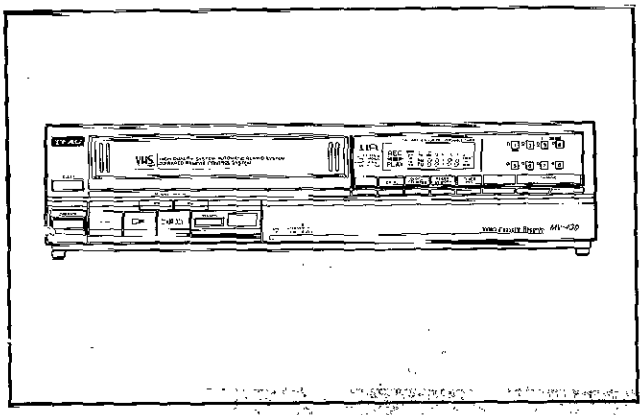
TEAC®



VHS
PAL

MV-430

Video Cassette Recorder

SERVICE MANUAL

5704035000

Already have one.

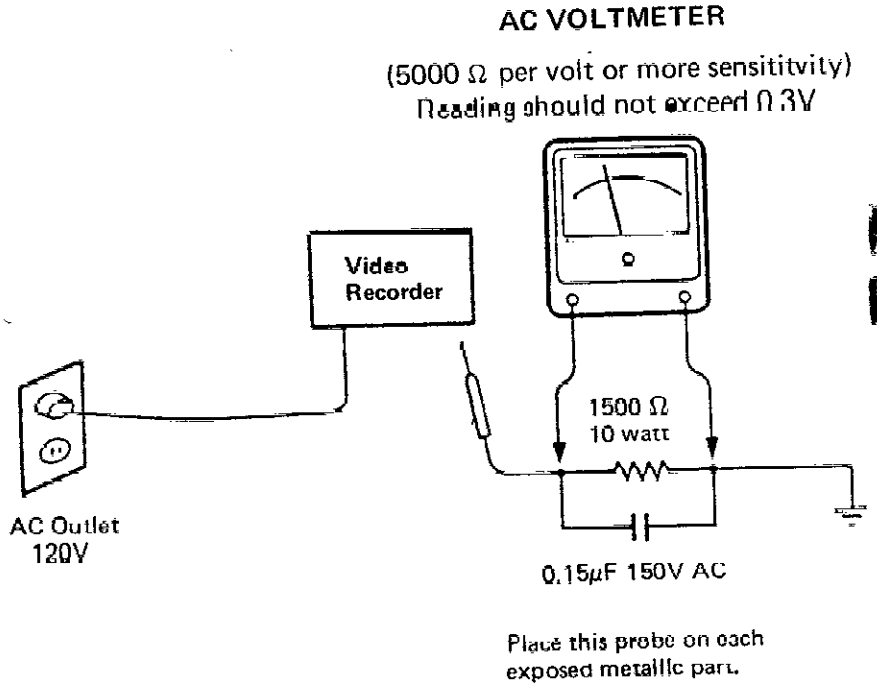
CONTENTS

CONTENTS

PRODUCT SAFETY NOTICE

WARNING:
Service should not be attempted by anyone unfamiliar with the necessary precautions on this recorder. The following precautions are necessary during servicing.

1. Many electrical and mechanical parts in this recorder have special characteristics. These characteristics often pass unnoticed and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc.
   Replacement parts that have these special safety characteristic are identified in this manual and its supplements; electrical components having such features are identified by a ⚠ in the schematic diagram and the parts list.
   Before replacing any of these components, read the parts list in this manual carefully.
   The use of substitute replacement parts that do not have the same safety characteristics as specified in the parts list may create shock, fire or other hazards.
2. Before returning the set to the customer, always perform an AC leakage current check on the exposed metallic parts of the cabinet, such as terminals, screwheads, metal overlays, etc. to be sure the set is safe to operate without danger of electrical shock. Plug the AC line cord directly into a 120V AC outlet. (Do not use a line isolation transformer during this check.) Use an AC voltmeter having 5000 Ω per volt or more sensitivity in the following manner:
   Connect a 1500 Ω, 10 watt resistor, paralleled by a 0.15μF, 150V AC capacitor, between a known good earth ground (water pipe, conduit, etc.) and the exposed metallic parts, one at time. Measure the AC voltage across the combination of 1500 Ω resistor and 0.15μF capacitor. Reverse the AC plug at the AC outlet and repeat AC voltage measurements for each exposed metallic part. Voltage measured must not exceed 0.3 volts RMS. This corresponds to 0.2mA AC. Any value exceeding this limit constitutes a potential shock hazard and must be corrected immediately.



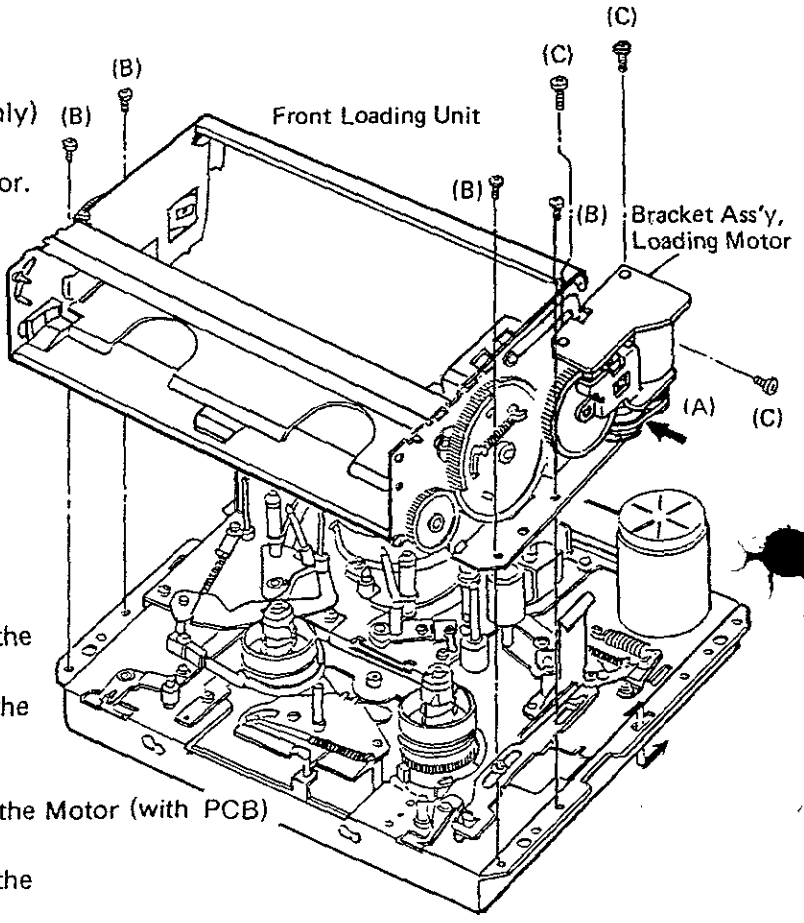
MASTER COPY
DO NOT REMOVE

Voltmeter Hook-up for Leakage Current Check

DISASSEMBLY INSTRUCTIONS (DECK)

[1] FRONT LOADING UNIT

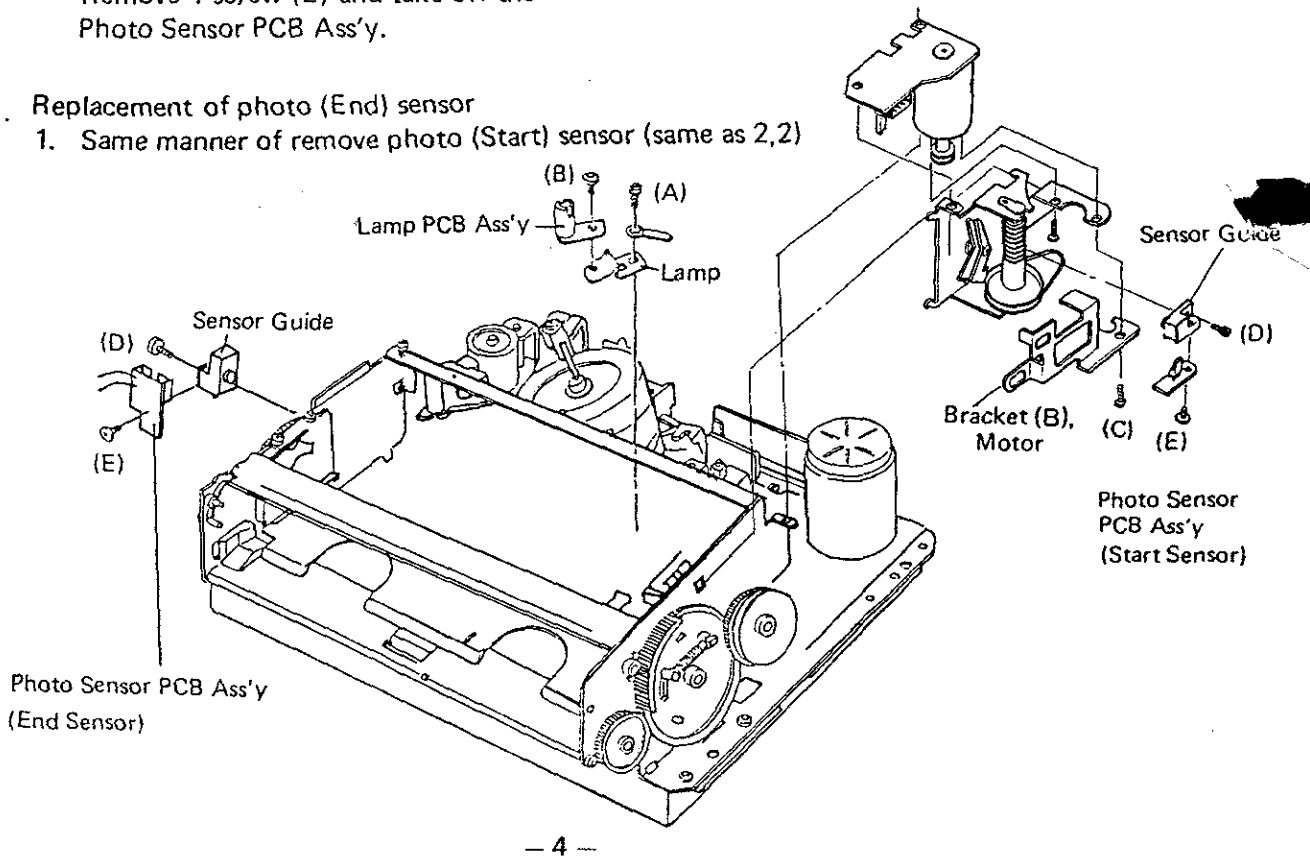
1. Remove 4 screws (B).
2. Take off the hook (A). (Right side only)
3. Remove 3 screws (C).
4. Take off Bracket Ass'y, Loading Motor.



[2] PHOTO SENSOR

1. Replacement of Lamp. (Sensor Lamp)
   1. Remove 1 screw (A) and take off the lamp holder.
   2. Remove 1 screw (B) and take off the lamp PCB Ass'y.
2. Replacement of photo (Start) sensor
   1. Remove 2 screws (C) and take off the Motor (with PCB) and Bracket (B), Motor.
   2. Remove 1 screw (D) and take off the Sensor Guide.
      Remove 1 screw (E) and take off the Photo Sensor PCB Ass'y.

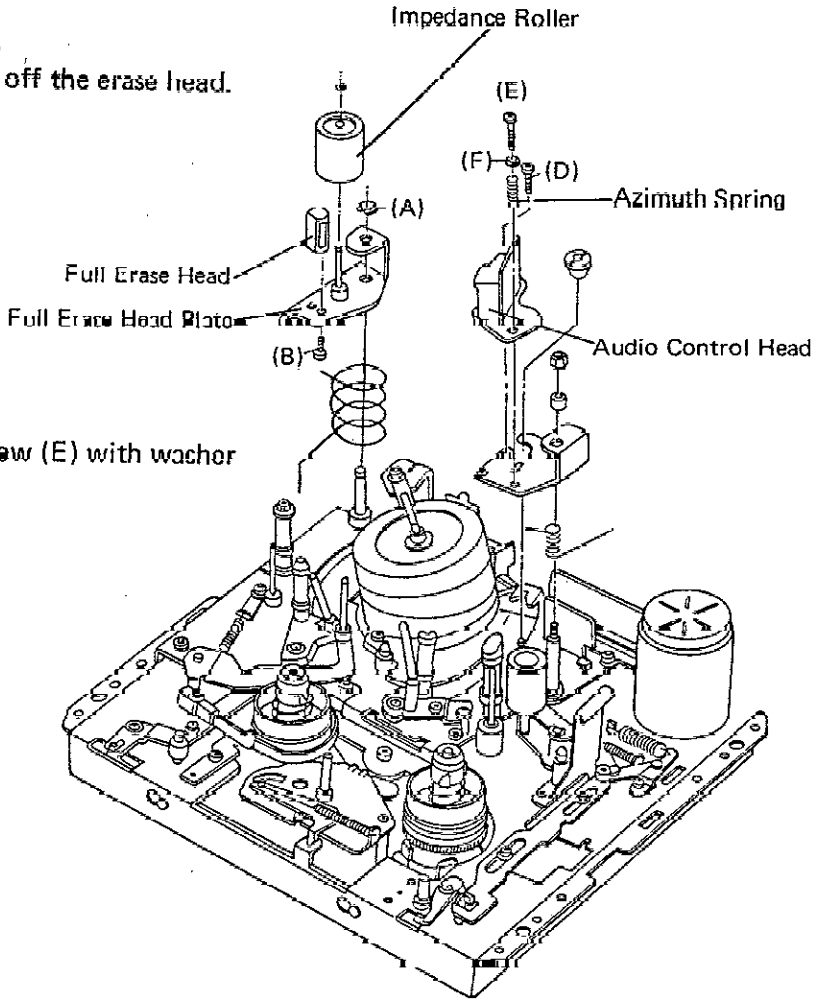
3. Replacement of photo (End) sensor
   1. Same manner of remove photo (Start) sensor (same as 2,2)



[3] ERASE HEAD/AUDIO CONTROL HEAD

Erase Head

1. Remove E-ring (A).
2. Pull out the Erase head plate.
3. Remove 1 screw (B) and take off the erase head.

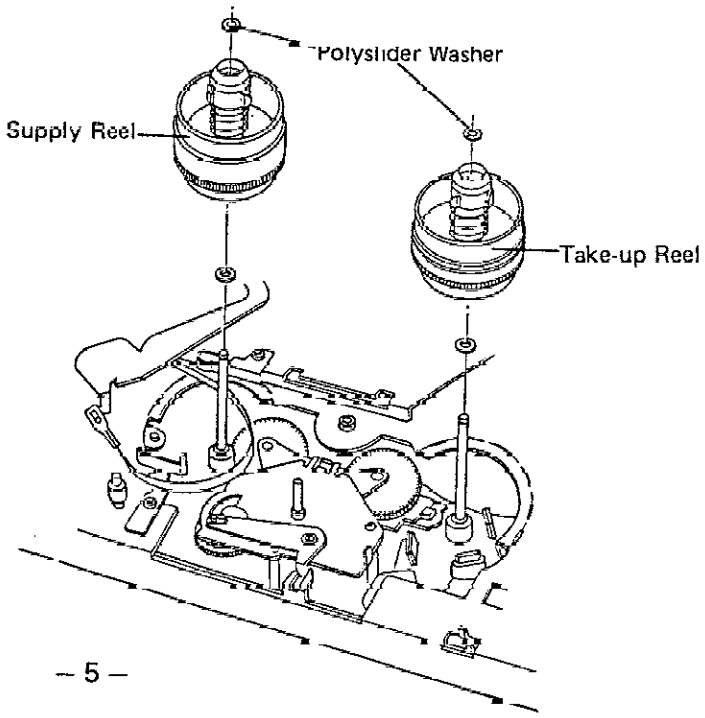


Audio Control Head

1. Remove 1 screw (D) and 1 screw (E) with washer (F) and azimuth spring.
2. Remove audio control head.

[4] REEL (SUPPLY & TAKE-UP)

1. Remove front loading unit.
2. Remove polyslider washers.
3. Remove the reels.



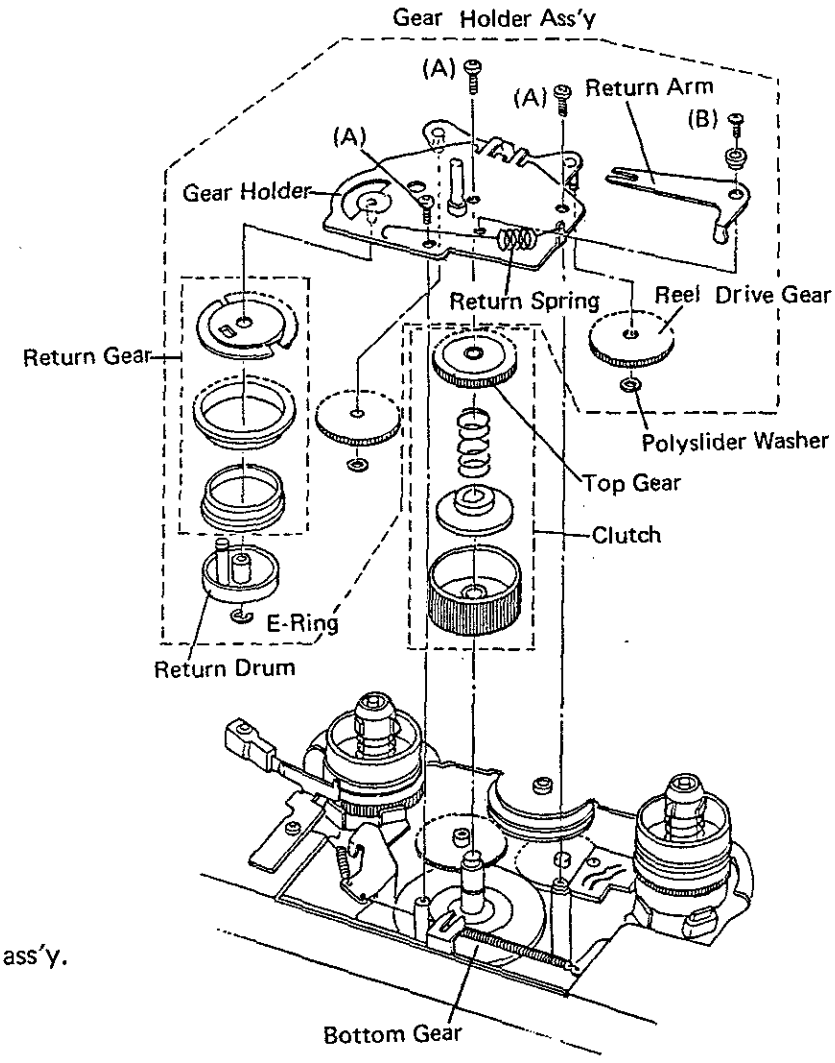
[5] GEAR HOLDER ASS'Y/CLUTCH

Gear Holder Ass'y

1. Remove front loading unit.
2. Remove 3 screw (A), and gear holder ass'y.
3. Remove return spring.
4. Remove 1 screw (B) and return arm, return gear and return drum.
5. Remove polyslider washer and then take off the reel drive gear.

Clutch

Top gear is pressed to insert so pull off each part from top.

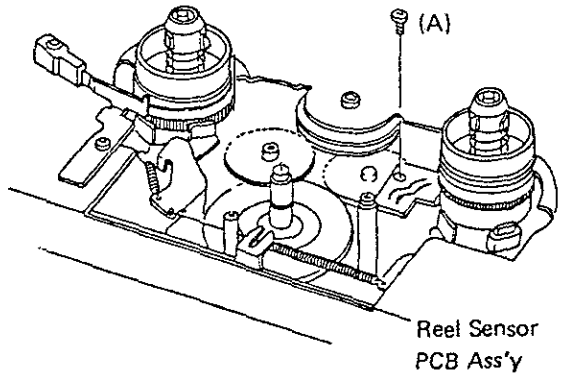


[6] REEL SENSOR

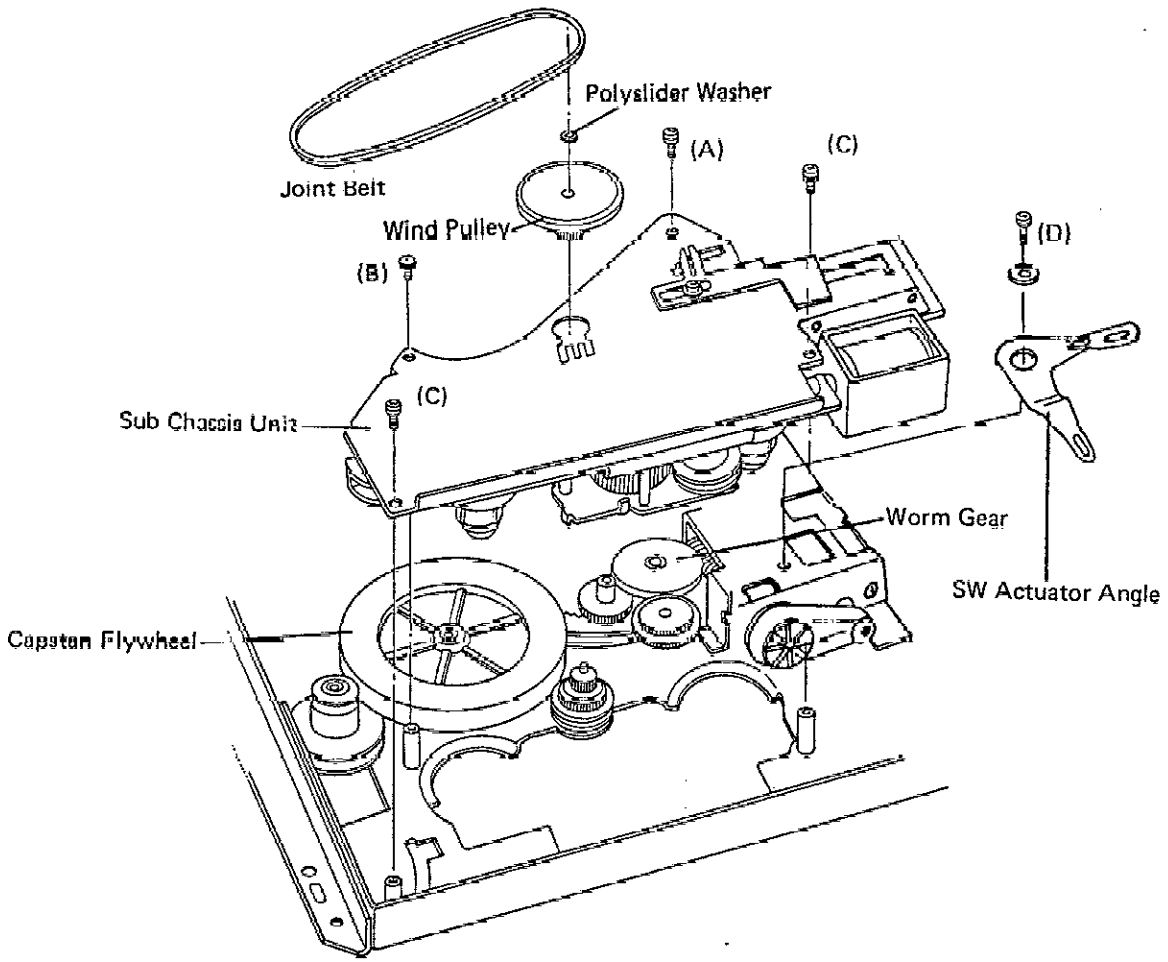
(a) Remove front loading unit.

(b) Remove gear holder ass'y.

1. Remove 1 screw (A).
2. Remove reel sensor PCB ass'y.



[7] SUB CHASSIS

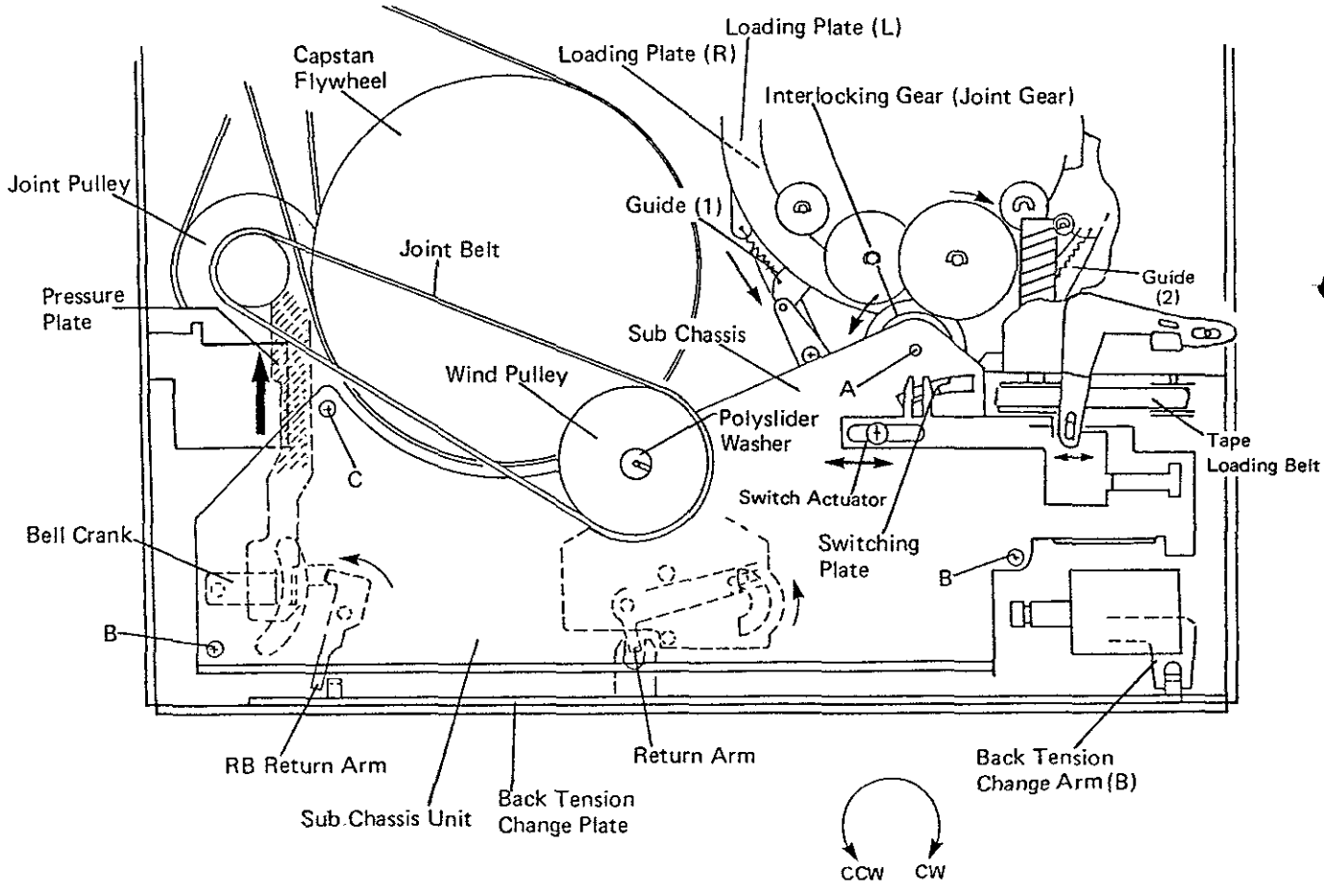


Take out of Sub Chassis Unit

1. Turn the capstan flywheel clockwise more than three times. (Because the levers, etc. are set at neutral.)
2. Remove the joint belt.
3. Remove the polyslider washer.
4. Pull out the wind pulley.
5. Remove 1 screw (D) and take off the SW Actuator Angle.
6. Remove 4 mount screws from sub chassis. (Ax1, Bx1 Cx2)
7. Take out the sub chassis unit.

Mounting of Sub Chassis Unit

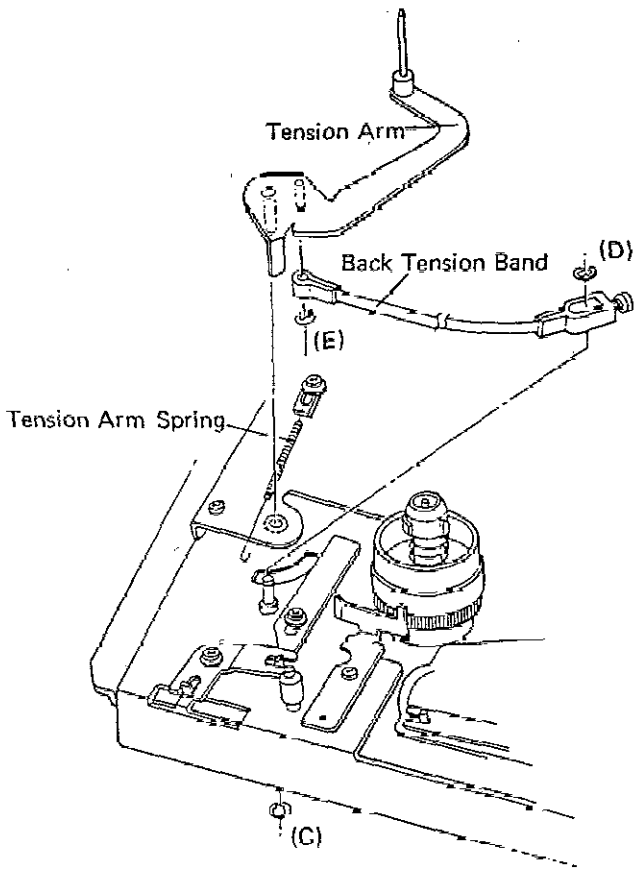
1. Turn the return arm to the direction of arrow mark.
2. Move the back tension change plate to the right direction extremely.
3. Turn the RB return arm to the direction of arrow mark extremely.
4. Turn the loading plates (L) and (R), and stop them at the position of hitting the wall of groove or just stop.
   This work is done by turning the pulley of the worm gear jointed to the loading motor.
5. Turn the interlocking gear to the direction of arrow mark (counterclockwise) extremely.
6. Mount the sub chassis unit. At this time, make the band brake of back tension fit to the supply reel.
7. Shake the switch actuator to right and left in order to confirm the engagement of interlocking gear.
8. Slide the pressure plate to the direction of arrow mark in order to connect the pressure plate with the bell crank.
9. Mount the sub chassis unit with 4 small screws.
   (A x 1, B x 2, C x 1)
10. Insert the wind pulley.
11. Set the polyslider washer.
12. Mount the joint belt.
13. Confirm that the return arm is set to the claw of the back tension change plate.
    It is OK that following two operations are confirmed by turning the capstan flywheel.
    (1) When the capstan flywheel is turned counterclockwise (CCW), the back tension change arm moves to the left direction.
    (2) When the capstan flywheel is turned clockwise (CW), the back tension change arm moves to the right direction.



[8] BACK TENSION

Remove front loading unit.

1. Remove E-ring (C).
2. Remove E-ring (D).
3. Remove tension arm spring.
4. Remove tension arm.
5. Remove E-ring (E).

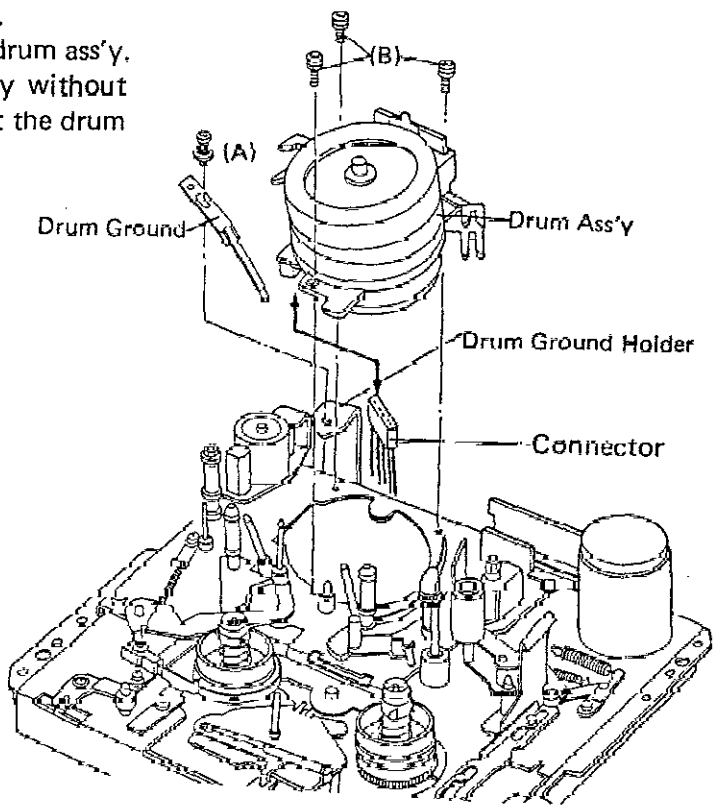


[9] DRUM ASS'Y

Remove front loading unit.

1. Remove connector from bottom side,
2. Remove a screw (A), and drum ground.
3. Remove 3 screws (B) and take off the drum ass'y.

Remark: Remove the drum ass'y carefully without any damage. Especially do not hit the drum ground holder.

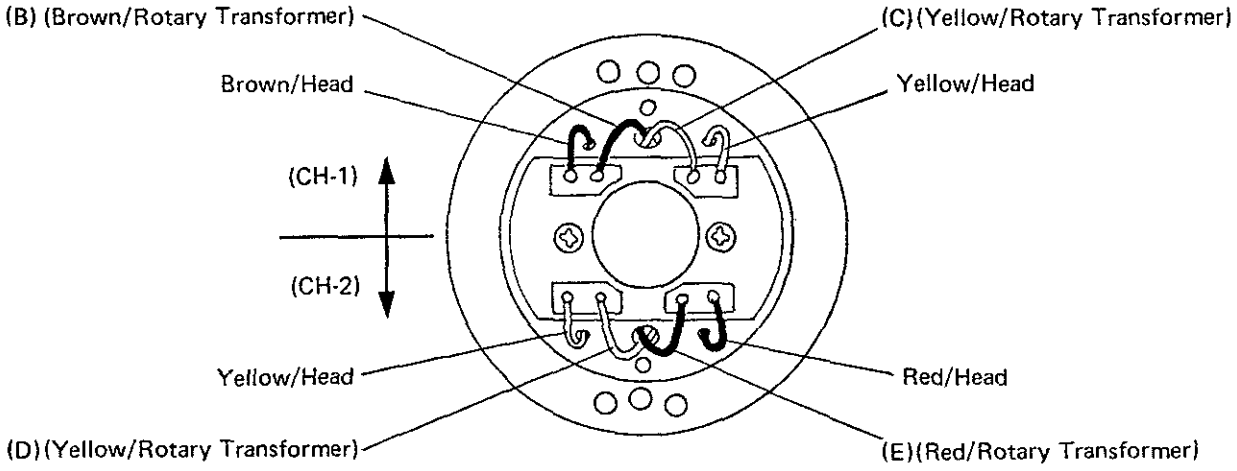


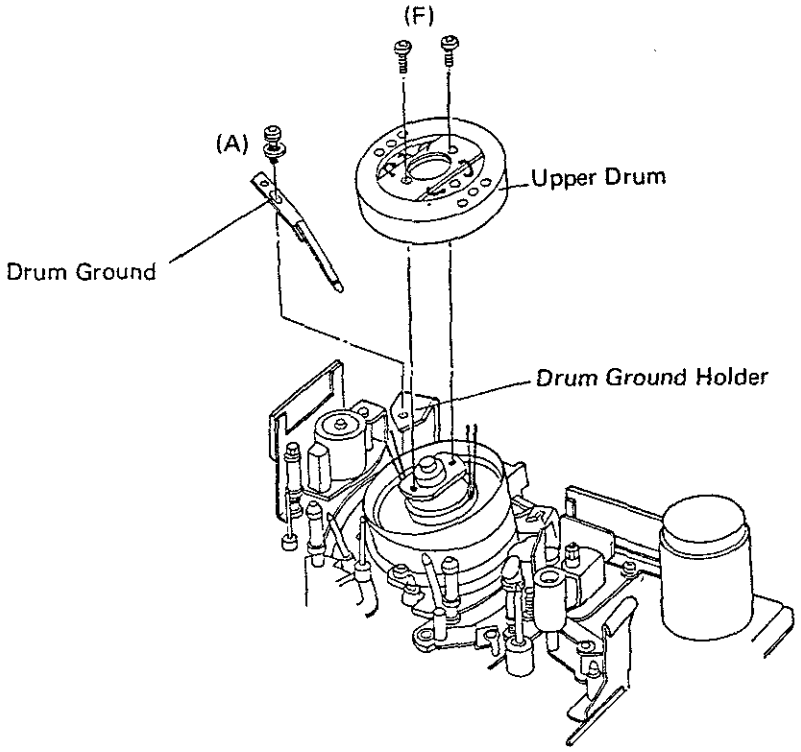
[10] UPPER DRUM

Remove front loading unit.

1. Remove 1 screw (A), and drum ground.
2. Resolder rotary transformer wires (B),(C),(D) and (E).
   Do not resolder head wire.
3. Remove 2 screws (F).

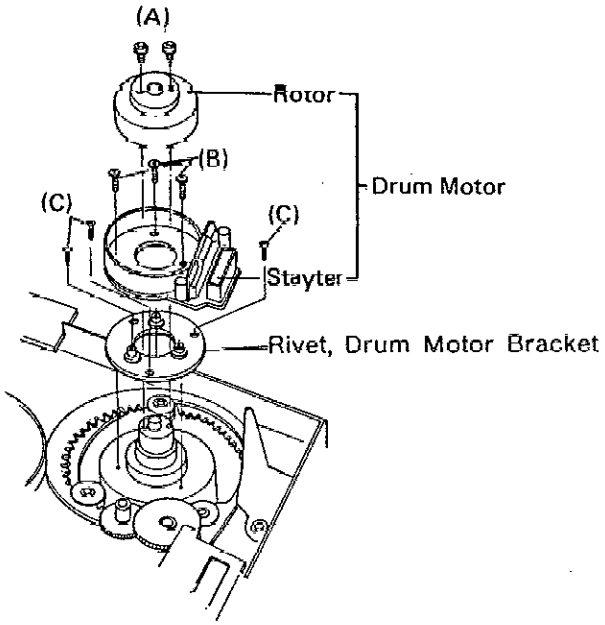
Remarks: 1) Use gloves and do not touch with bare finger or dust to drum face.
2) If the video head is defective, replace the complete upper drum with head.

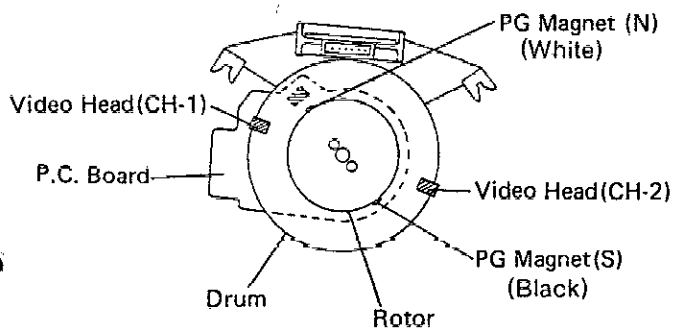




[11] DRUM MOTOR

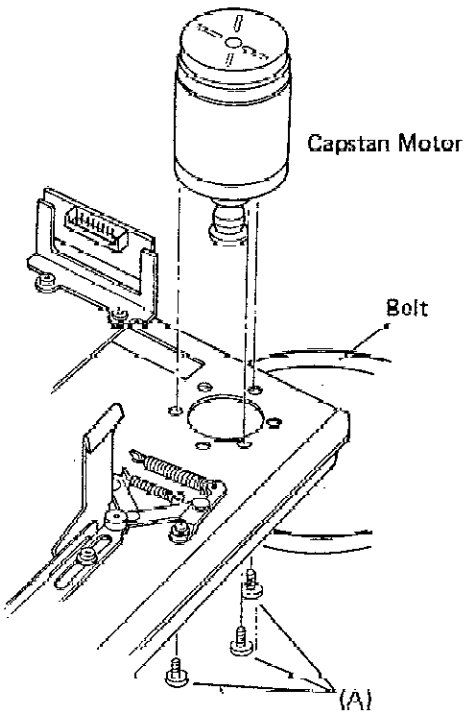
1. Remove 2 screws (A).
2. Remove the rotor.
3. Remove 3 screws (B).
4. Remove stayter.
5. Remove 3 screws (C).
6. Remove Rivet, Drum Motor Bracket.





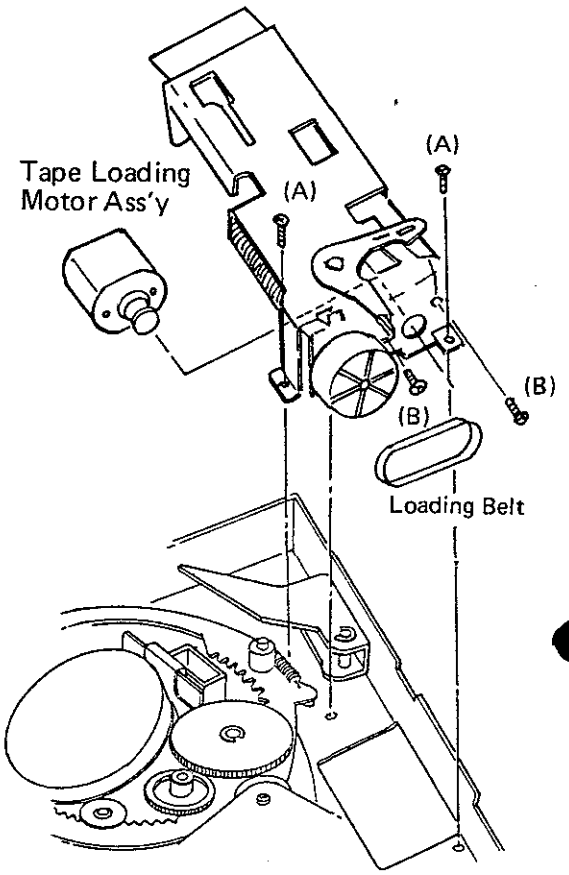
[12] CAPSTAN MOTOR

1. Take off the belt from capstan motor.
2. Remove 3 screws (A).



[13] TAPE LOADING MOTOR

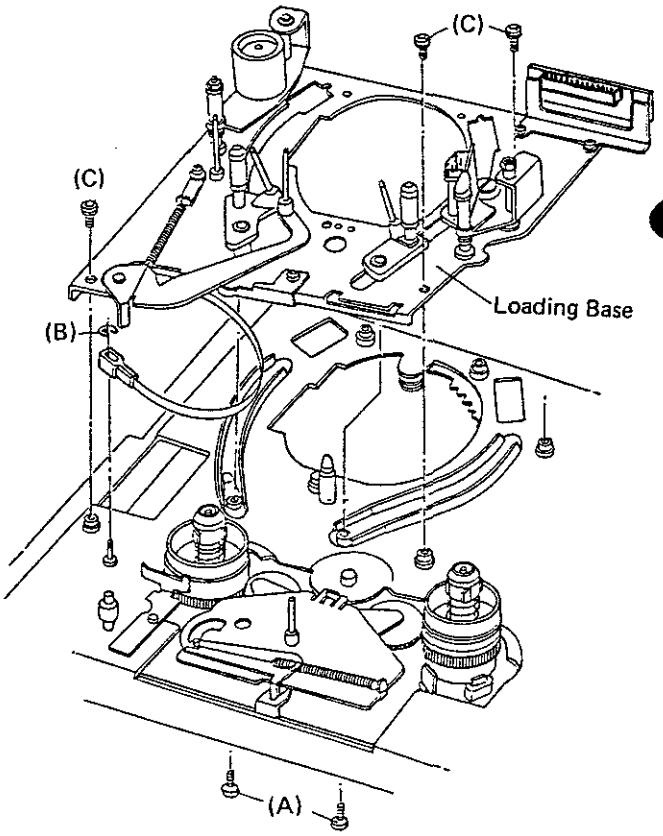
1. Remove 2 screws (A).
2. Take off Tape Loading Motor Ass'y .
3. Take off loading belt.
4. Remove 2 screws (B) and take off motor ass'y.



[14] LOADING BASE

Remove motor ass'y and drum ass'y.

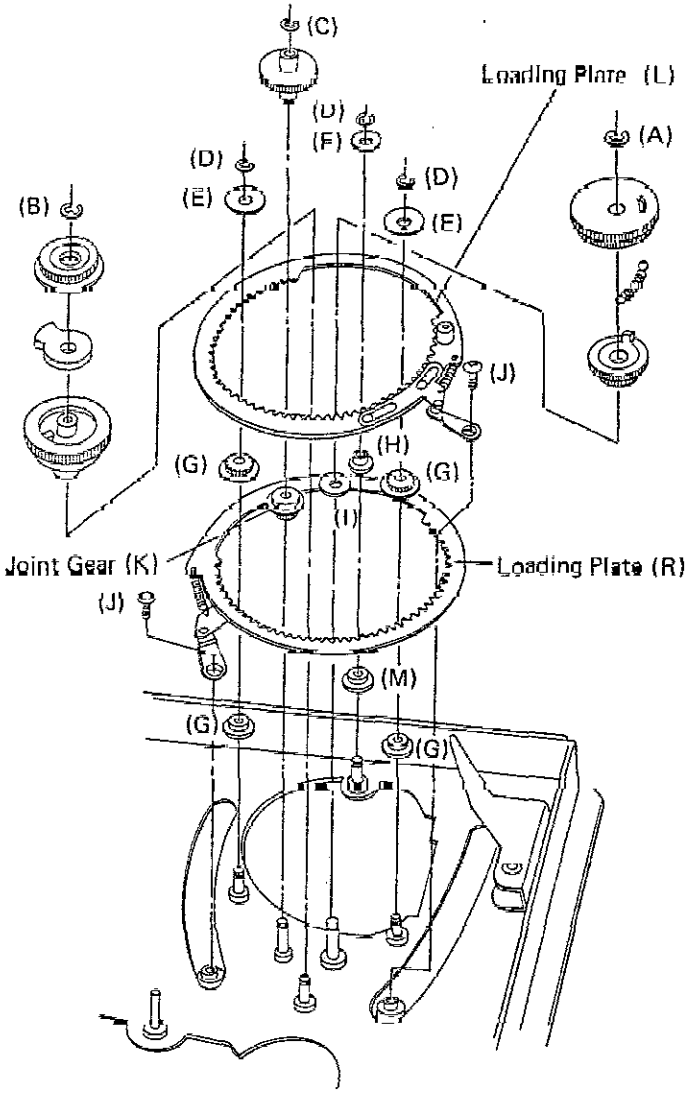
1. Remove 2 screws (A) from bottom.
2. Remove E-ring (B).
3. Remove 3 screws (C).
4. Take off the loading base.



[15] LOADING GEAR

Remove sub-chassis unit flywheel and front loading motor ass'y.

1. Remove E-ring (A) and take off gear ass'y.
2. Remove E-ring (B) and take off gear ass'y.
3. Remove E-ring (C) and take off gear ass'y.
4. Remove 3 E-rings (D), 2 plate washers (E) and 1 plate washer (F).
5. Remove 2 screws (J).
6. Take off the loading plate (L).
7. Take off the joint gear (K), 2 guide gears (G), guide roller (H) and plate washer (I).
8. Take off the loading plate (R).
9. Take off 2 guide gears (G) and guide roller (M).

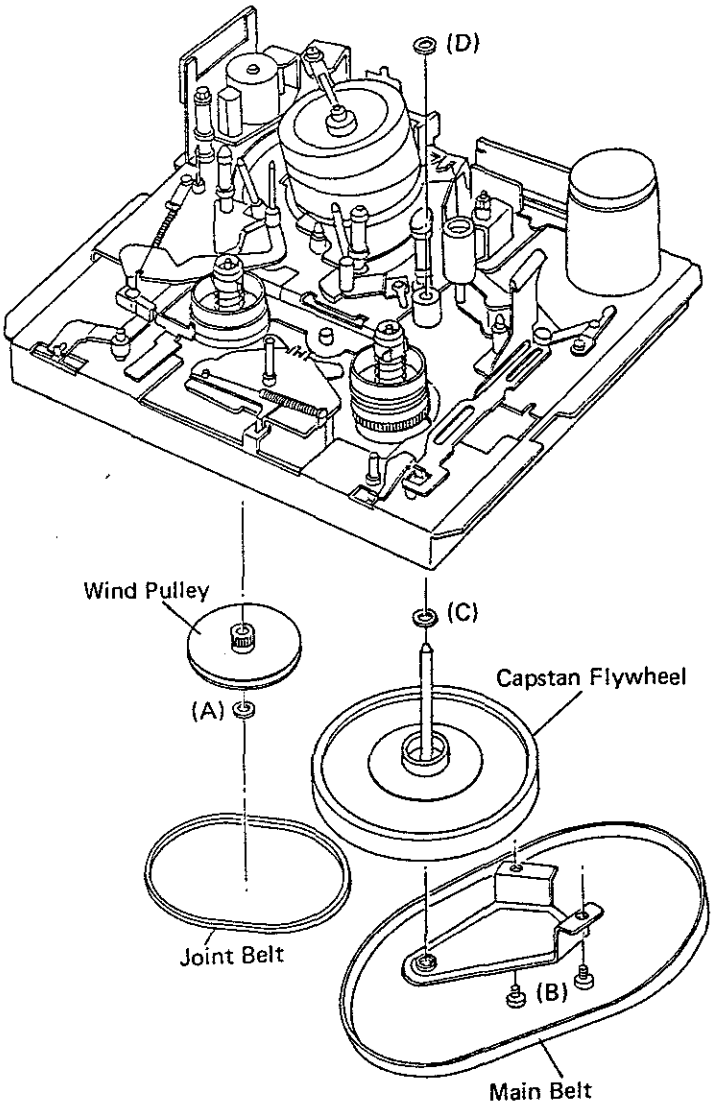


[16] CAPSTAN FLYWHEEL

Remove front loading unit.

1. Take off the joint belt and main belt.
2. Take off the polyslide washer (A) and wind pulley.
3. Remove 2 screws (B).

Remark: Do not miss the washer (C) and (D) when pull out the capstan flywheel.



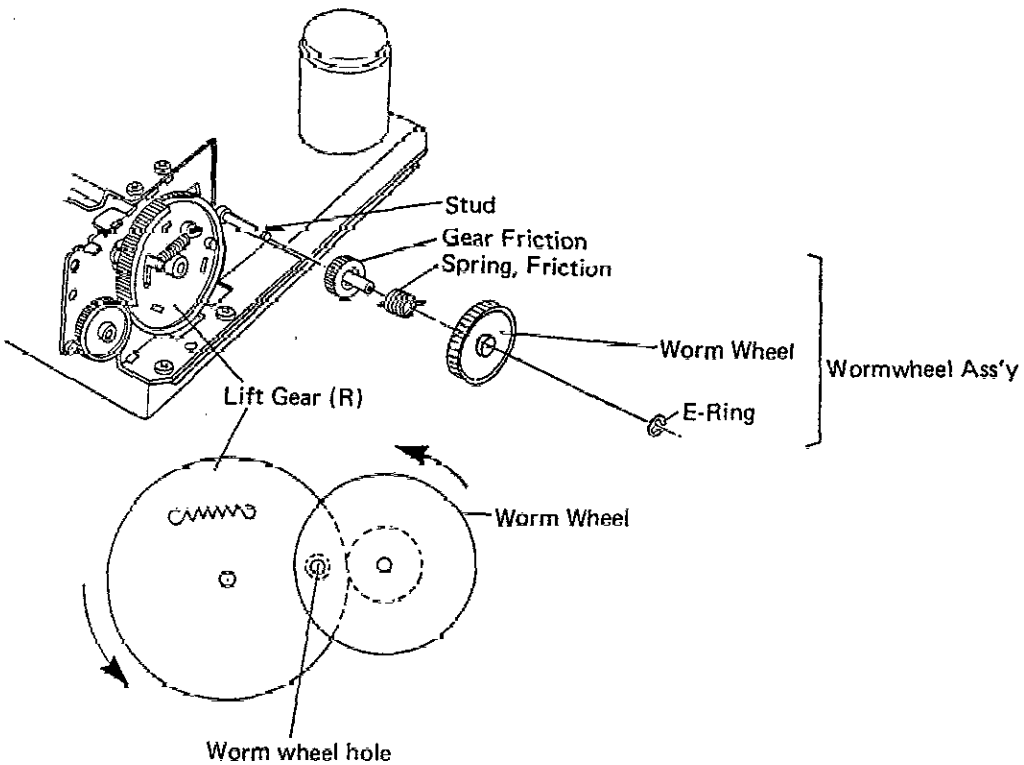
[17] FRONT LOADING WORMWHEEL UNIT

* DISASSEMBLY

1. Remove E-Ring.
2. Remove Wormwheel Ass'y. (Wormwheel, Spring Friction, Gear Friction.)

* ASSEMBLY

1. Turn lift gear (R) fully counterclockwise.
2. Restore wormwheel Ass'y to stud.
   Match lift gear (R) to wormwheel hole as illustrated.



MECHANICAL DESCRIPTION

1. TAPE TRANSPORT SYSTEM

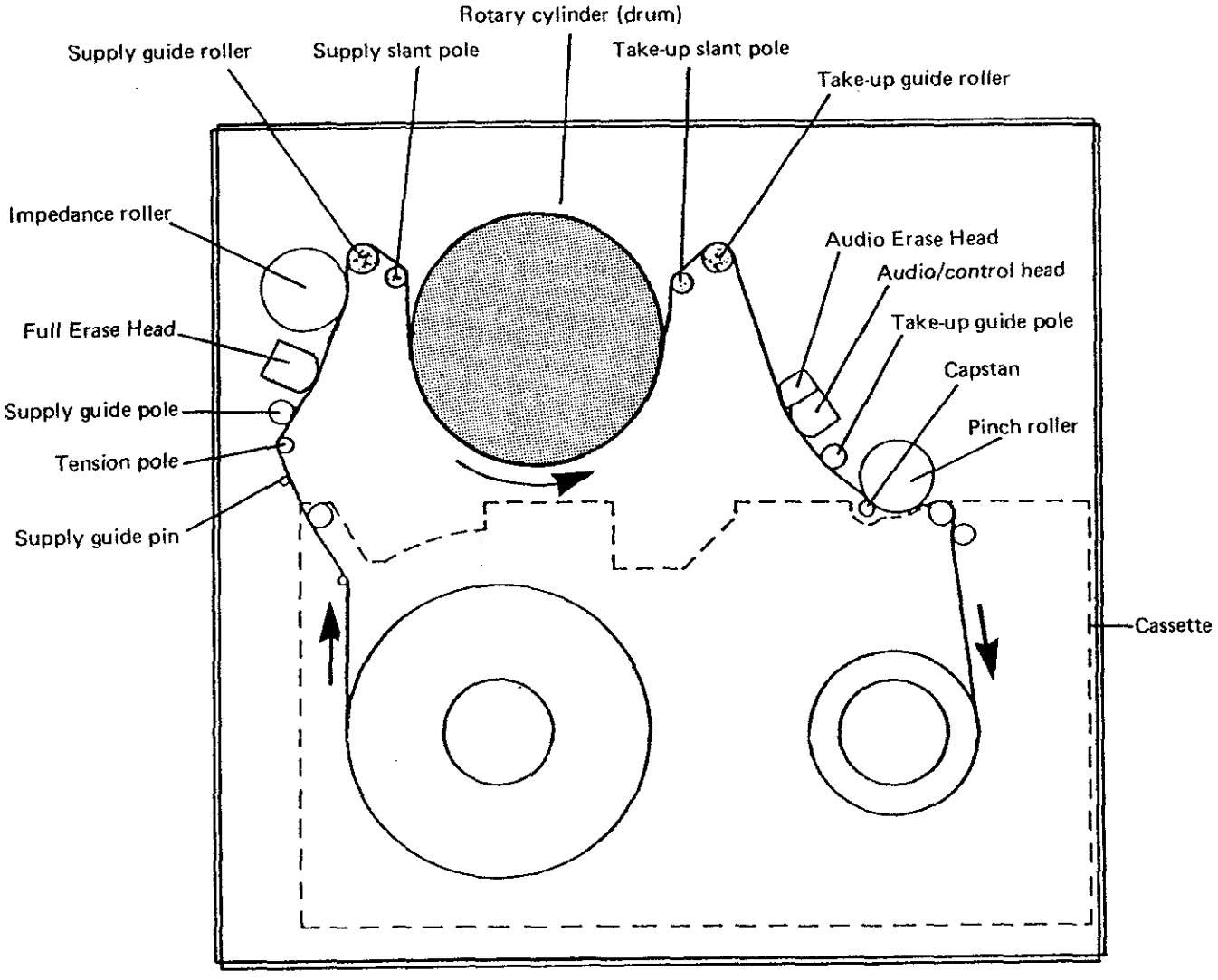


Fig. 1 Tape transport system

As the designation implies, the most basic function of this system is to transport the tape past the audio and video heads at the specified speed. However, since this model is a helical scan cassette type machine, numerous addition functions are required, which include extracting the tape from the cassette, wrapping it about the cylindrical head drum at a precisely defined angle, and returning the tape to the cassette after it is no longer needed.

To ensure smooth operation, conformance with VHS specifications and "interchangeability" (which allows a tape recorded by one machine to be played by another machine of the same format), the positions, heights and inclination angles of the various fixed and movable tape guides must be adjusted and maintained to close tolerances. The most stringent and difficult of these adjustments have been performed at the factory under controlled conditions. Therefore, in service, it is usually only necessary to perform minor adjustments to compensate for wear and after replacing certain internal parts.

The following description covers the mechanical states for the various operating modes. An adequate understanding of the mechanical processes is essential before attempting to repair or adjust the transport system.

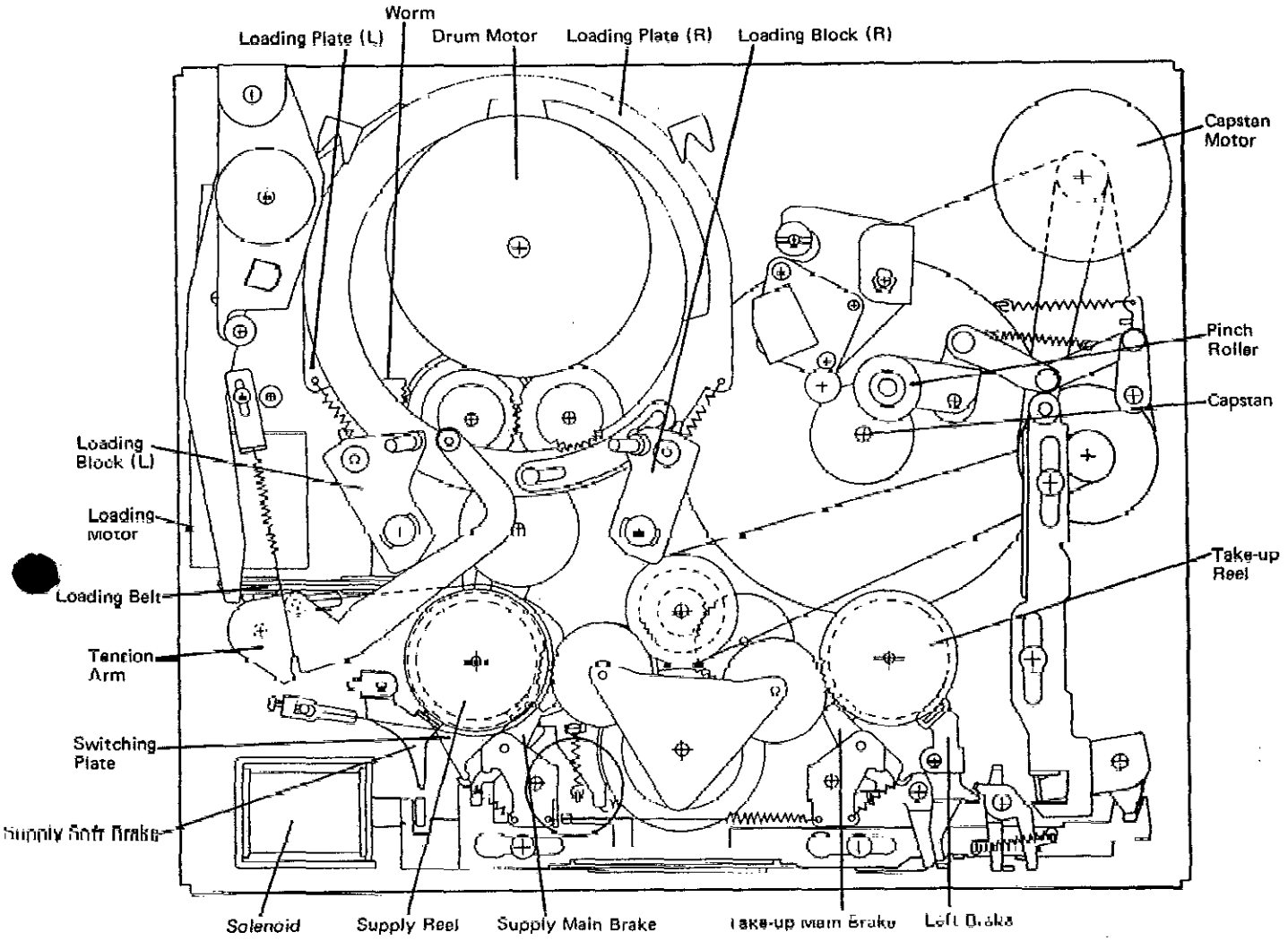


Fig. 2 Main Parts Location

2. FUNCTIONS OF MAIN PARTS

2-1 Drum Motor

Rotates the video head.

2-2 Capstan Motor

Rotates the capstan, take-up reel and supply reel (Fig. 3).

1. The rotation of the capstan motor drives the capstan flywheel by means of the main belt, which then rotates the capstan.
2. At the same time, the rotation of capstan motor is transmitted to the RF clutch by drive belt and joint belt via joint pulley. The clutch is rotated via PLAY gear of FF gear which is geared with the RF clutch. The rotation of the clutch drives the right and left reel drive gears mounted on the gear plate. Since the gear plate is then rotated toward the rotational direction of the reel drive gears, the take-up reel or supply reel is geared with the rotated by the reel drive gears.

2-3 Loading Motor

Power is transmitted to the worm and loading drive gear (A) via loading belt.

1. Drives the loading plate (Fig. 4).
   The loading plate (L) is driven via loading drive gear (A) and next via loading drive gear (B).
   The loading plate (R) is also driven via loading drive gear (B) and then via joint gears (A) and (B).
2. Controls the brakes (Fig. 5).
   The rotational power is transmitted from loading drive gear (A) to the control gear, interlocking plate and interlocking gear. Then the switching plate is rotated, the main plate is slided, and each brake is actuated.
3. Controls the pinch roller (Fig. 5).
   The sliding of the pressure plate as mentioned in 3. Explanation of Modes. Also allows the pinch roller arm to be actuated via the toggle arm, which results in controlling the pinch roller.
4. Selects the rotational frequency of the reel (Fig. 6).
   The rotation of the switching plate drives the change plate via change plate driving arm. The revolving speed of the reel is selected by changing the gear which clutches with the RF clutch. (The PLAY gear and FF gear are mounted on the change plate and clutched with the clutch assembly.)

2-4 Solenoid/Plunger

Drives the supply main brake and the take-up main brake by the pulling plate which is interlocked with the plunger in the FF and REW modes (Fig. 7).

2-5 Loading Switch

Detects the position of mode in order to control the above driving components (Fig. 8).

3. EXPLANATIONS OF MODES

3-1 Stop Mode (Fig. 9)

When a cassette tape can be put in or taken out, the motor and the plunger are not working. When a cassette tape is put in, the loading blocks (L) and (R) as well as the tension pole position in the inside of the tape so that the tape may be reeled out of the cassette. Also the capstan position in the inside of the tape. The pinch roller is separated from the capstan so as not to contact with it when a cassette tape is put in or taken out. The take-up main brake, loading brake and supply main brake are actuated to prevent the take-up and supply reels from rotating freely.

3-2 Loading Mode (Fig. 10)

In this mode, the tape is reeled out of the cassette and set at the position of PLAY mode. The pressing of PLAY button permits the drum motor,capstan motor and loading motor to start rotating. The supply main brake is separated from the supply reel and eject is locked, because of the rotation of the loading motor, The capstan motor slips in the clutch assembly and thus the reel does not rotate because the take-up reel is braked. The loading plates (R) and (L) start working and the tape is reeled out of the cassette by the loading blocks (R) and (L). The loading blocks proceed along the guide slits of the loading base and are pressed to the pole guide.

During this operation, the tension arm is driven, following the movements of the loading block (L) and then the back tension return arm. (The back tension return arm is actuated by the back tension return bar, which is driven by the guide roller of the low disc plate (L).)

The back tension band is pulled by the tension arm and contacts with the supply reel. which results in applying back tension. For this reason, the tension arm stays at the position that the tensile strength of the tape is balanced with the strength of the tension arm spring, separating from the back tension arm. Then the take-up main brake and the left brake separate from the take-up reel, and the reel starts rotating. At the same time, the loading switch, which is used to permit the pinch roller to be pressed to the capstan, detects the PLAY mode and the loading motor is stopped.

3-3 PLAY, CUE and REVIEW Mode (Fig. 11)

3-4 Unloading Mode (Fig. 10)

When the tape comes to its end during PLAY mode or when the stop button is pressed, the loading motor starts rotating reversely. Then the pinch roller separates from the capstan and the take-up reel is braked. The drum motor is turned off. Simultaneously, the capstan motor reversely rotates and the supply reel starts rotating. The loading blocks (R) and (L) and the tension arm are driven as in the reverse of the loading mode, and the tape is reeled on the supply reel. After the tape is reeled, the supply main brake is applied, the eject lock is released, and each motor is stopped.

3-5 FF and REW Modes (Fig. 12)

When the FF (REW) button is pressed, the loading motor starts rotating, the FF gear is clutched with the RF clutch (the PLAY gear is released), the loading brake is detached from the take-up reel, and eject is locked.

When the loading switch detects the FF (REW) mode, the loading motor is stopped. Then the switch for the plunger is turned on and the take-up and supply main brakes are detached from the reel. At the same time, the capstan motor rotates in accordance with the direction for FF or REW. The rotation of the gear plate drives the take-up reel or the supply reel. When the stop button is pressed during the FF (REW) mode, the switches for the capstan motor and the plunger are turned off, resulting in braking. Then the loading motor starts rotating, and stops after the STOP mode is selected. This operation permits eject lock to be released.

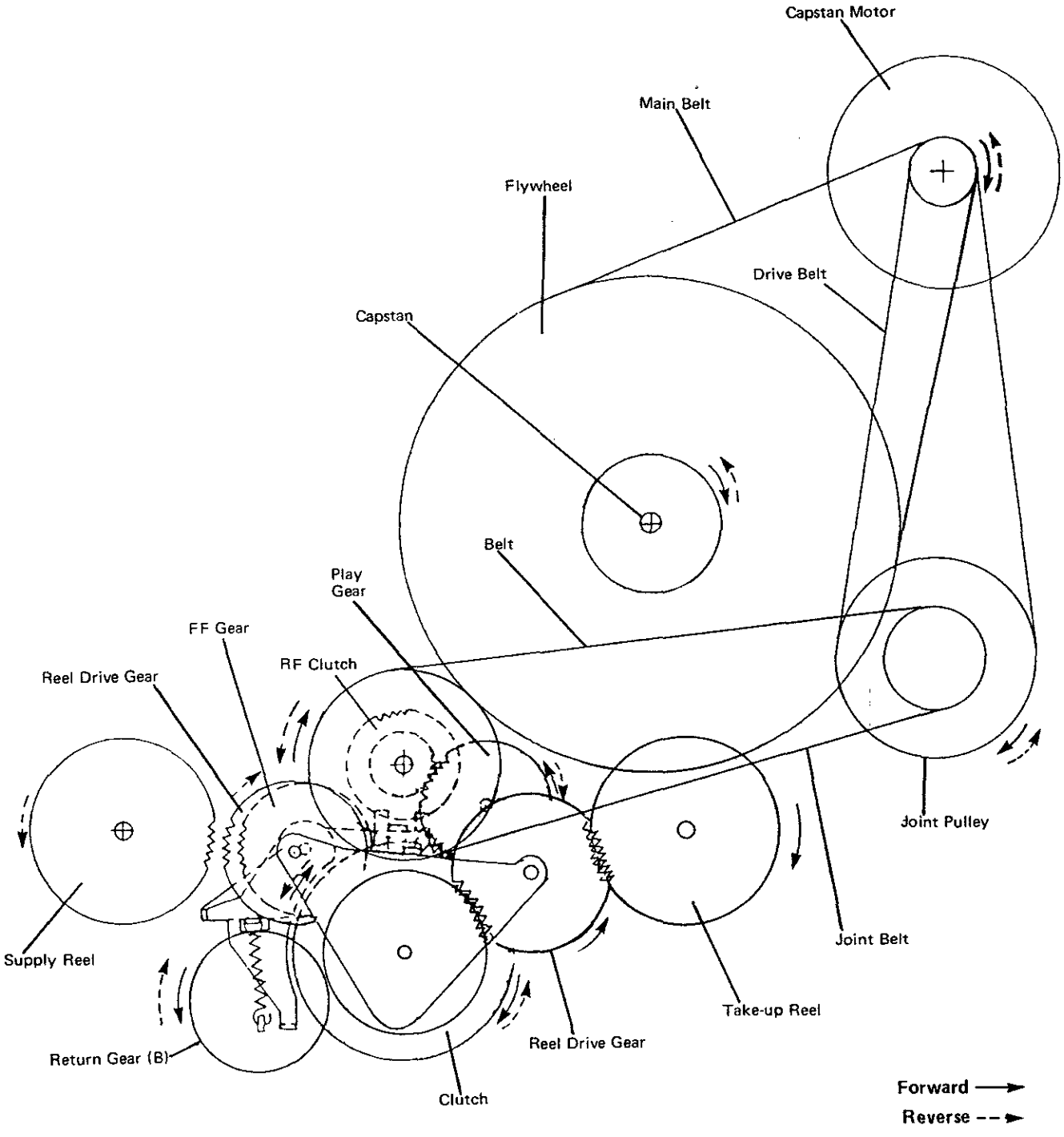


Fig. 3 Capstan Motor Performance

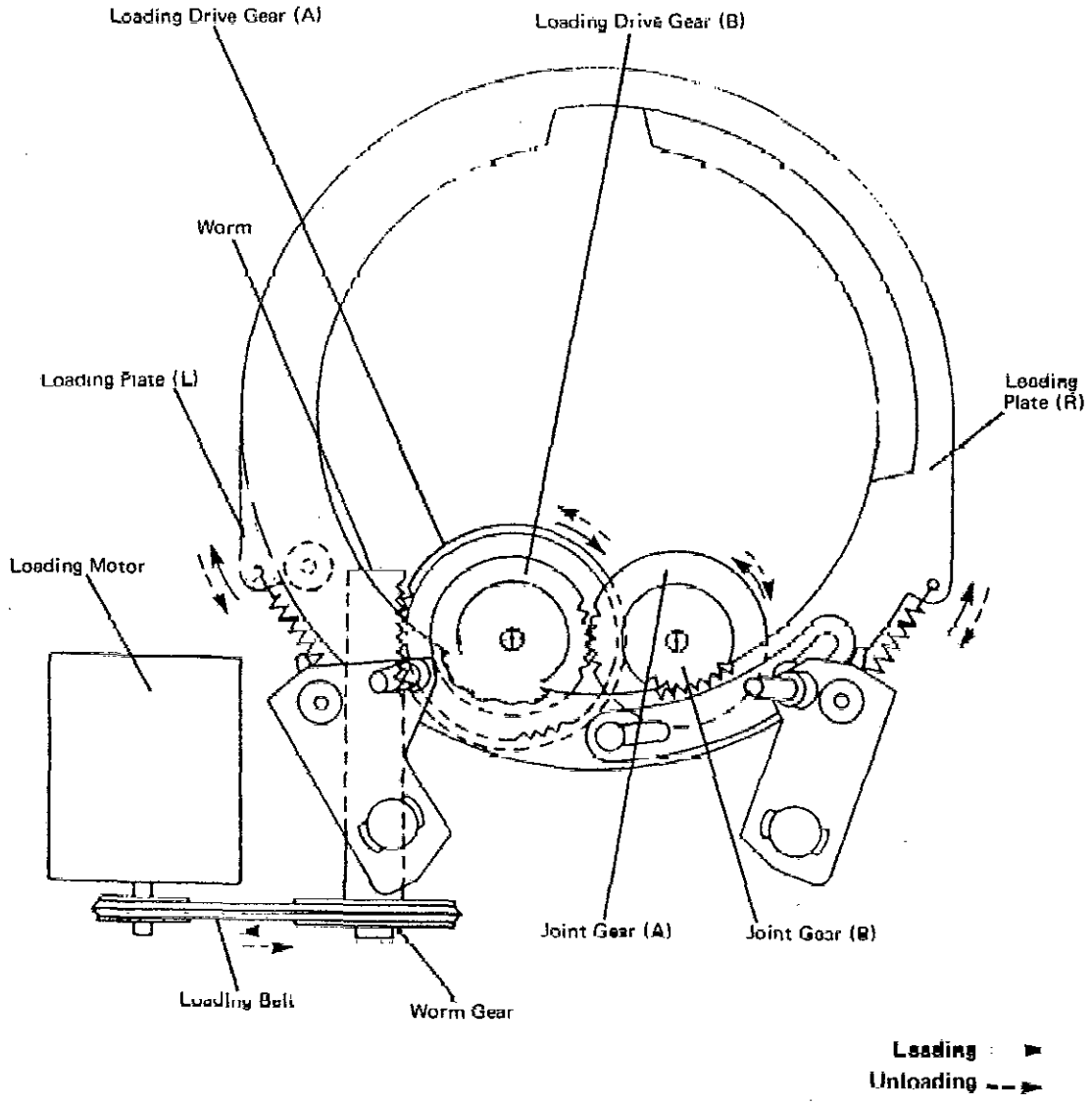
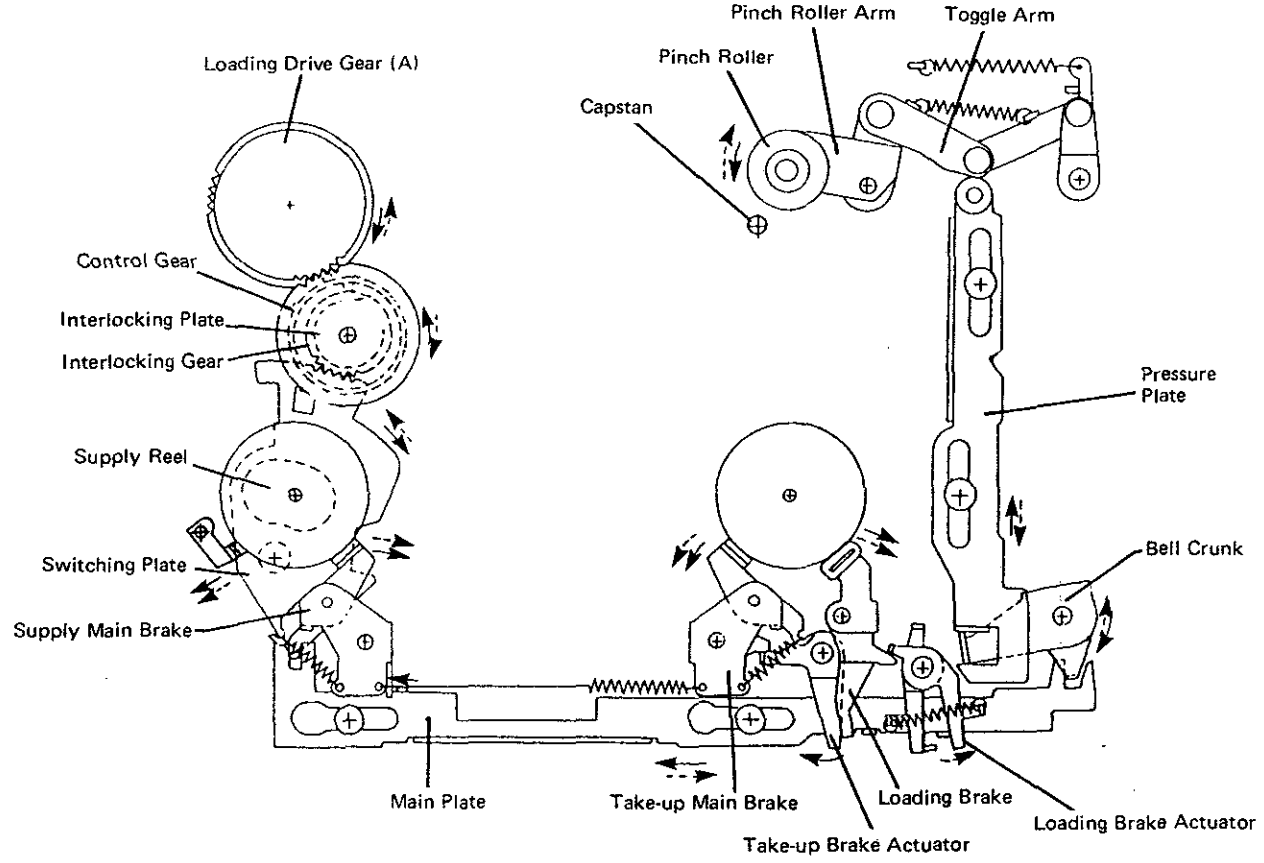


Fig. 4 Loading Plate Mechanism



→ Play, Cue, Review Mode
⇢ FF, REW Mode

Fig. 5 Reel Brake, Pinch Roller

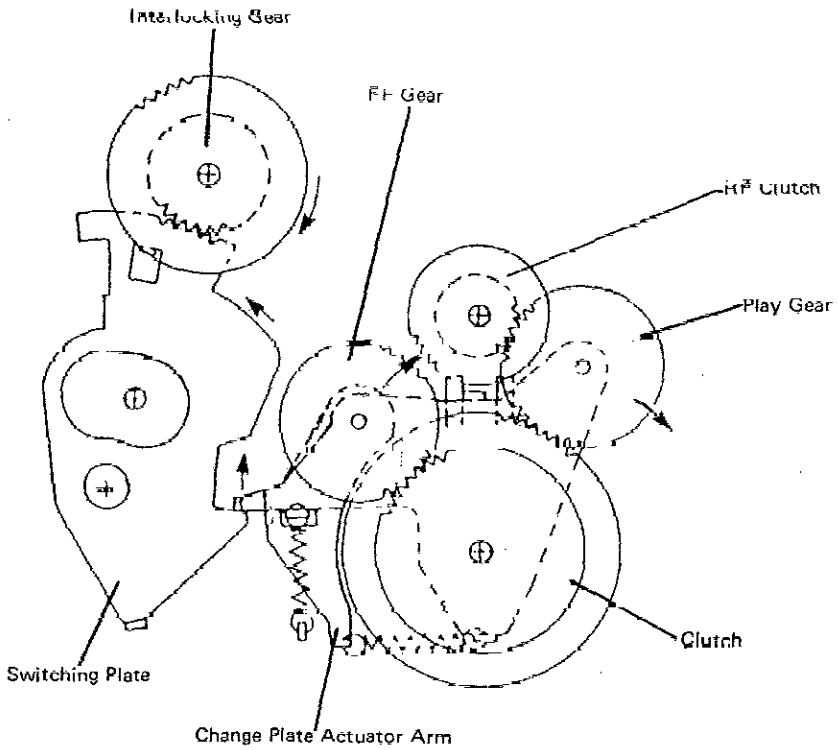


Fig. 6 Reel Revolution Switching Mechanism

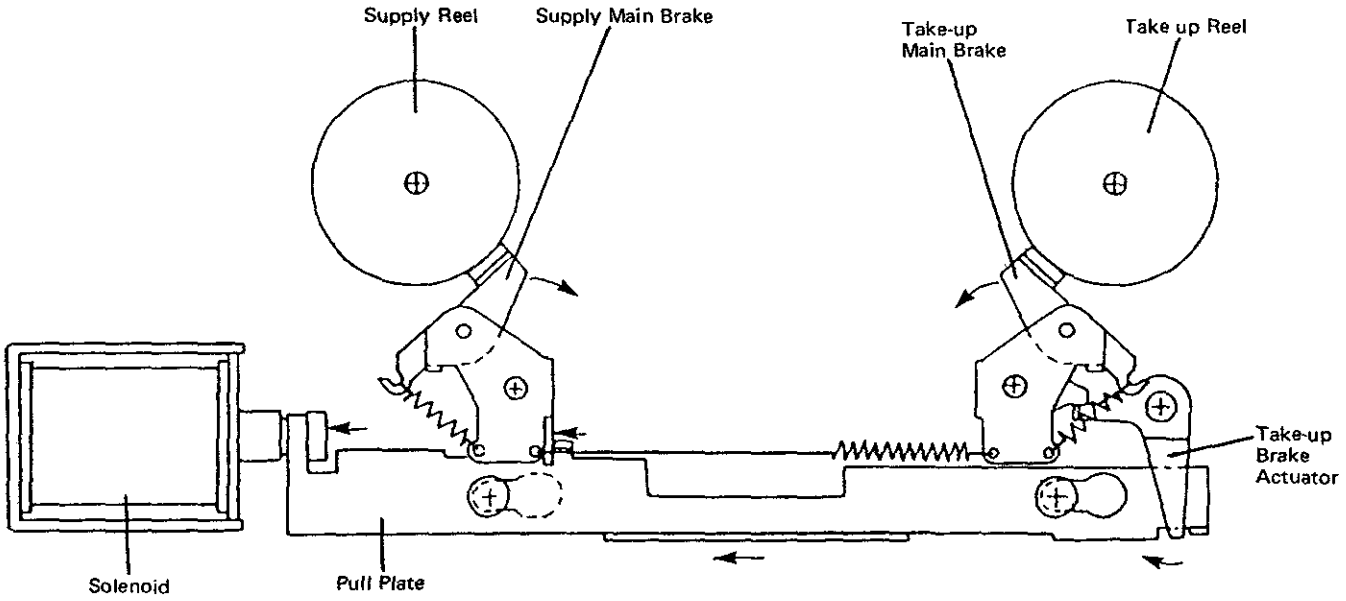


Fig. 7 Solenoid Performance

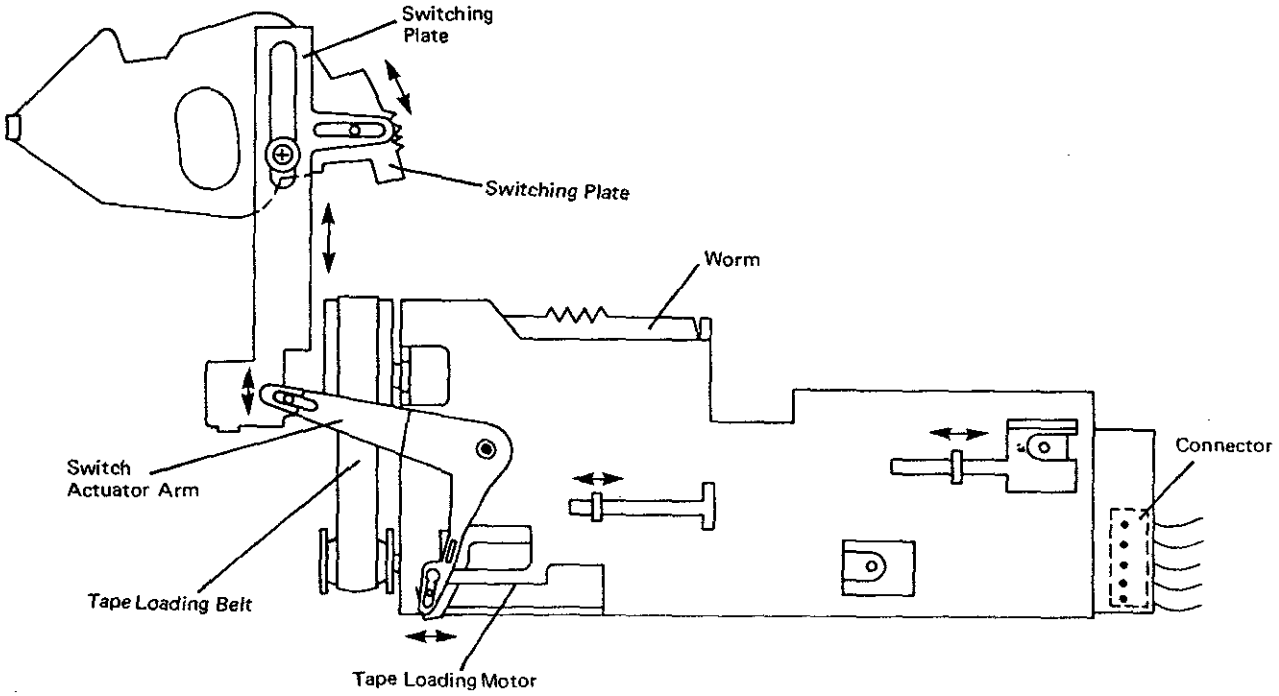


Fig. 8 Loading Switch Performance

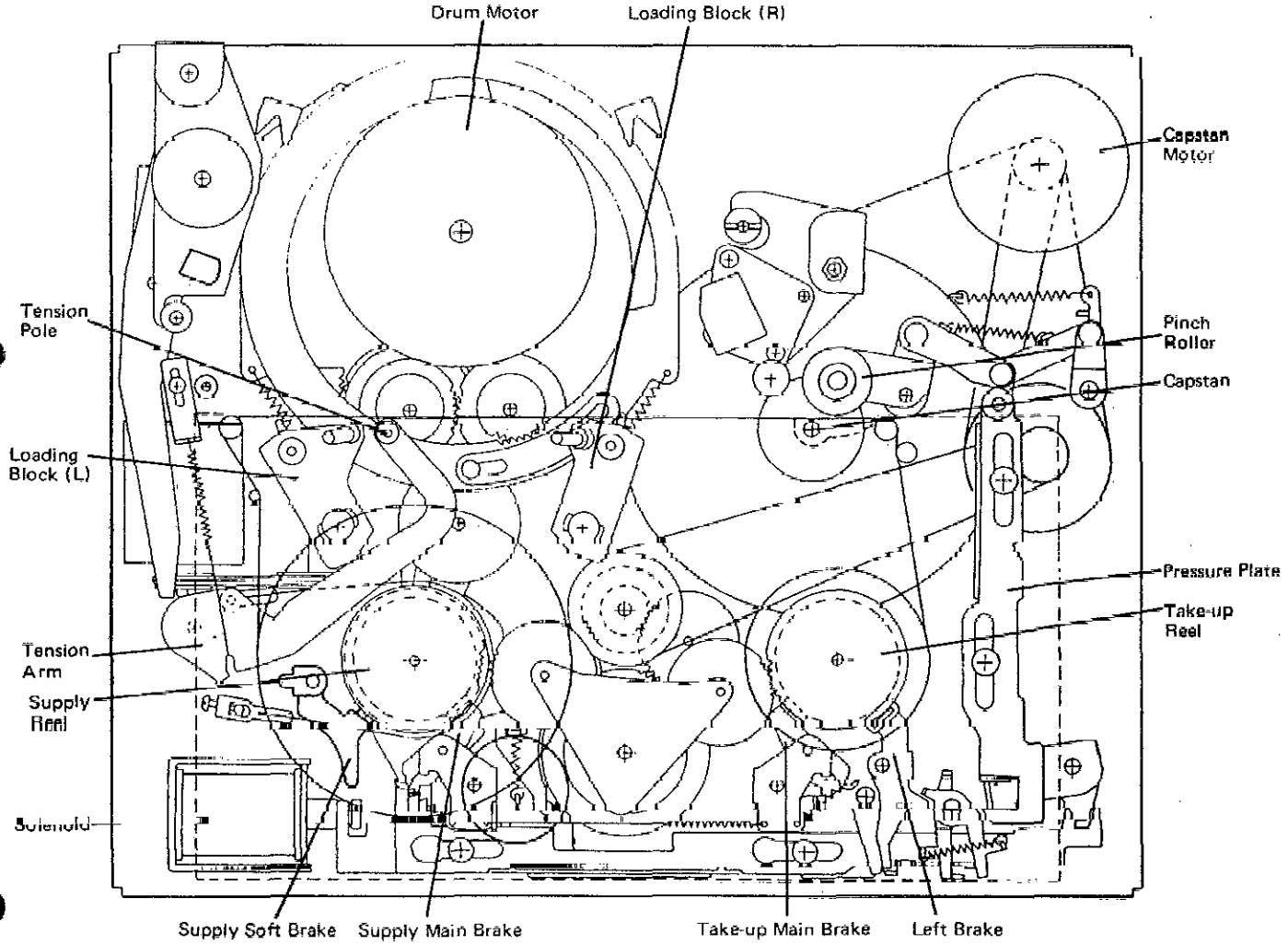


Fig. 9 Stop Mode

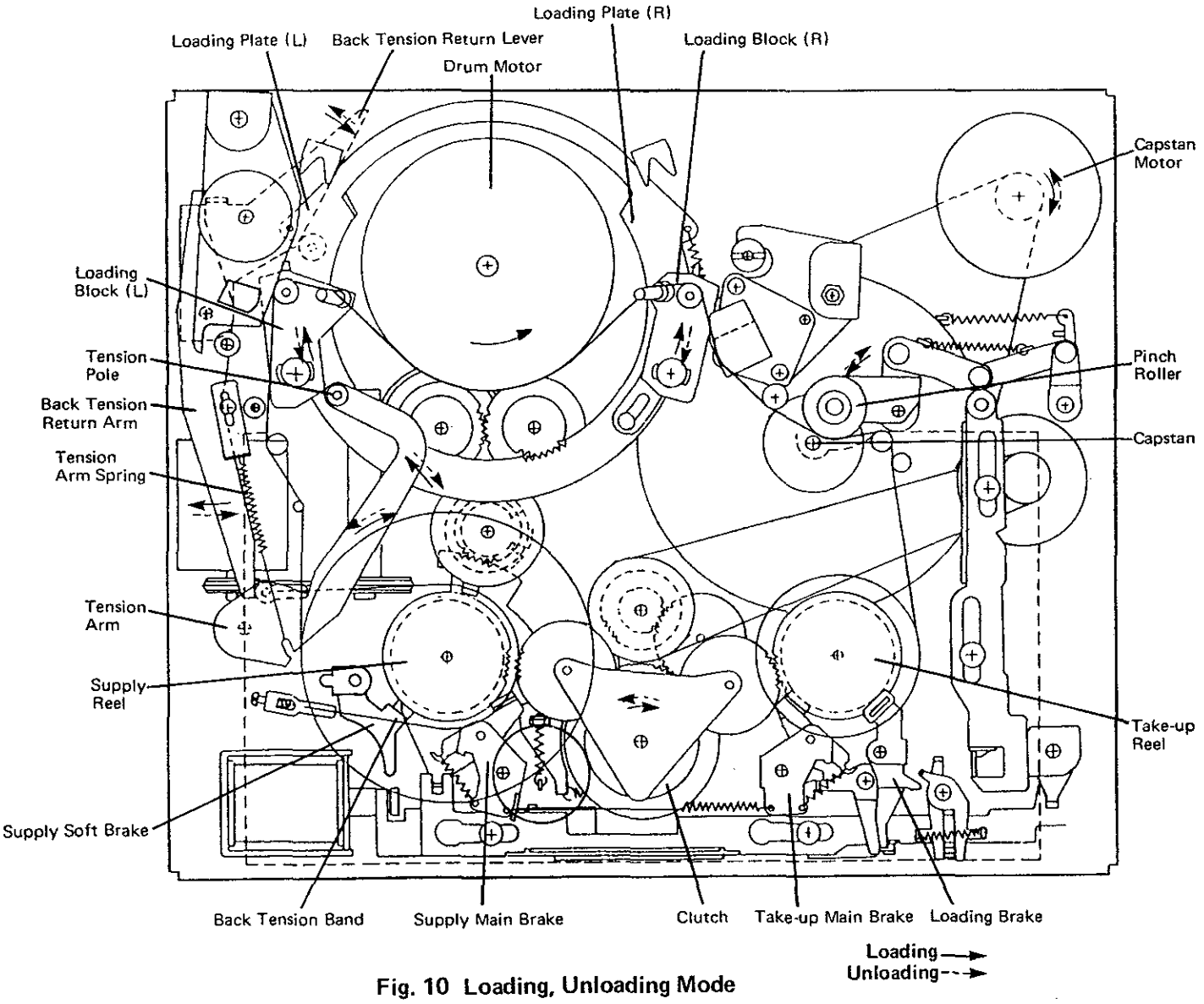


Fig. 10 Loading, Unloading Mode

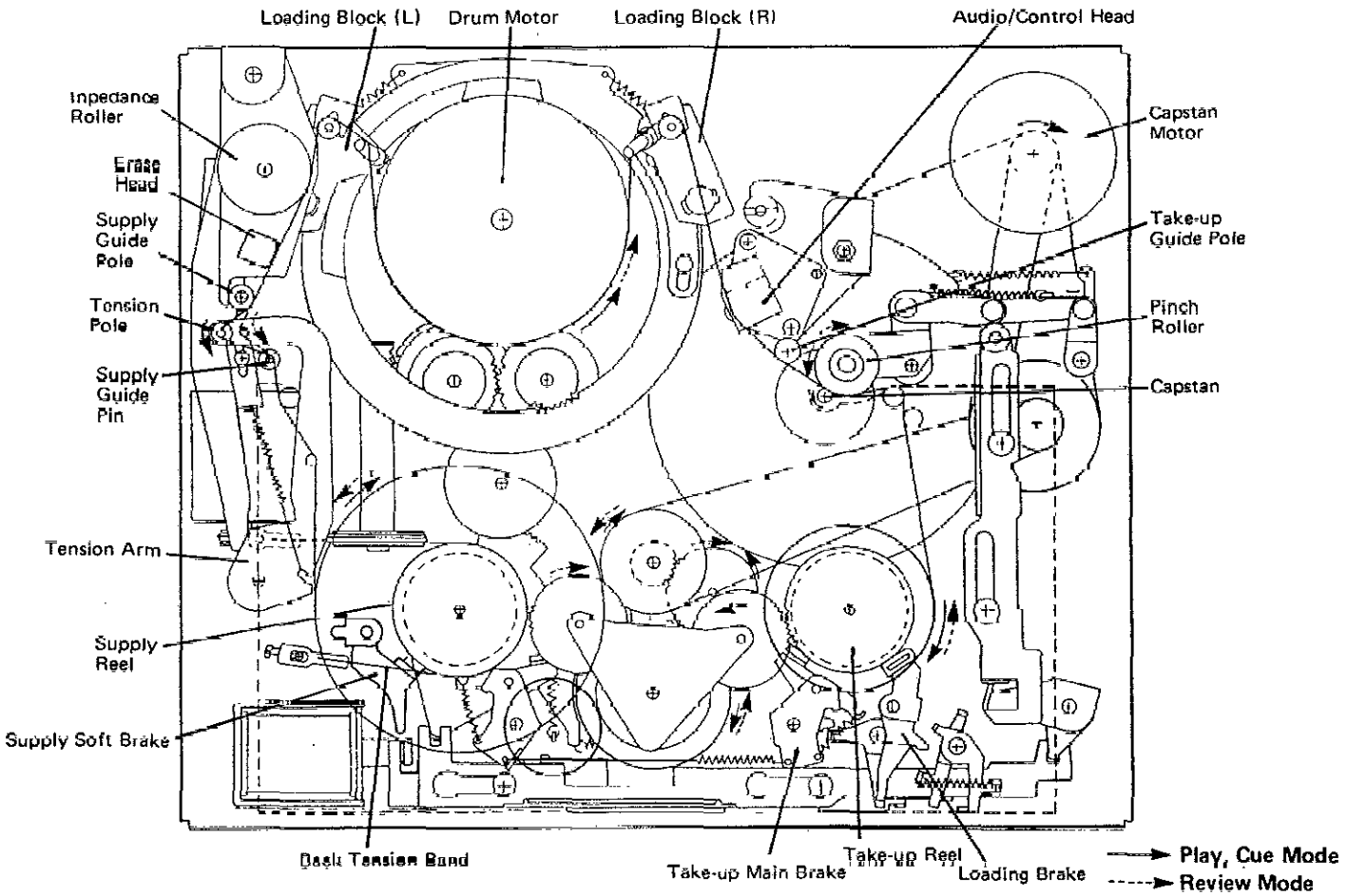


Fig. 11 Play, Cue, Review Mode

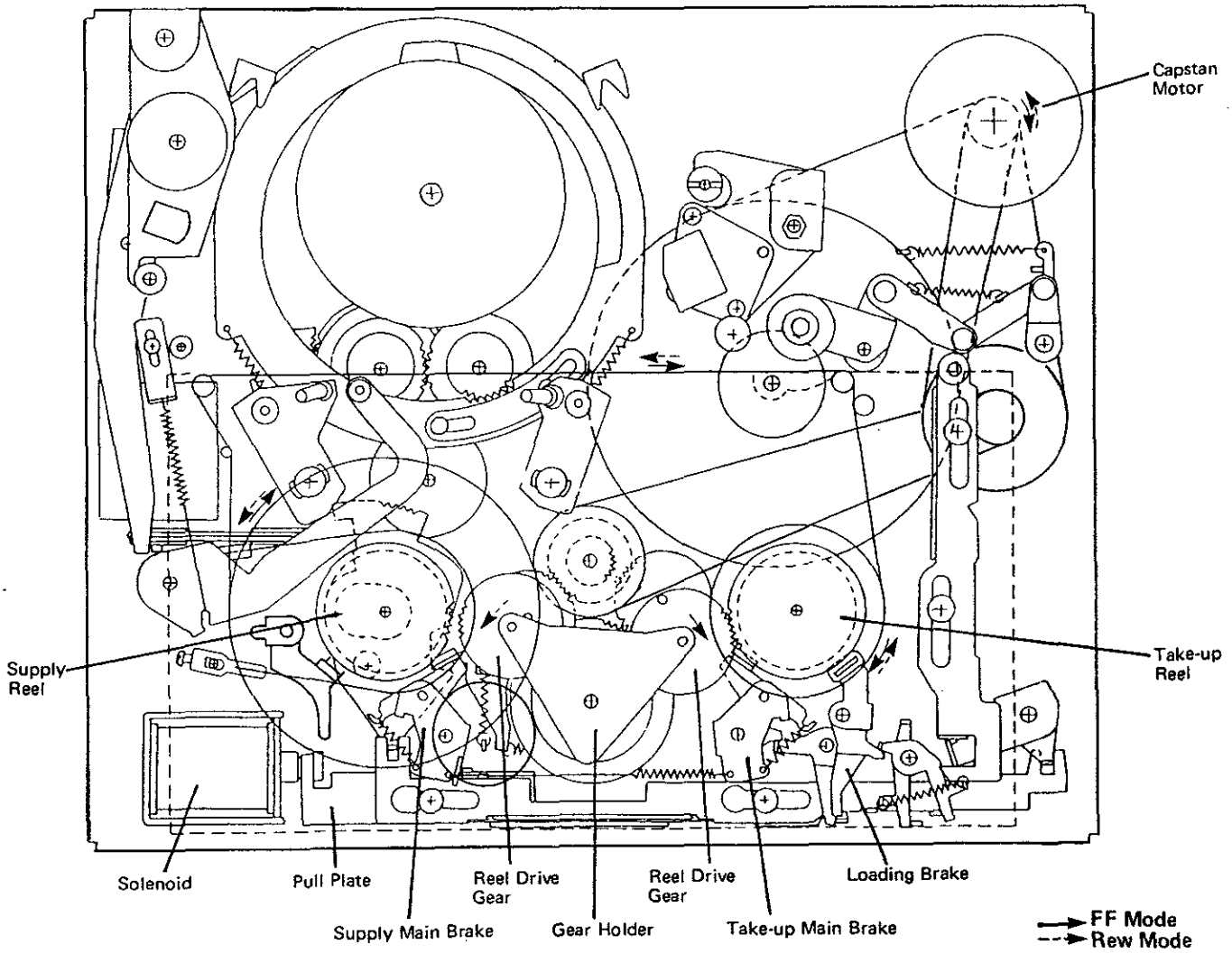


Fig. 12 FF, REW Mode

4. MECHANICAL ADJUSTMENT JIG AND TOOLS

Item	Part No.	Adjustment
Dial Gauge	VFK-0190	Reel Height
Master Plane	VFK-0191	Reel Height Tape Guide Height
Height Gauge	VFK-0139B	Tape Guide Height
Torque Meter	VHT-063	Back Tension
Driver Large (Special)	VFK-0189	Control Head
Driver Small (Special)	VFK-0137	Tape Guide Height
Wrench Hexagon M2		Guide Roller Setting
Wrench Hexagon M2.6		Capstan Pulley Setting
Wrench Hexagon M3		A/C Head Azimuth
Mirror	VFK-0169	Tape Transportation Check
Box Driver M3		Guide Pole A/C Head Height

5. MECHANICAL ADJUSTMENT

1) Tension arm position (Fig. 13)

1. Insert cassette pack without tape and push play button.
2. Turn screw A and match a tip of tension arm to marking on the loading base.

2) Back tension (Fig. 13)

1. Load cassette torque gauge (VHT-063) and push play button.
2. Loosen screw B and slide back tension plate, until gauge indicates 24 ± 5 g-cm.

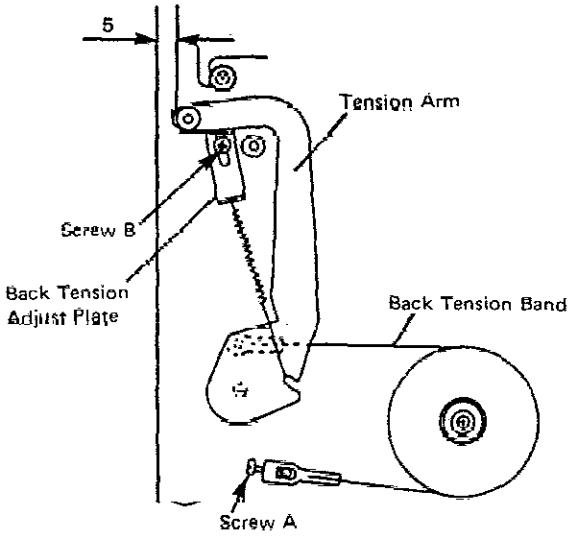


Fig. 13

3) Reel disk height adjustment

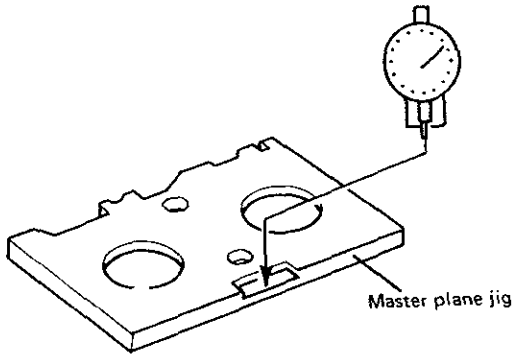


Fig. 14 Master plane jig setting

1. Set the master plane jig as shown in Fig. 14.

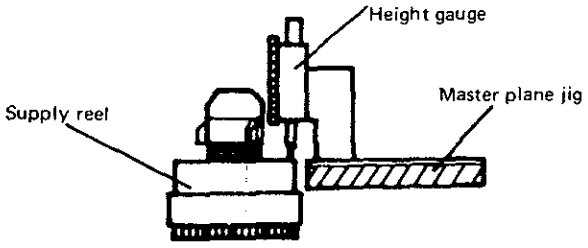


Fig. 15 Reel height adjustment

2. Set dial gauge on the master plane.
3. Check reel assembly height measure at two places 90° apart. (±0.2 mm) (Fig. 15)

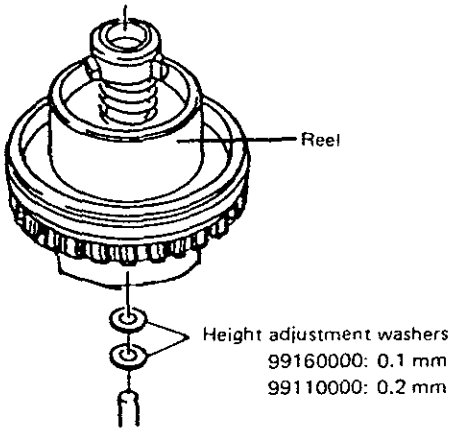


Fig. 16 Washers for height adjustment

4. If it is necessary to adjust the height, add or subtract the required number of height adjustment washers as shown in Fig. 16.
5. After reassembling, confirm a small amount of mechanical play between reel disk and slit washer.

4) Guide pole height adjustment

1. Set the master plane jig as shown in Fig. 17.

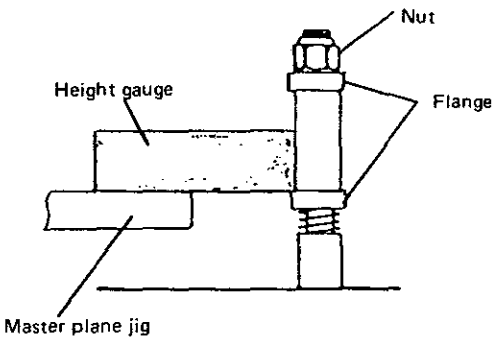
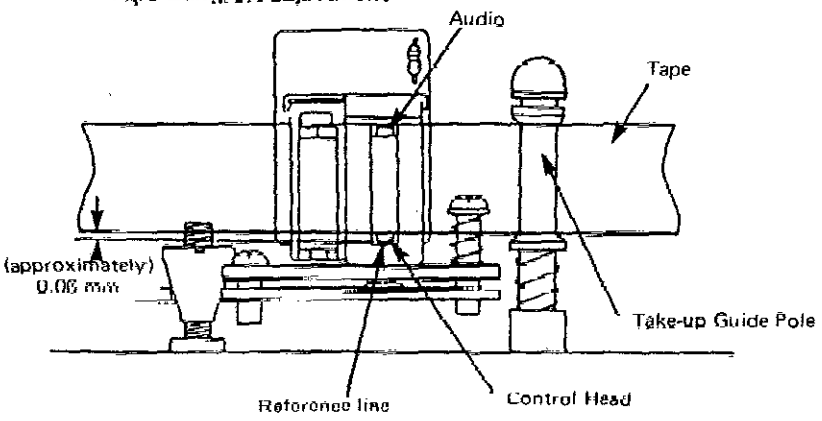


Fig. 17 Guide pole height adjustment

2. Set the height gauge on the master plane jig as shown in Fig. 17.
3. For guide pole, check the height of the upper face of the lower flange. If necessary, carefully adjust by turning the nut.
4. If guide pole height has been adjusted following checks and adjustments are required.

5) Audio/control head adjustment

A. Tape transport adjustment



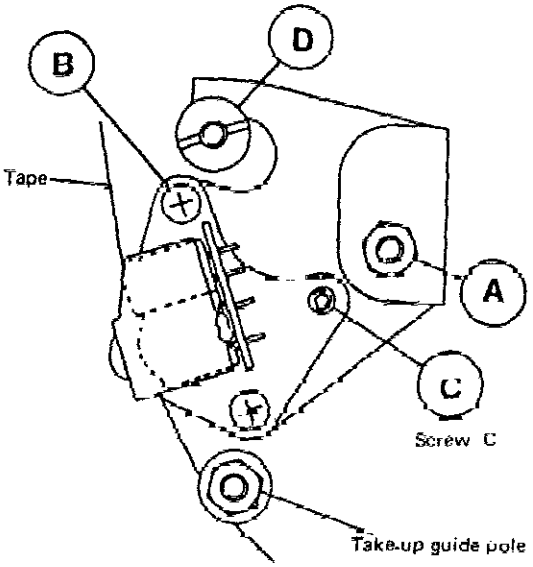


Fig. 18 A/C head adjustment

1. Playback Cassette tape.
2. Turn screw (C) (Fig. 18) and adjust for smooth transport at the take-up guide pole.
   Do not adjust the height of the take-up guide pole itself.

B. Audio/Control head height and azimuth

Connect oscilloscope to Audio Out

1. Playback Test tape F-6A.
2. Adjust nut (A) and screw (C) to get maximum audio output level.
3. Playback Test tape F-6J.
4. Adjust screw (B) to get maximum audio output level.
5. Confirm that smoth tape transport at the take-up guide pole.

6. Tape Transport System Checks and Adjustment

The tape transport system has been precisely aligned at the factory and normally does not require readjustment. The following steps are therefore necessary only in cases of severe usage or when replacing parts affecting the tape transport system.

A. Tape transport check

1. Employ cassette tape and operate the machine between Play and Stop modes several times.
2. During Play mode, observe tape at the input and output portions (A and B in Fig. 19) of the head drum lead. Confirm that the tape slips neither upward nor downward with respect to the lead as shown in Fig. 20.

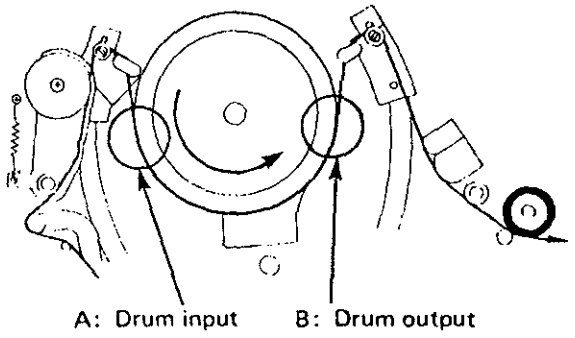


Fig. 19 Tape transport check

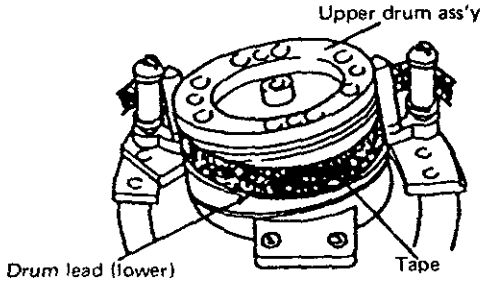


Fig. 20 Drum lead check - 1

Notes:

1. *Slips upward* : Sound becomes produced by contact between tips of rotating heads and edge of tape.
2. *Slips downward* : Tape curls or wrinkles from contacting lead face (sound may also be produced).
3. During Loading, Play and Unloading, observe the tape at the supply and take-up guide rollers and guide poles.
   Confirm absence of curling, wrinkling, etc, as shown in Fig. 21.

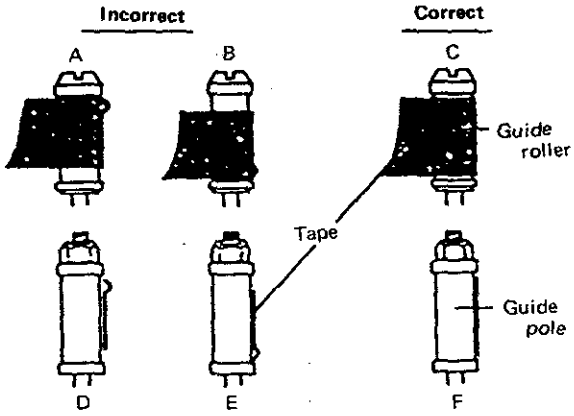


Fig. 21 Guide roller and guide pole

4. Observe the tape as it becomes wrapped around drum during loading and as it separates from the drum during unloading.
   Confirm absence of damage to the tape at points C and D as shown in Fig. 22 and absence of contact noise between head tips and tape edge.

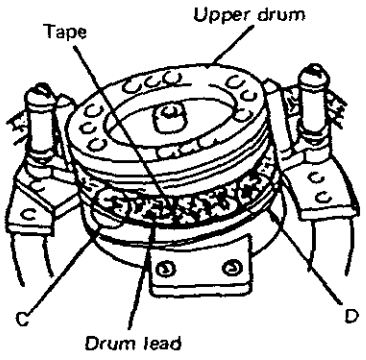


Fig. 22 Drum lead check - 2

5. If defects are noted during the above checks, perform the following adjustments.

B. **Guide roller height adjustment**

1. Use cassette tape and set for Play mode.
2. With a slotted screwdriver, slightly turn the supply guide roller (do not turn more than 180° at a time) and adjust so that at the drum input, the tape travels smoothly in the drum lead without slipping upwards or downwards.
3. Similarly, adjust the take-up guide roller for the drum output.

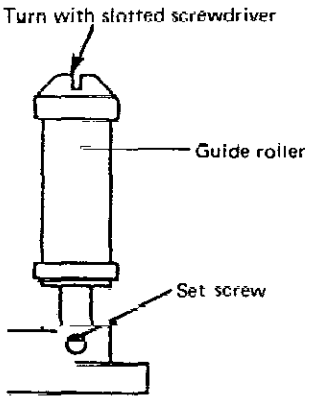


Fig. 23 Guide roller height adjustment

C. **Supply guide pole height adjustment**

1. Use cassette tape and set for Play mode.
2. Use a metric nutdriver to turn the supply guide pole to align the upper flange of the guide pole with the upper edge of the tape as shown by F of Fig. 21 However, this adjustment must be performed so that at the same time, the upper flange remains within ±0.5 mm of the height adjusting jig portion shown in Fig. 17.

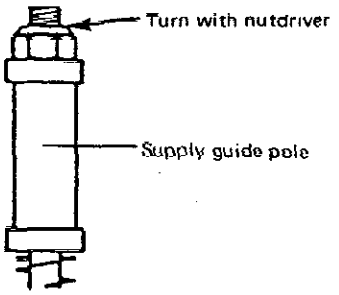


Fig. 24 Supply guide pole height adjustment

If there is a large descrepancy, check the height of the supply reel disk, tension pole and other mechanical components.

7. Interchangeability Adjustment

Before using alignment tape, employ self-recording tape and confirm correct tape transport.

① PRELIMINARY CHECKS

A. Check sequence 1

1. Connect oscilloscope to TP2.
   At this time, trigger the oscilloscope externally with the signal (25Hz square wave) from TP9.
2. Play stairstep portion of the alignment tape.
3. Turn the Tracking control and adjust for maximum FM output at TP2.
   Set the Tracking control to center click position and confirm that nearly maximum output is obtained.

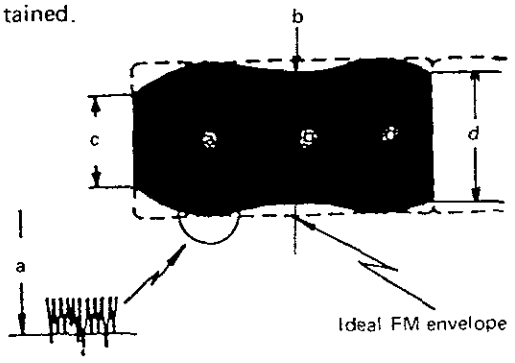


Fig. 25 FM waveform (max. output)

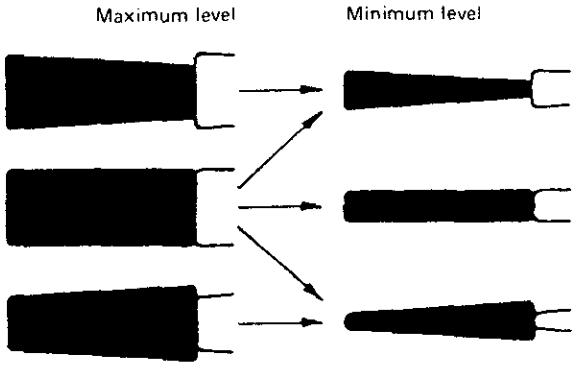


Fig. 26 Normal waveform examples

4. Refer to Fig. 25 Read the level of portion (a) of the waveform. If the waveform is serrated at point (a), read the value at the most uniform serrations as shown at left in Fig. 26.
5. As shown by the broken lines, read the FM waveform value at point (b) and confirm that:

$$\frac{b}{a} \geqq 0.7$$

6. Read the values at points (c) and (d) [drum input and output] and confirm that:

$$\frac{c}{a} \geqq 0.6 \text{ and } \frac{d}{a} \geqq 0.6$$

Notes:

1. Read minimum levels for (b), (c) and (d).
2. If above checks yield normal results, proceed to section ① - B.
3. If defects are noted, perform adjustments of section ②.

B. Check sequence 2

1. Observe the FM waveform as in the previous section (① - A) and turn the tracking control.
   The waveform variation should be nearly parallel as shown in Fig. 26.
2. If the waveform varies as shown in Fig. 27, adjustment becomes required.

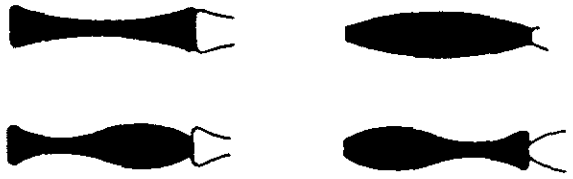


Fig. 27 Incorrect waveform examples

② PRELIMINARY ADJUSTMENTS

1. Connect oscilloscope to TP2.
   Trigger the oscilloscope externally with the signal from TP9.
2. Play the alignment tape (stairstep signal)

A. Drum input

1. Observe oscilloscope display and adjust the Tracking control for maximum FM output.
2. Refer to Fig. 28 Examples of incorrect waveform are shown by A.
   Use a slotted screwdriver to adjust the supply guide roller so that the rising portion (drum input portion) on the waveform becomes flat as shown by B.

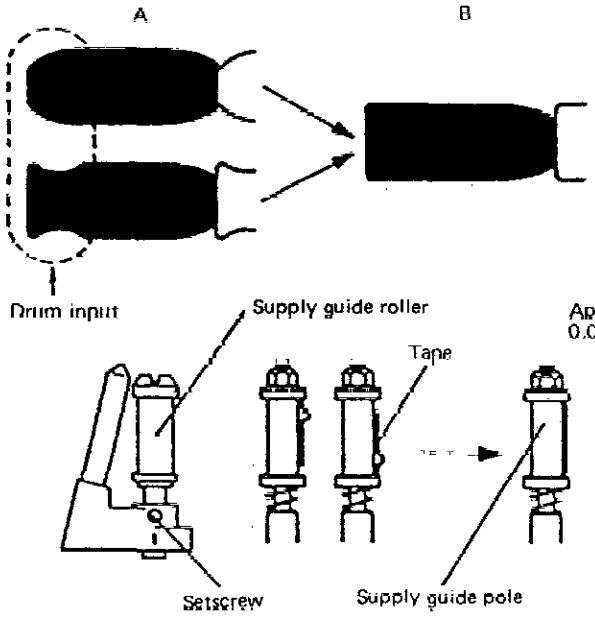


Fig. 28 Drum input adjustment

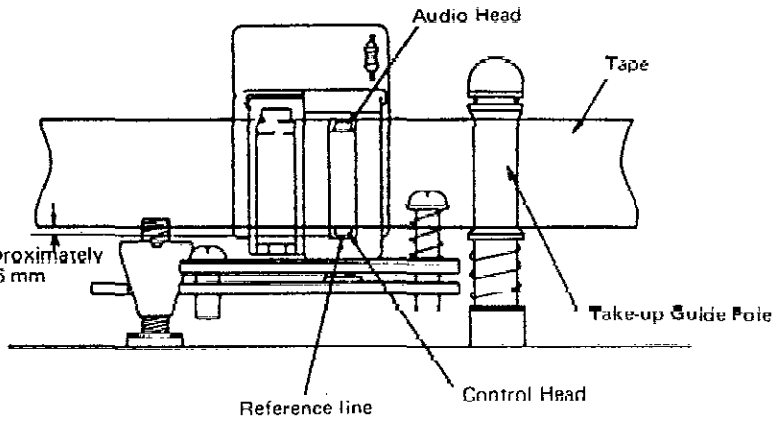


Fig. 30 Audio/Control head height

3. At the supply guide pole, if the tape separates from the guide or wrinkling occurs, adjust the guide pole height.

B: Drum output

1. In the same manner as for the drum input, turn the take-up guide roller to adjust the falling portion (drum output portion) of the FM waveform.
   Incorrect examples are shown by C in Fig. 29 while D indicates the correct adjustment.

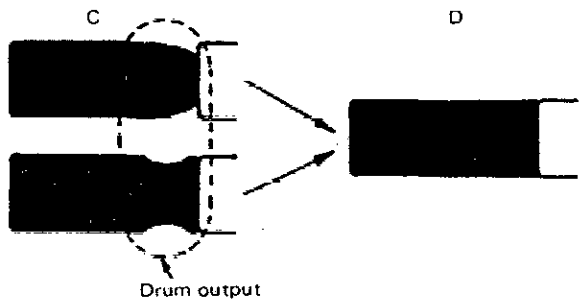


Fig. 29 Drum output adjustment

Notes:

1. Fine adjustment is not required at this time.
   It is sufficient that the tape is engaged with the guide pole and servo operates stably (control signal picked up).
2. Do not disturb the take-up guide pole.

③ INTERCHANGEABILITY FINE ADJUSTMENT

1. Connect oscilloscope to TP2.
   · Observe the FM waveform and adjust the Tracking control for minimum FM output level.

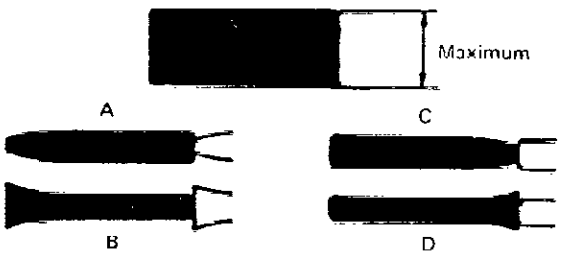


Fig. 31 Minimum FM output (incorrect examples)

2. If the waveform becomes as shown by A or B of Fig. 31 carefully adjust the supply guide roller height so that the waveform becomes as shown by E, F or G of Fig. 32.
   At this time, if the waveform fluctuates, adjust to the point of minimum fluctuation.

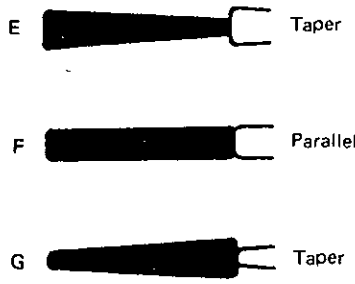


Fig. 32 Minimum FM output (correct examples)

3. If the FM waveform appears as shown by C or D in Fig. 31 carefully adjust the take-up guide roller height to obtain a waveform such as shown by E, F or G of Fig. 32.
   At this time, if the waveform fluctuates, adjust to the point minimum fluctuation.
4. Vary the Tracking control from maximum to minimum FM output.
   Perform fine adjustment of supply and take-up guide rollers so that waveform variation becomes as shown by E, F or G of Fig. 32.

④ AUDIO/CONTROL HEAD HEIGHT, AZIMUTH AND INCLINATION

See section 5 Audio/control head height and azimuth.

⑤ SETSCREW TIGHTENING

1. Check for maximum FM output waveform, maximum audio out and absence of tape wrinkling or other transport irregularities then secure the guide rollers.
   Perform in Stop mode.
2. Since the guide rollers are easily moved, use care when securing.
3. After tightening the setscrews, again perform interchangeability final check.

⑥ INTERCHANGEABILITY FINAL CHECK

Confirm section 7. Preliminary checks.

⑦ SERVO CIRCUIT ADJUSTMENT

1. Head switching position (see Electrical Adjustment).
2. Normal tracking preset (see Electrical Adjustment).

⑧ CONTROL HEAD PHASE ADJUSTMENT

1. Connect oscilloscope to TP2.
   Trigger the oscilloscope externally with the signal from TP9.
2. Play stairstep portion of the alignment tape and observe the oscilloscope display.
3. Set the Tracking control to center click position.

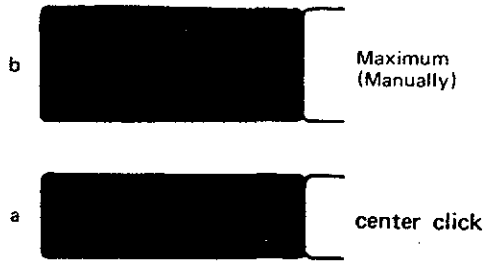


Fig. 33 FM output level

4. Confirm that the level difference between this setting and the maximum level obtained manually is.

$$\frac{b}{a} \geqq 0.9$$

5. If necessary, adjust as follows.
6. Set the Tracking control to center click position and play the alignment tape (stairstep).
7. Loosen tracking adjustment nut Ⓓ and slide the A/C head assembly fully to the direction of the take-up guide pole.

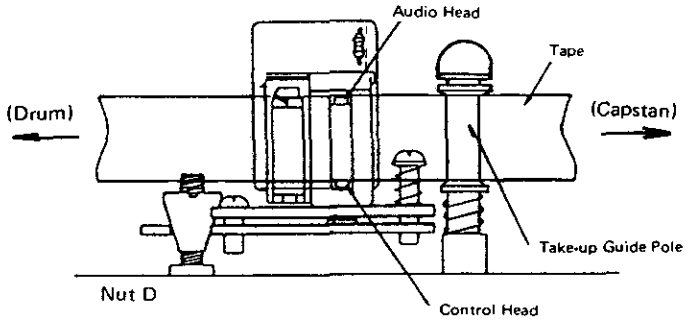


Fig. 34 Control head phase adjustment

8. Tighten adjustment nut slide the A/C head assembly slowly in the direction of the arrow as shown in Fig. 34.
9. Set the A/C head assembly to the position where first maximum FM level is obtained. Put screw Locking glue on the nut Ⓓ.

8. PERIODIC MAINTENANCE

The following procedures are recommended for maintaining optimum performance and reliability of this video cassette player.

1) CLEANING

For cleaning, use a lint-free cloth or gauze dampened with alcohol.

A. Tape transport system

1. The following components should be cleaned after every 500 hours of use.
   1) Supply guide pin
   2) Tension pole
   3) Supply guide pole
   4) Full erase head
   5) Supply impedance roller
   6) Supply guide roller
   7) Supply slant pole
   8) Video head and Drum system
   9) Drum ground
   10) Drum motor shaft (upper)
   11) Take-up slant pole
   12) Take-up guide roller
   13) Audio/control head and Audio erase head
   14) Take-up guide pole
   15) Pinch roller
   16) Capstan
2. Since above parts come in direct contact with video tape, they tend to collect dust particles. If allowed to accumulate, dust may lead to damage to the video tape and above parts.
3. After cleaning with alcohol, allow the parts to dry thoroughly before using a cassette tape.

Note:
When cleaning the two video heads on the upper drum, do not clean them with a vertical stroke. Use only a gentle back and forth motion in the direction of the tape path.
Use care since they are easily damaged.
When cleaning full erase head, video heads, A/C head and audio erase head use a lint-free cloth dampened with alcohol.

B. Reel drive system

1. The following components should be cleaned after every 1,000 hours of use.

— Upper section —

17) Take-up reel
18) Left brake

— Bottom section —

19) Capstan motor pulley
20) Main belt
21) Capstan flywheel
22) Drive belt
23) Joint Pulley
24) Joint Belt
25) Wind Pulley
26) RF clutch
27) Worm pulley
28) Loading belt
29) Loading motor

2. The above revolving parts are of rubber or come in direct contact with rubber parts. Rubber dust can accumulate and interfere with proper operation.
3. Avoid using excessive alcohol when cleaning rubber parts.

2) LUBRICATION

The following components should be lubricated with oil after every 2,000 hours of use.

1) Shaft of the take-up reel
2) Shaft of the supply reel

After cleaning above shafts with alcohol, lubricate these shafts with one or two drops of oil.
Do not lubricate too much.

9. Service Schedule for Main Components

The following chart lists the parts which should receive periodic servicing at the recommended intervals.

Name	Periodic Service Schedule (operating hours)				
	1 000	2 000	3 000	4 000	5 000
Upper drum	○	●	○	●	○
RF clutch		●		●	
Drive belt		●		●	
Joint belt		●		●	
Clutch		●		●	
Capstan motor		●		●	
Main belt		●		●	
Loading belt		●		●	
Brake shue (Loading Brake)		●		●	
Back tension Band		●		●	
Drum ground		●		●	
Audio/Control head			●		
Full Erase Head			●		
Pinch roller			●		
TAPE Loading motor			●		
Supply reel			●		
Take-up reel			●		
CASSETTE Loading motor			●		

Standard service periods

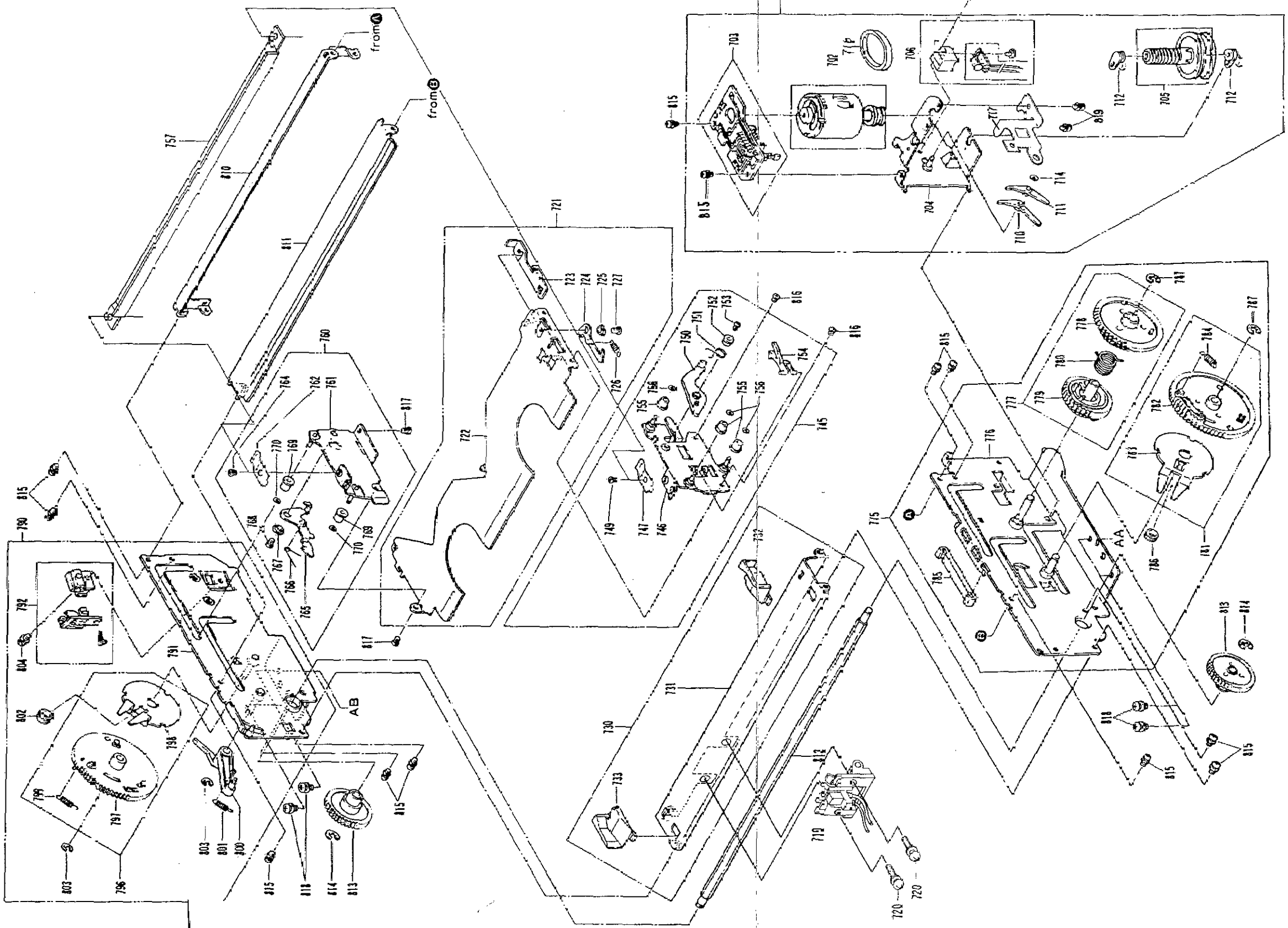
○ Check and replace if necessary.

● Replace.

NOTE:

Even if the unit is not used frequently, Cleaning, Lubrication and Replacement of the belts should be undertaken every 2 years.

EXPLODED VIEW (DECK 3)

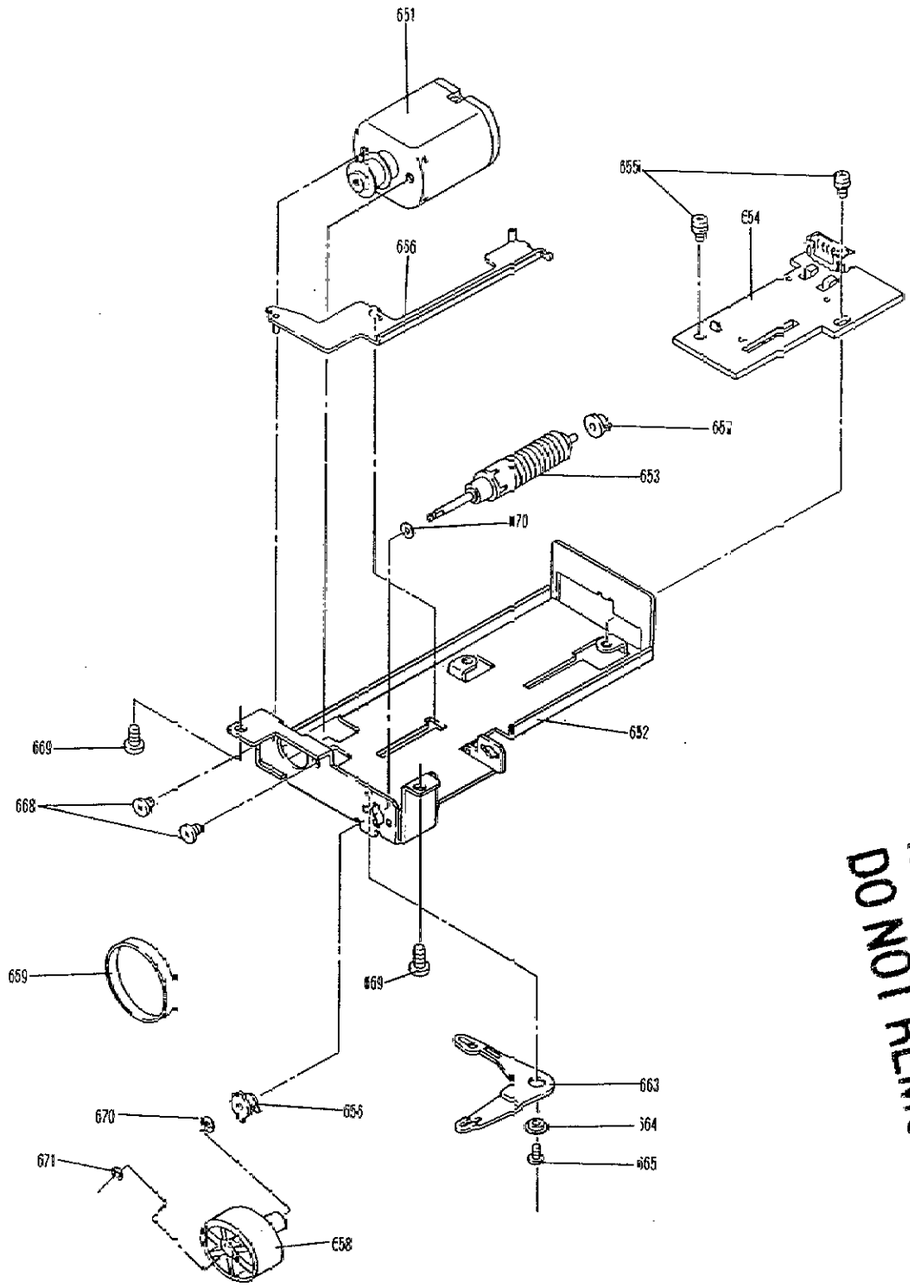


MECHANICAL PARTS LIST

DECK (TN-8000P306SRF-1/2)

Ref.No	Description	Parts No.
	CYLINDER	
1	Cylinder Ass'y (Consists of 2-13,24)	8000-01-315
	2 Drum, upper with video head	8000-01-13
	3 Mount Assy, Cylinder (Consists of 4-8,24)	8000-01-302
	4 Drum, Lower Ass'y	8000-01-303
	5 Mount, Cylinder	8000-01-22
	6 PCB Ass'y,video Out	8000-01-304
	7 Screw, Sems, M3 × 10	9109-00-00
	8 Screw, Sems, M2.6 × 6	9098-00-00
	24 Screw, Sems, M3 x 12	9110-00-00
	9 Motor, TM-81A	6004-03-22
	10 Screw, Camera,M2×4.5	9560-00-00
	11 Screw, Sems, M2.6 × 6	9098-00-00
	12 PCB for Upper Drum	8000-01-14
	13 Screw, Sems,M3×8	9108-00-00
14	Screw, Sems,M3×8	9108-00-00
15	Bracket, Drum Ground	8000-01-23
16	Ground, Drum	8000-01-24
17	Screw, C-Tight,M3 × 5	9202-00-00
18	Screw, W Sems,M3×5	9964-00-00
19	Screw, Sems, M2 X 5	9078-00-00
20	Rivet, Drum Motor Bracket	8000-01-501
21-23	Not used	
25-30	Not used	
	CHASSIS	
31	Rivet, chassis	8000-02-505
32	Adjuster, Cassette	8000-02-15
33	Screw, Set with Hexagon Hole, M 2.6 x 4	9951-00-00
34	Open Angle Ass'y	8000-02-301
35	Screw, C-Tight M2.6 × 5	9192-00-00
36	Rivet, Back Tension Change Plate	8000-02-502
37	Arm (B), Back Tension Change	8000-13-32
38	Collar	8000-08-12
39	Screw, Camera S-Tight, M2.6×3.5	9840-00-00
40	Actuator (B), Back Tension	8000-13-31
41	Not used	
42	Screw, C-Tight, Collar	8000-02-32
43	Return Arm, Right Brake	8000-02-21
44	Collar	8000-08-12
45	Screw, C-Tight M2.6×5	9192-00-00
46	Bracket, Mecha	8000-22-09
47	Screw, C-Tight, M3×5	9202-00-00
48-50	Not used	

EXPLODED VIEW (DECK 1)



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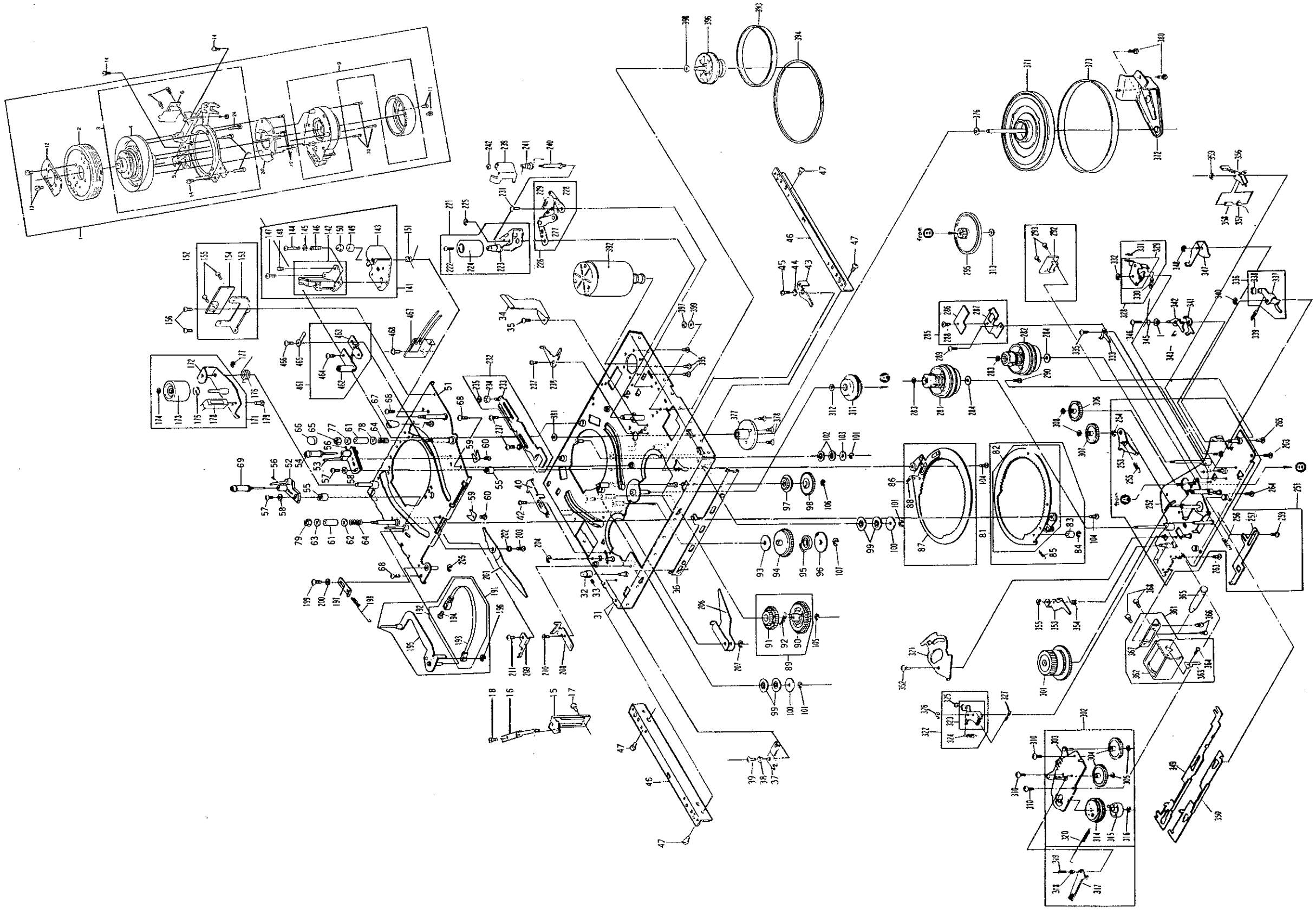
EXPLODED VIEW (DECK 2)



Ref.No	Description	Parts No.
	LOADING BASE	
51	Rivet, loading Base	8000-03-501
52	Block (L), Loading	8000-03-31
53	Block (R), Loading	8000-03-09
54	Post, Roller	8000-03-11
55	Boss, Loading	8000-03-12
56	Screw, Set with Hexagon Hole M 2×3	9952-00-00
57	Screw, Camera M2.6×4.5	9559-00-00
58	Washer, Flat ϕ2.6 ×ϕ7 ×t 0.8	9324-00-00
59	Holder, Loading	8000-03-13
60	Screw, Sems M2×6	9079-00-00
61	Guide, Tape	8000-03-14
62	Flange, Tape Guide	8000-03-18
63	Flange (B), Tape Guide	8000-03-20
64	Spring, Tape Guide	8000-03-15
65	Nut, M3	9453 00-00
66	Cap, Guide	8000-03-19
67	Nut, Tracking Adjuster	8000-03-16
68	Screw, Sems M3×6	9107-00-00
69	Rollerpost, SIS	8000-03 33
70-76	Not used	
77	Flange (C), Tape Guide	8000-03-28
78	Flange (D), Tape Guide	8000-03-29
79	Nut, Nylon, M3	9953-00-00
80	Not used	
	LOADING DRIVE	
81	Plate (L) Ass'y, Loading (Consists of 82-85)	8000-04-301
82	Rivet, Loading Plate (L)	8000-04-501
83	Roller, Back Tension Return	8000-04-25
84	E-Ring ϕ1.5	9500-00-00
85	Spring, Loading Plate	8000-04-23
86	Plate (R) Ass'y Loading (Consists of 87-88)	8000-04-302
87	Rivet, Loading Plate (R)	8000-04-502
88	Spring, Loading Plate	8000-04-23
89	Drive Gear (L) Ass'y (Consists of 90-92)	8000-04-303
90	Gear (A), L Drive	8000-04-13
91	Gear (B), Ass'y, L Drive	8000-04-304
92	Gear Spring, L Drive	8000-04-16
93	Washer, Flat ϕ4 ×ϕ16×t 0.6	9956-00-00
94	Gear, Control	8000-04-20
95	Plate, Gang	8000-04-21
96	Gear, Gang	8000-04-22
97	Gear, Joint B	8000-04-19
98	Gear, Joint A	8000-04-18
99	Gear, Guide	8000-04-09
100	Washer, Flat ϕ2.5 ×ϕ14×t 1	9955-00-00
101	E-Ring ϕ2.0	9502-00-00
102	Roller, Guide	8000-04-10
103	Washer, Flat ϕ2.5 ×ϕ10×t 1	9954-00-00
104	Screw, Small M2.6 × 4	9038-00-00

Ref.No	Description	Parts No.
105	E-Ring ϕ3.2	9506-00-00
106	E-Ring ϕ2.3	9503-00-00
107	E-Ring ϕ2.5	9504-00-00
108-140	Not used	
141	Head Base Ass'y (Consists of 142-150)	8000-06-310
142	Head, Audio Control	6204-15-02
143	Rivet Head Base	8000-06-501
144	Screw, Small M2.6 × 12	9045-00-00
145	Washer, Flat ϕ2.6 × ϕ4.6 × t 0.4	9311-00-00
146	Spring, Azimuth	8000-06-04
147	Screw, Small M2.6 × 7	9041-00-00
148	Screw, Set with Hexagon Socket 3×5	9950-00-00
149	Collar, Adjust	8000-06-05
150	Nut, Nylon M3	9953-00-00
151	Spring, Head	8000-06-03
152	Bracket Ass'y, MD PCB (Consists of 153-155)	8000-06-312
153	Bracket, MD PCB	8000-06-18
154	PCB Ass'y, MD	8000-06-315
155	Screw, Sems M2×5	9078-00-00
156	Screw, Sems M2.6×5	9097-00-00
157-170	Not used	
	FEH	
171	Plate Ass'y, Impedance Roller (Consists of 172-175, 178)	8000-07-303
172	Rivet, Impedance	8000-07-501
173	Roller, Impedance	8000-07-05
174	Washer, Polyslider ϕ1.6 × ϕ3.8 × t 0.3	9743-00-00
175	Washer, Polyslider ϕ2.1 × ϕ5 × t 0.3	9747-00-00
178	Head, Full Erase	6204-15-03
176	FE Plate Spring	8000-07-04
177	E-Ring ϕ3.0	9505-00-00
179	Screw, Canera, M2 X 3	9550-00-00
180-190	Not used	
	TENSION ARM	
191	Tension Arm Ass'y (Consists of 192-196)	8000-08-302
192	Brake Ass'y (Consists of 193-194)	8000-08-303
193	Flat Ass'y, Back Tension	8000-08-301
194	Screw, C-Tight M2 × 6	9182-00-00
195	Arm Ass'y, Tension Arm	8000-08-501
196	E-Ring ϕ1.5	9500-00-00
197	Plate, Back Tension Adjusting	8000-08-13
198	Spring, Tension Arm	8000-08-14
199	Screw, Sems M2.6×5	9097-00-00
200	Washer, Flat ϕ2.6 × ϕ7 ×t 0.8	9324-00-00
201	Arm, Back Tension Return	8000-08-10
202	Collar	8000-08-12
203	Screw, Sems, Camera M2.6x4.5	9999-18-01
204	E-Ring, ϕ2.0	9502-00-00
205	E-Ring, ϕ2.0	9502-00-00

Ref.No	Description	Parts No.
206	Lever, Back Tension Return	8000-08-11
207	E-Ring, ϕ2.5	9504-00-00
208	Guide, Tension	8000-08-17
209	Support (B), Back Tension	8000-08-16
210	Screw, C-Tight M2.6 × 5	9192-00-00
211	Screw, C-Tight M3 × 5	9202-00-00
212-220	Not used	
	PINCH ROLLER	
221	Pinch Roller Ass'y (Consists of 222-224)	8000-09-306
222	Screw M2.6×4	9038-00-00
223	Rivet, Pinch Roller Arm	8000-09-504
224	Pinch Roller	8000-09-16
225	E-Ring, ϕ2.3	9503-00-00
226	Toggle Arm Ass'y (Consists of 227-229)	8000-09-305
227	Rivet, Toggle Arm	8000-09-505
228	Spring (B), Pinch Roller	8000-09-05
229	Spring (A), Pinch Roller	8000-09-04
230	Not used	
231	Screw, C-Tight Collar	8000-02-32
232	Plate Ass'y, Pressure (Consists of 233-237)	8000-09-303
233	Rivet, Pressure Plate	8000-09-503
234	Roller, Pressure	8000-09-08
235	E-Ring, ϕ2.0	9502-00-00
236	Not used	
237	Screw, C-Tight, Collar	8000-02-32
238	Actuator, Pressure Arm	8000-09-20
239	Support, Tape	8000-09-17
240	Shaft, Tape Support	8000-09-18
241	Spring, Tape Support	8000-09-19
242	Nut, Self	8000-09-21
243-250	Not used	
	SUB CHASSIS	
251	Sub Chassis Ass'y (Consists of 252-259)	8000-10-306
252	Rivet, Sub Chassis	8000-10-507
253	Arm, Change Plate Action	8000-10-17
254	E-Ring, ϕ3	9505-00-00
255	Spring, Change Plate	8000-10-15
256	Spring, Change Plate Action Arm	8000-10-19
257	Rivet, Actuator Switch	8000-10-506

Ref.No	Description	Parts No.
	258 Not used	
	259 Screw, Sems, Collar (A)	8000-08-18
260-262	Not used	
263	Screw, Sems M2.6×5	9097-00-00
264	Screw, Sems M2×6	9079-00-00
265	Screw, Camera, Flat Head M2.6 × 5	9564-00-00
266-280	Not used	
	REEL	
281	Reel Ass'y, Supply	8000-11-301
282	Reel Ass'y, Take-up	8000-11-310
283	Washer, Polyslider ϕ2.1 × ϕ5 × t 0.5	9876-00-00
284	Washer, ϕ3.1 × ϕ6 × t 0.5	9912-00-00
285	Bracket Ass'y,Reel Sensor(Consists of 286-288)	8000-11-308
	286 PCB Ass'y, Reel Sensor	8000-11-306
	287 Bracket (B), Reel Sensor	8000-11-17
	288 Screw, Camera M2.6×2.5	9555-00-00
289	Screw, Sems M2.6×5	9097-00-00
290	Screw, M2.6 × 7	9041-00-00
291	Not used	
292	PCB Ass'y, Reel Sensor Connector	8000-11-307
293	Screw, Sems M2.6×5	9097-00-00
294	Not used	
	REEL DRIVE	
295	Pulley, Wind	8000-12-308
296-300	Not used	
301	Ass'y, Clutch	8000-12-304
302	Gear Holder Ass'y(Consists of 303-305,314-320)	8000-12-305
	303 Rivet, Gear Holder	8000-12-503
	304 Gear, R Drive	8000-12-19
	305 Washer, Polyslider ϕ1.6 × ϕ3.8 × t 0.3	9743-00-00
	314 Gear (B) Ass'y, Return	8000-12-306
	315 Drum Ass'y, Return	8000-12-307
	316 E-Ring, ϕ1.5	9500-00-00
	317 Arm, Return	8000-12-18
	318 Arm Collar, Return	8000-12-26
	319 Screw, Camera M2×3	9562-00-00
	320 Sprig, Return	8000-12-25
306	Gear (P)	8000-12-07
307	Gear, FF	8000-12-08
308	Washer, ϕ1.6 × ϕ3.8 X t 0.3	9743-00-00
309	Not used	
310	Screw, Sems M2×5	9078-00-00
311	Clutch Ass'y, RF	8000-12-309
312	Washer, ϕ3.6 × ϕ6 × t 0.1	9798-00-00
313	Washer, Polyslider ϕ2.6 × ϕ6 × t 0.5	9884-00-00

Ref.No	Description	Parts No.
	BRAKE	
321	Plate, Switching	8000-13-50
322	Brake Ass'y,Supply Reel(Consists of 323-325)	8000-13-301
	323 Main Brake Ass'y, Supply Reel	8000-13-501
	324 Spring, Brake Arm	8000-13-09
	325 Shue B, Brake	8000-13-26
326	E-Ring, ϕ2.3	9503-00-00
327	Spring, Brake Main	8000-13-10
328	Brake Ass'y,Take-up Reel(Consists of 329-331)	8000-13-302
	329 Main Brake Ass'y, Take-up Reel	8000-13-502
	330 Spring, Brake Arm	8000-13-09
	331 Shue B, Brake	8000-13-26
332	E-Ring, ϕ2.3	9503-00-00
333	Arm, Take-up Brake Actuator	8000-13-34
334	Not used	
335	Screw, Sems, Collar (A)	8000-08-18
336	Arm Ass'y, Left Brake (Consists of 337-338)	8000-13-304
	337 Arm, Left Brake	8000-13-38
	338 Shue, Brake	8000-13-11
339	Spring LB Arm	8000-13-18
340	E-Ring, ϕ2.3	9503-00-00
341	Arm, Right Brake Actuator	8000-13-21
342	Arm, Left Brake Actuator	8000-13-20
343	Spring, Nutral	8000-13-37
344	Collar, Left Brake Actuator Arm	8000-13-29
345	Spring, Left Brake Actuator Arm	8000-13-28
346	Screw, Small M2.6 × 9	9140-00-00
347	Crank, Bell	8000-13-23
348	E-Ring, ϕ2.5	9504-00-00
349	Plate Main	8000-13-02
350	Plate, Pull	8000-13-03
351	Not used	
352	Screw, Sems Collar (A)	8000-08-18
353	Brake Ass'y, S Soft	8000-13-305
354	Spring, S Soft Brake	8000-13-16
355	E-Ring, ϕ2.3	9503-00-00
356	Arm Ass'y, Back Tension	8000-13-306
357	Spring, Right Brake	8000-13-17
358	Sleeve, Right Brake Arm	8000-13-24
359	E-Ring, ϕ2.3	9503-00-00
360	Not used	
	PLANGER	
361	Planger Ass'y, Supply (Consists of 362 364)	8000-14-303
	362 Planger Ass'y, Main	8000-14-302
	363 Board, Release Spring	8000-14-06

Ref.No	Description	Parts No.
	364 Screw, Sems M2×4	9077-00-00
365	Planger	8000-14-04
366	Screw, Sems M2.6×5	9097-00-00
367	Holer, Planger	8000-10-23
368	Screw, Sems M2.6×5	9097-00-00
369-370	Not Used	
	FLYWHEEL	
371	Capstan Ass'y, Flywheel	8000-15-28
372	FL Plate Ass'y	8000-15-304
373	Belt, Main	8000-15-26
374-375	Not used	
376	Washer, Nylon ϕ3.6 × ϕ10×t 0.5	9957-00-00
377	Capstan Metal (CAPSTAN BEARING ASS'Y)	8000-15-24
378	Screw, Flat M2.6×6	9684-00-00
379	Not used	
380	Screw, C-Tight M3 × 5	9202-00-00
381	Washer, ϕ3.43×ϕ5 ×t 0.5	9860-00-00
382-391	Not used	
	MOTOR	
392	Motor Ass'y, Capstan	8000-16-305
393	Belt, Drive	8000-16-07
394	Belt, Joint	8000-16-08
395	Screw, Sems, M3 X 4	9105-00-00
396	Pulley, Joint	8000-16-304
397	Washer, Polyslider ϕ1.6 ×ϕ3.8 × t 0.3	9743-00-00
398	Washer, Lumilar ϕ2.1 ×ϕ5 × t 0.5	9920-00-00
399-460	Not used	
	SENSOR	
461	Lamp Bracket Ass'y(Consists of 462-464)	8000-18-307
462	PCB Ass'y, Lamp	8000-18-308
463	Bracket, Lamp	8000-18-01
464	Screw, Small 2.6×4	9136-00-00
465	Clamp, Cord (A)	8000-18-10
466	Screw, Sems M2.6×5	9097-00-00
467	Sensor, Dew	6808-00-01
468	Screw, Sems, M3 X 4	9105-00-00
469-649	Not used	
650	Tape Loading Motor Ass'y(Consists of 651-671)	8000-21-302
651	Motor with Pulley	8000-21-303
652	Motor Bracket (B), Tape Loading	8000-21-27
653	TL Worm Gear	8000-21-304
654	Mode Switch Ass'y	8000-21-305
655	Screw, Sems M2.6×5	9697-00-00
656	Holder (A), TL Worm Gear	8000-21-32
657	Holder (B), TL Worm Gear	8000-21-33
658	Pulley, TL	8000-21-40
659	Belt, TL	8000-21-39

Ref.No	Description	Parts No.
	660-662Not used	
	663 Actuator, Angle Switch	8000 21 28
	664 Collar, Actuatorr Angle	8000-21-12
	665 Screw, Sems M2×4	9077-00 00
	666 Actuator, M Switch	8000-21-501
	667 Not used	
	668 Screw Sems M3×4	9105-00-00
	669 Screw C-Tight M2.6×5	9192-00-00
	670 Washer ϕ2.2 × ϕ3.8 × t 0.2	9939-00-00
	671 E-Ring ϕ1.2	9499-00 00
	672-699Not used	
700	Front Loading Ass'y (Consists of 701-819)	8000-22-323
700	Bracket Ass'y, Loading Motor (Consists of 702-716,819)	8000-22-302
	702 Motor Ass'y, Loading	8000-22-303
	703 PCB Ass'y Loading Motor	8000-22-304
	704 Rivet, Motor Bracket	8000-22-501
	705 Gear, Worm	8000-22-305
	706 PCB Ass'y, Sensor (R)	8000-22-320
	707-709Not used	
	710 Lever (A) Switch	8000-22-28
	711 Lever (B) Switch	8000-22-29
	712 Holder, Worm Gear	8000-22-27
	713 Not used	
	714 Washer, Polyslider ϕ1.6 × ϕ3.8 × t 0.3	9743-00-00
	715 Screw, Sems M2×5	9078-00-00
	716 Belt, Front Loading	8000-22-64
	717 Bracket (B), Motor	8000-22-69
	819 Screw, Sems,Camera M2.6 x 4.5	9999-18-01
718	Not used	
719	Record Switch Ass'y	8000-22-324
720	Screw, Sems, M2 X 4	9077-00-00
721	Cassette Holder Ass'y (Consists of 722-727)	8000-22-308
	722 Holder, Cassette	8000-22-03
	723 Plate, Slide	8000-22-13
	724 Lock Plate (R)	8000-22-12
	725 Collar	8000-08-12
	726 Spring, Lock Plate	8000-22-43
	727 Screw, Camera M2.6×3	9556-00-00
728-729	Not used	
730	Front Bracket Ass'y (Consists of 731-733)	8000-22-309
	731 Bracket, Front	8000-22-06
	732 Guide (R), Tape	8000-19-25
	733 Guide (L), Tape	8000-19-26
734-744	Not used	
745	Side Plate (R) Ass'y (Consists of 746-756)	8000-22-310
	746 Plate (R), Side	8000-22-502
	747 Pressure, Cassette	8000-19-11
	748 Not Used	
	749 Screw, Camera M2.3×2	9833-00-00
	750 Lever, Open	8000-22-25
	751 Spring, Open Lever	8000-22-44
	752 Collar, Opaen Lever	8000-22-42

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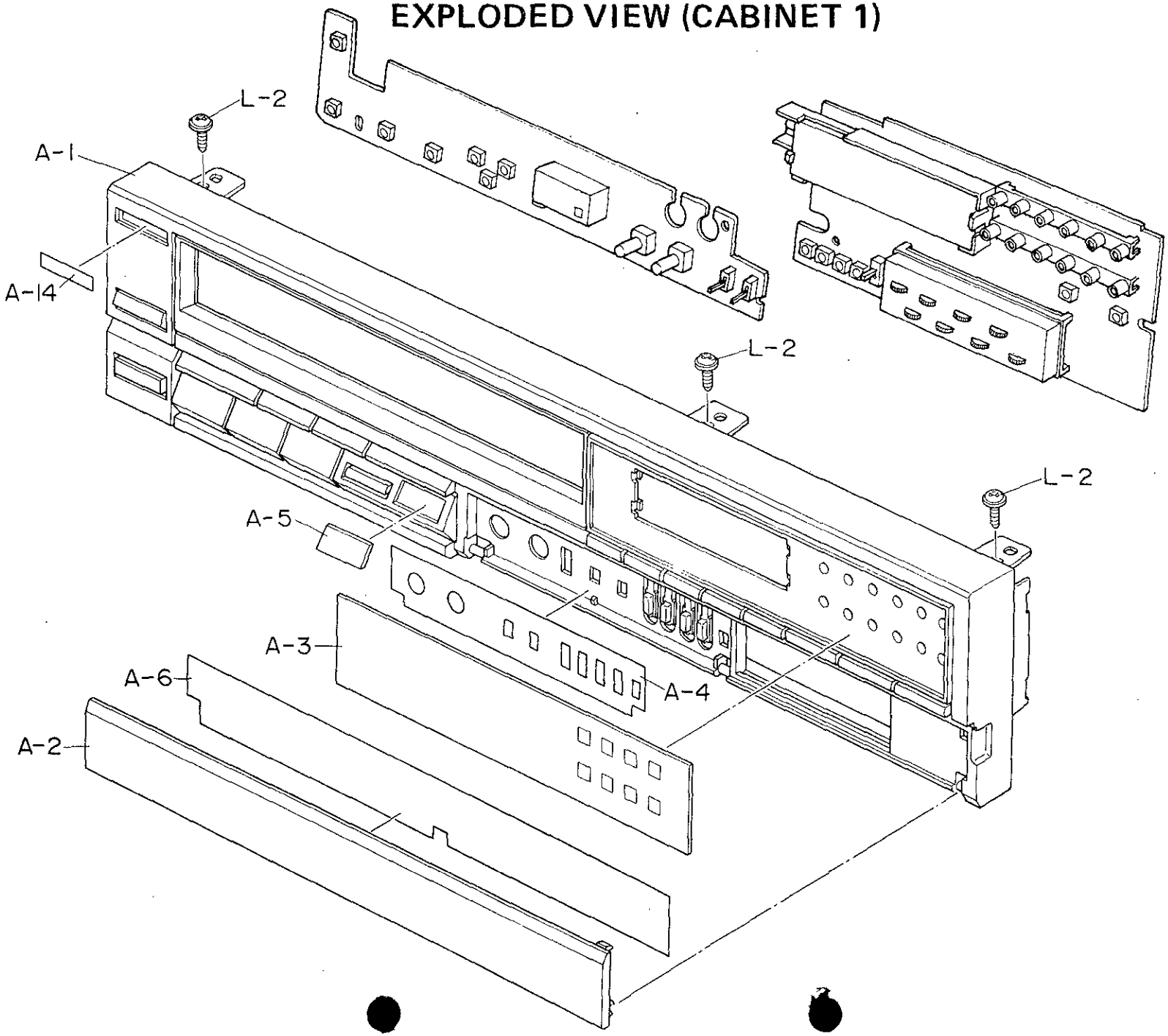
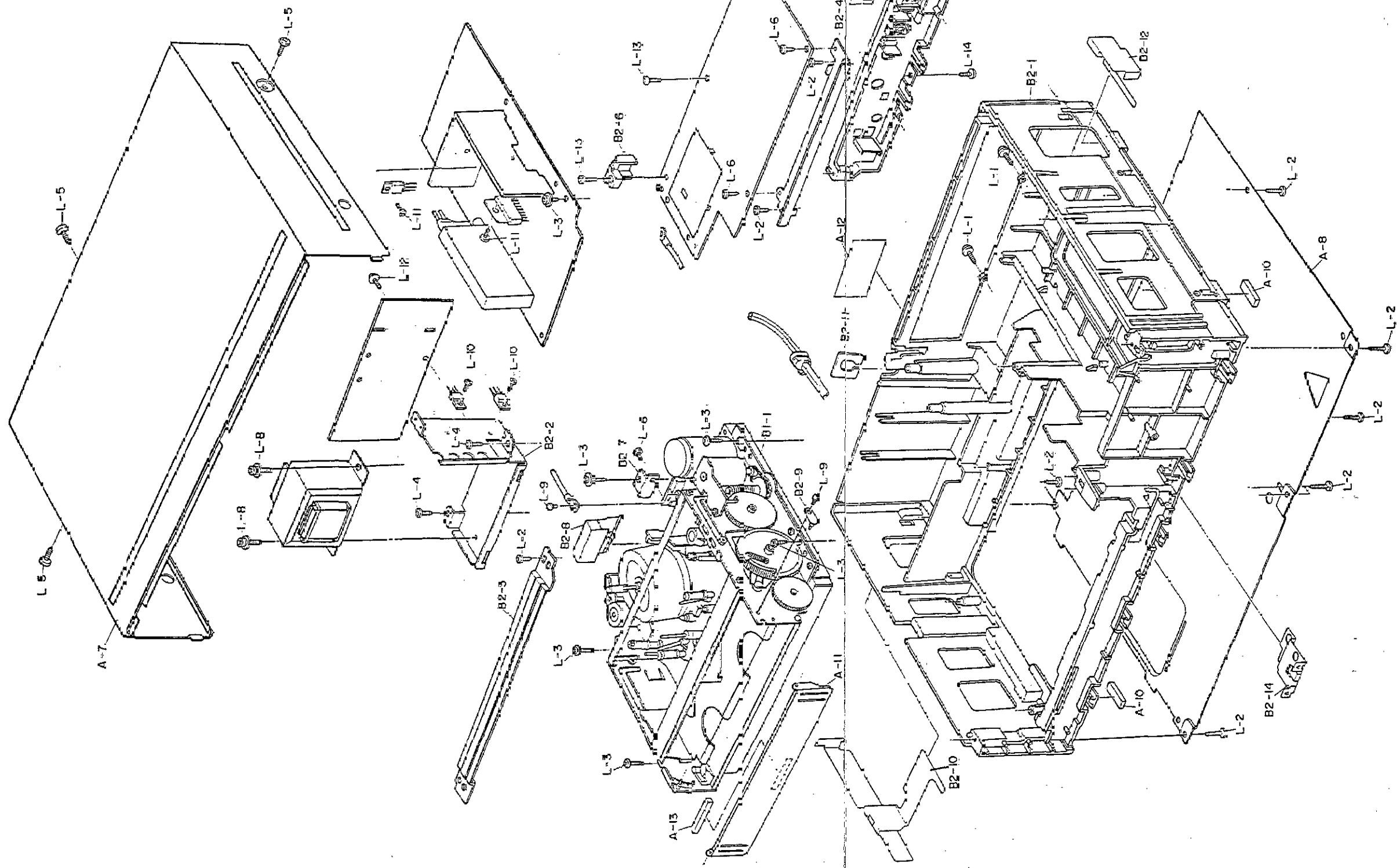
Ref.No	Description	Parts No.
	753 Screw, Camera M2×4	9551-00-00
	754 Lever, Rock Cancel	8000-22-16
	755 Roller, Guide	8000-22-23
	756 Washer,Polyslider ϕ1.6 × ϕ3.8 × t 0.3	9743-00-00
757	Stay, Top	8000-22-65
758-759	Not Used	
760	Side Plate (L) Ass'y (Consists of 761-770)	8000-22-311
	761 Plate (L), Side	8000-22-503
	762 Pressure, Cassette	8000-19-11
	763 Not Used	
	764 Screw, Camera M2.3×2	9833-00-00
	765 Lock Plate (L)	8000-19-62
	766 Spring, Lock Plate (L)	8000-19-65
	767 Collar, Lock Plate	8000-19-63
	768 Screw, Camera M2.6×2.5	9828-00-00
	769 Roller, Guide	8000-22-23
	770 Washer,Polyslider ϕ1.6 × ϕ3.8 × t 0.3	9743-00-00
771-774	Not used	
775	Housing Bracket(R)Ass'y(Consists of 776-787)	8000-22-312
	776 Bracket (R), Housing	8000-22-504
	777 Wormwheel Ass'y (Consists of 778-780)	8000-22-313
	778 Wormwheel	8000-22-20
	779 Gear, Friction	8000-22-21
	780 Spring, Friction	8000-22-48
	781 Lift Gear (R) Ass'y(Consists of 782-784)	8000-22-314
	782 Gear (R), Lift	8000-22-15
	783 Arm, Lift	8000-22-11
	784 Spring, Lift Gear	8000-22-45
	785 Guide, Open Lever	8000-22-26
	786 Sleeve, Guide	8000-22-24
	787 E-Ring ϕ2.5	9504-00-00
788-789	Not used	
790	Housing Bracket(L)Ass'y(Consists of 791-804)	8000-22-315
	791 Bracket (L), Housing	8000-22-505
	792 PCB Ass'y (L) Sensor	8000-22-321
	793-795 Not Used	
	796 Lift Gear (L) Ass'y(Consists of 797-799)	8000-22-318
	797 Gear (L), Lift	8000-22-14
	798 Arm, Lift	8000-22-11
	799 Spring, Lift Gear	8000-22-45
	800 Lever Lift	8000-22-22
	801 Spring, Lift Lever	8000-22-47
	802 Sleeve, Guide	8000-22-24

Ref.No	Description	Parts No.
803	E Ring ϕ2.5	9504-00-00
804	Screw, Sems M2.6×6	9098-00-00
805-809	Not Used	
810	Bracket, Rear	8000-22-08
811	Plate, Upper	8000-22-07
812	Shaft, Synchronize	8000-22-46
813	Gear (A), Synchronize	8000-22-34
814	E-Ring ϕ2.5	9504-00-00
815	Screw, Sems M2.6×4	9096-00-00
816	Screw, Camera M2.6×3	9556-00-00
817	Screw, Camera M2.3×2.5	9991-00-00
818	Screw, C-Tight M3 × 5	9202-00-00

EXPLODED VIEW (CABINET 1)



EXPLODED VIEW (CABINET 2)



MECHANICAL PARTS LIST (CABINET)

Ref.No	Description	Parts No.
A-1X	Front Ass'y consists of following	6A50140
A-1	Front Panel Ass'y (Non-repairable)	6A50140X
	Front	6C50128
	Button, Mode (STOP, PLAY, PAUSE/STILL, RECORD)	6D50669
	Button, FF/REW	6D50667
	Button, Eject	6D50662
	Button, Power (FUNCTION)	6D50663
	Button, Counter (VIDEO/TV, CLOCK/COUNTER, RESET MEMORY, QUICK REC)	6D50664
	Button Base	6D50668
	Button, Channel	6D50665
A-2	Door, Timer	6D50700
A-3	Plate, Channel	6E50542
A-4	Plate, Timer	6E50545
A-5	Filter, Remote Control	6E50532
A-6	Label, Tuner/Timer	6E50565
A-14	Emblem	6H50157
A-7	Case, Top	6G50061
A-8	Panel, Bottom	6G50053
A-9	Jack Board Ass'y (See Electrical Parts List)	
A-10	Foot	6E50453
A-11	Door, Cassette	6H50152
A-12	Label Type	6E50544
A-13	Rubber, Cushion	6P50032
A-15	Plate, Jack Board	6E50490
B1-1	Deck Ass'y (See Deck List)	TN-8000P306S
B2-1	Cabinet, Main	6C50114
B2-2	Holder, Transformer	6S50289
B2-3	Holder, Deck Angle	6S50294
B2-4	Holder, Video /Audio PCB	6S50295
B2-5	Hinge (A) (Large)	6N50128
B2-6	Hinge (B) (Small)	6N50129
B2-7	Holder, Deck	6S50208
B2-8	Shield, Head	6S50298
B2-9	Holder, Cassette Door	6L50062
B2-10	Plate, Ground (L)	6S50301
B2-11	Stopper, AC Cord	6S50286
B2-12	Plate, Ground (R)	6S50300
B2-13	Not used	
B2-14	Ground Plate, Control PCB	6S50299
L-1	Screw, P-Tight, Bind Head, Flange 3×12 (for Jack Board---2pcs.)	GCKP312

Ref.No	Description	Parts No.
L-2	Screw, P-Tight, Bind Head 3×10 (for Holder Deck Angel---1pc.) (for Holder, Video ／Audio PCB---2pcs.)	GBMP310
L-3	Screw, P-Tight, Brazer Head Flange 3×12 (for Deck---5pcs.) (for Syscon／Servo PCB---1pc.)	GCMP312
L-4	Screw, P-Tight, Bind Head (for Holder, Transformer---2pcs.)	GBMP412
L-6	Screw, S-Tight, Bind Head M3×6 (for Holder, Video ／Audio PCB ---2pcs.) (for Holder, Deck---1pc.)	GBMS306
L-7	Not used	
L-8	Screw, Sems, Pan Head with Flat Washer M4×8 (for Transformer --- 2pcs.)	FPM340B
L-9	Screw, Sems, Pan Head M3×5 (for Holder, Cassette Door --- 1pc.) (for Deck---1pc.)	CPM3305
L-10	Screw, Sems, Pan Head M3×6 (for Transistors --- 2pcs.)	CPM3306
L-11	Screw, Tapping, Bind Head 3×10 (for Transistors ---2pcs.)	DBM1310
L-12	Screw, S-Tight, Pan Head Flanged M3×6 (for Power Supply PCB ---1pc.)	GCMS306
L-13	Screw, P-Tight, Bind Head 3×12 (for Hinge (A) ---1pc.) (for Hinge (B) ---1pc.) (for Jack Board---1pc.)	GBMP312
L-14	Screw, Sems, Pan Head with Flat Washer M3 X 5 (for RF Convertor---1pc.)	FPM3305
	* * * Hardware Kits * * *	
L-2	Screw, P-Tight, Bind Head 3×10 (for Front Ass'y ---3pcs.) (for Panel, Bottom ---7pcs.)	GBMP310
L-5	Screw, P-Tight, Bind Head 4×12 (for Case, Top --- 3pcs.)	GBKP412
	Accessory RF Cord Remote Control Box Owner's Manual	1750665 1812026 7E50272

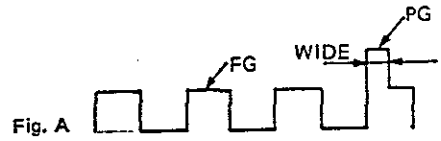
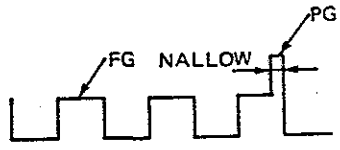
ELECTRICAL ADJUSTMENT

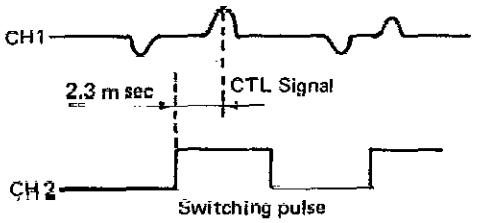
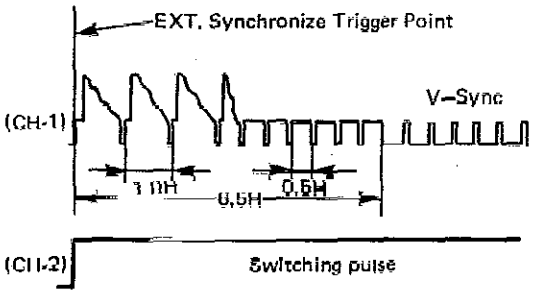
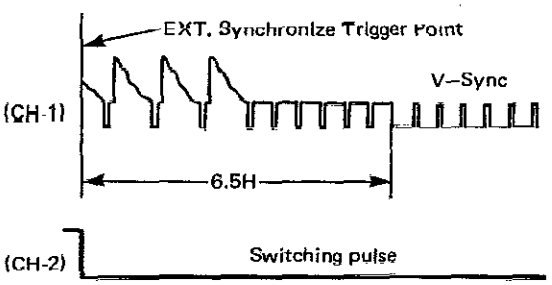
PREPARATION

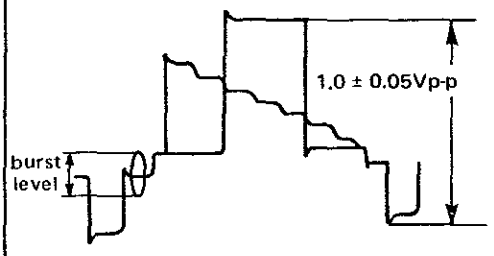
Electrical adjustments are required after replacing circuit components and certain mechanical parts. It is important to perform these adjustments only after all repairs and replacements have been completed. Also, do not attempt these adjustments unless the proper equipment is available.

REQUIRED TEST EQUIPMENT

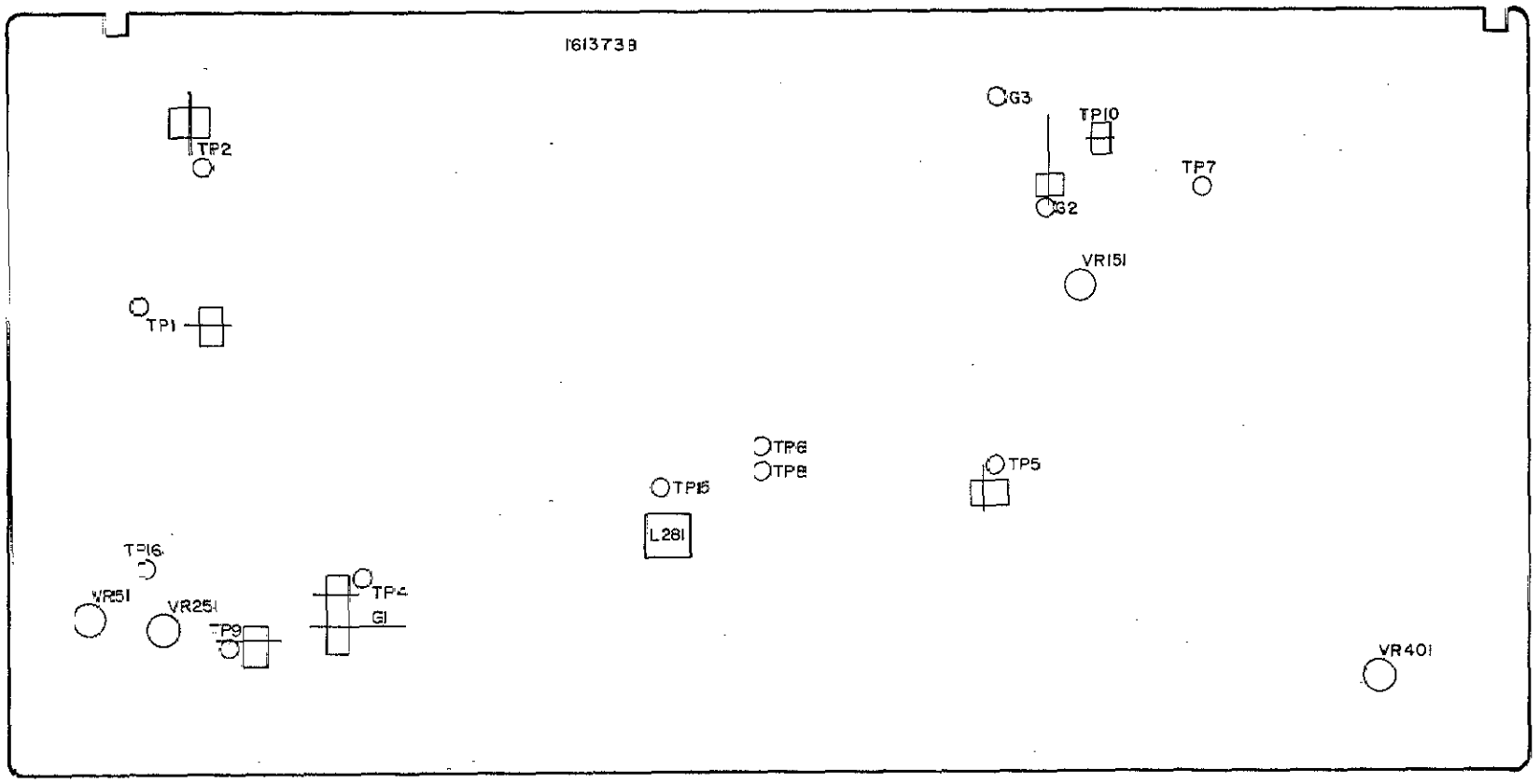
1. Oscilloscope : Dual-trace with 10 : 1 prove
2. Frequency Counter
3. Color Monitor
4. Pattern Generator
5. AC Voltmeter (RMS)
6. 75±0.1 ohm *Dummy Load*
7. Alignment Tape F6-A (Color bar with 100% white)

No.	Item	Test Point	Adjustment Point	Method	Connection Figure
1.	X'tal OSC (P.B Mode) Test tape F6-A	TP7 G2		1. Connect the equipment as shown in Fig. 1. 2. Confirm that counter indicates 4.433618 MHz ± 80Hz by frequency counter. 3. Confirm that output level is more than 0.57Vp-p by oscilloscope.	Fig. 1
2.	Timer Clock Adjustment (E-E Mode)	TP23 G20	TC501	1. Connect the equipment as shown in Fig. 2. 2. Adjust TC501 until counter indicates 524.288 kHz ± 1Hz. 3. Confirm that output level is 5Vp-p ± 0.2V by oscilloscope.	Fig. 2
3.	Drum PG/FG polarity Adjustment (P.B Mode) Test tape F6-A	TP21 TP9 G20	SW301	1. Connect the equipment as shown in Fig. 3. 2. Set the trigger of oscilloscope to (+) trigger. (*Use delay mode by oscilloscope*) 3. Select SW301 to additional signal of PG and FG becomes Fig. A . (width of PG should be wider.)  Fig. A  Fig. B	Fig. 3

No.	Item	Test Point	Adjustment Point	Method	Connection Figure
4.	CTL Preset Adjustment (P.B Mode) Test tape F6-A	TP22 TP9 G20	VR303	1. Connect the equipment as shown in Fig. 4. 2. Set the trigger of oscilloscope to (+) trigger. 3. Playback the Test tape and set the tracking volume to the center click. 4. Adjust VR303 to make a position of CTL signal where delated 2.3m sec. from switching pulse starting position. 	Fig. 4
5.	Switching Point Adjustment (P.B Mode) Test tape F6-A	TP10 TP9 G3	VR301 VR302	1. Connect the equipment as shown in Fig. 5. 2. Set the trigger of oscilloscope to (+) trigger. 3. Playback the Test tape and adjust VR301 so that the V-Sync. front edge of CH1 wavefrom comes the position where 6.5H is delayed from the rising of CH2 waveform.  4. Set the trigger of oscilloscope to (–) trigger. 5. Adjust by VR302 with the same manner. 	Fig. 5

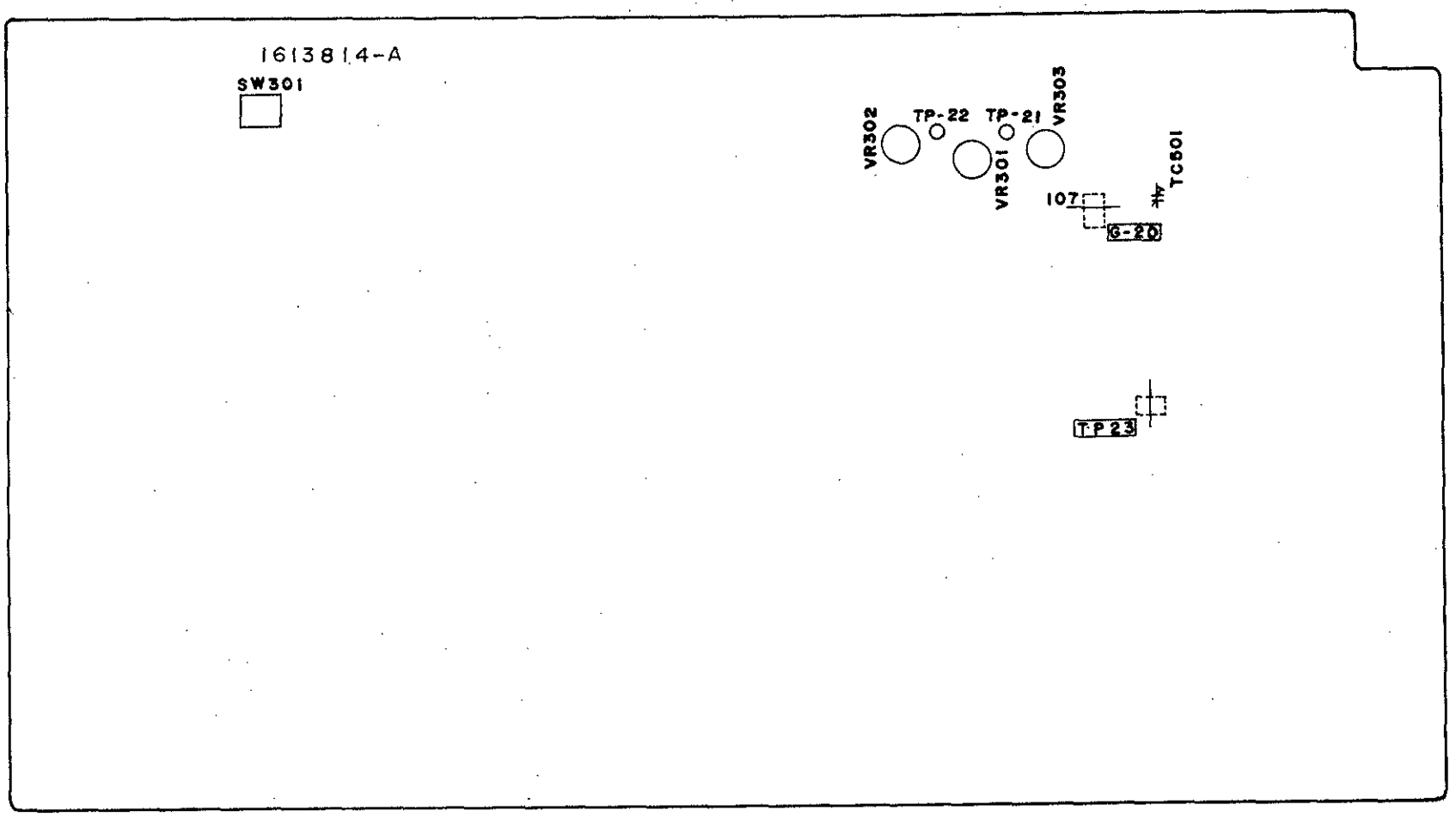
No.	Item	Test Point	Adjustment Point	Method	Connection Figure
6.	P.B Output Level Adjustment (P.B Mode) Test tape F6-A	TP10 G3	VR151	1. Connect the equipment as shown in Fig. 6. 2. Playback the Test tape and adjust output level to 1.0Vp-p ± 0.05V by VR151.  3. Confirm that burst level is 280mVp-p ± 50mV by oscilloscope.	
7.	Rec. Current Adjustment (Rec. Mode) Blank tape	TP1 G1 TP9	VR51 VR251	1. Connect the equipment as shown in Fig. 7. 2. Turn VR51 to clockwise fully. 3. Input RED only signal to VIDEO IN. 4. Adjust chroma level to 30mVp-p by VR251. 5. Adjust V-sync. level to 140mVp-p ± 10mV by VR51.	Fig. 7
8.	Audio Rec. Bias current Adjustment (Rec. Mode) Blank tape	TP13 TP14	VR401	1. Connect the equipment as shown in Fig. 8. 2. Adjust Bias level to 2.5mV (RMS) by VR401.	Fig. 8

TEST POINTS AND ALIGNMENT POINTS
Video/Audio PCB

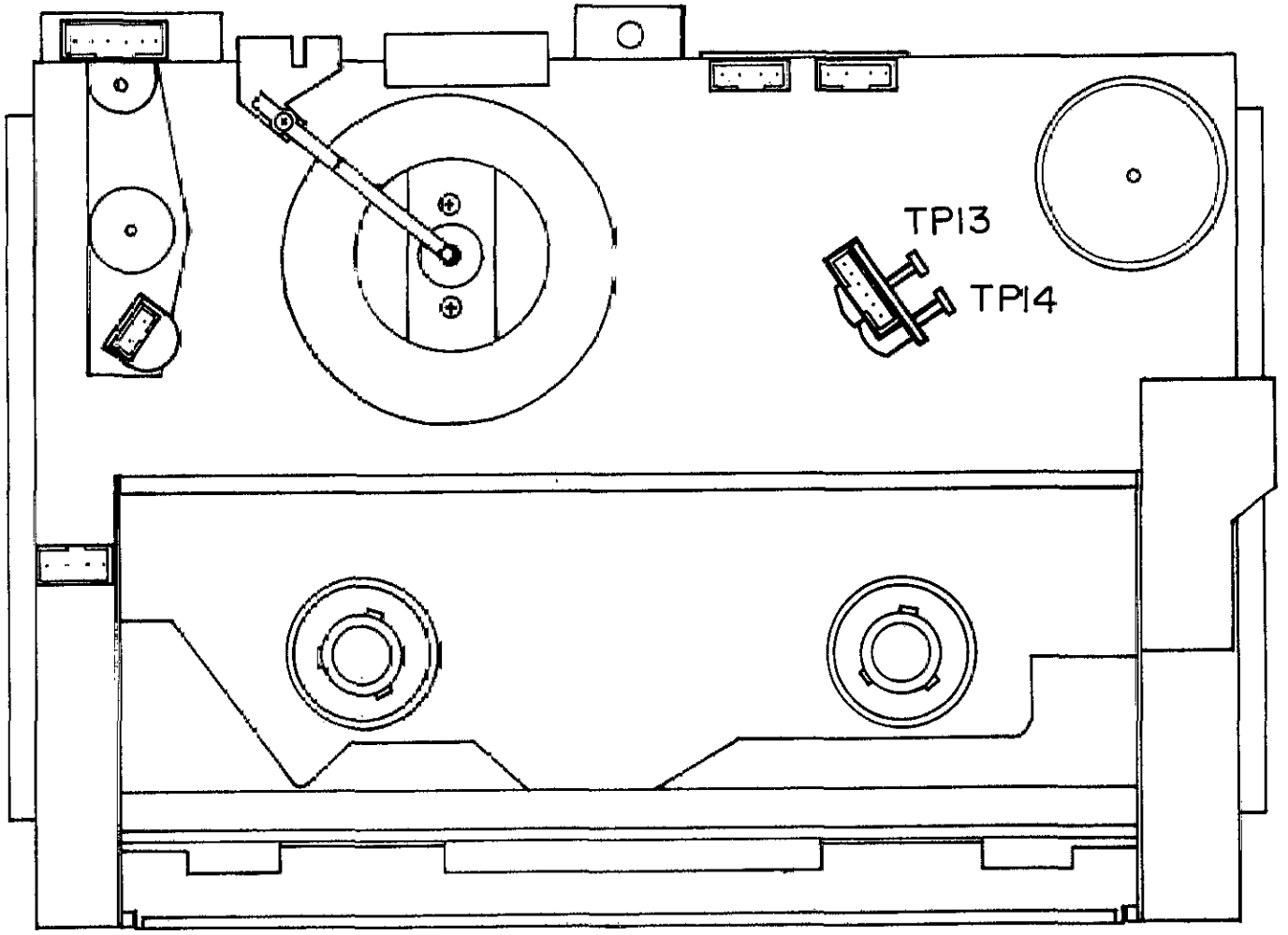


MASTER COPY
DO NOT REMOVE

TEST POINTS AND ALIGNMENT POINTS
System Control/Servo PCB



Control Head PCB



EQUIPMENT CONNECTION

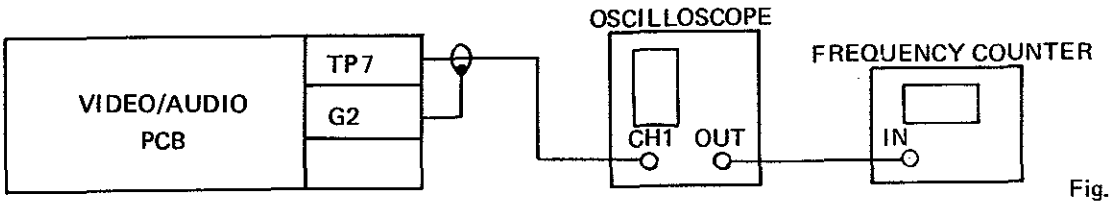


Fig. 1

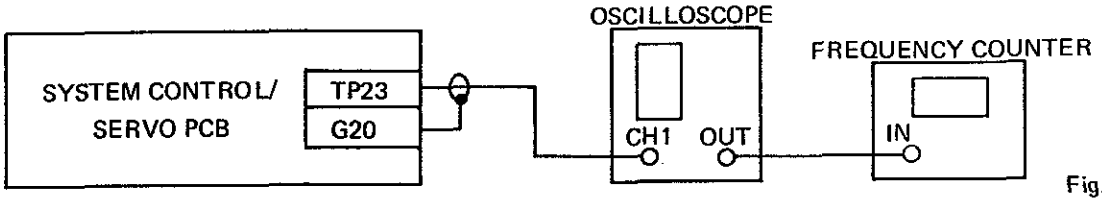


Fig. 2

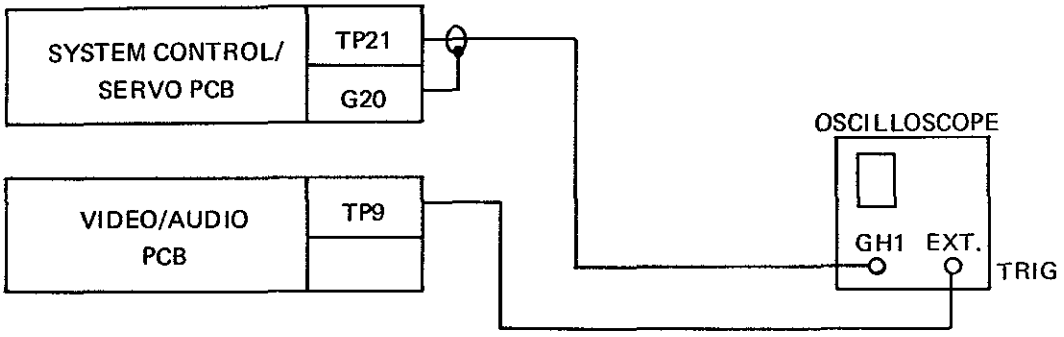


Fig. 3

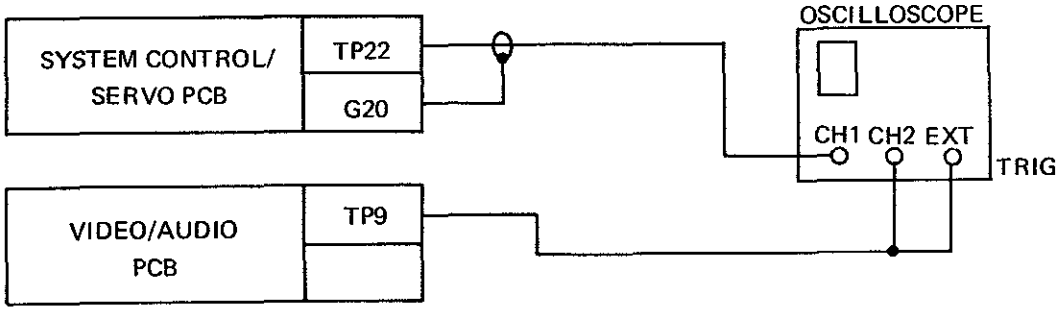


Fig. 4

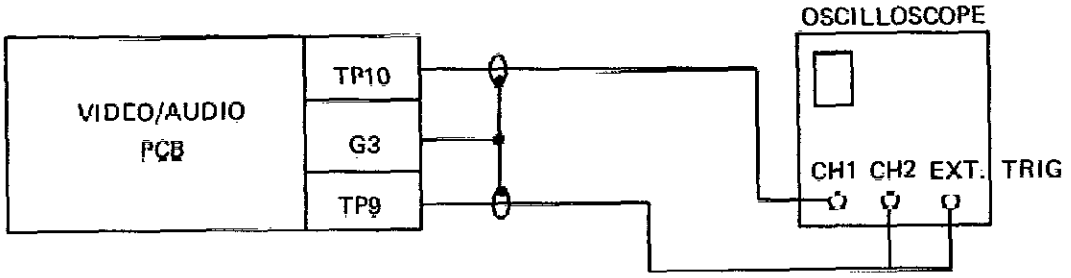


Fig. 5

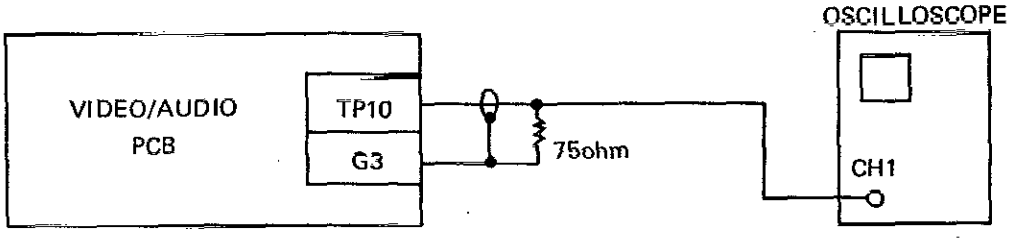


Fig. 6

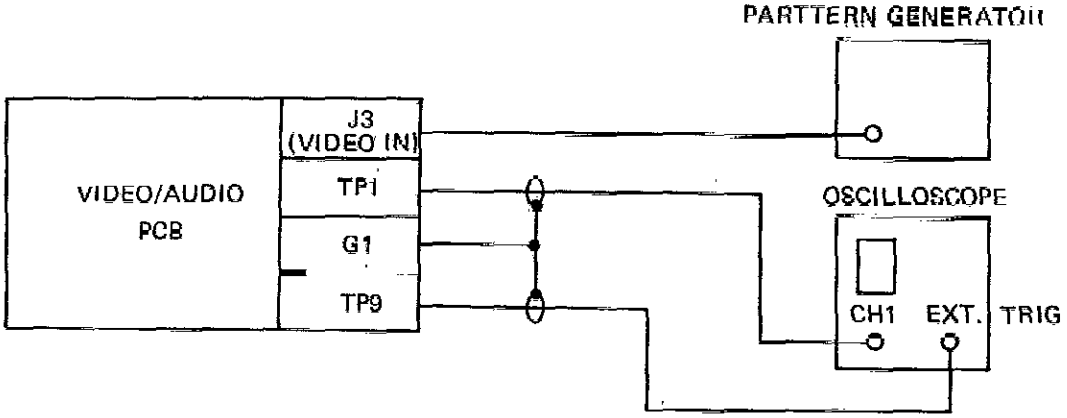


Fig. 7

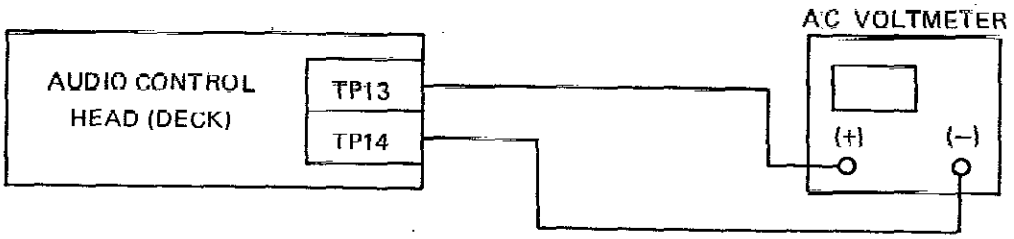


Fig. 8

TROUBLESHOOTING GUIDES

Step 1

AC power cord into power outlet.

Step 2

Push power button.

Step 3

Set TV/VCR selector button to TV.
Set TV channel selector to receive channel.

Step 4

Set TV/VCR selector button to VCR.
Set TV channel selector to RF converter channel. (3 or 4ch).
Push VCR channel selector button.

Step 5

Insert cassette tape.

Step 6

Push clock/counter button to COUNTER MODE "0000".
Push counter RESET/MEMORY button to "0000 MEMO".
Push REC. button.

Step 7

Set tape speed to SP or LP.

Step 8

Tape is automatically rewound and EJECTED and will be Power OFF when it reached tape end.

Step 9

Push PAUSE button during recording.

Step 10

Push STOP button during recording.

Step 11

Push REW (F.F.) button.

Step 12

VCR is automatically STOP when counter shows "0000".

Step 13

Push PLAY button.

Step 14

Check Picture during playback.

Step 15

Check the Sound during playback.

Step 16

Check the special variable speed playback.

Step 17

Push STOP button during playback.
Push EJECT button.

Step 18

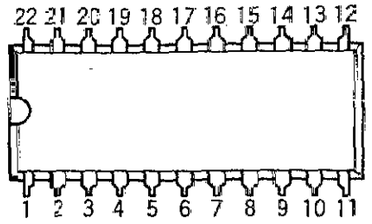
Set power button to OFF.

END

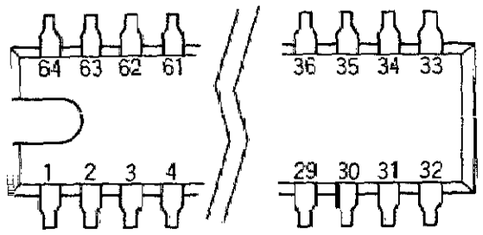
Step 19

Check SYSTEM CONTROL IC.

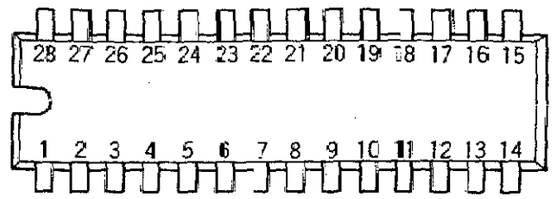
LEAD IDENTIFICATION 2 (IC, Transistor)



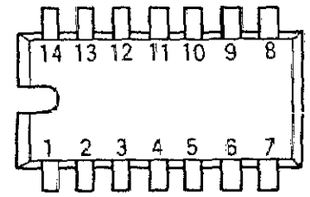
LA7090



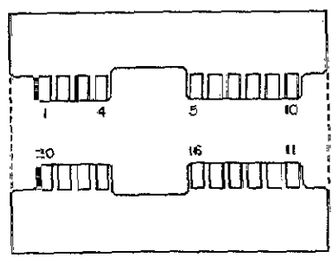
14DN232A
14DN233



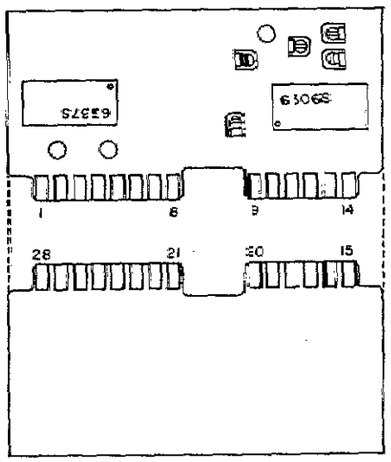
11DN210



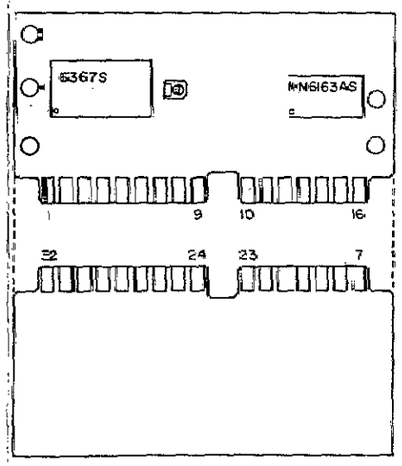
AN6368



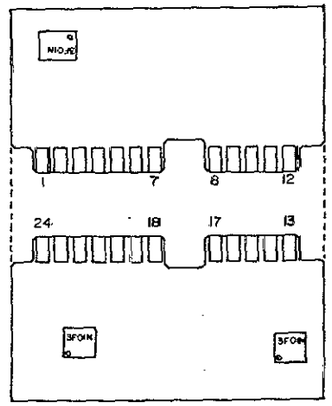
1810873
(REC)
HIC-1



1810939
(VIDEO-Y)
HIC-101

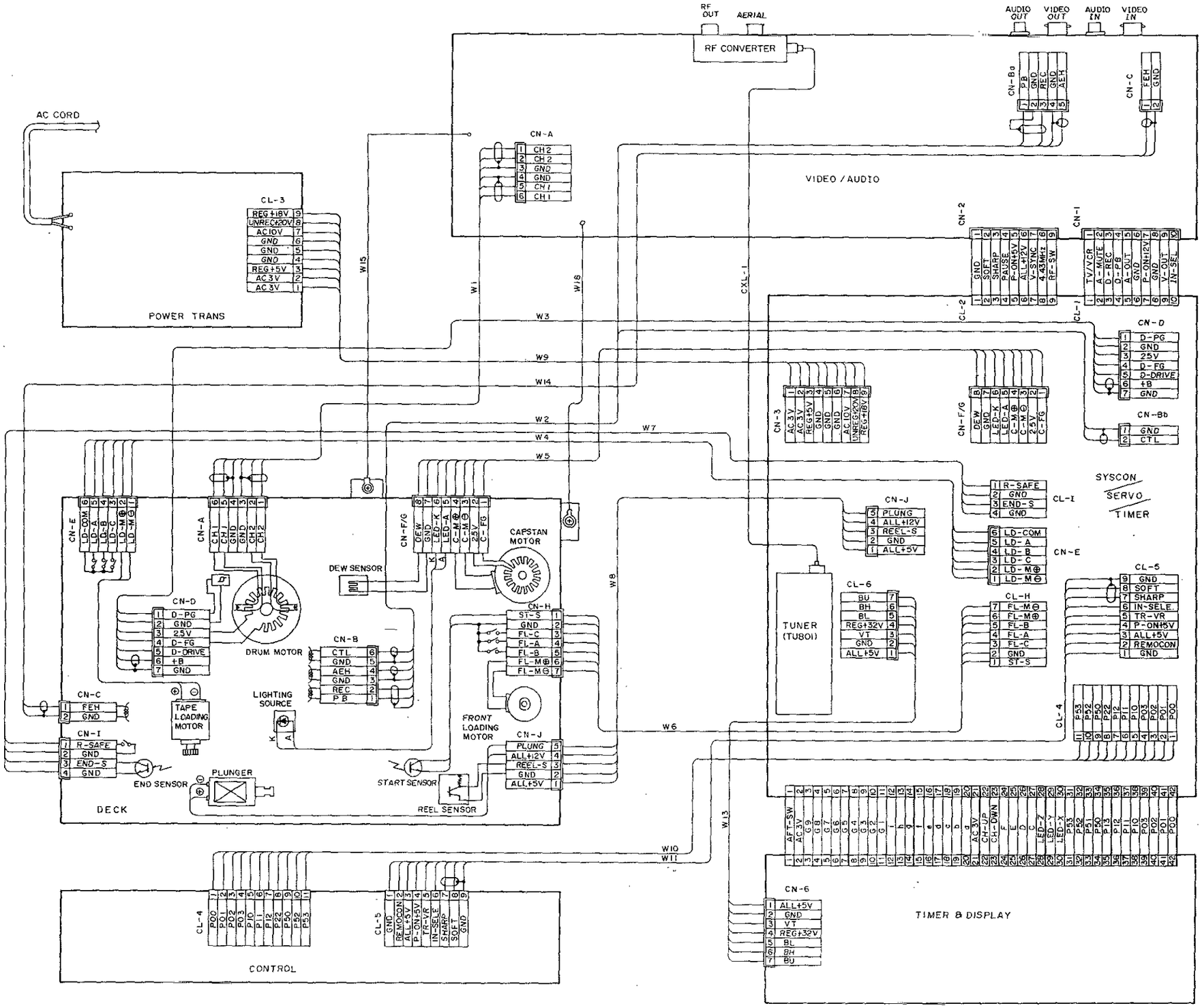


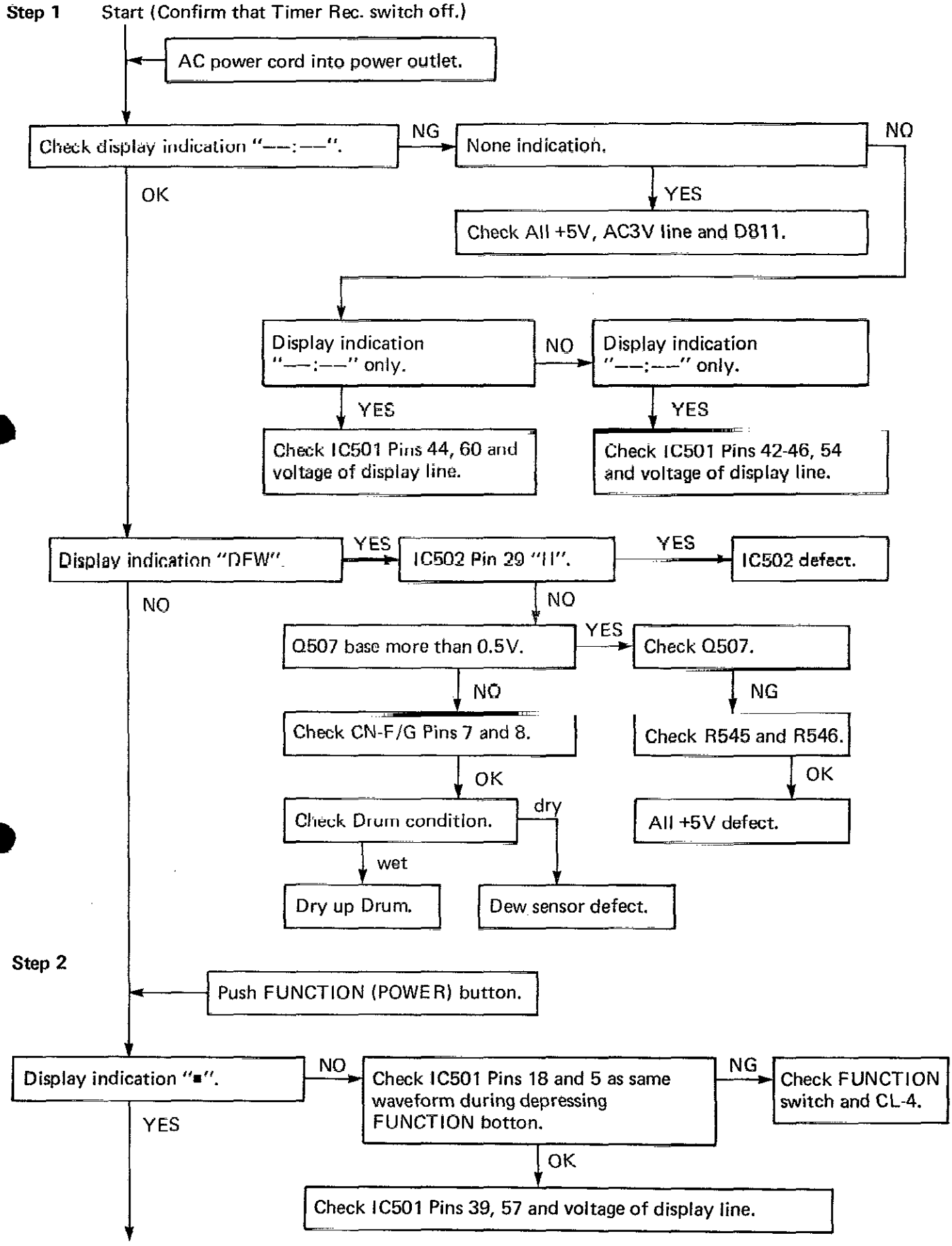
1810938
(VIDEO-C)
HIC-201

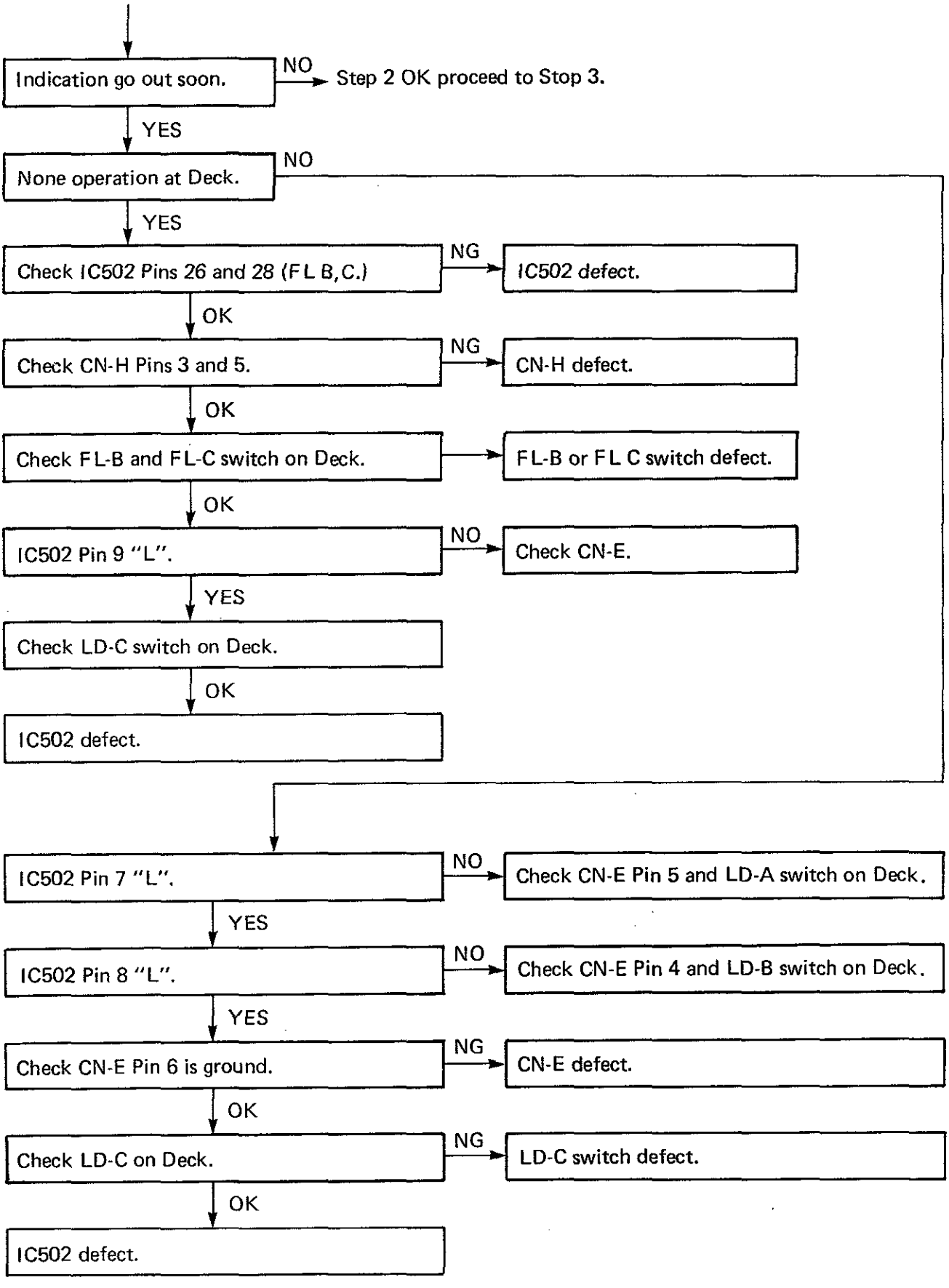


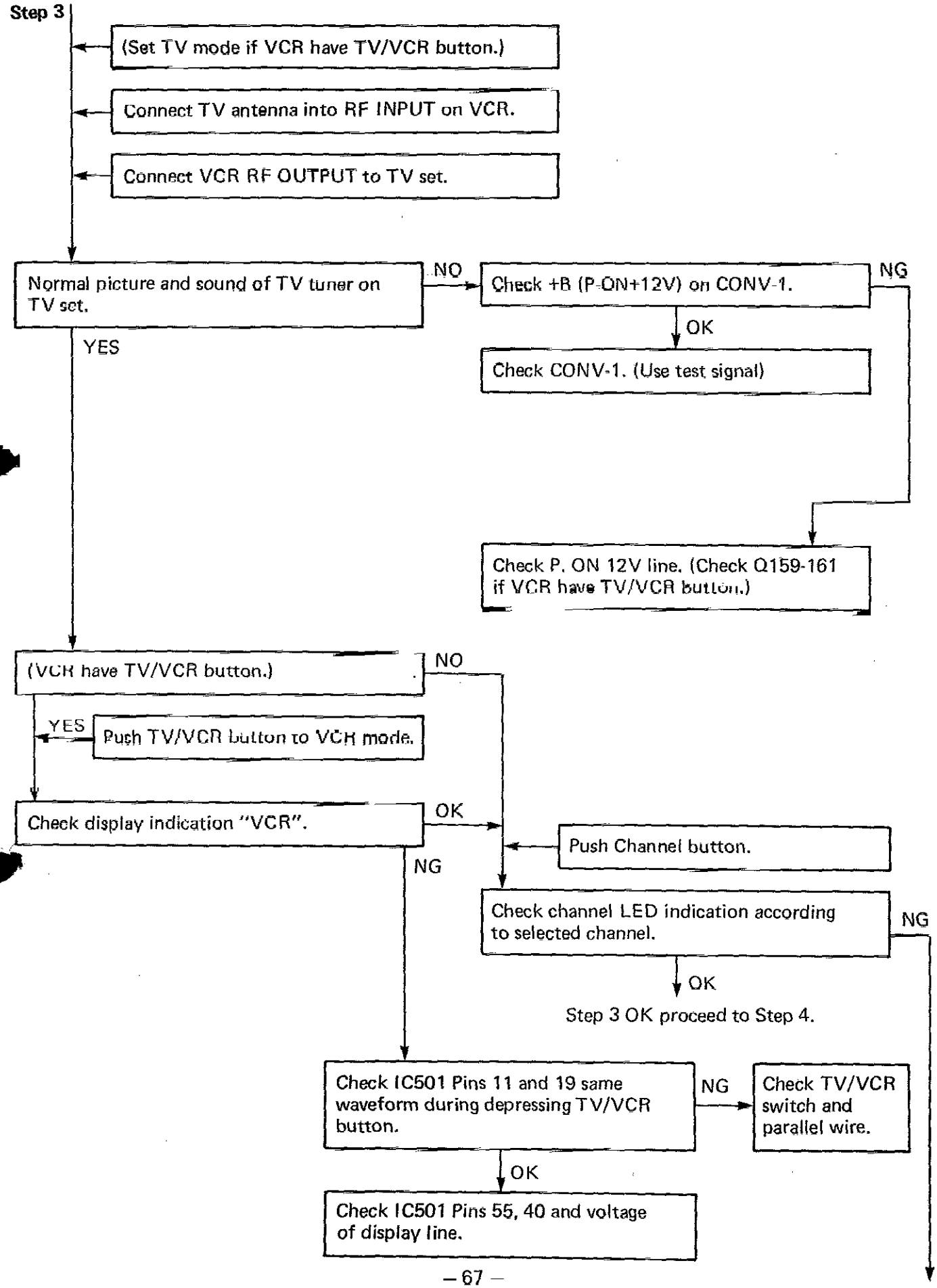
1810946
(SERVO)
HIC-301

WIRING DIAGRAM




Step 1
Start (Confirm that Timer Rec. switch off.)
AC power cord into power outlet.
Check display indication "—:—".
NG
None indication.
NO
YES
Check All +5V, AC3V line and D811.
OK
Display indication "—:—" only.
NO
Display indication "—:—" only.
YES
YES
Check IC501 Pins 44, 60 and voltage of display line.
Check IC501 Pins 42-46, 54 and voltage of display line.
Display indication "DFW".
YES
IC502 Pin 29 "H".
YES
IC502 defect.
NO
NO
Q507 base more than 0.5V.
YES
Check Q507.
NO
NG
Check CN-F/G Pins 7 and 8.
Check R545 and R546.
OK
OK
Check Drum condition.
dry
All +5V defect.
wet
Dry up Drum.
Dew sensor defect.
Step 2
Push FUNCTION (POWER) button.
Display indication "■".
NO
Check IC501 Pins 18 and 5 as same waveform during depressing FUNCTION botton.
NG
Check FUNCTION switch and CL-4.
YES
OK
Check IC501 Pins 39, 57 and voltage of display line.


Indication go out soon.
NO
Step 2 OK proceed to Stop 3.
YES
None operation at Deck.
NO
YES
Check IC502 Pins 26 and 28 (FL B,C.)
NG
IC502 defect.
OK
Check CN-H Pins 3 and 5.
NG
CN-H defect.
OK
Check FL-B and FL-C switch on Deck.
FL-B or FL C switch defect.
OK
IC502 Pin 9 "L".
NO
Check CN-E.
YES
Check LD-C switch on Deck.
OK
IC502 defect.
IC502 Pin 7 "L".
NO
Check CN-E Pin 5 and LD-A switch on Deck.
YES
IC502 Pin 8 "L".
NO
Check CN-E Pin 4 and LD-B switch on Deck.
YES
Check CN-E Pin 6 is ground.
NG
CN-E defect.
OK
Check LD-C on Deck.
NG
LD-C switch defect.
OK
IC502 defect.


Step 3
(Set TV mode if VCR have TV/VCR button.)
Connect TV antenna into RF INPUT on VCR.
Connect VCR RF OUTPUT to TV set.
Normal picture and sound of TV tuner on TV set.
NO
Check +B (P-ON+12V) on CONV-1.
NG
OK
Check CONV-1. (Use test signal)
YES
Check P. ON 12V line. (Check Q159-161 if VCR have TV/VCR button.)
(VCR have TV/VCR button.)
NO
YES
Push TV/VCR button to VCR mode.
Check display indication "VCR".
OK
NG
Push Channel button.
Check channel LED indication according to selected channel.
NG
OK
Step 3 OK proceed to Step 4.
Check IC501 Pins 11 and 19 same waveform during depressing TV/VCR button.
NG
Check TV/VCR switch and parallel wire.
OK
Check IC501 Pins 55, 40 and voltage of display line.

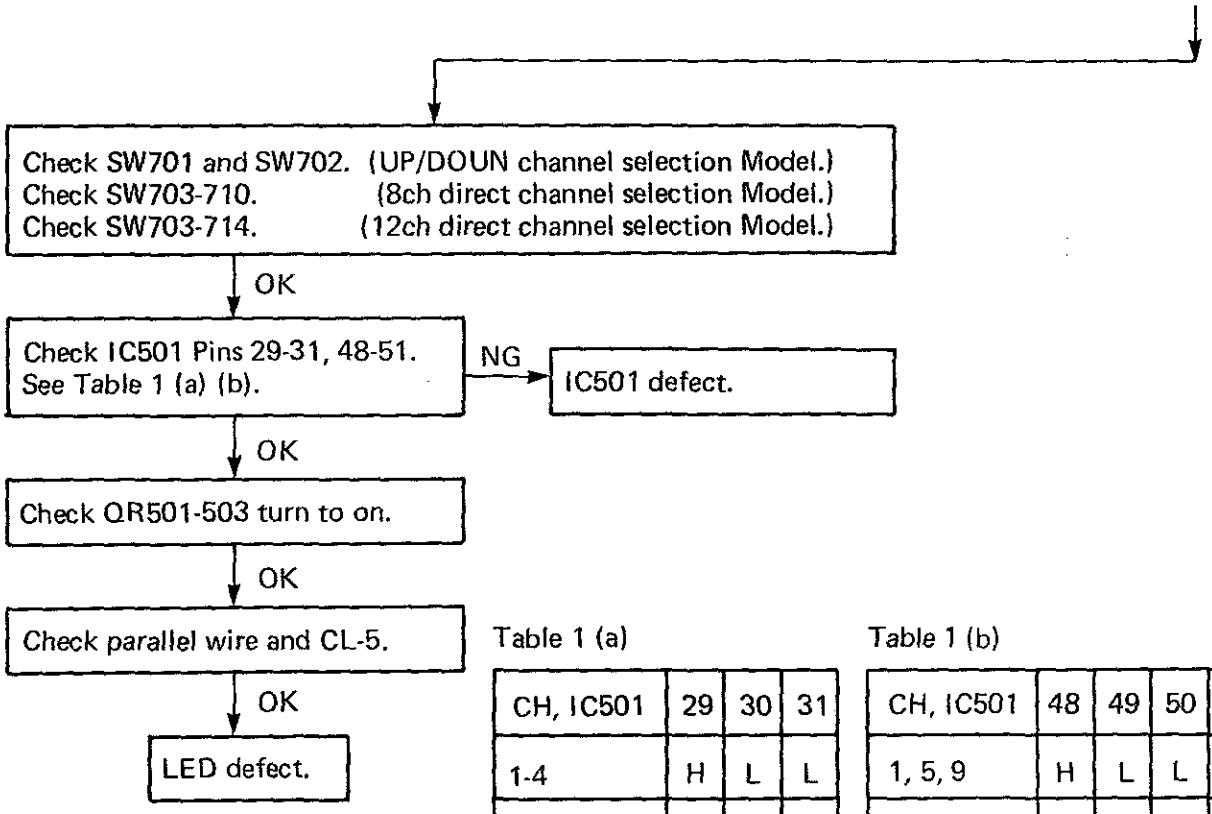


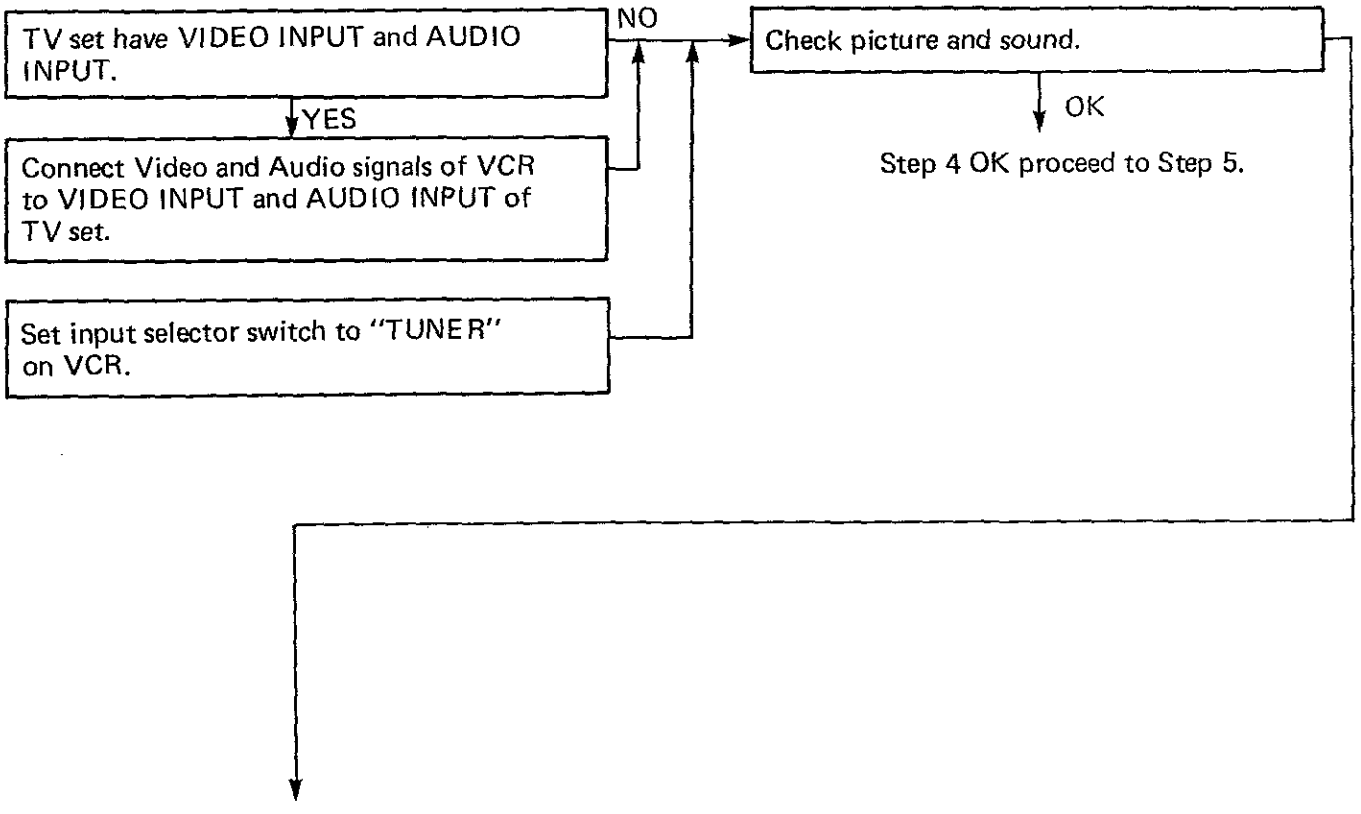
Table 1 (a)

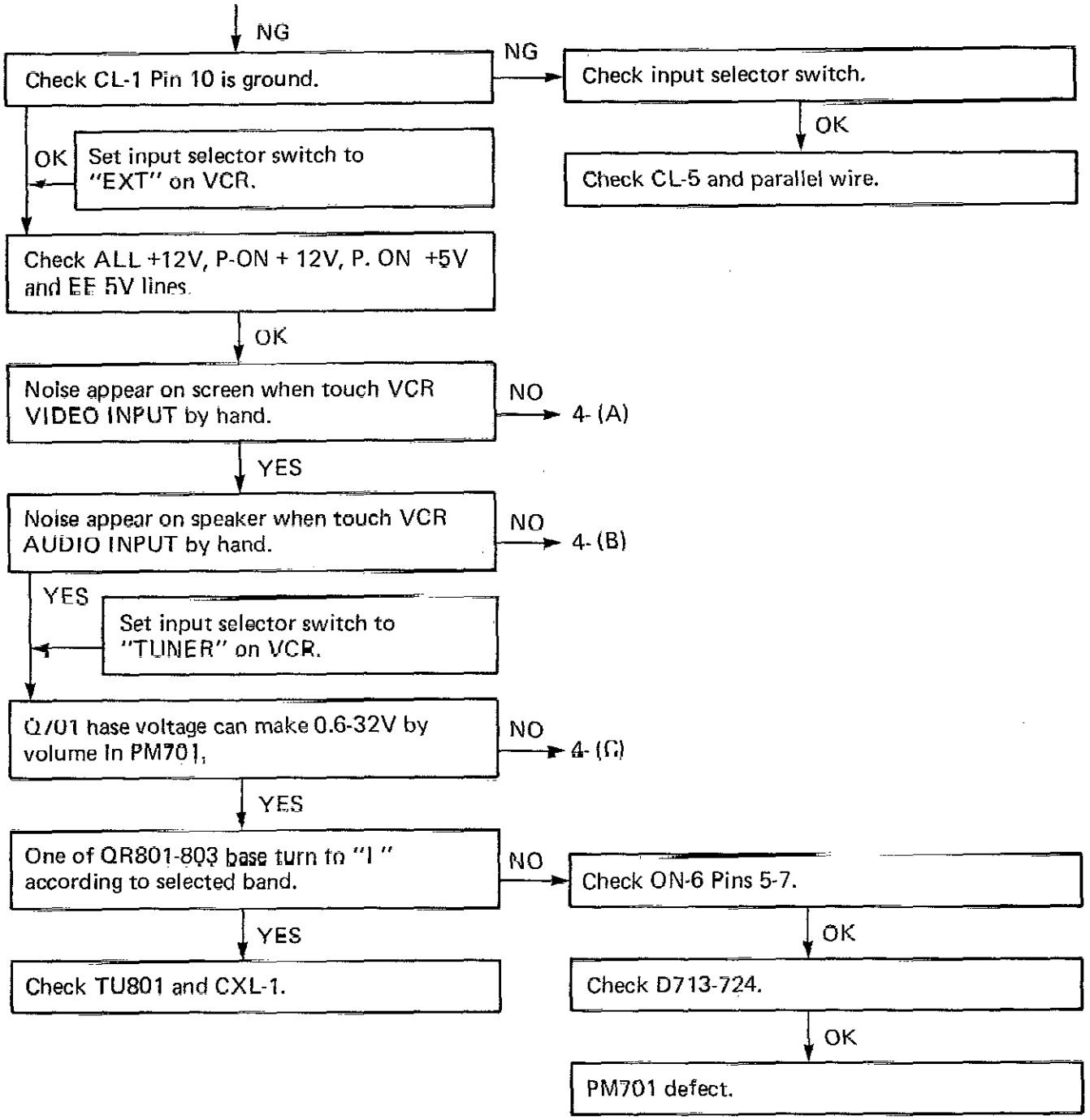
CH, IC501	29	30	31
1-4	H	L	L
5-8	L	H	L
9-12	L	L	H

Table 1 (b)

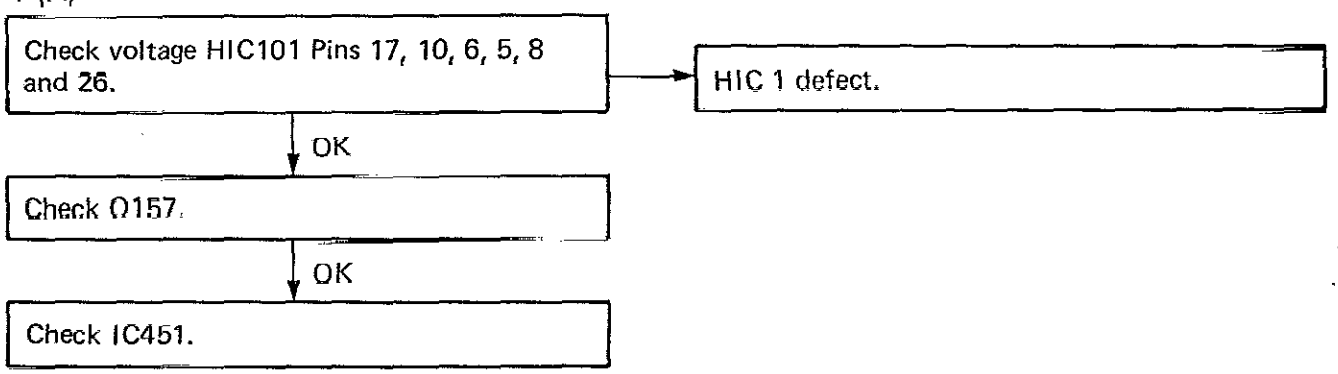
CH, IC501	48	49	50	51
1, 5, 9	H	L	L	L
2, 6, 10	L	H	L	L
3, 7, 11	L	L	H	L
4, 8, 12	L	L	L	H

Step 4

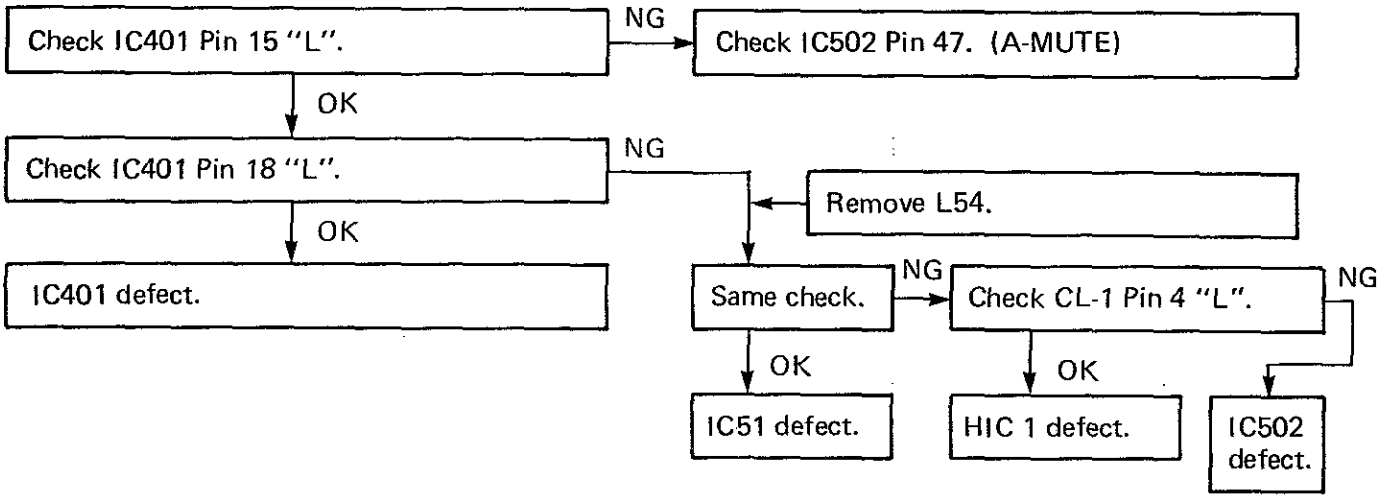



NG
Check CL-1 Pin 10 is ground.
NG
Check input selector switch.
OK
Check CL-5 and parallel wire.
OK
Set input selector switch to "EXT" on VCR.
Check ALL +12V, P-ON + 12V, P. ON +5V and EE 5V lines.
OK
Noise appear on screen when touch VCR VIDEO INPUT by hand.
NO
4-(A)
YES
Noise appear on speaker when touch VCR AUDIO INPUT by hand.
NO
4-(B)
YES
Set input selector switch to "TUNER" on VCR.
Q701 base voltage can make 0.6-32V by volume in PM701.
NO
4-(C)
YES
One of QR801-803 base turn to "L" according to selected band.
NO
Check CN-6 Pins 5-7.
YES
Check TU801 and CXL-1.
OK
Check D713-724.
OK
PM701 defect.

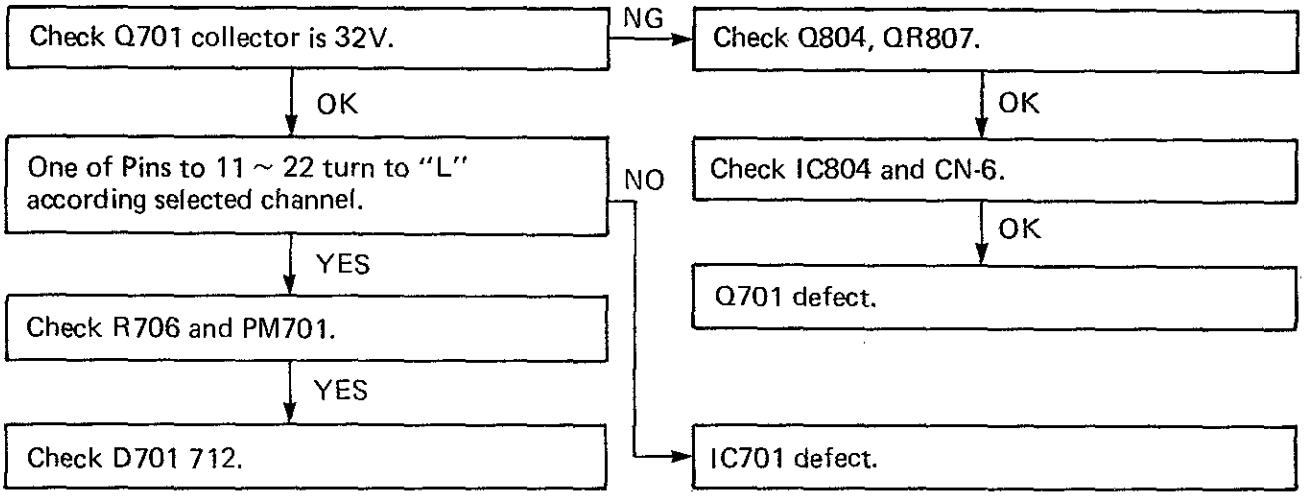
4-(A)


Check voltage HIC101 Pins 17, 10, 6, 5, 8 and 26.
HIC 1 defect.
OK
Check Q157.
OK
Check IC451.

4- (B)



4- (C)



Step 5

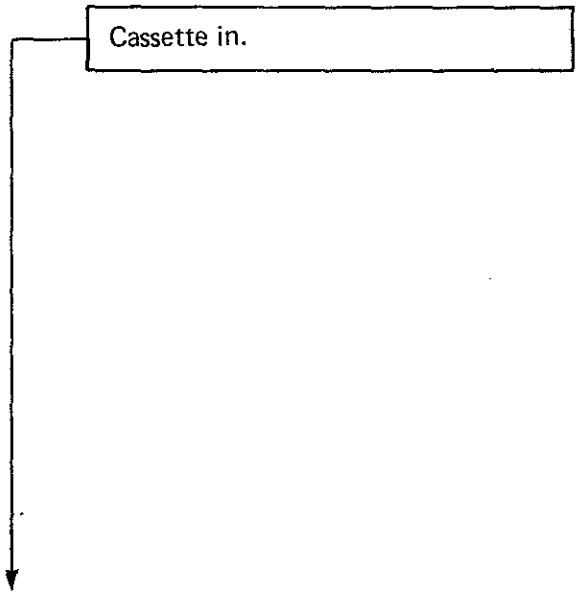


Table 2- (a)

FL-A (27)	"L" at ON CASSETTE IN detection.
FL-A (26)	"L" at ON CASSETTE UP detection.
FL-A (28)	"L" at ON CASSETTE DOWN detection.

Table 2- (b)

FL-A (27)	FL-A (27)	FL-A (27)	FL-A (27)
H	L	H	OUT
H	H	L	IN

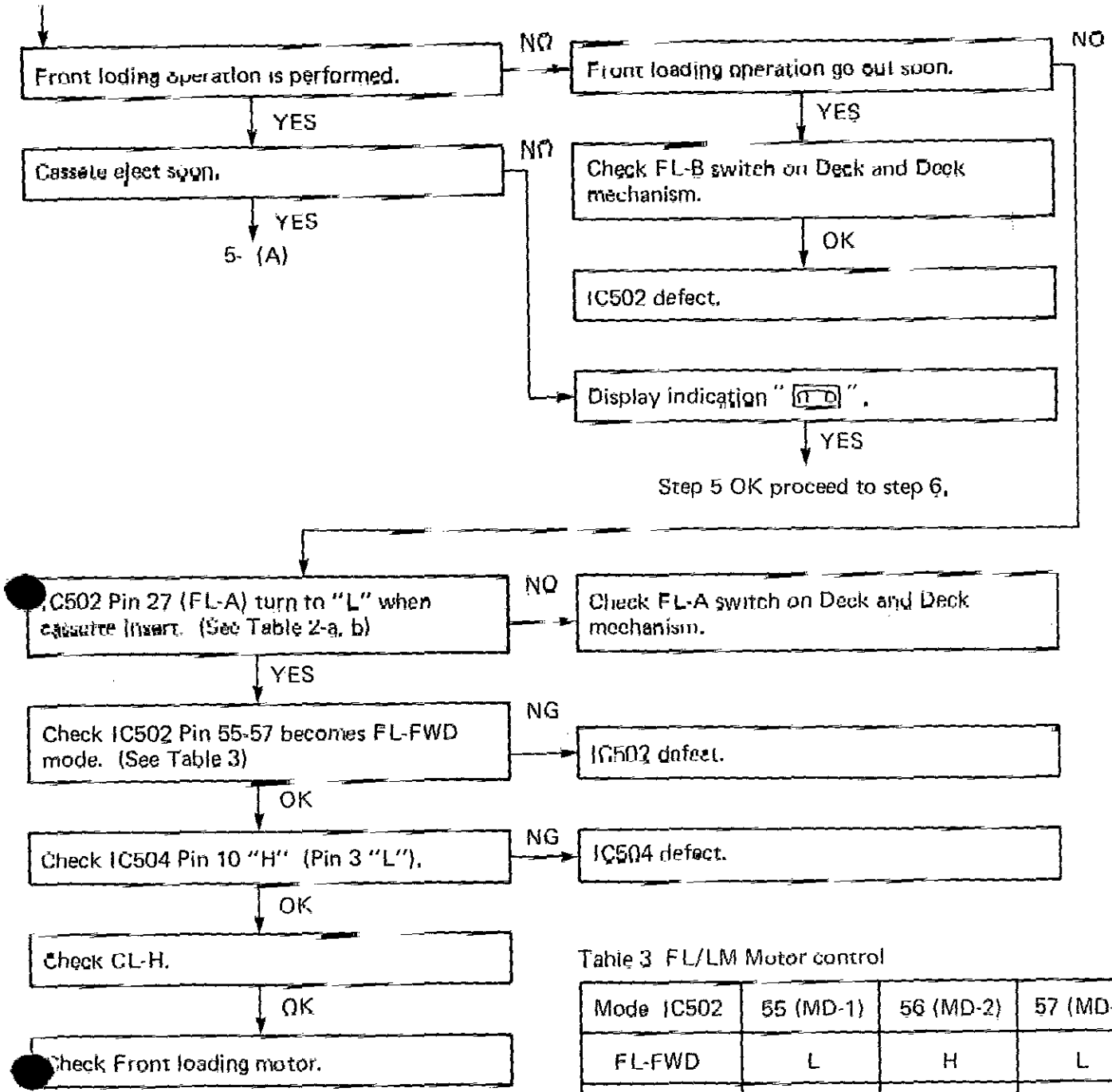
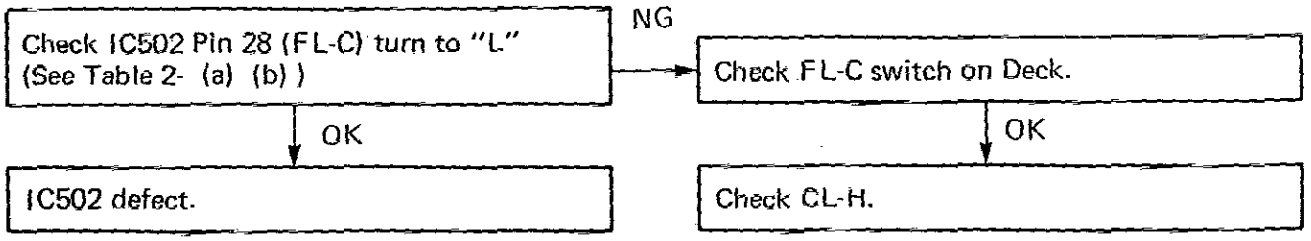


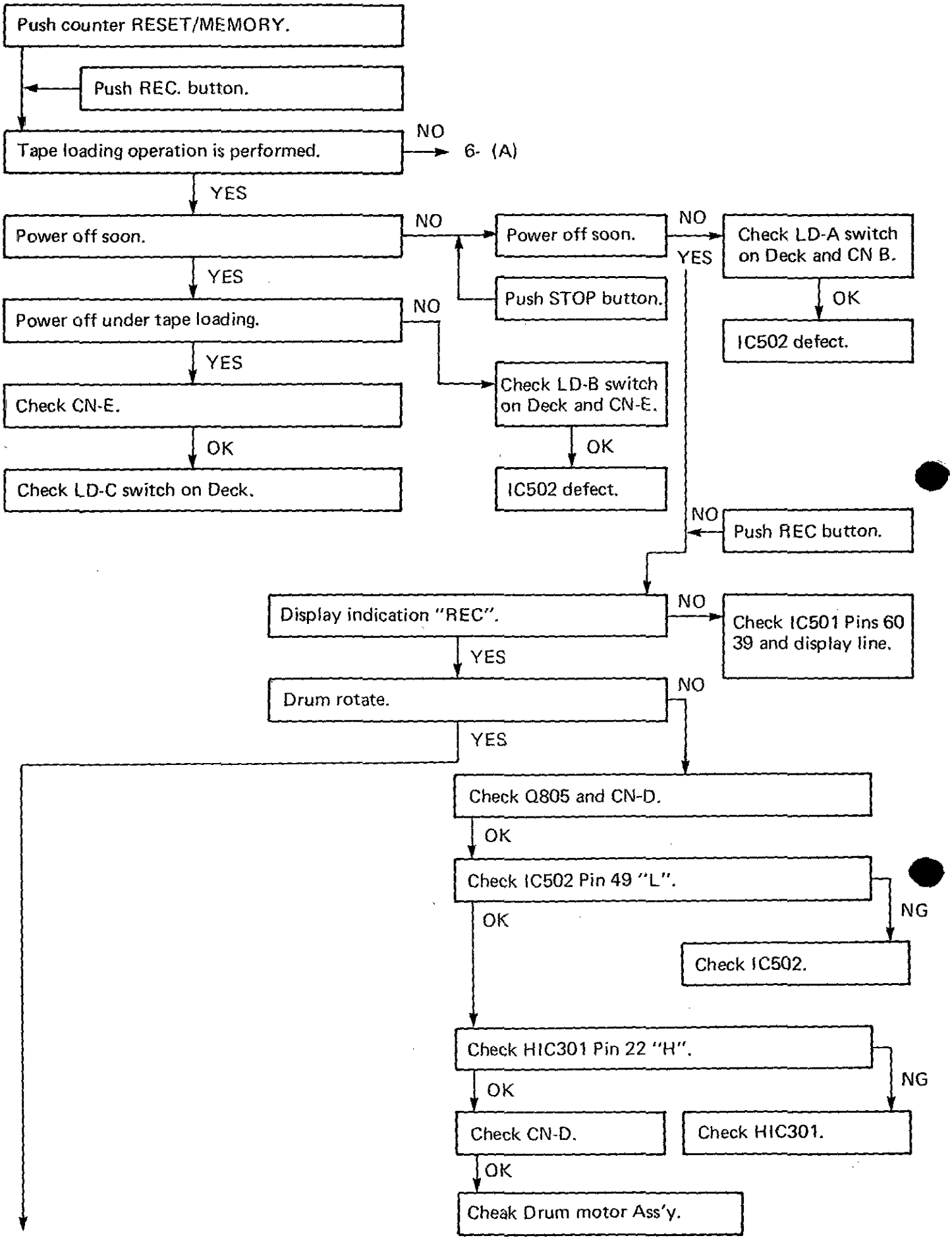
Table 3 FL/LM Motor control

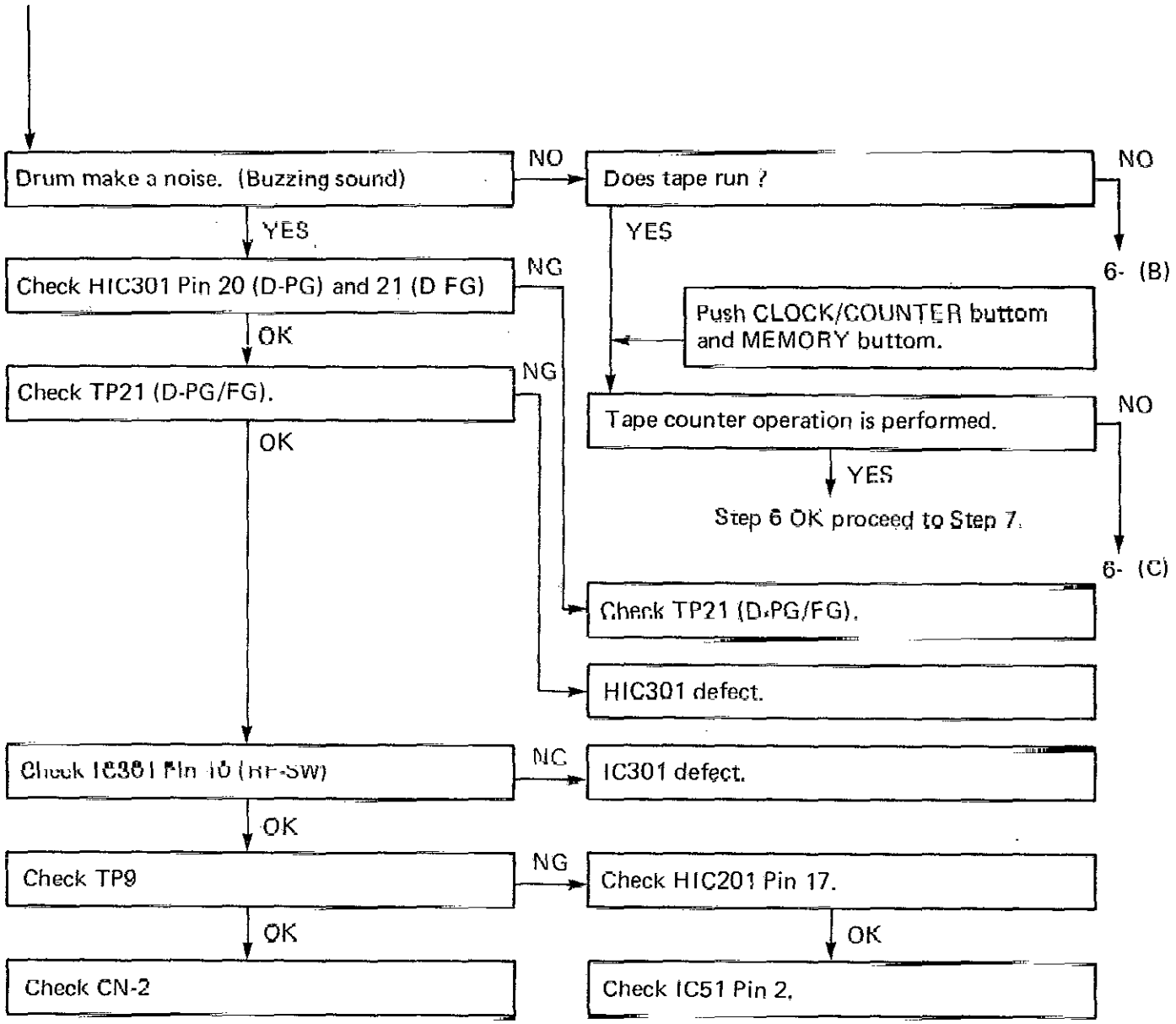
Mode IC502	55 (MD-1)	56 (MD-2)	57 (MD-3)
FL-FWD	L	H	L
FL-REV	L	H	H
LM-FWD	H	L	L
LM-REV	H	L	H
LM/FL Brake	H (L)	H (L)	H (L)

5- (A)

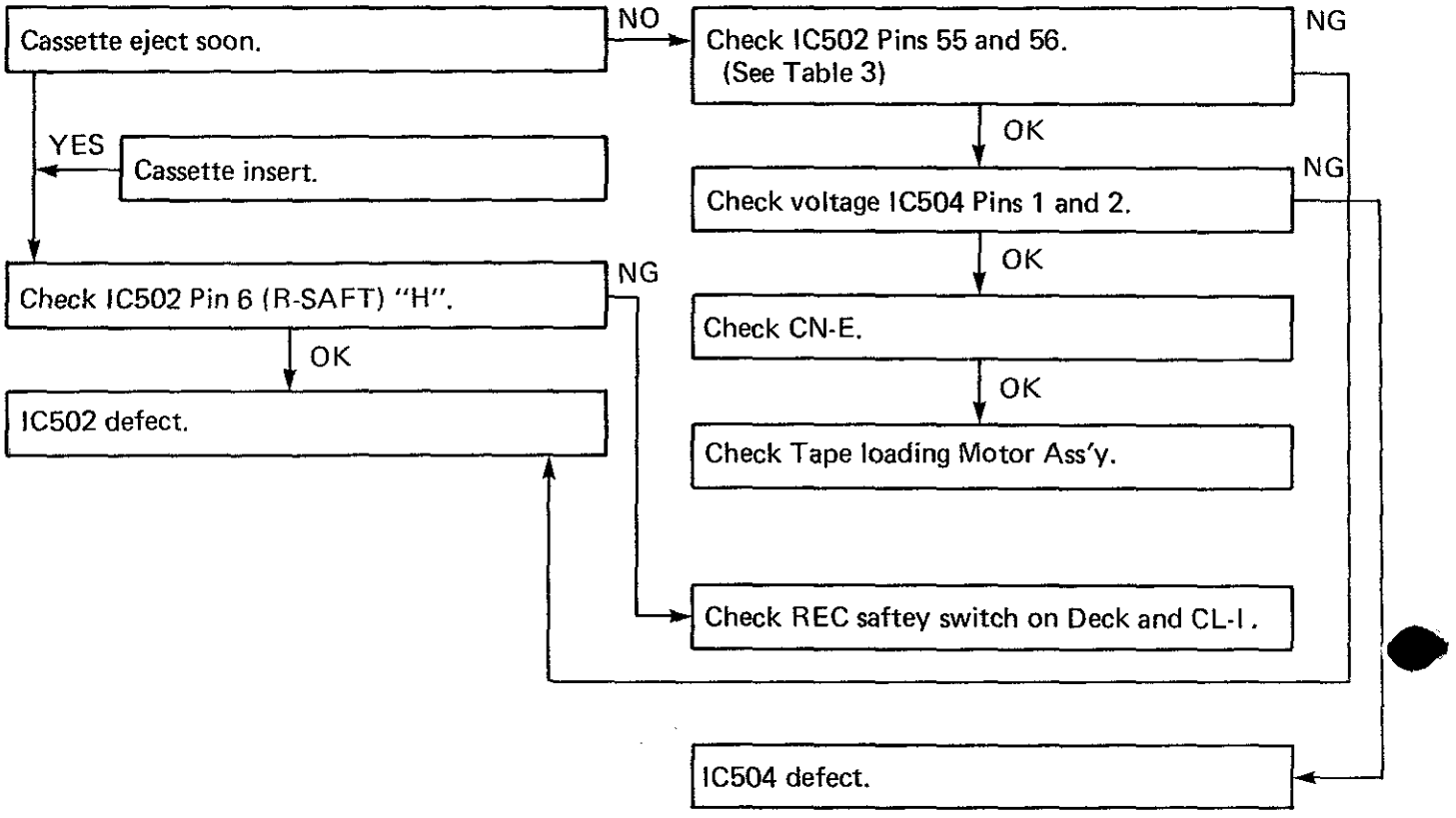


Step 6

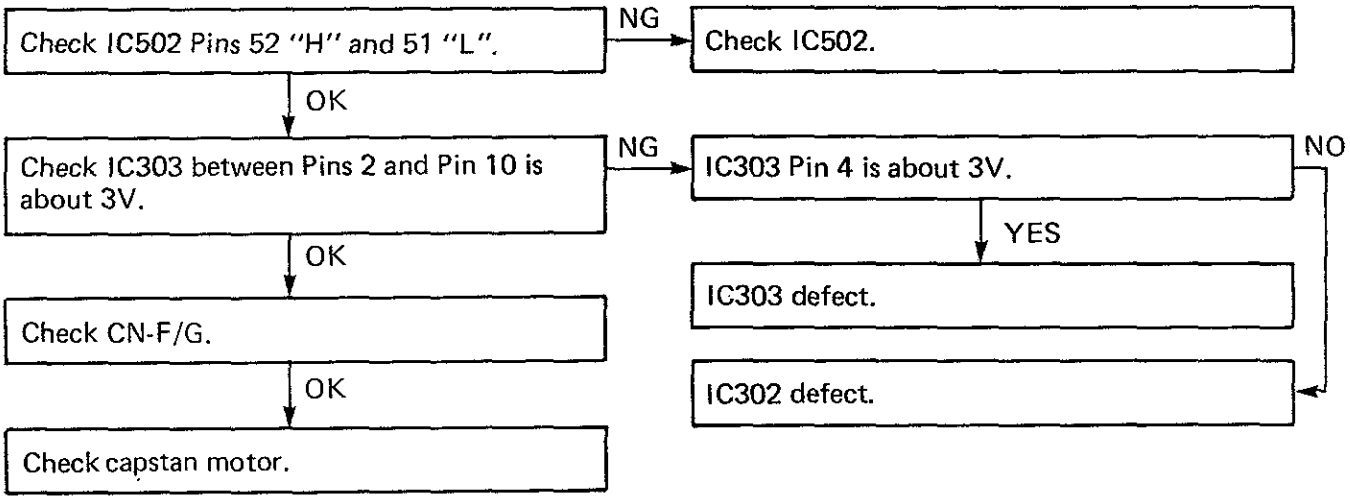

Push counter RESET/MEMORY.
Push REC. button.
Tape loading operation is performed.
NO
6- (A)
YES
Power off soon.
NO
Power off soon.
NO
Check LD-A switch on Deck and CN B.
YES
YES
Push STOP button.
OK
IC502 defect.
Power off under tape loading.
NO
YES
Check LD-B switch on Deck and CN-E.
Check CN-E.
OK
OK
Check LD-C switch on Deck.
IC502 defect.
NO
Push REC button.
Display indication "REC".
NO
Check IC501 Pins 60 39 and display line.
YES
Drum rotate.
NO
YES
Check Q805 and CN-D.
OK
Check IC502 Pin 49 "L".
NG
OK
Check IC502.
Check HIC301 Pin 22 "H".
NG
OK
Check CN-D.
Check HIC301.
OK
Cheak Drum motor Ass'y.


Drum make a noise. (Buzzing sound)
NO
Does tape run ?
NO
YES
6- (B)
YES
Check HIC301 Pin 20 (D-PG) and 21 (D FG)
NG
Push CLOCK/COUNTER buttom and MEMORY buttom.
OK
Check TP21 (D-PG/FG).
NG
Tape counter operation is performed.
NO
OK
YES
Step 6 OK proceed to Step 7.
6- (C)
Check TP21 (D-PG/FG).
HIC301 defect.
Check IC301 Pin 10 (RF-SW)
NG
IC301 defect.
OK
Check TP9
NG
Check HIC201 Pin 17.
OK
OK
Check CN-2
Check IC51 Pin 2.

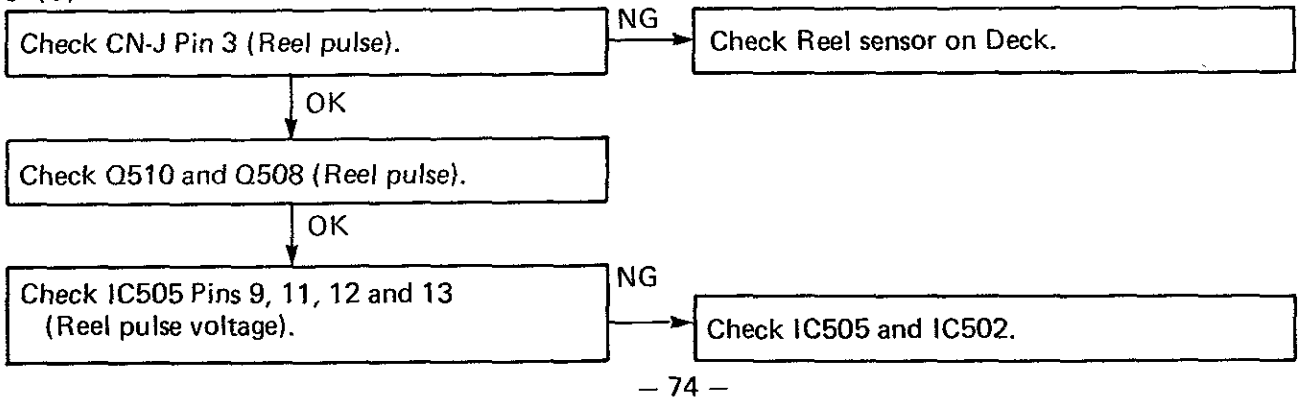
6- (A)


Cassette eject soon.
NO
Check IC502 Pins 55 and 56.
(See Table 3)
NG
YES
Cassette insert.
OK
Check voltage IC504 Pins 1 and 2.
NG
Check IC502 Pin 6 (R-SAFT) "H".
NG
OK
Check CN-E.
OK
IC502 defect.
OK
Check Tape loading Motor Ass'y.
Check REC saftey switch on Deck and CL-I.
IC504 defect.

6- (B)


Check IC502 Pins 52 "H" and 51 "L".
NG
Check IC502.
OK
Check IC303 between Pins 2 and Pin 10 is about 3V.
NG
IC303 Pin 4 is about 3V.
NO
YES
OK
IC303 defect.
Check CN-F/G.
OK
IC302 defect.
Check capstan motor.

6- (C)


Check CN-J Pin 3 (Reel pulse).
NG
Check Reel sensor on Deck.
OK
Check Q510 and Q508 (Reel pulse).
OK
Check IC505 Pins 9, 11, 12 and 13
(Reel pulse voltage).
NG
Check IC505 and IC502.

(Step 7 SP/LP Model)

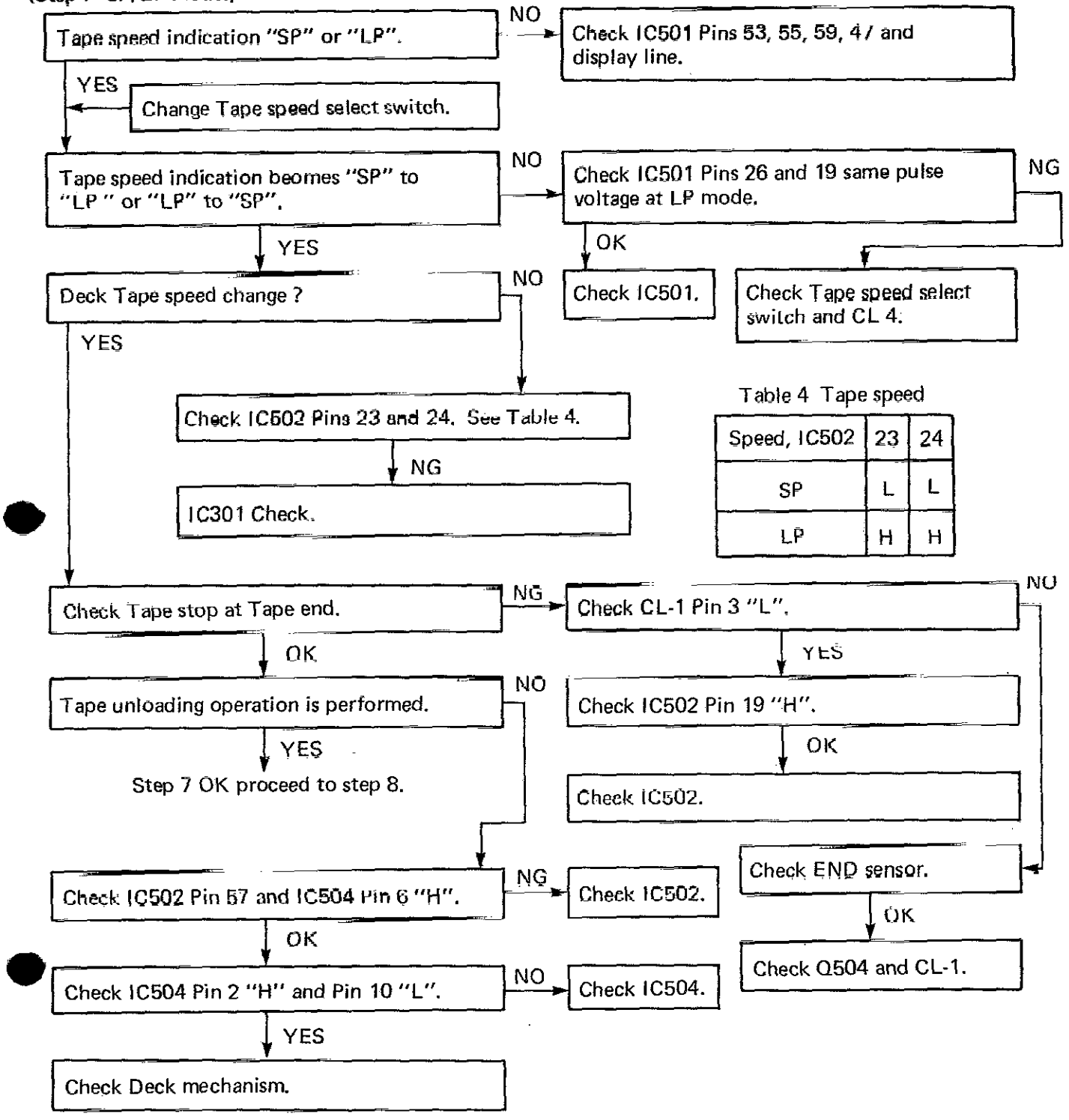
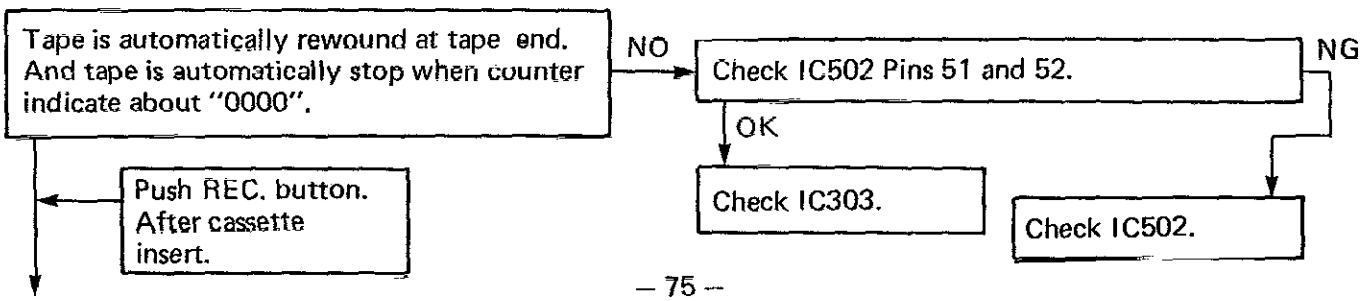
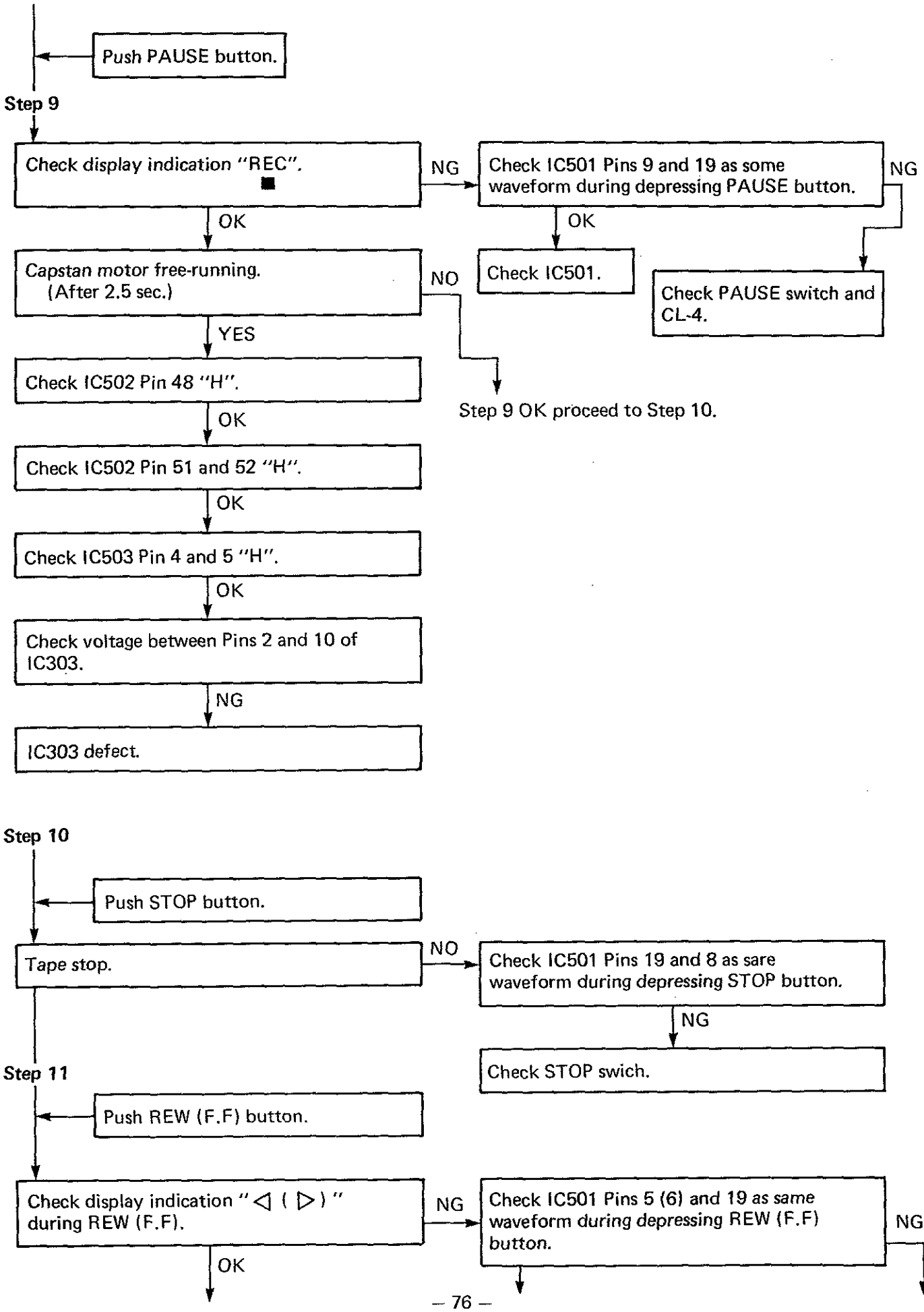


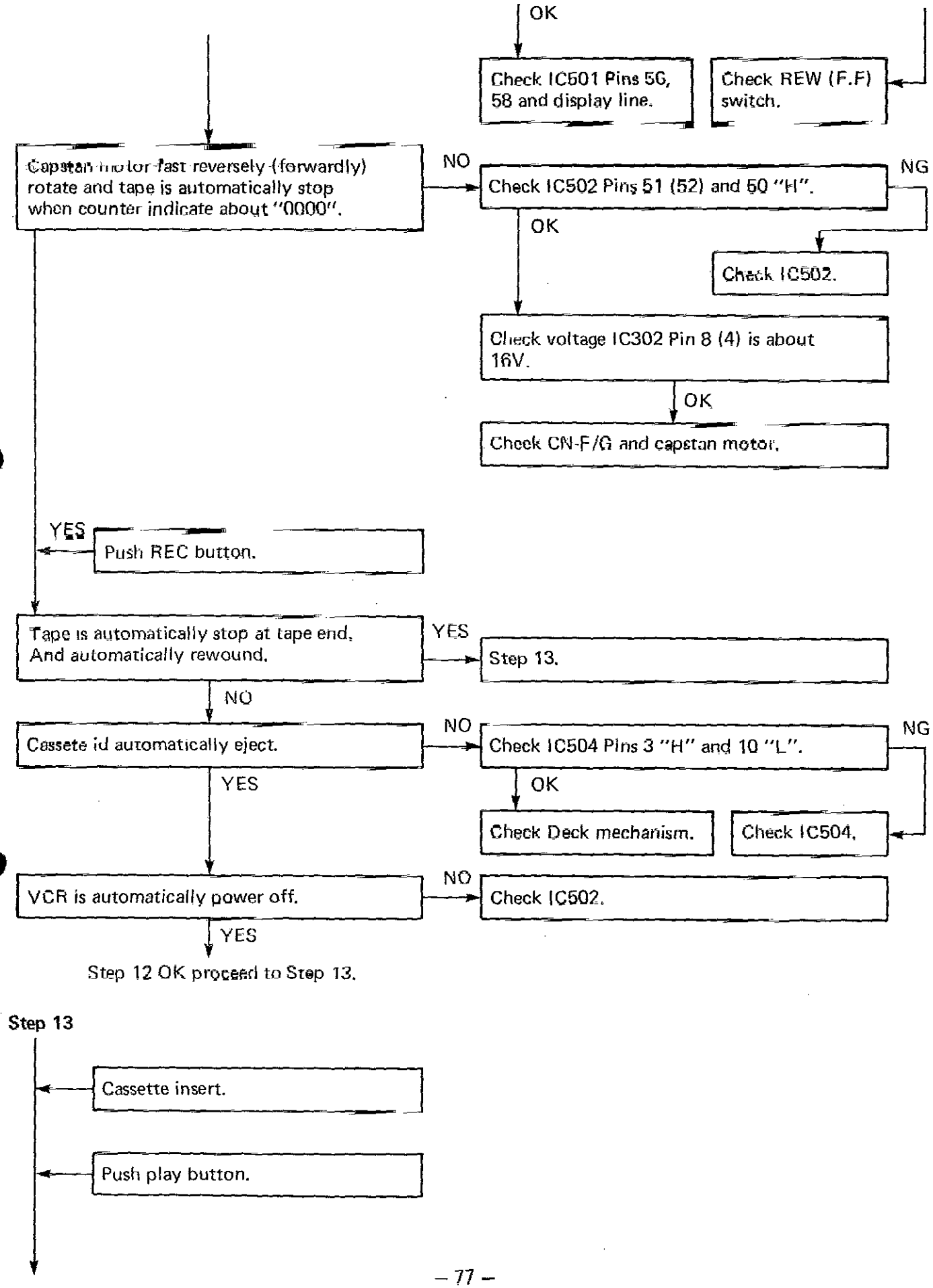
Table 4 Tape speed

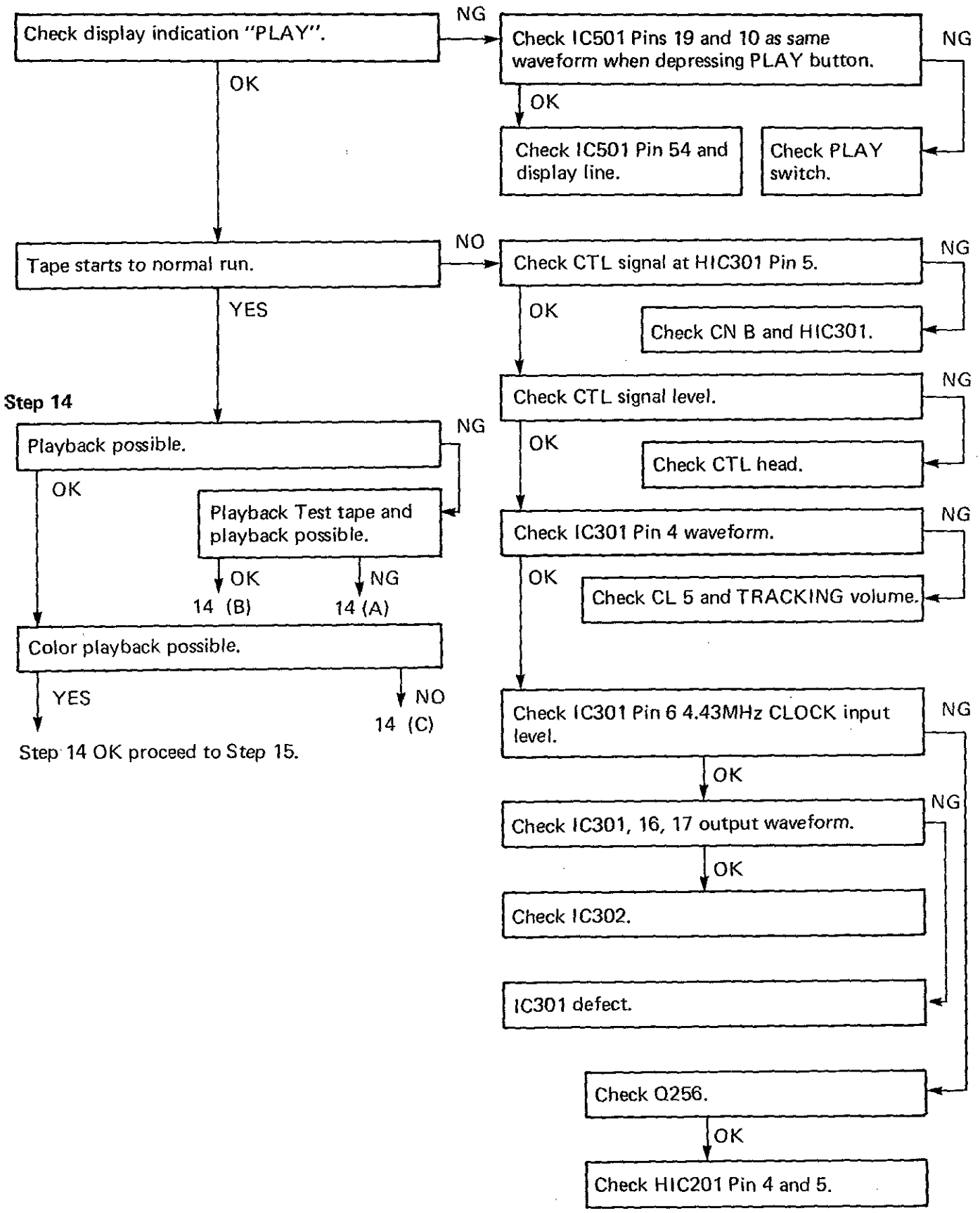
Speed, IC502	23	24
SP	L	L
LP	H	H

Step 8

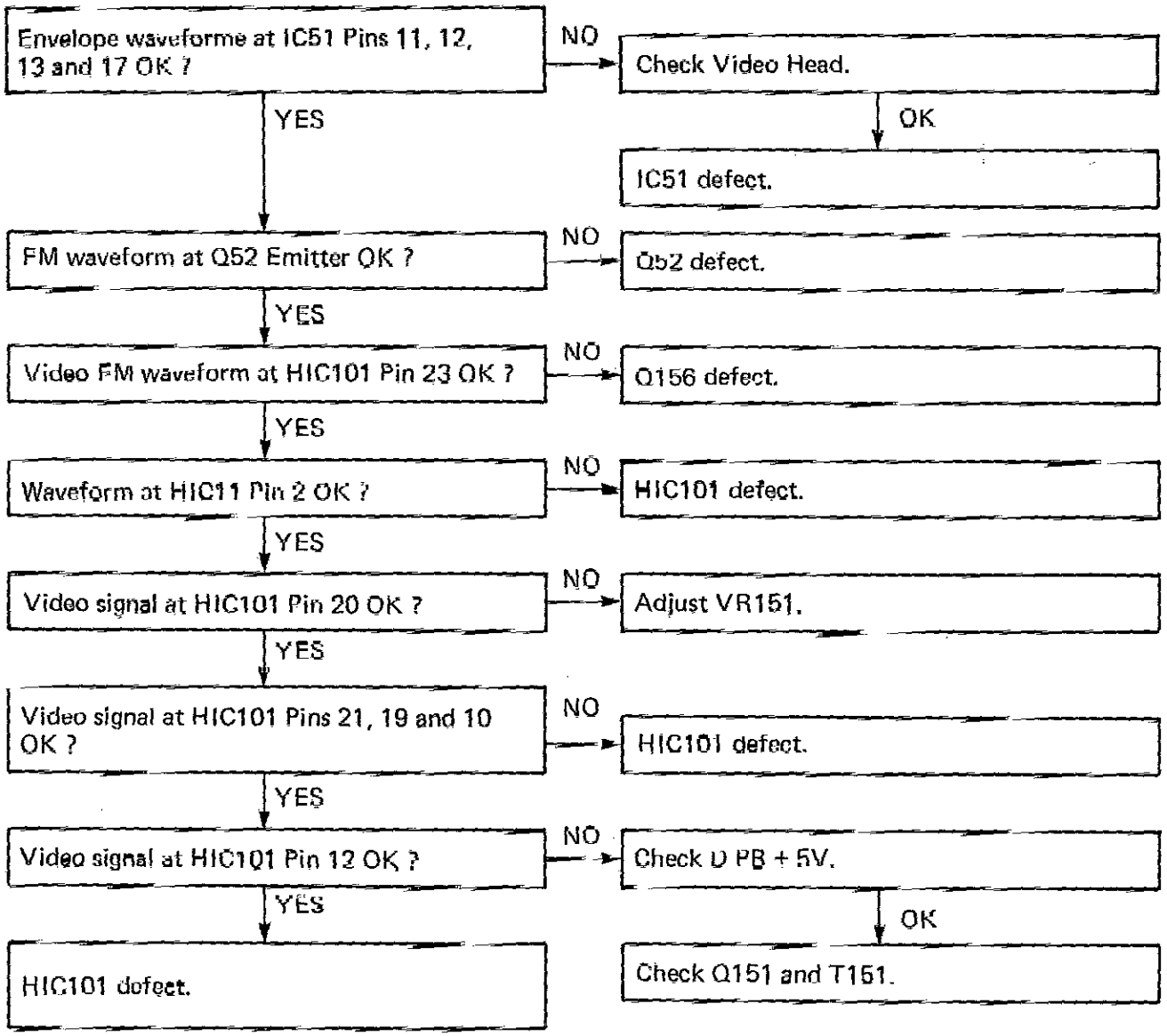



Push PAUSE button.
Step 9
Check display indication "REC". ■
NG
Check IC501 Pins 9 and 19 as some waveform during depressing PAUSE button.
NG
OK
OK
Capstan motor free-running. (After 2.5 sec.)
NO
Check IC501.
Check PAUSE switch and CL-4.
YES
Check IC502 Pin 48 "H".
Step 9 OK proceed to Step 10.
OK
Check IC502 Pin 51 and 52 "H".
OK
Check IC503 Pin 4 and 5 "H".
OK
Check voltage between Pins 2 and 10 of IC303.
NG
IC303 defect.
Step 10
Push STOP button.
Tape stop.
NO
Check IC501 Pins 19 and 8 as sare waveform during depressing STOP button.
NG
Check STOP swich.
Step 11
Push REW (F.F) button.
Check display indication "◁ (▷) " during REW (F.F).
NG
Check IC501 Pins 5 (6) and 19 as same waveform during depressing REW (F.F) button.
NG
OK

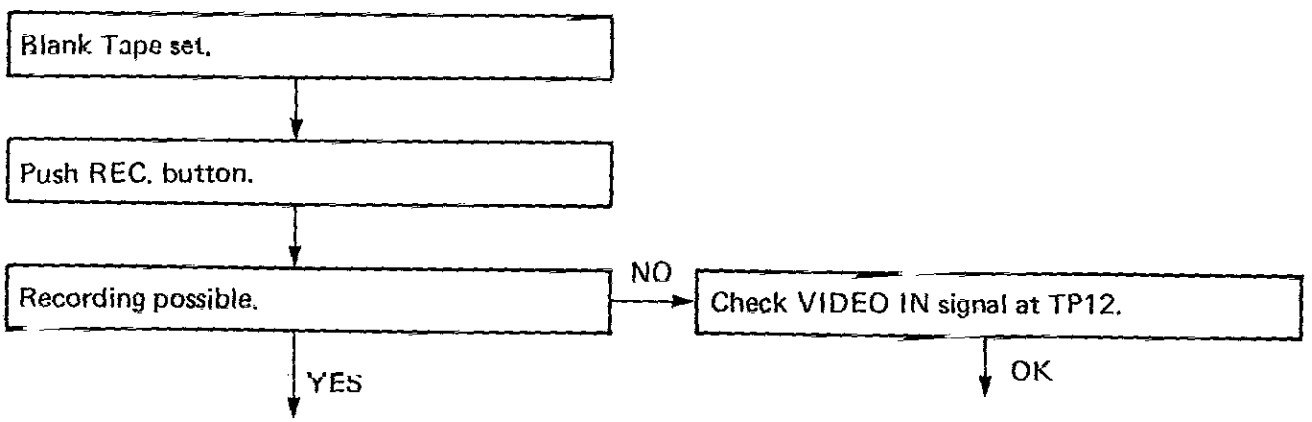

OK
Check IC501 Pins 56, 58 and display line.
Check REW (F.F) switch.
Capstan motor fast reversely (forwardly) rotate and tape is automatically stop when counter indicate about "0000".
NO
Check IC502 Pins 51 (52) and 50 "H".
NG
OK
Check IC502.
Check voltage IC302 Pin 8 (4) is about 16V.
OK
Check CN-F/G and capstan motor.
YES
Push REC button.
Tape is automatically stop at tape end, And automatically rewound.
YES
Step 13.
NO
Cassete id automatically eject.
NO
Check IC504 Pins 3 "H" and 10 "L".
NG
YES
OK
Check Deck mechanism.
Check IC504.
VCR is automatically power off.
NO
Check IC502.
YES
Step 12 OK proceed to Step 13.
Step 13
Cassette insert.
Push play button.

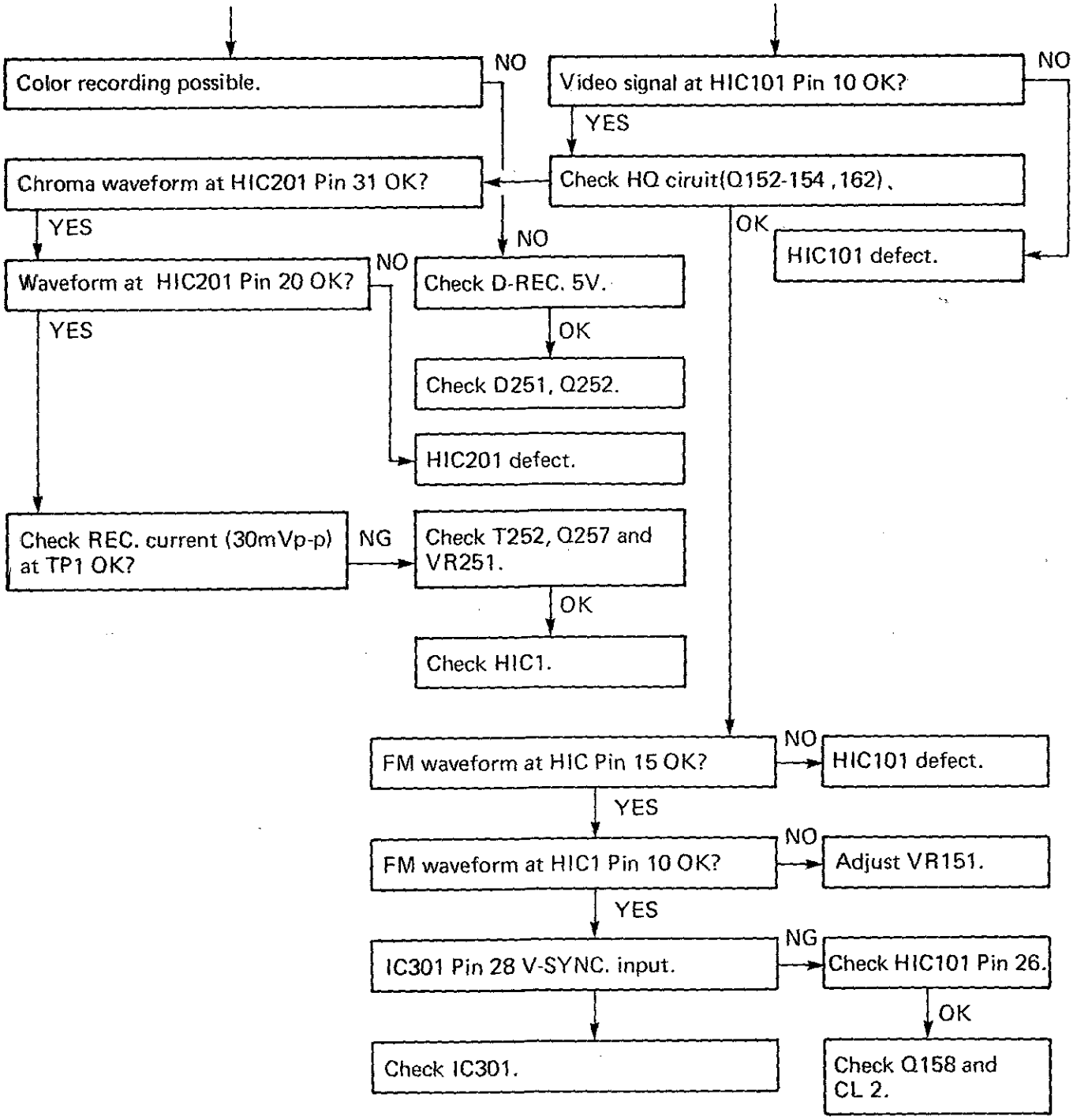

Check display indication "PLAY".
NG
Check IC501 Pins 19 and 10 as same waveform when depressing PLAY button.
NG
OK
Check IC501 Pin 54 and display line.
Check PLAY switch.
OK
Tape starts to normal run.
NO
Check CTL signal at HIC301 Pin 5.
NG
YES
OK
Check CN B and HIC301.
Step 14
Check CTL signal level.
NG
Playback possible.
NG
OK
OK
Check CTL head.
Playback Test tape and playback possible.
Check IC301 Pin 4 waveform.
NG
OK
OK
NG
Check CL 5 and TRACKING volume.
14 (B)
14 (A)
Color playback possible.
Check IC301 Pin 6 4.43MHz CLOCK input level.
NG
YES
NO
14 (C)
OK
Step 14 OK proceed to Step 15.
Check IC301, 16, 17 output waveform.
NG
OK
Check IC302.
IC301 defect.
Check Q256.
OK
Check HIC201 Pin 4 and 5.

14- (A)

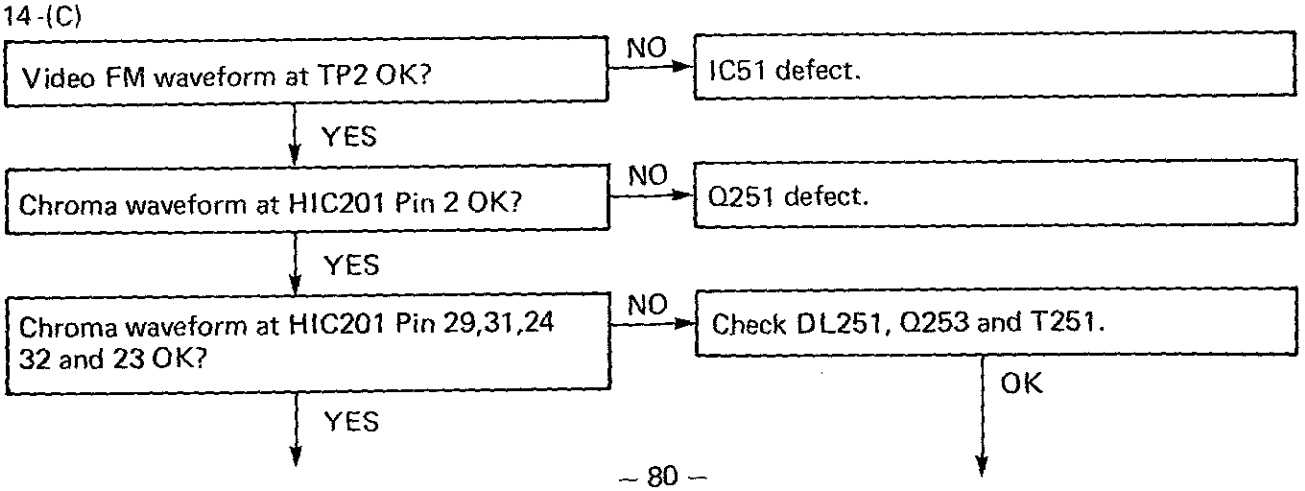

Envelope waveforme at IC51 Pins 11, 12, 13 and 17 OK ?
NO
Check Video Head.
OK
IC51 defect.
YES
FM waveform at Q52 Emitter OK ?
NO
Q52 defect.
YES
Video FM waveform at HIC101 Pin 23 OK ?
NO
Q156 defect.
YES
Waveform at HIC11 Pin 2 OK ?
NO
HIC101 defect.
YES
Video signal at HIC101 Pin 20 OK ?
NO
Adjust VR151.
YES
Video signal at HIC101 Pins 21, 19 and 10 OK ?
NO
HIC101 defect.
YES
Video signal at HIC101 Pin 12 OK ?
NO
Check D PB + 5V.
YES
OK
HIC101 defect.
Check Q151 and T151.

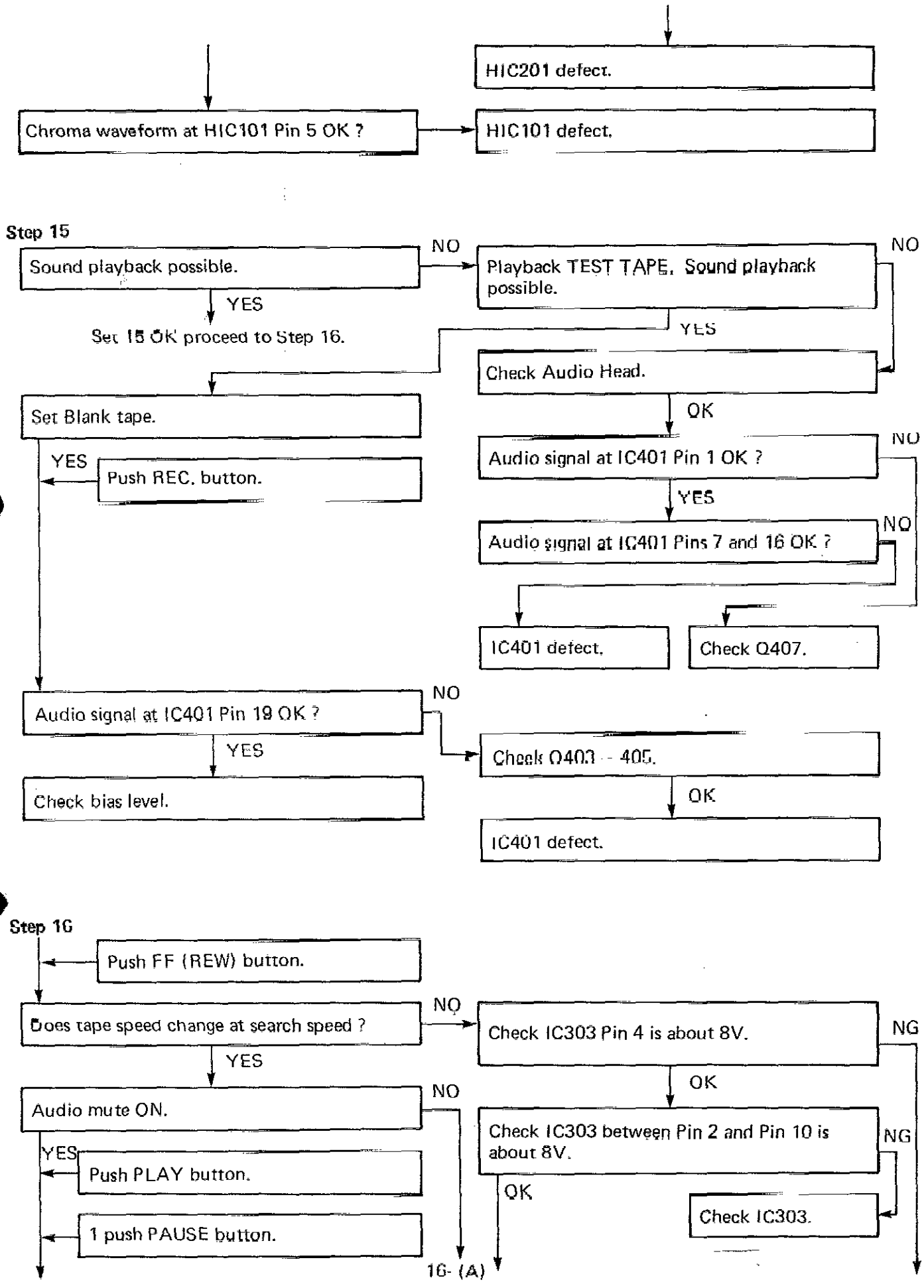
14- (B)


Blank Tape set.
Push REC. button.
Recording possible.
NO
Check VIDEO IN signal at TP12.
YES
OK

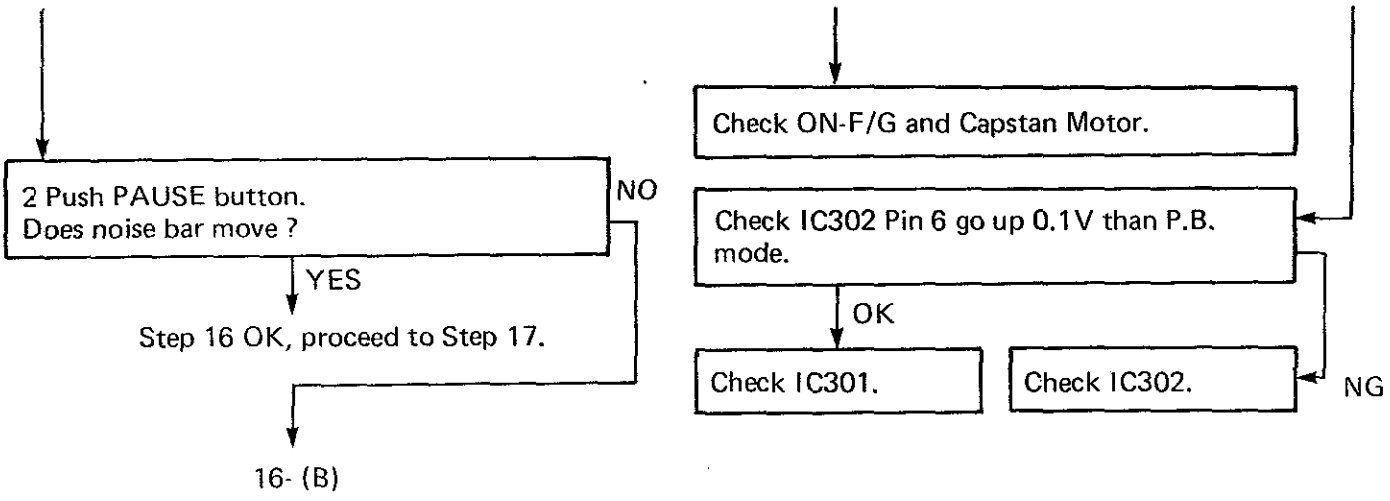

Color recording possible.
NO
Video signal at HIC101 Pin 10 OK?
NO
YES
Chroma waveform at HIC201 Pin 31 OK?
Check HQ ciruit(Q152-154 ,162).
YES
NO
OK
HIC101 defect.
Waveform at HIC201 Pin 20 OK?
NO
Check D-REC. 5V.
YES
OK
Check D251, Q252.
HIC201 defect.
Check REC. current (30mVp-p) at TP1 OK?
NG
Check T252, Q257 and VR251.
OK
Check HIC1.
FM waveform at HIC Pin 15 OK?
NO
HIC101 defect.
YES
FM waveform at HIC1 Pin 10 OK?
NO
Adjust VR151.
YES
IC301 Pin 28 V-SYNC. input.
NG
Check HIC101 Pin 26.
OK
Check IC301.
Check Q158 and CL 2.

14-(C)

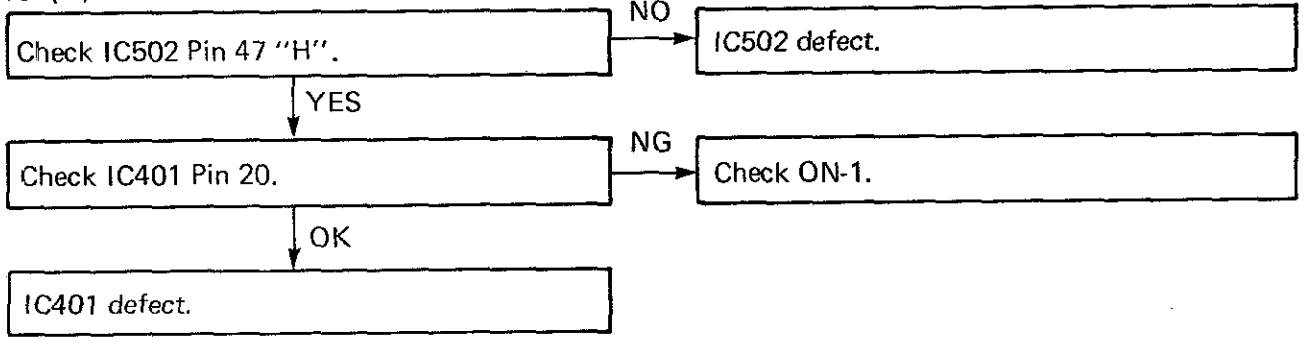

Video FM waveform at TP2 OK?
NO
IC51 defect.
YES
Chroma waveform at HIC201 Pin 2 OK?
NO
Q251 defect.
YES
Chroma waveform at HIC201 Pin 29,31,24 32 and 23 OK?
NO
Check DL251, Q253 and T251.
YES
OK



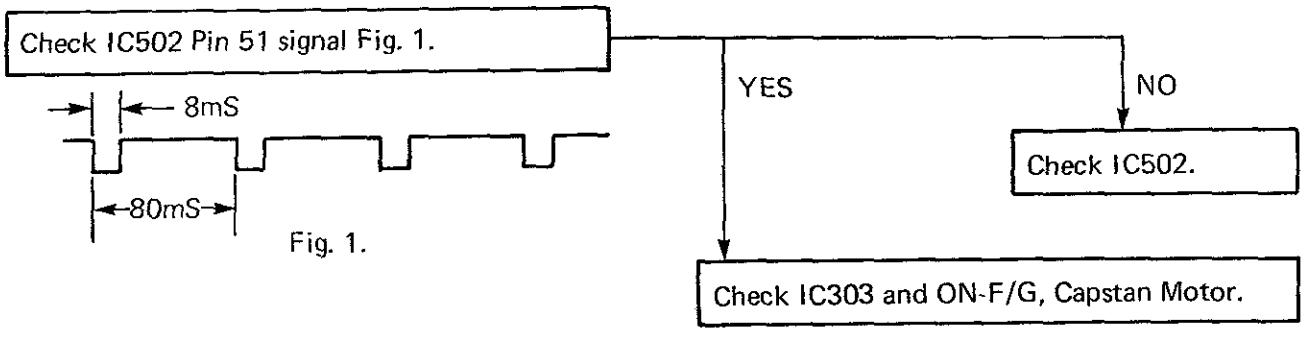
MASTER COPY
DO NOT REMOVE


2 Push PAUSE button.
Does noise bar move ?
NO
YES
Step 16 OK, proceed to Step 17.
16- (B)
Check ON-F/G and Capstan Motor.
Check IC302 Pin 6 go up 0.1V than P.B. mode.
OK
Check IC301.
Check IC302.
NG

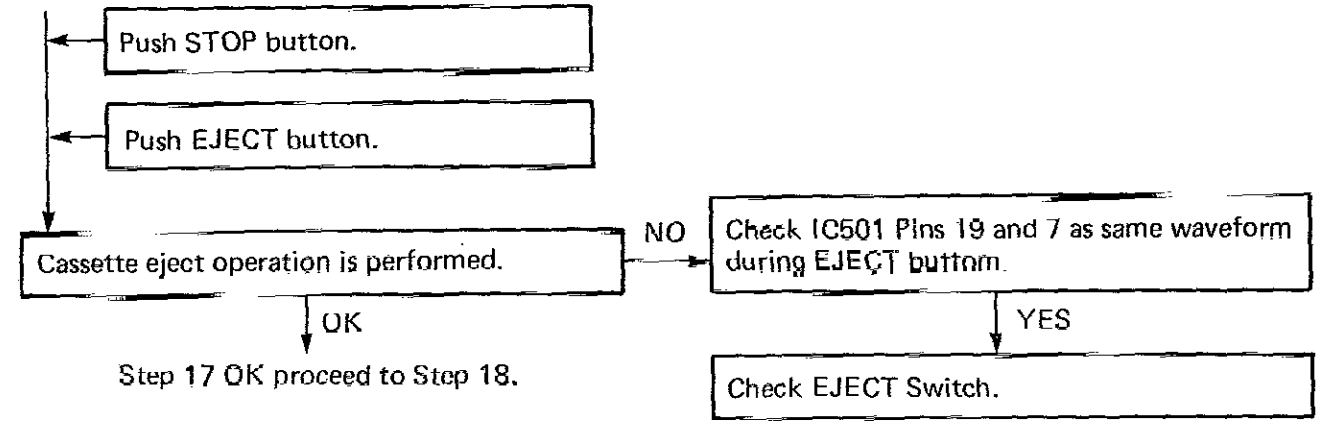
16- (A)


Check IC502 Pin 47 "H".
NO
IC502 defect.
YES
Check IC401 Pin 20.
NG
Check ON-1.
OK
IC401 defect.

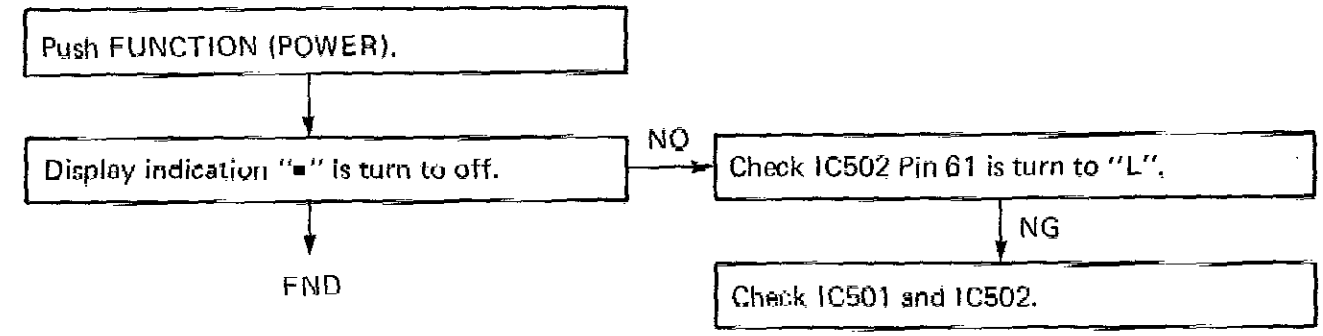
16- (B)


Check IC502 Pin 51 signal Fig. 1.
8mS
80mS
Fig. 1.
YES
NO
Check IC502.
Check IC303 and ON-F/G, Capstan Motor.

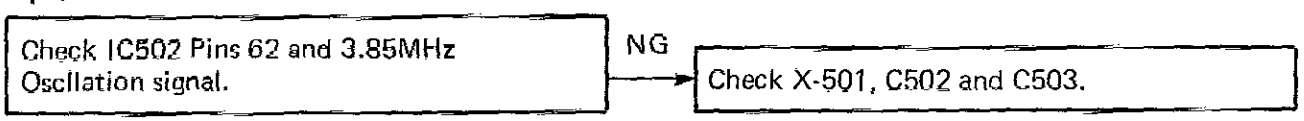
Step 17



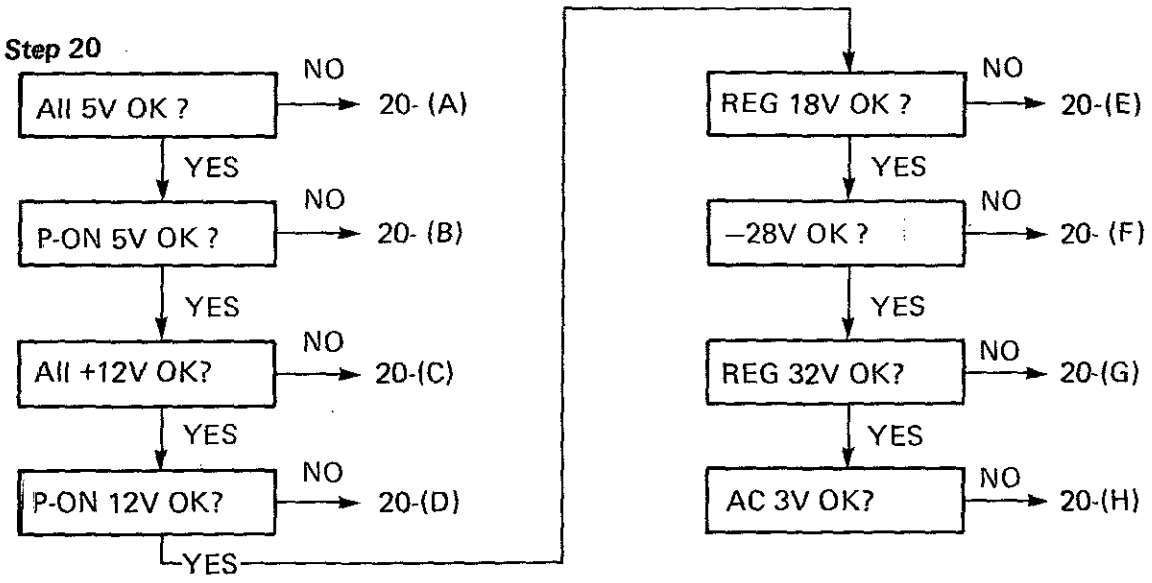
Step 18



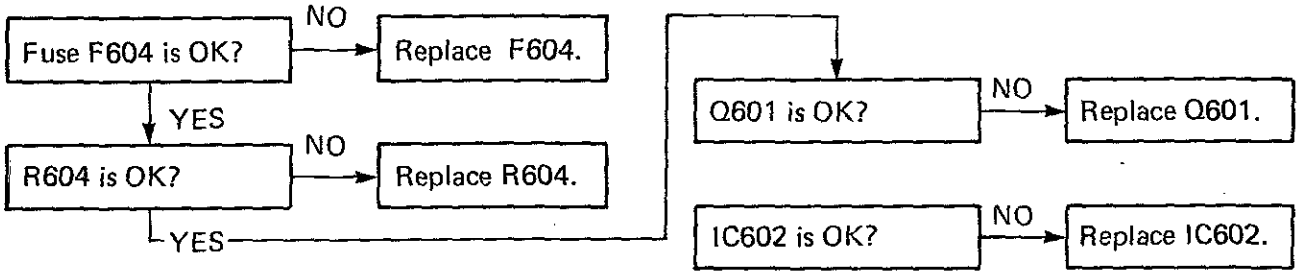
Step 19



Step 20

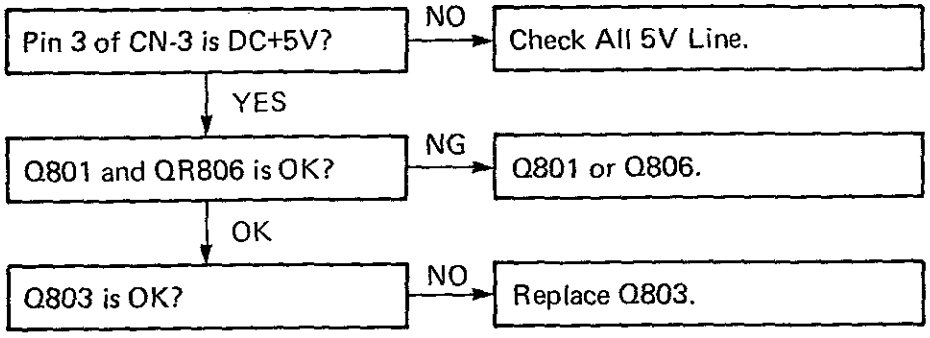


20-(A)

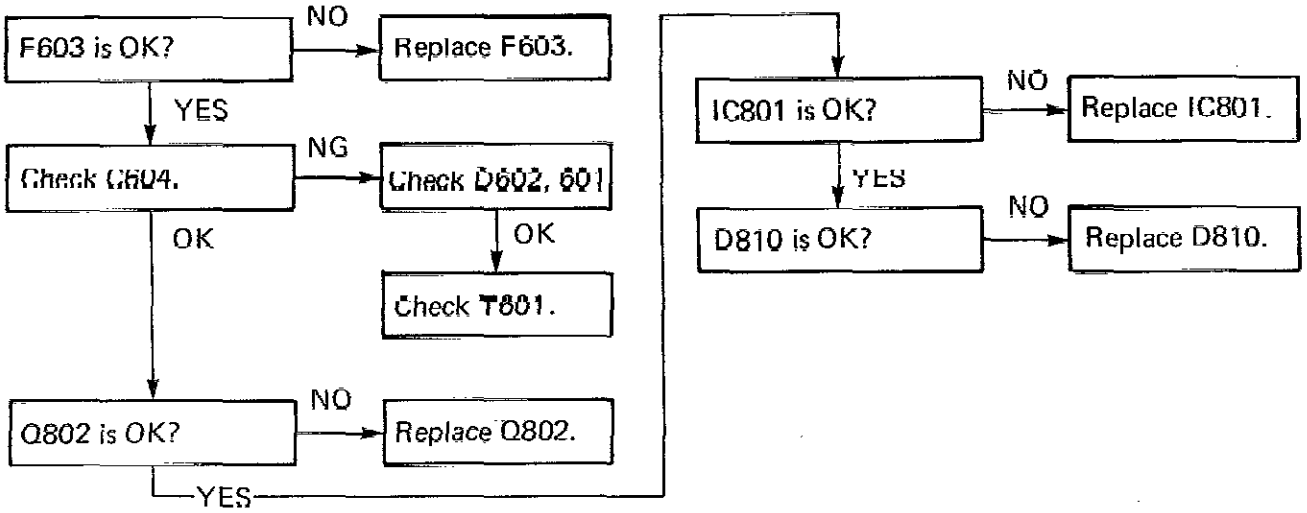


20-(B)

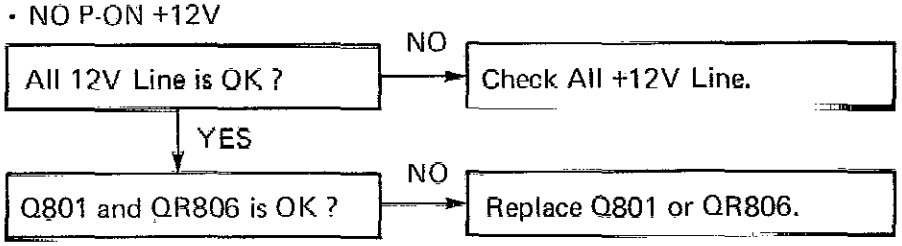
• NO P-ON 5V



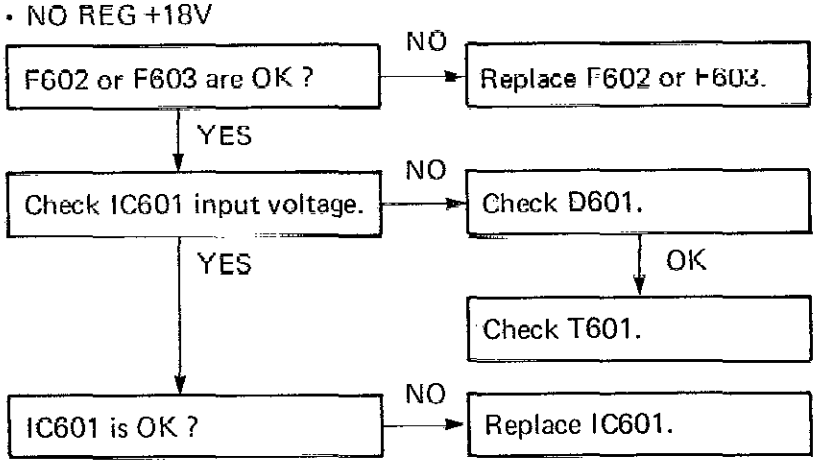
20-(C)
- NO All +12V



20- (D)
- NO P-ON +12V

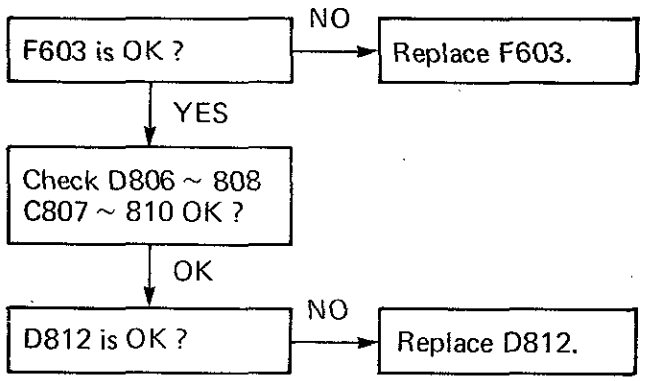


20- (E)
- NO REG +18V



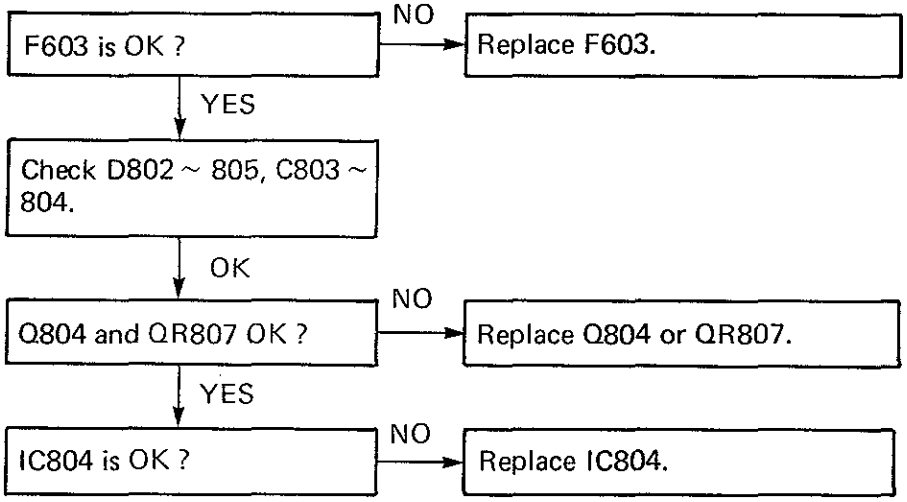
20- (F)

• NO –28V



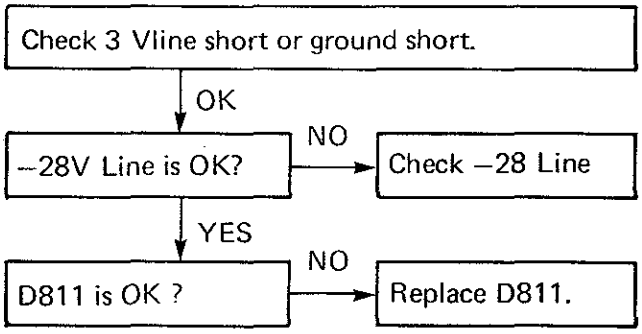
20-(G)

• NO REG +32V



20- (H)

• NO AC 3V



ELECTRICAL PARTS LIST

Ref.No	Description	Parts No.
	PCB Ass'y, Video/Audio	1613738X
	Capacitors	
C51	Not used	
C52	Ceramic 0.022μF /50V Z	12F3223
C53	Electrolytic 47μF /16V M	126C476
C54	Electrolytic 33μF /16V M	126C336
C55	Semi-conductive 0.047μF /25V K	12Y2473
C56	Ceramic 0.022μF /50V Z	12F3223
C57	Electrolytic 1μF /50V M	126F105
C58	Not used	
C59	Electrolytic 4.7μF /25V M	126D475
C60-61	Ceramic 0.01μF /50V Z	12F3103
C62	Electrolytic 4.7μF /25V M	126D475
C63	Ceramic 68 pF /50V J SL	1270680
C64	Ceramic 150 pF /50V J SL	1270151
C65	Electrolytic 47μF /10V M	126B476
C66	Ceramic 15 pF /50V J SL	1270150
C67	Ceramic 39 pF /50V J SL	1270390
C68	Ceramic 270 pF /50V J SL	1270271
C69	Ceramic 100 pF /50V J SL	1270101
C70	Ceramic 430 pF /50V J SL	1270431
C71	Not Used	
C72	Ceramic 0.022μF /50V Z	12F3223
C73	Ceramic 180 pF /50V J SL	1270181
C74	Ceramic 18 pF /50V J SL	1270180
C75-76	Electrolytic 47μF /10V M	126B476
C77	Ceramic 0.01μF /50V Z	12F3103
C78	Ceramic 270 pF /50V J SL	1270271
C151	Electrolytic 22μF /10V M N.P	126T226
C152	Electrolytic 47μF /10V M	126B476
C153	Ceramic 0.022μF /50V Z	12F3223
C154	Not Used	
C155	Ceramic 12 pF /50V J SL	1270120
C156	Electrolytic 22μF /10V M	126B226
C157	Electrolytic 4.7μF /25V M	126D475
C158	Ceramic 150 pF /50V J SL	1270151
C159	Electrolytic 47μF /10V M	126B476
C160	Ceramic 150 pF /50V J SL	1270151
C161	Electrolytic 2.2μF /50V M	126F225
C162	Ceramic 180 pF /50V J SL	1270181
C163	Electrolytic 47μF /10V M	126B476

Ref.No	Description					Parts No.
C164	Ceramic	220 pF	/50V	J	SL	1270221
C165	Ceramic	0.022μF	/50V	Z		12F3223
C166	Ceramic	22 pF	/50V	J	SL	1270220
C167	Electrolytic	10μF	/16V	M		126C106
C168	Ceramic	33 pF	/50V	J	SL	1270330
C169	Electrolytic	47μF	/10V	M		126B476
C170	Ceramic	56 pF	/50V	J	SL	1270560
C171	Electrolytic	1μF	/50V	M		126F105
C172	Electrolytic	4.7μF	/25V	M		126D475
C173	Electrolytic	2.2μF	/50V	M		126F225
C174	Electrolytic	100μF	/16V	M		126C107
C175	Semi-conductive	0.1μF	/25V	K		12Y2104
C176	Semi-conductive	0.0047μF	/25V	K		12Y2472
C177	Ceramic	220 pF	/50V	J	SL	1270221
C178	Not used					
C179	Electrolytic	1000μF	/6.3V	M		126A108
C180-181	Electrolytic	47μF	/16V	M		126C476
C251-253	Ceramic	0.01μF	/50V	Z		12F3103
C254	Electrolytic	10μF	/16V	M		126C106
C255	Semi-conductive	0.047μF	/25V	K		12Y2473
C256	Semi-conductive	0.1μF	/25V	K		1220461 or 1220520
C257	Semi-conductive	0.018μF	/25V	K		12X2183
C258	Electrolytic	47μF	/10V	M		126B476
C259	Semi-conductive	0.001μF	/25V	K		12Y2102
C260	Ceramic	8 pF	/50V	D	NPO	12CH809
C261	Ceramic	0.022μF	/50V	Z		12F3223
C262	Ceramic	680 pF	/50V	J	SL	1270681
C263	Ceramic	0.01μF	/50V	Z		12F3103
C264	Not Used					
C265-266	Electrolytic	47μF	/6.3V	M		126A476
C267	Ceramic	0.01μF	/50V	Z		12F3103
C268	Not Used					
C269	Not Used					
C270	Ceramic	0.01μF	/50V	Z		12F3103
C271	Ceramic	270 pF	/50V	J	SL	1270271
C272	Not Used					
C273	Electrolytic	4.7μF	/25V	M		126D475
C274	Ceramic	0.022μF	/50V	Z		12F3223
C275-400	Not used					
C401	Polyester Film	0.015μF	/50V	K		2250153
C402	Ceramic	220 pF	/50V	J	SL	1270221
C403	Electrolytic	47μF	/16V	M		126C476
C404-405	Polyester Film	0.01μF	/50V	K		2250103
C406	Electrolytic	33μF	/16V	M		126C336
C407	Ceramic	0.0015μF	/50V	K	YB	12B3152
C408	Electrolytic	1μF	/50V	M		126F105
C409	Electrolytic	33μF	/16V	M		126C336
C410	Electrolytic	1μF	/50V	M		126F105
C411	Electrolytic L.L.	1μF	/50V	M		124S105
C412	Semi-conductive	0.001μF	/25V	K		12X2101
C413	Electrolytic L.L.	10μF	/16V	M		124H106
C414	Semi-conductive	0.01μF	/25V	K		12X2103

Ref.No	Description	Parts No.
C415	Semi-conductive 0.0033μF /25V K	12X2332
C416	Electrolytic L.L. 1μF /50V M	124S105
C417	Electrolytic 22μF /10V M	126B226
C418	Electrolytic 47μF /10V M	126B476
C419	Ceramic 0.001μF /50V K YB	12B3102
C420	Electrolytic 1μF /50V M	126F105
C421	Electrolytic 22μF /10V M	126B226
C422	Semi-conductive 0.022μF /25V K	12Y2223
C423	Electrolytic 100μF /16V M	126C107
C451-452	Electrolytic 10μF /16V M	126C106
C453	Electrolytic 100μF /16V M	126C107
C454-456	Electrolytic 10μF /16V M	126C106
C457	Electrolytic 47μF /10V M	126B476
	Coils	
L51	15μH	2162150
L52	180μH	2162181
L53	82μH	2162820
L54	100μH	2162101
L55	1 mH	117M482
L56	47μH	2162470
L57	150μH	2162151
L58	22μH	2162220
L59	Not Used	
L60-61	100μH	2162101
L62-63	15μH	2162150
L151	100μH	2162101
L152	47μH	2162470
L153	100μH	2162101
L154	22μH	2162220
L155	100μH	2162101
L156	10μH	2162100
L251	100μH	2162101
L252	27μH	2162270
L253	47μH	2162470
L254	15μH	2162150
L256	220μH	2162221
L257	330μH	2162331
L258	270μH	2162271
L281	3.9 mH	113D575 or 113M575
L401	100μH	2162101
L402	12 mH	117M502 or 117D472
T401	Bias OSC Coil	117D496 or 117M496
	Diodes	
D151-152	1SS 254 or 1SS 133 or US1040M	1SS254 or 1SS133 or US1040M
D153	Zener-Diode UZ-3.3B	UZ-3.3B

Ref.No	Description	Parts No.
D154-155	1SS 254 or 1SS 133 or US1040M	1SS254 or 1SS133 or US1040M
D251-252	1SS 254 or 1SS 133 or US1040M	1SS254 or 1SS133 or US1040M
	Filters	
DL51	1H Delay Line	1810773
DL251	2H Delay Line	1810496
T151	3MHz LPF	1810994 or 1810805
T152	PAL EQ Coil	1810710 or 1810585
T251	4.43MHz BPF	1810804 or 1810770
T252	1.5MHz LPF	113M621
CF251	Ceramic Filter 5.06MHz	1810497
CF281	Ceramic Filter 4.5MHz	1810359
	ICs	
IC51	AN6326N, Video Play Pre-AMP (Linear)	14LN112
IC251	AN8005, 3terminal Voltage Regulator (Linear)	14DN227
IC281	AN6368, MESECAM (Linear)	14LN186
IC401	BA7751LS, Audio REC/PLAY AMP (Linear)	14L0200
IC451	LVA508S, Input Selector (Linear)	14L0187
HIC-1	EP60755, Video REC AMP & Power Control(Linear)	1810873
HIC-101	Video REC/PLAY Luminance (Linear)	1810939
HIC-201	Video REC/PLAY Chrominance (Linear)	1810938

Ref.No	Description		Parts No.
	Resistors		
R51	Carbon	100 ohm 1/5W J	1324101
R52	Carbon	470 ohm 1/5W J	1324471
R53-54	Carbon	560 ohm 1/5W J	1324561
R55	Carbon	1k ohm 1/5W J	1324102
R56	Carbon	10k ohm 1/5W J	1324103
R57	Carbon	100k ohm 1/5W J	1324104
R58-59	Carbon	1.5k ohm 1/5W J	1324152
R60	Carbon	680 ohm 1/5W J	1324681
R61	Carbon	1.5k ohm 1/5W J	1324152
R62-63	Carbon	1k ohm 1/5W J	1324102
R64-65	Carbon	820 ohm 1/5W J	1324821
R66	Carbon	1.5k ohm 1/5W J	1324152
R67	Carbon	560 ohm 1/5W J	1324561
R68	Carbon	390 ohm 1/5W J	1324391
R69	Carbon	680 ohm 1/5W J	1324681
R70	Carbon	220 ohm 1/5W J	1324221
R71	Carbon	270 ohm 1/5W J	1324271
R72	Carbon	22k ohm 1/5W J	1324223
R151	Carbon	1k ohm 1/5W J	1324102
R152	Carbon	1.5k ohm 1/5W J	1324152
R153	Carbon	10k ohm 1/5W J	1324103
R154	Carbon	560 ohm 1/5W J	1324561
R155	Carbon	1.8k ohm 1/5W J	1324182
R156	Carbon	2.2k ohm 1/5W J	1324222
R157	Carbon	1k ohm 1/5W J	1324102
R158	Carbon	18k ohm 1/5W J	1324183
R159	Carbon	10k ohm 1/5W J	1324103
R160	Carbon	560 ohm 1/5W J	1324561
R161-162	Carbon	2.2k ohm 1/5W J	1324222
R163	Carbon	1k ohm 1/5W J	1324102
R164	Not Used		
R165	Carbon	330 ohm 1/5W J	1324331
R166	Carbon	120 ohm 1/5W J	1324121
R167	Carbon	270 ohm 1/5W J	1324271
R168	Carbon	680 ohm 1/5W J	1324681
R169	Carbon	270 ohm 1/5W J	1324271
R170	Carbon	1.5k ohm 1/5W J	1324152
R171	Carbon	1.2k ohm 1/5W J	1324122
R172	Carbon	270 ohm 1/5W J	1324271
R173	Carbon	18k ohm 1/5W J	1324183
R174	Carbon	5.6k ohm 1/5W J	1324562
R175	Carbon	560 ohm 1/5W J	1324561
R176	Carbon	1k ohm 1/5W J	1324102
R177	Carbon	56k ohm 1/5W J	1324563
R178	Carbon	220 ohm 1/5W J	1324221
R179	Oxide Film	330 ohm 1W J	1330419 or 1330363
R180-181	Carbon	10k ohm 1/5W J	1324103

Ref.No	Description	Parts No.
R182	Carbon 2.2k ohm 1/5W J	1324222
R183	Carbon 10k ohm 1/5W J	1324103
R184	Carbon 47k ohm 1/5W J	1324473
R185	Carbon 4.7k ohm 1/5W J	1324472
R186-187	Carbon 47k ohm 1/5W J	1324473
R188-189	Not Used	
R190	Carbon 68 ohm 1/5W J	1324680
R191	Carbon 1k ohm 1/5W J	1324102
R192	Not Used	
R193	Carbon 1k ohm 1/5W J	1324102
R194-195	Not Used	
R196	Carbon 1.2k ohm 1/5W J	1324122
R197	Carbon 18k ohm 1/5W J	1324183
R198	Carbon 560 ohm 1/5W J	1324561
R251	Carbon 100 ohm 1/5W J	1324101
R252	Carbon 1.8k ohm 1/5W J	1324182
R253	Carbon 1k ohm 1/5W J	1324102
R254	Carbon 2.2k ohm 1/5W J	1324222
R255	Carbon 22k ohm 1/5W J	1324223
R256	Carbon 12k ohm 1/5W J	1324123
R257	Carbon 2.2k ohm 1/5W J	1324222
R258	Carbon 10k ohm 1/5W J	1324103
R259	Carbon 18k ohm 1/5W J	1324183
R260	Carbon 1.8k ohm 1/5W J	1324182
R261	Carbon 2.7k ohm 1/5W J	1324272
R262	Carbon 4.7k ohm 1/5W J	1324472
R263	Carbon 18k ohm 1/5W J	1324183
R264	Carbon 1k ohm 1/5W J	1324102
R265	Carbon 820 ohm 1/5W J	1324821
R267	Carbon 56 ohm 1/5W J	1324560
R268	Carbon 8.2k ohm 1/5W J	1324822
R269	Carbon 1.2k ohm 1/5W J	1324122
R270-271	Not Used	
R272	Carbon 22k ohm 1/5W J	1324223
R273	Carbon 470 ohm 1/5W J	1324471
R274	Carbon 270 ohm 1/5W J	1324271
R275	Not used	
R276	Carbon 18k ohm 1/5W J	1324183
R277-400	Not Used	
R401-402	Carbon 1k ohm 1/5W J	1324102
R403-404	Carbon 1.2k ohm 1/5W J	1324122
R283	Carbon 150k ohm 1/5W J	1324154
R284	Carbon 1k ohm 1/5W J	1324102
R285	Carbon 5.6k ohm 1/5W J	1324562
R401-402	Carbon 22k ohm 1/5W J	1324223
R403-404	Carbon 1.2k ohm 1/5W J	1324122
R405	Fusible 22 ohm 1/4W G	5361220
R406	Carbon 4.7 ohm 1/5W J	1324479
R407	Carbon 6.8k ohm 1/5W J	1324682
R408	Carbon 47 ohm 1/5W J	1324470
R409	Carbon 15k ohm 1/5W J	1324153
R410	Carbon 56k ohm 1/5W J	1324563
R411	Carbon 4.7k ohm 1/5W J	1324472

Ref.No	Description	Parts No.
R412	Carbon 5.6k ohm 1/5W J	1324562
R413	Carbon 39k ohm 1/5W J	1324393
R414-415	Carbon 10k ohm 1/5W J	1324103
R416	Carbon 68k ohm 1/5W J	1324683
R417	Carbon 3.3k ohm 1/5W J	1324332
R418	Carbon 10k ohm 1/5W J	1324103
R419	Carbon 220 ohm 1/5W J	1324221
R420	Carbon 330k ohm 1/5W J	1324334
R421	Carbon 10k ohm 1/5W J	1324103
R422	Not used	
R423	Carbon 8.2k ohm 1/5W J	1324822
R424	Carbon 1M ohm 1/5W J	1324105
R425	Carbon 10k ohm 1/5W J	1324103
R426	Carbon 27k ohm 1/5W J	1324273
R427	Carbon 15k ohm 1/5W J	1324153
R428	Carbon 680 ohm 1/5W J	1324681
R429	Carbon 390 ohm 1/5W J	1324391
R430	Carbon 10k ohm 1/5W J	1324103
R431	Not Used	
R432	Carbon 2.2k ohm 1/5W J	1324222
R433	Carbon 68k ohm 1/5W J	1324683
R434	Not used	
R435	Carbon 22k ohm 1/5W J	1324223
R451	Carbon 82 ohm 1/5W J	1324820
R452	Carbon 1.5k ohm 1/5W J	1324152
R453	Carbon 5.6k ohm 1/5W J	1324152
R454-455	Not used	
R456	Carbon 47k ohm 1/5W J	1324473
R457	Carbon 330k ohm 1/5W J	1324331
	Semi-Fixed Resistors	
VR51	1k ohm B	138J777
VR151	5k ohm B	138J780
VR251	1k ohm B	138J777
VR401	100k ohm B	138J785
	Transistors	
Q51-52	2SC2058 Q or P or N	C2058 Q or P or N
Q151	2SA933 Q or R	A933 Q or R
Q152-153	2SC1740 Q or R	C1740 Q or R
*Q154	2SC2058 P1 or P2 or Q1	C2058P1 or C2058P2 or C2058Q1
Q155-156	2SC2058 Q or P or N	C2058 Q or P or N
Q157	2SA933 Q or R	A933 Q or R
Q158	2SC1740 Q or R	C1740 Q or R
Q159	2SA934 Q or R	A934 Q or R
Q160-162	2SC1740 Q or R	C1740 Q or R
*Q163	2SC2058 P1 or P2 or Q1	C2058P1 or C2058P2 or C2058Q1

Ref.No	Description	Parts No.
Q251	2SC1740 Q or R	C1740 Q or R
Q252-253	2SC2058 Q or P or N	C2058 Q or P or N
Q254	2SA933 Q or R	A933 Q or R
Q255	Not Used	
Q256	2SC1740 Q or R	C1740 Q or R
Q257	2SA933 Q or R	A933 Q or R
Q401-404	2SC1740 Q or R	C1740 Q or R
Q405	2SA933 Q or R	A933 Q or R
Q406	2SC2060 Q or R	C2060 Q or R
Q407	2SC1740 Q or R	C1740 Q or R
QR251-252	Digitra DTC 124ES	DTC124ES
* : Q154 andQ163 are used for differential circuit. If necessary to replace one of these TR., must be replaced both together and use same lank of TR.		
	Jacks	
J1	BNC Jack	1730943
J2	RCA PIN Jack	1780078
J3	BNC Jack	1730943
J4	RCA PIN Jack	1780078
	Miscellaneous	
CN-A	Connector Base 6P	1740525
CN-B	Connector Base 5P	1740767
CN-C	Connector Base 2P	1740764
CL-1	Connector Base 10P	1730882
CL-2	Connector Base 9P	1730883
CONV-1	See Others	1812007
X251	X'tal 4.433618MHz	1811195 or 1811205
	Shield Case, Cover	6S50291
	Shield Case, Frame	6S50292
	Shield Case, Base	6S50293
A-9	Jack Board Ass'Y (consists of following)	6A50149
J1,J2	BNC Jack	1730943
	Jack Board	6C50108
	BNC Ground Plate	-------
	Nut	-------
	Washer,Tooth	-------

Ref.No	Description	Parts No.
	PCB Ass'y, System Control /Servo	1613814AX
	Capacitors	
C301	Electrolytic 1000μF /16V M	626C108
C302	Electrolytic 1μF /50V M	126F105
C303	Polyester Film 0.15μF /50V J	2254154 or 125U154
C304	Not Used	
C305	Electrolytic 100μF /6.3V M	126A107
C306-307	Not Used	
C308	Electrolytic 47μF /10V M	126B476
C309	Electrolytic 22μF /10V M	126B226
C310	Not Used	
C311	Semi-Conductive 0.01μF /25V K	12Y2103
C312	Electrolytic 10μF /16V M	126C106
C313	Electrolytic 47μF /10V M	126B476
C314	Electrolytic 100μF /6.3V M	126A107
C315-316	Not Used	
C317	Electrolytic 47μF /10V M	126B476
C318	Polyester Film 0.15μF /50V J	2254154 or 125U154
C319-320	Polyester Film 0.033μF /50V J	1254333
C321	Not Used	
C322	Electrolytic 1μF /50V M N.P	126X105
C323	Ceramic 470pF /50V K YB	12B3471
C324	Ceramic 1000pF /50V K YB	12B3102
C325	Semi-Conductive 0.01μF /25V K	12Y2103
C326	Semi-Conductive 0.022μF /25V K	12Y2223
C327	Electrolytic 100μF /6.3V M	126A107
C328	Semi-Conductive 0.047μF /25V K	12Y2473
C329	Electrolytic 330μF /25V M	626D337
C330	Semi-conductive 0.047μF /25V K	12Y2473
C331	Electrolytic 33μF /10V M	126B336
C332-333	Semi-conductive 0.1μF /25V K	12Y2104
C334-335	Semi-conductive 0.1μF /25V Z	1220461 or 1220520
C336	Not used	
C337	Ceramic 330pF /50V J SL	1270331
C338	Semi-conductive 0.056μF /25V K	12Y2563
C502-503	Ceramic 33pF/50V J NPO	12CH330
C504	Ceramic 10pF/50V J NPO	12CH100
C505-507	Not Used	
C508	Electrolytic 100μF /16V M	126C107
C509	Not Used	
C510	Electrolytic 10μF /16V M	126C106
C511	Electrolytic 4.7μF /25V M N.P	126V475
C512-513	Semi-Conductive 0.1μF /25V Z	1220461 or 1220520
C514	Electrolytic 100μF /6.3V M	126A107
C515	Not Used	

Ref.No	Description	Parts No.
C516	Electrolytic 2.2μF /50V M	126F225
C517	Ceramic 0.01μF /50V Z	12F3103
C518	Electrolytic 47μF /6.3V M	126A476
C519	Not Used	
C520	Ceramic 220 pF /50V K YB	12B3221
C801-802	Electrolytic 22μF /35V M	126E226
C803	Electrolytic 100μF /50V M	626F107
C804	Electrolytic 47μF /25V M	126D476
C805-806	Electrolytic 47μF /50V M	126F476
C807	Electrolytic 33μF /25V M	126D336
C808	Electrolytic 33μF /35V M	126E336
C809	Electrolytic 33μF /25V M	126D336
C810	Electrolytic 100μF /35V M	126E107
C811	Not Used	
C812	Electrolytic 47μF /6.3V M	126A476
C813-815	Not Used	
C816	Electrolytic 1000μF /16V M	626C108
C817	Electrolytic 1000μF /6.3V M	626A108
C818-820	Not Used	
C821	Electrolytic 10μF /16V M	126C106
C822-832	Not Used	
C833	Electrolytic 47μF /16V M	126C476
C834	Semi-conductive 0.0033μF /25V K	12Y2332
C835	Electrolytic 100μF /16V M	126C107
C836	Tantal 3.3μF /35V M	1219335
	Coils	
L301-302	200 μH	117B441
	Diodes	
D303-309	1SS254 or US1040M or 1SS133	1SS254 or US1040M or 1SS133
D310-311	Not Used	
D312	1K60	1K60
D502	1SS254 or US1040M or 1SS133	1SS254 or US1040M or 1SS133
D503-507	Not Used	
D508	1SS254 or US1040M or 1SS133	1SS254 or US1040M or 1SS133
D509	Not Used	
D510	1N4002 or 1SR35-100A	4002 or 35100A
D511	1SS254 or US1040M or 1SS133	1SS254 or US1040M or 1SS133
D512-513	Not Used	
D514	1SS254 or US1040M or 1SS133	1SS254 or US1040M or 1SS133

Ref.No	Description	Parts No.
D515	Not Used	
D516-521	1SS254 or US1040M or 1SS133	1SS254 or US1040M or 1SS133
D802-809	1N4002 or 1SR35-100A	4002 or 35100A
D810	Zener MTZ8.2A or UZ7.5BH	MTZ8.2A or UZ7.5BH
D811	Zener MTZ6.2A or UZ6.2BL	MTZ6.2A or UZ6.2BL
D812-814	Not Used	
D815-818	1SS254 or US1040M or 1SS133	1SS254 or US1040M or 1SS133
	ICs	
IC301	MN6745FVM, Servo IC (Mos/other)	14DN210
IC302	BA718, Capstan Control Signal AMP (Linear)	14LO088
IC303	BA6219, Capstan Motor Driver (Linear)	14LO104
IC501	MN158471 FVQ-A, Timer IC (MOS/Micro Processor)	V 14DN232
IC502	MN15486FVN, Syscon IC (Micro Processor)	14DN233
IC503	MN1280Q, IC501,IC502 RESET (MOS/Other)	14DN185
IC504	TA7288P or BA6238A F- Loading Motor/T- Loading Motor Driver(Linear)	14LW198 or 14LF168
IC505	MN4013, Reel Pulse Waveform Shaping(MOS/Other)	MN4013
IC801	AN8005, 3 terminal Voltage Regulator (Linear)	14DN227
IC802-803	LA7210, Synch. detector IC for CATV (Linear)	14LQ115
IC804	uPC574J, zener IC (Linear)	μPC574J
HIC301	Drum PG/FG AMP (Linear)	1810946
	Resistors	
R301	Metal Oxide 1.5 ohm 1 W J	1330317 or 1330391
R302	Carbon 470k ohm 1/5W J	1324474
R303	Carbon 2.2k ohm 1/5W J	1324222
R304	Carbon 1k ohm 1/5W J	1324102
R305	Carbon 100 ohm 1/5W J	1324101
R306	Carbon 33k ohm 1/5W J	1324333
R307	Not Used	
R308	Carbon 1k ohm 1/5W J	1324102
R309-310	Not Used	
R311	Carbon 4.7k ohm 1/5W J	1324472
R312	Carbon 820k ohm 1/5W J	1324824
R313	Carbon 47k ohm 1/5W J	1324473
R314-315	Carbon 39k ohm 1/5W J	1324393
R316-317	Carbon 2.7k ohm 1/5W J	1324272
R318-319	Not Used	
R320	Carbon 330k ohm 1/5W J	1324334
R321	Carbon 22k ohm 1/5W J	1324223
R322-323	Carbon 39k ohm 1/5W J	1324393
R324	Carbon 22k ohm 1/5W J	1324223

Ref.No	Description	Parts No.
R325	Carbon 56k ohm 1/5W J	1324563
R326	Carbon 1k ohm 1/5W J	1324102
R327	Carbon 6.8k ohm 1/5W J	1324682
R328	Carbon 4.7k ohm 1/5W J	1324472
R329	Carbon 47k ohm 1/5W J	1324473
R330	Carbon 56k ohm 1/5W J	1324563
R331	Carbon 4.7k ohm 1/5W J	1324472
R332	Carbon 100k ohm 1/5W J	1324104
R333	Carbon 56k ohm 1/5W J	1324563
R334	Carbon 1.2k ohm 1/5W J	1324122
R335	Carbon 47k ohm 1/5W J	1324473
R336	Carbon 1k ohm 1/5W J	1324102
R337	Carbon 56k ohm 1/5W J	1324563
R338	Carbon 3.3k ohm 1/5W J	1324332
R339	Carbon 6.8k ohm 1/5W J	1324682
R340	Carbon 100 ohm 1/5W J	1324101
R341-343	Not Used	
R344-345	Carbon 2.7k ohm 1/5W J	1324272
R346	Metal Oxide 3.3 ohm 2 W J	1330318 or 1330460
R347	Carbon 100 ohm 1/5W J	1324101
R348	Carbon 1k ohm 1/5W J	1324102
R501	Carbon 2.7k ohm 1/5W J	1324272
R502-503	Carbon 10k ohm 1/5W J	1324103
R504	Carbon 22k ohm 1/5W J	1324223
R505	Carbon 100k ohm 1/5W J	1324104
R506	Carbon 4.7k ohm 1/5W J	1324472
R507-508	Not Used	
R509-512	Carbon 4.7k ohm 1/5W J	1324472
R513-514	Not Used	
R515	Carbon 10k ohm 1/5W J	1324103
R516-517	Not Used	
R518	Carbon 10k ohm 1/5W J	1324103
R519-520	Not Used	
R521	Carbon 5.6k ohm 1/5W J	1324562
R522-524	Carbon 150 ohm 1/5W J	1324151
R525	Carbon 10k ohm 1/5W J	1324103
R526-527	Carbon 82k ohm 1/5W J	1324823
R528	Carbon 10k ohm 1/5W J	1324103
R529	Metal Oxide 3.3 ohm 1 W J	1330320 or 1330395
R530-532	Carbon 6.8k ohm 1/5W J	1324682
R533-535	Carbon 10k ohm 1/5W J	1324103
R536	Carbon 47k ohm 1/5W J	1324473
R537	Carbon 22k ohm 1/5W J	1324223
R538	Carbon 2.2k ohm 1/5W J	1324222
R539	Carbon 10k ohm 1/5W J	1324103
R540	Carbon 3.3k ohm 1/5W J	1324332
R541-542	Carbon 10k ohm 1/5W J	1324103
R543	Carbon 15k ohm 1/5W J	1324153
R544	Carbon 82k ohm 1/5W J	1324823
R545	Carbon 4.7k ohm 1/5W J	1324472
R546	Carbon 1.2k ohm 1/5W J	1324122

Ref.No	Description	Parts No.
R547	Carbon 150 ohm 1/5W J	1324151
R548	Carbon 100k ohm 1/5W J	1324104
R549	Carbon 1k ohm 1/5W J	1324102
R550	Carbon 220 ohm 1/5W J	1324221
R551	Carbon 47k ohm 1/5W J	1324473
R552-553	Not Used	
R554-555	Carbon 47k ohm 1/5W J	1324473
R801	Carbon 220 ohm 1/5W J	1324221
R802	Metal Oxide 2.2k ohm 2 W J	1330494
R803	Carbon 1.2k ohm 1/5W J	1324122
R804	Carbon 100k ohm 1/5W J	1324104
R805	Carbon 33 ohm 1/5W J	1324330
R806	Carbon 470 ohm 1/5W J	1324471
R807	Metal Oxide 1.8k ohm 1 W J	134A182
R808	Not Used	
R809	Carbon 100k ohm 1/5W J	1324104
R810	Carbon 1.2k ohm 1/5W J	1324122
R811-816	Not Used	
R817	Carbon 12k ohm 1/5W J	1324123
R818	Carbon 4.7k ohm 1/5W J	1324472
R819	Not Used	
R820	Carbon 75 ohm 1/5W J	1324750
R821	Carbon 22k ohm 1/5W J	1324223
R822	Carbon 1.2k ohm 1/5W J	1324122
	Semi-Fixed Resistors	
VR301-302	100k ohm B	1380831 or 1380928
VR303	100k ohm B	138N785 or 138J785

Ref.No	Description	Parts No.
	Transistors	
Q301	2SC1740 Q or R	C1740 Q or R
Q302	Not Used	
Q303	2SC1740 Q or R	C1740 Q or R
Q503	2SC1740 Q or R	C1740 Q or R
Q504-505	2SA933 Q	A933 Q
Q506-508	2SC1740 Q or R	C1740 Q or R
Q509	2SC2060 Q	C2060 Q
Q510	2SC1740 Q or R	C1740 Q or R
Q801-802	2SB941 P or Q	B941 P or Q
Q803	2SD1384 Q or R	D1384 Q or R
Q804	2SB1010 Q or R	B1010 Q or R
Q805	2SB891 Q or R	B891 Q or R
QR301-302	Digitra DTC124E	DTC124E
QR501-503	Digitra DTC124E	DTC124E
QR801-803	Digitra DTA124E	DTA124E
QR804-807	Digitra DTC124E	DTC124E
	Switch	
SW301	Slide SW	1621646
	Miscellaneous	
CN-3	Connector Base 9P	1740771
CN-Bb	Connector Base 2P	1740764
CN-D	Connector Base 7P	1740769
CN-E	Connector Base 6P	1740768
CN-F／G	Connector Base 8P	1740770
CN-J	Connector Base 5P	1740767
	Heat Sink	6S50313
CXL-1	RCA Plug Cord	1750844
TU-801	See Others	
X501	Ceramic Resonator 3.58MHz	1810728 or 1810727
X502	X'tal 4.194304MHz	1811202 or 1811191
TC501	Trimmer Cap. 20pF	1280122 or 1280140 or 1280154
RX501	Res.Network 47k ohm×8	1370049 or 137E050
	CP-Jamper Wire T=7	1750823
CL-1	CP-Jamper Wire T=10	1750836
CL-2	CP-Jamper Wire T=9	1750825
	PCB Ass'y, Display	1613814BX
	Capacitors	
C702	Semi-conductive 0.01μF ／25V K	12Y2103

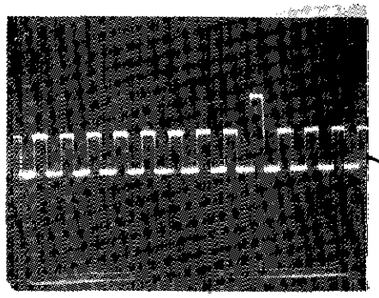
Ref.No	Description	Parts No.
C703	Electrolytic 47μF /10V M	126B476
C704	Semi-conductive 0.01μF /25V K	12Y2103
C705	Not Used	
C706-707	Ceramic 0.01μF /50V Z	12F3103
	Coil	
L701	10μH	2162100
	Diodes	
D701-716	1SS254 or US1040M or 1SS133	1SS254 or US1040M 1SS133
D725-732	LED (Green) SLR-34MG4	1401239
	IC	
IC701	AN5015K, Channel Selector (Linear)	14LN152
	Resistors	
R701	Carbon 47k ohm 1/5W J	1324473
R702	Carbon 4.7k ohm 1/5W J	1324472
R703	Not Used	
R704	Carbon 330k ohm 1/5W J	1324334
R705	Carbon 56k ohm 1/5W J	1324563
R706	Carbon 2.2k ohm 1/5W J	1324222
	Transistors	
Q701	2SC1740 Q or R	C1740 Q or R
	Miscellaneous	
FIP701	Display	1810948
PM701	Trimmer Volume 8ch 3Band	1810684
SW701-702	Push SW	5622015 or 5622017 or 1622908
SW723-730	Push SW	5622015 or 5622017 or 1622908
SW729-730	Not Used	
SW731	Slide SW (AFT)	1621643
CN-6	Connector Base 7P	1740777
	Holder Disply	6N50131
	Holder LED	6N50133
	PCB Ass'y, Control	1613814CX
	Capacitor	
C705	Electrolytic 47μF /10V M	126B476

Ref.No	Description	Parts No.
	Coil	
L702	10μH	2162100
	Diodes	
D737	1SS254 or US1040M or 1SS133	1SS254 or US1040M or 1SS133
D739-740	1SS254 or US1040M or 1SS133	1SS254 or US1040M or 1SS133
	Switchs	
SW715-722	Push SW	5622015 or 5622017 or 1622908
SW732-733	Slide SW	1621643
	Potentiometers	
VR701	Variable 2k ohm B	539N664 or 539A683
VR702	Variable 250k ohm B	539N661 or 539A660
	Miscellaneous	
RS701	Remote Sensor	1812012

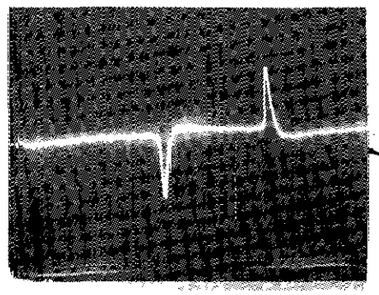
Ref.No	Description	Parts No.
	PCB Ass'y, Power Supply	1613737X
	Capacitors	
C601	Ceramic 0.022μF ／50V Z	12F3223
C602	Electrolytic 2200μF ／16V M	626C228
C603	Ceramic 0.022μF ／50V Z	12F3223
C604	Electrolytic 4700μF ／35V M	626E478
C605	Electrolytic 10μF ／25V M	126D106
C606	Electrolytic 4700μF ／16V M	626C478
C607	Electrolytic 47μF ／10V M	126B476
C608	Electrolytic 22μF ／10V M	126B226
	Diodes	
D601-602	KBL02L or RS403L	KBL02L RS403L
	ICs	
IC601	AN7818F, 3 terminal Voltage Regulator	14DN228
IC602	AN8005, 3 terminal Voltage	14DN227
	Transistors	
Q601	2SB891 R	B891 R
	Resistors	
R604	Fusible 33 ohm 1／4W G	5361330
R605	Carbon 560 ohm 1／5W J	1324560
	Fuse	
F601	T-200mA	1790474
F602	T-1.6 A	1790483
F603	T-2.0 A	1790484
F604	T-630mA	1790479
	Fuse Holder	1790424
	Miscellaneous	
T601	Power Transformer	1150469
	AC Cord	1750839
	AC Cord Stopper (SR-4N-4)	1790173

Ref.No	Description	Parts No.
	Others	
TU801	Tuner Unite(PAL Aust B) (for System Control/Servo PCB)	1812008
CONV-1	RF Modulator(PAL Aust B) (for Video/Audio PCB)	1812007

SCHEMATIC DIAGRAM System Control/Servo

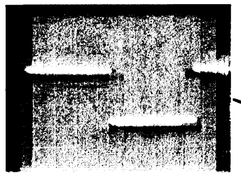


2mS/div
2V/div

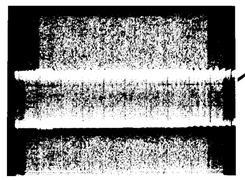


5mS/div
0.5V/div

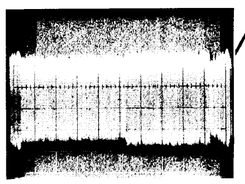
SCHEMATIC DIAGRAM (Video & Audio)



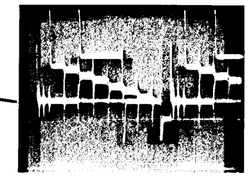
5mS/div
2V/div



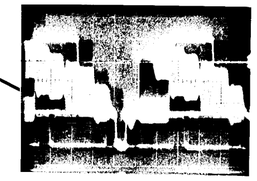
0.2mS/div
0.05V/div



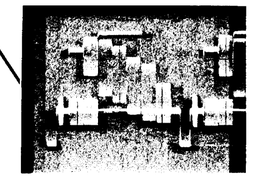
2mS/div
0.1V/div



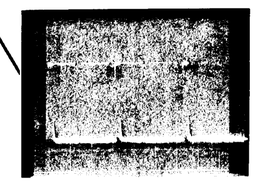
10uS/div
0.1V/div



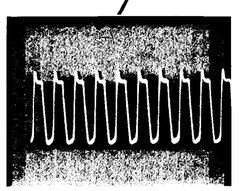
10uS/div
0.2V/div



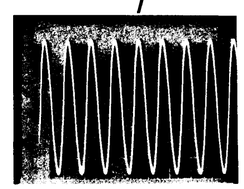
10uS/div
0.2mV/div



20uS/div
1V/div



0.2uS/div
0.2V/div



0.2uS/div
0.1V/div

Luminance + (REC)
Luminance (REC)
Color (REC)

Luminance + Color (PLAY)
Luminance (PLAY)
Color (PLAY)

NOTE: All voltages are DC measured with a SSVM.
The DC voltage measured at E-E mode.
(: at record mode.)
(: at playback mode.)
Ⓕ : Fusing resistor. ⚠ : Safety material

WARNING:
REPLACEMENT PARTS WHICH SPECIAL SAFETY CHARACTERISTICS ARE IDENTIFIED BY ⚠ SHOWING ON THIS SCHEMATIC DIAGRAM, REPLACE THESE CRITICAL COMPONENTS WITH RECOMMENDED REPLACEMENT PARTS. DON'T DEGRADE THE SAFETY OF THIS SET THROUGH IMPROPER SERVICING. SERVICE PERSONNEL TO MAKE LEAKAGE CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT EXPOSED PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.