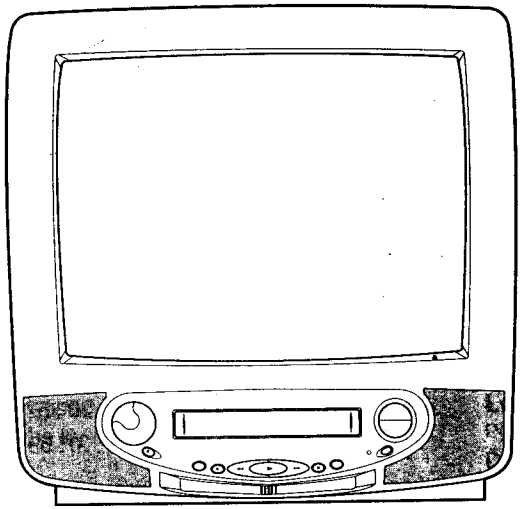
GoldStar

VHS TVCR ViewMax™
SERVICE MANUAL



CHASSIS NO. : MC-48A

MODEL : KF-14U30
KF-20U30
KF-21U30

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SUMMARY

SPECIFICATIONS

Video

Video Signal Processing System	PAL/MESECAM/NTSC 3.58(AV only) /NTSC 4.43(VCR playback only)
Video Recording System	2 Rotary head helical scanning system
Head	Two heads
Tape Speed	SP
Tape Format	VHS, width 1/2"
Timer Program	1Year, 8 programs, Normal/Daily/Weekly REC
Tape Loading System	Front loading
Input/Output Signal Level	1Vp-p, 75Ω unbalanced

Audio

Audio Recording System	Normal
Head	Normal(MONO)
Input/Output Signal Level	Input (0.5Vrms, 10KΩ ↑), Output (0.5Vrms, 1KΩ ↓)

General

Power Source	AC100-270V, 50/60Hz
Power Consumption	Approx. 100Watts
Channel Capability	VHF: 2-12, UHF: 21-69, CATV: S1-S20
Tuning System	Voltage Synthesizer
Antenna	UHF/VHF (75 ohm)
Sound Output	5Wmax. at 50KHz deviation
Operating Condition	5°C~35°C, less than 80% RH
Dimensions	14": 391(W)x402(D)x423.5(H)mm 20": 526(W)x472(D)x520(H)mm 21": 594(W)x475(D)x529(H)mm
Weight	14": 14.5Kg 20": 21.8Kg 21": 25.8Kg

* Specifications are subject to change without notice for improvement.

ABBREVIATIONS : Used in this book

ADJ	Adjustment or Adjust	H	Horizontal
AFC	Automatic Frequency Control	V	Vertical
AGC	Automatic Gain Control	IC	Integrated Circuit
AMP	Amplifier	OSD	On-Screen Display
CPT	Color Picture Tube	SAP	Second Audio Program
DEF	Deflection	BPF	Band Pass Filter
DET	Detector	ST	Stereo
FBT	Flyback Transformer	LPF	Low Pass Filter
H.V	High Voltage	DP	Differential Phase
OSC	Oscillator	DG	Differential Group
SEP	Separator	PLL	Phase Locked Loop
SYNC	Synchronization	APC	Automatic Phase Control
S.I.F	Sound Intermediate Frequency	B+M	B+ Main
V.I.F	Video Intermediate Frequency	B+T	B+ Tuning

SAFETY PRECAUTIONS

IMPORTANT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These parts are identified by ⚠ in the Schematic Diagram and Replacement Parts List.
It is essential that these special safety parts should be replaced with the same components as recommended in this manual to prevent X-RADIATION, Shock, Fire, or other Hazards.
Do not modify the original design without permission of manufacturer.

General Guidance

An **Isolation Transformer should always be used** during the servicing of a receiver whose chassis is not isolated from the AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resulting in personal injury from electrical shocks.

It will also protect the receiver and it's components from being damaged by accidental shorts of the circuitary that may be inadvertently introduced during the service operation.

If any fuse (or Fusible Resistor) in this TV receiver is blown, replace it with the specified.

When replacing a high wattage resistor (Oxide Metal Film Resistor, over 1W), keep the resistor 10mm away from PCB.

Keep wires away from high voltage or high temperature parts.

Due to high vacuum and large surface area of picture tube, extreme care should be used in **handling the Picture Tube**. Do not lift the Picture tube by it's Neck.

X-RAY Radiation

Warning:

The source of X-RAY RADIATION in this TV receiver is the High Voltage Section and the Picture Tube.
For continued X-RAY RADIATION protection, the replacement tube must be the same type tube as specified in the Replacement Parts List.

To determine the presence of high voltage, use an accurate high impedance HV meter.

Adjust brightness, color, contrast controls to minimum.
Measure the high voltage.
The meter reading should indicate
23.5 ± 1.5KV: 14-19 inch, 26 ± 1.5KV: 19-21 inch,
29.0 ± 1.5KV: 25-29 inch, 30.0 ± 1.5KV: 32 inch
If the meter indication is out of tolerance, immediate service and correction is required to prevent the possibility of premature component failure.

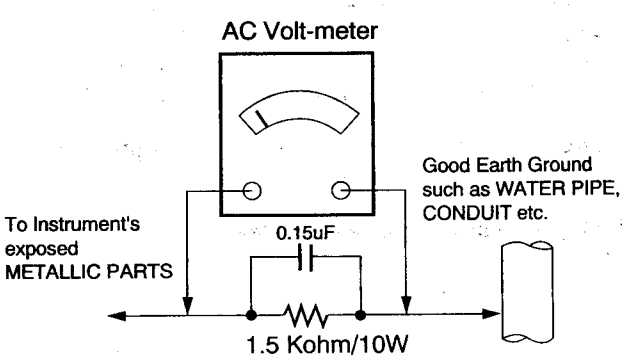
Before returning the receiver to the customer,

always perform an **AC leakage current check** on the exposed metallic parts of the cabinet, such as antennas, terminals, etc., to be sure the set is safe to operate without damage of electrical shock.

Leakage Current Cold Check(Antenna Cold Check)
With the instrument AC plug removed from AC source, connect an electrical jumper across the two AC plug prongs. Place the AC switch in the on positioin, connect one lead of ohm-meter to the AC plug prongs tied together and touch other ohm-meter lead in turn to each exposed metallic parts such as antenna terminals, phone jacks, etc.
If the exposed metallic part has a return path to the chassis, the measured resistance should be between 1MΩ and 5.2MΩ.
When the exposed metal has no return path to the chassis the reading must be infinite.
An other abnormality exists that must be corrected before the receiver is returned to the customer.

Leakage Current Hot Check (See below Figure)
Plug the AC cord directly into the AC outlet.
Do not use a line Isolation Transformer during this check.
Connect 1.5K/10watt resistor in parallel with a 0.15uF capacitor between a known good earth ground (Water Pipe, Conduit, etc.) and the exposed metallic parts.
Measure the AC voltage across the resistor using AC voltmeter with 1000 ohms/volt or more sensitivity.
Reverse plug the AC cord into the AC outlet and repeat AC voltage measurements for each esposed metallic part. Any voltage measured must not exceed 0.75 volt RMS which is corresponds to 0.5mA.
In case any measurement is out of the limits sepcified, there is possibility of shock hazard and the set must be checked and repaired before it is returned to the customer.

Leakage Current Hot Check circuit



SERVICING PRECAUTIONS

CAUTION: Before servicing receivers covered by this service manual and its supplements and addenda, read and follow the *SAFETY PRECAUTIONS* on page 3 of this publication.

NOTE: If unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions on page 3 of this publication, always follow the safety precautions. Remember: Safety First.

General Servicing Precautions

1. Always unplug the receiver AC power cord from the AC power source before;
   a. Removing or reinstalling any component, circuit board module or any other receiver assembly.
   b. Disconnecting or reconnecting any receiver electrical plug or other electrical connection.
   c. Connecting a test substitute in parallel with an electrolytic capacitor in the receiver.
      CAUTION: A wrong part substitution or incorrect polarity installation of electrolytic capacitors may result in an explosion hazard.
   d. Discharging the picture tube anode.
2. Test high voltage only by measuring it with an appropriate high voltage meter or other voltage measuring device (DVM, FETVOM, etc) equipped with a suitable high voltage probe. Do not test high voltage by "drawing an arc".
3. Discharge the picture tube anode only by (a) first connecting one end of an insulated clip lead to the degaussing or kine aquadag grounding system shield at the point where the picture tube socket ground lead is connected, and then (b) touch the other end of the insulated clip lead to the picture tube anode button, using an insulating handle to avoid personal contact with high voltage.
4. Do not spray chemicals on or near this receiver or any of its assemblies.
5. Unless specified otherwise in this service manual, clean electrical contacts only by applying the following mixture to the contacts with a pipe cleaner, cotton-tipped stick or comparable nonabrasive applicator; 10% (by volume) Acetone and 90% (by volume) isopropyl alcohol (90%-99% strength)
   CAUTION: This is a flammable mixture.
   Unless specified otherwise in this service manual, lubrication of contacts in not required.
6. Do not defeat any plug/socket B+ voltage interlocks with which receivers covered by this service manual might be equipped.
7. Do not apply AC power to this instrument and/or any of its electrical assemblies unless all solid-state device heat sinks are correctly installed.
8. Always connect the test receiver ground lead to the receiver chassis ground before connecting the test receiver positive lead.
   Always remove the test receiver ground lead last.
9. ***Use with this receiver only the test fixtures specified in this service manual.***
   CAUTION: Do not connect the test fixture ground strap to any heatsink in this receiver.

Electrostatically Sensitive (ES) Devices

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called ***Electrostatically Sensitive (ES) Devices.*** Examples of typical ES devices are integrated circuits and some fieldeffect transistors and semicounductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed to prevent potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminium foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static type solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminium foil or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.
   CAUTION: Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.
8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the bruching together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device.)

General Soldering Guidelines

1. Use a grounded-tip, low-wattage soldering iron and appropriate tip size and shape that will maintain tip temperature within the range or 500° F to 600° F.
2. Use an appropriate gauge of RMA resin-core solder composed of 60 parts tin/40 parts lead.
3. Keep the soldering iron tip clean and well tinned.
4. Thoroughly clean the surfaces to be soldered. Use a mall wirebristle (0.5 inch, or 1.25cm) brush with a metal handle. Do not use freon-propelled spray-on cleaners.
5. Use the following unsoldering technique
   a. Allow the soldering iron tip to reach normal temperature. (500° F to 600° F)
   b. Heat the component lead until the solder melts.
   c. Quickly draw the melted solder with an anti-static, suction-type solder removal device or with solder braid.
      CAUTION: Work quickly to avoid overheating the circuitboard printed foil.
6. Use the following soldering technique.
   a. Allow the soldering iron tip to reach a normal temperature (500° F to 600° F)
   b. First, hold the soldering iron tip and solder the strand against the component lead until the solder melts.

c. Quickly move the soldering iron tip to the junction of the component lead and the printed circuit foil, and hold it there only until the solder flows onto and around both the component lead and the foil.
CAUTION: Work quickly to avoid overheating the circuit board printed foil.
d. Closely inspect the solder area and remove any excess or splashed solder with a small wire-bristle brush.

IC Remove/Replacement
Some chassis circuit boards have slotted holes (oblong) through which the IC leads are inserted and then bent flat against the circuit foil. When holes are the slotted type, the following technique should be used to remove and replace the IC. When working with boards using the familiar round hole, use the standard technique as outlined in paragraphs 5 and 6 above.

Removal
1. Desolder and straighten each IC lead in one operation by gently prying up on the lead with the soldering iron tip as the solder melts.
2. Draw away the melted solder with an anti-static suction-type solder removal device (or with solder braid) before removing the IC.

Replacement
1. Carefully insert the replacement IC in the circuit board.
2. Carefully bend each IC lead against the circuit foil pad and solder it.
3. Clean the soldered areas with a small wire-bristle brush. (It is not necessary to reapply acrylic coating to the areas).

"Small-Signal" Discrete Transistor Removal/Replacement
1. Remove the defective transistor by clipping its leads as close as possible to the component body.
2. Bend into a "U" shape the end of each of three leads remaining on the circuit board.
3. Bend into a "U" shape the replacement transistor leads.
4. Connect the replacement transistor leads to the corresponding leads extending from the circuit board and crimp the "U" with long nose pliers to insure metal to metal contact then solder each connection.

Power Output, Transistor Device Removal/Replacement
1. Heat and remove all solder from around the transistor leads.
2. Remove the heatsink mounting screw (if so equipped).
3. Carefully remove the transistor from the heat sink of the circuit board.
4. Insert new transistor in the circuit board.
5. Solder each transistor lead, and clip off excess lead.
6. Replace heatsink.

Diode Removal/Replacement
1. Remove defective diode by clipping its leads as close as possible to diode body.
2. Bend the two remaining leads perpendiculaly to the circuit board.
3. Observing diode polarity, wrap each lead of the new diode around the corresponding lead on the circuit board.
4. Securely crimp each connection and solder it.
5. Inspect (on the circuit board copper side) the solder joints of the two "original" leads. If they are not shiny, reheat them and if necessary, apply additional solder.

Fuse and Conventional Resistor Removal/Replacement
1. Clip each fuse or resistor lead at top of the circuit board hollow stake.
2. Securely crimp the leads of replacement component around notch at stake top.
3. Solder the connections.
CAUTION: Maintain original spacing between the replaced component and adjacent components and the circuit board to prevent excessive component temperatures.

Circuit Board Foil Repair
Excessive heat applied to the copper foil of any printed circuit board will weaken the adhesive that bonds the foil to the circuit board causing the foil to separate from or "lift-off" the board. The following guidelines and procedures should be followed whenever this condition is encountered.

At IC Connections
To repair a defective copper pattern at IC connections use the following procedure to install a jumper wire on the copper pattern side of the circuit board. (Use this technique only on IC connections).

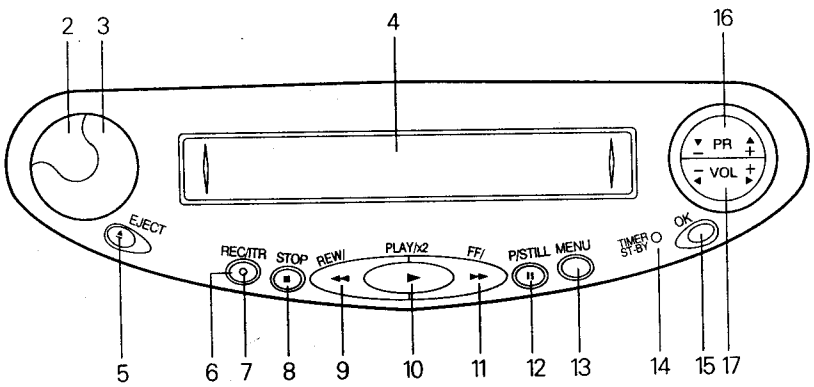
1. Carefully remove the damaged copper pattern with a sharp knife. (Remove only as much copper as absolutely necessary).
2. carefully scratch away the solder resist and acrylic coating (if used) from the end of the remaining copper pattern.
3. Bend a small "U" in one end of a small gauge jumper wire and carefully crimp it around the IC pin. Solder the IC connection.
4. Route the jumper wire along the path of the out-away copper pattern and let it overlap the previously scraped end of the good copper pattern. Solder the overlapped area and clip off any excess jumper wire.

At Other Connections
Use the following technique to repair the defective copper pattern at connections other than IC Pins. This technique involves the installation of a jumper wire on the component side of the circuit board.

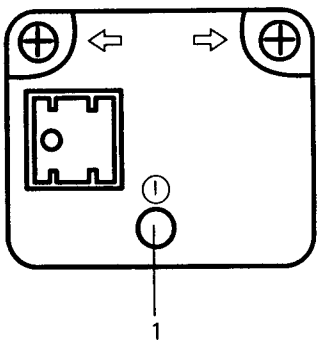
1. Remove the defective copper pattern with a sharp knife. Remove at least 1/4 inch of copper, to ensure that a hazardous condition will not exist if the jumper wire opens.
2. Trace along the copper pattern from both sides of the pattern break and locate the nearest component that is directly connected to the affected copper pattern.
3. Connect insulated 20-gauge jumper wire from the lead of the nearest component on one side of the pattern break to the lead of the nearest component on the other side. Carefully crimp and solder the connections.
CAUTION: Be sure the insulated jumper wire is dressed so that it does not touch components or sharp edges.

CONTROLS LOCATION

FRONT PANEL



(On the back cover)

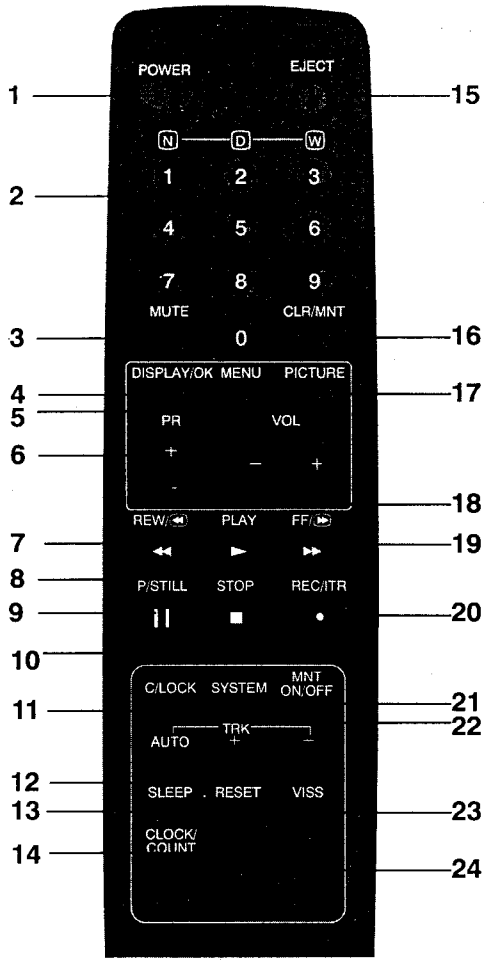


1. MAIN POWER BUTTON
2. POWER BUTTON
3. STAND-BY INDICATOR
4. CASSETTE COMPARTMENT
5. EJECT BUTTON
6. REC/ITR BUTTON
7. REC/ITR INDICATOR
8. STOP BUTTON
9. REW(REWIND/REVIEW) BUTTON
10. PLAY BUTTON
11. FF(FAST FORWARD/CUE) BUTTON
12. PAUSE/STILL BUTTON
13. MENU BUTTON
14. TIMER ST-BY INDICATOR
15. OK BUTTON
16. PROGRAMME UP/DOWN BUTTON
17. VOLUME UP/DOWN BUTTON

FEATURES

- Auto Programme Memory
- Manual Programme Memory
- Fine Tuning
- Programme Edit
- Clock Set (Real time, DAY/MONTH/YEAR)
- ON/OFF Time
- SLEEP Timer
- Auto Sleep Function
- Blue Back ON/OFF
- Auto Operations SYSCON
  (Auto Play, Auto Rewind, Auto Repeat, Auto Tracking)
- VISS
- REC/ITR
- 8PR./1 Year Record Programmable Timer
- Z-SEARCH, F/R-SEARCH, PB(X2)
- Quick Start
- Auto Head Cleaner
- FULL MENU OSD

REMOTE CONTROL UNIT



1. **POWER**
   switches the set on from standby mode or off to standby mode.

2. **NUMBERS**
   turn on the set from standby or select a number directly.

3. **MUTE**
   switches the sound on or off.

4. **DISPLAY/ OK**
   shows the current mode or accepts your selection.

5. **MENU**
   selects a menu.

6. **PROGRAMME UP/DOWN(+/-)**
   switch the set on from standby.
   select a programme or a menu item.

7. **REW (REWIND/REVIEW)**
   rewinds the tape in the stop mode or reviews fast the tape in the playback mode.

8. **PLAY**
   plays back the tape.

9. **PAUSE/STILL**
   displays a still-picture in the playback mode. To advance the picture frame by frame, repeatedly press this button.
   The tape stops momentarily in the recording mode.

10. **STOP**
    stops the tape.

11. **CHILD LOCK**
    prevents operation of the front panel buttons.

12. **TRK AUTO, +/-**
    selects the best picture automatically or manually in the playback mode.

13. **SLEEP**
    sets the sleep timer.

14. **RESET**
    resets the tape counter.

15. **EJECT**
    ejects the tape.

16. **CLEAR/MONITOR**
    clears an incorrect entry when programming.
    While the VCR playback is visible, pressing this button switches to a TV programme.

17. **PICTURE**
    displays the picture set mode.

18. **VOLUME UP/DOWN(+/-)**
    adjust the volume.
    set data in a menu.

19. **FF (FAST FORWARD/CUE)**
    winds the tape rapidly forward while the VCR is in the stop mode.
    When this button is kept pressed in the playback mode, the tape will be played back fast forward.

20. **REC/ITR**
    Press this button for about 3 seconds to start recording.

21. **MONITOR ON/OFF**
    Press this button if you do not wish to monitor while recording.

22. **SYSTEM**
    selects the desired colour system.

23. **VISS**
    selects the Viss (Video Index Search System) mode.

24. **CLOCK/COUNT**
    displays the current time or tape counter.

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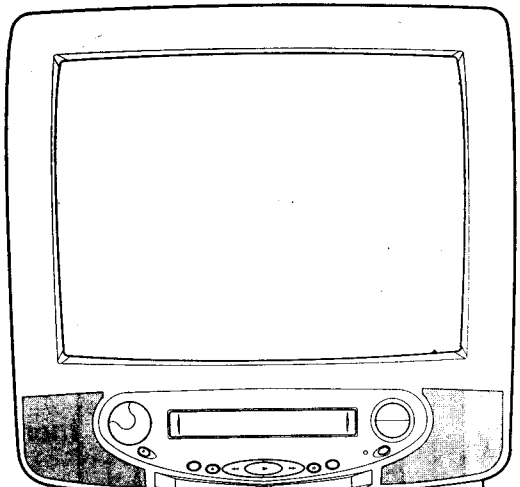
SECTION 2 MONITOR PART

VHS TVCR ViewMax™

SERVICE MANUAL



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MONITOR

DISASSEMBLY INSTRUCTIONS

1. Back Cover Removal

Remove the screws residing on the back cover and carefully separate the back cover from the front cabinet and P/cord holder barcket.(Refer to Fig. 2-1, 2-2)

2. Monitor Main Chassis Removal

Grasp both sides of the main support frame and pull it back and up.

Caution:

Be carefull not to touch the main chassis and VCR chassis to each other when servicing.

3. VCR Chassis Removal

1) Remove 2 screws securing the VCR chassis to the front cabinet.
2) Grasp both sides of the chassis and pull it back

4. Speaker Assembly Removal

1) Remove the connector between the spekaer and the main chassis.
2) To remove the speaker, remove the screw.

5. CPT REMOVAL

1) After removal the monitor main chaasis, VCR chassis and speaker assy, remove the CPT board from CPT neck.
2) Plase the cabinet with the front down on suitable cushion.
3) Remove 4 screws swcuring the CPT to the cabinet.
4) Carefully separate CPT from front cabinet.

PICTURE TUBE HANDLING CAUTION

Due to high vacuum and large surface area of picture tube, great care is needed when handling the picture tube. Always lift the picture tube by grasping it firmly around faceplate. NEVER LIFT THE TUBE BY ITS NECK. The picture tube must not be scrated or subject to excessive pressure as gracture of the glass may result in an implosion of considerable violence which can cause personal injury or property damage,

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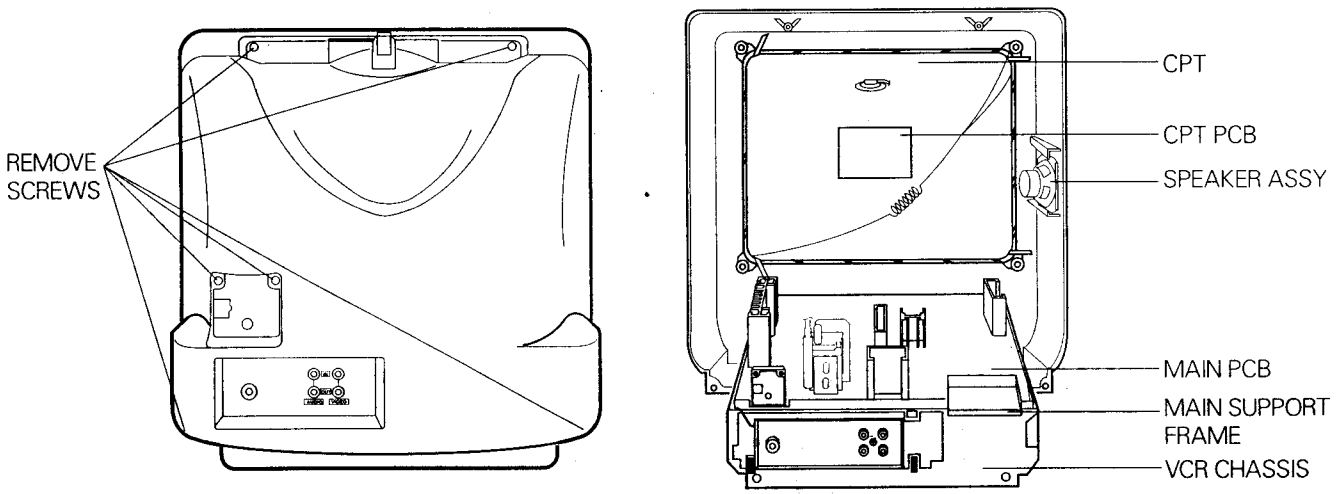

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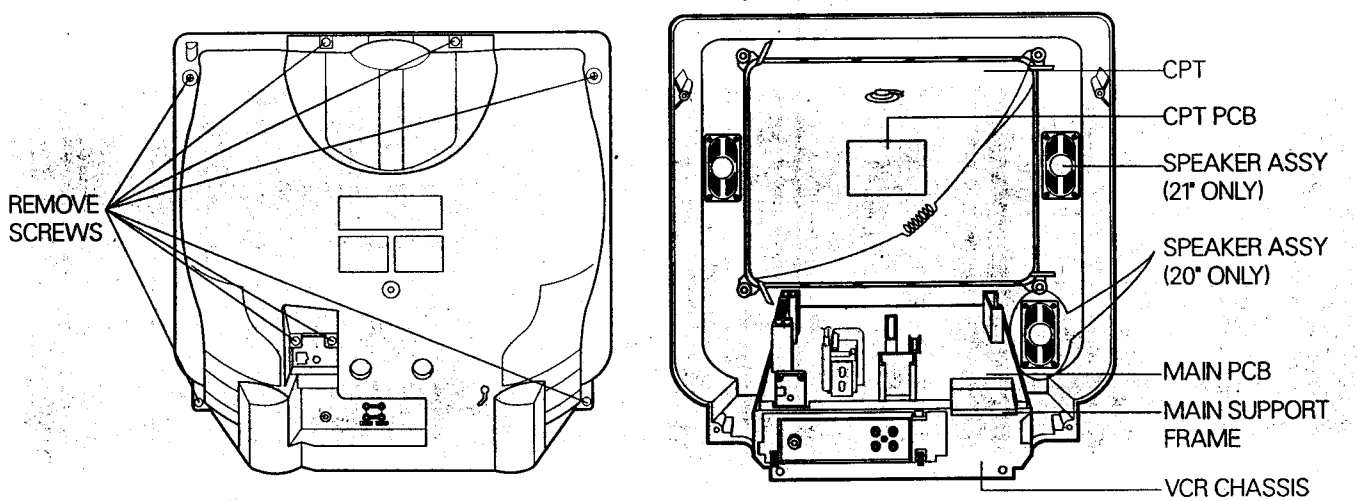


Fig. 2-1

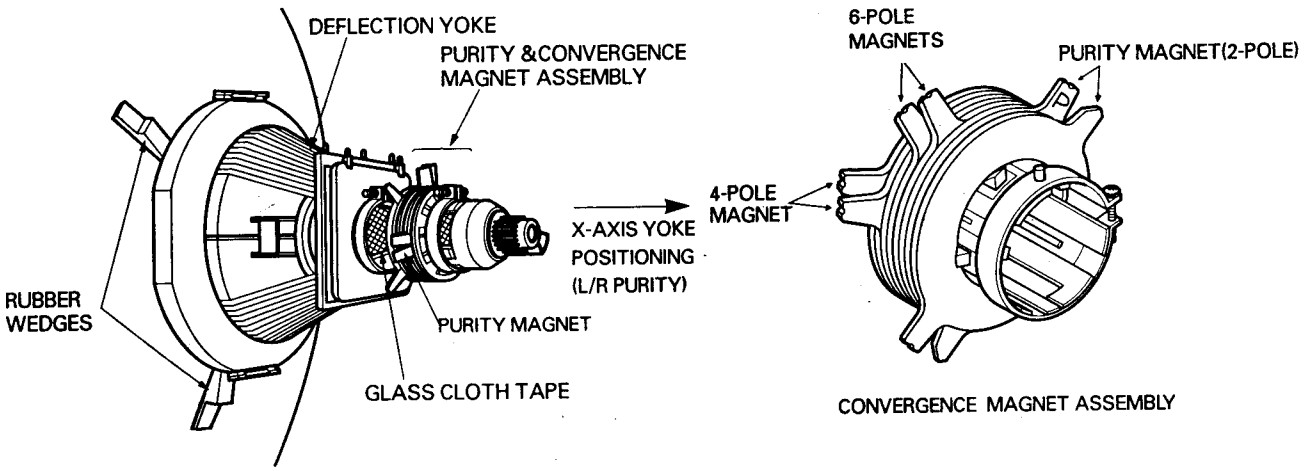
Fig. 2-2

PURITY & CONVERGENCE ADJUSTMENT

Caution:
Convergence and Purity have been factory aligned. Do not attempt to tamper with these alignments.
However, the effects of adjacent receiver components, or replacement of picture tube or deflection yoke may require the need to readjust purity any convergence.

5. Reconnect the internal degaussing coil.

6. Position the beam bender locking rings at the 9 o'clock position and the other three pairs of tabs (2,4 and 6 pole magnets) at the 12 o'clock position.



• Purity Adjustment

This procedure DOES NOT apply to bonded yoke and picture tube assemblies.
The instrument should be at room temperature (60 degrees F or above) for six (6) hours and be operating at low beam current (dark background) for approximately 20 to 30 minutes before performing purity adjustments.

CAUTION: Do not remove any trim magnets that may be attached to the bell of the picture tube.

1. Remove the AC power and disconnect the internal degaussing coil.
2. Remove the yoke from the neck of the picture tube.
3. If the yoke has the tape version beam bender, remove it and replace it with a adjustable type beam bender (follow the instructions provided with the new beam bender)
4. Replace the yoke on the picture tube neck, temporarily remove the three (3) rubber wedges from the bell of the picture tube and then slide the yoke completely forward.

7. Perform the following steps, in the order given, to prepare the receiver for the purity adjustment procedure.

   a. Face the receiver in the "magnetic north" direction.

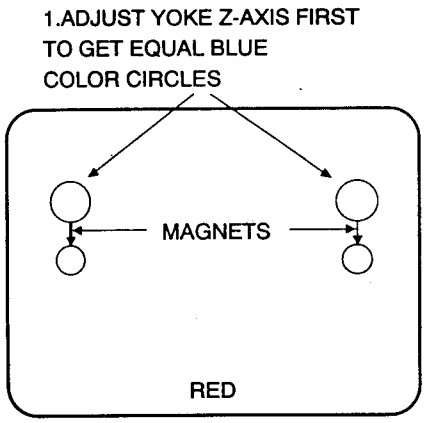
   b. Externally degauss the receiver screen with the television power turned off.

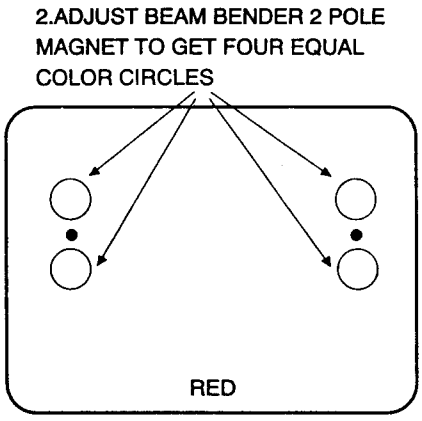
   c. Turn the television on for approximately 10 seconds to perform internal degaussing and then turn the TV off.

   d. Unplug the internal degaussing coil. This allows the thermistor to cool down while you are performing the purity adjustment. DO NOT MOVE THE RECEIVER FROM ITS "MAGNETIC NORTH" POSITION.

   e. Turn the receiver on and obtain a red raster by increasing the red bias control (CW) and decreasing the bias controls for the remaining two colors (CCW).

   f. Attach two round magnets on the picture tube screen at 3 o'clock and 9 o'clock positions, approximately one (1) inch from the edge of the mask (use double-sided tape).





8. Referring to above, perform the following two steps:
   a. Adjust the yoke Z-axis to obtain equal blue circles.
   b. Adjust the appropriate beam bender tabs to obtain correct purity (four equal circles).

9. After correct purity is set, tighten the yoke clamp screw and remove the two screen magnets.

10. Remove the AC power and rotate the receiver 180 degrees (facing "magnetic south").

11. Reconnect the internal degaussing coil.

12. Turn the receiver on for 10 seconds (make sure the receiver came on) to perform internal degaussing, and then turn the receiver off.

13. Unplug the internal degaussing coil.

14. Turn on the receiver and check the purity by holding one (1) round magnet at the 3 o'clock and a second round magnet at 9 o'clock position. If purity is not satisfactory, repeat steps 8 through 14.

15. Turn off the receiver and reconnect the internal degaussing coil.

• Convergence Adjustment

Caution: This procedure DOES NOT apply to bonded yoke and picture tube assemblies.
Do not use screen magnets during this adjustment procedure. Use of screen magnets will cause an incorrect display.

1. Remove AC power and disconnect the internal degaussing coil.

2. Apply AC Power and set the brightness to the Picture Reset condition. Set the Color control to minimum.

3. Press CUT OFF button on service remote controller.

4. Adjust the Red, Green and Blue Bias controls to get a dim white line.

5. Remove the AC power.

6. Reconnect the internal degaussing coil and apply AC power.

7. Turn the receiver on for 10 seconds to perform internal degaussing and then turn the receiver off again.

8. Unplug the internal degaussing-coil.

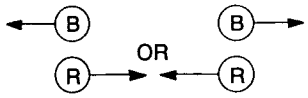
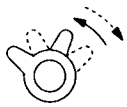
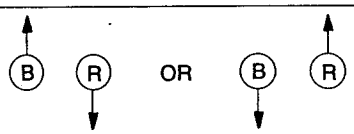
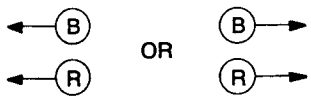
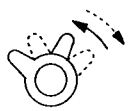
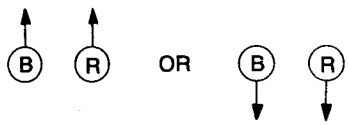
9. Turn on the receiver, connect a signal generator to the VHF antenna terminal and apply a crosshatch signal.

Caution: During the convergence adjustment procedure, be very careful not to disturb the purity adjustment tabs are accidentally move, purity should be confirmed before proceeding with the convergence adjustments.

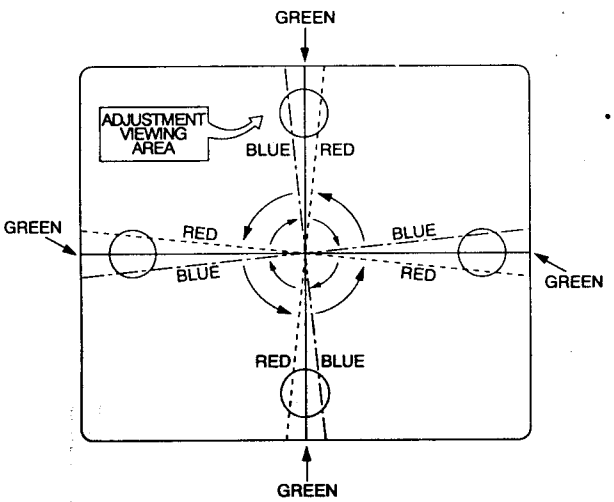
Note: Make sure the focus is set correctly on this instrument before proceeding with the following adjustment.

10. Converge the red and blue vertical lines to the green vertical line at the center of the screen by performing the following steps (below TABLE).
    a. Carefully rotate both tabs of the 4-pole ring magnet simultaneously in opposite directions from the 12 o'clock position to converge the red and blue vertical lines.
    b. Carefully rotate both tabs of the 6-pole ring magnet simultaneously in opposite directions form the 12 o'clock position to converge the red and blue (now purple) vertical lines with the green vertical line.

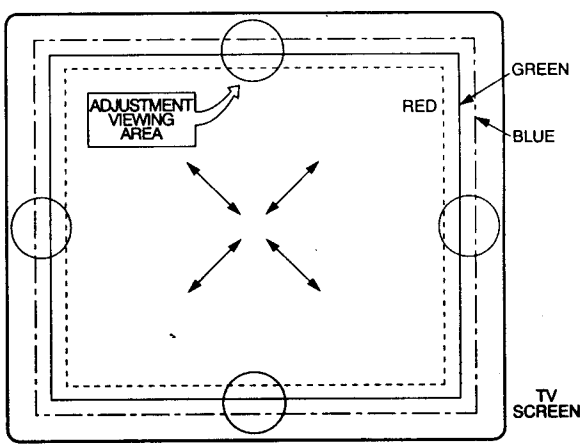
11. Converge the red and blue horizontal with the green line at the center of the screen by performing the following steps. (below TABLE)
    a. Carefully rotate both tabs of the 4-pole ring magnet simultaneously in the same direction (keep the spacing between the two tabs the same) to converge the red and blue horizontal lines.
    b. Carefully rotate both tabs of the 6-pole ring magnet simultaneously in same direction (keep the spacing between the two tabs the same) to converge the red and blue (now purple) horizontal lines with the green horizontal line.
    c. Secure the tabs previsouly adjusted by locking them in place with the locking tabs on the beam bender.

RING PAIRS	ROTATION DIRECTION OF BOTH TABS	MOVEMENT OF RED AND BLUE BEAMS
4 POLE	 OPPOSITE	
	 SAME	
6 POLE	 OPPOSITE	
	 SAME	

UP/DOWN ROCKING OF THE YOKE CAUSES OPPOSITE ROTATION OF RED AND BLUE RASTERS



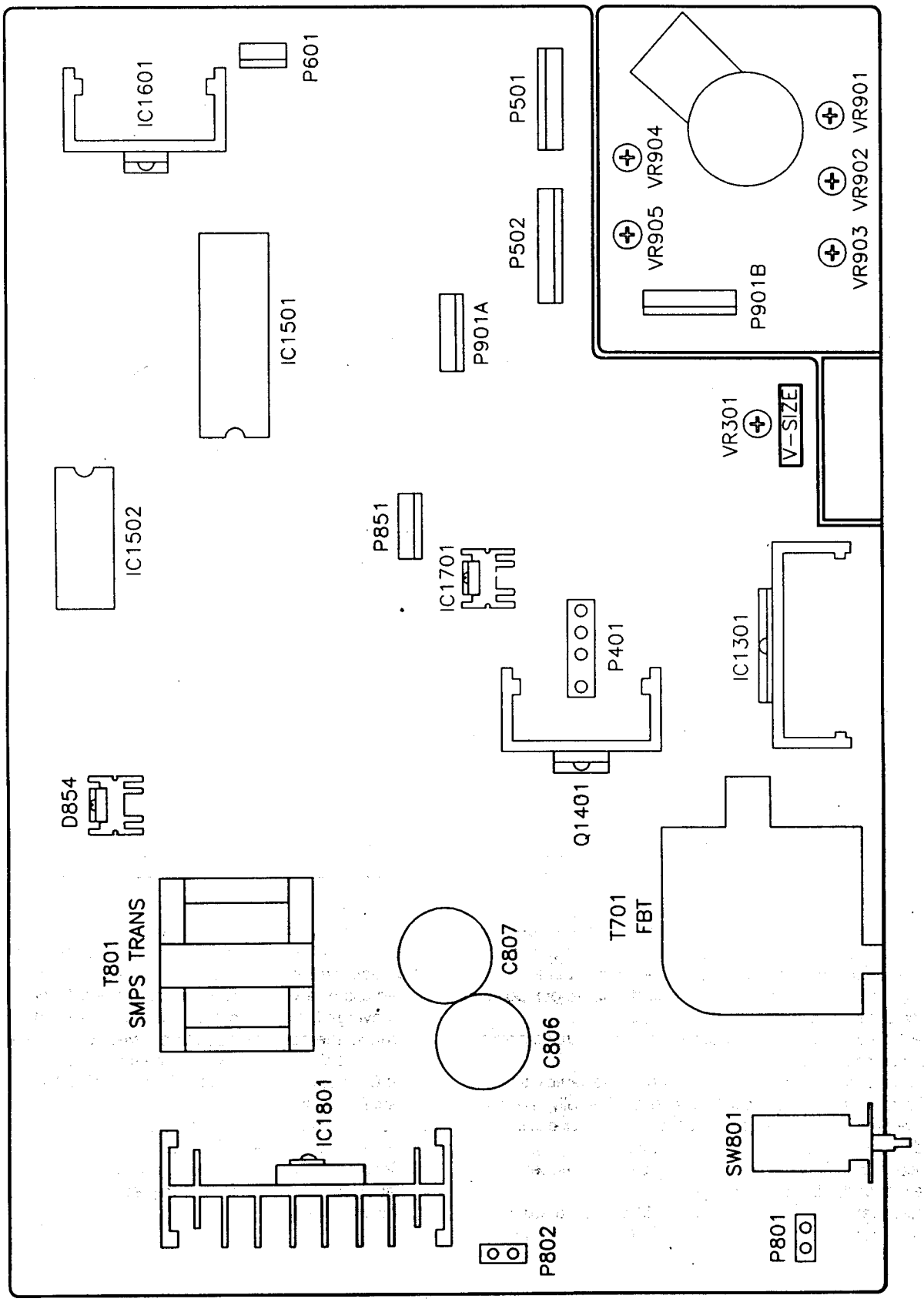
LEFT/RIGHT ROCKING OF THE YOKE CAUSES OPPOSITE SIZE CHANGE OF THE RED AND BLUE RASTERS



12. While watching the 6 o'clock positions on the screen, rock the front of the yoke in a vertical (up/down) direction to converge the red and blue vertical lines. (Fig upper left)
13. Temporarily place a rubber wedge at the 12 o'clock position to hold the vertical position or the yoke.
14. Check the 3 o'clock and 9 o'clock areas to confirm that the red and blue horizontal lines are converged.
    If the lines are not converged, slightly offset the vertical tilt of the yoke (move the rubber wedge if necessary) to equally balance the convergence error of the horizontal lines at 3 o'clock and 9 o'clock and the vertical lines at 6 o'clock and 12 o'clock.
15. Place a 1.5 inch piece of glass tape over the rubber foot at the rear of the 12 o'clock wedge.
16. While watching the 6 o'clock and 12 o'clock areas of the screen, rock the front of the yoke in the horizontal (left to right) motion to converge the red and blue horizontal lines. (Fig. upper right)
17. Temporarily place a rubber wedge at the 5 o'clock and 7 o'clock positions to hold the horizontal position of the yoke.
18. Check the 3 o'clock and 9 o'clock areas to confirm that the red and blue vertical lines are converged. If the lines are not converged, slightly offset the horizontal tilt of the yoke (move the temporary rubber wedges if necessary) to equally balance the convergence error of the horizontal lines at 6 o'clock and 12 o'clock and the vertical lines at 3 o'clock and 9 o'clock.
19. Using a round magnet confirm purity at the center, right and left sides and corners. See Purity Adjustment Procedure.
20. Reconfirm convergence and apply a 1.5 inch piece of glass tape over the rubber foot at the rear of the 5 o'clock and the 7 o'clock wedges.

ALIGNMENT/TEST POINT LOCATION GUIDE

1. Monitor Main Board



ADJUSTMENT INSTRUCTIONS

■ Alignment procedures

1. It is safe to adjust after using insulating transformer between the power supply line and chassis input to prevent the risk of electric shock and protect the instrument.
2. Never disconnect leads while the TV receiver is on.
3. Don't short any portion of circuits while power is on.
4. The adjustment must be done by the correct appliances. But this is changeable in view of productivity.
5. Unless other-wise noted, set the line voltage to 220V± 10%, 50/60Hz.

■ Test Equipment required

1. Color signal generator : PAL/SECAM
2. Digital multi-meter
3. White balance meter

● RF AGC adjustment (at the MAIN PCB of VCR)

Test point	: TP AGC (W718)
Adjust	: VR771

The RF AGC control (VR771) was aligned at the time of manufacture for optimum preformance over a wide range conditions. Readjust of VR771 should not be necessary unless unusual local conditions exist, such as;

1) Channel interference in a CATV system.
2) Picture bending and / or color beats, which are unusually due to excessive RF signal input when the receiver is too close to a transmitting tower or when the receiver is connected to an antenna distribution system where the RF signal has been amplified.
   In this case the input signal should be attenuated (with a pad or filter) to a satisfactory level.
3) Picture noise caused by "broadcast noise" or weak signal.
   If the broadcast is "clean" and the RF signal is at least 1mV (60dBu) the picture will be noise free in any area.

Adjusting the VR771(RF AGC) control to one end of rotation will usually caused a relatively poor signal to noise ratio;
Adjusting to the other end of rotation will usually cause a degradation of overload capabilities resulting in color beats or adjacent channel reference.
For best results, adjust the VR771 control while preforming on all other local channels, or the voltage at TP AGC (W718) will be 5.5±0.1VDC.

Note: TP AGC (W718) VR771 are located inside VCR unit. Refer to below fig 1.

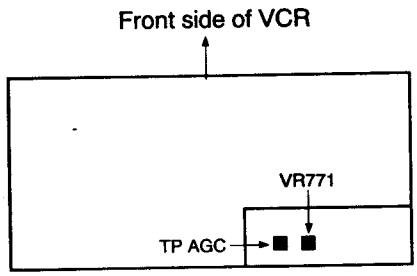


Fig. 1

● Focus adjustment

Test point	: Observe Display
Adjust	: Focus control of FBT

1) Set color to minimum, brightness and contrast to maximum.
2) Tune the TV set to an inactive channel station.
3) Adjust the focus control for best overall focus.

● Screen & white balance (color temperature) adjustment

Note: The color bias controls (VR901, VR902, VR903) affect the low light (dark) area of the picture while the color drive controls (VR904, VR905) affect the high light (white) areas.

1) Tune the standard white signal, set the color and brightness, contrast to the normal position.
2) Turn the screen VR counter-clockwise and set it to the minimum position.
3) Set the VR901, 902, 903, 904, 905 on the CPT Board to the mechanical center position.
4) Press CUTOFF button on service remote controller. (That is to obtain a horizontal line)
5) Turn the screen VR clockwise slowly to obtain a first horizontal line on screen.
6) Adjust Two Bias VR (two of three, VR901, 902, 903) so that the horizontal line on screen may become white.
7) Turn the screen VR adjust horizontal line on screen just disappear point.
8) Press again CUTOFF button on service remote controller, then TV screen returns normal status.
9) Receive the adjust pattern white and black signal.
10) Adjust VR904 (RED Drive) and VR905 (Blue Drive) high light on screen may become white.
11) By using color analyzer (white balance checker), adjust X position equals to 281±2 and Y position equals to 288±2, it means color temperature is 10000° ±800°K at low light (4.5ft.L) at high light (over 45ft.L)
12) Adjust Contrast and Birghtness and then conform whether you have a considerable adjustment in a high and low light screen, otherwise, re-adjust above item 4)-11).

● Vertical size adjustment.

1) Tune the TV set to receive a digital test pattern.
2) Adjust VR301 so that the circle of a digital pattern may be located within the effective screen of CPT.

■ Vertical/Horizontal/SECAM Adjustment

NOTE: These adjustments are already aligned at the time of manufacture for optimum performance. Readjust of them should not be necessary unless IC503(EEPROM) is defective. Because all the information of these adjustment are memorized in that IC.

Adjustment procedures

1) Tune the TV set to receive a digital pattern unless otherwise noted.
2) Press SVC button on service remote controller then you can find On Screen Display.
   Refer to the following fig. 2.
3) press PR+ or PR- button for desirous function adjustment.
4) press VOL+ or VOL- button for correct picture.

LINE SVC 1		PR1
H-CENT		14
V-CENT		04
SUB BRIGHT		00
SUB CONTRAST		00
SECAM	BELL	04
SECAM	R-Y	08
SECAM	B-Y	08
SECAM	AMP	03

Fig. 2

● Horizontal center adjustment

Adjust so that the horizontal center line of digital pattern is in accord with gemetric horizontal center of the CPT.

● Vertical center adjustment

Adjust so that the vertical center line of digital pattern is in accord with geometric center of the CPT.

● SECAM BELL filter adjustment

1) Tune the TV set to receive a SECAM digital pattern.
2) Adjust so that the color on the 3.8MHz pattern is minimized.

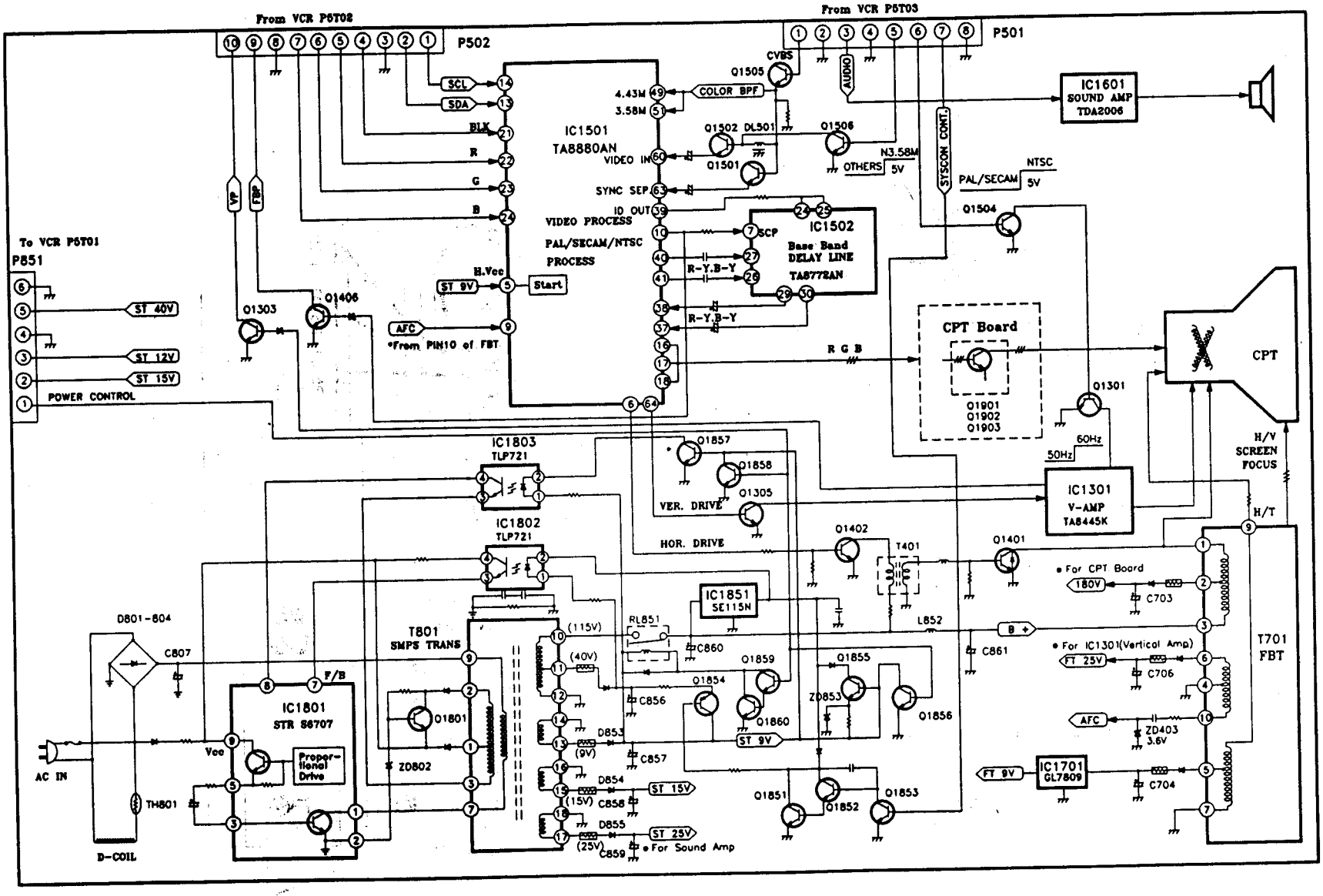
● SECAM B-Y/R-Y adjustment

1) Tune the TV set to receive a SECAM digital pattern.
2) Adjust so that the background color is equal to the PAL background color.

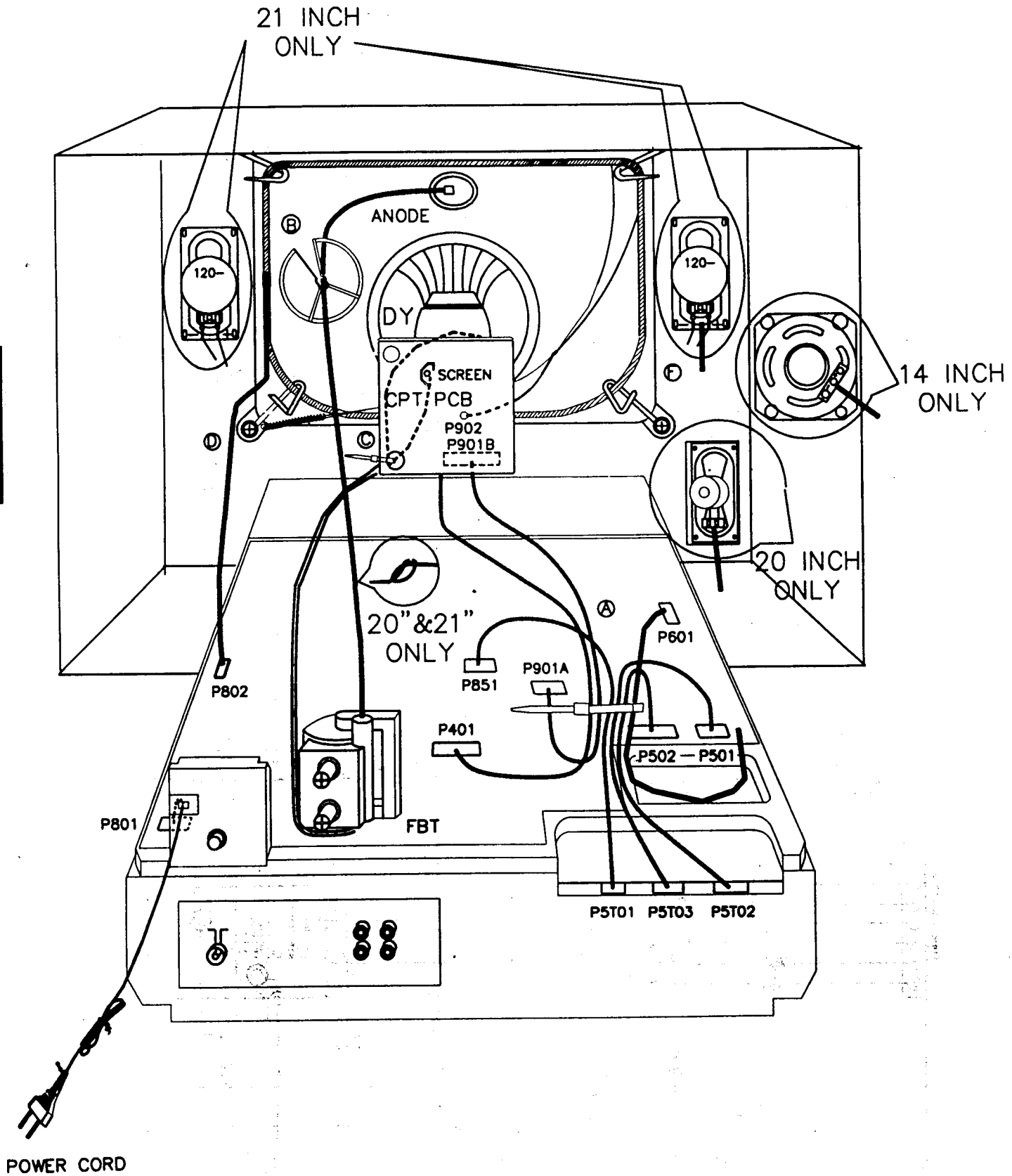
● SECAM AMP adjustment

1) Tune the TV set to receive a SECAM digital pattern.
2) Adjust so that the level of SECAM color is equal to the level of PAL color.

BLOCK DIAGRAM

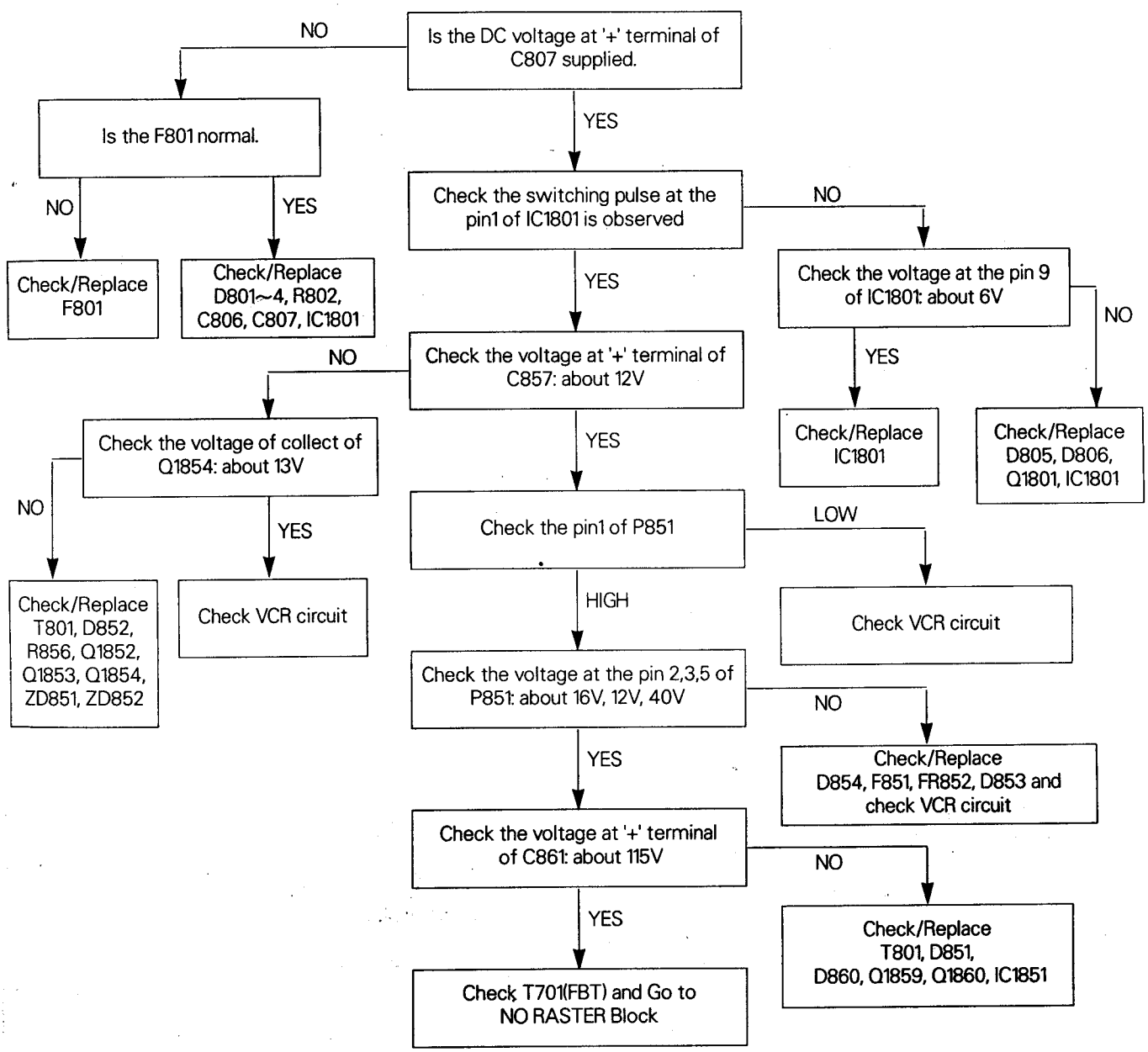


WIRING DIAGRAM

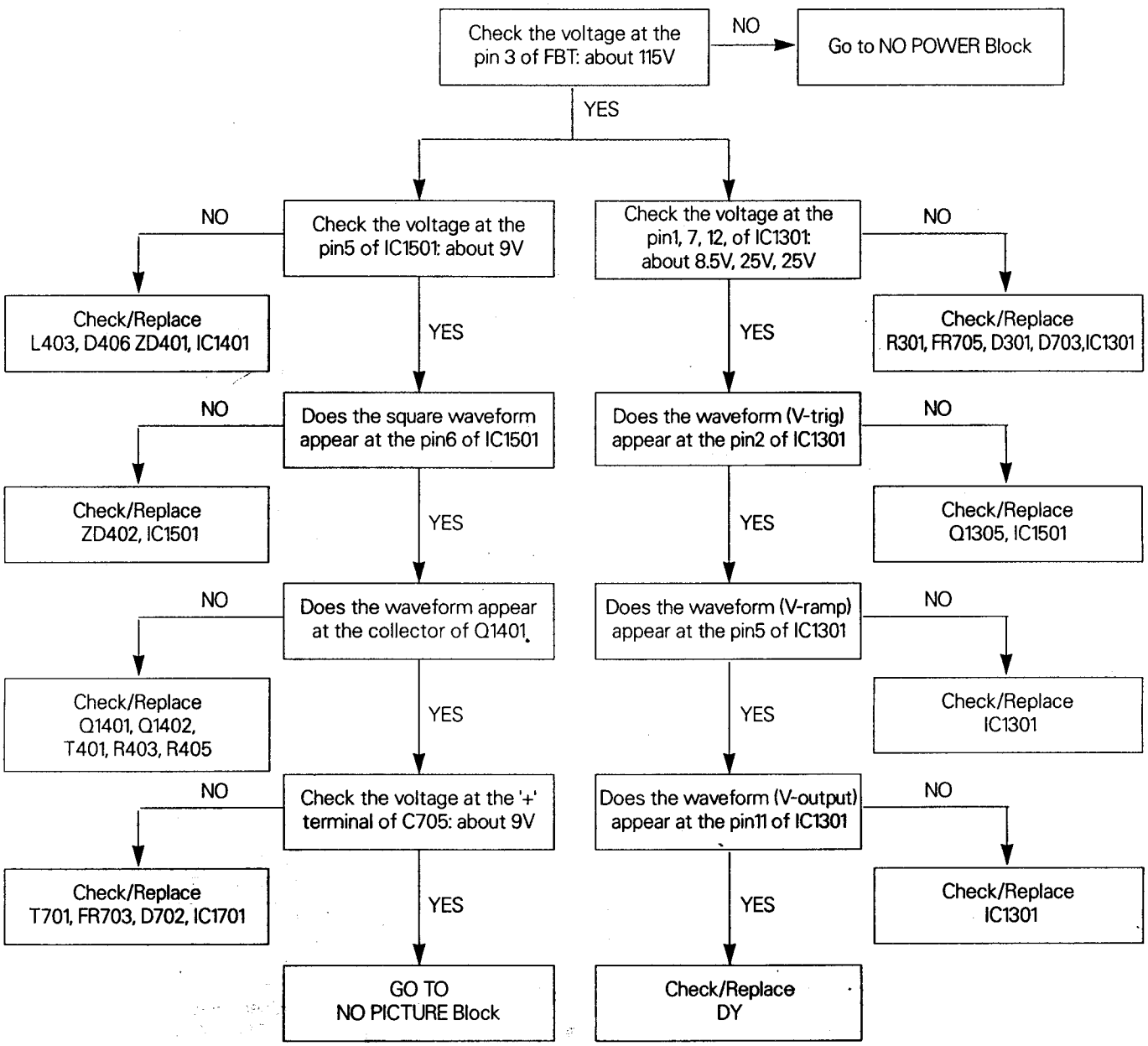


TROUBLESHOOTING CHARTS

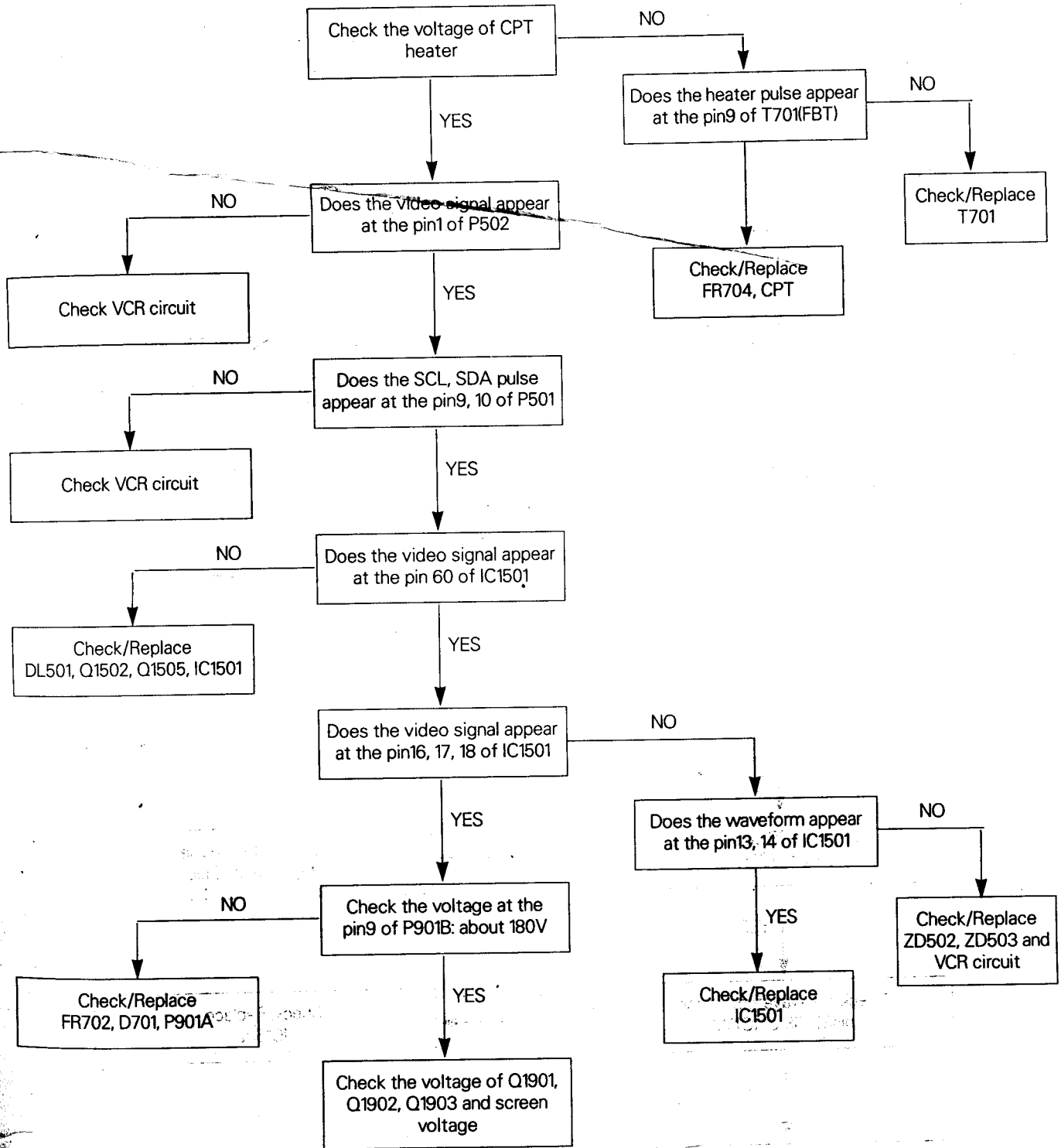
1. NO POWER



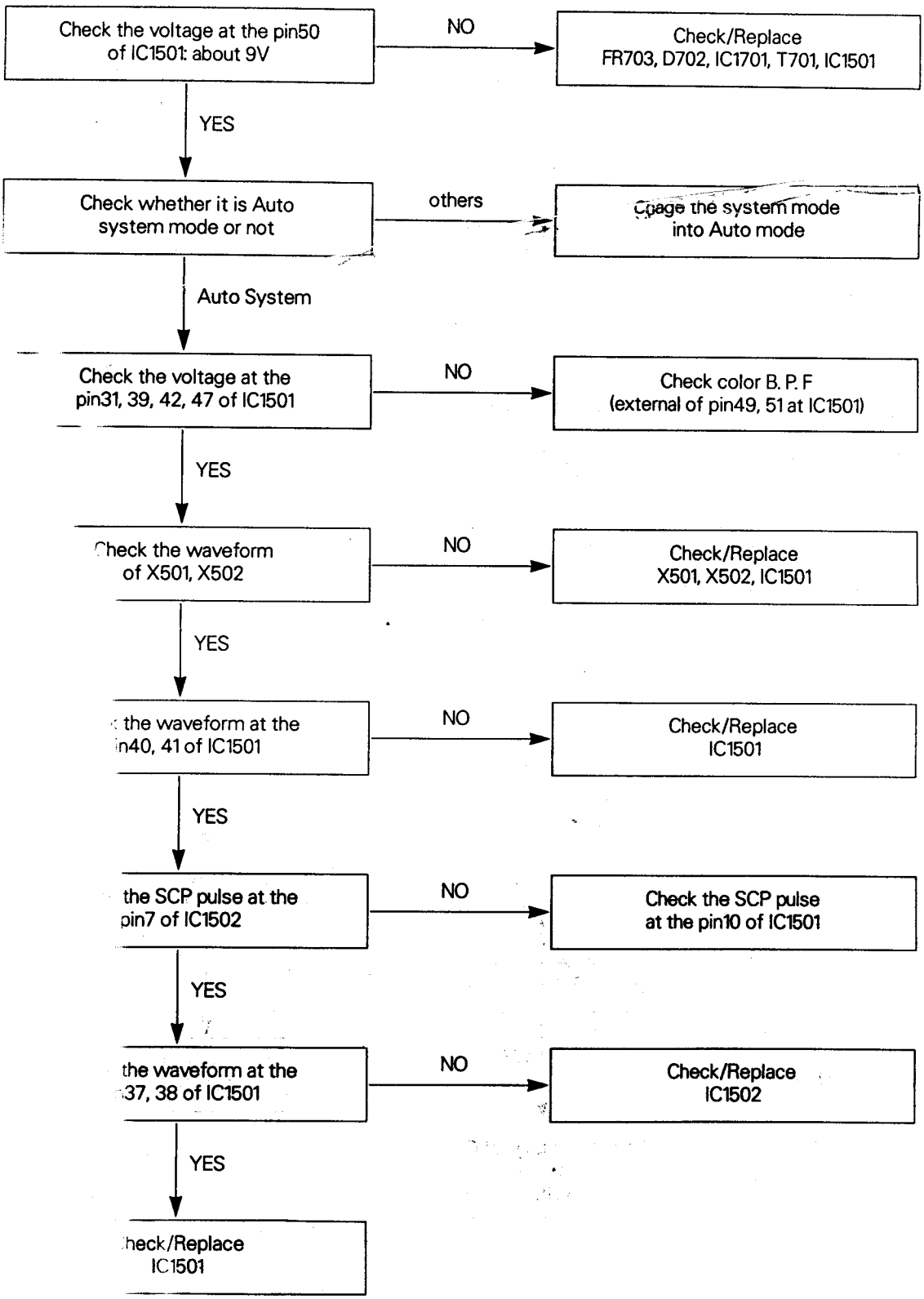
2. NO RASTER


Check the voltage at the pin 3 of FBT: about 115V
NO
Go to NO POWER Block
YES
Check the voltage at the pin5 of IC1501: about 9V
NO
Check/Replace L403, D406 ZD401, IC1401
YES
Does the square waveform appear at the pin6 of IC1501
NO
Check/Replace ZD402, IC1501
YES
Does the waveform appear at the collector of Q1401
NO
Check/Replace Q1401, Q1402, T401, R403, R405
YES
Check the voltage at the '+' terminal of C705: about 9V
NO
Check/Replace T701, FR703, D702, IC1701
YES
GO TO NO PICTURE Block
Check the voltage at the pin1, 7, 12, of IC1301: about 8.5V, 25V, 25V
NO
Check/Replace R301, FR705, D301, D703,IC1301
YES
Does the waveform (V-trig) appear at the pin2 of IC1301
NO
Check/Replace Q1305, IC1501
YES
Does the waveform (V-ramp) appear at the pin5 of IC1301
NO
Check/Replace IC1301
YES
Does the waveform (V-output) appear at the pin11 of IC1301
NO
Check/Replace IC1301
YES
Check/Replace DY

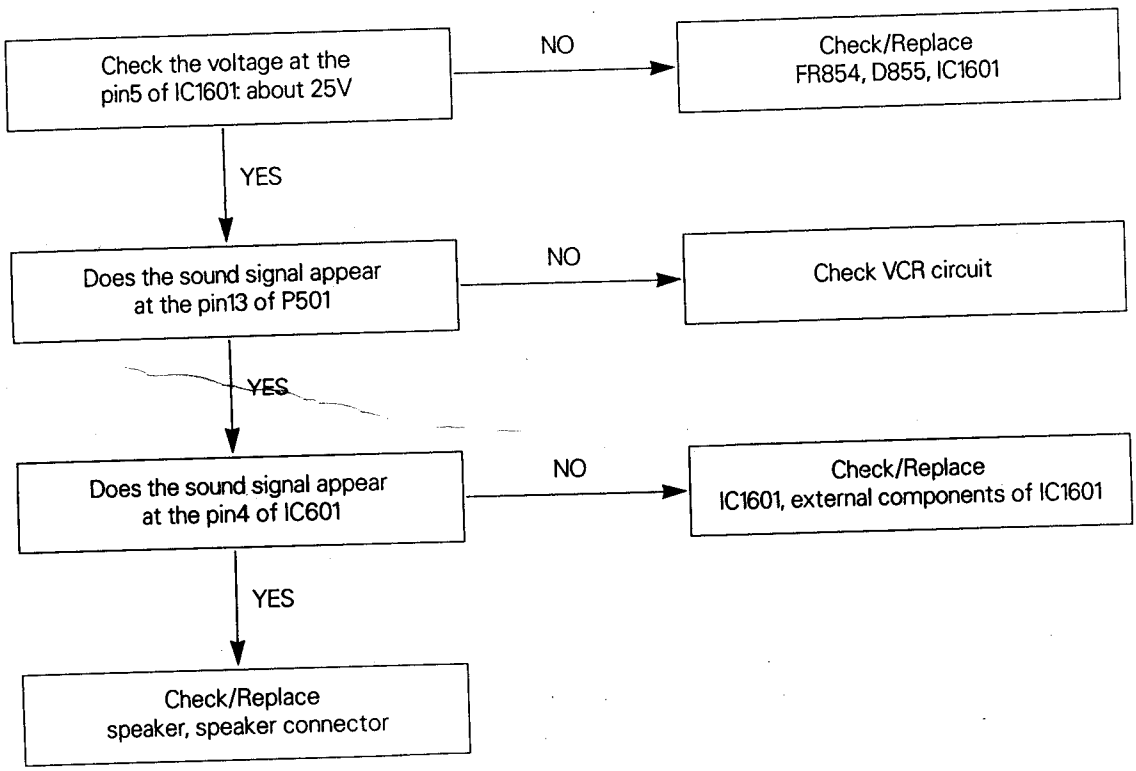
3. NO PICTURE


Check the voltage of CPT heater
NO
YES
Does the heater pulse appear at the pin9 of T701(FBT)
NO
Check/Replace T701
Check/Replace FR704, CPT
Does the video signal appear at the pin1 of P502
NO
Check VCR circuit
YES
Does the SCL, SDA pulse appear at the pin9, 10 of P501
NO
Check VCR circuit
YES
Does the video signal appear at the pin 60 of IC1501
NO
Check/Replace DL501, Q1502, Q1505, IC1501
YES
Does the video signal appear at the pin16, 17, 18 of IC1501
NO
YES
Does the waveform appear at the pin13, 14 of IC1501
NO
YES
Check/Replace ZD502, ZD503 and VCR circuit
Check/Replace IC1501
Check the voltage at the pin9 of P901B: about 180V
NO
Check/Replace FR702, D701, P901A
YES
Check the voltage of Q1901, Q1902, Q1903 and screen voltage

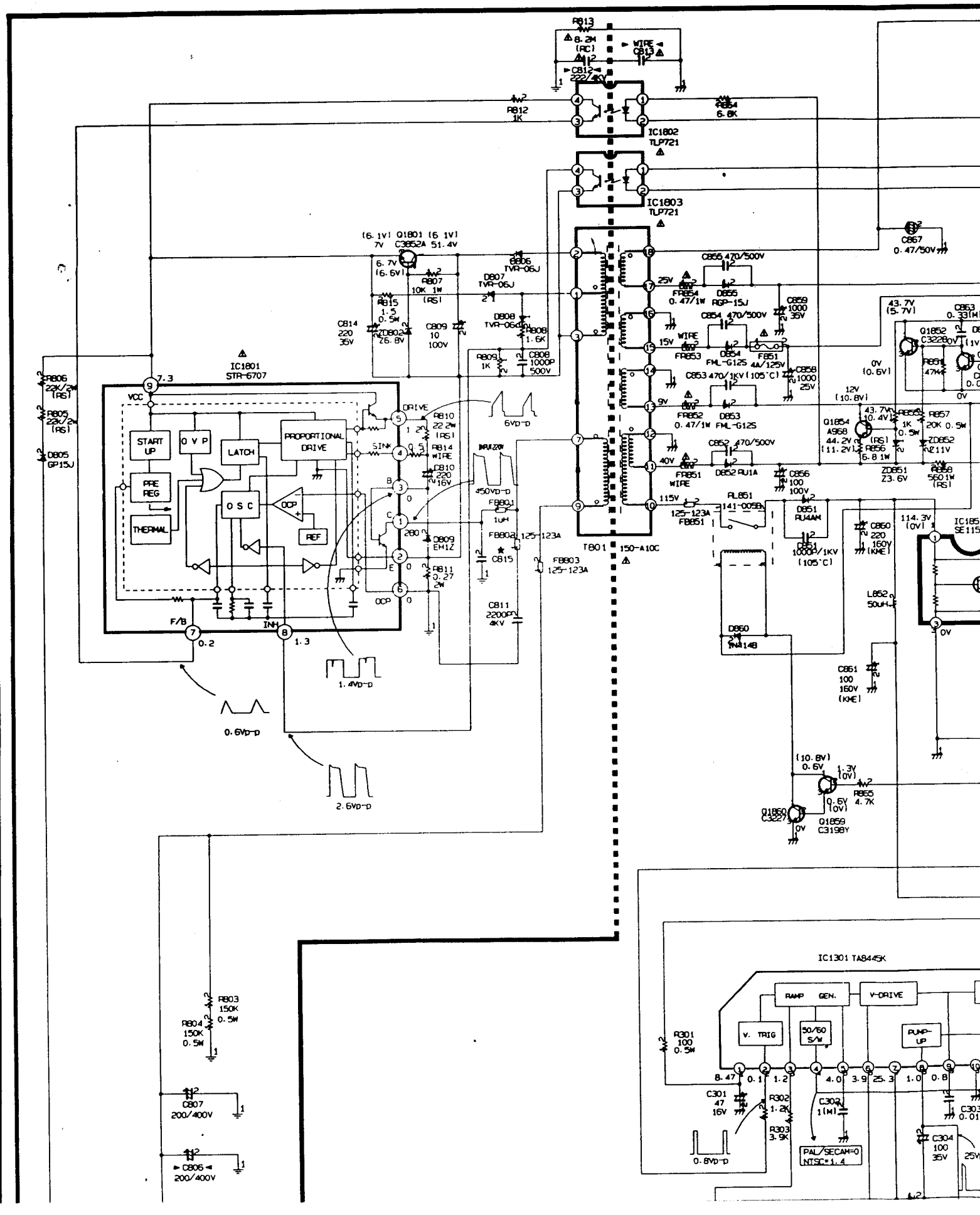
4. NO COLOR


Check the voltage at the pin50 of IC1501: about 9V
NO
Check/Replace FR703, D702, IC1701, T701, IC1501
YES
Check whether it is Auto system mode or not
others
Change the system mode into Auto mode
Auto System
Check the voltage at the pin31, 39, 42, 47 of IC1501
NO
Check color B. P. F (external of pin49, 51 at IC1501)
YES
Check the waveform of X501, X502
NO
Check/Replace X501, X502, IC1501
YES
the waveform at the pin40, 41 of IC1501
NO
Check/Replace IC1501
YES
the SCP pulse at the pin7 of IC1502
NO
Check the SCP pulse at the pin10 of IC1501
YES
the waveform at the 37, 38 of IC1501
NO
Check/Replace IC1502
YES
heck/Replace IC1501

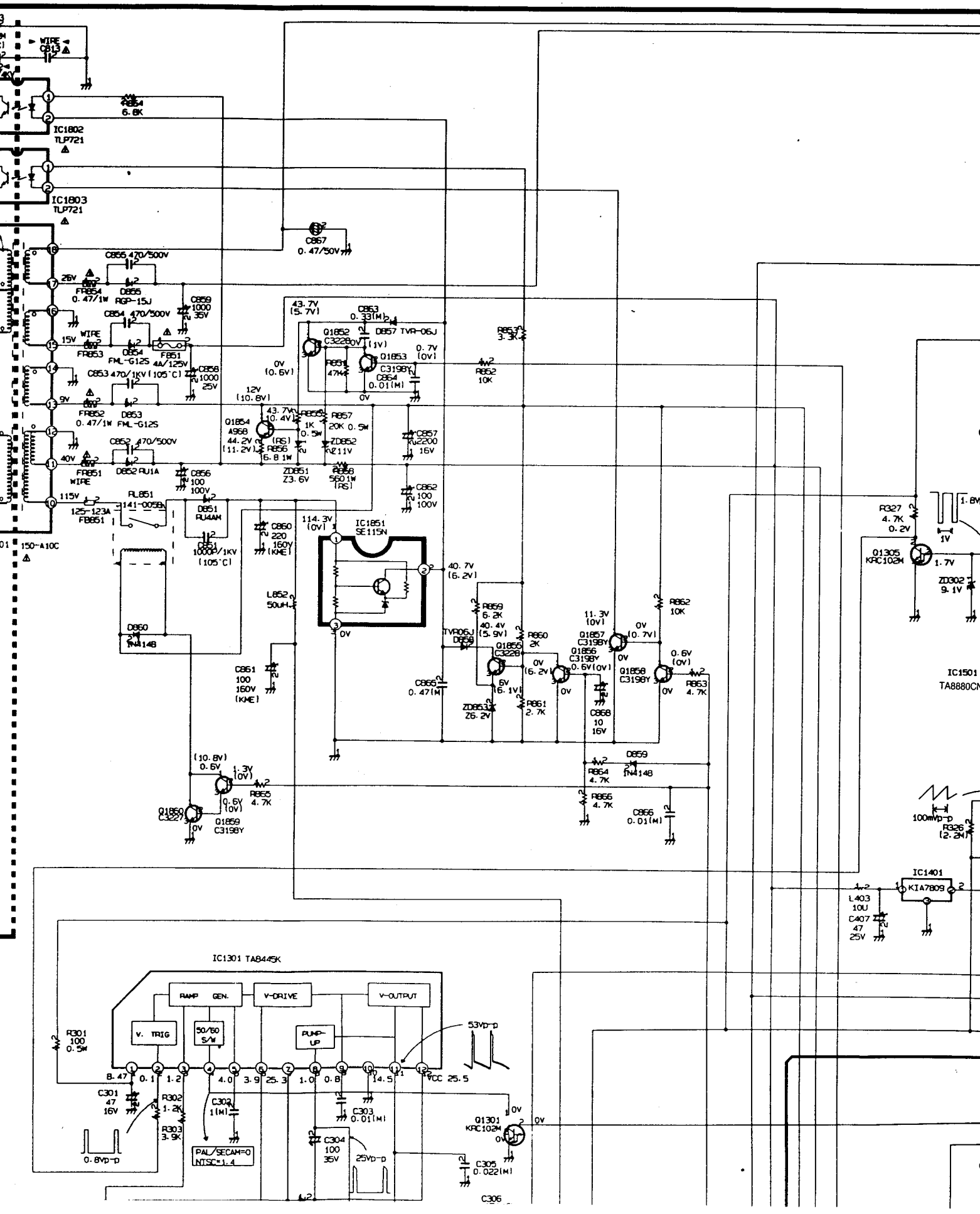
5. NO SOUND



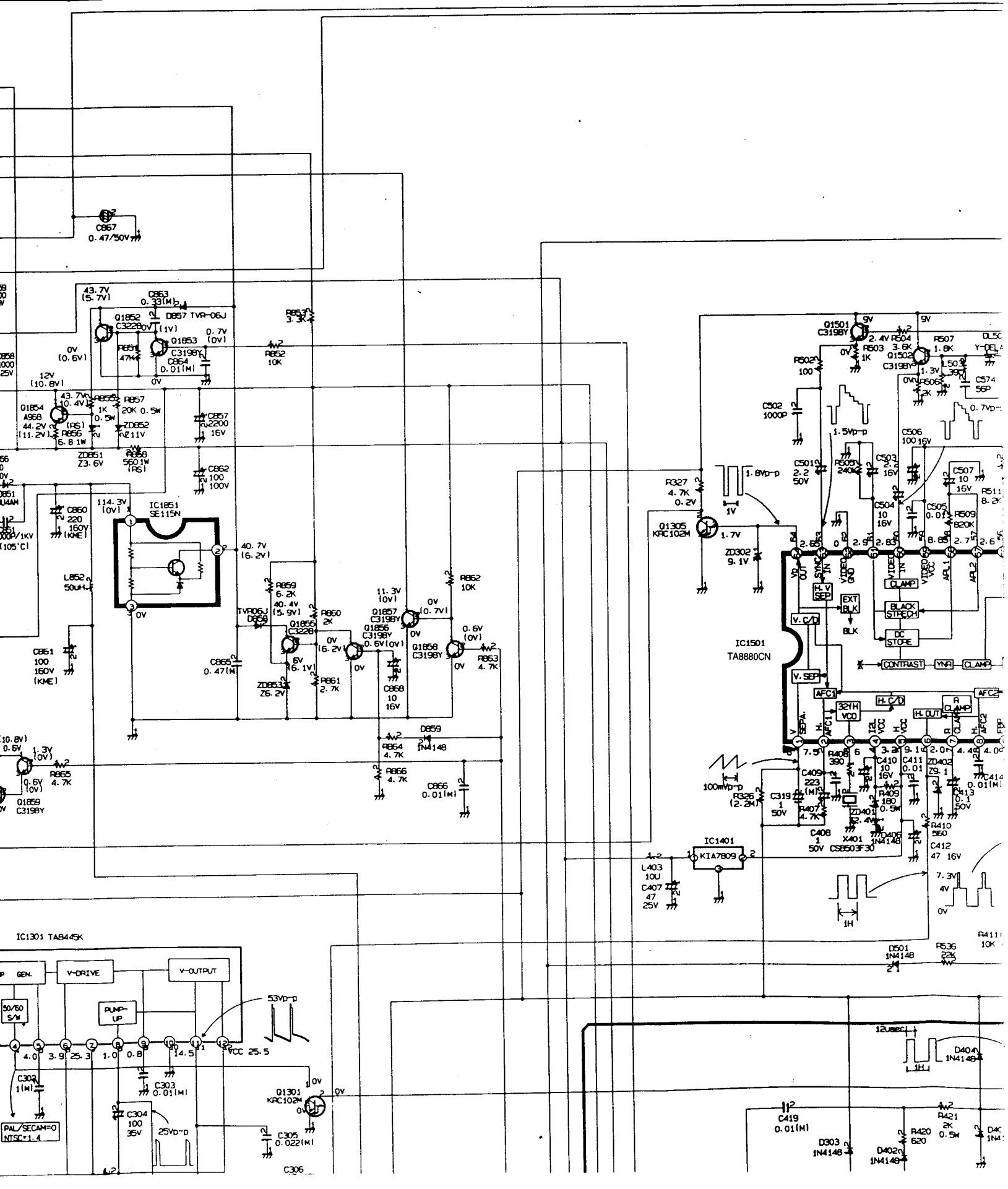
MC-48A SCHEMATIC



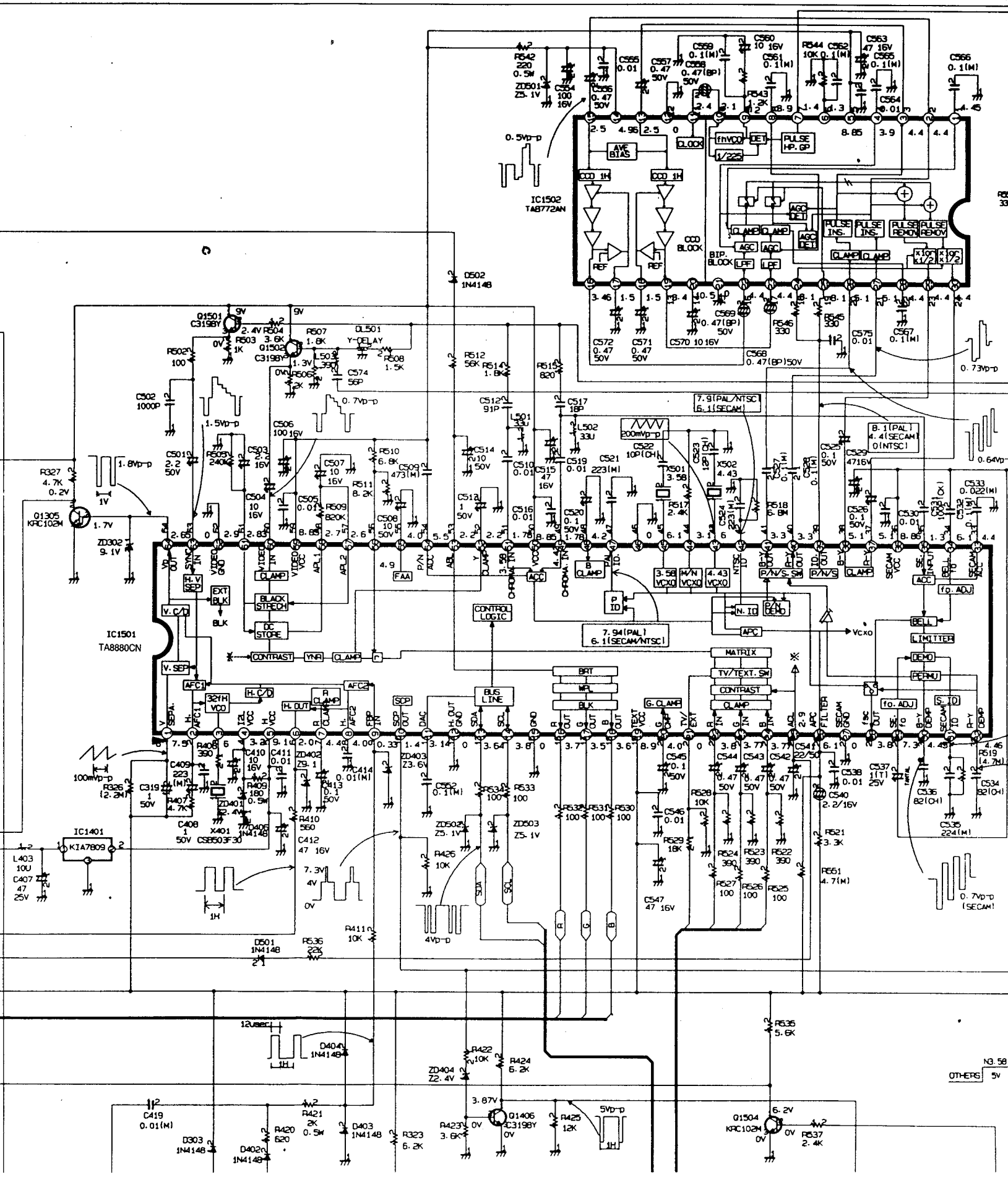
IC-48A SCHEMATIC DIAGRAM (PAL/SECAM/N3

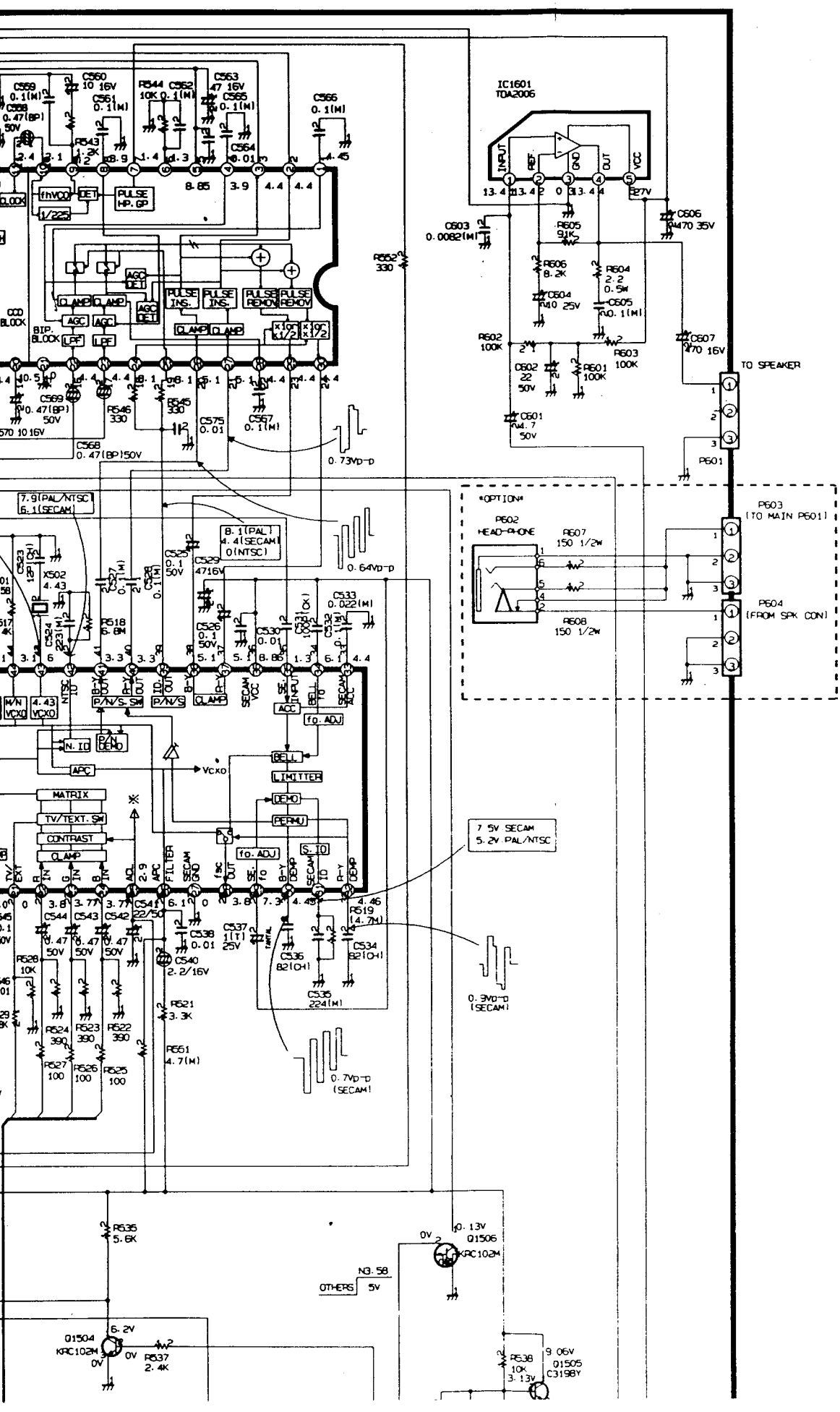


HEMATIC DIAGRAM (PAL/SECAM/N3.58/N4.43)



CAM/N3.58/N4.43)





NOTICE

Since this is a basic schematic diagr
The value of components and some part
connection aresubject to change for i

The components marked ▲ conform to VD
and are essential for safe operation
marked ▲ are required for correct ope
parts only when replacing.

VALUE OF RESISTER. CAPACITOR A

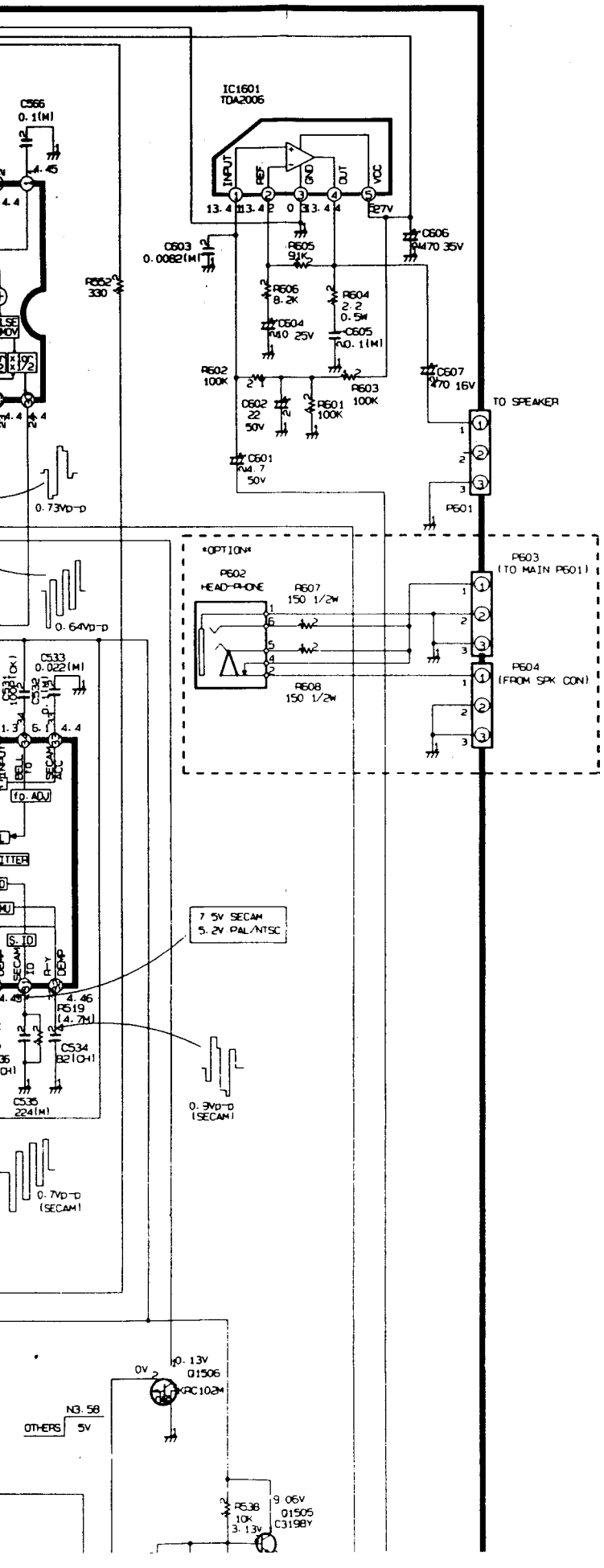
1. Resistances are shown in ohm. K =
2. Unless otherwise noted in schemati
   than 1 are expresses in mfd and th
3. Unless otherwise noted in schemati
   than 1 are expressed in uH. and th

OBSERVATION OF VOLTAGES AND W

1. Voltages read with VTVM from point
   ground. line voltages 220 Volts.
2. Voltages reading may very ±20%.
3. The schematic shown is representat
4. All waveforms are taken using a w
   and a low capacity probe.
5. Check FINE TUNING. AGC. BRIGHTNESS
   COLOUR controls for best picture.
   and COLOUR controls are in mid pos
   controls is almost in maximum pos
6. Waveforms are takrn using a standa

★TABLE OF INCH CONVERS

NO	CIRCUIT NO	INCH		
		14"	20"	21
1	R306	1K	1K	1K
2	R313	4.7K	4.7K	4.7K
3	R328	-	360	360
4	R329	-	1.8K	1.8K
5	R330	-	10K	10K
6	R702	75K	56K	39K
7	R703	75K	56K	39K
8	R804	8.2K	10K	10K
9	R805	8.2K	10K	10K
10	R806	8.2K	10K	10K
11	FR704	2.0	1.2	1.2
12	C308	0.47	0.1	0.68
13	C402	772	862	862
14	C423	624	394	474
15	L402	-224Q	-224C	-159
16	D304	-	1N4148	1N41
17	D904	-	1N4148	1N41
18	D905	-	1N4148	1N41
19	D906	-	1N4148	1N41
20	Q1304	-	C3198Y	C319
21	T701	-207A	-207D	-207
22	P901B	9P	10P	10P
23		100F	-226D	-226
24		-M68A	-M68B	-M68
25	C815	1000PF	-	-
26	C901	300PF	330PF	330P
27	C903	300PF	330PF	330P
28	R309	20K	20K	22K
29	R310	24K	24K	22K
30	R312	36K	36K	43K



NOTICE

Since this is a basic schematic diagram.
The value of components and some partical connection aresubject to change for improvement.

The components marked ▲ conform to VDE or IEC guidelines and are essential for safe operation of the set. while those marked ▲ are required for correct operation. Use specified parts only when replacing.

VALUE OF RESISTER. CAPACITOR AND INDUCTOR

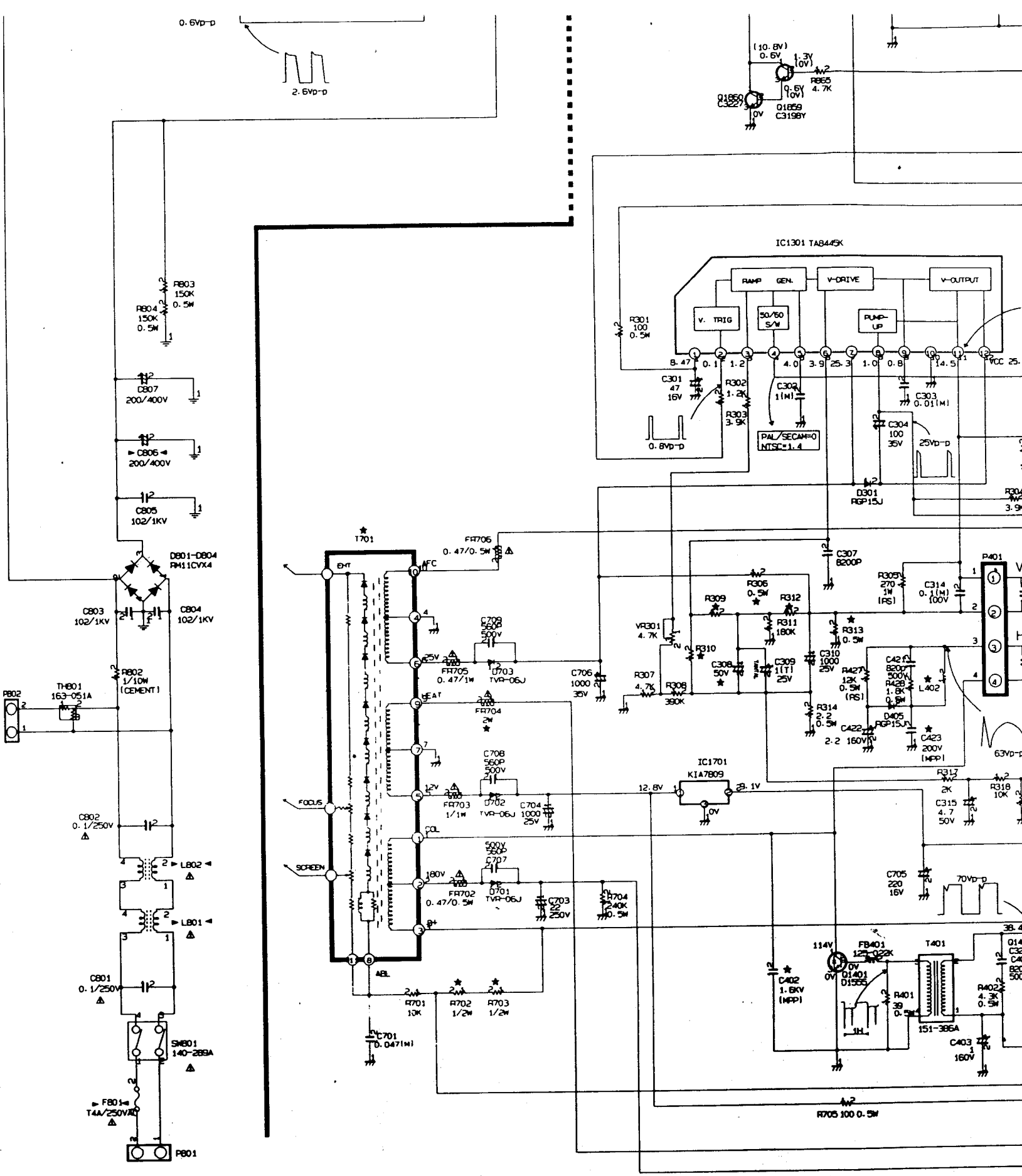
1. Resistances are shown in ohm. K = 1.000 M = 1.000.000 .
2. Unless otherwise noted in schematic. all capacitor values less than 1 are expresses in mfd and the values more than 1 in pF
3. Unless otherwise noted in schematic. all coil values more than 1 are expressed in uH and the values less than 1 in H.

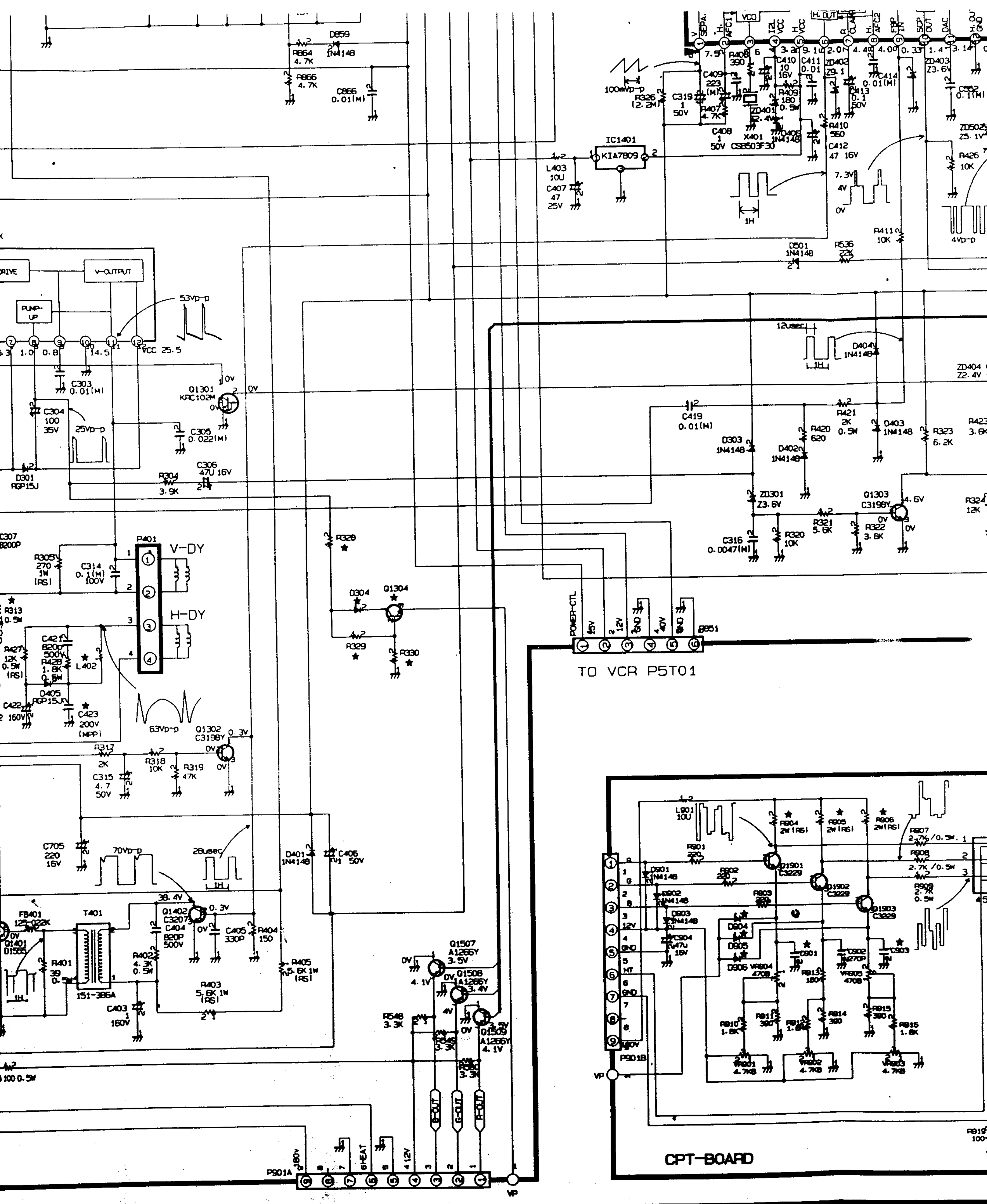
OBSERVATION OF VOLTAGES AND WAVEFORMS

1. Voltages read with VTVM from point shown to chassis ground. line voltages 220 Volts. colour bar signal
2. Voltages reading may very ±20%.
3. The schematic shown is representative only.
4. All waveforms are taken using a wide band oscilloscope and a low capacity probe.
5. Check FINE TUNING. AGC. BRIGHTNESS. CONTRAST and COLOUR controls for best picture. make sure that CONTRAST and COLOUR controls are in mid position and BRIGHTNESS controls is almost in maximum position.
6. Waveforms are takrn using a standard colour bar signal.

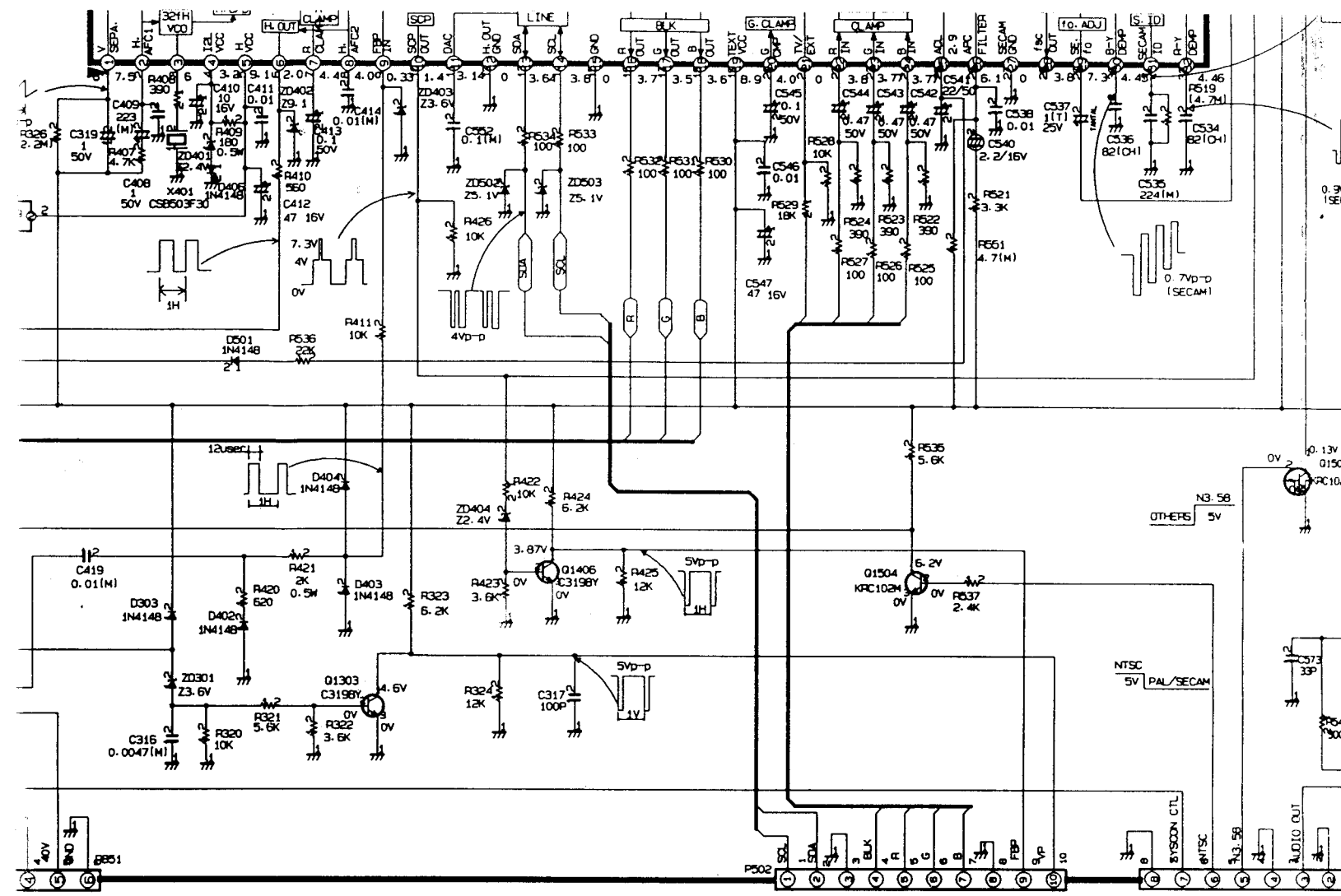
★TABLE OF INCH CONVERSION

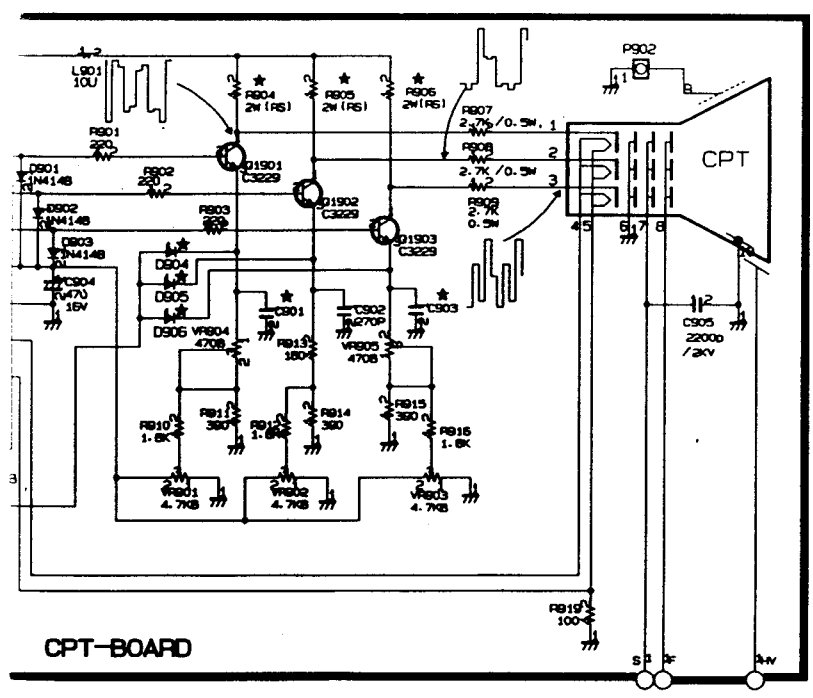
NO	CIRCUIT NO	INCH			REMARK
		14"	20"	21"	
1	R306	1K	1K	1K	RESISTOR FIX 1/2W
2	R313	4.7K	4.7K	4.7K	RESISTOR FIX 1/2W
3	R328	-	360	360	RESISTOR FIX 1/6W
4	R329	-	1.8K	1.8K	RESISTOR FIX 1/6W
5	R330	-	10K	10K	RESISTOR FIX 1/6W
6	R702	75K	56K	39K	RESISTOR FIX 1/2W
7	R703	75K	56K	39K	RESISTOR FIX 1/2W
8	R804	8.2K	10K	10K	RESISTOR FIX 2W
9	R805	8.2K	10K	10K	RESISTOR FIX 2W
10	R806	8.2K	10K	10K	RESISTOR FIX 2W
11	FR704	2.0	1.2	1.2	RESISTOR FUS 2W
12	C308	0.47	0.1	0.68	CAPACITOR ELEC 50V
13	C402	772	862	862	CAPACITOR MPP 1.6KV
14	C423	624	394	474	CAPACITOR MPP 200V
15	L402	-224Q	-224C	-159D	COIL LINEARITY(150-)
16	D304	-	1N4148	1N4148	DIODE
17	D904	-	1N4148	1N4148	DIODE
18	D905	-	1N4148	1N4148	DIODE
19	D906	-	1N4148	1N4148	DIODE
20	Q1304	-	C3198Y	C3198Y	TRANSISTOR
21	T701	-207A	-207D	-207F	FBT(154-)
22	P901B	9P	10P	10P	PIN WAFER
23		100F	-226D	-226D	CPT SOCKET(381-)
24		-M68A	-M68B	-M68B	PCB(111-)
25	C815	1000PF	-	-	CAPACITOR CERAMIC 1KV
26	C901	300PF	330PF	330PF	CAPACITOR CERAMIC
27	C903	300PF	330PF	330PF	CAPACITOR CERAMIC
28	R309	20K	20K	22K	RESISTOR FIX 1/6W
29	R310	24K	24K	22K	RESISTOR FIX 1/6W
30	R312	36K	36K	43K	RESISTOR FIX 1/6W

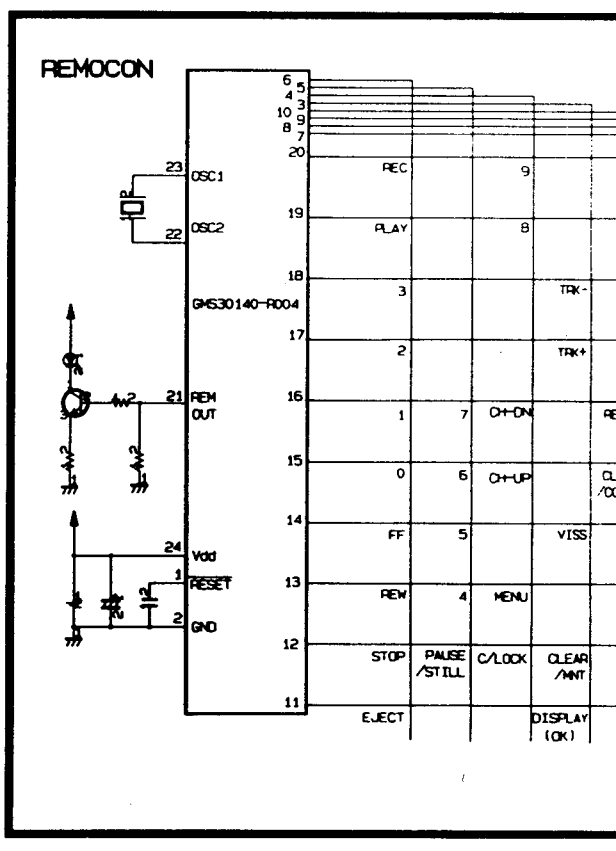

0.6Vp-p
2.6Vp-p
(10.8V)
0.6V
1.3V
(0V)
R865
4.7K
0.5V
(0V)
Q1859
C3227
0V
Q1859
C3198Y
IC1301 TA8445K
RAMP GEN.
V-DRIVE
V-OUTPUT
V. TRIG
50/60 S/W
PUMP-UP
R301
100
0.5W
8.47
0.1
1.2
4.0
3.9
25.3
1.0
0.8
14.5
VCC 25.
C301
47
16V
R302
1.2K
R303
3.9K
C302
1(M)
C303
0.01(M)
C304
100
35V
25Vp-p
0.8Vp-p
PAL/SECAM=0
NTSC=1.4
D301
RGP15J
R803
150K
0.5W
R804
150K
0.5W
C807
200/400V
C806
200/400V
C805
102/1KV
D801-D804
RM11CVX4
C803
102/1KV
C804
102/1KV
R802
1/10W
(CEMENT)
TH801
163-051A
P802
C802
0.1/250V
L802
L801
C801
0.1/250V
SW801
140-289A
F801
T4A/250V
P801
T701
FR706
0.47/0.5W
AFC
EHT
HEAT
FOCUS
SCREEN
COL
ABL
C709
560P
500V
FR705
0.47/1W
D703
TVR-06J
C706
1000
35V
FR704
2W
C708
560P
500V
FR703
1/1W
D702
TVR-06J
C704
1000
25V
C707
500V
560P
FR702
0.47/0.5W
D701
TVR-06J
C703
22
250V
R704
240K
0.5W
R701
10K
R702
1/2W
R703
1/2W
C701
0.047(M)
C307
8200P
R309
R306
0.5W
R312
R311
180K
VR301
4.7K
R310
R307
4.7K
C308
50V
C309
1(T)
25V
R308
390K
R313
0.5W
C310
1000
25V
R314
2.2
0.5W
C422
2.2 160V
C423
200V
(MPP)
R309
270
1W
(RS)
C314
0.1(M)
100V
P401
R427
12K
0.5W
(RS)
R428
1.8K
0.5W
L402
D405
RGP15J
63Vp-p
IC1701
KIA7809
12.8V
9.1V
0V
R317
2K
R318
10K
C315
4.7
50V
C705
220
16V
70Vp-p
114V
FB401
0V
Q1401
D1555
T401
C402
1.8KV
(MPP)
R401
39
0.5W
1H
151-386A
R402
4.3K
0.5W
C403
1
160V
R705 100 0.5W

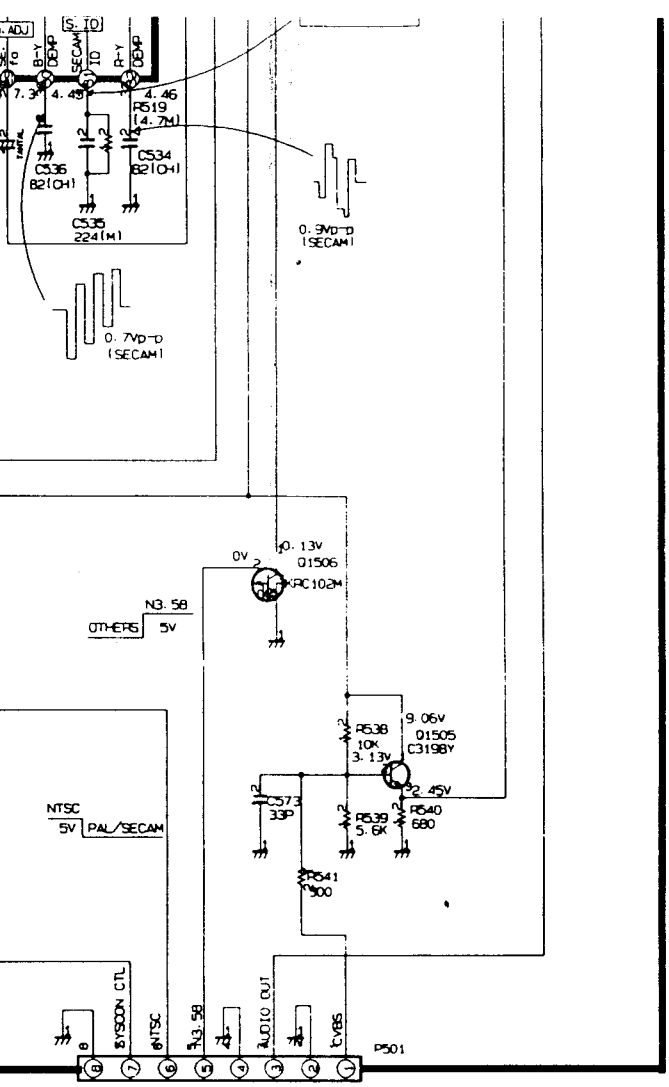


IC1401
KIA7809
V-OUTPUT
PUMP-UP
V-DY
H-DY
P401
T401
151-386A
FB401
Q1301 KRC102M
Q1302 C3198Y
Q1303 C3198Y
Q1304
Q1402 C3207
Q1507 A1266Y
Q1508 A1266Y
Q1509 A1266Y
POWER-CTL
5V
12V
GND
40V
GND
P8851
TO VCR P5T01
P901A
P901B
180V
HEAT
12V
B-OUT
G-OUT
R-OUT
VP
Q1901 C3229
Q1902 C3229
Q1903 C3229
CPT-BOARD
53Vp-p
25Vp-p
63Vp-p
70Vp-p
28usec
100mVp-p
12usec
4Vp-p


P5T01
TO VCR P5T02
TO VCR P5T03


CPT
CPT-BOARD


REMOCON
GMS30140-R004
OSC1
OSC2
REM OUT
Vdd
RESET
GND
REC
PLAY
TRK-
TRK+
CH-DN
CH-UP
VISS
REW
MENU
STOP
PAUSE /STILL
C/LOCK
CLEAR /MNT
EJECT
DISPLAY (CK)



TO VCR P5T03

4	R329	-	1.8K	1.8K	RESISTOR FIX 1/6W
5	R330	-	10K	10K	RESISTOR FIX 1/6W
6	R702	75K	56K	39K	RESISTOR FIX 1/2W
7	R703	75K	56K	39K	RESISTOR FIX 1/2W
8	R804	8.2K	10K	10K	RESISTOR FIX 2W
9	R805	8.2K	10K	10K	RESISTOR FIX 2W
10	R806	8.2K	10K	10K	RESISTOR FIX 2W
11	FR704	2.0	1.2	1.2	RESISTOR FUS 2W
12	C308	0.47	0.1	0.68	CAPACITOR ELEC 50V
13	C402	772	862	862	CAPACITOR MPP 1.6KV
14	C423	624	394	474	CAPACITOR MPP 200V
15	L402	-224Q	-224C	-159D	COIL-LINEARITY(150-)
16	D304	-	1N4148	1N4148	DIODE
17	D904	-	1N4148	1N4148	DIODE
18	D905	-	1N4148	1N4148	DIODE
19	D906	-	1N4148	1N4148	DIODE
20	Q1304	-	C3198Y	C3198Y	TRANSISTOR
21	T701	-207A	-207D	-207F	FBT(154-)
22	P901B	9P	10P	10P	PIN WAFER
23		100F	-226D	-226D	CPT SOCKET(381-)
24		-M68A	-M68B	-M68B	PCB(111-)
25	C815	1000PF	-	-	CAPACITOR CERAMIC 1KV
26	C901	300PF	330PF	330PF	CAPACITOR CERAMIC
27	C903	300PF	330PF	330PF	CAPACITOR CERAMIC
28	R309	20K	20K	22K	RESISTOR FIX 1/6W
29	R310	24K	24K	22K	RESISTOR FIX 1/6W
30	R312	36K	36K	43K	RESISTOR FIX 1/6W

TABLE OF POWER CONVERSION

NO	CIRCUIT NO	RANGE		REMARK
		WIDE(100-270V)	NARROW(230V)	
1	F801	TIME LAG	HBC	FUSE
2	L801	-921A	-	LINE FILTER(150-)
3	L802	-	-982A	LINE FILTER(150-)
4	C806	200uF	-	CAPACITOR ELEC 400V
5	C812	222	472	CAPACITOR 4KV
6	C813	TIN WIRE	472	CAPACITOR 4KV

TABLE OF SYSTEM CONVERSION

NO	CIRCUIT NO	SYSTEM		REMARK
		B/G+D/K	PAL-I	
1	J37	0	-	TIN WIRE
2	C529	47u 16V	-	CAPACITOR ELEC
3	C530	0.01u	-	CAPACITOR TUBLE
4	C531	100P	-	CAPACITOR TUBLE
5	C532	0.1u	-	CAPACITOR POLY
6	C533	0.022u	-	CAPACITOR POLY
7	C534	82u	-	CAPACITOR CERAM
8	C535	220000P	-	CAPACITOR POLY
9	C536	82u	-	CAPACITOR CERAM
10	C537	1u 25V	-	CAPACITOR
11	DL502	377T	377D	DELAY LINE

REC		9					SYSTEM
PLAY		8			MNTR ON/OFF		
3			TRK-		VOL-DN		
2			TRK+		VOL-UP		
1	7	CH-DN		RESET		POWER	
0	6	CH-UP		CLOCK /COUNT			
FF	5		VISS			A. TRK	
REW	4	MENU					PICTR
STOP	PAUSE /STILL	C/LOCK	CLEAR /MNT			MUTE	
EJECT			DISPLAY (CK)			SLEEP	

484-903A

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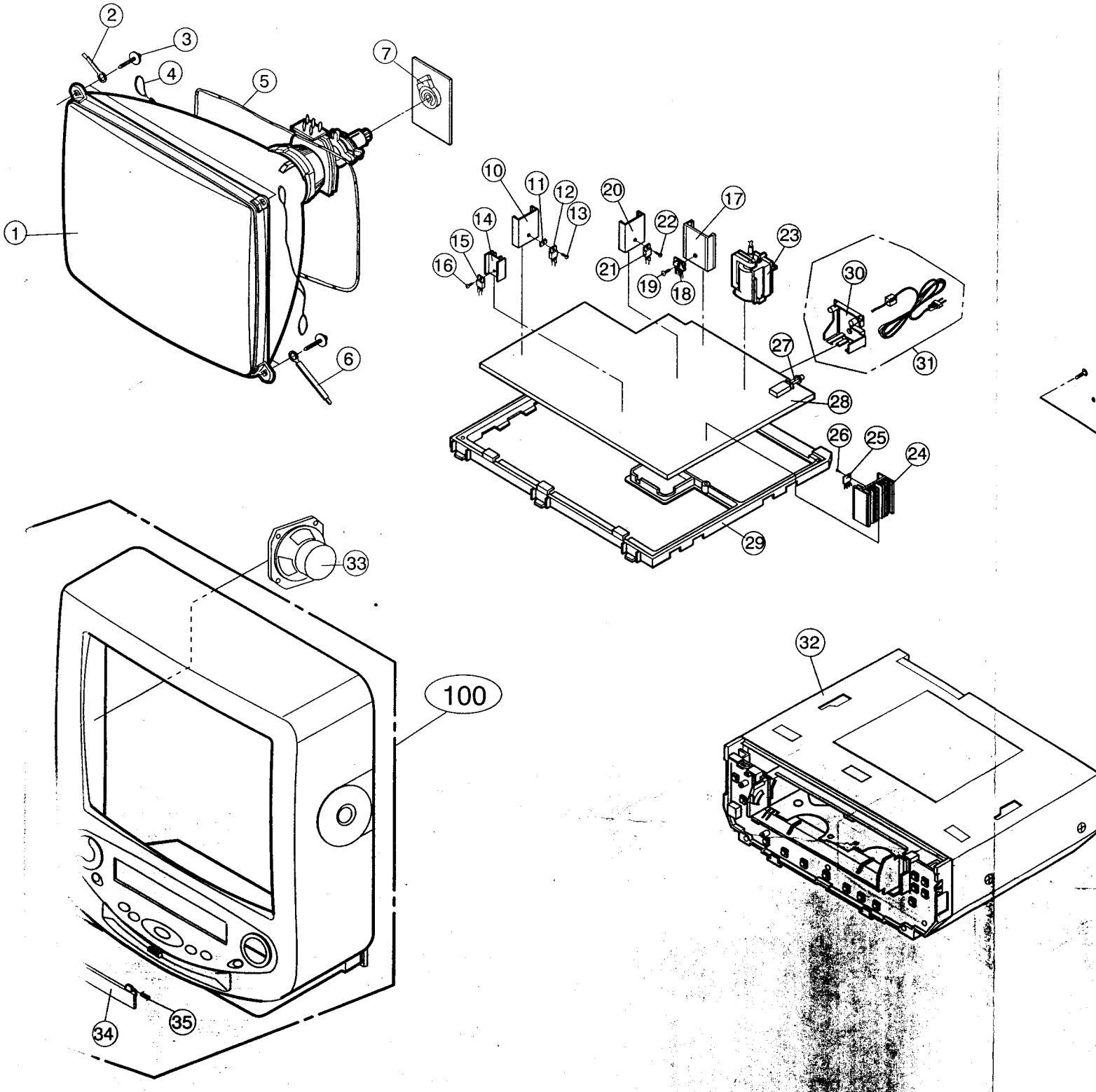
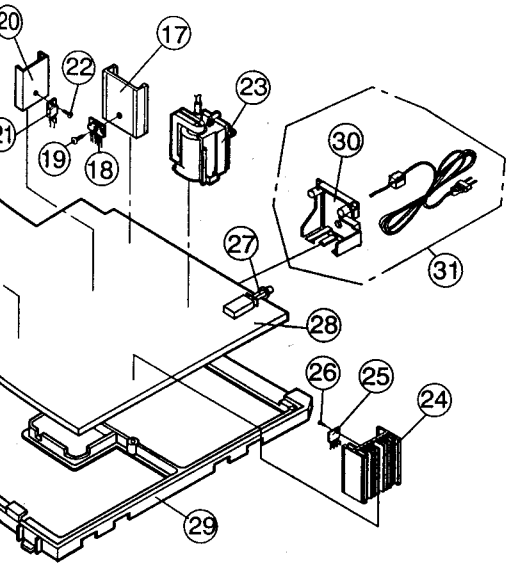
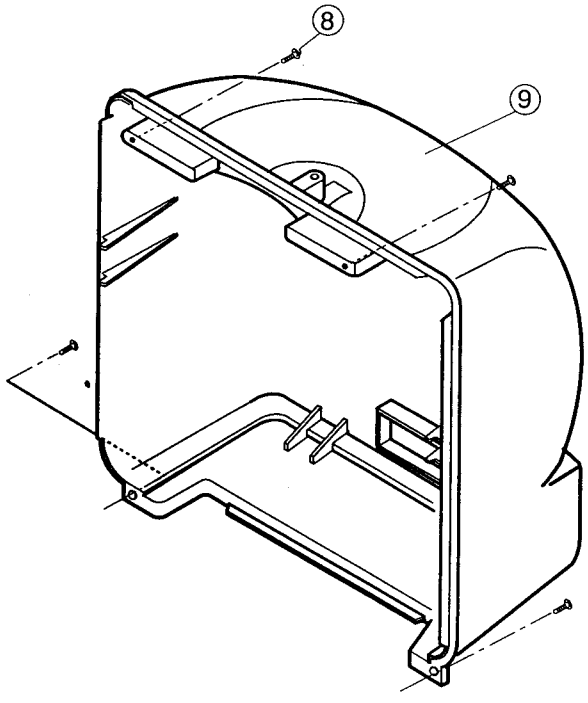
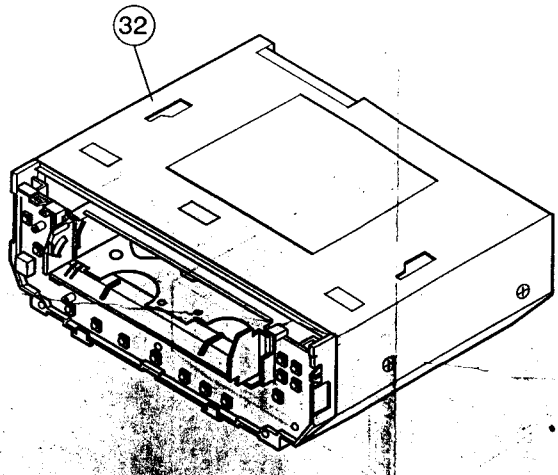
EXPLODED VIEW : KF-



EXPLODED VIEW : KF-14U30





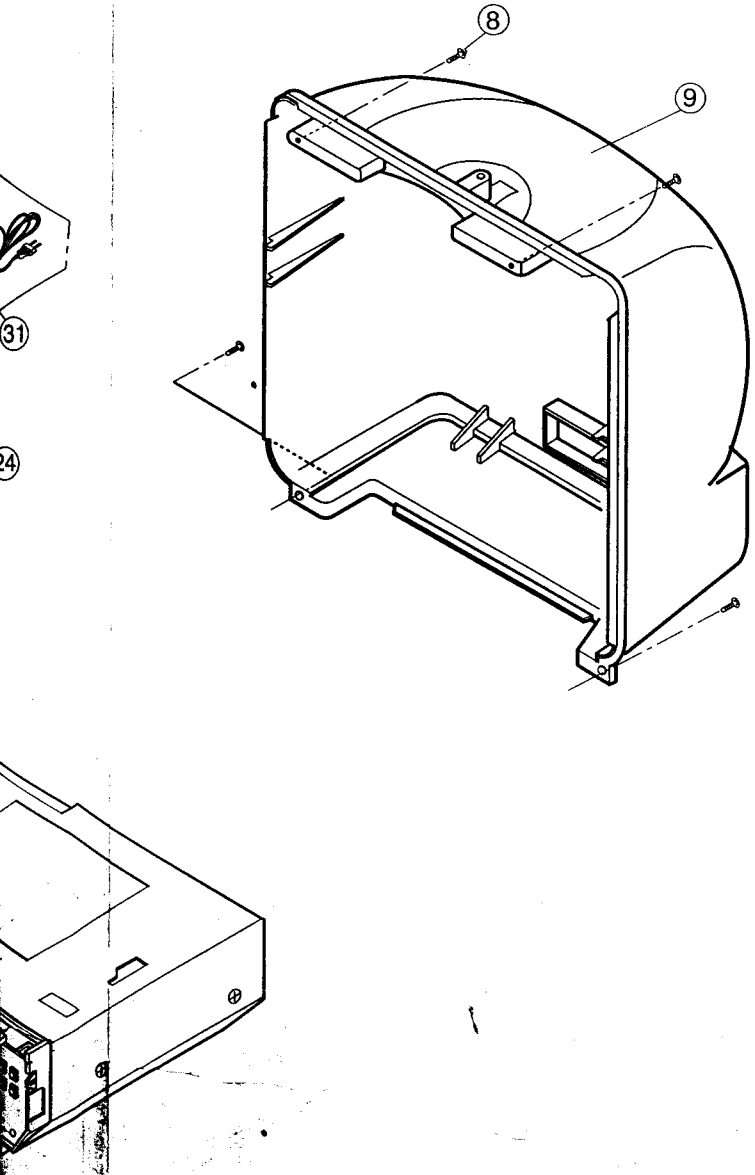


NO.	DESCRIPTION
2	HOLDER, D-COIL
3	SCREW ASSY, HEXAGON HEAD
6	HOLDER, D-COIL
7	SOCKET, CPT
8	SCREW
9	COVER ASSY, BACK
10	PLATE, H/S
11	WASHER QW3
12	IC, SGS THOMSON
13	SCREW
14	PLATE, H/S
15	IC, KEC KIA7809PI
16	SCREW
17	PLATE H/S
18	IC, TOSHIBA TA8445K
19	SCREW
20	PLATE H/S
21	TRANSISTOR, KTD2499
22	SCREW
24	PLATE, H/S
25	IC, SANKEN STR-S6707
26	SCREW
28	PCB ASSY, MAIN
29	FRMAE, MAIN
30	HOLDER, POWER CORD
32	CHASSIS ASSY VT-222P
33	SPEAKER
34	DOOR, CST
35	SPRING, COIL

SUB ASSY

100	CABINET ASSY

ED VIEW : KF-14U30



The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

NO.	DESCRIPTION	PART NO
		2055-V0744D(FOR E.A.C)
		2055-V0744E(+0.3Gauss)
		2055-V0744F(+0.3Gauss)
		2055-V744M(-0.5Gauss)
2	HOLDER, D-COIL	341-721A
3	SCREW ASSY, HEXAGON HEAD	332-057B
⚠ 4	LEAD SET ASSY, CRT EARTH	170-799A
⚠ 5	COIL, DEGAUSSING	150-276E
6	HOLDER, D-COIL	341-721B
7	SOCKET, CPT	381-100F
8	SCREW	1PPF0403116
9	COVER ASSY, BACK	303-L90A(FOR VIDEO HOME)
		303-L90B(FOR B.W.T)
		303-L90C(FOR LGEAP)
		303-L90E(FOR E.A.C)
10	PLATE, H/S	408-006H
11	WASHER QW3	334-036A
12	IC, SGS THOMSON	0ISG200600A
13	SCREW	1BPF0302816
14	PLATE, H/S	408-002B
15	IC, KEC KIA7809PI	0IKE780900E
16	SCREW	1BPF0302416
17	PLATE H/S	408-007B
18	IC, TOSHIBA TA8445K	0ITO844500A
19	SCREW	1BPF0302416
20	PLATE H/S	408-006B
21	TRANSISTOR, KTD2499	0TR249900AA
22	SCREW	1BPF0302616
24	PLATE, H/S	408-003L
25	IC, SANKEN STR-S6707	0ISK670700B
26	SCREW	1BWF0302816
28	PCB ASSY, MAIN	109-990J(FOR RAZNO)
		109-990C(FOR E.A.C/VIDEO HOME)
29	FRMAE, MAIN	312-399B
30	HOLDER, POWER CORD	341-856B
32	CHASSIS ASSY VT-222P	399-006A
33	SPEAKER	120-101B
34	DOOR, CST	315-716A
35	SPRING, COIL	320-183A

SUB ASSY

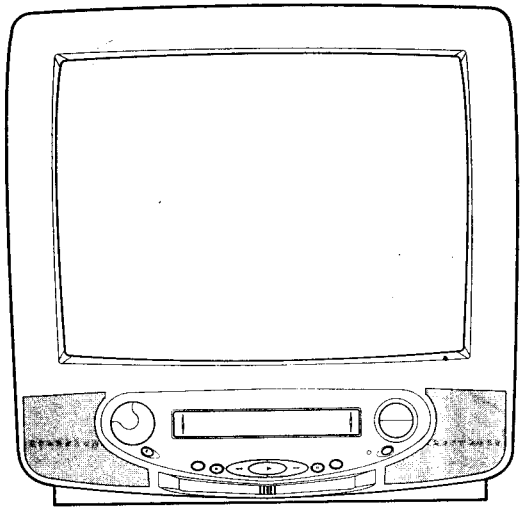
100	CABINET ASSY	300-D15A

GoldStar

SECTION 3 VCR PART

VHS TVCR ViewMax™

SERVICE MANUAL



CHASSIS NO. : MC-48A

MODEL : KF-14U30
KF-20U30
KF-21U30

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VCR

PART I CABINET & MAIN FRAME PART

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5. MF Board 3-6
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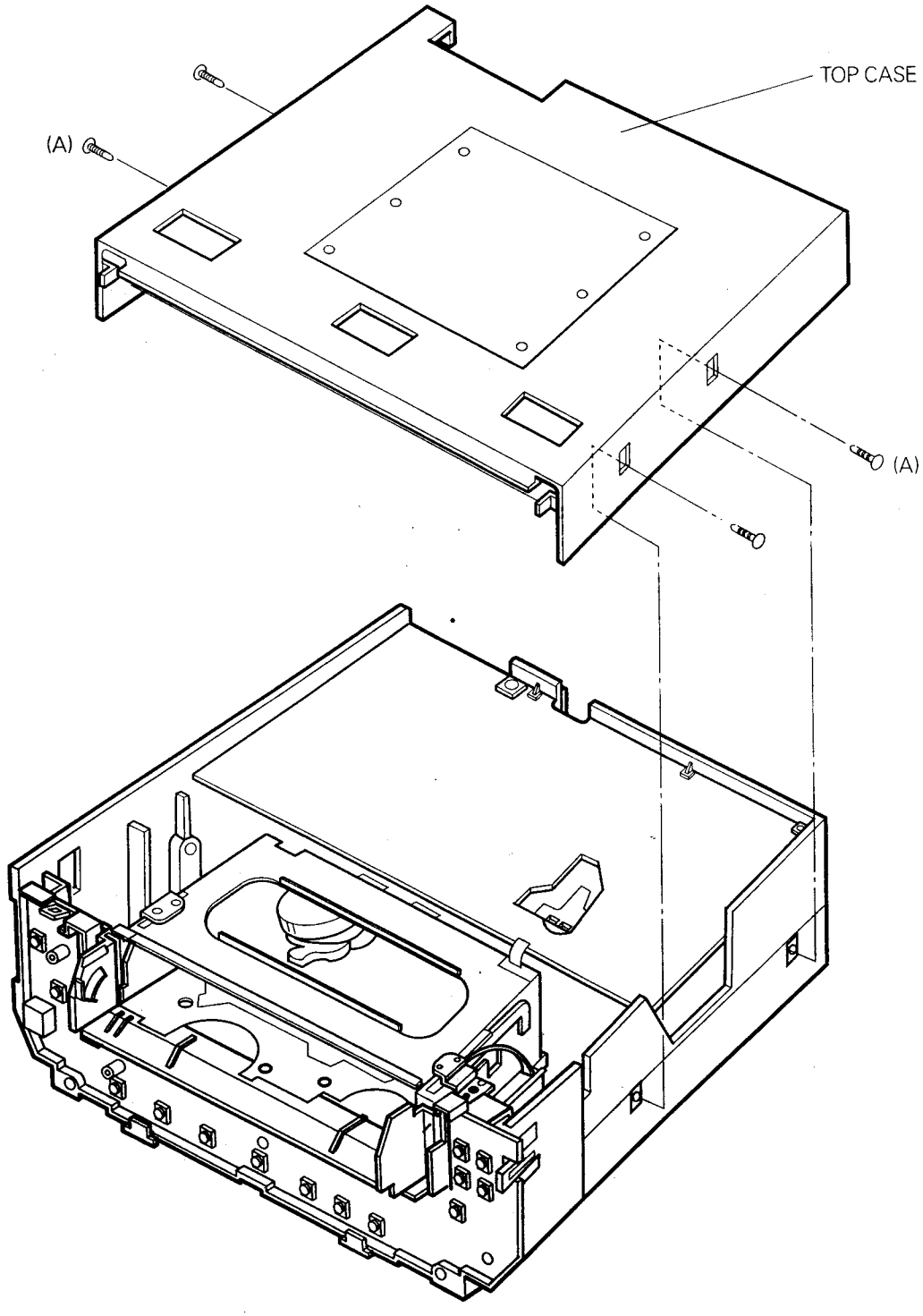
1. VCR Main Frame 3-7

CASING DISASSEMBLY

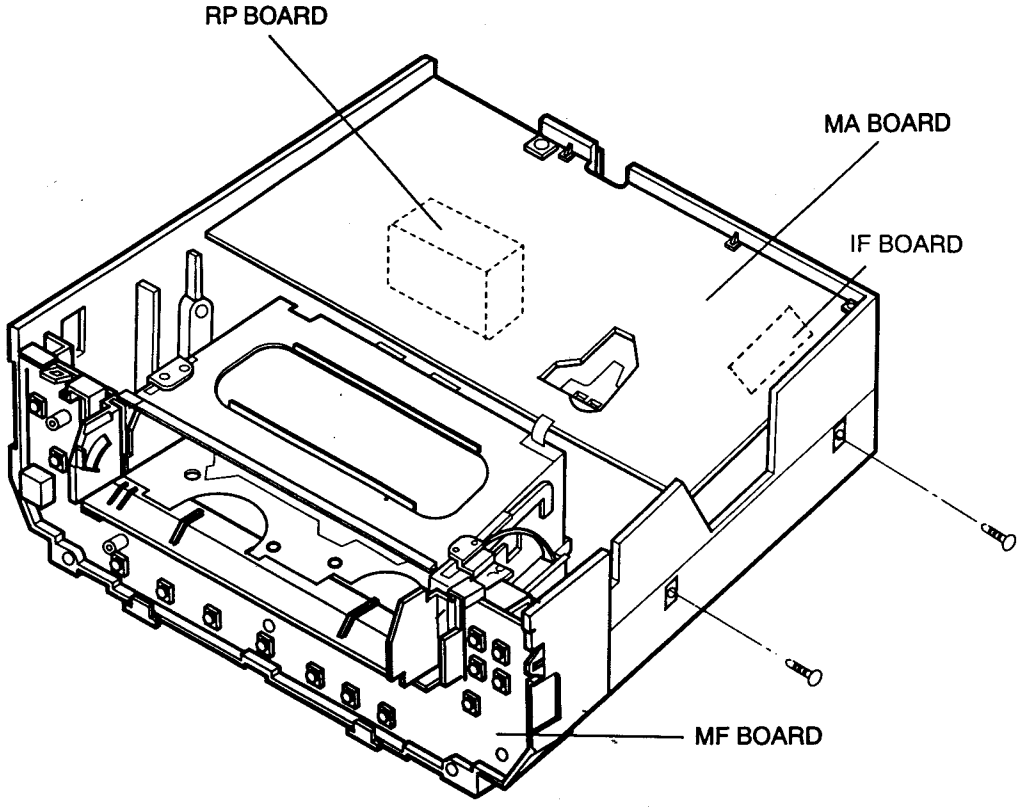
1) Remove the top of case by removing 4 screws (A) on the main frame.



CIRCUIT BOARDS DISASSEMBLY

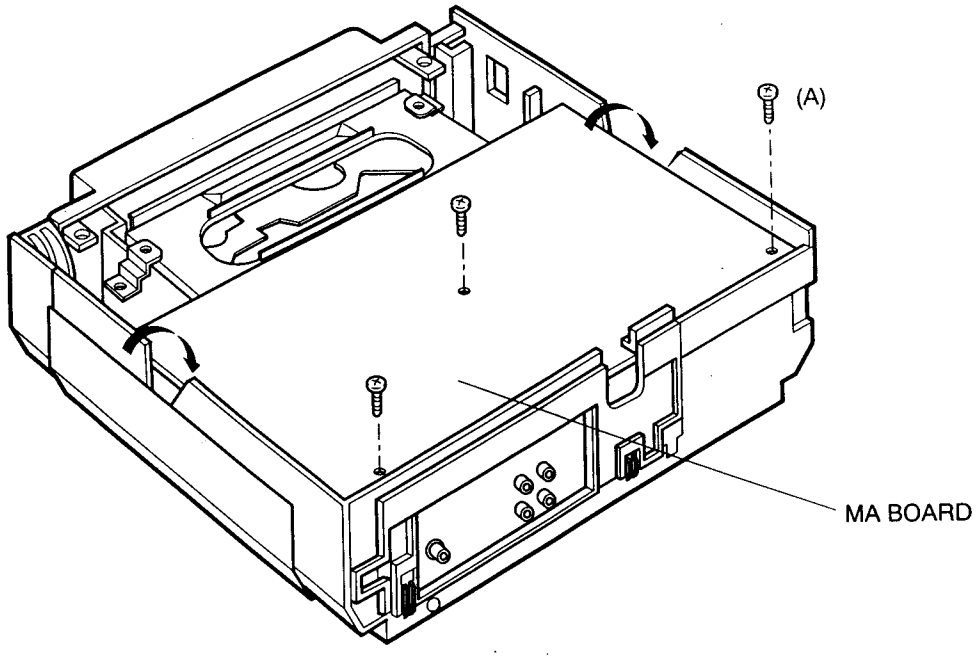
Remove the top case and bottom cover.

1. Circuit Boards Arrangement

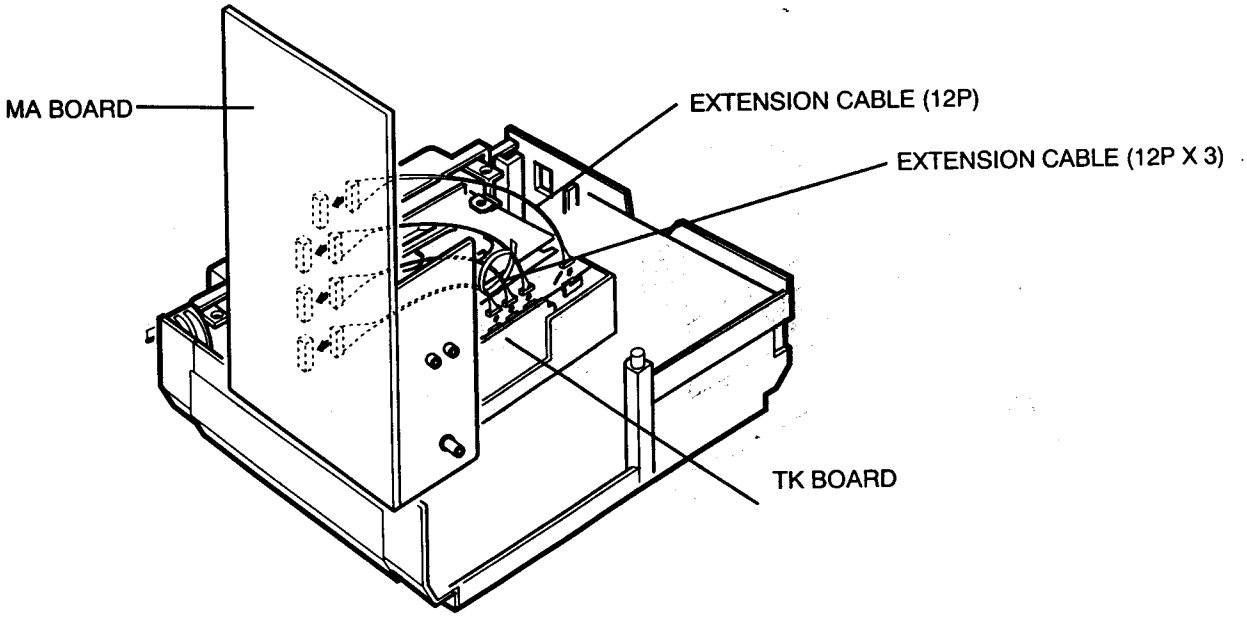


2. MA Board

Remove 3 screws(A) and then separate the main frame and MA board.

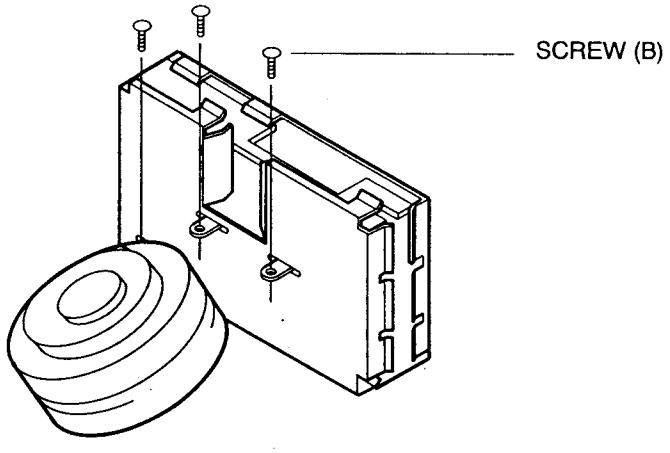


3. Service position



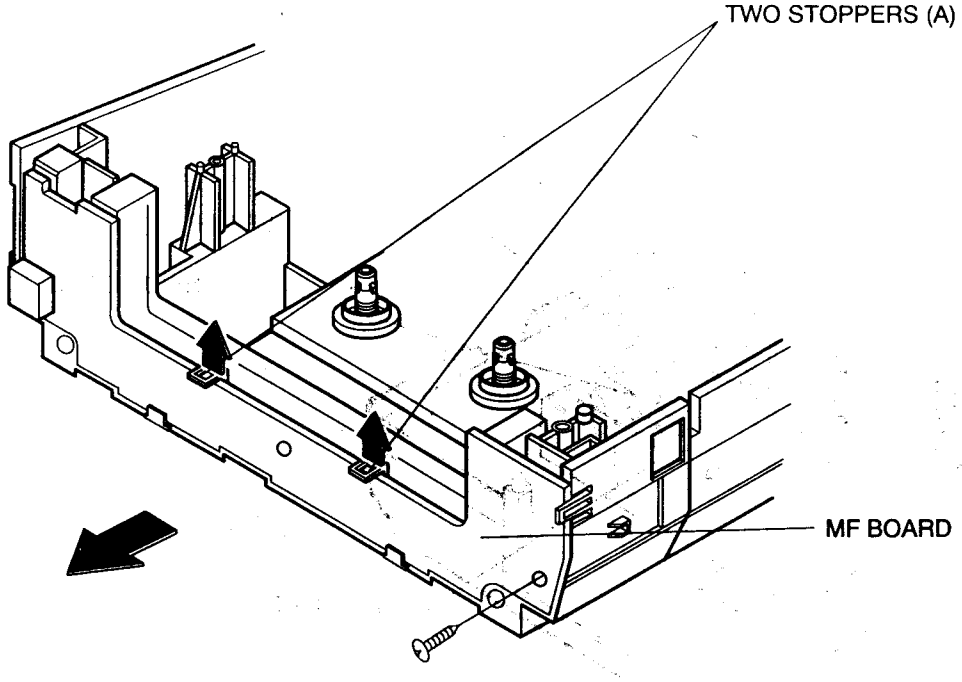
4. RP Board

1) Remove three screws (B) for disassembling the shield case.
2) Remove a connector assembled with the drum assy from P.C.Board.



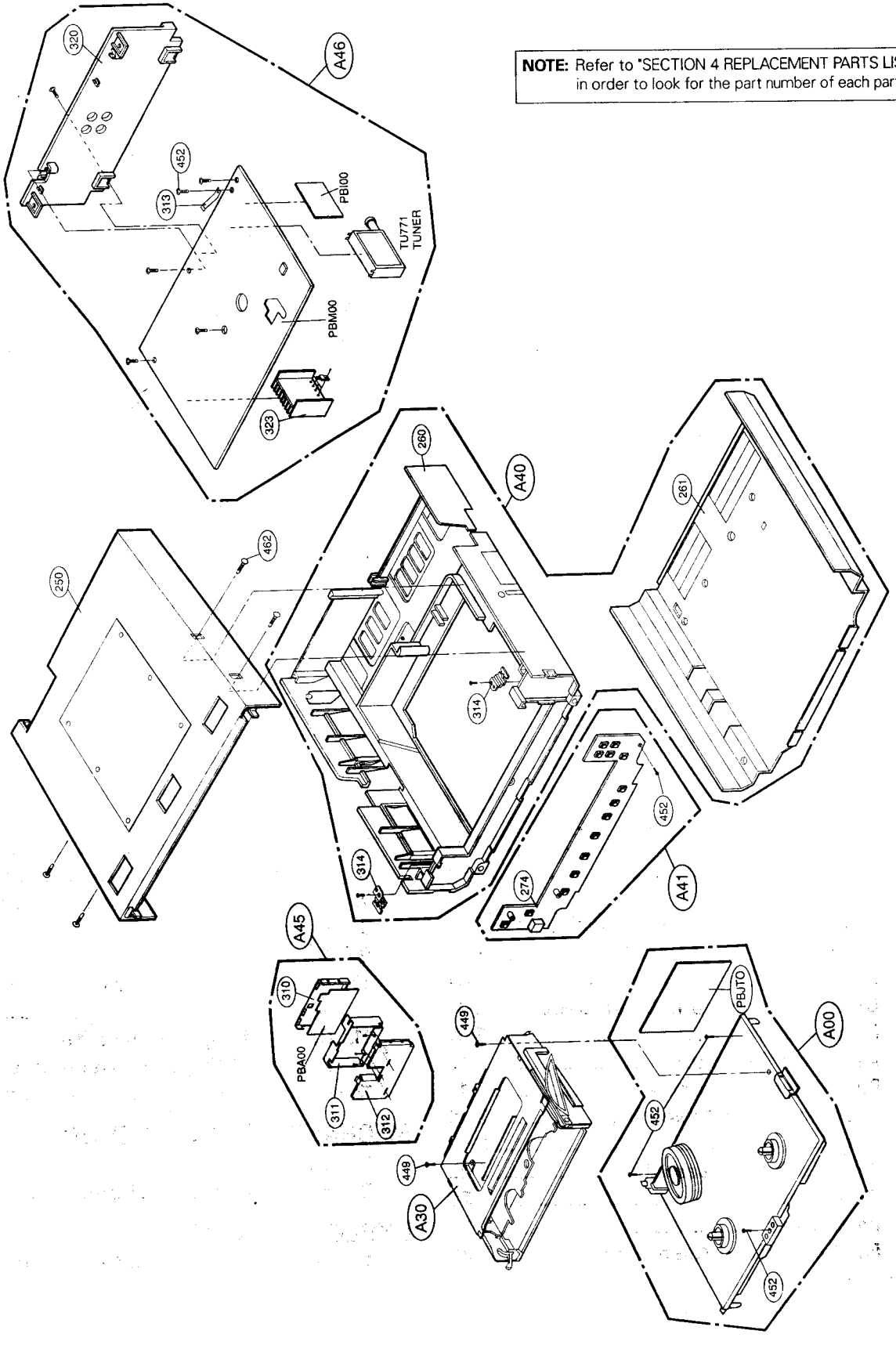
5. MF Board

1) Pull the P.C.Board toward you while lifting two stoppers in the direction of the small arrows to disengage, and remove the P.C.Board.
2) Unplug the connector for complete removal.
3) Remove two screws (B) and then separate the main frame and key function board.



EXPLODED VIEW

1. VCR Main Frame



NOTE: Refer to "SECTION 4 REPLACEMENT PARTS LIST" in order to look for the part number of each part.

VCR

PART II MECHANISM PART

CONTENT

FRONT LOADING MECHANISM DISASSEMBLY

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     - 9-1. Drive Gear Assembly 3-14
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  5. Pinch Lever Assembly 3-18
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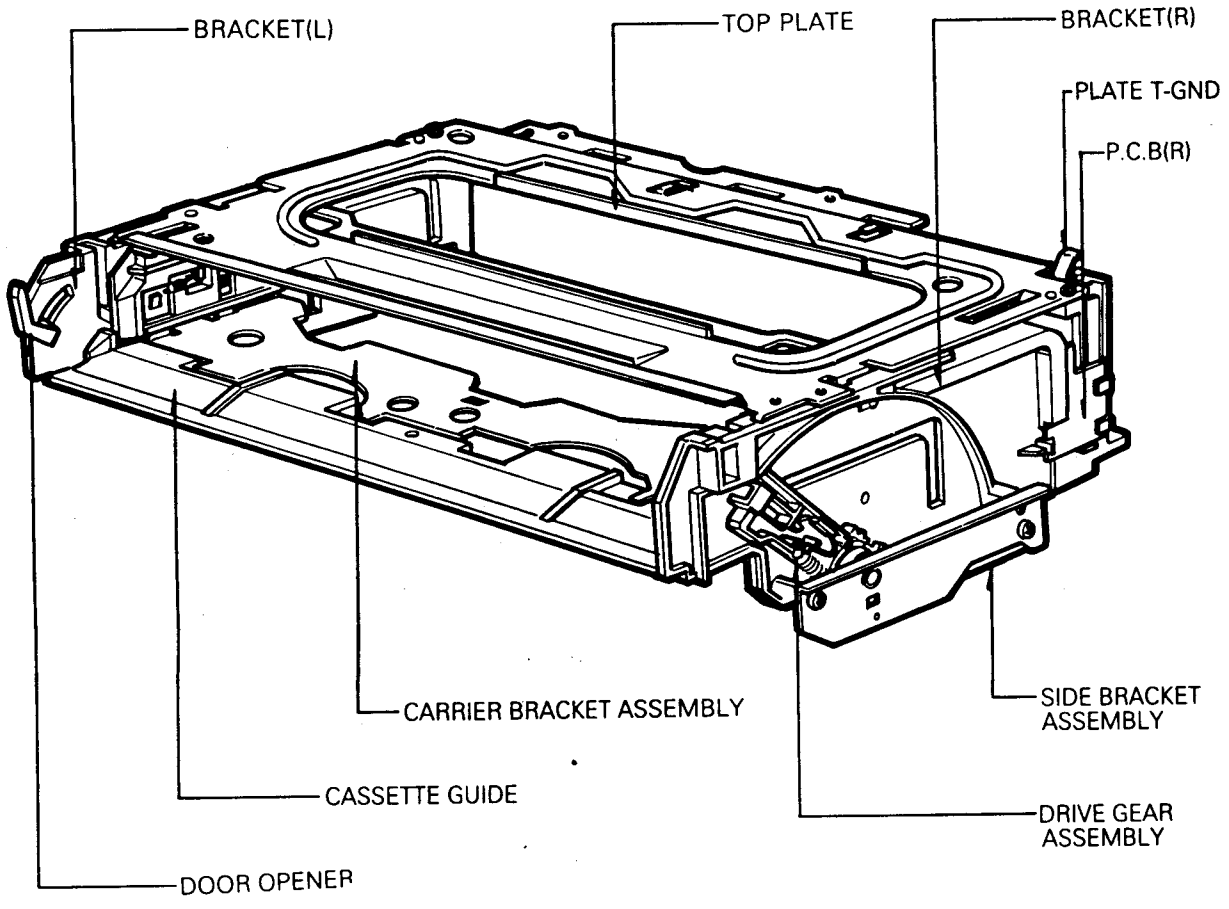
FRONT LOADING MECHANISM DISASSEMBLY

• Front Loading Mechanism Parts Location



Front Loading Mechanism Parts Location

1. Component list below will be discribed as if the top and bottom covers and the front panel have already been removed.
2. P.C.B Assembly
3. Top Plate
4. Carrier Bracket Assembly
5. Cassette Guide
6. Side Bracket Assembly
7. Bracket(L), (R)
8. Door Opener
9. Drive Gear Assembly

1. Front Loading Mechanism Assembly (Fig. A-1-1)

1) Remove the Top and Bottom Covers and the Front panel.
2) Unplug the connector.
3) Remove two screws(A).
4) Lift up the Front Loading Mechanism in the direction of arrow(C).

*** NOTE**

1) When disassembling and reassembling

① Give special attention to removal. because two tabs(D) are engaged.

② Make sure that Bosses of Bracket(L),(R) are properly engaged in the holes of the chassis.

③ To reassemble Front Loading Mechanism, the Drive Gear Assembly should be turned in a counterclockwise as shown in Fig. A-1-2 so that the Rack Gear N.D of Front Loading Mechanism Assembly is meshed into Rack Gear F.L of Deck Mechanism Assembly correctly as shown in Fig. A-1-1.(B).

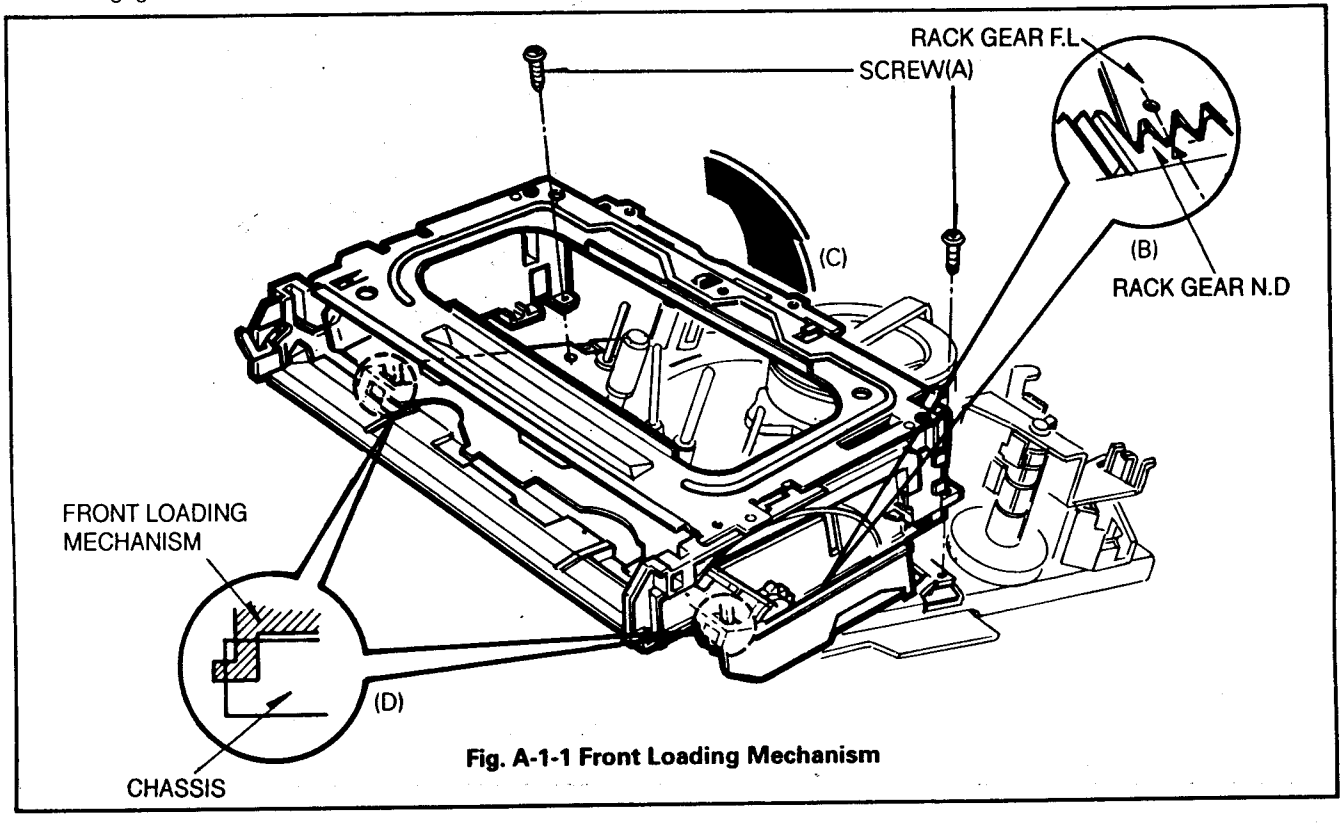


Fig. A-1-1 Front Loading Mechanism

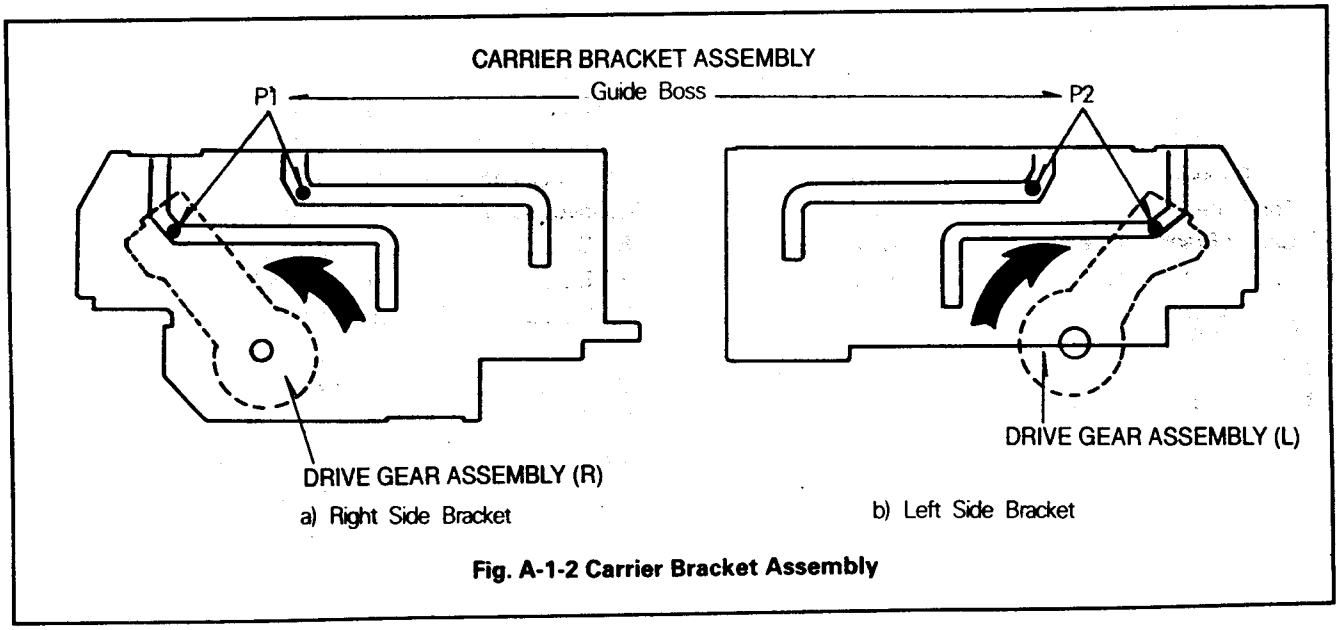


Fig. A-1-2 Carrier Bracket Assembly

2. PCB(Printed Circuit Board) Assembly

2-1. P.C.B Assembly(R)(Fig. A-2)

1) Remove the PCB Assembly(R) by pusning three Hooks (A) outward.
2) Release the Lead wire from stoppers.

2-2. PCB Assembly(L).(Fig. A-2)

1) Remove the PCB Assembly(L) by pushing the Hook(B) outward.
2) Release the Lead Wire from stoppers.

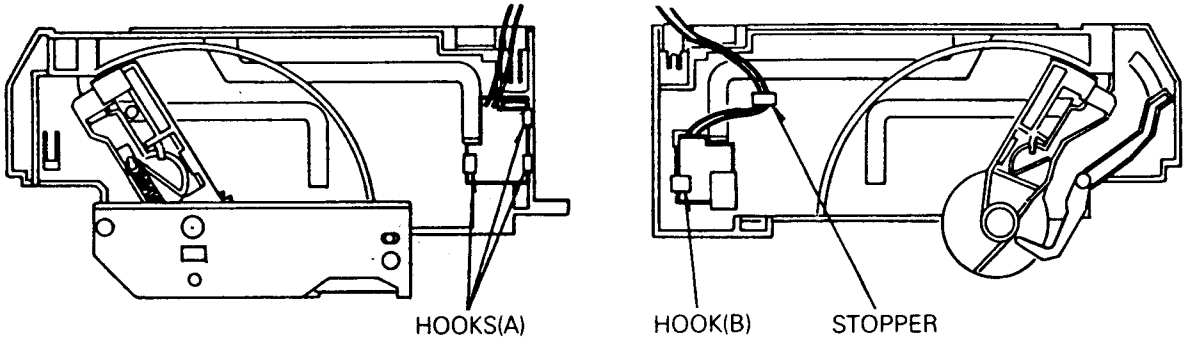


Fig. A-2 PCB Assembly

3. Top Plate(Fig. A-3)

1) Remove two screws(A).
2) Push the upper part of Top plate Ground and then lift up the Top Plate in the direction of arrow(B).

*** NOTE**

1) When reassembling, be certain that the tabs(C) of Top Plate is in both Bracket(L),(R).
1 Then align the guide holes(D) of Top Plate with Bosses of side Bracket(L),(R).

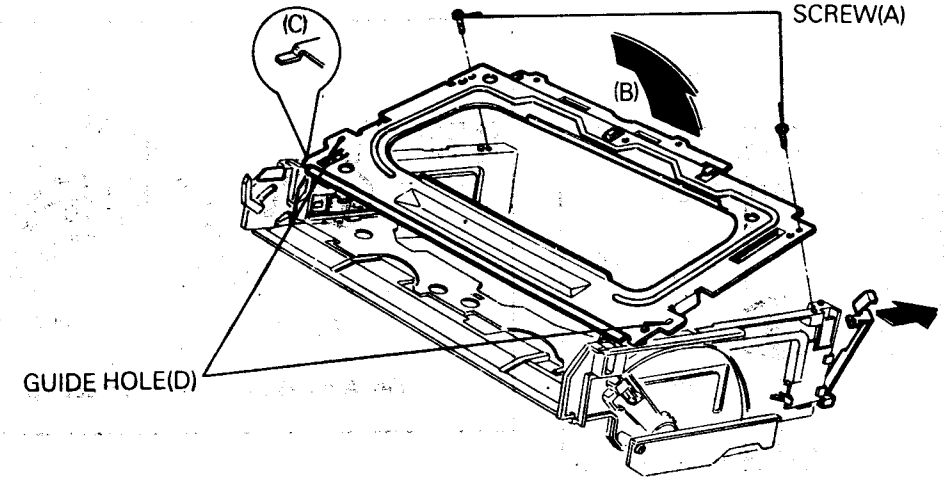


Fig. A-3 Top Plate

4. Carrier Bracket Assembly

4-1. Carrier Bracket Assembly(Fig. A-4-1)

1) Remove the Carrier Bracket Assembly by moving it in the direction of arrow(C).

*** NOTE**

1) When reassembling, be sure that parts(A) of Carrier Bracket Assembly is seated in parts(B) of Bracket(L),(R).

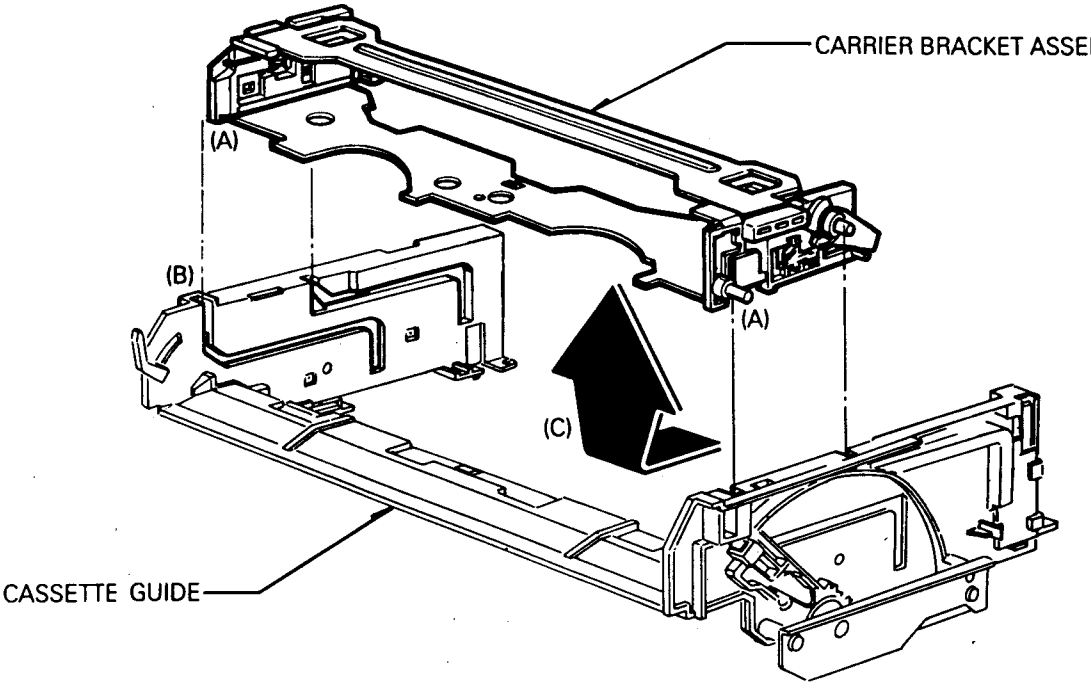


Fig. A-4-1 Carrier Bracket Assembly

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

1) Release the spring O.C from the Hook(A) and then release it from Hooks(C) of cassette opener.
2) Remove the cassette opener by releasing the Hook(B) from the Holder(R).

4-3. Rid Opener(Fig. A-4-2)

1) Remove the Rid opener by pushing it outward.

*** NOTE**

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

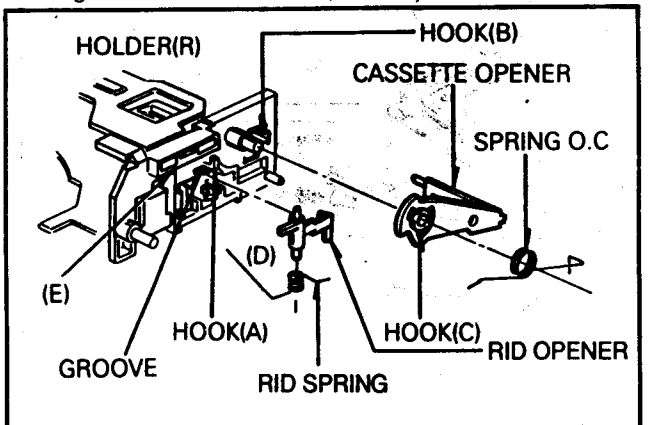


Fig. A-4-2. Cassette Door Opener/Rid Opener

4-4. Detect Lever and Detect Spring

1) Remove the spring detect.
2) Lower the side(A) of Detect Lever and then remove the Detect Lever by pushing it outward.

*** NOTE**

1) When reassembling, make sure that the part(C) of Detect Lever set in the part(B) of Holder(R).

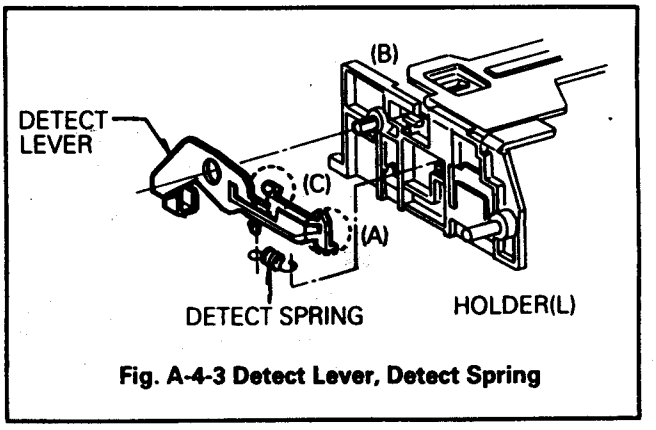


Fig. A-4-3 Detect Lever, Detect Spring

VCR

4-5. Bracket Support (Fig. A-4-4)

1) Take the Support Bracket out by releasing hooks(A),(B).

*** NOTE**

1) When disassembling and reassembling, be careful because heavy force can damage the hooks.

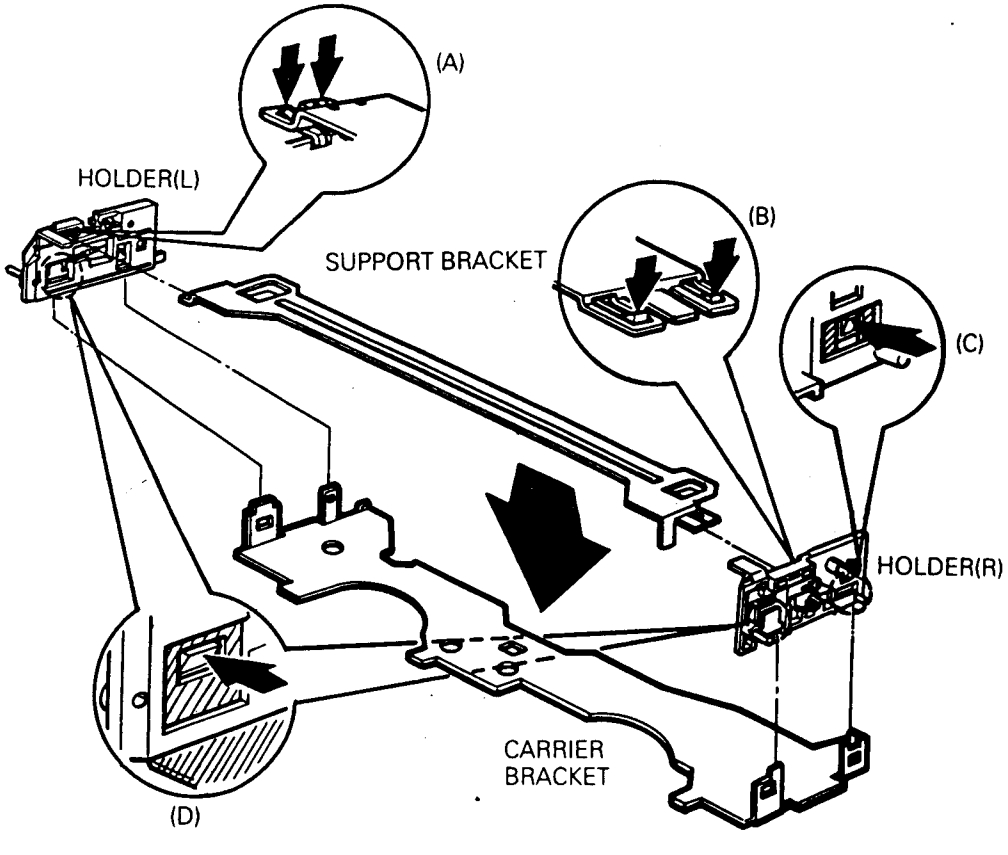


Fig. A-4-4 Bracket Support/Bracket Carrier

4-6. Carrier Bracket Assembly(Fig. A-4-4)

1) Remove the Carrier Bracket out by releasing hooks(C),(D).

5. Cassette Guide(Fig. A-5)

1) Remove the Switch Spring when the Front Loading Mechanism Assembly turned over.
2) Push two hooks(B) outward.
3) Remove the Cassette Guide by pushing two hooks(A). outward(if one is removed, the other will be easy to remove)

*** NOTE**

1) When reassembling

① Seat projections(E) of Cassette Guide in holes of Bracket Assembly(L),(R) and then engage the Hook(A).

② After finishing previous step, fix the Cassette Guide to the Bracket Assembly(L),(R) by pushing two hooks(B) inward.

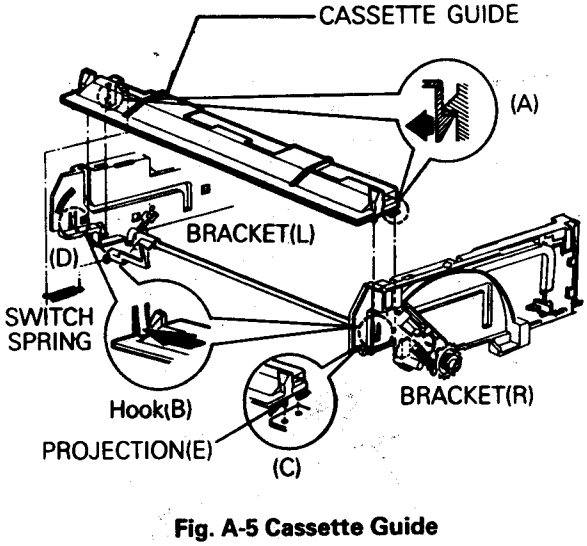


Fig. A-5 Cassette Guide

6. Side Bracket Assembly(Fig. A-6-1)

1) Remove two screws(A) and then remove the Side Bracket Assembly and the Rack Gear N.D.

*** NOTE**

1) When reassembling

① Turn the Drive Gear Assembly in the direction of arrow (C).

② Reassemble the Rack Gear N.D. to the Side Bracket Assembly, as shown in Fig. A-6-2, and then reassemble it to the Bracket Assembly(L), this time the Assembling Figure should be the same as(B) at the rectangular hole of Bracket Side.

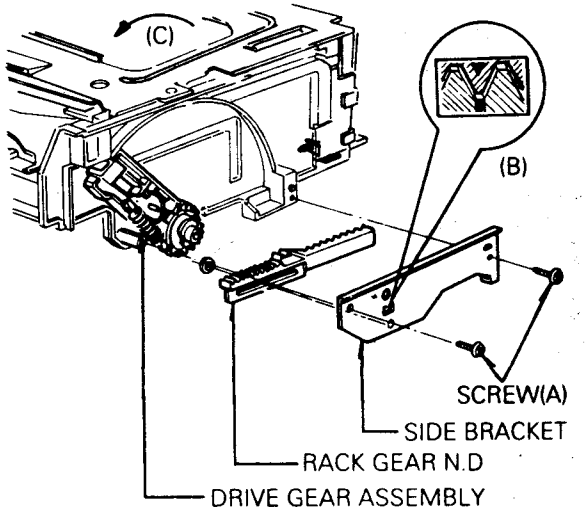


Fig. A-6-1 Side Bracket Assembly

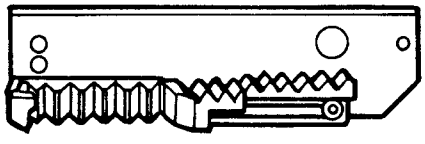


Fig. A-6-2

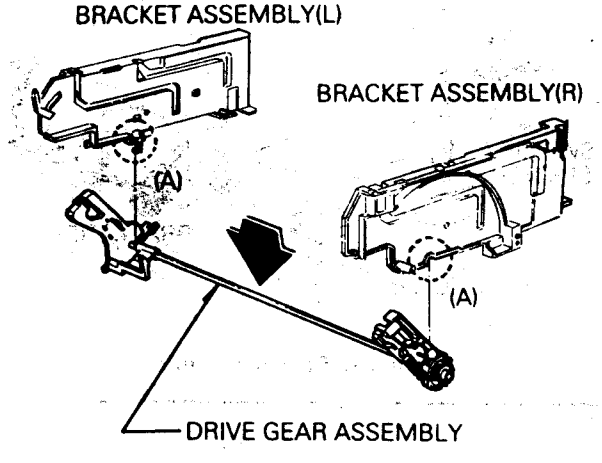


Fig. A-7 Bracket Assembly(L),(R)

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

1) Seperate the Bracket Assembly(L),(R) from the Gear Assembly Drive.

*** NOTE**

1) When reassembling, seat the shaft in the part(A) of Bracket Assembly(L),(R).

8. Door Opener(Fig. A-8)

1) Remove the Door Opener by pushing Hook(A) outward.

*** NOTE**

1) When reassembling, seat the part(B) of Door Opener in the hole( ) Bracket(L).

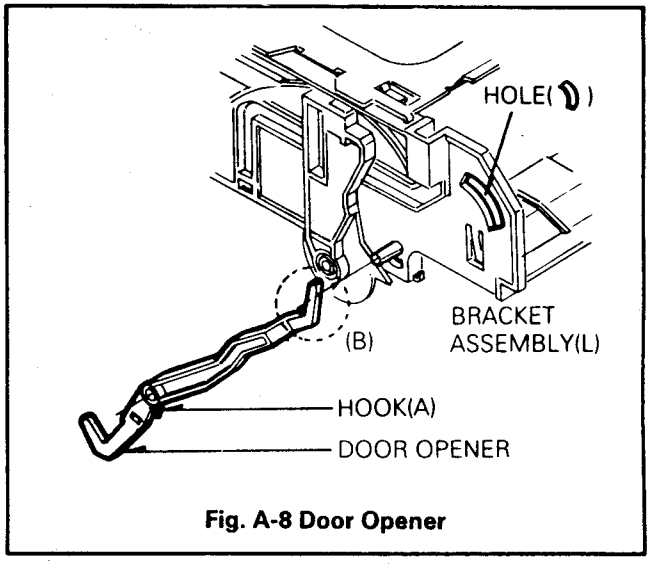


Fig. A-8 Door Opener

9. Drive Gear Assembly

9-1. Drive Gear Assembly(Fig. A-9-1)

1) Remove the Drive Gear Assembly from the Bracket Assembly(L),(R).

9-2. Cushion Spring(Fig. A-9-1)

1) Remove the cushion spring from the Gear R.

9-3. Cap-D(Fig. A-9-1)

1) Remove the Cap-D by lifting it up.

9-4. Spring C.C(Fig. A-9-1)

1) Remove the Spring C.C from the Gear R.

9-5. Gear C(Fig. A-9-1)

1) Remove the Gear C by lifting up when the projection of Gear C is aligned with the hole of Gear R while rotating the Gear C in the counterclockwise direction.

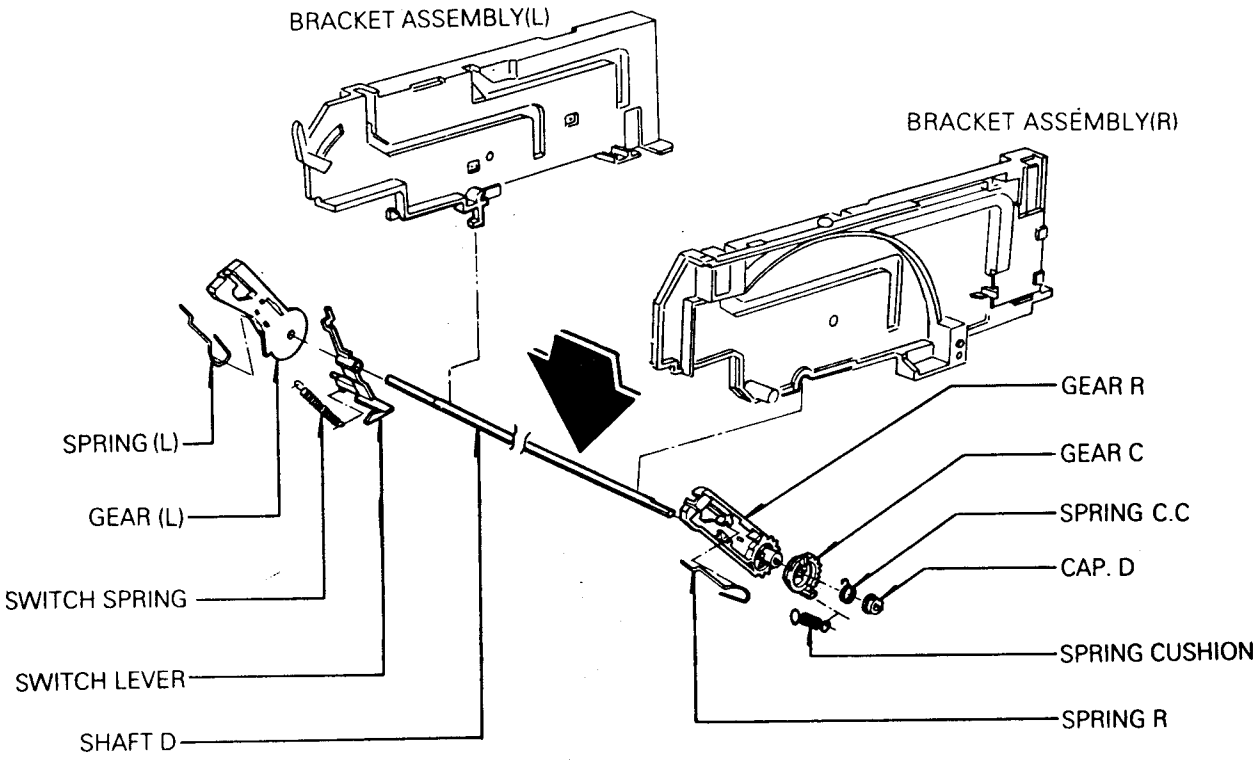


Fig. A-9-1 Gear Assembly Drive

*** NOTE**

1) When reassembling, seat the projections of Gear R in the holes of Gear R when the projection of Gear C is aligned with the hole of Gear R, and then keep the Gear C turned in the clockwise direction.

9-6. Gear R(Fig. A-9-1)

1) Lift up the Gear R from the Shaft.

9-7. Spring R(Fig. A-9-2)

1) Remove the Spring R by releasing Hooks.

*** NOTE**

1) When reassembling, be certain Spring R in the part(A) of Gear R.

9-8. Gear L.(Fig. A-9-1)

1) Remove the Gear L from the shaft.

9-9. Spring L (Fig. A-9-2)

1) Remove the Spring L by releasing Hooks from the Gear L.

*** NOTE:**(Refer to the Spring R Section)

9-10. Switch Lever(Fig. A-9-1)

1) Remove the Switch Lever from the shaft.

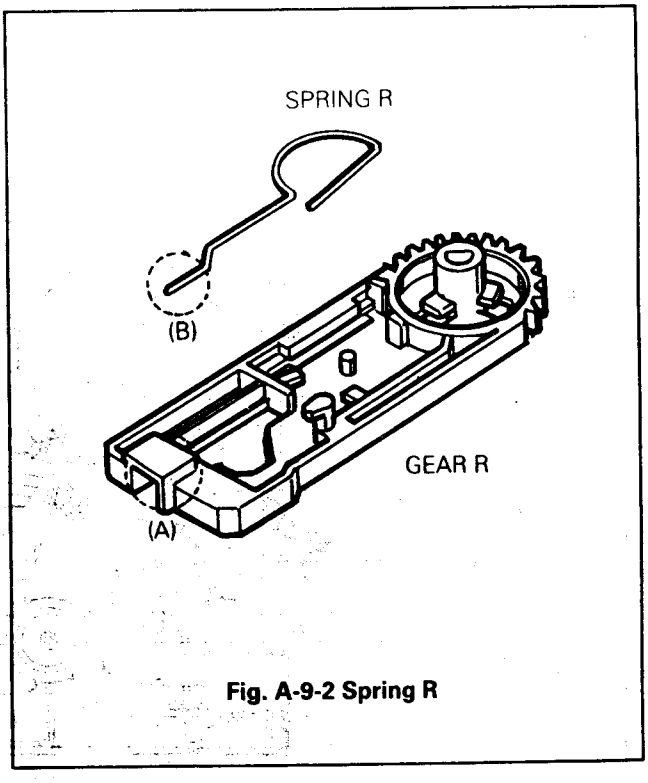


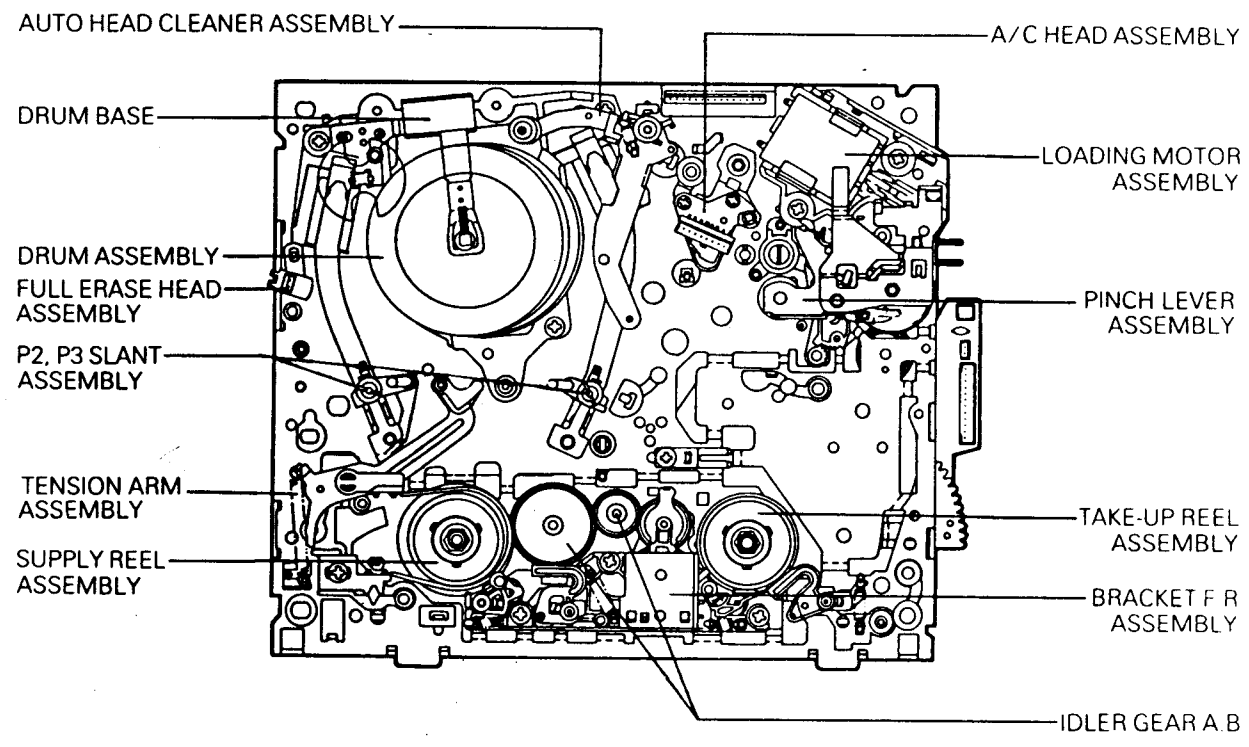
Fig. A-9-2 Spring R

VCR

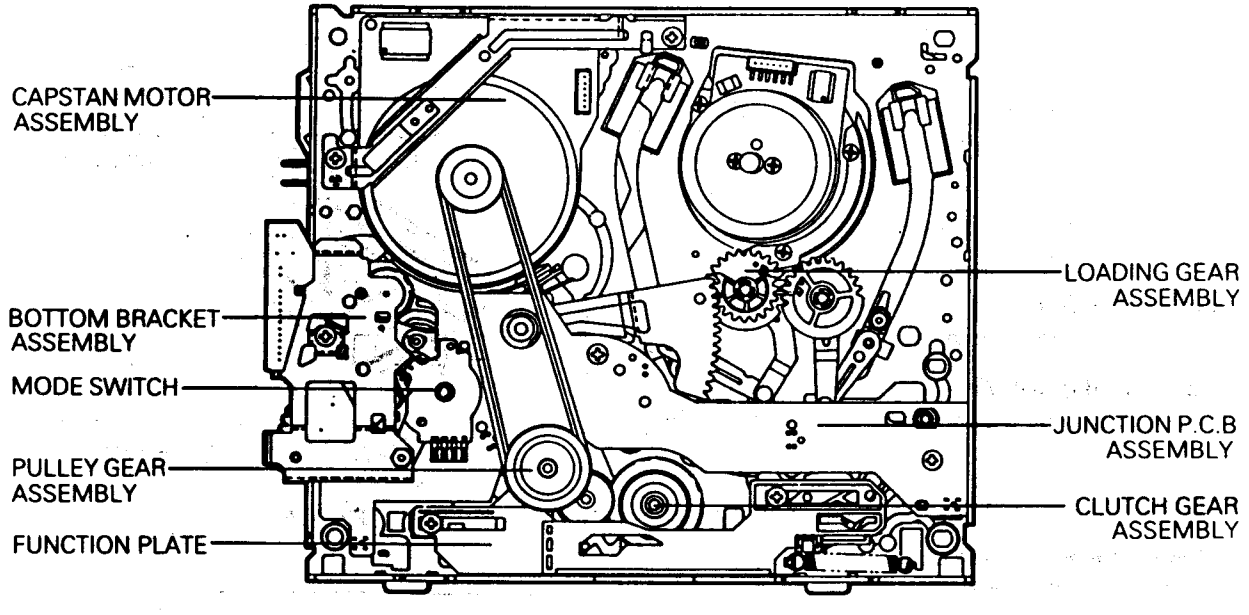
DECK MECHANISM DISASSEMBLY

• Deck Mechanism Parts Location

Top Side



Bottom Side



VCR

1. Auto Head Cleaner Assembly (Fig. B-1) (Optional Item)

1) Remove the Cleaner Arm Assembly (Auto Head Cleaner Assembly) by pushing the Locking Tab.(B) outward.
2) Remove the Cleaner Upper Spring and then remove the Cleaner Upper Arm Sub Assembly.
3) Remove the Cleaner Spring.

• NOTE

1) When reassembling, do not touch the Video Head Tip with fingers or tools.

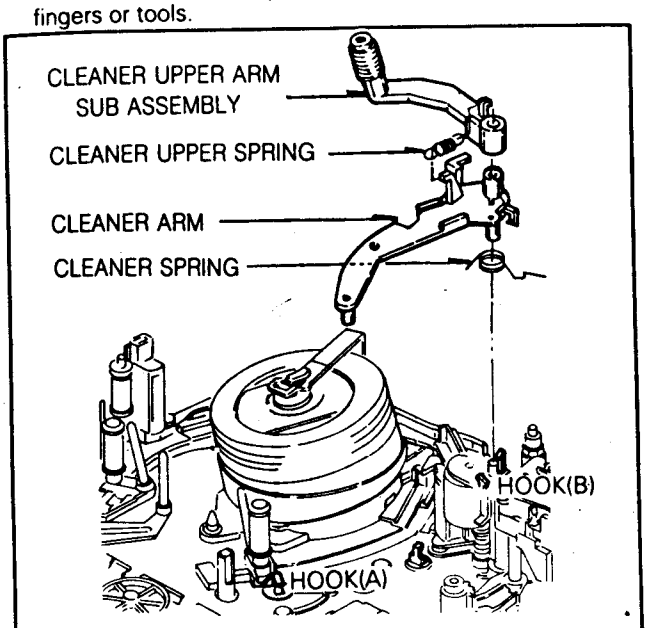


Fig. B-1 Auto Head Cleaner Assembly

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

1) Remove the Auto Head Cleaner Assembly. (Option)
2) Unplug the connector with the Deck Mechanism Assembly turned over.
3) Loosen the screw(A) and then lift up the Drum Brush.
4) Remove two screws(B) and then lift up the Drum Assembly and Drum Base from the Deck Mechanism Assembly.
5) Separate the Drum Assembly from the Drum Base by Loosening three screws(C) on the back of Drum Base.

• NOTE

1) When disassembling and reassembling-
① Do not touch the Video Head tip with fingers or tools. (Give special attention to disassembling and reassembling of Auto Head Cleaner Assembly)
② After reinstalling the Drum Brush, the Drum Brush should be aligned with the center of vertical axis of Drum Assembly.
③ After completing the reassembly, adjust the transportation system and the Servo P.G.

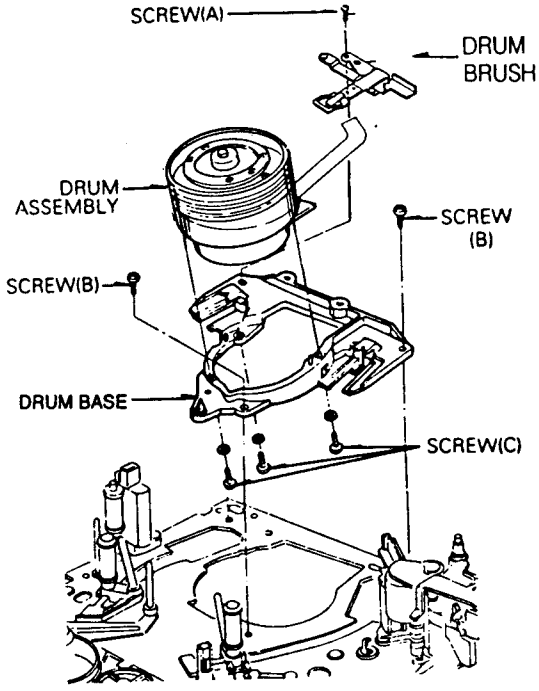


Fig. B-2 Drum Assembly/Drum Base

3. Drum Assembly

3-1. Drum Sub and Motor Assembly (Fig. B-3-1) : New Type (No two screws and P.C.B on the Drum)

1) Remove the Drum Base from the Deck Mechanism Assembly.
2) Separate the Drum Assembly from the Drum Base.
3) Remove two screws(A) and then remove the rotor.
4) Remove three screws(B) and then remove the stator.

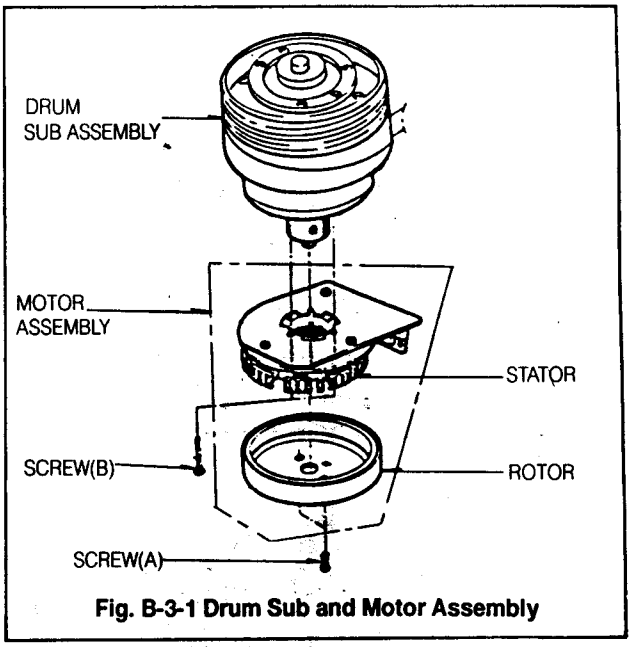


Fig. B-3-1 Drum Sub and Motor Assembly

• NOTE

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

VCR

3-2. Upper and Lower Drum Assembly (Fig. B-3-2)
: Old Type (There are two screws and P.C.B on the Drum)

1) Remove the Drum Assembly and Drum Base from the Deck Mechanism Assembly.
2) Separate the Drum Assembly from the Drum Base.
3) Remove two screws(A).
4) Remove the P.C.B.
5) Separate the upper Drum Assembly from the Lower Drum Assembly.

*** NOTE**

1) When disassembling and reassembling
① Do not touch the Video Head Tip with fingers or tools.
② Make sure that the color(white) marked on the P.C.B of the upper Drum should coincide with the color(Green) marked on the Flange Assembly.

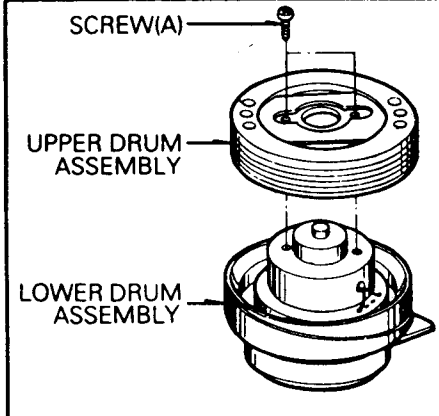


Fig. B-3-2 Upper/Lower Drum Assembly

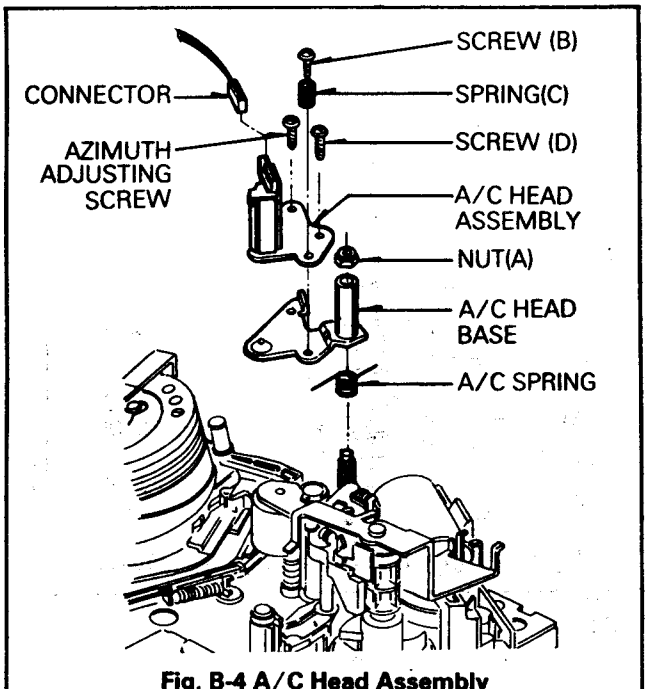


Fig. B-4 A/C Head Assembly

4. A/C(Audio/Control) Head Assembly (Fig.B-4)

1) Unplug the connector
2) Remove the Nut(A), and then lift up the A/C Head Assembly.
3) Remove the Azimuth Adjusting Screw.
4) Remove two screws(B),(D) and then separate the A/C Head Assembly from the Base A/C Head Assembly.

*** NOTE**

1) When disassembling
① First of all, release the spring A/C.
② Do not touch the A/C Head Tip with fingers or tools.
③ After reinstalling the Audio Control Head Assembly, adjust the Tilt, Azimuth and Height of A/C Head.

5. Pinch Lever Assembly(Fig. B-5)

1) Remove one Nut, and then remove the Dew Bracket.
2) Lift up Pinch Lever Assembly.
3) Remove the Pinch Spring, and remove the Pinch Lever.
4) Remove the Stopper Spring and remove the Pinch Stopper by lifting it up when the Hook of Pinch Stopper is aligned with the hole of Pinch Arm while rotating the Pinch Stopper in the counterclockwise direction.
5) Remove the Pinch Cap, and then remove the Pinch Roller Assembly.

*** NOTE**

1) When disassembling and reassembling
① Be careful not to get any foreign substance on the Roller.
② When disassembling the Pinch Cap, be careful not to damage the Pinch Arm.

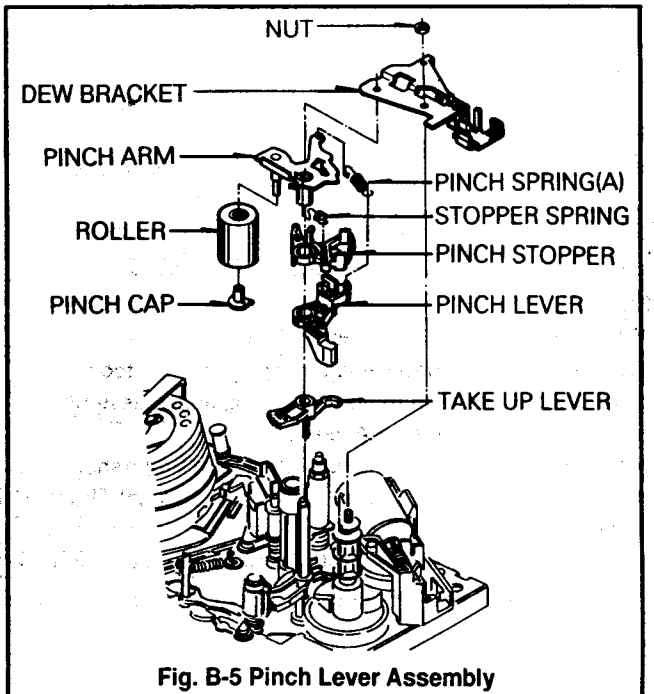


Fig. B-5 Pinch Lever Assembly

6. Loading Motor Assembly(Fig. B-6-1, B-6-2)

1) Remove the Dew Bracket.
2) Unplug the connector from the Junction P.C.B Assembly
3) Remove two screws(A).
4) Remove the worm wheel by pushing it down.
5) Remove the Loading Motor Assembly by pushing(C) and (D) outward.
6) Remove the worm Gear Assembly from the Loading Motor Assembly by pushing it.

*** NOTE**

1) When reassembling

① Make sure that the worm assembly is seated in the axis of Loading Motor.

② Two grooves(G) of Loading Motor should be turned up and two projections(F) of Bracket Assembly should be seated in each at the two holes(E)(Fig. B-6-1).

③ Take notice of the polarity of the Loading Motor.

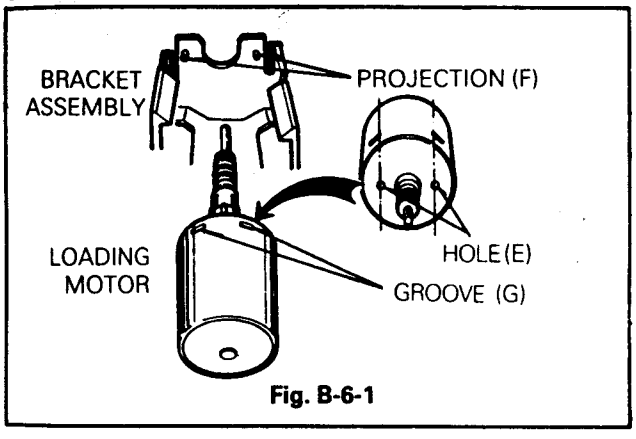


Fig. B-6-1

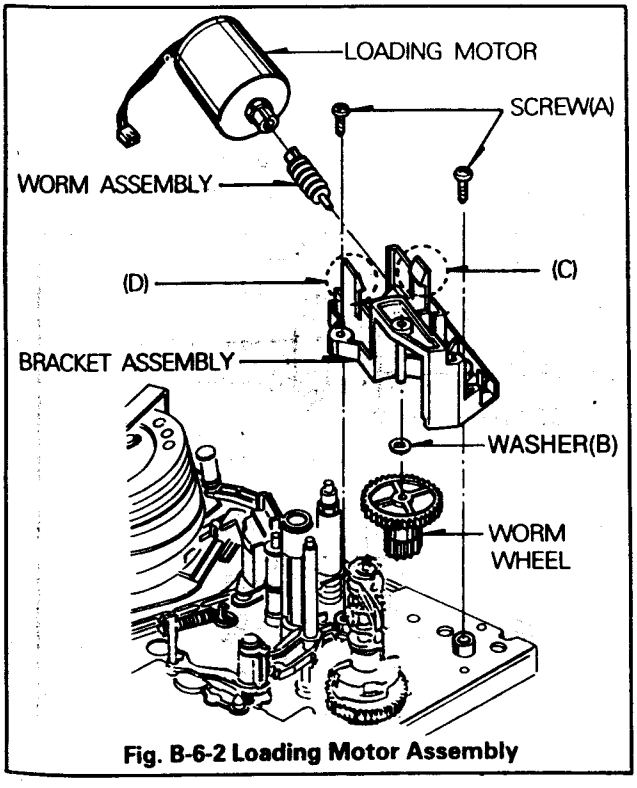


Fig. B-6-2 Loading Motor Assembly

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

1) Remove the Loading Motor Assembly.
2) Remove the Dew Bracket(Fig. B-5).
3) Remove the Pinch Lever Assembly(Fig. B-5).
4) Keep the Pinch Gear turned in the clockwise direction (180°).
5) Remove the Take-Up Lever by pushing the hook(A) outward.

*** NOTE**

1) When disassembling and reassembling

① When disassembling the Take-Up Lever, be careful not to break the Hook(A).

② When reassemble the Take-Up Lever,align the appendant Gear of Lever Take-Up with the appendant Gear of Take-up Arm

③ Reassemble the Take-Up Lever completely by hooking (A).

④ Be sure to replace together Take-Up Lever and Pinch Gear.

⑤ Be sure to assemble Pinch Lever Assembly before operating.

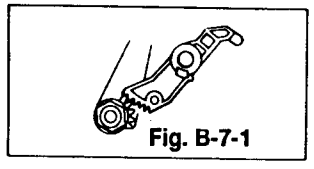


Fig. B-7-1

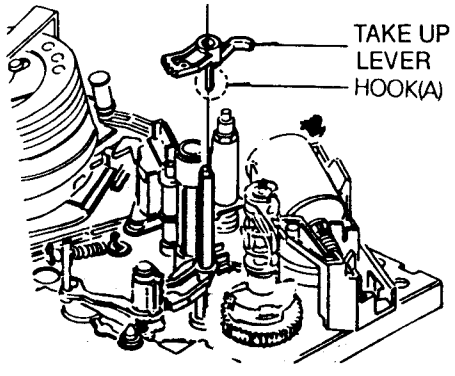


Fig. B-7. Take-Up Lever

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

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

*** NOTE**

1) When reassembling

① Align the Gear of Take-Up Arm with the Gear of Take-Up Lever(Fig. B-7-1).

VCR

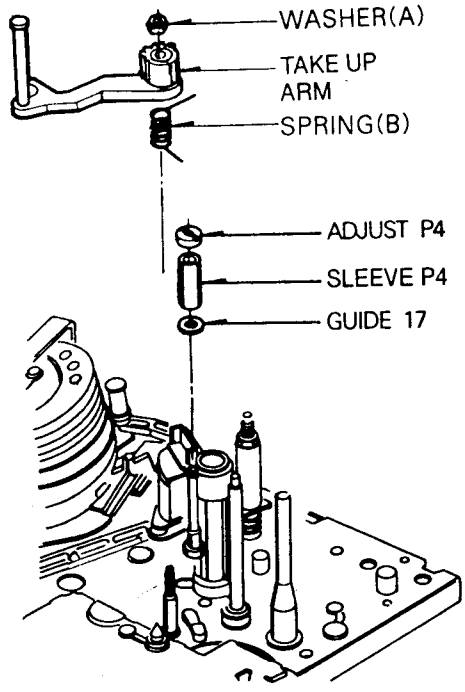


Fig. B-8 Take-Up Arm Assembly/P4

9. P4 Assembly(Fig. B-8)

1) Remove the Adjust P4.
2) Remove the Sleeve P4.
3) Remove the Guide 17.

10. Pinch Gear(Fig. B-10-1, B-10-2)

1) Remove the Loading Motor Assembly.
2) Remove one Nut(A) and then remove the Dew Bracket (Fig. B-5).
3) Remove the Pinch Lever Assembly by lifting it up(Fig. B-5)
4) Keep the Pinch Gear turned in the clockwise direction (180°).
5) Remove the Take-Up Lever by pushing the hook(A) outward(Fig. B-7).
6) Keep the Pinch Gear turned in the counterclockwise direction (180°).
7) Remove the Pinch Gear Assembly.

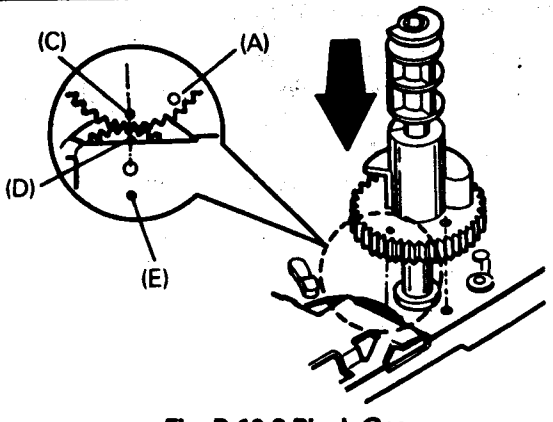


Fig. B-10-2 Pinch Gear

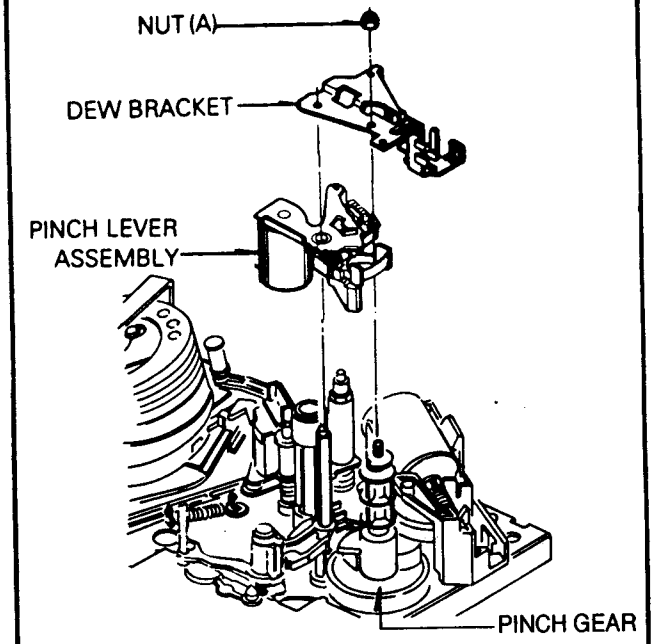


Fig. B-10-1 Pinch Gear Assembly

*** NOTE**

1) When reassembling, align the hole(A) of Pinch Gear with the hole of chassis, and the hole(C) of Pinch Gear with the groove(D) of the P.C.Gear. Hole(E) of chassis should be aligned with the hole of P.C.Gear.
2) Be sure to replace together Take-Up Lever and Pinch Gear.
3) Be sure to assemble Pinch Lever Assembly before operating.

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

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

*** NOTE**

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

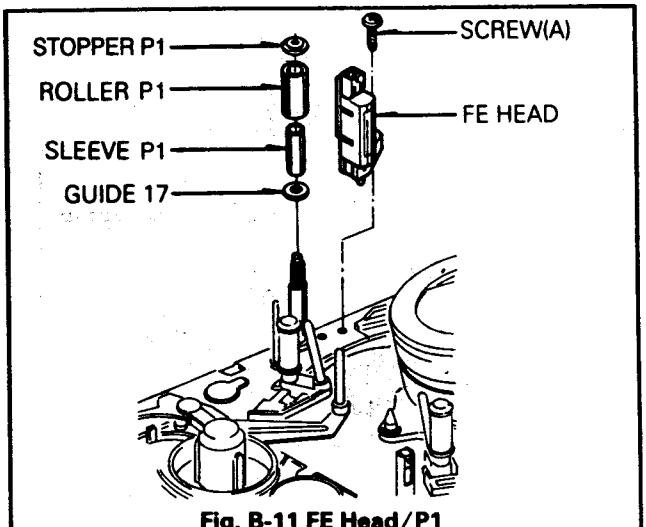


Fig. B-11 FE Head/P1

VCR

12. P1 Assembly(Fig. B-11)

1) Remove the Stopper P1.
2) Remove the Roller P1 .
3) Remove the Sleeve P1.
4) Remove the Guide 17.

13. Tension Arm Assembly(Fig. B-13)

1) Remove one screw(C).
2) Remove the Tension Spring.
3) Remove the Tension Arm Assembly by pushing hooks outward with the Deck Mechanism Assembly turned over.
4) Remove the Tension Band Assembly from the Tension Arm by pushing Hooks of Holder(A).

• NOTE

1) When disasembling and reassembling, give special attention to the disassembling and reassembling of Tension Arm Assembly, because the Tension Band is interposed between the Supply Reel and the Soft Brake.

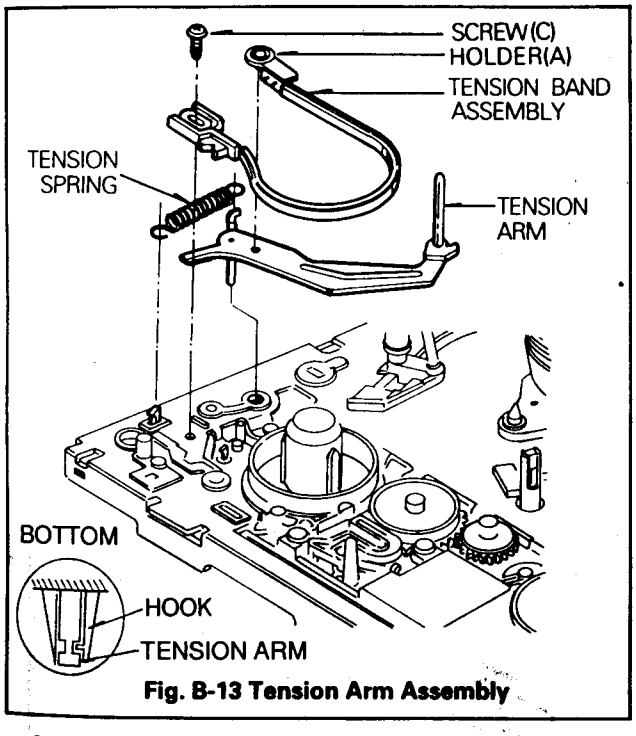


Fig. B-13 Tension Arm Assembly

14. Supply Soft/Supply Main/Take-Up Soft /Take-Up Main Brake Assembly

1) Supply Soft Brake(SSB)
   ① Remove the SSB Spring.
   ② Remove the SSB.
2) Supply Main Brake(SMB)
   ① Remove the SMB Spring.
   ② Remove the SMB.
3) Take Up Soft Brake(TSB)
   ① Remove the TSB Spring.
   ② Remove the TSB.
4) Take-Up Main Brake(TMB)
   ① Remove the TMB Spring.
   ② Remove the TMB.

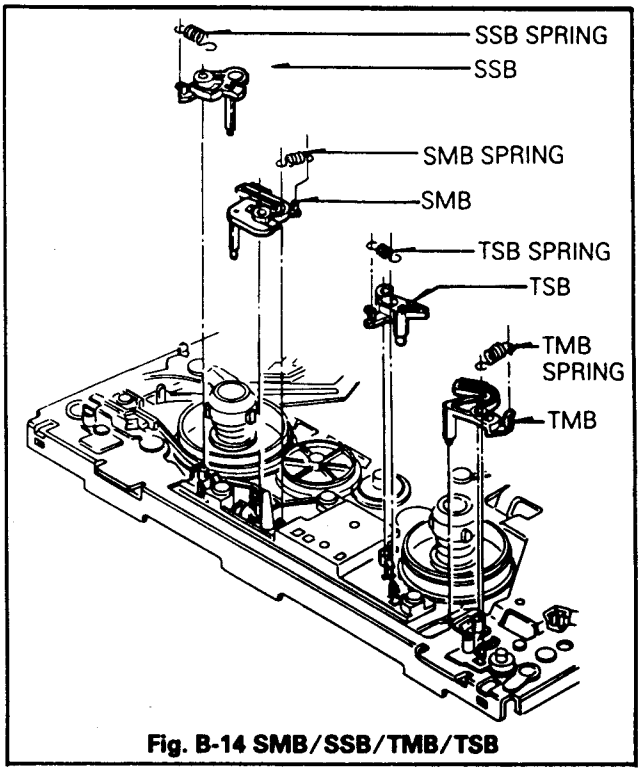


Fig. B-14 SMB/SSB/TMB/TSB

15. Bracket F/R(FF/Rewind) Assembly (Fig. B-15)

1) Remove the TMB.
2) Remove the Washer(A), and then remove the Gear F.R.
3) Remove three screws, and then remove Bracket F/R Assembly from the Deck Mechanism Assembly.
4) Remove the Washer(B), and spring Up/D, and then remove the Gear Up/D.
5) Remove the shaft(C), and then remove the Arm F.R, Lever F.R and Spring F.R.

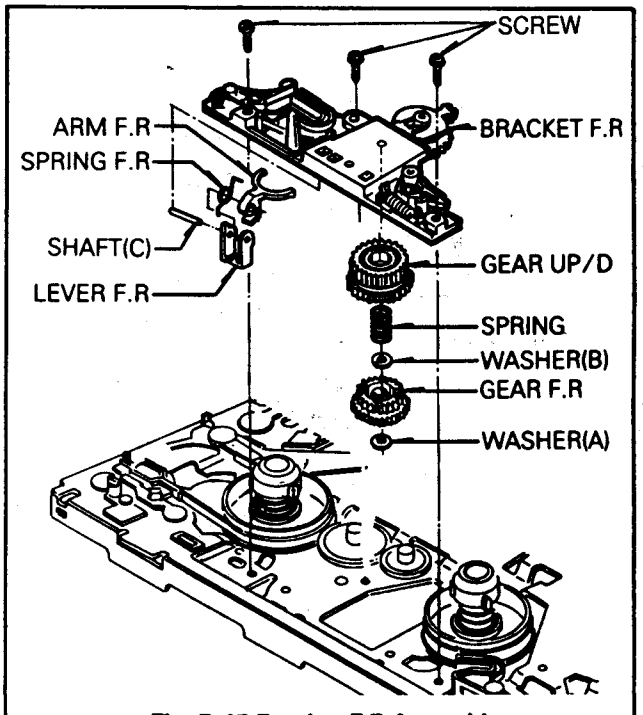


Fig. B-15 Bracket F.R Assembly

16. Supply Reel Assembly(Fig. B-16)

1) Remove the Tension Band Assembly.
2) Remove the Bracket F/R.
3) Lift up the Supply Reel Assembly from the Deck Mechanism Assembly.

17. Take Up Reel Assembly(Fig. B-16)

1) Remove the TMB(Fig. B-14)
2) Lift up the Take-up Reel Assembly from the Deck Mechanism Assembly.

*** NOTE**

1) When reassembling

① Make sure that the Supply and Take Up Reel are not exchanged.

② After reinstalling the Supply Reel Assembly, Adjust the Tension.

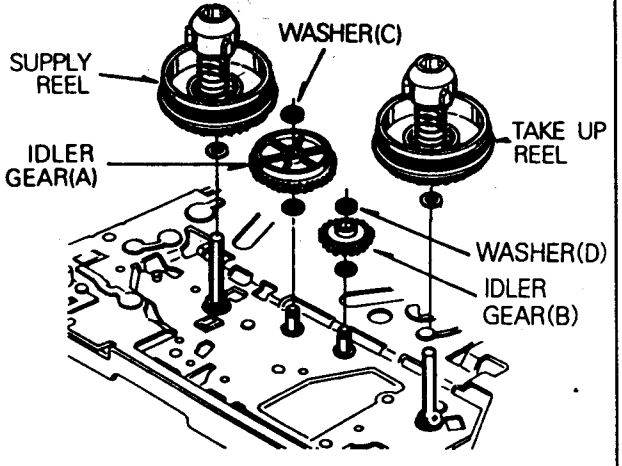


Fig. B-16 Supply Reel Assembly/Take-Up Reel Assembly

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

1) After removing the Supply Reel and supply Main Brake Assembly, remove the washer(C) and then remove the Idler Gear(A).
2) Remove the Washer(D) and remove the Idler Gear(B).

19. Pulley Gear Assembly(Fig. B-19)

1) Turn over the Deck Mechanism Assembly.
2) Remove the Capstan Belt.
3) Remove the Washer(A) and lift up the Pulley Gear.

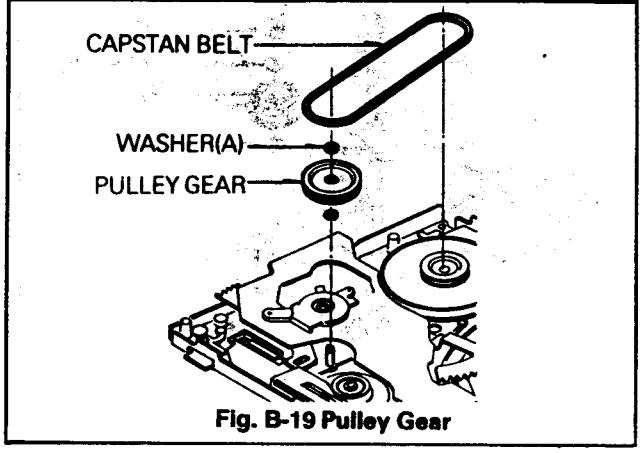


Fig. B-19 Pulley Gear

20. Bracket Bottom Assembly (Fig. B-20)

1) Remove one screw(A).
2) Remove one Hexagonal Nut, and then lift up the Bracket Bottom Assembly.
3) Remove one Washer(C), and lift up the Ratchet Gear 1.
4) Remove the washer(D), and then remove Ratchet Gear 3 from the Bracket Bottom.

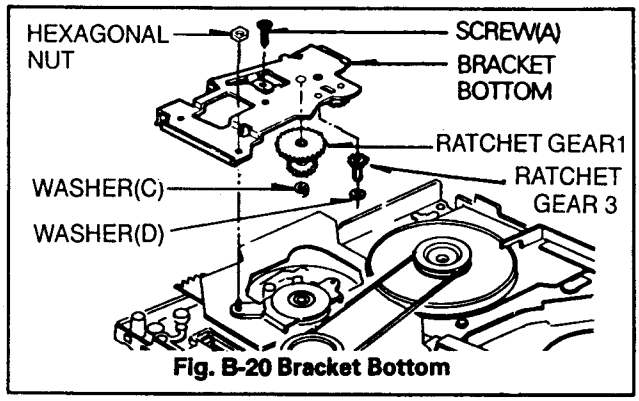


Fig. B-20 Bracket Bottom

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

1) Remove the Bracket Bottom Assembly.
2) Remove two screws(A), (B) and then remove the Junction P.C.B Assembly.
3) Remove the Mode Switch from the Junction P.C.B Assembly.
4) Remove the Reel Sensor, Sensor LEDS and each holder from the Junction P.C.B(Fig. B-21-2).

*** NOTE**

1) When reassembling the Mode Switch, the groove(V) and (U) of Mode Switch should be at their original place in the Eject Mode.

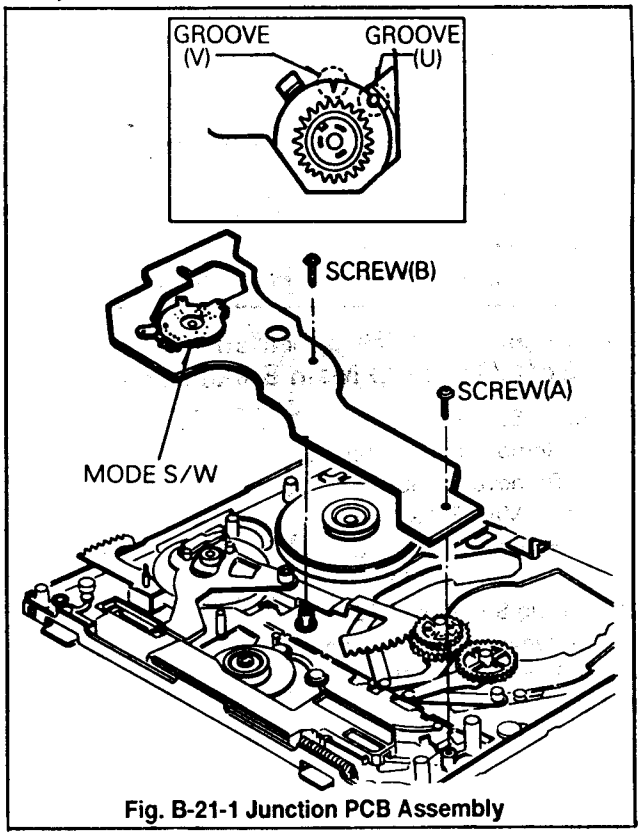


Fig. B-21-1 Junction PCB Assembly

VCR

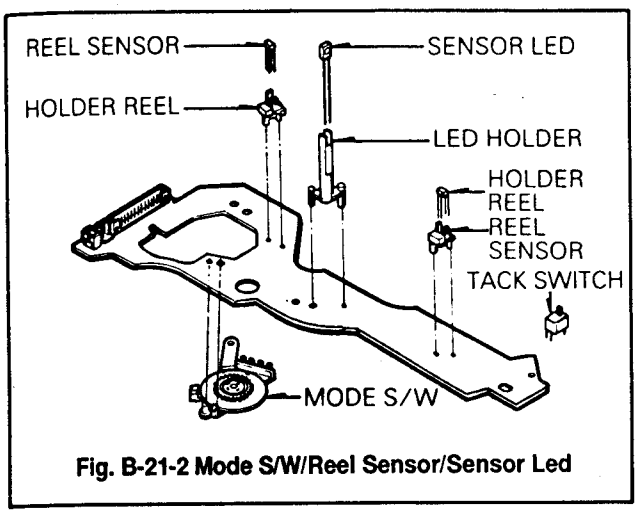


Fig. B-21-2 Mode S/W/Reel Sensor/Sensor Led

22. Capstan Motor and Brake Assembly (Fig. B-22-1)

1) Remove the Junction P.C.B Assembly
2) Hook the end of Capstan Brake Spring to the projection of Capstan Brake and then remove the Capstan Brake Assembly by lifting it up(Fig. B-22-2).
3) Remove two Screws(A), and then remove the Bracket C-Guide.
4) Remove the Connector.
5) Remove three screws(B), and then remove the Capstan Motor Assembly from the Deck Mechanism Assembly.

*** NOTE**

1) When disassembling and reassembling, hook end of the spring on the projection of Cap-Brake and remove it by lifting it up. Reassemble it in the opposite manner.

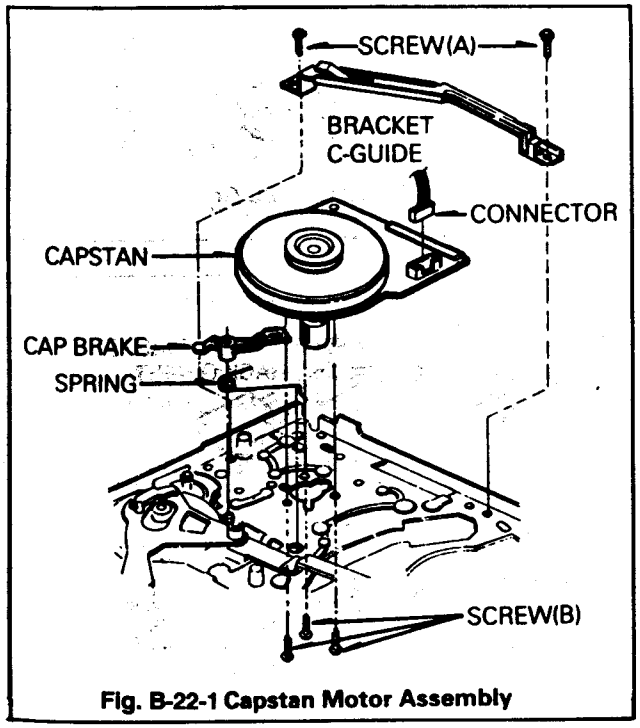


Fig. B-22-1 Capstan Motor Assembly

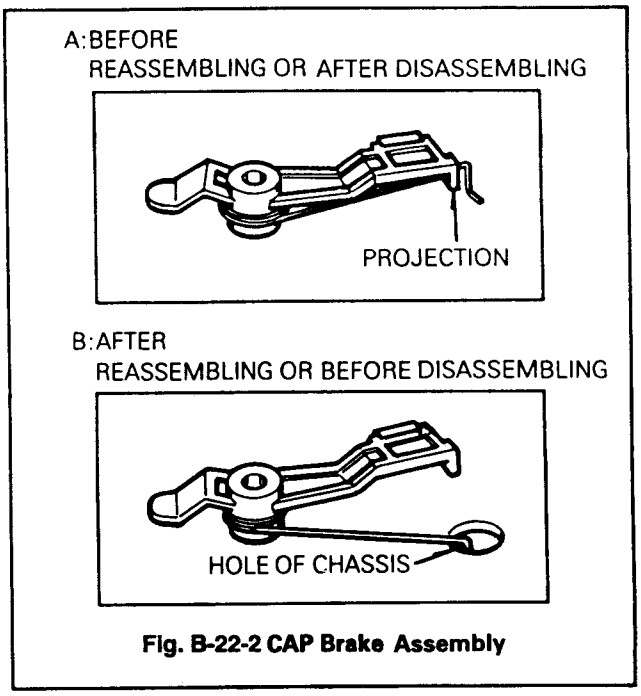


Fig. B-22-2 CAP Brake Assembly

23. Function Plate(Fig. B-23)

1) Remove two screws(B) in Eject Mode.
2) Remove the Function Plate Spring.
3) Push the Function Plate in the direction of arrow(A) and then lift it up.

*** NOTE**

1) When reassembling,the groove of Lower part of Function Plate should be aligned with the shaft of Tension Lever Assembly(Fig. B-29).

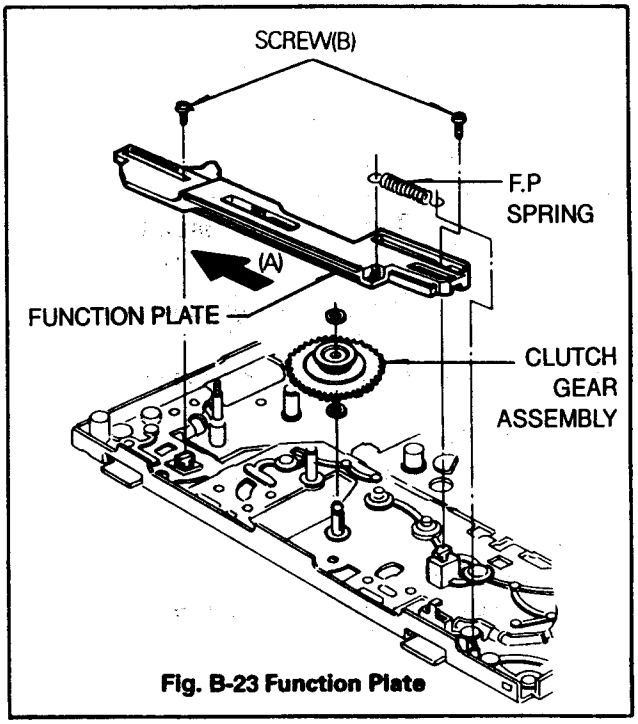


Fig. B-23 Function Plate

24. Ratchet Lever Assembly(Fig. B-24)

1) Remove the Function Plate.
2) Remove the Junction P.C.B Assembly.
3) Remove the Washer(A) and then remove the Ratchet Lever Assembly.
4) Remove the Ratchet Spring.
5) Remove the Ratchet Lever from the Ratchet 17 by lifting it up when the hook of it is aligned with the hole of Ratchet 17 while rotating it counterclockwise direction.
6) Remove the Washer(B), and turn over the Ratchet 17 and then remove the F-Lever Pin, Spring F-Lever.

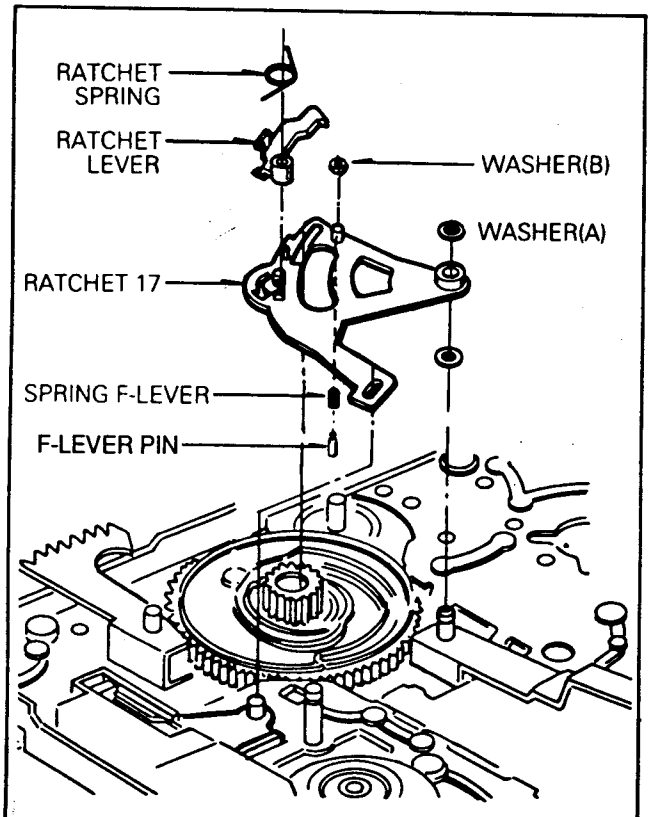


Fig. B-24 Ratchet Lever Assembly

25. Cam Gear/Rack Gear T/Rack Gear FL(Fig. B-25-2)

1) Remove the washer(A) and remove the Ratchet Lever Assembly.(Fig. B-25-1).
2) Remove the washer(B), and then remove the Cam Gear (Fig. B-25-2).
3) Remove the Rack Gear F.L.(Fig B-25-3).
4) Remove the Washer(D).(Fig. B-25-3).
5) Remove the Rack Gear T.(Fig. B-25-3).

*** NOTE**

1) When reassembling

① Align the Projection of Rack Gear T with the hole of Loading Gear.
② Drive the Rack Gear F.L in the direction of arrow(D).
③ Hole of Cam should be aligned with the hole of chassis, and the groove(■) of Cam Gear should be aligned with the hole of PC Gear (Fig. B-26).

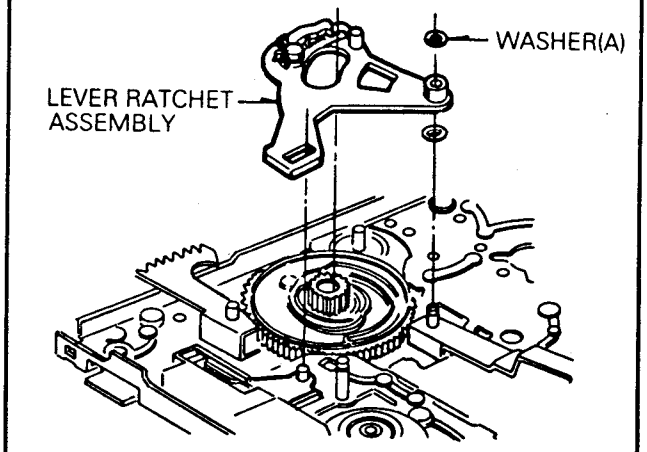


Fig. B-25-1 Lever Ratchet Assembly

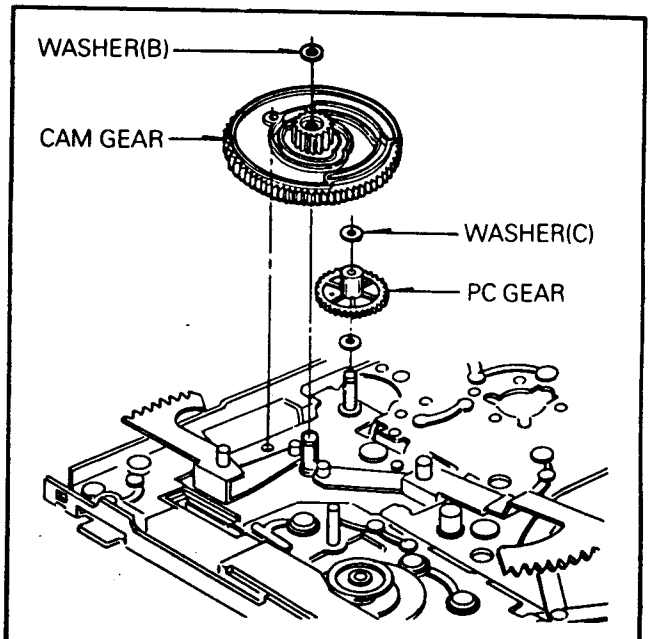


Fig. B-25-2 CAM/PC Gear

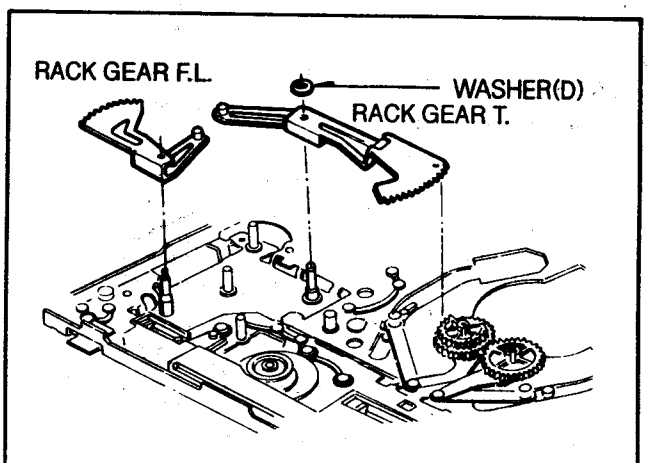


Fig. B-25-3 Rack Gear F.L/Rack Gear T

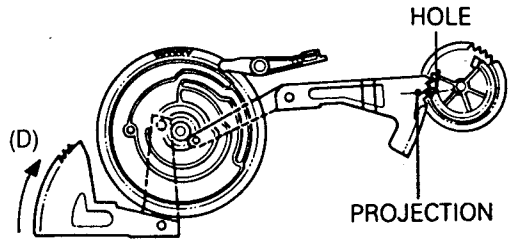


Fig. B-25-4 Rack Gear F.L/Rack Gear T/CAM Gear

26. PC Gear(Fig. B-26)

1) Remove the washer(C).
2) Remove the P.C Gear by lifting it up.

*** NOTE**

1) When reassembling

① The Groove of PC Gear should be aligned with the groove(V) of Cam Gear, and another hole of it should be aligned with the hole of chassis (Fig. B-26).

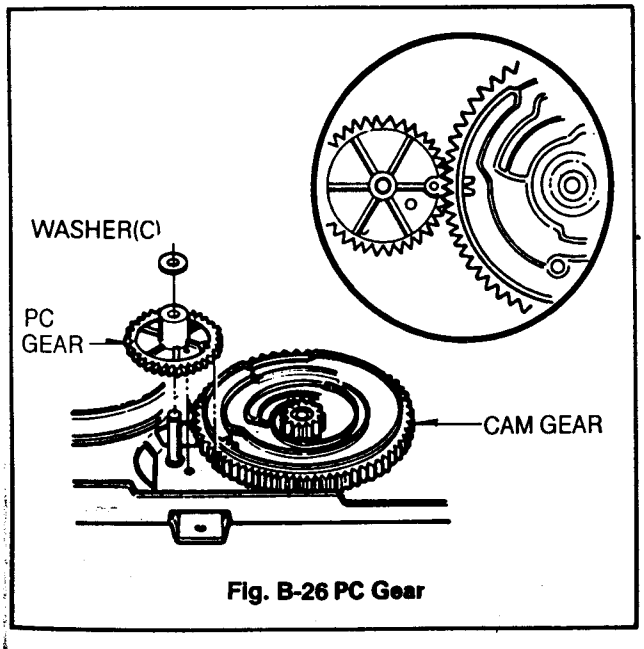


Fig. B-26 PC Gear

27. P2 and P3 Slant Assembly (Fig. B-27)

1) After finishing the disassembly of Drum Assembly, remove the P2 and P3 Slant Assembly by turning the Loading Gear(R) in the clockwise direction.(Loading direction)
2) Loosen the set screws.
3) Remove the Roller Guide from the Slant Base.

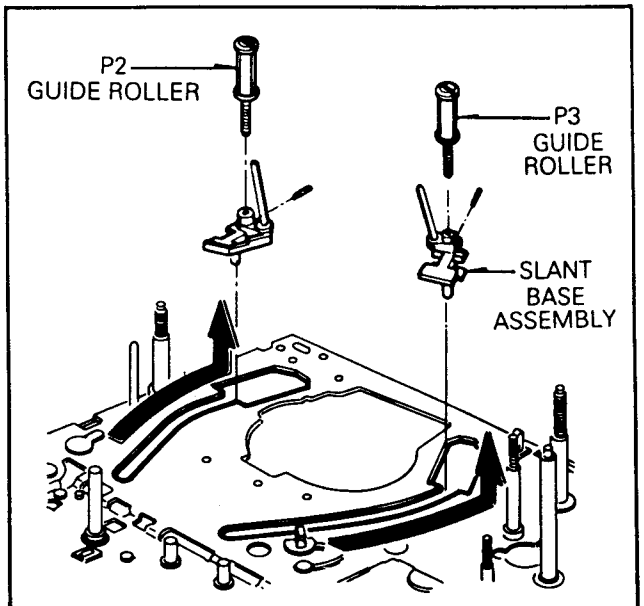


Fig. B-27 Slant Assembly

*** NOTE**

1) When disassembling and reassembling

① Use a Hexagonal wrench to remove set screw.
② Take notice that the P2 and P3 Slant Assembly should not be changed from their original place.

28. Loading Gear Assembly(L),(R) (Fig. B-28)

1) Remove the Cam Gear, Rack-T.
2) Remove the P2 and P3 Slant Assembly by turning the Loading Gear(L),(R) in the Loading direction
3) Lift up the Loading Gear Assembly(L),(R) from the Deck Mechanism Assembly.
4) Remove the Spring Load(L),(R).
5) Separate the Loading Gear(L), (R) from Arm Load(L), (R).

*** NOTE**

1) When reassembling

① Make sure that the Loading Gear(L) and (R) should not be changed from their original place.
② Align the groove of Loading Gear(L),(O) with the groove of Gear(R),(O).

VCR

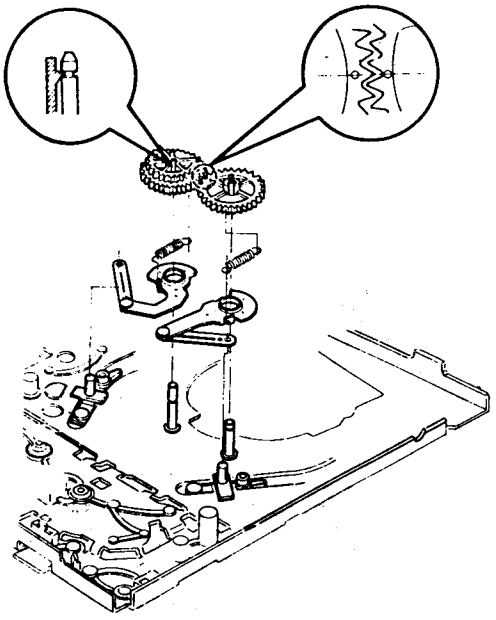


Fig. B-28 Loading Gear Assembly

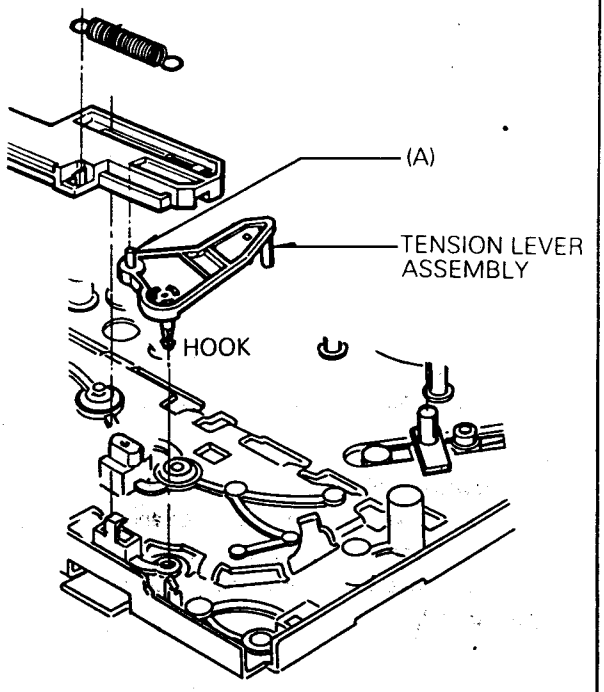


Fig. B-29 Tension Lever Assembly

29. Tension Lever Assembly(Fig. B-29)

1) Remove the Function Plate.
2) Remove the Tension Lever Assembly by pushing hooks inward.

*** NOTE**

1) When reassembling

① Set the part(A) of Tension Lever Assembly in the groove of Lower part of Function Plate.

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

30. Clutch Gear Assembly(Fig. B-30)

1) Remove the Pulley Gear.
2) Remove the Plate Function.
3) Remove the washer(A), and then remove the Clutch Gear Assembly.

*** NOTE**

1) When reassembling

① Do not disassemble the Clutch Gear Assembly any futher, because Torque adjustment can't be adjustible.

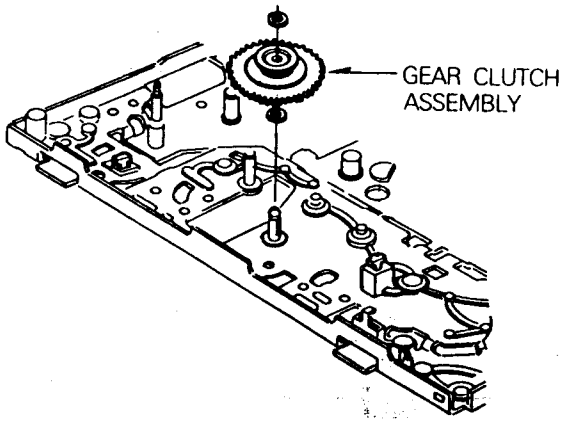
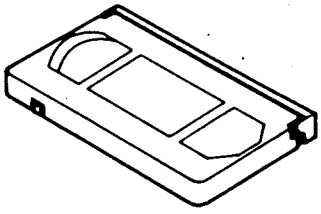
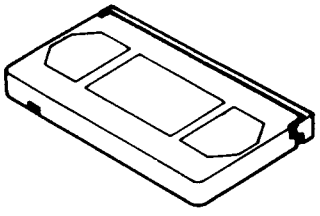
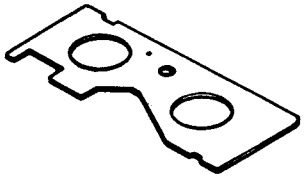
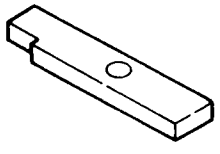
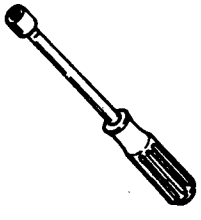


Fig. B-30 Gear Clutch Assembly

MECHANISM ADJUSTMENTS

• **Tools and Fixtures for Deck**

1. Back tension meter Parts No ; D00-D006 	2. NTSC alignment tape Parts No NTSC ; DTN-0001 PAL ; DTN-0002 	3. Master plane Parts No ; 960-011B 
4. Torque gauge Parts No ; D00-D00? 	5. Torque gauge adaptor Parts No ; D09-R001 	6. Reel table height jig Parts No ; D09-R003 
7. Post height adjusting driver Parts No ; DTL-0005 	8. M3 Nut driver Parts No ; DTL-0006 	

1. Mechanism State Switch(Mode Switch) Check

Purpose: To detect accurately the mechanism state and prevent the mechanism from malfunction.

Test Equipment/Fixture	VCR State	Check Point
● Blank tape	● Eject Mode (with cassette ejected)	● Mechanism state switch (Mode Switch and Cam)

Check Procedure

1) Turn the VCR on and eject the tape by pressing eject button.
2) Remove the Cabinet Top, the Main P.C.Board and the CST Housing. Then push the CST IN/OUT switch (Loca. #137) and eject button at the same time.
3) Turn the worm (Loca. #082) of Loading Motor Assembly (Loca. #A10) to the left side (counter-clockwise) to align the three holes (A) of the Pinct Gear, the P.C.Gear and the Chassis.
4) Remove the Bottom Cover and then check that the groove (V) and the hole (O) of Mode S/W are aligned each other. If the above alignment is not obtained, adjust as follows.
   (1) Remove the Bracket Assembly Bottom and the Capstan Belt in the state of power off.
   (2) Remove the P.C.B Assembly, align the groove (V) and the hole (O) of Mode S/W each other and then reassemble the P.C.B Assembly.
   (3) Turn the power on and perform the various operations to check that the loading and the unloading are correct.

Check Diagram

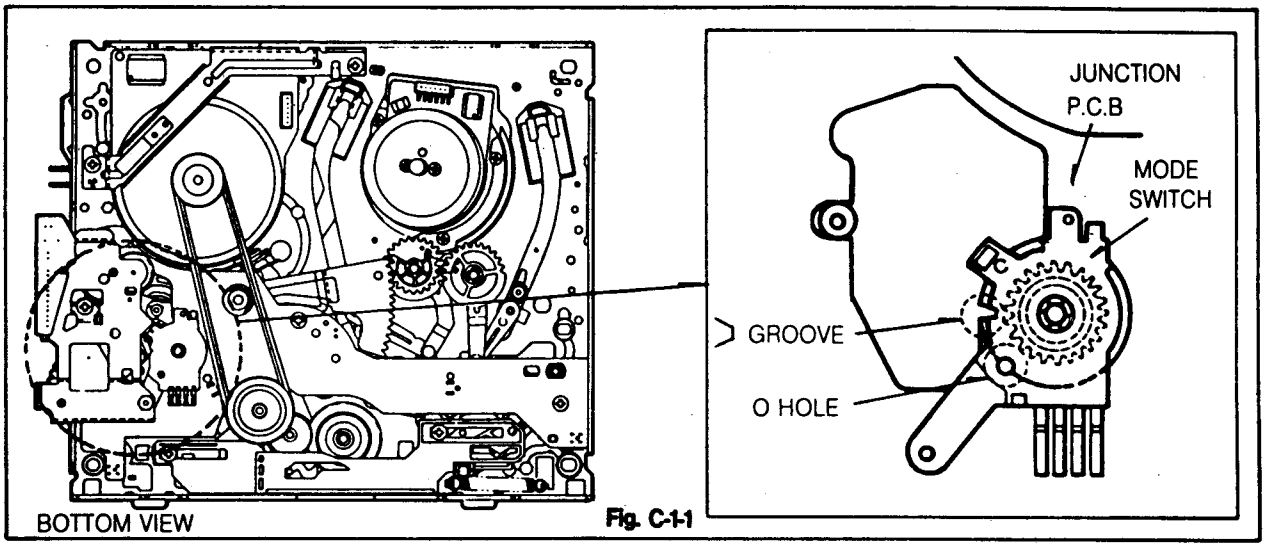


Fig. C-1-1

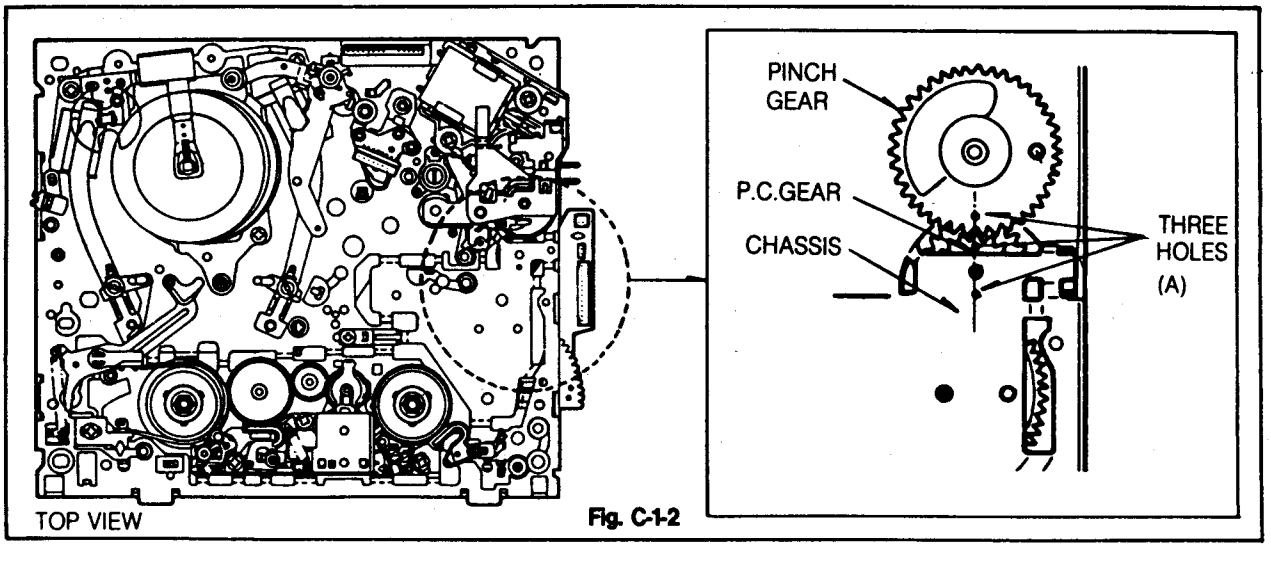


Fig. C-1-2

2. Preparation for Adjustment(To set VCR to the loading state without inserting a cassette)

1) Unplug the power cord from the AC outlet.
2) Remove the Cabinet Top and Front Loading mechanism.
3) Plug the power cord into the AC outlet.
4) Turn the VCR on and push the tact switch in the PCB Assembly.
   The VCR can accept input of each mode in this case. However the rewind and review operation cannot be performed for more than a few seconds because the take-up reel table is in the stop state and reel pulses cannot be detected.

(NOTE)
Always return the VCR to the Front Loading Mechanism Assembling State in the following order after the above operations have been performed.

1) Press the Eject button after turning the power on.
2) Wait for about 10 seconds until searching out the assembly position.
3) Assemble the Front Loading Mechanism and connect the Front Loading Mechanism Connector.
4) Refer to the "Front Loading Mechanism Disassembly" which is described previously.

3. Reel Table Height Adjustment

Purpose: To set the reels of the cassette to the specified height, thus determine the height of tape.

Test Equipment/Fixture	Preparation for adjustment	VCR State	Adjustment Points
● Maseter Plane ● Reel Table Height Fixture	1) Remove the Front Loading Mechanism 2) Mount the Master Plane and place the Reel Table Height Fixture on it.		● Washer under the Supply and Take-Up Reel Tables

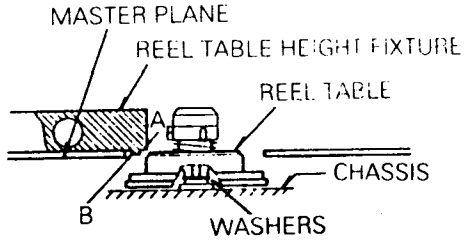
Adjustment procedure

1) Check that the Reel Table is between sections A and B of the Reel Table Height Fixture.
2) If the table is not between sections A and B of the Fixture, replace the washers(two types, 0.3mm and 0.5mm thick) in the Reel Table or adjust them.

****CAUTION****

When the Tension Arm and Tension Band are removed, adjust the tension post position and tension after reinstalling them.

Adjustment Diagram



SUPPLY AND TAKE-UP REEL TABLE

Fig. C-3

VCR

4. Tension Post Position and Tension Adjustment

Purpose: To make the tension of tape constant so that the contact between the video heads and tape is stabilized.

Test Equipment/Fixture	VCR State	Adjustment Point
● Tension Meter (Tension adjustment)	● Play without cassette and with a Tension Meter	● Holder Band(B)

Adjustment Procedures

〈Position Adjustment〉

1) Perform loading without inserting a tape and loosen the screw that attaches the Holder Band(B) to the Deck Mechanism Assembly.
2) Insert the (-)type driver between the Holder Band(B) and the "V" groove of the chassis.
3) Move the Holder Band(B) right and left and align the center of tension post(Guide T-Post) with the center of P1(Shaft P1).(tolerance:Less than ±0.3mm)
4) Tighten the screw that attaches the Holder Band(B) to Deck Mechanism Assembly.

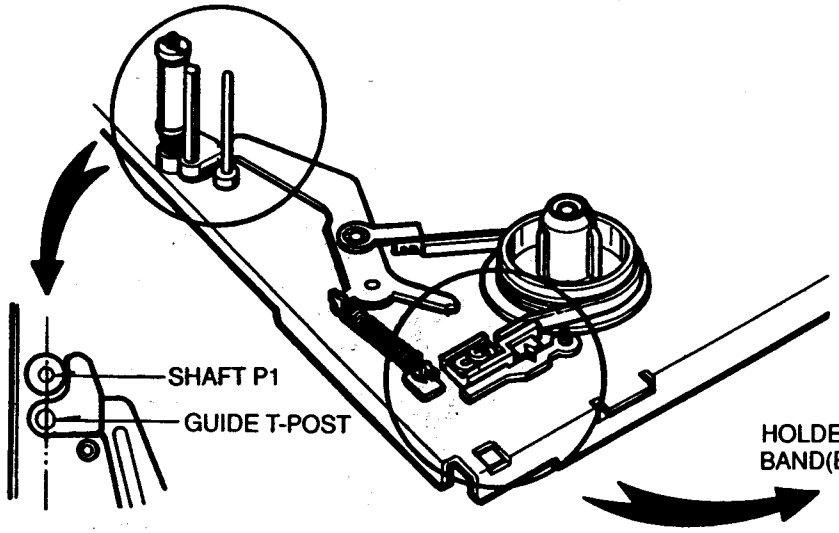
〈Tension Adjustment〉

1) Play the Tension Meter and read the Tension Meter: 38g•cm±4g•cm(reference value).
2) If the result is abnormal.
   (1) over the standard:loosen the screw, move the Holder Band(B) to the right a little and then tighten the screw and make sure that this adjustment is correct.
   (2) below the standard:loosen the screw, move the Holder Band(B) to the left a little and then tighten the screw and make sure that this adjustment is correct.

****CAUTION****

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

Adjustment Diagram



ALIGN THE CENTER OF P1 AND TENSION POST

Fig. C-4-1

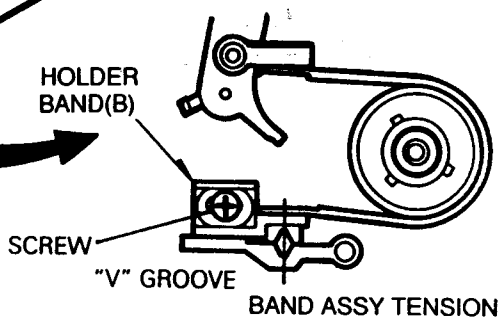


Fig. C-4-2

5. Checking Torque

Purpose: It is necessary to check the tension, torque and compression force at the tape take-up section and moving section to make the tape run smoothly and satisfy the basic performance of the VCR. Check these if the tape does not run smoothly or the tape speed is abnormal.

Test Equipment/Fixture	VCR state
● Torque Gauge ● Torque Gauge Adaptor ● Cassette Torque Meter SRK-VHT-063 : Play, Cue SRK-VHT-303 : Review	● Set the VCR to each operation mode without inserting a cassette. (See '2 Preparation for Adjustment')

Item	VCR Operation mode	Measurement Reel	Measurement Values
Main brake torque.	Eject	Supply and take-up reels	600g.cm or more
Slack removal torque	Unloading(power off)	Supply reel	120~220g·cm
Fast forward torque	Fast forward	Take-up reel	600g·cm or more
Rewind torque	Rewind	Supply reel	600g·cm or more
Play take-up torque	Play	Take-Up reel	90~150g·cm
Review Torque	Review	Supply Reel	120~180 g.cm
CUE Torque	Cue	Take-Up Reel	110~170 g.cm

Checking Method

The values are measured by using a torque gauge and torque gauge adaptor with the torque gauge fixed.

Note: This value is measured when the VCR is shifted in the unloading direction from the fast forward or rewind mode and quick braking is applied to both Reel Tables.

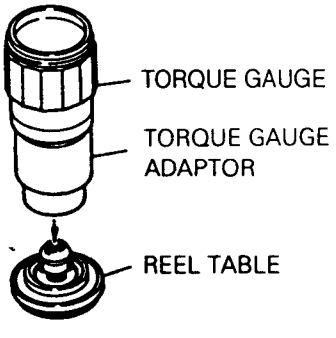


Fig. C-5

6. Guide Post Height Adjustment

Purpose: To control tape height

Test Equipment/Fixture	VCR State	Adjustment Point
● Master Plane ● Blank Tape ● Reel Table Height Fixture ● Post Height Adjusting Driver ● M3 Nut Driver	● Mount the Master Plane and place the Reel Table Height Fixture on it.	● Nuts on Impedance Roller ● Guide Post

1) Set the clearance between the bottom of the P1 Roller Flange and under cut of Reel Table Height Jig to 0~0.1mm (Fig. C-6-1)
2) Set the clearance between the bottom of the Guide Post upper flange and top of the Reel Table Height Fixture to 0~0.2mm (Fig. C-6-2).
3) Load and run the Tape and check that the tape does not ride over the upper and lower flanges of the guide post and lower flange of Impedance Roller.
4) If the tape rides over either flange, adjust the height of P1 Roller and Guide Post as follows (Fig. C-6-3).
   - If the tape rides over the upper flange, turn the nut counterclockwise.
   - If the tape rides over the lower flange, turn the nut clockwise.

Adjustment Diagrams

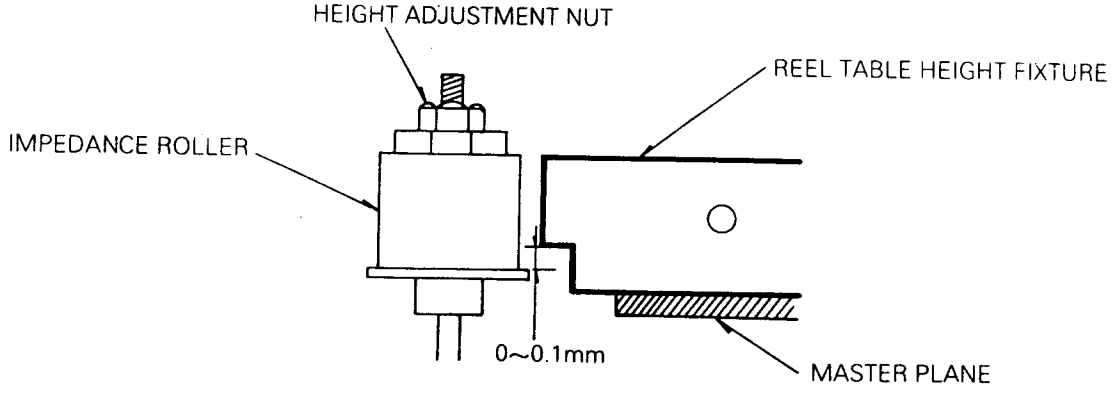


Fig. C-6-1

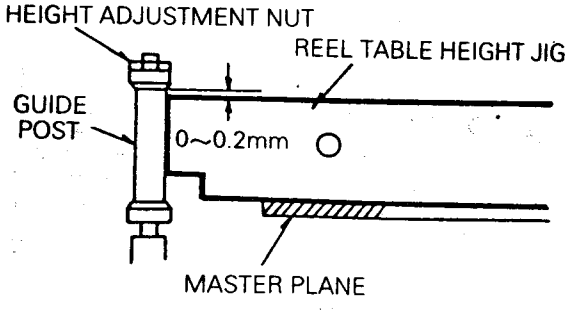


Fig. C-6-2

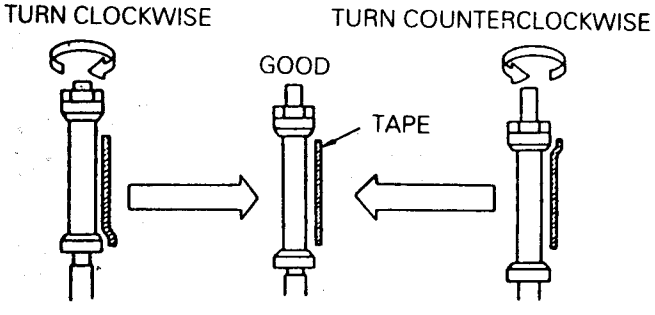


Fig. C-6-3

7. Guide Roller Height Adjustment

Purpose: To regulate the height of tape so that the bottom of tape runs along the tape guide line on the lower drum.

A. Coarse Adjustment

Test Equipment/Fixture	VCR State	Adjustment Point
● Hexagonal Wrench or Bended Drive (+) Type ● Post Height Adjusting Driver	● Play an alignment tape	● Guide Roller Height Adjustment Screws on the Supply and Take-Up Guide Rollers.

Adjustment Procedure

1) Perform the precise adjustment.
2) When the Guide Roller is damaged, release the Guide Roller retaining screw and then replace the Guide Roller.

Adjustment Diagram

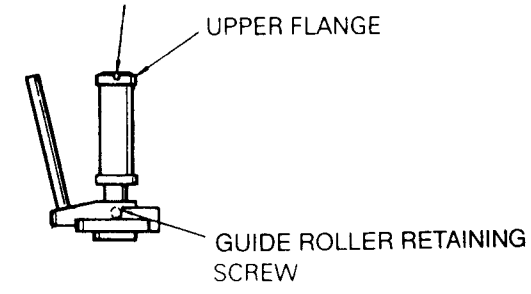


Fig. C-7-1

B. Precise Adjustment

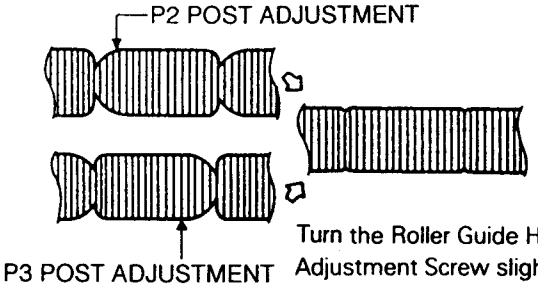
Test Equipment/Fixture	Test Equipment Connection Points	VCR State	Adjustment Point
● Oscilloscope ● Post Height Adjusting Driver ● Alignment Tape(30HMP-2) ● Hexagonal wrench	● CH-1:PB RF Envelope ● CH-2 (NTSC : SW30Hz / PAL : SW25Hz) ● Head Switching Output Point ● RF Envelope Output Point	● Play an alignment tape	● Guide Roller Height Adjustment Screws.

Adjustment Procedure

1) Play an alignment tape after connecting the probe of the oscilloscope to RF Envelope Output Test Point and Head Switching Output Test Point.
2) Tracking control(in PB mode):Center position(When this adjustment is performed after the drum assembly has been replaced, set the tracking control so that the RF output is maximum.)
3) Height adjustment screw:Flatten the RF waveform.
4) Turn(Move) the tracking control(playback) clockwise and counterclockwise.(to the right and left)
5) Check that any drop of RF output is uniform at the start and end of the waveform.

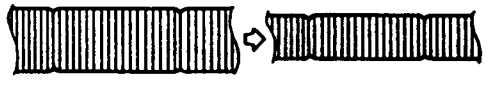
****CAUTION****
If the adjustment is excessive or insufficient the tape is jammed or folded.

Waveform Diagrams



Turn the Roller Guide Height Adjustment Screw slightly to flatten the waveform.

Fig. C-7-2

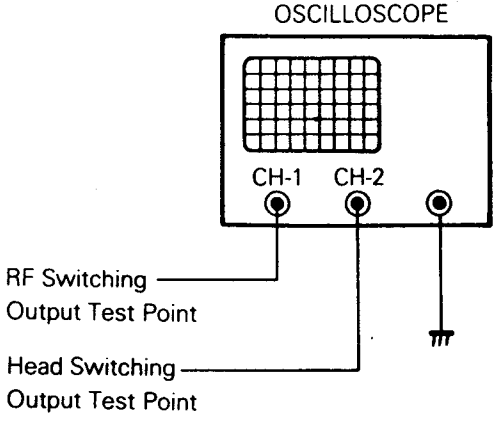


Tracking control at center

Turn(Move) the tracking control to both directions.

Fig. C-7-3

Connection Diagram



VCR

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

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

A. Coarse Adjustment (Perform the preliminary adjustment, when there is no Audio Output signal with alignment tape.)

Test Equipment/Fixture	VCR State	Adjustment Points
● M3 Nut Driver		● Special screw ● Cone Point Screw for tilt ● Azimuth Adjustment Screw
● Blank tape	● Run the blank tape	● A/C Head Adjuster

Adjustment procedure/Adjustment Diagram

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

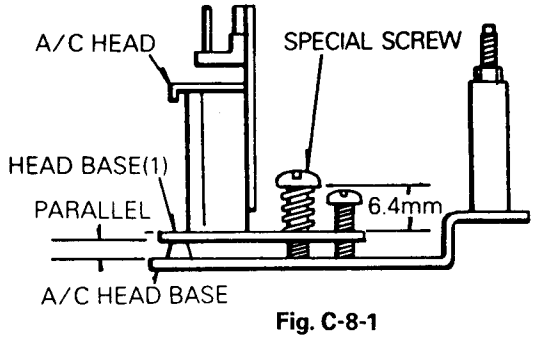


Fig. C-8-1

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

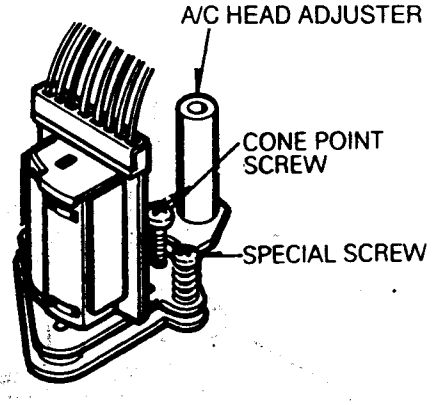


Fig. C-8-2

3) Load a blank tape and set the VCR to the play mode.

4) Confirm that the tape runs fittingly to the lower limit of the P4 post. Also confirm that the tape runs smoothly.

5) If adjustment is required, turn Cone Point Screw clockwise until curling is apparent at the lower edge of P4. Then turn Cone Point Screw counterclockwise until the curling smooths out.

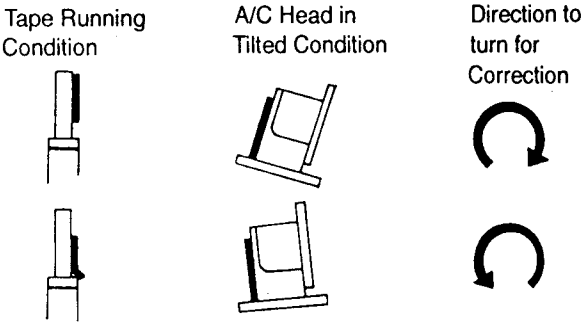


Fig. C-8-3

6) Check that there is no conspicuous curling and folding around the A/C head. If there is conspicuous curling or folding, readjust the Cone Point Screw, Azimuth Adjustment Screw and A/C Head Adjuster. When the bottom edge of tape is 0.20~0.25mm from the bottom edge of the control head's core, the height of A/C head is ideal.

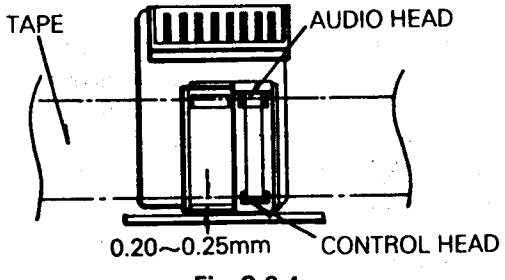


Fig. C-8-4

7) If necessary repeat steps 1 through 4 until a precise adjustment is achieved.

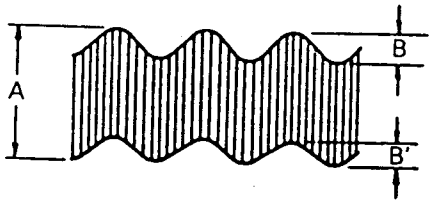
B. Precise Adjustment

Test Equipment/Fixture	Test Equipment Connection Point	VCR State	Adjustment Points
● Oscilloscope ● Alignment tapes ● M3 Nut Driver	● Audio output jack	● Play an alignment tape 1KHz, 7KHz sections	● Azimuth Adjustment Screw ● A/C Head adjuster ● Cone point screw

Adjustment Procedure

1) Connect the probe of oscilloscope to audio output jack.
2) Adjust the Azimuth Adjustment Screw, A/C Head adjuster and cone point screw slightly and alternately so that an Audio 1KHz output is maximum and flat. (minimum fluctuation).
3) Adjust the Azimuth Adjustment Screw slightly and alternately so that the Audio 7KHz output is maximum.

Waveform Diagram



A:Maximum BB':Minimum

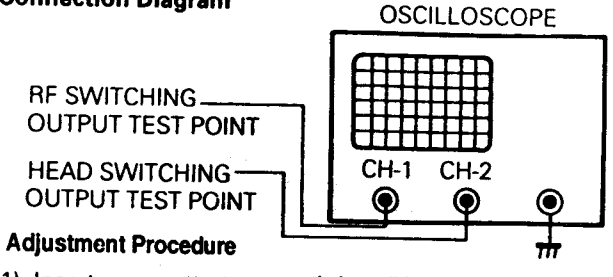
Fig. C-8-5

9. X-Value Adjustment

Purpose: To obtain compatibility with other VCRs.

Test Equipment/Jigs	Test Equipment Connection Points	VCR State	Adjustment Points
● Oscilloscope ● Alignment tapes ● Post Height Adjusting Driver	● CH-1:PB RF Envelope ● CH-2:SW 30Hz ● Head Switching Output Test Point ● RF Envelope Output Test Point	● Play an alignment tape	● Adjust X

Connection Diagram



Adjustment Procedure

1) Insert a cassette tape, and then "AUTO TRACKING" will be displayed on the Digitron, then push the Tracking ⊕ or ⊖ Keys one time as soon as possible to make the VCR release the Auto Tracking.
2) Turn the Adjust X to the maximum RF Envelope level when the VCR is free from the Auto tracking.
3) If RF envelope output is maximized from the center click position in the right direction (clockwise), set the tracking control to the center and turn the X Adjust counterclockwise.
4) If in the left direction (counterclockwise), turn it clockwise by the same method.
5) In case of the 30 μ m, head will trace over a 60 μ m width track, readjust it so that RF Envelope output begins falling at the same angle when tracking control is turned either left or right.

Adjustment Diagram

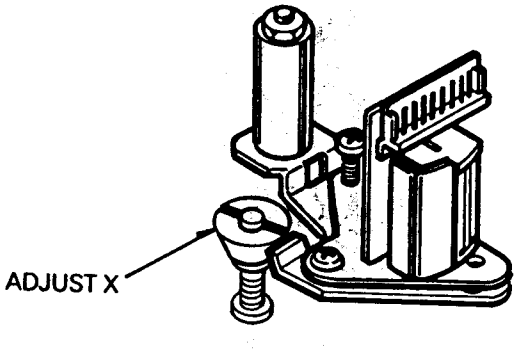


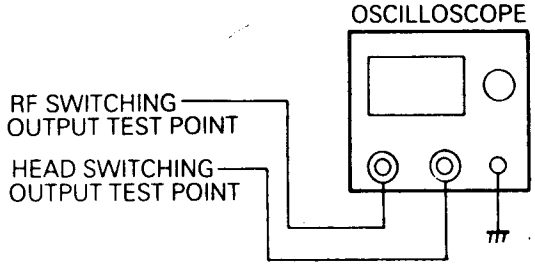
Fig. C-9

10. Adjustment after Replacing Drum Assembly(Video Heads)

Purpose: To suppress drift in the height relative to the Guide Roller and drift of the X Value after replacing the drum.

Test Equipment/Fixture	Test Equipment Connection Points	VCR State	Adjustment Points
● Oscilloscope ● Post Height Adjusting Driver ● Alignment tape ● Blank tape ● M3 Nut Driver	Checking the flatness ● CH-1:PB RF Envelope ● CH-2 (NTSC : SW30Hz / PAL : SW25Hz) ● Head Switching Output Point ● RF Envelope Output Point	● Run the blank tape ● Play an alignment tape	● Guide Rollers Precise Adjustment ● Switching point ● Tracking point ● X-Value

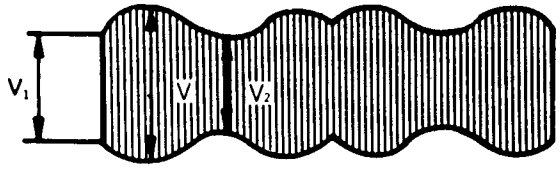
Connection Diagram



Checking/Adjustment Procedure

1) Run the blank tape, check and adjust whether the Roller Guide is curling or creasing tape around the Roller Guide.
2) Check the RF envelope output flatness and adjust the Roller Guide Height while playing an alignment tape.
3) Adjust the head switching point.
4) Check that RF envelope output is maximum when the tracking is at the initial position.
5) Adjust the Tracking Preset and X-Value Adjust with X Adjust.

Waveform Diagram



V_1/V MAX $\geq$ 0.7
V_2/V MAX $\geq$ 0.8
RF ENVELOPE OUTPUT

Fig. C-10

11. Check of Tape Travel After Reassembling Deck Assembly

Check Audio and RF Locking Time during playback after CUE or REV.

Test Equipment/Fixture	Specification	Test Equipment Connection Point	VCR State
● Oscilloscope ● Alignment tape (with 6H 3kHz Color Bar Signal) ● Stop Watch	● RF Locking Time : Less than 5 sec. ● Audio Locking Time : Less than 10 sec.	● CH-1 : PB RF Envelope ● CH-2 : Audio Output ● RF Envelope Output Point ● Audio Output Jack	● Play an alignment tape (with 6H 3kHz Color Bar Signal)

Checking Procedure

1) Change the mode of CUE or REV to play.
2) At this time, confirm that the Locking Time of Audio and RF Output Waveform fits to specification.
3) If the results checked above are abnormal, reapeat adjustments 4 through 8.

※ 6H : LP

VCR

Check the coincidence of both Audio and Video Sync.(Lip Sync.)

Test Equipment/Fixture	Specification	Test Equipment Connection Point	VCR State
● Oscilloscope ● 2H 9V Tape(for X-Value Adjustment Coincidence) or alignment tape	● Less than ±0.5V	● CH-1 : PB RF Envelope ● CH-2 : Audio Output ● RF Envelope Output Point ● Audio Output Jack	● Play a 2H 9V tape or an alignment tape.

Checking Procedure

1) Confirm that the period Ⓐ of Fig. C-9-1 is within ± 0.5V.
2) If the result is abnormal, repeat adjustment #7. (X-Value adjustment).

※ 2H : SP, V: Vertical

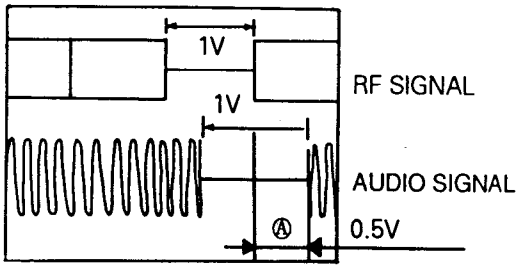


Fig. C-11-1

Check the occurance of tape curl and jam

Test Equipment/Fixture	Specification	VCR State
● T-160 Tape ● T-120 Tape	● Be sure there is no jam or curl at the beginning, the middle period or the end of the T-160 tape.	● Run the CUE, REV play mode at the beginning and the end of the tape.

Checking Procedure

1) Confirm whether the state of each transportation post is normal.
2) Make sure nothing is wrong with the operation of the Counter, when the lower part of tape is folded.
3) Be sure there is nothing wrong in the Audio signal, when the upper part of tape is folded.
4) If the result is abnormal, repeat adjustment #5 and #6.

Check the adjustment state of Take-Up Guide

Test Equipment/Fixture	Specification
● T-120 Tape ● Take-Up Guide Adjusting Driver	● Review : Travel the tape that align the top of the P4 Guide and the bottom of the Tape or be folded. ● Play : Travel the tape that align the top of the P4 Guide and the bottom of the Tape.

Checking Procedure

1) Run the CUE or PLAY mode at the middle period or the end of the T-120 tape.
2) Run the REV mode at the play or cue part of tape.
3) At this time, confirm that the change of tape height at the P4 Guide fits to specification.
4) If the result is abnormal, refer to Table 9-1.
5) Play the beginning of T-120 tape(within 5 min.)
6) Confirm that the state of tape transportation fit to specification in P4 Guide.
7) Remove the Tension Arm Assembly by rotating in the clockwise direction and then confirm that the state of tape transportation fit to specification.
8) If the result is abnormal, refer to Table 9-1.

PLAY Mode	REV Mode	Adjustment Method
Tape Falling	Tape Lift	Bend the shaft of the direction +Y.
Tape Lift	Tape Falling	Bend the shaft of the direction -Y.

Table 11-1

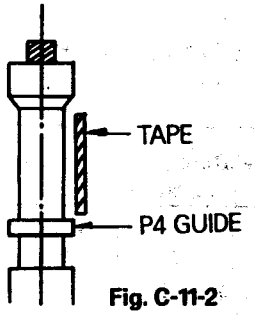


Fig. C-11-2

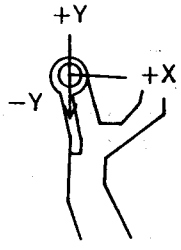


Fig. C-11-3

VCR

12. Maintenance/Inspection Procedure

(1) Required Maintenance

The recording density of a VCR is much higher than that of an audio tape recorder. VCR components must be very precise, at tolerances of 1/1000mm, to ensure compatiblity with other VCRs. If any of these components are worn or dirty, the symptoms will be the same as if the part is defective. To ensure good picture, periodic inspection and maintenance, including replacement of worn out parts and lubrication, are necessary.

(2) Scheduled Maintenance

Schedules for maintenance and inspection are not fixed because they vary greatly according to the way in which the customer uses the VCR, and the environment in which the VCR is used.

But, in general home use, a good picture will be maintained if the inspection and maintenance is made every 1,000hours. The table below shows the relation between time used and inspection period.

Table 1

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

(3) Check before starting repairs

The following faults can be remedied by cleaning and oiling. Check the needed lubrication and the conditions of cleanliness in the unit.

Check with the customer to find out how often the unit is used, and then determine that the unit is ready for in spection and maintenance. Check the following parts.

Table 2

Poor S/N, no color	Dirt on video head or worn video head
Tape does not run or tape is slack	Dirt on pressure roller, belt or flywheel belt
Vertical jitter, horizontal jitter	Dirt on video head or in tape transport system
Color beats	Dirt on full-erase head
Low volume or sound distorted	Dirt on audio/control head
Fast forward or rewind is not done or rotation is slow	Dirt on belt

(4) Supplies Required for Inspection and Maintenance

(1) Greases Kanto G-31(or equivalent)
(2) Alcohol (Isopropyl Alcohol)
(3) Cleaning Patches

(5) Maintenance Procedure

5-1) Cleaning

(1) Cleaning video head

First use a cleaning tape. If dirt on head is too stubborn to remove by tape, use the cleaning patch. Coat the cleaning patch with alcohol(Isopropyl Alcohol) to the point indicated. Touch the cleaning patch to the head tip and gently turn the head(rotating cylinder) right and left.

(Do not move the cleaning patch vertically and make sure that only the buckskin on the cleaning patch comes into contact with the head. Otherwise, the head may be damaged.)

Thoroughly dry the head. Then run test tape. If alcohol (Isopropyl Alcohol) remains on the video head, the tape may be damaged when it comes into contact with the head surface.

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

Note:

① It is the tape transport system which comes into contact with the running tape. The drive system consists of those parts which move the tape.

② Make sure that during cleaning you do not touch the tape transport system with the tip of a screw driver and no force is applied to the system that would cause deforming.

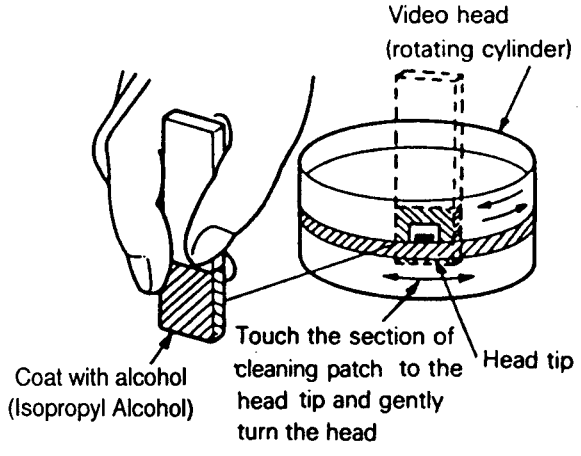


Fig. C-12-1

5-2) Greasing

(1) Greasing guidelines

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

(2) Periodic greasing

Grease specified locations every 5,000hours.

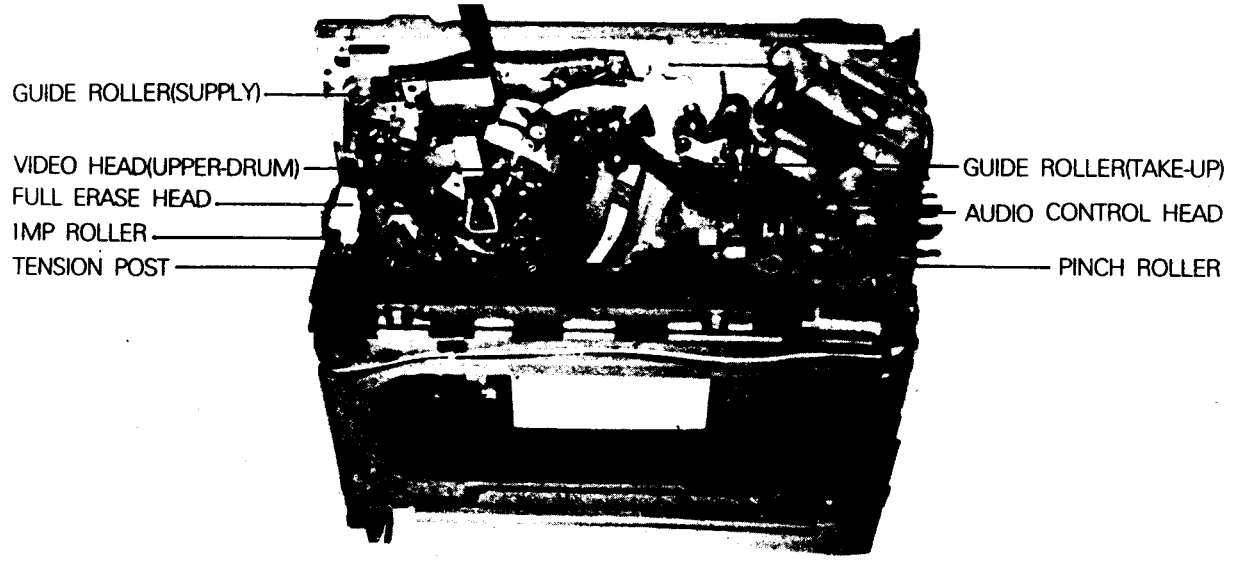


Fig. C-12-2 Tape Transport System

Phenomenon	Inspection	Replacement	
Color beats	Dirt on full-erase head	○	→ ①
Poor S/N no color	Dirt on video head	○	→ ②
Vertical jitter	Dirt on video head Dirt in tape transport system	○	→ ③
Low volume, Sound distorted	Dirt on audio/control head	○	→ ④
Tape does not run. Tape is slack	Dirt on pinch roller	○	→ ⑤

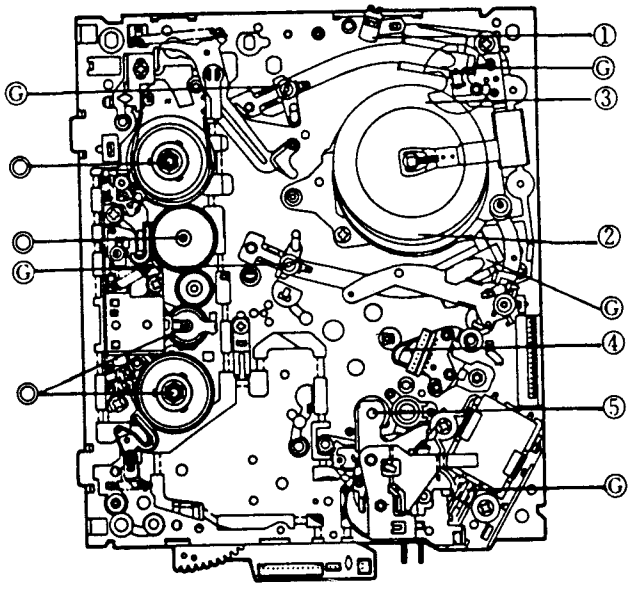


Fig. A-13 Top View of Mechanism

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

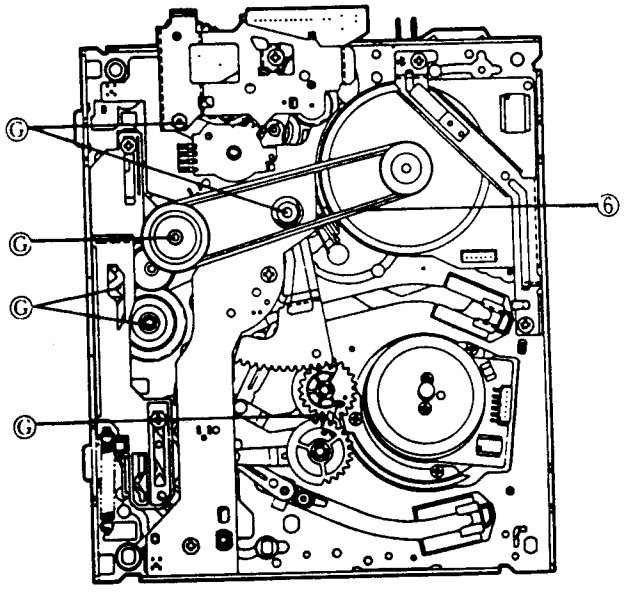


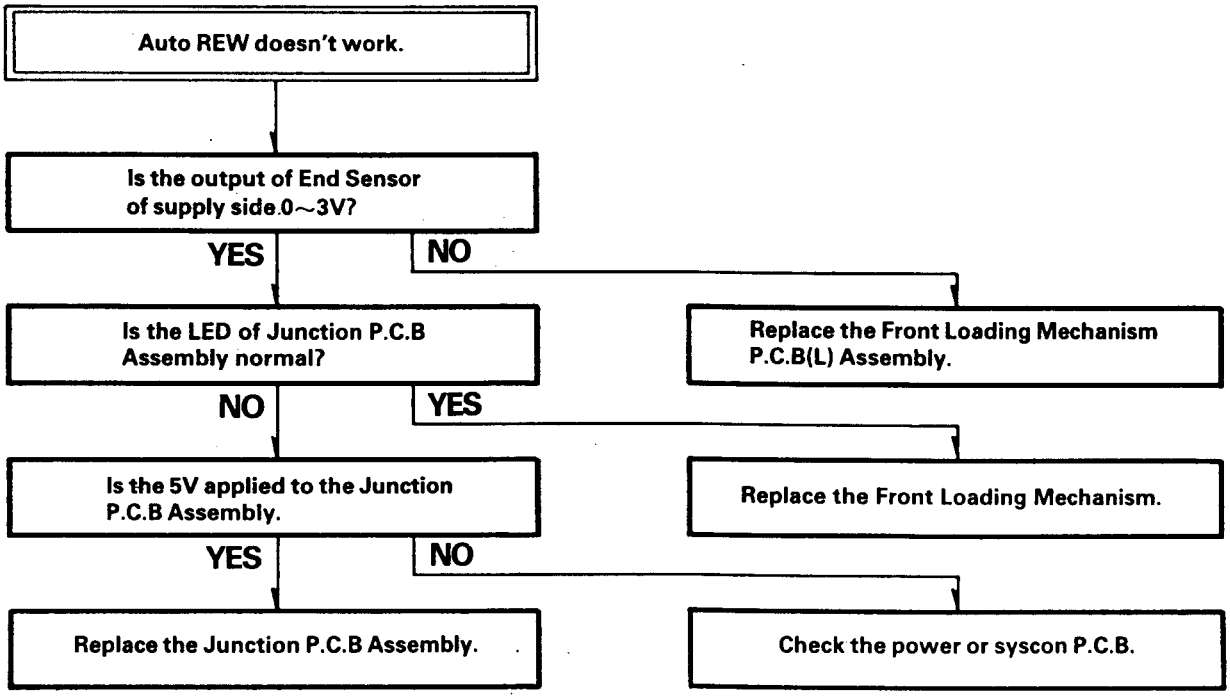
Fig. A-14 Bottom View of Mechanism

Ⓖ:Grease
Ⓞ:Oil

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

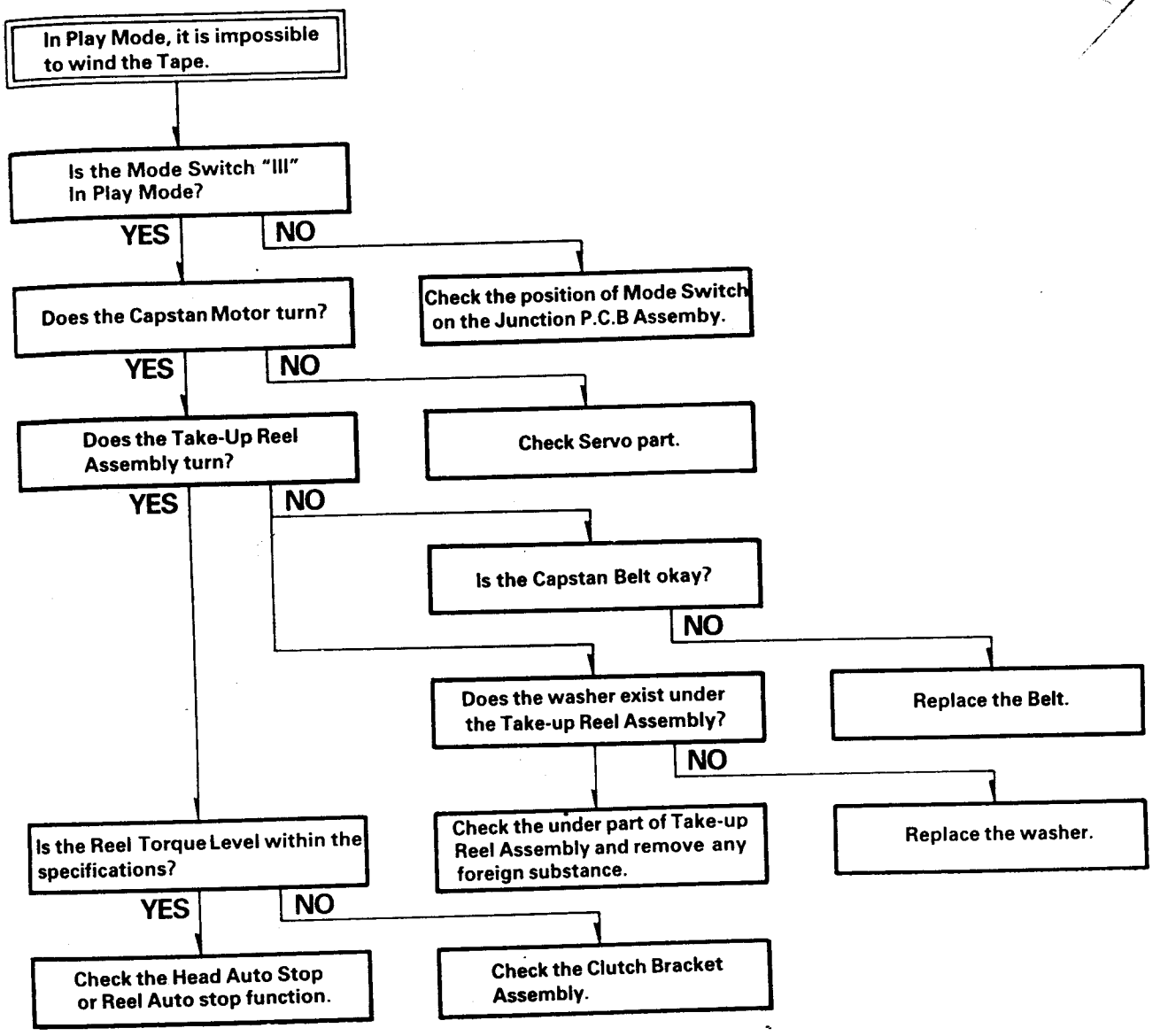
MECHANISM TROUBLESHOOTING GUIDE

1. Deck Mechanism

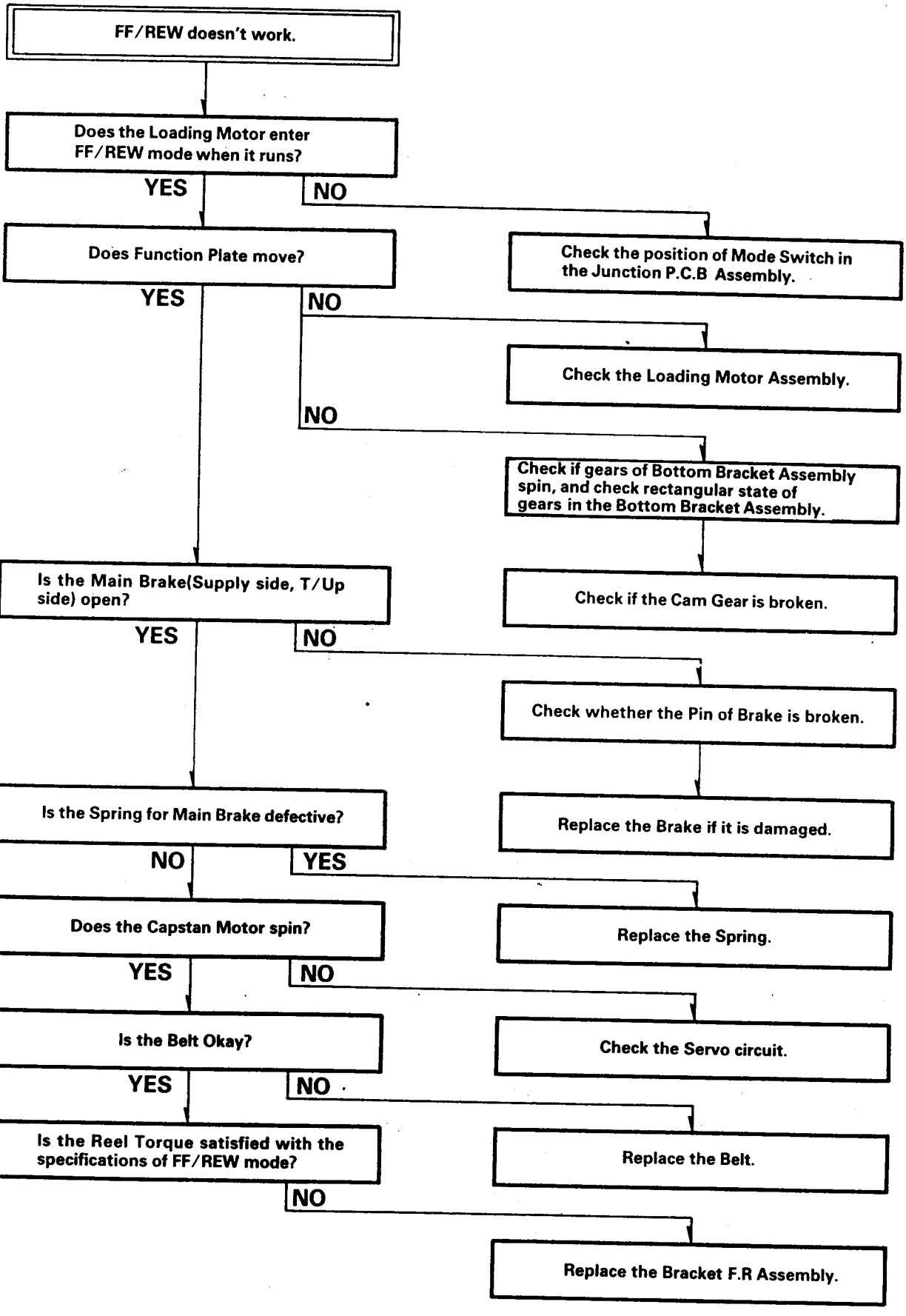


VCR

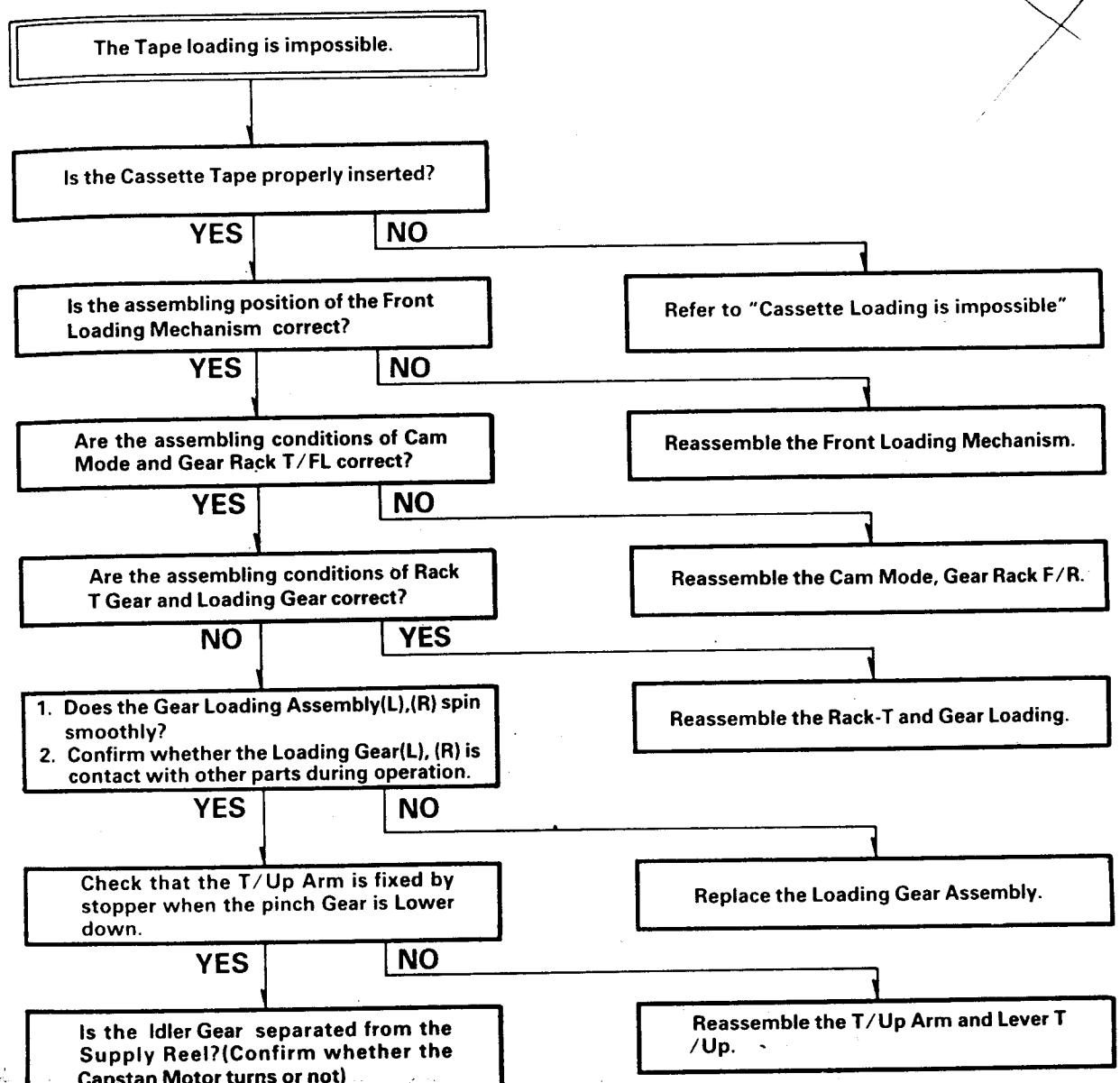
B.


In Play Mode, it is impossible to wind the Tape.
Is the Mode Switch "III" In Play Mode?
YES
NO
Check the position of Mode Switch on the Junction P.C.B Assemby.
Does the Capstan Motor turn?
YES
NO
Check Servo part.
Does the Take-Up Reel Assembly turn?
YES
NO
Is the Capstan Belt okay?
NO
Replace the Belt.
Does the washer exist under the Take-up Reel Assembly?
NO
Replace the washer.
Check the under part of Take-up Reel Assembly and remove any foreign substance.
Is the Reel Torque Level within the specifications?
YES
NO
Check the Head Auto Stop or Reel Auto stop function.
Check the Clutch Bracket Assembly.

C.

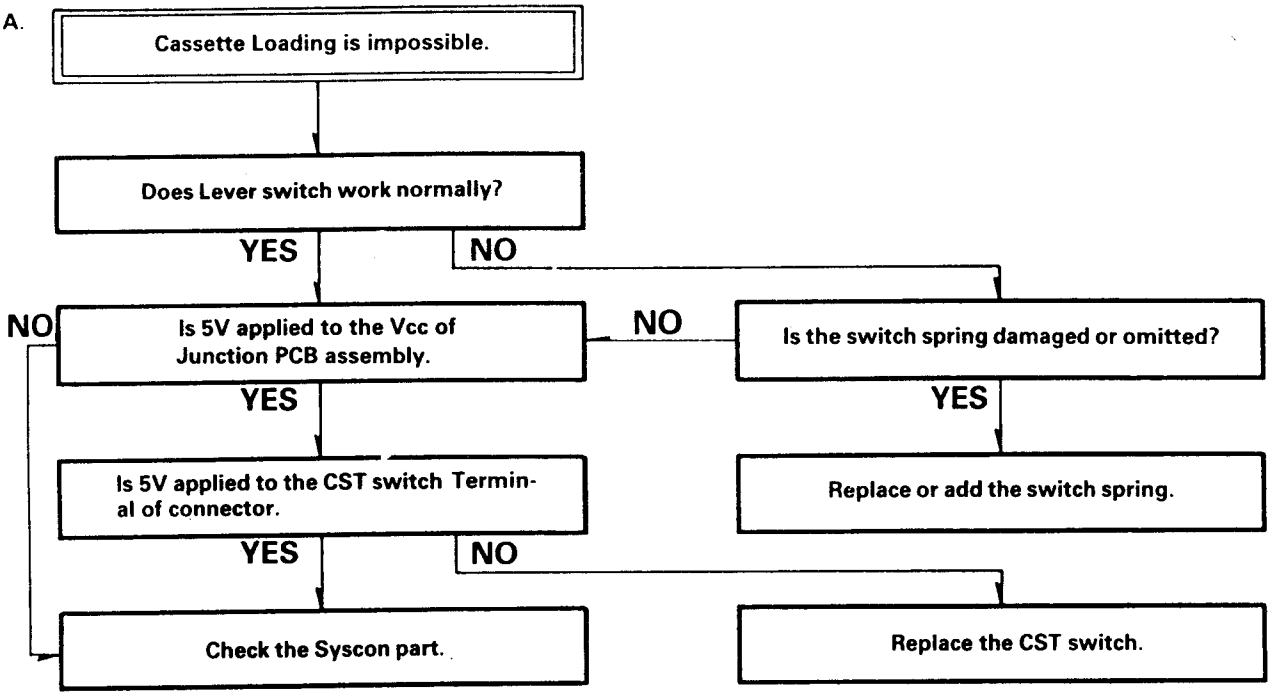

FF/REW doesn't work.
Does the Loading Motor enter FF/REW mode when it runs?
YES
NO
Check the position of Mode Switch in the Junction P.C.B Assembly.
Does Function Plate move?
YES
NO
Check the Loading Motor Assembly.
NO
Check if gears of Bottom Bracket Assembly spin, and check rectangular state of gears in the Bottom Bracket Assembly.
Is the Main Brake(Supply side, T/Up side) open?
YES
NO
Check if the Cam Gear is broken.
Check whether the Pin of Brake is broken.
Is the Spring for Main Brake defective?
NO
YES
Replace the Brake if it is damaged.
Does the Capstan Motor spin?
YES
NO
Replace the Spring.
Is the Belt Okay?
YES
NO
Check the Servo circuit.
Is the Reel Torque satisfied with the specifications of FF/REW mode?
NO
Replace the Belt.
Replace the Bracket F.R Assembly.

D.

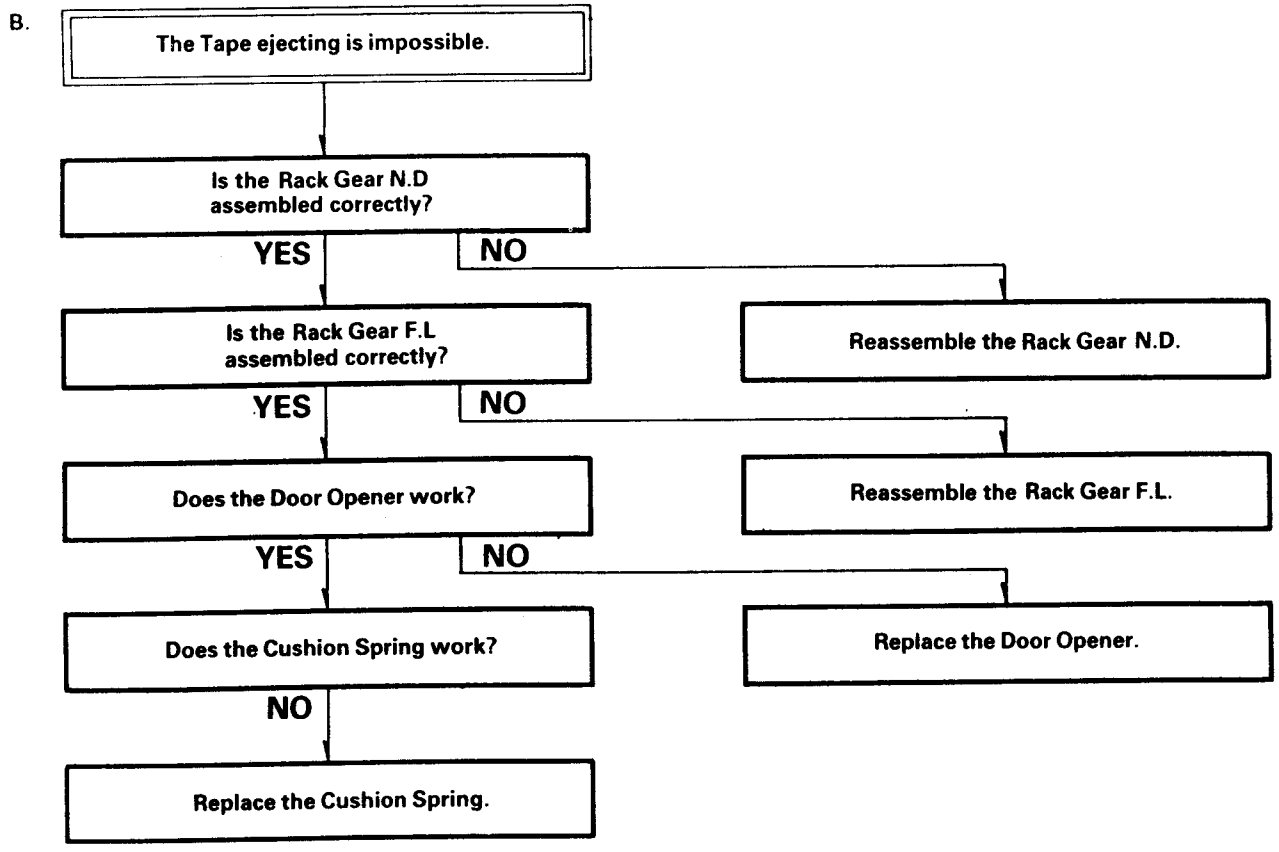

The Tape loading is impossible.
Is the Cassette Tape properly inserted?
YES
NO
Refer to "Cassette Loading is impossible"
Is the assembling position of the Front Loading Mechanism correct?
YES
NO
Reassemble the Front Loading Mechanism.
Are the assembling conditions of Cam Mode and Gear Rack T/FL correct?
YES
NO
Reassemble the Cam Mode, Gear Rack F/R.
Are the assembling conditions of Rack T Gear and Loading Gear correct?
NO
YES
Reassemble the Rack-T and Gear Loading.
1. Does the Gear Loading Assembly(L),(R) spin smoothly?
2. Confirm whether the Loading Gear(L), (R) is contact with other parts during operation.
YES
NO
Replace the Loading Gear Assembly.
Check that the T/Up Arm is fixed by stopper when the pinch Gear is Lower down.
YES
NO
Reassemble the T/Up Arm and Lever T /Up.
Is the Idler Gear separated from the Supply Reel?(Confirm whether the Capstan Motor turns or not)
NO
1. Confirm the conditions of Clutch Bracket ASS'Y and Reel Belt.
2. Replace the Capstan Motor.

2. Front Loading Mechanism

A.

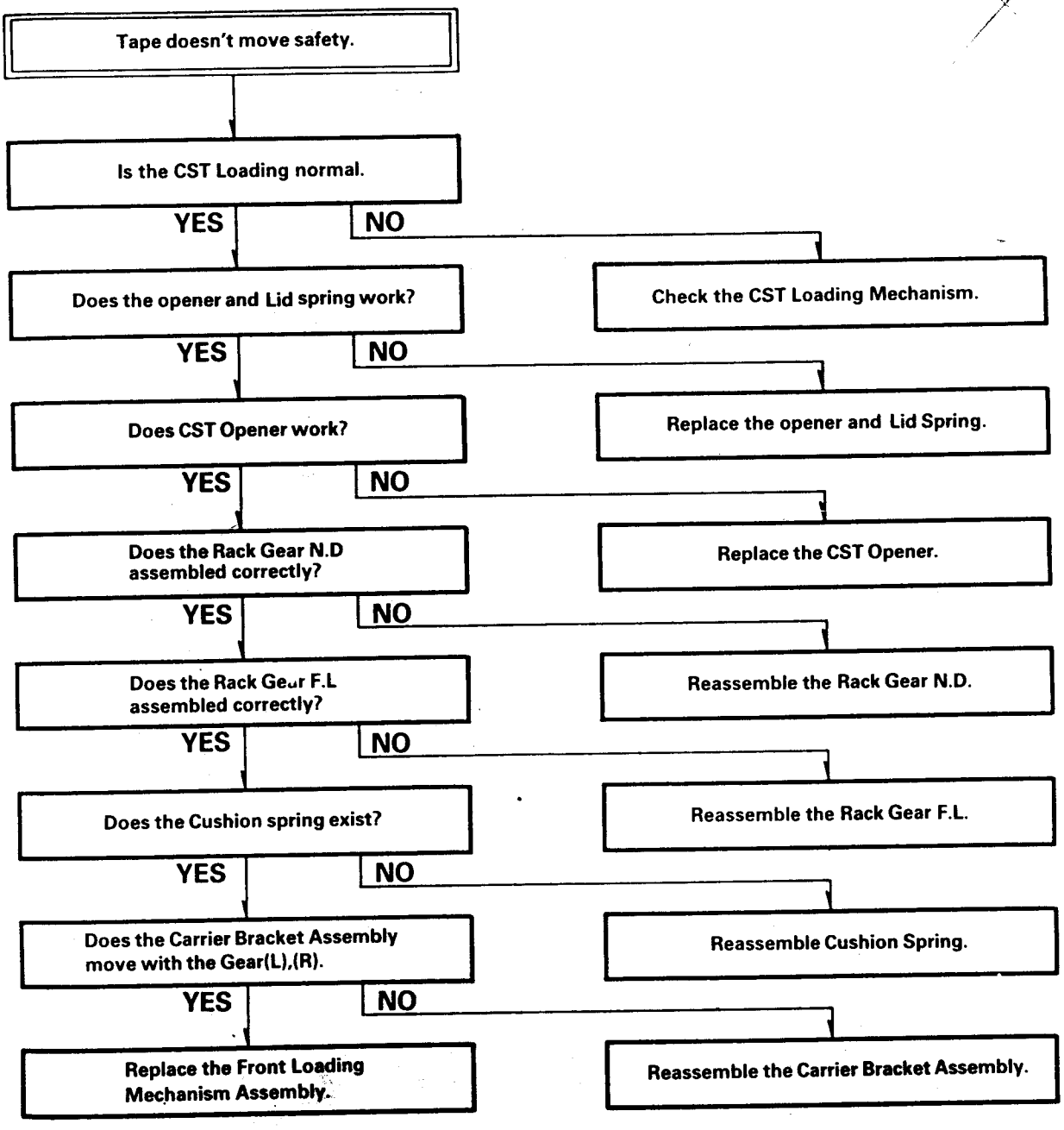


B.



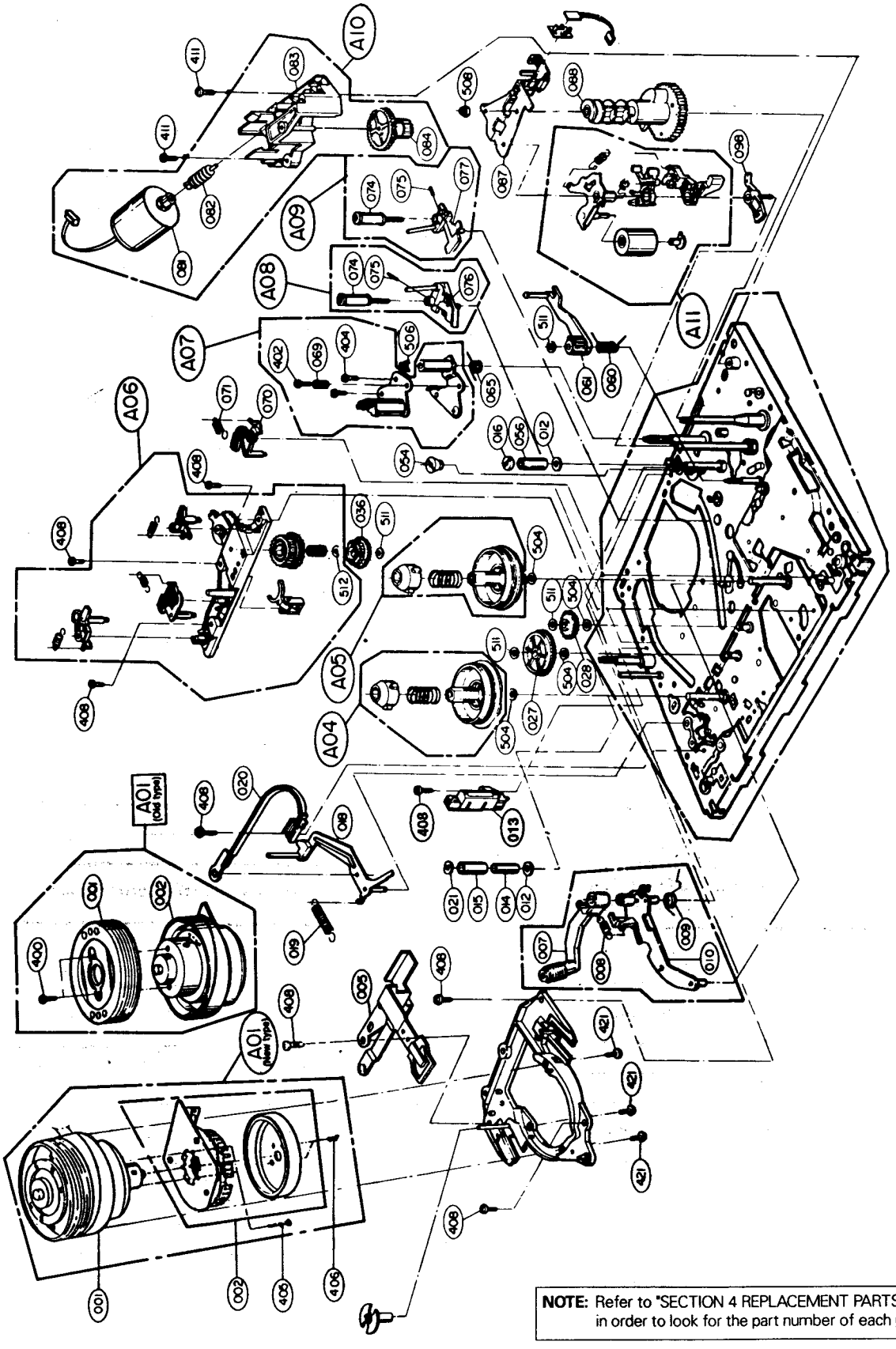
VCR

C.


Tape doesn't move safety.
Is the CST Loading normal.
YES
NO
Check the CST Loading Mechanism.
Does the opener and Lid spring work?
YES
NO
Replace the opener and Lid Spring.
Does CST Opener work?
YES
NO
Replace the CST Opener.
Does the Rack Gear N.D assembled correctly?
YES
NO
Reassemble the Rack Gear N.D.
Does the Rack Gear F.L assembled correctly?
YES
NO
Reassemble the Rack Gear F.L.
Does the Cushion spring exist?
YES
NO
Reassemble Cushion Spring.
Does the Carrier Bracket Assembly move with the Gear(L),(R).
YES
NO
Reassemble the Carrier Bracket Assembly.
Replace the Front Loading Mechanism Assembly.

EXPLODED VIEW

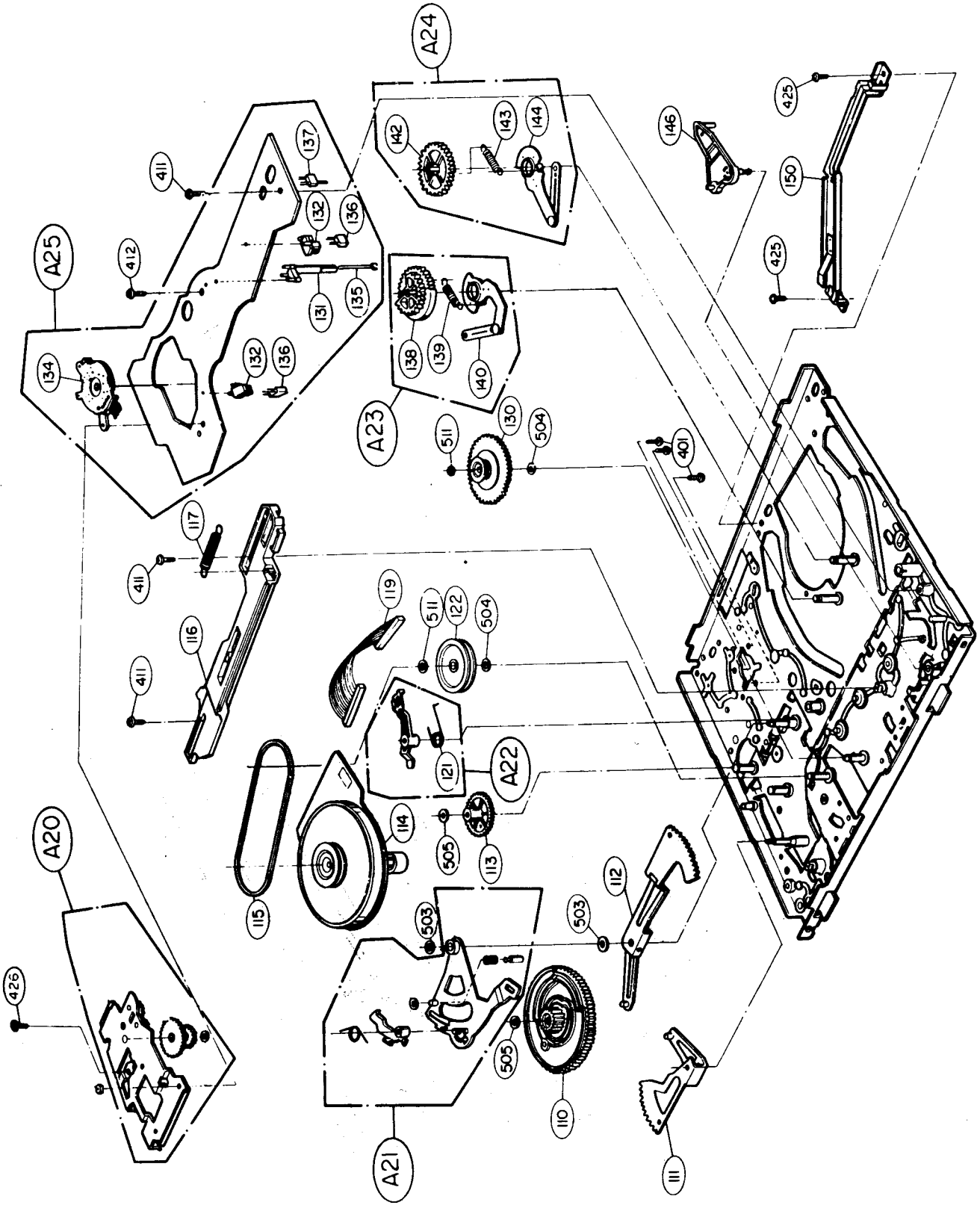
1. Moving Mechanism Section (I)



NOTE: Refer to "SECTION 4 REPLACEMENT PARTS LIST" in order to look for the part number of each part.

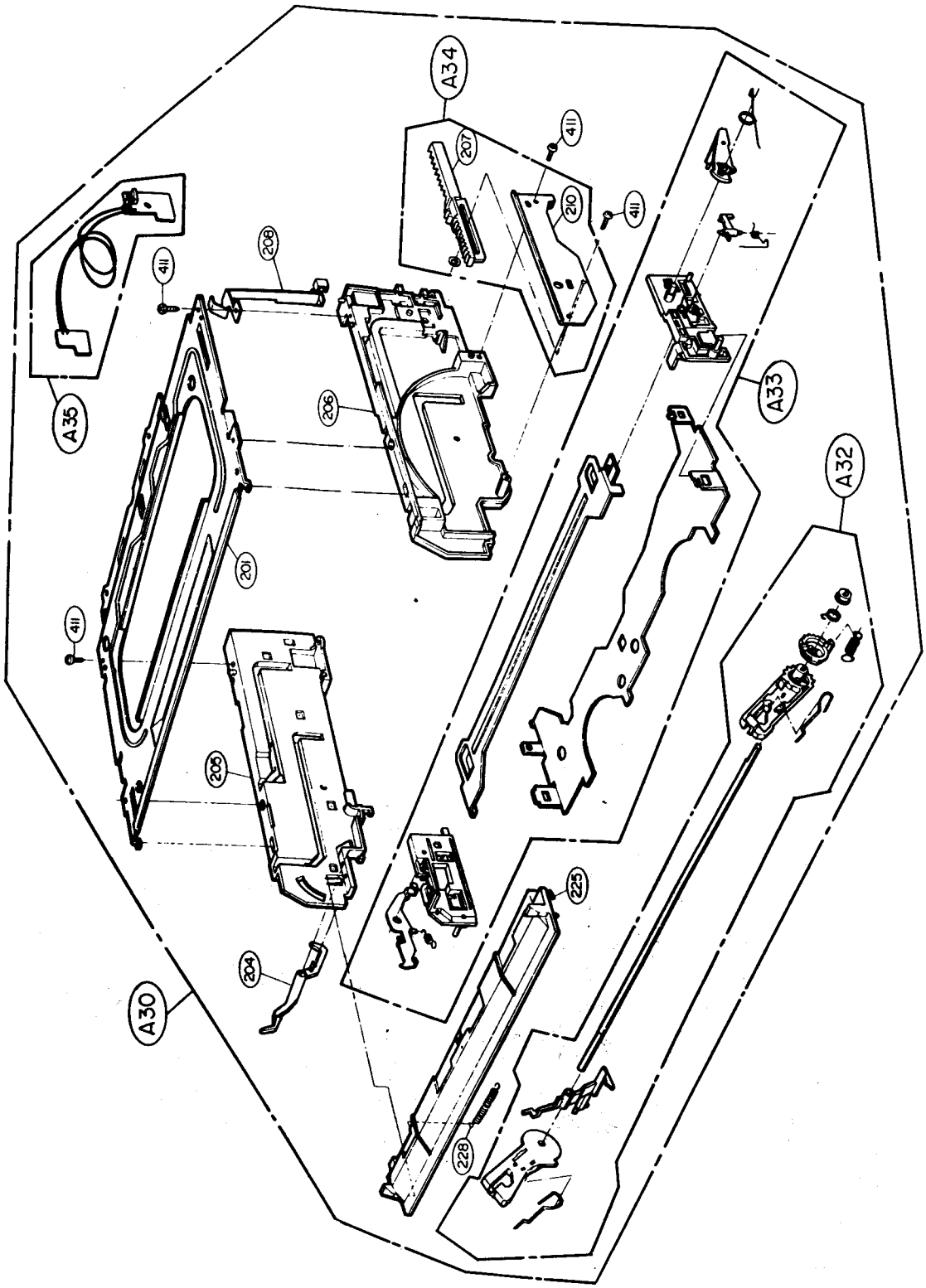
2. Moving Mechanism Section (Ⅱ)

NOTE: Refer to "SECTION 4 REPLACEMENT PARTS LIST" in order to look for the part number of each part.



3. Front Loading Mechanism Section

NOTE: Refer to "SECTION 4 REPLACEMENT PARTS LIST" in order to look for the part number of each part.



VCR

PART III ELECTRICAL PART

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PRINTED CIRCUIT BOARD

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2. Key Function P.C.Board 3-91
3. Pre-Amp P.C.Board 3-92
4. IF P.C.Board 3-92

1. VCO (Voltage controlled oscillator) Adjustment.

a. Connect the measuring equipments to the set as shown Fig 1.

b. Adjust T702 so that the level of picture carrier (38.0MHz) maker point may be the oscillation position as shwon Fig 2.

NOTE: SW1 — Vco Adjustment: ON
SW1 — AFT Adjustment: OFF

Waveform

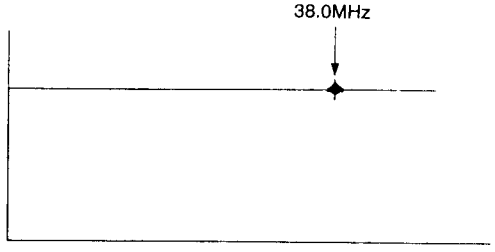


Fig. 2

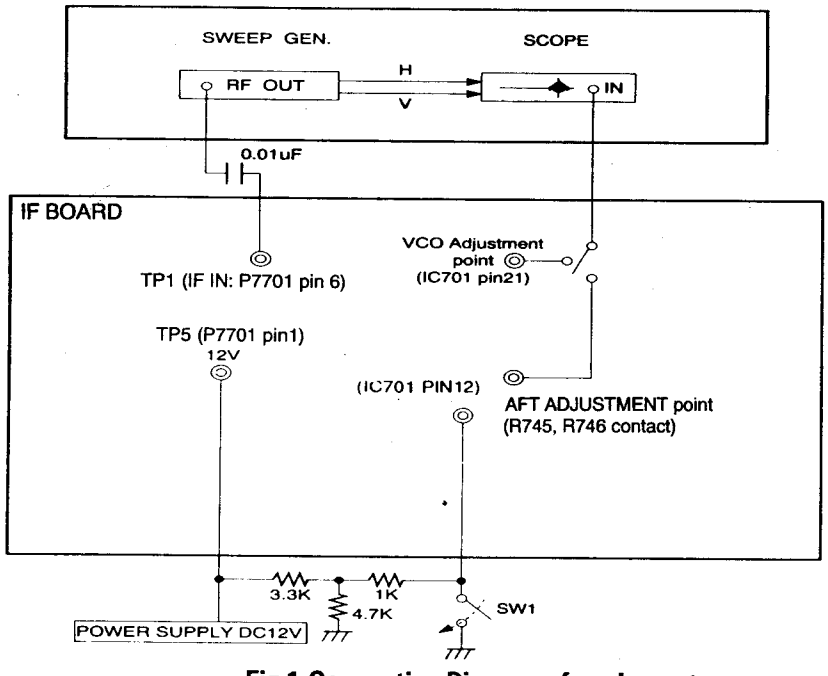


Fig 1. Connection Diagram of equipment

2. AFT Adjustment

a. Connect the measuring equipments to the set as shown Fig 1.

b. Adjust T703 so that the level of picture carrier (38.0MHz) marker point may be the center position as shown Fig 3.

Waveform

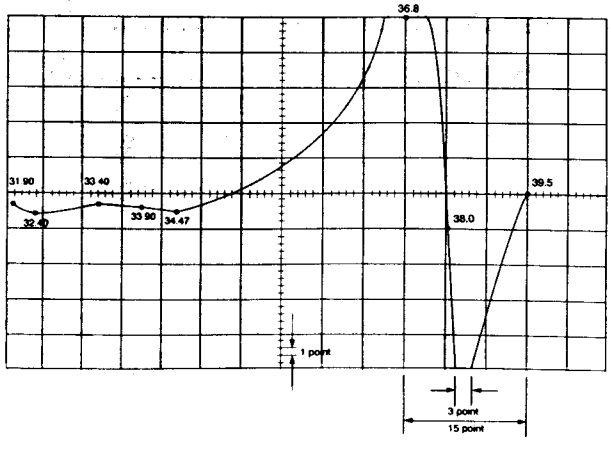


Fig. 3

3. SIF Adjustment

Measurement Point	Adjustment Point	Specification
TP SIF	T701	5.5V ± 0.2V

a. Connect the measuring equipments to the shwon Fig 4.
b. Adjust T701 so that the DC voltage 5.5V ± 0.2V

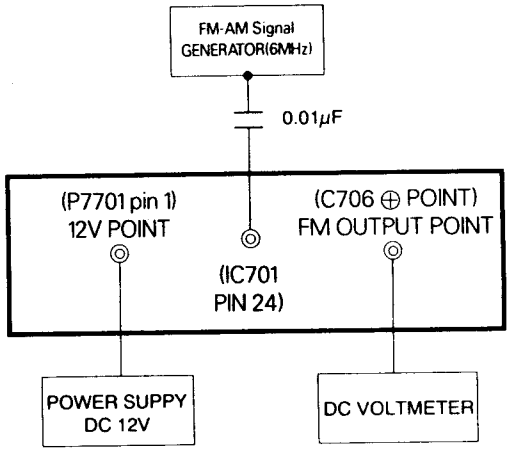


Fig 4

4. RF AGC Adjustment

Measurement Point	Adjustment Point	Specification
TP AGC(W799)	VR771	DC 5.5V ± 0.1V

a. Receive the VHF Band 11CH(175.25MHz) ; 60dBuv ± 1dBu.
b. Connect the Digital Multimeter to TP AGC (W799).
c. Adjust VR771 so that may be DC5.3V ± 0.1V.

VCR

5. Servo Circuit Adjustment

1. Necessary Instrunents and Components

a. Oscilloscope: 1EA
b. PAL Test Tape (sp): 1EA

2. ±PG Adjustment

Adjustment Point	Measurement Point	Specification
VR201	H.SW VIDEO OUT (W403)	416±10usec

a. Playback a PAL-SP Test Tape.
b. Connect CH-1 of oscilloscope to W250 and CH-2 to Video Out.
c. Trigger H.SW of CH-1 to composite video signal.
d. Adjust VR 201 so that the time difference of between A (B) Head part to H.SW signal and vertical synchronizing signal may be 6.5(H) (416 S, 1H=64 S)
e. Using Polarity Invert Knob, change A/B Head sw signal.

Waveform

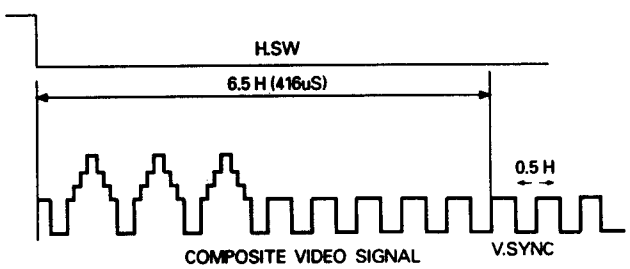


Fig. 5

6. Y/C Circuit Adjustment

1. Necessary Instruments and Components

a. Dual Type of SECAM/L and PAL B/G
b. Oscilloscope (above 10MHz, 2mV)
c. Video Signal Generator (Dual Type of SECAM and PAL)
d. Standard Play Back Tape (Color Bar of 100% White) SECAM or PAL
e. Recording Tape
f. Blank Tape

2. Adjustment

1) EE Level Adjustment

Mode	Measurement Point	Adjustment Point	Specification
STOP	VIDEO OUT (W403)	VR305 EE LEVEL	2±0.1Vp-p

a. Connect CH-1 of oscilloscope to VIDEO OUT.
b. Input the Video Signal of 100% white to Video Input Jack.
c. Adjust VR305 so that the value of between Syn. terminal and 100% white may be 2±0.1Vp-p.

Waveform

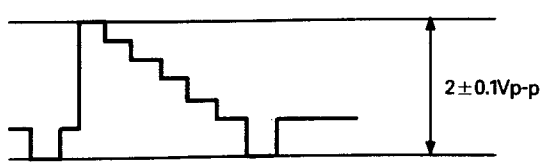


Fig. 6

2) FM Carrier Frequency Adjustment

MODE	Measurement Point	Adjustment Point	Specification
REC	C306(REC-FM)	VR304	White Peak 4.8±0.05MHz Sync Tip 3.8± 0.05MHz

a. Connect by reffering to Fig 8. (But, the set and Modem Test must be connected by a 1:1 probe.)
b. Input the Video signal of 100% white to Video Input Jack.
c. Set the terminal position of Modem Test to ATT 0dB and operate it to be PAL/SECAM Mode, Demod and Marker On.
d. Adjust VR304 so that 3.8MHz Marker on Scope may coincide with the lower step of sync.

Waveform

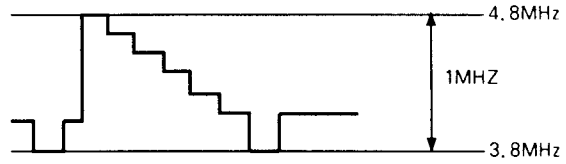


Fig. 7

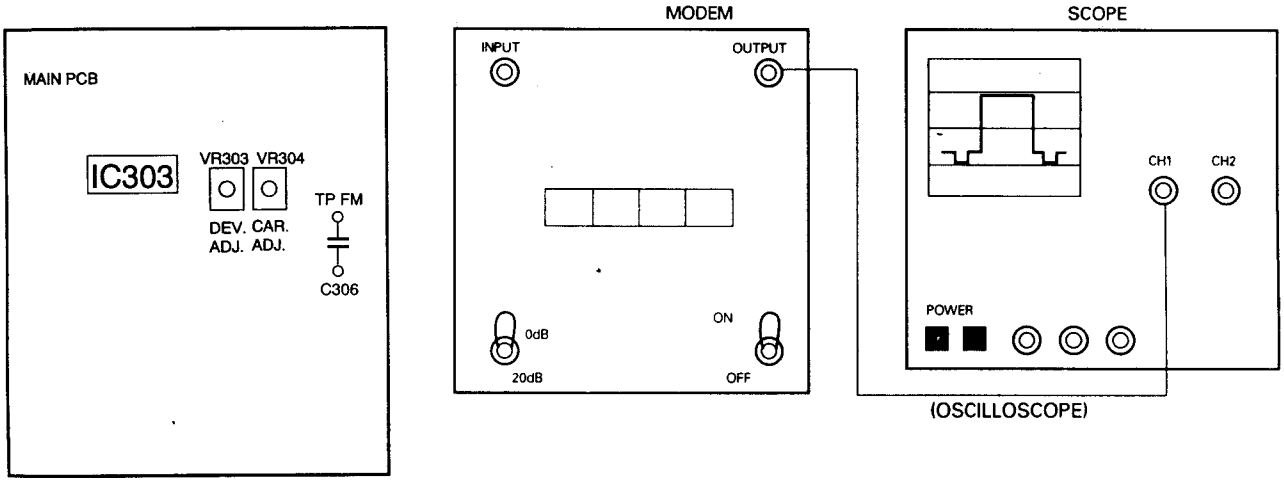


Fig. 8

3) FM Deviation Frequency Adjustment

Mode	Measurement Point	Adjustment Point	Specification
REC	C306(REC-FM)	VR301	1±0.1MHz

a. Connect by reffering to figure 8.
(But, the Set and Modem Test is connected by a 1:1 probe.)
b. Input Video Signal of 100% white to Video Input Jack.
c. Set the terminal position of Modem Test to ATT 0dB and operate it to be PAL/SECAM Mode, Demod and Marker On.

* The connection Diagram and waveform are same as those of FM carrier Frequency Adjustment.

4) Play Back Luminance Level Adjustment

Mode	Measurement Point	Adjustment Point	Specification
PLAY	VIDEO OUT (W403)	VR303	2±0.1Vp-p

a. Connect CH-1 of oscilloscope to VIDEO OUT.
b. Play a standard Tape for sp with 100% white signal.
c. Adjust VR303 so that the Video waveform may be 2±0.1Vp-p.

Waveform

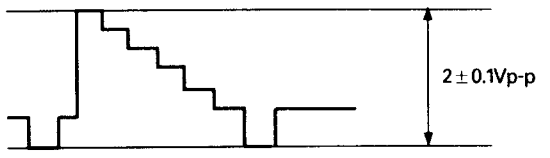


Fig. 9

7. Audio Circuit Adjustment

1. Necessary Instruments and Components

a. D.C Power Supply
b. Audio Signal Generator (SSG)
c. Level Meter
d. Frequency Counter
e. Oscilloscope

2. Adjustment

1) REC Detection Frequency Adjustment

Specification	Measurement Point	Mode	Adjustment Point
70KHZ±5KHZ	PMJ01 8PIN	Recording the Recording/Tape	T401

a. Connect the frequency counter of detection frequency to PMJ01 8PIN (70KHZ±5KHZ).
b. Adjust T401 so that it may be 70KHZ±5KHZ.

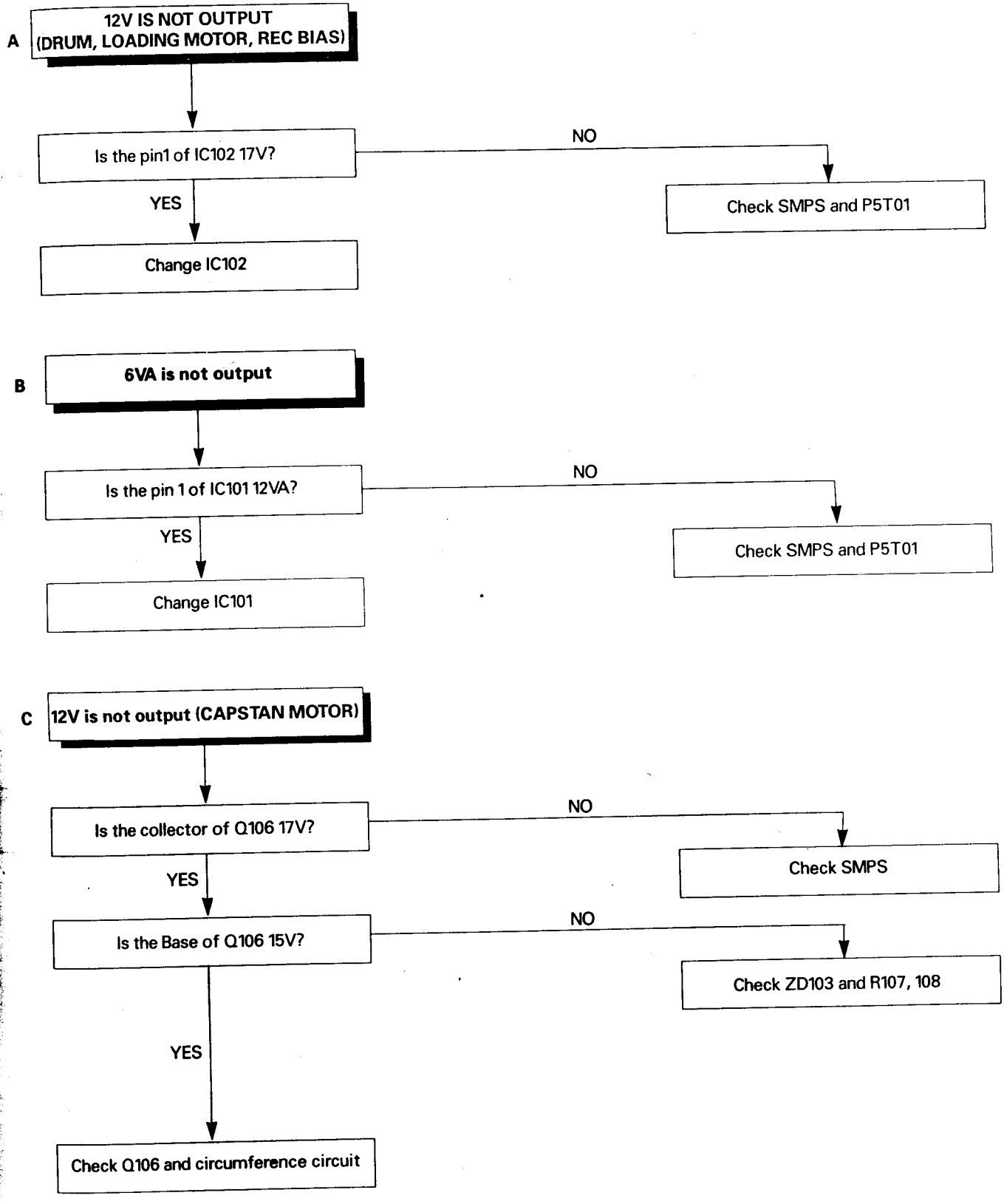
2) REC Bias Current Adjustment

Specification	Measurement Point	Mode	Adjustment Point
2.5mV	R400	Recording the Recording/Tape	VR401

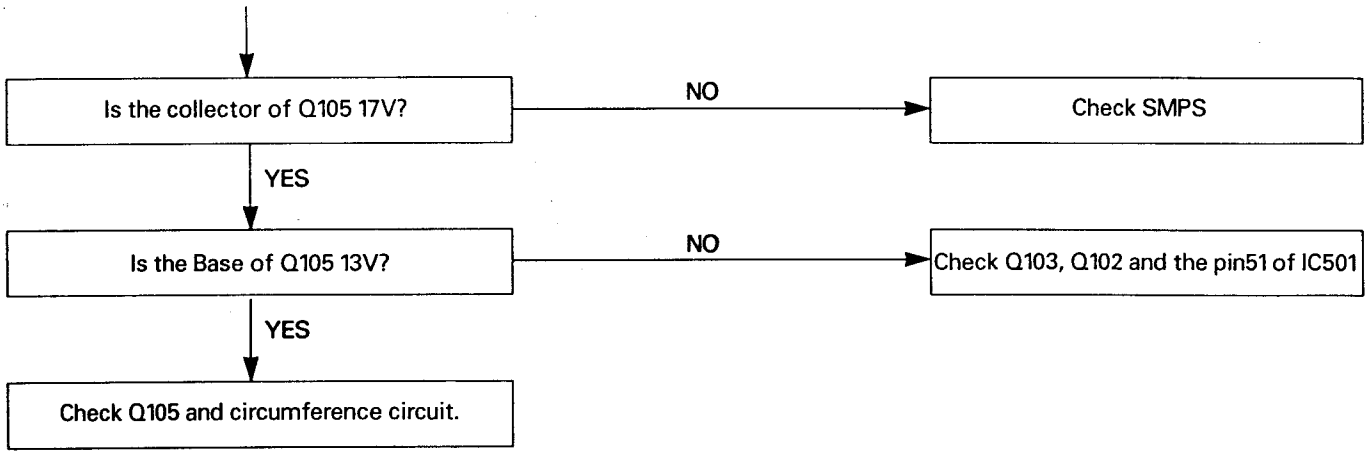
a. Connect the level Meter terminal to R400 and check the detection voltage is 2.5mV.
b. Adjust VR401 so that it may be 2.5mV.

TROUBLESHOOTING CHARTS

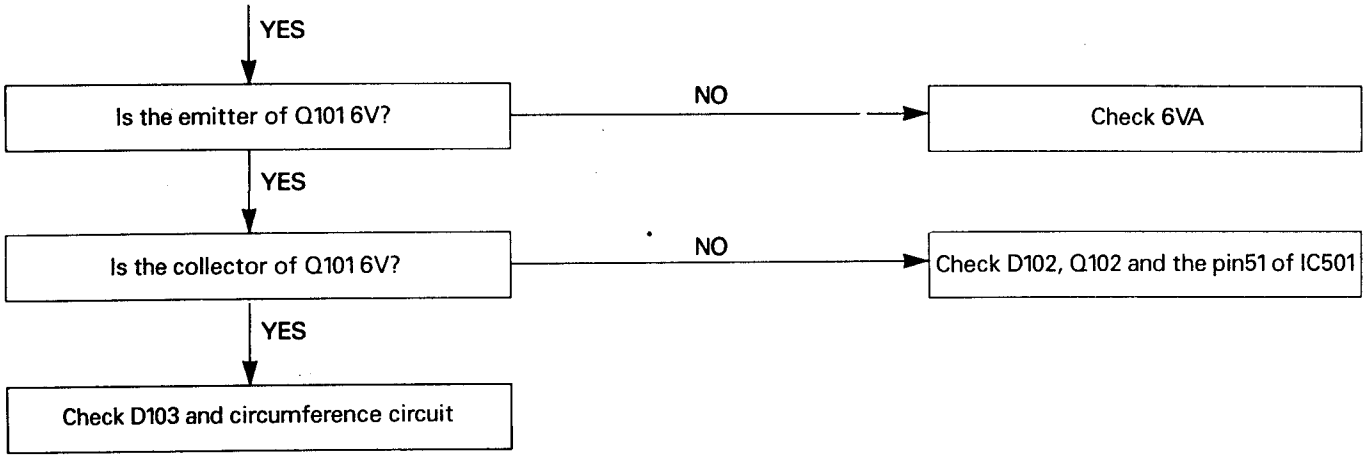
1. POWER CIRCUIT



D **12V is not output (TU/IF, AUDIO)**

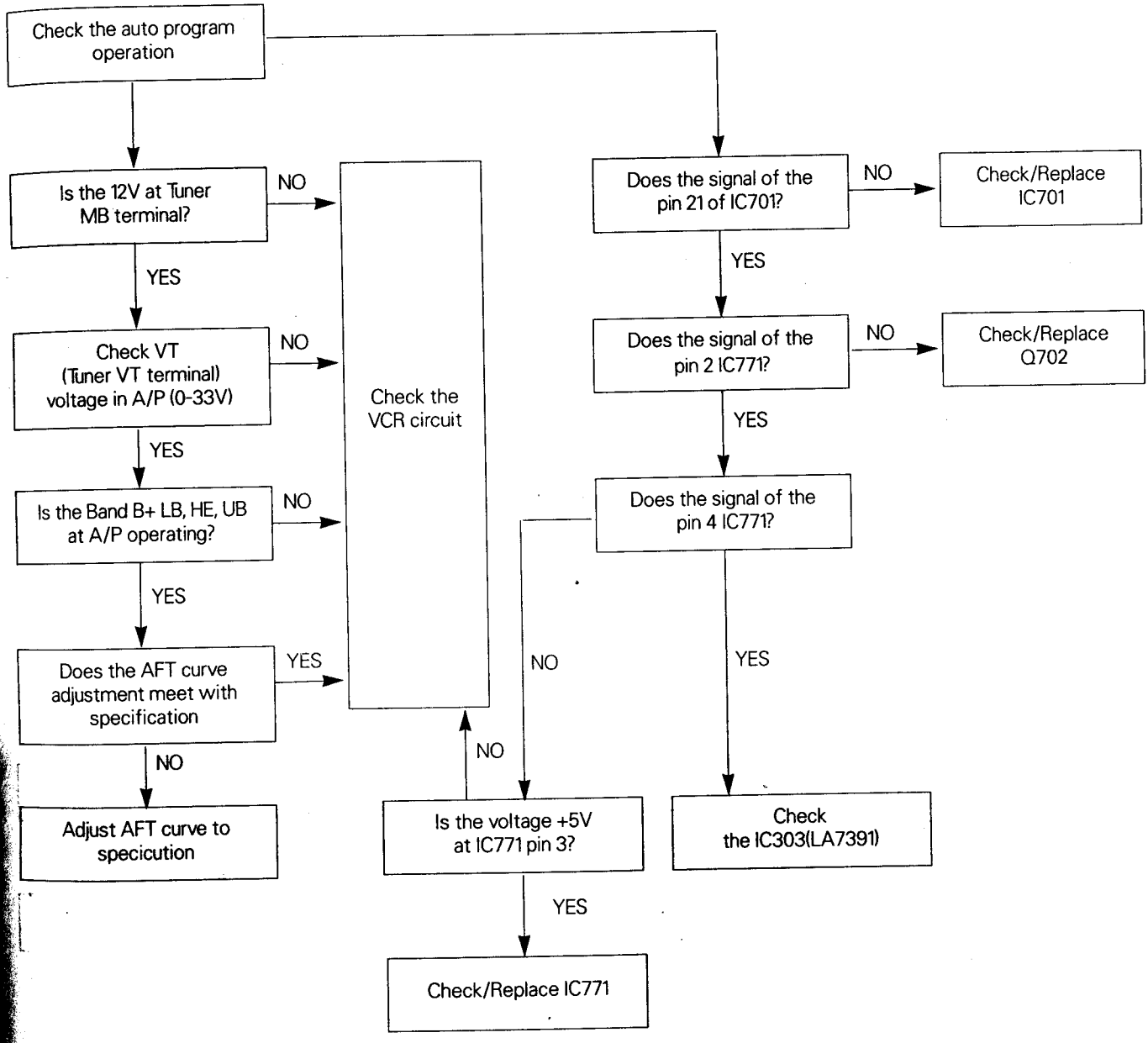


E **5.3V is not output (Y/C)**



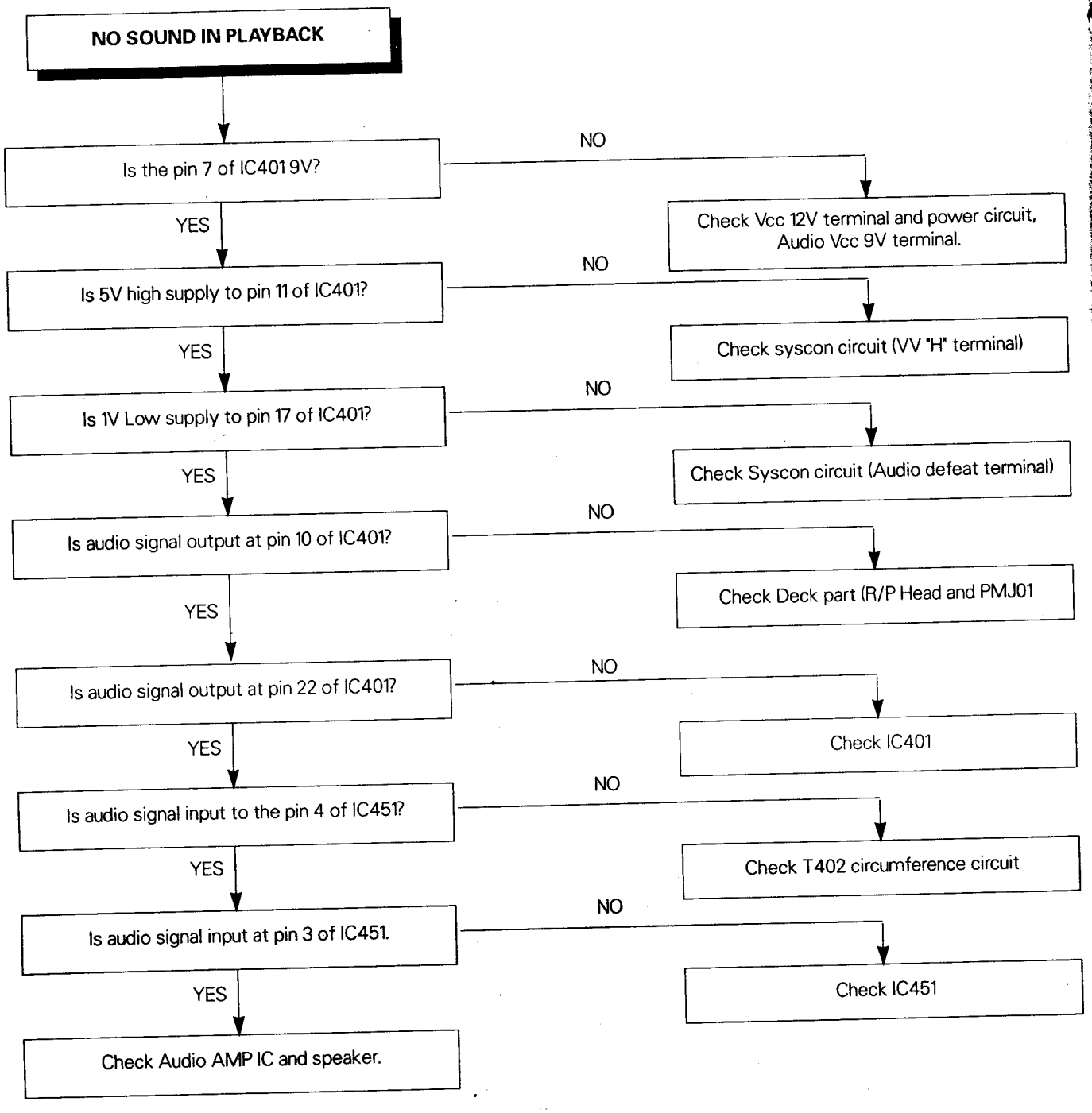
2. IF CIRCUIT

A. **NO SOUND, NO PICTURE (RASTER OK)**



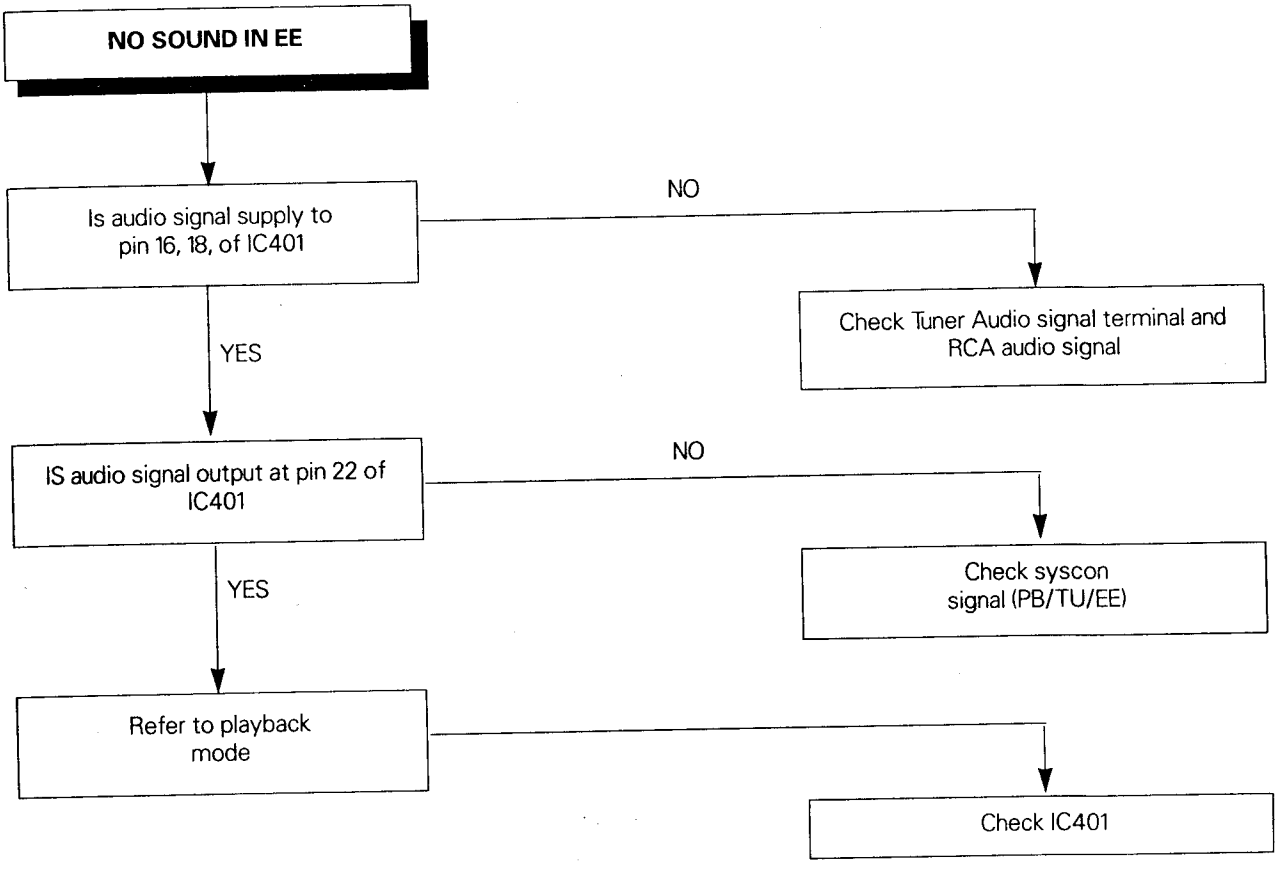
3. AUDIO CIRCUIT

A

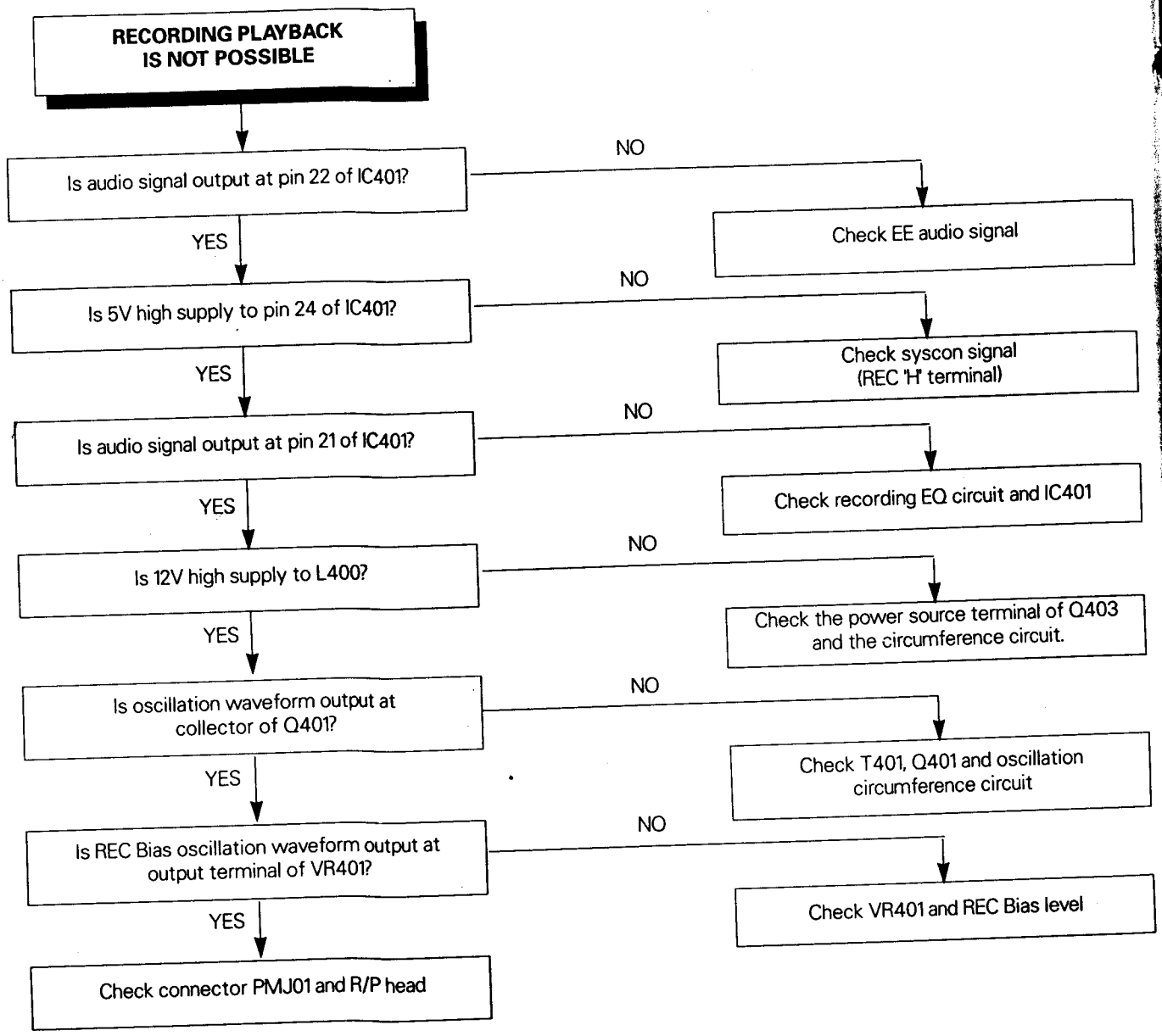


B.

B.

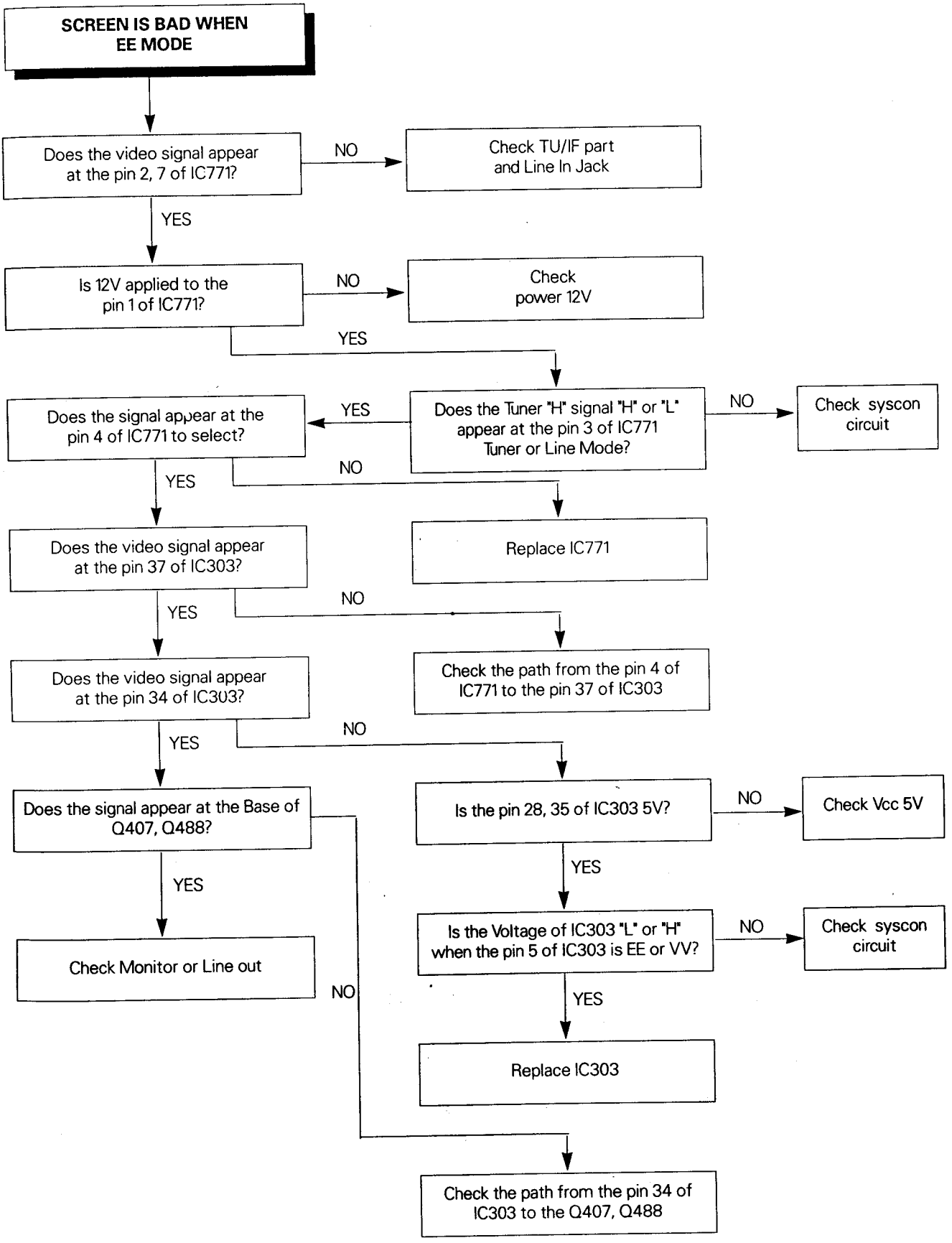

NO SOUND IN EE
Is audio signal supply to pin 16, 18, of IC401
NO
Check Tuner Audio signal terminal and RCA audio signal
YES
IS audio signal output at pin 22 of IC401
NO
Check syscon signal (PB/TU/EE)
YES
Refer to playback mode
Check IC401

C


RECORDING PLAYBACK IS NOT POSSIBLE
Is audio signal output at pin 22 of IC401?
NO
Check EE audio signal
YES
Is 5V high supply to pin 24 of IC401?
NO
Check syscon signal (REC 'H' terminal)
YES
Is audio signal output at pin 21 of IC401?
NO
Check recording EQ circuit and IC401
YES
Is 12V high supply to L400?
NO
Check the power source terminal of Q403 and the circumference circuit.
YES
Is oscillation waveform output at collector of Q401?
NO
Check T401, Q401 and oscillation circumference circuit
YES
Is REC Bias oscillation waveform output at output terminal of VR401?
NO
Check VR401 and REC Bias level
YES
Check connector PMJ01 and R/P head

4. Y/C CIRCUIT

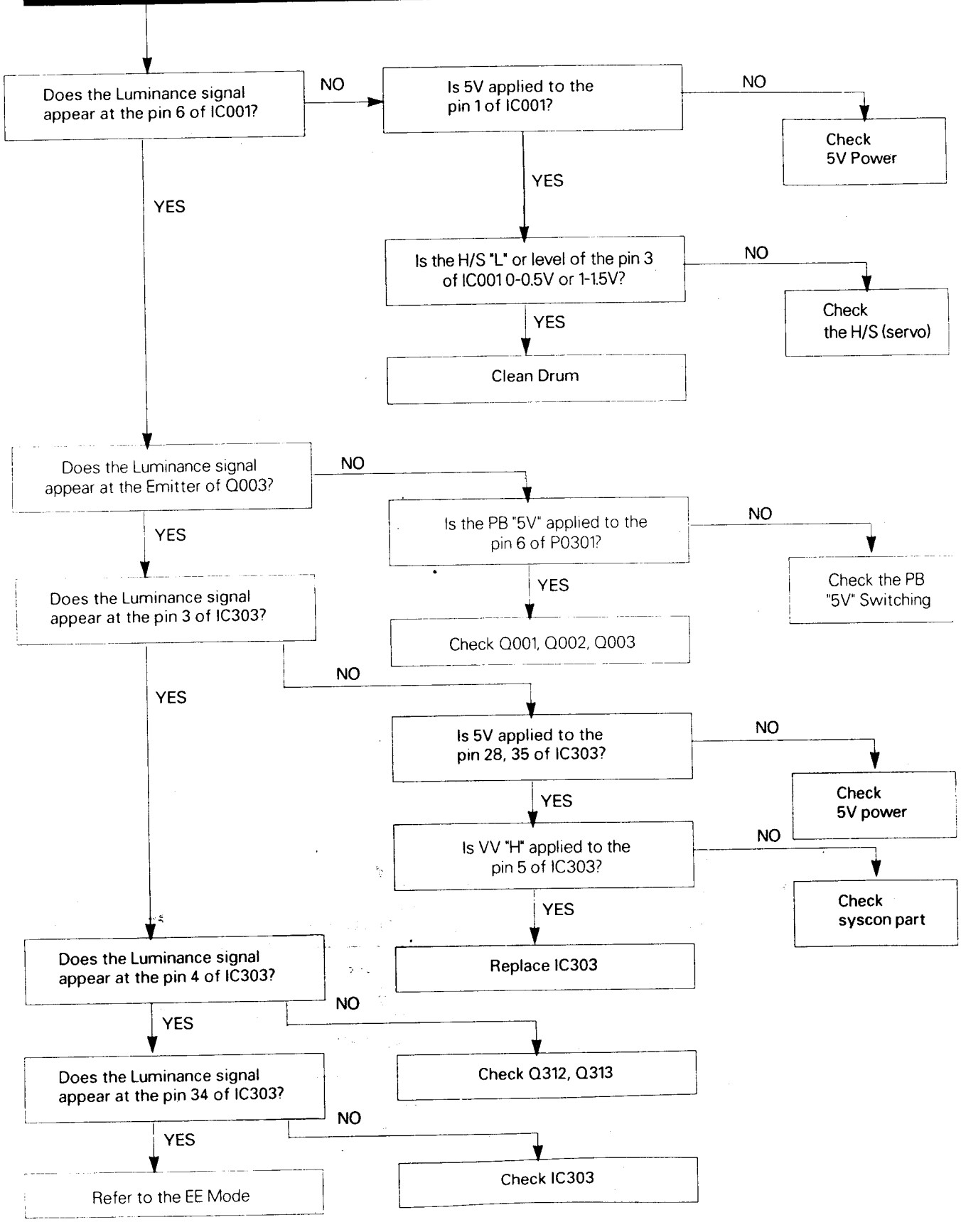
A



VCR

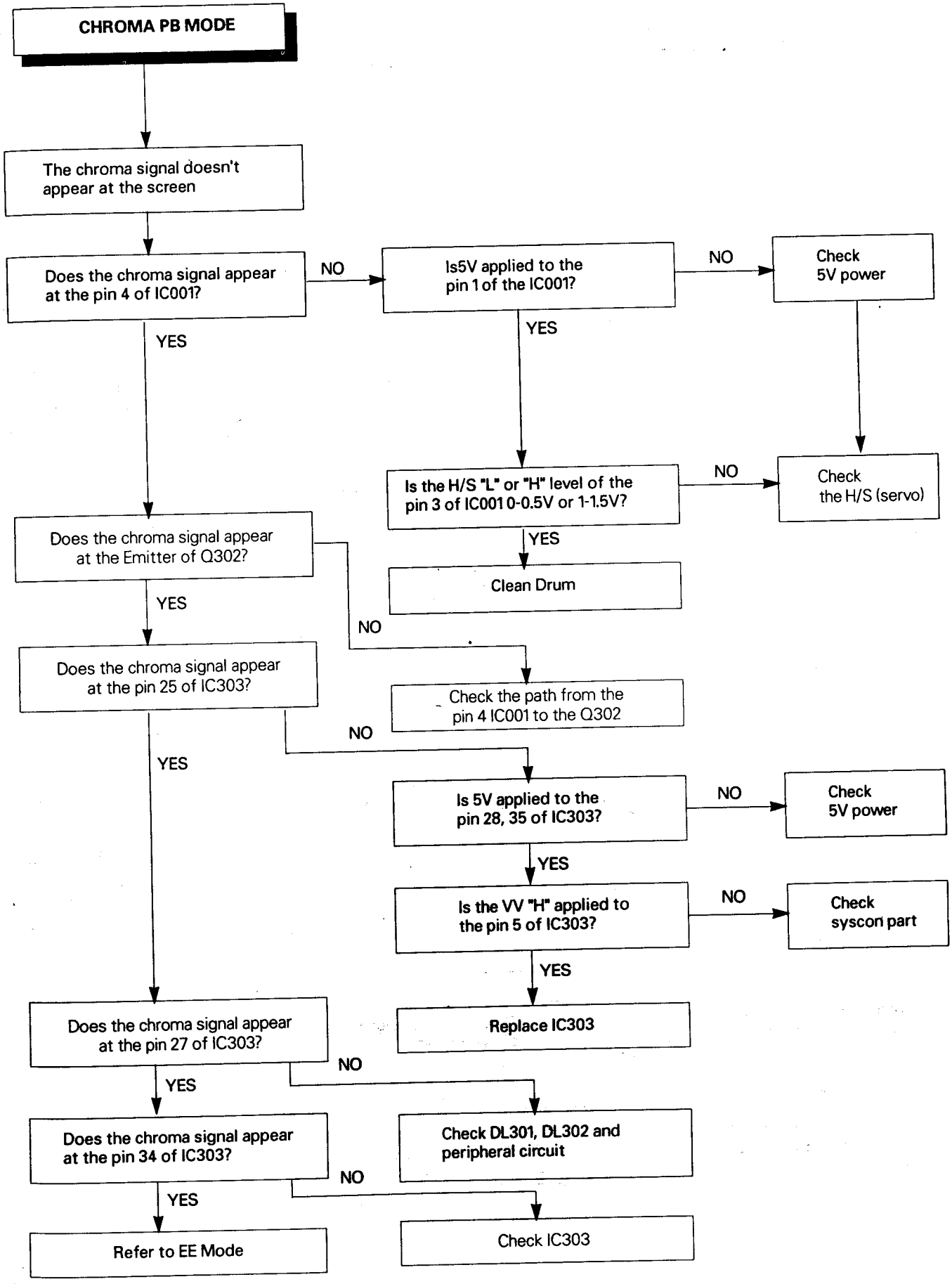
B

LUMINANCE SIGNAL DOESN'T APPEAR AT THE SCREEN WHEN PB MODE



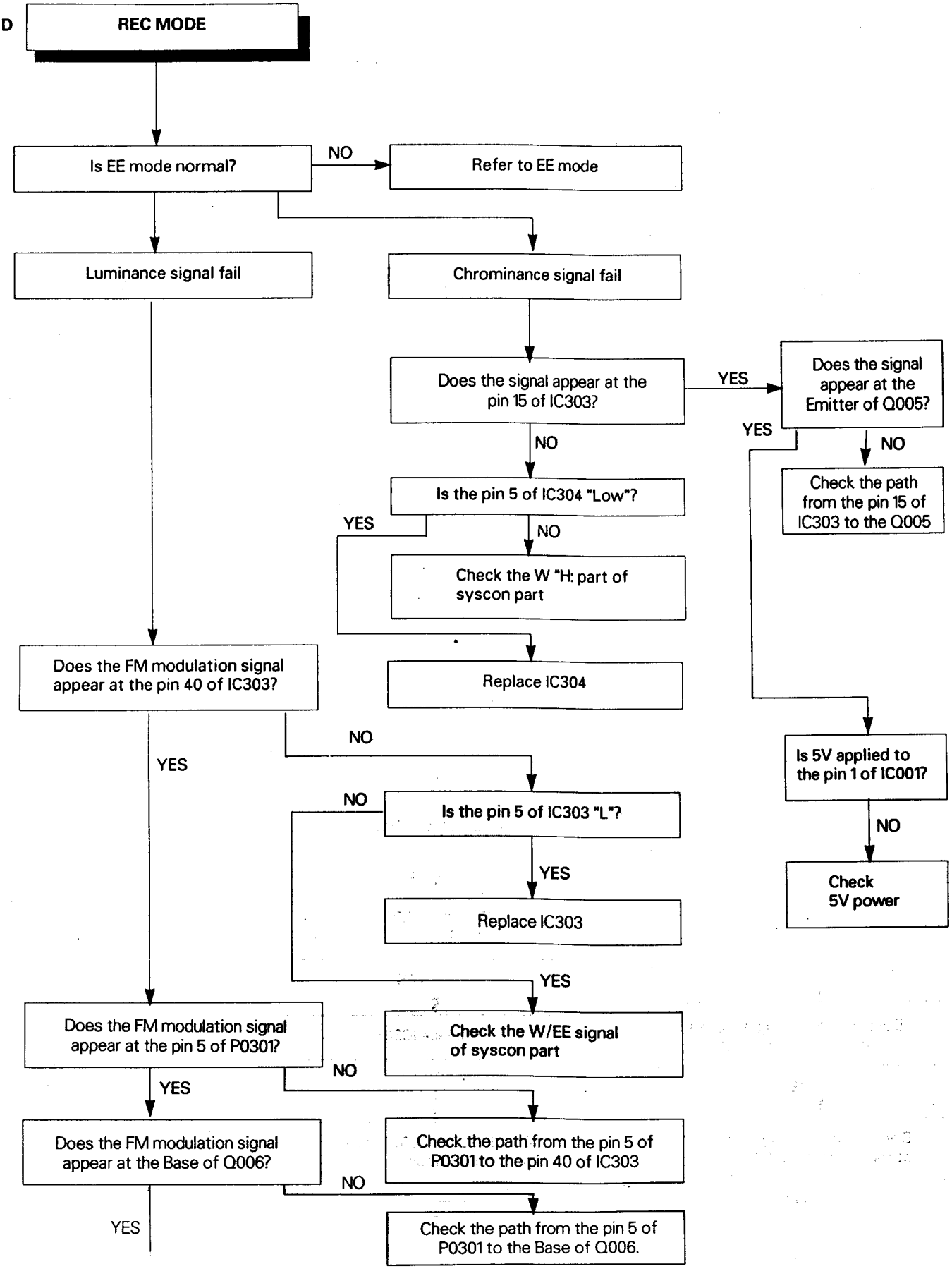
VCR

C

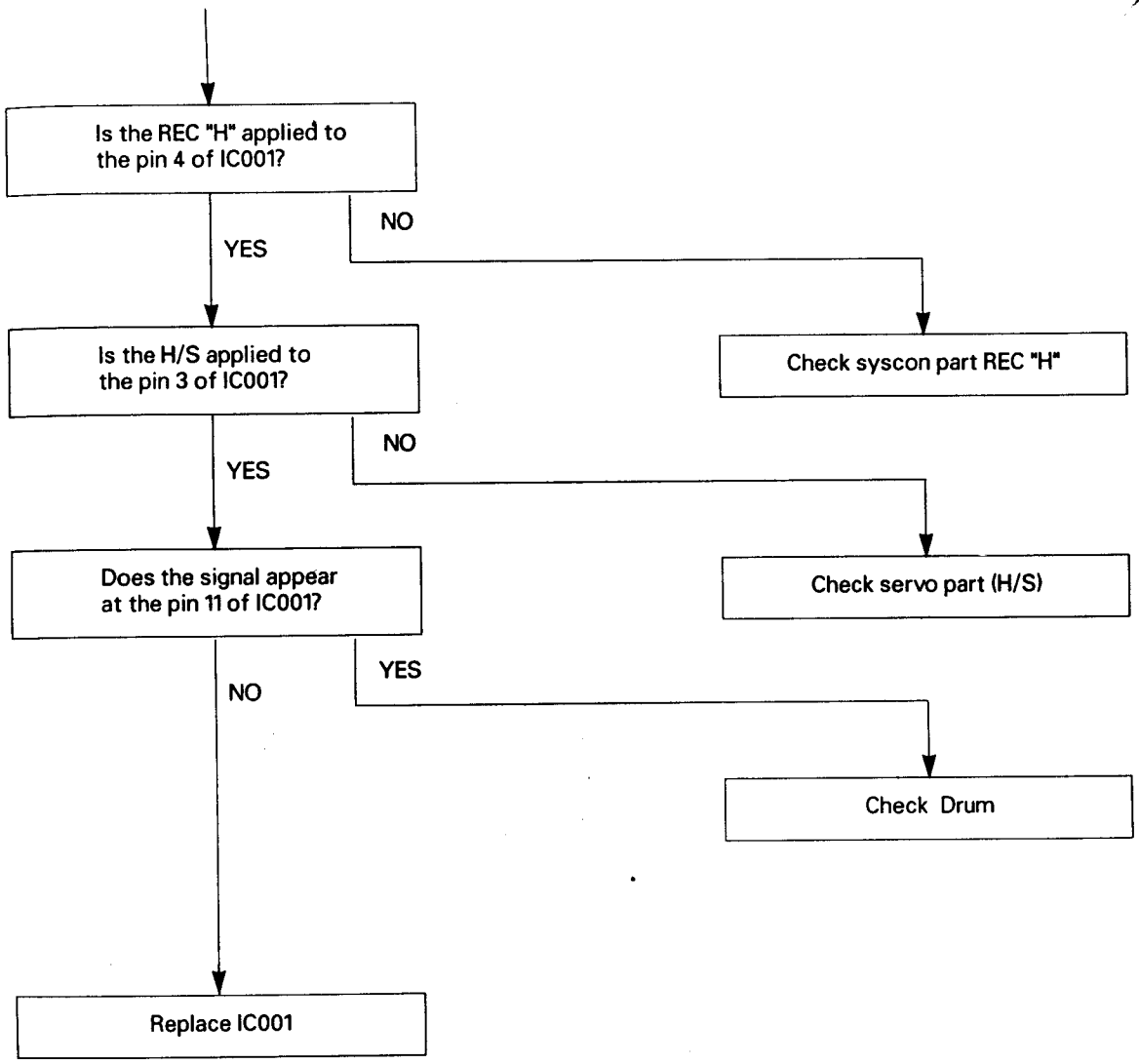

CHROMA PB MODE
The chroma signal doesn't appear at the screen
Does the chroma signal appear at the pin 4 of IC001?
NO
Is5V applied to the pin 1 of the IC001?
NO
Check 5V power
YES
YES
Is the H/S "L" or "H" level of the pin 3 of IC001 0-0.5V or 1-1.5V?
NO
Check the H/S (servo)
YES
Clean Drum
Does the chroma signal appear at the Emitter of Q302?
YES
NO
Does the chroma signal appear at the pin 25 of IC303?
Check the path from the pin 4 IC001 to the Q302
NO
YES
Is 5V applied to the pin 28, 35 of IC303?
NO
Check 5V power
YES
Is the VV "H" applied to the pin 5 of IC303?
NO
Check syscon part
YES
Replace IC303
Does the chroma signal appear at the pin 27 of IC303?
NO
YES
Does the chroma signal appear at the pin 34 of IC303?
Check DL301, DL302 and peripheral circuit
NO
YES
Refer to EE Mode
Check IC303

VCR

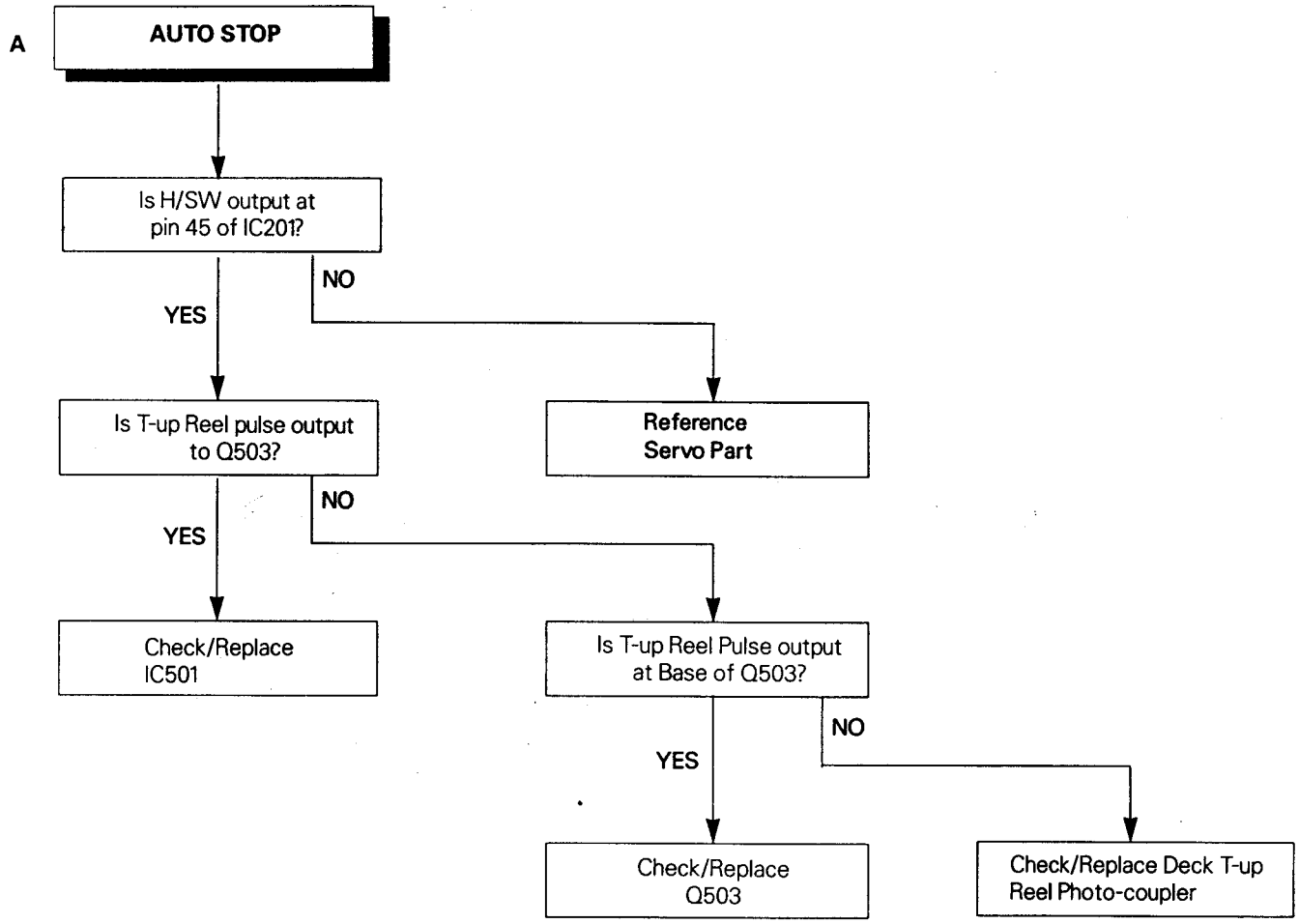
D

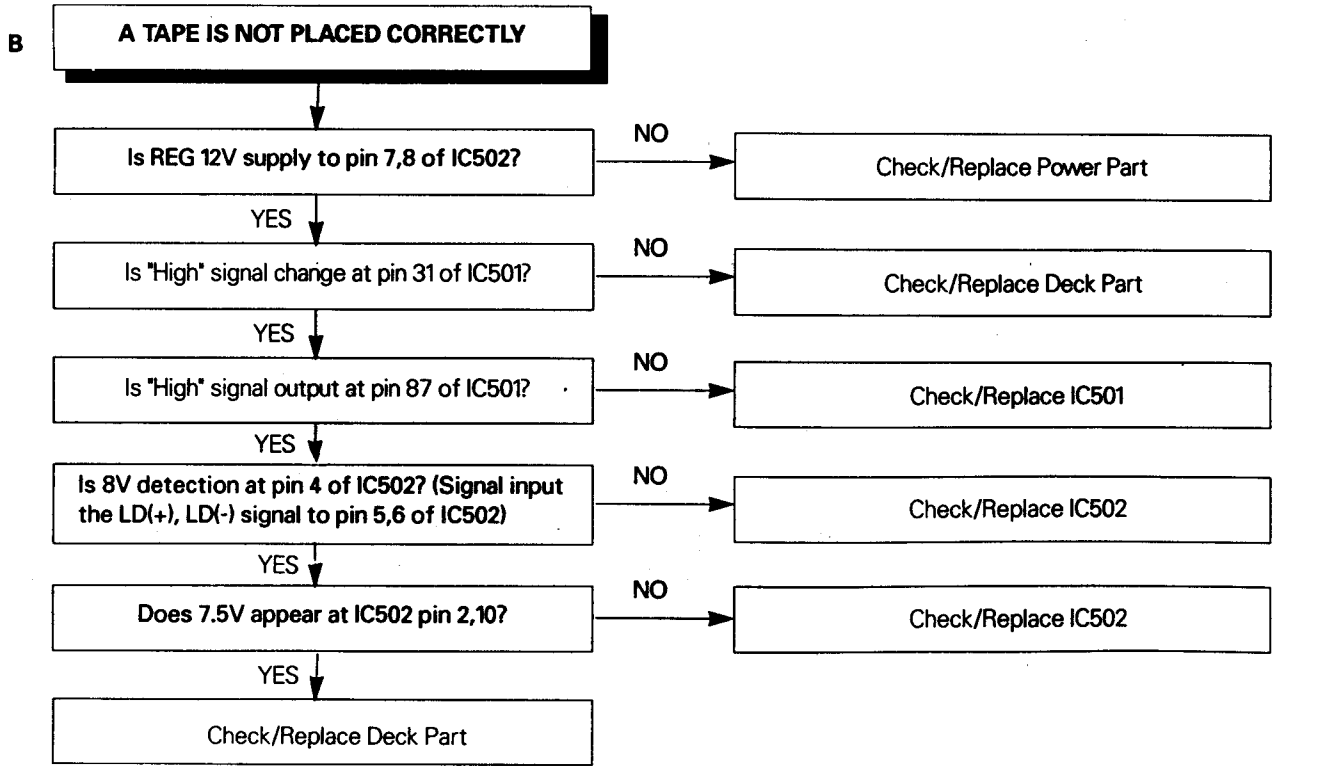

REC MODE
Is EE mode normal?
NO
Refer to EE mode
Luminance signal fail
Chrominance signal fail
Does the signal appear at the pin 15 of IC303?
YES
Does the signal appear at the Emitter of Q005?
YES
NO
Check the path from the pin 15 of IC303 to the Q005
NO
Is the pin 5 of IC304 "Low"?
YES
NO
Check the W "H: part of syscon part
Replace IC304
Does the FM modulation signal appear at the pin 40 of IC303?
NO
YES
Is 5V applied to the pin 1 of IC001?
NO
Check 5V power
NO
Is the pin 5 of IC303 "L"?
YES
Replace IC303
YES
Does the FM modulation signal appear at the pin 5 of P0301?
Check the W/EE signal of syscon part
NO
YES
Does the FM modulation signal appear at the Base of Q006?
Check the path from the pin 5 of P0301 to the pin 40 of IC303
NO
YES
Check the path from the pin 5 of P0301 to the Base of Q006.

VCR


Is the REC "H" applied to the pin 4 of IC001?
NO
YES
Check syscon part REC "H"
Is the H/S applied to the pin 3 of IC001?
NO
YES
Check servo part (H/S)
Does the signal appear at the pin 11 of IC001?
YES
NO
Check Drum
Replace IC001

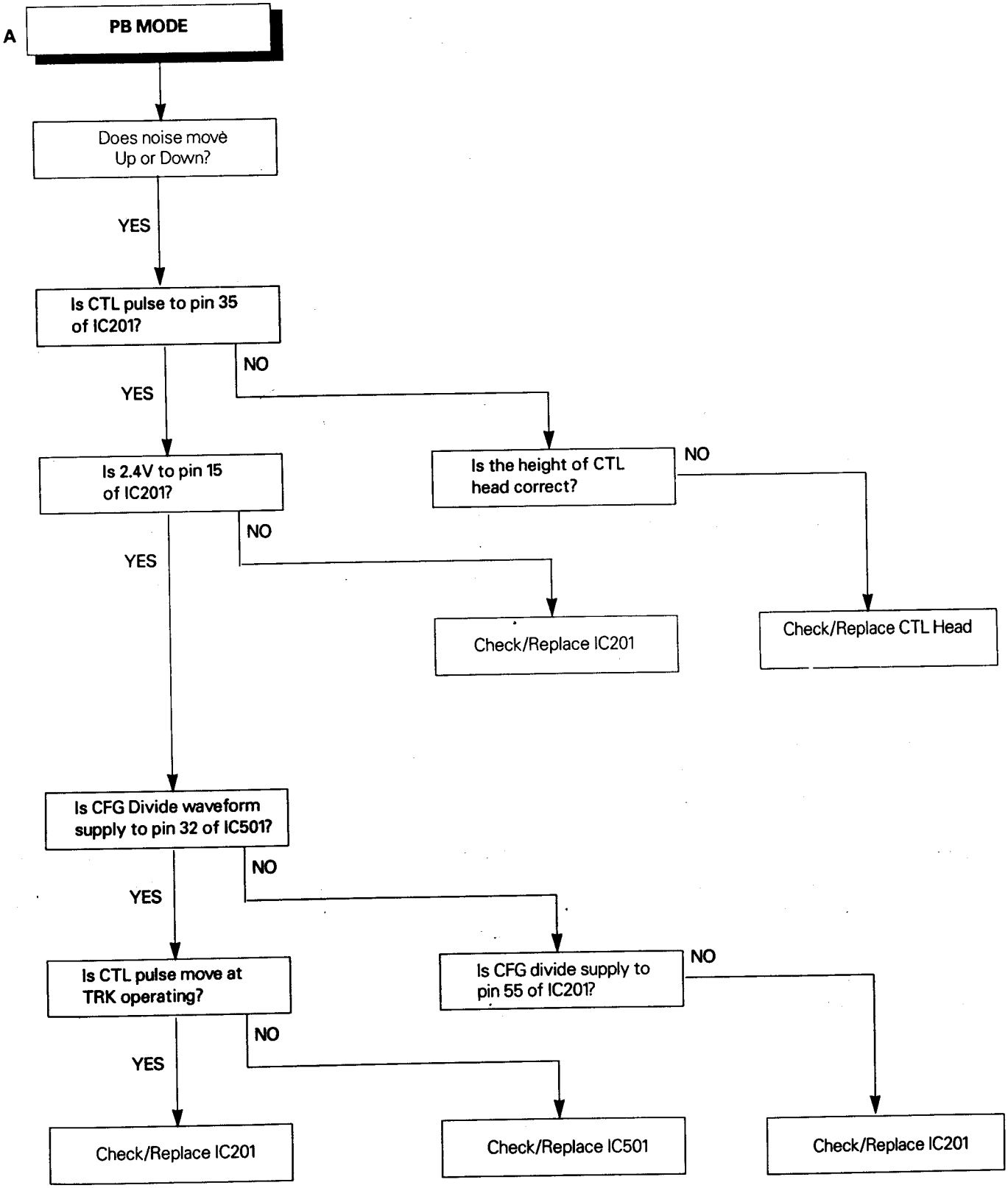
5. SYSCON CIRCUIT



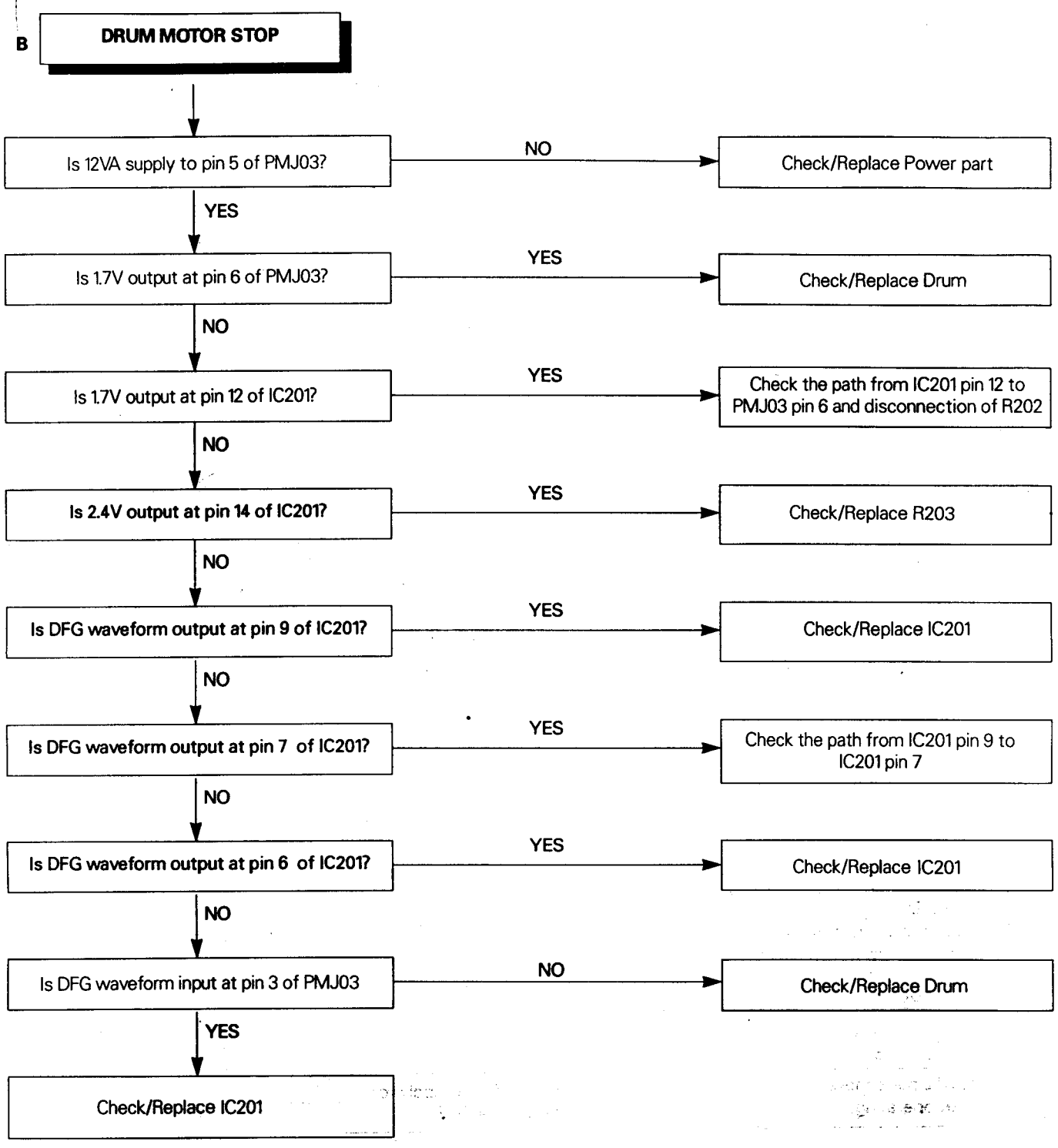


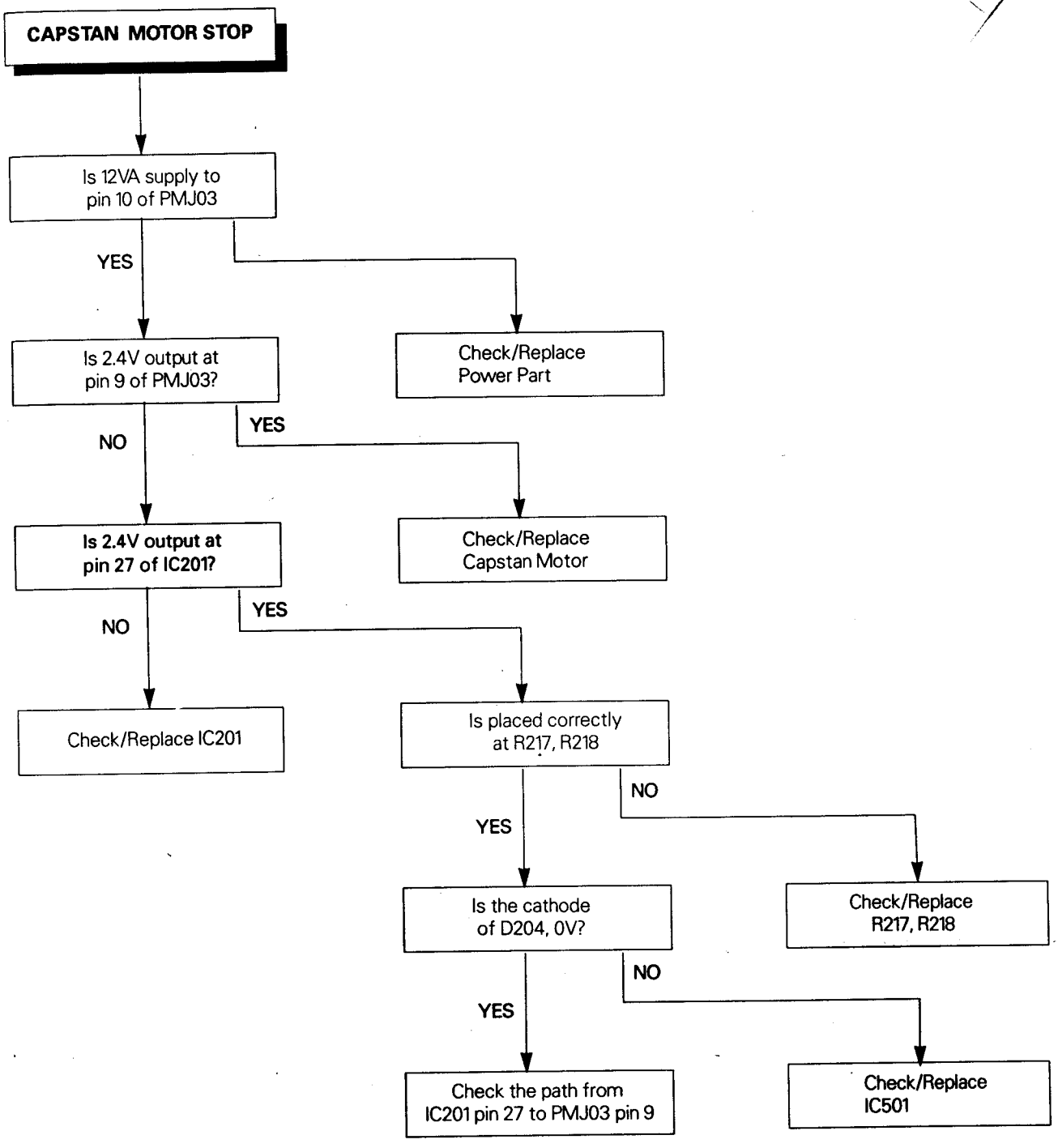
VCR

6. SERVO CIRCUIT

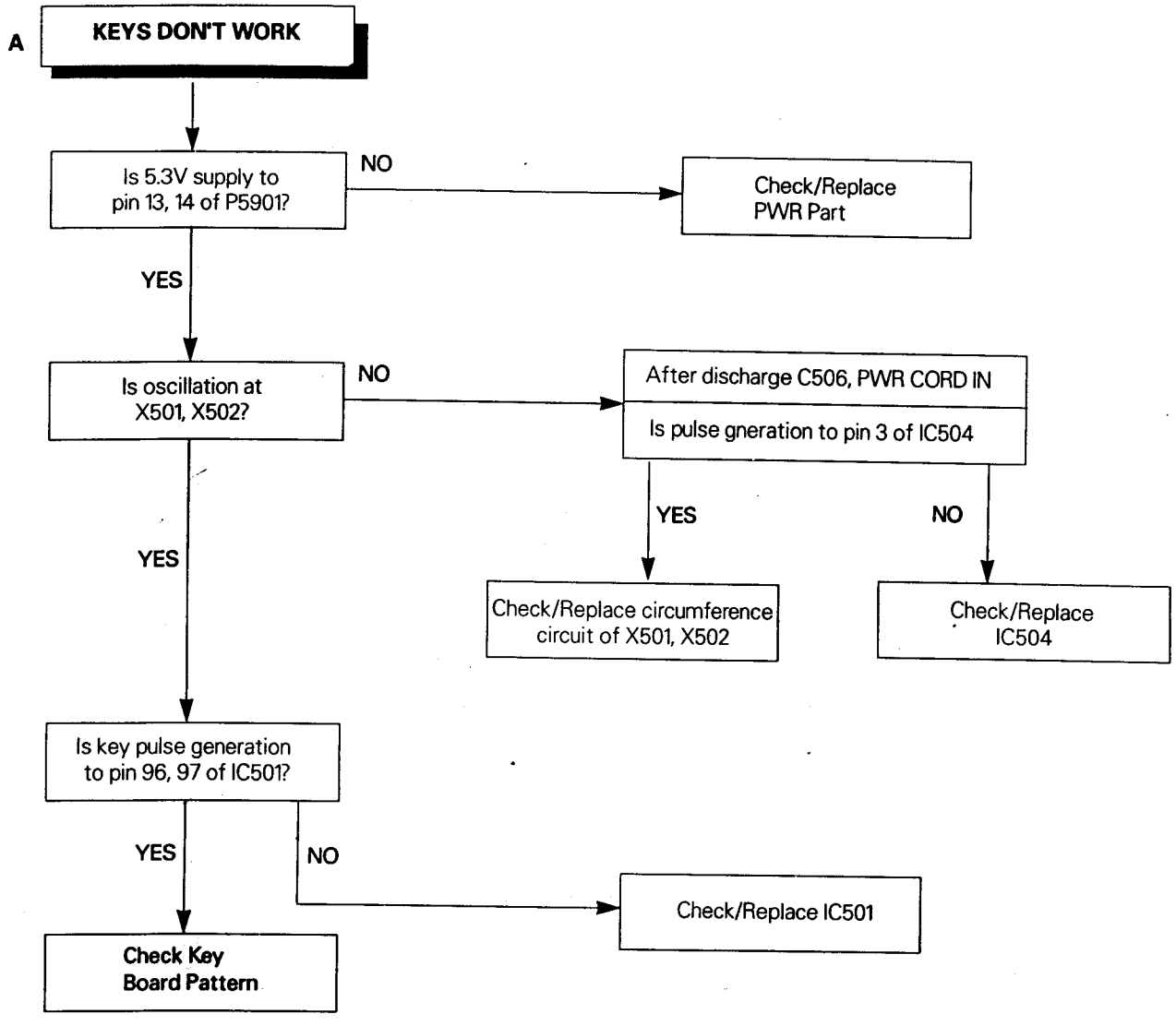


B

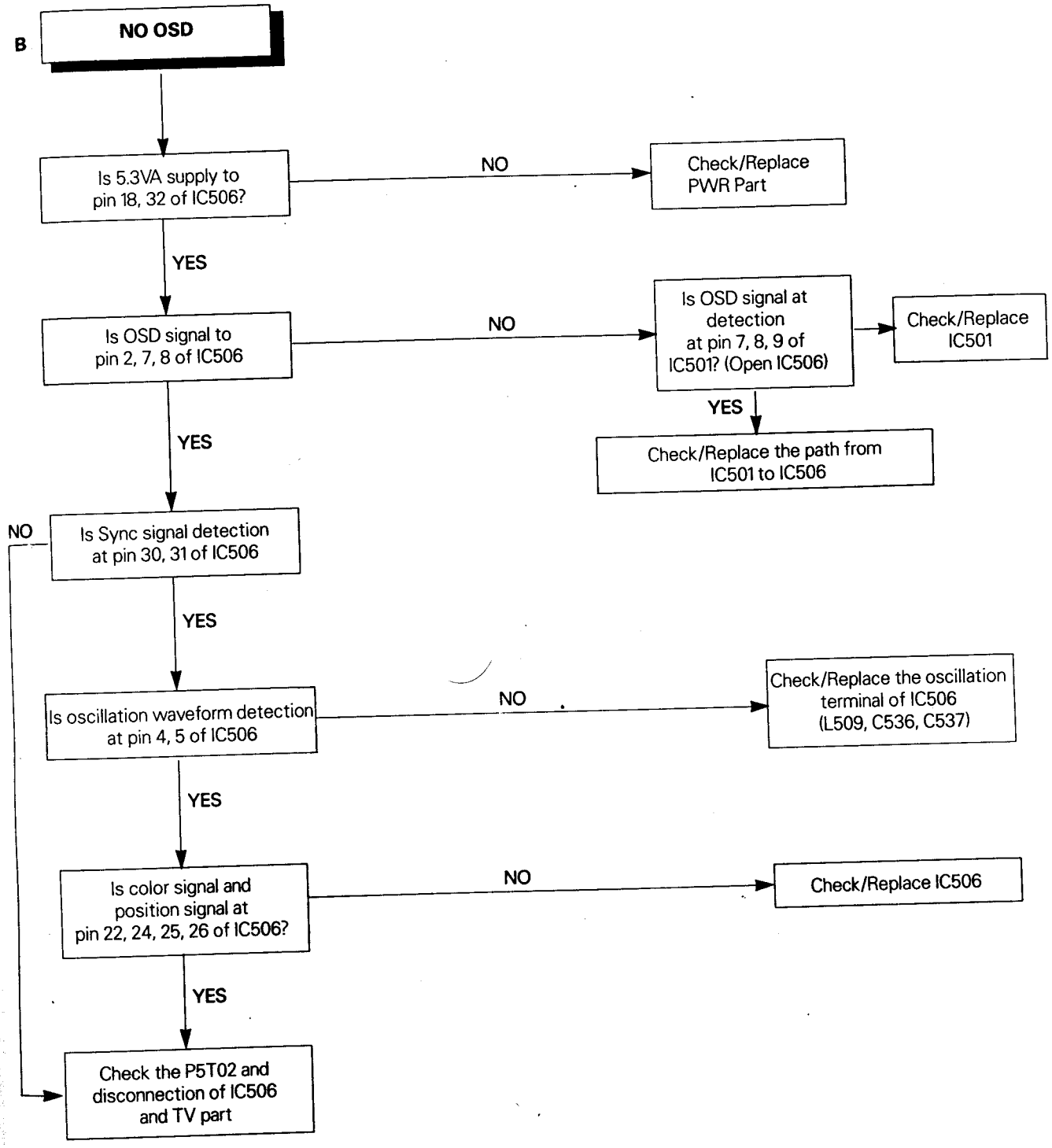

DRUM MOTOR STOP
Is 12VA supply to pin 5 of PMJ03?
NO
Check/Replace Power part
YES
Is 1.7V output at pin 6 of PMJ03?
YES
Check/Replace Drum
NO
Is 1.7V output at pin 12 of IC201?
YES
Check the path from IC201 pin 12 to PMJ03 pin 6 and disconnection of R202
NO
Is 2.4V output at pin 14 of IC201?
YES
Check/Replace R203
NO
Is DFG waveform output at pin 9 of IC201?
YES
Check/Replace IC201
NO
Is DFG waveform output at pin 7 of IC201?
YES
Check the path from IC201 pin 9 to IC201 pin 7
NO
Is DFG waveform output at pin 6 of IC201?
YES
Check/Replace IC201
NO
Is DFG waveform input at pin 3 of PMJ03
NO
Check/Replace Drum
YES
Check/Replace IC201


CAPSTAN MOTOR STOP
Is 12VA supply to pin 10 of PMJ03
YES
Check/Replace Power Part
Is 2.4V output at pin 9 of PMJ03?
NO
YES
Check/Replace Capstan Motor
Is 2.4V output at pin 27 of IC201?
NO
YES
Check/Replace IC201
Is placed correctly at R217, R218
NO
YES
Check/Replace R217, R218
Is the cathode of D204, 0V?
NO
YES
Check the path from IC201 pin 27 to PMJ03 pin 9
Check/Replace IC501

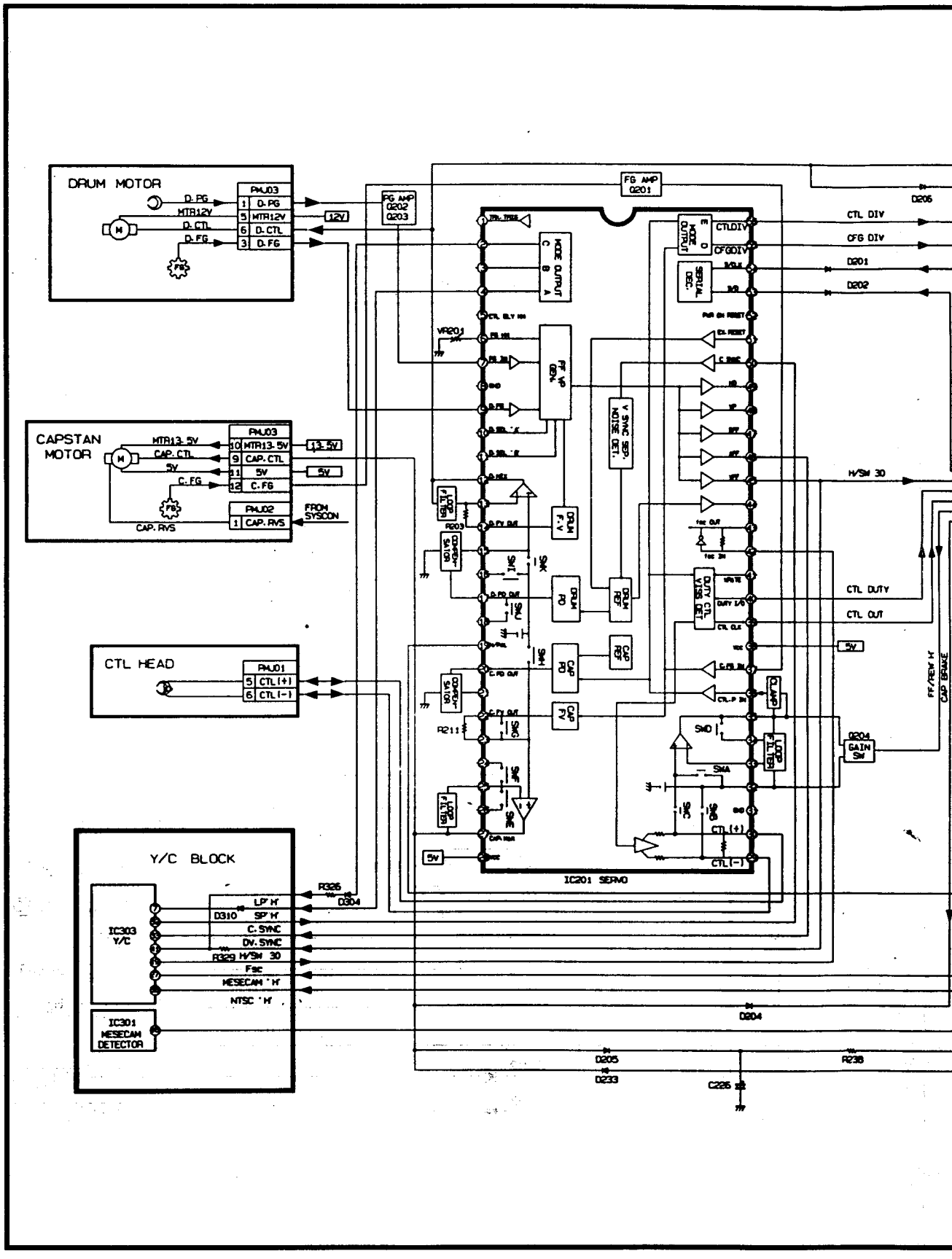
7. TIMER CIRCUIT



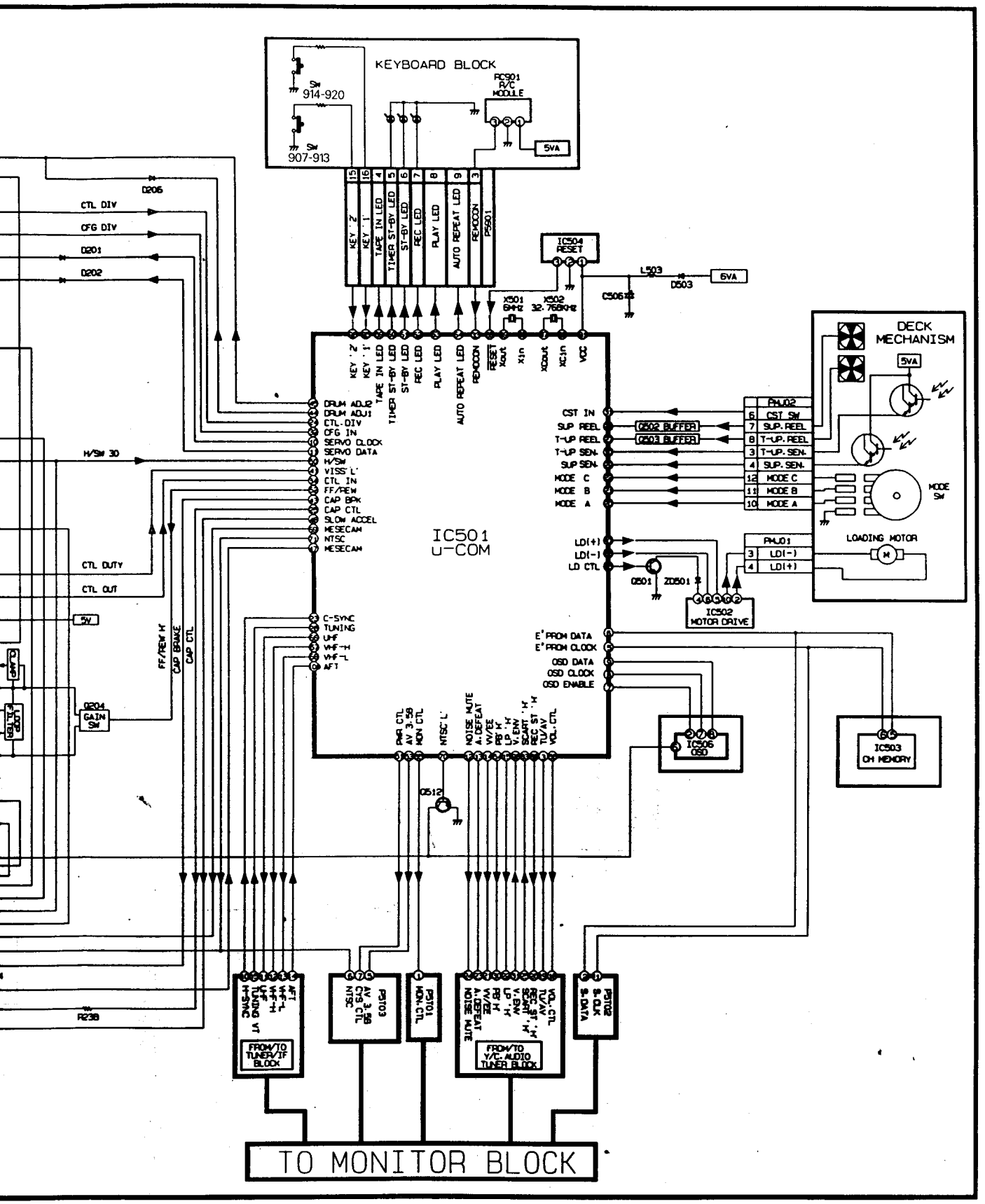
B


NO OSD
Is 5.3VA supply to pin 18, 32 of IC506?
NO
Check/Replace PWR Part
YES
Is OSD signal to pin 2, 7, 8 of IC506
NO
Is OSD signal at detection at pin 7, 8, 9 of IC501? (Open IC506)
Check/Replace IC501
YES
Check/Replace the path from IC501 to IC506
YES
NO
Is Sync signal detection at pin 30, 31 of IC506
YES
Is oscillation waveform detection at pin 4, 5 of IC506
NO
Check/Replace the oscillation terminal of IC506 (L509, C536, C537)
YES
Is color signal and position signal at pin 22, 24, 25, 26 of IC506?
NO
Check/Replace IC506
YES
Check the P5T02 and disconnection of IC506 and TV part

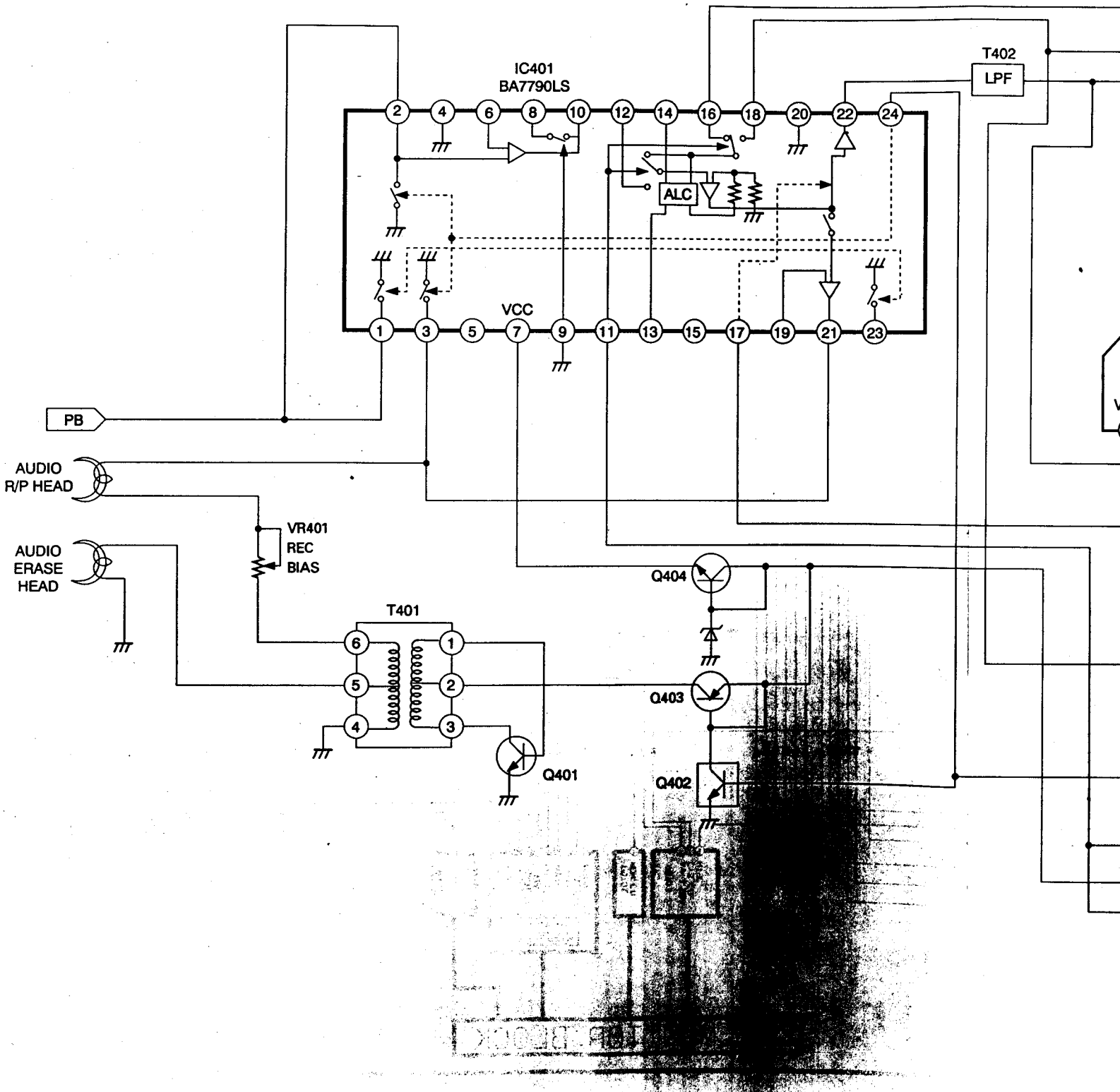
1. Main System (System & Servo) Block Diagram

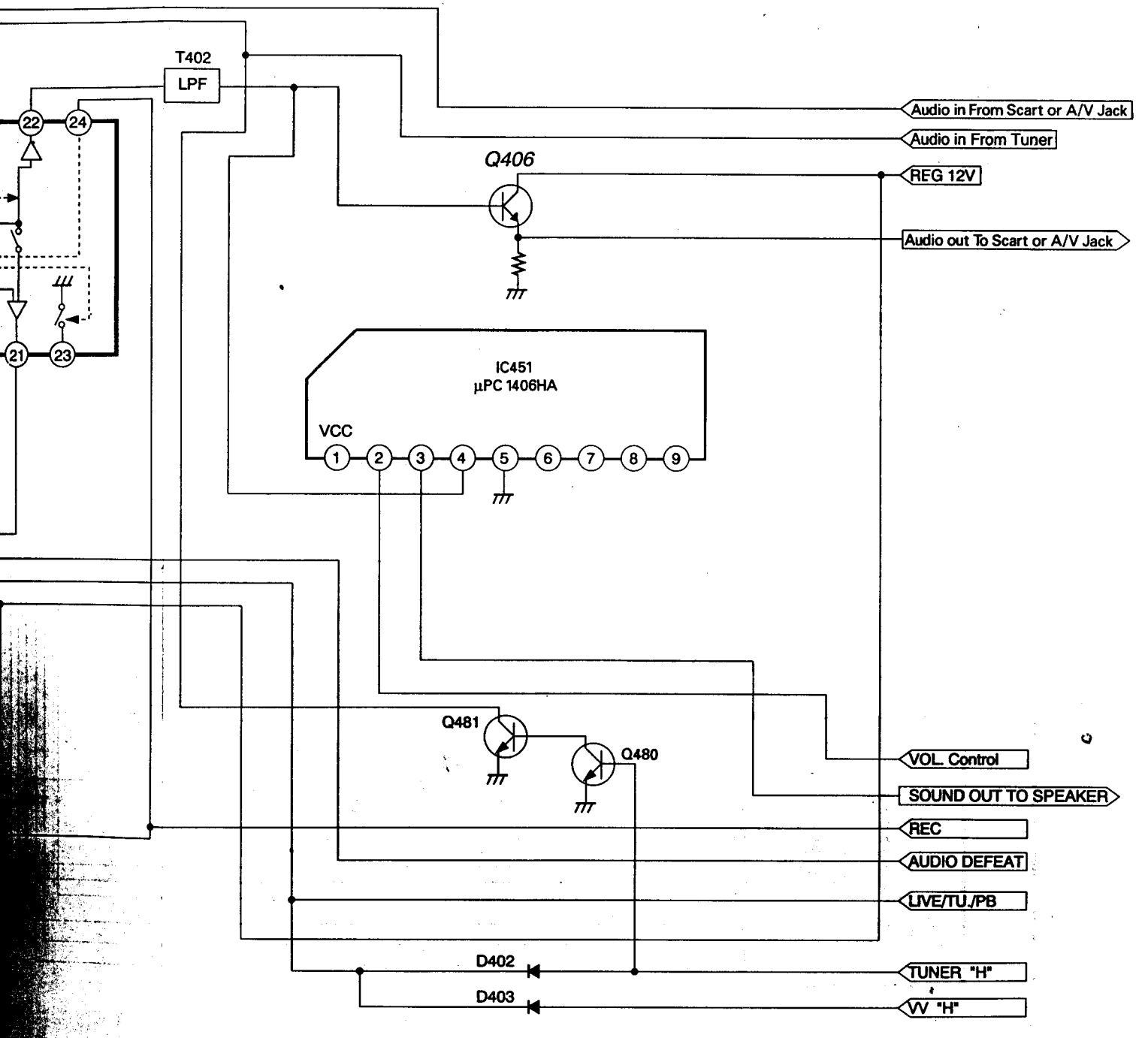


BLOCK DIAGRAM

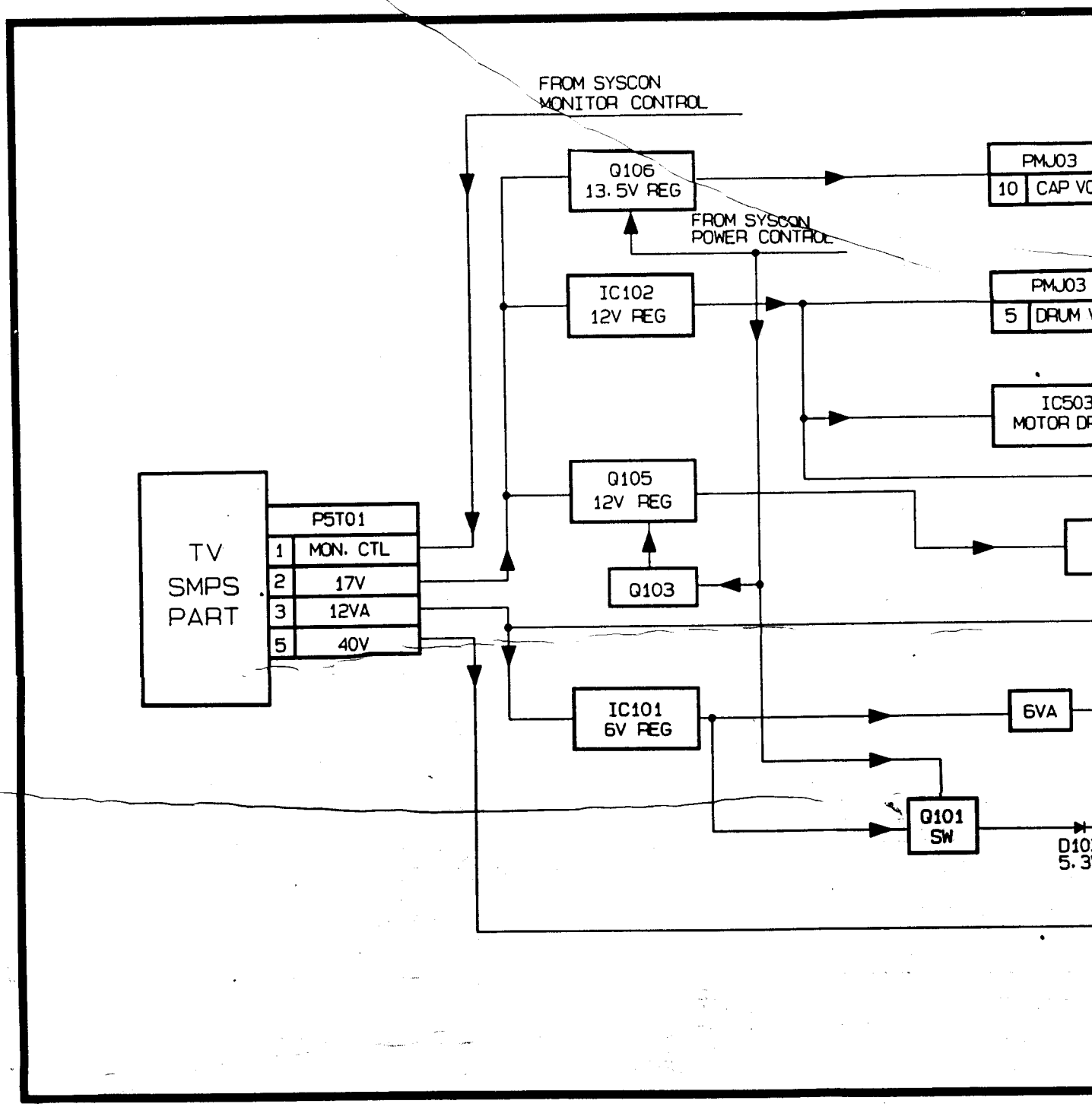


2. Audio Block Diagram

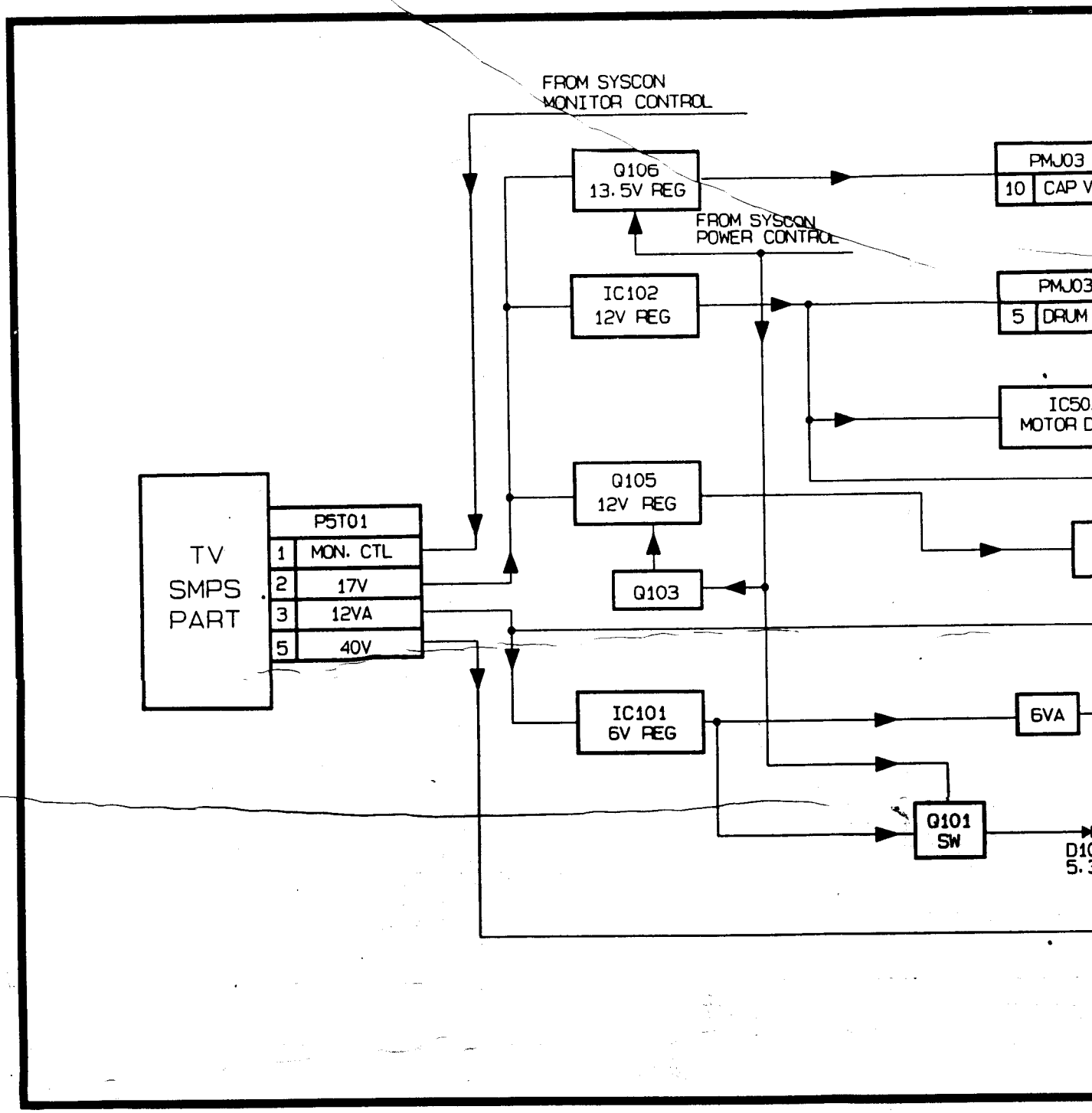


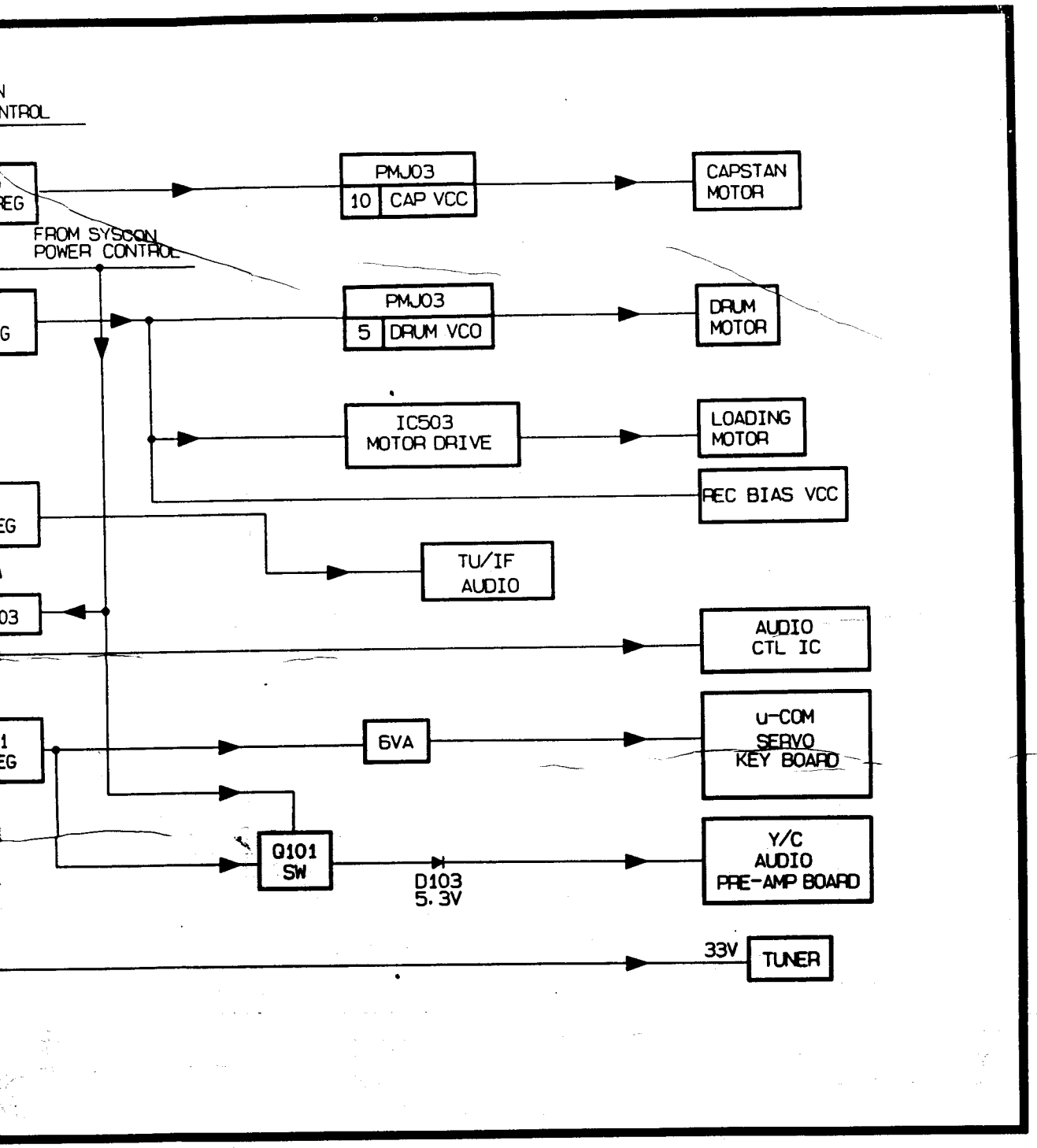

T402
LPF
22
24
21
23
Audio in From Scart or A/V Jack
Audio in From Tuner
Q406
REG 12V
Audio out To Scart or A/V Jack
IC451
µPC 1406HA
VCC
1
2
3
4
5
6
7
8
9
Q481
Q480
VOL. Control
SOUND OUT TO SPEAKER
REC
AUDIO DEFEAT
LIVE/TU./PB
D402
D403
TUNER "H"
VV "H"

wer Block Diagram

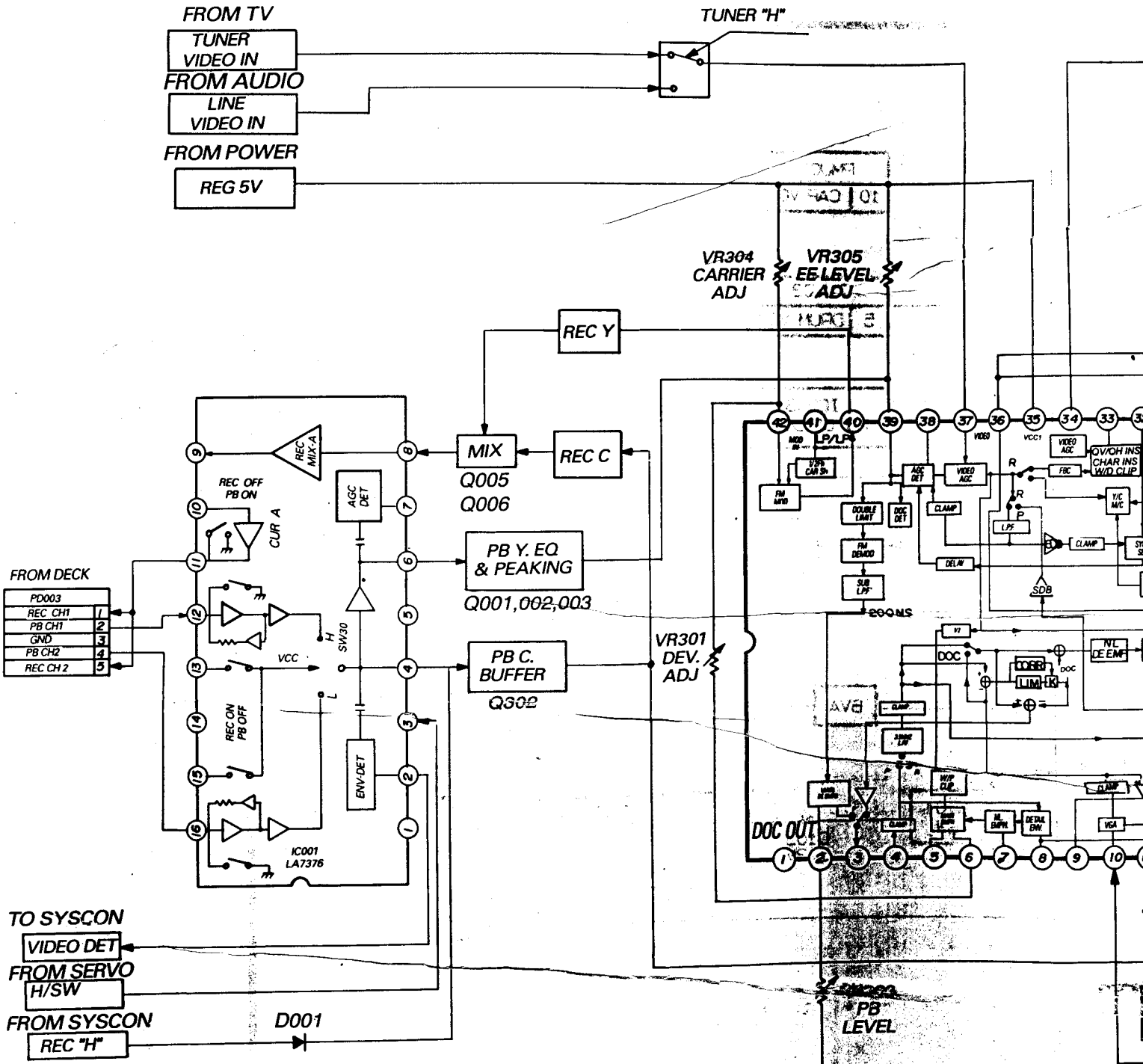


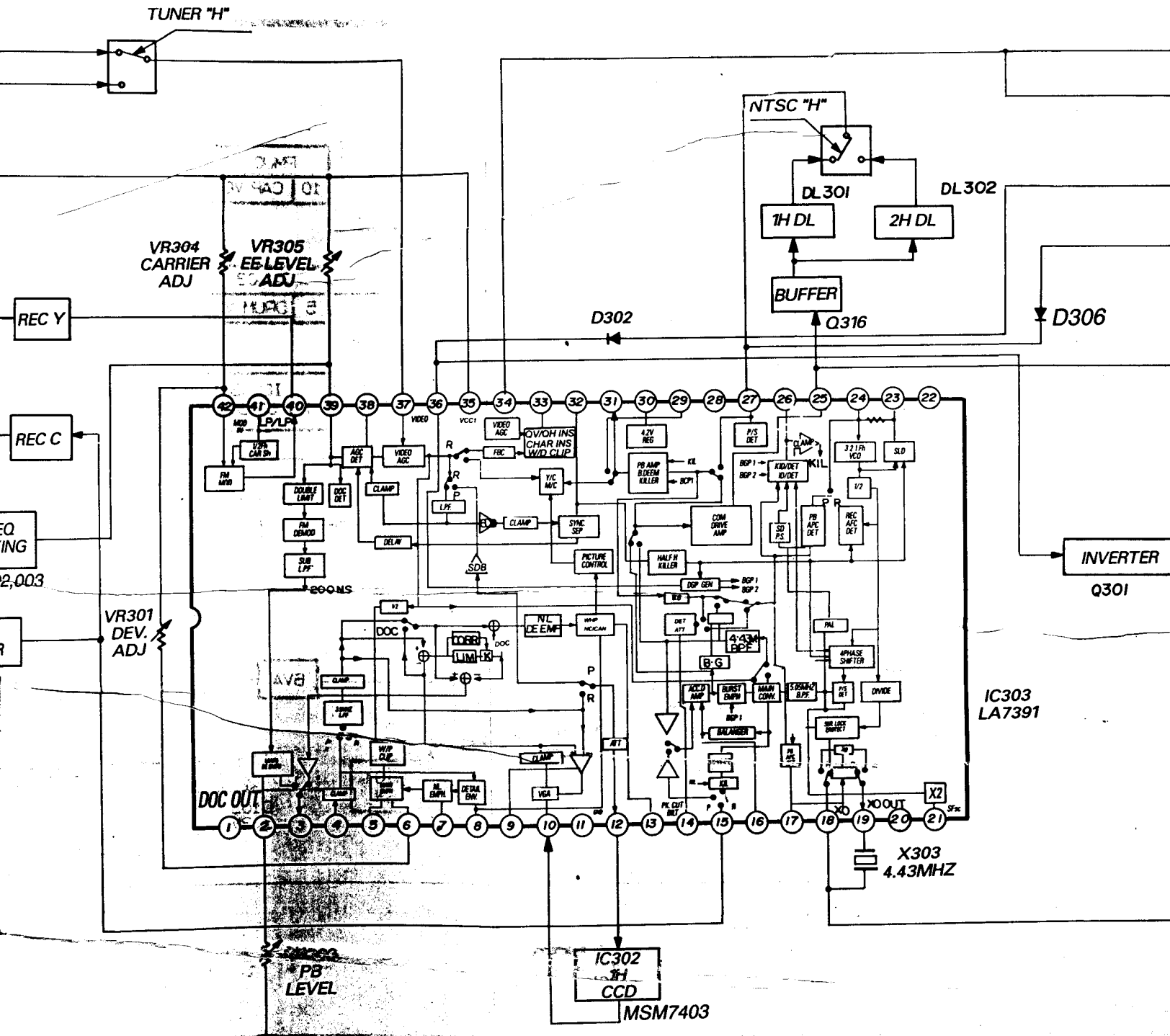
ower Block Diagram

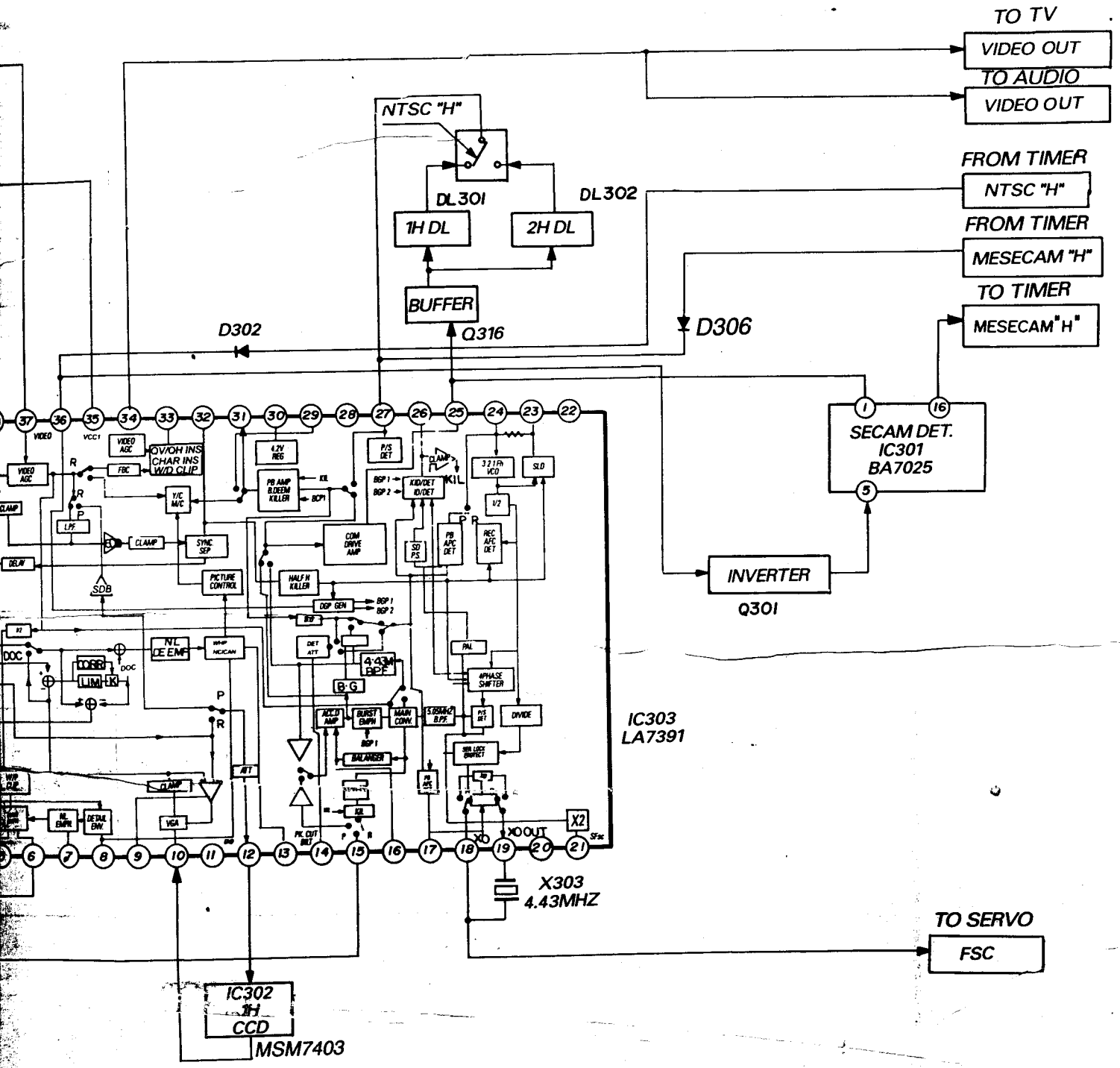



N
NTROL
EG
FROM SYSCON
POWER CONTROL
G
EG
03
1
EG
PMJ03
10 CAP VCC
CAPSTAN
MOTOR
PMJ03
5 DRUM VCO
DRUM
MOTOR
IC503
MOTOR DRIVE
LOADING
MOTOR
REC BIAS VCC
TU/IF
AUDIO
AUDIO
CTL IC
6VA
u-COM
SERVO
KEY BOARD
Q101
SW
D103
5.3V
Y/C
AUDIO
PRE-AMP BOARD
33V
TUNER

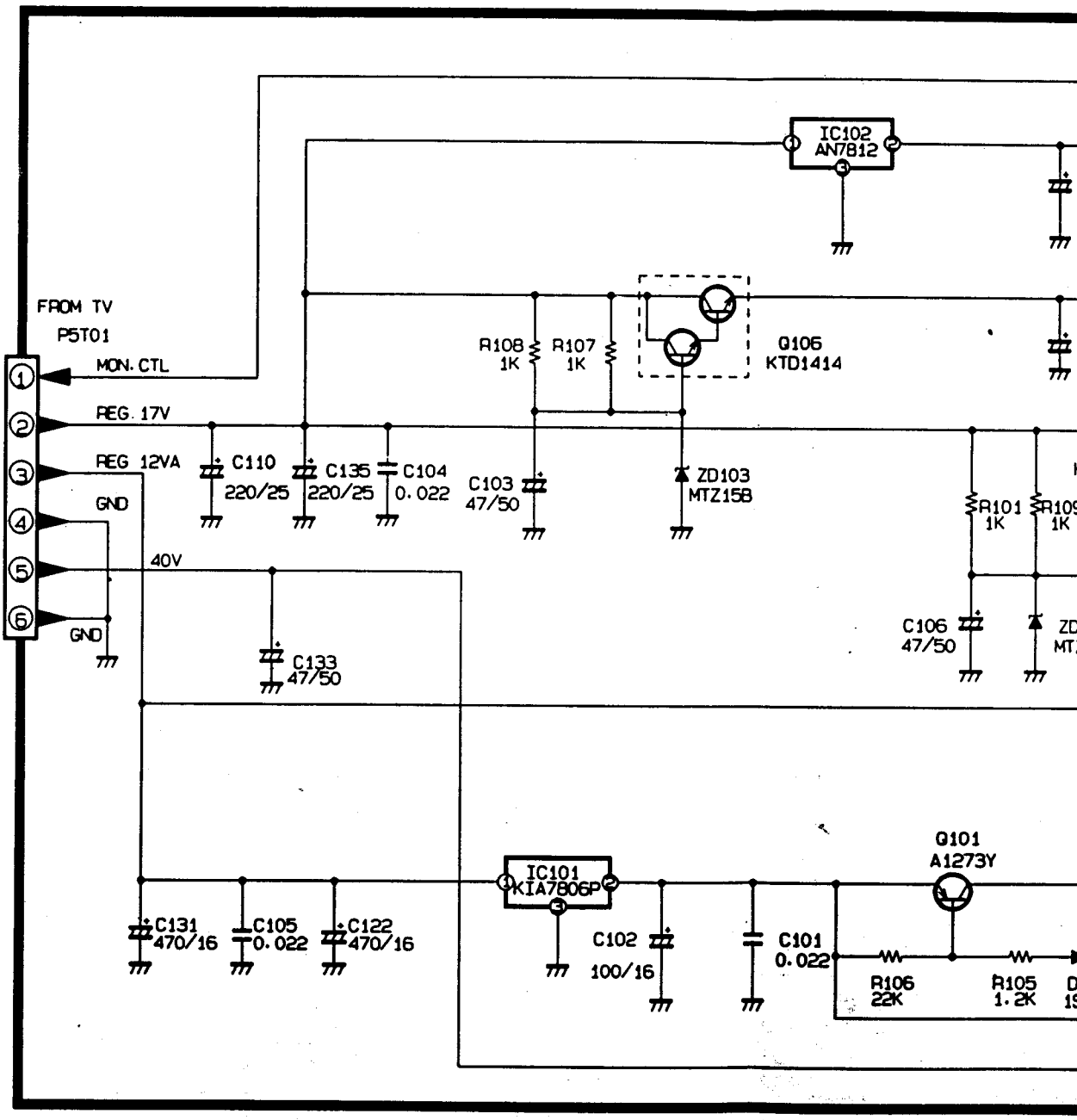
4. Y/C Block Diagram



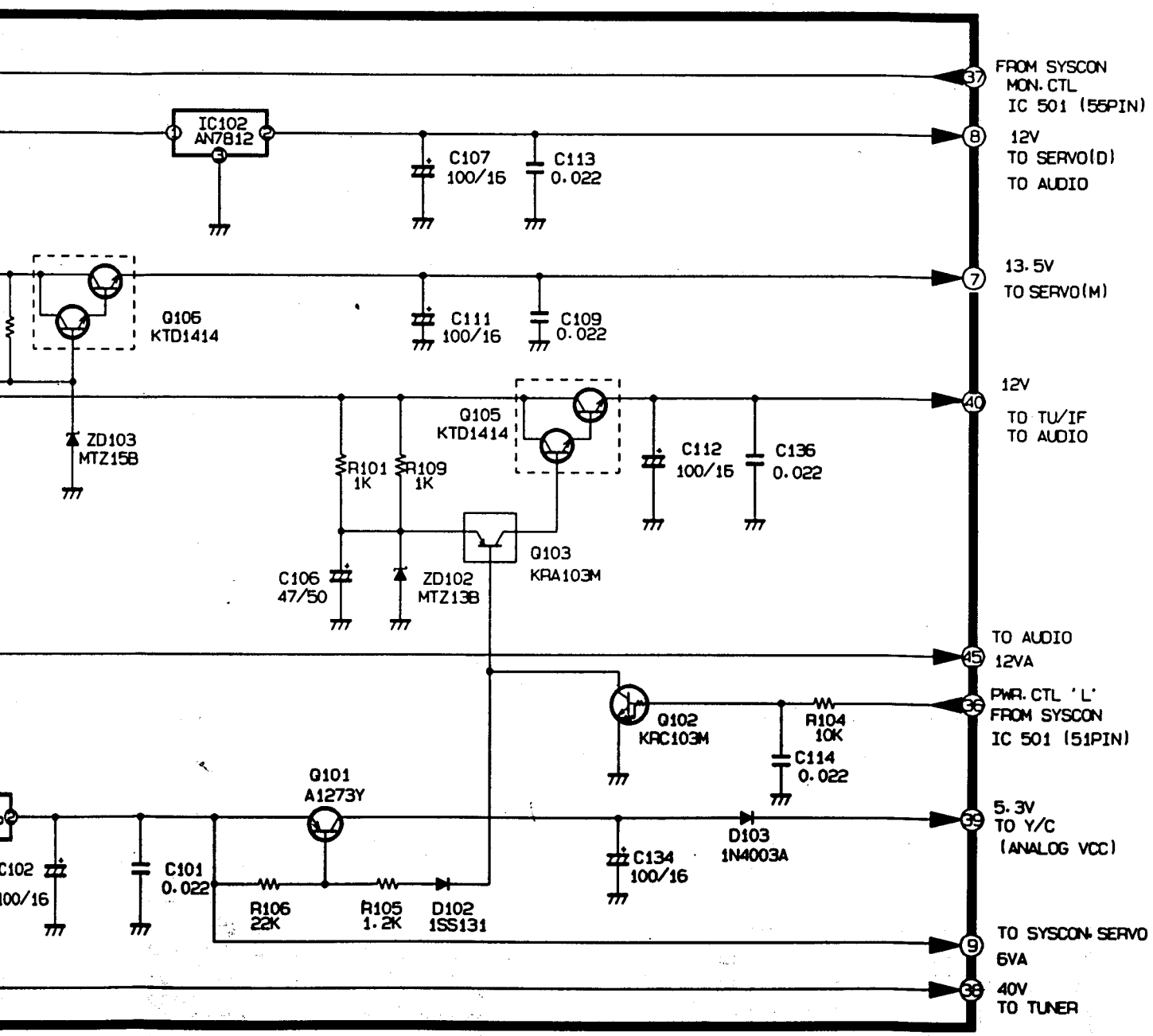

TUNER "H"
NTSC "H"
DL301
DL302
1H DL
2H DL
BUFFER
Q316
D302
D306
VR304
CARRIER
ADJ
VR305
EE LEVEL
ADJ
REC Y
REC C
VR301
DEV.
ADJ
INVERTER
Q301
IC303
LA7391
DOC OUT
X303
4.43MHZ
IC302
CCD
MSM7403
PB
LEVEL

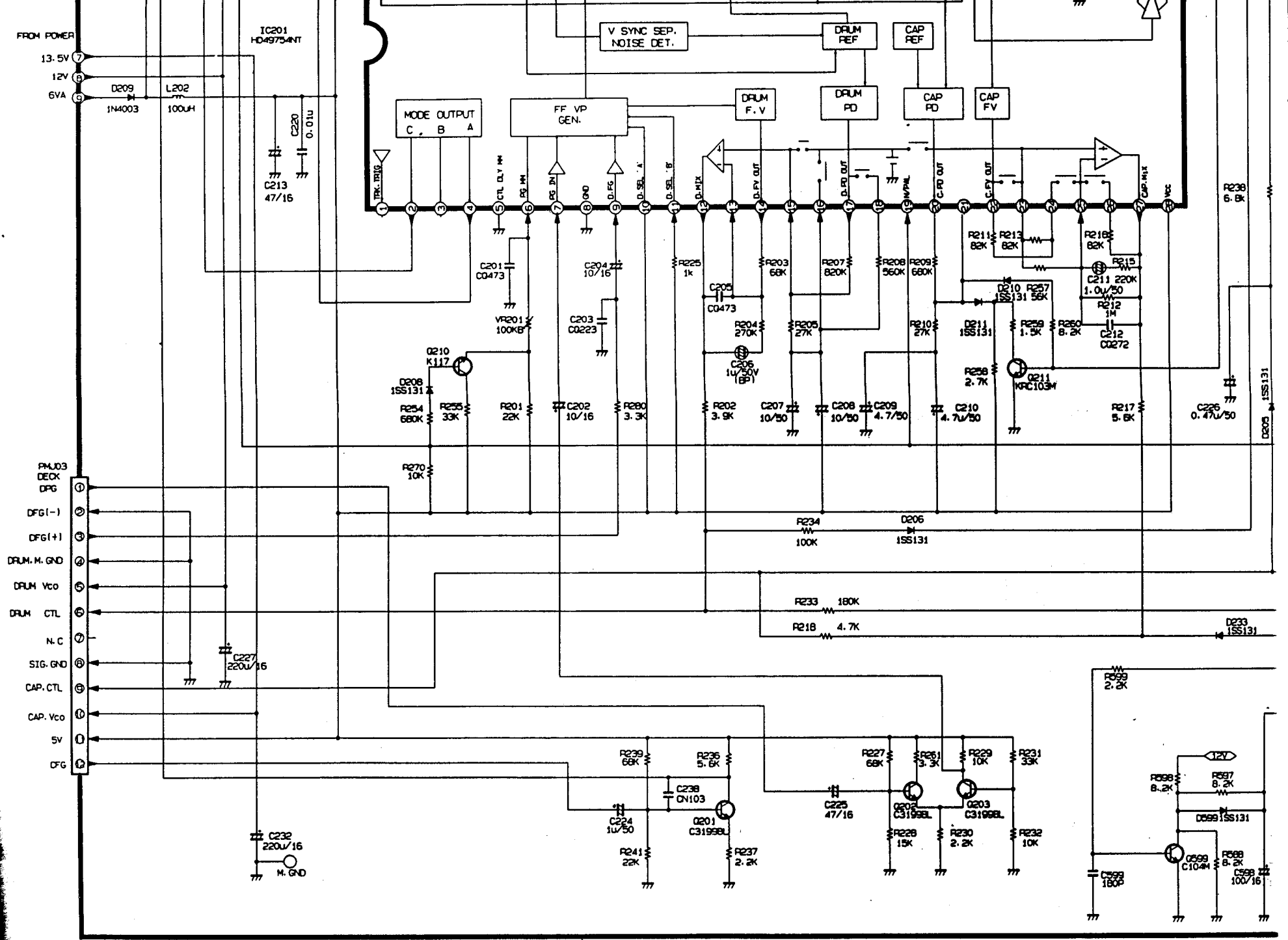

TO TV
VIDEO OUT
TO AUDIO
VIDEO OUT
NTSC "H"
DL301
DL302
1H DL
2H DL
BUFFER
Q316
D302
D306
FROM TIMER
NTSC "H"
FROM TIMER
MESECAM "H"
TO TIMER
MESECAM "H"
SECAM DET.
IC301
BA7025
INVERTER
Q301
IC303
LA7391
X303
4.43MHZ
TO SERVO
FSC
IC302
1H
CCD
MSM7403

Power Schematic Diagram

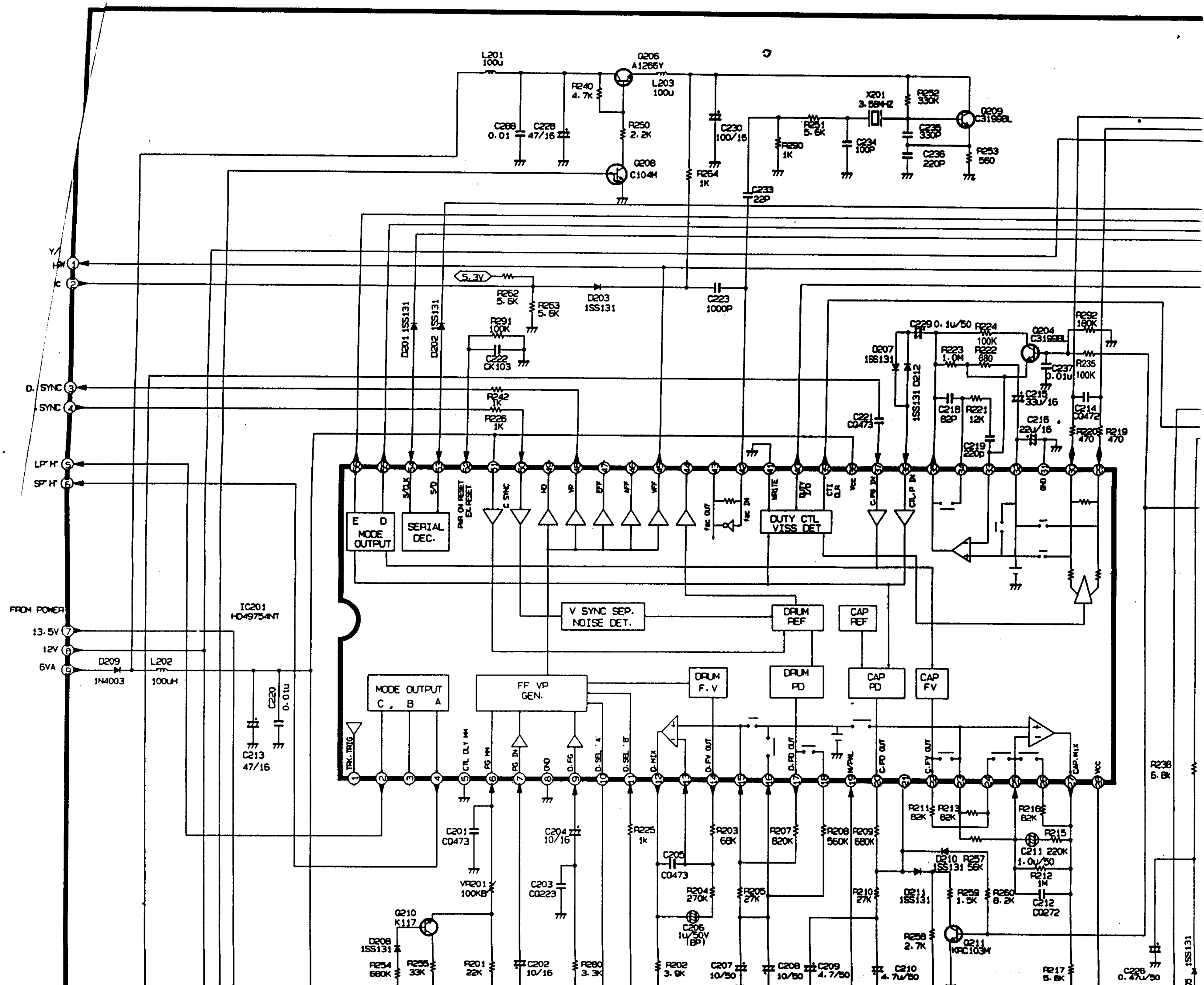


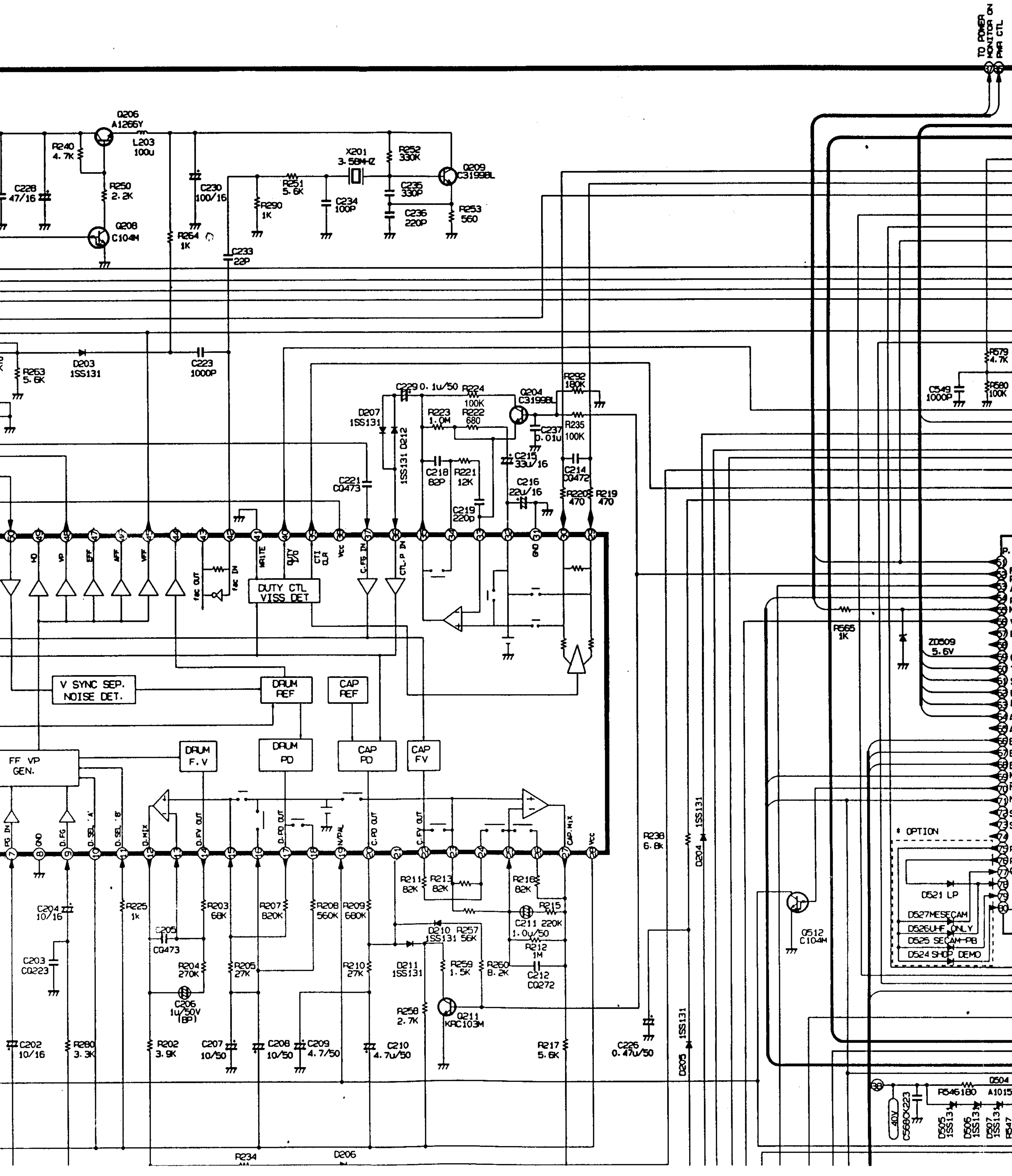
SCHEMATIC DIAGRAM



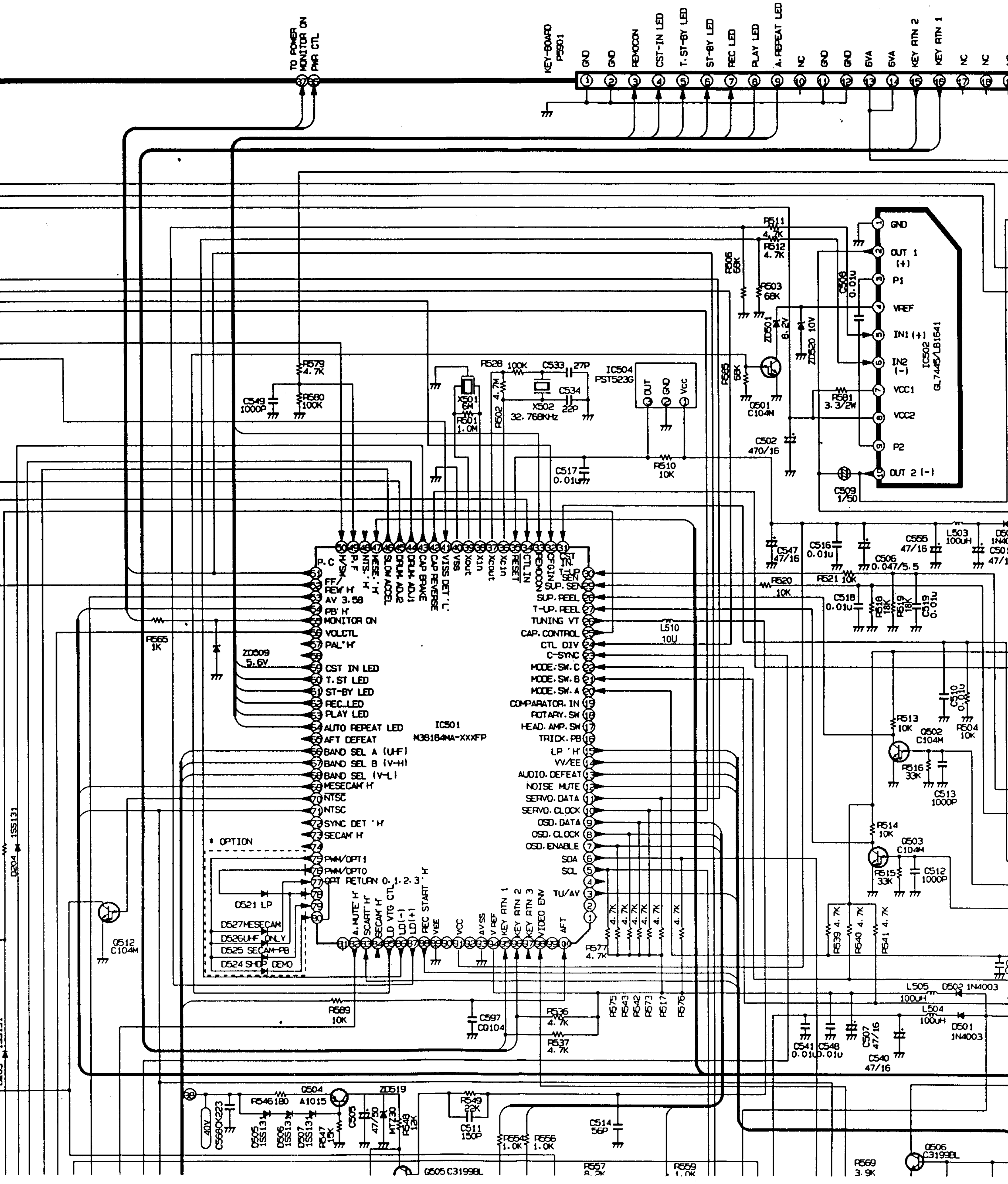

FROM POWER
13.5V
12V
6VA
D209
1N4003
L202
100uH
IC201
HD49754NT
C220
0.01u
C213
47/16
V SYNC SEP.
NOISE DET.
DRUM
REF
CAP
REF
MODE OUTPUT
C B A
FF VP
GEN.
DRUM
F.V
DRUM
PD
CAP
PD
CAP
FV
TRK. TRIG
CTL DLY MM
PG MM
PG IN
GND
D-FG
D-SEL 'A'
D-SEL 'B'
D-MIX
D-FV OUT
D-PD OUT
C-PD OUT
C-FV OUT
CAP. MIX
Vcc
C201
C0473
C204
10/16
C205
C0473
C203
C0223
VR201
100KB
R225
1k
R203
68K
R207
820K
R208
560K
R209
680K
R211
82K
R213
82K
R216
82K
R215
C211 220K
1.0u/50
R212
1M
C212
C0272
D210 R257
1SS131 56K
D211
1SS131
R259
1.5K
R260
8.2K
R238
6.8K
Q210
K117
D208
1SS131
R254
680K
R255
33K
R201
22K
C202
10/16
R200
3.3K
R202
3.9K
C207
10/50
C208
10/50
C209
4.7/50
C210
4.7u/50
R217
5.6K
R256
2.7K
Q211
KRC103M
C226
0.47u/50
D205
1SS131
C206
1u/50V
(BP)
R204
270K
R205
27K
R210
27K
R270
10K
R234
100K
D206
1SS131
R233 180K
R218 4.7K
D233
1SS131
PMJ03
DECK
DPG
DFG(-)
DFG(+)
DRUM M. GND
DRUM Vco
DRUM CTL
N.C
SIG. GND
CAP. CTL
CAP. Vco
5V
DFG
C227
220u/16
C232
220u/16
M. GND
R239
68K
R236
5.6K
C238
CN103
C224
1u/50
Q201
C3199BL
R241
22K
R237
2.2K
C225
47/16
R227
68K
R261
3.3K
R229
10K
R231
33K
Q202
C3199BL
Q203
C3199BL
R228
15K
R230
2.2K
R232
10K
R599
2.2K
12V
R598
8.2K
R597
8.2K
D599 1SS131
Q599
C1041
R588
8.2K
C599
180P
C598
100/16

VC Schematic Diagram

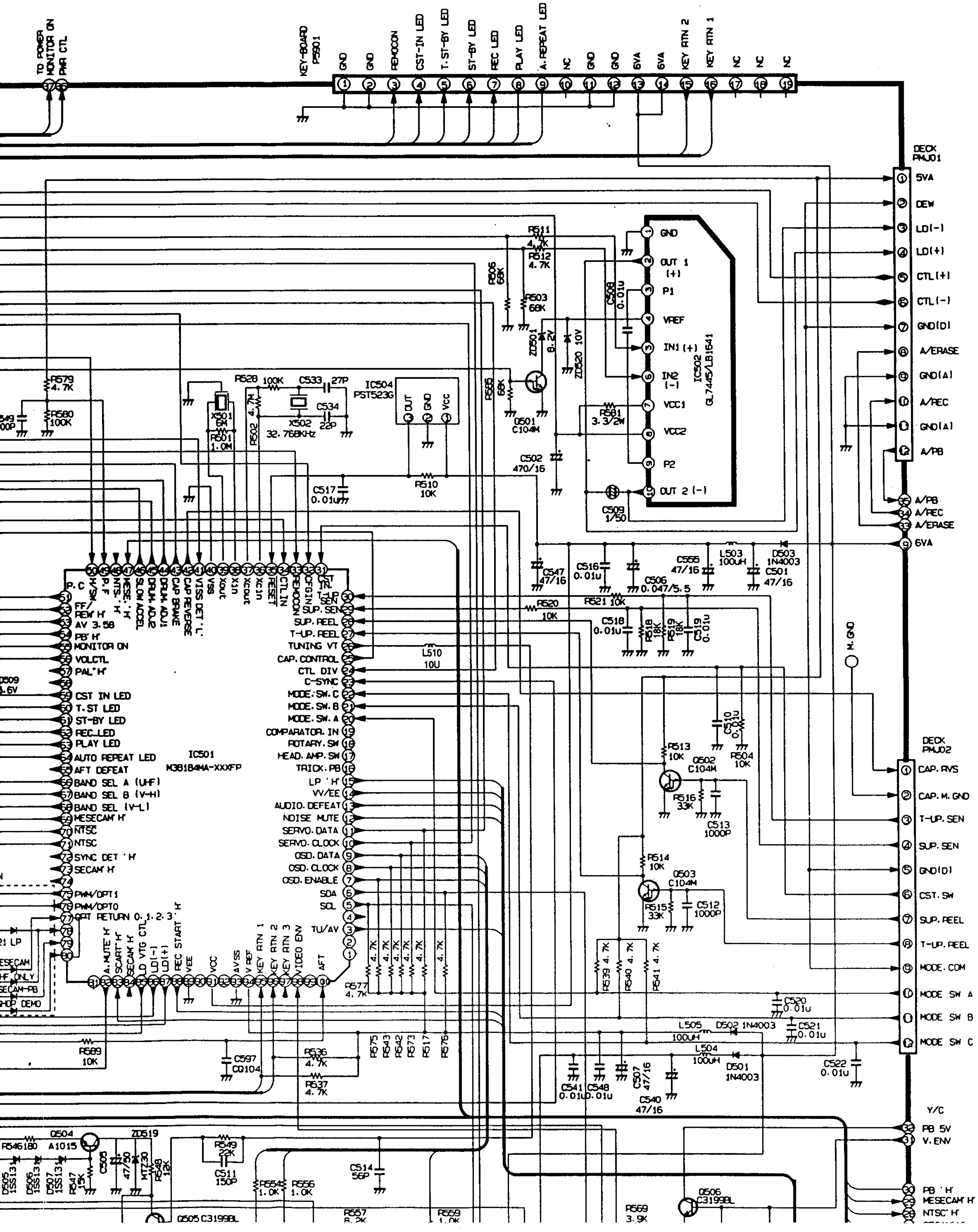




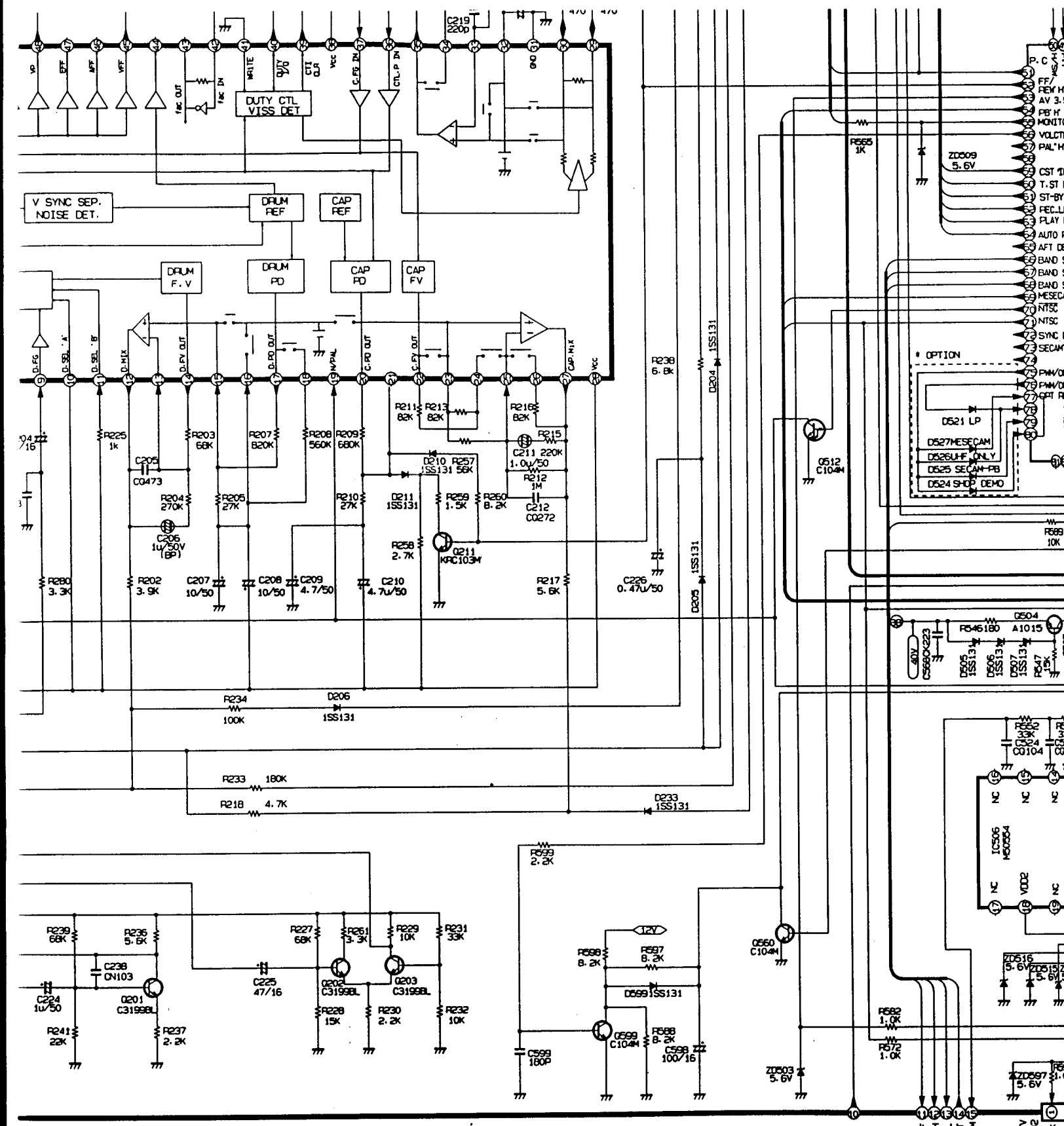
TO POWER MONITOR ON
PWR CTL
Q206 A1266Y
L203 100u
R240 4.7K
R250 2.2K
C228 47/16
Q208 C104M
C230 100/16
R264 1K
C233 22P
X201 3.58MHZ
R251 5.6K
R290 1K
C234 100P
R252 330K
C235 330P
C236 220P
Q209 C3199BL
R253 560
D203 1SS131
R263 5.6K
C223 1000P
C229 0.1u/50
R224 100K
Q204 C3199BL
R292 180K
D207 1SS131
D212 1SS131
R223 1.0M
R222 680
C237 0.01u
R235 100K
C215 33u/16
C218 82P
R221 12K
C214 C0472
C221 C0473
C216 22u/16
R220 470
R219 470
C219 220p
R579 4.7K
C549 1000P
R580 100K
HD
VP
EFF
AFF
VFF
fsc OUT
fsc IN
WRITE
DUTY T/0
CTI CLR
Vcc
C.FG IN
CTL.P IN
GND
DUTY CTL VISS DET
V SYNC SEP. NOISE DET.
DRUM REF
CAP REF
FF VP GEN.
DRUM F.V
DRUM PD
CAP PD
CAP FV
FG IN
GND
D.FG
D.SEL 'A'
D.SEL 'B'
D.MIX
D.FV OUT
D.PD OUT
N/PAL
C.PD OUT
C.FV OUT
CAP.MIX
Vcc
C204 10/16
R225 1k
C205 C0473
R203 68K
R207 820K
R208 560K
R209 680K
R211 82K
R213 82K
R216 82K
R215 220K
C211 1.0u/50
D210 1SS131
R257 56K
R212 1M
C212 C0272
C203 C0223
R204 270K
R205 27K
C206 1u/50V (BP)
R210 27K
D211 1SS131
R259 1.5K
R260 8.2K
R258 2.7K
Q211 KRC103M
C202 10/16
R280 3.3K
R202 3.9K
C207 10/50
C208 10/50
C209 4.7/50
C210 4.7u/50
R217 5.6K
C226 0.47u/50
R238 6.8K
D204 1SS131
D205 1SS131
R234
D206
R565 1K
ZD509 5.6V
Q512 C104M
* OPTION
D521 LP
D527MESECAM
D526UHF ONLY
D525 SECAM-PB
D524 SHOP DEMO
R546180
D504 A1015
40V
C568CK223
D505 1SS131
D506 1SS131
D507 1SS131
R547

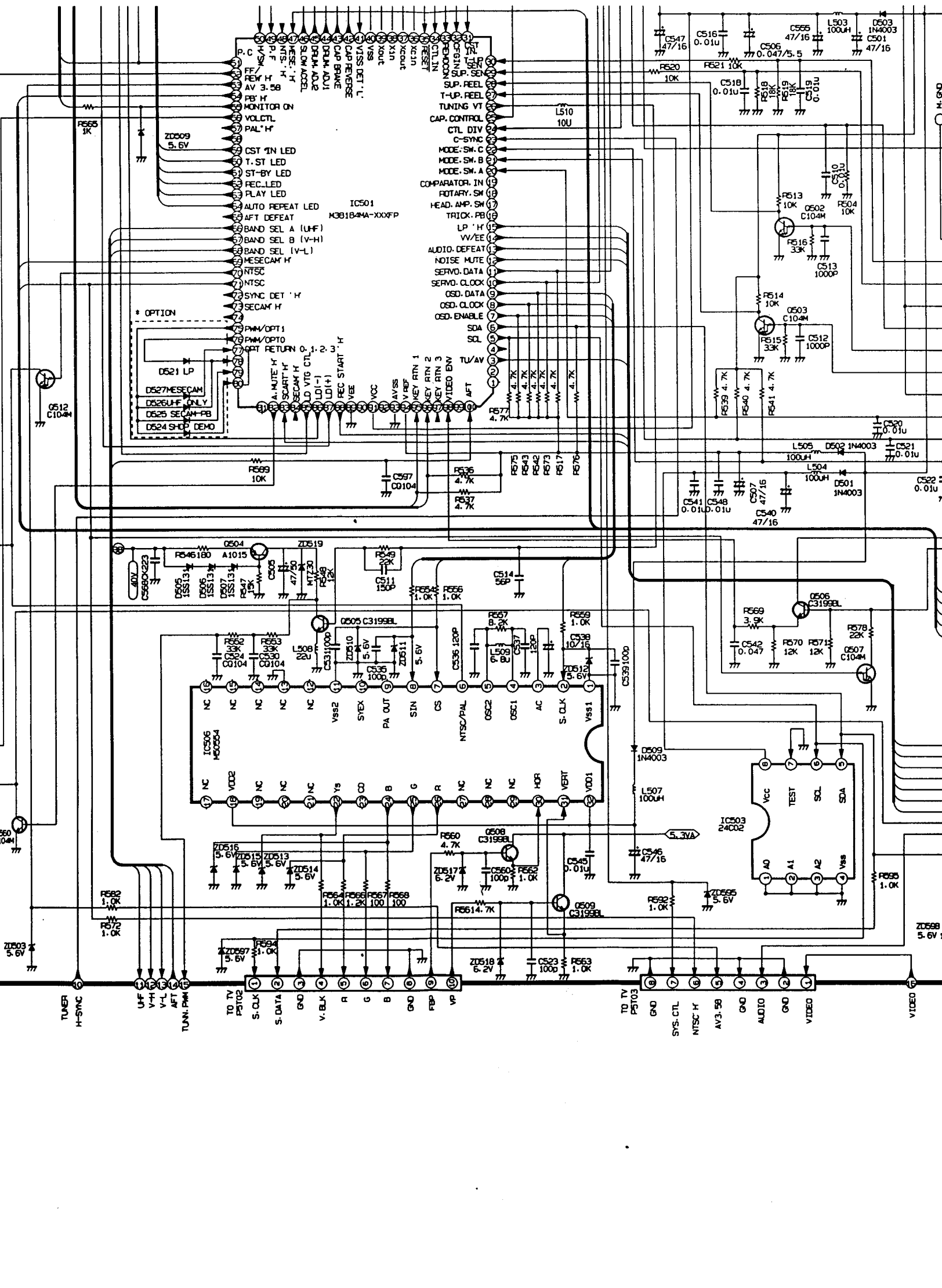


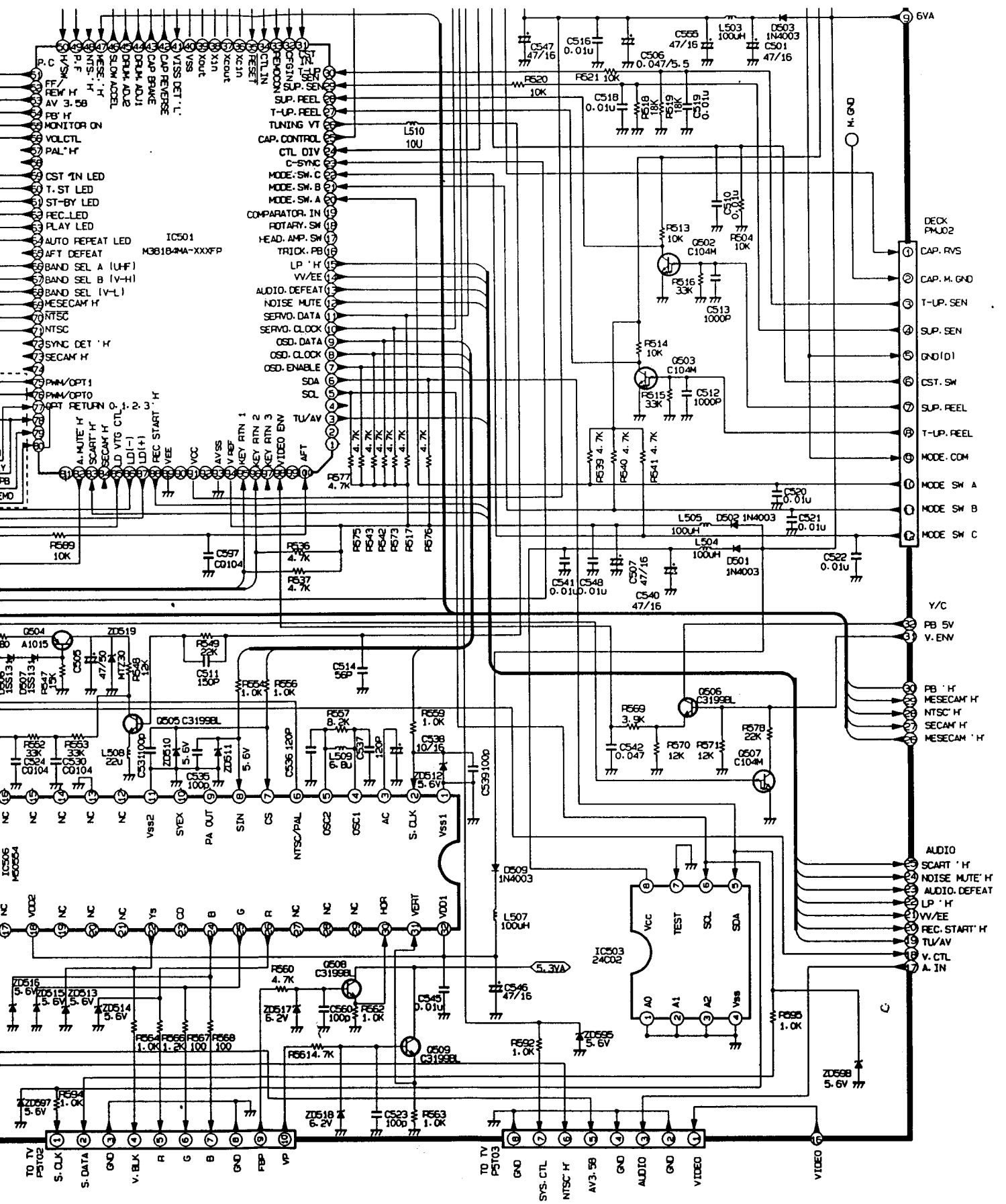
TO POWER MONITOR ON
PWR CTL
KEY-BOARD P5901
GND
REMOCON
CST-IN LED
T.ST-BY LED
ST-BY LED
REC LED
PLAY LED
A.REPEAT LED
NC
6VA
KEY RTN 2
KEY RTN 1
IC502 GL7445/LB1641
OUT 1 (+)
P1
VREF
IN1 (+)
IN2 (-)
VCC1
VCC2
P2
OUT 2 (-)
IC504 PST523G
OUT
Vcc
X501 6M
X502 32.768KHz
IC501 M38184MA-XXXFP
P.C
FF/ REW 'H'
AV 3.58
PB 'H'
MONITOR ON
VOLCTL
PAL 'H'
CST IN LED
T.ST LED
ST-BY LED
REC.LED
PLAY LED
AUTO REPEAT LED
AFT DEFEAT
BAND SEL A (UHF)
BAND SEL B (V-H)
BAND SEL (V-L)
MESECAM 'H'
NTSC
SYNC DET 'H'
SECAM 'H'
PWM/OPT1
PWM/OPT0
OPT RETURN 0.1.2.3 'H'
* OPTION
D521 LP
D527 MESECAM
D526 UHF ONLY
D525 SECAM-PB
D524 SHOP DEMO
T-UP SEN
SUP. SEN
SUP. REEL
T-UP. REEL
TUNING VT
CAP. CONTROL
CTL DIV
C-SYNC
MODE. SW. C
MODE. SW. B
MODE. SW. A
COMPARATOR. IN
ROTARY. SW
HEAD. AMP. SW
TRICK. PB
LP 'H'
VV/EE
AUDIO. DEFEAT
NOISE MUTE
SERVO. DATA
SERVO. CLOCK
OSD. DATA
OSD. CLOCK
OSD. ENABLE
SDA
SCL
TU/AV
A.MUTE 'H'
SCART 'H'
SECAM 'H'
LD VTG CTL
LD (-)
LD (+)
REC START 'H'
VEE
VCC
AVSS
VREF
KEY RTN 1
KEY RTN 2
KEY RTN 3
VIDEO ENV
AFT
W/SW
P.F
NTSC 'H'
MESE 'H'
SLOW ADCEL
DRUM. ADJ2
DRUM. ADJ1
CAP BRAKE
CAP REVERSE
VISS DET 'L'
VSS
Xout
Xin
Xcout
Xcin
RESET
CTL IN
REMOCON
CFG IN
CST IN
Q501 C104M
Q502 C104M
Q503 C104M
Q504 A1015
Q505 C3199BL
Q506 C3199BL
Q512 C104M
ZD501 8.2V
ZD520 10V
ZD509 5.6V
ZD519
L503 100uH
L504 100uH
L505 100uH
L510 10U
D501 1N4003
D502 1N4003
D204 1SS131
D505 1SS131
D506 1SS131
D507 1SS131



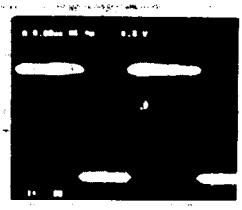
TO POWER MONITOR ON
PWR CTL
KEY-BOARD P9901
GND
GND
REMOCON
CST-IN LED
T.ST-BY LED
ST-BY LED
REC LED
PLAY LED
A.REPEAT LED
NC
GND
GND
6VA
6VA
KEY RTN 2
KEY RTN 1
NC
NC
NC
DECK PMJ01
5VA
DEW
LD(-)
LD(+)
CTL(+)
CTL(-)
GND(D)
A/ERASE
GND(A)
A/REC
GND(A)
A/PB
R511 4.7K
R512 4.7K
R506 68K
R503 68K
C508 0.01u
ZD501 8.2V
ZD520 10V
GND
OUT 1 (+)
P1
VREF
IN1 (+)
IN2 (-)
VCC1
VCC2
P2
OUT 2 (-)
IC502 GL7445/LB1641
R581 3.3/2W
C502 470/16
C509 1/50
R585 68K
Q501 C104M
R579 4.7K
R580 100K
R528 100K
C533 27P
C534 22P
X501 6M
X502 32.768KHz
R501 1.0M
R502 4.7K
IC504 PST523G
OUT
GND
Vcc
C517 0.01u
R510 10K
A/PB
A/REC
A/ERASE
6VA
C547 47/16
C516 0.01u
C506 0.047/5.5
C555 47/16
L503 100uH
D503 1N4003
C501 47/16
R520 10K
R521 10K
C518 0.01u
R518 18K
R519 18K
C519 0.01u
L510 10U
M.GND
C510 0.01u
R513 10K
Q502 C104M
R504 10K
R516 33K
C513 1000P
R514 10K
Q503 C104M
R515 33K
C512 1000P
DECK PMJ02
CAP. RVS
CAP. M. GND
T-UP. SEN
SUP. SEN
GND(D)
CST. SW
SUP. REEL
T-UP. REEL
MODE. COM
MODE SW A
MODE SW B
MODE SW C
R539 4.7K
R540 4.7K
R541 4.7K
C520 0.01u
C521 0.01u
L505 100uH
D502 1N4003
L504 100uH
D501 1N4003
C522 0.01u
C541 0.01u
C548 0.01u
C507 47/16
C540 47/16
IC501 M38184MA-XXXFP
P.C
W/SW
P.F
NTS.'H'
MESE.'H'
SLOW ACCEL
DRUM ADJ2
DRUM ADJ1
CAP BRAKE
CAP REVERSE
VISS DET 'L'
VSS
Xout
Xin
Xcout
Xcin
RESET
CTLIN
REMOCON
CFGIN
CST IN T-UP SEN
FF/REW 'H'
AV 3.58
PB 'H'
MONITOR ON
VOLCTL
PAL 'H'
CST IN LED
T.ST LED
ST-BY LED
REC LED
PLAY LED
AUTO REPEAT LED
AFT DEFEAT
BAND SEL A (UHF)
BAND SEL B (V-H)
BAND SEL (V-L)
MESECAM 'H'
NTSC
NTSC
SYNC DET 'H'
SECAM 'H'
PWM/OPT1
PWM/OPT0
OPT RETURN 0.1.2.3
SUP. SEN
SUP. REEL
T-UP. REEL
TUNING VT
CAP. CONTROL
CTL DIV
C-SYNC
MODE. SW. C
MODE. SW. B
MODE. SW. A
COMPARATOR. IN
ROTARY. SW
HEAD. AMP. SW
TRICK. PB
LP 'H'
V/EE
AUDIO. DEFEAT
NOISE MUTE
SERVO. DATA
SERVO. CLOCK
OSD. DATA
OSD. CLOCK
OSD. ENABLE
SDA
SCL
TU/AV
A. MUTE 'H'
SCART 'H'
SECAM 'H'
LD VTG CTL
LD(-)
LD(+)
REC START 'H'
VEE
VCC
AVSS
V REF
KEY RTN 1
KEY RTN 2
KEY RTN 3
VIDEO ENV
AFT
R577 4.7K
R575
R543
R542
R573
R517
R576
R589 10K
C597 C0104
R536 4.7K
R537 4.7K
Y/C
PB 5V
V. ENV
PB 'H'
MESECAM 'H'
NTSC 'H'
Q504 A1015
R546 180
ZD519
D505 1SS133
D506 1SS133
D507 1SS133
R547 15K
C505
47/50
MTZ30
R548 12K
R549 22K
C511 150P
C514 56P
R554 1.0K
R556 1.0K
Q506 C3199BL
R569 3.9K
Q505 C3199BL
R557 8.2K
R559 1.0K


DUTY CTL
VISS DET
V SYNC SEP.
NOISE DET.
DRUM
REF
CAP
REF
DRUM
F.V
DRUM
PD
CAP
PD
CAP
FV
* OPTION
D521 LP
D527MESECAM
D526UHF ONLY
D525 SECAM-PB
D524 SHOP DEMO
TUNER
H-SYNC
UHF
V-H
V-L
AFT
TUN. PWM
TO TV
P5102
S. CLK

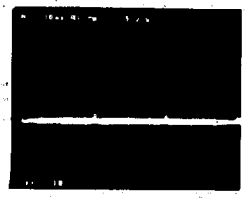

IC501
M38184MA-XXXFP
* OPTION
D521 LP
D527MESECAM
D526UHF ONLY
D525 SECAM-PB
D524 SHOP DEMO
IC506
M50554
IC503
24C02
TUNER
H-SYNC
UHF
V-H
V-L
AFT
TUN. PWM
TO TV PS102
S.CLK
S.DATA
GND
V.BLK
R
G
B
GND
FBP
VP
TO TV PS103
GND
SYS.CTL
NTSC H
AV3.58
GND
AUDIO
GND
VIDEO
VIDEO

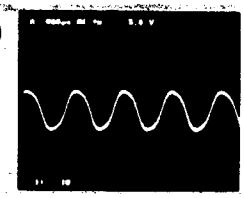

IC501
M38184MA-XXXFP
P.C
FF/REW 'H'
AV 3.5Ø
PB 'H'
MONITOR ON
VOLCTL
PAL 'H'
CST IN LED
T. ST LED
ST-BY LED
REC LED
PLAY LED
AUTO REPEAT LED
AFT DEFEAT
BAND SEL A (UHF)
BAND SEL B (V-H)
BAND SEL (V-L)
MESECAM 'H'
NTSC
SYNC DET 'H'
SECAM 'H'
PWM/OPT1
PWM/OPT0
OPT RETURN 0, 1, 2, 3
A. MUTE 'H'
SCART 'H'
SECAM 'H'
LD VTG CTL
LD(-)
LD(+)
REC START 'H'
VEE
VCC
AVSS
VREF
KEY ATN 1
KEY ATN 2
KEY ATN 3
VIDEO ENV
AFT
TU/AV
T-UP SEN
SUP. SEN
SUP. REEL
T-UP. REEL
TUNING VT
CAP. CONTROL
CTL DIV
C-SYNC
MODE. SW. C
MODE. SW. B
MODE. SW. A
COMPARATOR. IN
ROTARY. SW
HEAD. AMP. SW
TRICK. PB
LP 'H'
VV/EE
AUDIO. DEFEAT
NOISE MUTE
SERVO. DATA
SERVO. CLOCK
OSD. DATA
OSD. CLOCK
OSD. ENABLE
SDA
SCL
6VA
M. GND
DECK PMJ02
CAP. RVS
CAP. M. GND
T-UP. SEN
SUP. SEN
GND(D)
CST. SW
SUP. REEL
T-UP. REEL
MODE. COM
MODE SW A
MODE SW B
MODE SW C
Y/C
PB 5V
V. ENV
PB 'H'
MESECAM 'H'
NTSC 'H'
SECAM 'H'
MESECAM 'H'
AUDIO
SCART 'H'
NOISE MUTE 'H'
AUDIO. DEFEAT
LP 'H'
VV/EE
REC. START 'H'
TU/AV
V. CTL
A. IN
IC503
24C02
5.3VA
TO TV P5T02
S. CLK
S. DATA
GND
V. BLK
R
G
B
GND
FBP
VP
TO TV P5T03
GND
SYS. CTL
NTSC 'H'
AV3.5Ø
GND
AUDIO
GND
VIDEO
VIDEO

3-1. Servo Oscilloscope Waveform

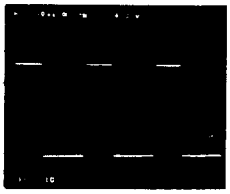
① 
IC201 Pin①
TRK TRIGGER

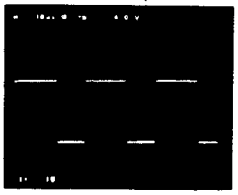
② 
IC201 Pin⑥
PG M.M

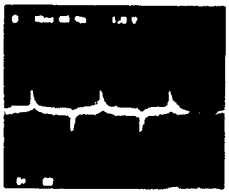
③ 
IC201 Pin⑦
DRUM P.G

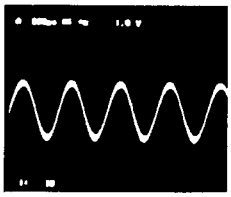
④ 
IC201 Pin⑨
DRUM F.G

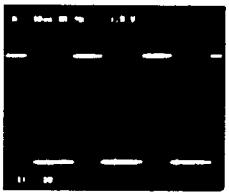
⑤ 
IC201 Pin㉗
SLOW CONTROL

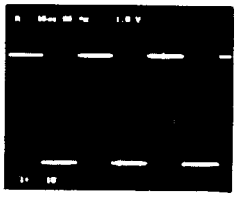
⑥ 
IC201 Pin㉙
REC CTL

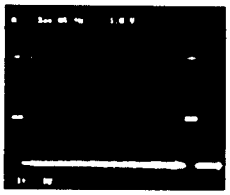
⑦ 
IC201 Pin㉚
REC CTOL

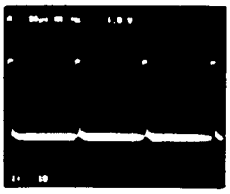
⑧ 
IC201 Pin㉟
REC CTL

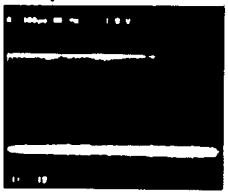
⑨ 
IC201 Pin㊲
CAPSTAN F.G

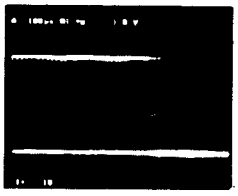
⑩ 
IC201 Pin㊴
CLOCK CTL

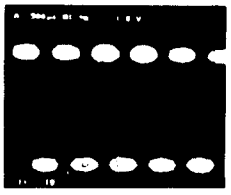
⑪ 
IC201 Pin㊺
SW30

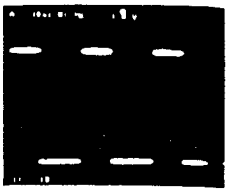
⑫ 
IC201 Pin㊽
DV. SYNC

⑬ 
IC201 Pin㊿
COMPOSITE SYNC

⑭ 
IC201 Pin㊸90
SERIAL DATA

⑮ 
IC201 Pin㊹
SERIAL CLOCK

⑯ 
IC201 Pin㊺
CFG C.D

⑰ 
IC201 Pin㊻
CTL C.D

4. Key Schematic Diagram

IC201 Pin50
COMPOSITE SYNC

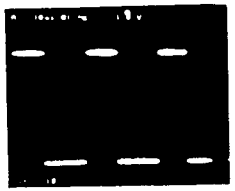
IC201 Pin53 90
SERIAL DATA

IC201 Pin54
SERIAL CLOCK

IC201 Pin55
CFG C.D

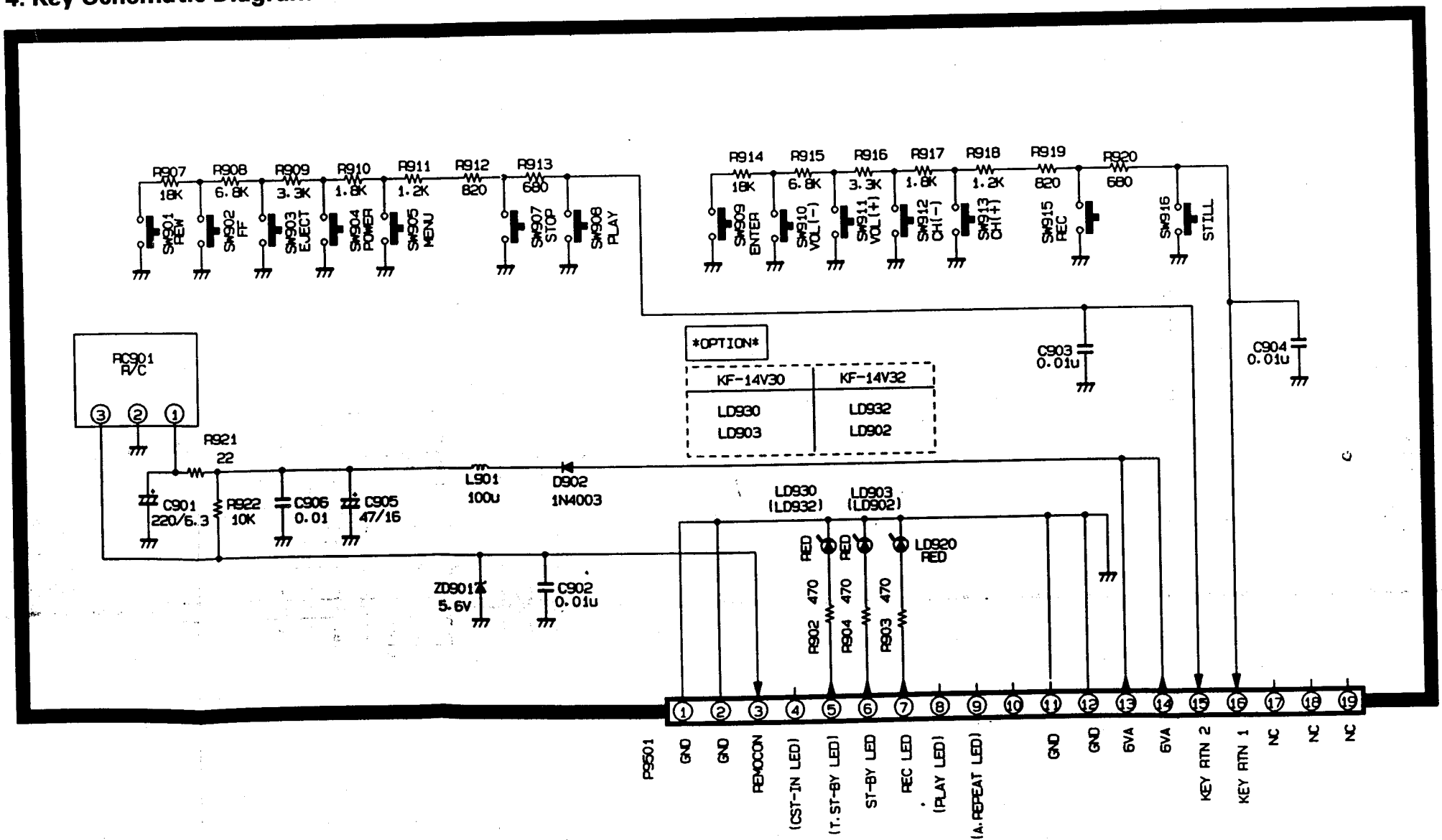
52	3
53	0.8
54	1.0
55	2.5
56	2.2

⑰

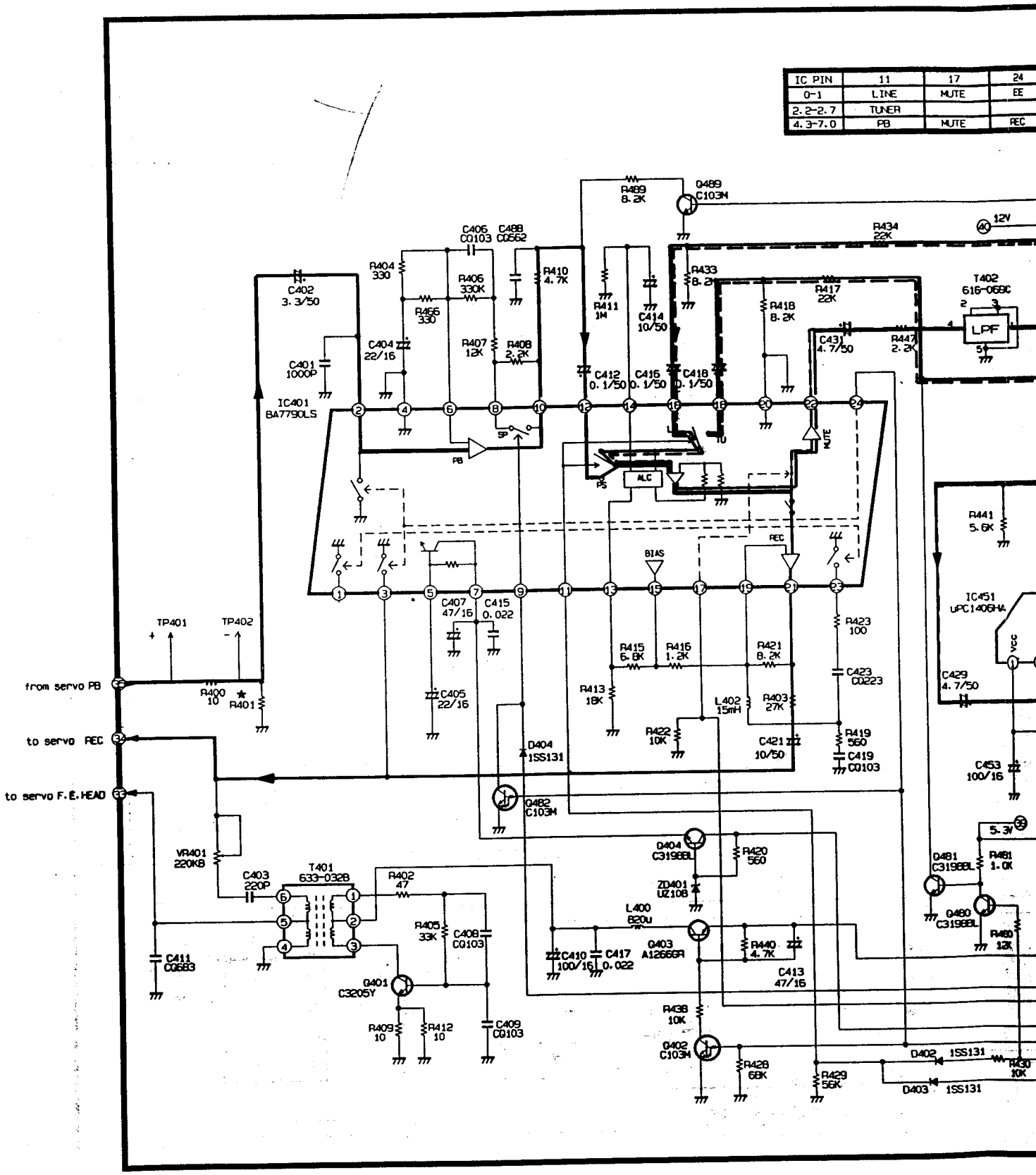


IC201 Pin56
CTL C.D

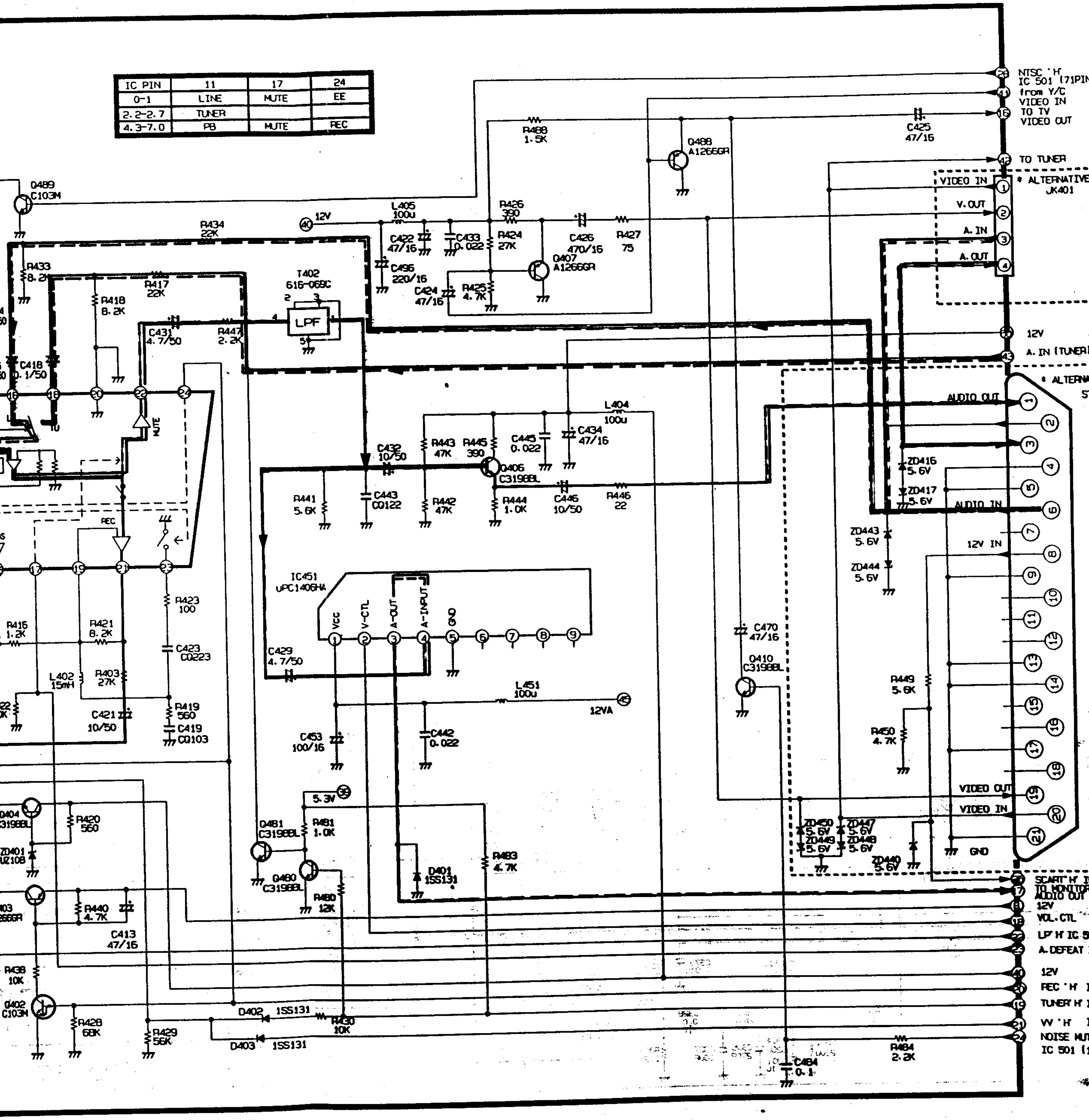
4. Key Schematic Diagram



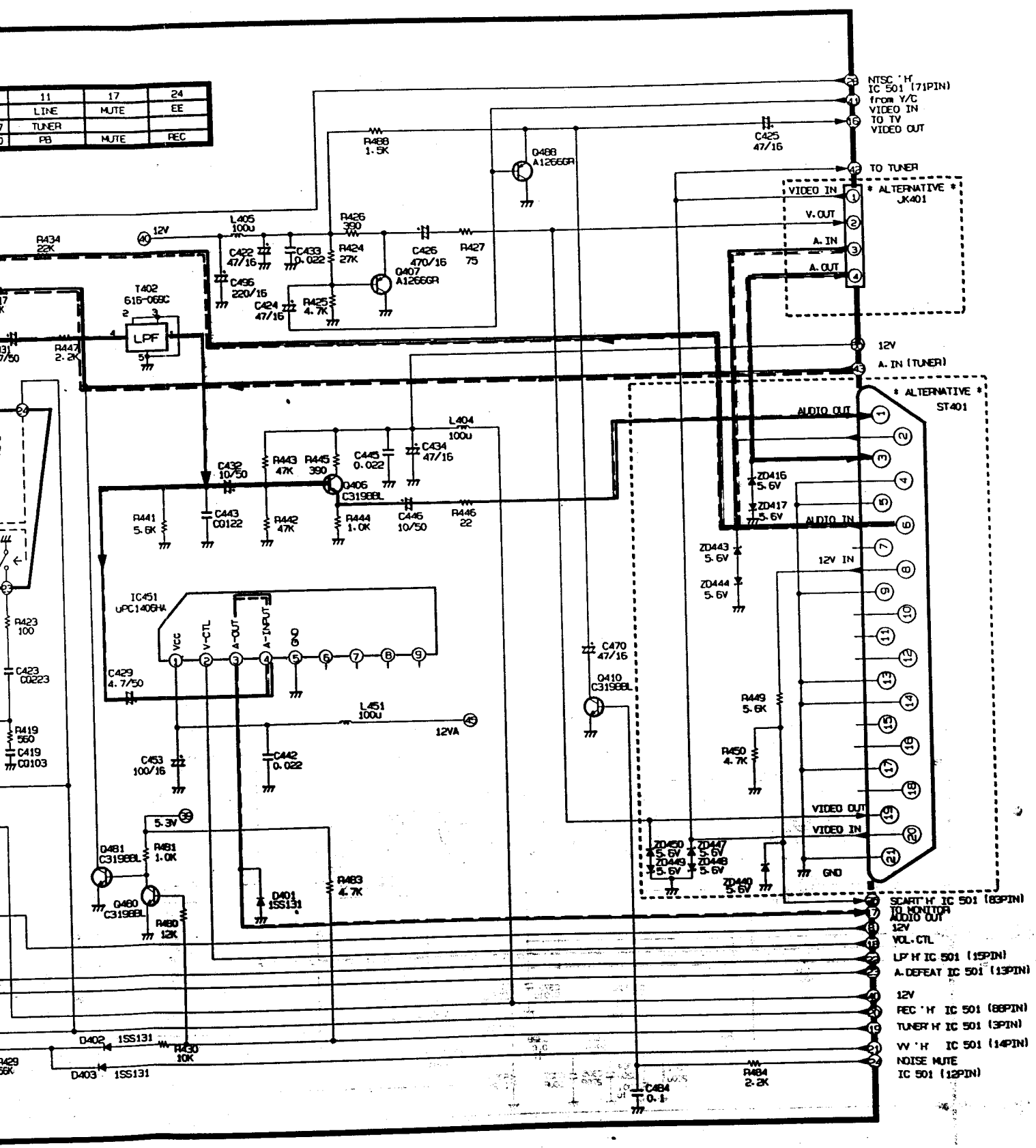
5. Audio Schematic Diagram



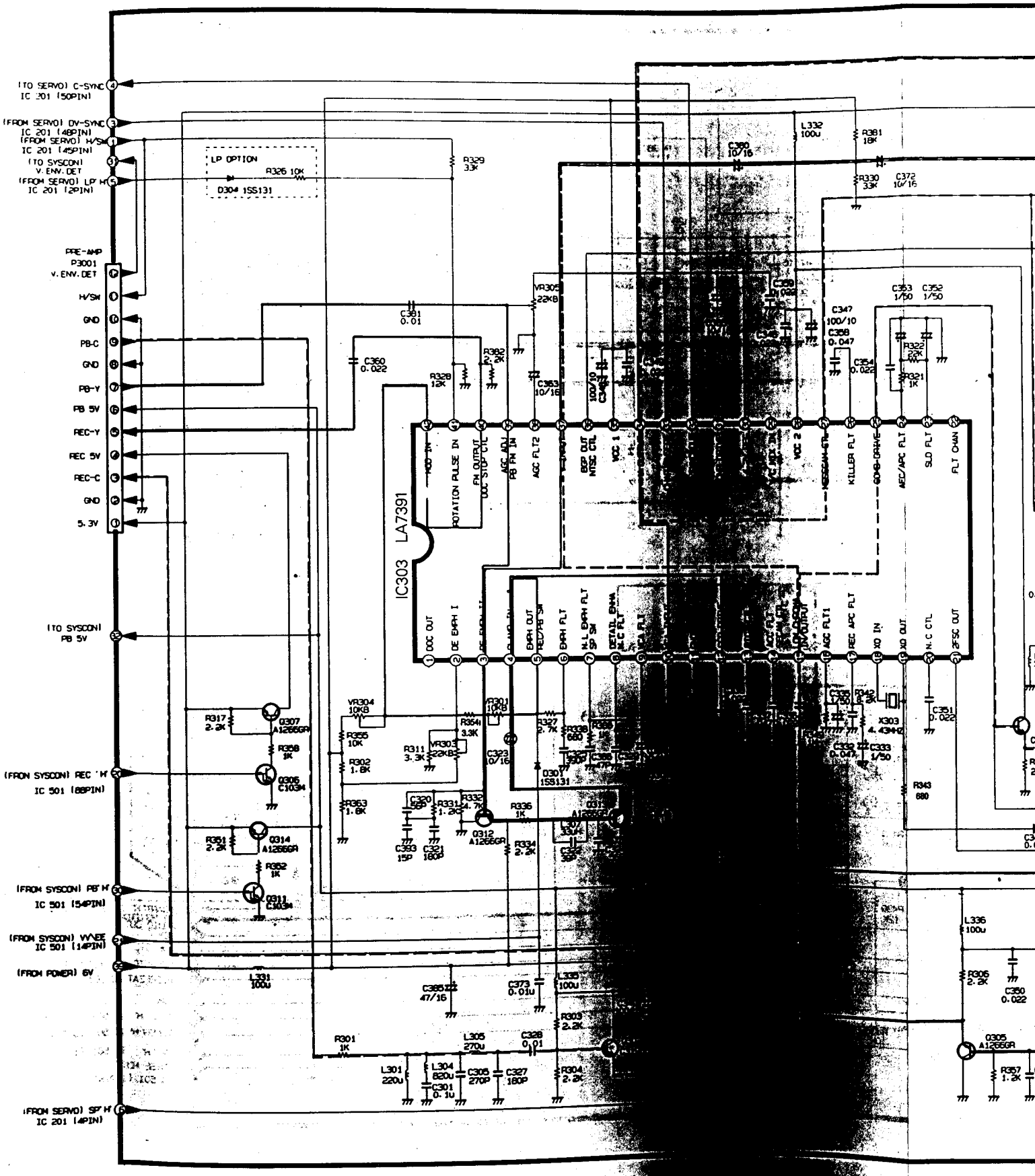
———————— REC MODE ———————— PB MODE
- - - - - - - - EE MODE



IC PIN	11	17	24
0-1	LINE	MUTE	EE
2.2-2.7	TUNER		
4.3-7.0	PB	MUTE	REC

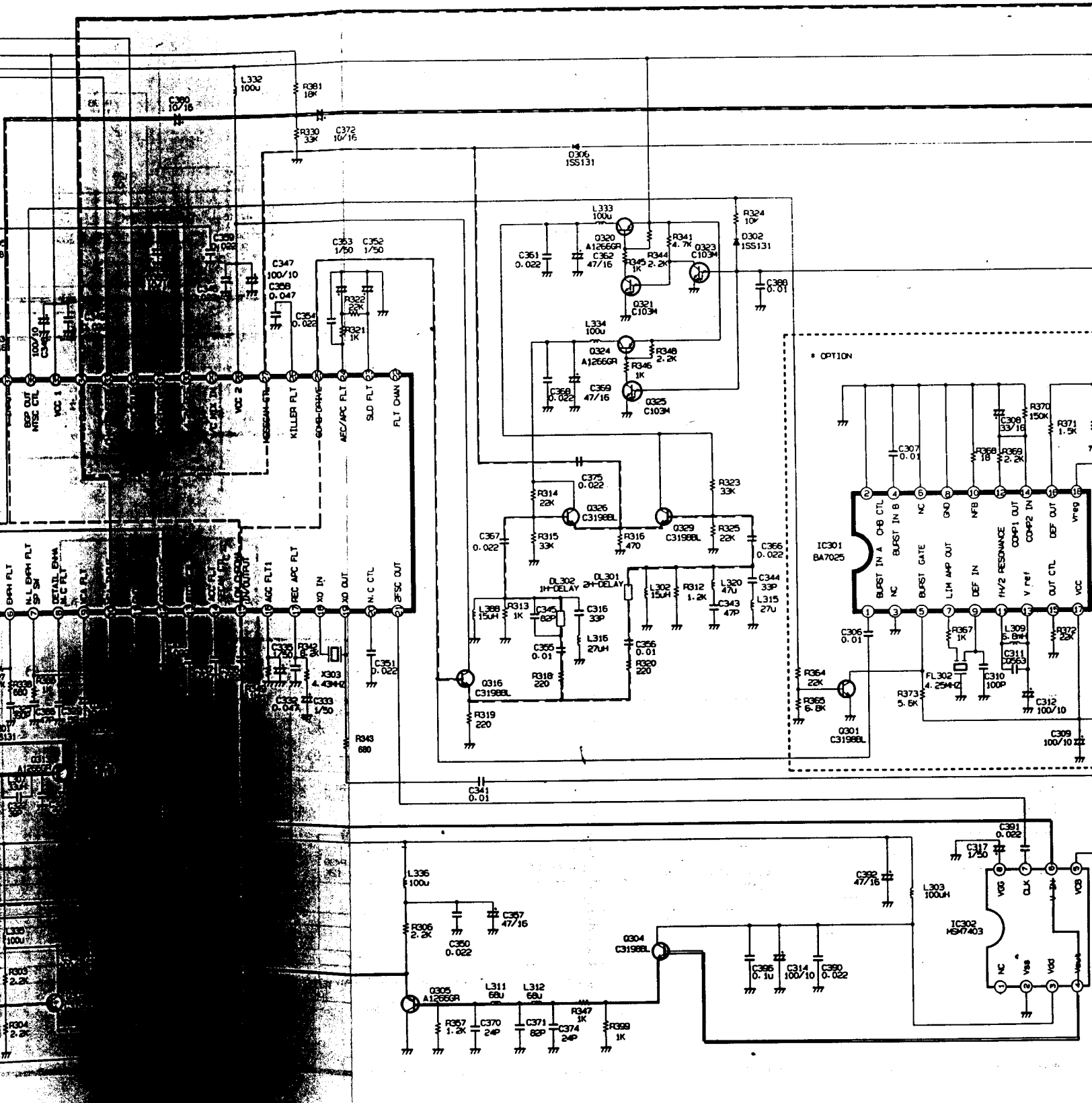

REC MODE
PB MODE
EE MODE
11 17 24
LINE MUTE EE
TUNER
PB MUTE REC
NTSC 'H' IC 501 (71PIN) from Y/C VIDEO IN
TO TV VIDEO OUT
TO TUNER
* ALTERNATIVE * JK401
VIDEO IN
V. OUT
A. IN
A. OUT
12V
A. IN (TUNER)
* ALTERNATIVE * ST401
AUDIO OUT
AUDIO IN
12V IN
VIDEO OUT
VIDEO IN
GND
SCART 'H' IC 501 (83PIN)
TO MONITOR AUDIO OUT
12V
VOL. CTL
LP 'H' IC 501 (15PIN)
A. DEFEAT IC 501 (13PIN)
12V
REC 'H' IC 501 (88PIN)
TUNER 'H' IC 501 (3PIN)
VV 'H' IC 501 (14PIN)
NOISE MUTE IC 501 (12PIN)
LPF
T402 615-068C
IC451 uPC1406HA
Q406 C3198BL
Q407 A1266GR
Q408 A1266GR
Q410 C3198BL
Q460 C3198BL
Q461 C3198BL
D401 1SS131
D402 1SS131
D403 1SS131
12VA
5.3V

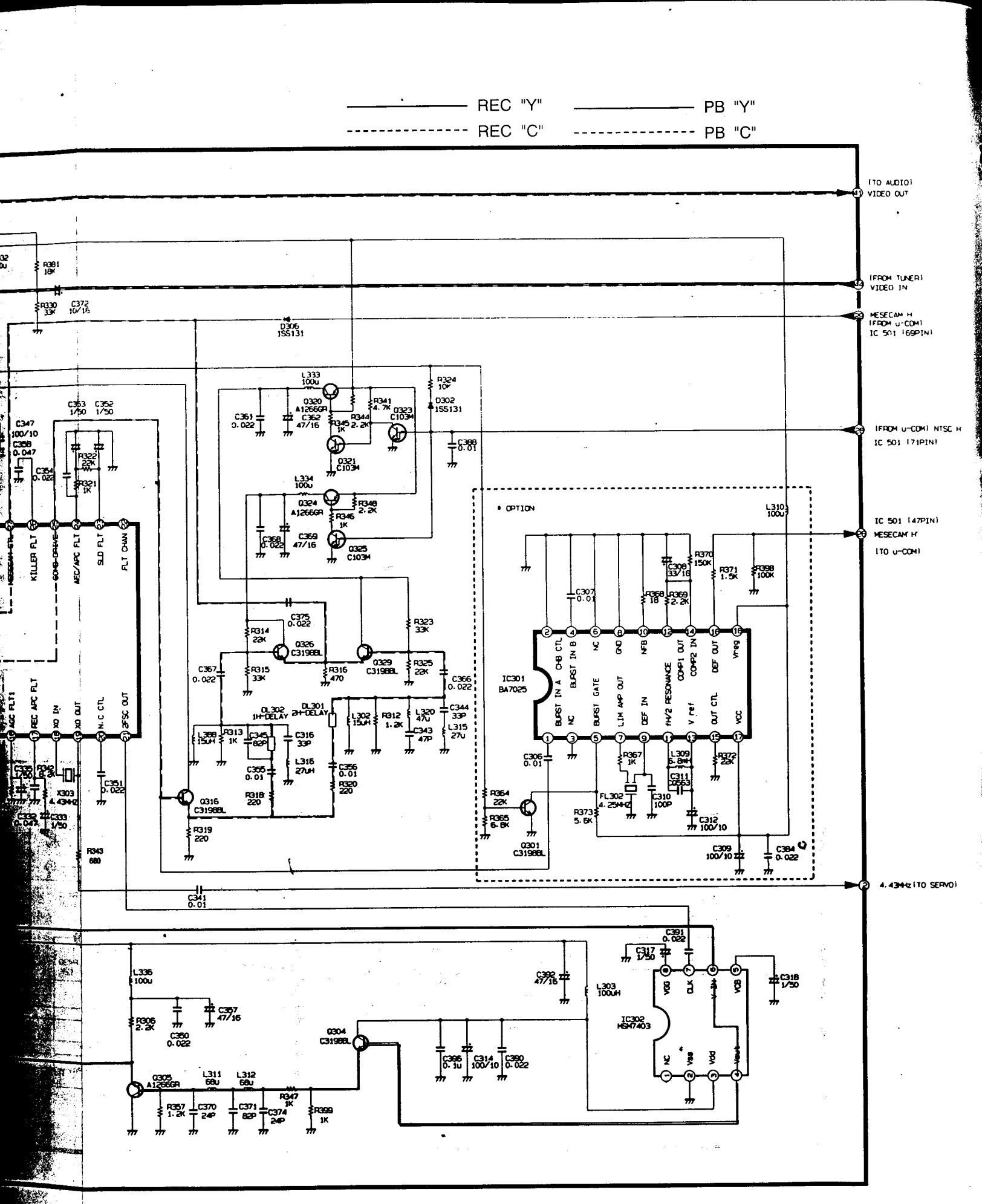
6. Y/C Schematic Diagram



REC "Y" PB "Y"

REC "C" PB "C"




REC "Y"
PB "Y"
REC "C"
PB "C"
(TO AUDIO)
VIDEO OUT
(FROM TUNER)
VIDEO IN
MESECAM H
(FROM u-COM)
IC 501 (69PIN)
(FROM u-COM) NTSC H
IC 501 (71PIN)
IC 501 (47PIN)
MESECAM H
(TO u-COM)
4.43MHz (TO SERVO)
* OPTION
IC301
BA7025
IC302
MSM7403
Q301
C3198BL
Q316
C3198BL
Q326
C3198BL
Q329
C3198BL
Q304
C3198BL
Q305
A1266GR
Q320
A1266GR
Q321
C1034
Q323
C1034
Q324
A1266GR
Q325
C1034
D306
1SS131
D302
1SS131
X303
4.43MHz
FL302
4.25MHz
DL302
1H-DELAY
DL301
2H-DELAY
L303
100uH
L310
100u
L311
68u
L312
68u
L333
100u
L334
100u
L336
100u
R381
18K
R330
33K
C372
10/16
C347
100/10
C368
0.047
C354
0.022
C353
1/50
C352
1/50
R322
22K
R321
1K
C361
0.022
C362
47/16
R345
1K
R341
4.7K
R344
2.2K
R324
10K
C369
0.01
R346
1K
R348
2.2K
C368
0.022
C369
47/16
C375
0.022
R314
22K
R315
33K
R316
470
R323
33K
R325
22K
C366
0.022
C367
0.022
R313
1K
L313
15uH
C345
82P
C316
33P
L316
27uH
C355
0.01
R318
220
C356
0.01
R320
220
L302
15uH
R312
1.2K
L320
47u
C343
47P
C344
33P
L315
27u
R319
220
C335
1760
R340
6.2K
C352
0.047
C333
1/50
C351
0.022
R343
680
C341
0.01
C307
0.01
R368
18
R369
2.2K
C308
33/16
R370
150K
R371
1.5K
R398
100K
C306
0.01
R367
1K
L309
5.8uH
C311
0.033
R372
22K
C310
100P
R364
22K
R365
6.8K
R373
5.6K
C312
100/10
C309
100/10
C384
0.022
C381
0.022
C317
1/50
C318
1/50
C392
47/16
C357
47/16
R306
2.2K
C350
0.022
C385
0.1u
C314
100/10
C380
0.022
R357
1.2K
C370
24P
C371
82P
C374
24P
R347
1K
R399
1K
AGC FLT
REC APC FLT
XO IN
XO OUT
N.C CTL
SFSC OUT
KILLER FLT
COMB DRIVE
AFC/APC FLT
SLD FLT
FLT CHAN
CHB CTL
BURST IN B
NC
GND
NFB
COMP1 OUT
COMP2 IN
DEF OUT
Vreg
BURST IN A
NC
BURST GATE
LIM AMP OUT
DEF IN
FM/2 RESONANCE
V ref
OUT CTL
VCC
VDD
CLK
VSS
VDD
NC
Vss
VDD
Vout

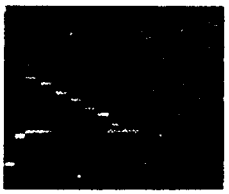
6-1. Main Analog(Y/C, Audio, Pre-Amp & Transcorder) Waveform

① 

IC 303 Pin 37
EE/REC MODE
VIDEO SIGNAL

② 

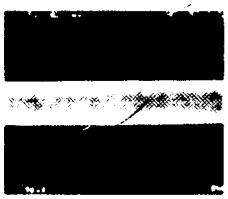
IC 303 Pin 3
EE/REC MODE
7MHz LPF OUTPUT
SIGNAL

③ 

IC303 Pin 4
EE/REC MODE
3MHz LPF OUTPUT
SIGNAL

④ 

IC303 Pin 5
EE/REC MODE
MAIN EMPHASIS
OUTPUT SIGNAL

⑤ 

IC303 Pin 40
EE/REC MODE
VIDEO FM OUTPUT
SIGNAL

⑥ 

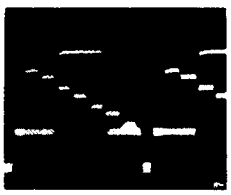
IC303 Pin 34
EE/REC MODE
VIDEO OUTPUT
SIGNAL

⑦ 

IC303 Pin 15
EE/REC 3.58MHz
MAIN CONVERTER
OUTPUT SIGNAL

⑧ 

IC303 Pin 39
PB MODE FM AGC
OUTPUT SIGNAL

⑨ 

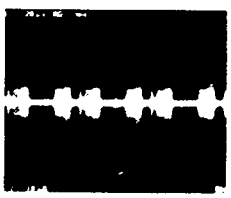
IC303 Pin 3
PB MODE 3M LPF
OUTPUT SIGNAL

⑩ 

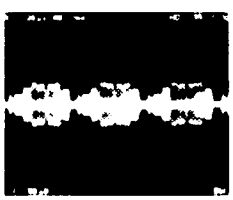
IC303 Pin 10
PB MODE 1H DELAY
OUTPUT SIGNAL

⑪ 

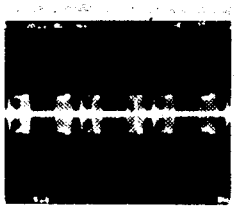
IC303 Pin 34
PB MODE VIDEO
OUTPUT SIGNAL

⑫ 

IC303 Pin 15
PB MODE 629KHz
COLOR INPUT
SIGNAL

⑬ 

IC303 Pin 25
PB MODE 3.5MHz
MAIN CONVERTER
OUTPUT SIGNAL

⑭ 

IC303 Pin 27
PB MODE COMB
FILTER OUTPUT
SINAL

⑮ 

IC303 Pin 29
PB MODE 3.58MHz
COLOR SIGNAL

* Y/C, Pre-Amp Transcorder Voltage sheet.

IC303

Mode / Pin No.	STOP	PB	REC
1	0	0.08	0.04
2	0.5	2.22	0.58
3	2.35	2.89	2.36
4	2.74	2.43	2.72
5	2.67	4.55	2.65
6	2.67	4.55	2.65
7	4.59	4.56	4.57
8	2.30	2.43	2.32
9	2.20	3.09	2.23
10	2.20	2.22	2.23
11	0	0.00	0.0
12	2.04	2.01	2.04
13	2.55	2.51	2.54
14	1.26	2.30	1.64
15	3.06	2.97	3.06
16	2.47	2.26	2.46
17	2.16	2.13	2.15
18	3.72	3.66	3.71
19	2.53	2.50	3.27
20	1.19	2.29	1.18
21	4.57	4.52	4.57
22	0.03	0.03	0
23	3.26	3.26	3.26
24	3.26	3.27	3.27
25	2.46	2.44	2.45
26	1.88	1.99	2.01
27	4.65	1.96	1.97
28	5.02	4.96	4.99
29	0.04	0.04	0.04
30	4.14	4.14	4.14
31	2.59	2.65	2.59
32	0.52	0.53	0.52
33	0.05	0.06	0.06
34	0.01	0.01	1.96
35	5.02	4.97	4.99
36	0.54	0.54	0.54
37	3.21	3.20	3.19
38	1.37	1.44	1.36
39	3.29	3.28	3.29
40	3.13	3.67	3.11
41	0.09	0.72	0.73
42	2.43	2.73	2.40

IC301

Mode / Pin No.	STOP	PB	REC
1	3.67	3.64	3.65
2	0	0	0
3	0	0	0
4	3.67	3.64	3.65
5	4.60	4.58	4.59
6	0	0	0.0
7	4.48	4.45	4.46
8	0	0	0
9	3.11	3.09	3.10
10	0.01	0.01	0.01
11	3.58	3.60	3.57
12	0	0.24	0.01
13	0.02	3.61	3.58
14	0	0.22	0
15	0	0	0
16	0	0	0
17	5.09	5.06	5.07
18	5.09	5.06	5.07

IC302

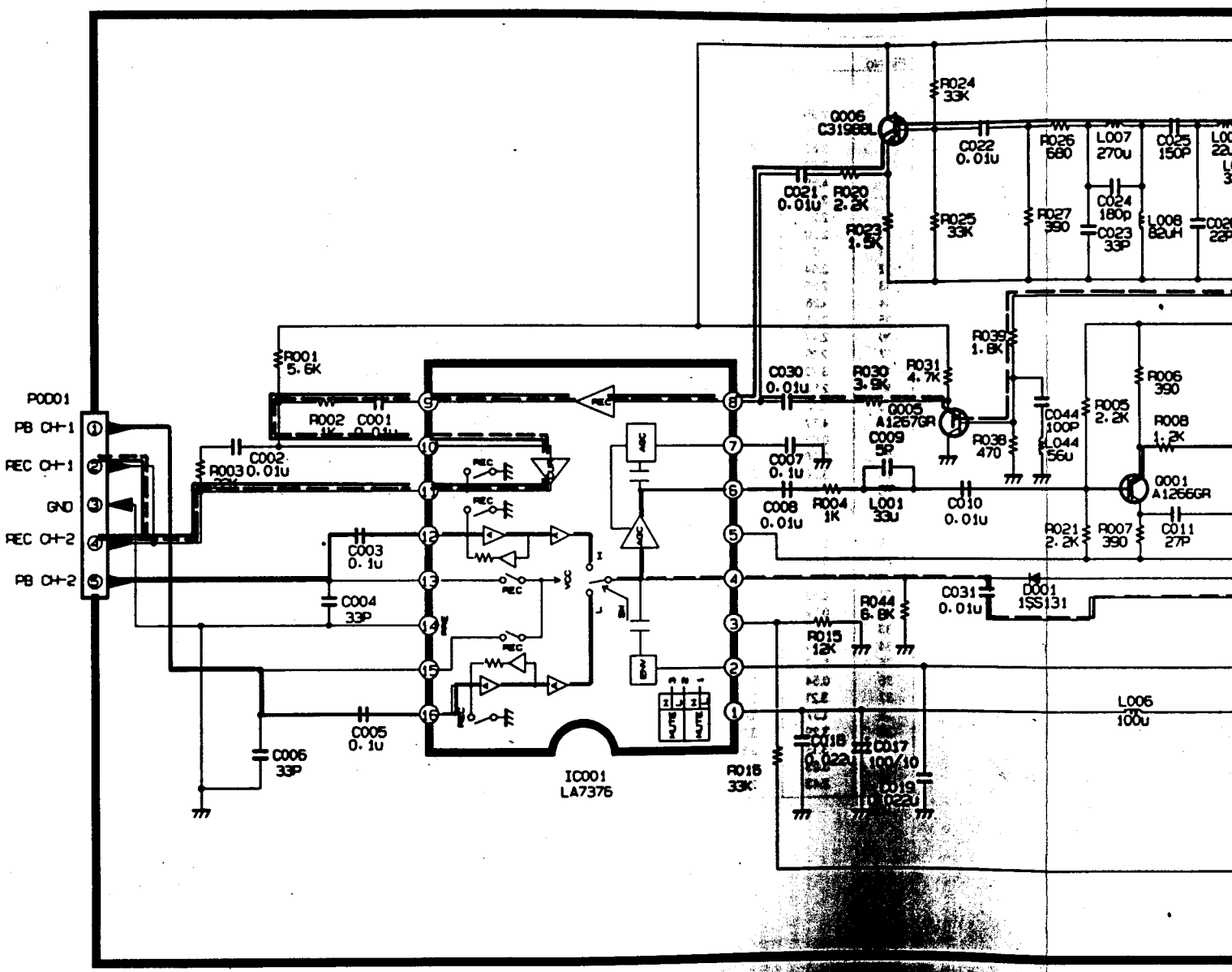
Mode / Pin No.	STOP	PB	REC
1	0.04	4.98	0.04
2	0.00	0.00	0.00
3	0.04	4.98	0.04
4	0.05	3.48	0.05
5	0.15	2.09	0.25
6	0.55	2.03	1.3
7	0.00	2.54	0.0
8	0.04	8.63	0.04

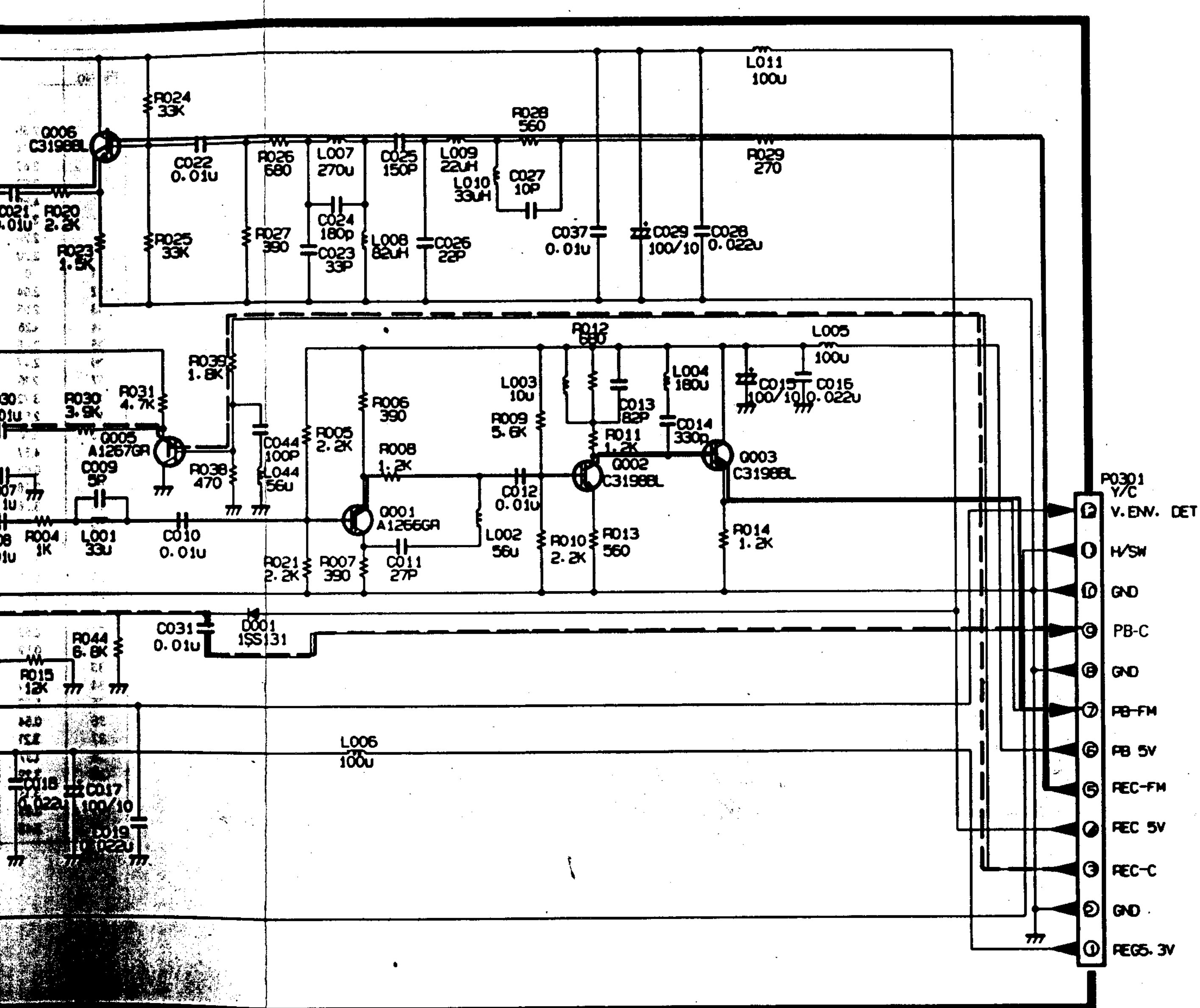
* Audio Circuit Voltage Sheet

IC401

Mode / Pin No	EE	REC	PB	EE	REC	PB
1	0	0	0	0	0	0
2	8.5	11.2	11.2	11.4	8.5	9
3	0	0	0	0	0	0
4	2	2	2	2	2	2
5	2	2	2	2	2	2
6	0	0	0	0	0	0
7	2	2	2	2	2	2
8	2	2	2	2	2	2
9	0	0	0	0	0	0
10	0	0	0	0	4.8	4.6
11	0	0	0	0	0	0
12	0.4	0.4	0.3	0.4	0	0
13	9.5	9.6	9.6	10	9.5	9.5
14	6	6	6	6	6	5.8
15	6	6	6	6	6	5.8
16	6	6	5.8	6	6	5.8
17	6	6	6	6	6	5.8
18	0	0	0	0	0	0
19	0	0	0	5	0	5
20	0	0	0	0	0	0
21	0	0	0	0	0	0
22	0	0	0	0	0	0
23	0.5	0.6	0.6	0.6	0.5	0.5
24	0	0	5	0	5	5
25	5.5	5.8	5.8	5.8	5.8	5.8
26	0	5	5	5	5	5
27	0	12	12	12	12	12
28	0	11.5	11.5	11.5	11.5	11.5
29	12	12	12	12	12.4	12.2
30	12	12	12	12	12.2	12.1
31	11.4	11.4	11.4	11.4	11.4	11.5
32	0	0	0	0	0	0

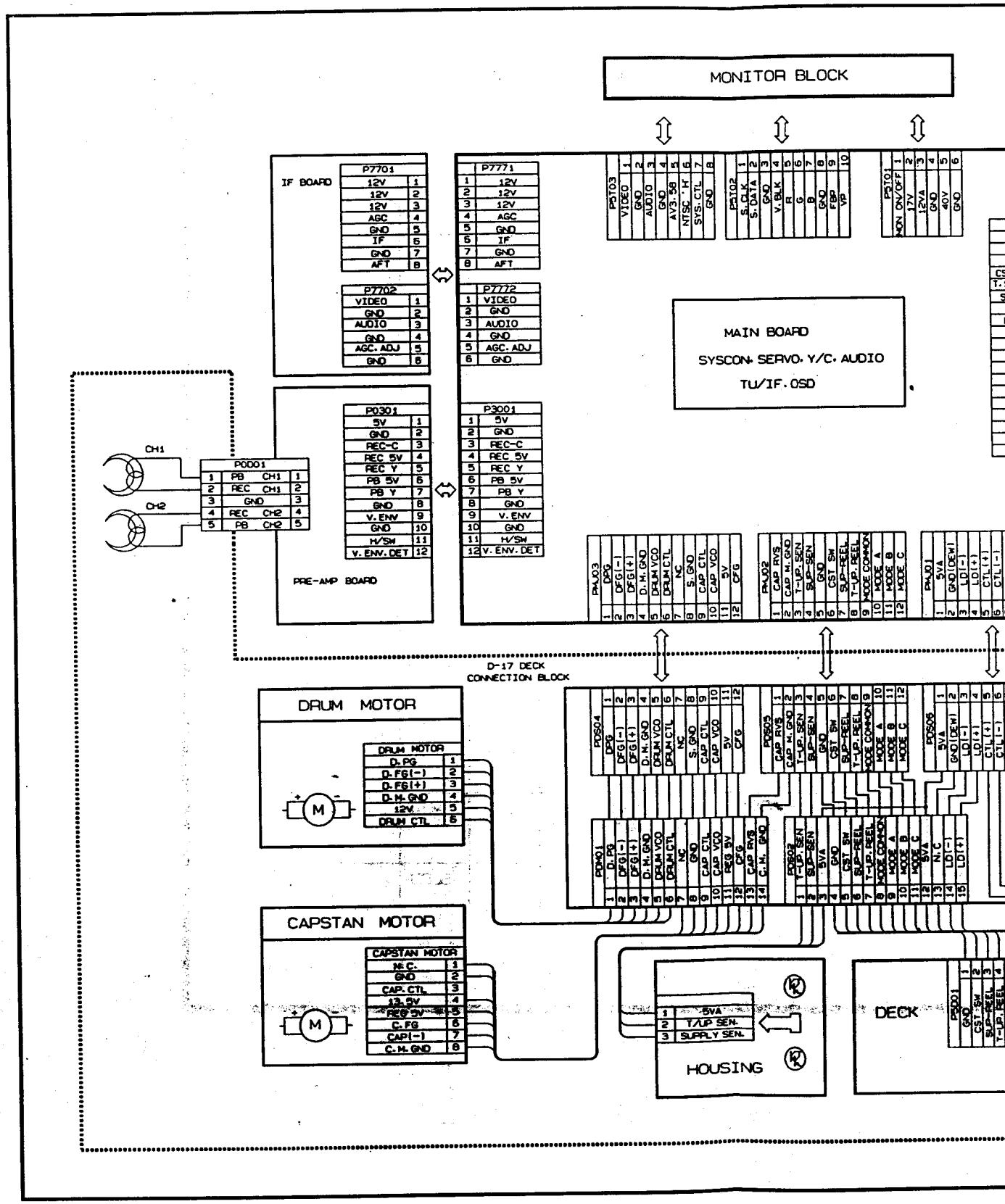
7. Pre-Amp Schematic Diagram

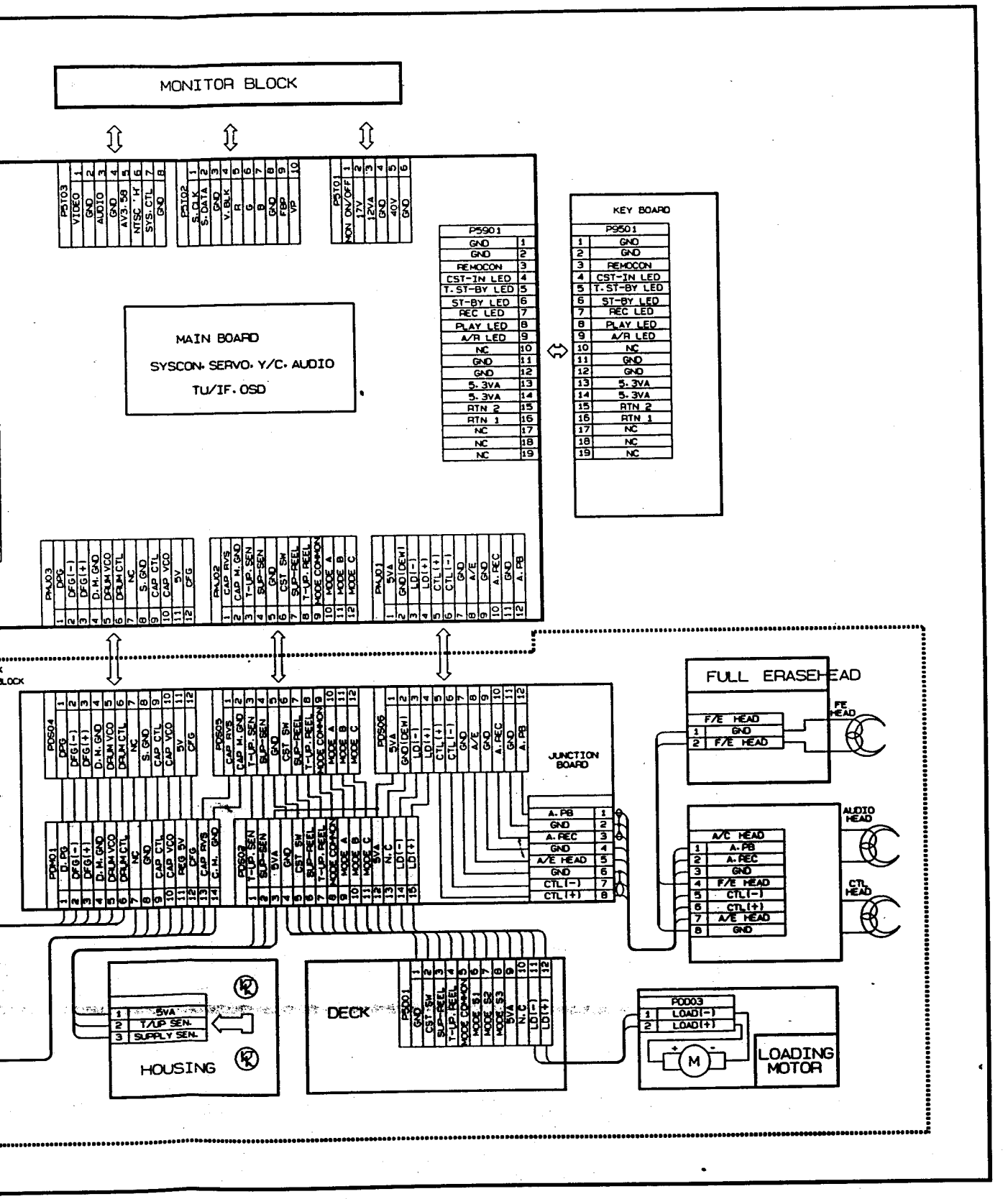




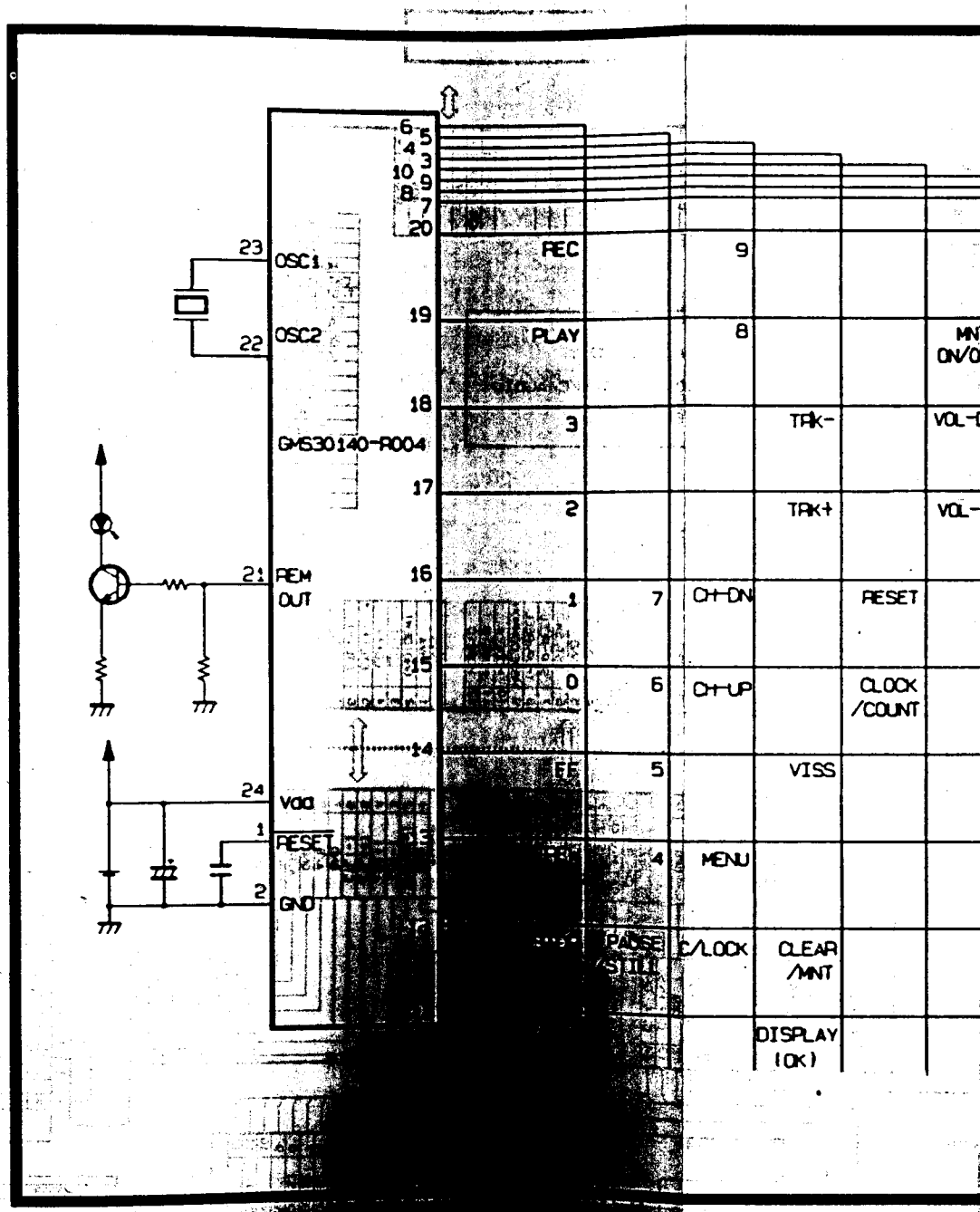
REC "Y"
REC "C"
PB "Y"
PB "C"

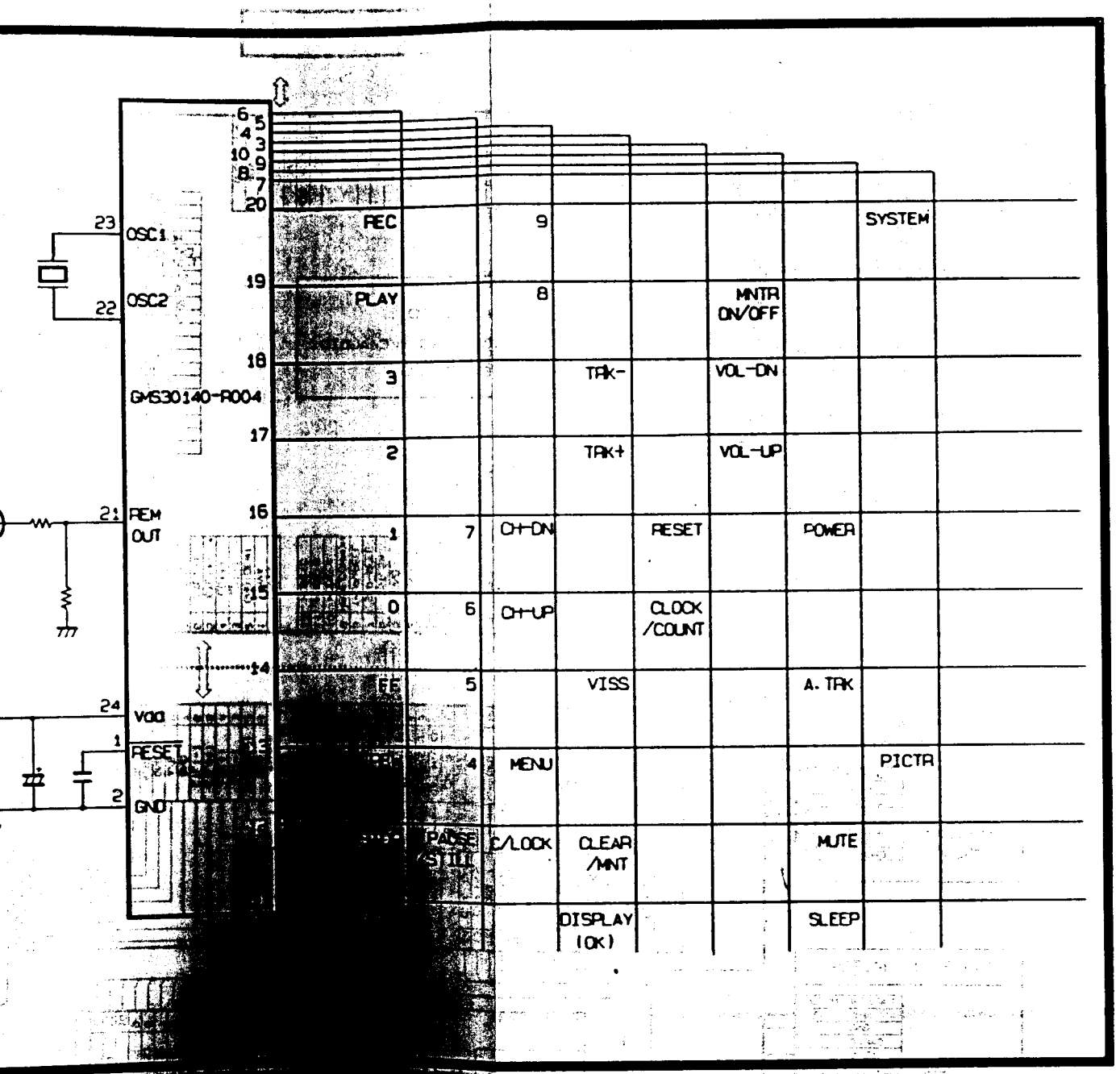
. Connection Diagram




MONITOR BLOCK
P5103
VIDEO
GND
AUDIO
GND
AV3.5V
NTSC 'H'
SYS.CTL
GND
P5102
S.CLK
S.DATA
GND
V.BLK
R
G
B
GND
FBP
VP
P5101
MON ON/OFF
17V
12VA
GND
40V
GND
P5901
GND 1
GND 2
REMOCON 3
CST-IN LED 4
T.ST-BY LED 5
ST-BY LED 6
REC LED 7
PLAY LED 8
A/R LED 9
NC 10
GND 11
GND 12
5.3VA 13
5.3VA 14
RTN 2 15
RTN 1 16
NC 17
NC 18
NC 19
KEY BOARD
P9501
1 GND
2 GND
3 REMOCON
4 CST-IN LED
5 T.ST-BY LED
6 ST-BY LED
7 REC LED
8 PLAY LED
9 A/R LED
10 NC
11 GND
12 GND
13 5.3VA
14 5.3VA
15 RTN 2
16 RTN 1
17 NC
18 NC
19 NC
MAIN BOARD
SYSCON. SERVO. Y/C. AUDIO
TU/IF. OSD
PAU03
DPG
DFG(-)
DFG(+)
D.M.GND
DRUM VCO
DRUM CTL
NC
S.GND
CAP CTL
CAP VCO
5V
DFG
PAU02
CAP RVS
CAP M.GND
T-UP.SEN
SUP-SEN
GND
CST SW
SUP-REEL
T-UP.REEL
MODE COMMON
MODE A
MODE B
MODE C
PAU01
5VA
GND(DEW)
LD(-)
LD(+)
CTL(+)
CTL(-)
GND
A/E
GND
A.REC
GND
A.PB
JUNCTION BOARD
A.PB 1
GND 2
A.REC 3
GND 4
A/E HEAD 5
GND 6
CTL(-) 7
CTL(+) 8
FULL ERASEHEAD
F/E HEAD
1 GND
2 F/E HEAD
A/C HEAD
1 A.PB
2 A.REC
3 GND
4 F/E HEAD
5 CTL(-)
6 CTL(+)
7 A/E HEAD
8 GND
AUDIO HEAD
CTL HEAD
DECK
HOUSING
1 5VA
2 T/UP SEN.
3 SUPPLY SEN.
P0003
1 LOAD(-)
2 LOAD(+)
M
LOADING MOTOR

ansmitter Schematic Diagram




OSC1
OSC2
GMS30140-R004
REM OUT
VDD
RESET
GND
REC
PLAY
3
2
1
0
FF
PAUSE STILL
9
8
7
6
5
4
CH-DN
CH-UP
MENU
C/LOCK
TRK-
TRK+
VISS
CLEAR /MNT
DISPLAY (OK)
RESET
CLOCK /COUNT
MNTR ON/OFF
VOL-DN
VOL-UP
POWER
A. TRK
MUTE
SLEEP
SYSTEM
PICTR

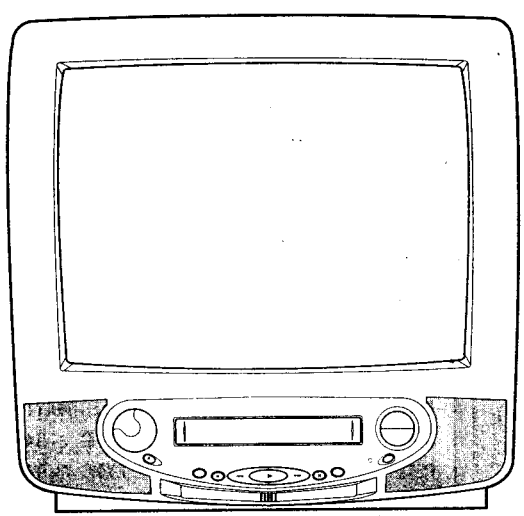
GoldStar

SECTION 4

R.P.L

VHS TVCR ViewMax™

SERVICE MANUAL



CHASSIS NO. : MC-48A

MODEL : KF-14U30
KF-20U30
KF-21U30

CONTENT

MONITOR

ELECTRICAL PARTS 4-2

NONELECTRICAL PARTS 4-6

VCR

NONELECTRICAL PARTS 4-7

ELECTRICAL PARTS 4-12

1. MONITOR
ELECTRICAL PARTS

LOCA. NO	PART NO	DESCRIPTION
		CAPACITORS
C301	0CE476DF618	C,ELECTROLYTIC 47UF STD 16V M
C302	0CQ1052K439	C,POLYESTER(MYLAR) 1UF S 50V J
C303	0CQ1031N509	C,POLYESTER(MYLAR) 0.01U 100V K
C304	0CE107DJ618	C,ELECTROLYTIC 100UF STD 35V M FL TP5
C305	0CQ2231N519	CAPACITOR POLYESTER(MYLAR) 0.022MF 100V K POLY TP
C306	0CE476DF618	C,ELECTROLYTIC 47UF STD 16V M
C307	0CN8220F579	C,TUBULA(HIGH DIELE) 8200P 16V K
C308(14")	0CE474DK618	C,ELECTROLYTIC 0.47UF STD 50V M
C308(20")	0CE104DK618	C,ELECTROLYTIC 0.1UF STD 50V M
C308(21")	0CE684DK618	C,ELECTROLYTIC 0.68UF STD 50V M
C309	181-027C	CAPACITOR TANTAL 25V 1.0UFK TP
C310	0CE108DH618	C,ELECTROLYTIC 1000UF STD 25V M
C314	0CQ1041N509	C,POLYESTER(MYLAR) 0.1MF 100V L
C315	0CE475DK618	C,ELECTROLYTIC 4.7UF STD 50V M
C316	0CQ4721N509	C,POLYESTER(MYLAR) 0.0047U 100V K
C317	0CN1010K519	C,TUBULA(HIGH DIELE) 100PF 50V K
C319	0CE105DK618	C,ELECTROLYTIC 1UF STD 50V M
C402(14")	181-015G	CAPACITOR MPP 1600V 0.0077uF H
C402(20")	181-015J	CAPACITOR MPP 1600V 0.0086uF H
C402(21")	181-015J	CAPACITOR MPP 1600V 0.0086uF H
C403	0CE1051P618	C,ELECTROLYTIC 1MF SMS 160V M
C404	0CK8210W515	C,CERAMIC(HIGH DIELE) 820PF 500V K
C405	0CN3310K519	C,TUBULA(HIGH DIELE) 330P 50V K
C406	0CE105DK618	C,ELECTROLYTIC 1UF STD 50V M
C407	0CE476DH618	C,ELECTROLYTIC 47UF STD 25V M
C408	0CE105DK618	C,ELECTROLYTIC 1UF STD 50V M
C409	0CQ2231N519	CAPACITOR POLYESTER(MYLAR) 0.022MF 100V K POLY TP
C410	0CE106DF618	C,ELECTROLYTIC 10UF STD 16V M
C411	0CN1030F679	C,TUBULA(HIGH DIELE) 0.01MF 16V M
C412	0CE476DF618	C,ELECTROLYTIC 47UF STD 16V M
C413	0CE104DK618	C,ELECTROLYTIC 0.1UF STD 50V M
C414	0CQ1031N509	C,POLYESTER(MYLAR) 0.01U 100V K
C419	0CQ1031N509	C,POLYESTER(MYLAR) 0.01U 100V K
C421	0CK8210W515	C,CERAMIC(HIGH DIELE) 820PF 500V K
C422	0CE225DP618	CAPACITOR,ELECTROLYTIC 2.2000UF STD 160V M FL TP5
C423(14")	181-013H	CAPACITOR MPP 200V 0.62uF J
C423(20")	181-013C	CAPACITOR MPP 200V 0.39uF J
C423(21")	181-013E	CAPACITOR MPP 200V 0.47uF J
C501	0CE225DK618	C,ELECTROLYTIC 2.2UF STD 50V M
C502	0CN1020K519	C,TUBULA(HIGH DIELE) 1000PF 50V K
C503	0CE225DK618	C,ELECTROLYTIC 2.2UF STD 50V M
C504	0CE106DF618	C,ELECTROLYTIC 10UF STD 16V M
C505	0CN1030F679	C,TUBULA(HIGH DIELE) 0.01MF 16V M
C506	0CE107DF618	C,ELECTROLYTIC 100UF STD 16V M
C507	0CE106DF618	C,ELECTROLYTIC 10UF STD 16V M
C508	0CE106DK618	C,ELECTROLYTIC 10UF STD 50V M
C509	0CQ4731N509	C,POLYESTER(MYLAR) 0.047U 100V K
C510	0CN1030F679	C,TUBULA(HIGH DIELE) 0.01MF 16V M
C512	0CN9100K519	C,TUBULA(HIGH DIELE) 91P 50V K
C513	0CE105DK618	C,ELECTROLYTIC 1UF STD 50V M

LOCA. NO	PART NO	DESCRIPTION
C514	0CE106DH618	CAPACITOR,ELECTROLYTIC 10UF STD 25V M FL TP5
C515	0CE476DF618	C,ELECTROLYTIC 47UF STD 16V M
C516	0CN1030F679	C,TUBULA(HIGH DIELE) 0.01MF 16V M
C517	0CX1800K409	C,TUBULA(T.C) 18PF 50V J
C519	0CN1030F679	C,TUBULA(HIGH DIELE) 0.01MF 16V M
C520	0CE104DK618	C,ELECTROLYTIC 0.1UF STD 50V M
C521	0CQ2231N519	CAPACITOR POLYESTER(MYLAR) 0.022MF 100V K POLY TP
C522	0CC1000K115	C,CERAMIC(TEMP COMP) 10PF 50V D
C523	0CC1200K415	C,CERAMIC(TEMP COMP) 12P 50V J
C524	0CQ2231N519	CAPACITOR POLYESTER(MYLAR) 0.022MF 100V K POLY TP
C525	0CE104DK618	C,ELECTROLYTIC 0.1UF STD 50V M
C526	0CE104DK618	C,ELECTROLYTIC 0.1UF STD 50V M
C527	0CQ1041N509	C,POLYESTER(MYLAR) 0.1MF 100V L
C528	0CQ1041N509	C,POLYESTER(MYLAR) 0.1MF 100V L
C529	0CE476DF618	C,ELECTROLYTIC 47UF STD 16V M
C530	0CN1030F679	C,TUBULA(HIGH DIELE) 0.01MF 16V M
C531	0CN1010K519	C,TUBULA(HIGH DIELE) 100PF 50V K
C532	0CQ1041N509	C,POLYESTER(MYLAR) 0.1MF 100V L
C533	0CQ2231N519	CAPACITOR POLYESTER(MYLAR) 0.022MF 100V K POLY TP
C534	0CC8200K415	C,CERAMIC(TEMP COMP) 82P 50V J
C535	0CQ2242K439	CAPACITOR,POLYESTER(MYLAR) 0.2200UF S 50V J M/PE NI TP
C536	0CC8200K415	C,CERAMIC(TEMP COMP) 82P 50V J
C537	181-027C	CAPACITOR TANTAL 25V 1.0UFK TP
C538	0CN1030F679	C,TUBULA(HIGH DIELE) 0.01MF 16V M
C540	0CE2251K636	C,ELECTROLYTIC 2.2000UF SM 50V M FM5 BP(D) TP
C541	0CE226DK618	CAPACITOR,ELECTROLYTIC 22UF STD 50V M FL TP5
C542	0CE474DK618	C,ELECTROLYTIC 0.47UF STD 50V M
C543	0CE474DK618	C,ELECTROLYTIC 0.47UF STD 50V M
C544	0CE474DK618	C,ELECTROLYTIC 0.47UF STD 50V M
C545	0CE104DK618	C,ELECTROLYTIC 0.1UF STD 50V M
C546	0CN1030F679	C,TUBULA(HIGH DIELE) 0.01MF 16V M
C547	0CE476DF618	C,ELECTROLYTIC 47UF STD 16V M
C552	0CQ1041N509	C,POLYESTER(MYLAR) 0.1MF 100V L
C554	0CE107DF618	C,ELECTROLYTIC 100UF STD 16V M
C555	0CN1030F679	C,TUBULA(HIGH DIELE) 0.01MF 16V M
C556	0CE474DK618	C,ELECTROLYTIC 0.47UF STD 50V M
C557	0CE474DK618	C,ELECTROLYTIC 0.47UF STD 50V M
C558	0CE4741K636	CAPACITOR,ELECTROLYTIC 0.47UF SM 50V M FM5 BP(D) TP
C559	0CQ1041N509	C,POLYESTER(MYLAR) 0.1MF 100V L
C560	0CE106DF618	C,ELECTROLYTIC 10UF STD 16V M
C561	0CQ1041N509	C,POLYESTER(MYLAR) 0.1MF 100V L
C562	0CQ1041N509	C,POLYESTER(MYLAR) 0.1MF 100V L
C563	0CE476DF618	C,ELECTROLYTIC 47UF STD 16V M
C564	0CN1030F679	C,TUBULA(HIGH DIELE) 0.01MF 16V M
C565	0CQ1041N509	C,POLYESTER(MYLAR) 0.1MF 100V L
C566	0CQ1041N509	C,POLYESTER(MYLAR) 0.1MF 100V L
C567	0CQ1041N509	C,POLYESTER(MYLAR) 0.1MF 100V L
C568	0CE4741K636	CAPACITOR,ELECTROLYTIC 0.47UF SM 50V M FM5 BP(D) TP
C569	0CE4741K636	CAPACITOR,ELECTROLYTIC 0.47UF SM 50V M FM5 BP(D) TP
C570	0CE106DF618	C,ELECTROLYTIC 10UF STD 16V M
C571	0CE474DK618	C,ELECTROLYTIC 0.47UF STD 50V M
C572	0CE474DK618	C,ELECTROLYTIC 0.47UF STD 50V M
C573	0CX3300K409	C,TUBULA(T.C) 33PF 50V J

RPL

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

LOCA. NO	PART NO	DESCRIPTION
C574	0CX5600K409	C,TUBULA(T.C) 56P 50V J
C575	0CN1030F679	C,TUBULA(HIGH DIELE) 0.01MF 16V M
C601	0CE475DK618	C,ELECTROLYTIC 4.7UF STD 50V M
C602	0CE226DK618	CAPACITOR,ELECTROLYTIC 22UF STD 50V M FL TP5
C603	0CQ8221N519	C,POLYESTER(MYLAR) 0.0082U 100V K
C604	0CE106DH618	CAPACITOR,ELECTROLYTIC 10UF STD 25V M FL TP5
C605	0CQ1041N509	C,POLYESTER(MYLAR) 0.1MF 100V L
C606	0CE477DJ618	C,ELECTROLYTIC 470UF STD 35V M
C607	0CE477DF618	C,ELECTROLYTIC 470UF STD 16V M
C701	0CQ4731N509	C,POLYESTER(MYLAR) 0.047U 100V K
C703	0CE2261R618	C,ELECTROLYTIC 22M SM 250V M
C704	0CE108DH618	C,ELECTROLYTIC 1000UF STD 25V M
C705	0CE227DF618	C,ELECTROLYTIC 220UF STD 16V M
C706	0CE108DJ618	C,ELECTROLYTIC 1000UF STD 35V M FL TP5
C707	0CK5610W515	C,CERAMIC(HIGH DIELE) 560PF 500V K
C708	0CK5610W515	C,CERAMIC(HIGH DIELE) 560PF 500V K
C709	0CK2220W515	C,CERAMIC(HIGH DIELE) 2200PF 500V K
C801	[illegible]	C,MPP AC250V 0.1UF M
C802	[illegible]	C,MPP AC250V 0.1UF M
C803	0CK10201515	C,CERAMIC(HIGH DIELE) 1000P 1KV K
C804	0CK10201515	C,CERAMIC(HIGH DIELE) 1000P 1KV K
C805	0CK10201515	C,CERAMIC(HIGH DIELE) 1000P 1KV K
C806	181-474B	CAPACITOR CE(400V/200UF)SRF LEAD TYPE(FOR E.A.C, ASEPA, VIDEO HOME)
C807	181-474B	CAPACITOR CE(400V/200UF)SRF LEAD TYPE
C808	0CK1020W515	C,CERAMIC(HIGH DIELE) 1000PF 500V K
C809	0CE106DN618	C,ELECTROLYTIC 10UF STD 100V M FL TP5
C810	0CE227DF618	C,ELECTROLYTIC 220UF STD 16V M
C811	181-120E	CAPACITOR ACT 4KV E 222M FL10
C812	181-120F	CAPACITOR ACT 4KV E 472M FL10(FOR E.A.C, ASEPA, VIDEO HOME)
[illegible]	181-120 [illegible]	CAPACITOR ACT 4KV E 222M FL10 (FOR RAZNO)
[illegible]	[illegible]	CAPACITOR ACT 4KV E 472M FL10 (FOR RAZNO)
C814	0CE227DJ618	C,ELECTROLYTIC 220UF STD 35V M FL TP5
C815	181-091D	C,DE0905 R 102K 1KV(WITHOUT E.A.C, ASEPA)
C851	181-091D	C,DE0905 R 102K 1KV
C852	0CK4710W515	C,CERAMIC(HIGH DIELE) 470PF 500V K
C853	181-091C	C,DE0705 R 471K 1KV
C854	0CK4710W515	C,CERAMIC(HIGH DIELE) 470PF 500V K
C855	0CK4710W515	C,CERAMIC(HIGH DIELE) 470PF 500V K
C856	0CE107DN618	CAPACITOR,ELECTROLYTIC 100UF STD 100V M FL TP5
C857	0CE228DF618	C,ELECTROLYTIC 2200UF STD 16V M
C858	0CE108DH618	C,ELECTROLYTIC 1000UF STD 25V M
C859	0CE477DJ618	C,ELECTROLYTIC 470UF STD 35V M
C860	0CE227BP650	C,ELECTROLYTIC 220U KME 160V M
C861	0CE107BP61A	C,ELECTROLYTIC 100UF KME 160V M
C862	0CE107DN618	CAPACITOR,ELECTROLYTIC 100UF STD 100V M FL TP5
C863	0CQ3342K439	C,POLYESTER(MYLAR) 0.33UF S 50V J
C864	0CQ1031N509	C,POLYESTER(MYLAR) 0.01U 100V K
C865	181-444N	C,METALPOLYESTER 0.47MF 50V J
C866	0CQ1031N509	C,POLYESTER(MYLAR) 0.01U 100V K
C867	0CE4741K636	CAPACITOR,ELECTROLYTIC 0.47UF SM 50V M FM5 BP(D) TP
C868	0CE106DF618	C,ELECTROLYTIC 10UF STD 16V M
C901(14")	0CC3010K405	CAPACITOR CERAMIC(TEMP COMP) 300P 50V J SL TS
C901(20")	0CC3310K405	CAPACITOR CERAMIC(TEMP COMP) 330P 50V J SL TS
C901(21")	0CC3310K405	CAPACITOR CERAMIC(TEMP COMP) 330P 50V J SL TS
C902	0CN2710K519	C,TUBULA(HIGH DIELE) 270PF 50V K
C903(14")	0CC3010K405	CAPACITOR CERAMIC(TEMP COMP) 300P 50V J SL TS
C903(20")	0CC3310K405	CAPACITOR CERAMIC(TEMP COMP) 330P 50V J SL TS
C903(21")	0CC3310K405	CAPACITOR CERAMIC(TEMP COMP) 330P 50V J SL TS
C904	0CE476DF618	C,ELECTROLYTIC 47UF STD 16V M
C905	0CK22202510	C,CERAMIC(HIGH DIELE) 2200PF 2KV K

DIODES

LOCA. NO	PART NO	DESCRIPTION
D301	0DD150009CA	DIODE RGP15J
D303	0DD414809ED	DIODE DS4148
D304(20")	0DD414809ED	DIODE DS4148
D304(21")	0DD414809ED	DIODE DS4148
D401	0DD414809ED	DIODE DS4148
D402	0DD414809ED	DIODE DS4148
D403	0DD414809ED	DIODE DS4148
D404	0DD414809ED	DIODE DS4148
D405	0DD150009CA	DIODE RGP15J
D406	0DD414809ED	DIODE DS4148
D501	0DD414809ED	DIODE DS4148
D502	0DD414809ED	DIODE DS4148
D701	0DD060009AC	DIODE TVR06J 0.6A/600V 250NS
D702	0DD060009AC	DIODE TVR06J 0.6A/600V 250NS
D703	0DD060009AC	DIODE TVR06J 0.6A/600V 250NS
D801	0DD110009DB	DIODE RM11CV 1.2A/1000V 100A
D802	0DD110009DB	DIODE RM11CV 1.2A/1000V 100A
D803	0DD110009DB	DIODE RM11CV 1.2A/1000V 100A
D804	0DD110009DB	DIODE RM11CV 1.2A/1000V 100A
D805	0DD150009CE	DIODE GP15J (1.5A/600V)
D806	0DD060009AC	DIODE TVR06J 0.6A/600V 250NS
D807	0DD060009AC	DIODE TVR06J 0.6A/600V 250NS
D808	0DD060009A6	DIODE TVR06J 0.6A/600V 250NS
D809	0DD100009AL	DIODE EH-1ZV
D851	0DD410000AD	DIODE RU4AM,LF-L1
D852	0DD100009AE	DIODE RU-1A V
D853	0DD120000BB	DIODE FML-G12S
D854	0DD120000BB	DIODE FML-G12S
D855	0DD150009CA	DIODE RGP15J
D857	0DD060009AC	DIODE TVR06J 0.6A/600V 250NS
D858	0DD060009AC	DIODE TVR06J 0.6A/600V 250NS
D859	0DD414809ED	DIODE DS4148
D860	0DD414809ED	DIODE DS4148
D901	0DD414809ED	DIODE DS4148
D902	0DD414809ED	DIODE DS4148
D903	0DD414809ED	DIODE DS4148
D904(20")	0DD414809ED	DIODE DS4148
D904(21")	0DD414809ED	DIODE DS4148
D905(20")	0DD414809ED	DIODE DS4148
D905(21")	0DD414809ED	DIODE DS4148
D906(20")	0DD414809ED	DIODE DS4148
D906(21")	0DD414809ED	DIODE DS4148

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LOCA. NO	PART NO	DESCRIPTION	
ZD301	0DZ360009DA	DIODE ZENER	MTZ3.6B
ZD302	0DZ910009BA	DIODE ZENER	MTZ9.1B
ZD401	0DZ240009BC	DIODE ZENER	MTZ2.4B 2.4V K-ROHM TP
ZD402	0DZ910009BA	DIODE ZENER	MTZ9.1B
ZD403	0DZ360009DA	DIODE ZENER	MTZ3.6B
ZD404	0DZ240009BC	DIODE ZENER	MTZ2.4B 2.4V K-ROHM TP
ZD501	0DZ510009AB	DIODE ZENER	MTZ5.1B
ZD502	0DZ510009AB	DIODE ZENER	MTZ5.1B
ZD503	0DZ510009AB	DIODE ZENER	MTZ5.1B
ZD802	0DZ680009AA	DIODE ZENER	MTZ6.8B
ZD851	0DZ360009DA	DIODE ZENER	MTZ3.6B
ZD852	0DZ110009AA	DIODE ZENER	MTZ 11B
ZD853	0DZ620009AA	DIODE ZENER	MTZ6.2B

FERRITE CORES

LOCA. NO	PART NO	DESCRIPTION	
FB401	125-022K	CORE	FERRITE 1UH
FB801	125-022K	CORE	FERRITE 1UH
FB802	125-123A	CORE	FERRITE BFD3565R2F
FB803	125-123A	CORE	FERRITE BFD3565R2F
FB851	125-123A	CORE	FERRITE BFD3565R2F

FUSES

LOCA. NO	PART NO	DESCRIPTION	
⚠ F801	131-098B	FUSE	4A/250V HBC TIME DELAY 5X20(FOR RAZNO)
⚠ [illegible]	0FT4001B517	FUSE	TIME LAG 4A 250V(FOR VIDEOTHONE,EAC,ASEPA,VIDEOHOME)
⚠ F851	131-096E	FUSE	MICRO 125V 4.0A [illegible]

ICs

LOCA. NO	PART NO	DESCRIPTION	
IC1401	0IKE780900E	IC,KEC	KIA7809PI 3P(TO-220IS)1A,9V
IC1501	0IT0888000B	IC,TOSHIBA	TA8880CN 64SD V/C/D(P/N/S,IIC)
IC1502	0IT0877200A	IC,TOSHIBA	TA8772AN 30SD 1H DELAY/LINE
IC1701	0IKE780900E	IC,KEC	KIA7809PI 3P(TO-220IS)1A,9V
[redacted]			
IC1802	0IT0721400A	IC,TOSHIBA	TLP721(D4-GR) 4D PHOTO(SEMKO)
IC1803	0IT0721400A	IC,TOSHIBA	TLP721(D4-GR) 4D PHOTO(SEMKO)
IC1851	0ISK115000A	IC,SANKEN	SE115N(LF12) 3P 115V ERROR AMP
IC301	0IT0844500A	IC,TOSHIBA	TA8445K 12S 2.2A R/G+V.OUT
IC601	0ISG200600A	IC, SGS-THOMSON	TDA2006,SOUND

COILS & TRANSFORMERS

LOCA. NO	PART NO	DESCRIPTION	
DL501	150-Y01R	COIL	DELAY LINE 600NS 4.43T
L402(14")	150-224Q	COIL	LINEARITY
L402(20")	150-224C	COIL	LINEARITY
L402(21")	150-159D	COIL	LINEARITY
L403	0LA0102K139	INDUCTOR	10UH K
L501	0LA0332K119	INDUCTOR	33UH K
L502	0LA0332K119	INDUCTOR	33UH K
[redacted]			
L851(20")	150-235E	COIL	HOR.CHOKE 1MH(1A)
L851(21")	150-235E	COIL	HOR.CHOKE 1MH(1A)
L852	150-235D	COIL	CHOCK,50UH(1A)
L901	150-679E	COIL	CHOKE 10UH(NAMYANG)

LOCA. NO	PART NO	DESCRIPTION	
T401	151-386A	TRANSFORMER	H.DRIVE 19Y4BY
⚠ T801	151-A10C	TRANSFORMER	SMPS COIL EER4445 STR-S6707 W

TRANSISTORS

LOCA. NO	PART NO	DESCRIPTION	
Q1301	0TR102009AB	TRANSISTOR	KRC102M,TP(KRC1202),KEC
Q1302	0TR319809AA	TRANSISTOR	KTC3198-TP-Y (KTC1815)KEC
Q1303	0TR319809AA	TRANSISTOR	KTC3198-TP-Y (KTC1815)KEC
Q1304(20")	0TR319809AA	TRANSISTOR	KTC3198-TP-Y (KTC1815)KEC
Q1304(21")	0TR319809AA	TRANSISTOR	KTC3198-TP-Y (KTC1815)KEC
Q1305	0TR102009AB	TRANSISTOR	KRC102M,TP(KRC1202),KEC
Q1401	0TR249900AA	TRANSISTOR	KTD2499 TO-3P(H)IS TOSHIBA
Q1402	0TR320709AA	TRANSISTOR	KTC3207,TP(KTC2482),KEC
Q1406	0TR319809AA	TRANSISTOR	KTC3198-TP-Y (KTC1815)KEC
Q1501	0TR319809AA	TRANSISTOR	KTC3198-TP-Y (KTC1815)KEC
Q1502	0TR319809AA	TRANSISTOR	KTC3198-TP-Y (KTC1815)KEC
Q1504	0TR102009AB	TRANSISTOR	KRC102M,TP(KRC1202),KEC
Q1505	0TR319809AA	TRANSISTOR	KTC3198-TP-Y (KTC1815)KEC
Q1506	0TR102009AB	TRANSISTOR	KRC102M,TP(KRC1202),KEC
Q1507	0TR126609AA	TRANSISTOR	KTA1266-TP-Y (KTA1015) KEC
Q1508	0TR126609AA	TRANSISTOR	KTA1266-TP-Y (KTA1015) KEC
Q1509	0TR126609AA	TRANSISTOR	KTA1266-TP-Y (KTA1015) KEC
Q1801	0TR385200AA	TRANSISTOR	2SC3852A SANKEN
Q1852	0TR322809AA	TRANSISTOR	KTC3228-0 TP(KTC2383),KEC
Q1853	0TR319809AA	TRANSISTOR	KTC3198-TP-Y (KTC1815)KEC
Q1854	0TR968000AA	TRANSISTOR	KTA968A-Y KEC
Q1855	0TR322809AA	TRANSISTOR	KTC3228-0 TP(KTC2383),KEC
Q1856	0TR319809AA	TRANSISTOR	KTC3198-TP-Y (KTC1815)KEC
Q1857	0TR319809AA	TRANSISTOR	KTC3198-TP-Y (KTC1815)KEC
Q1858	0TR319809AA	TRANSISTOR	KTC3198-TP-Y (KTC1815)KEC
Q1859	0TR319809AA	TRANSISTOR	KTC3198-TP-Y (KTC1815)KEC
Q1860	0TR322709AA	TRANSISTOR	KTC3227-Y,TP(KTC1627A),KEC
Q1901	0TR322900AA	TRANSISTOR	KTC3229 (KTC2068),KEC
Q1902	0TR322900AA	TRANSISTOR	KTC3229 (KTC2068),KEC
Q1903	0TR322900AA	TRANSISTOR	KTC3229 (KTC2068),KEC

RESISTORS

LOCA. NO	PART NO	DESCRIPTION	
[redacted]			
R301	0RD1000H609	R,CARBON FILM	100 1/2W 5
R302	0RD1201F609	R,CARBON FILM	1.2K 1/6W 5
R303	0RD3901F609	R,CARBON FILM	3.9K 1/6W 5
R304	0RD3901F609	R,CARBON FILM	3.9K 1/6W 5
R305	0RS2700J607	R,METAL FILM OXIDE	270 1W 5%
R306	0RD1001H609	R,CARBON FILM	1.0K 1/2W 5
R307	0RD4701F609	R,CARBON FILM	4.7K 1/6W 5
R308	0RD3903F609	R,CARBON FILM	390K 1/6W 5

RPL

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

LOCA. NO	PART NO	DESCRIPTION
R309(14")	ORD2002F609	R,CARBON FILM 20K 1/6W 5
R309(20")	ORD2002F609	R,CARBON FILM 20K 1/6W 5
R309(21")	ORD2202F609	R,CARBON FILM 22K 1/6W 5
R310(14")	ORD2402F609	R,CARBON FILM 24K 1/6W 5
R310(20")	ORD2402F609	R,CARBON FILM 24K 1/6W 5
R310(21")	ORD2202F609	R,CARBON FILM 22K 1/6W 5
R311	ORD1803F609	R,CARBON FILM 180K 1/6W 5
R312(14")	ORD3602F609	R,CARBON FILM 36K 1/6W 5
R312(20")	ORD3602F609	R,CARBON FILM 36K 1/6W 5
R312(21")	ORD4302F609	R,CARBON FILM 43K 1/6W 5
R313	ORD4701H609	R,CARBON FILM 4.7K 1/2W 5
R314	ORD0221H609	R,CARBON FILM 2.2 1/2W 5
R317	ORD2001F609	R,CARBON FILM 2.0K 1/6W 5
R318	ORD1002F609	R,CARBON FILM 10K 1/6W 5
R319	ORD4702F609	R,CARBON FILM 47K 1/6W 5
R320	ORD1002F609	R,CARBON FILM 10K 1/6W 5
R321	ORD5601F609	R,CARBON FILM 5.6K 1/6W 5
R322	ORD3601F609	R,CARBON FILM 3.6K 1/6W 5
R323	ORD6201F609	R,CARBON FILM 6.2K 1/6W 5
R324	ORD1202F609	R,CARBON FILM 12K 1/6W 5
R327	ORD4701F609	R,CARBON FILM 4.7K 1/6W 5
R328(20")	ORD3600F609	R,CARBON FILM 360 1/6W 5
R328(21")	ORD3600F609	R,CARBON FILM 360 1/6W 5
R329(20")	ORD1801F609	R,CARBON FILM 1.8K 1/6W 5
R329(21")	ORD1801F609	R,CARBON FILM 1.8K 1/6W 5
R330(20")	ORD1002F609	R,CARBON FILM 10K 1/6W 5
R330(21")	ORD1002F609	R,CARBON FILM 10K 1/6W 5
R401	ORD0392H609	R,CARBON FILM 39 1/2W 5
R402	ORD4301H609	RESISTOR,FIXED CARBON FILM 4.3K 1/2W 5 TA52
R403	ORS5601J607	R,METAL FILM OXIDE 5.60K 1W 5% TA62
R404	ORD1500F609	R,CARBON FILM 150 1/6W 5
R405	ORS5601J607	R,METAL FILM OXIDE 5.60K 1W 5% TA62
R407	ORD4701F609	R,CARBON FILM 4.7K 1/6W 5
R408	ORD3900F609	R,CARBON FILM 390 1/6W 5
R409	ORD1800H609	R,CARBON FILM 180 1/2W 5
R410	ORD5600F609	R,CARBON FILM 560 1/6W 5
R411	ORD1002F609	R,CARBON FILM 10K 1/6W 5
R420	ORD6200F609	R,CARBON FILM 620 1/6W 5
R421	ORD2001H609	R,CARBON FILM 2.0K 1/2W 5
R422	ORD1002F609	R,CARBON FILM 10K 1/6W 5
R423	ORD3601F609	R,CARBON FILM 3.6K 1/6W 5
R424	ORD6201F609	R,CARBON FILM 6.2K 1/6W 5
R425	ORD1202F609	R,CARBON FILM 12K 1/6W 5
R426	ORD1002F609	R,CARBON FILM 10K 1/6W 5
R427	ORS1202H609	R,METAL FILM OXIDE 12K 1/2W 5
R428	ORD1801H609	R,CARBON FILM 1.8K 1/2W 5
R502	ORD1000F609	R,CARBON FILM 100 1/6W 5
R503	ORD1001F609	R,CARBON FILM 1.0K 1/6W 5
R504	ORD3601F609	R,CARBON FILM 3.6K 1/6W 5
R505	ORD2403F609	R,CARBON FILM 240K 1/6W 5
R506	ORD2001F609	R,CARBON FILM 2.0K 1/6W 5
R507	ORD1801F609	R,CARBON FILM 1.8K 1/6W 5

LOCA. NO	PART NO	DESCRIPTION
R508	ORD1501F609	R,CARBON FILM 1.5K 1/6W 5
R509	ORD8203F609	R,CARBON FILM 820K 1/6W 5
R510	ORD6801F609	R,CARBON FILM 6.8K 1/6W 5
R511	ORD8201F609	R,CARBON FILM 8.2K 1/6W 5
R512	ORD5602F609	R,CARBON FILM 56K 1/6W 5
R514	ORD1801F609	R,CARBON FILM 1.8K 1/6W 5
R515	ORD8200F609	R,CARBON FILM 820 1/6W 5
R517	ORD2401F609	R,CARBON FILM 2.4K 1/6W 5
R518	ORD6804F609	RESISTOR,FIXED CARBON FILM 6.8M 1/6W 5 TA52
R521	ORD3301F609	R,CARBON FILM 3.3K 1/6W 5
R522	ORD3900F609	R,CARBON FILM 390 1/6W 5
R523	ORD3900F609	R,CARBON FILM 390 1/6W 5
R524	ORD3900F609	R,CARBON FILM 390 1/6W 5
R525	ORD1000F609	R,CARBON FILM 100 1/6W 5
R526	ORD1000F609	R,CARBON FILM 100 1/6W 5
R527	ORD1000F609	R,CARBON FILM 100 1/6W 5
R528	ORD1002F609	R,CARBON FILM 10K 1/6W 5
R529	ORD1802F609	R,CARBON FILM 18K 1/6W 5
R530	ORD1000F609	R,CARBON FILM 100 1/6W 5
R531	ORD1000F609	R,CARBON FILM 100 1/6W 5
R532	ORD1000F609	R,CARBON FILM 100 1/6W 5
R533	ORD1000F609	R,CARBON FILM 100 1/6W 5
R534	ORD1000F609	R,CARBON FILM 100 1/6W 5
R535	ORD5601F609	R,CARBON FILM 5.6K 1/6W 5
R536	ORD2202F609	R,CARBON FILM 22K 1/6W 5
R537	ORD2401F609	R,CARBON FILM 2.4K 1/6W 5
R538	ORD1002F609	R,CARBON FILM 10K 1/6W 5
R539	ORD5601F609	R,CARBON FILM 5.6K 1/6W 5
R540	ORD6800F609	R,CARBON FILM 680 1/6W 5
R541	ORD3000F609	R,CARBON FILM 300 1/6W 5
R542	ORD2200H609	R,CARBON FILM 220 1/2W 5
R543	ORD1201F609	R,CARBON FILM 1.2K 1/6W 5
R544	ORD1002F609	R,CARBON FILM 10K 1/6W 5
R545	ORD3300F609	R,CARBON FILM 330 1/6W 5
R546	ORD3300F609	R,CARBON FILM 330 1/6W 5
R548	ORD3301F609	R,CARBON FILM 3.3K 1/6W 5
R549	ORD3301F609	R,CARBON FILM 3.3K 1/6W 5
R550	ORD3301F609	R,CARBON FILM 3.3K 1/6W 5
R551	ORD4704F609	R,CARBON FILM 4.7M 1/6W 5
R552	ORD3300F609	R,CARBON FILM 330 1/6W 5
R601	ORD1003F609	R,CARBON FILM 100K 1/6W 5
R602	ORD1003F609	R,CARBON FILM 100K 1/6W 5
R603	ORD1003F609	R,CARBON FILM 100K 1/6W 5
R604	ORD0221H609	R,CARBON FILM 2.2 1/2W 5
R605	ORD9102F609	R,CARBON FILM 91K 1/6W 5
R606	ORD8201F609	R,CARBON FILM 8.2K 1/6W 5
R701	ORD1002F609	R,CARBON FILM 10K 1/6W 5
R702(14")	ORD7502H609	R,CARBON FILM 75K 1/2W 5
R702(20")	ORD5602H609	R,CARBON FILM 56K 1/2W 5
R702(21")	ORD3902H609	R,CARBON FILM 39K 1/2W 5
R703(14")	ORD7502H609	R,CARBON FILM 75K 1/2W 5
R703(20")	ORD5602H609	R,CARBON FILM 56K 1/2W 5

RPL

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Replace only with part number specified.

LOCA. NO	PART NO	DESCRIPTION
R703(21")	ORD3902H609	R,CARBON FILM 39K 1/2W 5
R704	ORD2403H609	R,CARBON FILM 240K 1/2W 5 M15
R705	ORD1000H609	R,CARBON FILM 100 1/2W 5
R802	180-822A	R,RWR 10W 10HM
R803	ORD1503H609	R,CARBON FILM 150K 1/2W 5
R804	ORD1503H609	R,CARBON FILM 150K 1/2W 5
R805	ORS2202K607	R,METAL FILM OXIDE 22K 2W 5%
R806	ORS2202K607	R,METAL FILM OXIDE 22K 2W 5%
R807	ORS1002J607	R,METAL FILM OXIDE 10K 1W 5%
R808	ORD1601F609	R,CARBON FILM 1.6K 1/6W 5
R809	ORD1001F609	R,CARBON FILM 1.0K 1/6W 5
R810	ORS0222K607	R, METAL FILM OXIDE 22 2W 5%
R811	180-A01H	R,RW ROUND G 2W 0.27 J
R812	ORD1001F609	R,CARBON FILM 1.0K 1/6W 5
⚠R813	[illegible]	[illegible]
R815	ORD0151H609	RESISTOR,FIXED CARBON FILM 1.5 1/2W 5 TA52
R851	ORD4702F609	R,CARBON FILM 47K 1/6W 5
R852	ORD1002F609	R,CARBON FILM 10K 1/6W 5
R853	ORD3301F609	R,CARBON FILM 3.3K 1/6W 5
R854	ORD6801F609	R,CARBON FILM 6.8K 1/6W 5
R855	ORD1001H609	R,CARBON FILM 1.0K 1/2W 5
R856	ORS0681J607	R,METAL FILM OXIDE 6.8 1W 5%
R857	ORD2002H609	R,CARBON FILM 20K 1/2W 5
R858	ORS5600J607	R,METAL FILM OXIDE 560 1W 5%
R859	ORD6201F609	R,CARBON FILM 6.2K 1/6W 5
R860	ORD2001F609	R,CARBON FILM 2.0K 1/6W 5
R861	ORD2701F609	R,CARBON FILM 2.7K 1/6W 5
R862	ORD1002F609	R,CARBON FILM 10K 1/6W 5
R863	ORD4701F609	R,CARBON FILM 4.7K 1/6W 5
R864	ORD4701F609	R,CARBON FILM 4.7K 1/6W 5
R865	ORD4701F609	R,CARBON FILM 4.7K 1/6W 5
R866	ORD4701F609	R,CARBON FILM 4.7K 1/6W 5
R901	ORD2200F609	R,CARBON FILM 220 1/6W 5
R902	ORD2200F609	R,CARBON FILM 220 1/6W 5
R903	ORD2200F609	R,CARBON FILM 220 1/6W 5
R904(14")	ORS8201K607	R,METAL FILM OXIDE 8.20K 2W 5%
R904(20")	ORS1002K607	R,METAL FILM OXIDE 10K 2W 5%
R904(21")	ORS1002K607	R,METAL FILM OXIDE 10K 2W 5%
R905(14")	ORS8201K607	R,METAL FILM OXIDE 8.20K 2W 5%
R905(20")	ORS1002K607	R,METAL FILM OXIDE 10K 2W 5%
R905(21")	ORS1002K607	R,METAL FILM OXIDE 10K 2W 5%
R906(14")	ORS8201K607	R,METAL FILM OXIDE 8.20K 2W 5%
R906(20")	ORS1002K607	R,METAL FILM OXIDE 10K 2W 5%
R906(21")	ORS1002K607	R,METAL FILM OXIDE 10K 2W 5%
R907	ORD2701H609	R,CARBON FILM 2.7K 1/2W 5
R908	ORD2701H609	R,CARBON FILM 2.7K 1/2W 5
R909	ORD2701H609	R,CARBON FILM 2.7K 1/2W 5
R910	ORD1801F609	R,CARBON FILM 1.8K 1/6W 5
R911	ORD3900F609	R,CARBON FILM 390 1/6W 5
R912	ORD1801F609	R,CARBON FILM 1.8K 1/6W 5
R913	ORD1800F609	R,CARBON FILM 180 1/6W 5
R914	ORD3900F609	R,CARBON FILM 390 1/6W 5
R915	ORD3900F609	R,CARBON FILM 390 1/6W 5
R916	ORD1801F609	R,CARBON FILM 1.8K 1/6W 5
R919	ORD1000F609	R,CARBON FILM 100 1/6W 5
VR301	180-F02G	RESISTOR RH0638CS3R2HB B472 HORI(TA)
VR901	180-F02G	RESISTOR RH0638CS3R2HB B472 HORI(TA)
VR902	180-F02G	RESISTOR RH0638CS3R2HB B472 HORI(TA)
VR903	180-F02G	RESISTOR RH0638CS3R2HB B472 HORI(TA)
VR904	180-F02C	RESISTOR RH0638CS2R25B B471 HORI(TA)
VR905	180-F02C	RESISTOR RH0638CS2R25B B471 HORI(TA)

SWITCH

⚠SW801	[illegible]	[illegible]

FILTET & OSCILLATORS

X401	166-E02G	FILTER RESO CSB503F30 503.5
X501	156-001C	OSCILLATOR CRYSTAL 3.58MHZ
X502	156-006A	OSCILLATOR X-TAL 4.43MHZ (18U)

TRANSMITTER PARTS

	01GS848906A	IC, GOLDSTAR ELECTRON GS8489-06A(GMS30140-R004) 24SO
	303-J21A	COVER BATTERY,TX(105-215A)

ACCESSORIES

	105-231B	TRANSMITTER TVCR MC-48A(KF-20U30)
(14")	132-204H	ANTENNA ASSY,ROD(STS,3SEC F/L 650,BK)(FOR RAZNO)
(14")	132-199D	ANTENNA ROD(W/ADAPTER L=650)(FOR VIDEO HOME)
(20")	132-204L	ANTENNA ASSY,ROD(STS,3SEC F/L 800,BK)
(21")	132-204L	ANTENNA ASSY,ROD(STS,3SEC F/L 800,BK)
	450-018C	ADAPTER ANT.(300 TO 75) PAL

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2. VCR
NON ELECTRICAL PARTS

AL	LOCA. NO	PART NO	DESCRIPTION	SPECIFICATION	REMARKS
VCR Main Frame Parts					
	A00	412-124F	DECK	ASSY D-17P (2HD VCR PAL NEW)	
OR	A00	412W124F	DECK	ASSY D-17P (2H VCR PAL NEW D/Y)	
OR	A00	412G124F	DECK	ASSY D-17P (2H VCR PAL NEW)	
OR	A00	412C124F	DECK	ASSY D-17P (2H VCR PAL NEW S/J)	
OR	A00	412H124F	DECK	ASSY D-17P (2H VCR PAL NEW)	
	A40	315-334A	FRAME	ASSY MAIN	
	A41	3501R-0156A	BOARD ASSY	KEY-BOARD VT-222P'S	
	A45	3501R-0157A	BOARD ASSY	PRE-AMP	
	A46	3501R-0155A	BOARD ASSY	MAIN BOARD	
	250	217-527A	CASE	ASSY TOP	
	260	315-329A	FRAME	MAIN	
	261	221-957A	COVER	BOTTOM	
	310	221-787A	COVER	PRE-AMP (A)	
	311	217-449B	CASE	PRE-AMP(NEW-CASE)	
	312	221-788A	COVER	PRE-AMP (B)	
	313	257-006A	PLATE	BOTTOM GROUND	
	314	321-532A	BRACKET	HOUSING	
	320	258-679C	PANEL	ASSY DISTRIBUTOR	
	323	256-743C	PLATE	HEAT SINK	
	449	353-046K	SCREW	SPECIAL (3X10 BK)	
	452	353-051A	SCREW	SPECIAL	
	462	353-136A	SCREW	SPECIAL(FBK)	
Moving Mechanism Section Parts (I)					
	A01	413-312A	DRUM	ASSY V-2CH(P1)	
OR	A01	413B312A	DRUM	ASSY V-2CH(P1)(BOKWANG)	
OR	A01	413F219A	DRUM	ASSY GSA D17-2CH PAL SP	
	A02	386-296B	ARM	ASSY CL	
OR	A03	311-005G	CHASSIS ASSY'	D17	NSP
	A03	311-005M	CHASSIS ASSY'	D17	NSP
	A04	456-048A	REEL	ASSY S17	
	A05	456-045A	REEL	ASSY T17	
	A06	321-397D	BRACKET	ASSY F/R	
	A07	225-228A	BASE	ASSY A/C	
OR	A08	225-248A	BASE	ASSY,P2	
	A08	225-248B	BASE	ASSY P2 (W-W)	
OR	A09	225-249A	BASE	ASSY,P3	
	A09	225-249B	BASE	ASSY P3 (W-W)	
	A10	414-104A	MOTOR	ASSY LOAD	
	A11	333-209E	LEVER	ASSY PINCH	
	001	413-315A	DRUM	SUB ASSY(P1)	
OR	002	414-179A	MOTOR	ASSY DRUM SDV-202A(D-17) SONY	
OR	002	414-180A	MOTOR	ASSY DRUM GVD-017(D-17) ALPS	
	002	414-211A	MOTOR	ASSY DRUM E20XL13 SANKYO METAL	
	005	225-231B	BASE	ASSY D-BRUSH	
OR	006	225-220A	BASE	DRUM	NSP
	006	225-220B	BASE	DRUM (W-W)	NSP
OR	006	225-220C	BASE	DRUM (Y-H)	NSP
	007	386-297A	ARM	SUB ASSY CU	
	008	442-460B	SPRING	CU	
	009	442-459A	SPRING	CL	

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AL	LOCA.NO	PART NO	DESCRIPTION	SPECIFICATION	REMARKS
	010	386-295B	ARM	CL	
	012	384-071A	GUIDE	17	
OR	013	523-082B	HEAD	FE,HVFHF0010AK	
	013	523-824A	HEAD	F.E MH-131G (D-17)	
	014	378-017A	SLEEVE	P1	
	015	434-178A	ROLLER	P1	
OR	015	434-178B	ROLLER	P1	
	016	389-003B	ADJUST	P(4)	
	018	386-205A	ARM	ASSY TENSION	
	019	442-331C	SPRING	TENSION	
	020	328-052B	BAND	ASSY TENSION	
	021	334-066A	STOPPER	P1	
	027	435-243A	GEAR	IDLE(A)	
	028	435-244A	GEAR	IDLE(B)	
	029	456-040A	REEL	T17	NSP
	030	442-341A	SPRING	REEL	NSP
	030	442-341A	SPRING	REEL	NSP
	031	276-068A	CAP	REEL	NSP
	031	276-068A	CAP	REEL	NSP
	032	456-039A	REEL	S17	NSP
	036	435-240A	GEAR	F/R	
	037	442-336A	SPRING	UP/D	NSP
	038	435-239A	GEAR	UP/D	NSP
	040	333-201B	LEVER	ASSY F/R	NSP
	044	442-338B	SPRING	SSB	NSP
	045	338-081A	BRAKE	S-SOFT	NSP
	046	442-337A	SPRING	SMB	NSP
	047	338-080A	BRAKE	ASSY S-MAIN	NSP
	048	442-339D	SPRING	TSB	NSP
	049	338-083A	BRAKE	ASSY T-SOFT	NSP
	050	321-396A	BRACKET	SUB ASSY F/R	NSP
	054	389-013A	ADJUST	X-ASSY	
	056	378-018A	SLEEVE	P4	
	060	442-343A	SPRING	T/UP	
	061	386-387B	ARM	ASSY T/UP	
	065	442-332A	SPRING	A/C	
	066	225-219A	BASE	SUB ASSY A/C	NSP
	068	523-089A	HEAD	SUB ASSY A/C	
	069	442-362A	SPRING	AZIMUTH	
	070	338-085A	BRAKE	ASSY T-MAIN	
	071	442-344A	SPRING	TMB	
	074	434-173A	ROLLER	ASSY GUIDE	
	074	434-173A	ROLLER	ASSY GUIDE	
	075	353-054B	SCREW	MINIATURE	
	075	353-054B	SCREW	MINIATURE	
	076	225-226B	BASE	SUB ASSY SLALT (L,W-W)	
	077	225-225B	BASE	SUB ASSY SLALT (R,W-W)	
	081	414-105A	MOTOR	SUB ASSY,L	
	082	437-009A	WORM	ASSY	
	083	321-410A	BRACKET	SUB ASSY L/M	
	084	433-023A	WHEEL	WORM	
	087	321-470A	BRACKET	ASSY DEW	
	088	435-448A	GEAR	PINCH (N)	
	090	442-347A	SPRING	PINCH	NSP
	091	386-210A	ARM	ASSY PINCH	NSP

AL	LOCA.NO	PART NO	DESCRIPTION	SPECIFICATION	REMARKS
	092	442-346A	SPRING	STOPPER	NSP
	093	334-050C	STOPPER	PINCH	NSP
OR	094	434-181A	ROLLER	ASSY PINCH	
	094	434-181B	ROLLER	ASSY PINCH	
	095	276-089B	CAP	PINCH	NSP
	096	333-203A	LEVER	PINCH	NSP
	098	333-344A	LEVER	T-UP (N)	
Moving Mechanism Section Parts (II)					
	A20	321-401A	BRACKET	ASSY BOTTOM	
	A21	333-208A	LEVER	ASSY RAT	
	A22	338-078A	BRAKE	ASSY CAP	
	A23	386-218A	ARM	ASSY LOAD(R)	
	A24	386-219A	ARM	ASSY LOAD(L)	
	A25	511-997D	PWB ASSY	D-17,VCR	
	100	321-463A	BRACKET	SUB ASSY B	NSP
	102	435-249A	GEAR	RAT1	NSP
	103	442-356A	SPRING	F-LEVER	NSP
	104	356-208A	PIN	F-LEVER	NSP
	106	442-345A	SPRING	RAT	NSP
	107	333-202A	LEVER	RAT	NSP
	108	333-207A	LEVER	F17	NSP
	110	374-005A	CAM	D17	
	111	435-318A	GEAR	ASSY RACK F/L	
	112	435-291A	GEAR	ASSY RACK T	
	113	435-246A	GEAR	PC	
	114	414-120B	MOTOR	CAPSTAN GVC-017P	
	115	452-047A	BELT	CENTER	
	116	256-734A	PLATE	F17	
	117	442-342B	SPRING	FP	
	120	338-089A	BRAKE	SUB ASSY CAP	
	121	442-333A	SPRING	CAPSTAN	
	122	432-038A	PULLEY	GEAR	
	130	337-005A	CLUTCH	ASSY	
	131	340-001A	HOLDER	LED (Q)	
	132	324-642A	HOLDER	R/S	
	133	513-494D	PWB	JUNCTION D-17 VCR	NSP
	134	556-133A	SWITCH	MODE	
OR	134	556-133B	SWITCH	MODE, ALPS	
OR	135	0DL451000AA	DIODE LED	IR SENSOR GL451(LONG) SHARP	
	135	0DL550000AB	DIODE LED	IR SENSOR EL-55L(LONG) KOC	
	136	657-102K	SENSOR	SG-105(REEL) KOC	
	137	556-131A	SWITCH	ESE-105SV1	
	138	435-234A	GEAR	LOAD(R)	
	139	442-330A	SPRING	LOADING	
	140	386-274A	ARM	SUB ASSY (R)	
	142	435-235A	GEAR	LOAD(L)	
	143	442-330B	SPRING	LOADING	
	144	386-273A	ARM	SUB ASSY (L)	
	146	333-218A	LEVER	ASSY A-TEN	
Front Loading Mechanism Section Parts					
OR	A30	219-017F	HOUSING	ASSY (D17)	
	A30	219-017L	HOUSING	ASSY (D17)	
	A32	435-257B	GEAR	ASSY DRIVE (HOOK ADDED)	

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AL	LOCA.NO	PART NO	DESCRIPTION	SPECIFICATION	REMARKS
	A33	321-406A	BRACKET	ASSY CARRIER	
	A34	321-441A	BRACKET	ASSY SIDE	
	A35	515-106B	PWB ASSY	SENSOR	
	150	321-527A	BRACKET	ASSY C-GUIDE	
	201	256-934B	PLATE	TOP	
	204	465-026A	OPENER	DOOR	
	205	321-517B	BRACKET	LEFT (D17)	
	206	321-518A	BRACKET	RIGHT (D17)	
	207	435-278A	GEAR	RACK N/D	
	208	256-910A	PLATE	GND TOP	
	210	321-440A	BRACKET	SIDE	
	213	442-351A	SPRING	OC	NSP
	214	465-028A	OPENER	CST	NSP
	215	442-357A	SPRING	RID	NSP
	216	465-027A	OPENER	RID	NSP
	217	324-647A	HOLDER	R	NSP
	218	321-407A	BRACKET	SUPPORT	NSP
	219	321-405A	BRACKET	CARRIER	NSP
	220	324-646A	HOLDER	L	NSP
	221	333-210A	LEVER	DT	NSP
	222	442-358B	SPRING	DT	NSP
	225	384-074A	GUIDE	CST	
	226	442-352A	SPRING	L	NSP
	227	435-254A	GEAR	L	NSP
	228	442-350A	SPRING	S/W	
	229	333-204A	LEVER	S/W	NSP
	230	423-368A	SHAFT	D	NSP
	231	442-353A	SPRING	R	NSP
	232	435-255A	GEAR	R	NSP
	233	435-256B	GEAR	C (HOOK ADDED)	NSP
	234	442-359C	SPRING	CUSHION (D17F/L)	NSP
	235	442-354A	SPRING	CC	NSP
	236	276-086A	CAP	DRIVE	NSP
Hardwares & Screws					
	401	1MPC0262018	PAN HEAD MACHINE SCREW +	D 2.6 L 6.0 MSWR3/FZY	
	402	353-021D	SCREW	SPECIAL	
	404	353-048C	SCREW	CONE POINT 3X10	
	405	1MDC0262818	PAN HEAD MACHINE SCREW P/WASH+	D2.6 L12 MSWR3/FZY	
	406	1MEC0302018	PAN HEAD MACHINE SCREW S/W +	D 3.0 L 6.0 MSWR3/FZY	
	408	1MBC0302418	BINDING HEAD MACHINE SCREW +	D 3.0 L 8.0 MSWR3/FZY	
	408	1MBC0302418	BINDING HEAD MACHINE SCREW +	D 3.0 L 8.0 MSWR3/FZY	
	411	353-046B	SCREW	SPECIAL (3X8 FZMY)	
	412	1MBC0302818	BINDING HEAD MACHINE SCREW +	D 3.0 L 12 MSWR3/FZY	
	412	1MBC0302818	BINDING HEAD MACHINE SCREW +	D 3.0 L 12 MSWR3/FZY	
	421	1MPC0302618	PAN HEAD MACHINE SCREW +	D3.0 L10.0,MSWR3/FZY	
	422	1MPC0302418	PAN HEAD MACHINE SCREW +	D 3.0 L 8.0 MSWR3/FZY	
	425	1SRF0302418	BRAIZER HD TAP TITE SCREW +	D 3.0 L 8.0 MSWR3/FZY	
	426	1MPC0302018	PAN HEAD MACHINE SCREW +	D 3.0 L 6.0 MSWR3/FZY	
	452	353-051A	SCREW	SPECIAL	
	471	1MPC0302018	PAN HEAD MACHINE SCREW +	D 3.0 L 6.0 MSWR3/FZY	
	503	354-020E	WASHER	STOPPER	
	504	354-001B	WASHER	P.S D3.1XD6X0.5T	
	505	354-080E	WASHER	STOPPER	
	505	354-080E	WASHER	STOPPER	

AL	LOCA. NO	PART NO	DESCRIPTION	SPECIFICATION	REMARKS
	506	352-025A	NUT	NYLON M3	
	507	354-020J	WASHER	STOPPER(2.6X4.8X0.5)	
	508	352-033A	NUT	NUT NYLON(M3)	
	511	354-080C	WASHER	STOPPER	
	512	354-080E	WASHER	STOPPER	NSP
	513	354-080A	WASHER	STOPPER	NSP
	514	354-080B	WASHER	STOPPER	NSP
	516	354-033B	WASHER	STOPPER	

ELECTERICAL PARTS

AL	LOCA.NO	PART NO	DESCRIPTION
P.C. Board Assembles			
	PBA00	68712R-0157A	PRE-AMP
	PBI00	6871R-0158A	IF
	PBJT0	515-700B	JUNCTION 2 D-17S
	PBM00	6871R-0155A	MAIN
Semiconductors			
. Diodes			
	D001	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
	D102	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
	D103	0DD400309AB	IN4003A(1SR35-200A)5M/M TP ROH
	D201	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
	D202	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
	D203	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
	D204	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
	D205	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
	D206	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
	D207	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
	D208	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
	D209	0DD400309AB	IN4003A(1SR35-200A)5M/M TP ROH
	D210	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
	D211	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
	D212	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
	D233	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
	D301	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
	D302	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
	D304	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
	D306	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
	D310	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
	D401	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
	D402	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
	D403	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
	D404	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
	D501	0DD400309AB	IN4003A(1SR35-200A)5M/M TP ROH
	D502	0DD400309AB	IN4003A(1SR35-200A)5M/M TP ROH
	D503	0DD400309AB	IN4003A(1SR35-200A)5M/M TP ROH
	D505	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
	D506	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
	D507	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
	D509	0DD400309AB	IN4003A(1SR35-200A)5M/M TP ROH
	D599	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
	D701	0DD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
	D902	0DD400309AB	IN4003A(1SR35-200A)5M/M TP ROH
ICS			
	IC001	0ISA737600A	LA7376 2HD PRE-AMP
	IC101	0IKE780060A	KIA78006AP=KIA7806P(REG 6V 1A)
OR	IC101	0IMA780600A	AN7806 6V1AREG MATSUSHITA
	IC102	0IMA781200A	AN7812(12V REGIA) MATSUSHI
	IC201	0IHI497540A	HD49754NT
	IC301	0IRH702500A	BA7025L PAL/MESECAM SYNC DETEC
	IC302	0IKK740300B	MSM7403RS(2H CCD) DIP-PACK
	IC303	0ISA739100A	LA7391A(MULTI Y/C 1CHIP)
	IC401	0IRH779000A	BA7790LS(AUDIO NORMAL)
	IC451	0INE140600A	UPC1406HA

AL	LOCA.NO	PART NO	DESCRIPTION
	IC501	668-842A	M38184MA-159FP(SY+TI)VT-222P
	IC502	0IGS744500A	GL7445 (MOTOR DRIV-1CH) GSS
	IC503	0IXI240200B	X24C02.8D EEP-ROM(2K CMOS)
	IC504	0IMT523000B	PST-523G(3.3V) LOW MITUSMI
	IC506	0IMI505540C	M50554-234SP(OSD) VT-224B
	IC701	0ISA755500A	LA7555 PLL
	IC771	0ISA701600A	LA7016 ANALOG SW
Transistors			
	Q001	0TR126609AE	KTA1266-GR,TP(KTA1015),KEC
	Q002	0TR319809AC	KTC3198-TP-BL (KTC1815)KEC
	Q003	0TR319809AC	KTC3198-TP-BL (KTC1815)KEC
	Q005	0TR126609AE	KTA1266-GR,TP(KTA1015),KEC
	Q006	0TR319809AC	KTC3198-TP-BL (KTC1815)KEC
	Q101	0TR127309AA	KTA1273-TP-Y (KTA966A)KEC
	Q102	0TR103009AE	KRC103M-TP (KRC1203) KEC
	Q103	0TR103009AF	KRA103M-TP (KRA2203) KEC
	Q105	0TR193300AA	2SD1933(R)POWER ROHM-J
	Q106	0TR193300AA	2SD1933(R)POWER ROHM-J
	Q201	0TR319909AF	KTC3199-BL MINI TP KEC
	Q202	0TR319909AF	KTC3199-BL MINI TP KEC
	Q203	0TR319909AF	KTC3199-BL MINI TP KEC
	Q204	0TR319909AF	KTC3199-BL MINI TP KEC
	Q206	0TR126609AA	KTA1266-TP-Y (KTA1015) KEC
	Q208	0TR104009AD	KRC104M(50V 100MA) KEC
	Q209	0TR319909AF	KTC3199-BL MINI TP KEC
	Q210	0TR117009AA	FET KTK117A KEC TP
	Q211	0TR103009AE	KRC103M-TP (KRC1203) KEC
	Q301	0TR319809AC	KTC3198-TP-BL (KTC1815)KEC
	Q302	0TR319809AC	KTC3198-TP-BL (KTC1815)KEC
	Q304	0TR319809AC	KTC3198-TP-BL (KTC1815)KEC
	Q305	0TR126609AE	KTA1266-GR,TP(KTA1015),KEC
	Q306	0TR103009AE	KRC103M-TP (KRC1203) KEC
	Q307	0TR126609AE	KTA1266-GR,TP(KTA1015),KEC
	Q309	0TR103009AE	KRC103M-TP (KRC1203) KEC
	Q311	0TR103009AE	KRC103M-TP (KRC1203) KEC
	Q312	0TR126609AE	KTA1266-GR,TP(KTA1015),KEC
	Q313	0TR126609AE	KTA1266-GR,TP(KTA1015),KEC
	Q314	0TR126609AE	KTA1266-GR,TP(KTA1015),KEC
	Q316	0TR319809AC	KTC3198-TP-BL (KTC1815)KEC
	Q320	0TR126609AE	KTA1266-GR,TP(KTA1015),KEC
	Q321	0TR103009AE	KRC103M-TP (KRC1203) KEC
	Q323	0TR103009AE	KRC103M-TP (KRC1203) KEC
	Q324	0TR126609AE	KTA1266-GR,TP(KTA1015),KEC
	Q325	0TR103009AE	KRC103M-TP (KRC1203) KEC
	Q326	0TR319809AC	KTC3198-TP-BL (KTC1815)KEC
	Q329	0TR319809AC	KTC3198-TP-BL (KTC1815)KEC
	Q401	0TR320509AB	KTC3205-TP-Y (KTC2236A)KEC
	Q402	0TR103009AE	KRC103M-TP (KRC1203) KEC
	Q403	0TR126609AE	KTA1266-GR,TP(KTA1015),KEC
	Q404	0TR319809AC	KTC3198-TP-BL (KTC1815)KEC
	Q406	0TR319809AC	KTC3198-TP-BL (KTC1815)KEC
	Q407	0TR126609AE	KTA1266-GR,TP(KTA1015),KEC
	Q410	0TR319809AC	KTC3198-TP-BL (KTC1815)KEC
	Q480	0TR319809AC	KTC3198-TP-BL (KTC1815)KEC

AL	LOCA.NO	PART NO	DESCRIPTION
	Q481	0TR319809AC	KTC3198-TP-BL (KTC1815)KEC
	Q482	0TR103009AE	KRC103M-TP (KRC1203) KEC
	Q488	0TR126609AE	KTA1266-GR,TP(KTA1015),KEC
	Q489	0TR103009AE	KRC103M-TP (KRC1203) KEC
	Q501	0TR104009AD	KRC104M(50V 100MA) KEC
	Q502	0TR104009AD	KRC104M(50V 100MA) KEC
	Q503	0TR104009AD	KRC104M(50V 100MA) KEC
	Q504	0TR126609AE	KTA1266-GR,TP(KTA1015),KEC
	Q505	0TR319909AF	KTC3199-BL MINI TP KEC
	Q506	0TR319909AF	KTC3199-BL MINI TP KEC
	Q507	0TR104009AD	KRC104M(50V 100MA) KEC
	Q508	0TR319909AF	KTC3199-BL MINI TP KEC
	Q509	0TR319909AF	KTC3199-BL MINI TP KEC
	Q512	0TR104009AD	KRC104M(50V 100MA) KEC
	Q560	0TR104009AD	KRC104M(50V 100MA) KEC
	Q599	0TR104009AD	KRC104M(50V 100MA) KEC
	Q701	0TR319709AC	KTC3197Y-TP(KTC388A-Y)KEC
	Q702	0TR126609AA	KTA1266-TP-Y (KTA1015) KEC
	Q703	0TR319809AA	KTC3198-TP-Y (KTC1815)KEC
	Q704	0TR319809AA	KTC3198-TP-Y (KTC1815)KEC
	Q705	0TR319809AA	KTC3198-TP-Y (KTC1815)KEC
	Q771	0TR103009AF	KRA103M-TP (KRA2203) KEC
	Q772	0TR103009AF	KRA103M-TP (KRA2203) KEC
	Q773	0TR103009AF	KRA103M-TP (KRA2203) KEC
	Q774	0TR319809AA	KTC3198-TP-Y (KTC1815)KEC
	Q775	0TR104009AD	KRC104M(50V 100MA) KEC
	Q776	0TR104009AD	KRC104M(50V 100MA) KEC
	Q777	0TR104009AD	KRC104M(50V 100MA) KEC
	Q778	0TR126609AA	KTA1266-TP-Y (KTA1015) KEC
	Q779	0TR319809AA	KTC3198-TP-Y (KTC1815)KEC

Capacitors

AL	LOCA.NO	PART NO	DESCRIPTION
	C001	0CN1030F678	0.01M 16V M Y TA26
	C002	0CN1030F678	0.01M 16V M Y TA26
	C003	0CN1040K948	0.1M 50V Z F TA26
	C004	0CX3300K408	33P 50V J SL TA26
	C005	0CN1040K948	0.1M 50V Z F TA26
	C006	0CX3300K408	33P 50V J SL TA26
	C007	0CN1040K948	0.1M 50V Z F TA26
	C008	0CN1030F678	0.01M 16V M Y TA26
	C009	0CC0500K015	5P 50V C NP0 TR
	C010	0CN1030F678	0.01M 16V M Y TA26
	C011	0CX2700K408	27P 50V J SL TA26
	C012	0CN1030F678	0.01M 16V M Y TA26
	C013	0CN8200K418	82P 50V J B TA26
	C014	0CN3310K518	330P 50V K B TA26
	C015	0CE1074D638	100M SRA 10V M FM5 TP(5)
	C016	0CN2230H948	0.022M 25V Z F TA26
	C017	0CE1074D638	100M SRA 10V M FM5 TP(5)
	C018	0CN2230H948	0.022M 25V Z F TA26
	C019	0CN2230H948	0.022M 25V Z F TA26
	C021	0CN1030F678	0.01M 16V M Y TA26
	C022	0CN1030F678	0.01M 16V M Y TA26
	C023	0CX3300K408	33P 50V J SL TA26
	C024	0CN1810K518	180P 50V K B TA26
	C025	0CN1510K518	150P 50V K B TA26
	C026	0CX2200K408	22P 50V J SL TP26
	C027	0CX1000K408	10P 50V J SL TA26
	C028	0CN2230H948	0.022M 25V Z F TA26
	C029	0CE1074D638	100M SRA 10V M FM5 TP(5)
	C030	0CN1030F678	0.01M 16V M Y TA26
	C031	0CN1030F678	0.01M 16V M Y TA26
	C037	0CN1030F678	0.01M 16V M Y TA26
	C044	0CN1010K518	100P 50V K B TA26
	C101	0CN2230H948	0.022M 25V Z F TA26
	C102	0CE1076F638	100M SMS 16V M FM5 TP(5)
	C103	0CE4766K638	47M SMS 50V M FM5 TP
	C104	0CN2230H948	0.022M 25V Z F TA26
	C105	0CN2230H948	0.022M 25V Z F TA26
	C106	0CE4766K638	47M SMS 50V M FM5 TP
	C107	0CE1076F638	100M SMS 16V M FM5 TP(5)
	C109	0CN2230H948	0.022M 25V Z F TA26
	C110	0CE2276H638	220UF SMS 25V M FM5 TP5
	C111	0CE1076F638	100M SMS 16V M FM5 TP(5)
	C112	0CE1076F638	100M SMS 16V M FM5 TP(5)
	C113	0CN2230H948	0.022M 25V Z F TA26
	C114	0CN2230H948	0.022M 25V Z F TA26
	C122	0CE4774F638	470M SRA 16V M FM5 TP(5)
	C131	0CE4774F638	470M SRA 16V M FM5 TP(5)
	C133	0CE4766K638	47M SMS 50V M FM5 TP
	C134	0CE1076F638	100M SMS 16V M FM5 TP(5)
	C135	0CE2276H638	220UF SMS 25V M FM5 TP5
	C136	0CN2230H948	0.022M 25V Z F TA26
	C201	0CQ4731N409	0.047U 100V J POLY TP
	C202	0CE1064F638	10M SRA 16V M FM5 TP(5)
	C203	0CQ2231N409	0.022U 100V J POLY TP
	C204	0CE1064F638	10M SRA 16V M FM5 TP(5)
	C205	0CQ4731N409	0.047U 100V J POLY TP
	C206	0CE1051K636	1.0U SM 50V M FM5 BP TP(D)
	C207	0CE1066K638	10M SMS 50V M FM5 TP(5)
	C208	0CE1066K638	10M SMS 50V M FM5 TP(5)
	C209	0CE4754K638	4.7M SRA 50V M FM5 TP(5)
	C210	0CE4754K638	4.7M SRA 50V M FM5 TP(5)
	C211	0CE1051K636	1.0U SM 50V M FM5 BP TP(D)
	C212	0CQ2721N409	0.0027M 100V J POLY TP
	C213	0CE4766F638	47M SMS 16V M FM5 TP5
	C214	0CQ4721N409	0.0047U 100V J POLY TP
	C215	0CE3364F638	33M SRA 16V M FM5 TP(5)
	C216	0CE2264F638	22M SRA 16V M FM5 TP(5)
	C218	0CC8200K415	82P 50V J NP0 TP
	C219	0CN2210K518	220P 50V K B TA26
	C220	0CN1030F678	0.01M 16V M Y TA26
	C221	0CQ4731N409	0.047U 100V J POLY TP
	C222	0CK1030K945	0.01M 50V Z F TS
	C223	0CN1020K518	1000P 50V K B TA26
	C224	0CE1054K638	1.0M SRA/SS50V M FM5 TP(5)
	C225	0CE4766F638	47M SMS 16V M FM5 TP5
	C226	0CE4746K638	0.47M SMS 50V M TP(5)
	C227	0CE2276F638	220U SMS 16V M FM5 TP(5)
	C228	0CE4766F638	47M SMS 16V M FM5 TP5

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AL	LOCA. NO	PART NO	DESCRIPTION
	C229	0CE1046K638	0.1M SMS 50V M FM5 TP(5)
	C230	0CE1076F638	100M SMS 16V M FM5 TP(5)
	C232	0CE2276F638	220U SMS 16V M FM5 TP(5)
	C233	0CX2200K408	22P 50V J SL TP26
	C234	0CC1010K405	100P 50V J SL TS
	C235	0CN3310K518	330P 50V K B TA26
	C236	0CN2210K518	220P 50V K B TA26
	C237	0CN1030F678	0.01M 16V M Y TA26
	C238	0CN1030F678	0.01M 16V M Y TA26
	C288	0CN1030F678	0.01M 16V M Y TA26
	C301	0CN1040K948	0.1M 50V Z F TA26
	C305	0CN2710K518	270P 50V K B TA26
	C306	0CN1030F678	0.01M 16V M Y TA26
	C307	0CN1030F678	0.01M 16V M Y TA26
	C308	0CE3364F638	33M SRA 16V M FM5 TP(5)
	C309	0CE1074D638	100M SRA 10V M FM5 TP(5)
	C310	0CC1010K415	100P 50V J NP0 TS
	C311	0CQ5631N409	0.056U 100V J POLY TP
	C312	0CE1074D638	100M SRA 10V M FM5 TP(5)
	C314	0CE1074D638	100M SRA 10V M FM5 TP(5)
	C316	0CX3300K408	33P 50V J SL TA26
	C317	0CE1054K638	1.0M SRA/SS50V M FM5 TP(5)
	C318	0CE1054K638	1.0M SRA/SS50V M FM5 TP(5)
	C319	0CE1054K638	1.0M SRA/SS50V M FM5 TP(5)
	C320	0CX5600K408	56P 50V J SL TA26
	C321	0CN1810K518	180P 50V K B TA26
	C322	0CX3900K408	39P 50V J SL TA26
	C323	0CE1064F636	10M SRA 16V M FM5 BP TP(D)
	C324	0CX5600K408	56P 50V J SL TA26
	C325	0CN3910K518	390P 50V K B TA26
	C326	0CE1064F638	10M SRA 16V M FM5 TP(5)
	C327	0CN1810K518	180P 50V K B TA26
	C328	0CN1030F678	0.01M 16V M Y TA26
	C329	0CC0500K405	5P 50V J SL TS
	C330	0CN8200K418	82P 50V J B TA26
	C331	0CE1064F636	10M SRA 16V M FM5 BP TP(D)
	C332	0CN4730K948	0.047M 50V Z F TA26
	C333	0CE1054K638	1.0M SRA/SS50V M FM5 TP(5)
	C335	0CE1054K638	1.0M SRA/SS50V M FM5 TP(5)
	C336	0CN2230H948	0.022M 25V Z F TA26
	C337	0CN4730K948	0.047M 50V Z F TA26
	C338	0CN2230H948	0.022M 25V Z F TA26
	C340	0CE1074D638	100M SRA 10V M FM5 TP(5)
	C341	0CN1030F678	0.01M 16V M Y TA26
	C342	0CN2230H948	0.022M 25V Z F TA26
	C343	0CX4700K408	47P 50V J SL TA26
	C344	0CX3300K408	33P 50V J SL TA26
	C345	0CN8200K418	82P 50V J B TA26
	C346	0CN2230H948	0.022M 25V Z F TA26
	C347	0CE1074D638	100M SRA 10V M FM5 TP(5)
	C348	0CE1074D638	100M SRA 10V M FM5 TP(5)
	C349	0CN2230H948	0.022M 25V Z F TA26
	C350	0CN2230H948	0.022M 25V Z F TA26
	C351	0CN2230H948	0.022M 25V Z F TA26
	C352	0CE1054K638	1.0M SRA/SS50V M FM5 TP(5)

AL	LOCA. NO	PART NO	DESCRIPTION
	C353	0CE1054K638	1.0M SRA/SS50V M FM5 TP(5)
	C354	0CN2230H948	0.022M 25V Z F TA26
	C355	0CN1030F678	0.01M 16V M Y TA26
	C356	0CN1030F678	0.01M 16V M Y TA26
	C357	0CE4766F638	47M SMS 16V M FM5 TP5
	C358	0CN4730K948	0.047M 50V Z F TA26
	C359	0CN2230H948	0.022M 25V Z F TA26
	C360	0CN2230H948	0.022M 25V Z F TA26
	C361	0CN2230H948	0.022M 25V Z F TA26
	C362	0CE4766F638	47M SMS 16V M FM5 TP5
	C363	0CE1064F638	10M SRA 16V M FM5 TP(5)
	C365	0CE1064F638	10M SRA 16V M FM5 TP(5)
	C366	0CN2230H948	0.022M 25V Z F TA26
	C367	0CN2230H948	0.022M 25V Z F TA26
	C368	0CN2230H948	0.022M 25V Z F TA26
	C369	0CE4766F638	47M SMS 16V M FM5 TP5
	C370	0CX2400K408	24P 50V J SL TA26
	C371	0CN8200K418	82P 50V J B TA26
	C372	0CE1064F638	10M SRA 16V M FM5 TP(5)
	C373	0CN1030F678	0.01M 16V M Y TA26
	C374	0CX2400K408	24P 50V J SL TA26
	C375	0CN2230H948	0.022M 25V Z F TA26
	C380	0CE1064F638	10M SRA 16V M FM5 TP(5)
	C381	0CN1030F678	0.01M 16V M Y TA26
	C384	0CN2230H948	0.022M 25V Z F TA26
	C385	0CE4766F638	47M SMS 16V M FM5 TP5
	C386	0CX4700K408	47P 50V J SL TA26
	C388	0CN1030F678	0.01M 16V M Y TA26
	C390	0CN2230H948	0.022M 25V Z F TA26
	C391	0CN2230H948	0.022M 25V Z F TA26
	C392	0CE4766F638	47M SMS 16V M FM5 TP5
	C393	0CX1500K408	15P 50V J SL TA26
	C396	0CN1040K948	0.1M 50V Z F TA26
	C401	0CN1020K518	1000P 50V K B TA26
	C402	0CE3354K638	3.3M SRA 50V M FM5 TP(5)
	C403	0CN2210K518	220P 50V K B TA26
	C404	0CE2264F638	22M SRA 16V M FM5 TP(5)
	C405	0CE2264F638	22M SRA 16V M FM5 TP(5)
	C406	0CQ1031N409	0.01U 100V J POLY TP
	C407	0CE4766F638	47M SMS 16V M FM5 TP5
	C408	0CQ1031N409	0.01U 100V J POLY TP
	C409	0CQ1031N409	0.01U 100V J POLY TP
	C410	0CE1076F638	100M SMS 16V M FM5 TP(5)
	C411	0CQ6831N409	0.068U 100V J POLY TP
	C412	0CE1044K638	0.1M SRA 50V M FM5 TP(5)
	C413	0CE4766F638	47M SMS 16V M FM5 TP5
	C414	0CE1066K638	10M SMS 50V M FM5 TP(5)
	C415	0CN2230H948	0.022M 25V Z F TA26
	C416	0CE1044K638	0.1M SRA 50V M FM5 TP(5)
	C417	0CN2230H948	0.022M 25V Z F TA26
	C418	0CE1044K638	0.1M SRA 50V M FM5 TP(5)
	C419	0CQ1031N409	0.01U 100V J POLY TP
	C421	0CE1066K638	10M SMS 50V M FM5 TP(5)
	C422	0CE4766F638	47M SMS 16V M FM5 TP5
	C423	0CQ2231N409	0.022U 100V J POLY TP

AL	LOCA.NO	PART NO	DESCRIPTION
	C424	0CE4766F638	47M SMS 16V M FM5 TP5
	C425	0CE4766F638	47M SMS 16V M FM5 TP5
	C426	0CE4775F638	470M SR 16V M FM5 TP(5)
	C429	0CE4754K638	4.7M SRA 50V M FM5 TP(5)
	C431	0CE4754K638	4.7M SRA 50V M FM5 TP(5)
	C432	0CE1066K638	10M SMS 50V M FM5 TP(5)
	C433	0CN2230H948	0.022M 25V Z F TA26
	C434	0CE4766F638	47M SMS 16V M FM5 TP5
	C442	0CN2230H948	0.022M 25V Z F TA26
	C443	0CQ1221N409	0.0012U 100V J POLY TP
	C445	0CN2230H948	0.022M 25V Z F TA26
	C446	0CE1066K638	10M SMS 50V M FM5 TP(5)
	C453	0CE1076F638	100M SMS 16V M FM5 TP(5)
	C470	0CE4766F638	47M SMS 16V M FM5 TP5
	C484	0CN1040K948	0.1M 50V Z F TA26
	C488	0CQ5621N409	0.0056U 100V J POLY TP
	C496	0CE2276F638	220U SMS 16V M FM5 TP(5)
	C501	0CE4766F638	47M SMS 16V M FM5 TP5
	C502	0CE4775F638	470M SR 16V M FM5 TP(5)
	C505	0CE4766K638	47M SMS 50V M FM5 TP
	C506	624-073C	FM0H473Z(0.047F/5.5V) TAP NEC
	C507	0CE4766F638	47M SMS 16V M FM5 TP5
	C508	0CN1030F678	0.01M 16V M Y TA26
	C509	0CE1051K636	1.0U SM 50V M FM5 BP TP(D)
	C510	0CN1030F678	0.01M 16V M Y TA26
	C511	0CC1510K405	150P 50V J SL TS
	C512	0CN1020K518	1000P 50V K B TA26
	C513	0CN1020K518	1000P 50V K B TA26
	C514	0CX5600K408	56P 50V J SL TA26
	C516	0CN1030F678	0.01M 16V M Y TA26
	C517	0CN1030F678	0.01M 16V M Y TA26
	C518	0CN1030F678	0.01M 16V M Y TA26
	C519	0CN1030F678	0.01M 16V M Y TA26
	C520	0CN1030F678	0.01M 16V M Y TA26
	C521	0CN1030F678	0.01M 16V M Y TA26
	C522	0CN1030F678	0.01M 16V M Y TA26
	C523	0CN1010K518	100P 50V K B TA26
	C524	0CQ1041N409	0.1U 100V J POLY TP
	C530	0CQ1041N409	0.1U 100V J POLY TP
	C531	0CN1010K518	100P 50V K B TA26
	C533	0CC2700K415	27P 50V J NP0 TP
	C534	0CC2200K415	22P 50V J NP0 TS
	C535	0CN1010K518	100P 50V K B TA26
	C536	0CC1210K405	120P 50V J SL TS
	C537	0CC1210K405	120P 50V J SL TS
	C538	0CE1064F638	10M SRA 16V M FM5 TP(5)
	C539	0CN1010K518	100P 50V K B TA26
	C540	0CE4766F638	47M SMS 16V M FM5 TP5
	C541	0CN1030F678	0.01M 16V M Y TA26
	C542	0CN4730K948	0.047M 50V Z F TA26
	C545	0CN1030F678	0.01M 16V M Y TA26
	C546	0CE4766F638	47M SMS 16V M FM5 TP5
	C547	0CE4766F638	47M SMS 16V M FM5 TP5
	C548	0CN1030F678	0.01M 16V M Y TA26
	C549	0CN1020K518	1000P 50V K B TA26

AL	LOCA.NO	PART NO	DESCRIPTION
	C555	0CE4766F638	47M SMS 16V M FM5 TP5
	C560	0CN1010K518	100P 50V K B TA26
	C568	0CK2230K945	0.022M 50V Z F TS
	C597	0CQ1041N409	0.1U 100V J POLY TP
	C598	0CE1076F638	100M SMS 16V M FM5 TP(5)
	C599	0CN1810K518	180P 50V K B TA26
	C701	0CN1030F678	0.01M 16V M Y TA26
	C702	0CN1030F678	0.01M 16V M Y TA26
	C703	0CN1020K518	1000P 50V K B TA26
	C704	0CN1030F678	0.01M 16V M Y TA26
	C705	0CQ1031N409	0.01U 100V J POLY TP
	C706	0CE1064F638	10M SRA 16V M FM5 TP(5)
	C707	0CE1064F638	10M SRA 16V M FM5 TP(5)
	C708	0CE1076F638	100M SMS 16V M FM5 TP(5)
	C709	0CN1030F678	0.01M 16V M Y TA26
	C710	0CN1020K518	1000P 50V K B TA26
	C711	0CN1030F678	0.01M 16V M Y TA26
	C712	0CN1030F678	0.01M 16V M Y TA26
	C713	0CE1064F638	10M SRA 16V M FM5 TP(5)
	C714	0CE4744K638	0.47M SRA 50V M FM5 TP(5)
	C715	0CN1030F678	0.01M 16V M Y TA26
	C716	0CE1076F638	100M SMS 16V M FM5 TP(5)
	C717	0CN1030F678	0.01M 16V M Y TA26
	C718	0CX2000K408	20P 50V J SL TA26
	C719	0CQ1041N409	0.1U 100V J POLY TP
	C724	0CX4700K408	47P 50V J SL TA26
	C725	0CN1020K518	1000P 50V K B TA26
	C726	0CX2200K408	22P 50V J SL TP26
	C727	0CN1030F678	0.01M 16V M Y TA26
	C728	0CK3320K945	3300P 50V Z F TS
	C729	0CN3910K518	390P 50V K B TA26
	C730	0CX4700K408	47P 50V J SL TA26
	C732	0CN1020K518	1000P 50V K B TA26
	C733	0CN1030F678	0.01M 16V M Y TA26
	C734	0CE2244K638	0.22M SRA 50V M FM5 TP(5)
	C735	0CE4764F638	47M SRA/SS 16V M FM5 TP(5)
	C736	0CN1030F678	0.01M 16V M Y TA26
	C737	0CN1040K948	0.1M 50V Z F TA26
	C750	0CN1030F678	0.01M 16V M Y TA26
	C771	0CE1076F638	100M SMS 16V M FM5 TP(5)
	C772	0CN1030F678	0.01M 16V M Y TA26
	C773	0CE4754K638	4.7M SRA 50V M FM5 TP(5)
	C774	0CE4754K638	4.7M SRA 50V M FM5 TP(5)
	C775	0CE4754K638	4.7M SRA 50V M FM5 TP(5)
	C776	0CE1064F638	10M SRA 16V M FM5 TP(5)
	C777	0CE4754K638	4.7M SRA 50V M FM5 TP(5)
	C778	0CN1040K948	0.1M 50V Z F TA26
	C779	0CE1076F638	100M SMS 16V M FM5 TP(5)
	C780	0CN1030F678	0.01M 16V M Y TA26
	C781	0CE2264F638	22M SRA 16V M FM5 TP(5)
	C782	0CN1010K518	100P 50V K B TA26
	C784	0CE4766F638	47M SMS 16V M FM5 TP5
	C785	0CE2254K638	2.2M SRA 50V M FM5 TP(5)
	C786	0CN1020K518	1000P 50V K B TA26
	C787	0CN1220F668	1200P 16V M X TA26

AL	LOCA.NO	PART NO	DESCRIPTION
	C788	0CK3320K945	3300P 50V Z F TS
	C789	0CE1074D638	100M SRA 10V M FM5 TP(5)
	C790	0CN1030F678	0.01M 16V M Y TA26
	C794	0CN1020K518	1000P 50V K B TA26
	C901	0CE2274C638	220M SRA 6.3V M FM5 TP(5)
	C902	0CN1030F678	0.01M 16V M Y TA26
	C903	0CN1030F678	0.01M 16V M Y TA26
	C904	0CN1030F678	0.01M 16V M Y TA26
	C905	0CE4766F638	47M SMS 16V M FM5 TP5
	C906	0CN1030F678	0.01M 16V M Y TA26
Delay Lines			
	DL301	617-011A	MS-31PC (KSS)
	DL302	617-013D	MS-19L NTSC-4.433619MHZ KSS
Diode Leds			
	LD903	0DL162000AA	KLR162E (RD) KEC
	LD920	0DL162000AA	KLR162E (RD) KEC
	LD930	0DL162000AA	KLR162E (RD) KEC
Filters			
	T402	616-069C	LPF 12KHZ(JH-1058) SAMMI
	T701	616-159A	6.0M SIF FILTER DAESIN VR-221P
	T702	616-159C	38.9 AFT TRANS DAESIN VT-221P
	T703	616-159C	38.9 AFT TRANS DAESIN VT-221P
	T704	616-036B	TRAP TPS5.5MB MURA
	T705	616-036E	TRAP TPS5.74MB MURATA
	T706	616-341A	CERAMIC TPS6.5MB
	T707	616-081B	SFE 6.0MB MURATA
Coils & Transformer			
	L001	0LA0332K018	33M K 2.3X3.4 L5 TP
	L002	0LA0562K018	56M K 2.3X3.4 L5 TP
	L003	0LA0102K018	10M K 2.3X3.4 L5 TP
	L004	0LA1800K018	180M K 2.3X3.4 L5 TP
	L005	0LR1000K035	100M K 6X6 L5 TP
	L006	0LR1000K035	100M K 6X6 L5 TP
	L007	0LA2700K018	270U K 2.3X3.4 L5 TP
	L008	0LA0822K018	82M K 2.3X3.4 L5 TP
	L009	0LA0222K018	22M K 2.3X3.4 L5 TP
	L010	0LA0332K018	33M K 2.3X3.4 L5 TP
	L011	0LR1000K035	100M K 6X6 L5 TP
	L044	0LA0562K018	56M K 2.3X3.4 L5 TP
	L201	0LR1000K035	100M K 6X6 L5 TP
	L202	0LR1000K035	100M K 6X6 L5 TP
	L203	0LR1000K035	100M K 6X6 L5 TP
	L301	0LA2200K018	220M K 2.3X3.4 L5 TP
	L302	0LA0152K018	15M K 2.3X3.4 L5 TP
	L303	0LR1000K035	100M K 6X6 L5 TP
	L304	0LR8200K035	820M K 6X6 L5 TP
	L305	0LA2700K018	270U K 2.3X3.4 L5 TP
	L307	0LA0332K018	33M K 2.3X3.4 L5 TP
	L309	637-013B	PECK 6.80MH-J NYE
	L310	0LR1000K035	100M K 6X6 L5 TP
	L311	0LA0682K018	68M K 2.3X3.4 L5 TP

AL	LOCA.NO	PART NO	DESCRIPTION
	L312	0LA0682K018	68M K 2.3X3.4 L5 TP
	L315	0LA0272K018	27M K 2.3X3.4 L5 TP
	L316	0LA0272K018	27M K 2.3X3.4 L5 TP
	L320	0LA0472K018	47M K 2.3X3.4 L5 TP
	L331	0LR1000K035	100M K 6X6 L5 TP
	L332	0LR1000K035	100M K 6X6 L5 TP
	L333	0LR1000K035	100M K 6X6 L5 TP
	L334	0LR1000K035	100M K 6X6 L5 TP
	L335	0LR1000K035	100M K 6X6 L5 TP
	L336	0LR1000K035	100M K 6X6 L5 TP
	L388	0LA0152K018	15M K 2.3X3.4 L5 TP
	L400	0LR8200K035	820M K 6X6 L5 TP
	L402	0LR1502J045	0.015H J 6X7 L5 TP
	L404	0LR1000K035	100M K 6X6 L5 TP
	L405	0LR1000K035	100M K 6X6 L5 TP
	L451	0LR1000K035	100M K 6X6 L5 TP
	L503	0LR1000K035	100M K 6X6 L5 TP
	L504	0LR1000K035	100M K 6X6 L5 TP
	L505	0LR1000K035	100M K 6X6 L5 TP
	L507	0LR1000K035	100M K 6X6 L5 TP
	L508	0LA0222K018	22M K 2.3X3.4 L5 TP
	L509	0LR0681K035	6.8M K 6X6 L5 TP
	L510	0LA0102K018	10M K 2.3X3.4 L5 TP
	L701	637-001P	CHOKE 1.0UH-K DAISHIN VT-221P
	L702	0LA0102K018	10M K 2.3X3.4 L5 TP
	L704	0LA0331K018	3.3UH K 2.3X3.4 L5 TP
	L705	0LA0681K018	6.8M K 2.3X3.4 L5 TP
	L706	0LA0821K018	8.2M K 2.3X3.4 L5 TP
	L707	0LA0821K018	8.2M K 2.3X3.4 L5 TP
	L708	0LA0102K018	10M K 2.3X3.4 L5 TP
	L709	0LA0102K018	10M K 2.3X3.4 L5 TP
	L710	0LA0102K018	10M K 2.3X3.4 L5 TP
	L771	0LR1000K035	100M K 6X6 L5 TP
	L772	0LA0102K018	10M K 2.3X3.4 L5 TP
	L773	0LA0222K018	22M K 2.3X3.4 L5 TP
	L779	0LR1000K035	100M K 6X6 L5 TP
	L901	0LR1000K035	100M K 6X6 L5 TP
	T401	633-032B	COIL BIAS-OSC DONG KWANG(1280)
Resistors			
	R001	0RD5601F608	5.6K 1/6W 5 TA26
	R002	0RD1001F608	1.0K 1/6W 5 TA26
	R003	0RD2202F608	22K 1/6W 5 TA26
	R004	0RD1001F608	1.0K 1/6W 5 TA26
	R005	0RD2201F608	2.2K 1/6W 5 TA26
	R006	0RD3900F608	390 1/6W 5 TA26
	R007	0RD3900F608	390 1/6W 5 TA26
	R008	0RD1201F608	1.2K 1/6W 5 TA26
	R009	0RD5601F608	5.6K 1/6W 5 TA26
	R010	0RD2201F608	2.2K 1/6W 5 TA26
	R011	0RD1201F608	1.2K 1/6W 5 TA26
	R012	0RD6800F608	680 1/6W 5 TA26
	R013	0RD5600F608	560 1/6W 5 TA26
	R014	0RD1201F608	1.2K 1/6W 5 TA26
	R015	0RD1202F608	12K 1/6W 5 TA26

RPI

AL	LOCA. NO	PART NO	DESCRIPTION
	R016	0RD3302F608	33K 1/6W 5 TA26
	R020	0RD2201F608	2.2K 1/6W 5 TA26
	R021	0RD2201F608	2.2K 1/6W 5 TA26
	R023	0RD1501F608	1.5K 1/6W 5 TA26
	R024	0RD3302F608	33K 1/6W 5 TA26
	R025	0RD3302F608	33K 1/6W 5 TA26
	R026	0RD6800F608	680 1/6W 5 TA26
	R027	0RD3900F608	390 1/6W 5 TA26
	R028	0RD5600F608	560 1/6W 5 TA26
	R029	0RD2700F608	270 1/6W 5 TA26
	R030	0RD3901F608	3.9K 1/6W 5 TA26
	R031	0RD4701F608	4.7K 1/6W 5 TA26
	R038	0RD4700F608	470 1/6W 5 TA26
	R039	0RD1801F608	1.8K 1/6W 5 TA26
	R044	0RD6801F608	6.8K 1/6W 5 TA26
	R101	0RD1001F608	1.0K 1/6W 5 TA26
	R104	0RD1002F608	10K 1/6W 5 TA26
	R105	0RD1201F608	1.2K 1/6W 5 TA26
	R106	0RD2202F608	22K 1/6W 5 TA26
	R107	0RD1001F608	1.0K 1/6W 5 TA26
	R108	0RD1001F608	1.0K 1/6W 5 TA26
	R109	0RD1001F608	1.0K 1/6W 5 TA26
	R201	0RD2202F608	22K 1/6W 5 TA26
	R202	0RD3901F608	3.9K 1/6W 5 TA26
	R203	0RD6802F608	68K 1/6W 5 TA26
	R204	0RD2703F608	270K 1/6W 5 TA26
	R205	0RD2702F608	27K 1/6W 5 TA26
	R207	0RD8203F608	820K 1/6W 5 TA26
	R208	0RD5603F608	560K 1/6W 5 TA26
	R209	0RD6803F608	680K 1/6W 5 TA26
	R210	0RD2702F608	27K 1/6W 5 TA26
	R211	0RD8202F608	82K 1/6W 5 TA26
	R212	0RD1004F608	1.0M 1/6W 5 TA26
	R213	0RD8202F608	82K 1/6W 5 TA26
	R215	0RD2203F608	220K 1/6W 5 TA26
	R216	0RD8202F608	82K 1/6W 5 TA26
	R217	0RD5601F608	5.6K 1/6W 5 TA26
	R218	0RD4701F608	4.7K 1/6W 5 TA26
	R219	0RD4700F608	470 1/6W 5 TA26
	R220	0RD4700F608	470 1/6W 5 TA26
	R221	0RD1202F608	12K 1/6W 5 TA26
	R222	0RD6800F608	680 1/6W 5 TA26
	R223	0RD1004F608	1.0M 1/6W 5 TA26
	R224	0RD1003F608	100K 1/6W 5 TA26
	R225	0RD1001F608	1.0K 1/6W 5 TA26
	R226	0RD1001F608	1.0K 1/6W 5 TA26
	R227	0RD6802F608	68K 1/6W 5 TA26
	R228	0RD1502F608	15K 1/6W 5 TA26
	R229	0RD1002F608	10K 1/6W 5 TA26
	R230	0RD2201F608	2.2K 1/6W 5 TA26
	R231	0RD3302F608	33K 1/6W 5 TA26
	R232	0RD1002F608	10K 1/6W 5 TA26
	R233	0RD1803F608	180K 1/6W 5 TA26
	R234	0RD1003F608	100K 1/6W 5 TA26
	R235	0RD1003F608	100K 1/6W 5 TA26

AL	LOCA. NO	PART NO	DESCRIPTION
	R236	0RD5601F608	5.6K 1/6W 5 TA26
	R237	0RD2201F608	2.2K 1/6W 5 TA26
	R238	0RD6801F608	6.8K 1/6W 5 TA26
	R239	0RD6802F608	68K 1/6W 5 TA26
	R240	0RD4701F608	4.7K 1/6W 5 TA26
	R241	0RD2202F608	22K 1/6W 5 TA26
	R242	0RD1001F608	1.0K 1/6W 5 TA26
	R250	0RD2201F608	2.2K 1/6W 5 TA26
	R251	0RD5601F608	5.6K 1/6W 5 TA26
	R252	0RD3303F608	330K 1/6W 5 TA26
	R253	0RD5600F608	560 1/6W 5 TA26
	R254	0RD6803F608	680K 1/6W 5 TA26
	R255	0RD3302F608	33K 1/6W 5 TA26
	R257	0RD5602F608	56K 1/6W 5 TA26
	R258	0RD2701F608	2.7K 1/6W 5 TA26
	R259	0RD1501F608	1.5K 1/6W 5 TA26
	R260	0RD8201F608	8.2K 1/6W 5 TA26
	R261	0RD3301F608	3.3K 1/6W 5 TA26
	R262	0RD5601F608	5.6K 1/6W 5 TA26
	R263	0RD5601F608	5.6K 1/6W 5 TA26
	R264	0RD1001F608	1.0K 1/6W 5 TA26
	R270	0RD1002F608	10K 1/6W 5 TA26
	R280	0RD3301F608	3.3K 1/6W 5 TA26
	R290	0RD1001F608	1.0K 1/6W 5 TA26
	R291	0RD1003F608	100K 1/6W 5 TA26
	R292	0RD1803F608	180K 1/6W 5 TA26
	R301	0RD1001F608	1.0K 1/6W 5 TA26
	R302	0RD1801F608	1.8K 1/6W 5 TA26
	R303	0RD2201F608	2.2K 1/6W 5 TA26
	R304	0RD2201F608	2.2K 1/6W 5 TA26
	R306	0RD2201F608	2.2K 1/6W 5 TA26
	R311	0RD3301F608	3.3K 1/6W 5 TA26
	R312	0RD1201F608	1.2K 1/6W 5 TA26
	R313	0RD1001F608	1.0K 1/6W 5 TA26
	R314	0RD2202F608	22K 1/6W 5 TA26
	R315	0RD3302F608	33K 1/6W 5 TA26
	R316	0RD4700F608	470 1/6W 5 TA26
	R317	0RD2201F608	2.2K 1/6W 5 TA26
	R318	0RD2200F608	220 1/6W 5 TA26
	R319	0RD2200F608	220 1/6W 5 TA26
	R320	0RD2200F608	220 1/6W 5 TA26
	R321	0RD1001F608	1.0K 1/6W 5 TA26
	R322	0RD2202F608	22K 1/6W 5 TA26
	R323	0RD3302F608	33K 1/6W 5 TA26
	R324	0RD1002F608	10K 1/6W 5 TA26
	R325	0RD2202F608	22K 1/6W 5 TA26
	R326	0RD1002F608	10K 1/6W 5 TA26
	R327	0RD2701F608	2.7K 1/6W 5 TA26
	R328	0RD1202F608	12K 1/6W 5 TA26
	R329	0RD3302F608	33K 1/6W 5 TA26
	R330	0RD3302F608	33K 1/6W 5 TA26
	R331	0RD1201F608	1.2K 1/6W 5 TA26
	R332	0RD4701F608	4.7K 1/6W 5 TA26
	R334	0RD2201F608	2.2K 1/6W 5 TA26
	R335	0RD2201F608	2.2K 1/6W 5 TA26

RPI

AL	LOCA. NO	PART NO	DESCRIPTION
	R336	ORD1001F608	1.0K 1/6W 5 TA26
	R338	ORD6800F608	680 1/6W 5 TA26
	R341	ORD4701F608	4.7K 1/6W 5 TA26
	R342	ORD8201F608	8.2K 1/6W 5 TA26
	R343	ORD6800F608	680 1/6W 5 TA26
	R344	ORD2201F608	2.2K 1/6W 5 TA26
	R345	ORD1001F608	1.0K 1/6W 5 TA26
	R346	ORD1001F608	1.0K 1/6W 5 TA26
	R347	ORD1001F608	1.0K 1/6W 5 TA26
	R348	ORD2201F608	2.2K 1/6W 5 TA26
	R349	ORD1004F608	1.0M 1/6W 5 TA26
	R351	ORD2201F608	2.2K 1/6W 5 TA26
	R352	ORD1001F608	1.0K 1/6W 5 TA26
	R354	ORD3301F608	3.3K 1/6W 5 TA26
	R355	ORD1002F608	10K 1/6W 5 TA26
	R357	ORD1201F608	1.2K 1/6W 5 TA26
	R358	ORD1001F608	1.0K 1/6W 5 TA26
	R363	ORD1801F608	1.8K 1/6W 5 TA26
	R364	ORD2202F608	22K 1/6W 5 TA26
	R365	ORD6801F608	6.8K 1/6W 5 TA26
	R367	ORD1001F608	1.0K 1/6W 5 TA26
	R368	ORD0182F608	18 1/6W 5 TA26
	R369	ORD2201F608	2.2K 1/6W 5 TA26
	R370	ORD1503F608	150K 1/6W 5 TA26
	R371	ORD1501F608	1.5K 1/6W 5 TA26
	R372	ORD2202F608	22K 1/6W 5 TA26
	R373	ORD5601F608	5.6K 1/6W 5 TA26
	R381	ORD1802F608	18K 1/6W 5 TA26
	R382	ORD2201F608	2.2K 1/6W 5 TA26
	R386	ORD1001F608	1.0K 1/6W 5 TA26
	R398	ORD1003F608	100K 1/6W 5 TA26
	R399	ORD1001F608	1.0K 1/6W 5 TA26
	R400	ORD0102F608	10 1/6W 5 TA26
	R402	ORD0472F608	47 1/6W 5 TA26
	R403	ORD2702F608	27K 1/6W 5 TA26
	R404	ORD3300F608	330 1/6W 5 TA26
	R405	ORD3302F608	33K 1/6W 5 TA26
	R406	ORD3303F608	330K 1/6W 5 TA26
	R407	ORD1202F608	12K 1/6W 5 TA26
	R408	ORD2201F608	2.2K 1/6W 5 TA26
	R409	ORD0102F608	10 1/6W 5 TA26
	R410	ORD4701F608	4.7K 1/6W 5 TA26
	R411	ORD1004F608	1.0M 1/6W 5 TA26
	R412	ORD0102F608	10 1/6W 5 TA26
	R413	ORD1802F608	18K 1/6W 5 TA26
	R415	ORD6801F608	6.8K 1/6W 5 TA26
	R416	ORD1201F608	1.2K 1/6W 5 TA26
	R417	ORD2202F608	22K 1/6W 5 TA26
	R418	ORD8201F608	8.2K 1/6W 5 TA26
	R419	ORD5600F608	560 1/6W 5 TA26
	R420	ORD5600F608	560 1/6W 5 TA26
	R421	ORD8201F608	8.2K 1/6W 5 TA26
	R422	ORD1002F608	10K 1/6W 5 TA26
	R423	ORD1000F608	100 1/6W 5 TA26
	R424	ORD2702F608	27K 1/6W 5 TA26

AL	LOCA. NO	PART NO	DESCRIPTION
	R425	ORD4701F608	4.7K 1/6W 5 TA26
	R426	ORD3900F608	390 1/6W 5 TA26
	R427	ORD0752F608	75 1/6W 5 TA26
	R428	ORD6802F608	68K 1/6W 5 TA26
	R429	ORD5602F608	56K 1/6W 5 TA26
	R430	ORD1002F608	10K 1/6W 5 TA26
	R433	ORD8201F608	8.2K 1/6W 5 TA26
	R434	ORD2202F608	22K 1/6W 5 TA26
	R438	ORD1002F608	10K 1/6W 5 TA26
	R440	ORD4701F608	4.7K 1/6W 5 TA26
	R441	ORD5601F608	5.6K 1/6W 5 TA26
	R442	ORD4702F608	47K 1/6W 5 TA26
	R443	ORD4702F608	47K 1/6W 5 TA26
	R444	ORD1001F608	1.0K 1/6W 5 TA26
	R445	ORD3900F608	390 1/6W 5 TA26
	R446	ORD0222F608	22 1/6W 5 TA26
	R447	ORD2201F608	2.2K 1/6W 5 TA26
	R449	ORD5601F608	5.6K 1/6W 5 TA26
	R450	ORD4701F608	4.7K 1/6W 5 TA26
	R466	ORD3300F608	330 1/6W 5 TA26
	R467	ORD1002F608	10K 1/6W 5 TA26
	R480	ORD1202F608	12K 1/6W 5 TA26
	R481	ORD1001F608	1.0K 1/6W 5 TA26
	R483	ORD4701F608	4.7K 1/6W 5 TA26
	R484	ORD2201F608	2.2K 1/6W 5 TA26
	R488	ORD1501F608	1.5K 1/6W 5 TA26
	R489	ORD8201F608	8.2K 1/6W 5 TA26
	R501	ORD1004F608	1.0M 1/6W 5 TA26
	R502	ORD4704F608	4.7M 1/6W 5 TA26
	R503	ORD6802F608	68K 1/6W 5 TA26
	R504	ORD1002F608	10K 1/6W 5 TA26
	R506	ORD6802F608	68K 1/6W 5 TA26
	R510	ORD1002F608	10K 1/6W 5 TA26
	R511	ORD4701F608	4.7K 1/6W 5 TA26
	R512	ORD4701F608	4.7K 1/6W 5 TA26
	R513	ORD1002F608	10K 1/6W 5 TA26
	R514	ORD1002F608	10K 1/6W 5 TA26
	R515	ORD3302F608	33K 1/6W 5 TA26
	R516	ORD3302F608	33K 1/6W 5 TA26
	R517	ORD4701F608	4.7K 1/6W 5 TA26
	R518	ORD1802F608	18K 1/6W 5 TA26
	R519	ORD1802F608	18K 1/6W 5 TA26
	R520	ORD1002F608	10K 1/6W 5 TA26
	R521	ORD1002F608	10K 1/6W 5 TA26
	R528	ORD1003F608	100K 1/6W 5 TA26
	R536	ORD4701F608	4.7K 1/6W 5 TA26
	R537	ORD4701F608	4.7K 1/6W 5 TA26
	R539	ORD4701F608	4.7K 1/6W 5 TA26
	R540	ORD4701F608	4.7K 1/6W 5 TA26
	R541	ORD4701F608	4.7K 1/6W 5 TA26
	R542	ORD4701F608	4.7K 1/6W 5 TA26
	R543	ORD4701F608	4.7K 1/6W 5 TA26
	R546	ORD1800F608	180 1/6W 5 TA26
	R547	ORD1502F608	15K 1/6W 5 TA26
	R548	ORD1202F608	12K 1/6W 5 TA26

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AL	LOCA. NO	PART NO	DESCRIPTION
	R549	ORD2202F608	22K 1/6W 5 TA26
	R552	ORD3302F608	33K 1/6W 5 TA26
	R553	ORD3302F608	33K 1/6W 5 TA26
	R554	ORD1001F608	1.0K 1/6W 5 TA26
	R556	ORD1001F608	1.0K 1/6W 5 TA26
	R557	ORD8201F608	8.2K 1/6W 5 TA26
	R559	ORD1001F608	1.0K 1/6W 5 TA26
	R560	ORD4701F608	4.7K 1/6W 5 TA26
	R561	ORD4701F608	4.7K 1/6W 5 TA26
	R562	ORD1001F608	1.0K 1/6W 5 TA26
	R563	ORD1001F608	1.0K 1/6W 5 TA26
	R564	ORD1001F608	1.0K 1/6W 5 TA26
	R565	ORD1001F608	1.0K 1/6W 5 TA26
	R566	ORD1201F608	1.2K 1/6W 5 TA26
	R567	ORD1000F608	100 1/6W 5 TA26
	R568	ORD1000F608	100 1/6W 5 TA26
	R569	ORD3901F608	3.9K 1/6W 5 TA26
	R570	ORD1202F608	12K 1/6W 5 TA26
	R571	ORD1202F608	12K 1/6W 5 TA26
	R572	ORD1001F608	1.0K 1/6W 5 TA26
	R573	ORD4701F608	4.7K 1/6W 5 TA26
	R575	ORD4701F608	4.7K 1/6W 5 TA26
	R576	ORD4701F608	4.7K 1/6W 5 TA26
	R577	ORD4701F608	4.7K 1/6W 5 TA26
	R578	ORD2202F608	22K 1/6W 5 TA26
	R579	ORD4701F608	4.7K 1/6W 5 TA26
	R580	ORD1003F608	100K 1/6W 5 TA26
	R581	614-011B	PRW 3.3/2W 10MM FORM/BULK SUNG
	R582	ORD1001F608	1.0K 1/6W 5 TA26
	R585	ORD6802F608	68K 1/6W 5 TA26
	R588	ORD8201F608	8.2K 1/6W 5 TA26
	R589	ORD1002F608	10K 1/6W 5 TA26
	R592	ORD1001F608	1.0K 1/6W 5 TA26
	R594	ORD1001F608	1.0K 1/6W 5 TA26
	R595	ORD1001F608	1.0K 1/6W 5 TA26
	R597	ORD8201F608	8.2K 1/6W 5 TA26
	R598	ORD8201F608	8.2K 1/6W 5 TA26
	R599	ORD2201F608	2.2K 1/6W 5 TA26
	R702	ORD1002F608	10K 1/6W 5 TA26
	R703	ORD5601F608	5.6K 1/6W 5 TA26
	R704	ORD1201F608	1.2K 1/6W 5 TA26
	R705	ORD4700F608	470 1/6W 5 TA26
	R706	ORD2200F608	220 1/6W 5 TA26
	R707	ORD0222F608	22 1/6W 5 TA26
	R708	ORD5601F608	5.6K 1/6W 5 TA26
	R709	ORD1001F608	1.0K 1/6W 5 TA26
	R710	ORD4701F608	4.7K 1/6W 5 TA26
	R711	ORD3302F608	33K 1/6W 5 TA26
	R712	ORD1602F608	16K 1/6W 5 TA26
	R713	ORD1501F608	1.5K 1/6W 5 TA26
	R714	ORD7501F608	7.5K 1/6W 5 TA26
	R715	ORD6800F608	680 1/6W 5 TA26
	R716	ORD5600F608	560 1/6W 5 TA26
	R717	ORD1202F608	12K 1/6W 5 TA26
	R718	ORD1001F608	1.0K 1/6W 5 TA26

AL	LOCA. NO	PART NO	DESCRIPTION
	R719	ORD1001F608	1.0K 1/6W 5 TA26
	R723	ORD3000F608	300 1/6W 5 TA26
	R724	ORD1501F608	1.5K 1/6W 5 TA26
	R725	ORD1800F608	180 1/6W 5 TA26
	R726	ORD3300F608	330 1/6W 5 TA26
	R727	ORD2700F608	270 1/6W 5 TA26
	R728	ORD1001F608	1.0K 1/6W 5 TA26
	R729	ORD3302F608	33K 1/6W 5 TA26
	R730	ORD1002F608	10K 1/6W 5 TA26
	R731	ORD2201F608	2.2K 1/6W 5 TA26
	R732	ORD1001F608	1.0K 1/6W 5 TA26
	R733	ORD0472F608	47 1/6W 5 TA26
	R734	ORD2701F608	2.7K 1/6W 5 TA26
	R735	ORD5600F608	560 1/6W 5 TA26
	R736	ORD1501F608	1.5K 1/6W 5 TA26
	R737	ORD1000F608	100 1/6W 5 TA26
	R738	ORD1003F608	100K 1/6W 5 TA26
	R739	ORD1003F608	100K 1/6W 5 TA26
	R740	ORD0822F608	82 1/6W 5 TA26
	R741	ORD1501F608	1.5K 1/6W 5 TA26
	R742	ORD6801F608	6.8K 1/6W 5 TA26
	R743	ORD3301F608	3.3K 1/6W 5 TA26
	R744	ORD1001F608	1.0K 1/6W 5 TA26
	R745	ORD3302F608	33K 1/6W 5 TA26
	R746	ORD3002F608	30K 1/6W 5 TA26
	R771	ORD1003F608	100K 1/6W 5 TA26
	R772	ORD8202F608	82K 1/6W 5 TA26
	R773	ORD3302F608	33K 1/6W 5 TA26
	R774	ORD1000F608	100 1/6W 5 TA26
	R775	ORD0222F608	22 1/6W 5 TA26
	R780	ORD0752F608	75 1/6W 5 TA26
	R783	ORD1202F608	12K 1/6W 5 TA26
	R784	ORD1202F608	12K 1/6W 5 TA26
	R785	ORD3300F608	330 1/6W 5 TA26
	R786	ORD1202F608	12K 1/6W 5 TA26
	R787	ORD2203F608	220K 1/6W 5 TA26
	R788	ORD1001F608	1.0K 1/6W 5 TA26
	R789	ORD1002F608	10K 1/6W 5 TA26
	R790	ORD3301F608	3.3K 1/6W 5 TA26
	R902	ORD4700F608	470 1/6W 5 TA26
	R903	ORD4700F608	470 1/6W 5 TA26
	R904	ORD4700F608	470 1/6W 5 TA26
	R907	ORD1802F608	18K 1/6W 5 TA26
	R908	ORD6801F608	6.8K 1/6W 5 TA26
	R909	ORD3301F608	3.3K 1/6W 5 TA26
	R910	ORD1801F608	1.8K 1/6W 5 TA26
	R911	ORD1201F608	1.2K 1/6W 5 TA26
	R912	ORD8200F608	820 1/6W 5 TA26
	R913	ORD6800F608	680 1/6W 5 TA26
	R914	ORD1802F608	18K 1/6W 5 TA26
	R915	ORD6801F608	6.8K 1/6W 5 TA26
	R916	ORD3301F608	3.3K 1/6W 5 TA26
	R917	ORD1801F608	1.8K 1/6W 5 TA26
	R918	ORD1201F608	1.2K 1/6W 5 TA26

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AL	LOCA.NO	PART NO	DESCRIPTION
	R919	ORD8200F608	820 1/6W 5 TA26
	R920	ORD6800F608	680 1/6W 5 TA26
	R921	ORD0222F608	22 1/6W 5 TA26
	R922	ORD1002F608	10K 1/6W 5 TA26
	W225	ORD6801F608	6.8K 1/6W 5 TA26
Variable Resistors			
	VR201	613-032U	RH0638C15R0WA (100K)
	VR301	613-032N	RH0638C14R14A (10K)
	VR303	613-032Q	RH0638CJ4R0WA (22K)
	VR304	613-032N	RH0638C14R14A (10K)
	VR305	613-032Q	RH0638CJ4R0WA (22K)
	VR401	613-032W	RH0638CJ5R (220K)
	VR771	613-032Q	RH0638CJ4R0WA (22K)
Zener Diodes			
	ZD102	0DZ130009AC	MTZ13B TP ROHM-K
	ZD103	0DZ150009BC	MTZ15B ROHM-K
	ZD401	0DZ100009BB	UZ10BSB MINI TP UNIZON
	ZD416	0DZ560009CA	MTZ5.6B TP ROHM-K
	ZD417	0DZ560009CA	MTZ5.6B TP ROHM-K
	ZD440	0DZ560009CA	MTZ5.6B TP ROHM-K
	ZD443	0DZ560009CA	MTZ5.6B TP ROHM-K
	ZD444	0DZ560009CA	MTZ5.6B TP ROHM-K
	ZD447	0DZ560009CA	MTZ5.6B TP ROHM-K
	ZD448	0DZ560009CA	MTZ5.6B TP ROHM-K
	ZD449	0DZ560009CA	MTZ5.6B TP ROHM-K
	ZD450	0DZ560009CA	MTZ5.6B TP ROHM-K
	ZD501	0DZ820009AA	MTZ8.2B TP ROHM-K
	ZD503	0DZ560009CA	MTZ5.6B TP ROHM-K
	ZD509	0DZ560009CA	MTZ5.6B TP ROHM-K
	ZD510	0DZ560009CA	MTZ5.6B TP ROHM-K
	ZD511	0DZ560009CA	MTZ5.6B TP ROHM-K
	ZD512	0DZ560009CA	MTZ5.6B TP ROHM-K
	ZD513	0DZ560009CA	MTZ5.6B TP ROHM-K
	ZD514	0DZ560009CA	MTZ5.6B TP ROHM-K
	ZD515	0DZ560009CA	MTZ5.6B TP ROHM-K
	ZD516	0DZ560009CA	MTZ5.6B TP ROHM-K
	ZD517	0DZ620009AA	MTZ6.2B (TA)
	ZD518	0DZ620009AA	MTZ6.2B (TA)
	ZD519	0INE574000A	UPC574J 30V ZENER
	ZD520	0DZ100009BB	UZ10BSB MINI TP UNIZON
	ZD595	0DZ560009CA	MTZ5.6B TP ROHM-K
	ZD597	0DZ560009CA	MTZ5.6B TP ROHM-K
	ZD598	0DZ560009CA	MTZ5.6B TP ROHM-K
	ZD901	0DZ560009CA	MTZ5.6B TP ROHM-K
Miscellaneous Electrical Parts			
	FL302	616-323A	FILTER SFE4.25MBF (MURATA)
	JK401	572-080A	JACK BJP-404A
	X201	529-020B	X-TAL 3.579545MHZ 20PPM GRAY L=4.0
	X303	529-020P	X-TAL 4.433619MHZ 15PPM GRAY L=4.0
	X303	529-027P	X-TAL 4.433619MHZ 15PPM KSS

AL	LOCA.NO	PART NO	DESCRIPTION
	X501	618-017A	RESONATOR FCR6.0MCT2 TDK-J(TAPING)
	X502	529-001D	X-TAL 32.768KHZ(2X6) SEIKO
	X701	618-030A	RESONATORCSB500E25 MYRATA
	TU771	521-413A	TUNER TUGZI-C01G/ALPS

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