	9A01849400	DIODE, ISS176TPA7
D505,506	9A01849900	DIODE,ISS133T
D507,508	9A03831600	DIODE, ERB44-06L3
D601	9A03831700	DIODE, ERD38-06L
D603	9A03831800	DIODE, ERD32-02L
D604	9A01849400	DIODE, ISS176TPA7
D604	9A01849900	DIODE,ISS133T
D605	9A03831800	DIODE, ERD32-02L
D606-611	9A01849400	DIODE, ISS176TPA7
D606-611	9A01849900	DIODE,ISS133T
D612	9A02773700	DIODE, ISS130T
D613	9A02927400	ZENER DIODE, MTZ6.8BT
D614	9A03831900	DIODE, R2M
D614	9A03832000	DIODE, EQB01-150
D620,621	9A01849400	DIODE, ISS176TPA7
D620,621	9A01849900	DIODE,ISS133T
DL301	9A02772000	GLASS DELAY
DL301	9A01455000	GLASS DELAY
F501 Δ	9A03839400	FUSE, T4AH 250V
FH501,502	9A03274100	FUSE HOLDER
FH501,502	9A00521100	FUSE HOLDER
FH501,502	9A03839500	FUSE HOLDER
HS-1	9A03839600	HEAT SINK EE (POWER IC)
HS-2	9A03839700	HIAT SINK PN (V IC)
HS-3	9A03839800	HEAT SINK PQ (STABI IC)
HS-4	9A03839900	HEAT SINK PM (H OUT TR)
IC01	9A01817600	IC, AN5265
IC101	9A03832100	IC, UPD6326C
IC202	9A01817800	IC, LA7830
IC301	9A03832200	IC, TA8659AN
IC501	Δ 9A03832300	IC, STK73908
IC502	Δ 9A03832400	PHOTO COUPLER, PS2651
IC502	Δ 9A03832500	PHOTO COUPLER, PC-113AB
IC601	9A03832600	IC, AN7812

REF. NO.	PARTS NO.	DESCRIPTION
PCB-1	MAIN PCB ASSY	
IC601	9A00746500	IC.,AN7812F
IC602	9A03832700	IC, AN7818
IC602	9A00746400	IC.,AN7818F
IC603	9A03832600	IC, AN7812
IC603	9A00746500	IC.,AN7812F
J501	△ 9A03840000	AC INLET
JW182,183	9A03838900	BEADS CORE
JW89	9A01809400	POT TYPE COIL, 47UH
L201	9A02402200	POT TYPE COIL, 4.7MH
L301,302	9A03832800	CASING COIL (R-Y,B-Y)
L303	9A02402300	CASING COIL
L304	9A03832900	MICRO INDUCTOR, 8.2UH
L304	9A03833000	MICRO INDUCTOR, 10UH
L305	9A03833100	CASING COIL (BEL FILTER)
L306	9A02389700	INDUCTOR,47UH-K-AXT
L306	9A03844200	INDUCTOR, 47UH
L308	9A03833200	CASING COIL (I-DENT)
L311	9A02404400	DELAY LINE
L501,502	△ 9A03833300	LINE FILTER
L601,602	9A01809400	POT TYPE COIL, 47UH
L800	9A02775500	INDUCTOR, 33UH
LD 2	9A03840300	WIRE ASSY, 2P
LD 3	9A03938500	LEAD WIRE, AWG22 12MM
PS501	△ 9A02410400	POSISTOR
Q 1	9A03833400	TR., 2SC1815GRTPE2(GR)
Q 1	9A03833500	TR., 2SC3331AANP(T)
Q 1	9A03833600	TR., 2SC3331AANP(U)
Q 1	9A03833700	TR., 2SC1740Z(Q)
Q 1	9A03833800	TR., 2SC1740Z(R)
Q201	9A03833900	TR., 2SC2271AENP(D)
Q201	9A03834000	TR., 2SC2271AENP(E)
Q202	△ 9A03834100	TR., 2SD333LS(LS FORMING)
Q302,303	9A03834200	TR., 2SA1318AANP(T)
Q302,303	9A03834300	TR., 2SA1318AANP(U)
Q302,303	9A02352300	TR., 2SA933(R)
Q302,303	9A03834400	TR., 2SA933S(S)(Z)
Q304-306	9A03833400	TR., 2SC1815GRTPE2(GR)
Q304-306	9A03833500	TR., 2SC3331AANP(T)
Q304-306	9A03833600	TR., 2SC3331AANP(U)
Q304-306	9A03833700	TR., 2SC1740Z(Q)
Q304-306	9A03833800	TR., 2SC1740Z(R)
Q308	9A03833400	TR., 2SC1815GRTPE2(GR)
Q308	9A03833500	TR., 2SC3331AANP(T)
Q308	9A03833600	TR., 2SC3331AANP(U)
Q308	9A03833700	TR., 2SC1740Z(Q)
Q308	9A03833800	TR., 2SC1740Z(R)
Q501	9A03834500	TR., 2SK212(E)
Q501	9A03834600	TR., 2SK212(F)
Q510	9A03833400	TR., 2SC1815GRTPE2(GR)
Q510	9A03833500	TR., 2SC3331AANP(T)
Q510	9A03833600	TR., 2SC3331AANP(U)
Q510	9A03833700	TR., 2SC1740Z(Q)
Q510	9A03833800	TR., 2SC1740Z(R)
Q601	9A03834700	TR., 2SB1274(R)
Q601	9A03834800	TR., 2SB1274(S)
Q602,603	9A03833400	TR., 2SC1815GRTPE2(GR)

REF. NO.	PARTS NO.	DESCRIPTION
PCB-1	MAIN PCB ASSY	
Q602,603	9A03833500	TR., 2SC3331AANP(T)
Q602,603	9A03833600	TR., 2SC3331AANP(U)
Q602,603	9A03833700	TR., 2SC1740Z(Q)
Q602,603	9A03833800	TR., 2SC1740Z(R)
Q604	9A03834200	TR., 2SA1318AANP(T)
Q604	9A03834300	TR., 2SA1318AANP(U)
Q604	9A02352300	TR., 2SA933(R)
Q604	9A03834400	TR., 2SA933S(S)(Z)
Q605-607	9A03833400	TR., 2SC1815GRTPE2(GR)
Q605-607	9A03833500	TR., 2SC3331AANP(T)
Q605-607	9A03833600	TR., 2SC3331AANP(U)
Q605-607	9A03833700	TR., 2SC1740Z(Q)
Q605-607	9A03833800	TR., 2SC1740Z(R)
Q608	9A03833900	TR., 2SC2271AENP(D)
Q608	9A03834000	TR., 2SC2271AENP(E)
Q610,800	9A03833400	TR., 2SC1815GRTPE2(GR)
Q610,800	9A03833500	TR., 2SC3331AANP(T)
Q610,800	9A03833600	TR., 2SC3331AANP(U)
Q610,800	9A03833700	TR., 2SC1740Z(Q)
Q610,800	9A03833800	TR., 2SC1740Z(R)
Q801	9A03833400	TR., 2SC1815GRTPE2(GR)
Q801	9A03833500	TR., 2SC3331AANP(T)
Q801	9A03833600	TR., 2SC3331AANP(U)
Q801	9A03833700	TR., 2SC1740Z(Q)
Q801	9A03833800	TR., 2SC1740Z(R)
R 11	△ 9A02772200	R., FUSE 1W 2.2 J
R 11	△ 9A01463800	R., FUSE 1W 2.2 J
R203	9A03835000	R., CEMENT 5W 3.3K
R203	9A03937600	R., CEMENT 5W 3.3K
R204	9A03835100	R., CEMENT 5W 3.9K
R204	9A03937700	R., CEMENT 5W 3.9K
R207	△ 9A03835200	R., FUSE 2W 1.8
R212	△ 9A02772200	R., FUSE 1W 2.2 J
R212	△ 9A01463800	R., FUSE 1W 2.2 J
R213	9A03835300	R., CARBON 1/2W 10K
R214	9A03835400	R., METAL 3W 270
R231	△ 9A03835600	R., FUSE 1/2W 68
R231	△ 9A02407500	R., FUSE 1/2W 68
R342	9A03938400	R., SEMI-FIXED 220 (B)
R342	9A03836000	R., SEMI-FIXED 200 (B)
R342	9A03835900	R., SEMI-FIXED 200 (B)
R501	9A03836100	R., CEMENT 5W 1
R501	9A03937800	R., CEMENT 5W 1
R501	9A03836200	R., CEMENT 5W 1
R503	9A03836400	R., METAL 2W 47K
R513	9A03836800	R., CEMENT 5W 0.33
R601	9A03837200	R., METAL 2W 10
R602	9A03837300	R., METAL 1W 0.68
R602	9A03837500	R., METAL 1W 0.68
R603	9A03837600	R., METAL 3W 12K
R603	9A03837700	R., METAL 3W 12K
R606	9A03837200	R., METAL 2W 10
R610	9A03837200	R., METAL 2W 10
SW301	9A01456900	SLIDE SWITCH
SW301	9A03838000	SLIDE SWITCH

REF. NO.	PARTS NO.	DESCRIPTION	REF. NO.	PARTS NO.	DESCRIPTION
PCB-1	MAIN PCB ASSY		PCB-2	CRT PCB ASSY	
SW301	9A03274300	SLIDE SWITCH	C701	9A03841000	C., CERAMIC 0.01UF/2K V
SW301	9A03838100	SLIDE SWITCH	C701	9A02408600	C., CERAMIC 0.01UF/2KV
SW501	9A03838200	POWER SWITCH	CN701	9A03842300	CONNECTOR PIN, IPIN
T201	△ 9A01457400	H. DRIVE TRANS	CN701	9A01459700	CONNECTOR PIN, IP
T202	△ 9A03840400	F.B.T.	J702	△ 9A03842400	CRT SOCKET
T501	△ 9A03840500	SWITCHING TRANS	J702	△ 9A02408500	CRT SOCKET
VR301	9A01429700	VR, SEMI-FIXED 1KB (FR)	L701	9A02387800	INDUCTOR, 100UH-K-AXT
VR301	9A02772700	VR, SEMI-FIXED 1KB (FR)	L701	9A02775600	INDUCTOR, 100UF
VR301	9A00522800	R., SEMI-FIXED 1K (B)	Q701-703	9A03841500	TR., 2SC2621(D)
VR301	9A02403800	VR, SEMI-FIXED 1KB (FR)	Q701-703	9A03841600	TR., 2SC2621(E)
VR302	9A01729500	VR, SEMI-FIXED 100KB (FR)	R701-703	9A03841700	R., METAL 1W 15K
VR302	9A02773100	VR, SEMI-FIXED 100KB (FR)	R701-703	9A01458500	R., METAL 1W 15K J
VR302	9A00523000	R., SEMI-FIXED 100K (B)	VR701-703	9A01763100	VR, SEMI-FIXED 4.7KB (VR)
VR302	9A02403900	VR, SEMI-FIXED 100KB (FR)	VR701-703	9A03841800	R., SEMI-FIXED 5K (B)
VR303	9A03938200	R., SEMI-FIXED 22K (B)	VR701-703	9A02645600	TRIMMER POTENT.5K(B)MV606
VR303	9A03838300	R., SEMI-FIXED 3KB(3.3KB)	VR701-703	9A02408300	R., SEMI-FIXED 5K (B)
VR303	9A01763500	R. SEMI-FIXED 20K (B)	VR704,705	9A03841900	R., SEMI-FIXED 500 (B)
VR303	9A03938300	R., SEMI-FIXED 20K (B)	VR704,705	9A03842000	R., SEMI-FIXED 500 (B)
VR601	9A01756100	R., SEMI-FIXED 100K (B)	VR704,705	9A03842100	R., SEMI-FIXED 500 (B)
VR601	9A03838400	R., SEMI-FIXED 50K (B)	VR704,705	9A02408400	R., SEMI-FIXED 500 (B)
VR601	9A00757900	R., SEMI-FIXED 50K (B)			
VR601	9A03838500	R., SEMI-FIXED 50K (B)			
VR602	9A03838600	R., SEMI-FIXED 5K (B)			
VR602	9A03838700	R., SEMI-FIXED 5K (B)			
VR602	9A00522900	R., VR, SEMI 5K (B)			
VR602	9A03838800	R., SEMI-FIXED 5K (B)	PCB-3	EARPHONE PCB ASSY	
XT301	9A02417500	X'TAL, 4.43MHZ	CN 1	9A02781100	CONNECTOR BASE, 2P
XT302	9A03840700	X'TAL, 3.58MHZ	EP 1	9A02780900	JACK, PHON
XT303	9A03840800	CERAMIC RESONATOR			

ELECTRICAL PARTS LIST [VCR]

NOTE:

As regards the resistors and capacitors, refer to the circuit diagrams and the PCB assy drawings contained in this manual.

MCV PCB ASSY...(VCR)

MCV PCB ASSY...(VCR)

 REF. NO. PARTS NO. DESCRIPTION

*9A03800400 MCV PCB ASSY...(VCR)
 (Consists of MCV-A,B,C,D,E ---
 --- F,G PCB ASSY)
 *9A03808400 P.C.B.,
 (Consists of MCV-A,B,C,D,E,F,G PCB)

MCV-A MAIN PCB ASSY

CL2001	9A03796200	JUMPER WIRE, 7P
CL6004	9A03796100	JUMPER WIRE, 6P
CN1501	9A03796300	CONNECTOR ASSY, 13P
CN2002	9A03789500	CONNECTOR, 10P TKC-M10P-AI
CN3202	9A03789500	CONNECTOR, 10P TKC-M10P-AI
CN6001	9A03789600	CONNECTOR, 14P TKC-M14P-AI
CN6002	9A03801400	CONNECTOR, 8P TKC-B08X-EI
DI501-04	9A02556800	DIODE, 1SS254
DI501-04	9A02361500	DIODE, GMB01B
D2001-08	9A02556800	DIODE, 1SS254
D2001-08	9A02361500	DIODE, GMB01B
D3201	9A02556800	DIODE, 1SS254
D3201	9A02361500	DIODE, GMB01B
D6001,04	9A02556800	DIODE, 1SS254
D6001,04	9A02361500	DIODE, GMB01B
D6005,08	9A02556800	DIODE, 1SS254
D6005,08	9A02361500	DIODE, GMB01B
D6008	9A02556800	DIODE, 1SS254
D6010-12	9A02556800	DIODE, 1SS254
D6010-12	9A02361500	DIODE, GMB01B
D7001	9A03391200	ZENER DIODE, MTZ5.6B T77
D7002,03	9A02556800	DIODE, 1SS254
D7002,03	9A02361500	DIODE, GMB01B
D8001	9A02556800	DIODE, 1SS254
D8001	9A02361500	DIODE, GMB01B
D8501	9A03788500	ZENER DIODE, MTZ5.6A
D8501	9A03390600	ZENER DIODE, MTZ5.6B
D8501	9A03788600	ZENER DIODE, MTZ5.6C
IC1501	9A00741500	IC, AN78M05F
IC1501	9A03277100	IC, NJM78M05FA
IC1502	9A00741500	IC, AN78M05F
IC1502	9A03277100	IC, NJM78M05FA
IC2001	9A03790600	IC, BU2855S
IC2002	9A03790500	IC, BA10324A
IC2003	9A03790500	IC, BA10324A
IC2004	9A00741800	IC, BA6219B
IC2005	9A02310000	IC, BA6209N
IC6001	9A03790800	IC, 4BI TSY/CXP50120-Q
IC6002	9A03801200	IC, PST-529C-2
IC6003	9A03789200	IC, PST529F-2
IC6004	9A03510000	IC, X24C01P
IC7001	9A02308900	IC, AN78M09F
IC7001	9A02761200	IC, NJM78M09FA

 REF. NO. PARTS NO. DESCRIPTION

MCV-A MAIN PCB ASSY

IC7002	9A03790500	IC, BA10324A
IC7003	9A00519300	IC, LA7210 LINEAR
IC7003	9A03509900	IC, MMI021XS
IC7004	9A00742300	IC, L5631
IC8001	9A01761800	IC, BU4053B
IC8501	9A03790700	IC, UPD6450CX-519
JK7501	9A00489600	JACK RCA JACK WITH SW
JK7502	9A02308800	JACK, BNC
JK7503	9A02309200	ANT JACK
JK7503	9A03801500	ANT JACK, HXC0421-01-500
L7001	9A03790200	INDUCTOR, 330UH-K-26T
L8501	9A03286900	INDUCTOR, 33UH-J-AXT
Q1501	9A03275000	TR., 2SA934(Q)
Q1501	9A03275100	TR., 2SA934(R)
Q1502,04	9A02752000	D. TR., DTC124ES
Q1502,04	9A02752800	D. TR., 2SC3400
Q1503	9A03274800	RES. BUILT-IN TRANSISTOR
Q2001,03	9A02752000	D. TR., DTC124ES
Q2001,03	9A02752800	D. TR., 2SC3400
Q2002	9A02750800	D. TR., DTA124ES
Q2002	9A02751100	D. TR., 2SA1346
Q2004	9A02751400	TR., 2SA933(Q)
Q2004	9A02751500	TR., 2SA933(R)
Q2004	9A02751200	TR., 2SA608SP(E)
Q2004	9A02751300	TR., 2SA608SP(F)
Q2005	9A03275600	D. TR., DTC144ES
Q2006	9A02752100	TR., 2SC1740(Q)
Q2006	9A02752200	TR., 2SC1740(R)
Q2006	9A02752900	TR., 2SC536(E)
Q2006	9A02753000	TR., 2SC536(F)
Q3201	9A02750900	TR., 2SA1317(S)
Q3201	9A02751000	TR., 2SA1317(T)
Q6001-03	9A02750800	D. TR., DTA124ES
Q6001-03	9A02751100	D. TR., 2SA1346
Q6004	9A02752000	D. TR., DTC124ES
Q6004	9A02752800	D. TR., 2SC3400
Q7001	9A02751400	TR., 2SA933(Q)
Q7001	9A02751500	TR., 2SA933(R)
Q7001	9A02751200	TR., 2SA608SP(E)
Q7001	9A02751300	TR., 2SA608SP(F)
Q7002	9A02752100	TR., 2SC1740(Q)
Q7002	9A02752200	TR., 2SC1740(R)
Q7002	9A02752900	TR., 2SC536(E)
Q7002	9A02753000	TR., 2SC536(F)
Q7003	9A02750800	D. TR., DTA124ES
Q7003	9A02751100	D. TR., 2SA1346
Q7004	9A02752000	D. TR., DTC124ES
Q7004	9A02752800	D. TR., 2SC3400
Q8002-05	9A02752100	TR., 2SC1740(Q)
Q8002-05	9A02752200	TR., 2SC1740(R)
Q8002-05	9A02752900	TR., 2SC536(E)
Q8002-05	9A02753000	TR., 2SC536(F)
Q8006	9A03790400	D. TR., DTA114TS
Q8501	9A02752000	D. TR., DTC124ES
Q8501	9A02752800	D. TR., 2SC3400

MCV PCB ASSY...(VCR)

MCV PCB ASSY...(VCR)

REF. NO.	PARTS NO.	DESCRIPTION
MCV-A	<u>MAIN PCB ASSY</u>	
Q8502	9A02752100	TR., 2SC1740(Q)
Q8502	9A02752200	TR., 2SC1740(R)
Q8502	9A02752900	TR., 2SC536(E)
Q8502	9A02753000	TR., 2SC536(F)
R1506	9A03801000	R., METAL 1W 2.2 J
R2035	9A03801100	R., METAL 2W 2.2 J
R2035	9A03800900	R., METAL 2W 2.2 J
R3201	9A00486200	R., OXIDE FILM 1W 330 J
R3201	9A01429600	R., OXIDE FILM 1W 330 J
TU7001	9A02309300	TUNER UNIT
VR2001	9A02558300	R., CARBON VARIABLE 100K
VR2001	9A02558400	R., CARBON VARIABLE 100K
VR2001	9A02558500	R., CARBON VARIABLE 100K
VR8002	9A02558000	R., CARBON VARIABLE 2.2K
VR8002	9A02558100	R., CARBON VARIABLE 2K
VR8002	9A02558200	R., CARBON VARIABLE 2K
X6001	9A01895300	RESONATOR, 4.19MHZ CERAMIC
X6002	9A01895100	X'TAL, 32KHZ MV-355
X6002	9A01895200	X'TAL., 32KHZ 10PPM MV-355
X7001	9A01147700	CERAMIC RESONATOR, 500KHZ
X8501	9A03789000	X'TAL, 17.734476MHZ
2L-041	9A02515700	SCREW, TAP.BIND HEAD 3*10
A-19	9A03799100	JACK BOARD
B2-3	9A02514800	HEAT SINK
B2-21	9A03799800	PLATE, GROUND
MCV-B	<u>CASS.SW/SENSOR CONN.PCB ASSY</u>	
CN6004	9A01436000	CONNECTOR BASE 6P (TOP)
MCV-C	<u>DRUM DECK CONN.PCB ASSY</u>	
CN2001	9A01136600	CONN., ANGLE SOCKET 9P
MCV-D	<u>HEAD AMP/AUDIO PCB ASSY</u>	
C3519	9A00873100	C., CERAMIC 0.1UF/12V
CL4001	9A03796400	JUMPER WIRE, 6P
CL4002	9A03796600	JUMPER WIRE, 2P
CN3501	9A03789300	CONNECTOR, 10P TKC-M10X-A1
CN3502	9A02312000	CONNECTOR, ANGLE SOCKET 17P
CN3503	9A03789400	CONNECTOR, 14P TKC-M14X-A1
CN3504	9A01143900	CONNECTOR, HOUSING 6P
CN4003	9A03789300	CONNECTOR, 10P TKC-M10X-A1
IC3501	9A03276300	IC, LA7370
IC4001	9A03790900	IC, LA7282
L3501	9A02556900	INDUCTOR, 82UH-K-AXT
L3501	9A02627500	INDUCTOR, 82UH-K-AXT
L3502	9A02557100	INDUCTOR, 180UH-K-AXT

REF. NO.	PARTS NO.	DESCRIPTION
MCV-D	<u>HEAD AMP/AUDIO PCB ASSY</u>	
L3502	9A02627600	INDUCTOR, 180UH-K-AXT
L3503,04	9A02628600	INDUCTOR, 56UH-K-AXT
L3503,04	9A02628700	INDUCTOR, 56UH-K-AXT
L3505	9A02555200	INDUCTOR, 33UH-K-AXT
L3505	9A02628500	INDUCTOR, 33UH-K-AXT
L3506,08	9A02627300	INDUCTOR, 22UH-K-AXT
L3506,08	9A02627400	INDUCTOR, 22UH-K-AXT
L3507	9A02628600	INDUCTOR, 56UH-K-AXT
L3507	9A02628700	INDUCTOR, 56UH-K-AXT
L3509-11	9A02555100	INDUCTOR, 100UH-K-AXT
L3509-11	9A02628800	INDUCTOR, 100UH-K-AXT
L4001	9A00482700	COIL, MICROINDUCTOR 18MH
L4001	9A00755500	COIL, MICROINDUCTOR 18MH
L4002	9A02555100	INDUCTOR, 100UH-K-AXT
L4002	9A02628800	INDUCTOR, 100UH-K-AXT
Q3501	9A03275800	TR., 2SC2058(P)
Q3501	9A02752300	TR., 2SC2058(Q)
Q3501	9A02752600	TR., 2SC2839(E)
Q3501	9A02752700	TR., 2SC2839(F)
Q3503	9A02752100	TR., 2SC1740(Q)
Q3503	9A02752200	TR., 2SC1740(R)
Q3503	9A02752900	TR., 2SC536(E)
Q3503	9A02753000	TR., 2SC536(F)
Q3504,05	9A03275800	TR., 2SC2058(P)
Q3504,05	9A02752300	TR., 2SC2058(Q)
Q3504,05	9A02752600	TR., 2SC2839(E)
Q3504,05	9A02752700	TR., 2SC2839(F)
Q3506	9A03788700	R., BUILT-IN TR., DTA124XS
Q4001	9A02752100	TR., 2SC1740(Q)
Q4001	9A02752200	TR., 2SC1740(R)
Q4001	9A02752900	TR., 2SC536(E)
Q4001	9A02753000	TR., 2SC536(F)
Q4002	9A02751400	TR., 2SA933(Q)
Q4002	9A02751500	TR., 2SA933(R)
Q4002	9A02751200	TR., 2SA608SP(E)
Q4002	9A02751300	TR., 2SA608SP(F)
Q4003	9A02752000	D. TR., DTC124ES
Q4003	9A02752800	D. TR., 2SC3400
T4001	9A01146700	COIL, OSC, AUDIO
T4001	9A00740900	COIL, OSC, AUDIO
T4001	9A01897100	COIL, OSC, AUDIO
VR3501	9A03802200	R., CARBON P.O.T. 2.2K
VR3501	9A03802400	R., CARBON P.O.T. 2K
VR4001	9A03802300	R., CARBON P.O.T. 100K
VR4001	9A03802500	R., CARBON P.O.T. 100K
B2- 4	9A03799200	SHIELD, BOTTOM (TV)
B2- 5	9A03282600	SHIELD, TOP (2H)
MCV-E	<u>ACE HEAD CONN.PCB ASSY</u>	
CN4001	9A03276700	CONNECTOR HOUSING, 6P

MCV PCB ASSY...(VCR)

MSV PCB ASSY...(VCR)

REF. NO.	PARTS NO.	DESCRIPTION
MCV-F	FE HEAD CONN.PCB ASSY	
CN4002	9A03276600	CONNECTOR HOUSING, 2P
MCV-G	CONTROL PCB ASSY	
CN5501	9A03801300	CONNECTOR, 8P TKC-08P-EI
D5501	9A01721400	LED, SLR-34VR5 RED
D5502	9A01721400	LED, SLR-34VR5 RED
D5503	9A01721300	LED, SLR-34MG5 GREEN
Q5501	9A02752000	D. TR., DTC124ES
Q5501	9A02752800	D. TR., 2SC3400
Q5502	9A02752000	D. TR., DTC124ES
Q5502	9A02752800	D. TR., 2SC3400
Q5503	9A02752000	D. TR., DTC124ES
Q5503	9A02752800	D. TR., 2SC3400
RS5501	9A01147200	REMOTE SENSOR UNIT
RS5501	9A03278300	REMO-CON UNIT, RCDHC-278
SW5501-10	9A02618300	SW., PUSH EVQ-335 05R
SW5501-10	9A03277900	PUSH SWITCH, SKOHV00059
B2- 6	9A03799400	HOLDER, L.E.D.
	9A03798300	K-REMOTE SENSOR EXCLUSIVE
	9A03798200	S-REMOTE SENSOR EXCLUSIVE

MSV PCB ASSY...(VCR)

REF. NO.	PARTS NO.	DESCRIPTION
MSV	*9A03800100	Y/C PROCESS PCB ASSY
	*9A02308300	MSV PCB
C183	9A03801900	C., P.L 0.082UF/100V J
CF181	9A00516400	FILTER CERAMIC 4.5MHZ
CF181	9A03801700	CERAMIC FILTER, 4.5MHZ
D 51,102	9A02556800	DIODE, ISS254
D 51,102	9A02361500	DIODE, GMB01B
D151	9A02556800	DIODE, ISS254
D151	9A02361500	DIODE, GMB01B
D181	9A03393200	DIODE, ISS254
D181	9A01142000	DIODE, GMB01B
DL101	9A02314300	FILTER, COMB 4.433619MHZ
DL151	9A03801600	COMB FILTER, ADL-FN1344F
IC101	9A03204500	IC, CHROMA LA7333
IC181	9A03789100	IC, AN6368
IC51	9A02524500	IC, LA7323
IC52	9A02314600	IC, LC8992
IC53	9A00741500	IC, AN78M05F
IC53	9A02314400	IC, UPC78M05HF
IC53	9A01720600	IC, NJM78M05FA
J142	9A02618200	PCB JUMPER,P7.5MM MV-560
L 51,52	9A03790000	INDUCTOR, 68UH-K-26T
L 51,52	9A03790300	INDUCTOR, 68UH-K-26T

REF. NO.	PARTS NO.	DESCRIPTION
L 53	9A02555100	INDUCTOR, 100UH-K-AXT
L 53	9A02628800	INDUCTOR, 100UH-K-AXT
L 57	9A02559600	INDUCTOR, 47UH-K-AXT
L 57	9A03288800	INDUCTOR, 47UH-K-26T
L101	9A02559500	INDUCTOR, 18UH-K-AXT
L101	9A03288700	INDUCTOR, 18UH-K-26T
L102	9A03789900	INDUCTOR, 3.9UH-K-26T
L102	9A03790100	INDUCTOR, 3.9UH-K-26T
L103	9A03801800	MICRO INDUCTOR, 680UH-K
L105	9A03790200	INDUCTOR, 330UH-K-26T
L106	9A02616300	INDUCTOR, 680UH K
L106	9A03789800	INDUCTOR, 680UH-K-5FT
L107	9A02627100	INDUCTOR, 15UH-K-AXT
L107	9A02627200	INDUCTOR, 15UH-K-AXT
L181	9A01890600	COIL, 5MH
L181	9A01890400	COIL, 5MH
Q 51,54	9A02751400	TR., 2SA933(Q)
Q 51,54	9A02751500	TR., 2SA933(R)
Q 51,54	9A02751200	TR., 2SA608SP(E)
Q 51,54	9A02751300	TR., 2SA608SP(F)
Q 52,53	9A02752100	TR., 2SC1740(Q)
Q 52,53	9A02752200	TR., 2SC1740(R)
Q 52,53	9A02752900	TR., 2SC536(E)
Q 52,53	9A02753000	TR., 2SC536(F)
Q 55,56	9A02752100	TR., 2SC1740(Q)
Q 55,56	9A02752200	TR., 2SC1740(R)
Q 55,56	9A02752900	TR., 2SC536(E)
Q 55,56	9A02753000	TR., 2SC536(F)
Q101,103	9A02752100	TR., 2SC1740(Q)
Q101,103	9A02752200	TR., 2SC1740(R)
Q101,103	9A02752900	TR., 2SC536(E)
Q101,103	9A02753000	TR., 2SC536(F)
Q102,107	9A03275800	TR., 2SC2058(P)
Q102,107	9A02752300	TR., 2SC2058(Q)
Q102,107	9A02752600	TR., 2SC2839(E)
Q102,107	9A02752700	TR., 2SC2839(F)
Q104	9A02752100	TR., 2SC1740(Q)
Q104	9A02752200	TR., 2SC1740(R)
Q104	9A02752900	TR., 2SC536(E)
Q104	9A02753000	TR., 2SC536(F)
Q151	9A03275800	TR., 2SC2058(P)
Q151	9A02752300	TR., 2SC2058(Q)
Q151	9A02752600	TR., 2SC2839(E)
Q151	9A02752700	TR., 2SC2839(F)
QR181	9A03788900	D. TR., DTC144WS
QR182,183	9A02752000	D. TR., DTC124ES
QR182,183	9A02752800	D. TR., 2SC3400
QR53,54	9A02752000	D. TR., DTC124ES
QR53,54	9A02752800	D. TR., 2SC3400
QR57,151	9A02752000	D. TR., DTC124ES
QR57,151	9A02752800	D. TR., 2SC3400
T 51	9A01428300	FILTER, LPF 3MHZ
T101	9A02314200	FILTER, LC
VR51,52	9A00522900	R., VR SEMI 5K (B)
VR53	9A01738700	R., VR SEMI 2K (B)
VR53	9A01738600	R., VR SEMI 2K (B)
VR54	9A02002000	R., VR SEMI 500 (B)
VR54	9A01852500	R., VR SEMI 500 (B)

MSV PCB ASSY...(VCR)

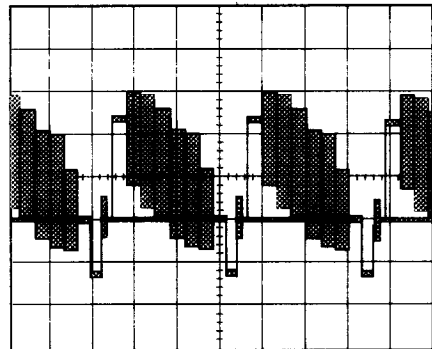
REF. NO.	PARTS NO.	DESCRIPTION
VR54	9A02761000	P.O.T. 500 OHM B
VR55	9A00522900	R., VR SEMI 5K (B)
X101	9A02315200	X'TAL, 4.433619MHZ
X101	9A02315300	X'TAL, 4.433619MHZ
A-A,B-B	9A02643100	WIRE, 070/WHI/AWG26#1007
C-C	9A03798600	WIRE, 120 (RED)
D-D	9A03798700	WIRE, 050 (BLU)

OTHER PCB ASSY...(VCR)

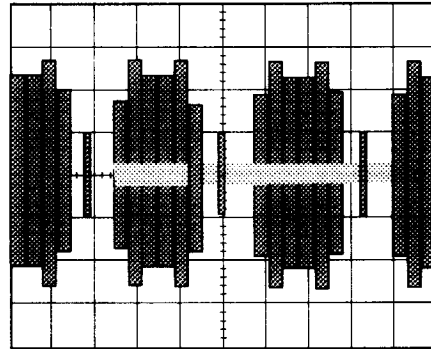
REF. NO.	PARTS NO.	DESCRIPTION
	*9A01108600	VIDEO OUT PCB ASSY
	*9A02307200	PCB ASSY, DRUM MOTOR
	- - - - -	BASE PLATE PCB ASSY
	- - - - -	FULL ERASE HEAD PCB ASSY
	- - - - -	START SENSOR PCB ASSY
	- - - - -	ACE HEAD PCB ASSY
	- - - - -	LAMP PCB ASSY
	*9A01126200	FRONT LOADING PCB ASSY
	- - - - -	END SENSOR PCB ASSY

WAVEFORM PHOTOGRAPHS [TV]

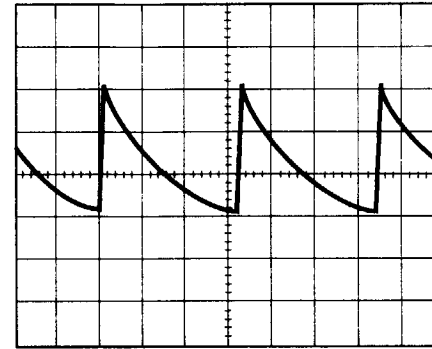
WF1 - WF10 = Waveform Check Points



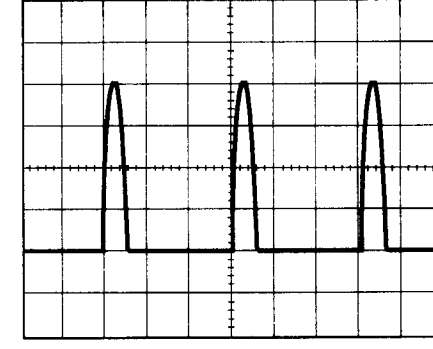
WF1
1 DIV=20 μ s 1 DIV=0.5V



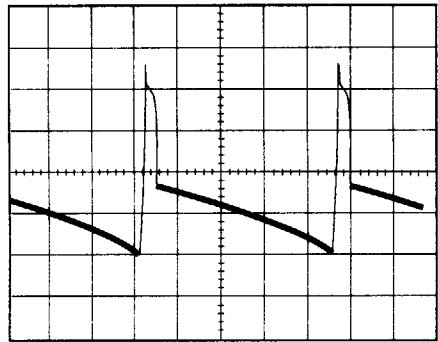
WF2
1 DIV=20 μ s 1 DIV=0.1V



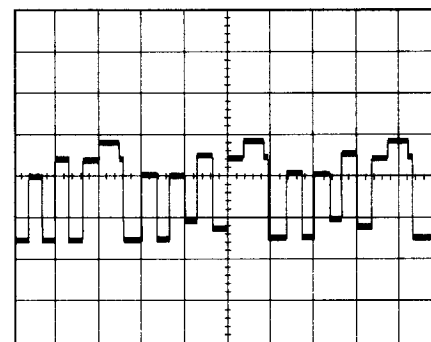
WF3
1 DIV=20 μ s 1 DIV=0.5V



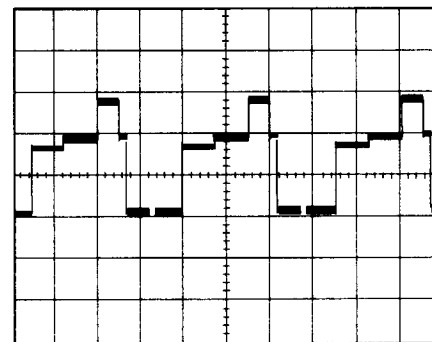
WF4
1 DIV=20 μ s 1 DIV=250V



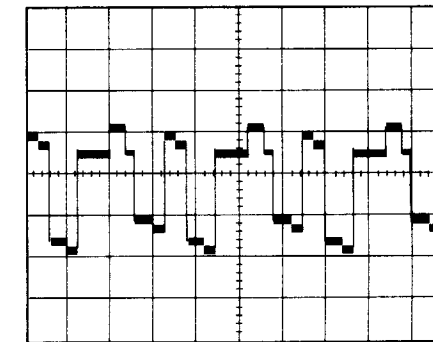
WF5
1 DIV=5ms 1 DIV=10V



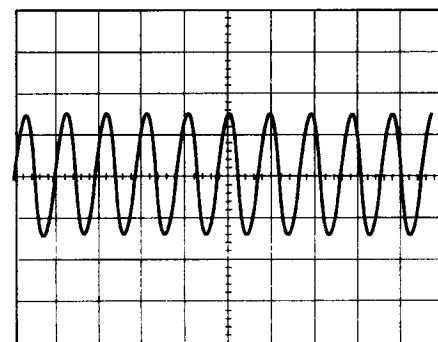
WF6
1 DIV=20 μ s 1 DIV=50V



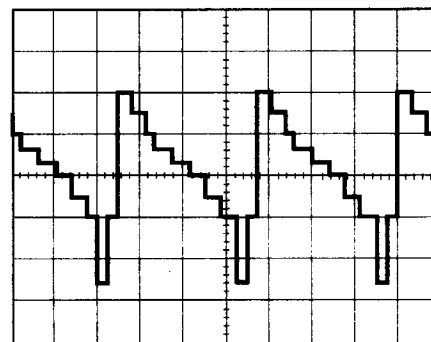
WF7
1 DIV=20 μ s 1 DIV=50V



WF8
1 DIV=20 μ s 1 DIV=50V



WF9
1 DIV=1ms 1 DIV=2V

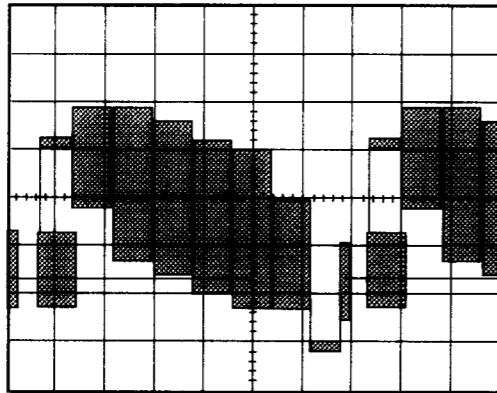


WF10
1 DIV=20 μ s 1 DIV=200mV

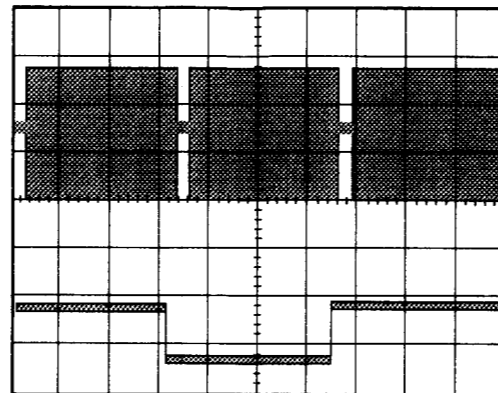
WAVEFORM NOTES:
 ★ Operation: Input PAL color bar signal
 Brightness: Center
 Contrast: Center
 Color: Center
 Tint: Center

WAVEFORM PHOTOGRAPHS [VCR]

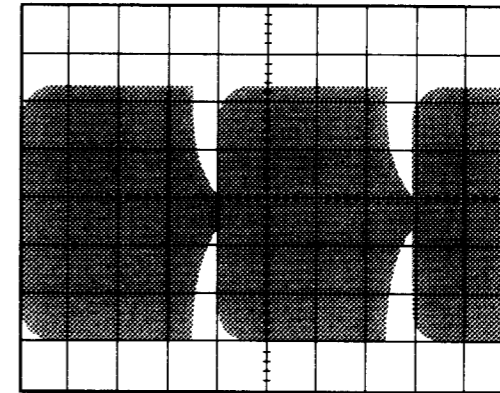
WF1 - WF5 = Waveform Check Points



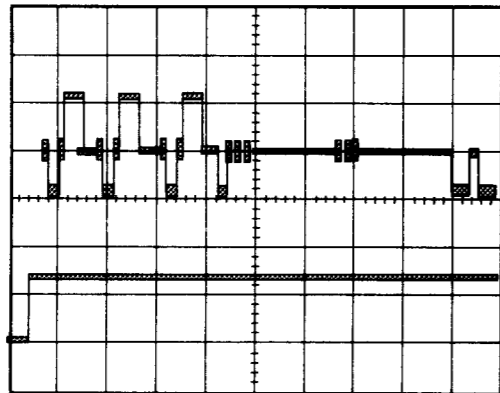
WF1 TP7502 (V-OUT)
1 DIV=10 μ s 1 DIV=0.2V



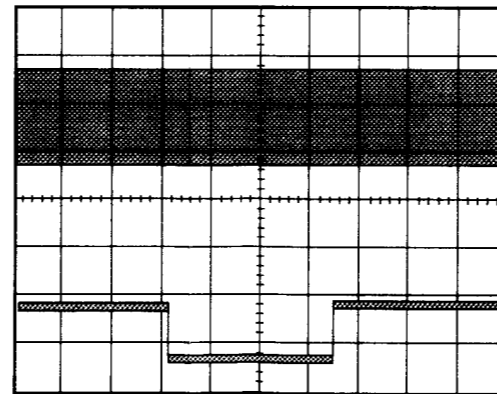
WF3 UPPER:TP3502 (C-REC)
LOWER:TP3503 (RF-SW)
UPPER :1 DIV=5ms 1 DIV=20mV
LOWER :1 DIV=5ms 1 DIV=5.0V



WF 5 TP181 (SECAM)
1 DIV=5ms 1 DIV=0.2V



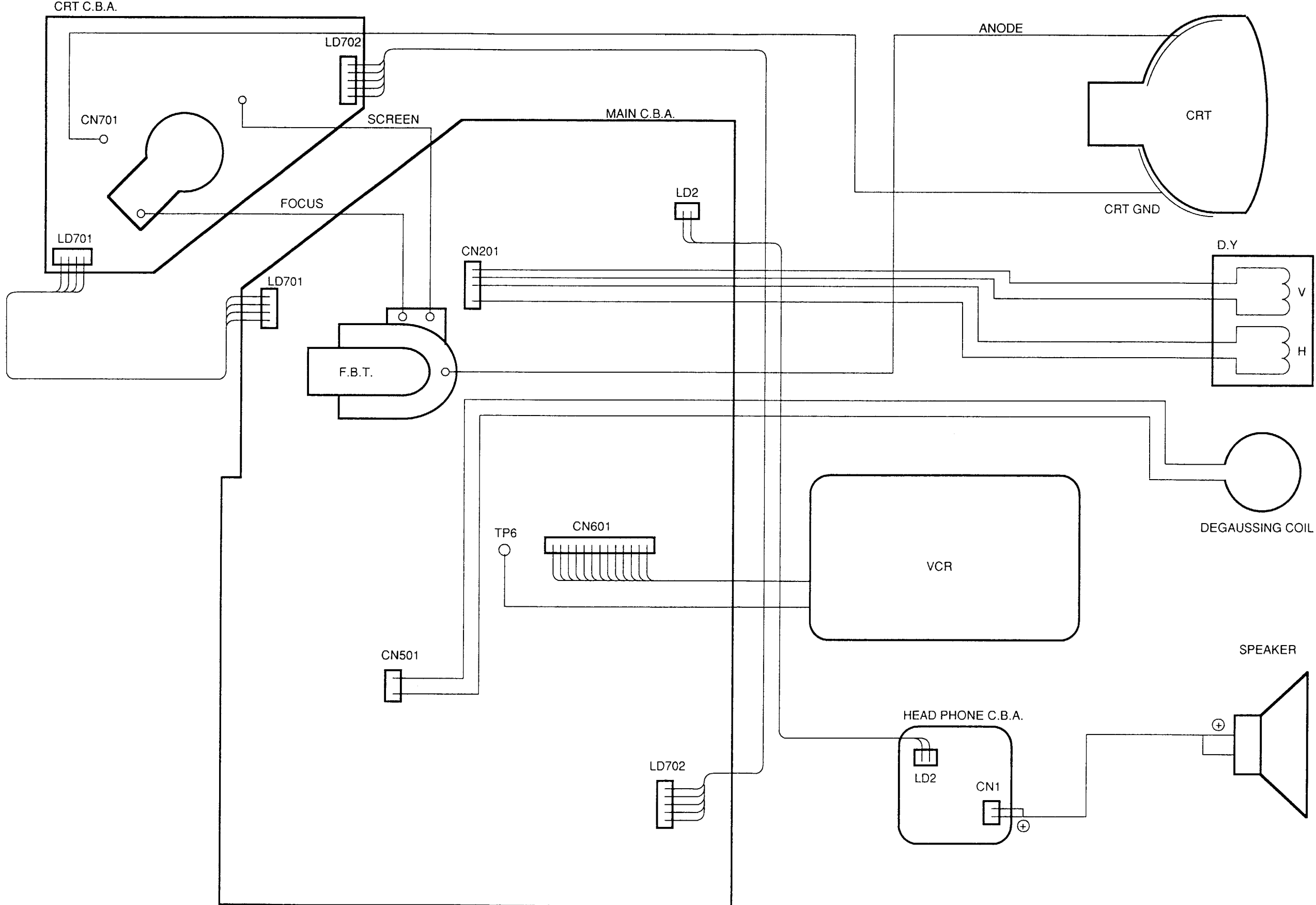
WF2 UPPER:TP7502 (V-OUT)
LOWER:TP3503 (RF-SW)
UPPER :1 DIV=50 μ s 1 DIV=0.5V
LOWER :1 DIV=50 μ s 1 DIV=5.0V



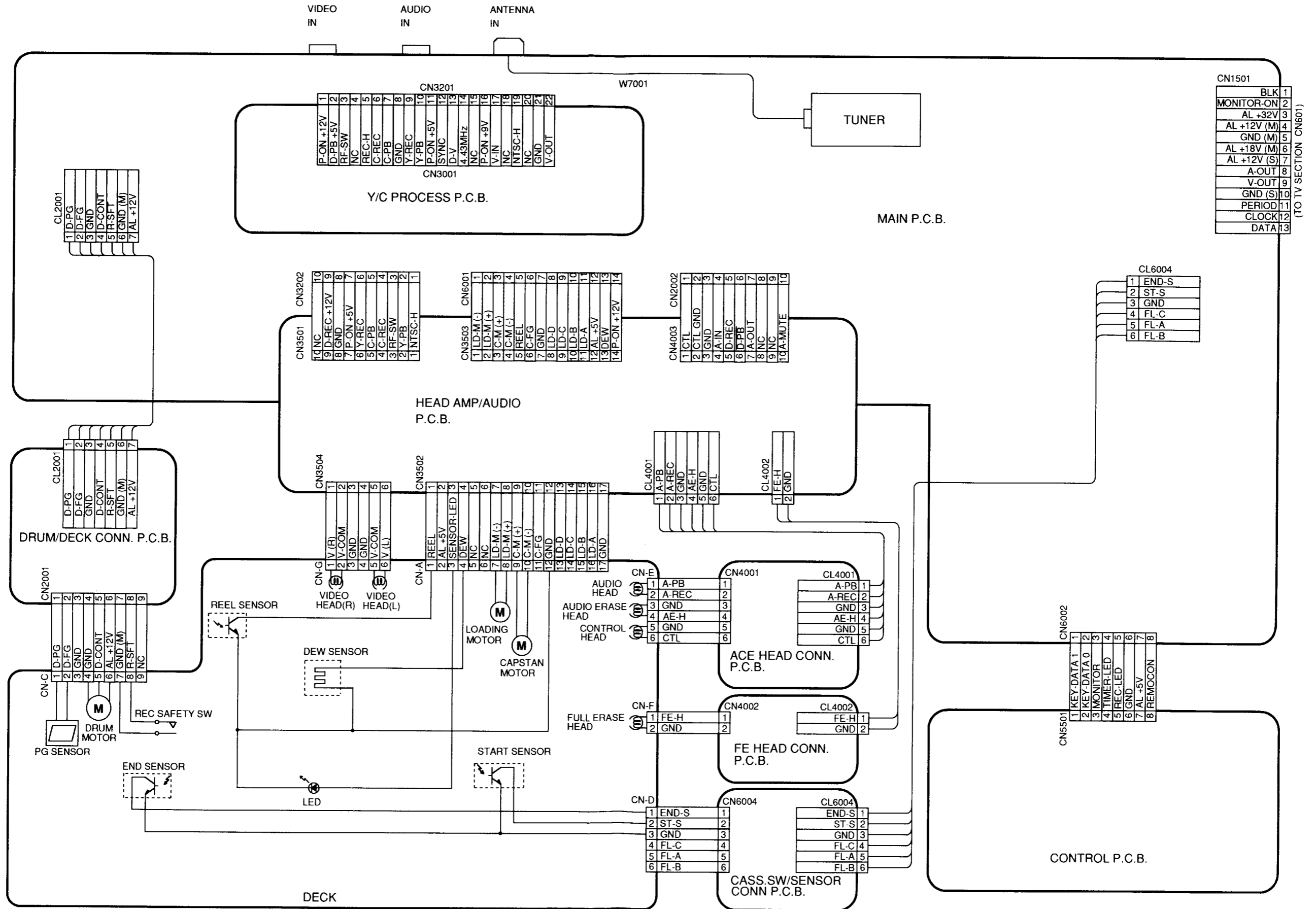
WF 4 UPPER:TP3504 (C-PB)
LOWER:TP3503 (RF-SW)
UPPER :1 DIV=5ms 1 DIV=0.1V
LOWER :1 DIV=5ms 1 DIV=5.0V

WAVEFORM NOTES:
★ Operation:Input PAL color bar signal
Brightness:Center
Contrast:Center
Color:Center
Tint:Center

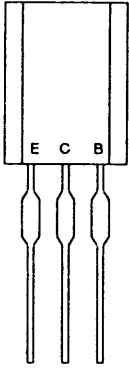
WIRING DIAGRAM [TV]



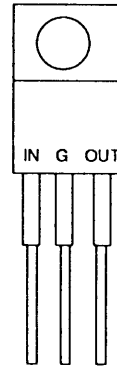
WIRING DIAGRAM [VCR]



IC AND TRANSISTOR LEAD IDENTIFICATIONS



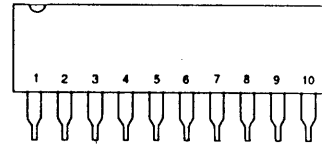
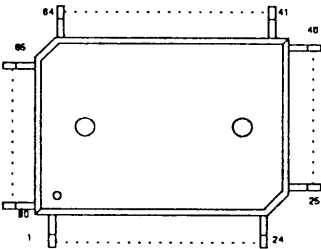
2SA608 DTA124
 2SA933 DTA143
 2SA934 DTC124
 2SC536 DTC144
 2SC1740 DTC114
 2SC2058
 2SC2839
 2SC3400
 2SA1346
 2SA1317



AN78M05
 NJM78M05
 AN78M09
 NJM78M09
 μ PC78M05

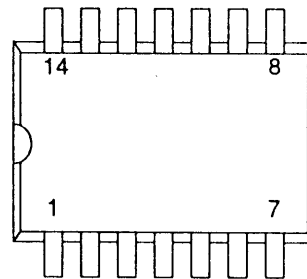
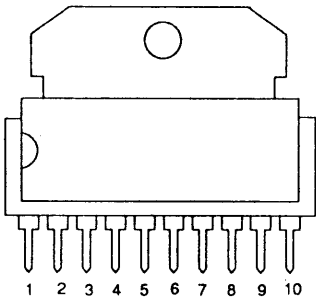
QSMQA0RSN007

BA6209N
 GMM1021*S***



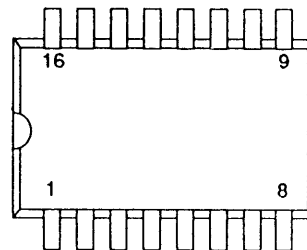
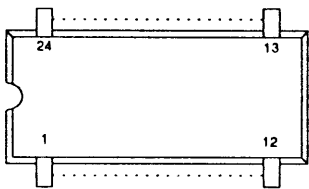
BA6219B

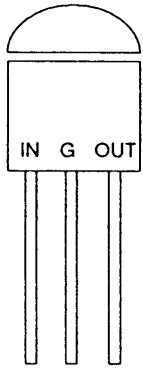
BA10324
 AN6368



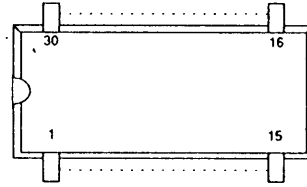
LA7282
 LA7333

LA7370
 BU4053

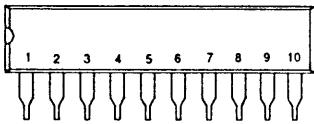




PST529



EARM001
LA7323

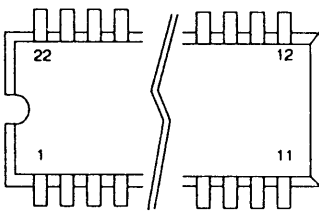
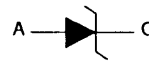


LA7210

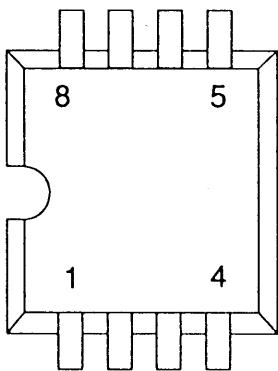


L5631

A: Anode
C: Cathode



LA7320



LC8992
X24C01

IC PIN FUNCTION

IC101 (D/A CONVERTER IC)

Pin No.	In/Out	Signal Name	Function
1	IN	VCC	Power Source for Interface (+5V)
2	IN	DATA IN	Control Signal (Data) from System Control/Timer IC (VCR)
3	IN	CLOCK	Control Signal (Clock) from System Control/Timer IC (VCR)
4	IN	LOAD (PERIOD)	Control Signal (Period) from System Control/Timer IC (VCR)
5	-	NC	
6	-	NC	
7	-	NC	
8	-	GND	GND
9	-	NC	
10	-	NC	
11	OUT	TINT	Chroma IC Control Signal (TINT)
12	OUT	COLOR	Chroma IC Control Signal (COLOR)
13	OUT	BRIGHT	Chroma IC Control Signal (BRIGHTNESS)
14	OUT	CONTRAST	Chroma IC Control Signal (CONTRAST)
15	OUT	VOLUME	Audio IC Control Signal (VOLUME)
16	IN	VDD	Reference Power Source (+12V)

IC6001 (SYSTEM CONTROL / TIMER IC)

Note: H ≥ 4.6V, L ≤ 0.5V (Approx.)

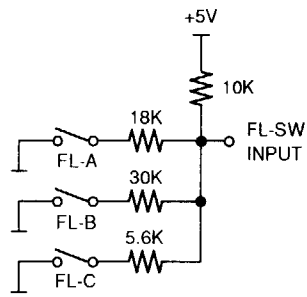
Pin No.	In/Out	Signal Name	Function	Active Level
1	OUT	DATA	DAC IC (TV Section) Control Signal (Data)	H
2	OUT	CLOCK	DAC IC (TV Section) Control Signal (Clock)	H
3	OUT	PERIOD	DAC IC (TV Section) Control Signal (Period)	H
4	OUT	AFT-DEF	AFT Defeat Signal	H
5	-	NC		
6	OUT	BAND VH	Tuner Band Signal (VH Band)	H
7	OUT	BAND U	Tuner Band Signal (U Band)	H
8	OUT	A-MUTE	Audio Mute Signal	H
9	-	NC		
10	OUT	MONITOR	Monitor LED Control	L
11	OUT	D-REC	Video/Audio Recording Instruction	H
12	OUT	NTSC-H	Not Used	
13	-	NC		
14	-	NC		
15	-	NC		
16	OUT	BLUE	Not Used	
17	OUT	REC-LED	Record LED Control	H
18	OUT	TIMER-LED	Timer LED Control	H
19	-	NC		
20	-	NC		
21	-	NC		
22	-	NC		
23	-	T5	Key Data Signal Output Port	H
24	-	T4	Key Data Signal Output Port	H
25	-	T3	Key Data Signal Output Port	H
26	-	NC		
27	OUT	T1	Key Data Signal Output Port	H
28	OUT	T0	Key Data Signal Output Port	H
29	IN	CTL-P	Control Pulse Signal	-
30	OUT	OSC 2 OUT	Crystal Oscillator 32KHz Output	-
31	IN	OSC 2 IN	Crystal Oscillator 32KHz Input	-
32	IN	RESET	Reset at RESET Signal Input "L", Normal at "H"	L
33	-	NC		
34	IN	VDD	Power Source (+5V)	+5V
35	IN	KEY DATA 0	Key Scan Signal Input Port	H
36	IN	KEY DATA 1	Key Scan Signal Input Port	H
37	IN	KEY DATA 2	Key Scan Signal Input Port	H
38	OUT	OSD STB	On-screen IC Control Signal (STB)	-
39	IN	KEY DATA 3	Key Scan Signal Input Port	H
40	IN	KEY DATA 4	Key Scan Signal Input Port	H
41	IN	END-S	Tape End Position Detect	L
42	IN	PAUSE	Play Pause LED Control	H
43	IN	C-FG	Capstan Freq. Generator	~
44	IN	REEL	Reel Rotation Signal Input	-
45	-	NC		
46	IN	SD	Tuner/Video Sync Signal	L
47	OUT	S-CLK	Servo IC Timing Clock	-
48	OUT	OSD-CLK	On-screen IC Control Signal (Clock)	-

Pin No.	In/Out	Signal Name	Function	Active Level
49	OUT	S-DATA	Servo IC Signal (Data)	-
50	IN/OUT	MON-DATA	Memory IC Data	-
51	OUT	MON-CLK	Memory IC Timing Clock	-
52	OUT	D-ON	Drum Rotate Instruction	L
53	OUT	C-REV	Capstan Motor Reverse Instruction	H
54	OUT	C-FWD	Capstan Motor Forward Instruction	H
55	IN	AFT-DOWN	Tuner AFT Voltage Input, "L" at under 2.5V of AFT Voltage	L
56	IN	AFT-UP	Tuner AFT Voltage Input, "H" at over 5.5V of AFT Voltage	H
57	IN	RF-SW	Radio Frequency Signal Switching Pulse	-
58	IN	OSD-BUSY	On-screen IC Control Signal (Busy)	-
59	OUT	D-PB	Video/Audio Playback Instruction Signal	L
60	OUT	T-DAC	Tuner Tuning Voltage Control Signal	-
61	IN	P-DOWN	"L" at Power Failure, "H" at Normal	L
62	IN	REMOCON	Remote Control Serial Signal Input	-
63	IN	ST-S	Tape Start Position Detection	L
64	IN	FL-C	Cassette In Detector	L
65	IN	FL-B	Cassette Out Detector	L
66	IN	FL-A	Cassette Down Detector	L
67	IN	LD-D	Tape Loading Position Detector	L
68	IN	LD-C	Tape Loading Position Detector	L
69	IN	LD-B	Tape Loading Position Detector	L
70	IN	LD-A	Tape Loading Position Detector	L
71	-	GND	GND	0V
72	IN	OSC 1 IN	Crystal Oscillator 4.19MHz Input	-
73	-	NC		
74	OUT	OSC 1 OUT	Crystal Oscillator 4.19MHz Output	-
75	IN	VDD	Power Source (+5V)	+5V
76	-	GND	GND	0V
77	OUT	P-ON	POWER-ON Control	H
78	OUT	LD-FWD	Tape Loading Instruction	H
79	OUT	LD-REV	Tape Unloading Instruction	H
80	OUT	C-FAST	Capstan Motor High Speed Instruction	H

SYSTEM CONTROL TIMING CHART

Chart 1

POSITION	FL-A	FL-B	FL-C	FL-SW INPUT VOLTAGE	MARK
CASSETTE LOAD	OFF	OFF	OFF	4.5V ~ 5.0V	a
EJECT (CASSETTE OUT)	OFF	ON	OFF	3.5V ~ 3.9V	b
TAPE LOADING/FL-A ON	ON	OFF	OFF	3.0V ~ 3.4V	c
EJECT/CASSETTE INSERT	ON	ON	OFF	2.4V ~ 2.9V	d
CASSETTE IN	OFF	OFF	ON	0V ~ 2.1V	e



FRONT LOADING SWITCH

FL-A ON	CASSETTE IN DETECT
FL-B ON	CASSETTE UP DETECT
FL-C ON	CASSETTE DOWN DETECT

TAPE LOADING SWITCH H=1 L=0

LD-SW				SYMBOL	POSITION
A	B	C	D	EJ	CASSETTE LOADING. EJECT
L	L	H	L	EU	INTERMEDIATE
L	H	H	L	FR	FF. REW
L	H	H	H	FU	INTERMEDIATE
H	H	H	L	UN	STOP 2 (POWER OFF POSITION)
H	L	H	L	LU	TAPE LOADING
H	L	L	L	ST	STOP 1 (QUICK START POSITION1. GEAR CHANGE)
H	H	L	L	AU	INTERMEDIATE
H	H	L	H	AL	PLAY. REC. PAUSE
L	H	L	H	FS	INTERMEDIATE
L	L	L	H	RU	INTERMEDIATE
L	L	H	H	RS	SHORT REW

1. OFF → CASS.IN → REC → STOP → FF → STOP → REW → STOP → PLAY

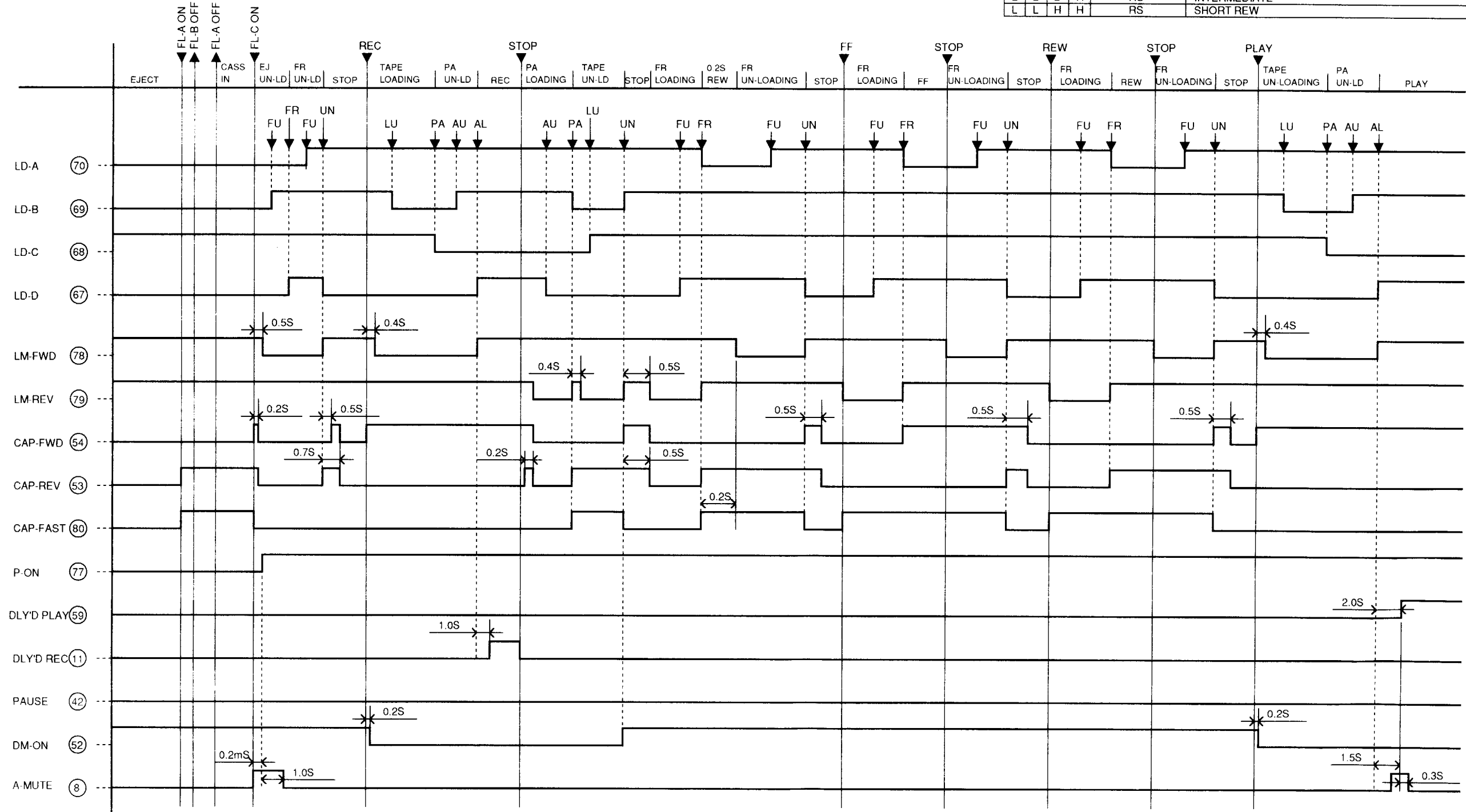
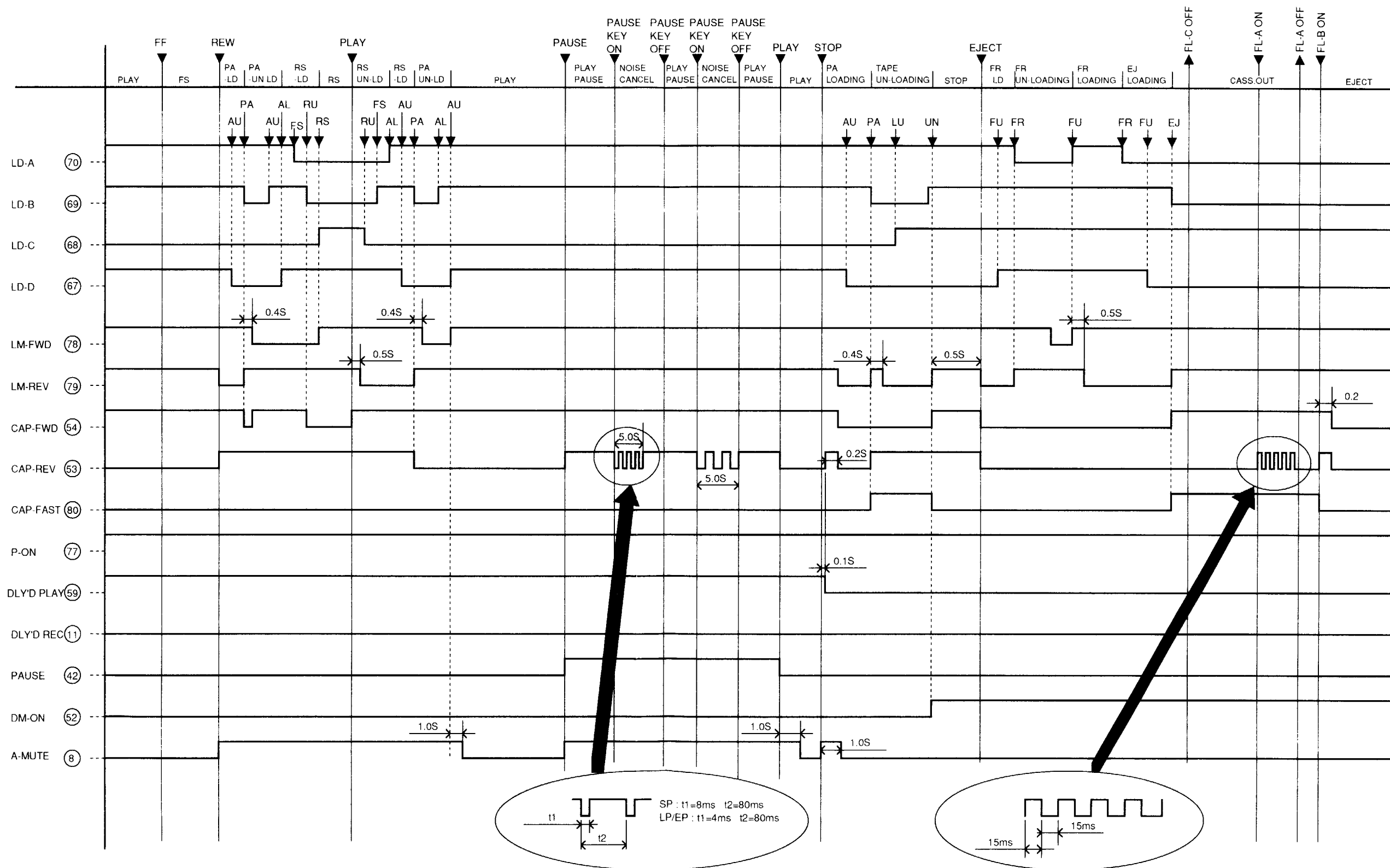
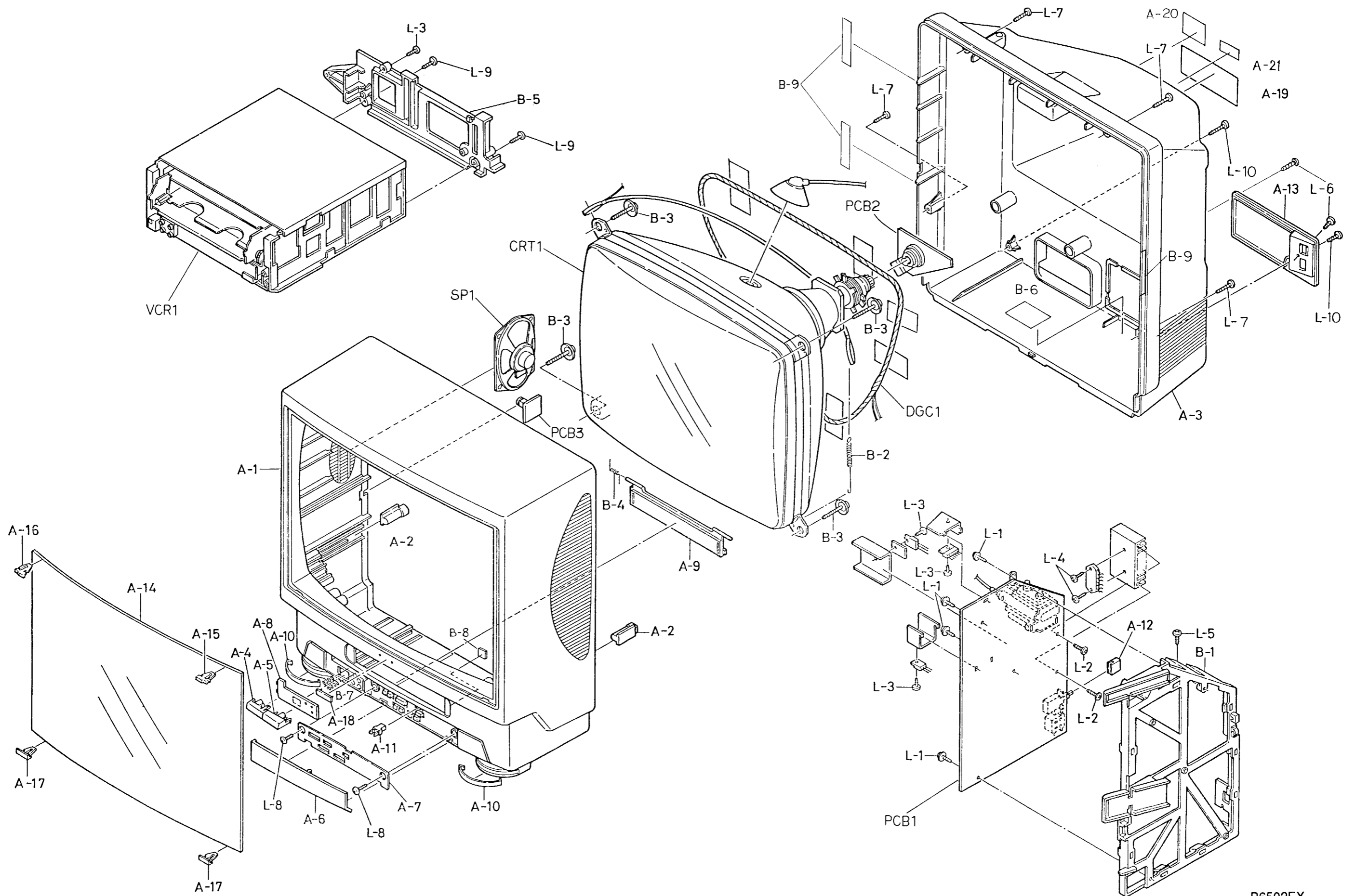


Chart 2

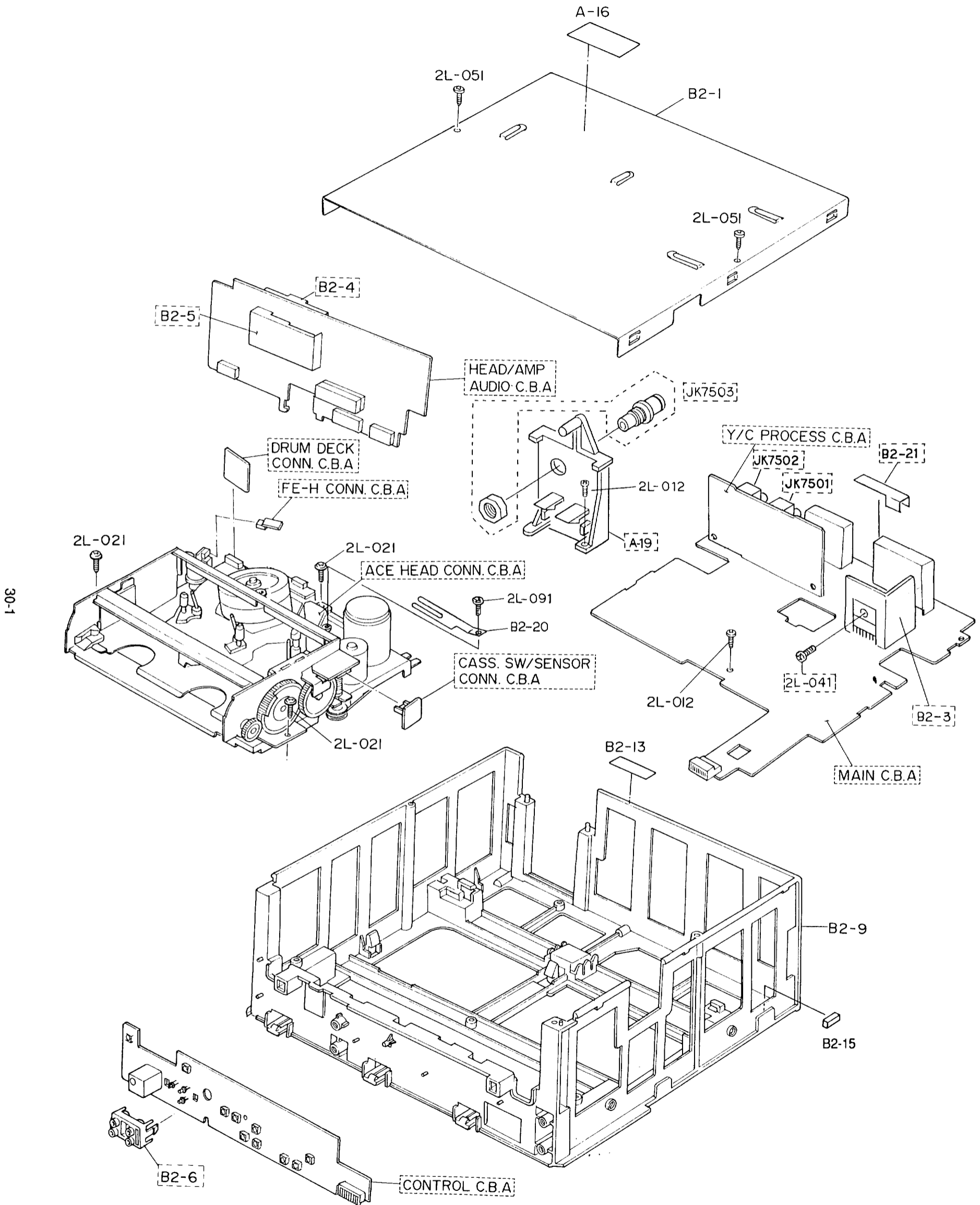
2. PLAY → FF(FS) → REW(RS) → PLAY → PAUSE → NOISE CANCEL → PLAY → STOP → EJECT



CABINET EXPLODED VIEW [TV]



※(----- Marked Parts See the Electrical Parts List.)



CABINET EXPLODED VIEW [VCR]

30-1

K2870EX2

CABINET PARTS LIST [TV]

EXPLODED VIEW CABINET PARTS LIST...[TV]

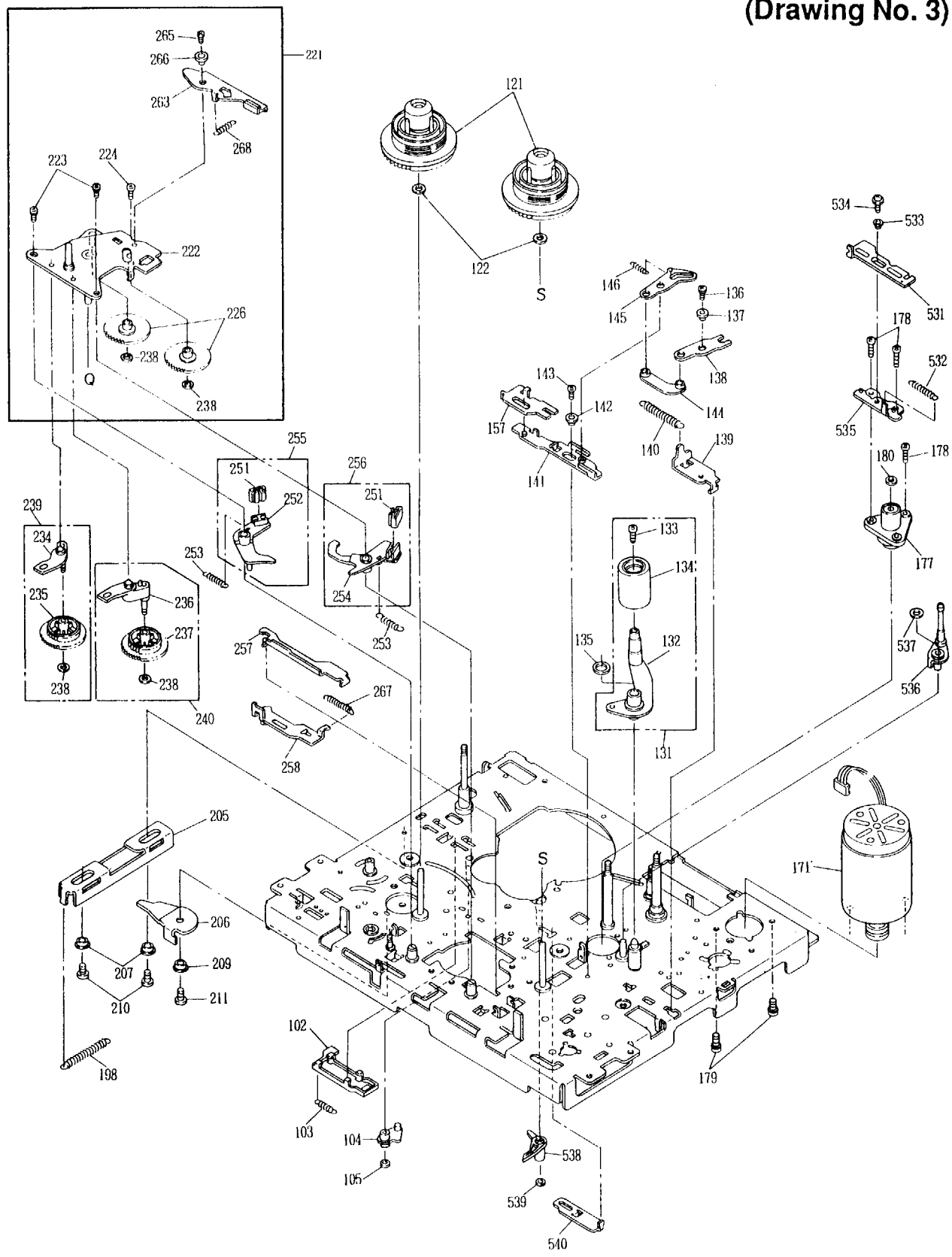
REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
A- 1	*9A03803800	FRONT CABINET	
A- 2	*9A02395800	REAR CABINET MOUNTING BOSS	
A- 3	*9A03804000	REAR CABINET	
A- 4	*9A03804100	KNOB, POWER	
A- 5	*9A03804200	KNOB, S/E	
A- 6	*9A03804300	CONTROL DOOR	
A- 7	*9A03804400	CONTROL PLATE	
A- 8	*9A03804500	SENSOR WINDOW	
A- 9	*9A03804600	CASSETTE DOOR	
A-10	*9A03804700	DECORATION PLATE	
A-11	*9A03804900	PUSH LOCK	
A-12	*9A01442200	KNOB, MAIN POWER	
A-13	*9A03807600	VCR COVER	
A-14	*9A03805100	CRT COVER	
A-15	*9A03805200	COVER, STOPPER (R/U)	
A-16	*9A03805300	COVER, STOPPER (L/U)	
A-17	*9A03805400	COVER, STOPPER (D)	
A-18	*9A02396900	BRAND BADGE	
A-19	*9A03805900	RATING LABEL	
A-20	*9A03805600	SERVICE CONTACT LABEL	
A-21	*9A03805800	SERIAL NO. LABEL	
B- 1	*9A03806000	PCB HOLDER	
B- 2	*9A01805800	TENSION SPRING	
B- 3	*9A03806200	SCREW, M6 CRT	
B- 4	*9A02768000	DOOR SPRING	
B- 5	*9A03806500	VCR HOLDER	
B- 6	*9A03806300	MODEL NO. LABEL,	
B- 7	*9A03806400	KNOB, SPRING	
B- 8	*9A02768100	DOOR CUSHION	
B- 9	*9A01443800	CLOTH 0.5TX16X65	
CRT1	△ *9A02397600	CRT	
DGC1	△ *9A03808000	DEGAUSSING COIL	
L- 1	9A03806600	SCREW, P-TIGHT CUP+ M3*8	
L- 2	9A03806700	SCREW, S-TIGHT CUP+ M3*8	
L- 3	9A03806800	SCREW, B-TIGHT BIND+ M3*10	
L- 4	9A03806900	SCREW, B-TIGHT BIND+ M3*14	
L- 5	9A03807000	SCREW, TAPPING BIND+ M4*12	
L- 6	9A03807100	SCREW, P-TIGHT BIND+ M3*12	
L- 7	9A03807200	SCREW, P-TIGHT BIND+ M4*20	
L- 8	9A03807400	SCREW, P-TIGH. BIND+M3.5*12	
L- 9	9A03807500	SCREW, P-TIGHT BIND+ M4*14	
L-10	9A03807300	SCREW, P-TIGHT BIND+ M4*22	
PCB1	- - - - -	MAIN PCB ASSY...(TV) .....	...See Electrical List (TV)
PCB2	- - - - -	CRT PCB ASSY...(TV) .....	...See Electrical List (TV)
PCB3	- - - - -	EARPHONE PCB ASSY...(TV) .....	...See Electrical List (TV)
SP 1	*9A03808100	SPEAKER	
SP 1	*9A01810600	SPEAKER	
SP 1	*9A02398200	SPEAKER	
VCR1	- - - - -	VIDEO CASSETTE RECORDER	
	*9A03807700	WIRE ASSY, 4PIN	
	*9A03807800	WIRE ASSY, 5PIN	
	*9A03807900	WIRE ASSY (EARPHONE PCB-SP)	
	*9A02398800	WIRE ASSY	

CABINET PARTS LIST [VCR]

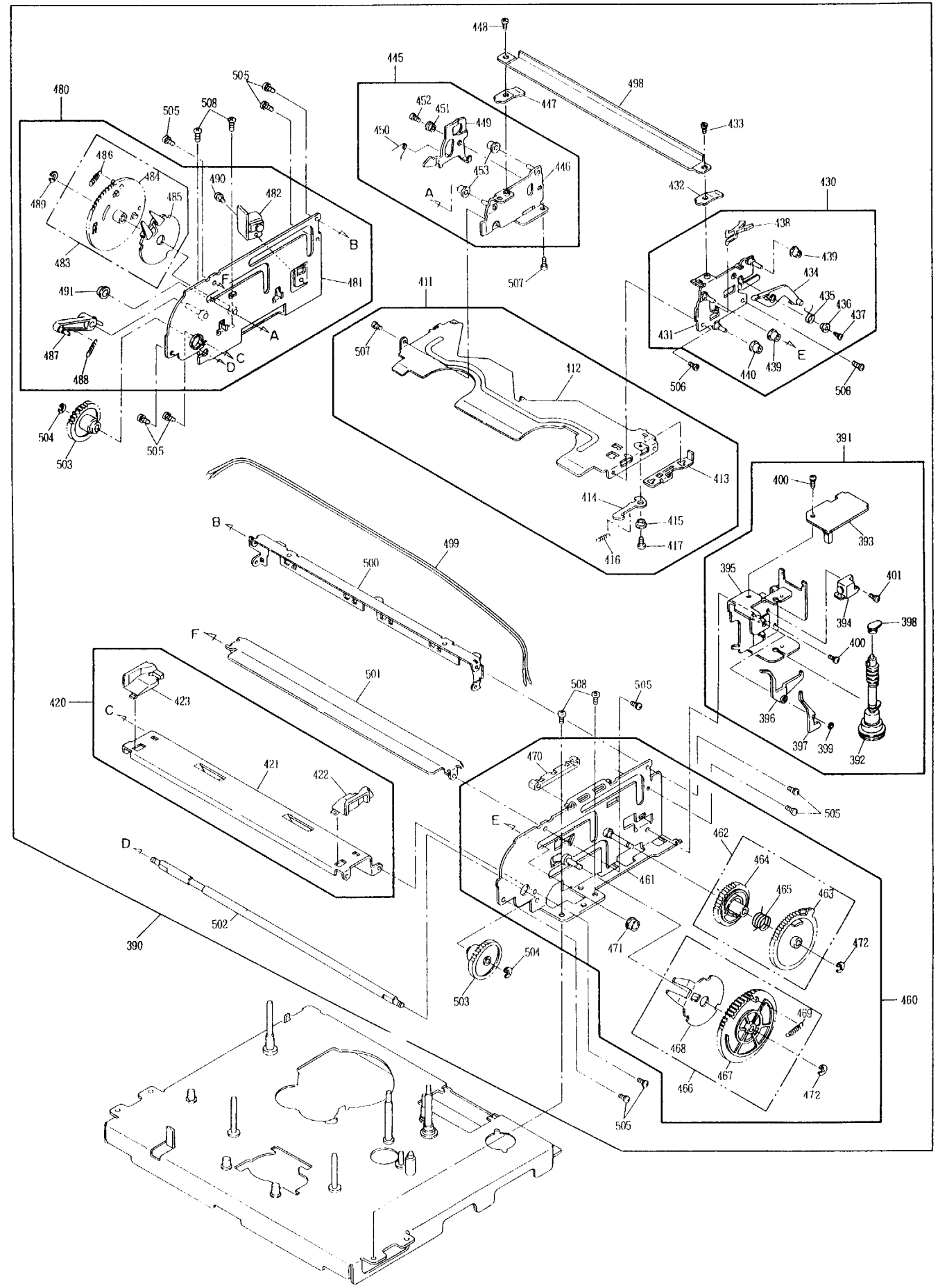
EXPLODED VIEW CABINET PARTS LIST...[VCR]

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
A-16	*9A03799700	LABEL, SHASSIS NO.	
A-19	*9A03799100	JACK BOARD	
B2-1	*9A03799000	COVER, TOP	
B2-3	*9A02514800	HEAT SINK	
B2-4	*9A03799200	SHIELD, BOTTOM (TV)	
B2-5	*9A03282600	SHIELD, TOP (2H)	
B2-9	*9A03798900	CHASSIS	
B2-13	*9A03799500	T.P CUSHION	
B2-15	*9A03799600	CHASSIS SPACER	
B2-20	*9A00736000	PLATE, GROUND	
B2-21	*9A03799800	PLATE, GROUND	
JK7501	*9A00489600	JACK RCA JACK WITH SW	
JK7502	*9A02308800	JACK, BNC	
JK7503	*9A02309200	ANT JACK	
JK7503	*9A03801500	ANT JACK, HXC0421-01-500	
MCV-A	- - - - -	MAIN PCB ASSY .....	...See Electrical List (VCR)
MCV-B	- - - - -	CASS.SW/SENSOR CONN.PCB ASSY .....	...See Electrical List (VCR)
MCV-C	- - - - -	DRUM DECK CONN.PCB ASSY .....	...See Electrical List (VCR)
MCV-D	- - - - -	HEAD AMP/AUDIO PCB ASSY .....	...See Electrical List (VCR)
MCV-E	- - - - -	ACE HEAD CONN.PCB ASSY .....	...See Electrical List (VCR)
MCV-F	- - - - -	FE HEAD CONN.PCB ASSY .....	...See Electrical List (VCR)
MCV-G	- - - - -	CONTROL PCB ASSY .....	...See Electrical List (VCR)
MSV	*9A03800100	Y/C PROCESS PCB ASSY .....	...See Electrical List (VCR)
2L-012	9A02515600	SCREW,P-TI.BIND HEAD 3*10	
2L-021	9A02515400	SCREW,P-TIGHT FLANGE 3*10	
2L-041	9A02515700	SCREW, TAPP.BIND HEAD 3*10	
2L-051	9A02515600	SCREW,P-TI.BIND HEAD 3*10	
2L-091	9A02515500	SCREW,SEMS PAN M3X5	

(Drawing No. 3)



(Drawing No. 4)



DECK PARTS LIST

EXPLODED VIEW (1) DECK PARTS LIST

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
DECK I	*9A02514400	DECK ASSY...(VIEW 1-4)	
01	*9A02304200	CYLINDER ASSY	
02	*9A01426100	DRUM, UPPER	
03	*9A01108400	LOWER DRUM ASSY	
04	*9A01108500	MOUNT, CYLINDER	
05	*9A01108600	VIDEO OUT PCB ASSY	
06	9A01108700	SCREW, W SEMS, M2.6X6	
07	*9A02306900	MOTOR, DC TM84	
08	9A02307000	SCREW, C-T.M2.6X20	
09	9A00442000	SCREW, SEMS M2.6X6	
10	9A01109000	SCREW, BIND SEMS M3X8	
11	9A01109600	SCREW, C TAPPING M3X10	
12	9A01736000	SCREW, B-TIGHT M2X6	
13	9A01109200	SCREW, CAP M2.6X3	
14	*9A02307100	FLAT SPRING, DR.G.	
15	9A00444900	SCREW, C-TIGHT M2.6X5	
16	*9A01109400	BRACKET, DRUM GROUND	
17	*9A02307200	PCB ASSY, DM	
18	9A00444900	SCREW, C-TIGHT M2.6X5	
19	*9A01109300	GROUND, DURM	
20	*9A01109500	WASHER, TOOTHED LOCK M2.6	
23	*9A02304300	CONNECTOR, BRACKET	
51	*9A01109800	LOADING BASE	
52	*9A01109900	BLOCK (L), LOADING	
53	*9A01110000	BLOCK (R), LOADING	
54	*9A01110100	ROLLER POST, ST	
55	*9A01110100	ROLLER POST, ST	
56	9A01109200	SCREW, CAP, M2.6X3	
57	9A00452800	SCREW, CAMERA, M2X3	
58	9A00444900	SCREW, C-TIGHT M2.6X5	
59	*9A01110200	PLATE (L), LOADING	
60	*9A01110300	BOSS, LOADING	
61	*9A01110400	SPRING (L), LOADING GEAR	
62	*9A01110500	GEAR (L), T LOADING	
63	*9A01110600	PLATE (R), LOADING	
64	*9A01110700	SPRING (R), LOADING GEAR	
65	*9A01110800	GEAR (R), T LOADING	
66	9A00458600	WASHER, POLY 2.6X6X0.5	
67	*9A02304400	LOADING BASE ASSY	
68	*9A02304500	LOADING, GEAR (L) ASSY	
69	*9A02304600	LOADING, GEAR (R) ASSY	
81	*9A02304800	HEAD BASE ASSY	
82	*9A01117900	HEAD, ACE	
83	*9A02304900	BASE, HEAD	
84	9A00737200	SCREW, AZIMUTH SP. M2.6X12	
85	*9A00451100	SPRING, AZIMUTH	
86	9A00447900	NUT, NYLON M3	
88	9A02305000	SCREW, M2.6X7	
89	9A01118100	SCREW, SET M3X6	
90	9A01118200	SPRING, HEAD	
91	*9A01118300	FULL ERASE PLATE ASSY	
92	*9A00452500	HEAD, FULL ERASE	
93	*9A01118500	PLATE, FULL ERASE	
94	*9A01118600	SCREW, FLANGE BIND	
95	9A00447900	NUT, NYLON M3	
96	*9A01118700	ROLLER, IMPEDANCE	

EXPLODED VIEW (1) DECK PARTS LIST

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
97	*9A01118800	SLEEVE, IMPEDANCE ROLLER	
98	*9A01118900	FLANGE (A), TAPE GUIDE	
99	*9A01119000	SPRING, TAPE GUIDE FLANGE	
100	9A01119100	WASHER, PLANE 3X8X0.5	
101	*9A01119200	SPRING, FE PLATE	
191	*9A01121100	ARM, BACK TENSION	
192	9A01112300	SCREW, C-TIGHT M2.6X4	
193	*9A01121200	SUPPORT, BACK TENSION	
194	9A01112300	SCREW, C-TIGHT M2.6X4	
195	*9A01121300	COLLAR, BAND HOLDER	
196	*9A01121400	BAND, BT	
197	*9A01121500	SPRING, BAND HOLDER	
199	9A01121600	WASHER, POLY. 2.1X4X0.5	
208	*9A01121700	SPRING, BT ACTUATE PLATE	
228	9A01122500	WASHER, NYLON 3.1X6X0.3	
229	*9A02305500	CLUTCH ASSY	
230	9A01122700	WASHER, NYLON 2.98X6X0.3	
231	*9A01122800	MIDDLE PULLEY ASSY	
232	9A00458600	WASHER, POLY 2.6X6X0.5	
233	*9A01122900	BELT, DRIVE	
259	*9A01124400	HOOK, TRIGGER 8059-10-14	
260	*9A01124500	LEVER, TRIGGER 8059-10-13	
261	*9A01124600	PLATE, BRAKE 8059-10-11	
262	*9A01124700	BRK ACTUATE BASE, 8059-10-09	
264	*9A01124800	BRAKE, S SOFT	
269	*9A01125000	SPRING, S SOFT BRAKE	
270	9A00459200	WASHER, POLY 2.1X5X0.5	
271	*9A01125100	SPRING, TRIGGER LVR 8059-10-23	
272	*9A02306200	BRAKE ACTUATOR, B.S.	
273	*9A02306300	BRAKE PLATE SPRING	
341	*9A01111400	SWITCH, LEAF	
342	*9A00444900	SCREW, C-TIGHT M2.6X5	
343	*9A01111500	WIRE	
344	*9A01111600	HOLDER, WIRE	
345	*9A02306500	LAMP HOLDER ASSY	

EXPLODED VIEW (2) DECK PARTS LIST

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
32	*9A01112200	OPEN ANGLE ASSY	
33	*9A01112300	SCREW, C-TIGHT M2.6X4	
34	*9A02304700	ADJUSTER, TRACKIN.	
35	*9A00446800	GUIDE, TAPE	
36	*9A01112400	SPRING, TAPE GUIDE	
37	*9A00459300	CAP, GUIDE	
38	*9A00447700	FLANGE (C), TAPE GUIDE	
39	*9A00447800	FLANGE, (D) TAPE GUIDE	
40	9A00447200	NUT, M3	
41	*9A01112700	RUBBER, DAMPER	
147	*9A01112800	CRANK, P	
148	*9A01112900	COLLAR, P CRANK	
149	9A01113000	SCREW, C-TIGHT FH M2.6X4	
150	*9A01113100	SLIDER, P	
151	*9A01113200	SPRING, P SLIDER	
152	*9A01113300	COLLAR, P SLIDER	
153	9A00444900	SCREW, C-TIGHT M2.6X5	
154	*9A01113400	LEVER, P CAM	
155	*9A01113500	COLLAR, P CAM LEVER	
156	9A00444900	SCREW, C-TIGHT M2.6X5	
172	*9A01113600	CAPSTAN, FLYWHEEL	
173	*9A01113700	BELT, MAIN 8059-07-10	
174	*9A01113800	FLYWHEEL ANGLE ASSY	
175	9A00443800	SCREW, C-TIGHT M3X5	
176	9A00456500	WASHER, 3.1X6X0.5	
200	*9A01116400	PLATE, BT CHANGE	
202	*9A01116500	LEVER, BT RETURN	
203	*9A01111300	COLLAR	
204	9A00444900	SCREW, C-TIGHT M2.6X5	
238	9A00452300	WASHER, POLY 1.6X3.8X0.3	
241	*9A02306000	RETURN GEAR ASSY	
242	*9A02306100	RETRUN ARM	
281	*9A01116600	LM ASSY	
282	*9A01116700	TRIGGER BEARING ASSY	
283	*9A01116800	PULLEY, LOADING	
284	9A00452300	WASHER, POLY 1.6X3.8X0.3	
285	*9A01116900	BELT, LOADING	
286	*9A01117000	ARM (B), SEARCH	
287	9A00458600	WASHER, POLY 2.6X6X0.5	
288	*9A01117100	GEAR, LOADING	
289	9A00459200	WASHER, POLY 2.1X5X0.5	
290	*9A01117200	ARM, BRACKE ACTUATOR	
291	*9A01117300	ARM, EJECT ACTUATOR	
293	*9A01117500	CAM, LOADING	
294	*9A01117600	BRUSH, S	
295	9A00465900	SCREW, SEMS M3X4	
296	9A01117700	WASHER, POLY. 2.6X8X0.5	
312	*9A01114700	LOADING LEVER SEMI ASSY	
313	*9A01114800	ROLLER, CAM	
314	*9A01114900	PLATE, LOADING GEAR	
315	*9A01115000	COLLAR, LOADING GEAR PLATE	
316	9A01115100	SCREW, C-TIGHT M3X6	
317	*9A01115200	LEVER SEMI ASSY	
318	*9A01115300	PLATE, SEMI ASSY	
319	*9A01115400	SPRING, LOADING ACTUATE	

EXPLODED VIEW (2) DECK PARTS LIST

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
320	*9A01115500	PLATE, LOADING LEVER RELN.	
321	9A00444100	SCREW, SEMS, M2X5	
322	9A01115600	SPRING, L GEAR PLATE	
331	9A00444900	SCREW, C-TIGHT M2.6X5	
332	*9A01111300	COLLAR	
333	*9A01115700	LEVER, REC	
334	*9A01115800	ACTUATOR, REC	
335	*9A01115900	SPOKE, REC ACTUATE	
336	*9A01116000	SENSOR, DEW	
337	9A00472500	SCREW, SEMS, M2.6X4	
338	*9A02306400	PLATE, BASE	
339	9A01116200	SCREW, S-TIGHT M2.6X5	
346	*9A01736400	SPRING, REC LEVER	
347	*9A02306700	COLLER, SCREW	
348	*9A02548600	SENSOR, REEL	
361	*9A01113900	ACTUATOR, EJECT	
362	*9A01111300	COLLAR	
363	9A00444900	SCREW, C-TIGHT M2.6X5	
364	*9A01114000	PLATE, L BRAKE	
365	*9A01111300	COLLAR	
366	9A00444900	SCREW, C-TIGHT M2.6X5	
367	*9A01114100	E. IDLER ARM ASSY	
368	*9A01114200	E IDLER ARM SEMI ASSY	
369	*9A01114300	PULLEY, EJECT	
370	9A00452300	WASHER, POLY 1.6X3.8X0.3	
371	*9A01114400	SPRING, IDLER ARM	
372	9A00459200	WASHER, POLY 2.1X5X0.5	
373	*9A01114500	BELT, FRONT LOADING	

EXPLODED VIEW (3) DECK PARTS LIST

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
102	*9A01119300	PLATE, FE SLIDE	
103	*9A01119400	SPRING, FE ACTUATE	
104	*9A01119500	LEVER, FE ACTUATE	
105	9A00459200	WASHER, POLY 2.1X5X0.5	
121	*9A01119600	REEL ASSY	
122	9A00456500	WASHER, 3.1X6X0.5	
131	*9A01119700	PINCH ROLLER ARM ASSY	
132	*9A01119800	ARM PINCH ROLLER	
133	9A00450200	SCREW, SMALL M2.6X4	
134	*9A00454100	PINCH ROLLER, A.	
135	9A01119900	WASHER, POLY. 5X8X0.5	
136	9A00472500	SCREW, SEMS M2.6X4	
137	*9A01111300	COLLAR	
138	*9A01120000	ANGLE, P ACTUATE	
139	*9A01120100	HOLDER, P ANGLE	
140	*9A01120200	SPRING, P ROLLER	
141	*9A01120300	PLATE (A), P SLIDE	
142	*9A01111300	COLLAR	
143	9A00444900	SCREW, C-TIGHT M2.6X5	
144	*9A01120400	JOINT PLATE	
145	*9A01120500	ARM, P ACTUATE	
146	*9A01120600	SPRING, P ACTUATE ARM	
157	*9A01120700	PLATE (B), P SLIDE	
171	*9A01120800	CAPSTAN MOTOR ASSY	
177	*9A01120900	METAL HOUSING ASSY	
178	9A01121000	SCREW, C-TIGHT M2.6X8	
179	9A00465900	SCREW, SEMS M3X4	
180	9A02305100	WASHER, NYLON 2.92X5X0.5	
198	*9A01110900	SPRING, BACK TENSION	
205	*9A01111000	PLATE, BT ACTUATE	
206	*9A01111100	LEVER, BT ACTUATE	
207	*9A01111200	COLLAR, BT ACTUATE PLATE	
209	*9A01111300	COLLAR	
210	9A00445300	SCREW, S-TIGHT M2.6X3.5	
211	9A00444900	SCREW, C-TIGHT M2.6X5	
221	*9A02305200	PLATE ASSY	
222	*9A02305300	PLATE SEMI ASSY	
223	9A00462400	SCREW, SEMS M2X4	
224	9A00444900	SCREW, C-TIGHT M2.6X5	
226	*9A02305400	GEAR, REEL DRIVE	
234	*9A01123100	P GEAR ARM ASSY	
235	*9A02305600	GEAR, PLAY	
236	*9A01123400	RF GEAR ARM ASSY	
237	*9A02305700	GEAR, FF	
238	9A00452300	WASHER, POLY 1.6X3.8X0.3	
239	*9A02305800	GEAR ASSY, P.	
240	*9A02305900	GEAR ASSY, RF	
251	*9A01123800	SHOE, BRAKE 8059-10-19	
252	*9A01123900	ARM, S BRAKE	
253	*9A01123600	SPRING, BRAKE ARM	
254	*9A01124100	ARM, T BRAKE	
255	*9A01123700	S.BRK ARM ASSY, 8059-10-301	
256	*9A01124000	T.BRK ARM ASSY, 8059-10-302	
257	*9A01124200	LIFTER, BRAKE	
258	*9A01124300	ACTUATOR, L BRAKE	

EXPLODED VIEW (3) DECK PARTS LIST

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
263	*9A01122100	BRAKE, TAKE-UP SOFT	
265	9A01122200	SCREW, SL FH M2X3	
266	*9A01122300	COLLAR, T-U SOFT BRAKE ARM	
267	*9A01124900	SPRING, L BRAKE ACTUATOR	
268	*9A01122400	SPRING, T-U SOFT BRAKE ARM	
531	*9A01125200	PLATE, RG SLIDE	
532	*9A01125300	SPRING, RG SLIDE	
533	*9A01125400	COLLAR, RG SLIDE PLATE	
534	9A00462400	SCREW, SEMS M2X4	
535	*9A01125500	BASE, RG SLIDE	
536	*9A02306800	ARM SEMI ASSY, RG	
537	9A00458600	WASHER, POLY 2.6X6X0.5	
538	*9A01125700	ARM, RG ACTUATE	
539	9A00459200	WASHER, POLY 2.1X5X0.5	
540	*9A01125800	RG ACTUATOR	

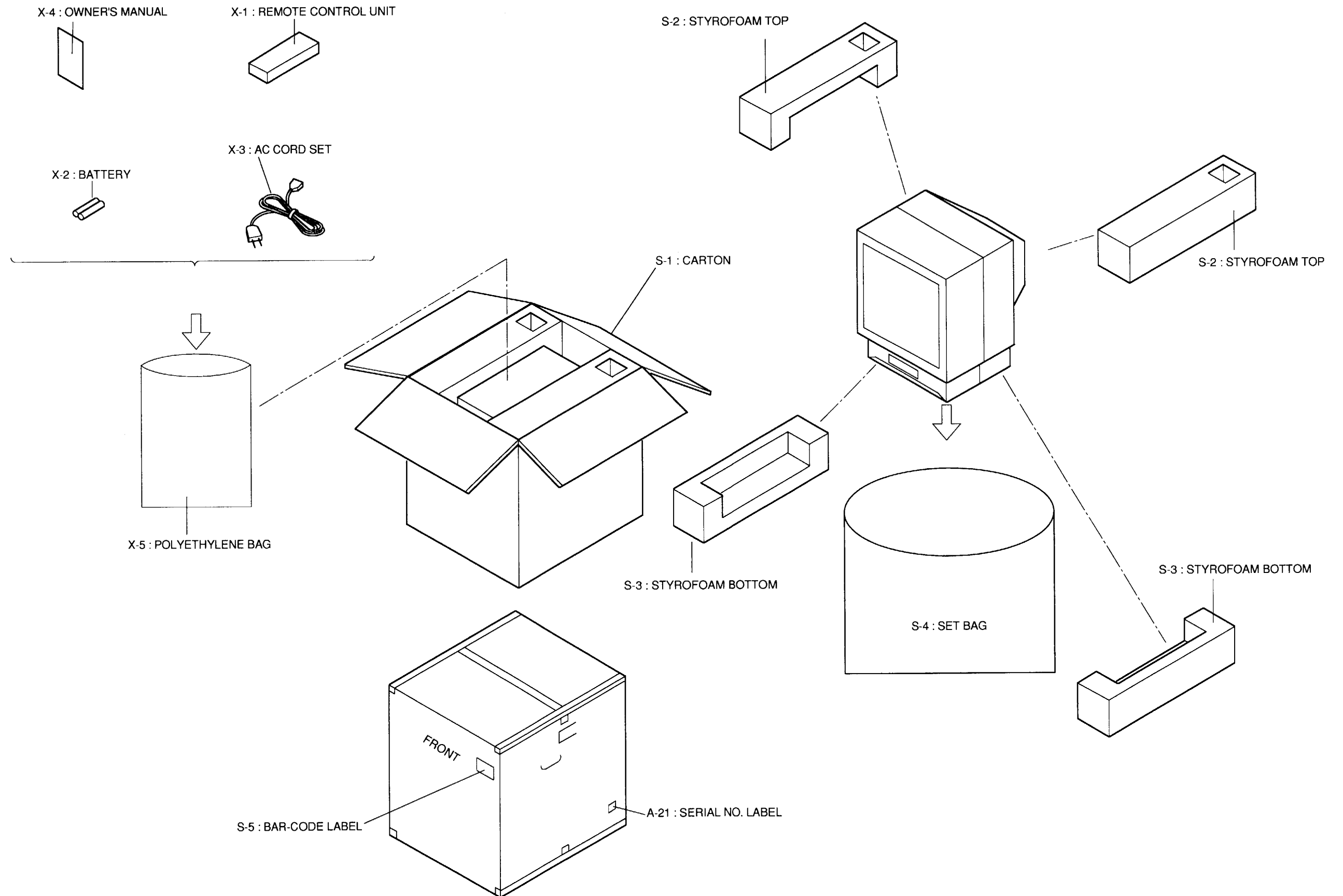
EXPLODED VIEW (4) DECK PARTS LIST

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
390	*9A02306600	LOADING ASSY, FRONT	
391	*9A01126000	CASSETTE LOAD BRACKET ASSY	
392	*9A01126100	CLUTCH ASSY, 8059-16-319	
393	*9A01126200	FRONT LOADING PCB ASSY	
394	*9A01126300	SENSOR, PCB (RM)	
395	*9A01126400	C. LOAD BRACKET SEMI ASSY	
396	*9A01126500	LEVER, IN SW 8059-16-34	
397	*9A01126600	LEVER, S SW 8059-16-33	
398	*9A01126700	BEARING (A), F WORM	
399	9A00452300	WASHER, POLY 1.6X3.8X0.3	
400	9A00472500	SCREW, SEMS M2.6X4	
401	9A02688800	SCREW, SEMS, M2X5	
411	*9A01126800	CASSETTE HOLDER ASSY	
412	*9A00467600	HOLDER, CASSETTE	
413	*9A00467700	PLATE, SLIDE	
414	*9A00467800	LOCK PLATE (R)	
415	*9A01111300	COLLAR	
416	*9A01126900	SPRING, LOCK	
417	9A00998800	SCREW, CAMERA M2.6X3	
420	*9A01129500	FRONT ANGLE ASSY	
421	*9A01129600	ANGLE, FRONT	
422	*9A01129700	GUIDE (R), TAPE	
423	*9A01129800	GUIDE (L), TAPE	
430	*9A01127000	SIDE PLATE (R) ASSY	
431	*9A01127100	PLATE (R), SIDE	
432	*9A01127200	PLATE, CASSETTE PUSH	
433	9A00468800	SCREW, CAMERA M2.3X2	
434	*9A00468900	LEVER, OPEN	
435	*9A00469000	SPRING, OPEN LEVER	
436	*9A00469100	COLLAR, OPEN LEVER	
437	9A00522100	SCREW, CAMERA M2X4	
438	*9A00469300	LEVER, LOCK RELEA.	
439	*9A01127300	GUIDE ROLLER, 8000-22-75	
440	*9A00469400	GUIDE ROLLER,	
445	*9A01127400	SIDE PLATE (L) ASSY	
446	*9A01127500	PLATE (L), SIDE	
447	*9A01127200	PLATE, CASSETTE PUSH	
448	9A00468800	SCREW, CAMERA M2.3X2	
449	*9A00738200	LOCK PLATE, (L)	
450	*9A01127600	SPRING, (L) LOCK PLATE	
451	*9A00470000	COLLAR, LOCK PLATE	
452	9A00470100	SCREW, CAMERA M2.6X2.5	
453	*9A01127300	GUIDE ROLLER, 8000-22-75	
460	*9A02307300	FRAME (R) ASSY	
461	*9A02307400	FRAME (R)	
462	*9A01127900	WORM WHEEL ASSY, 8059-16-321	
463	*9A01128000	WORM WHEEL, 8059-16-36	
464	*9A01128100	GEAR, FRICTION 8059-16-45	
465	*9A01128200	SPRING, FRICTION	
466	*9A01128300	LT. GEAR R. ASSY, 8059-16-312	
467	*9A00470900	GEAR (R), LIFT	
468	*9A00471000	ARM, LIFT	
469	*9A00471100	SPRING, LIFT GEAR	
470	*9A00471200	GUIDE, OPEN LEVER	
471	*9A00471300	SLEEVE, GUIDE	

EXPLODED VIEW (4) DECK PARTS LIST

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
472	9A00450500	E-RING, 2.5	
480	*9A02307500	FRAME (L) ASSY	
481	*9A02307600	FRAME (L)	
482	*9A01128700	SENSOR, PCB (LM)	
483	*9A01128800	LT. GEAR L. ASSY, 8059-16-314	
484	*9A00471800	GEAR, (L) LIFT	
485	*9A00471000	ARM, LIFT	
486	*9A00471100	SPRING, LIFT GEAR	
487	*9A02307700	LEVER, LIFT	
488	*9A02307800	SPRING, LIFT LEVER	
489	9A00450500	E-RING, 2.5	
490	9A01129100	SCREW, SEMS M2.6X7	
491	*9A00471300	SLEEVE, GUIDE	
498	*9A00469500	STAY, TOP	
499	*9A01129200	WIRE, END SENSOR	
500	*9A01129300	ANGLE, REAR	
501	*9A02307900	PLATE, UPPER	
502	*9A01736600	SHAFT, SYNCHRO.	
503	*9A01129400	GEAR, (A) SYNC. 8059-16-17	
504	9A00450500	E-RING, 2.5	
505	9A00472500	SCREW, SEMS M2.6X4	
506	9A00468000	SCREW, CAMERA M2.6X3	
507	9A00472600	SCREW, CAMERA M2.3X2.5	
508	9A00444900	SCREW, C-TIGHT M2.6X5	

PACKING EXPLODED VIEW



ACCESSORIES & PACKING PARTS LIST

INCLUDED ACCESSORIES & PACKING PARTS LIST

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
X- 1	*9A03808300	REMOCON UNIT	
X- 2	9A02343100	BATTERY	
X- 2	9A03842500	BATTERY	
X- 2	9A02561900	DRY BATTERY	
X- 3	*9A03842600	AC CORD SET	
X- 4	*9A03842700	OWNER'S MANUAL MV-2010TV	
S- 1	*9A03842800	CARTON	
S- 2	*9A03842900	STYROFORM TOP	
S- 3	*9A03843000	STYROFORM BOTTOM	
S- 4	*9A03843100	SET BAG	
S- 5	*9A03939800	BAR CODE LABEL	
A-21	- - - - -	SERIAL NO. LABEL	